

The results set forth herein are provided by SGS North America Inc.

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Automated Report

Technical Report for

AECOM, INC.

N6274223F0104 RH Fire Suppression System

60697810

SGS Job Number: FC3825

Sampling Date: 03/29/23



Report to:

AECOM, Inc
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ATTN: Katie Abbott

Total number of pages in report: 564



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Norm Farmer
Technical Director

Client Service contact: Elvin Kumar 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), NC(573), NJ(FL002), NY(12022), SC(96038001)
DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177),
AL, AK, AR, CT, IA, KY, MA, MI, MS, ND, NH, NV, OK, OR, IL, UT, VT, WA, WI, WV

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Test results relate only to samples analyzed.

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Sample Summary

AECOM, INC.

Job No: FC3825

N6274223F0104 RH Fire Suppression System
Project No: 60697810

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FC3825-1	03/29/23	10:35	AYKW03/30/23	AQ	Ground Water	AF-RHMW225401-WGN01B-2303W4

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM, INC.

Job No: FC3825

Site: N6274223F0104 RH Fire Suppression System

Report Date: 4/6/2023 3:09:45 PM

On 03/30/2023, 1 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS North America Inc - Orlando. at a maximum corrected temperature of 2.1 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC3825 was assigned to the project.

Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section. Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

MS Semi-volatiles By Method EPA DRAFT 1633

Matrix: AQ

Batch ID: OP96191

Sample(s) FC3825-1MS were used as the QC samples indicated.

FC3825-1 for 7:3 Fluorotelomer carboxylate: Associated Low Level CCV outside of control limits high, sample was ND.

SGS North America Inc. - Orlando certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted. Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria. SGS North America Inc. - Orlando is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety.

Narrative prepared by:

Kim Benham, Client Services (*Signature on File*)

Summary of Hits

Job Number: FC3825
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 03/29/23



Lab Sample ID	Client Sample ID	Result/ Analyte	LOQ	LOD	Units	Method
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FC3825-1 AF-RHMW225401-WGN01B-2303W4

Perfluoropentanoic acid	1.4 J	9.4	1.9	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	1.1 J	4.7	0.94	ng/l	EPA DRAFT 1633
Perfluoroheptanoic acid	0.92 J	4.7	0.94	ng/l	EPA DRAFT 1633
Perfluorooctanoic acid	1.3 J	4.7	0.94	ng/l	EPA DRAFT 1633
Perfluorobutanesulfonic acid	0.75 J	4.7	0.94	ng/l	EPA DRAFT 1633
Perfluorohexanesulfonic acid	1.2 J	4.7	1.9	ng/l	EPA DRAFT 1633
Perfluorooctanesulfonic acid	1.6 J	4.7	1.9	ng/l	EPA DRAFT 1633

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW225401-WGN01B-2303W4		
Lab Sample ID:	FC3825-1	Date Sampled:	03/29/23
Matrix:	AQ - Ground Water	Date Received:	03/30/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6Q16149.D	1	04/06/23 00:17	MV	03/31/23 09:00	OP96191	S6Q240
Run #2							

Run #	Initial Volume	Final Volume
Run #1	530 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.8 U	19	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.4	9.4	1.9	0.89	ng/l	J
307-24-4	Perfluorohexanoic acid	1.1	4.7	0.94	0.47	ng/l	J
375-85-9	Perfluoroheptanoic acid	0.92	4.7	0.94	0.47	ng/l	J
335-67-1	Perfluorooctanoic acid	1.3	4.7	0.94	0.47	ng/l	J
375-95-1	Perfluorononanoic acid	1.9 U	4.7	1.9	0.58	ng/l	
335-76-2	Perfluorodecanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	4.7	1.9	0.57	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	4.7	1.9	0.57	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	4.7	1.9	0.79	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	0.75	4.7	0.94	0.47	ng/l	J
2706-91-4	Perfluoropentanesulfonic acid	3.8 U	4.7	3.8	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.2	4.7	1.9	0.66	ng/l	J
375-92-8	Perfluoroheptanesulfonic acid	0.94 U	4.7	0.94	0.47	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.6	4.7	1.9	0.51	ng/l	J
68259-12-1	Perfluorononanesulfonic acid	1.9 U	4.7	1.9	0.54	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	4.7	1.9	0.60	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.8 U	4.7	3.8	1.1	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.0	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.3	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.9	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.9 U	4.7	1.9	0.63	ng/l	
31506-32-8	MeFOSA	1.9 U	4.7	1.9	0.94	ng/l	
4151-50-2	EtFOSA	1.9 U	4.7	1.9	0.94	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW225401-WGN01B-2303W4		
Lab Sample ID:	FC3825-1	Date Sampled:	03/29/23
Matrix:	AQ - Ground Water	Date Received:	03/30/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	3.8 U	4.7	3.8	0.94	ng/l	
2991-50-6	EtFOSAA	3.8 U	4.7	3.8	1.3	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	9.4 U	47	9.4	4.1	ng/l	
1691-99-2	EtFOSE	19 U	47	19	7.0	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	3.8 U	19	3.8	0.94	ng/l	
919005-14-4	ADONA	3.8 U	19	3.8	1.8	ng/l	
377-73-1	PFMPA	1.9 U	9.4	1.9	0.94	ng/l	
863090-89-5	PFMBA	3.8 U	9.4	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	9.4	3.8	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.8 U	19	3.8	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.8 U	19	3.8	1.7	ng/l	
113507-82-7	PFEESA	1.9 U	9.4	1.9	0.74	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.4 U	24	9.4	4.3	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	120	19	8.2	ng/l	
812-70-4	7:3 Fluorotelomer carboxylat ^a	19 U	120	19	7.4	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	103%		20-150%
	13C5-PFPeA	106%		20-150%
	13C5-PFHxA	114%		20-150%
	13C4-PFHpA	106%		20-150%
	13C8-PFOA	101%		20-150%
	13C9-PFNA	92%		20-150%
	13C6-PFDA	102%		20-150%
	13C7-PFUnDA	100%		20-150%
	13C2-PFDoDA	86%		20-150%
	13C2-PFTeDA	76%		20-150%
	13C3-PFBS	97%		20-150%
	13C3-PFHxS	96%		20-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
 LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW225401-WGN01B-2303W4	
Lab Sample ID:	FC3825-1	Date Sampled: 03/29/23
Matrix:	AQ - Ground Water	Date Received: 03/30/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids: n/a
Project:	N6274223F0104 RH Fire Suppression System	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	101%		20-150%
	13C8-FOSA	81%		20-150%
	d3-MeFOSA	74%		20-150%
	d5-EtFOSA	77%		20-150%
	d3-MeFOSAA	107%		20-150%
	d5-EtFOSAA	101%		20-150%
	d7-MeFOSE	66%		20-150%
	d9-EtFOSE	75%		20-150%
	13C2-4:2FTS	115%		20-150%
	13C2-6:2FTS	108%		20-150%
	13C2-8:2FTS	94%		20-150%
	13C3-HFPO-DA	100%		20-150%

(a) Associated Low Level CCV outside of control limits high, sample was ND.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
 LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- QC Evaluation: DOD QSM5.x Limits



SGS North America Inc - Orlando Chain of Custody

4405 Vineland Road, Suite C-15 Orlando, FL 32811
TEL: 407-425-6700 FAX: 407-425-0707
www.sgs.com

FC3825

SGS - ORLANDO JOB # :

COC #: 2303W4AFSG07
PAGE 1 OF 1

SGS - ORLANDO Quote # SKIFF #

Client / Reporting Information			Project Information			Analytical Information											Matrix Codes		
Company Name: AECOM			Project Name: N6274223F0104 RH Fire Suppression System			<div style="position: absolute; top: 0; right: 0; text-align: right;"> DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe </div>											Matrix Codes		
Address: 1001 Bishop St. ste 1600			Street																
City: Honolulu State: HI Zip: 96813		City: Honolulu State: Hawaii																	
Project Contact: Katie Abbott Email: katie.abbott@aecom.com		Project # 60697810																	
Project Manager: Watson Tani Email: watson.tani@aecom.com		Fax #																	
Phone #: 303-796-4624 / 808-954-4512		Client Purchase Order #																	
Sampler(s) Name(s) (Printed) Sampler 1: <i>Marrah Gaslu</i> Sampler 2: <i>Kellan Wilde</i>																			
SGS Orlando Sample #	COLLECTION		CONTAINER INFORMATION											LAB USE ONLY					
	Field ID / Point of Collection	DATE	TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNCl3	H2SO4	HNO3-ZnAc		DI WATER	MECH			
1	AF-RHMW225401-WGN01B-2303W4	3/29/23	1035		GW	3		X											
Turnaround Time (Business days)			Data Deliverable Information							Comments / Remarks									
10 Day (Business) 7 Day <input checked="" type="checkbox"/> 5 Day 3 Day RUSH 2 Day RUSH 1 Day RUSH Other			Approved By: / Date:			<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S							EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW <i>United AWB 016 47397377</i>						
Sample Custody must be documented below each time samples change possession, including courier delivery.																			
Relinquished by Sampler/Affiliation		Date Time:	Received By/Affiliation			Relinquished By/Affiliation		Date Time:	Received By/Affiliation			Relinquished By/Affiliation		Date Time:	Received By/Affiliation				
1 <i>Andy Younes / AECOM</i>		3/29/23	2 <i>[Signature]</i>			3 <i>[Signature]</i>		3/29/23	4 <i>[Signature]</i>			5 <i>[Signature]</i>		3/29/23					
5			6			7			8										
Lab Use Only : Cooler Temperature (s) Celsius (corrected): <i>22.8</i>																			
http://www.sgs.com/en/terms-and-conditions																			

PFAS_COCS_ALL.xls Rev 031318



SGS Sample Receipt Summary

Job Number: FC3825

Client: AECOM

Project: N6274223F0104 RH Fire Suppression System

Date / Time Received: 3/30/2023 3:00:00 PM

Delivery Method: United Cargo/Airspace

Airbill #s: United Cargo AWB #: 016-73973771

Therm ID: IR 1;

Therm CF: -0.1;

of Coolers: 1

Cooler Temps (Raw Measured) °C: Cooler 1: (2.2);

Cooler Temps (Corrected) °C: Cooler 1: (2.1);

Cooler Information

Y or N

- | | | |
|-----------------------------|-------------------------------------|--------------------------|
| 1. Custody Seals Present | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Custody Seals Intact | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Temp criteria achieved | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 4. Cooler temp verification | IR Gun | |
| 5. Cooler media | Ice (Bag) | |

Sample Information

Y or N N/A

- | | | | |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1. Sample labels present on bottles | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2. Samples preserved properly | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 3. Sufficient volume/containers recvd for analysis: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4. Condition of sample | Intact | | |
| 5. Sample recvd within HT | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 6. Dates/Times/IDs on COC match Sample Label | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 7. VOCs have headspace | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 8. Bottles received for unspecified tests | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 9. Compositing instructions clear | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 10. Voa Soil Kits/Jars received past 48hrs? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11. % Solids Jar received? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12. Residual Chlorine Present? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Trip Blank Information

Y or N N/A

- | | | | |
|--------------------------------|--------------------------|--------------------------|-------------------------------------|
| 1. Trip Blank present / cooler | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Trip Blank listed on COC | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

W or S N/A

- | | | | |
|------------------------|--------------------------|--------------------------|-------------------------------------|
| 3. Type Of TB Received | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|------------------------|--------------------------|--------------------------|-------------------------------------|

Misc. Information

Number of Encores: 25-Gram _____ 5-Gram _____

Number of 5035 Field Kits: _____

Number of Lab Filtered Metals: _____

Test Strip Lot #s: pH 0-3 _____ 230320 _____

pH 10-12 _____ 25BDH07 _____

Other: (Specify) pH 1.0 - 12.0 _____ 222221 _____

Residual Chlorine Test Strip Lot #: _____

Comments

SM001
Rev. Date 05/24/17

Technician: NATHANS

Date: 3/30/2023 3:00:00 PM

Reviewer: CD

Date: 4/3/2023

FC3825: Chain of Custody

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QC Evaluation: DOD QSM5.x Limits

Job Number: FC3825
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 03/29/23

QC Sample ID	CAS#	Analyte	Sample Result Type	Result Type	Units	Limits
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No DOD QSM5.x Limits found for methods in this job.

* Sample used for QC is not from job FC3825

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MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Injection Standard Area Summaries
- TDCA Retention Time Checks
- Ion Ratio Summaries
- Isotope Dilution Standard Recovery Summaries
- Initial and Continuing Calibration Summaries
- Run Sequence Reports

Instrument Blank

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q240-IBLK	6Q16105.D	1	04/05/23	MV	n/a	n/a	S6Q240

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3825-1

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0080	0.0040	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.0010	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0020	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0020	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.0010	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.0010	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.0010	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.0010	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0020	0.0010	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0020	0.0010	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0020	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.0080	0.0040	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0080	0.0040	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0080	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0020	0.0010	ug/l	
31506-32-8	MeFOSA	ND	0.0020	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0020	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0020	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0020	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.020	0.010	ug/l	
1691-99-2	EtFOSE	ND	0.020	0.010	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0080	0.0020	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0020	ug/l	
377-73-1	PFMPA	ND	0.0040	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0040	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0040	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0020	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0020	ug/l	

Instrument Blank

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q240-IBLK	6Q16105.D	1	04/05/23	MV	n/a	n/a	S6Q240

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3825-1

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0040	0.0010	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.010	0.0050	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.050	0.010	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.050	0.010	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	100% 20-150%
	13C5-PFPeA	101% 20-150%
	13C5-PFHxA	109% 20-150%
	13C4-PFHpA	102% 20-150%
	13C8-PFOA	100% 20-150%
	13C9-PFNA	94% 20-150%
	13C6-PFDA	104% 20-150%
	13C7-PFUnDA	100% 20-150%
	13C2-PFDoDA	92% 20-150%
	13C2-PFTeDA	93% 20-150%
	13C3-PFBS	99% 20-150%
	13C3-PFHxS	103% 20-150%
	13C8-PFOS	93% 20-150%
	13C8-FOSA	93% 20-150%
	d3-MeFOSA	94% 20-150%
	d5-EtFOSA	92% 20-150%
	d3-MeFOSAA	98% 20-150%
	d5-EtFOSAA	99% 20-150%
	d7-MeFOSE	85% 20-150%
	d9-EtFOSE	83% 20-150%
	13C2-4:2FTS	125% 20-150%
	13C2-6:2FTS	114% 20-150%
	13C2-8:2FTS	113% 20-150%
	13C3-HFPO-DA	103% 20-150%

Continuing Calibration Blank

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q240-ICCB	6Q16145.D	1	04/05/23	MV	n/a	n/a	S6Q240

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3825-1

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0080	0.0040	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.0010	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0020	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0020	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.0010	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.0010	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.0010	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.0010	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0020	0.0010	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0020	0.0010	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0020	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.0080	0.0040	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0080	0.0040	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0080	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0020	0.0010	ug/l	
31506-32-8	MeFOSA	ND	0.0020	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0020	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0020	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0020	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.020	0.010	ug/l	
1691-99-2	EtFOSE	ND	0.020	0.010	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0080	0.0020	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0020	ug/l	
377-73-1	PFMPA	ND	0.0040	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0040	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0040	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0020	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0020	ug/l	

Continuing Calibration Blank

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q240-ICCB	6Q16145.D	1	04/05/23	MV	n/a	n/a	S6Q240

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3825-1

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0040	0.0010	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.010	0.0050	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.050	0.010	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.050	0.010	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	101% 20-150%
	13C5-PFPeA	98% 20-150%
	13C5-PFHxA	101% 20-150%
	13C4-PFHpA	98% 20-150%
	13C8-PFOA	101% 20-150%
	13C9-PFNA	113% 20-150%
	13C6-PFDA	100% 20-150%
	13C7-PFUnDA	104% 20-150%
	13C2-PFDoDA	93% 20-150%
	13C2-PFTeDA	95% 20-150%
	13C3-PFBS	95% 20-150%
	13C3-PFHxS	96% 20-150%
	13C8-PFOS	93% 20-150%
	13C8-FOSA	95% 20-150%
	d3-MeFOSA	91% 20-150%
	d5-EtFOSA	88% 20-150%
	d3-MeFOSAA	99% 20-150%
	d5-EtFOSAA	101% 20-150%
	d7-MeFOSE	85% 20-150%
	d9-EtFOSE	82% 20-150%
	13C2-4:2FTS	113% 20-150%
	13C2-6:2FTS	113% 20-150%
	13C2-8:2FTS	94% 20-150%
	13C3-HFPO-DA	96% 20-150%

Method Blank Summary

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96191-MB	6Q16148.D	1	04/06/23	MV	03/31/23	OP96191	S6Q240

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3825-1

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.020	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.010	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0050	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0050	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0050	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0050	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0050	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0050	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0050	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0050	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0050	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0050	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0050	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0050	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0050	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0050	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0050	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0050	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0050	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0050	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.050	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.050	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.020	0.0010	ug/l	
919005-14-4	ADONA	ND	0.020	0.0019	ug/l	
377-73-1	PFMPA	ND	0.010	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.010	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.010	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.020	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.020	0.0018	ug/l	

Method Blank Summary

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96191-MB	6Q16148.D	1	04/06/23	MV	03/31/23	OP96191	S6Q240

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3825-1

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.010	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.025	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.13	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.13	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	104% 20-150%
	13C5-PFPeA	101% 20-150%
	13C5-PFHxA	101% 20-150%
	13C4-PFHpA	106% 20-150%
	13C8-PFOA	104% 20-150%
	13C9-PFNA	105% 20-150%
	13C6-PFDA	91% 20-150%
	13C7-PFUnDA	94% 20-150%
	13C2-PFDoDA	80% 20-150%
	13C2-PFTeDA	70% 20-150%
	13C3-PFBS	96% 20-150%
	13C3-PFHxS	98% 20-150%
	13C8-PFOS	97% 20-150%
	13C8-FOSA	76% 20-150%
	d3-MeFOSA	73% 20-150%
	d5-EtFOSA	76% 20-150%
	d3-MeFOSAA	109% 20-150%
	d5-EtFOSAA	102% 20-150%
	d7-MeFOSE	66% 20-150%
	d9-EtFOSE	74% 20-150%
	13C2-4:2FTS	115% 20-150%
	13C2-6:2FTS	112% 20-150%
	13C2-8:2FTS	104% 20-150%
	13C3-HFPO-DA	105% 20-150%

6.1.3

6

Blank Spike Summary

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96191-LLBS	6Q16147.D	1	04/05/23	MV	03/31/23	OP96191	S6Q240

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3825-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.04	0.0375	94	40-150
2706-90-3	Perfluoropentanoic acid	0.02	0.0199	100	40-150
307-24-4	Perfluorohexanoic acid	0.01	0.0107	107	40-150
375-85-9	Perfluoroheptanoic acid	0.01	0.0094	94	40-150
335-67-1	Perfluorooctanoic acid	0.01	0.0104	104	40-150
375-95-1	Perfluorononanoic acid	0.01	0.0094	94	40-150
335-76-2	Perfluorodecanoic acid	0.01	0.0103	103	40-150
2058-94-8	Perfluoroundecanoic acid	0.01	0.0085	85	40-150
307-55-1	Perfluorododecanoic acid	0.01	0.0100	100	40-150
72629-94-8	Perfluorotridecanoic acid	0.01	0.0098	98	40-150
376-06-7	Perfluorotetradecanoic acid	0.01	0.0096	96	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00887	0.0085	96	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00941	0.0092	98	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00914	0.0090	98	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00953	0.0093	98	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00928	0.0093	100	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00962	0.0084	87	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00965	0.0084	87	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0097	0.0090	93	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0375	0.0378	101	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.038	0.0351	92	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0384	0.0409	107	40-150
754-91-6	PFOSA	0.01	0.0095	95	40-150
31506-32-8	MeFOSA	0.01	0.0099	99	40-150
4151-50-2	EtFOSA	0.01	0.0097	97	40-150
2355-31-9	MeFOSAA	0.01	0.0093	93	40-150
2991-50-6	EtFOSAA	0.01	0.0102	102	40-150
24448-09-7	MeFOSE	0.1	0.100	100	40-150
1691-99-2	EtFOSE	0.1	0.0982	98	40-150
13252-13-6	HFPO-DA (GenX)	0.04	0.0366	92	40-150
919005-14-4	ADONA	0.0378	0.0375	99	40-150
377-73-1	PFMPA	0.02	0.0193	97	40-150
863090-89-5	PFMBA	0.02	0.0184	92	40-150
151772-58-6	NFDHA	0.02	0.0204	102	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0374	0.0356	95	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0378	0.0366	97	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96191-LLBS	6Q16147.D	1	04/05/23	MV	03/31/23	OP96191	S6Q240

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3825-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0178	0.0189	106	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.05	0.0329	66	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.25	0.232	93	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.25	0.246	98	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	103%	20-150%
	13C5-PFPeA	102%	20-150%
	13C5-PFHxA	101%	20-150%
	13C4-PFHpA	105%	20-150%
	13C8-PFOA	100%	20-150%
	13C9-PFNA	97%	20-150%
	13C6-PFDA	98%	20-150%
	13C7-PFUnDA	111%	20-150%
	13C2-PFDoDA	90%	20-150%
	13C2-PFTeDA	86%	20-150%
	13C3-PFBS	89%	20-150%
	13C3-PFHxS	95%	20-150%
	13C8-PFOS	98%	20-150%
	13C8-FOSA	73%	20-150%
	d3-MeFOSA	74%	20-150%
	d5-EtFOSA	78%	20-150%
	d3-MeFOSAA	97%	20-150%
	d5-EtFOSAA	95%	20-150%
	d7-MeFOSE	61%	20-150%
	d9-EtFOSE	71%	20-150%
	13C2-4:2FTS	109%	20-150%
	13C2-6:2FTS	109%	20-150%
	13C2-8:2FTS	93%	20-150%
	13C3-HFPO-DA	99%	20-150%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96191-BS	6Q16146.D	1	04/05/23	MV	03/31/23	OP96191	S6Q240

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3825-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.0981	98	40-150
2706-90-3	Perfluoropentanoic acid	0.05	0.0514	103	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0249	100	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0264	106	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0249	100	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0268	107	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0257	103	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0252	101	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0251	100	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0246	98	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0240	96	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0237	107	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0233	99	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0225	98	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0225	94	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0214	92	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0231	96	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0214	89	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0203	84	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0938	0.0965	103	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.101	106	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.100	104	40-150
754-91-6	PFOSA	0.025	0.0252	101	40-150
31506-32-8	MeFOSA	0.025	0.0258	103	40-150
4151-50-2	EtFOSA	0.025	0.0274	110	40-150
2355-31-9	MeFOSAA	0.025	0.0233	93	40-150
2991-50-6	EtFOSAA	0.025	0.0244	98	40-150
24448-09-7	MeFOSE	0.25	0.266	106	40-150
1691-99-2	EtFOSE	0.25	0.230	92	40-150
13252-13-6	HFPO-DA (GenX)	0.1	0.100	100	40-150
919005-14-4	ADONA	0.0945	0.105	111	40-150
377-73-1	PFMPA	0.05	0.0305	61	40-150
863090-89-5	PFMBA	0.05	0.0482	96	40-150
151772-58-6	NFDHA	0.05	0.0532	106	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0935	0.102	109	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0945	0.0914	97	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96191-BS	6Q16146.D	1	04/05/23	MV	03/31/23	OP96191	S6Q240

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3825-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0496	111	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.0525	42	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.625	0.577	92	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.594	95	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	34%	20-150%
	13C5-PFPeA	100%	20-150%
	13C5-PFHxA	103%	20-150%
	13C4-PFHpA	105%	20-150%
	13C8-PFOA	106%	20-150%
	13C9-PFNA	106%	20-150%
	13C6-PFDA	95%	20-150%
	13C7-PFUnDA	98%	20-150%
	13C2-PFDoDA	87%	20-150%
	13C2-PFTeDA	76%	20-150%
	13C3-PFBS	97%	20-150%
	13C3-PFHxS	101%	20-150%
	13C8-PFOS	116%	20-150%
	13C8-FOSA	77%	20-150%
	d3-MeFOSA	80%	20-150%
	d5-EtFOSA	75%	20-150%
	d3-MeFOSAA	112%	20-150%
	d5-EtFOSAA	111%	20-150%
	d7-MeFOSE	56%	20-150%
	d9-EtFOSE	67%	20-150%
	13C2-4:2FTS	114%	20-150%
	13C2-6:2FTS	109%	20-150%
	13C2-8:2FTS	106%	20-150%
	13C3-HFPO-DA	96%	20-150%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96191-MS	6Q16150.D	1	04/06/23	MV	03/31/23	OP96191	S6Q240
FC3825-1	6Q16149.D	1	04/06/23	MV	03/31/23	OP96191	S6Q240

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3825-1

CAS No.	Compound	FC3825-1 ug/l	Spike Q	MS ug/l	MS %	Limits	
375-22-4	Perfluorobutanoic acid	0.019 U		0.0943	0.0925	98	40-150
2706-90-3	Perfluoropentanoic acid	0.0014 J		0.0472	0.0487	100	40-150
307-24-4	Perfluorohexanoic acid	0.0011 J		0.0236	0.0251	102	40-150
375-85-9	Perfluoroheptanoic acid	0.00092 J		0.0236	0.0253	103	40-150
335-67-1	Perfluorooctanoic acid	0.0013 J		0.0236	0.0251	101	40-150
375-95-1	Perfluorononanoic acid	0.0047 U		0.0236	0.0239	101	40-150
335-76-2	Perfluorodecanoic acid	0.0047 U		0.0236	0.0245	104	40-150
2058-94-8	Perfluoroundecanoic acid	0.0047 U		0.0236	0.0225	95	40-150
307-55-1	Perfluorododecanoic acid	0.0047 U		0.0236	0.0256	109	40-150
72629-94-8	Perfluorotridecanoic acid	0.0047 U		0.0236	0.0252	107	40-150
376-06-7	Perfluorotetradecanoic acid	0.0047 U		0.0236	0.0241	102	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00075 J		0.0209	0.0221	102	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0047 U		0.0222	0.0228	103	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0012 J		0.0216	0.0224	98	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0047 U		0.0225	0.0225	100	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0016 J		0.0219	0.0231	98	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0047 U		0.0227	0.0211	93	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0047 U		0.0228	0.0205	90	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0047 U		0.0229	0.0184	80	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.019 U		0.0884	0.0908	103	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.019 U		0.0896	0.0968	108	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.019 U		0.0906	0.0982	108	40-150
754-91-6	PFOSA	0.0047 U		0.0236	0.0238	101	40-150
31506-32-8	MeFOSA	0.0047 U		0.0236	0.0249	106	40-150
4151-50-2	EtFOSA	0.0047 U		0.0236	0.0261	111	40-150
2355-31-9	MeFOSAA	0.0047 U		0.0236	0.0251	106	40-150
2991-50-6	EtFOSAA	0.0047 U		0.0236	0.0229	97	40-150
24448-09-7	MeFOSE	0.047 U		0.236	0.261	111	40-150
1691-99-2	EtFOSE	0.047 U		0.236	0.246	104	40-150
13252-13-6	HFPO-DA (GenX)	0.019 U		0.0943	0.0877	93	40-150
919005-14-4	ADONA	0.019 U		0.0892	0.0897	101	40-150
377-73-1	PFMPA	0.0094 U		0.0472	0.0460	98	40-150
863090-89-5	PFMBA	0.0094 U		0.0472	0.0439	93	40-150
151772-58-6	NFDHA	0.0094 U		0.0472	0.0483	102	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.019 U		0.0882	0.0813	92	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.019 U		0.0892	0.0718	81	40-150

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96191-MS	6Q16150.D	1	04/06/23	MV	03/31/23	OP96191	S6Q240
FC3825-1	6Q16149.D	1	04/06/23	MV	03/31/23	OP96191	S6Q240

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3825-1

CAS No.	Compound	FC3825-1 ug/l	Spike Q	MS ug/l	MS %	Limits
113507-82-7	PFEESA	0.0094 U	0.042	0.0433	103	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.024 U	0.118	0.0835	71	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.12 U	0.59	0.529	90	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.12 U	0.59	0.562	95	40-150

CAS No.	ID Standard Recoveries	MS	FC3825-1	Limits
	13C4-PFBA	99%	103%	20-150%
	13C5-PFPeA	107%	106%	20-150%
	13C5-PFHxA	107%	114%	20-150%
	13C4-PFHpA	105%	106%	20-150%
	13C8-PFOA	103%	101%	20-150%
	13C9-PFNA	107%	92%	20-150%
	13C6-PFDA	110%	102%	20-150%
	13C7-PFUnDA	108%	100%	20-150%
	13C2-PFDoDA	85%	86%	20-150%
	13C2-PFTeDA	75%	76%	20-150%
	13C3-PFBS	99%	97%	20-150%
	13C3-PFHxS	100%	96%	20-150%
	13C8-PFOS	113%	101%	20-150%
	13C8-FOSA	90%	81%	20-150%
	d3-MeFOSA	80%	74%	20-150%
	d5-EtFOSA	75%	77%	20-150%
	d3-MeFOSAA	109%	107%	20-150%
	d5-EtFOSAA	107%	101%	20-150%
	d7-MeFOSE	66%	66%	20-150%
	d9-EtFOSE	71%	75%	20-150%
	13C2-4:2FTS	109%	115%	20-150%
	13C2-6:2FTS	109%	108%	20-150%
	13C2-8:2FTS	99%	94%	20-150%
	13C3-HFPO-DA	105%	100%	20-150%

* = Outside of Control Limits.

Injection Standard Area Summary

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q240-CC239	Injection Date:	04/05/23
Lab File ID:	6Q16144.D	Injection Time:	23:07
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal ^b	37121	2.90	33738	5.53	68034	7.11	18199	7.64	19568	8.12
Check Std ^c	34930	2.90	33115	5.53	63576	7.12	17777	7.64	19201	8.12
Upper Limit ^d	74242	3.30	67476	5.93	136068	7.52	36398	8.04	39136	8.52
Lower Limit ^e	11136	2.50	10121	5.13	20410	6.72	5460	7.24	5870	7.72

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	DF ^a
S6Q240-ICCB	33727	2.90	30770	5.52	63739	7.11	17007	7.64	17885	8.12	1
OP96191-BS	29812	2.94	25719	5.53	51972	7.11	13900	7.64	16404	8.12	1
OP96191-LLBS	30337	2.94	26150	5.53	55532	7.11	15634	7.64	15970	8.12	1
OP96191-MB	30532	2.94	26266	5.53	54712	7.12	15007	7.64	17142	8.12	1
FC3825-1	29685	2.94	25140	5.53	55140	7.12	15145	7.64	15669	8.12	1
OP96191-MS	29064	2.94	25331	5.53	51572	7.12	14302	7.64	14299	8.12	1

- IS 1 = 13C3-PFBA
- IS 2 = 13C2-PFHxA
- IS 3 = 13C4-PFOA
- IS 4 = 13C5-PFNA
- IS 5 = 13C2-PFDA

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q239-ICC239 6Q16009.D 04/04/23 14:57. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

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Injection Standard Area Summary

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q240-CC239	Injection Date:	04/05/23
Lab File ID:	6Q16144.D	Injection Time:	23:07
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	6097	7.23	8885	8.29
Check Std ^c	5933	7.23	8542	8.29
Upper Limit ^d	12194	7.63	17770	8.69
Lower Limit ^e	1829	6.83	2666	7.89

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S6Q240-ICCB	5624	7.23	8614	8.29	1
OP96191-BS	4948	7.23	6748	8.29	1
OP96191-LLBS	5315	7.23	7606	8.29	1
OP96191-MB	5206	7.24	6948	8.29	1
FC3825-1	4958	7.24	6875	8.29	1
OP96191-MS	4910	7.24	6352	8.29	1

IS 6 = 18O2-PFHXS

IS 7 = 13C4-PFOS

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q239-ICC239 6Q16009.D 04/04/23 14:57. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

TDCA Retention Time Check

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q239-RT	Injection Date:	04/04/23
Lab File ID:	6Q16003.D	Injection Time:	13:10
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.286	--	--
TDCA	6.822	1.464	1.000
TCDCA	6.674	1.612	1.000
TUDCA	5.822	2.464	1.000

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S6Q239-IC239	6Q16005.D	04/04/23	13:38	00:28	Mass Calibration Verification
S6Q239-IC239	6Q16006.D	04/04/23	14:15	01:05	Initial cal 1
S6Q239-IC239	6Q16007.D	04/04/23	14:29	01:19	Initial cal 2
S6Q239-IC239	6Q16008.D	04/04/23	14:43	01:33	Initial cal 3
S6Q239-ICC239	6Q16009.D	04/04/23	14:57	01:47	Initial cal 4
S6Q239-IC239	6Q16010.D	04/04/23	15:11	02:01	Initial cal 5
S6Q239-IC239	6Q16011.D	04/04/23	15:25	02:15	Initial cal 6
S6Q239-IC239	6Q16012.D	04/04/23	15:39	02:29	Initial cal 7
S6Q239-IC239	6Q16013.D	04/04/23	15:53	02:43	Initial cal 8
S6Q239-IBLK	6Q16014.D	04/04/23	16:07	02:57	Instrument Blank
S6Q239-IBLK	6Q16014.D	04/04/23	16:07	02:57	Instrument Blank
S6Q239-ICV239	6Q16015.D	04/04/23	16:21	03:11	Initial cal verification 4
S6Q239-ICV239	6Q16016.D	04/04/23	16:35	03:25	Initial cal verification 20
S6Q239-CC239	6Q16017.D	04/04/23	16:49	03:39	Continuing cal 4
S6Q239-CC239	6Q16018.D	04/04/23	17:03	03:53	Continuing cal 1.0LL
OP96208-BS	6Q16019.D	04/04/23	17:17	04:07	Blank Spike
OP96208-LLBS	6Q16020.D	04/04/23	17:31	04:21	Blank Spike
OP96208-MB	6Q16021.D	04/04/23	17:45	04:35	Method Blank
ZZZZZZ	6Q16022.D	04/04/23	17:59	04:49	(unrelated sample)
S6Q239-CC239	6Q16023.D	04/04/23	18:13	05:03	Continuing cal 4
S6Q239-ICCB	6Q16024.D	04/04/23	18:27	05:17	Continuing Calibration Blank
OP96209-BS	6Q16025.D	04/04/23	18:41	05:31	Blank Spike
OP96209-LLBS	6Q16026.D	04/04/23	18:55	05:45	Blank Spike
OP96209-MB	6Q16027.D	04/04/23	19:09	05:59	Method Blank
FC3853-1	6Q16028.D	04/04/23	19:23	06:13	(used for QC only; not part of job FC3825)
OP96209-MS	6Q16029.D	04/04/23	19:37	06:27	Matrix Spike
FC3853-2	6Q16030.D	04/04/23	19:51	06:41	(used for QC only; not part of job FC3825)
OP96209-DUP	6Q16031.D	04/04/23	20:05	06:55	Duplicate
ZZZZZZ	6Q16032.D	04/04/23	20:19	07:09	(unrelated sample)
ZZZZZZ	6Q16033.D	04/04/23	20:33	07:23	(unrelated sample)
S6Q239-CC239	6Q16034.D	04/04/23	20:47	07:37	Continuing cal 4
S6Q239-ICCB	6Q16035.D	04/04/23	21:01	07:51	Continuing Calibration Blank
OP96190-BS	6Q16036.D	04/04/23	21:15	08:05	Blank Spike
OP96190-LLBS	6Q16037.D	04/04/23	21:29	08:19	Blank Spike

TDCA Retention Time Check

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q239-RT	Injection Date:	04/04/23
Lab File ID:	6Q16003.D	Injection Time:	13:10
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
OP96190-MB	6Q16038.D	04/04/23	21:43	08:33	Method Blank
ZZZZZZ	6Q16039.D	04/04/23	21:57	08:47	(unrelated sample)
ZZZZZZ	6Q16040.D	04/04/23	22:11	09:01	(unrelated sample)
ZZZZZZ	6Q16041.D	04/04/23	22:25	09:15	(unrelated sample)
JD62588-4	6Q16043.D	04/04/23	22:53	09:43	(used for QC only; not part of job FC3825)
OP96190-MS	6Q16044.D	04/04/23	23:07	09:57	Matrix Spike
ZZZZZZ	6Q16045.D	04/04/23	23:21	10:11	(unrelated sample)
S6Q239-CC239	6Q16046.D	04/04/23	23:35	10:25	Continuing cal 4
S6Q239-ICCB	6Q16047.D	04/04/23	23:49	10:39	Continuing Calibration Blank
ZZZZZZ	6Q16048.D	04/05/23	00:03	10:53	(unrelated sample)
ZZZZZZ	6Q16049.D	04/05/23	00:17	11:07	(unrelated sample)
ZZZZZZ	6Q16050.D	04/05/23	00:31	11:21	(unrelated sample)
ZZZZZZ	6Q16051.D	04/05/23	00:45	11:35	(unrelated sample)
ZZZZZZ	6Q16052.D	04/05/23	00:59	11:49	(unrelated sample)
ZZZZZZ	6Q16053.D	04/05/23	01:13	12:03	(unrelated sample)
ZZZZZZ	6Q16054.D	04/05/23	01:27	12:17	(unrelated sample)
ZZZZZZ	6Q16055.D	04/05/23	01:41	12:31	(unrelated sample)
ZZZZZZ	6Q16056.D	04/05/23	01:55	12:45	(unrelated sample)
ZZZZZZ	6Q16057.D	04/05/23	02:08	12:58	(unrelated sample)
S6Q239-CC239	6Q16058.D	04/05/23	02:22	13:12	Continuing cal 4
S6Q239-CC239	6Q16059.D	04/05/23	02:36	13:26	Continuing cal 1.0LL
S6Q239-ICCB	6Q16060.D	04/05/23	02:50	13:40	Continuing Calibration Blank
JD62588-12A	6Q16061.D	04/05/23	03:04	13:54	(used for QC only; not part of job FC3825)
OP96190-DUP	6Q16062.D	04/05/23	03:18	14:08	Duplicate
ZZZZZZ	6Q16063.D	04/05/23	03:32	14:22	(unrelated sample)
OP96192-BS	6Q16064.D	04/05/23	03:46	14:36	Blank Spike
OP96192-LLBS	6Q16065.D	04/05/23	04:00	14:50	Blank Spike
OP96192-MB	6Q16066.D	04/05/23	04:14	15:04	Method Blank
ZZZZZZ	6Q16067.D	04/05/23	04:28	15:18	(unrelated sample)
ZZZZZZ	6Q16068.D	04/05/23	04:42	15:32	(unrelated sample)
ZZZZZZ	6Q16069.D	04/05/23	04:56	15:46	(unrelated sample)
ZZZZZZ	6Q16070.D	04/05/23	05:10	16:00	(unrelated sample)
S6Q239-CC239	6Q16071.D	04/05/23	05:24	16:14	Continuing cal 4
S6Q239-ICCB	6Q16072.D	04/05/23	05:38	16:28	Continuing Calibration Blank
JD62631-4A	6Q16073.D	04/05/23	05:52	16:42	(used for QC only; not part of job FC3825)
OP96192-MS	6Q16074.D	04/05/23	06:06	16:56	Matrix Spike
OP96192-MSD	6Q16075.D	04/05/23	06:20	17:10	Matrix Spike Duplicate
ZZZZZZ	6Q16076.D	04/05/23	06:34	17:24	(unrelated sample)
ZZZZZZ	6Q16077.D	04/05/23	06:48	17:38	(unrelated sample)
ZZZZZZ	6Q16078.D	04/05/23	07:02	17:52	(unrelated sample)
ZZZZZZ	6Q16079.D	04/05/23	07:16	18:06	(unrelated sample)
ZZZZZZ	6Q16080.D	04/05/23	07:30	18:20	(unrelated sample)
ZZZZZZ	6Q16081.D	04/05/23	07:44	18:34	(unrelated sample)
S6Q239-CC239	6Q16083.D	04/05/23	08:12	19:02	Continuing cal 4

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TDCA Retention Time Check

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q239-RT	Injection Date:	04/04/23
Lab File ID:	6Q16003.D	Injection Time:	13:10
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S6Q239-ICCB	6Q16084.D	04/05/23	08:26	19:16	Continuing Calibration Blank
ZZZZZZ	6Q16085.D	04/05/23	08:40	19:30	(unrelated sample)
ZZZZZZ	6Q16086.D	04/05/23	08:54	19:44	(unrelated sample)
ZZZZZZ	6Q16087.D	04/05/23	09:08	19:58	(unrelated sample)
ZZZZZZ	6Q16088.D	04/05/23	09:22	20:12	(unrelated sample)
ZZZZZZ	6Q16089.D	04/05/23	09:36	20:26	(unrelated sample)
ZZZZZZ	6Q16090.D	04/05/23	09:50	20:40	(unrelated sample)
ZZZZZZ	6Q16091.D	04/05/23	10:04	20:54	(unrelated sample)
S6Q239-CC239	6Q16092.D	04/05/23	10:18	21:08	Continuing cal 4
S6Q239-ICCB	6Q16093.D	04/05/23	10:32	21:22	Continuing Calibration Blank
ZZZZZZ	6Q16095.D	04/05/23	11:38	22:28	(unrelated sample)
ZZZZZZ	6Q16096.D	04/05/23	11:52	22:42	(unrelated sample)
ZZZZZZ	6Q16097.D	04/05/23	12:06	22:56	(unrelated sample)
ZZZZZZ	6Q16098.D	04/05/23	12:19	23:09	(unrelated sample)
ZZZZZZ	6Q16099.D	04/05/23	12:33	23:23	(unrelated sample)
S6Q239-ECC239	6Q16100.D	04/05/23	12:47	23:37	Ending cal 4
S6Q239-ICCB	6Q16101.D	04/05/23	13:01	23:51	Continuing Calibration Blank

6.5.1
6

TDCA Retention Time Check

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q240-RT	Injection Date:	04/05/23
Lab File ID:	6Q16102.D	Injection Time:	13:15
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.273	--	--
TDCA	6.822	1.451	1.000
TCDCA	6.661	1.612	1.000
TUDCA	5.822	2.451	1.000

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S6Q240-IBLK	6Q16105.D	04/05/23	13:57	00:42	Instrument Blank
S6Q240-IBLK	6Q16105.D	04/05/23	13:57	00:42	Instrument Blank
S6Q240-CC239	6Q16106.D	04/05/23	14:11	00:56	Continuing cal 4
S6Q240-CC239	6Q16107.D	04/05/23	14:25	01:10	Continuing cal 1.0LL
OP96231-BS	6Q16108.D	04/05/23	14:39	01:24	Blank Spike
OP96231-LLBS	6Q16109.D	04/05/23	14:53	01:38	Blank Spike
OP96231-MB	6Q16110.D	04/05/23	15:07	01:52	Method Blank
ZZZZZZ	6Q16111.D	04/05/23	15:21	02:06	(unrelated sample)
ZZZZZZ	6Q16112.D	04/05/23	15:35	02:20	(unrelated sample)
S6Q240-CC239	6Q16113.D	04/05/23	15:49	02:34	Continuing cal 4
S6Q240-ICCB	6Q16114.D	04/05/23	16:03	02:48	Continuing Calibration Blank
ZZZZZZ	6Q16115.D	04/05/23	16:17	03:02	(unrelated sample)
ZZZZZZ	6Q16116.D	04/05/23	16:31	03:16	(unrelated sample)
ZZZZZZ	6Q16117.D	04/05/23	16:45	03:30	(unrelated sample)
ZZZZZZ	6Q16118.D	04/05/23	16:59	03:44	(unrelated sample)
ZZZZZZ	6Q16119.D	04/05/23	17:13	03:58	(unrelated sample)
ZZZZZZ	6Q16120.D	04/05/23	17:27	04:12	(unrelated sample)
S6Q240-CC239	6Q16121.D	04/05/23	17:41	04:26	Continuing cal 4
S6Q240-ICCB	6Q16122.D	04/05/23	17:55	04:40	Continuing Calibration Blank
OP96193-BS	6Q16123.D	04/05/23	18:09	04:54	Blank Spike
OP96193-LLBS	6Q16124.D	04/05/23	18:23	05:08	Blank Spike
OP96193-MB	6Q16125.D	04/05/23	18:37	05:22	Method Blank
ZZZZZZ	6Q16126.D	04/05/23	18:51	05:36	(unrelated sample)
ZZZZZZ	6Q16127.D	04/05/23	19:05	05:50	(unrelated sample)
ZZZZZZ	6Q16128.D	04/05/23	19:19	06:04	(unrelated sample)
JD62642-7A	6Q16129.D	04/05/23	19:33	06:18	(used for QC only; not part of job FC3825)
OP96193-MS	6Q16130.D	04/05/23	19:47	06:32	Matrix Spike
OP96193-MSD	6Q16131.D	04/05/23	20:01	06:46	Matrix Spike Duplicate
ZZZZZZ	6Q16132.D	04/05/23	20:15	07:00	(unrelated sample)
S6Q240-CC239	6Q16133.D	04/05/23	20:33	07:18	Continuing cal 4
S6Q240-CC239	6Q16134.D	04/05/23	20:47	07:32	Continuing cal 1.0LL
S6Q240-ICCB	6Q16135.D	04/05/23	21:01	07:46	Continuing Calibration Blank
ZZZZZZ	6Q16136.D	04/05/23	21:15	08:00	(unrelated sample)
ZZZZZZ	6Q16137.D	04/05/23	21:29	08:14	(unrelated sample)

TDCA Retention Time Check

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q240-RT	Injection Date:	04/05/23
Lab File ID:	6Q16102.D	Injection Time:	13:15
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	6Q16138.D	04/05/23	21:43	08:28	(unrelated sample)
ZZZZZZ	6Q16139.D	04/05/23	21:57	08:42	(unrelated sample)
ZZZZZZ	6Q16140.D	04/05/23	22:11	08:56	(unrelated sample)
ZZZZZZ	6Q16141.D	04/05/23	22:25	09:10	(unrelated sample)
ZZZZZZ	6Q16142.D	04/05/23	22:39	09:24	(unrelated sample)
ZZZZZZ	6Q16143.D	04/05/23	22:53	09:38	(unrelated sample)
S6Q240-CC239	6Q16144.D	04/05/23	23:07	09:52	Continuing cal 4
S6Q240-ICCB	6Q16145.D	04/05/23	23:21	10:06	Continuing Calibration Blank
OP96191-BS	6Q16146.D	04/05/23	23:35	10:20	Blank Spike
OP96191-LLBS	6Q16147.D	04/05/23	23:49	10:34	Blank Spike
OP96191-MB	6Q16148.D	04/06/23	00:03	10:48	Method Blank
FC3825-1	6Q16149.D	04/06/23	00:17	11:02	AF-RHMW225401-WGN01B-2303W4
OP96191-MS	6Q16150.D	04/06/23	00:31	11:16	Matrix Spike
S6Q240-CC239	6Q16153.D	04/06/23	01:13	11:58	Continuing cal 4
S6Q240-ICCB	6Q16154.D	04/06/23	01:27	12:12	Continuing Calibration Blank
S6Q240-ICCB	6Q16154.D	04/06/23	01:27	12:12	Continuing Calibration Blank
OP96187-BS	6Q16155.D	04/06/23	01:41	12:26	Blank Spike
OP96187-LLBS	6Q16156.D	04/06/23	01:55	12:40	Blank Spike
OP96187-MB	6Q16157.D	04/06/23	02:09	12:54	Method Blank
ZZZZZZ	6Q16158.D	04/06/23	02:23	13:08	(unrelated sample)
ZZZZZZ	6Q16159.D	04/06/23	02:37	13:22	(unrelated sample)
ZZZZZZ	6Q16160.D	04/06/23	02:51	13:36	(unrelated sample)
ZZZZZZ	6Q16161.D	04/06/23	03:05	13:50	(unrelated sample)
ZZZZZZ	6Q16162.D	04/06/23	03:19	14:04	(unrelated sample)
S6Q240-CC239	6Q16163.D	04/06/23	03:33	14:18	Continuing cal 4
S6Q240-ICCB	6Q16164.D	04/06/23	03:47	14:32	Continuing Calibration Blank
S6Q240-ICCB	6Q16164.D	04/06/23	03:47	14:32	Continuing Calibration Blank
JD61598-9A	6Q16165.D	04/06/23	04:01	14:46	(used for QC only; not part of job FC3825)
OP96187-MS	6Q16166.D	04/06/23	04:15	15:00	Matrix Spike
OP96187-MSD	6Q16167.D	04/06/23	04:28	15:13	Matrix Spike Duplicate
ZZZZZZ	6Q16168.D	04/06/23	04:42	15:27	(unrelated sample)
OP96187-MS2	6Q16169.D	04/06/23	04:56	15:41	Matrix Spike
OP96187-MSD2	6Q16170.D	04/06/23	05:10	15:55	Matrix Spike Duplicate
ZZZZZZ	6Q16171.D	04/06/23	05:24	16:09	(unrelated sample)
ZZZZZZ	6Q16172.D	04/06/23	05:38	16:23	(unrelated sample)
S6Q240-CC239	6Q16173.D	04/06/23	05:52	16:37	Continuing cal 4
S6Q240-ICCB	6Q16174.D	04/06/23	06:06	16:51	Continuing Calibration Blank
S6Q240-ICCB	6Q16174.D	04/06/23	06:06	16:51	Continuing Calibration Blank
ZZZZZZ	6Q16175.D	04/06/23	06:20	17:05	(unrelated sample)
ZZZZZZ	6Q16176.D	04/06/23	06:34	17:19	(unrelated sample)
ZZZZZZ	6Q16177.D	04/06/23	06:48	17:33	(unrelated sample)
ZZZZZZ	6Q16178.D	04/06/23	07:02	17:47	(unrelated sample)
ZZZZZZ	6Q16179.D	04/06/23	07:16	18:01	(unrelated sample)
JD62642-10A	6Q16180.D	04/06/23	07:30	18:15	(used for QC only; not part of job FC3825)

6.5.2
6

TDCA Retention Time Check

Job Number: FC3825
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q240-RT	Injection Date: 04/05/23
Lab File ID: 6Q16102.D	Injection Time: 13:15
Instrument ID: GCMS6Q	

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S6Q240-ECC239	6Q16181.D	04/06/23	07:44	18:29	Ending cal 4
S6Q240-ICCB	6Q16182.D	04/06/23	07:58	18:43	Continuing Calibration Blank
S6Q240-ICCB	6Q16182.D	04/06/23	07:58	18:43	Continuing Calibration Blank

6.5.2

6

Ion Ratio Summary

Job Number: FC3825
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q240	Method: EPA DRAFT 1633
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Lab Sample ID	Lab File ID	Ion Ratios						
		PFPeA	PFHxA	PFHpA	PFOA	PFBS	PFHxS	PFOS
S6Q239-ICC239	6Q16009.D	0	4	13.9	13.4	46.2	54.4	64.4
FC3825-1	6Q16149.D	0	3.1	15.2	12.3	54.5	70.9	43.3

6.6.1

6

Isotope Dilution Standard Recovery Summary

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Method: EPA DRAFT 1633	Matrix: AQ
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Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4	S5	S6	S7	S8
FC3825-1	6Q16149.D	103	106	114	106	101	92	102	100
OP96191-BS	6Q16146.D	34	100	103	105	106	106	95	98
OP96191-LLBS	6Q16147.D	103	102	101	105	100	97	98	111
OP96191-MB	6Q16148.D	104	101	101	106	104	105	91	94
OP96191-MS	6Q16150.D	99	107	107	105	103	107	110	108

Isotope Dilution Standards	Recovery Limits
S1 = 13C4-PFBA	20-150%
S2 = 13C5-PFPeA	20-150%
S3 = 13C5-PFHxA	20-150%
S4 = 13C4-PFHpA	20-150%
S5 = 13C8-PFOA	20-150%
S6 = 13C9-PFNA	20-150%
S7 = 13C6-PFDA	20-150%
S8 = 13C7-PFUnDA	20-150%

6.7.1

6

Isotope Dilution Standard Recovery Summary

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Method: EPA DRAFT 1633	Matrix: AQ
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Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S9	S10	S11	S12	S13	S14	S15	S16
FC3825-1	6Q16149.D	86	76	97	96	101	81	74	77
OP96191-BS	6Q16146.D	87	76	97	101	116	77	80	75
OP96191-LLBS	6Q16147.D	90	86	89	95	98	73	74	78
OP96191-MB	6Q16148.D	80	70	96	98	97	76	73	76
OP96191-MS	6Q16150.D	85	75	99	100	113	90	80	75

Isotope Dilution Standards	Recovery Limits
S9 = 13C2-PFDoDA	20-150%
S10 = 13C2-PFTeDA	20-150%
S11 = 13C3-PFBS	20-150%
S12 = 13C3-PFHxS	20-150%
S13 = 13C8-PFOS	20-150%
S14 = 13C8-FOSA	20-150%
S15 = d3-MeFOSA	20-150%
S16 = d5-EtFOSA	20-150%

6.7.1
6

Isotope Dilution Standard Recovery Summary

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Method: EPA DRAFT 1633	Matrix: AQ
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Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S17	S18	S19	S20	S21	S22	S23	S24
FC3825-1	6Q16149.D	107	101	66	75	115	108	94	100
OP96191-BS	6Q16146.D	112	111	56	67	114	109	106	96
OP96191-LLBS	6Q16147.D	97	95	61	71	109	109	93	99
OP96191-MB	6Q16148.D	109	102	66	74	115	112	104	105
OP96191-MS	6Q16150.D	109	107	66	71	109	109	99	105

Isotope Dilution Standards	Recovery Limits
S17 = d3-MeFOSAA	20-150%
S18 = d5-EtFOSAA	20-150%
S19 = d7-MeFOSE	20-150%
S20 = d9-EtFOSE	20-150%
S21 = 13C2-4:2FTS	20-150%
S22 = 13C2-6:2FTS	20-150%
S23 = 13C2-8:2FTS	20-150%
S24 = 13C3-HFPO-DA	20-150%

6.7.1

6

Initial Calibration Summary

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q239-ICC239
 Lab FileID: 6Q16009.D

Initial Calibration Report

Method Path	Method File	Batch Name	Last Calib Update	Calibration Files	Level Name	1	2	3	4	5	6	7	8	Avg RF	%RSD	Level Last Update Time
D:\MassHunter\Methods	1633_040423_S6Q239.quantmethod.xml	D:\MassHunter\Data\040423_1633_S6Q239	4/4/2023 7:38:08 PM	D:\MassHunter\Data\040423_1633_S6Q239\6Q16006.d	1	0.2429	0.2733	0.2499	0.2260	0.2398	0.2628	0.2682	0.2591	0.2527	6.326	4/4/2023 7:38:08 PM
D:\MassHunter\Data\040423_1633_S6Q239	6Q16007.d	D:\MassHunter\Data\040423_1633_S6Q239	6Q16008.d	D:\MassHunter\Data\040423_1633_S6Q239	2	0.0614	0.0614	0.0571	0.0513	0.0550	0.0604	0.0602	0.0628	0.3189	6.627	4/4/2023 7:38:08 PM
D:\MassHunter>Data\040423_1633_S6Q239	6Q16009.d	D:\MassHunter>Data\040423_1633_S6Q239	6Q16010.d	D:\MassHunter>Data\040423_1633_S6Q239	3	1.1003	1.1324	1.0330	0.9592	1.0037	1.0560	1.0833	1.0709	1.0548	5.242	4/4/2023 7:38:08 PM
D:\MassHunter>Data\040423_1633_S6Q239	6Q16011.d	D:\MassHunter>Data\040423_1633_S6Q239	6Q16012.d	D:\MassHunter>Data\040423_1633_S6Q239	4	0.3670	0.3757	0.3417	0.3098	0.3313	0.3503	0.3590	0.3612	0.3495	6.111	4/4/2023 7:38:08 PM
D:\MassHunter>Data\040423_1633_S6Q239	6Q16013.d	D:\MassHunter>Data\040423_1633_S6Q239	6Q16014.d	D:\MassHunter>Data\040423_1633_S6Q239	5	0.0643	0.0722	0.0578	0.0556	0.0573	0.0597	0.0562	0.0556	0.0598	9.673	4/4/2023 7:38:08 PM
D:\MassHunter>Data\040423_1633_S6Q239	6Q16015.d	D:\MassHunter>Data\040423_1633_S6Q239	6Q16016.d	D:\MassHunter>Data\040423_1633_S6Q239	6	0.9455	1.0279	0.9063	0.8258	0.9133	0.9701	0.8947	0.8997	0.9229	6.463	4/4/2023 7:38:08 PM
D:\MassHunter>Data\040423_1633_S6Q239	6Q16017.d	D:\MassHunter>Data\040423_1633_S6Q239	6Q16018.d	D:\MassHunter>Data\040423_1633_S6Q239	7	1.3073	1.5314	1.2894	1.2028	1.2229	1.2945	1.3205	1.2892	1.3073	7.610	4/4/2023 7:38:08 PM
D:\MassHunter>Data\040423_1633_S6Q239	6Q16019.d	D:\MassHunter>Data\040423_1633_S6Q239	6Q16020.d	D:\MassHunter>Data\040423_1633_S6Q239	8	0.2275	0.2229	0.1976	0.1864	0.1927	0.2047	0.2020	0.1980	0.2040	6.997	4/4/2023 7:38:08 PM
D:\MassHunter>Data\040423_1633_S6Q239	6Q16021.d	D:\MassHunter>Data\040423_1633_S6Q239	6Q16022.d	D:\MassHunter>Data\040423_1633_S6Q239	9	0.1000	0.1188	0.1026	0.0952	0.0988	0.1053	0.1004	0.1050	0.1033	6.883	4/4/2023 7:38:08 PM
D:\MassHunter>Data\040423_1633_S6Q239	6Q16023.d	D:\MassHunter>Data\040423_1633_S6Q239	6Q16024.d	D:\MassHunter>Data\040423_1633_S6Q239	10	1.4670	1.5013	1.3601	1.2121	1.4405	1.3774	1.4381	1.4500	1.4058	6.446	4/4/2023 7:38:08 PM
D:\MassHunter>Data\040423_1633_S6Q239	6Q16025.d	D:\MassHunter>Data\040423_1633_S6Q239	6Q16026.d	D:\MassHunter>Data\040423_1633_S6Q239	11	1.1838	1.2567	1.0643	0.9848	1.0511	1.1363	1.2061	1.1716	1.1318	8.050	4/4/2023 7:38:08 PM
D:\MassHunter>Data\040423_1633_S6Q239	6Q16027.d	D:\MassHunter>Data\040423_1633_S6Q239	6Q16028.d	D:\MassHunter>Data\040423_1633_S6Q239	12	0.8635	0.8132	0.7737	0.7283	0.6809	0.8482	0.8575	0.9496	0.8144	10.438	4/4/2023 7:38:08 PM
D:\MassHunter>Data\040423_1633_S6Q239	6Q16029.d	D:\MassHunter>Data\040423_1633_S6Q239	6Q16030.d	D:\MassHunter>Data\040423_1633_S6Q239	13	1.4959	1.4478	1.3741	1.3649	1.4015	1.4976	1.5672	1.4945	1.4554	4.873	4/4/2023 7:38:08 PM
D:\MassHunter>Data\040423_1633_S6Q239	6Q16031.d	D:\MassHunter>Data\040423_1633_S6Q239	6Q16032.d	D:\MassHunter>Data\040423_1633_S6Q239	14	1.0286	0.9342	1.0470	0.8849	0.9223	1.0722	1.0584	1.0574	1.0006	7.417	4/4/2023 7:38:08 PM
D:\MassHunter>Data\040423_1633_S6Q239	6Q16033.d	D:\MassHunter>Data\040423_1633_S6Q239	6Q16034.d	D:\MassHunter>Data\040423_1633_S6Q239	15											4/4/2023 7:38:08 PM

Generated at 7:39 PM on 4/4/2023

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Initial Calibration Summary

Job Number: FC3825
 Account: AECOM AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q239-ICC239
 Lab FileID: 6Q16009.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	1.0654	0.9805	0.8854	0.7773	0.8953	0.9858	0.9636	0.8965	0.9312	9.323
T PFTfDA	Avg RF	0.9375	0.9525	0.8844	0.7724	0.8153	0.9517	0.9231	0.7925	0.8787	8.494
I M2-PFTeDA	Avg RF	1.3891	1.2826	1.4127	1.1817	1.3226	1.3327	1.3078	1.3356	1.3206	5.314
T PFTeDA	Avg RF					ISTD					
I M8-FOSA	Avg RF	0.9990	1.0991	0.8906	0.7827	0.8651	0.9063	0.9423	0.9041	0.9237	10.179
T FOSA	Avg RF					ISTD					
I M3-PFBS	Avg RF	0.9681	1.1064	0.9603	0.8887	0.9705	0.9356	1.0140	1.0022	0.9807	6.511
T PFBS	Avg RF					ISTD					
I M3-PFHxS	Avg RF	1.4020	1.5103	1.3575	1.2087	1.2206	1.3245	1.3088	1.2642	1.3246	7.533
T PFPeS	Avg RF	1.1610	1.2176	1.1393	1.0170	1.0308	1.0814	1.1201	1.0292	1.0995	6.571
T PFHxS	Avg RF					ISTD					
I M8-PFOS	Avg RF	1.1246	1.1865	1.0382	0.9019	1.0363	1.0878	1.0084	1.1661	1.0687	8.685
T PFHpS	Avg RF	1.0561	1.1896	1.0454	1.0510	1.0380	1.1751	1.0595	1.1826	1.0997	6.272
T PFOs	Avg RF	1.0064	1.1662	0.9928	0.9455	1.1010	1.1054	1.0737	1.1021	1.0616	6.890
T PFNS	Avg RF	0.7026	0.8558	0.7510	0.6519	0.7057	0.7739	0.7442	0.7932	0.7473	8.378
T PFDS	Avg RF	0.4487	0.4837	0.4182	0.3958	0.4185	0.4323	0.4231	0.4532	0.4342	6.236
T PFDoDS	Avg RF					ISTD					
I M2-4:2FTS	Avg RF	10.10	10.30	10.33	9.0420	9.7419	10.22	10.04	8.5757	9.7941	6.611
T 4:2FTS	Avg RF					ISTD					
I M2-6:2FTS	Avg RF	7.2339	6.8366	7.2932	5.8455	6.1576	7.5843	6.4638	6.1551	6.6962	9.470
T 6:2FTS	Avg RF					ISTD					
I M2-8:2FTS	Avg RF	3.5563	4.1708	3.7129	3.2830	3.5681	3.3393	3.5076	3.4414	3.5474	8.107
T 8:2FTS	Avg RF					ISTD					
I M3-MeFOSAA	Avg RF	0.9965	1.0987	0.8587	0.8302	0.8948	0.9403	0.9880	0.8912	0.9373	9.347
T MeFOSAA	Avg RF					ISTD					
I M3-HFO-DA	Avg RF	0.8233	1.0479	0.9108	0.8667	0.8705	0.8930	0.9332	0.8868	0.9040	7.367
T HFO-DA	Avg RF	19.60	21.42	21.33	19.32	19.89	20.35	20.92	19.27	20.26	4.329
T ADONA	Avg RF	9.8278	11.47	11.11	9.4814	10.22	10.13	10.40	9.4914	10.27	6.993
T 9Cl-PF3ONS	Avg RF	5.5321	5.6554	5.6173	4.9550	5.1447	5.3529	5.4426	5.3073	5.3759	4.452
T 11Cl-PF3OUds	Avg RF					ISTD					
I M5-EFOSAA	Avg RF	0.7544	0.8801	0.7199	0.7445	0.7152	0.7790	0.8382	0.7019	0.7667	8.225
T EFOSAA	Avg RF					ISTD					
I M7-MeFOSE	Avg RF	1.0357	0.9915	0.9052	0.8548	0.8996	0.9787	0.9292	0.9442	0.9423	6.149
T MeFOSE	Avg RF					ISTD					
I M9-EFOSE	Avg RF	1.0047	1.0260	0.8951	0.8875	0.9452	1.0035	1.0277	1.0540	0.9805	6.453
T EFOSE	Avg RF					ISTD					

Generated at 7:39 PM on 4/4/2023

Page 2 of 4

Initial Calibration Summary

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q239-ICC239
 Lab FileID: 6Q16009.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-EFOSA		1.0169	1.1604	1.1770	0.9858	1.0110	1.1407	1.1446	0.9965	1.0791	7.700
T EtFOSA	Avg RF					ISTD					
I M3-MeFOSA		1.0809	1.1323	1.0625	0.9148	1.0043	1.0259	1.1329	1.0597	1.0517	6.798
T MeFOSA	Avg RF					ISTD					
I 13C4-PFOS		1.0994	1.3991	1.2457	1.2018	1.1460	1.1730	1.2046	1.2065	1.2095	7.318
S d3-MeFOSAA	Linear					ISTD					
S 13C8-PFOS	Linear	0.8264	0.8846	0.8587	0.8070	0.7547	0.7901	0.8380	0.7590	0.8148	5.659
S d5-EFOSAA	Linear	0.9666	1.1169	1.1083	1.0182	1.0311	1.0818	1.0520	1.0046	1.0474	5.002
S 13C8-FOSA	Linear	1.8682	2.0062	1.8552	1.8416	1.8215	1.8055	1.8930	1.7929	1.8605	3.626
S d7-MeFOSE	Linear	0.2621	0.2823	0.2682	0.2508	0.2528	0.2373	0.2552	0.2267	0.2544	6.810
S d3-MeFOSA	Linear	0.6204	0.7325	0.6606	0.6862	0.6544	0.6866	0.6476	0.6753	0.6705	4.967
S d9-EFOSE	Linear	0.1766	0.1943	0.1782	0.1636	0.1641	0.1636	0.1677	0.1448	0.1691	8.527
S d5-EFOSA	Linear	0.7192	0.7570	0.6856	0.7269	0.7175	0.7012	0.7000	0.7737	0.7227	4.114
I 13C3-PFBA		1.1663	1.1727	1.1597	1.1570	1.1653	1.1854	1.1769	1.1690	1.1690	0.788
S 13C4-PFBA	Linear					ISTD					
I 1802-PFHxS		0.2041	0.1689	0.1675	0.1754	0.1672	0.1583	0.1572	0.1468	0.1682	10.092
S 13C2-4:2FTS	Linear	2.5003	2.0859	2.1838	2.2943	2.1483	2.2940	2.2326	2.0475	2.2233	6.448
S 13C3-PFBS	Linear	0.2338	0.2095	0.1973	0.2225	0.2209	0.1905	0.2022	0.1743	0.2064	9.367
S 13C2-6:2FTS	Linear	1.5841	1.3323	1.3636	1.4140	1.4145	1.4394	1.4947	1.4073	1.4312	5.475
S 13C3-PFHxS	Linear	0.2288	0.1893	0.1945	0.2100	0.1946	0.2078	0.1957	0.1702	0.1989	8.631
S 13C2-8:2FTS	Linear					ISTD					
I 13C4-PFOA		0.8153	0.8394	0.8451	0.8917	0.8606	0.8181	0.7636	0.8468	0.8351	4.502
S 13C8-PFOA	Linear					ISTD					
I 13C2-PFDA		0.7693	0.6452	0.7722	0.7555	0.7541	0.7664	0.6990	0.7250	0.7358	6.031
S 13C6-PFDA	Linear	0.9031	0.8691	0.8248	0.9334	0.8975	0.8423	0.7830	0.7831	0.8545	6.542
S 13C7-PFUnDA	Linear	1.0196	0.8863	0.9682	1.0793	1.0079	0.9924	0.9464	1.0038	0.9880	5.735
S 13C2-PFDODA	Linear	0.6109	0.5548	0.5519	0.6473	0.5955	0.6078	0.5743	0.5989	0.5927	5.345
S 13C2-PFTeDA	Linear					ISTD					
I 13C5-PFNA		0.9089	0.9562	0.9018	0.9067	1.0400	0.9296	0.9028	0.8518	0.9247	5.953
S 13C9-PFNA	Linear					ISTD					
I 13C2-PFHxA		0.5634	0.5939	0.5930	0.5759	0.5909	0.5971	0.5841	0.5664	0.5831	2.238
S 13C5-PPeA	Linear	1.0505	0.9949	1.0427	1.0087	1.0369	1.0345	1.0759	1.0325	1.0346	2.393
S 13C5-PFHxA	Linear	0.1048	0.1079	0.1088	0.1056	0.1097	0.1121	0.1117	0.1115	0.1090	2.559
S 13C3-HPOD-A	Linear	0.9644	1.0324	1.0199	1.0453	1.0117	1.0247	1.0238	0.9750	1.0121	2.775
S 13C4-PFHpA	Linear					ISTD					

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Initial Calibration Summary

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q239-ICC239
 Lab FileID: 6Q16009.D

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	%RSE
S 13C4-PBBA	Linear	y = 1.169040 * x	
S 13C5-PFPeA	Linear	y = 0.583071 * x	
S 13C2-4:2FTS	Linear	y = 0.168171 * x	
S 13C3-PFBS	Linear	y = 2.223329 * x	
S 13C5-PFHxA	Linear	y = 1.034575 * x	
S 13C3-HFPO-DA	Linear	y = 0.109021 * x	
S 13C4-PFHpA	Linear	y = 1.012136 * x	
S 13C8-PFOA	Linear	y = 0.206356 * x	
S 13C3-PFHxS	Linear	y = 0.835070 * x	
S 13C9-PFNA	Linear	y = 1.431243 * x	
S 13C2-8:2FTS	Linear	y = 0.924723 * x	
S 13C6-PEDA	Linear	y = 0.198861 * x	
S d3-MeFOSAA	Linear	y = 0.735836 * x	
S 13C8-PFOS	Linear	y = 1.209514 * x	
S d5-EFOSAA	Linear	y = 0.814810 * x	
S 13C7-PFUridA	Linear	y = 1.047425 * x	
S 13C2-PFDODA	Linear	y = 0.854541 * x	
S 13C8-FOSA	Linear	y = 0.987977 * x	
S 13C2-PFTeDA	Linear	y = 1.860513 * x	
S d7-MeFOSE	Linear	y = 0.592660 * x	
S d3-MeFOSA	Linear	y = 0.254426 * x	
S d9-EFOSE	Linear	y = 0.670458 * x	
S d5-EFOSA	Linear	y = 0.169114 * x	
S d5-EFOSA	Linear	y = 0.722657 * x	

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Initial Calibration Verification

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q239-ICV239
 Lab FileID: 6Q16015.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\040423_1633_S6Q239\s6q239.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\040423_1633_S6Q239\6Q16006.d
 2:D:\MassHunter\Data\040423_1633_S6Q239\6Q16007.d
 3:D:\MassHunter\Data\040423_1633_S6Q239\6Q16008.d
 4:D:\MassHunter\Data\040423_1633_S6Q239\6Q16009.d
 5:D:\MassHunter\Data\040423_1633_S6Q239\6Q16010.d
 6:D:\MassHunter\Data\040423_1633_S6Q239\6Q16011.d
 7:D:\MassHunter\Data\040423_1633_S6Q239\6Q16012.d
 8:D:\MassHunter\Data\040423_1633_S6Q239\6Q16013.d

Data File: 6Q16015
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.180	3.6	103.6
13C2-6:2FTS	5.000	5.094	1.9	101.9
13C2-8:2FTS	5.000	5.046	0.9	100.9
13C2-PFDoDA	1.250	1.140	-8.8	91.2
13C2-PFTeDA	1.250	1.059	-15.3	84.7
13C3-PFBS	2.500	2.478	-0.9	99.1
13C3-PFHxS	2.500	2.453	-1.9	98.1
13C4-PFBA	10.000	10.063	0.6	100.6
13C4-PFHpA	2.500	2.562	2.5	102.5
13C5-PFHxA	2.500	2.518	0.7	100.7
13C5-PFPeA	5.000	4.933	-1.3	98.7
13C6-PFDA	1.250	1.285	2.8	102.8
13C7-PFUnDA	1.250	1.192	-4.6	95.4
13C8-FOSA	2.500	2.359	-5.6	94.4
13C8-PFOA	2.500	2.367	-5.3	94.7
13C8-PFOS	2.500	2.503	0.1	100.1
13C9-PFNA	1.250	1.314	5.1	105.1
4:2FTS	9.375	9.339	-0.4	99.6
6:2FTS	9.500	9.553	0.6	100.6
8:2FTS	9.600	10.302	7.3	107.3
d3-MeFOSAA	5.000	4.780	-4.4	95.6
EtFOSAA	2.500	2.530	1.2	101.2
FOSA	2.500	2.588	3.5	103.5
MeFOSAA	2.500	2.438	-2.5	97.5
PFBA	10.000	9.510	-4.9	95.1
PFBS	2.218	2.116	-4.6	95.4
PFDA	2.500	2.169	-13.3	86.7
PFDoDA	2.500	2.525	1.0	101.0
PFDS	2.413	2.301	-4.6	95.4
PFHpA	2.500	2.320	-7.2	92.8
PFHpS	2.383	2.107	-11.6	88.4
PFHxA	2.500	2.389	-4.4	95.6
PFHxS	2.285	2.334	2.1	102.1
PFNA	2.500	2.207	-11.7	88.3
PFNS	2.405	2.146	-10.8	89.2
PFOA	2.500	2.488	-0.5	99.5
PFOS	2.320	2.043	-12.0	88.0

Initial Calibration Verification

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q239-ICV239
 Lab FileID: 6Q16015.D

PFPeA	5.000	4.853	-2.9	97.1
PFPeS	2.353	2.310	-1.8	98.2
PFTeDA	2.500	2.659	6.4	106.4
PFTTrDA	2.500	2.529	1.2	101.2
PFUnDA	2.500	2.469	-1.3	98.7
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	9.450	9.109	-3.6	96.4
13C3-HFPO-DA	10.000	9.991	-0.1	99.9
9C1-PF3ONS	9.350	8.853	-5.3	94.7
ADONA	9.450	9.462	0.1	100.1
HFPO-DA	10.000	9.561	-4.4	95.6
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.882	-4.8	95.2
5:3FTCA	62.400	58.543	-6.2	93.8
7:3FTCA	62.400	59.487	-4.7	95.3
d3-MeFOSA	2.500	2.327	-6.9	93.1
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.424	-3.0	97.0
EtFOSE	25.000	24.248	-3.0	97.0
MeFOSA	2.500	2.559	2.4	102.4
MeFOSE	25.000	24.755	-1.0	99.0
PFDoDS	2.425	2.243	-7.5	92.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.613	-7.7	92.3
d7-MeFOSE	25.000	22.660	-9.4	90.6
d9-EtFOSE	25.000	23.618	-5.5	94.5
d5-EtFOSA	2.500	2.339	-6.4	93.6
NFDHA	5.000	4.849	-3.0	97.0
PFMBA	5.000	4.793	-4.1	95.9
PFMPA	5.000	4.821	-3.6	96.4
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.224	-5.1	94.9

CC Criteria: +/- 30%

Initial Calibration Verification

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q239-ICV239
 Lab FileID: 6Q16016.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\040423_1633_S6Q239\s6q239.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\040423_1633_S6Q239\6Q16006.d
 2:D:\MassHunter\Data\040423_1633_S6Q239\6Q16007.d
 3:D:\MassHunter\Data\040423_1633_S6Q239\6Q16008.d
 4:D:\MassHunter\Data\040423_1633_S6Q239\6Q16009.d
 5:D:\MassHunter\Data\040423_1633_S6Q239\6Q16010.d
 6:D:\MassHunter\Data\040423_1633_S6Q239\6Q16011.d
 7:D:\MassHunter\Data\040423_1633_S6Q239\6Q16012.d
 8:D:\MassHunter\Data\040423_1633_S6Q239\6Q16013.d

Data File: 6Q16016
 Type : QC
 Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.316	6.3	106.3
13C2-6:2FTS	5.000	5.665	13.3	113.3
13C2-8:2FTS	5.000	5.645	12.9	112.9
13C2-PFDoDA	1.250	1.232	-1.4	98.6
13C2-PFTeDA	1.250	1.206	-3.5	96.5
13C3-PFBS	2.500	2.560	2.4	102.4
13C3-PFHxS	2.500	2.645	5.8	105.8
13C4-PFBA	10.000	10.086	0.9	100.9
13C4-PFHpA	2.500	2.496	-0.1	99.9
13C5-PFHxA	2.500	2.424	-3.1	96.9
13C5-PFPeA	5.000	4.896	-2.1	97.9
13C6-PFDA	1.250	1.265	1.2	101.2
13C7-PFUnDA	1.250	1.295	3.6	103.6
13C8-FOSA	2.500	2.269	-9.2	90.8
13C8-PFOA	2.500	2.377	-4.9	95.1
13C8-PFOS	2.500	2.671	6.8	106.8
13C9-PFNA	1.250	1.287	2.9	102.9
4:2FTS	20.000	21.941	9.7	109.7
6:2FTS	20.000	20.726	3.6	103.6
8:2FTS	20.000	20.396	2.0	102.0
d3-MeFOSAA	5.000	4.821	-3.6	96.4
EtFOSAA	20.000	22.157	10.8	110.8
FOSA	20.000	22.439	12.2	112.2
MeFOSAA	20.000	20.313	1.6	101.6
PFBA	20.000	19.508	-2.5	97.5
PFBS	20.000	21.807	9.0	109.0
PFDA	20.000	20.446	2.2	102.2
PFDoDA	20.000	18.665	-6.7	93.3
PFDS	20.000	17.715	-11.4	88.6
PFHpA	20.000	20.921	4.6	104.6
PFHpS	20.000	18.879	-5.6	94.4
PFHxA	20.000	21.490	7.5	107.5
PFHxS	20.000	20.922	4.6	104.6
PFNA	20.000	20.794	4.0	104.0
PFNS	20.000	18.242	-8.8	91.2
PFOA	20.000	21.431	7.2	107.2
PFOS	20.000	16.346	-18.3	81.7

Initial Calibration Verification

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q239-ICV239
 Lab FileID: 6Q16016.D

PFPeA	20.000	22.071	10.4	110.4
PFPeS	20.000	20.419	2.1	102.1
PFTeDA	20.000	21.140	5.7	105.7
PFTTrDA	20.000	18.440	-7.8	92.2
PFUnDA	20.000	18.479	-7.6	92.4
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	20.000	21.989	9.9	109.9
13C3-HFPO-DA	10.000	9.948	-0.5	99.5
9C1-PF3ONS	20.000	20.166	0.8	100.8
ADONA	20.000	20.870	4.4	104.4
HFPO-DA	20.000	20.033	0.2	100.2
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	19.277	-3.6	96.4
5:3FTCA	20.000	19.856	-0.7	99.3
7:3FTCA	20.000	19.938	-0.3	99.7
d3-MeFOSA	2.500	2.389	-4.4	95.6
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	21.178	5.9	105.9
EtFOSE	100.000	89.017	-11.0	89.0
MeFOSA	20.000	19.792	-1.0	99.0
MeFOSE	100.000	87.634	-12.4	87.6
PFDoDS	20.000	16.000	-20.0	80.0
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.624	-7.5	92.5
d7-MeFOSE	25.000	23.283	-6.9	93.1
d9-EtFOSE	25.000	23.610	-5.6	94.4
d5-EtFOSA	2.500	2.304	-7.9	92.1
NFDHA	20.000	19.224	-3.9	96.1
PFMBA	20.000	19.717	-1.4	98.6
PFMPA	20.000	20.737	3.7	103.7
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	20.000	18.262	-8.7	91.3

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q240-CC239
 Lab FileID: 6Q16134.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\040423_1633_S6Q239\S6Q240.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\040423_1633_S6Q239\6Q16006.d
 2:D:\MassHunter\Data\040423_1633_S6Q239\6Q16007.d
 3:D:\MassHunter\Data\040423_1633_S6Q239\6Q16008.d
 4:D:\MassHunter\Data\040423_1633_S6Q239\6Q16009.d
 5:D:\MassHunter\Data\040423_1633_S6Q239\6Q16010.d
 6:D:\MassHunter\Data\040423_1633_S6Q239\6Q16011.d
 7:D:\MassHunter\Data\040423_1633_S6Q239\6Q16012.d
 8:D:\MassHunter\Data\040423_1633_S6Q239\6Q16013.d

Data File: 6Q16134
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.671	13.4	113.4
13C2-6:2FTS	5.000	5.677	13.5	113.5
13C2-8:2FTS	5.000	5.495	9.9	109.9
13C2-PFDoDA	1.250	1.178	-5.7	94.3
13C2-PFTeDA	1.250	1.079	-13.7	86.3
13C3-PFBS	2.500	2.486	-0.5	99.5
13C3-PFHxS	2.500	2.461	-1.6	98.4
13C4-PFBA	10.000	9.949	-0.5	99.5
13C4-PFHpA	2.500	2.404	-3.8	96.2
13C5-PFHxA	2.500	2.427	-2.9	97.1
13C5-PFPeA	5.000	4.806	-3.9	96.1
13C6-PFDA	1.250	1.094	-12.5	87.5
13C7-PFUnDA	1.250	1.156	-7.5	92.5
13C8-FOSA	2.500	2.286	-8.6	91.4
13C8-PFOA	2.500	2.516	0.7	100.7
13C8-PFOS	2.500	2.435	-2.6	97.4
13C9-PFNA	1.250	1.270	1.6	101.6
4:2FTS	0.750	0.848	13.1	113.1
6:2FTS	0.760	0.899	18.3	118.3
8:2FTS	0.768	0.877	14.3	114.3
d3-MeFOSAA	5.000	5.274	5.5	105.5
EtFOSAA	0.200	0.247	23.6	123.6
FOSA	0.200	0.235	17.4	117.4
MeFOSAA	0.200	0.215	7.3	107.3
PFBA	0.800	0.785	-1.8	98.2
PFBS	0.177	0.188	6.3	106.3
PFDA	0.200	0.221	10.4	110.4
PFDoDA	0.200	0.244	22.1	122.1
PFDS	0.193	0.223	15.8	115.8
PFHpA	0.200	0.248	24.0	124.0
PFHpS	0.191	0.231	21.2	121.2
PFHxA	0.200	0.219	9.7	109.7
PFHxS	0.183	0.214	16.8	116.8
PFNA	0.200	0.229	14.4	114.4
PFNS	0.192	0.212	10.5	110.5
PFOA	0.200	0.188	-5.9	94.1
PFOS	0.186	0.217	16.8	116.8

Continuing Calibration Summary

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q240-CC239
 Lab FileID: 6Q16134.D

PFPeA	0.400	0.426	6.5	106.5
PFPeS	0.188	0.196	4.5	104.5
PFTeDA	0.200	0.214	6.9	106.9
PFTTrDA	0.200	0.223	11.4	111.4
PFUnDA	0.200	0.236	18.1	118.1
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDODA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	0.756	0.801	6.0	106.0
13C3-HFPO-DA	10.000	9.237	-7.6	92.4
9C1-PF3ONS	0.748	0.853	14.1	114.1
ADONA	0.756	0.814	7.6	107.6
HFPO-DA	0.800	0.808	1.0	101.0
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	1.086	8.8	108.8
5:3FTCA	4.992	5.824	16.7	116.7
7:3FTCA	4.992	6.507	# 30.3	130.3
d3-MeFOSA	2.500	2.323	-7.1	92.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.200	0.238	18.9	118.9
EtFOSE	2.000	1.978	-1.1	98.9
MeFOSA	0.200	0.248	23.9	123.9
MeFOSE	2.000	2.297	14.9	114.9
PFDODS	0.194	0.194	-0.2	99.8
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.756	-4.9	95.1
d7-MeFOSE	25.000	22.180	-11.3	88.7
d9-EtFOSE	25.000	21.378	-14.5	85.5
d5-EtFOSA	2.500	2.186	-12.6	87.4
NFDHA	0.400	0.391	-2.2	97.8
PFMBA	0.400	0.386	-3.5	96.5
PFMPA	0.400	0.412	3.1	103.1
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	0.356	0.381	7.2	107.2

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q240-CC239
 Lab FileID: 6Q16144.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\040423_1633_S6Q239\S6Q240.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\040423_1633_S6Q239\6Q16006.d
 2:D:\MassHunter\Data\040423_1633_S6Q239\6Q16007.d
 3:D:\MassHunter\Data\040423_1633_S6Q239\6Q16008.d
 4:D:\MassHunter\Data\040423_1633_S6Q239\6Q16009.d
 5:D:\MassHunter\Data\040423_1633_S6Q239\6Q16010.d
 6:D:\MassHunter\Data\040423_1633_S6Q239\6Q16011.d
 7:D:\MassHunter\Data\040423_1633_S6Q239\6Q16012.d
 8:D:\MassHunter\Data\040423_1633_S6Q239\6Q16013.d

Data File: 6Q16144
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.533	10.7	110.7
13C2-6:2FTS	5.000	5.663	13.3	113.3
13C2-8:2FTS	5.000	4.736	-5.3	94.7
13C2-PFDoDA	1.250	1.131	-9.5	90.5
13C2-PFTeDA	1.250	1.131	-9.5	90.5
13C3-PFBS	2.500	2.418	-3.3	96.7
13C3-PFHxS	2.500	2.307	-7.7	92.3
13C4-PFBA	10.000	10.144	1.4	101.4
13C4-PFHpA	2.500	2.477	-0.9	99.1
13C5-PFHxA	2.500	2.464	-1.5	98.5
13C5-PFPeA	5.000	4.757	-4.9	95.1
13C6-PFDA	1.250	1.378	10.2	110.2
13C7-PFUnDA	1.250	1.225	-2.0	98.0
13C8-FOSA	2.500	2.417	-3.3	96.7
13C8-PFOA	2.500	2.683	7.3	107.3
13C8-PFOS	2.500	2.478	-0.9	99.1
13C9-PFNA	1.250	1.238	-1.0	99.0
4:2FTS	9.375	8.743	-6.7	93.3
6:2FTS	9.500	8.248	-13.2	86.8
8:2FTS	9.600	9.594	-0.1	99.9
d3-MeFOSAA	5.000	5.194	3.9	103.9
EtFOSAA	2.500	2.263	-9.5	90.5
FOSA	2.500	2.212	-11.5	88.5
MeFOSAA	2.500	2.392	-4.3	95.7
PFBA	10.000	8.691	-13.1	86.9
PFBS	2.218	2.125	-4.2	95.8
PFDA	2.500	2.073	-17.1	82.9
PFDoDA	2.500	2.436	-2.6	97.4
PFDS	2.413	2.213	-8.3	91.7
PFHpA	2.500	2.275	-9.0	91.0
PFHpS	2.383	2.147	-9.9	90.1
PFHxA	2.500	2.216	-11.4	88.6
PFHxS	2.285	2.191	-4.1	95.9
PFNA	2.500	2.350	-6.0	94.0
PFNS	2.405	2.424	0.8	100.8
PFOA	2.500	2.203	-11.9	88.1
PFOS	2.320	2.213	-4.6	95.4

Continuing Calibration Summary

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q240-CC239
 Lab FileID: 6Q16144.D

PFPeA	5.000	4.598	-8.0	92.0
PFPeS	2.353	2.196	-6.7	93.3
PFTeDA	2.500	2.275	-9.0	91.0
PFTTrDA	2.500	2.323	-7.1	92.9
PFUnDA	2.500	2.354	-5.8	94.2
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	9.450	8.884	-6.0	94.0
13C3-HFPO-DA	10.000	9.362	-6.4	93.6
9C1-PF3ONS	9.350	8.958	-4.2	95.8
ADONA	9.450	8.922	-5.6	94.4
HFPO-DA	10.000	9.845	-1.5	98.5
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	10.767	-13.7	86.3
5:3FTCA	62.400	54.629	-12.5	87.5
7:3FTCA	62.400	59.341	-4.9	95.1
d3-MeFOSA	2.500	2.391	-4.4	95.6
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.321	-7.1	92.9
EtFOSE	25.000	22.044	-11.8	88.2
MeFOSA	2.500	2.323	-7.1	92.9
MeFOSE	25.000	22.954	-8.2	91.8
PFDoDS	2.425	2.130	-12.2	87.8
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.038	0.8	100.8
d7-MeFOSE	25.000	21.996	-12.0	88.0
d9-EtFOSE	25.000	21.402	-14.4	85.6
d5-EtFOSA	2.500	2.335	-6.6	93.4
NFDHA	5.000	4.190	-16.2	83.8
PFMBA	5.000	4.232	-15.4	84.6
PFMPA	5.000	4.400	-12.0	88.0
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	3.944	-11.4	88.6

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q240-CC239
 Lab FileID: 6Q16153.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\040423_1633_S6Q239\S6Q240.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\040423_1633_S6Q239\6Q16006.d
 2:D:\MassHunter\Data\040423_1633_S6Q239\6Q16007.d
 3:D:\MassHunter\Data\040423_1633_S6Q239\6Q16008.d
 4:D:\MassHunter\Data\040423_1633_S6Q239\6Q16009.d
 5:D:\MassHunter\Data\040423_1633_S6Q239\6Q16010.d
 6:D:\MassHunter\Data\040423_1633_S6Q239\6Q16011.d
 7:D:\MassHunter\Data\040423_1633_S6Q239\6Q16012.d
 8:D:\MassHunter\Data\040423_1633_S6Q239\6Q16013.d

Data File: 6Q16153
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	6.033	20.7	120.7
13C2-6:2FTS	5.000	5.820	16.4	116.4
13C2-8:2FTS	5.000	5.676	13.5	113.5
13C2-PFDoDA	1.250	1.154	-7.7	92.3
13C2-PFTeDA	1.250	1.126	-9.9	90.1
13C3-PFBS	2.500	2.398	-4.1	95.9
13C3-PFHxS	2.500	2.438	-2.5	97.5
13C4-PFBA	10.000	9.960	-0.4	99.6
13C4-PFHpA	2.500	2.484	-0.6	99.4
13C5-PFHxA	2.500	2.563	2.5	102.5
13C5-PFPeA	5.000	4.924	-1.5	98.5
13C6-PFDA	1.250	1.308	4.6	104.6
13C7-PFUnDA	1.250	1.210	-3.2	96.8
13C8-FOSA	2.500	2.375	-5.0	95.0
13C8-PFOA	2.500	2.459	-1.6	98.4
13C8-PFOS	2.500	2.543	1.7	101.7
13C9-PFNA	1.250	1.327	6.2	106.2
4:2FTS	9.375	8.552	-8.8	91.2
6:2FTS	9.500	9.053	-4.7	95.3
8:2FTS	9.600	8.939	-6.9	93.1
d3-MeFOSAA	5.000	5.035	0.7	100.7
EtFOSAA	2.500	2.422	-3.1	96.9
FOSA	2.500	2.193	-12.3	87.7
MeFOSAA	2.500	2.345	-6.2	93.8
PFBA	10.000	8.742	-12.6	87.4
PFBS	2.218	2.169	-2.2	97.8
PFDA	2.500	2.180	-12.8	87.2
PFDoDA	2.500	2.395	-4.2	95.8
PFDS	2.413	2.157	-10.6	89.4
PFHpA	2.500	2.334	-6.7	93.3
PFHpS	2.383	2.109	-11.5	88.5
PFHxA	2.500	2.142	-14.3	85.7
PFHxS	2.285	2.243	-1.8	98.2
PFNA	2.500	2.095	-16.2	83.8
PFNS	2.405	2.205	-8.3	91.7
PFOA	2.500	2.283	-8.7	91.3
PFOS	2.320	2.150	-7.3	92.7

Continuing Calibration Summary

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q240-CC239
 Lab FileID: 6Q16153.D

PFPeA	5.000	4.687	-6.3	93.7
PFPeS	2.353	2.112	-10.2	89.8
PFTeDA	2.500	2.448	-2.1	97.9
PFTTrDA	2.500	2.532	1.3	101.3
PFUnDA	2.500	2.377	-4.9	95.1
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	9.450	8.462	-10.5	89.5
13C3-HFPO-DA	10.000	10.392	3.9	103.9
9C1-PF3ONS	9.350	8.750	-6.4	93.6
ADONA	9.450	8.704	-7.9	92.1
HFPO-DA	10.000	8.891	-11.1	88.9
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	10.797	-13.5	86.5
5:3FTCA	62.400	54.738	-12.3	87.7
7:3FTCA	62.400	59.548	-4.6	95.4
d3-MeFOSA	2.500	2.285	-8.6	91.4
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.303	-7.9	92.1
EtFOSE	25.000	22.564	-9.7	90.3
MeFOSA	2.500	2.336	-6.6	93.4
MeFOSE	25.000	22.875	-8.5	91.5
PFDoDS	2.425	2.122	-12.5	87.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.972	-0.6	99.4
d7-MeFOSE	25.000	22.301	-10.8	89.2
d9-EtFOSE	25.000	21.860	-12.6	87.4
d5-EtFOSA	2.500	2.427	-2.9	97.1
NFDHA	5.000	4.163	-16.7	83.3
PFMBA	5.000	4.257	-14.9	85.1
PFMPA	5.000	4.459	-10.8	89.2
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.294	-3.5	96.5

CC Criteria: +/- 30%

Run Sequence Report

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q239	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q		
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S6Q239-RT	6Q16003.D	04/04/23 13:10	n/a	Retention Time Marker
S6Q239-RT	6Q16004.D	04/04/23 13:24	n/a	Retention Time Marker
S6Q239-IC239	6Q16005.D	04/04/23 13:38	n/a	Mass Calibration Verification
S6Q239-IC239	6Q16006.D	04/04/23 14:15	n/a	Initial cal 1
S6Q239-IC239	6Q16007.D	04/04/23 14:29	n/a	Initial cal 2
S6Q239-IC239	6Q16008.D	04/04/23 14:43	n/a	Initial cal 3
S6Q239-ICC239	6Q16009.D	04/04/23 14:57	n/a	Initial cal 4
S6Q239-IC239	6Q16010.D	04/04/23 15:11	n/a	Initial cal 5
S6Q239-IC239	6Q16011.D	04/04/23 15:25	n/a	Initial cal 6
S6Q239-IC239	6Q16012.D	04/04/23 15:39	n/a	Initial cal 7
S6Q239-IC239	6Q16013.D	04/04/23 15:53	n/a	Initial cal 8
S6Q239-IBLK	6Q16014.D	04/04/23 16:07	n/a	Instrument Blank
S6Q239-IBLK	6Q16014.D	04/04/23 16:07	n/a	Instrument Blank
S6Q239-ICV239	6Q16015.D	04/04/23 16:21	n/a	Initial cal verification 4
S6Q239-ICV239	6Q16016.D	04/04/23 16:35	n/a	Initial cal verification 20
S6Q239-CC239	6Q16017.D	04/04/23 16:49	n/a	Continuing cal 4
S6Q239-CC239	6Q16018.D	04/04/23 17:03	n/a	Continuing cal 1.0LL
OP96208-BS	6Q16019.D	04/04/23 17:17	OP96208	Blank Spike
OP96208-LLBS	6Q16020.D	04/04/23 17:31	OP96208	Blank Spike
OP96208-MB	6Q16021.D	04/04/23 17:45	OP96208	Method Blank
ZZZZZZ	6Q16022.D	04/04/23 17:59	OP96208	(unrelated sample)
S6Q239-CC239	6Q16023.D	04/04/23 18:13	n/a	Continuing cal 4
S6Q239-ICCB	6Q16024.D	04/04/23 18:27	n/a	Continuing Calibration Blank
OP96209-BS	6Q16025.D	04/04/23 18:41	OP96209	Blank Spike
OP96209-LLBS	6Q16026.D	04/04/23 18:55	OP96209	Blank Spike
OP96209-MB	6Q16027.D	04/04/23 19:09	OP96209	Method Blank
FC3853-1	6Q16028.D	04/04/23 19:23	OP96209	(used for QC only; not part of job FC3825)
OP96209-MS	6Q16029.D	04/04/23 19:37	OP96209	Matrix Spike
FC3853-2	6Q16030.D	04/04/23 19:51	OP96209	(used for QC only; not part of job FC3825)
OP96209-DUP	6Q16031.D	04/04/23 20:05	OP96209	Duplicate
ZZZZZZ	6Q16032.D	04/04/23 20:19	OP96209	(unrelated sample)
ZZZZZZ	6Q16033.D	04/04/23 20:33	OP96209	(unrelated sample)
S6Q239-CC239	6Q16034.D	04/04/23 20:47	n/a	Continuing cal 4
S6Q239-ICCB	6Q16035.D	04/04/23 21:01	n/a	Continuing Calibration Blank
OP96190-BS	6Q16036.D	04/04/23 21:15	OP96190	Blank Spike
OP96190-LLBS	6Q16037.D	04/04/23 21:29	OP96190	Blank Spike
OP96190-MB	6Q16038.D	04/04/23 21:43	OP96190	Method Blank
ZZZZZZ	6Q16039.D	04/04/23 21:57	OP96190	(unrelated sample)
ZZZZZZ	6Q16040.D	04/04/23 22:11	OP96190	(unrelated sample)
ZZZZZZ	6Q16041.D	04/04/23 22:25	OP96190	(unrelated sample)
JD62588-4	6Q16043.D	04/04/23 22:53	OP96190	(used for QC only; not part of job FC3825)
OP96190-MS	6Q16044.D	04/04/23 23:07	OP96190	Matrix Spike
ZZZZZZ	6Q16045.D	04/04/23 23:21	OP96190	(unrelated sample)
S6Q239-CC239	6Q16046.D	04/04/23 23:35	n/a	Continuing cal 4
S6Q239-ICCB	6Q16047.D	04/04/23 23:49	n/a	Continuing Calibration Blank
ZZZZZZ	6Q16048.D	04/05/23 00:03	OP96190	(unrelated sample)

Run Sequence Report

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q239	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
ZZZZZZ	6Q16049.D	04/05/23 00:17	OP96190	(unrelated sample)
ZZZZZZ	6Q16050.D	04/05/23 00:31	OP96190	(unrelated sample)
ZZZZZZ	6Q16051.D	04/05/23 00:45	OP96190	(unrelated sample)
ZZZZZZ	6Q16052.D	04/05/23 00:59	OP96190	(unrelated sample)
ZZZZZZ	6Q16053.D	04/05/23 01:13	OP96190	(unrelated sample)
ZZZZZZ	6Q16054.D	04/05/23 01:27	OP96190	(unrelated sample)
ZZZZZZ	6Q16055.D	04/05/23 01:41	OP96190	(unrelated sample)
ZZZZZZ	6Q16056.D	04/05/23 01:55	OP96190	(unrelated sample)
ZZZZZZ	6Q16057.D	04/05/23 02:08	OP96190	(unrelated sample)
S6Q239-CC239	6Q16058.D	04/05/23 02:22	n/a	Continuing cal 4
S6Q239-CC239	6Q16059.D	04/05/23 02:36	n/a	Continuing cal 1.0LL
S6Q239-ICCB	6Q16060.D	04/05/23 02:50	n/a	Continuing Calibration Blank
JD62588-12A	6Q16061.D	04/05/23 03:04	OP96190	(used for QC only; not part of job FC3825)
OP96190-DUP	6Q16062.D	04/05/23 03:18	OP96190	Duplicate
ZZZZZZ	6Q16063.D	04/05/23 03:32	OP96190	(unrelated sample)
OP96192-BS	6Q16064.D	04/05/23 03:46	OP96192	Blank Spike
OP96192-LLBS	6Q16065.D	04/05/23 04:00	OP96192	Blank Spike
OP96192-MB	6Q16066.D	04/05/23 04:14	OP96192	Method Blank
ZZZZZZ	6Q16067.D	04/05/23 04:28	OP96192	(unrelated sample)
ZZZZZZ	6Q16068.D	04/05/23 04:42	OP96192	(unrelated sample)
ZZZZZZ	6Q16069.D	04/05/23 04:56	OP96192	(unrelated sample)
ZZZZZZ	6Q16070.D	04/05/23 05:10	OP96192	(unrelated sample)
S6Q239-CC239	6Q16071.D	04/05/23 05:24	n/a	Continuing cal 4
S6Q239-ICCB	6Q16072.D	04/05/23 05:38	n/a	Continuing Calibration Blank
JD62631-4A	6Q16073.D	04/05/23 05:52	OP96192	(used for QC only; not part of job FC3825)
OP96192-MS	6Q16074.D	04/05/23 06:06	OP96192	Matrix Spike
OP96192-MSD	6Q16075.D	04/05/23 06:20	OP96192	Matrix Spike Duplicate
ZZZZZZ	6Q16076.D	04/05/23 06:34	OP96192	(unrelated sample)
ZZZZZZ	6Q16077.D	04/05/23 06:48	OP96192	(unrelated sample)
ZZZZZZ	6Q16078.D	04/05/23 07:02	OP96192	(unrelated sample)
ZZZZZZ	6Q16079.D	04/05/23 07:16	OP96192	(unrelated sample)
ZZZZZZ	6Q16080.D	04/05/23 07:30	OP96192	(unrelated sample)
ZZZZZZ	6Q16081.D	04/05/23 07:44	OP96192	(unrelated sample)
S6Q239-CC239	6Q16083.D	04/05/23 08:12	n/a	Continuing cal 4
S6Q239-ICCB	6Q16084.D	04/05/23 08:26	n/a	Continuing Calibration Blank
ZZZZZZ	6Q16085.D	04/05/23 08:40	OP96192	(unrelated sample)
ZZZZZZ	6Q16086.D	04/05/23 08:54	OP96192	(unrelated sample)
ZZZZZZ	6Q16087.D	04/05/23 09:08	OP96192	(unrelated sample)
ZZZZZZ	6Q16088.D	04/05/23 09:22	OP96192	(unrelated sample)
ZZZZZZ	6Q16089.D	04/05/23 09:36	OP96192	(unrelated sample)
ZZZZZZ	6Q16090.D	04/05/23 09:50	OP96192	(unrelated sample)
ZZZZZZ	6Q16091.D	04/05/23 10:04	OP96192	(unrelated sample)
S6Q239-CC239	6Q16092.D	04/05/23 10:18	n/a	Continuing cal 4
S6Q239-ICCB	6Q16093.D	04/05/23 10:32	n/a	Continuing Calibration Blank
ZZZZZZ	6Q16095.D	04/05/23 11:38	OP96190	(unrelated sample)
ZZZZZZ	6Q16096.D	04/05/23 11:52	OP96208	(unrelated sample)

Run Sequence Report

Job Number: FC3825
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q239	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
ZZZZZZ	6Q16097.D	04/05/23 12:06	OP96190	(unrelated sample)
ZZZZZZ	6Q16098.D	04/05/23 12:19	OP96190	(unrelated sample)
ZZZZZZ	6Q16099.D	04/05/23 12:33	OP96190	(unrelated sample)
S6Q239-ECC239	6Q16100.D	04/05/23 12:47	n/a	Ending cal 4
S6Q239-ICCB	6Q16101.D	04/05/23 13:01	n/a	Continuing Calibration Blank

Run Sequence Report

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q240	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S6Q240-RT	6Q16102.D	04/05/23 13:15	n/a	Retention Time Marker
S6Q240-RT	6Q16103.D	04/05/23 13:29	n/a	Retention Time Marker
S6Q240-IBLK	6Q16105.D	04/05/23 13:57	n/a	Instrument Blank
S6Q240-IBLK	6Q16105.D	04/05/23 13:57	n/a	Instrument Blank
S6Q240-CC239	6Q16106.D	04/05/23 14:11	n/a	Continuing cal 4
S6Q240-CC239	6Q16107.D	04/05/23 14:25	n/a	Continuing cal 1.0LL
OP96231-BS	6Q16108.D	04/05/23 14:39	OP96231	Blank Spike
OP96231-LLBS	6Q16109.D	04/05/23 14:53	OP96231	Blank Spike
OP96231-MB	6Q16110.D	04/05/23 15:07	OP96231	Method Blank
ZZZZZZ	6Q16111.D	04/05/23 15:21	OP96231	(unrelated sample)
ZZZZZZ	6Q16112.D	04/05/23 15:35	OP96231	(unrelated sample)
S6Q240-CC239	6Q16113.D	04/05/23 15:49	n/a	Continuing cal 4
S6Q240-ICCB	6Q16114.D	04/05/23 16:03	n/a	Continuing Calibration Blank
ZZZZZZ	6Q16115.D	04/05/23 16:17	OP96192	(unrelated sample)
ZZZZZZ	6Q16116.D	04/05/23 16:31	OP96192	(unrelated sample)
ZZZZZZ	6Q16117.D	04/05/23 16:45	OP96192	(unrelated sample)
ZZZZZZ	6Q16118.D	04/05/23 16:59	OP96192	(unrelated sample)
ZZZZZZ	6Q16119.D	04/05/23 17:13	OP96192	(unrelated sample)
ZZZZZZ	6Q16120.D	04/05/23 17:27	OP96192	(unrelated sample)
S6Q240-CC239	6Q16121.D	04/05/23 17:41	n/a	Continuing cal 4
S6Q240-ICCB	6Q16122.D	04/05/23 17:55	n/a	Continuing Calibration Blank
OP96193-BS	6Q16123.D	04/05/23 18:09	OP96193	Blank Spike
OP96193-LLBS	6Q16124.D	04/05/23 18:23	OP96193	Blank Spike
OP96193-MB	6Q16125.D	04/05/23 18:37	OP96193	Method Blank
ZZZZZZ	6Q16126.D	04/05/23 18:51	OP96193	(unrelated sample)
ZZZZZZ	6Q16127.D	04/05/23 19:05	OP96193	(unrelated sample)
ZZZZZZ	6Q16128.D	04/05/23 19:19	OP96193	(unrelated sample)
JD62642-7A	6Q16129.D	04/05/23 19:33	OP96193	(used for QC only; not part of job FC3825)
OP96193-MS	6Q16130.D	04/05/23 19:47	OP96193	Matrix Spike
OP96193-MSD	6Q16131.D	04/05/23 20:01	OP96193	Matrix Spike Duplicate
ZZZZZZ	6Q16132.D	04/05/23 20:15	OP96193	(unrelated sample)
S6Q240-CC239	6Q16133.D	04/05/23 20:33	n/a	Continuing cal 4
S6Q240-CC239	6Q16134.D	04/05/23 20:47	n/a	Continuing cal 1.0LL
S6Q240-ICCB	6Q16135.D	04/05/23 21:01	n/a	Continuing Calibration Blank
ZZZZZZ	6Q16136.D	04/05/23 21:15	OP96193	(unrelated sample)
ZZZZZZ	6Q16137.D	04/05/23 21:29	OP96193	(unrelated sample)
ZZZZZZ	6Q16138.D	04/05/23 21:43	OP96193	(unrelated sample)
ZZZZZZ	6Q16139.D	04/05/23 21:57	OP96193	(unrelated sample)
ZZZZZZ	6Q16140.D	04/05/23 22:11	OP96193	(unrelated sample)
ZZZZZZ	6Q16141.D	04/05/23 22:25	OP96193	(unrelated sample)
ZZZZZZ	6Q16142.D	04/05/23 22:39	OP96193	(unrelated sample)
ZZZZZZ	6Q16143.D	04/05/23 22:53	OP96193	(unrelated sample)
S6Q240-CC239	6Q16144.D	04/05/23 23:07	n/a	Continuing cal 4
S6Q240-ICCB	6Q16145.D	04/05/23 23:21	n/a	Continuing Calibration Blank
OP96191-BS	6Q16146.D	04/05/23 23:35	OP96191	Blank Spike
OP96191-LLBS	6Q16147.D	04/05/23 23:49	OP96191	Blank Spike

Run Sequence Report

Job Number: FC3825
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q240	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
OP96191-MB	6Q16148.D	04/06/23 00:03	OP96191	Method Blank
FC3825-1	6Q16149.D	04/06/23 00:17	OP96191	AF-RHMW225401-WGN01B-2303W4
OP96191-MS	6Q16150.D	04/06/23 00:31	OP96191	Matrix Spike
S6Q240-CC239	6Q16153.D	04/06/23 01:13	n/a	Continuing cal 4
S6Q240-ICCB	6Q16154.D	04/06/23 01:27	n/a	Continuing Calibration Blank
S6Q240-ICCB	6Q16154.D	04/06/23 01:27	n/a	Continuing Calibration Blank
OP96187-BS	6Q16155.D	04/06/23 01:41	OP96187	Blank Spike
OP96187-LLBS	6Q16156.D	04/06/23 01:55	OP96187	Blank Spike
OP96187-MB	6Q16157.D	04/06/23 02:09	OP96187	Method Blank
ZZZZZZ	6Q16158.D	04/06/23 02:23	OP96187	(unrelated sample)
ZZZZZZ	6Q16159.D	04/06/23 02:37	OP96187	(unrelated sample)
ZZZZZZ	6Q16160.D	04/06/23 02:51	OP96187	(unrelated sample)
ZZZZZZ	6Q16161.D	04/06/23 03:05	OP96187	(unrelated sample)
ZZZZZZ	6Q16162.D	04/06/23 03:19	OP96187	(unrelated sample)
S6Q240-CC239	6Q16163.D	04/06/23 03:33	n/a	Continuing cal 4
S6Q240-ICCB	6Q16164.D	04/06/23 03:47	n/a	Continuing Calibration Blank
S6Q240-ICCB	6Q16164.D	04/06/23 03:47	n/a	Continuing Calibration Blank
JD61598-9A	6Q16165.D	04/06/23 04:01	OP96187	(used for QC only; not part of job FC3825)
OP96187-MS	6Q16166.D	04/06/23 04:15	OP96187	Matrix Spike
OP96187-MSD	6Q16167.D	04/06/23 04:28	OP96187	Matrix Spike Duplicate
ZZZZZZ	6Q16168.D	04/06/23 04:42	OP96187	(unrelated sample)
OP96187-MS2	6Q16169.D	04/06/23 04:56	OP96187	Matrix Spike
OP96187-MSD2	6Q16170.D	04/06/23 05:10	OP96187	Matrix Spike Duplicate
ZZZZZZ	6Q16171.D	04/06/23 05:24	OP96187	(unrelated sample)
ZZZZZZ	6Q16172.D	04/06/23 05:38	OP96187	(unrelated sample)
S6Q240-CC239	6Q16173.D	04/06/23 05:52	n/a	Continuing cal 4
S6Q240-ICCB	6Q16174.D	04/06/23 06:06	n/a	Continuing Calibration Blank
S6Q240-ICCB	6Q16174.D	04/06/23 06:06	n/a	Continuing Calibration Blank
ZZZZZZ	6Q16175.D	04/06/23 06:20	OP96187	(unrelated sample)
ZZZZZZ	6Q16176.D	04/06/23 06:34	OP96187	(unrelated sample)
ZZZZZZ	6Q16177.D	04/06/23 06:48	OP96187	(unrelated sample)
ZZZZZZ	6Q16178.D	04/06/23 07:02	OP96187	(unrelated sample)
ZZZZZZ	6Q16179.D	04/06/23 07:16	OP96187	(unrelated sample)
JD62642-10A	6Q16180.D	04/06/23 07:30	OP96187	(used for QC only; not part of job FC3825)
S6Q240-ECC239	6Q16181.D	04/06/23 07:44	n/a	Ending cal 4
S6Q240-ICCB	6Q16182.D	04/06/23 07:58	n/a	Continuing Calibration Blank
S6Q240-ICCB	6Q16182.D	04/06/23 07:58	n/a	Continuing Calibration Blank

6.9.2
6

MS Semi-volatiles

Raw Data

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16149.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/6/2023 12:17:15 AM
 Sample Name : FC3825-1
 Vial : P2-B6
 DA Method File : 1633_040423_S6Q239.quantmethod.xml
 Batch Name : S6Q240.batch.bin
 Sample Information : OP96191,S6Q240,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.938	216.8 -> 171.9	71277	10.00 µg/L	0.041
M5-PFPeA	4.334	268.3 -> 223.0	31046	5.00 µg/L	0.012
M5-PFHxA	5.528	318.0 -> 273.0	29615	2.50 µg/L	0.000
M4-PFHpA	6.468	367.1 -> 322.0	26862	2.50 µg/L	0.000
M8-PFOA	7.125	421.1 -> 376.0	46576	2.50 µg/L	0.013
M9-PFNA	7.643	472.1 -> 427.0	12872	1.25 µg/L	0.000
M6-PFDA	8.122	519.1 -> 474.1	11737	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	13383	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	13248	1.25 µg/L	0.012
M2-PFTeDA	9.721	715.2 -> 670.0	7037	1.25 µg/L	0.000
M8-FOSA	9.631	506.1 -> 77.8	10333	2.50 µg/L	0.012
M3-PFBS	5.459	302.1 -> 79.9	10675	2.50 µg/L	0.000
M3-PFHxS	7.240	402.1 -> 79.9	6798	2.50 µg/L	0.012
M8-PFOS	8.284	507.1 -> 79.9	5652	2.50 µg/L	0.000
M2-4:2FTS	5.204	329.1 -> 80.9	1920	5.00 µg/L	0.012
M2-6:2FTS	6.886	429.1 -> 80.9	2204	5.00 µg/L	0.000
M2-8:2FTS	7.911	529.1 -> 80.9	1857	5.00 µg/L	0.000
M3-MeFOSAA	8.180	573.2 -> 419.0	17868	5.00 µg/L	0.012
M3-HFPO-DA	5.893	286.9 -> 168.9	10958	10.00 µg/L	0.000
M5-EtFOSAA	8.375	589.2 -> 419.0	14479	5.00 µg/L	0.000
M7-MeFOSE	10.653	623.2 -> 58.9	11602	25.00 µg/L	0.000
M9-EtFOSE	10.888	639.2 -> 58.9	8698	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	3834	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	3417	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	6875	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	29685	5.00 µg/L	0.040
18O2-PFHxS	7.239	403.0 -> 83.9	4958	2.50 µg/L	0.012
13C4-PFOA	7.125	417.1 -> 372.0	55140	2.50 µg/L	0.013
13C2-PFDA	8.123	515.1 -> 470.1	15669	1.25 µg/L	0.000
13C5-PFNA	7.643	468.0 -> 423.0	15145	1.25 µg/L	0.000
13C2-PFHxA	5.529	315.1 -> 270.0	25140	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.204	329.1 -> 80.9	1920	5.76 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.1%		
13C2-6:2FTS	6.886	429.1 -> 80.9	2204	5.38 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.7%		
13C2-8:2FTS	7.911	529.1 -> 80.9	1857	4.71 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.2%		
13C2-PFDoDA	9.006	615.1 -> 570.0	13248	1.07 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 85.6%		
13C2-PFTeDA	9.721	715.2 -> 670.0	7037	0.95 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 75.8%		
13C3-PFBS	5.459	302.1 -> 79.9	10675	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C3-PFHxS	7.240	402.1 -> 79.9	6798	2.39 µg/L	0.012

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C4-PFBA	2.938	216.8 -> 171.9	71277	10.27 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C4-PFHpA	6.468	367.1 -> 322.0	26862	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.6%	
13C5-PFHxA	5.528	318.0 -> 273.0	29615	2.85 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.9%	
13C5-PFPeA	4.334	268.3 -> 223.0	31046	5.29 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C6-PFDA	8.122	519.1 -> 474.1	11737	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C7-PFUnDA	8.576	570.0 -> 525.1	13383	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C8-FOSA	9.631	506.1 -> 77.8	10333	2.02 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 80.8%	
13C8-PFOA	7.125	421.1 -> 376.0	46576	2.53 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C8-PFOS	8.284	507.1 -> 79.9	5652	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C9-PFNA	7.643	472.1 -> 427.0	12872	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.9%	
d3-MeFOSAA	8.180	573.2 -> 419.0	17868	5.37 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C3-HFPO-DA	5.893	286.9 -> 168.9	10958	10.00 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
d3-MeFOSA	10.733	515.0 -> 219.0	3417	1.85 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 74.1%	
d5-EtFOSAA	8.375	589.2 -> 419.0	14479	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
d7-MeFOSE	10.653	623.2 -> 58.9	11602	16.58 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 66.3%	
d9-EtFOSE	10.888	639.2 -> 58.9	8698	18.70 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 74.8%	
d5-EtFOSA	10.965	531.1 -> 219.0	3834	1.93 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 77.2%	

Target Compounds

QValue

4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	5.460	298.7 -> 79.9	334	0.08 µg/L	88
		298.7 -> 98.8	182		
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	8.982	613.1 -> 569.0	0	µg/L	m 1
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8				
PFHpA	6.481	363.1 -> 319.0	1471	0.10	µg/L	97
		363.1 -> 169.0	224			
PFHpS	-	449.0 -> 79.9	-	N.D.		
		449.0 -> 98.9				
PFHxA	5.531	313.0 -> 269.0	1249	0.11	µg/L	97
		313.0 -> 118.9	38			
PFHxS	7.241	398.7 -> 79.9	377	0.13	µg/L	m 83
		398.7 -> 98.9	267			
PFNA	8.103	463.0 -> 419.0	0		µg/L	m 1
		463.0 -> 219.0	0			
PFNS	-	548.8 -> 79.9	-	N.D.		
		548.8 -> 98.9				
PFOA	7.126	413.0 -> 369.0	2917	0.14	µg/L	m 97
		413.0 -> 169.0	359			
PFOS	8.273	498.9 -> 79.9	419	0.17	µg/L	m 62
		498.9 -> 98.8	181			
PFPeA	4.336	263.0 -> 219.0	967	0.15	µg/L	100
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

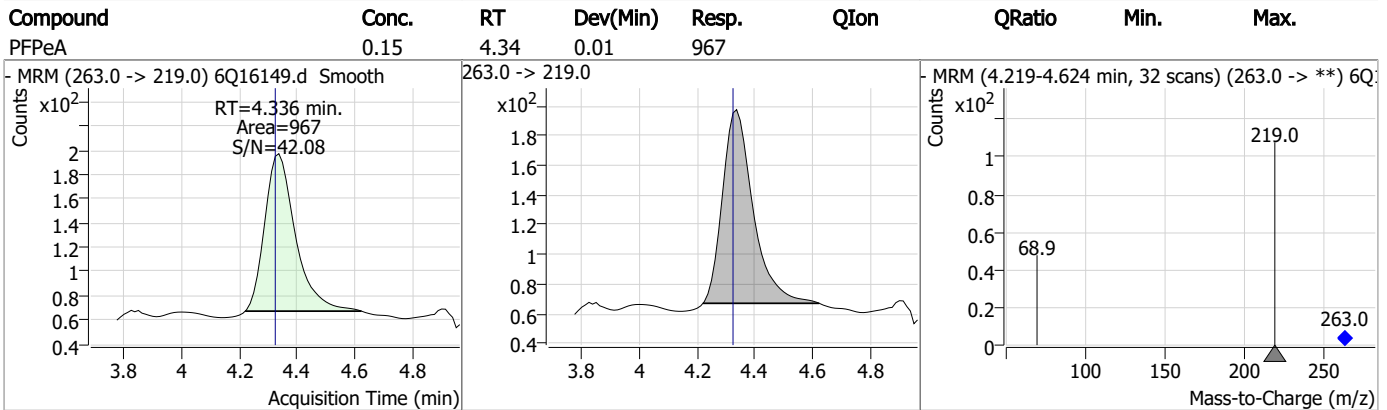
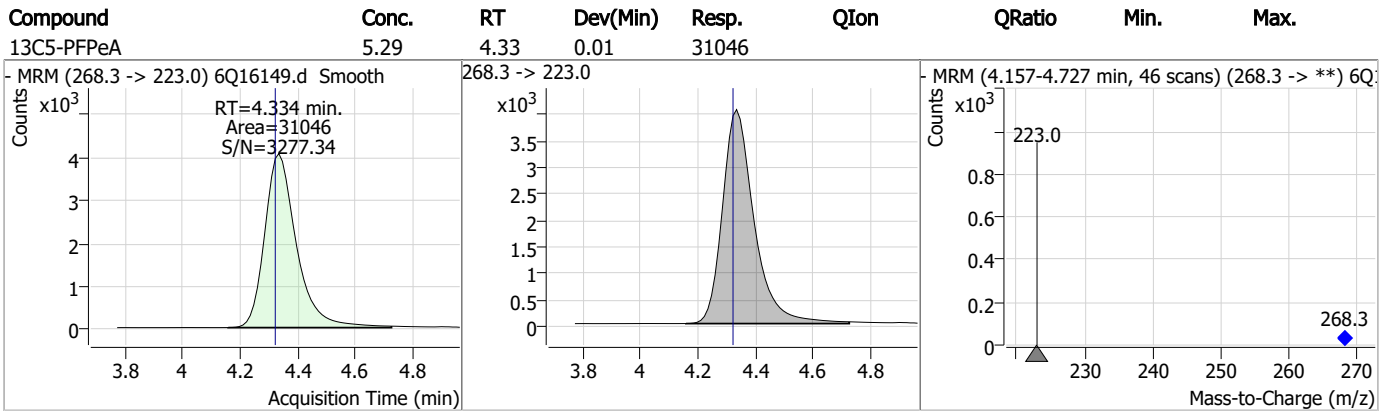
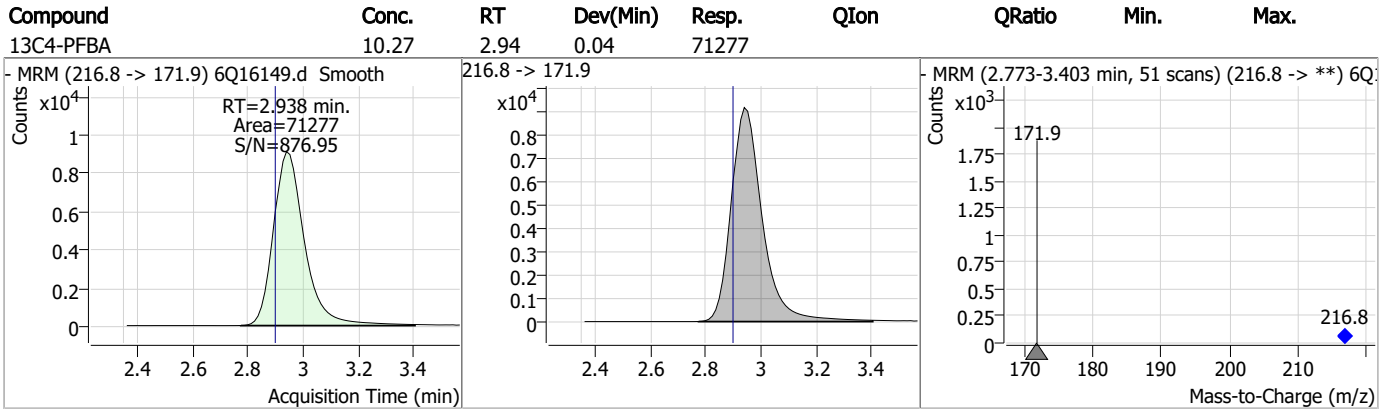
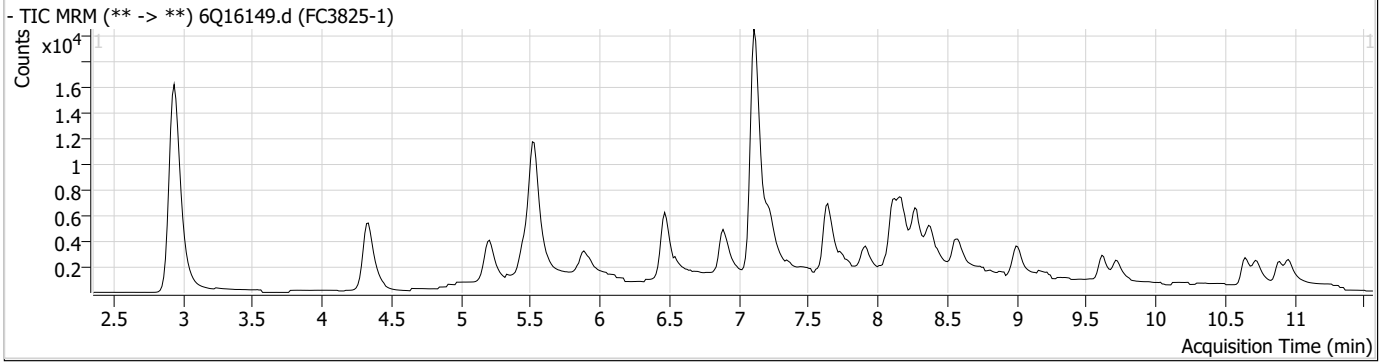
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

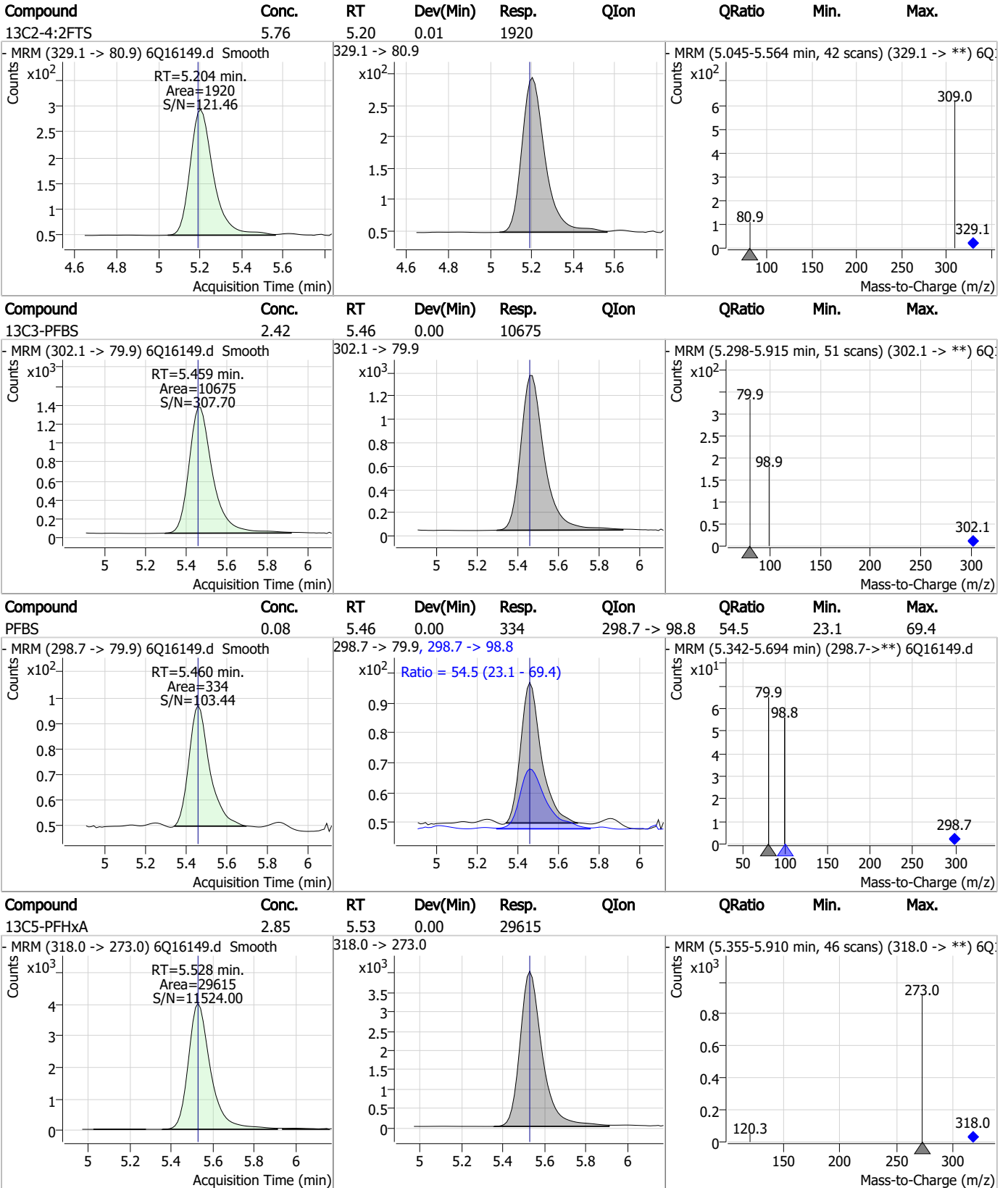
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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Perfluorinated Compounds by LC/MS/MS



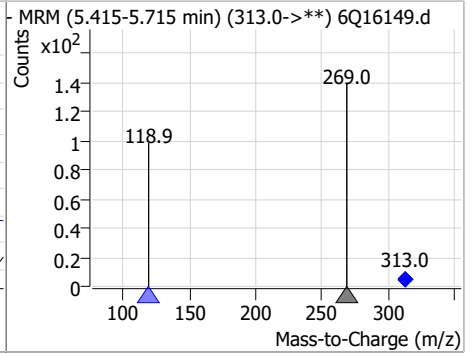
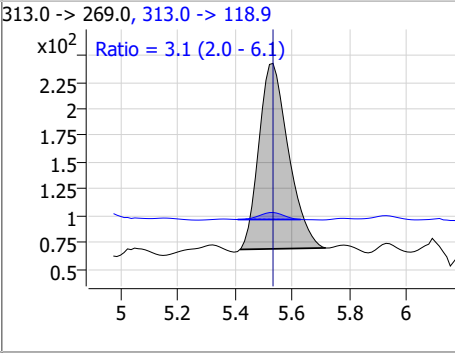
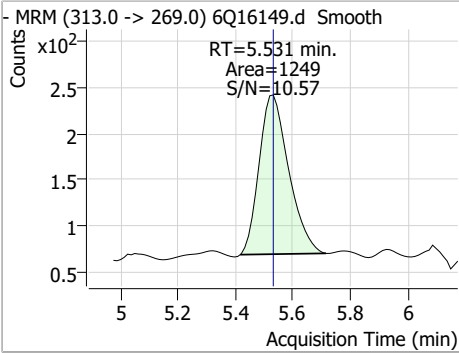
Perfluorinated Compounds by LC/MS/MS



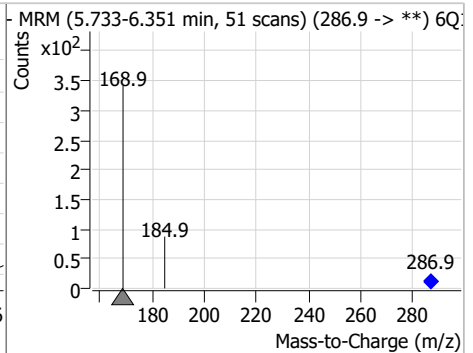
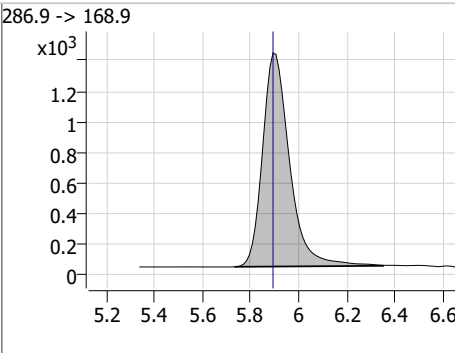
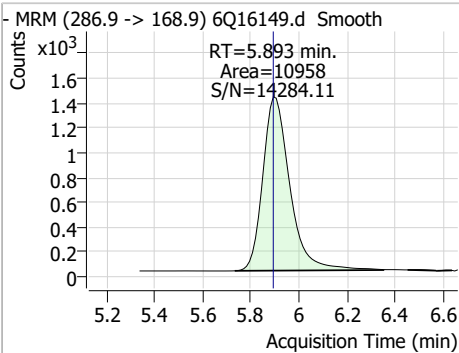
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Perfluorinated Compounds by LC/MS/MS

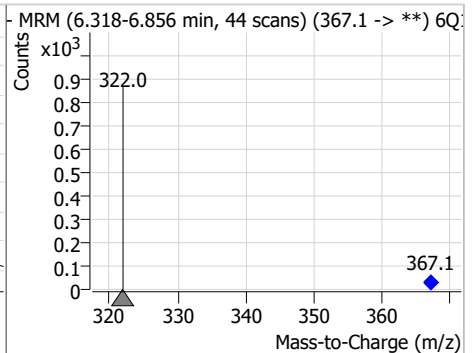
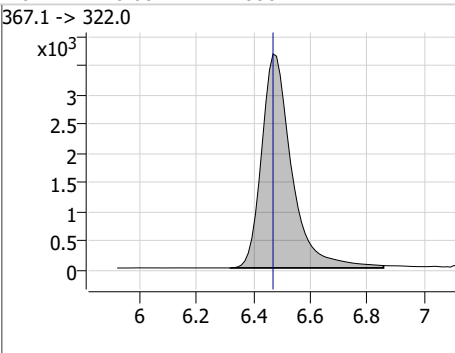
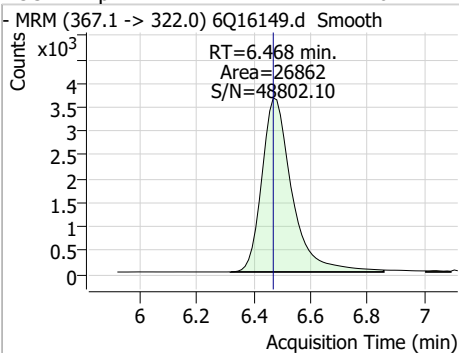
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.11	5.53	0.00	1249	313.0 -> 118.9	3.1	2.0	6.1



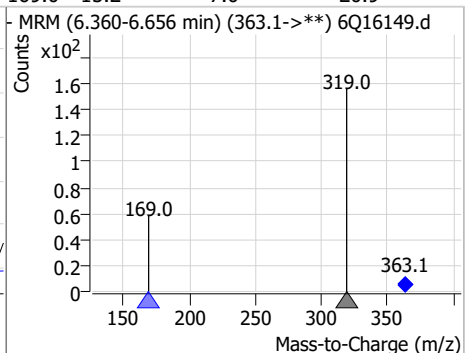
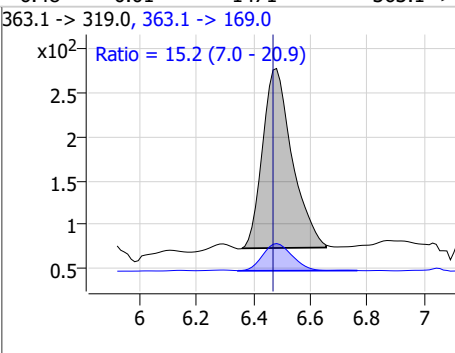
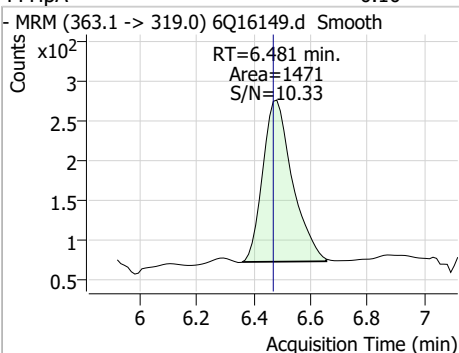
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.00	5.89	0.00	10958				



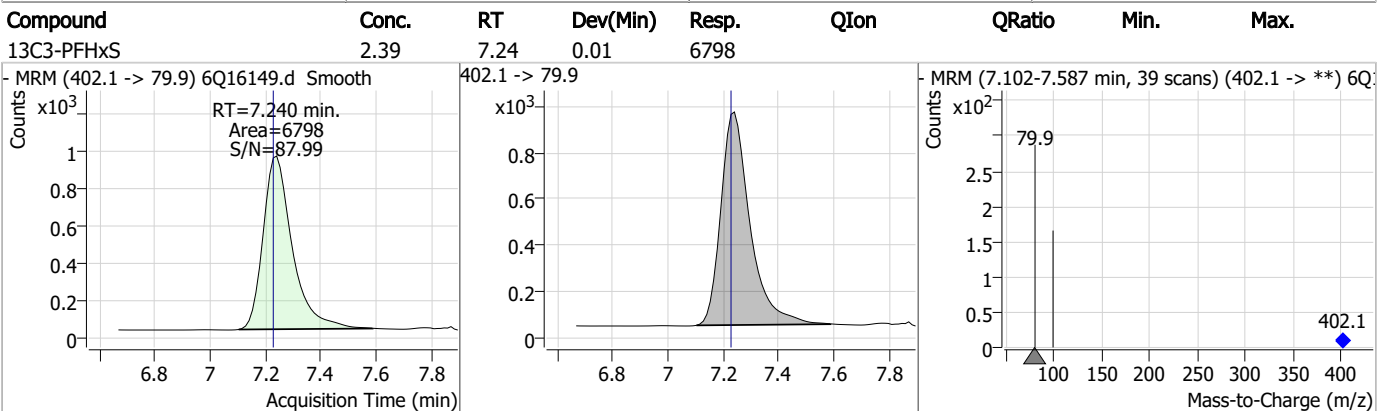
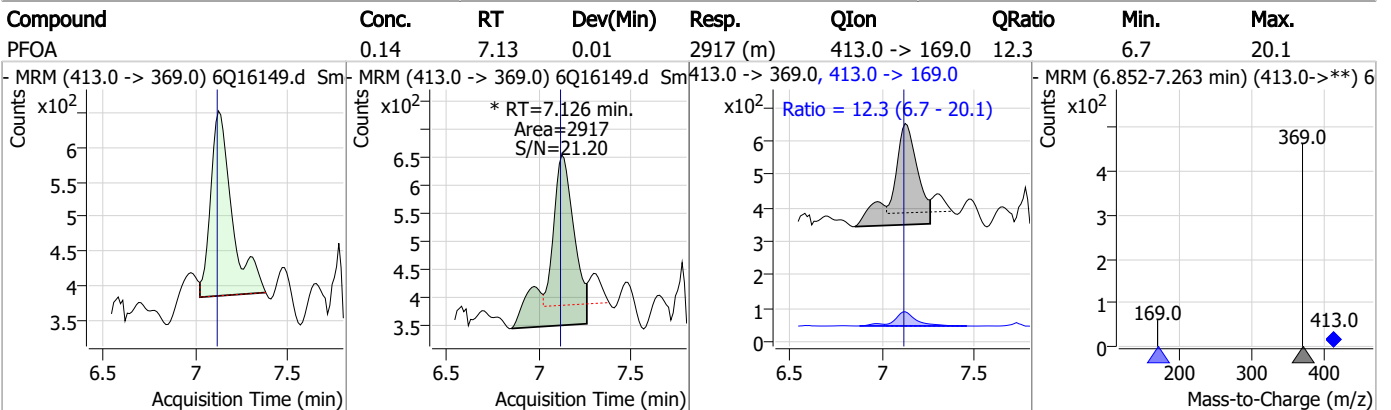
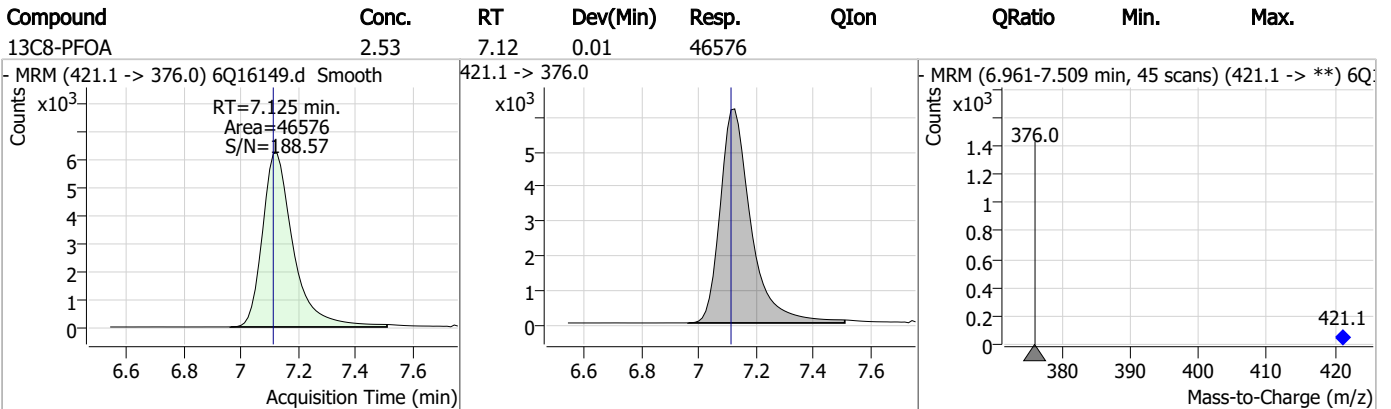
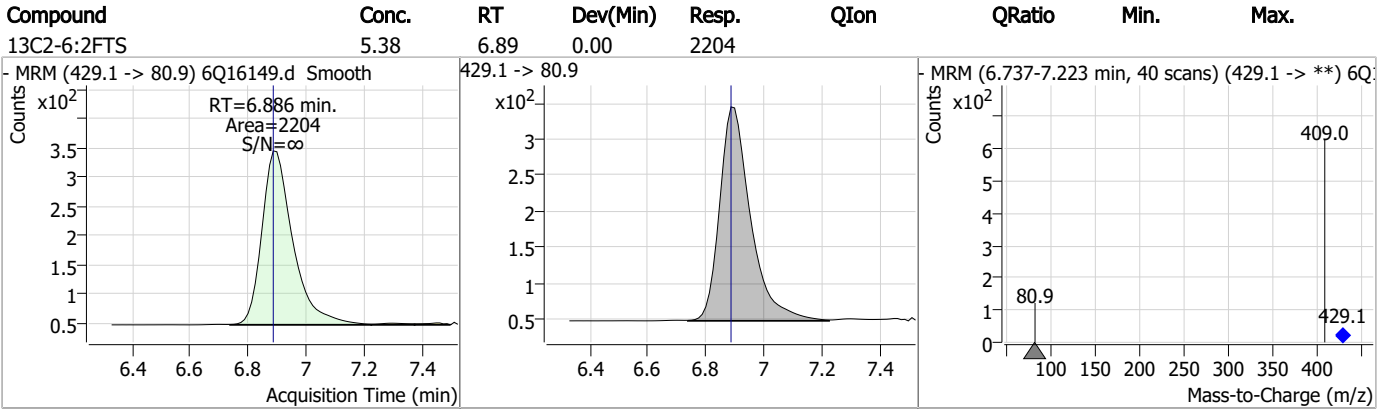
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.64	6.47	0.00	26862				



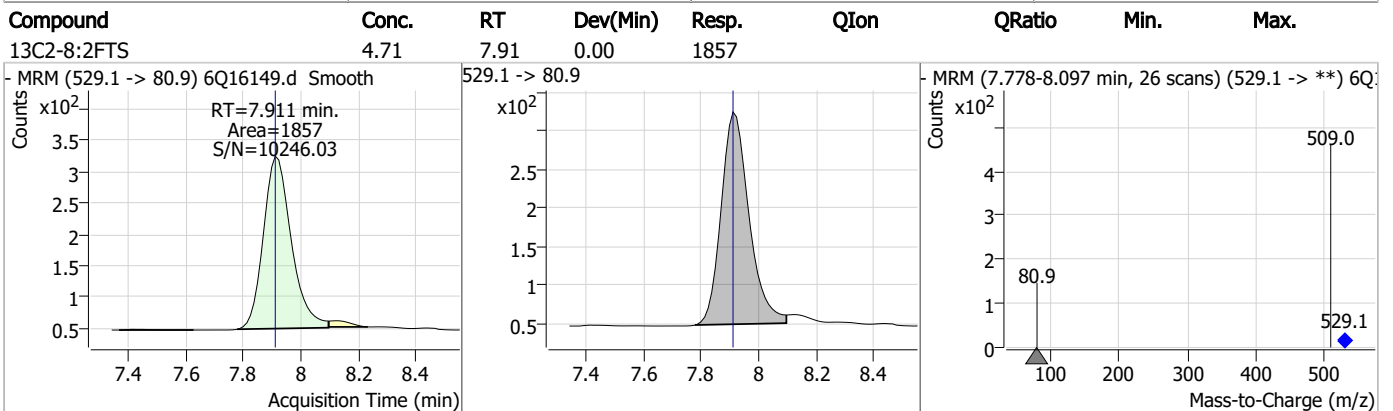
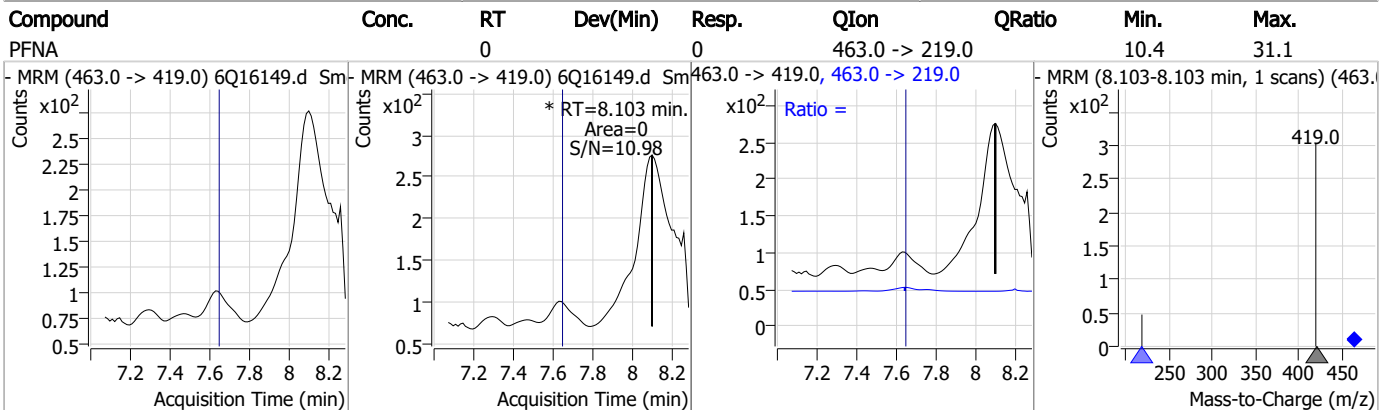
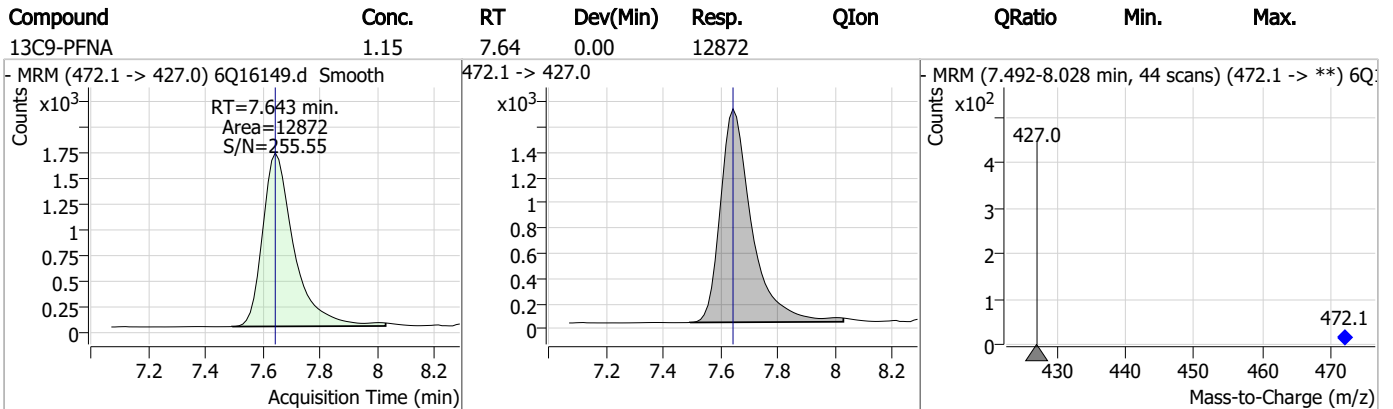
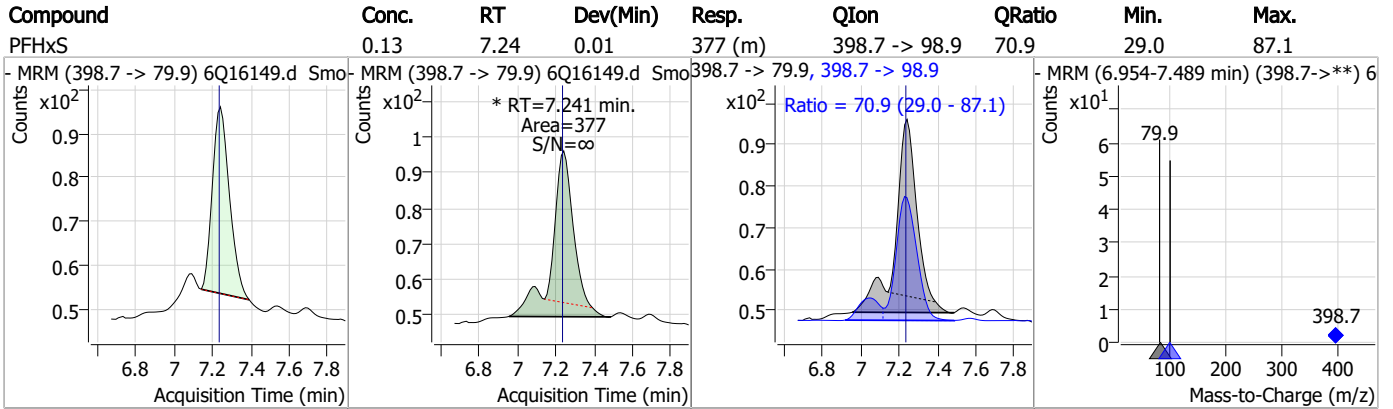
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.10	6.48	0.01	1471	363.1 -> 169.0	15.2	7.0	20.9



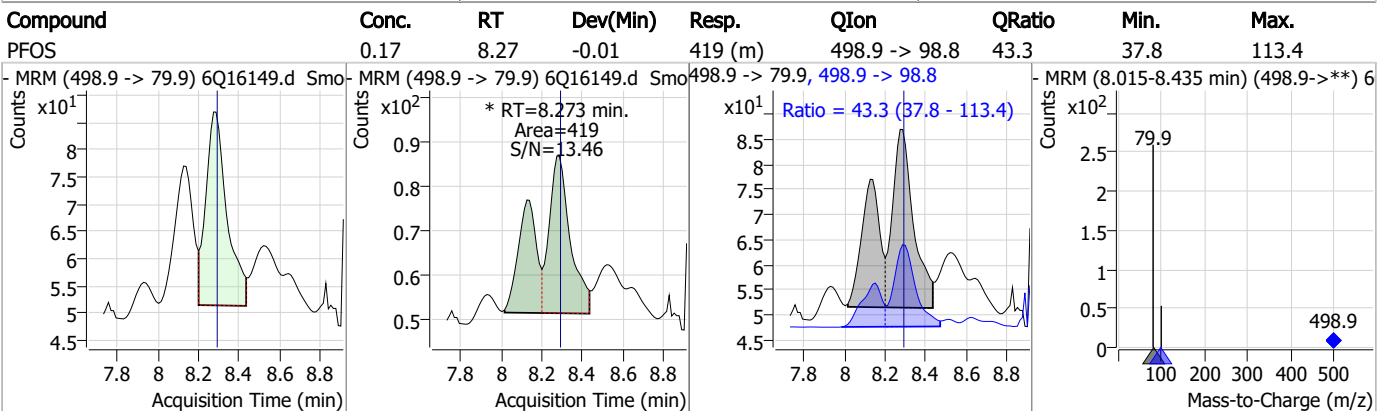
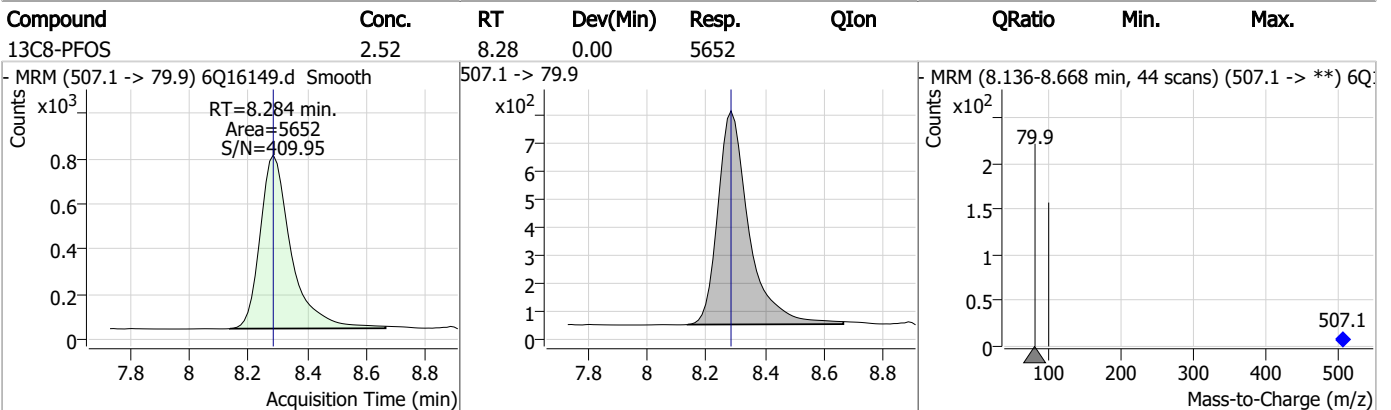
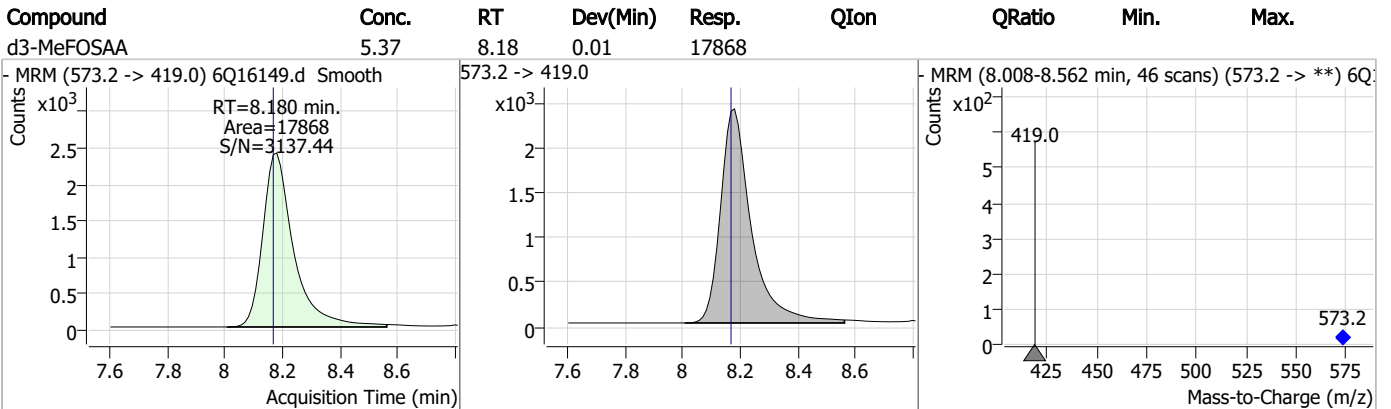
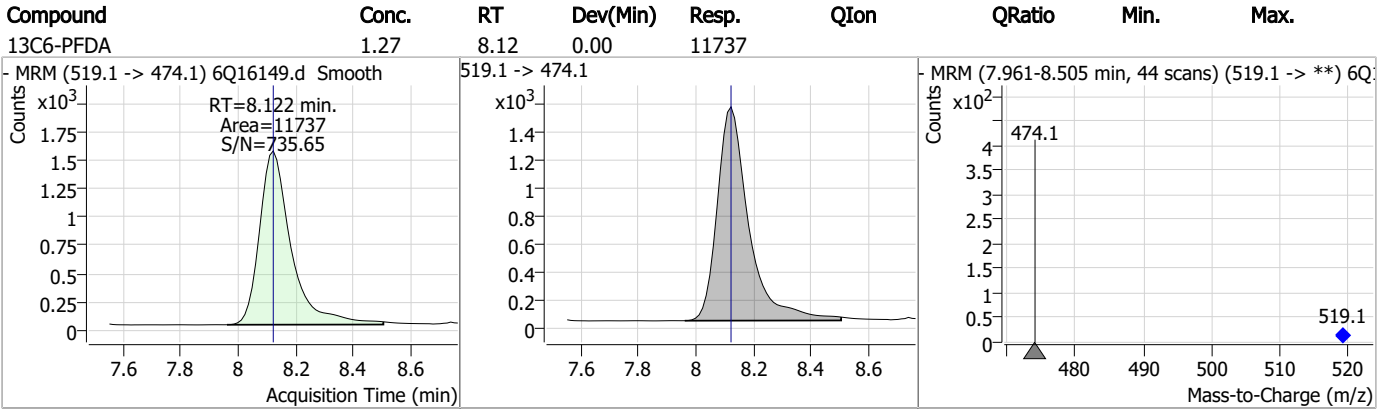
Perfluorinated Compounds by LC/MS/MS



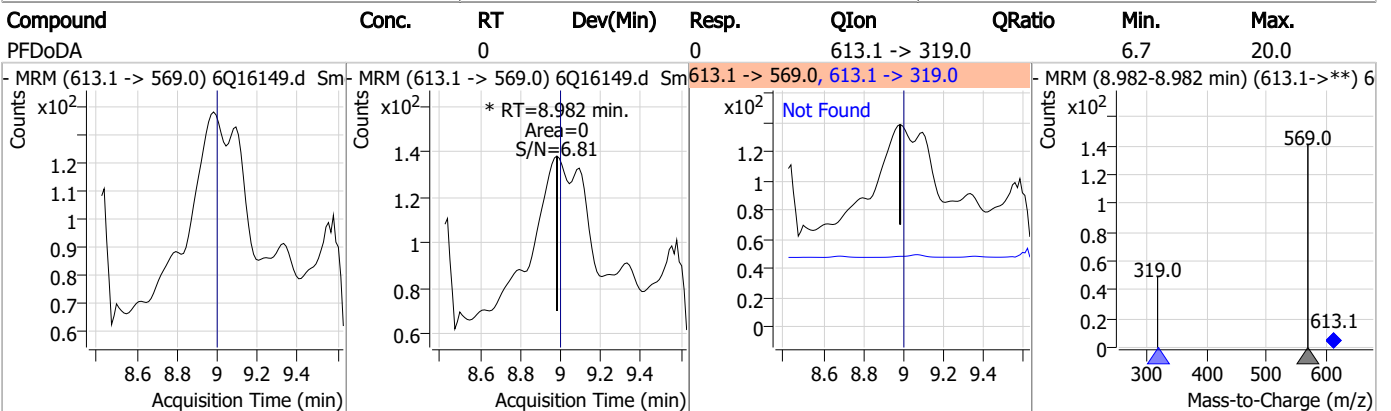
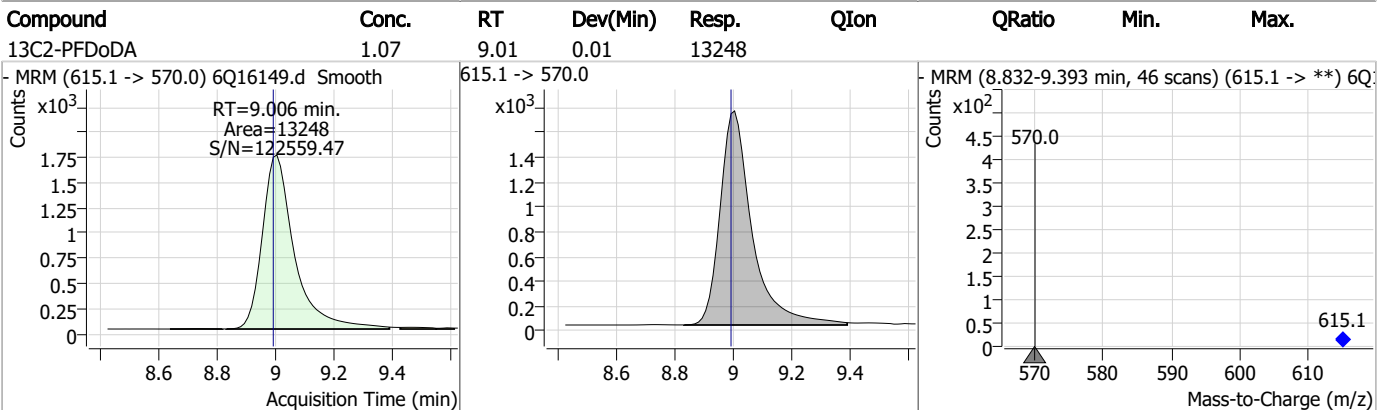
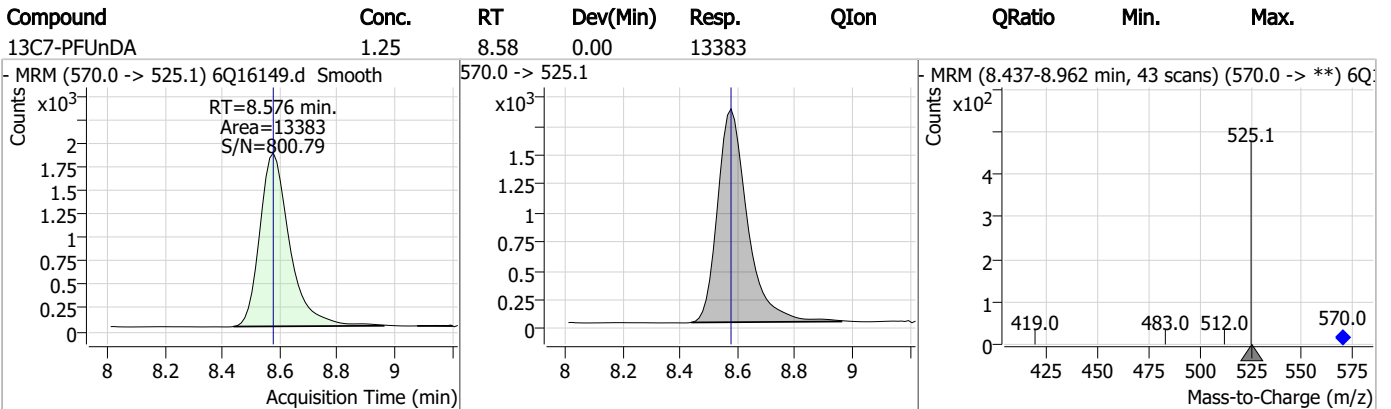
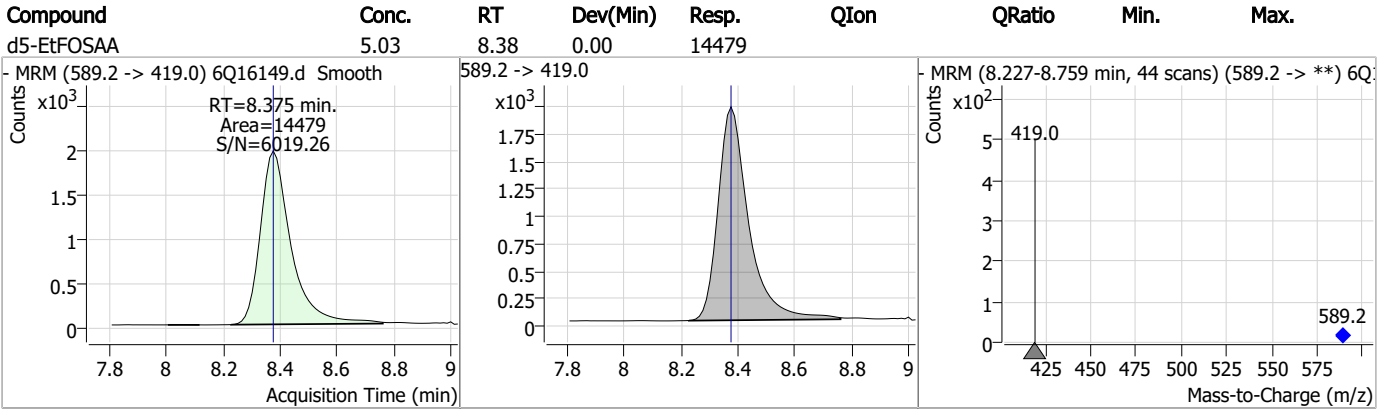
Perfluorinated Compounds by LC/MS/MS



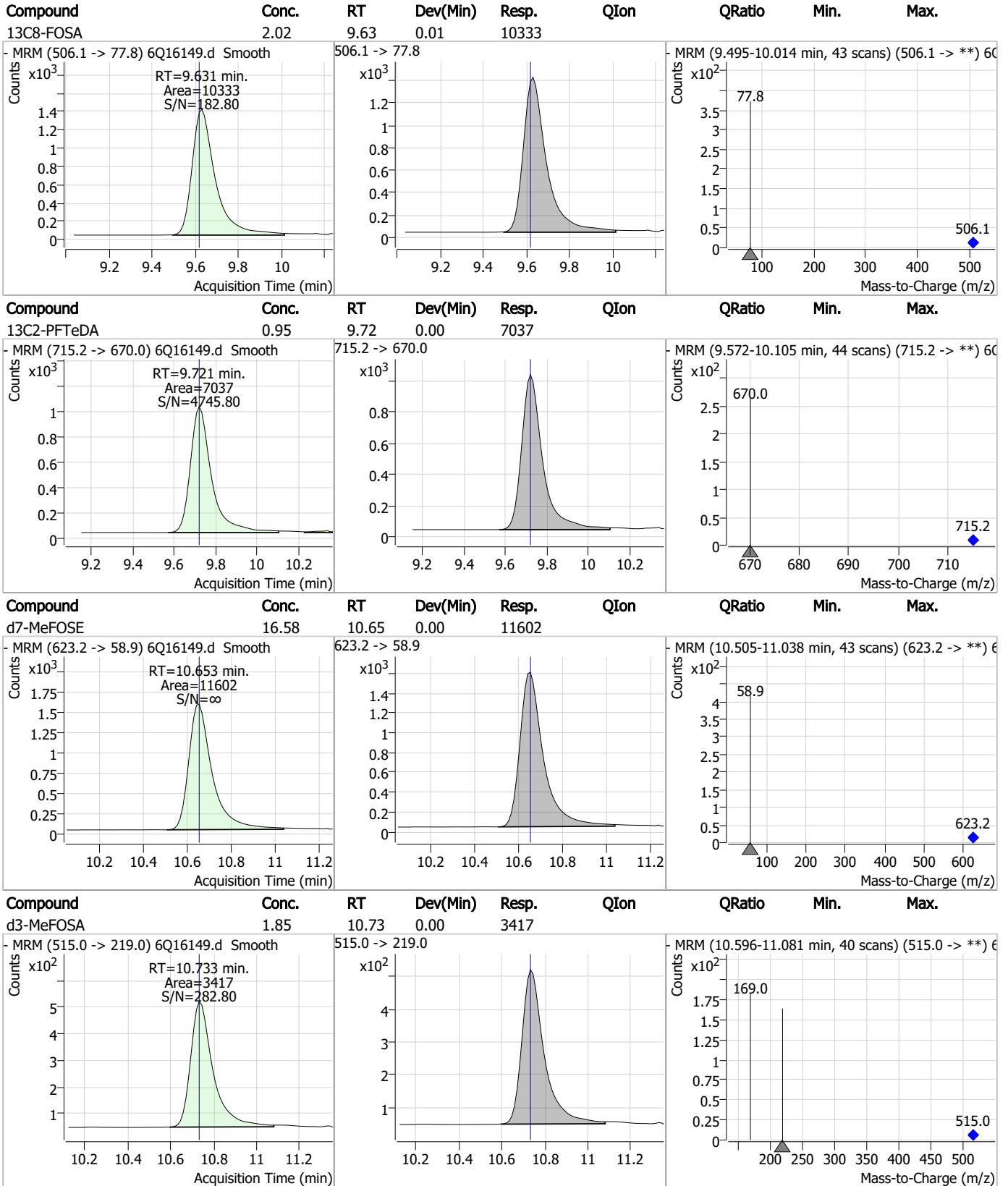
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

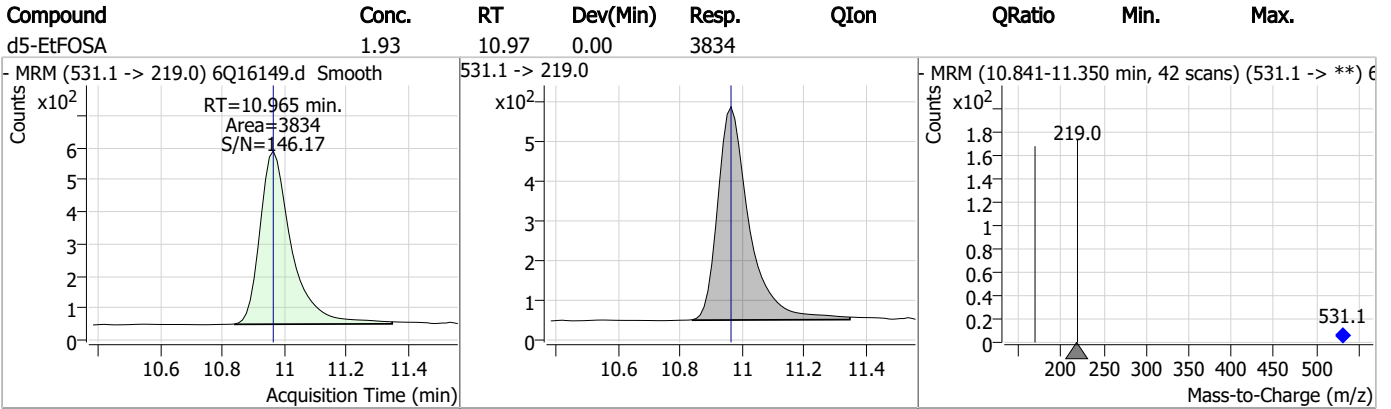
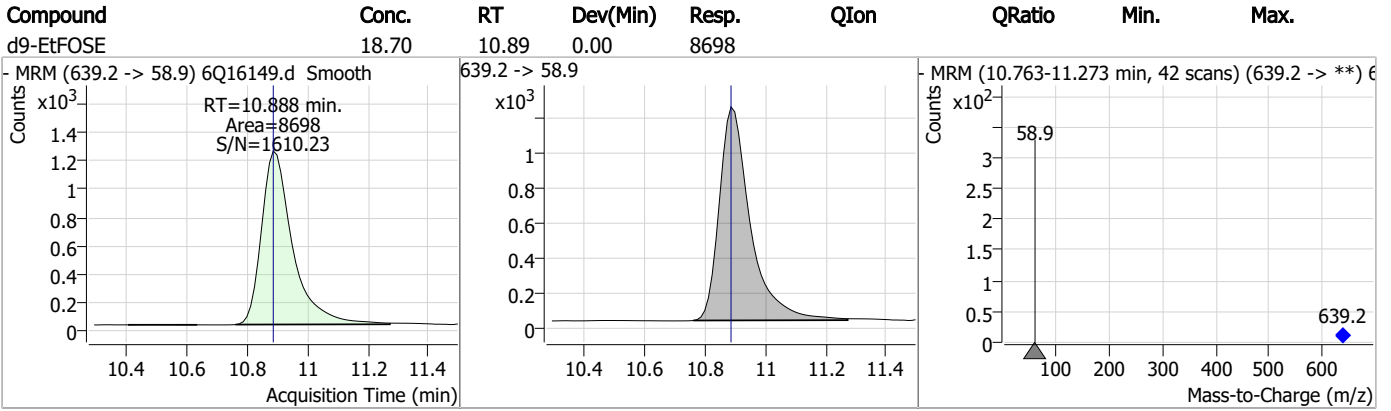


7.1.1

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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: FC3825-1 Method: EPA DRAFT 1633
Lab FileID: 6Q16149.D Analyst approved: 04/06/23 12:00 Martha Valls
Injection Time: 04/06/23 00:17 Supervisor approved: 04/06/23 14:50 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.13	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.27	Split peak

7.1.1.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16105.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/5/2023 1:57:54 PM
 Sample Name : IBLK
 Vial : P1-A1
 DA Method File : 1633_040423_S6Q239.quantmethod.xml
 Batch Name : S6Q240.batch.bin
 Sample Information : OP96085,S6Q240,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	75235	10.00 µg/L	0.000
M5-PFPeA	4.309	268.3 -> 223.0	33388	5.00 µg/L	-0.012
M5-PFHxA	5.516	318.0 -> 273.0	31849	2.50 µg/L	-0.012
M4-PFHpA	6.468	367.1 -> 322.0	29199	2.50 µg/L	0.000
M8-PFOA	7.125	421.1 -> 376.0	49725	2.50 µg/L	0.013
M9-PFNA	7.643	472.1 -> 427.0	15461	1.25 µg/L	0.000
M6-PFDA	8.122	519.1 -> 474.1	13575	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	15157	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	16024	1.25 µg/L	0.012
M2-PFTeDA	9.721	715.2 -> 670.0	9717	1.25 µg/L	0.000
M8-FOSA	9.631	506.1 -> 77.8	14466	2.50 µg/L	0.012
M3-PFBS	5.446	302.1 -> 79.9	11399	2.50 µg/L	-0.012
M3-PFHxS	7.228	402.1 -> 79.9	7687	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	6278	2.50 µg/L	0.000
M2-4:2FTS	5.191	329.1 -> 80.9	2180	5.00 µg/L	0.000
M2-6:2FTS	6.886	429.1 -> 80.9	2439	5.00 µg/L	0.000
M2-8:2FTS	7.911	529.1 -> 80.9	2331	5.00 µg/L	0.000
M3-MeFOSAA	8.180	573.2 -> 419.0	19824	5.00 µg/L	0.012
M3-HFPO-DA	5.893	286.9 -> 168.9	12766	10.00 µg/L	0.000
M5-EtFOSAA	8.375	589.2 -> 419.0	17290	5.00 µg/L	0.000
M7-MeFOSE	10.653	623.2 -> 58.9	18024	25.00 µg/L	0.000
M9-EtFOSE	10.888	639.2 -> 58.9	11674	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	5536	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	5216	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	8320	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	32229	5.00 µg/L	0.000
18O2-PFHxS	7.239	403.0 -> 83.9	5193	2.50 µg/L	0.012
13C4-PFOA	7.112	417.1 -> 372.0	59751	2.50 µg/L	0.000
13C2-PFDA	8.123	515.1 -> 470.1	17711	1.25 µg/L	0.000
13C5-PFNA	7.643	468.0 -> 423.0	17756	1.25 µg/L	0.000
13C2-PFHxA	5.516	315.1 -> 270.0	28356	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.191	329.1 -> 80.9	2180	6.24 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 124.8%		
13C2-6:2FTS	6.886	429.1 -> 80.9	2439	5.69 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.8%		
13C2-8:2FTS	7.911	529.1 -> 80.9	2331	5.64 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.8%		
13C2-PFDoDA	9.006	615.1 -> 570.0	16024	1.14 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.6%		
13C2-PFTeDA	9.721	715.2 -> 670.0	9717	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.6%		
13C3-PFBS	5.446	302.1 -> 79.9	11399	2.47 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C3-PFHxS	7.228	402.1 -> 79.9	7687	2.59 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C4-PFBA	2.897	216.8 -> 171.9	75235	9.98 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C4-PFHpA	6.468	367.1 -> 322.0	29199	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C5-PFHxA	5.516	318.0 -> 273.0	31849	2.71 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.6%	
13C5-PFPeA	4.309	268.3 -> 223.0	33388	5.05 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C6-PFDA	8.122	519.1 -> 474.1	13575	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C7-PFUnDA	8.576	570.0 -> 525.1	15157	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C8-FOSA	9.631	506.1 -> 77.8	14466	2.34 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.4%	
13C8-PFOA	7.125	421.1 -> 376.0	49725	2.49 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C8-PFOS	8.284	507.1 -> 79.9	6278	2.32 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.6%	
13C9-PFNA	7.643	472.1 -> 427.0	15461	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.2%	
d3-MeFOSAA	8.180	573.2 -> 419.0	19824	4.92 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C3-HFPO-DA	5.893	286.9 -> 168.9	12766	10.32 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.2%	
d3-MeFOSA	10.733	515.0 -> 219.0	5216	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.5%	
d5-EtFOSAA	8.375	589.2 -> 419.0	17290	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
d7-MeFOSE	10.653	623.2 -> 58.9	18024	21.29 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 85.1%	
d9-EtFOSE	10.888	639.2 -> 58.9	11674	20.74 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 83.0%	
d5-EtFOSA	10.965	531.1 -> 219.0	5536	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.1%	

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

7.2.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.	
		363.1 -> 319.0			
PFHpS	-	363.1 -> 169.0	-	N.D.	
		449.0 -> 79.9			
PFHxA	-	449.0 -> 98.9	-	N.D.	
		313.0 -> 269.0			
PFHxS	-	313.0 -> 118.9	-	N.D.	
		398.7 -> 79.9			
PFNA	-	398.7 -> 98.9	-	N.D.	
		463.0 -> 419.0			
PFNS	-	463.0 -> 219.0	-	N.D.	
		548.8 -> 79.9			
PFOA	-	548.8 -> 98.9	-	N.D.	
		413.0 -> 369.0			
PFOS	-	413.0 -> 169.0	-	N.D.	
		498.9 -> 79.9			
PFPeA	-	498.9 -> 98.8	-	N.D.	
		263.0 -> 219.0			
PFPeS	-	349.1 -> 79.9	-	N.D.	
		349.1 -> 98.9			
PFTeDA	-	713.1 -> 669.0	-	N.D.	
		713.1 -> 168.9			
PFTrDA	-	663.0 -> 619.0	-	N.D.	
		663.0 -> 168.9			
PFUnDA	-	563.1 -> 519.0	-	N.D.	
		563.1 -> 269.1			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.	
		632.9 -> 452.9			
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.	
		532.8 -> 353.0			
ADONA	-	376.9 -> 250.9	-	N.D.	
		376.9 -> 84.8			
HFPO-DA	-	284.9 -> 168.9	-	N.D.	
		284.9 -> 184.9			
3:3FTCA	-	241.0 -> 177.0	-	N.D.	
		241.0 -> 117.0			
5:3FTCA	-	341.0 -> 237.1	-	N.D.	
		341.0 -> 217.0			
7:3FTCA	-	441.0 -> 316.9	-	N.D.	
		441.0 -> 336.9			
EtFOSA	-	526.0 -> 219.0	-	N.D.	
		526.0 -> 169.0			
EtFOSE	-	630.0 -> 58.9	-	N.D.	
		511.9 -> 219.0			
MeFOSA	-	511.9 -> 169.0	-	N.D.	
		616.1 -> 58.9			
MeFOSE	-	699.1 -> 79.9	-	N.D.	
		699.1 -> 98.8			
PFDoDS	-	295.0 -> 201.0	-	N.D.	
		295.0 -> 84.9			
NFDHA	-	279.0 -> 85.1	-	N.D.	
		229.0 -> 84.9			
PFMBA	-	314.8 -> 134.9	-	N.D.	
		314.8 -> 82.9			

= Qualifier out of range, m = manually integrated, + = Area summed

7.2.1
7

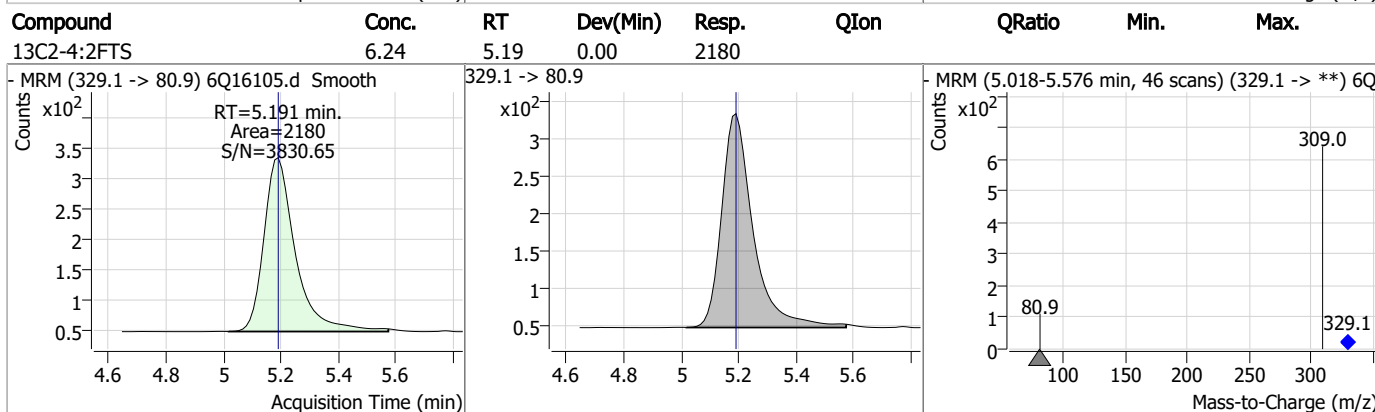
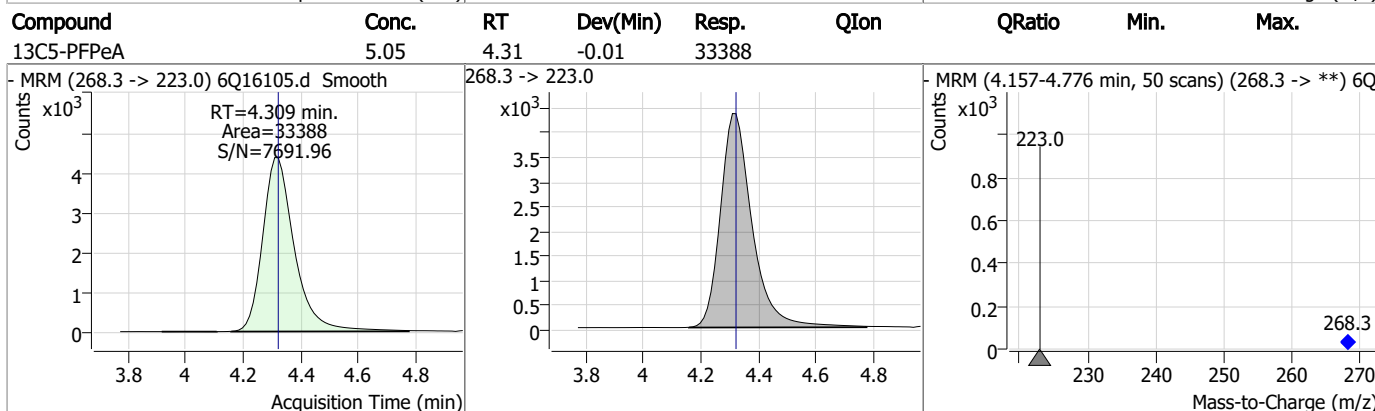
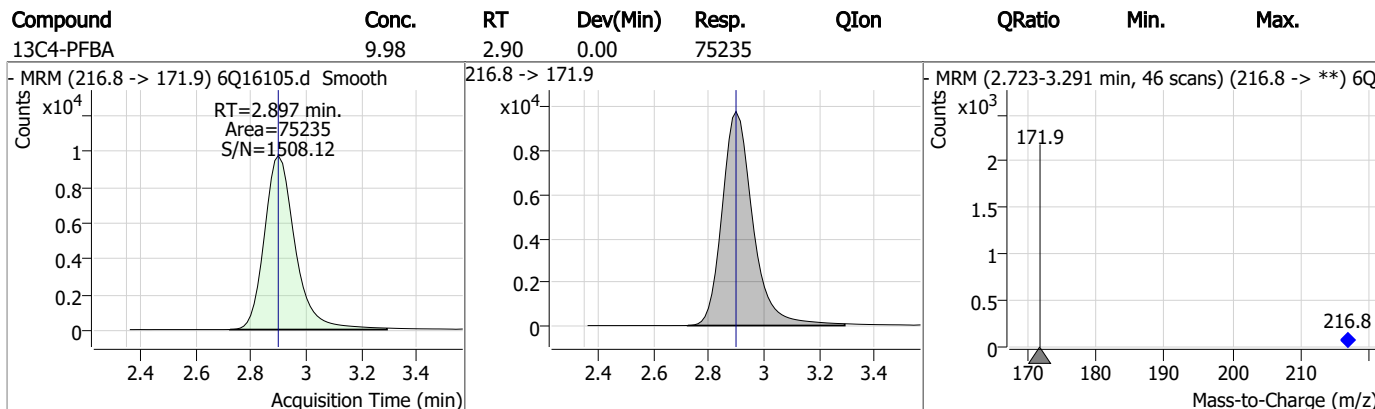
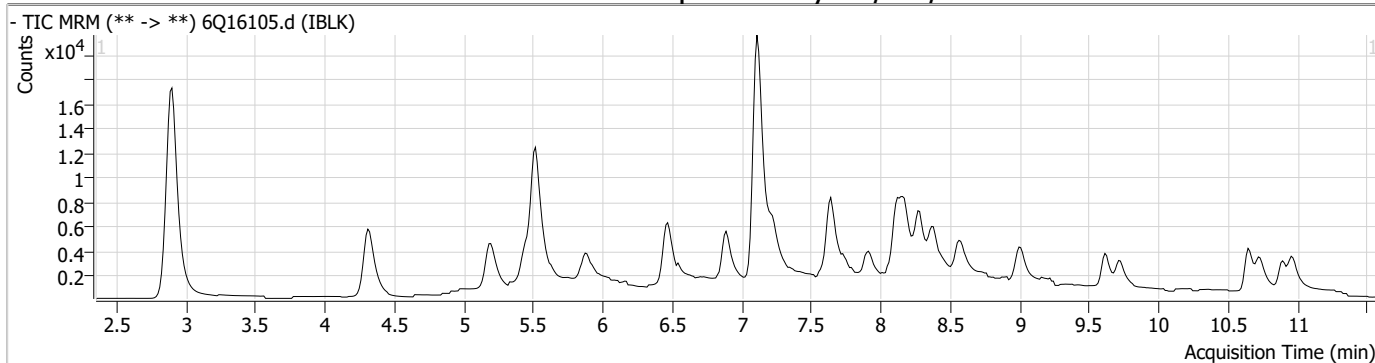
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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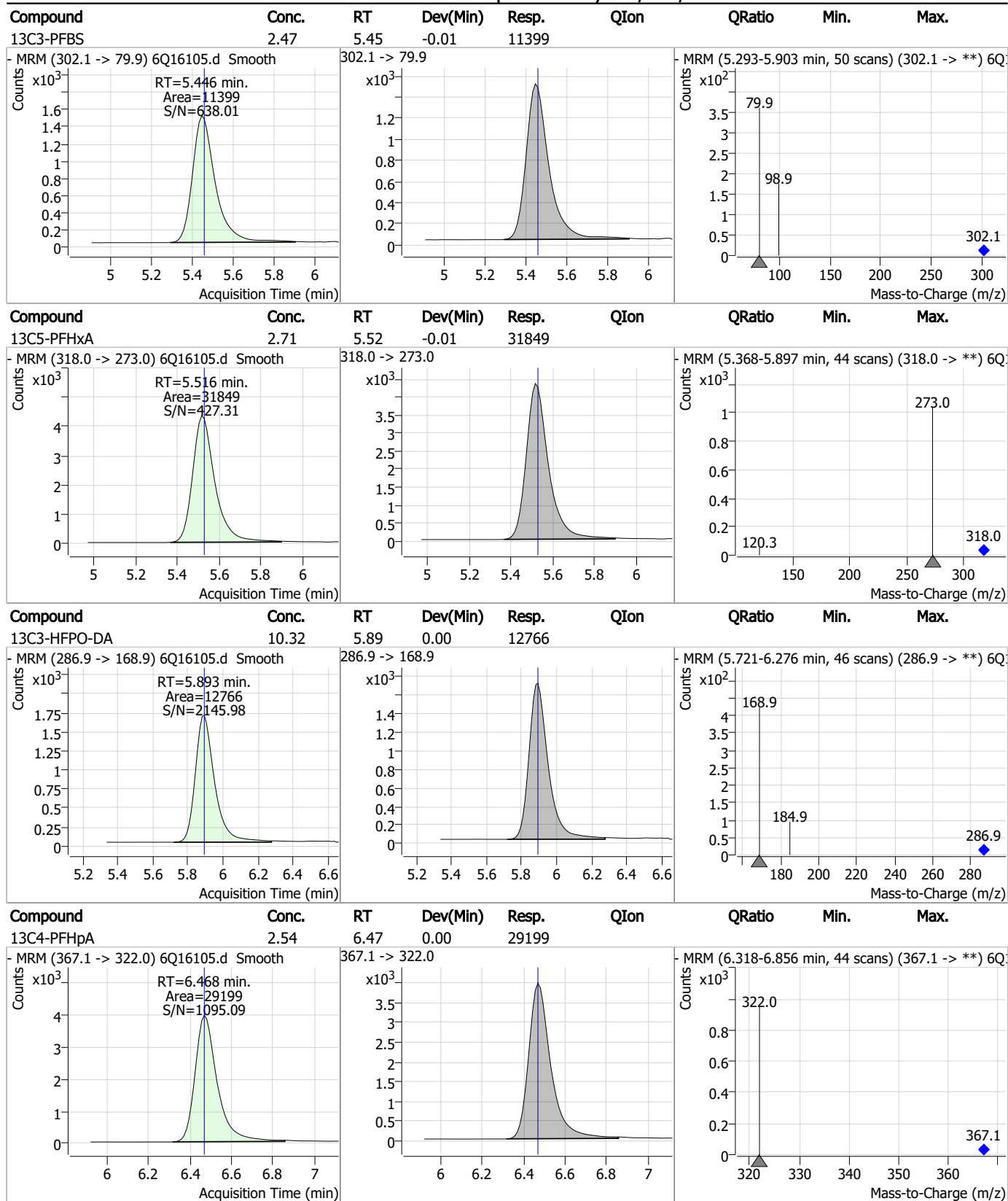
7.2.1

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Perfluorinated Compounds by LC/MS/MS

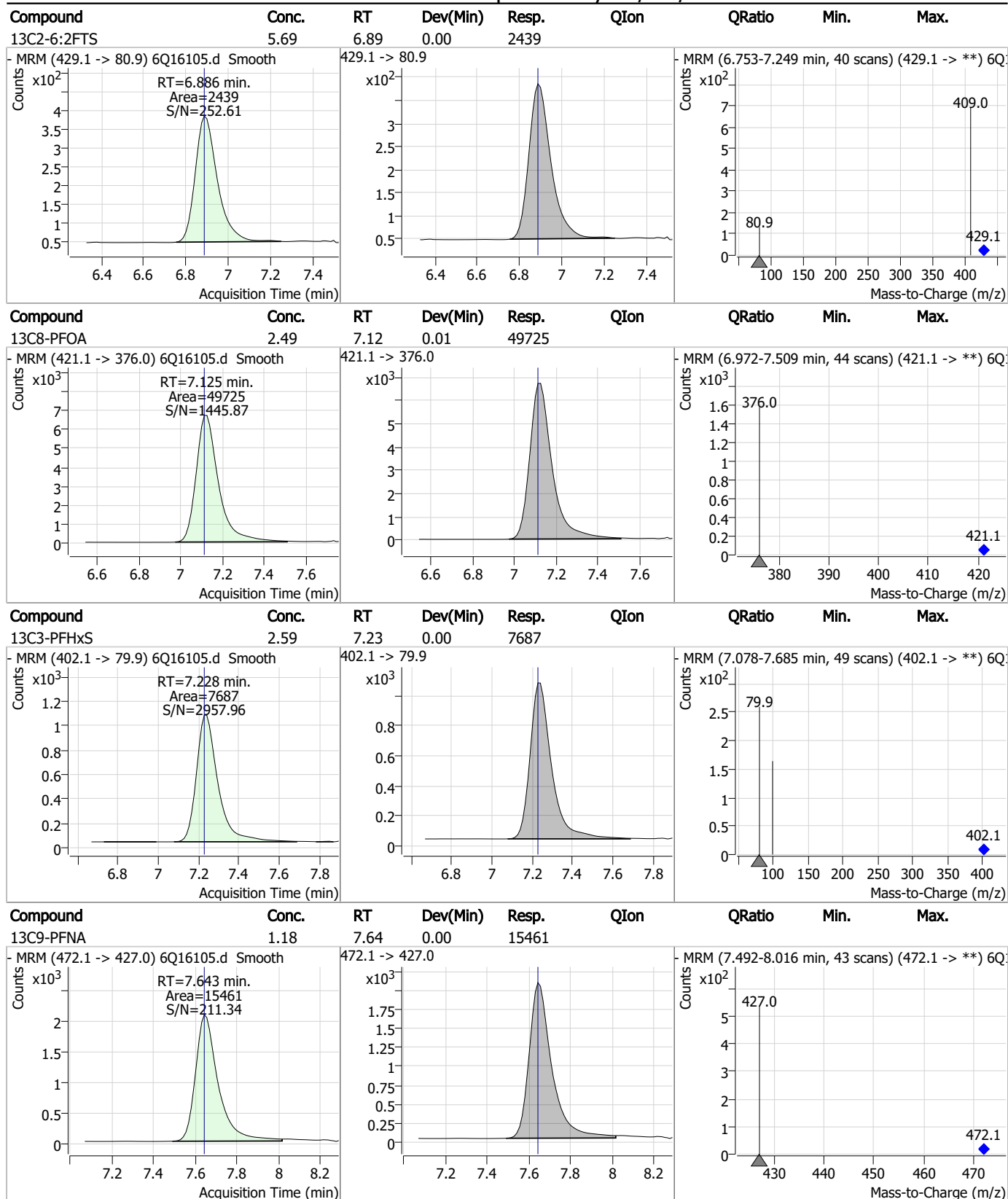


Perfluorinated Compounds by LC/MS/MS



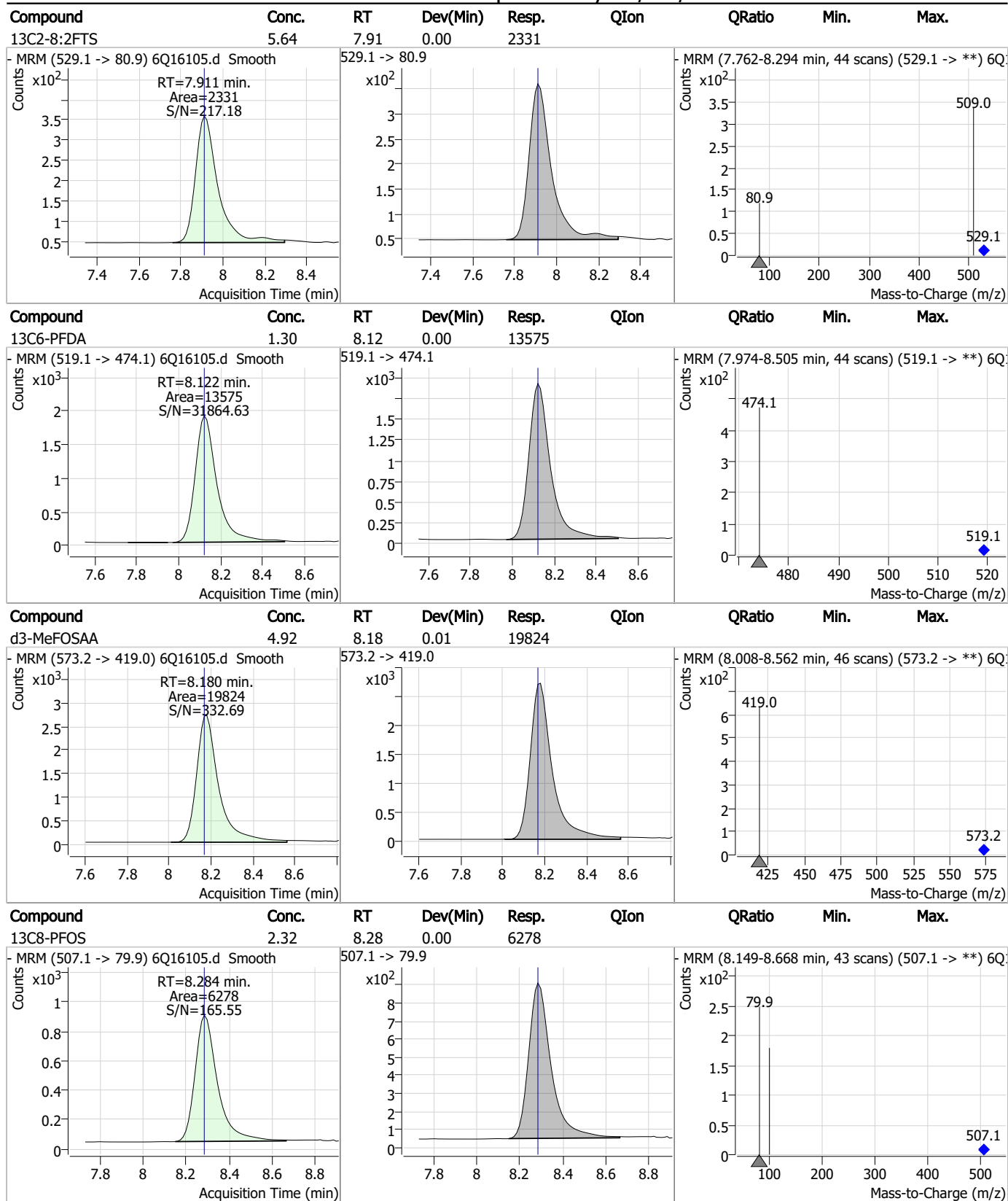
7.2.1
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Perfluorinated Compounds by LC/MS/MS



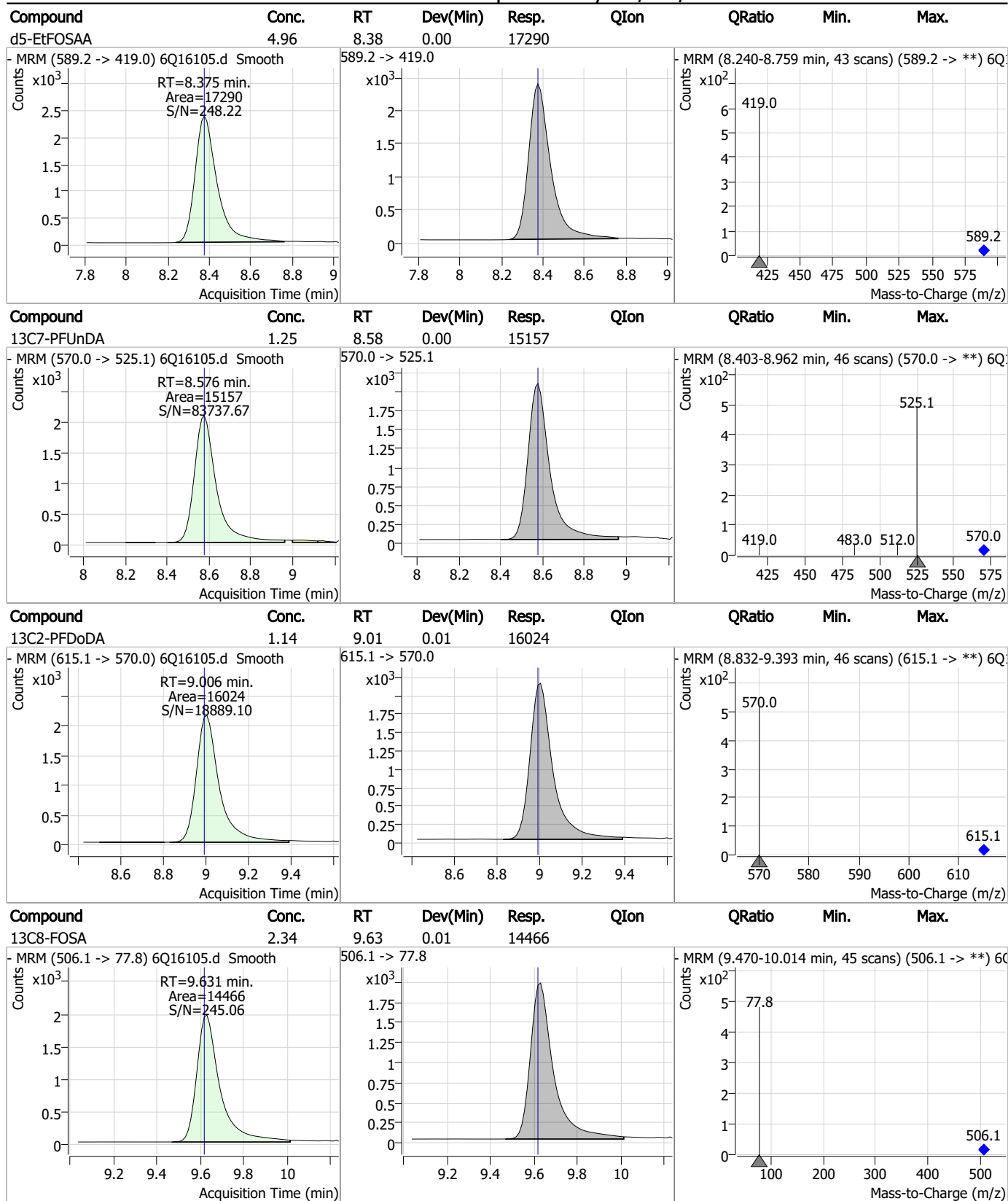
7.2.1
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Perfluorinated Compounds by LC/MS/MS



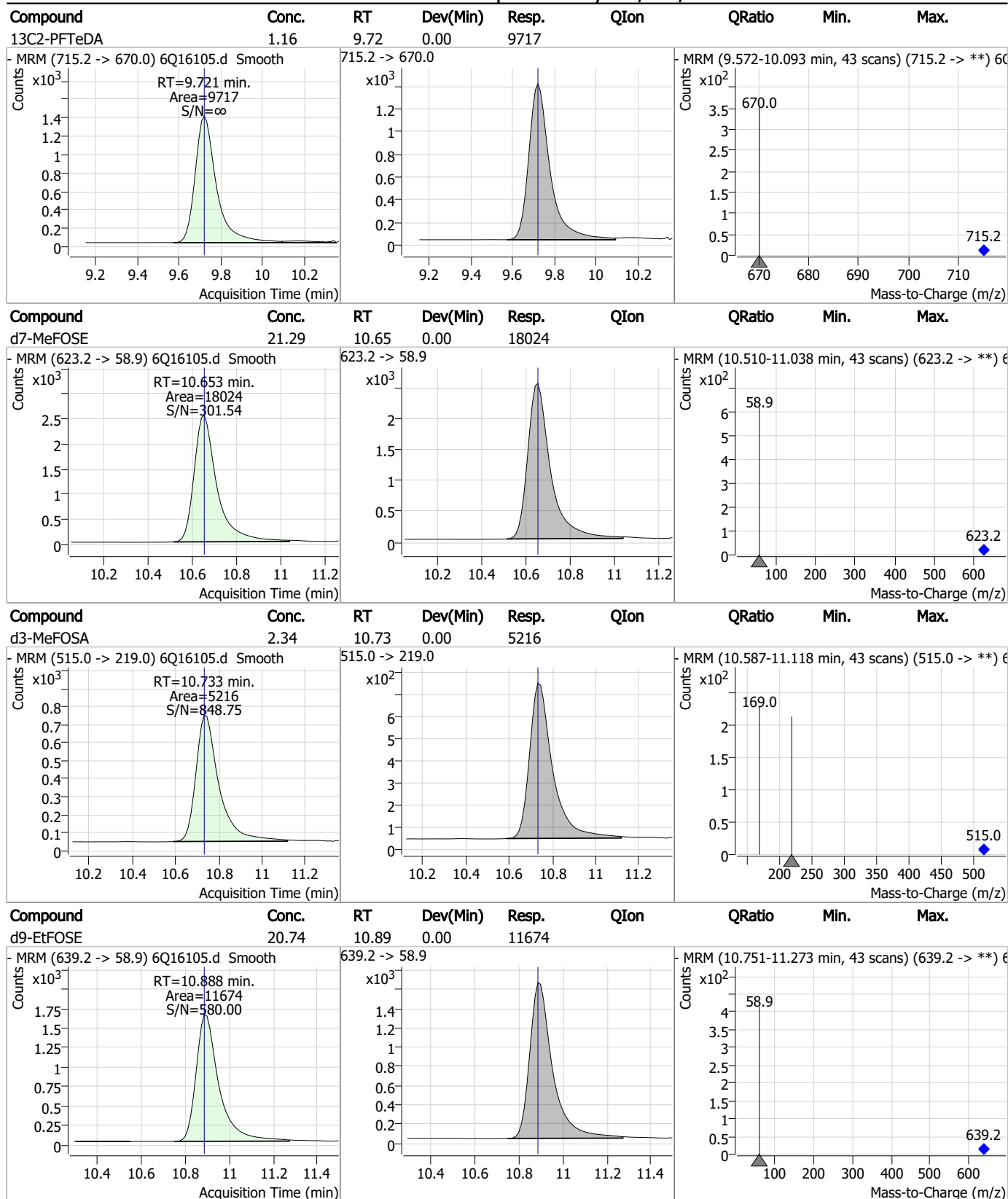
7.2.1

Perfluorinated Compounds by LC/MS/MS



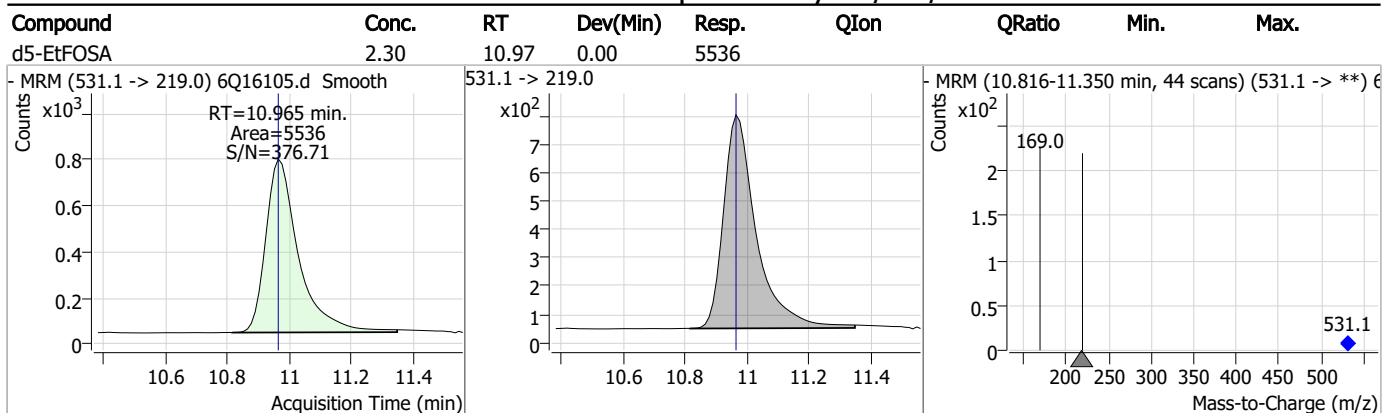
7.2.1
7

Perfluorinated Compounds by LC/MS/MS



7.2.1
7

Perfluorinated Compounds by LC/MS/MS



7.2.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16145.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/5/2023 11:21:21 PM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_040423_S6Q239.quantmethod.xml
 Batch Name : S6Q240.batch.bin
 Sample Information : OP96085,S6Q240,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	79434	10.00 µg/L	0.000
M5-PFPeA	4.322	268.3 -> 223.0	35308	5.00 µg/L	0.000
M5-PFHxA	5.516	318.0 -> 273.0	32078	2.50 µg/L	-0.012
M4-PFHpA	6.468	367.1 -> 322.0	30372	2.50 µg/L	0.000
M8-PFOA	7.125	421.1 -> 376.0	53840	2.50 µg/L	0.013
M9-PFNA	7.643	472.1 -> 427.0	17778	1.25 µg/L	0.000
M6-PFDA	8.122	519.1 -> 474.1	13214	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	15842	1.25 µg/L	0.000
M2-PFDoDA	8.994	615.1 -> 570.0	16355	1.25 µg/L	0.000
M2-PFTeDA	9.721	715.2 -> 670.0	10088	1.25 µg/L	0.000
M8-FOSA	9.631	506.1 -> 77.8	15228	2.50 µg/L	0.012
M3-PFBS	5.446	302.1 -> 79.9	11902	2.50 µg/L	-0.012
M3-PFHxS	7.228	402.1 -> 79.9	7736	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	6563	2.50 µg/L	0.000
M2-4:2FTS	5.191	329.1 -> 80.9	2134	5.00 µg/L	0.000
M2-6:2FTS	6.886	429.1 -> 80.9	2624	5.00 µg/L	0.000
M2-8:2FTS	7.911	529.1 -> 80.9	2094	5.00 µg/L	0.000
M3-MeFOSAA	8.180	573.2 -> 419.0	20723	5.00 µg/L	0.012
M3-HFPO-DA	5.893	286.9 -> 168.9	12946	10.00 µg/L	0.000
M5-EtFOSAA	8.375	589.2 -> 419.0	18179	5.00 µg/L	0.000
M7-MeFOSE	10.653	623.2 -> 58.9	18568	25.00 µg/L	0.000
M9-EtFOSE	10.888	639.2 -> 58.9	11922	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	5492	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	5267	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	8614	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	33727	5.00 µg/L	0.000
18O2-PFHxS	7.227	403.0 -> 83.9	5624	2.50 µg/L	0.000
13C4-PFOA	7.112	417.1 -> 372.0	63739	2.50 µg/L	0.000
13C2-PFDA	8.123	515.1 -> 470.1	17885	1.25 µg/L	0.000
13C5-PFNA	7.643	468.0 -> 423.0	17007	1.25 µg/L	0.000
13C2-PFHxA	5.516	315.1 -> 270.0	30770	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.191	329.1 -> 80.9	2134	5.64 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.8%		
13C2-6:2FTS	6.886	429.1 -> 80.9	2624	5.65 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.1%		
13C2-8:2FTS	7.911	529.1 -> 80.9	2094	4.68 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.6%		
13C2-PFDoDA	8.994	615.1 -> 570.0	16355	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.6%		
13C2-PFTeDA	9.721	715.2 -> 670.0	10088	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.2%		
13C3-PFBS	5.446	302.1 -> 79.9	11902	2.38 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.2%		
13C3-PFHxS	7.228	402.1 -> 79.9	7736	2.40 µg/L	0.000

7.2.2
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C4-PFBA	2.897	216.8 -> 171.9	79434	10.07 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C4-PFHpA	6.468	367.1 -> 322.0	30372	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C5-PFHxA	5.516	318.0 -> 273.0	32078	2.52 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C5-PFPeA	4.322	268.3 -> 223.0	35308	4.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C6-PFDA	8.122	519.1 -> 474.1	13214	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C7-PFUnDA	8.576	570.0 -> 525.1	15842	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C8-FOSA	9.631	506.1 -> 77.8	15228	2.38 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.0%	
13C8-PFOA	7.125	421.1 -> 376.0	53840	2.53 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C8-PFOS	8.284	507.1 -> 79.9	6563	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.5%	
13C9-PFNA	7.643	472.1 -> 427.0	17778	1.41 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.0%	
d3-MeFOSAA	8.180	573.2 -> 419.0	20723	4.97 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C3-HFPO-DA	5.893	286.9 -> 168.9	12946	9.65 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.5%	
d3-MeFOSA	10.733	515.0 -> 219.0	5267	2.28 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.2%	
d5-EtFOSAA	8.375	589.2 -> 419.0	18179	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
d7-MeFOSE	10.653	623.2 -> 58.9	18568	21.18 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 84.7%	
d9-EtFOSE	10.888	639.2 -> 58.9	11922	20.46 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 81.8%	
d5-EtFOSA	10.965	531.1 -> 219.0	5492	2.21 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.2%	

Target Compounds

QValue

4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.	
6:2FTS	-	427.1 -> 407.0 427.1 -> 80.9	-	N.D.	
8:2FTS	-	527.1 -> 507.0 527.1 -> 80.8	-	N.D.	
EtFOSAA	-	584.2 -> 419.1 584.2 -> 526.0	-	N.D.	
FOSA	-	498.1 -> 77.9 498.1 -> 478.0	-	N.D.	
MeFOSAA	-	570.1 -> 419.0 570.1 -> 483.0	-	N.D.	
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9 298.7 -> 98.8	-	N.D.	
PFDA	-	512.9 -> 469.0 512.9 -> 219.0	-	N.D.	
PFDODA	-	613.1 -> 569.0 613.1 -> 319.0	-	N.D.	
PFDS	-	599.0 -> 79.9	-	N.D.	



7.22
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8				
PFHpA	-	363.1 -> 319.0	-	N.D.		
		363.1 -> 169.0				
PFHpS	-	449.0 -> 79.9	-	N.D.		
		449.0 -> 98.9				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 118.9				
PFHxS	-	398.7 -> 79.9	-	N.D.		
		398.7 -> 98.9				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFNS	-	548.8 -> 79.9	-	N.D.		
		548.8 -> 98.9				
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	-	498.9 -> 79.9	-	N.D.		
		498.9 -> 98.8				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

= Qualifier out of range, m = manually integrated, + = Area summed

7.2.2
7

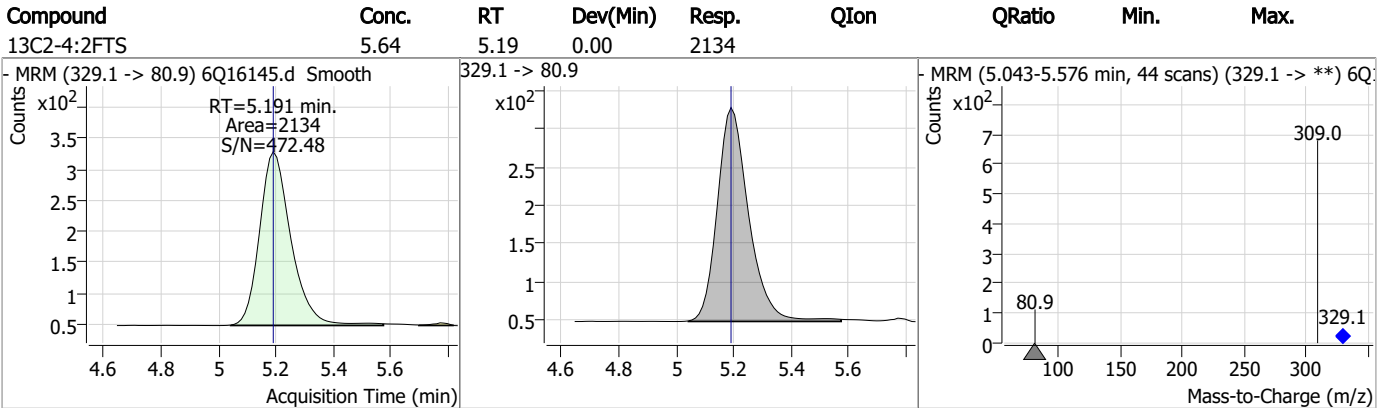
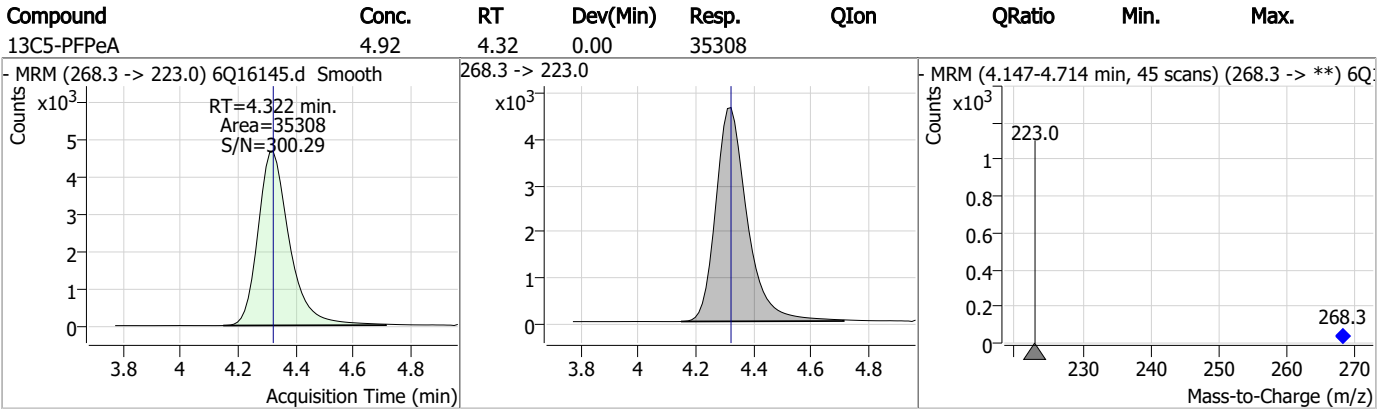
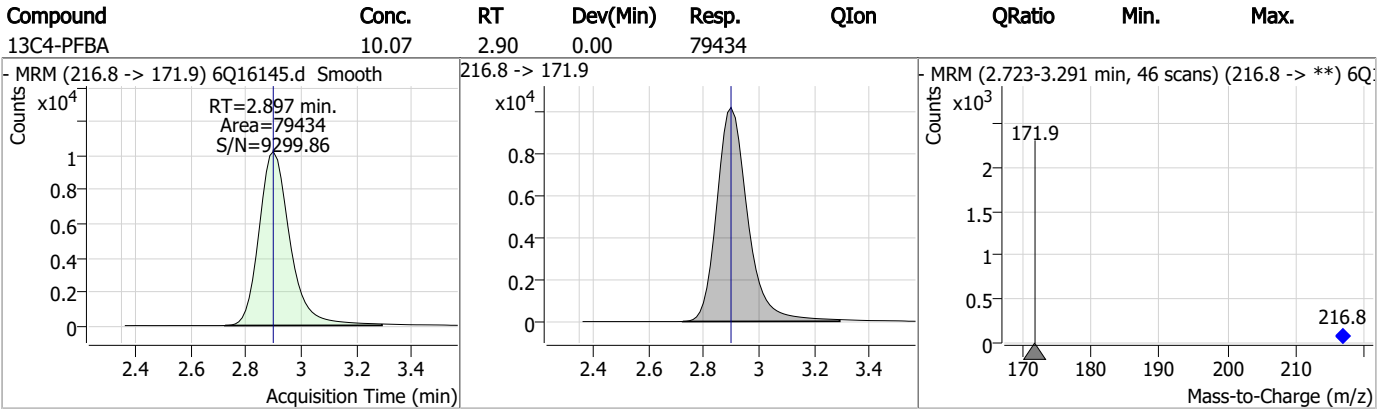
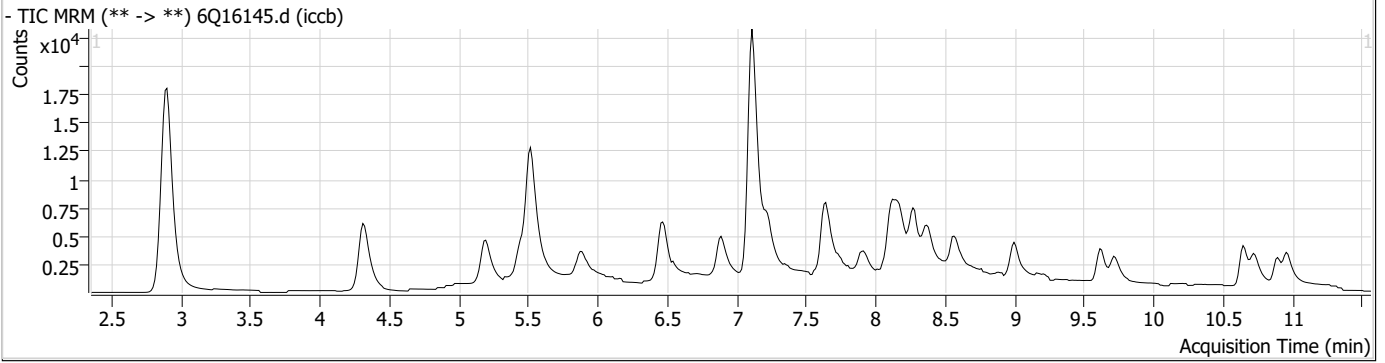
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.2.2

7

Perfluorinated Compounds by LC/MS/MS

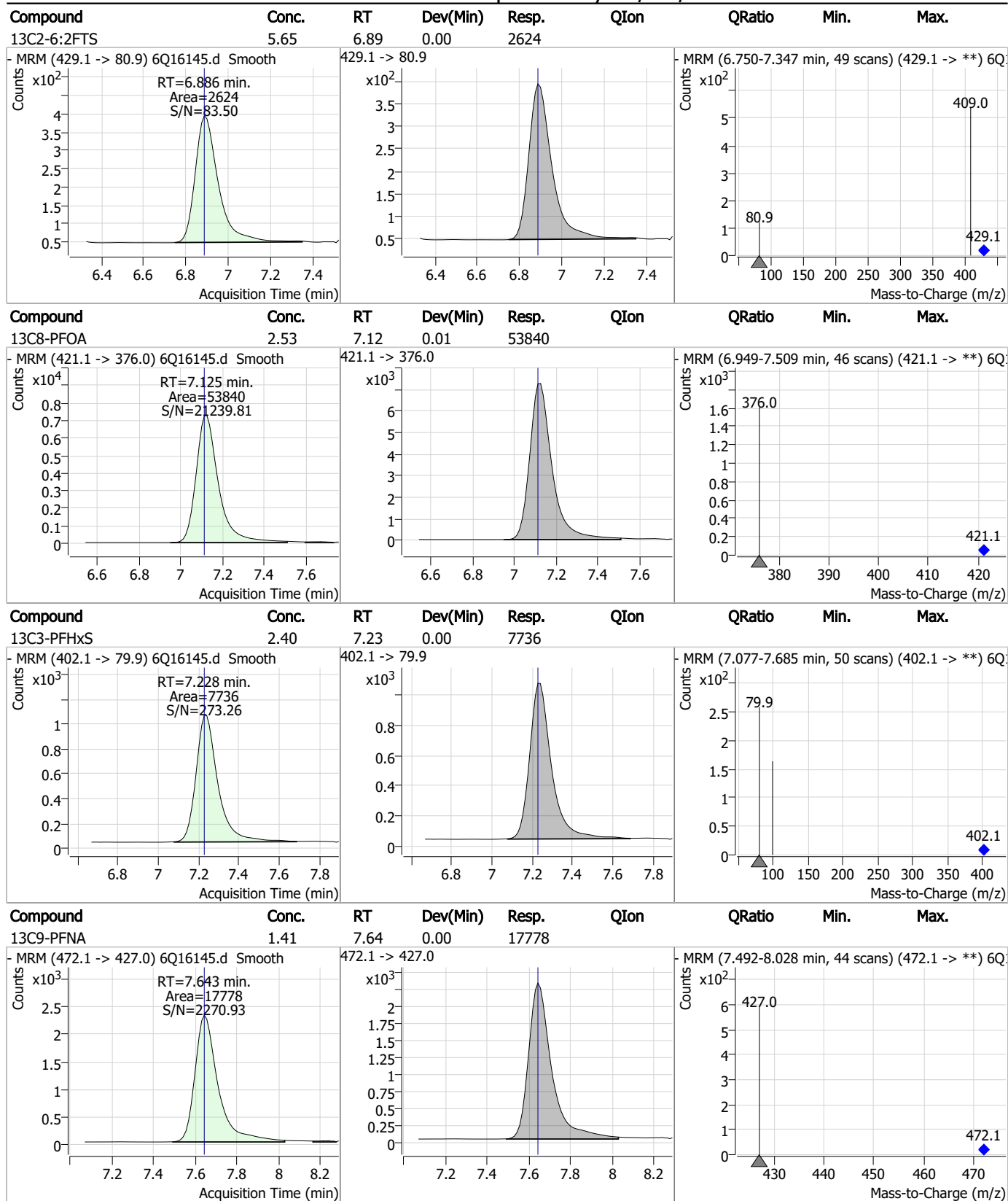


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.38	5.45	-0.01	11902				
13C5-PFHxA	2.52	5.52	-0.01	32078				
13C3-HFPO-DA	9.65	5.89	0.00	12946				
13C4-PFHpA	2.44	6.47	0.00	30372				

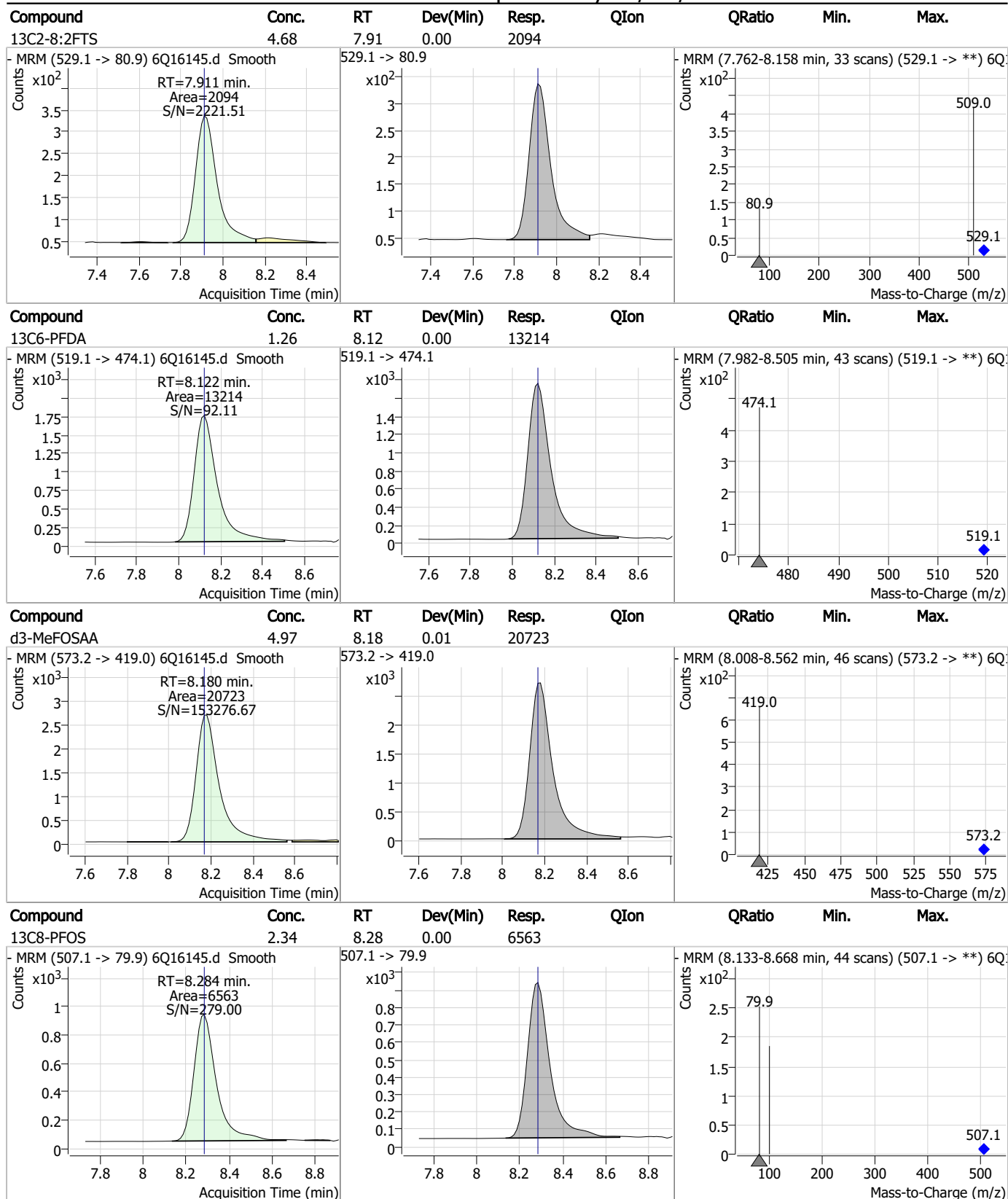
7.22
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Perfluorinated Compounds by LC/MS/MS



7.22
7

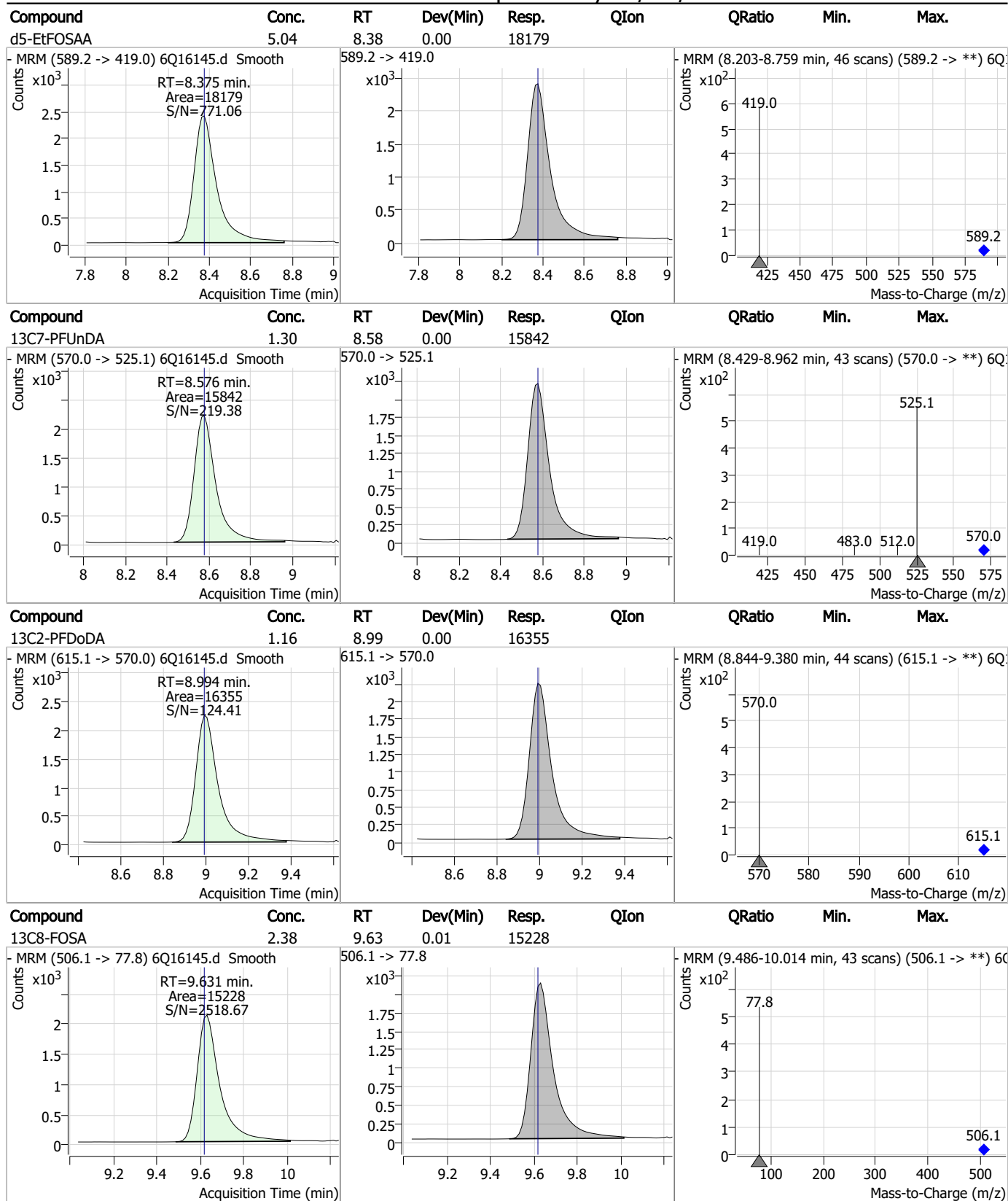
Perfluorinated Compounds by LC/MS/MS



7.2.2
7



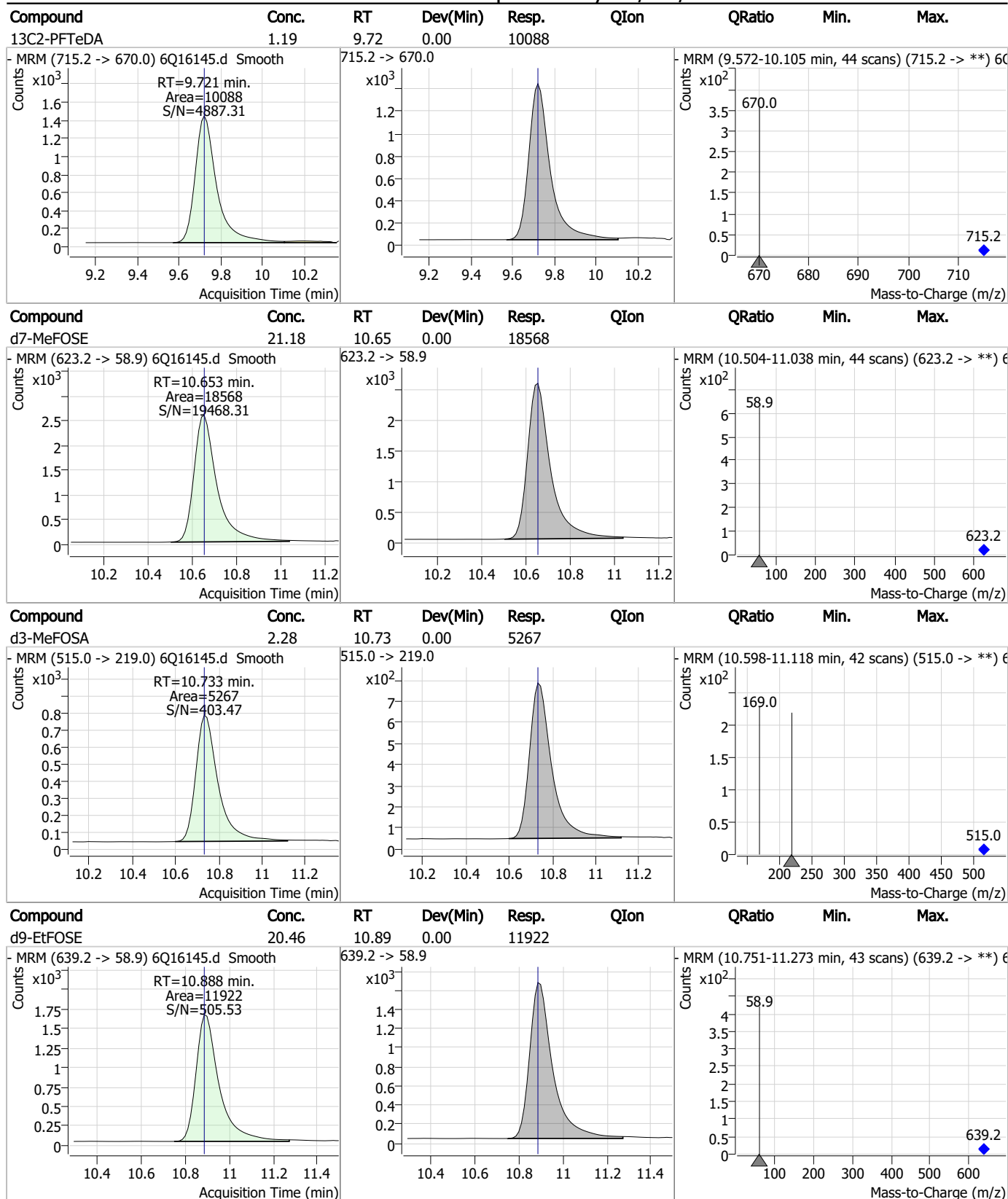
Perfluorinated Compounds by LC/MS/MS



7.22
7

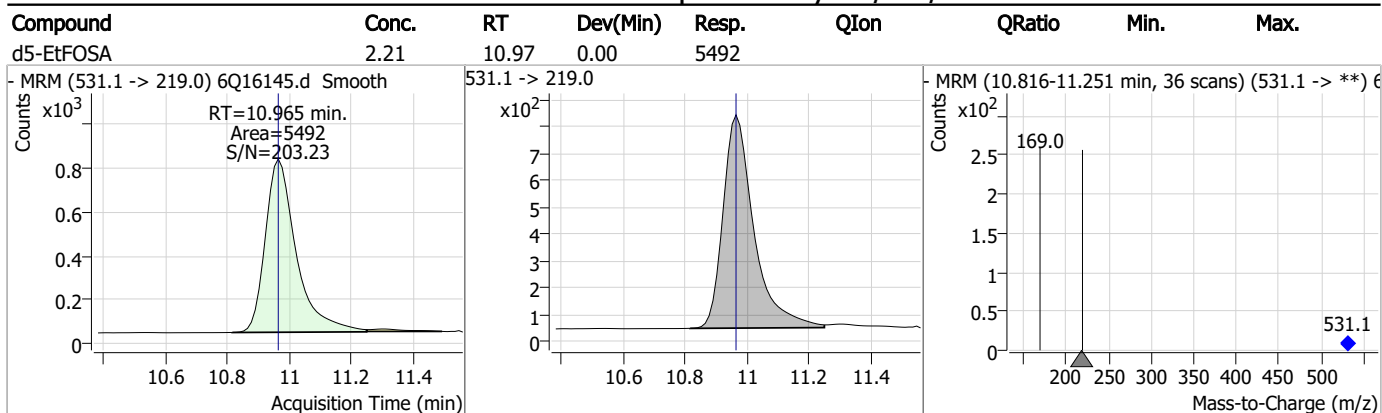


Perfluorinated Compounds by LC/MS/MS



7.2.2
7

Perfluorinated Compounds by LC/MS/MS



7.22
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16148.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/6/2023 12:03:17 AM
 Sample Name : op96191-mb
 Vial : P2-B5
 DA Method File : 1633_040423_S6Q239.quantmethod.xml
 Batch Name : S6Q240.batch.bin
 Sample Information : OP96191,S6Q240,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.938	216.8 -> 171.9	74138	10.00 µg/L	0.041
M5-PFPeA	4.334	268.3 -> 223.0	31047	5.00 µg/L	0.012
M5-PFHxA	5.528	318.0 -> 273.0	27390	2.50 µg/L	0.000
M4-PFHpA	6.481	367.1 -> 322.0	28099	2.50 µg/L	0.012
M8-PFOA	7.125	421.1 -> 376.0	47739	2.50 µg/L	0.013
M9-PFNA	7.643	472.1 -> 427.0	14526	1.25 µg/L	0.000
M6-PFDA	8.122	519.1 -> 474.1	11471	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	13723	1.25 µg/L	0.000
M2-PFDoDA	8.994	615.1 -> 570.0	13556	1.25 µg/L	0.000
M2-PFTeDA	9.721	715.2 -> 670.0	7130	1.25 µg/L	0.000
M8-FOSA	9.631	506.1 -> 77.8	9886	2.50 µg/L	0.012
M3-PFBS	5.459	302.1 -> 79.9	11099	2.50 µg/L	0.000
M3-PFHxS	7.240	402.1 -> 79.9	7313	2.50 µg/L	0.012
M8-PFOS	8.284	507.1 -> 79.9	5517	2.50 µg/L	0.000
M2-4:2FTS	5.204	329.1 -> 80.9	2012	5.00 µg/L	0.012
M2-6:2FTS	6.886	429.1 -> 80.9	2406	5.00 µg/L	0.000
M2-8:2FTS	7.911	529.1 -> 80.9	2150	5.00 µg/L	0.000
M3-MeFOSAA	8.180	573.2 -> 419.0	18329	5.00 µg/L	0.012
M3-HFPO-DA	5.905	286.9 -> 168.9	12042	10.00 µg/L	0.012
M5-EtFOSAA	8.375	589.2 -> 419.0	14835	5.00 µg/L	0.000
M7-MeFOSE	10.641	623.2 -> 58.9	11684	25.00 µg/L	-0.012
M9-EtFOSE	10.888	639.2 -> 58.9	8666	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	3802	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	3401	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	6948	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	30532	5.00 µg/L	0.040
18O2-PFHxS	7.239	403.0 -> 83.9	5206	2.50 µg/L	0.012
13C4-PFOA	7.125	417.1 -> 372.0	54712	2.50 µg/L	0.013
13C2-PFDA	8.123	515.1 -> 470.1	17142	1.25 µg/L	0.000
13C5-PFNA	7.643	468.0 -> 423.0	15007	1.25 µg/L	0.000
13C2-PFHxA	5.529	315.1 -> 270.0	26266	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.204	329.1 -> 80.9	2012	5.75 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.9%		
13C2-6:2FTS	6.886	429.1 -> 80.9	2406	5.60 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.0%		
13C2-8:2FTS	7.911	529.1 -> 80.9	2150	5.19 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.9%		
13C2-PFDoDA	8.994	615.1 -> 570.0	13556	1.00 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 80.0%		
13C2-PFTeDA	9.721	715.2 -> 670.0	7130	0.88 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 70.2%		
13C3-PFBS	5.459	302.1 -> 79.9	11099	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.9%		
13C3-PFHxS	7.240	402.1 -> 79.9	7313	2.45 µg/L	0.012

7.2.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C4-PFBA	2.938	216.8 -> 171.9	74138	10.39 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C4-PFHpA	6.481	367.1 -> 322.0	28099	2.64 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.7%	
13C5-PFHxA	5.528	318.0 -> 273.0	27390	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C5-PFPeA	4.334	268.3 -> 223.0	31047	5.07 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C6-PFDA	8.122	519.1 -> 474.1	11471	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.9%	
13C7-PFUnDA	8.576	570.0 -> 525.1	13723	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.7%	
13C8-FOSA	9.631	506.1 -> 77.8	9886	1.91 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 76.5%	
13C8-PFOA	7.125	421.1 -> 376.0	47739	2.61 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C8-PFOS	8.284	507.1 -> 79.9	5517	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C9-PFNA	7.643	472.1 -> 427.0	14526	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.7%	
d3-MeFOSAA	8.180	573.2 -> 419.0	18329	5.45 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.0%	
13C3-HFPO-DA	5.905	286.9 -> 168.9	12042	10.51 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.1%	
d3-MeFOSA	10.733	515.0 -> 219.0	3401	1.83 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 73.0%	
d5-EtFOSAA	8.375	589.2 -> 419.0	14835	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
d7-MeFOSE	10.641	623.2 -> 58.9	11684	16.52 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 66.1%	
d9-EtFOSE	10.888	639.2 -> 58.9	8666	18.44 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 73.7%	
d5-EtFOSA	10.965	531.1 -> 219.0	3802	1.89 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 75.7%	

Target Compounds

Compound	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	



7.2.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
		599.0 -> 98.8			
PFHpA	-	363.1 -> 319.0	-	N.D.	
		363.1 -> 169.0			
PFHpS	-	449.0 -> 79.9	-	N.D.	
		449.0 -> 98.9			
PFHxA	-	313.0 -> 269.0	-	N.D.	
		313.0 -> 118.9			
PFHxS	-	398.7 -> 79.9	-	N.D.	
		398.7 -> 98.9			
PFNA	-	463.0 -> 419.0	-	N.D.	
		463.0 -> 219.0			
PFNS	-	548.8 -> 79.9	-	N.D.	
		548.8 -> 98.9			
PFOA	-	413.0 -> 369.0	-	N.D.	
		413.0 -> 169.0			
PFOS	-	498.9 -> 79.9	-	N.D.	
		498.9 -> 98.8			
PFPeA	-	263.0 -> 219.0	-	N.D.	
PFPeS	-	349.1 -> 79.9	-	N.D.	
		349.1 -> 98.9			
PFTeDA	-	713.1 -> 669.0	-	N.D.	
		713.1 -> 168.9			
PFTTrDA	-	663.0 -> 619.0	-	N.D.	
		663.0 -> 168.9			
PFUnDA	-	563.1 -> 519.0	-	N.D.	
		563.1 -> 269.1			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.	
		632.9 -> 452.9			
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.	
		532.8 -> 353.0			
ADONA	-	376.9 -> 250.9	-	N.D.	
		376.9 -> 84.8			
HFPO-DA	-	284.9 -> 168.9	-	N.D.	
		284.9 -> 184.9			
3:3FTCA	-	241.0 -> 177.0	-	N.D.	
		241.0 -> 117.0			
5:3FTCA	-	341.0 -> 237.1	-	N.D.	
		341.0 -> 217.0			
7:3FTCA	-	441.0 -> 316.9	-	N.D.	
		441.0 -> 336.9			
EtFOSA	-	526.0 -> 219.0	-	N.D.	
		526.0 -> 169.0			
EtFOSE	-	630.0 -> 58.9	-	N.D.	
MeFOSA	-	511.9 -> 219.0	-	N.D.	
		511.9 -> 169.0			
MeFOSE	-	616.1 -> 58.9	-	N.D.	
PFDoDS	-	699.1 -> 79.9	-	N.D.	
		699.1 -> 98.8			
NFDHA	-	295.0 -> 201.0	-	N.D.	
		295.0 -> 84.9			
PFMBA	-	279.0 -> 85.1	-	N.D.	
PFMPA	-	229.0 -> 84.9	-	N.D.	
PFEESA	-	314.8 -> 134.9	-	N.D.	
		314.8 -> 82.9			

= Qualifier out of range, m = manually integrated, + = Area summed

7.2.3
7

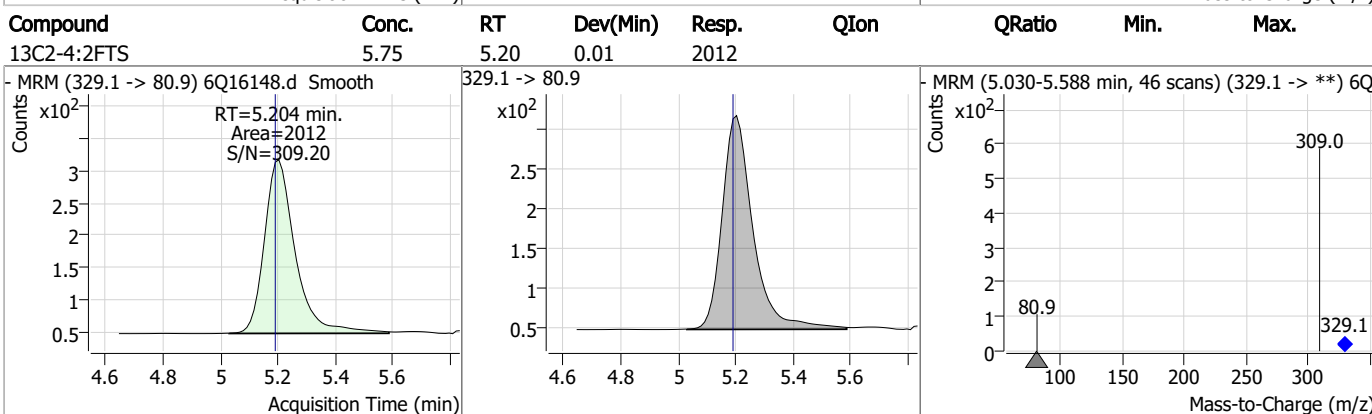
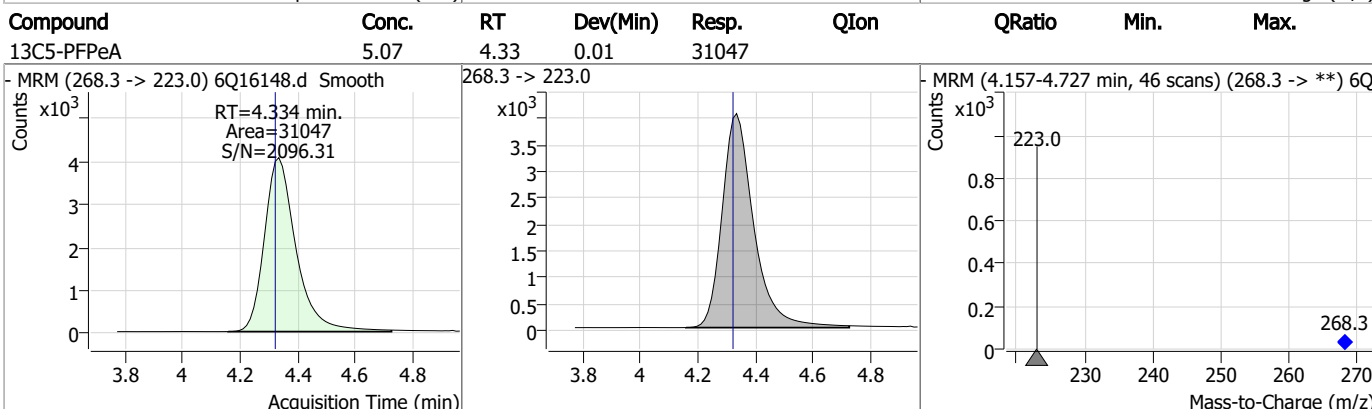
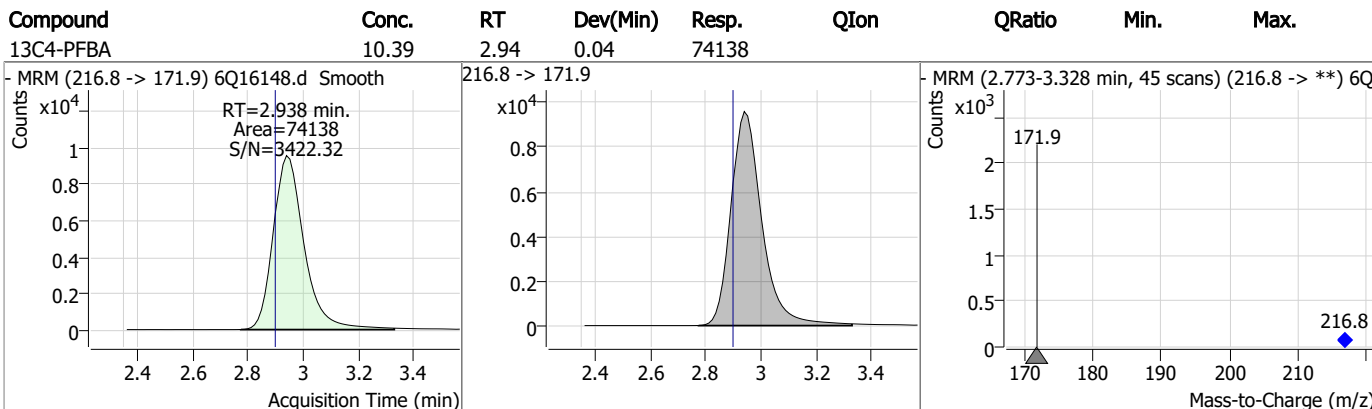
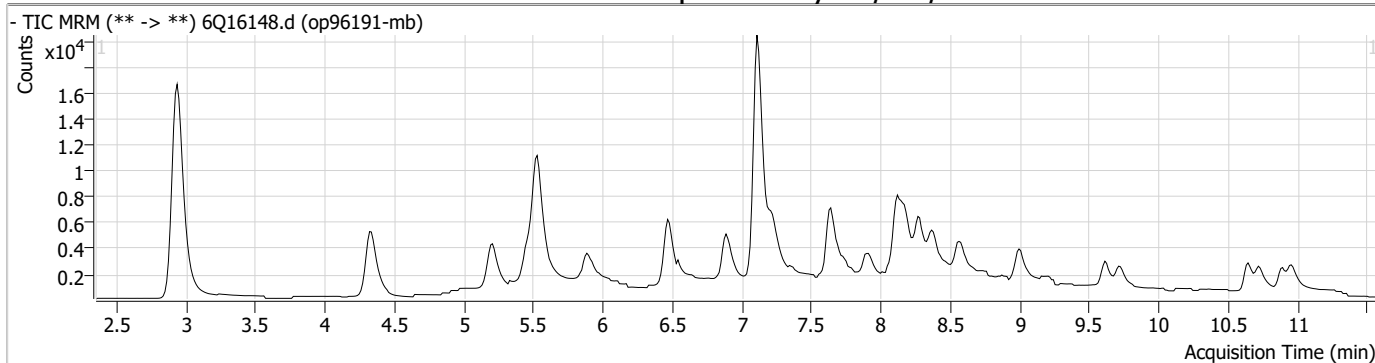
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.2.3

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Perfluorinated Compounds by LC/MS/MS



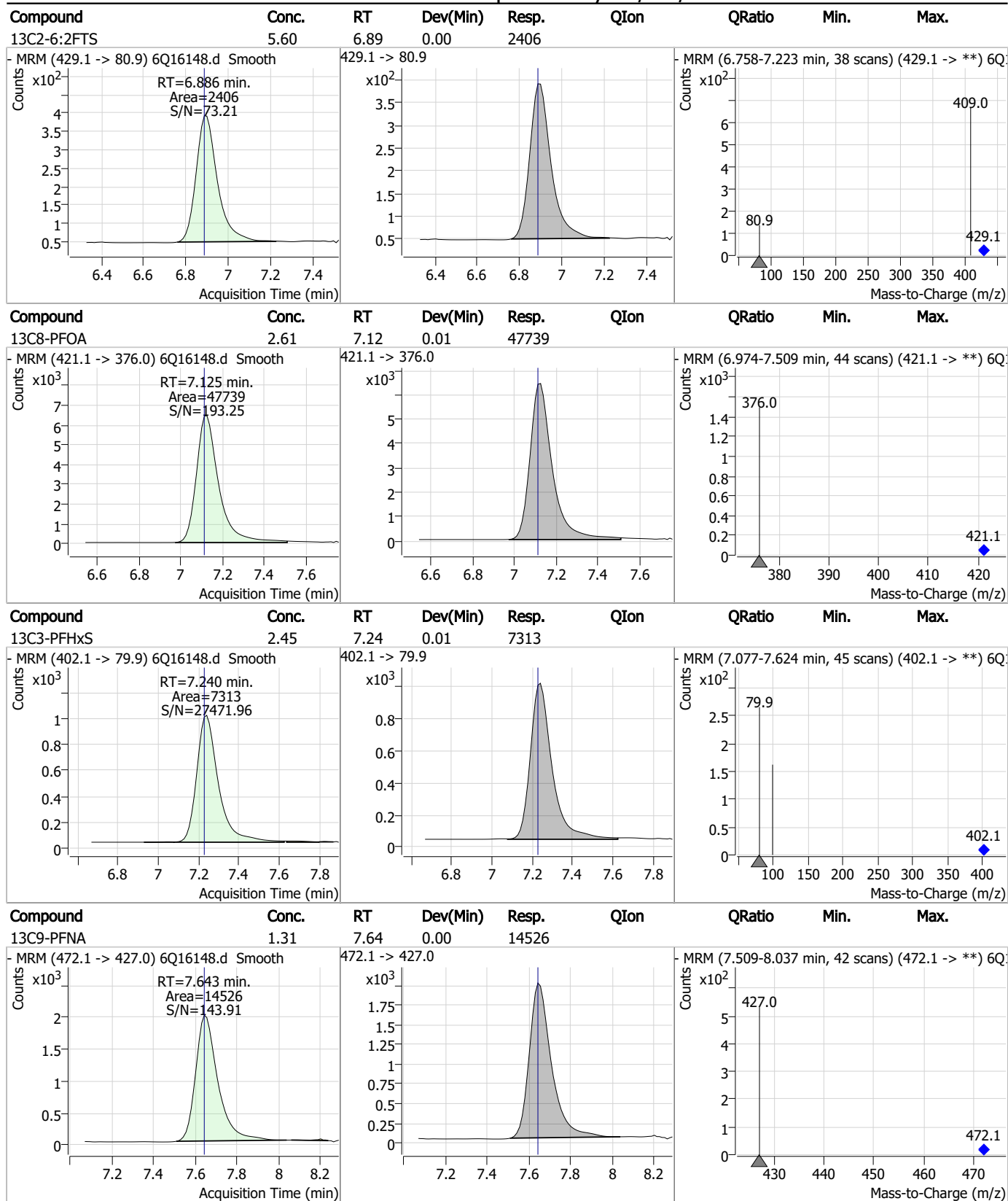
7.2.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.40	5.46	0.00	11099				
13C5-PFHxA	2.52	5.53	0.00	27390				
13C3-HFPO-DA	10.51	5.91	0.01	12042				
13C4-PFHpA	2.64	6.48	0.01	28099				

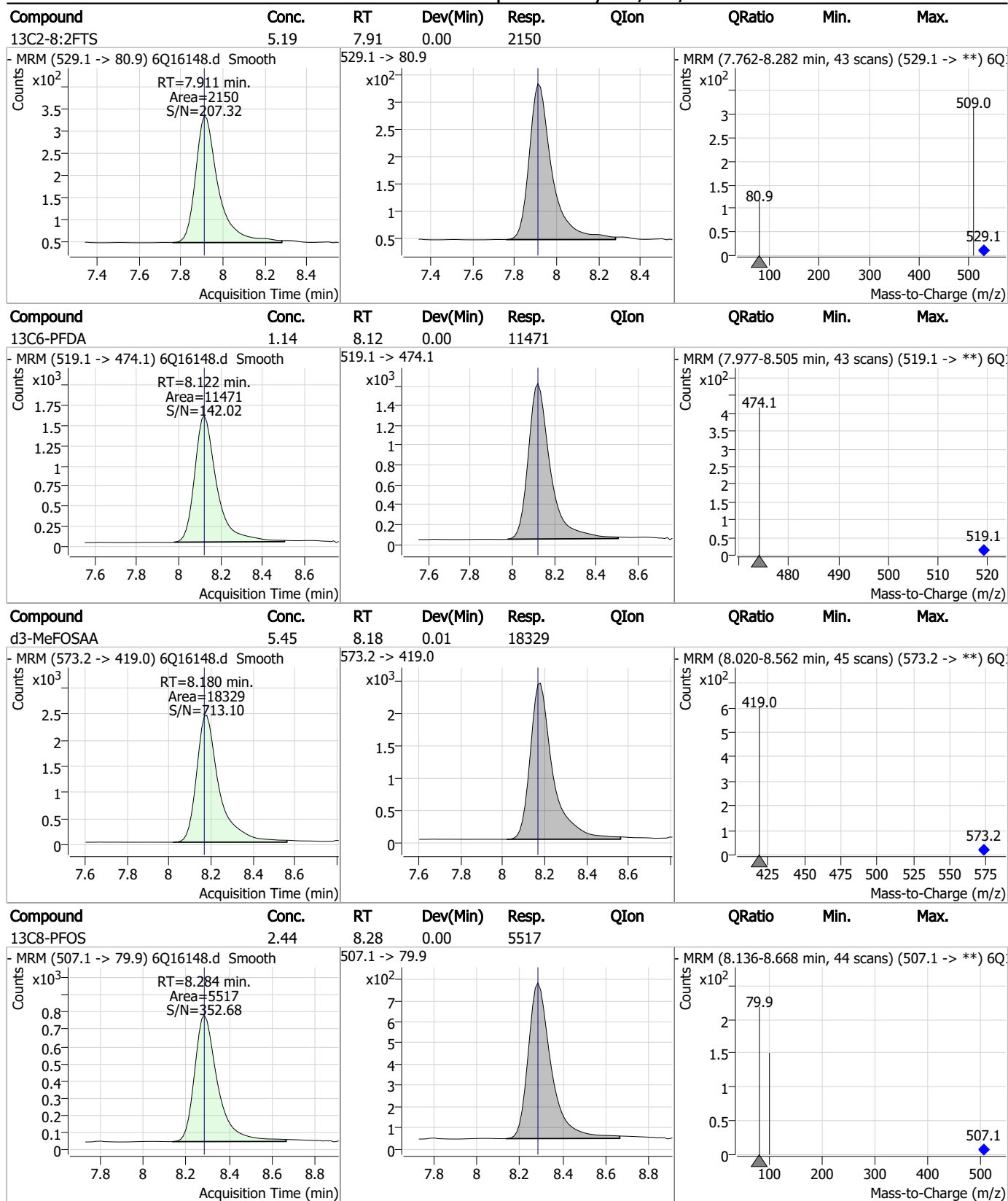
7.2.3
7

Perfluorinated Compounds by LC/MS/MS



7.2.3
7

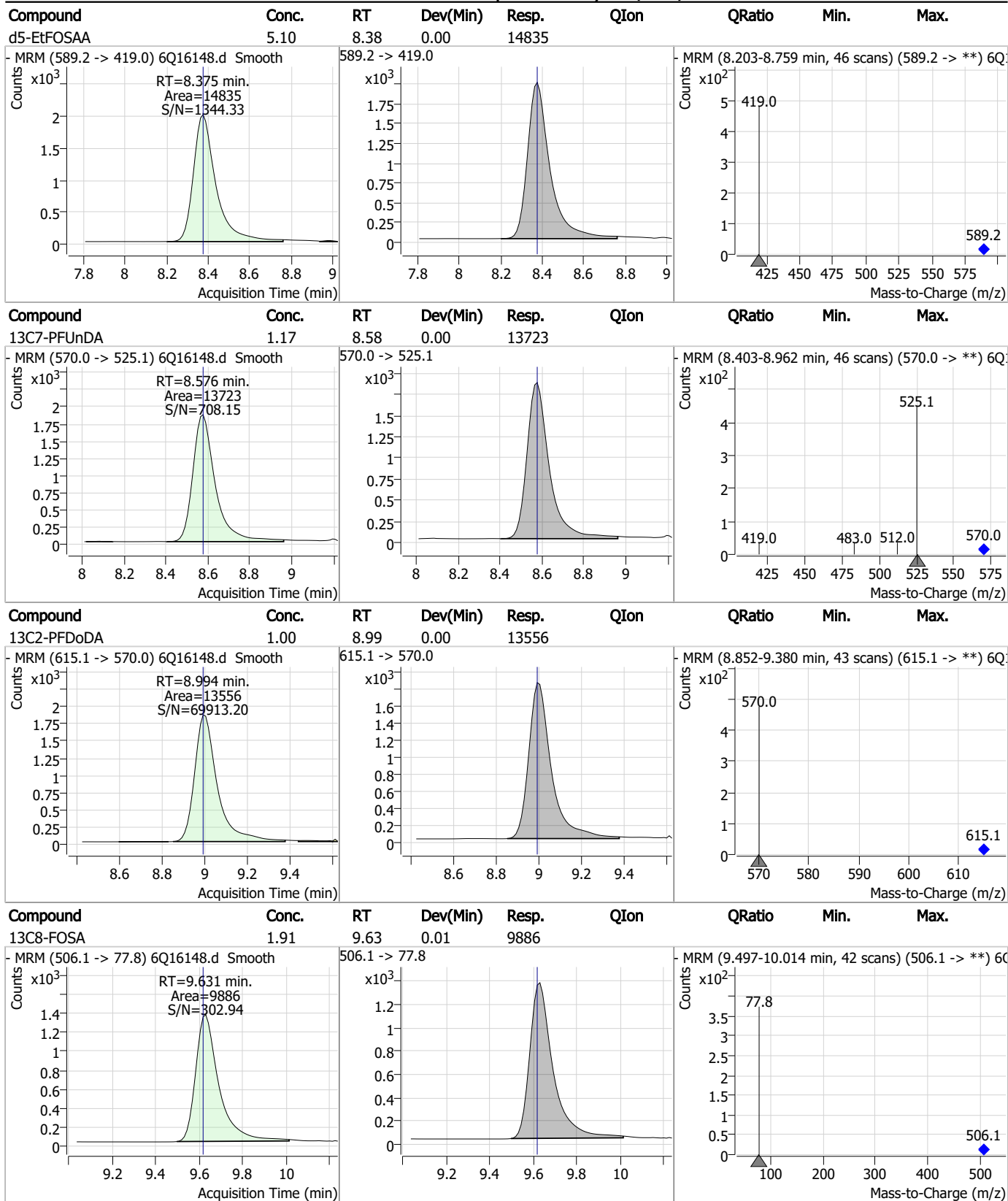
Perfluorinated Compounds by LC/MS/MS



7.2.3

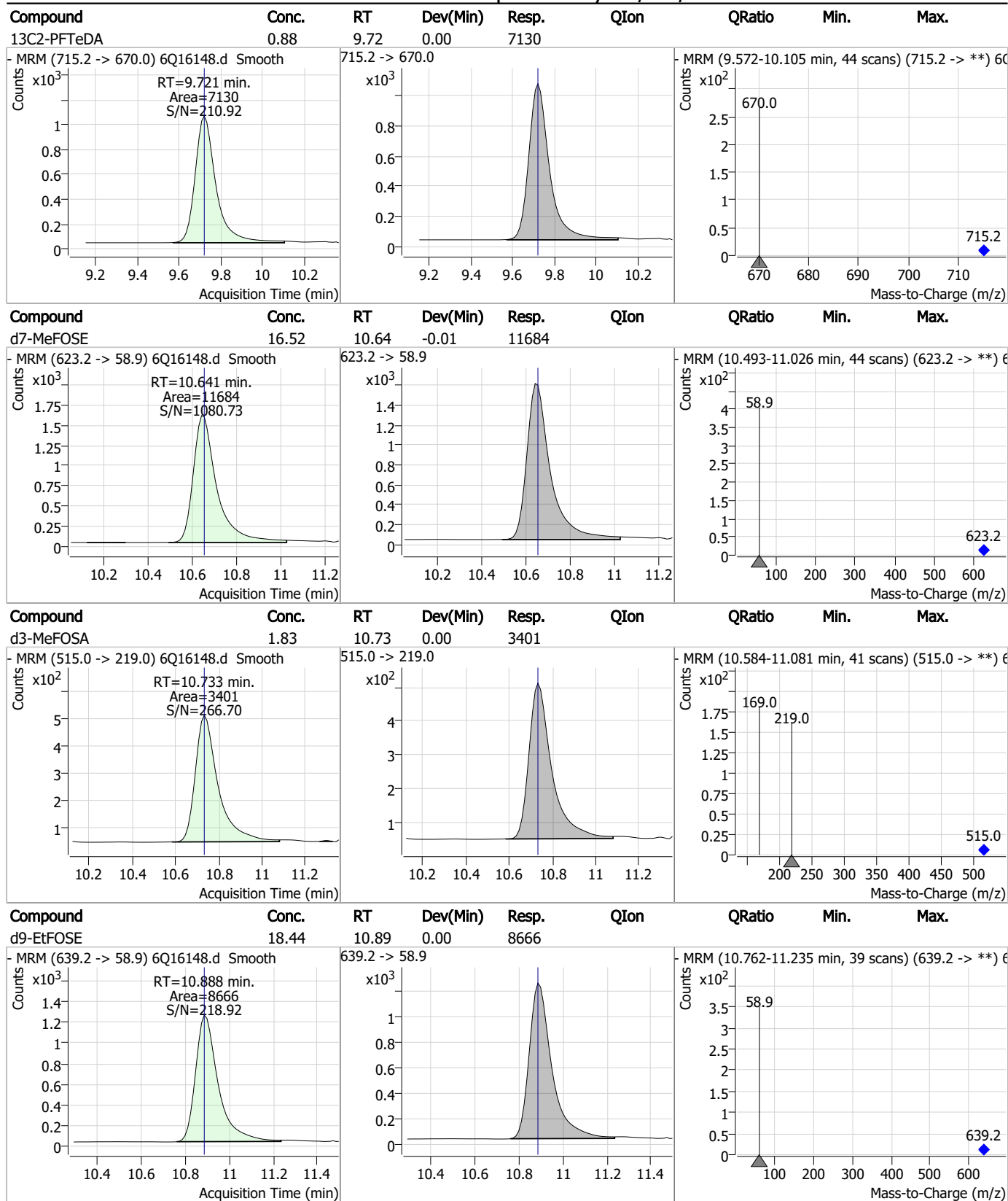
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Perfluorinated Compounds by LC/MS/MS



7.2.3
7

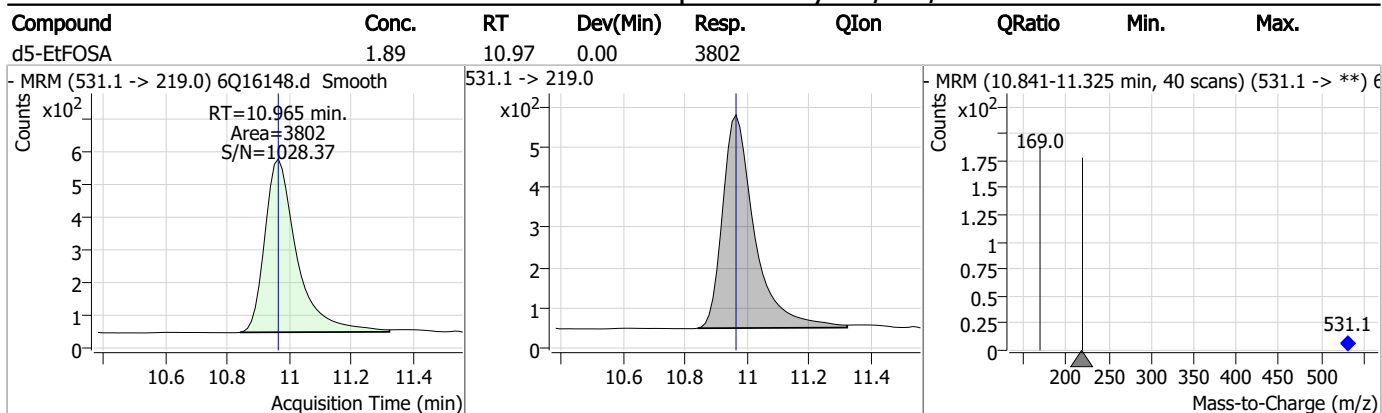
Perfluorinated Compounds by LC/MS/MS



7.2.3

7

Perfluorinated Compounds by LC/MS/MS



7.2.3
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16146.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/5/2023 11:35:20 PM
 Sample Name : op96191-bs
 Vial : P2-B3
 DA Method File : 1633_040423_S6Q239.quantmethod.xml
 Batch Name : S6Q240.batch.bin
 Sample Information : OP96191,S6Q240,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.938	216.8 -> 171.9	23859	10.00 µg/L	0.041
M5-PFPeA	4.334	268.3 -> 223.0	30121	5.00 µg/L	0.012
M5-PFHxA	5.528	318.0 -> 273.0	27279	2.50 µg/L	0.000
M4-PFHpA	6.468	367.1 -> 322.0	27232	2.50 µg/L	0.000
M8-PFOA	7.112	421.1 -> 376.0	45937	2.50 µg/L	0.000
M9-PFNA	7.643	472.1 -> 427.0	13615	1.25 µg/L	0.000
M6-PFDA	8.122	519.1 -> 474.1	11518	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	13763	1.25 µg/L	0.000
M2-PFDoDA	8.994	615.1 -> 570.0	14157	1.25 µg/L	0.000
M2-PFTeDA	9.721	715.2 -> 670.0	7399	1.25 µg/L	0.000
M8-FOSA	9.631	506.1 -> 77.8	9725	2.50 µg/L	0.012
M3-PFBS	5.459	302.1 -> 79.9	10631	2.50 µg/L	0.000
M3-PFHxS	7.228	402.1 -> 79.9	7129	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	6379	2.50 µg/L	0.000
M2-4:2FTS	5.191	329.1 -> 80.9	1891	5.00 µg/L	0.000
M2-6:2FTS	6.886	429.1 -> 80.9	2217	5.00 µg/L	0.000
M2-8:2FTS	7.911	529.1 -> 80.9	2079	5.00 µg/L	0.000
M3-MeFOSAA	8.180	573.2 -> 419.0	18341	5.00 µg/L	0.012
M3-HFPO-DA	5.893	286.9 -> 168.9	10715	10.00 µg/L	0.000
M5-EtFOSAA	8.375	589.2 -> 419.0	15656	5.00 µg/L	0.000
M7-MeFOSE	10.653	623.2 -> 58.9	9659	25.00 µg/L	0.000
M9-EtFOSE	10.888	639.2 -> 58.9	7691	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	3661	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	3599	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	6748	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	29812	5.00 µg/L	0.040
18O2-PFHxS	7.227	403.0 -> 83.9	4948	2.50 µg/L	0.000
13C4-PFOA	7.112	417.1 -> 372.0	51972	2.50 µg/L	0.000
13C2-PFDA	8.123	515.1 -> 470.1	16404	1.25 µg/L	0.000
13C5-PFNA	7.643	468.0 -> 423.0	13900	1.25 µg/L	0.000
13C2-PFHxA	5.529	315.1 -> 270.0	25719	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.191	329.1 -> 80.9	1891	5.68 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.6%		
13C2-6:2FTS	6.886	429.1 -> 80.9	2217	5.43 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.6%		
13C2-8:2FTS	7.911	529.1 -> 80.9	2079	5.28 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.7%		
13C2-PFDoDA	8.994	615.1 -> 570.0	14157	1.09 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.4%		
13C2-PFTeDA	9.721	715.2 -> 670.0	7399	0.95 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 76.1%		
13C3-PFBS	5.459	302.1 -> 79.9	10631	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C3-PFHxS	7.228	402.1 -> 79.9	7129	2.52 µg/L	0.000

7.31
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C4-PFBA	2.938	216.8 -> 171.9	23859	3.42 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 34.2%	
13C4-PFHpA	6.468	367.1 -> 322.0	27232	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C5-PFHxA	5.528	318.0 -> 273.0	27279	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C5-PFPeA	4.334	268.3 -> 223.0	30121	5.02 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C6-PFDA	8.122	519.1 -> 474.1	11518	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.4%	
13C7-PFUnDA	8.576	570.0 -> 525.1	13763	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C8-FOSA	9.631	506.1 -> 77.8	9725	1.94 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 77.5%	
13C8-PFOA	7.112	421.1 -> 376.0	45937	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.8%	
13C8-PFOS	8.284	507.1 -> 79.9	6379	2.90 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 116.0%	
13C9-PFNA	7.643	472.1 -> 427.0	13615	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.9%	
d3-MeFOSAA	8.180	573.2 -> 419.0	18341	5.62 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.4%	
13C3-HFPO-DA	5.893	286.9 -> 168.9	10715	9.55 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.5%	
d3-MeFOSA	10.733	515.0 -> 219.0	3599	1.99 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 79.5%	
d5-EtFOSAA	8.375	589.2 -> 419.0	15656	5.54 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.7%	
d7-MeFOSE	10.653	623.2 -> 58.9	9659	14.06 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 56.3%	
d9-EtFOSE	10.888	639.2 -> 58.9	7691	16.85 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 67.4%	
d5-EtFOSA	10.965	531.1 -> 219.0	3661	1.88 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 75.1%	
Target Compounds					QValue
4:2FTS	5.192	327.1 -> 307.0	35729	9.65 µg/L	99
		327.1 -> 80.9	8574		
6:2FTS	6.886	427.1 -> 407.0	30055	10.12 µg/L	98
		427.1 -> 80.9	6267		
8:2FTS	7.911	527.1 -> 507.0	14773	10.01 µg/L	97
		527.1 -> 80.8	3405		
EtFOSAA	8.376	584.2 -> 419.1	5856	2.44 µg/L	m 89
		584.2 -> 526.0	3128		
FOSA	9.634	498.1 -> 77.9	9048	2.52 µg/L	99
		498.1 -> 478.0	335		
MeFOSAA	8.181	570.1 -> 419.0	7998	2.33 µg/L	99
		570.1 -> 483.0	1538		
PFBA	2.944	212.8 -> 168.9	5918	9.81 µg/L	100
PFBS	5.460	298.7 -> 79.9	9898	2.37 µg/L	99
		298.7 -> 98.8	4487		
PFDA	8.123	512.9 -> 469.0	34413	2.57 µg/L	99
		512.9 -> 219.0	4682		
PFDoDA	8.994	613.1 -> 569.0	26491	2.51 µg/L	99
		613.1 -> 319.0	3461		
PFDS	9.158	599.0 -> 79.9	4079	2.14 µg/L	94

7.3.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2284			
PFHpA	6.469	363.1 -> 319.0	40420	2.64	µg/L	99
		363.1 -> 169.0	5471			
PFHpS	7.794	449.0 -> 79.9	6148	2.25	µg/L	99
		449.0 -> 98.9	3640			
PFHxA	5.519	313.0 -> 269.0	25026	2.49	µg/L	98
		313.0 -> 118.9	1149			
PFHxS	7.228	398.7 -> 79.9	7060	2.25	µg/L	m 96
		398.7 -> 98.9	3884			
PFNA	7.643	463.0 -> 419.0	23733	2.68	µg/L	93
		463.0 -> 219.0	4089			
PFNS	8.738	548.8 -> 79.9	6263	2.31	µg/L	93
		548.8 -> 98.9	3293			
PFOA	7.113	413.0 -> 369.0	51790	2.49	µg/L	99
		413.0 -> 169.0	6816			
PFOS	8.286	498.9 -> 79.9	6004	2.14	µg/L	m 85
		498.9 -> 98.8	3762			
PFPeA	4.336	263.0 -> 219.0	32680	5.14	µg/L	100
PFPeS	6.533	349.1 -> 79.9	8802	2.33	µg/L	99
		349.1 -> 98.9	4510			
PFTeDA	9.722	713.1 -> 669.0	18760	2.40	µg/L	97
		713.1 -> 168.9	1331			
PFTrDA	9.378	663.0 -> 619.0	24436	2.46	µg/L	99
		663.0 -> 168.9	1892			
PFUnDA	8.577	563.1 -> 519.0	27716	2.52	µg/L	92
		563.1 -> 269.1	3637			
11CI-PF3OUdS	9.430	630.9 -> 450.9	52671	9.14	µg/L	97
		632.9 -> 452.9	17024			
9CI-PF3ONS	8.616	530.8 -> 351.0	111982	10.18	µg/L	96
		532.8 -> 353.0	34650			
ADONA	6.731	376.9 -> 250.9	227160	10.46	µg/L	96
		376.9 -> 84.8	47972			
HFPO-DA	5.894	284.9 -> 168.9	9711	10.03	µg/L	95
		284.9 -> 184.9	1388			
3:3FTCA	3.827	241.0 -> 177.0	1852	5.25	µg/L	100
		241.0 -> 117.0	278			
5:3FTCA	6.198	341.0 -> 237.1	128446	57.71	µg/L	98
		341.0 -> 217.0	113794			
7:3FTCA	7.621	441.0 -> 316.9	66925	59.40	µg/L	96
		441.0 -> 336.9	134357			
EtFOSA	10.967	526.0 -> 219.0	4329	2.74	µg/L	99
		526.0 -> 169.0	4148			
EtFOSE	10.913	630.0 -> 58.9	6952	23.05	µg/L	100
MeFOSA	10.734	511.9 -> 219.0	3899	2.58	µg/L	97
		511.9 -> 169.0	4215			
MeFOSE	10.666	616.1 -> 58.9	9682	26.59	µg/L	100
PFDoDS	9.848	699.1 -> 79.9	2247	2.03	µg/L	96
		699.1 -> 98.8	1347			
NFDHA	5.398	295.0 -> 201.0	3473	5.32	µg/L	99
		295.0 -> 84.9	1561			
PFMBA	4.737	279.0 -> 85.1	10149	4.82	µg/L	100
PFMPA	3.488	229.0 -> 84.9	5852	3.05	µg/L	100
PFEESA	5.999	314.8 -> 134.9	70748	4.96	µg/L	100
		314.8 -> 82.9	1767			

= Qualifier out of range, m = manually integrated, + = Area summed

7.3.1
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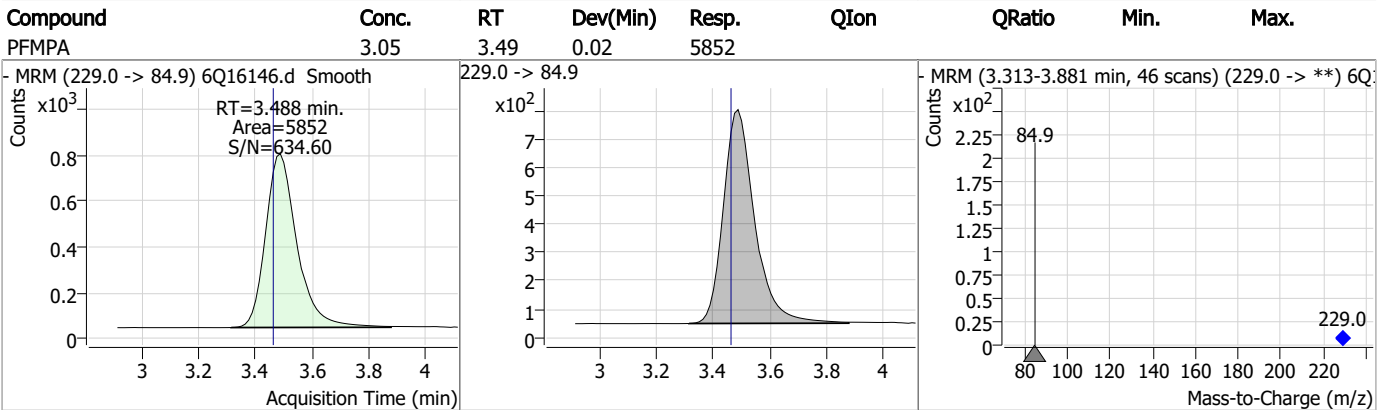
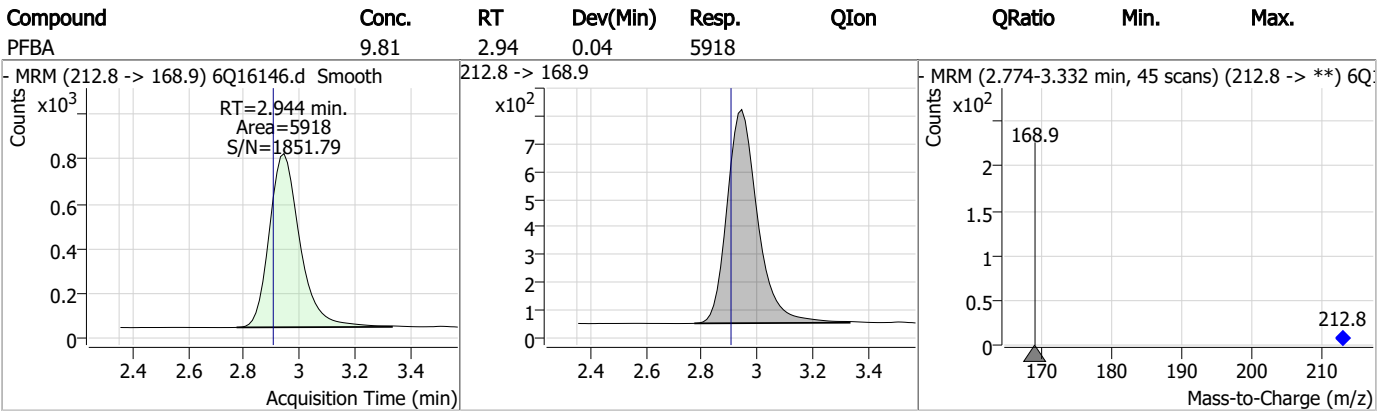
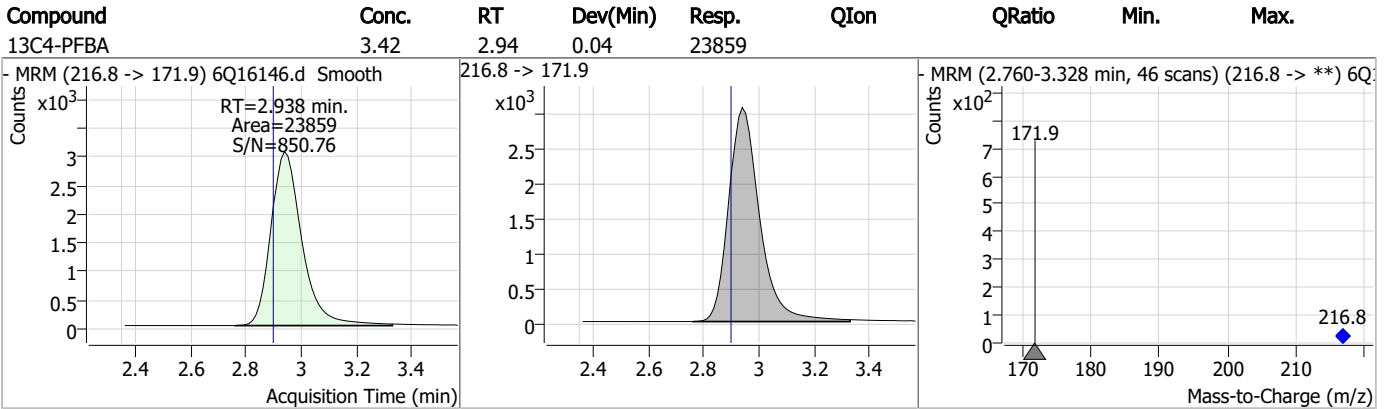
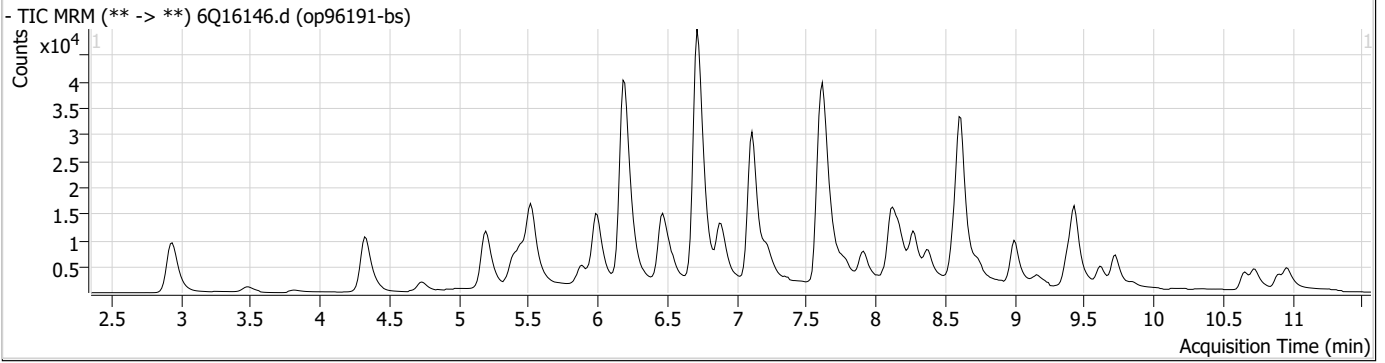
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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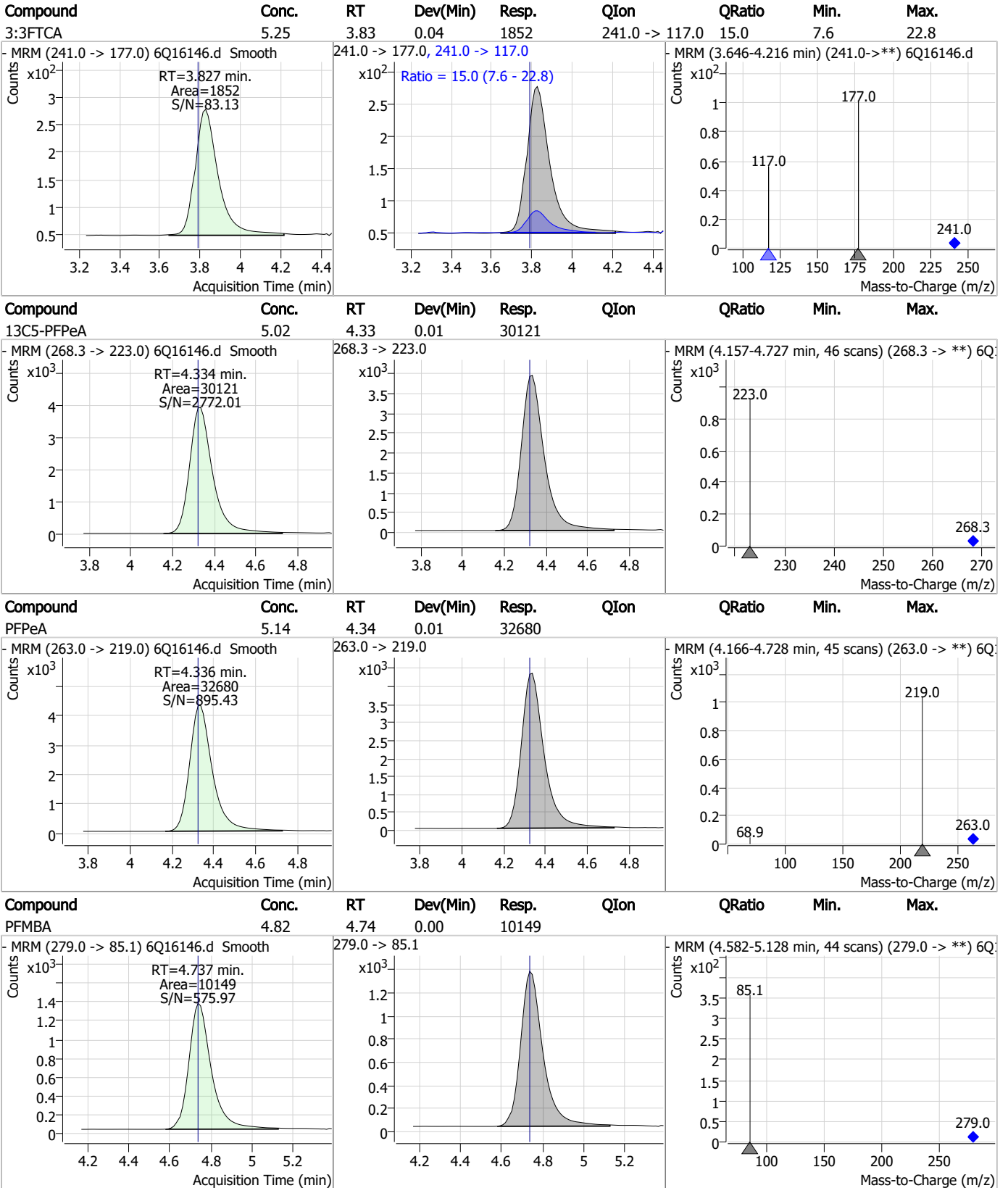
7.3.1

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Perfluorinated Compounds by LC/MS/MS



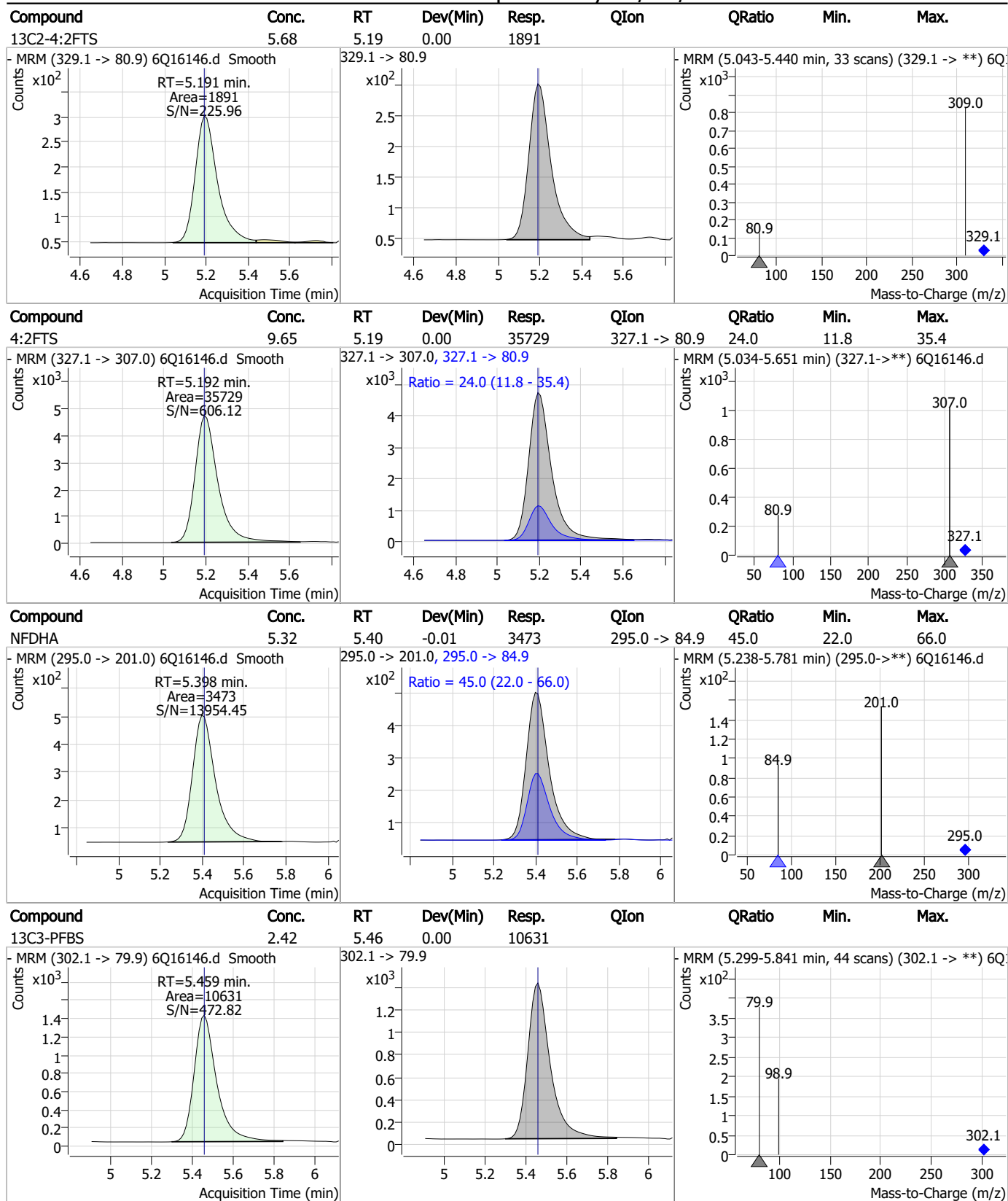
Perfluorinated Compounds by LC/MS/MS



7.3.1

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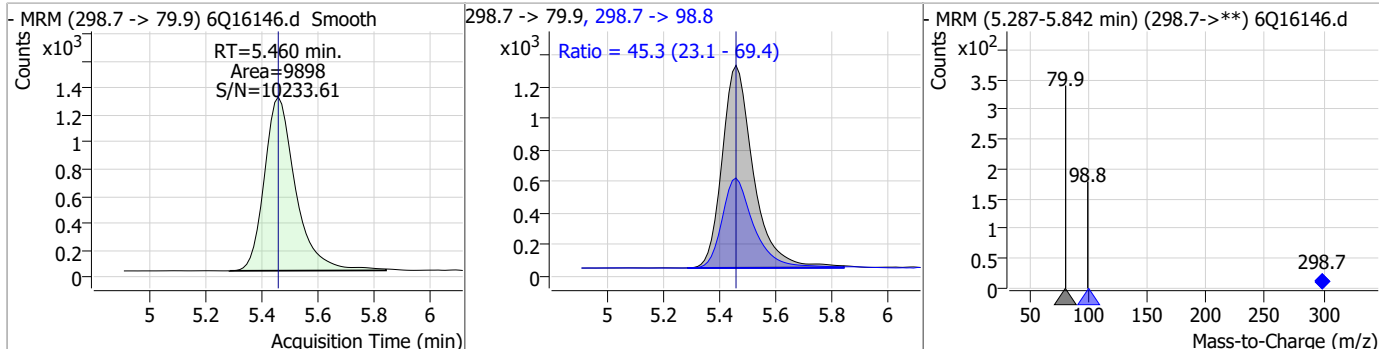
Perfluorinated Compounds by LC/MS/MS



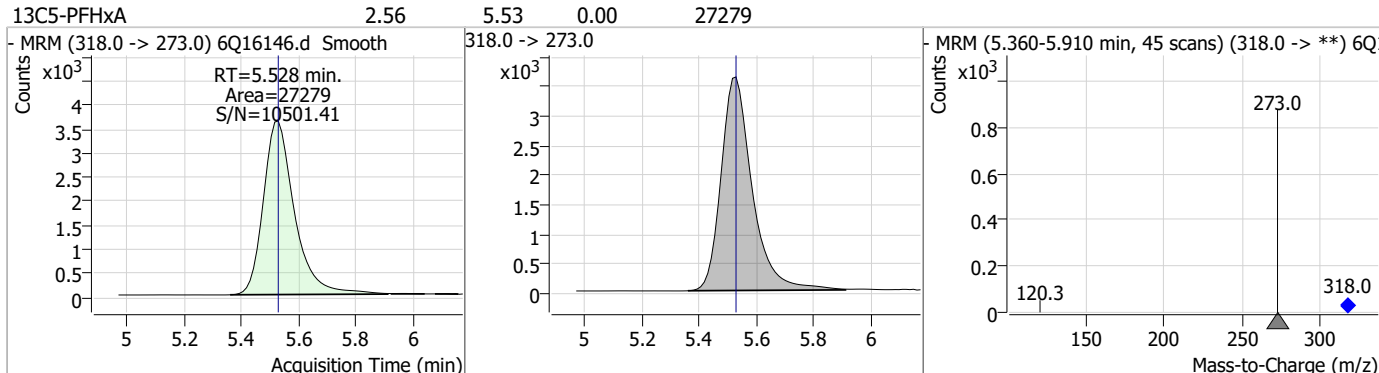
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Perfluorinated Compounds by LC/MS/MS

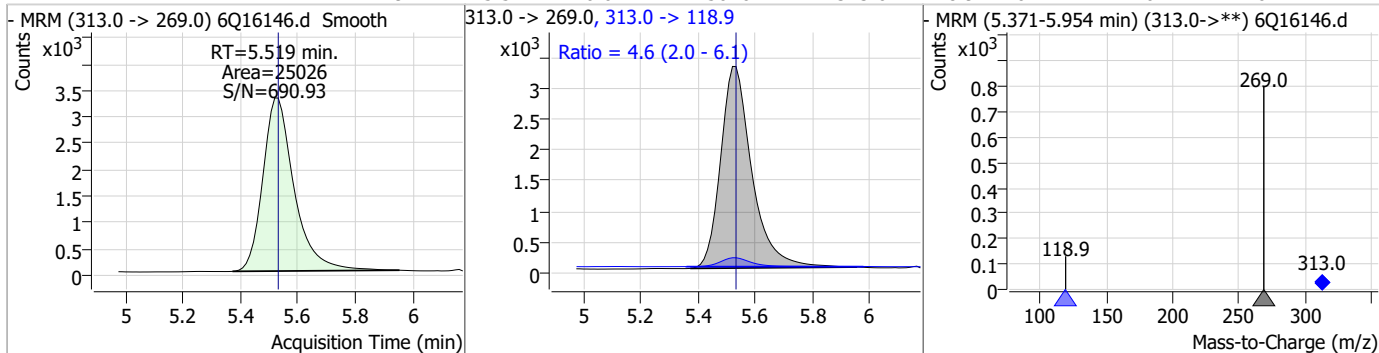
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.37	5.46	0.00	9898	298.7 -> 98.8	45.3	23.1	69.4



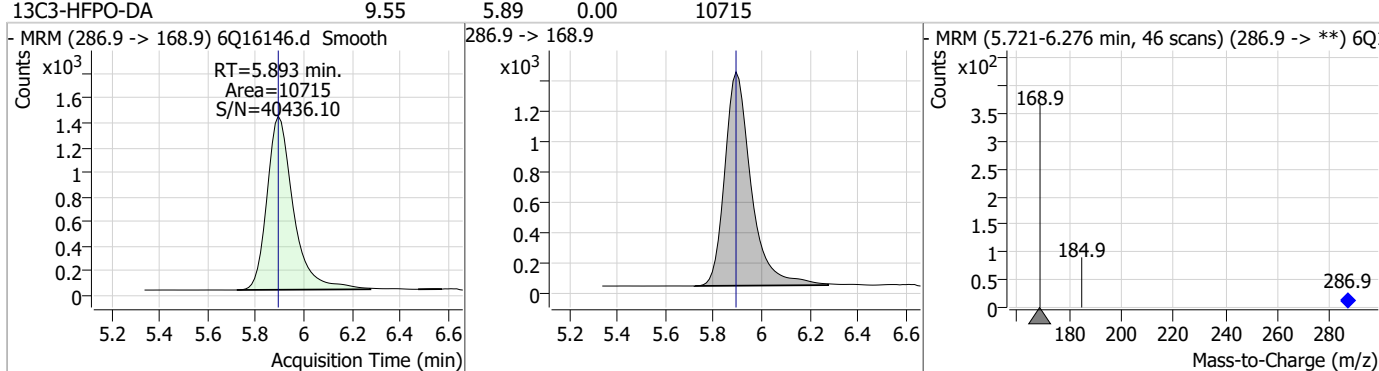
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.56	5.53	0.00	27279				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.49	5.52	-0.01	25026	313.0 -> 118.9	4.6	2.0	6.1



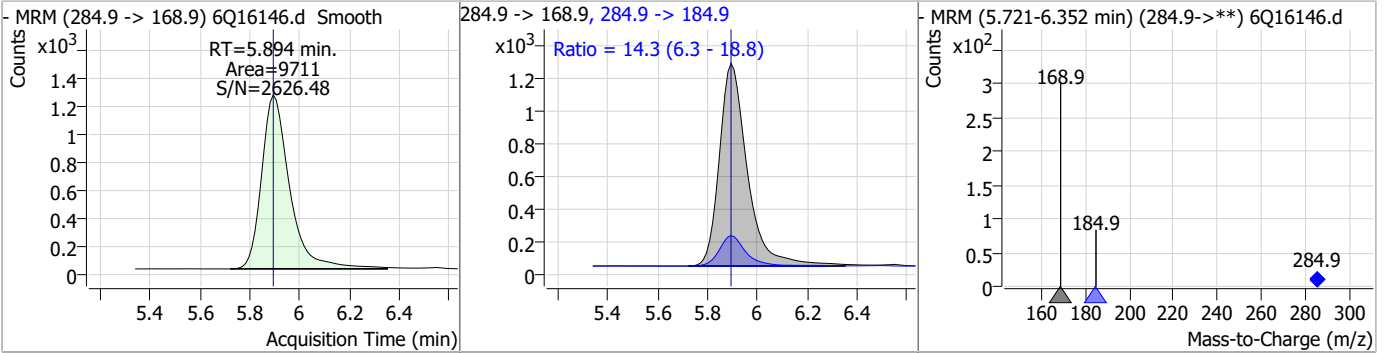
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.55	5.89	0.00	10715				



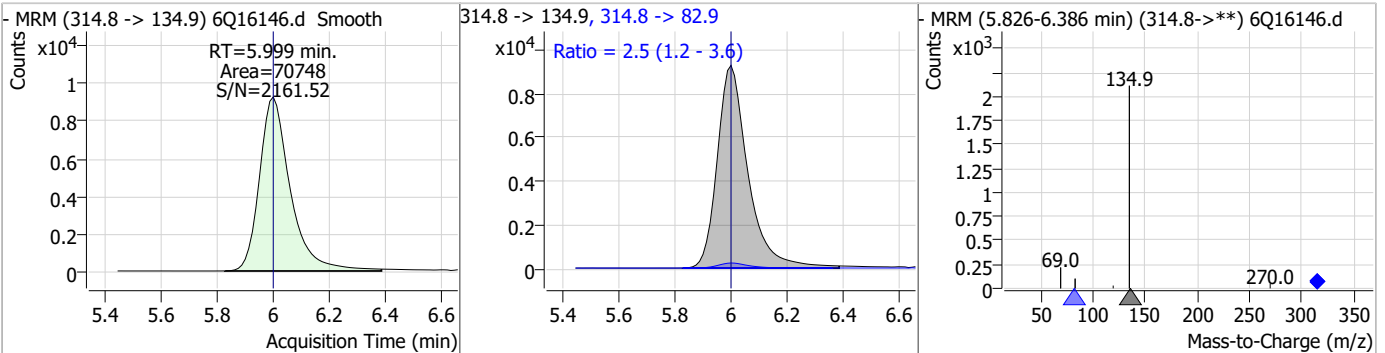
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Perfluorinated Compounds by LC/MS/MS

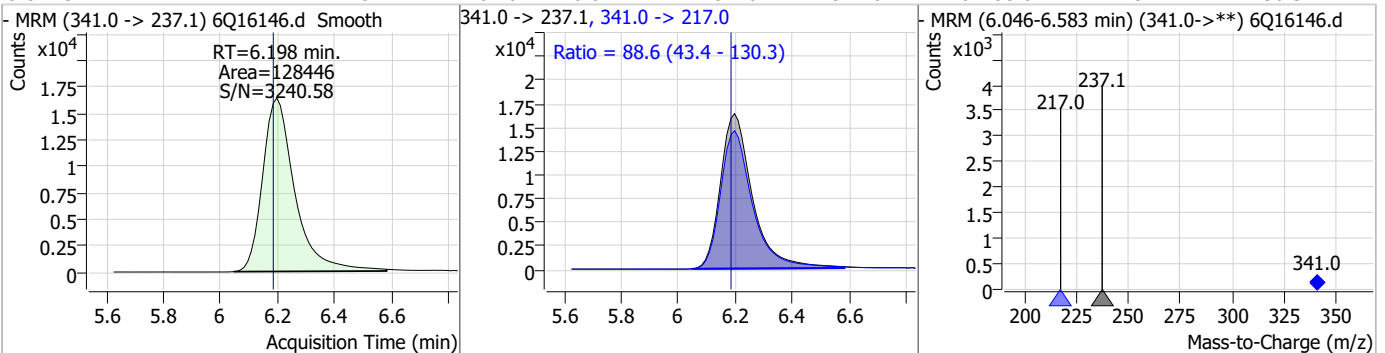
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	10.03	5.89	0.00	9711	284.9 -> 184.9	14.3	6.3	18.8



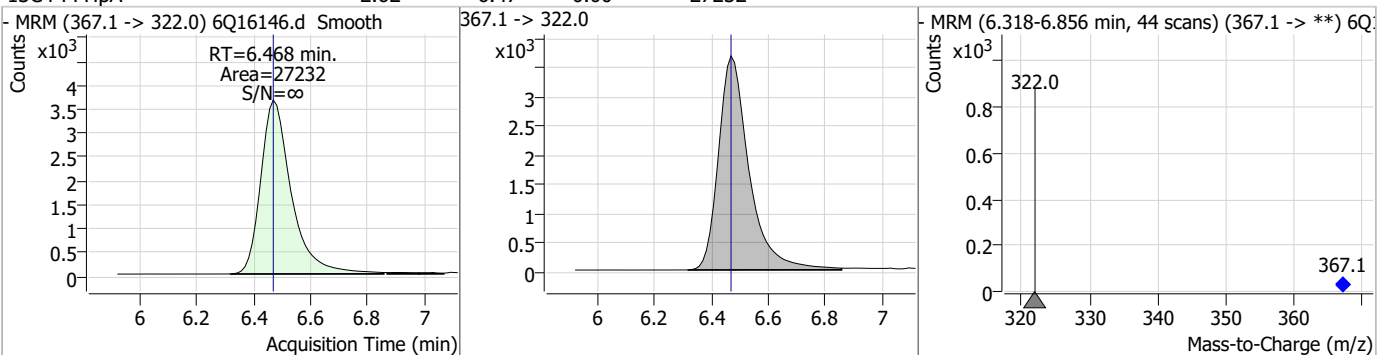
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.96	6.00	0.00	70748	314.8 -> 82.9	2.5	1.2	3.6



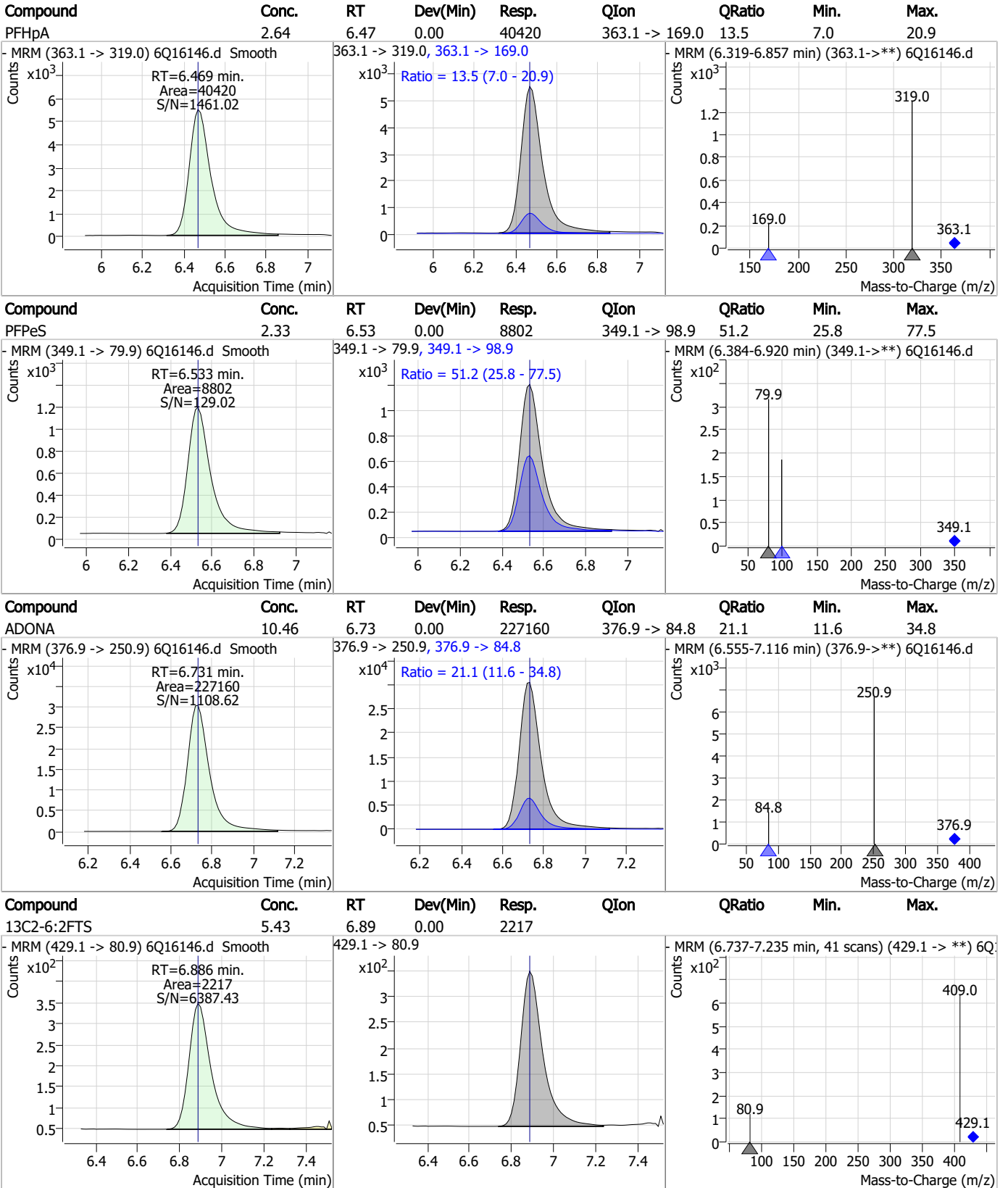
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	57.71	6.20	0.01	128446	341.0 -> 217.0	88.6	43.4	130.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.62	6.47	0.00	27232	367.1 -> 322.0	-	-	-



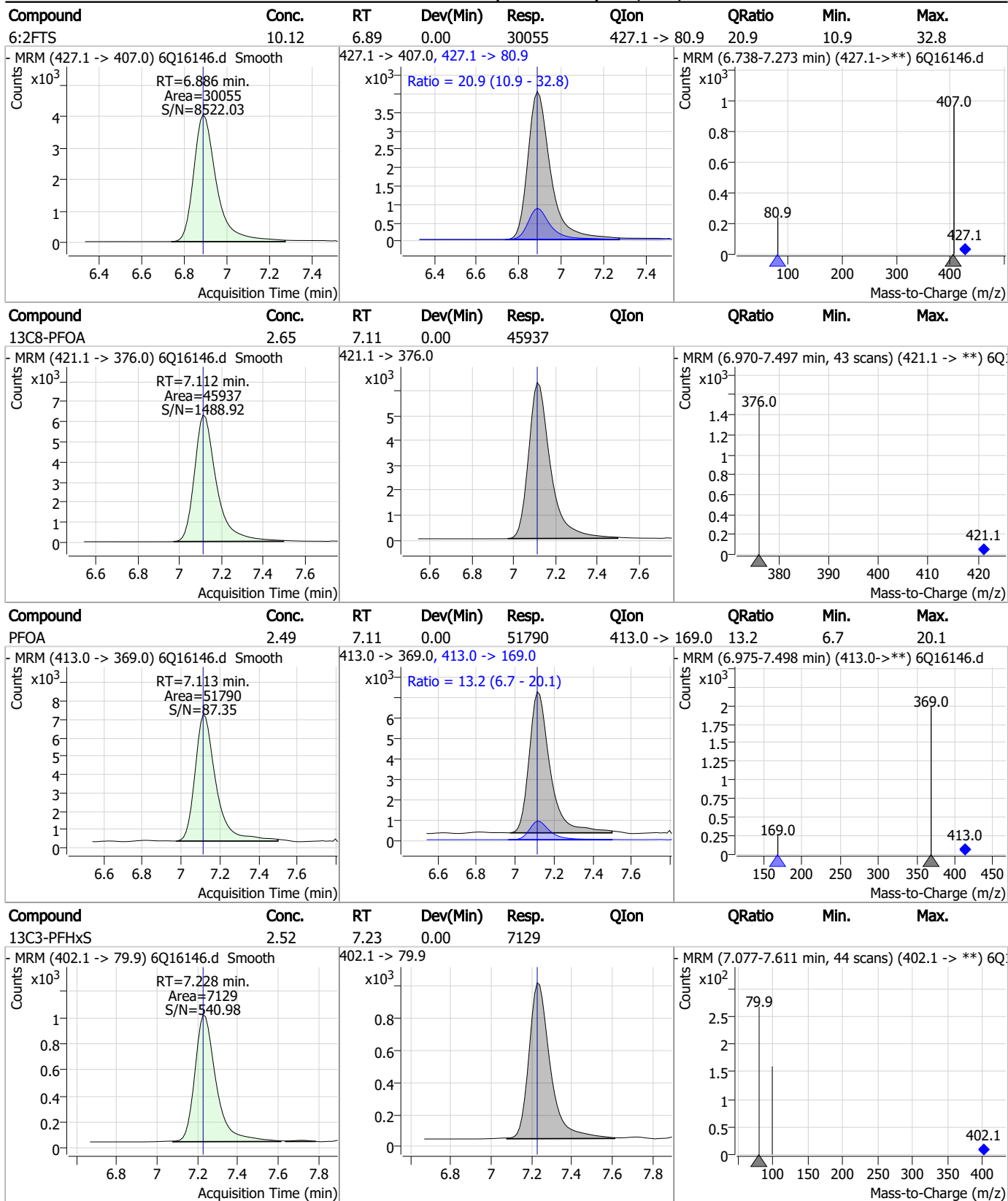
Perfluorinated Compounds by LC/MS/MS



7.3.1

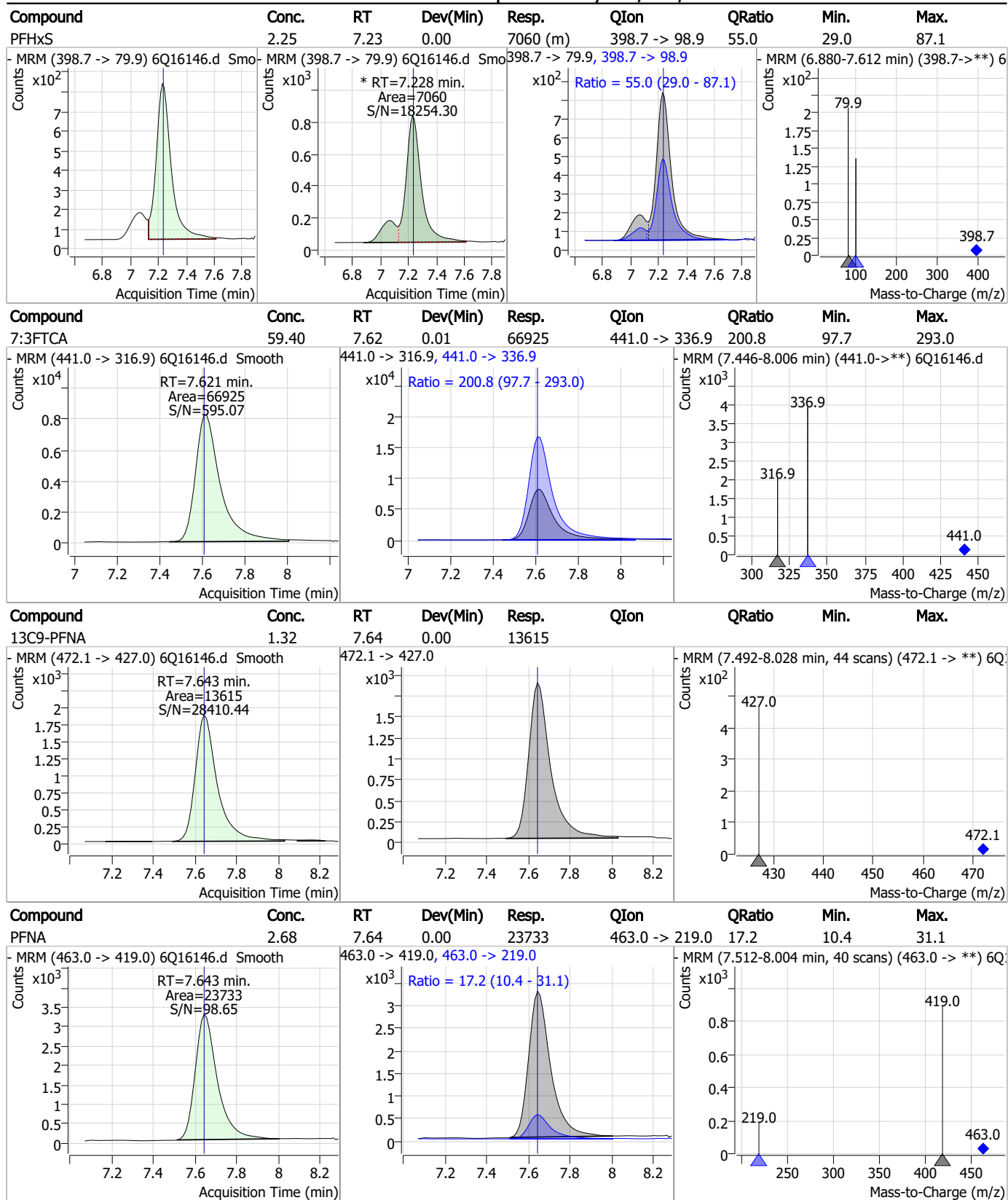
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Perfluorinated Compounds by LC/MS/MS



7.3.1
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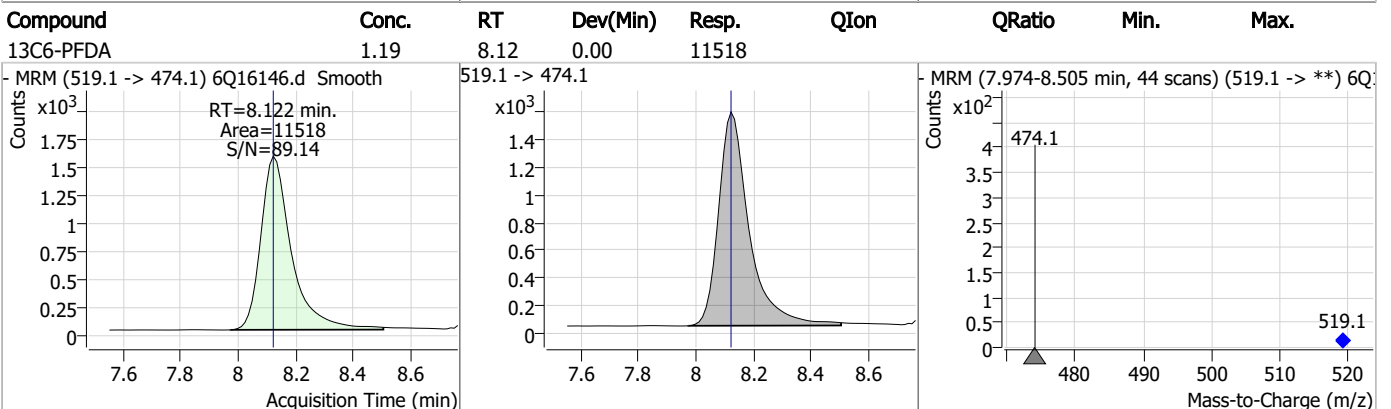
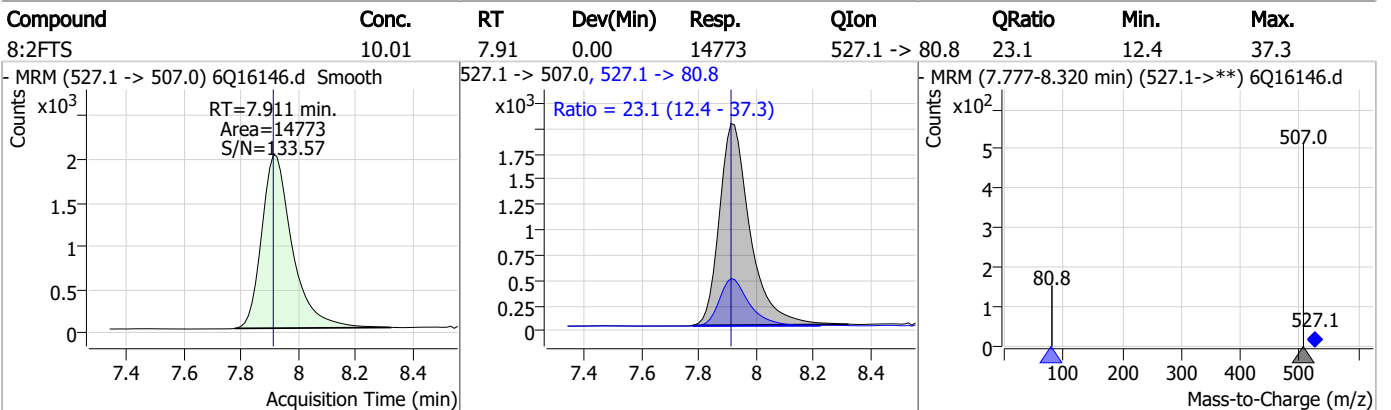
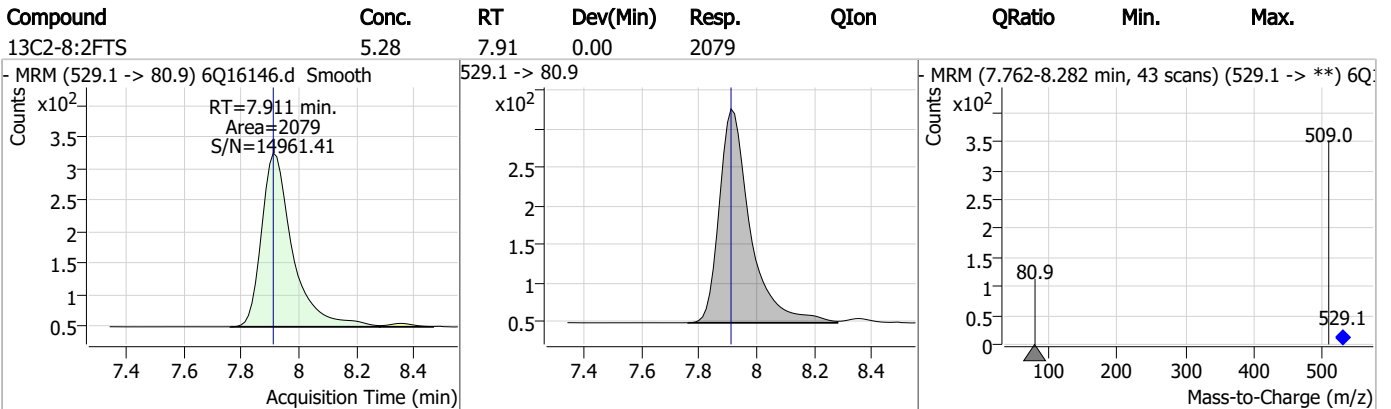
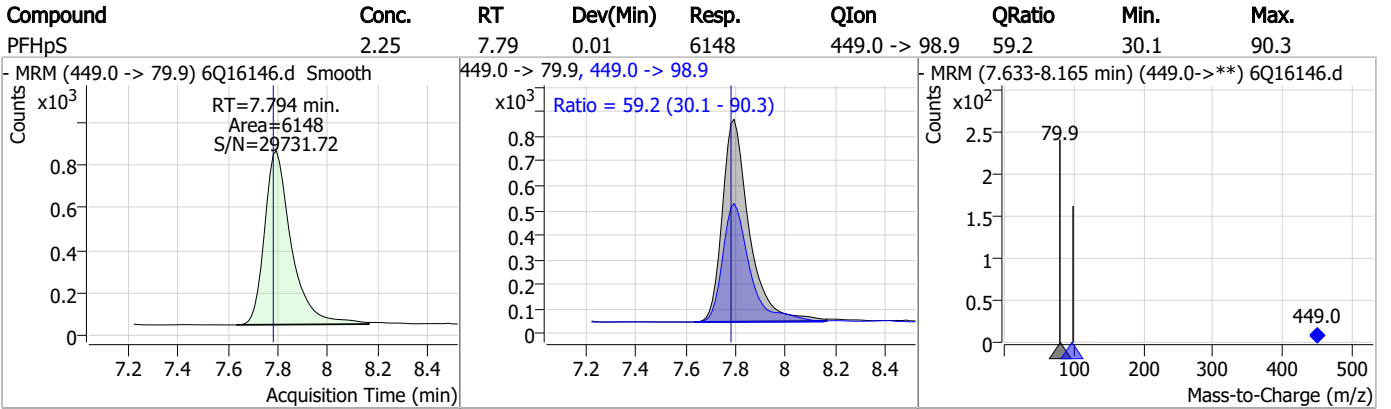
Perfluorinated Compounds by LC/MS/MS



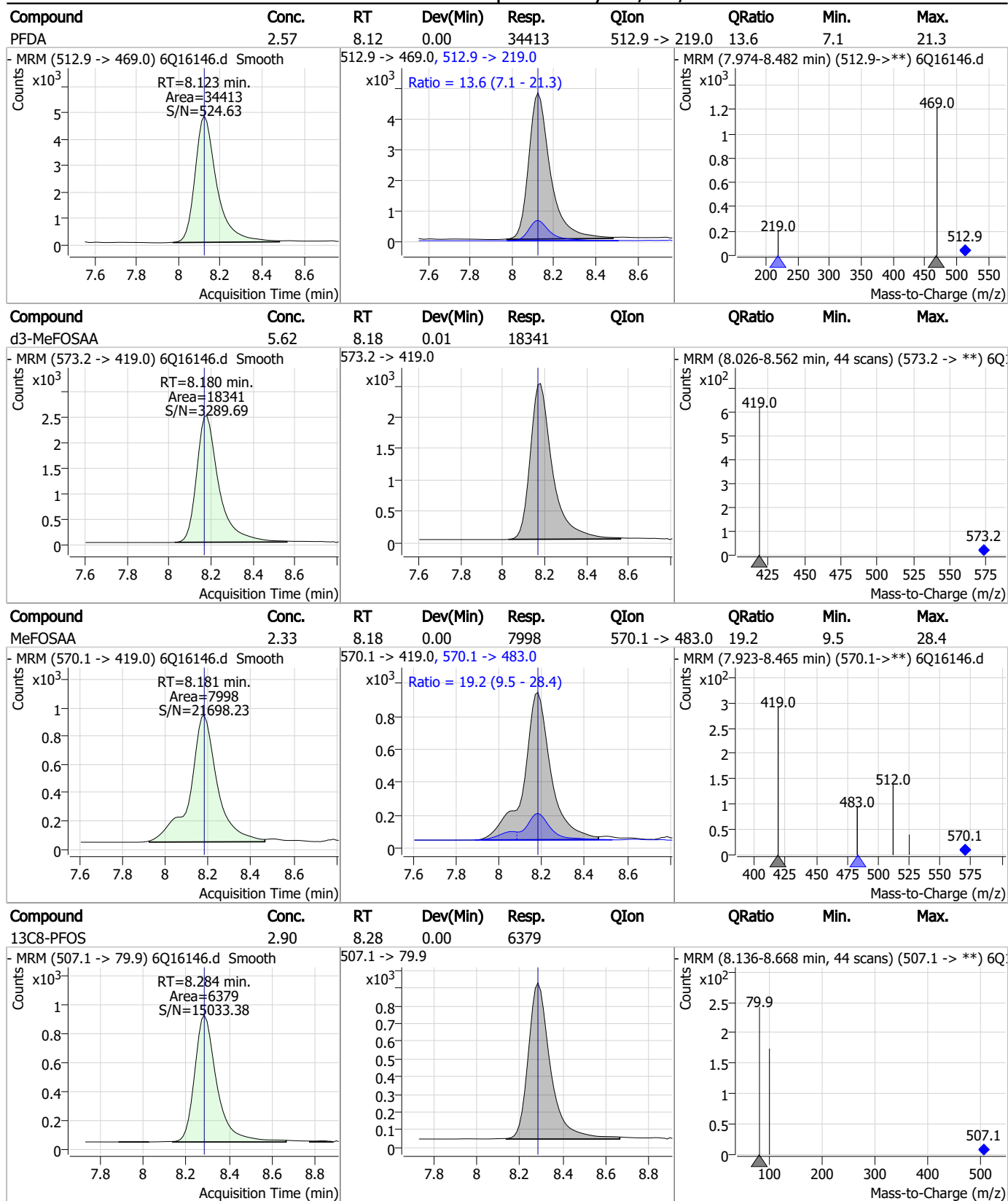
7.3.1
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Perfluorinated Compounds by LC/MS/MS

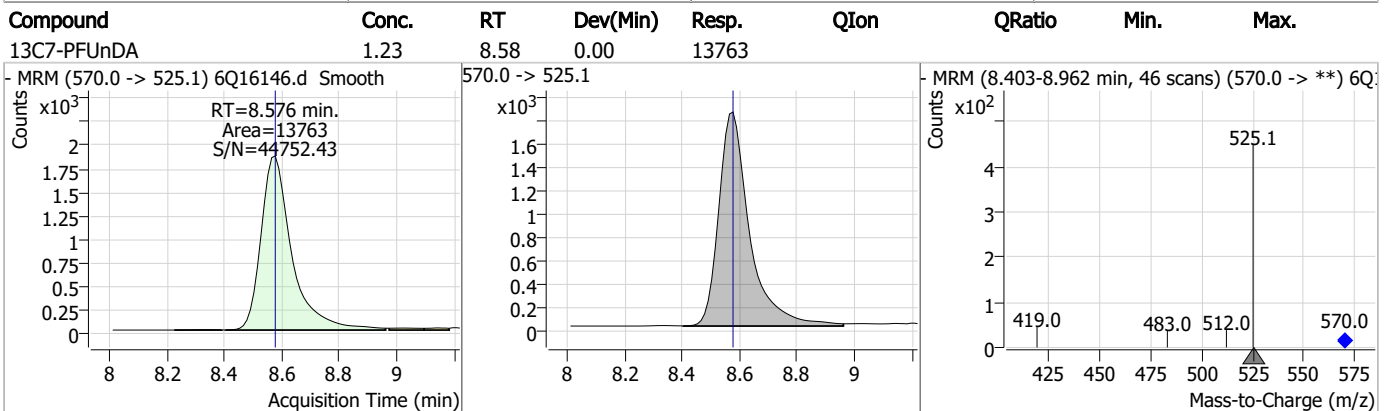
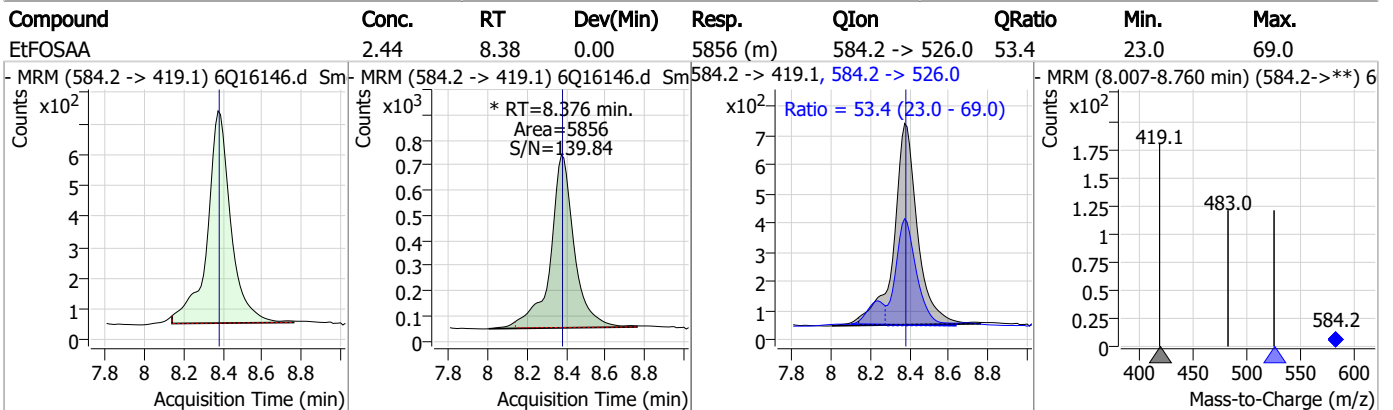
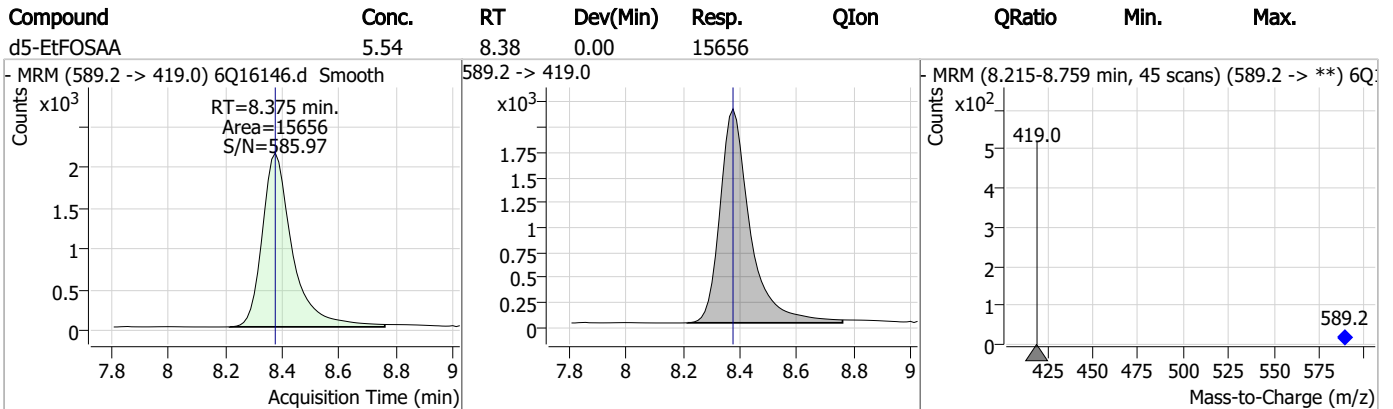
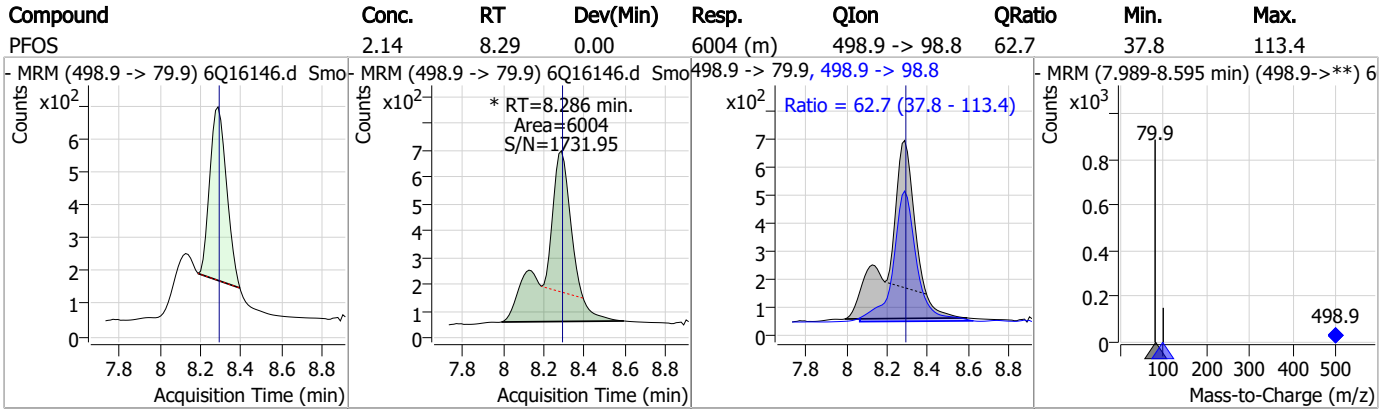


Perfluorinated Compounds by LC/MS/MS



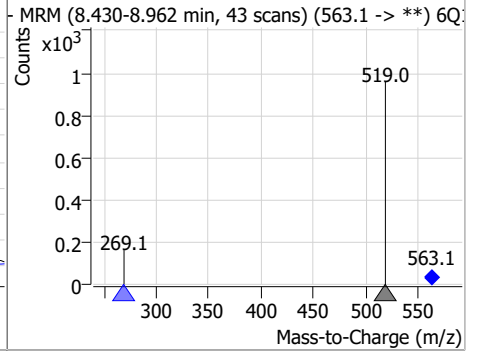
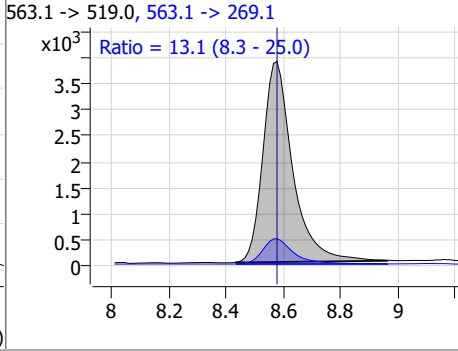
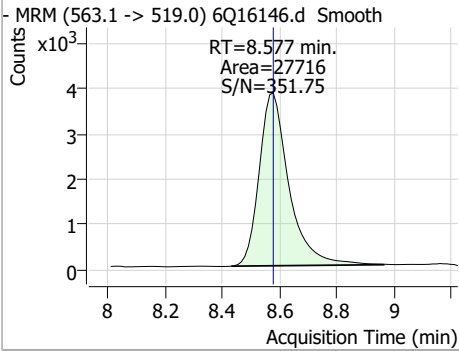
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Perfluorinated Compounds by LC/MS/MS

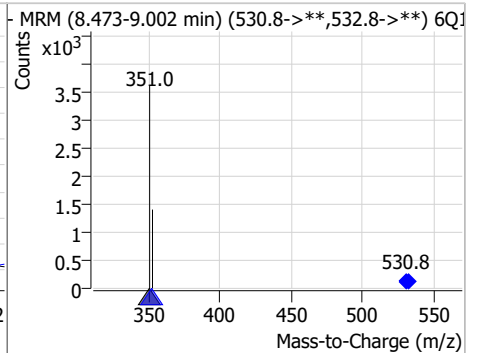
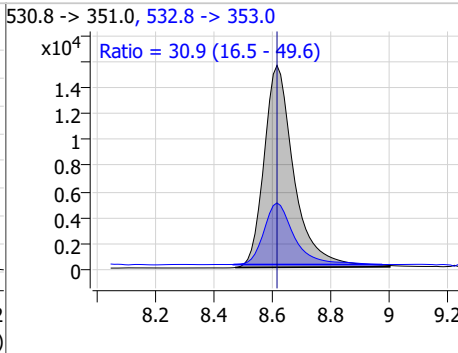
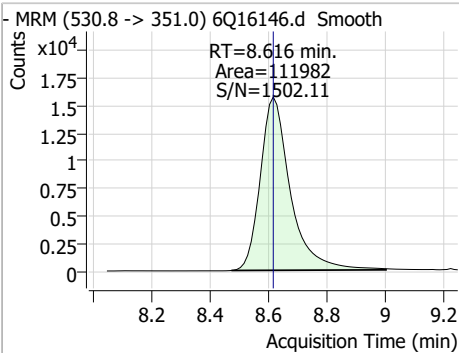


Perfluorinated Compounds by LC/MS/MS

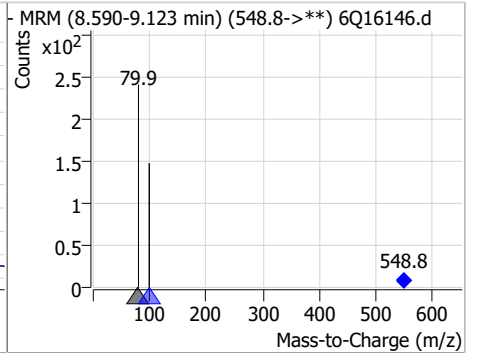
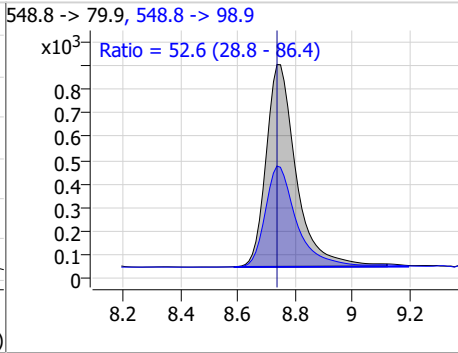
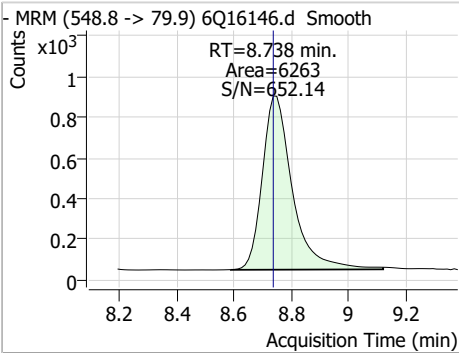
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.52	8.58	0.00	27716	563.1 -> 269.1	13.1	8.3	25.0



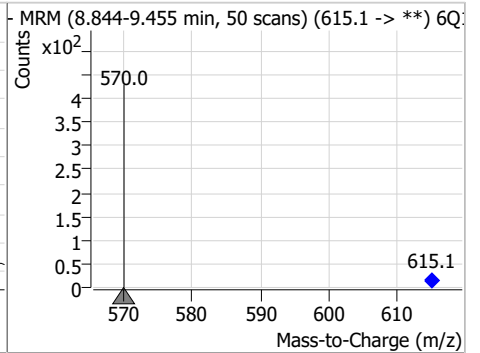
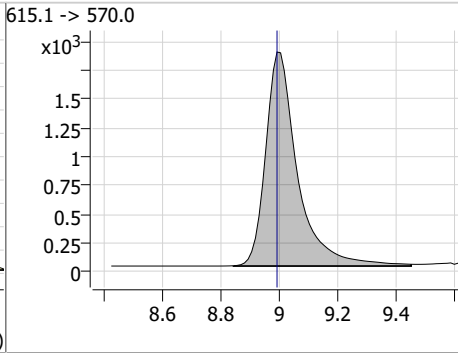
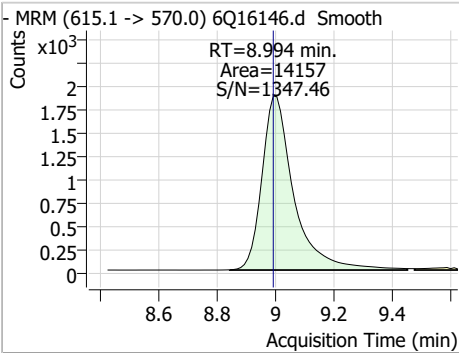
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	10.18	8.62	0.00	111982	532.8 -> 353.0	30.9	16.5	49.6



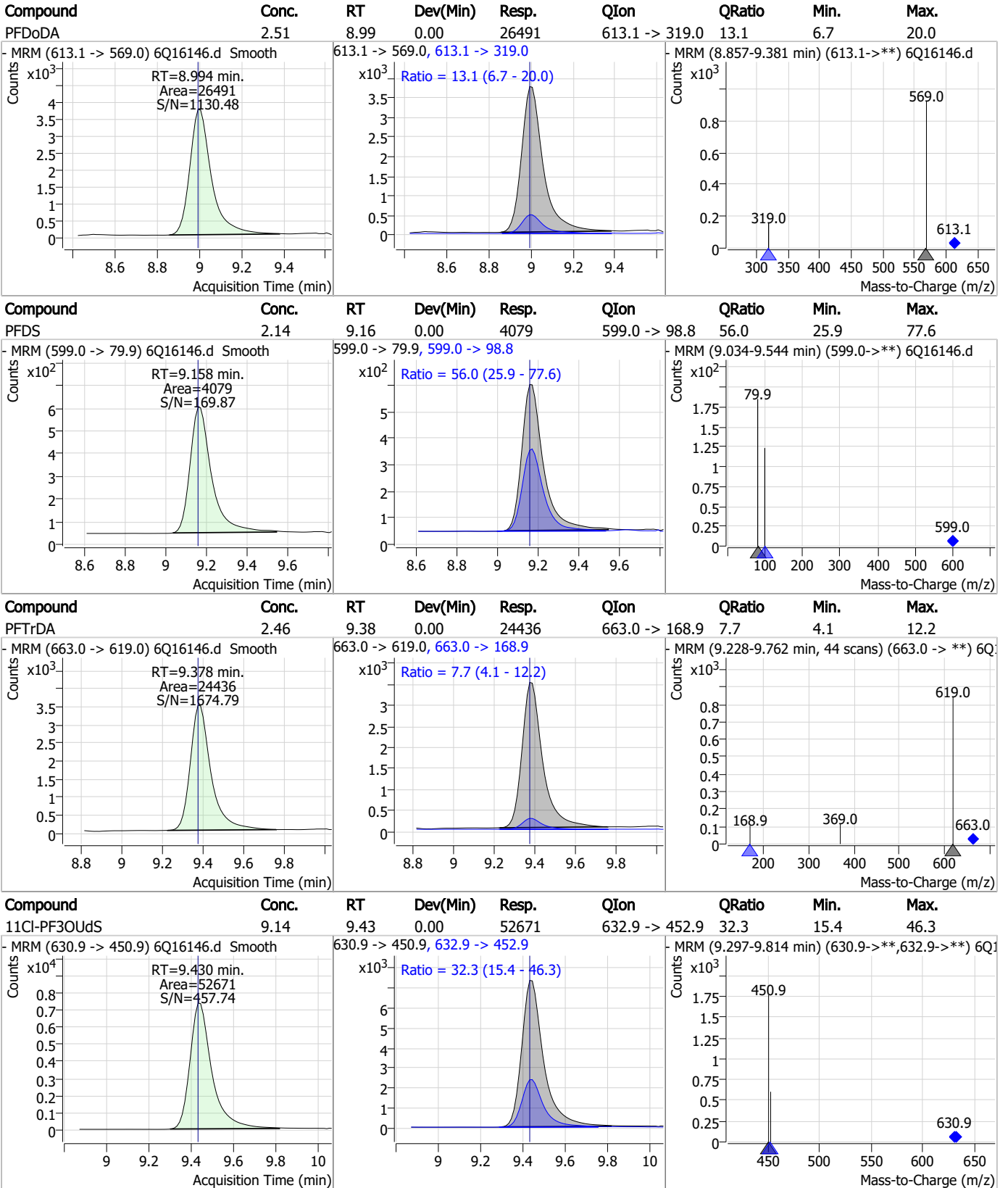
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.31	8.74	0.00	6263	548.8 -> 98.9	52.6	28.8	86.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.09	8.99	0.00	14157	615.1 -> 570.0			



Perfluorinated Compounds by LC/MS/MS

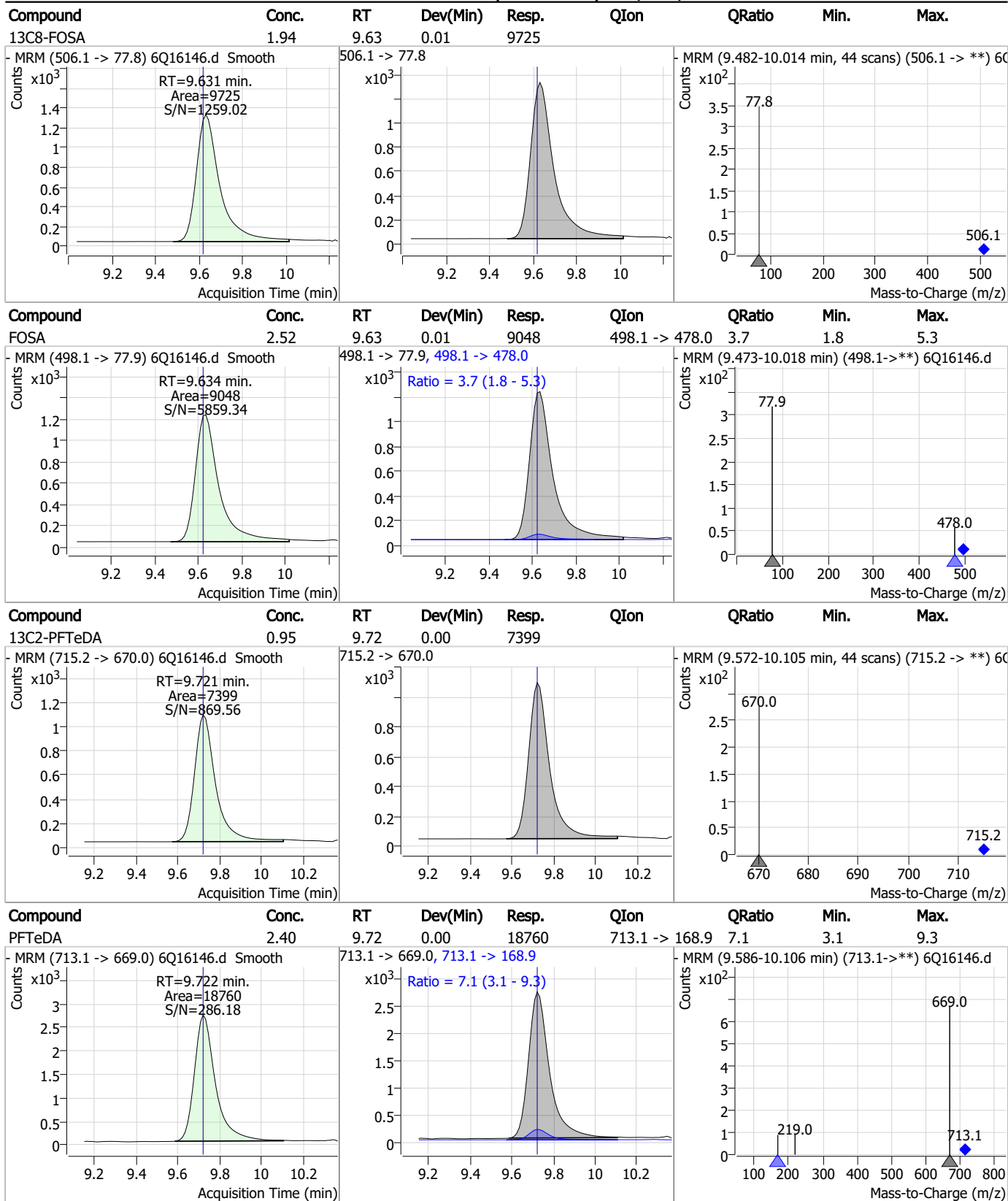


7.3.1

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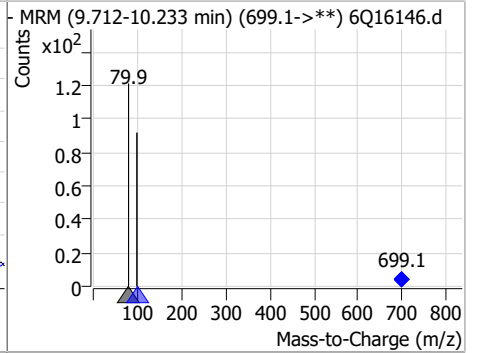
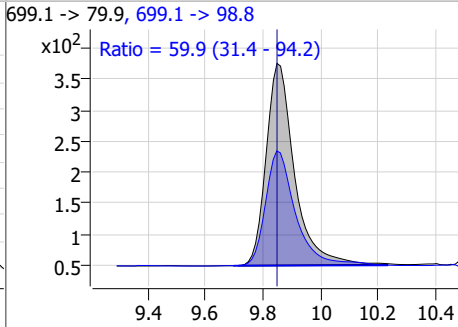
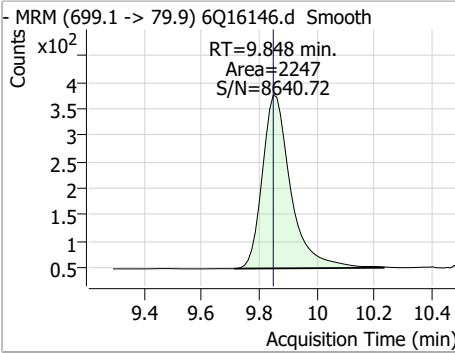
Perfluorinated Compounds by LC/MS/MS



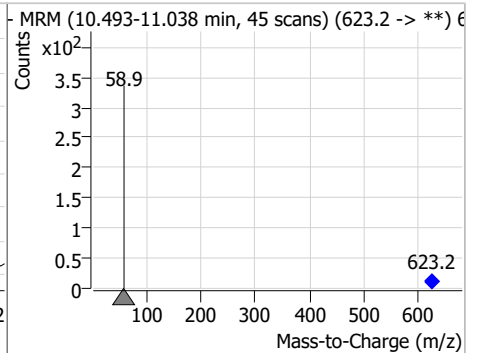
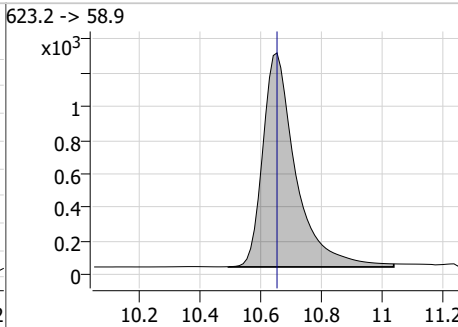
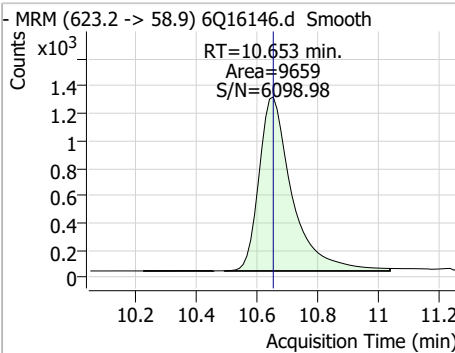
7.3.1
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Perfluorinated Compounds by LC/MS/MS

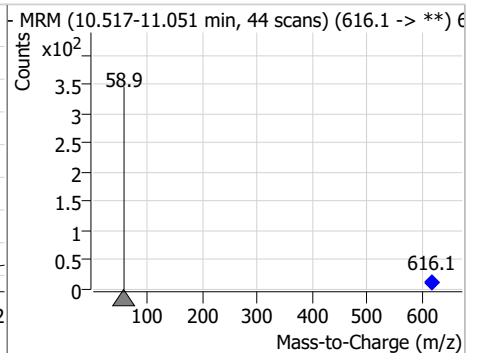
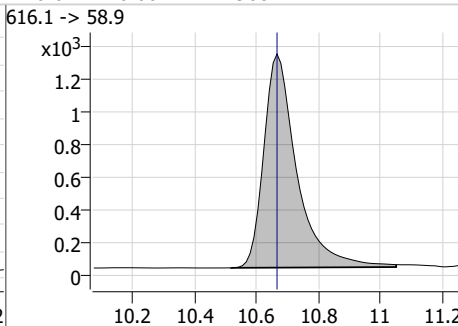
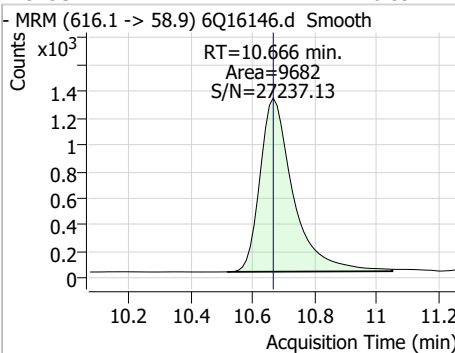
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.03	9.85	0.00	2247	699.1 -> 98.8	59.9	31.4	94.2



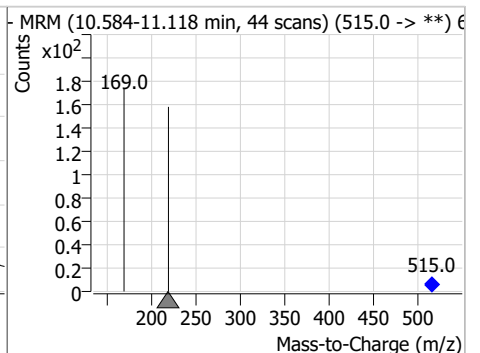
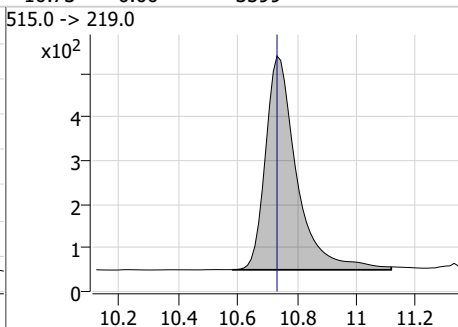
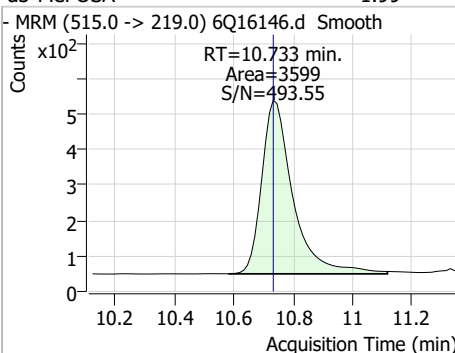
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	14.06	10.65	0.00	9659				



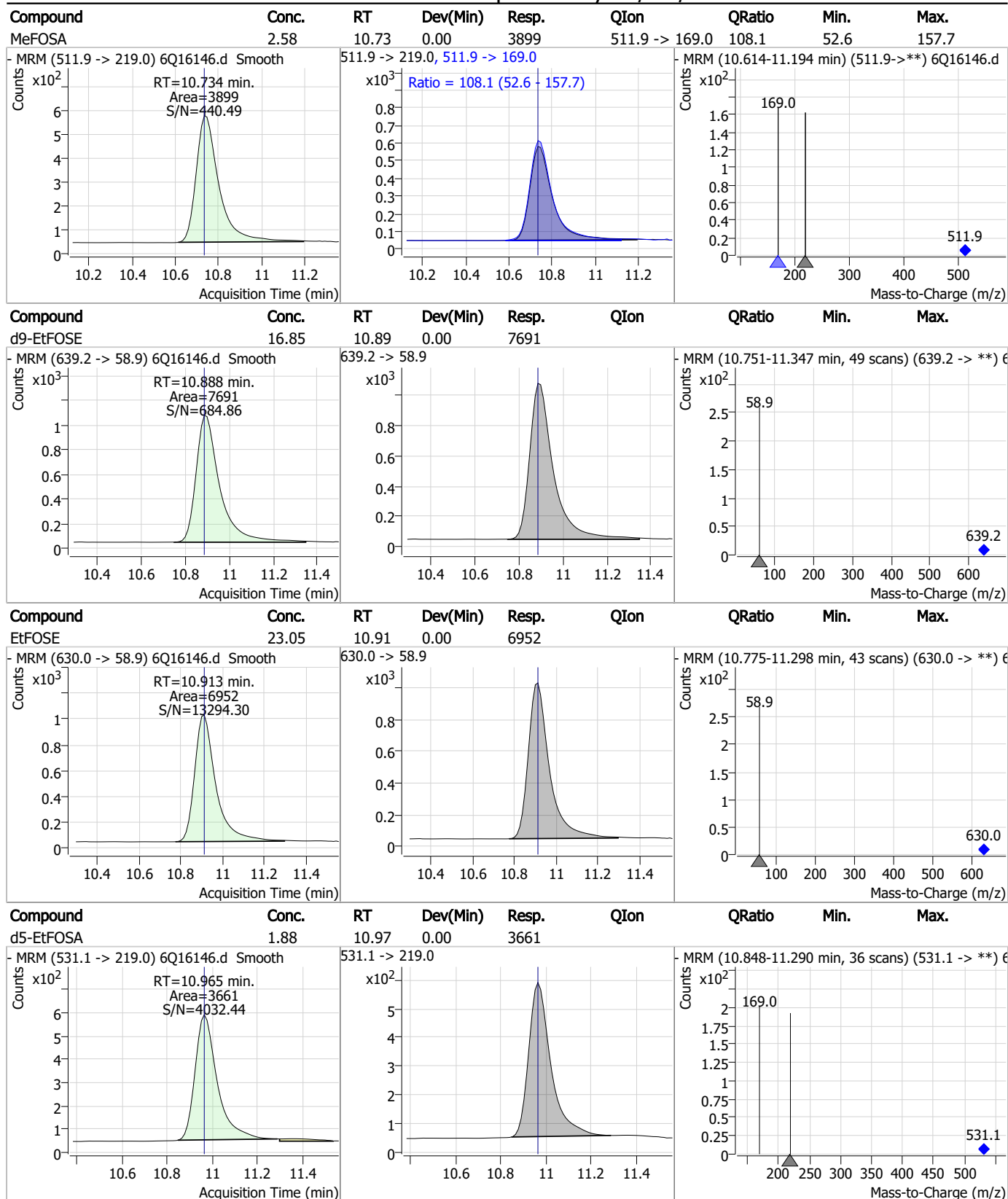
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	26.59	10.67	0.00	9682				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	1.99	10.73	0.00	3599				

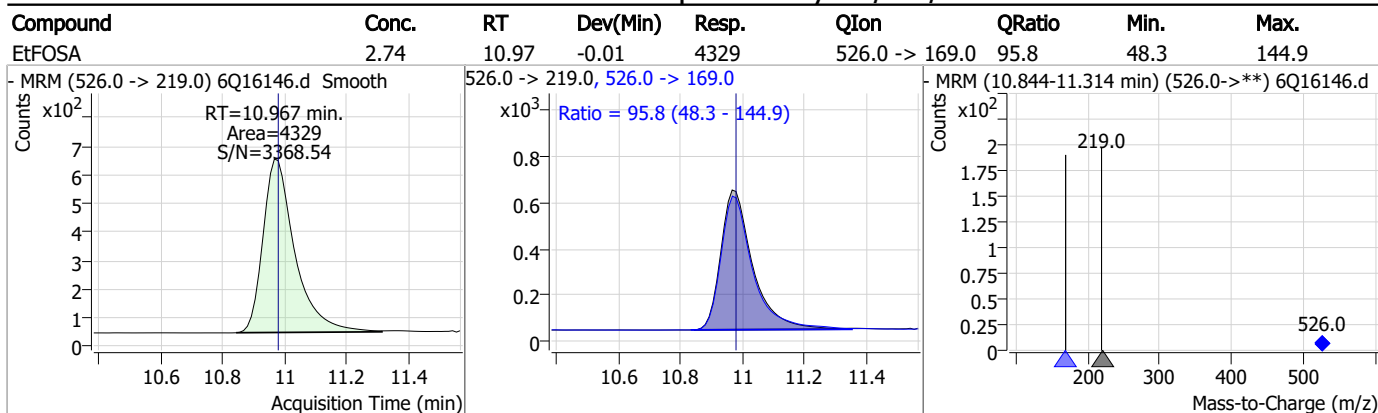


Perfluorinated Compounds by LC/MS/MS



7.3.1
7

Perfluorinated Compounds by LC/MS/MS



7.3.1
7

Manual Integration Approval Summary

Sample Number: OP96191-BS Method: EPA DRAFT 1633
Lab FileID: 6Q16146.D Analyst approved: 04/06/23 11:16 Martha Valls
Injection Time: 04/05/23 23:35 Supervisor approved: 04/06/23 14:50 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.29	Split peak
EtFOSAA	2991-50-6		8.38	Split peak

7.3.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16147.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/5/2023 11:49:18 PM
 Sample Name : op96191-llbs:3
 Vial : P2-B4
 DA Method File : 1633_040423_S6Q239.quantmethod.xml
 Batch Name : S6Q240.batch.bin
 Sample Information : OP96191,S6Q240,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.938	216.8 -> 171.9	73083	10.00 µg/L	0.041
M5-PFPeA	4.334	268.3 -> 223.0	31108	5.00 µg/L	0.012
M5-PFHxA	5.528	318.0 -> 273.0	27301	2.50 µg/L	0.000
M4-PFHpA	6.468	367.1 -> 322.0	27742	2.50 µg/L	0.000
M8-PFOA	7.112	421.1 -> 376.0	46392	2.50 µg/L	0.000
M9-PFNA	7.643	472.1 -> 427.0	14047	1.25 µg/L	0.000
M6-PFDA	8.122	519.1 -> 474.1	11550	1.25 µg/L	0.000
M7-PFUnDA	8.564	570.0 -> 525.1	15204	1.25 µg/L	-0.012
M2-PFDoDA	8.994	615.1 -> 570.0	14201	1.25 µg/L	0.000
M2-PFTeDA	9.721	715.2 -> 670.0	8114	1.25 µg/L	0.000
M8-FOSA	9.631	506.1 -> 77.8	10264	2.50 µg/L	0.012
M3-PFBS	5.459	302.1 -> 79.9	10553	2.50 µg/L	0.000
M3-PFHxS	7.228	402.1 -> 79.9	7245	2.50 µg/L	0.000
M8-PFOS	8.272	507.1 -> 79.9	6087	2.50 µg/L	-0.012
M2-4:2FTS	5.204	329.1 -> 80.9	1954	5.00 µg/L	0.012
M2-6:2FTS	6.886	429.1 -> 80.9	2395	5.00 µg/L	0.000
M2-8:2FTS	7.911	529.1 -> 80.9	1969	5.00 µg/L	0.000
M3-MeFOSAA	8.167	573.2 -> 419.0	17876	5.00 µg/L	0.000
M3-HFPO-DA	5.893	286.9 -> 168.9	11336	10.00 µg/L	0.000
M5-EtFOSAA	8.375	589.2 -> 419.0	15120	5.00 µg/L	0.000
M7-MeFOSE	10.653	623.2 -> 58.9	11796	25.00 µg/L	0.000
M9-EtFOSE	10.888	639.2 -> 58.9	9134	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	4278	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	3775	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	7606	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	30337	5.00 µg/L	0.040
18O2-PFHxS	7.227	403.0 -> 83.9	5315	2.50 µg/L	0.000
13C4-PFOA	7.112	417.1 -> 372.0	55532	2.50 µg/L	0.000
13C2-PFDA	8.123	515.1 -> 470.1	15970	1.25 µg/L	0.000
13C5-PFNA	7.643	468.0 -> 423.0	15634	1.25 µg/L	0.000
13C2-PFHxA	5.529	315.1 -> 270.0	26150	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.204	329.1 -> 80.9	1954	5.47 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.3%		
13C2-6:2FTS	6.886	429.1 -> 80.9	2395	5.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.2%		
13C2-8:2FTS	7.911	529.1 -> 80.9	1969	4.66 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.2%		
13C2-PFDoDA	8.994	615.1 -> 570.0	14201	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.0%		
13C2-PFTeDA	9.721	715.2 -> 670.0	8114	1.07 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 85.7%		
13C3-PFBS	5.459	302.1 -> 79.9	10553	2.23 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 89.3%		
13C3-PFHxS	7.228	402.1 -> 79.9	7245	2.38 µg/L	0.000

7.32
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.2%		
13C4-PFBA	2.938	216.8 -> 171.9	73083	10.30 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 103.0%		
13C4-PFHpA	6.468	367.1 -> 322.0	27742	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.8%		
13C5-PFHxA	5.528	318.0 -> 273.0	27301	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C5-PFPeA	4.334	268.3 -> 223.0	31108	5.10 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C6-PFDA	8.122	519.1 -> 474.1	11550	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C7-PFUnDA	8.564	570.0 -> 525.1	15204	1.39 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 111.4%		
13C8-FOSA	9.631	506.1 -> 77.8	10264	1.81 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 72.5%		
13C8-PFOA	7.112	421.1 -> 376.0	46392	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C8-PFOS	8.272	507.1 -> 79.9	6087	2.46 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C9-PFNA	7.643	472.1 -> 427.0	14047	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.2%		
d3-MeFOSAA	8.167	573.2 -> 419.0	17876	4.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.2%		
13C3-HFPO-DA	5.893	286.9 -> 168.9	11336	9.94 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.4%		
d3-MeFOSA	10.733	515.0 -> 219.0	3775	1.85 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 74.0%		
d5-EtFOSAA	8.375	589.2 -> 419.0	15120	4.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.9%		
d7-MeFOSE	10.653	623.2 -> 58.9	11796	15.24 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 61.0%		
d9-EtFOSE	10.888	639.2 -> 58.9	9134	17.75 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 71.0%		
d5-EtFOSA	10.965	531.1 -> 219.0	4278	1.95 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 77.8%		
Target Compounds					QValue
4:2FTS	5.204	327.1 -> 307.0	14488	3.78 µg/L	99
		327.1 -> 80.9	3321		
6:2FTS	6.886	427.1 -> 407.0	11266	3.51 µg/L	99
		427.1 -> 80.9	2406		
8:2FTS	7.911	527.1 -> 507.0	5711	4.09 µg/L	96
		527.1 -> 80.8	1536		
EtFOSAA	8.376	584.2 -> 419.1	2368	1.02 µg/L	99
		584.2 -> 526.0	1113		
FOSA	9.621	498.1 -> 77.9	3589	0.95 µg/L	100
		498.1 -> 478.0	131		
MeFOSAA	8.168	570.1 -> 419.0	3133	0.93 µg/L	100
		570.1 -> 483.0	591		
PFBA	2.944	212.8 -> 168.9	6928	3.75 µg/L	100
PFBS	5.460	298.7 -> 79.9	3511	0.85 µg/L	96
		298.7 -> 98.8	1726		
PFDA	8.123	512.9 -> 469.0	13789	1.03 µg/L	94
		512.9 -> 219.0	1628		
PFDODA	8.994	613.1 -> 569.0	10601	1.00 µg/L	94
		613.1 -> 319.0	1167		
PFDS	9.158	599.0 -> 79.9	1529	0.84 µg/L	94

7.3.2
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.469	599.0 -> 98.8	850	0.94	µg/L	95
		363.1 -> 319.0	14591			
PFHpS	7.781	363.1 -> 169.0	2315	0.93	µg/L	98
		449.0 -> 79.9	2424			
PFHxA	5.531	449.0 -> 98.9	1425	1.07	µg/L	99
		313.0 -> 269.0	10832			
PFHxS	7.228	313.0 -> 118.9	403	0.90	µg/L	94
		398.7 -> 79.9	2853			
PFNA	7.643	398.7 -> 98.9	1528	0.94	µg/L	93
		463.0 -> 419.0	8627			
PFNS	8.738	463.0 -> 219.0	1490	0.84	µg/L	100
		548.8 -> 79.9	2179			
PFOA	7.113	548.8 -> 98.9	1260	1.04	µg/L	97
		413.0 -> 369.0	21866			
PFOS	8.273	413.0 -> 169.0	2646	0.93	µg/L	80
		498.9 -> 79.9	2495			
PFPeA	4.336	498.9 -> 98.8	1459	1.99	µg/L	100
		263.0 -> 219.0	13046			
PFPeS	6.533	349.1 -> 79.9	3542	0.92	µg/L	95
		349.1 -> 98.9	1696			
PFTeDA	9.722	713.1 -> 669.0	8261	0.96	µg/L	98
		713.1 -> 168.9	577			
PFTrDA	9.378	663.0 -> 619.0	9772	0.98	µg/L	99
		663.0 -> 168.9	830			
PFUnDA	8.577	563.1 -> 519.0	10310	0.85	µg/L	97
		563.1 -> 269.1	1586			
11CI-PF3OUdS	9.430	630.9 -> 450.9	22312	3.66	µg/L	97
		632.9 -> 452.9	6555			
9CI-PF3ONS	8.616	530.8 -> 351.0	41438	3.56	µg/L	99
		532.8 -> 353.0	13846			
ADONA	6.731	376.9 -> 250.9	86241	3.75	µg/L	97
		376.9 -> 84.8	21093			
HFPO-DA	5.894	284.9 -> 168.9	3747	3.66	µg/L	95
		284.9 -> 184.9	547			
3:3FTCA	3.827	241.0 -> 177.0	1199	3.29	µg/L	99
		241.0 -> 117.0	187			
5:3FTCA	6.198	341.0 -> 237.1	51679	23.20	µg/L	97
		341.0 -> 217.0	43580			
7:3FTCA	7.608	441.0 -> 316.9	27694	24.56	µg/L	92
		441.0 -> 336.9	50764			
EtFOSA	10.967	526.0 -> 219.0	1783	0.97	µg/L	88
		526.0 -> 169.0	1939			
EtFOSE	10.913	630.0 -> 58.9	3518	9.82	µg/L	100
		511.9 -> 219.0	1578			
MeFOSA	10.734	511.9 -> 169.0	1768	0.99	µg/L	93
		616.1 -> 58.9	4459			
MeFOSE	10.666	699.1 -> 79.9	949	10.03	µg/L	100
		699.1 -> 98.8	548			
PFDoDS	9.848	295.0 -> 201.0	1335	0.90	µg/L	93
		295.0 -> 84.9	578			
NFDHA	5.410	279.0 -> 85.1	4008	2.04	µg/L	99
		229.0 -> 84.9	3831			
PFMBA	4.737	279.0 -> 85.1	4008	1.84	µg/L	100
PFMPA	3.488	229.0 -> 84.9	3831	1.93	µg/L	100
PFEESA	5.999	314.8 -> 134.9	27000	1.89	µg/L	100
		314.8 -> 82.9	636			

= Qualifier out of range, m = manually integrated, + = Area summed

7.3.2
7

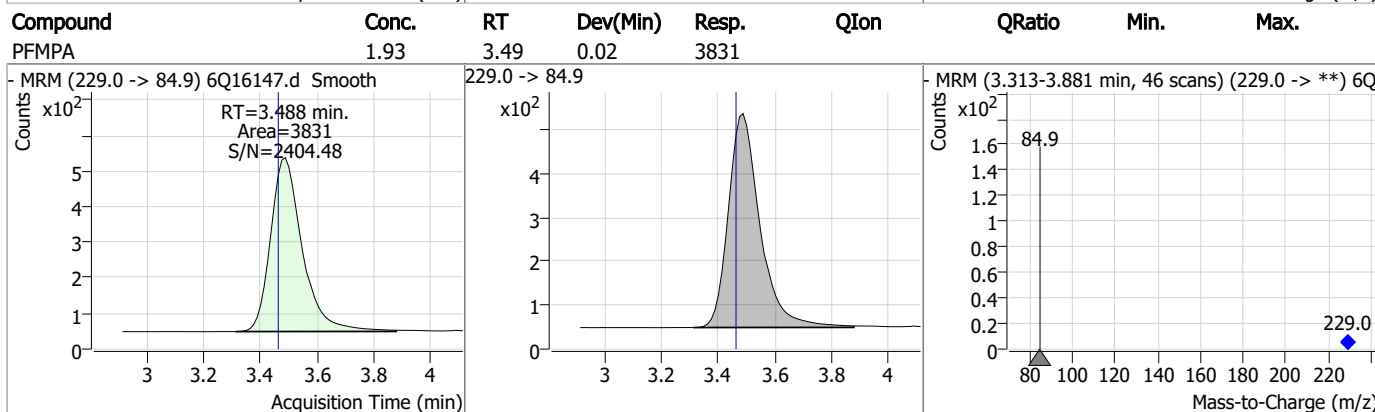
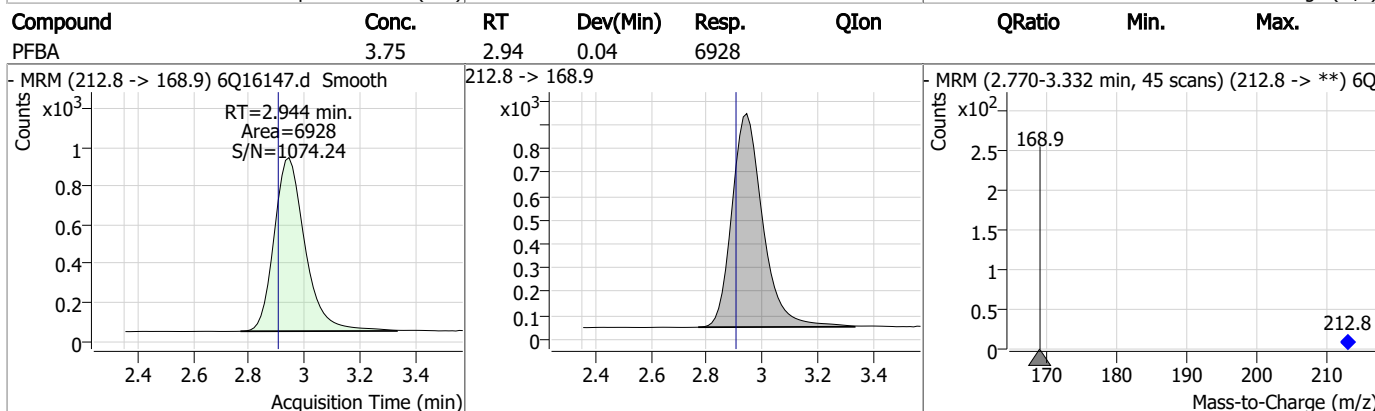
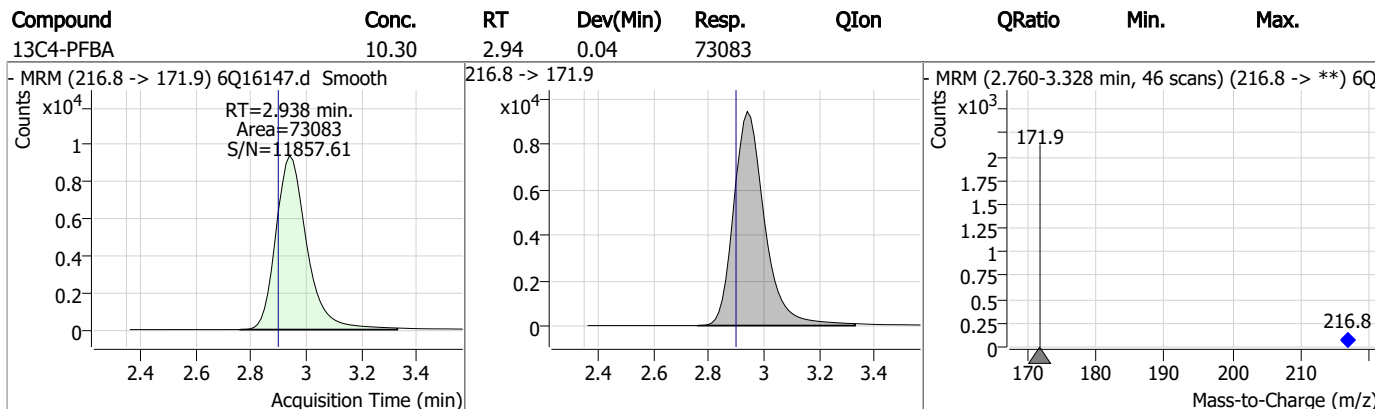
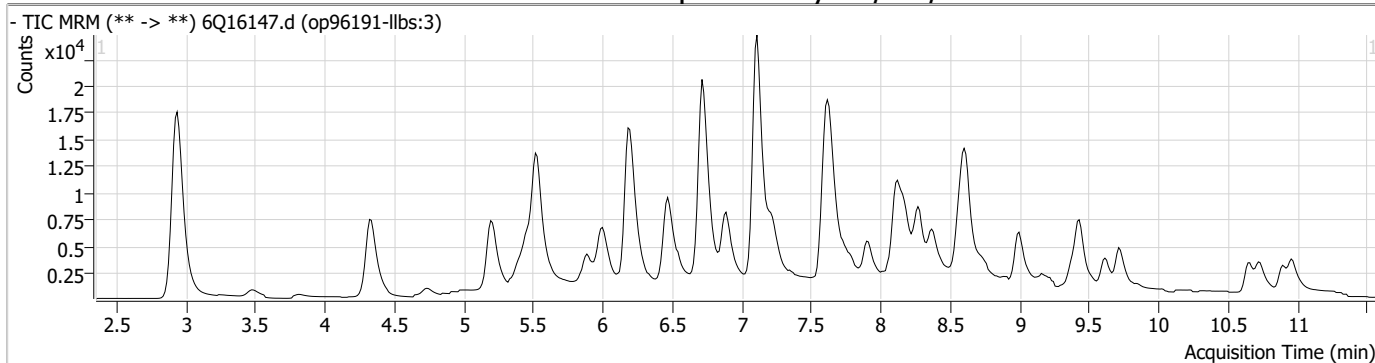
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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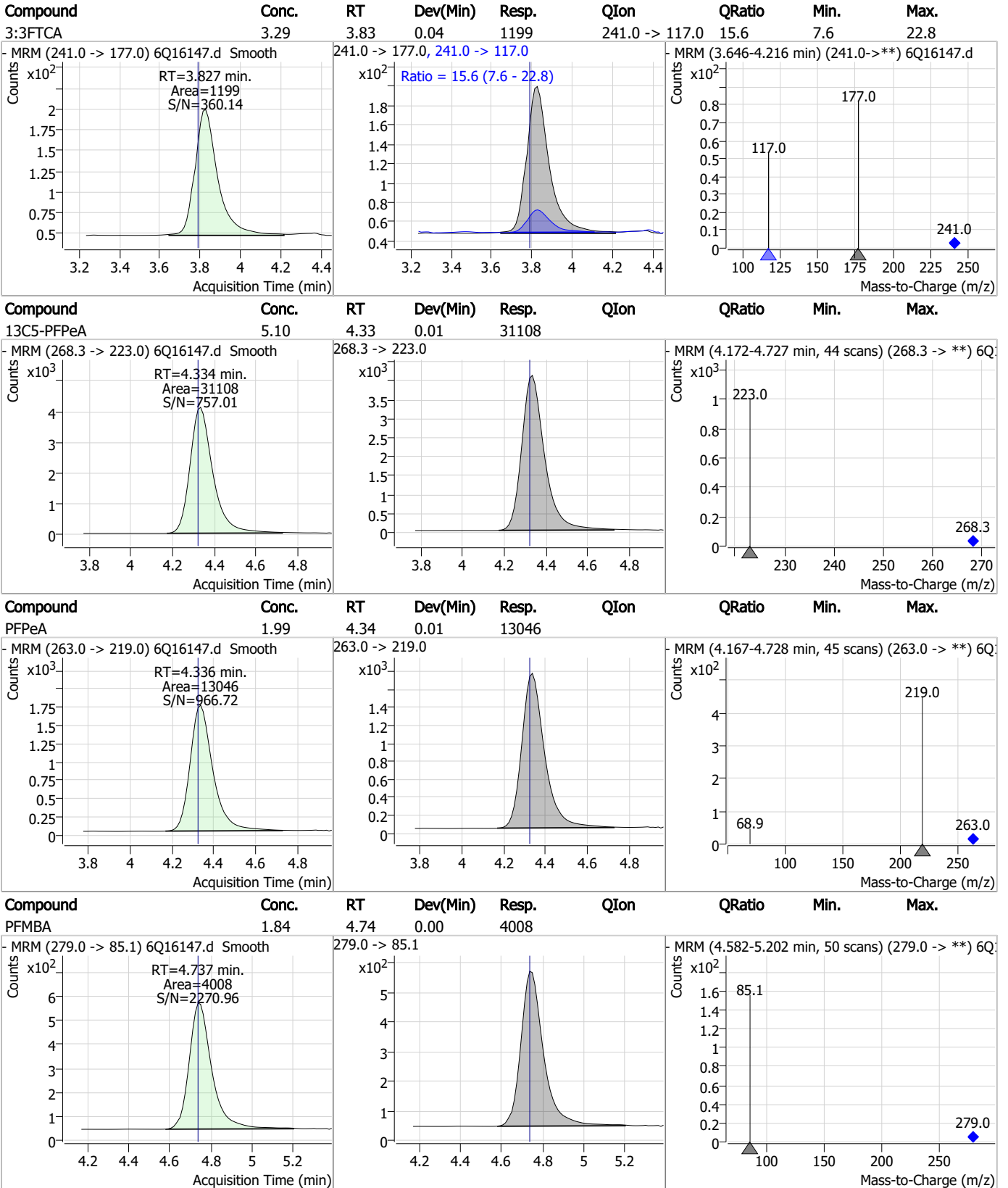
7.3.2

7

Perfluorinated Compounds by LC/MS/MS

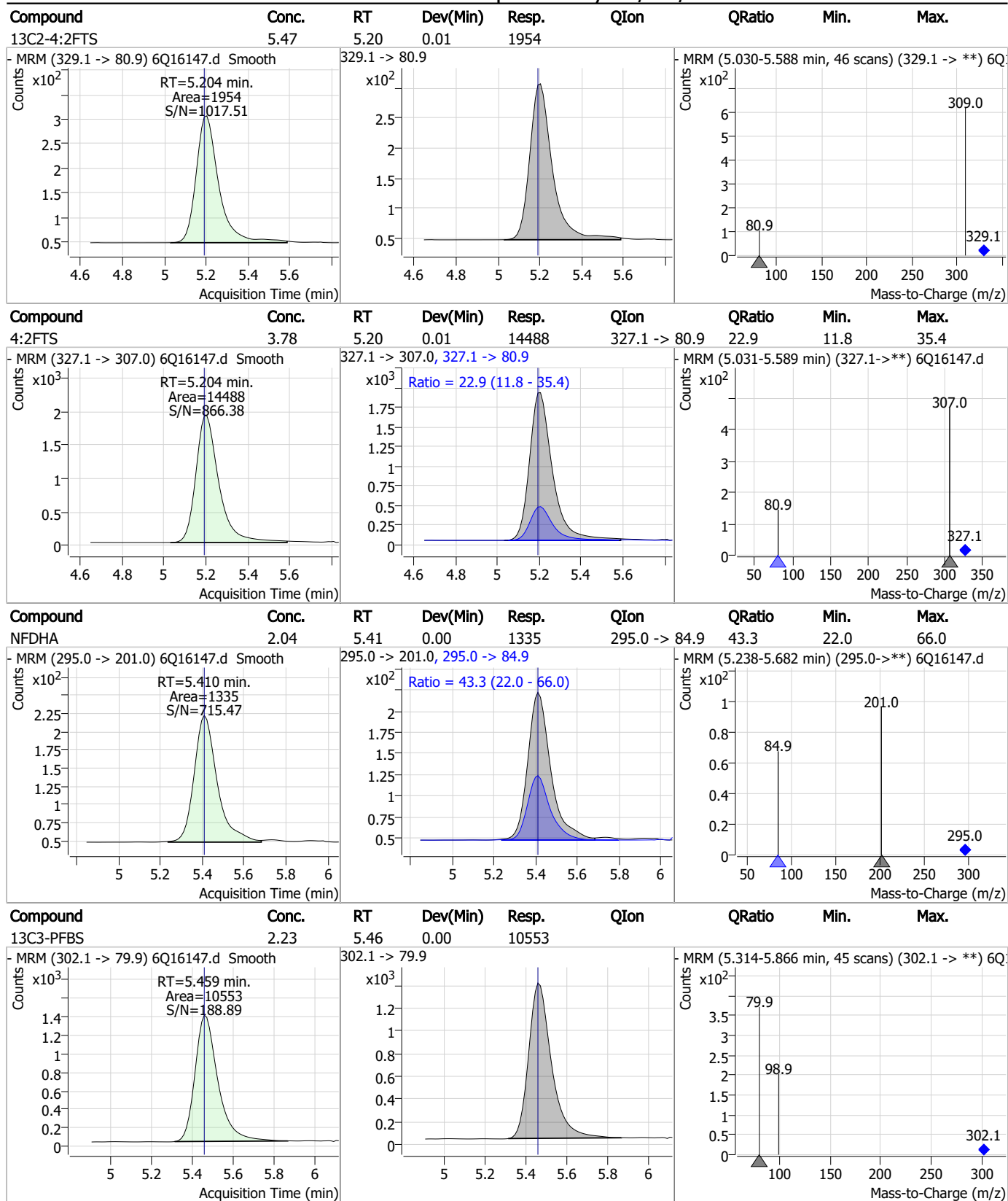


Perfluorinated Compounds by LC/MS/MS



7.3.2 7

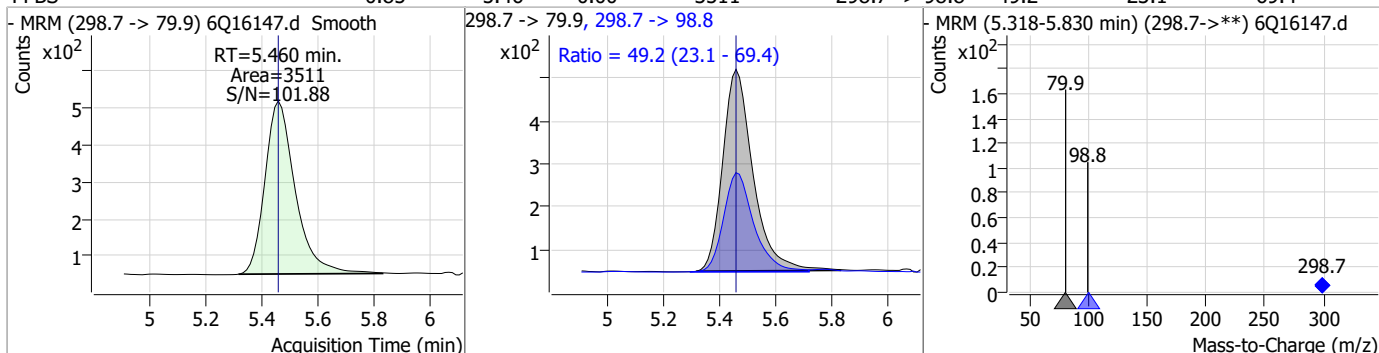
Perfluorinated Compounds by LC/MS/MS



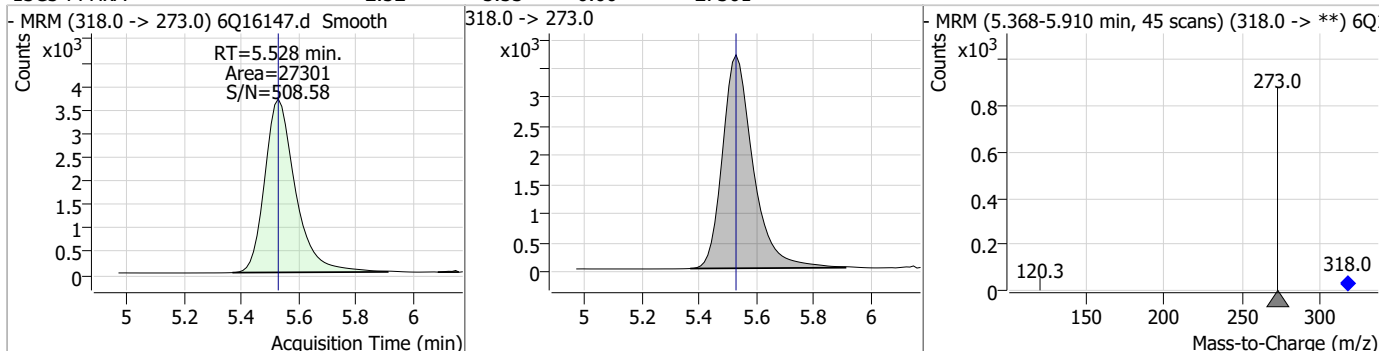
7.3.2
7

Perfluorinated Compounds by LC/MS/MS

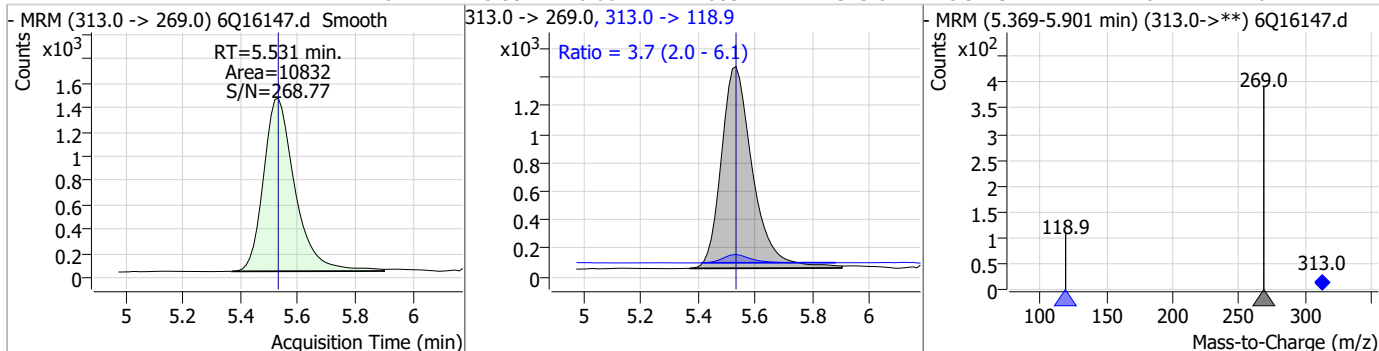
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.85	5.46	0.00	3511	298.7 -> 98.8	49.2	23.1	69.4



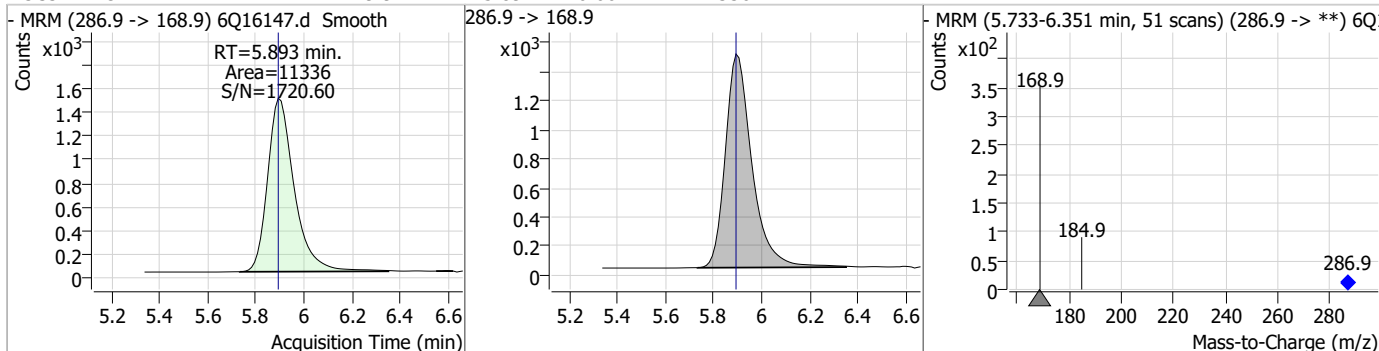
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.52	5.53	0.00	27301				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.07	5.53	0.00	10832	313.0 -> 118.9	3.7	2.0	6.1



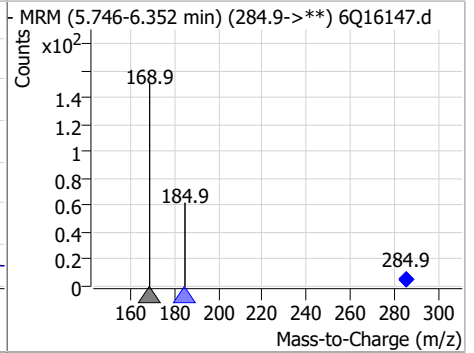
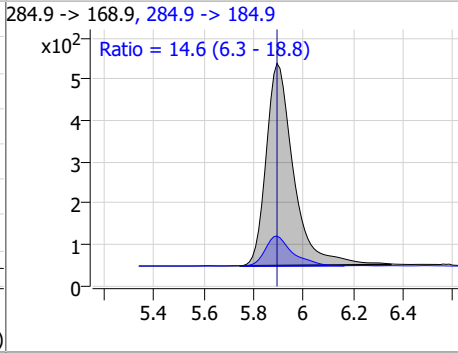
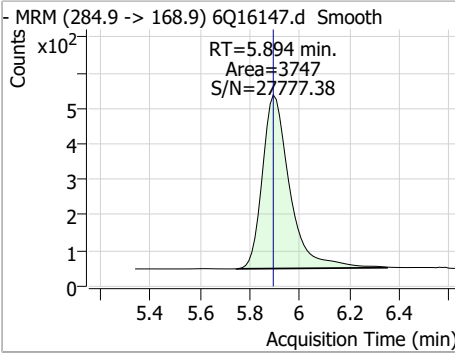
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.94	5.89	0.00	11336				



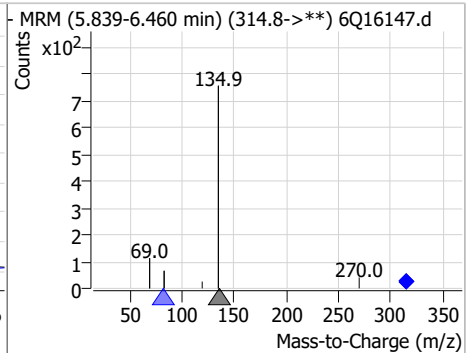
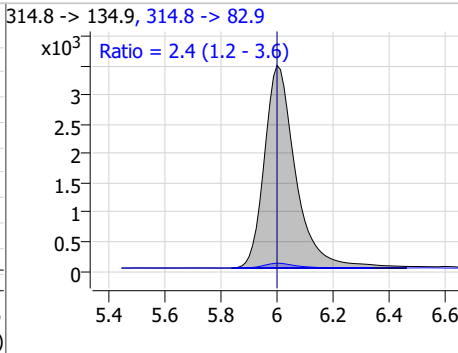
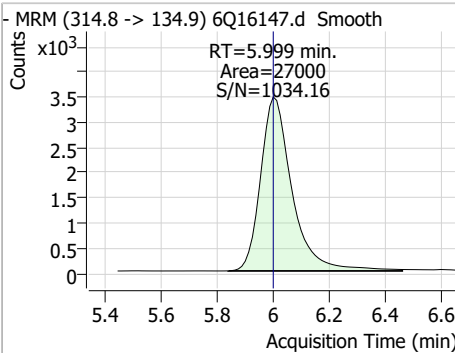
7.3.2
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Perfluorinated Compounds by LC/MS/MS

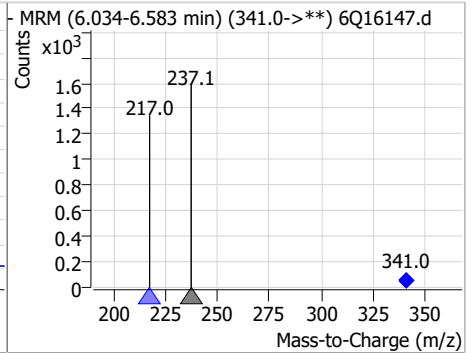
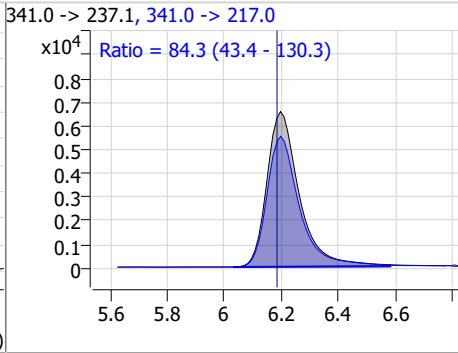
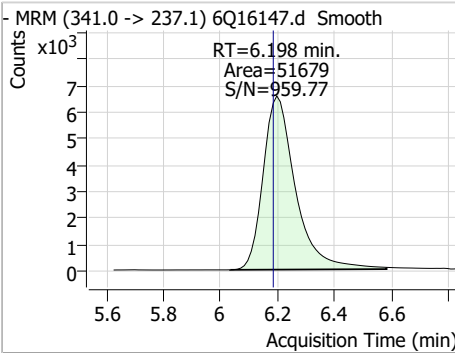
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	3.66	5.89	0.00	3747	284.9 -> 184.9	14.6	6.3	18.8



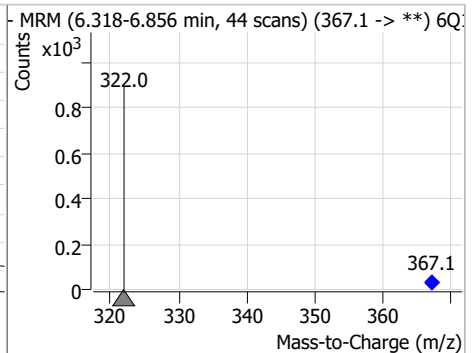
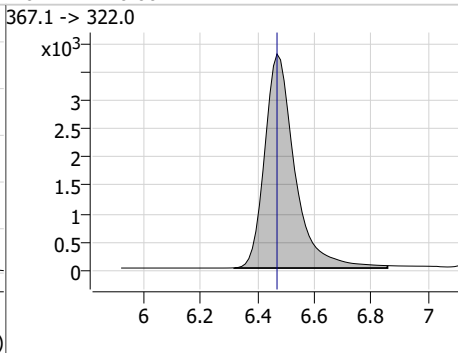
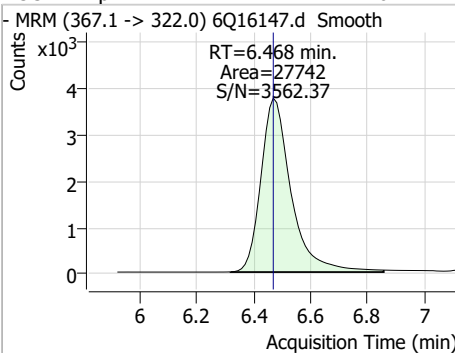
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	1.89	6.00	0.00	27000	314.8 -> 82.9	2.4	1.2	3.6



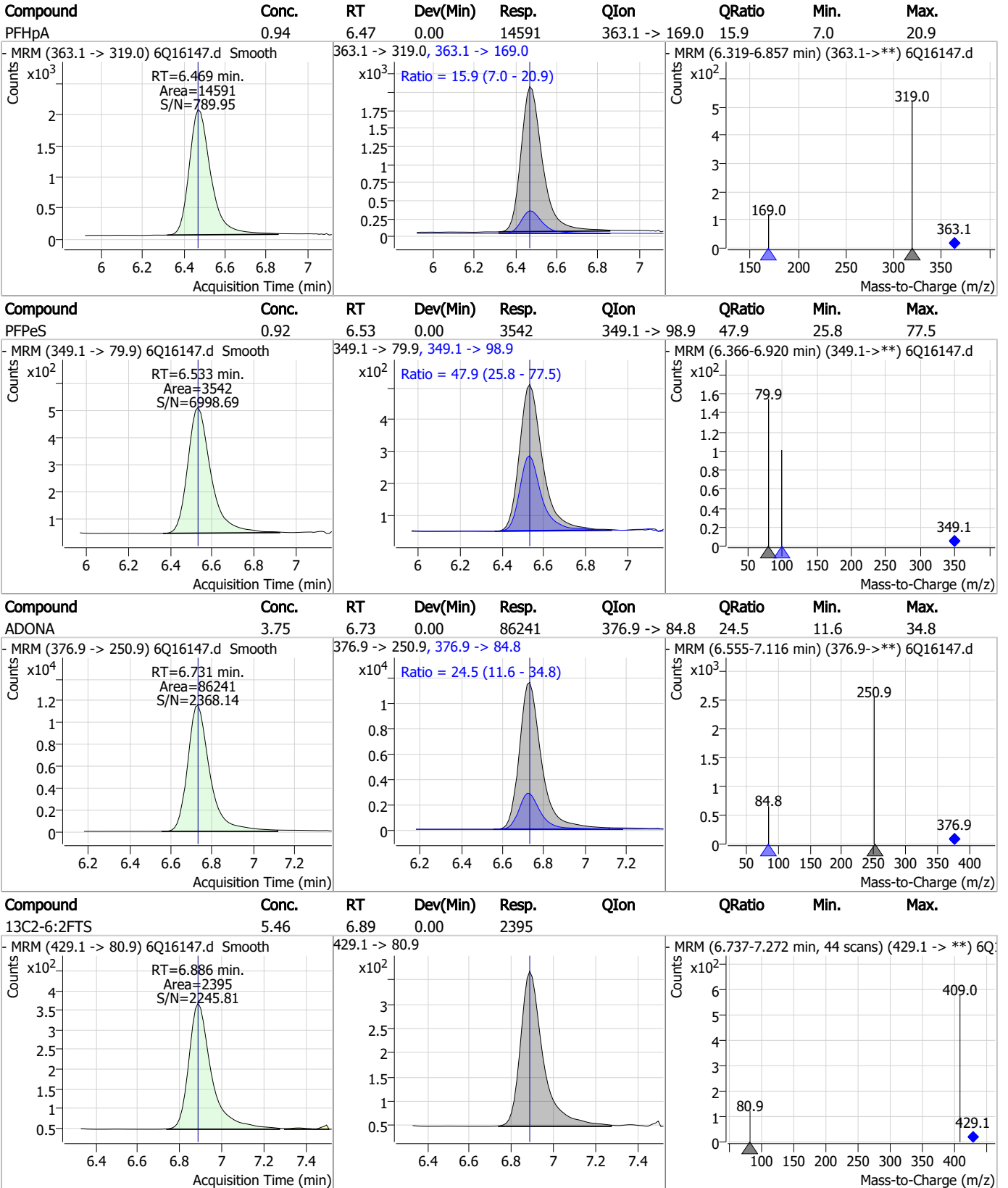
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	23.20	6.20	0.01	51679	341.0 -> 217.0	84.3	43.4	130.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.62	6.47	0.00	27742	367.1 -> 322.0	-	-	-



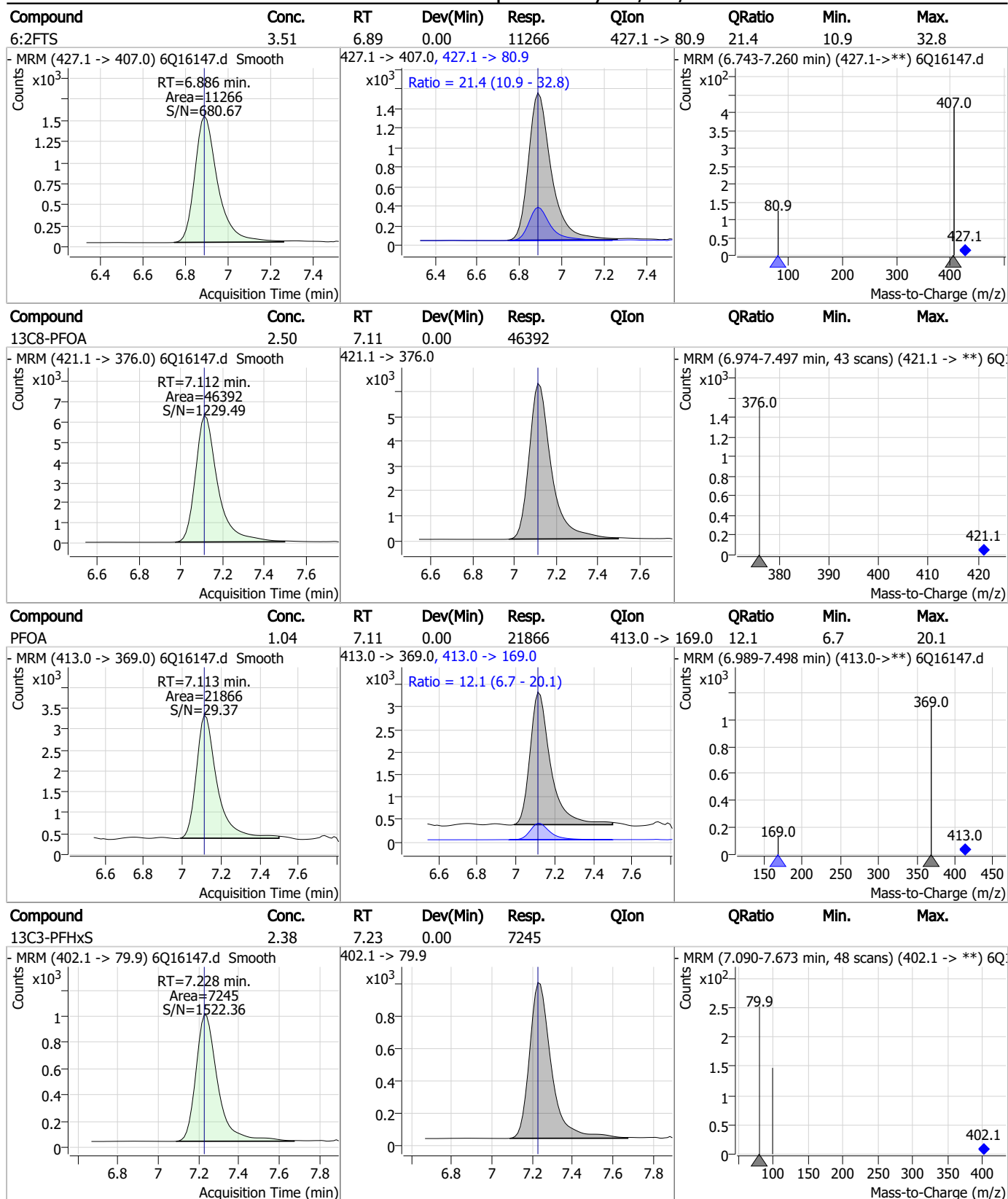
Perfluorinated Compounds by LC/MS/MS



7.3.2 7

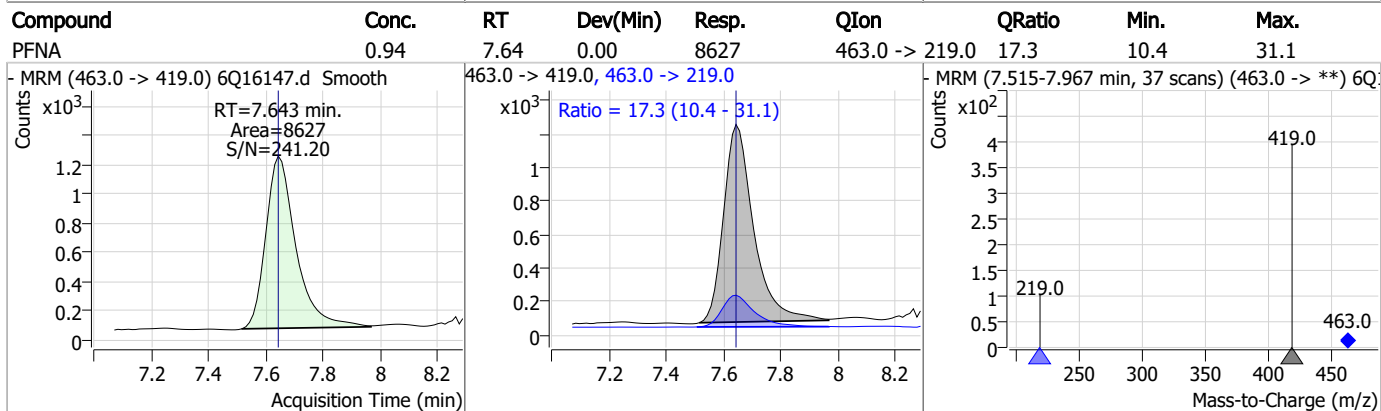
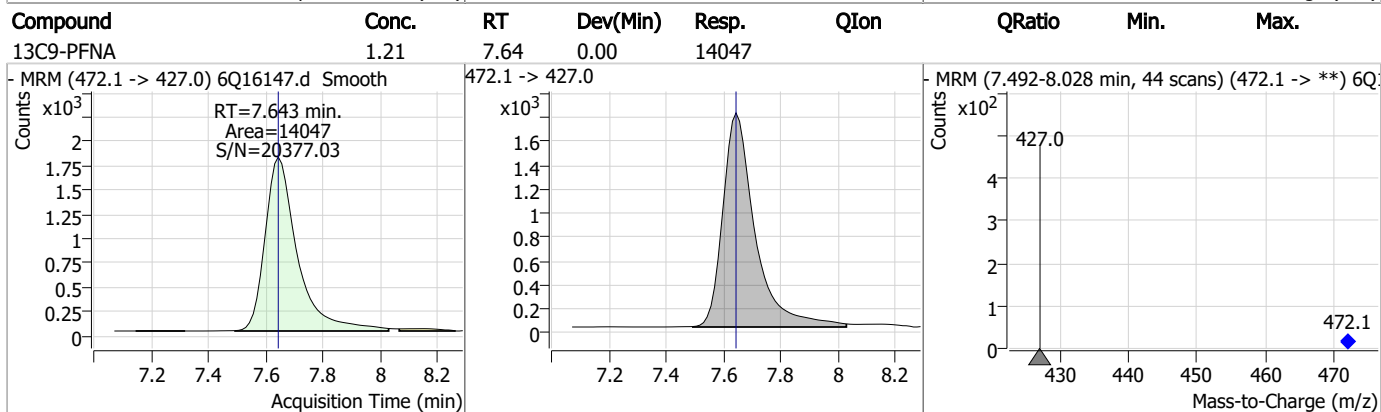
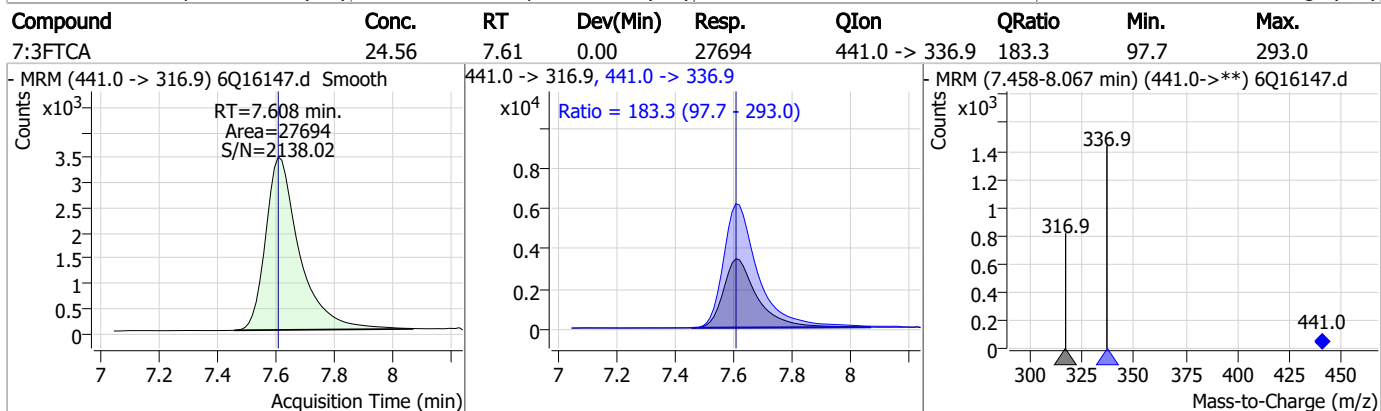
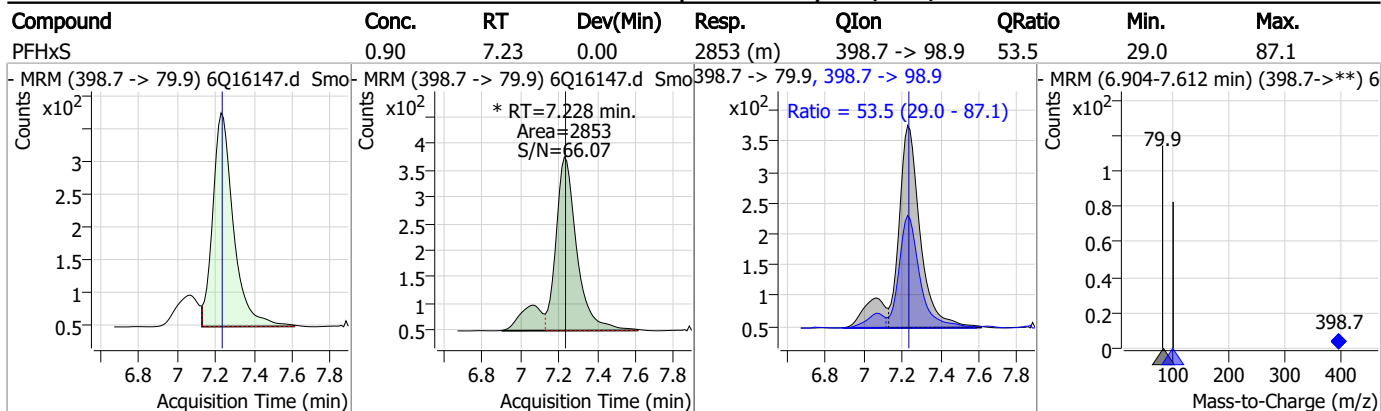


Perfluorinated Compounds by LC/MS/MS



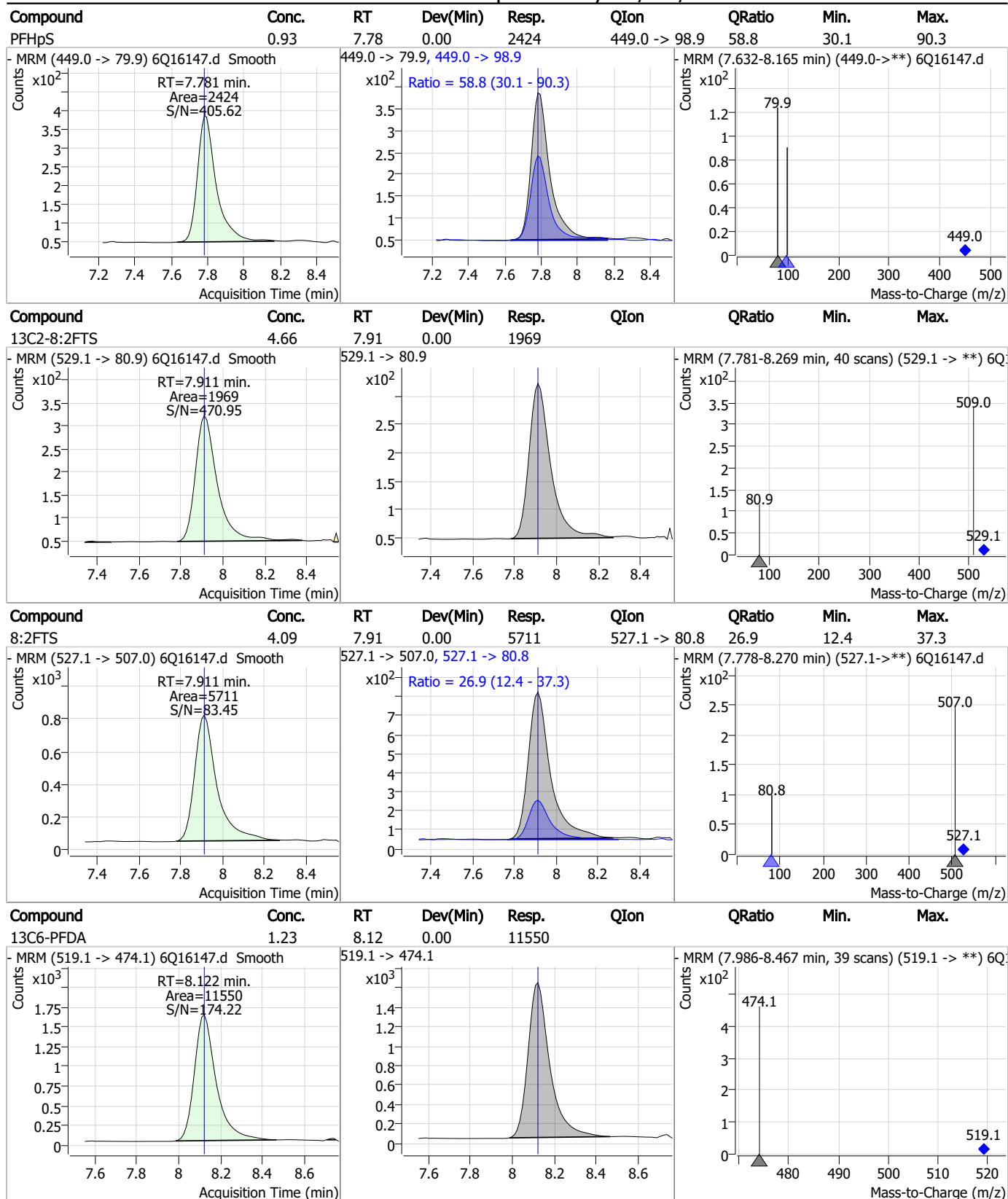
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Perfluorinated Compounds by LC/MS/MS



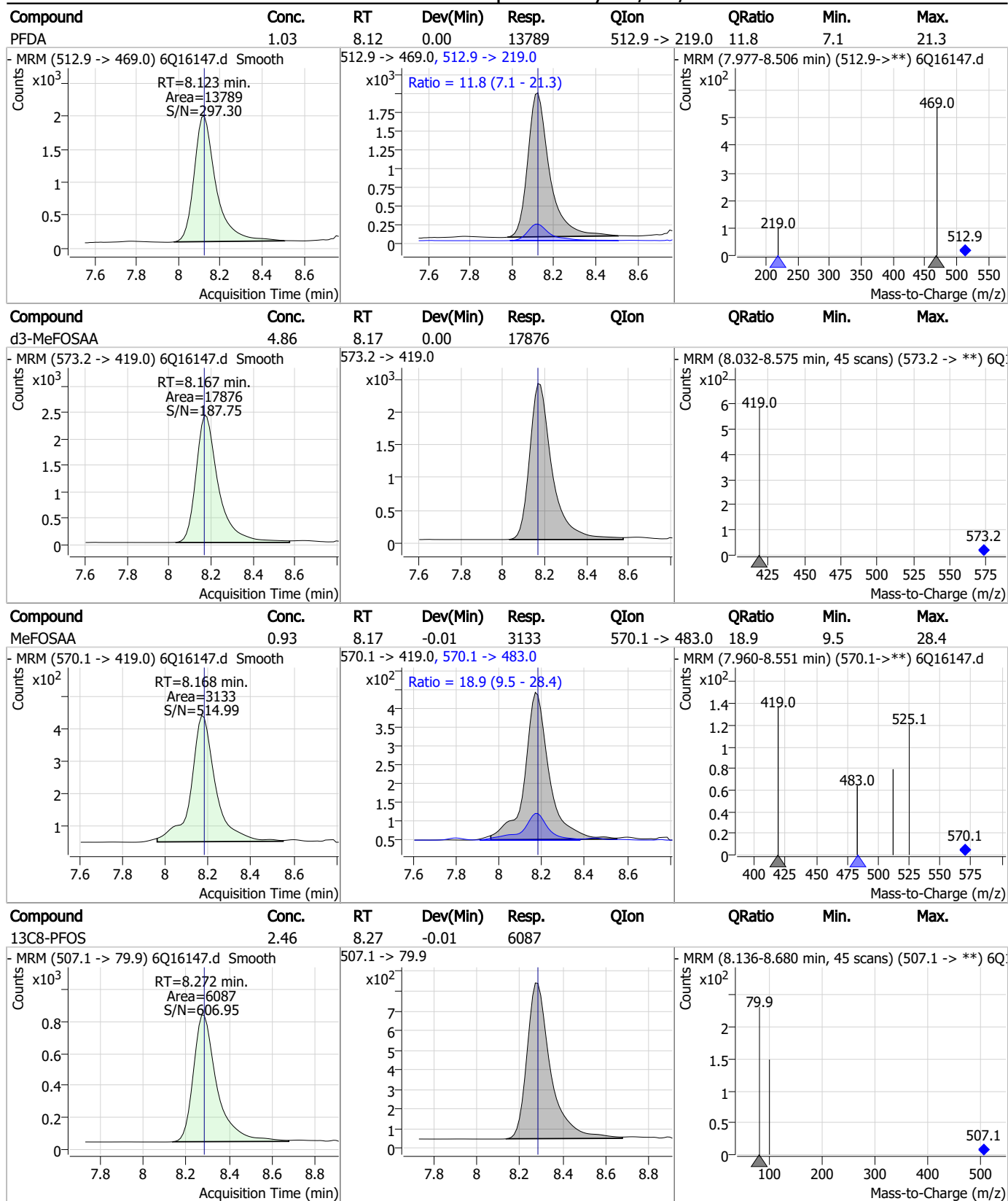
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Perfluorinated Compounds by LC/MS/MS



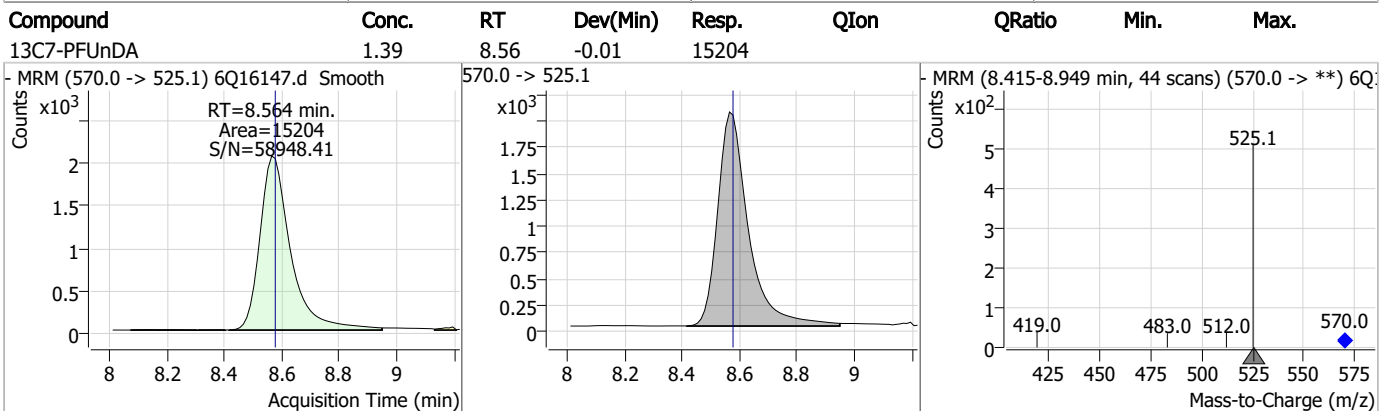
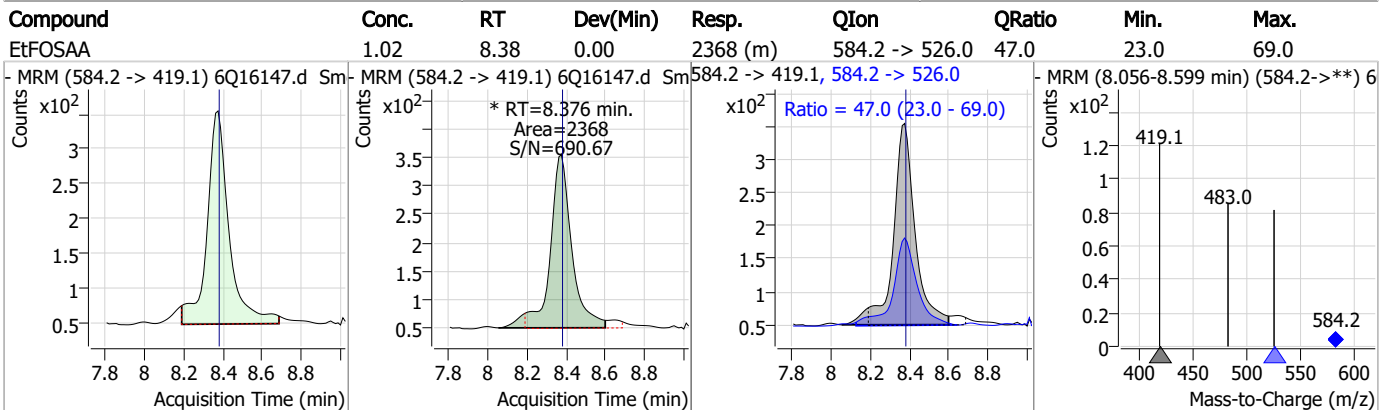
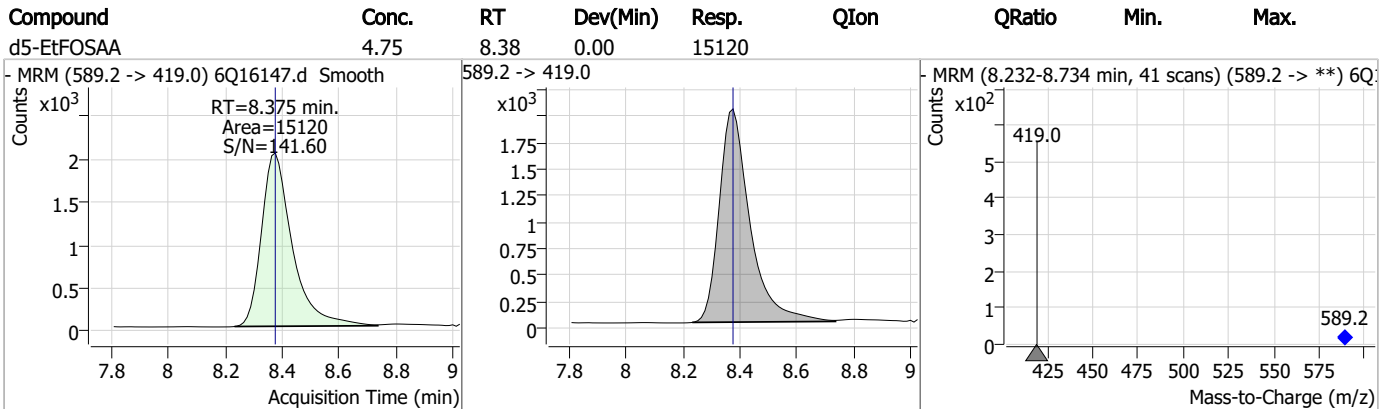
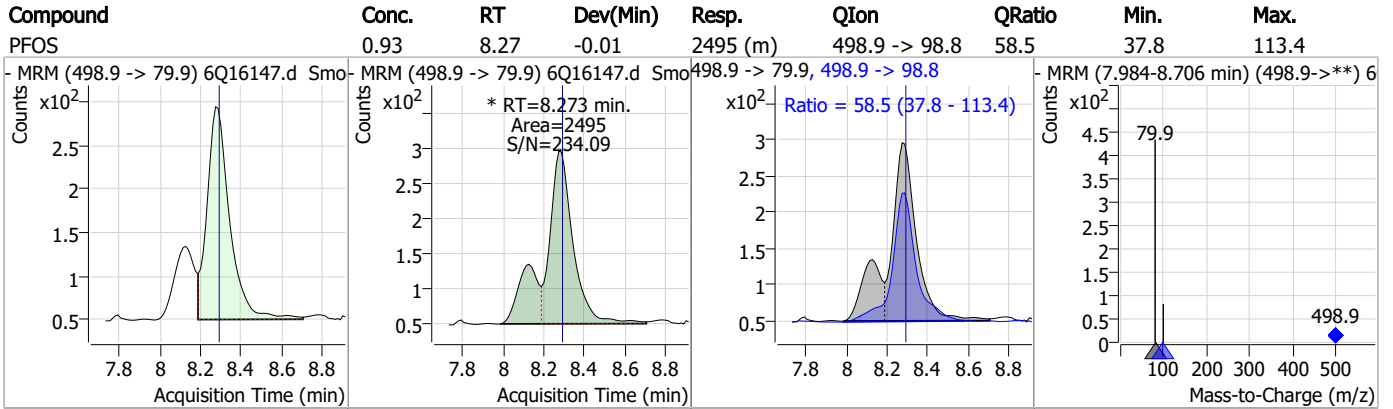
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Perfluorinated Compounds by LC/MS/MS



7.3.2
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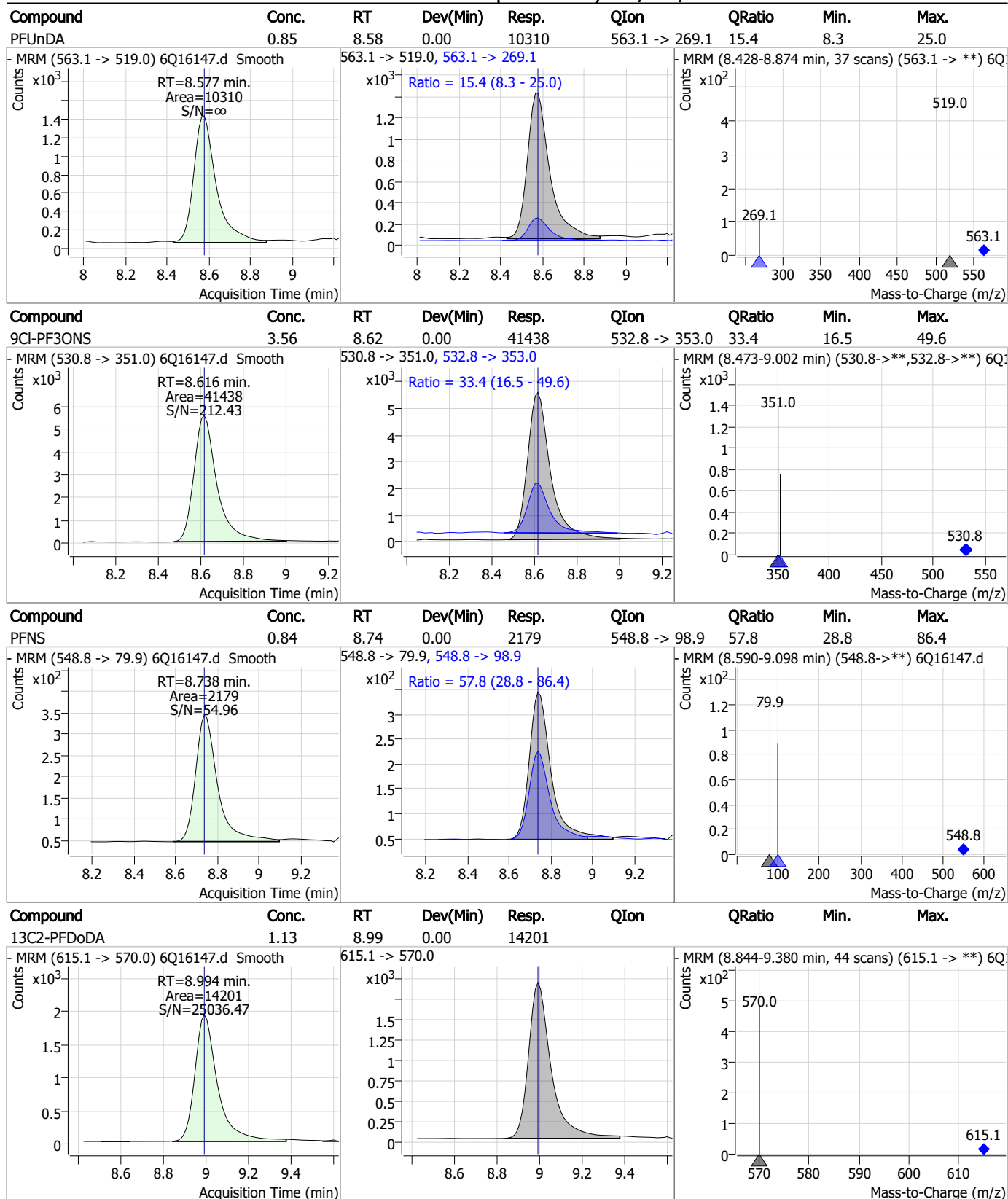
Perfluorinated Compounds by LC/MS/MS



7.3.2

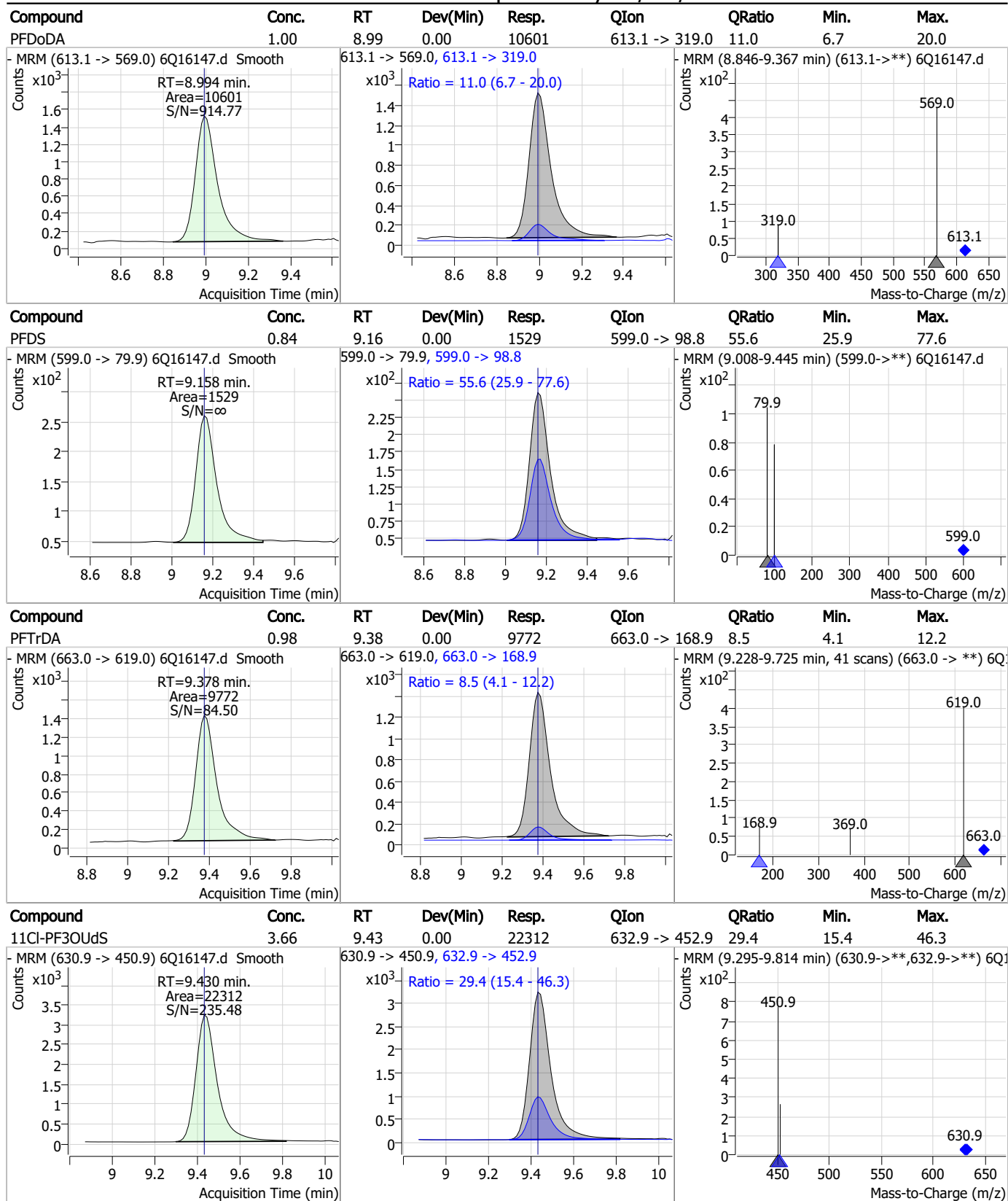
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Perfluorinated Compounds by LC/MS/MS



7.3.2
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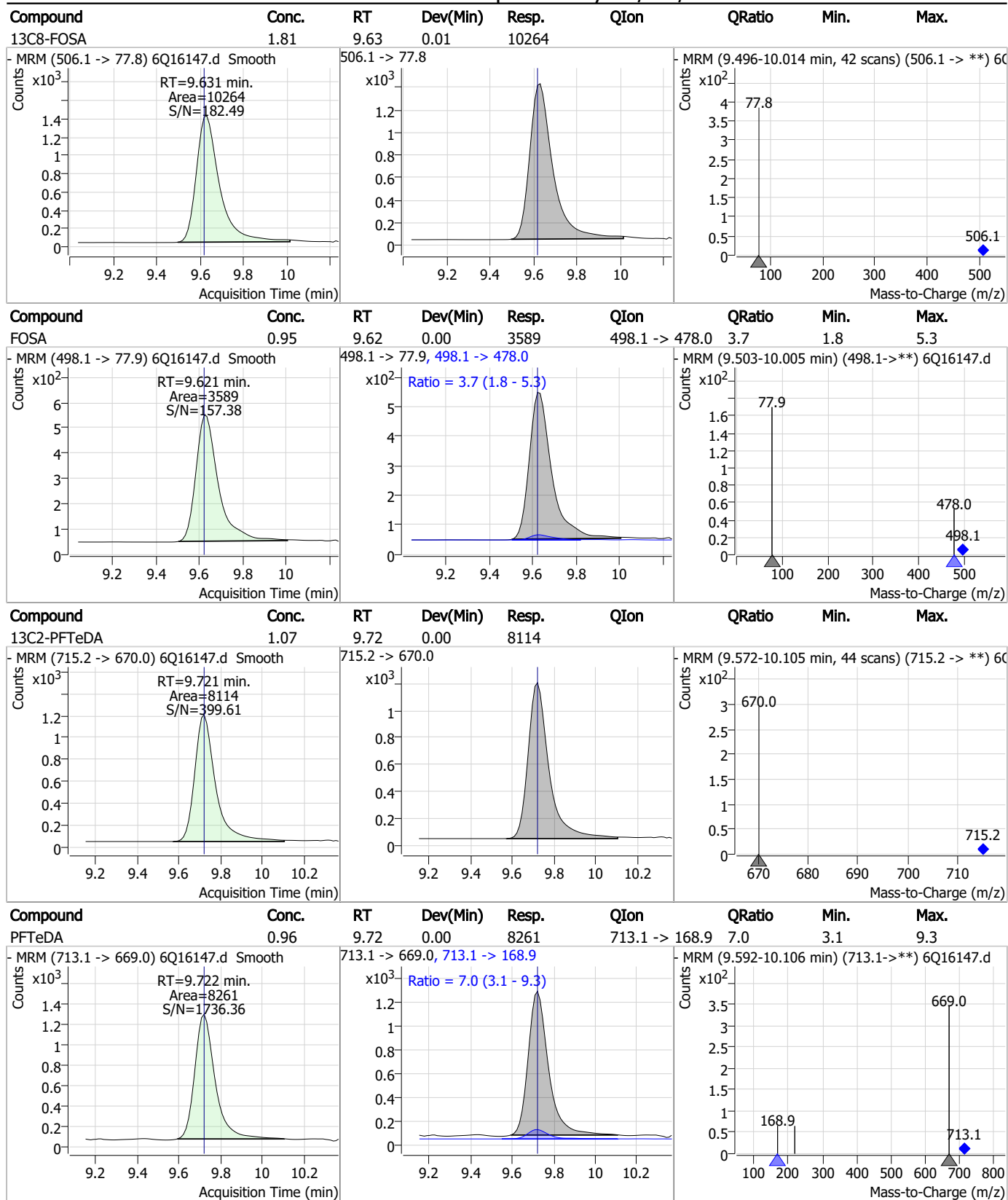
Perfluorinated Compounds by LC/MS/MS



7.3.2
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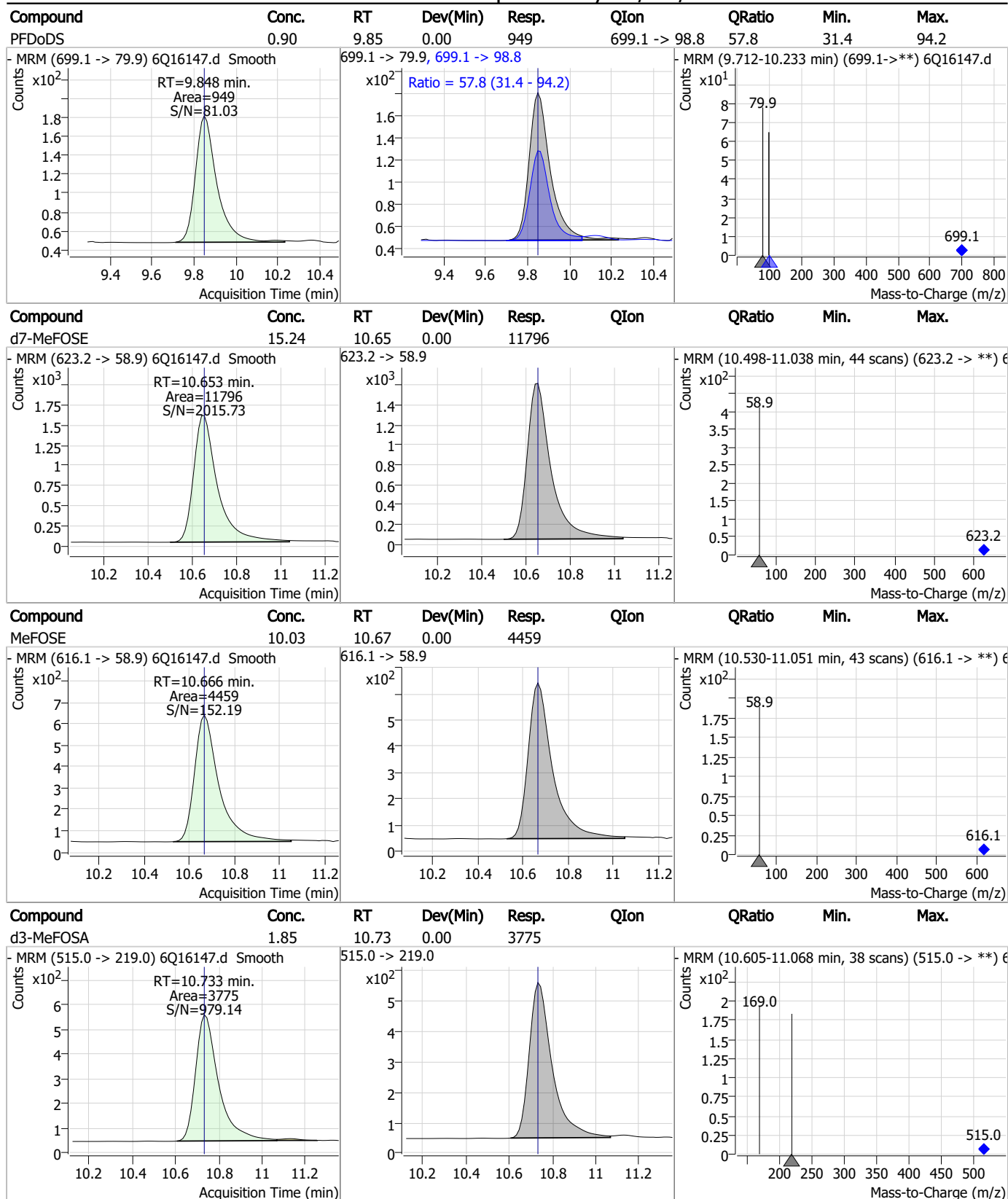


Perfluorinated Compounds by LC/MS/MS



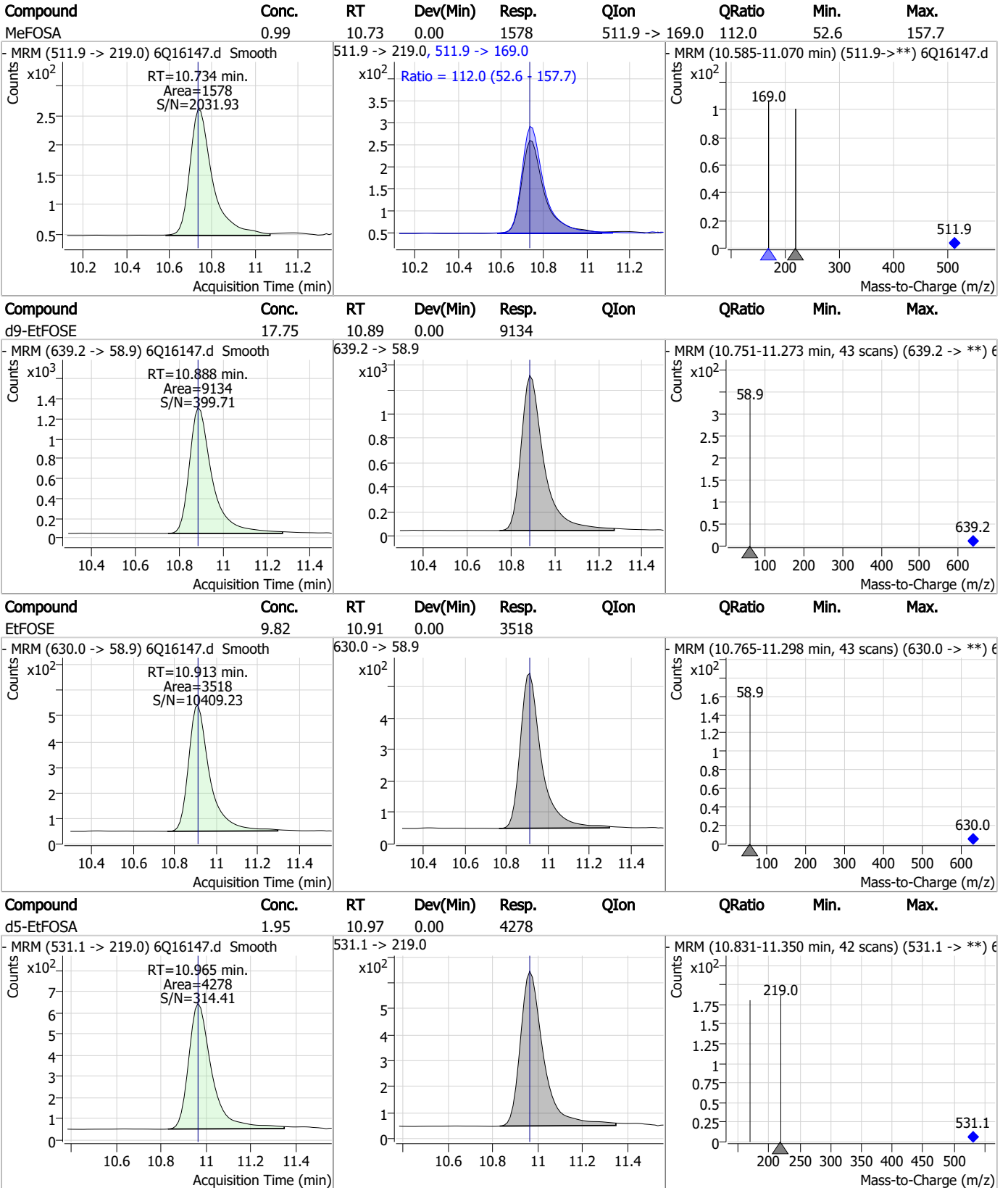
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Perfluorinated Compounds by LC/MS/MS



7.3.2
7

Perfluorinated Compounds by LC/MS/MS

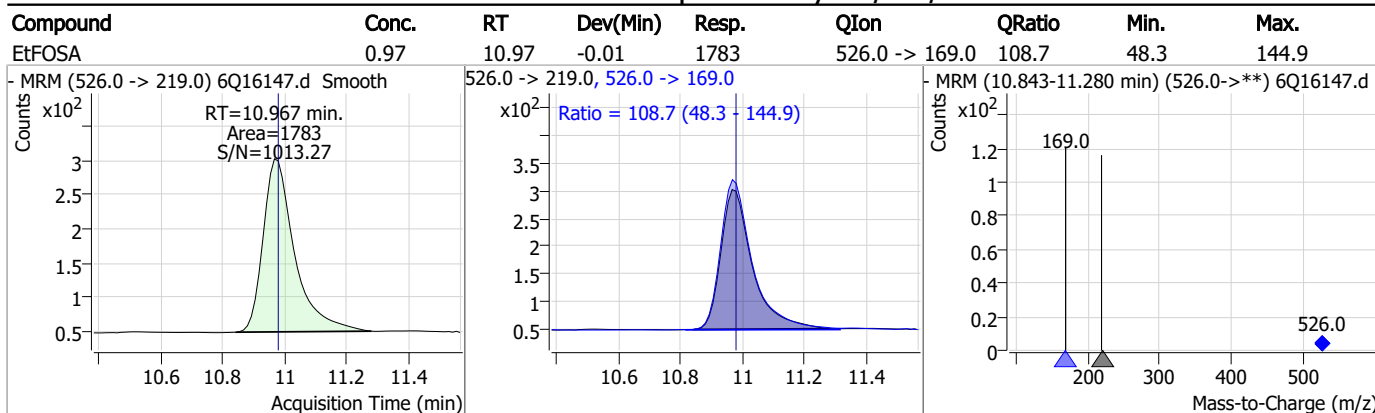


7.3.2

7



Perfluorinated Compounds by LC/MS/MS



7.3.2
7

Manual Integration Approval Summary

Sample Number: OP96191-LLBS Method: EPA DRAFT 1633
Lab FileID: 6Q16147.D Analyst approved: 04/06/23 11:16 Martha Valls
Injection Time: 04/05/23 23:49 Supervisor approved: 04/06/23 14:50 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.27	Split peak
EtFOSAA	2991-50-6		8.38	Split peak

7.3.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16150.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/6/2023 12:31:15 AM
 Sample Name : op96191-ms
 Vial : P2-B7
 DA Method File : 1633_040423_S6Q239.quantmethod.xml
 Batch Name : S6Q240.batch.bin
 Sample Information : OP96191,S6Q240,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.938	216.8 -> 171.9	67198	10.00 µg/L	0.041
M5-PFPeA	4.334	268.3 -> 223.0	31595	5.00 µg/L	0.012
M5-PFHxA	5.528	318.0 -> 273.0	28059	2.50 µg/L	0.000
M4-PFHpA	6.468	367.1 -> 322.0	26867	2.50 µg/L	0.000
M8-PFOA	7.125	421.1 -> 376.0	44530	2.50 µg/L	0.013
M9-PFNA	7.643	472.1 -> 427.0	14119	1.25 µg/L	0.000
M6-PFDA	8.122	519.1 -> 474.1	11597	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	13162	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	12075	1.25 µg/L	0.012
M2-PFTeDA	9.721	715.2 -> 670.0	6361	1.25 µg/L	0.000
M8-FOSA	9.631	506.1 -> 77.8	10596	2.50 µg/L	0.012
M3-PFBS	5.459	302.1 -> 79.9	10797	2.50 µg/L	0.000
M3-PFHxS	7.240	402.1 -> 79.9	7043	2.50 µg/L	0.012
M8-PFOS	8.284	507.1 -> 79.9	5840	2.50 µg/L	0.000
M2-4:2FTS	5.191	329.1 -> 80.9	1808	5.00 µg/L	0.000
M2-6:2FTS	6.898	429.1 -> 80.9	2215	5.00 µg/L	0.012
M2-8:2FTS	7.911	529.1 -> 80.9	1939	5.00 µg/L	0.000
M3-MeFOSAA	8.180	573.2 -> 419.0	16785	5.00 µg/L	0.012
M3-HFPO-DA	5.893	286.9 -> 168.9	11546	10.00 µg/L	0.000
M5-EtFOSAA	8.375	589.2 -> 419.0	14172	5.00 µg/L	0.000
M7-MeFOSE	10.653	623.2 -> 58.9	10685	25.00 µg/L	0.000
M9-EtFOSE	10.888	639.2 -> 58.9	7673	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	3432	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	3415	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	6352	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	29064	5.00 µg/L	0.040
18O2-PFHxS	7.239	403.0 -> 83.9	4910	2.50 µg/L	0.012
13C4-PFOA	7.125	417.1 -> 372.0	51572	2.50 µg/L	0.013
13C2-PFDA	8.123	515.1 -> 470.1	14299	1.25 µg/L	0.000
13C5-PFNA	7.643	468.0 -> 423.0	14302	1.25 µg/L	0.000
13C2-PFHxA	5.529	315.1 -> 270.0	25331	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.191	329.1 -> 80.9	1808	5.47 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.5%		
13C2-6:2FTS	6.898	429.1 -> 80.9	2215	5.47 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.3%		
13C2-8:2FTS	7.911	529.1 -> 80.9	1939	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C2-PFDoDA	9.006	615.1 -> 570.0	12075	1.07 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 85.5%		
13C2-PFTeDA	9.721	715.2 -> 670.0	6361	0.94 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 75.1%		
13C3-PFBS	5.459	302.1 -> 79.9	10797	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C3-PFHxS	7.240	402.1 -> 79.9	7043	2.51 µg/L	0.012

7.4.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C4-PFBA	2.938	216.8 -> 171.9	67198	9.89 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C4-PFHpA	6.468	367.1 -> 322.0	26867	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C5-PFHxA	5.528	318.0 -> 273.0	28059	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.1%	
13C5-PFPeA	4.334	268.3 -> 223.0	31595	5.35 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.0%	
13C6-PFDA	8.122	519.1 -> 474.1	11597	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.2%	
13C7-PFUnDA	8.576	570.0 -> 525.1	13162	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.7%	
13C8-FOSA	9.631	506.1 -> 77.8	10596	2.24 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.7%	
13C8-PFOA	7.125	421.1 -> 376.0	44530	2.59 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C8-PFOS	8.284	507.1 -> 79.9	5840	2.82 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.8%	
13C9-PFNA	7.643	472.1 -> 427.0	14119	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.8%	
d3-MeFOSAA	8.180	573.2 -> 419.0	16785	5.46 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.2%	
13C3-HFPO-DA	5.893	286.9 -> 168.9	11546	10.45 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.5%	
d3-MeFOSA	10.733	515.0 -> 219.0	3415	2.00 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 80.2%	
d5-EtFOSAA	8.375	589.2 -> 419.0	14172	5.33 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.5%	
d7-MeFOSE	10.653	623.2 -> 58.9	10685	16.53 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 66.1%	
d9-EtFOSE	10.888	639.2 -> 58.9	7673	17.86 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 71.4%	
d5-EtFOSA	10.965	531.1 -> 219.0	3432	1.87 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 74.8%	
Target Compounds					QValue
4:2FTS	5.192	327.1 -> 307.0	34093	9.63 µg/L	99
		327.1 -> 80.9	8171		
6:2FTS	6.899	427.1 -> 407.0	30440	10.26 µg/L	97
		427.1 -> 80.9	6170		
8:2FTS	7.911	527.1 -> 507.0	14311	10.40 µg/L	97
		527.1 -> 80.8	3799		
EtFOSAA	8.376	584.2 -> 419.1	5272	2.43 µg/L	m 87
		584.2 -> 526.0	2880		
FOSA	9.634	498.1 -> 77.9	9878	2.52 µg/L	100
		498.1 -> 478.0	351		
MeFOSAA	8.181	570.1 -> 419.0	8381	2.66 µg/L	99
		570.1 -> 483.0	1533		
PFBA	2.944	212.8 -> 168.9	16655	9.81 µg/L	100
PFBS	5.460	298.7 -> 79.9	9930	2.34 µg/L	98
		298.7 -> 98.8	4444		
PFDA	8.123	512.9 -> 469.0	35105	2.60 µg/L	96
		512.9 -> 219.0	4446		
PFDODA	9.007	613.1 -> 569.0	24400	2.71 µg/L	99
		613.1 -> 319.0	3112		
PFDS	9.158	599.0 -> 79.9	3794	2.17 µg/L	99

7.4.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.481	599.0 -> 98.8	1929	2.69	µg/L	99
		363.1 -> 319.0	40578			
PFHpS	7.794	363.1 -> 169.0	5862	2.38	µg/L	93
		449.0 -> 79.9	5949			
PFHxA	5.531	449.0 -> 98.9	3278	2.66	µg/L	100
		313.0 -> 269.0	27515			
PFHxS	7.241	313.0 -> 118.9	1112	2.37	µg/L	98
		398.7 -> 79.9	7346			
PFNA	7.656	398.7 -> 98.9	4173	2.54	µg/L	99
		463.0 -> 419.0	23339			
PFNS	8.751	463.0 -> 219.0	4689	2.24	µg/L	97
		548.8 -> 79.9	5559			
PFOA	7.126	548.8 -> 98.9	3061	2.66	µg/L	100
		413.0 -> 369.0	53609			
PFOS	8.286	413.0 -> 169.0	7223	2.44	µg/L	85
		498.9 -> 79.9	6279			
PFPeA	4.324	498.9 -> 98.8	3940	5.17	µg/L	100
		263.0 -> 219.0	34438			
PFPeS	6.533	349.1 -> 79.9	8999	2.41	µg/L	98
		349.1 -> 98.9	4518			
PFTeDA	9.722	713.1 -> 669.0	17177	2.56	µg/L	97
		713.1 -> 168.9	1249			
PFTrDA	9.378	663.0 -> 619.0	22697	2.67	µg/L	99
		663.0 -> 168.9	1778			
PFUnDA	8.577	563.1 -> 519.0	25177	2.39	µg/L	94
		563.1 -> 269.1	3490			
11CI-PF3OUdS	9.430	630.9 -> 450.9	47234	7.61	µg/L	99
		632.9 -> 452.9	14366			
9CI-PF3ONS	8.616	530.8 -> 351.0	102189	8.62	µg/L	96
		532.8 -> 353.0	31756			
ADONA	6.731	376.9 -> 250.9	222474	9.51	µg/L	96
		376.9 -> 84.8	47470			
HFPO-DA	5.894	284.9 -> 168.9	9703	9.30	µg/L	98
		284.9 -> 184.9	1282			
3:3FTCA	3.827	241.0 -> 177.0	3274	8.85	µg/L	98
		241.0 -> 117.0	470			
5:3FTCA	6.198	341.0 -> 237.1	128346	56.06	µg/L	96
		341.0 -> 217.0	115691			
7:3FTCA	7.621	441.0 -> 316.9	69029	59.56	µg/L	100
		441.0 -> 336.9	135311			
EtFOSA	10.979	526.0 -> 219.0	4090	2.76	µg/L	95
		526.0 -> 169.0	4155			
EtFOSE	10.913	630.0 -> 58.9	7862	26.13	µg/L	100
		511.9 -> 219.0	3791			
MeFOSA	10.734	511.9 -> 169.0	3727	2.64	µg/L	93
		616.1 -> 58.9	11128			
MeFOSE	10.666	699.1 -> 79.9	1983	27.63	µg/L	100
		699.1 -> 98.8	1184			
PFDoDS	9.848	295.0 -> 201.0	3438	1.95	µg/L	96
		295.0 -> 84.9	1734			
NFDHA	5.410	279.0 -> 85.1	10287	5.12	µg/L	90
		229.0 -> 84.9	9823			
PFMBA	4.737	314.8 -> 134.9	67299	4.66	µg/L	100
PFMPA	3.488	314.8 -> 82.9	1708	4.87	µg/L	100
PFEESA	5.999			4.59	µg/L	100

= Qualifier out of range, m = manually integrated, + = Area summed

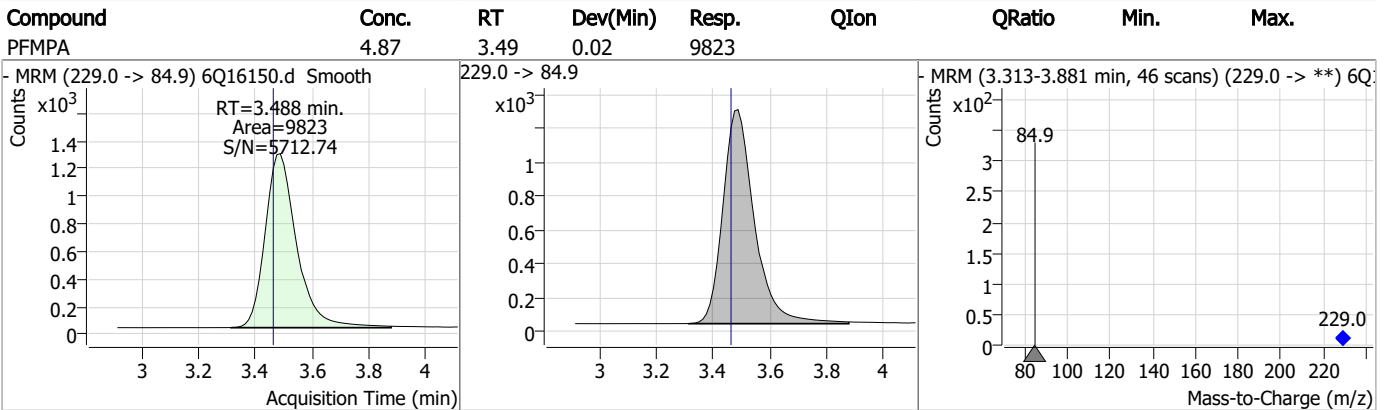
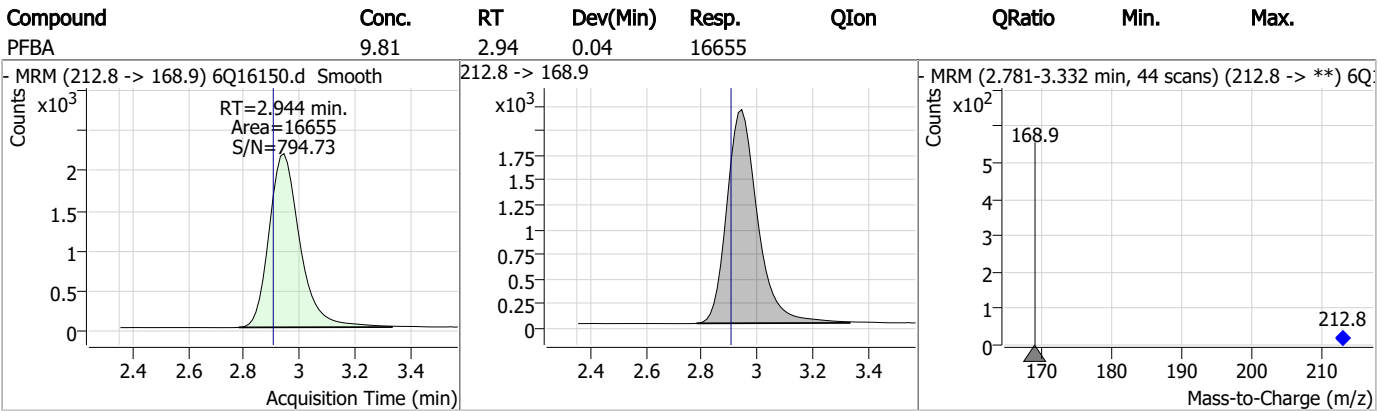
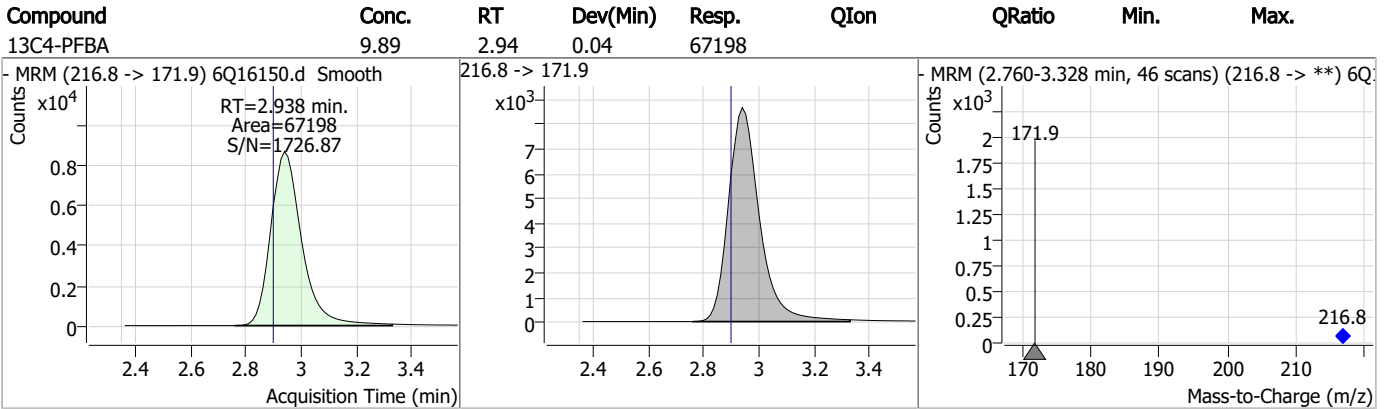
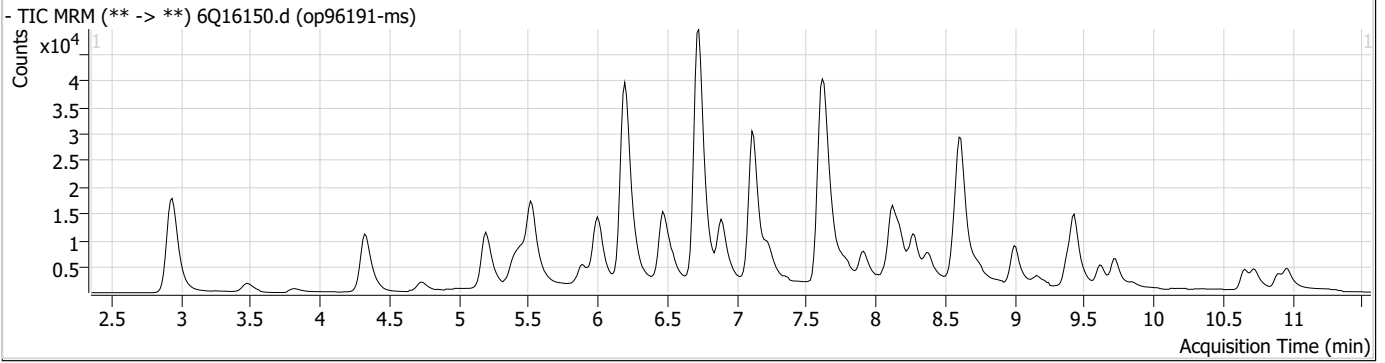
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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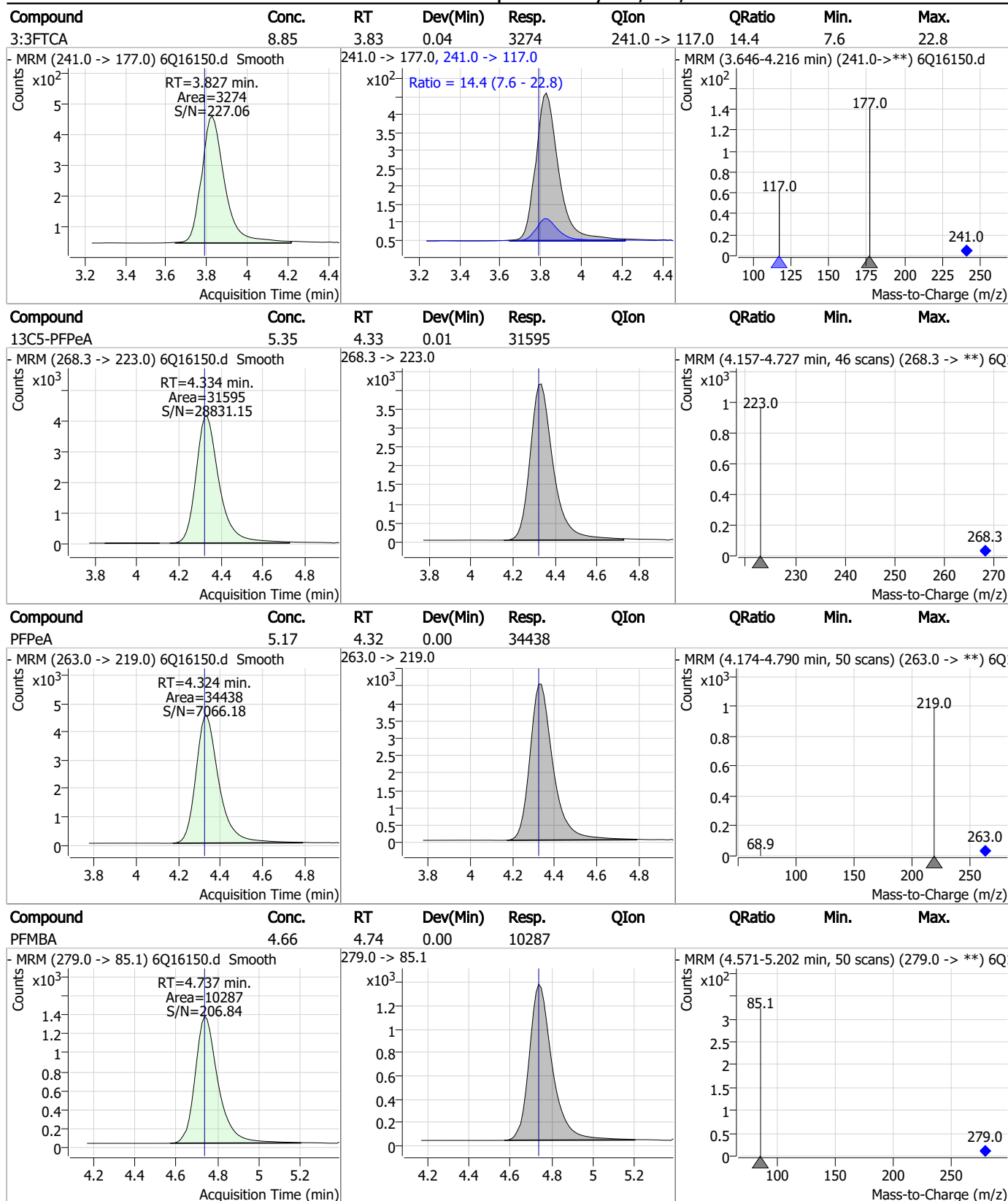
7.4.1

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Perfluorinated Compounds by LC/MS/MS

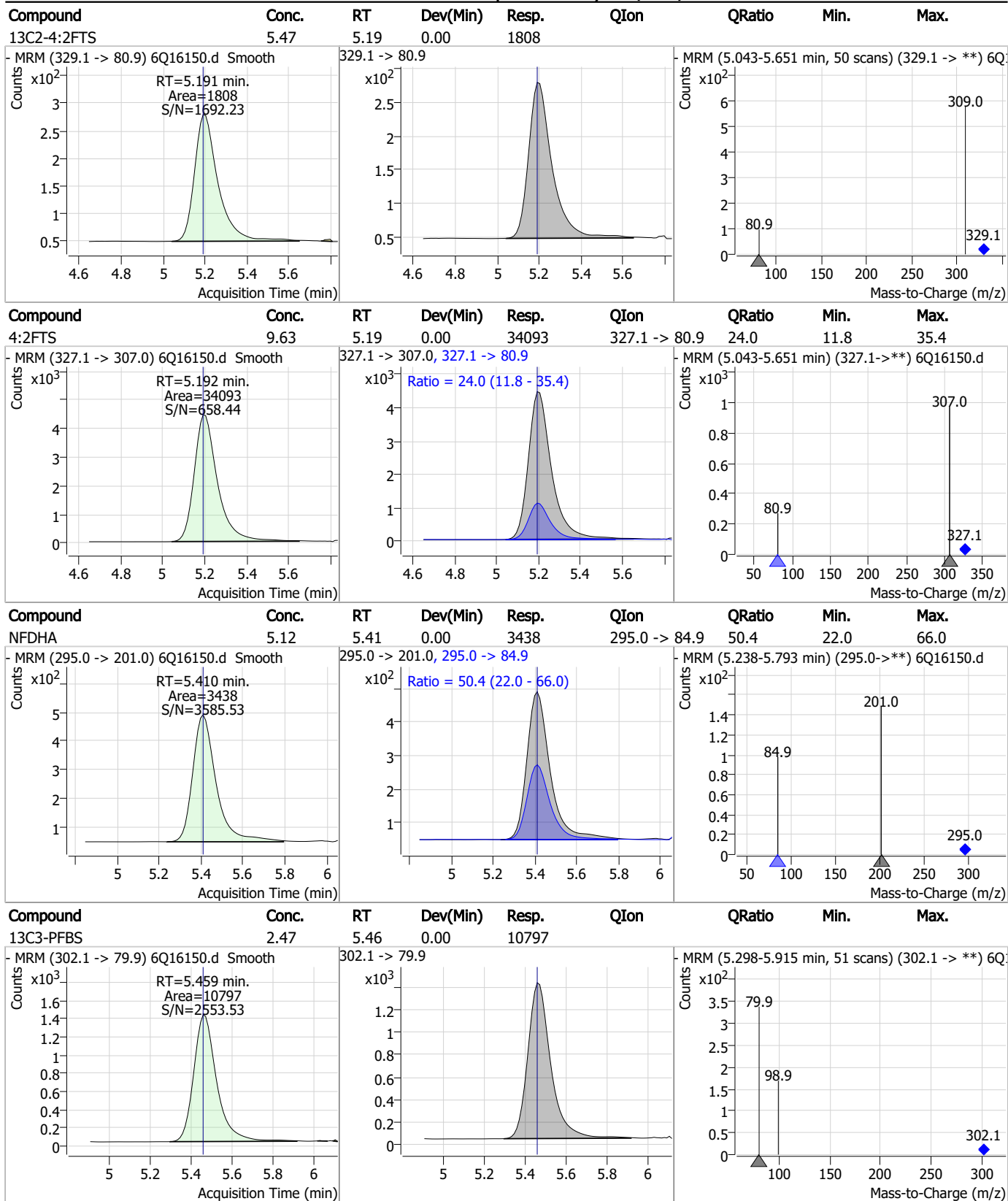


Perfluorinated Compounds by LC/MS/MS



7.4.1
7

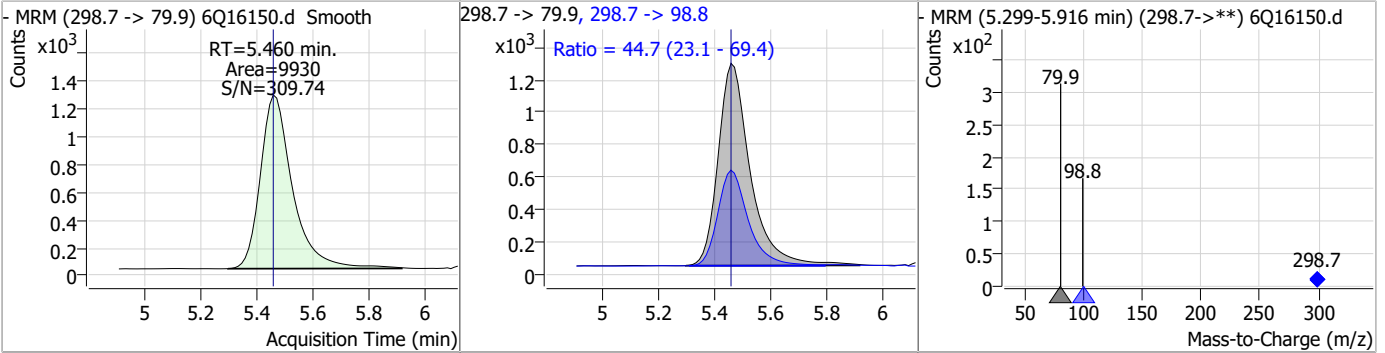
Perfluorinated Compounds by LC/MS/MS



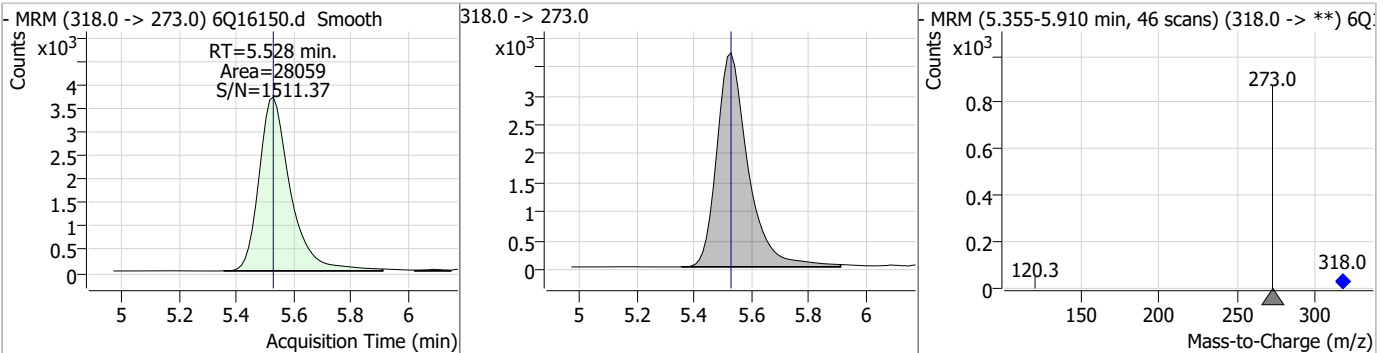
7.4.1
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Perfluorinated Compounds by LC/MS/MS

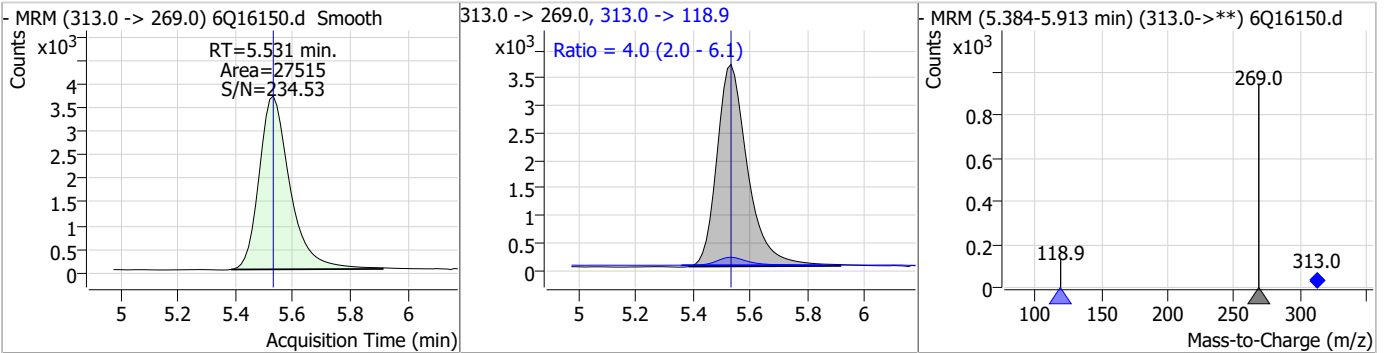
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.34	5.46	0.00	9930	298.7 -> 98.8	44.7	23.1	69.4



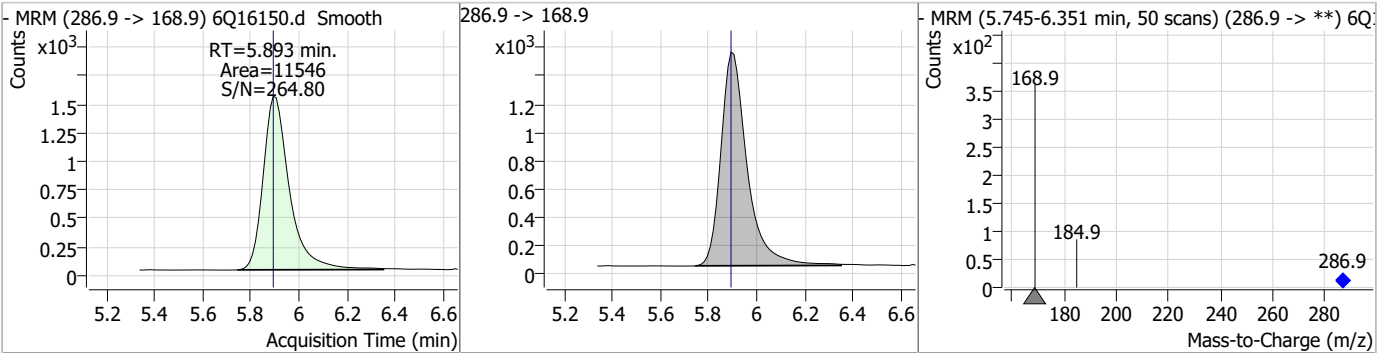
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.68	5.53	0.00	28059				



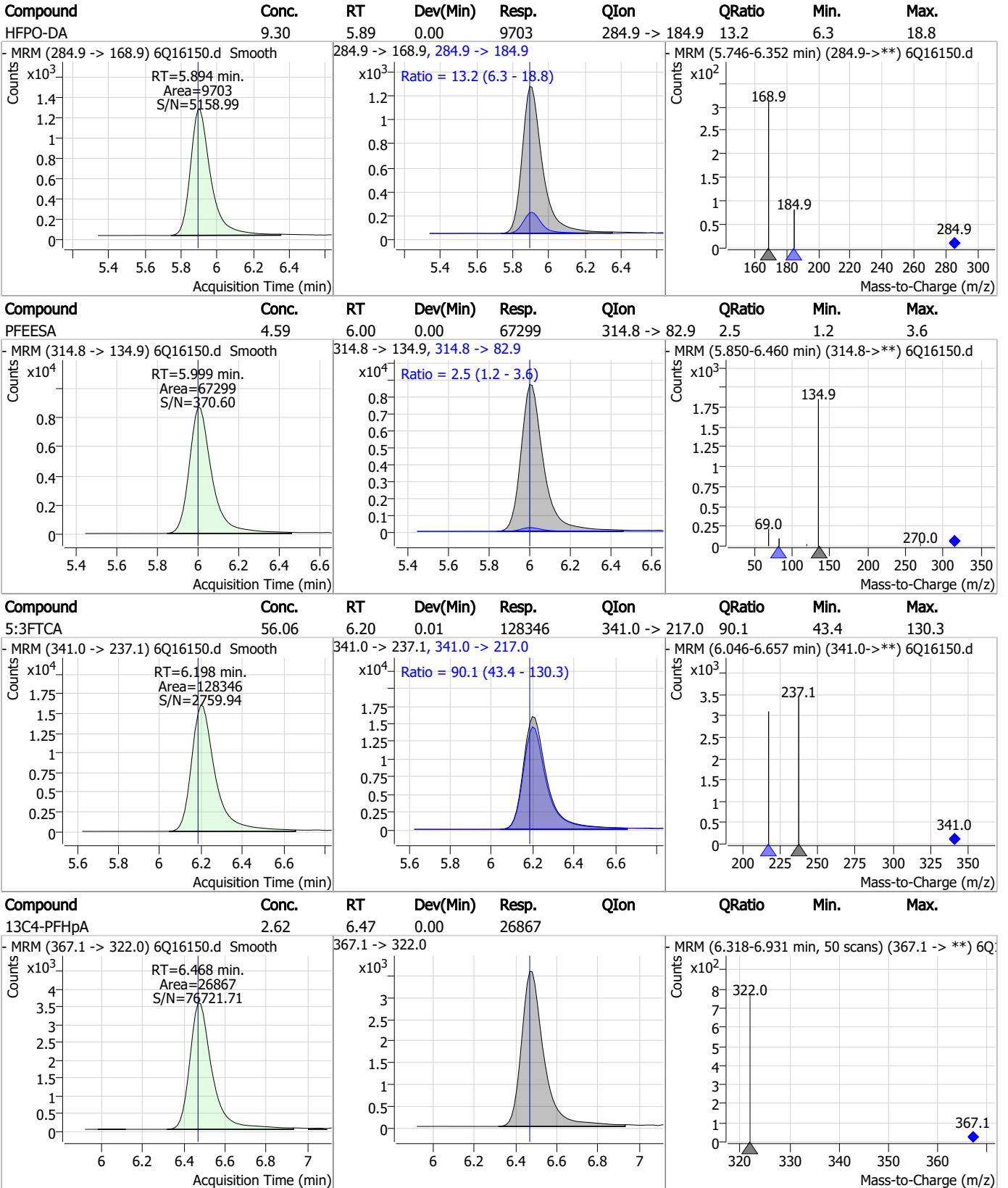
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.66	5.53	0.00	27515	313.0 -> 118.9	4.0	2.0	6.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.45	5.89	0.00	11546				



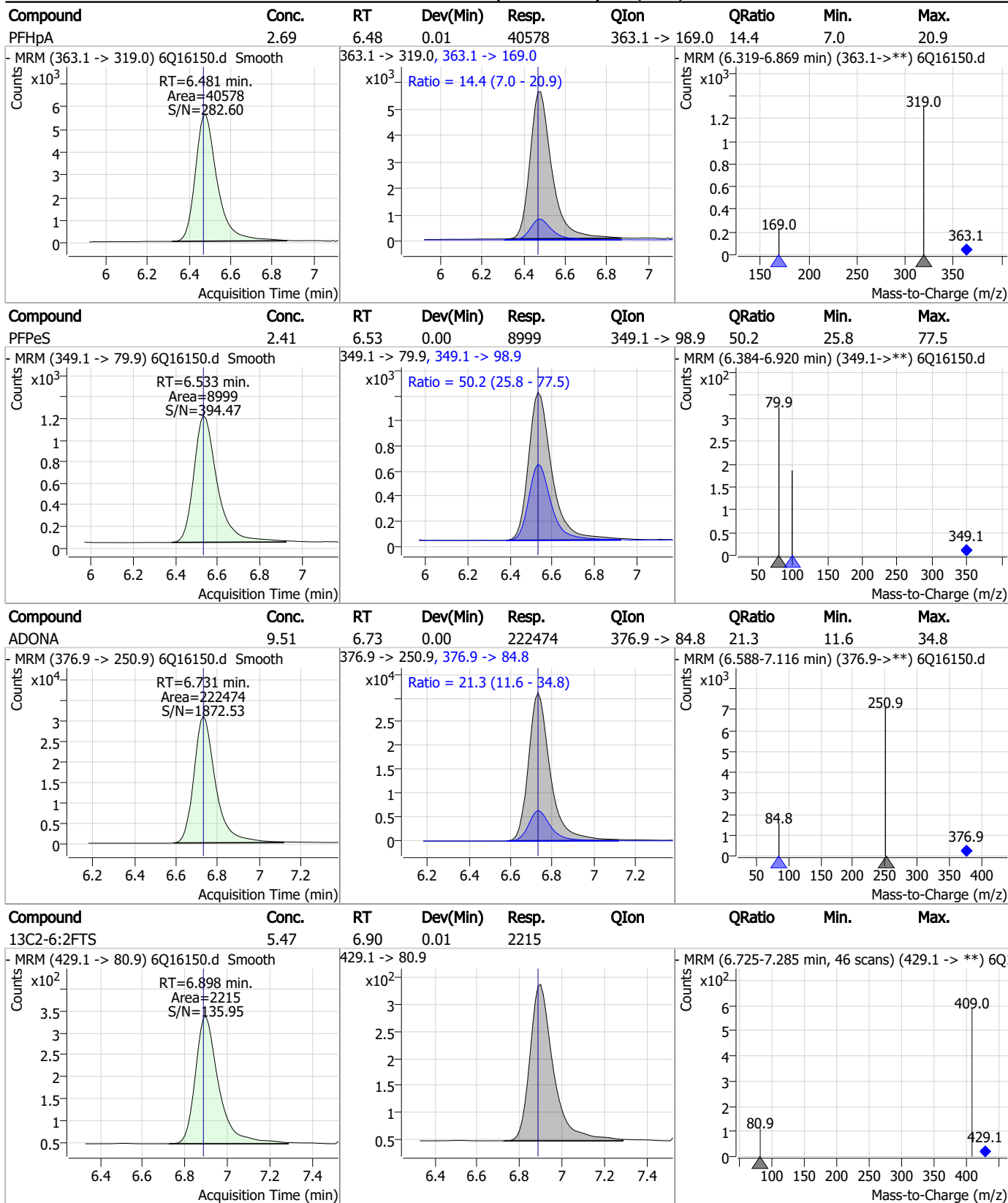
Perfluorinated Compounds by LC/MS/MS



7.4.1

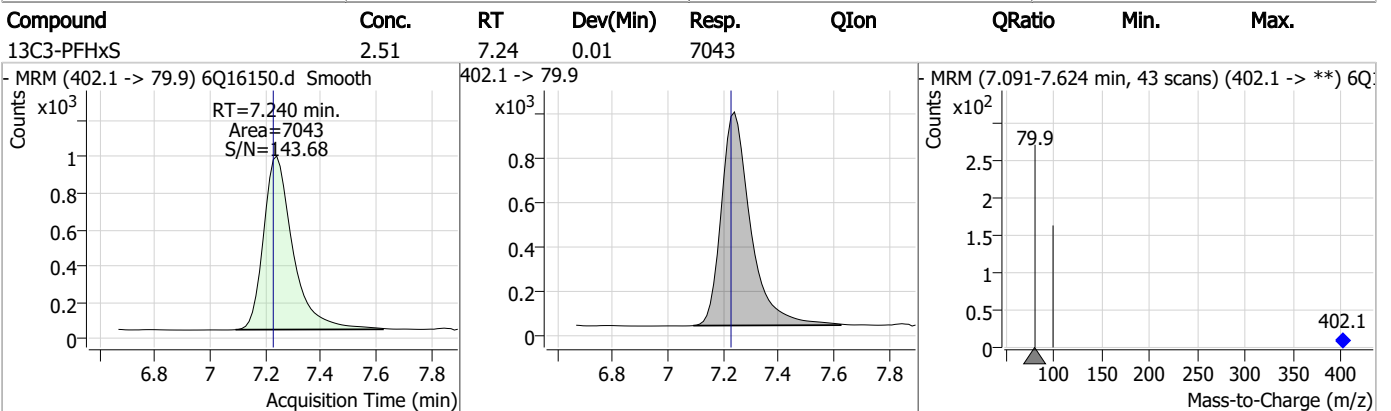
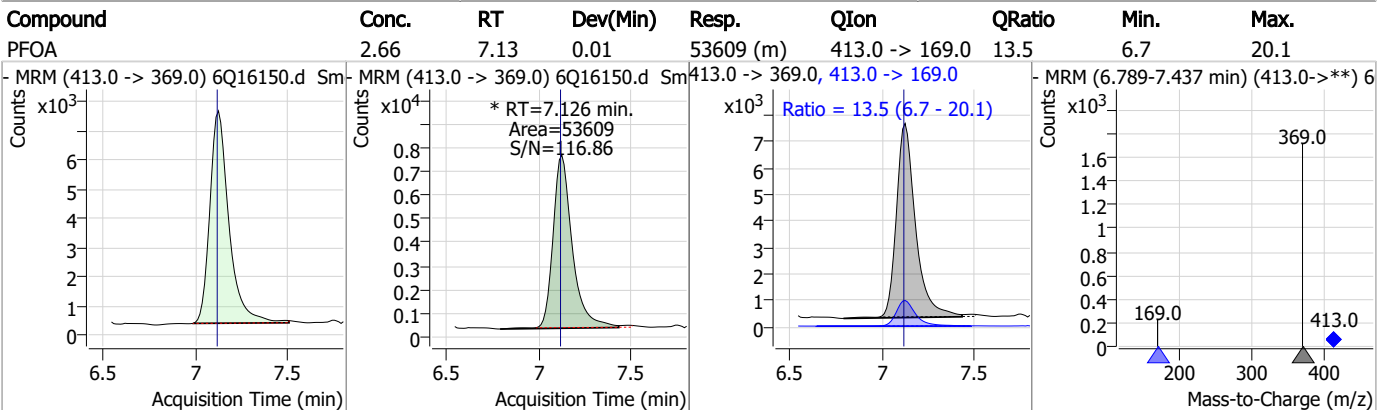
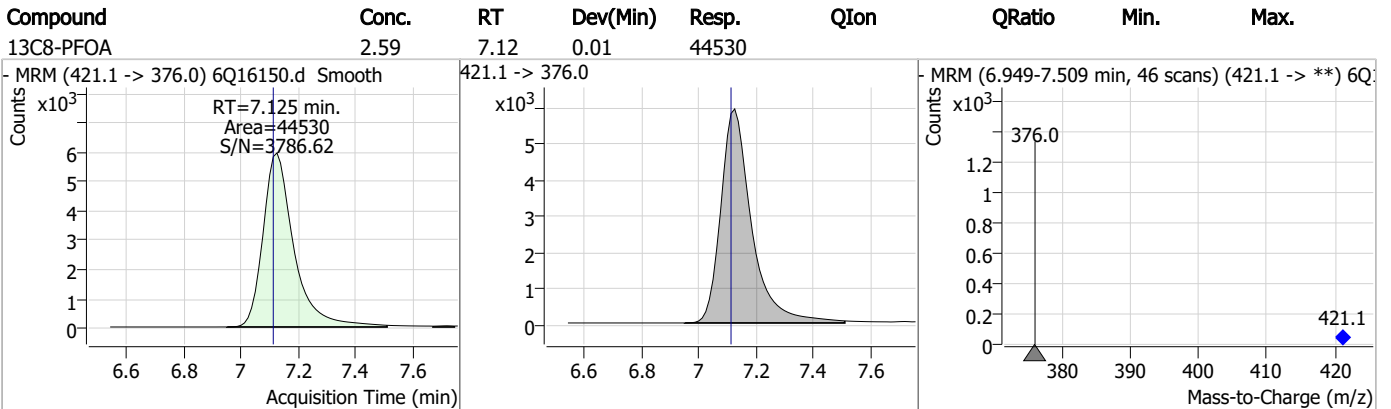
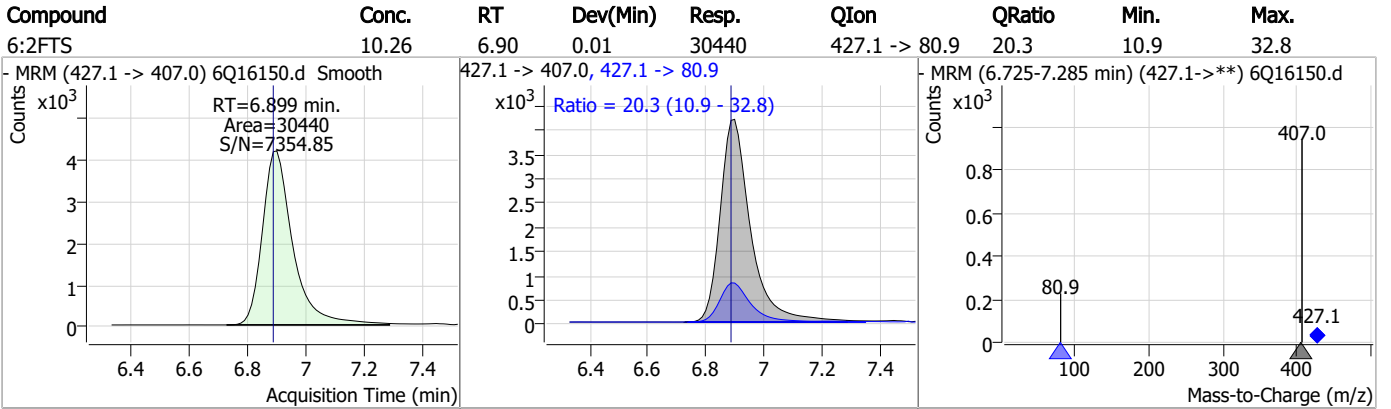
7

Perfluorinated Compounds by LC/MS/MS



7.4.1
7

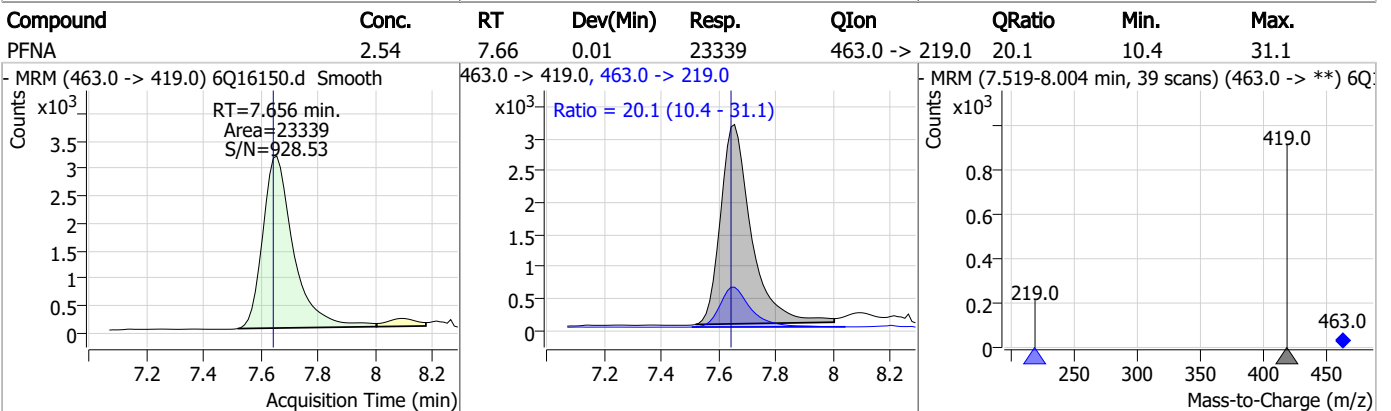
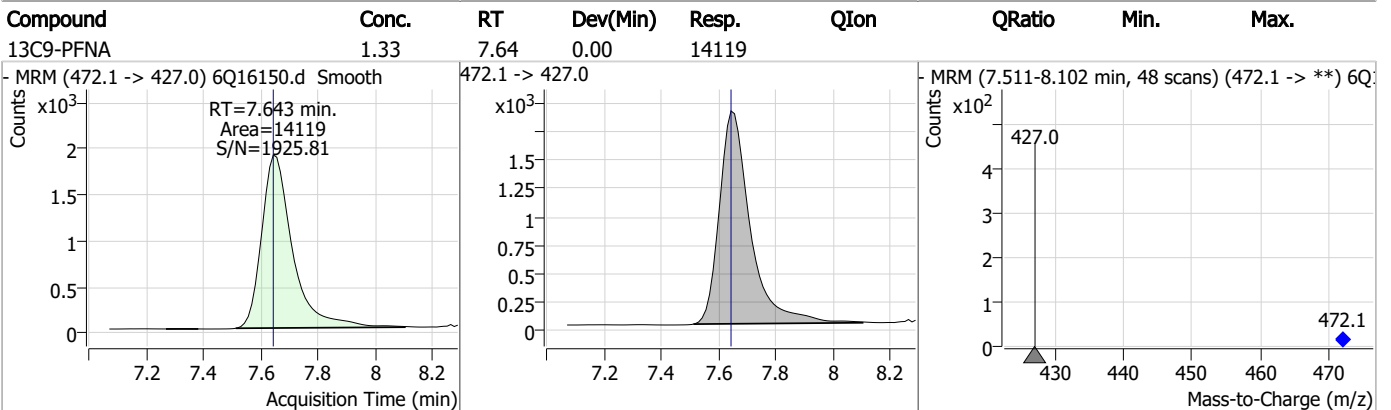
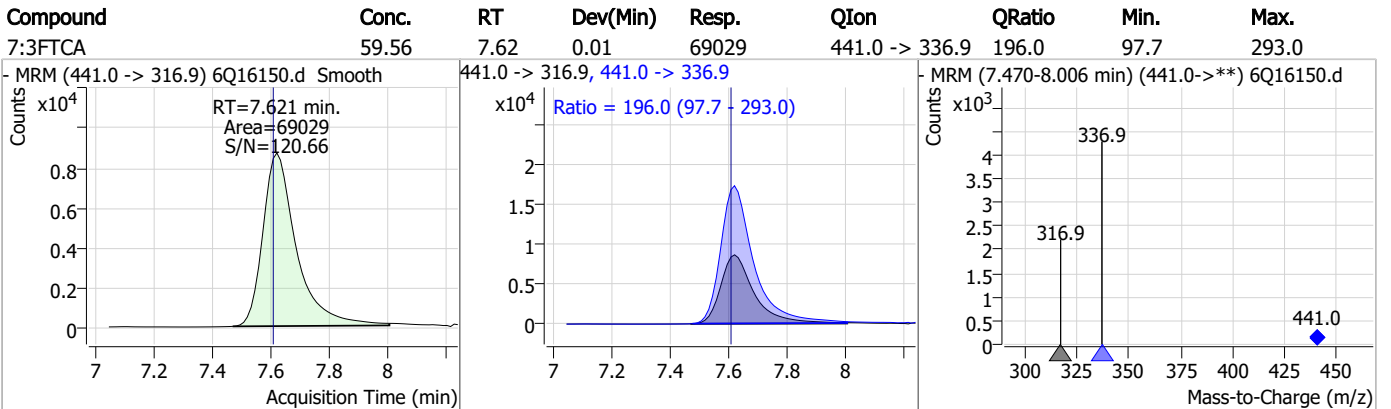
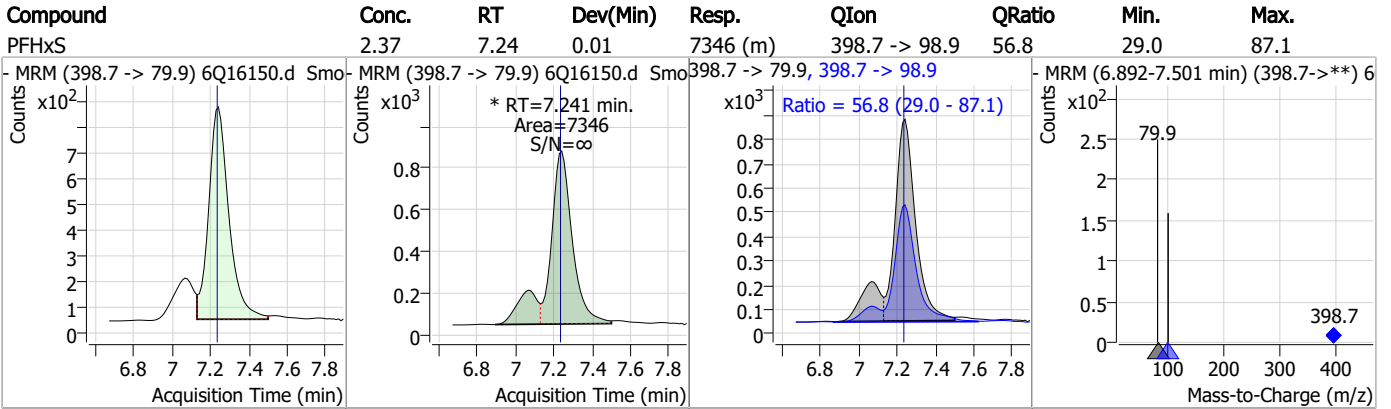
Perfluorinated Compounds by LC/MS/MS



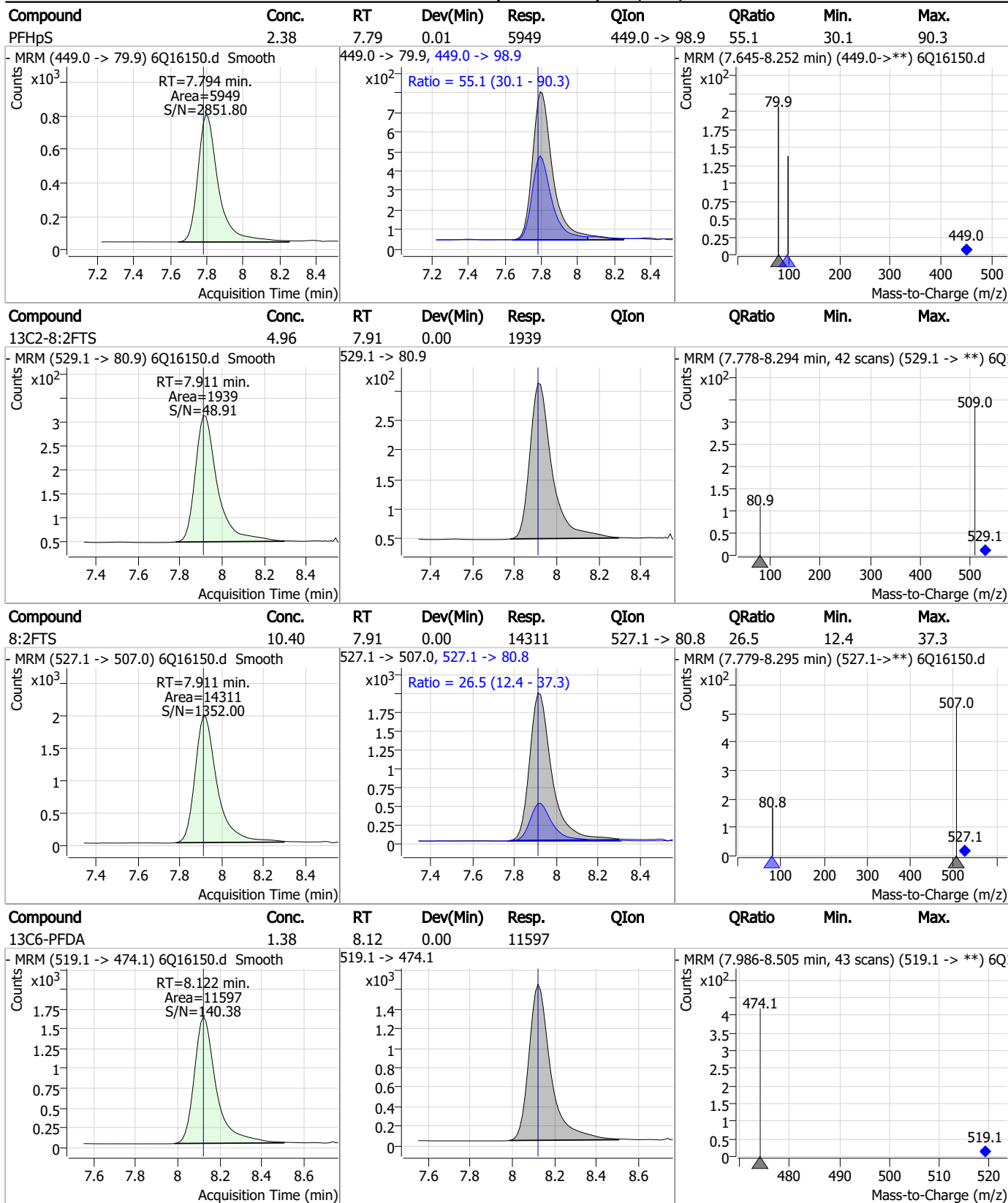
7.4.1

7

Perfluorinated Compounds by LC/MS/MS

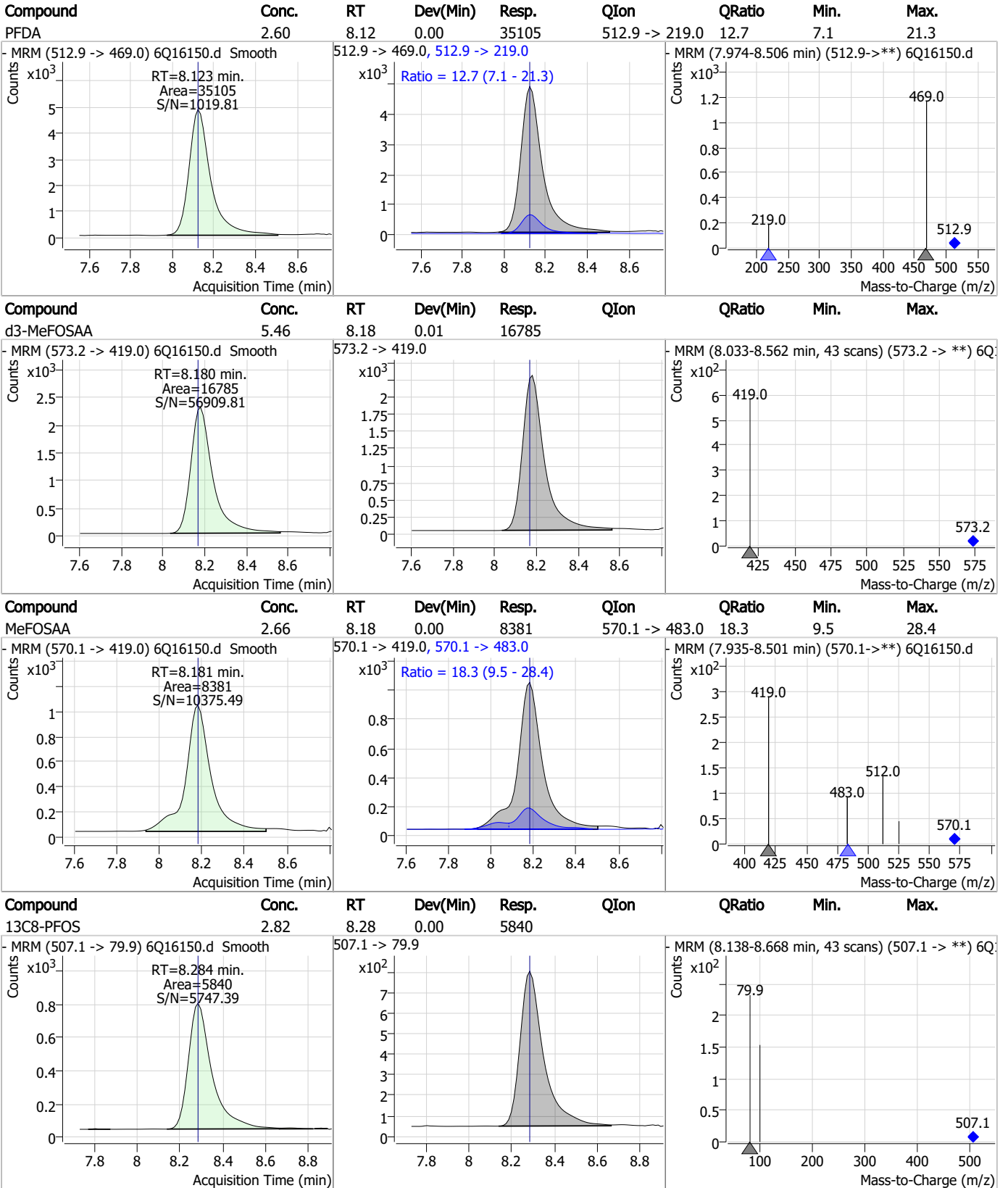


Perfluorinated Compounds by LC/MS/MS



7.4.1
7

Perfluorinated Compounds by LC/MS/MS

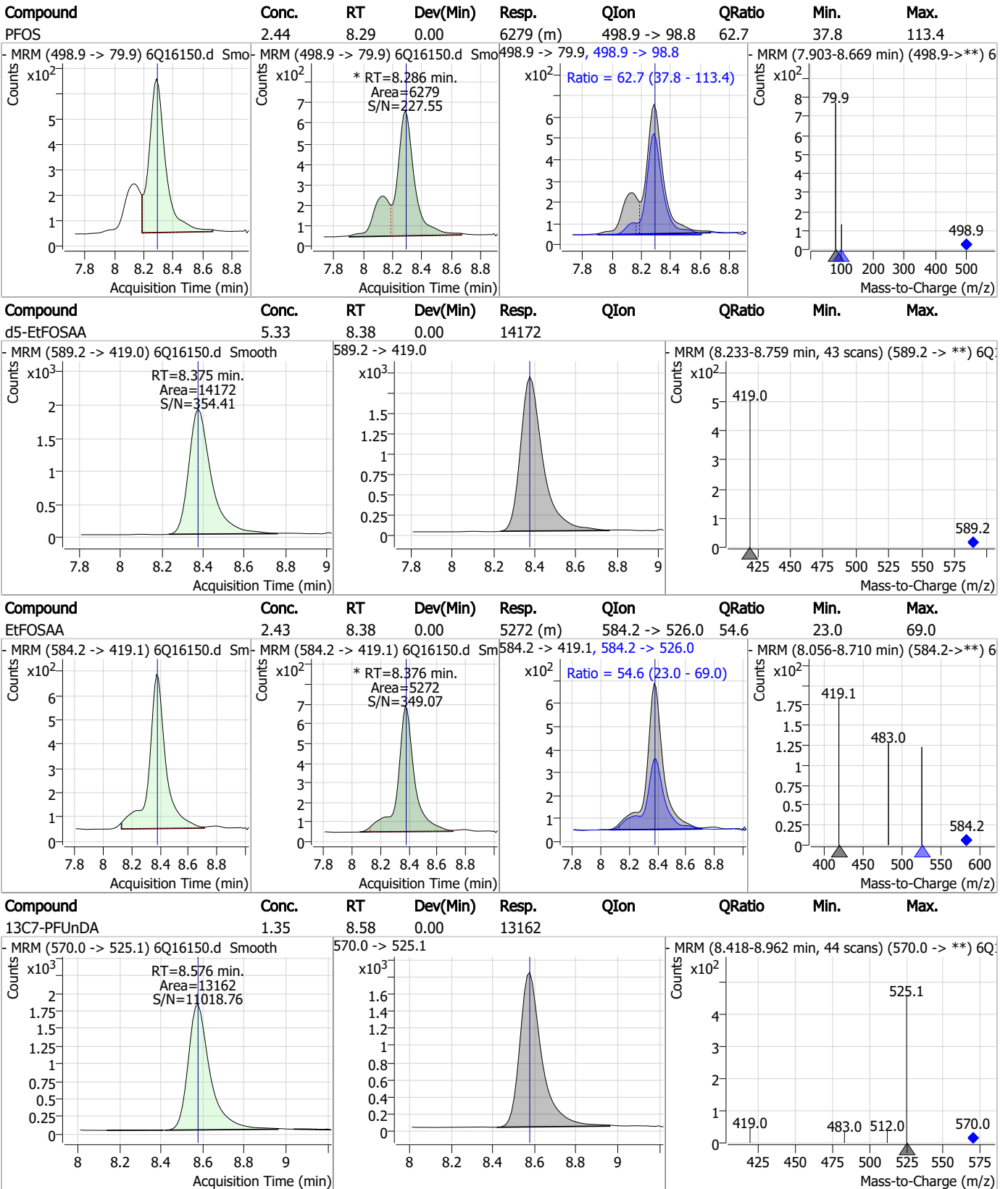


7.4.1

7



Perfluorinated Compounds by LC/MS/MS

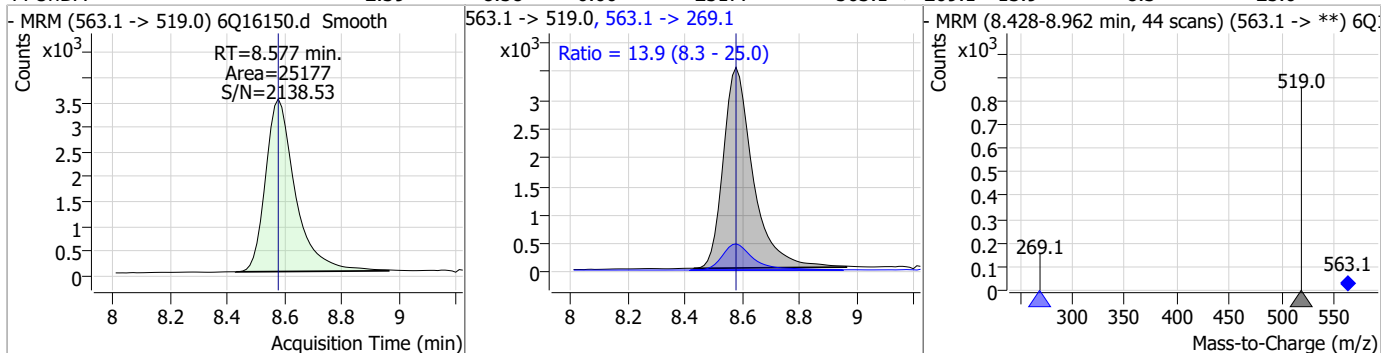


7.4.1

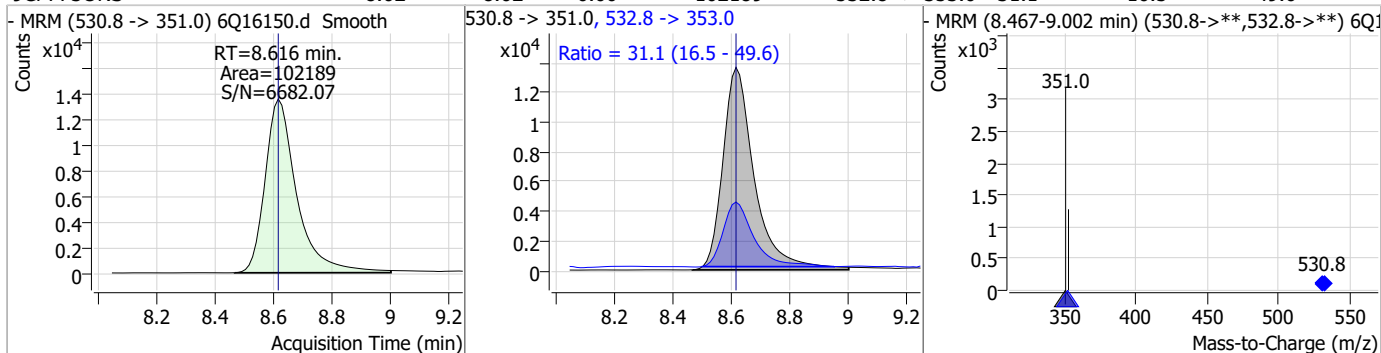
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Perfluorinated Compounds by LC/MS/MS

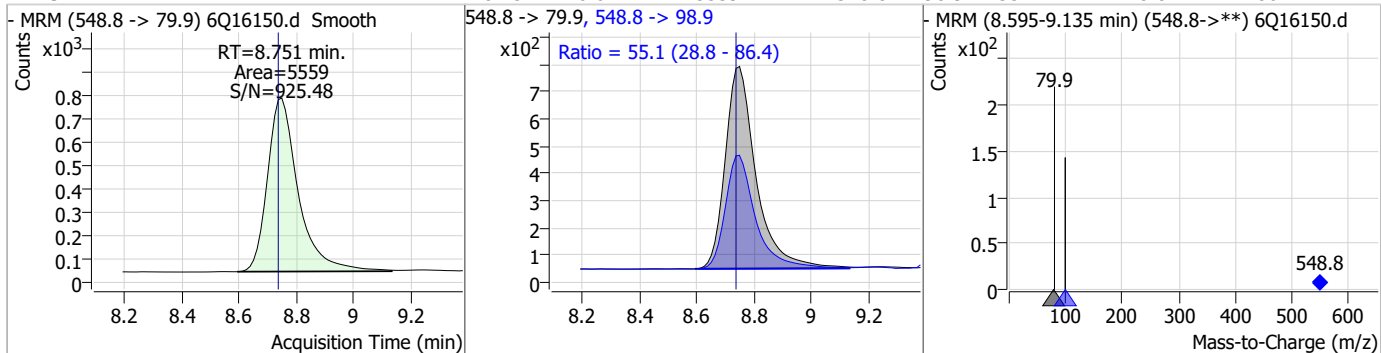
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.39	8.58	0.00	25177	563.1 -> 269.1	13.9	8.3	25.0



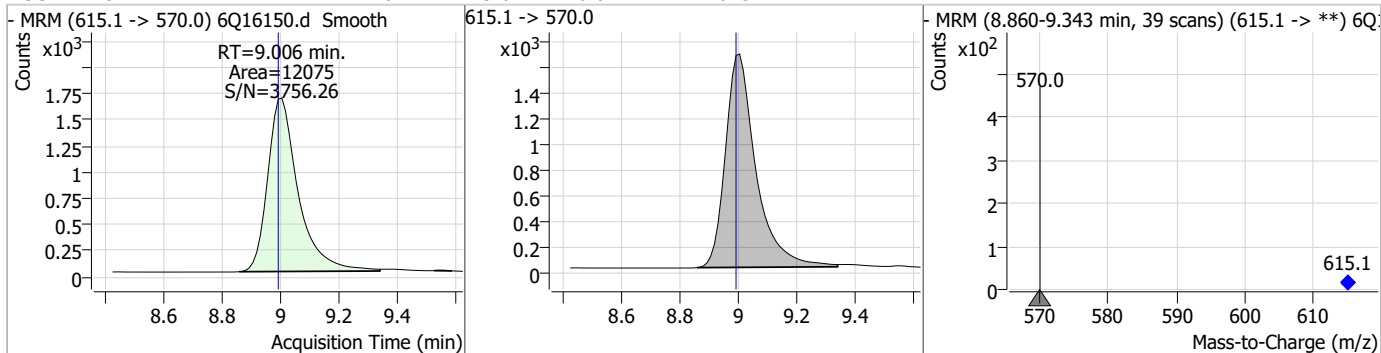
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	8.62	8.62	0.00	102189	532.8 -> 353.0	31.1	16.5	49.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.24	8.75	0.01	5559	548.8 -> 98.9	55.1	28.8	86.4

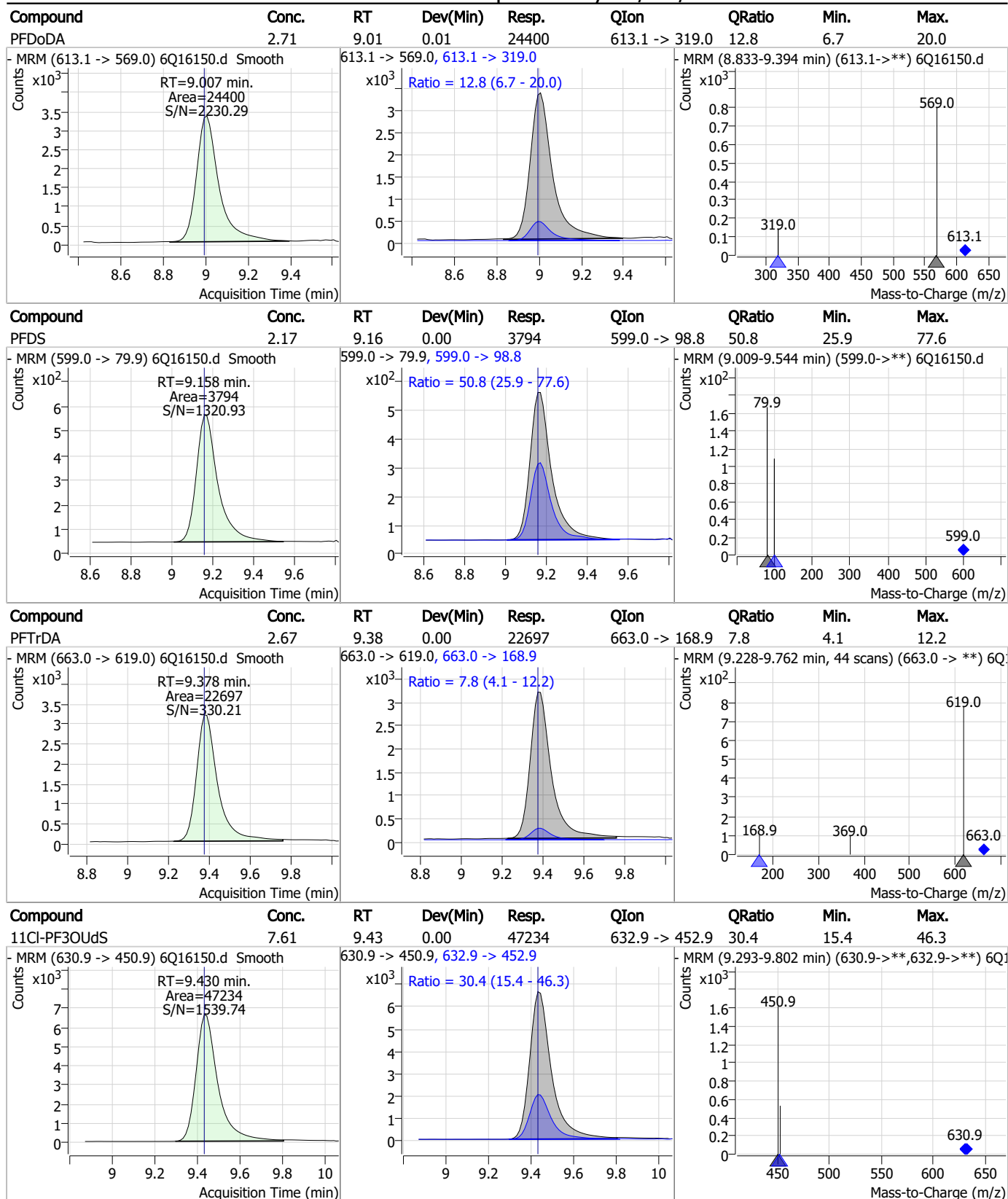


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.07	9.01	0.01	12075	615.1 -> 570.0			



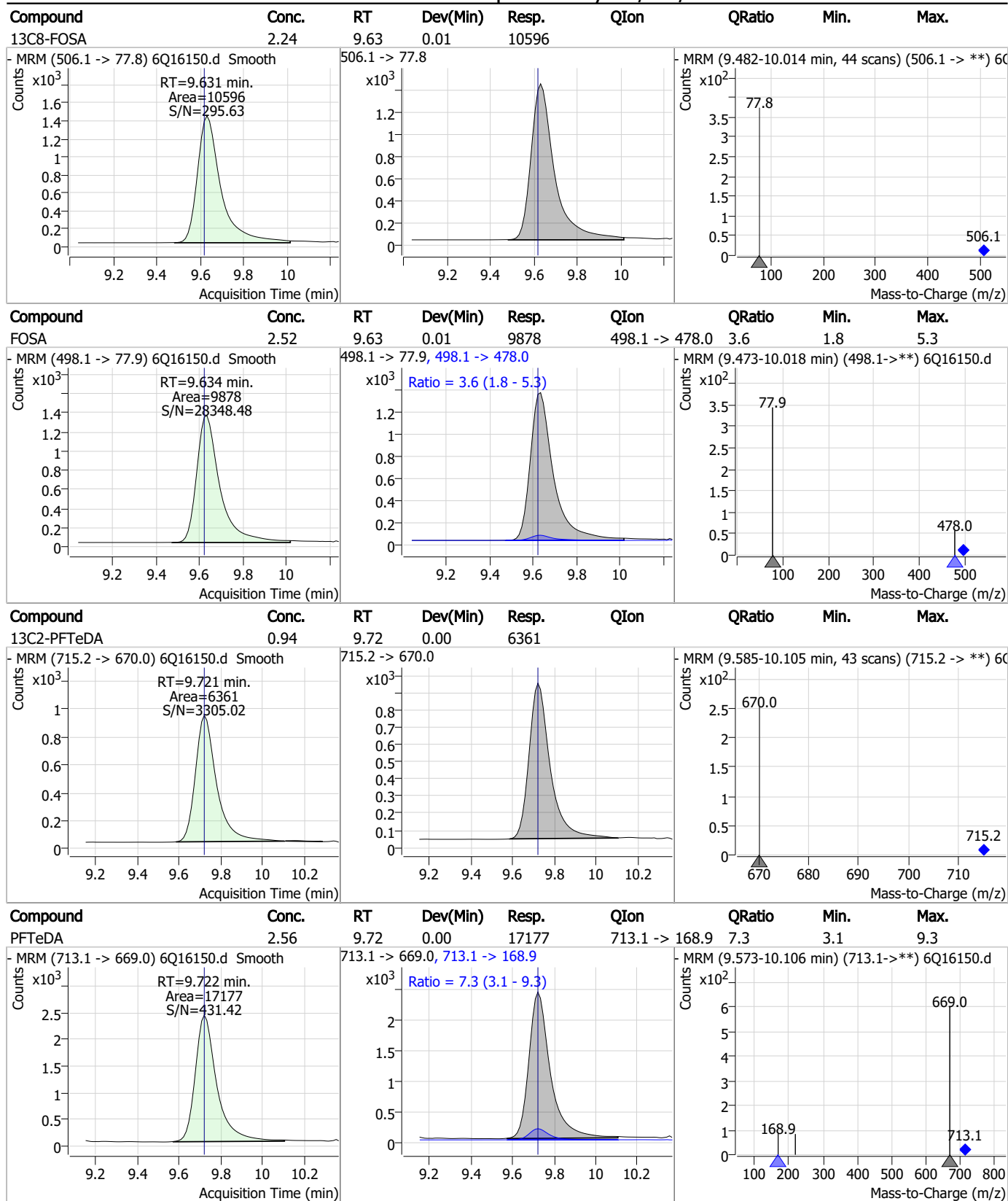
7.4.1
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Perfluorinated Compounds by LC/MS/MS



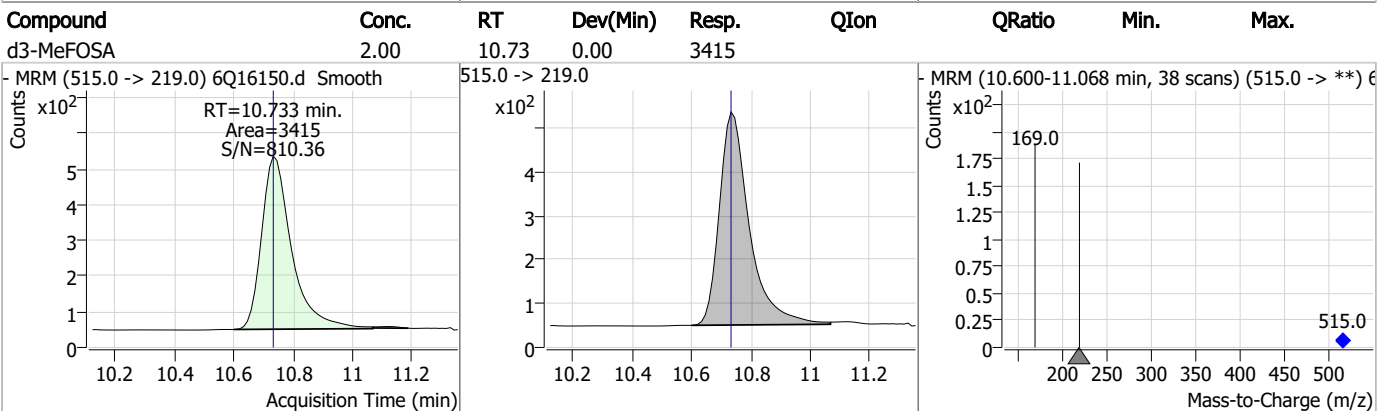
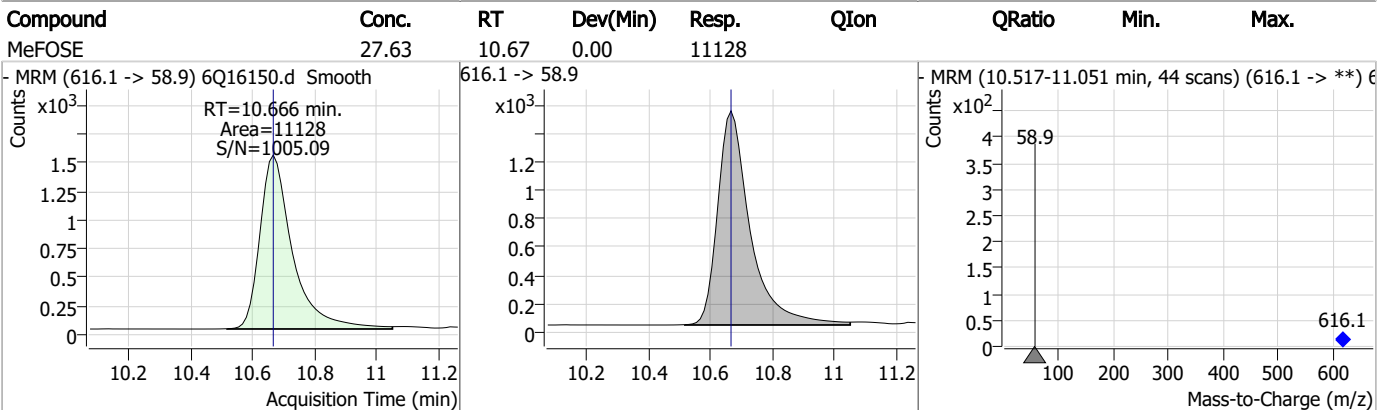
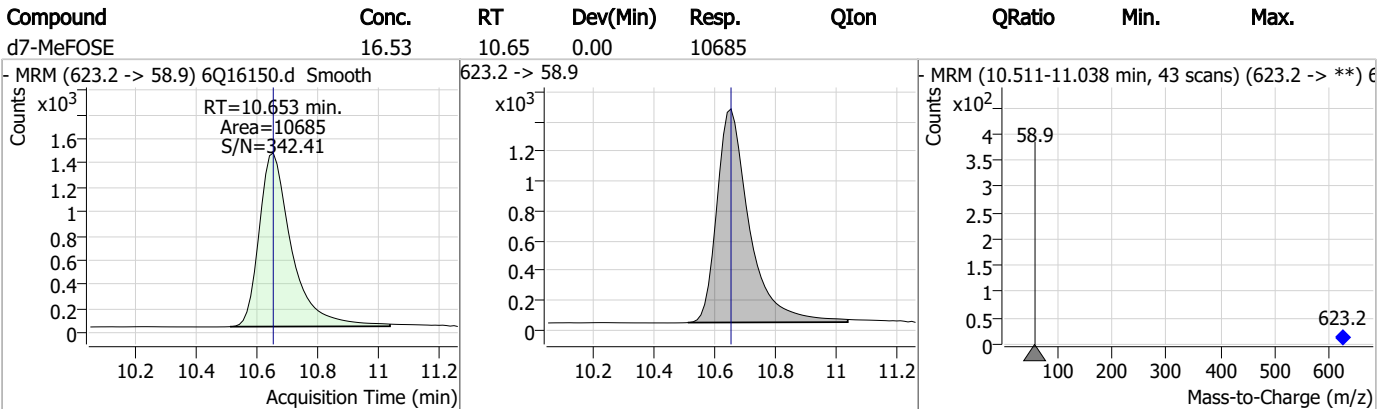
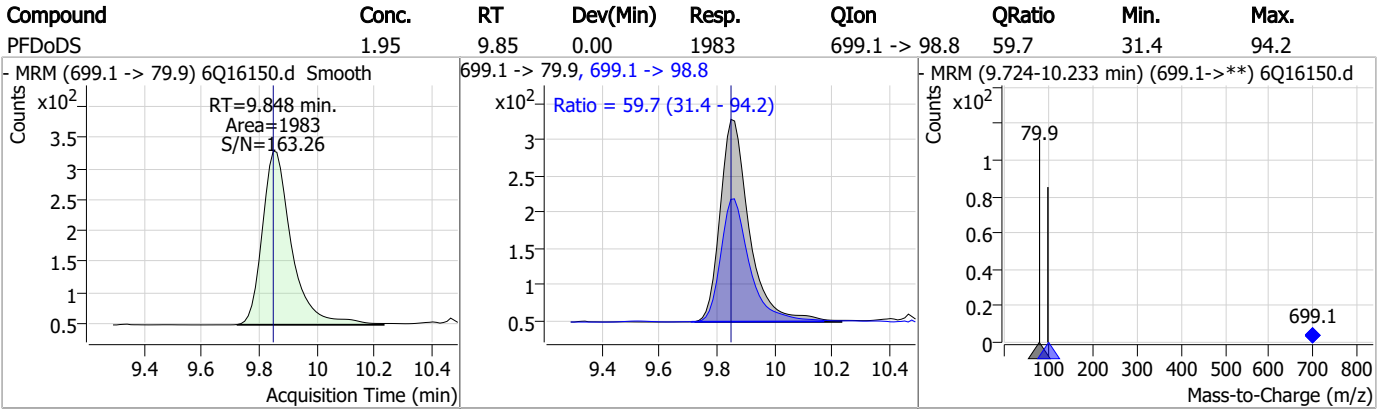
7.4.1
7

Perfluorinated Compounds by LC/MS/MS



7.4.1
7

Perfluorinated Compounds by LC/MS/MS

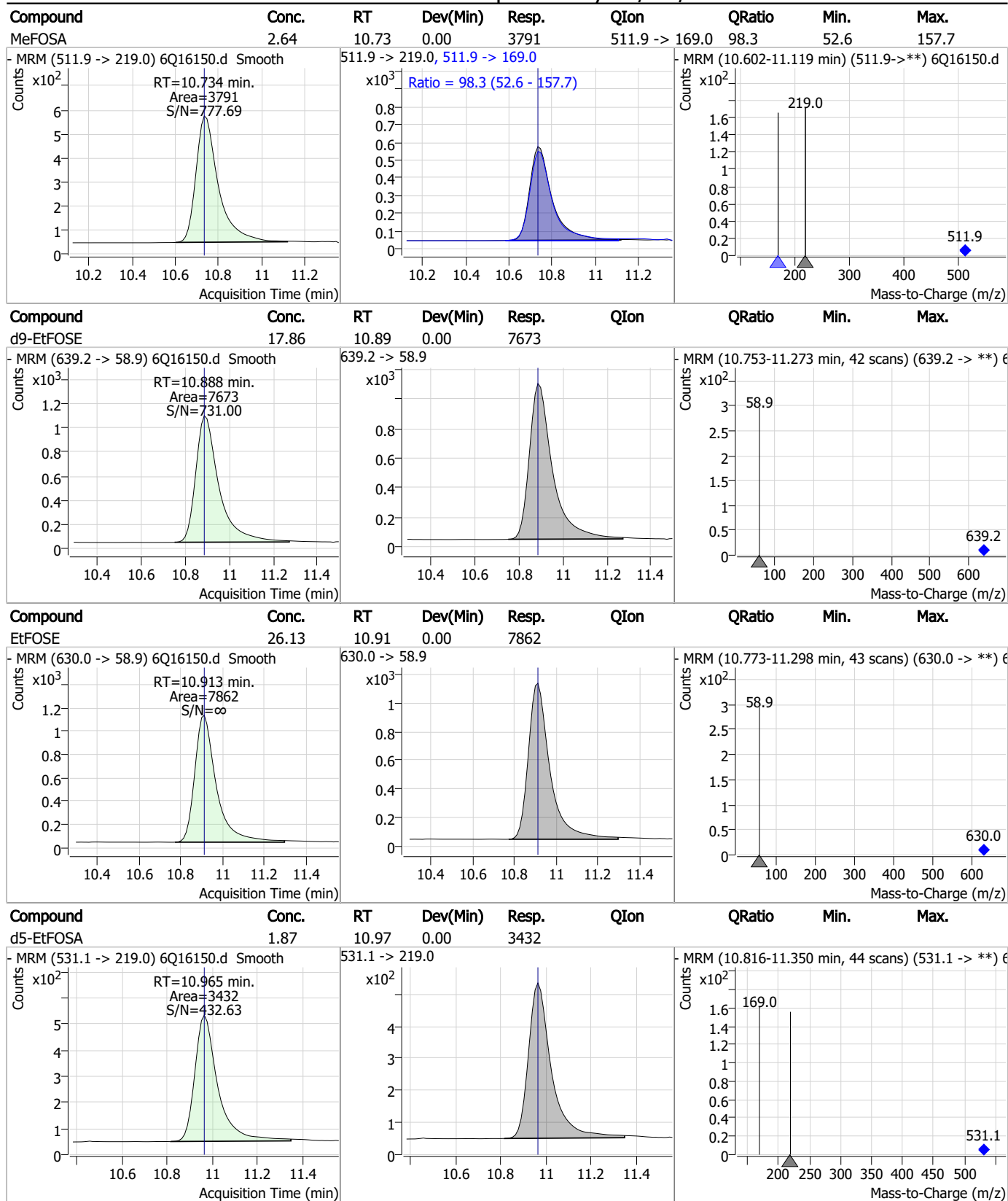


7.4.1

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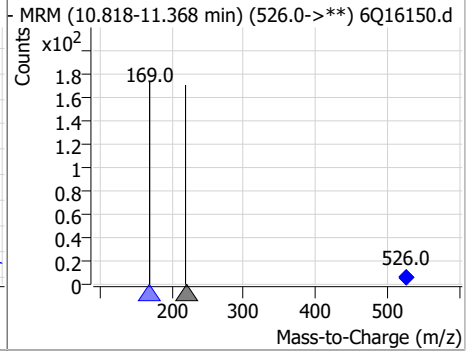
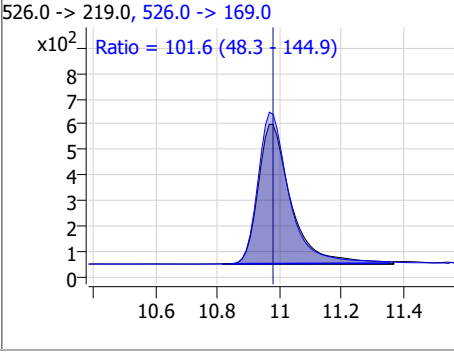
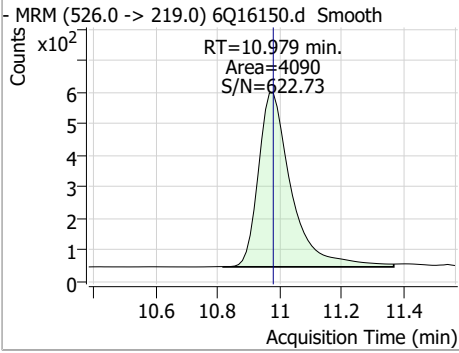
Perfluorinated Compounds by LC/MS/MS



7.4.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	2.76	10.98	0.00	4090	526.0 -> 169.0	101.6	48.3	144.9



7.4.1
7

Manual Integration Approval Summary

Sample Number: OP96191-MS Method: EPA DRAFT 1633
Lab FileID: 6Q16150.D Analyst approved: 04/06/23 12:00 Martha Valls
Injection Time: 04/06/23 00:31 Supervisor approved: 04/06/23 14:50 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.13	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.29	Split peak
EtFOSAA	2991-50-6		8.38	Split peak

7.4.1.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16003.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/4/2023 1:10:07 PM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s6q239 TDCA.batch.bin
 Sample Information : OP96085,S6Q239,500,,,5.0,1,water

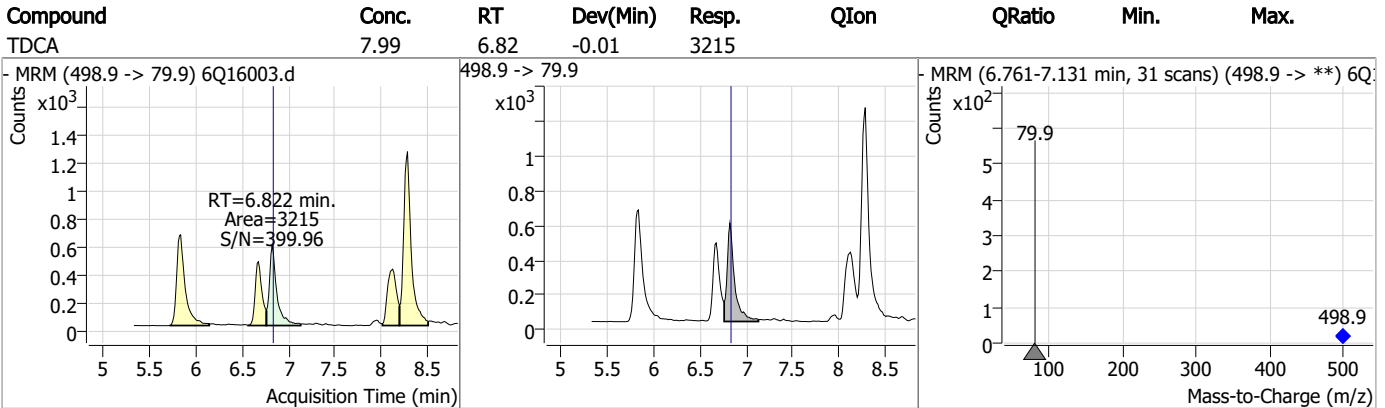
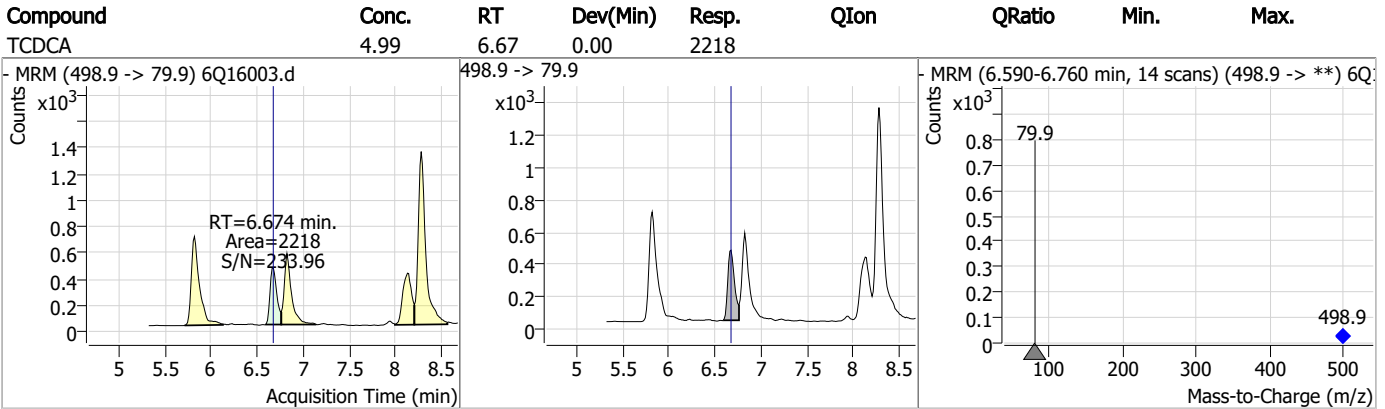
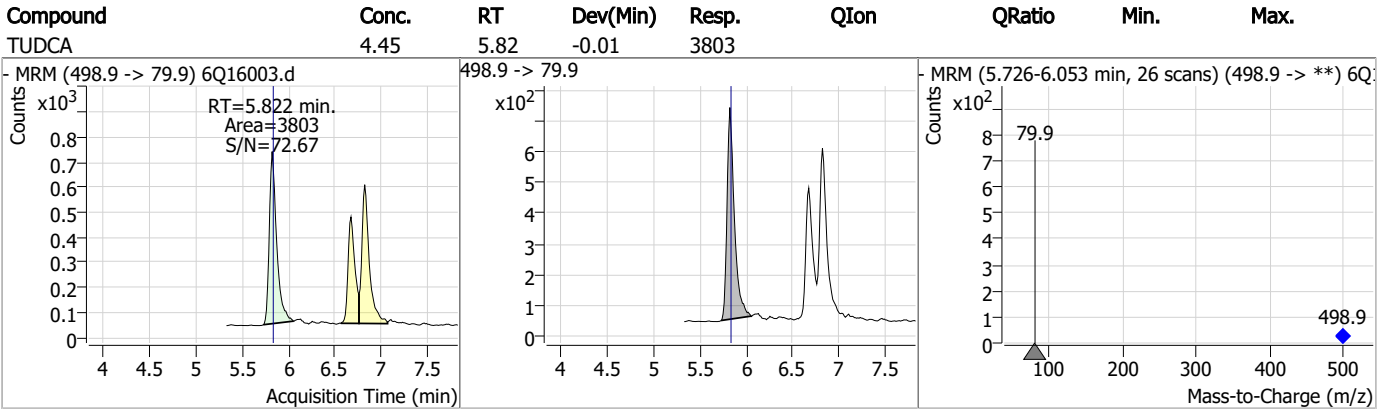
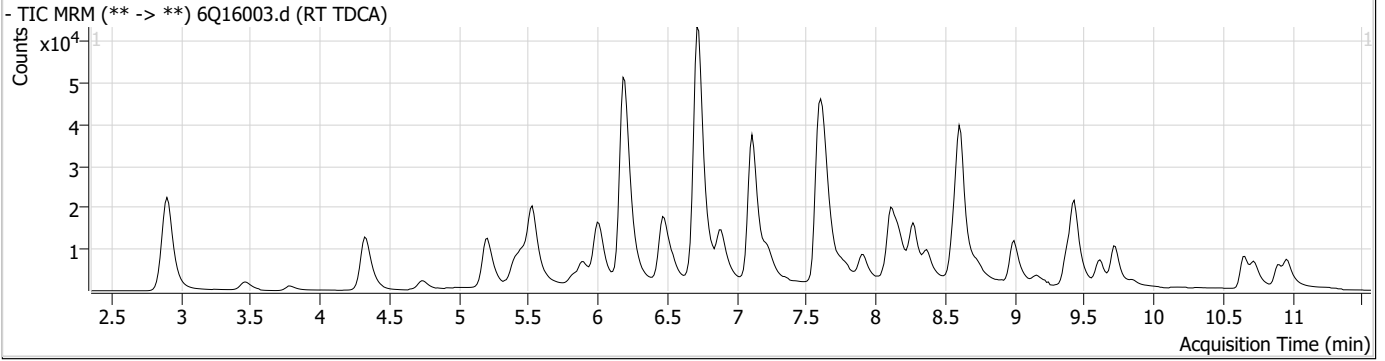
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.284	507.1 -> 79.9	9629	2.50	µg/L	-0.013	
13C4-PFOS	8.273	502.8 -> 79.9	12339	2.50	µg/L	-0.026	
System Monitoring Compounds							
13C8-PFOS	8.284	507.1 -> 79.9	9629	1.98	µg/L	-0.013	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 79.2%				
Target Compounds							
PFOS	8.286	498.9 -> 79.9 498.9 -> 98.8	9832 5600	2.99	µg/L m		77
TCDCa	6.674	498.9 -> 79.9	2218	4.99	ng/ml		100
TDCA	6.822	498.9 -> 79.9	3215	7.99	ng/ml		100
TUDCA	5.822	498.9 -> 79.9	3803	4.45	ng/ml		100

= Qualifier out of range, m = manually integrated, + = Area summed

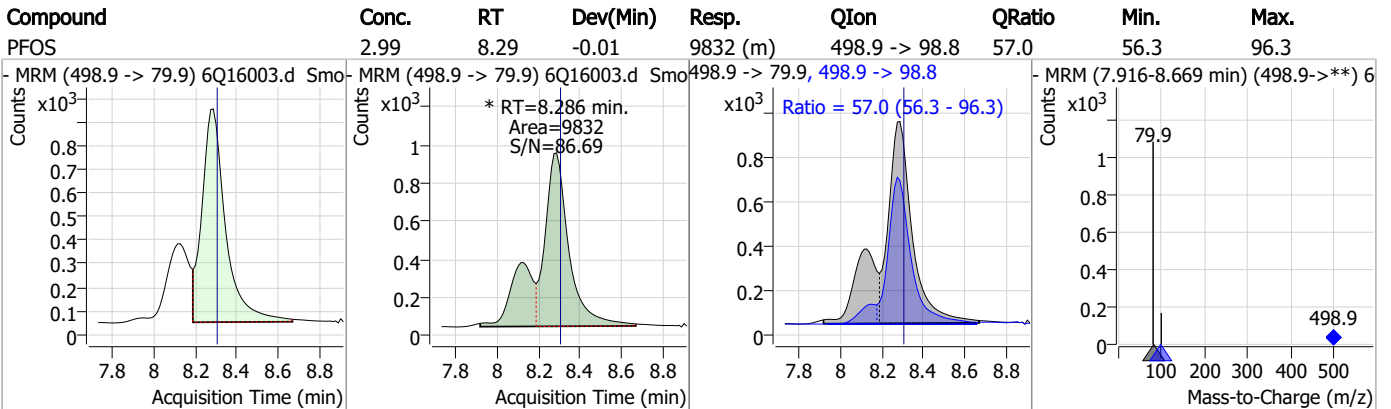
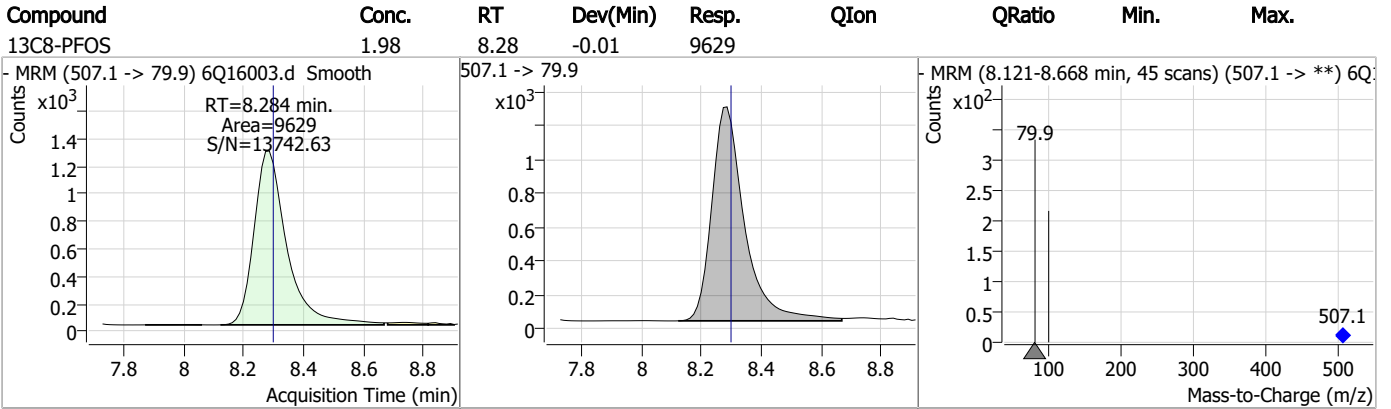
7.5.1

7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.5.1
7



Manual Integration Approval Summary

Sample Number: S6Q239-RT Method: EPA DRAFT 1633
Lab FileID: 6Q16003.D Analyst approved: 04/05/23 11:17 Martha Valls
Injection Time: 04/04/23 13:10 Supervisor approved: 04/05/23 17:23 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.29	Split peak

7.5.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16004.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/4/2023 1:24:05 PM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_040423_S6Q239.quantmethod.xml
 Batch Name : s6q239.batch.bin
 Sample Information : OP96085,S6Q239,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	79340	10.00 µg/L	0.000
M5-PFPeA	4.322	268.3 -> 223.0	36670	5.00 µg/L	0.000
M5-PFHxA	5.528	318.0 -> 273.0	31771	2.50 µg/L	0.000
M4-PFHpA	6.468	367.1 -> 322.0	30780	2.50 µg/L	0.000
M8-PFOA	7.112	421.1 -> 376.0	51522	2.50 µg/L	0.000
M9-PFNA	7.643	472.1 -> 427.0	16560	1.25 µg/L	0.000
M6-PFDA	8.122	519.1 -> 474.1	14015	1.25 µg/L	0.000
M7-PFUnDA	8.564	570.0 -> 525.1	14611	1.25 µg/L	-0.012
M2-PFDoDA	8.994	615.1 -> 570.0	17267	1.25 µg/L	0.000
M2-PFTeDA	9.721	715.2 -> 670.0	10927	1.25 µg/L	0.000
M8-FOSA	9.631	506.1 -> 77.8	15286	2.50 µg/L	0.012
M3-PFBS	5.471	302.1 -> 79.9	11778	2.50 µg/L	0.012
M3-PFHxS	7.228	402.1 -> 79.9	8039	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	6954	2.50 µg/L	0.000
M2-4:2FTS	5.204	329.1 -> 80.9	1827	5.00 µg/L	0.012
M2-6:2FTS	6.886	429.1 -> 80.9	2190	5.00 µg/L	0.000
M2-8:2FTS	7.911	529.1 -> 80.9	2203	5.00 µg/L	0.000
M3-MeFOSAA	8.167	573.2 -> 419.0	19668	5.00 µg/L	0.000
M3-HFPO-DA	5.905	286.9 -> 168.9	13042	10.00 µg/L	0.012
M5-EtFOSAA	8.363	589.2 -> 419.0	17264	5.00 µg/L	-0.012
M7-MeFOSE	10.653	623.2 -> 58.9	20320	25.00 µg/L	0.000
M9-EtFOSE	10.888	639.2 -> 58.9	12907	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	5828	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	5512	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	8156	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	33984	5.00 µg/L	0.000
18O2-PFHxS	7.239	403.0 -> 83.9	5599	2.50 µg/L	0.012
13C4-PFOA	7.125	417.1 -> 372.0	63115	2.50 µg/L	0.013
13C2-PFDA	8.123	515.1 -> 470.1	18604	1.25 µg/L	0.000
13C5-PFNA	7.643	468.0 -> 423.0	16084	1.25 µg/L	0.000
13C2-PFHxA	5.529	315.1 -> 270.0	30863	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.204	329.1 -> 80.9	1827	4.85 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C2-6:2FTS	6.886	429.1 -> 80.9	2190	4.74 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.8%		
13C2-8:2FTS	7.911	529.1 -> 80.9	2203	4.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C2-PFDoDA	8.994	615.1 -> 570.0	17267	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.9%		
13C2-PFTeDA	9.721	715.2 -> 670.0	10927	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C3-PFBS	5.471	302.1 -> 79.9	11778	2.37 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.6%		
13C3-PFHxS	7.228	402.1 -> 79.9	8039	2.51 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C4-PFBA	2.897	216.8 -> 171.9	79340	9.99 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C4-PFHpA	6.468	367.1 -> 322.0	30780	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C5-PFHxA	5.528	318.0 -> 273.0	31771	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C5-PFPeA	4.322	268.3 -> 223.0	36670	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C6-PFDA	8.122	519.1 -> 474.1	14015	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C7-PFUnDA	8.564	570.0 -> 525.1	14611	1.15 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.9%	
13C8-FOSA	9.631	506.1 -> 77.8	15286	2.52 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C8-PFOA	7.112	421.1 -> 376.0	51522	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C8-PFOS	8.284	507.1 -> 79.9	6954	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C9-PFNA	7.643	472.1 -> 427.0	16560	1.39 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.3%	
d3-MeFOSAA	8.167	573.2 -> 419.0	19668	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C3-HFPO-DA	5.905	286.9 -> 168.9	13042	9.69 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.9%	
d3-MeFOSA	10.733	515.0 -> 219.0	5512	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%	
d5-EtFOSAA	8.363	589.2 -> 419.0	17264	5.05 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
d7-MeFOSE	10.653	623.2 -> 58.9	20320	24.48 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.9%	
d9-EtFOSE	10.888	639.2 -> 58.9	12907	23.39 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.6%	
d5-EtFOSA	10.965	531.1 -> 219.0	5828	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
Target Compounds					QValue
4:2FTS	5.204	327.1 -> 307.0	175132	48.94 µg/L	98
		327.1 -> 80.9	43160		
6:2FTS	6.886	427.1 -> 407.0	158479	54.04 µg/L	97
		427.1 -> 80.9	32234		
8:2FTS	7.911	527.1 -> 507.0	85729	54.86 µg/L	99
		527.1 -> 80.8	21036		
EtFOSAA	8.376	584.2 -> 419.1	35927	13.57 µg/L	m 87
		584.2 -> 526.0	19621		
FOSA	9.621	498.1 -> 77.9	177828	31.49 µg/L	m 100
		498.1 -> 478.0	6358		
MeFOSAA	8.168	570.1 -> 419.0	46426	12.59 µg/L	96
		570.1 -> 483.0	7851		
PFBA	2.906	212.8 -> 168.9	107464	53.59 µg/L	100
PFBS	5.460	298.7 -> 79.9	56640	12.26 µg/L	96
		298.7 -> 98.8	24797		
PFDA	8.123	512.9 -> 469.0	206513	12.66 µg/L	99
		512.9 -> 219.0	30373		
PFDoDA	8.994	613.1 -> 569.0	173093	13.46 µg/L	100
		613.1 -> 319.0	23324		
PFDS	9.158	599.0 -> 79.9	23128	11.13 µg/L	95

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	12833			
PFHpA	6.469	363.1 -> 319.0	249914	14.44	µg/L	98
		363.1 -> 169.0	32928			
PFHpS	7.794	449.0 -> 79.9	33686	11.33	µg/L	96
		449.0 -> 98.9	19136			
PFHxA	5.531	313.0 -> 269.0	148862	12.69	µg/L	99
		313.0 -> 118.9	6442			
PFHxS	7.228	398.7 -> 79.9	41193	11.65	µg/L	m 98
		398.7 -> 98.9	23399			
PFNA	7.505	463.0 -> 419.0	326134	30.23	µg/L	m 100
		463.0 -> 219.0	66937			
PFNS	8.738	548.8 -> 79.9	37468	12.69	µg/L	94
		548.8 -> 98.9	19841			
PFOA	7.126	413.0 -> 369.0	667552	28.62	µg/L	m 99
		413.0 -> 169.0	86729			
PFOS	8.286	498.9 -> 79.9	33959	11.10	µg/L	m 94
		498.9 -> 98.8	23940			
PFPeA	4.324	263.0 -> 219.0	200380	25.90	µg/L	100
PFPeS	6.533	349.1 -> 79.9	51701	12.14	µg/L	97
		349.1 -> 98.9	27797			
PFTeDA	9.722	713.1 -> 669.0	152873	13.24	µg/L	100
		713.1 -> 168.9	9591			
PFTrDA	9.378	663.0 -> 619.0	168170	13.86	µg/L	100
		663.0 -> 168.9	13453			
PFUnDA	8.564	563.1 -> 519.0	166646	14.25	µg/L	94
		563.1 -> 269.1	23275			
11CI-PF3OUdS	9.430	630.9 -> 450.9	360296	51.39	µg/L	97
		632.9 -> 452.9	116755			
9CI-PF3ONS	8.616	530.8 -> 351.0	677244	50.59	µg/L	98
		532.8 -> 353.0	215374			
ADONA	6.731	376.9 -> 250.9	1371274	51.89	µg/L	100
		376.9 -> 84.8	315747			
HFPO-DA	5.906	284.9 -> 168.9	62907	53.36	µg/L	96
		284.9 -> 184.9	8946			
3:3FTCA	3.790	241.0 -> 177.0	26989	62.87	µg/L	99
		241.0 -> 117.0	3986			
5:3FTCA	6.198	341.0 -> 237.1	833454	321.51	µg/L	100
		341.0 -> 217.0	726627			
7:3FTCA	7.608	441.0 -> 316.9	420084	320.12	µg/L	100
		441.0 -> 336.9	822215			
EtFOSA	10.967	526.0 -> 219.0	91198	36.25	µg/L	88
		526.0 -> 169.0	98814			
EtFOSE	10.913	630.0 -> 58.9	77682	153.47	µg/L	100
MeFOSA	10.734	511.9 -> 219.0	74796	32.26	µg/L	88
		511.9 -> 169.0	87750			
MeFOSE	10.666	616.1 -> 58.9	112482	146.86	µg/L	100
PFDoDS	9.848	699.1 -> 79.9	14434	11.95	µg/L	99
		699.1 -> 98.8	9200			
NFDHA	5.410	295.0 -> 201.0	19865	26.13	µg/L	97
		295.0 -> 84.9	9068			
PFMBA	4.737	279.0 -> 85.1	65492	25.55	µg/L	100
PFMPA	3.463	229.0 -> 84.9	61025	26.09	µg/L	100
PFEESA	6.012	314.8 -> 134.9	395789	23.82	µg/L	100
		314.8 -> 82.9	9703			

= Qualifier out of range, m = manually integrated, + = Area summed

7.5.2
7

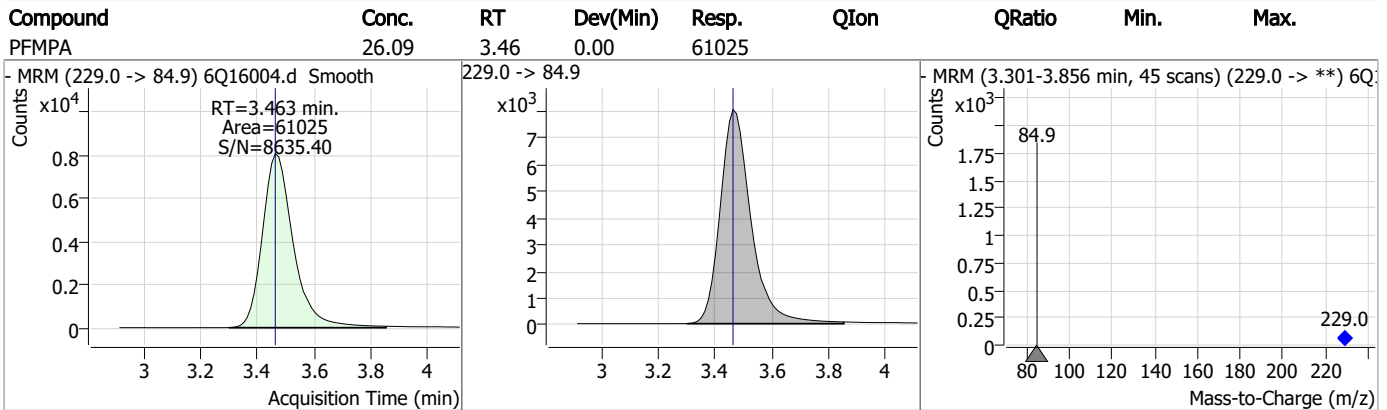
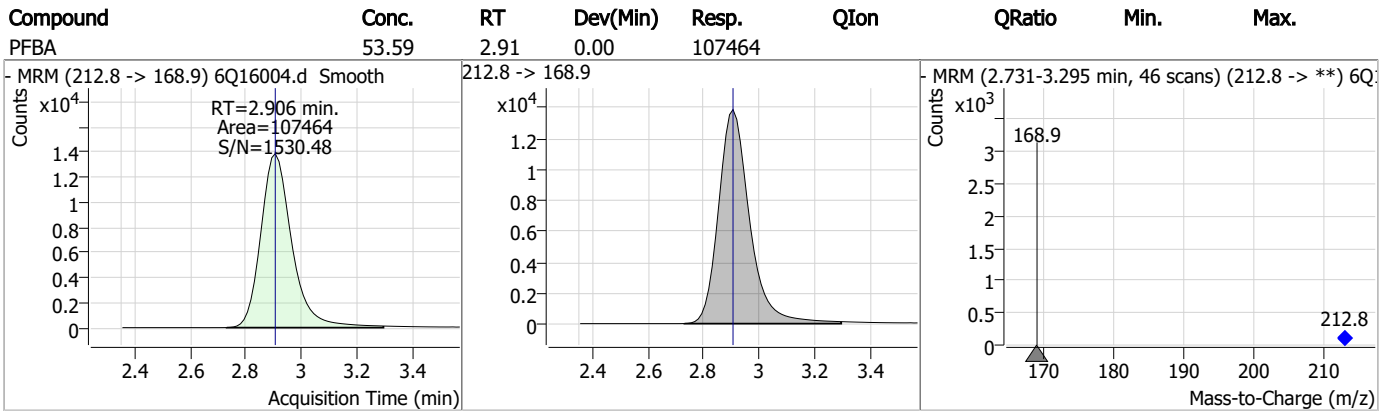
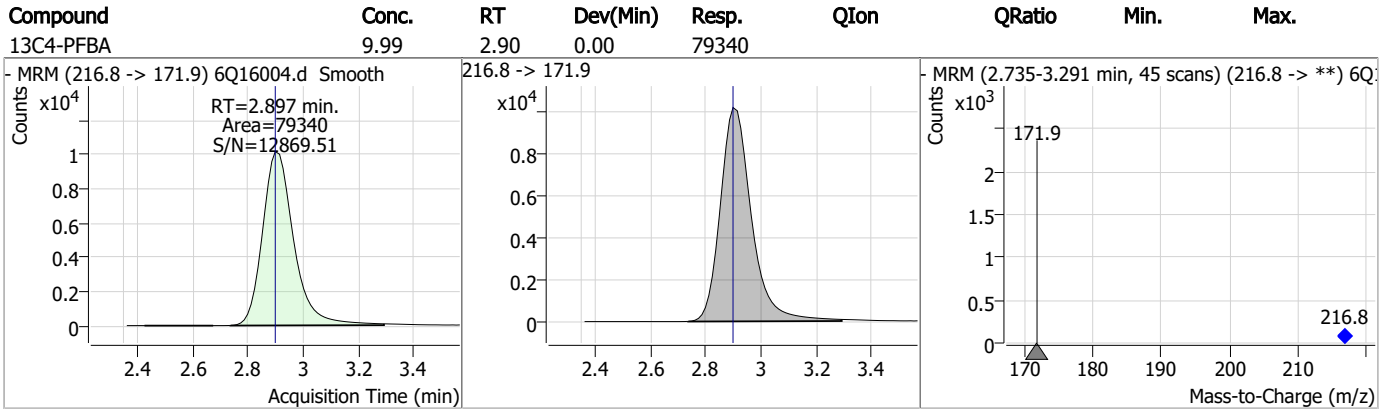
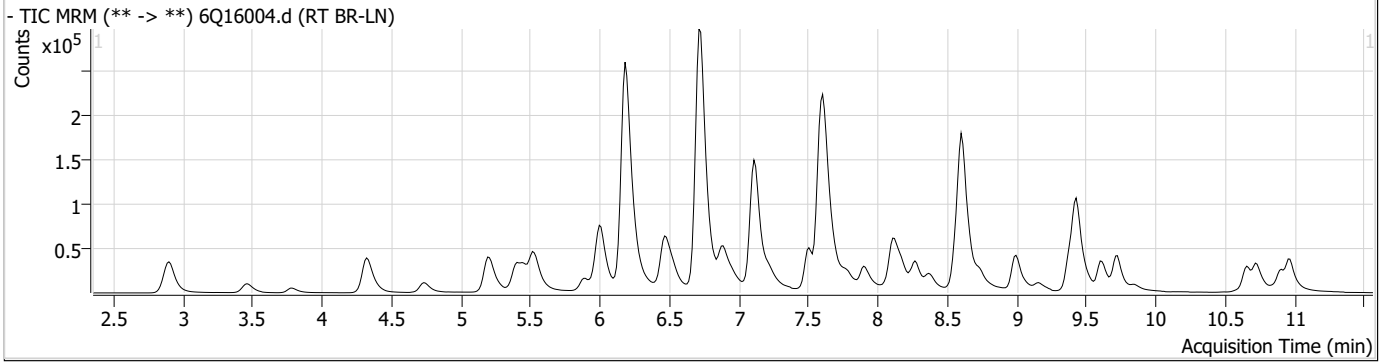
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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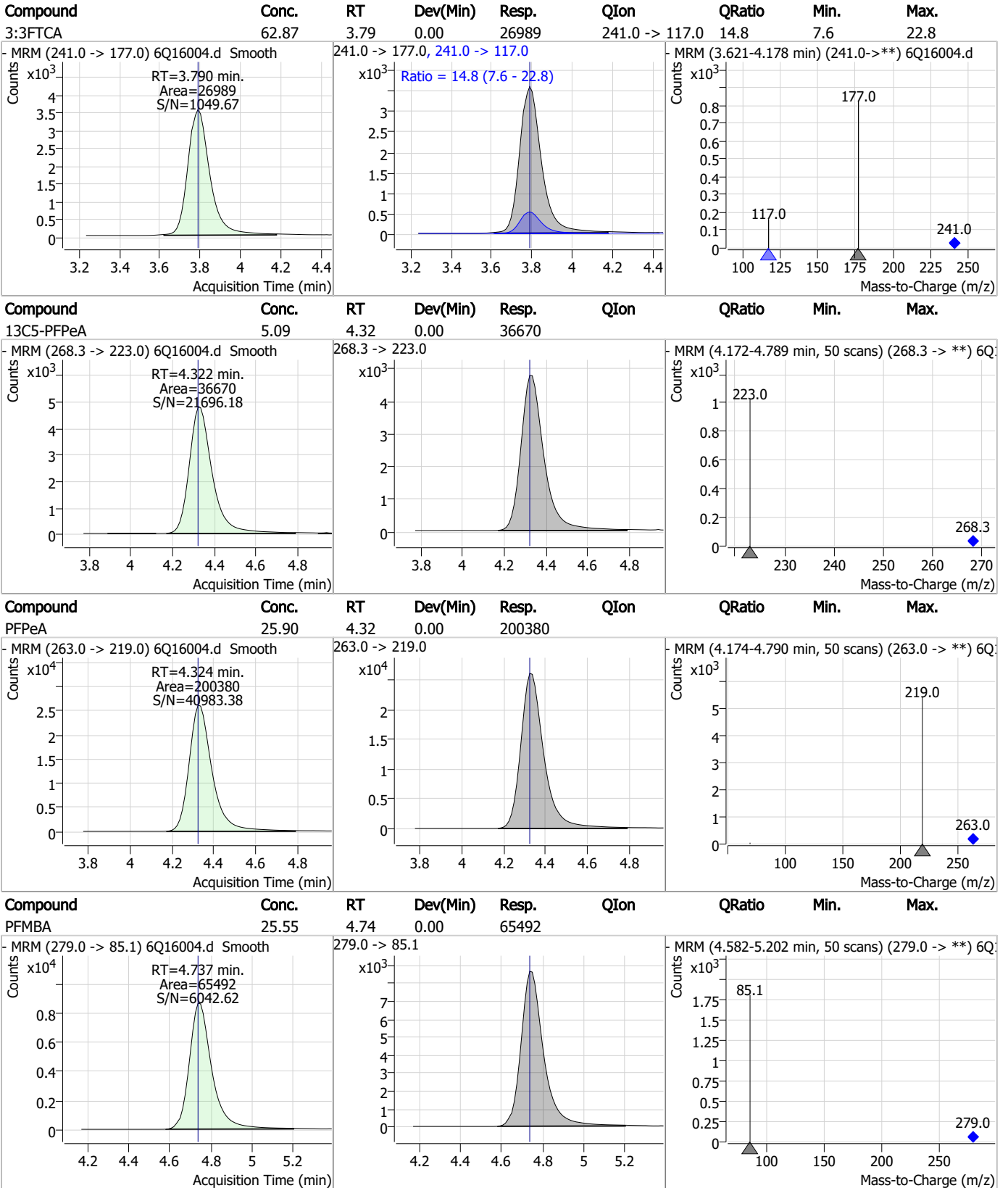
7.5.2

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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

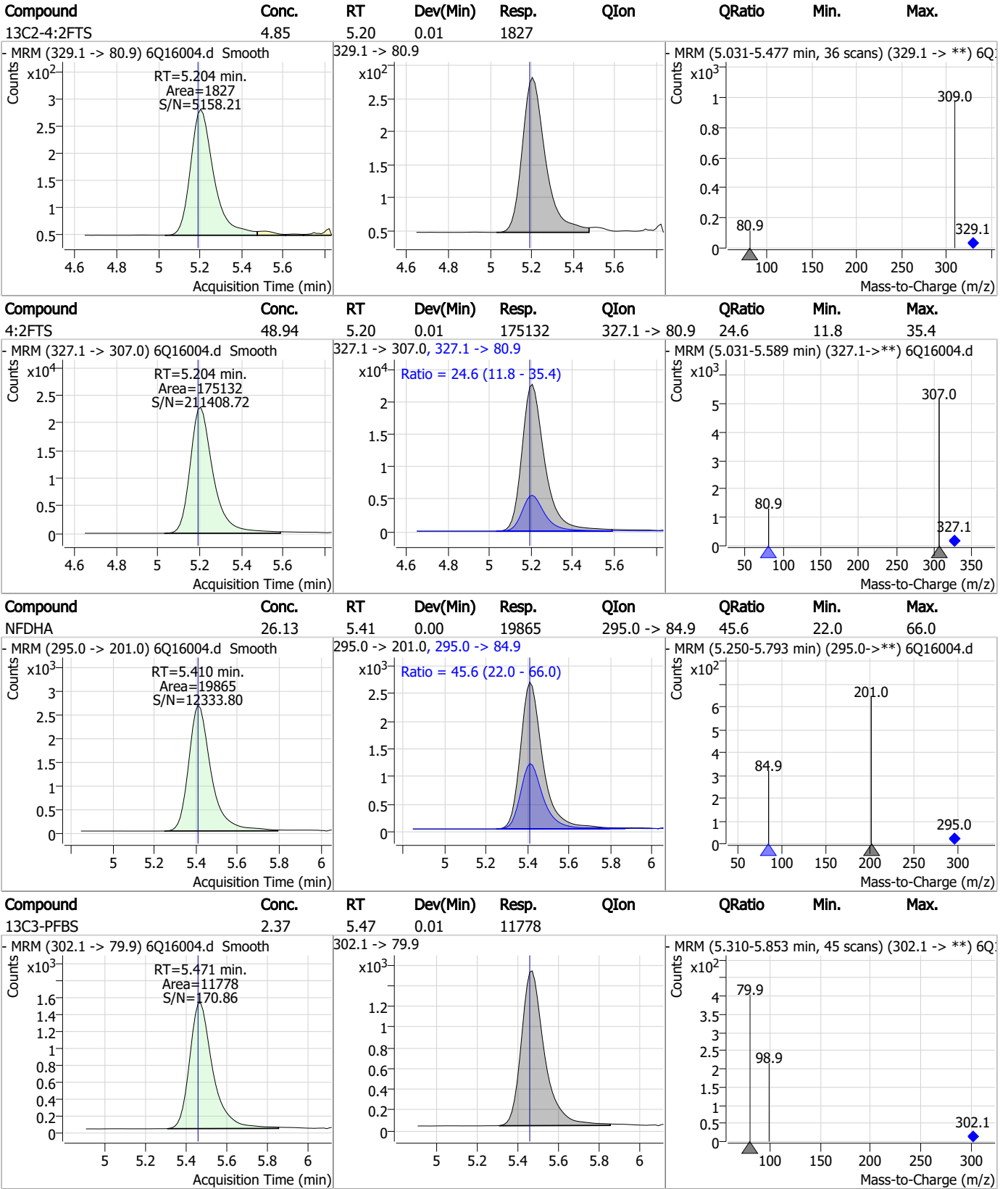


7.5.2

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Perfluorinated Compounds by LC/MS/MS



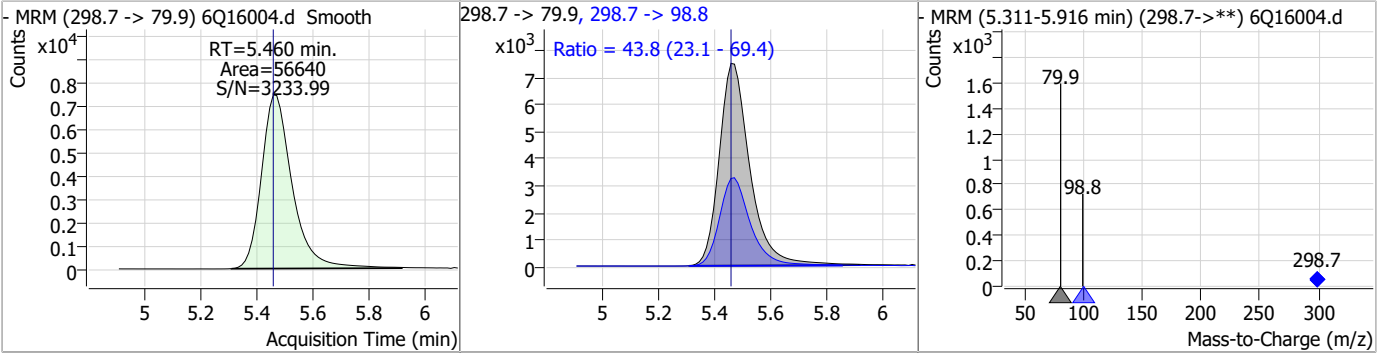
7.5.2

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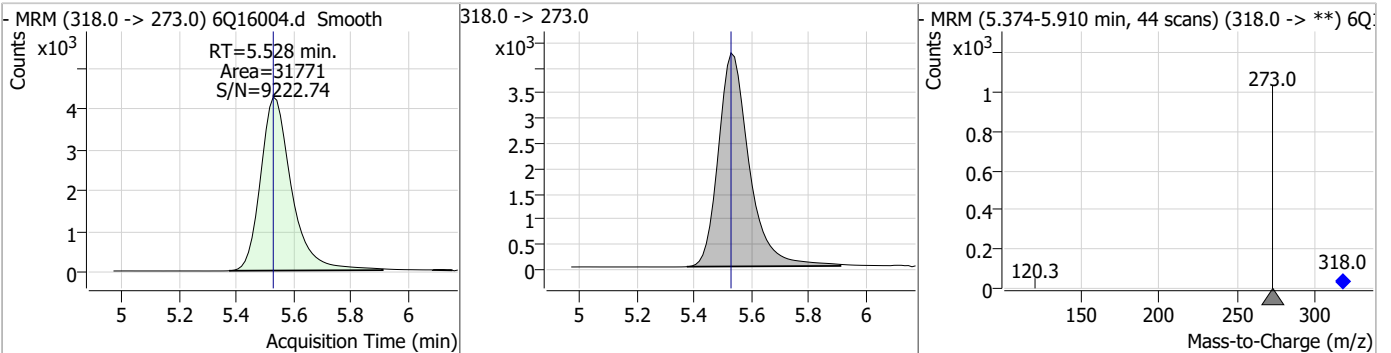


Perfluorinated Compounds by LC/MS/MS

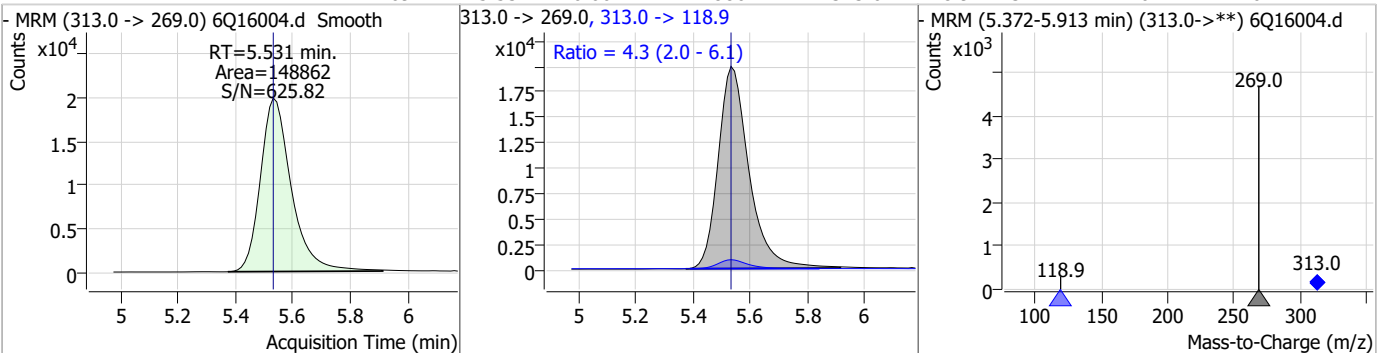
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	12.26	5.46	0.00	56640	298.7 -> 98.8	43.8	23.1	69.4



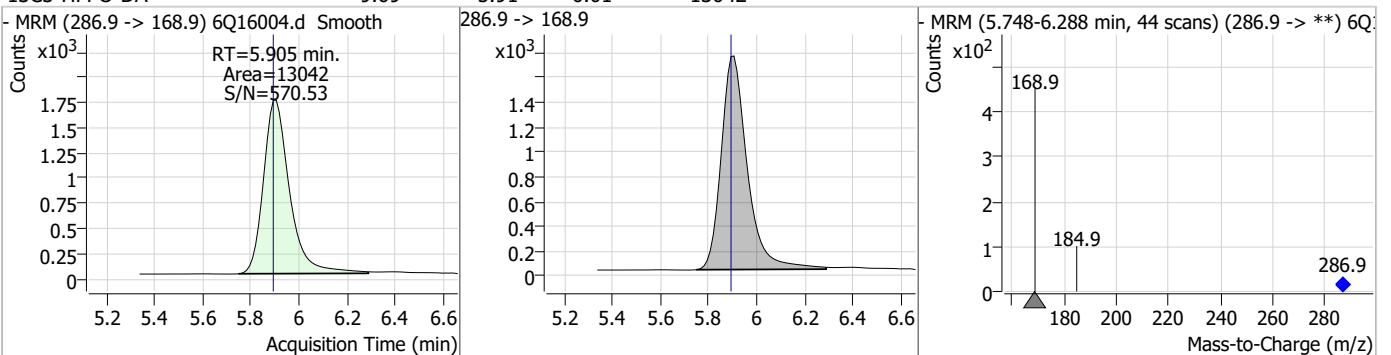
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.49	5.53	0.00	31771				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	12.69	5.53	0.00	148862	313.0 -> 118.9	4.3	2.0	6.1

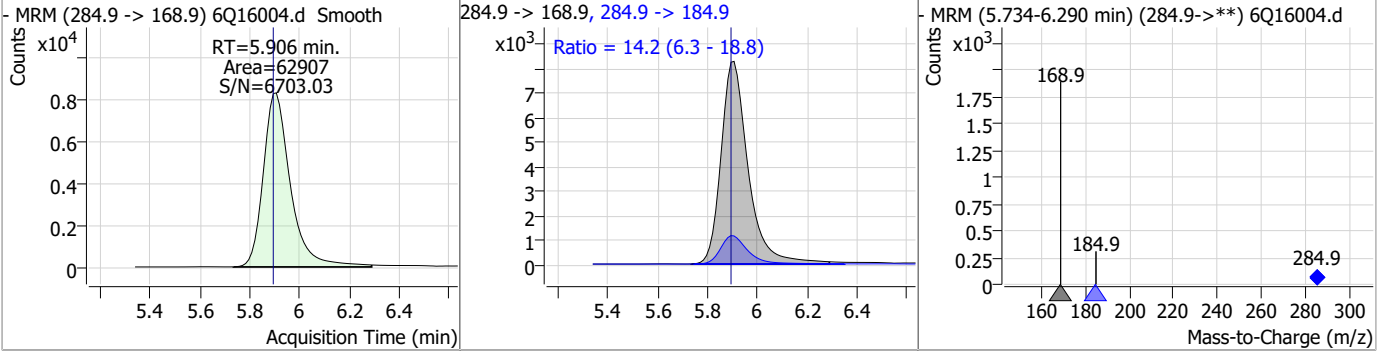


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.69	5.91	0.01	13042				

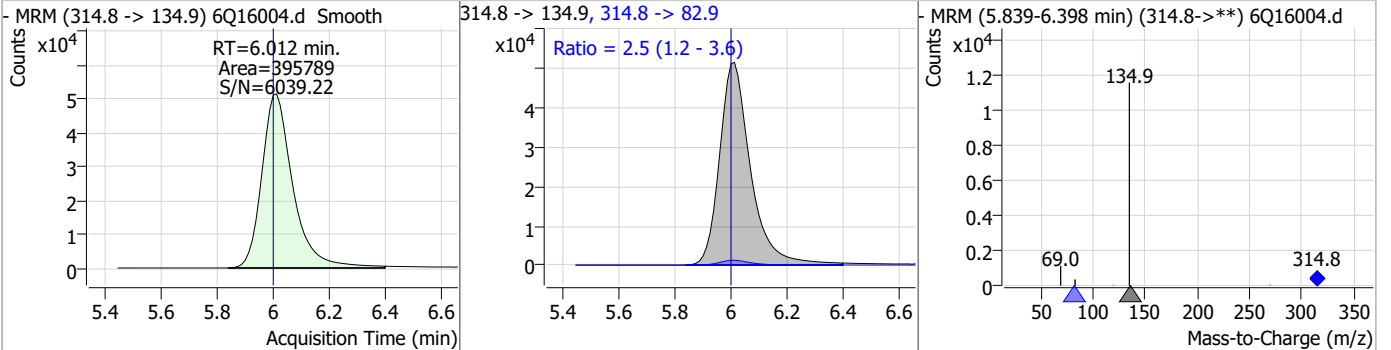


Perfluorinated Compounds by LC/MS/MS

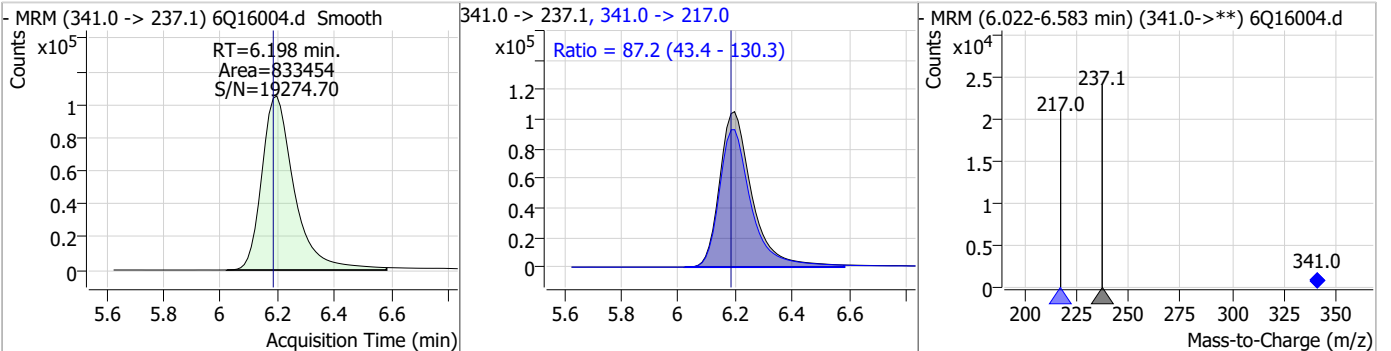
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	53.36	5.91	0.01	62907	284.9 -> 184.9	14.2	6.3	18.8



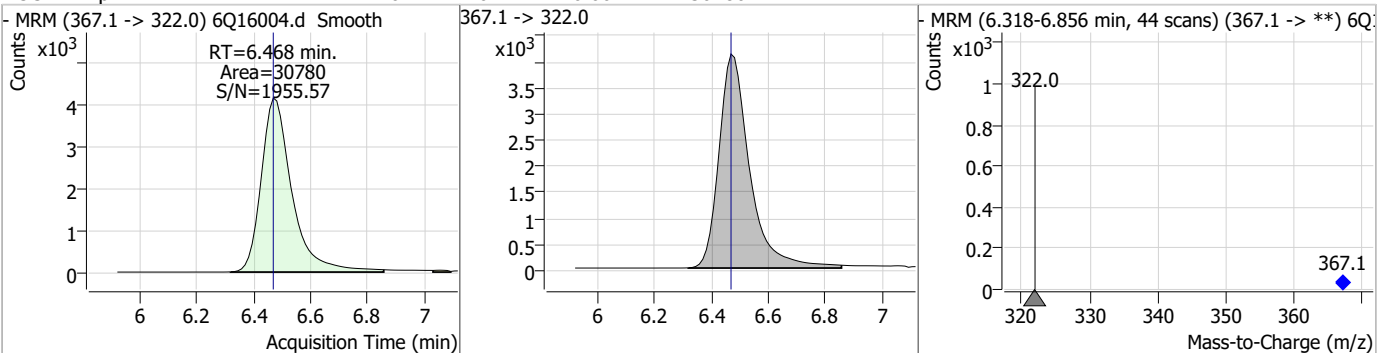
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	23.82	6.01	0.01	395789	314.8 -> 82.9	2.5	1.2	3.6



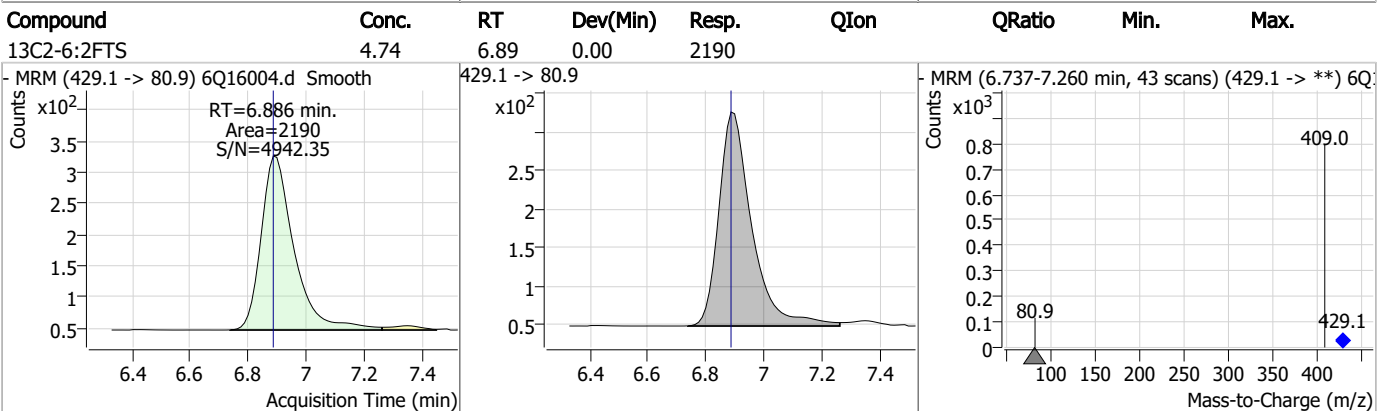
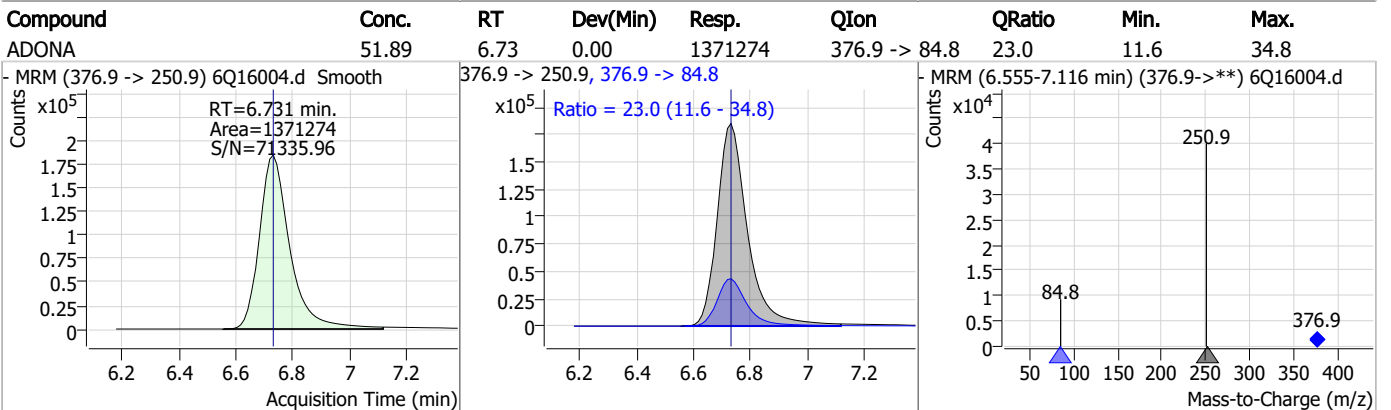
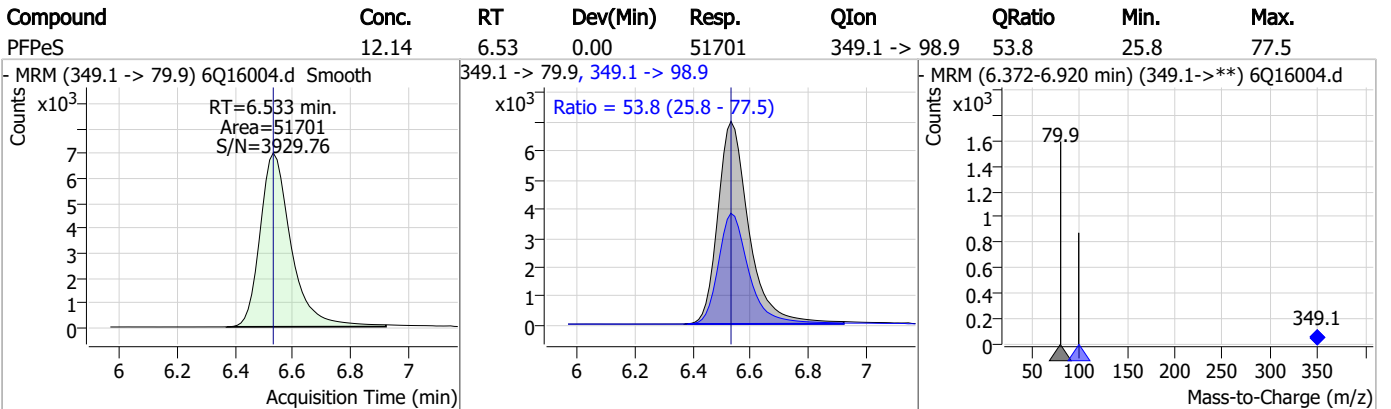
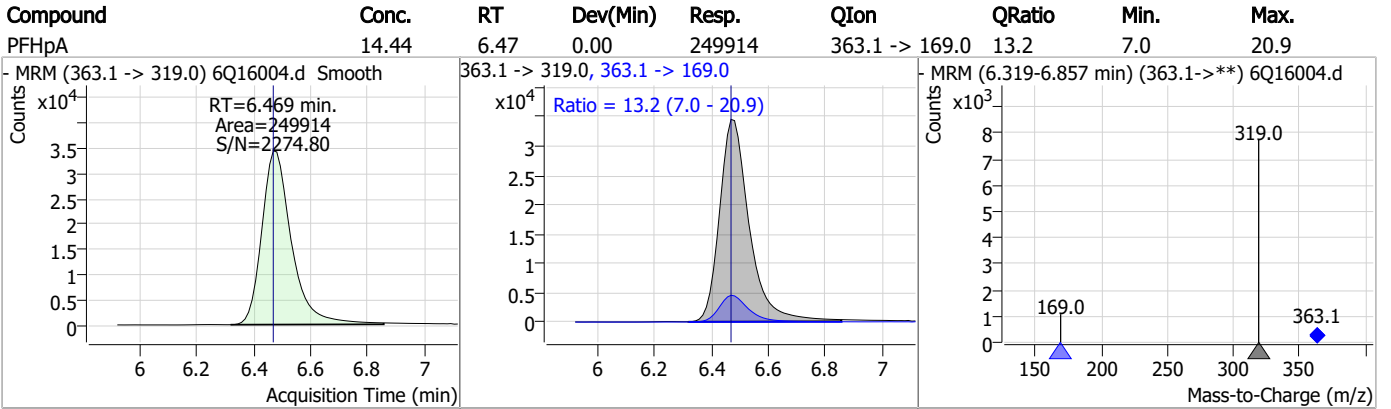
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	321.51	6.20	0.01	833454	341.0 -> 217.0	87.2	43.4	130.3



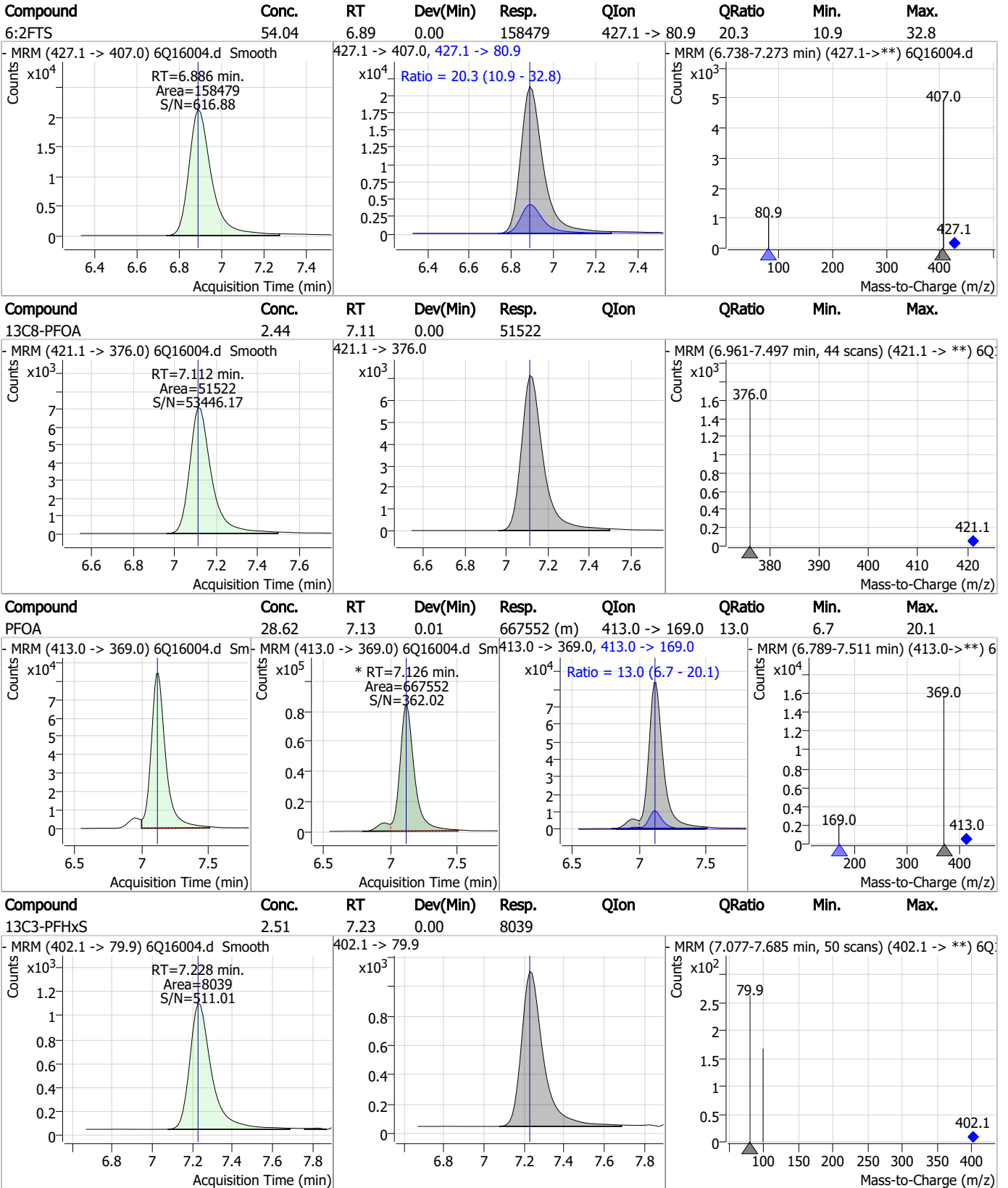
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.46	6.47	0.00	30780	367.1 -> 322.0			



Perfluorinated Compounds by LC/MS/MS



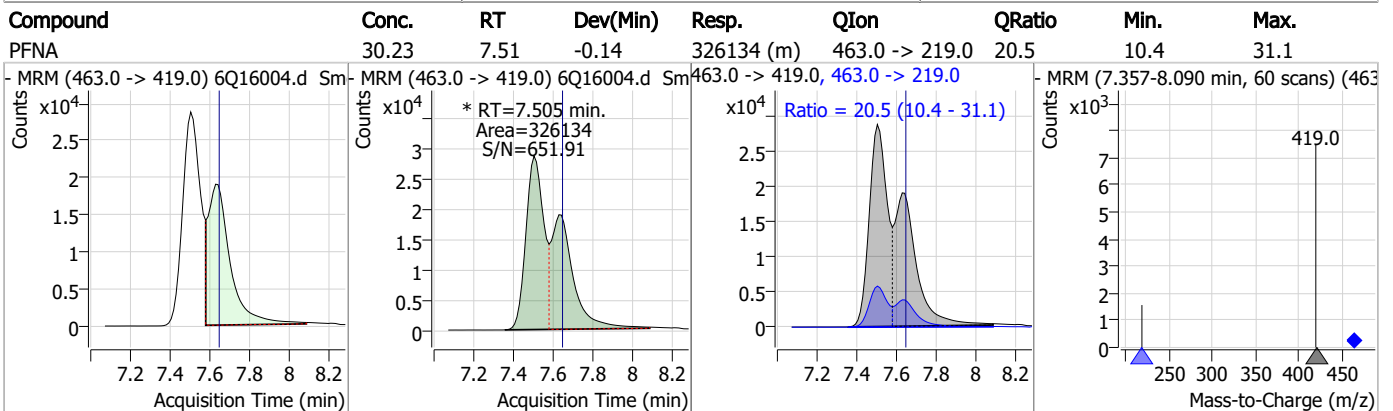
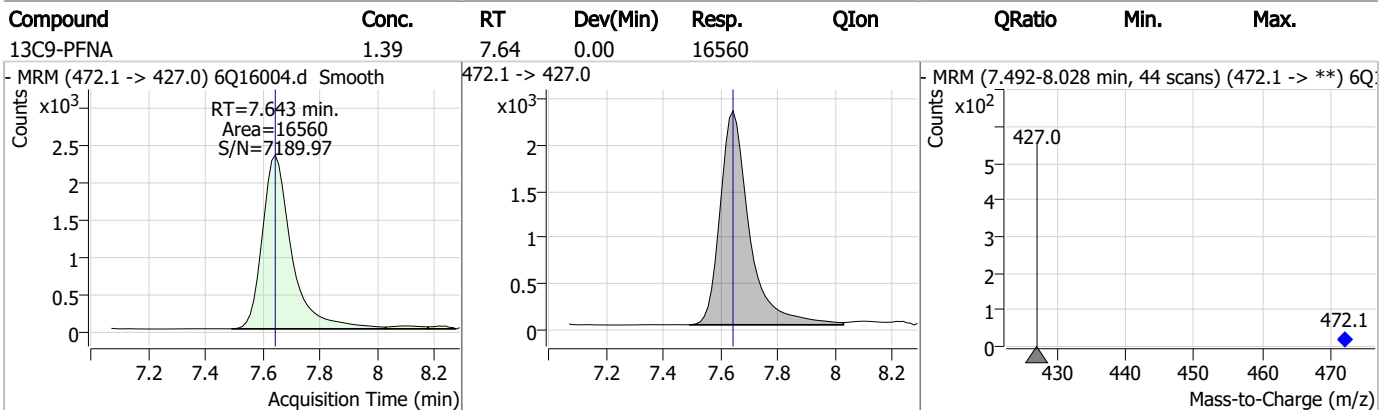
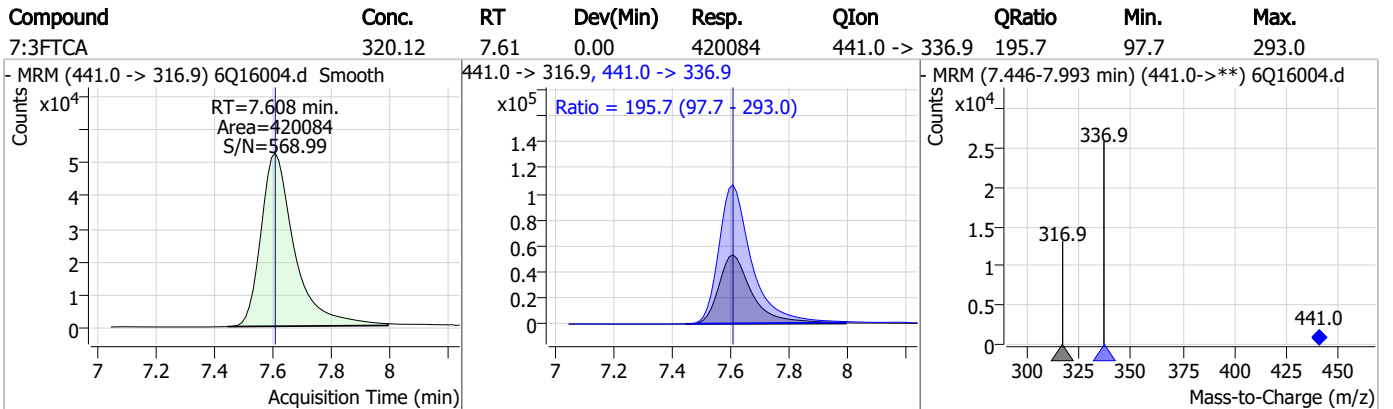
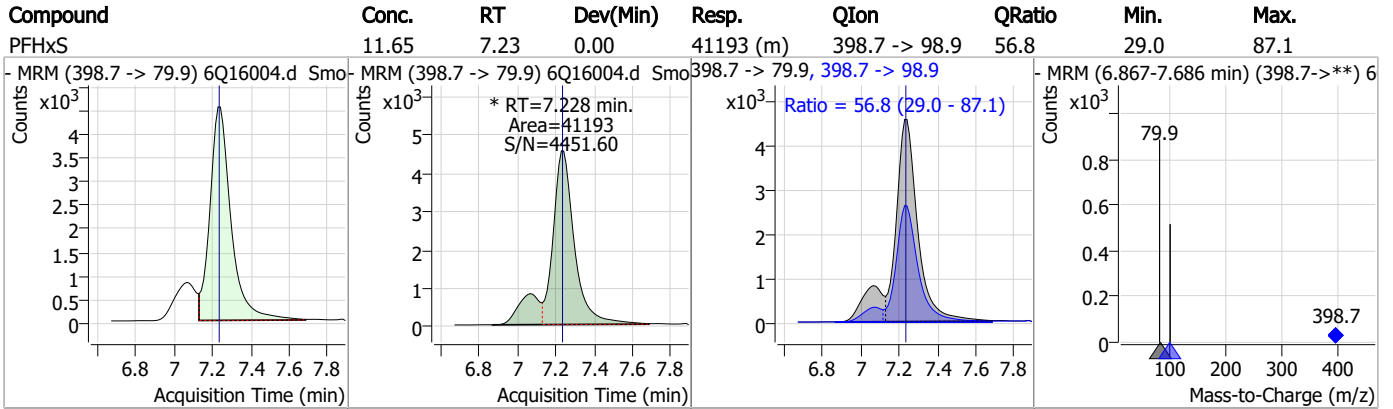
Perfluorinated Compounds by LC/MS/MS



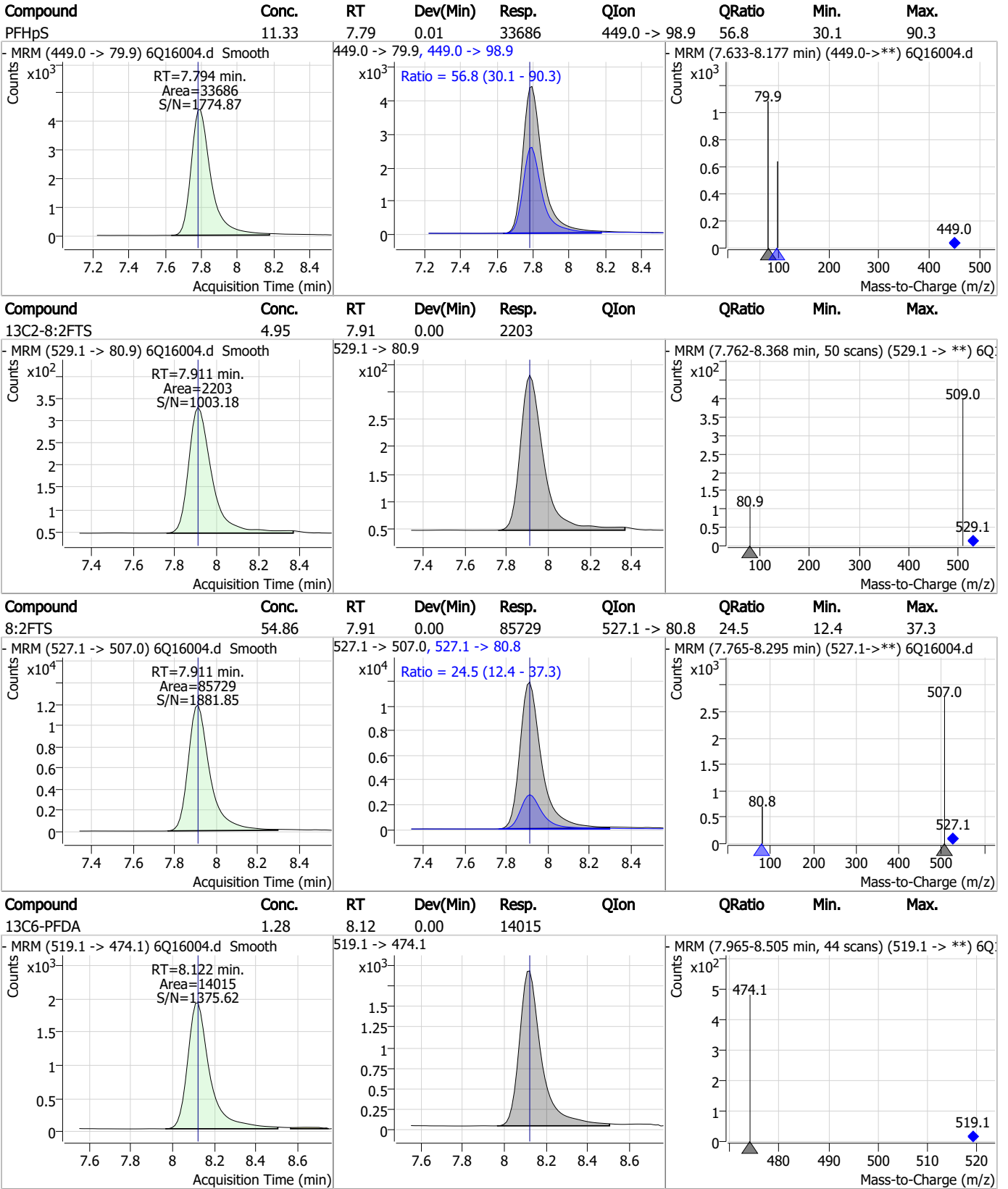
7.5.2

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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

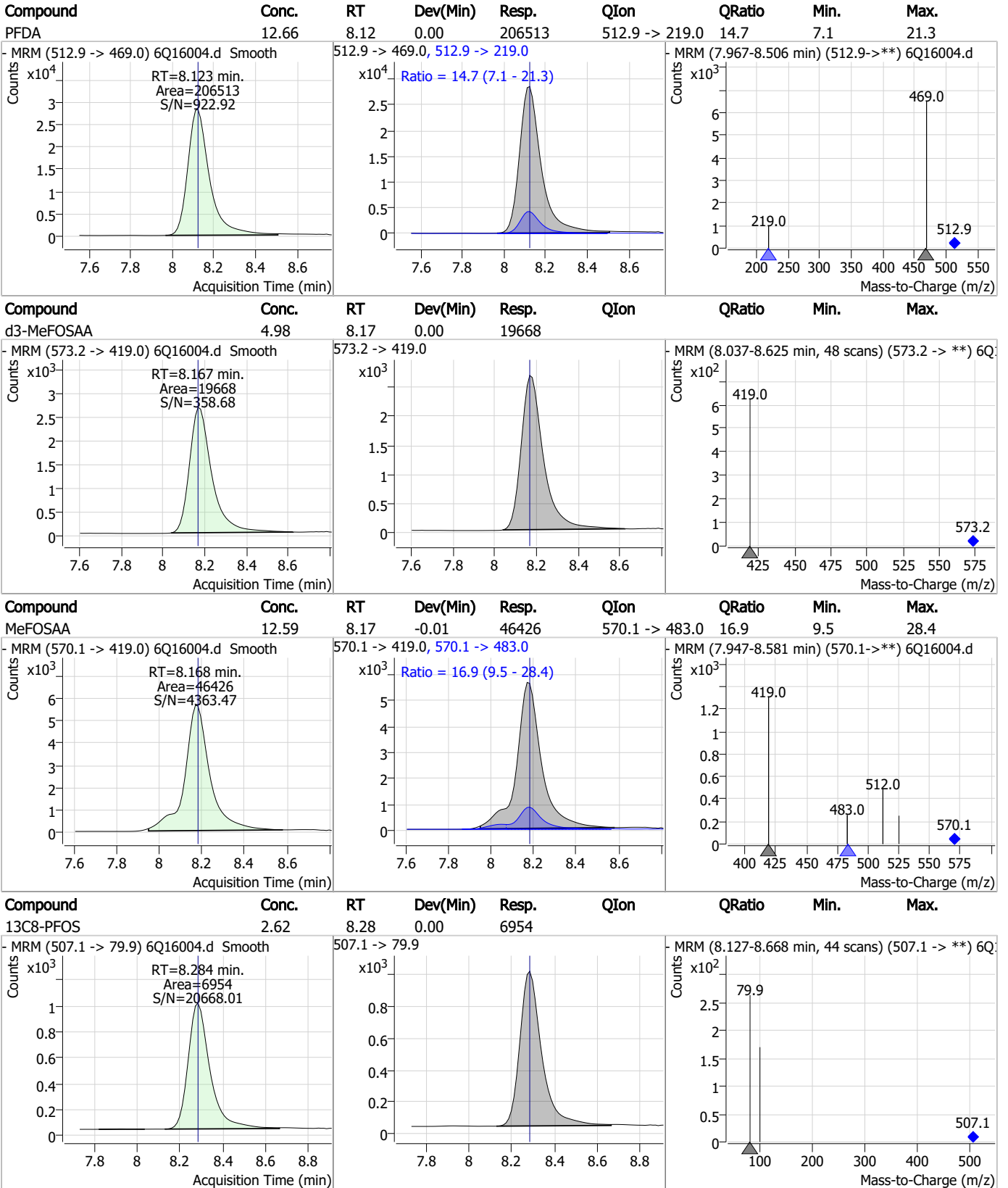


7.5.2

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Perfluorinated Compounds by LC/MS/MS

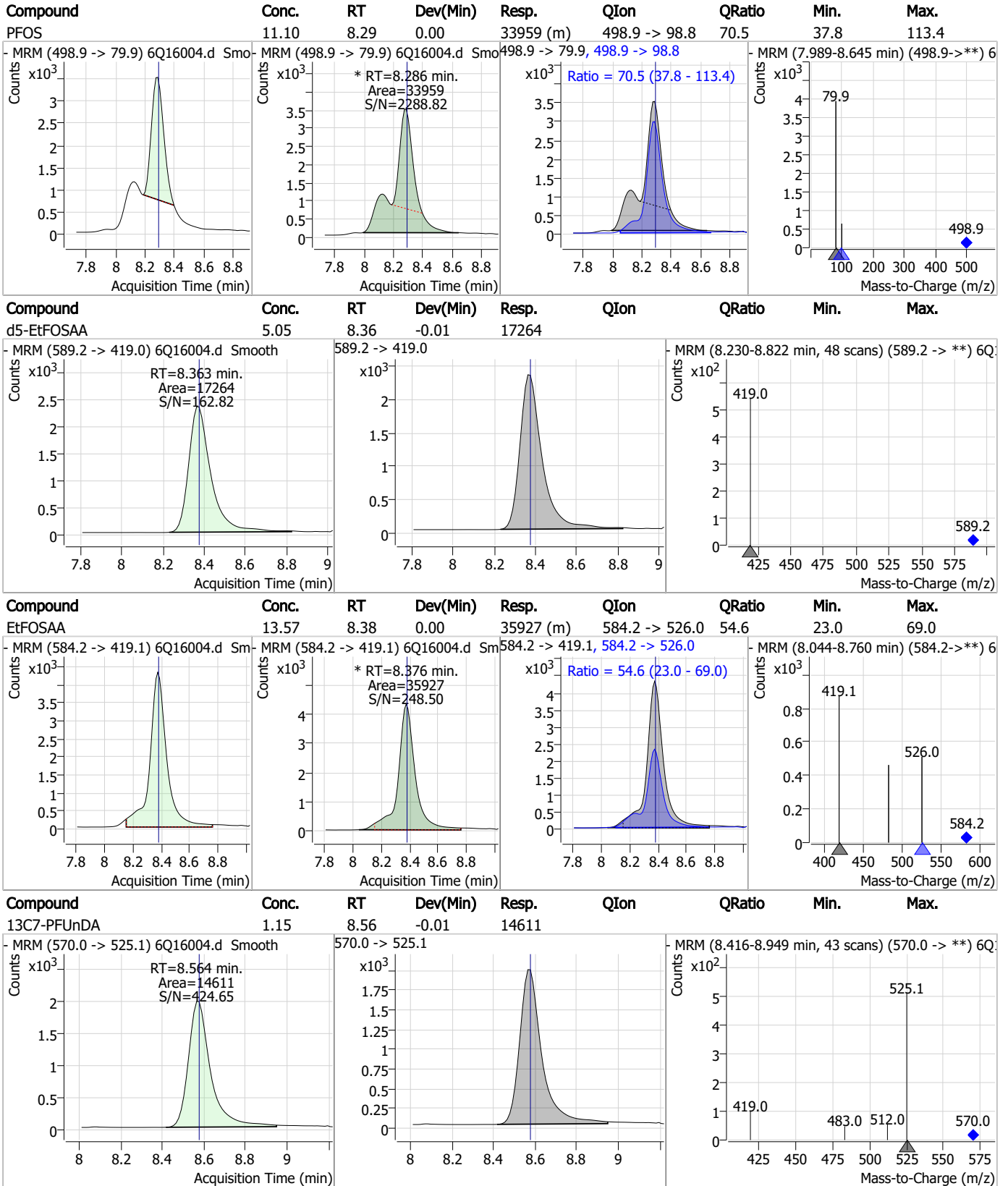


7.5.2

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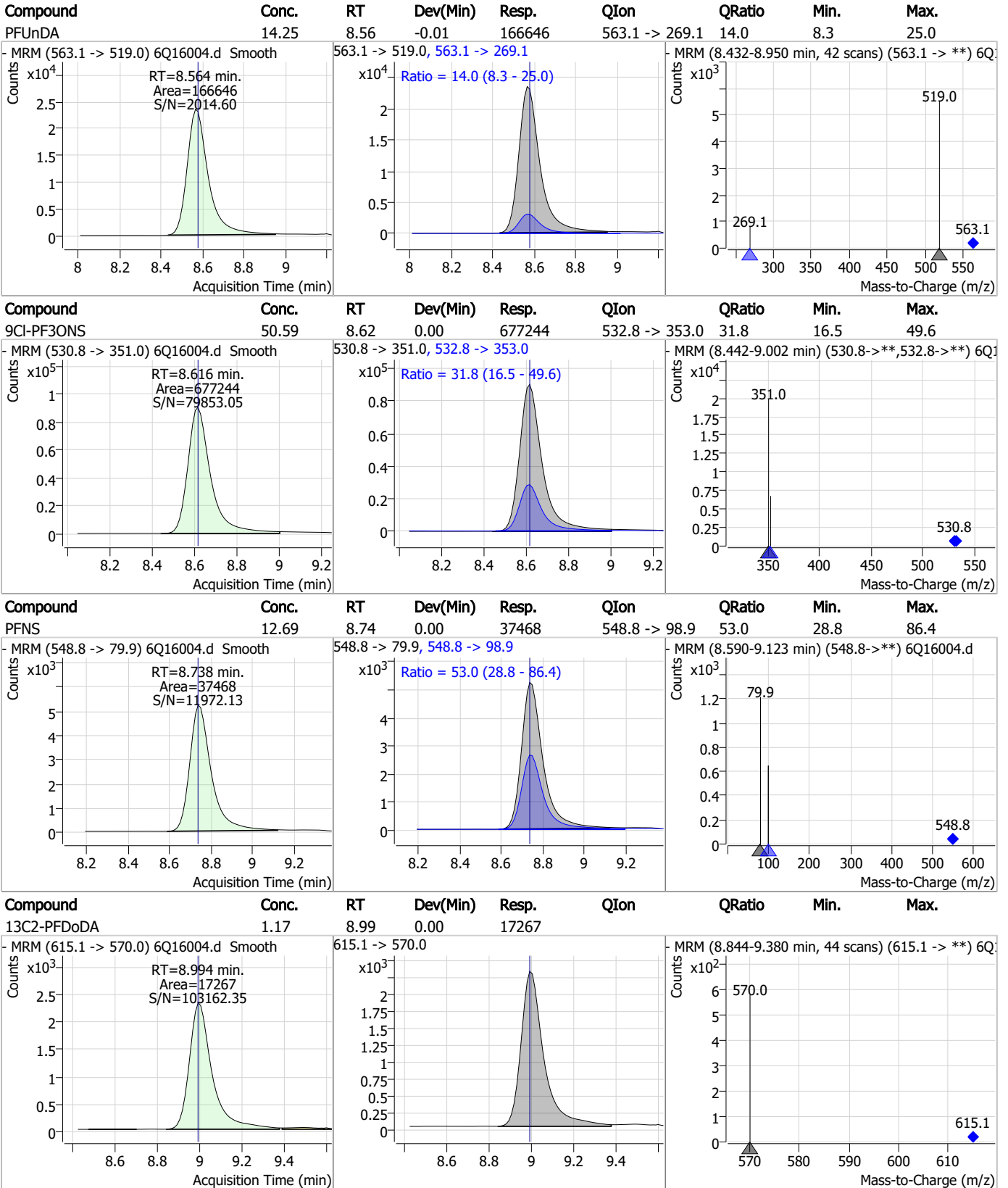
Perfluorinated Compounds by LC/MS/MS



7.5.2

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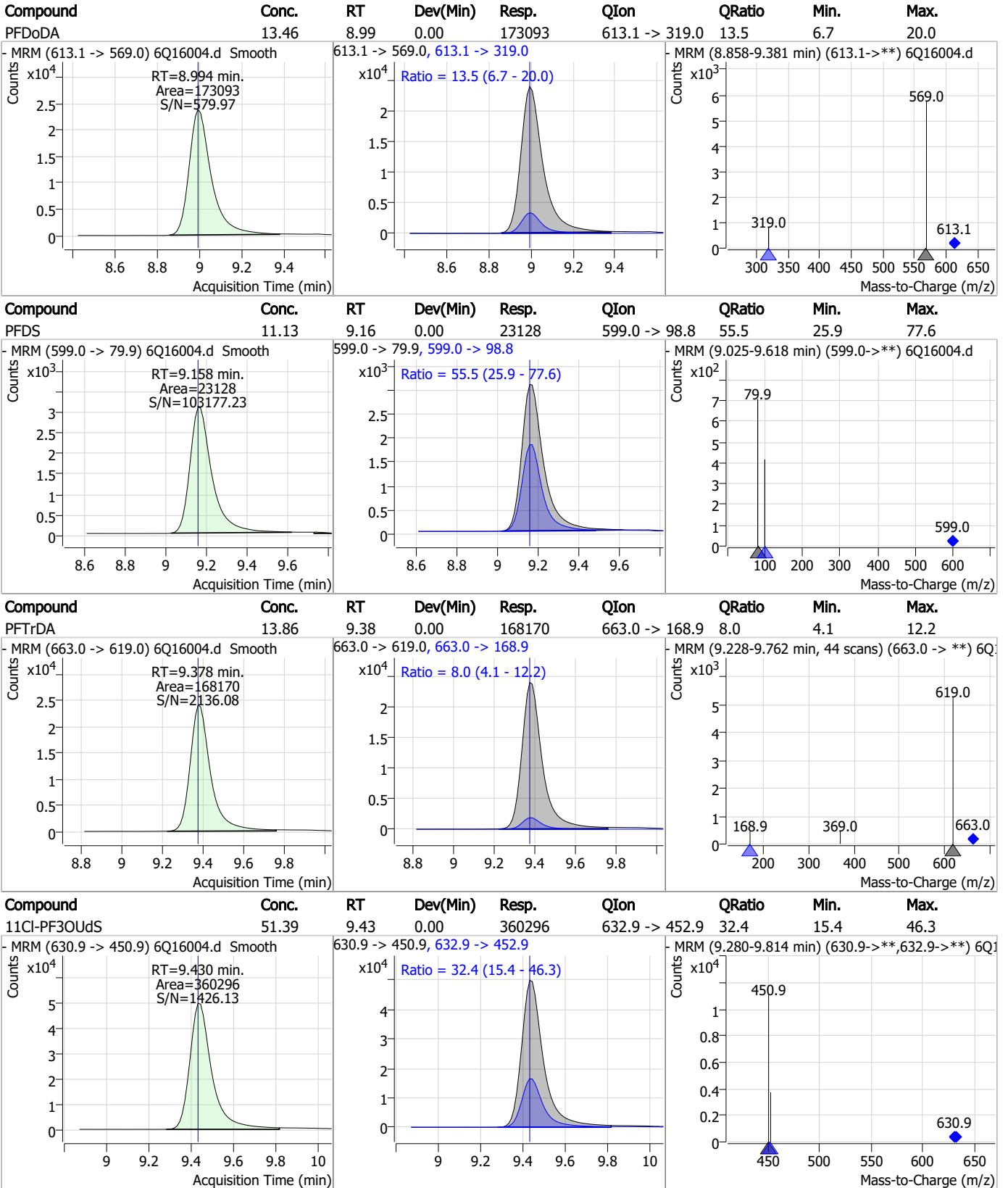
Perfluorinated Compounds by LC/MS/MS



7.5.2

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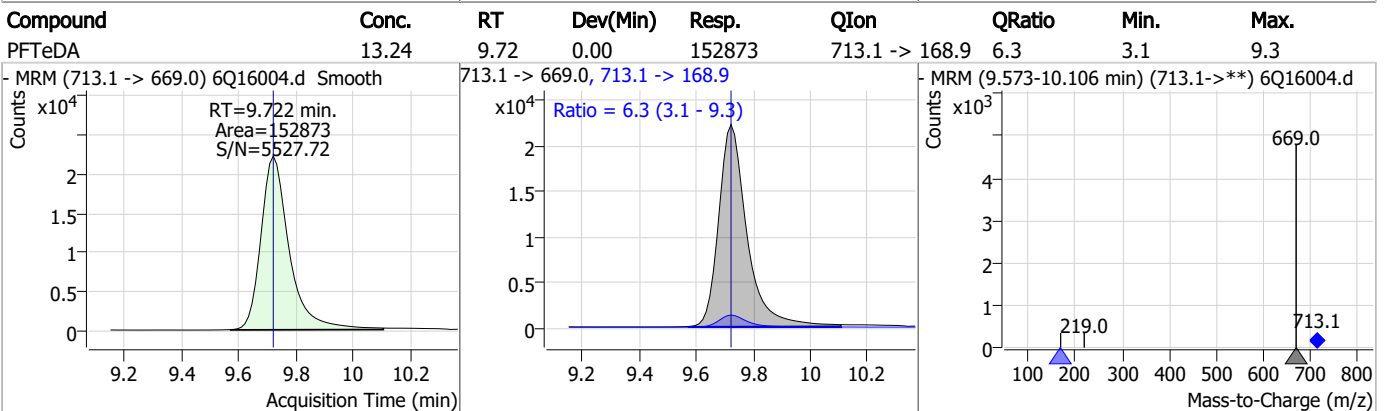
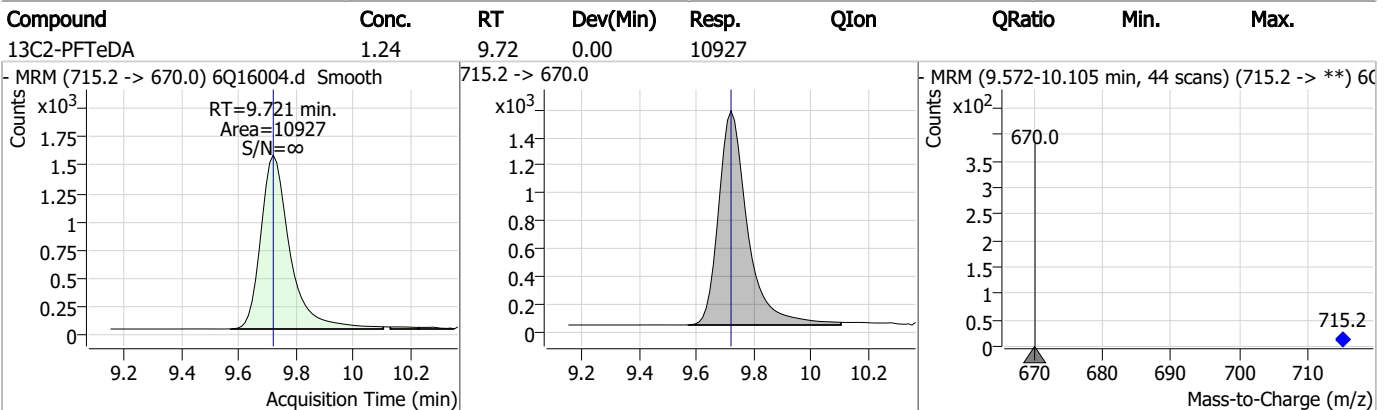
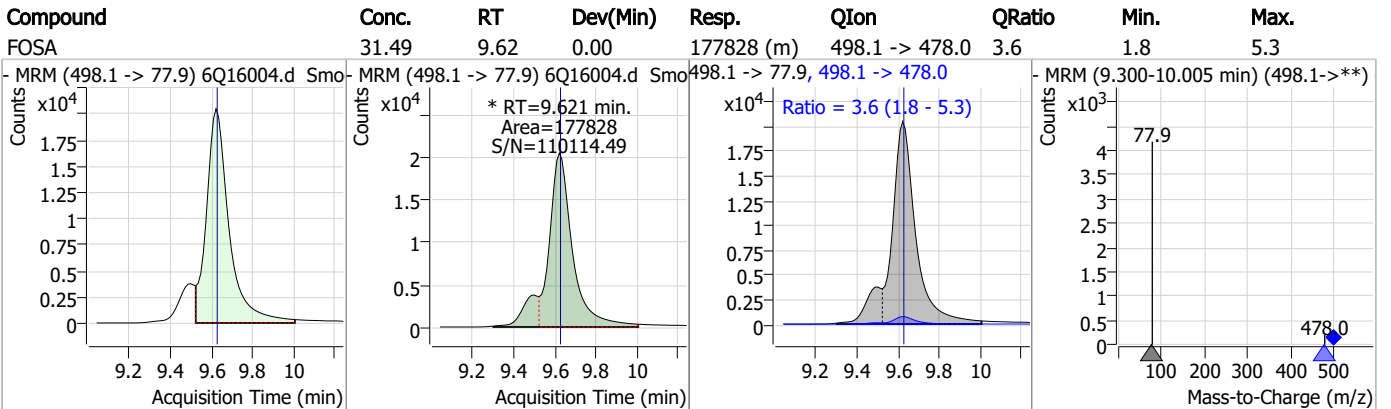
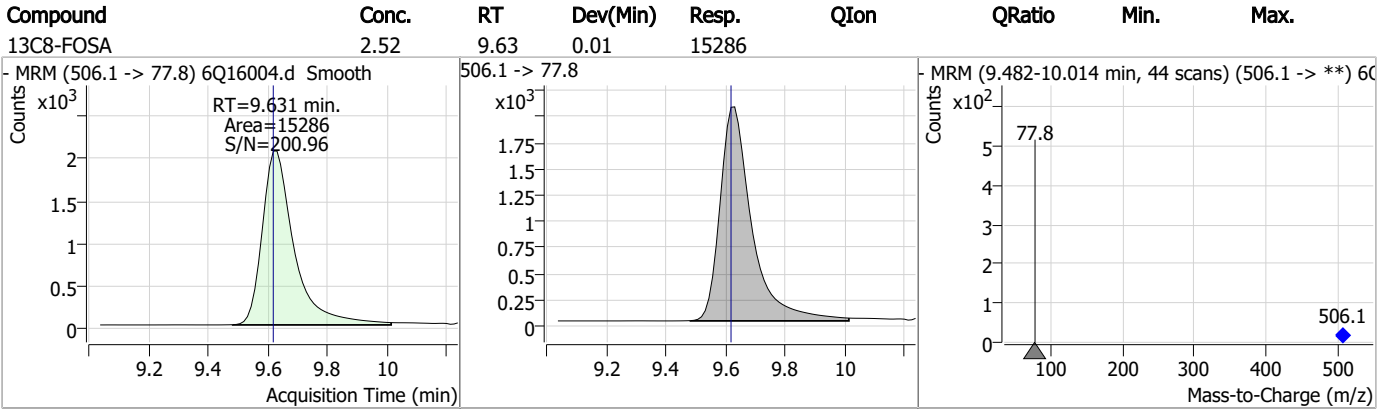
Perfluorinated Compounds by LC/MS/MS



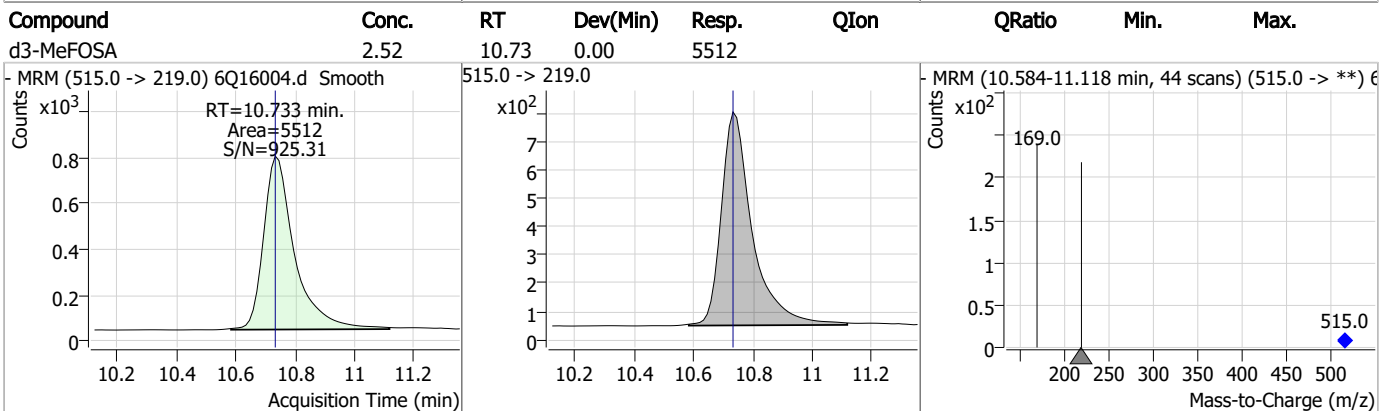
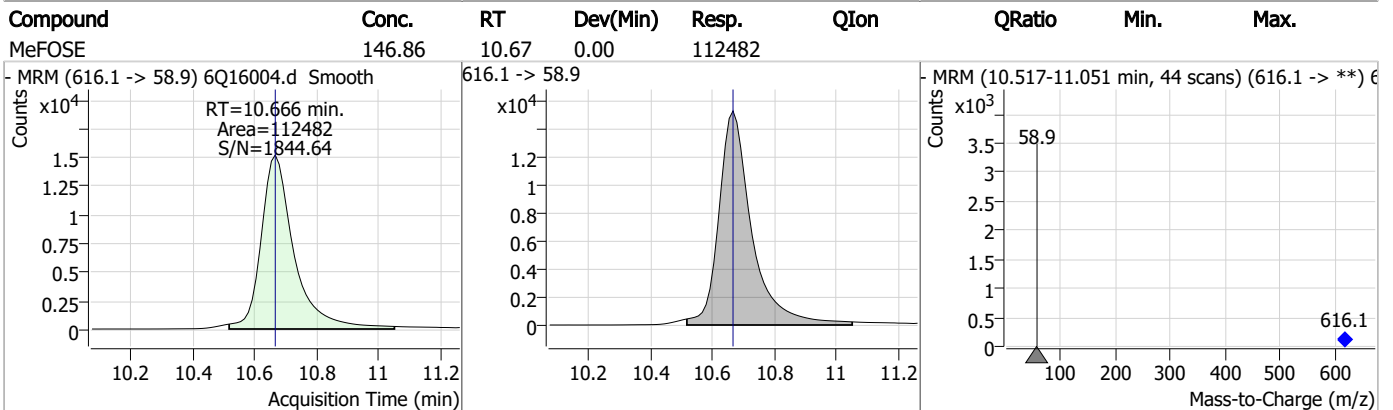
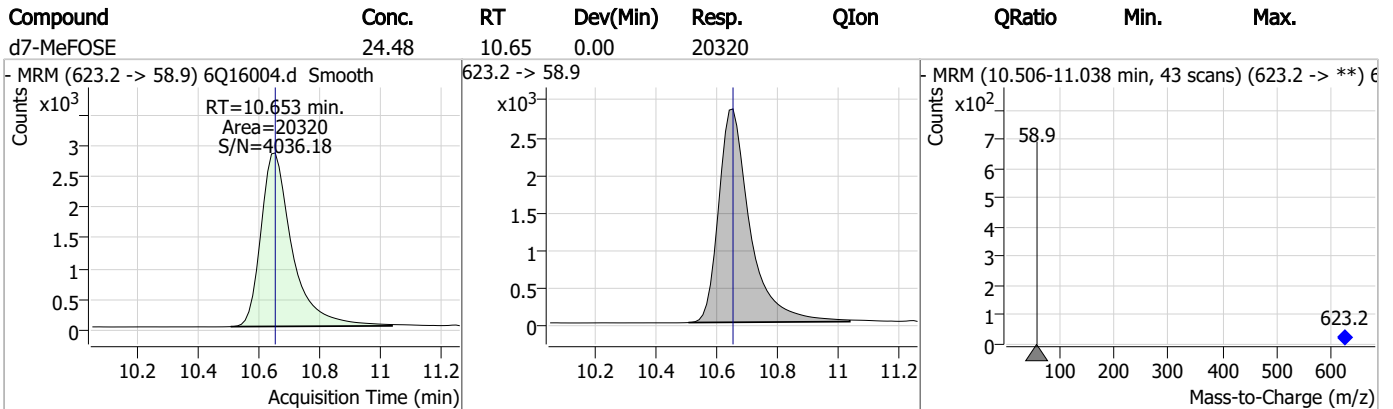
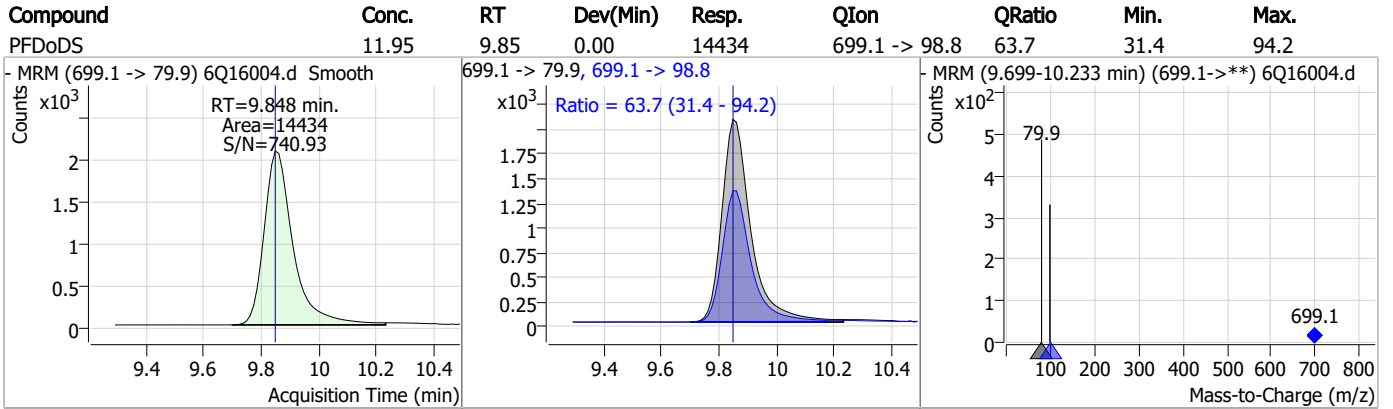
7.5.2

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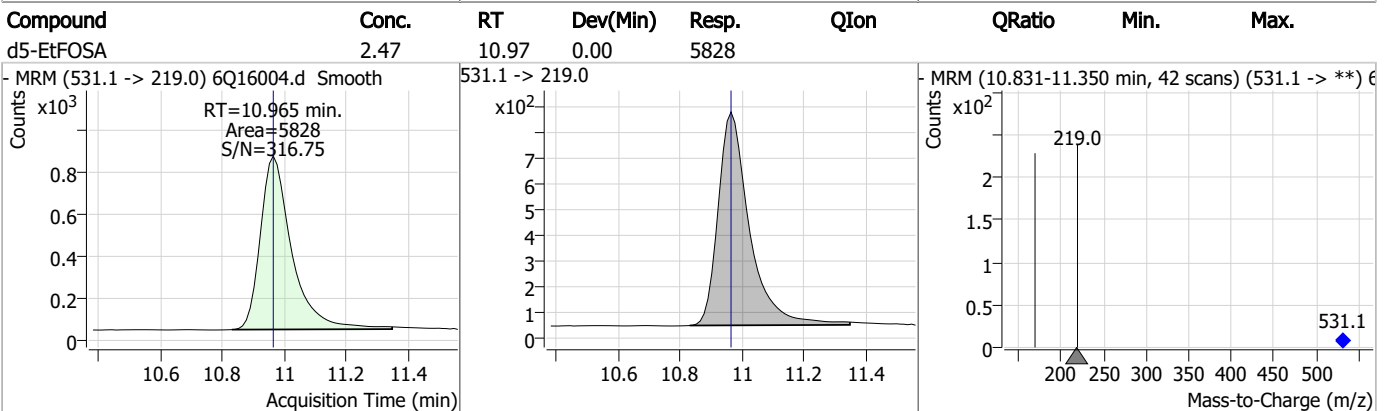
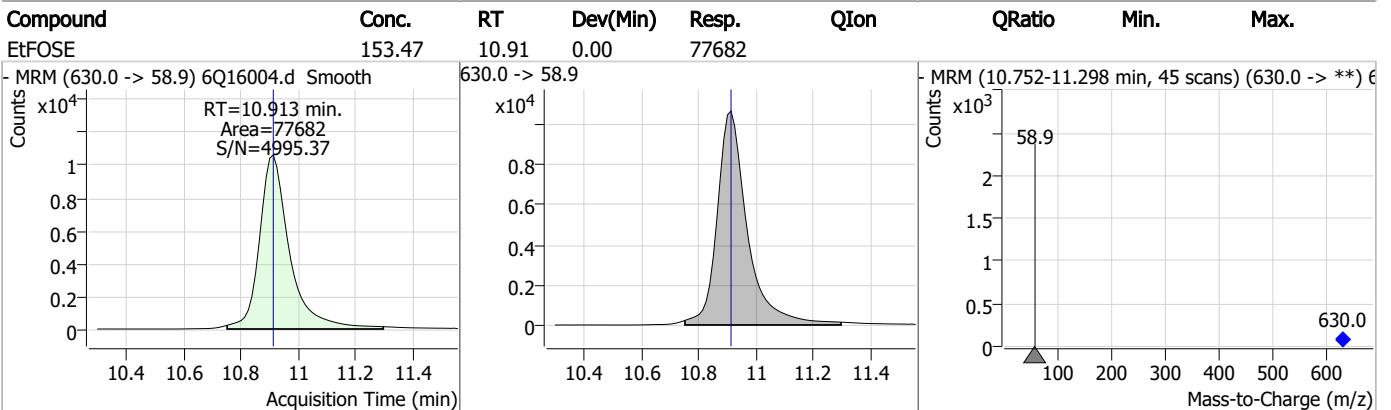
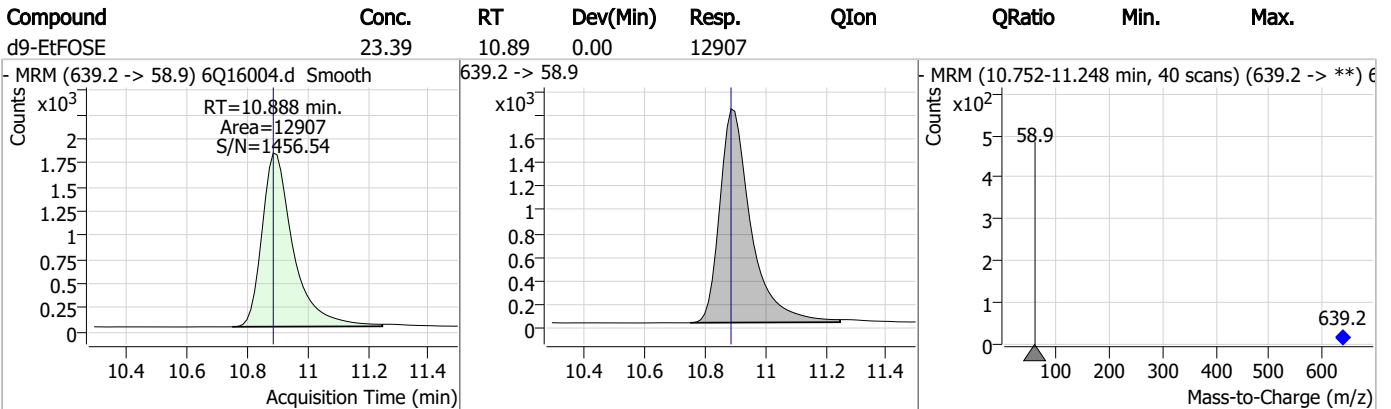
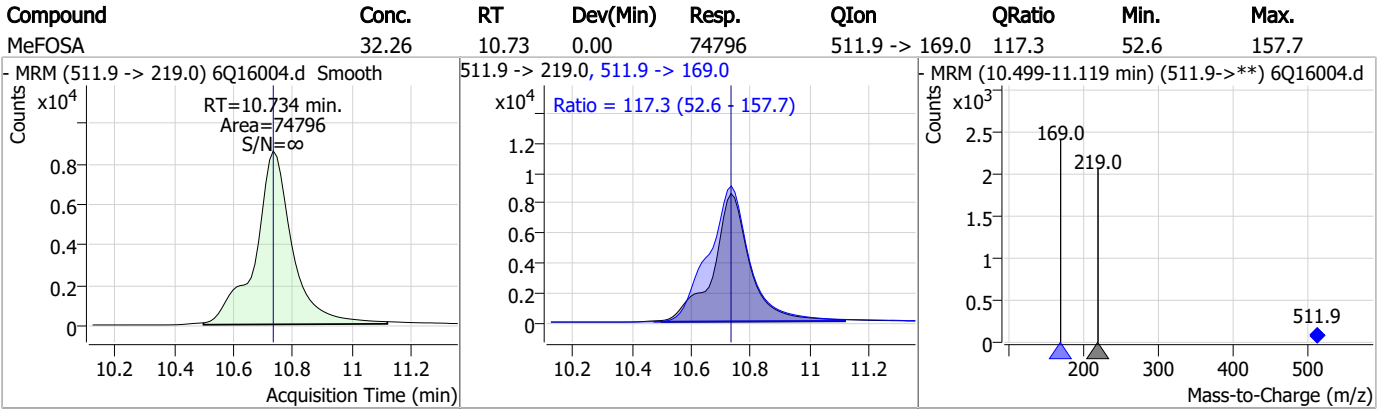
Perfluorinated Compounds by LC/MS/MS



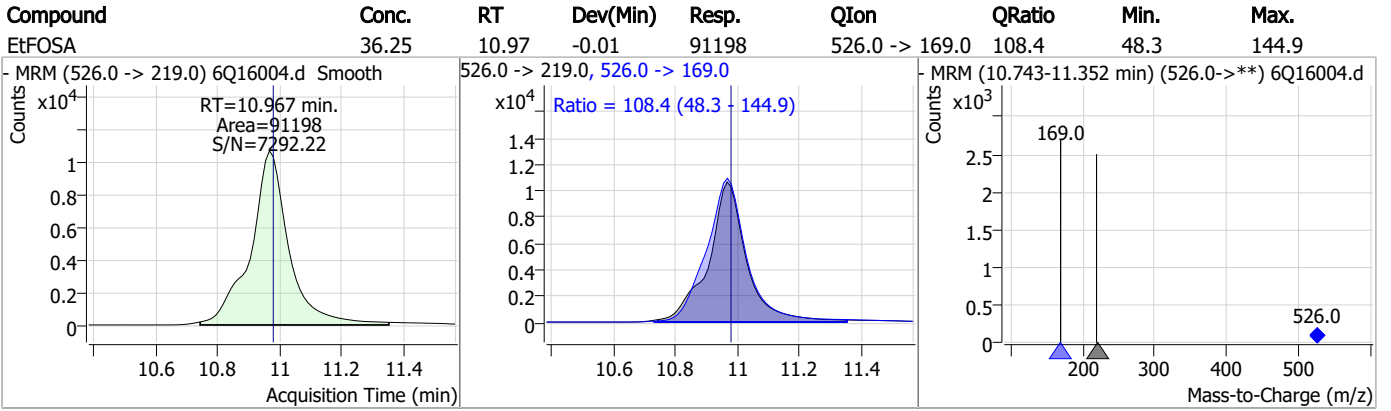
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.5.2

7

Manual Integration Approval Summary

Sample Number: S6Q239-RT Method: EPA DRAFT 1633
Lab FileID: 6Q16004.D Analyst approved: 04/05/23 16:40 Martha Valls
Injection Time: 04/04/23 13:24 Supervisor approved: 04/05/23 17:23 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.13	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
Perfluorononanoic acid	375-95-1		7.50	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.29	Split peak
EtFOSAA	2991-50-6		8.38	Split peak
PFOSA	754-91-6		9.62	Split peak

7.5.2.1
7

Manual Integrations
APPROVED
 (compounds with "m" flag)
 Natasha Gumtie
 04/06/23 14:43

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16102.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/5/2023 1:15:53 PM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s6q240 TDCA.batch.bin
 Sample Information : OP96085,S6Q240,500,,,5.0,1,water

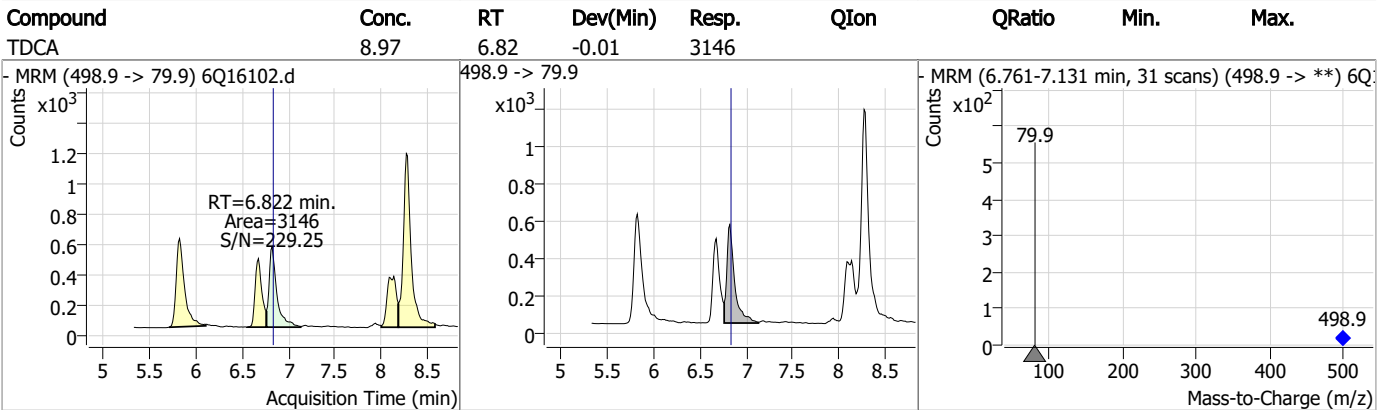
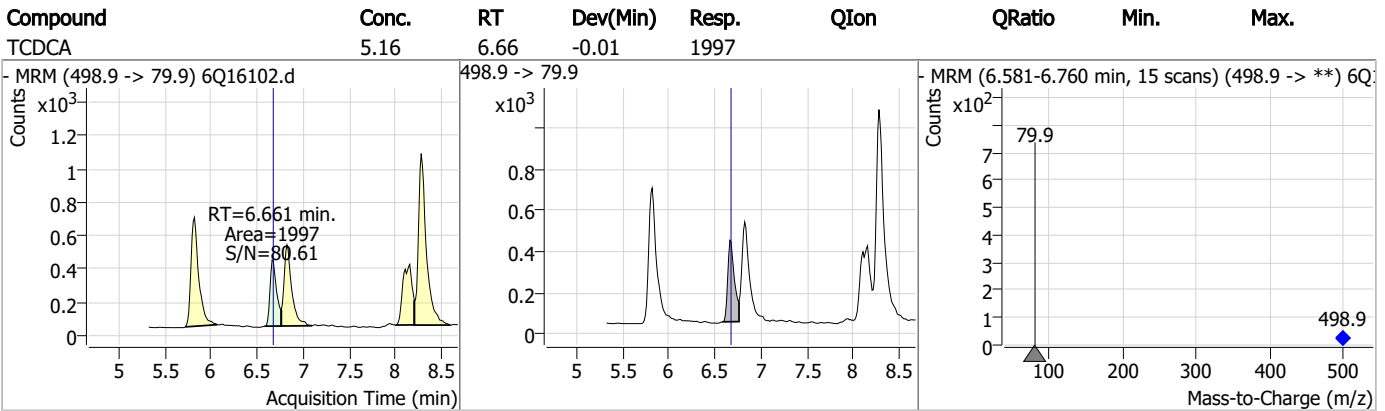
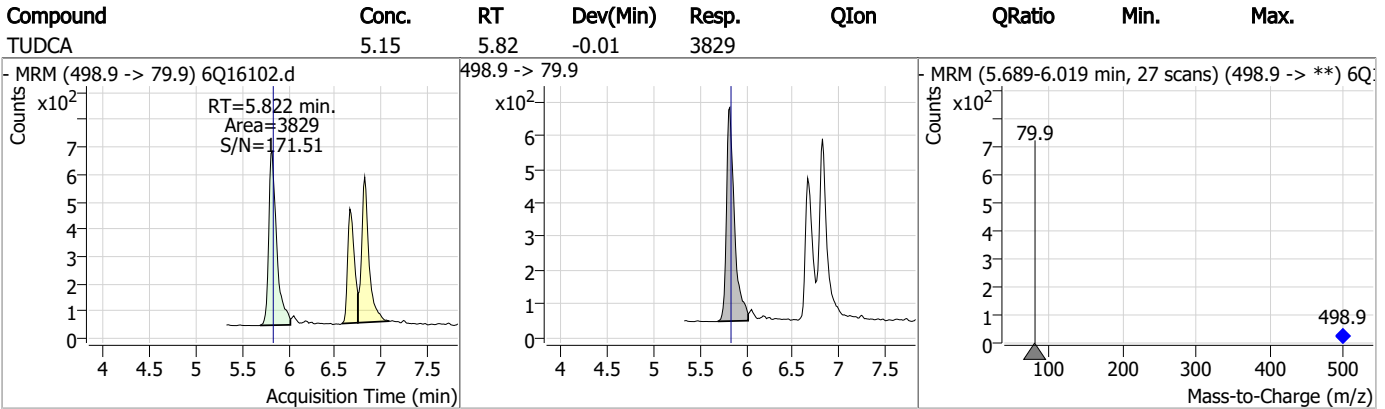
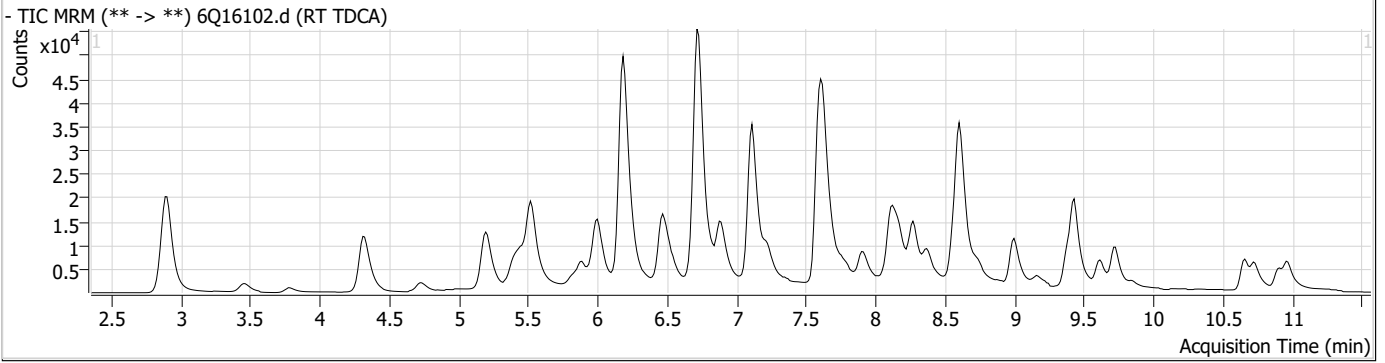
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.284	507.1 -> 79.9	8390	2.50	µg/L	-0.013	
13C4-PFOS	8.273	502.8 -> 79.9	11040	2.50	µg/L	-0.026	
System Monitoring Compounds							
13C8-PFOS	8.284	507.1 -> 79.9	8390	1.93	µg/L	-0.013	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 77.1%				
Target Compounds							
PFOS	8.273	498.9 -> 79.9 498.9 -> 98.8	8927 5488	3.11	µg/L	m	83
TCDCa	6.661	498.9 -> 79.9	1997	5.16	ng/ml		100
TDCA	6.822	498.9 -> 79.9	3146	8.97	ng/ml		100
TUDCA	5.822	498.9 -> 79.9	3829	5.15	ng/ml		100

= Qualifier out of range, m = manually integrated, + = Area summed

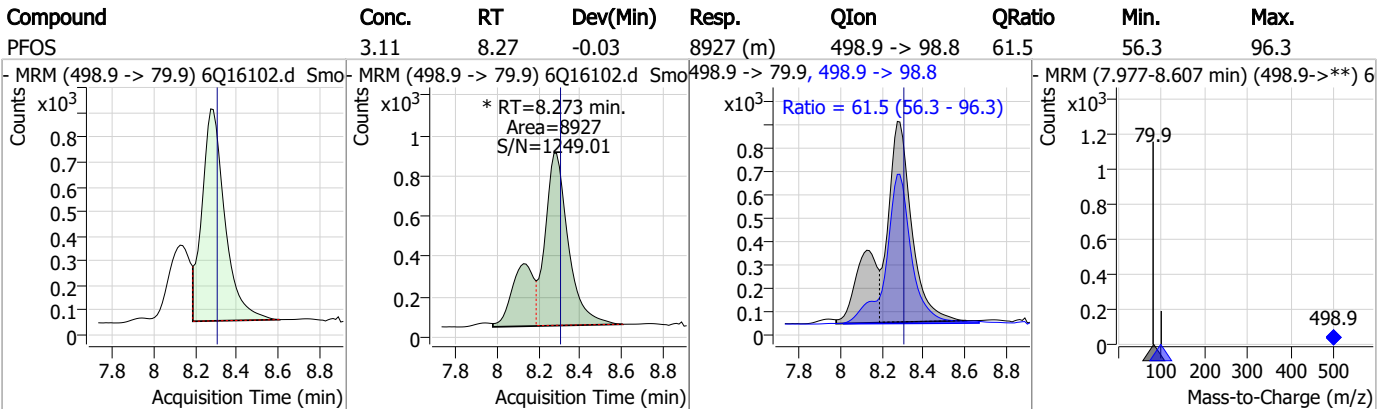
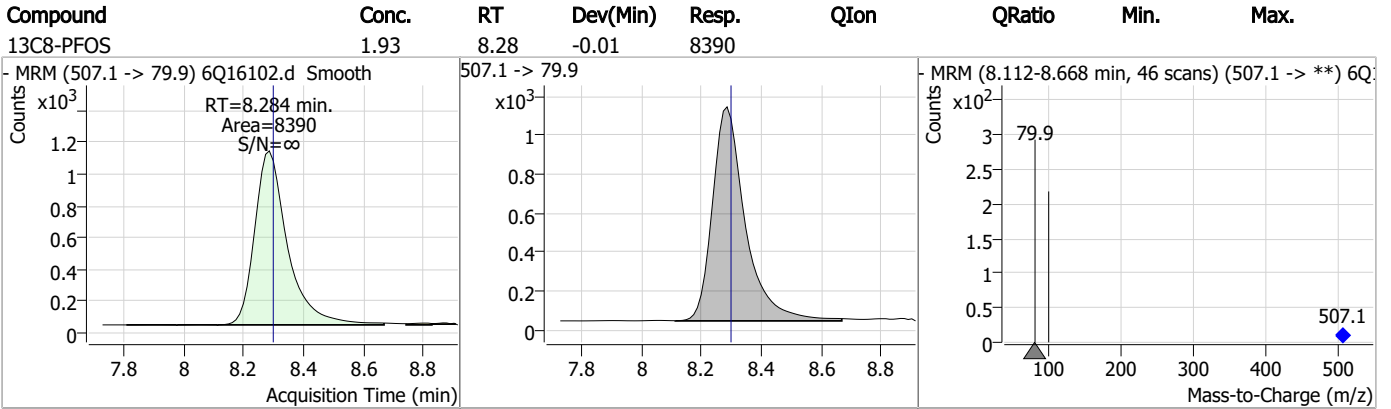
7.5.3

7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.5.3
7

Manual Integration Approval Summary

Sample Number: S6Q240-RT Method: EPA DRAFT 1633
Lab FileID: 6Q16102.D Analyst approved: 04/06/23 11:16 Martha Valls
Injection Time: 04/05/23 13:15 Supervisor approved: 04/06/23 14:43 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.27	Split peak

7.5.3.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16103.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/5/2023 1:29:52 PM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_040423_S6Q239.quantmethod.xml
 Batch Name : S6Q240.batch.bin
 Sample Information : OP96085,S6Q240,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	71580	10.00 µg/L	0.000
M5-PFPeA	4.322	268.3 -> 223.0	32430	5.00 µg/L	0.000
M5-PFHxA	5.528	318.0 -> 273.0	29671	2.50 µg/L	0.000
M4-PFHpA	6.468	367.1 -> 322.0	28874	2.50 µg/L	0.000
M8-PFOA	7.112	421.1 -> 376.0	46561	2.50 µg/L	0.000
M9-PFNA	7.643	472.1 -> 427.0	14410	1.25 µg/L	0.000
M6-PFDA	8.110	519.1 -> 474.1	13248	1.25 µg/L	-0.012
M7-PFUnDA	8.564	570.0 -> 525.1	14263	1.25 µg/L	-0.012
M2-PFDoDA	8.994	615.1 -> 570.0	15954	1.25 µg/L	0.000
M2-PFTeDA	9.721	715.2 -> 670.0	9561	1.25 µg/L	0.000
M8-FOSA	9.619	506.1 -> 77.8	13507	2.50 µg/L	0.000
M3-PFBS	5.459	302.1 -> 79.9	11229	2.50 µg/L	0.000
M3-PFHxS	7.228	402.1 -> 79.9	7572	2.50 µg/L	0.000
M8-PFOS	8.272	507.1 -> 79.9	6177	2.50 µg/L	-0.012
M2-4:2FTS	5.191	329.1 -> 80.9	1863	5.00 µg/L	0.000
M2-6:2FTS	6.886	429.1 -> 80.9	2371	5.00 µg/L	0.000
M2-8:2FTS	7.911	529.1 -> 80.9	1954	5.00 µg/L	0.000
M3-MeFOSAA	8.167	573.2 -> 419.0	17901	5.00 µg/L	0.000
M3-HFPO-DA	5.893	286.9 -> 168.9	12048	10.00 µg/L	0.000
M5-EtFOSAA	8.363	589.2 -> 419.0	16895	5.00 µg/L	-0.012
M7-MeFOSE	10.653	623.2 -> 58.9	17155	25.00 µg/L	0.000
M9-EtFOSE	10.888	639.2 -> 58.9	11018	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	5180	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	4946	2.50 µg/L	0.000
13C4-PFOS	8.273	502.8 -> 79.9	7886	2.50 µg/L	-0.012
13C3-PFBA	2.902	216.0 -> 172.0	30177	5.00 µg/L	0.000
18O2-PFHxS	7.227	403.0 -> 83.9	5533	2.50 µg/L	0.000
13C4-PFOA	7.112	417.1 -> 372.0	58051	2.50 µg/L	0.000
13C2-PFDA	8.110	515.1 -> 470.1	15765	1.25 µg/L	-0.012
13C5-PFNA	7.643	468.0 -> 423.0	16257	1.25 µg/L	0.000
13C2-PFHxA	5.516	315.1 -> 270.0	28914	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.191	329.1 -> 80.9	1863	5.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C2-6:2FTS	6.886	429.1 -> 80.9	2371	5.19 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.8%		
13C2-8:2FTS	7.911	529.1 -> 80.9	1954	4.44 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 88.8%		
13C2-PFDoDA	8.994	615.1 -> 570.0	15954	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.4%		
13C2-PFTeDA	9.721	715.2 -> 670.0	9561	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.3%		
13C3-PFBS	5.459	302.1 -> 79.9	11229	2.28 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 91.3%		
13C3-PFHxS	7.228	402.1 -> 79.9	7572	2.39 µg/L	0.000

7.5.4
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.6%	
13C4-PFBA	2.897	216.8 -> 171.9	71580	10.15 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C4-PFHpA	6.468	367.1 -> 322.0	28874	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C5-PFHxA	5.528	318.0 -> 273.0	29671	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C5-PFPeA	4.322	268.3 -> 223.0	32430	4.81 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C6-PFDA	8.110	519.1 -> 474.1	13248	1.43 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 114.2%	
13C7-PFUnDA	8.564	570.0 -> 525.1	14263	1.32 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C8-FOSA	9.619	506.1 -> 77.8	13507	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.1%	
13C8-PFOA	7.112	421.1 -> 376.0	46561	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C8-PFOS	8.272	507.1 -> 79.9	6177	2.40 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C9-PFNA	7.643	472.1 -> 427.0	14410	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.9%	
d3-MeFOSAA	8.167	573.2 -> 419.0	17901	4.69 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.8%	
13C3-HFPO-DA	5.893	286.9 -> 168.9	12048	9.56 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.6%	
d3-MeFOSA	10.733	515.0 -> 219.0	4946	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.5%	
d5-EtFOSAA	8.363	589.2 -> 419.0	16895	5.11 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.3%	
d7-MeFOSE	10.653	623.2 -> 58.9	17155	21.37 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 85.5%	
d9-EtFOSE	10.888	639.2 -> 58.9	11018	20.65 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 82.6%	
d5-EtFOSA	10.965	531.1 -> 219.0	5180	2.27 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.9%	
Target Compounds					QValue
4:2FTS	5.192	327.1 -> 307.0	184159	50.47 µg/L	98
		327.1 -> 80.9	41241		
6:2FTS	6.886	427.1 -> 407.0	158205	49.82 µg/L	94
		427.1 -> 80.9	29638		
8:2FTS	7.911	527.1 -> 507.0	79808	57.55 µg/L	99
		527.1 -> 80.8	20155		
EtFOSAA	8.376	584.2 -> 419.1	35922	13.87 µg/L	m 91
		584.2 -> 526.0	18764		
FOSA	9.621	498.1 -> 77.9	158938	31.85 µg/L	m 100
		498.1 -> 478.0	5598		
MeFOSAA	8.168	570.1 -> 419.0	46001	13.71 µg/L	m 98
		570.1 -> 483.0	8344		
PFBA	2.906	212.8 -> 168.9	94677	52.33 µg/L	100
PFBS	5.460	298.7 -> 79.9	53022	12.04 µg/L	100
		298.7 -> 98.8	24564		
PFDA	8.123	512.9 -> 469.0	199258	12.92 µg/L	97
		512.9 -> 219.0	26187		
PFDoDA	8.994	613.1 -> 569.0	162544	13.68 µg/L	97
		613.1 -> 319.0	19472		
PFDS	9.158	599.0 -> 79.9	22966	12.44 µg/L	95

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	12619			
PFHpA	6.469	363.1 -> 319.0	219946	13.55	µg/L	100
		363.1 -> 169.0	30600			
PFHpS	7.781	449.0 -> 79.9	34241	12.97	µg/L	88
		449.0 -> 98.9	17573			
PFHxA	5.519	313.0 -> 269.0	144917	13.23	µg/L	100
		313.0 -> 118.9	5632			
PFHxS	7.228	398.7 -> 79.9	39851	11.97	µg/L	m 92
		398.7 -> 98.9	20865			
PFNA	7.505	463.0 -> 419.0	301037	32.07	µg/L	m 99
		463.0 -> 219.0	63228			
PFNS	8.738	548.8 -> 79.9	32852	12.52	µg/L	100
		548.8 -> 98.9	18953			
PFOA	7.113	413.0 -> 369.0	632717	30.02	µg/L	m 100
		413.0 -> 169.0	83723			
PFOS	8.273	498.9 -> 79.9	29958	11.03	µg/L	m 94
		498.9 -> 98.8	21094			
PFPeA	4.324	263.0 -> 219.0	184977	27.04	µg/L	100
PFPeS	6.533	349.1 -> 79.9	46904	11.69	µg/L	98
		349.1 -> 98.9	24954			
PFTeDA	9.722	713.1 -> 669.0	134836	13.35	µg/L	99
		713.1 -> 168.9	8632			
PFTrDA	9.378	663.0 -> 619.0	155984	13.91	µg/L	99
		663.0 -> 168.9	11974			
PFUnDA	8.564	563.1 -> 519.0	155671	13.63	µg/L	95
		563.1 -> 269.1	22525			
11CI-PF3OUdS	9.430	630.9 -> 450.9	319502	49.33	µg/L	99
		632.9 -> 452.9	100381			
9CI-PF3ONS	8.603	530.8 -> 351.0	632044	51.10	µg/L	100
		532.8 -> 353.0	207459			
ADONA	6.731	376.9 -> 250.9	1242851	50.91	µg/L	100
		376.9 -> 84.8	287777			
HFPO-DA	5.894	284.9 -> 168.9	57071	52.40	µg/L	96
		284.9 -> 184.9	8125			
3:3FTCA	3.790	241.0 -> 177.0	24267	63.92	µg/L	100
		241.0 -> 117.0	3678			
5:3FTCA	6.185	341.0 -> 237.1	749439	309.56	µg/L	90
		341.0 -> 217.0	722530			
7:3FTCA	7.608	441.0 -> 316.9	412349	336.46	µg/L	95
		441.0 -> 336.9	773547			
EtFOSA	10.967	526.0 -> 219.0	78645	35.17	µg/L	85
		526.0 -> 169.0	87621			
EtFOSE	10.913	630.0 -> 58.9	65978	152.69	µg/L	100
MeFOSA	10.734	511.9 -> 219.0	71067	34.16	µg/L	90
		511.9 -> 169.0	82287			
MeFOSE	10.666	616.1 -> 58.9	94343	145.90	µg/L	100
PFDoDS	9.848	699.1 -> 79.9	13033	12.15	µg/L	98
		699.1 -> 98.8	8356			
NFDHA	5.398	295.0 -> 201.0	17276	24.33	µg/L	93
		295.0 -> 84.9	8397			
PFMBA	4.737	279.0 -> 85.1	54984	24.26	µg/L	100
PFMPA	3.463	229.0 -> 84.9	53112	25.68	µg/L	100
PFEESA	5.999	314.8 -> 134.9	369168	23.79	µg/L	100
		314.8 -> 82.9	8965			

= Qualifier out of range, m = manually integrated, + = Area summed

7.5.4
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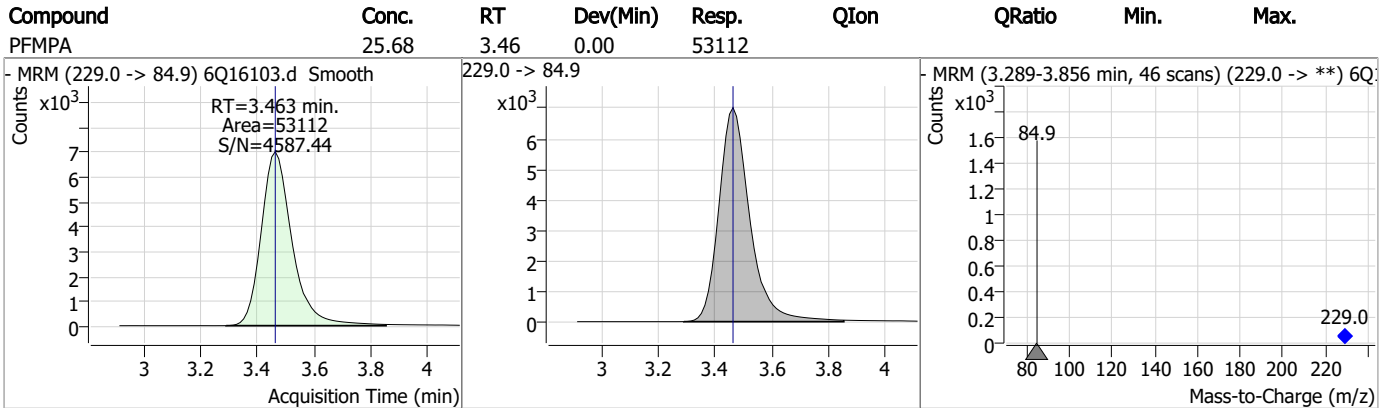
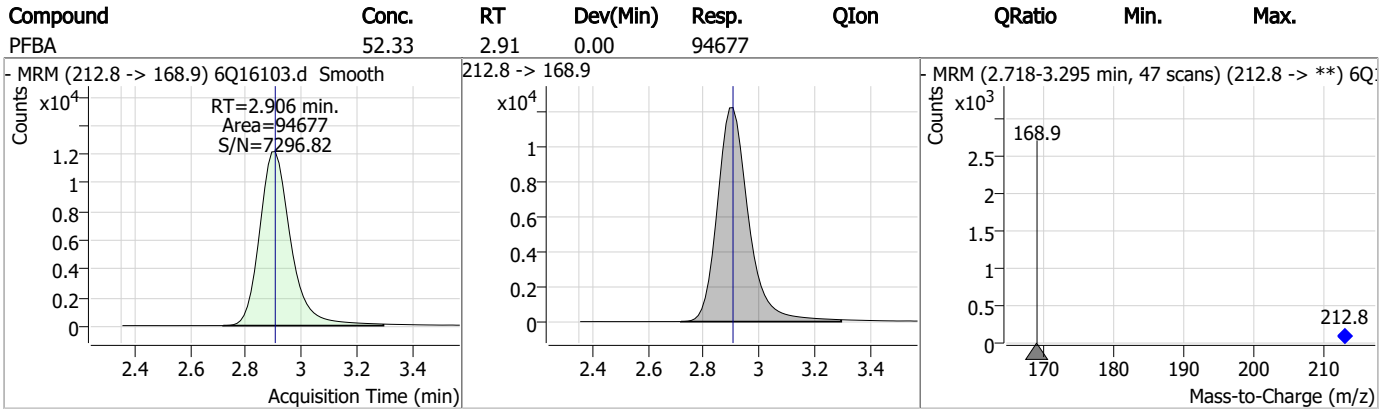
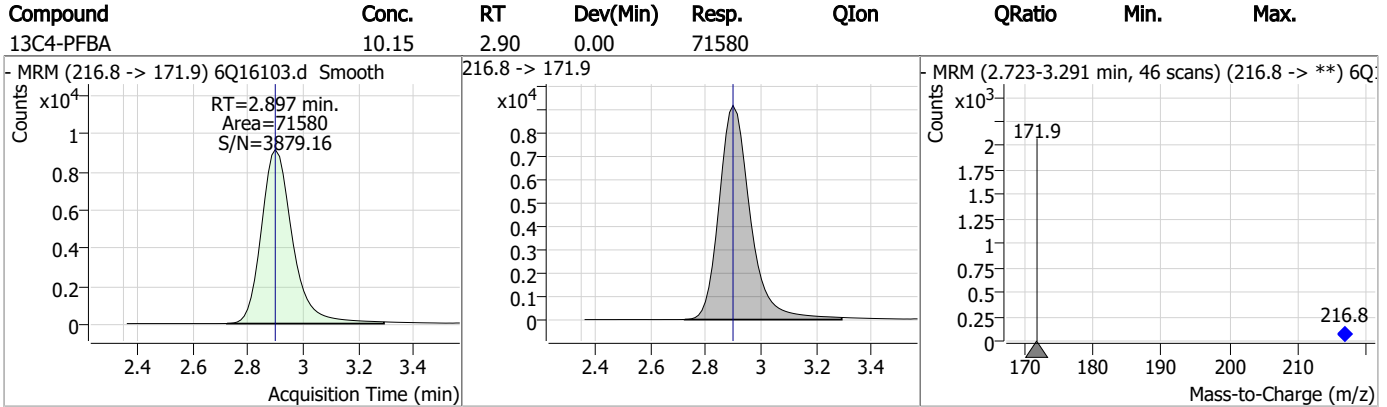
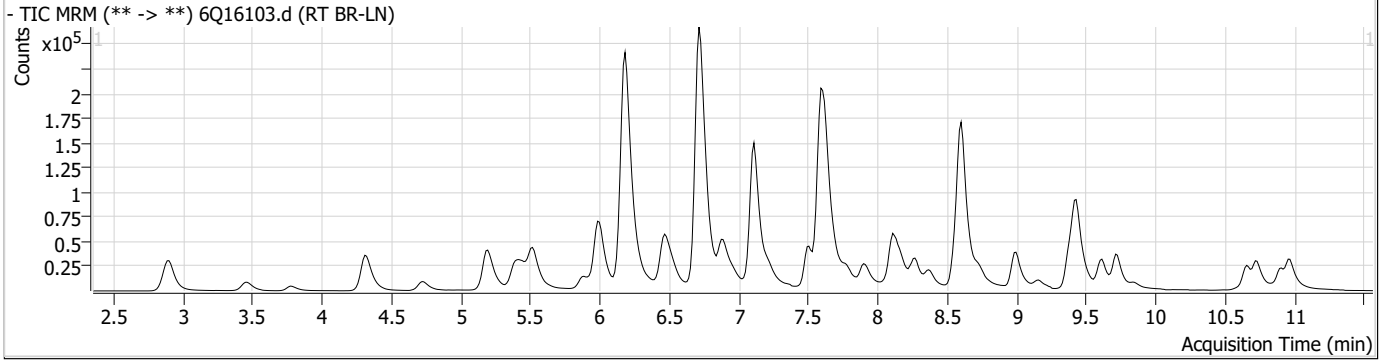
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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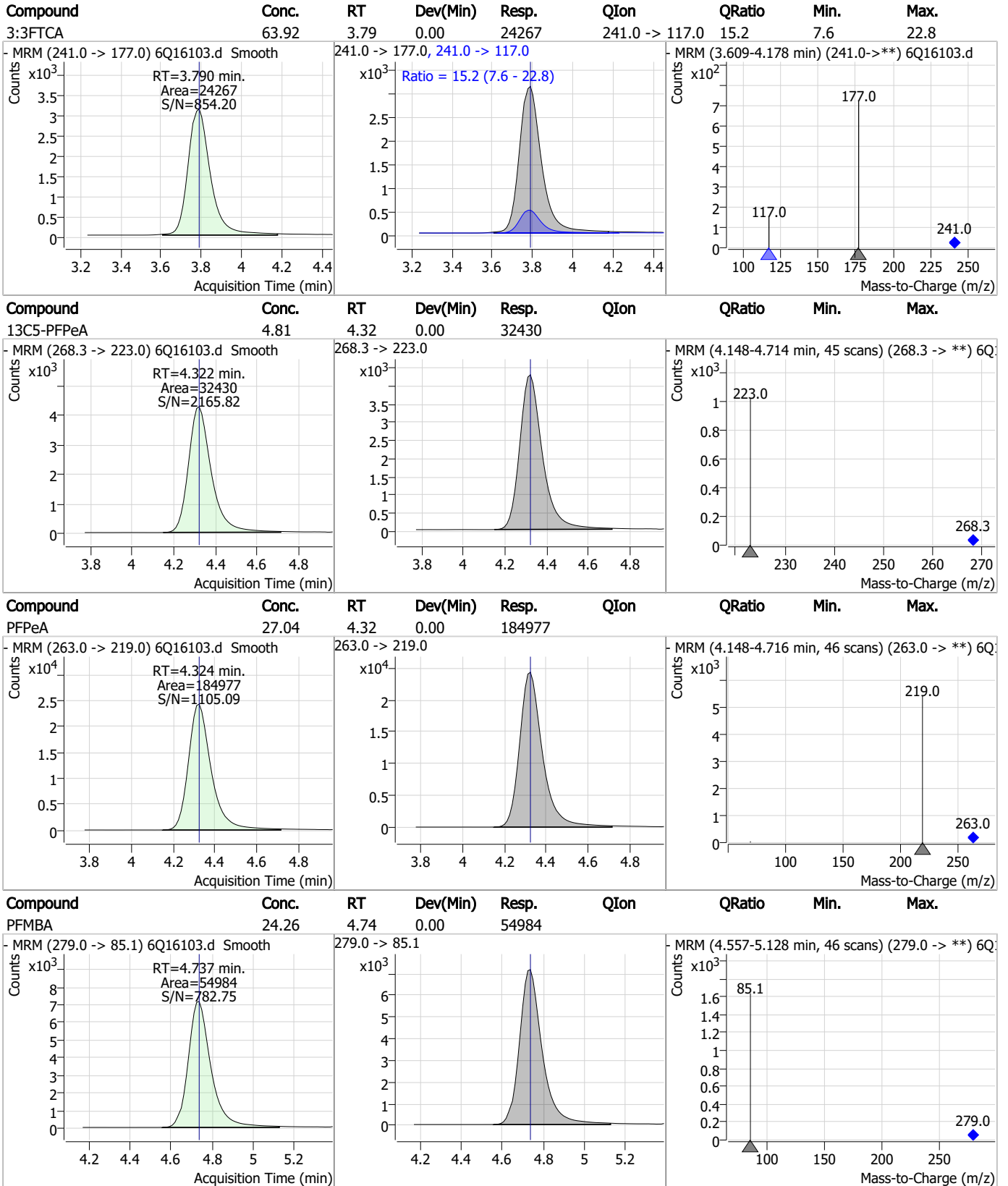
7.5.4

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Perfluorinated Compounds by LC/MS/MS



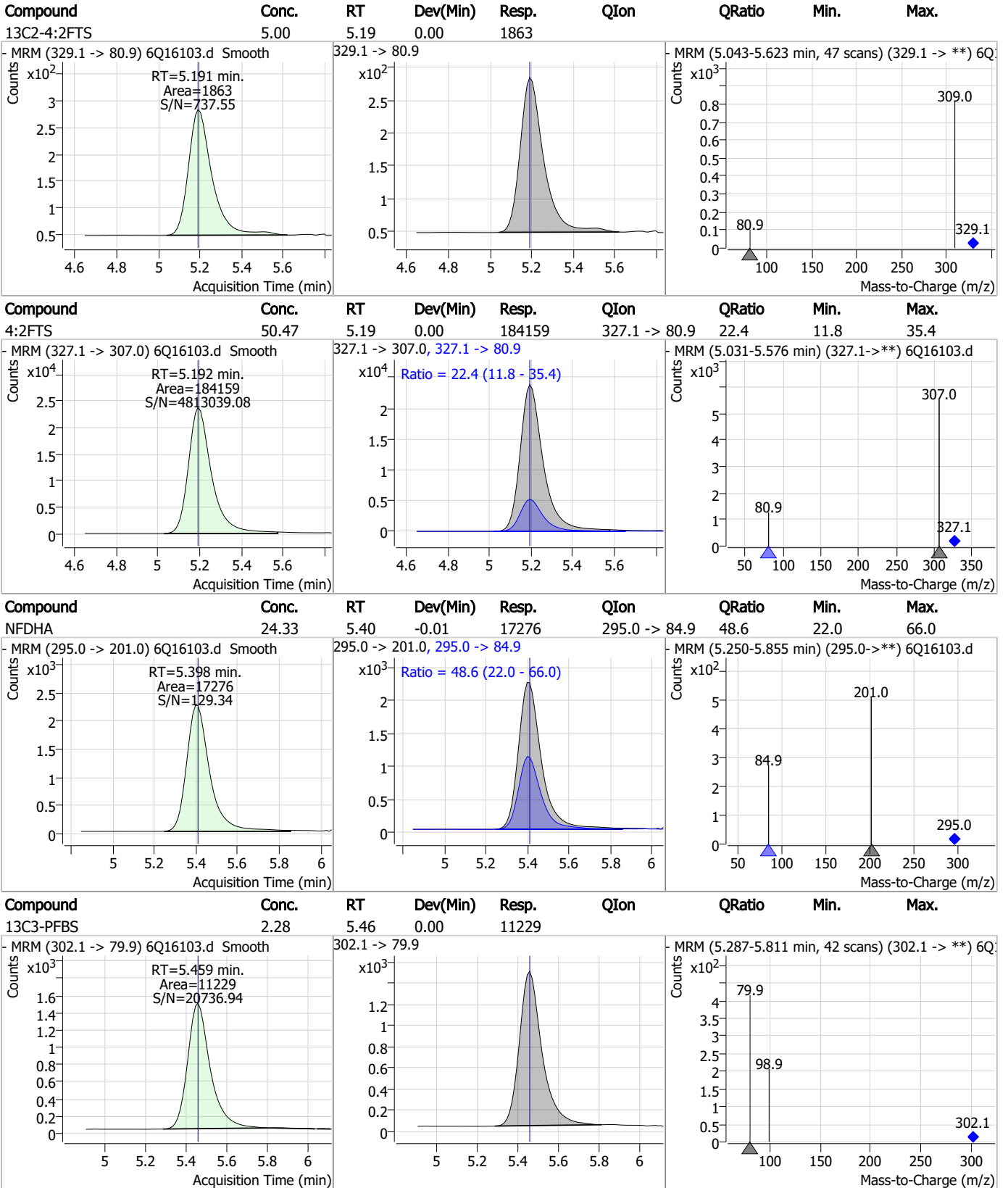
Perfluorinated Compounds by LC/MS/MS



7.5.4

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Perfluorinated Compounds by LC/MS/MS

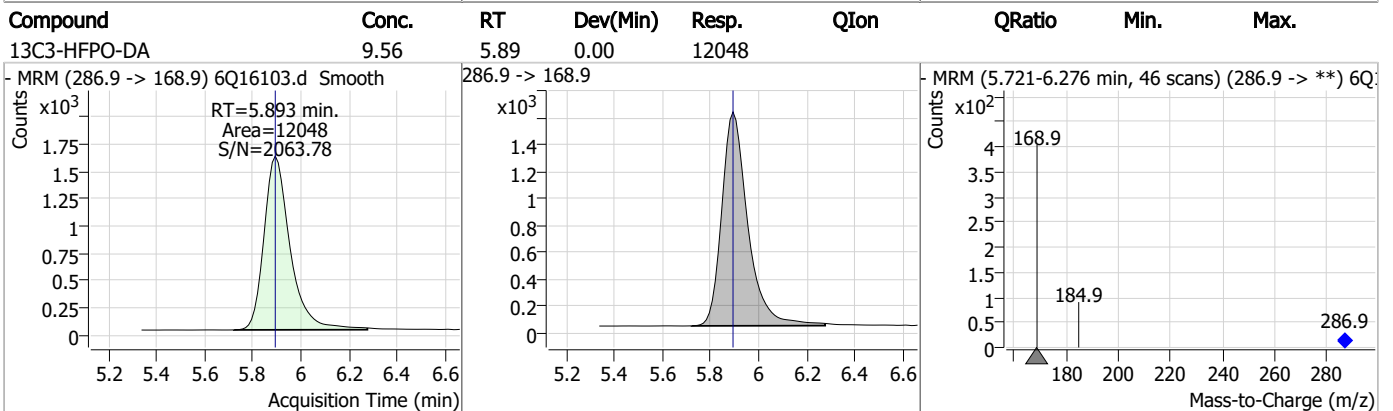
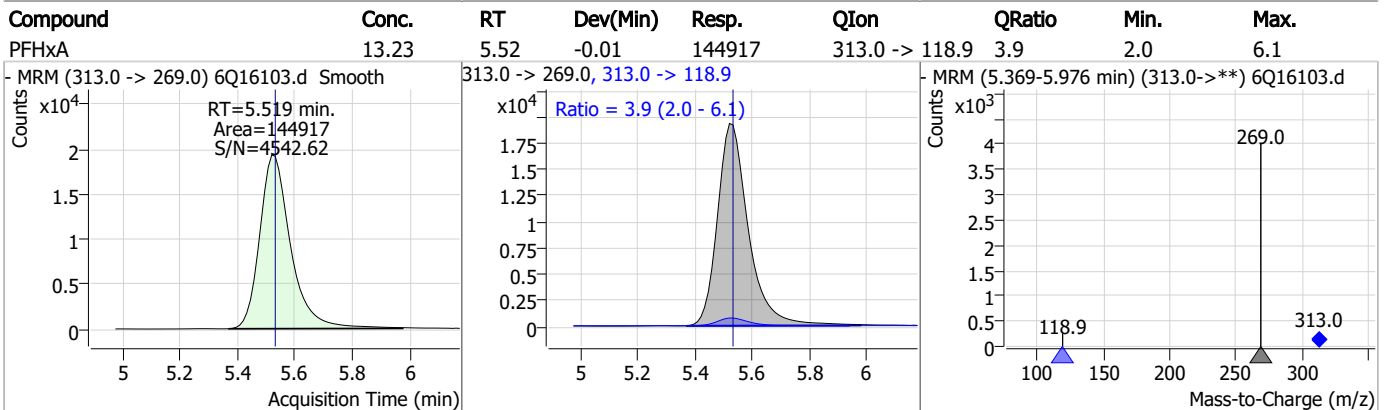
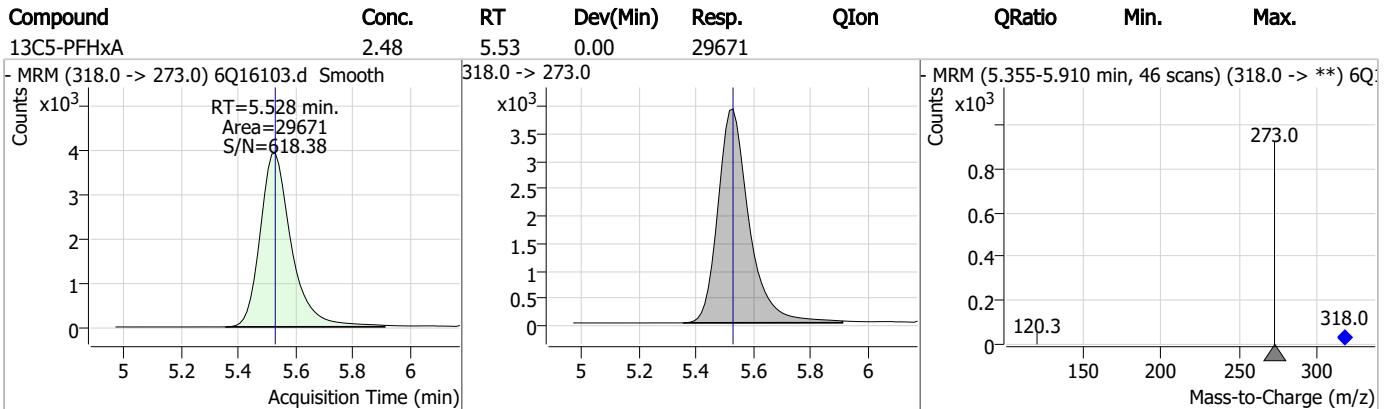
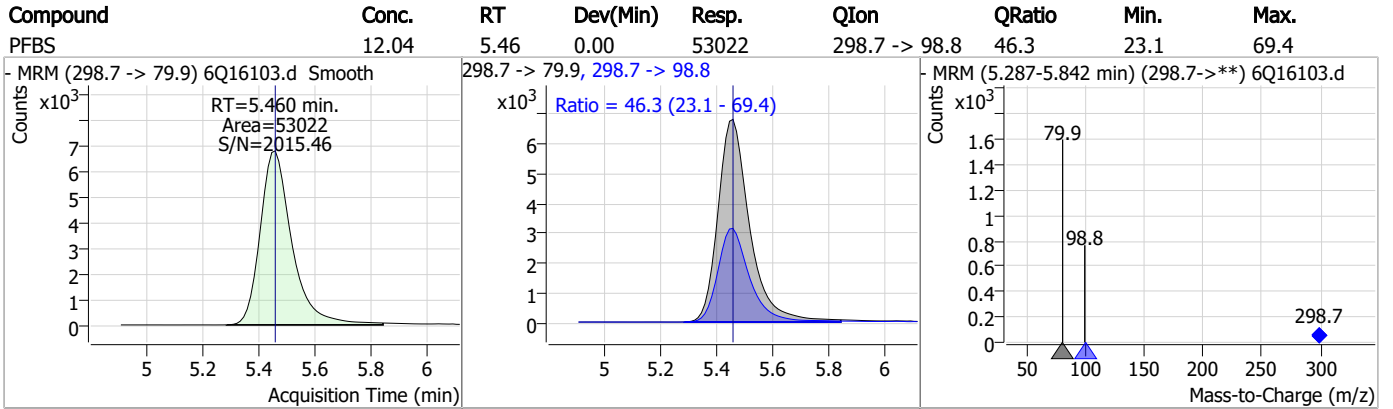


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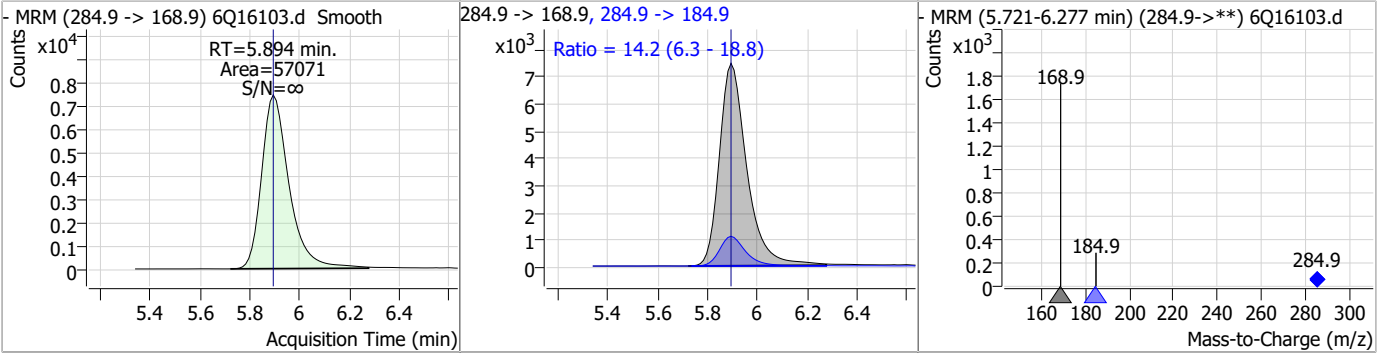


Perfluorinated Compounds by LC/MS/MS

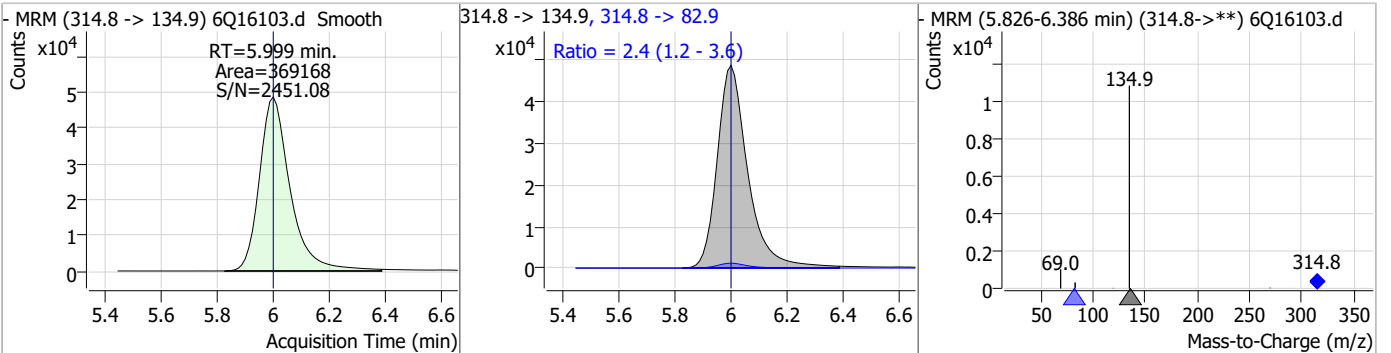


Perfluorinated Compounds by LC/MS/MS

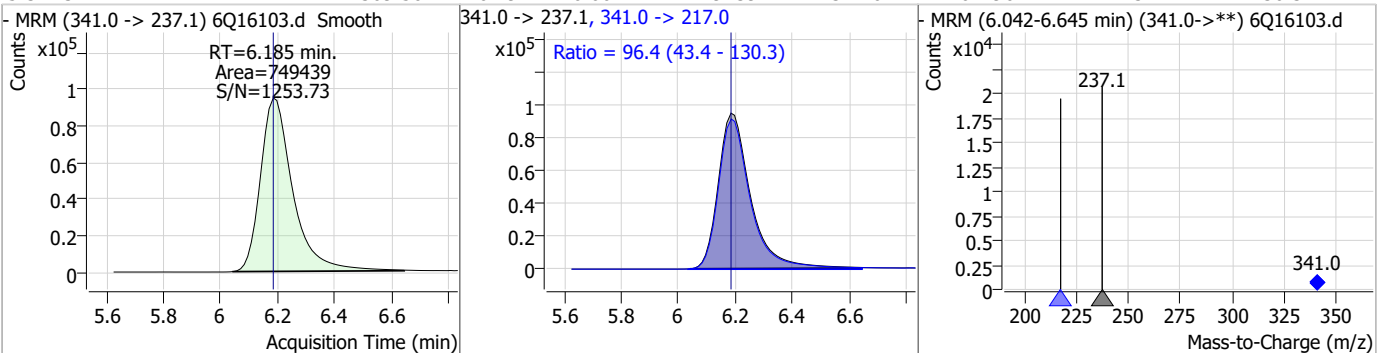
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	52.40	5.89	0.00	57071	284.9 -> 184.9	14.2	6.3	18.8



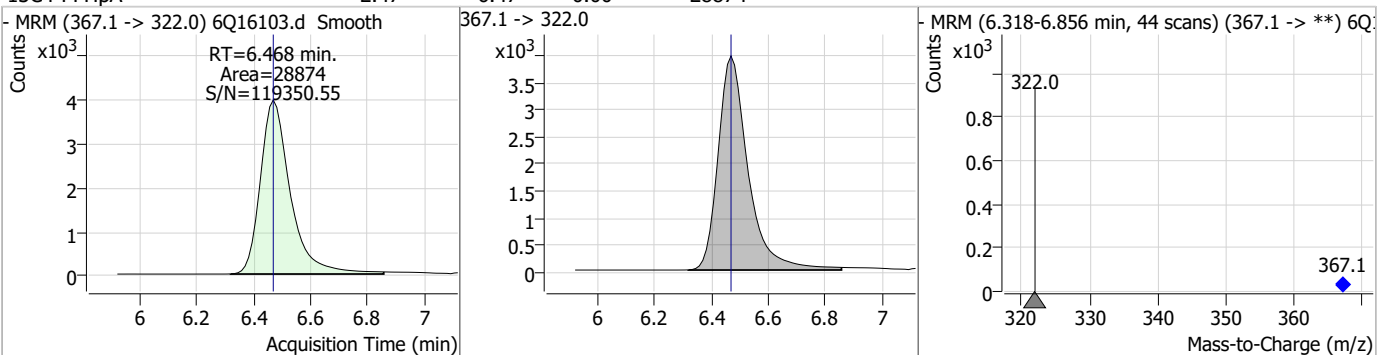
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	23.79	6.00	0.00	369168	314.8 -> 82.9	2.4	1.2	3.6



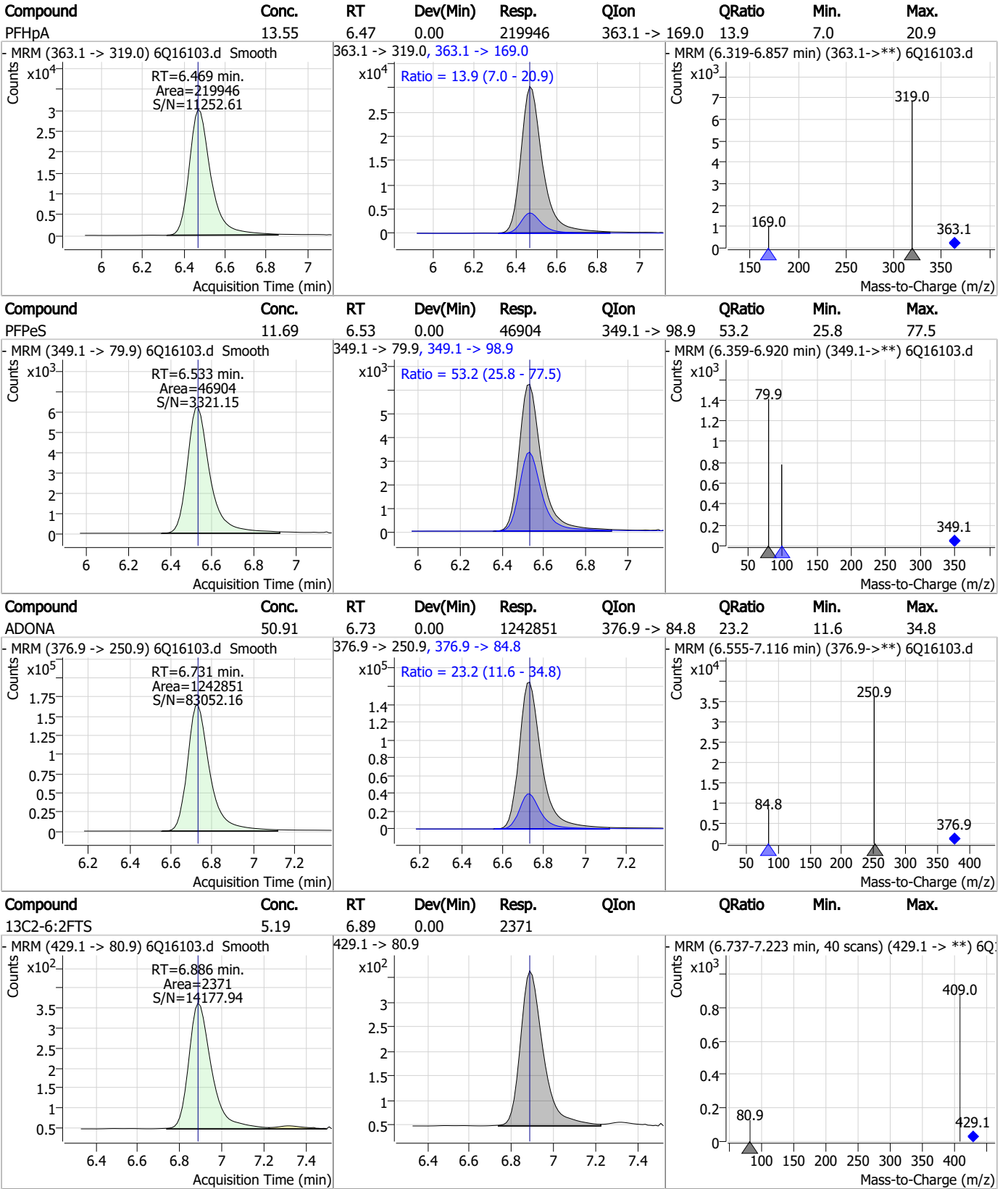
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	309.56	6.19	0.00	749439	341.0 -> 217.0	96.4	43.4	130.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.47	6.47	0.00	28874	367.1 -> 322.0			



Perfluorinated Compounds by LC/MS/MS

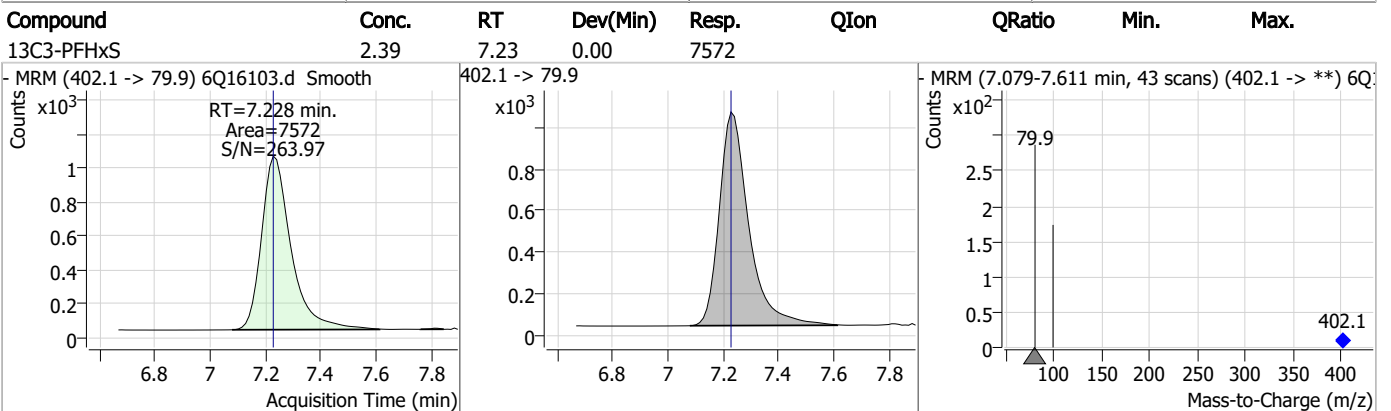
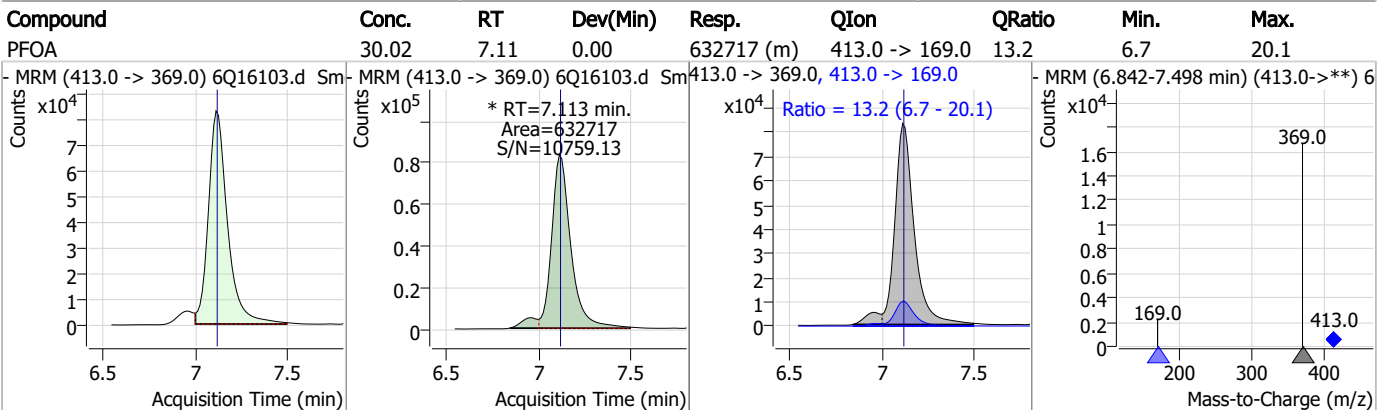
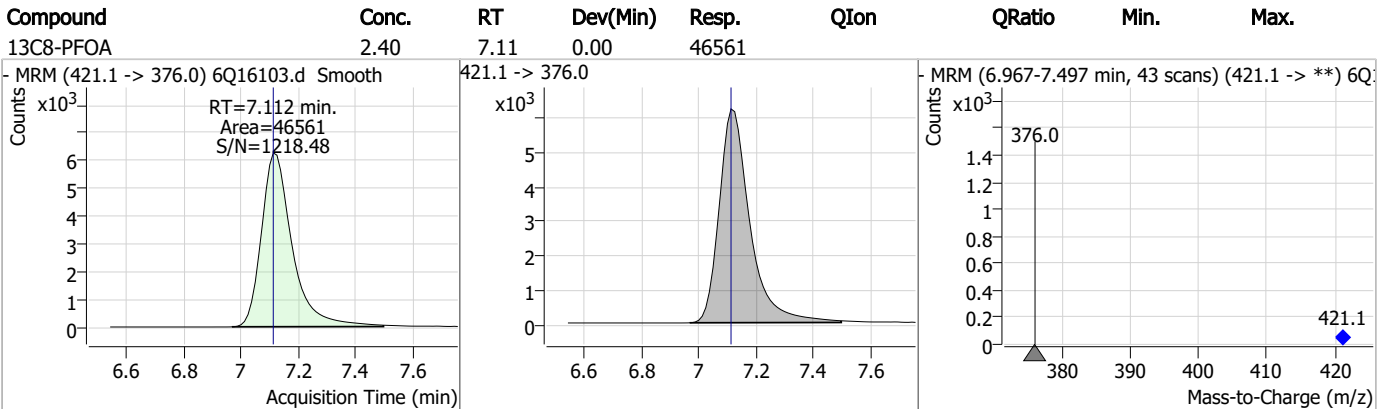
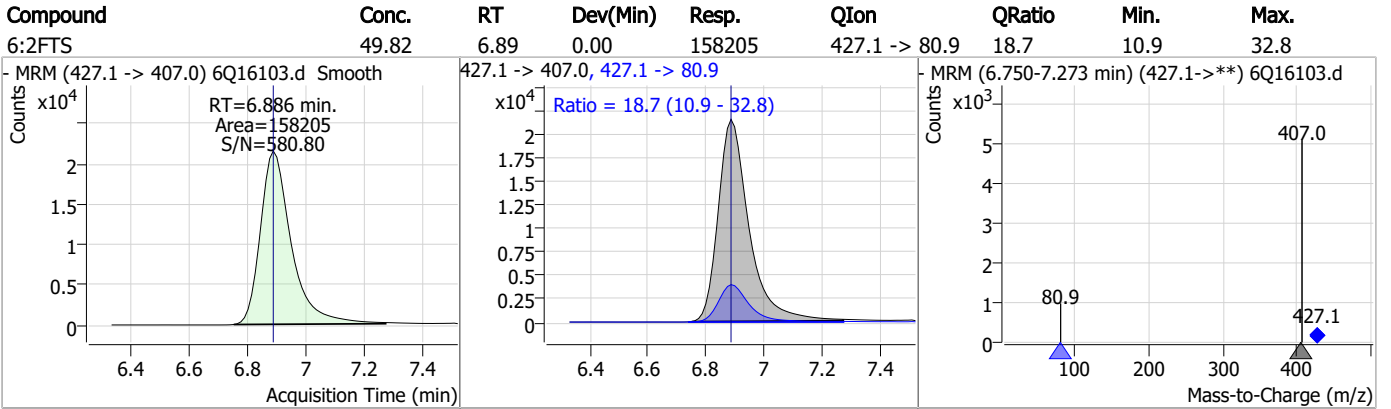


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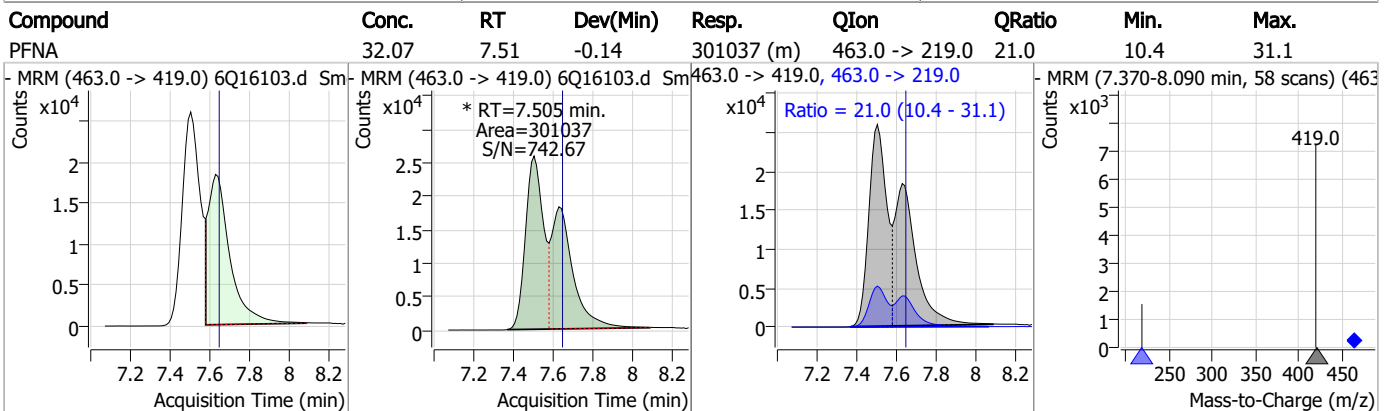
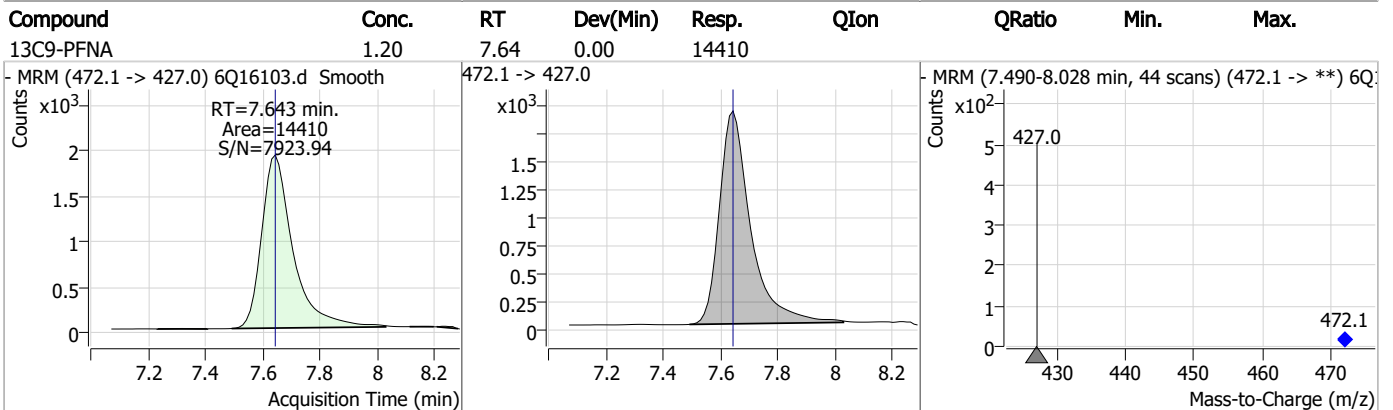
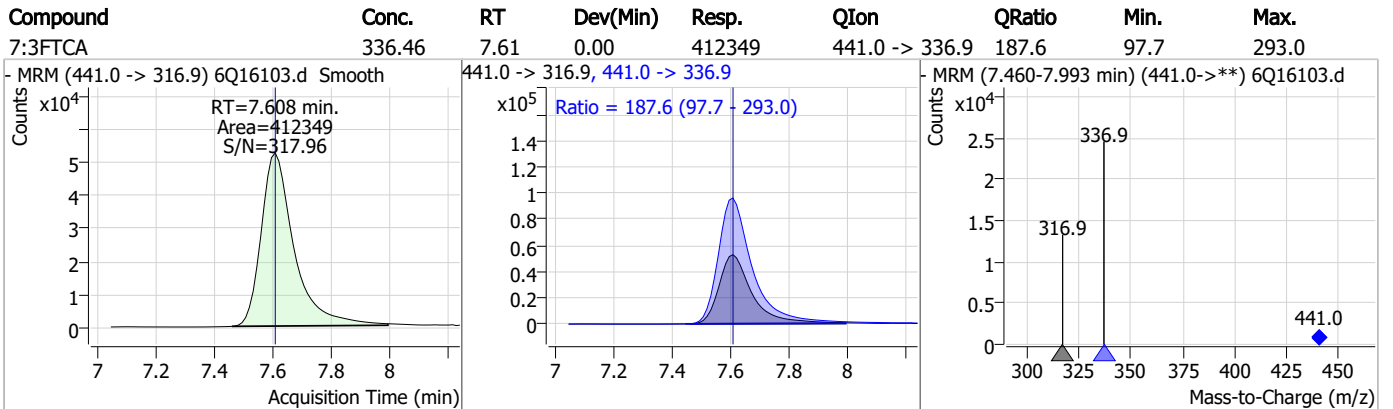
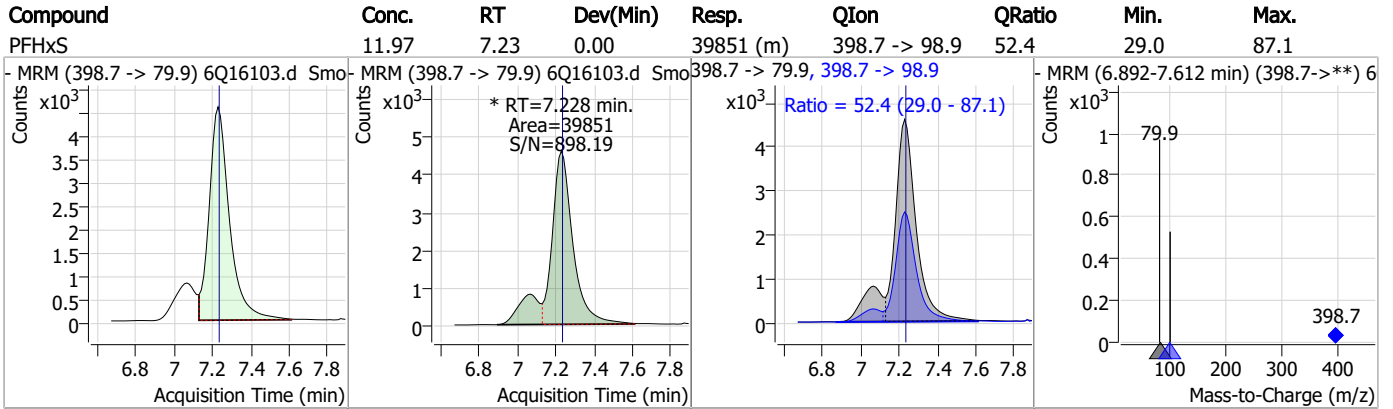
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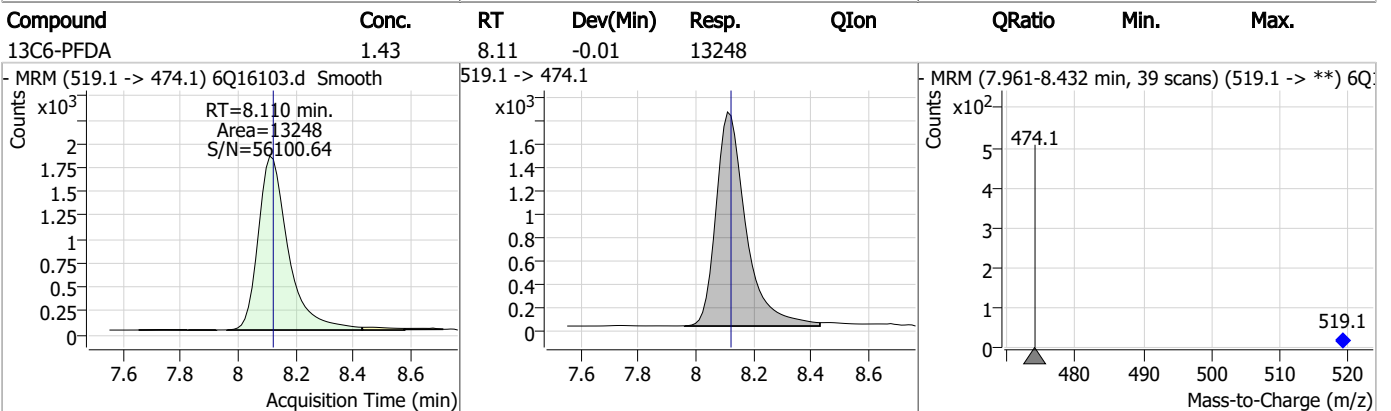
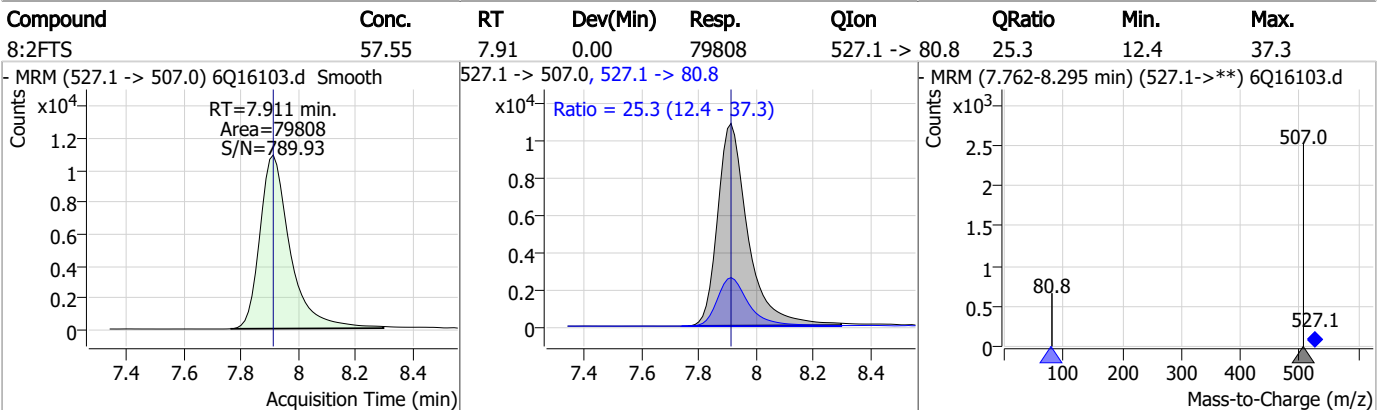
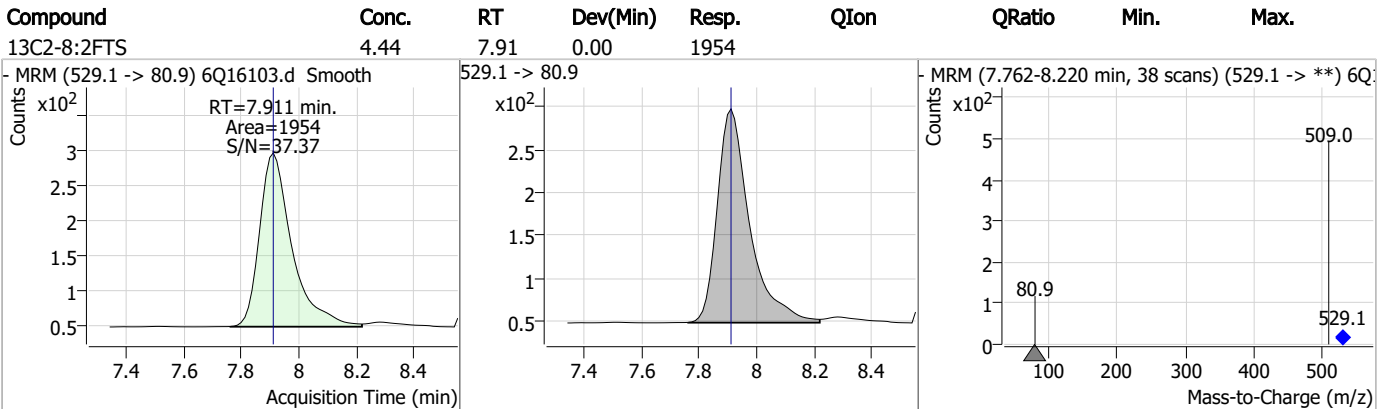
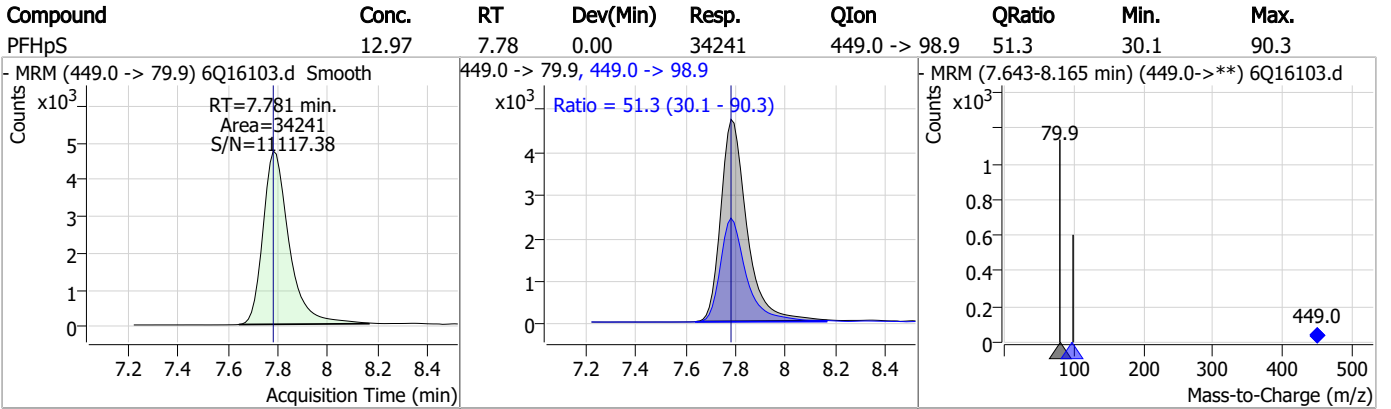
Perfluorinated Compounds by LC/MS/MS



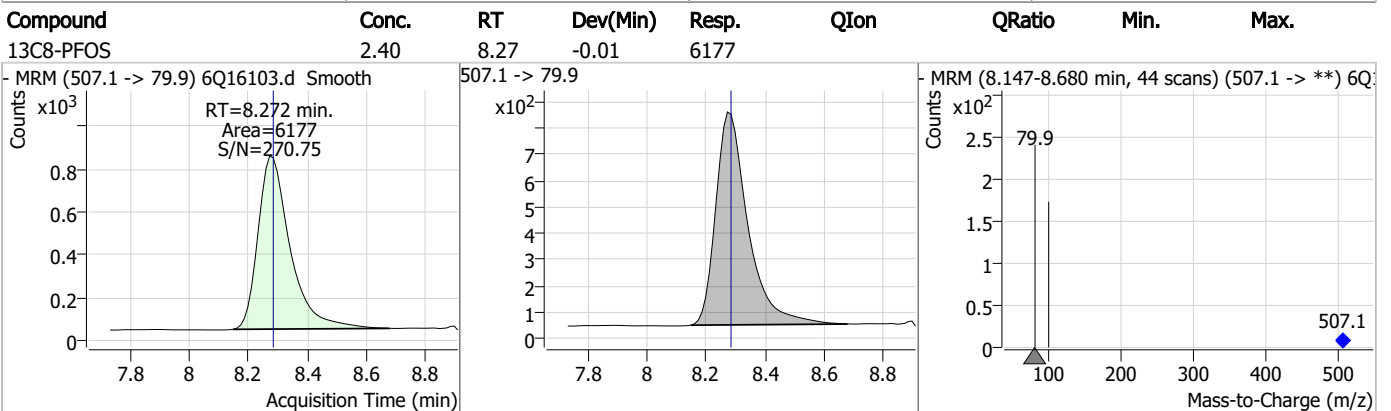
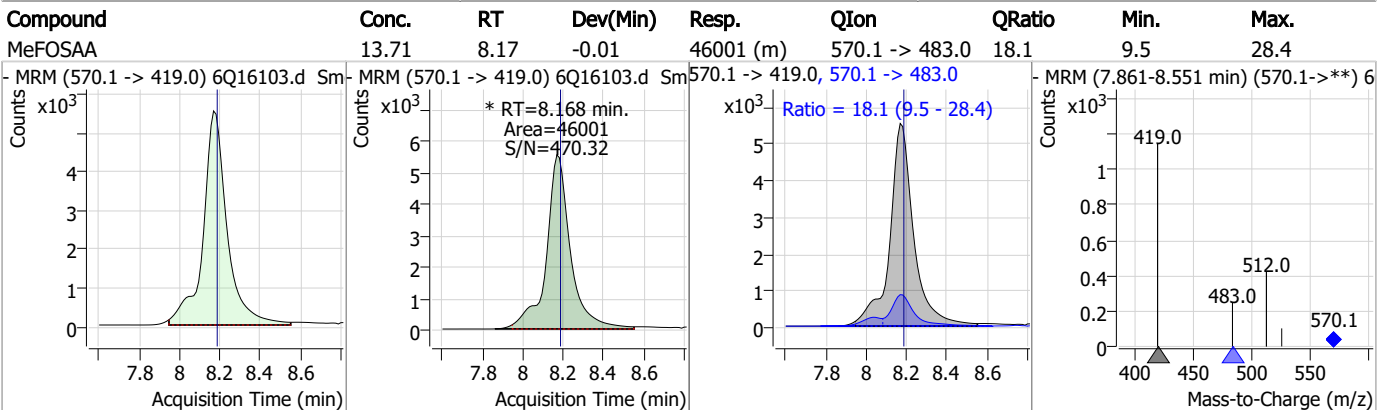
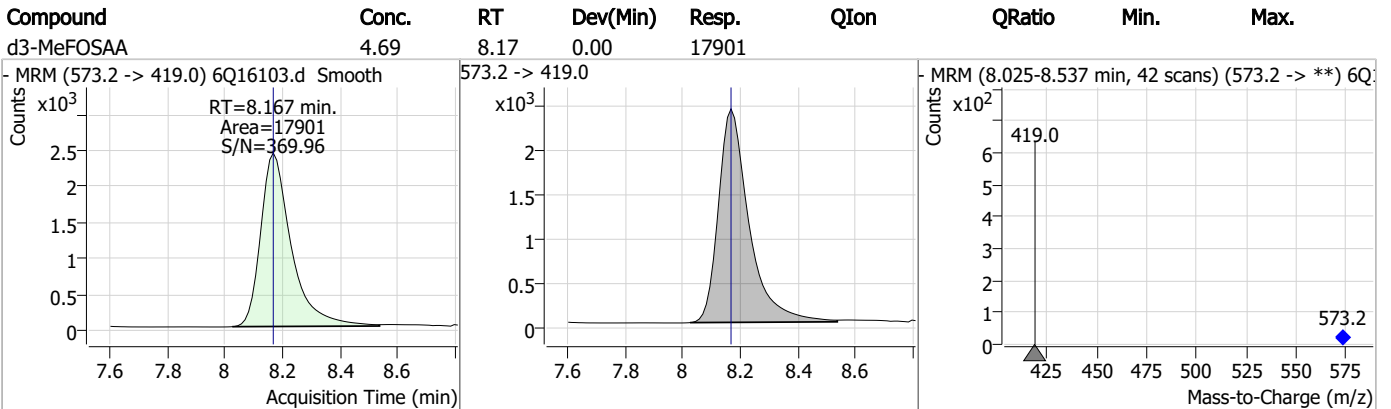
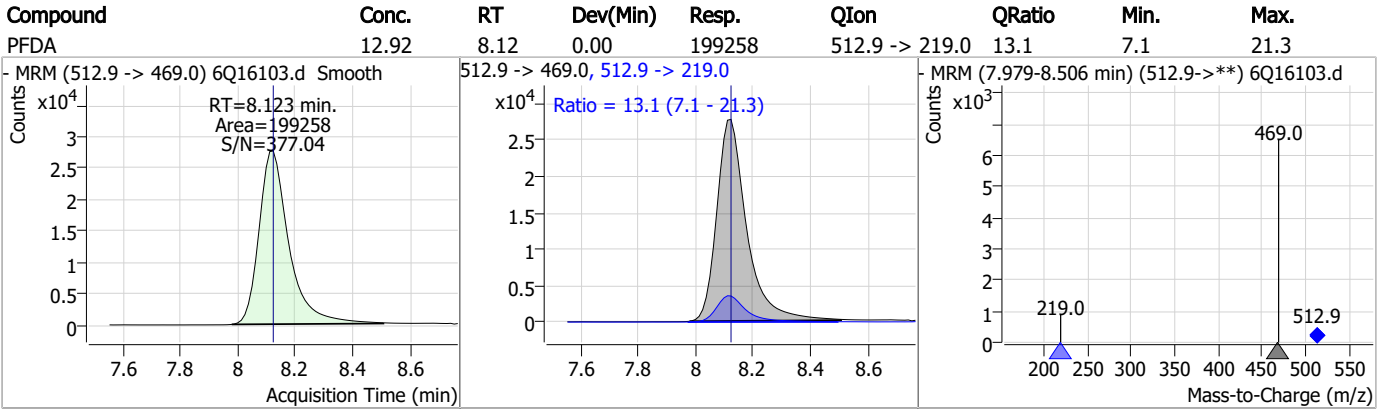
Perfluorinated Compounds by LC/MS/MS



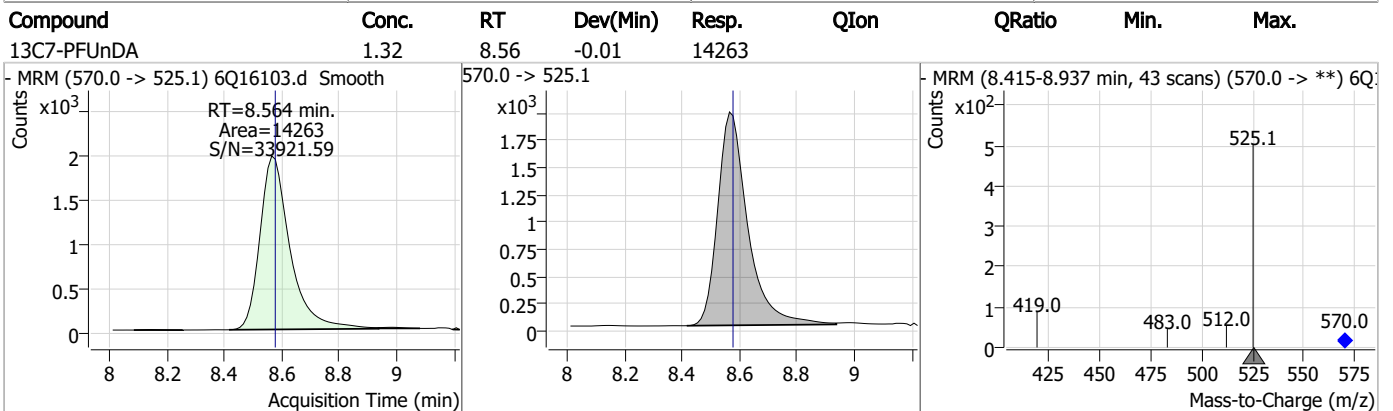
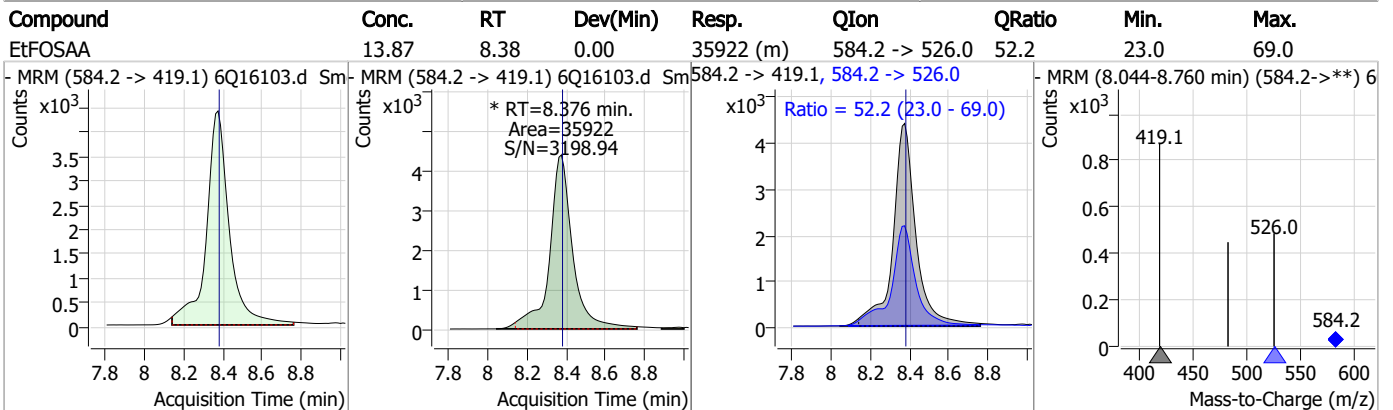
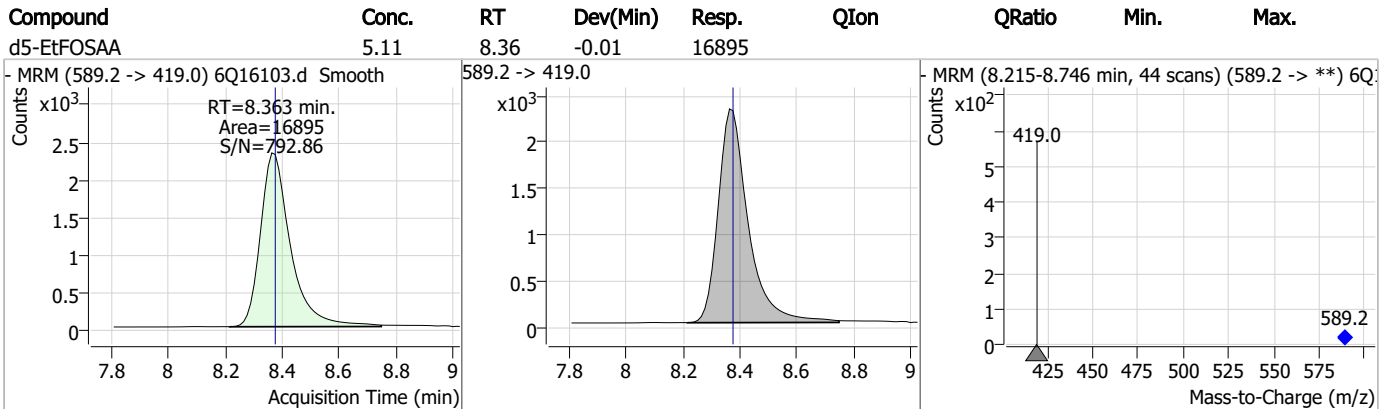
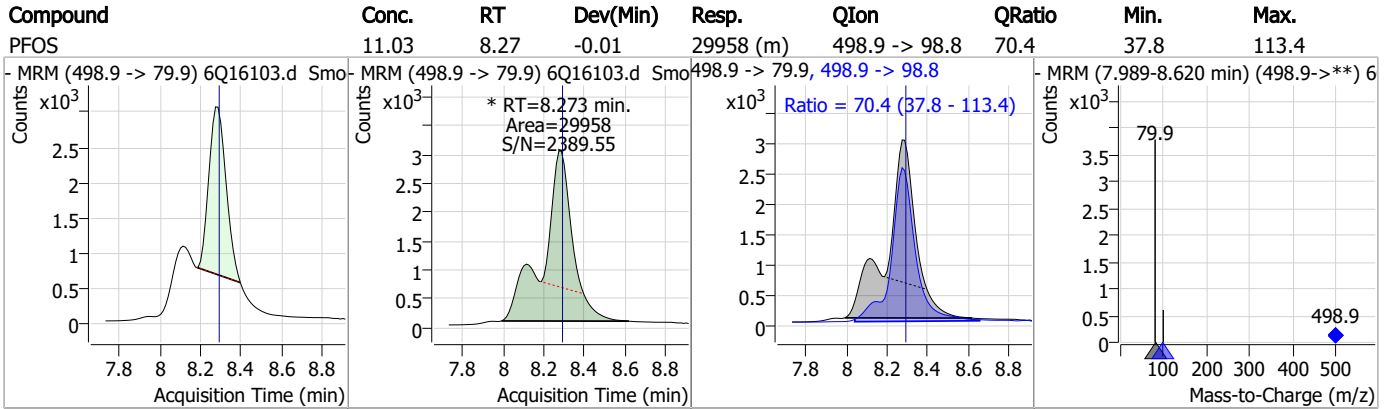
Perfluorinated Compounds by LC/MS/MS



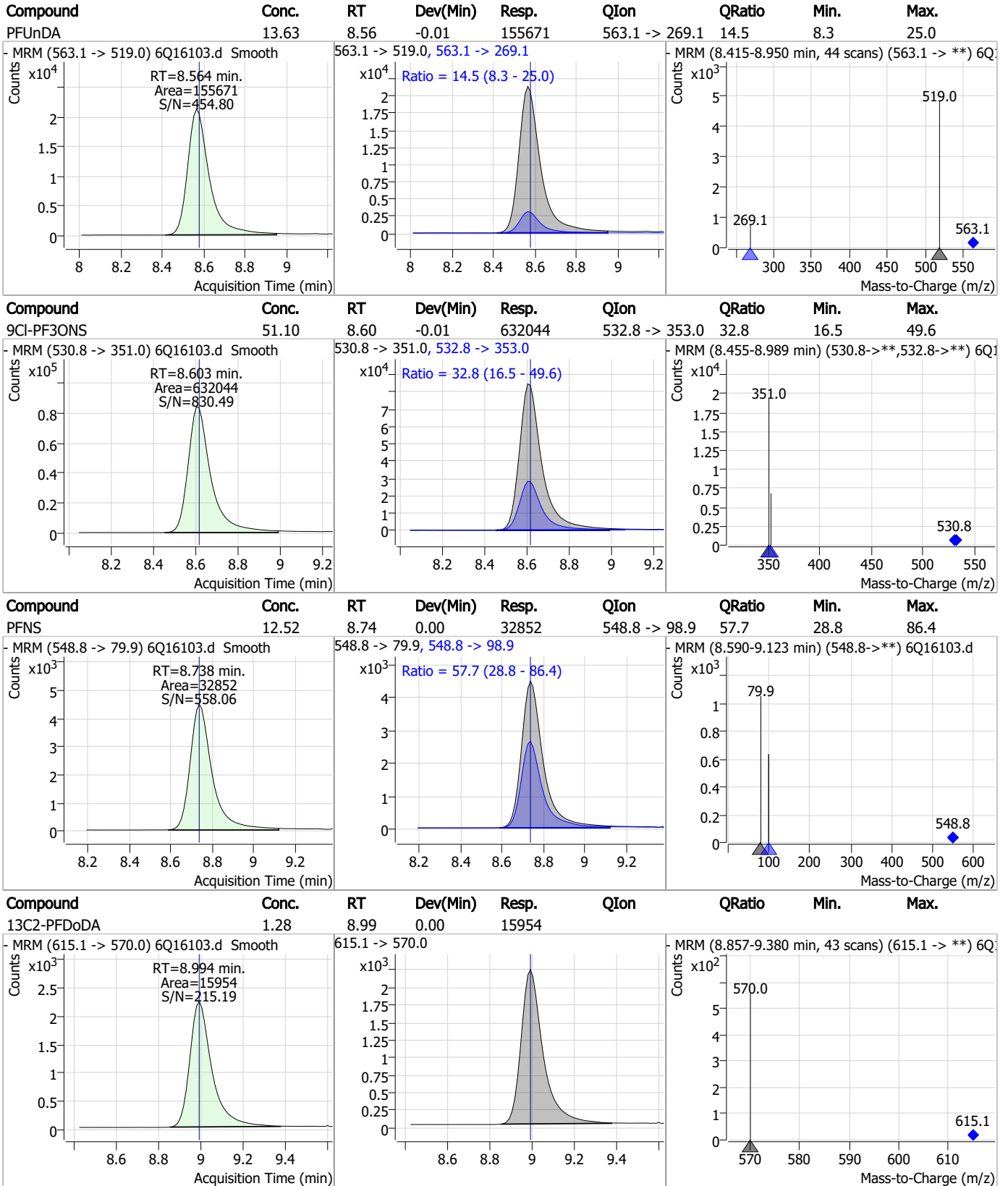
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



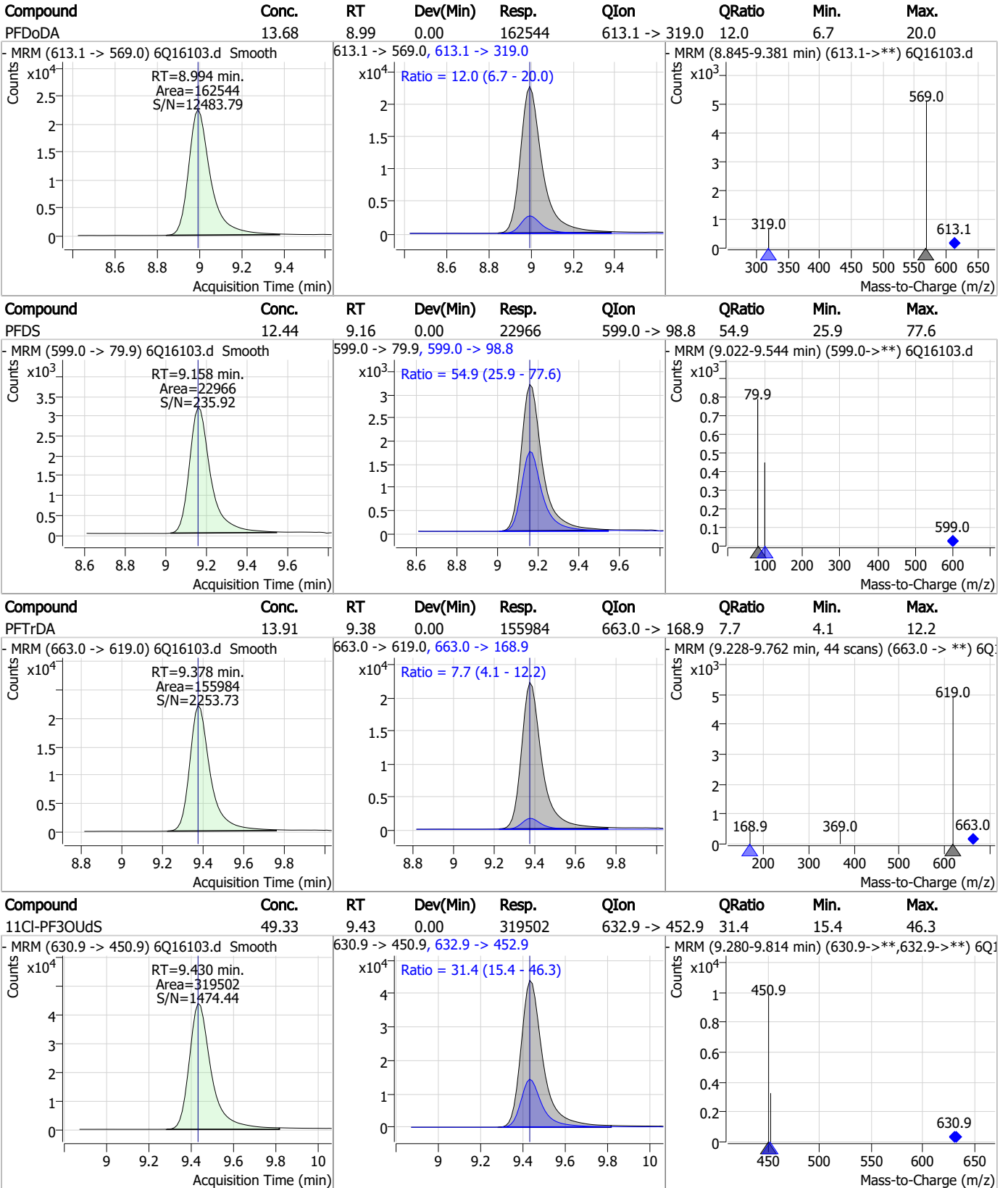
Perfluorinated Compounds by LC/MS/MS



7.5.4

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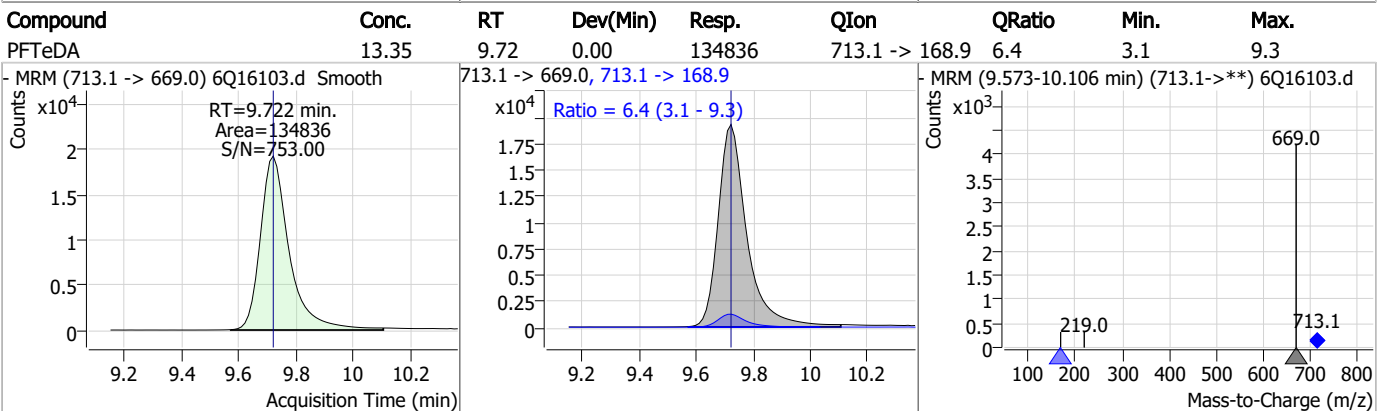
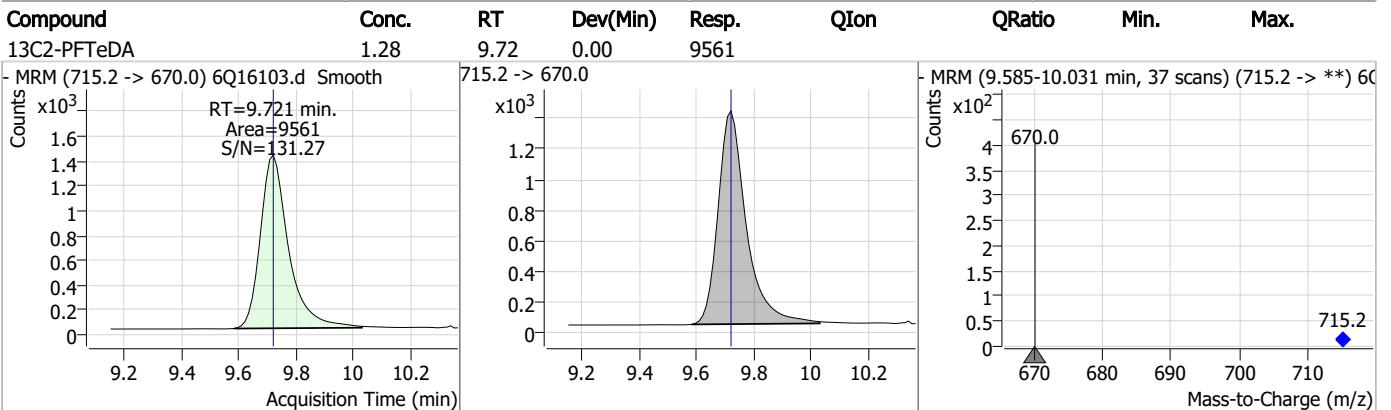
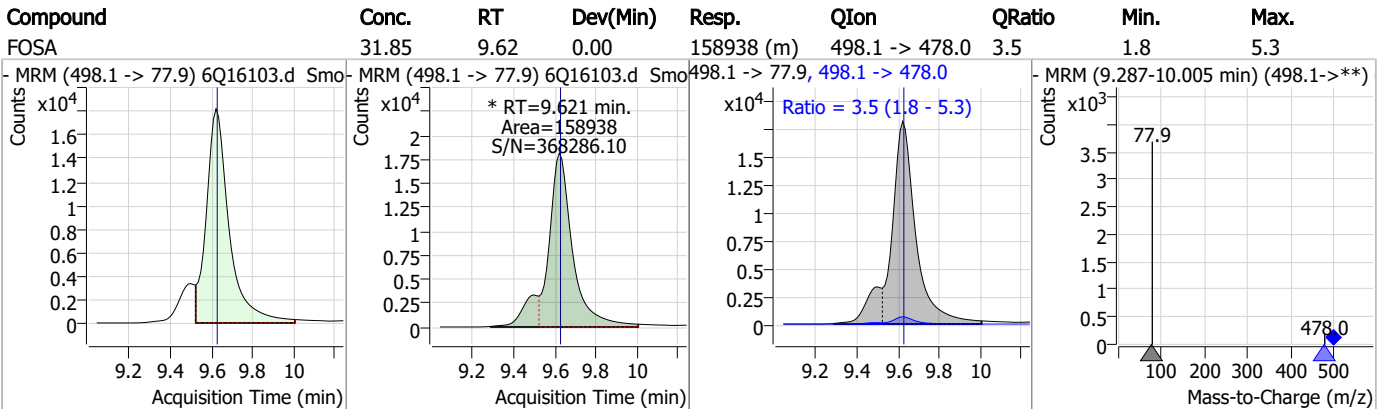
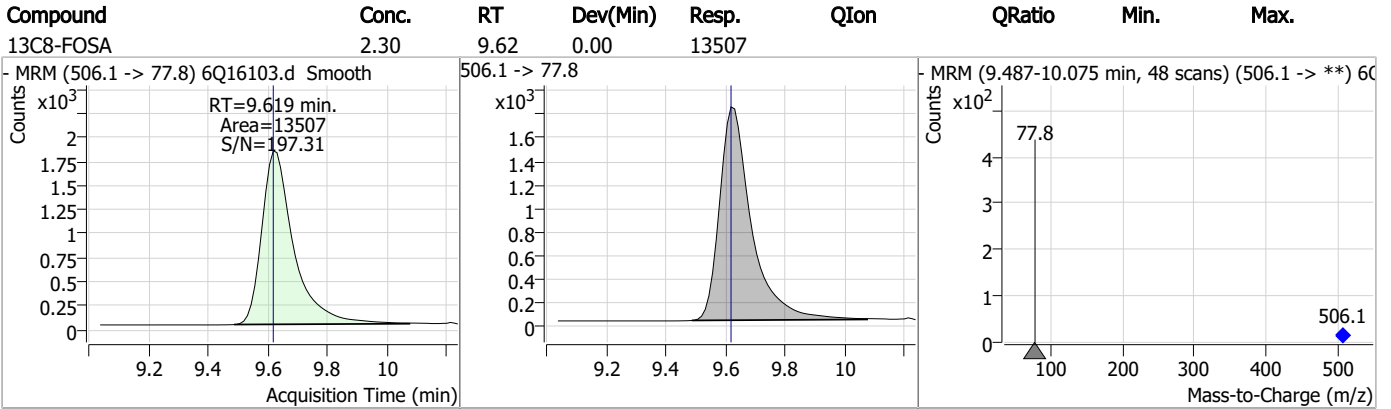
Perfluorinated Compounds by LC/MS/MS



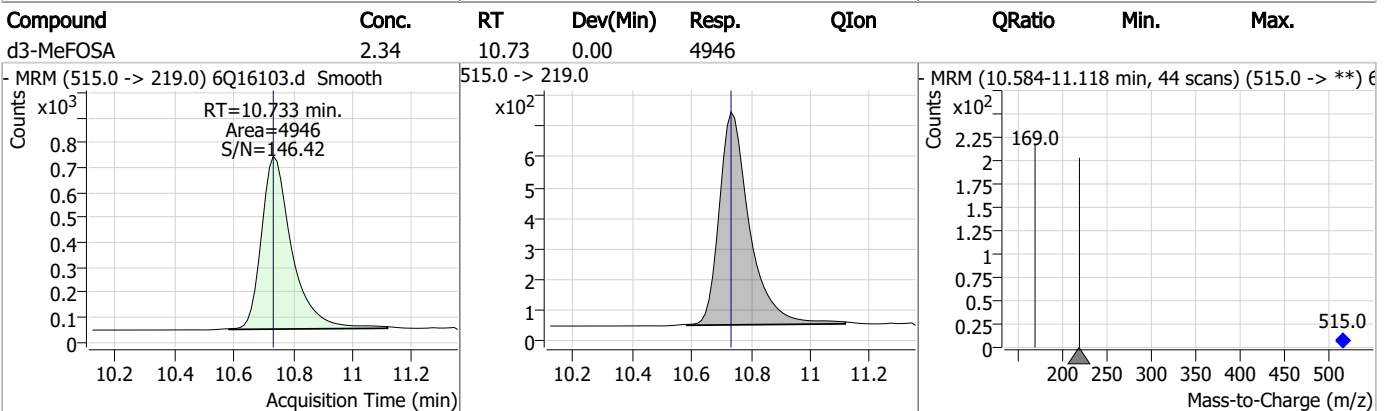
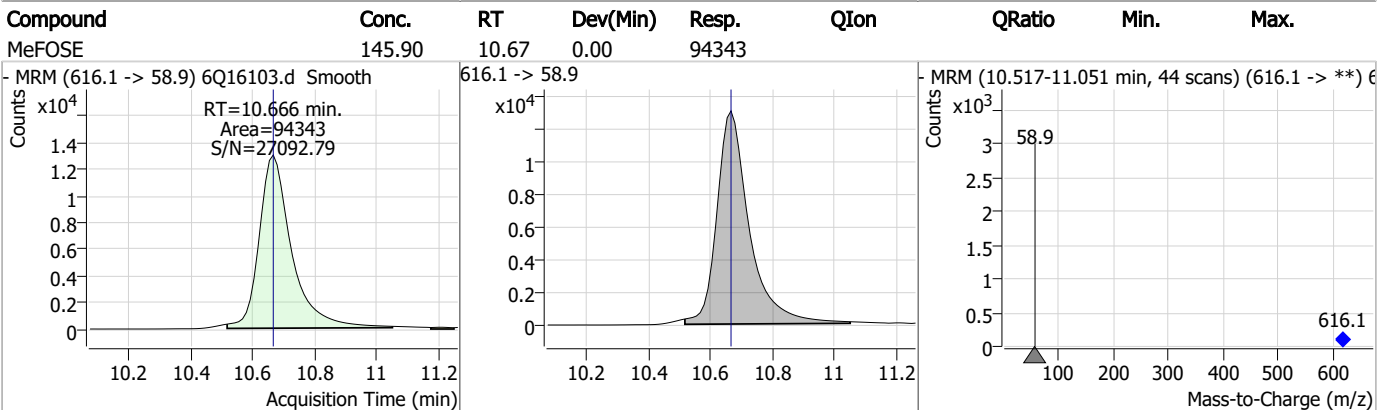
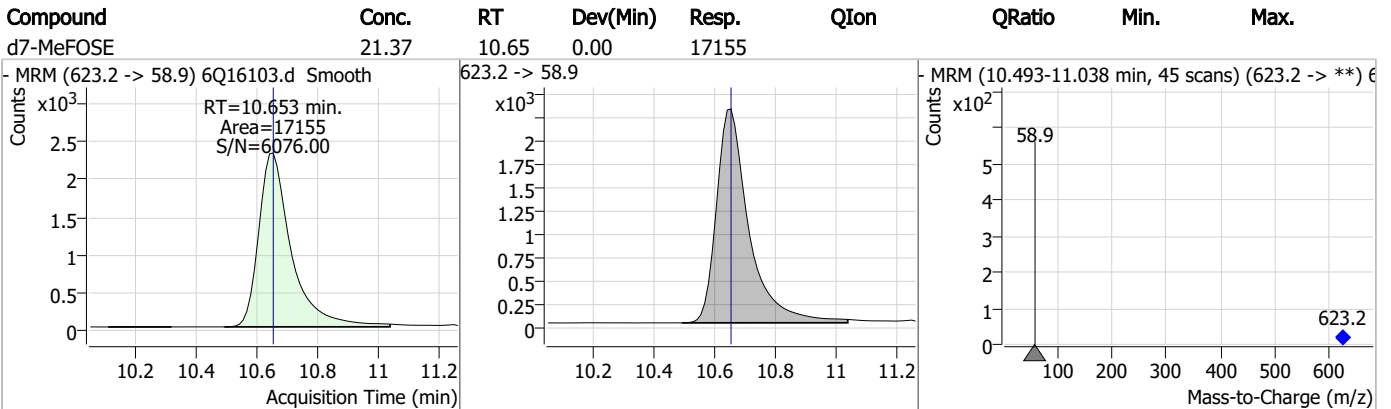
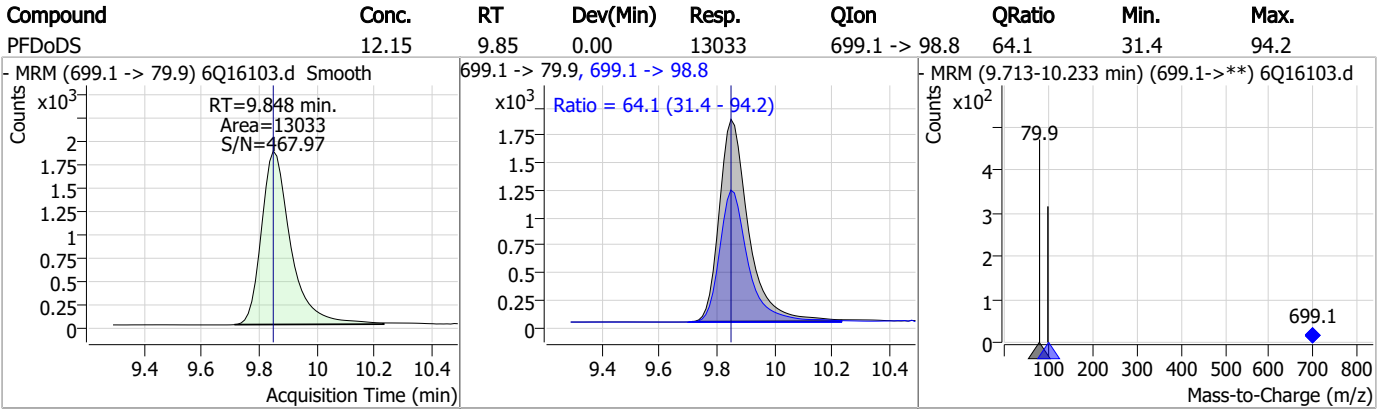
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Perfluorinated Compounds by LC/MS/MS

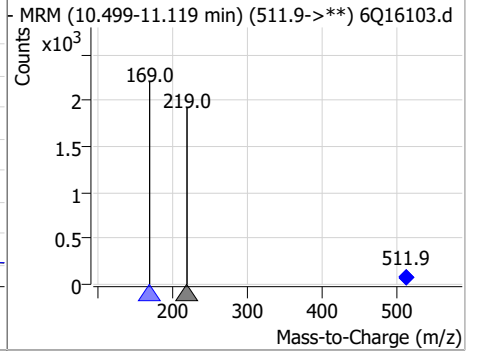
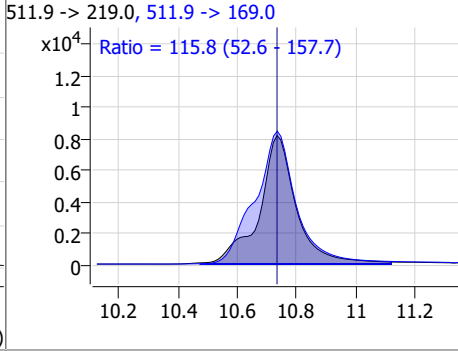
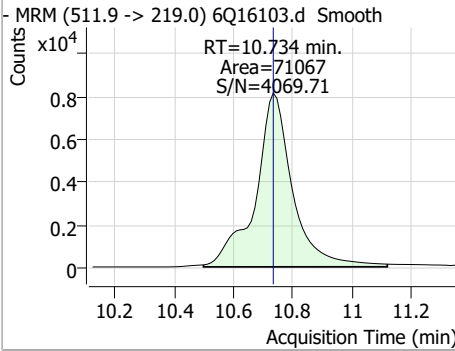


Perfluorinated Compounds by LC/MS/MS

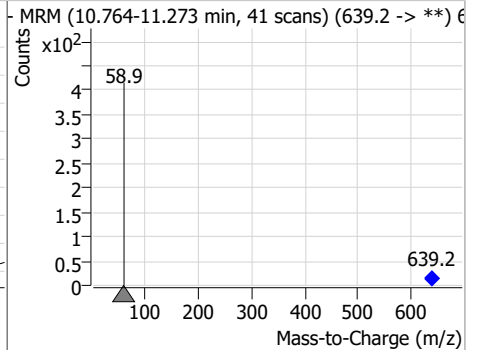
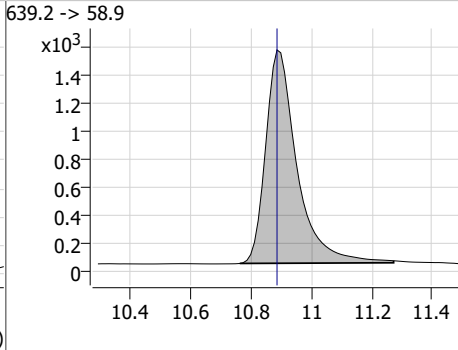
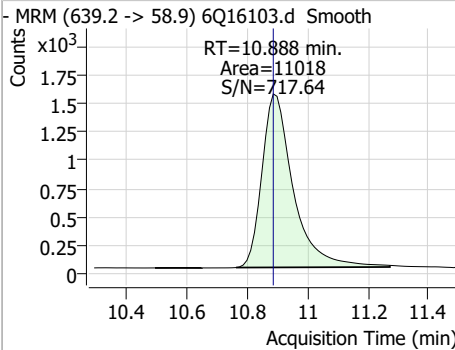


Perfluorinated Compounds by LC/MS/MS

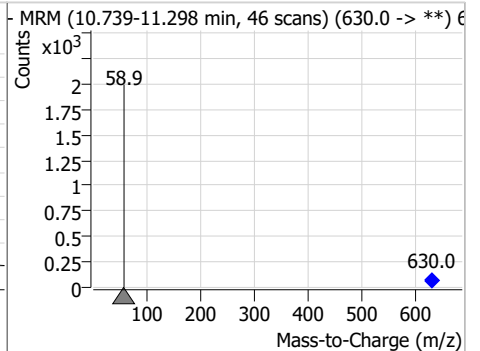
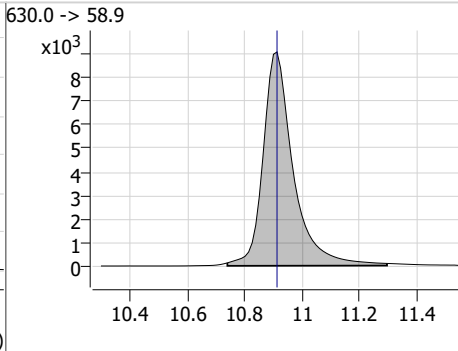
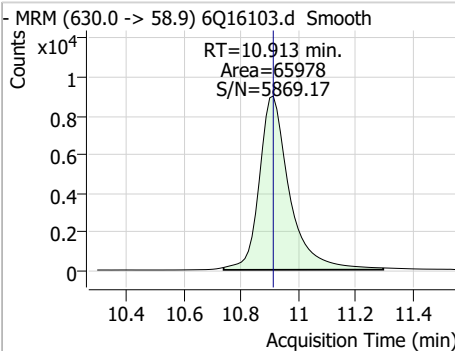
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	34.16	10.73	0.00	71067	511.9 -> 169.0	115.8	52.6	157.7



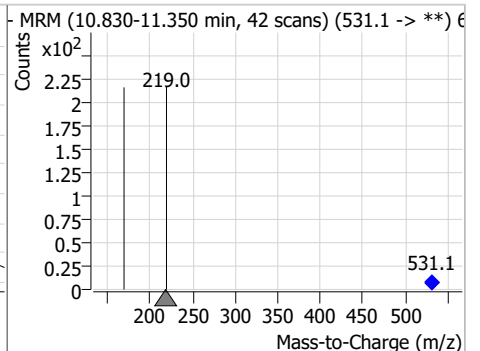
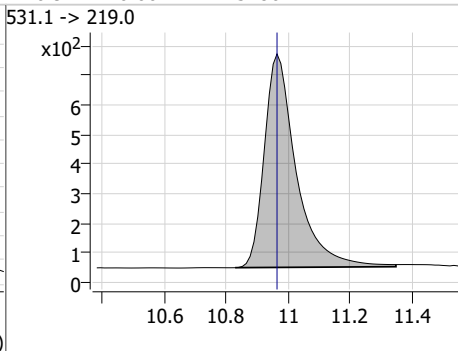
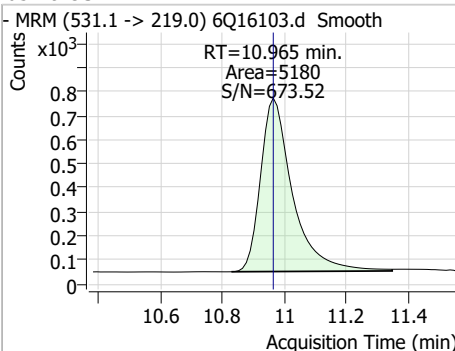
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	20.65	10.89	0.00	11018				



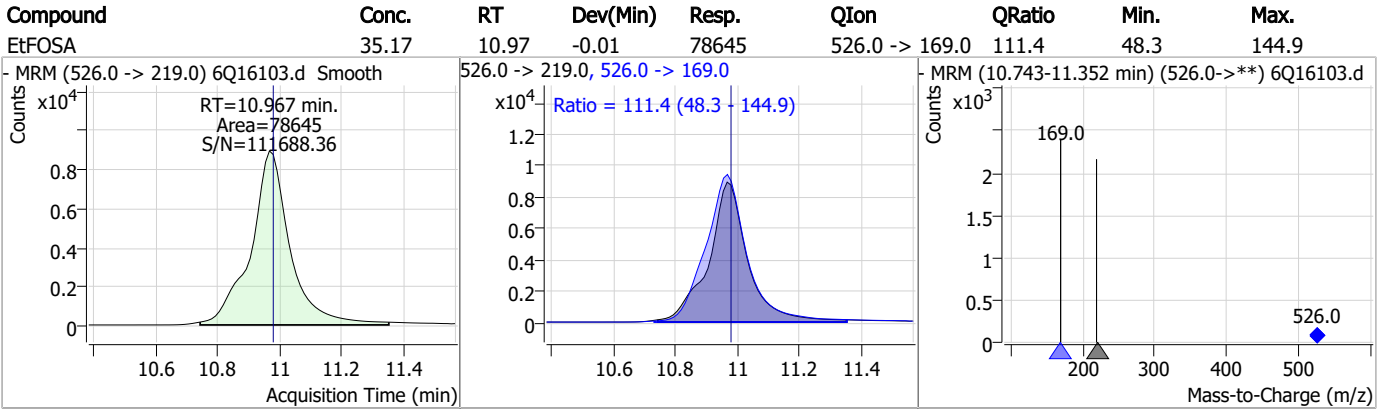
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	152.69	10.91	0.00	65978				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.27	10.97	0.00	5180				



Perfluorinated Compounds by LC/MS/MS



7.5.4

7

Manual Integration Approval Summary

Sample Number: S6Q240-RT Method: EPA DRAFT 1633
Lab FileID: 6Q16103.D Analyst approved: 04/06/23 11:16 Martha Valls
Injection Time: 04/05/23 13:29 Supervisor approved: 04/06/23 14:43 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.11	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
Perfluorononanoic acid	375-95-1		7.50	Split peak
MeFOSAA	2355-31-9		8.17	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.27	Split peak
EtFOSAA	2991-50-6		8.38	Split peak
PFOSA	754-91-6		9.62	Split peak

7.5.4.1
7

QQQ Check Tune Report



Instrument Name LCMS Q6
MS Model G6495B
MS Instrument Serial SG1752D103
Software_Firmware Version 10.1.67, FW: A.00.08.112
Tune Date & Time 03 April 2023 12:35:24
File Path D:\MassHunter\Tune\QQQ\G6495B\atunes.TUNE.XML
Ion Source AJS ESI
Ionization Mode AJS ESI
Tuned Resolution All
Vacuum Pressure 1.82E+0 [R] (Torr); 2.91E-5 [H] (Torr)

Source Parameters

Parameter	Negative
Gas Temp (°C)	220
Gas Flow (l/min)	14
Nebulizer (psi)	20
Capillary (V)	3000
Nozzle Voltage (V)	1500
Sheath Gas Temp (°C)	250
Sheath Gas Flow (l/min)	11

QQQ Check Tune Report



Negative Results

Analyzer: MS1 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.94	-0.05	Pass	0.70	0.74	0.04	Pass	94755
302.00	301.99	-0.01	Pass	0.70	0.76	0.06	Pass	652046
601.98	601.97	-0.01	Pass	0.70	0.75	0.05	Pass	2058869
1033.99	1033.90	-0.09	Pass	0.70	0.75	0.05	Pass	773820
1633.95	1633.92	-0.03	Pass	0.70	0.78	0.08	Pass	535408
2233.91	2233.92	0.01	Pass	0.70	0.74	0.04	Pass	132385

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.04	0.04	Pass	0.70	0.62	-0.08	Pass	62999
112.99	112.99	0.00	Pass	0.70	0.65	-0.05	Pass	138351
302.00	302.02	0.02	Pass	0.70	0.72	0.02	Pass	473508
601.98	602.00	0.02	Pass	0.70	0.70	0.00	Pass	1544048
1033.99	1034.02	0.03	Pass	0.70	0.68	-0.02	Pass	988178
1633.95	1634.00	0.05	Pass	0.70	0.68	-0.02	Pass	821225
2233.91	2233.93	0.02	Pass	0.70	0.70	0.00	Pass	200397

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.94	-0.05	Pass	1.20	1.42	0.22	Pass	119401
302.00	301.98	-0.02	Pass	1.20	1.56	0.36	Pass	826851
601.98	601.91	-0.07	Pass	1.20	1.62	0.42	Pass	3599870
1033.99	1033.86	-0.13	Pass	1.20	1.57	0.37	Pass	1050188
1633.95	1633.86	-0.09	Pass	1.20	1.44	0.24	Pass	827562
2233.91	2233.88	-0.03	Pass	1.20	1.37	0.17	Pass	218678

Analyzer: MS2 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.02	0.02	Pass	1.20	1.07	-0.13	Pass	99801
112.99	112.95	-0.04	Pass	1.20	1.19	-0.01	Pass	187684
302.00	302.03	0.03	Pass	1.20	1.19	-0.01	Pass	773267
601.98	602.00	0.02	Pass	1.20	1.28	0.08	Pass	3119306
1033.99	1034.06	0.07	Pass	1.20	1.36	0.16	Pass	2493384
1633.95	1633.94	-0.01	Pass	1.20	1.37	0.17	Pass	2222221
2233.91	2233.97	0.06	Pass	1.20	1.29	0.09	Pass	629603

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.89	-0.10	Pass	2.50	2.67	0.17	Pass	142150
302.00	301.89	-0.11	Pass	2.50	2.91	0.41	Pass	1049767
601.98	601.78	-0.20	Pass	2.50	2.93	0.43	Pass	4562055
1033.99	1033.82	-0.17	Pass	2.50	2.78	0.28	Pass	1864258
1633.95	1633.81	-0.14	Pass	2.50	2.63	0.13	Pass	1775305
2233.91	2233.65	-0.26	Pass	2.50	2.40	-0.10	Pass	651928

Analyzer: MS2 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.03	0.03	Pass	2.50	2.53	0.03	Pass	117017
112.99	113.02	0.03	Pass	2.50	2.57	0.07	Pass	247076
302.00	301.99	-0.01	Pass	2.50	2.69	0.19	Pass	1128857
601.98	602.06	0.08	Pass	2.50	2.69	0.19	Pass	4396384
1033.99	1034.00	0.01	Pass	2.50	2.82	0.32	Pass	4296185
1633.95	1634.08	0.13	Pass	2.50	2.63	0.13	Pass	4243899
2233.91	2233.81	-0.10	Pass	2.50	2.59	0.09	Pass	1610620

7.6.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16006.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/4/2023 2:15:43 PM
 Sample Name : ic239-1
 Vial : P1-A2
 DA Method File : 1633_040423_S6Q239.quantmethod.xml
 Batch Name : s6q239.batch.bin
 Sample Information : OP96085,S6Q239,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.938	216.8 -> 171.9	80182	10.00 µg/L	0.041
M5-PFPeA	4.347	268.3 -> 223.0	36902	5.00 µg/L	0.025
M5-PFHxA	5.528	318.0 -> 273.0	34405	2.50 µg/L	0.000
M4-PFHpA	6.468	367.1 -> 322.0	31583	2.50 µg/L	0.000
M8-PFOA	7.112	421.1 -> 376.0	51797	2.50 µg/L	0.000
M9-PFNA	7.643	472.1 -> 427.0	12231	1.25 µg/L	0.000
M6-PFDA	8.110	519.1 -> 474.1	13363	1.25 µg/L	-0.012
M7-PFUnDA	8.564	570.0 -> 525.1	15687	1.25 µg/L	-0.012
M2-PFDoDA	8.994	615.1 -> 570.0	17710	1.25 µg/L	0.000
M2-PFTeDA	9.721	715.2 -> 670.0	10611	1.25 µg/L	0.000
M8-FOSA	9.619	506.1 -> 77.8	15648	2.50 µg/L	0.000
M3-PFBS	5.471	302.1 -> 79.9	12984	2.50 µg/L	0.012
M3-PFHxS	7.228	402.1 -> 79.9	8227	2.50 µg/L	0.000
M8-PFOS	8.272	507.1 -> 79.9	6922	2.50 µg/L	-0.012
M2-4:2FTS	5.204	329.1 -> 80.9	2119	5.00 µg/L	0.012
M2-6:2FTS	6.886	429.1 -> 80.9	2428	5.00 µg/L	0.000
M2-8:2FTS	7.898	529.1 -> 80.9	2376	5.00 µg/L	-0.012
M3-MeFOSAA	8.167	573.2 -> 419.0	18417	5.00 µg/L	0.000
M3-HFPO-DA	5.893	286.9 -> 168.9	13727	10.00 µg/L	0.000
M5-EtFOSAA	8.363	589.2 -> 419.0	16192	5.00 µg/L	-0.012
M7-MeFOSE	10.641	623.2 -> 58.9	21957	25.00 µg/L	-0.012
M9-EtFOSE	10.888	639.2 -> 58.9	14795	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	6024	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	5197	2.50 µg/L	0.000
13C4-PFOS	8.273	502.8 -> 79.9	8376	2.50 µg/L	-0.012
13C3-PFBA	2.941	216.0 -> 172.0	34374	5.00 µg/L	0.040
18O2-PFHxS	7.227	403.0 -> 83.9	5193	2.50 µg/L	0.000
13C4-PFOA	7.112	417.1 -> 372.0	63529	2.50 µg/L	0.000
13C2-PFDA	8.110	515.1 -> 470.1	17370	1.25 µg/L	-0.012
13C5-PFNA	7.643	468.0 -> 423.0	13457	1.25 µg/L	0.000
13C2-PFHxA	5.529	315.1 -> 270.0	32751	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.204	329.1 -> 80.9	2119	6.07 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.3%		
13C2-6:2FTS	6.886	429.1 -> 80.9	2428	5.66 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.3%		
13C2-8:2FTS	7.898	529.1 -> 80.9	2376	5.75 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.1%		
13C2-PFDoDA	8.994	615.1 -> 570.0	17710	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C2-PFTeDA	9.721	715.2 -> 670.0	10611	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C3-PFBS	5.471	302.1 -> 79.9	12984	2.81 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 112.5%		
13C3-PFHxS	7.228	402.1 -> 79.9	8227	2.77 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.7%		
13C4-PFBA	2.938	216.8 -> 171.9	80182	9.98 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C4-PFHpA	6.468	367.1 -> 322.0	31583	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.3%		
13C5-PFHxA	5.528	318.0 -> 273.0	34405	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C5-PFPeA	4.347	268.3 -> 223.0	36902	4.83 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C6-PFDA	8.110	519.1 -> 474.1	13363	1.31 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.5%		
13C7-PFUnDA	8.564	570.0 -> 525.1	15687	1.32 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.7%		
13C8-FOSA	9.619	506.1 -> 77.8	15648	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C8-PFOA	7.112	421.1 -> 376.0	51797	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.6%		
13C8-PFOS	8.272	507.1 -> 79.9	6922	2.54 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.4%		
13C9-PFNA	7.643	472.1 -> 427.0	12231	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.3%		
d3-MeFOSAA	8.167	573.2 -> 419.0	18417	4.54 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.9%		
13C3-HFPO-DA	5.893	286.9 -> 168.9	13727	9.61 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 96.1%		
d3-MeFOSA	10.733	515.0 -> 219.0	5197	2.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.5%		
d5-EtFOSAA	8.363	589.2 -> 419.0	16192	4.61 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.3%		
d7-MeFOSE	10.641	623.2 -> 58.9	21957	25.76 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 103.0%		
d9-EtFOSE	10.888	639.2 -> 58.9	14795	26.11 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 104.5%		
d5-EtFOSA	10.965	531.1 -> 219.0	6024	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.5%		
Target Compounds					QValue
4:2FTS	5.204	327.1 -> 307.0	3210	0.77 µg/L	96
		327.1 -> 80.9	695		
6:2FTS	6.886	427.1 -> 407.0	2670	0.82 µg/L	98
		427.1 -> 80.9	559		
8:2FTS	7.911	527.1 -> 507.0	1225	0.73 µg/L	85
		527.1 -> 80.8	397		
EtFOSAA	8.376	584.2 -> 419.1	489	0.20 µg/L	m 78
		584.2 -> 526.0	297		
FOSA	9.621	498.1 -> 77.9	1251	0.22 µg/L	100
		498.1 -> 478.0	43		
MeFOSAA	8.168	570.1 -> 419.0	734	0.21 µg/L	m 87
		570.1 -> 483.0	182		
PFBA	2.944	212.8 -> 168.9	1558	0.77 µg/L	100
PFBS	5.472	298.7 -> 79.9	890	0.17 µg/L	99
		298.7 -> 98.8	407		
PFDA	8.111	512.9 -> 469.0	3198	0.21 µg/L	100
		512.9 -> 219.0	449		
PFDODA	8.994	613.1 -> 569.0	3019	0.23 µg/L	93
		613.1 -> 319.0	311		
PFDS	9.170	599.0 -> 79.9	375	0.18 µg/L	91

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.469	599.0 -> 98.8	217	0.21	µg/L	95
		363.1 -> 319.0	3707			
PFHpS	7.781	363.1 -> 169.0	589	0.20	µg/L	97
		449.0 -> 79.9	595			
PFHxA	5.531	449.0 -> 98.9	345	0.20	µg/L	95
		313.0 -> 269.0	2602			
PFHxS	7.228	313.0 -> 118.9	147	0.19	µg/L	94
		398.7 -> 79.9	699			
PFNA	7.631	398.7 -> 98.9	376	0.21	µg/L	95
		463.0 -> 419.0	1690			
PFNS	8.738	463.0 -> 219.0	307	0.18	µg/L	92
		548.8 -> 79.9	535			
PFOA	7.113	548.8 -> 98.9	341	0.21	µg/L	93
		413.0 -> 369.0	4905			
PFOS	8.273	413.0 -> 169.0	787	0.18	µg/L	97
		498.9 -> 79.9	544			
PFPeA	4.349	498.9 -> 98.8	398	0.42	µg/L	100
		263.0 -> 219.0	3248			
PFPeS	6.533	349.1 -> 79.9	867	0.20	µg/L	100
		349.1 -> 98.9	451			
PFTeDA	9.722	713.1 -> 669.0	2358	0.21	µg/L	99
		713.1 -> 168.9	156			
PFTrDA	9.378	663.0 -> 619.0	2657	0.21	µg/L	100
		663.0 -> 168.9	220			
PFUnDA	8.564	563.1 -> 519.0	2582	0.21	µg/L	96
		563.1 -> 269.1	388			
11Cl-PF3OUdS	9.430	630.9 -> 450.9	5741	0.78	µg/L	97
		632.9 -> 452.9	1665			
9Cl-PF3ONS	8.603	530.8 -> 351.0	10091	0.72	µg/L	94
		532.8 -> 353.0	3702			
ADONA	6.719	376.9 -> 250.9	20337	0.73	µg/L	96
		376.9 -> 84.8	5110			
HFPO-DA	5.906	284.9 -> 168.9	904	0.73	µg/L	87
		284.9 -> 184.9	159			
3:3FTCA	3.827	241.0 -> 177.0	443	1.03	µg/L	96
		241.0 -> 117.0	60			
5:3FTCA	6.198	341.0 -> 237.1	15627	5.57	µg/L	93
		341.0 -> 217.0	12630			
7:3FTCA	7.608	441.0 -> 316.9	6869	4.83	µg/L	88
		441.0 -> 336.9	12184			
EtFOSA	10.979	526.0 -> 219.0	490	0.19	µg/L	66
		526.0 -> 169.0	639			
EtFOSE	10.901	630.0 -> 58.9	1189	2.05	µg/L	100
		511.9 -> 219.0	449			
MeFOSA	10.734	511.9 -> 169.0	508	0.21	µg/L	92
		616.1 -> 58.9	1819			
MeFOSE	10.666	699.1 -> 79.9	241	2.20	µg/L	100
		699.1 -> 98.8	150			
PFDoDS	9.848	295.0 -> 201.0	354	0.20	µg/L	99
		295.0 -> 84.9	178			
NFDHA	5.410	279.0 -> 85.1	1084	0.43	µg/L	90
		229.0 -> 84.9	881			
PFMBA	4.750	314.8 -> 134.9	6405	0.36	µg/L	98
PFMPA	3.488	314.8 -> 82.9	192			
PFEESA	6.012					

= Qualifier out of range, m = manually integrated, + = Area summed

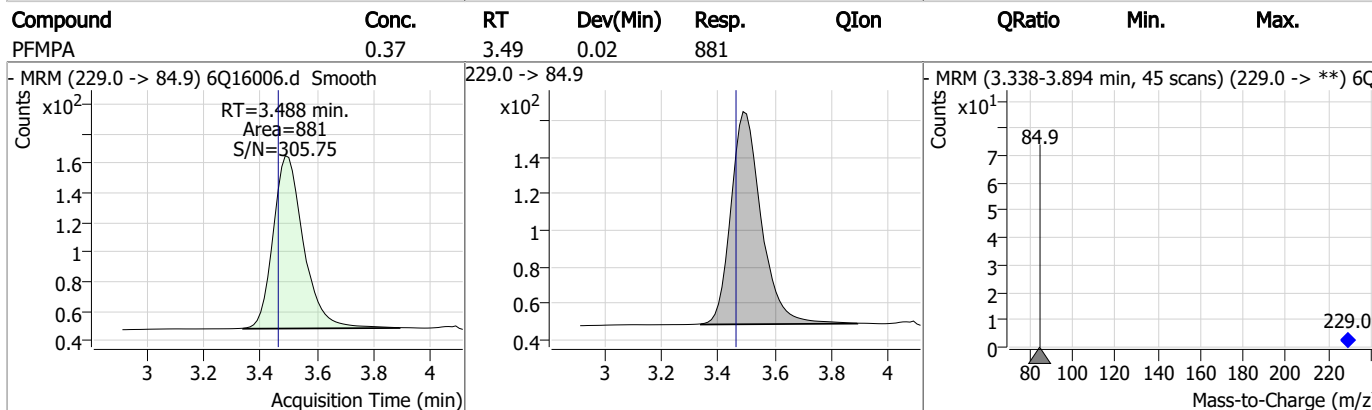
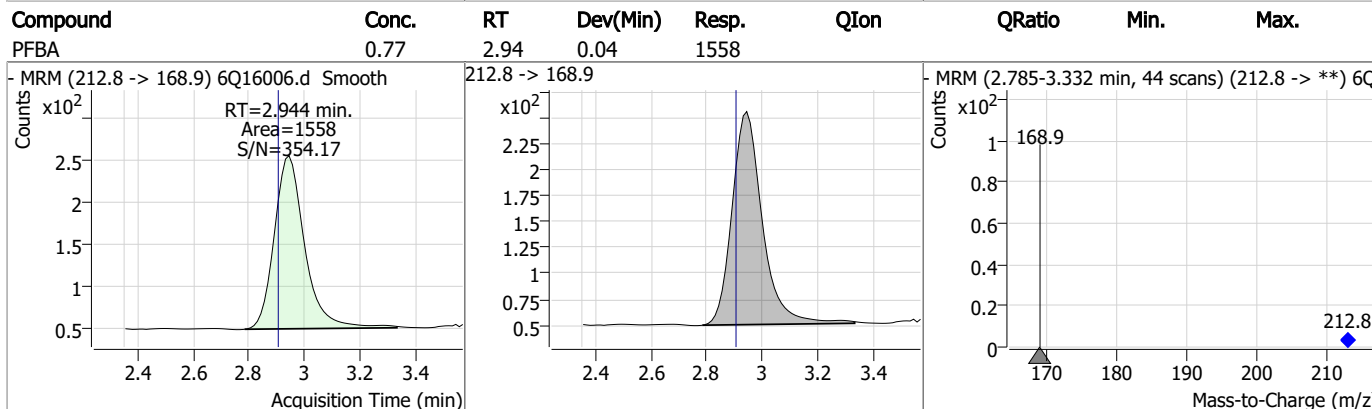
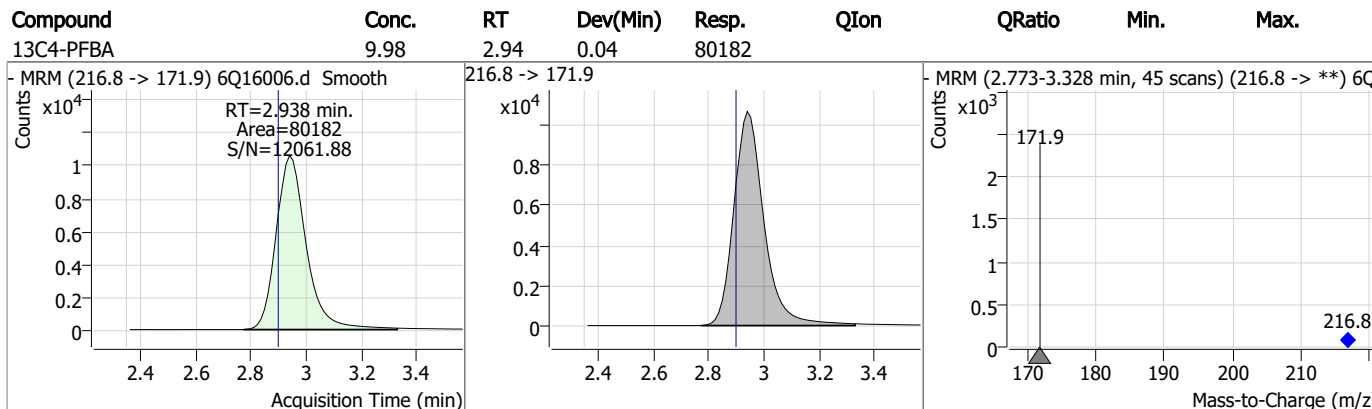
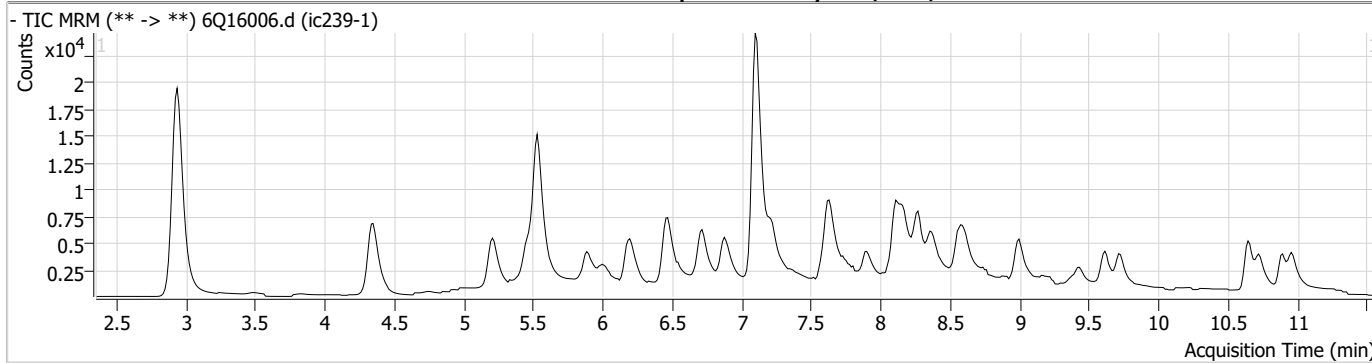
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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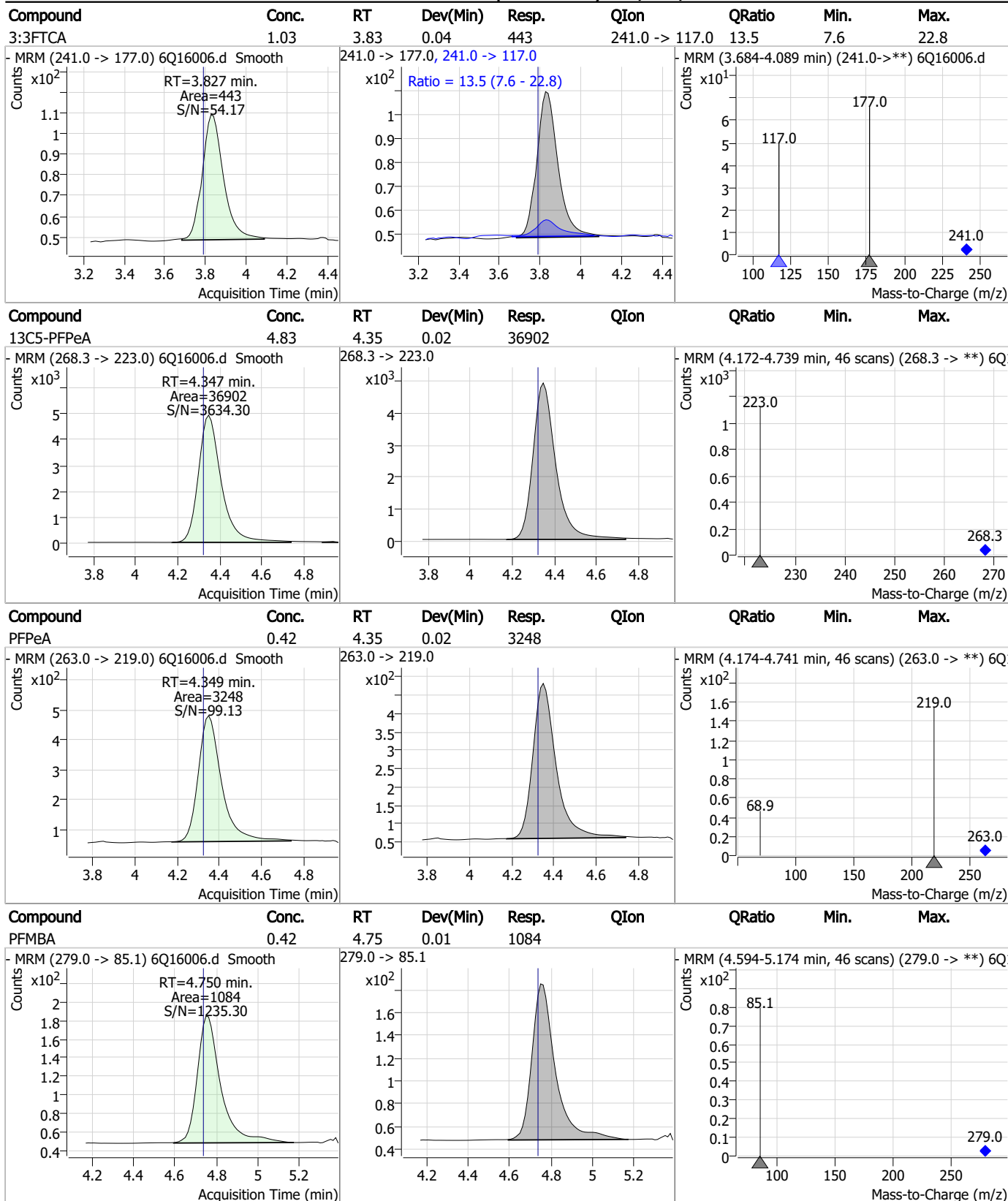
7.6.2
7



Perfluorinated Compounds by LC/MS/MS

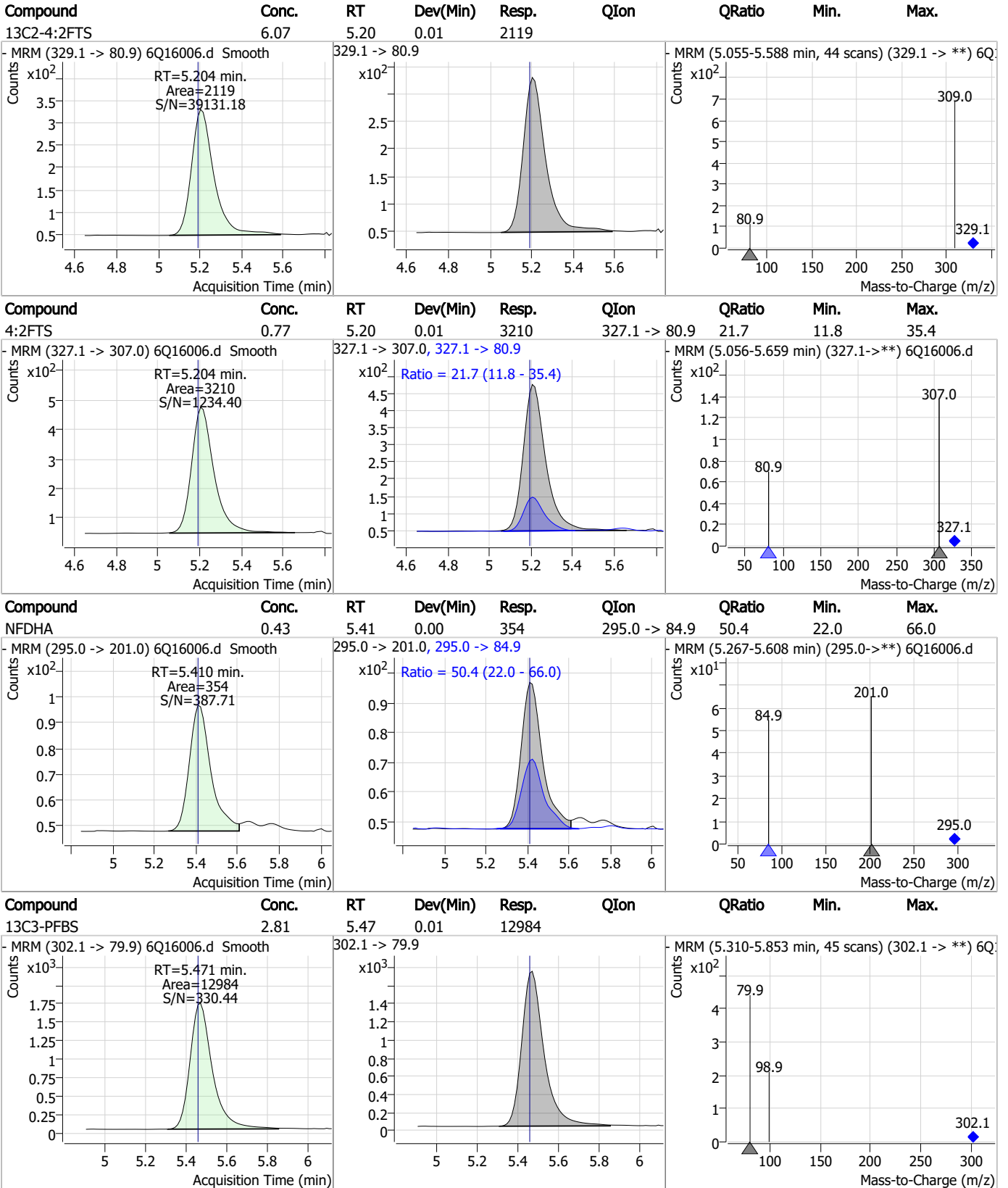


Perfluorinated Compounds by LC/MS/MS



7.6.2
7

Perfluorinated Compounds by LC/MS/MS

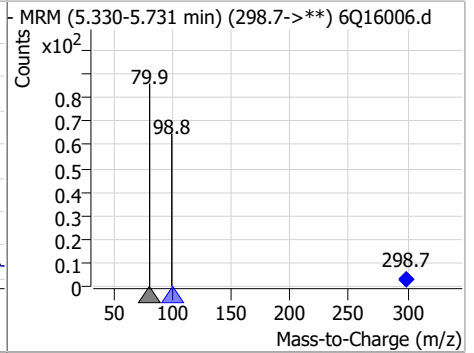
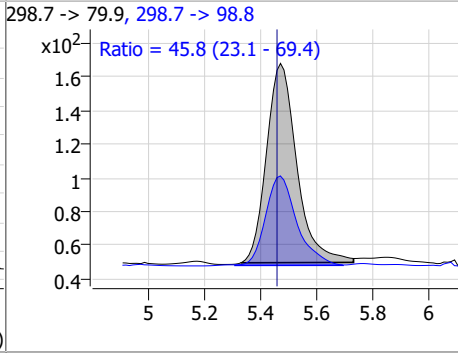
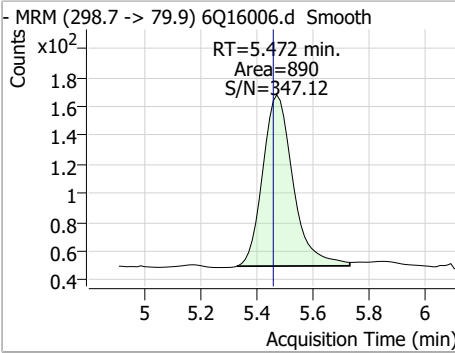


7.6.2

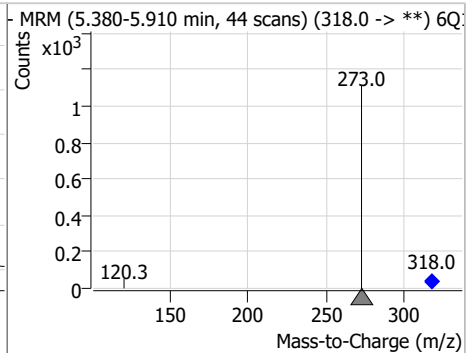
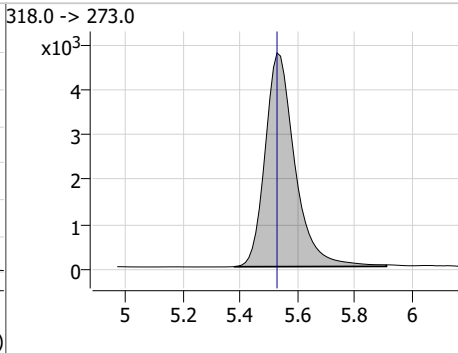
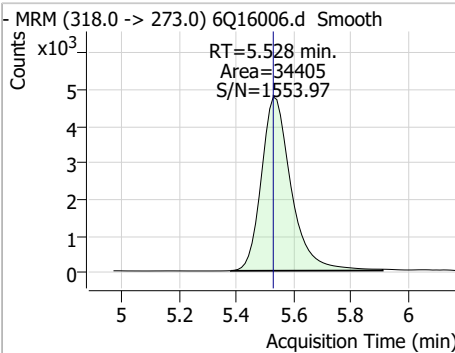
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Perfluorinated Compounds by LC/MS/MS

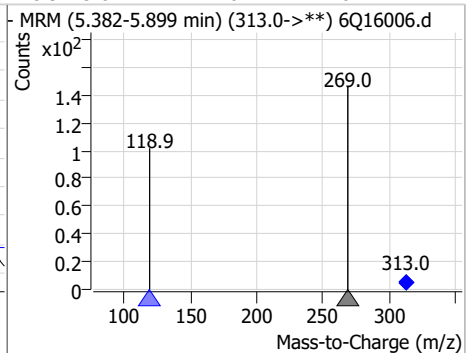
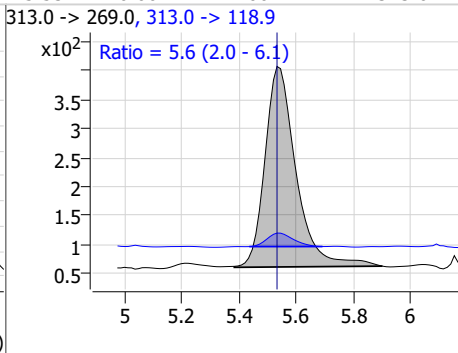
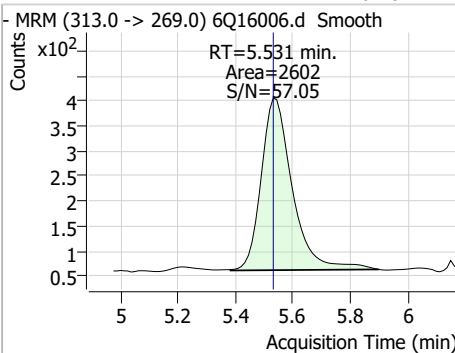
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.17	5.47	0.01	890	298.7 -> 98.8	45.8	23.1	69.4



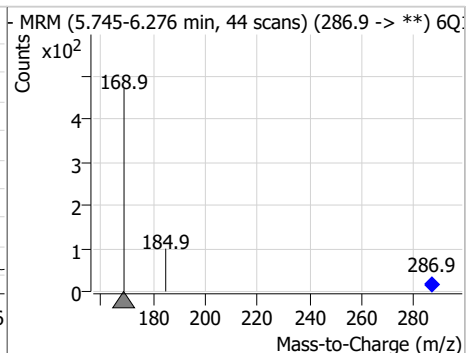
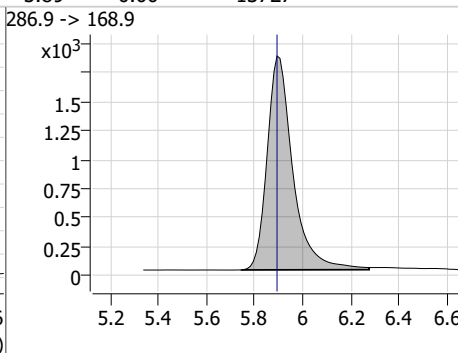
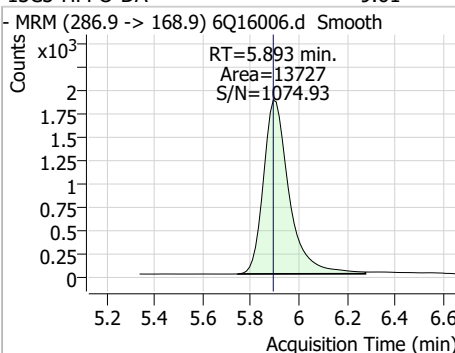
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.54	5.53	0.00	34405				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.20	5.53	0.00	2602	313.0 -> 118.9	5.6	2.0	6.1

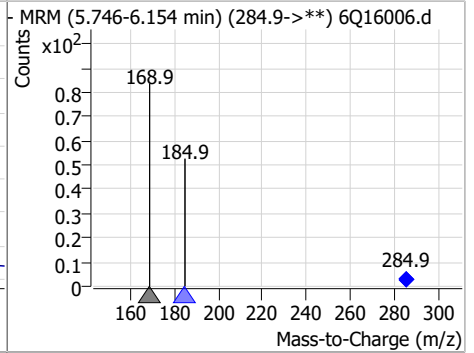
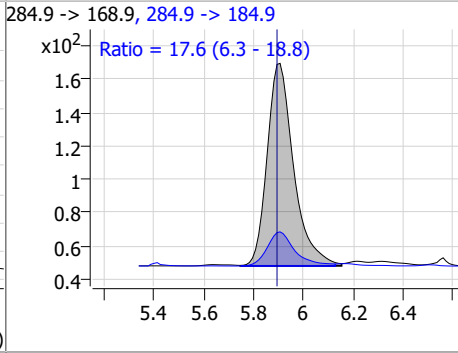
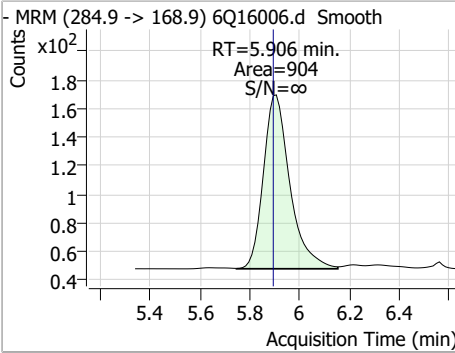


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.61	5.89	0.00	13727				

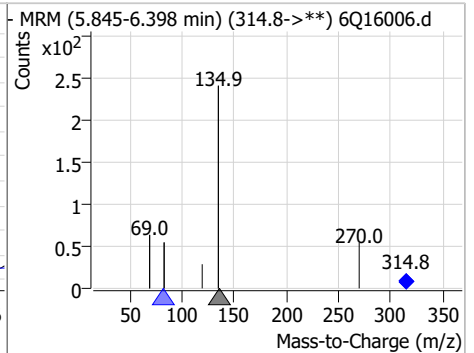
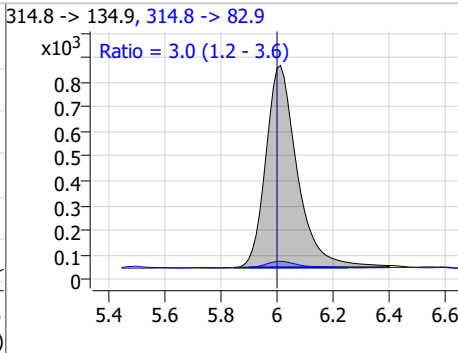
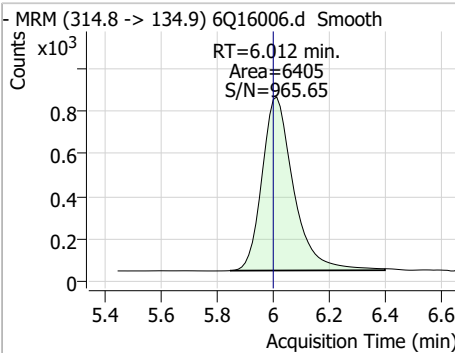


Perfluorinated Compounds by LC/MS/MS

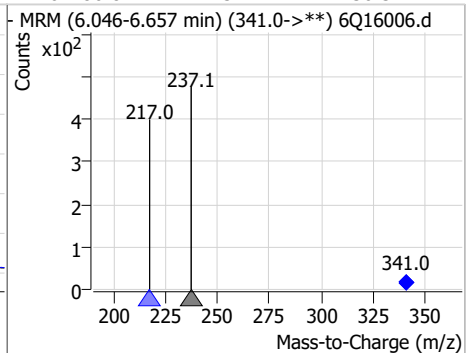
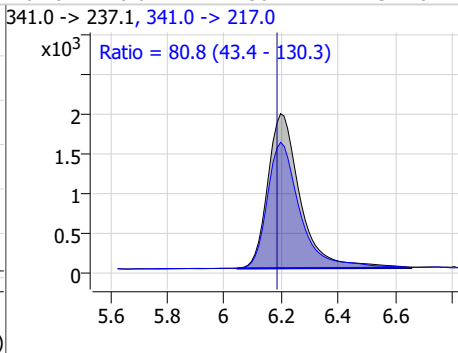
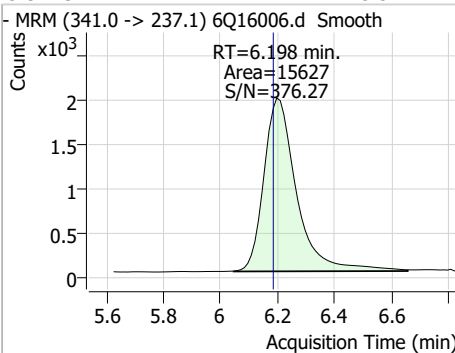
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.73	5.91	0.01	904	284.9 -> 184.9	17.6	6.3	18.8



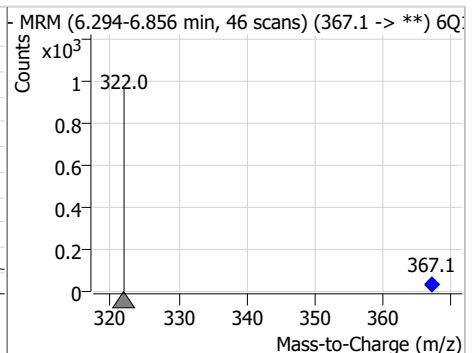
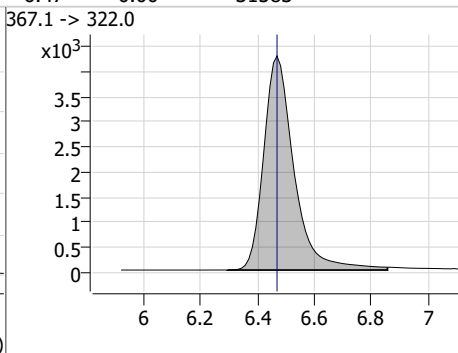
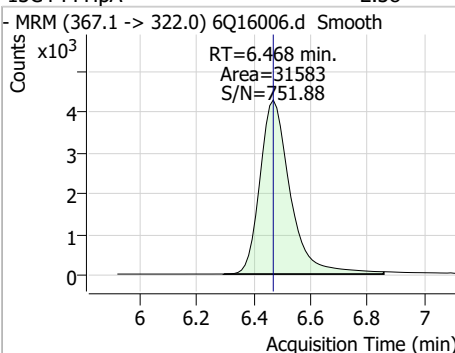
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.36	6.01	0.01	6405	314.8 -> 82.9	3.0	1.2	3.6



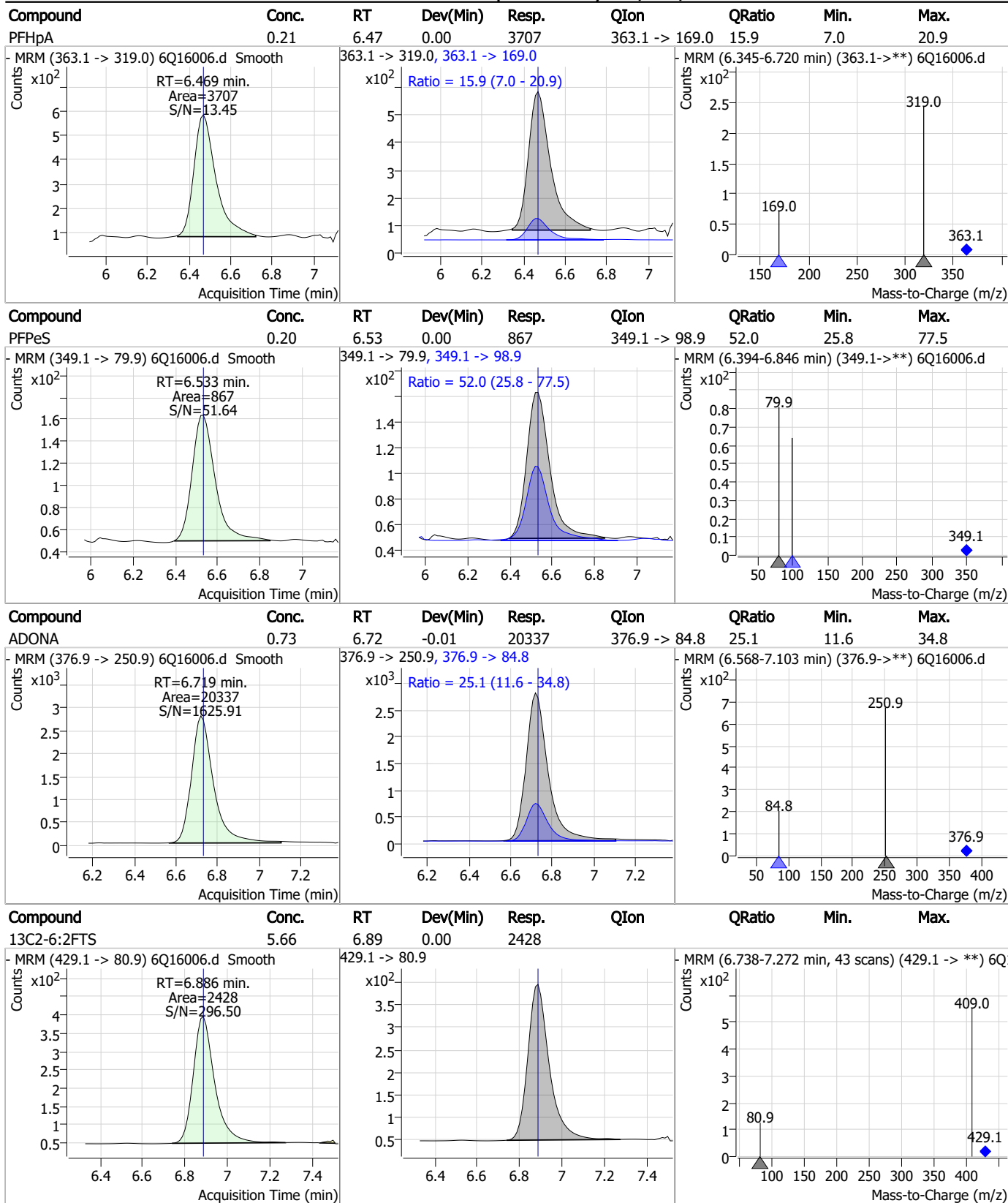
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	5.57	6.20	0.01	15627	341.0 -> 217.0	80.8	43.4	130.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.38	6.47	0.00	31583				

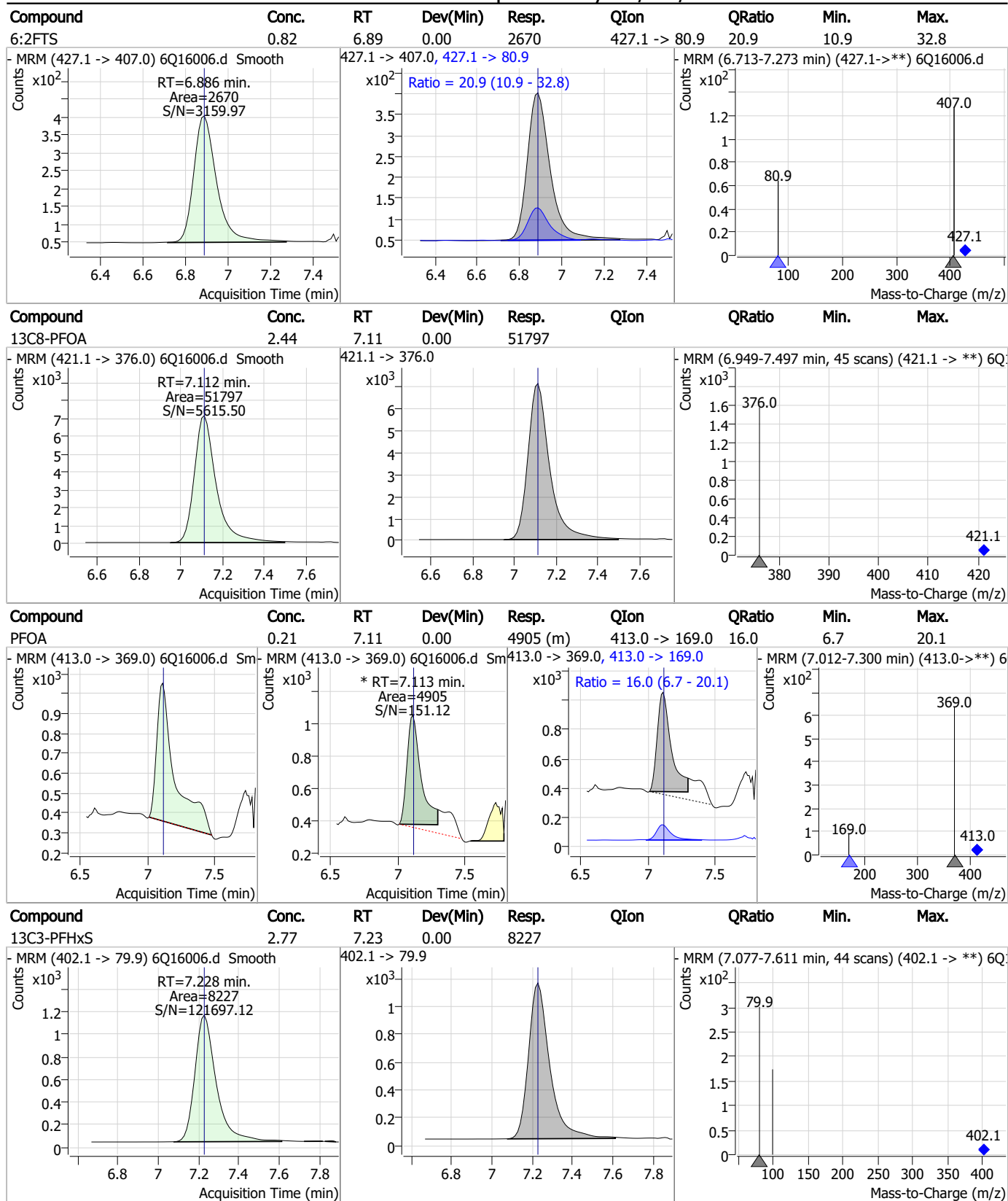


Perfluorinated Compounds by LC/MS/MS



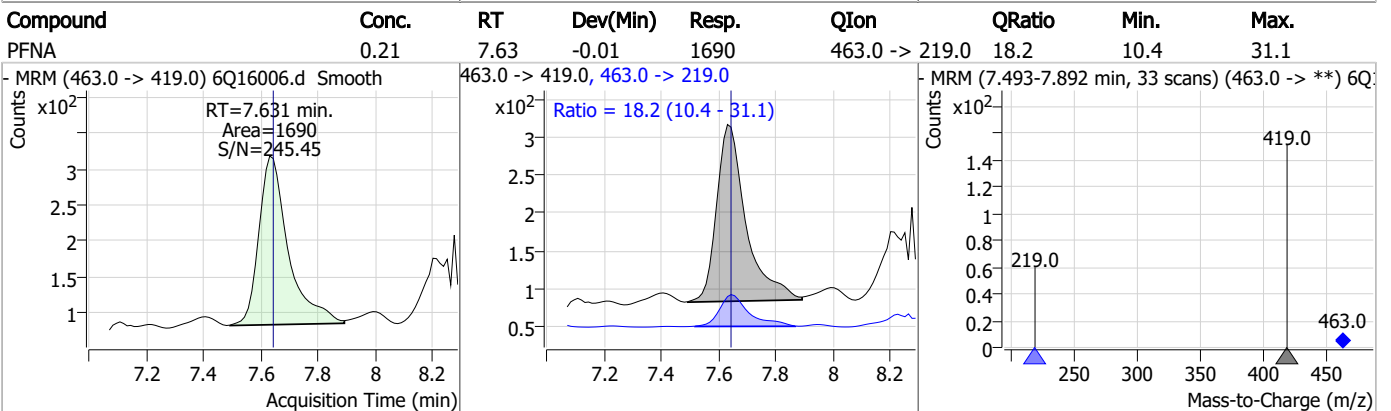
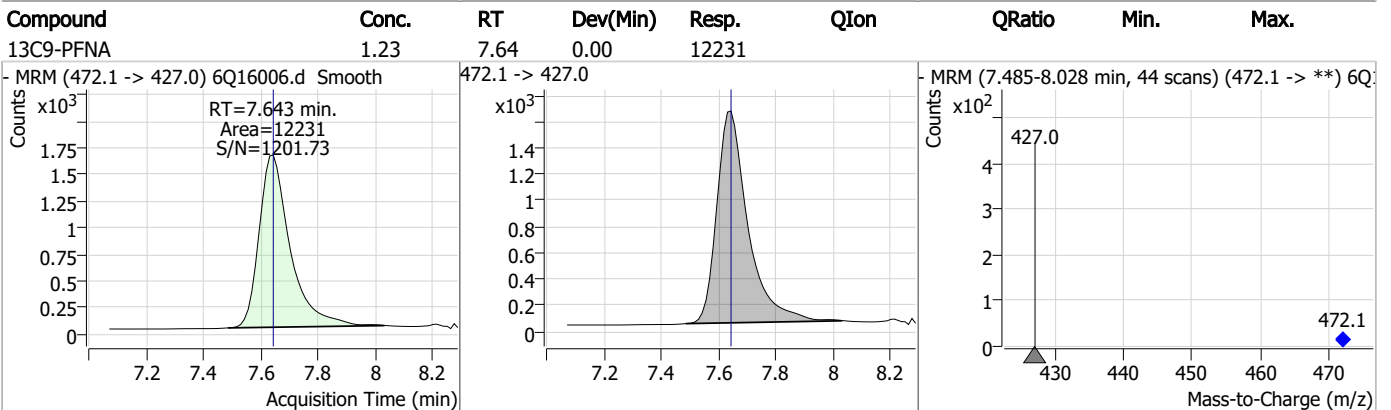
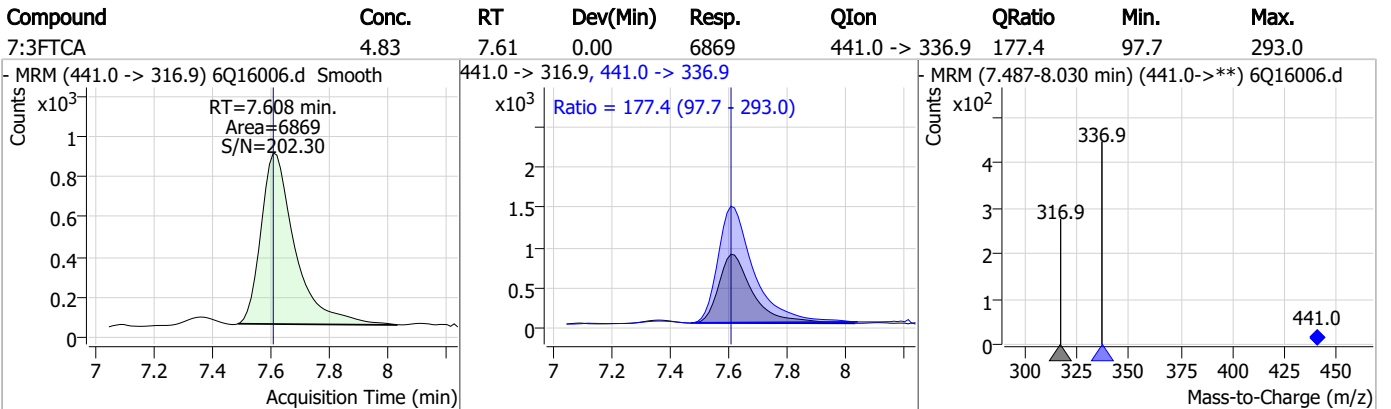
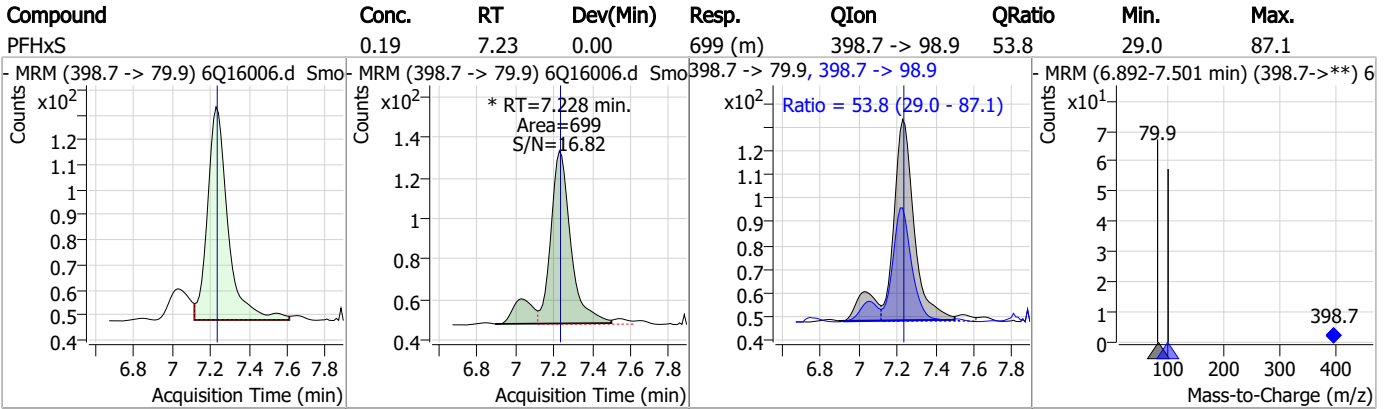
7.6.2
7

Perfluorinated Compounds by LC/MS/MS



7.6.2
7

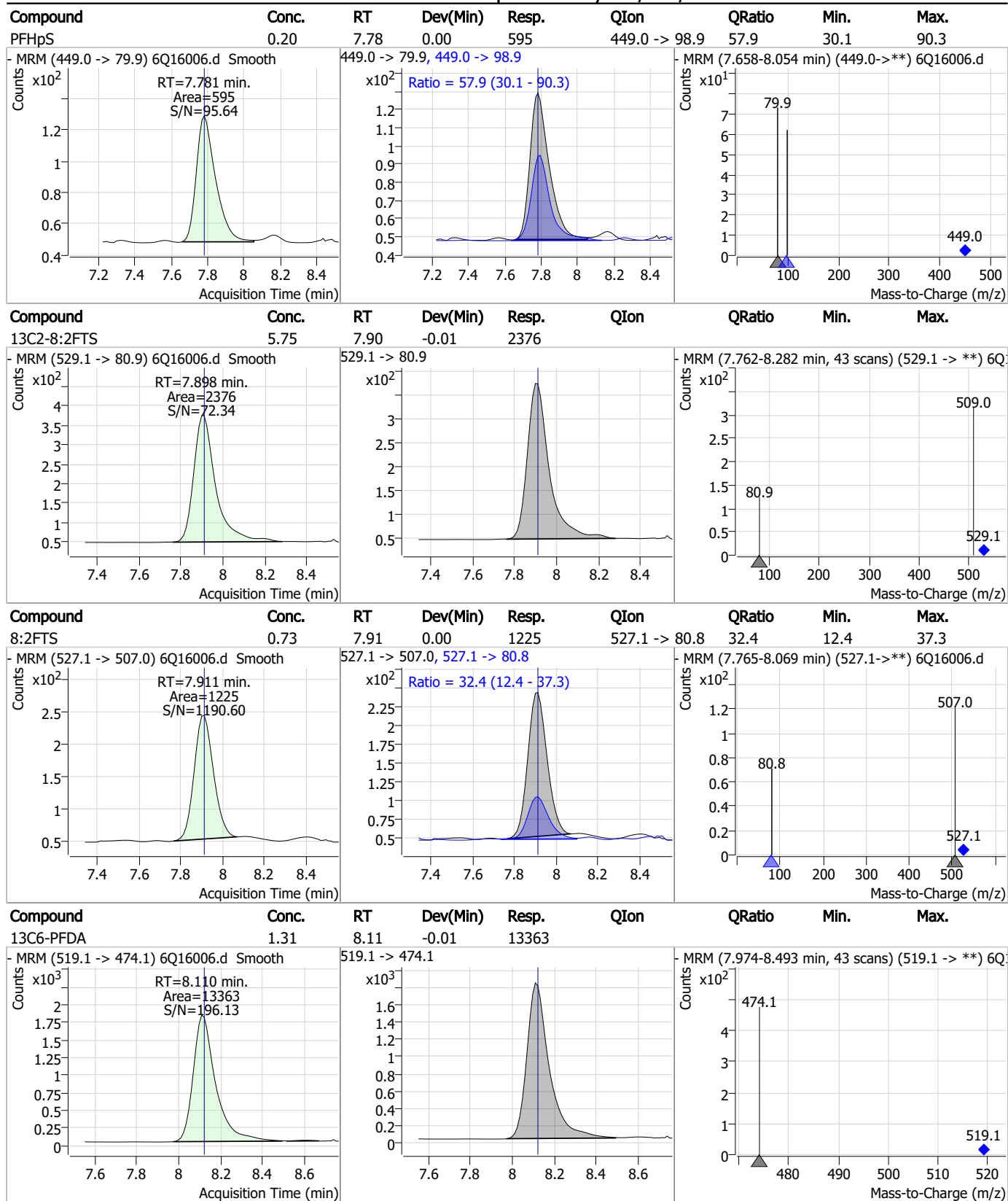
Perfluorinated Compounds by LC/MS/MS



7.62

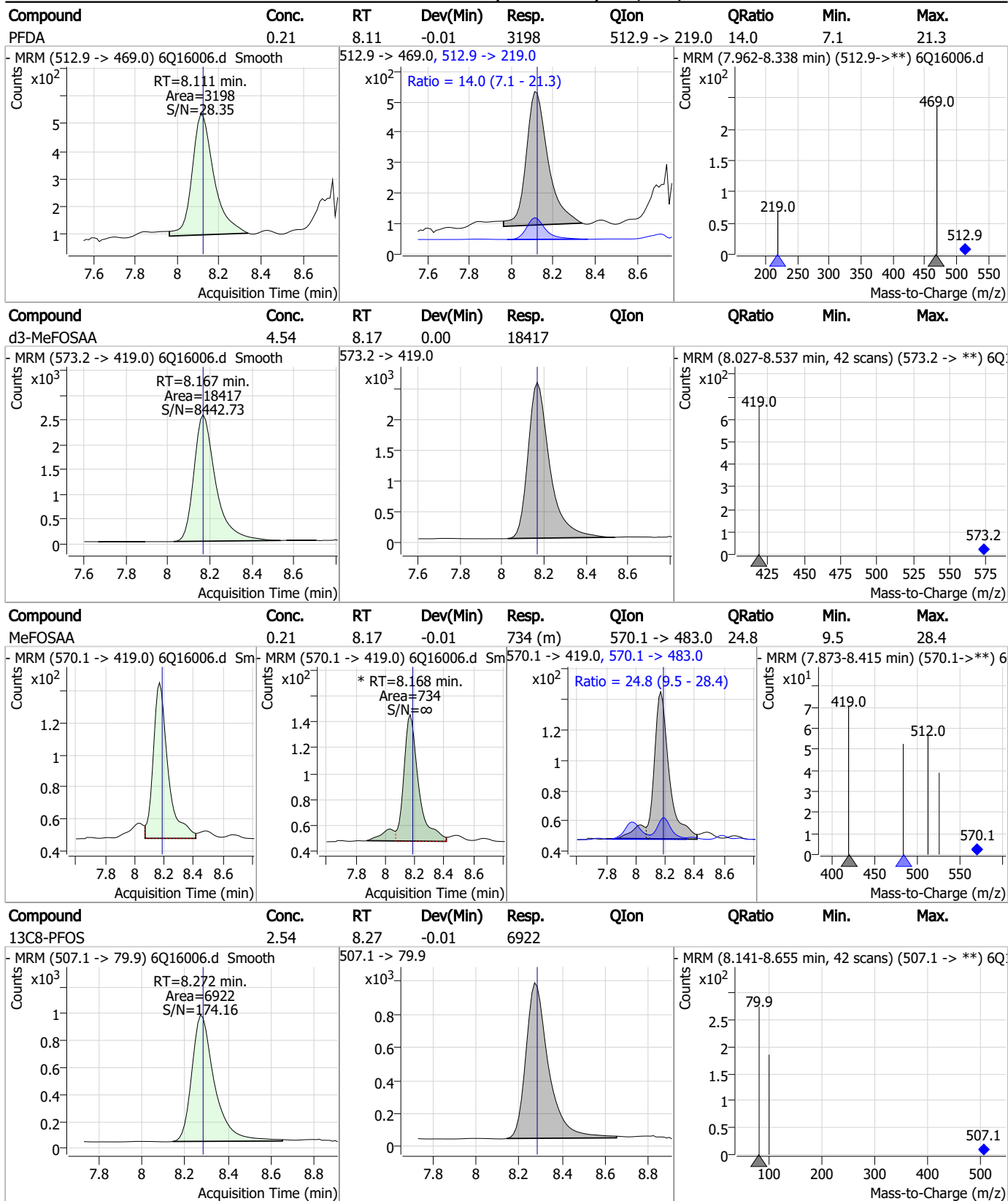
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Perfluorinated Compounds by LC/MS/MS



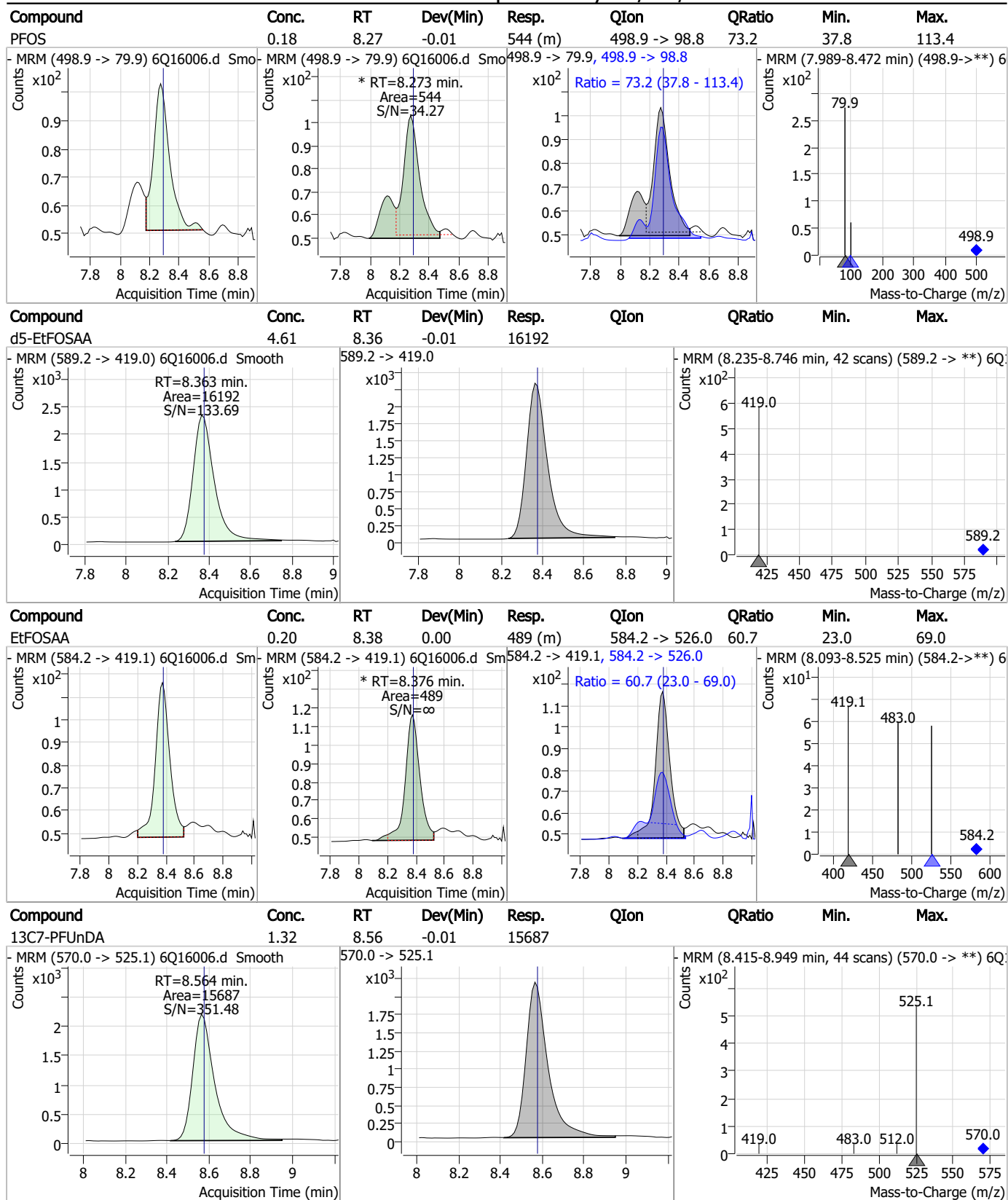
7.6.2
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Perfluorinated Compounds by LC/MS/MS



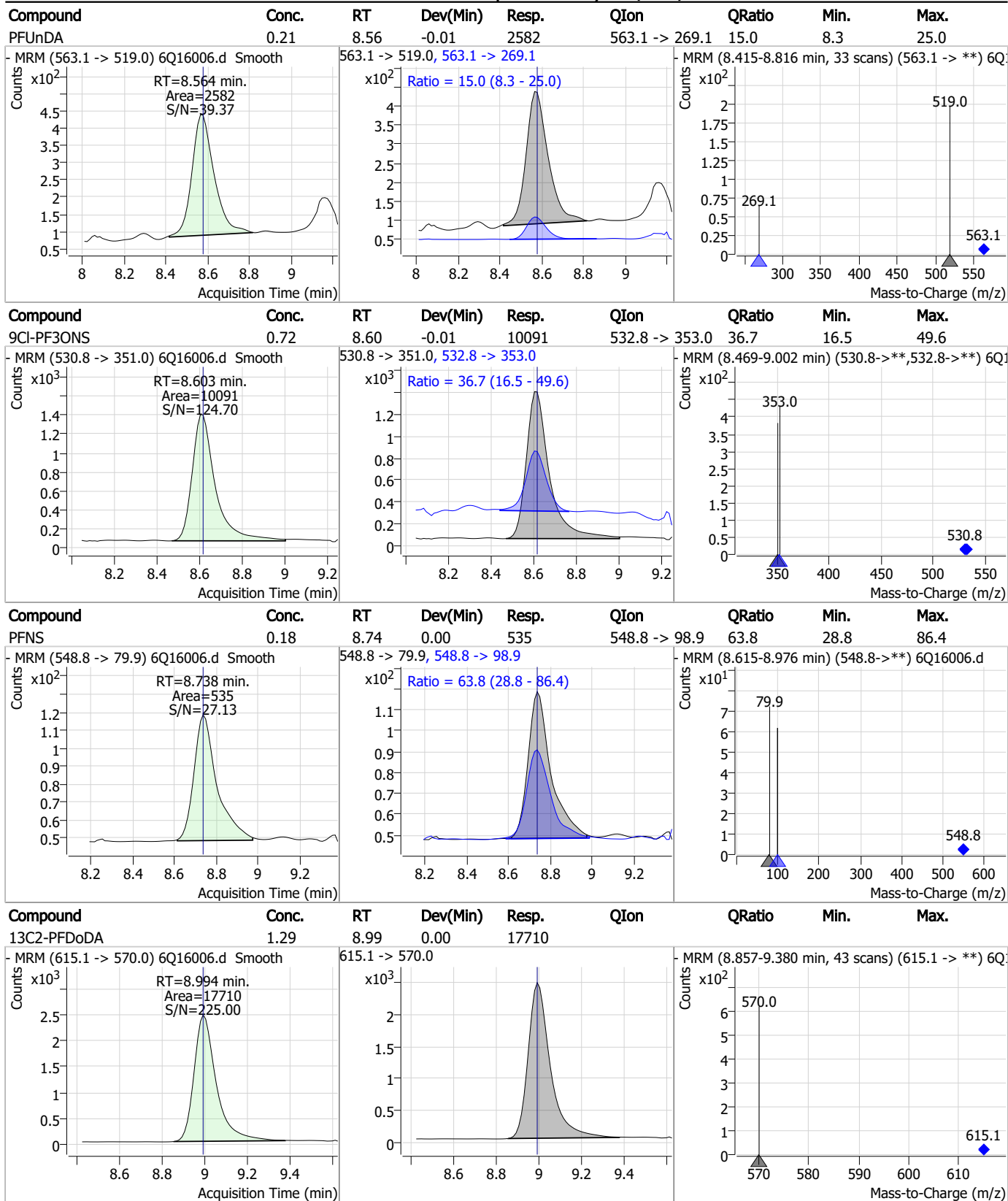
7.6.2
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Perfluorinated Compounds by LC/MS/MS



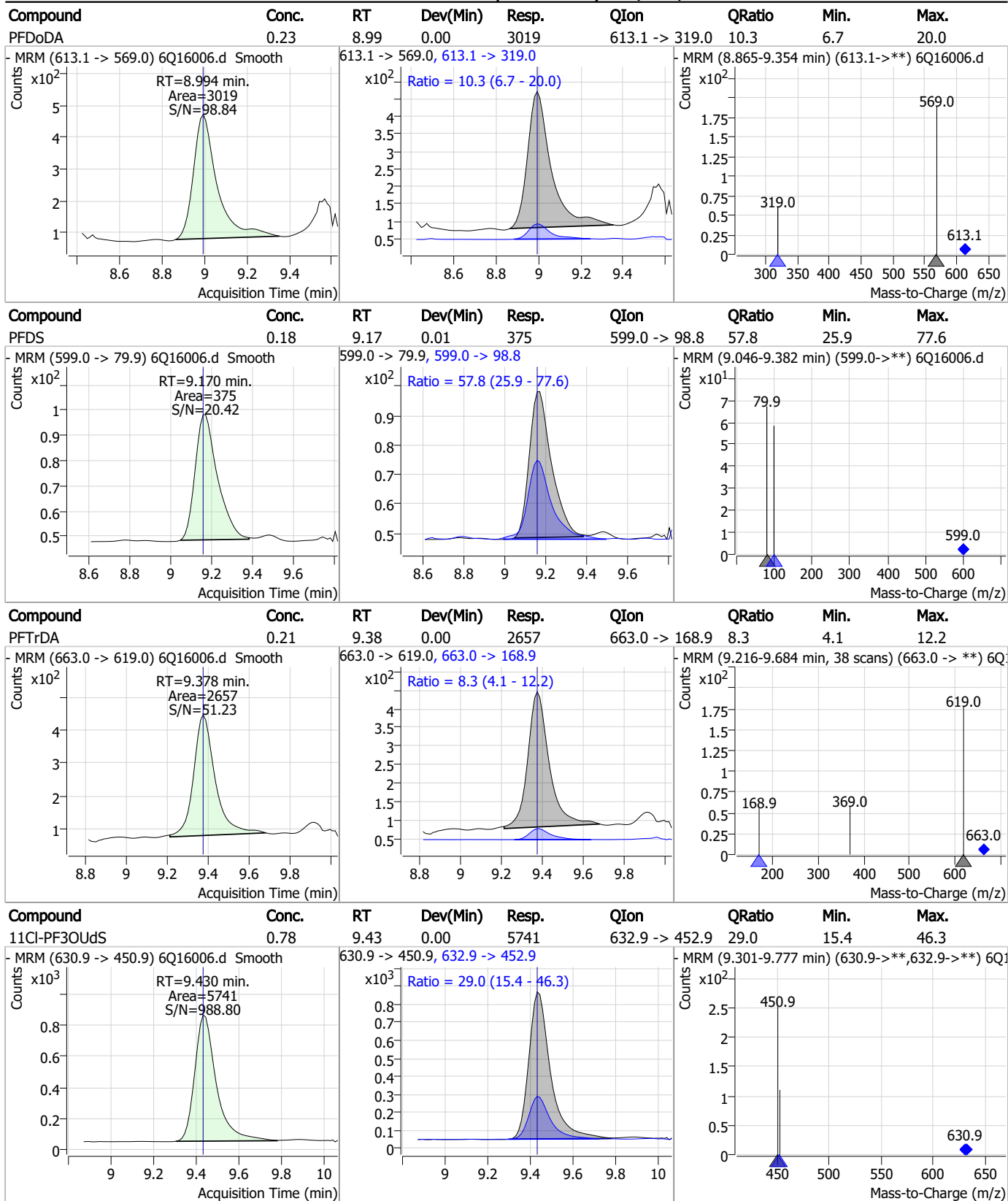
7.6.2
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Perfluorinated Compounds by LC/MS/MS



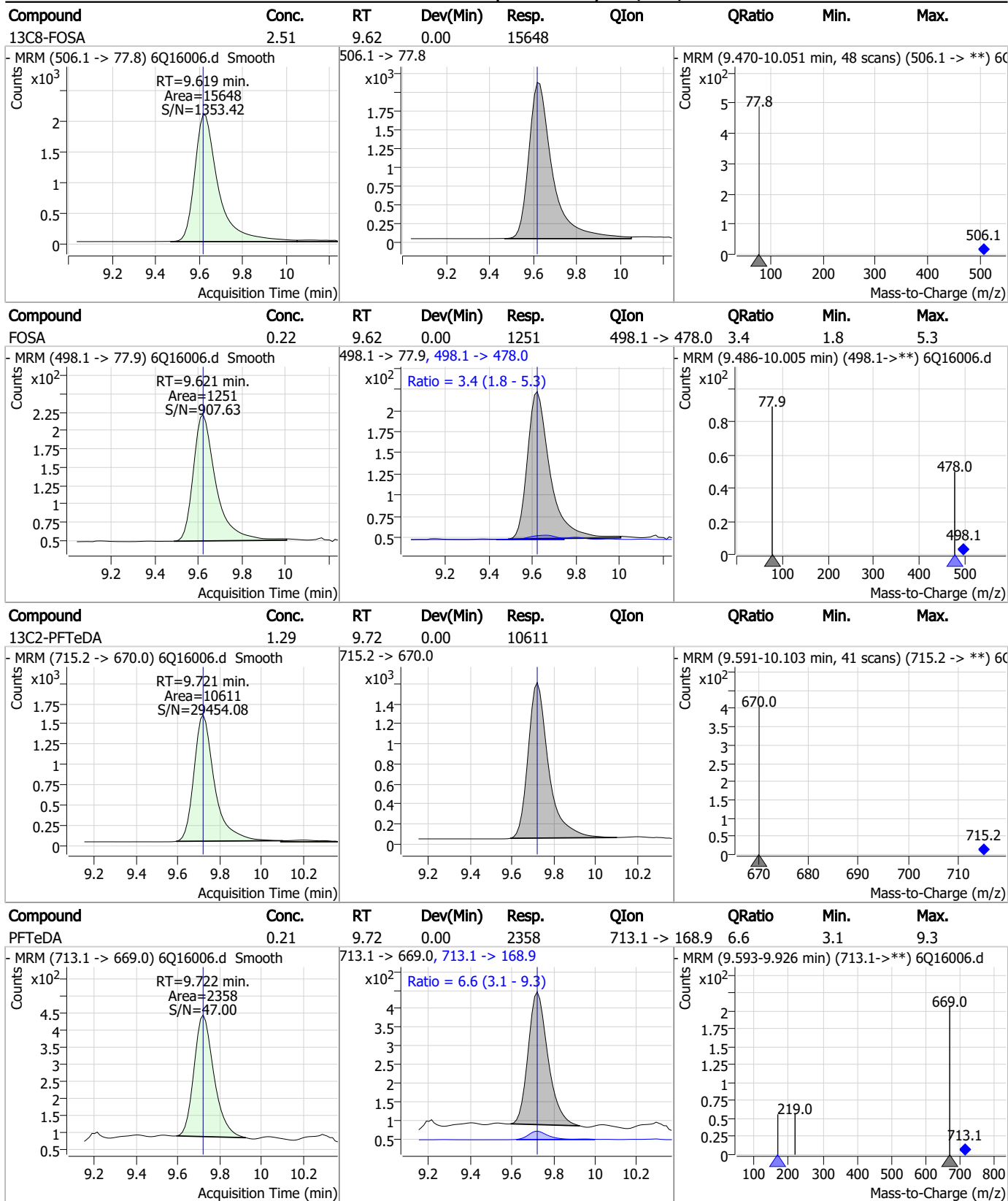
7.6.2
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Perfluorinated Compounds by LC/MS/MS



7.6.2
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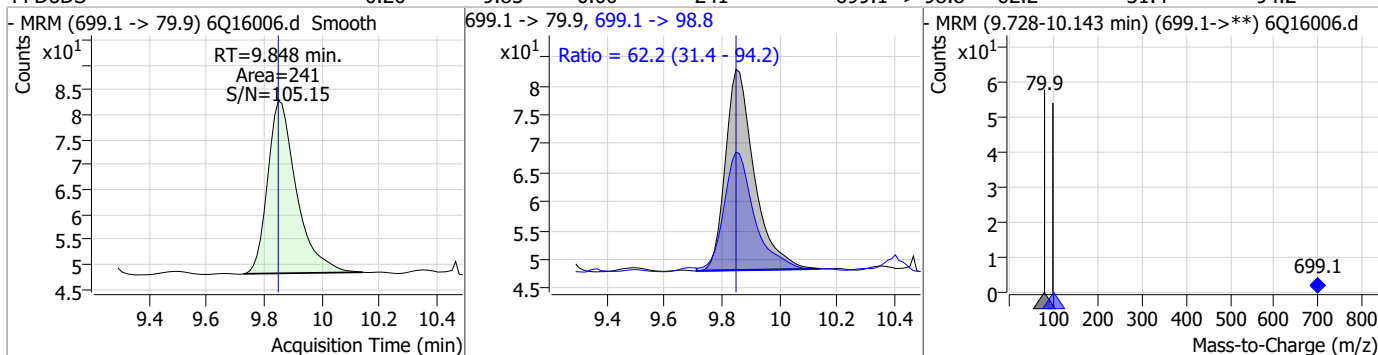
Perfluorinated Compounds by LC/MS/MS



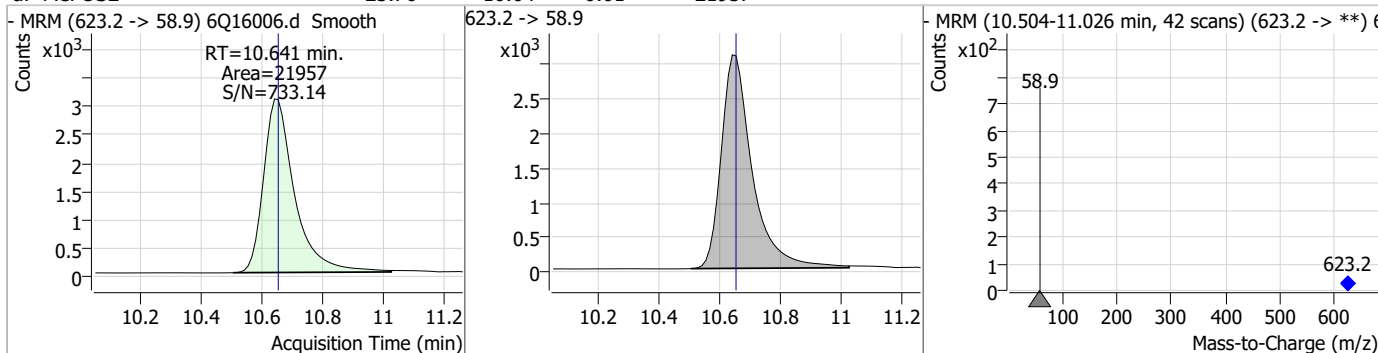
7.6.2
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Perfluorinated Compounds by LC/MS/MS

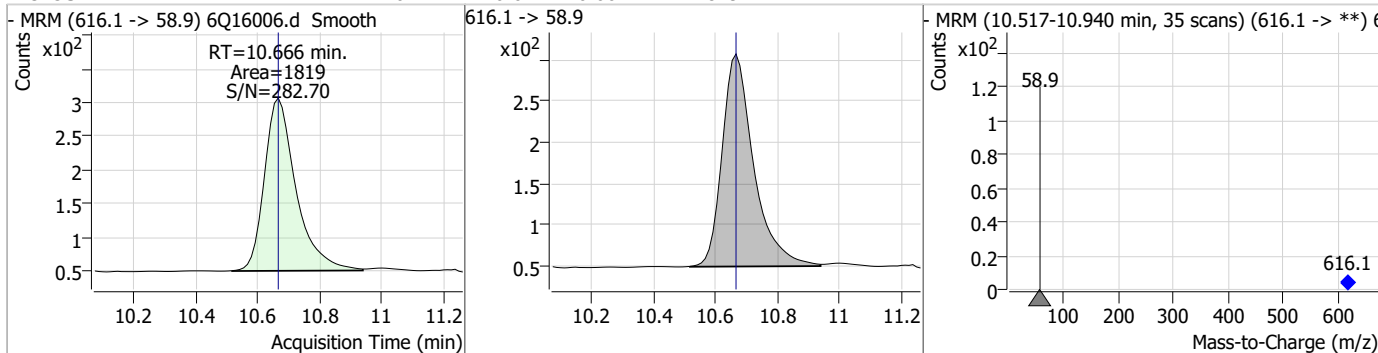
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	0.20	9.85	0.00	241	699.1 -> 98.8	62.2	31.4	94.2



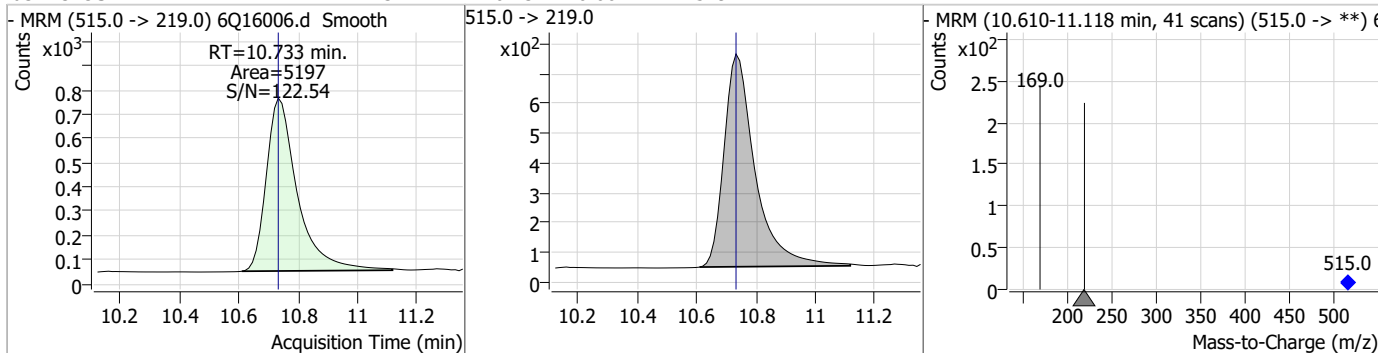
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.76	10.64	-0.01	21957				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	2.20	10.67	0.00	1819				

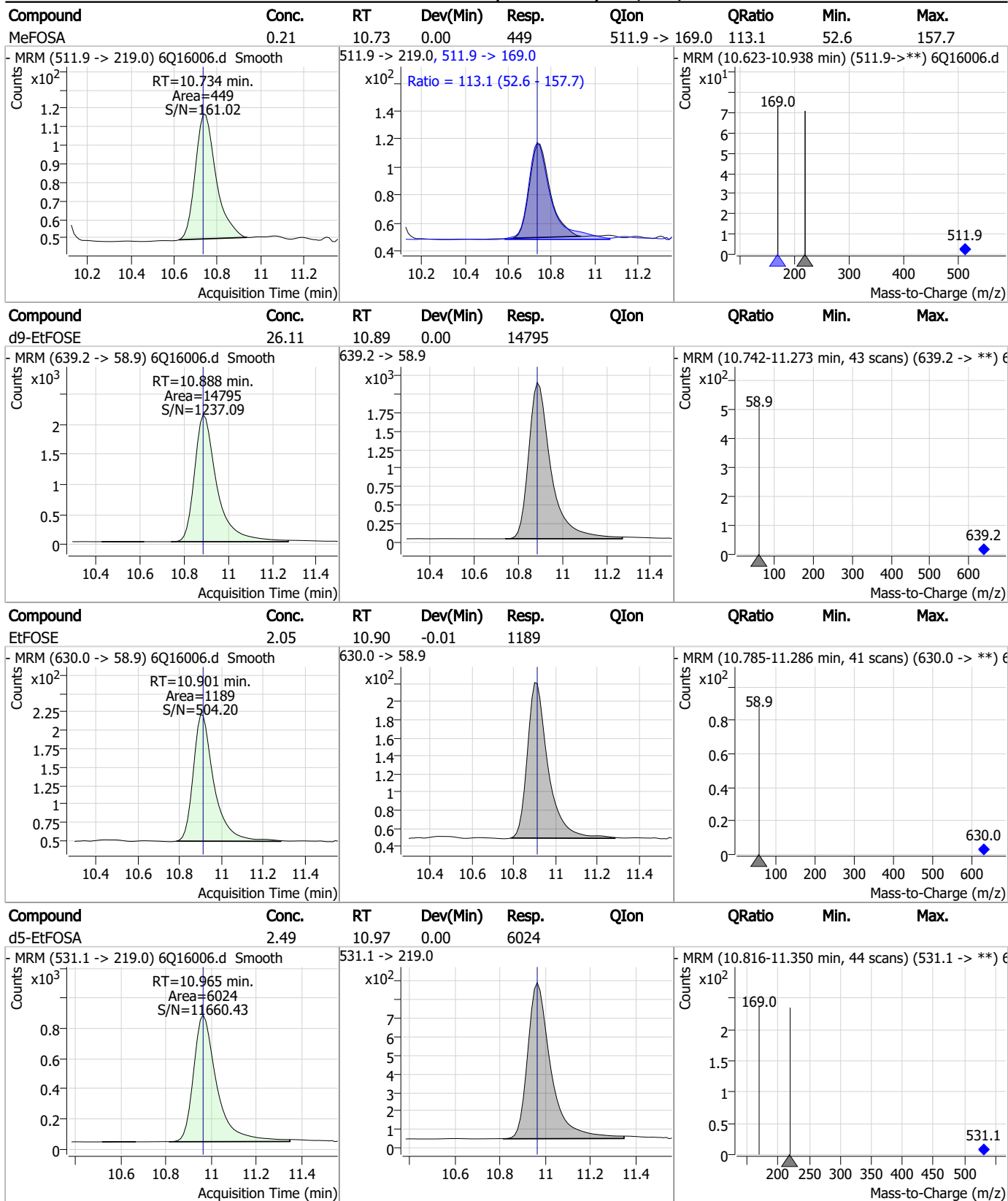


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.31	10.73	0.00	5197				



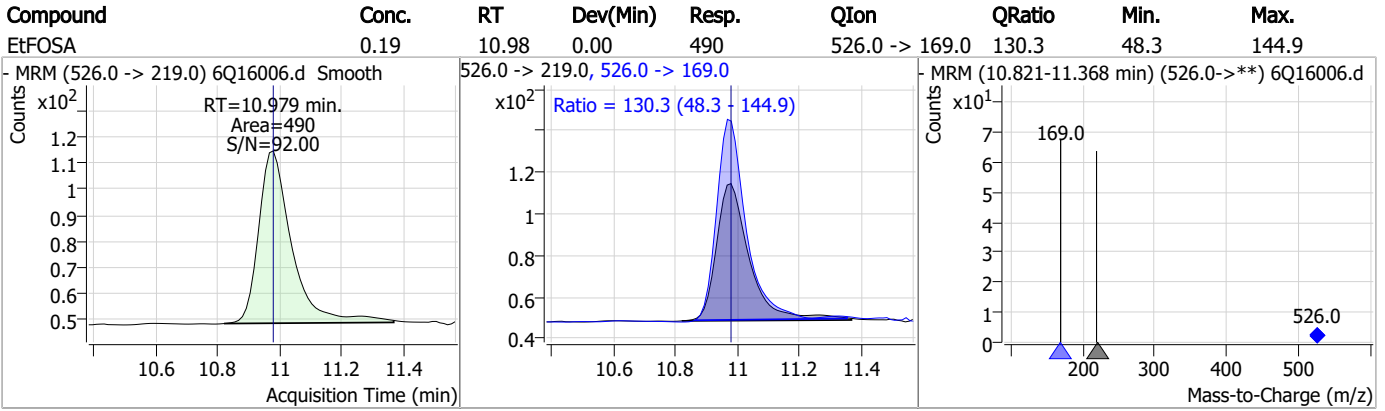
7.6.2
7

Perfluorinated Compounds by LC/MS/MS



7.6.2
7

Perfluorinated Compounds by LC/MS/MS



7.6.2

7

Manual Integration Approval Summary

Sample Number: S6Q239-IC239 Method: EPA DRAFT 1633
Lab FileID: 6Q16006.D Analyst approved: 04/05/23 11:17 Martha Valls
Injection Time: 04/04/23 14:15 Supervisor approved: 04/05/23 17:23 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.11	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
MeFOSAA	2355-31-9		8.17	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.27	Split peak
EtFOSAA	2991-50-6		8.38	Split peak

7.6.2.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16007.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/4/2023 2:29:41 PM
 Sample Name : ic239-2
 Vial : P1-A3
 DA Method File : 1633_040423_S6Q239.quantmethod.xml
 Batch Name : s6q239.batch.bin
 Sample Information : OP96085,S6Q239,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	89975	10.00 µg/L	0.000
M5-PFPeA	4.322	268.3 -> 223.0	40855	5.00 µg/L	0.000
M5-PFHxA	5.528	318.0 -> 273.0	34221	2.50 µg/L	0.000
M4-PFHpA	6.468	367.1 -> 322.0	35510	2.50 µg/L	0.000
M8-PFOA	7.112	421.1 -> 376.0	59211	2.50 µg/L	0.000
M9-PFNA	7.643	472.1 -> 427.0	18259	1.25 µg/L	0.000
M6-PFDA	8.122	519.1 -> 474.1	14331	1.25 µg/L	0.000
M7-PFUnDA	8.564	570.0 -> 525.1	19304	1.25 µg/L	-0.012
M2-PFDoDA	8.994	615.1 -> 570.0	19685	1.25 µg/L	0.000
M2-PFTeDA	9.721	715.2 -> 670.0	12323	1.25 µg/L	0.000
M8-FOSA	9.619	506.1 -> 77.8	16724	2.50 µg/L	0.000
M3-PFBS	5.459	302.1 -> 79.9	13892	2.50 µg/L	0.000
M3-PFHxS	7.228	402.1 -> 79.9	8873	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	7374	2.50 µg/L	0.000
M2-4:2FTS	5.191	329.1 -> 80.9	2250	5.00 µg/L	0.000
M2-6:2FTS	6.886	429.1 -> 80.9	2791	5.00 µg/L	0.000
M2-8:2FTS	7.911	529.1 -> 80.9	2521	5.00 µg/L	0.000
M3-MeFOSAA	8.167	573.2 -> 419.0	23326	5.00 µg/L	0.000
M3-HFPO-DA	5.893	286.9 -> 168.9	14846	10.00 µg/L	0.000
M5-EtFOSAA	8.375	589.2 -> 419.0	18620	5.00 µg/L	0.000
M7-MeFOSE	10.653	623.2 -> 58.9	23529	25.00 µg/L	0.000
M9-EtFOSE	10.888	639.2 -> 58.9	16200	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	6311	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	6106	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	8336	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	38362	5.00 µg/L	0.000
18O2-PFHxS	7.227	403.0 -> 83.9	6660	2.50 µg/L	0.000
13C4-PFOA	7.112	417.1 -> 372.0	70540	2.50 µg/L	0.000
13C2-PFDA	8.123	515.1 -> 470.1	22212	1.25 µg/L	0.000
13C5-PFNA	7.643	468.0 -> 423.0	19095	1.25 µg/L	0.000
13C2-PFHxA	5.529	315.1 -> 270.0	34397	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.191	329.1 -> 80.9	2250	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C2-6:2FTS	6.886	429.1 -> 80.9	2791	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C2-8:2FTS	7.911	529.1 -> 80.9	2521	4.76 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.2%		
13C2-PFDoDA	8.994	615.1 -> 570.0	19685	1.12 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.7%		
13C2-PFTeDA	9.721	715.2 -> 670.0	12323	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.6%		
13C3-PFBS	5.459	302.1 -> 79.9	13892	2.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.8%		
13C3-PFHxS	7.228	402.1 -> 79.9	8873	2.33 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.1%	
13C4-PFBA	2.897	216.8 -> 171.9	89975	10.03 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C4-PFHpA	6.468	367.1 -> 322.0	35510	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C5-PFHxA	5.528	318.0 -> 273.0	34221	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C5-PFPeA	4.322	268.3 -> 223.0	40855	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C6-PFDA	8.122	519.1 -> 474.1	14331	1.10 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 87.7%	
13C7-PFUnDA	8.564	570.0 -> 525.1	19304	1.27 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C8-FOSA	9.619	506.1 -> 77.8	16724	2.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.8%	
13C8-PFOA	7.112	421.1 -> 376.0	59211	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C8-PFOS	8.284	507.1 -> 79.9	7374	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.6%	
13C9-PFNA	7.643	472.1 -> 427.0	18259	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.4%	
d3-MeFOSAA	8.167	573.2 -> 419.0	23326	5.78 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 115.7%	
13C3-HFPO-DA	5.893	286.9 -> 168.9	14846	9.90 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
d3-MeFOSA	10.733	515.0 -> 219.0	6106	2.73 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.3%	
d5-EtFOSAA	8.375	589.2 -> 419.0	18620	5.33 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.6%	
d7-MeFOSE	10.653	623.2 -> 58.9	23529	27.73 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 110.9%	
d9-EtFOSE	10.888	639.2 -> 58.9	16200	28.73 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 114.9%	
d5-EtFOSA	10.965	531.1 -> 219.0	6311	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.8%	
Target Compounds					QValue
4:2FTS	5.192	327.1 -> 307.0	8687	1.97 µg/L	94
		327.1 -> 80.9	2327		
6:2FTS	6.886	427.1 -> 407.0	7250	1.94 µg/L	94
		427.1 -> 80.9	1801		
8:2FTS	7.911	527.1 -> 507.0	4038	2.26 µg/L	97
		527.1 -> 80.8	934		
EtFOSAA	8.376	584.2 -> 419.1	1639	0.57 µg/L	85
		584.2 -> 526.0	920		
FOSA	9.621	498.1 -> 77.9	3676	0.59 µg/L	95
		498.1 -> 478.0	186		
MeFOSAA	8.168	570.1 -> 419.0	2563	0.59 µg/L	93
		570.1 -> 483.0	399		
PFBA	2.906	212.8 -> 168.9	4918	2.16 µg/L	100
PFBS	5.460	298.7 -> 79.9	2730	0.50 µg/L	99
		298.7 -> 98.8	1276		
PFDA	8.123	512.9 -> 469.0	8299	0.50 µg/L	96
		512.9 -> 219.0	1311		
PFDODA	8.994	613.1 -> 569.0	7721	0.53 µg/L	99
		613.1 -> 319.0	1065		
PFDS	9.170	599.0 -> 79.9	1219	0.55 µg/L	94

7.6.3
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	679			
PFHpA	6.469	363.1 -> 319.0	10662	0.53	µg/L	98
		363.1 -> 169.0	1567			
PFHpS	7.794	449.0 -> 79.9	1669	0.53	µg/L	99
		449.0 -> 98.9	1020			
PFHxA	5.531	313.0 -> 269.0	7035	0.56	µg/L	98
		313.0 -> 118.9	320			
PFHxS	7.228	398.7 -> 79.9	1975	0.51	µg/L	m 95
		398.7 -> 98.9	1070			
PFNA	7.643	463.0 -> 419.0	5940	0.50	µg/L	96
		463.0 -> 219.0	1335			
PFNS	8.738	548.8 -> 79.9	1655	0.53	µg/L	99
		548.8 -> 98.9	965			
PFOA	7.113	413.0 -> 369.0	14882	0.56	µg/L	98
		413.0 -> 169.0	1860			
PFOS	8.286	498.9 -> 79.9	1628	0.50	µg/L	m 90
		498.9 -> 98.8	1094			
PFPeA	4.324	263.0 -> 219.0	9253	1.07	µg/L	100
PFPeS	6.533	349.1 -> 79.9	2525	0.54	µg/L	100
		349.1 -> 98.9	1313			
PFTeDA	9.722	713.1 -> 669.0	6322	0.49	µg/L	92
		713.1 -> 168.9	564			
PFTrDA	9.378	663.0 -> 619.0	7500	0.54	µg/L	100
		663.0 -> 168.9	604			
PFUnDA	8.564	563.1 -> 519.0	7214	0.47	µg/L	93
		563.1 -> 269.1	992			
11Cl-PF3OUdS	9.430	630.9 -> 450.9	15869	1.99	µg/L	95
		632.9 -> 452.9	5296			
9Cl-PF3ONS	8.616	530.8 -> 351.0	31848	2.09	µg/L	100
		532.8 -> 353.0	10596			
ADONA	6.731	376.9 -> 250.9	60102	2.00	µg/L	97
		376.9 -> 84.8	14866			
HFPO-DA	5.894	284.9 -> 168.9	3112	2.32	µg/L	98
		284.9 -> 184.9	412			
3:3FTCA	3.790	241.0 -> 177.0	1252	2.62	µg/L	98
		241.0 -> 117.0	182			
5:3FTCA	6.185	341.0 -> 237.1	38081	13.64	µg/L	89
		341.0 -> 217.0	36944			
7:3FTCA	7.608	441.0 -> 316.9	20297	14.36	µg/L	88
		441.0 -> 336.9	36120			
EtFOSA	10.967	526.0 -> 219.0	1465	0.54	µg/L	83
		526.0 -> 169.0	1655			
EtFOSE	10.913	630.0 -> 58.9	3324	5.23	µg/L	100
MeFOSA	10.734	511.9 -> 219.0	1383	0.54	µg/L	99
		511.9 -> 169.0	1439			
MeFOSE	10.666	616.1 -> 58.9	4666	5.26	µg/L	100
PFDoDS	9.848	699.1 -> 79.9	692	0.54	µg/L	99
		699.1 -> 98.8	428			
NFDHA	5.398	295.0 -> 201.0	989	1.21	µg/L	99
		295.0 -> 84.9	431			
PFMBA	4.737	279.0 -> 85.1	3070	1.08	µg/L	100
PFMPA	3.463	229.0 -> 84.9	2841	1.09	µg/L	100
PFEESA	5.999	314.8 -> 134.9	18657	1.04	µg/L	99
		314.8 -> 82.9	486			

= Qualifier out of range, m = manually integrated, + = Area summed

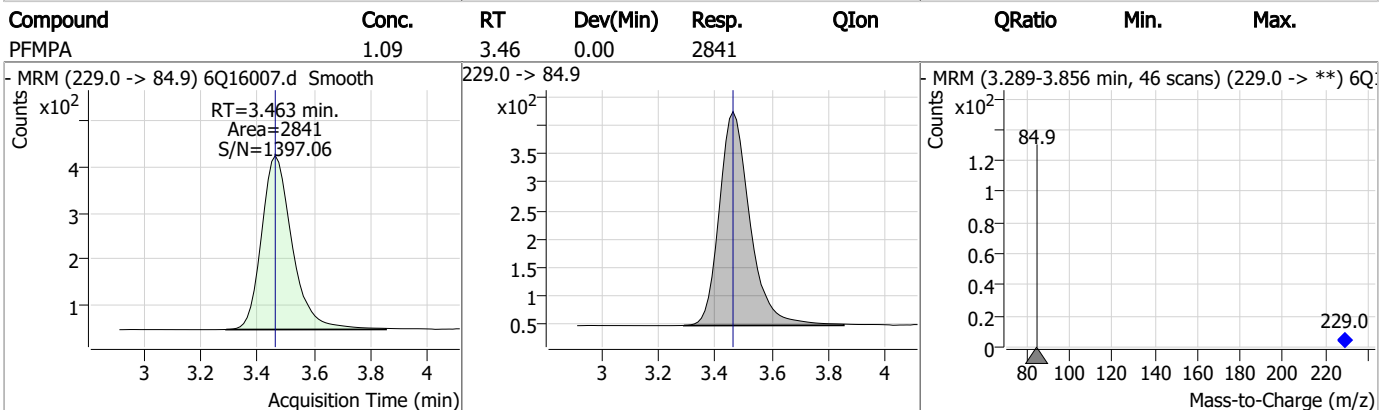
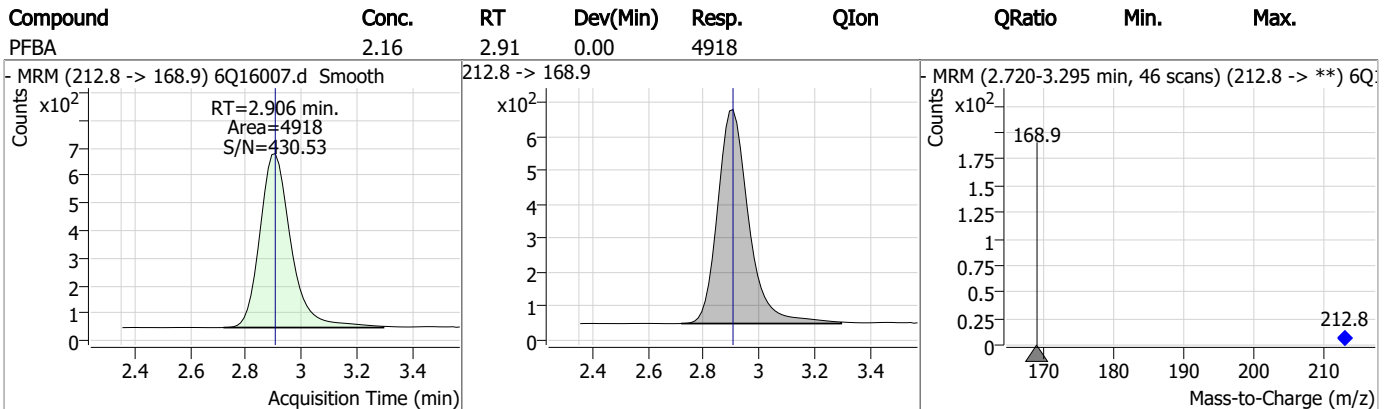
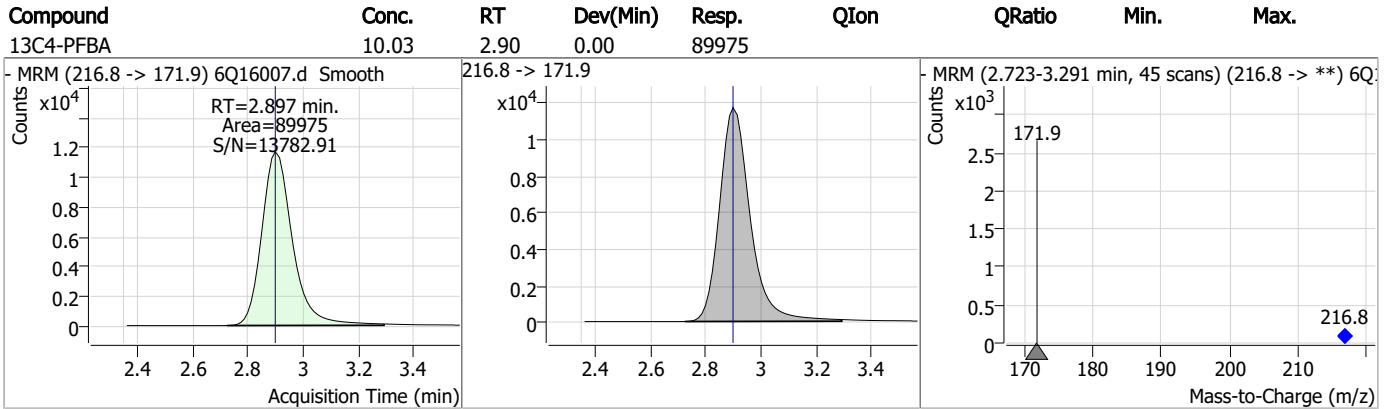
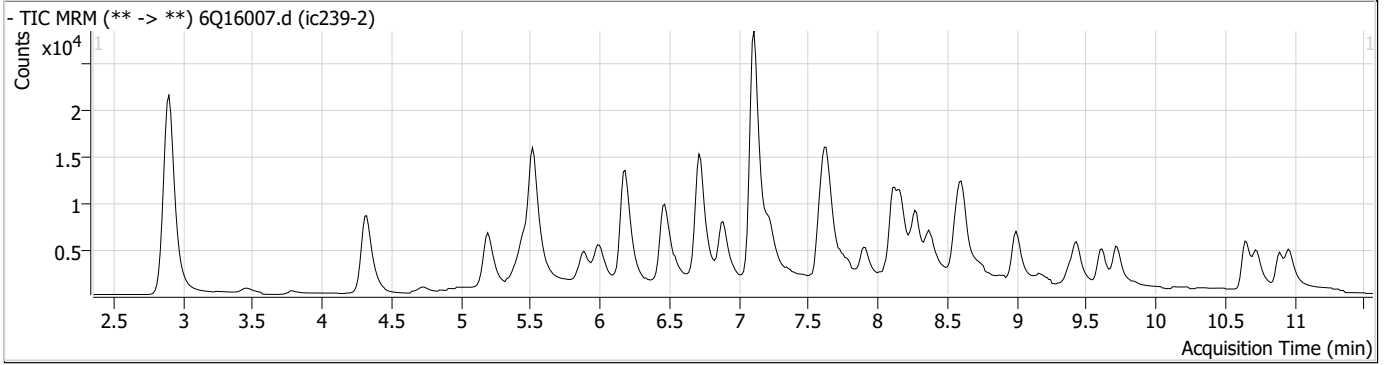
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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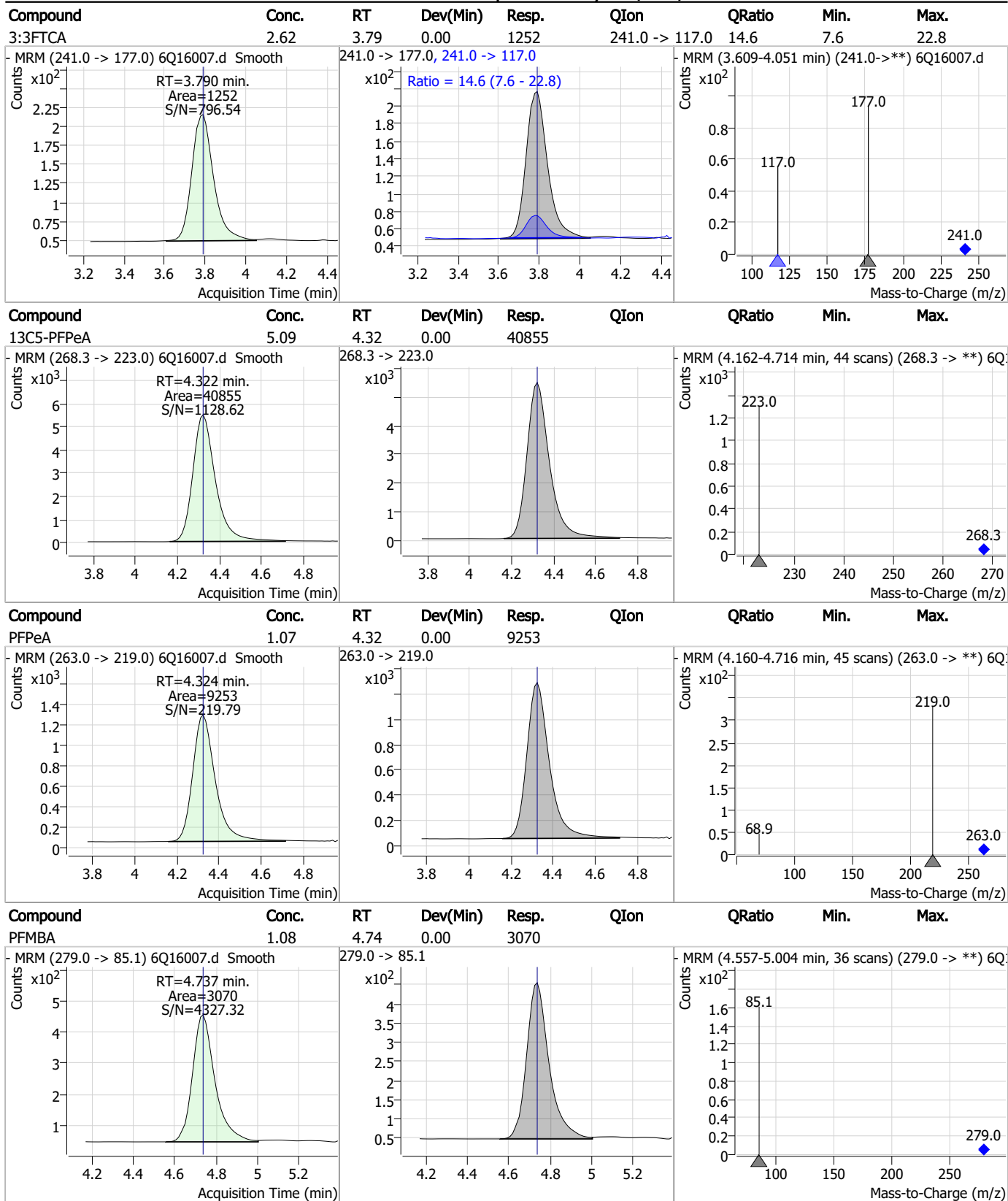
7.6.3
7



Perfluorinated Compounds by LC/MS/MS

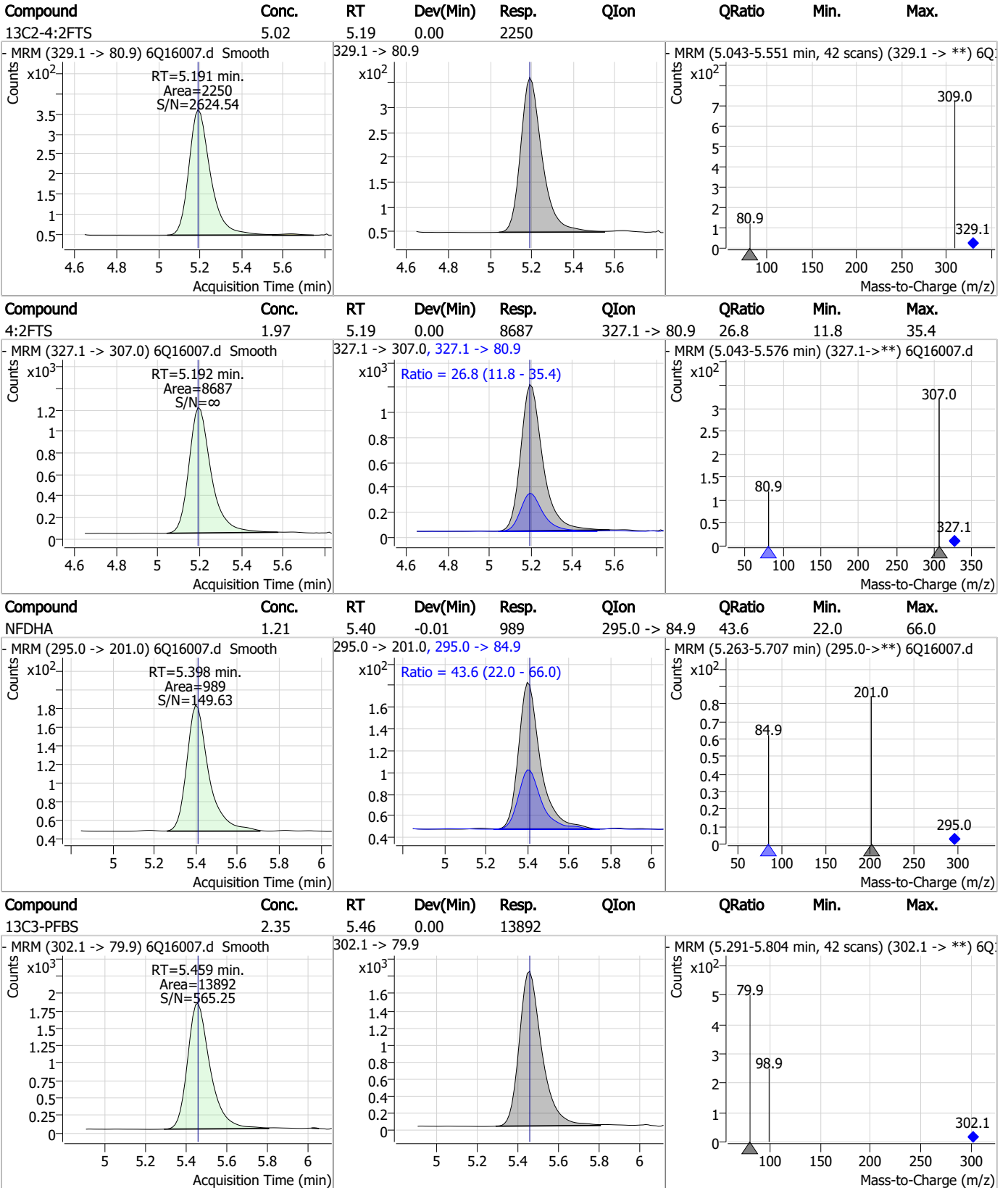


Perfluorinated Compounds by LC/MS/MS



7.6.3
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Perfluorinated Compounds by LC/MS/MS

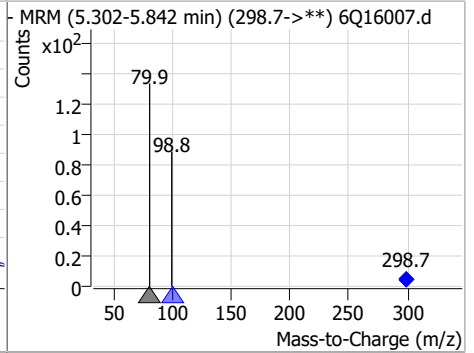
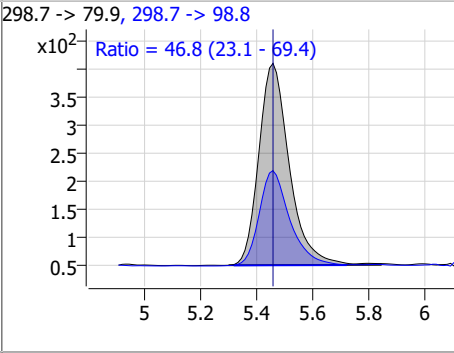
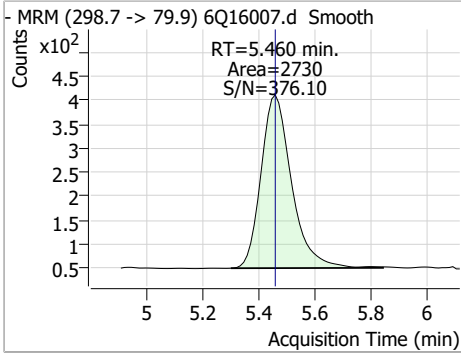


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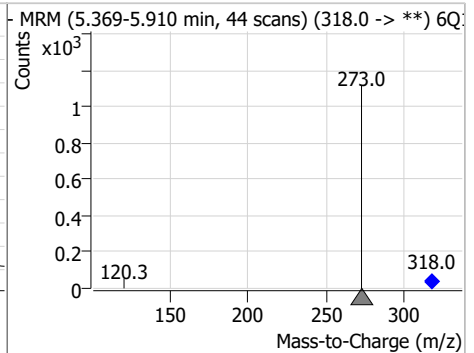
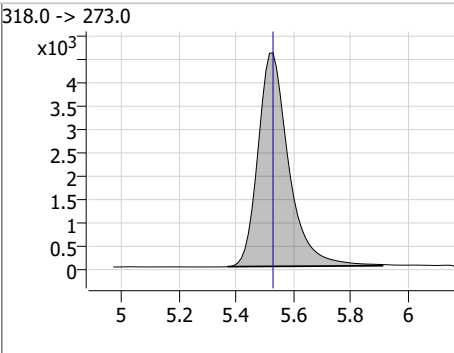
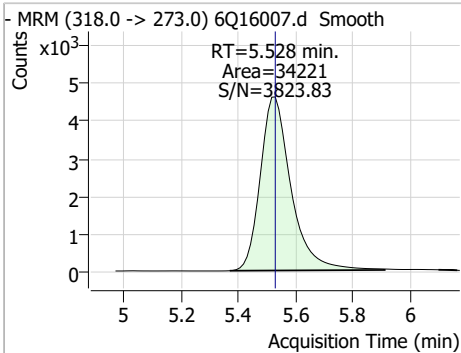
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Perfluorinated Compounds by LC/MS/MS

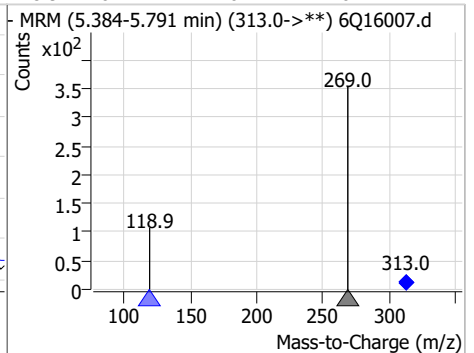
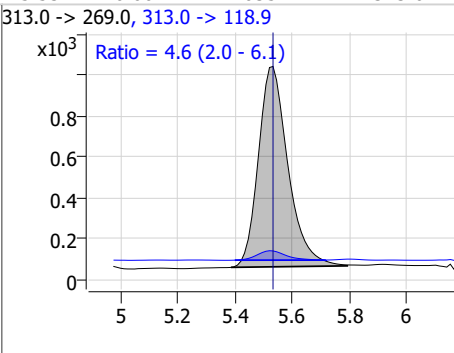
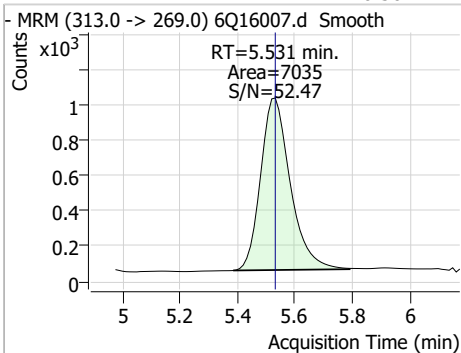
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.50	5.46	0.00	2730	298.7 -> 98.8	46.8	23.1	69.4



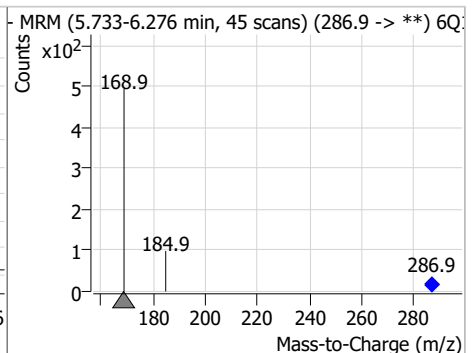
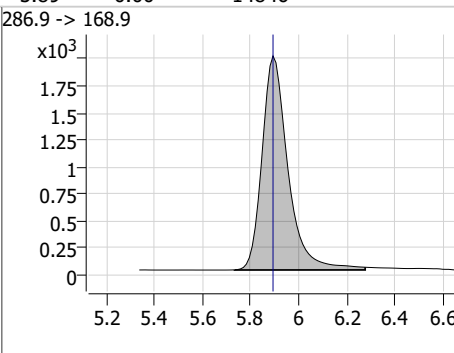
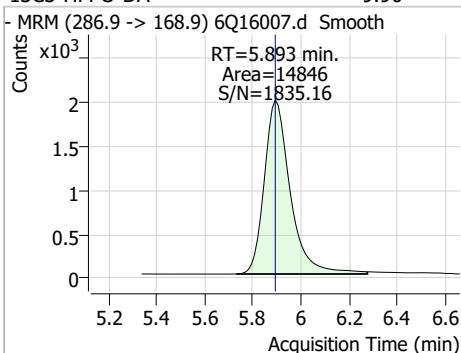
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.40	5.53	0.00	34221	318.0 -> 273.0	4.6	2.0	6.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.56	5.53	0.00	7035	313.0 -> 118.9	4.6	2.0	6.1



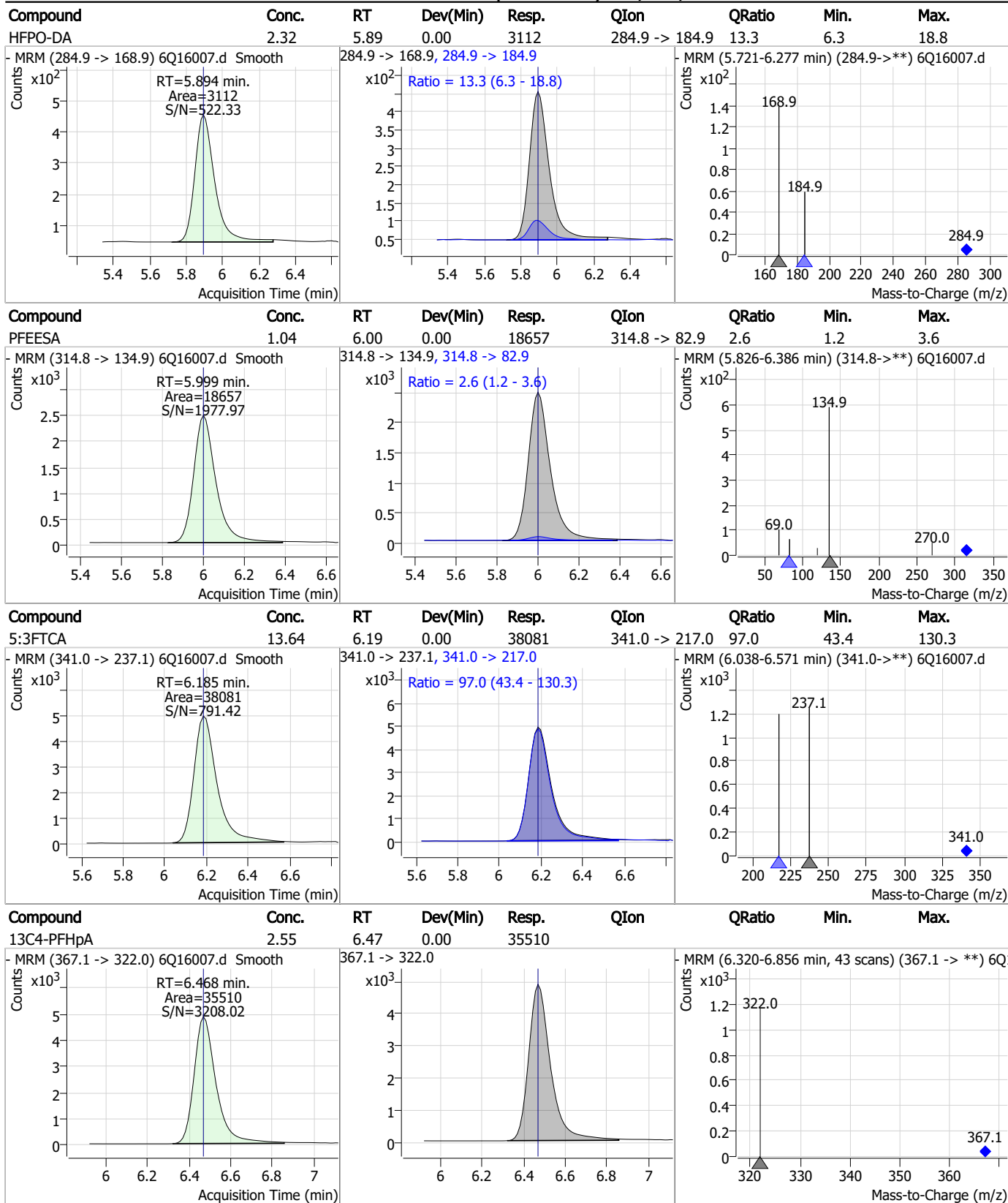
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.90	5.89	0.00	14846	286.9 -> 168.9	4.6	2.0	6.1



7.6.3

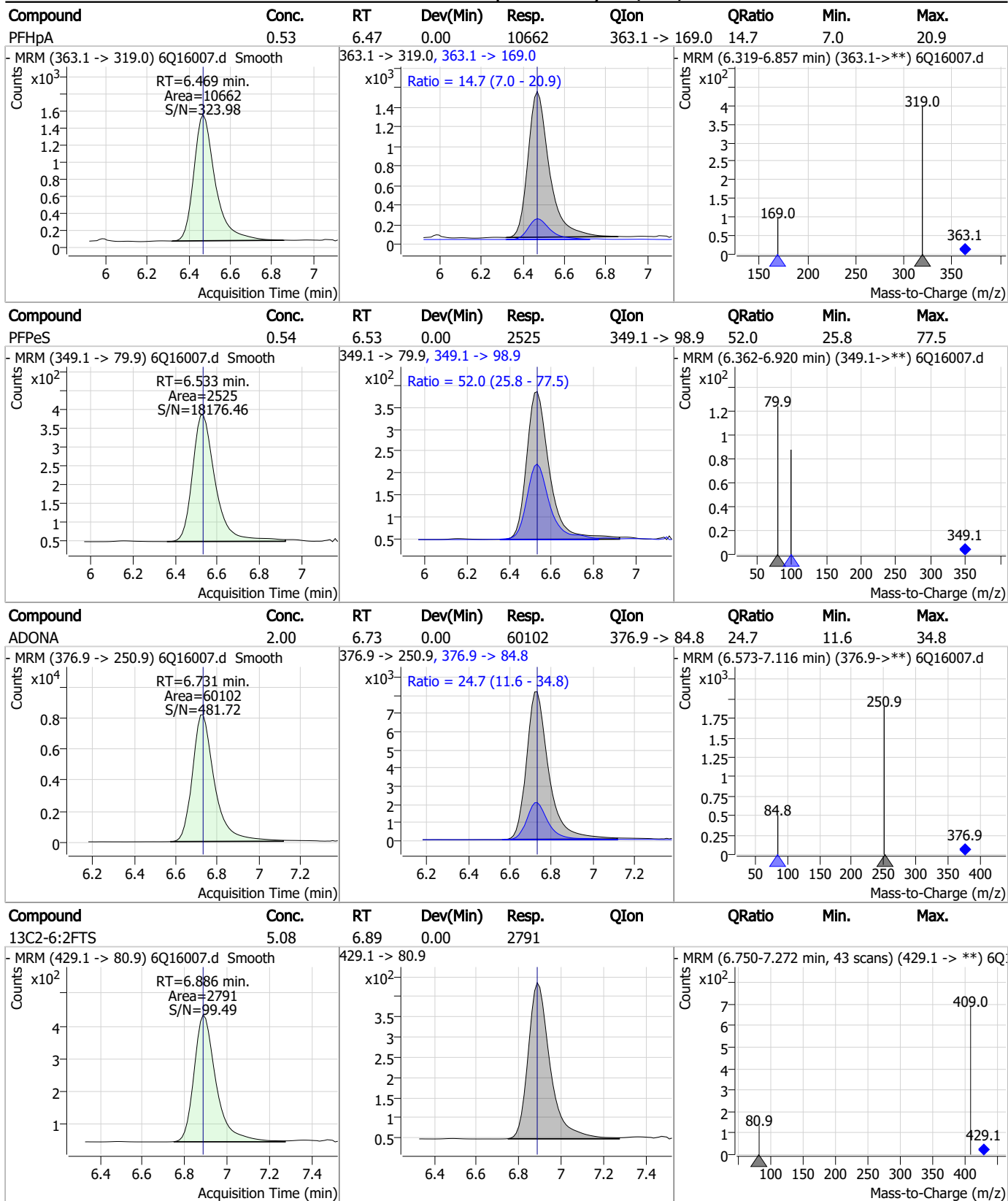
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Perfluorinated Compounds by LC/MS/MS



7.6.3
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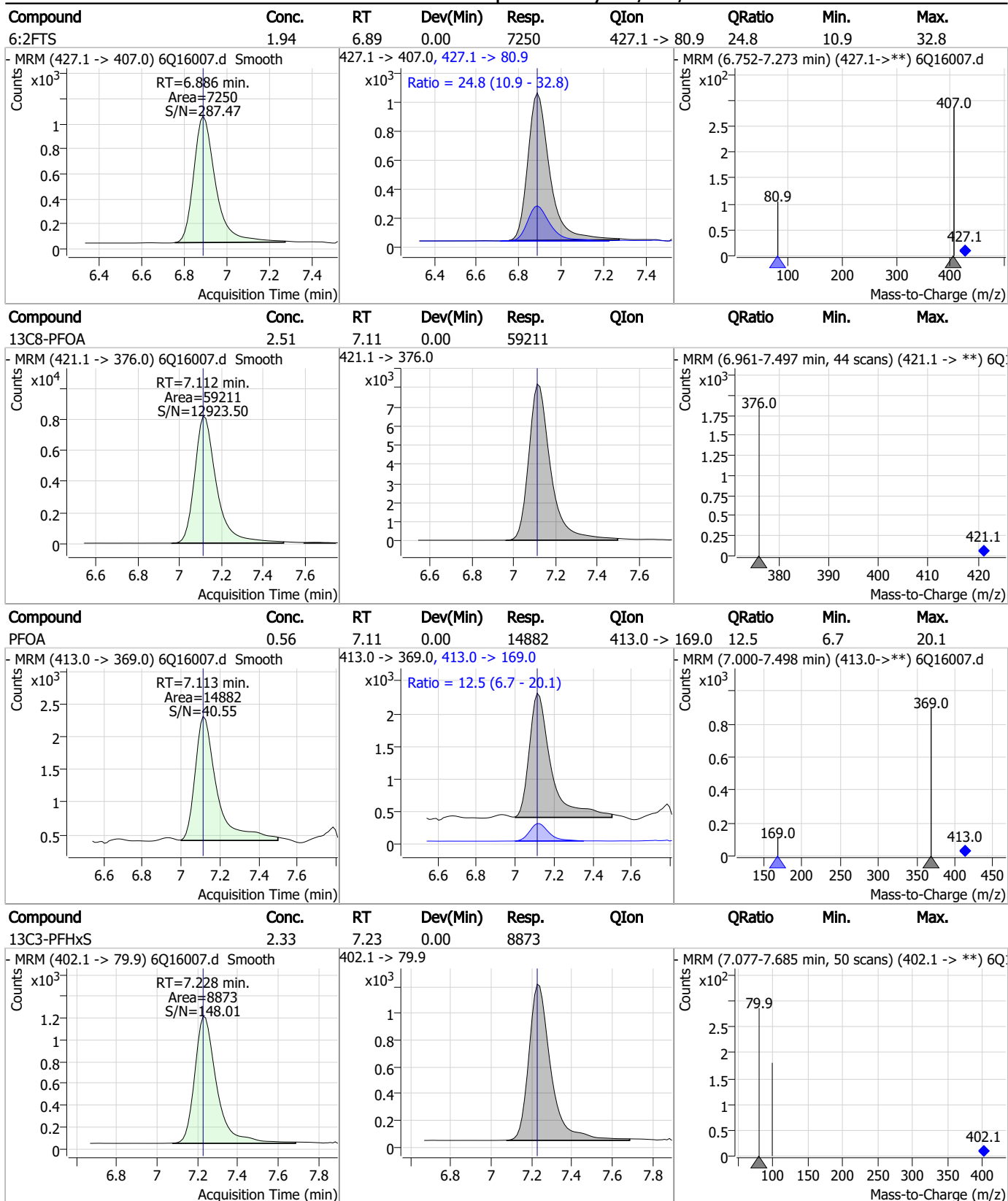
Perfluorinated Compounds by LC/MS/MS



7.6.3
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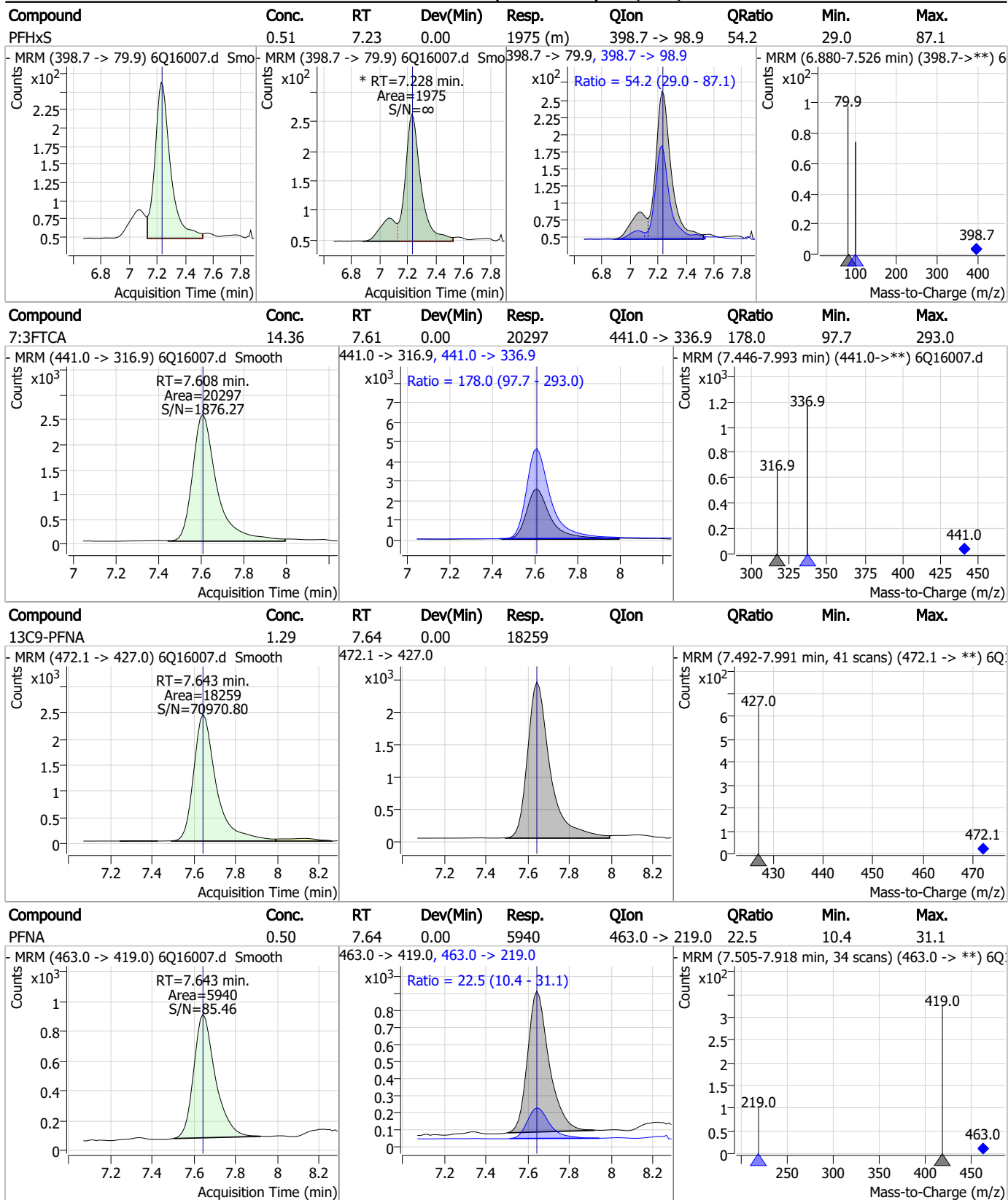
Perfluorinated Compounds by LC/MS/MS



7.6.3

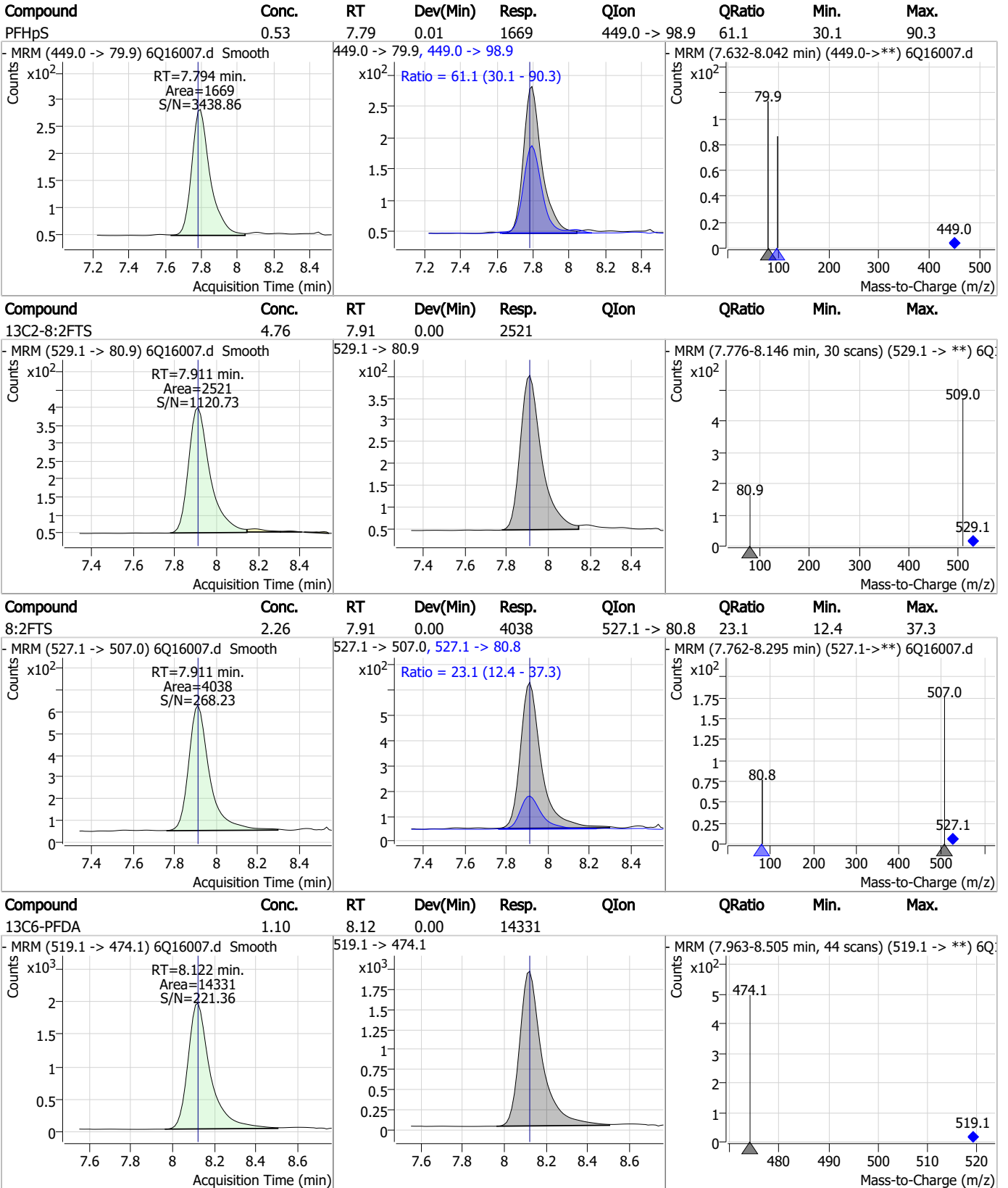
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Perfluorinated Compounds by LC/MS/MS



7.6.3
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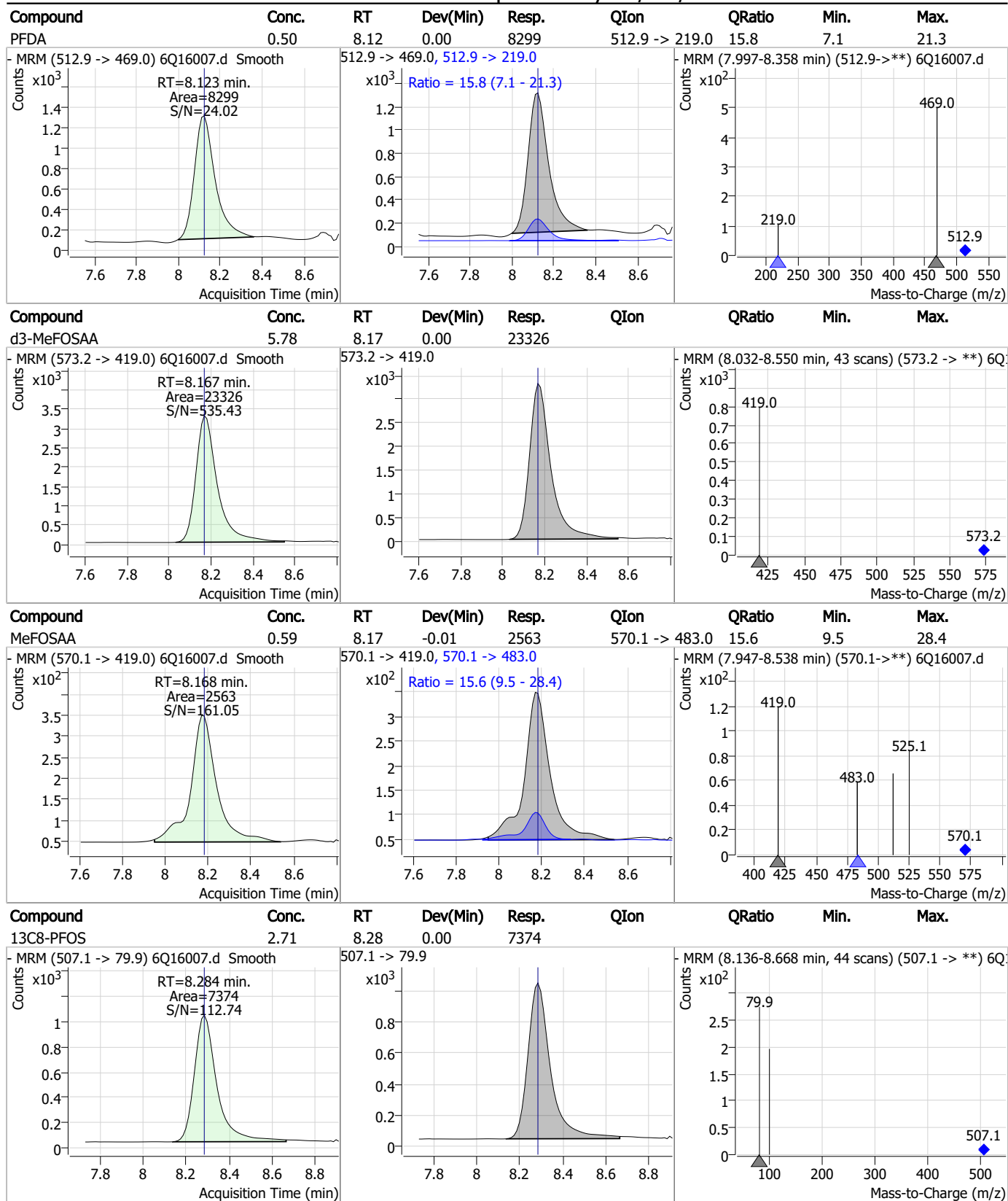
Perfluorinated Compounds by LC/MS/MS



7.6.3

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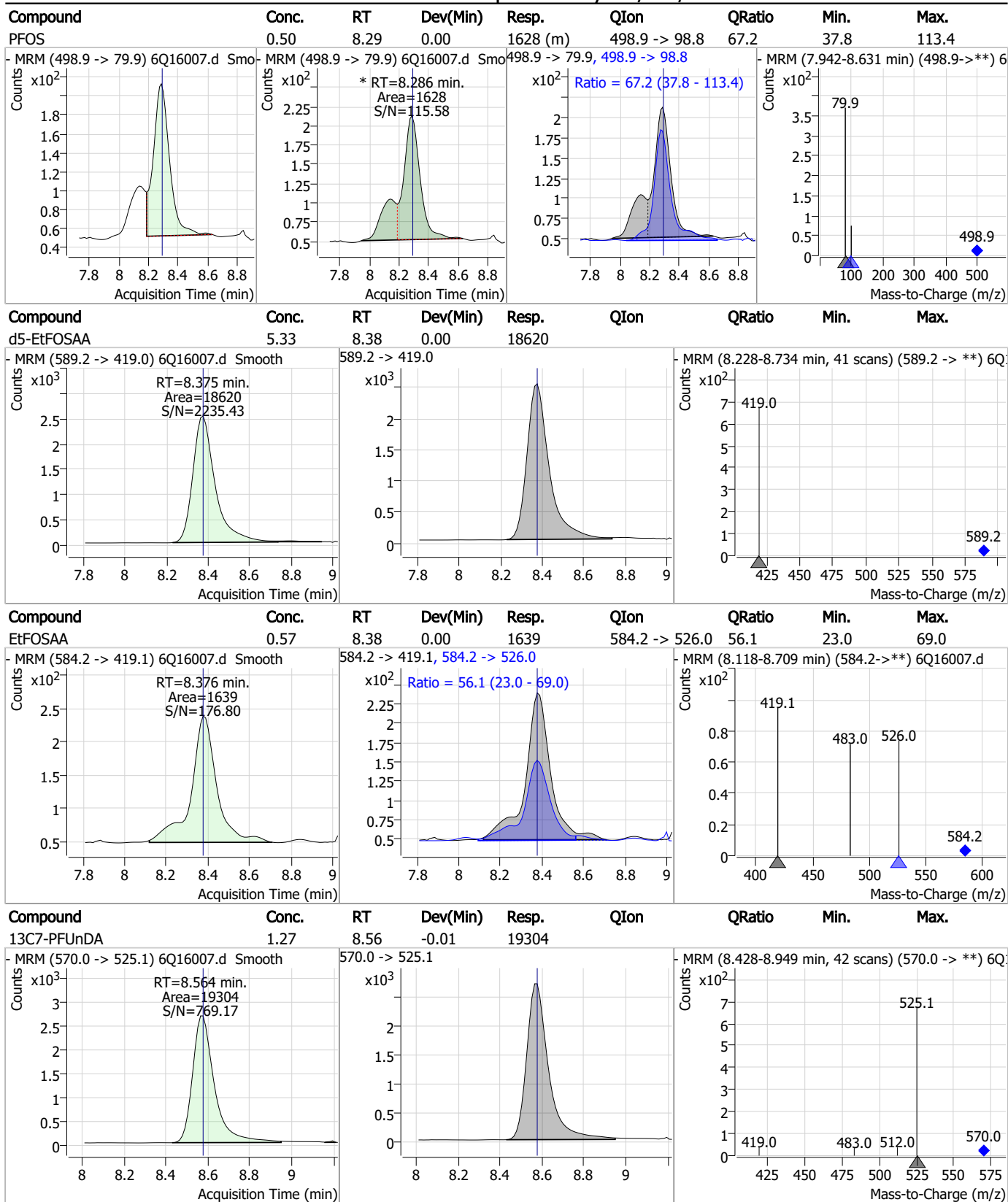
Perfluorinated Compounds by LC/MS/MS



7.6.3

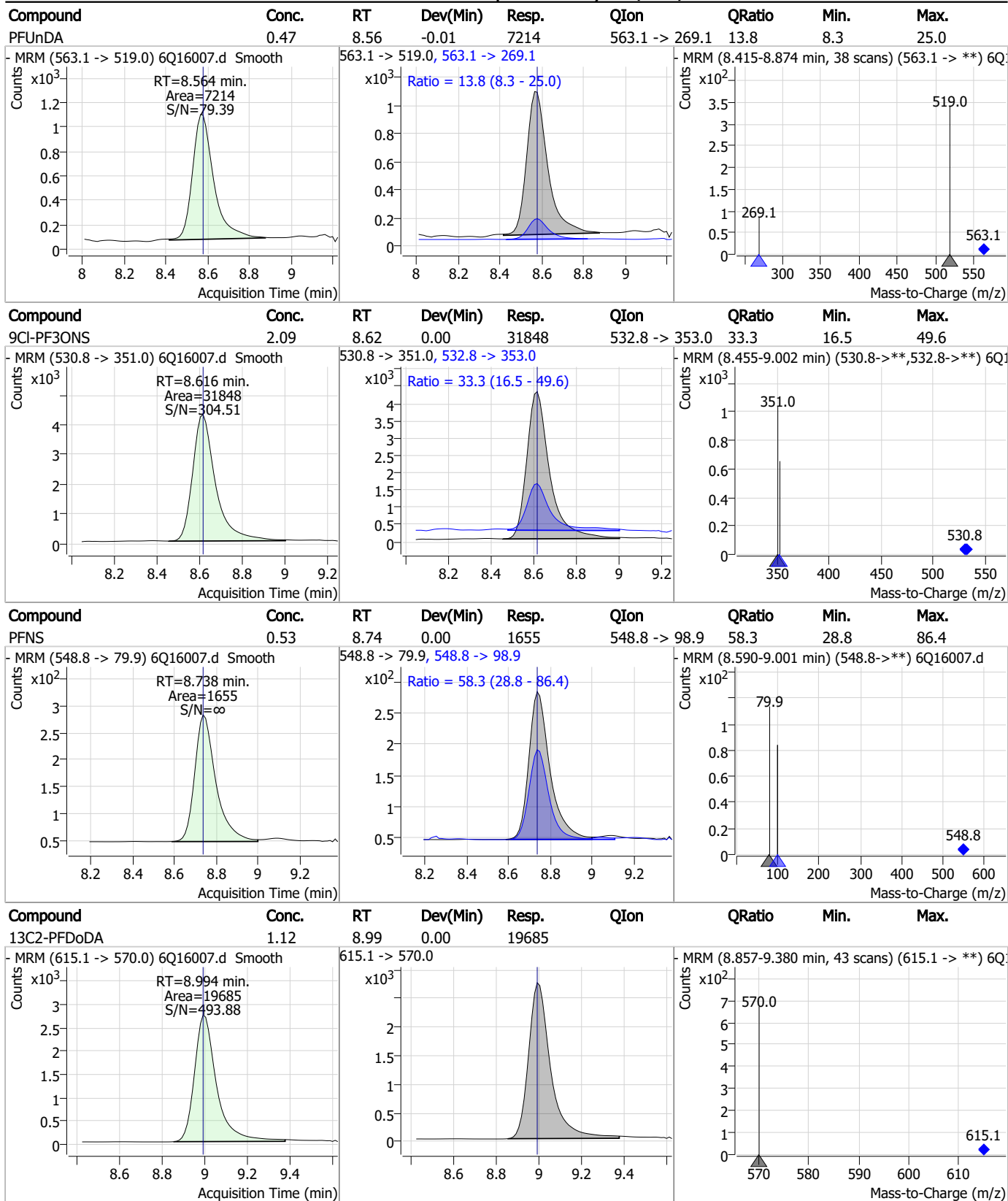
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Perfluorinated Compounds by LC/MS/MS



7.6.3
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Perfluorinated Compounds by LC/MS/MS

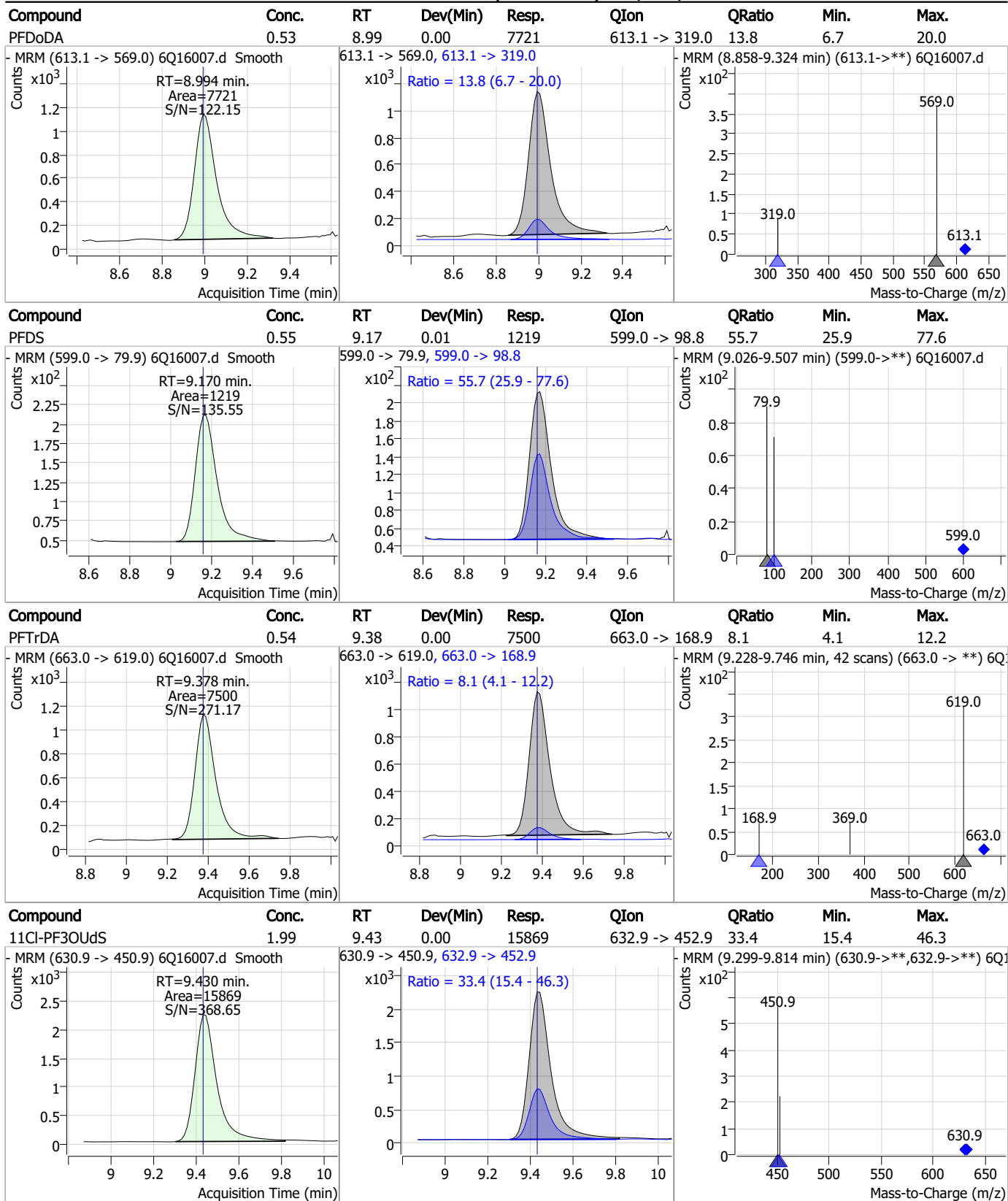


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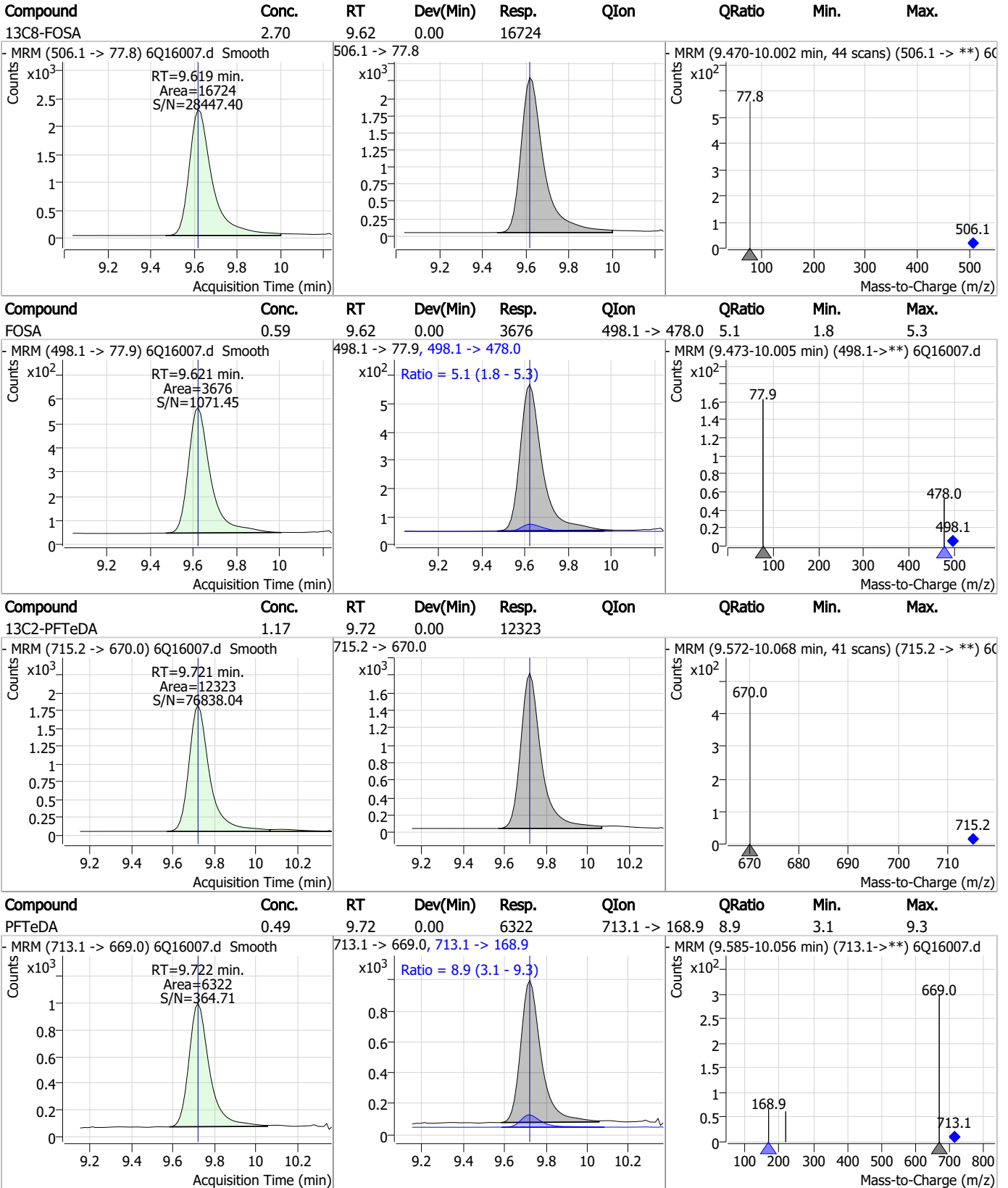
Perfluorinated Compounds by LC/MS/MS



7.6.3

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Perfluorinated Compounds by LC/MS/MS

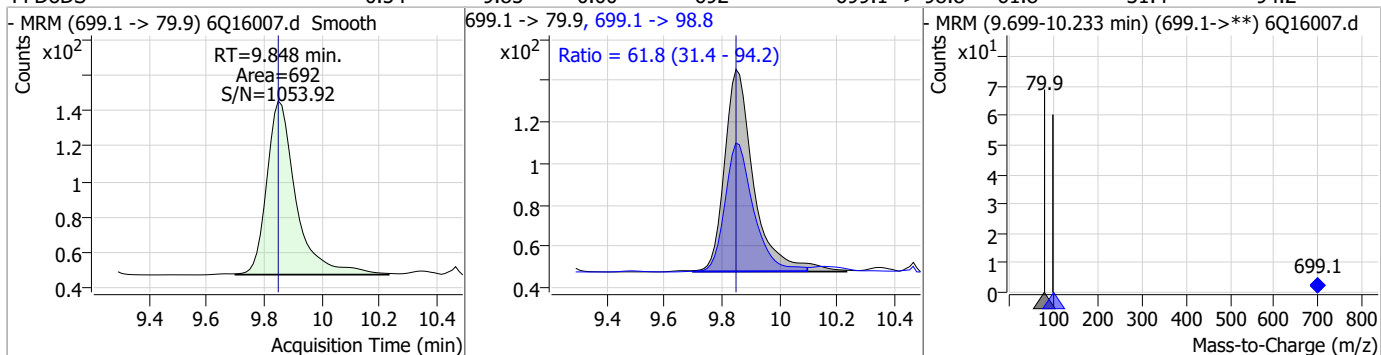


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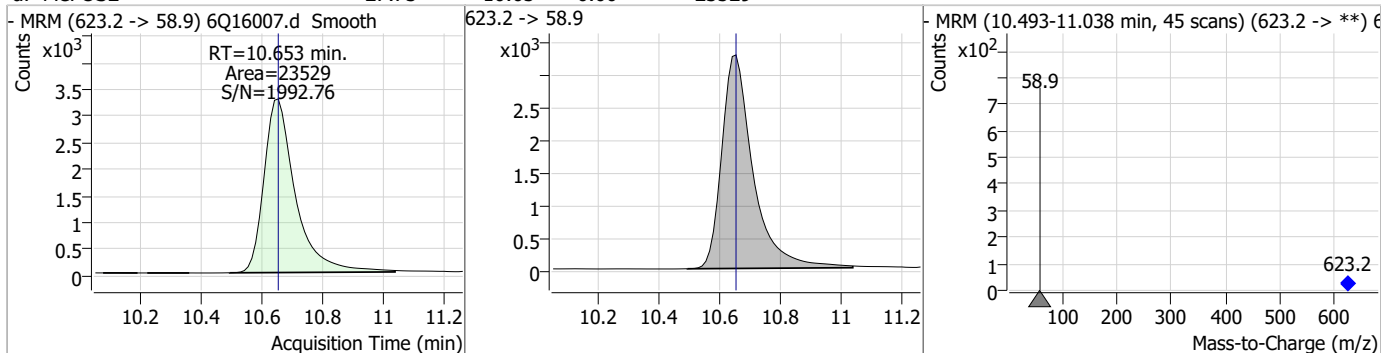
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Perfluorinated Compounds by LC/MS/MS

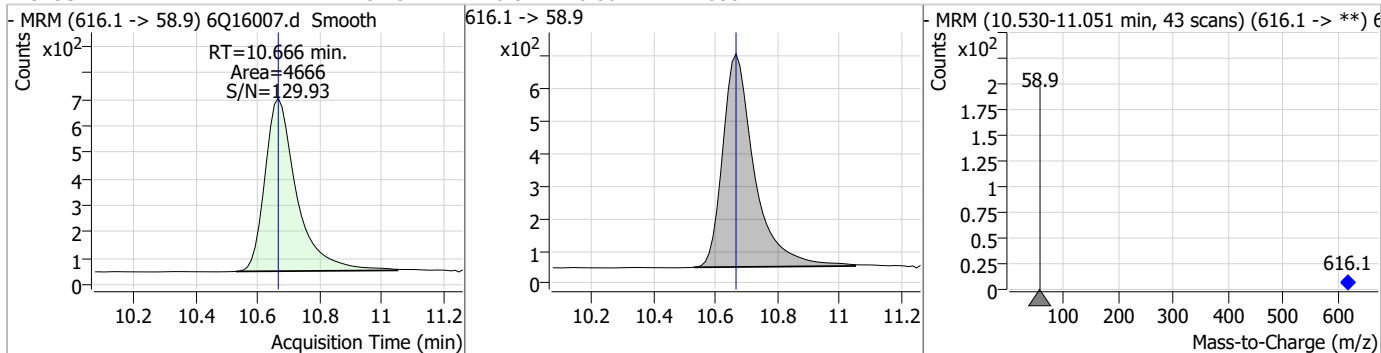
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.54	9.85	0.00	692	699.1 -> 98.8	61.8	31.4	94.2



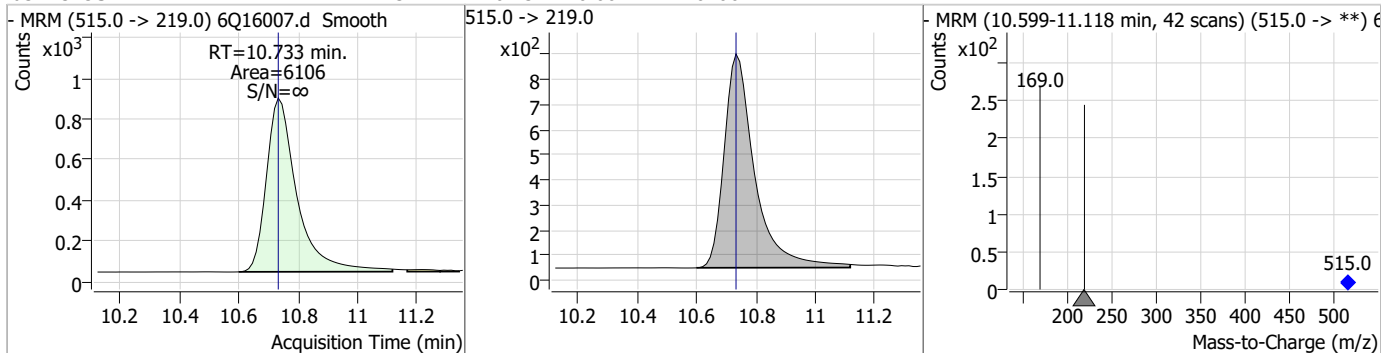
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	27.73	10.65	0.00	23529				



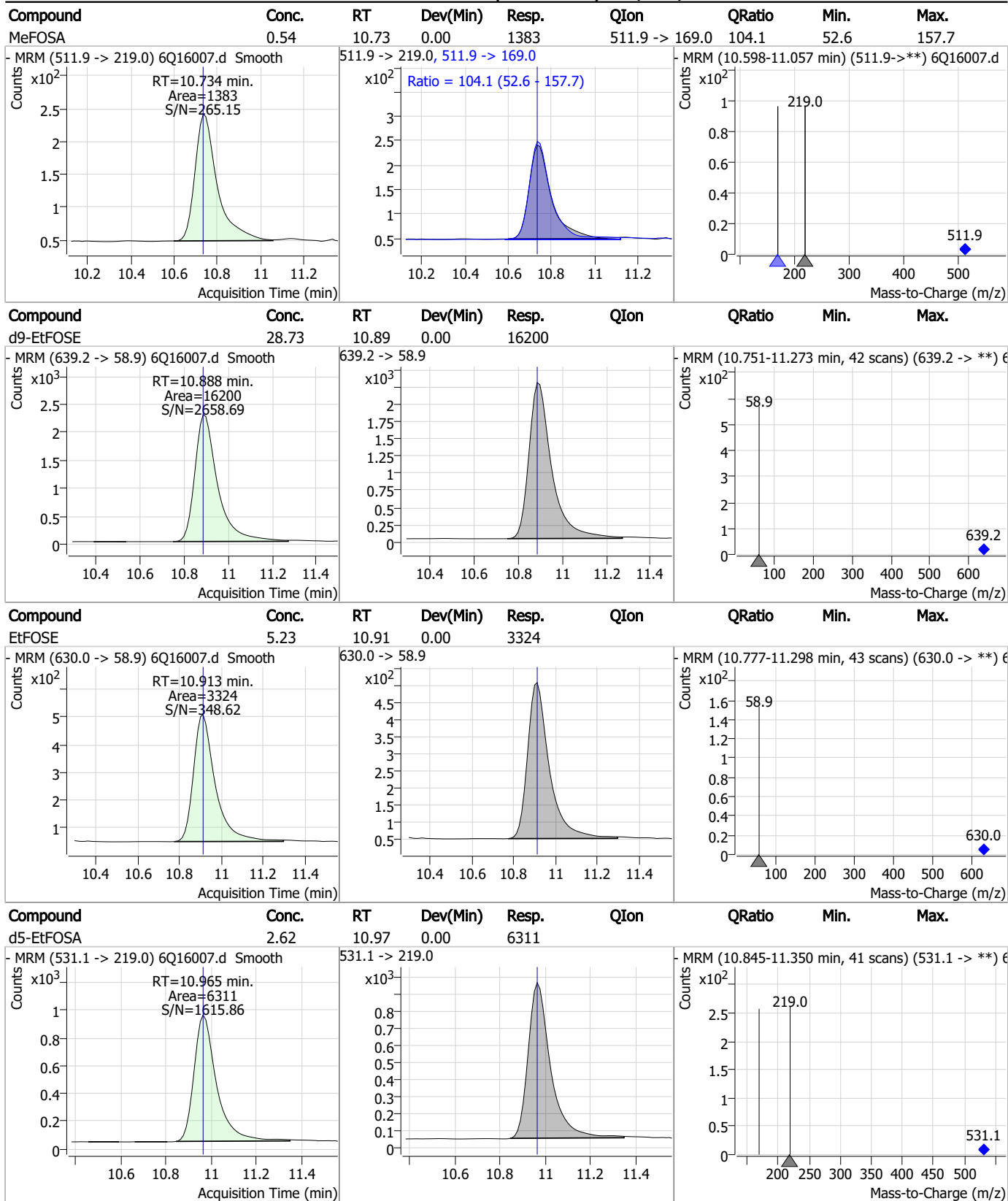
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	5.26	10.67	0.00	4666				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.73	10.73	0.00	6106				

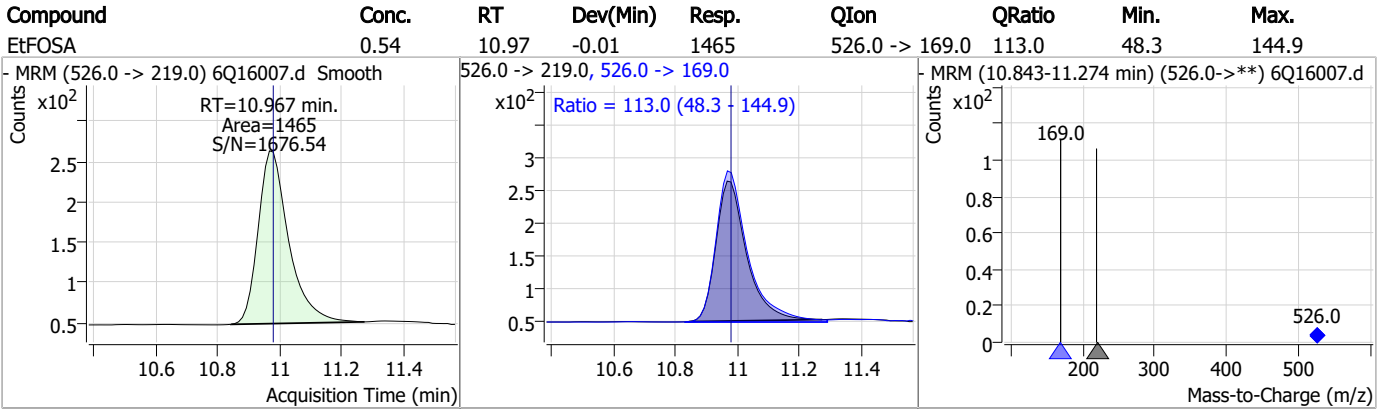


Perfluorinated Compounds by LC/MS/MS



7.6.3
7

Perfluorinated Compounds by LC/MS/MS



7.6.3

7

Manual Integration Approval Summary

Sample Number: S6Q239-IC239 Method: EPA DRAFT 1633
Lab FileID: 6Q16007.D Analyst approved: 04/05/23 11:17 Martha Valls
Injection Time: 04/04/23 14:29 Supervisor approved: 04/05/23 17:23 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.29	Split peak

7.6.3.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16008.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/4/2023 2:43:40 PM
 Sample Name : ic239-3
 Vial : P1-A4
 DA Method File : 1633_040423_S6Q239.quantmethod.xml
 Batch Name : s6q239.batch.bin
 Sample Information : OP96085,S6Q239,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	89281	10.00 µg/L	0.000
M5-PFPeA	4.322	268.3 -> 223.0	40581	5.00 µg/L	0.000
M5-PFHxA	5.528	318.0 -> 273.0	35678	2.50 µg/L	0.000
M4-PFHpA	6.468	367.1 -> 322.0	34898	2.50 µg/L	0.000
M8-PFOA	7.112	421.1 -> 376.0	58510	2.50 µg/L	0.000
M9-PFNA	7.643	472.1 -> 427.0	17497	1.25 µg/L	0.000
M6-PFDA	8.122	519.1 -> 474.1	15635	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	16702	1.25 µg/L	0.000
M2-PFDoDA	8.994	615.1 -> 570.0	19606	1.25 µg/L	0.000
M2-PFTeDA	9.721	715.2 -> 670.0	11175	1.25 µg/L	0.000
M8-FOSA	9.619	506.1 -> 77.8	16633	2.50 µg/L	0.000
M3-PFBS	5.459	302.1 -> 79.9	13841	2.50 µg/L	0.000
M3-PFHxS	7.228	402.1 -> 79.9	8643	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	7699	2.50 µg/L	0.000
M2-4:2FTS	5.191	329.1 -> 80.9	2123	5.00 µg/L	0.000
M2-6:2FTS	6.886	429.1 -> 80.9	2501	5.00 µg/L	0.000
M2-8:2FTS	7.911	529.1 -> 80.9	2466	5.00 µg/L	0.000
M3-MeFOSAA	8.180	573.2 -> 419.0	22337	5.00 µg/L	0.012
M3-HFPO-DA	5.893	286.9 -> 168.9	14893	10.00 µg/L	0.000
M5-EtFOSAA	8.375	589.2 -> 419.0	19874	5.00 µg/L	0.000
M7-MeFOSE	10.653	623.2 -> 58.9	24049	25.00 µg/L	0.000
M9-EtFOSE	10.888	639.2 -> 58.9	15974	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	6147	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	5922	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	8966	2.50 µg/L	0.000
13C3-PFBA	2.889	216.0 -> 172.0	38492	5.00 µg/L	-0.012
18O2-PFHxS	7.227	403.0 -> 83.9	6338	2.50 µg/L	0.000
13C4-PFOA	7.112	417.1 -> 372.0	69236	2.50 µg/L	0.000
13C2-PFDA	8.123	515.1 -> 470.1	20249	1.25 µg/L	0.000
13C5-PFNA	7.643	468.0 -> 423.0	19403	1.25 µg/L	0.000
13C2-PFHxA	5.516	315.1 -> 270.0	34215	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.191	329.1 -> 80.9	2123	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C2-6:2FTS	6.886	429.1 -> 80.9	2501	4.78 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.6%		
13C2-8:2FTS	7.911	529.1 -> 80.9	2466	4.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C2-PFDoDA	8.994	615.1 -> 570.0	19606	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.0%		
13C2-PFTeDA	9.721	715.2 -> 670.0	11175	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.1%		
13C3-PFBS	5.459	302.1 -> 79.9	13841	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C3-PFHxS	7.228	402.1 -> 79.9	8643	2.38 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.3%		
13C4-PFBA	2.897	216.8 -> 171.9	89281	9.92 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.2%		
13C4-PFHpA	6.468	367.1 -> 322.0	34898	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C5-PFHxA	5.528	318.0 -> 273.0	35678	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C5-PFPeA	4.322	268.3 -> 223.0	40581	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C6-PFDA	8.122	519.1 -> 474.1	15635	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.9%		
13C7-PFUnDA	8.576	570.0 -> 525.1	16702	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.5%		
13C8-FOSA	9.619	506.1 -> 77.8	16633	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C8-PFOA	7.112	421.1 -> 376.0	58510	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C8-PFOS	8.284	507.1 -> 79.9	7699	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.4%		
13C9-PFNA	7.643	472.1 -> 427.0	17497	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.5%		
d3-MeFOSAA	8.180	573.2 -> 419.0	22337	5.15 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.0%		
13C3-HFPO-DA	5.893	286.9 -> 168.9	14893	9.98 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.8%		
d3-MeFOSA	10.733	515.0 -> 219.0	5922	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.5%		
d5-EtFOSAA	8.375	589.2 -> 419.0	19874	5.29 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.8%		
d7-MeFOSE	10.653	623.2 -> 58.9	24049	26.36 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 105.4%		
d9-EtFOSE	10.888	639.2 -> 58.9	15974	26.34 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 105.4%		
d5-EtFOSA	10.965	531.1 -> 219.0	6147	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.9%		
Target Compounds					QValue
4:2FTS	5.192	327.1 -> 307.0	20567	4.95 µg/L	99
		327.1 -> 80.9	4966		
6:2FTS	6.886	427.1 -> 407.0	17326	5.17 µg/L	98
		427.1 -> 80.9	3583		
8:2FTS	7.911	527.1 -> 507.0	8790	5.02 µg/L	98
		527.1 -> 80.8	2289		
EtFOSAA	8.376	584.2 -> 419.1	3577	1.17 µg/L	m 83
		584.2 -> 526.0	2057		
FOSA	9.621	498.1 -> 77.9	7407	1.21 µg/L	99
		498.1 -> 478.0	284		
MeFOSAA	8.181	570.1 -> 419.0	4795	1.15 µg/L	92
		570.1 -> 483.0	727		
PFBA	2.893	212.8 -> 168.9	11157	4.94 µg/L	100
PFBS	5.460	298.7 -> 79.9	5896	1.09 µg/L	97
		298.7 -> 98.8	2589		
PFDA	8.123	512.9 -> 469.0	21484	1.18 µg/L	98
		512.9 -> 219.0	2852		
PFDODA	8.994	613.1 -> 569.0	17359	1.19 µg/L	100
		613.1 -> 319.0	2291		
PFDS	9.170	599.0 -> 79.9	2789	1.21 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	1440			
PFHpA	6.469	363.1 -> 319.0	23733	1.21	µg/L	98
		363.1 -> 169.0	3491			
PFHpS	7.794	449.0 -> 79.9	3808	1.16	µg/L	99
		449.0 -> 98.9	2319			
PFHxA	5.519	313.0 -> 269.0	16168	1.23	µg/L	100
		313.0 -> 118.9	620			
PFHxS	7.228	398.7 -> 79.9	4502	1.18	µg/L	m 91
		398.7 -> 98.9	2302			
PFNA	7.643	463.0 -> 419.0	13537	1.19	µg/L	99
		463.0 -> 219.0	2736			
PFNS	8.738	548.8 -> 79.9	3678	1.13	µg/L	94
		548.8 -> 98.9	1968			
PFOA	7.113	413.0 -> 369.0	31135	1.18	µg/L	m 98
		413.0 -> 169.0	4470			
PFOS	8.286	498.9 -> 79.9	3735	1.10	µg/L	m 79
		498.9 -> 98.8	2154			
PFPeA	4.324	263.0 -> 219.0	20960	2.45	µg/L	100
PFPeS	6.520	349.1 -> 79.9	5519	1.21	µg/L	98
		349.1 -> 98.9	2931			
PFTeDA	9.722	713.1 -> 669.0	15787	1.34	µg/L	99
		713.1 -> 168.9	1040			
PFTrDA	9.390	663.0 -> 619.0	17339	1.26	µg/L	98
		663.0 -> 168.9	1557			
PFUnDA	8.577	563.1 -> 519.0	17487	1.31	µg/L	94
		563.1 -> 269.1	2431			
11CI-PF3OUdS	9.430	630.9 -> 450.9	39529	4.94	µg/L	98
		632.9 -> 452.9	11752			
9CI-PF3ONS	8.616	530.8 -> 351.0	77330	5.06	µg/L	92
		532.8 -> 353.0	22181			
ADONA	6.719	376.9 -> 250.9	150128	4.97	µg/L	99
		376.9 -> 84.8	35451			
HFPO-DA	5.894	284.9 -> 168.9	6782	5.04	µg/L	99
		284.9 -> 184.9	827			
3:3FTCA	3.777	241.0 -> 177.0	2892	6.09	µg/L	100
		241.0 -> 117.0	439			
5:3FTCA	6.185	341.0 -> 237.1	87962	30.22	µg/L	97
		341.0 -> 217.0	79039			
7:3FTCA	7.608	441.0 -> 316.9	45679	31.00	µg/L	87
		441.0 -> 336.9	80210			
EtFOSA	10.967	526.0 -> 219.0	3618	1.36	µg/L	98
		526.0 -> 169.0	3582			
EtFOSE	10.913	630.0 -> 58.9	7149	11.41	µg/L	100
MeFOSA	10.734	511.9 -> 219.0	3146	1.26	µg/L	96
		511.9 -> 169.0	3180			
MeFOSE	10.666	616.1 -> 58.9	10885	12.01	µg/L	100
PFDoDS	9.848	699.1 -> 79.9	1562	1.17	µg/L	94
		699.1 -> 98.8	907			
NFDHA	5.398	295.0 -> 201.0	2060	2.41	µg/L	97
		295.0 -> 84.9	873			
PFMBA	4.737	279.0 -> 85.1	6933	2.44	µg/L	100
PFMPA	3.463	229.0 -> 84.9	6445	2.49	µg/L	100
PFEESA	5.999	314.8 -> 134.9	40942	2.19	µg/L	99
		314.8 -> 82.9	1109			

= Qualifier out of range, m = manually integrated, + = Area summed

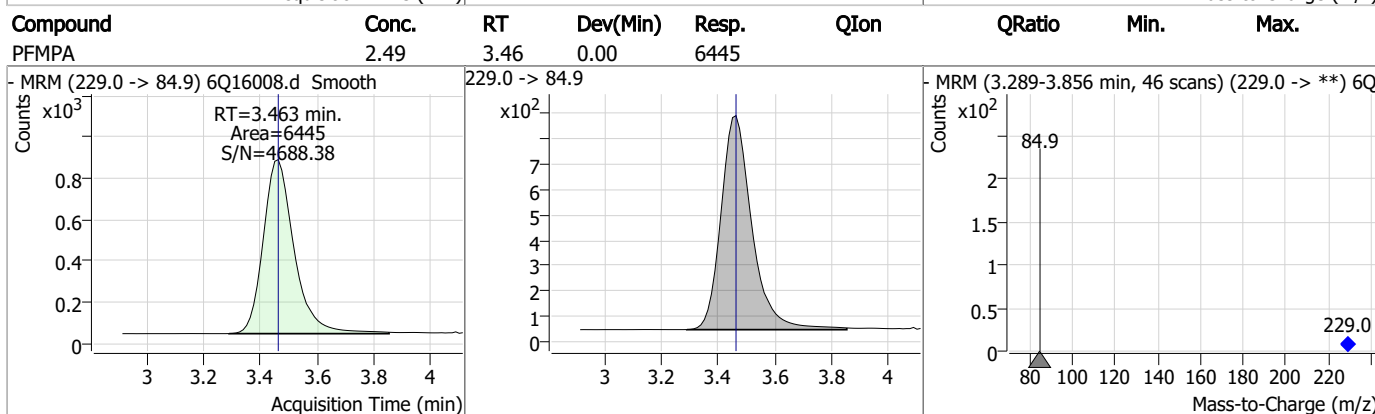
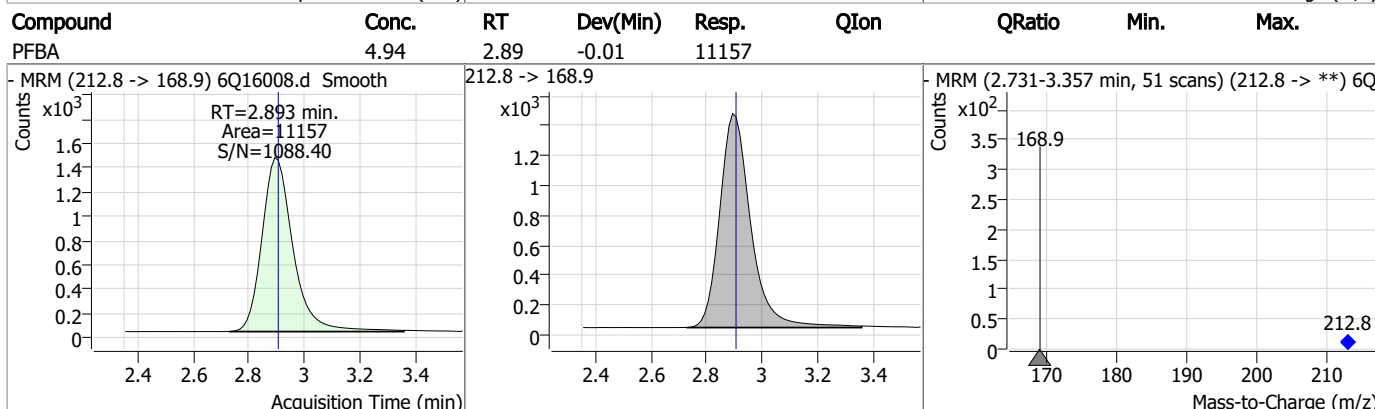
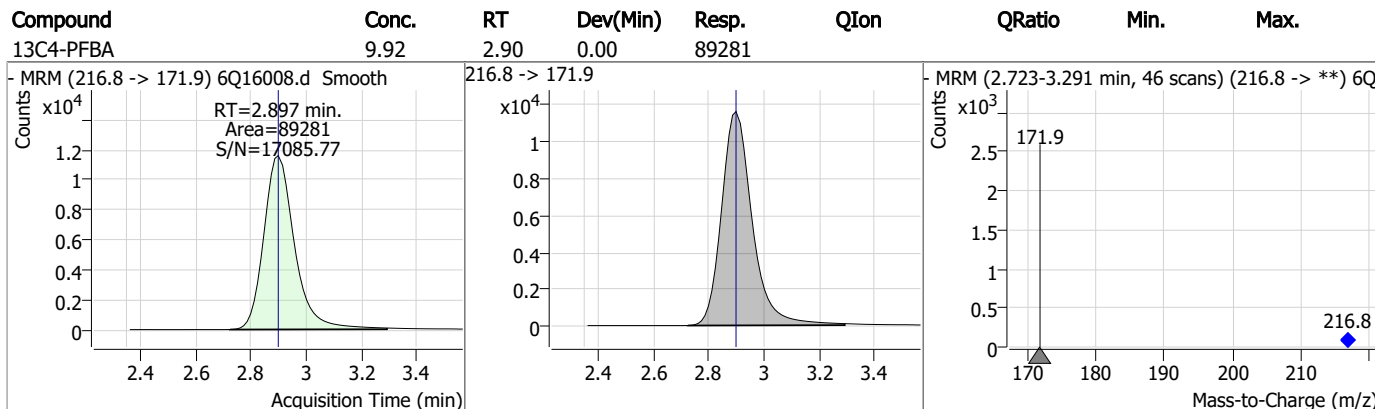
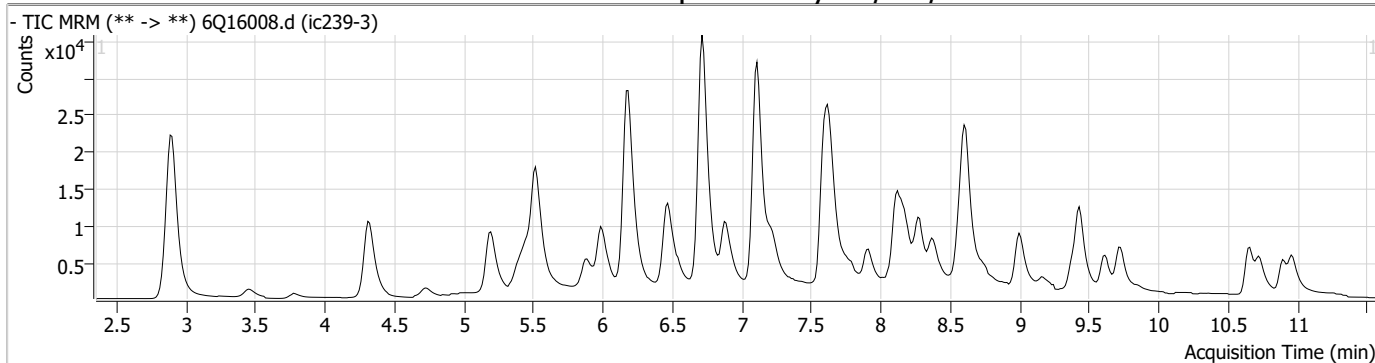
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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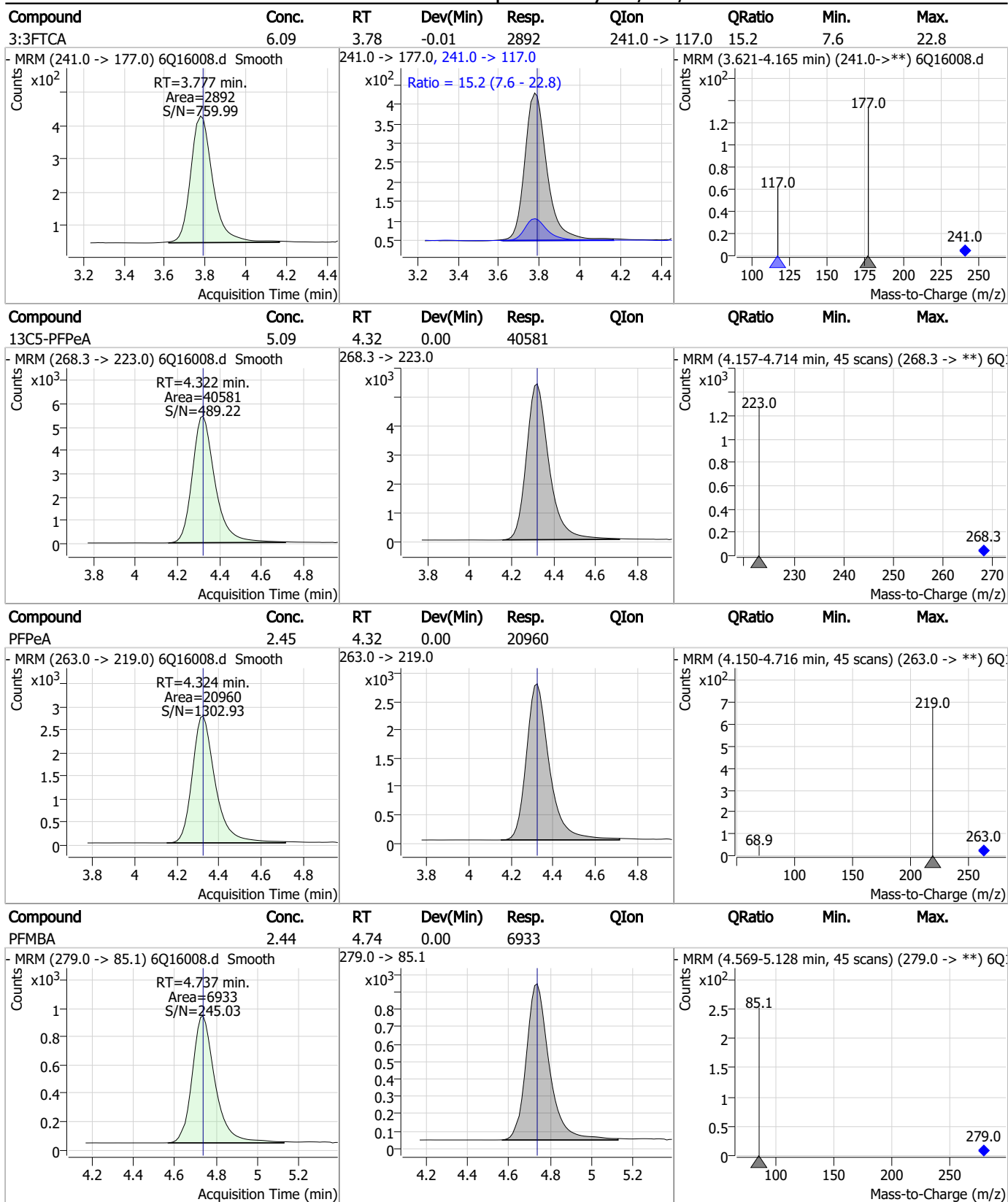
7.6.4

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Perfluorinated Compounds by LC/MS/MS

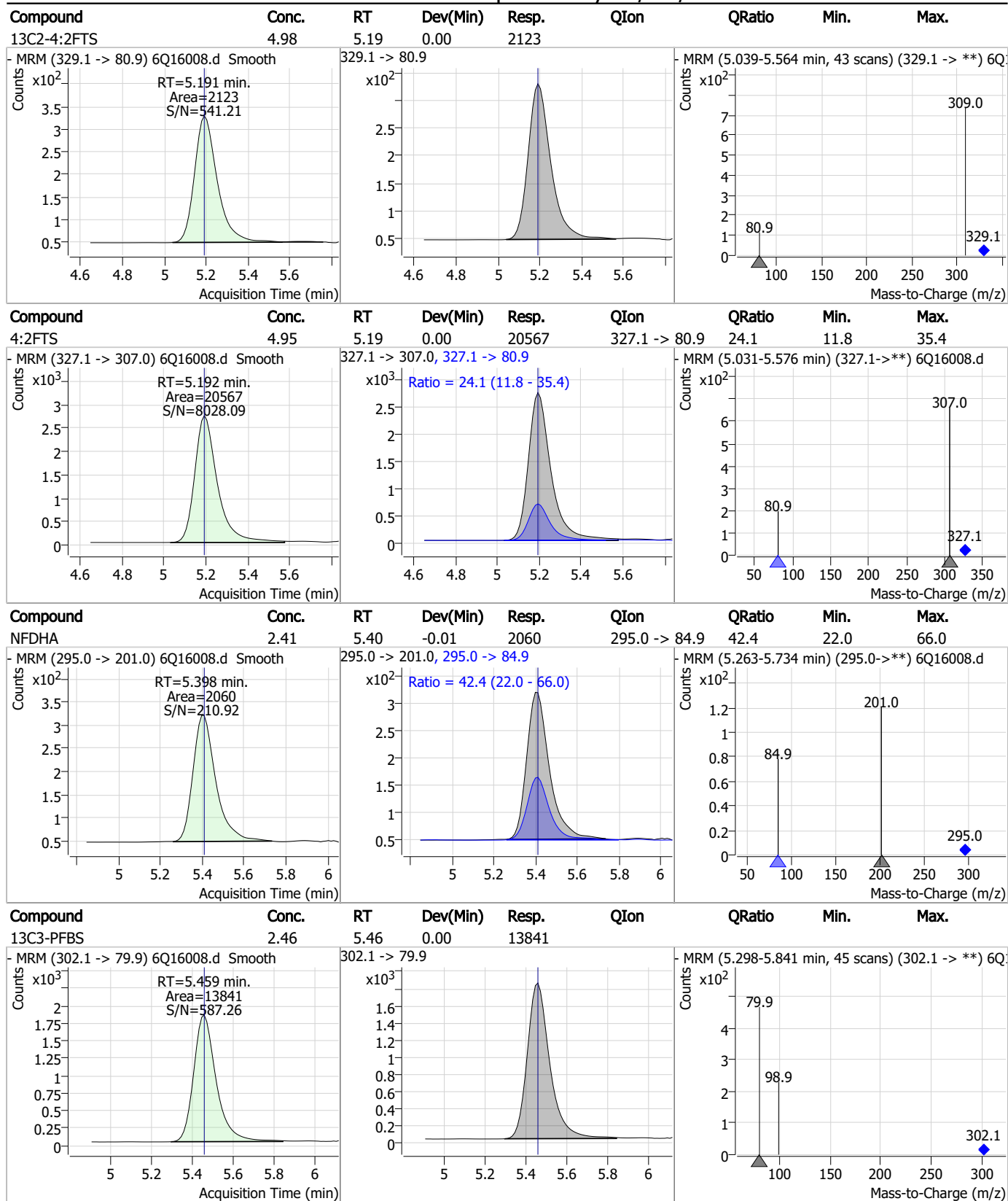


Perfluorinated Compounds by LC/MS/MS



7.6.4
7

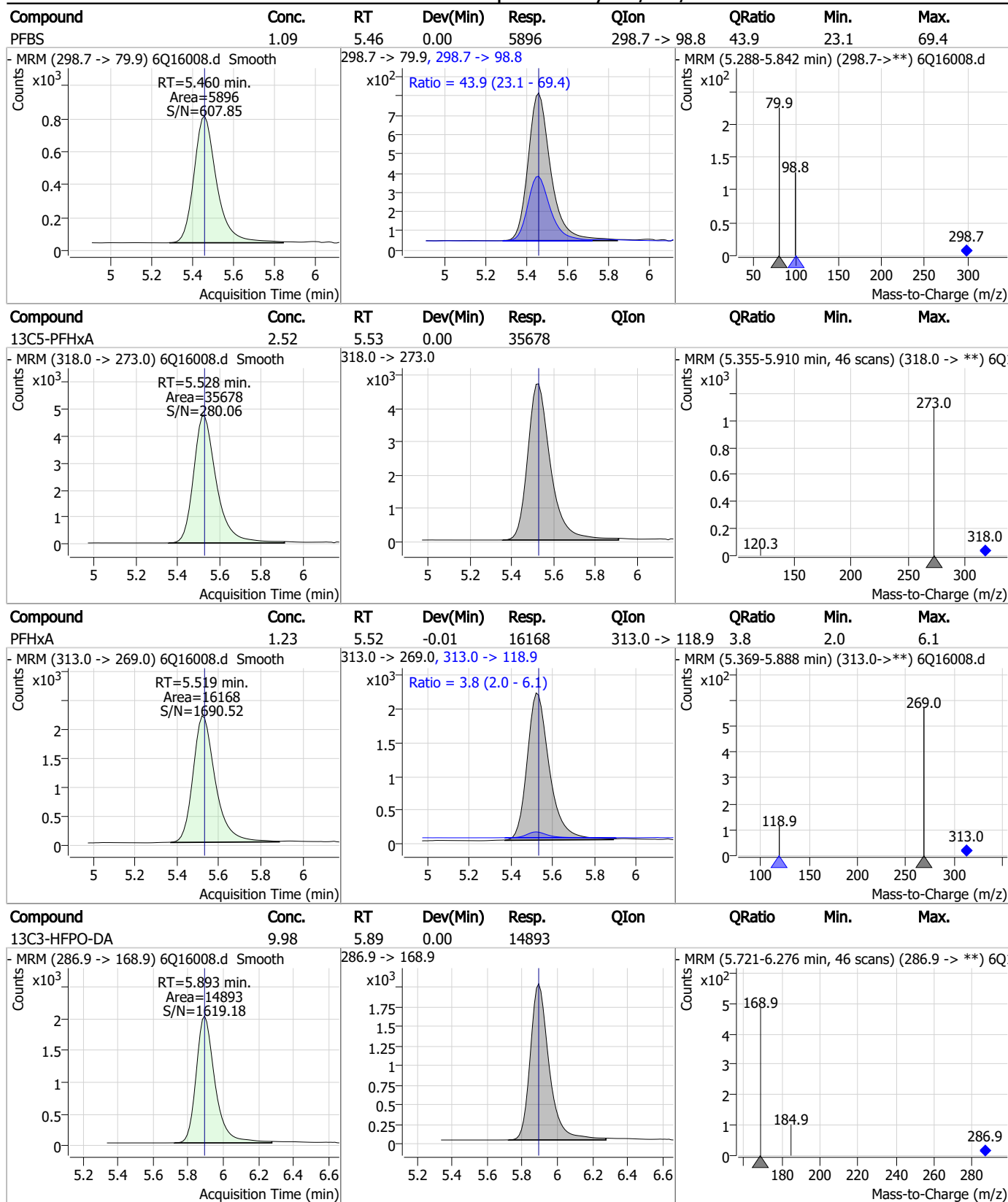
Perfluorinated Compounds by LC/MS/MS



7.6.4

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Perfluorinated Compounds by LC/MS/MS

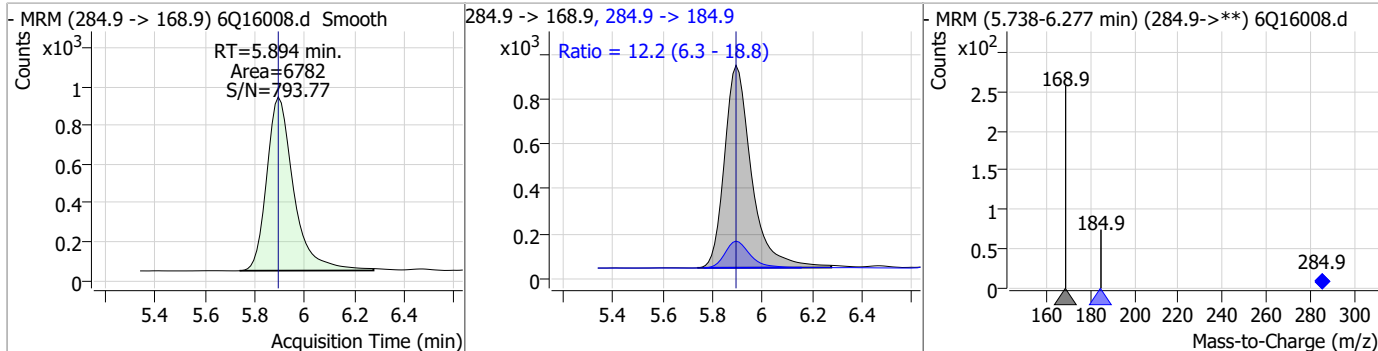


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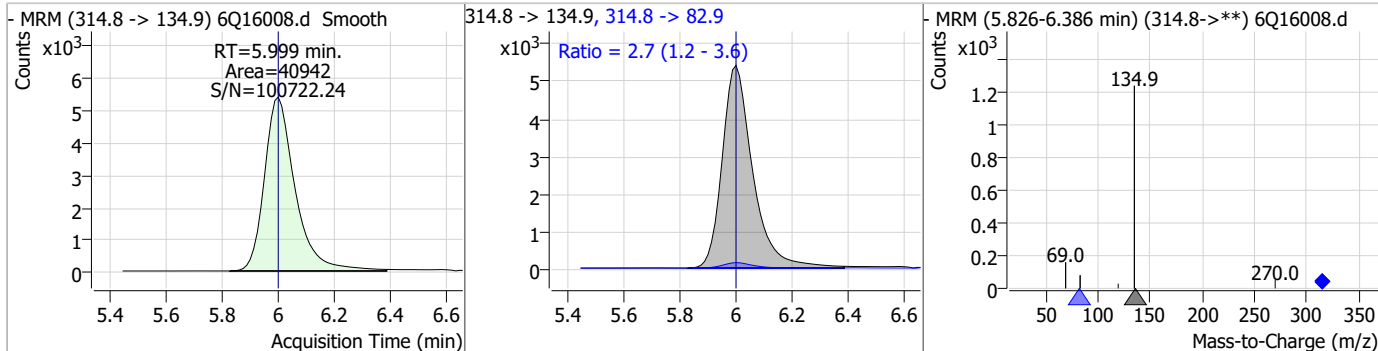
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Perfluorinated Compounds by LC/MS/MS

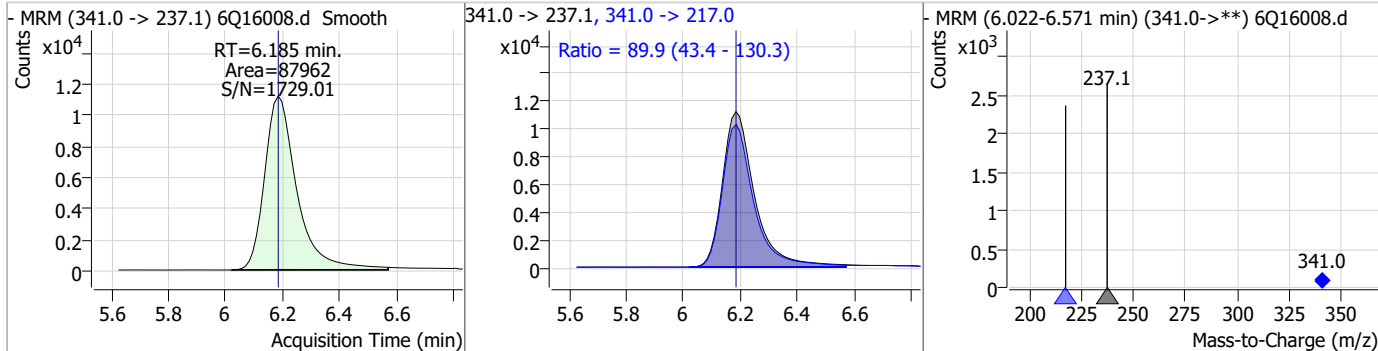
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.04	5.89	0.00	6782	284.9 -> 184.9	12.2	6.3	18.8



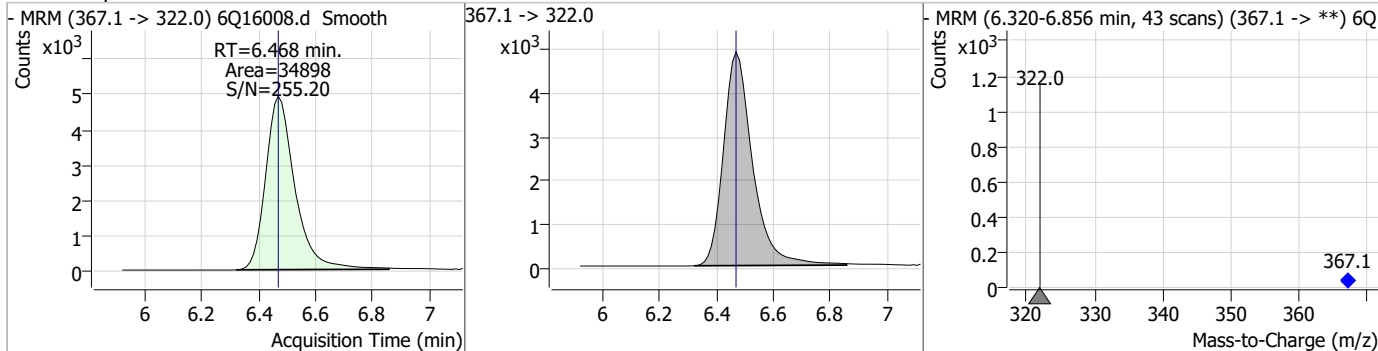
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	2.19	6.00	0.00	40942	314.8 -> 82.9	2.7	1.2	3.6



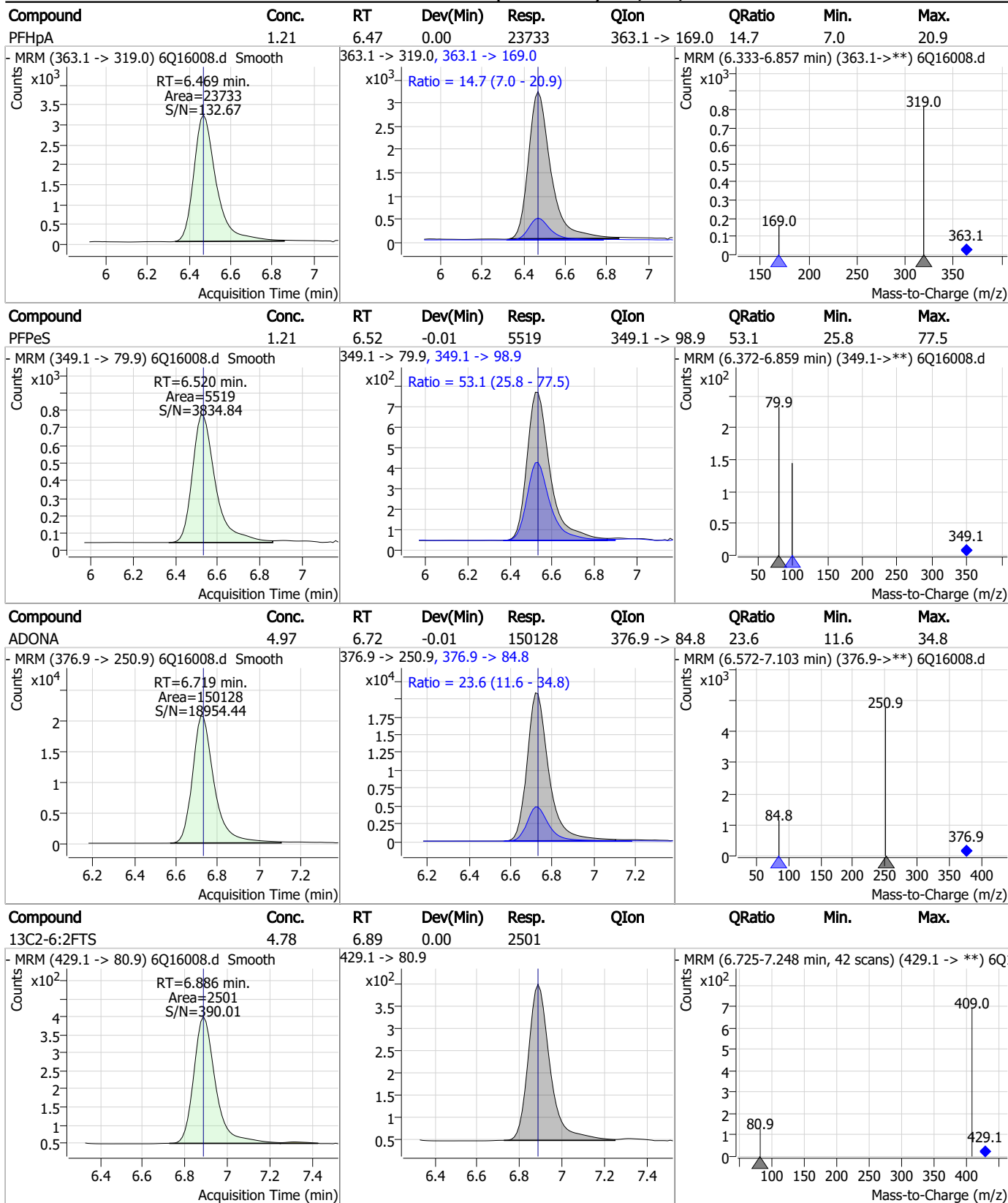
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	30.22	6.19	0.00	87962	341.0 -> 217.0	89.9	43.4	130.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.52	6.47	0.00	34898	367.1 -> 322.0			

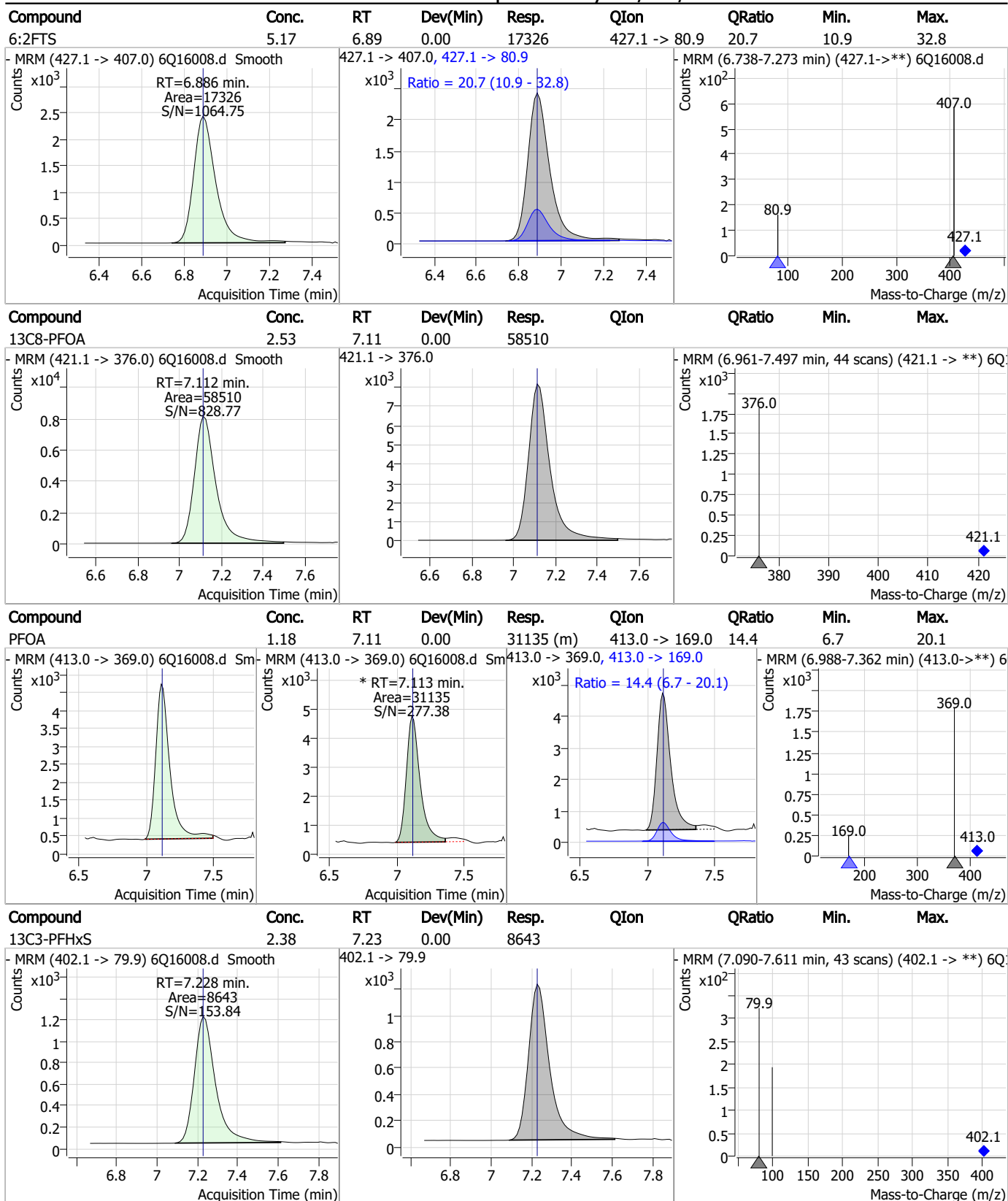


Perfluorinated Compounds by LC/MS/MS



7.6.4

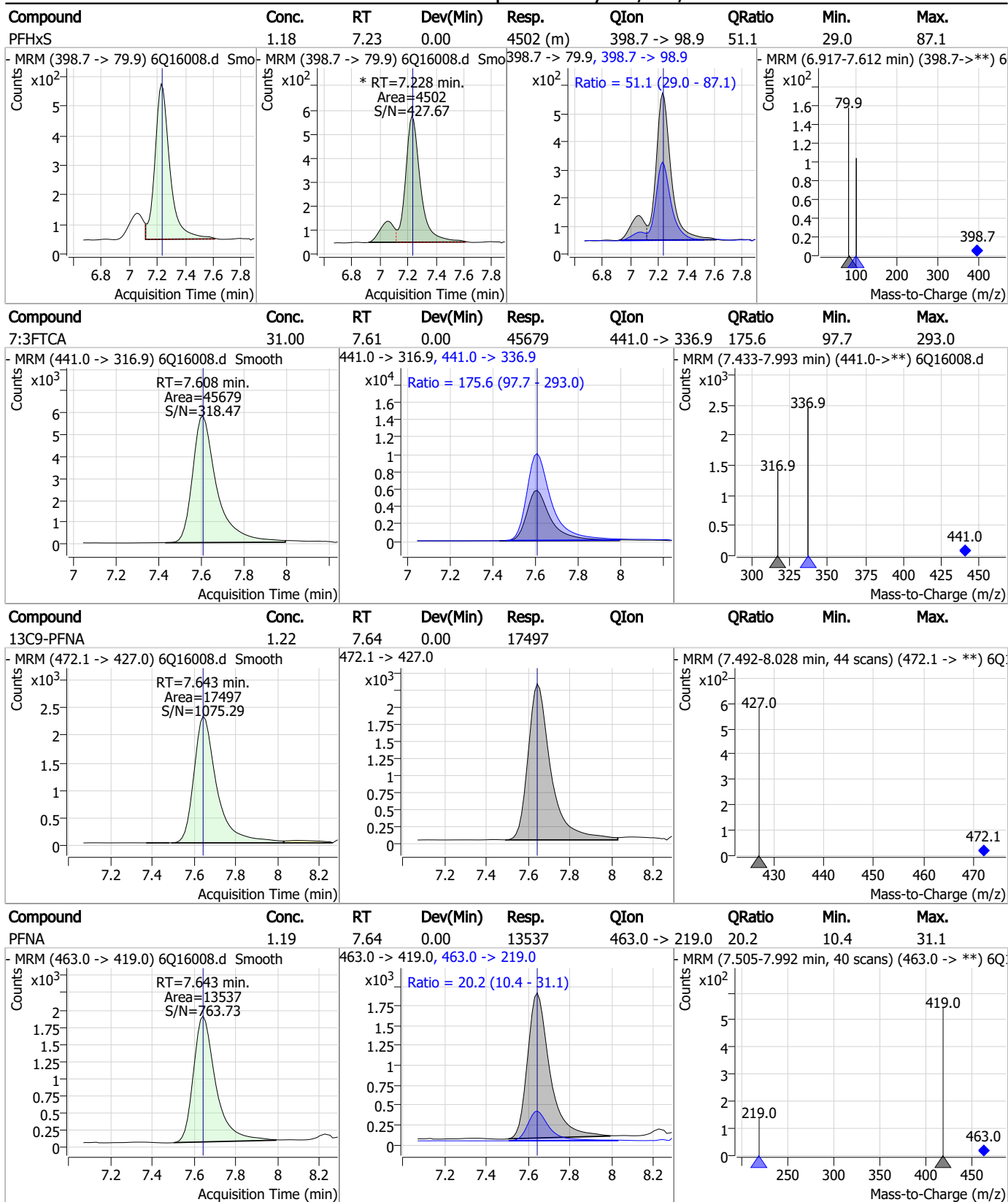
Perfluorinated Compounds by LC/MS/MS



7.6.4

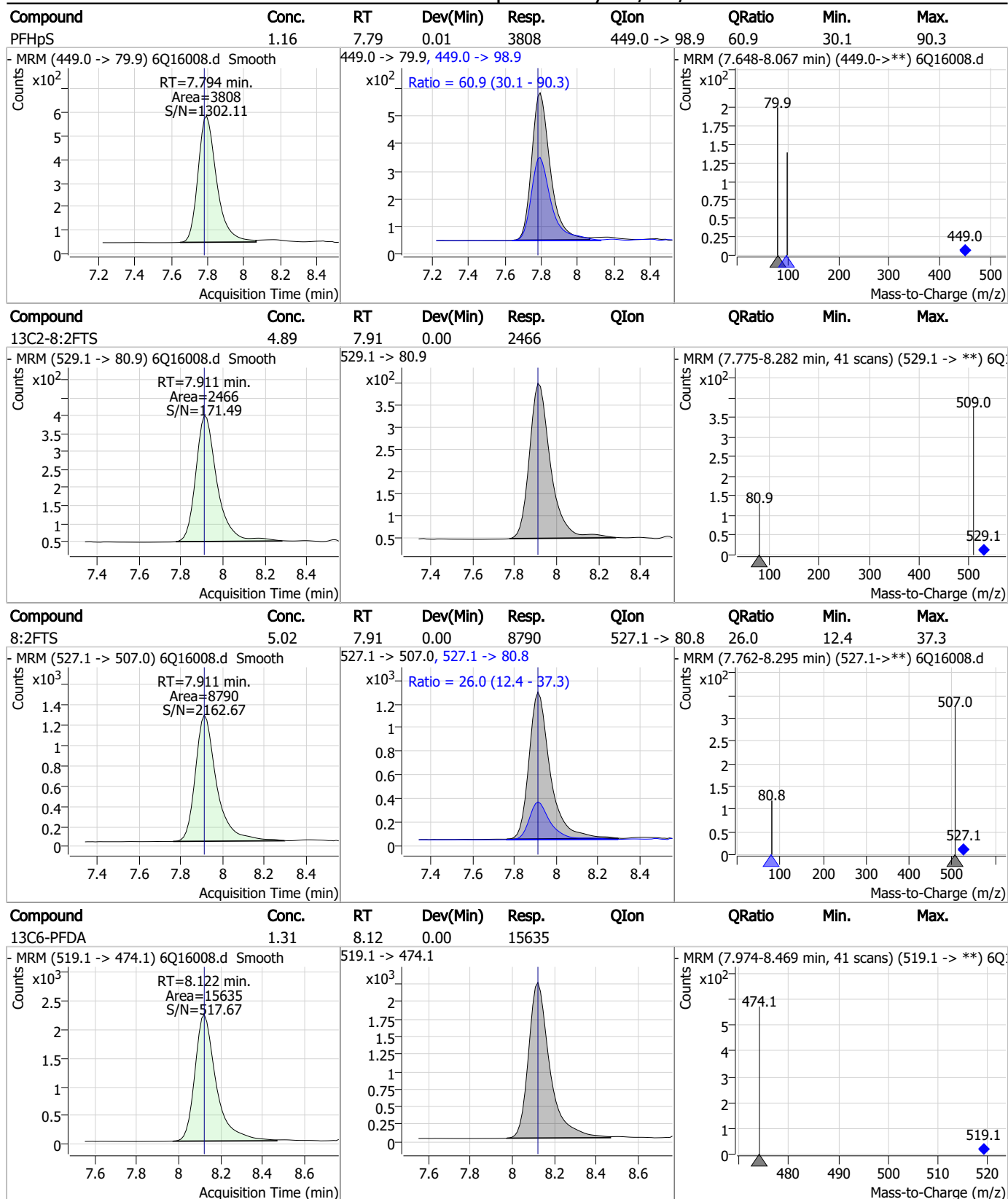
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Perfluorinated Compounds by LC/MS/MS



7.6.4

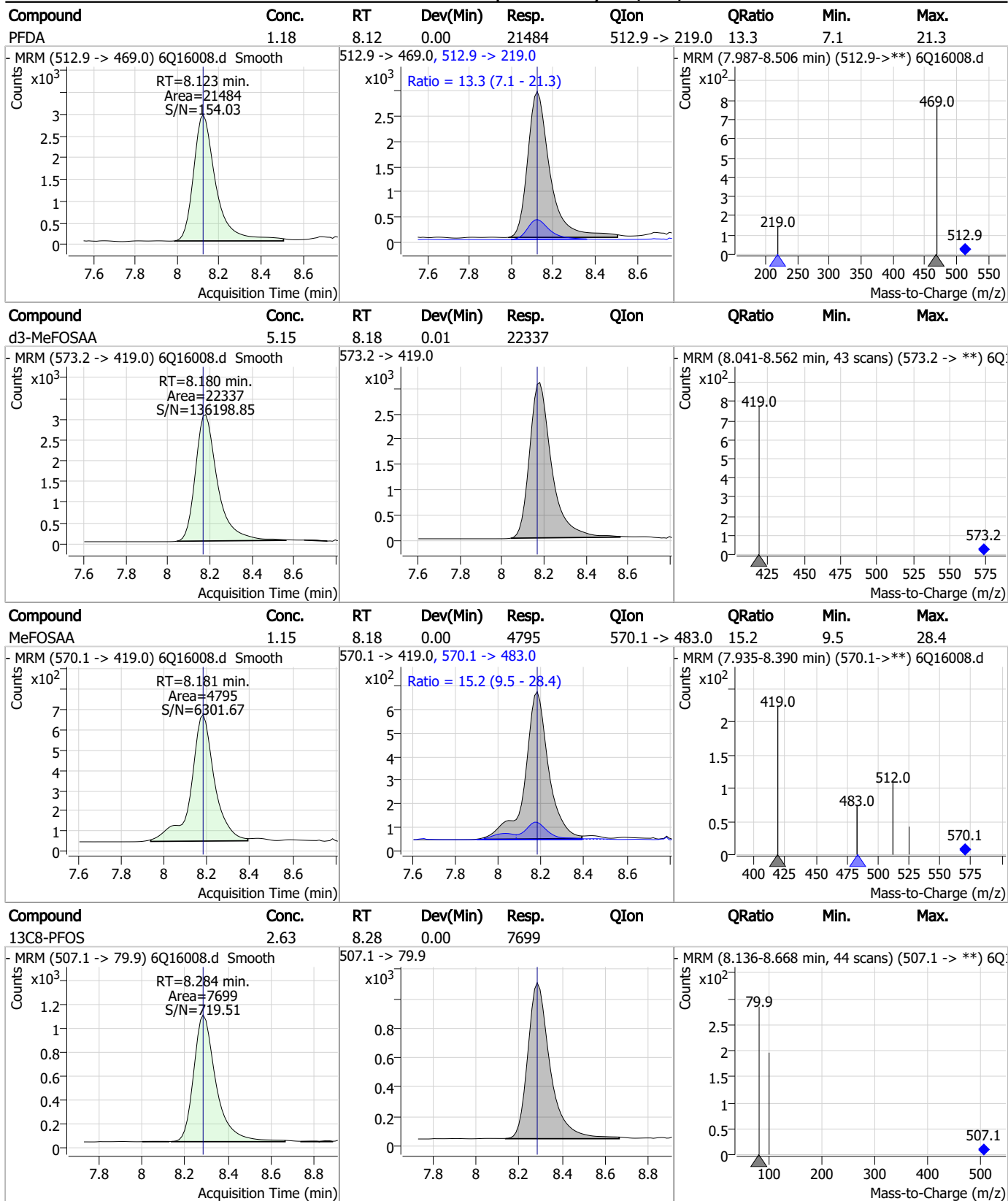
Perfluorinated Compounds by LC/MS/MS



7.6.4

7

Perfluorinated Compounds by LC/MS/MS



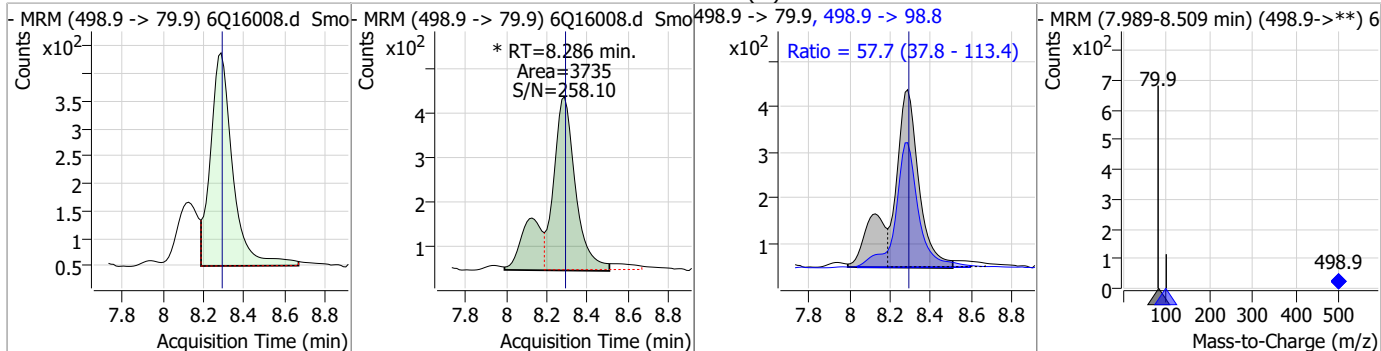
7.6.4

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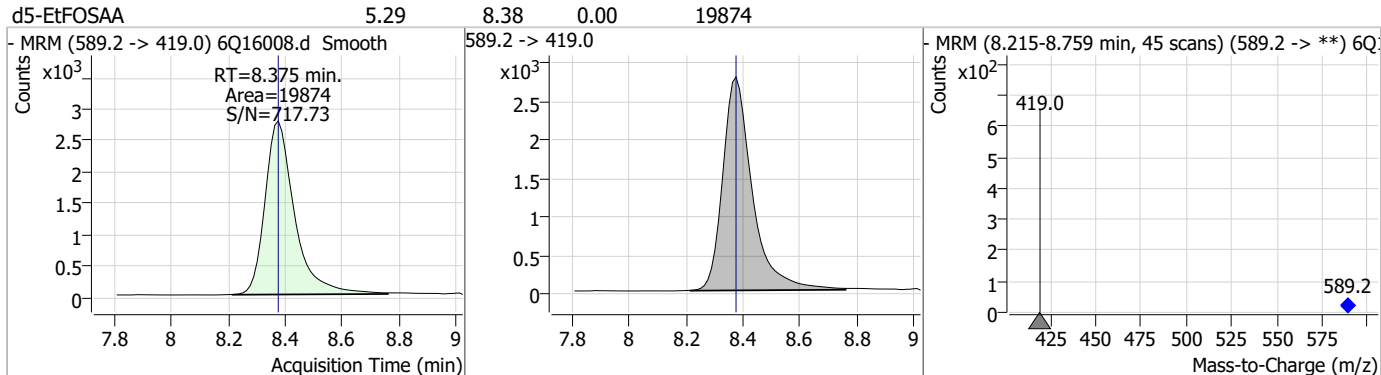


Perfluorinated Compounds by LC/MS/MS

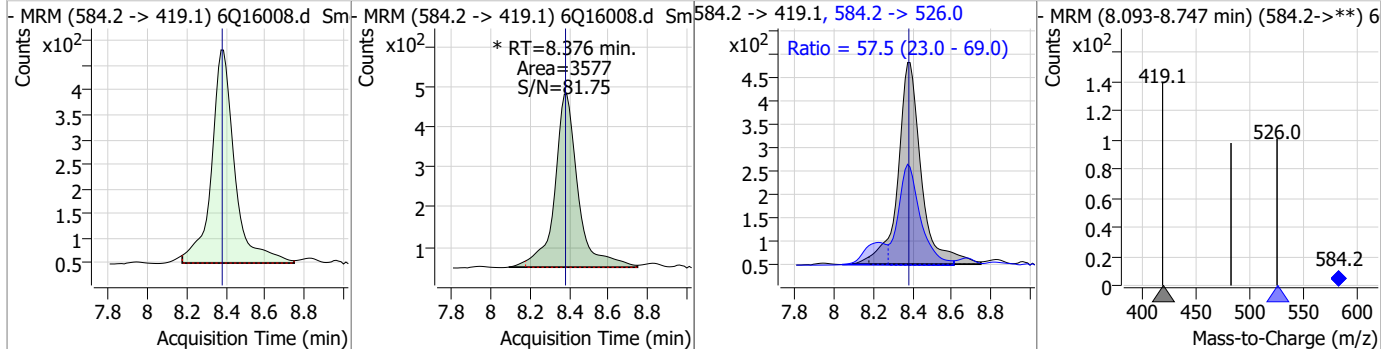
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.10	8.29	0.00	3735 (m)	498.9 -> 98.8	57.7	37.8	113.4



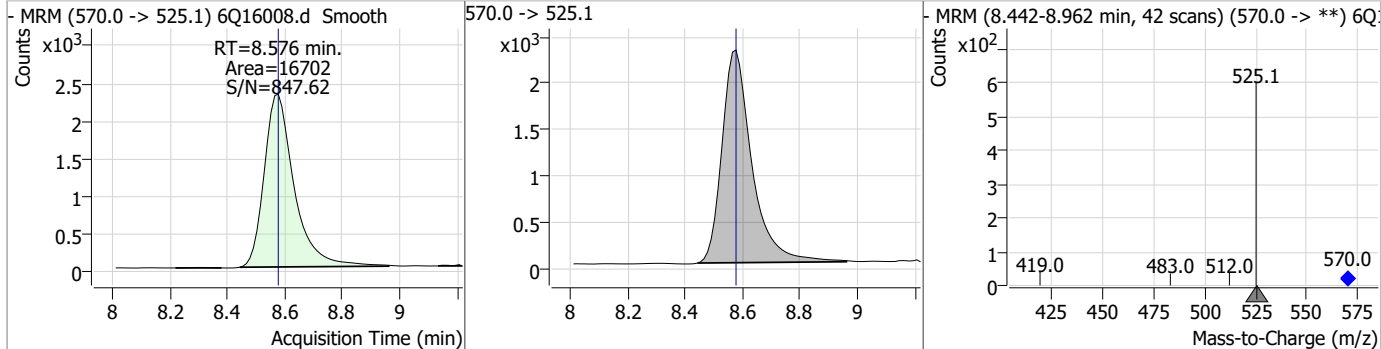
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.29	8.38	0.00	19874				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.17	8.38	0.00	3577 (m)	584.2 -> 526.0	57.5	23.0	69.0

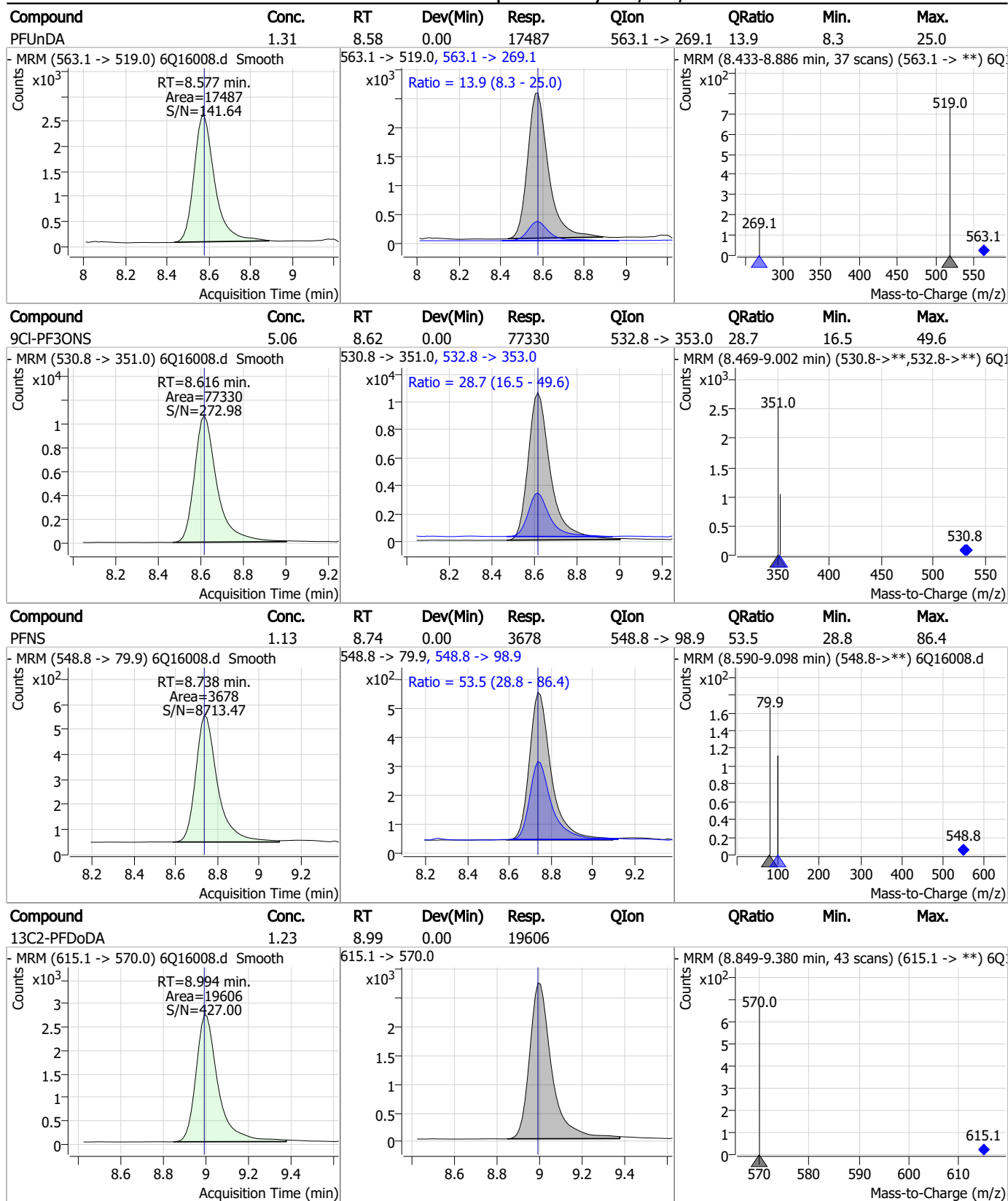


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.21	8.58	0.00	16702				



7.6.4
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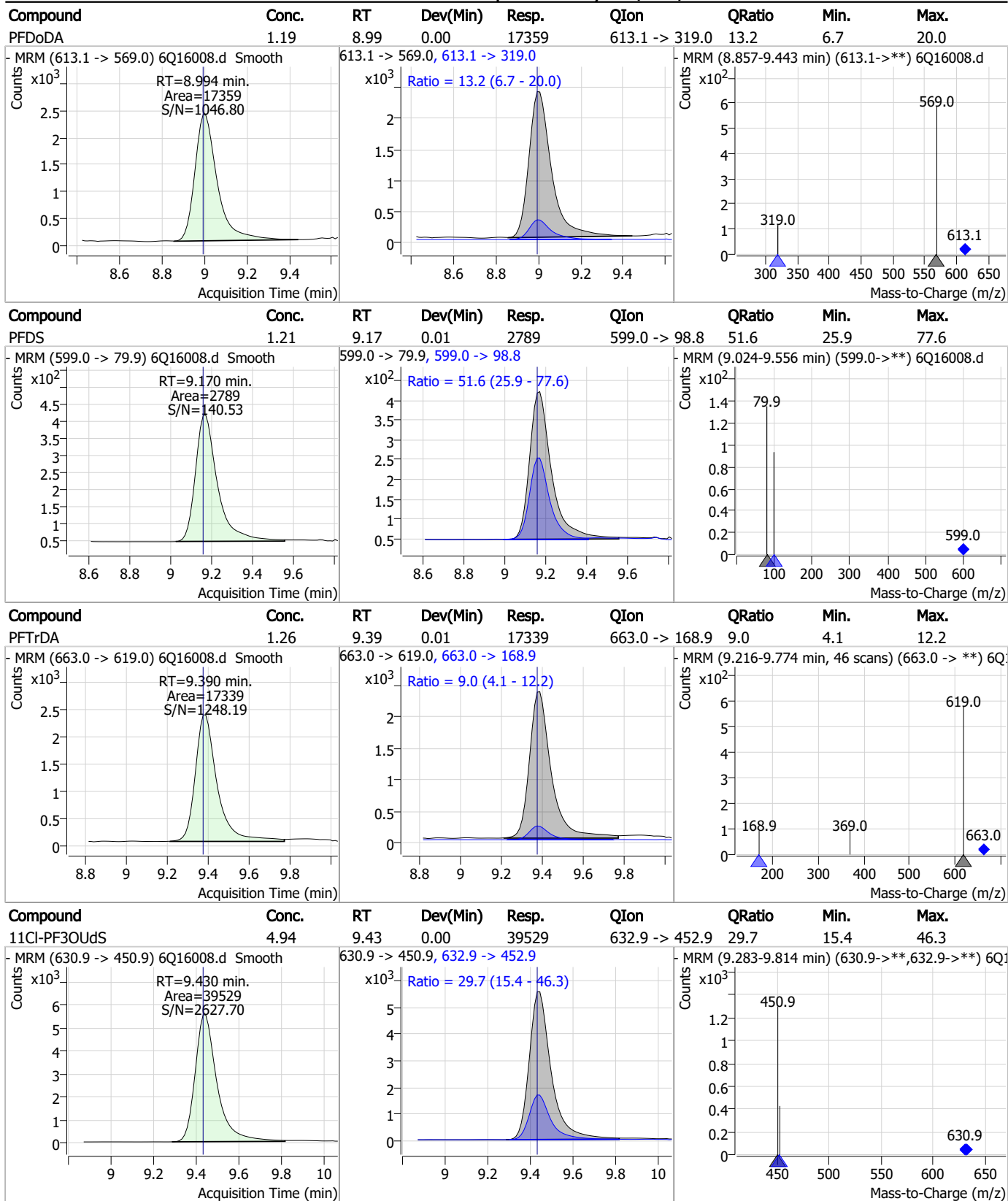
Perfluorinated Compounds by LC/MS/MS



7.6.4
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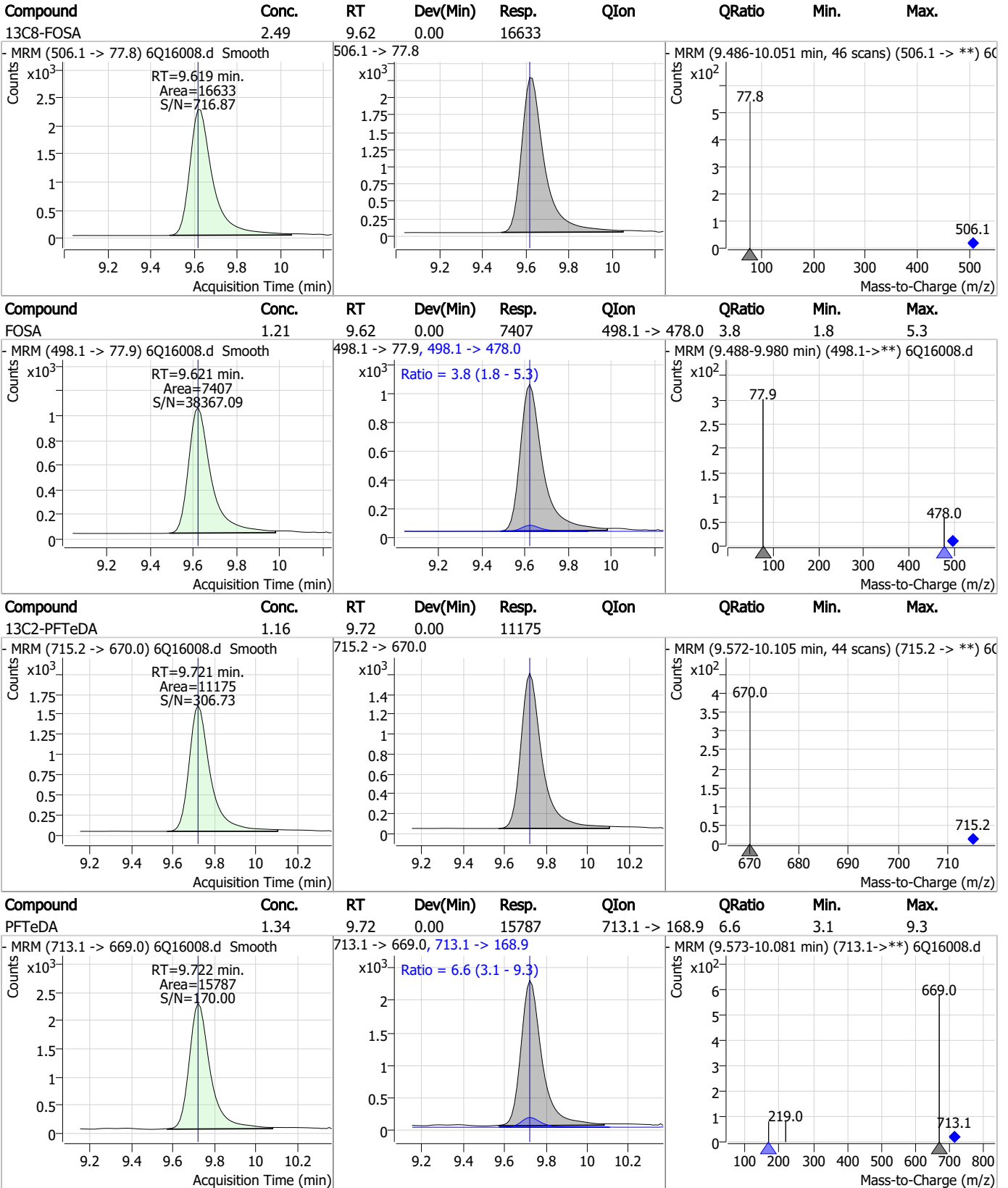
Perfluorinated Compounds by LC/MS/MS



7.6.4

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Perfluorinated Compounds by LC/MS/MS

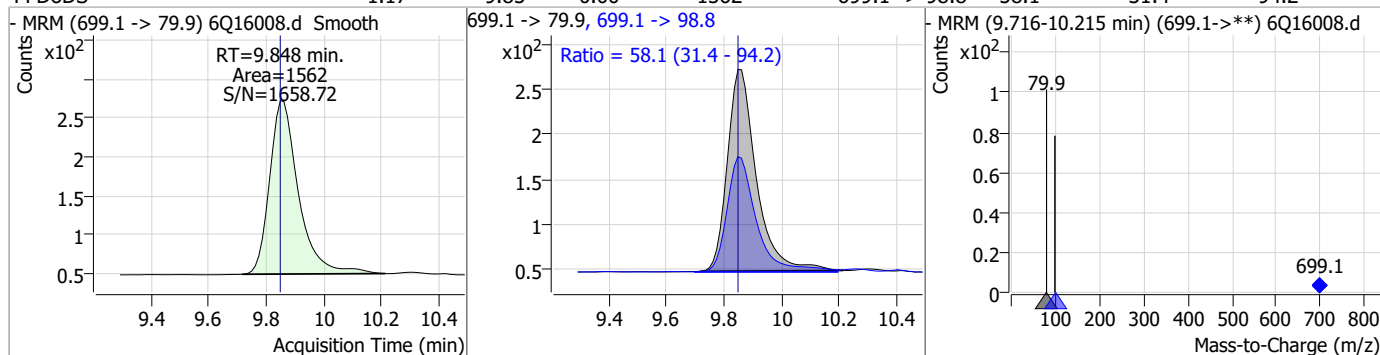


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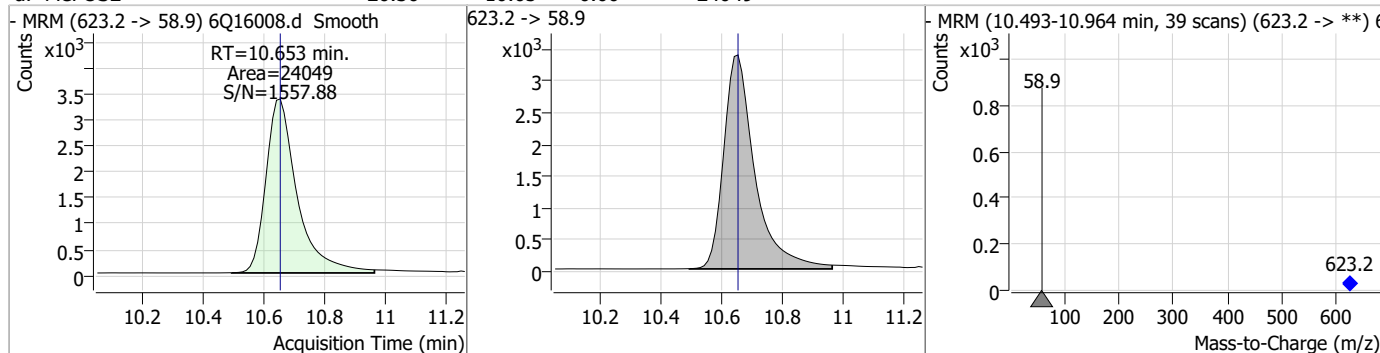
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Perfluorinated Compounds by LC/MS/MS

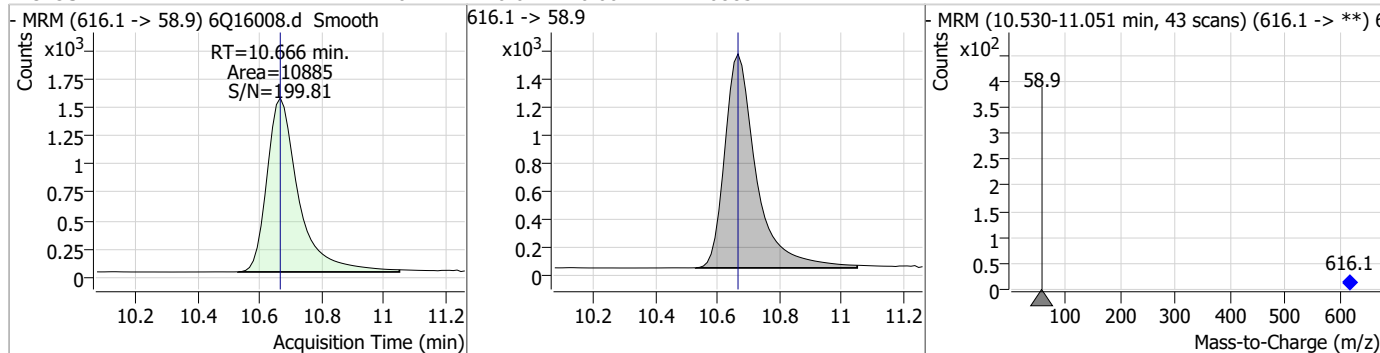
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	1.17	9.85	0.00	1562	699.1 -> 98.8	58.1	31.4	94.2



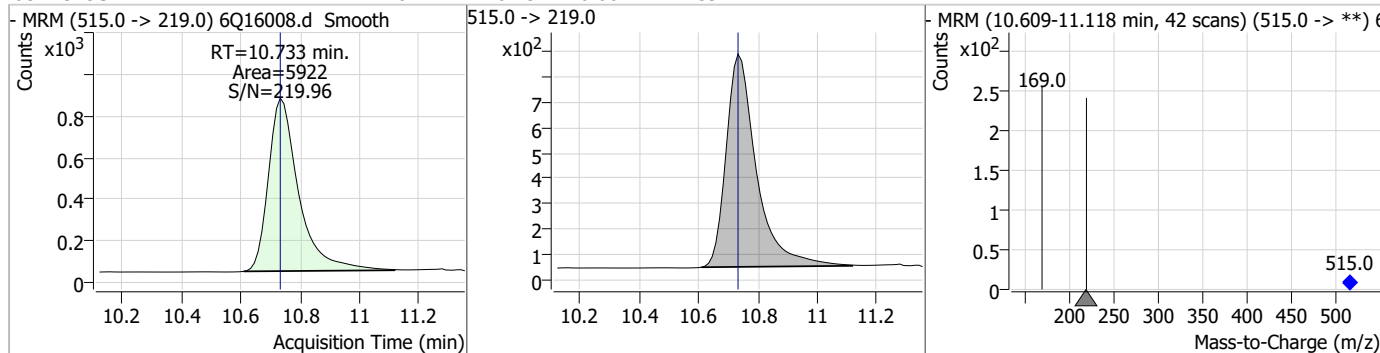
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.36	10.65	0.00	24049				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.01	10.67	0.00	10885				

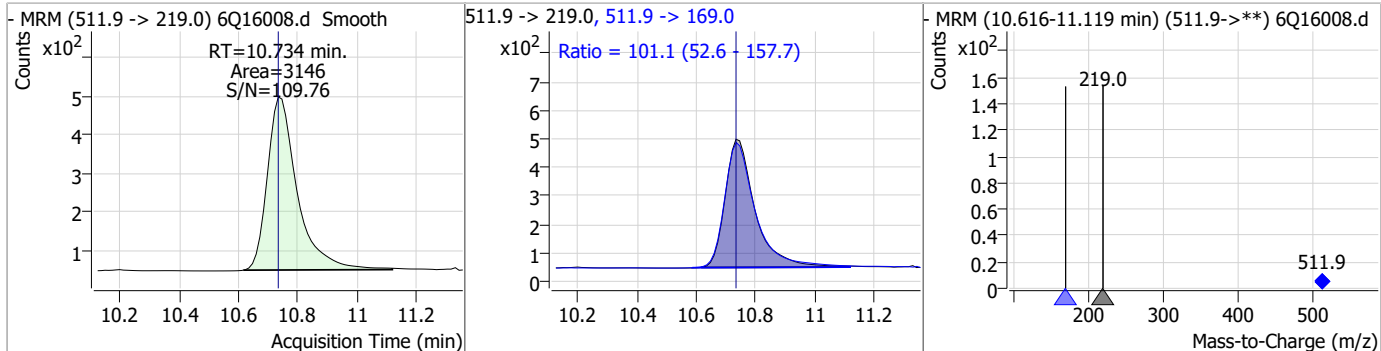


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.46	10.73	0.00	5922				

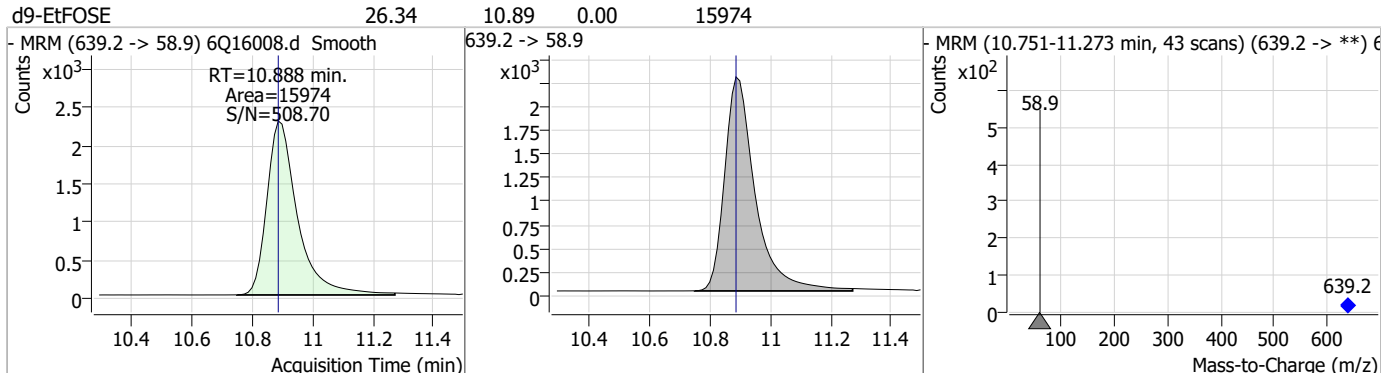


Perfluorinated Compounds by LC/MS/MS

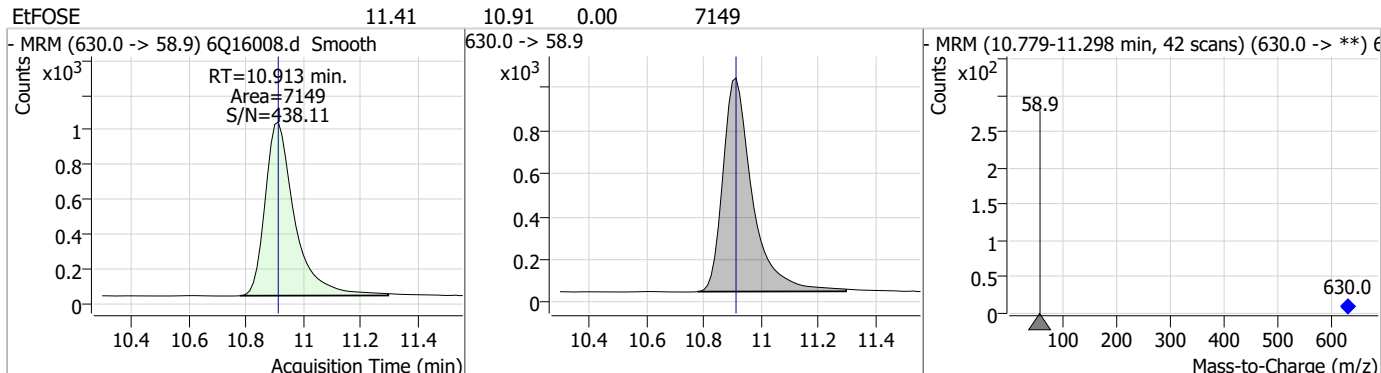
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	1.26	10.73	0.00	3146	511.9 -> 169.0	101.1	52.6	157.7



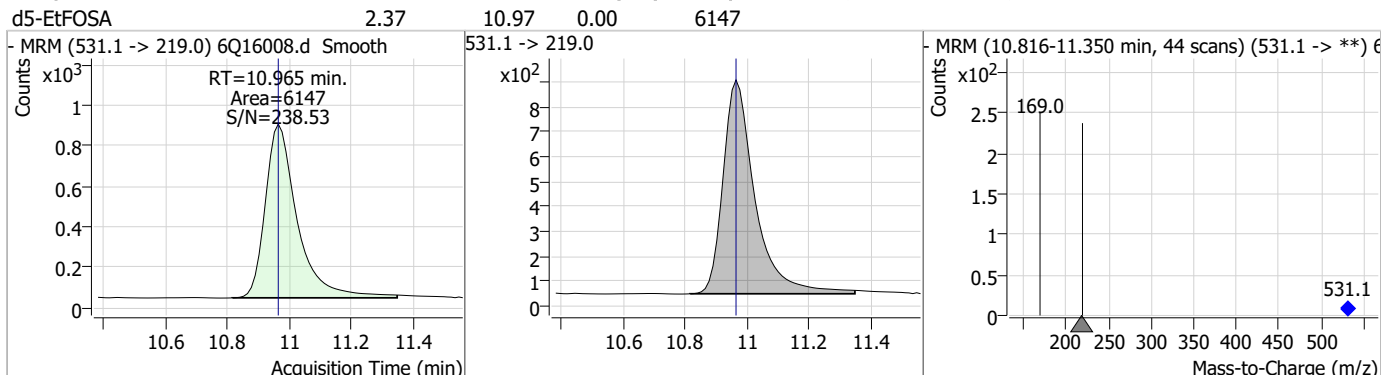
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.34	10.89	0.00	15974				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	11.41	10.91	0.00	7149				

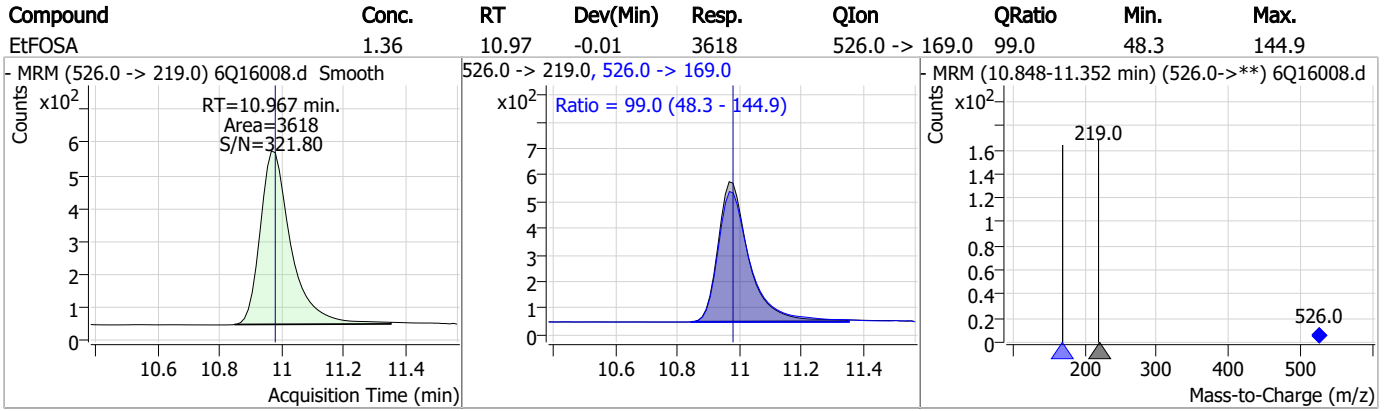


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.37	10.97	0.00	6147				



7.6.4
7

Perfluorinated Compounds by LC/MS/MS



7.6.4

7

Manual Integration Approval Summary

Sample Number: S6Q239-IC239 Method: EPA DRAFT 1633
Lab FileID: 6Q16008.D Analyst approved: 04/05/23 11:17 Martha Valls
Injection Time: 04/04/23 14:43 Supervisor approved: 04/05/23 17:23 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.11	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.29	Split peak
EtFOSAA	2991-50-6		8.38	Split peak

7.6.4.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16009.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/4/2023 2:57:40 PM
 Sample Name : icc239-4
 Vial : P1-A5
 DA Method File : 1633_040423_S6Q239.quantmethod.xml
 Batch Name : s6q239.batch.bin
 Sample Information : OP96085,S6Q239,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	88430	10.00 µg/L	0.000
M5-PFPeA	4.322	268.3 -> 223.0	39684	5.00 µg/L	0.000
M5-PFHxA	5.528	318.0 -> 273.0	34753	2.50 µg/L	0.000
M4-PFHpA	6.468	367.1 -> 322.0	36016	2.50 µg/L	0.000
M8-PFOA	7.112	421.1 -> 376.0	59600	2.50 µg/L	0.000
M9-PFNA	7.643	472.1 -> 427.0	17098	1.25 µg/L	0.000
M6-PFDA	8.122	519.1 -> 474.1	13872	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	17139	1.25 µg/L	0.000
M2-PFDoDA	8.994	615.1 -> 570.0	19818	1.25 µg/L	0.000
M2-PFTeDA	9.721	715.2 -> 670.0	11885	1.25 µg/L	0.000
M8-FOSA	9.619	506.1 -> 77.8	16560	2.50 µg/L	0.000
M3-PFBS	5.459	302.1 -> 79.9	13976	2.50 µg/L	0.000
M3-PFHxS	7.228	402.1 -> 79.9	8613	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	7256	2.50 µg/L	0.000
M2-4:2FTS	5.191	329.1 -> 80.9	2137	5.00 µg/L	0.000
M2-6:2FTS	6.886	429.1 -> 80.9	2710	5.00 µg/L	0.000
M2-8:2FTS	7.911	529.1 -> 80.9	2558	5.00 µg/L	0.000
M3-MeFOSAA	8.167	573.2 -> 419.0	21613	5.00 µg/L	0.000
M3-HFPO-DA	5.893	286.9 -> 168.9	14554	10.00 µg/L	0.000
M5-EtFOSAA	8.375	589.2 -> 419.0	18311	5.00 µg/L	0.000
M7-MeFOSE	10.653	623.2 -> 58.9	22549	25.00 µg/L	0.000
M9-EtFOSE	10.888	639.2 -> 58.9	14714	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	6536	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	6170	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	8992	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	38214	5.00 µg/L	0.000
18O2-PFHxS	7.227	403.0 -> 83.9	6092	2.50 µg/L	0.000
13C4-PFOA	7.112	417.1 -> 372.0	66841	2.50 µg/L	0.000
13C2-PFDA	8.123	515.1 -> 470.1	18362	1.25 µg/L	0.000
13C5-PFNA	7.643	468.0 -> 423.0	18857	1.25 µg/L	0.000
13C2-PFHxA	5.529	315.1 -> 270.0	34455	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.191	329.1 -> 80.9	2137	5.22 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C2-6:2FTS	6.886	429.1 -> 80.9	2710	5.39 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.8%		
13C2-8:2FTS	7.911	529.1 -> 80.9	2558	5.28 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.6%		
13C2-PFDoDA	8.994	615.1 -> 570.0	19818	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 109.2%		
13C2-PFTeDA	9.721	715.2 -> 670.0	11885	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 109.2%		
13C3-PFBS	5.459	302.1 -> 79.9	13976	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C3-PFHxS	7.228	402.1 -> 79.9	8613	2.47 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.8%		
13C4-PFBA	2.897	216.8 -> 171.9	88430	9.90 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C4-PFHpA	6.468	367.1 -> 322.0	36016	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.3%		
13C5-PFHxA	5.528	318.0 -> 273.0	34753	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C5-PFPeA	4.322	268.3 -> 223.0	39684	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.8%		
13C6-PFDA	8.122	519.1 -> 474.1	13872	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C7-PFUnDA	8.576	570.0 -> 525.1	17139	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 109.2%		
13C8-FOSA	9.619	506.1 -> 77.8	16560	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C8-PFOA	7.112	421.1 -> 376.0	59600	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.8%		
13C8-PFOS	8.284	507.1 -> 79.9	7256	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C9-PFNA	7.643	472.1 -> 427.0	17098	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.1%		
d3-MeFOSAA	8.167	573.2 -> 419.0	21613	4.97 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C3-HFPO-DA	5.893	286.9 -> 168.9	14554	9.69 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 96.9%		
d3-MeFOSA	10.733	515.0 -> 219.0	6170	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.3%		
d5-EtFOSAA	8.375	589.2 -> 419.0	18311	4.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.2%		
d7-MeFOSE	10.653	623.2 -> 58.9	22549	24.64 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 98.6%		
d9-EtFOSE	10.888	639.2 -> 58.9	14714	24.19 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 96.8%		
d5-EtFOSA	10.965	531.1 -> 219.0	6536	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.6%		
Target Compounds					QValue
4:2FTS	5.192	327.1 -> 307.0	36234	8.66 µg/L	100
		327.1 -> 80.9	8562		
6:2FTS	6.886	427.1 -> 407.0	30102	8.29 µg/L	100
		427.1 -> 80.9	6573		
8:2FTS	7.911	527.1 -> 507.0	16126	8.88 µg/L	100
		527.1 -> 80.8	4005		
EtFOSAA	8.376	584.2 -> 419.1	6816	2.43 µg/L	m 88
		584.2 -> 526.0	3680		
FOSA	9.621	498.1 -> 77.9	12962	2.12 µg/L	100
		498.1 -> 478.0	460		
MeFOSAA	8.181	570.1 -> 419.0	8971	2.21 µg/L	100
		570.1 -> 483.0	1696		
PFBA	2.906	212.8 -> 168.9	19984	8.94 µg/L	100
PFBS	5.460	298.7 -> 79.9	11019	2.01 µg/L	100
		298.7 -> 98.8	5095		
PFDA	8.123	512.9 -> 469.0	37868	2.34 µg/L	100
		512.9 -> 219.0	5372		
PFDoDA	8.994	613.1 -> 569.0	30808	2.09 µg/L	100
		613.1 -> 319.0	4110		
PFDS	9.158	599.0 -> 79.9	4566	2.11 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2362			
PFHpA	6.469	363.1 -> 319.0	43654	2.16	µg/L	100
		363.1 -> 169.0	6086			
PFHpS	7.781	449.0 -> 79.9	6238	2.01	µg/L	100
		449.0 -> 98.9	3756			
PFHxA	5.531	313.0 -> 269.0	28698	2.24	µg/L	100
		313.0 -> 118.9	1158			
PFHxS	7.228	398.7 -> 79.9	8007	2.11	µg/L	m 95
		398.7 -> 98.9	4354			
PFNA	7.643	463.0 -> 419.0	24904	2.24	µg/L	100
		463.0 -> 219.0	5156			
PFNS	8.738	548.8 -> 79.9	6600	2.14	µg/L	100
		548.8 -> 98.9	3802			
PFOA	7.113	413.0 -> 369.0	58696	2.18	µg/L	100
		413.0 -> 169.0	7875			
PFOS	8.286	498.9 -> 79.9	7077	2.22	µg/L	m 87
		498.9 -> 98.8	4559			
PFPeA	4.324	263.0 -> 219.0	38064	4.55	µg/L	100
PFPeS	6.533	349.1 -> 79.9	9799	2.15	µg/L	100
		349.1 -> 98.9	5061			
PFTeDA	9.722	713.1 -> 669.0	28088	2.24	µg/L	100
		713.1 -> 168.9	1738			
PFTrDA	9.378	663.0 -> 619.0	30616	2.20	µg/L	100
		663.0 -> 168.9	2493			
PFUnDA	8.577	563.1 -> 519.0	30331	2.21	µg/L	100
		563.1 -> 269.1	5045			
11CI-PF3OUdS	9.430	630.9 -> 450.9	68149	8.71	µg/L	100
		632.9 -> 452.9	21018			
9CI-PF3ONS	8.616	530.8 -> 351.0	129023	8.64	µg/L	100
		532.8 -> 353.0	42692			
ADONA	6.731	376.9 -> 250.9	265713	9.01	µg/L	100
		376.9 -> 84.8	61707			
HFPO-DA	5.894	284.9 -> 168.9	12613	9.59	µg/L	100
		284.9 -> 184.9	1581			
3:3FTCA	3.790	241.0 -> 177.0	5078	10.93	µg/L	100
		241.0 -> 117.0	772			
5:3FTCA	6.185	341.0 -> 237.1	161726	57.03	µg/L	100
		341.0 -> 217.0	140539			
7:3FTCA	7.608	441.0 -> 316.9	82583	57.53	µg/L	100
		441.0 -> 336.9	161312			
EtFOSA	10.979	526.0 -> 219.0	6443	2.28	µg/L	100
		526.0 -> 169.0	6222			
EtFOSE	10.913	630.0 -> 58.9	13059	22.63	µg/L	100
MeFOSA	10.734	511.9 -> 219.0	5644	2.17	µg/L	100
		511.9 -> 169.0	5936			
MeFOSE	10.666	616.1 -> 58.9	19274	22.68	µg/L	100
PFDoDS	9.848	699.1 -> 79.9	2785	2.21	µg/L	100
		699.1 -> 98.8	1749			
NFDHA	5.410	295.0 -> 201.0	3864	4.65	µg/L	100
		295.0 -> 84.9	1701			
PFMBA	4.737	279.0 -> 85.1	12292	4.43	µg/L	100
PFMPA	3.463	229.0 -> 84.9	11375	4.49	µg/L	100
PFEESA	5.999	314.8 -> 134.9	74404	4.09	µg/L	100
		314.8 -> 82.9	1783			

= Qualifier out of range, m = manually integrated, + = Area summed

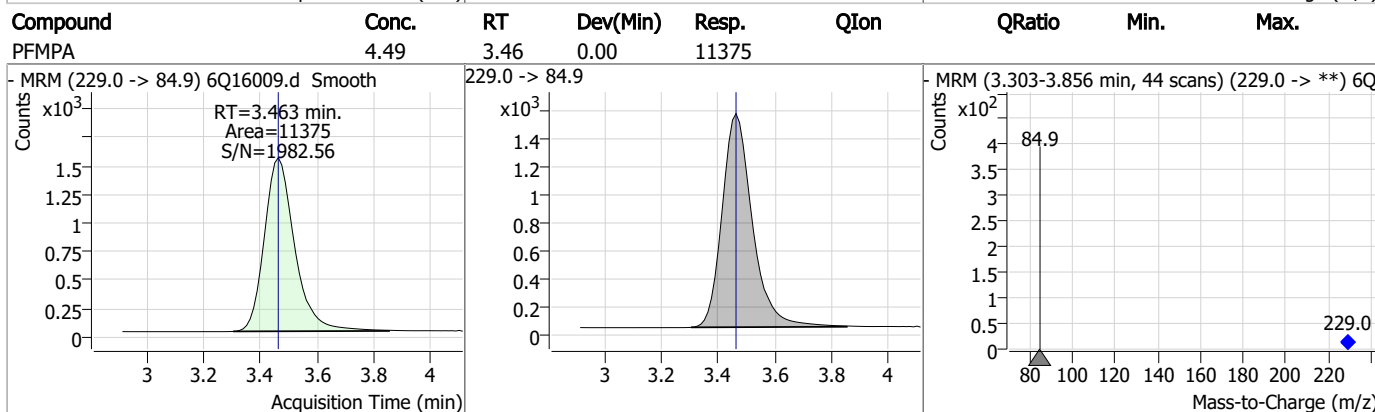
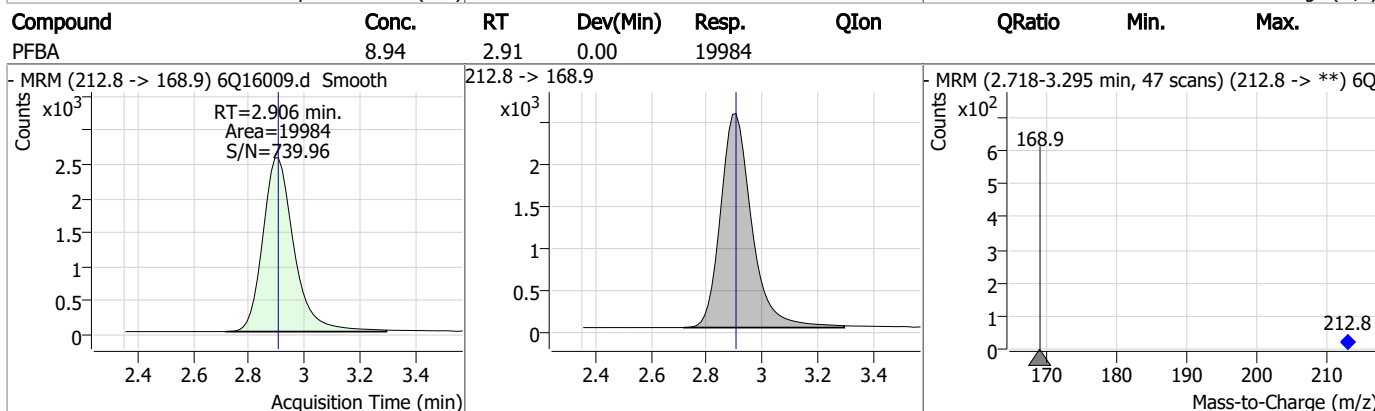
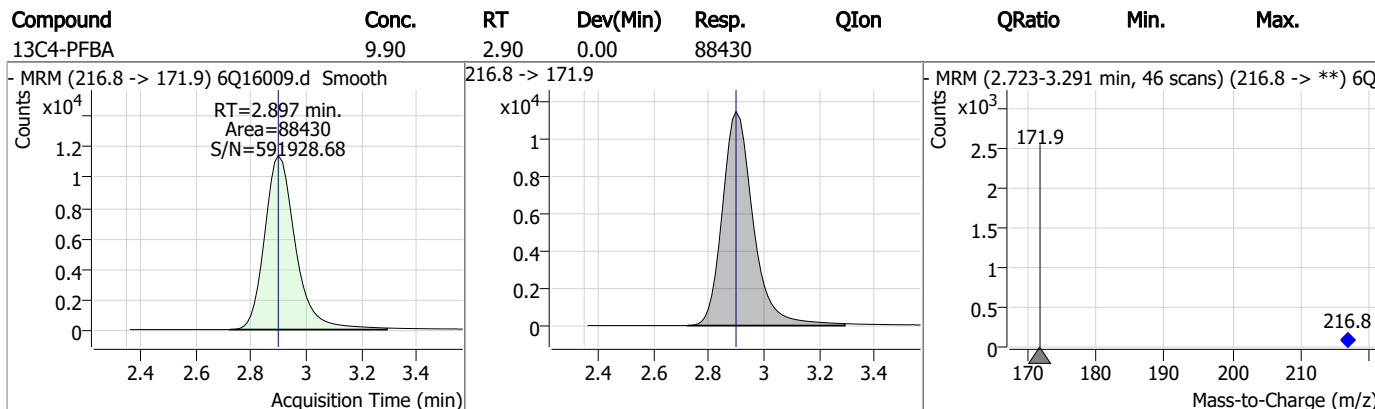
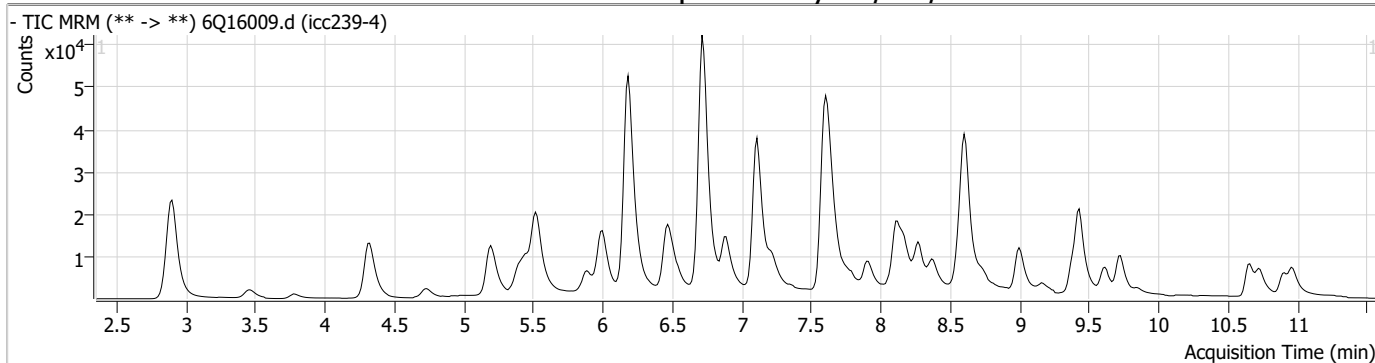
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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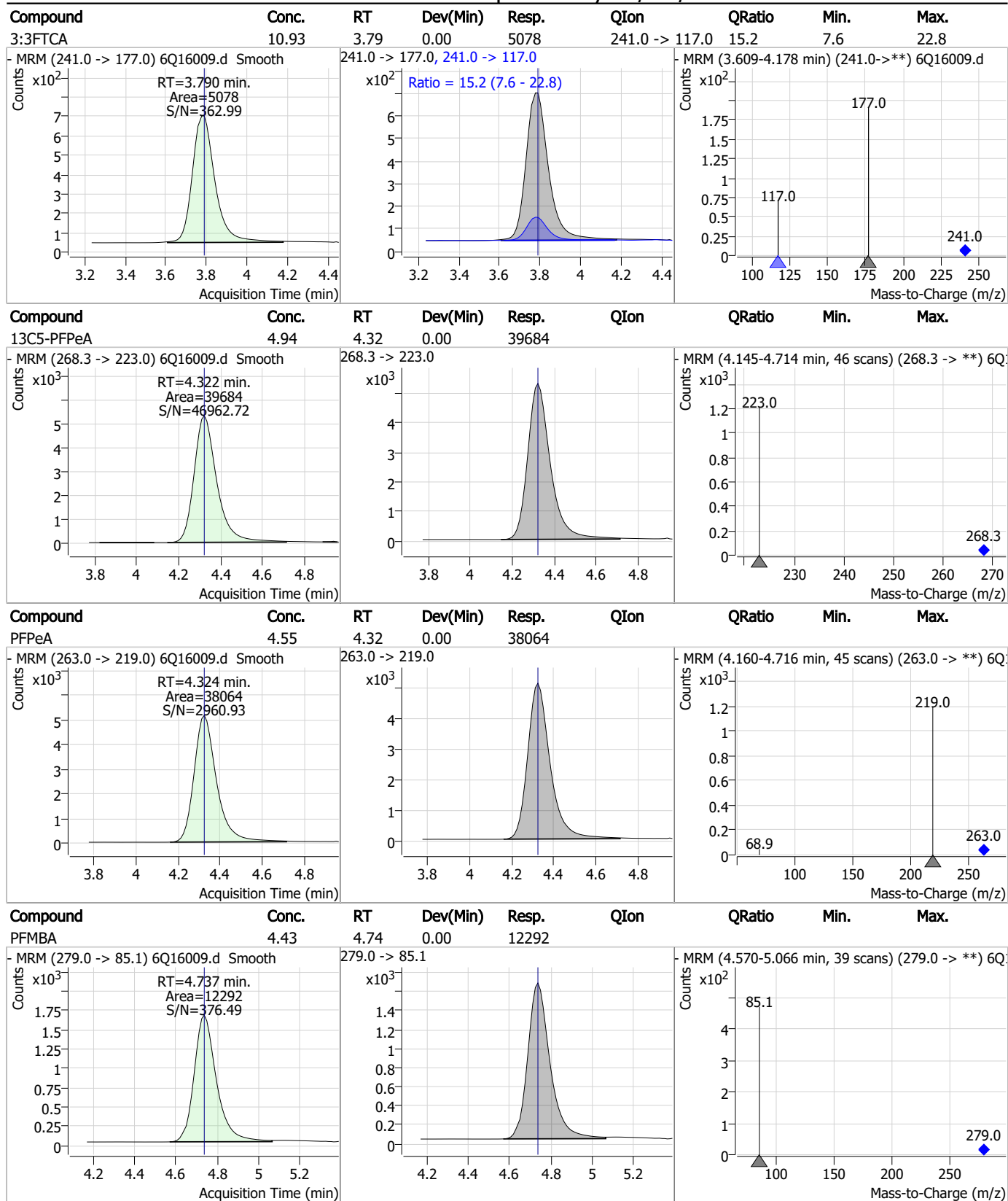
7.6.5
7



Perfluorinated Compounds by LC/MS/MS

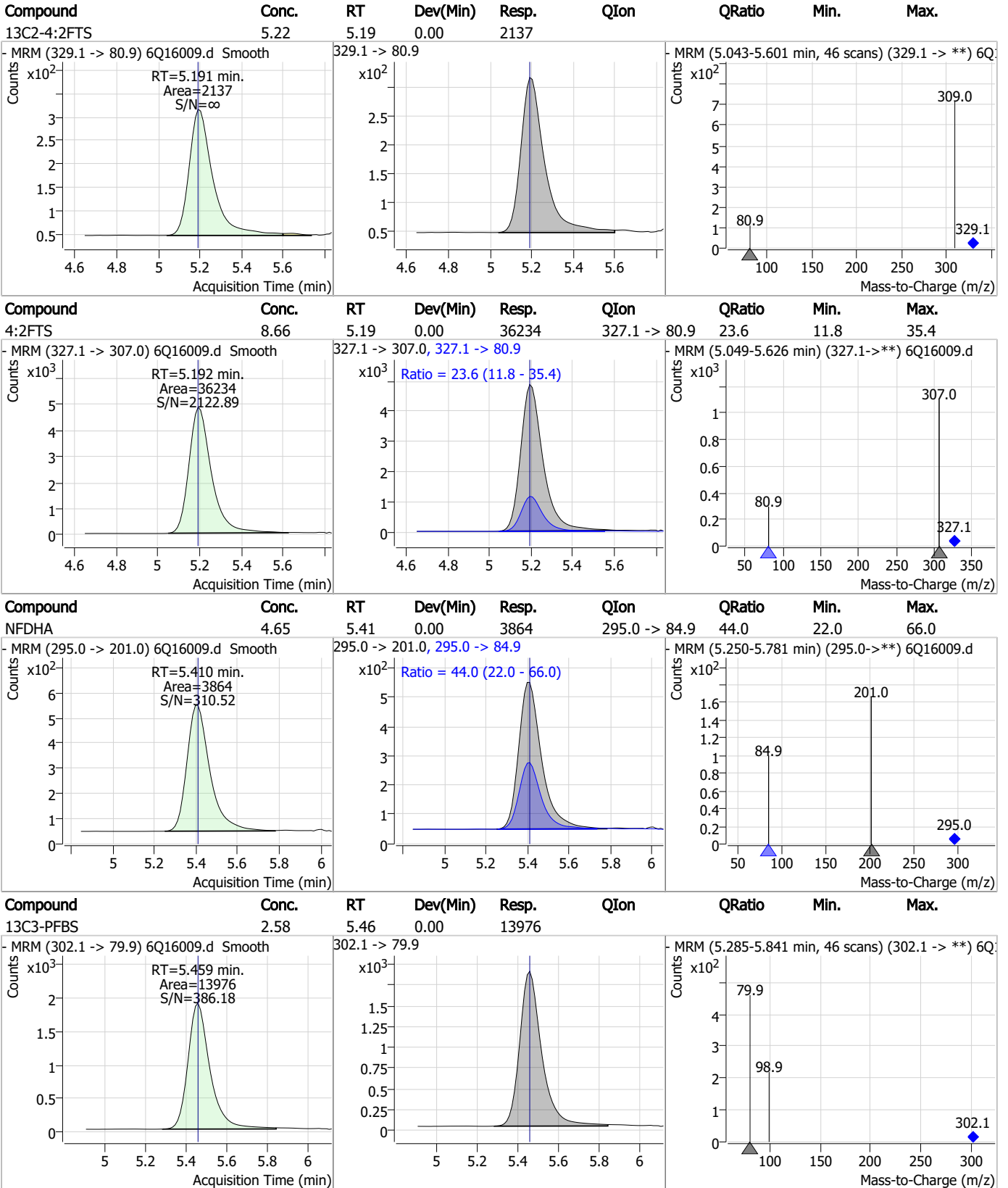


Perfluorinated Compounds by LC/MS/MS



7.6.5
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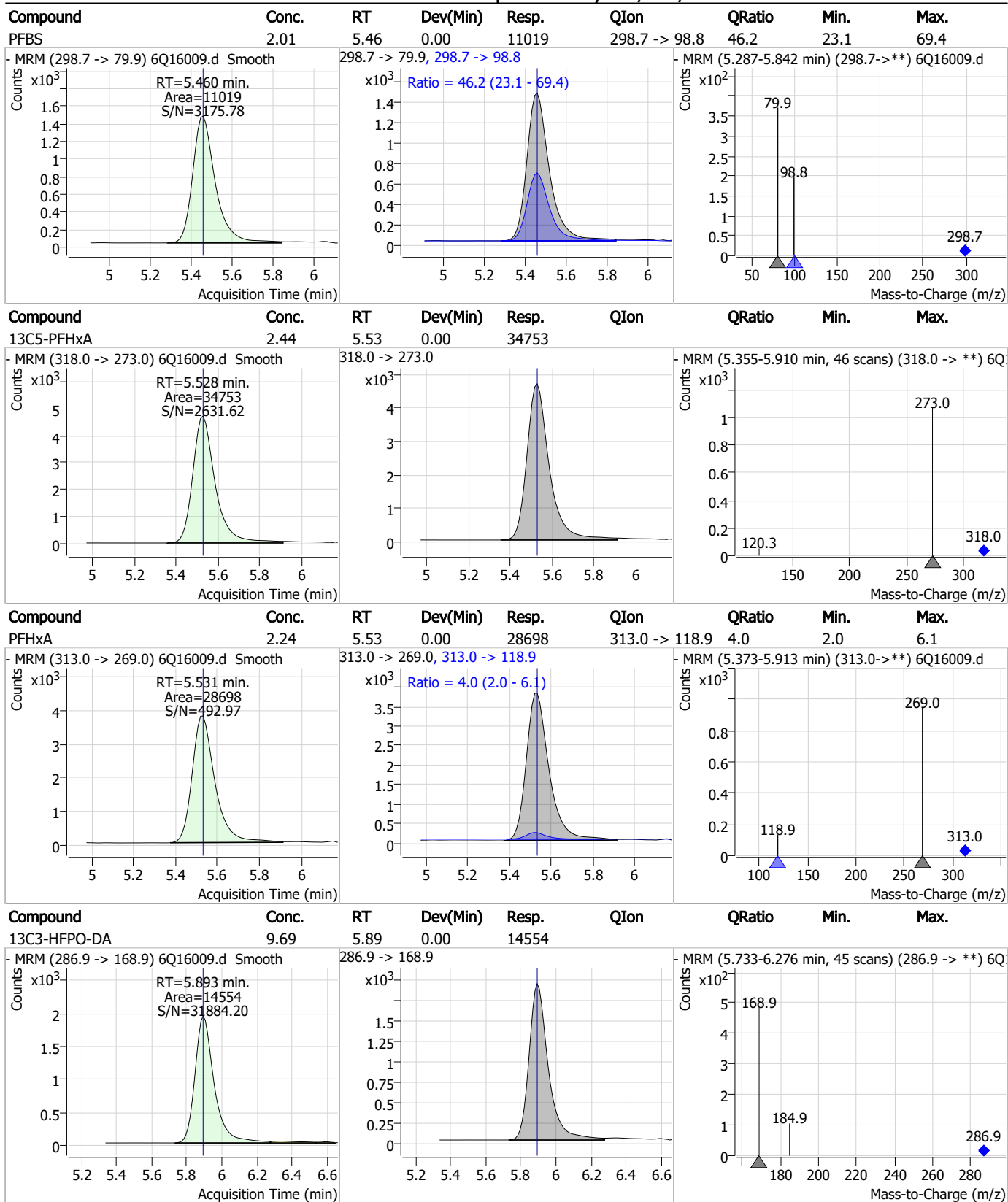
Perfluorinated Compounds by LC/MS/MS



7.6.5

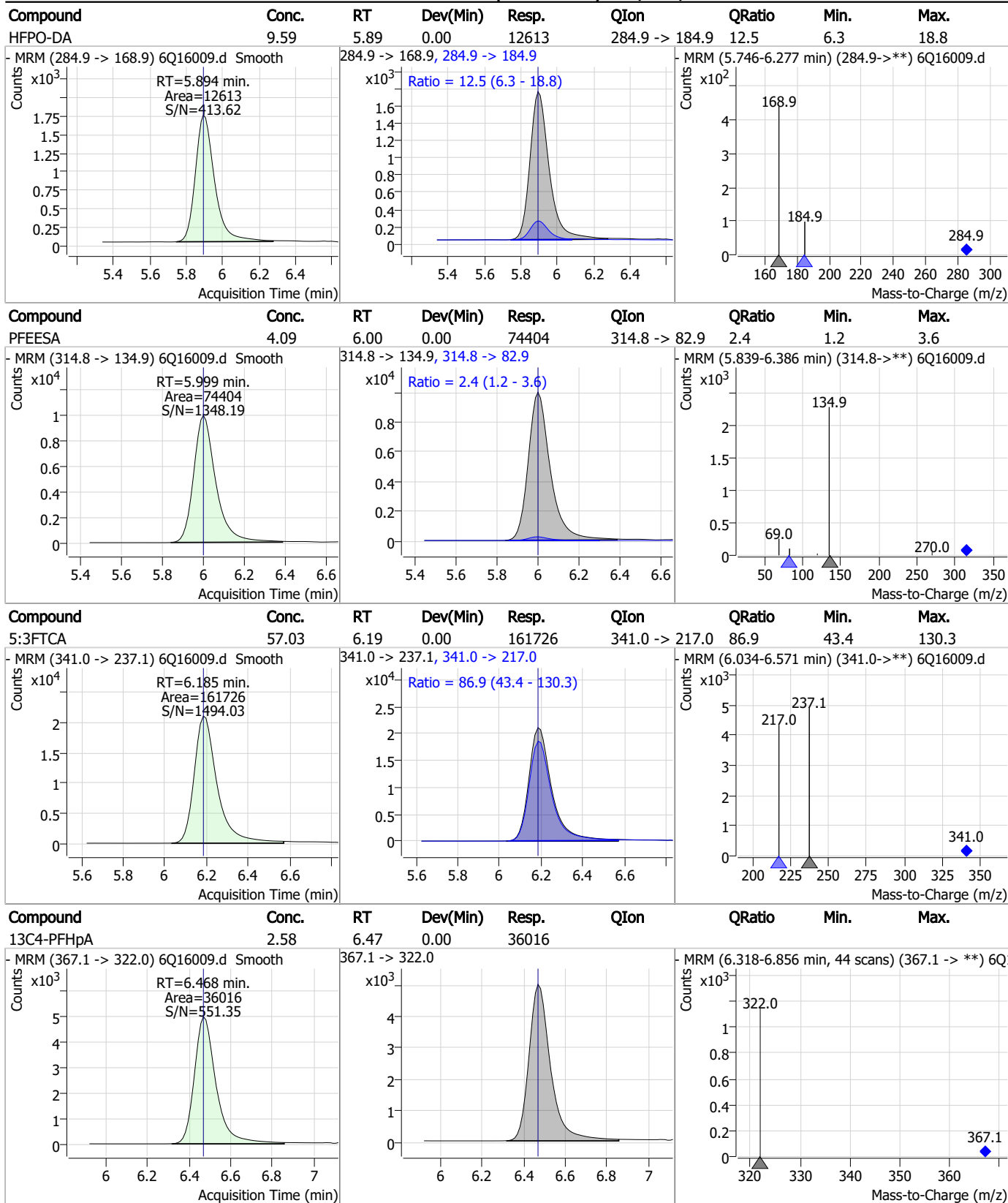
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Perfluorinated Compounds by LC/MS/MS



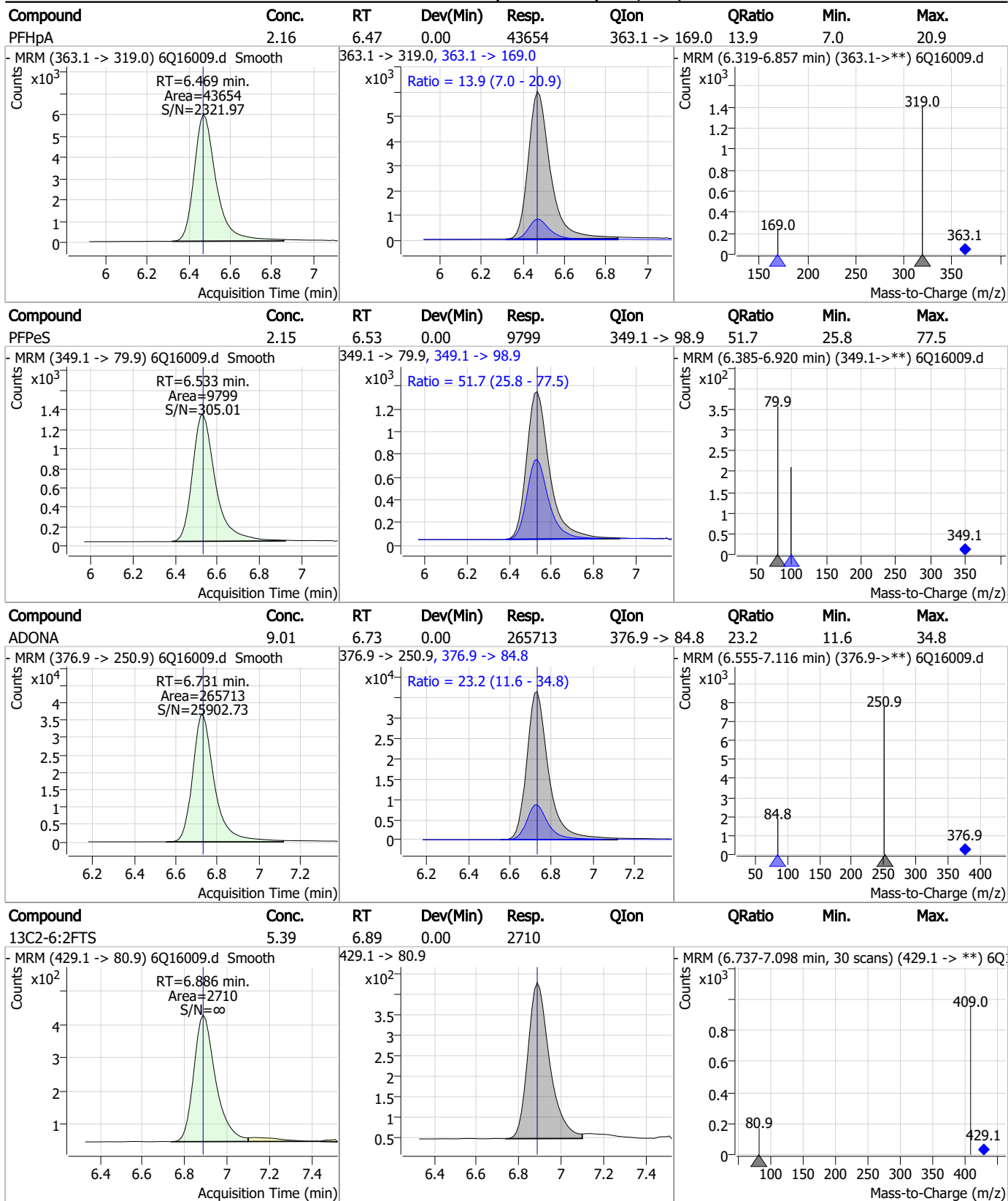
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Perfluorinated Compounds by LC/MS/MS



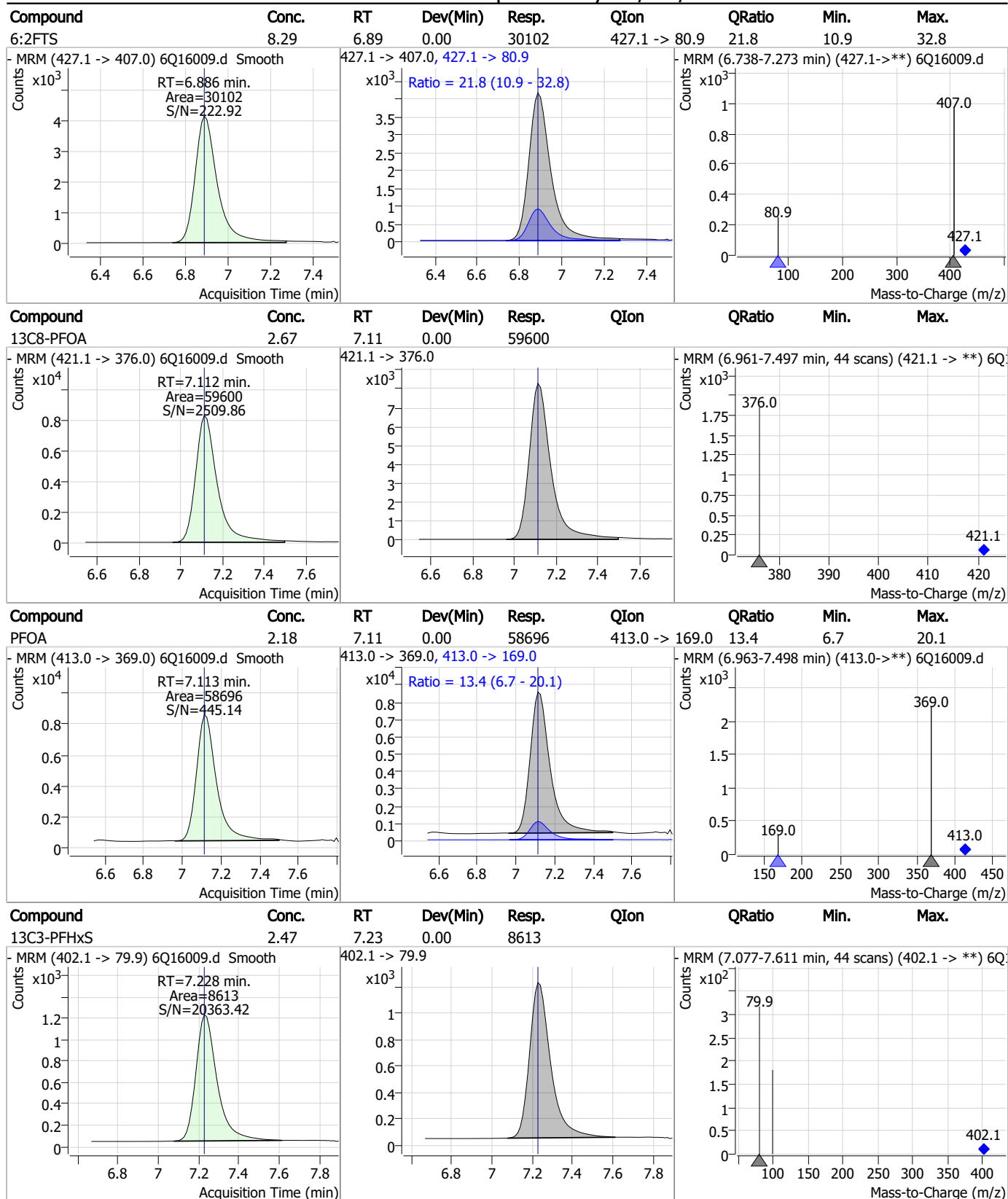
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Perfluorinated Compounds by LC/MS/MS



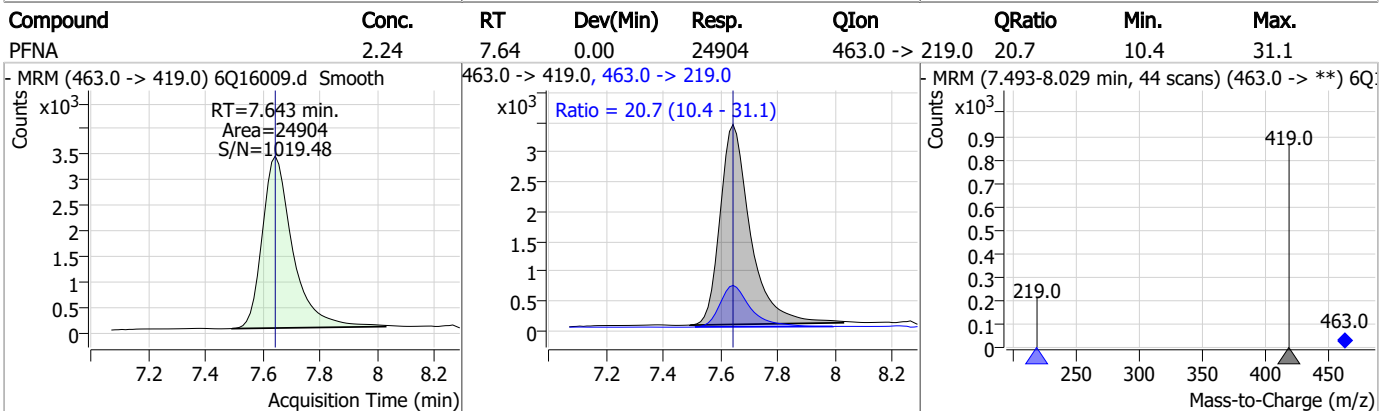
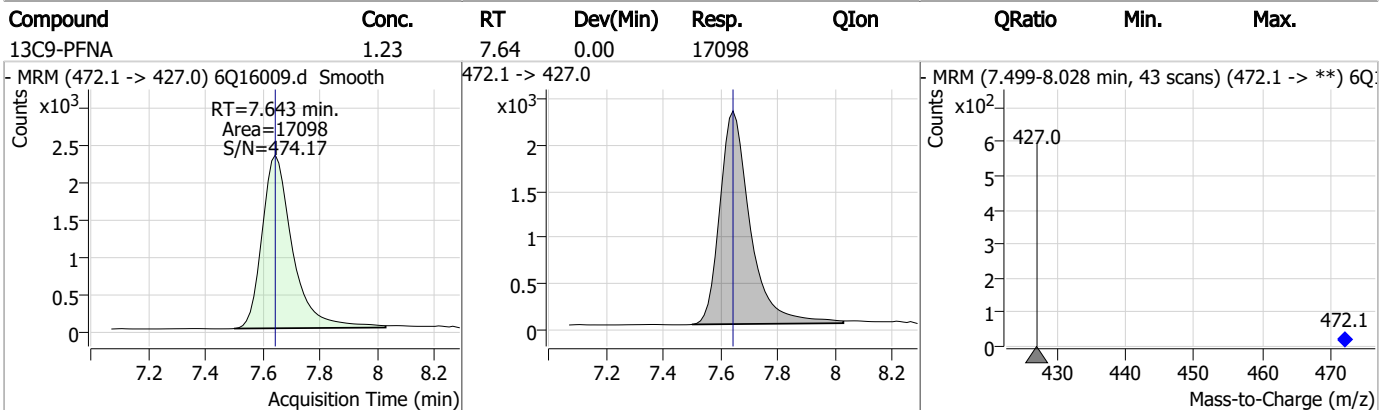
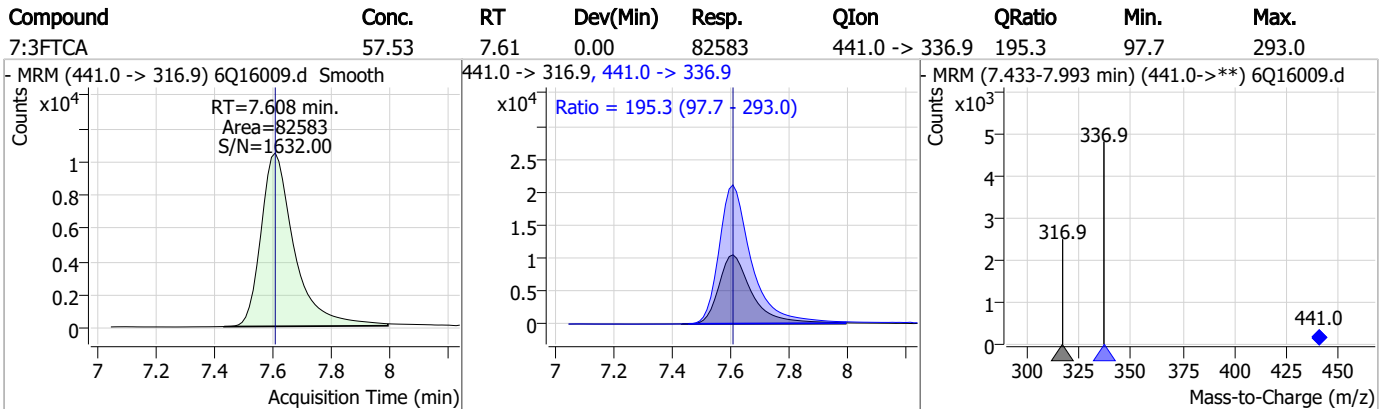
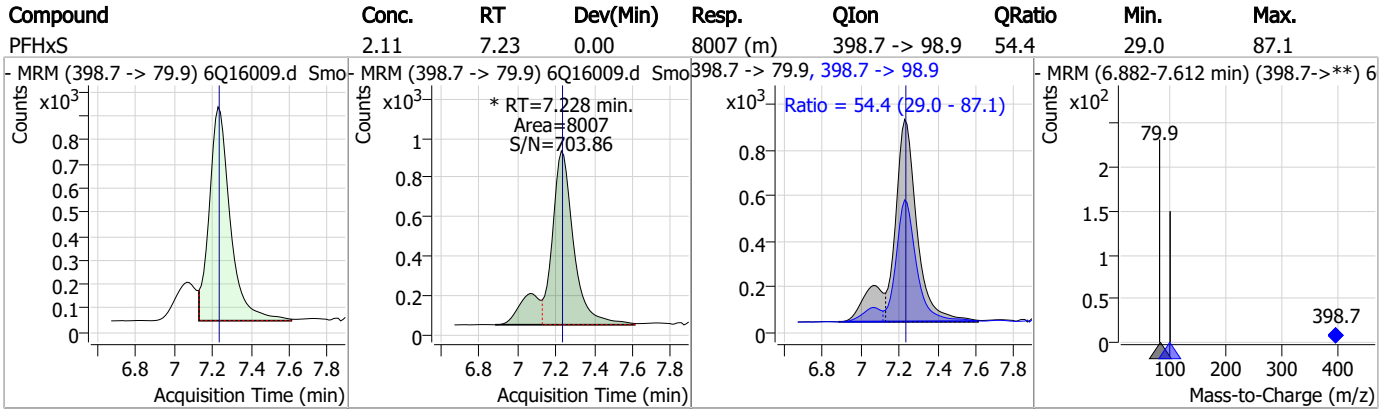
7.6.5
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Perfluorinated Compounds by LC/MS/MS



7.6.5
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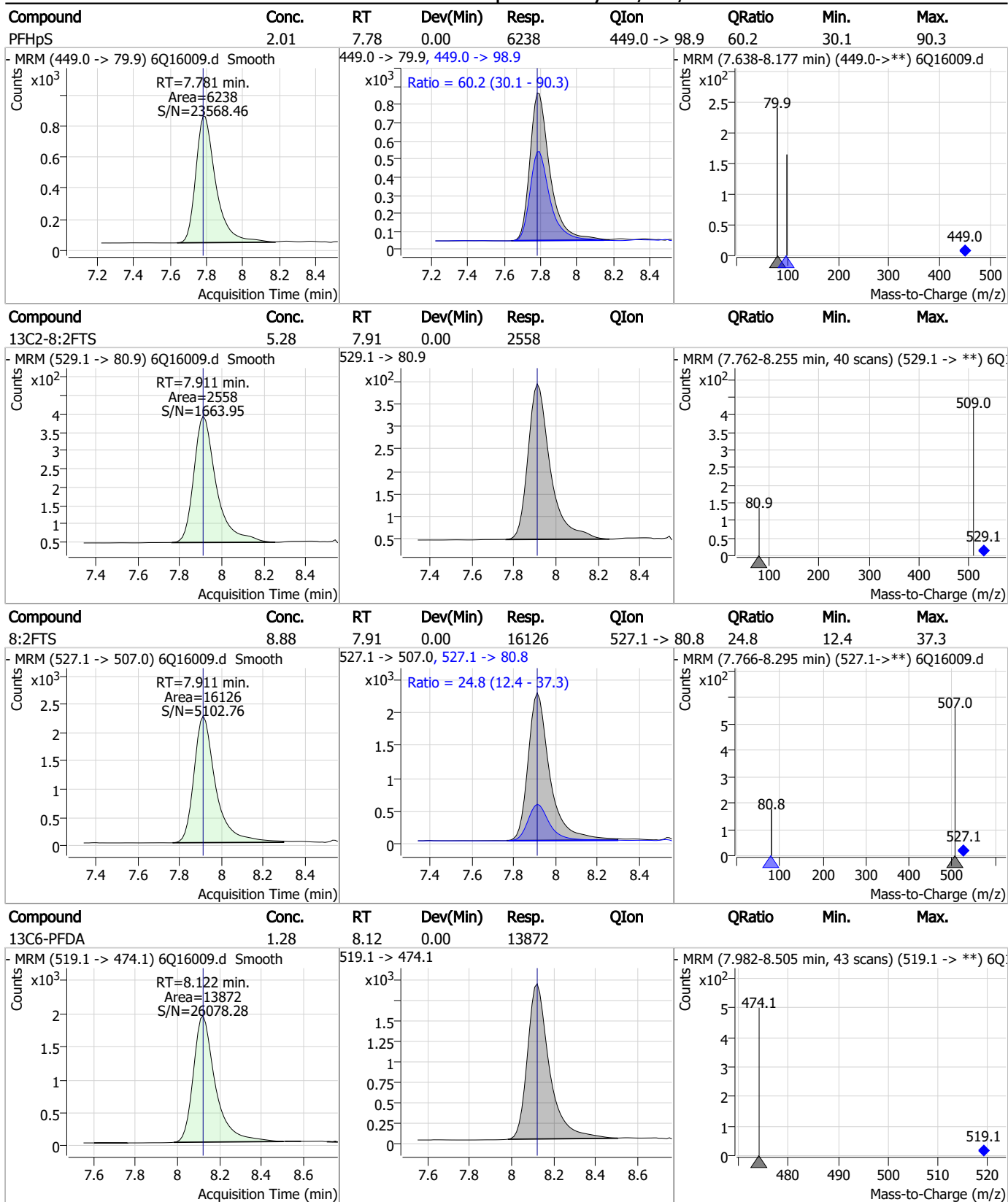
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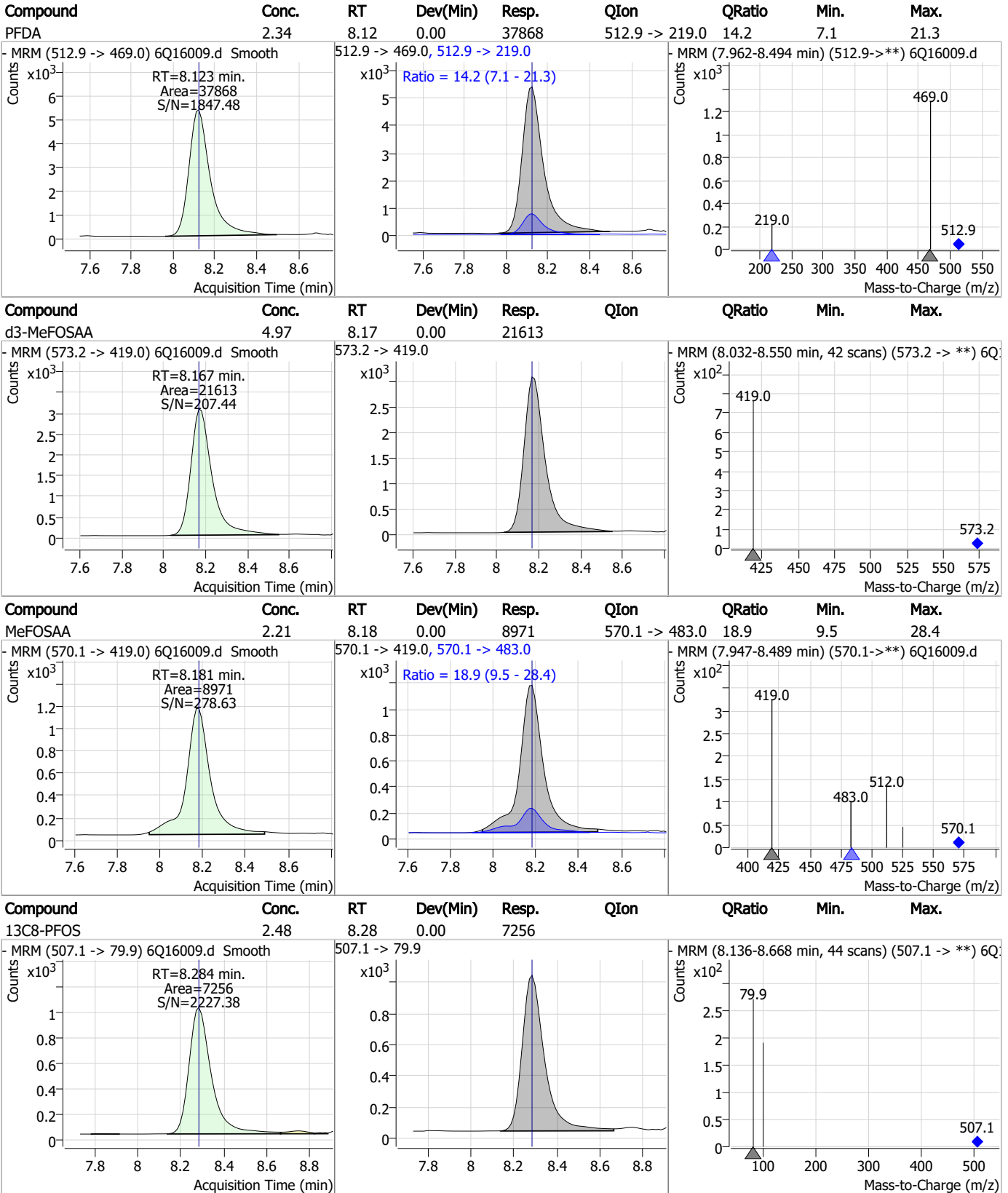
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Perfluorinated Compounds by LC/MS/MS



7.6.5
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Perfluorinated Compounds by LC/MS/MS

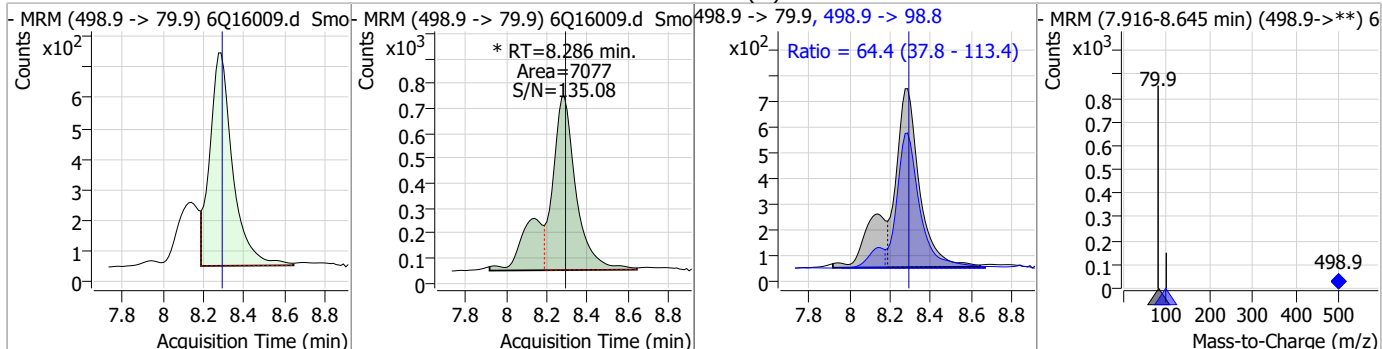


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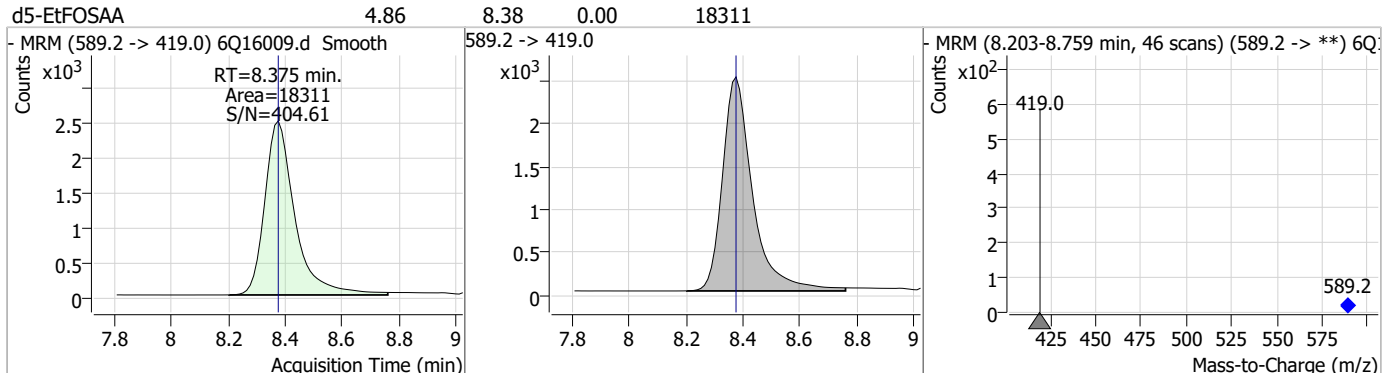
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Perfluorinated Compounds by LC/MS/MS

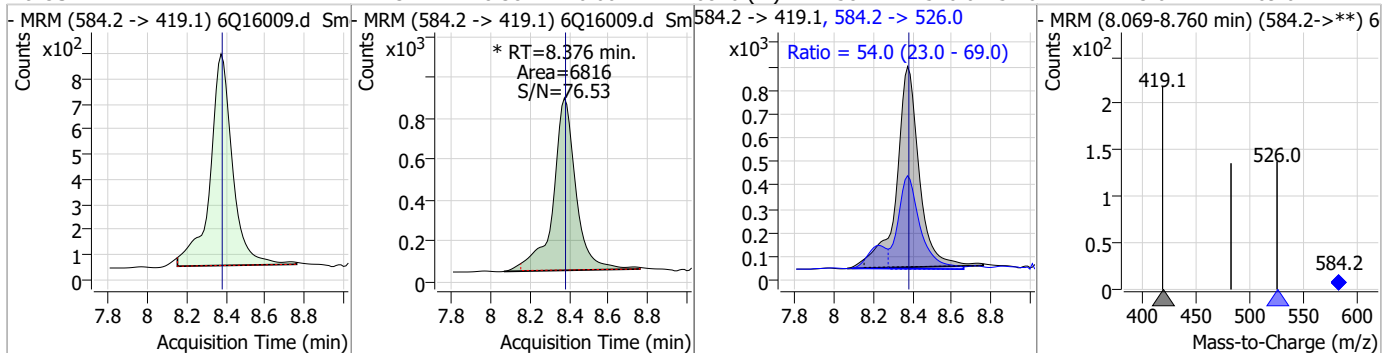
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.22	8.29	0.00	7077 (m)	498.9 -> 98.8	64.4	37.8	113.4



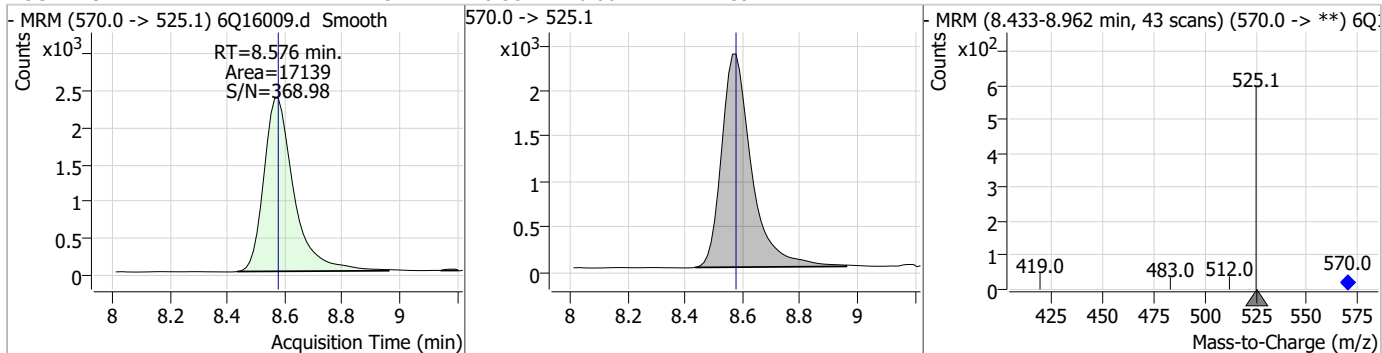
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.86	8.38	0.00	18311				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.43	8.38	0.00	6816 (m)	584.2 -> 526.0	54.0	23.0	69.0

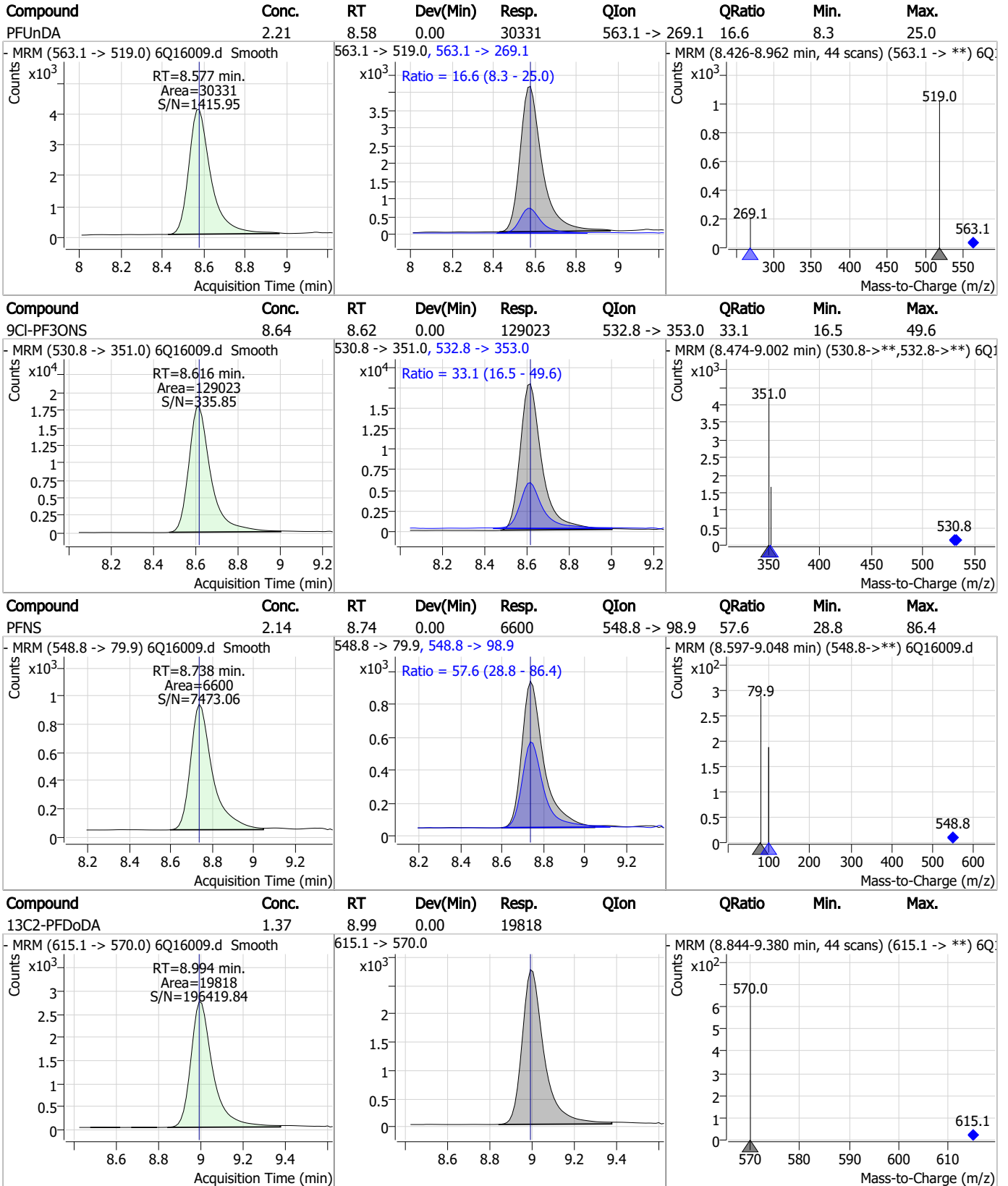


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.37	8.58	0.00	17139				



7.6.5
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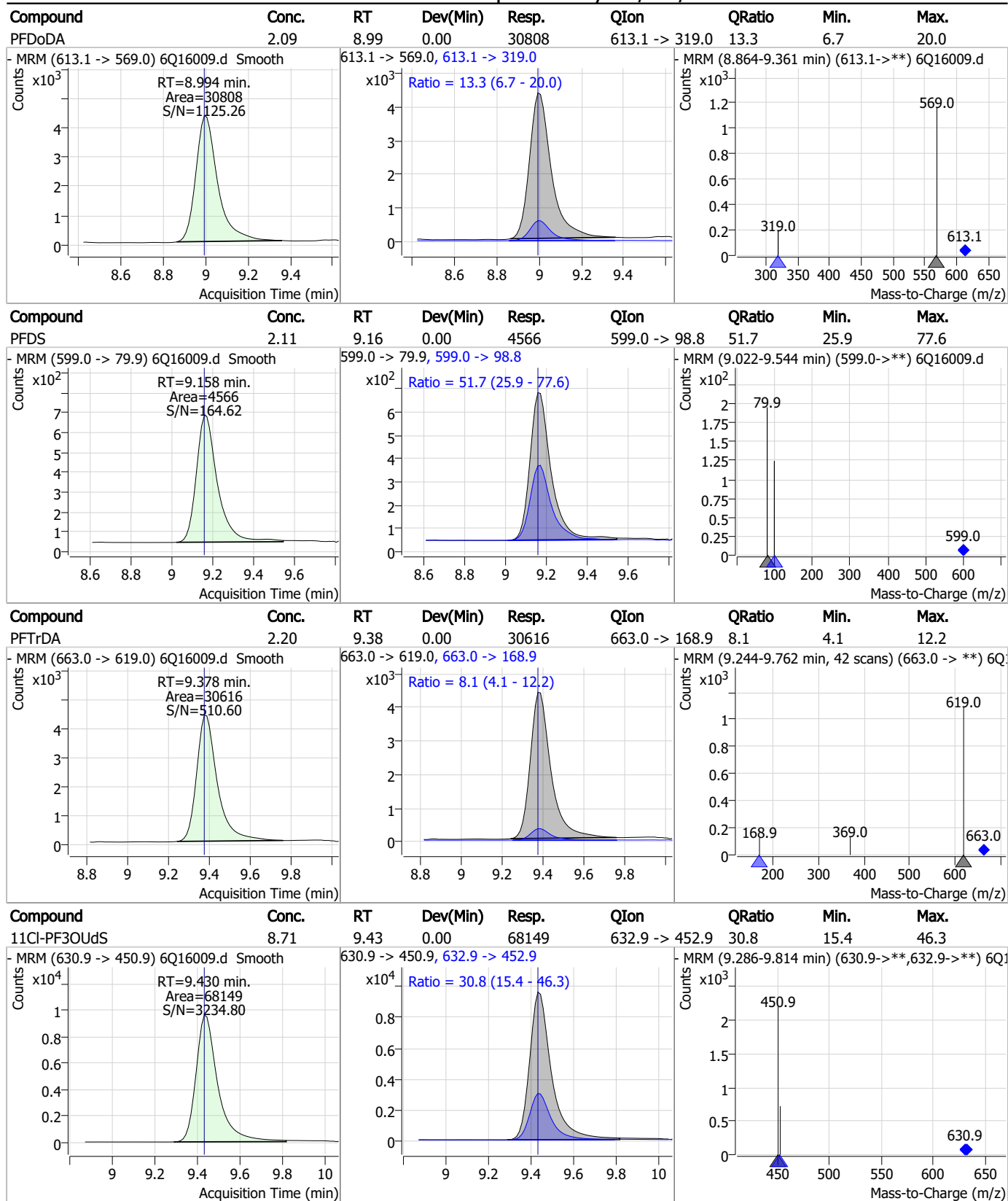
Perfluorinated Compounds by LC/MS/MS



7.6.5

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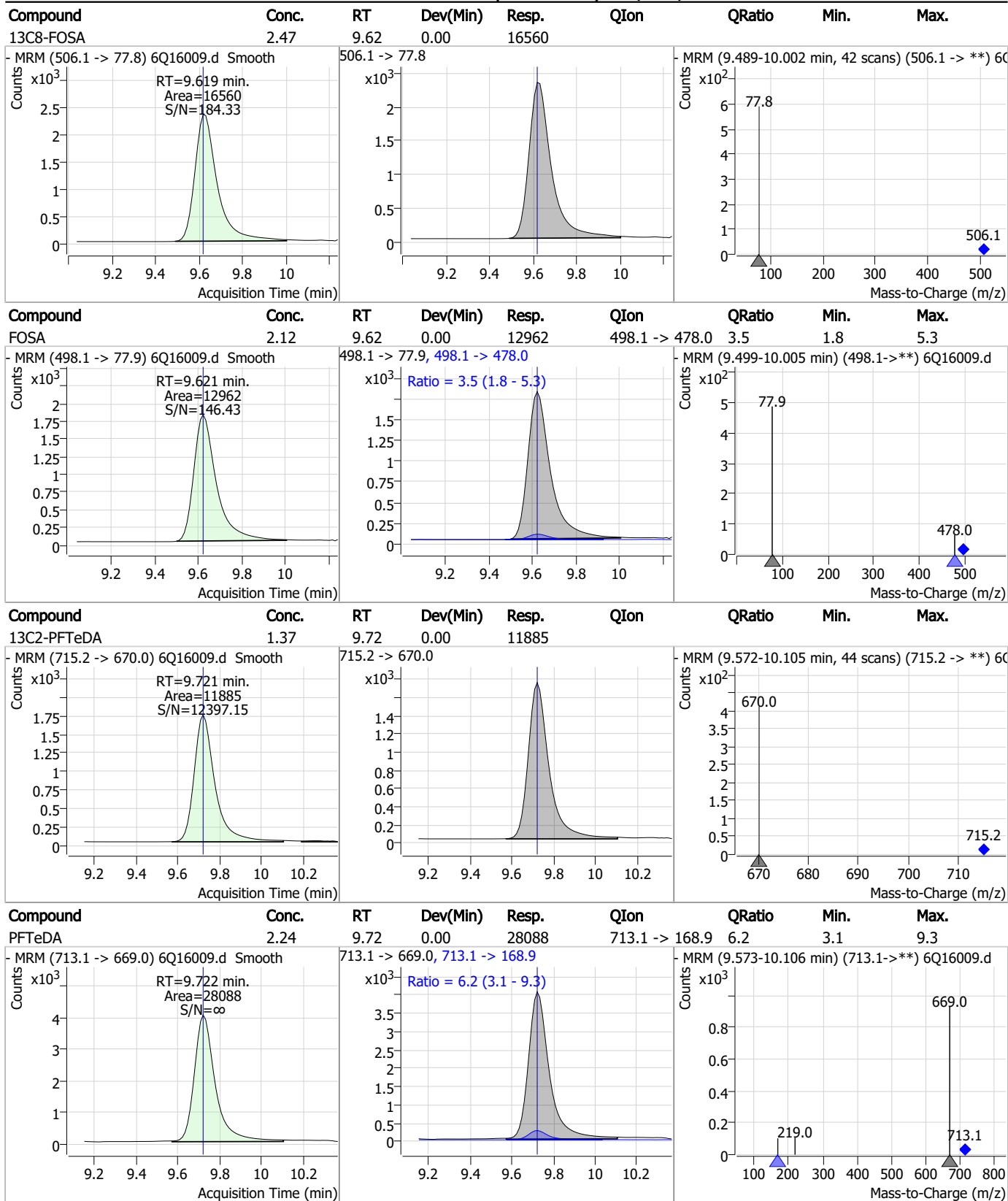
Perfluorinated Compounds by LC/MS/MS



7.6.5

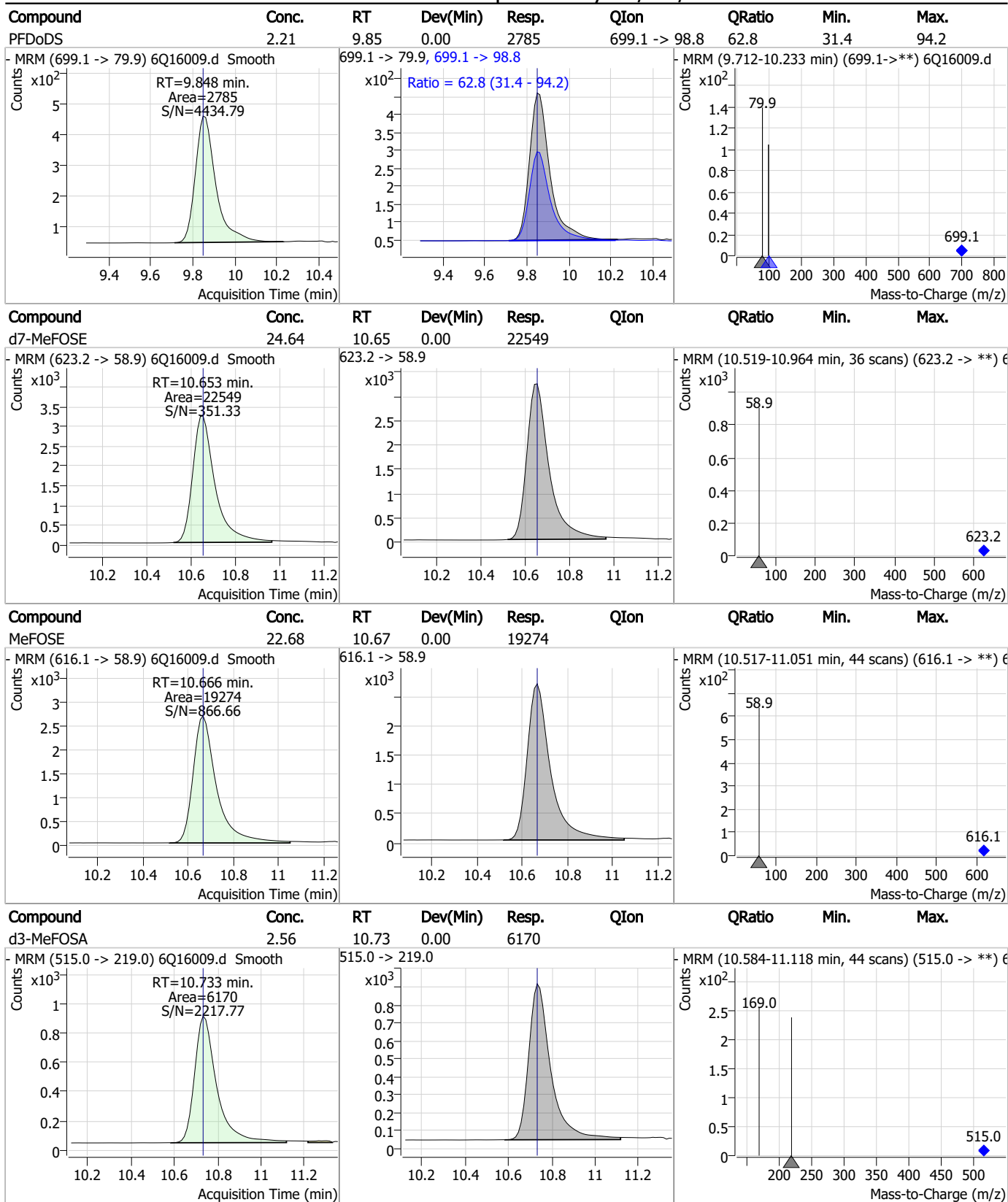
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Perfluorinated Compounds by LC/MS/MS



7.6.5
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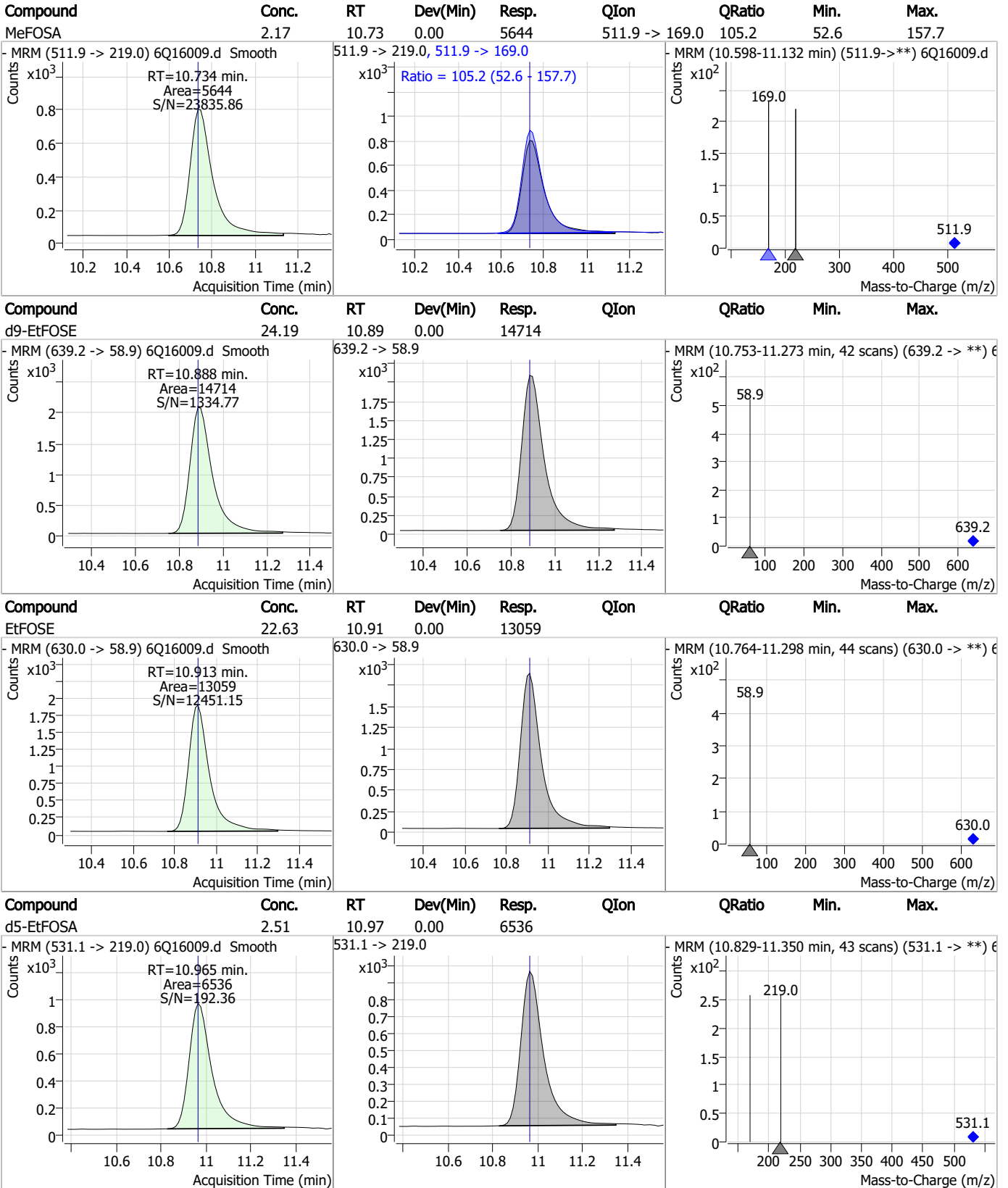
Perfluorinated Compounds by LC/MS/MS



7.6.5

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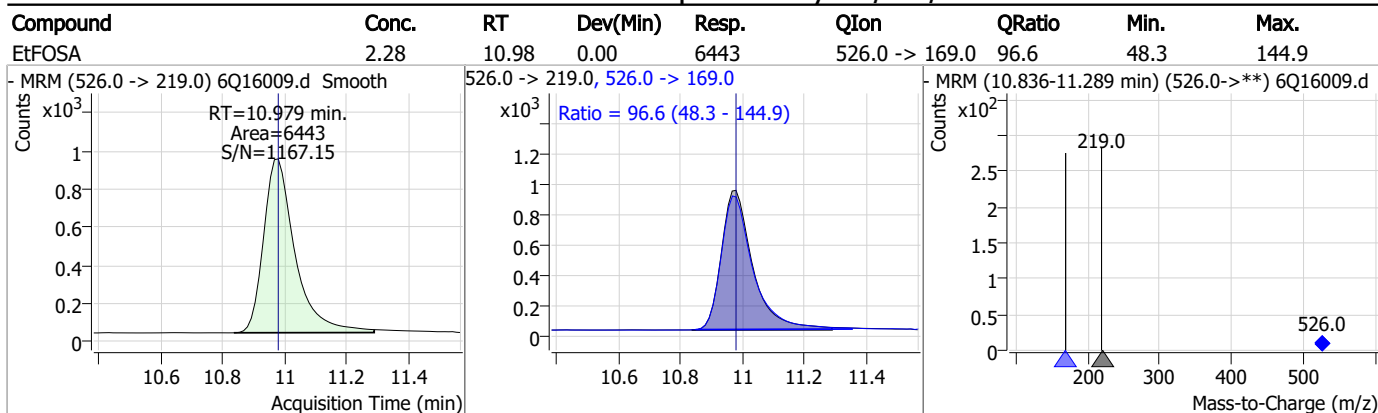
Perfluorinated Compounds by LC/MS/MS



7.6.5

7

Perfluorinated Compounds by LC/MS/MS



7.6.5

7

Manual Integration Approval Summary

Sample Number: S6Q239-ICC239 Method: EPA DRAFT 1633
Lab FileID: 6Q16009.D Analyst approved: 04/05/23 11:17 Martha Valls
Injection Time: 04/04/23 14:57 Supervisor approved: 04/05/23 17:23 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.29	Split peak
EtFOSAA	2991-50-6		8.38	Split peak

7.6.5.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtje
 04/05/23 17:23

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16010.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/4/2023 3:11:39 PM
 Sample Name : ic239-5
 Vial : P1-A6
 DA Method File : 1633_040423_S6Q239.quantmethod.xml
 Batch Name : s6q239.batch.bin
 Sample Information : OP96085,S6Q239,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	87317	10.00 µg/L	0.000
M5-PFPeA	4.322	268.3 -> 223.0	38489	5.00 µg/L	0.000
M5-PFHxA	5.528	318.0 -> 273.0	33773	2.50 µg/L	0.000
M4-PFHpA	6.468	367.1 -> 322.0	32950	2.50 µg/L	0.000
M8-PFOA	7.125	421.1 -> 376.0	56688	2.50 µg/L	0.013
M9-PFNA	7.643	472.1 -> 427.0	18523	1.25 µg/L	0.000
M6-PFDA	8.122	519.1 -> 474.1	14099	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	16779	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	18843	1.25 µg/L	0.012
M2-PFTeDA	9.721	715.2 -> 670.0	11134	1.25 µg/L	0.000
M8-FOSA	9.631	506.1 -> 77.8	16532	2.50 µg/L	0.012
M3-PFBS	5.459	302.1 -> 79.9	12949	2.50 µg/L	0.000
M3-PFHxS	7.240	402.1 -> 79.9	8526	2.50 µg/L	0.012
M8-PFOS	8.284	507.1 -> 79.9	6849	2.50 µg/L	0.000
M2-4:2FTS	5.204	329.1 -> 80.9	2016	5.00 µg/L	0.012
M2-6:2FTS	6.886	429.1 -> 80.9	2663	5.00 µg/L	0.000
M2-8:2FTS	7.911	529.1 -> 80.9	2346	5.00 µg/L	0.000
M3-MeFOSAA	8.180	573.2 -> 419.0	20802	5.00 µg/L	0.012
M3-HFPO-DA	5.893	286.9 -> 168.9	14293	10.00 µg/L	0.000
M5-EtFOSAA	8.375	589.2 -> 419.0	18716	5.00 µg/L	0.000
M7-MeFOSE	10.653	623.2 -> 58.9	22944	25.00 µg/L	0.000
M9-EtFOSE	10.888	639.2 -> 58.9	14894	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	6512	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	5939	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	9076	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	37465	5.00 µg/L	0.000
18O2-PFHxS	7.239	403.0 -> 83.9	6028	2.50 µg/L	0.012
13C4-PFOA	7.125	417.1 -> 372.0	65870	2.50 µg/L	0.013
13C2-PFDA	8.123	515.1 -> 470.1	18696	1.25 µg/L	0.000
13C5-PFNA	7.643	468.0 -> 423.0	17810	1.25 µg/L	0.000
13C2-PFHxA	5.529	315.1 -> 270.0	32571	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.204	329.1 -> 80.9	2016	4.97 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C2-6:2FTS	6.886	429.1 -> 80.9	2663	5.35 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.1%		
13C2-8:2FTS	7.911	529.1 -> 80.9	2346	4.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C2-PFDoDA	9.006	615.1 -> 570.0	18843	1.28 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C2-PFTeDA	9.721	715.2 -> 670.0	11134	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C3-PFBS	5.459	302.1 -> 79.9	12949	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C3-PFHxS	7.240	402.1 -> 79.9	8526	2.47 µg/L	0.012

7.6.6
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.8%		
13C4-PFBA	2.897	216.8 -> 171.9	87317	9.97 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C4-PFHpA	6.468	367.1 -> 322.0	32950	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C5-PFHxA	5.528	318.0 -> 273.0	33773	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C5-PFPeA	4.322	268.3 -> 223.0	38489	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C6-PFDA	8.122	519.1 -> 474.1	14099	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C7-PFUnDA	8.576	570.0 -> 525.1	16779	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.0%		
13C8-FOSA	9.631	506.1 -> 77.8	16532	2.45 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.9%		
13C8-PFOA	7.125	421.1 -> 376.0	56688	2.58 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C8-PFOS	8.284	507.1 -> 79.9	6849	2.32 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.6%		
13C9-PFNA	7.643	472.1 -> 427.0	18523	1.41 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 112.5%		
d3-MeFOSAA	8.180	573.2 -> 419.0	20802	4.74 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.8%		
13C3-HFPO-DA	5.893	286.9 -> 168.9	14293	10.06 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.6%		
d3-MeFOSA	10.733	515.0 -> 219.0	5939	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.6%		
d5-EtFOSAA	8.375	589.2 -> 419.0	18716	4.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.4%		
d7-MeFOSE	10.653	623.2 -> 58.9	22944	24.84 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 99.4%		
d9-EtFOSE	10.888	639.2 -> 58.9	14894	24.26 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 97.0%		
d5-EtFOSA	10.965	531.1 -> 219.0	6512	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.3%		
Target Compounds					QValue
4:2FTS	5.192	327.1 -> 307.0	73642	18.65 µg/L	98
		327.1 -> 80.9	18190		
6:2FTS	6.899	427.1 -> 407.0	62321	17.47 µg/L	99
		427.1 -> 80.9	13303		
8:2FTS	7.911	527.1 -> 507.0	32138	19.31 µg/L	93
		527.1 -> 80.8	9085		
EtFOSAA	8.376	584.2 -> 419.1	13385	4.66 µg/L	77
		584.2 -> 526.0	8194		
FOSA	9.621	498.1 -> 77.9	28603	4.68 µg/L	99
		498.1 -> 478.0	1064		
MeFOSAA	8.181	570.1 -> 419.0	18614	4.77 µg/L	97
		570.1 -> 483.0	3273		
PFBA	2.906	212.8 -> 168.9	41877	18.98 µg/L	100
PFBS	5.460	298.7 -> 79.9	22294	4.39 µg/L	98
		298.7 -> 98.8	10016		
PFDA	8.123	512.9 -> 469.0	79040	4.81 µg/L	99
		512.9 -> 219.0	11051		
PFDODA	9.007	613.1 -> 569.0	67485	4.81 µg/L	99
		613.1 -> 319.0	8825		
PFDS	9.170	599.0 -> 79.9	9329	4.56 µg/L	93

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	5310			
PFHpA	6.481	363.1 -> 319.0	94933	5.12	µg/L	99
		363.1 -> 169.0	12707			
PFHpS	7.794	449.0 -> 79.9	13529	4.62	µg/L	98
		449.0 -> 98.9	7957			
PFHxA	5.531	313.0 -> 269.0	61691	4.95	µg/L	100
		313.0 -> 118.9	2560			
PFHxS	7.241	398.7 -> 79.9	16066	4.28	µg/L	m 99
		398.7 -> 98.9	9224			
PFNA	7.643	463.0 -> 419.0	50450	4.18	µg/L	98
		463.0 -> 219.0	10004			
PFNS	8.751	548.8 -> 79.9	14509	4.99	µg/L	94
		548.8 -> 98.9	7692			
PFOA	7.126	413.0 -> 369.0	119165	4.64	µg/L	99
		413.0 -> 169.0	16379			
PFOS	8.286	498.9 -> 79.9	13196	4.38	µg/L	m 90
		498.9 -> 98.8	8807			
PFPeA	4.324	263.0 -> 219.0	77264	9.52	µg/L	100
PFPeS	6.533	349.1 -> 79.9	19586	4.34	µg/L	100
		349.1 -> 98.9	10154			
PFTeDA	9.722	713.1 -> 669.0	58906	5.01	µg/L	98
		713.1 -> 168.9	4135			
PFTrDA	9.390	663.0 -> 619.0	61449	4.64	µg/L	99
		663.0 -> 168.9	5227			
PFUnDA	8.577	563.1 -> 519.0	61902	4.61	µg/L	97
		563.1 -> 269.1	9471			
11CI-PF3OUdS	9.442	630.9 -> 450.9	138978	18.09	µg/L	96
		632.9 -> 452.9	45749			
9CI-PF3ONS	8.616	530.8 -> 351.0	273042	18.61	µg/L	95
		532.8 -> 353.0	82512			
ADONA	6.731	376.9 -> 250.9	537206	18.55	µg/L	99
		376.9 -> 84.8	121973			
HFPO-DA	5.906	284.9 -> 168.9	24885	19.26	µg/L	97
		284.9 -> 184.9	3427			
3:3FTCA	3.777	241.0 -> 177.0	10564	23.44	µg/L	99
		241.0 -> 117.0	1564			
5:3FTCA	6.198	341.0 -> 237.1	324926	117.91	µg/L	100
		341.0 -> 217.0	282559			
7:3FTCA	7.608	441.0 -> 316.9	166526	119.38	µg/L	95
		441.0 -> 336.9	336813			
EtFOSA	10.967	526.0 -> 219.0	13167	4.68	µg/L	91
		526.0 -> 169.0	13863			
EtFOSE	10.913	630.0 -> 58.9	28156	48.20	µg/L	100
MeFOSA	10.734	511.9 -> 219.0	11930	4.77	µg/L	97
		511.9 -> 169.0	12127			
MeFOSE	10.666	616.1 -> 58.9	41280	47.73	µg/L	100
PFDoDS	9.848	699.1 -> 79.9	5561	4.67	µg/L	96
		699.1 -> 98.8	3646			
NFDHA	5.410	295.0 -> 201.0	7735	9.57	µg/L	98
		295.0 -> 84.9	3292			
PFMBA	4.737	279.0 -> 85.1	25505	9.48	µg/L	100
PFMPA	3.463	229.0 -> 84.9	23430	9.54	µg/L	100
PFEESA	5.999	314.8 -> 134.9	147031	8.33	µg/L	100
		314.8 -> 82.9	3629			

= Qualifier out of range, m = manually integrated, + = Area summed

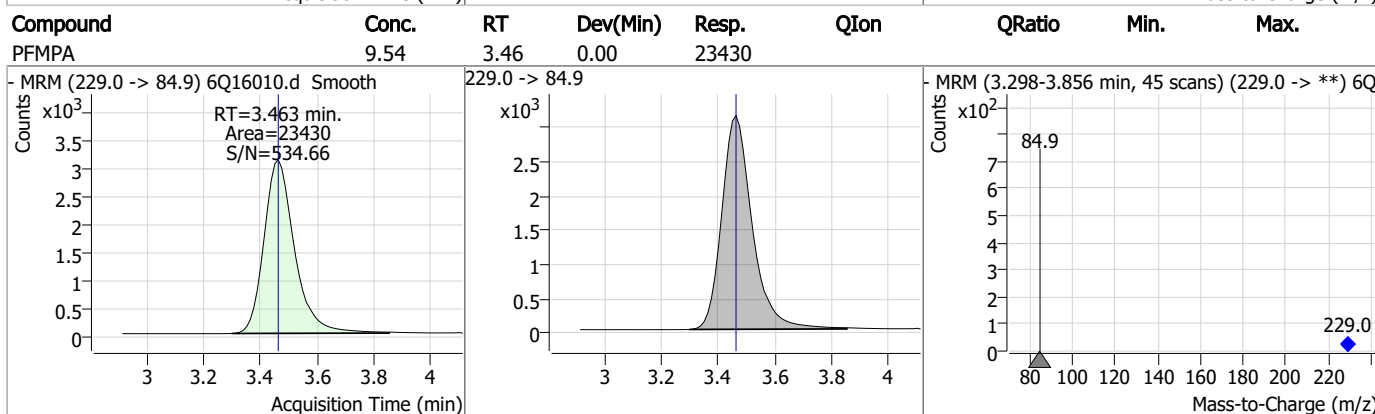
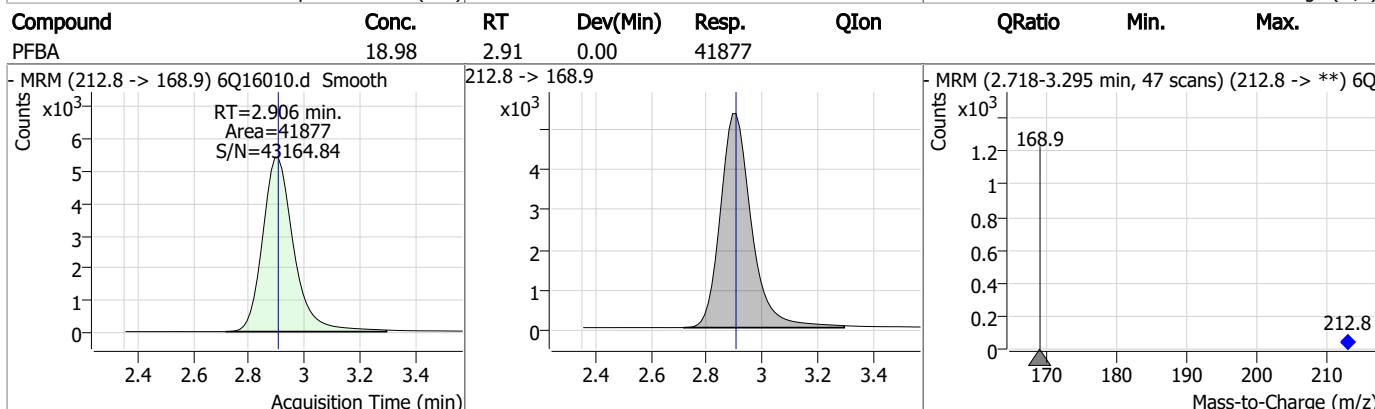
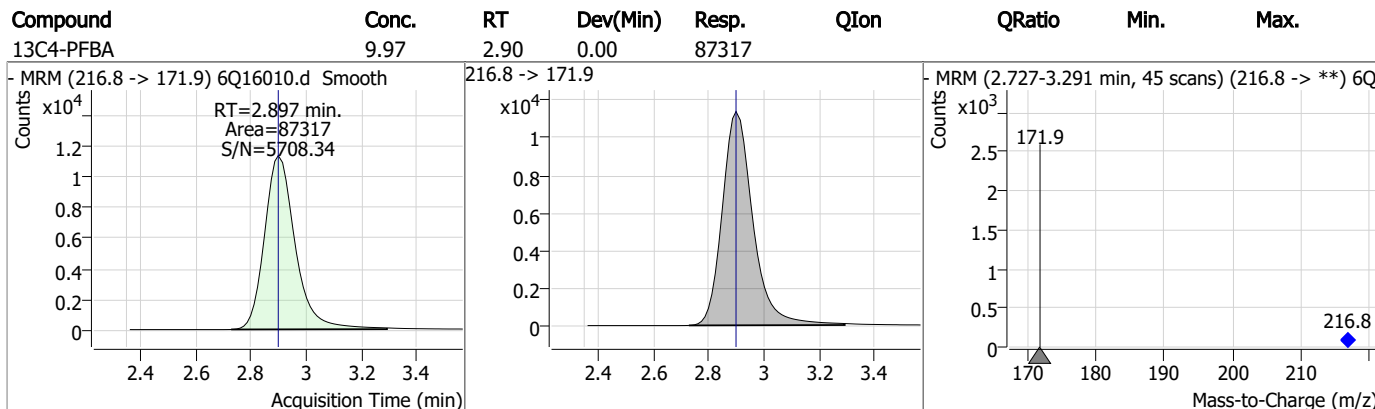
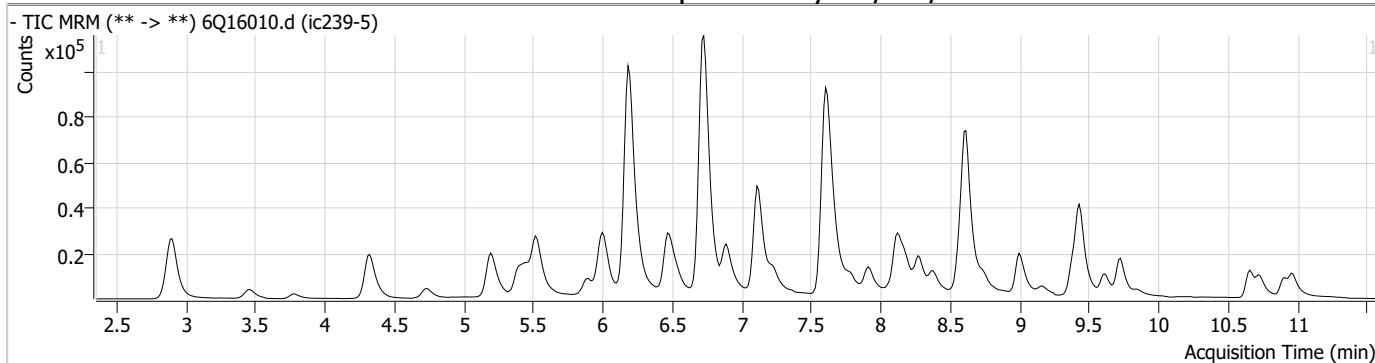
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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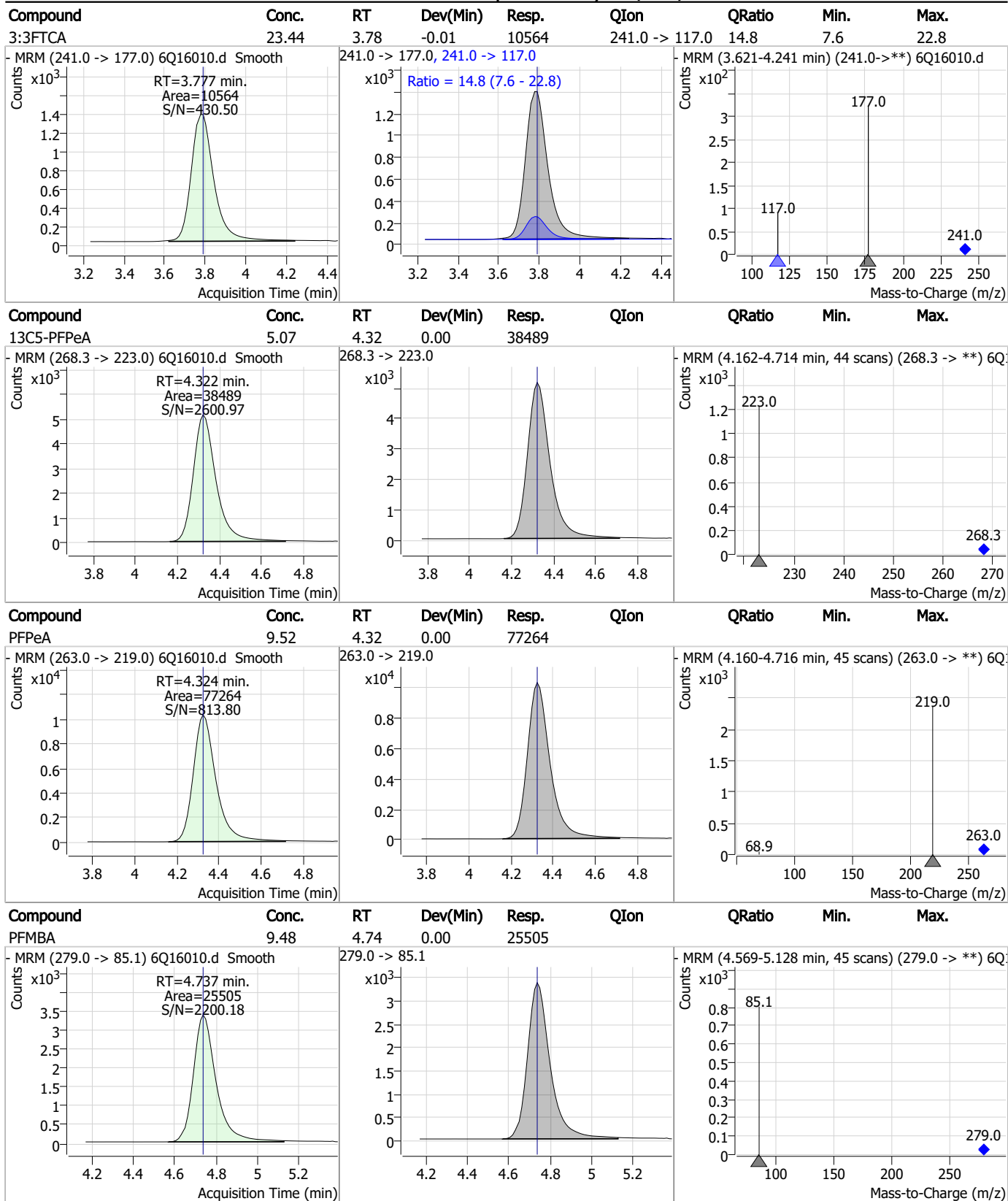
7.6.6

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Perfluorinated Compounds by LC/MS/MS

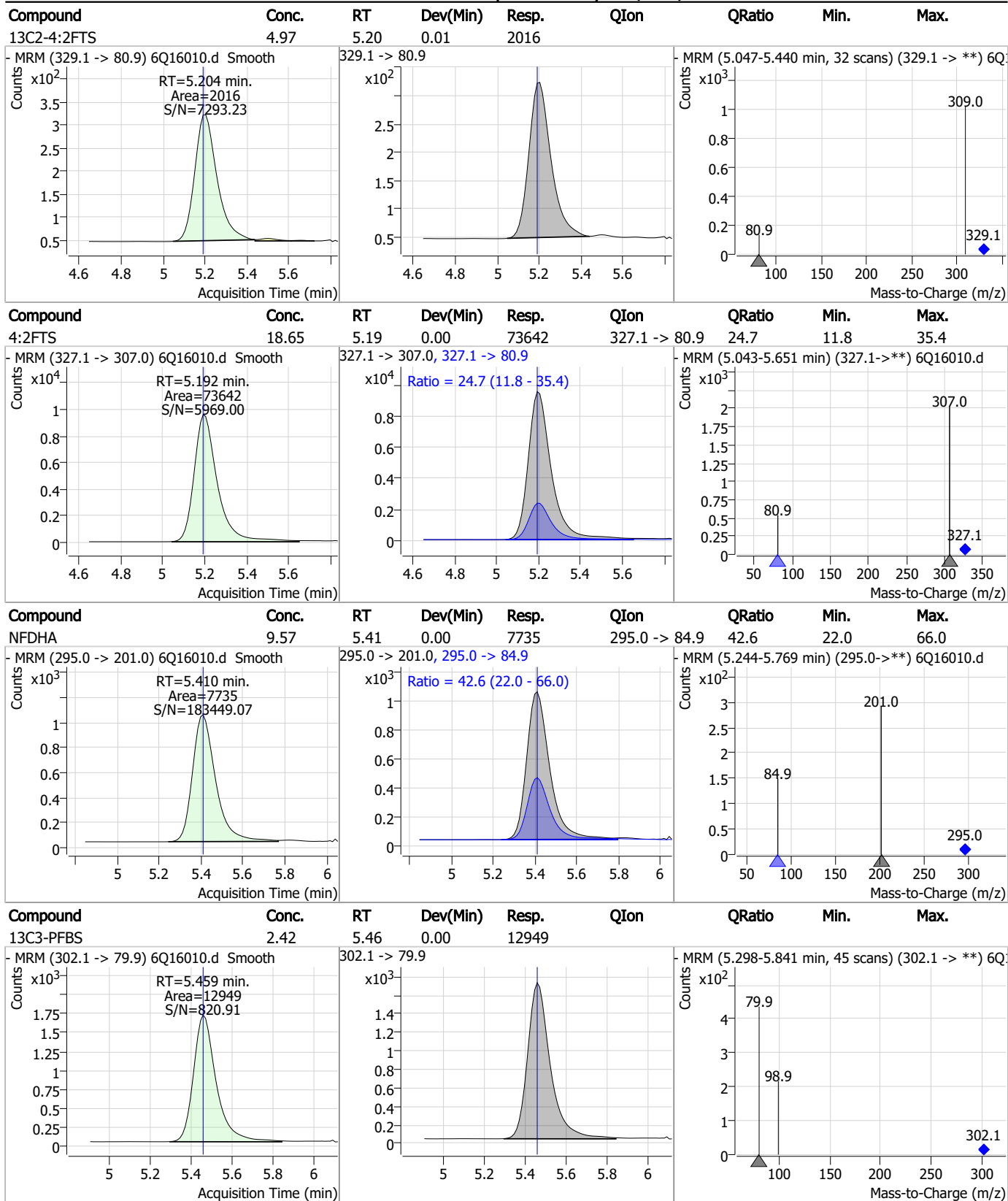


Perfluorinated Compounds by LC/MS/MS



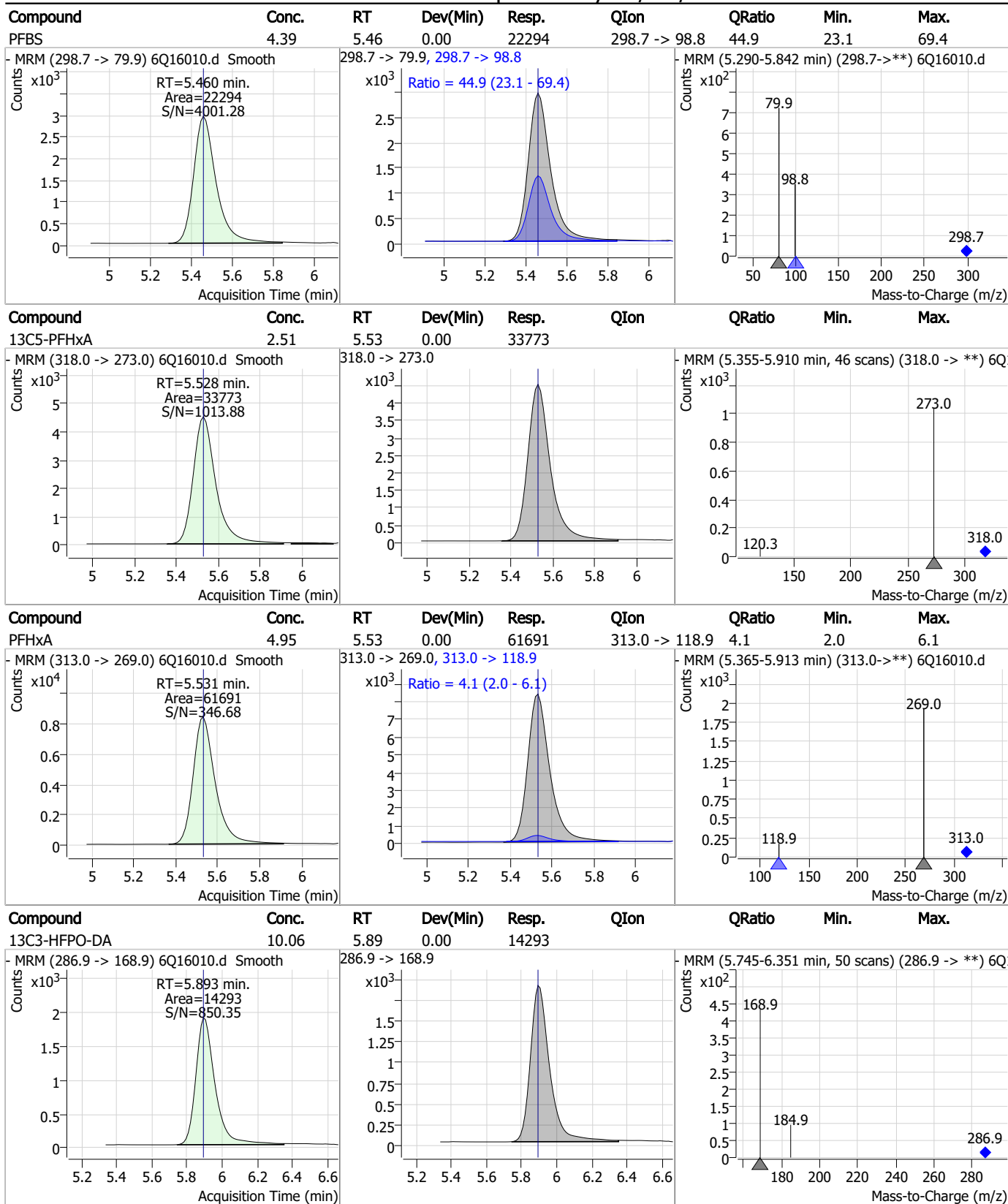
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Perfluorinated Compounds by LC/MS/MS



7.6.6
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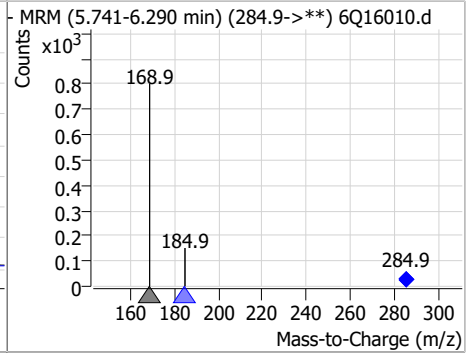
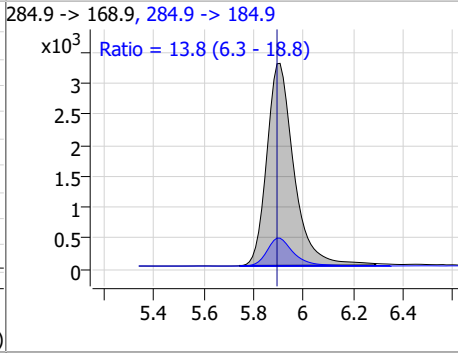
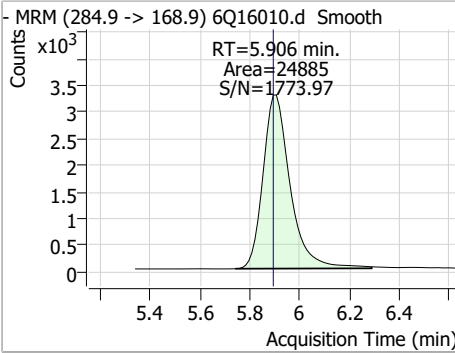
Perfluorinated Compounds by LC/MS/MS



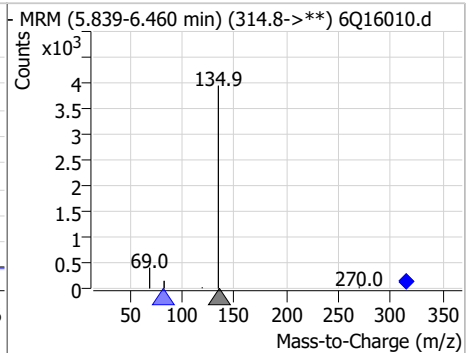
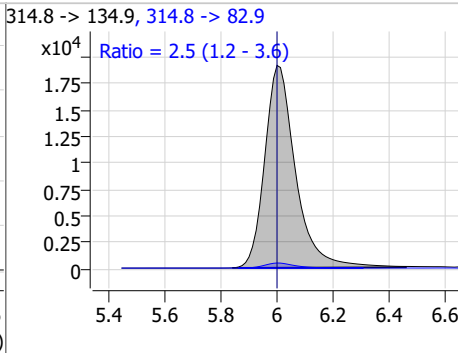
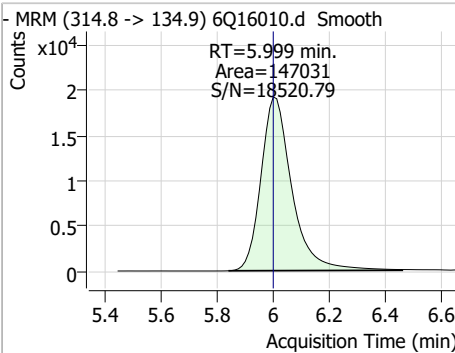
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Perfluorinated Compounds by LC/MS/MS

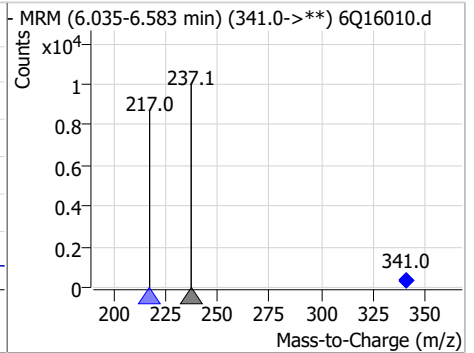
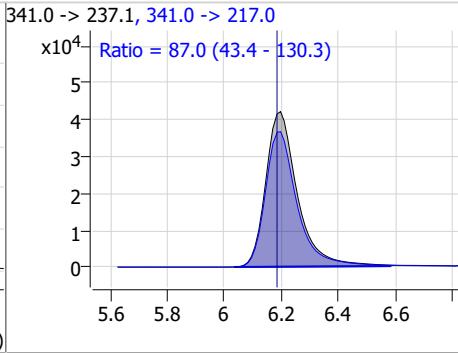
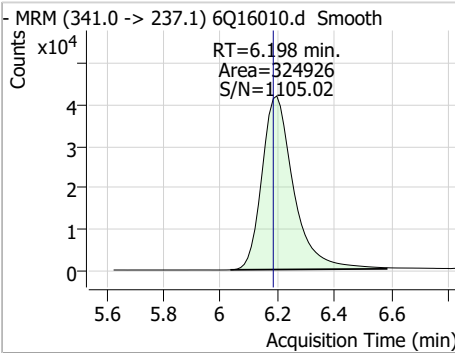
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.26	5.91	0.01	24885	284.9 -> 184.9	13.8	6.3	18.8



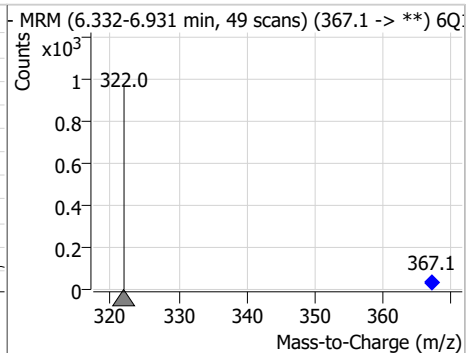
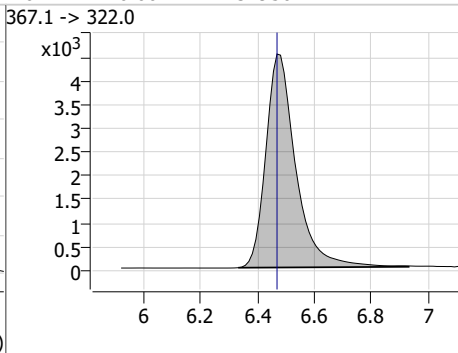
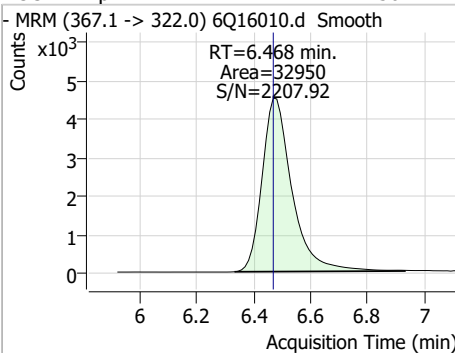
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	8.33	6.00	0.00	147031	314.8 -> 82.9	2.5	1.2	3.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	117.91	6.20	0.01	324926	341.0 -> 217.0	87.0	43.4	130.3



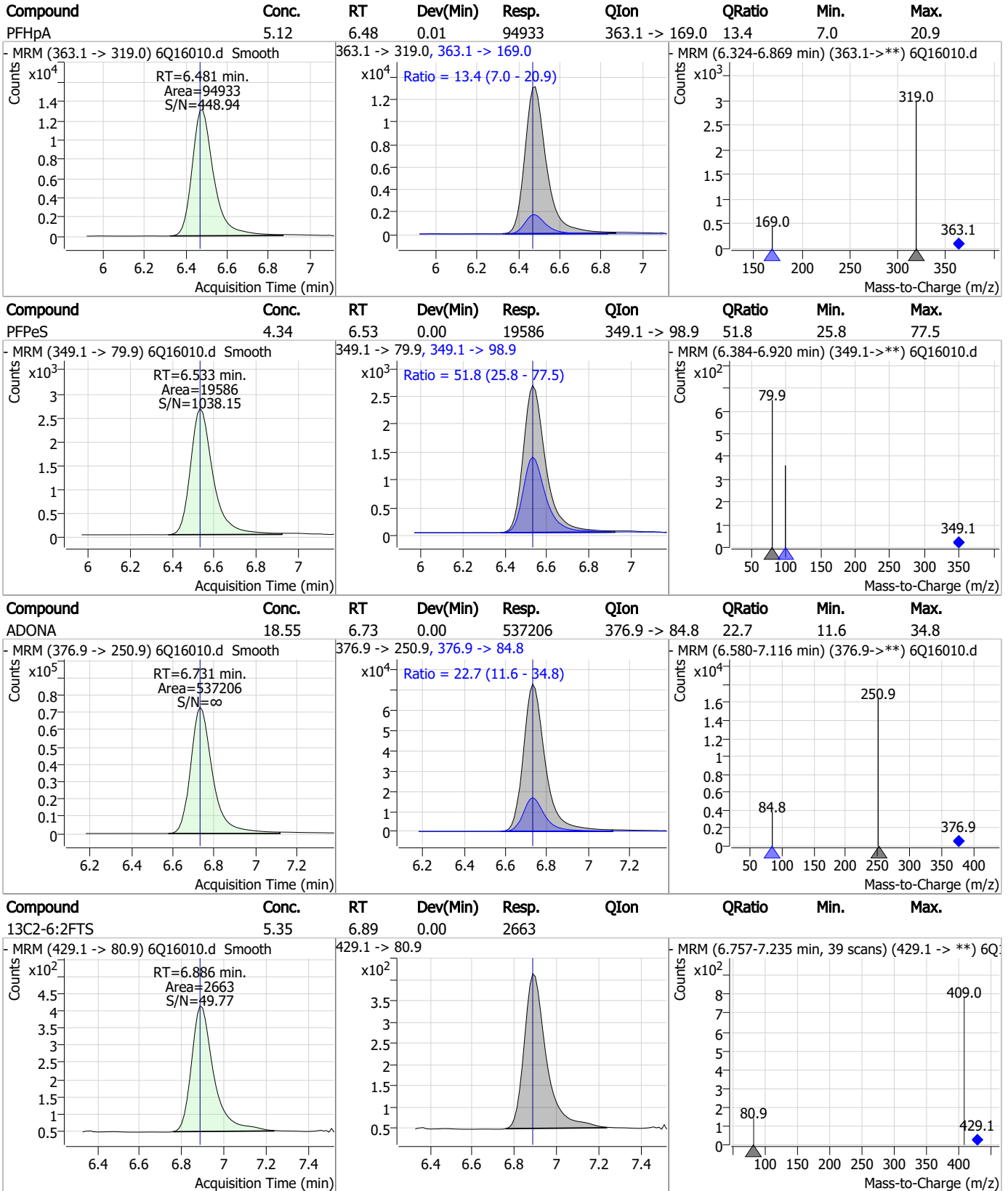
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.50	6.47	0.00	32950	367.1 -> 322.0			



7.6.6

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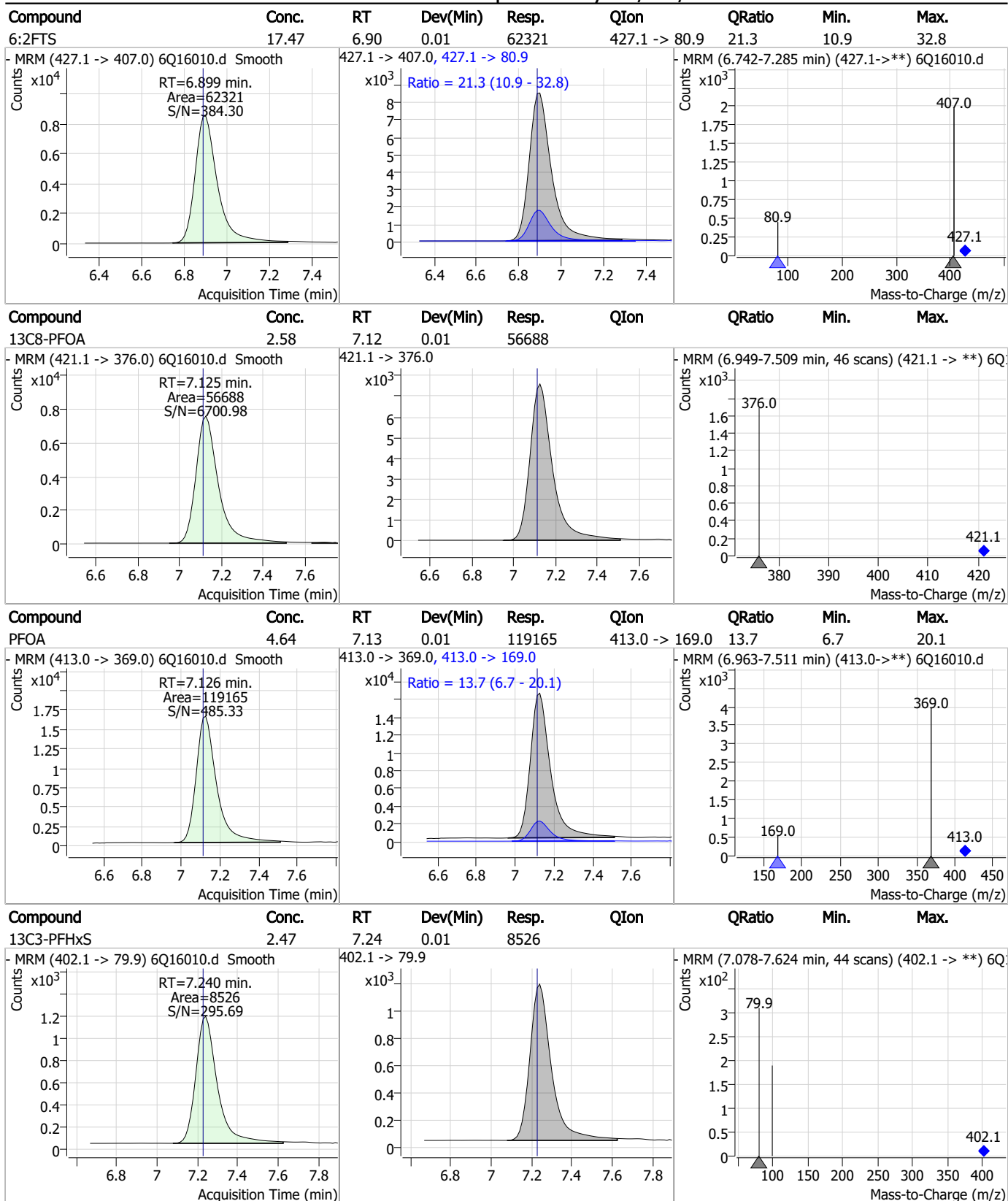
Perfluorinated Compounds by LC/MS/MS



7.6.6

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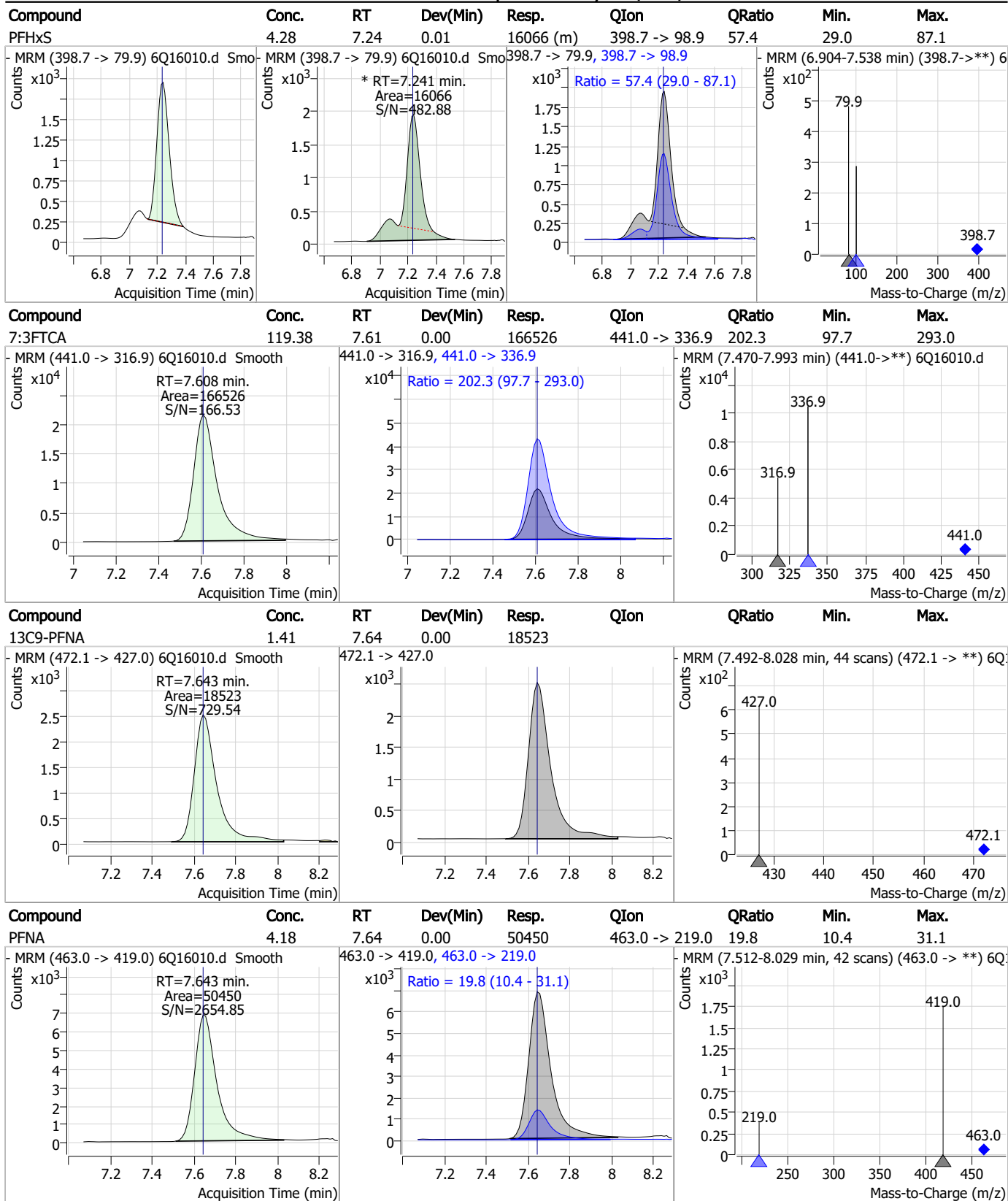
Perfluorinated Compounds by LC/MS/MS



7.6.6

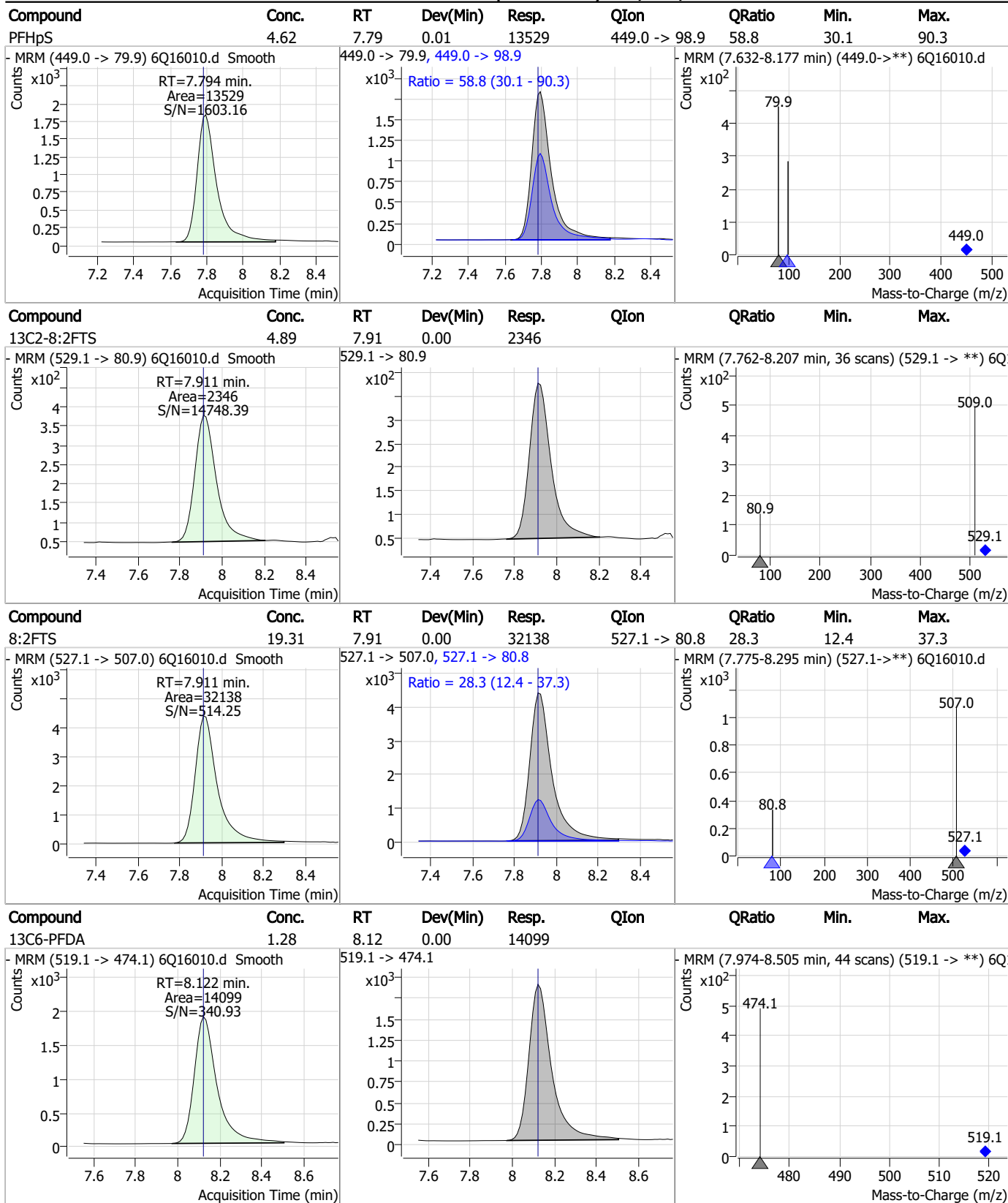
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Perfluorinated Compounds by LC/MS/MS



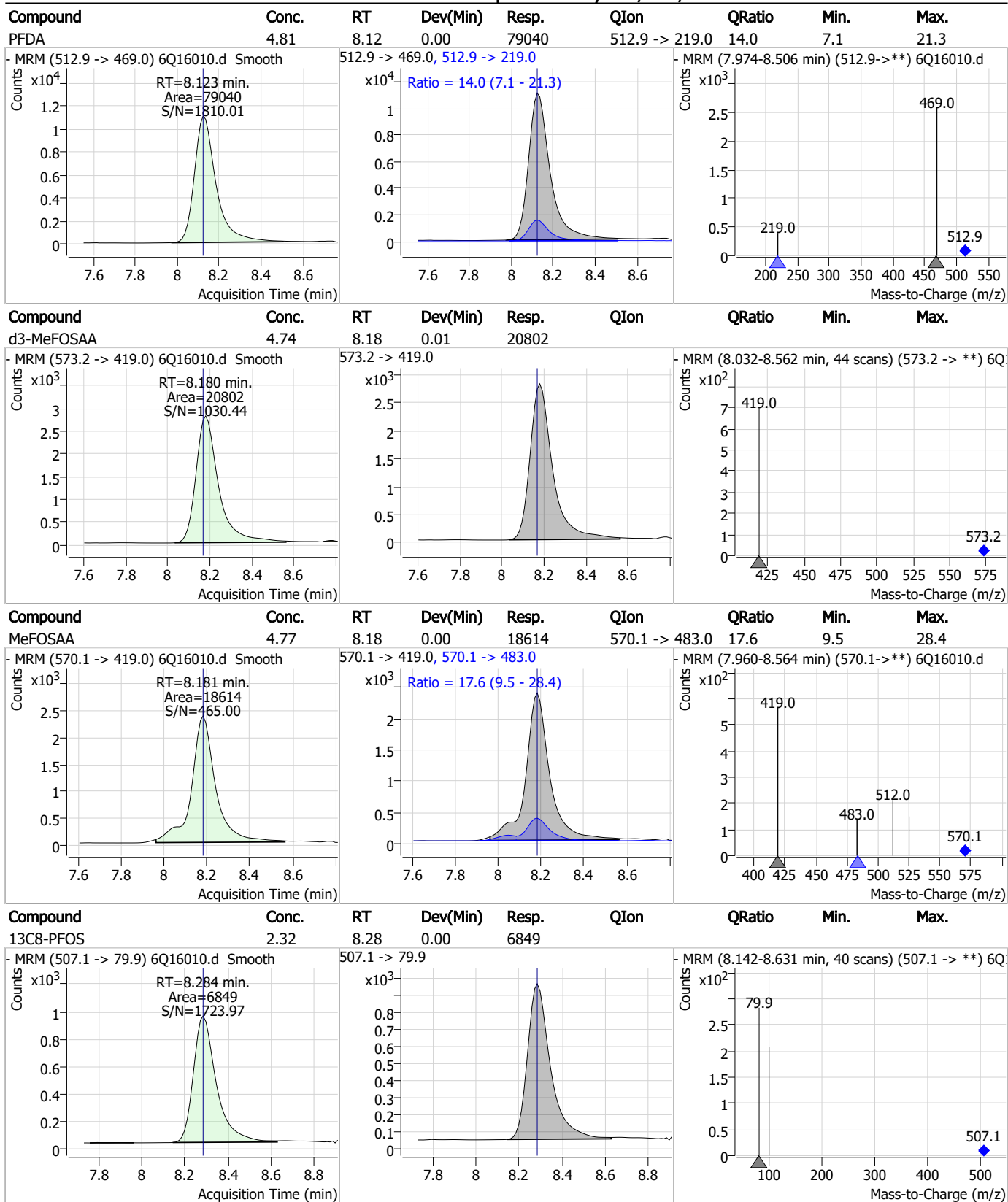
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Perfluorinated Compounds by LC/MS/MS



7.6.6
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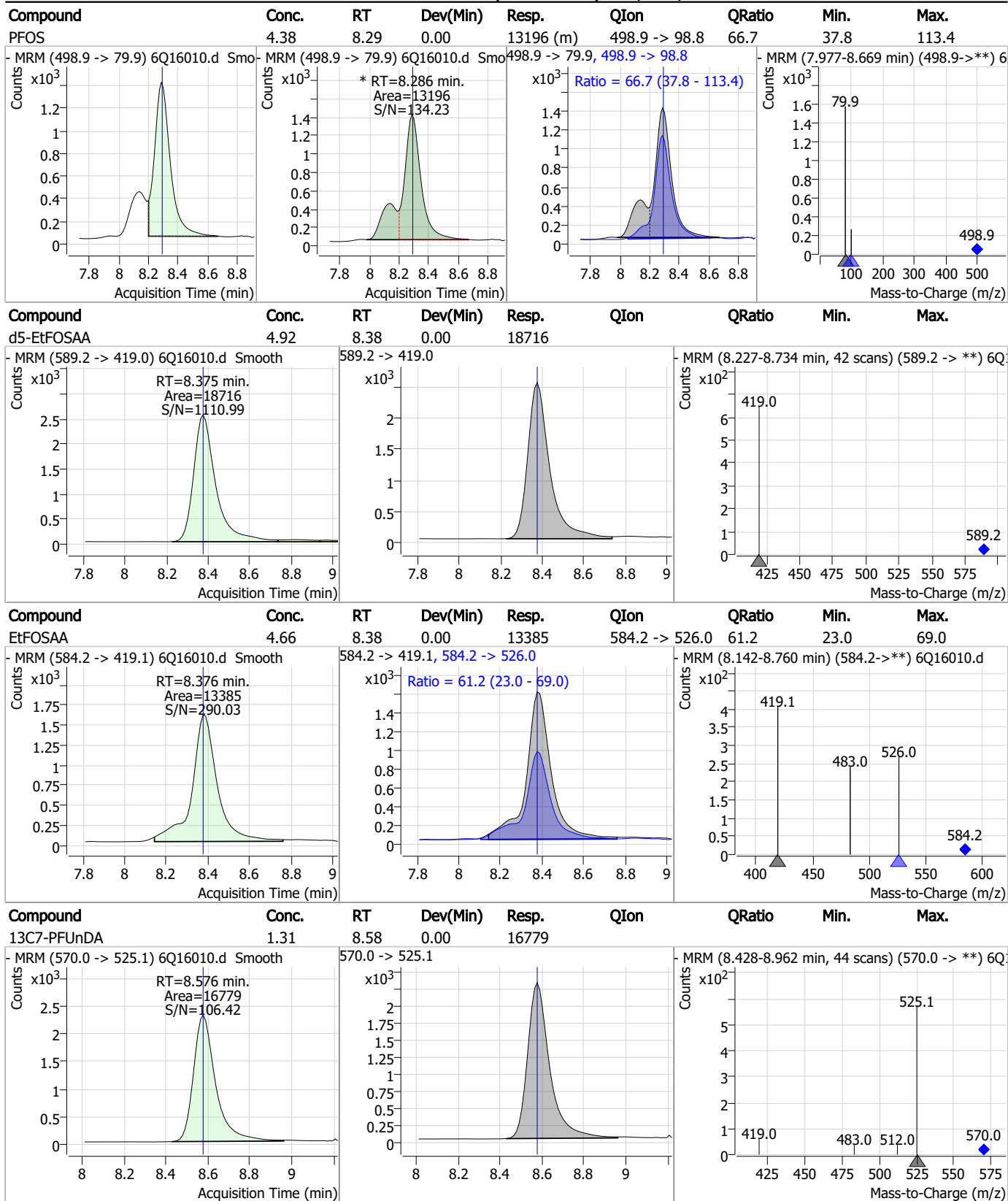
Perfluorinated Compounds by LC/MS/MS



7.6.6

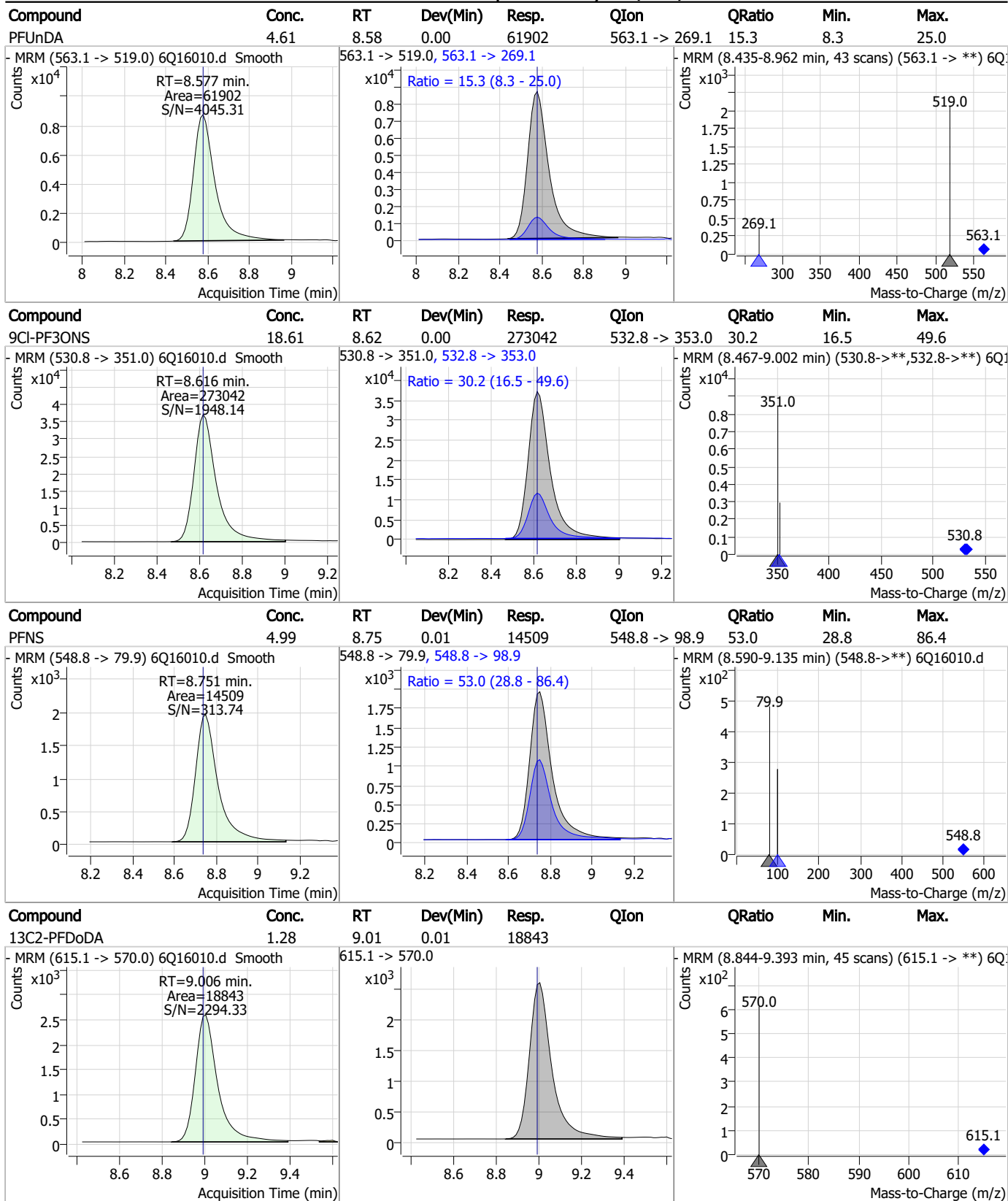
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Perfluorinated Compounds by LC/MS/MS



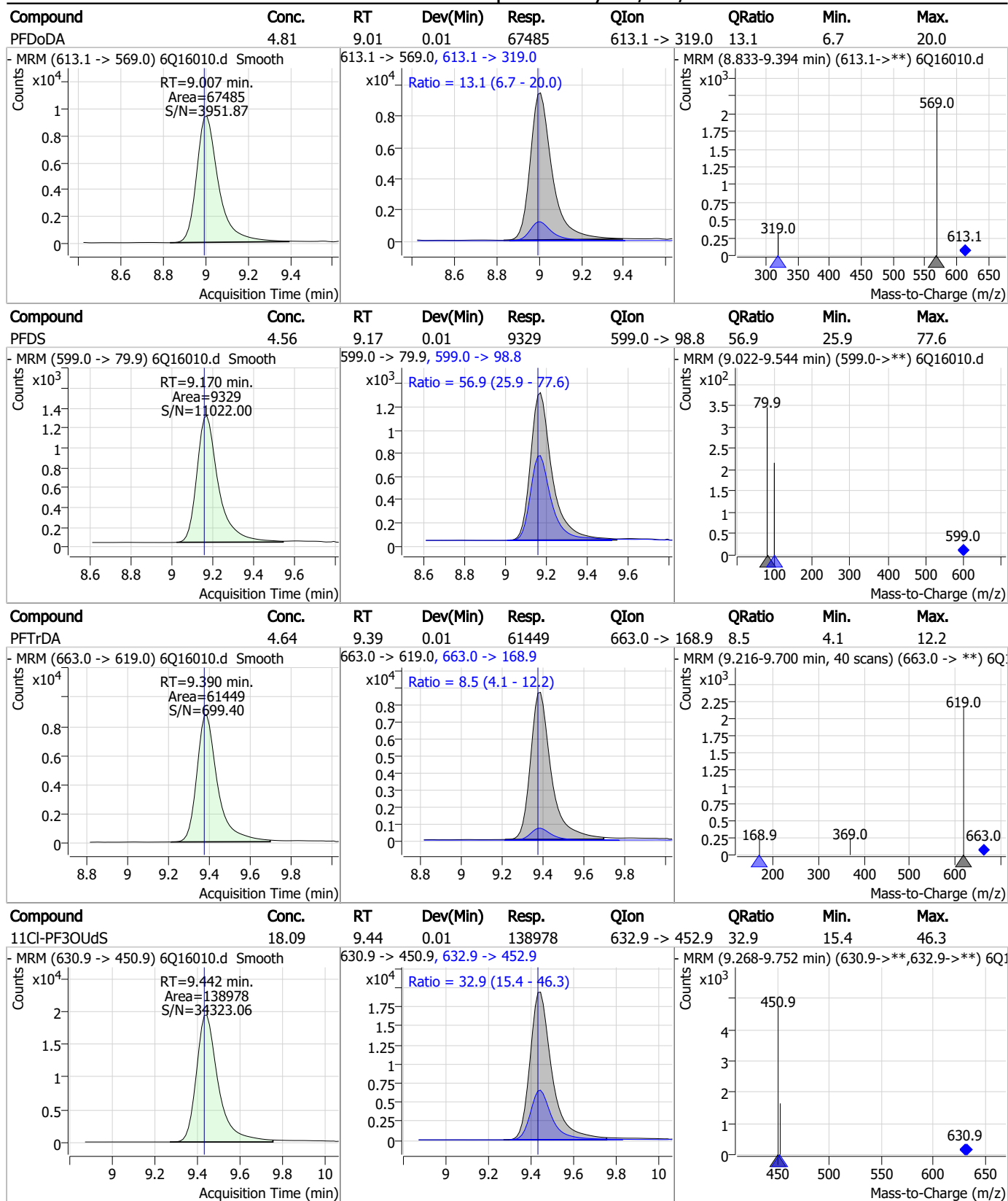
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Perfluorinated Compounds by LC/MS/MS



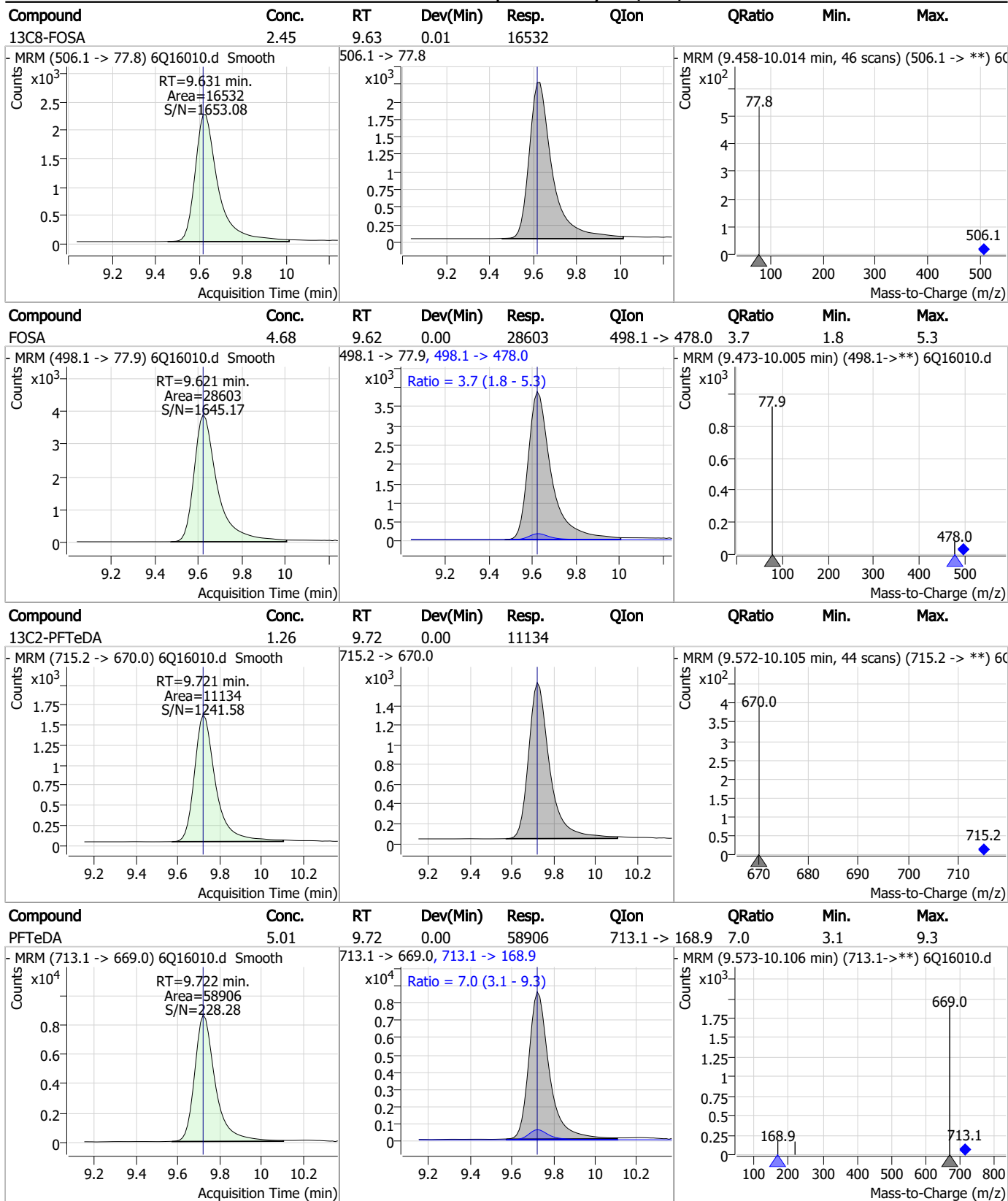
7.6.6
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Perfluorinated Compounds by LC/MS/MS



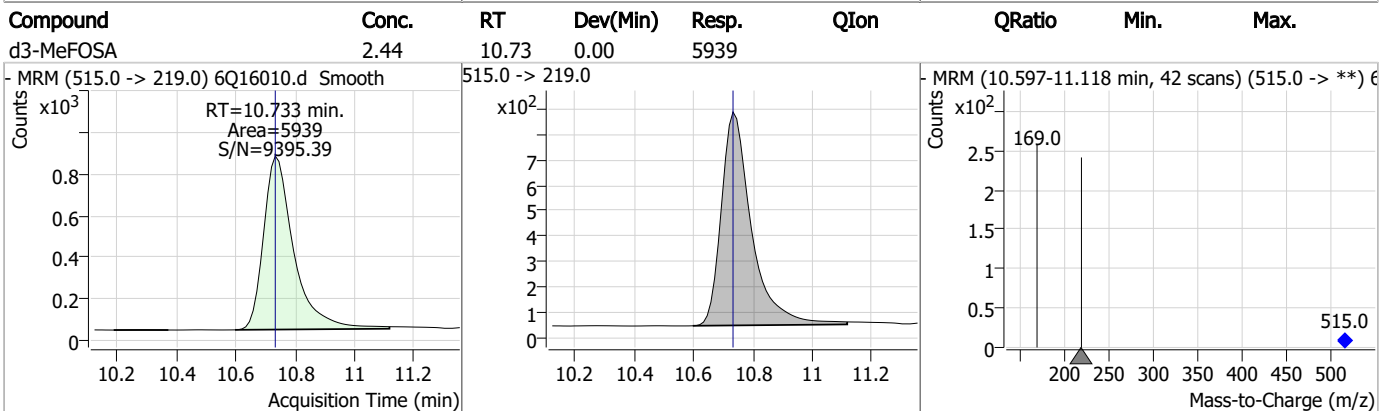
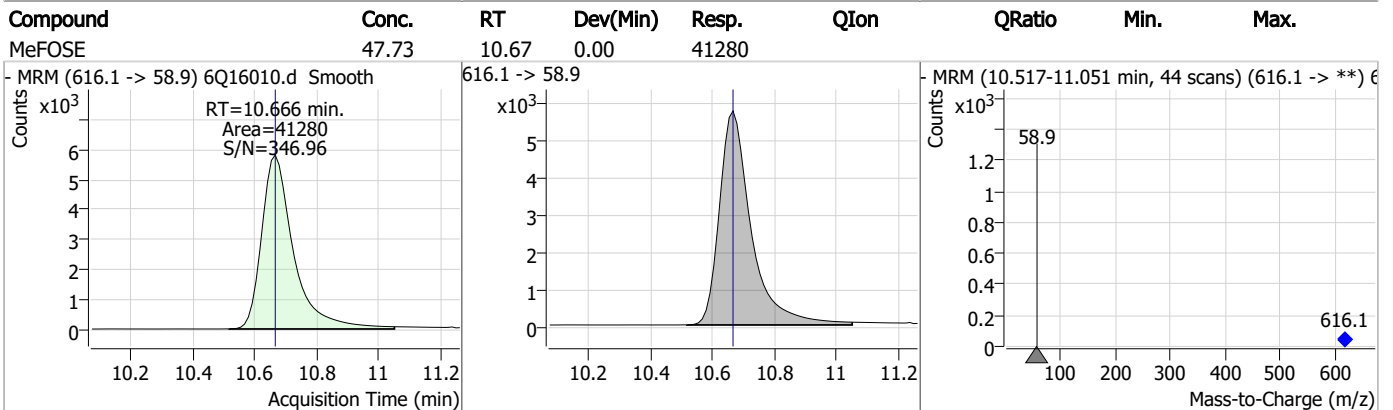
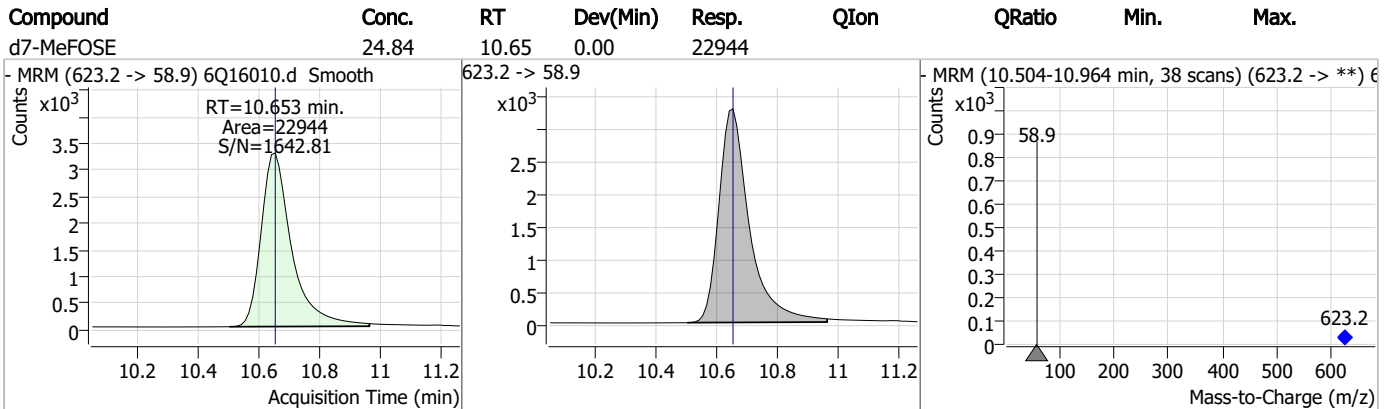
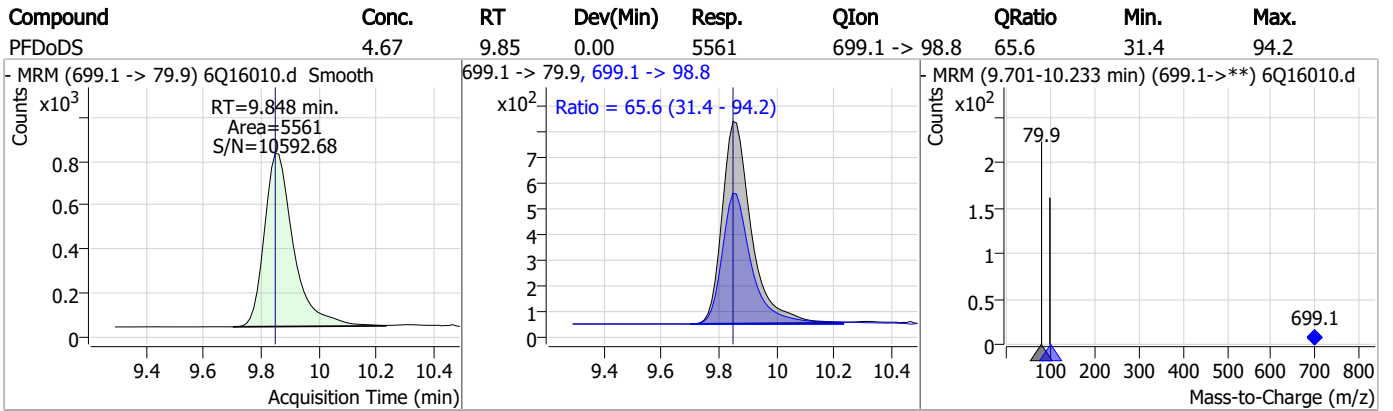
7.6.6
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Perfluorinated Compounds by LC/MS/MS



7.6.6
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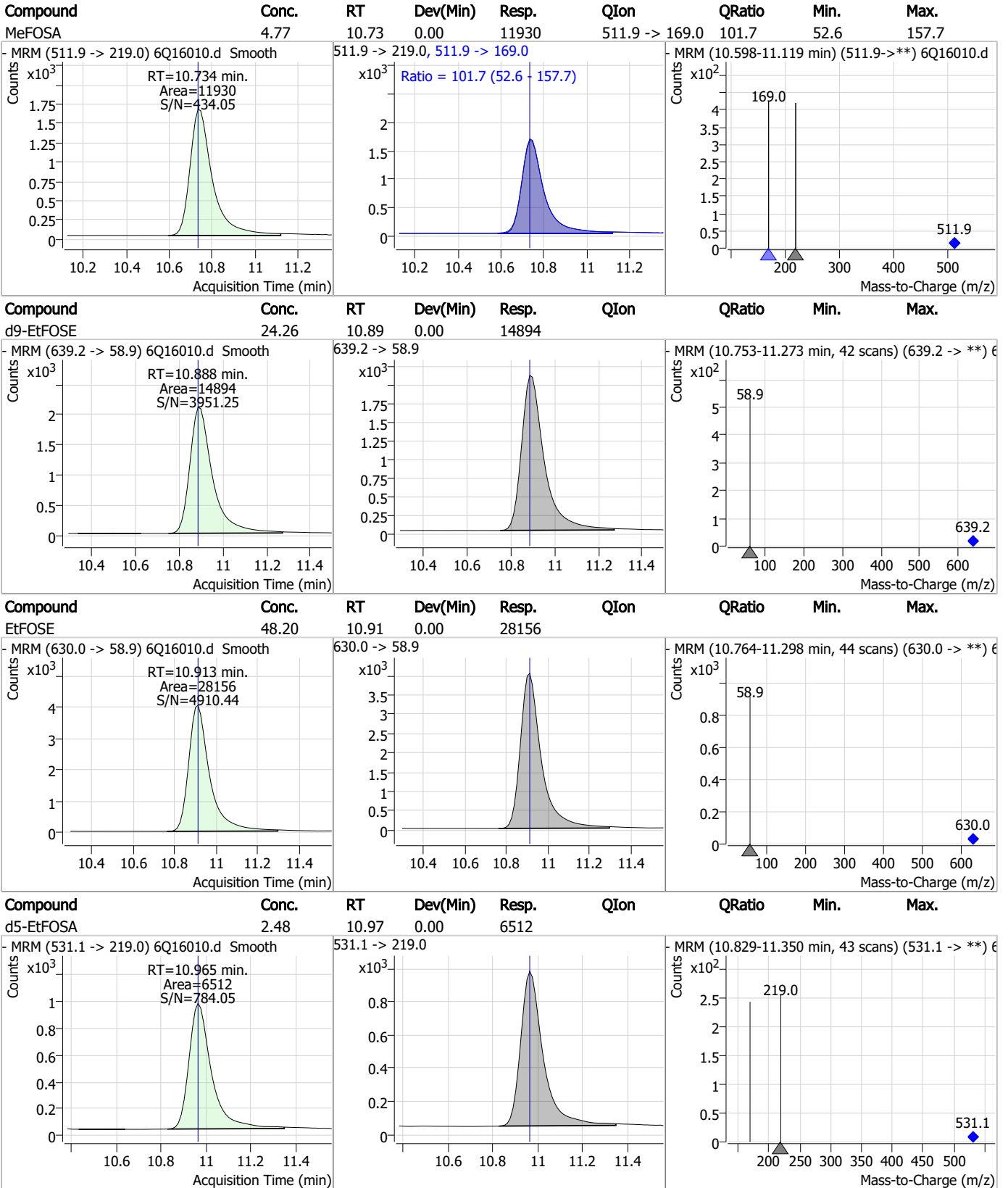
Perfluorinated Compounds by LC/MS/MS



7.6.6

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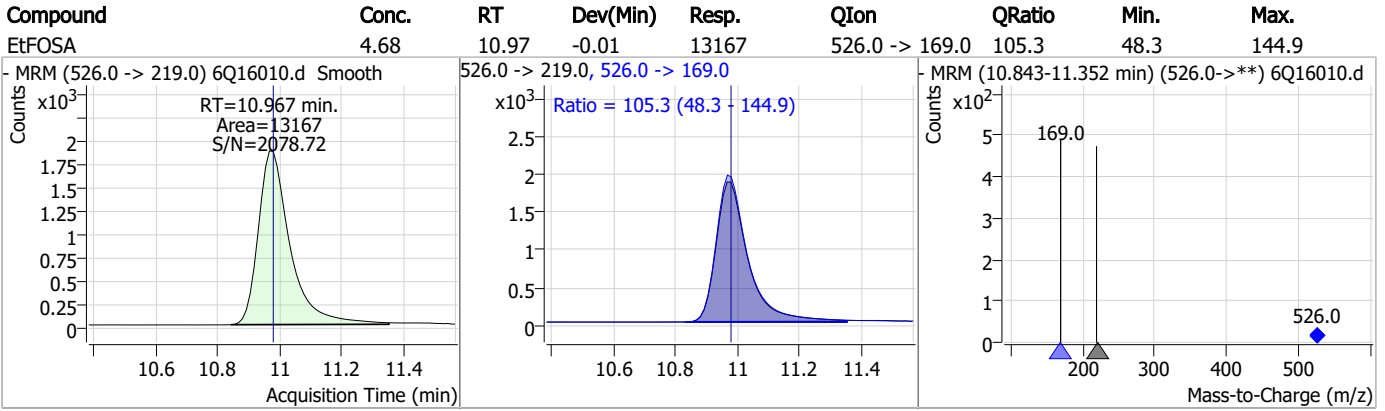
Perfluorinated Compounds by LC/MS/MS



7.6.6

7

Perfluorinated Compounds by LC/MS/MS



7.6.6

7

Manual Integration Approval Summary

Sample Number: S6Q239-IC239 Method: EPA DRAFT 1633
Lab FileID: 6Q16010.D Analyst approved: 04/05/23 11:17 Martha Valls
Injection Time: 04/04/23 15:11 Supervisor approved: 04/05/23 17:23 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.29	Split peak

7.6.6.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtje
 04/05/23 17:23

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16011.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/4/2023 3:25:38 PM
 Sample Name : ic239-6
 Vial : P1-A7
 DA Method File : 1633_040423_S6Q239.quantmethod.xml
 Batch Name : s6q239.batch.bin
 Sample Information : OP96085,S6Q239,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.926	216.8 -> 171.9	106111	10.00 µg/L	0.028
M5-PFPeA	4.322	268.3 -> 223.0	47291	5.00 µg/L	0.000
M5-PFHxA	5.528	318.0 -> 273.0	40970	2.50 µg/L	0.000
M4-PFHpA	6.481	367.1 -> 322.0	40581	2.50 µg/L	0.012
M8-PFOA	7.125	421.1 -> 376.0	67035	2.50 µg/L	0.013
M9-PFNA	7.655	472.1 -> 427.0	20346	1.25 µg/L	0.012
M6-PFDA	8.122	519.1 -> 474.1	17364	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	19084	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	22484	1.25 µg/L	0.012
M2-PFTeDA	9.721	715.2 -> 670.0	13770	1.25 µg/L	0.000
M8-FOSA	9.631	506.1 -> 77.8	19396	2.50 µg/L	0.012
M3-PFBS	5.459	302.1 -> 79.9	16360	2.50 µg/L	0.000
M3-PFHxS	7.240	402.1 -> 79.9	10265	2.50 µg/L	0.012
M8-PFOS	8.284	507.1 -> 79.9	8488	2.50 µg/L	0.000
M2-4:2FTS	5.204	329.1 -> 80.9	2257	5.00 µg/L	0.012
M2-6:2FTS	6.898	429.1 -> 80.9	2717	5.00 µg/L	0.012
M2-8:2FTS	7.911	529.1 -> 80.9	2964	5.00 µg/L	0.000
M3-MeFOSAA	8.180	573.2 -> 419.0	25203	5.00 µg/L	0.012
M3-HFPO-DA	5.893	286.9 -> 168.9	17762	10.00 µg/L	0.000
M5-EtFOSAA	8.375	589.2 -> 419.0	23243	5.00 µg/L	0.000
M7-MeFOSE	10.653	623.2 -> 58.9	25493	25.00 µg/L	0.000
M9-EtFOSE	10.888	639.2 -> 58.9	17573	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	7533	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	7376	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	10743	2.50 µg/L	0.000
13C3-PFBA	2.916	216.0 -> 172.0	44758	5.00 µg/L	0.015
18O2-PFHxS	7.239	403.0 -> 83.9	7131	2.50 µg/L	0.012
13C4-PFOA	7.125	417.1 -> 372.0	81940	2.50 µg/L	0.013
13C2-PFDA	8.123	515.1 -> 470.1	22657	1.25 µg/L	0.000
13C5-PFNA	7.643	468.0 -> 423.0	21887	1.25 µg/L	0.000
13C2-PFHxA	5.529	315.1 -> 270.0	39603	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.204	329.1 -> 80.9	2257	4.71 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.1%		
13C2-6:2FTS	6.898	429.1 -> 80.9	2717	4.62 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.3%		
13C2-8:2FTS	7.911	529.1 -> 80.9	2964	5.23 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.5%		
13C2-PFDoDA	9.006	615.1 -> 570.0	22484	1.26 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C2-PFTeDA	9.721	715.2 -> 670.0	13770	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C3-PFBS	5.459	302.1 -> 79.9	16360	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C3-PFHxS	7.240	402.1 -> 79.9	10265	2.51 µg/L	0.012

7.67
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C4-PFBA	2.926	216.8 -> 171.9	106111	10.14 µg/L	0.028
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C4-PFHpA	6.481	367.1 -> 322.0	40581	2.53 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C5-PFHxA	5.528	318.0 -> 273.0	40970	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C5-PFPeA	4.322	268.3 -> 223.0	47291	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C6-PFDA	8.122	519.1 -> 474.1	17364	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C7-PFUnDA	8.576	570.0 -> 525.1	19084	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C8-FOSA	9.631	506.1 -> 77.8	19396	2.43 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C8-PFOA	7.125	421.1 -> 376.0	67035	2.45 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C8-PFOS	8.284	507.1 -> 79.9	8488	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C9-PFNA	7.655	472.1 -> 427.0	20346	1.26 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.5%	
d3-MeFOSAA	8.180	573.2 -> 419.0	25203	4.85 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C3-HFPO-DA	5.893	286.9 -> 168.9	17762	10.28 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.8%	
d3-MeFOSA	10.733	515.0 -> 219.0	7376	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
d5-EtFOSAA	8.375	589.2 -> 419.0	23243	5.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.3%	
d7-MeFOSE	10.653	623.2 -> 58.9	25493	23.32 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.3%	
d9-EtFOSE	10.888	639.2 -> 58.9	17573	24.18 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.7%	
d5-EtFOSA	10.965	531.1 -> 219.0	7533	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.0%	
Target Compounds					QValue
4:2FTS	5.192	327.1 -> 307.0	216393	48.94 µg/L	98
		327.1 -> 80.9	52871		
6:2FTS	6.899	427.1 -> 407.0	195751	53.80 µg/L	93
		427.1 -> 80.9	36554		
8:2FTS	7.911	527.1 -> 507.0	95026	45.18 µg/L	96
		527.1 -> 80.8	25492		
EtFOSAA	8.376	584.2 -> 419.1	45268	12.70 µg/L	m 89
		584.2 -> 526.0	24068		
FOSA	9.621	498.1 -> 77.9	87897	12.27 µg/L	99
		498.1 -> 478.0	3377		
MeFOSAA	8.181	570.1 -> 419.0	59245	12.54 µg/L	97
		570.1 -> 483.0	10276		
PFBA	2.919	212.8 -> 168.9	139405	51.98 µg/L	100
PFBS	5.460	298.7 -> 79.9	67886	10.58 µg/L	98
		298.7 -> 98.8	32120		
PFDA	8.123	512.9 -> 469.0	260045	12.86 µg/L	97
		512.9 -> 219.0	33437		
PFDoDA	9.007	613.1 -> 569.0	221645	13.23 µg/L	97
		613.1 -> 319.0	27055		
PFDS	9.170	599.0 -> 79.9	31696	12.49 µg/L	97

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	15756			
PFHpA	6.481	363.1 -> 319.0	279481	12.25	µg/L	97
		363.1 -> 169.0	42432			
PFHpS	7.794	449.0 -> 79.9	43999	12.13	µg/L	95
		449.0 -> 98.9	24689			
PFHxA	5.531	313.0 -> 269.0	198723	13.14	µg/L	100
		313.0 -> 118.9	8016			
PFHxS	7.241	398.7 -> 79.9	50729	11.24	µg/L	m 99
		398.7 -> 98.9	29192			
PFNA	7.643	463.0 -> 419.0	172579	13.02	µg/L	95
		463.0 -> 219.0	32061			
PFNS	8.751	548.8 -> 79.9	45133	12.52	µg/L	95
		548.8 -> 98.9	24229			
PFOA	7.126	413.0 -> 369.0	380854	12.55	µg/L	99
		413.0 -> 169.0	52236			
PFOS	8.286	498.9 -> 79.9	46283	12.40	µg/L	m 82
		498.9 -> 98.8	27735			
PFPeA	4.324	263.0 -> 219.0	249707	25.03	µg/L	100
PFPeS	6.533	349.1 -> 79.9	63969	11.76	µg/L	99
		349.1 -> 98.9	33557			
PFTeDA	9.722	713.1 -> 669.0	183514	12.61	µg/L	100
		713.1 -> 168.9	11607			
PFTrDA	9.390	663.0 -> 619.0	213971	13.54	µg/L	99
		663.0 -> 168.9	16679			
PFUnDA	8.577	563.1 -> 519.0	204612	13.39	µg/L	95
		563.1 -> 269.1	29757			
11CI-PF3OUdS	9.442	630.9 -> 450.9	449237	47.05	µg/L	97
		632.9 -> 452.9	146126			
9CI-PF3ONS	8.616	530.8 -> 351.0	841100	46.13	µg/L	98
		532.8 -> 353.0	271136			
ADONA	6.731	376.9 -> 250.9	1707853	47.46	µg/L	99
		376.9 -> 84.8	387290			
HFPO-DA	5.906	284.9 -> 168.9	79308	49.39	µg/L	98
		284.9 -> 184.9	10516			
3:3FTCA	3.802	241.0 -> 177.0	35642	64.38	µg/L	98
		241.0 -> 117.0	5058			
5:3FTCA	6.198	341.0 -> 237.1	1046822	313.15	µg/L	99
		341.0 -> 217.0	919322			
7:3FTCA	7.621	441.0 -> 316.9	538637	318.30	µg/L	100
		441.0 -> 336.9	1049535			
EtFOSA	10.979	526.0 -> 219.0	42966	13.21	µg/L	100
		526.0 -> 169.0	41444			
EtFOSE	10.913	630.0 -> 58.9	88173	127.94	µg/L	100
MeFOSA	10.747	511.9 -> 219.0	37836	12.19	µg/L	94
		511.9 -> 169.0	37322			
MeFOSE	10.666	616.1 -> 58.9	124749	129.82	µg/L	100
PFDoS	9.861	699.1 -> 79.9	17797	12.07	µg/L	100
		699.1 -> 98.8	11127			
NFDHA	5.410	295.0 -> 201.0	24443	24.93	µg/L	99
		295.0 -> 84.9	10610			
PFMBA	4.737	279.0 -> 85.1	82836	25.06	µg/L	100
PFMPA	3.476	229.0 -> 84.9	76744	25.44	µg/L	100
PFEESA	5.999	314.8 -> 134.9	472024	22.03	µg/L	99
		314.8 -> 82.9	12546			

= Qualifier out of range, m = manually integrated, + = Area summed

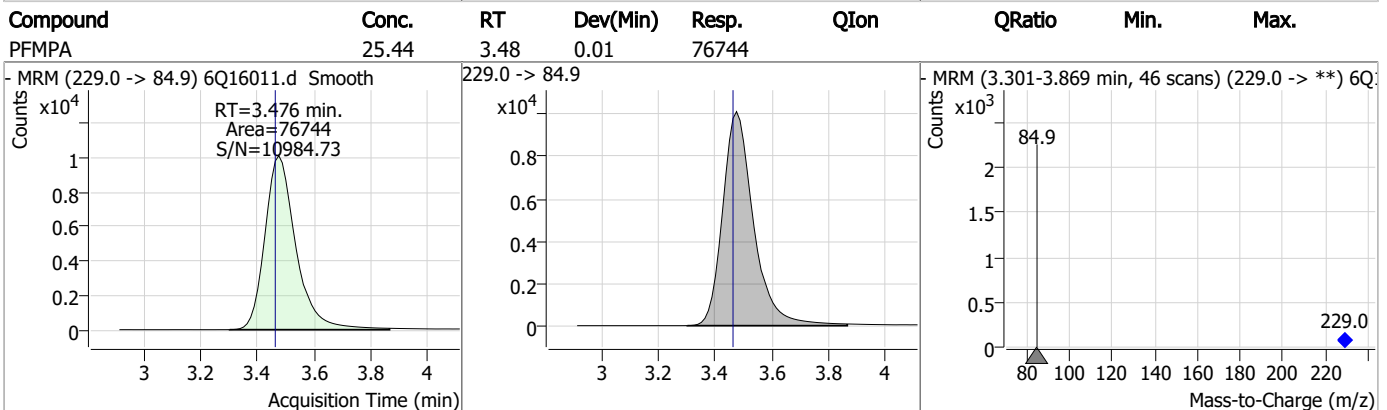
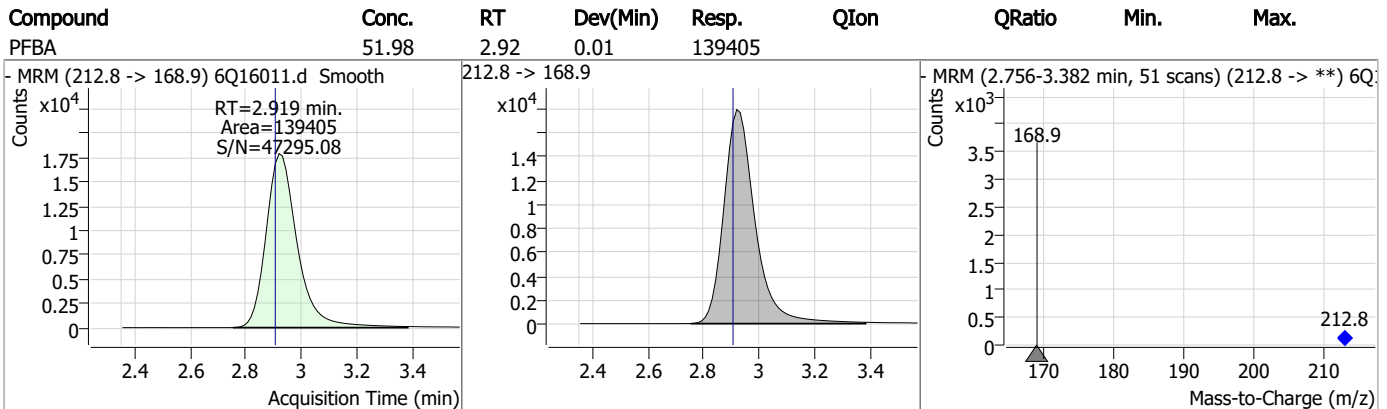
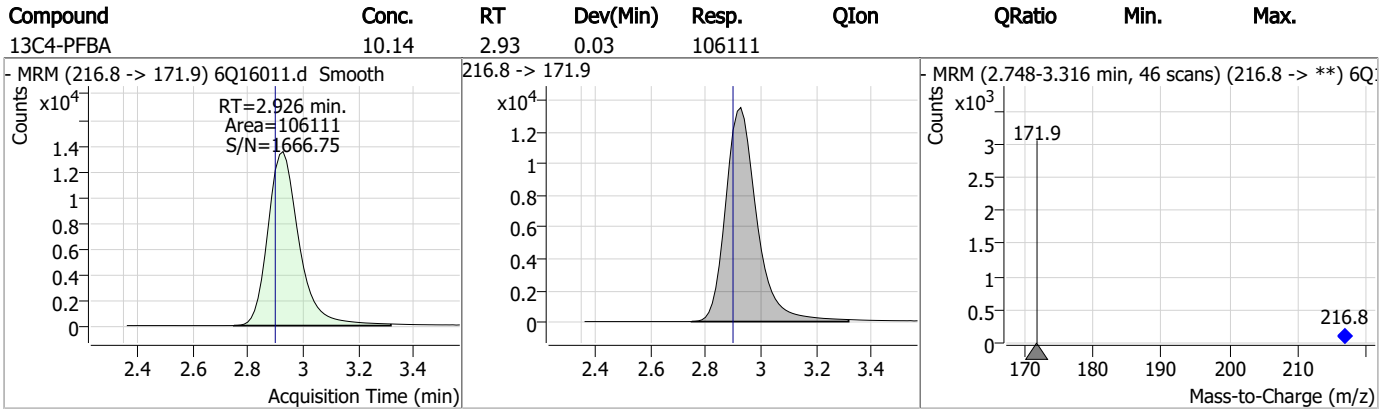
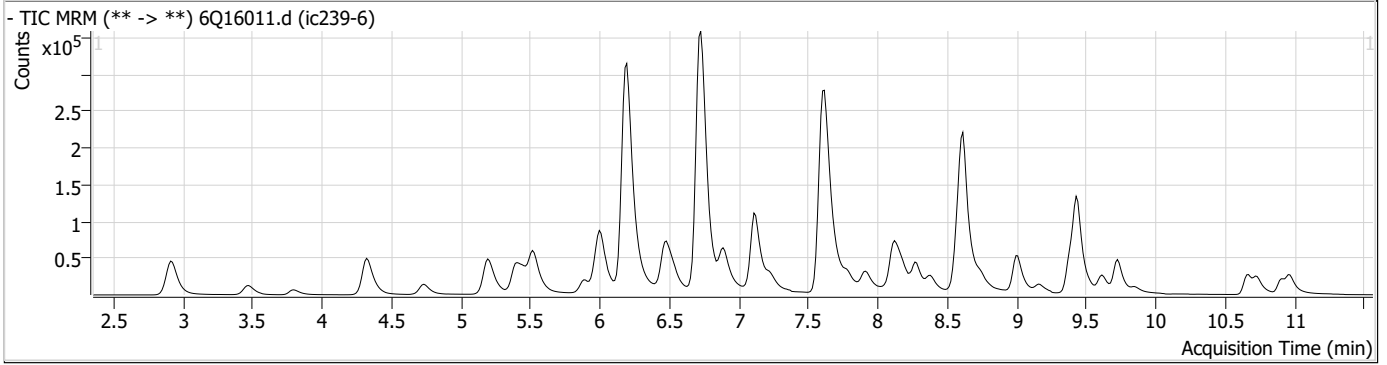
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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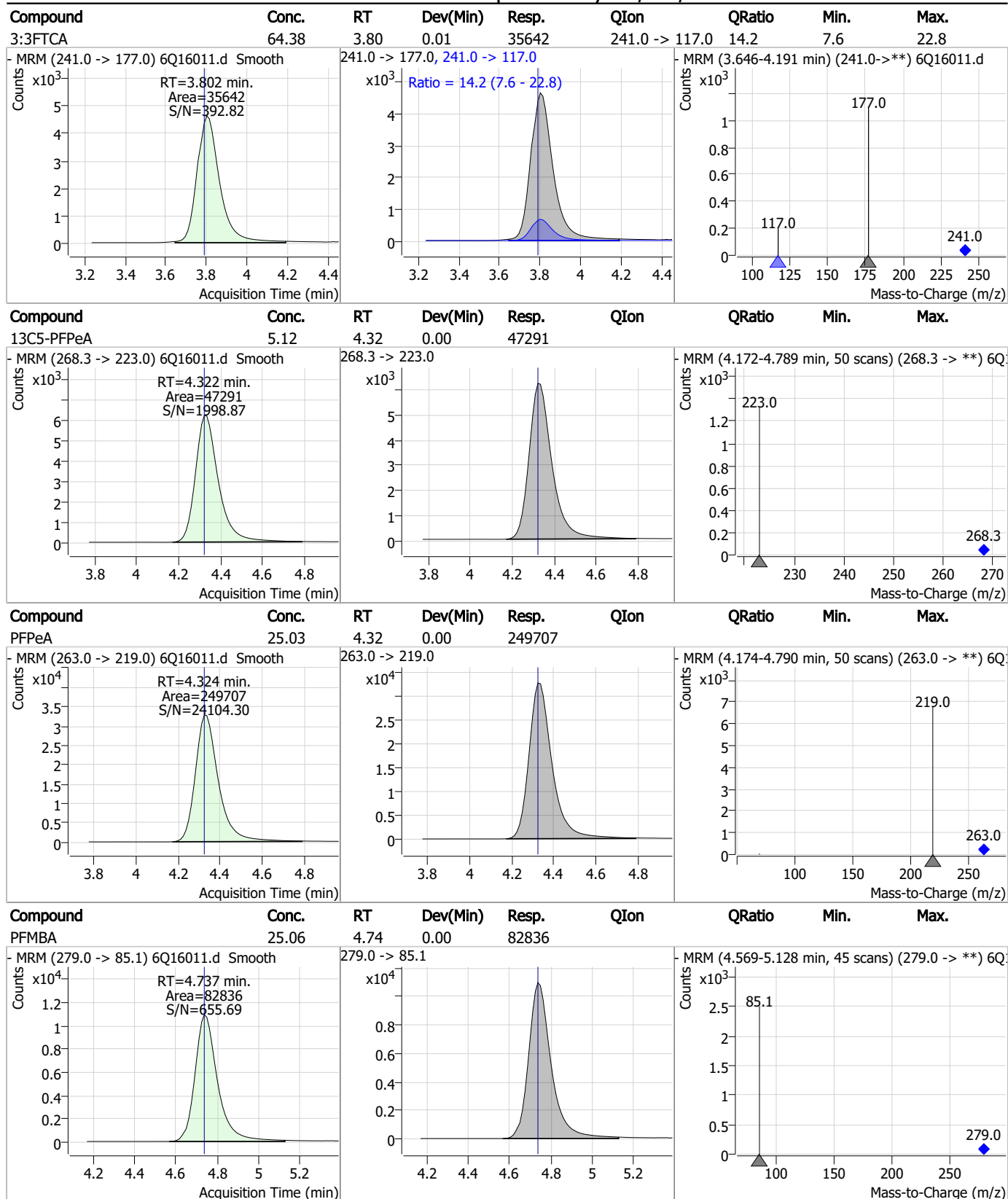
7.6.7

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Perfluorinated Compounds by LC/MS/MS

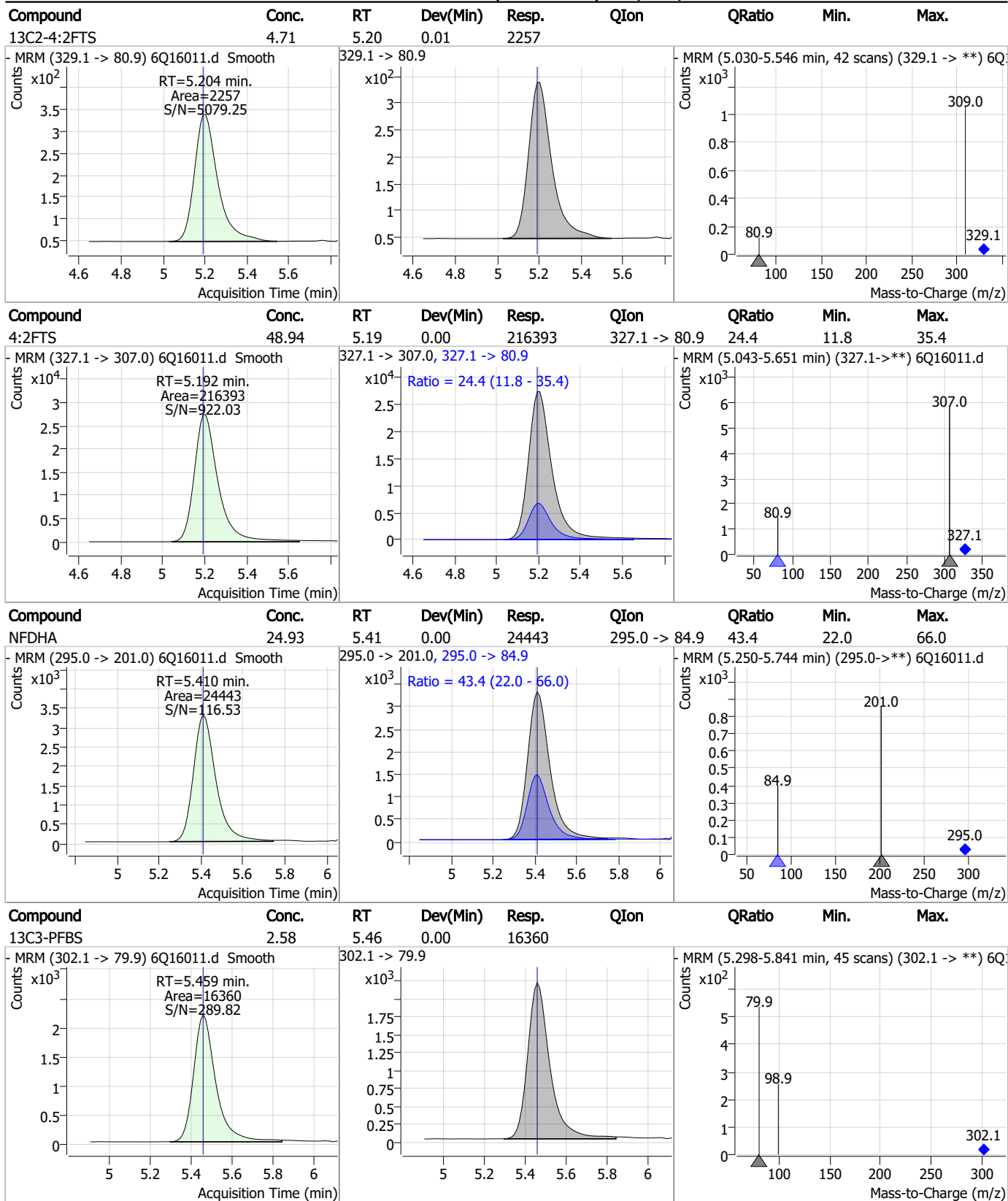


Perfluorinated Compounds by LC/MS/MS



7.6.7
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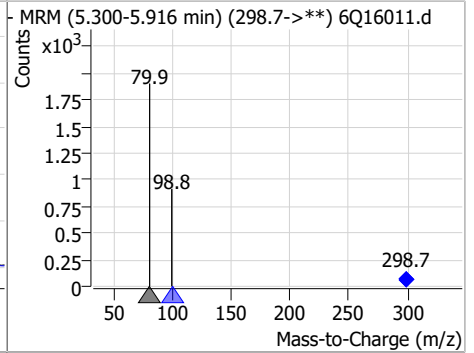
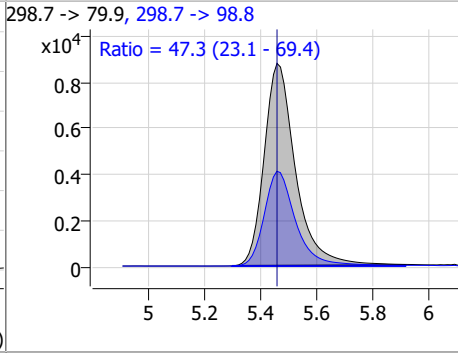
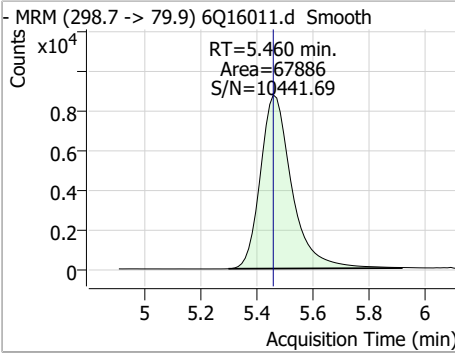
Perfluorinated Compounds by LC/MS/MS



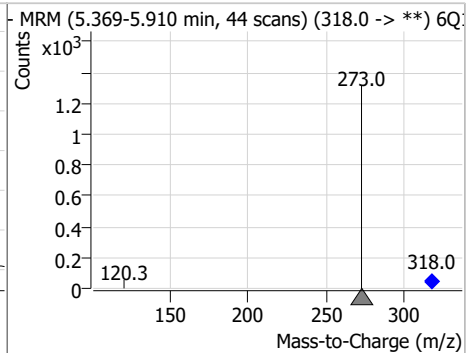
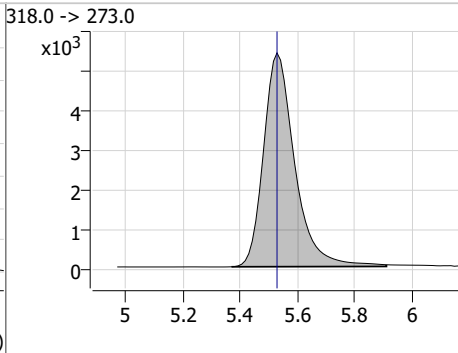
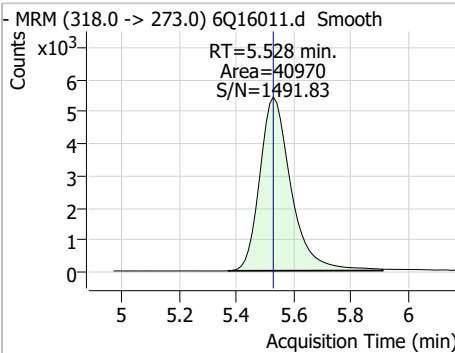
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Perfluorinated Compounds by LC/MS/MS

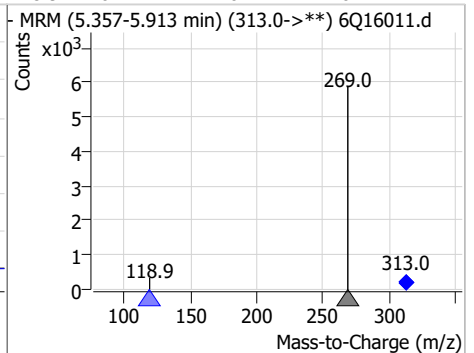
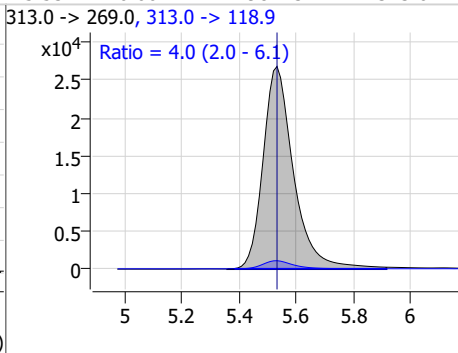
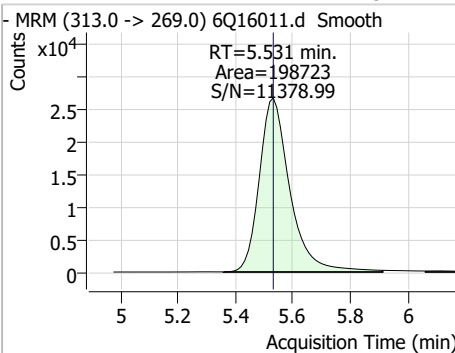
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	10.58	5.46	0.00	67886	298.7 -> 98.8	47.3	23.1	69.4



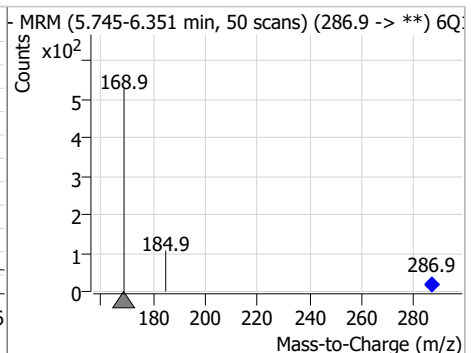
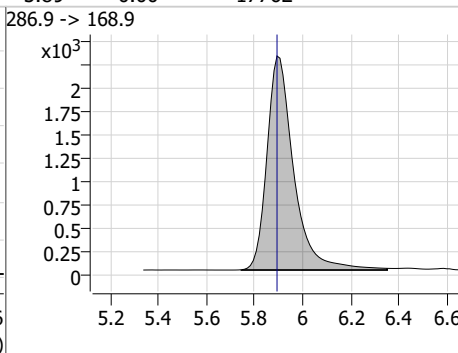
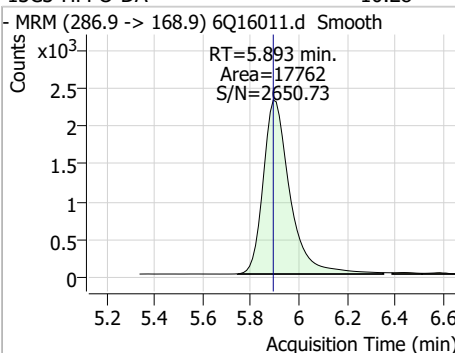
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.50	5.53	0.00	40970				



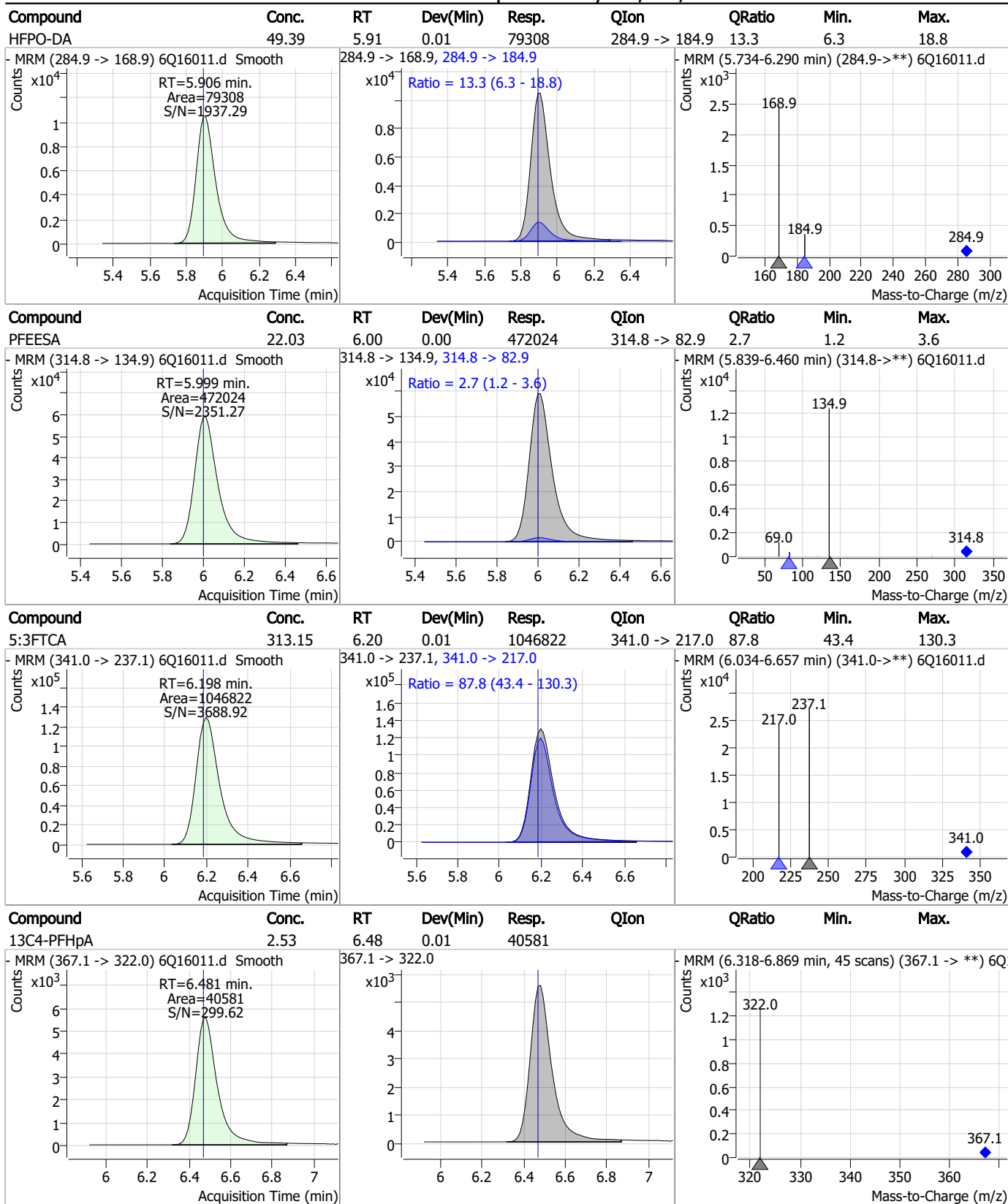
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	13.14	5.53	0.00	198723	313.0 -> 118.9	4.0	2.0	6.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.28	5.89	0.00	17762				



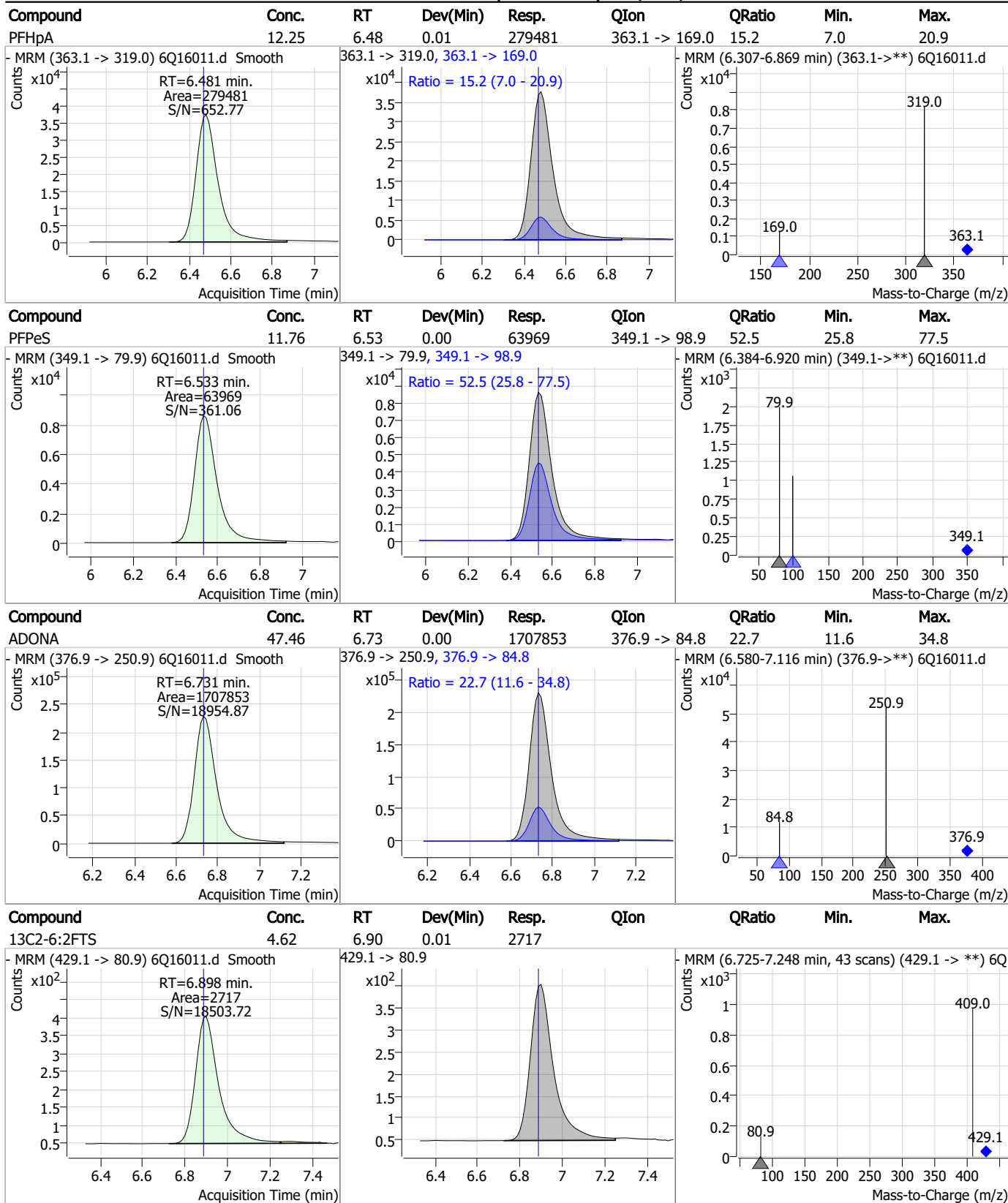
Perfluorinated Compounds by LC/MS/MS



7.6.7

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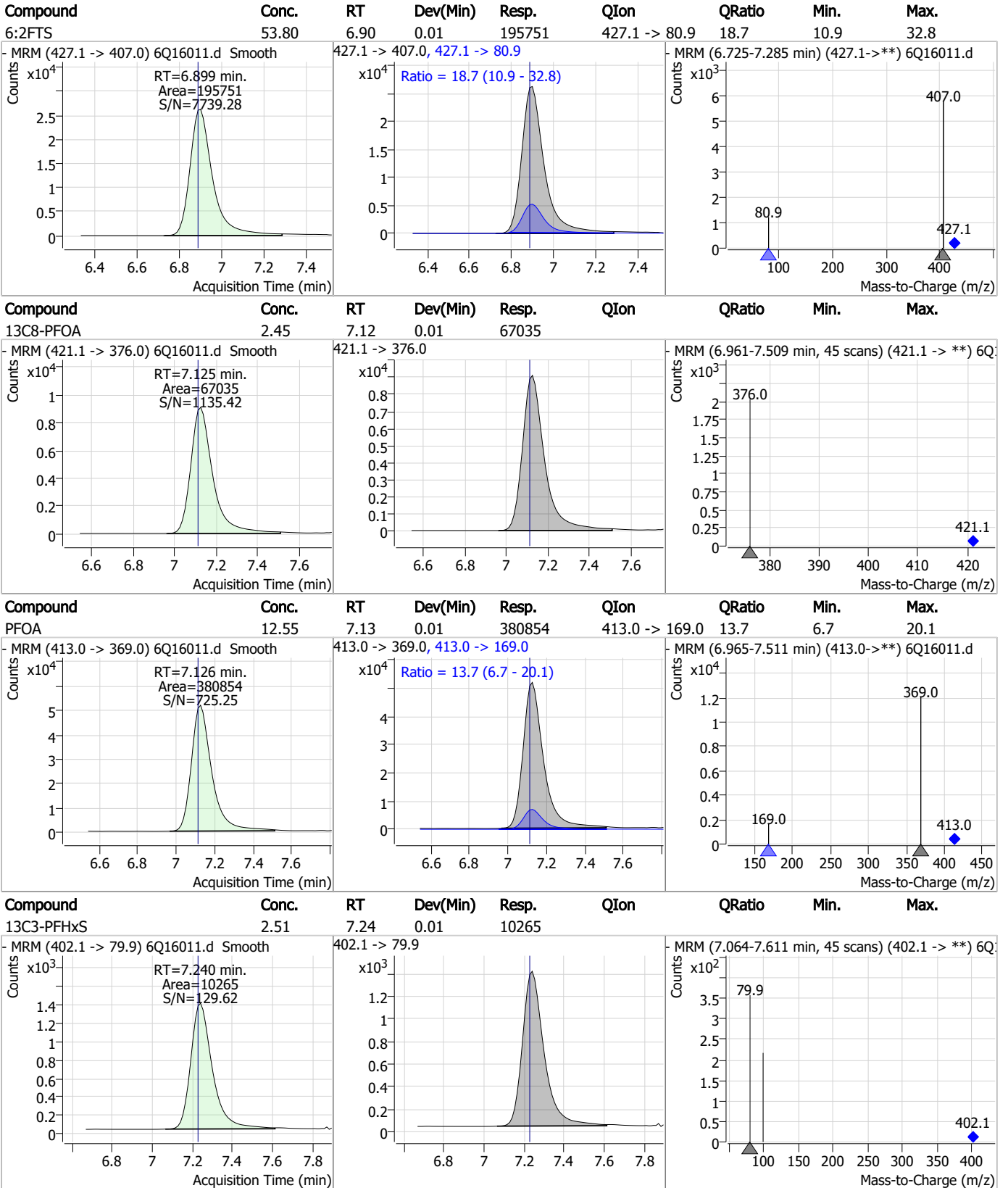
Perfluorinated Compounds by LC/MS/MS



7.6.7

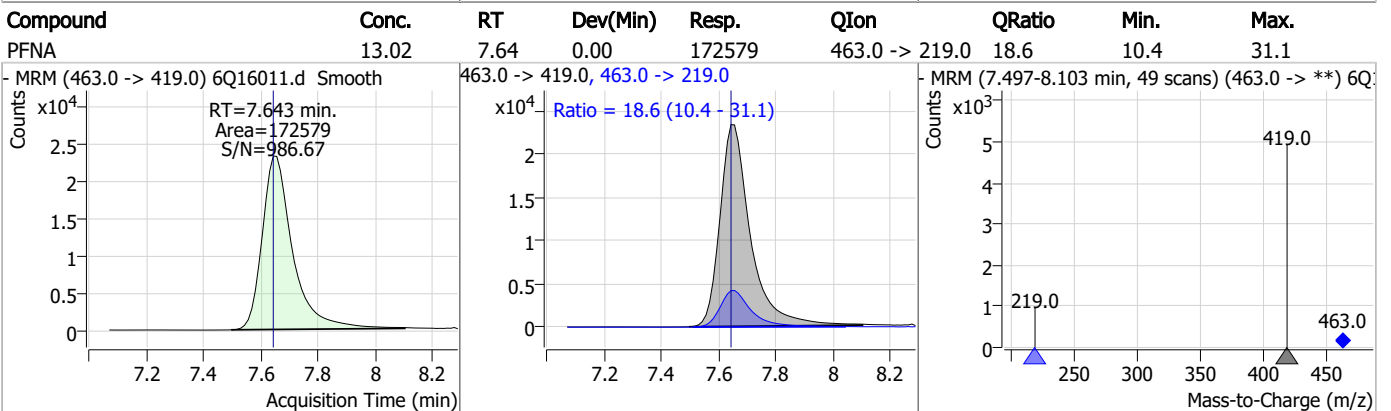
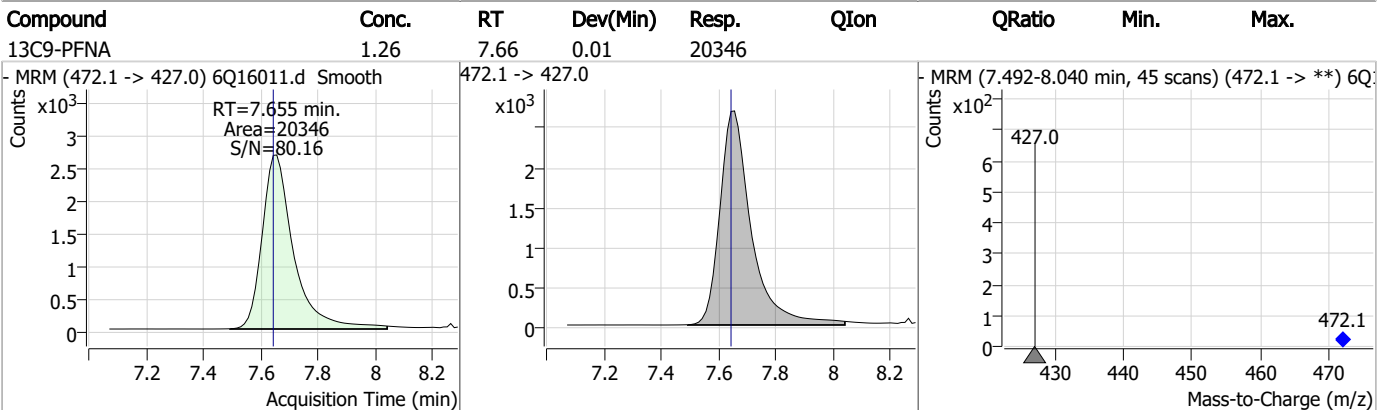
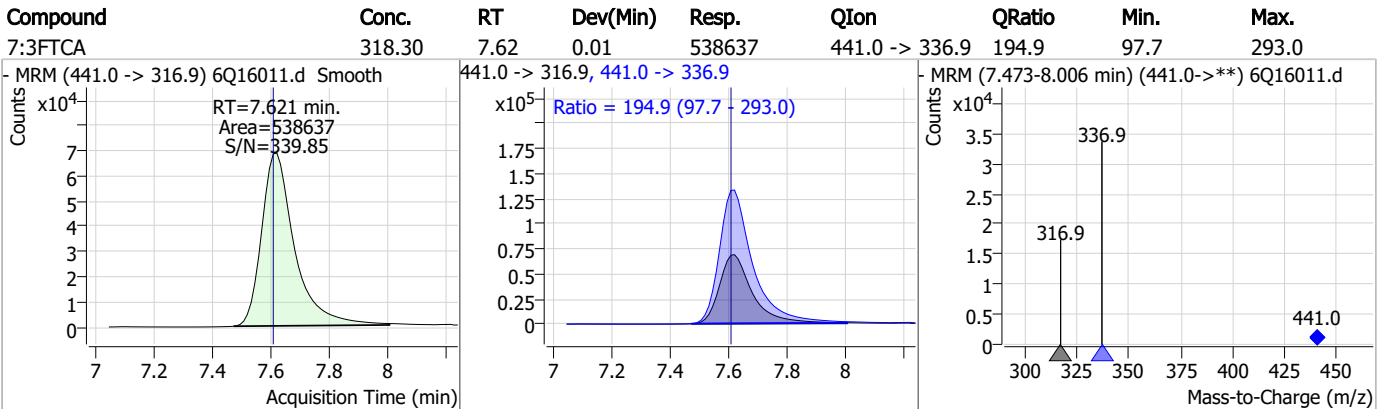
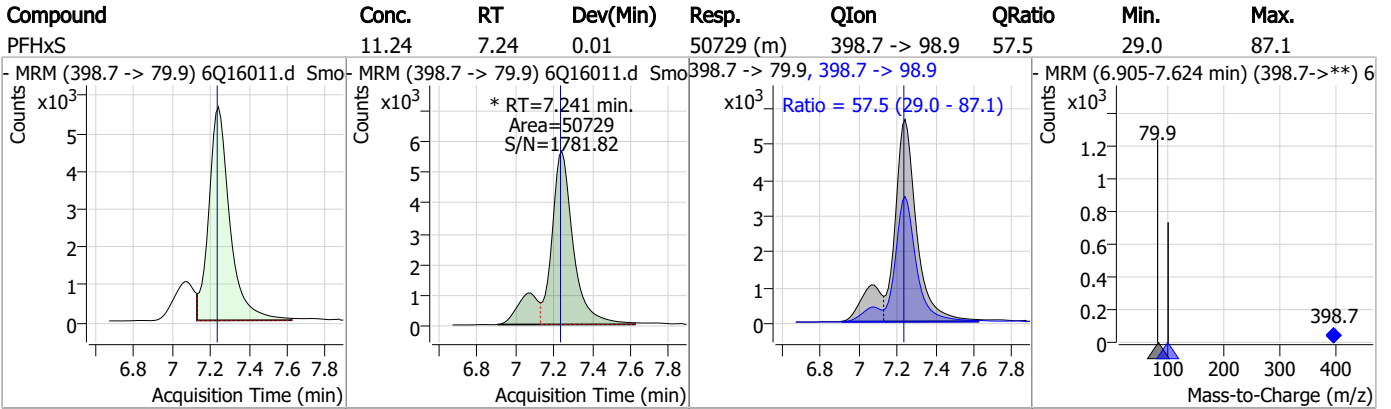


Perfluorinated Compounds by LC/MS/MS



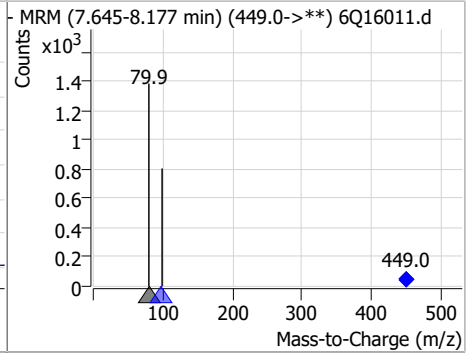
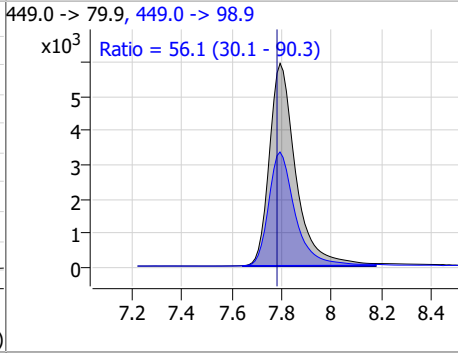
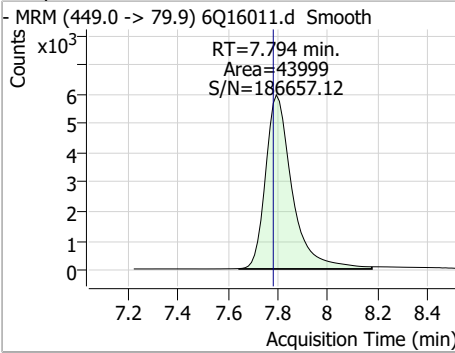
7.6.7
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Perfluorinated Compounds by LC/MS/MS

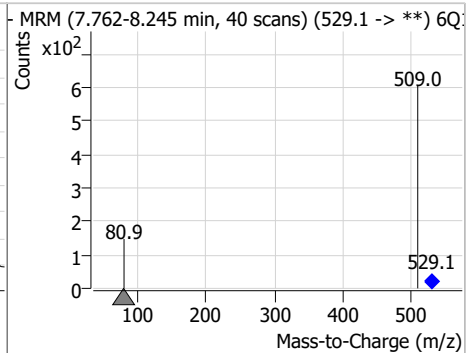
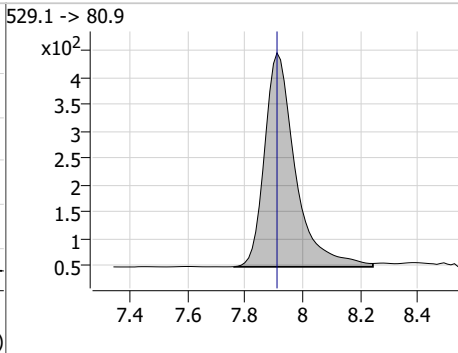
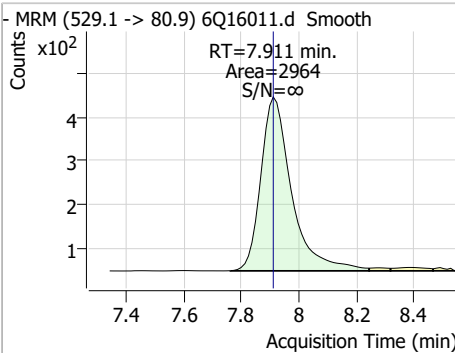


Perfluorinated Compounds by LC/MS/MS

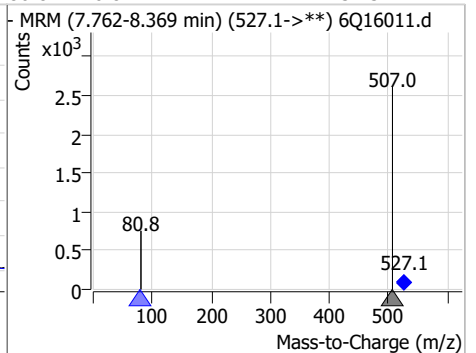
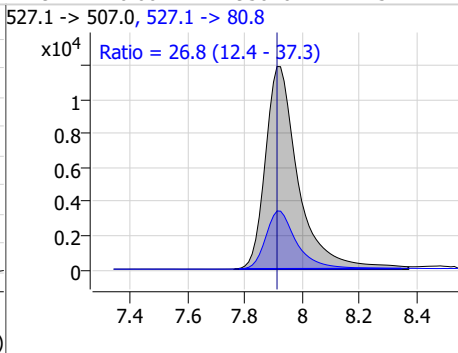
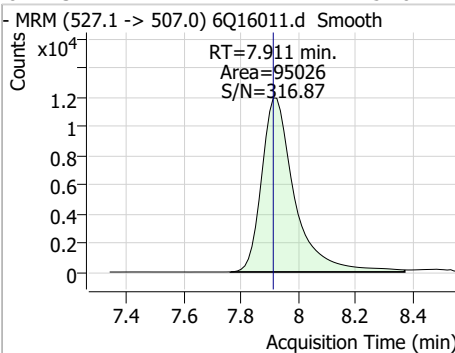
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	12.13	7.79	0.01	43999	449.0 -> 98.9	56.1	30.1	90.3



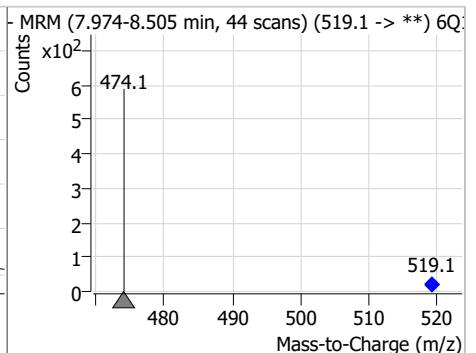
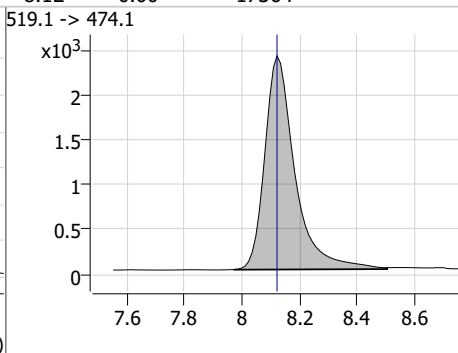
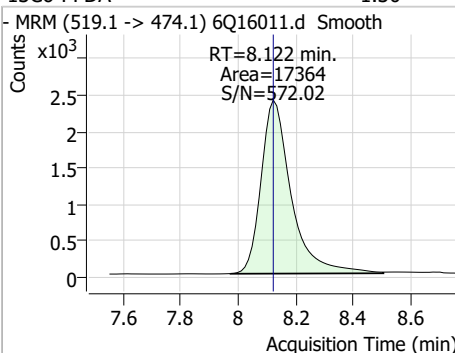
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.23	7.91	0.00	2964	529.1 -> 80.9			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	45.18	7.91	0.00	95026	527.1 -> 80.8	26.8	12.4	37.3

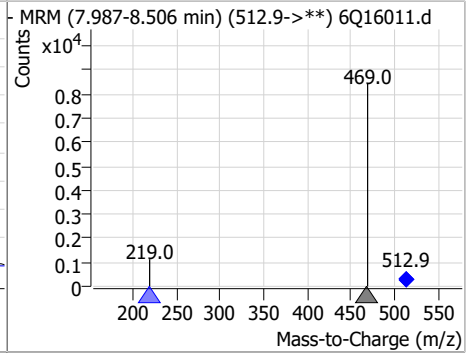
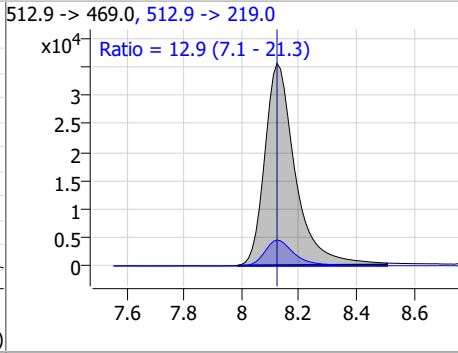
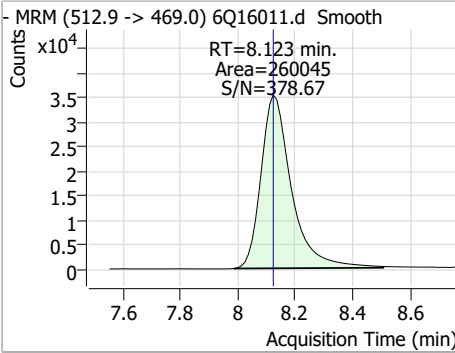


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.30	8.12	0.00	17364	519.1 -> 474.1			

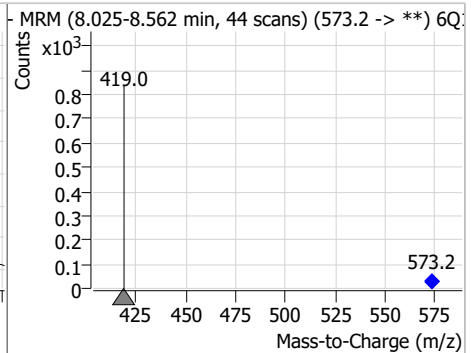
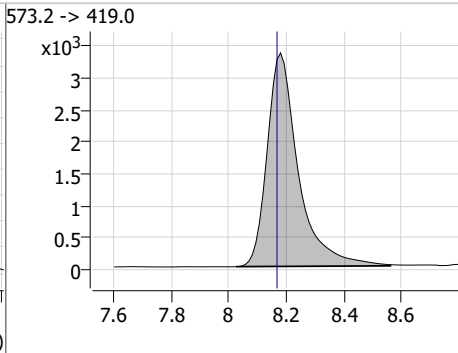
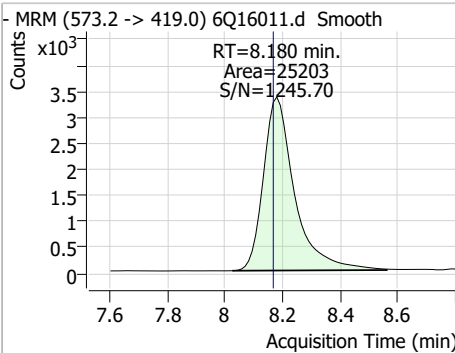


Perfluorinated Compounds by LC/MS/MS

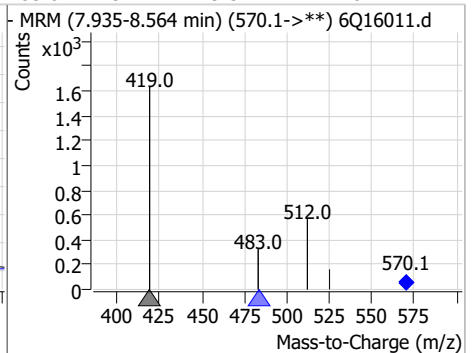
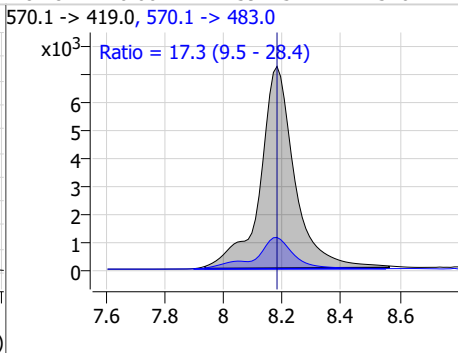
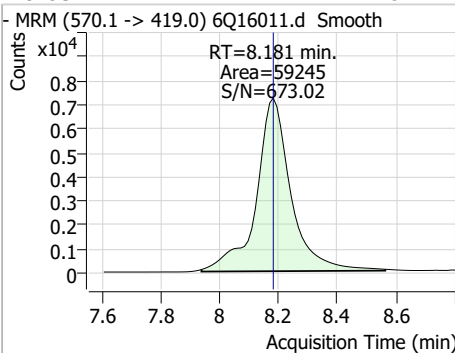
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	12.86	8.12	0.00	260045	512.9 -> 219.0	12.9	7.1	21.3



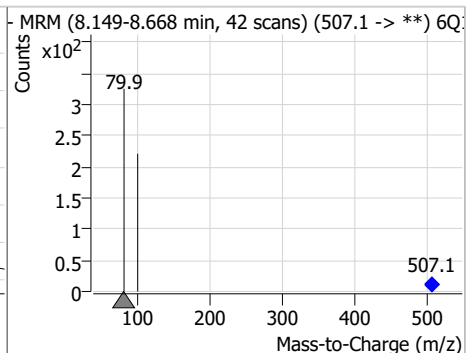
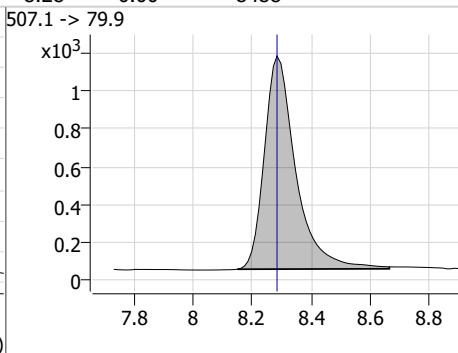
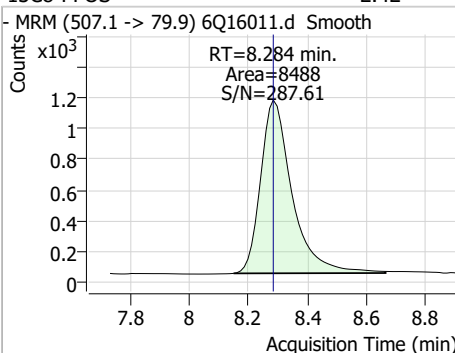
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.85	8.18	0.01	25203				



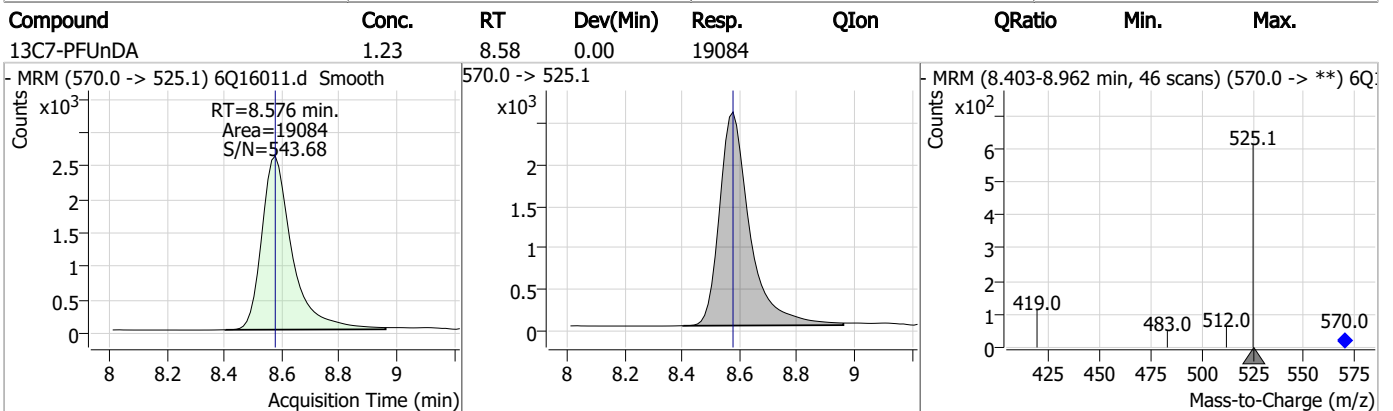
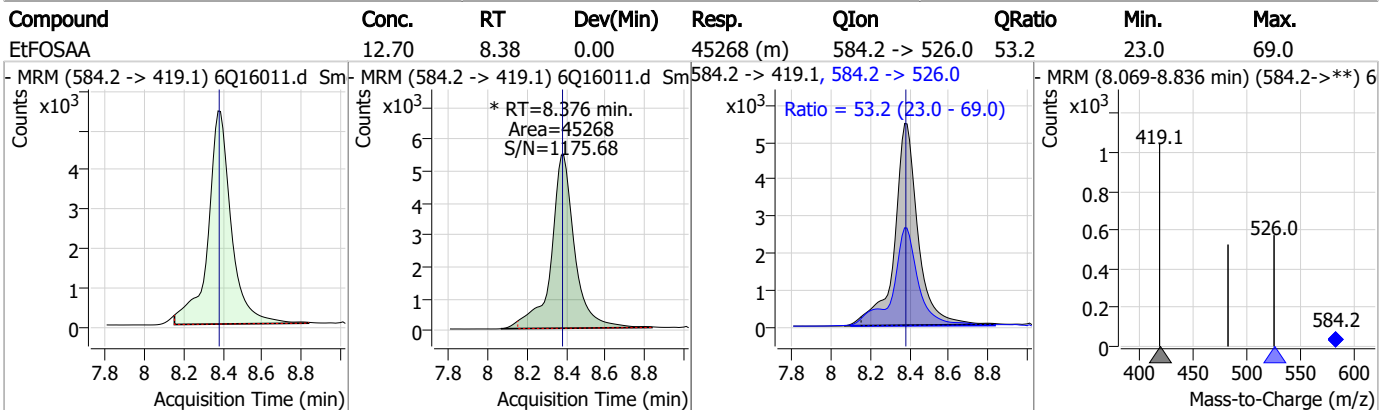
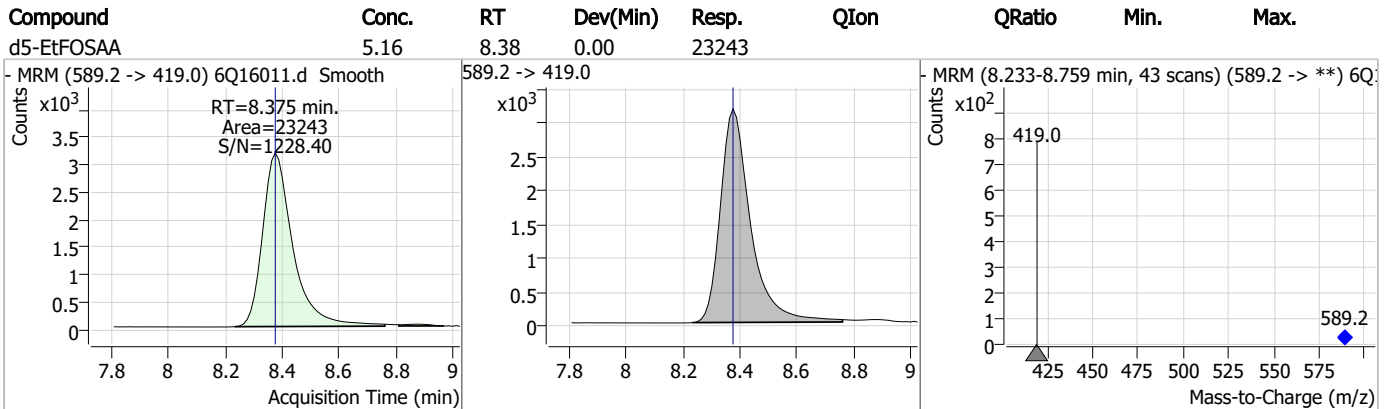
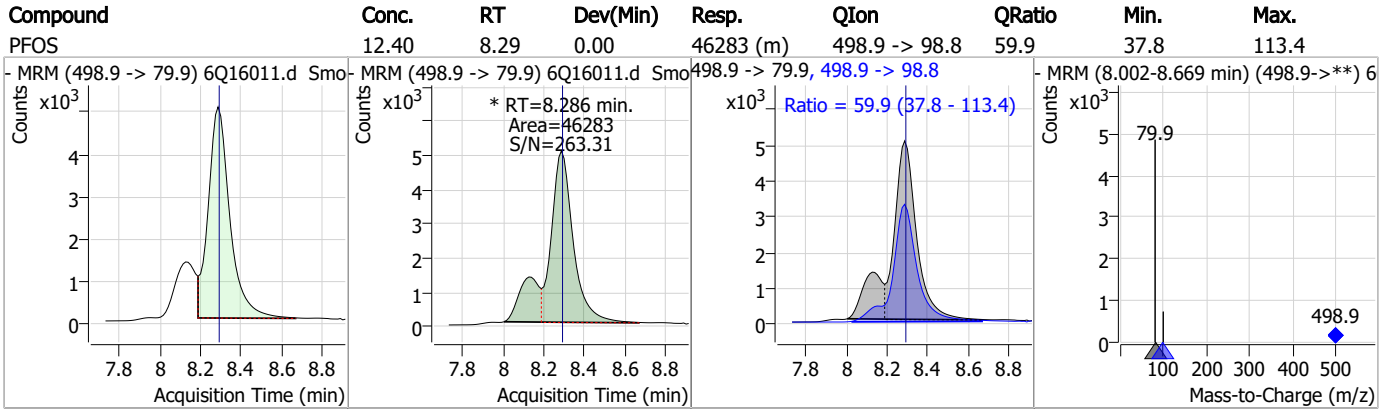
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	12.54	8.18	0.00	59245	570.1 -> 483.0	17.3	9.5	28.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.42	8.28	0.00	8488				



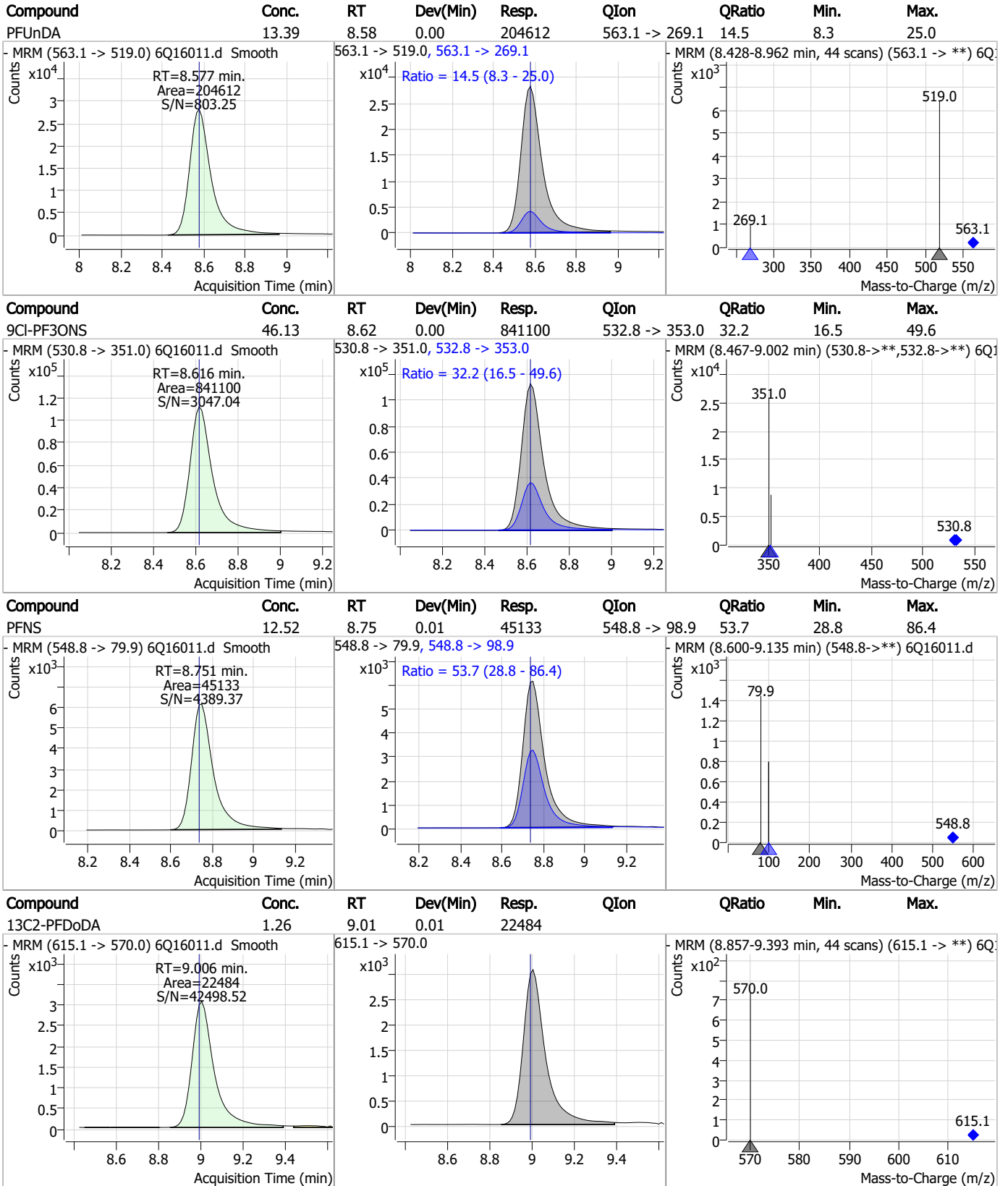
Perfluorinated Compounds by LC/MS/MS



7.6.7

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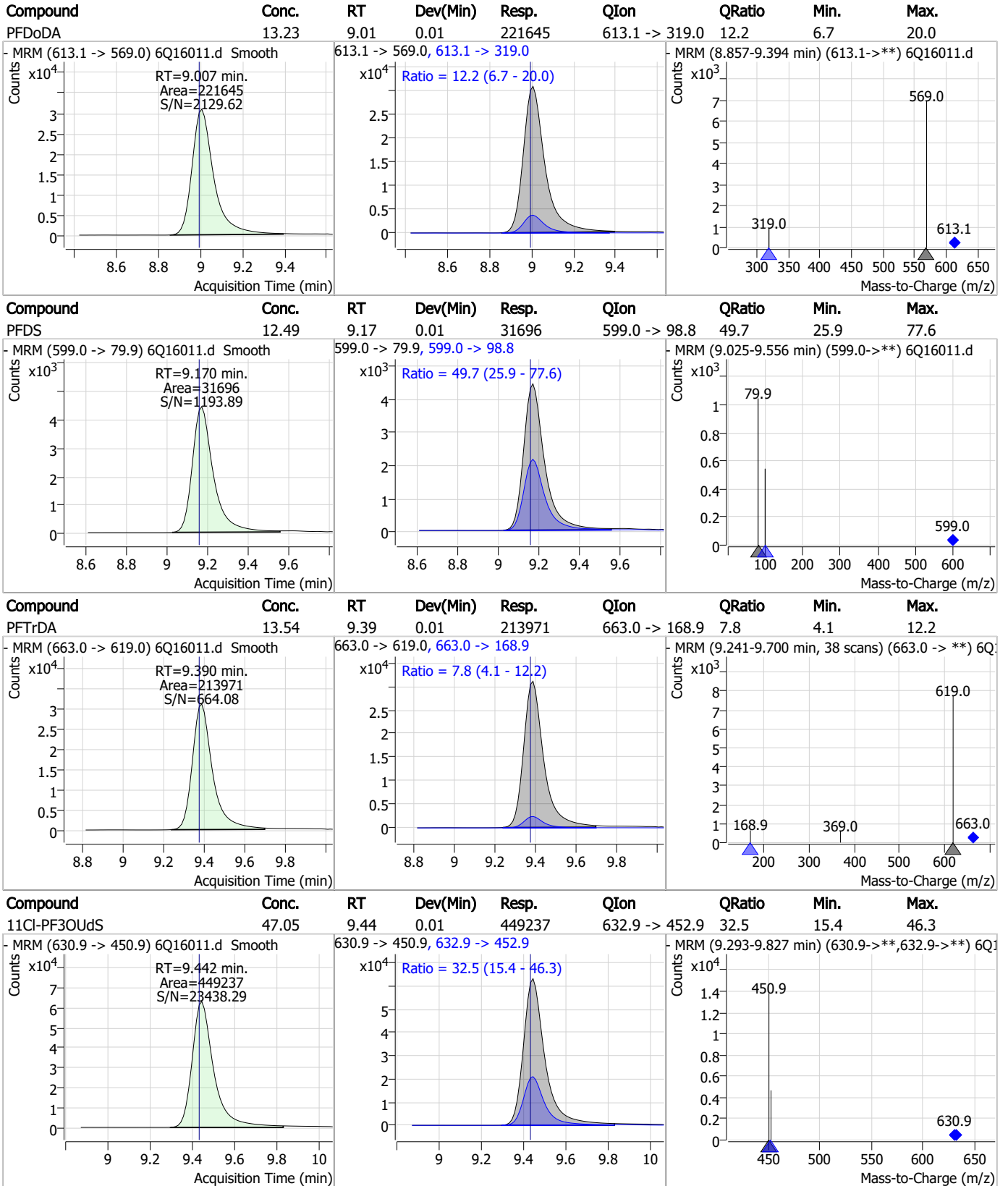
Perfluorinated Compounds by LC/MS/MS



7.67

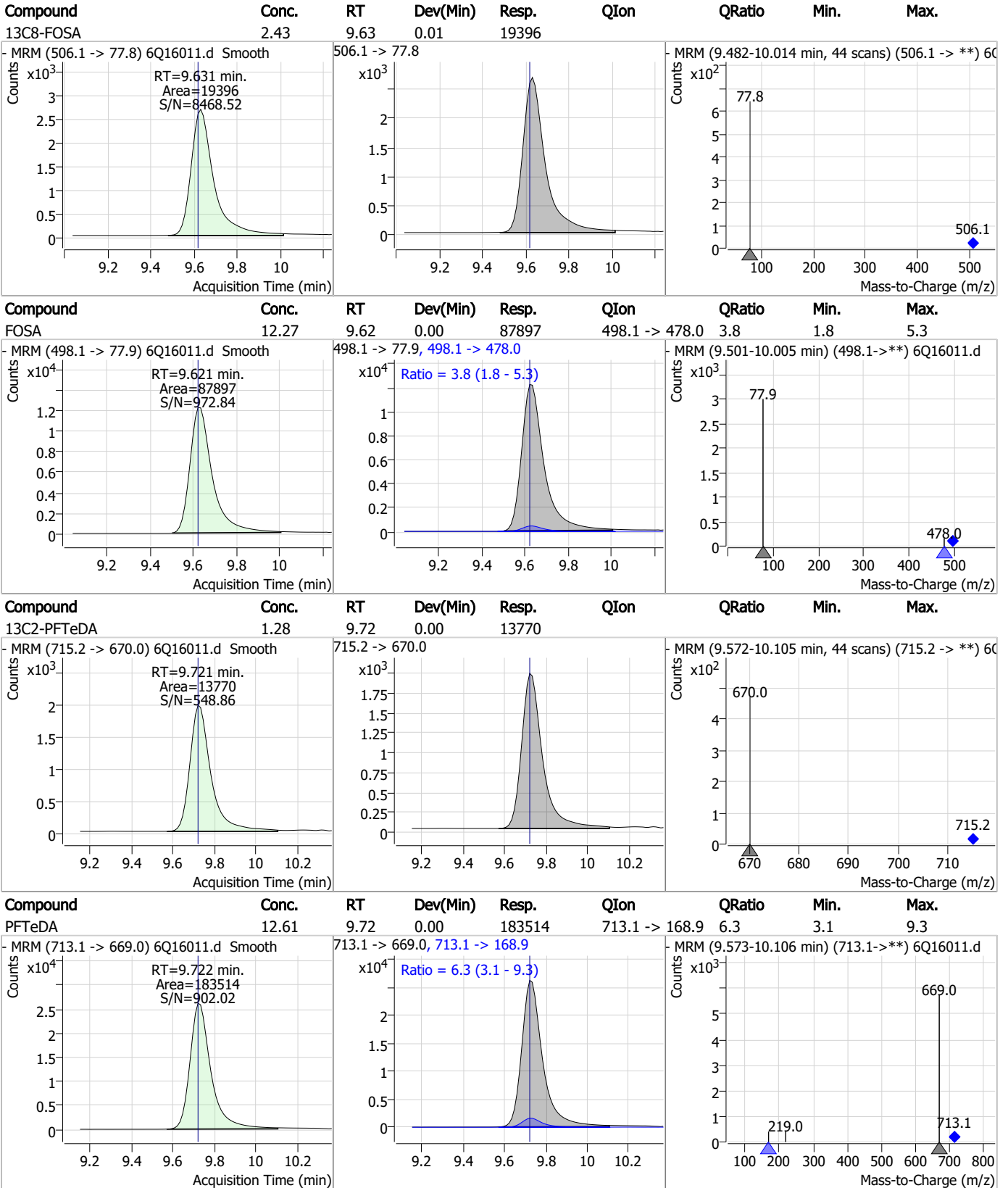
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Perfluorinated Compounds by LC/MS/MS



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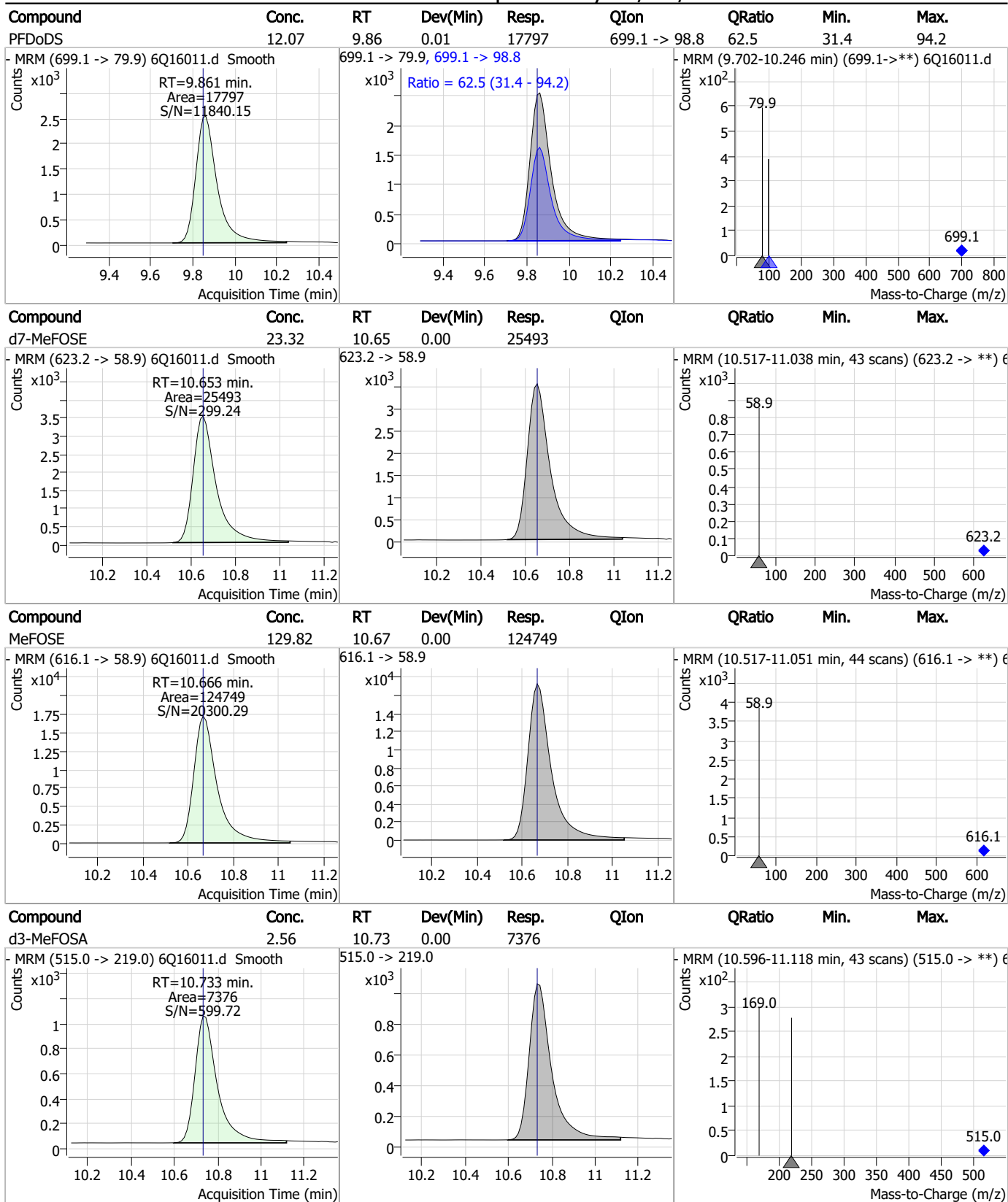
Perfluorinated Compounds by LC/MS/MS



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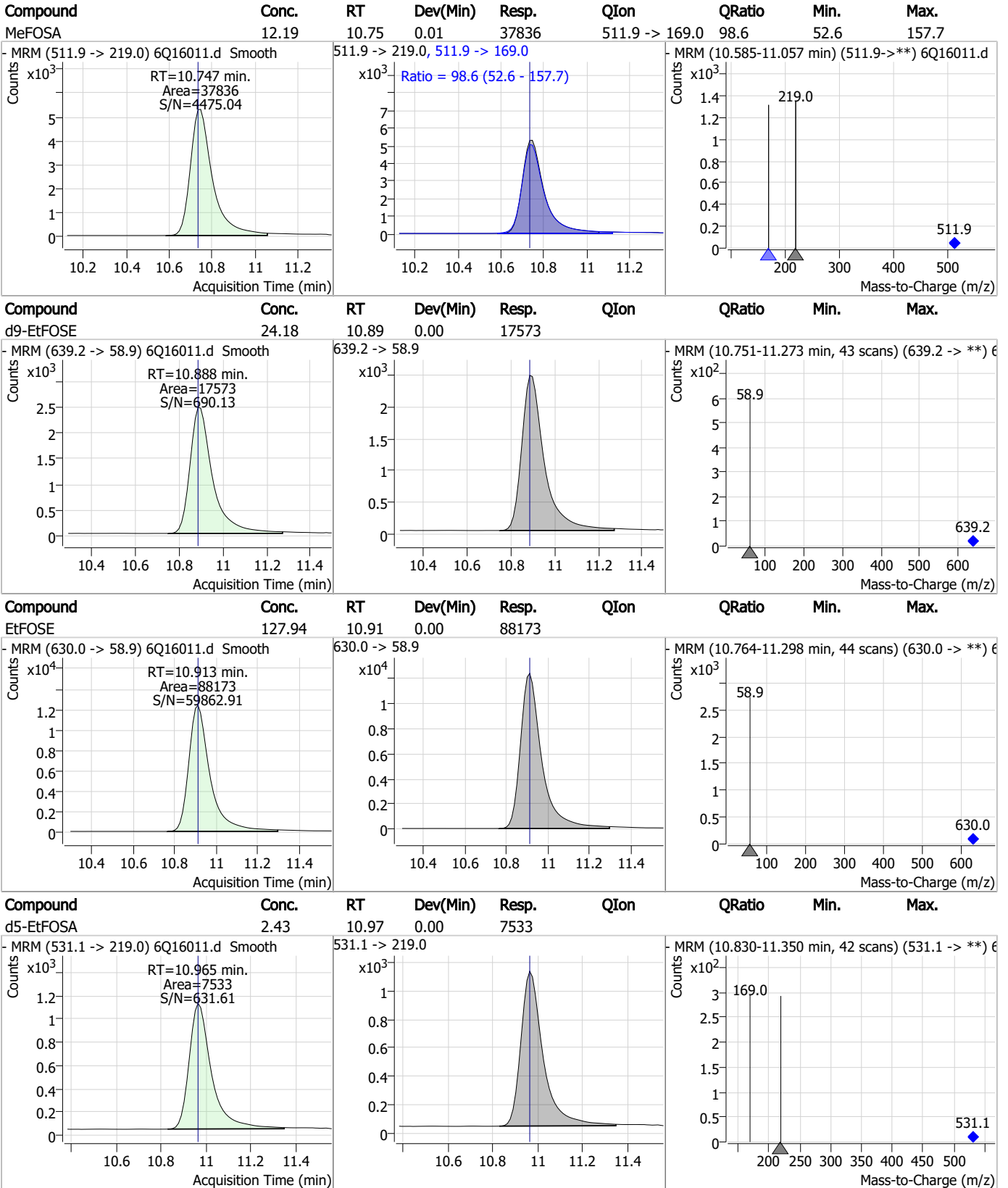
Perfluorinated Compounds by LC/MS/MS



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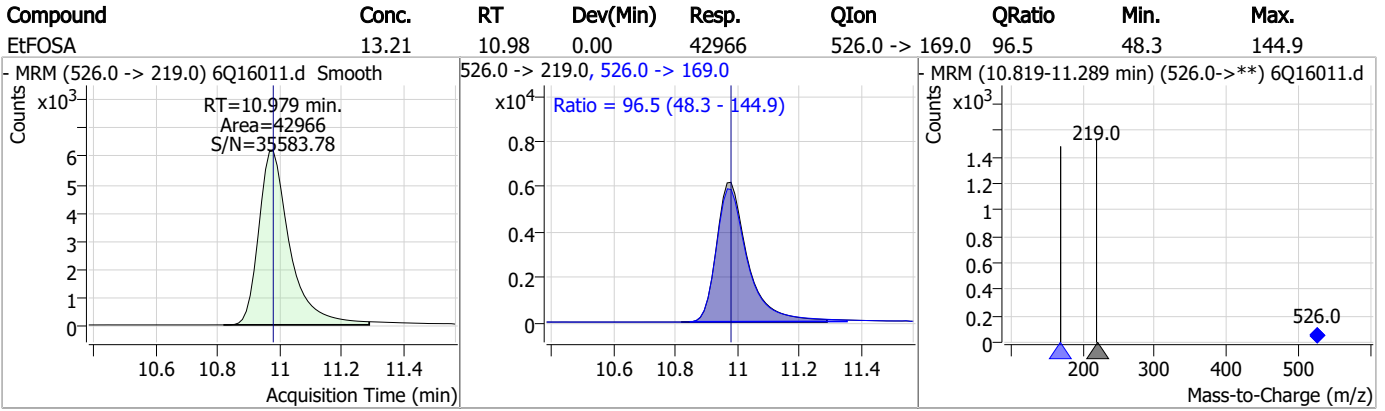
Perfluorinated Compounds by LC/MS/MS



7.6.7

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Perfluorinated Compounds by LC/MS/MS



7.6.7

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Manual Integration Approval Summary

Sample Number: S6Q239-IC239 Method: EPA DRAFT 1633
Lab FileID: 6Q16011.D Analyst approved: 04/05/23 11:17 Martha Valls
Injection Time: 04/04/23 15:25 Supervisor approved: 04/05/23 17:23 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.29	Split peak
EtFOSAA	2991-50-6		8.38	Split peak

7.6.7.1

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Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtie
 04/05/23 17:23

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16012.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/4/2023 3:39:38 PM
 Sample Name : ic239-7
 Vial : P1-A8
 DA Method File : 1633_040423_S6Q239.quantmethod.xml
 Batch Name : s6q239.batch.bin
 Sample Information : OP96085,S6Q239,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	79450	10.00 µg/L	0.000
M5-PFPeA	4.322	268.3 -> 223.0	36656	5.00 µg/L	0.000
M5-PFHxA	5.528	318.0 -> 273.0	33761	2.50 µg/L	0.000
M4-PFHpA	6.468	367.1 -> 322.0	32124	2.50 µg/L	0.000
M8-PFOA	7.125	421.1 -> 376.0	49671	2.50 µg/L	0.013
M9-PFNA	7.643	472.1 -> 427.0	15872	1.25 µg/L	0.000
M6-PFDA	8.122	519.1 -> 474.1	13395	1.25 µg/L	0.000
M7-PFUnDA	8.564	570.0 -> 525.1	15005	1.25 µg/L	-0.012
M2-PFDoDA	8.994	615.1 -> 570.0	18136	1.25 µg/L	0.000
M2-PFTeDA	9.721	715.2 -> 670.0	11005	1.25 µg/L	0.000
M8-FOSA	9.619	506.1 -> 77.8	15765	2.50 µg/L	0.000
M3-PFBS	5.459	302.1 -> 79.9	12580	2.50 µg/L	0.000
M3-PFHxS	7.228	402.1 -> 79.9	8422	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	6979	2.50 µg/L	0.000
M2-4:2FTS	5.204	329.1 -> 80.9	1772	5.00 µg/L	0.012
M2-6:2FTS	6.898	429.1 -> 80.9	2278	5.00 µg/L	0.012
M2-8:2FTS	7.911	529.1 -> 80.9	2206	5.00 µg/L	0.000
M3-MeFOSAA	8.167	573.2 -> 419.0	20064	5.00 µg/L	0.000
M3-HFPO-DA	5.893	286.9 -> 168.9	14021	10.00 µg/L	0.000
M5-EtFOSAA	8.375	589.2 -> 419.0	17522	5.00 µg/L	0.000
M7-MeFOSE	10.653	623.2 -> 58.9	21250	25.00 µg/L	0.000
M9-EtFOSE	10.888	639.2 -> 58.9	13964	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	5830	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	5393	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	8328	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	33755	5.00 µg/L	0.000
18O2-PFHxS	7.239	403.0 -> 83.9	5635	2.50 µg/L	0.012
13C4-PFOA	7.112	417.1 -> 372.0	65045	2.50 µg/L	0.000
13C2-PFDA	8.123	515.1 -> 470.1	19163	1.25 µg/L	0.000
13C5-PFNA	7.643	468.0 -> 423.0	17582	1.25 µg/L	0.000
13C2-PFHxA	5.529	315.1 -> 270.0	31379	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.204	329.1 -> 80.9	1772	4.67 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.5%		
13C2-6:2FTS	6.898	429.1 -> 80.9	2278	4.90 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.0%		
13C2-8:2FTS	7.911	529.1 -> 80.9	2206	4.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.4%		
13C2-PFDoDA	8.994	615.1 -> 570.0	18136	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.8%		
13C2-PFTeDA	9.721	715.2 -> 670.0	11005	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C3-PFBS	5.459	302.1 -> 79.9	12580	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C3-PFHxS	7.228	402.1 -> 79.9	8422	2.61 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.4%		
13C4-PFBA	2.897	216.8 -> 171.9	79450	10.07 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C4-PFHpA	6.468	367.1 -> 322.0	32124	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.1%		
13C5-PFHxA	5.528	318.0 -> 273.0	33761	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.0%		
13C5-PFPeA	4.322	268.3 -> 223.0	36656	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C6-PFDA	8.122	519.1 -> 474.1	13395	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.0%		
13C7-PFUnDA	8.564	570.0 -> 525.1	15005	1.15 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.6%		
13C8-FOSA	9.619	506.1 -> 77.8	15765	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C8-PFOA	7.125	421.1 -> 376.0	49671	2.29 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 91.4%		
13C8-PFOS	8.284	507.1 -> 79.9	6979	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C9-PFNA	7.643	472.1 -> 427.0	15872	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.6%		
d3-MeFOSAA	8.167	573.2 -> 419.0	20064	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C3-HFPO-DA	5.893	286.9 -> 168.9	14021	10.25 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 102.5%		
d3-MeFOSA	10.733	515.0 -> 219.0	5393	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.6%		
d5-EtFOSAA	8.375	589.2 -> 419.0	17522	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.4%		
d7-MeFOSE	10.653	623.2 -> 58.9	21250	25.07 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 100.3%		
d9-EtFOSE	10.888	639.2 -> 58.9	13964	24.79 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 99.2%		
d5-EtFOSA	10.965	531.1 -> 219.0	5830	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.9%		
Target Compounds					QValue
4:2FTS	5.204	327.1 -> 307.0	333585	96.12 µg/L	98
		327.1 -> 80.9	81434		
6:2FTS	6.886	427.1 -> 407.0	279776	91.70 µg/L	98
		427.1 -> 80.9	58011		
8:2FTS	7.911	527.1 -> 507.0	148535	94.92 µg/L	95
		527.1 -> 80.8	40534		
EtFOSAA	8.376	584.2 -> 419.1	73436	27.33 µg/L	m 89
		584.2 -> 526.0	39360		
FOSA	9.621	498.1 -> 77.9	148552	25.50 µg/L	100
		498.1 -> 478.0	5224		
MeFOSAA	8.168	570.1 -> 419.0	99115	26.35 µg/L	94
		570.1 -> 483.0	15945		
PFBA	2.906	212.8 -> 168.9	213076	106.11 µg/L	100
PFBS	5.460	298.7 -> 79.9	113145	22.93 µg/L	98
		298.7 -> 98.8	51124		
PFDA	8.123	512.9 -> 469.0	419853	26.92 µg/L	97
		512.9 -> 219.0	54498		
PFDoDA	8.994	613.1 -> 569.0	349511	25.87 µg/L	98
		613.1 -> 319.0	44185		
PFDS	9.158	599.0 -> 79.9	50119	24.02 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	25778			
PFHpA	6.469	363.1 -> 319.0	461965	25.57	µg/L	99
		363.1 -> 169.0	66515			
PFHpS	7.794	449.0 -> 79.9	67072	22.48	µg/L	99
		449.0 -> 98.9	40947			
PFHxA	5.531	313.0 -> 269.0	302055	24.24	µg/L	100
		313.0 -> 118.9	11985			
PFHxS	7.228	398.7 -> 79.9	86219	23.28	µg/L	m 93
		398.7 -> 98.9	45837			
PFNA	7.643	463.0 -> 419.0	272195	26.32	µg/L	96
		463.0 -> 219.0	50784			
PFNS	8.738	548.8 -> 79.9	72089	24.32	µg/L	99
		548.8 -> 98.9	41161			
PFOA	7.126	413.0 -> 369.0	599091	26.64	µg/L	97
		413.0 -> 169.0	86604			
PFOS	8.273	498.9 -> 79.9	68617	22.35	µg/L	m 92
		498.9 -> 98.8	47083			
PFPeA	4.324	263.0 -> 219.0	397078	51.35	µg/L	100
PFPeS	6.533	349.1 -> 79.9	103721	23.25	µg/L	99
		349.1 -> 98.9	52534			
PFTeDA	9.722	713.1 -> 669.0	287848	24.76	µg/L	97
		713.1 -> 168.9	20296			
PFTrDA	9.378	663.0 -> 619.0	334826	26.26	µg/L	99
		663.0 -> 168.9	25751			
PFUnDA	8.564	563.1 -> 519.0	317626	26.44	µg/L	97
		563.1 -> 269.1	48097			
11Cl-PF3OUdS	9.442	630.9 -> 450.9	721146	95.67	µg/L	99
		632.9 -> 452.9	225796			
9Cl-PF3ONS	8.616	530.8 -> 351.0	1363478	94.73	µg/L	94
		532.8 -> 353.0	403639			
ADONA	6.731	376.9 -> 250.9	2771971	97.57	µg/L	95
		376.9 -> 84.8	574448			
HFPO-DA	5.894	284.9 -> 168.9	130842	103.22	µg/L	99
		284.9 -> 184.9	16916			
3:3FTCA	3.790	241.0 -> 177.0	55102	128.40	µg/L	98
		241.0 -> 117.0	7917			
5:3FTCA	6.198	341.0 -> 237.1	1702041	617.87	µg/L	97
		341.0 -> 217.0	1435326			
7:3FTCA	7.608	441.0 -> 316.9	846014	606.68	µg/L	94
		441.0 -> 336.9	1580773			
EtFOSA	10.967	526.0 -> 219.0	66730	26.52	µg/L	96
		526.0 -> 169.0	66784			
EtFOSE	10.913	630.0 -> 58.9	143516	262.05	µg/L	100
MeFOSA	10.734	511.9 -> 219.0	61101	26.93	µg/L	99
		511.9 -> 169.0	63924			
MeFOSE	10.666	616.1 -> 58.9	197452	246.51	µg/L	100
PFDoS	9.861	699.1 -> 79.9	28641	23.63	µg/L	100
		699.1 -> 98.8	17960			
NFDHA	5.410	295.0 -> 201.0	37914	46.93	µg/L	96
		295.0 -> 84.9	17586			
PFMBA	4.737	279.0 -> 85.1	131584	51.36	µg/L	100
PFMPA	3.463	229.0 -> 84.9	123066	52.64	µg/L	100
PFEESA	5.999	314.8 -> 134.9	793564	44.95	µg/L	100
		314.8 -> 82.9	19215			

= Qualifier out of range, m = manually integrated, + = Area summed

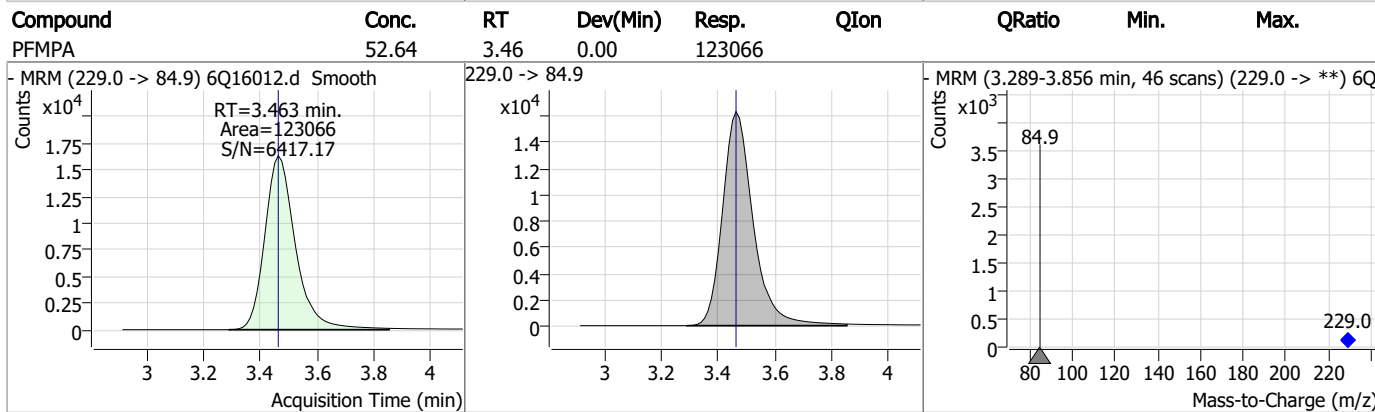
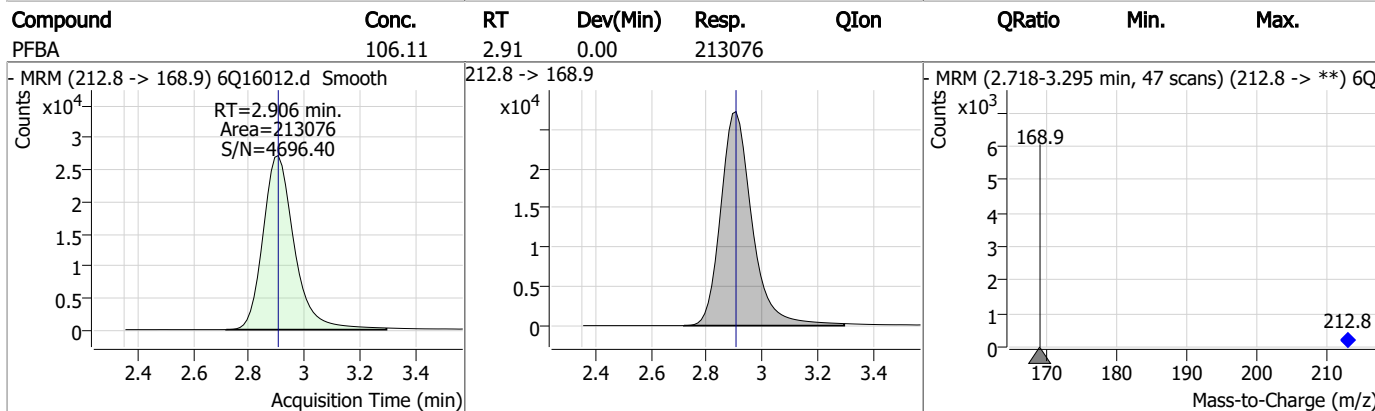
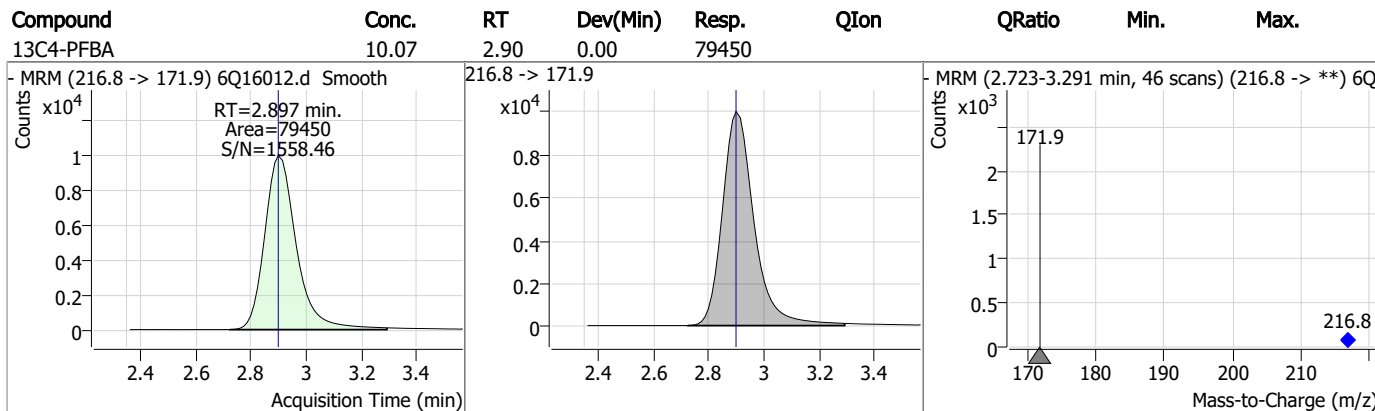
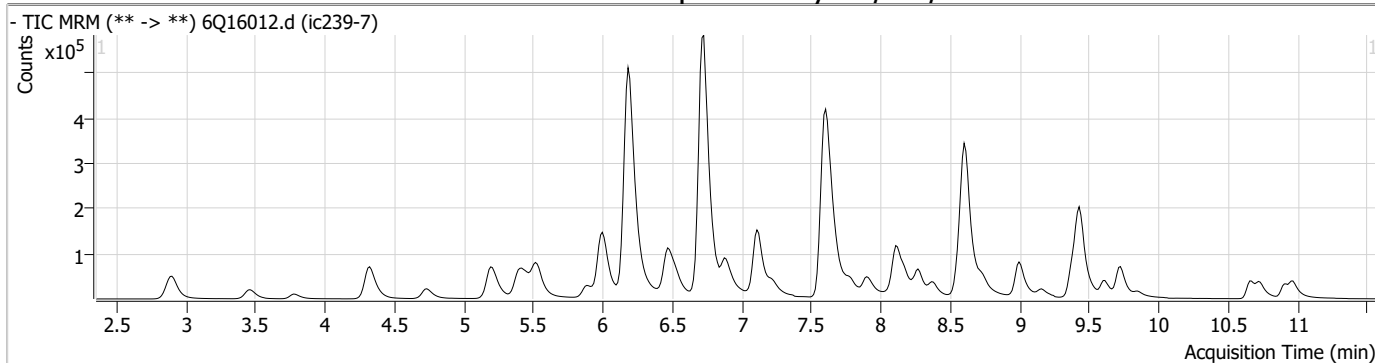
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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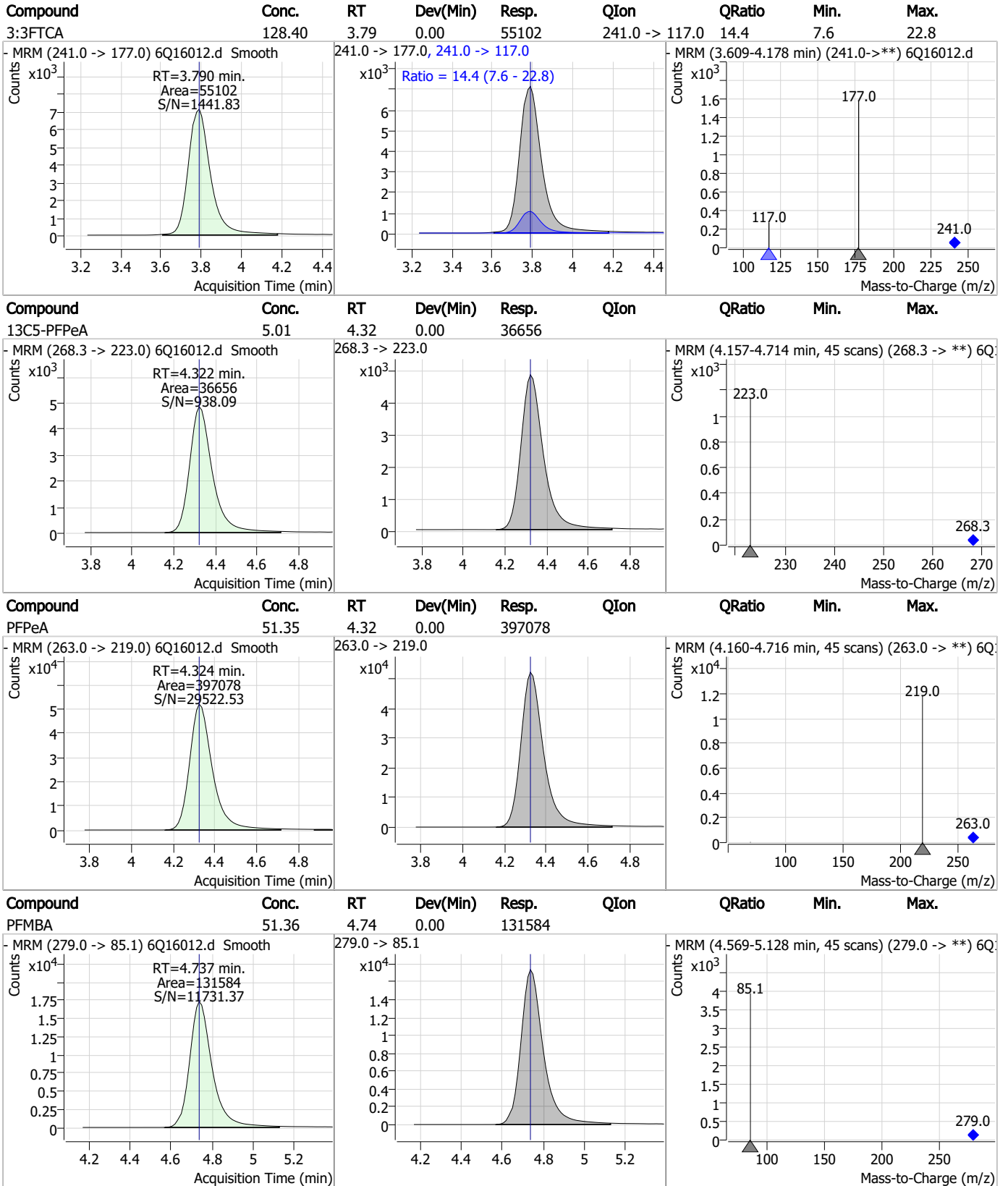
7.6.8
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Perfluorinated Compounds by LC/MS/MS



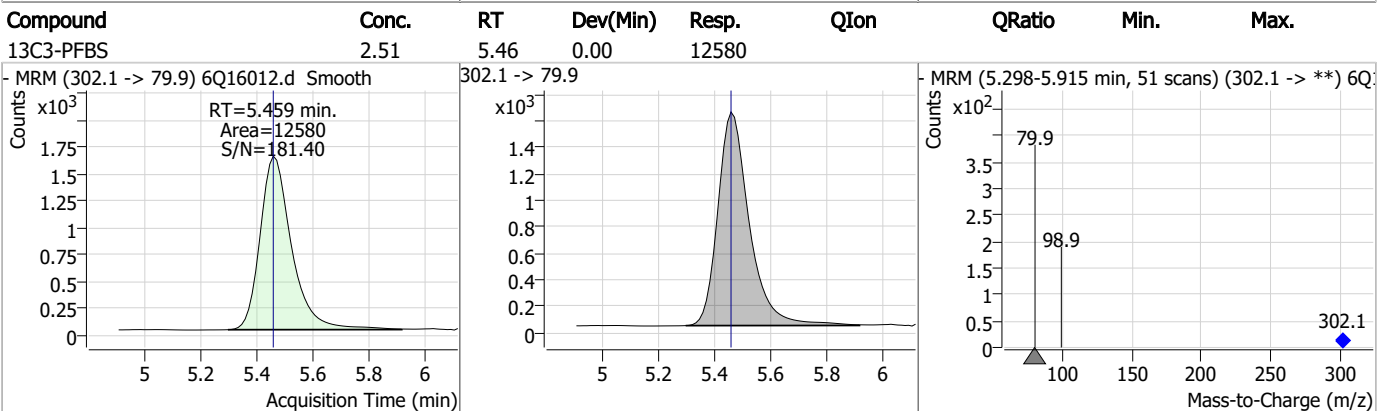
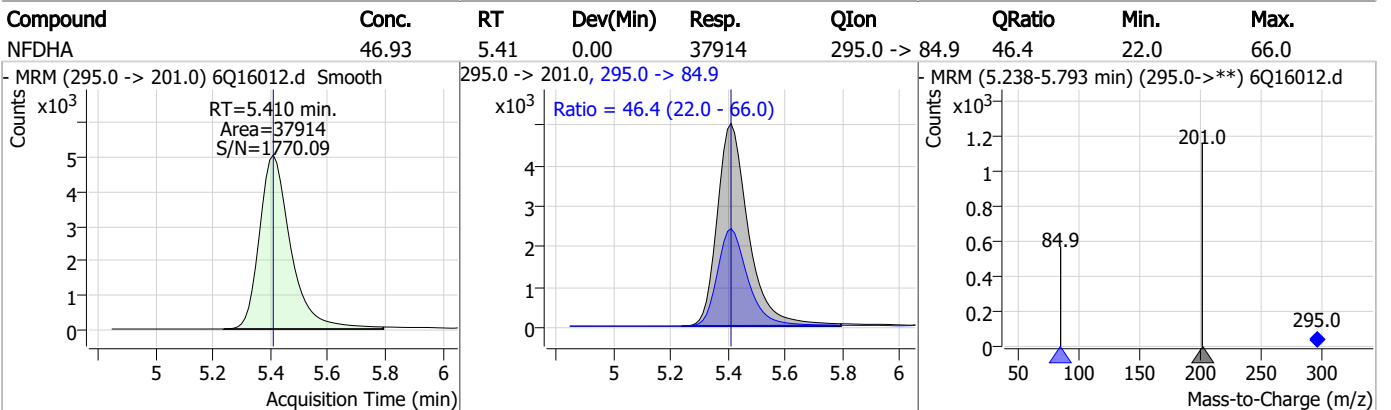
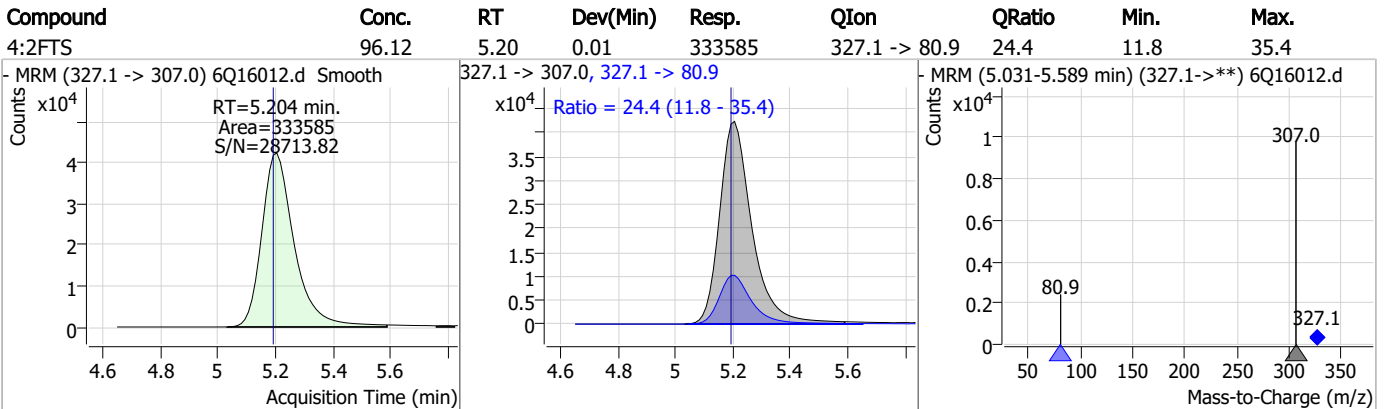
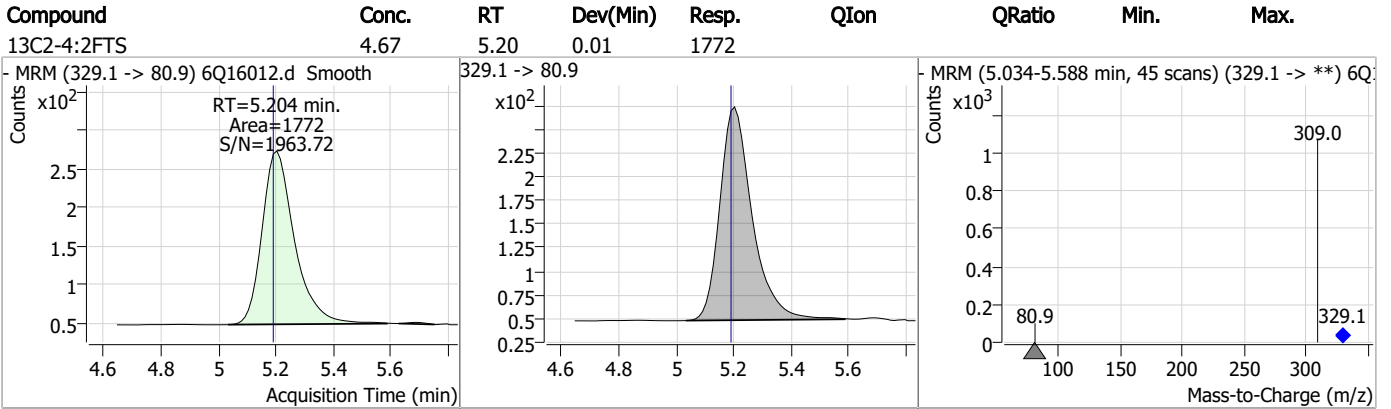
Perfluorinated Compounds by LC/MS/MS



7.6.8

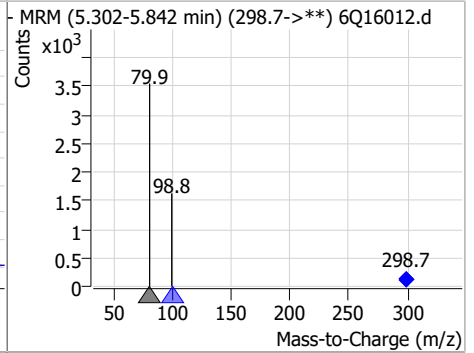
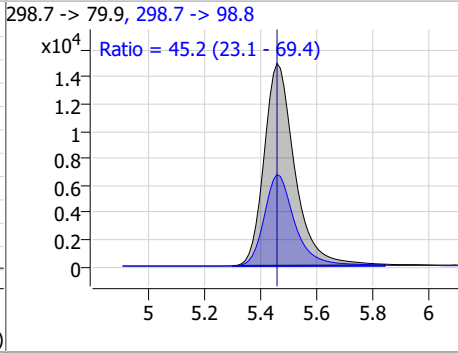
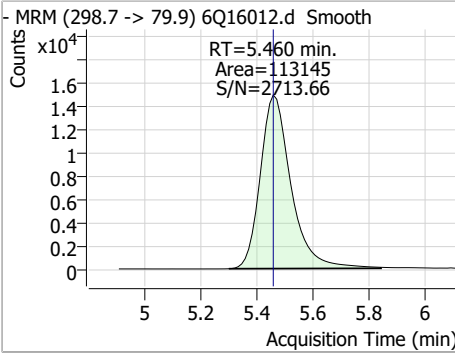
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Perfluorinated Compounds by LC/MS/MS

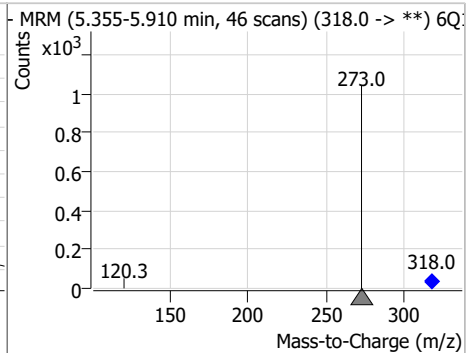
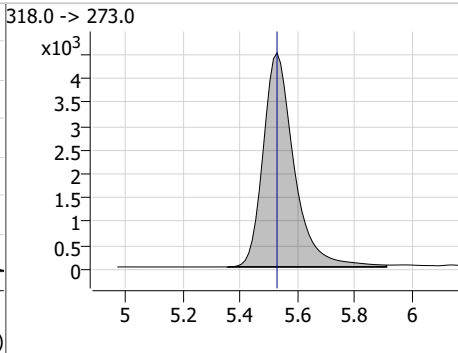
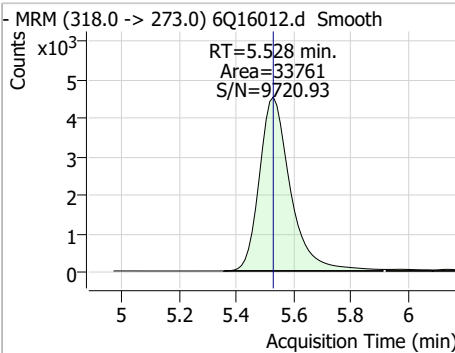


Perfluorinated Compounds by LC/MS/MS

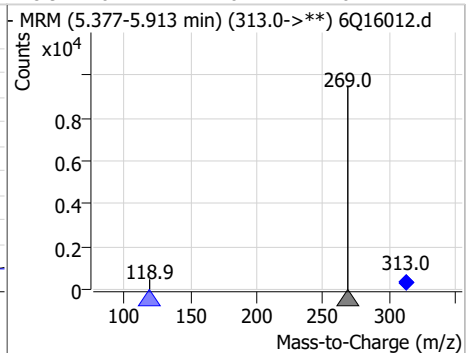
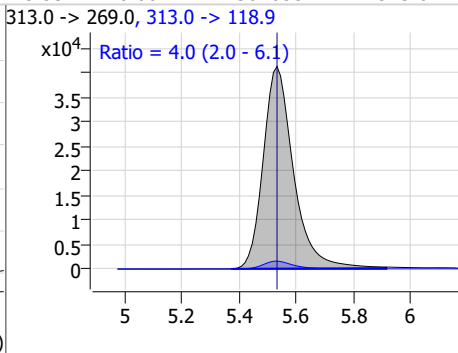
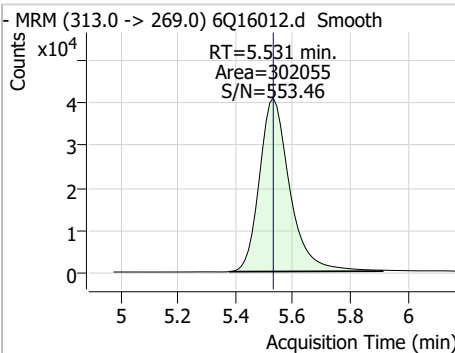
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	22.93	5.46	0.00	113145	298.7 -> 98.8	45.2	23.1	69.4



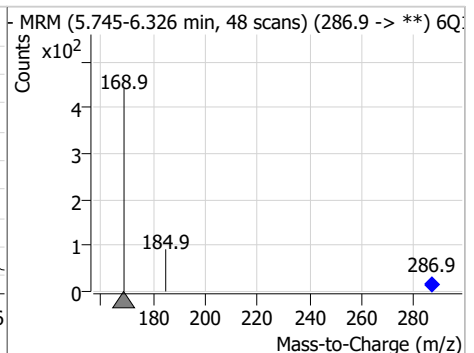
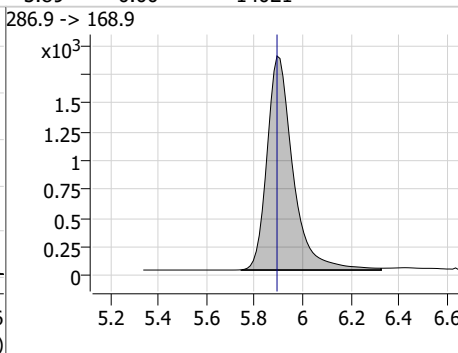
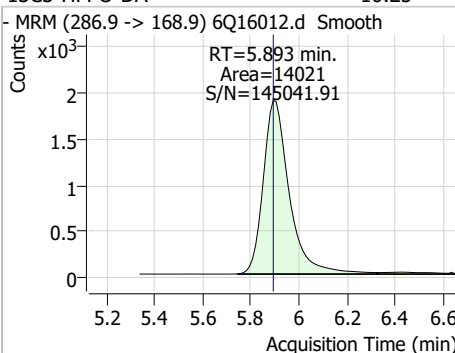
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.60	5.53	0.00	33761				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	24.24	5.53	0.00	302055	313.0 -> 118.9	4.0	2.0	6.1

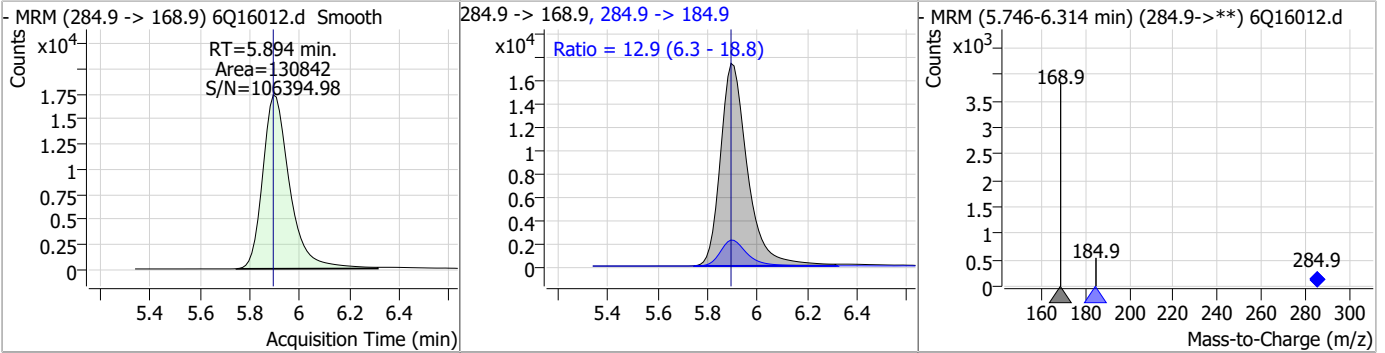


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.25	5.89	0.00	14021				

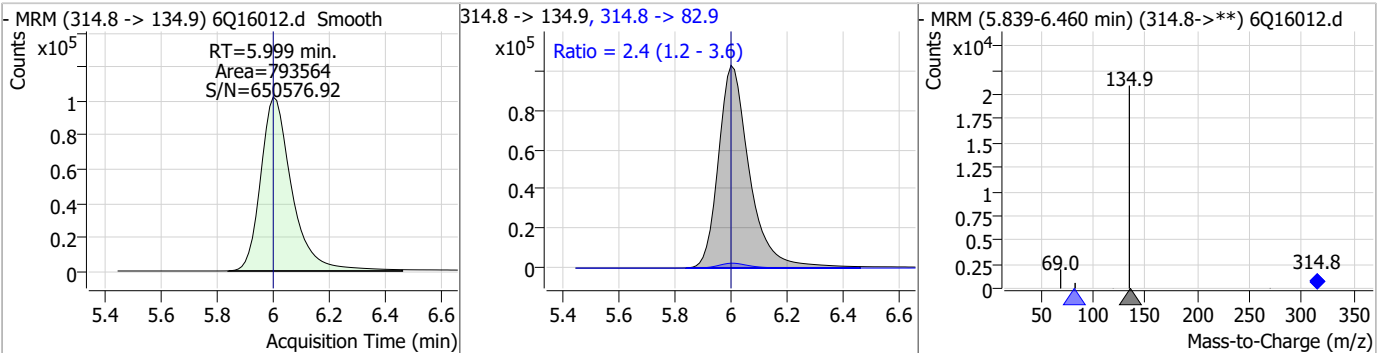


Perfluorinated Compounds by LC/MS/MS

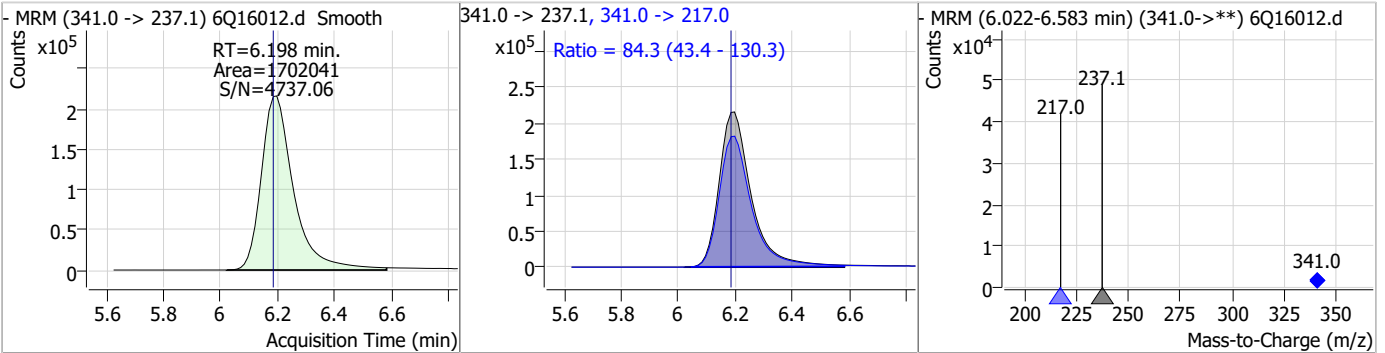
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	103.22	5.89	0.00	130842	284.9 -> 184.9	12.9	6.3	18.8



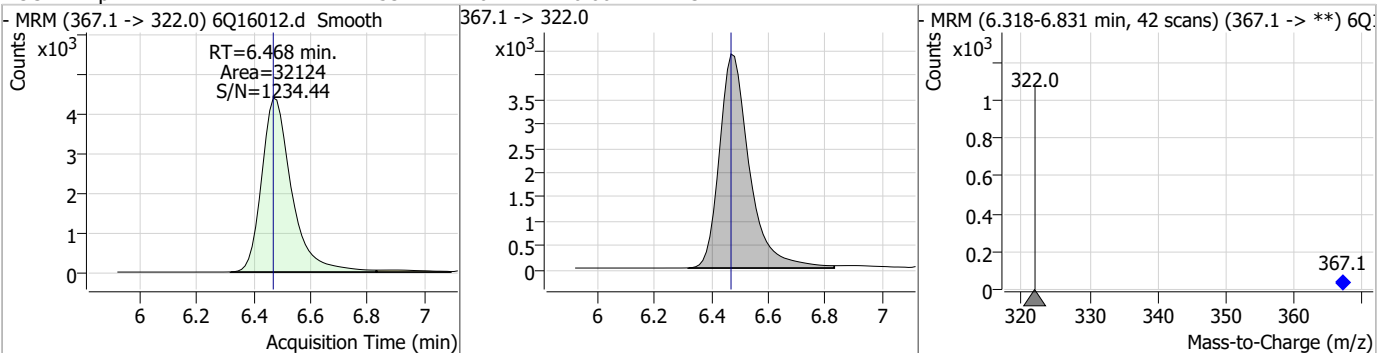
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	44.95	6.00	0.00	793564	314.8 -> 82.9	2.4	1.2	3.6



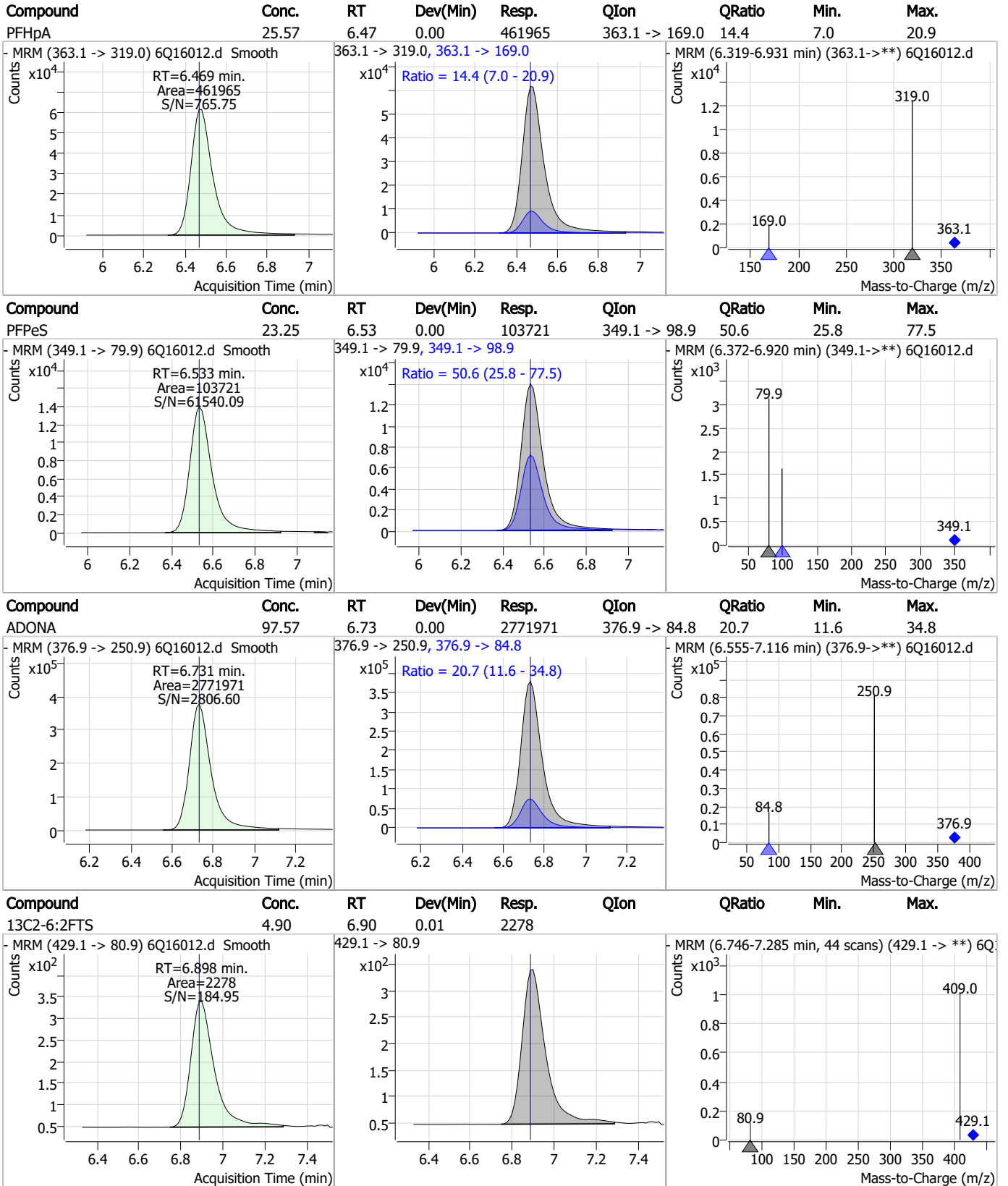
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	617.87	6.20	0.01	1702041	341.0 -> 217.0	84.3	43.4	130.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.53	6.47	0.00	32124	367.1 -> 322.0			



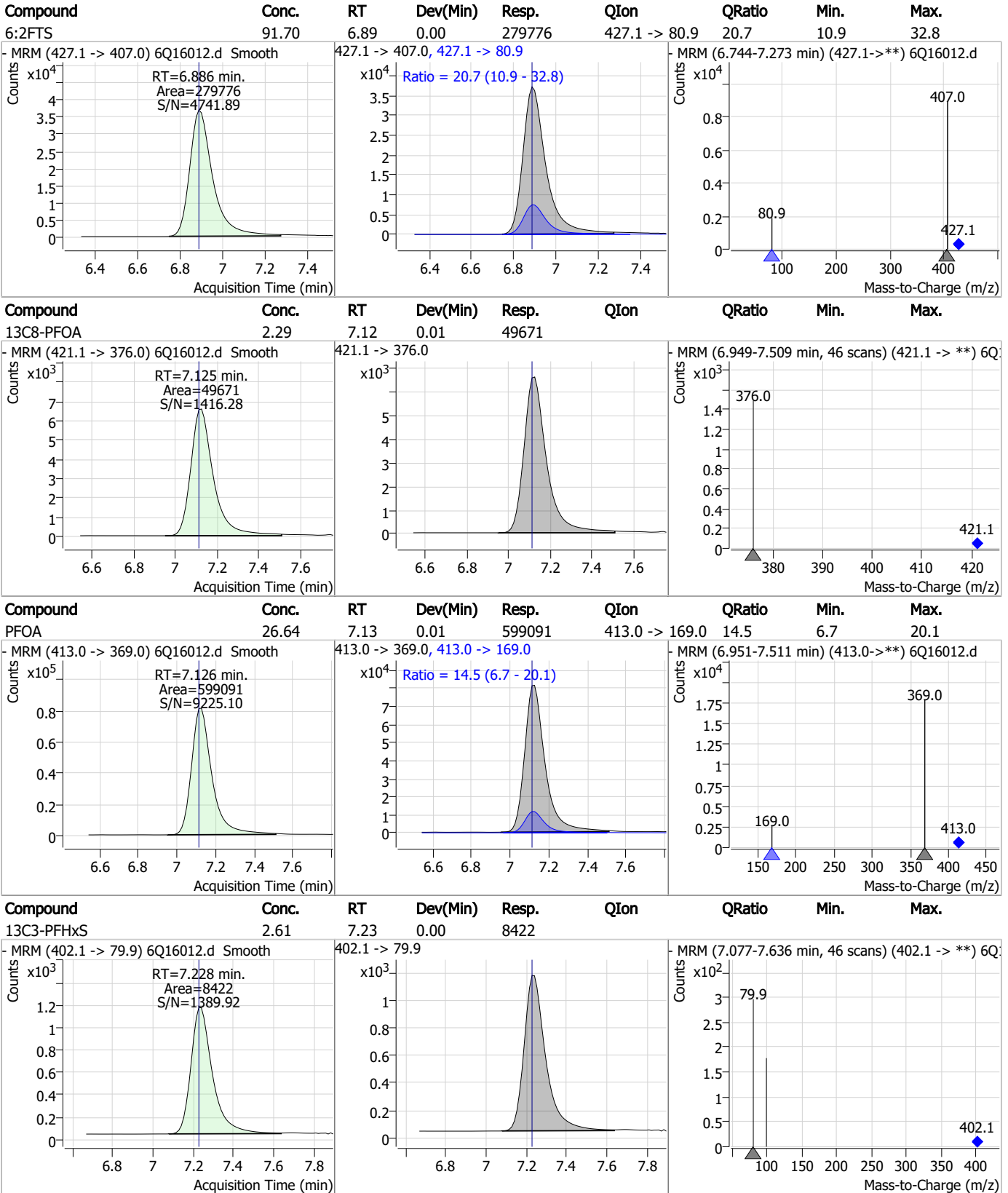
Perfluorinated Compounds by LC/MS/MS



7.6.8

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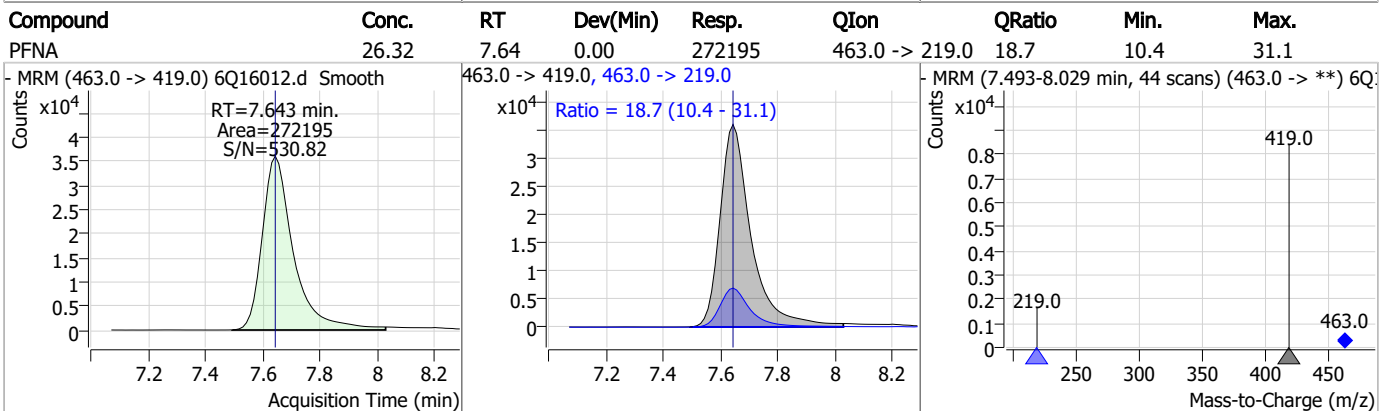
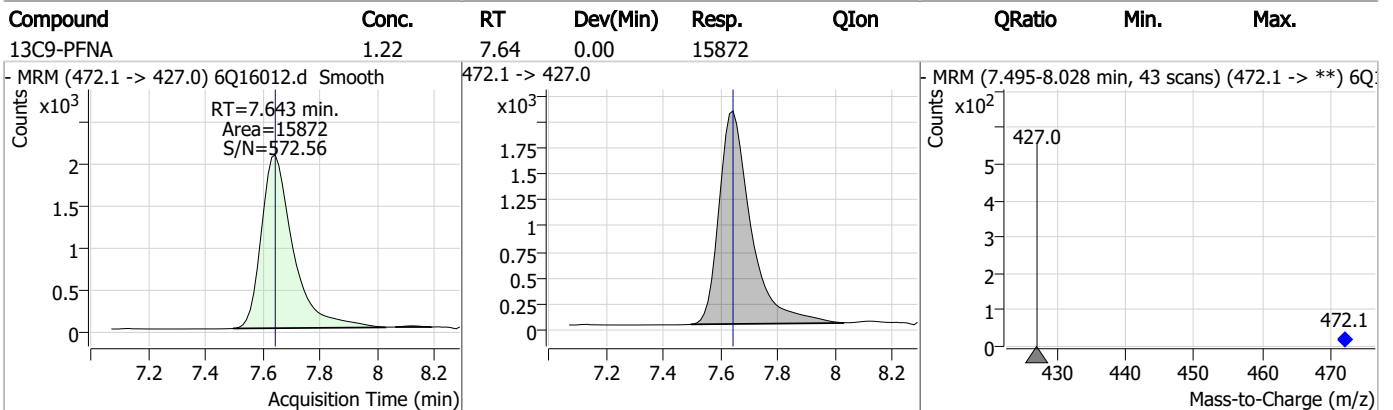
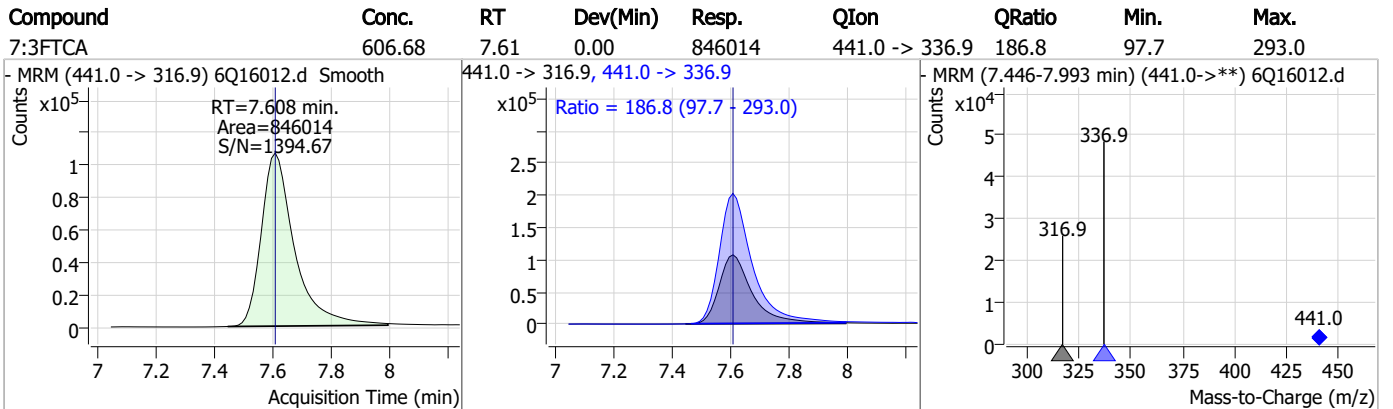
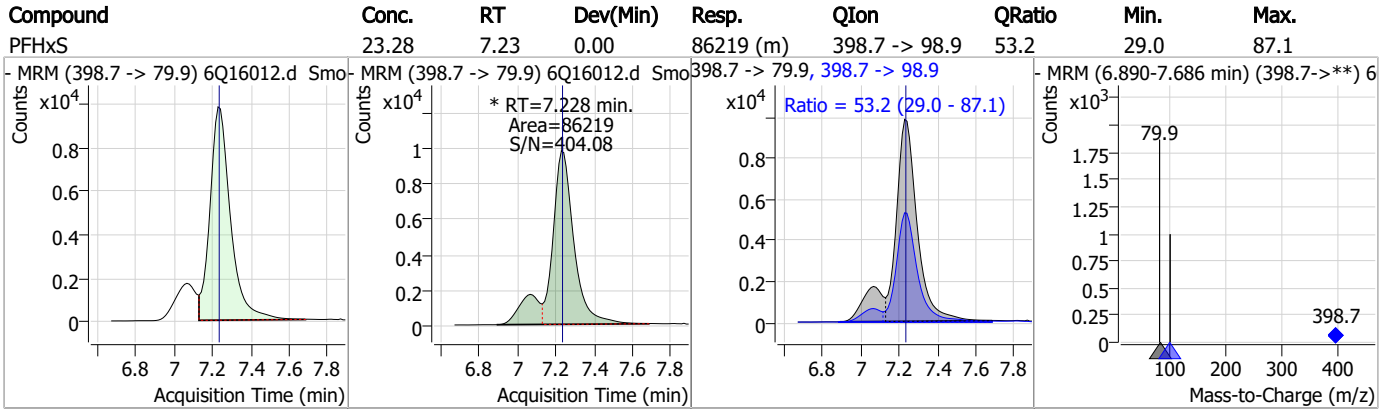
Perfluorinated Compounds by LC/MS/MS



7.6.8

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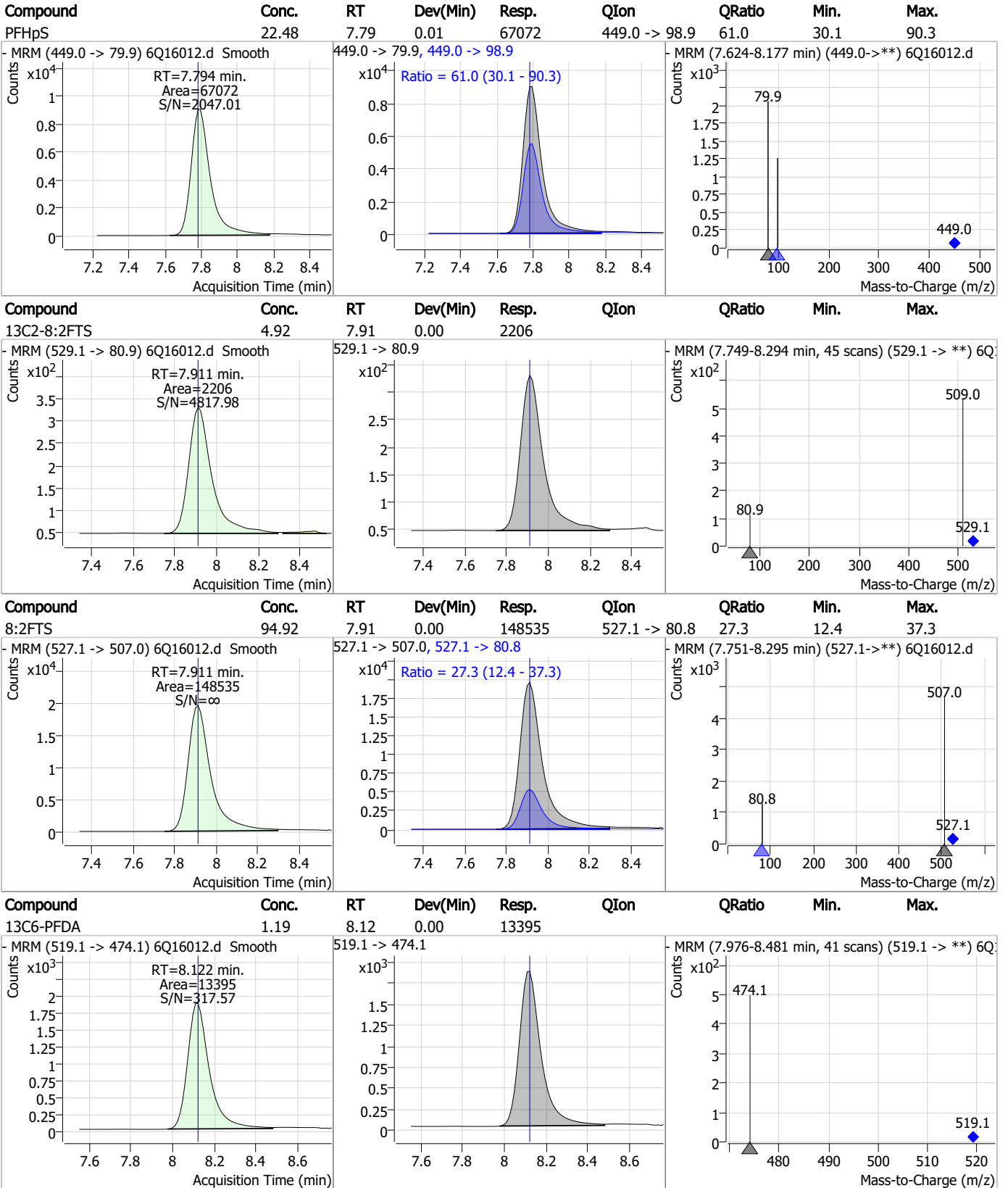
Perfluorinated Compounds by LC/MS/MS



7.6.8

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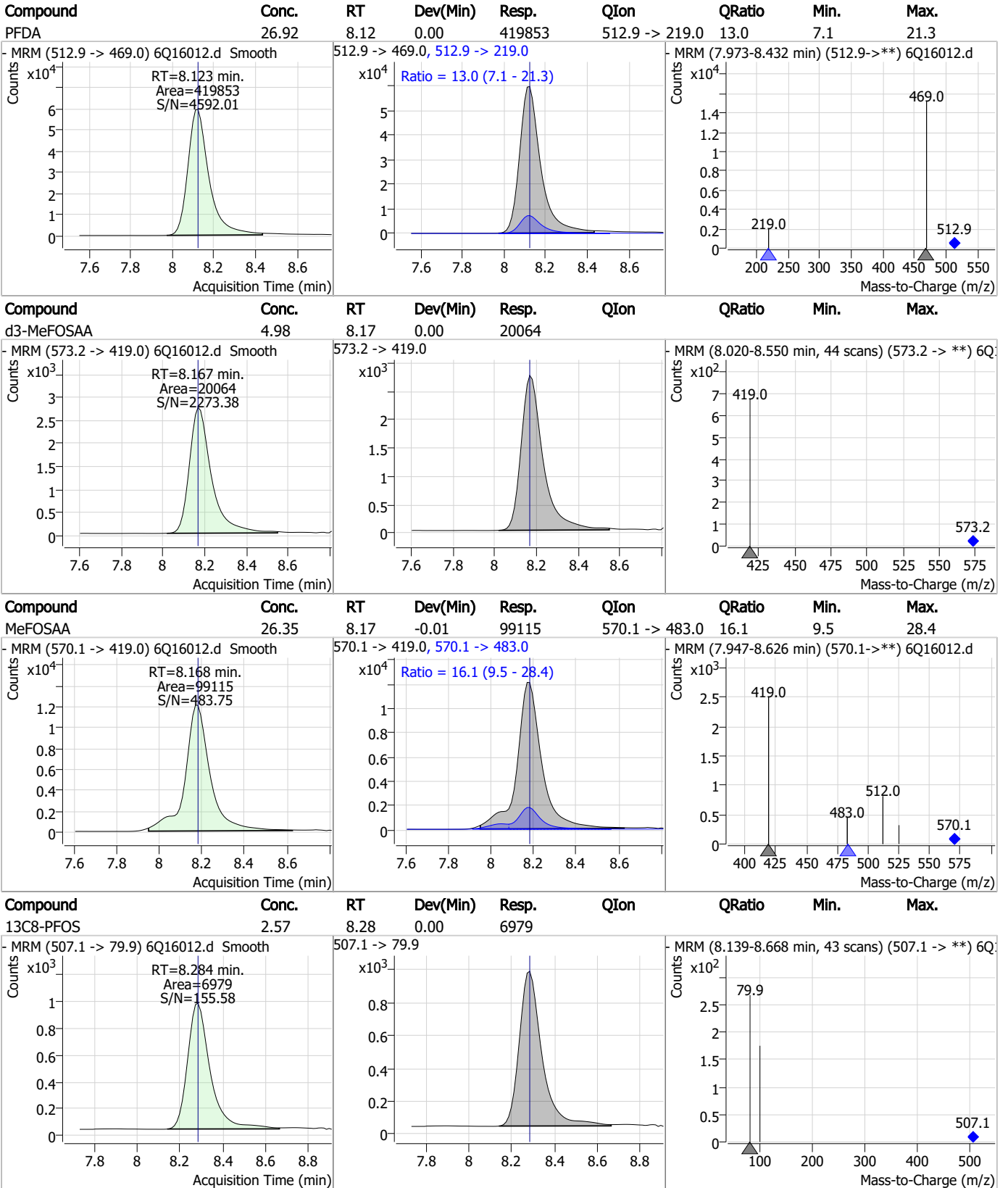
Perfluorinated Compounds by LC/MS/MS



7.6.8

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Perfluorinated Compounds by LC/MS/MS

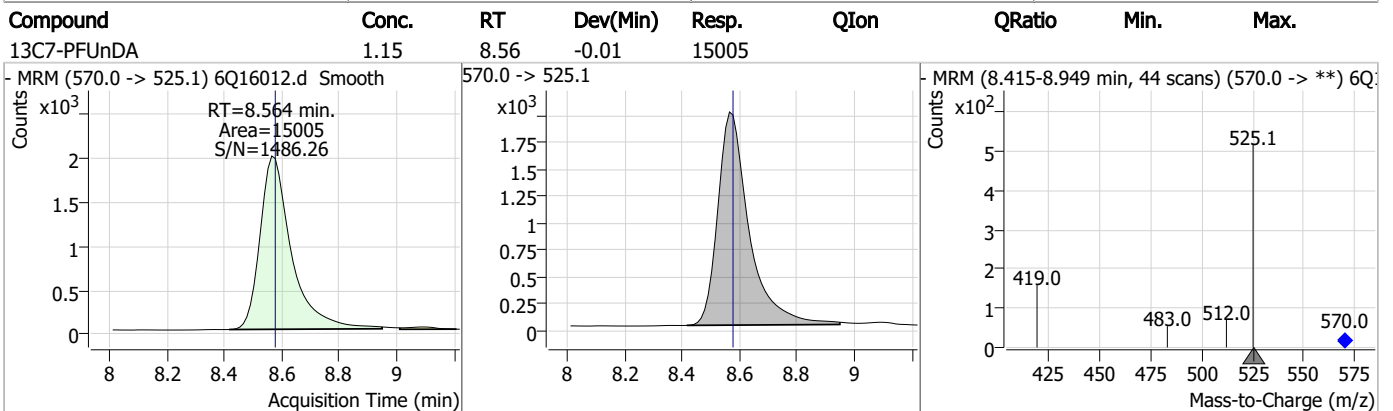
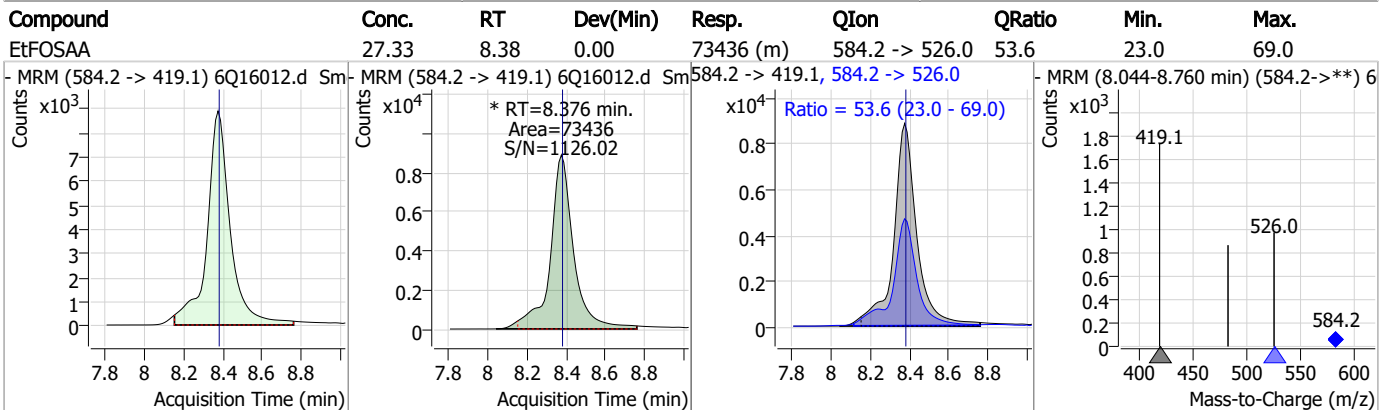
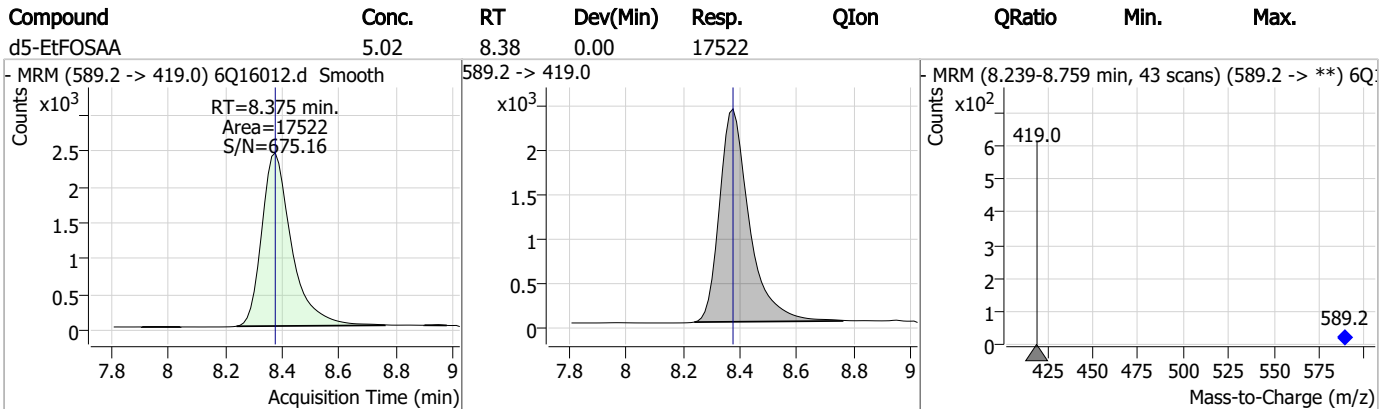
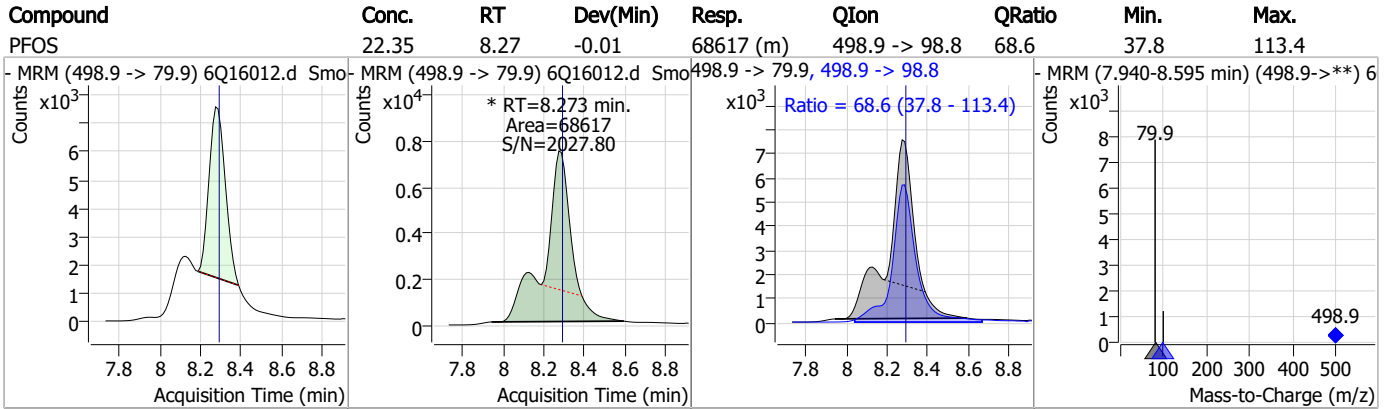


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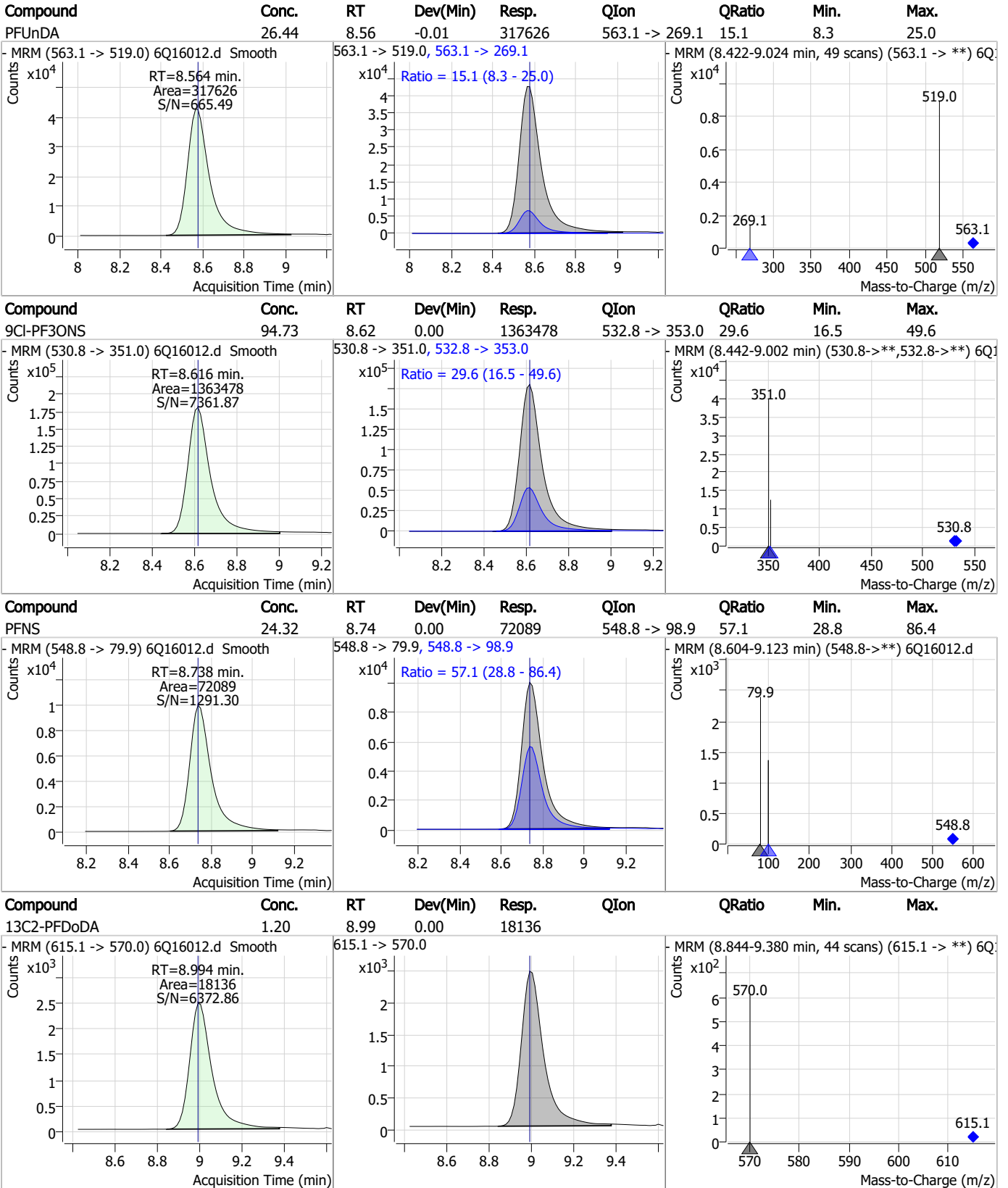
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

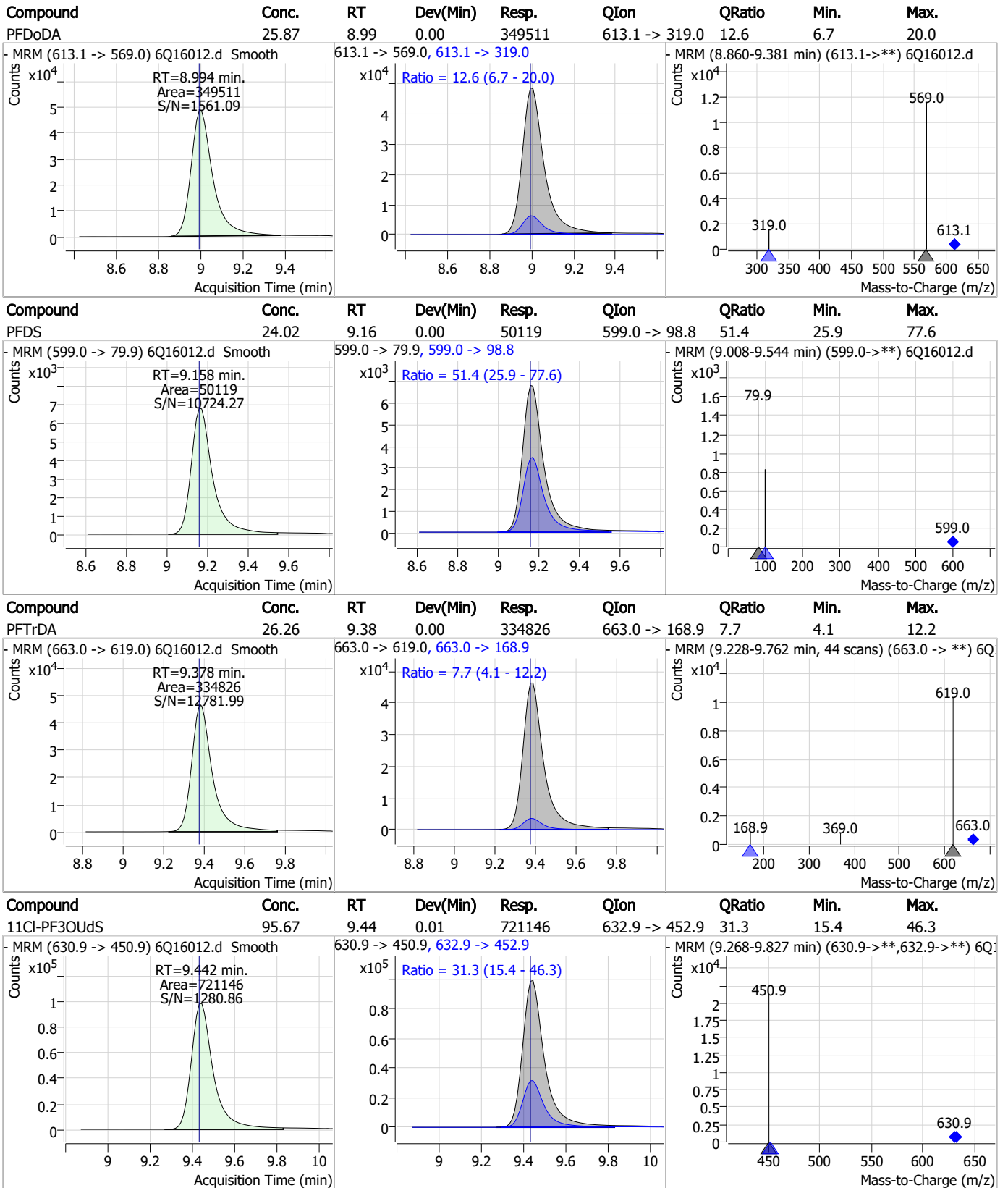


7.6.8

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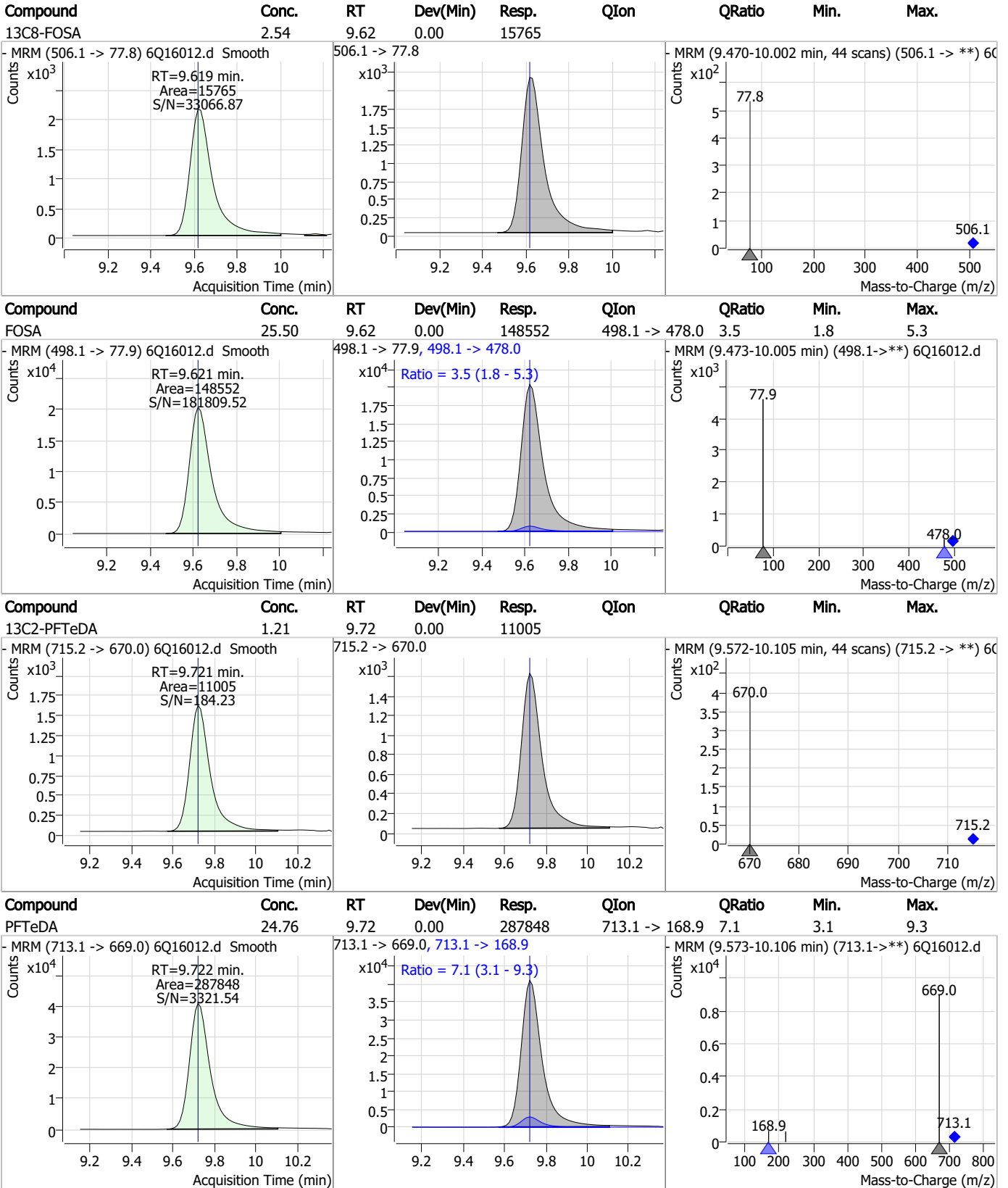
Perfluorinated Compounds by LC/MS/MS



7.6.8

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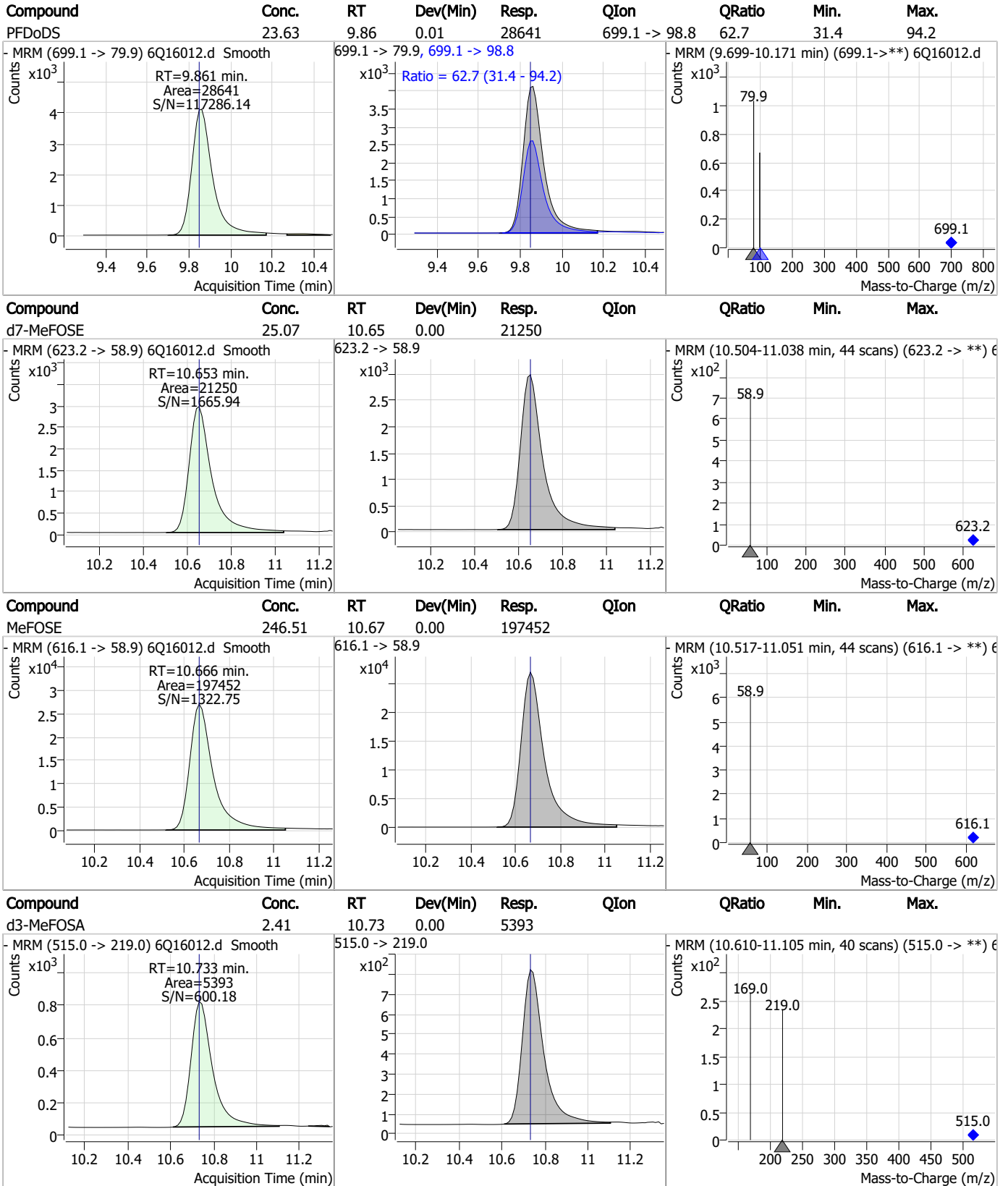
Perfluorinated Compounds by LC/MS/MS



7.6.8

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Perfluorinated Compounds by LC/MS/MS

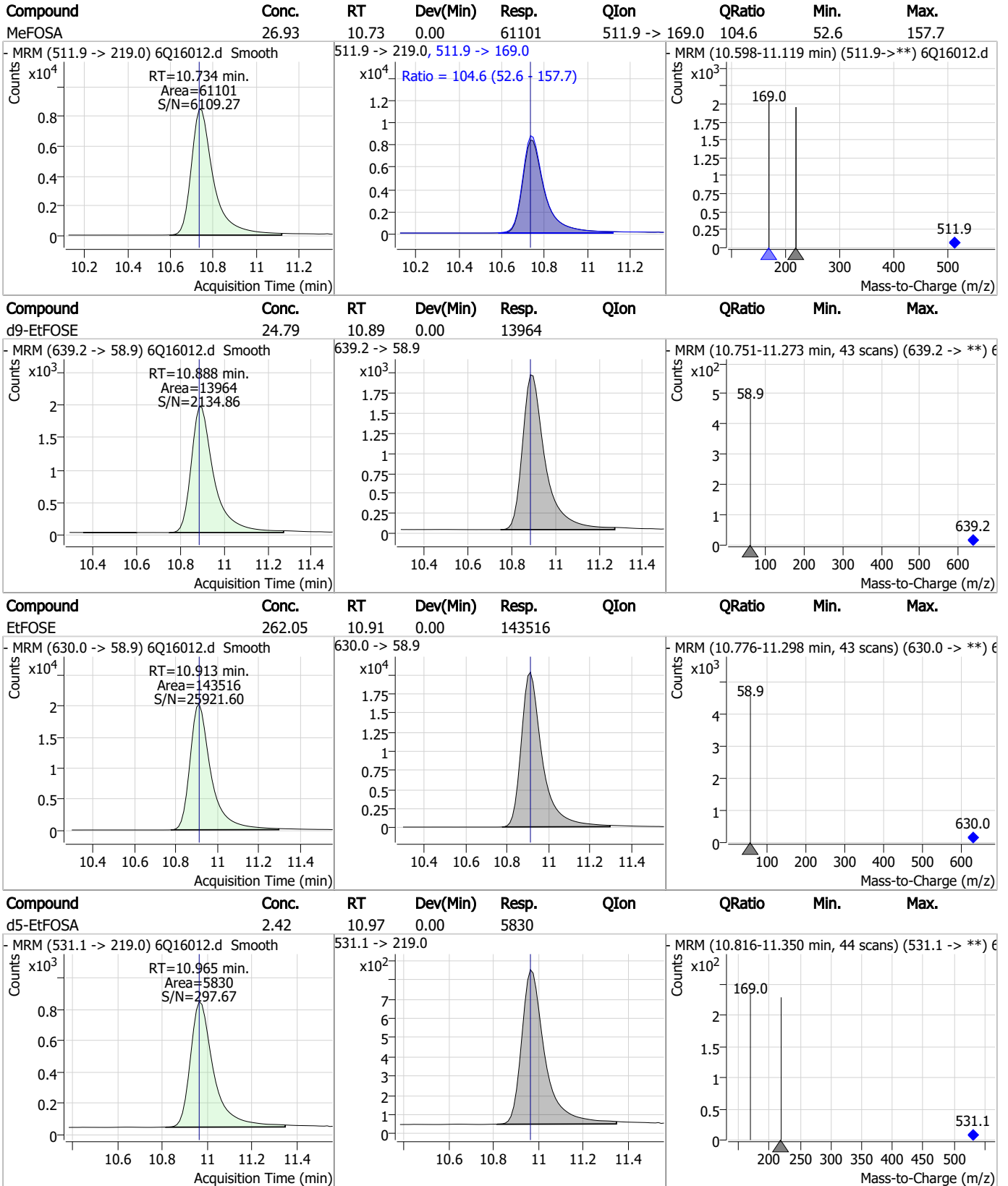


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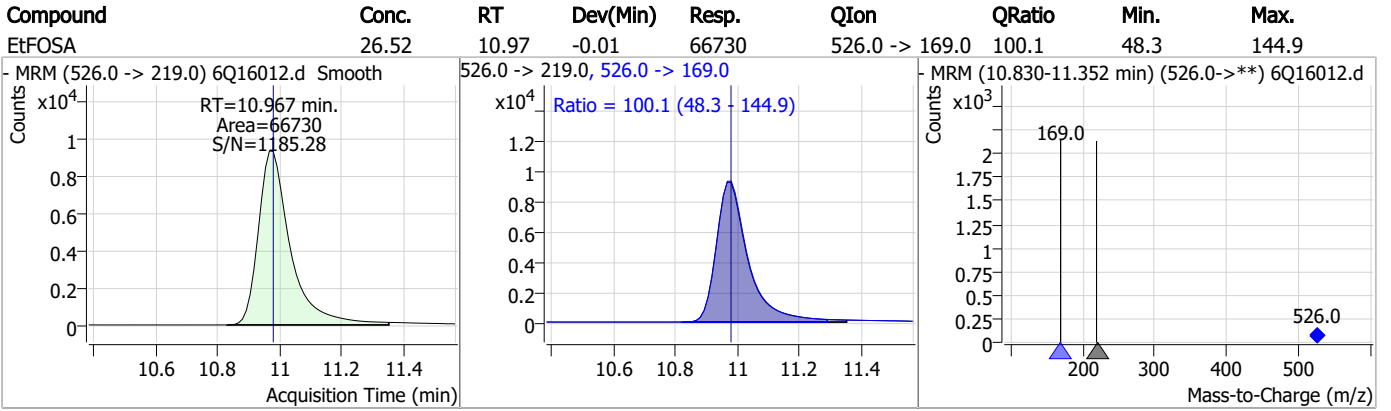
Perfluorinated Compounds by LC/MS/MS



7.6.8

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Perfluorinated Compounds by LC/MS/MS



7.6.8

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Manual Integration Approval Summary

Sample Number: S6Q239-IC239 Method: EPA DRAFT 1633
Lab FileID: 6Q16012.D Analyst approved: 04/05/23 11:17 Martha Valls
Injection Time: 04/04/23 15:39 Supervisor approved: 04/05/23 17:23 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.27	Split peak
EtFOSAA	2991-50-6		8.38	Split peak

7.6.8.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16013.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/4/2023 3:53:41 PM
 Sample Name : ic239-8
 Vial : P1-A9
 DA Method File : 1633_040423_S6Q239.quantmethod.xml
 Batch Name : s6q239.batch.bin
 Sample Information : OP96085,S6Q239,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	73755	10.00 µg/L	0.000
M5-PFPeA	4.322	268.3 -> 223.0	34587	5.00 µg/L	0.000
M5-PFHxA	5.528	318.0 -> 273.0	31525	2.50 µg/L	0.000
M4-PFHpA	6.468	367.1 -> 322.0	29771	2.50 µg/L	0.000
M8-PFOA	7.112	421.1 -> 376.0	51884	2.50 µg/L	0.000
M9-PFNA	7.643	472.1 -> 427.0	14904	1.25 µg/L	0.000
M6-PFDA	8.122	519.1 -> 474.1	12928	1.25 µg/L	0.000
M7-PFUnDA	8.564	570.0 -> 525.1	13965	1.25 µg/L	-0.012
M2-PFDoDA	8.994	615.1 -> 570.0	17899	1.25 µg/L	0.000
M2-PFTeDA	9.721	715.2 -> 670.0	10680	1.25 µg/L	0.000
M8-FOSA	9.631	506.1 -> 77.8	14816	2.50 µg/L	0.012
M3-PFBS	5.459	302.1 -> 79.9	11668	2.50 µg/L	0.000
M3-PFHxS	7.228	402.1 -> 79.9	8020	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	6272	2.50 µg/L	0.000
M2-4:2FTS	5.204	329.1 -> 80.9	1673	5.00 µg/L	0.012
M2-6:2FTS	6.886	429.1 -> 80.9	1986	5.00 µg/L	0.000
M2-8:2FTS	7.911	529.1 -> 80.9	1940	5.00 µg/L	0.000
M3-MeFOSAA	8.167	573.2 -> 419.0	19940	5.00 µg/L	0.000
M3-HFPO-DA	5.893	286.9 -> 168.9	13620	10.00 µg/L	0.000
M5-EtFOSAA	8.375	589.2 -> 419.0	16604	5.00 µg/L	0.000
M7-MeFOSE	10.653	623.2 -> 58.9	18737	25.00 µg/L	0.000
M9-EtFOSE	10.888	639.2 -> 58.9	11963	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	6394	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	5581	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	8264	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	31547	5.00 µg/L	0.000
18O2-PFHxS	7.227	403.0 -> 83.9	5699	2.50 µg/L	0.000
13C4-PFOA	7.125	417.1 -> 372.0	61273	2.50 µg/L	0.013
13C2-PFDA	8.123	515.1 -> 470.1	17832	1.25 µg/L	0.000
13C5-PFNA	7.643	468.0 -> 423.0	17497	1.25 µg/L	0.000
13C2-PFHxA	5.529	315.1 -> 270.0	30533	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.204	329.1 -> 80.9	1673	4.37 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 87.3%		
13C2-6:2FTS	6.886	429.1 -> 80.9	1986	4.22 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 84.4%		
13C2-8:2FTS	7.911	529.1 -> 80.9	1940	4.28 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 85.6%		
13C2-PFDoDA	8.994	615.1 -> 570.0	17899	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C2-PFTeDA	9.721	715.2 -> 670.0	10680	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.1%		
13C3-PFBS	5.459	302.1 -> 79.9	11668	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.1%		
13C3-PFHxS	7.228	402.1 -> 79.9	8020	2.46 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C4-PFBA	2.897	216.8 -> 171.9	73755	10.00 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFHpA	6.468	367.1 -> 322.0	29771	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.3%	
13C5-PFHxA	5.528	318.0 -> 273.0	31525	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C5-PFPeA	4.322	268.3 -> 223.0	34587	4.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C6-PFDA	8.122	519.1 -> 474.1	12928	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C7-PFUnDA	8.564	570.0 -> 525.1	13965	1.15 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.6%	
13C8-FOSA	9.631	506.1 -> 77.8	14816	2.41 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.4%	
13C8-PFOA	7.112	421.1 -> 376.0	51884	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C8-PFOS	8.284	507.1 -> 79.9	6272	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.1%	
13C9-PFNA	7.643	472.1 -> 427.0	14904	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.1%	
d3-MeFOSAA	8.167	573.2 -> 419.0	19940	4.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C3-HFPO-DA	5.893	286.9 -> 168.9	13620	10.23 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.3%	
d3-MeFOSA	10.733	515.0 -> 219.0	5581	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
d5-EtFOSAA	8.375	589.2 -> 419.0	16604	4.80 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.9%	
d7-MeFOSE	10.653	623.2 -> 58.9	18737	22.28 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.1%	
d9-EtFOSE	10.888	639.2 -> 58.9	11963	21.40 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 85.6%	
d5-EtFOSA	10.965	531.1 -> 219.0	6394	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.1%	
Target Compounds					QValue
4:2FTS	5.204	327.1 -> 307.0	672716	205.22 µg/L	100
		327.1 -> 80.9	159894		
6:2FTS	6.886	427.1 -> 407.0	580682	218.31 µg/L	99
		427.1 -> 80.9	124119		
8:2FTS	7.911	527.1 -> 507.0	320384	232.83 µg/L	99
		527.1 -> 80.8	77870		
EtFOSAA	8.376	584.2 -> 419.1	145670	57.22 µg/L	76
		584.2 -> 526.0	90501		
FOSA	9.621	498.1 -> 77.9	334878	61.18 µg/L	99
		498.1 -> 478.0	12376		
MeFOSAA	8.181	570.1 -> 419.0	222145	59.43 µg/L	94
		570.1 -> 483.0	36466		
PFBA	2.906	212.8 -> 168.9	477764	256.30 µg/L	100
PFBS	5.460	298.7 -> 79.9	259301	56.65 µg/L	99
		298.7 -> 98.8	120789		
PFDA	8.123	512.9 -> 469.0	966060	64.18 µg/L	98
		512.9 -> 219.0	131099		
PFDoDA	8.994	613.1 -> 569.0	802292	60.17 µg/L	98
		613.1 -> 319.0	101275		
PFDS	9.170	599.0 -> 79.9	120014	64.02 µg/L	98

7.69
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	64094			
PFHpA	6.469	363.1 -> 319.0	1079200	64.46	µg/L	100
		363.1 -> 169.0	151426			
PFHpS	7.781	449.0 -> 79.9	174252	64.99	µg/L	91
		449.0 -> 98.9	92383			
PFHxA	5.531	313.0 -> 269.0	709033	60.93	µg/L	100
		313.0 -> 118.9	28422			
PFHxS	7.241	398.7 -> 79.9	188613	53.47	µg/L	m 99
		398.7 -> 98.9	108818			
PFNA	7.643	463.0 -> 419.0	707653	72.88	µg/L	91
		463.0 -> 219.0	115473			
PFNS	8.738	548.8 -> 79.9	166248	62.42	µg/L	98
		548.8 -> 98.9	98534			
PFOA	7.113	413.0 -> 369.0	1519641	64.69	µg/L	98
		413.0 -> 169.0	192176			
PFOS	8.286	498.9 -> 79.9	172075	62.37	µg/L	m 84
		498.9 -> 98.8	106451			
PFPeA	4.324	263.0 -> 219.0	926011	126.91	µg/L	100
PFPeS	6.533	349.1 -> 79.9	238532	56.13	µg/L	98
		349.1 -> 98.9	126053			
PFTeDA	9.722	713.1 -> 669.0	713171	63.21	µg/L	100
		713.1 -> 168.9	44380			
PFTrDA	9.390	663.0 -> 619.0	709232	56.37	µg/L	98
		663.0 -> 168.9	62162			
PFUnDA	8.577	563.1 -> 519.0	738309	66.05	µg/L	95
		563.1 -> 269.1	107257			
11Cl-PF3OUdS	9.442	630.9 -> 450.9	1707726	233.24	µg/L	99
		632.9 -> 452.9	516208			
9Cl-PF3ONS	8.616	530.8 -> 351.0	3021681	216.12	µg/L	98
		532.8 -> 353.0	965497			
ADONA	6.731	376.9 -> 250.9	6200510	224.69	µg/L	97
		376.9 -> 84.8	1362392			
HFPO-DA	5.894	284.9 -> 168.9	301952	245.24	µg/L	98
		284.9 -> 184.9	39837			
3:3FTCA	3.790	241.0 -> 177.0	135498	334.63	µg/L	98
		241.0 -> 117.0	19406			
5:3FTCA	6.185	341.0 -> 237.1	3895664	1514.53	µg/L	96
		341.0 -> 217.0	3249360			
7:3FTCA	7.608	441.0 -> 316.9	2064983	1585.89	µg/L	92
		441.0 -> 336.9	3787434			
EtFOSA	10.979	526.0 -> 219.0	159296	57.72	µg/L	99
		526.0 -> 169.0	155532			
EtFOSE	10.913	630.0 -> 58.9	315224	671.87	µg/L	100
MeFOSA	10.734	511.9 -> 219.0	147845	62.98	µg/L	98
		511.9 -> 169.0	152763			
MeFOSE	10.666	616.1 -> 58.9	442283	626.22	µg/L	100
PFDoDS	9.861	699.1 -> 79.9	68927	63.28	µg/L	99
		699.1 -> 98.8	44062			
NFDHA	5.410	295.0 -> 201.0	87672	116.22	µg/L	100
		295.0 -> 84.9	38402			
PFMBA	4.737	279.0 -> 85.1	312290	129.17	µg/L	100
PFMPA	3.463	229.0 -> 84.9	290887	131.85	µg/L	100
PFEESA	5.999	314.8 -> 134.9	1808502	109.71	µg/L	100
		314.8 -> 82.9	46070			

= Qualifier out of range, m = manually integrated, + = Area summed

7.6.9
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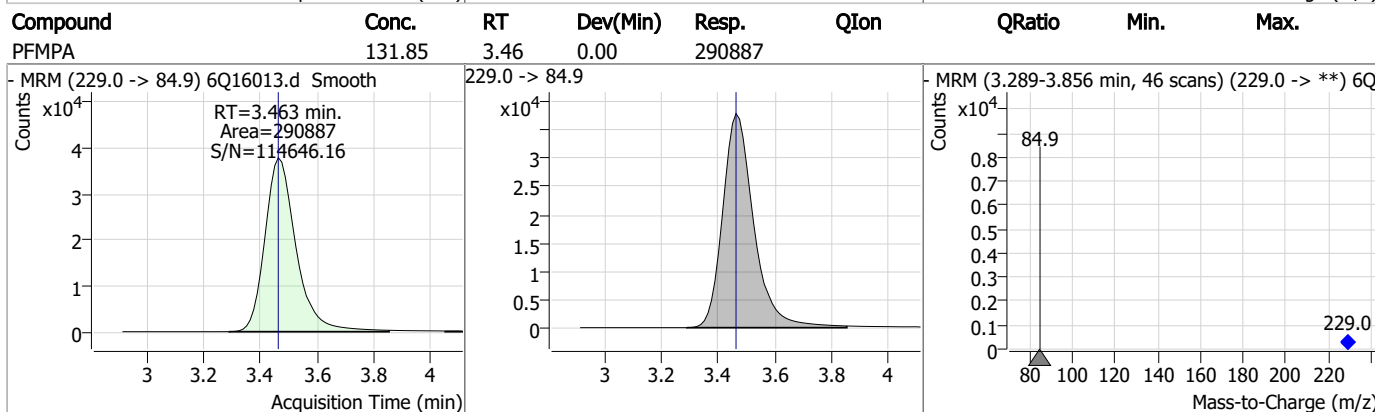
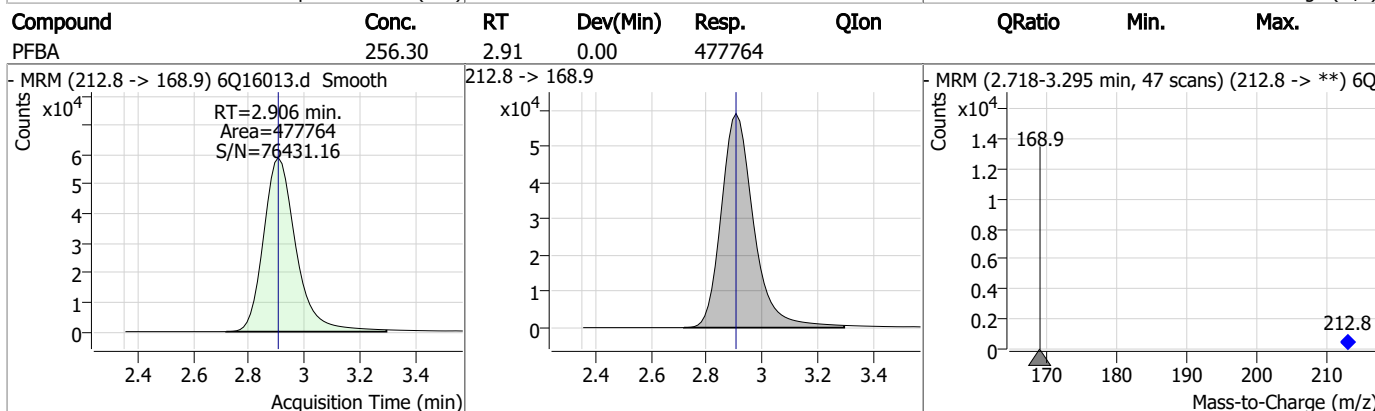
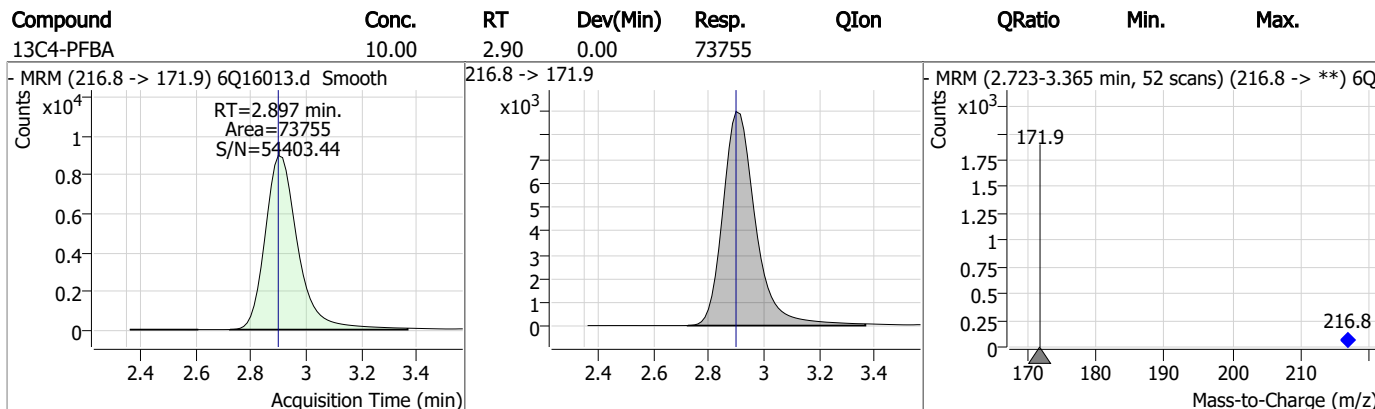
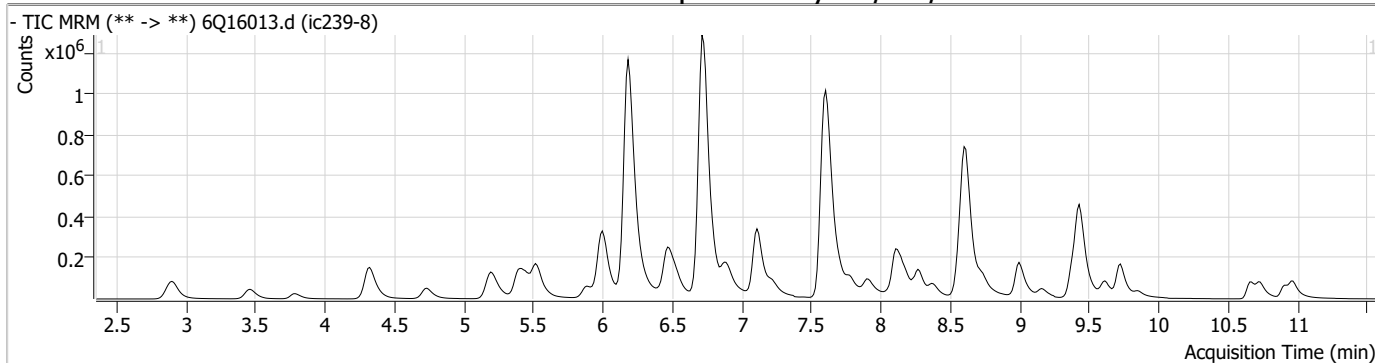
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.6.9

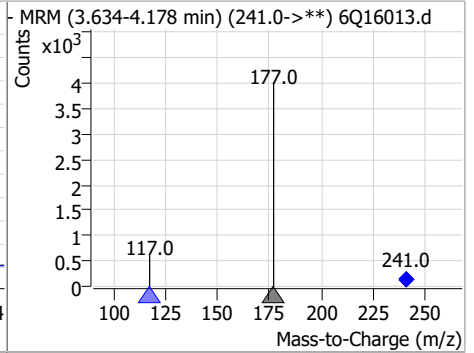
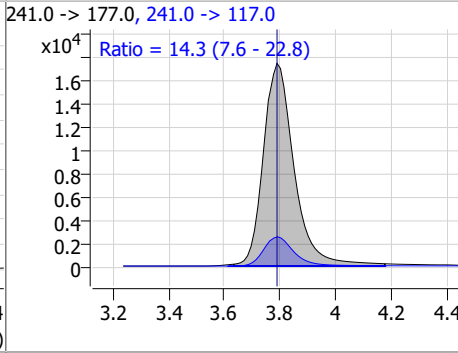
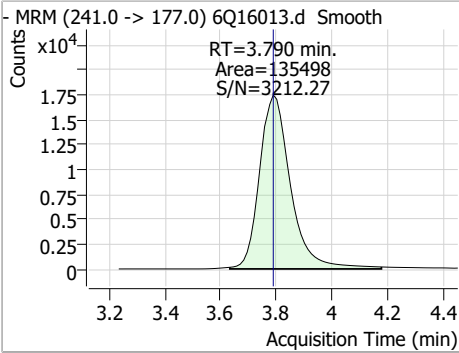
7

Perfluorinated Compounds by LC/MS/MS

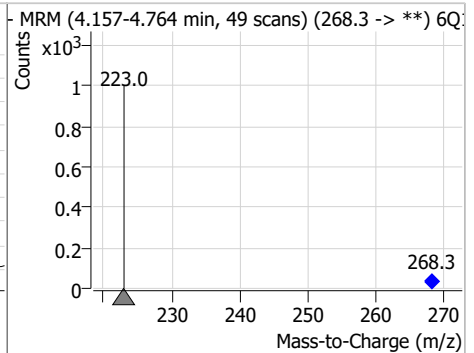
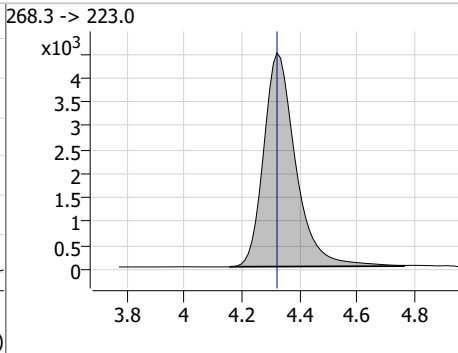
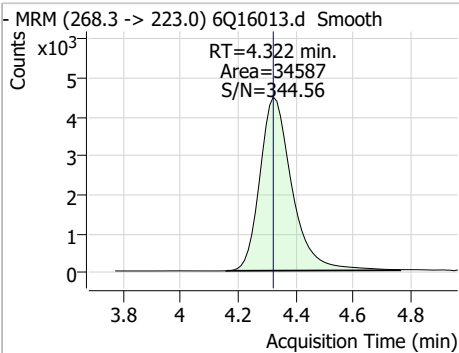


Perfluorinated Compounds by LC/MS/MS

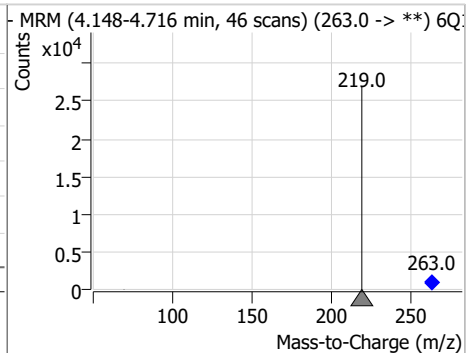
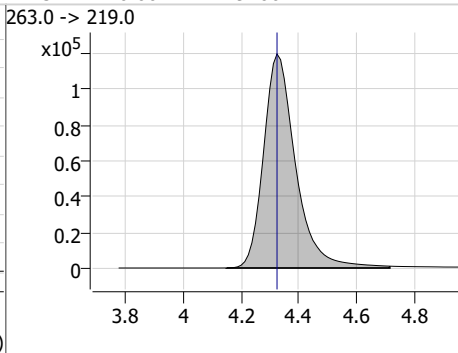
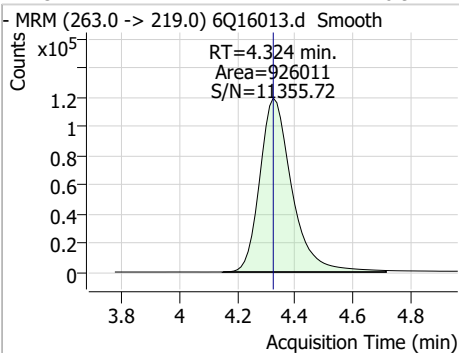
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	334.63	3.79	0.00	135498	241.0 -> 117.0	14.3	7.6	22.8



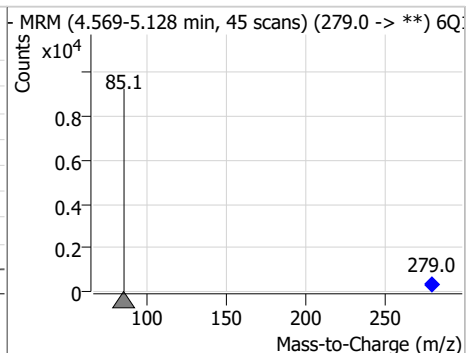
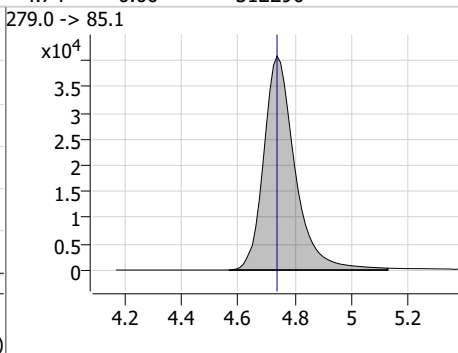
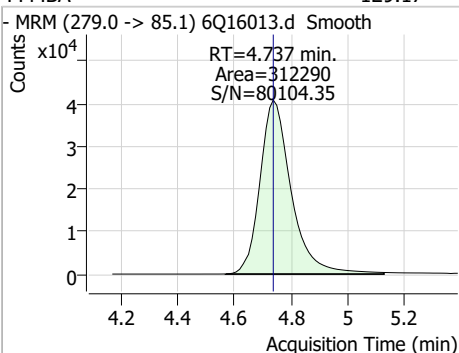
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.86	4.32	0.00	34587				



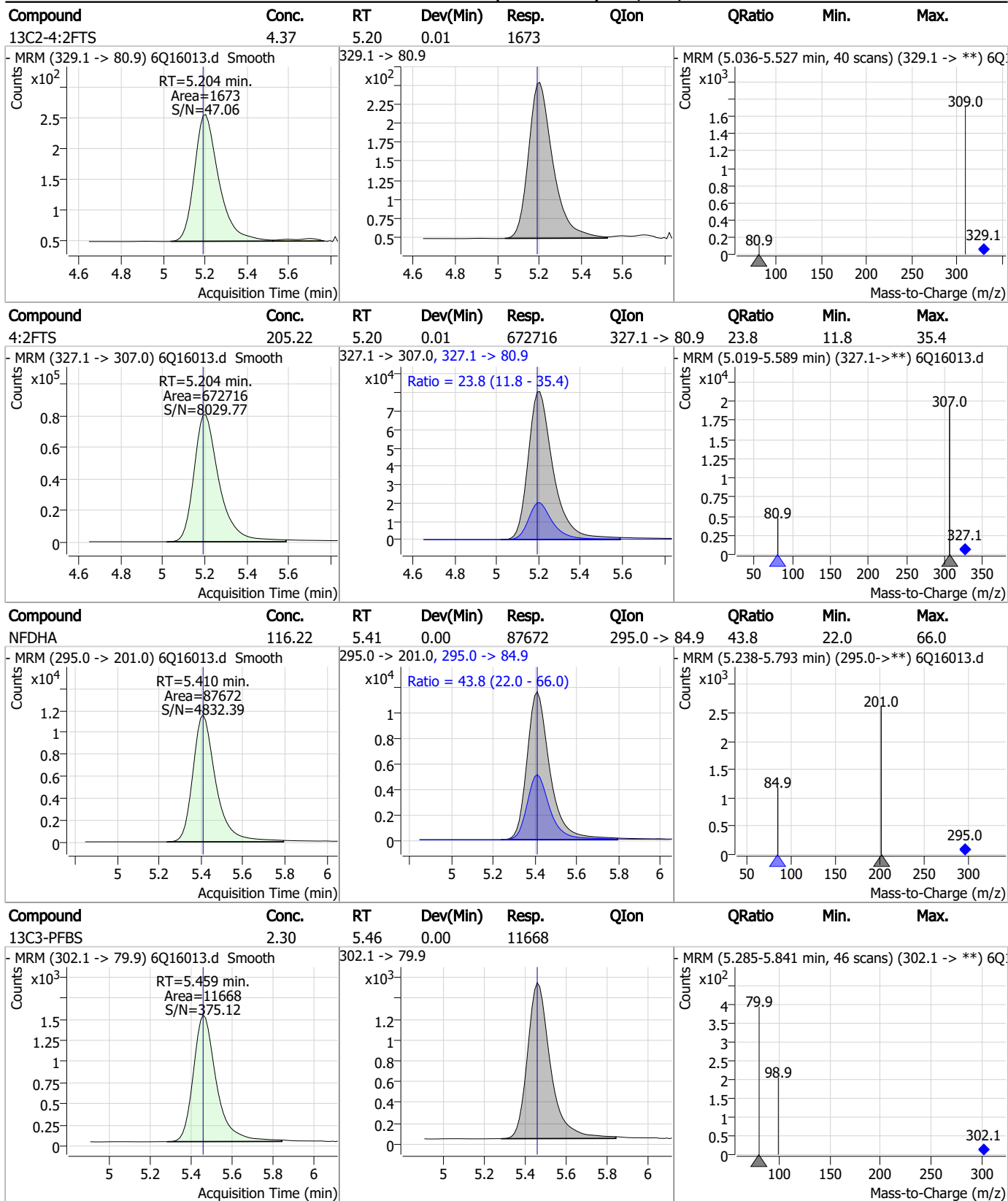
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	126.91	4.32	0.00	926011				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	129.17	4.74	0.00	312290				



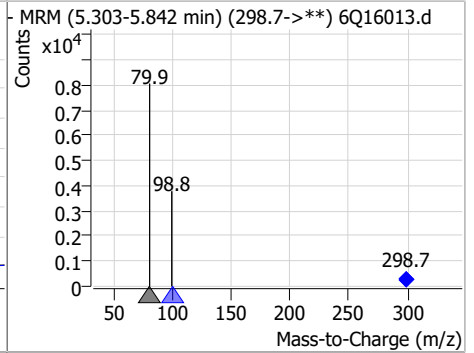
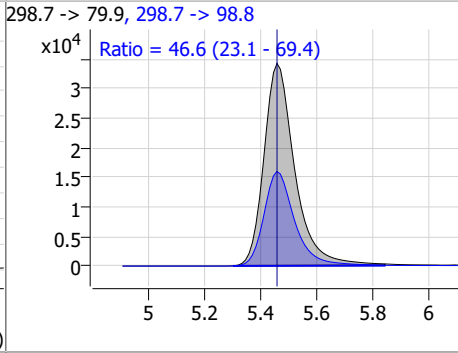
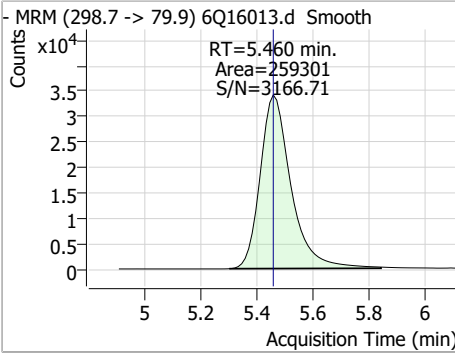
Perfluorinated Compounds by LC/MS/MS



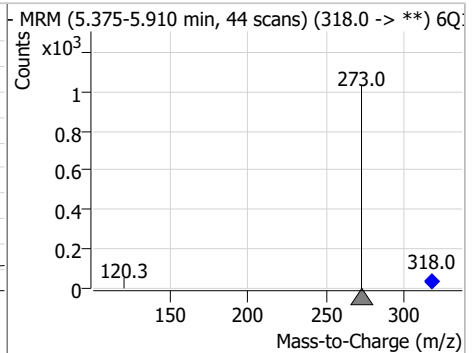
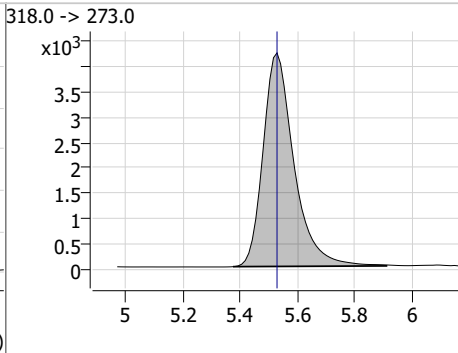
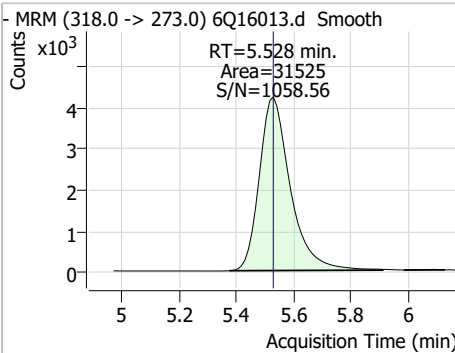
7.6.9
7

Perfluorinated Compounds by LC/MS/MS

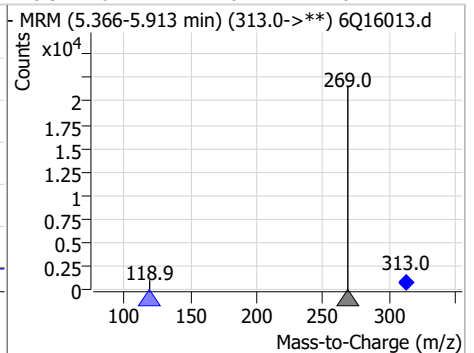
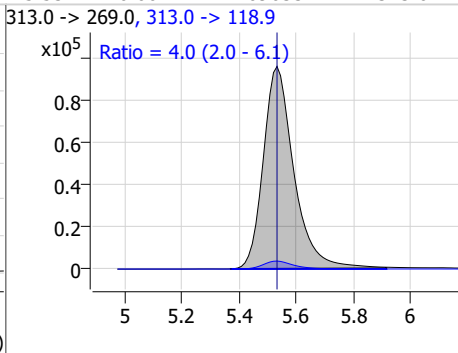
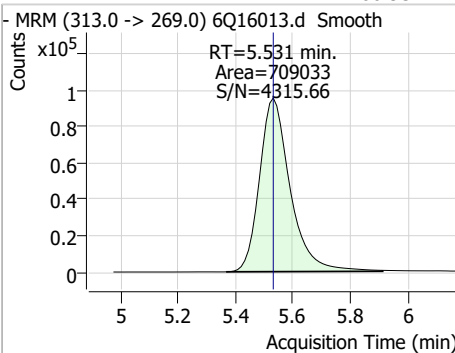
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	56.65	5.46	0.00	259301	298.7 -> 98.8	46.6	23.1	69.4



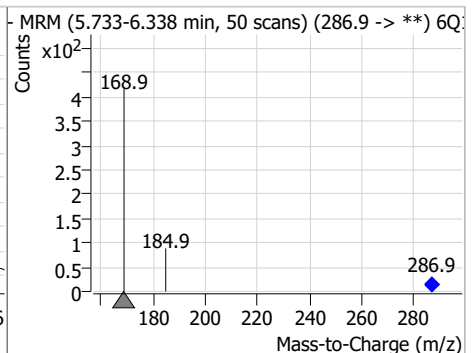
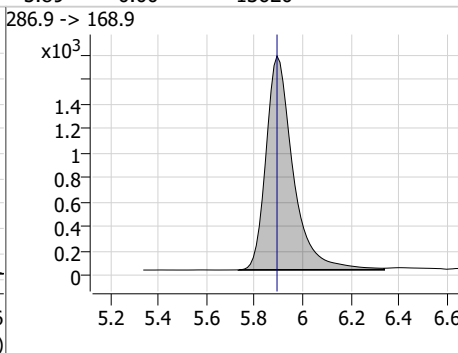
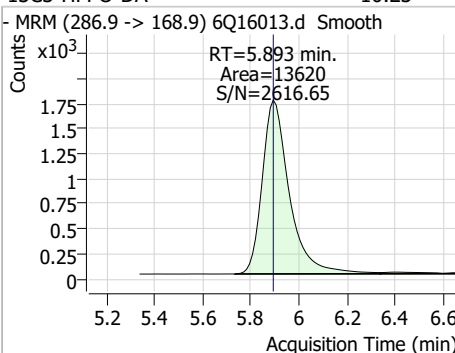
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.49	5.53	0.00	31525				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	60.93	5.53	0.00	709033	313.0 -> 118.9	4.0	2.0	6.1

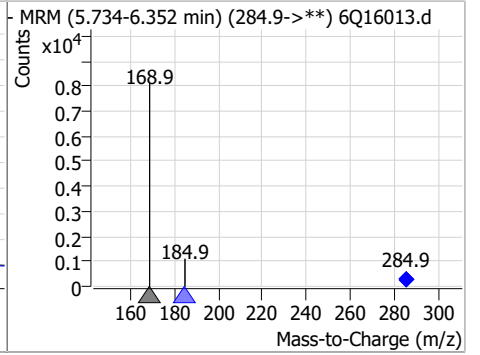
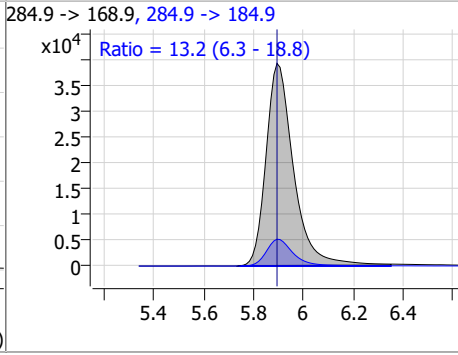
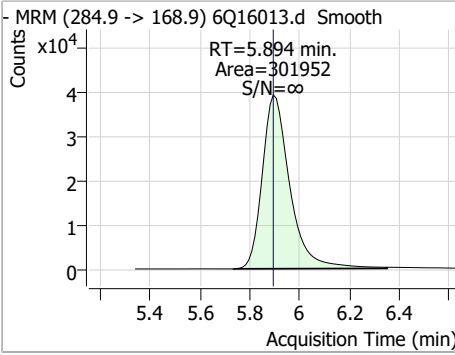


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.23	5.89	0.00	13620				

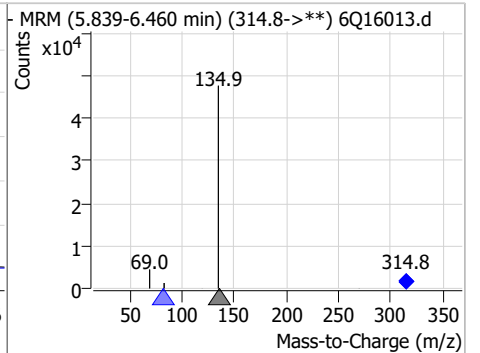
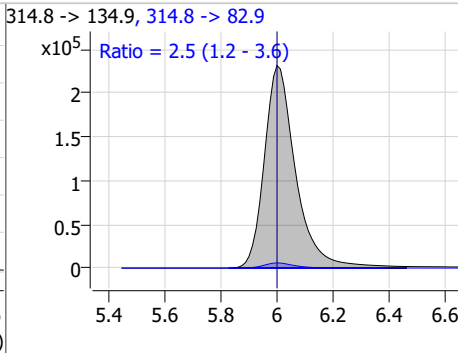
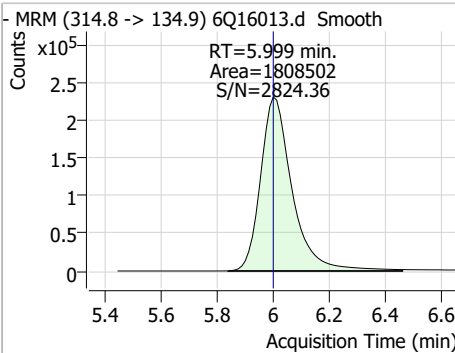


Perfluorinated Compounds by LC/MS/MS

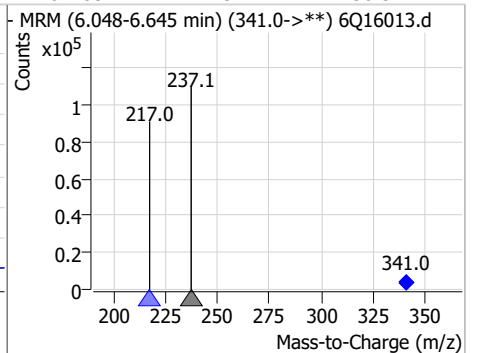
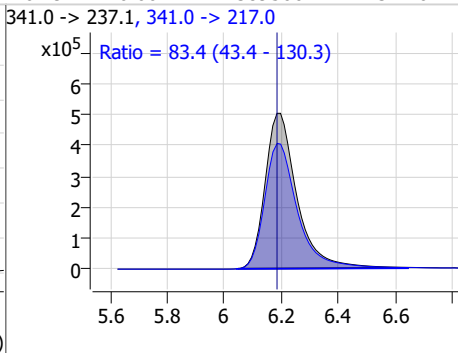
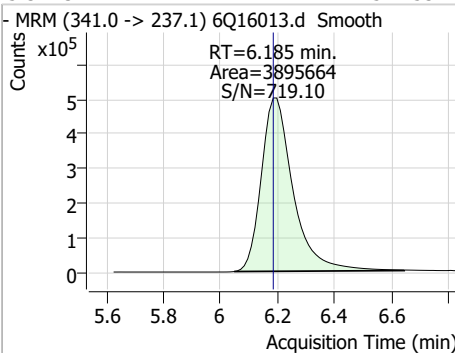
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	245.24	5.89	0.00	301952	284.9 -> 184.9	13.2	6.3	18.8



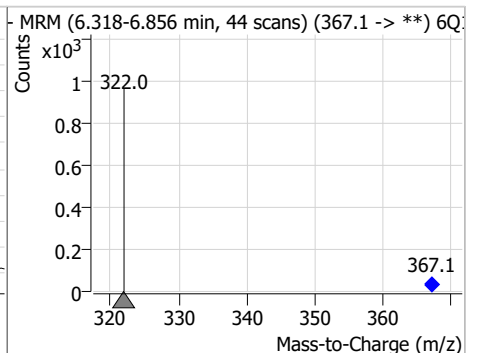
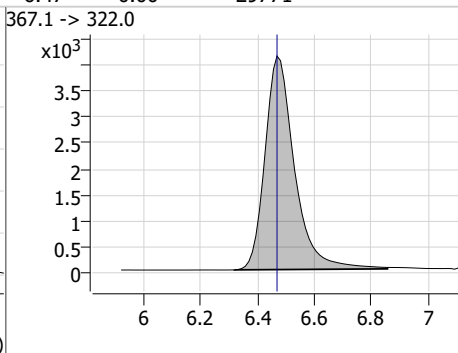
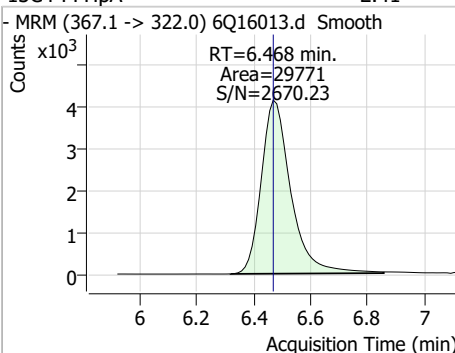
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	109.71	6.00	0.00	1808502	314.8 -> 82.9	2.5	1.2	3.6



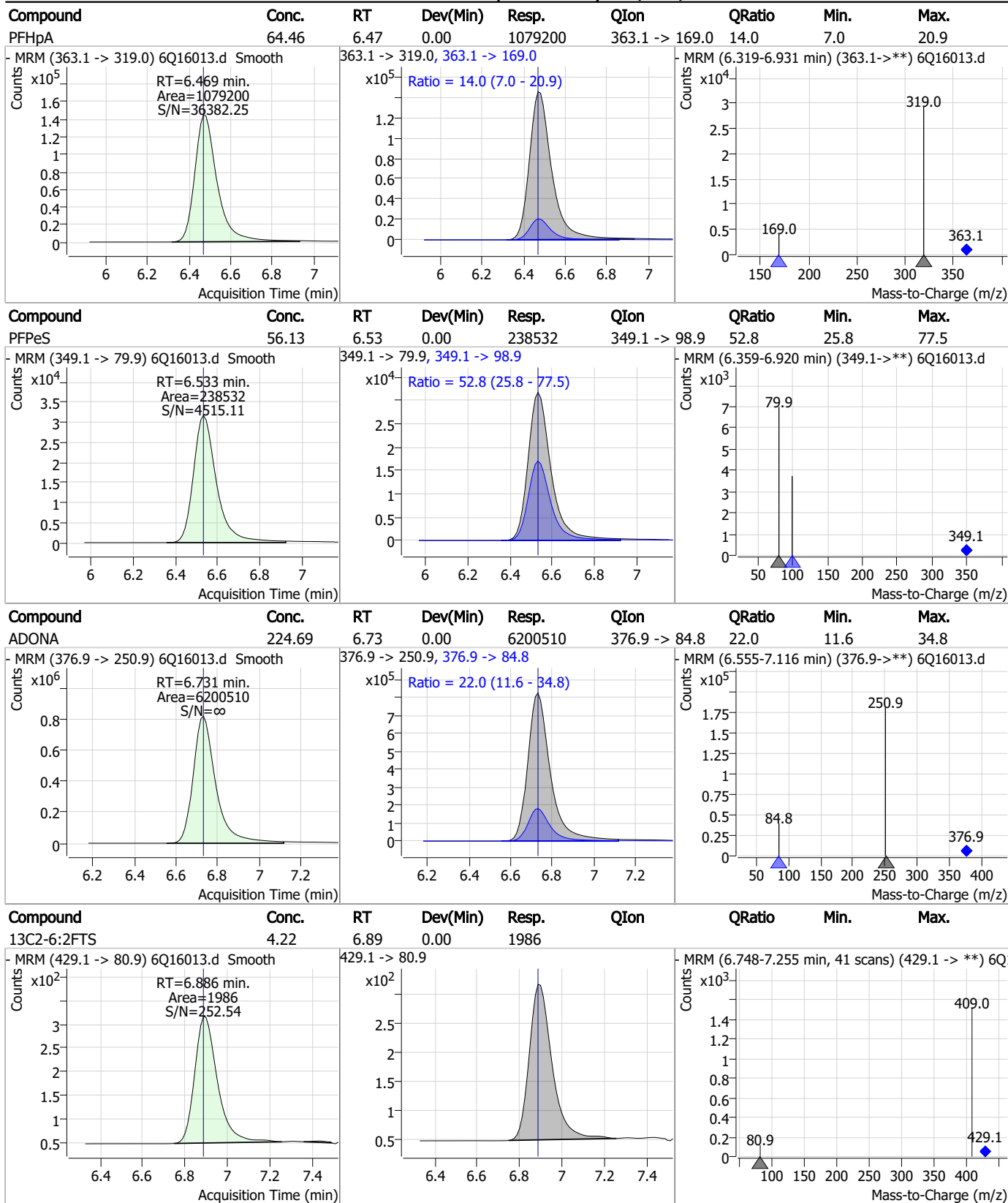
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	1514.53	6.19	0.00	3895664	341.0 -> 217.0	83.4	43.4	130.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.41	6.47	0.00	29771	367.1 -> 322.0			



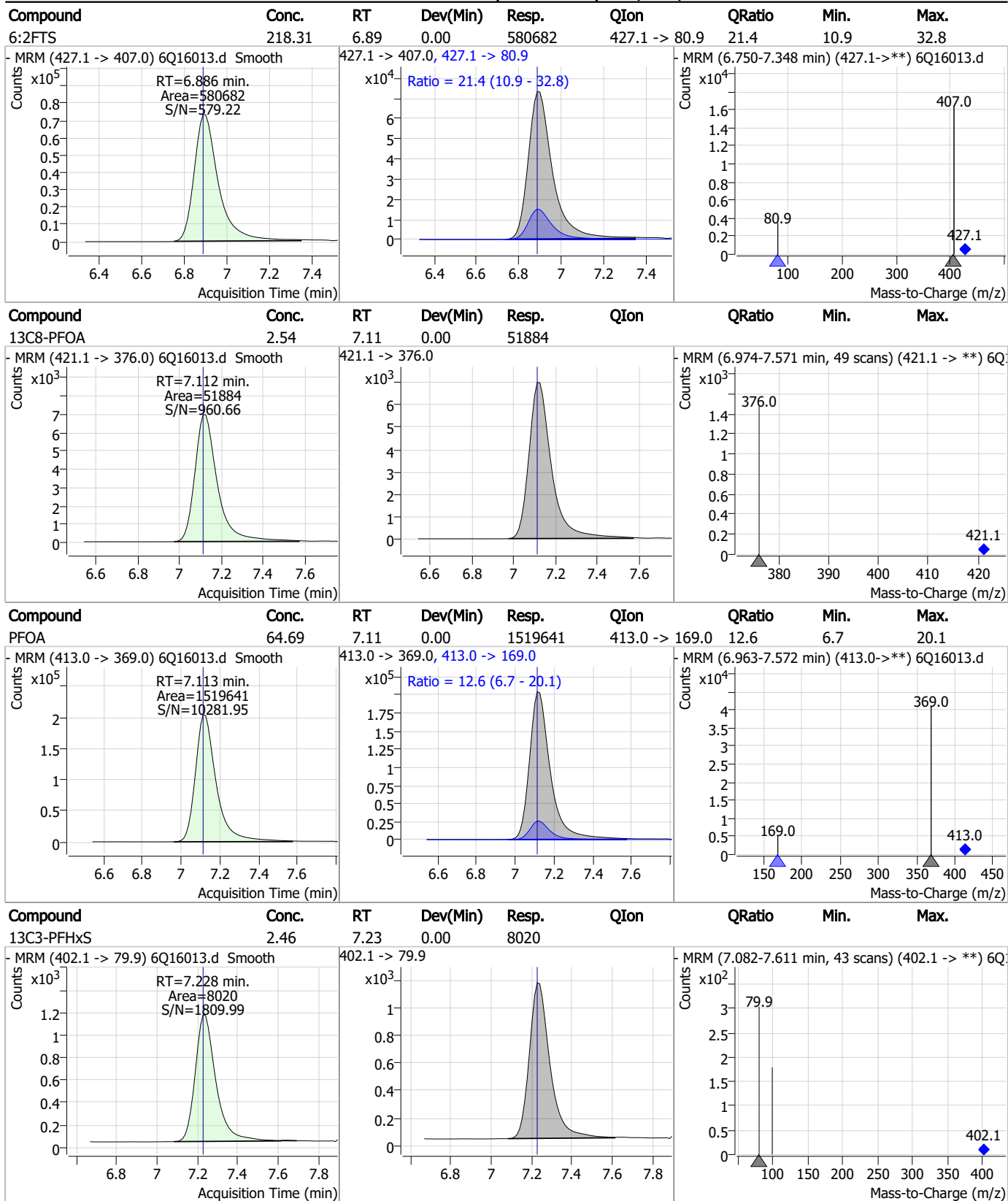
Perfluorinated Compounds by LC/MS/MS



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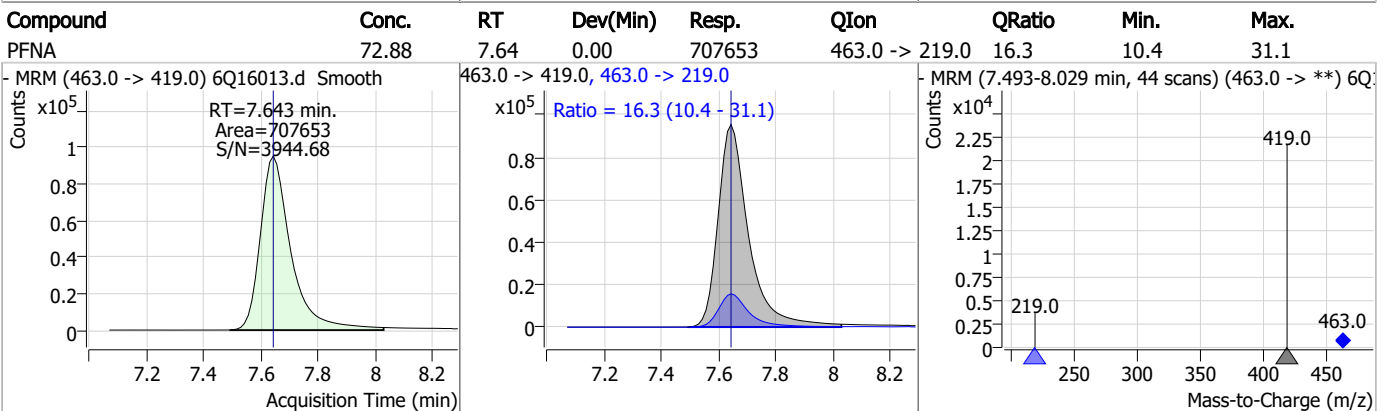
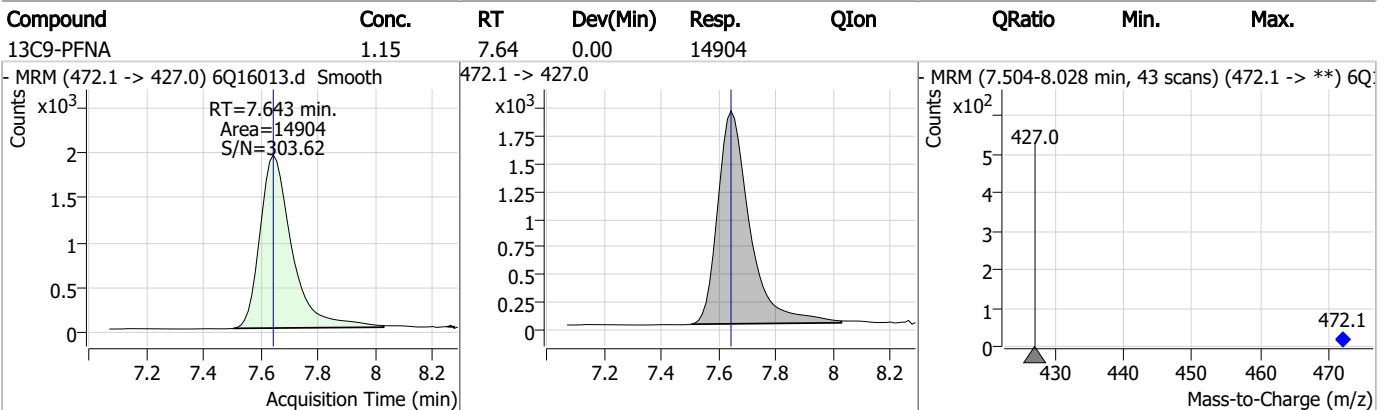
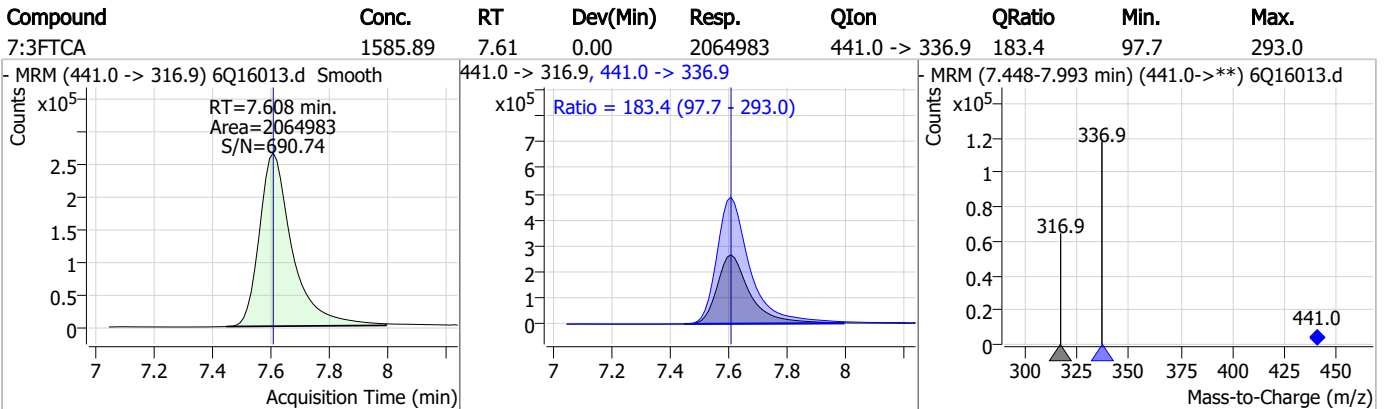
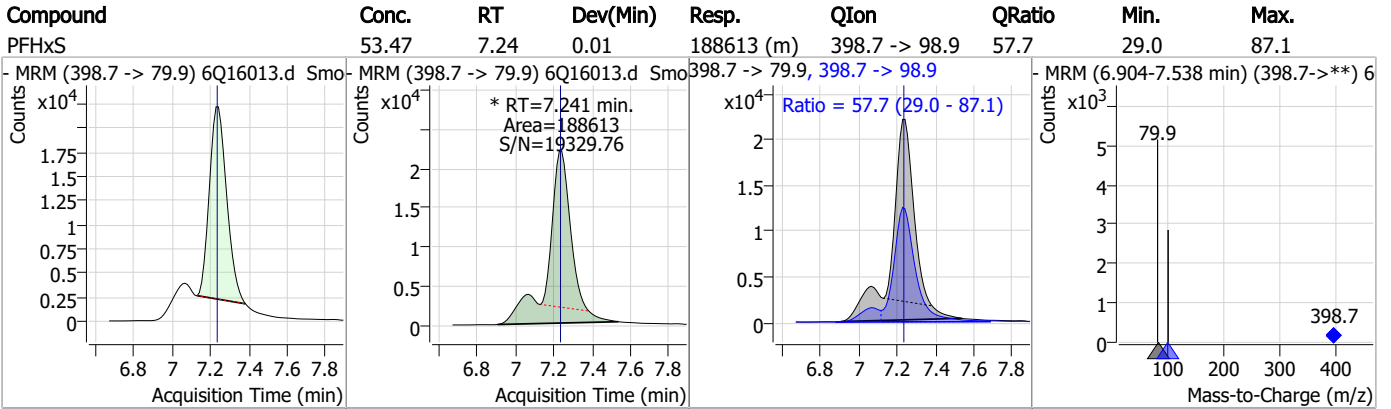


Perfluorinated Compounds by LC/MS/MS

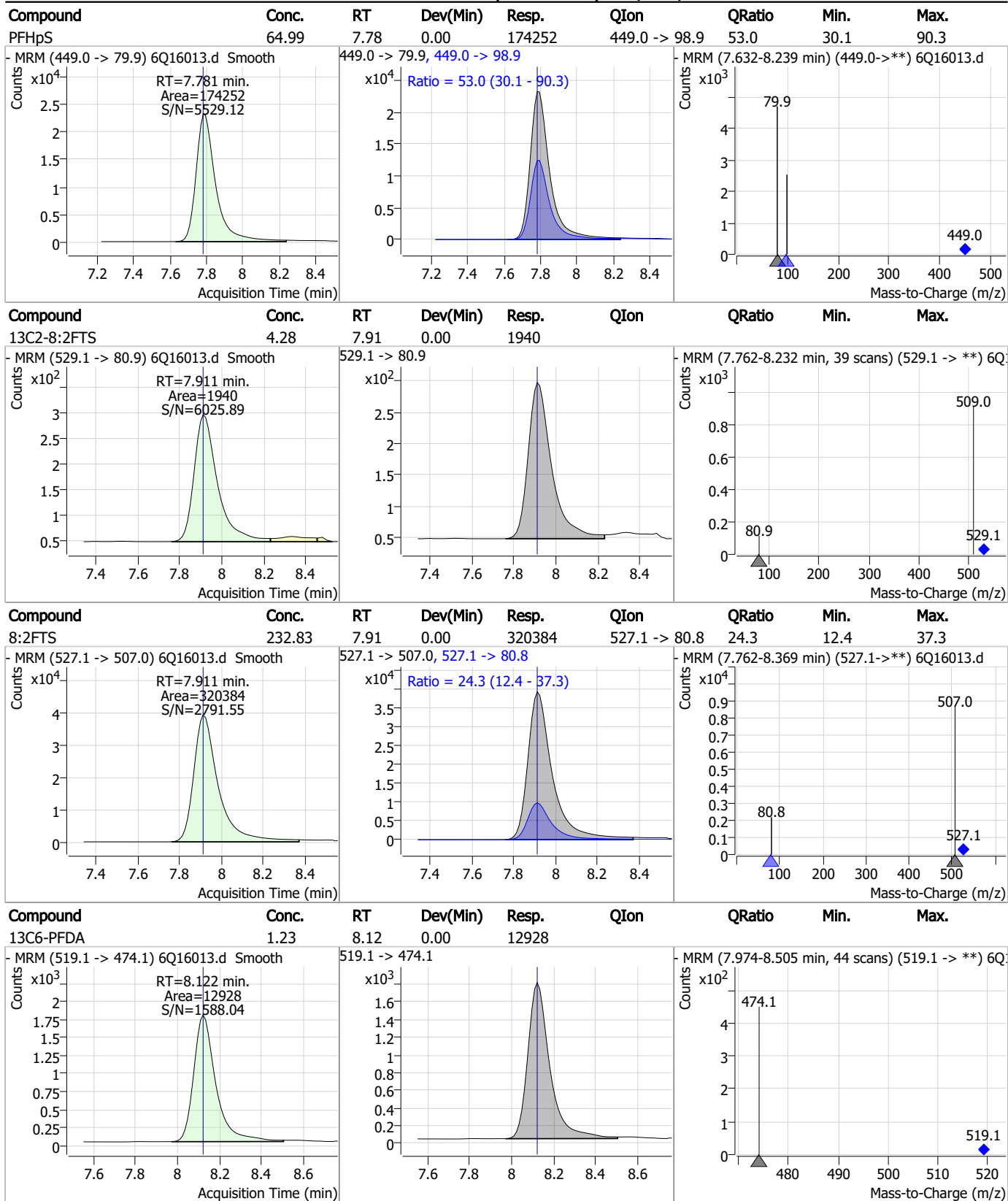


7.6.9
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Perfluorinated Compounds by LC/MS/MS

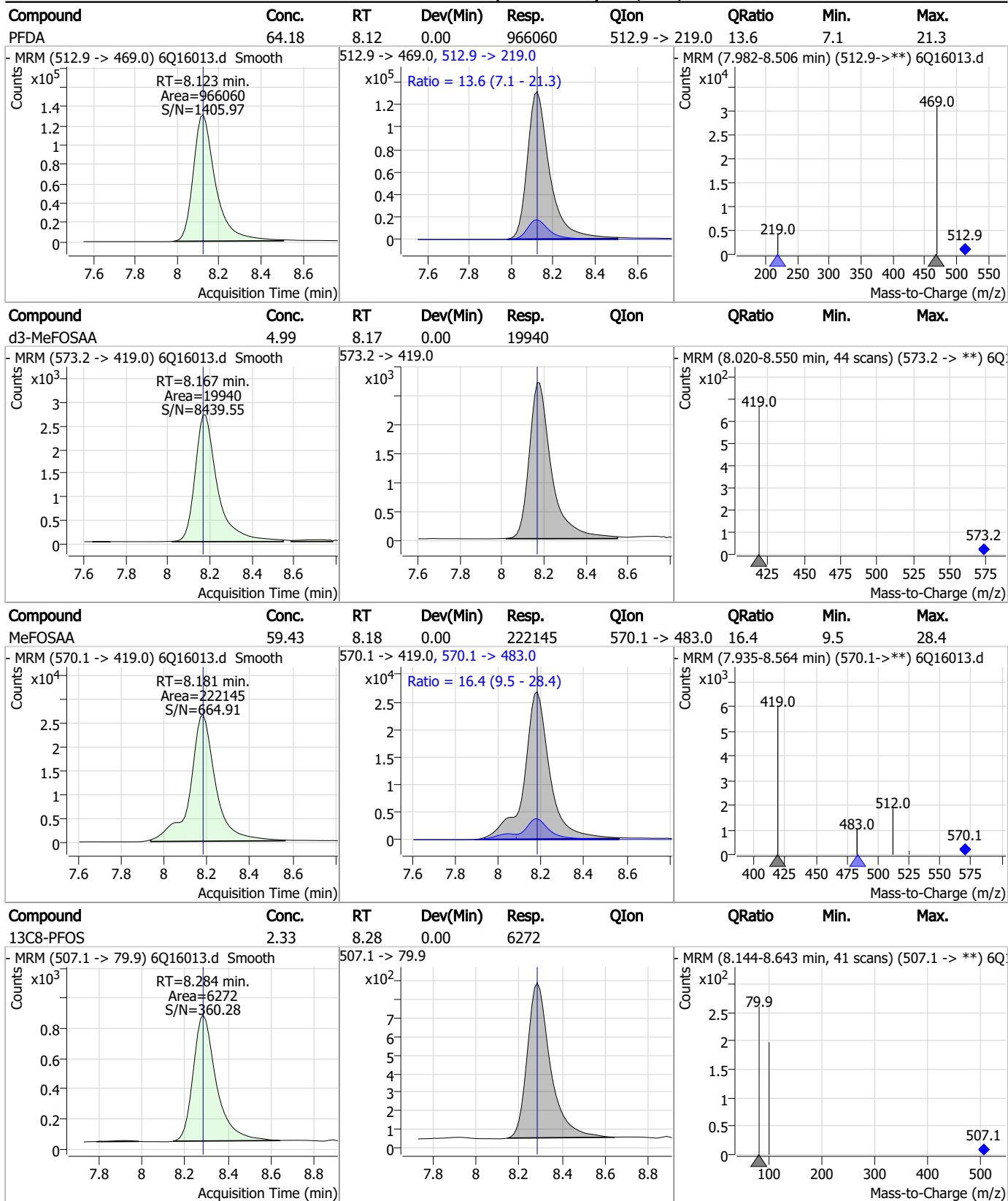


Perfluorinated Compounds by LC/MS/MS



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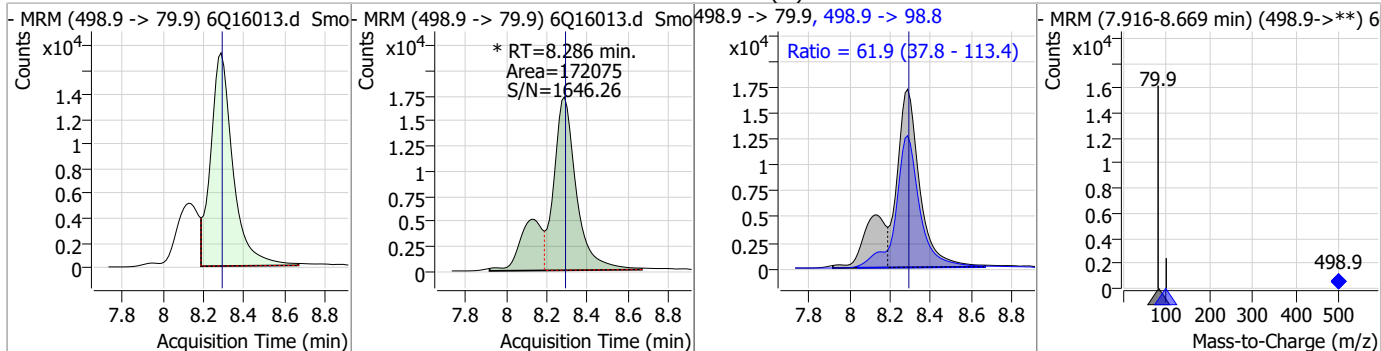
Perfluorinated Compounds by LC/MS/MS



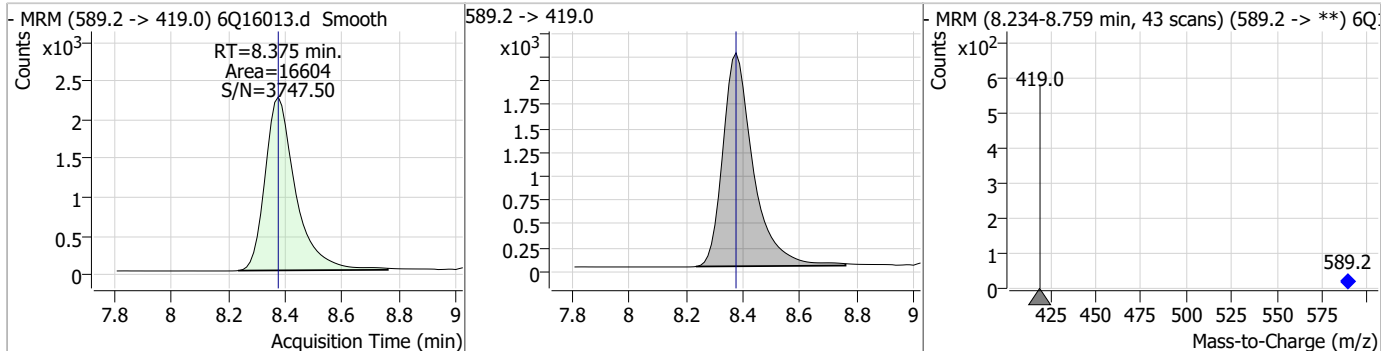
7.6.9
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Perfluorinated Compounds by LC/MS/MS

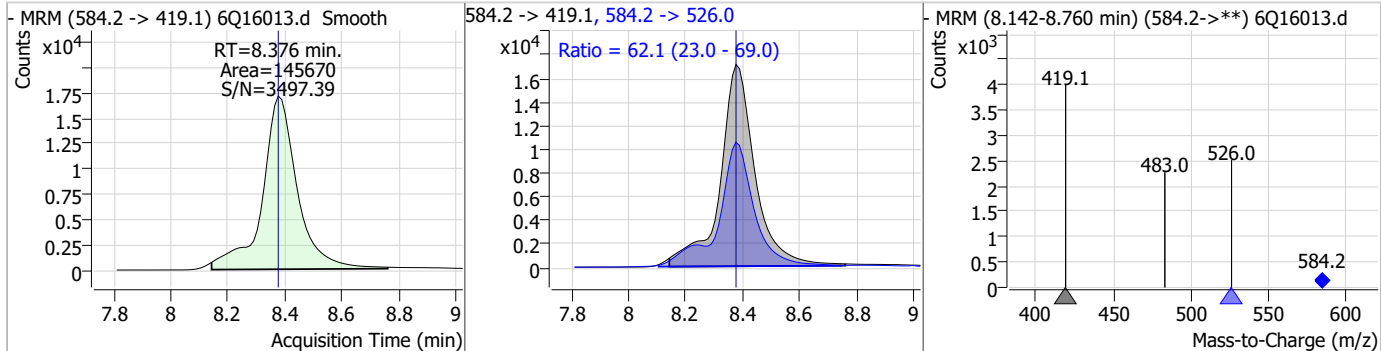
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	62.37	8.29	0.00	172075 (m)	498.9 -> 98.8	61.9	37.8	113.4



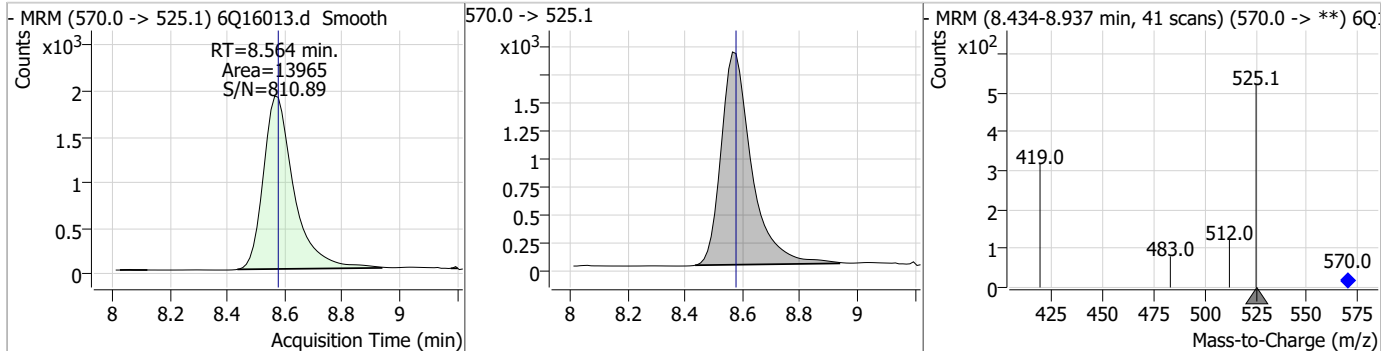
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.80	8.38	0.00	16604				



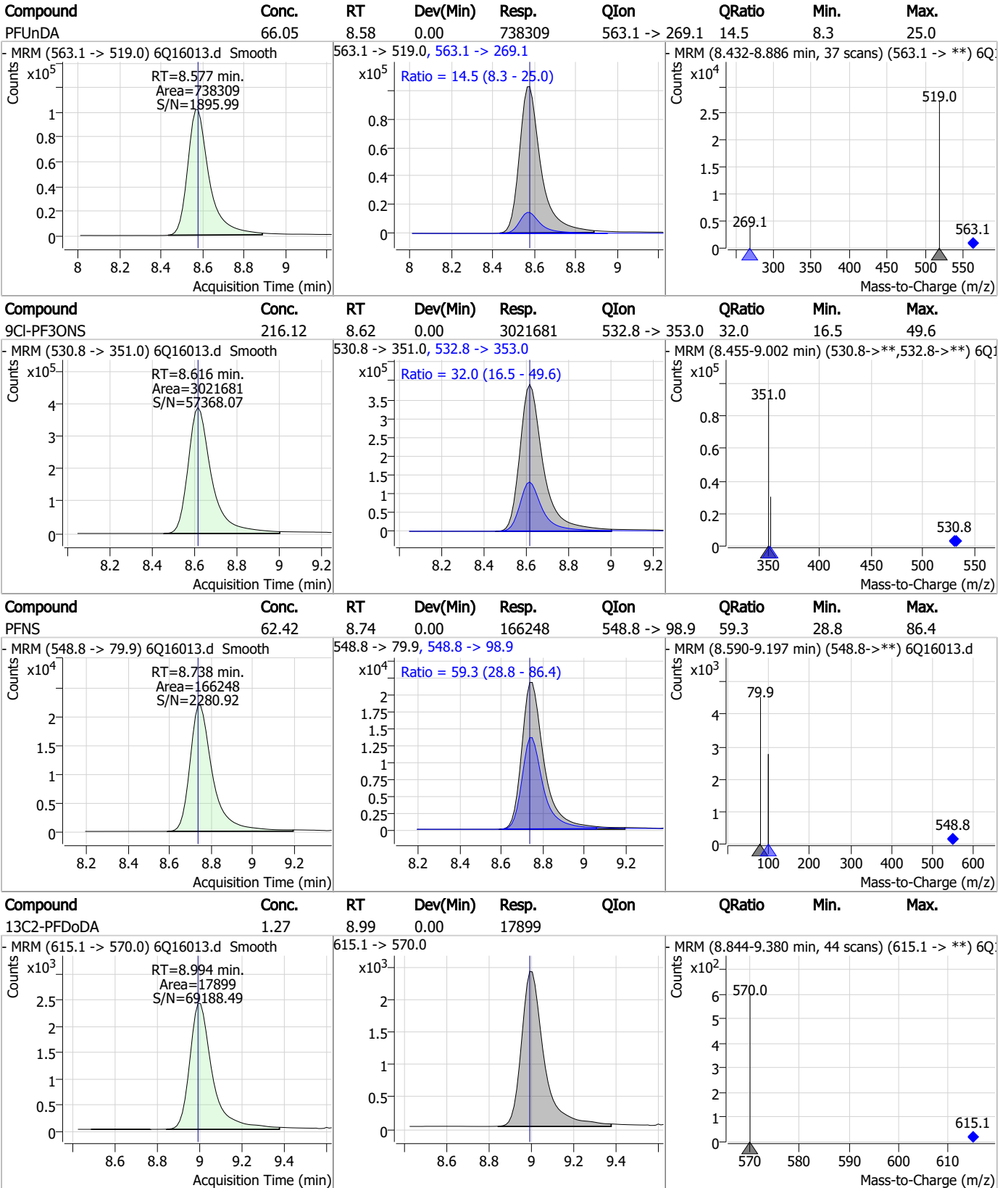
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	57.22	8.38	0.00	145670	584.2 -> 526.0	62.1	23.0	69.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.15	8.56	-0.01	13965				



Perfluorinated Compounds by LC/MS/MS

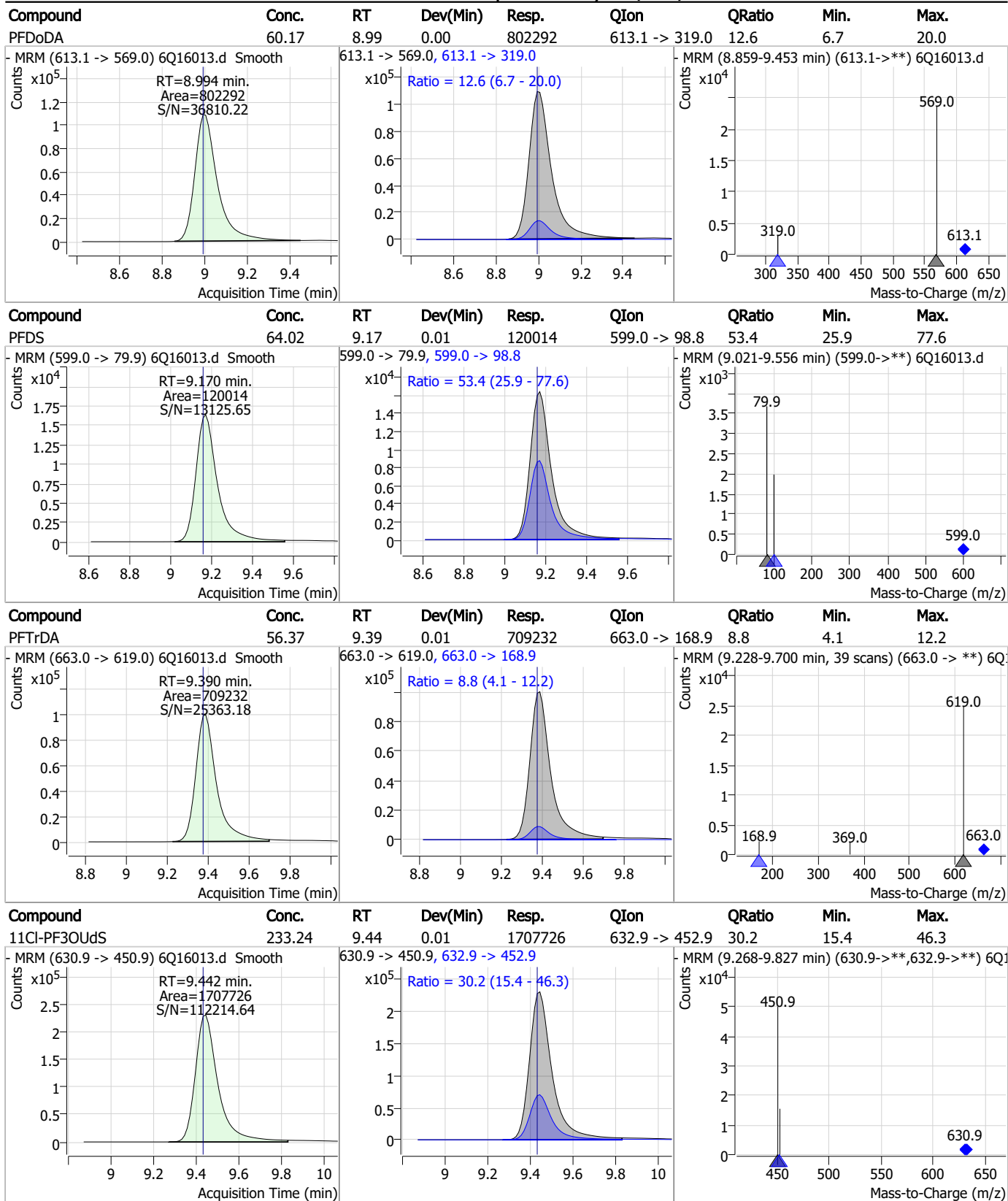


7.6.9

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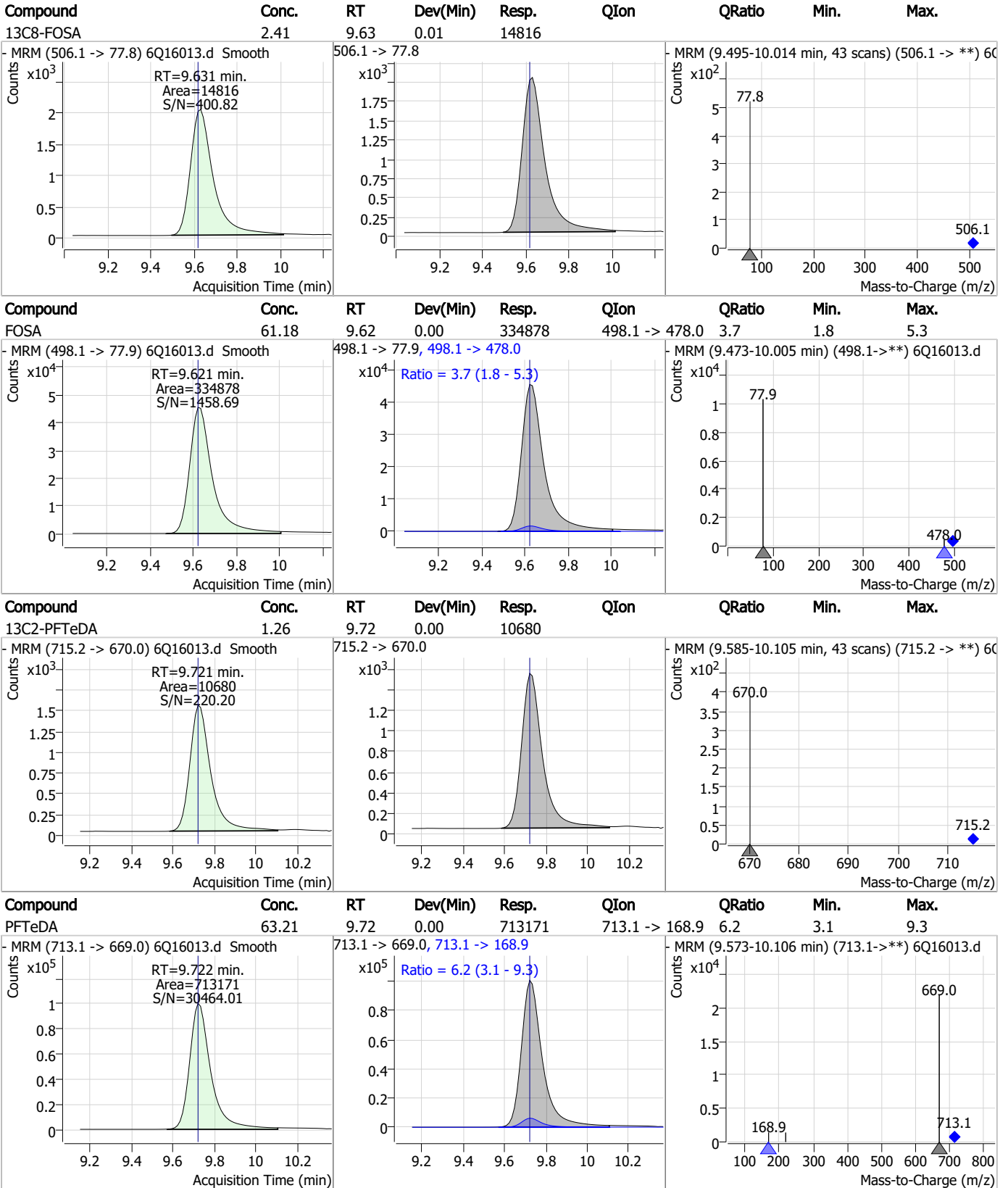
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

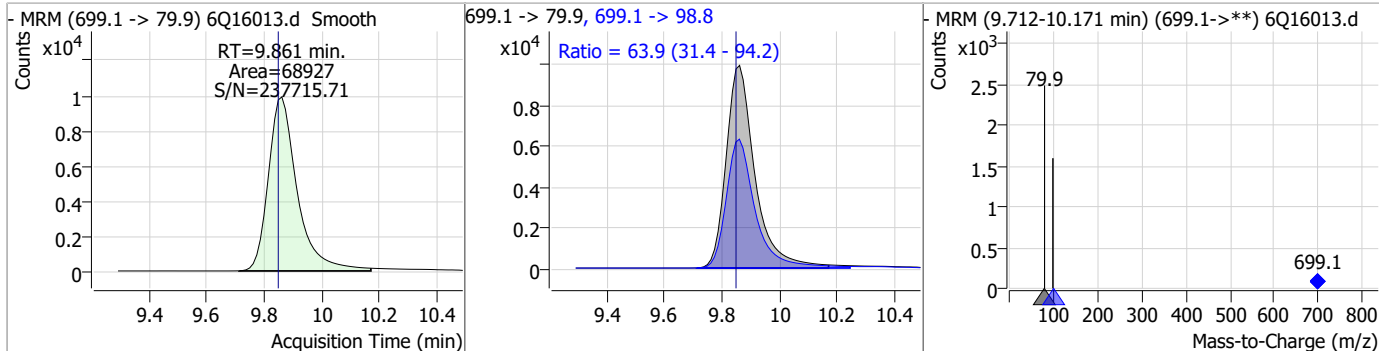


7.6.9

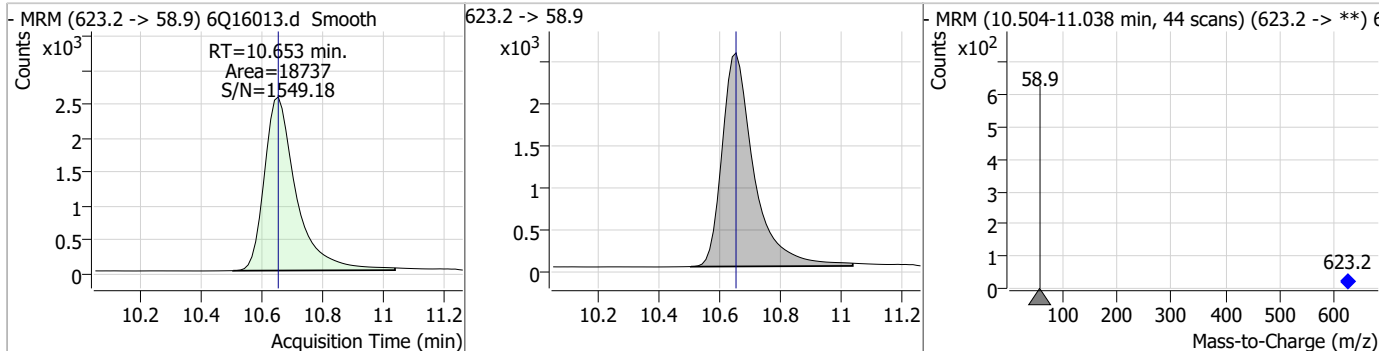
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Perfluorinated Compounds by LC/MS/MS

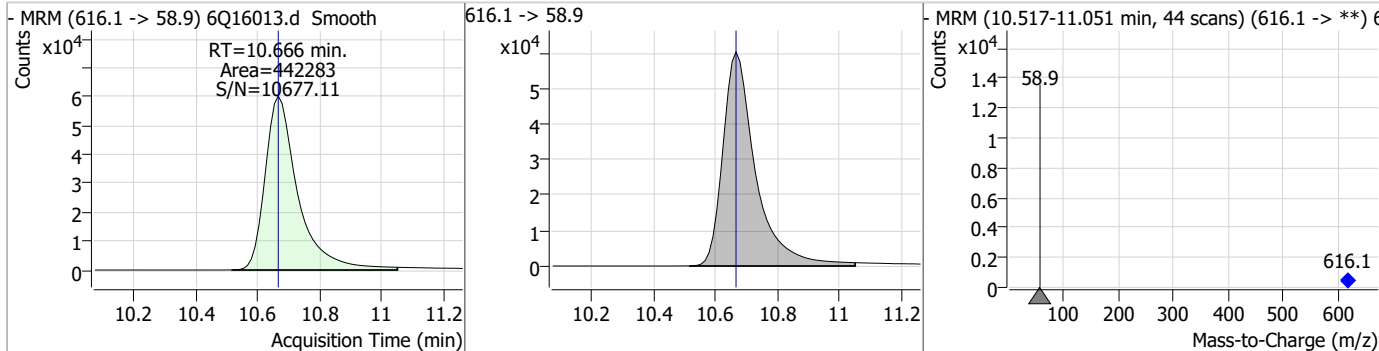
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	63.28	9.86	0.01	68927	699.1 -> 98.8	63.9	31.4	94.2



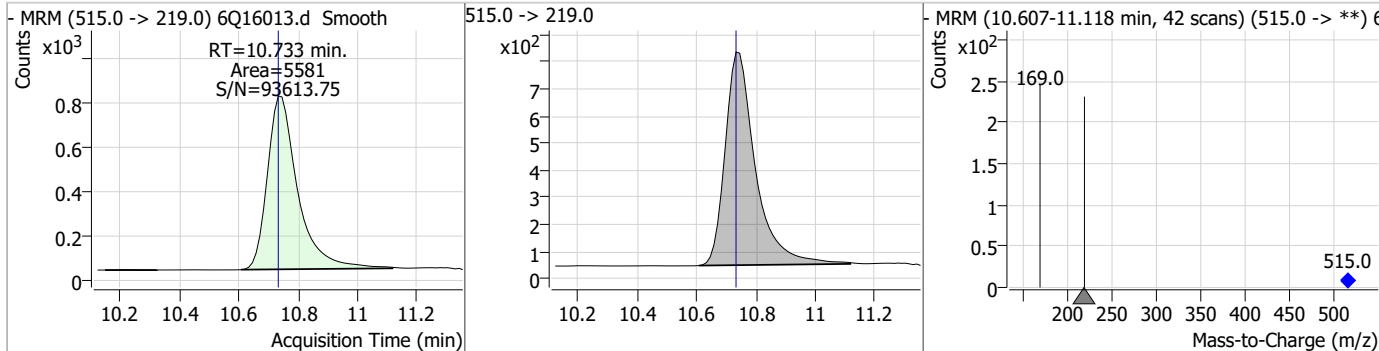
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	22.28	10.65	0.00	18737				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	626.22	10.67	0.00	442283				

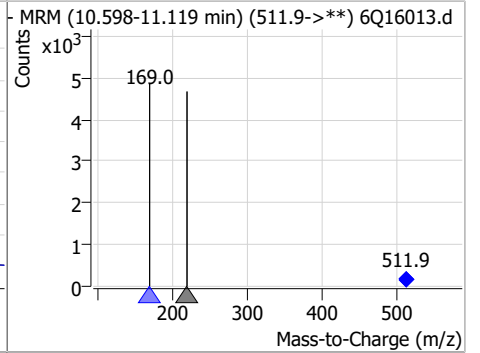
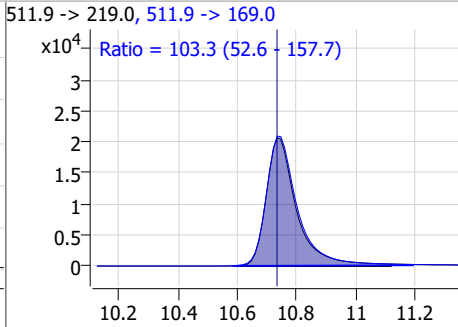
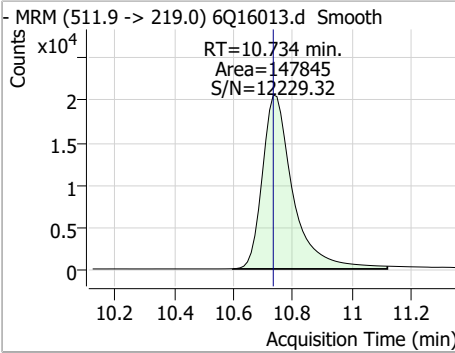


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.52	10.73	0.00	5581				

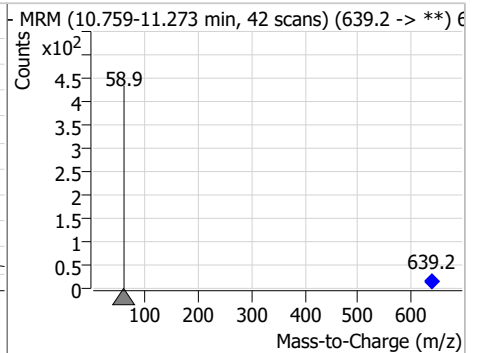
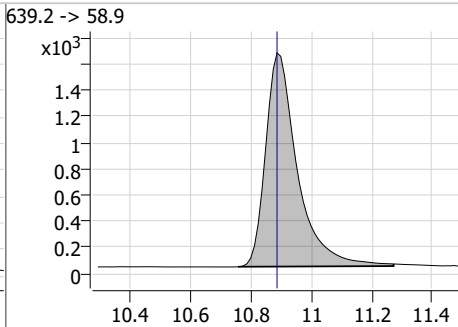
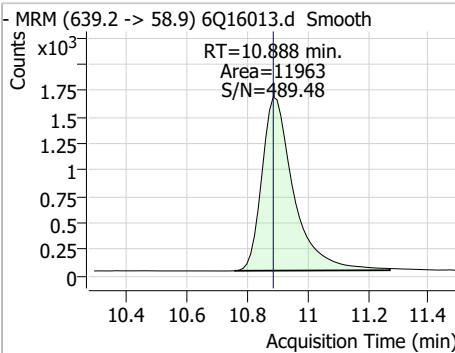


Perfluorinated Compounds by LC/MS/MS

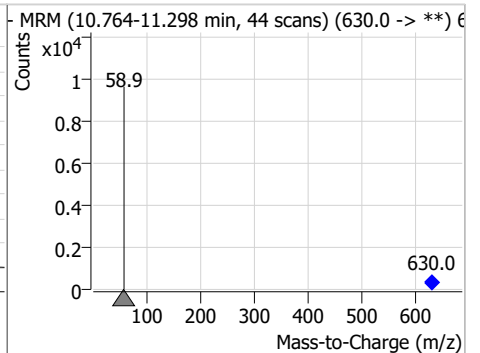
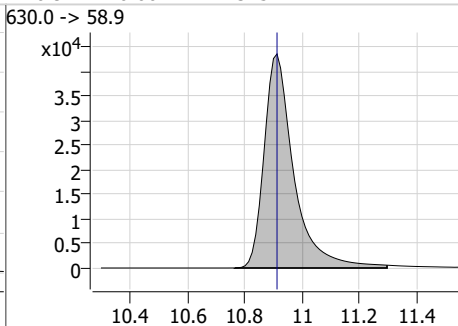
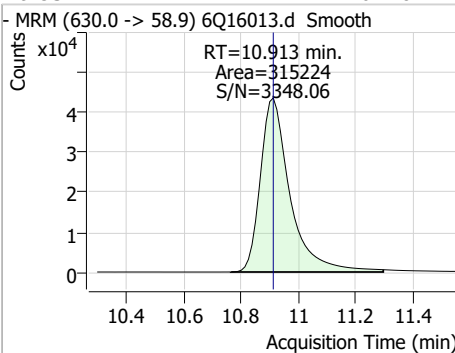
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	62.98	10.73	0.00	147845	511.9 -> 169.0	103.3	52.6	157.7



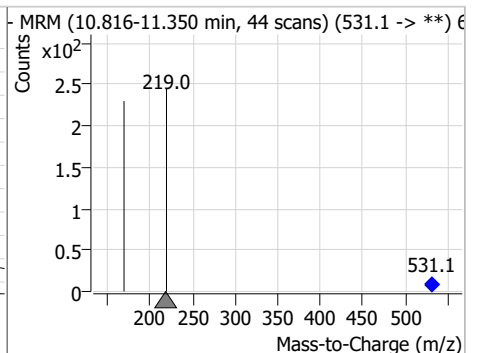
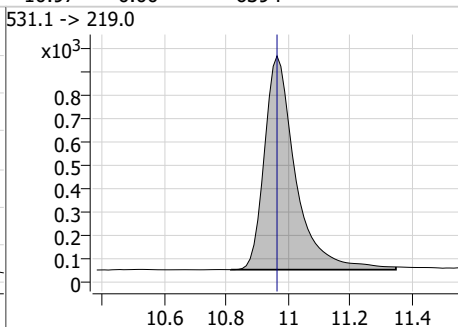
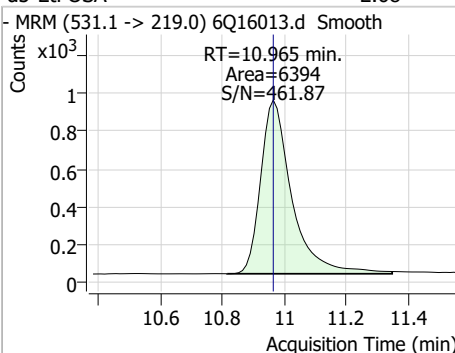
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	21.40	10.89	0.00	11963				



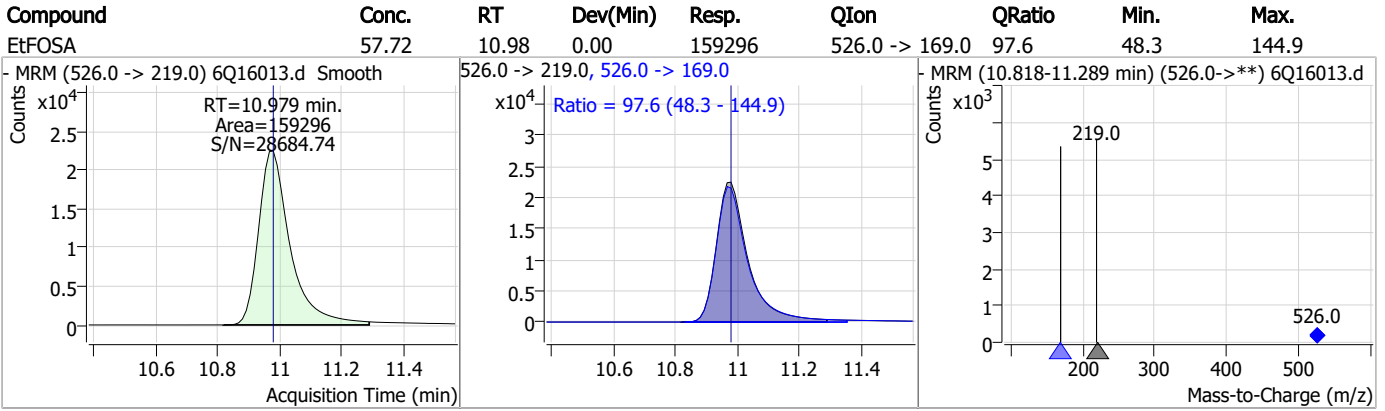
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	671.87	10.91	0.00	315224				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.68	10.97	0.00	6394				



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q239-IC239 Method: EPA DRAFT 1633
Lab FileID: 6Q16013.D Analyst approved: 04/05/23 11:17 Martha Valls
Injection Time: 04/04/23 15:53 Supervisor approved: 04/05/23 17:23 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.29	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16015.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/4/2023 4:21:39 PM
 Sample Name : icv239-4
 Vial : P1-B1
 DA Method File : 1633_040423_S6Q239.quantmethod.xml
 Batch Name : s6q239.batch.bin
 Sample Information : OP96085,S6Q239,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	86565	10.00 µg/L	0.000
M5-PFPeA	4.322	268.3 -> 223.0	38317	5.00 µg/L	0.000
M5-PFHxA	5.528	318.0 -> 273.0	34701	2.50 µg/L	0.000
M4-PFHpA	6.468	367.1 -> 322.0	34544	2.50 µg/L	0.000
M8-PFOA	7.125	421.1 -> 376.0	54026	2.50 µg/L	0.013
M9-PFNA	7.643	472.1 -> 427.0	17280	1.25 µg/L	0.000
M6-PFDA	8.122	519.1 -> 474.1	15331	1.25 µg/L	0.000
M7-PFUnDA	8.564	570.0 -> 525.1	16521	1.25 µg/L	-0.012
M2-PFDoDA	8.994	615.1 -> 570.0	18253	1.25 µg/L	0.000
M2-PFTeDA	9.721	715.2 -> 670.0	10175	1.25 µg/L	0.000
M8-FOSA	9.619	506.1 -> 77.8	16082	2.50 µg/L	0.000
M3-PFBS	5.459	302.1 -> 79.9	13348	2.50 µg/L	0.000
M3-PFHxS	7.228	402.1 -> 79.9	8505	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	7472	2.50 µg/L	0.000
M2-4:2FTS	5.191	329.1 -> 80.9	2111	5.00 µg/L	0.000
M2-6:2FTS	6.886	429.1 -> 80.9	2547	5.00 µg/L	0.000
M2-8:2FTS	7.911	529.1 -> 80.9	2432	5.00 µg/L	0.000
M3-MeFOSAA	8.167	573.2 -> 419.0	21182	5.00 µg/L	0.000
M3-HFPO-DA	5.893	286.9 -> 168.9	14511	10.00 µg/L	0.000
M5-EtFOSAA	8.375	589.2 -> 419.0	17702	5.00 µg/L	0.000
M7-MeFOSE	10.653	623.2 -> 58.9	21122	25.00 µg/L	0.000
M9-EtFOSE	10.888	639.2 -> 58.9	14633	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	6193	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	5717	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	9159	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	36792	5.00 µg/L	0.000
18O2-PFHxS	7.239	403.0 -> 83.9	6058	2.50 µg/L	0.012
13C4-PFOA	7.125	417.1 -> 372.0	68332	2.50 µg/L	0.013
13C2-PFDA	8.123	515.1 -> 470.1	20266	1.25 µg/L	0.000
13C5-PFNA	7.643	468.0 -> 423.0	17774	1.25 µg/L	0.000
13C2-PFHxA	5.529	315.1 -> 270.0	33307	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.191	329.1 -> 80.9	2111	5.18 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C2-6:2FTS	6.886	429.1 -> 80.9	2547	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C2-8:2FTS	7.911	529.1 -> 80.9	2432	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C2-PFDoDA	8.994	615.1 -> 570.0	18253	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.2%		
13C2-PFTeDA	9.721	715.2 -> 670.0	10175	1.06 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 84.7%		
13C3-PFBS	5.459	302.1 -> 79.9	13348	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C3-PFHxS	7.228	402.1 -> 79.9	8505	2.45 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C4-PFBA	2.897	216.8 -> 171.9	86565	10.06 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C4-PFHpA	6.468	367.1 -> 322.0	34544	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C5-PFHxA	5.528	318.0 -> 273.0	34701	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C5-PFPeA	4.322	268.3 -> 223.0	38317	4.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C6-PFDA	8.122	519.1 -> 474.1	15331	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C7-PFUnDA	8.564	570.0 -> 525.1	16521	1.19 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.4%		
13C8-FOSA	9.619	506.1 -> 77.8	16082	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.4%		
13C8-PFOA	7.125	421.1 -> 376.0	54026	2.37 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.7%		
13C8-PFOS	8.284	507.1 -> 79.9	7472	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C9-PFNA	7.643	472.1 -> 427.0	17280	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.1%		
d3-MeFOSAA	8.167	573.2 -> 419.0	21182	4.78 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.6%		
13C3-HFPO-DA	5.893	286.9 -> 168.9	14511	9.99 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.9%		
d3-MeFOSA	10.733	515.0 -> 219.0	5717	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.1%		
d5-EtFOSAA	8.375	589.2 -> 419.0	17702	4.61 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.3%		
d7-MeFOSE	10.653	623.2 -> 58.9	21122	22.66 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 90.6%		
d9-EtFOSE	10.888	639.2 -> 58.9	14633	23.62 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 94.5%		
d5-EtFOSA	10.965	531.1 -> 219.0	6193	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.6%		
Target Compounds					QValue
4:2FTS	5.204	327.1 -> 307.0	38616	9.34 µg/L	100
		327.1 -> 80.9	9173		
6:2FTS	6.886	427.1 -> 407.0	32585	9.55 µg/L	98
		427.1 -> 80.9	7396		
8:2FTS	7.911	527.1 -> 507.0	17773	10.30 µg/L	99
		527.1 -> 80.8	4484		
EtFOSAA	8.376	584.2 -> 419.1	6868	2.53 µg/L	m 81
		584.2 -> 526.0	4007		
FOSA	9.621	498.1 -> 77.9	15378	2.59 µg/L	100
		498.1 -> 478.0	522		
MeFOSAA	8.181	570.1 -> 419.0	9681	2.44 µg/L	93
		570.1 -> 483.0	1536		
PFBA	2.893	212.8 -> 168.9	20807	9.51 µg/L	100
PFBS	5.460	298.7 -> 79.9	11080	2.12 µg/L	97
		298.7 -> 98.8	4914		
PFDA	8.123	512.9 -> 469.0	38710	2.17 µg/L	99
		512.9 -> 219.0	5299		
PFDoDA	8.994	613.1 -> 569.0	34329	2.52 µg/L	98
		613.1 -> 319.0	4348		
PFDS	9.158	599.0 -> 79.9	5139	2.30 µg/L	99

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2630			
PFHpA	6.481	363.1 -> 319.0	45066	2.32	µg/L	98
		363.1 -> 169.0	6702			
PFHpS	7.781	449.0 -> 79.9	6729	2.11	µg/L	99
		449.0 -> 98.9	4110			
PFHxA	5.531	313.0 -> 269.0	30604	2.39	µg/L	99
		313.0 -> 118.9	1170			
PFHxS	7.228	398.7 -> 79.9	8731	2.33	µg/L	m 97
		398.7 -> 98.9	4859			
PFNA	7.643	463.0 -> 419.0	24847	2.21	µg/L	100
		463.0 -> 219.0	5188			
PFNS	8.738	548.8 -> 79.9	6811	2.15	µg/L	97
		548.8 -> 98.9	4056			
PFOA	7.126	413.0 -> 369.0	60848	2.49	µg/L	99
		413.0 -> 169.0	8295			
PFOS	8.286	498.9 -> 79.9	6713	2.04	µg/L	m 92
		498.9 -> 98.8	4640			
PFPeA	4.324	263.0 -> 219.0	39233	4.85	µg/L	100
PFPeS	6.533	349.1 -> 79.9	10411	2.31	µg/L	96
		349.1 -> 98.9	5126			
PFTeDA	9.722	713.1 -> 669.0	28588	2.66	µg/L	97
		713.1 -> 168.9	2084			
PFTrDA	9.378	663.0 -> 619.0	32450	2.53	µg/L	100
		663.0 -> 168.9	2602			
PFUnDA	8.577	563.1 -> 519.0	32648	2.47	µg/L	97
		563.1 -> 269.1	5016			
11CI-PF3OUdS	9.430	630.9 -> 450.9	71059	9.11	µg/L	100
		632.9 -> 452.9	21727			
9CI-PF3ONS	8.616	530.8 -> 351.0	131874	8.85	µg/L	99
		532.8 -> 353.0	43013			
ADONA	6.731	376.9 -> 250.9	278194	9.46	µg/L	98
		376.9 -> 84.8	61939			
HFPO-DA	5.894	284.9 -> 168.9	12542	9.56	µg/L	96
		284.9 -> 184.9	1774			
3:3FTCA	3.790	241.0 -> 177.0	5330	11.88	µg/L	99
		241.0 -> 117.0	780			
5:3FTCA	6.198	341.0 -> 237.1	165757	58.54	µg/L	100
		341.0 -> 217.0	143696			
7:3FTCA	7.608	441.0 -> 316.9	85263	59.49	µg/L	91
		441.0 -> 336.9	154848			
EtFOSA	10.967	526.0 -> 219.0	6480	2.42	µg/L	91
		526.0 -> 169.0	6831			
EtFOSE	10.913	630.0 -> 58.9	13916	24.25	µg/L	100
MeFOSA	10.734	511.9 -> 219.0	6155	2.56	µg/L	93
		511.9 -> 169.0	6016			
MeFOSE	10.666	616.1 -> 58.9	19709	24.76	µg/L	100
PFDoDS	9.848	699.1 -> 79.9	2911	2.24	µg/L	100
		699.1 -> 98.8	1836			
NFDHA	5.410	295.0 -> 201.0	4027	4.85	µg/L	95
		295.0 -> 84.9	1648			
PFMBA	4.737	279.0 -> 85.1	12838	4.79	µg/L	100
PFMPA	3.463	229.0 -> 84.9	11783	4.82	µg/L	100
PFEESA	5.999	314.8 -> 134.9	76642	4.22	µg/L	99
		314.8 -> 82.9	2133			

= Qualifier out of range, m = manually integrated, + = Area summed

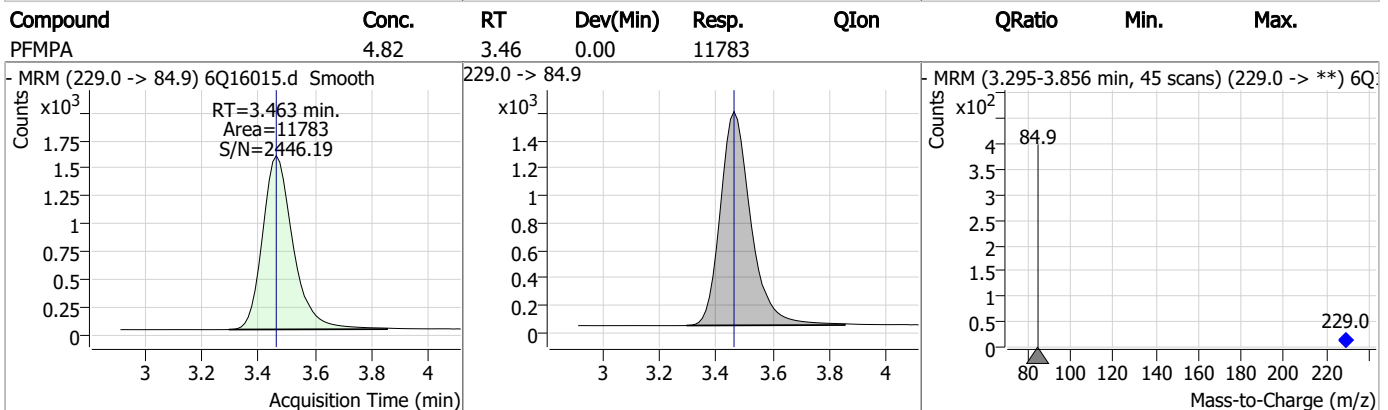
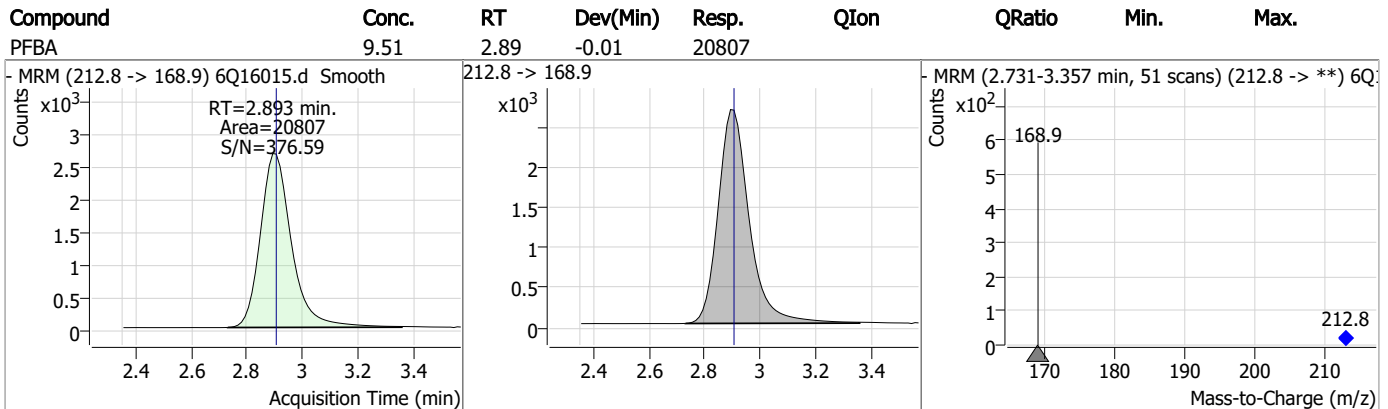
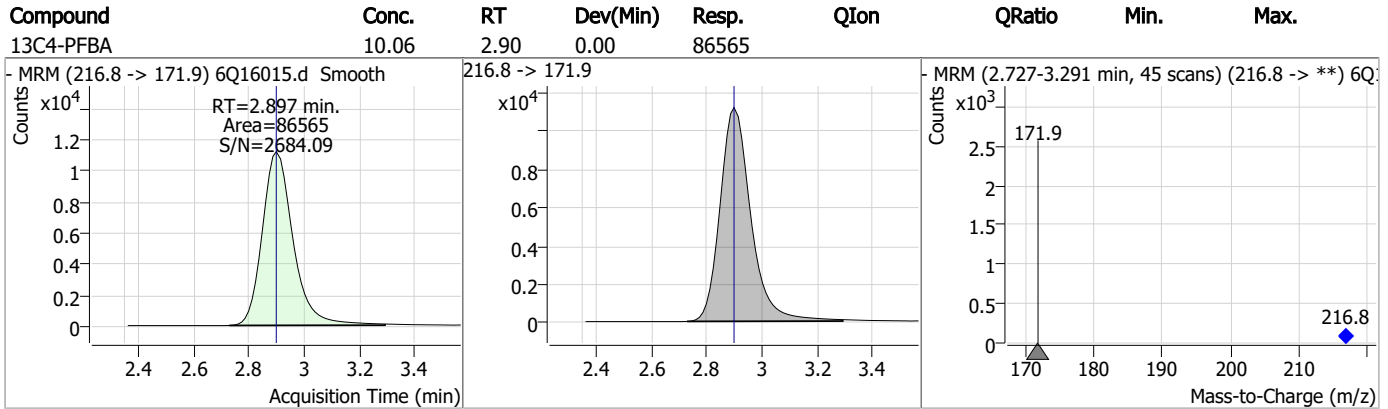
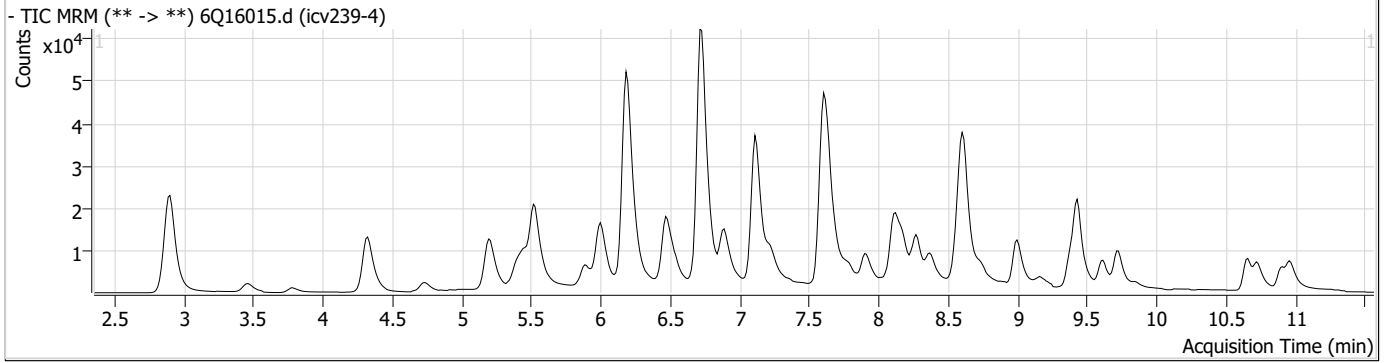
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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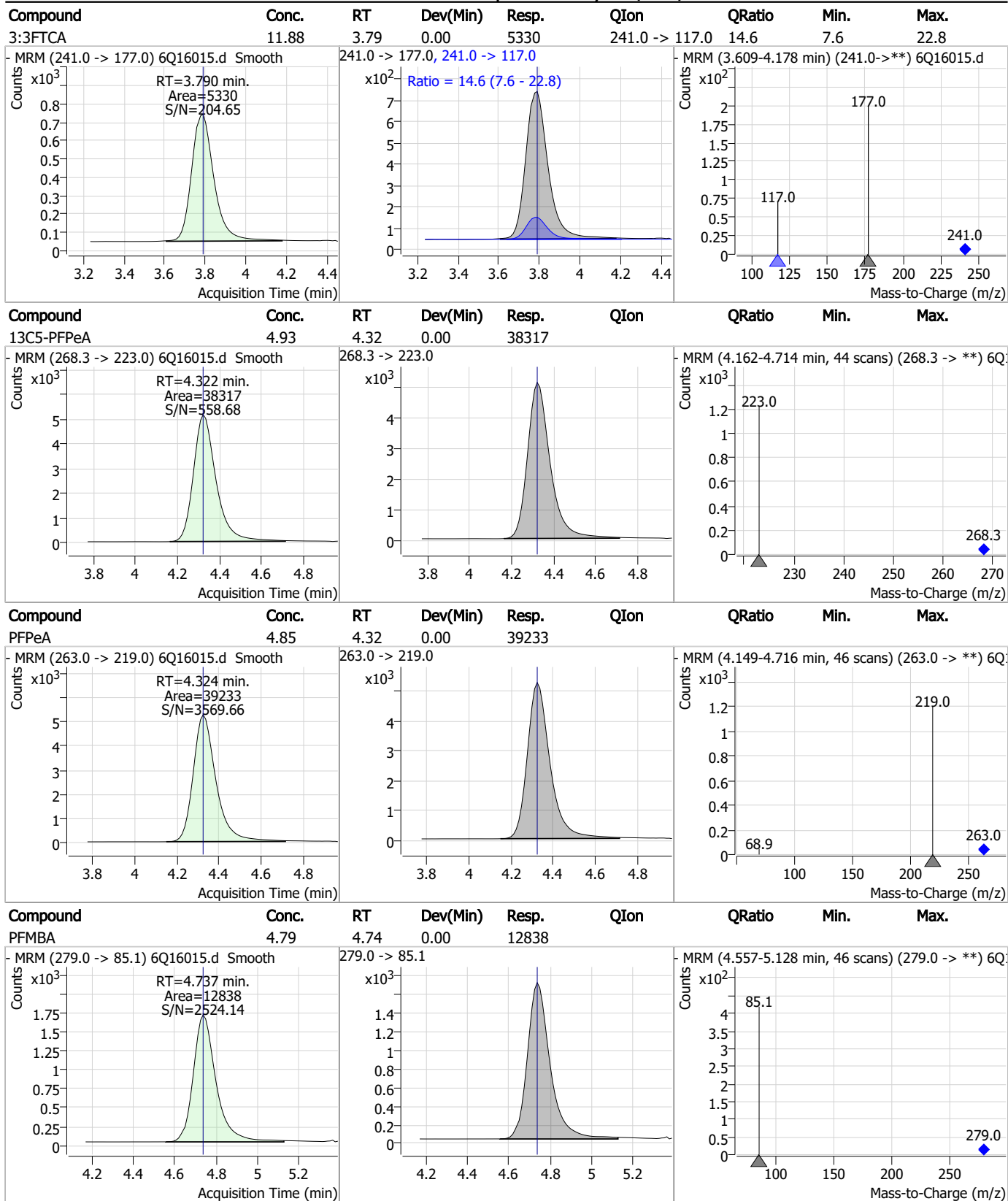
7.6.10

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Perfluorinated Compounds by LC/MS/MS

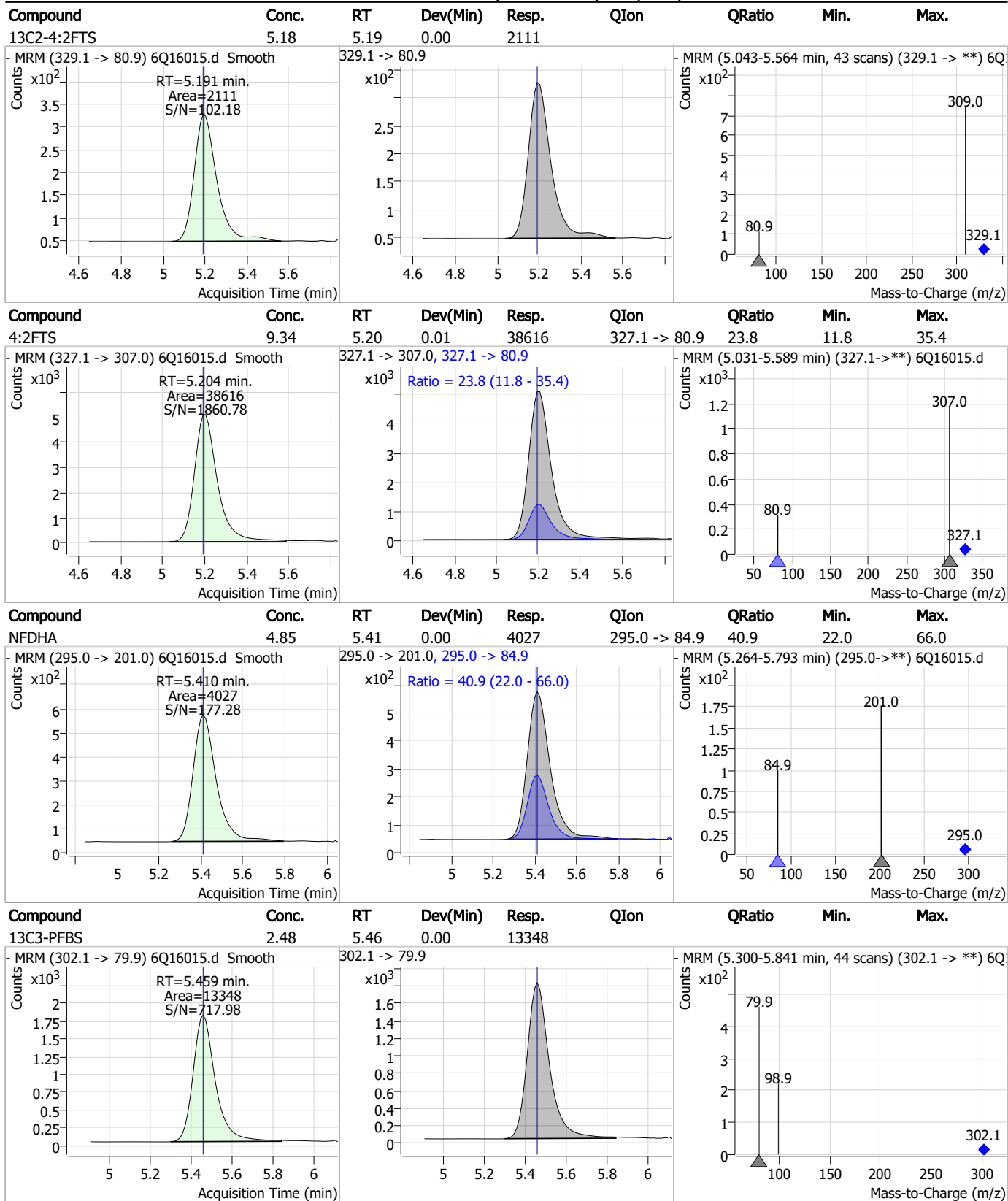


Perfluorinated Compounds by LC/MS/MS



7.6.10 7

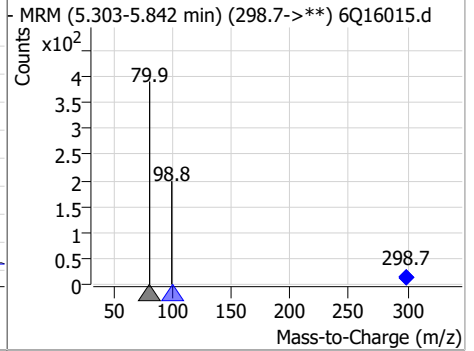
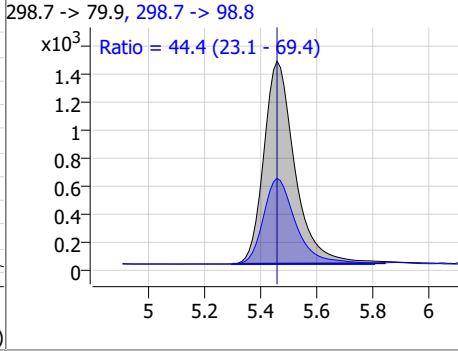
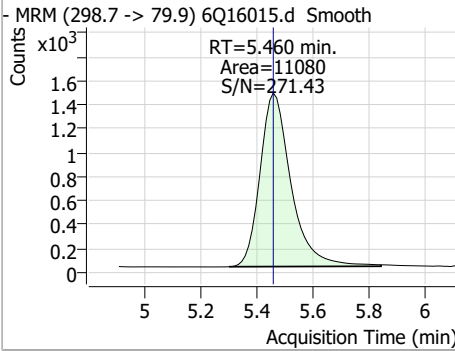
Perfluorinated Compounds by LC/MS/MS



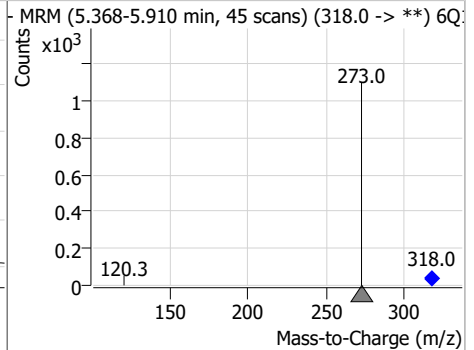
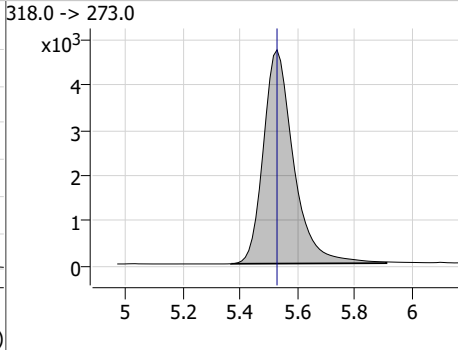
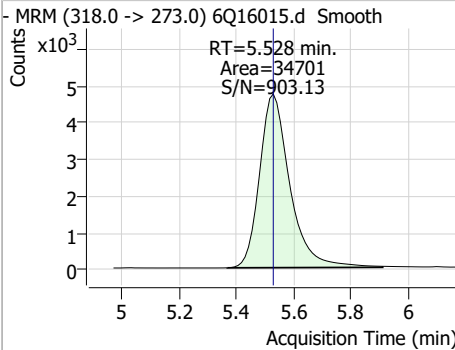
7.6.10 7

Perfluorinated Compounds by LC/MS/MS

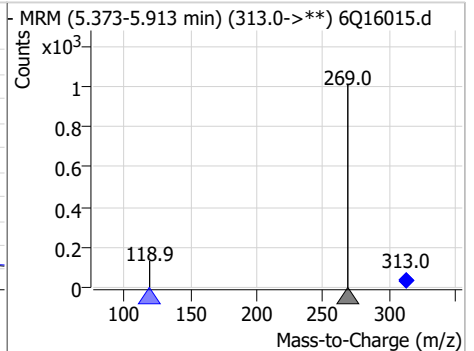
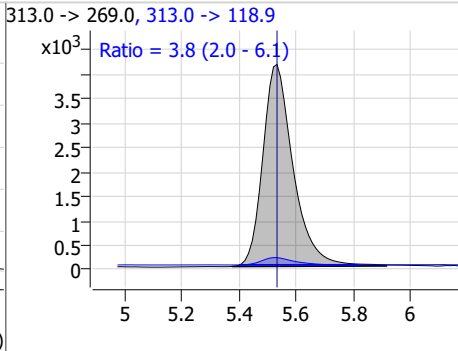
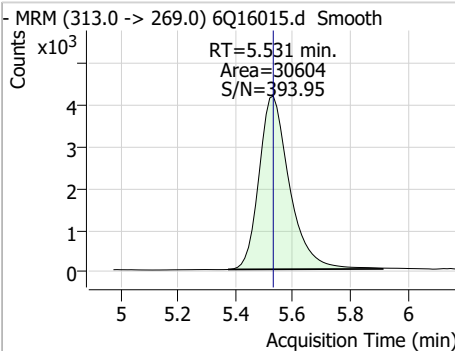
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.12	5.46	0.00	11080	298.7 -> 98.8	44.4	23.1	69.4



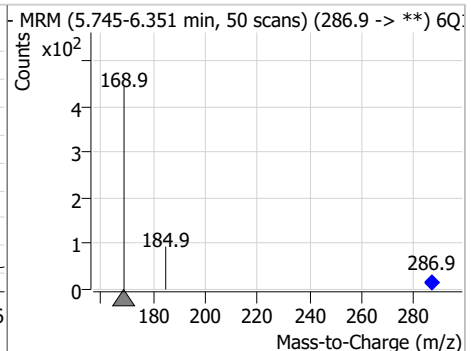
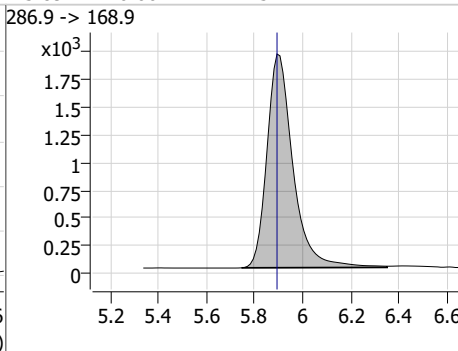
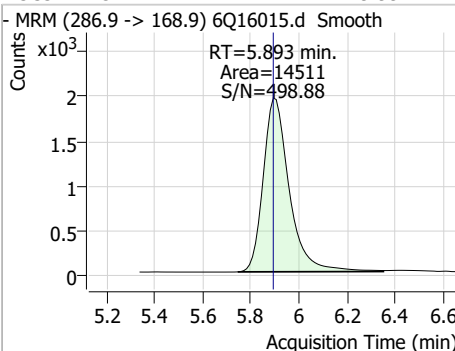
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.52	5.53	0.00	34701				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.39	5.53	0.00	30604	313.0 -> 118.9	3.8	2.0	6.1

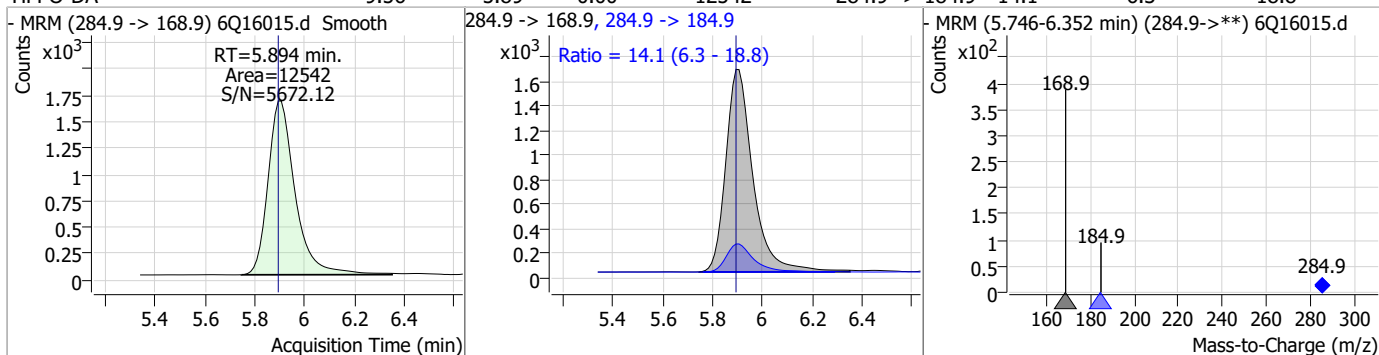


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.99	5.89	0.00	14511				

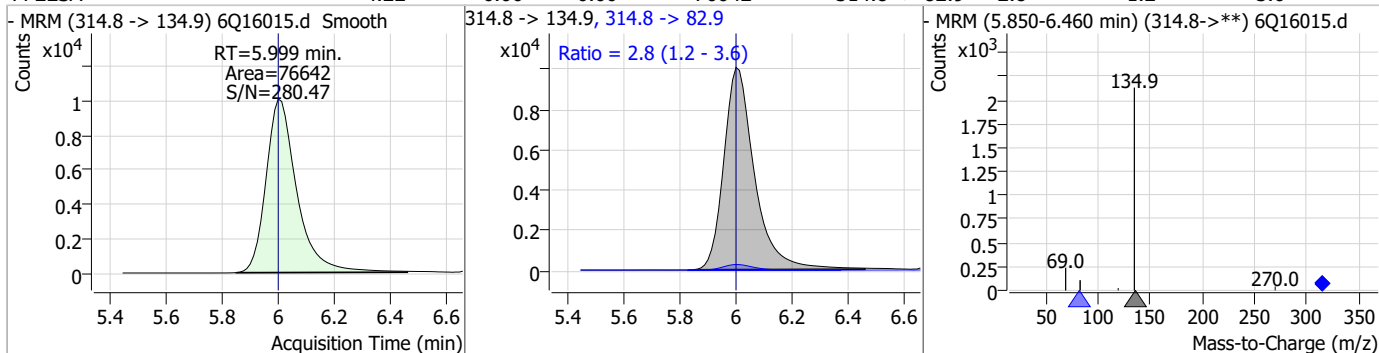


Perfluorinated Compounds by LC/MS/MS

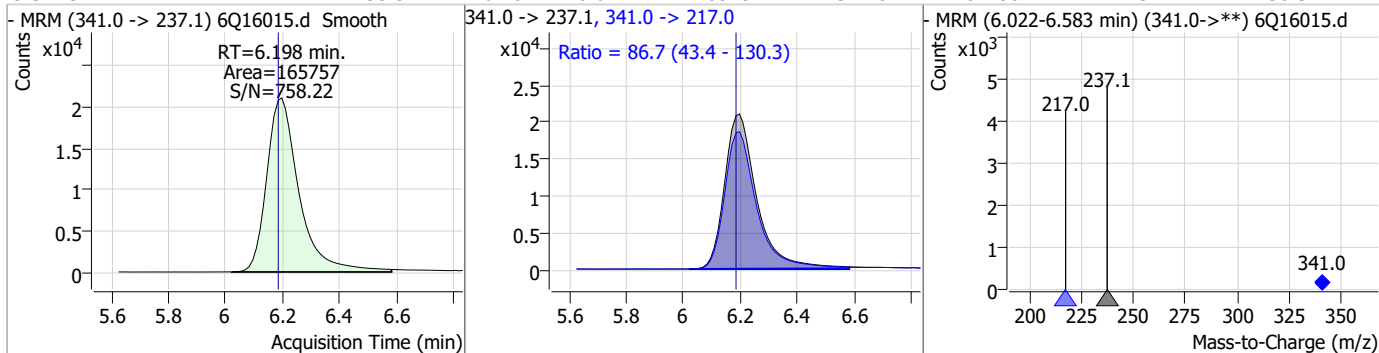
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.56	5.89	0.00	12542	284.9 -> 184.9	14.1	6.3	18.8



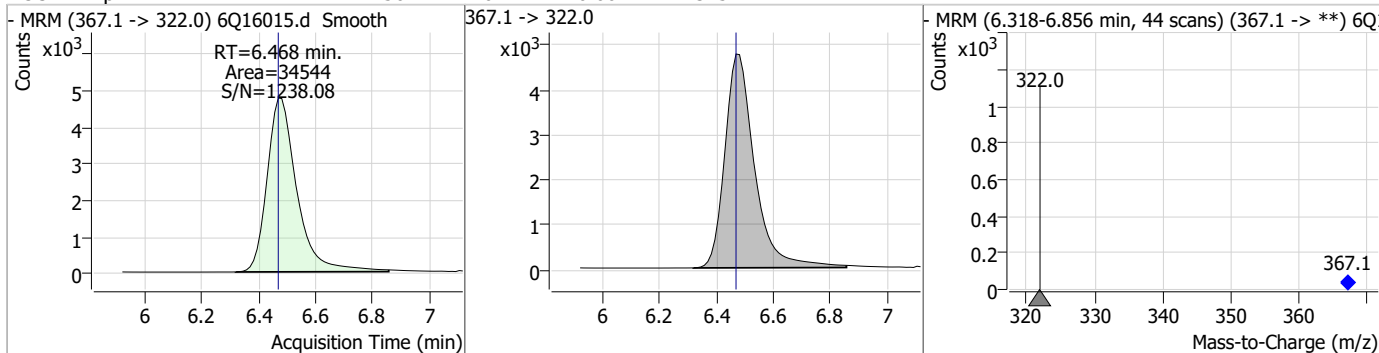
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.22	6.00	0.00	76642	314.8 -> 82.9	2.8	1.2	3.6



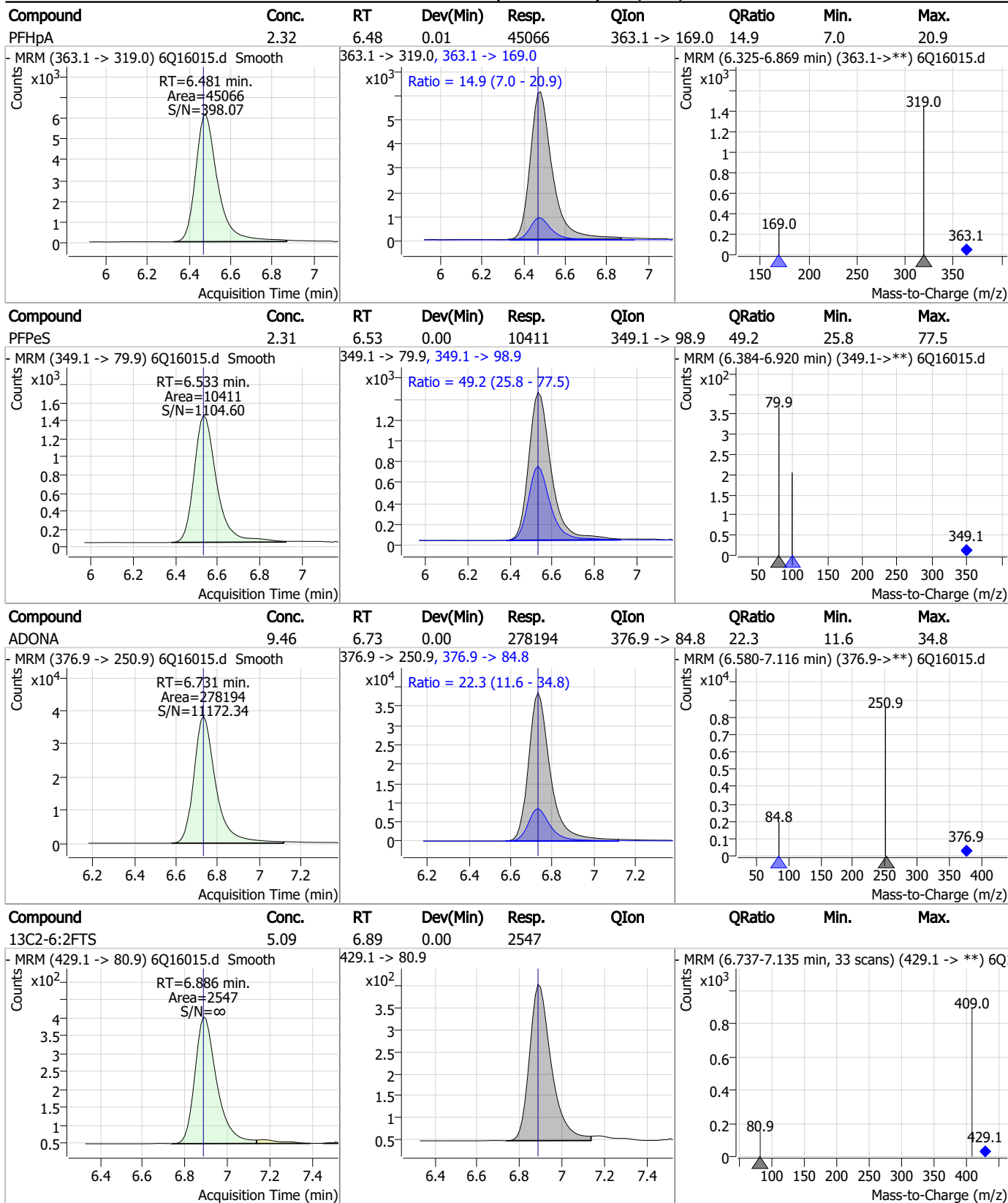
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	58.54	6.20	0.01	165757	341.0 -> 217.0	86.7	43.4	130.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.56	6.47	0.00	34544	367.1 -> 322.0			

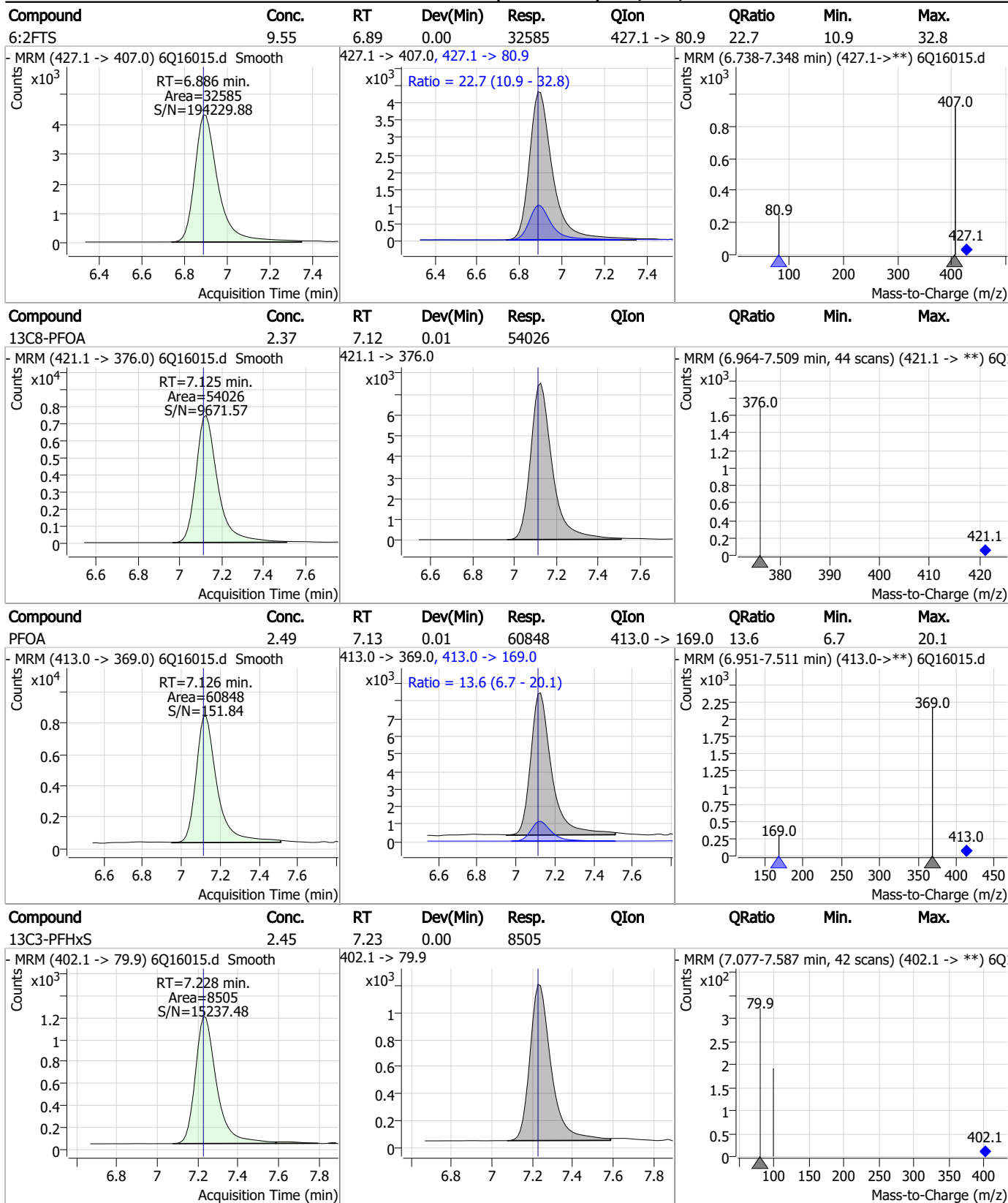


Perfluorinated Compounds by LC/MS/MS



7.6.10 7

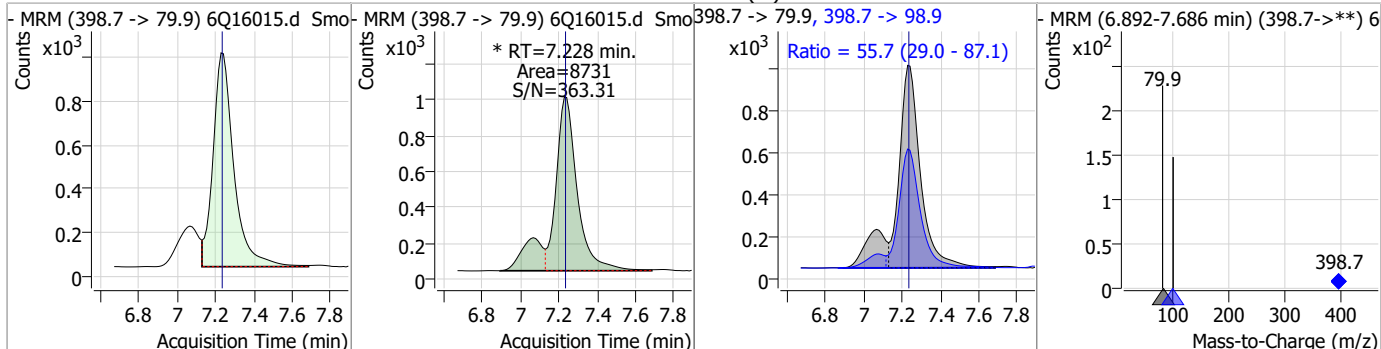
Perfluorinated Compounds by LC/MS/MS



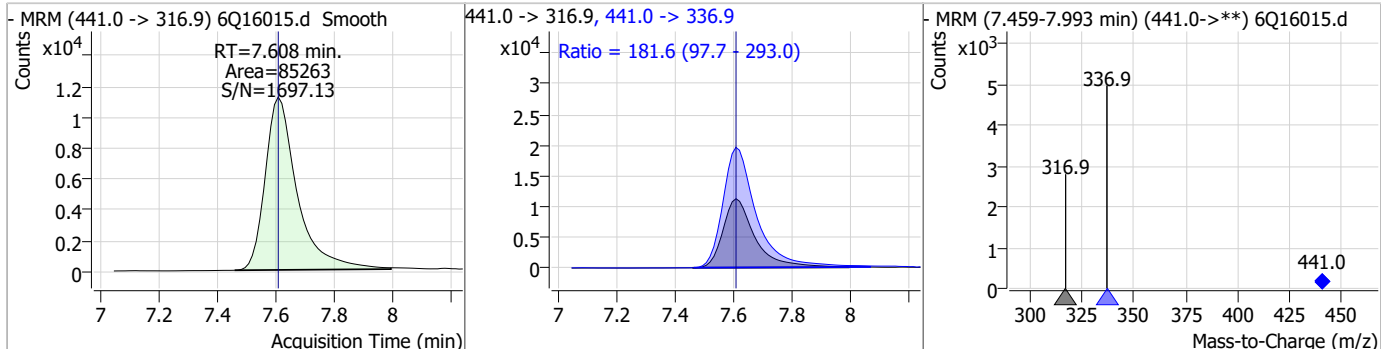
7.6.10 7

Perfluorinated Compounds by LC/MS/MS

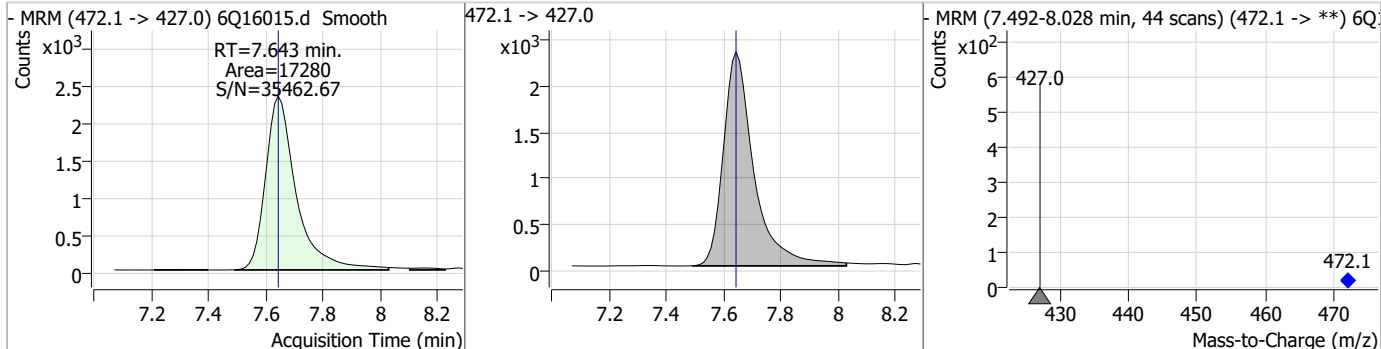
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.33	7.23	0.00	8731 (m)	398.7 -> 98.9	55.7	29.0	87.1



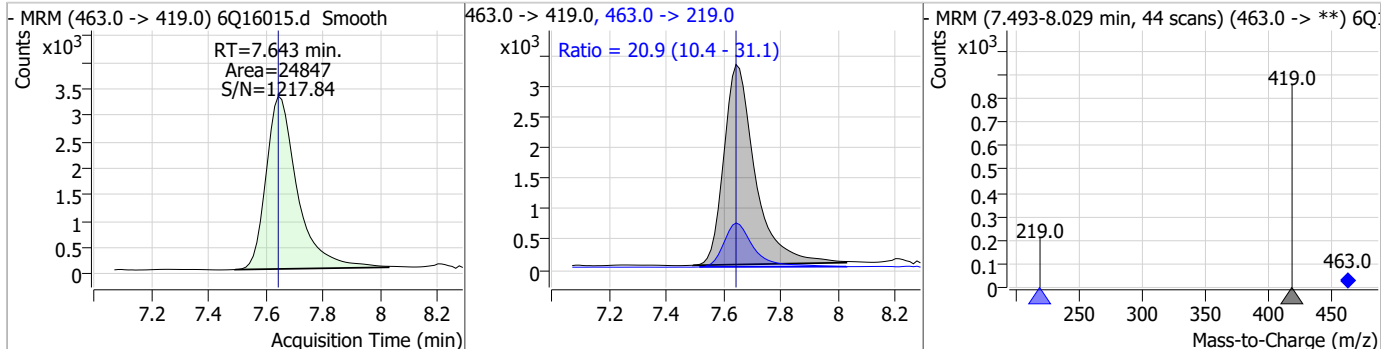
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	59.49	7.61	0.00	85263	441.0 -> 336.9	181.6	97.7	293.0



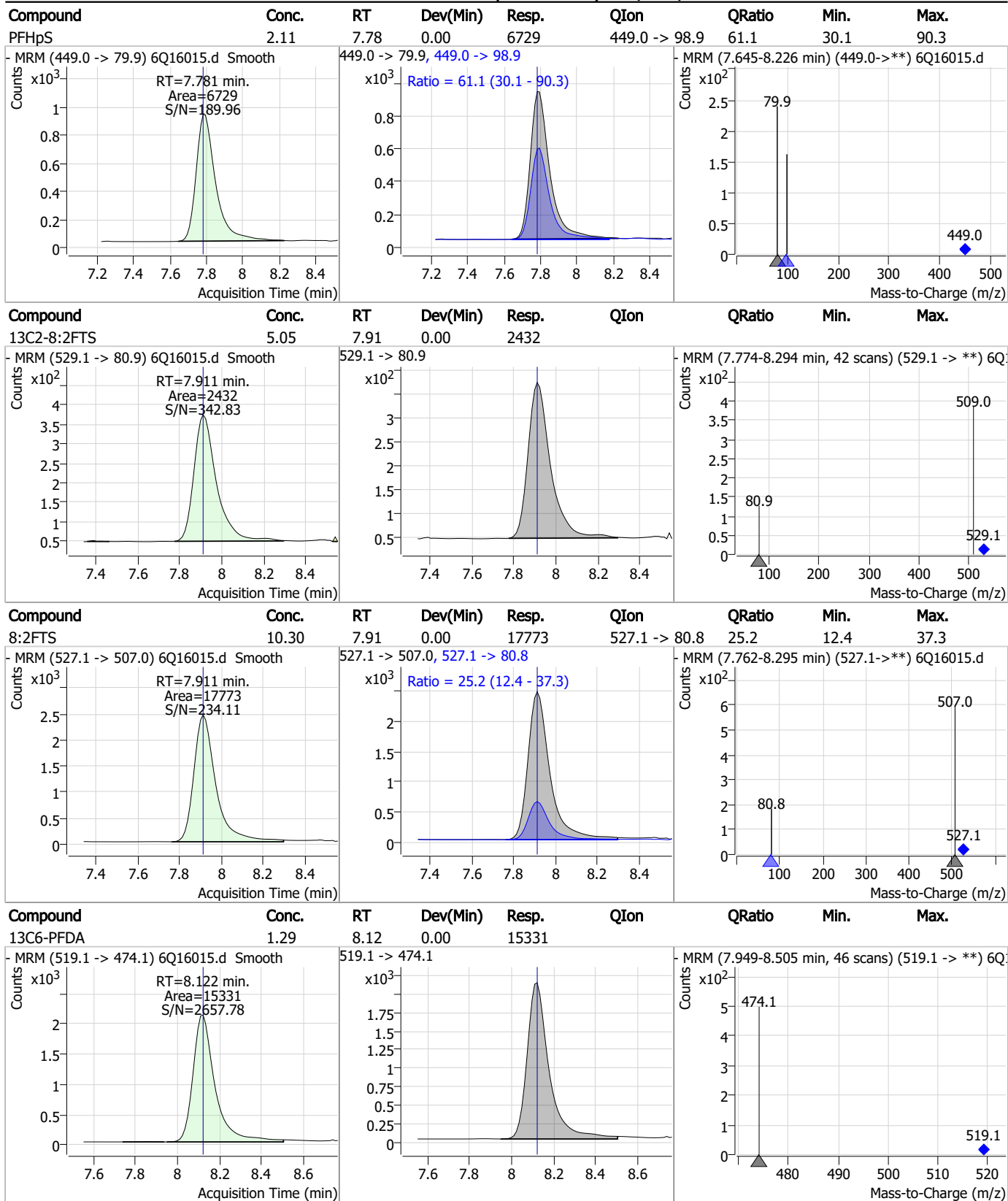
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.31	7.64	0.00	17280				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.21	7.64	0.00	24847	463.0 -> 219.0	20.9	10.4	31.1



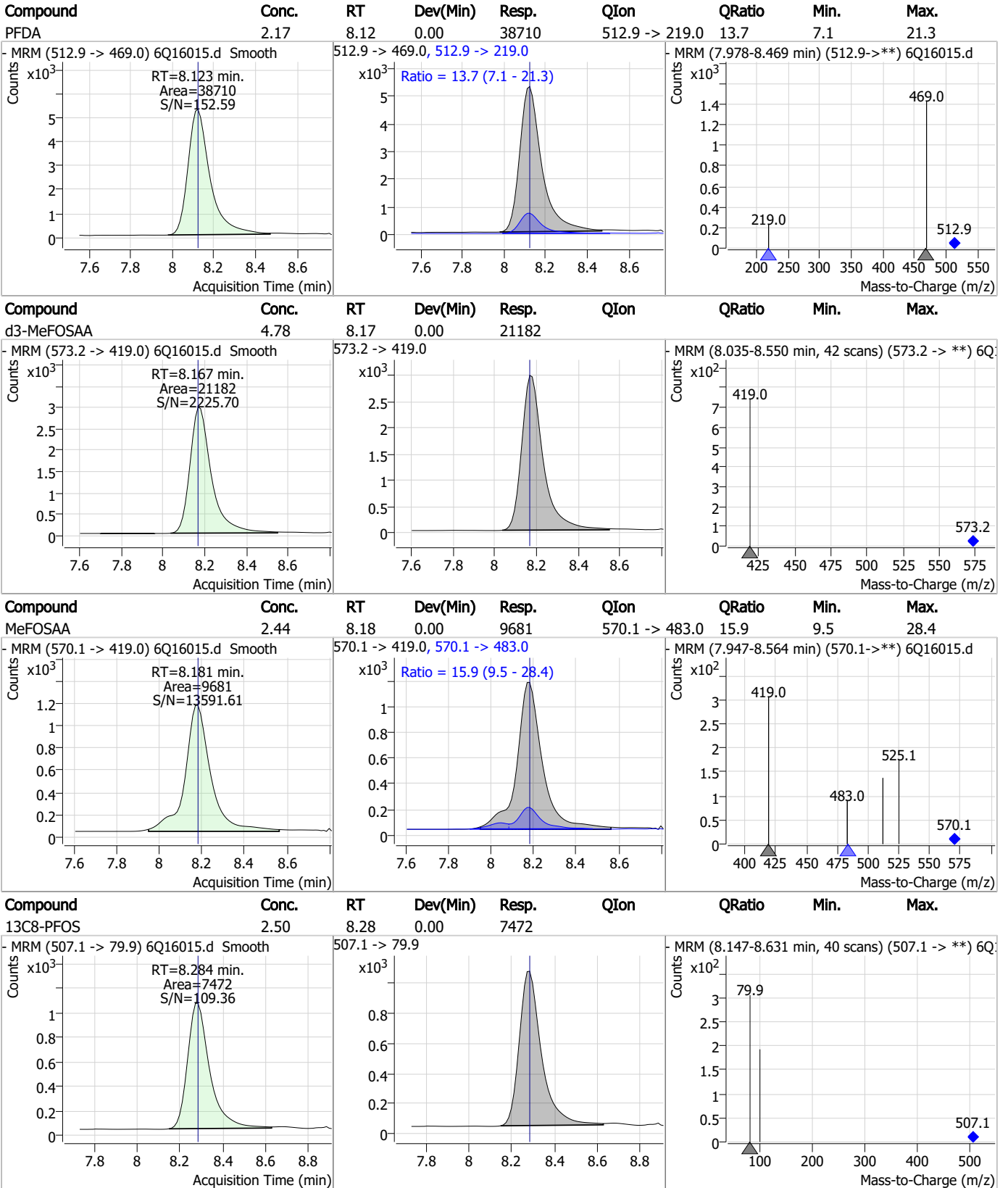
Perfluorinated Compounds by LC/MS/MS



7.6.10 7



Perfluorinated Compounds by LC/MS/MS

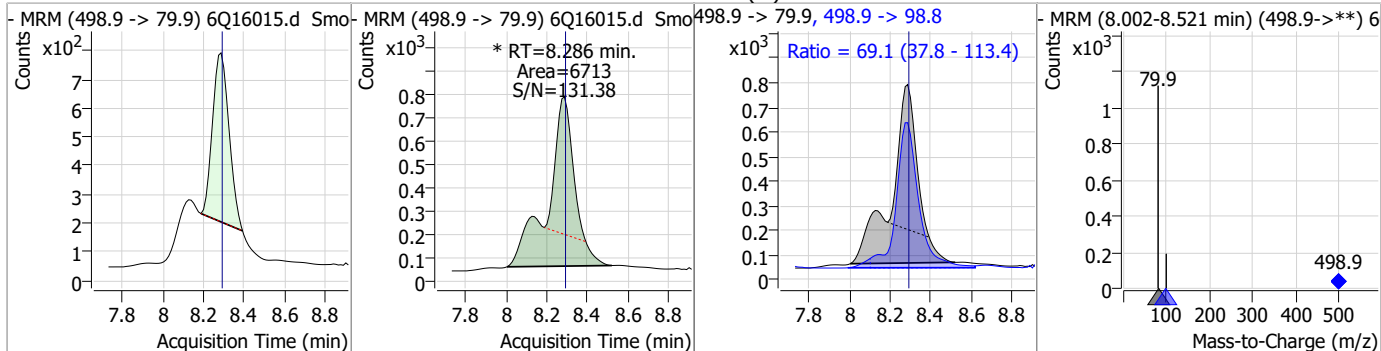


7.6-10

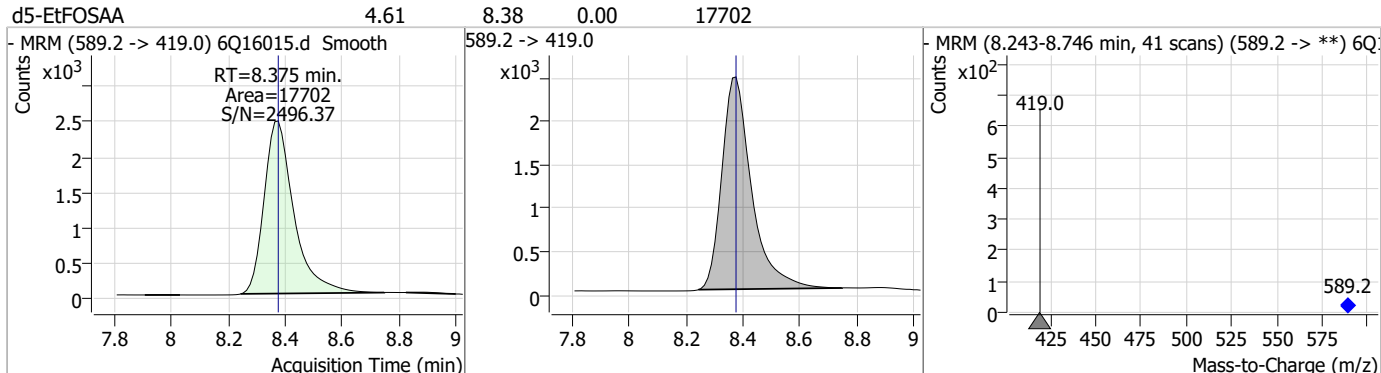
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Perfluorinated Compounds by LC/MS/MS

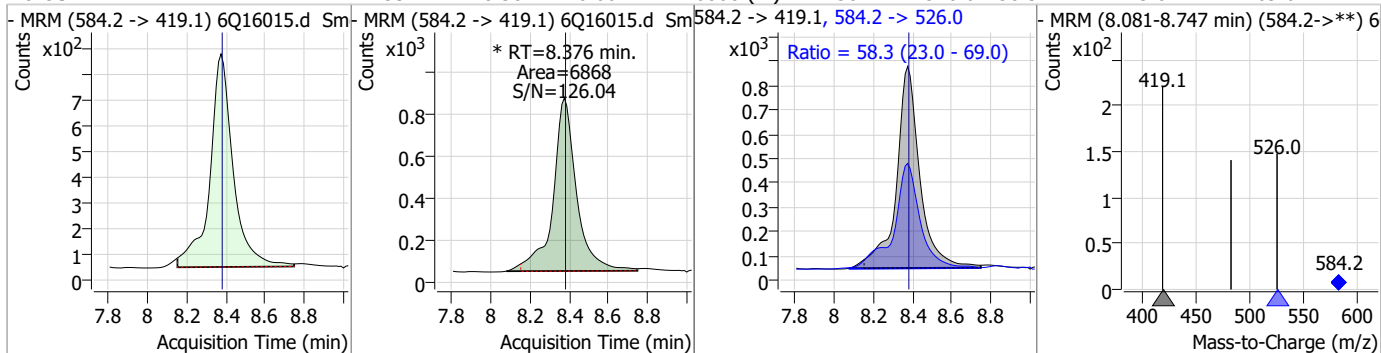
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.04	8.29	0.00	6713 (m)	498.9 -> 98.8	69.1	37.8	113.4



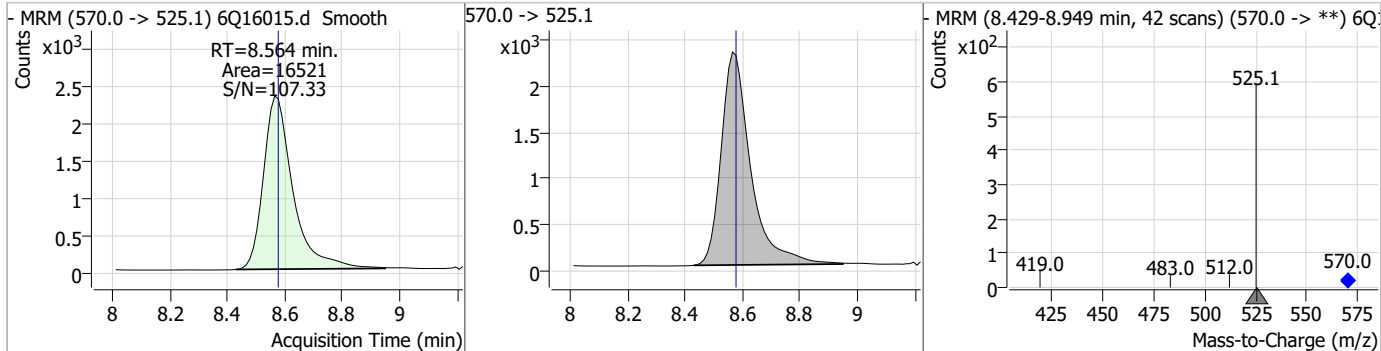
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.61	8.38	0.00	17702				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.53	8.38	0.00	6868 (m)	584.2 -> 526.0	58.3	23.0	69.0

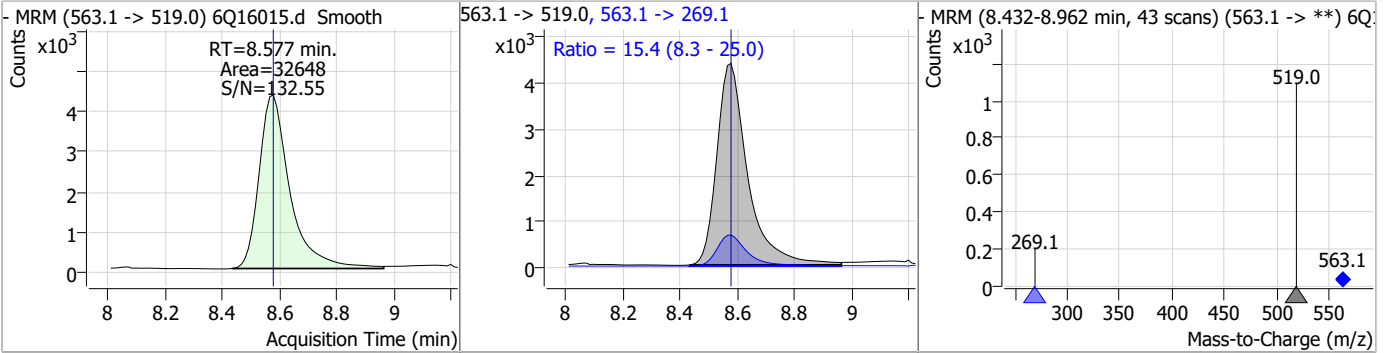


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.19	8.56	-0.01	16521				

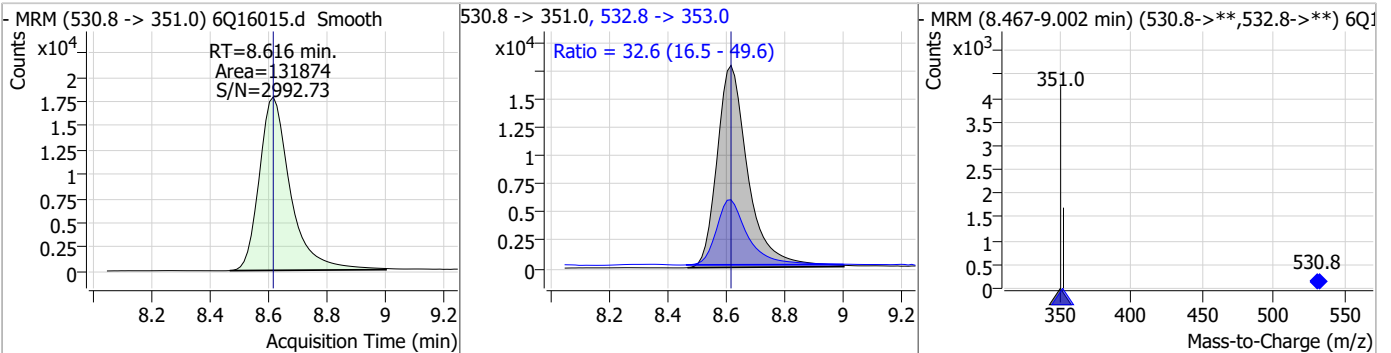


Perfluorinated Compounds by LC/MS/MS

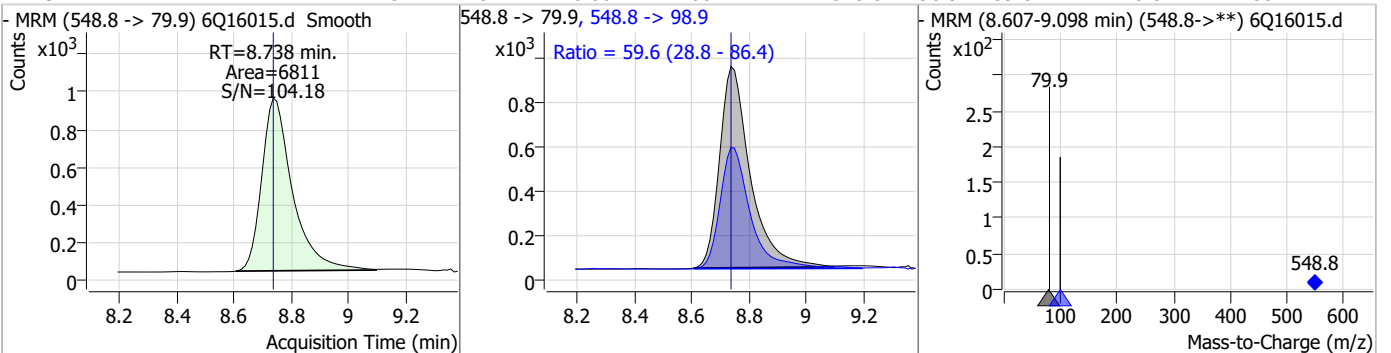
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.47	8.58	0.00	32648	563.1 -> 269.1	15.4	8.3	25.0



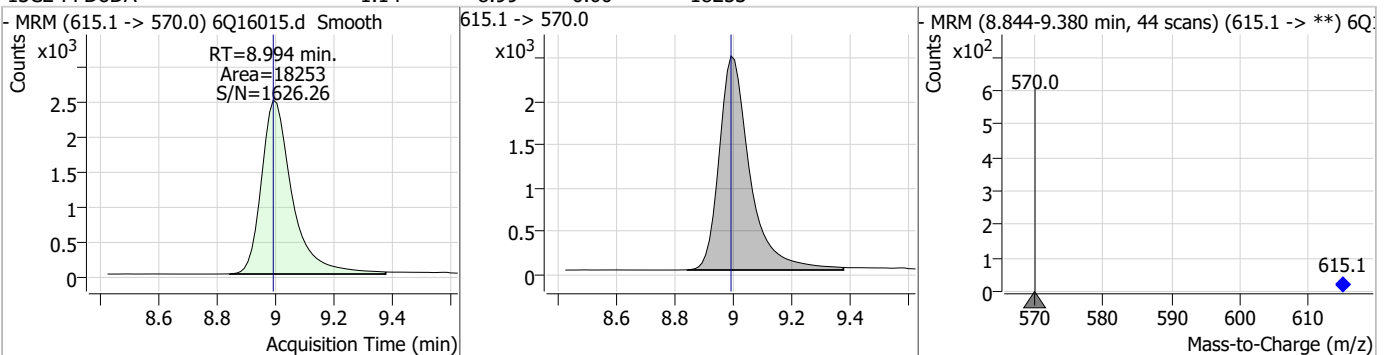
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	8.85	8.62	0.00	131874	532.8 -> 353.0	32.6	16.5	49.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.15	8.74	0.00	6811	548.8 -> 98.9	59.6	28.8	86.4

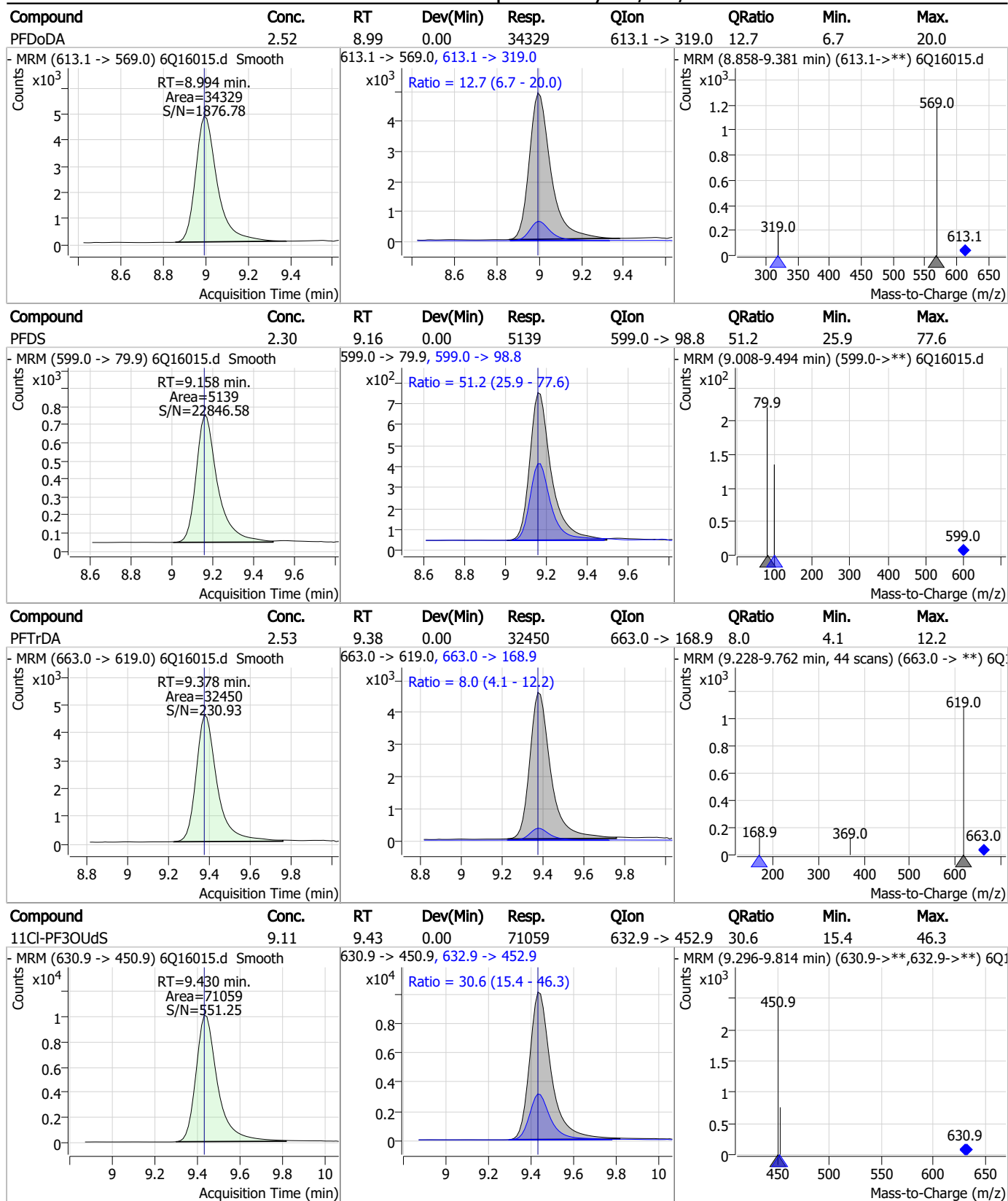


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.14	8.99	0.00	18253	615.1 -> 570.0			



7.6.10 7

Perfluorinated Compounds by LC/MS/MS



7.6.10 7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.36	9.62	0.00	16082				
FOSA	2.59	9.62	0.00	15378	498.1 -> 478.0	3.4	1.8	5.3
13C2-PFTeDA	1.06	9.72	0.00	10175				
PFTeDA	2.66	9.72	0.00	28588	713.1 -> 168.9	7.3	3.1	9.3

7.6-10
7

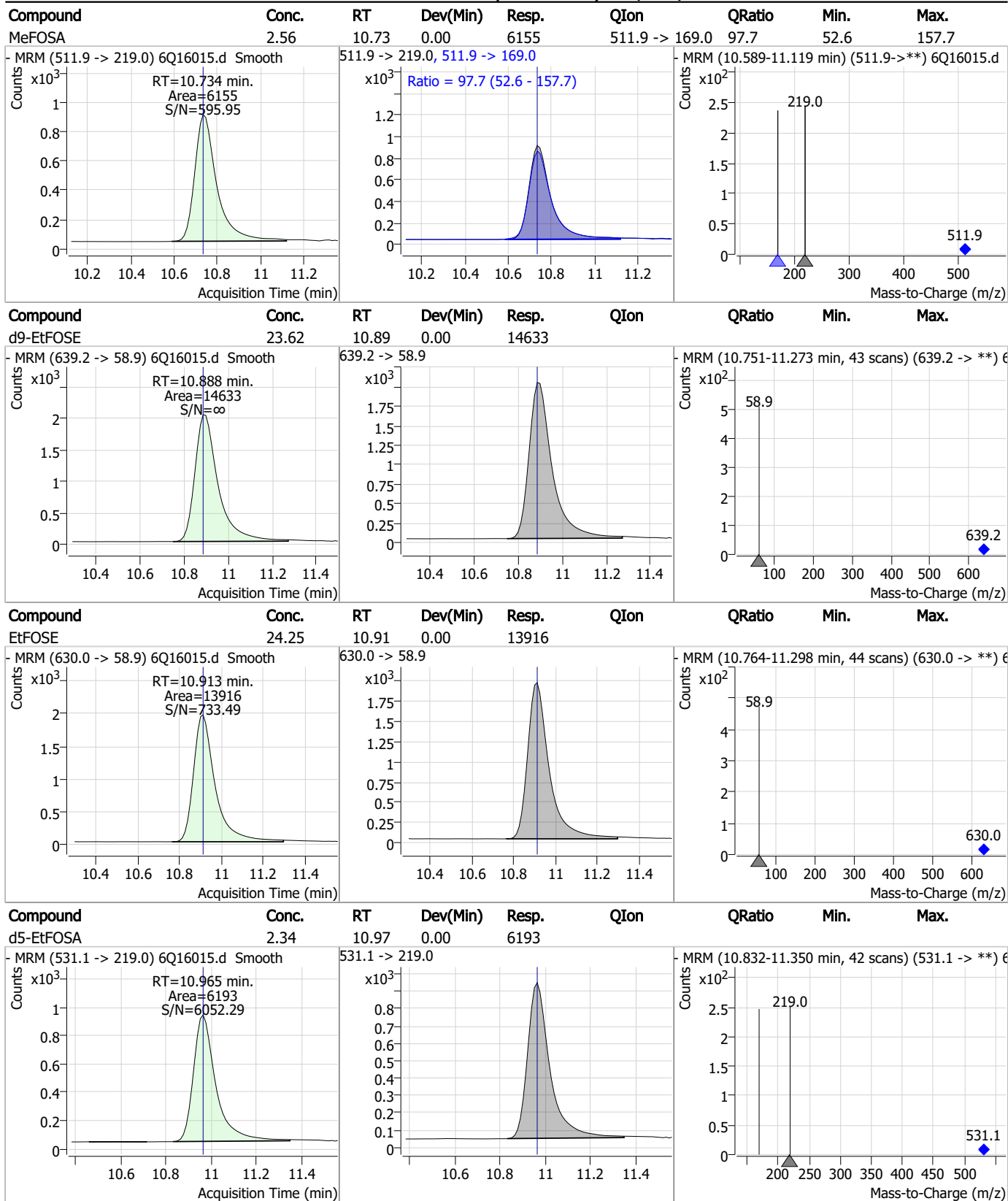


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.24	9.85	0.00	2911	699.1 -> 98.8	63.1	31.4	94.2
d7-MeFOSE	22.66	10.65	0.00	21122				
MeFOSE	24.76	10.67	0.00	19709				
d3-MeFOSA	2.33	10.73	0.00	5717				

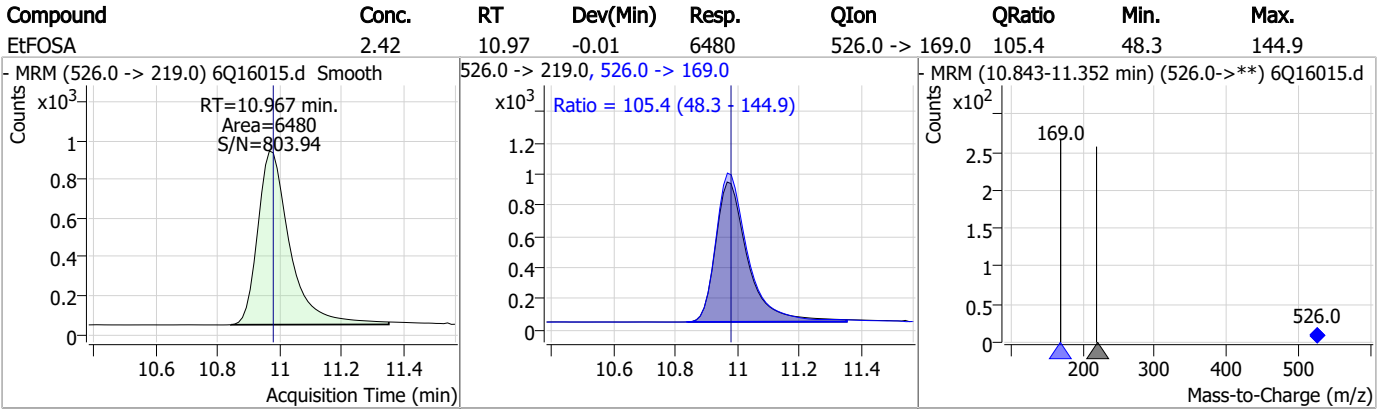
7.6.10
7

Perfluorinated Compounds by LC/MS/MS



7.6.10 7

Perfluorinated Compounds by LC/MS/MS



7.6.10

7

Manual Integration Approval Summary

Sample Number: S6Q239-ICV239 Method: EPA DRAFT 1633
Lab FileID: 6Q16015.D Analyst approved: 04/05/23 11:17 Martha Valls
Injection Time: 04/04/23 16:21 Supervisor approved: 04/05/23 17:23 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.29	Split peak
EtFOSAA	2991-50-6		8.38	Split peak

7.6.10.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16016.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/4/2023 4:35:38 PM
 Sample Name : icv239-20
 Vial : P1-B2
 DA Method File : 1633_040423_S6Q239.quantmethod.xml
 Batch Name : s6q239.batch.bin
 Sample Information : OP96085,S6Q239,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	87999	10.00 µg/L	0.000
M5-PFPeA	4.322	268.3 -> 223.0	38550	5.00 µg/L	0.000
M5-PFHxA	5.528	318.0 -> 273.0	33860	2.50 µg/L	0.000
M4-PFHpA	6.468	367.1 -> 322.0	34121	2.50 µg/L	0.000
M8-PFOA	7.125	421.1 -> 376.0	54089	2.50 µg/L	0.013
M9-PFNA	7.643	472.1 -> 427.0	17763	1.25 µg/L	0.000
M6-PFDA	8.122	519.1 -> 474.1	14965	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	17787	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	19563	1.25 µg/L	0.012
M2-PFTeDA	9.721	715.2 -> 670.0	11485	1.25 µg/L	0.000
M8-FOSA	9.631	506.1 -> 77.8	15575	2.50 µg/L	0.012
M3-PFBS	5.459	302.1 -> 79.9	13248	2.50 µg/L	0.000
M3-PFHxS	7.240	402.1 -> 79.9	8811	2.50 µg/L	0.012
M8-PFOS	8.284	507.1 -> 79.9	8029	2.50 µg/L	0.000
M2-4:2FTS	5.191	329.1 -> 80.9	2081	5.00 µg/L	0.000
M2-6:2FTS	6.898	429.1 -> 80.9	2722	5.00 µg/L	0.012
M2-8:2FTS	7.911	529.1 -> 80.9	2613	5.00 µg/L	0.000
M3-MeFOSAA	8.180	573.2 -> 419.0	21514	5.00 µg/L	0.012
M3-HFPO-DA	5.893	286.9 -> 168.9	14645	10.00 µg/L	0.000
M5-EtFOSAA	8.375	589.2 -> 419.0	17872	5.00 µg/L	0.000
M7-MeFOSE	10.653	623.2 -> 58.9	21858	25.00 µg/L	0.000
M9-EtFOSE	10.888	639.2 -> 58.9	14733	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	6143	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	5910	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	9225	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	37317	5.00 µg/L	0.000
18O2-PFHxS	7.239	403.0 -> 83.9	5820	2.50 µg/L	0.012
13C4-PFOA	7.112	417.1 -> 372.0	68114	2.50 µg/L	0.000
13C2-PFDA	8.123	515.1 -> 470.1	20090	1.25 µg/L	0.000
13C5-PFNA	7.643	468.0 -> 423.0	18660	1.25 µg/L	0.000
13C2-PFHxA	5.529	315.1 -> 270.0	33760	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.191	329.1 -> 80.9	2081	5.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.3%		
13C2-6:2FTS	6.898	429.1 -> 80.9	2722	5.67 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.3%		
13C2-8:2FTS	7.911	529.1 -> 80.9	2613	5.65 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.9%		
13C2-PFDoDA	9.006	615.1 -> 570.0	19563	1.23 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C2-PFTeDA	9.721	715.2 -> 670.0	11485	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.5%		
13C3-PFBS	5.459	302.1 -> 79.9	13248	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.4%		
13C3-PFHxS	7.240	402.1 -> 79.9	8811	2.64 µg/L	0.012

7.6.11
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.8%		
13C4-PFBA	2.897	216.8 -> 171.9	87999	10.09 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C4-PFHpA	6.468	367.1 -> 322.0	34121	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C5-PFHxA	5.528	318.0 -> 273.0	33860	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C5-PFPeA	4.322	268.3 -> 223.0	38550	4.90 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.9%		
13C6-PFDA	8.122	519.1 -> 474.1	14965	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C7-PFUnDA	8.576	570.0 -> 525.1	17787	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C8-FOSA	9.631	506.1 -> 77.8	15575	2.27 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 90.8%		
13C8-PFOA	7.125	421.1 -> 376.0	54089	2.38 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.1%		
13C8-PFOS	8.284	507.1 -> 79.9	8029	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.8%		
13C9-PFNA	7.643	472.1 -> 427.0	17763	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.9%		
d3-MeFOSAA	8.180	573.2 -> 419.0	21514	4.82 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.4%		
13C3-HFPO-DA	5.893	286.9 -> 168.9	14645	9.95 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.5%		
d3-MeFOSA	10.733	515.0 -> 219.0	5910	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.6%		
d5-EtFOSAA	8.375	589.2 -> 419.0	17872	4.62 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.5%		
d7-MeFOSE	10.653	623.2 -> 58.9	21858	23.28 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 93.1%		
d9-EtFOSE	10.888	639.2 -> 58.9	14733	23.61 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 94.4%		
d5-EtFOSA	10.965	531.1 -> 219.0	6143	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.1%		
Target Compounds					QValue
4:2FTS	5.192	327.1 -> 307.0	89453	21.94 µg/L	100
		327.1 -> 80.9	21057		
6:2FTS	6.886	427.1 -> 407.0	75543	20.73 µg/L	96
		427.1 -> 80.9	15006		
8:2FTS	7.911	527.1 -> 507.0	37816	20.40 µg/L	97
		527.1 -> 80.8	9852		
EtFOSAA	8.376	584.2 -> 419.1	60720	22.16 µg/L	m 86
		584.2 -> 526.0	33448		
FOSA	9.621	498.1 -> 77.9	129122	22.44 µg/L	100
		498.1 -> 478.0	4570		
MeFOSAA	8.168	570.1 -> 419.0	81923	20.31 µg/L	92
		570.1 -> 483.0	12626		
PFBA	2.906	212.8 -> 168.9	43389	19.51 µg/L	100
PFBS	5.460	298.7 -> 79.9	113329	21.81 µg/L	97
		298.7 -> 98.8	50105		
PFDA	8.123	512.9 -> 469.0	356263	20.45 µg/L	97
		512.9 -> 219.0	45814		
PFDoDA	9.007	613.1 -> 569.0	272022	18.67 µg/L	96
		613.1 -> 319.0	31769		
PFDS	9.170	599.0 -> 79.9	42516	17.71 µg/L	93

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	24149			
PFHpA	6.469	363.1 -> 319.0	401410	20.92	µg/L	99
		363.1 -> 169.0	56916			
PFHpS	7.794	449.0 -> 79.9	64801	18.88	µg/L	92
		449.0 -> 98.9	35251			
PFHxA	5.531	313.0 -> 269.0	268629	21.49	µg/L	100
		313.0 -> 118.9	10696			
PFHxS	7.241	398.7 -> 79.9	81083	20.92	µg/L	m 95
		398.7 -> 98.9	44011			
PFNA	7.643	463.0 -> 419.0	240639	20.79	µg/L	98
		463.0 -> 219.0	47877			
PFNS	8.751	548.8 -> 79.9	62198	18.24	µg/L	95
		548.8 -> 98.9	38116			
PFOA	7.126	413.0 -> 369.0	524798	21.43	µg/L	100
		413.0 -> 169.0	69861			
PFOS	8.286	498.9 -> 79.9	57728	16.35	µg/L	m 80
		498.9 -> 98.8	33613			
PFPeA	4.324	263.0 -> 219.0	179502	22.07	µg/L	100
PFPeS	6.533	349.1 -> 79.9	95327	20.42	µg/L	99
		349.1 -> 98.9	50084			
PFTeDA	9.722	713.1 -> 669.0	256505	21.14	µg/L	98
		713.1 -> 168.9	17690			
PFTrDA	9.390	663.0 -> 619.0	253567	18.44	µg/L	99
		663.0 -> 168.9	19892			
PFUnDA	8.577	563.1 -> 519.0	263100	18.48	µg/L	95
		563.1 -> 269.1	37492			
11CI-PF3OUdS	9.442	630.9 -> 450.9	173122	21.99	µg/L	99
		632.9 -> 452.9	52269			
9CI-PF3ONS	8.616	530.8 -> 351.0	303183	20.17	µg/L	98
		532.8 -> 353.0	96221			
ADONA	6.731	376.9 -> 250.9	619320	20.87	µg/L	99
		376.9 -> 84.8	139775			
HFPO-DA	5.894	284.9 -> 168.9	26524	20.03	µg/L	99
		284.9 -> 184.9	3175			
3:3FTCA	3.790	241.0 -> 177.0	8700	19.28	µg/L	100
		241.0 -> 117.0	1332			
5:3FTCA	6.198	341.0 -> 237.1	54857	19.86	µg/L	100
		341.0 -> 217.0	47519			
7:3FTCA	7.608	441.0 -> 316.9	27884	19.94	µg/L	95
		441.0 -> 336.9	52496			
EtFOSA	10.967	526.0 -> 219.0	56153	21.18	µg/L	95
		526.0 -> 169.0	51744			
EtFOSE	10.913	630.0 -> 58.9	51434	89.02	µg/L	100
MeFOSA	10.734	511.9 -> 219.0	49209	19.79	µg/L	95
		511.9 -> 169.0	49191			
MeFOSE	10.666	616.1 -> 58.9	72203	87.63	µg/L	100
PFDoDS	9.861	699.1 -> 79.9	22311	16.00	µg/L	100
		699.1 -> 98.8	13929			
NFDHA	5.410	295.0 -> 201.0	15576	19.22	µg/L	94
		295.0 -> 84.9	7434			
PFMBA	4.737	279.0 -> 85.1	53131	19.72	µg/L	100
PFMPA	3.463	229.0 -> 84.9	50990	20.74	µg/L	100
PFEESA	5.999	314.8 -> 134.9	323328	18.26	µg/L	100
		314.8 -> 82.9	8023			

= Qualifier out of range, m = manually integrated, + = Area summed



7.6.11
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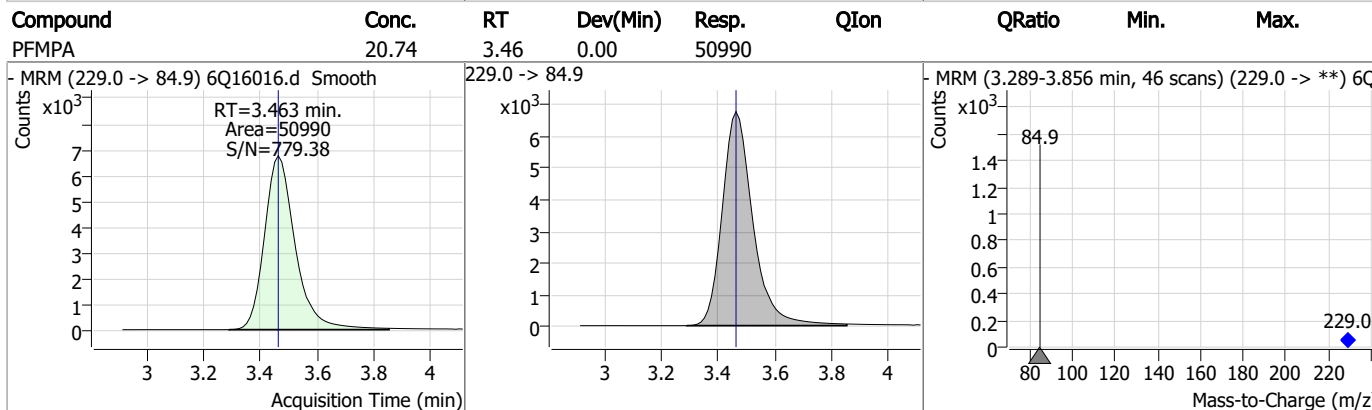
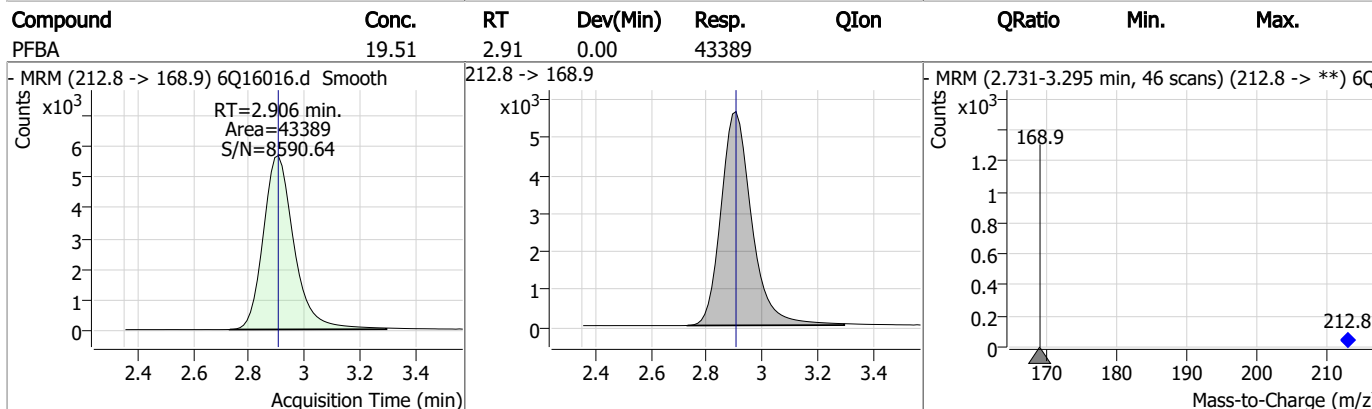
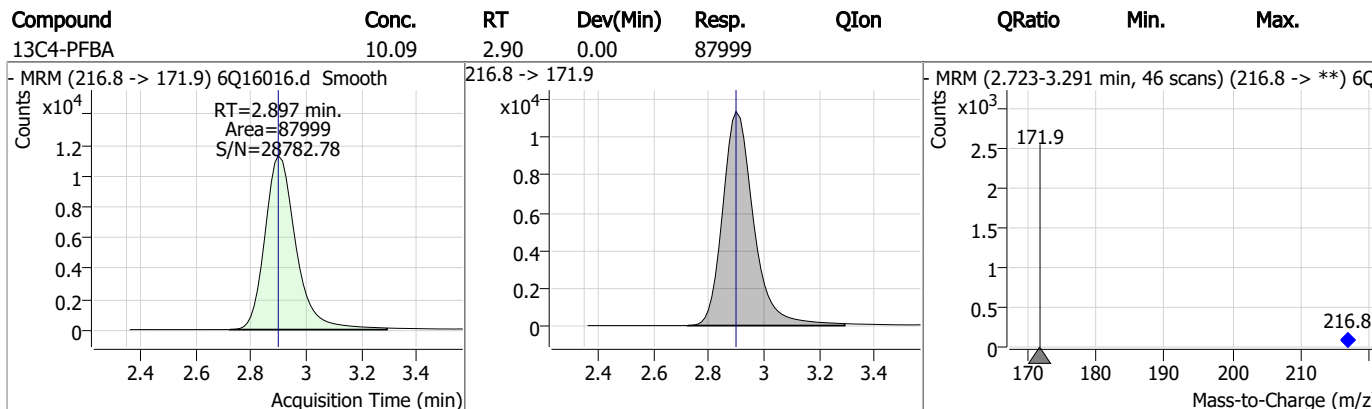
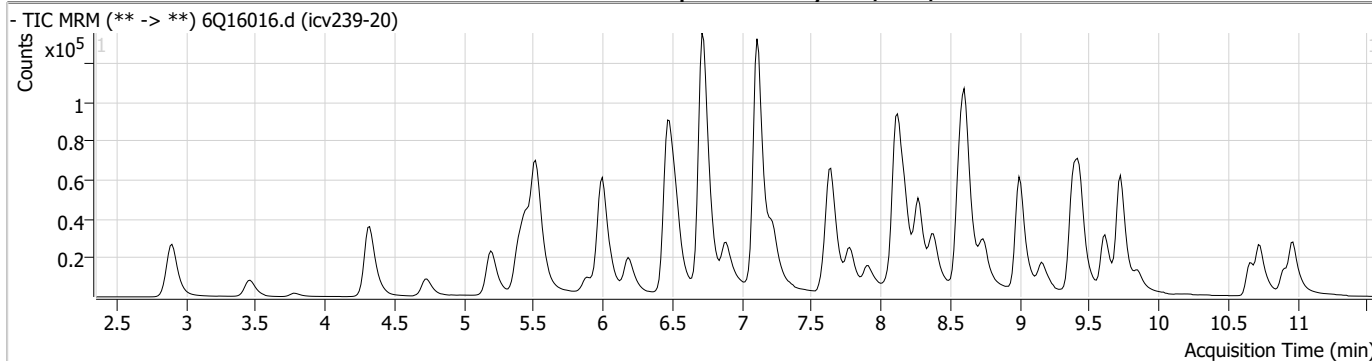
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.6.11

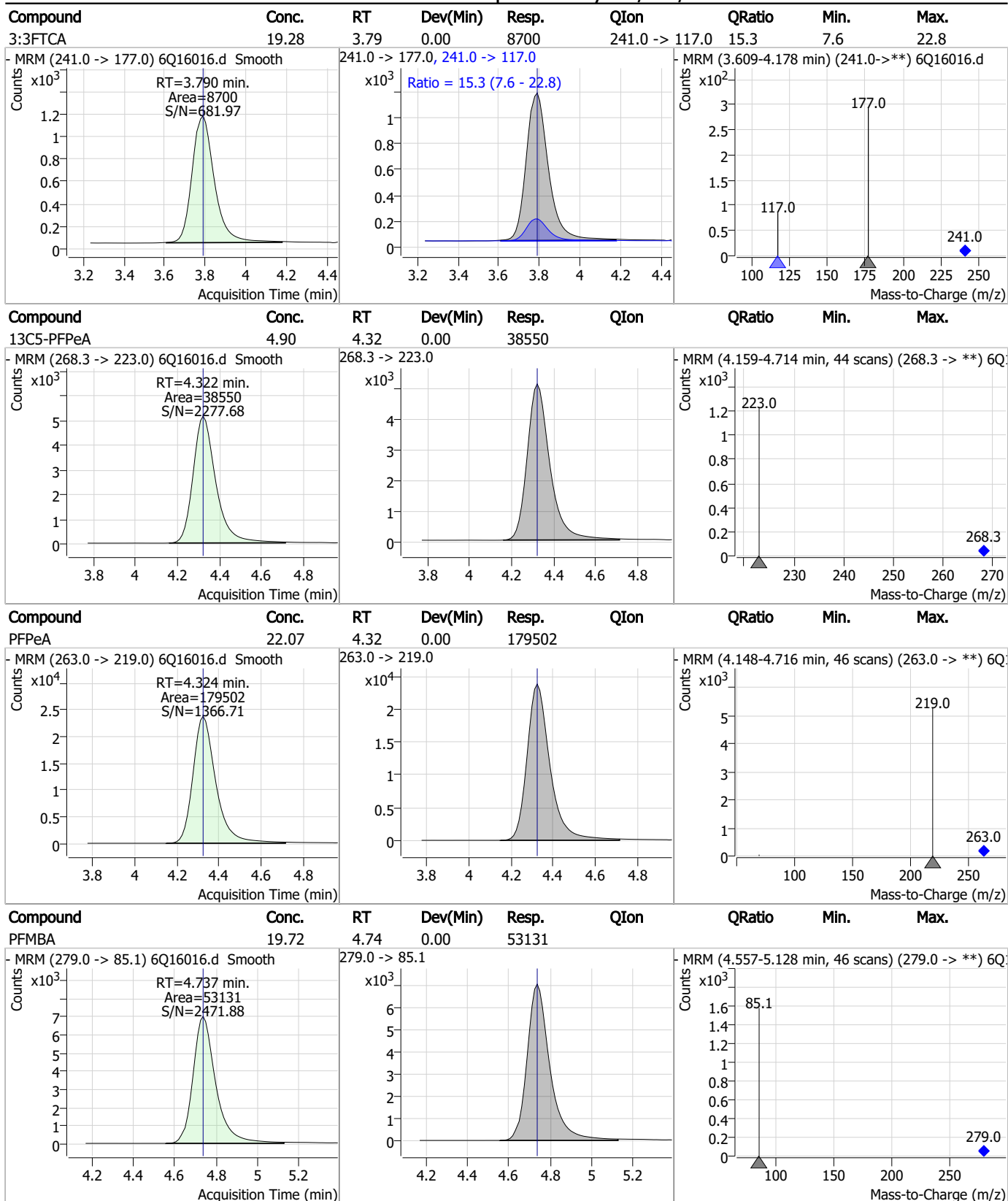
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Perfluorinated Compounds by LC/MS/MS



7.6.11
7

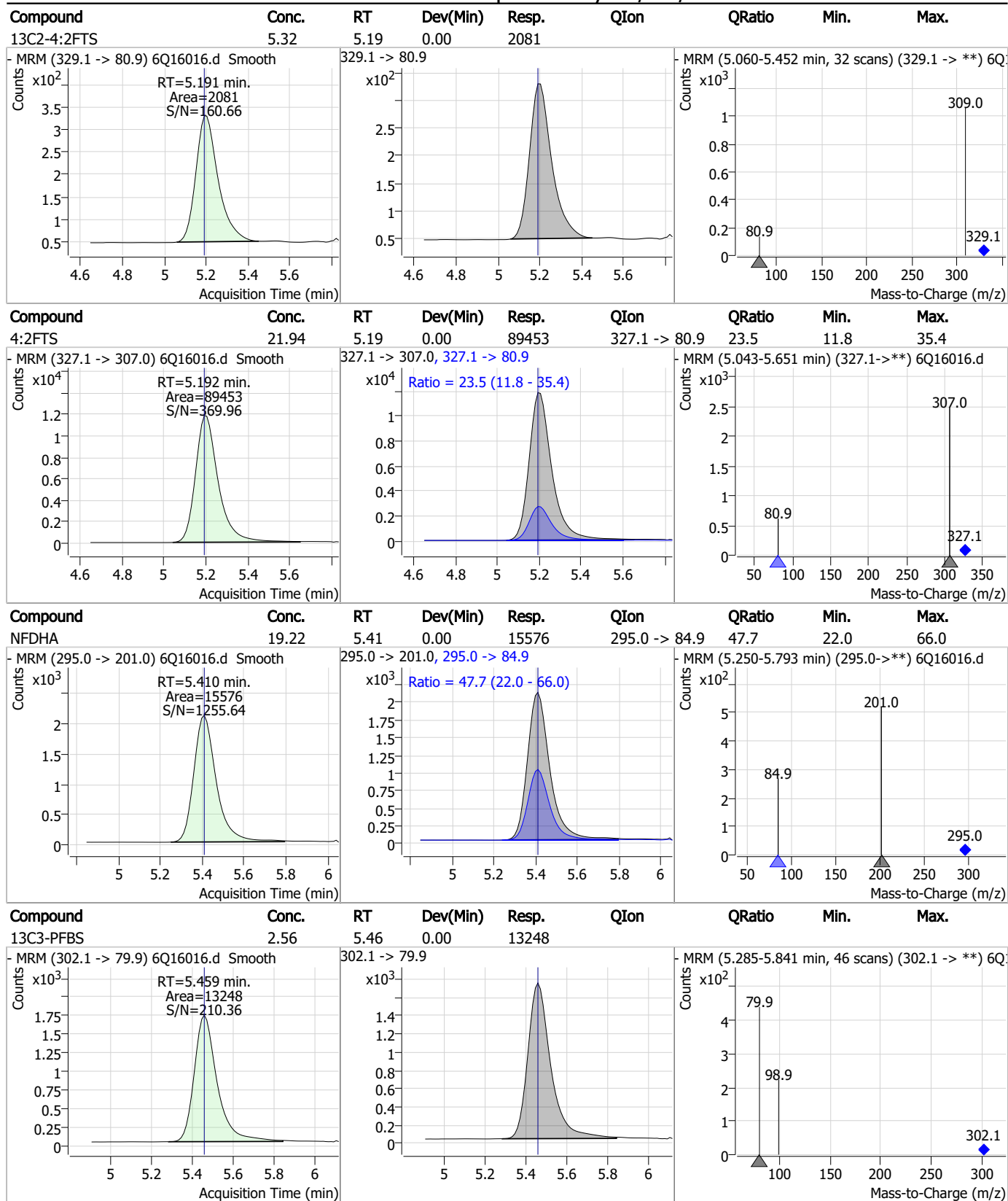
Perfluorinated Compounds by LC/MS/MS



7.6.11

7

Perfluorinated Compounds by LC/MS/MS

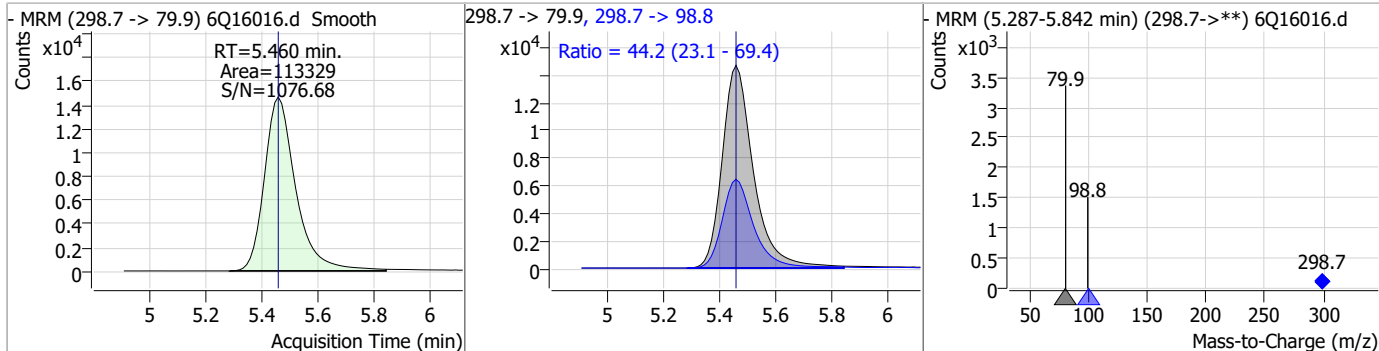


7.6.11

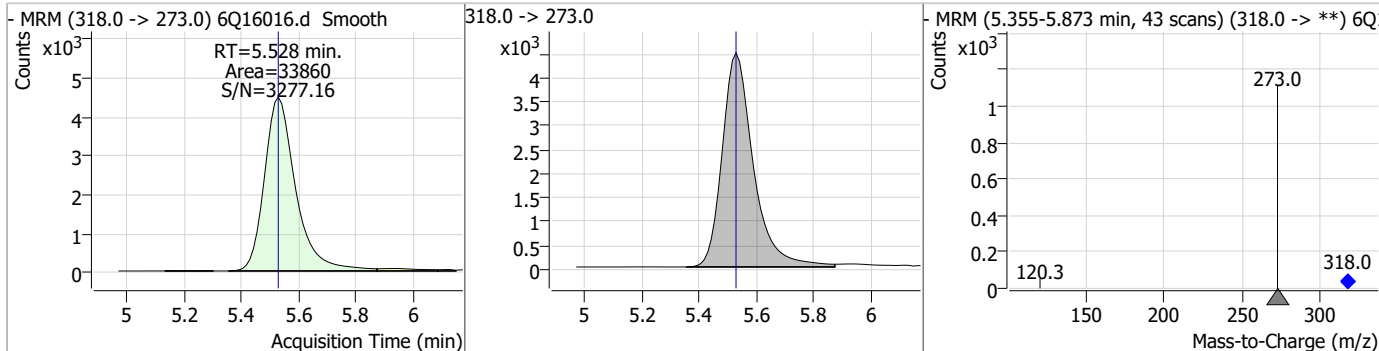
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Perfluorinated Compounds by LC/MS/MS

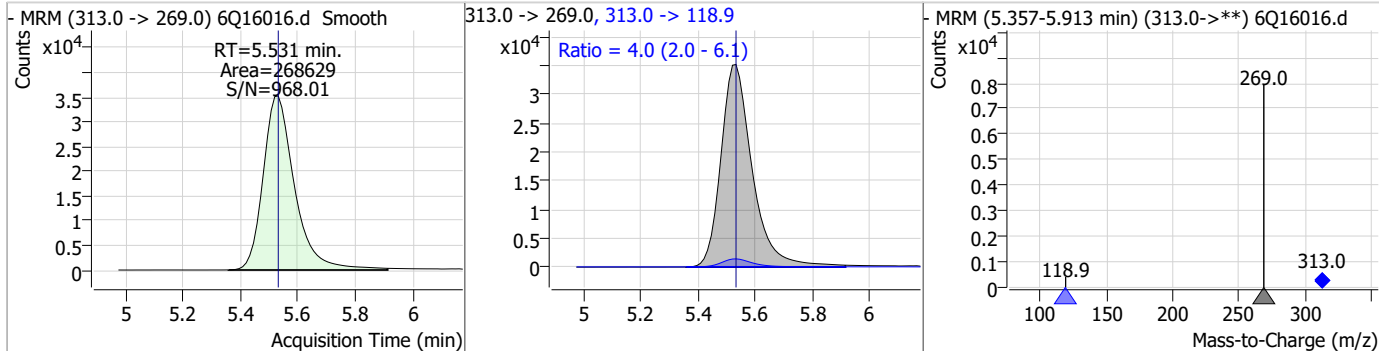
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	21.81	5.46	0.00	113329	298.7 -> 98.8	44.2	23.1	69.4



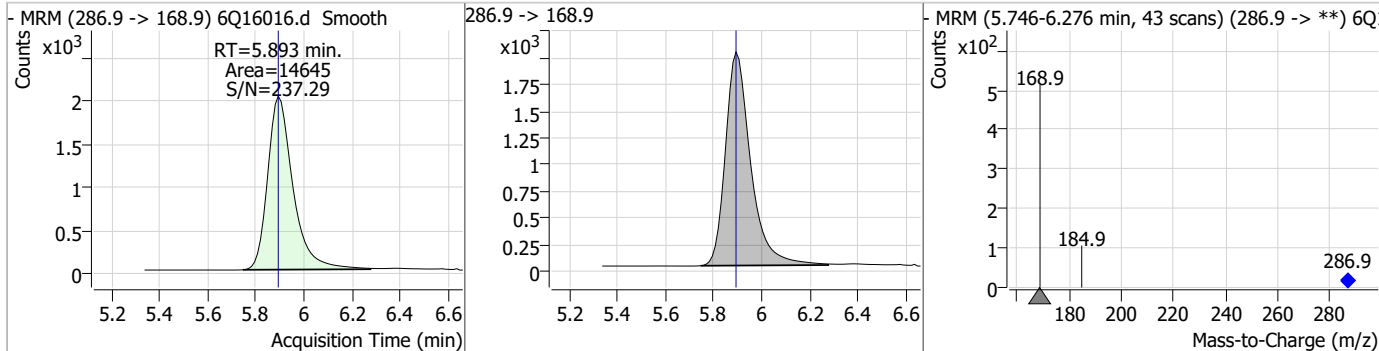
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.42	5.53	0.00	33860				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	21.49	5.53	0.00	268629	313.0 -> 118.9	4.0	2.0	6.1

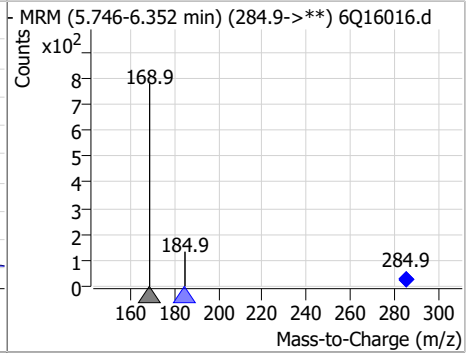
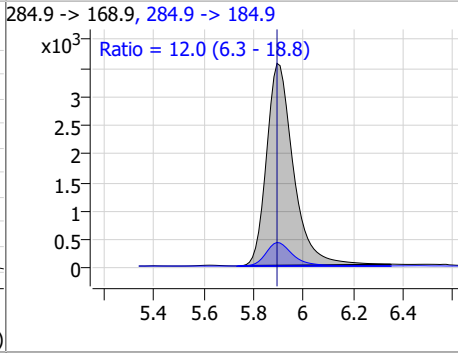
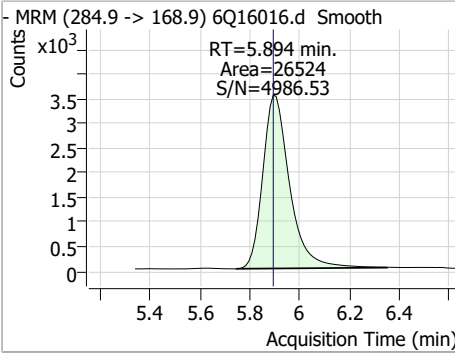


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.95	5.89	0.00	14645				

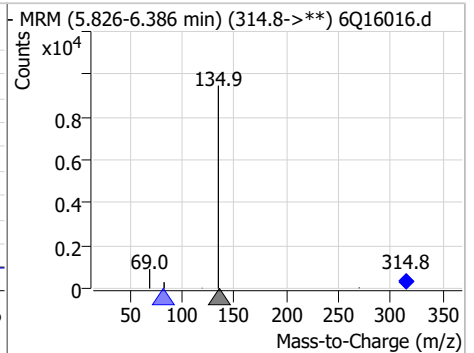
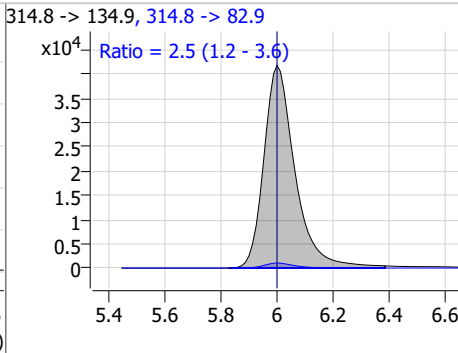
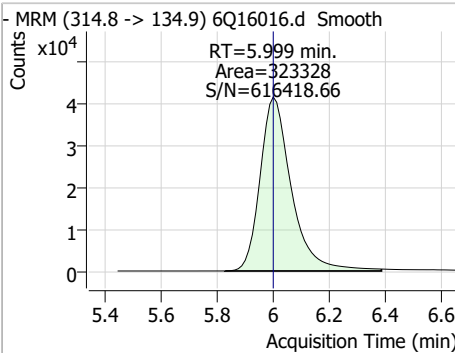


Perfluorinated Compounds by LC/MS/MS

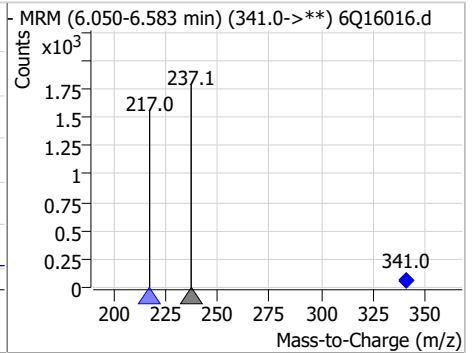
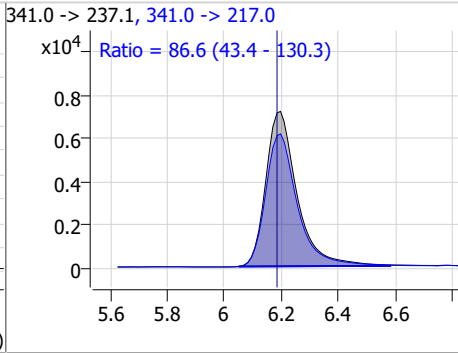
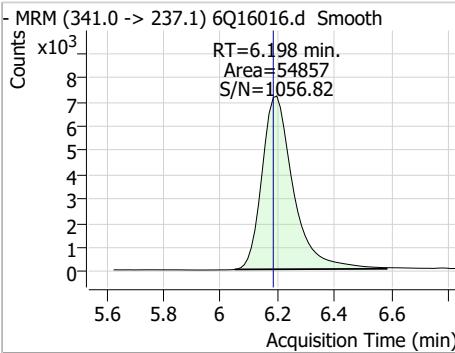
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	20.03	5.89	0.00	26524	284.9 -> 184.9	12.0	6.3	18.8



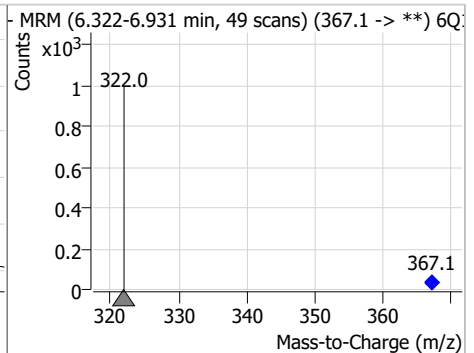
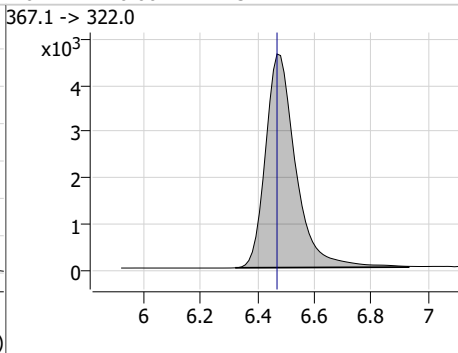
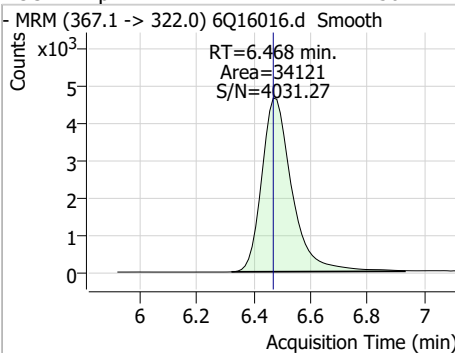
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	18.26	6.00	0.00	323328	314.8 -> 82.9	2.5	1.2	3.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	19.86	6.20	0.01	54857	341.0 -> 217.0	86.6	43.4	130.3



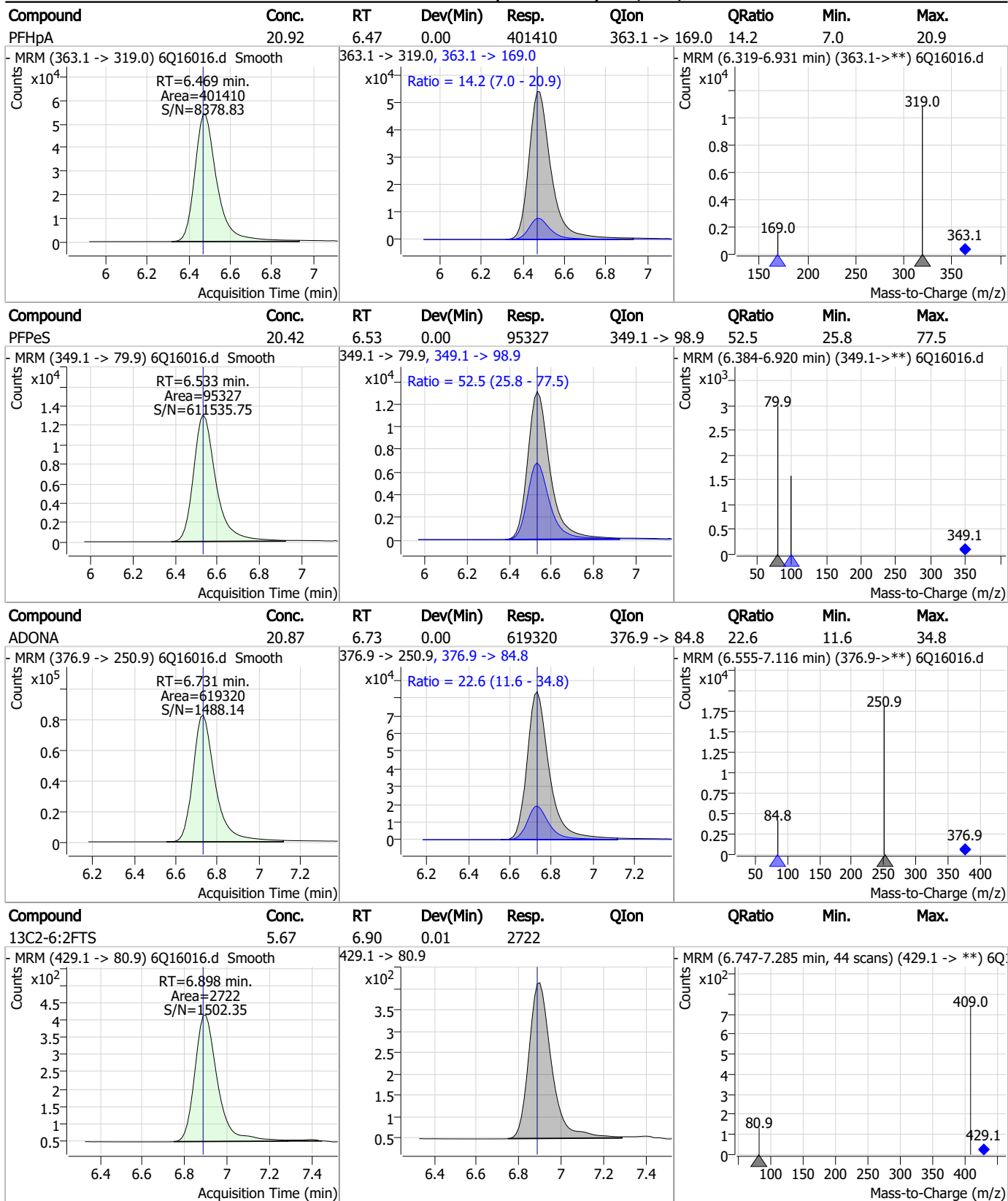
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.50	6.47	0.00	34121	367.1 -> 322.0			



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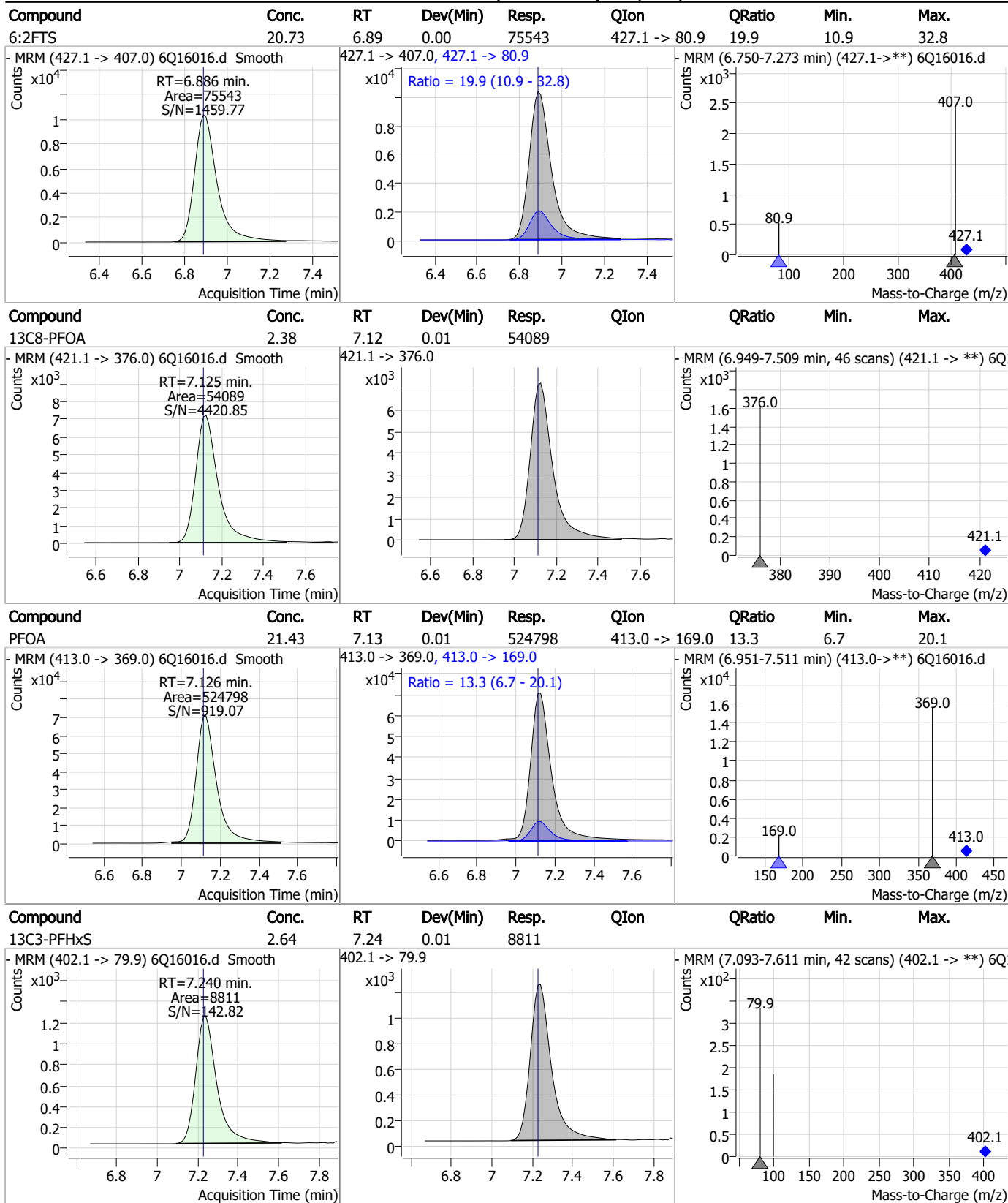
Perfluorinated Compounds by LC/MS/MS



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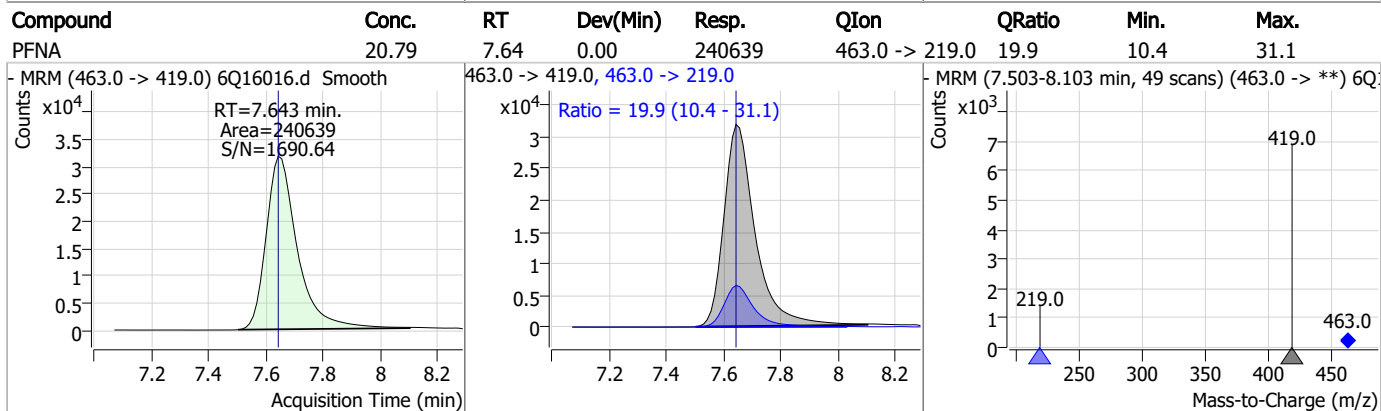
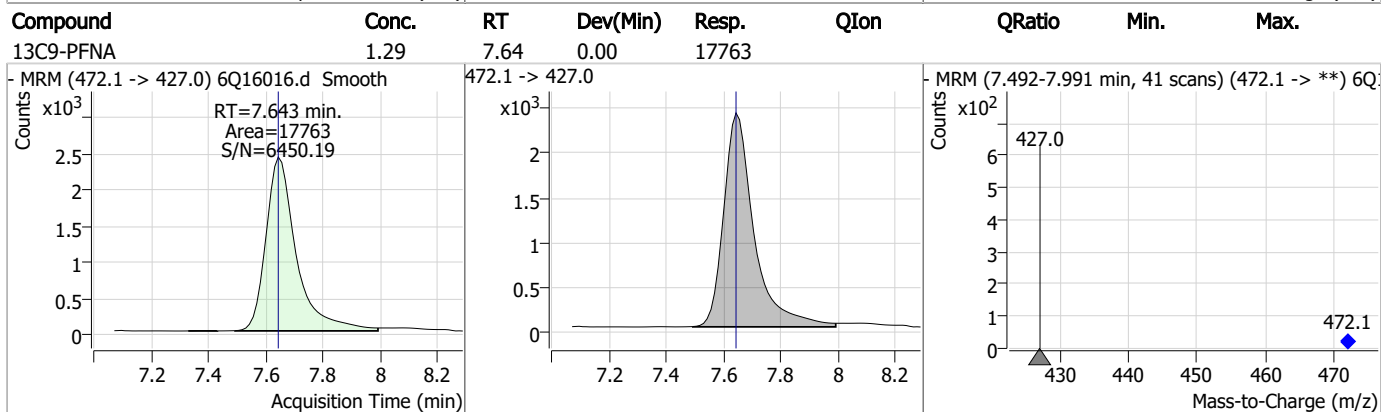
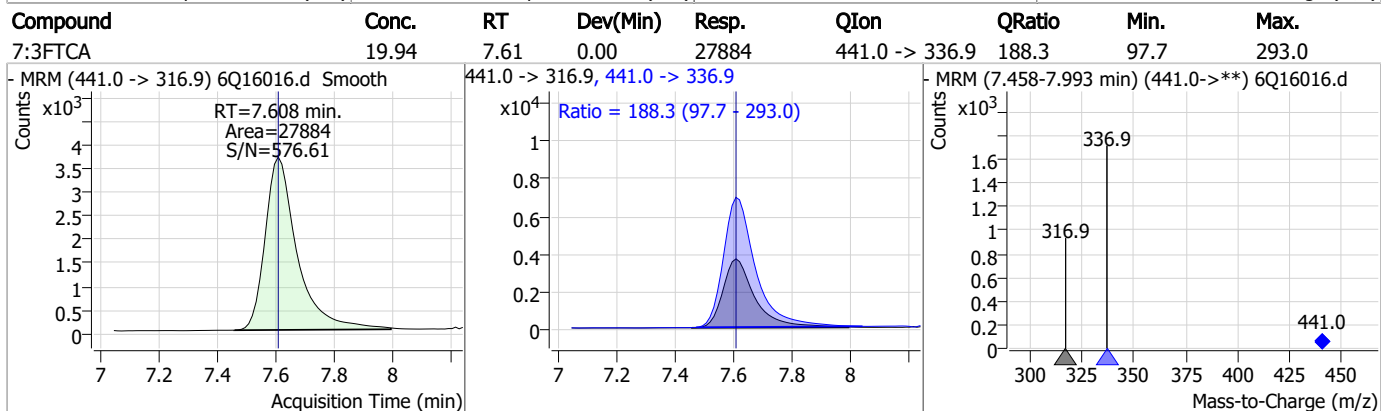
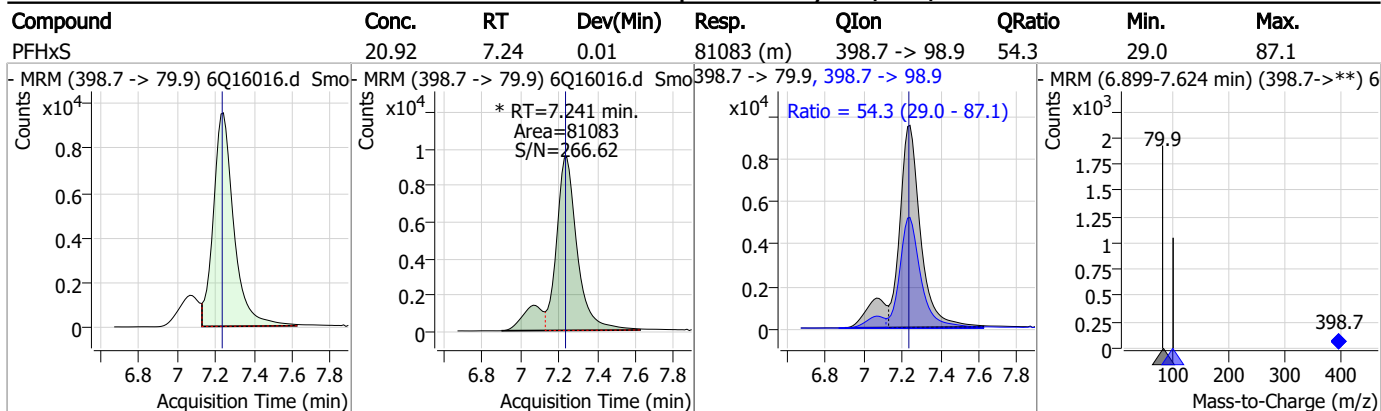
Perfluorinated Compounds by LC/MS/MS



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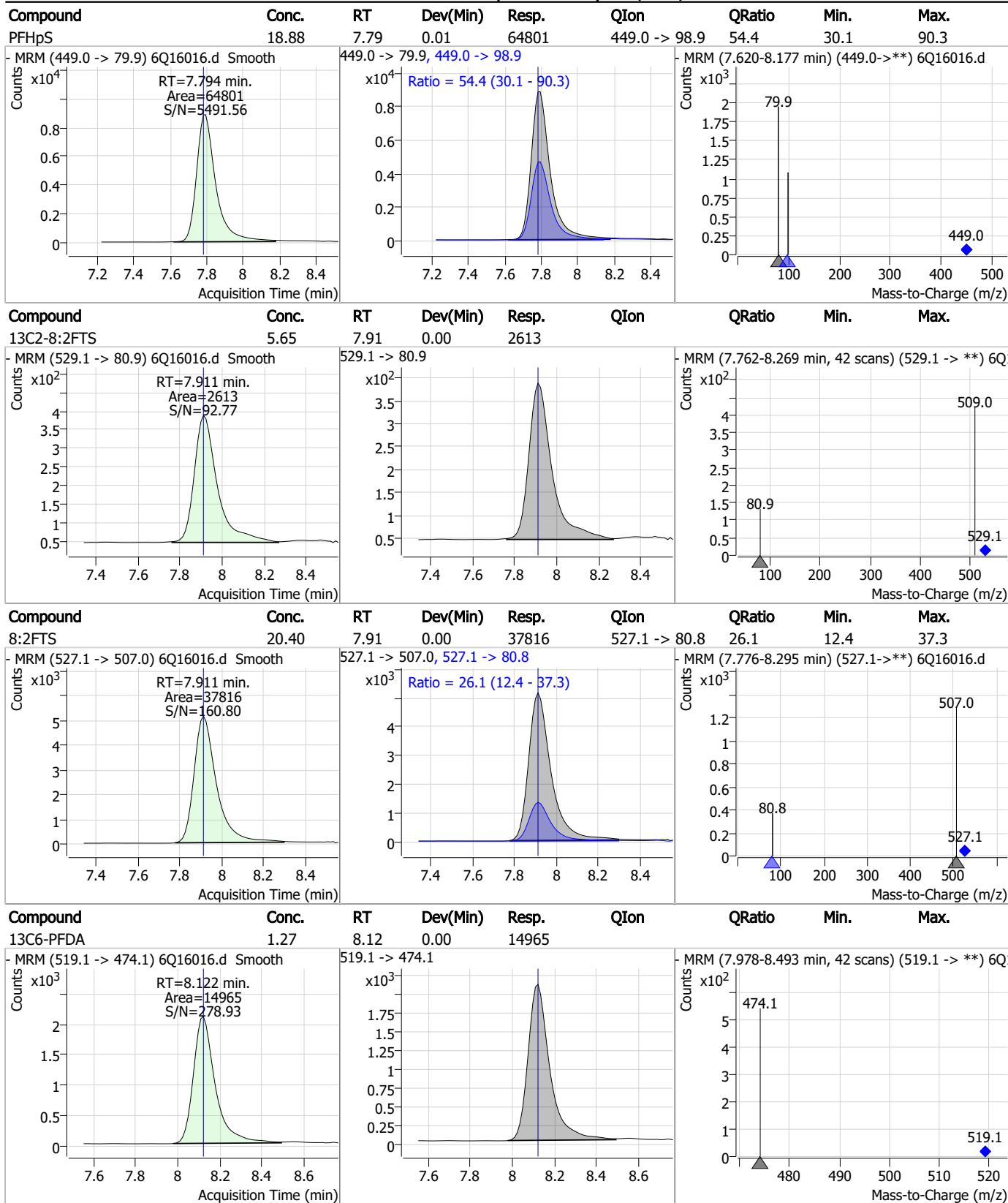
Perfluorinated Compounds by LC/MS/MS



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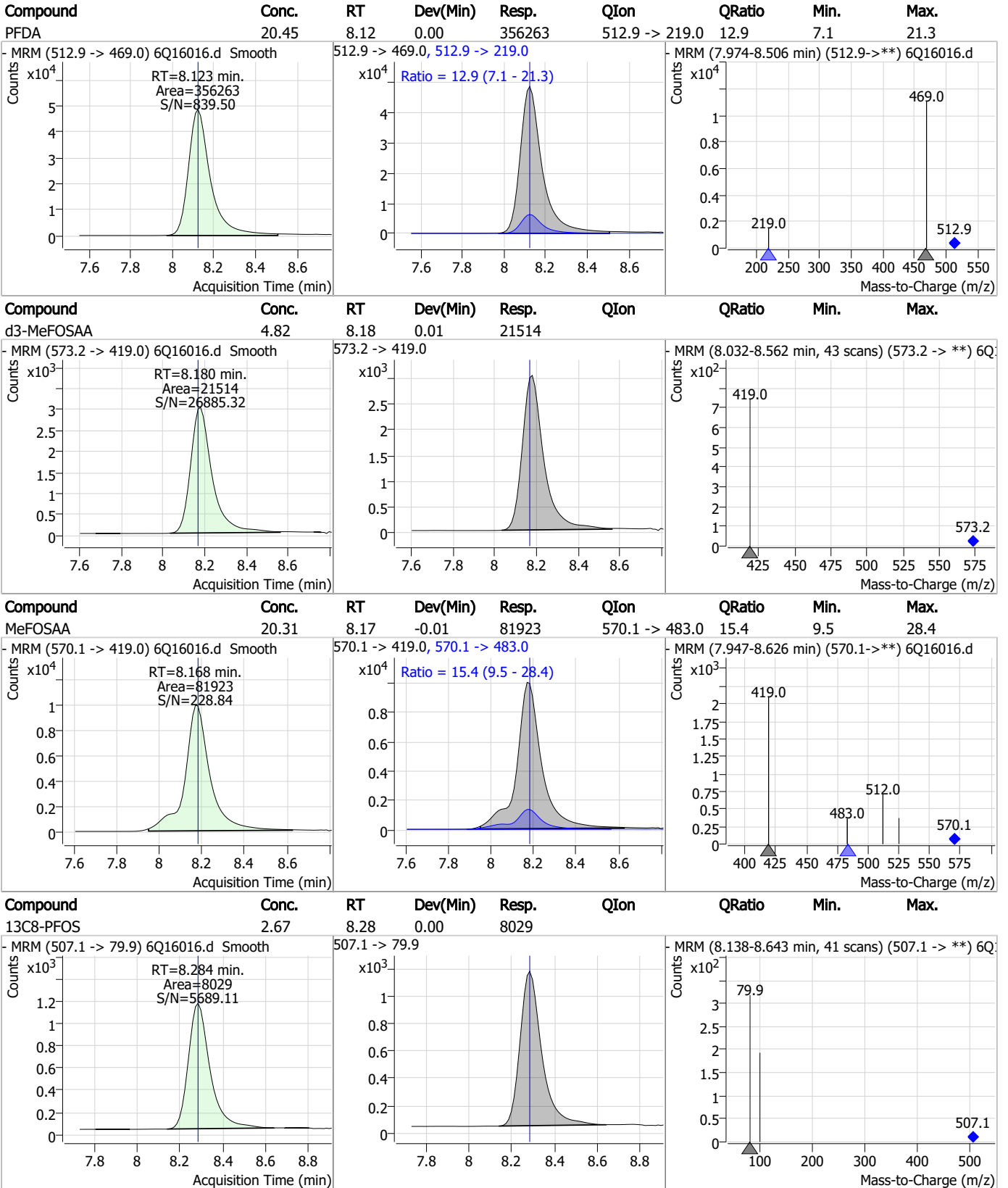
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



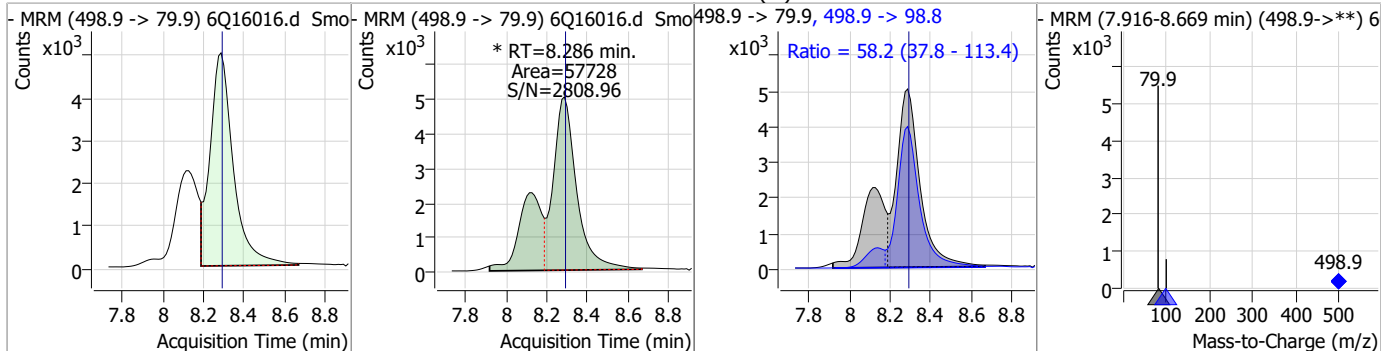
7.6.11

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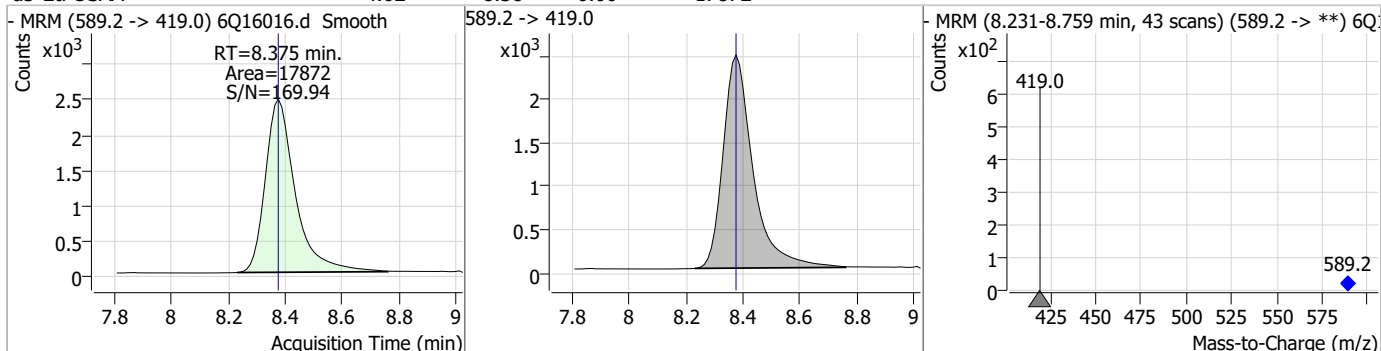


Perfluorinated Compounds by LC/MS/MS

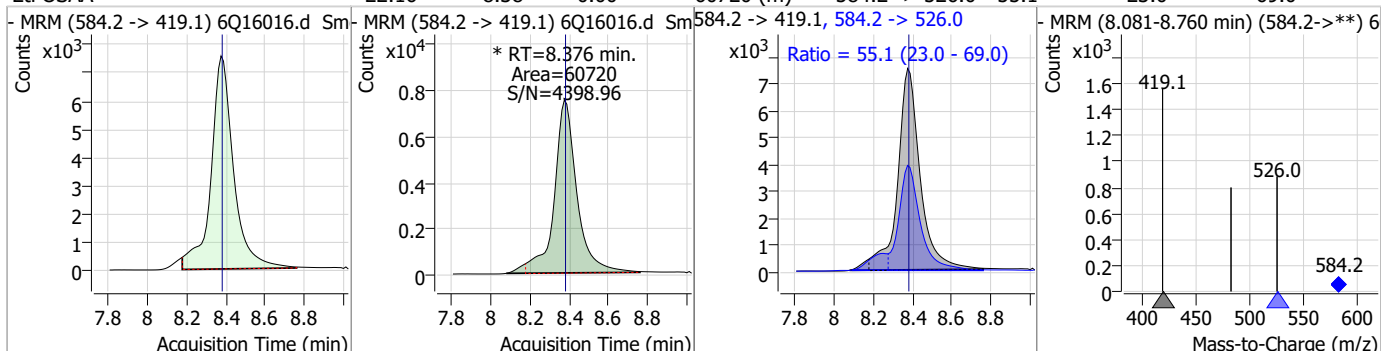
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	16.35	8.29	0.00	57728 (m)	498.9 -> 98.8	58.2	37.8	113.4



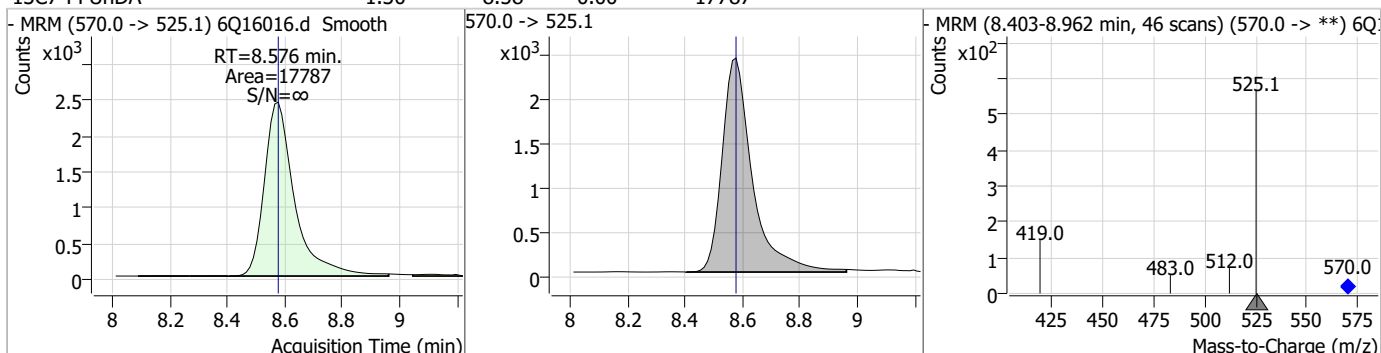
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.62	8.38	0.00	17872				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	22.16	8.38	0.00	60720 (m)	584.2 -> 526.0	55.1	23.0	69.0

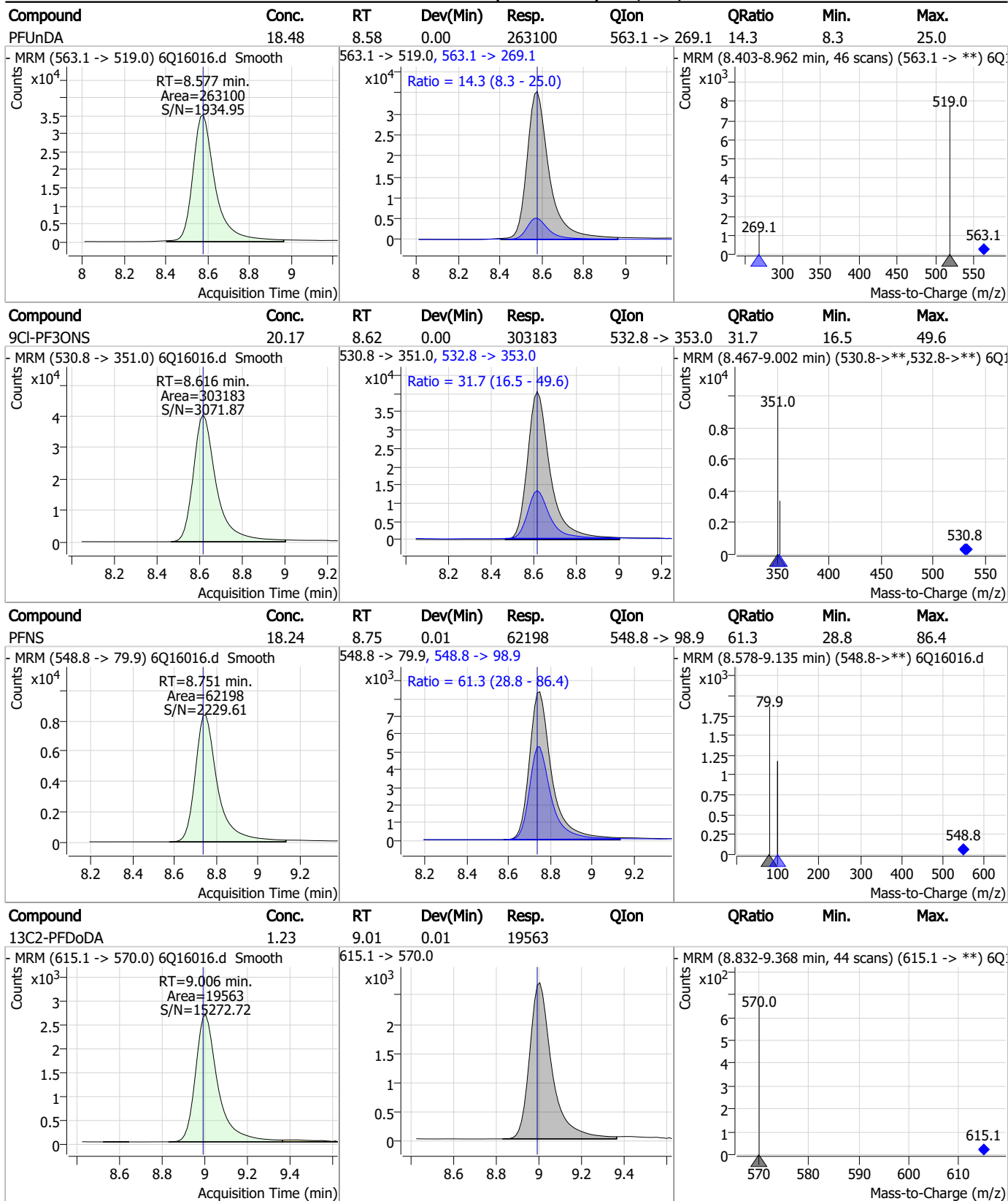


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.30	8.58	0.00	17787				



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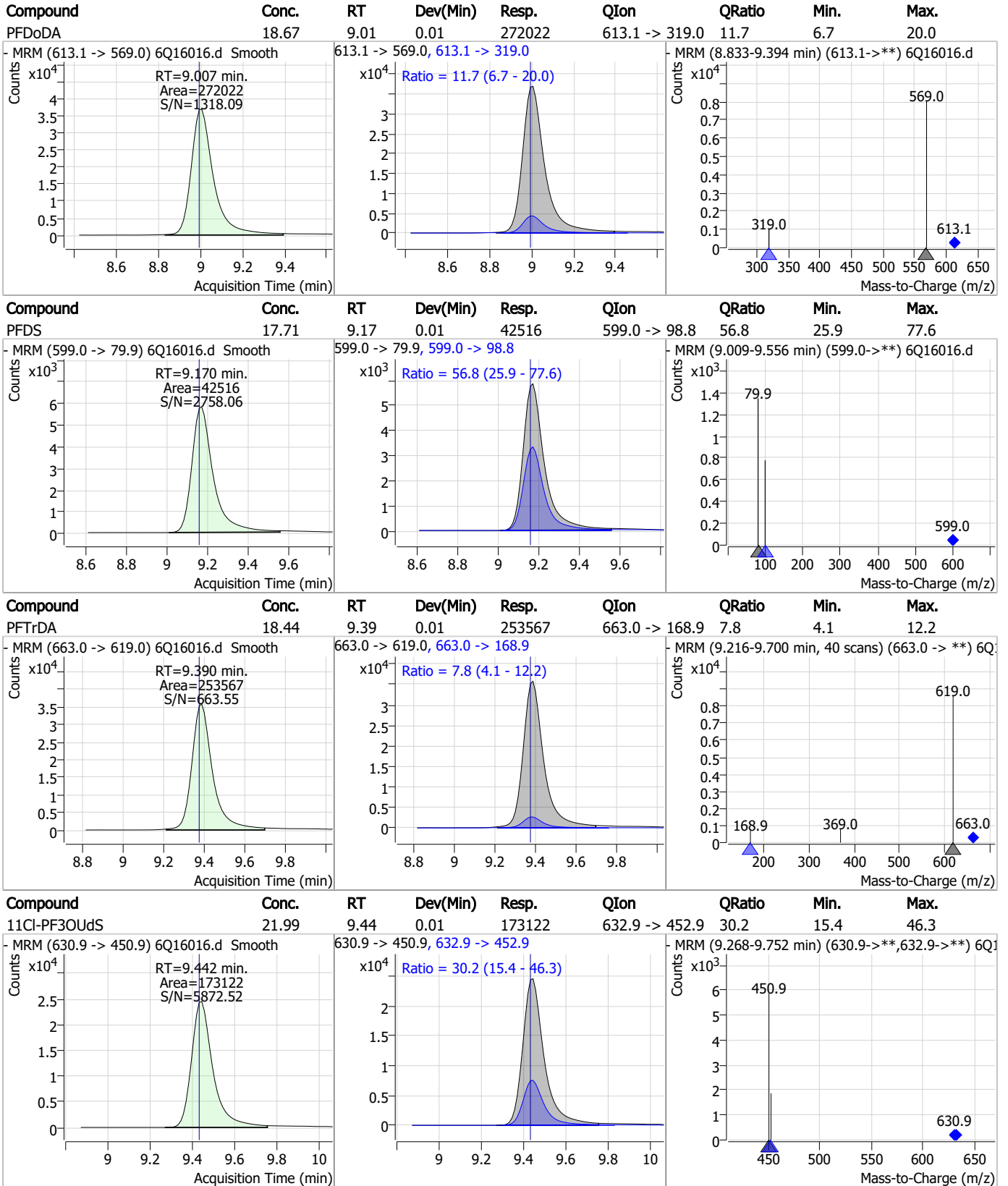
Perfluorinated Compounds by LC/MS/MS



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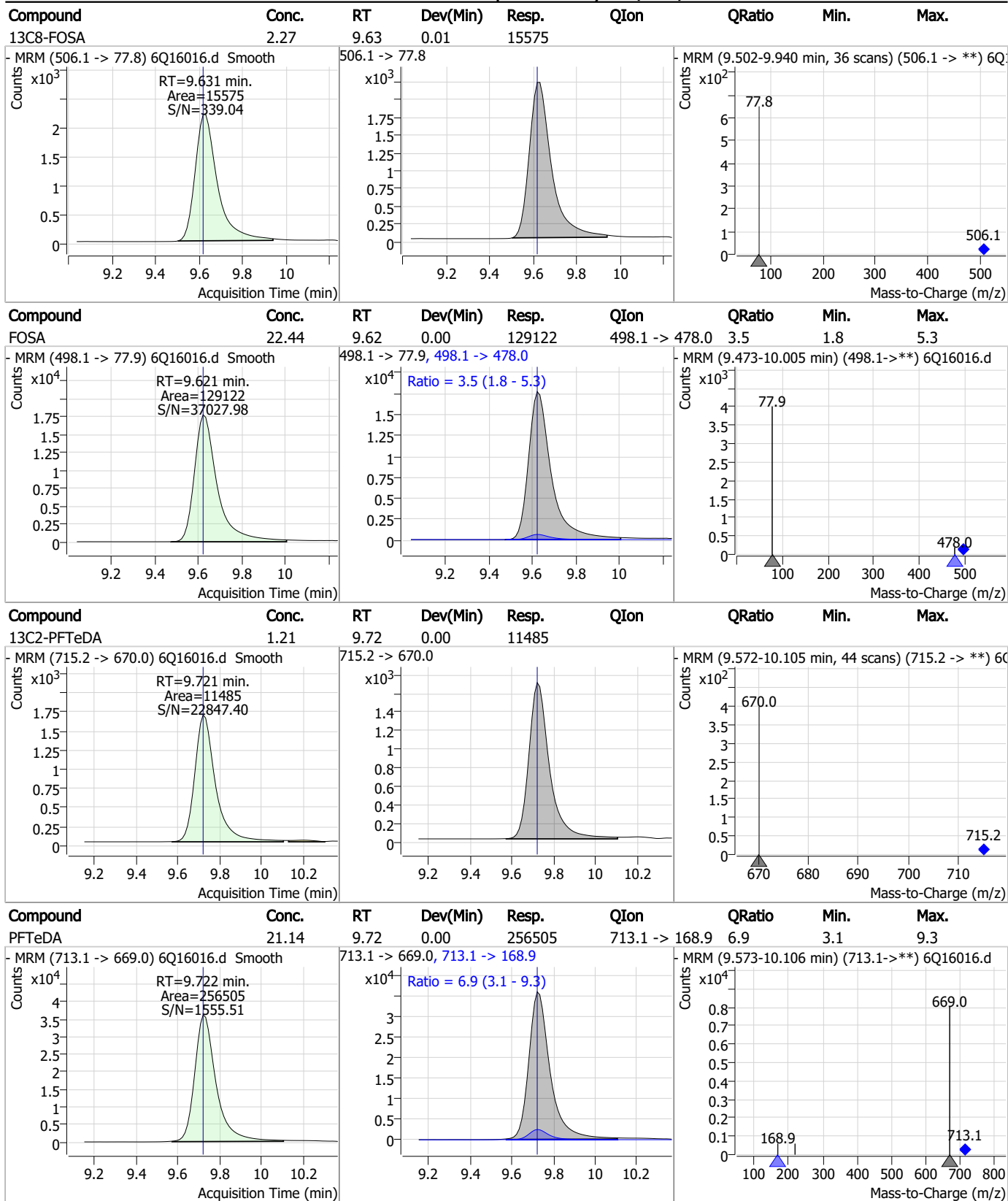
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

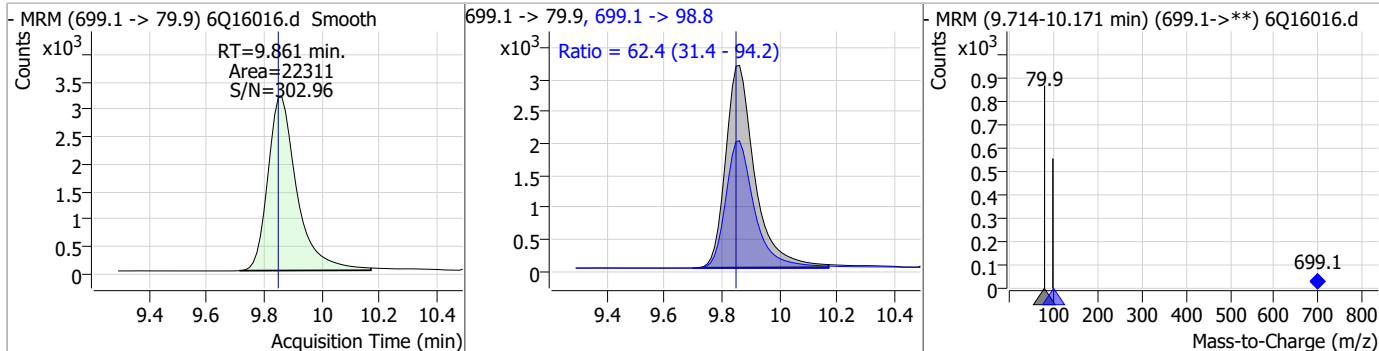


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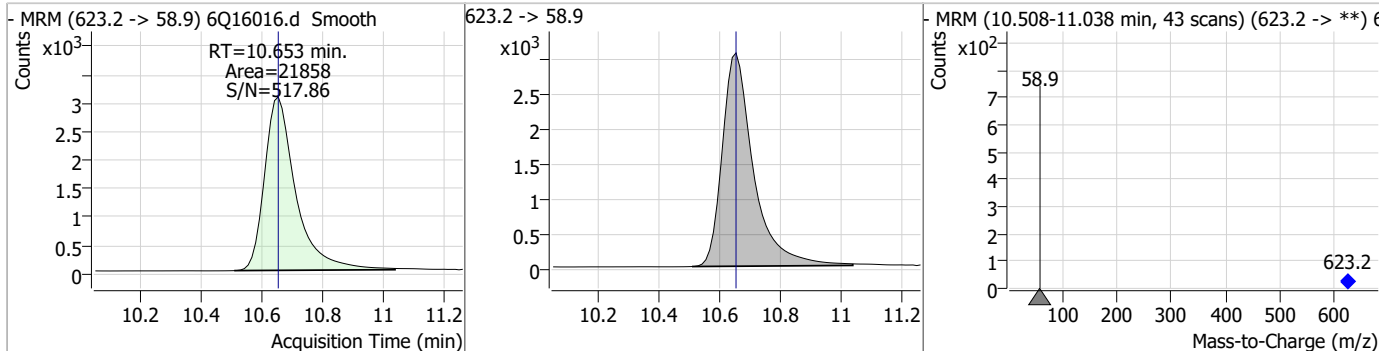
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Perfluorinated Compounds by LC/MS/MS

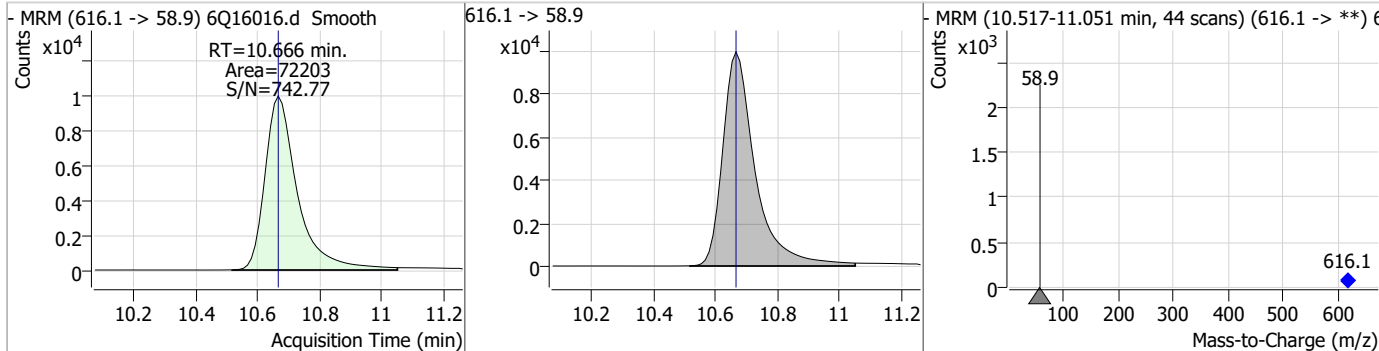
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	16.00	9.86	0.01	22311	699.1 -> 98.8	62.4	31.4	94.2



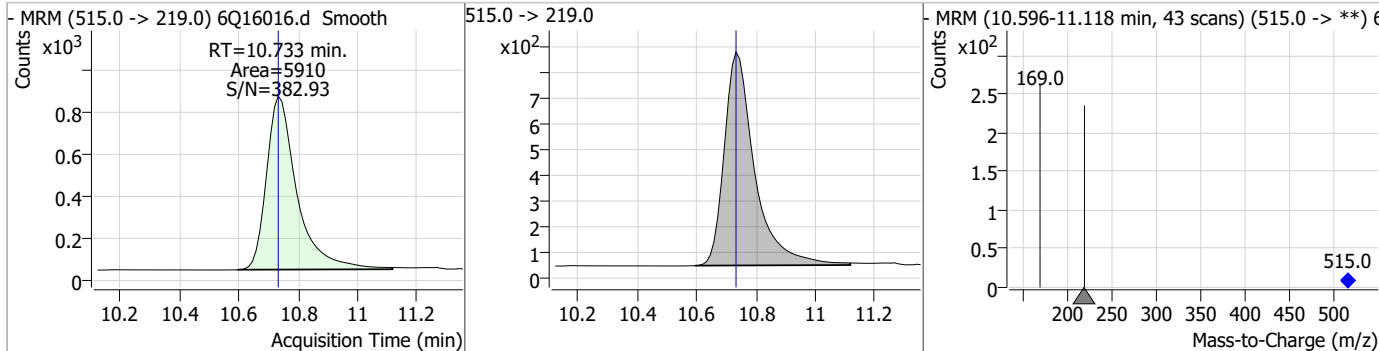
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.28	10.65	0.00	21858				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	87.63	10.67	0.00	72203				



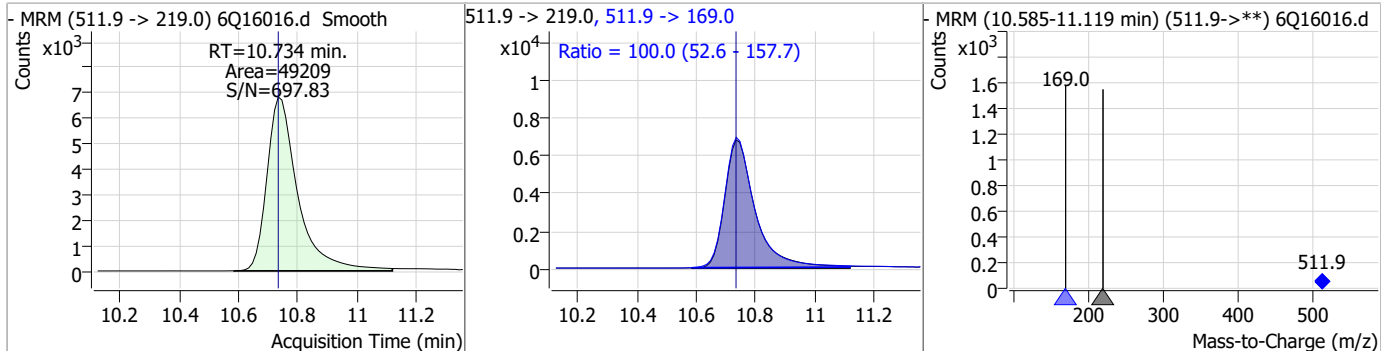
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.39	10.73	0.00	5910				



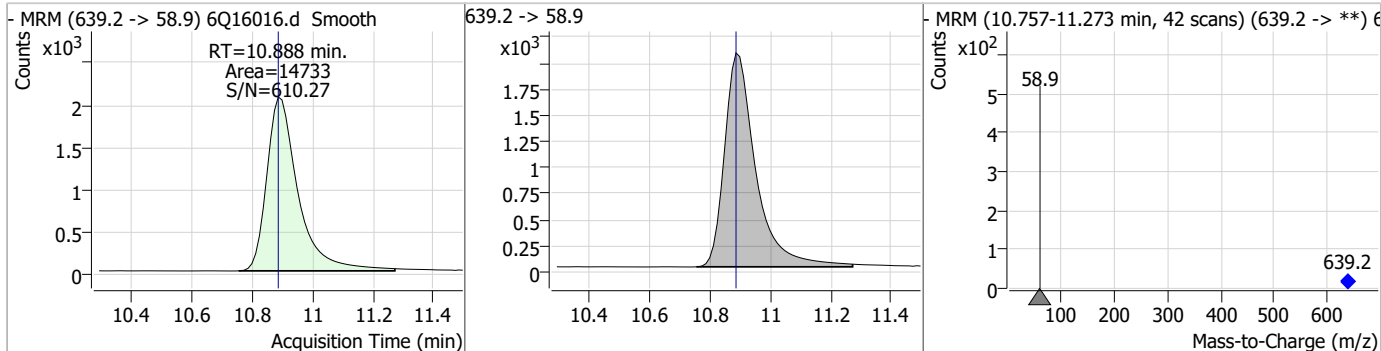
7.6.11
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Perfluorinated Compounds by LC/MS/MS

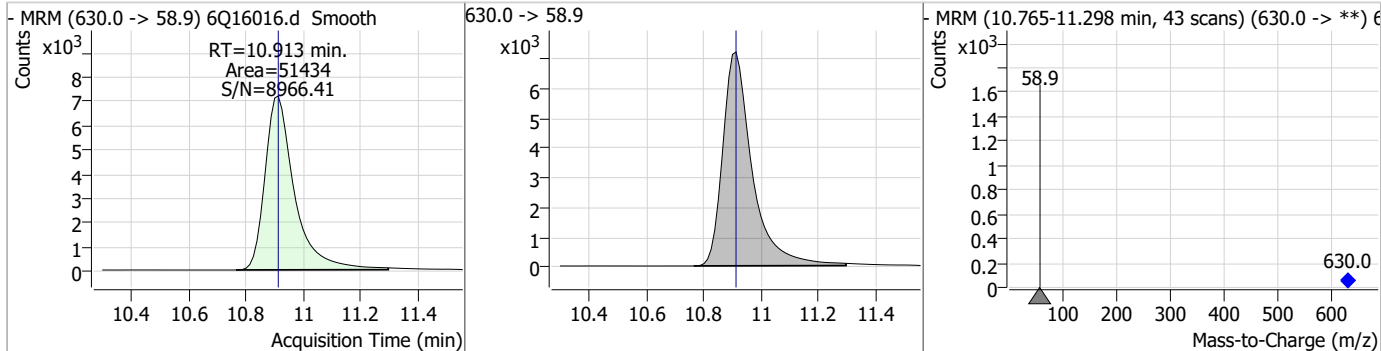
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOFA	19.79	10.73	0.00	49209	511.9 -> 169.0	100.0	52.6	157.7



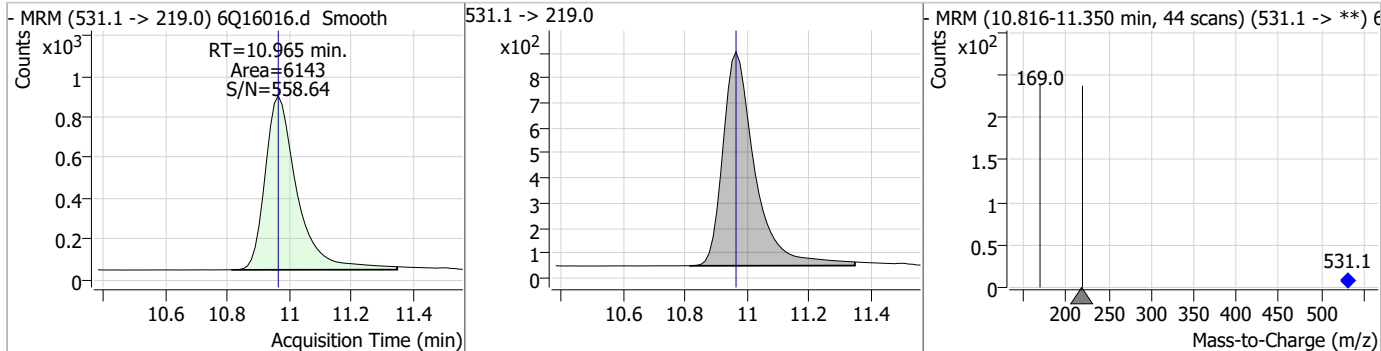
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.61	10.89	0.00	14733				



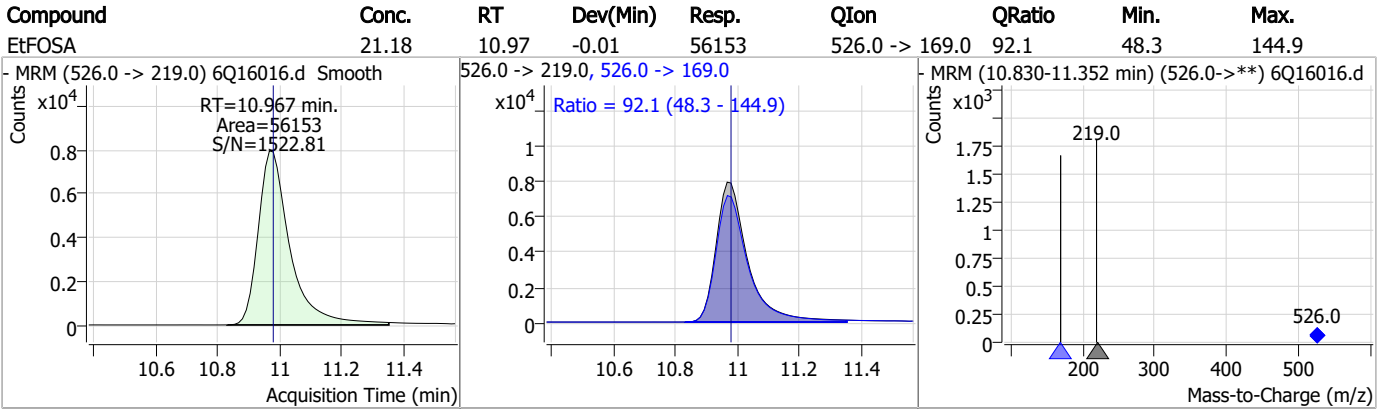
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	89.02	10.91	0.00	51434				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	2.30	10.97	0.00	6143				



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q239-ICV239 Method: EPA DRAFT 1633
Lab FileID: 6Q16016.D Analyst approved: 04/05/23 11:17 Martha Valls
Injection Time: 04/04/23 16:35 Supervisor approved: 04/05/23 17:23 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.29	Split peak
EtFOSAA	2991-50-6		8.38	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16134.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/5/2023 8:47:31 PM
 Sample Name : cc239-1.0LL
 Vial : P1-A2
 DA Method File : 1633_040423_S6Q239.quantmethod.xml
 Batch Name : S6Q240.batch.bin
 Sample Information : OP96085,S6Q240,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	74467	10.00 µg/L	0.000
M5-PFPeA	4.322	268.3 -> 223.0	32739	5.00 µg/L	0.000
M5-PFHxA	5.516	318.0 -> 273.0	29332	2.50 µg/L	-0.012
M4-PFHpA	6.468	367.1 -> 322.0	28427	2.50 µg/L	0.000
M8-PFOA	7.112	421.1 -> 376.0	50603	2.50 µg/L	0.000
M9-PFNA	7.643	472.1 -> 427.0	16085	1.25 µg/L	0.000
M6-PFDA	8.122	519.1 -> 474.1	11573	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	14205	1.25 µg/L	0.000
M2-PFDoDA	8.994	615.1 -> 570.0	16736	1.25 µg/L	0.000
M2-PFTeDA	9.721	715.2 -> 670.0	9191	1.25 µg/L	0.000
M8-FOSA	9.631	506.1 -> 77.8	13621	2.50 µg/L	0.012
M3-PFBS	5.459	302.1 -> 79.9	11756	2.50 µg/L	0.000
M3-PFHxS	7.228	402.1 -> 79.9	7490	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	6354	2.50 µg/L	0.000
M2-4:2FTS	5.191	329.1 -> 80.9	2028	5.00 µg/L	0.000
M2-6:2FTS	6.886	429.1 -> 80.9	2491	5.00 µg/L	0.000
M2-8:2FTS	7.911	529.1 -> 80.9	2324	5.00 µg/L	0.000
M3-MeFOSAA	8.167	573.2 -> 419.0	20427	5.00 µg/L	0.000
M3-HFPO-DA	5.893	286.9 -> 168.9	11764	10.00 µg/L	0.000
M5-EtFOSAA	8.375	589.2 -> 419.0	15954	5.00 µg/L	0.000
M7-MeFOSE	10.653	623.2 -> 58.9	18072	25.00 µg/L	0.000
M9-EtFOSE	10.888	639.2 -> 58.9	11578	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	5058	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	4988	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	8006	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	32013	5.00 µg/L	0.000
18O2-PFHxS	7.239	403.0 -> 83.9	5316	2.50 µg/L	0.012
13C4-PFOA	7.112	417.1 -> 372.0	60202	2.50 µg/L	0.000
13C2-PFDA	8.123	515.1 -> 470.1	17970	1.25 µg/L	0.000
13C5-PFNA	7.643	468.0 -> 423.0	17116	1.25 µg/L	0.000
13C2-PFHxA	5.516	315.1 -> 270.0	29205	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.191	329.1 -> 80.9	2028	5.67 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.4%		
13C2-6:2FTS	6.886	429.1 -> 80.9	2491	5.68 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.5%		
13C2-8:2FTS	7.911	529.1 -> 80.9	2324	5.50 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.9%		
13C2-PFDoDA	8.994	615.1 -> 570.0	16736	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.3%		
13C2-PFTeDA	9.721	715.2 -> 670.0	9191	1.08 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 86.3%		
13C3-PFBS	5.459	302.1 -> 79.9	11756	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C3-PFHxS	7.228	402.1 -> 79.9	7490	2.46 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C4-PFBA	2.897	216.8 -> 171.9	74467	9.95 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C4-PFHpA	6.468	367.1 -> 322.0	28427	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C5-PFHxA	5.516	318.0 -> 273.0	29332	2.43 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C5-PFPeA	4.322	268.3 -> 223.0	32739	4.81 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C6-PFDA	8.122	519.1 -> 474.1	11573	1.09 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 87.5%	
13C7-PFUnDA	8.576	570.0 -> 525.1	14205	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.5%	
13C8-FOSA	9.631	506.1 -> 77.8	13621	2.29 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.4%	
13C8-PFOA	7.112	421.1 -> 376.0	50603	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C8-PFOS	8.284	507.1 -> 79.9	6354	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C9-PFNA	7.643	472.1 -> 427.0	16085	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.6%	
d3-MeFOSAA	8.167	573.2 -> 419.0	20427	5.27 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C3-HFPO-DA	5.893	286.9 -> 168.9	11764	9.24 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.4%	
d3-MeFOSA	10.733	515.0 -> 219.0	4988	2.32 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.9%	
d5-EtFOSAA	8.375	589.2 -> 419.0	15954	4.76 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.1%	
d7-MeFOSE	10.653	623.2 -> 58.9	18072	22.18 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 88.7%	
d9-EtFOSE	10.888	639.2 -> 58.9	11578	21.38 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 85.5%	
d5-EtFOSA	10.965	531.1 -> 219.0	5058	2.19 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.4%	

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	5.192	327.1 -> 307.0	3369	0.85 µg/L	95
		327.1 -> 80.9	710		
6:2FTS	6.886	427.1 -> 407.0	3000	0.90 µg/L	87
		427.1 -> 80.9	474		
8:2FTS	7.911	527.1 -> 507.0	1447	0.88 µg/L	90
		527.1 -> 80.8	288		
EtFOSAA	8.376	584.2 -> 419.1	605	0.25 µg/L	83
		584.2 -> 526.0	345		
FOSA	9.621	498.1 -> 77.9	1182	0.23 µg/L	97
		498.1 -> 478.0	54		
MeFOSAA	8.181	570.1 -> 419.0	822	0.21 µg/L	88
		570.1 -> 483.0	110		
PFBA	2.906	212.8 -> 168.9	1478	0.79 µg/L	100
PFBS	5.460	298.7 -> 79.9	868	0.19 µg/L	97
		298.7 -> 98.8	419		
PFDA	8.123	512.9 -> 469.0	2976	0.22 µg/L	98
		512.9 -> 219.0	396		
PFDoDA	9.007	613.1 -> 569.0	3046	0.24 µg/L	99
		613.1 -> 319.0	396		
PFDS	9.170	599.0 -> 79.9	424	0.22 µg/L	94



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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	237			
PFHpA	6.469	363.1 -> 319.0	3966	0.25	µg/L	99
		363.1 -> 169.0	569			
PFHpS	7.794	449.0 -> 79.9	629	0.23	µg/L	95
		449.0 -> 98.9	354			
PFHxA	5.531	313.0 -> 269.0	2375	0.22	µg/L	99
		313.0 -> 118.9	87			
PFHxS	7.228	398.7 -> 79.9	704	0.21	µg/L	m 95
		398.7 -> 98.9	382			
PFNA	7.643	463.0 -> 419.0	2397	0.23	µg/L	100
		463.0 -> 219.0	496			
PFNS	8.738	548.8 -> 79.9	573	0.21	µg/L	88
		548.8 -> 98.9	277			
PFOA	7.126	413.0 -> 369.0	4311	0.19	µg/L	94
		413.0 -> 169.0	682			
PFOS	8.273	498.9 -> 79.9	607	0.22	µg/L	m 88
		498.9 -> 98.8	397			
PFPeA	4.324	263.0 -> 219.0	2941	0.43	µg/L	100
PFPeS	6.533	349.1 -> 79.9	779	0.20	µg/L	93
		349.1 -> 98.9	444			
PFTeDA	9.722	713.1 -> 669.0	2075	0.21	µg/L	96
		713.1 -> 168.9	159			
PFTrDA	9.390	663.0 -> 619.0	2622	0.22	µg/L	99
		663.0 -> 168.9	203			
PFUnDA	8.564	563.1 -> 519.0	2686	0.24	µg/L	96
		563.1 -> 269.1	405			
11Cl-PF3OUdS	9.430	630.9 -> 450.9	5068	0.80	µg/L	95
		632.9 -> 452.9	1693			
9Cl-PF3ONS	8.616	530.8 -> 351.0	10304	0.85	µg/L	100
		532.8 -> 353.0	3393			
ADONA	6.731	376.9 -> 250.9	19392	0.81	µg/L	99
		376.9 -> 84.8	4380			
HFPO-DA	5.894	284.9 -> 168.9	860	0.81	µg/L	100
		284.9 -> 184.9	109			
3:3FTCA	3.790	241.0 -> 177.0	416	1.09	µg/L	97
		241.0 -> 117.0	58			
5:3FTCA	6.198	341.0 -> 237.1	13938	5.82	µg/L	99
		341.0 -> 217.0	12046			
7:3FTCA	7.608	441.0 -> 316.9	7883	6.51	µg/L	96
		441.0 -> 336.9	14886			
EtFOSA	10.967	526.0 -> 219.0	519	0.24	µg/L	97
		526.0 -> 169.0	488			
EtFOSE	10.913	630.0 -> 58.9	898	1.98	µg/L	100
MeFOSA	10.734	511.9 -> 219.0	520	0.25	µg/L	95
		511.9 -> 169.0	518			
MeFOSE	10.666	616.1 -> 58.9	1565	2.30	µg/L	100
PFDoDS	9.848	699.1 -> 79.9	214	0.19	µg/L	95
		699.1 -> 98.8	143			
NFDHA	5.410	295.0 -> 201.0	275	0.39	µg/L	82
		295.0 -> 84.9	152			
PFMBA	4.737	279.0 -> 85.1	884	0.39	µg/L	100
PFMPA	3.463	229.0 -> 84.9	861	0.41	µg/L	100
PFEESA	5.999	314.8 -> 134.9	5851	0.38	µg/L	97
		314.8 -> 82.9	202			

= Qualifier out of range, m = manually integrated, + = Area summed

7.6.12
7

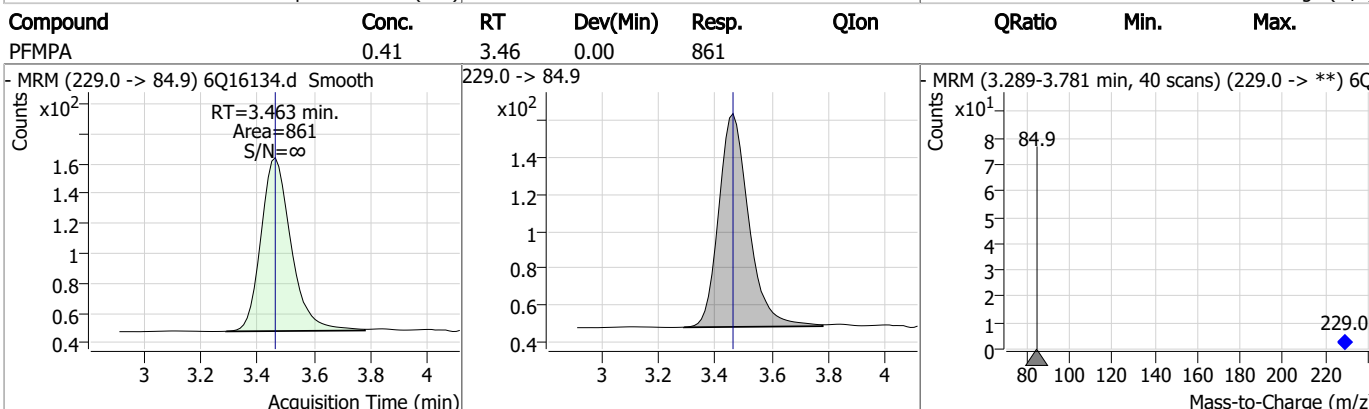
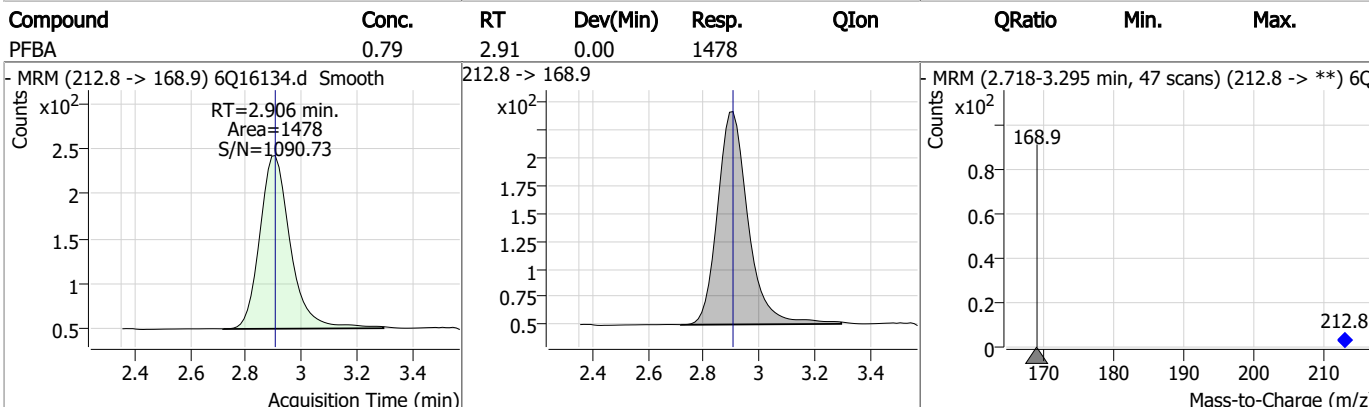
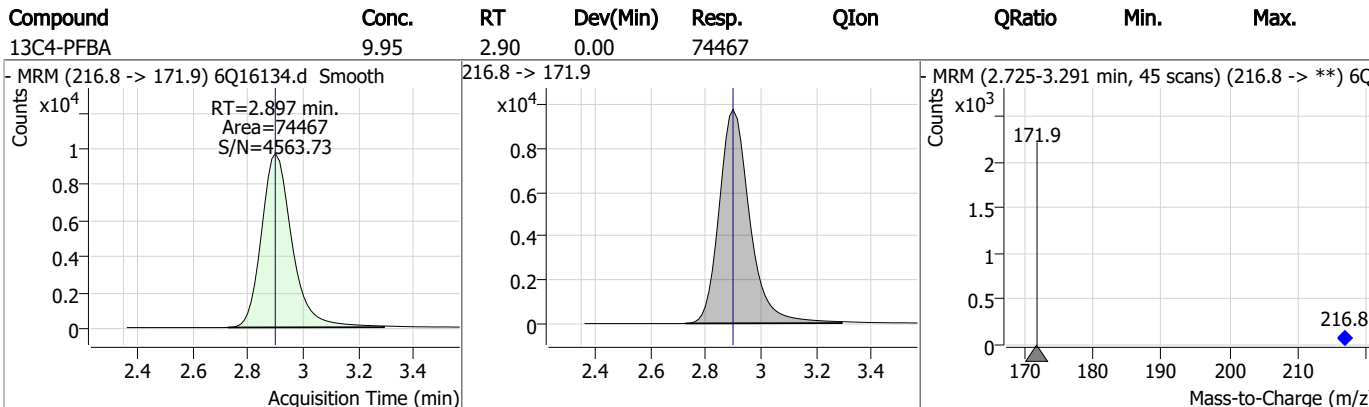
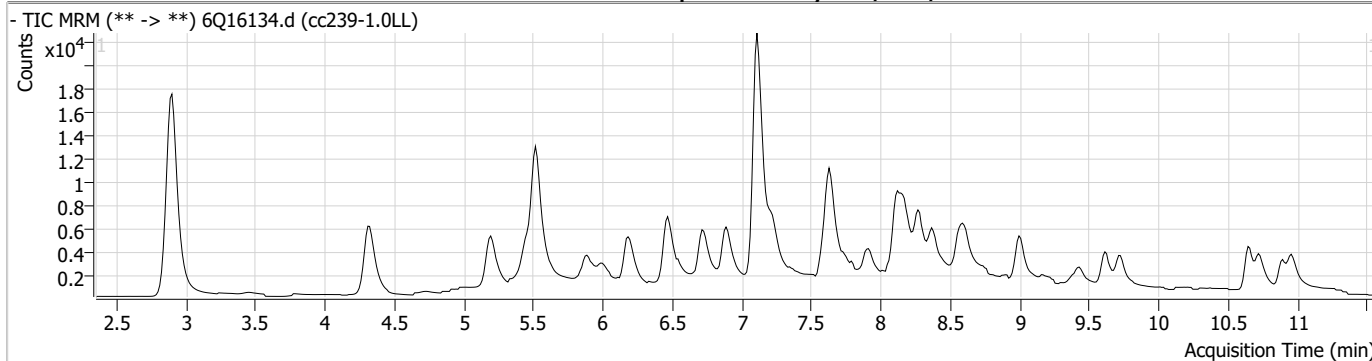
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.6.12

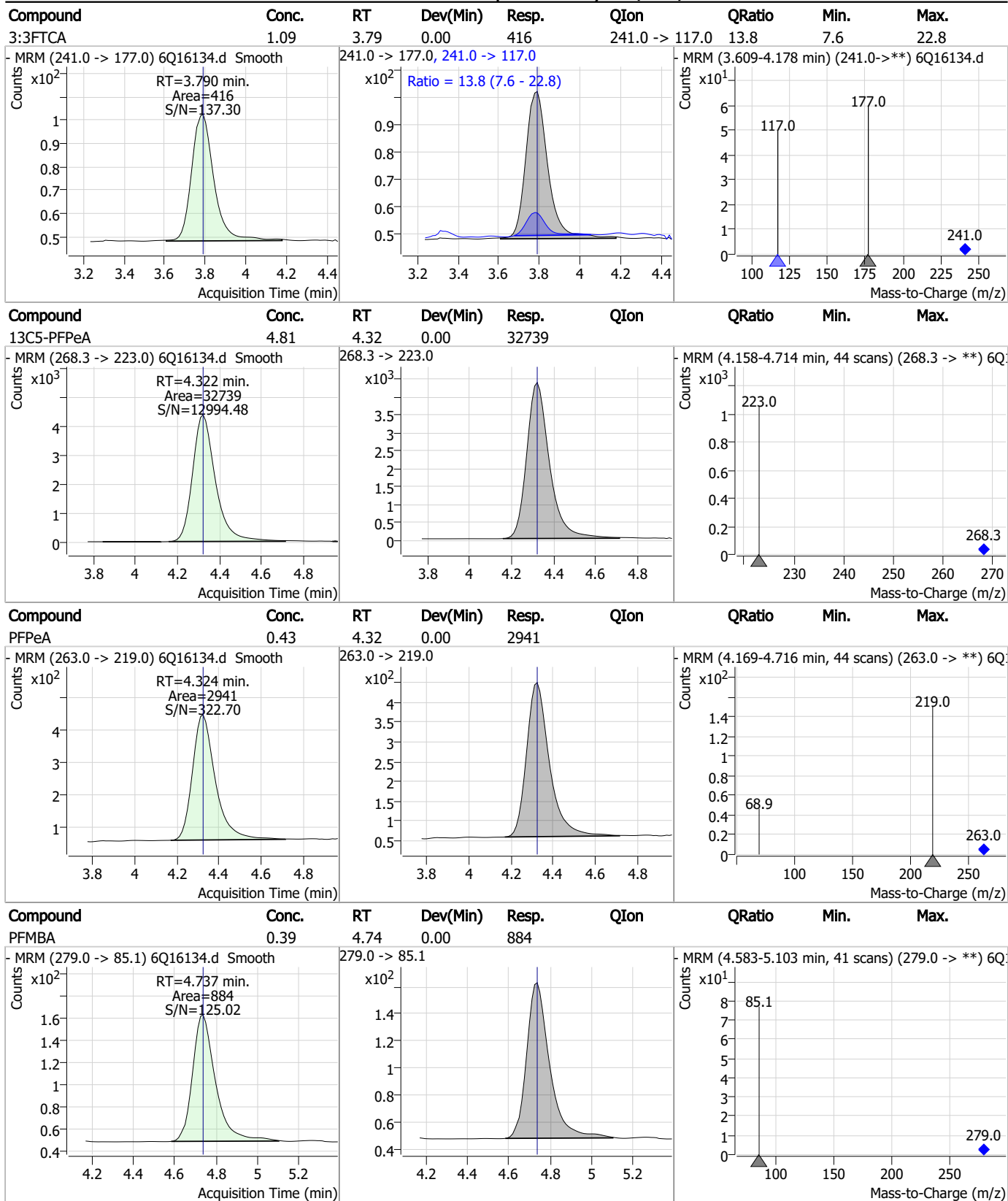
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Perfluorinated Compounds by LC/MS/MS



7.6.12
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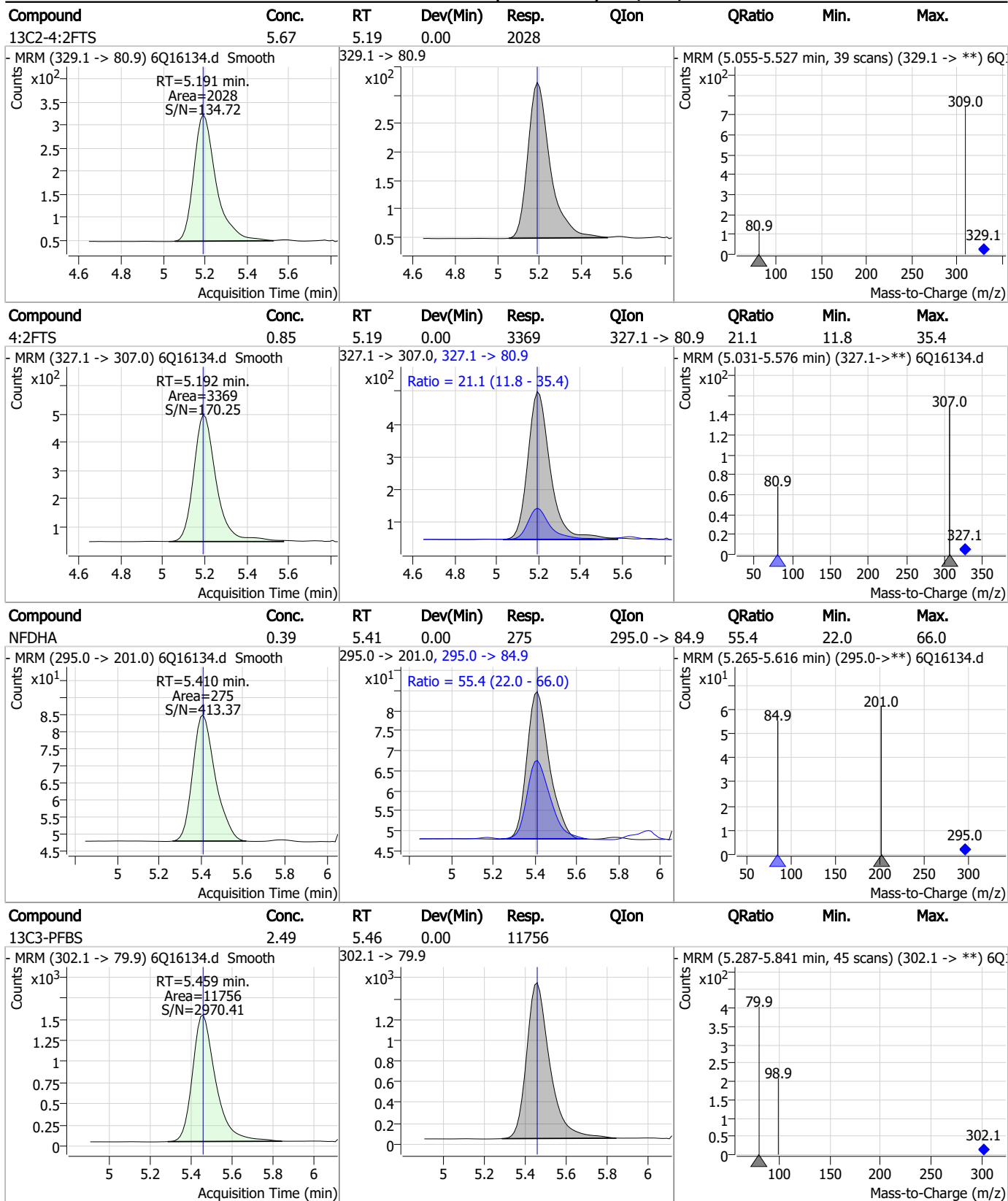
Perfluorinated Compounds by LC/MS/MS



7.6.12

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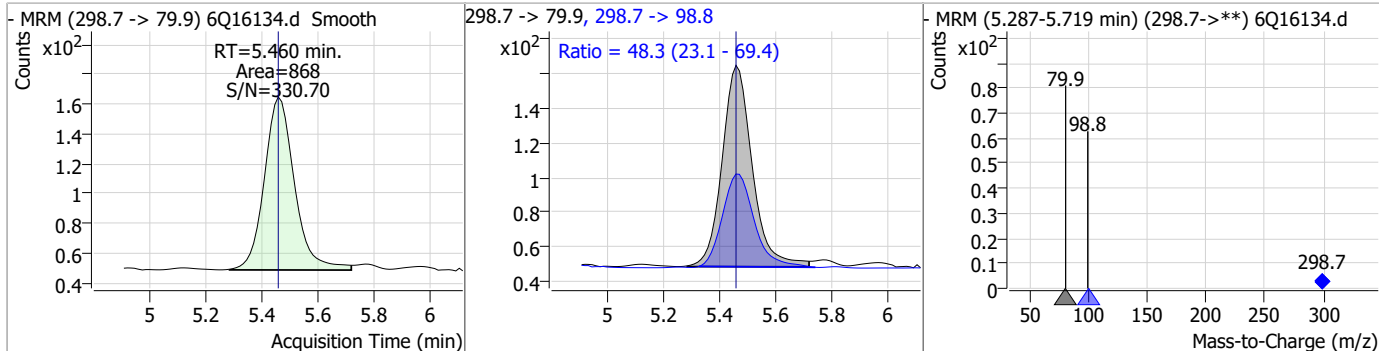
Perfluorinated Compounds by LC/MS/MS



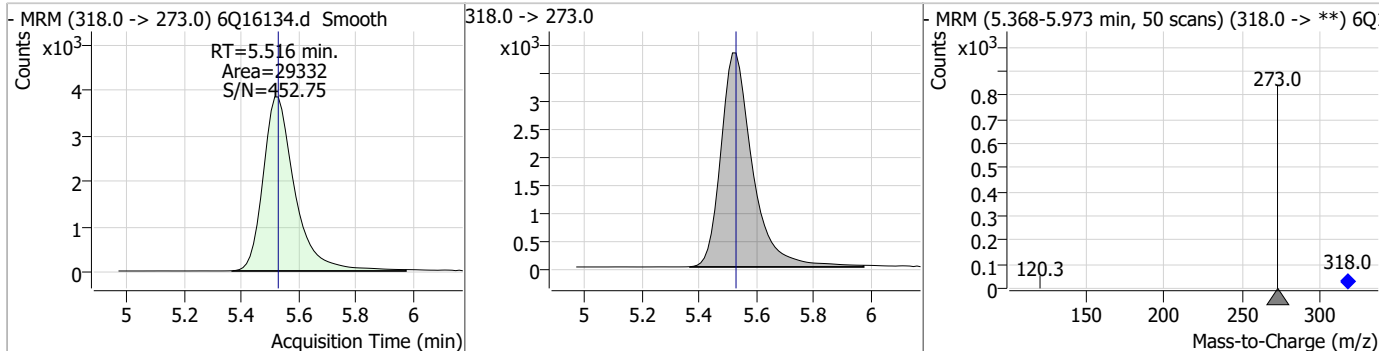
7.6.12 7

Perfluorinated Compounds by LC/MS/MS

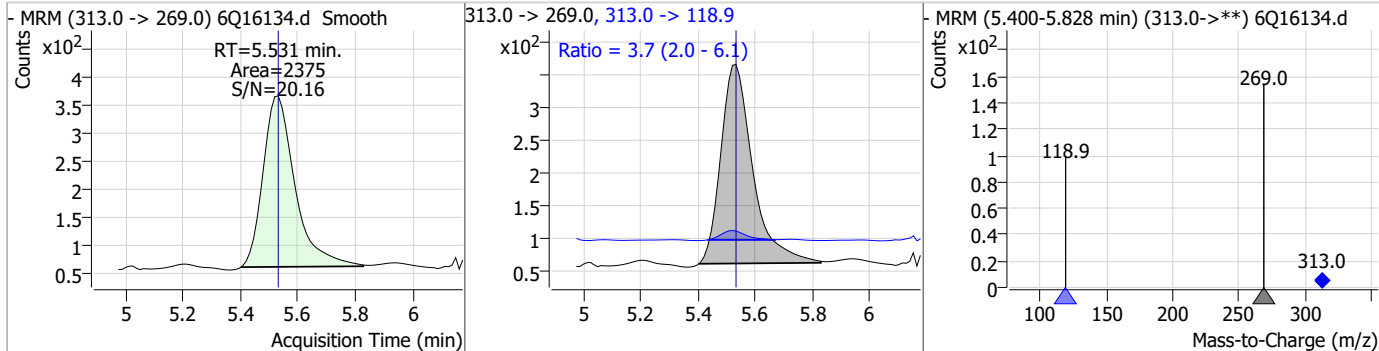
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.19	5.46	0.00	868	298.7 -> 98.8	48.3	23.1	69.4



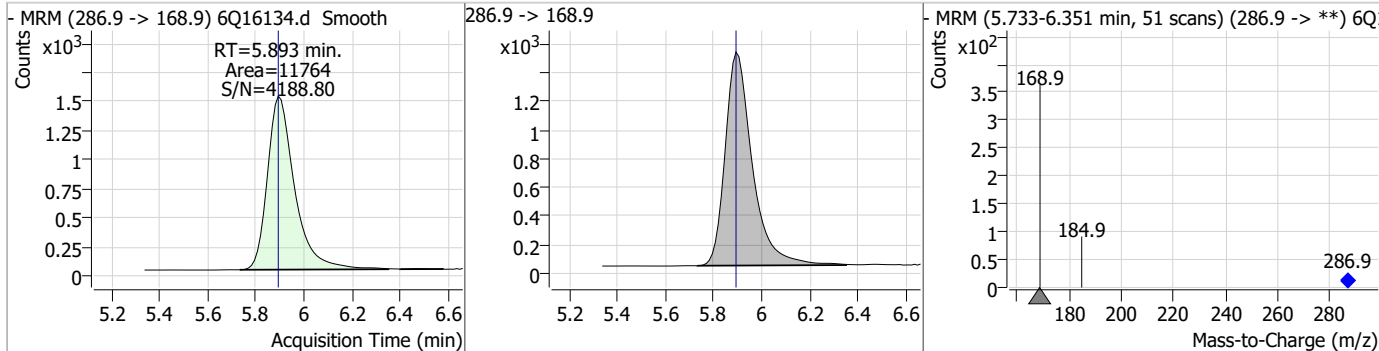
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.43	5.52	-0.01	29332				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.22	5.53	0.00	2375	313.0 -> 118.9	3.7	2.0	6.1



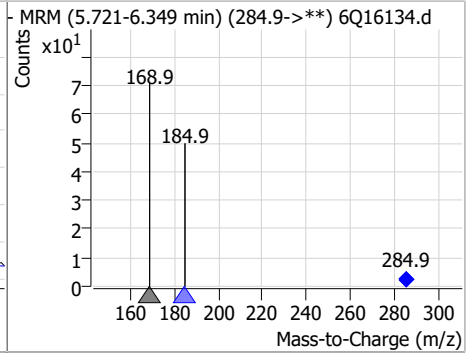
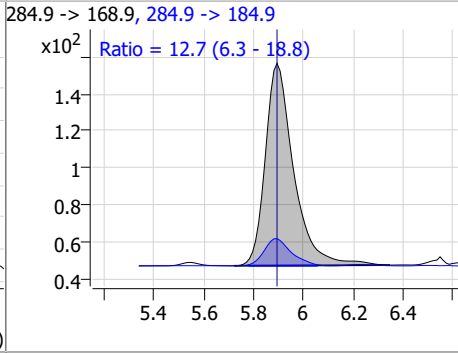
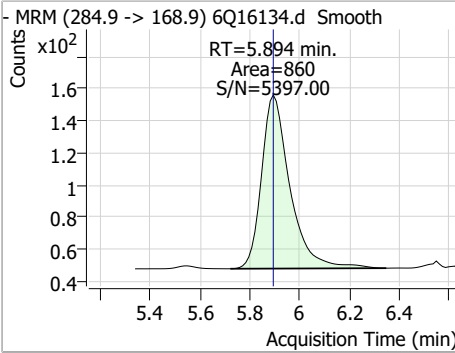
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.24	5.89	0.00	11764				



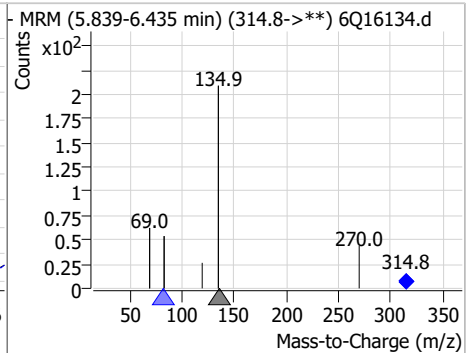
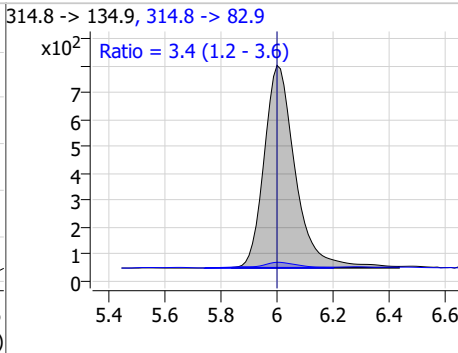
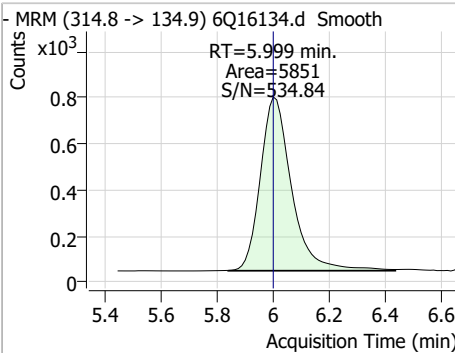
7.6.12
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Perfluorinated Compounds by LC/MS/MS

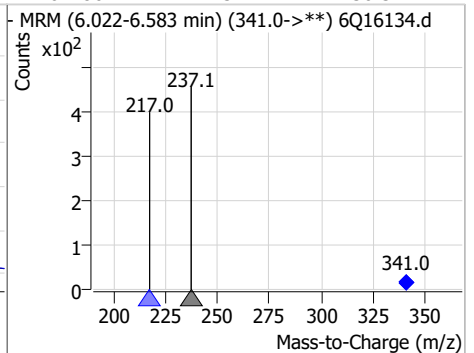
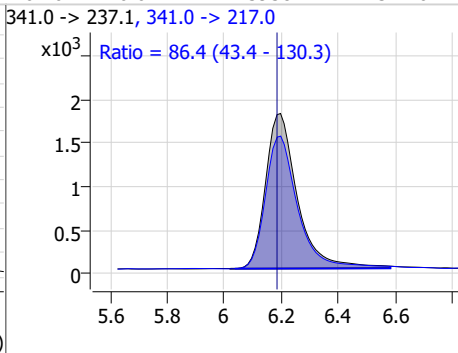
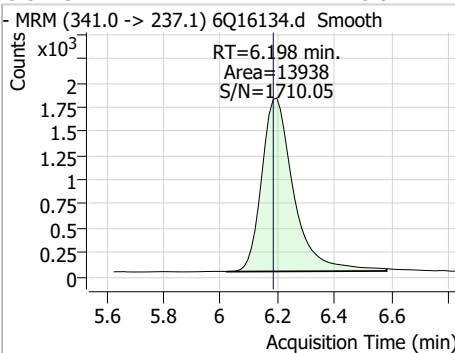
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.81	5.89	0.00	860	284.9 -> 184.9	12.7	6.3	18.8



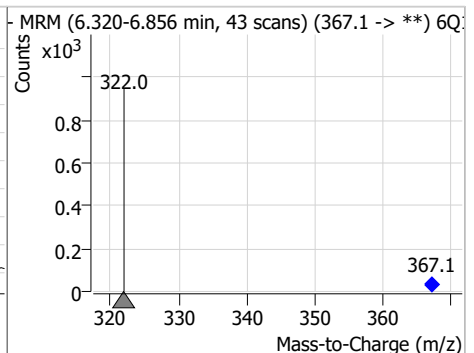
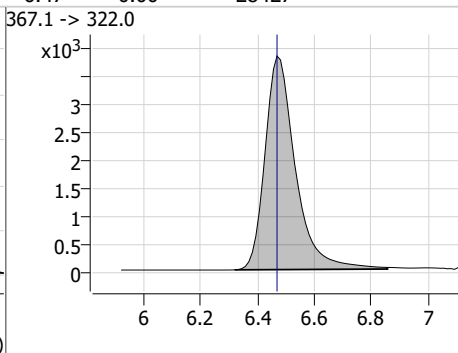
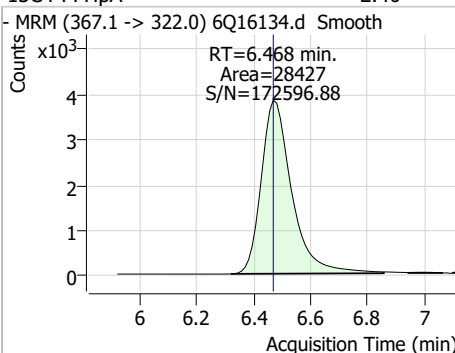
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.38	6.00	0.00	5851	314.8 -> 82.9	3.4	1.2	3.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	5.82	6.20	0.01	13938	341.0 -> 217.0	86.4	43.4	130.3



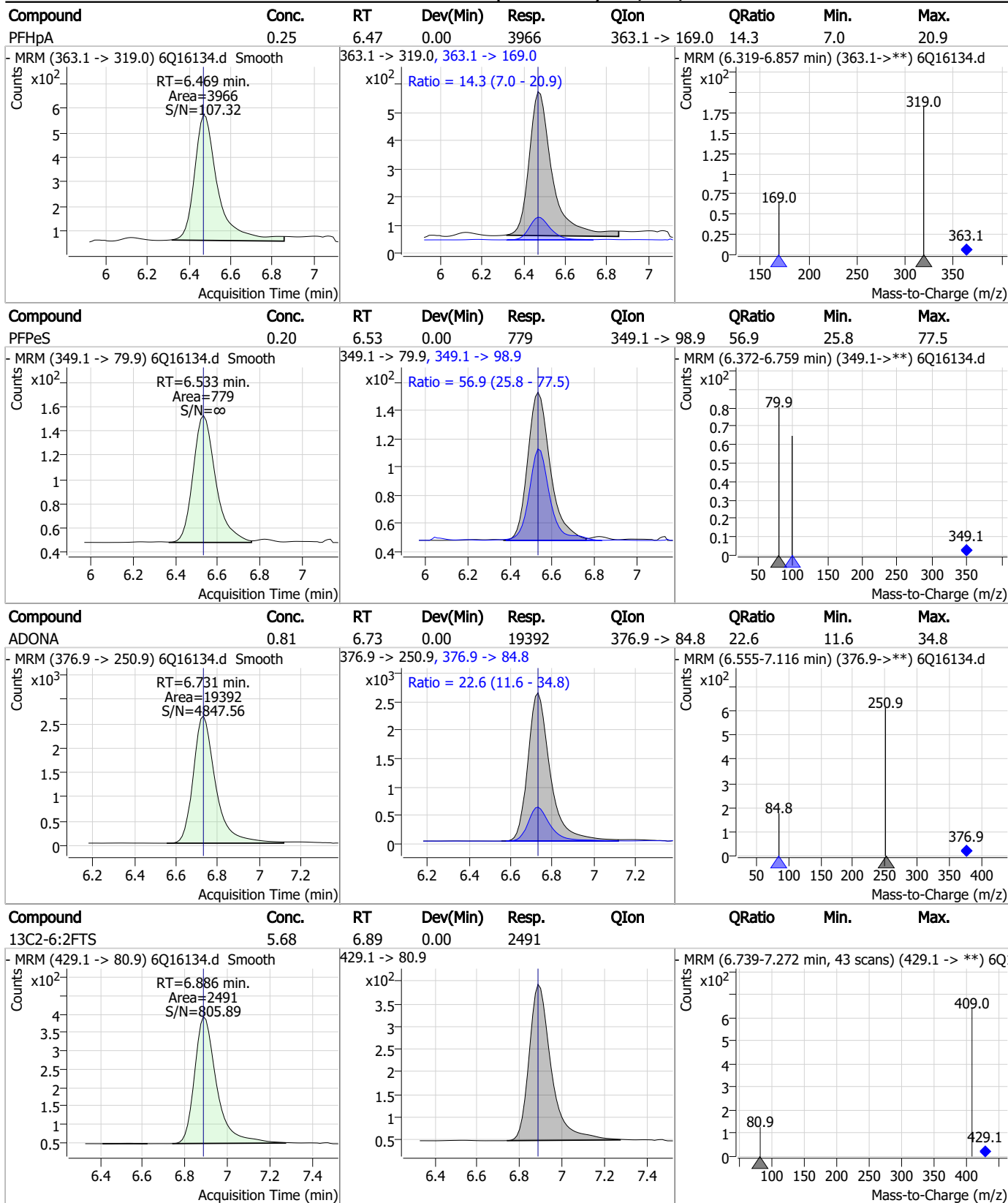
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.40	6.47	0.00	28427	367.1 -> 322.0			



7.6.12 7

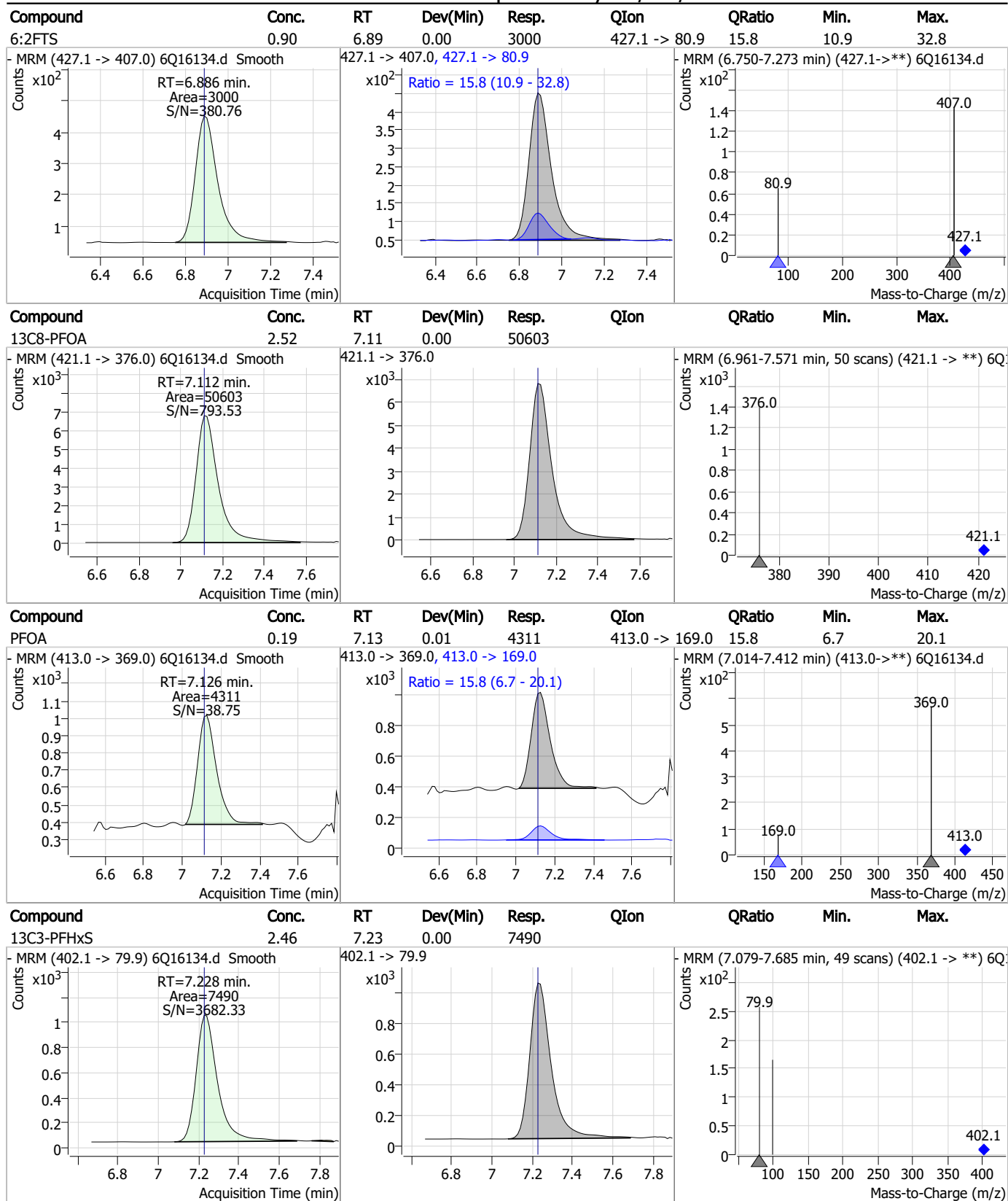


Perfluorinated Compounds by LC/MS/MS



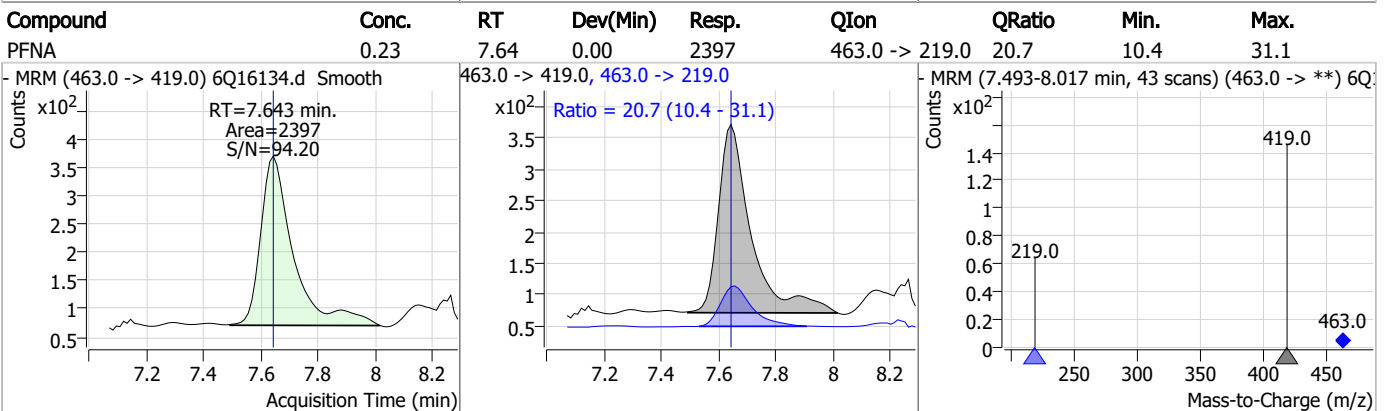
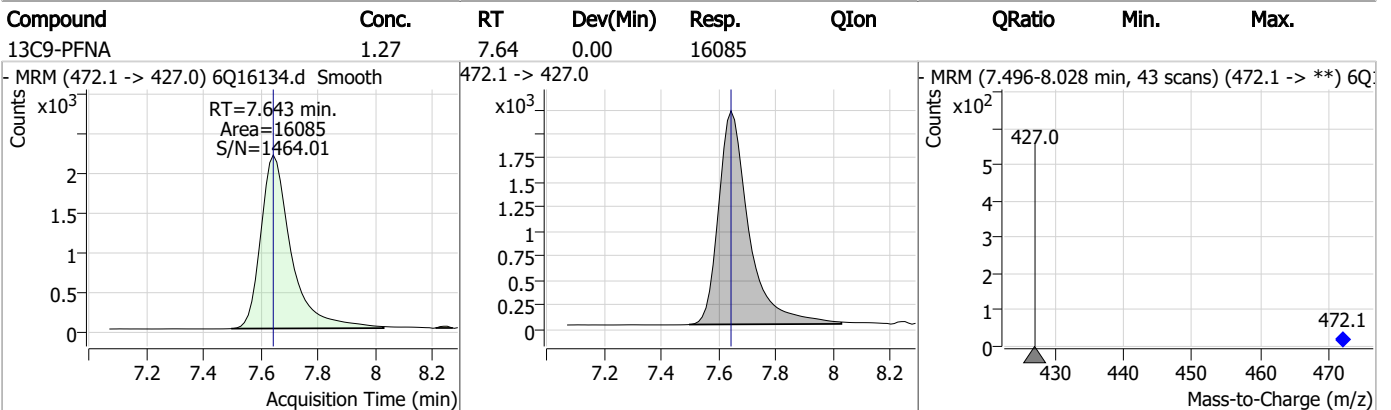
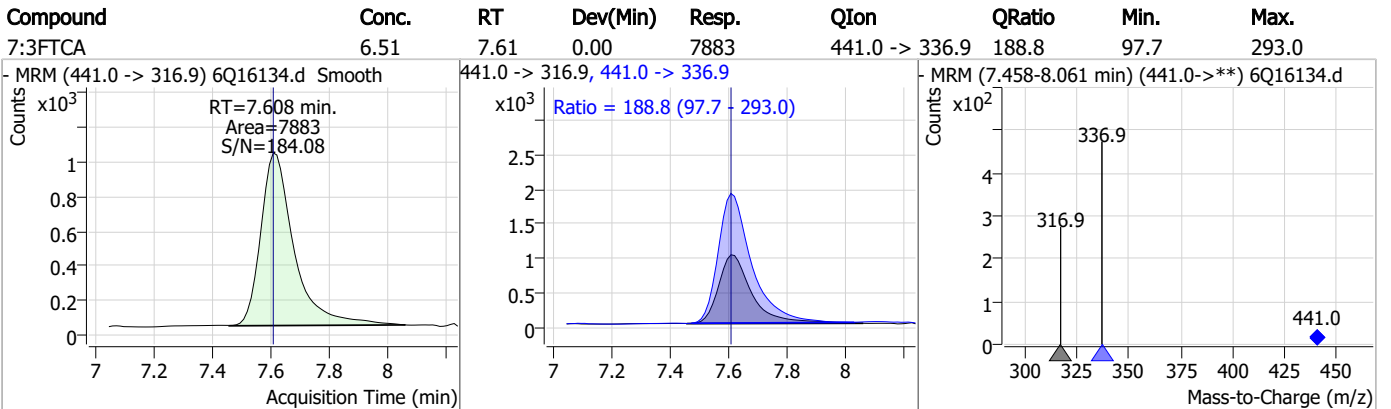
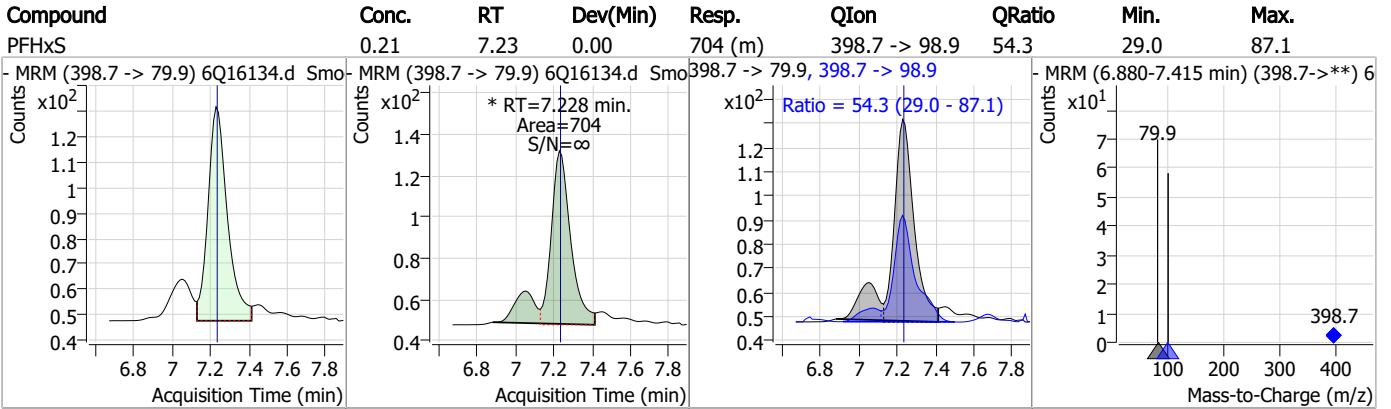
7.6.12 7

Perfluorinated Compounds by LC/MS/MS



7.6.12

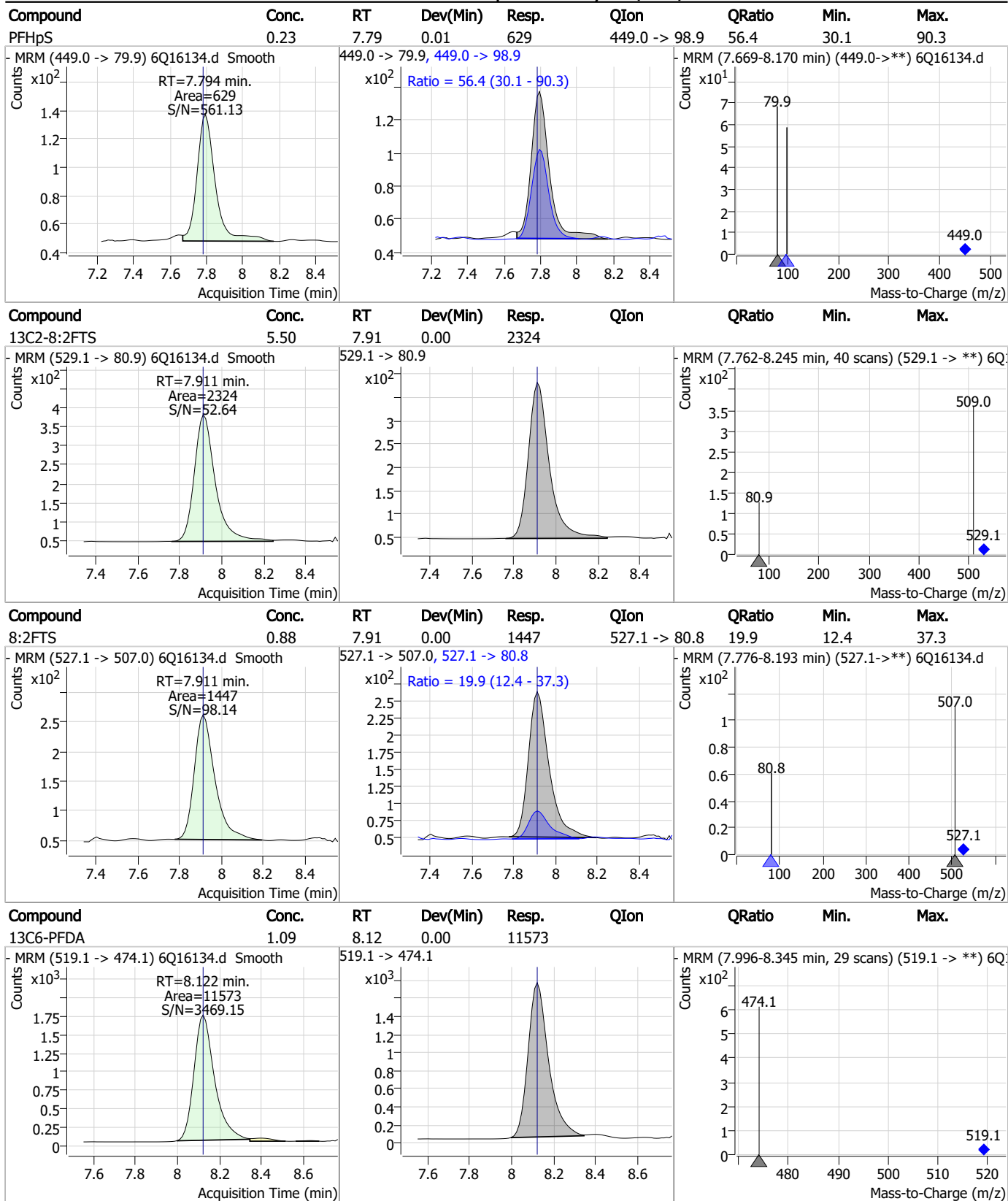
Perfluorinated Compounds by LC/MS/MS



7.6.12
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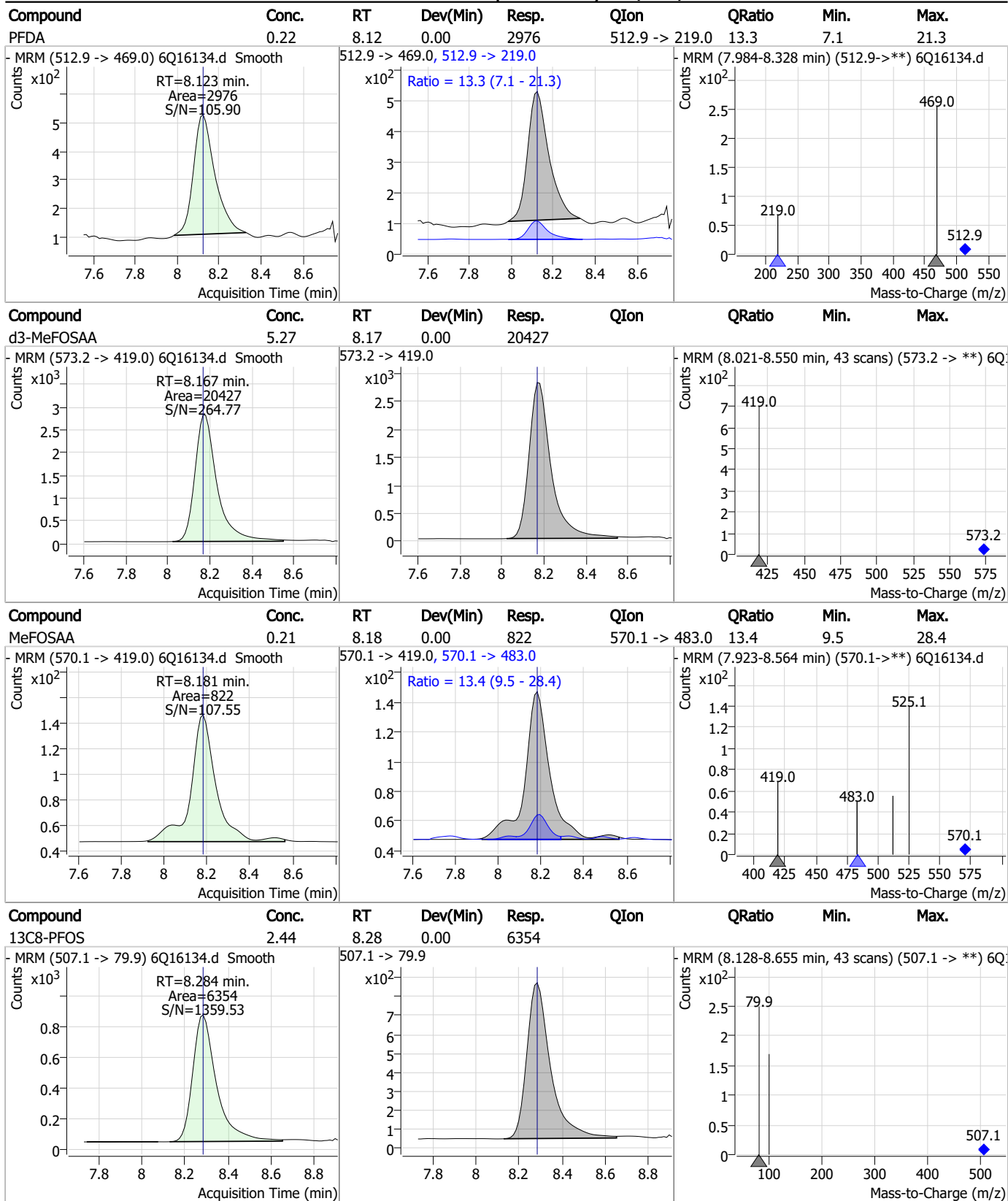


Perfluorinated Compounds by LC/MS/MS



7.6.12 7

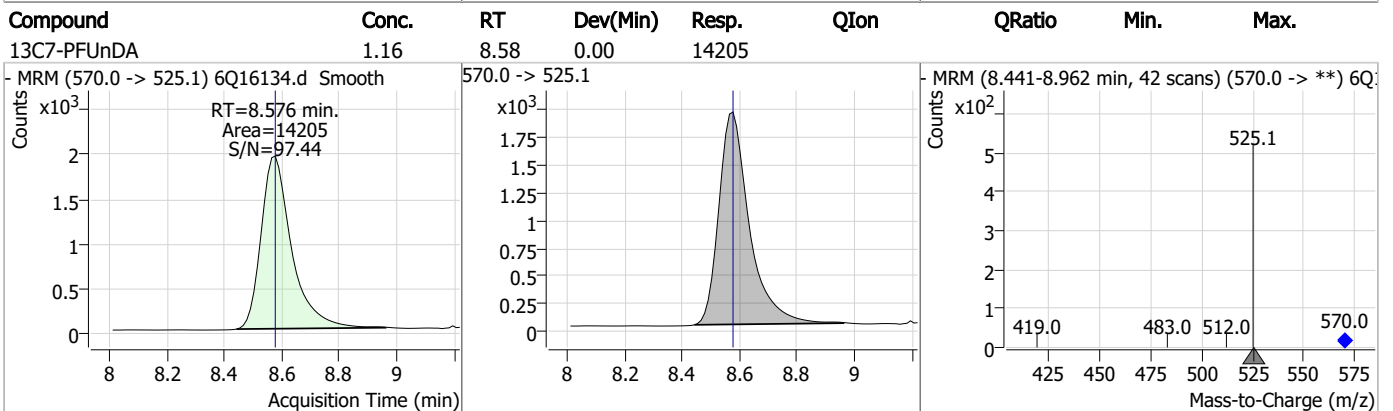
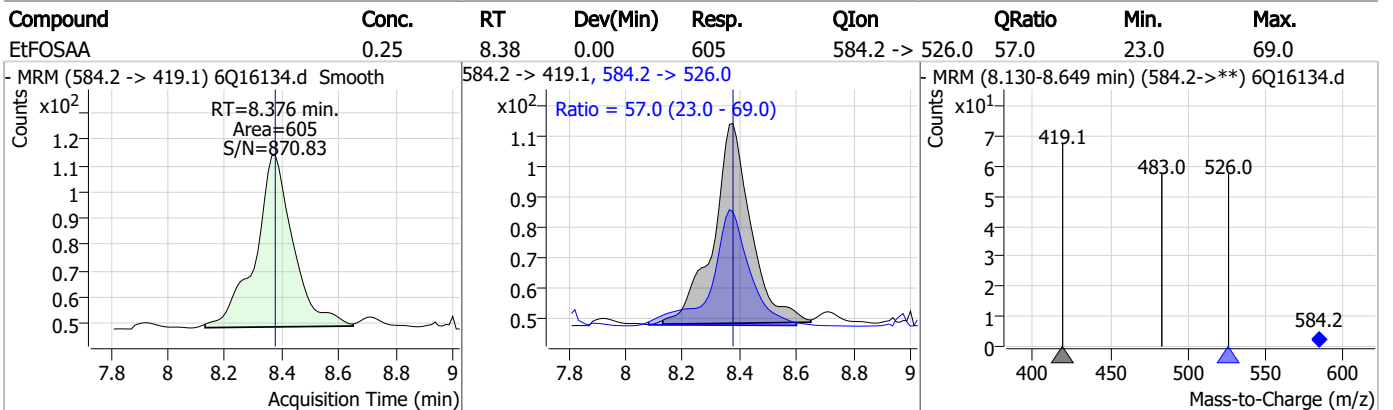
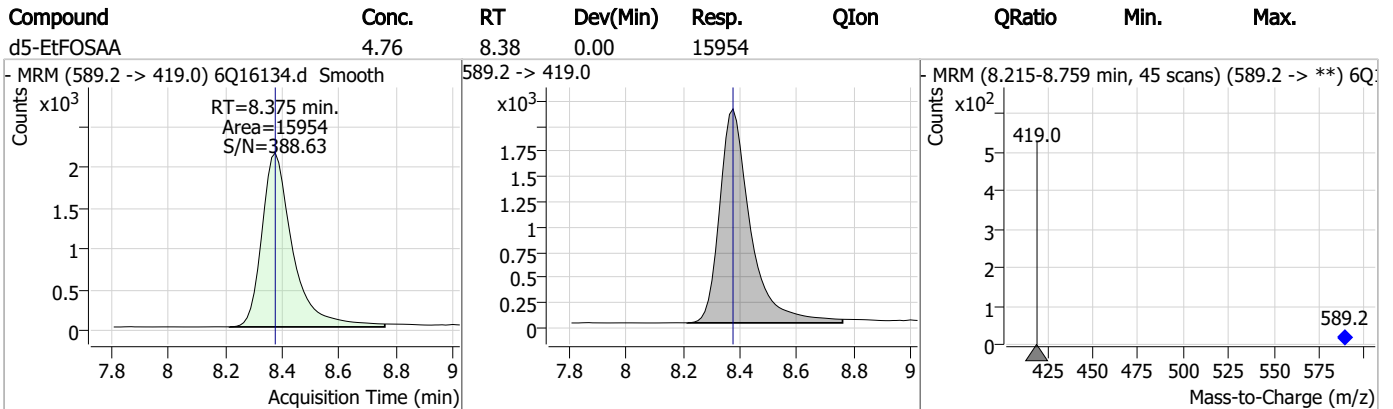
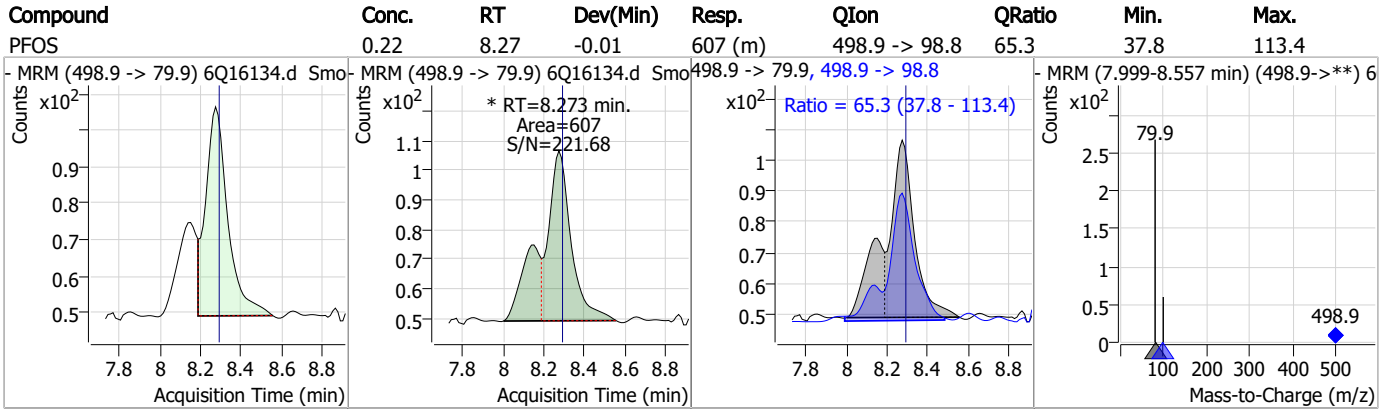
Perfluorinated Compounds by LC/MS/MS



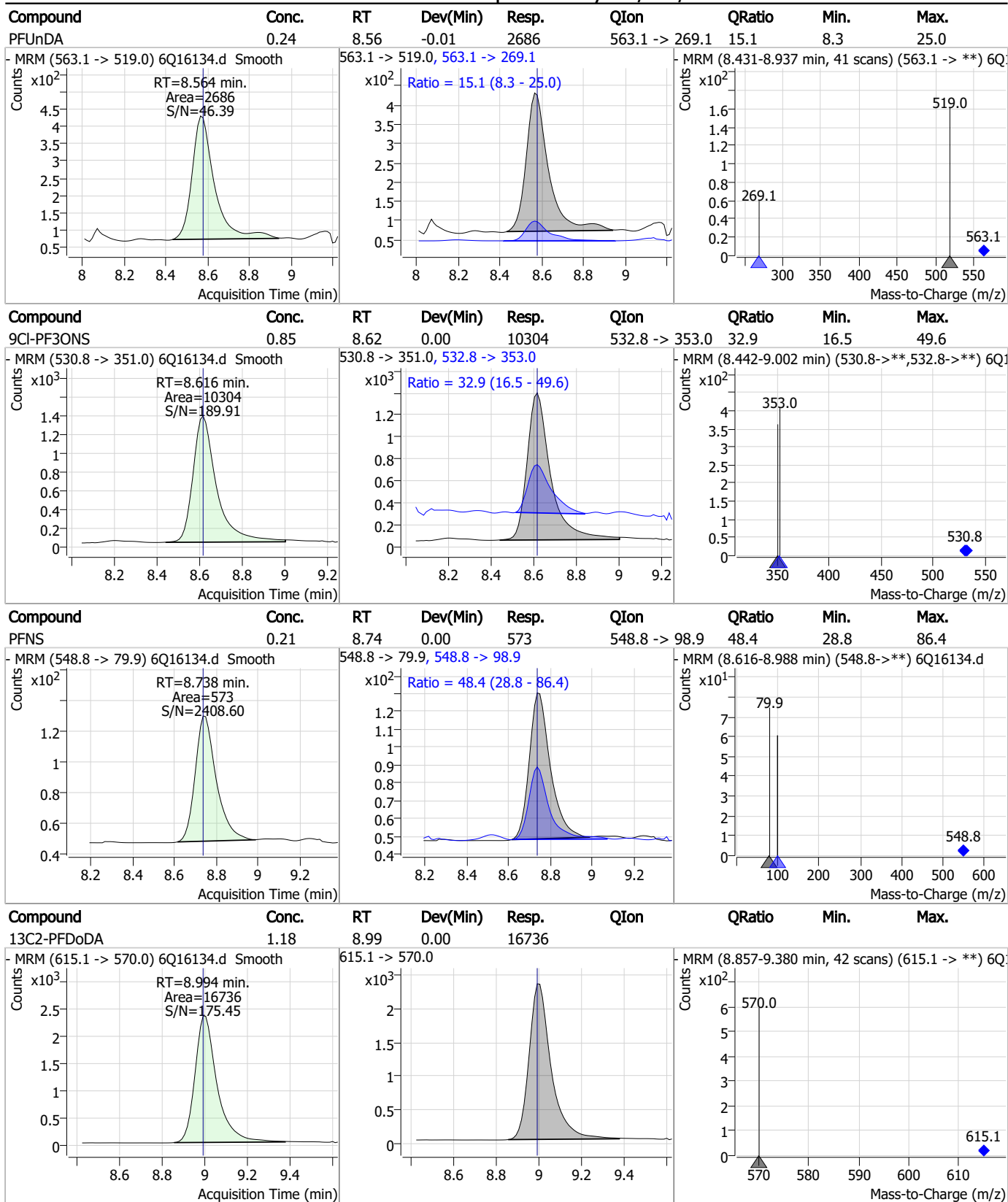
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Perfluorinated Compounds by LC/MS/MS

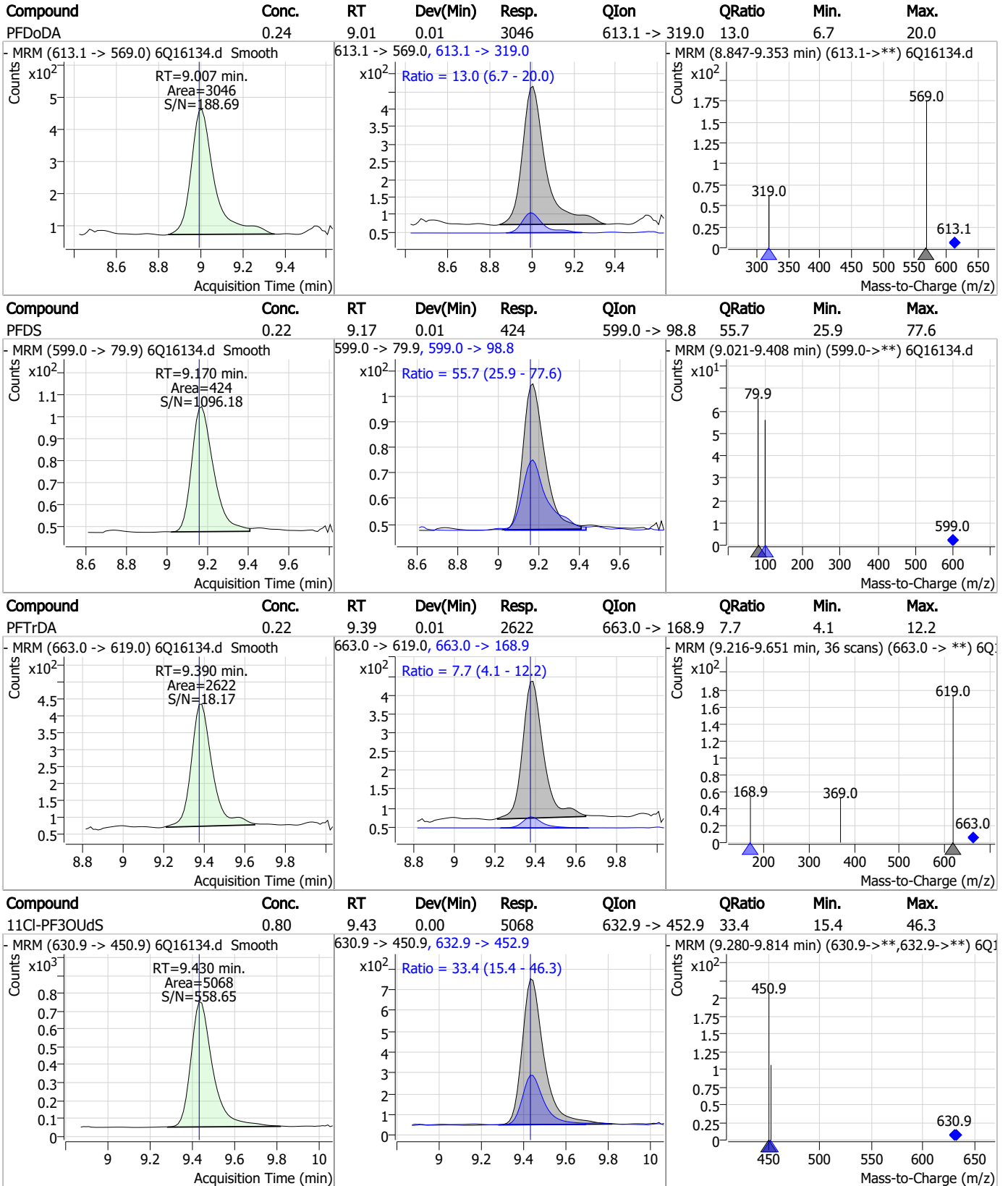


Perfluorinated Compounds by LC/MS/MS



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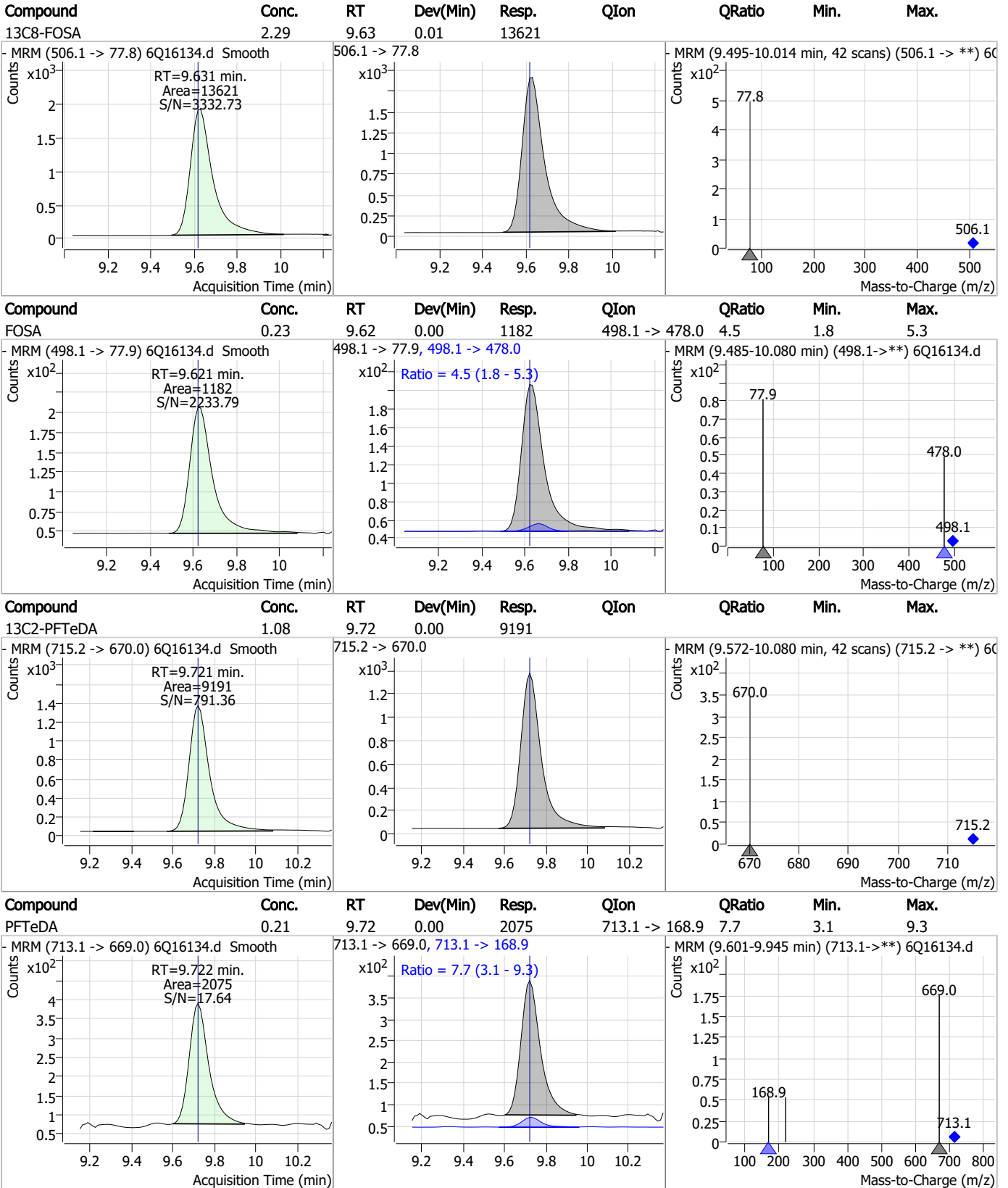
Perfluorinated Compounds by LC/MS/MS



7.6.12

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Perfluorinated Compounds by LC/MS/MS

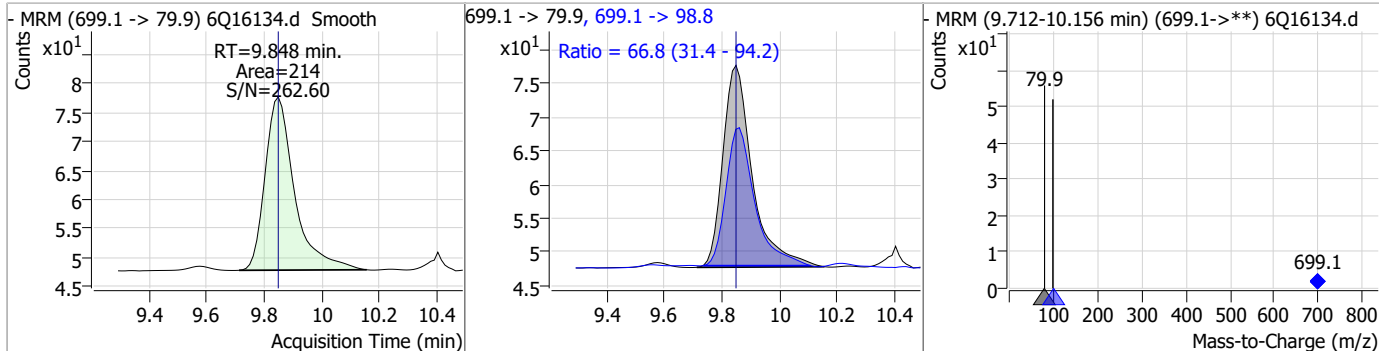


7.6.12 7

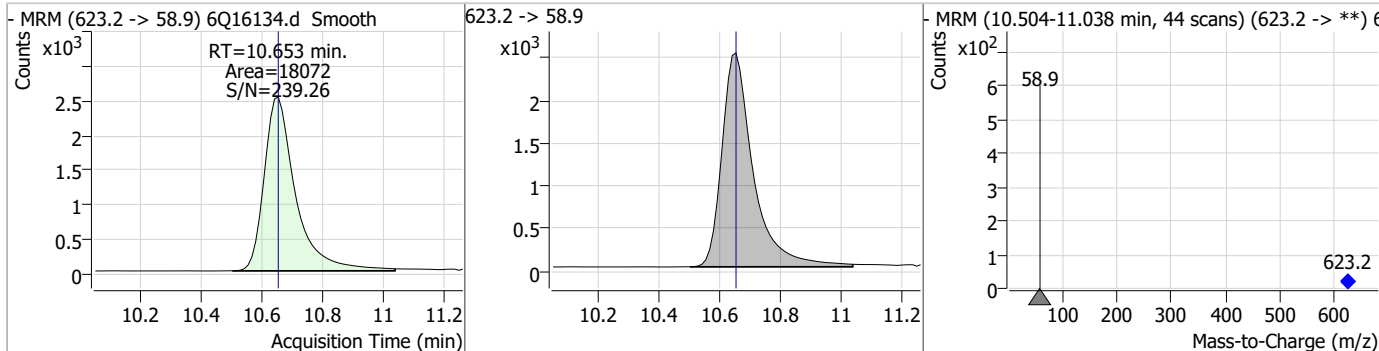


Perfluorinated Compounds by LC/MS/MS

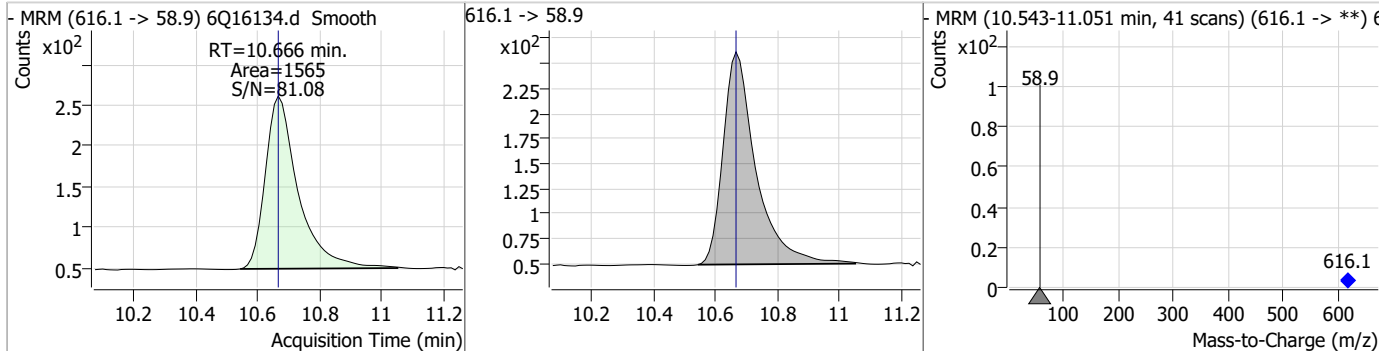
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	0.19	9.85	0.00	214	699.1 -> 98.8	66.8	31.4	94.2



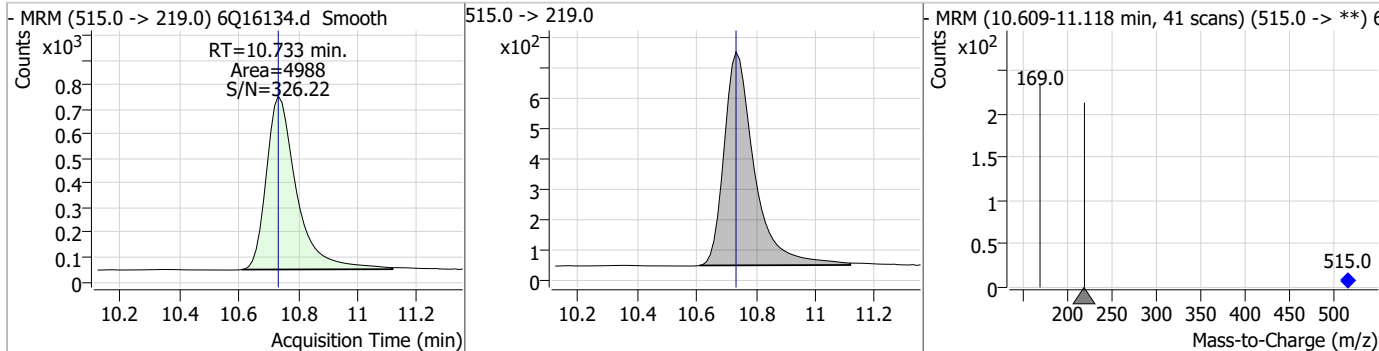
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	22.18	10.65	0.00	18072				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	2.30	10.67	0.00	1565				



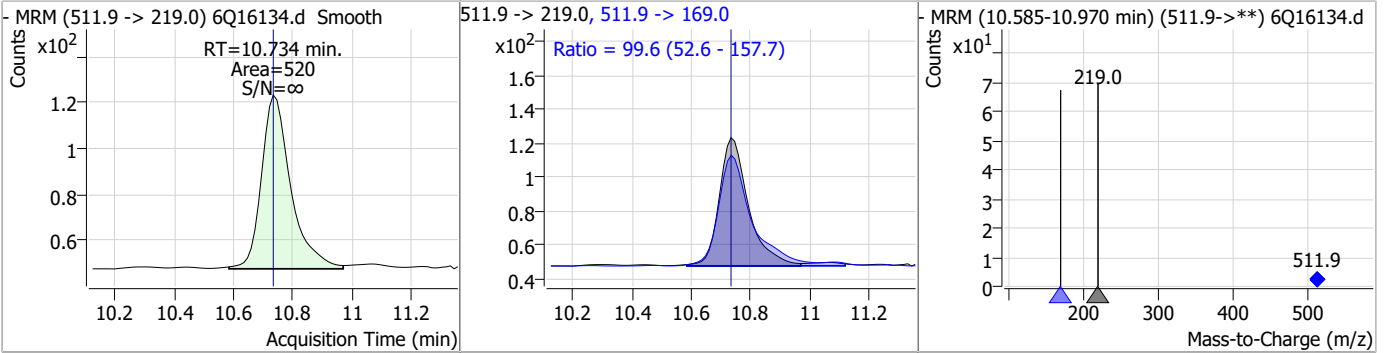
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.32	10.73	0.00	4988				



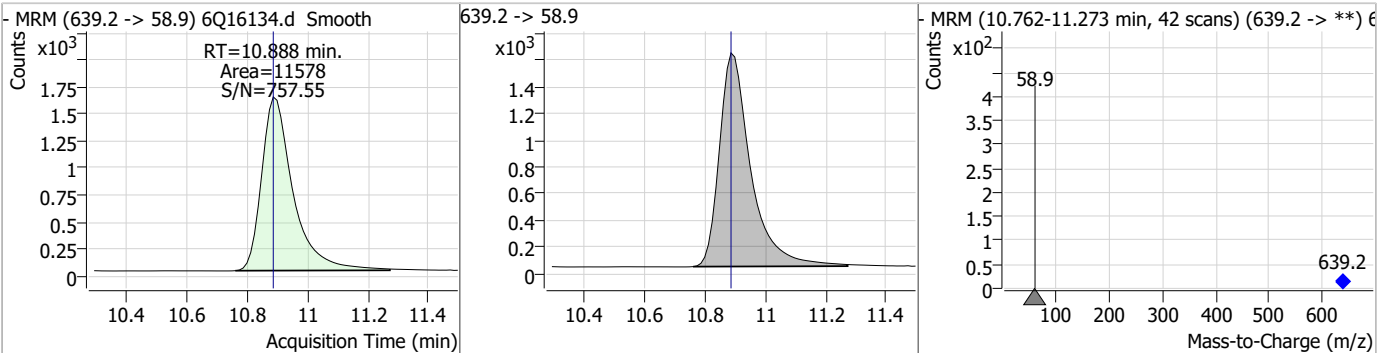
7.6.12
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Perfluorinated Compounds by LC/MS/MS

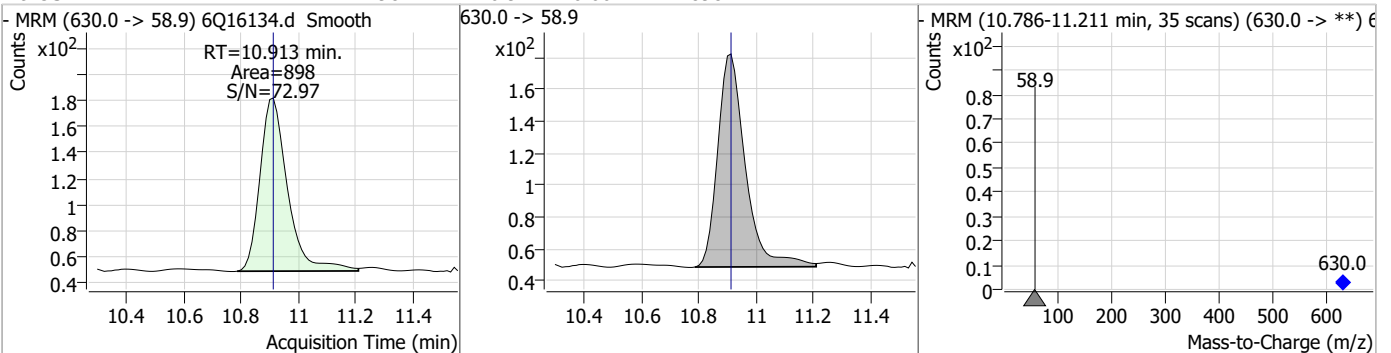
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.25	10.73	0.00	520	511.9 -> 169.0	99.6	52.6	157.7



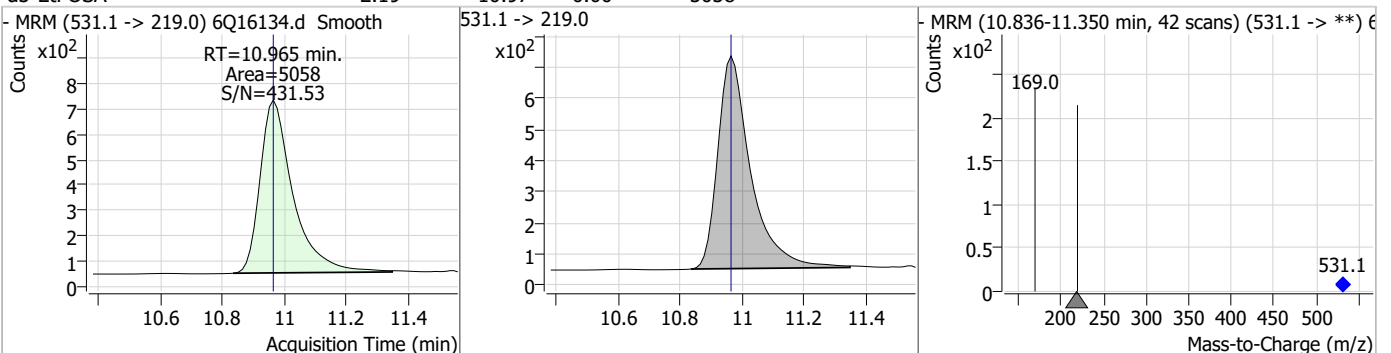
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	21.38	10.89	0.00	11578				



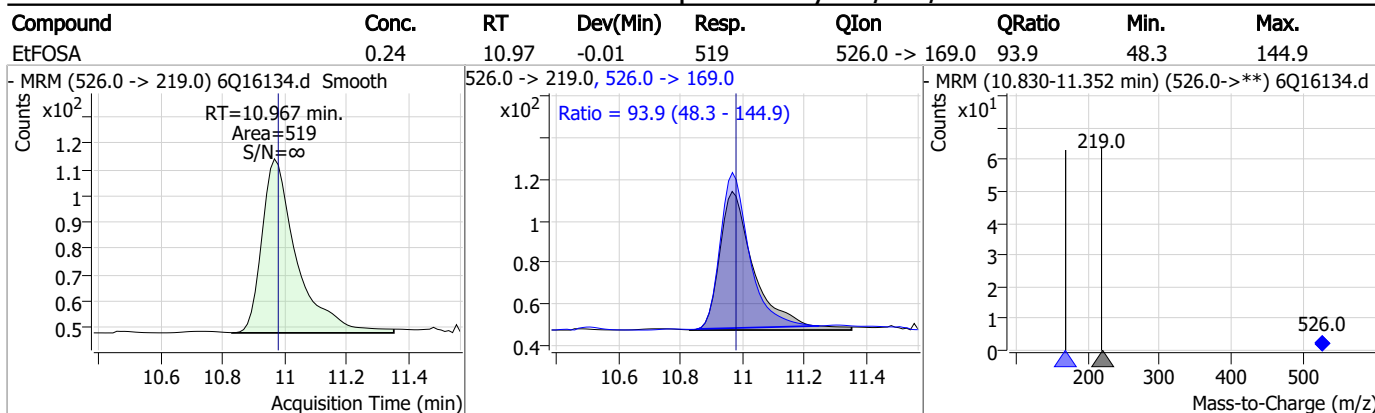
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	1.98	10.91	0.00	898				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.19	10.97	0.00	5058				



Perfluorinated Compounds by LC/MS/MS



7.6.12
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Manual Integration Approval Summary

Sample Number: S6Q240-CC239 Method: EPA DRAFT 1633
Lab FileID: 6Q16134.D Analyst approved: 04/06/23 11:16 Martha Valls
Injection Time: 04/05/23 20:47 Supervisor approved: 04/06/23 14:43 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.27	Split peak

7.6.12.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16144.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/5/2023 11:07:23 PM
 Sample Name : cc239-4
 Vial : P1-A5
 DA Method File : 1633_040423_S6Q239.quantmethod.xml
 Batch Name : S6Q240.batch.bin
 Sample Information : OP96085,S6Q240,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	82847	10.00 µg/L	0.000
M5-PFPeA	4.322	268.3 -> 223.0	36743	5.00 µg/L	0.000
M5-PFHxA	5.528	318.0 -> 273.0	33761	2.50 µg/L	0.000
M4-PFHpA	6.468	367.1 -> 322.0	33203	2.50 µg/L	0.000
M8-PFOA	7.112	421.1 -> 376.0	56985	2.50 µg/L	0.000
M9-PFNA	7.643	472.1 -> 427.0	16277	1.25 µg/L	0.000
M6-PFDA	8.122	519.1 -> 474.1	15573	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	16084	1.25 µg/L	0.000
M2-PFDoDA	8.994	615.1 -> 570.0	17165	1.25 µg/L	0.000
M2-PFTeDA	9.721	715.2 -> 670.0	10296	1.25 µg/L	0.000
M8-FOSA	9.631	506.1 -> 77.8	15362	2.50 µg/L	0.012
M3-PFBS	5.459	302.1 -> 79.9	12760	2.50 µg/L	0.000
M3-PFHxS	7.228	402.1 -> 79.9	7835	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	6898	2.50 µg/L	0.000
M2-4:2FTS	5.191	329.1 -> 80.9	2208	5.00 µg/L	0.000
M2-6:2FTS	6.886	429.1 -> 80.9	2773	5.00 µg/L	0.000
M2-8:2FTS	7.911	529.1 -> 80.9	2235	5.00 µg/L	0.000
M3-MeFOSAA	8.167	573.2 -> 419.0	21467	5.00 µg/L	0.000
M3-HFPO-DA	5.893	286.9 -> 168.9	13519	10.00 µg/L	0.000
M5-EtFOSAA	8.375	589.2 -> 419.0	18030	5.00 µg/L	0.000
M7-MeFOSE	10.653	623.2 -> 58.9	19121	25.00 µg/L	0.000
M9-EtFOSE	10.888	639.2 -> 58.9	12366	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	5764	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	5477	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	8542	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	34930	5.00 µg/L	0.000
18O2-PFHxS	7.227	403.0 -> 83.9	5933	2.50 µg/L	0.000
13C4-PFOA	7.125	417.1 -> 372.0	63576	2.50 µg/L	0.013
13C2-PFDA	8.123	515.1 -> 470.1	19201	1.25 µg/L	0.000
13C5-PFNA	7.643	468.0 -> 423.0	17777	1.25 µg/L	0.000
13C2-PFHxA	5.529	315.1 -> 270.0	33115	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.191	329.1 -> 80.9	2208	5.53 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.7%		
13C2-6:2FTS	6.886	429.1 -> 80.9	2773	5.66 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.3%		
13C2-8:2FTS	7.911	529.1 -> 80.9	2235	4.74 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.7%		
13C2-PFDoDA	8.994	615.1 -> 570.0	17165	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.5%		
13C2-PFTeDA	9.721	715.2 -> 670.0	10296	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.5%		
13C3-PFBS	5.459	302.1 -> 79.9	12760	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C3-PFHxS	7.228	402.1 -> 79.9	7835	2.31 µg/L	0.000

7.6.13
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.3%		
13C4-PFBA	2.897	216.8 -> 171.9	82847	10.14 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.4%		
13C4-PFHpA	6.468	367.1 -> 322.0	33203	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C5-PFHxA	5.528	318.0 -> 273.0	33761	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C5-PFPeA	4.322	268.3 -> 223.0	36743	4.76 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.1%		
13C6-PFDA	8.122	519.1 -> 474.1	15573	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 110.2%		
13C7-PFUnDA	8.576	570.0 -> 525.1	16084	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.0%		
13C8-FOSA	9.631	506.1 -> 77.8	15362	2.42 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C8-PFOA	7.112	421.1 -> 376.0	56985	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.3%		
13C8-PFOS	8.284	507.1 -> 79.9	6898	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C9-PFNA	7.643	472.1 -> 427.0	16277	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.0%		
d3-MeFOSAA	8.167	573.2 -> 419.0	21467	5.19 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.9%		
13C3-HFPO-DA	5.893	286.9 -> 168.9	13519	9.36 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 93.6%		
d3-MeFOSA	10.733	515.0 -> 219.0	5477	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.6%		
d5-EtFOSAA	8.375	589.2 -> 419.0	18030	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.8%		
d7-MeFOSE	10.653	623.2 -> 58.9	19121	22.00 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 88.0%		
d9-EtFOSE	10.888	639.2 -> 58.9	12366	21.40 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 85.6%		
d5-EtFOSA	10.965	531.1 -> 219.0	5764	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.4%		
Target Compounds					QValue
4:2FTS	5.192	327.1 -> 307.0	37819	8.74 µg/L	96
		327.1 -> 80.9	8236		
6:2FTS	6.886	427.1 -> 407.0	30634	8.25 µg/L	98
		427.1 -> 80.9	6335		
8:2FTS	7.911	527.1 -> 507.0	15215	9.59 µg/L	97
		527.1 -> 80.8	3573		
EtFOSAA	8.376	584.2 -> 419.1	6255	2.26 µg/L	m 72
		584.2 -> 526.0	4024		
FOSA	9.621	498.1 -> 77.9	12556	2.21 µg/L	97
		498.1 -> 478.0	576		
MeFOSAA	8.181	570.1 -> 419.0	9625	2.39 µg/L	95
		570.1 -> 483.0	1610		
PFBA	2.906	212.8 -> 168.9	18198	8.69 µg/L	100
PFBS	5.460	298.7 -> 79.9	10635	2.12 µg/L	99
		298.7 -> 98.8	4842		
PFDA	8.123	512.9 -> 469.0	37581	2.07 µg/L	96
		512.9 -> 219.0	4771		
PFDODA	8.994	613.1 -> 569.0	31152	2.44 µg/L	95
		613.1 -> 319.0	3541		
PFDS	9.170	599.0 -> 79.9	4563	2.21 µg/L	98

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.469	599.0 -> 98.8	2301	2.27	µg/L	100
		363.1 -> 319.0	42470			
PFHpS	7.794	363.1 -> 169.0	5984	2.15	µg/L	91
		449.0 -> 79.9	6331			
PFHxA	5.531	449.0 -> 98.9	3365	2.22	µg/L	99
		313.0 -> 269.0	27617			
PFHxS	7.228	313.0 -> 118.9	1048	2.19	µg/L	97
		398.7 -> 79.9	7551			
PFNA	7.643	398.7 -> 98.9	4223	2.35	µg/L	98
		463.0 -> 419.0	24915			
PFNS	8.751	463.0 -> 219.0	4910	2.42	µg/L	94
		548.8 -> 79.9	7102			
PFOA	7.113	548.8 -> 98.9	3799	2.20	µg/L	98
		413.0 -> 369.0	56848			
PFOS	8.286	413.0 -> 169.0	7233	2.21	µg/L	83
		498.9 -> 79.9	6716			
PFPeA	4.324	498.9 -> 98.8	4127	4.60	µg/L	100
		263.0 -> 219.0	35644			
PFPeS	6.533	349.1 -> 79.9	9116	2.20	µg/L	98
		349.1 -> 98.9	4853			
PFTeDA	9.722	713.1 -> 669.0	24744	2.27	µg/L	99
		713.1 -> 168.9	1607			
PFTrDA	9.378	663.0 -> 619.0	28027	2.32	µg/L	100
		663.0 -> 168.9	2261			
PFUnDA	8.577	563.1 -> 519.0	30313	2.35	µg/L	92
		563.1 -> 269.1	3964			
11CI-PF3OUdS	9.430	630.9 -> 450.9	64569	8.88	µg/L	99
		632.9 -> 452.9	19657			
9CI-PF3ONS	8.616	530.8 -> 351.0	124312	8.96	µg/L	98
		532.8 -> 353.0	39457			
ADONA	6.731	376.9 -> 250.9	244393	8.92	µg/L	100
		376.9 -> 84.8	56570			
HFPO-DA	5.894	284.9 -> 168.9	12032	9.85	µg/L	99
		284.9 -> 184.9	1475			
3:3FTCA	3.790	241.0 -> 177.0	4631	10.77	µg/L	98
		241.0 -> 117.0	742			
5:3FTCA	6.198	341.0 -> 237.1	150485	54.63	µg/L	98
		341.0 -> 217.0	133499			
7:3FTCA	7.608	441.0 -> 316.9	82749	59.34	µg/L	85
		441.0 -> 336.9	143577			
EtFOSA	10.967	526.0 -> 219.0	5776	2.32	µg/L	96
		526.0 -> 169.0	5825			
EtFOSE	10.913	630.0 -> 58.9	10691	22.04	µg/L	100
		511.9 -> 219.0	5352			
MeFOSA	10.734	511.9 -> 169.0	5528	2.32	µg/L	98
		616.1 -> 58.9	16544			
MeFOSE	10.666	699.1 -> 79.9	2551	22.95	µg/L	100
		699.1 -> 98.8	1521			
PFDoDS	9.848	295.0 -> 201.0	3385	2.13	µg/L	96
		295.0 -> 84.9	1576			
NFDHA	5.398	279.0 -> 85.1	10870	4.19	µg/L	96
		229.0 -> 84.9	10312			
PFMBA	4.737	314.8 -> 134.9	69623	4.23	µg/L	100
		314.8 -> 82.9	1653			
PFMPA	3.463			4.40	µg/L	100
PFEESA	5.999			3.94	µg/L	100

= Qualifier out of range, m = manually integrated, + = Area summed



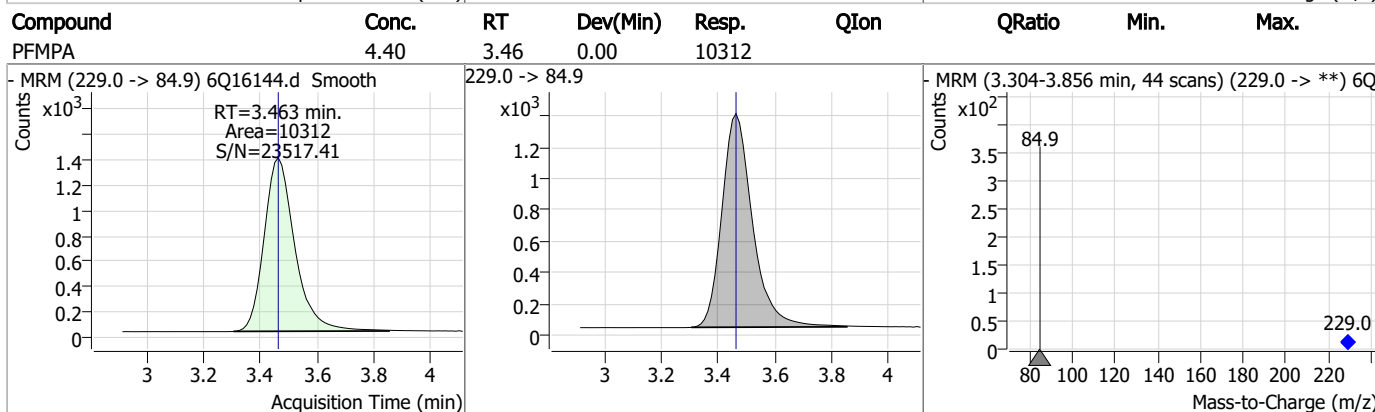
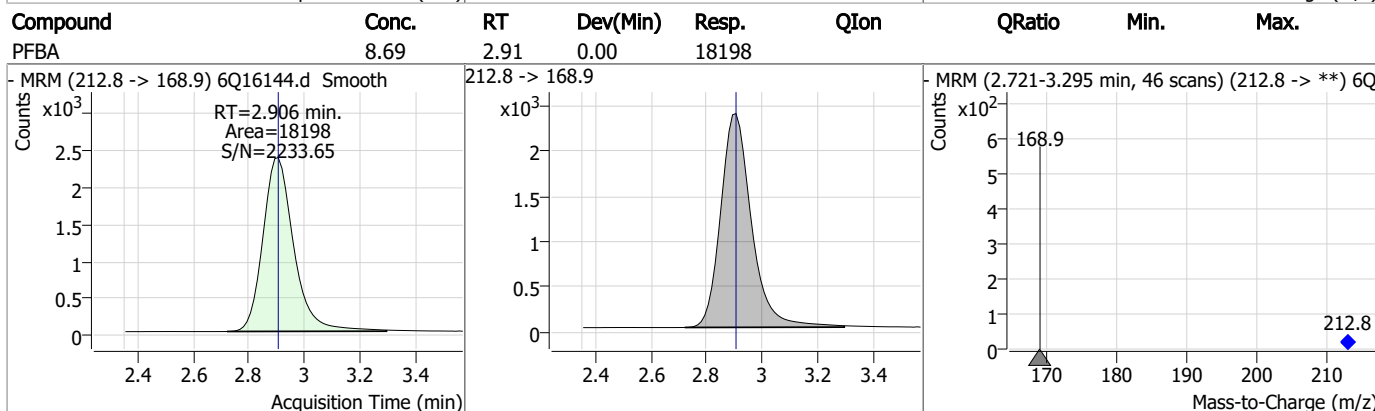
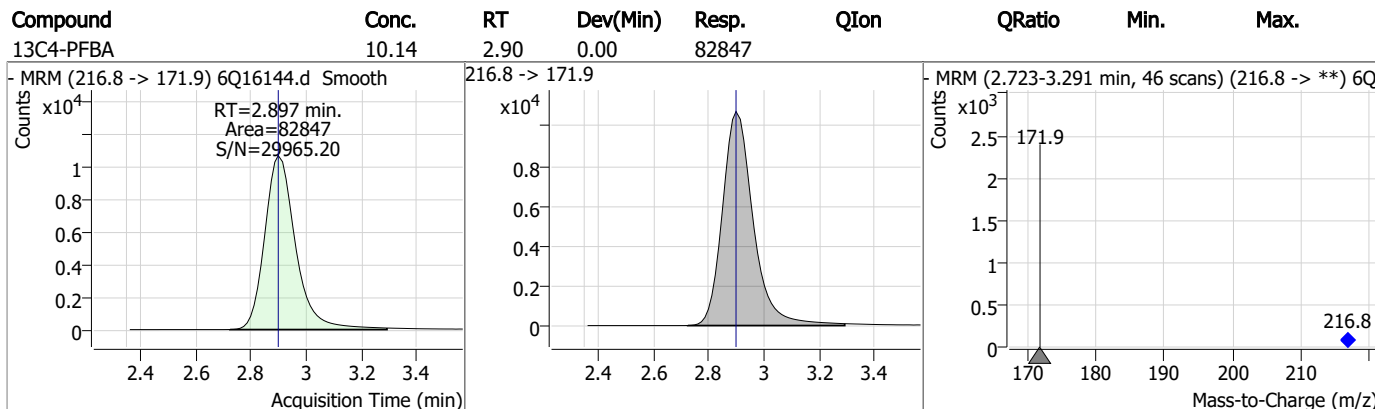
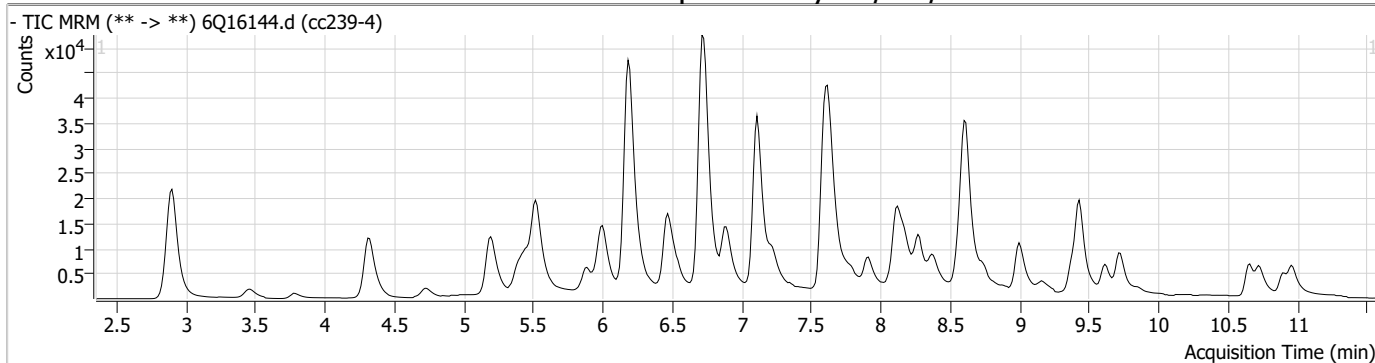
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.6.13

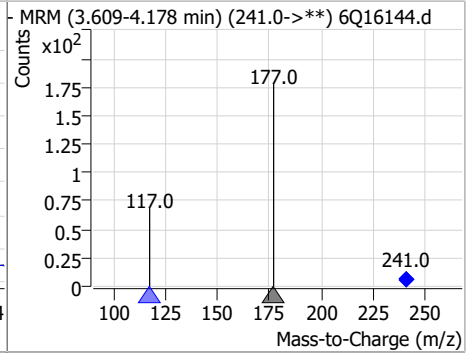
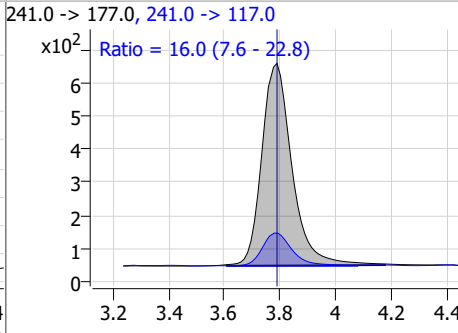
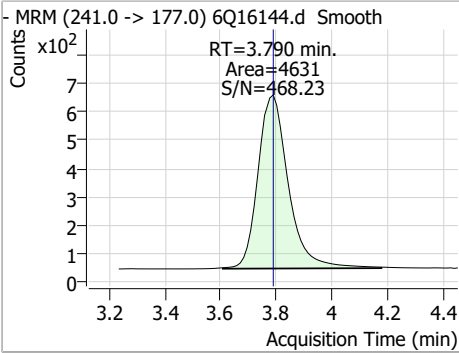
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Perfluorinated Compounds by LC/MS/MS

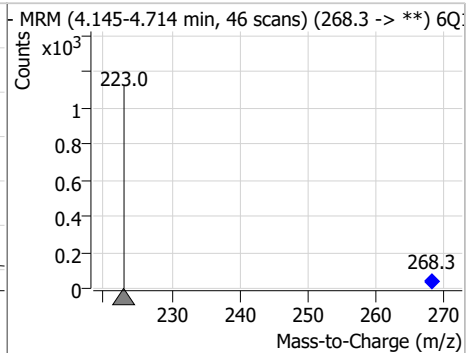
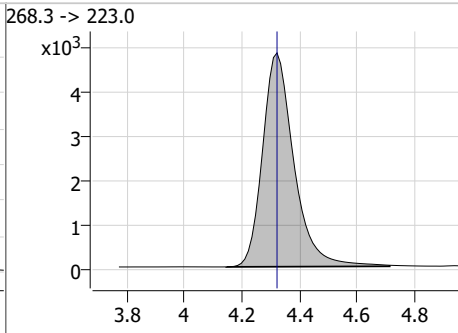
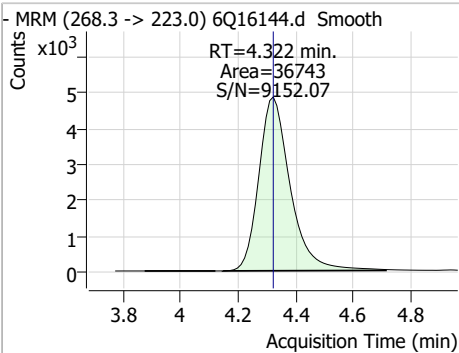


Perfluorinated Compounds by LC/MS/MS

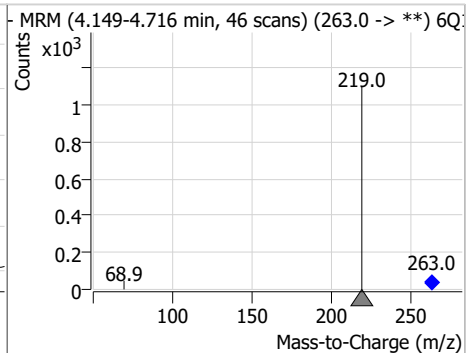
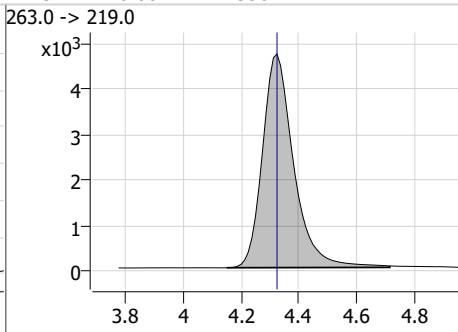
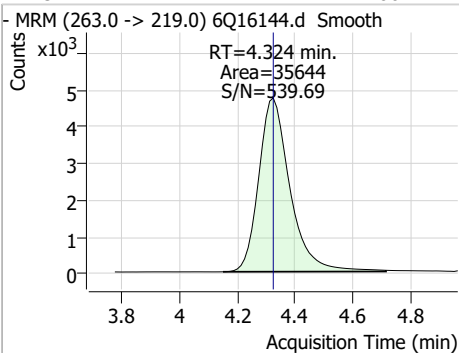
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	10.77	3.79	0.00	4631	241.0 -> 117.0	16.0	7.6	22.8



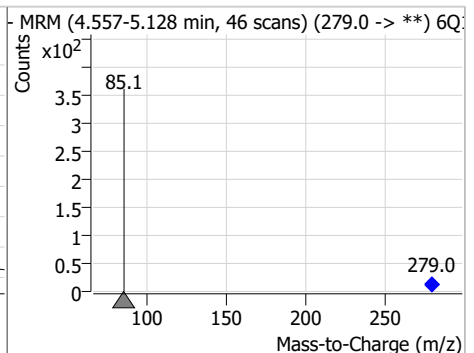
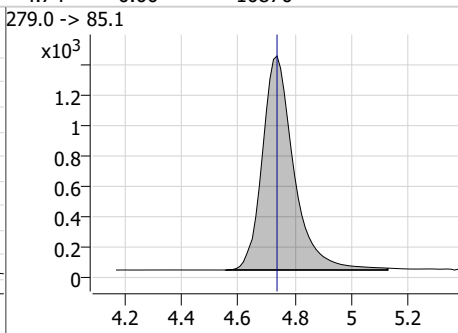
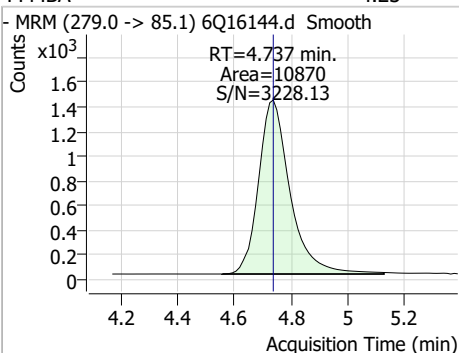
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.76	4.32	0.00	36743				



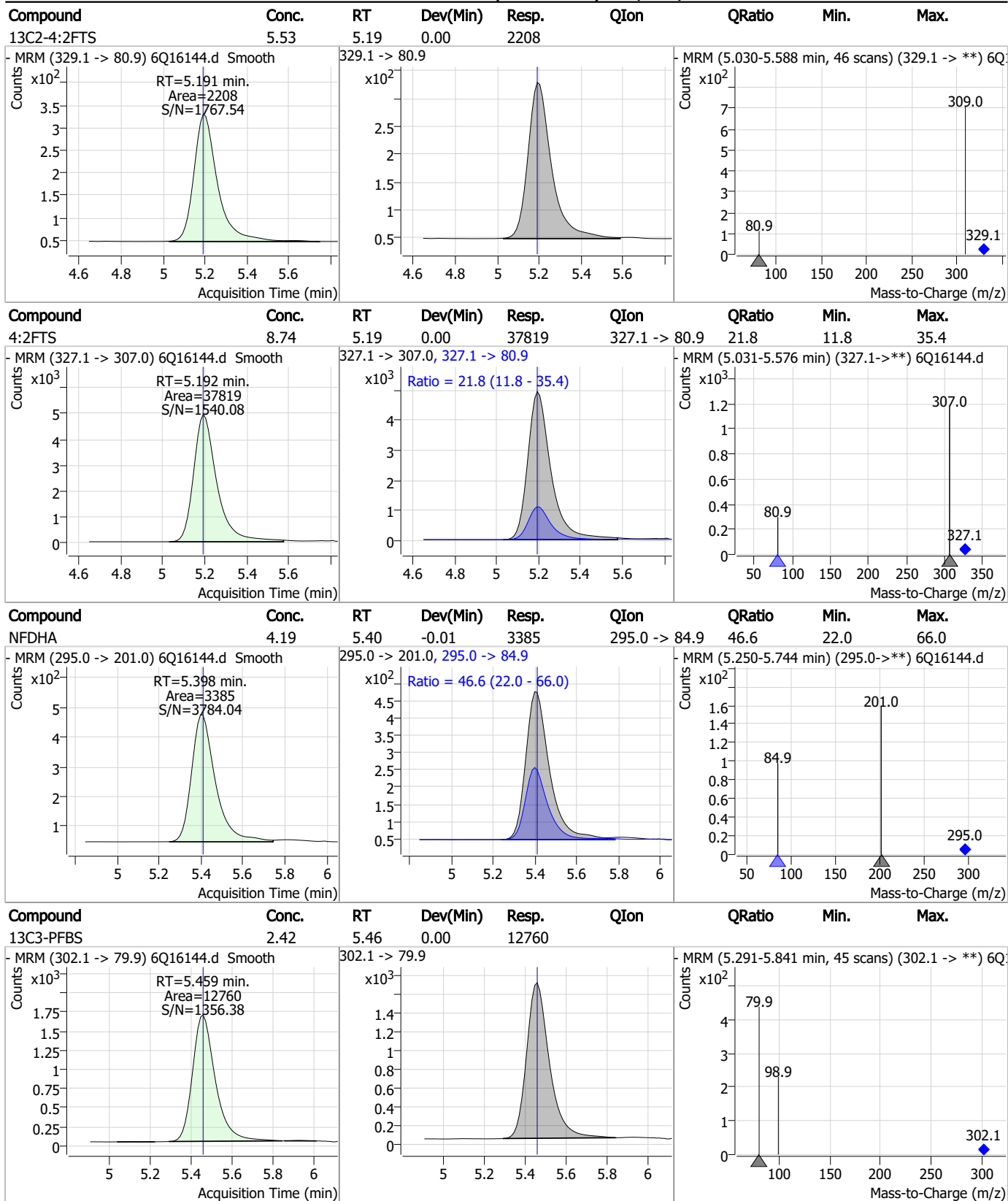
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.60	4.32	0.00	35644				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.23	4.74	0.00	10870				



Perfluorinated Compounds by LC/MS/MS

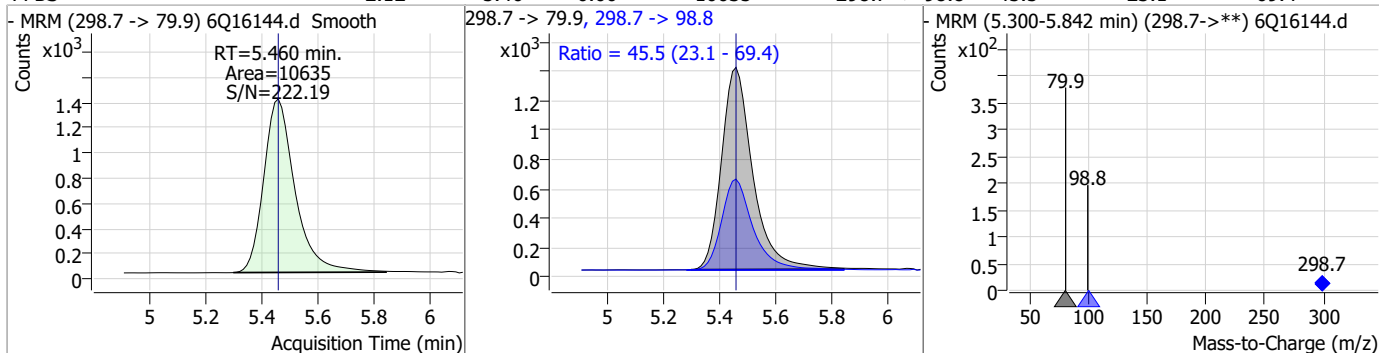


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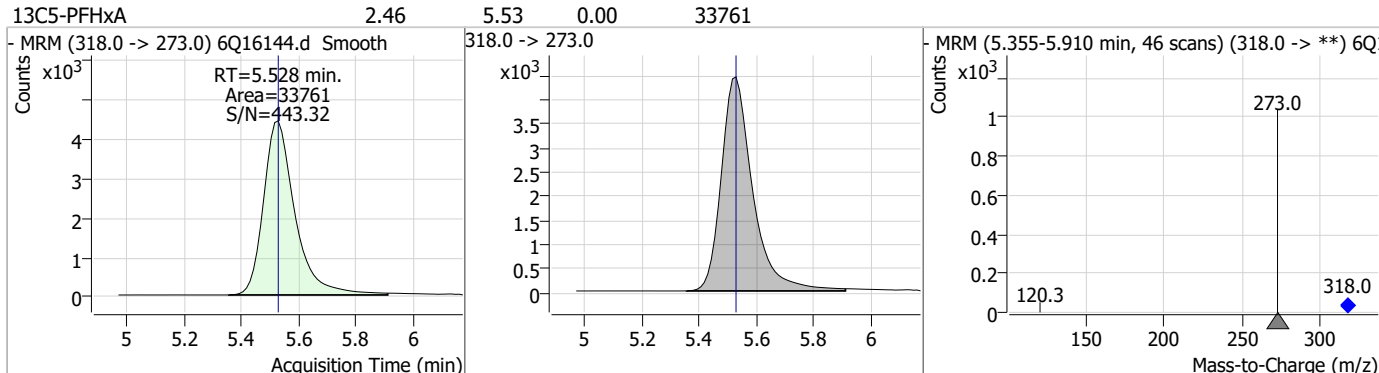
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Perfluorinated Compounds by LC/MS/MS

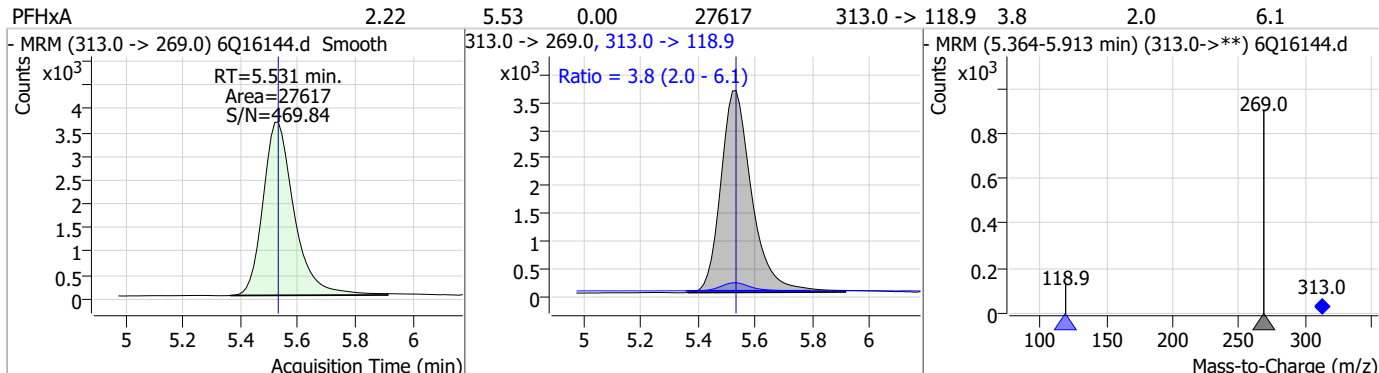
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.12	5.46	0.00	10635	298.7 -> 98.8	45.5	23.1	69.4



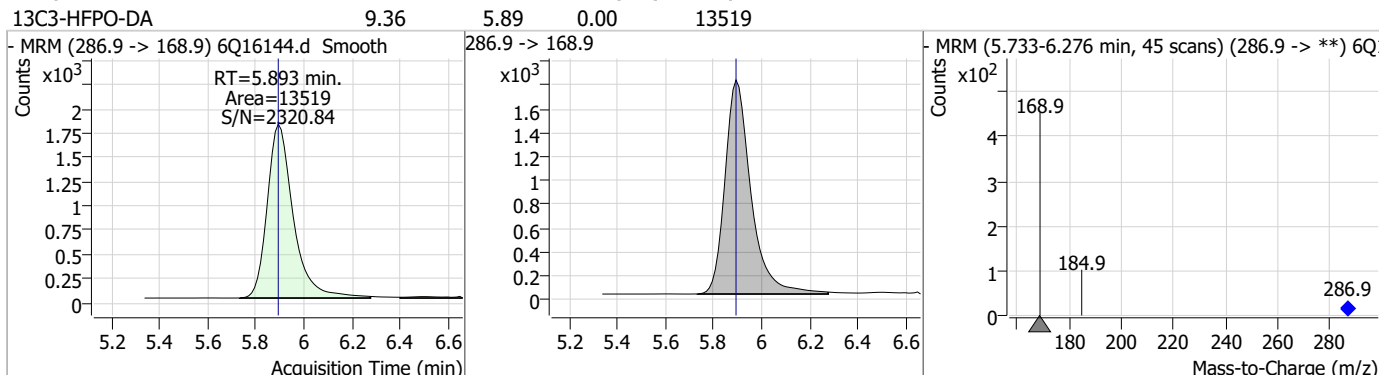
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.46	5.53	0.00	33761				



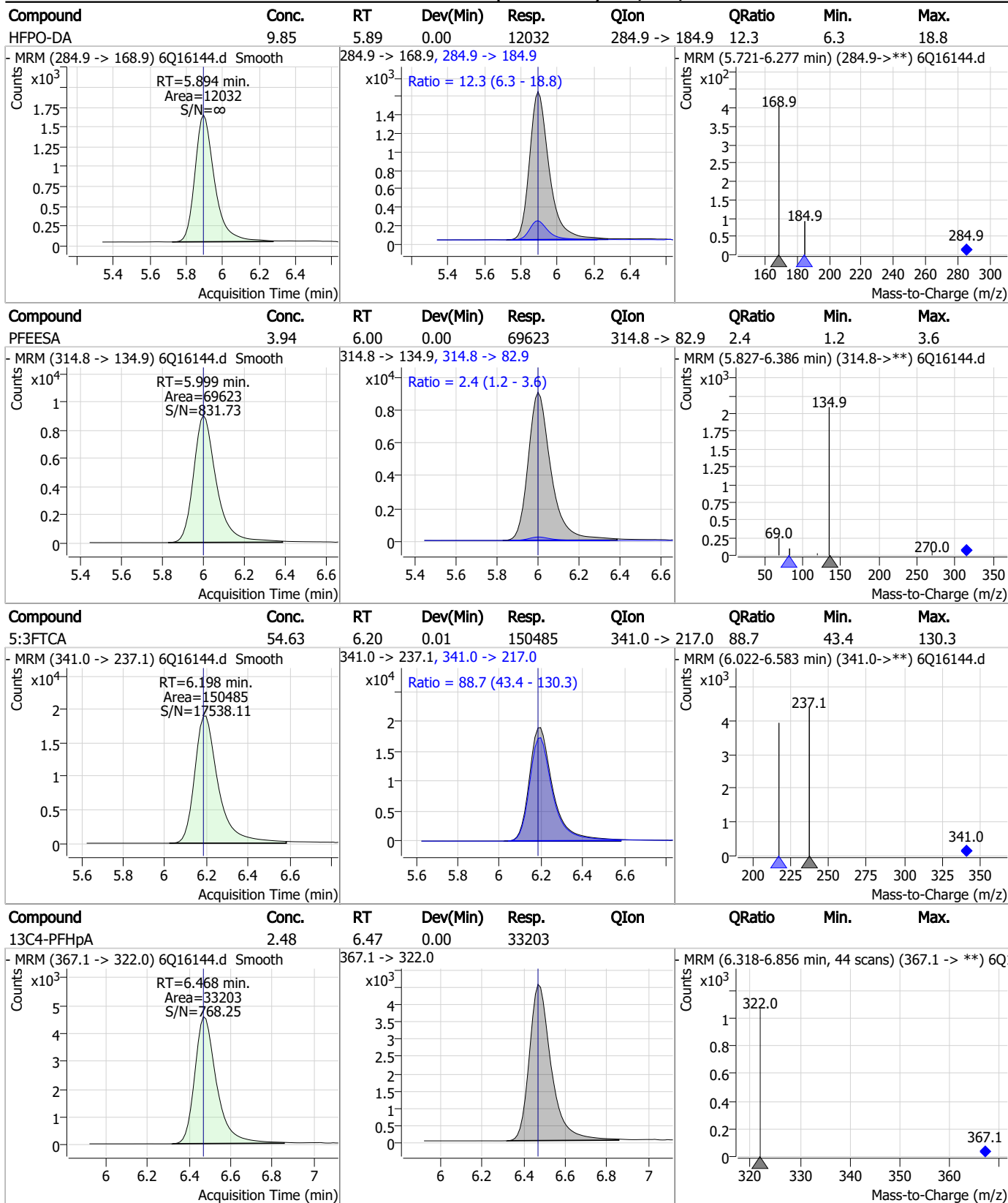
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.22	5.53	0.00	27617	313.0 -> 118.9	3.8	2.0	6.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.36	5.89	0.00	13519				



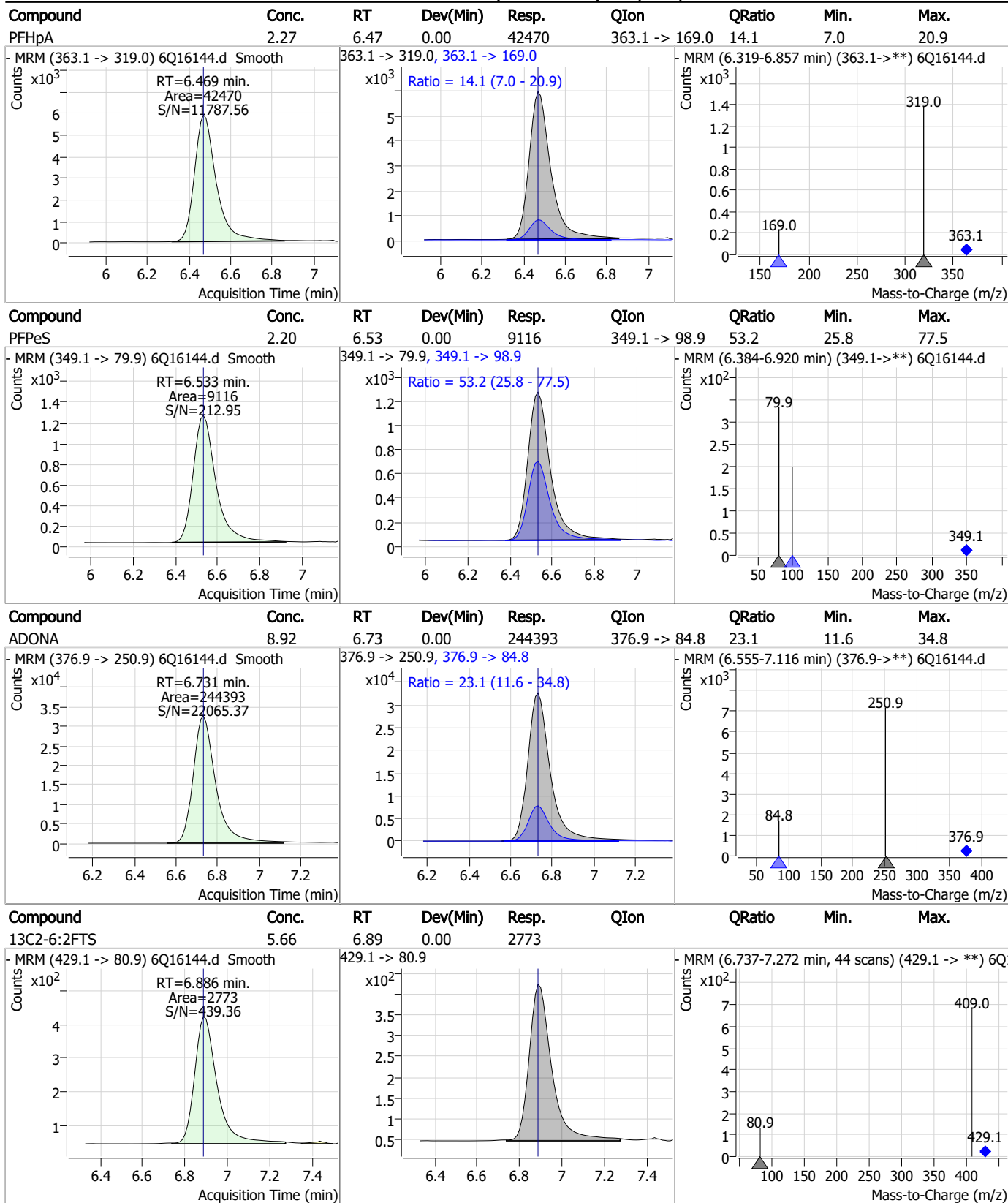
Perfluorinated Compounds by LC/MS/MS



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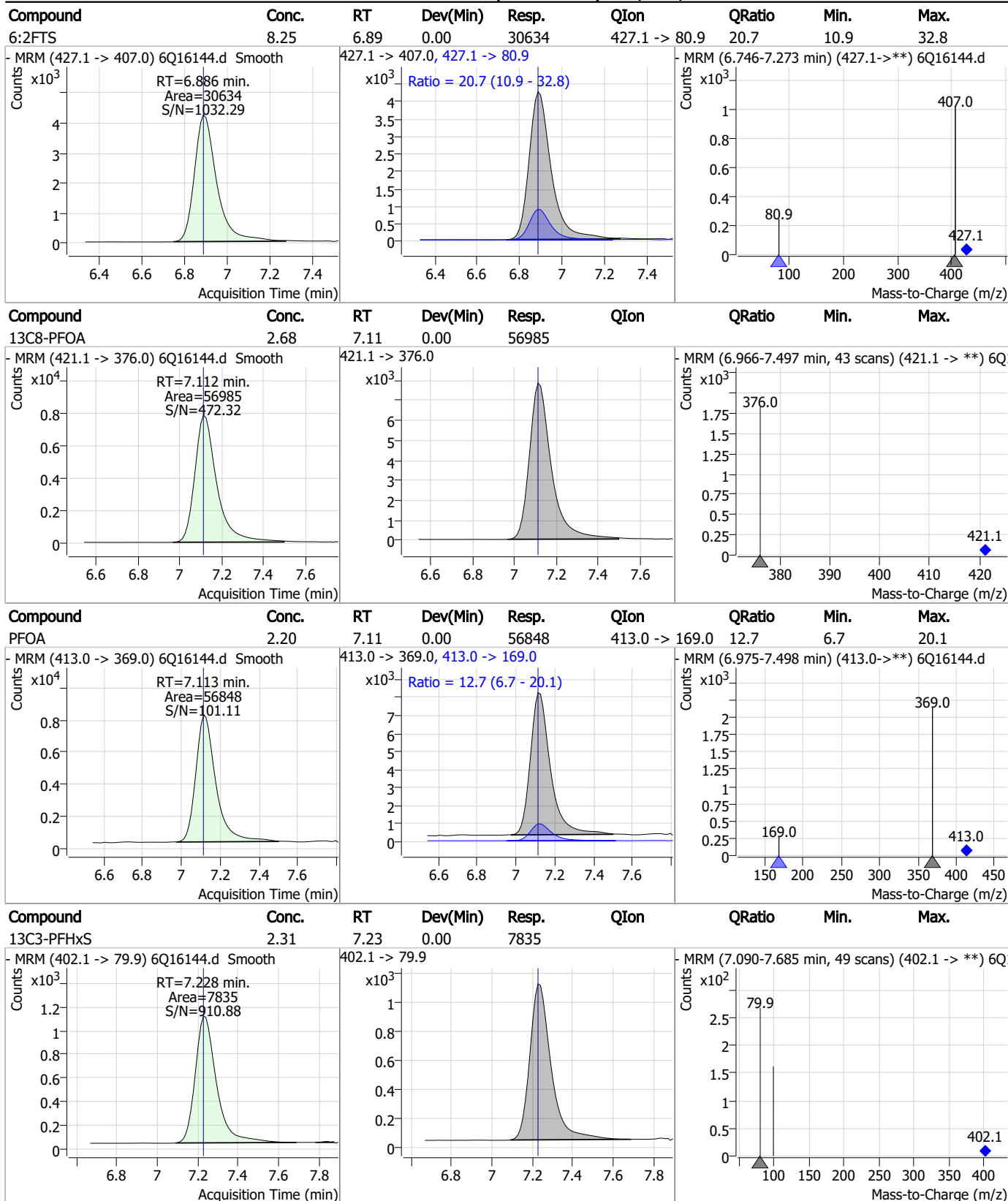
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Perfluorinated Compounds by LC/MS/MS



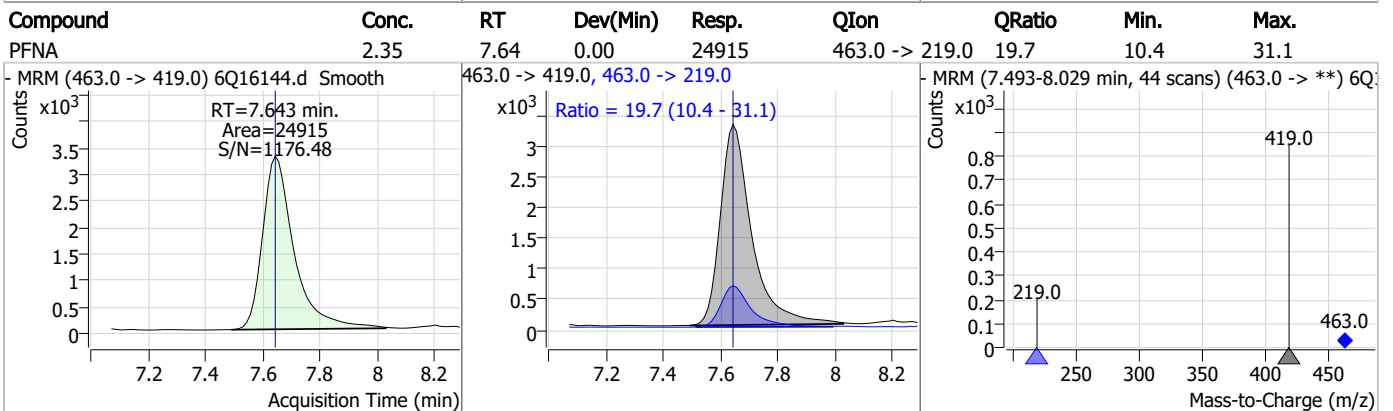
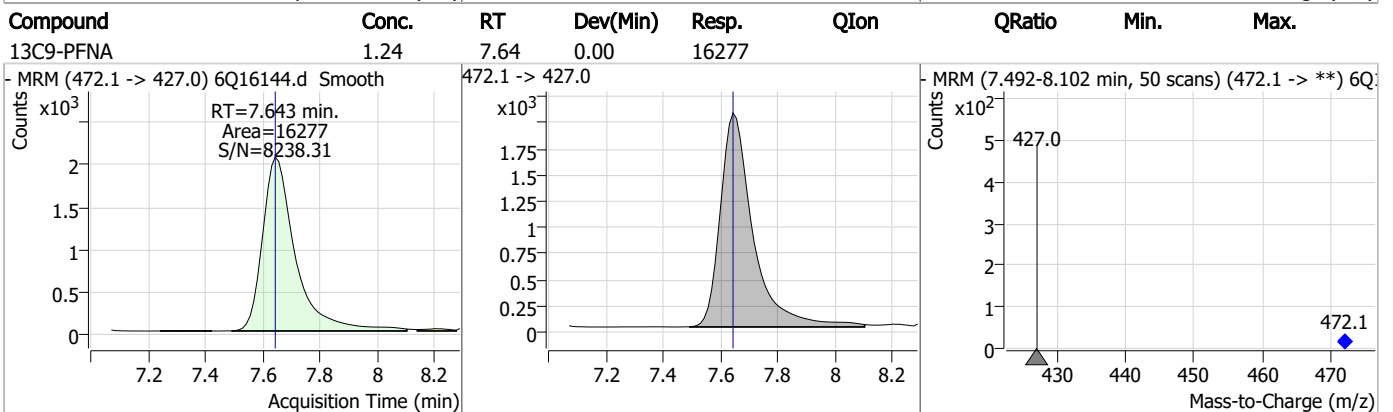
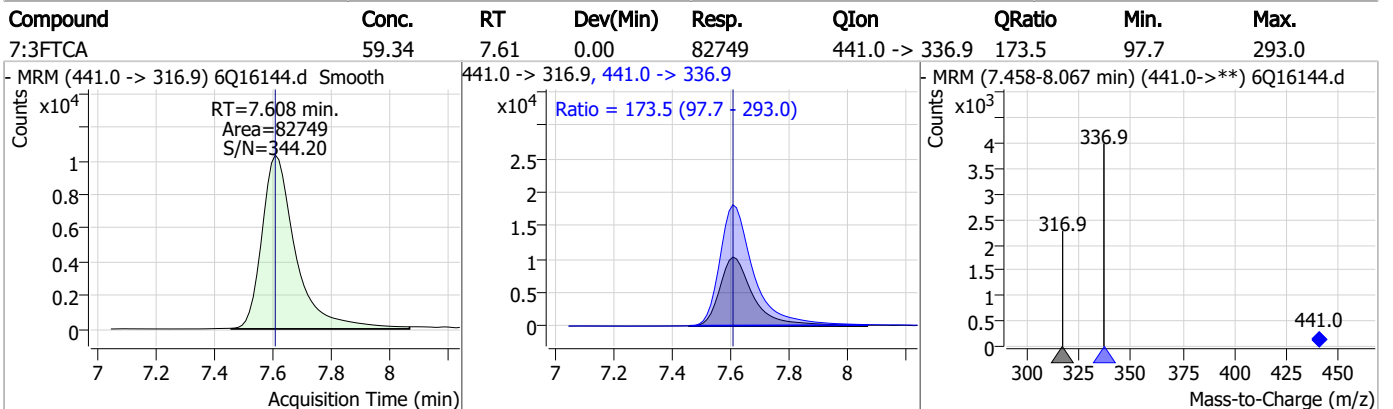
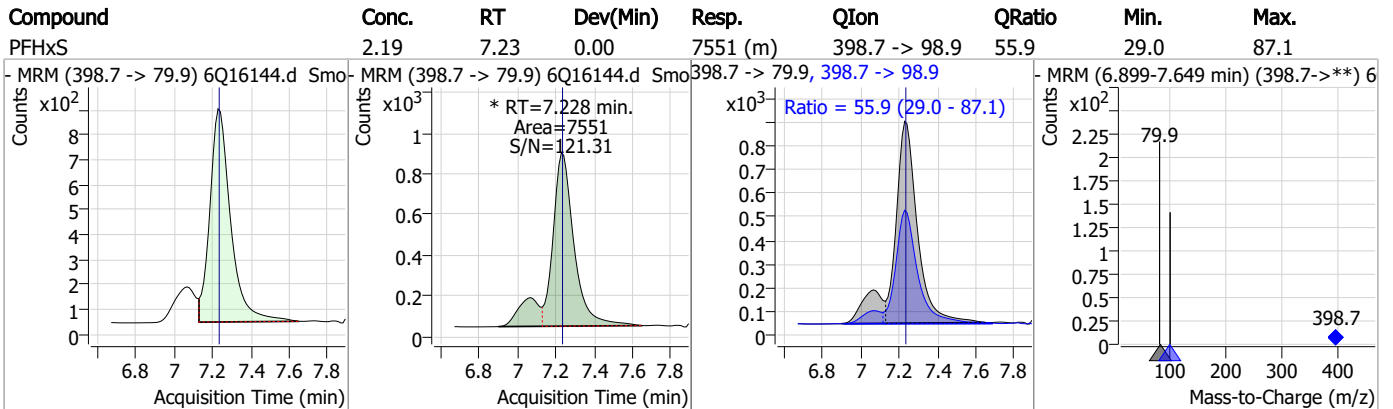
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

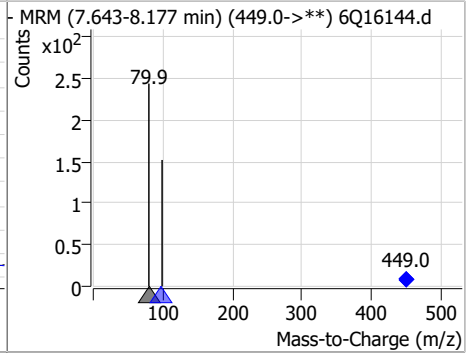
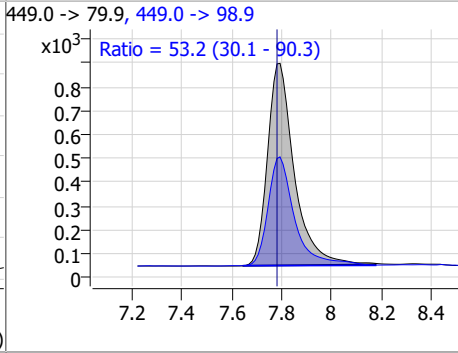
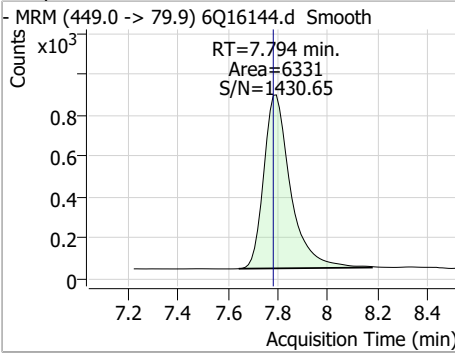


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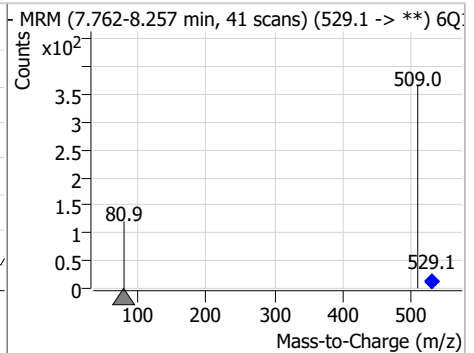
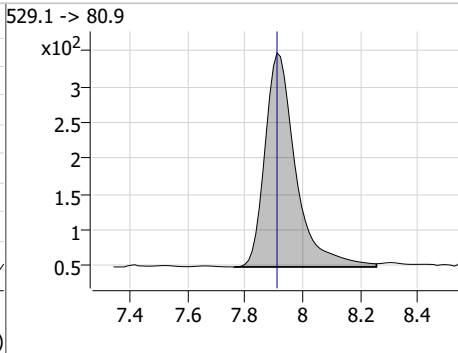
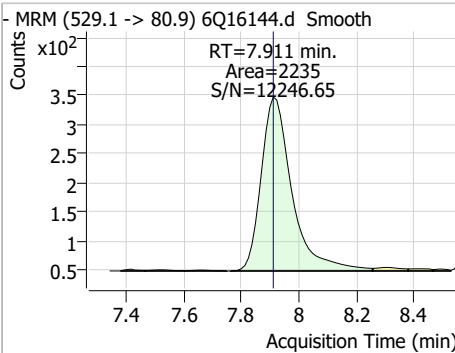


Perfluorinated Compounds by LC/MS/MS

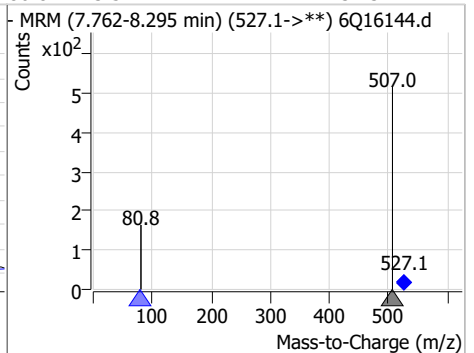
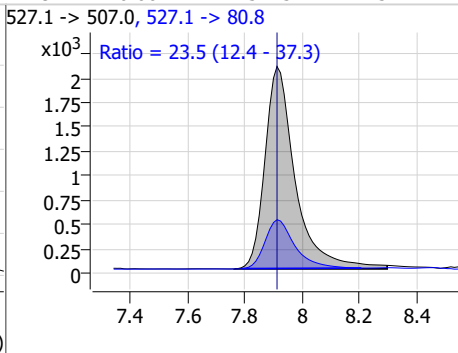
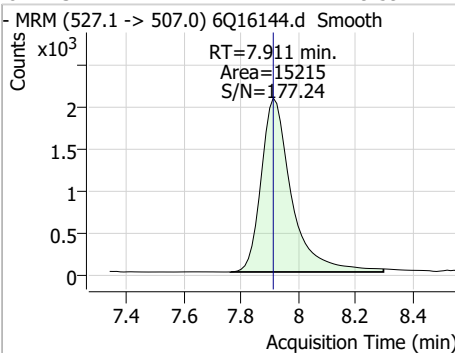
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.15	7.79	0.01	6331	449.0 -> 98.9	53.2	30.1	90.3



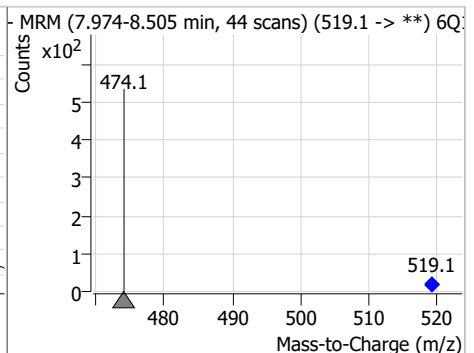
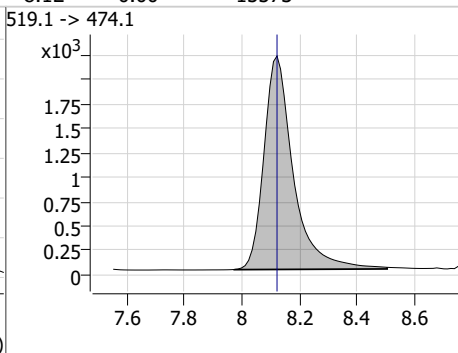
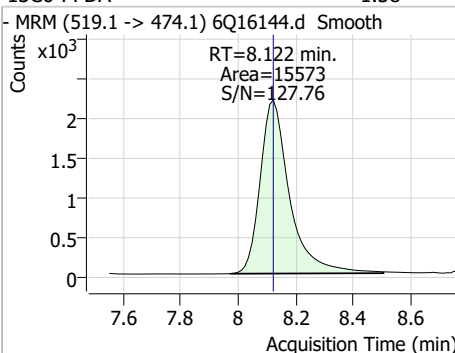
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	4.74	7.91	0.00	2235	529.1 -> 80.9			



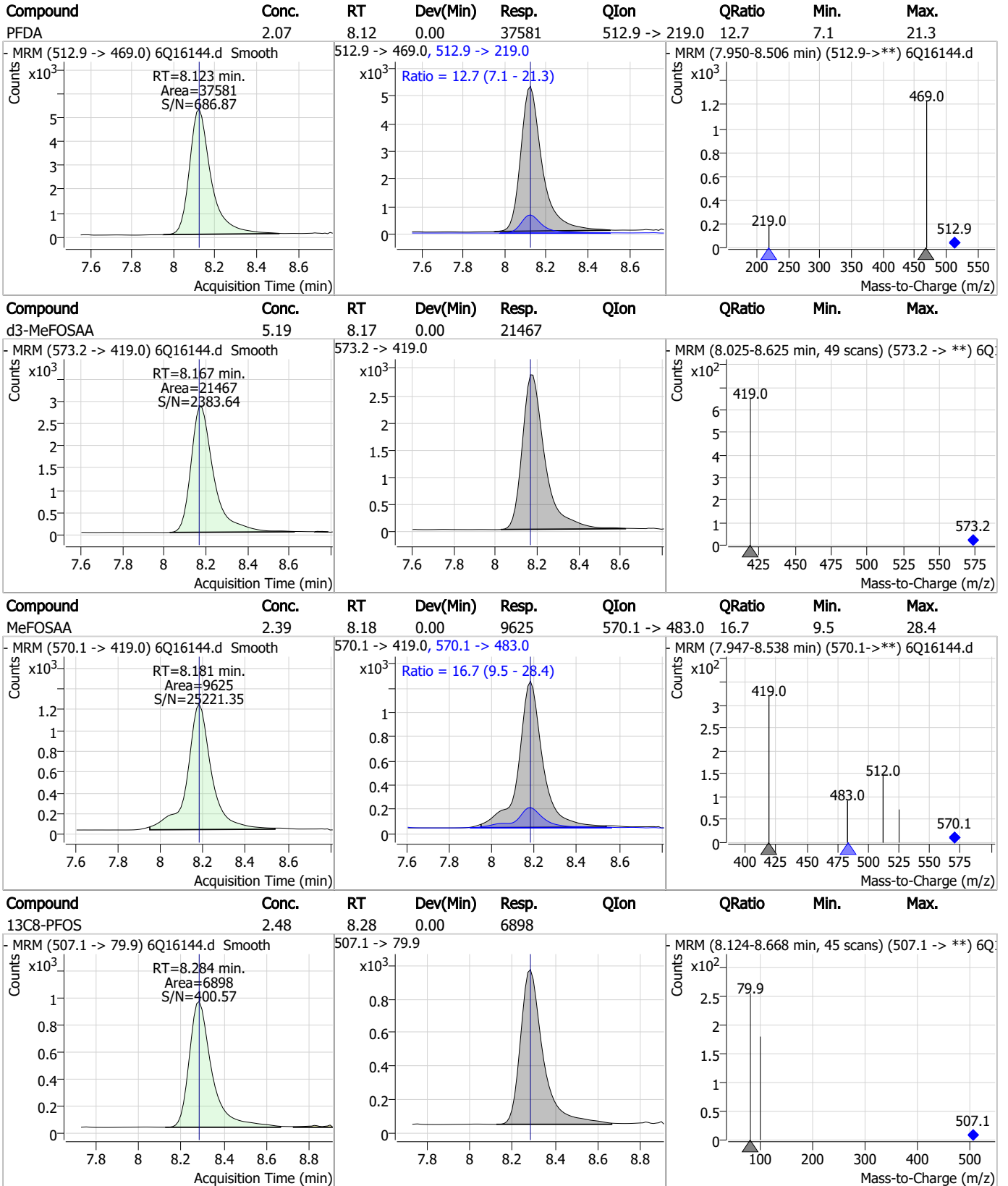
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	9.59	7.91	0.00	15215	527.1 -> 80.8	23.5	12.4	37.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.38	8.12	0.00	15573	519.1 -> 474.1			



Perfluorinated Compounds by LC/MS/MS



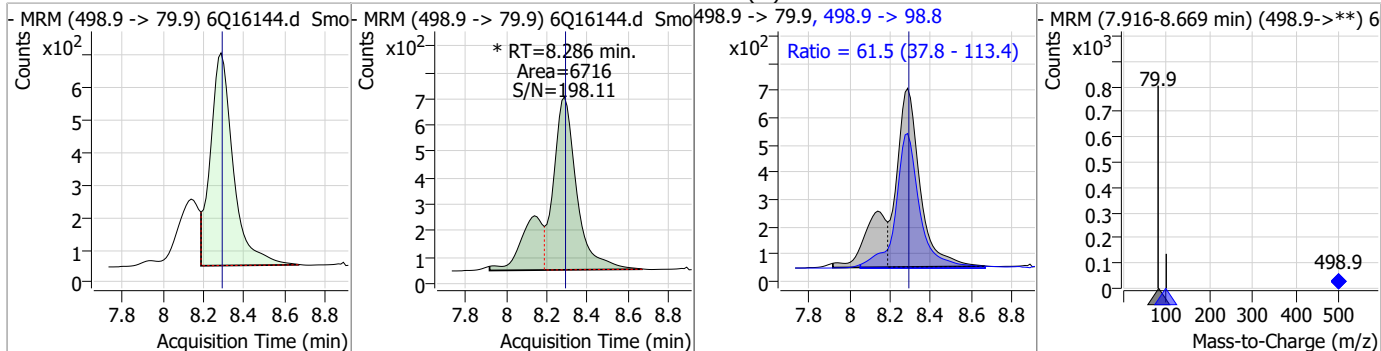
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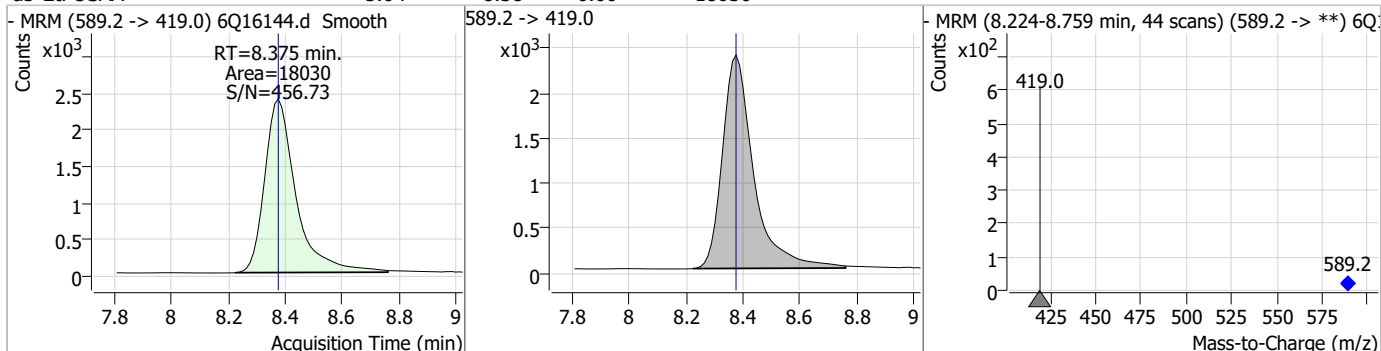


Perfluorinated Compounds by LC/MS/MS

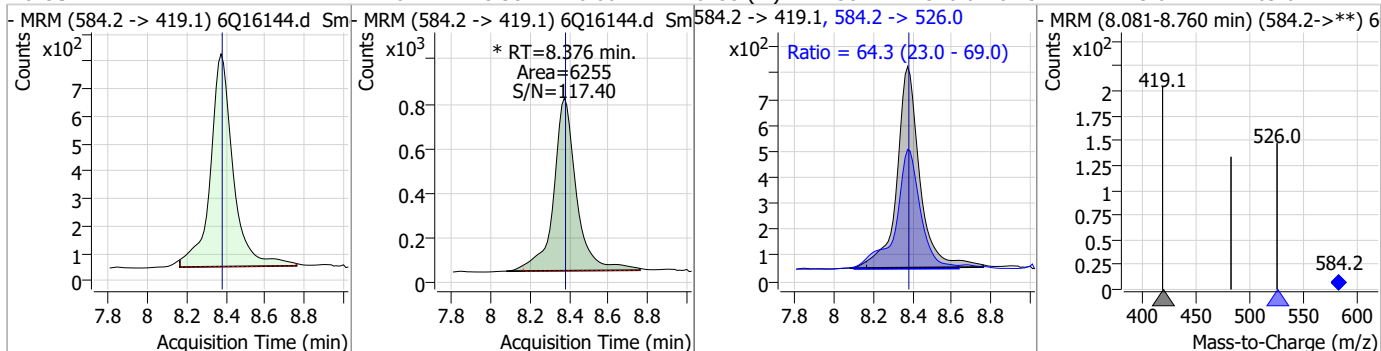
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.21	8.29	0.00	6716 (m)	498.9 -> 98.8	61.5	37.8	113.4



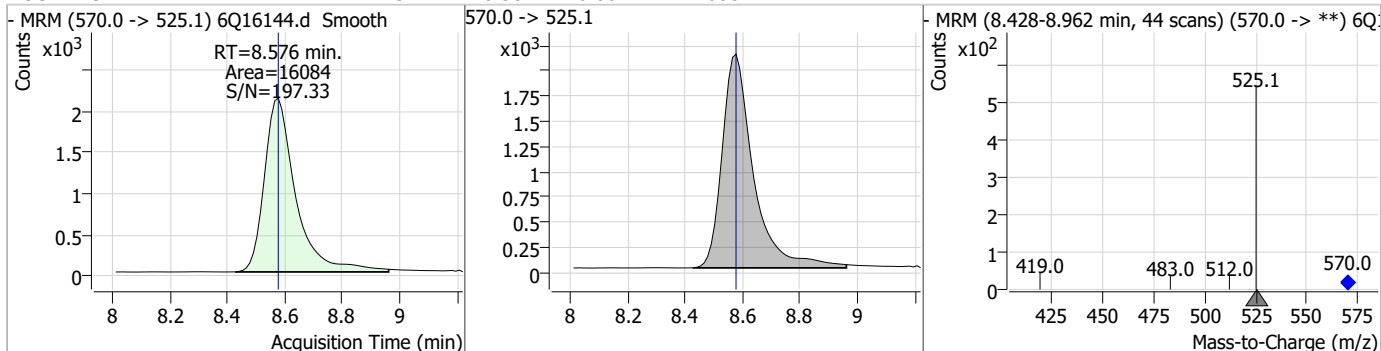
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.04	8.38	0.00	18030				



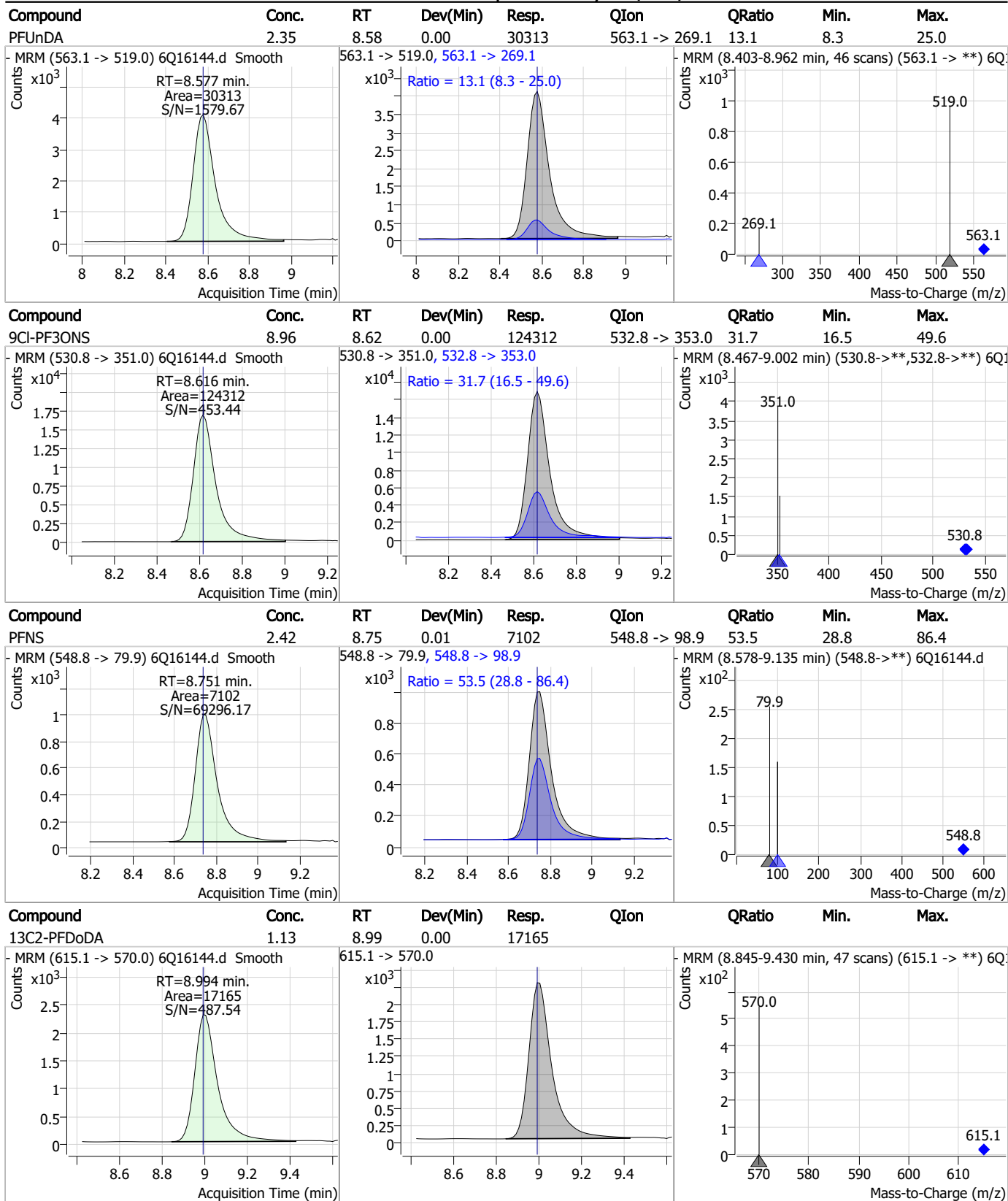
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.26	8.38	0.00	6255 (m)	584.2 -> 526.0	64.3	23.0	69.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.23	8.58	0.00	16084				



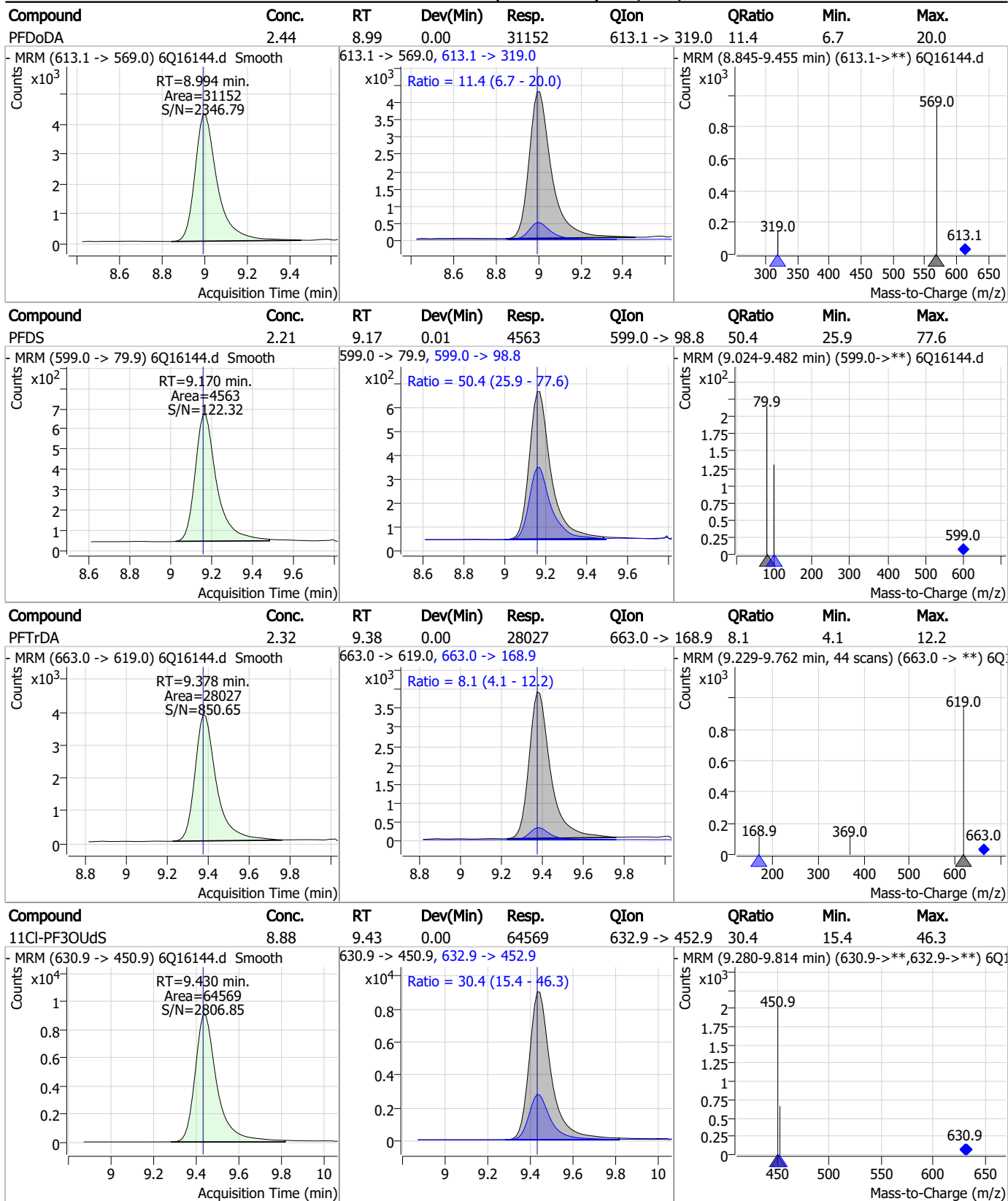
Perfluorinated Compounds by LC/MS/MS



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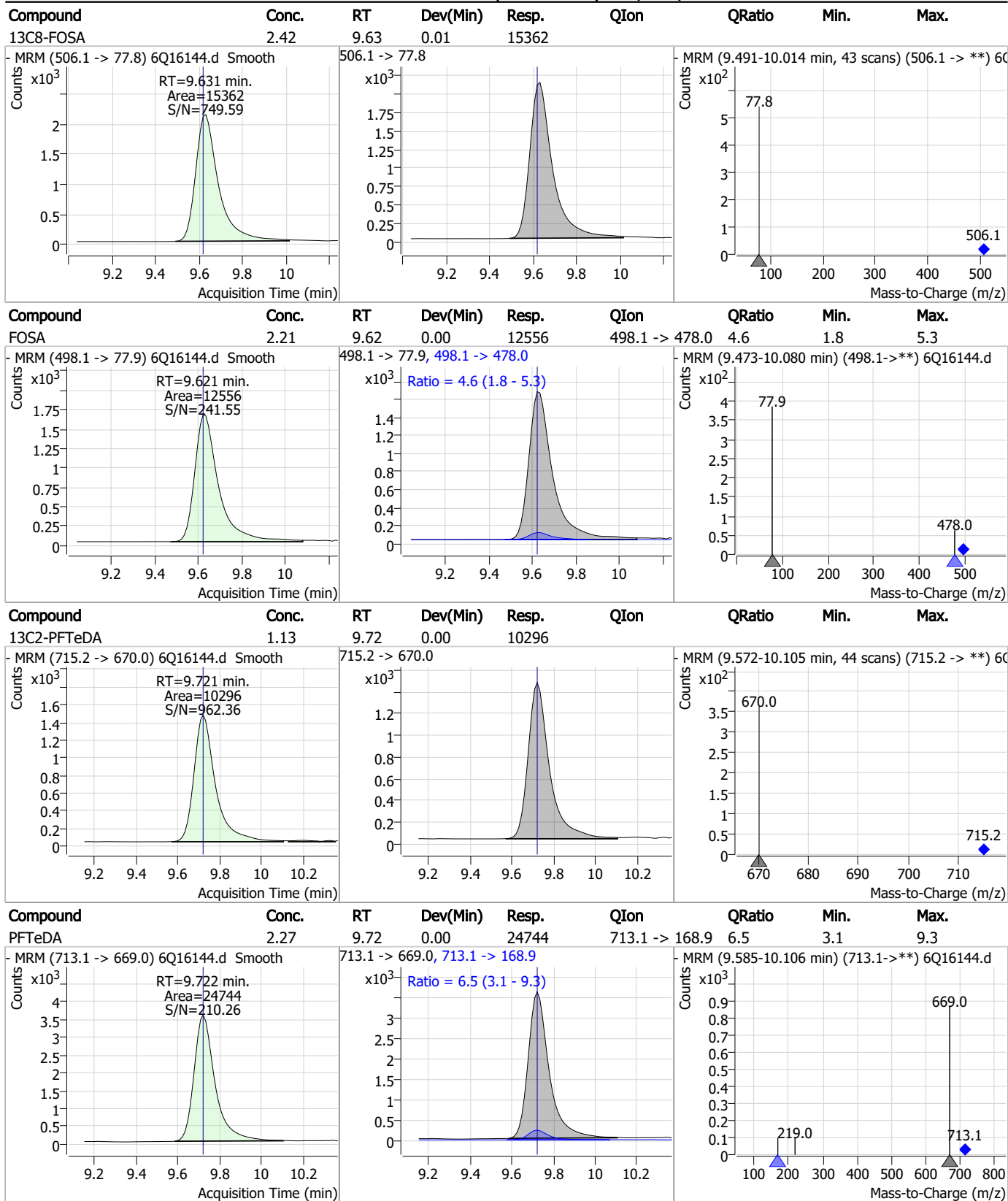
Perfluorinated Compounds by LC/MS/MS



7.6.13

7

Perfluorinated Compounds by LC/MS/MS

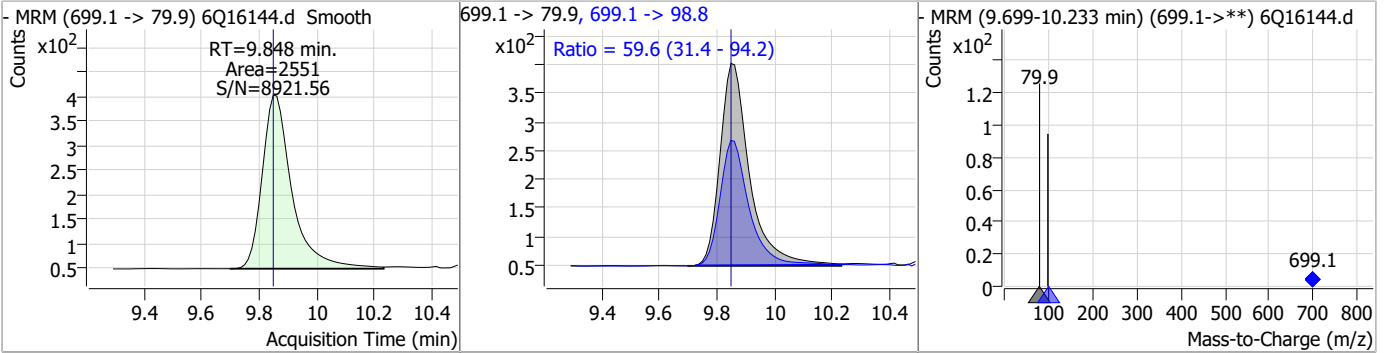


7.6.13

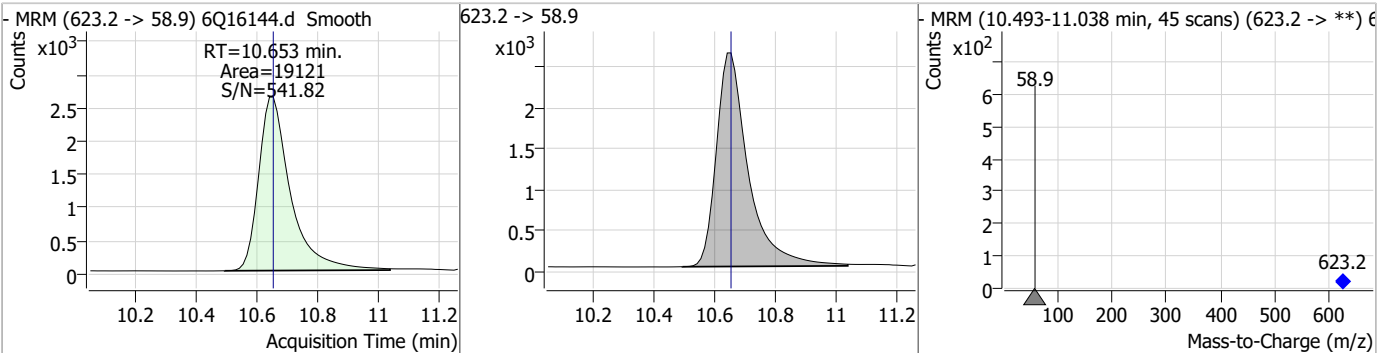
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Perfluorinated Compounds by LC/MS/MS

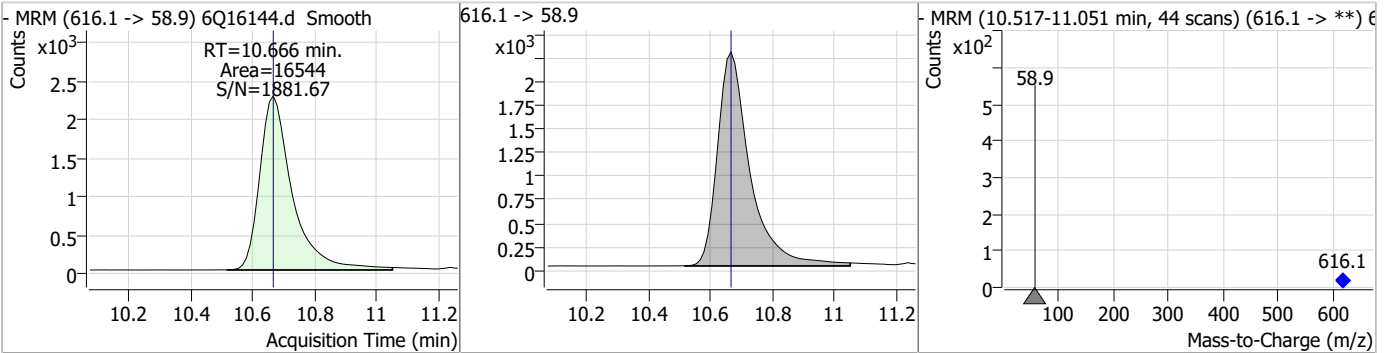
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.13	9.85	0.00	2551	699.1 -> 98.8	59.6	31.4	94.2



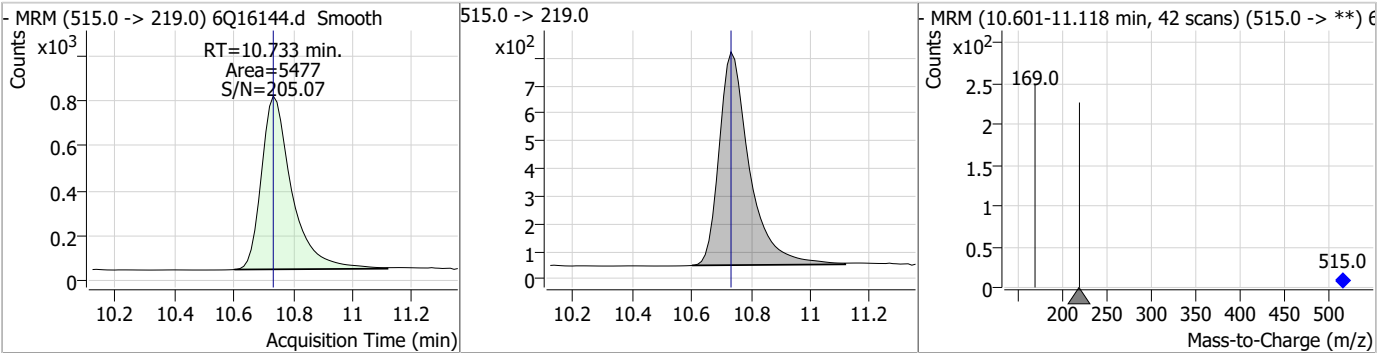
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	22.00	10.65	0.00	19121				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	22.95	10.67	0.00	16544				

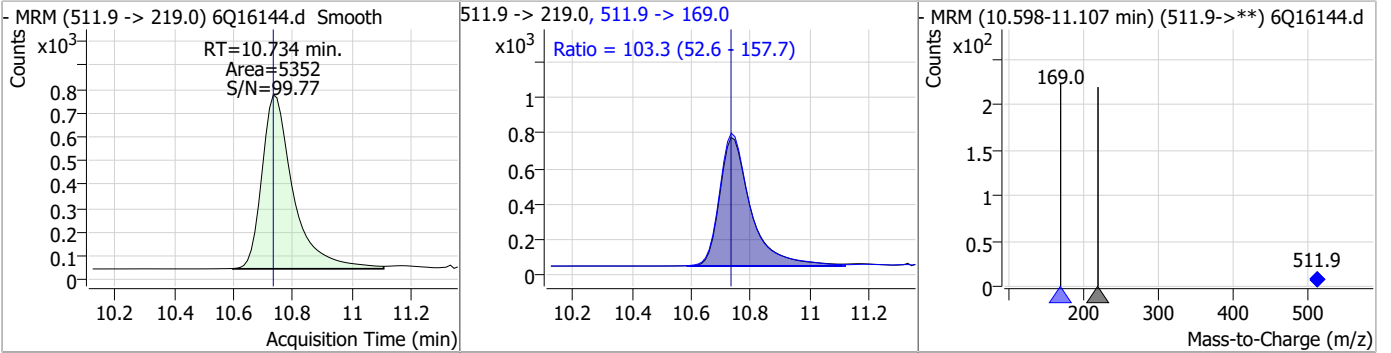


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.39	10.73	0.00	5477				

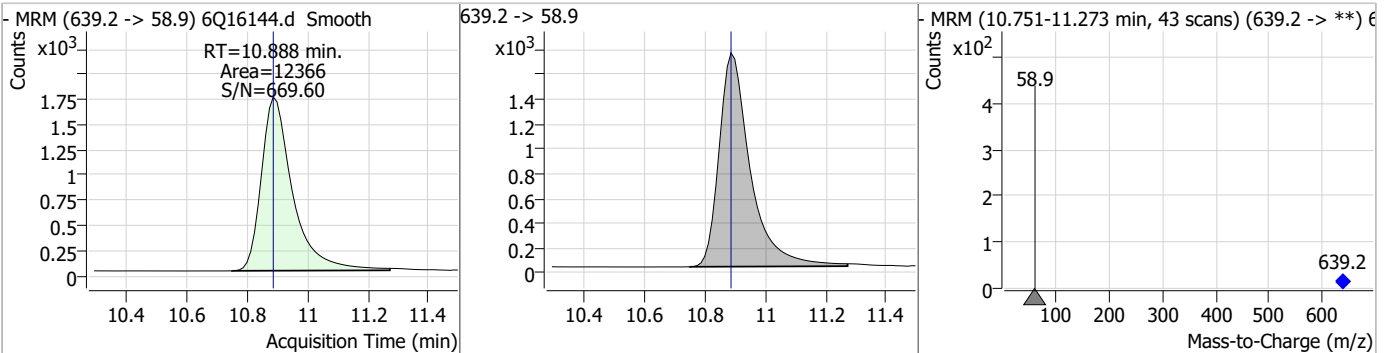


Perfluorinated Compounds by LC/MS/MS

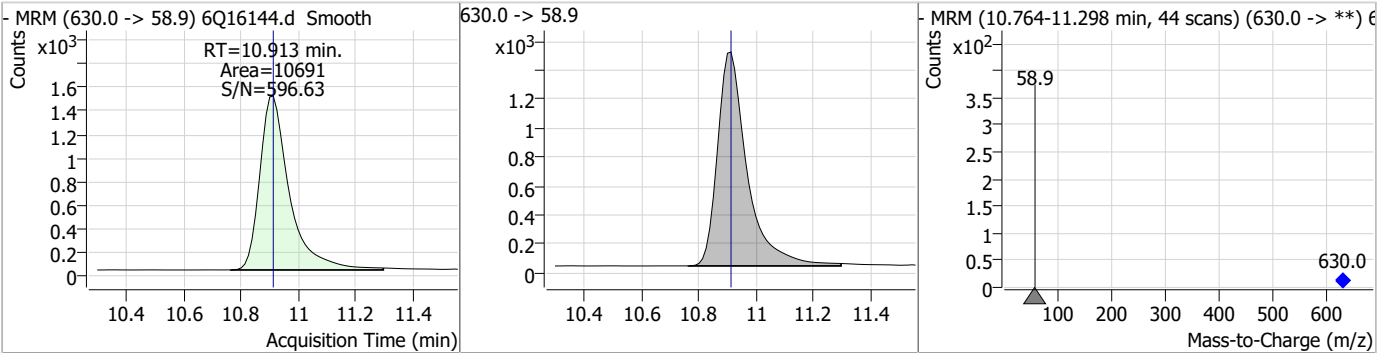
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	2.32	10.73	0.00	5352	511.9 -> 169.0	103.3	52.6	157.7



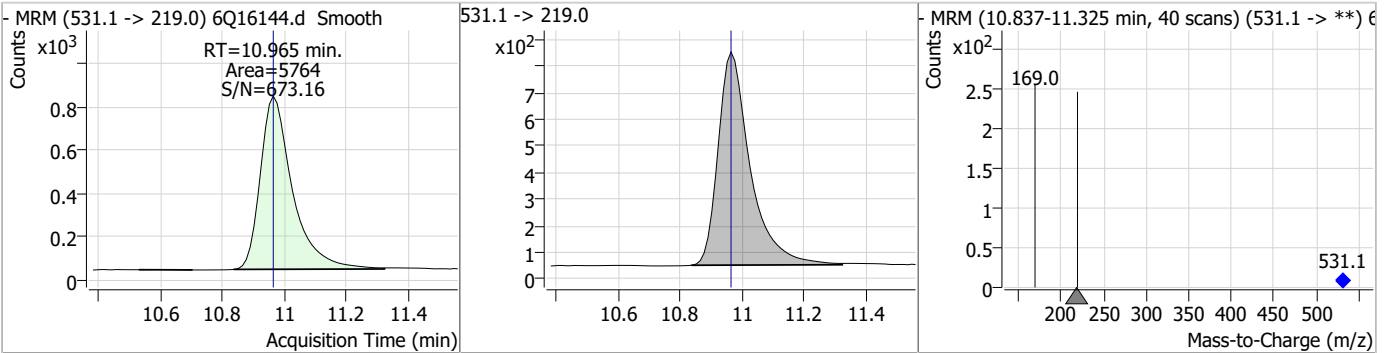
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	21.40	10.89	0.00	12366				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	22.04	10.91	0.00	10691				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.33	10.97	0.00	5764				

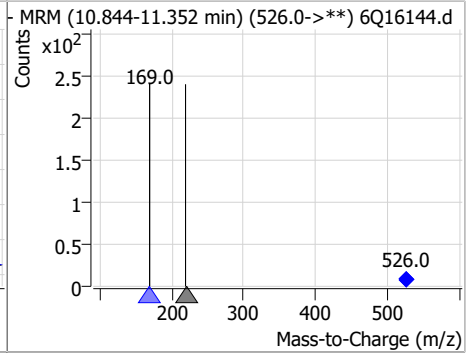
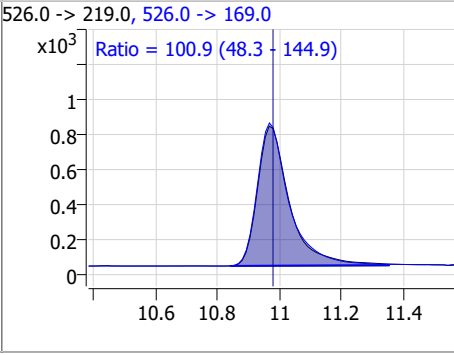
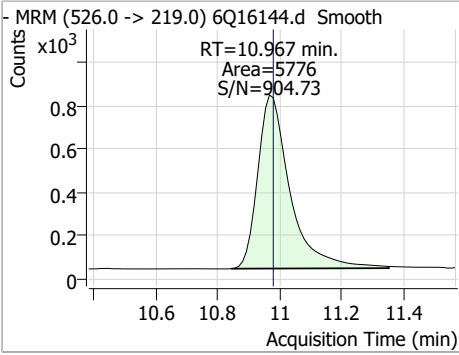


7.6.13
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	2.32	10.97	-0.01	5776	526.0 -> 169.0	100.9	48.3	144.9



7.6.13
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Manual Integration Approval Summary

Sample Number: S6Q240-CC239 Method: EPA DRAFT 1633
Lab FileID: 6Q16144.D Analyst approved: 04/06/23 11:16 Martha Valls
Injection Time: 04/05/23 23:07 Supervisor approved: 04/06/23 14:43 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.29	Split peak
EtFOSAA	2991-50-6		8.38	Split peak

7.6.13.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16153.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/6/2023 1:13:11 AM
 Sample Name : cc239-4
 Vial : P1-A5
 DA Method File : 1633_040423_S6Q239.quantmethod.xml
 Batch Name : S6Q240.batch.bin
 Sample Information : OP96191,S6Q240,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	81852	10.00 µg/L	0.000
M5-PFPeA	4.322	268.3 -> 223.0	36327	5.00 µg/L	0.000
M5-PFHxA	5.528	318.0 -> 273.0	33558	2.50 µg/L	0.000
M4-PFHpA	6.468	367.1 -> 322.0	31812	2.50 µg/L	0.000
M8-PFOA	7.112	421.1 -> 376.0	54554	2.50 µg/L	0.000
M9-PFNA	7.643	472.1 -> 427.0	17339	1.25 µg/L	0.000
M6-PFDA	8.122	519.1 -> 474.1	14505	1.25 µg/L	0.000
M7-PFUnDA	8.564	570.0 -> 525.1	15588	1.25 µg/L	-0.012
M2-PFDoDA	8.994	615.1 -> 570.0	17190	1.25 µg/L	0.000
M2-PFTeDA	9.721	715.2 -> 670.0	10064	1.25 µg/L	0.000
M8-FOSA	9.619	506.1 -> 77.8	15321	2.50 µg/L	0.000
M3-PFBS	5.459	302.1 -> 79.9	12146	2.50 µg/L	0.000
M3-PFHxS	7.228	402.1 -> 79.9	7951	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	7185	2.50 µg/L	0.000
M2-4:2FTS	5.191	329.1 -> 80.9	2311	5.00 µg/L	0.000
M2-6:2FTS	6.886	429.1 -> 80.9	2736	5.00 µg/L	0.000
M2-8:2FTS	7.911	529.1 -> 80.9	2571	5.00 µg/L	0.000
M3-MeFOSAA	8.167	573.2 -> 419.0	21118	5.00 µg/L	0.000
M3-HFPO-DA	5.893	286.9 -> 168.9	14337	10.00 µg/L	0.000
M5-EtFOSAA	8.375	589.2 -> 419.0	18061	5.00 µg/L	0.000
M7-MeFOSE	10.641	623.2 -> 58.9	19677	25.00 µg/L	-0.012
M9-EtFOSE	10.888	639.2 -> 58.9	12821	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	6082	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	5312	2.50 µg/L	0.000
13C4-PFOS	8.273	502.8 -> 79.9	8670	2.50 µg/L	-0.012
13C3-PFBA	2.902	216.0 -> 172.0	35150	5.00 µg/L	0.000
18O2-PFHxS	7.227	403.0 -> 83.9	5695	2.50 µg/L	0.000
13C4-PFOA	7.112	417.1 -> 372.0	66422	2.50 µg/L	0.000
13C2-PFDA	8.123	515.1 -> 470.1	18844	1.25 µg/L	0.000
13C5-PFNA	7.643	468.0 -> 423.0	17661	1.25 µg/L	0.000
13C2-PFHxA	5.529	315.1 -> 270.0	31635	2.50 µg/L	0.000

System Monitoring Compounds

13C2-4:2FTS	5.191	329.1 -> 80.9	2311	6.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.7%		
13C2-6:2FTS	6.886	429.1 -> 80.9	2736	5.82 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.4%		
13C2-8:2FTS	7.911	529.1 -> 80.9	2571	5.68 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.5%		
13C2-PFDoDA	8.994	615.1 -> 570.0	17190	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.3%		
13C2-PFTeDA	9.721	715.2 -> 670.0	10064	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.1%		
13C3-PFBS	5.459	302.1 -> 79.9	12146	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.9%		
13C3-PFHxS	7.228	402.1 -> 79.9	7951	2.44 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C4-PFBA	2.897	216.8 -> 171.9	81852	9.96 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C4-PFHpA	6.468	367.1 -> 322.0	31812	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C5-PFHxA	5.528	318.0 -> 273.0	33558	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C5-PFPeA	4.322	268.3 -> 223.0	36327	4.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C6-PFDA	8.122	519.1 -> 474.1	14505	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C7-PFUnDA	8.564	570.0 -> 525.1	15588	1.21 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C8-FOSA	9.619	506.1 -> 77.8	15321	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.0%	
13C8-PFOA	7.112	421.1 -> 376.0	54554	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C8-PFOS	8.284	507.1 -> 79.9	7185	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C9-PFNA	7.643	472.1 -> 427.0	17339	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.2%	
d3-MeFOSAA	8.167	573.2 -> 419.0	21118	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C3-HFPO-DA	5.893	286.9 -> 168.9	14337	10.39 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.9%	
d3-MeFOSA	10.733	515.0 -> 219.0	5312	2.28 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.4%	
d5-EtFOSAA	8.375	589.2 -> 419.0	18061	4.97 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
d7-MeFOSE	10.641	623.2 -> 58.9	19677	22.30 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.2%	
d9-EtFOSE	10.888	639.2 -> 58.9	12821	21.86 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 87.4%	
d5-EtFOSA	10.965	531.1 -> 219.0	6082	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.1%	
Target Compounds					QValue
4:2FTS	5.192	327.1 -> 307.0	38720	8.55 µg/L	100
		327.1 -> 80.9	9125		
6:2FTS	6.886	427.1 -> 407.0	33173	9.05 µg/L	96
		427.1 -> 80.9	6614		
8:2FTS	7.911	527.1 -> 507.0	16307	8.94 µg/L	99
		527.1 -> 80.8	3928		
EtFOSAA	8.376	584.2 -> 419.1	6707	2.42 µg/L	83
		584.2 -> 526.0	3823		
FOSA	9.621	498.1 -> 77.9	12413	2.19 µg/L	99
		498.1 -> 478.0	491		
MeFOSAA	8.168	570.1 -> 419.0	9282	2.34 µg/L	95
		570.1 -> 483.0	1562		
PFBA	2.893	212.8 -> 168.9	18085	8.74 µg/L	100
PFBS	5.460	298.7 -> 79.9	10332	2.17 µg/L	100
		298.7 -> 98.8	4755		
PFDA	8.123	512.9 -> 469.0	36813	2.18 µg/L	100
		512.9 -> 219.0	5186		
PFDODA	8.994	613.1 -> 569.0	30673	2.40 µg/L	96
		613.1 -> 319.0	3648		
PFDS	9.158	599.0 -> 79.9	4633	2.16 µg/L	99

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.469	599.0 -> 98.8	2435	2.33	µg/L	99
		363.1 -> 319.0	41747			
PFHpS	7.794	363.1 -> 169.0	6050	2.11	µg/L	94
		449.0 -> 79.9	6478			
PFHxA	5.519	449.0 -> 98.9	3621	2.14	µg/L	99
		313.0 -> 269.0	26531			
PFHxS	7.228	313.0 -> 118.9	1168	2.24	µg/L	99
		398.7 -> 79.9	7844			
PFNA	7.643	398.7 -> 98.9	4472	2.10	µg/L	99
		463.0 -> 419.0	23667			
PFNS	8.738	463.0 -> 219.0	4830	2.21	µg/L	98
		548.8 -> 79.9	6729			
PFOA	7.113	548.8 -> 98.9	3792	2.28	µg/L	98
		413.0 -> 369.0	56375			
PFOS	8.273	413.0 -> 169.0	8025	2.15	µg/L	85
		498.9 -> 79.9	6795			
PFPeA	4.324	498.9 -> 98.8	4293	4.69	µg/L	100
		263.0 -> 219.0	35923			
PFPeS	6.533	349.1 -> 79.9	8896	2.11	µg/L	96
		349.1 -> 98.9	4877			
PFTeDA	9.722	713.1 -> 669.0	26025	2.45	µg/L	98
		713.1 -> 168.9	1751			
PFTrDA	9.378	663.0 -> 619.0	30595	2.53	µg/L	98
		663.0 -> 168.9	2315			
PFUnDA	8.564	563.1 -> 519.0	29656	2.38	µg/L	93
		563.1 -> 269.1	3970			
11CI-PF3OUdS	9.430	630.9 -> 450.9	65219	8.46	µg/L	98
		632.9 -> 452.9	19398			
9CI-PF3ONS	8.603	530.8 -> 351.0	128775	8.75	µg/L	94
		532.8 -> 353.0	38474			
ADONA	6.731	376.9 -> 250.9	252842	8.70	µg/L	99
		376.9 -> 84.8	57828			
HFPO-DA	5.894	284.9 -> 168.9	11523	8.89	µg/L	99
		284.9 -> 184.9	1405			
3:3FTCA	3.790	241.0 -> 177.0	4592	10.80	µg/L	100
		241.0 -> 117.0	703			
5:3FTCA	6.198	341.0 -> 237.1	149879	54.74	µg/L	97
		341.0 -> 217.0	134235			
7:3FTCA	7.608	441.0 -> 316.9	82540	59.55	µg/L	87
		441.0 -> 336.9	144574			
EtFOSA	10.967	526.0 -> 219.0	6046	2.30	µg/L	98
		526.0 -> 169.0	5989			
EtFOSE	10.913	630.0 -> 58.9	11345	22.56	µg/L	100
		511.9 -> 219.0	5221			
MeFOSA	10.734	511.9 -> 169.0	5430	2.34	µg/L	99
		616.1 -> 58.9	16966			
MeFOSE	10.666	699.1 -> 79.9	2648	22.87	µg/L	100
		699.1 -> 98.8	1608			
PFDoDS	9.848	295.0 -> 201.0	3343	2.12	µg/L	97
		295.0 -> 84.9	1698			
NFDHA	5.410	279.0 -> 85.1	10809	4.16	µg/L	89
		229.0 -> 84.9	10331			
PFMBA	4.737	279.0 -> 85.1	10809	4.26	µg/L	100
PFMPA	3.463	229.0 -> 84.9	10331	4.46	µg/L	100
PFEESA	5.999	314.8 -> 134.9	75347	4.29	µg/L	99
		314.8 -> 82.9	1963			

= Qualifier out of range, m = manually integrated, + = Area summed



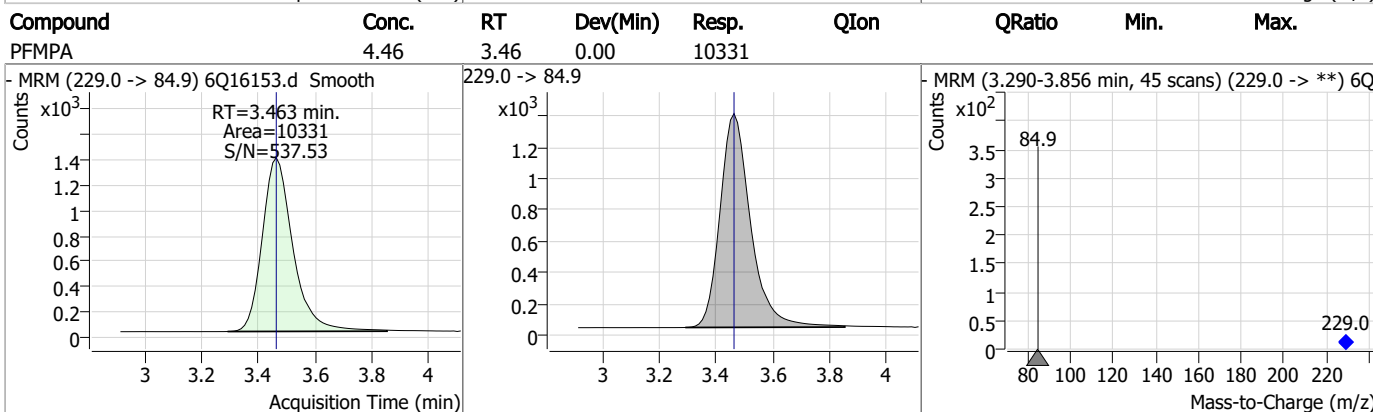
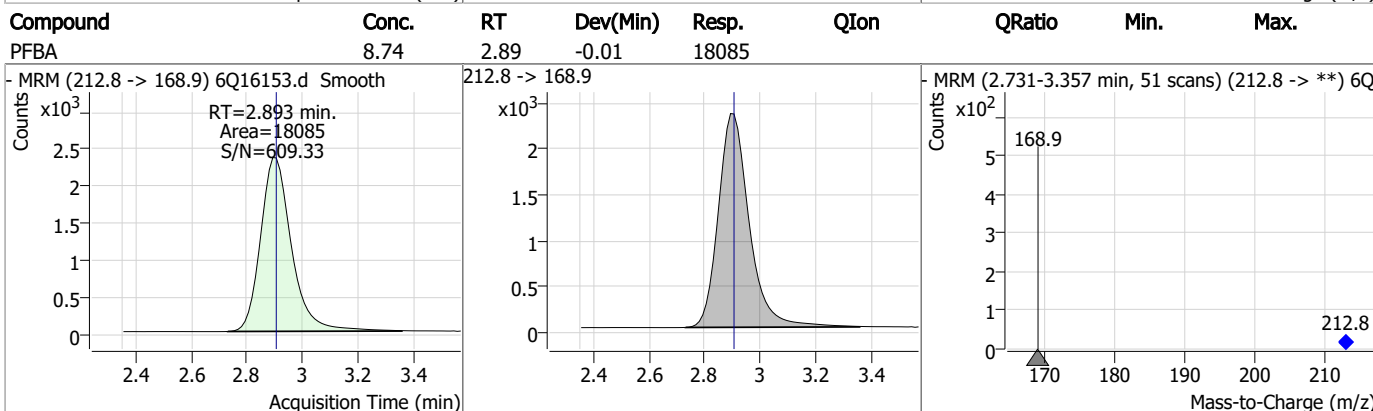
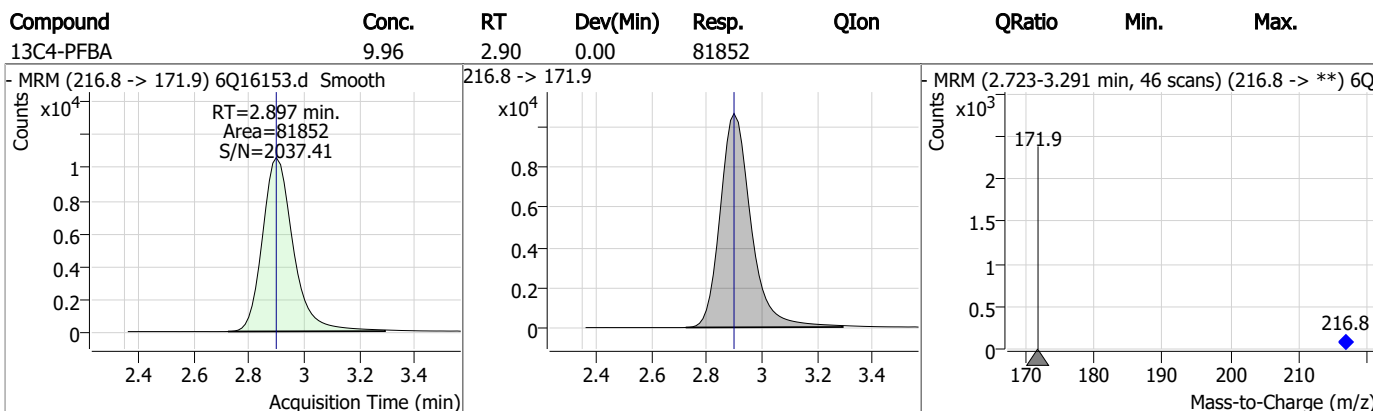
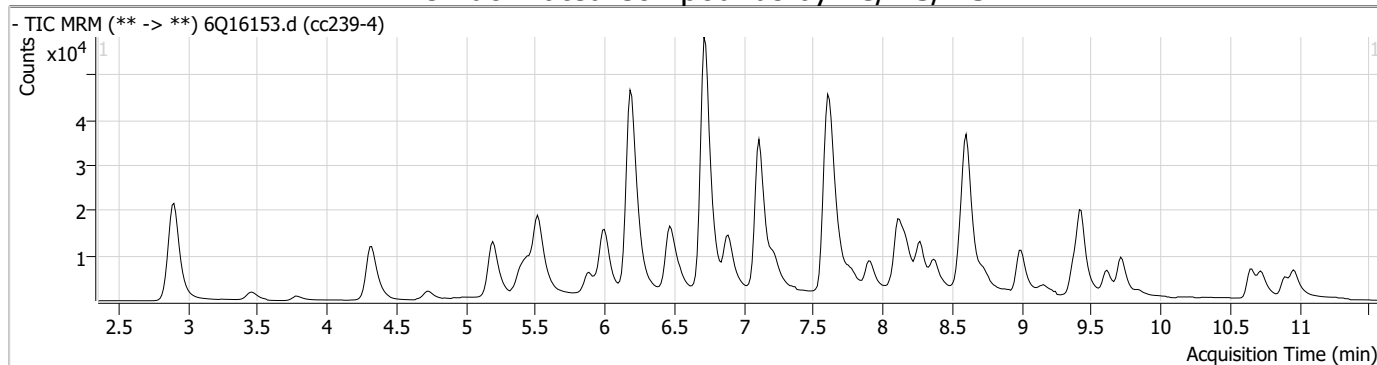
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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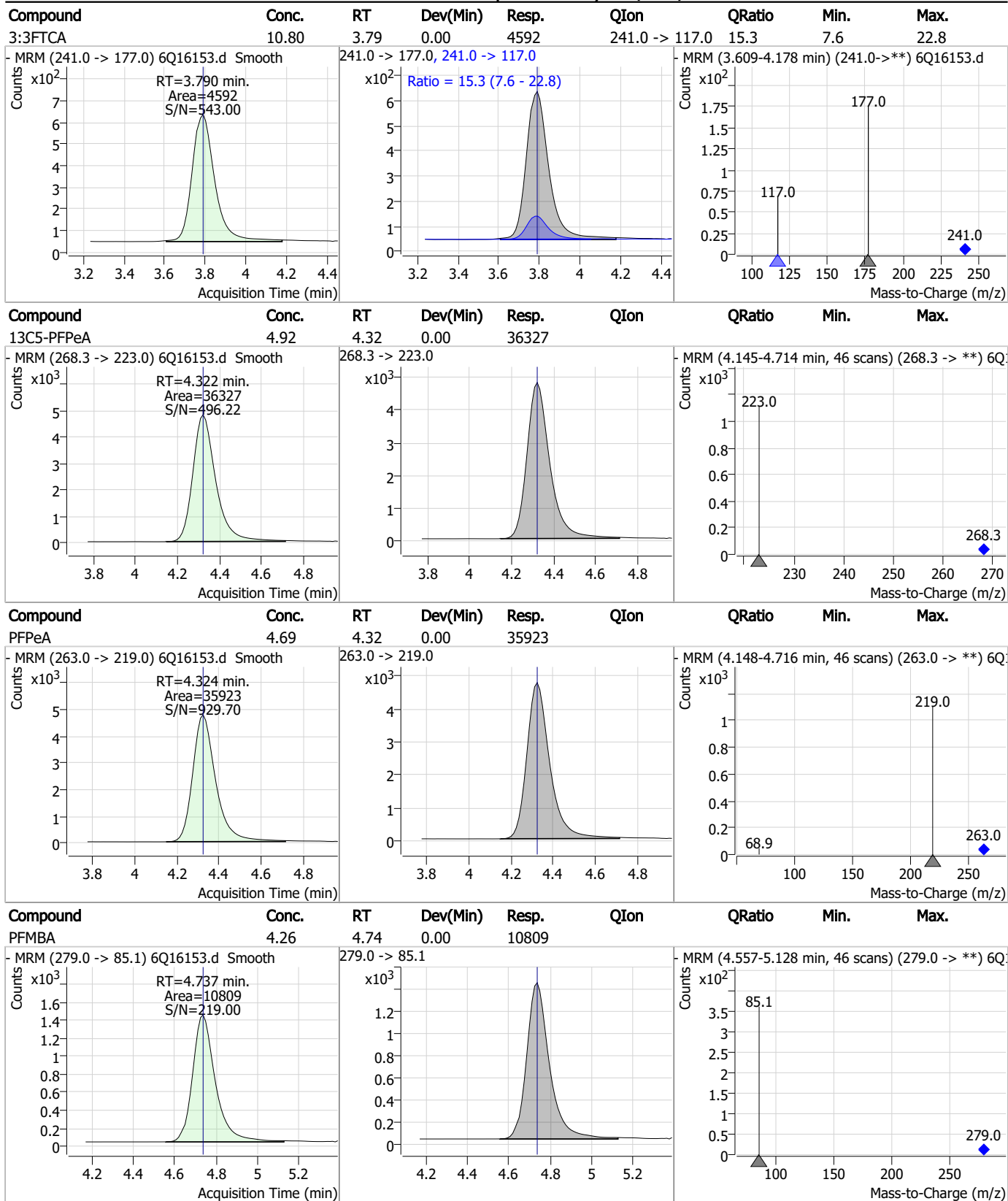
7.6.14

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Perfluorinated Compounds by LC/MS/MS



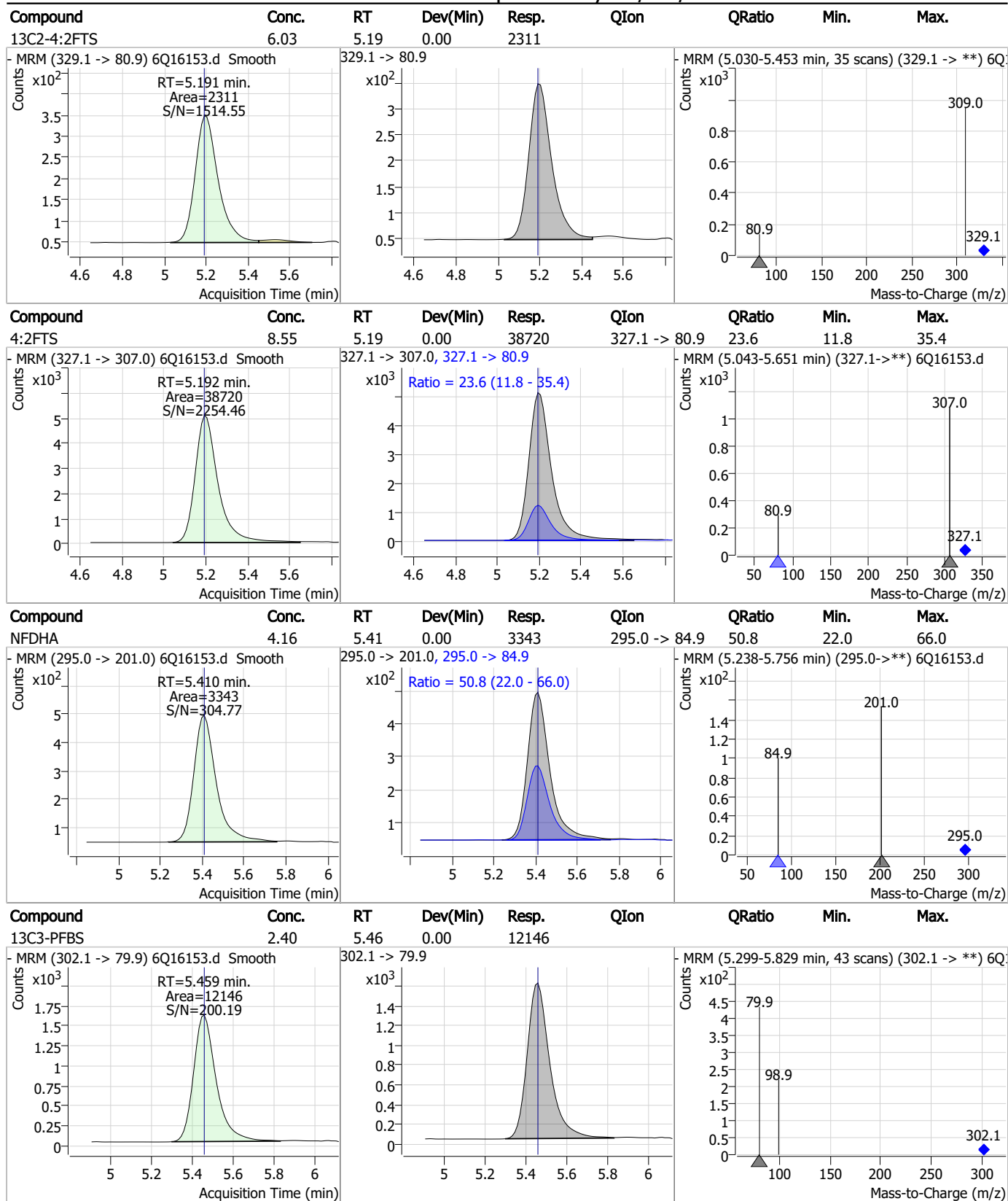
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

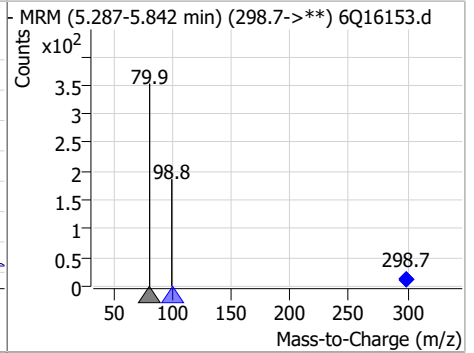
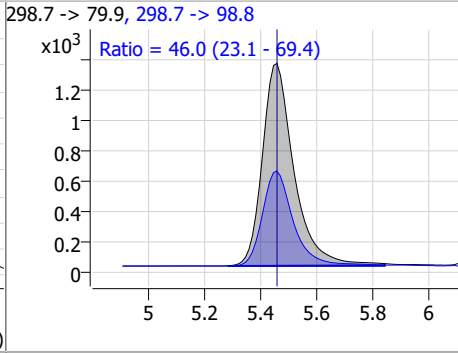
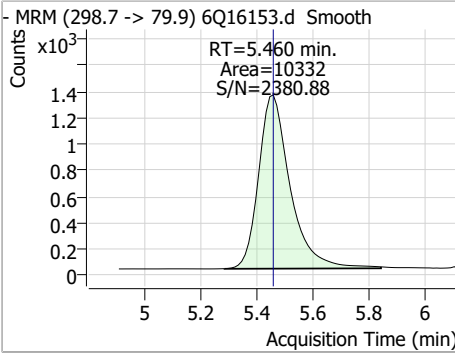


7.6.14

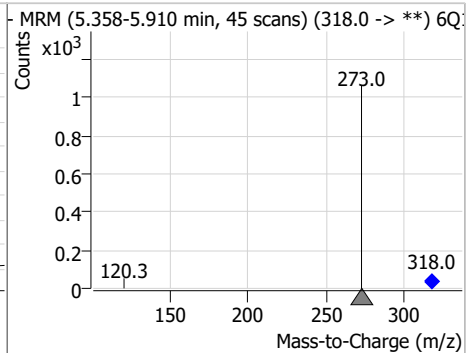
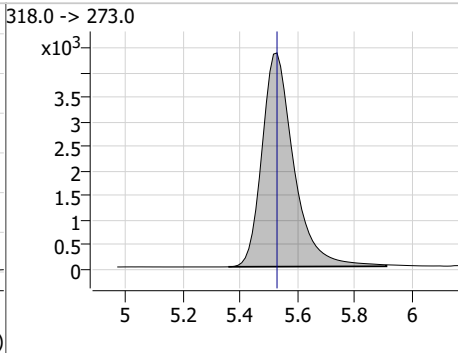
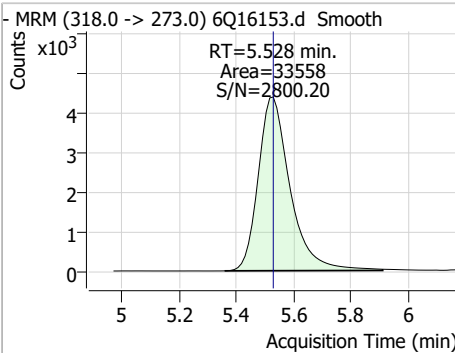
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Perfluorinated Compounds by LC/MS/MS

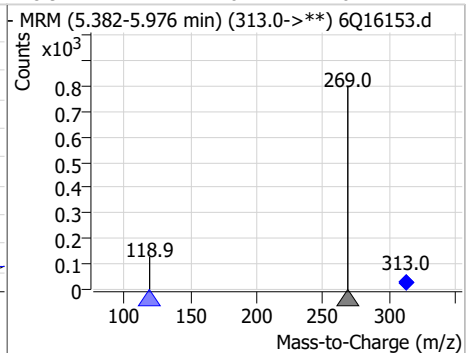
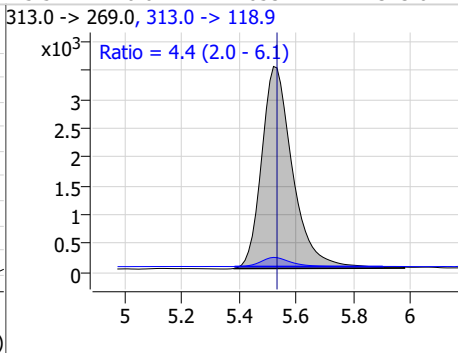
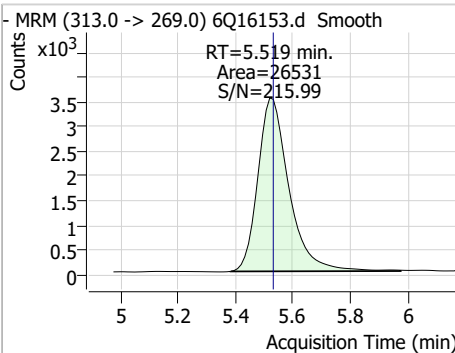
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.17	5.46	0.00	10332	298.7 -> 98.8	46.0	23.1	69.4



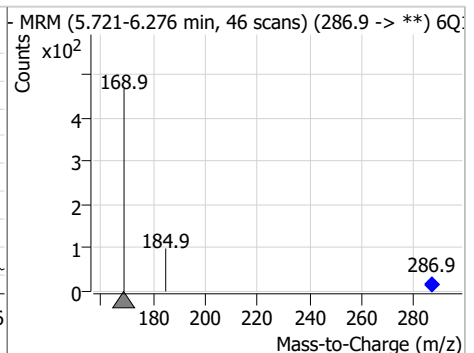
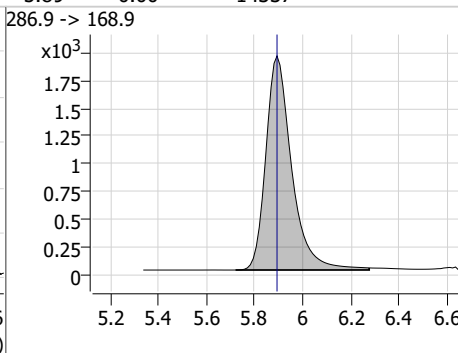
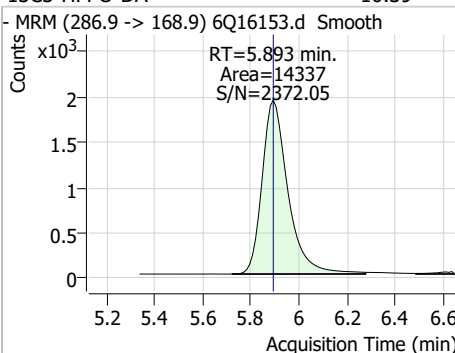
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.56	5.53	0.00	33558				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.14	5.52	-0.01	26531	313.0 -> 118.9	4.4	2.0	6.1

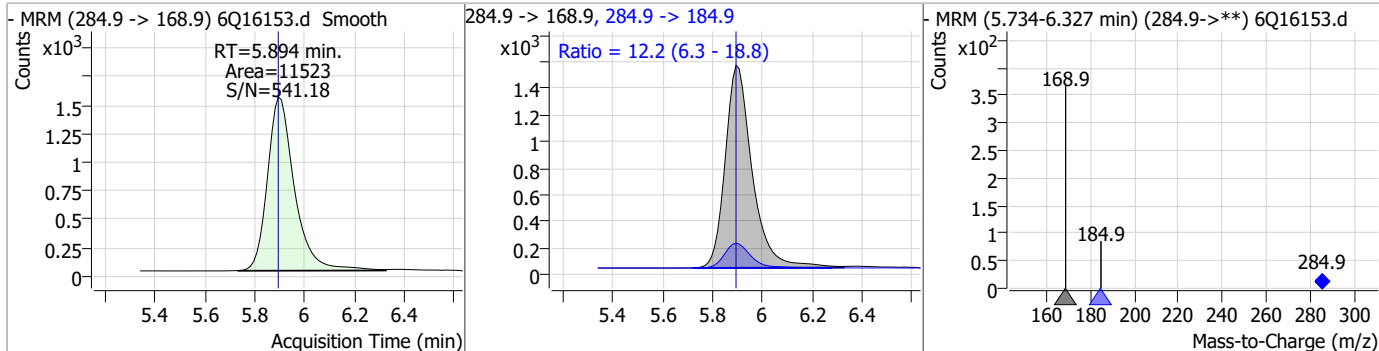


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.39	5.89	0.00	14337				

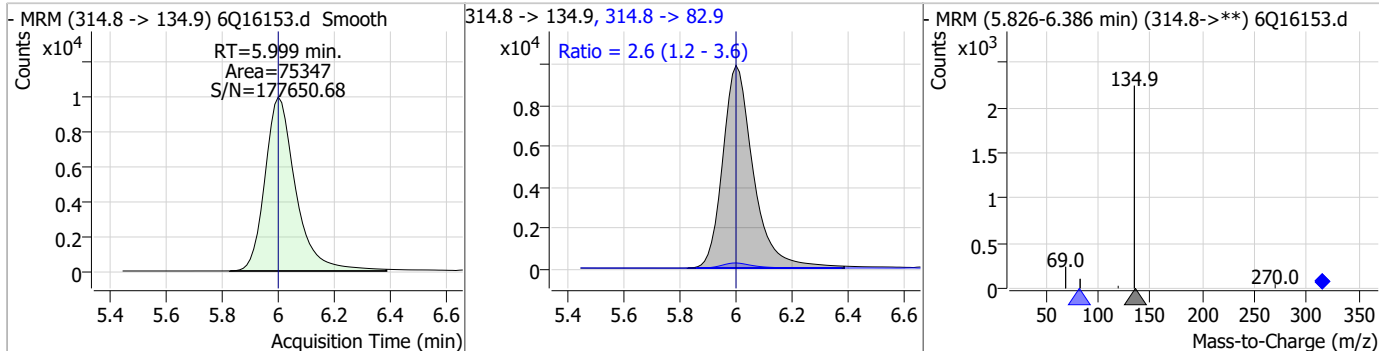


Perfluorinated Compounds by LC/MS/MS

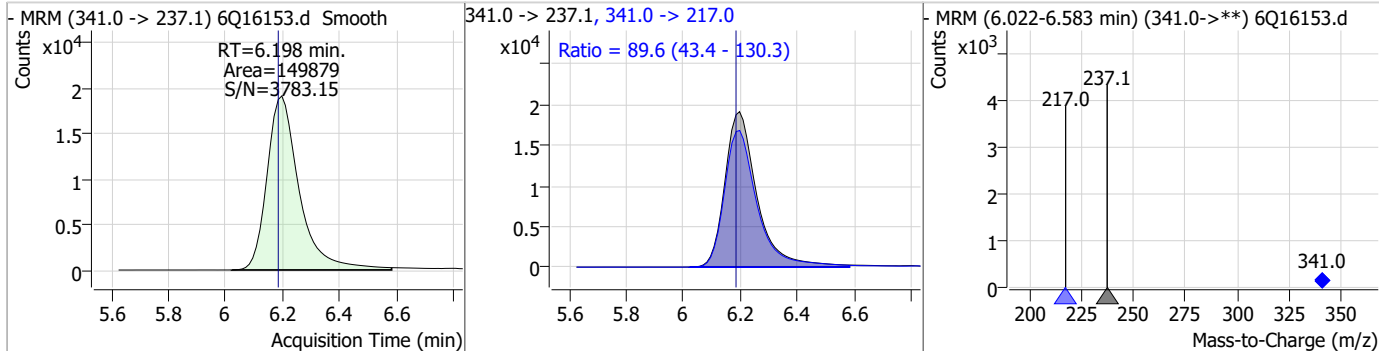
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	8.89	5.89	0.00	11523	284.9 -> 184.9	12.2	6.3	18.8



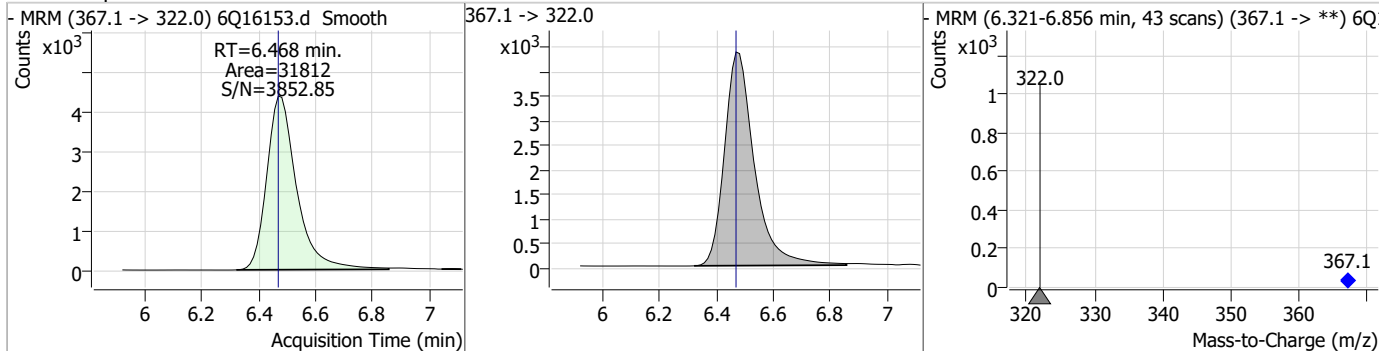
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.29	6.00	0.00	75347	314.8 -> 82.9	2.6	1.2	3.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	54.74	6.20	0.01	149879	341.0 -> 217.0	89.6	43.4	130.3

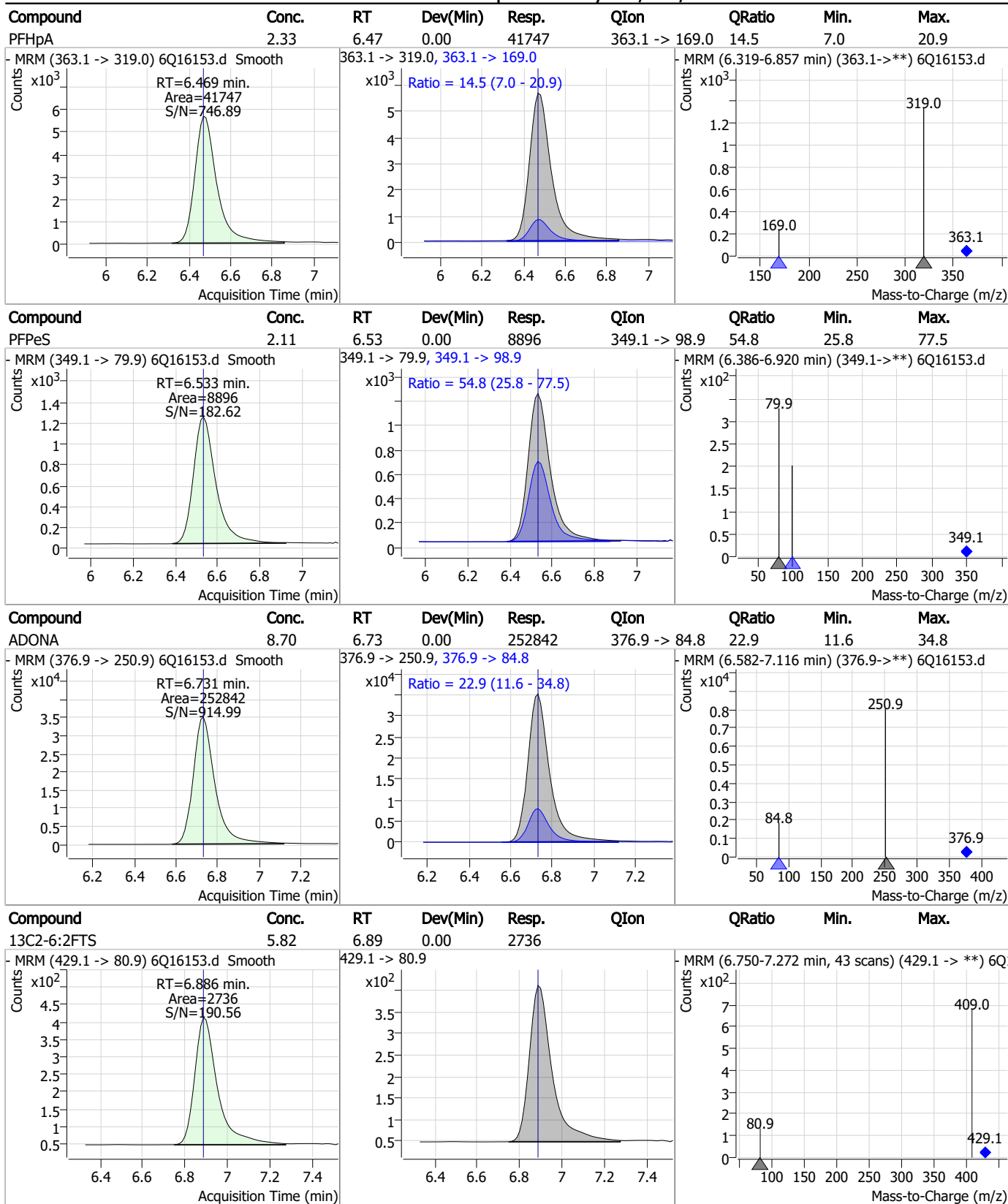


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.48	6.47	0.00	31812	367.1 -> 322.0			



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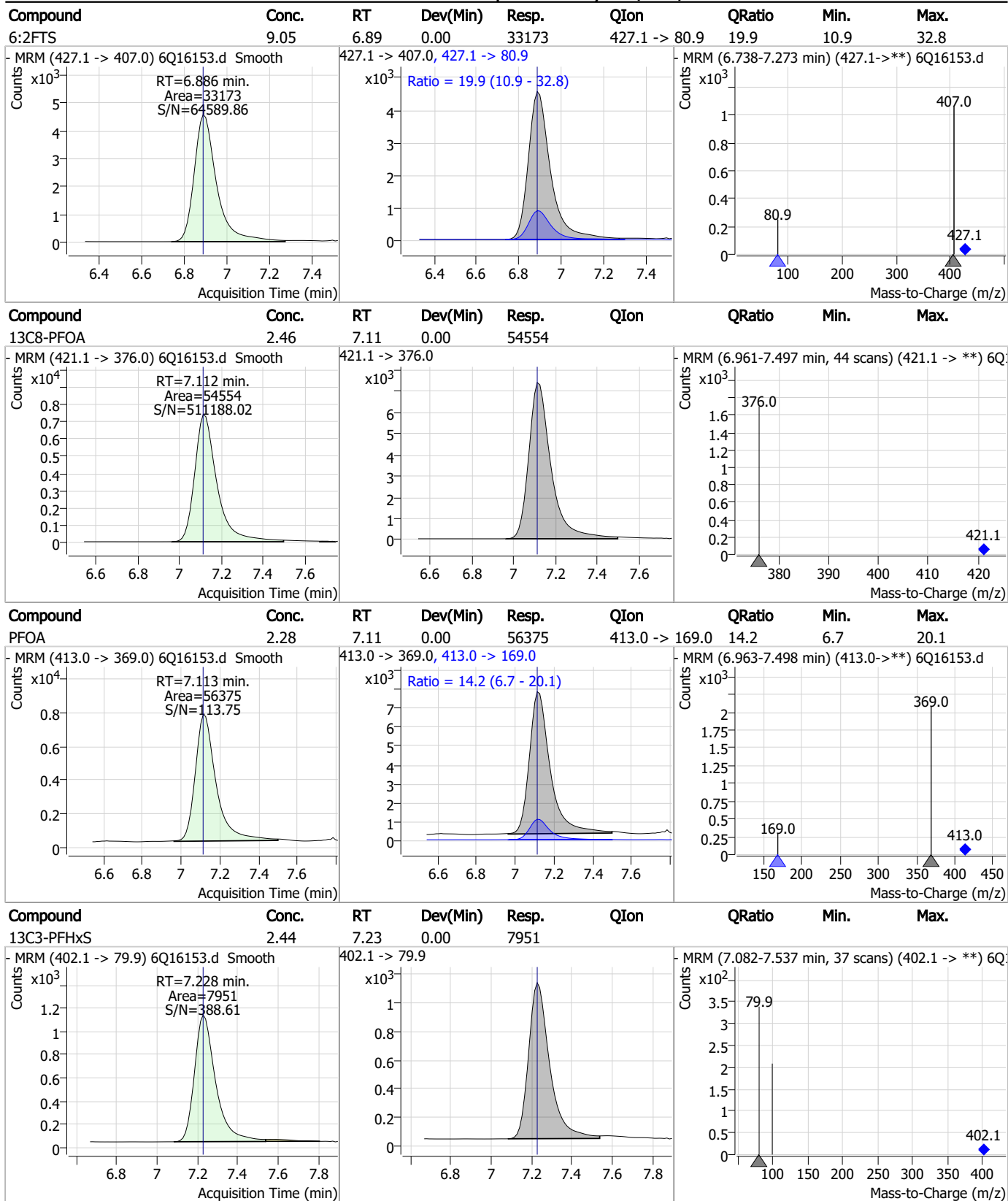
Perfluorinated Compounds by LC/MS/MS



7.6.14

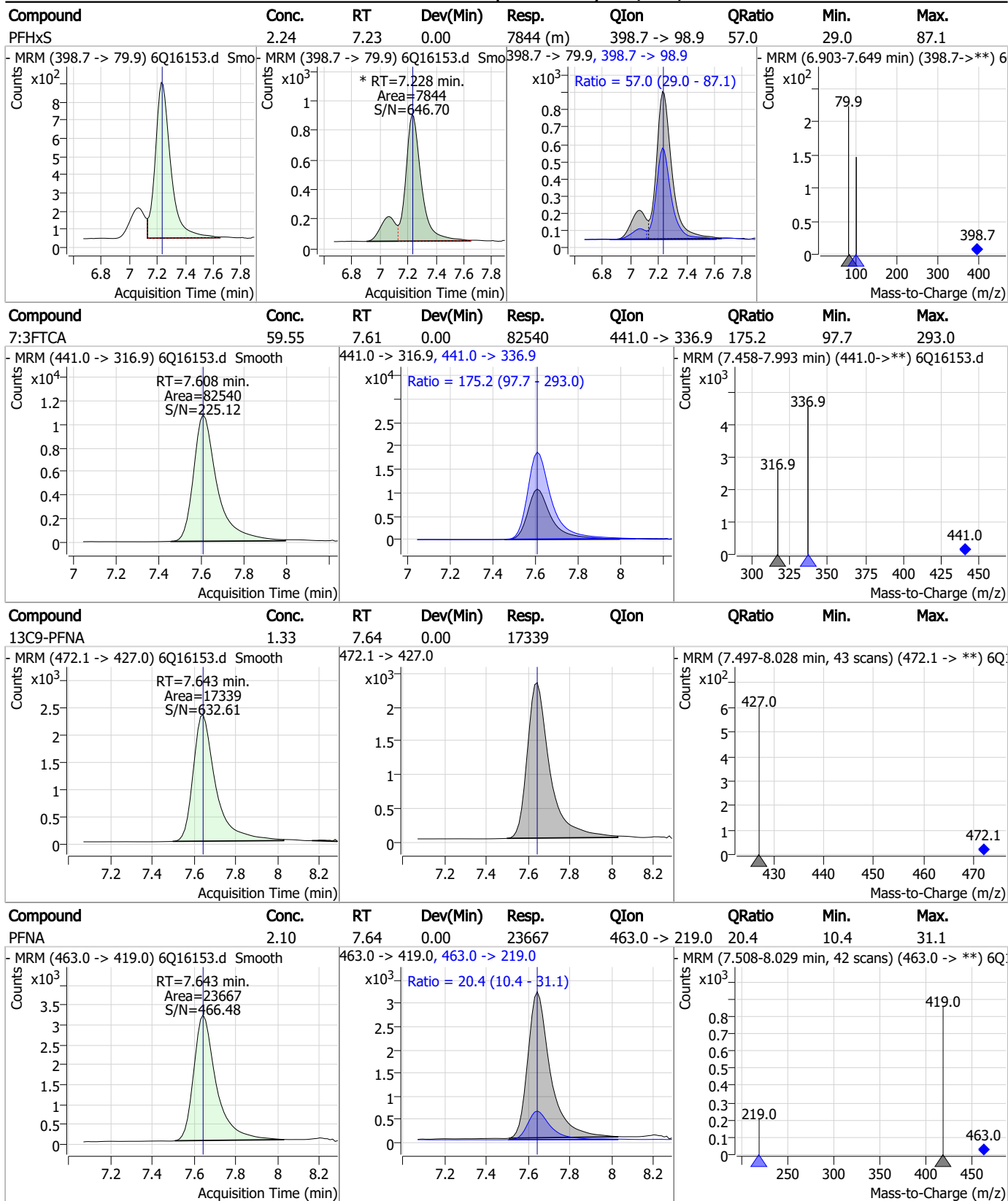
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Perfluorinated Compounds by LC/MS/MS



7.6.14
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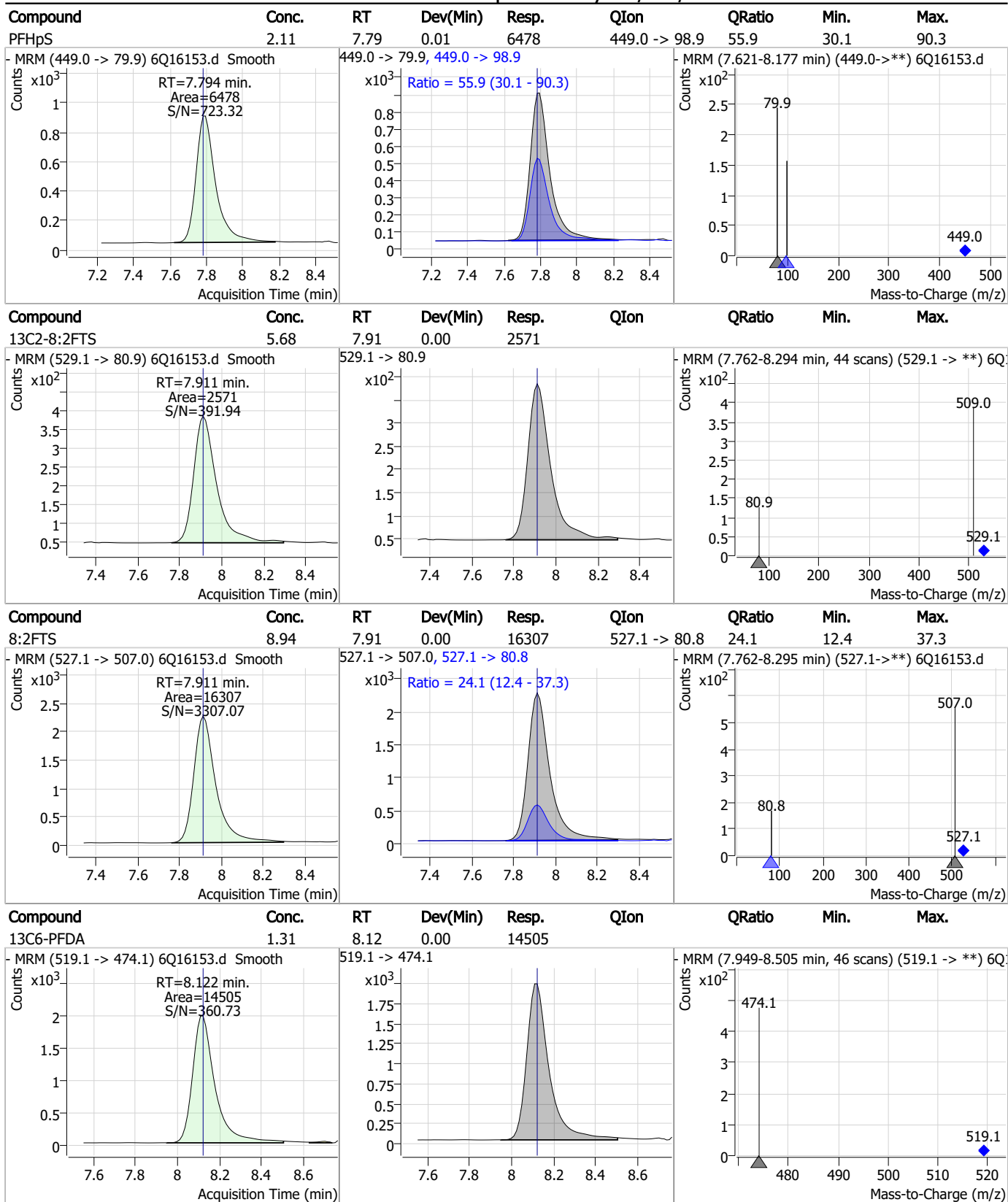
Perfluorinated Compounds by LC/MS/MS



7.6.14

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Perfluorinated Compounds by LC/MS/MS

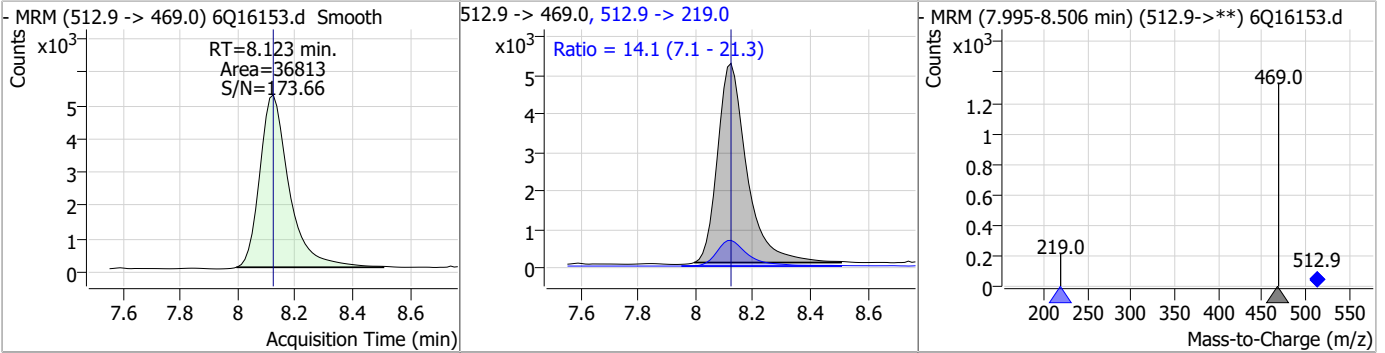


7.6.14

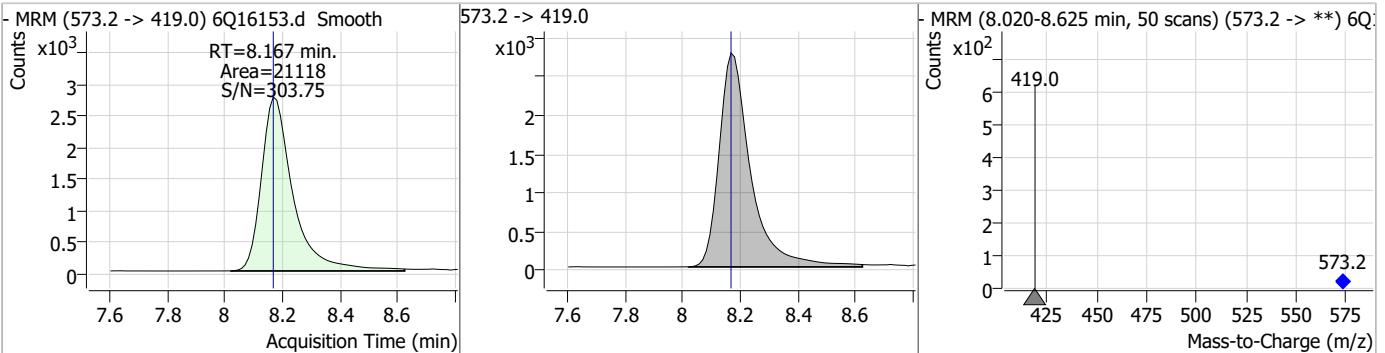
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Perfluorinated Compounds by LC/MS/MS

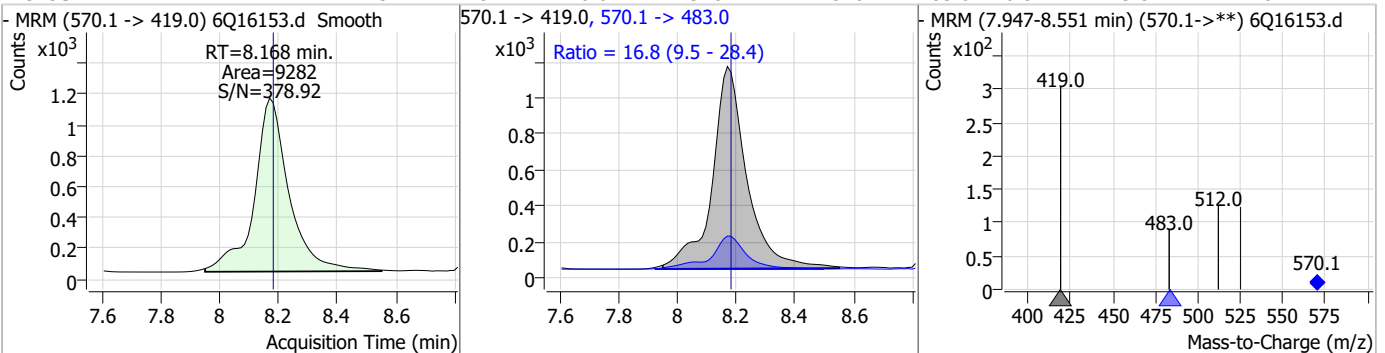
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.18	8.12	0.00	36813	512.9 -> 219.0	14.1	7.1	21.3



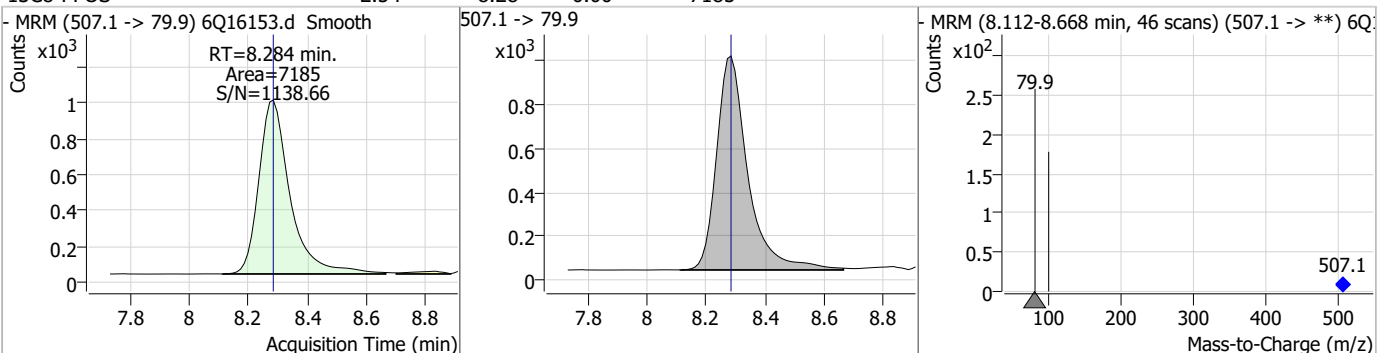
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.03	8.17	0.00	21118				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.34	8.17	-0.01	9282	570.1 -> 483.0	16.8	9.5	28.4

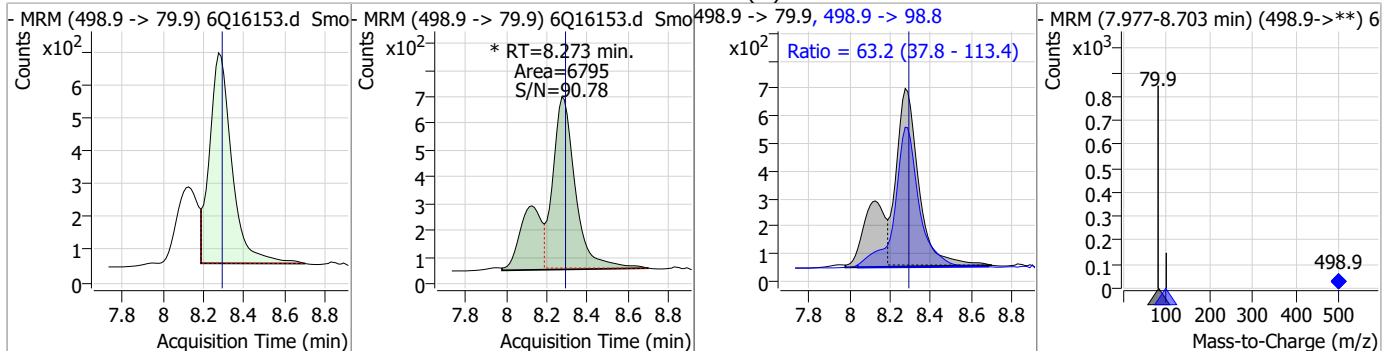


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.54	8.28	0.00	7185				

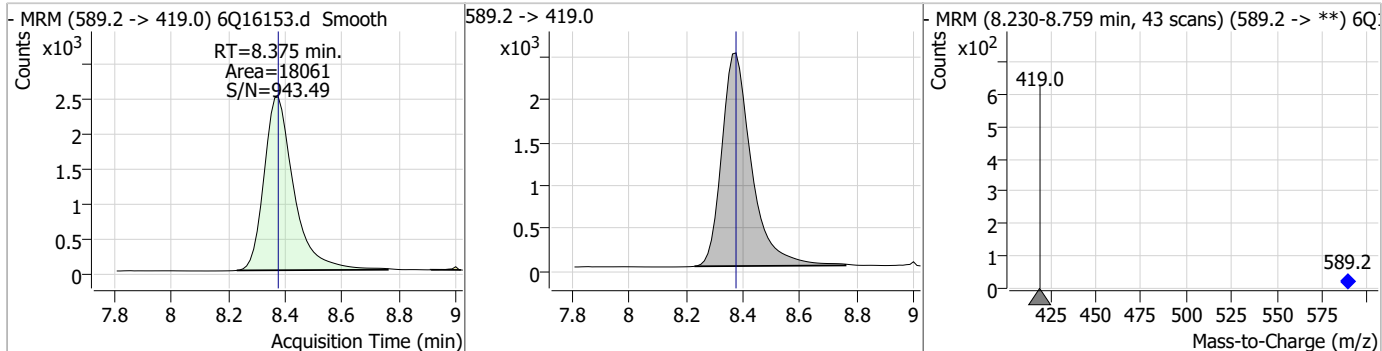


Perfluorinated Compounds by LC/MS/MS

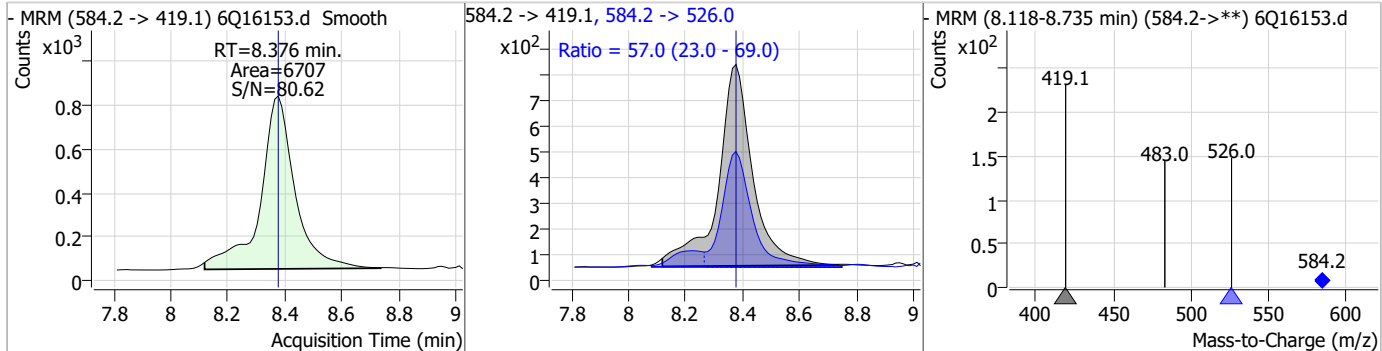
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.15	8.27	-0.01	6795 (m)	498.9 -> 98.8	63.2	37.8	113.4



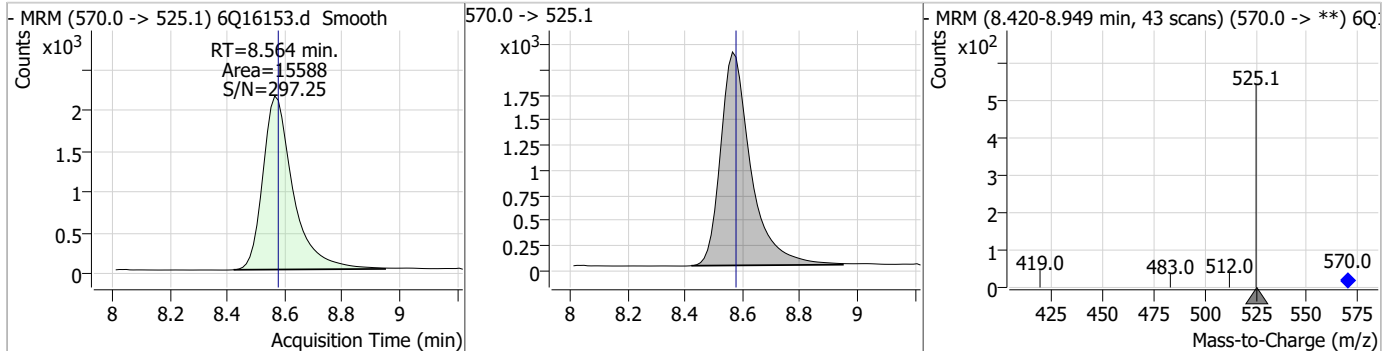
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.97	8.38	0.00	18061				



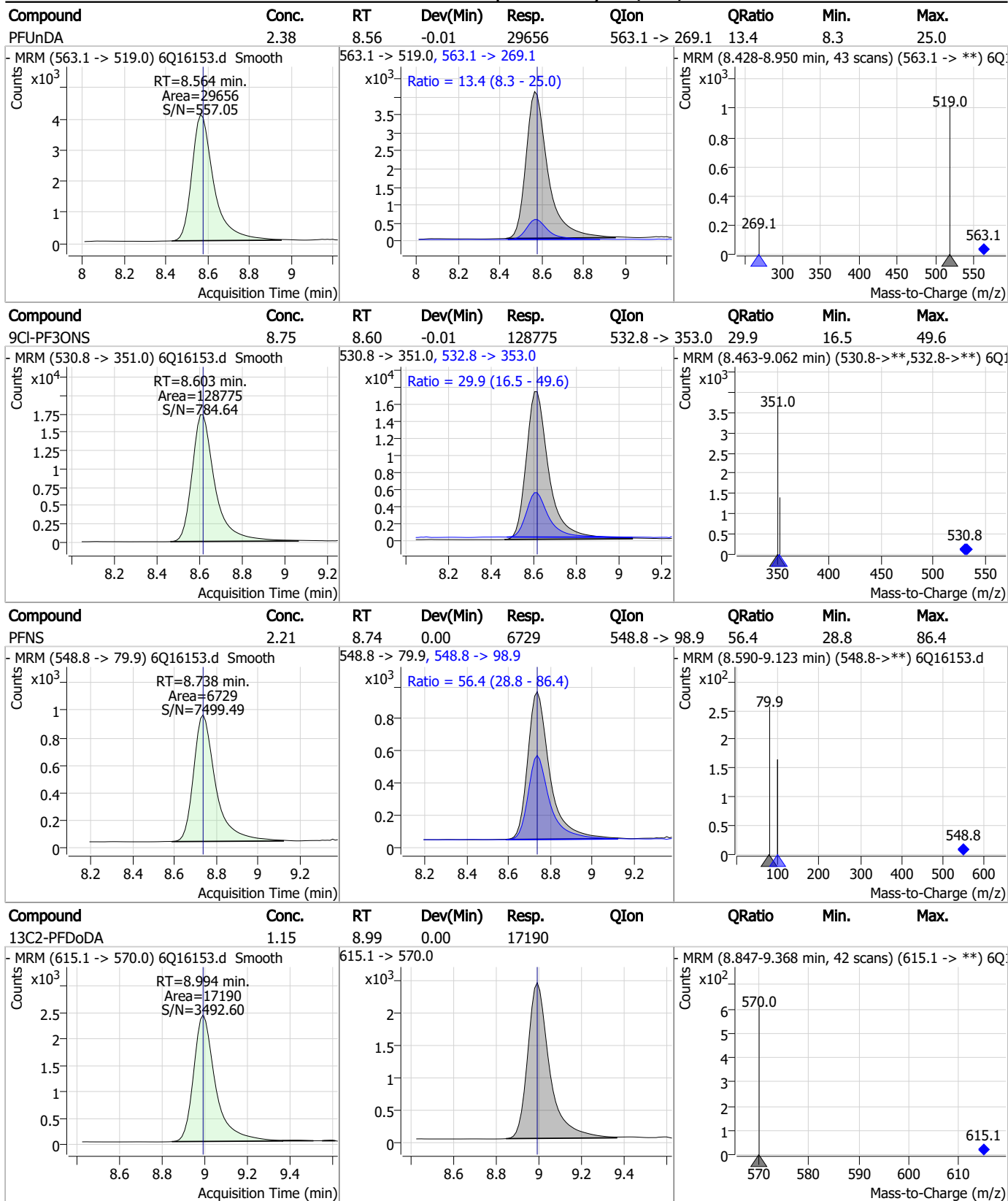
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.42	8.38	0.00	6707	584.2 -> 526.0	57.0	23.0	69.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.21	8.56	-0.01	15588				



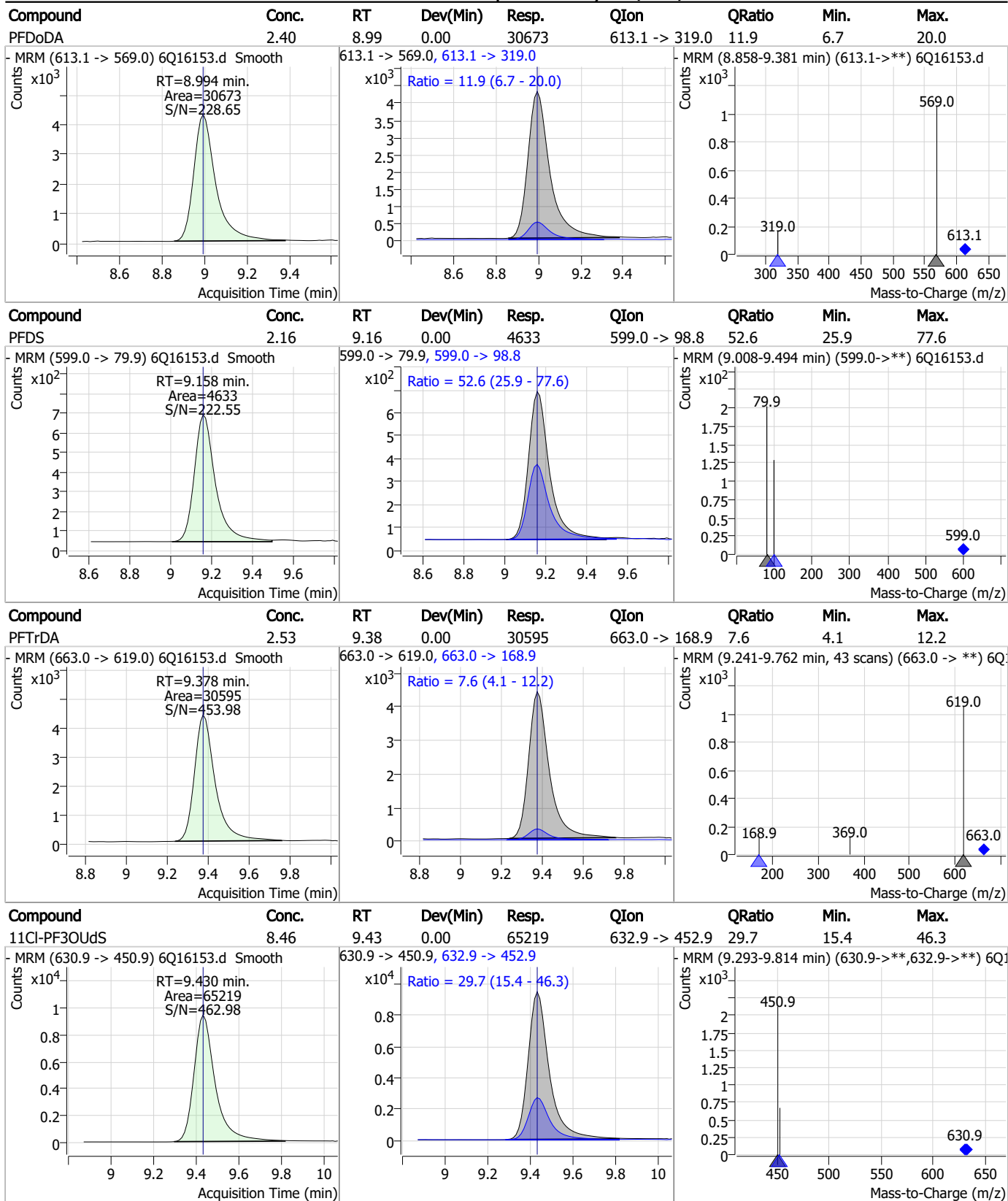
Perfluorinated Compounds by LC/MS/MS



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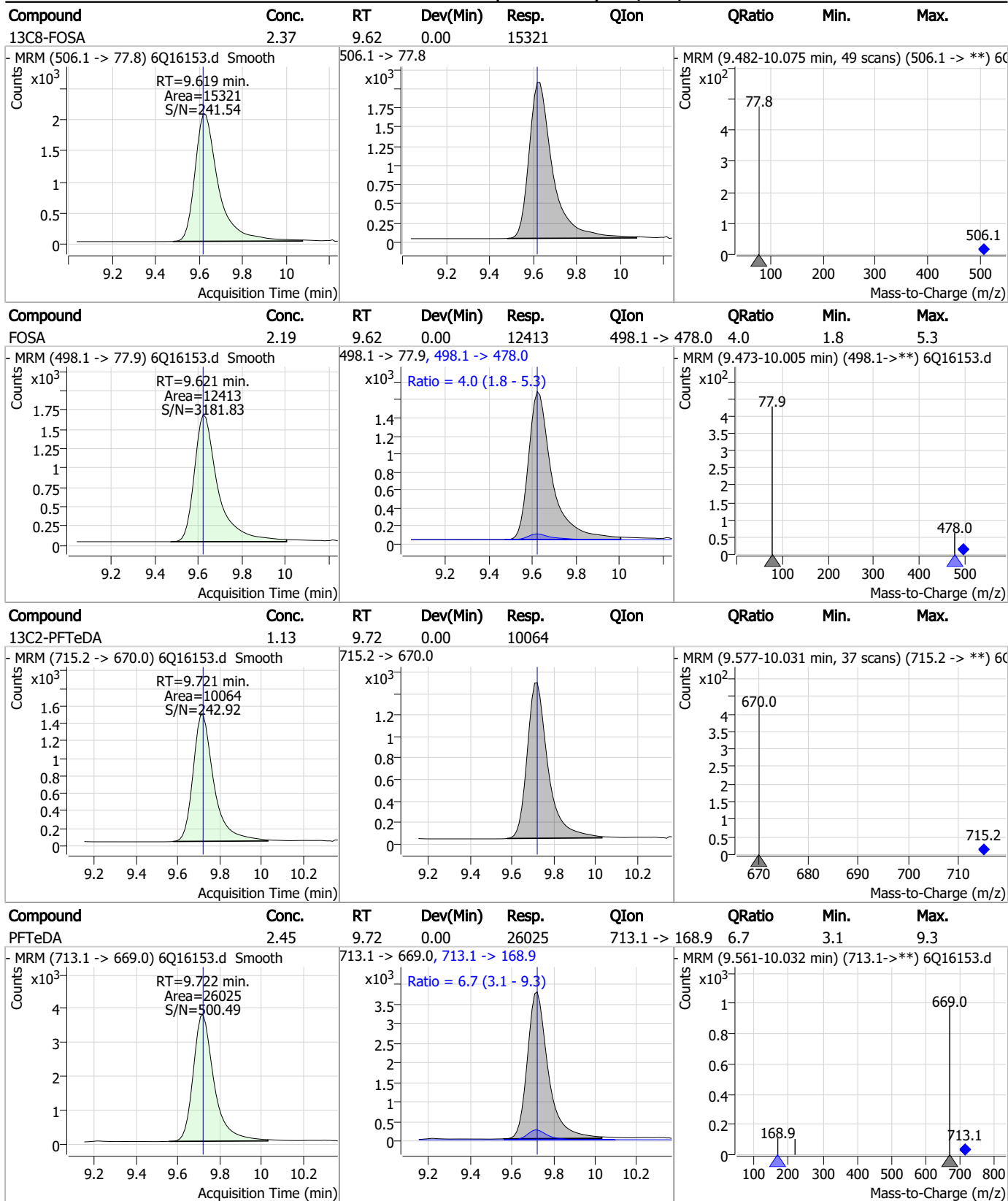
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

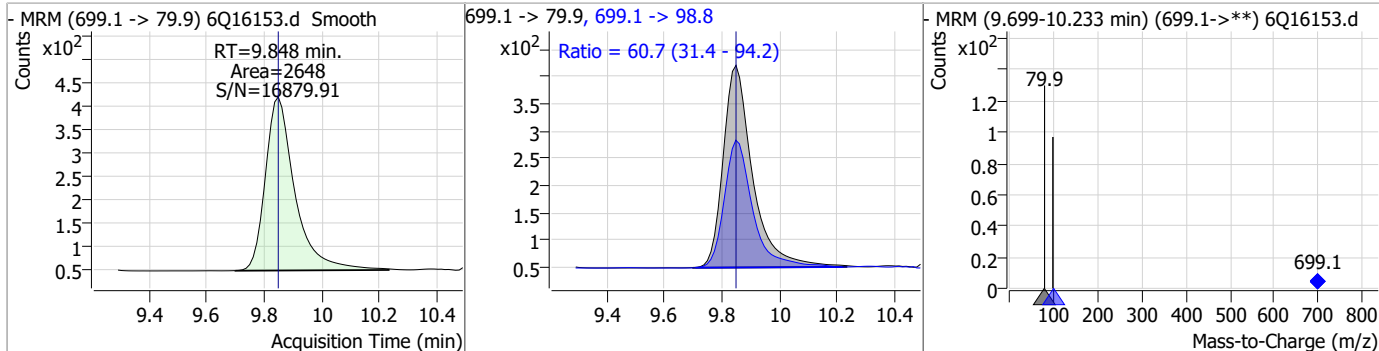


7.6.14

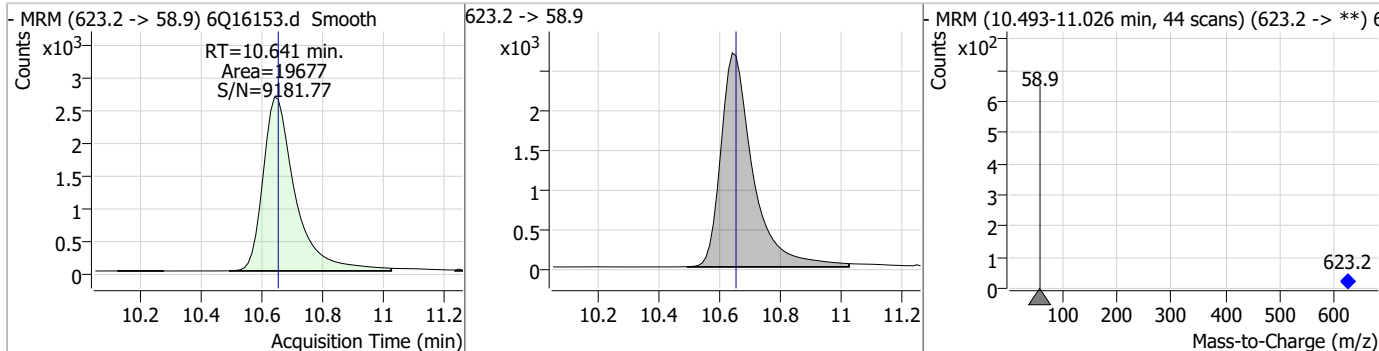
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Perfluorinated Compounds by LC/MS/MS

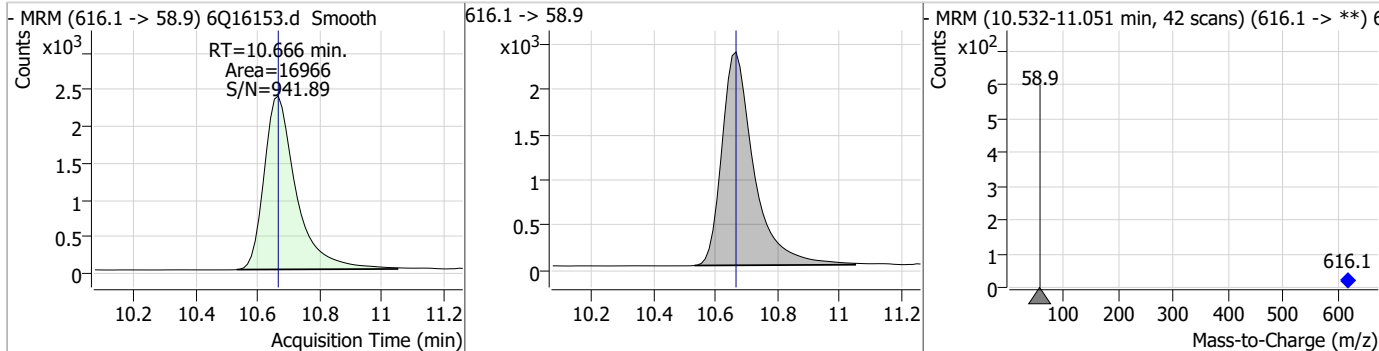
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	2.12	9.85	0.00	2648	699.1 -> 98.8	60.7	31.4	94.2



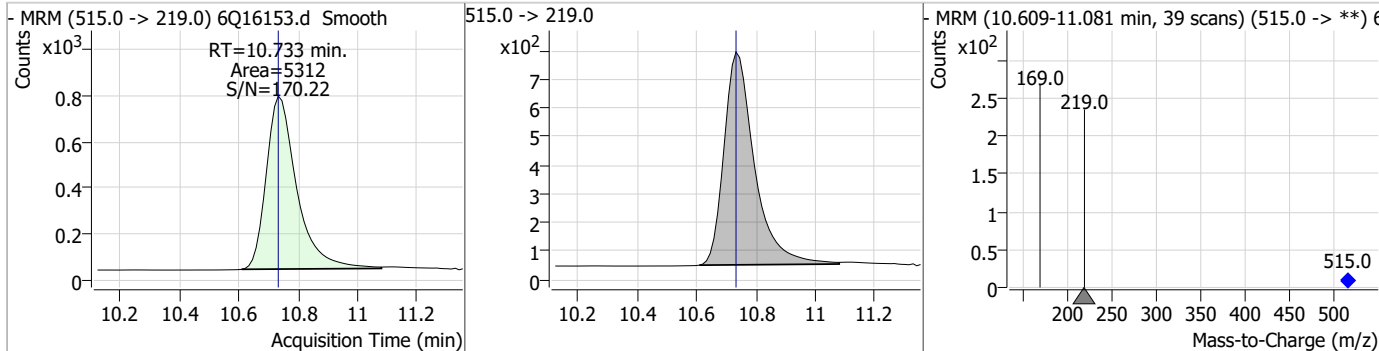
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	22.30	10.64	-0.01	19677				



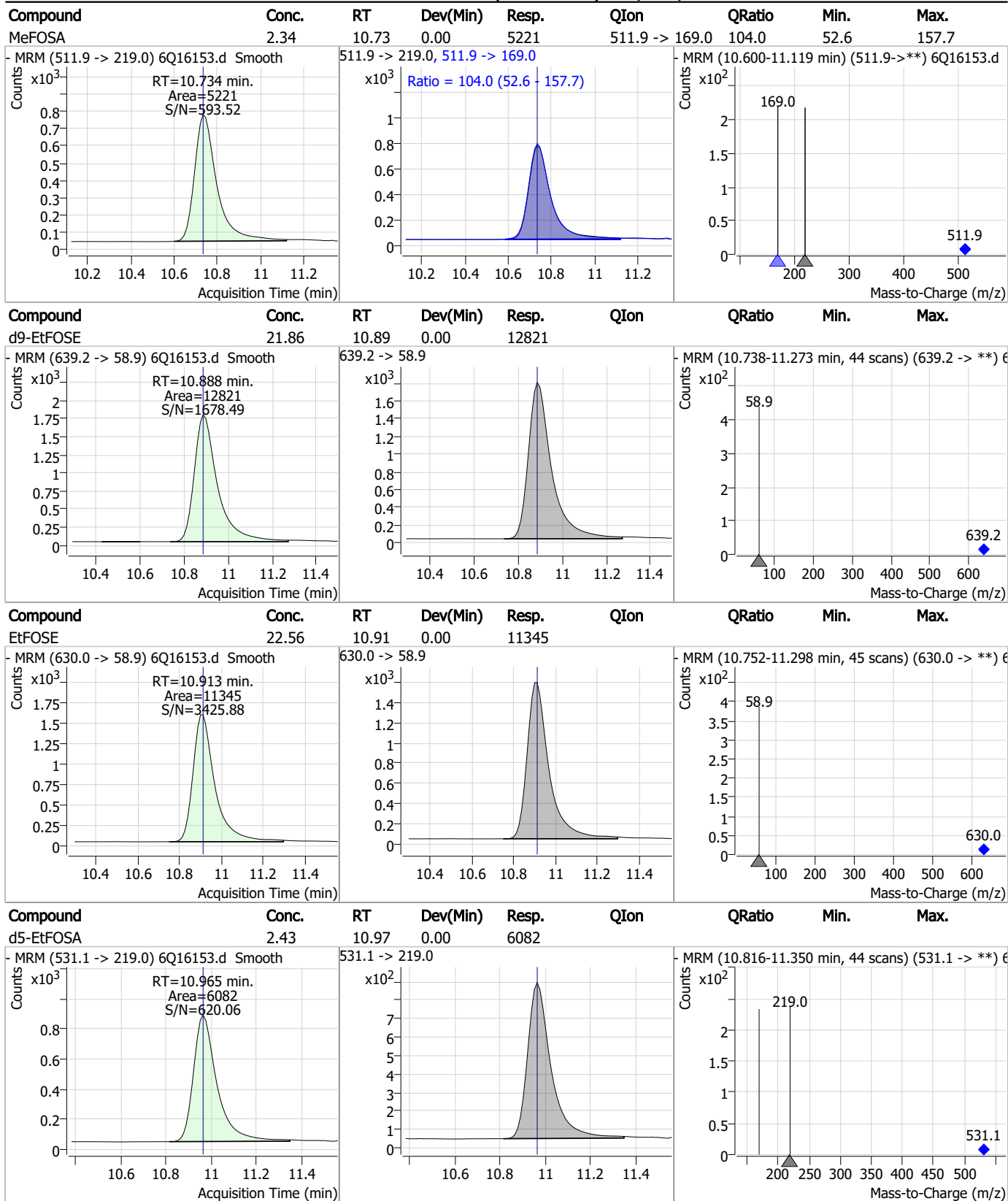
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	22.87	10.67	0.00	16966				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.28	10.73	0.00	5312				



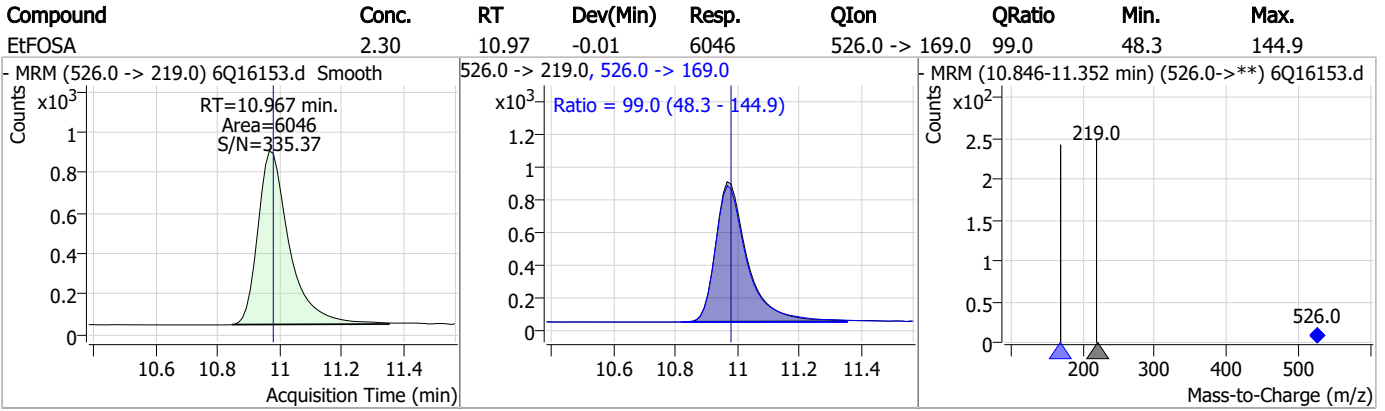
Perfluorinated Compounds by LC/MS/MS



7.6.14

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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q240-CC239 Method: EPA DRAFT 1633
Lab FileID: 6Q16153.D Analyst approved: 04/06/23 11:16 Martha Valls
Injection Time: 04/06/23 01:13 Supervisor approved: 04/06/23 14:43 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.27	Split peak

7.6.14.1

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DATE:	04/04/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 uI
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_040423_S6Q239
CAL DATE:	04/04/23
ANALYST:	M. Valls
RUN BATCH:	S6Q239

ELUENT A LOT #:	ACN 220228
ELUENT B LOT #:	HPLC WATER LOT: 224870 W5% CAN 220225 2mlM AMAC: 11387
IC/CC STD LOT #:	LCMS 2092B
ICV STD LOT #:	LCMS 2092B/2071
ISTD/ID STD LOT #:	11384/11383

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	6Q16001.d	P1-B9	CCB	1633full.m	Sample		OP96085.S6Q239.500,,,5.0,1,.water	✓
2	6Q16002.d	P1-B9	CCB	1633full.m	Sample		OP96085.S6Q239.500,,,5.0,1,.water	✓
3	6Q16003.d	P1-B3	RT TDCA	1633full.m	Sample		OP96085.S6Q239.500,,,5.0,1,.water	✓
4	6Q16004.d	P1-B4	RT BR-LN	1633full.m	Sample		OP96085.S6Q239.500,,,5.0,1,.water	✓
5	6Q16005.d	P1-A1	ic239-0	1633full.m	Sample		OP96085.S6Q239.500,,,5.0,1,.water	✓
6	6Q16006.d	P1-A2	ic239-1	1633full.m	Calibration	1.6/500	OP96085.S6Q239.500,,,5.0,1,.water	Curve Pass
7	6Q16007.d	P1-A3	ic239-2	1633full.m	Calibration	4/500	OP96085.S6Q239.500,,,5.0,1,.water	✓
8	6Q16008.d	P1-A4	ic239-3	1633full.m	Calibration	10/500	OP96085.S6Q239.500,,,5.0,1,.water	✓
9	6Q16009.d	P1-A5	ic239-4	1633full.m	Calibration	20/500	OP96085.S6Q239.500,,,5.0,1,.water	✓
10	6Q16010.d	P1-A6	ic239-5	1633full.m	Calibration	40/500	OP96085.S6Q239.500,,,5.0,1,.water	✓
11	6Q16011.d	P1-A7	ic239-6	1633full.m	Calibration	100/500	OP96085.S6Q239.500,,,5.0,1,.water	✓
12	6Q16012.d	P1-A8	ic239-7	1633full.m	Calibration	200/500	OP96085.S6Q239.500,,,5.0,1,.water	✓
13	6Q16013.d	P1-A9	ic239-8	1633full.m	Calibration	1x	OP96085.S6Q239.500,,,5.0,1,.water	✓
14	6Q16014.d	P1-A1	IBLK	1633full.m	Sample		OP96085.S6Q239.500,,,5.0,1,.water	✓
15	6Q16015.d	P1-B1	icv239-4	1633full.m	Sample	20/500	OP96085.S6Q239.500,,,5.0,1,.water	Pass, prep by NG
16	6Q16016.d	P1-B2	icv239-20	1633full.m	Sample	100/500	OP96085.S6Q239.500,,,5.0,1,.water	Pass
17	6Q16017.d	P1-A5	cc239-4	1633full.m	QC	20/500	OP96085.S6Q239.500,,,5.0,1,.water	Pass
18	6Q16018.d	P1-A2	cc239-1.0LL	1633full.m	QC	1.6/500	OP96085.S6Q239.500,,,5.0,1,.water	Pass
19	6Q16019.d	P2-C1	op96208-bs	1633full.m	Sample		OP96208.S6Q239.125,,,5.0,1,.water	Pass
20	6Q16020.d	P2-C2	op96208-llbs:2	1633full.m	Sample		OP96208.S6Q239.125,,,5.0,1,.water	Pass
21	6Q16021.d	P2-C3	op96208-mb	1633full.m	Sample		OP96208.S6Q239.125,,,5.0,1,.water	✓
22	6Q16022.d	P2-C4	FC3457-7	1633full.m	Sample		OP96208.S6Q239.60,,,5.0,1,.water	rr10x
23	6Q16023.d	P1-A5	cc239-4	1633full.m	QC	20/500	OP96085.S6Q239.500,,,5.0,1,.water	Pass
24	6Q16024.d	P1-A1	iccb	1633full.m	Sample		OP96085.S6Q239.500,,,5.0,1,.water	✓
25	6Q16025.d	P2-C5	op96209-bs	1633full.m	Sample		OP96209.S6Q239.500,,,5.0,1,.water	Pass
26	6Q16026.d	P2-C6	op96209-llbs:3	1633full.m	Sample		OP96209.S6Q239.500,,,5.0,1,.water	Pass
27	6Q16027.d	P2-C7	op96209-mb	1633full.m	Sample		OP96209.S6Q239.500,,,5.0,1,.water	✓
28	6Q16028.d	P2-C8	FC3853-1	1633full.m	Sample		OP96209.S6Q239.565,,,5.0,1,.water	✓
29	6Q16029.d	P2-C9	op96209-ms	1633full.m	Sample		OP96209.S6Q239.565,,,5.0,1,.water	✓
30	6Q16030.d	P2-D1	FC3853-2	1633full.m	Sample		OP96209.S6Q239.535,,,5.0,1,.water	✓
31	6Q16031.d	P2-D2	op96209-dup	1633full.m	Sample		OP96209.S6Q239.535,,,5.0,1,.water	✓
32	6Q16032.d	P2-D3	FC3641-1	1633full.m	Sample		OP96209.S6Q239.525,,,5.0,1,.water	✓
33	6Q16033.d	P2-D4	FC3671-9	1633full.m	Sample		OP96209.S6Q239.535,,,5.0,1,.water	✓
34	6Q16034.d	P1-A5	cc239-4	1633full.m	QC	20/500	OP96085.S6Q239.500,,,5.0,1,.water	Pass
35	6Q16035.d	P1-A1	iccb	1633full.m	Sample		OP96085.S6Q239.500,,,5.0,1,.water	✓

LCMS6-6Q ANALYSIS LOG

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36	6Q16036.d	P6-A1	op96190-bs	1633full.m	Sample	OP96190,S6Q239,500,,,5.0,1,water	Pass
37	6Q16037.d	P6-A2	op96190-llbs:2	1633full.m	Sample	OP96190,S6Q239,500,,,5.0,1,water	Pass
38	6Q16038.d	P6-A3	op96190-mb	1633full.m	Sample	OP96190,S6Q239,500,,,5.0,1,water	✓
39	6Q16039.d	P6-A4	JD62439-1	1633full.m	Sample	OP96190,S6Q239,540,,,5.0,1,water	rr10x + redo 25ml
40	6Q16040.d	P6-A5	JD62439-2	1633full.m	Sample	OP96190,S6Q239,540,,,5.0,1,water	ISTD fail, rr10x + redo 25ml
41	6Q16041.d	P6-A6	JD62439-3	1633full.m	Sample	OP96190,S6Q239,540,,,5.0,1,water	ISTD fail, rr10x + redo 25ml
42	6Q16042.d	P6-A7	JD62439-4	1633full.m	Sample	OP96190,S6Q239,540,,,5.0,1,water	rr1x co
43	6Q16043.d	P6-A8	JD62588-4	1633full.m	Sample	OP96190,S6Q239,560,,,5.0,1,water	✓
44	6Q16044.d	P6-A9	op96190-ms	1633full.m	Sample	OP96190,S6Q239,570,,,5.0,1,water	✓
45	6Q16045.d	P6-B1	JD62588-5	1633full.m	Sample	OP96190,S6Q239,570,,,5.0,1,water	✓
46	6Q16046.d	P1-A5	cc239-4	1633full.m	QC	OP96085,S6Q239,500,,,5.0,1,water	Pass
47	6Q16047.d	P1-A1	iccb	1633full.m	Sample	OP96085,S6Q239,500,,,5.0,1,water	✓
48	6Q16048.d	P6-B2	JD62588-6	1633full.m	Sample	OP96190,S6Q239,570,,,5.0,1,water	✓
49	6Q16049.d	P6-B3	JD62588-7	1633full.m	Sample	OP96190,S6Q239,570,,,5.0,1,water	✓
50	6Q16050.d	P6-B4	JD62588-10	1633full.m	Sample	OP96190,S6Q239,560,,,5.0,1,water	✓
51	6Q16051.d	P6-B5	JD62588-11	1633full.m	Sample	OP96190,S6Q239,540,,,5.0,1,water	✓
52	6Q16052.d	P6-B6	JD62588-14	1633full.m	Sample	OP96190,S6Q239,490,,,5.0,1,water	✓
53	6Q16053.d	P6-B7	JD62588-15	1633full.m	Sample	OP96190,S6Q239,510,,,5.0,1,water	✓
54	6Q16054.d	P6-B8	JD62588-1A	1633full.m	Sample	OP96190,S6Q239,560,,,5.0,1,water	✓
55	6Q16055.d	P6-B9	JD62588-3A	1633full.m	Sample	OP96190,S6Q239,570,,,5.0,1,water	✓
56	6Q16056.d	P6-C1	JD62588-8A	1633full.m	Sample	OP96190,S6Q239,570,,,5.0,1,water	✓
57	6Q16057.d	P6-C2	JD62588-9A	1633full.m	Sample	OP96190,S6Q239,525,,,5.0,1,water	✓
58	6Q16058.d	P1-A5	cc239-4	1633full.m	QC	OP96085,S6Q239,500,,,5.0,1,water	Pass
59	6Q16059.d	P1-A2	cc239-1,0LL	1633full.m	QC	OP96085,S6Q239,500,,,5.0,1,water	8.2, 7.3:FTCA high,
60	6Q16060.d	P1-A1	iccb	1633full.m	Sample	OP96085,S6Q239,500,,,5.0,1,water	✓
61	6Q16061.d	P6-C3	JD62588-12A	1633full.m	Sample	OP96190,S6Q239,570,,,5.0,1,water	✓
62	6Q16062.d	P6-C4	op96190-dup	1633full.m	Sample	OP96190,S6Q239,570,,,5.0,1,water	✓
63	6Q16063.d	P6-C5	JD62588-13A	1633full.m	Sample	OP96190,S6Q239,570,,,5.0,1,water	✓
64	6Q16064.d	P6-C6	op96192-bs	1633full.m	Sample	OP96192,S6Q239,500,,,5.0,1,water	Pass
65	6Q16065.d	P6-C7	op96192-llbs:2	1633full.m	Sample	OP96192,S6Q239,500,,,5.0,1,water	Pass
66	6Q16066.d	P6-C8	op96192-mb	1633full.m	Sample	OP96192,S6Q239,500,,,5.0,1,water	✓
67	6Q16067.d	P6-C9	JD62631-1	1633full.m	Sample	OP96192,S6Q239,535,,,5.0,1,water	✓
68	6Q16068.d	P6-D1	JD62631-3A	1633full.m	Sample	OP96192,S6Q239,460,,,5.0,1,water	✓
69	6Q16069.d	P6-D5	JD62631-5A	1633full.m	Sample	OP96192,S6Q239,495,,,5.0,1,water	rr10x
70	6Q16070.d	P6-D6	JD62631-6A	1633full.m	Sample	OP96192,S6Q239,508,,,5.0,1,water	rr2x
71	6Q16071.d	P1-A5	cc239-4	1633full.m	QC	OP96085,S6Q239,500,,,5.0,1,water	Pass
72	6Q16072.d	P1-A1	iccb	1633full.m	Sample	OP96085,S6Q239,500,,,5.0,1,water	✓
73	6Q16073.d	P6-D2	JD62631-4A	1633full.m	Sample	OP96192,S6Q239,505,,,5.0,1,water	✓
74	6Q16074.d	P6-D3	op96192-ms	1633full.m	Sample	OP96192,S6Q239,545,,,5.0,1,water	✓
75	6Q16075.d	P6-D4	op96192-msd	1633full.m	Sample	OP96192,S6Q239,545,,,5.0,1,water	✓
76	6Q16076.d	P6-D7	JD62631-7A	1633full.m	Sample	OP96192,S6Q239,507,,,5.0,1,water	rr10x
77	6Q16077.d	P6-D8	JD62640-2	1633full.m	Sample	OP96192,S6Q239,545,,,5.0,1,water	✓
78	6Q16078.d	P6-D9	JD62640-3A	1633full.m	Sample	OP96192,S6Q239,480,,,5.0,1,water	✓



LCMS6-6Q ANALYSIS LOG

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79	6Q16079.d	P6-E1	JD62640-4A	1633full.m	Sample	OP96192,S6Q239,525,,,5.0,1,water	✓
80	6Q16080.d	P6-E2	JD62640-5A	1633full.m	Sample	OP96192,S6Q239,515,,,5.0,1,water	✓
81	6Q16081.d	P6-E3	JD62640-6A	1633full.m	Sample	OP96192,S6Q239,520,,,5.0,1,water	rf5x
82	6Q16082.d	P6-E4	JD62658-1	1633full.m	Sample	OP96192,S6Q239,410,,,5.0,1,water	rf1x co
83	6Q16083.d	P1-A5	cc239-4	1633full.m	QC	OP96085,S6Q239,500,,,5.0,1,water	Pass
84	6Q16084.d	P1-A1	iccb	1633full.m	Sample	OP96085,S6Q239,500,,,5.0,1,water	✓
85	6Q16085.d	P6-E5	JD62658-2	1633full.m	Sample	OP96192,S6Q239,495,,,5.0,1,water	✓
86	6Q16086.d	P6-E6	JD62658-3	1633full.m	Sample	OP96192,S6Q239,490,,,5.0,1,water	✓
87	6Q16087.d	P6-E7	JD62658-4	1633full.m	Sample	OP96192,S6Q239,535,,,5.0,1,water	✓
88	6Q16088.d	P6-E8	JD62658-5	1633full.m	Sample	OP96192,S6Q239,515,,,5.0,1,water	✓
89	6Q16089.d	P6-E9	JD62658-6	1633full.m	Sample	OP96192,S6Q239,535,,,5.0,1,water	✓
90	6Q16090.d	P6-F1	JD62629-1A	1633full.m	Sample	OP96192,S6Q239,530,,,5.0,1,water	✓
91	6Q16091.d	P6-F2	JD62629-3A	1633full.m	Sample	OP96192,S6Q239,465,,,5.0,1,water	✓
92	6Q16092.d	P1-A5	cc239-4	1633full.m	QC	OP96085,S6Q239,500,,,5.0,1,water	Pass
93	6Q16093.d	P1-A1	iccb	1633full.m	Sample	OP96085,S6Q239,500,,,5.0,1,water	✓
94	6Q16094.d	P1-A1	Reset injector	1633full.m	Sample	OP96085,S6Q239,500,,,5.0,1,water	✓
95	6Q16095.d	P2-D5	JD62439-4	1633full.m	Sample	OP96190,S6Q239,540,,,5.0,1,water	✓
96	6Q16096.d	P2-D6	FC3457-7	1633full.m	Sample	OP96208,S6Q239,60,,,5.0,10,water	✓
97	6Q16097.d	P2-D7	JD62439-1	1633full.m	Sample	OP96190,S6Q239,540,,,5.0,10,water	redo at lower volume
98	6Q16098.d	P2-D8	JD62439-2	1633full.m	Sample	OP96190,S6Q239,540,,,5.0,10,water	redo at lower volume
99	6Q16099.d	P2-D9	JD62439-3	1633full.m	Sample	OP96190,S6Q239,540,,,5.0,10,water	redo at lower volume
100	6Q16100.d	P1-A5	ecc239-4	1633full.m	QC	OP96085,S6Q239,500,,,5.0,1,water	Pass
101	6Q16101.d	P1-B9	iccb	1633full.m	Sample	OP96085,S6Q240,500,,,5.0,1,water	✓



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DATE:	04/05/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 uI
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_040423_S6Q239
CAL DATE:	04/04/23
ANALYST:	M. Valls
RUN BATCH:	S6Q240

ELUENT A LOT #:	ACN 220228
ELUENT B LOT #:	HPLC WATER LOT: 224870 W5% CAN 220225 2mM AMAC: 11387
IC/CC STD LOT #:	LCMS 2092B
ICV STD LOT #:	LCMS 2092B/2071
ISTD/ID STD LOT #:	11384/11383

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
102	6Q16102.d	P1-B3	RT IDCA	1633full.m	Sample		OP96085.S6Q240.500,,,5.0,1,water	✓
103	6Q16103.d	P1-B4	RT BR-LN	1633full.m	Sample		OP96085.S6Q240.500,,,5.0,1,water	✓
104	6Q16104.d	P1-A9	High Std	1633full.m	Sample		OP96085.S6Q240.500,,,5.0,1,water	✓
105	6Q16105.d	P1-A1	IBLK	1633full.m	Sample		OP96085.S6Q240.500,,,5.0,1,water	✓
106	6Q16106.d	P1-A5	cc239-4	1633full.m	QC	20/500	OP96085.S6Q240.500,,,5.0,1,water	✓
107	6Q16107.d	P1-A2	cc239-1.0LL	1633full.m	QC	1.6/500	OP96085.S6Q240.500,,,5.0,1,water	✓
108	6Q16108.d	P2-E1	op96231-bs	1633full.m	Sample		OP96231.S6Q240.500,,,5.0,1,water	✓
109	6Q16109.d	P2-E2	op96231-llbs:3	1633full.m	Sample		OP96231.S6Q240.500,,,5.0,1,water	✓
110	6Q16110.d	P2-E3	op96231-mb	1633full.m	Sample		OP96231.S6Q240.500,,,5.0,1,water	✓
111	6Q16111.d	P2-E4	FC3723-5	1633full.m	Sample		OP96231.S6Q240.540,,,5.0,1,water	✓
112	6Q16112.d	P2-E5	FC3721-14	1633full.m	Sample		OP96231.S6Q240.530,,,5.0,1,water	✓
113	6Q16113.d	P1-A5	cc239-4	1633full.m	QC	20/500	OP96085.S6Q240.500,,,5.0,1,water	Pass
114	6Q16114.d	P1-A1	iccb	1633full.m	Sample		OP96085.S6Q240.500,,,5.0,1,water	✓
115	6Q16115.d	P2-E6	JD62631-5A	1633full.m	Sample	50/500	OP96192.S6Q240.495,,,5.0,10,water	✓
116	6Q16116.d	P2-E7	JD62631-6A	1633full.m	Sample	100/500	OP96192.S6Q240.508,,,5.0,5,water	✓
117	6Q16117.d	P2-E8	JD62631-7A	1633full.m	Sample	50/500	OP96192.S6Q240.507,,,5.0,10,water	✓
118	6Q16118.d	P2-E9	JD62640-6A	1633full.m	Sample	100/500	OP96192.S6Q240.520,,,5.0,5,water	✓
119	6Q16119.d	P2-F1	JD62640-6A	1633full.m	Sample	50/500	OP96192.S6Q240.520,,,5.0,10,water	✓
120	6Q16120.d	P2-F2	JD62658-1	1633full.m	Sample		OP96192.S6Q240.410,,,5.0,1,water	✓
121	6Q16121.d	P1-A5	cc239-4	1633full.m	QC	20/500	OP96085.S6Q240.500,,,5.0,1,water	Pass
122	6Q16122.d	P1-A1	iccb	1633full.m	Sample		OP96085.S6Q240.500,,,5.0,1,water	✓
123	6Q16123.d	P6-F3	op96193-bs	1633full.m	Sample		OP96193.S6Q240.500,,,5.0,1,water	✓
124	6Q16124.d	P6-F4	op96193-llbs:2	1633full.m	Sample		OP96193.S6Q240.500,,,5.0,1,water	✓
125	6Q16125.d	P6-F5	op96193-mb	1633full.m	Sample		OP96193.S6Q240.500,,,5.0,1,water	✓
126	6Q16126.d	P6-F6	JD62642-2	1633full.m	Sample		OP96193.S6Q240.540,,,5.0,1,water	✓
127	6Q16127.d	P6-F7	JD62642-3A	1633full.m	Sample		OP96193.S6Q240.540,,,5.0,1,water	✓
128	6Q16128.d	P6-F8	JD62642-5A	1633full.m	Sample		OP96193.S6Q240.540,,,5.0,1,water	✓
129	6Q16129.d	P6-F9	JD62642-7A	1633full.m	Sample		OP96193.S6Q240.460,,,5.0,1,water	✓
130	6Q16130.d	P2-A1	op96193-ms	1633full.m	Sample		OP96193.S6Q240.460,,,5.0,1,water	✓
131	6Q16131.d	P2-A2	op96193-msd	1633full.m	Sample		OP96193.S6Q240.460,,,5.0,1,water	✓
132	6Q16132.d	P2-A3	JD62642-8A	1633full.m	Sample		OP96193.S6Q240.540,,,5.0,1,water	✓
133	6Q16133.d	P1-A5	cc239-4	1633full.m	QC	20/500	OP96085.S6Q240.500,,,5.0,1,water	✓
134	6Q16134.d	P1-A2	cc239-1.0LL	1633full.m	QC	1.6/500	OP96085.S6Q240.500,,,5.0,1,water	7:3FTCA High
135	6Q16135.d	P1-A1	iccb	1633full.m	Sample		OP96085.S6Q240.500,,,5.0,1,water	✓
136	6Q16136.d	P2-A4	JD62646-2A	1633full.m	Sample		OP96193.S6Q240.540,,,5.0,1,water	✓

LCMS6-6Q ANALYSIS LOG

SGS ORLANDO

137	6Q16137.d	P2-A5	JD62646-3A	1633full.m	Sample	OP96193,S6Q240,540,,,5.0,1,water	✓
138	6Q16138.d	P2-A6	JD62646-5A	1633full.m	Sample	OP96193,S6Q240,460,,,5.0,1,water	✓
139	6Q16139.d	P2-A7	JD62646-7A	1633full.m	Sample	OP96193,S6Q240,560,,,5.0,1,water	r5x E + surr high
140	6Q16140.d	P2-A8	JD62646-8A	1633full.m	Sample	OP96193,S6Q240,510,,,5.0,1,water	rr1x co
141	6Q16141.d	P2-A9	JD62646-10A	1633full.m	Sample	OP96193,S6Q240,565,,,5.0,1,water	✓
142	6Q16142.d	P2-B1	JD62646-11A	1633full.m	Sample	OP96193,S6Q240,510,,,5.0,1,water	✓
143	6Q16143.d	P2-B2	JD62646-13A	1633full.m	Sample	OP96193,S6Q240,540,,,5.0,1,water	✓
144	6Q16144.d	P1-A5	cc239-4	1633full.m	QC	OP96085,S6Q240,500,,,5.0,1,water	Pass
145	6Q16145.d	P1-A1	iccb	1633full.m	Sample	OP96085,S6Q240,500,,,5.0,1,water	✓
146	6Q16146.d	P2-B3	op96191-bs	1633full.m	Sample	OP96191,S6Q240,500,,,5.0,1,water	✓
147	6Q16147.d	P2-B4	op96191-llbs:3	1633full.m	Sample	OP96191,S6Q240,500,,,5.0,1,water	✓
148	6Q16148.d	P2-B5	op96191-mb	1633full.m	Sample	OP96191,S6Q240,500,,,5.0,1,water	✓
149	6Q16149.d	P2-B6	FC3825-1	1633full.m	Sample	OP96191,S6Q240,530,,,5.0,1,water	✓
150	6Q16150.d	P2-B7	op96191-ms	1633full.m	Sample	OP96191,S6Q240,530,,,5.0,1,water	✓
151	6Q16151.d	P2-B8	op96191-llbs	1633full.m	Sample	OP96191,S6Q240,500,,,5.0,1,water	test cartridges
152	6Q16152.d	P2-B9	op96191-mb	1633full.m	Sample	OP96191,S6Q240,500,,,5.0,1,water	test cartridges
153	6Q16153.d	P1-A5	cc239-4	1633full.m	QC	OP96191,S6Q240,500,,,5.0,1,water	Pass
154	6Q16154.d	P1-A1	iccb	1633full.m	Sample	OP96191,S6Q240,500,,,5.0,1,water	✓
155	6Q16155.d	P3-A1	op96187-bs	1633full.m	Sample	OP96187,S6Q240,5.00,,,5.0,1,soil	✓
156	6Q16156.d	P3-A2	op96187-llbs:2	1633full.m	Sample	OP96187,S6Q240,5.00,,,5.0,1,soil	✓
157	6Q16157.d	P3-A3	op96187-mb	1633full.m	Sample	OP96187,S6Q240,5.00,,,5.0,1,soil	✓
158	6Q16158.d	P3-A4	JD61598-2A	1633full.m	Sample	OP96187,S6Q240,5.05,,,5.0,1,soil	✓
159	6Q16159.d	P3-A5	JD61598-3A	1633full.m	Sample	OP96187,S6Q240,4.97,,,5.0,1,soil	✓
160	6Q16160.d	P3-A6	JD61598-4A	1633full.m	Sample	OP96187,S6Q240,4.97,,,5.0,1,soil	✓
161	6Q16161.d	P3-A7	JD61598-7A	1633full.m	Sample	OP96187,S6Q240,5.00,,,5.0,1,soil	✓
162	6Q16162.d	P3-A8	JD61598-8A	1633full.m	Sample	OP96187,S6Q240,4.96,,,5.0,1,soil	✓
163	6Q16163.d	P1-A5	cc239-4	1633full.m	QC	OP96191,S6Q240,500,,,5.0,1,water	Pass
164	6Q16164.d	P1-A1	iccb	1633full.m	Sample	OP96191,S6Q240,500,,,5.0,1,water	✓
165	6Q16165.d	P3-A9	JD61598-9A	1633full.m	Sample	OP96187,S6Q240,4.96,,,5.0,1,soil	✓
166	6Q16166.d	P3-B1	op96187-ms	1633full.m	Sample	OP96187,S6Q240,5.01,,,5.0,1,soil	✓
167	6Q16167.d	P3-B2	op96187-msd	1633full.m	Sample	OP96187,S6Q240,5.03,,,5.0,1,soil	✓
168	6Q16168.d	P3-B3	JD61598-10A	1633full.m	Sample	OP96187,S6Q240,5.03,,,5.0,1,soil	✓
169	6Q16169.d	P3-B4	op96187-ms2	1633full.m	Sample	OP96187,S6Q240,5.01,,,5.0,1,soil	✓
170	6Q16170.d	P3-B5	op96187-msd2	1633full.m	Sample	OP96187,S6Q240,5.03,,,5.0,1,soil	✓
171	6Q16171.d	P3-B6	JD61598-11A	1633full.m	Sample	OP96187,S6Q240,5.00,,,5.0,1,soil	✓
172	6Q16172.d	P3-B7	JD61598-12A	1633full.m	Sample	OP96187,S6Q240,5.00,,,5.0,1,soil	✓
173	6Q16173.d	P1-A5	cc239-4	1633full.m	QC	OP96191,S6Q240,500,,,5.0,1,water	Pass
174	6Q16174.d	P1-A1	iccb	1633full.m	Sample	OP96191,S6Q240,500,,,5.0,1,water	✓
175	6Q16175.d	P3-B8	JD62297-1	1633full.m	Sample	OP96187,S6Q240,4.99,,,5.0,1,soil	✓
176	6Q16176.d	P3-B9	JD62297-2	1633full.m	Sample	OP96187,S6Q240,4.99,,,5.0,1,soil	✓
177	6Q16177.d	P3-C1	JD62642-4A	1633full.m	Sample	OP96187,S6Q240,5.04,,,5.0,1,soil	✓
178	6Q16178.d	P3-C2	JD62642-6A	1633full.m	Sample	OP96187,S6Q240,4.97,,,5.0,1,soil	✓
179	6Q16179.d	P3-C3	JD62642-9A	1633full.m	Sample	OP96187,S6Q240,5.02,,,5.0,1,soil	✓

SGS ORLANDO LCMS6-6Q ANALYSIS LOG

180	6Q16180.d	P3-C4	JD62642-10A	1633full.m	Sample	OP96187,S6Q240,5.02,,5.0,1,soil	✓
181	6Q16181.d	P1-A5	Ecc239-4	1633full.m	QC	OP96191,S6Q240,500,,,5.0,1,water	Pass
182	6Q16182.d	P1-A1	iccb	1633full.m	Sample	OP96191,S6Q240,500,,,5.0,1,water	✓

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2092	1033 SPIKE Cal. Std. A-B	11672	PFAC-MxH	Wellington	8/8/27	3/23/23	1-4 ppm	250uL	4mL	02.5 125 250ppb	1033 MIX	3/23/23	9/23/23	NUU
		11658	PFAC-MxI		9/14/26	3/6/24	1-10 ppm	250uL		02.5 025ppb				
		11659B	PFAC-MxJ		04/17/23	3/20/24	2 ppm	500uL		25ppb				
		11674A	PFAC-MxK		01/11/25	3/23/24	2 ppm	250uL		125ppb				
		11660	PFAC-MxL		12/1/27	3/6/24	2 ppm	250uL		312/160 ppb				
		11642A	PFAC-MxM		9/14/26	3/6/24	4-20 ppm	312uL						
		11642B	PFAC-MxN		9/14/26	3/23/24	50ppm	400uL	4.0mL	1.5ppm	95/100H S/1420	03-18-23	06-23-23	NG
LCMS 2093	List 40 SURF AND-ON-SCOPE MIX	11333	DTN-METROSE	Wellington Labs	01/27/27	10/16/23	50ppm	400uL						NG
		11460	DTN-ETROSE		01/27/27	10/16/23		400uL						NG
		11115	DTN-PFHDA		11/23/28	08/12/23		80uL						NG
		10836	DTN-ETROSA		12/30/25	08/12/23		80uL						NG
LCMS 2094A-B	PFC ID Std.	11668	PFOA-TOD (8 COMPS)	Absolute	11/09/27	03/13/24	1.0ppm	400uL	4.0mL	100ppb	95/100H S/1420	03-18-23	09-18-23	NG
		11432	N-ME-TOSA-M	Wellington Labs	02/08/27	02/13/24	50ppm	8uL						NG
		11250	PBSA-1		11/10/26	11/08/23								NG
		11249	FHXSA-1		10/29/26	11/02/23								NG
		11327	PFEHS		03/20/27	10/16/23								NG
					NG	02/28/23								

* tested & passed on 3/29/24 10:57

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2071	SPiKE Full list std.	11600	PFAC DOD 28 Comp.	Absave	11/9/27	2/17/24	1.0ppm	200uL	2.0mL	100ppb	9570 MCOH + 5% H ₂ O	2/16/23	3/21/23	MW
		LCMS 1987	40LIST #1	SGS std.		3/21/23	1.0ppm	200uL						
		LCMS 1986	40LIST #2			4/18/23	1.0ppm	200uL						
		LCMS 2012	FOSSG			5/11/23	5.0ppm	200uL		500ppb				
LCMS 2072	A-C 1633 Cal std.	11599	PFAC HxH	Wellington	8/8/27	2/7/24	1-4 ppm	250uL	4mL	62.5 125 250ppb	1633 MIX	2/20/23	8/20/23	MV
		11491	PFAC MxI		9/14/26	2/7/24	1-10 ppm	250uL		62.5 125 250ppb				
		11600	PFAC MxI		2/20/24	2/20/24	2ppm	500uL		250ppb				
		11427A	PFAC MxI		1/11/25	2/20/24	2ppm	250uL		125ppb				
		11627B	PFAC MxI		2/22/27	2/7/24	2ppm	250uL		125ppb				
		11602	PFAC MxG		12/1/27	2/20/24	2ppm	250uL		312/100 ppb				
		11618B	PFAC MxJ		9/14/26	2/7/24	4-20 ppm	312uL		ppb				
LCMS 2073 A-D	1633 opike Cal std.	11599	PFAC MxH	Wellington	8/8/27	2/7/24	1-4 ppm	250uL	4mL	62.5 125 250ppb	1633 MIX	2/22/23	8/21/23	MV
		11638	PFAC MxH		8/8/27	2/22/24	1-4 ppm	250uL		62.5 125 250ppb				
		11600	PFAC MxI		9/14/26	2/20/24	1-10 ppm	250uL		62.5 125 250ppb				
		11639	PFAC MxI		9/14/26	2/22/24	2ppm	500uL		250ppb				
		11627B	PFAC MxI		11/11/25	2/20/24	2ppm	250uL		125ppb				
		11640AB	PFAC MxI		1/11/25	2/22/24	2ppm	250uL		312/100 ppb				
		11602	PFAC MxG		12/11/27	2/20/24	2ppm	312uL		ppb				
		11641	PFAC MxG		12/11/27	2/22/24	4-20 ppm							
		11618B	PFAC MxJ		9/14/26	2/7/24	4-20 ppm							
		11628A	PFAC MxJ		9/14/26	2/22/24	4-20 ppm							
						NG	02/23/23							

* based on date opened as specified in each SGS - Orlando SOP.

ORLD-QAC-0017-6-03-FORM-lcms std prep log.xls 030819

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 1987	40 LIST STD ADD-ON #1	10726A	10'2 PF5	Washington Labs	03/03/26	03/31/23	50ppm	80uL	4.0mL	1ppm	05/1NEOH 5747D	10/18/22	03/21/23	NS
		10810	PFDoS		07/01/26	10/18/23								
		10829	N-HexOSA		08/03/26	08/23/23								
		10837	N-HeXOSA		08/10/26	08/23/23								
		10842	PFHDA	NS VENDOR	09/28/26	10/18/23								
		10841	PFODA		05/10/26	10/18/23								
		10681A	2:3 FTCA PFPPA		11/12/25	03/21/23								
		10685A	5:3 FTCA PFPPA		11/12/25	08/23/23								
		10683A	7:3 FTCA PFPPA		11/12/25	03/21/23								
		11117	PFECHS		10/14/26	06/23/23								
		10702B	PFEESA		05/12/25	10/18/23								
		10703B	PFMBA PF5OHXA		03/21/25	10/18/23								
		10764A	PFMPA PF4OPRA		03/31/25	03/21/23								
		10768B	PFHDA 3,6 OPF4PA		03/31/25	10/18/23								
						10/18/22								

* based on date opened as specified in each SGS - Orlando SOP.

ORLD-QAC-0017-6-03-FORM-icms std prep log.xls 030819

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS A 2009 B	PFC SPIKE	11483	PFAD-D (28 concs)	Wellington Labs	08/05/17	11/05/13	1.0ppm	2mL	5mL	400ppb	95/MEOH 5% H2O	11/08/12	05/10/12	NG
		10839	N-ME-FOXA-M		08/13/16	09/13/13	50ppm	40uL						NG
		11294	FOXA-1		11/10/16	06/12/13								NG
		11249	FHXSA-1		12/29/16	11/03/13								NG
		11332	PFCHS		03/28/17	10/18/13								NG
LCMS A-B 2010	(SPIKE) 1623 CAL. Std.	10855F	PFAC-NXH	Wellington Labs	09/14/16	11/04/13	1-4 ppm	250uL	4mL	62.5/105/1250 ppb	1623 95/MEOH 5% H2O Mix	11/01/12	05/10/12	NG
		10853E	PFAC-NXI		09/14/16	11/04/13	1-10 ppm	250uL		62.5/105 ppb				NG
		10856I	PFAC-NXF		05/10/13	05/10/13	2 ppm	500uL		250ppb				NG
		10854E	PFAC-NXG		03/14/15	11/04/13	2 ppm	250uL		125 ppb				NG
		10857D	PFAC-NXJ		10/12/13	11/05/13	4-20 ppm	312uL		212/1160 ppb				NG
LCMS 2011	(SPIKE) FULL List std.	11440	PF0A-D (200 concs)	Absolute	08/05/17	10/14/13	1.0ppm	400uL	4.0mL	100ppb	95/MEOH 5% H2O	11/11/12	07/12/12	NG
		LCMS 1987	40 List ADDON #1			02/11/13	1.0ppm	400uL		100ppb				NG
		LCMS 1986	40 List ADDON #2			01/18/13	1.0ppm	400uL		100ppb				NG
		LCMS 2012	FOSE std.			05/11/13	50ppm	400uL		500ppb				NG
LCMS 2012	FOSE std.	11336	N-ET-FOSE	Wellington Labs	05/13/17	09/19/13	50ppm	200uL	2.0mL	5ppm	95/MEOH 5% H2O	11/11/12	05/11/12	NG
		11336	N-ME-FOSE		05/13/17	09/19/13	50ppm	200uL						NG

* based on date opened as specified in each SGS - Orlando SOP.

ORLD-QAC-0017-6-03-FORM-icms std prep log.xls 030819



11606 rec'd 01/13/23

CERTIFIED WEIGHT REPORT

Part Number: 64029A
Lot Number: 110922
Description: PFOA - DOD
28 components
Expiration Date: 110927
Recommended Storage: Freezer (0 °C)
Nominal Concentration (µg/mL): 1.0
NIST Test ID#: 8UTB

Solvent(s): Methanol (1 mM KOH)
2-Propanol
Lot# 102722 (98%)
32500 (2%)

SE-05 Balance Uncertainty
0.018 Flask Uncertainty

Formulated By:	Prashant Chauhan	110922	DATE
Reviewed By:	Pedro L. Rentas	110922	DATE

Volume(s) shown below were combined and diluted to (mL):
Note: All assigned values are anion concentrations.

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (+/-) µg/mL	SDS Information (Solvent Safety Info. On Attached pg.)		
									Free Acid CAS#	OSHA PEL (TWA)	LD50
1. Perfluoro-n-butanoic acid (PFBA)	99542	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-22-4	N/A	N/A
2. Perfluoro-n-pentanoic acid (PFPeA)	99543	050222	0.02	2.00	0.017	50.3	1.01	0.02	2706-90-3	N/A	N/A
3. Perfluorohexanoic acid (PFHxA)	99199	071122	0.02	2.00	0.017	50.2	1.00	0.02	307-24-4	N/A	N/A
4. Perfluoroheptanoic acid (PFHpA)	99197	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-85-9	N/A	N/A
5. Perfluorooctanoic acid (br-PFOA)*	99202	080522	0.02	2.00	0.017	50.2	1.00	0.02	335-67-1 (L)	N/A	ipr-ret 189mg/kg
6. Perfluorononanoic acid (PFNA)	99200	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-95-1	N/A	N/A
7. Perfluorodecanoic acid (PFDA)	99195	110922	0.02	2.00	0.017	50.0	1.00	0.02	335-76-2	N/A	ori-ret 57mg/kg
8. Perfluoroundecanoic acid (PFUnA)	99205	071522	0.02	2.00	0.017	50.2	1.00	0.02	2058-94-8	N/A	N/A
9. Perfluorododecanoic acid (PFDDA)	99196	071522	0.02	2.00	0.017	50.1	1.00	0.02	307-55-1	N/A	N/A
10. Perfluorotridecanoic acid (PFTDA)	99204	110922	0.02	2.00	0.017	50.1	1.00	0.02	72629-94-8	N/A	N/A
11. Perfluorotetradecanoic acid (PFTEA)	99203	033022	0.02	2.00	0.017	50.1	1.00	0.02	378-06-7	N/A	N/A
12. Perfluoro-1-octanesulfonamide (FOSA)	3677	FOSA03221	0.02	2.00	0.017	50.0	1.00	0.05	754-91-6	N/A	N/A
13. N-Methylperfluorooctanesulfonamidoacetic acid (br-NMeFOSAA)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	50.0	1.00	0.05	2355-31-9 (L)	N/A	N/A
14. N-Ethylperfluorooctanesulfonamidoacetic acid (br-NEFOSAA)*	4163	brNEFOSAA1121	0.02	2.00	0.017	50.0	1.00	0.05	2991-50-6 (L)	N/A	N/A
15. Perfluorobutanesulfonic acid (PFBS)	99194	080522	0.02	2.00	0.017	50.2	1.00	0.02	375-73-5	N/A	N/A
16. Perfluoro-1-pentanesulfonic acid (PFPeS)	99544	032422	0.02	2.00	0.017	50.1	1.00	0.02	2706-91-4	N/A	N/A
17. Perfluorohexanesulfonic acid (br-PFHxS)*	99198	071522	0.02	2.00	0.017	50.2	1.00	0.02	355-46-4 (L)	N/A	N/A
18. Perfluoro-1-heptanesulfonic acid (PFHpS)	3672	LPFHpS0822	0.021	2.10	0.017	47.6	1.00	0.05	375-92-8	N/A	N/A
19. Heptadecafluorooctanesulfonic acid (br-PFOS)*	99201	033022	0.02	2.00	0.017	50.1	1.00	0.02	1763-23-1 (L)	N/A	N/A
20. Perfluoro-1-nonanesulfonic acid (PFNS)	3957	LPFNS1021	0.021	2.10	0.017	48.0	1.01	0.05	68259-12-1	N/A	N/A
21. Perfluoro-1-decanesulfonic acid (PFDS)	3671	LPFDS0222	0.021	2.10	0.017	48.2	1.01	0.05	335-77-3	N/A	N/A
22. 1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	65271	080522	0.02	2.00	0.017	50.2	1.00	0.05	757124-72-4	N/A	N/A
23. 1H,1H,2H,2H-Perfluorooctane sulfonic acid (8:2FTS)	65272	071522	0.02	2.00	0.017	50.2	1.00	0.05	27819-97-2	N/A	N/A
24. 1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	3662	82FTS0822	0.021	2.10	0.017	47.9	1.01	0.05	39108-34-4	N/A	N/A
25. 2-(Heptafluoropropoxy)-2,3,3-tetrafluoropropanoic acid (HPFO-DA)	99666	080522	0.02	2.00	0.017	50.1	1.00	0.02	13252-13-6	N/A	N/A
26. 11-Chlorooctadecafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUds)	4165	11ClPF3OUds0522	0.021	2.12	0.017	47.1	1.00	0.05	763051-92-9	N/A	N/A
27. 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	4164	9ClPF3ONS0522	0.021	2.14	0.017	46.6	1.00	0.05	756426-58-1	N/A	N/A
Dodecafluoro-3H-4,8-dioxanonanoic acid (ADONA)	4103	NaDONA0922	0.021	2.12	0.017	47.1	1.00	0.05	919005-14-4	N/A	N/A
Perfluorooctanoic acid (linear)*	99202	080522	0.02	2.00	0.004	49.6	0.99	0.010	335-67-1 (L)	N/A	ipr-ret 189mg/kg
Perfluorooctanoic acid (branched isomer)*	99202	080522	0.02	2.00	0.004	0.6	0.01	0.001	335-67-1 (L)	N/A	ipr-ret 189mg/kg
Perfluorohexanesulfonic acid (linear)*	99198	071522	0.02	2.00	0.017	44.2	0.88	0.02	355-46-4 (L)	N/A	N/A
Perfluorohexanesulfonic acid (branched isomer)*	99198	071522	0.02	2.00	0.017	6.0	0.12	0.0021	355-46-4 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (linear)*	99201	033022	0.02	2.00	0.017	38.1	0.76	0.02	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	7.5	0.15	0.003	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	4.0	0.08	0.002	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	0.5	0.010	0.0002	1763-23-1 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	36.0	0.72	0.04	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	6.5	0.13	0.011	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	5.0	0.10	0.005	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	2.5	0.05	0.0009	2355-31-9 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4163	brNEFOSAA1121	0.02	2.00	0.017	36.6	0.73	0.04	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	7.7	0.15	0.009	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	5.3	0.11	0.005	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	0.4	0.007	0.0006	2991-50-6 (L)	N/A	N/A

*Concentrations for branched and linear isomers are based on LCMS chromatographic analysis only.

A qualitative standard (Sect. 3.19) is available for PFOA that contains the linear and branched isomers (Wellington Labs, Cat. No. T-PFOA, or equivalent). This qualitative PFOA standard must be purchased and used to identify the retention times of the branched PFOA isomers, but the linear only PFOA standard must be used for quantitation (Sect. 12.2) until a quantitative PFOA standard containing the branched and linear isomers becomes commercially available.

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
* Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
* All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
† Uncertainty Reference: Taylor, B.N., and Kuyatt, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

7.8.1
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11642 A-B
rec'd: 02/06/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture

<u>PRODUCT CODE:</u>	PFAC-MXJ
<u>LOT NUMBER:</u>	PFACMXJ0921
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/08/2021
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/14/2021
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	09/14/2026
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXJ is a solution/mixture of three native X:3 fluorotelomer carboxylic acids. The components and their concentrations are given in Table A.

The individual components have a chemical purity of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

PFACMXJ:0921 (1 of 5)
rev1

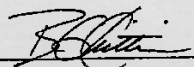
7.8.1

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Table A: PFAC-MXJ; Components and Concentrations ($\mu\text{g}/\text{mL}$; $\pm 5\%$ in methanol)

Compound	Acronym	Concentration ($\mu\text{g}/\text{mL}$)
3-Perfluoropropyl propanoic acid	FPrPA	4.00
3-Perfluoropentyl propanoic acid	FPePA	20.0
3-Perfluoroheptyl propanoic acid	FHpPA	20.0

Certified By:


B.G. Chittim, General Manager

Date: 10/02/2021
(m/mcd/yyyy)

11658 rec'd 02/20/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXI

Native Perfluorooctanesulfonamide and Perfluorooctanesulfonamidoethanol Solution/Mixture

<u>PRODUCT CODE:</u>	PFAC-MXI
<u>LOT NUMBER:</u>	PFACMXI0921
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/08/2021
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/14/2021
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	09/14/2026
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXI is a solution/mixture of two native perfluorooctanesulfonamides (FOSAs) and two native perfluorooctanesulfonamidoethanols (FOSEs). The components and their concentrations are given in Table A.

The individual components have a chemical purity of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Form# 13, Issued 2004-11-10
Revision# 9, Revised 2020-12-23

PFACMXI0921 (1 of 5)
rev0

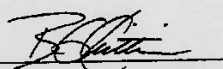
7.8.1

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Table A: PFAC-MXI; Components and Concentrations ($\mu\text{g}/\text{mL}$; $\pm 5\%$ in methanol)

Compound	Acronym	Concentration ($\mu\text{g}/\text{mL}$)	Peak Assignment in Figure 1
N-methylperfluoro-1-octanesulfonamide	N-MeFOSA	1.00	B
N-ethylperfluoro-1-octanesulfonamide	N-EtFOSA	1.00	D
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	N-MeFOSE	10.0	A
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	N-EtFOSE	10.0	C

Certified By:


B.G. Chittim, General Manager

Date: 09/23/2021
(mm/dd/yyyy)

11659 A-B rec'd: 02/20/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF

Native Replacement PFAS Solution/Mixture

<u>PRODUCT CODE:</u>	PFAC-MXF
<u>LOT NUMBER:</u>	PFACMXF0122
<u>SOLVENT(S):</u>	Methanol / Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	01/10/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	01/11/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	01/11/2025
<u>RECOMMENDED STORAGE:</u>	Refrigerate ampoule

DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonanoate (NaDONA), the major and minor components of F-53B (9CI-PF3ONS and 11CI-PF3OUdS), and GenX (HFPO-DA). The components and their concentrations are given in Table A.

The individual native components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

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Form#: 13, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

PFACMXF0122 (1 of 5)
rev0

7.8.1

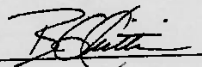
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Table A: PFAC-MXF; Components and Concentrations (ng/mL; \pm 5% in Methanol/Water (<1%))

Compound	Acronym	Concentration* (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the acid	
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid	HFPO-DA	2000		A
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
Sodium dodecafluoro-3H-4,8-dioxanonanoate	NaDONA	2000	1890	
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	2000	1870	C
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	2000	1890	D

* Concentrations have been rounded to three significant figures.

Certified By:


B.G. Chittim, General Manager

Date: 01/12/2022
(mm/dd/yyyy)

11660 rec'd: 02/20/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXG

Native Perfluoroalkyl Ether Carboxylic Acids and Sulfonate Solution/Mixture

<u>PRODUCT CODE:</u>	PFAC-MXG
<u>LOT NUMBER:</u>	PFACMXG1122
<u>SOLVENT(S):</u>	Methanol/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	11/30/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	12/01/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	12/01/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXG is a solution/mixture of three native perfluoroalkyl ether carboxylic acids and a native perfluoroalkyl ether sulfonate. The components and their concentrations are given in Table A.

The individual components all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
 Figure 1: LC/MS Data (SIR)
 Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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Form#: 13, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

PFACMXG1122 (1 of 5)
revD

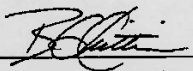
7.8.1

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Table A: PFAC-MXG; Components and Concentrations (ng/mL; $\pm 5\%$ in methanol/water (<1%))

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-4-oxapentanoic acid	PF4OPeA	2000		A
Perfluoro-5-oxahexanoic acid	PF5OHxA	2000		B
Perfluoro-3,6-dioxaheptanoic acid	3,6-OPFHpA	2000		D
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro(2-ethoxyethane)sulfonate	PFEESA	2000	1780	C

* Concentrations have been rounded to three significant figures.

Certified By: 
B.G. Chittim, General Manager

Date: 12/09/2022
(mm/dd/yyyy)

11672
rec'd: 02/23/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

**Native PFAS
Solution/Mixture**

PRODUCT CODE:	PFAC-MXH
LOT NUMBER:	PFACMXH0822
SOLVENT(S):	Methanol/Isopropanol (2%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	08/05/2022
LAST TESTED: (mm/dd/yyyy)	08/08/2022
EXPIRY DATE: (mm/dd/yyyy)	08/08/2027
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

PFAC-MXH is a solution/mixture of 11 native linear perfluoroalkylcarboxylic acids (C₄-C₁₄), eight native perfluoroalkanesulfonates (C₄, C₅, C₇, C₉, C₁₀ and C₁₂ linear; C₆ and C₈ linear and branched), three native fluorotelomer sulfonates (4:2, 6:2, and 8:2), two native linear and branched perfluorooctanesulfonamidoacetic acids, and perfluoro-1-octanesulfonamide (FOSA). The components and their concentrations are given in Table A.

The individual components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Table B: Isomeric Components and Percent Composition of N-MeFOSAA
- Table C: Isomeric Components and Percent Composition of N-EtFOSAA
- Table D: Isomeric Components and Percent Composition of PFHxSK
- Table E: Isomeric Components and Percent Composition of PFOSK
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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Form# 13, Issued 2004-11-10
Revision# 9, Revised 2020-12-23

PFACMXH0822 1 of 11
rev0

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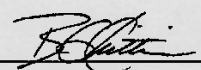
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Table A: PFAC-MXH; Components and Concentrations (ng/mL, ± 5% in methanol/isopropanol (2%)/water (<1%))

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-butanoic acid	PFBA	4000		1
Perfluoro-n-pentanoic acid	PFPeA	2000		2
Perfluoro-n-hexanoic acid	PFHxA	1000		5
Perfluoro-n-heptanoic acid	PFHpA	1000		7
Perfluoro-n-octanoic acid	PFOA	1000		11
Perfluoro-n-nonanoic acid	PFNA	1000		14
Perfluoro-n-decanoic acid	PFDA	1000		18
Perfluoro-n-undecanoic acid	PFUDA	1000		24
Perfluoro-n-dodecanoic acid	PFDoA	1000		26
Perfluoro-n-tridecanoic acid	PFTrDA	1000		27
Perfluoro-n-tetradecanoic acid	PFTeDA	1000		29
Perfluoro-1-octanesulfonamide	FOSA	1000		23
N-methylperfluorooctanesulfonamidoacetic acid ^a	N-MeFOSAA: linear isomer	760		20
	N-MeFOSAA: ∑ branched isomers	240		17
N-ethylperfluorooctanesulfonamidoacetic acid ^a	N-EtFOSAA: linear isomer	775		22
	N-EtFOSAA: ∑ branched isomers	225		21
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro-1-butanesulfonate	L-PFBS	1000	887	3
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	1000	941	6
Potassium perfluorohexanesulfonate ^c	PFHxSK: linear isomer	811	741	9
	PFHxSK: ∑ branched isomers	189	173	8
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	1000	953	12
Potassium perfluorooctanesulfonate ^d	PFOSK: linear isomer	788	732	15
	PFOSK: ∑ branched isomers	211	196	13
Sodium perfluoro-1-nonanesulfonate	L-PFNS	1000	962	19
Sodium perfluoro-1-decanesulfonate	L-PFDS	1000	965	25
Sodium perfluoro-1-dodecanesulfonate	L-PFDoS	1000	970	28
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	4000	3750	4
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	4000	3800	10
Sodium 1H,1H,2H,2H-perfluorodecanesulfonate	8:2FTS	4000	3840	16

^a See Table B for percent composition of linear and branched N-MeFOSAA isomers.
^b See Table C for percent composition of linear and branched N-EtFOSAA isomers.
^c See Table D for percent composition of linear and branched PFHxSK isomers.
^d See Table E for percent composition of linear and branched PFOSK isomers.

* Concentrations have been rounded to three significant figures.

Certified By: 
 B.G. Chittim, General Manager

Date: 08/09/2022
(mm/dd/yyyy)

11674 A-B
rec'd: 02/23/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF

Native Replacement PFAS Solution/Mixture

PRODUCT CODE:	PFAC-MXF
LOT NUMBER:	PFACMXF0122
SOLVENT(S):	Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	01/10/2022
LAST TESTED: (mm/dd/yyyy)	01/11/2022
EXPIRY DATE: (mm/dd/yyyy)	01/11/2025
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonanoate (NaDONA), the major and minor components of F-53B (9CI-PF3ONS and 11CI-PF3OUDS), and GenX (HFPO-DA). The components and their concentrations are given in Table A.

The individual native components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

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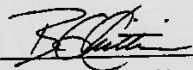
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Table A:

PFAC-MXF; Components and Concentrations (ng/mL; ± 5% in Methanol/Water (<1%))

Compound	Acronym	Concentration* (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the acid	
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid	HFPO-DA	2000		A
Sodium dodecafluoro-3H-4,8-dioxananoate	NaDONA	2000	1890	B
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	2000	1870	C
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	2000	1890	D

* Concentrations have been rounded to three significant figures.

Certified By: 
 B.G. Chittim, General Manager

Date: 01/12/2022
(mm/dd/yyyy)

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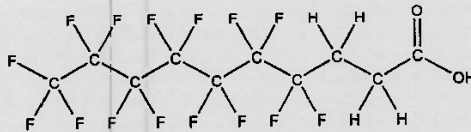
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: FHpPA
COMPOUND: 3-Perfluoroheptyl propanoic acid

LOT NUMBER: FHpPA1020

STRUCTURE:

CAS #: 812-70-4



MOLECULAR FORMULA: C₁₀H₉F₁₅O₂
CONCENTRATION: 50.0 ± 2.5 µg/mL
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 11/12/2020
EXPIRY DATE: (mm/dd/yyyy) 11/12/2025
RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 442.12
SOLVENT(S): Methanol

DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (TIC and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By: 
B.G. Chittim, General Manager

Date: 11/27/2020
(mm/dd/yyyy)

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Form#:27, Issued 2004-11-10
Revision#:8, Revised 2020-09-10

FHpPA1020 (1 of 4)
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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FPrPA

LOT NUMBER:

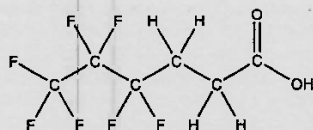
FPrPA1020

COMPOUND:

3-Perfluoropropyl propanoic acid

STRUCTURE:**CAS #:**

356-02-5

**MOLECULAR FORMULA:** $C_6H_5F_7O_2$ **MOLECULAR WEIGHT:**

242.09

CONCENTRATION: $50.0 \pm 2.5 \mu\text{g/mL}$ **SOLVENT(S):**

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/12/2020

EXPIRY DATE: (mm/dd/yyyy)

11/12/2025

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains <1% of the unsaturated 3:3 telomer acid ($C_8H_5F_7O_2$) as an impurity determined by ^{19}F NMR.

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Certified By:

B.G. Chittim, General Manager

Date: 11/27/2020

(mm/dd/yyyy)

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FPePA

LOT NUMBER:

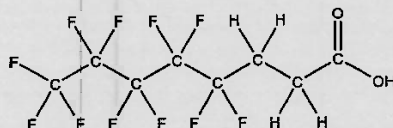
FPePA1120

COMPOUND:

3-Perfluoropentyl propanoic acid

STRUCTURE:**CAS #:**

914637-49-3

**MOLECULAR FORMULA:** $C_8H_5F_{11}O_2$ **MOLECULAR WEIGHT:**

342.11

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/11/2020

EXPIRY DATE: (mm/dd/yyyy)

11/11/2025

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains <1% of the unsaturated 5:3 telomer acid ($C_8H_3F_{11}O_2$) as an impurity determined by ^{19}F NMR.

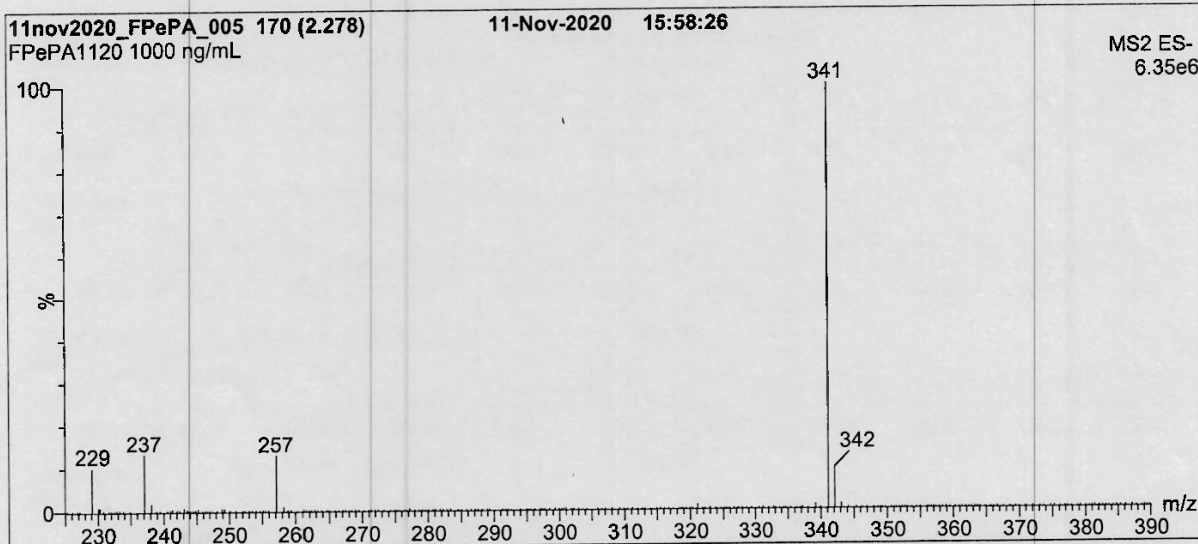
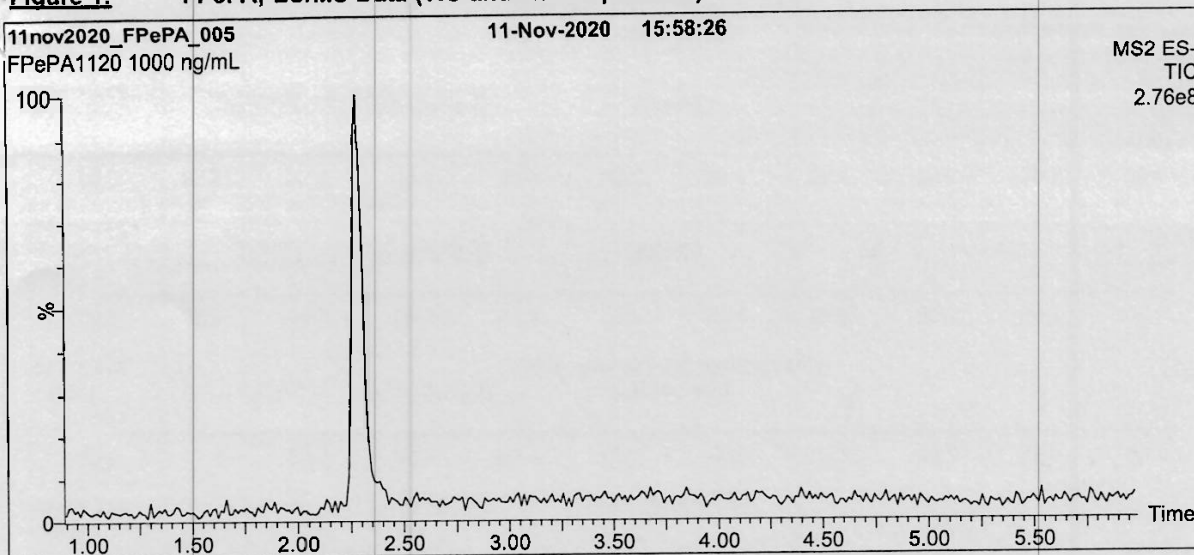
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Certified By:

B.G. Chittim, General Manager
Date: 11/27/2020
(mm/dd/yyyy)

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Figure 1: FPePA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{1a}
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% H₂O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 μ L/min

MS Parameters:

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 18.50
Desolvation Temperature ($^{\circ}$ C) = 500
Desolvation Gas Flow (L/hr) = 1000

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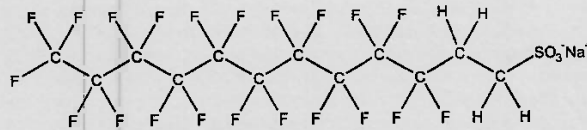


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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: 10:2FTS **LOT NUMBER:** 102FTS0221
COMPOUND: Sodium 1H,1H,2H,2H-perfluorododecanesulfonate

STRUCTURE: **CAS #:** 108026-35-3



MOLECULAR FORMULA: C₁₂H₄F₂₁SO₃Na **MOLECULAR WEIGHT:** 650.18
CONCENTRATION: 50.0 ± 2.5 µg/mL (Na salt) **SOLVENT(S):** Methanol
48.3 ± 2.4 µg/mL (10:2FTS acid)
48.2 ± 2.4 µg/mL (10:2FTS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 03/03/2021
EXPIRY DATE: (mm/dd/yyyy) 03/03/2026
RECOMMENDED STORAGE: Refrigerate ampoule

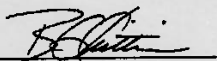
DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 03/05/2021
B.G. Chittim, General Manager (mm/dd/yyyy)

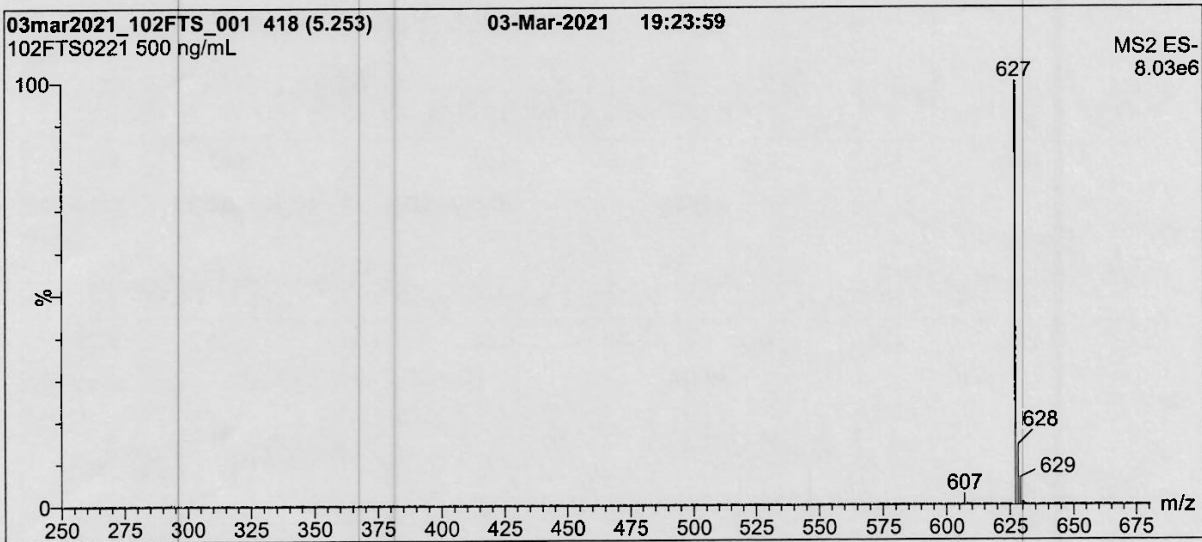
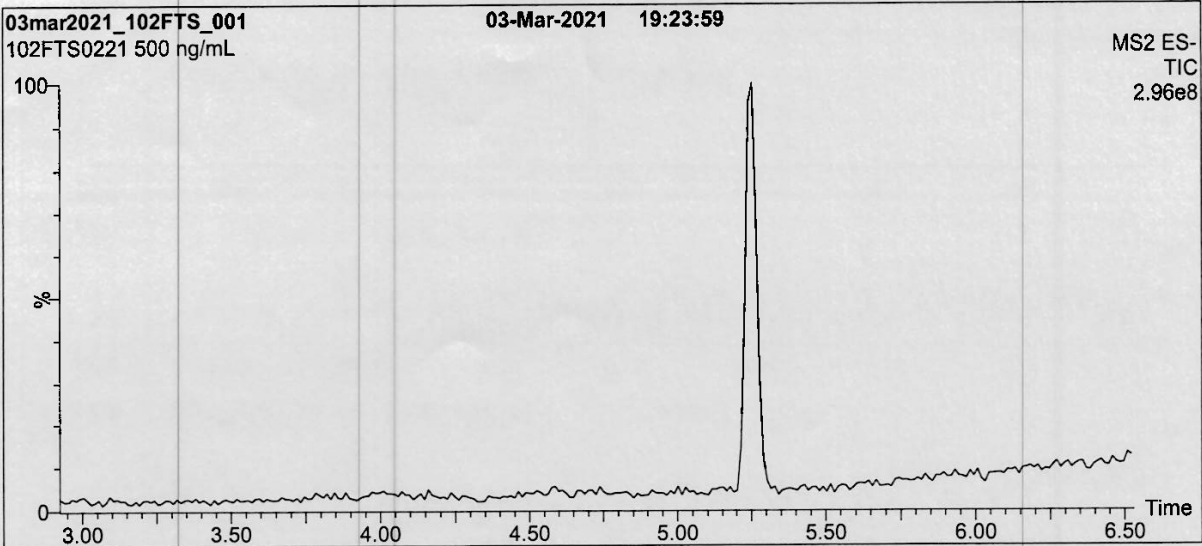
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Form#: 27, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

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Figure 1: 10:2FTS; LC/MS Data (Full Scan and Mass Spectrum)



Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% H₂O / 60% (80:20 MeOH:ACN)
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 3 min
before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 μ L/min

MS Parameters:

Experiment: Full Scan (250 - 850 amu)
Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 25.00
Desolvation Temperature ($^{\circ}$ C) = 500
Desolvation Gas Flow (L/hr) = 1000

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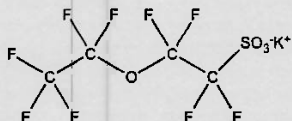


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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFEESA *rec'd 8/20/21 WPH* **LOT NUMBER:** PFEESA0520
COMPOUND: Potassium perfluoro(2-ethoxyethane)sulfonate

STRUCTURE: **CAS #:** 117205-07-9



MOLECULAR FORMULA: C₄F₈SO₄K **MOLECULAR WEIGHT:** 354.19
CONCENTRATION: 50.0 ± 2.5 µg/ml (K salt) **SOLVENT(S):** Methanol
44.6 ± 2.2 µg/ml (PFEESA acid)
44.5 ± 2.2 µg/ml (PFEESA anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/13/2020
EXPIRY DATE: (mm/dd/yyyy) 05/13/2025
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

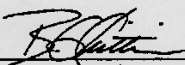
DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.2% of perfluoro-n-octanoic acid (PFOA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager **Date:** 05/29/2020
(mm/dd/yyyy)

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Revision#:7, Revised 2020-01-09

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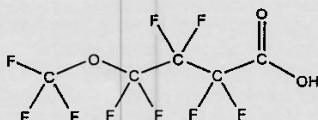
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PF5OHxA *res'd with 8/20/21* **LOT NUMBER:** PF5OHxA0320

COMPOUND: Perfluoro-5-oxahexanoic acid

SYNONYM: Perfluoro-4-methoxybutanoic acid (PFMBA)

STRUCTURE: **CAS #:** 863090-89-5



MOLECULAR FORMULA: C₅HF₉O₃ **MOLECULAR WEIGHT:** 280.05

CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol
Water (<1%)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 03/31/2020

EXPIRY DATE: (mm/dd/yyyy) 03/31/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

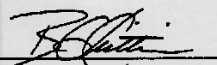
DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (TIC and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 12/21/2020
(mm/dd/yyyy)

B.G. Chittim, General Manager

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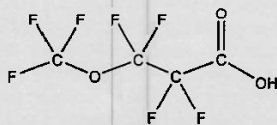
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PF4OPeA *rec'd
WPH
8/20/21* **LOT NUMBER:** PF4OPeA0320

COMPOUND: Perfluoro-4-oxapentanoic acid

SYNONYM: Perfluoro-3-methoxypropanoic acid (PFMPA)

STRUCTURE: **CAS #:** 377-73-1



MOLECULAR FORMULA: C₄HF₇O₃ **MOLECULAR WEIGHT:** 230.04

CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol
Water (<1%)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 03/31/2020

EXPIRY DATE: (mm/dd/yyyy) 03/31/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

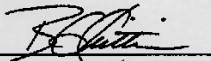
DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager

Date: 12/21/2020
(mm/dd/yyyy)

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10765 A-13



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

3,6-OPFHpA

*rec'd
WPH
8/20/21*

LOT NUMBER:

36OPFHpA0320

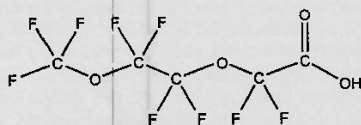
COMPOUND:

Perfluoro-3,6-dioxaheptanoic acid

STRUCTURE:

CAS #:

151772-58-6



MOLECULAR FORMULA:

C₆H₂F₈O₄

MOLECULAR WEIGHT:

296.04

CONCENTRATION:

50.0 ± 2.5 µg/ml

SOLVENT(S):

Methanol
Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

03/31/2020

EXPIRY DATE: (mm/dd/yyyy)

03/31/2025

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim
B.G. Chittim, General Manager

Date: 05/27/2020
(mm/dd/yyyy)

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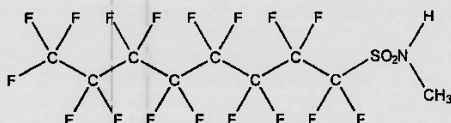
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: N-MeFOSA-M
COMPOUND: N-methylperfluoro-1-octanesulfonamide

LOT NUMBER: NMeFOSA0721M

STRUCTURE:

CAS #: 31506-32-8



rec'd
WPA
10/5/21

MOLECULAR FORMULA: C₉H₄F₁₇NO₂S
CONCENTRATION: 50.0 ± 2.5 µg/mL
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 08/03/2021
EXPIRY DATE: (mm/dd/yyyy) 08/03/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 513.17
SOLVENT(S): Methanol

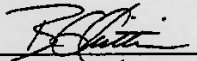
DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By: 
B.G. Chittim, General Manager

Date: 08/04/2021
(mm/dd/yyyy)

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Form#: 27, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

NMeFOSA0721M (1 of 4)
rev0

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-EtFOSA-M

10837

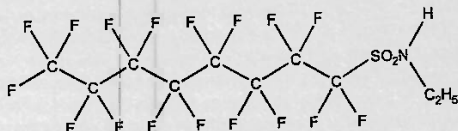
LOT NUMBER: NEtFOSA0821M

COMPOUND:

N-ethylperfluoro-1-octanesulfonamide

STRUCTURE:

CAS #: 4151-50-2



MOLECULAR FORMULA:

C₁₀H₉F₁₇NO₂S

MOLECULAR WEIGHT:

527.20

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

08/12/2021

EXPIRY DATE: (mm/dd/yyyy)

08/12/2026

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)

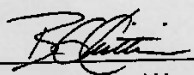
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:


B.G. Chittim, General Manager

Date: 08/16/2021

(mm/dd/yyyy)

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CERTIFICATE OF ANALYSIS DOCUMENTATION

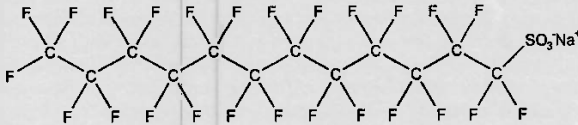
10840

PRODUCT CODE: L-PFDoS
COMPOUND: Sodium perfluoro-1-dodecanesulfonate

LOT NUMBER: LPFDoS0721

STRUCTURE:

CAS #: 1260224-54-1



MOLECULAR FORMULA: C₁₂F₂₅SO₃Na
CONCENTRATION: 50.0 ± 2.5 µg/mL (Na salt)
48.5 ± 2.4 µg/mL (PFDoS acid)
48.4 ± 2.4 µg/mL (PFDoS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 07/09/2021
EXPIRY DATE: (mm/dd/yyyy) 07/09/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 722.14
SOLVENT(S): Methanol


DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~0.2% of perfluoro-n-dodecanoic acid (PFDoA).

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Certified By: 
B.G. Chittim, General Manager
Date: 07/16/2021
(mm/dd/yyyy)

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LPFDoS0721 (1 of 4)
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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFODA

10847 NS 01/18/23

LOT NUMBER:

PFODA0821

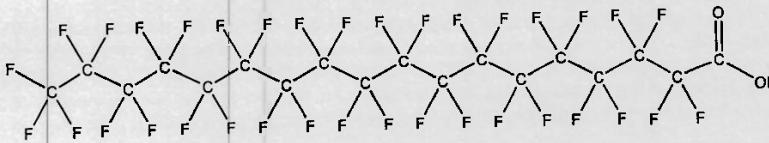
COMPOUND:

Perfluoro-n-octadecanoic acid

STRUCTURE:

CAS #:

16517-11-6



MOLECULAR FORMULA:

C₁₈H₃₅O₂

MOLECULAR WEIGHT:

914.14

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol
Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

09/03/2021

EXPIRY DATE: (mm/dd/yyyy)

09/03/2026

RECOMMENDED STORAGE:

Store ampoule at ambient temperature in a dark place

DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- The solubility of this product in methanol is very sensitive to storage conditions and solvent composition. The stated validity period applies to the sealed ampoules stored at ambient temperature.

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Certified By:

B.G. Chittim, General Manager

Date: 09/28/2021

(mm/dd/yyyy)

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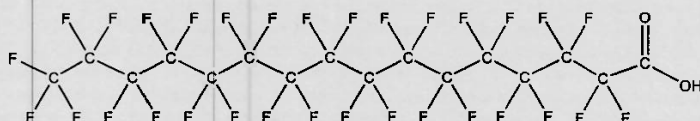
CERTIFICATE OF ANALYSIS DOCUMENTATION

10842 * NG 01/18/23

PRODUCT CODE: PFHxDA **LOT NUMBER:** PFHxDA0421

COMPOUND: Perfluoro-n-hexadecanoic acid

STRUCTURE: **CAS #:** 67905-19-5



MOLECULAR FORMULA: C₁₆HF₃₁O₂ **MOLECULAR WEIGHT:** 814.13
CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol
 Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/07/2021
EXPIRY DATE: (mm/dd/yyyy) 05/07/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

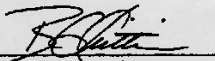
DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

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Certified By:  **Date:** 05/25/2021
 B.G. Chittim, General Manager (mm/dd/yyyy)

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Form#:27, Issued 2004-11-10
 Revision#:9, Revised 2020-12-23

PFHxDA0421 (1 of 4)
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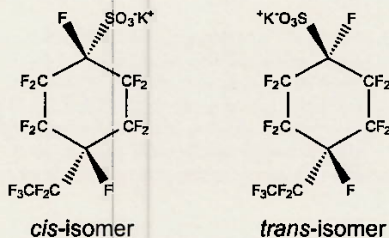
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CERTIFICATE OF ANALYSIS DOCUMENTATION

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PRODUCT CODE: PFECHS **LOT NUMBER:** PFECHS1021
COMPOUND: Potassium perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)

STRUCTURE: **CAS #:** 335-24-0



MOLECULAR FORMULA: C₈F₁₆SO₃K **MOLECULAR WEIGHT:** 500.22
CONCENTRATION: 50.0 ± 2.5 µg/mL (K salt) **SOLVENT(S):** Methanol
 46.2 ± 2.3 µg/mL (PFECHS acid)
 46.1 ± 2.3 µg/mL (PFECHS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 10/14/2021
EXPIRY DATE: (mm/dd/yyyy) 10/14/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

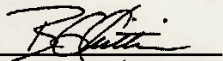
DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains a mixture of the *cis/trans* isomers of PFECHS at a ratio of 1:1.27 (*cis:trans*).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 10/15/2021
 B.G. Chittim, General Manager (mm/dd/yyyy)

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Form#:27, Issued 2004-11-10
 Revision#:9, Revised 2020-12-23

PFECHS1021 (1 of 4)
 rev0

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

L-PFPrS

LOT NUMBER:

LPFPrS0721

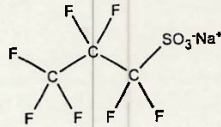
COMPOUND:

Sodium perfluoro-1-propanesulfonate

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

C₃F₇SO₃Na

MOLECULAR WEIGHT:

272.07

CONCENTRATION:

50.0 ± 2.5 µg/mL (Na salt)

46.0 ± 2.3 µg/mL (PFPrS acid)

45.8 ± 2.3 µg/mL (PFPrS anion)

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

07/12/2021

EXPIRY DATE: (mm/dd/yyyy)

07/12/2026

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:

B.G. Chittim, General Manager

Date: 08/04/2021

(mm/dd/yyyy)

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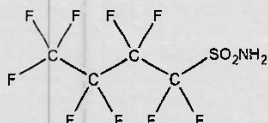
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: FBSA-I
COMPOUND: Perfluoro-1-butananesulfonamide

LOT NUMBER: FBSA11211

STRUCTURE:

CAS #: 30334-69-1



MOLECULAR FORMULA: C4H2F9NO2S
CONCENTRATION: 50.0 ± 2.5 µg/mL
CHEMICAL PURITY: >98%
LAST TESTED: 11/10/2021
EXPIRY DATE: 11/10/2026
RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 299.11
SOLVENT(S): Isopropanol

DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: [Signature] Date: 11/10/2021
B.G. Chittim, General Manager

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Revision#: 9, Revised 2020-12-23

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PRODUCT CODE:

FHxSA-I

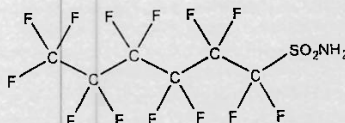
LOT NUMBER: FHxSA12211

COMPOUND:

Perfluoro-1-hexanesulfonamide

CAS #: 41997-13-1

STRUCTURE:



MOLECULAR FORMULA: C₆H₂F₁₃NO₂S

MOLECULAR WEIGHT: 399.13

CONCENTRATION: 50.0 ± 2.5 µg/mL

SOLVENT(S): Isopropanol

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 12/29/2021

EXPIRY DATE: (mm/dd/yyyy) 12/29/2026

RECOMMENDED STORAGE: Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager

Date: 01/10/2022
(mm/dd/yyyy)

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-MeFOSE-M

LOT NUMBER:

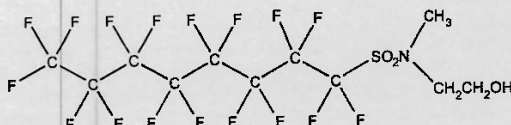
NMeFOSE0522M

COMPOUND:

2-(N-methylperfluoro-1-octanesulfonamido)ethanol

STRUCTURE:**CAS #:**

24448-09-7

**MOLECULAR FORMULA:**C₁₁H₈F₁₇NO₃S**MOLECULAR WEIGHT:**

557.22

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

05/13/2022 (HRGC/LRMS)

05/13/2022 (LC/MS)

EXPIRY DATE: (mm/dd/yyyy)

05/13/2027

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)

Figure 2: LC/MS Data (Full Scan and Mass Spectrum)

Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- In order to see the molecular ion (adduct free), the LC mobile phase should be free of ammonium acetate buffer.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager
Date: 06/14/2022
(mm/dd/yyyy)

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DOCUMENTATION

MPFAC-HIF-ES

**Mass-Labelled PFAS Extraction
Standard Solution/Mixture**

PRODUCT CODE: MPFAC-HIF-ES
LOT NUMBER: MPFACHIFES0822
SOLVENT(S): Methanol/Isopropanol (1%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 07/20/2022
LAST TESTED: (mm/dd/yyyy) 08/02/2022
EXPIRY DATE: (mm/dd/yyyy) 08/02/2025
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

MPFAC-HIF-ES is a solution/mixture of ten mass-labelled (¹³C) perfluoroalkylcarboxylic acids (C₄-C₁₂, C₁₄), three mass-labelled (¹³C) perfluoroalkanesulfonates (C₄, C₆, and C₈), three mass-labelled (one ¹³C and two ²H) perfluoro-1-octanesulfonamides, three mass-labelled (¹³C) fluorotelomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (²H) perfluorooctanesulfonamidoacetic acids, two mass-labelled (²H) perfluorooctane-sulfonamidoethanols, and mass-labelled (¹³C) hexafluoropropylene oxide dimer acid (GenX, M3HFPO-DA). The components and their concentrations are given in Table A.

The individual ¹³C-labelled components all have chemical purities >98% and isotopic purities of ≥99%. The individual ²H-labelled components all have chemical purities >98% and isotopic purities of ≥98%.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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Form# 13, Issued 2004-11-10
Revision#9, Revised 2020-12-23

MPFACHIFES0822 (1 of 7)
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Table A: MPFAC-HIF-ES; Components and Concentrations
(ng/mL, ± 5% in methanol/isopropanol (1%)/water (<1%))

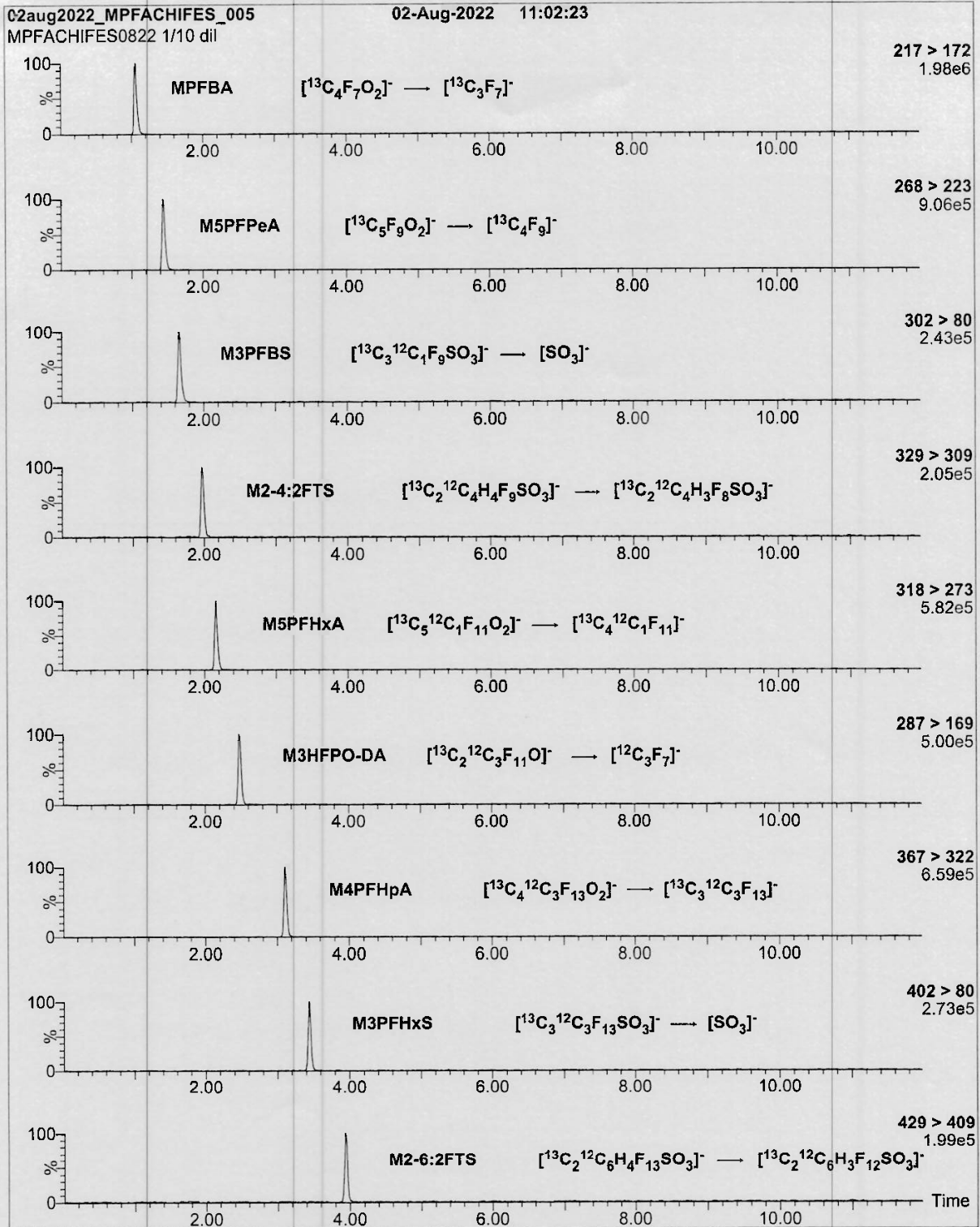
Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-(¹³ C ₄)butanoic acid	MPFBA	2000		1
Perfluoro-n-(¹³ C ₅)pentanoic acid	M5PFPeA	1000		2
Perfluoro-n-(1,2,3,4,6- ¹³ C ₅)hexanoic acid	M5PFHxA	500		5
Perfluoro-n-(1,2,3,4- ¹³ C ₆)heptanoic acid	M4PFHpA	500		7
Perfluoro-n-(¹³ C ₈)octanoic acid	M8PFOA	500		10
Perfluoro-n-(¹³ C ₉)nonanoic acid	M9PFNA	250		11
Perfluoro-n-(1,2,3,4,5,6- ¹³ C ₁₀)decanoic acid	M6PFDA	250		14
Perfluoro-n-(1,2,3,4,5,6,7- ¹³ C ₁₁)undecanoic acid	M7PFUdA	250		17
Perfluoro-n-(1,2- ¹³ C ₁₂)dodecanoic acid	MPFDoA	250		19
Perfluoro-n-(1,2- ¹³ C ₁₄)tetradecanoic acid	M2PFTeDA	250		23
Perfluoro-1-(¹³ C ₈)octanesulfonamide	M8FOSA	500		18
N-methyl-d ₃ -perfluoro-1-octanesulfonamide	d-N-MeFOSA	500		21
N-ethyl-d ₅ -perfluoro-1-octanesulfonamide	d-N-EtFOSA	500		24
N-methyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000		15
N-ethyl-d ₅ -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000		16
2-(N-methyl-d ₃ -perfluoro-1-octanesulfonamido)ethan-d ₃ -ol	d7-N-MeFOSE	5000		20
2-(N-ethyl-d ₅ -perfluoro-1-octanesulfonamido)ethan-d ₅ -ol	d9-N-EtFOSE	5000		22
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)(¹³ C ₃)propanoic acid	M3HFPO-DA	2000		6
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Sodium perfluoro-1-(2,3,4- ¹³ C ₃)butanesulfonate	M3PFBS	500	466	3
Sodium perfluoro-1-(1,2,3- ¹³ C ₃)hexanesulfonate	M3PFHxS	500	474	8
Sodium perfluoro-1-(¹³ C ₈)octanesulfonate	M8PFOS	500	479	12
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)hexanesulfonate	M2-4:2FTS	1000	938	4
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)octanesulfonate	M2-6:2FTS	1000	951	9
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)decanesulfonate	M2-8:2FTS	1000	960	13

* Concentrations have been rounded to three significant figures.

Certified By: 
B.G. Chittim, General Manager

Date: 08/02/2022
(mm/dd/yyyy)

Figure 2: MPFAC-HIF-ES; LC/MS/MS Data (Selected MRM Transitions)



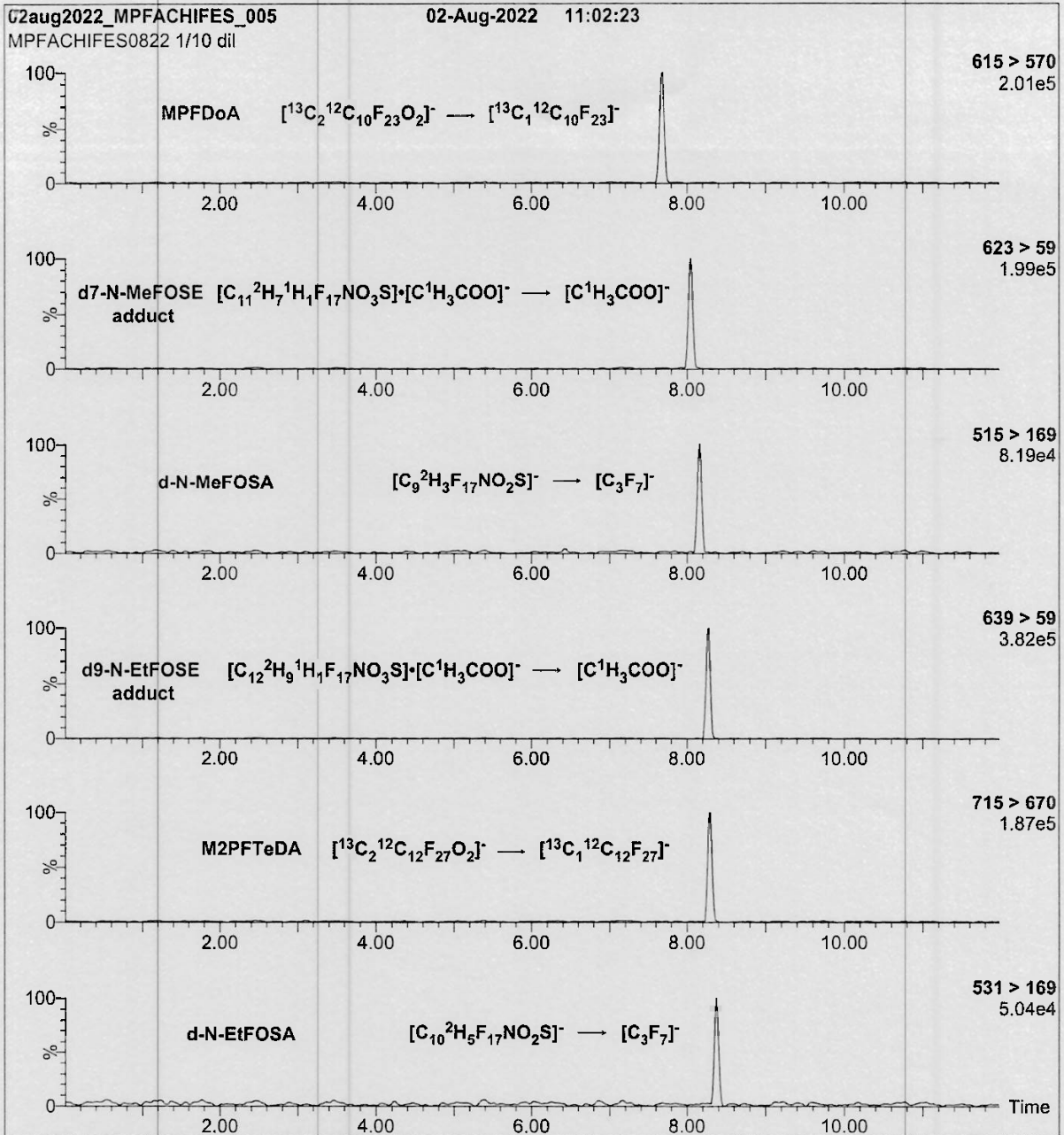
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Revision#: 9, Revised 2020-12-23

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rev0

7.8.1

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Figure 2: MPFAC-HIF-ES; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: On-column (MPFAC-HIF-ES)
 Mobile phase: Same as Figure 1
 Flow: 300 $\mu\text{L}/\text{min}$

MS Parameters:

Collision Gas (mbar) = 3.24e-3
 Collision Energy (eV) = 4-64 (variable)

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WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-IS

Mass-Labelled Perfluoroalkyl Substance
Injection Standard Solution/Mixture

<u>PRODUCT CODE:</u>	MPFAC-HIF-IS
<u>LOT NUMBER:</u>	MPFACHIFIS0921
<u>SOLVENT(S):</u>	Methanol/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/07/2021
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/07/2021
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	09/07/2026
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

MPFAC-HIF-IS is a solution/mixture of five mass-labelled (¹³C) perfluoroalkylcarboxylic acids (C₄, C₆, C₈-C₁₀) and two mass-labelled (¹⁸O and ¹³C) perfluoroalkanesulfonates (C₈ and C₉). The components and their concentrations are given in Table A.

The individual mass-labelled perfluoroalkylcarboxylic acids and mass-labelled perfluoroalkanesulfonates all have chemical purities of >98% and isotopic purities of ≥99% per ¹³C or >94% per ¹⁸O.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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Form#: 13, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23


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Table A: MPFAC-HIF-IS; Components and Concentrations (ng/mL, ± 5% in methanol/water (<1%))

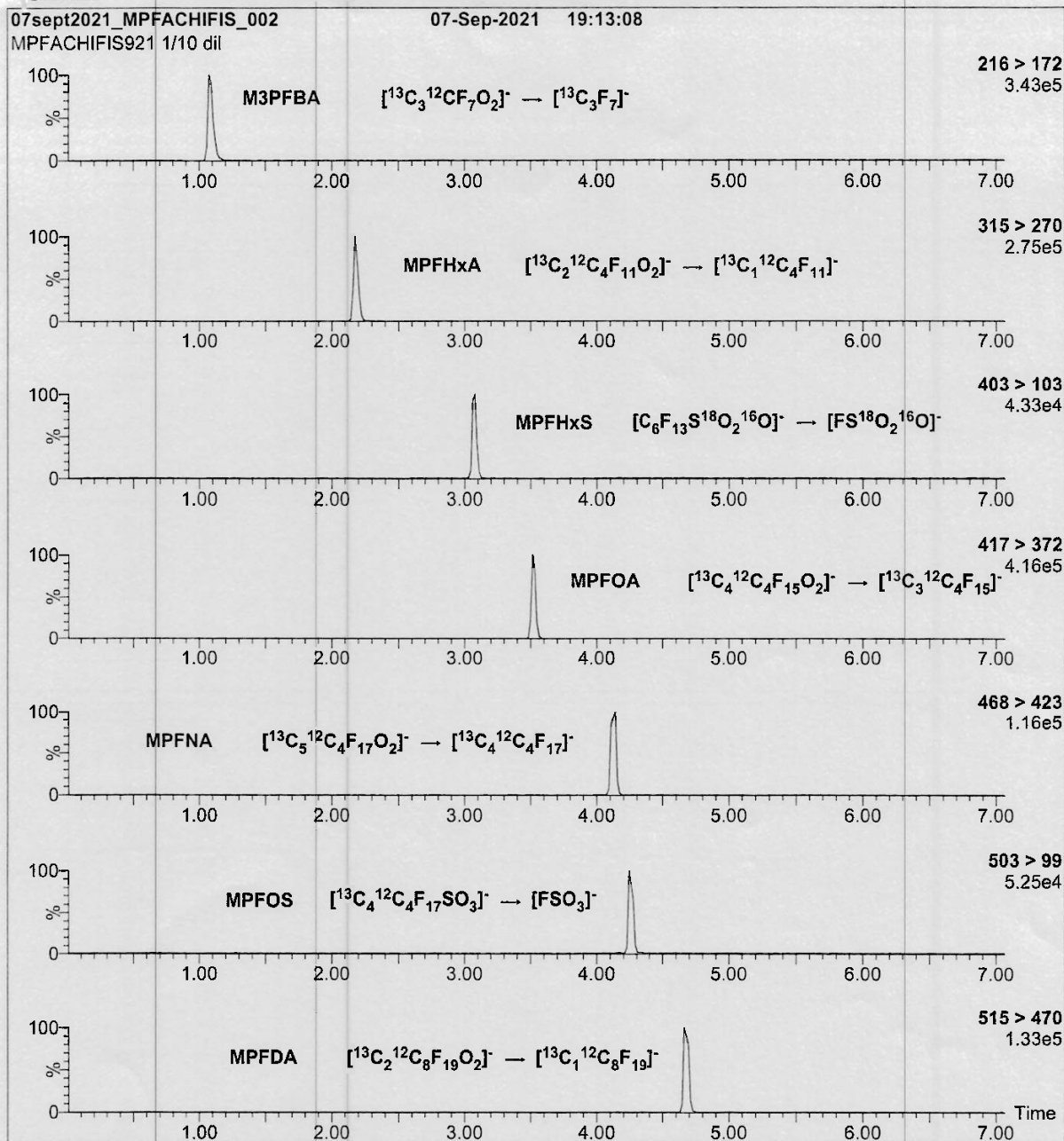
Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-(2,3,4- ¹³ C ₃)butanoic acid	M3PFBA	1000		1
Perfluoro-n-(1,2- ¹³ C ₂)hexanoic acid	MPFHxA	500		2
Perfluoro-n-(1,2,3,4- ¹³ C ₄)octanoic acid	MPFOA	500		4
Perfluoro-n-(1,2,3,4,5- ¹³ C ₅)nonanoic acid	MPFNA	250		5
Perfluoro-n-(1,2- ¹³ C ₂)decanoic acid	MPFDA	250		7
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Sodium perfluoro-1-hexane(¹⁸ O ₂)sulfonate	MPFHxS	500	474	3
Sodium perfluoro-1-(1,2,3,4- ¹³ C ₄)octanesulfonate	MPFOS	500	479	6

* Concentrations have been rounded to three significant figures.

Certified By: 
B.G. Chittim, General Manager

Date: 10/13/2021
(mm/dd/yyyy)

Figure 2: MPFAC-HIF-IS; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: On-column (MPFAC-HIF-IS)

Mobile phase: Same as Figure 1

Flow: 300 $\mu\text{L}/\text{min}$

MS Parameters:

Collision Gas (mbar) = 3.18e-3

Collision Energy (eV) = 4-64 (variable)

SGS - ORLANDO

Date/Time: 03/31/23 09:00
Started (mm/dd/yy 24:00)

Date/Time: 4/4/23 10:06
Finished (mm/dd/yy 24:00)

Batch# OP96191

Ext. By: GH

SPE LIQUID SAMPLE PREP REPORT

Method: EPA 1633 Draft (QSM)

Balance ID: _____

Conc. By: _____ Viald By: _____

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount (ul)	Spike Amount (ul)	Final Volume (ml)	Manifold ID	Comments
OP 96191 MB	/	300	7	N/A	25		5	AG	
OP 96191 BS	/	500	7			200			
OP 96191 LLBS	/	500	7			80			
FC 3825-1	2	530	7	N/A	25		5	AG	
Test MB	/	125	7	N/A	25		5	AG	
Test BS LLBS	/	125	7	N/A	25	80	5	AG	different cartridge
OP FC 3825-1 MS	3	530	7	N/A	25	200	5	AG	
OP MSD									
OP DUP									

Comments:

EIS (SURR) ID: 11670I-J+11703A, B Conc: 250-500 ng/ml Exp. Date: 03/23/24 Inj. By: GH Ver. By: DBL
 SPIKE.1 ID: LCMS20969 Conc: VARIED Exp. Date: 09/30/23 Inj. By: GH Ver. By: DBL
 SPIKE.2 ID: _____ Conc: _____ Exp. Date: _____ Inj. By: _____ Ver. By: _____
 NIS (ISTD) ID: 11671 AC Conc: 250-1000 ng/ml Exp. Date: 3/23/24 Inj. By: MW Ver. By: JR

TurboVap Temp (Therm ID): _____ N-Evap Temp (Therm ID): _____
 Observed Temp °C: _____ Corr. Temp °C: _____ Observed Temp °C: _____ Corr. Temp °C: _____

Methanol Lot # 224231 1% NH4OH MeOH PE338 SPE Lot # 0686211-04
 Water Lot# 0995448 0.3M Formic Acid PE333 Syringe filter Lot #
 Acetic Acid# 194003 3% NH4OH Sol pH paper Lot# 215322
 0.1M Formic PE336 5% Formic Acid Carbon Lot# 160898

Relinquished By: Daniela Valenzuela
 Accepted By: MW

Date: 03/31/23
 Date: 4/4/23

7.9.1
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