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Automated Report

Technical Report for

AECOM, INC.

N6274223F0104 RH Fire Suppression System

60697810

SGS Job Number: FC5487

Sampling Date: 04/21/23



Report to:

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Total number of pages in report: 790



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: FC5487

N6274223F0104 RH Fire Suppression System
Project No: 60697810

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FC5487-1	04/21/23	08:50	WMH	04/22/23	AQ Ground Water	AF-RHMW225401-WGN01B-2304W3

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM, INC.

Job No: FC5487

Site: N6274223F0104 RH Fire Suppression System

Report Date: 5/2/2023 10:38:34 PM

On 04/22/2023, 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 0.3 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC5487 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: OP96579

Sample(s) FC5240-5MS, FC5240-5MSD were used as the QC samples indicated.

Matrix Spike Recovery(s) for 4:2 Fluorotelomer sulfonate, 6:2 Fluorotelomer sulfonate, Perfluorobutanesulfonic acid, Perfluoroheptanesulfonic acid, Perfluoroheptanoic acid, Perfluorohexanesulfonic acid, Perfluorohexanoic acid, Perfluorooctanesulfonic acid, Perfluorooctanoic acid, Perfluoropentanoic acid are outside control limits. Outside control limits due to high level in sample relative to spike amount.

Matrix Spike Duplicate Recovery(s) for 6:2 Fluorotelomer sulfonate, Perfluorobutanesulfonic acid, Perfluorobutanoic acid, Perfluoroheptanesulfonic acid, Perfluoroheptanoic acid, Perfluorohexanesulfonic acid, Perfluorohexanoic acid, Perfluorooctanoic acid, Perfluoropentanesulfonic acid, Perfluoropentanoic acid are outside control limits. Outside control limits due to high level in sample relative to spike amount.

RPD(s) for MSD for Perfluorotridecanoic acid, Perfluoroundecanoic acid are outside control limits for sample OP96579-MSD.

Probable cause is due to sample non-homogeneity.

OP96579-MB for d7-MeFOSE: Outside control limits.

OP96579-MSD for d7-MeFOSE: Outside control limits.

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: FC5487
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 04/21/23



Lab Sample ID	Client Sample ID	Result/ Analyte	LOQ	LOD	Units	Method
---------------	------------------	--------------------	-----	-----	-------	--------

FC5487-1 AF-RHMW225401-WGN01B-2304W3

Perfluoropentanoic acid	1.8 J	7.4	1.9	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	1.4 J	3.7	1.9	ng/l	EPA DRAFT 1633
Perfluoroheptanoic acid	1.2 J	3.7	1.9	ng/l	EPA DRAFT 1633
Perfluorooctanoic acid	1.8 J	3.7	0.93	ng/l	EPA DRAFT 1633
Perfluorobutanesulfonic acid	0.74 J	3.7	1.9	ng/l	EPA DRAFT 1633
Perfluorohexanesulfonic acid	1.5 J	3.7	1.9	ng/l	EPA DRAFT 1633
Perfluorooctanesulfonic acid	2.2 J	3.7	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-2304W3		
Lab Sample ID:	FC5487-1	Date Sampled:	04/21/23
Matrix:	AQ - Ground Water	Date Received:	04/22/23
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	6Q17114.D	1	04/29/23 04:02	MV	04/26/23 11:00	OP96579	S6Q258
Run #2							

Run #	Initial Volume	Final Volume
Run #1	540 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.7 U	15	3.7	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8	7.4	1.9	0.87	ng/l	J
307-24-4	Perfluorohexanoic acid	1.4	3.7	1.9	0.46	ng/l	J
375-85-9	Perfluoroheptanoic acid	1.2	3.7	1.9	0.46	ng/l	J
335-67-1	Perfluorooctanoic acid	1.8	3.7	0.93	0.46	ng/l	J
375-95-1	Perfluorononanoic acid	1.9 U	3.7	1.9	0.56	ng/l	
335-76-2	Perfluorodecanoic acid	1.9 U	3.7	1.9	0.46	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	3.7	1.9	0.56	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	3.7	1.9	0.56	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	3.7	1.9	0.78	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.9 U	3.7	1.9	0.46	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	0.74	3.7	1.9	0.46	ng/l	J
2706-91-4	Perfluoropentanesulfonic acid	3.7 U	4.6	3.7	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.5	3.7	1.9	0.65	ng/l	J
375-92-8	Perfluoroheptanesulfonic acid	1.9 U	3.7	1.9	0.46	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	2.2	3.7	1.9	0.50	ng/l	J
68259-12-1	Perfluorononanesulfonic acid	1.9 U	3.7	1.9	0.53	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	3.7	1.9	0.59	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.7 U	4.6	3.7	1.1	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.4 U	19	7.4	3.0	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.4 U	19	7.4	3.2	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.4 U	19	7.4	3.8	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.9 U	3.7	1.9	0.62	ng/l	
31506-32-8	MeFOSA	3.7 U	7.4	3.7	0.93	ng/l	
4151-50-2	EtFOSA	3.7 U	7.4	3.7	0.93	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-2304W3		
Lab Sample ID:	FC5487-1	Date Sampled:	04/21/23
Matrix:	AQ - Ground Water	Date Received:	04/22/23
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	3.7 U	4.6	3.7	0.93	ng/l	
2991-50-6	EtFOSAA	3.7 U	4.6	3.7	1.2	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	19 U	37	19	4.1	ng/l	
1691-99-2	EtFOSE	19 U	37	19	6.9	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.9 U	3.7	1.9	0.93	ng/l	
919005-14-4	ADONA	3.7 U	7.4	3.7	1.7	ng/l	
377-73-1	PFMPA	1.9 U	7.4	1.9	0.93	ng/l	
863090-89-5	PFMBA	3.7 U	7.4	3.7	1.1	ng/l	
151772-58-6	NFDHA	3.7 U	7.4	3.7	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.7 U	7.4	3.7	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.7 U	7.4	3.7	1.6	ng/l	
113507-82-7	PFEESA	1.9 U	7.4	1.9	0.72	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.3 U	19	9.3	4.2	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	93	19	8.1	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	93	19	7.3	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
---------	------------------------	--------	--------	--------

	13C4-PFBA	101%		20-150%
	13C5-PFPeA	104%		20-150%
	13C5-PFHxA	101%		20-150%
	13C4-PFHpA	107%		20-150%
	13C8-PFOA	99%		20-150%
	13C9-PFNA	107%		20-150%
	13C6-PFDA	103%		20-150%
	13C7-PFUnDA	109%		20-150%
	13C2-PFDoDA	99%		20-150%
	13C2-PFTeDA	77%		20-150%
	13C3-PFBS	105%		20-150%
	13C3-PFHxS	102%		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

4.1
4

Report of Analysis

Client Sample ID:	AF-RHMW225401-WGN01B-2304W3	
Lab Sample ID:	FC5487-1	Date Sampled: 04/21/23
Matrix:	AQ - Ground Water	Date Received: 04/22/23
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	99%		20-150%
	13C8-FOSA	75%		20-150%
	d3-MeFOSA	61%		20-150%
	d5-EtFOSA	61%		20-150%
	d3-MeFOSAA	109%		20-150%
	d5-EtFOSAA	104%		20-150%
	d7-MeFOSE	53%		20-150%
	d9-EtFOSE	54%		20-150%
	13C2-4:2FTS	109%		20-180%
	13C2-6:2FTS	102%		20-180%
	13C2-8:2FTS	97%		20-180%
	13C3-HFPO-DA	103%		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

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

FC5487
 SGS - ORLANDO JOB

COC #: 2304W3AFSG07

PAGE 1 OF 1

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;">EM 04/21/23</div> <div style="position: absolute; top: 50%; left: 50%; transform: translate(-50%, -50%); opacity: 0.5;"> INITIAL ASSESSMENT LABEL VERIFICATION </div>										DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge LIQ - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe								
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 Tanji		Email: watson.tanji@aecom.com		Fax #																						
Phone #: 303-796-4624 / 808-954-4512				Client Purchase Order #				PFAS EPA Draft 1633																		
Sampler(s) Name(s) (Printed)			Sampler 1: Eli Parilla			Sampler 2: Chris Womach																				
SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION			CONTAINER INFORMATION											LAB USE ONLY										
		DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	PC1	NH3	HNO3	H2SO4	NaOH/ZnAc	DI WATER	MICH											
1	AF-RHMW225401-WGN01B-2304W3	04/21/23	0850	Chris Womach	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 United AWB: 016-48351575																				
Rush T/A Data Available VIA Email or Lablink																										
Sample Custody must be documented below each time samples change possession, including courier delivery.																										
Relinquished by Sampler/Affiliation		Date Time:		Received By/Affiliation		Date Time:		Relinquished By/Affiliation		Date Time:		Received By/Affiliation		Date Time:												
1 Eli Parilla/AECOM		04/16/23		2 Hannah Bumbo/AECOM		4/21/23		3 Hannah Bumbo/AECOM		4/21/23		4 [Signature]/AECOM		4/21/23												
5				6				7				8														
Lab Use Only: Cooler Temperature (s) Celsius (corrected): 0.476																										

5.1 5



SGS Sample Receipt Summary

Job Number: FC5487

Client: AECOM

Project: N6274223F0104 RH Fire Suppression System

Date / Time Received: 4/22/2023 4:00:00 PM

Delivery Method: United Cargo/Airspace

Airbill #'s: 016-48351575

Therm ID: IR 1;

Therm CF: -0.1;

of Coolers: 1

Cooler Temps (Raw Measured) °C: Cooler 1: (0.4);

Cooler Temps (Corrected) °C: Cooler 1: (0.3);

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: 4/22/2023 4:00:00 PM

Reviewer: CD

Date: 4/24/2023

FC5487: Chain of Custody

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QC Evaluation: DOD QSM5.x Limits

Job Number: FC5487
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 04/21/23

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 FC5487

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5

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: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q258-IBLK	6Q17059.D	1	04/28/23	MV	n/a	n/a	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5487-1

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	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	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	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	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Instrument Blank

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q258-IBLK	6Q17059.D	1	04/28/23	MV	n/a	n/a	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5487-1

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.020	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.10	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	99% 20-150%
	13C5-PFPeA	98% 20-150%
	13C5-PFHxA	95% 20-150%
	13C4-PFHpA	100% 20-150%
	13C8-PFOA	97% 20-150%
	13C9-PFNA	95% 20-150%
	13C6-PFDA	109% 20-150%
	13C7-PFUnDA	104% 20-150%
	13C2-PFDoDA	102% 20-150%
	13C2-PFTeDA	97% 20-150%
	13C3-PFBS	105% 20-150%
	13C3-PFHxS	101% 20-150%
	13C8-PFOS	115% 20-150%
	13C8-FOSA	112% 20-150%
	d3-MeFOSA	106% 20-150%
	d5-EtFOSA	106% 20-150%
	d3-MeFOSAA	112% 20-150%
	d5-EtFOSAA	111% 20-150%
	d7-MeFOSE	103% 20-150%
	d9-EtFOSE	109% 20-150%
	13C2-4:2FTS	102% 20-180%
	13C2-6:2FTS	109% 20-180%
	13C2-8:2FTS	108% 20-180%
	13C3-HFPO-DA	102% 20-150%

6.1.1

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Continuing Calibration Blank

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q258-ICCB	6Q17104.D	1	04/29/23	MV	n/a	n/a	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5487-1

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	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	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	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	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Continuing Calibration Blank

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q258-ICCB	6Q17104.D	1	04/29/23	MV	n/a	n/a	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5487-1

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.020	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.10	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	100% 20-150%
	13C5-PFPeA	101% 20-150%
	13C5-PFHxA	101% 20-150%
	13C4-PFHpA	99% 20-150%
	13C8-PFOA	96% 20-150%
	13C9-PFNA	105% 20-150%
	13C6-PFDA	107% 20-150%
	13C7-PFUnDA	108% 20-150%
	13C2-PFDoDA	107% 20-150%
	13C2-PFTeDA	99% 20-150%
	13C3-PFBS	102% 20-150%
	13C3-PFHxS	103% 20-150%
	13C8-PFOS	109% 20-150%
	13C8-FOSA	106% 20-150%
	d3-MeFOSA	106% 20-150%
	d5-EtFOSA	103% 20-150%
	d3-MeFOSAA	110% 20-150%
	d5-EtFOSAA	113% 20-150%
	d7-MeFOSE	105% 20-150%
	d9-EtFOSE	102% 20-150%
	13C2-4:2FTS	111% 20-180%
	13C2-6:2FTS	109% 20-180%
	13C2-8:2FTS	95% 20-180%
	13C3-HFPO-DA	97% 20-150%

Method Blank Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96579-MB	6Q17095.D	1	04/28/23	MV	04/26/23	OP96579	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5487-1

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	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	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	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	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Method Blank Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96579-MB	6Q17095.D	1	04/28/23	MV	04/26/23	OP96579	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5487-1

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.020	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.10	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits	
	13C4-PFBA	86%	20-150%
	13C5-PFPeA	85%	20-150%
	13C5-PFHxA	81%	20-150%
	13C4-PFHpA	87%	20-150%
	13C8-PFOA	84%	20-150%
	13C9-PFNA	86%	20-150%
	13C6-PFDA	87%	20-150%
	13C7-PFUnDA	83%	20-150%
	13C2-PFDoDA	72%	20-150%
	13C2-PFTeDA	62%	20-150%
	13C3-PFBS	87%	20-150%
	13C3-PFHxS	88%	20-150%
	13C8-PFOS	87%	20-150%
	13C8-FOSA	31%	20-150%
	d3-MeFOSA	27%	20-150%
	d5-EtFOSA	25%	20-150%
	d3-MeFOSAA	87%	20-150%
	d5-EtFOSAA	79%	20-150%
	d7-MeFOSE	18%* a	20-150%
	d9-EtFOSE	20%	20-150%
	13C2-4:2FTS	93%	20-180%
	13C2-6:2FTS	98%	20-180%
	13C2-8:2FTS	91%	20-180%
	13C3-HFPO-DA	79%	20-150%

(a) Outside control limits.

6.1.3
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Instrument Blank

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q260-IBLK	6Q17236.D	1	05/01/23	MV	n/a	n/a	S6Q260

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

OP96579-MS, OP96579-MSD

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	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	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	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	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Instrument Blank

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q260-IBLK	6Q17236.D	1	05/01/23	MV	n/a	n/a	S6Q260

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

OP96579-MS, OP96579-MSD

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.020	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.10	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	101% 20-150%
	13C5-PFPeA	98% 20-150%
	13C5-PFHxA	100% 20-150%
	13C4-PFHpA	103% 20-150%
	13C8-PFOA	101% 20-150%
	13C9-PFNA	97% 20-150%
	13C6-PFDA	107% 20-150%
	13C7-PFUnDA	105% 20-150%
	13C2-PFDoDA	99% 20-150%
	13C2-PFTeDA	101% 20-150%
	13C3-PFBS	93% 20-150%
	13C3-PFHxS	100% 20-150%
	13C8-PFOS	109% 20-150%
	13C8-FOSA	106% 20-150%
	d3-MeFOSA	102% 20-150%
	d5-EtFOSA	101% 20-150%
	d3-MeFOSAA	105% 20-150%
	d5-EtFOSAA	109% 20-150%
	d7-MeFOSE	104% 20-150%
	d9-EtFOSE	105% 20-150%
	13C2-4:2FTS	101% 20-180%
	13C2-6:2FTS	93% 20-180%
	13C2-8:2FTS	93% 20-180%
	13C3-HFPO-DA	102% 20-150%

6.1.4
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Continuing Calibration Blank

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q258-ICCB	6Q17092.D	1	04/28/23	MV	n/a	n/a	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

OP96579-BS, OP96579-LLBS, OP96579-MB

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	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	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	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	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Continuing Calibration Blank

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q258-ICCB	6Q17092.D	1	04/28/23	MV	n/a	n/a	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

OP96579-BS, OP96579-LLBS, OP96579-MB

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.020	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.10	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits	
	13C4-PFBA	101%	20-150%
	13C5-PFPeA	99%	20-150%
	13C5-PFHxA	98%	20-150%
	13C4-PFHpA	97%	20-150%
	13C8-PFOA	103%	20-150%
	13C9-PFNA	89%	20-150%
	13C6-PFDA	99%	20-150%
	13C7-PFUnDA	103%	20-150%
	13C2-PFDoDA	95%	20-150%
	13C2-PFTeDA	99%	20-150%
	13C3-PFBS	108%	20-150%
	13C3-PFHxS	106%	20-150%
	13C8-PFOS	103%	20-150%
	13C8-FOSA	97%	20-150%
	d3-MeFOSA	98%	20-150%
	d5-EtFOSA	102%	20-150%
	d3-MeFOSAA	102%	20-150%
	d5-EtFOSAA	104%	20-150%
	d7-MeFOSE	99%	20-150%
	d9-EtFOSE	95%	20-150%
	13C2-4:2FTS	97%	20-180%
	13C2-6:2FTS	113%	20-180%
	13C2-8:2FTS	113%	20-180%
	13C3-HFPO-DA	95%	20-150%

6.1.5

6

Blank Spike Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96579-LLBS	6Q17094.D	1	04/28/23	MV	04/26/23	OP96579	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5487-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.03	0.0302	101	40-150
2706-90-3	Perfluoropentanoic acid	0.015	0.0150	100	40-150
307-24-4	Perfluorohexanoic acid	0.0075	0.0071	95	40-150
375-85-9	Perfluoroheptanoic acid	0.0075	0.0077	103	40-150
335-67-1	Perfluorooctanoic acid	0.0075	0.0076	101	40-150
375-95-1	Perfluorononanoic acid	0.0075	0.0074	99	40-150
335-76-2	Perfluorodecanoic acid	0.0075	0.0072	96	40-150
2058-94-8	Perfluoroundecanoic acid	0.0075	0.0063	84	40-150
307-55-1	Perfluorododecanoic acid	0.0075	0.0075	100	40-150
72629-94-8	Perfluorotridecanoic acid	0.0075	0.0070	93	40-150
376-06-7	Perfluorotetradecanoic acid	0.0075	0.0076	101	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00665	0.0065	98	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00706	0.0070	99	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00686	0.0065	95	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00715	0.0083	116	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00696	0.0070	101	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00722	0.0084	116	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00724	0.0074	102	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.00728	0.0062	85	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0281	0.0291	103	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.0285	0.0288	101	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0288	0.0312	108	40-150
754-91-6	PFOSA	0.0075	0.0078	104	40-150
31506-32-8	MeFOSA	0.015	0.0150	100	40-150
4151-50-2	EtFOSA	0.015	0.0154	103	40-150
2355-31-9	MeFOSAA	0.0075	0.0075	100	40-150
2991-50-6	EtFOSAA	0.0075	0.0085	113	40-150
24448-09-7	MeFOSE	0.0375	0.0374	100	40-150
1691-99-2	EtFOSE	0.0375	0.0346	92	40-150
13252-13-6	HFPO-DA (GenX)	0.015	0.0160	107	40-150
919005-14-4	ADONA	0.0142	0.0155	109	40-150
377-73-1	PFMPA	0.015	0.0147	98	40-150
863090-89-5	PFMBA	0.015	0.0146	97	40-150
151772-58-6	NFDHA	0.015	0.0140	93	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.014	0.0154	110	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0142	0.0123	87	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96579-LLBS	6Q17094.D	1	04/28/23	MV	04/26/23	OP96579	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5487-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0134	0.0127	95	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.0375	0.0320	85	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.188	0.157	84	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.188	0.131	70	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	104%	20-150%
	13C5-PFPeA	106%	20-150%
	13C5-PFHxA	107%	20-150%
	13C4-PFHpA	102%	20-150%
	13C8-PFOA	98%	20-150%
	13C9-PFNA	101%	20-150%
	13C6-PFDA	110%	20-150%
	13C7-PFUnDA	102%	20-150%
	13C2-PFDoDA	96%	20-150%
	13C2-PFTeDA	84%	20-150%
	13C3-PFBS	110%	20-150%
	13C3-PFHxS	107%	20-150%
	13C8-PFOS	97%	20-150%
	13C8-FOSA	46%	20-150%
	d3-MeFOSA	32%	20-150%
	d5-EtFOSA	28%	20-150%
	d3-MeFOSAA	106%	20-150%
	d5-EtFOSAA	103%	20-150%
	d7-MeFOSE	21%	20-150%
	d9-EtFOSE	23%	20-150%
	13C2-4:2FTS	109%	20-180%
	13C2-6:2FTS	108%	20-180%
	13C2-8:2FTS	105%	20-180%
	13C3-HFPO-DA	99%	20-150%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96579-BS	6Q17093.D	1	04/28/23	MV	04/26/23	OP96579	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5487-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.0960	96	40-150
2706-90-3	Perfluoropentanoic acid	0.05	0.0488	98	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0228	91	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0242	97	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0231	92	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0245	98	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0282	113	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0221	88	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0243	97	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0222	89	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0261	104	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0216	97	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0216	92	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0216	95	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0233	98	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0211	91	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0221	92	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0207	86	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0178	73	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0938	0.0852	91	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.0900	95	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.103	107	40-150
754-91-6	PFOSA	0.025	0.0285	114	40-150
31506-32-8	MeFOSA	0.05	0.0471	94	40-150
4151-50-2	EtFOSA	0.05	0.0481	96	40-150
2355-31-9	MeFOSAA	0.025	0.0259	104	40-150
2991-50-6	EtFOSAA	0.025	0.0254	102	40-150
24448-09-7	MeFOSE	0.125	0.120	96	40-150
1691-99-2	EtFOSE	0.125	0.122	98	40-150
13252-13-6	HFPO-DA (GenX)	0.05	0.0458	92	40-150
919005-14-4	ADONA	0.0473	0.0451	95	40-150
377-73-1	PFMPA	0.05	0.0481	96	40-150
863090-89-5	PFMBA	0.05	0.0471	94	40-150
151772-58-6	NFDHA	0.05	0.0464	93	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0468	0.0469	100	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0473	0.0376	80	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96579-BS	6Q17093.D	1	04/28/23	MV	04/26/23	OP96579	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5487-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0406	91	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.0996	80	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.625	0.468	75	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.424	68	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	108%	20-150%
	13C5-PFPeA	110%	20-150%
	13C5-PFHxA	116%	20-150%
	13C4-PFHpA	111%	20-150%
	13C8-PFOA	107%	20-150%
	13C9-PFNA	100%	20-150%
	13C6-PFDA	104%	20-150%
	13C7-PFUnDA	114%	20-150%
	13C2-PFDoDA	101%	20-150%
	13C2-PFTeDA	85%	20-150%
	13C3-PFBS	111%	20-150%
	13C3-PFHxS	109%	20-150%
	13C8-PFOS	109%	20-150%
	13C8-FOSA	49%	20-150%
	d3-MeFOSA	44%	20-150%
	d5-EtFOSA	40%	20-150%
	d3-MeFOSAA	104%	20-150%
	d5-EtFOSAA	101%	20-150%
	d7-MeFOSE	21%	20-150%
	d9-EtFOSE	22%	20-150%
	13C2-4:2FTS	118%	20-180%
	13C2-6:2FTS	110%	20-180%
	13C2-8:2FTS	106%	20-180%
	13C3-HFPO-DA	111%	20-150%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96579-MS	6Q17243.D	10	05/01/23	MV	04/26/23	OP96579	S6Q260
OP96579-MSD	6Q17244.D	10	05/01/23	MV	04/26/23	OP96579	S6Q260
FC5240-5	6Q17100.D	1	04/29/23	MV	04/26/23	OP96579	S6Q258
FC5240-5	6Q17242.D	10	05/01/23	MV	04/26/23	OP96579	S6Q260

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5487-1

CAS No.	Compound	FC5240-5 ug/l	Spike Q ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
375-22-4	Perfluorobutanoic acid	0.607	0.0877	0.713	121	0.0943	0.794	198* a	11	40-150/30
2706-90-3	Perfluoropentanoic acid	2.32 b	0.0439	2.50	410* a	0.0472	2.64	678* a	5	40-150/30
307-24-4	Perfluorohexanoic acid	3.07 b	0.0219	3.68	2782* a	0.0236	4.29	5173* a	15	40-150/30
375-85-9	Perfluoroheptanoic acid	0.705 b	0.0219	0.763	264* a	0.0236	0.785	339* a	3	40-150/30
335-67-1	Perfluorooctanoic acid	4.66 b	0.0219	4.30	-1642* a	0.0236	4.29	-1569* a	20	40-150/30
375-95-1	Perfluorononanoic acid	0.161	0.0219	0.184	105	0.0236	0.188	114	2	40-150/30
335-76-2	Perfluorodecanoic acid	0.0036 U	0.0219	0.0258	118	0.0236	0.0287	122	11	40-150/30
2058-94-8	Perfluoroundecanoic acid	0.0036 U	0.0219	0.0204	93	0.0236	0.0319	135	44*	40-150/30
307-55-1	Perfluorododecanoic acid	0.0036 U	0.0219	0.0243	111	0.0236	0.0274	116	12	40-150/30
72629-94-8	Perfluorotridecanoic acid	0.0036 U	0.0219	0.0195	89	0.0236	0.0288	122	39*	40-150/30
376-06-7	Perfluorotetradecanoic acid	0.0036 U	0.0219	0.0253	115	0.0236	0.0304	129	18	40-150/30
375-73-5	Perfluorobutanesulfonic acid	0.821 b	0.0195	0.926	540* a	0.0209	1.05	1095* a	13	40-150/30
2706-91-4	Perfluoropentanesulfonic acid	1.03 b	0.0206	1.05	97	0.0222	1.09	270* a	4	40-150/30
355-46-4	Perfluorohexanesulfonic acid	6.11 b E	0.02	4.94	-5837* a	0.0216	6.06	-232* a	20	40-150/30
375-92-8	Perfluoroheptanesulfonic acid	0.125	0.0209	0.0772	-229* a	0.0225	0.0713	-239* a	8	40-150/30
1763-23-1	Perfluorooctanesulfonic acid	0.0635	0.0204	0.0687	26* a	0.0219	0.0778	65	12	40-150/30
68259-12-1	Perfluorononanesulfonic acid	0.0036 U	0.0211	0.0185	88	0.0227	0.0187	82	1	40-150/30
335-77-3	Perfluorodecanesulfonic acid	0.0036 U	0.0212	0.0190	90	0.0228	0.0198	87	4	40-150/30
79780-39-5	Perfluorododecanesulfonic aci	0.0045 U	0.0213	0.0186	87	0.0229	0.0227	99	20	40-150/30
757124-72-44:2	Fluorotelomer sulfonate	0.302	0.0822	0.483	220* a	0.0884	0.395	105	20	40-150/30
27619-97-2	6:2 Fluorotelomer sulfonate	4.73 b	0.0833	4.04	-828* a	0.0896	4.96	257* a	20	40-150/30
39108-34-4	8:2 Fluorotelomer sulfonate	0.018 U	0.0842	0.0933	111	0.0906	0.115	127	21	40-150/30
754-91-6	PFOSA	0.0036 U	0.0219	0.0224	102	0.0236	0.0253	107	12	40-150/30
31506-32-8	MeFOSA	0.0071 U	0.0439	0.0446	102	0.0472	0.0503	107	12	40-150/30
4151-50-2	EtFOSA	0.0071 U	0.0439	0.0475	108	0.0472	0.0533	113	12	40-150/30
2355-31-9	MeFOSAA	0.0045 U	0.0219	0.0220	100	0.0236	0.0254	108	14	40-150/30
2991-50-6	EtFOSAA	0.0045 U	0.0219	0.0253	115	0.0236	0.0292	124	14	40-150/30
24448-09-7	MeFOSE	0.036 U	0.11	0.100	91	0.118	0.125	106	22	40-150/30
1691-99-2	EtFOSE	0.036 U	0.11	0.103	94	0.118	0.133	113	25	40-150/30
13252-13-6	HFPO-DA (GenX)	0.0036 U	0.0439	0.0418	95	0.0472	0.0550	117	27	40-150/30
919005-14-4	ADONA	0.0071 U	0.0414	0.0425	103	0.0446	0.0542	122	24	40-150/30
377-73-1	PFMPA	0.0071 U	0.0439	0.0417	95	0.0472	0.0493	105	17	40-150/30
863090-89-5	PFMBA	0.0071 U	0.0439	0.0503	115	0.0472	0.0581	123	14	40-150/30
151772-58-6	NFDHA	0.0071 U	0.0439	0.0444	101	0.0472	0.0534	113	18	40-150/30
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0071 U	0.041	0.0366	89	0.0441	0.0492	112	29	40-150/30
763051-92-911	Cl-PF3OUdS (F-53B Minor)	0.0071 U	0.0414	0.0295	71	0.0446	0.0392	88	28	40-150/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96579-MS	6Q17243.D	10	05/01/23	MV	04/26/23	OP96579	S6Q260
OP96579-MSD	6Q17244.D	10	05/01/23	MV	04/26/23	OP96579	S6Q260
FC5240-5	6Q17100.D	1	04/29/23	MV	04/26/23	OP96579	S6Q258
FC5240-5	6Q17242.D	10	05/01/23	MV	04/26/23	OP96579	S6Q260

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5487-1

CAS No.	Compound	FC5240-5 ug/l	Spike Q	ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
113507-82-7	PFEESA	0.0071	U	0.039	0.0427	109	0.042	0.0534	127	22	40-150/30
356-02-5	3:3 Fluorotelomer carboxylate	0.0134	J	0.11	0.0938	73	0.118	0.114	85	19	40-150/30
914637-49-35:3	Fluorotelomer carboxylate	0.089	U	0.548	0.515	94	0.59	0.660	112	25	40-150/30
812-70-4	7:3 Fluorotelomer carboxylate	0.089	U	0.548	0.468	85	0.59	0.537	91	14	40-150/30

CAS No.	ID Standard Recoveries	MS	MSD	FC5240-5	FC5240-5	Limits
	13C4-PFBA	60%	64%	61%	63%	20-150%
	13C5-PFPeA	78%	80%	91%	79%	20-150%
	13C5-PFHxA	87%	80%	95%	92%	20-150%
	13C4-PFHpA	94%	90%	112%	97%	20-150%
	13C8-PFOA	97%	95%	101%	100%	20-150%
	13C9-PFNA	98%	89%	96%	104%	20-150%
	13C6-PFDA	84%	80%	83%	99%	20-150%
	13C7-PFU _n DA	69%	66%	74%	83%	20-150%
	13C2-PFD _o DA	61%	56%	64%	78%	20-150%
	13C2-PFT _e DA	62%	57%	63%	79%	20-150%
	13C3-PFBS	85%	85%	112%	109%	20-150%
	13C3-PFHxS	89%	93%	90%	102%	20-150%
	13C8-PFOS	92%	86%	90%	100%	20-150%
	13C8-FOSA	46%	37%	62%	61%	20-150%
	d3-MeFOSA	30%	30%	45%	44%	20-150%
	d5-EtFOSA	27%	26%	48%	42%	20-150%
	d3-MeFOSAA	82%	68%	90%	73%	20-150%
	d5-EtFOSAA	68%	56%	88%	88%	20-150%
	d7-MeFOSE	24%	19%* c	38%	37%	20-150%
	d9-EtFOSE	26%	21%	43%	45%	20-150%
	13C2-4:2FTS	73%	99%	113%	107%	20-180%
	13C2-6:2FTS	132%	116%	116%	132%	20-180%
	13C2-8:2FTS	78%	78%	102%	106%	20-180%
	13C3-HFPO-DA	94%	85%	110%	95%	20-150%

(a) Outside control limits due to high level in sample relative to spike amount.

(b) Result is from Run #2.

(c) Outside control limits.

* = Outside of Control Limits.

Injection Standard Area Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q258-CC258	Injection Date:	04/28/23
Lab File ID:	6Q17091.D	Injection Time:	22:29
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	78317	2.90	58371	5.47	87768	7.06	28425	7.59	24754	8.08
Check Std ^c	80467	2.90	58684	5.47	92267	7.06	29291	7.59	27086	8.08
Upper Limit ^d	156634	3.30	116742	5.87	175536	7.46	56850	7.99	49508	8.48
Lower Limit ^e	23495	2.50	17511	5.07	26330	6.66	8528	7.19	7426	7.68

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
S6Q258-ICCB	81262	2.90	61218	5.47	89585	7.08	32073	7.59	25764	8.08	1
OP96579-BS	74795	2.89	53473	5.47	82686	7.08	28384	7.59	23101	8.08	1
OP96579-LLBS	75102	2.90	54147	5.47	86017	7.06	26758	7.59	22547	8.08	1
OP96579-MB	91701	2.90	67461	5.47	103377	7.08	33223	7.59	27969	8.08	1
ZZZZZZ	73469	2.91	55304	5.47	81951	7.08	26887	7.59	23278	8.08	1
ZZZZZZ	72260	2.90	50130	5.47	81332	7.08	26332	7.59	23559	8.08	1
ZZZZZZ	72812	2.90	55462	5.47	85713	7.06	27555	7.59	22909	8.08	1
FC5240-5	67046	2.90	46393	5.47	58040	7.08	26393	7.59	23792	8.08	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: S6Q258-ICC258 6Q17054.D 04/28/23 13:33. 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.

6.4.1
6

Injection Standard Area Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q258-CC258	Injection Date:	04/28/23
Lab File ID:	6Q17091.D	Injection Time:	22:29
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	9722	7.18	15123	8.24
Check Std ^c	9248	7.18	15187	8.23
Upper Limit ^d	19444	7.58	30246	8.63
Lower Limit ^e	2917	6.78	4537	7.83

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S6Q258-ICCB	9413	7.18	15378	8.24	1
OP96579-BS	8998	7.18	14040	8.24	1
OP96579-LLBS	8706	7.18	13471	8.24	1
OP96579-MB	10944	7.18	16397	8.24	1
ZZZZZZ	9178	7.18	13873	8.24	1
ZZZZZZ	8603	7.18	13371	8.24	1
ZZZZZZ	9290	7.18	13777	8.24	1
FC5240-5	7671	7.19	13078	8.24	1

IS 6 = 18O2-PFHXS
 IS 7 = 13C4-PFOS

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q258-ICC258 6Q17054.D 04/28/23 13:33. 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.

Injection Standard Area Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q258-CC258	Injection Date:	04/29/23
Lab File ID:	6Q17103.D	Injection Time:	01:23
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	78317	2.90	58371	5.47	87768	7.06	28425	7.59	24754	8.08
Check Std ^c	79944	2.90	57802	5.47	85912	7.06	29842	7.59	24899	8.08
Upper Limit ^d	156634	3.30	116742	5.87	175536	7.46	56850	7.99	49508	8.48
Lower Limit ^e	23495	2.50	17511	5.07	26330	6.66	8528	7.19	7426	7.68

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
S6Q258-ICCB	81377	2.90	58974	5.47	91901	7.06	28452	7.59	23536	8.06	1
ZZZZZZ	66972	2.90	45309	5.47	60822	7.06	27144	7.59	22219	8.08	1
ZZZZZZ	82904	2.91	62411	5.47	95300	7.08	33093	7.59	25435	8.08	1
ZZZZZZ	70330	2.91	52428	5.48	79037	7.08	28412	7.59	22498	8.08	1
ZZZZZZ	76069	2.91	58038	5.47	91697	7.08	29418	7.59	23052	8.08	1
ZZZZZZ	74820	2.90	54237	5.47	82648	7.06	28514	7.59	24946	8.08	1
ZZZZZZ	73235	2.90	54330	5.47	82776	7.06	27420	7.59	22538	8.08	1
ZZZZZZ	76453	2.91	53495	5.47	87766	7.06	28096	7.59	25281	8.08	1
ZZZZZZ	74831	2.91	56854	5.47	89184	7.06	28482	7.59	23258	8.08	1
ZZZZZZ	61240	2.91	53391	5.47	89625	7.08	28215	7.59	28024	8.08	1
FC5487-1	75190	2.91	55913	5.48	83186	7.08	27193	7.59	23928	8.08	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: S6Q258-ICCB 6Q17054.D 04/28/23 13:33. 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.

Injection Standard Area Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q258-CC258	Injection Date:	04/29/23
Lab File ID:	6Q17103.D	Injection Time:	01:23
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	9722	7.18	15123	8.24
Check Std ^c	10083	7.18	14247	8.24
Upper Limit ^d	19444	7.58	30246	8.64
Lower Limit ^e	2917	6.78	4537	7.84

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S6Q258-ICCB	9800	7.18	14457	8.23	1
ZZZZZZ	7185	7.18	13937	8.23	1
ZZZZZZ	10662	7.18	15750	8.23	1
ZZZZZZ	9075	7.18	12549	8.24	1
ZZZZZZ	9515	7.19	14978	8.24	1
ZZZZZZ	9117	7.18	14796	8.24	1
ZZZZZZ	8694	7.18	14557	8.24	1
ZZZZZZ	9131	7.18	13920	8.23	1
ZZZZZZ	9584	7.18	14076	8.24	1
ZZZZZZ	8926	7.18	14044	8.23	1
FC5487-1	9480	7.18	14405	8.24	1

IS 6 = 18O2-PFHXS
 IS 7 = 13C4-PFOS

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q258-ICC258 6Q17054.D 04/28/23 13:33. 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.

Injection Standard Area Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q260-CC258	Injection Date:	05/01/23
Lab File ID:	6Q17237.D	Injection Time:	14:31
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	78317	2.90	58371	5.47	87768	7.06	28425	7.59	24754	8.08
Check Std ^c	76977	2.90	54286	5.48	85540	7.08	29258	7.59	24144	8.08
Upper Limit ^d	156634	3.30	116742	5.88	175536	7.48	56850	7.99	49508	8.48
Lower Limit ^e	23495	2.50	17511	5.08	26330	6.68	8528	7.19	7426	7.68

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
ZZZZZZ	69475	2.90	49545	5.48	76520	7.08	26640	7.59	21920	8.08	5
ZZZZZZ	68280	2.90	48204	5.48	73500	7.08	25874	7.59	20680	8.08	2
ZZZZZZ	69864	2.90	49819	5.47	78274	7.08	26316	7.59	22075	8.08	1
FC5240-5	69420	2.90	53400	5.48	70860	7.08	26390	7.59	19240	8.08	10
OP96579-MS	72500	2.90	55210	5.48	74860	7.08	25350	7.61	23860	8.08	10
OP96579-MSD	67420	2.90	52680	5.48	72180	7.08	25690	7.59	21990	8.08	10
ZZZZZZ	73580	2.90	54400	5.48	77060	7.08	26250	7.59	20650	8.08	10
ZZZZZZ	67599	2.91	51715	5.47	79132	7.08	26620	7.59	21739	8.08	1
ZZZZZZ	75460	2.90	54820	5.47	83450	7.06	28970	7.59	23155	8.08	5
ZZZZZZ	81625	2.90	56665	5.47	86020	7.08	30000	7.59	24355	8.08	5

- 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: S6Q258-ICC258 6Q17054.D 04/28/23 13:33. 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.

Injection Standard Area Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q260-CC258	Injection Date:	05/01/23
Lab File ID:	6Q17237.D	Injection Time:	14:31
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	9722	7.18	15123	8.24
Check Std ^c	9568	7.19	14265	8.24
Upper Limit ^d	19444	7.59	30246	8.64
Lower Limit ^e	2917	6.79	4537	7.84

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
ZZZZZZ	9005	7.18	13040	8.24	5
ZZZZZZ	8506	7.18	12726	8.24	2
ZZZZZZ	8872	7.18	12894	8.24	1
FC5240-5	7880	7.19	12400	8.24	10
OP96579-MS	9710	7.19	13450	8.24	10
OP96579-MSD	8770	7.19	14200	8.25	10
ZZZZZZ	9720	7.19	14270	8.24	10
ZZZZZZ	8457	7.18	12310	8.24	1
ZZZZZZ	9735	7.18	13670	8.24	5
ZZZZZZ	10150	7.19	15745	8.23	5

IS 6 = 18O2-PFHXS
 IS 7 = 13C4-PFOS

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q258-ICC258 6Q17054.D 04/28/23 13:33. 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: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q258-RT	Injection Date:	04/28/23
Lab File ID:	6Q17048.D	Injection Time:	12:06
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.228	--	--
TDCA	6.775	1.453	1.000
TCDCA	6.626	1.602	1.000
TUDCA	5.774	2.454	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
S6Q258-IC258	6Q17050.D	04/28/23	12:35	00:29	Mass Calibration Verification
S6Q258-IC258	6Q17051.D	04/28/23	12:50	00:44	Initial cal 1
S6Q258-IC258	6Q17052.D	04/28/23	13:04	00:58	Initial cal 2
S6Q258-IC258	6Q17053.D	04/28/23	13:19	01:13	Initial cal 3
S6Q258-ICC258	6Q17054.D	04/28/23	13:33	01:27	Initial cal 4
S6Q258-IC258	6Q17055.D	04/28/23	13:48	01:42	Initial cal 5
S6Q258-IC258	6Q17056.D	04/28/23	14:02	01:56	Initial cal 6
S6Q258-IC258	6Q17057.D	04/28/23	14:17	02:11	Initial cal 7
S6Q258-IC258	6Q17058.D	04/28/23	14:31	02:25	Initial cal 8
S6Q258-IBLK	6Q17059.D	04/28/23	14:46	02:40	Instrument Blank
S6Q258-ICV258	6Q17060.D	04/28/23	15:00	02:54	Initial cal verification 4
S6Q258-ICV258	6Q17061.D	04/28/23	15:15	03:09	Initial cal verification 20
S6Q258-CC258	6Q17062.D	04/28/23	15:29	03:23	Continuing cal 4
S6Q258-CC258	6Q17063.D	04/28/23	15:44	03:38	Continuing cal 1.0LL
OP96604-BS	6Q17064.D	04/28/23	15:58	03:52	Blank Spike
OP96604-LLBS	6Q17065.D	04/28/23	16:13	04:07	Blank Spike
OP96604-MB	6Q17066.D	04/28/23	16:27	04:21	Method Blank
ZZZZZZ	6Q17067.D	04/28/23	16:42	04:36	(unrelated sample)
ZZZZZZ	6Q17068.D	04/28/23	16:56	04:50	(unrelated sample)
ZZZZZZ	6Q17069.D	04/28/23	17:11	05:05	(unrelated sample)
S6Q258-CC258	6Q17070.D	04/28/23	17:25	05:19	Continuing cal 4
S6Q258-ICCB	6Q17071.D	04/28/23	17:40	05:34	Continuing Calibration Blank
OP96603-BS	6Q17072.D	04/28/23	17:54	05:48	Blank Spike
OP96603-LLBS	6Q17073.D	04/28/23	18:09	06:03	Blank Spike
OP96603-MB	6Q17074.D	04/28/23	18:23	06:17	Method Blank
ZZZZZZ	6Q17075.D	04/28/23	18:37	06:31	(unrelated sample)
ZZZZZZ	6Q17076.D	04/28/23	18:52	06:46	(unrelated sample)
FC5514-3	6Q17077.D	04/28/23	19:06	07:00	(used for QC only; not part of job FC5487)
OP96603-MS	6Q17078.D	04/28/23	19:21	07:15	Matrix Spike
ZZZZZZ	6Q17079.D	04/28/23	19:35	07:29	(unrelated sample)
OP96603-DUP	6Q17080.D	04/28/23	19:50	07:44	Duplicate
ZZZZZZ	6Q17081.D	04/28/23	20:04	07:58	(unrelated sample)
S6Q258-CC258	6Q17082.D	04/28/23	20:19	08:13	Continuing cal 4
S6Q258-ICCB	6Q17083.D	04/28/23	20:33	08:27	Continuing Calibration Blank

TDCA Retention Time Check

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q258-RT	Injection Date:	04/28/23
Lab File ID:	6Q17048.D	Injection Time:	12:06
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	6Q17084.D	04/28/23	20:48	08:42	(unrelated sample)
ZZZZZZ	6Q17085.D	04/28/23	21:02	08:56	(unrelated sample)
ZZZZZZ	6Q17086.D	04/28/23	21:17	09:11	(unrelated sample)
FC5522-4	6Q17087.D	04/28/23	21:31	09:25	(used for QC only; not part of job FC5487)
ZZZZZZ	6Q17088.D	04/28/23	21:46	09:40	(unrelated sample)
ZZZZZZ	6Q17089.D	04/28/23	22:00	09:54	(unrelated sample)
ZZZZZZ	6Q17090.D	04/28/23	22:15	10:09	(unrelated sample)
S6Q258-CC258	6Q17091.D	04/28/23	22:29	10:23	Continuing cal 4
S6Q258-ICCB	6Q17092.D	04/28/23	22:44	10:38	Continuing Calibration Blank
OP96579-BS	6Q17093.D	04/28/23	22:58	10:52	Blank Spike
OP96579-LLBS	6Q17094.D	04/28/23	23:13	11:07	Blank Spike
OP96579-MB	6Q17095.D	04/28/23	23:27	11:21	Method Blank
ZZZZZZ	6Q17096.D	04/28/23	23:42	11:36	(unrelated sample)
ZZZZZZ	6Q17097.D	04/28/23	23:56	11:50	(unrelated sample)
ZZZZZZ	6Q17099.D	04/29/23	00:25	12:19	(unrelated sample)
FC5240-5	6Q17100.D	04/29/23	00:40	12:34	(used for QC only; not part of job FC5487)
S6Q258-CC258	6Q17103.D	04/29/23	01:23	13:17	Continuing cal 4
S6Q258-ICCB	6Q17104.D	04/29/23	01:38	13:32	Continuing Calibration Blank
ZZZZZZ	6Q17105.D	04/29/23	01:52	13:46	(unrelated sample)
ZZZZZZ	6Q17106.D	04/29/23	02:07	14:01	(unrelated sample)
ZZZZZZ	6Q17107.D	04/29/23	02:21	14:15	(unrelated sample)
ZZZZZZ	6Q17108.D	04/29/23	02:36	14:30	(unrelated sample)
ZZZZZZ	6Q17109.D	04/29/23	02:50	14:44	(unrelated sample)
ZZZZZZ	6Q17110.D	04/29/23	03:04	14:58	(unrelated sample)
ZZZZZZ	6Q17111.D	04/29/23	03:19	15:13	(unrelated sample)
ZZZZZZ	6Q17112.D	04/29/23	03:33	15:27	(unrelated sample)
ZZZZZZ	6Q17113.D	04/29/23	03:48	15:42	(unrelated sample)
FC5487-1	6Q17114.D	04/29/23	04:02	15:56	AF-RHMW225401-WGN01B-2304W3
S6Q258-CC258	6Q17115.D	04/29/23	04:17	16:11	Continuing cal 4
S6Q258-CC258	6Q17116.D	04/29/23	04:31	16:25	Continuing cal 1.0LL
S6Q258-ICCB	6Q17117.D	04/29/23	04:46	16:40	Continuing Calibration Blank
ZZZZZZ	6Q17118.D	04/29/23	05:00	16:54	(unrelated sample)
OP96566-BS	6Q17119.D	04/29/23	05:15	17:09	Blank Spike
OP96566-LLBS	6Q17120.D	04/29/23	05:29	17:23	Blank Spike
OP96566-MB	6Q17121.D	04/29/23	05:44	17:38	Method Blank
ZZZZZZ	6Q17122.D	04/29/23	05:58	17:52	(unrelated sample)
FC5200-2	6Q17123.D	04/29/23	06:13	18:07	(used for QC only; not part of job FC5487)
OP96566-MS	6Q17124.D	04/29/23	06:27	18:21	Matrix Spike
OP96566-MSD	6Q17125.D	04/29/23	06:42	18:36	Matrix Spike Duplicate
ZZZZZZ	6Q17126.D	04/29/23	06:56	18:50	(unrelated sample)
ZZZZZZ	6Q17127.D	04/29/23	07:11	19:05	(unrelated sample)
S6Q258-CC258	6Q17128.D	04/29/23	07:25	19:19	Continuing cal 4
S6Q258-ICCB	6Q17129.D	04/29/23	07:40	19:34	Continuing Calibration Blank
ZZZZZZ	6Q17130.D	04/29/23	07:54	19:48	(unrelated sample)

6.5.1

6

TDCA Retention Time Check

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q258-RT	Injection Date:	04/28/23
Lab File ID:	6Q17048.D	Injection Time:	12:06
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	6Q17131.D	04/29/23	08:09	20:03	(unrelated sample)
ZZZZZZ	6Q17132.D	04/29/23	08:23	20:17	(unrelated sample)
ZZZZZZ	6Q17133.D	04/29/23	08:38	20:32	(unrelated sample)
ZZZZZZ	6Q17134.D	04/29/23	08:52	20:46	(unrelated sample)
ZZZZZZ	6Q17135.D	04/29/23	09:07	21:01	(unrelated sample)
ZZZZZZ	6Q17136.D	04/29/23	09:21	21:15	(unrelated sample)
ZZZZZZ	6Q17137.D	04/29/23	09:35	21:29	(unrelated sample)
ZZZZZZ	6Q17138.D	04/29/23	09:50	21:44	(unrelated sample)
ZZZZZZ	6Q17139.D	04/29/23	10:04	21:58	(unrelated sample)
S6Q258-CC258	6Q17140.D	04/29/23	10:19	22:13	Continuing cal 4
S6Q258-ICCB	6Q17141.D	04/29/23	10:33	22:27	Continuing Calibration Blank
ZZZZZZ	6Q17142.D	04/29/23	10:48	22:42	(unrelated sample)
ZZZZZZ	6Q17143.D	04/29/23	11:02	22:56	(unrelated sample)
ZZZZZZ	6Q17144.D	04/29/23	11:17	23:11	(unrelated sample)
ZZZZZZ	6Q17145.D	04/29/23	11:31	23:25	(unrelated sample)
S6Q258-ECC258	6Q17146.D	04/29/23	11:46	23:40	Ending cal 4
S6Q258-ICCB	6Q17147.D	04/29/23	12:00	23:54	Continuing Calibration Blank

6.5.1

6

TDCA Retention Time Check

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q260-RT	Injection Date:	05/01/23
Lab File ID:	6Q17233.D	Injection Time:	11:49
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.240	--	--
TDCA	6.775	1.465	1.000
TCDCA	6.626	1.614	1.000
TUDCA	5.774	2.466	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
S6Q260-IBLK	6Q17236.D	05/01/23	14:16	02:27	Instrument Blank
S6Q260-IBLK	6Q17236.D	05/01/23	14:16	02:27	Instrument Blank
S6Q260-CC258	6Q17237.D	05/01/23	14:31	02:42	Continuing cal 4
S6Q260-CC258	6Q17238.D	05/01/23	14:45	02:56	Continuing cal 1.0LL
ZZZZZZ	6Q17239.D	05/01/23	15:00	03:11	(unrelated sample)
ZZZZZZ	6Q17240.D	05/01/23	15:14	03:25	(unrelated sample)
ZZZZZZ	6Q17241.D	05/01/23	15:29	03:40	(unrelated sample)
FC5240-5	6Q17242.D	05/01/23	15:43	03:54	(used for QC only; not part of job FC5487)
OP96579-MS	6Q17243.D	05/01/23	15:58	04:09	Matrix Spike
OP96579-MSD	6Q17244.D	05/01/23	16:12	04:23	Matrix Spike Duplicate
ZZZZZZ	6Q17245.D	05/01/23	16:27	04:38	(unrelated sample)
ZZZZZZ	6Q17246.D	05/01/23	16:41	04:52	(unrelated sample)
ZZZZZZ	6Q17247.D	05/01/23	16:56	05:07	(unrelated sample)
ZZZZZZ	6Q17248.D	05/01/23	17:10	05:21	(unrelated sample)
S6Q260-CC258	6Q17249.D	05/01/23	17:25	05:36	Continuing cal 4
S6Q260-ICCB	6Q17250.D	05/01/23	17:39	05:50	Continuing Calibration Blank
ZZZZZZ	6Q17251.D	05/01/23	17:54	06:05	(unrelated sample)
FC5063-4	6Q17252.D	05/01/23	18:08	06:19	(used for QC only; not part of job FC5487)
OP96516-MS	6Q17253.D	05/01/23	18:23	06:34	Matrix Spike
OP96516-MSD	6Q17254.D	05/01/23	18:37	06:48	Matrix Spike Duplicate
ZZZZZZ	6Q17255.D	05/01/23	18:52	07:03	(unrelated sample)
OP96628-BS	6Q17256.D	05/01/23	19:06	07:17	Blank Spike
OP96628-LLBS	6Q17257.D	05/01/23	19:20	07:31	Blank Spike
OP96628-MB	6Q17258.D	05/01/23	19:35	07:46	Method Blank
ZZZZZZ	6Q17259.D	05/01/23	19:50	08:01	(unrelated sample)
S6Q260-CC258	6Q17260.D	05/01/23	20:04	08:15	Continuing cal 4
S6Q260-ICCB	6Q17261.D	05/01/23	20:18	08:29	Continuing Calibration Blank
OP96581-BS	6Q17262.D	05/01/23	20:33	08:44	Blank Spike
OP96581-LLBS	6Q17263.D	05/01/23	20:47	08:58	Blank Spike
OP96581-MB	6Q17264.D	05/01/23	21:02	09:13	Method Blank
ZZZZZZ	6Q17265.D	05/01/23	21:16	09:27	(unrelated sample)
ZZZZZZ	6Q17266.D	05/01/23	21:31	09:42	(unrelated sample)
ZZZZZZ	6Q17267.D	05/01/23	21:45	09:56	(unrelated sample)
ZZZZZZ	6Q17268.D	05/01/23	22:00	10:11	(unrelated sample)

TDCA Retention Time Check

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q260-RT	Injection Date:	05/01/23
Lab File ID:	6Q17233.D	Injection Time:	11:49
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	6Q17269.D	05/01/23	22:14	10:25	(unrelated sample)
ZZZZZZ	6Q17270.D	05/01/23	22:29	10:40	(unrelated sample)
ZZZZZZ	6Q17271.D	05/01/23	22:43	10:54	(unrelated sample)
S6Q260-CC258	6Q17272.D	05/01/23	22:58	11:09	Continuing cal 4
S6Q260-ICCB	6Q17273.D	05/01/23	23:12	11:23	Continuing Calibration Blank
ZZZZZZ	6Q17274.D	05/01/23	23:27	11:38	(unrelated sample)
ZZZZZZ	6Q17275.D	05/01/23	23:41	11:52	(unrelated sample)
FC5488-1	6Q17276.D	05/01/23	23:56	12:07	(used for QC only; not part of job FC5487)
OP96581-MS	6Q17277.D	05/02/23	00:10	12:21	Matrix Spike
FC5488-2	6Q17278.D	05/02/23	00:25	12:36	(used for QC only; not part of job FC5487)
OP96581-DUP	6Q17279.D	05/02/23	00:39	12:50	Duplicate
ZZZZZZ	6Q17280.D	05/02/23	00:54	13:05	(unrelated sample)
ZZZZZZ	6Q17281.D	05/02/23	01:08	13:19	(unrelated sample)
ZZZZZZ	6Q17282.D	05/02/23	01:23	13:34	(unrelated sample)
S6Q260-ECC258	6Q17283.D	05/02/23	01:37	13:48	Ending cal 4
S6Q260-ICCB	6Q17284.D	05/02/23	01:52	14:03	Continuing Calibration Blank

6.5.2

6

Ion Ratio Summary

Job Number: FC5487
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q258	Method: EPA DRAFT 1633
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Lab Sample ID	Lab File ID	Ion Ratios						
		PFPeA	PFHxA	PFHpA	PFOA	PFBS	PFHxS	PFOS
S6Q258-ICC258	6Q17054.D	0	4.7	16.1	17.9	39.6	50.2	50.5
FC5487-1	6Q17114.D	0	3.8	16.1	18.4	36.9	50.8	27.4

6.6.1

6

Isotope Dilution Standard Recovery Summary

Job Number: FC5487
 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
FC5487-1	6Q17114.D	101	104	101	107	99	107	103	109
OP96579-BS	6Q17093.D	108	110	116	111	107	100	104	114
OP96579-LLBS	6Q17094.D	104	106	107	102	98	101	110	102
OP96579-MB	6Q17095.D	86	85	81	87	84	86	87	83
OP96579-MS	6Q17243.D	60	78	87	94	97	98	84	69
OP96579-MSD	6Q17244.D	64	80	80	90	95	89	80	66
S6Q258-IBLK	6Q17059.D	99	98	95	100	97	95	109	104
S6Q258-ICCB	6Q17104.D	100	101	101	99	96	105	107	108
S6Q258-ICCB	6Q17092.D	101	99	98	97	103	89	99	103
S6Q260-IBLK	6Q17236.D	101	98	100	103	101	97	107	105

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: FC5487
 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
FC5487-1	6Q17114.D	99	77	105	102	99	75	61	61
OP96579-BS	6Q17093.D	101	85	111	109	109	49	44	40
OP96579-LLBS	6Q17094.D	96	84	110	107	97	46	32	28
OP96579-MB	6Q17095.D	72	62	87	88	87	31	27	25
OP96579-MS	6Q17243.D	61	62	85	89	92	46	30	27
OP96579-MSD	6Q17244.D	56	57	85	93	86	37	30	26
S6Q258-IBLK	6Q17059.D	102	97	105	101	115	112	106	106
S6Q258-ICCB	6Q17104.D	107	99	102	103	109	106	106	103
S6Q258-ICCB	6Q17092.D	95	99	108	106	103	97	98	102
S6Q260-IBLK	6Q17236.D	99	101	93	100	109	106	102	101

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: FC5487
 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
FC5487-1	6Q17114.D	109	104	53	54	109	102	97	103
OP96579-BS	6Q17093.D	104	101	21	22	118	110	106	111
OP96579-LLBS	6Q17094.D	106	103	21	23	109	108	105	99
OP96579-MB	6Q17095.D	87	79	18* a	20	93	98	91	79
OP96579-MS	6Q17243.D	82	68	24	26	73	132	78	94
OP96579-MSD	6Q17244.D	68	56	19* a	21	99	116	78	85
S6Q258-IBLK	6Q17059.D	112	111	103	109	102	109	108	102
S6Q258-ICCB	6Q17104.D	110	113	105	102	111	109	95	97
S6Q258-ICCB	6Q17092.D	102	104	99	95	97	113	113	95
S6Q260-IBLK	6Q17236.D	105	109	104	105	101	93	93	102

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	20-180%
S22 = 13C2-6:2FTS	20-180%
S23 = 13C2-8:2FTS	20-180%
S24 = 13C3-HFPO-DA	20-150%

(a) Outside control limits.

6.7.1
6

Initial Calibration Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-ICC258
 Lab FileID: 6Q17054.D

Initial Calibration Report

Method Path	Method File	Batch Name	Last Calib Update	Calibration Files	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD	Level Last Update Time
D:\MassHunter\Methods	1633_042823_S6Q258.quantmethod.xml	D:\MassHunter\Data\042823_1633_S6Q258	4/30/2023 11:14:07 PM	D:\MassHunter\Data\042823_1633_S6Q258\6Q17051.d	Avg RF	0.2679	0.3411	0.3350	0.3345	0.3343	0.3560	0.3555	0.3586	0.3354	8.704	4/28/2023 12:50:16 PM
D:\MassHunter\Data\042823_1633_S6Q258	6Q17052.d	D:\MassHunter\Data\042823_1633_S6Q258	4/30/2023 11:14:07 PM	D:\MassHunter\Data\042823_1633_S6Q258\6Q17053.d	Avg RF	0.5534	0.6958	0.6738	0.6926	0.6719	0.7184	0.7327	0.7144	0.6816	8.215	4/28/2023 1:04:45 PM
D:\MassHunter\Data\042823_1633_S6Q258	6Q17053.d	D:\MassHunter>Data\042823_1633_S6Q258	4/30/2023 11:14:07 PM	D:\MassHunter\Data\042823_1633_S6Q258\6Q17054.d	Avg RF	0.0705	0.0853	0.0839	0.0854	0.0832	0.0888	0.0918	0.0923	0.0852	8.051	4/28/2023 1:19:14 PM
D:\MassHunter>Data\042823_1633_S6Q258	6Q17054.d	D:\MassHunter>Data\042823_1633_S6Q258	4/30/2023 11:14:07 PM	D:\MassHunter\Data\042823_1633_S6Q258\6Q17055.d	Avg RF	1.0890	1.4118	1.3529	1.3948	1.3510	1.4354	1.4393	1.4213	1.3619	8.470	4/28/2023 1:33:42 PM
D:\MassHunter>Data\042823_1633_S6Q258	6Q17055.d	D:\MassHunter>Data\042823_1633_S6Q258	4/30/2023 11:14:07 PM	D:\MassHunter\Data\042823_1633_S6Q258\6Q17056.d	Avg RF	0.7289	0.9372	0.9302	0.9062	0.9000	0.9747	0.9719	0.9602	0.9137	8.724	4/28/2023 1:48:12 PM
D:\MassHunter>Data\042823_1633_S6Q258	6Q17056.d	D:\MassHunter>Data\042823_1633_S6Q258	4/30/2023 11:14:07 PM	D:\MassHunter\Data\042823_1633_S6Q258\6Q17057.d	Avg RF											4/28/2023 2:02:44 PM
D:\MassHunter>Data\042823_1633_S6Q258	6Q17057.d	D:\MassHunter>Data\042823_1633_S6Q258	4/30/2023 11:14:07 PM	D:\MassHunter\Data\042823_1633_S6Q258\6Q17058.d	Avg RF											4/28/2023 2:31:43 PM
D:\MassHunter>Data\042823_1633_S6Q258	6Q17058.D	D:\MassHunter>Data\042823_1633_S6Q258	4/30/2023 11:14:07 PM													
Compound																
I M4-PFBA																
T PFBA																
I M5-PFPeA																
T PFMPA																
T 3:3FTCA																
T PFPeA																
T PFMBa																
I M5-PFHxA																
T NFDHA																
T PFHxA																
T PFEEA																
T 5:3FTCA																
T 7:3FTCA																
I M4-PFHpA																
T PFHpA																
I M8-PFOA																
T PFOA																
I M9-PFNA																
T PFNA																
I M6-PFDA																
T PFDA																
I M7-PFUnDA																
T PFUnDA																
I M2-PFDODA																

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Initial Calibration Summary

Job Number: FC5487
 Account: AECOM AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-ICC258
 Lab FileID: 6Q17054.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	0.9498	1.0097	1.0351	0.9922	0.9618	0.9909	1.0005	0.9995	0.9799	5.757
T PFTfDA	Avg RF	0.8800	1.0800	1.2190	1.1538	1.0259	1.1082	1.1040	1.1060	1.0846	9.191
I M2-PFTeDA	Avg RF	1.2297	1.1654	1.2744	1.3445	1.2487	1.2752	1.2903	1.2780	1.2633	4.095
T PFTeDA	Avg RF					ISTD					
I M8-FOSA	Avg RF	0.7241	0.8823	0.9240	0.9311	0.8719	0.9530	0.9337	0.9460	0.8958	8.387
T FOSA	Avg RF					ISTD					
I M3-PFBS	Avg RF	0.9900	1.0604	1.2037	1.0909	1.1495	1.1758	1.1649	1.1391	1.1218	6.272
T PFBS	Avg RF					ISTD					
I M3-PFHxS	Avg RF	1.1142	1.3575	1.3874	1.5015	1.5088	1.5119	1.4605	1.5403	1.4227	9.850
T PFPeS	Avg RF	1.1307	1.3584	1.3234	1.4038	1.4542	1.3938	1.3439	1.4907	1.3624	8.000
T PFHxS	Avg RF					ISTD					
I M8-PFOS	Avg RF	1.2396	1.3892	1.3410	1.4022	1.2683	1.3583	1.4681	1.3727	1.3549	5.406
T PFHpS	Avg RF	1.0820	1.2982	1.2020	1.2763	1.0582	1.1692	1.3780	1.1940	1.2072	8.952
T PFOS	Avg RF	1.0741	1.3189	1.1382	1.2830	1.1067	1.2770	1.2832	1.1724	1.2067	7.842
T PFNS	Avg RF	0.6543	0.7949	0.7473	0.8889	0.7690	0.8238	0.8851	0.8109	0.7968	9.574
T PFDS	Avg RF	0.3631	0.4108	0.4266	0.4292	0.3881	0.4113	0.4587	0.4085	0.4120	6.908
T PFDoDS	Avg RF					ISTD					
I M2-4:2FTS	Avg RF	6.5839	7.6224	7.8025	7.9899	7.3204	7.4323	8.6434	7.1239	7.5648	8.115
T 4:2FTS	Avg RF					ISTD					
I M2-6:2FTS	Avg RF	4.1902	6.3557	5.4667	5.5760	5.7874	5.7764	5.7730	5.0746	5.5000	11.640
T 6:2FTS	Avg RF					ISTD					
I M2-8:2FTS	Avg RF	2.8828	3.2021	3.5036	2.7950	2.8896	3.1162	2.8608	2.5513	2.9752	9.772
T 8:2FTS	Avg RF					ISTD					
I M3-MeFOSAA	Avg RF	0.7488	0.8086	0.9885	0.9908	0.9644	1.0654	0.8877	1.0569	0.9389	12.177
T MeFOSAA	Avg RF					ISTD					
I M3-HFO-DA	Avg RF	0.7655	0.9574	0.9633	0.9421	0.9699	1.0051	0.9504	1.0235	0.9471	8.284
T HFO-DA	Avg RF	12.49	15.97	15.35	14.99	14.26	16.20	15.95	15.64	15.11	8.140
T ADONA	Avg RF	4.5509	5.4384	5.6390	5.0224	5.2393	6.0500	5.6295	5.8389	5.4260	8.840
T 9Cl-PF3ONS	Avg RF	2.9355	3.5787	3.4026	3.1114	3.3245	3.8064	3.6531	3.6416	3.4317	8.646
T 11Cl-PF3OUds	Avg RF					ISTD					
I M5-EFOSAA	Avg RF	0.8151	0.8287	0.8485	0.8176	0.8298	0.8342	0.8912	0.9334	0.8498	4.878
T EFOSAA	Avg RF					ISTD					
I M7-MeFOSE	Avg RF	0.9092	1.1285	1.0835	1.1583	1.0690	1.1657	1.2295	1.1758	1.1149	8.767
T MeFOSE	Avg RF					ISTD					
I M9-EFOSE	Avg RF	0.8167	0.9916	1.0152	1.0782	1.0195	1.1330	1.1697	1.1051	1.0411	10.546
T EFOSE	Avg RF					ISTD					

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Initial Calibration Summary

Job Number: FC5487
 Account: AECOM AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-ICC258
 Lab FileID: 6Q17054.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-EFOSA											
T EFOSA	Avg RF	0.8405	1.0777	1.0264	1.0291	1.0321	1.0467	1.0742	1.0933	1.0275	7.751
I M3-MeFOSA											
T MeFOSA	Avg RF	0.9407	1.2197	1.1872	1.1241	1.0857	1.2316	1.1625	1.0488	1.1250	8.691
I 13C4-PFOS											
S d3-MeFOSAA	Linear	0.7903	0.7879	0.7270	0.7454	0.7269	0.7189	0.7652	0.6985	0.7450	4.476
S 13C8-PFOS	Linear	0.7137	0.7546	0.7912	0.7201	0.7735	0.8167	0.6829	0.7728	0.7532	5.909
S d5-EFOSAA	Linear	0.6302	0.6081	0.6178	0.6172	0.6210	0.6769	0.5686	0.6141	0.6192	4.797
S 13C8-FOSA	Linear	1.7538	1.5938	1.7258	1.6348	1.6338	1.6719	1.5682	1.6403	1.6528	3.784
S d7-MeFOSE	Linear	0.6867	0.6498	0.7120	0.6546	0.6687	0.6688	0.5965	0.6121	0.6561	5.736
S d3-MeFOSA	Linear	0.6243	0.5990	0.6188	0.6231	0.6151	0.6209	0.6012	0.6926	0.6244	4.675
S d9-EFOSE	Linear	0.8665	0.8296	0.8886	0.7917	0.8021	0.7952	0.7007	0.7397	0.8018	7.705
S d5-EFOSA	Linear	0.8058	0.7425	0.8013	0.7734	0.7622	0.7789	0.7360	0.7337	0.7667	3.673
I 13C3-PFBA											
S 13C4-PFBA	Linear	1.1568	1.1544	1.1564	1.1628	1.1436	1.1619	1.1553	1.1522	1.1554	0.518
I 1802-PFHxS											
S 13C2-4:2FTS	Linear	0.1129	0.1153	0.1170	0.1111	0.1183	0.1191	0.1123	0.1132	0.1149	2.588
S 13C3-PFBS	Linear	2.2665	2.3040	2.3580	2.4059	2.4195	2.3877	2.3536	2.3177	2.3516	2.248
S 13C2-6:2FTS	Linear	1.4406	0.1308	0.1465	0.1452	0.1401	0.1383	0.1339	0.1407	0.1395	3.772
S 13C3-PFHxS	Linear	1.3206	1.3271	1.3864	1.2862	1.2901	1.3283	1.3885	1.3092	1.3308	2.917
S 13C2-8:2FTS	Linear	0.1435	0.1461	0.1444	0.1534	0.1524	0.1529	0.1530	0.1545	0.1500	3.015
I 13C4-PFOA											
S 13C8-PFOA	Linear	0.9585	0.9611	0.9486	1.0038	0.9762	0.9130	0.9632	0.9945	0.9648	2.916
I 13C2-PFDA											
S 13C6-PFDA	Linear	0.7786	0.8626	0.8880	0.8692	0.7998	0.8172	0.7811	0.7994	0.8245	5.178
S 13C7-PFUnDA	Linear	1.0685	0.9958	1.2025	1.0666	1.0377	1.0530	1.0243	0.9958	1.0555	6.235
S 13C2-PFDODA	Linear	1.0581	1.0451	1.0450	1.0252	1.0476	1.0464	1.0199	1.0342	1.0402	1.224
S 13C2-PFTeDA	Linear	0.7095	0.7556	0.7513	0.6867	0.6777	0.6779	0.6828	0.6881	0.7037	4.591
I 13C5-PFNA											
S 13C9-PFNA	Linear	0.9341	0.9486	0.9675	0.9838	1.0250	0.9371	0.8831	0.9444	0.9530	4.334
I 13C2-PFHxA											
S 13C5-PPeA	Linear	0.5571	0.5550	0.5831	0.5706	0.5635	0.5470	0.5535	0.5380	0.5585	2.502
S 13C5-PFHxA	Linear	1.1550	1.1888	1.2842	1.2108	1.2140	1.1963	1.2317	1.1655	1.2058	3.360
S 13C3-HPOo-DA	Linear	0.1732	0.1704	0.1838	0.1884	0.1763	0.1694	0.1790	0.1754	0.1770	3.692
S 13C4-PFHpA	Linear	1.0091	0.9868	1.1117	1.0591	1.0424	1.0061	0.9782	0.9878	1.0226	4.465

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

Initial Calibration Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-ICC258
 Lab FileID: 6Q17054.D

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	%RSE
S 13C4-PFBA	Linear	$y = 1.155425 * x$	
S 13C5-PFPeA	Linear	$y = 0.558470 * x$	
S 13C2-4:2FTS	Linear	$y = 0.114918 * x$	
S 13C3-PFBS	Linear	$y = 2.351622 * x$	
S 13C5-PFHxA	Linear	$y = 1.205792 * x$	
S 13C3-HFPO-DA	Linear	$y = 0.176981 * x$	
S 13C4-PFHpA	Linear	$y = 1.022642 * x$	
S 13C2-6:2FTS	Linear	$y = 0.139493 * x$	
S 13C8-PFOA	Linear	$y = 0.964849 * x$	
T PFOA	Linear	$y = 1.207189 * x - 0.032197$	5.8267
S 13C3-PFHxS	Linear	$y = 1.336806 * x$	
S 13C9-PFNA	Linear	$y = 0.952962 * x$	
S 13C2-8:2FTS	Linear	$y = 0.150038 * x$	
S 13C6-PFDA	Linear	$y = 0.824480 * x$	
S d3-MeFOSAA	Linear	$y = 0.745011 * x$	
S 13C8-PFOS	Linear	$y = 0.753188 * x$	
S d5-EFOSAA	Linear	$y = 0.619235 * x$	
S 13C7-PFUnDA	Linear	$y = 1.055532 * x$	
S 13C2-PFDoDA	Linear	$y = 1.040185 * x$	
S 13C8-FOSA	Linear	$y = 1.652821 * x$	
S 13C2-PFTeDA	Linear	$y = 0.703707 * x$	
S d7-MeFOSE	Linear	$y = 0.656143 * x$	
S d3-MeFOSA	Linear	$y = 0.624386 * x$	
S d9-EFOSE	Linear	$y = 0.801762 * x$	
S d5-EFOSA	Linear	$y = 0.766720 * x$	

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

Initial Calibration Verification

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-ICV258
 Lab FileID: 6Q17060.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\042823_1633_S6Q258\s6q258.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\042823_1633_S6Q258\6Q17051.d
 2:D:\MassHunter\Data\042823_1633_S6Q258\6Q17052.d
 3:D:\MassHunter\Data\042823_1633_S6Q258\6Q17053.d
 4:D:\MassHunter\Data\042823_1633_S6Q258\6Q17054.d
 5:D:\MassHunter\Data\042823_1633_S6Q258\6Q17055.d
 6:D:\MassHunter\Data\042823_1633_S6Q258\6Q17056.d
 7:D:\MassHunter\Data\042823_1633_S6Q258\6Q17057.d
 8:D:\MassHunter\Data\042823_1633_S6Q258\6Q17058.d

Data File: 6Q17060
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.234	4.7	104.7
13C2-6:2FTS	5.000	5.301	6.0	106.0
13C2-8:2FTS	5.000	4.809	-3.8	96.2
13C2-PFDoDA	1.250	1.183	-5.4	94.6
13C2-PFTeDA	1.250	1.244	-0.4	99.6
13C3-PFBS	2.500	2.504	0.1	100.1
13C3-PFHxS	2.500	2.427	-2.9	97.1
13C4-PFBA	10.000	10.046	0.5	100.5
13C4-PFHpA	2.500	2.558	2.3	102.3
13C5-PFHxA	2.500	2.530	1.2	101.2
13C5-PFPeA	5.000	5.075	1.5	101.5
13C6-PFDA	1.250	1.242	-0.6	99.4
13C7-PFUnDA	1.250	1.170	-6.4	93.6
13C8-FOSA	2.500	2.671	6.9	106.9
13C8-PFOA	2.500	2.446	-2.2	97.8
13C8-PFOS	2.500	2.730	9.2	109.2
13C9-PFNA	1.250	1.182	-5.5	94.5
4:2FTS	9.375	9.308	-0.7	99.3
6:2FTS	9.500	9.660	1.7	101.7
8:2FTS	9.600	10.700	11.5	111.5
d3-MeFOSAA	5.000	5.154	3.1	103.1
EtFOSAA	2.500	2.414	-3.4	96.6
FOSA	2.500	2.487	-0.5	99.5
MeFOSAA	2.500	2.554	2.1	102.1
PFBA	10.000	10.284	2.8	102.8
PFBS	2.218	2.313	4.3	104.3
PFDA	2.500	2.799	12.0	112.0
PFDoDA	2.500	2.618	4.7	104.7
PFDS	2.413	2.277	-5.6	94.4
PFHpA	2.500	2.604	4.2	104.2
PFHpS	2.383	2.331	-2.2	97.8
PFHxA	2.500	2.460	-1.6	98.4
PFHxS	2.285	2.364	3.4	103.4
PFNA	2.500	2.371	-5.1	94.9
PFNS	2.405	2.305	-4.2	95.8
PFOA	2.500	2.418	-3.3	96.7
PFOS	2.320	2.101	-9.5	90.5

Initial Calibration Verification

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-ICV258
 Lab FileID: 6Q17060.D

PFPeA	5.000	5.052	1.0	101.0
PFPeS	2.353	2.508	6.6	106.6
PFTeDA	2.500	2.513	0.5	100.5
PFTrDA	2.500	2.674	7.0	107.0
PFUnDA	2.500	2.679	7.2	107.2
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	4.725	4.865	3.0	103.0
13C3-HFPO-DA	10.000	9.937	-0.6	99.4
9C1-PF3ONS	4.675	4.608	-1.4	98.6
ADONA	4.725	5.002	5.9	105.9
HFPO-DA	5.000	4.983	-0.3	99.7
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.498	0.1	100.1
5:3FTCA	62.400	65.148	4.4	104.4
7:3FTCA	62.400	62.032	-0.6	99.4
d3-MeFOSA	2.500	2.506	0.2	100.2
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.761	-4.8	95.2
EtFOSE	12.500	12.382	-0.9	99.1
MeFOSA	5.000	5.161	3.2	103.2
MeFOSE	12.500	12.211	-2.3	97.7
PFDoDS	2.425	2.321	-4.3	95.7
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.349	7.0	107.0
d7-MeFOSE	25.000	26.758	7.0	107.0
d9-EtFOSE	25.000	25.966	3.9	103.9
d5-EtFOSA	2.500	2.685	7.4	107.4
NFDHA	5.000	5.183	3.7	103.7
PFMBA	5.000	5.052	1.0	101.0
PFMPA	5.000	5.075	1.5	101.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.519	1.6	101.6

CC Criteria: +/- 30%

Initial Calibration Verification

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-ICV258
 Lab FileID: 6Q17061.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\042823_1633_S6Q258\s6q258.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\042823_1633_S6Q258\6Q17051.d
 2:D:\MassHunter\Data\042823_1633_S6Q258\6Q17052.d
 3:D:\MassHunter\Data\042823_1633_S6Q258\6Q17053.d
 4:D:\MassHunter\Data\042823_1633_S6Q258\6Q17054.d
 5:D:\MassHunter\Data\042823_1633_S6Q258\6Q17055.d
 6:D:\MassHunter\Data\042823_1633_S6Q258\6Q17056.d
 7:D:\MassHunter\Data\042823_1633_S6Q258\6Q17057.d
 8:D:\MassHunter\Data\042823_1633_S6Q258\6Q17058.d

Data File: 6Q17061
 Type : QC
 Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.978	-0.4	99.6
13C2-6:2FTS	5.000	5.087	1.7	101.7
13C2-8:2FTS	5.000	5.498	10.0	110.0
13C2-PFDoDA	1.250	1.324	5.9	105.9
13C2-PFTeDA	1.250	1.283	2.6	102.6
13C3-PFBS	2.500	2.511	0.4	100.4
13C3-PFHxS	2.500	2.501	0.0	100.0
13C4-PFBA	10.000	10.058	0.6	100.6
13C4-PFHpA	2.500	2.401	-4.0	96.0
13C5-PFHxA	2.500	2.424	-3.0	97.0
13C5-PFPeA	5.000	5.018	0.4	100.4
13C6-PFDA	1.250	1.293	3.5	103.5
13C7-PFUnDA	1.250	1.247	-0.3	99.7
13C8-FOSA	2.500	2.609	4.4	104.4
13C8-PFOA	2.500	2.400	-4.0	96.0
13C8-PFOS	2.500	2.644	5.8	105.8
13C9-PFNA	1.250	1.152	-7.8	92.2
4:2FTS	20.000	22.440	12.2	112.2
6:2FTS	20.000	20.540	2.7	102.7
8:2FTS	20.000	18.805	-6.0	94.0
d3-MeFOSAA	5.000	5.415	8.3	108.3
EtFOSAA	20.000	20.650	3.3	103.3
FOSA	20.000	22.297	11.5	111.5
MeFOSAA	20.000	21.114	5.6	105.6
PFBA	20.000	20.356	1.8	101.8
PFBS	20.000	22.108	10.5	110.5
PFDA	20.000	22.578	12.9	112.9
PFDoDA	20.000	16.948	-15.3	84.7
PFDS	20.000	21.172	5.9	105.9
PFHpA	20.000	21.830	9.1	109.1
PFHpS	20.000	20.356	1.8	101.8
PFHxA	20.000	21.281	6.4	106.4
PFHxS	20.000	22.516	12.6	112.6
PFNA	20.000	20.748	3.7	103.7
PFNS	20.000	22.361	11.8	111.8
PFOA	20.000	20.811	4.1	104.1
PFOS	20.000	19.189	-4.1	95.9

Initial Calibration Verification

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-ICV258
 Lab FileID: 6Q17061.D

PFPeA	20.000	22.219	11.1	111.1
PFPeS	20.000	22.436	12.2	112.2
PFTeDA	20.000	21.508	7.5	107.5
PFTTrDA	20.000	18.424	-7.9	92.1
PFUnDA	20.000	21.105	5.5	105.5
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	20.934	4.7	104.7
13C3-HFPO-DA	10.000	10.271	2.7	102.7
9C1-PF3ONS	20.000	21.243	6.2	106.2
ADONA	20.000	20.743	3.7	103.7
HFPO-DA	20.000	18.852	-5.7	94.3
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	20.761	3.8	103.8
5:3FTCA	20.000	24.581	22.9	122.9
7:3FTCA	20.000	22.291	11.5	111.5
d3-MeFOSA	2.500	2.648	5.9	105.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	20.742	3.7	103.7
EtFOSE	100.000	110.844	10.8	110.8
MeFOSA	20.000	20.657	3.3	103.3
MeFOSE	100.000	112.253	12.3	112.3
PFDoDS	20.000	20.303	1.5	101.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.698	14.0	114.0
d7-MeFOSE	25.000	25.753	3.0	103.0
d9-EtFOSE	25.000	25.659	2.6	102.6
d5-EtFOSA	2.500	2.632	5.3	105.3
NFDHA	20.000	22.831	14.2	114.2
PFMBA	20.000	21.829	9.1	109.1
PFMPA	20.000	21.503	7.5	107.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	20.000	19.879	-0.6	99.4

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-CC258
 Lab FileID: 6Q17062.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\042823_1633_S6Q258\s6q258.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\042823_1633_S6Q258\6Q17051.d
 2:D:\MassHunter\Data\042823_1633_S6Q258\6Q17052.d
 3:D:\MassHunter\Data\042823_1633_S6Q258\6Q17053.d
 4:D:\MassHunter\Data\042823_1633_S6Q258\6Q17054.d
 5:D:\MassHunter\Data\042823_1633_S6Q258\6Q17055.d
 6:D:\MassHunter\Data\042823_1633_S6Q258\6Q17056.d
 7:D:\MassHunter\Data\042823_1633_S6Q258\6Q17057.d
 8:D:\MassHunter\Data\042823_1633_S6Q258\6Q17058.d

Data File: 6Q17062
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.117	2.3	102.3
13C2-6:2FTS	5.000	5.440	8.8	108.8
13C2-8:2FTS	5.000	4.852	-3.0	97.0
13C2-PFDoDA	1.250	1.216	-2.7	97.3
13C2-PFTeDA	1.250	1.258	0.6	100.6
13C3-PFBS	2.500	2.512	0.5	100.5
13C3-PFHxS	2.500	2.533	1.3	101.3
13C4-PFBA	10.000	10.068	0.7	100.7
13C4-PFHpA	2.500	2.468	-1.3	98.7
13C5-PFHxA	2.500	2.432	-2.7	97.3
13C5-PFPeA	5.000	4.946	-1.1	98.9
13C6-PFDA	1.250	1.230	-1.6	98.4
13C7-PFUnDA	1.250	1.274	1.9	101.9
13C8-FOSA	2.500	2.643	5.7	105.7
13C8-PFOA	2.500	2.604	4.1	104.1
13C8-PFOS	2.500	2.616	4.6	104.6
13C9-PFNA	1.250	1.262	1.0	101.0
4:2FTS	9.375	9.528	1.6	101.6
6:2FTS	9.500	9.026	-5.0	95.0
8:2FTS	9.600	10.083	5.0	105.0
d3-MeFOSAA	5.000	5.612	12.2	112.2
EtFOSAA	2.500	2.377	-4.9	95.1
FOSA	2.500	2.471	-1.2	98.8
MeFOSAA	2.500	2.430	-2.8	97.2
PFBA	10.000	10.213	2.1	102.1
PFBS	2.218	2.251	1.5	101.5
PFDA	2.500	2.532	1.3	101.3
PFDoDA	2.500	2.457	-1.7	98.3
PFDS	2.413	2.594	7.5	107.5
PFHpA	2.500	2.496	-0.1	99.9
PFHpS	2.383	2.402	0.8	100.8
PFHxA	2.500	2.478	-0.9	99.1
PFHxS	2.285	2.240	-2.0	98.0
PFNA	2.500	2.570	2.8	102.8
PFNS	2.405	2.409	0.2	100.2
PFOA	2.500	2.424	-3.0	97.0
PFOS	2.320	2.532	9.2	109.2

Continuing Calibration Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-CC258
 Lab FileID: 6Q17062.D

PFPeA	5.000	5.020	0.4	100.4
PFPeS	2.353	2.307	-1.9	98.1
PFTeDA	2.500	2.622	4.9	104.9
PFTTrDA	2.500	2.440	-2.4	97.6
PFUnDA	2.500	2.599	4.0	104.0
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	4.725	4.762	0.8	100.8
13C3-HFPO-DA	10.000	9.627	-3.7	96.3
9C1-PF3ONS	4.675	4.885	4.5	104.5
ADONA	4.725	4.763	0.8	100.8
HFPO-DA	5.000	5.016	0.3	100.3
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.039	-3.5	96.5
5:3FTCA	62.400	66.731	6.9	106.9
7:3FTCA	62.400	62.565	0.3	100.3
d3-MeFOSA	2.500	2.523	0.9	100.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.111	2.2	102.2
EtFOSE	12.500	13.178	5.4	105.4
MeFOSA	5.000	5.351	7.0	107.0
MeFOSE	12.500	12.828	2.6	102.6
PFDoDS	2.425	2.532	4.4	104.4
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.712	14.2	114.2
d7-MeFOSE	25.000	26.214	4.9	104.9
d9-EtFOSE	25.000	25.998	4.0	104.0
d5-EtFOSA	2.500	2.657	6.3	106.3
NFDHA	5.000	4.959	-0.8	99.2
PFMBA	5.000	4.948	-1.0	99.0
PFMPA	5.000	4.896	-2.1	97.9
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.664	4.8	104.8

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-CC258
 Lab FileID: 6Q17063.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\042823_1633_S6Q258\s6q258.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\042823_1633_S6Q258\6Q17051.d
 2:D:\MassHunter\Data\042823_1633_S6Q258\6Q17052.d
 3:D:\MassHunter\Data\042823_1633_S6Q258\6Q17053.d
 4:D:\MassHunter\Data\042823_1633_S6Q258\6Q17054.d
 5:D:\MassHunter\Data\042823_1633_S6Q258\6Q17055.d
 6:D:\MassHunter\Data\042823_1633_S6Q258\6Q17056.d
 7:D:\MassHunter\Data\042823_1633_S6Q258\6Q17057.d
 8:D:\MassHunter\Data\042823_1633_S6Q258\6Q17058.d

Data File: 6Q17063
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.216	4.3	104.3
13C2-6:2FTS	5.000	5.074	1.5	101.5
13C2-8:2FTS	5.000	5.844	16.9	116.9
13C2-PFDoDA	1.250	1.296	3.6	103.6
13C2-PFTeDA	1.250	1.161	-7.1	92.9
13C3-PFBS	2.500	2.452	-1.9	98.1
13C3-PFHxS	2.500	2.586	3.4	103.4
13C4-PFBA	10.000	10.014	0.1	100.1
13C4-PFHpA	2.500	2.542	1.7	101.7
13C5-PFHxA	2.500	2.551	2.0	102.0
13C5-PFPeA	5.000	5.026	0.5	100.5
13C6-PFDA	1.250	1.288	3.1	103.1
13C7-PFUnDA	1.250	1.350	8.0	108.0
13C8-FOSA	2.500	2.520	0.8	100.8
13C8-PFOA	2.500	2.496	-0.2	99.8
13C8-PFOS	2.500	2.494	-0.3	99.7
13C9-PFNA	1.250	1.251	0.1	100.1
4:2FTS	0.750	0.615	-18.0	82.0
6:2FTS	0.760	0.616	-18.9	81.1
8:2FTS	0.768	0.572	-25.5	74.5
d3-MeFOSAA	5.000	5.070	1.4	101.4
EtFOSAA	0.200	0.179	-10.7	89.3
FOSA	0.200	0.170	-15.1	84.9
MeFOSAA	0.200	0.151	-24.6	75.4
PFBA	0.800	0.643	-19.6	80.4
PFBS	0.177	0.153	-13.4	86.6
PFDA	0.200	0.196	-2.0	98.0
PFDoDA	0.200	0.166	-17.1	82.9
PFDS	0.193	0.169	-12.3	87.7
PFHpA	0.200	0.148	-25.8	74.2
PFHpS	0.191	0.135	-29.5	70.5
PFHxA	0.200	0.146	-26.9	73.1
PFHxS	0.183	0.153	-16.6	83.4
PFNA	0.200	0.163	-18.3	81.7
PFNS	0.192	0.136	-29.2	70.8
PFOA	0.200	0.174	-13.0	87.0
PFOS	0.186	0.175	-5.9	94.1

Continuing Calibration Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-CC258
 Lab FileID: 6Q17063.D

PFPeA	0.400	0.339	-15.3	84.7
PFPeS	0.188	0.147	-21.9	78.1
PFTeDA	0.200	0.190	-5.0	95.0
PFTTrDA	0.200	0.161	-19.7	80.3
PFUnDA	0.200	0.164	-17.9	82.1
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	0.378	0.330	-12.8	87.2
13C3-HFPO-DA	10.000	9.619	-3.8	96.2
9C1-PF3ONS	0.367	0.374	1.7	101.7
ADONA	0.378	0.318	-15.8	84.2
HFPO-DA	0.400	0.308	-23.0	77.0
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	0.800	-19.8	80.2
5:3FTCA	4.992	4.515	-9.5	90.5
7:3FTCA	4.992	3.849	-22.9	77.1
d3-MeFOSA	2.500	2.454	-1.9	98.1
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.346	-13.5	86.5
EtFOSE	1.000	0.831	-16.9	83.1
MeFOSA	0.400	0.341	-14.8	85.2
MeFOSE	1.000	0.886	-11.4	88.6
PFDoDS	0.194	0.157	-19.0	81.0
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.828	-3.4	96.6
d7-MeFOSE	25.000	24.571	-1.7	98.3
d9-EtFOSE	25.000	25.161	0.6	100.6
d5-EtFOSA	2.500	2.422	-3.1	96.9
NFDHA	0.400	0.315	-21.3	78.7
PFMBA	0.400	0.313	-21.8	78.2
PFMPA	0.400	0.323	-19.3	80.7
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	0.356	0.266	-25.2	74.8

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-CC258
 Lab FileID: 6Q17070.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\042823_1633_S6Q258\s6q258.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\042823_1633_S6Q258\6Q17051.d
 2:D:\MassHunter\Data\042823_1633_S6Q258\6Q17052.d
 3:D:\MassHunter\Data\042823_1633_S6Q258\6Q17053.d
 4:D:\MassHunter\Data\042823_1633_S6Q258\6Q17054.d
 5:D:\MassHunter\Data\042823_1633_S6Q258\6Q17055.d
 6:D:\MassHunter\Data\042823_1633_S6Q258\6Q17056.d
 7:D:\MassHunter\Data\042823_1633_S6Q258\6Q17057.d
 8:D:\MassHunter\Data\042823_1633_S6Q258\6Q17058.d

Data File: 6Q17070
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.197	3.9	103.9
13C2-6:2FTS	5.000	5.218	4.4	104.4
13C2-8:2FTS	5.000	5.006	0.1	100.1
13C2-PFDoDA	1.250	1.258	0.6	100.6
13C2-PFTeDA	1.250	1.303	4.3	104.3
13C3-PFBS	2.500	2.496	-0.1	99.9
13C3-PFHxS	2.500	2.433	-2.7	97.3
13C4-PFBA	10.000	9.868	-1.3	98.7
13C4-PFHpA	2.500	2.388	-4.5	95.5
13C5-PFHxA	2.500	2.401	-3.9	96.1
13C5-PFPeA	5.000	4.967	-0.7	99.3
13C6-PFDA	1.250	1.254	0.3	100.3
13C7-PFUnDA	1.250	1.365	9.2	109.2
13C8-FOSA	2.500	2.465	-1.4	98.6
13C8-PFOA	2.500	2.643	5.7	105.7
13C8-PFOS	2.500	2.609	4.3	104.3
13C9-PFNA	1.250	1.289	3.1	103.1
4:2FTS	9.375	9.249	-1.3	98.7
6:2FTS	9.500	9.591	1.0	101.0
8:2FTS	9.600	9.427	-1.8	98.2
d3-MeFOSAA	5.000	4.707	-5.9	94.1
EtFOSAA	2.500	2.515	0.6	100.6
FOSA	2.500	2.438	-2.5	97.5
MeFOSAA	2.500	2.649	6.0	106.0
PFBA	10.000	10.182	1.8	101.8
PFBS	2.218	2.255	1.7	101.7
PFDA	2.500	2.787	11.5	111.5
PFDoDA	2.500	2.473	-1.1	98.9
PFDS	2.413	2.360	-2.2	97.8
PFHpA	2.500	2.659	6.4	106.4
PFHpS	2.383	2.138	-10.3	89.7
PFHxA	2.500	2.565	2.6	102.6
PFHxS	2.285	2.328	1.9	101.9
PFNA	2.500	2.298	-8.1	91.9
PFNS	2.405	2.328	-3.2	96.8
PFOA	2.500	2.522	0.9	100.9
PFOS	2.320	2.093	-9.8	90.2

Continuing Calibration Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-CC258
 Lab FileID: 6Q17070.D

PFPeA	5.000	5.126	2.5	102.5
PFPeS	2.353	2.519	7.1	107.1
PFTeDA	2.500	2.425	-3.0	97.0
PFTTrDA	2.500	2.702	8.1	108.1
PFUnDA	2.500	2.300	-8.0	92.0
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	4.725	4.593	-2.8	97.2
13C3-HFPO-DA	10.000	9.931	-0.7	99.3
9C1-PF3ONS	4.675	4.761	1.8	101.8
ADONA	4.725	4.713	-0.2	99.8
HFPO-DA	5.000	4.705	-5.9	94.1
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.414	-0.5	99.5
5:3FTCA	62.400	66.308	6.3	106.3
7:3FTCA	62.400	66.964	7.3	107.3
d3-MeFOSA	2.500	2.342	-6.3	93.7
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.995	-0.1	99.9
EtFOSE	12.500	12.438	-0.5	99.5
MeFOSA	5.000	5.111	2.2	102.2
MeFOSE	12.500	12.766	2.1	102.1
PFDoDS	2.425	2.346	-3.3	96.7
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.910	-1.8	98.2
d7-MeFOSE	25.000	24.249	-3.0	97.0
d9-EtFOSE	25.000	25.030	0.1	100.1
d5-EtFOSA	2.500	2.414	-3.5	96.5
NFDHA	5.000	5.303	6.1	106.1
PFMBA	5.000	5.082	1.6	101.6
PFMPA	5.000	5.100	2.0	102.0
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.785	7.5	107.5

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-CC258
 Lab FileID: 6Q17091.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\042823_1633_S6Q258\s6q258.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\042823_1633_S6Q258\6Q17051.d
 2:D:\MassHunter\Data\042823_1633_S6Q258\6Q17052.d
 3:D:\MassHunter\Data\042823_1633_S6Q258\6Q17053.d
 4:D:\MassHunter\Data\042823_1633_S6Q258\6Q17054.d
 5:D:\MassHunter\Data\042823_1633_S6Q258\6Q17055.d
 6:D:\MassHunter\Data\042823_1633_S6Q258\6Q17056.d
 7:D:\MassHunter\Data\042823_1633_S6Q258\6Q17057.d
 8:D:\MassHunter\Data\042823_1633_S6Q258\6Q17058.d

Data File: 6Q17091
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.054	1.1	101.1
13C2-6:2FTS	5.000	5.735	14.7	114.7
13C2-8:2FTS	5.000	5.465	9.3	109.3
13C2-PFDoDA	1.250	1.142	-8.7	91.3
13C2-PFTeDA	1.250	1.118	-10.5	89.5
13C3-PFBS	2.500	2.554	2.2	102.2
13C3-PFHxS	2.500	2.496	-0.2	99.8
13C4-PFBA	10.000	9.960	-0.4	99.6
13C4-PFHpA	2.500	2.545	1.8	101.8
13C5-PFHxA	2.500	2.439	-2.5	97.5
13C5-PFPeA	5.000	5.034	0.7	100.7
13C6-PFDA	1.250	1.133	-9.3	90.7
13C7-PFUnDA	1.250	1.102	-11.9	88.1
13C8-FOSA	2.500	2.485	-0.6	99.4
13C8-PFOA	2.500	2.345	-6.2	93.8
13C8-PFOS	2.500	2.588	3.5	103.5
13C9-PFNA	1.250	1.233	-1.3	98.7
4:2FTS	9.375	10.187	8.7	108.7
6:2FTS	9.500	9.225	-2.9	97.1
8:2FTS	9.600	9.489	-1.2	98.8
d3-MeFOSAA	5.000	4.980	-0.4	99.6
EtFOSAA	2.500	2.252	-9.9	90.1
FOSA	2.500	2.600	4.0	104.0
MeFOSAA	2.500	2.689	7.5	107.5
PFBA	10.000	10.222	2.2	102.2
PFBS	2.218	2.385	7.5	107.5
PFDA	2.500	2.461	-1.6	98.4
PFDoDA	2.500	2.479	-0.8	99.2
PFDS	2.413	2.314	-4.1	95.9
PFHpA	2.500	2.423	-3.1	96.9
PFHpS	2.383	2.264	-5.0	95.0
PFHxA	2.500	2.518	0.7	100.7
PFHxS	2.285	2.321	1.6	101.6
PFNA	2.500	2.485	-0.6	99.4
PFNS	2.405	2.312	-3.9	96.1
PFOA	2.500	2.350	-6.0	94.0
PFOS	2.320	2.144	-7.6	92.4

Continuing Calibration Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-CC258
 Lab FileID: 6Q17091.D

PFPeA	5.000	5.040	0.8	100.8
PFPeS	2.353	2.501	6.3	106.3
PFTeDA	2.500	2.469	-1.2	98.8
PFTTrDA	2.500	2.573	2.9	102.9
PFUnDA	2.500	2.608	4.3	104.3
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	4.725	5.033	6.5	106.5
13C3-HFPO-DA	10.000	9.510	-4.9	95.1
9C1-PF3ONS	4.675	5.106	9.2	109.2
ADONA	4.725	5.025	6.3	106.3
HFPO-DA	5.000	4.900	-2.0	98.0
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.318	-1.3	98.7
5:3FTCA	62.400	65.017	4.2	104.2
7:3FTCA	62.400	64.873	4.0	104.0
d3-MeFOSA	2.500	2.305	-7.8	92.2
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.980	-0.4	99.6
EtFOSE	12.500	13.005	4.0	104.0
MeFOSA	5.000	5.444	8.9	108.9
MeFOSE	12.500	12.305	-1.6	98.4
PFDODS	2.425	2.350	-3.1	96.9
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.152	3.0	103.0
d7-MeFOSE	25.000	24.976	-0.1	99.9
d9-EtFOSE	25.000	24.333	-2.7	97.3
d5-EtFOSA	2.500	2.531	1.2	101.2
NFDHA	5.000	5.196	3.9	103.9
PFMBA	5.000	5.097	1.9	101.9
PFMPA	5.000	4.977	-0.5	99.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.417	-0.7	99.3

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-CC258
 Lab FileID: 6Q17103.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\042823_1633_S6Q258\s6q258.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\042823_1633_S6Q258\6Q17051.d
 2:D:\MassHunter\Data\042823_1633_S6Q258\6Q17052.d
 3:D:\MassHunter\Data\042823_1633_S6Q258\6Q17053.d
 4:D:\MassHunter\Data\042823_1633_S6Q258\6Q17054.d
 5:D:\MassHunter\Data\042823_1633_S6Q258\6Q17055.d
 6:D:\MassHunter\Data\042823_1633_S6Q258\6Q17056.d
 7:D:\MassHunter\Data\042823_1633_S6Q258\6Q17057.d
 8:D:\MassHunter\Data\042823_1633_S6Q258\6Q17058.d

Data File: 6Q17103
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.754	-4.9	95.1
13C2-6:2FTS	5.000	5.262	5.2	105.2
13C2-8:2FTS	5.000	5.036	0.7	100.7
13C2-PFDoDA	1.250	1.200	-4.0	96.0
13C2-PFTeDA	1.250	1.170	-6.4	93.6
13C3-PFBS	2.500	2.368	-5.3	94.7
13C3-PFHxS	2.500	2.397	-4.1	95.9
13C4-PFBA	10.000	9.954	-0.5	99.5
13C4-PFHpA	2.500	2.530	1.2	101.2
13C5-PFHxA	2.500	2.514	0.6	100.6
13C5-PFPeA	5.000	5.071	1.4	101.4
13C6-PFDA	1.250	1.201	-3.9	96.1
13C7-PFUnDA	1.250	1.242	-0.7	99.3
13C8-FOSA	2.500	2.714	8.6	108.6
13C8-PFOA	2.500	2.422	-3.1	96.9
13C8-PFOS	2.500	2.752	10.1	110.1
13C9-PFNA	1.250	1.183	-5.3	94.7
4:2FTS	9.375	9.573	2.1	102.1
6:2FTS	9.500	8.949	-5.8	94.2
8:2FTS	9.600	9.109	-5.1	94.9
d3-MeFOSAA	5.000	5.199	4.0	104.0
EtFOSAA	2.500	2.339	-6.4	93.6
FOSA	2.500	2.440	-2.4	97.6
MeFOSAA	2.500	2.639	5.6	105.6
PFBA	10.000	10.179	1.8	101.8
PFBS	2.218	2.319	4.5	104.5
PFDA	2.500	2.922	16.9	116.9
PFDoDA	2.500	2.595	3.8	103.8
PFDS	2.413	2.391	-0.9	99.1
PFHpA	2.500	2.465	-1.4	98.6
PFHpS	2.383	2.151	-9.7	90.3
PFHxA	2.500	2.391	-4.4	95.6
PFHxS	2.285	2.273	-0.5	99.5
PFNA	2.500	2.633	5.3	105.3
PFNS	2.405	2.319	-3.6	96.4
PFOA	2.500	2.666	6.6	106.6
PFOS	2.320	2.030	-12.5	87.5

Continuing Calibration Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-CC258
 Lab FileID: 6Q17103.D

PFPeA	5.000	5.031	0.6	100.6
PFPeS	2.353	2.426	3.1	103.1
PFTeDA	2.500	2.658	6.3	106.3
PFTTrDA	2.500	2.634	5.3	105.3
PFUnDA	2.500	2.635	5.4	105.4
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	4.725	4.789	1.4	101.4
13C3-HFPO-DA	10.000	9.613	-3.9	96.1
9C1-PF3ONS	4.675	4.836	3.4	103.4
ADONA	4.725	4.734	0.2	100.2
HFPO-DA	5.000	5.050	1.0	101.0
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.124	-2.9	97.1
5:3FTCA	62.400	56.951	-8.7	91.3
7:3FTCA	62.400	64.134	2.8	102.8
d3-MeFOSA	2.500	2.449	-2.1	97.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.742	-5.2	94.8
EtFOSE	12.500	12.775	2.2	102.2
MeFOSA	5.000	5.337	6.7	106.7
MeFOSE	12.500	12.531	0.2	100.2
PFDODS	2.425	2.191	-9.6	90.4
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.597	11.9	111.9
d7-MeFOSE	25.000	26.098	4.4	104.4
d9-EtFOSE	25.000	26.116	4.5	104.5
d5-EtFOSA	2.500	2.675	7.0	107.0
NFDHA	5.000	5.166	3.3	103.3
PFMBA	5.000	4.953	-0.9	99.1
PFMPA	5.000	4.925	-1.5	98.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.480	0.7	100.7

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-CC258
 Lab FileID: 6Q17115.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\042823_1633_S6Q258\s6q258.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\042823_1633_S6Q258\6Q17051.d
 2:D:\MassHunter\Data\042823_1633_S6Q258\6Q17052.d
 3:D:\MassHunter\Data\042823_1633_S6Q258\6Q17053.d
 4:D:\MassHunter\Data\042823_1633_S6Q258\6Q17054.d
 5:D:\MassHunter\Data\042823_1633_S6Q258\6Q17055.d
 6:D:\MassHunter\Data\042823_1633_S6Q258\6Q17056.d
 7:D:\MassHunter\Data\042823_1633_S6Q258\6Q17057.d
 8:D:\MassHunter\Data\042823_1633_S6Q258\6Q17058.d

Data File: 6Q17115
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.229	4.6	104.6
13C2-6:2FTS	5.000	5.402	8.0	108.0
13C2-8:2FTS	5.000	5.467	9.3	109.3
13C2-PFDoDA	1.250	1.246	-0.3	99.7
13C2-PFTeDA	1.250	1.250	0.0	100.0
13C3-PFBS	2.500	2.607	4.3	104.3
13C3-PFHxS	2.500	2.599	4.0	104.0
13C4-PFBA	10.000	10.042	0.4	100.4
13C4-PFHpA	2.500	2.661	6.4	106.4
13C5-PFHxA	2.500	2.536	1.4	101.4
13C5-PFPeA	5.000	5.206	4.1	104.1
13C6-PFDA	1.250	1.208	-3.4	96.6
13C7-PFUnDA	1.250	1.275	2.0	102.0
13C8-FOSA	2.500	2.591	3.7	103.7
13C8-PFOA	2.500	2.461	-1.6	98.4
13C8-PFOS	2.500	2.506	0.2	100.2
13C9-PFNA	1.250	1.324	6.0	106.0
4:2FTS	9.375	9.414	0.4	100.4
6:2FTS	9.500	9.522	0.2	100.2
8:2FTS	9.600	9.030	-5.9	94.1
d3-MeFOSAA	5.000	5.027	0.5	100.5
EtFOSAA	2.500	2.529	1.1	101.1
FOSA	2.500	2.381	-4.8	95.2
MeFOSAA	2.500	2.605	4.2	104.2
PFBA	10.000	10.193	1.9	101.9
PFBS	2.218	2.181	-1.7	98.3
PFDA	2.500	2.891	15.6	115.6
PFDoDA	2.500	2.525	1.0	101.0
PFDS	2.413	2.505	3.8	103.8
PFHpA	2.500	2.427	-2.9	97.1
PFHpS	2.383	2.269	-4.8	95.2
PFHxA	2.500	2.628	5.1	105.1
PFHxS	2.285	2.241	-1.9	98.1
PFNA	2.500	2.392	-4.3	95.7
PFNS	2.405	2.417	0.5	100.5
PFOA	2.500	2.626	5.1	105.1
PFOS	2.320	2.371	2.2	102.2

Continuing Calibration Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-CC258
 Lab FileID: 6Q17115.D

PFPeA	5.000	5.011	0.2	100.2
PFPeS	2.353	2.423	3.0	103.0
PFTeDA	2.500	2.556	2.2	102.2
PFTTrDA	2.500	2.648	5.9	105.9
PFUnDA	2.500	2.650	6.0	106.0
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	4.725	4.650	-1.6	98.4
13C3-HFPO-DA	10.000	10.141	1.4	101.4
9C1-PF3ONS	4.675	5.414	15.8	115.8
ADONA	4.725	4.869	3.0	103.0
HFPO-DA	5.000	4.770	-4.6	95.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.219	-2.1	97.9
5:3FTCA	62.400	64.937	4.1	104.1
7:3FTCA	62.400	63.016	1.0	101.0
d3-MeFOSA	2.500	2.508	0.3	100.3
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.018	0.4	100.4
EtFOSE	12.500	12.900	3.2	103.2
MeFOSA	5.000	5.134	2.7	102.7
MeFOSE	12.500	12.296	-1.6	98.4
PFDoDS	2.425	2.622	8.1	108.1
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.162	3.2	103.2
d7-MeFOSE	25.000	25.464	1.9	101.9
d9-EtFOSE	25.000	24.261	-3.0	97.0
d5-EtFOSA	2.500	2.574	3.0	103.0
NFDHA	5.000	5.256	5.1	105.1
PFMBA	5.000	5.072	1.4	101.4
PFMPA	5.000	5.036	0.7	100.7
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.481	0.7	100.7

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-CC258
 Lab FileID: 6Q17116.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\042823_1633_S6Q258\s6q258.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\042823_1633_S6Q258\6Q17051.d
 2:D:\MassHunter\Data\042823_1633_S6Q258\6Q17052.d
 3:D:\MassHunter\Data\042823_1633_S6Q258\6Q17053.d
 4:D:\MassHunter\Data\042823_1633_S6Q258\6Q17054.d
 5:D:\MassHunter\Data\042823_1633_S6Q258\6Q17055.d
 6:D:\MassHunter\Data\042823_1633_S6Q258\6Q17056.d
 7:D:\MassHunter\Data\042823_1633_S6Q258\6Q17057.d
 8:D:\MassHunter\Data\042823_1633_S6Q258\6Q17058.d

Data File: 6Q17116
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.276	5.5	105.5
13C2-6:2FTS	5.000	4.834	-3.3	96.7
13C2-8:2FTS	5.000	4.874	-2.5	97.5
13C2-PFDoDA	1.250	1.311	4.9	104.9
13C2-PFTeDA	1.250	1.204	-3.7	96.3
13C3-PFBS	2.500	2.538	1.5	101.5
13C3-PFHxS	2.500	2.464	-1.4	98.6
13C4-PFBA	10.000	9.898	-1.0	99.0
13C4-PFHpA	2.500	2.505	0.2	100.2
13C5-PFHxA	2.500	2.441	-2.4	97.6
13C5-PFPeA	5.000	4.940	-1.2	98.8
13C6-PFDA	1.250	1.271	1.7	101.7
13C7-PFUnDA	1.250	1.207	-3.4	96.6
13C8-FOSA	2.500	2.677	7.1	107.1
13C8-PFOA	2.500	2.550	2.0	102.0
13C8-PFOS	2.500	2.664	6.6	106.6
13C9-PFNA	1.250	1.141	-8.7	91.3
4:2FTS	0.750	0.570	-24.0	76.0
6:2FTS	0.760	0.667	-12.2	87.8
8:2FTS	0.768	0.727	-5.3	94.7
d3-MeFOSAA	5.000	5.520	10.4	110.4
EtFOSAA	0.200	0.179	-10.6	89.4
FOSA	0.200	0.187	-6.4	93.6
MeFOSAA	0.200	0.163	-18.4	81.6
PFBA	0.800	0.660	-17.5	82.5
PFBS	0.177	0.134	-24.2	75.8
PFDA	0.200	0.153	-23.4	76.6
PFDoDA	0.200	0.166	-17.2	82.8
PFDS	0.193	0.136	-29.4	70.6
PFHpA	0.200	0.161	-19.6	80.4
PFHpS	0.191	0.147	-23.2	76.8
PFHxA	0.200	0.153	-23.5	76.5
PFHxS	0.183	0.149	-18.5	81.5
PFNA	0.200	0.160	-20.1	79.9
PFNS	0.192	0.142	-26.1	73.9
PFOA	0.200	0.186	-6.9	93.1
PFOS	0.186	0.156	-16.0	84.0

Continuing Calibration Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-CC258
 Lab FileID: 6Q17116.D

PFPeA	0.400	0.331	-17.3	82.7
PFPeS	0.188	0.171	-9.1	90.9
PFTeDA	0.200	0.158	-20.9	79.1
PFTrDA	0.200	0.173	-13.4	86.6
PFUnDA	0.200	0.158	-20.8	79.2
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	0.378	0.306	-19.1	80.9
13C3-HFPO-DA	10.000	9.439	-5.6	94.4
9C1-PF3ONS	0.367	0.301	-18.1	81.9
ADONA	0.378	0.318	-15.7	84.3
HFPO-DA	0.400	0.342	-14.5	85.5
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	0.797	-20.2	79.8
5:3FTCA	4.992	4.517	-9.5	90.5
7:3FTCA	4.992	3.577	-28.3	71.7
d3-MeFOSA	2.500	2.639	5.5	105.5
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.332	-16.9	83.1
EtFOSE	1.000	0.811	-18.9	81.1
MeFOSA	0.400	0.344	-14.0	86.0
MeFOSE	1.000	0.820	-18.0	82.0
PFDoDS	0.194	0.177	-8.8	91.2
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.752	15.0	115.0
d7-MeFOSE	25.000	27.029	8.1	108.1
d9-EtFOSE	25.000	26.953	7.8	107.8
d5-EtFOSA	2.500	2.646	5.8	105.8
NFDHA	0.400	0.351	-12.2	87.8
PFMBA	0.400	0.328	-17.9	82.1
PFMPA	0.400	0.334	-16.5	83.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	0.356	0.283	-20.6	79.4

CC Criteria: +/- 30%

6.8.10
6

Continuing Calibration Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q260-CC258
 Lab FileID: 6Q17237.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\050123_1633_S6Q260\s6q260.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\042823_1633_S6Q258\6Q17051.d
 2:D:\MassHunter\Data\042823_1633_S6Q258\6Q17052.d
 3:D:\MassHunter\Data\042823_1633_S6Q258\6Q17053.d
 4:D:\MassHunter\Data\042823_1633_S6Q258\6Q17054.d
 5:D:\MassHunter\Data\042823_1633_S6Q258\6Q17055.d
 6:D:\MassHunter\Data\042823_1633_S6Q258\6Q17056.d
 7:D:\MassHunter\Data\042823_1633_S6Q258\6Q17057.d
 8:D:\MassHunter\Data\042823_1633_S6Q258\6Q17058.d

Data File: 6Q17237
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.771	-4.6	95.4
13C2-6:2FTS	5.000	4.953	-0.9	99.1
13C2-8:2FTS	5.000	4.655	-6.9	93.1
13C2-PFDoDA	1.250	1.161	-7.1	92.9
13C2-PFTeDA	1.250	1.170	-6.4	93.6
13C3-PFBS	2.500	2.374	-5.0	95.0
13C3-PFHxS	2.500	2.405	-3.8	96.2
13C4-PFBA	10.000	10.071	0.7	100.7
13C4-PFHpA	2.500	2.634	5.3	105.3
13C5-PFHxA	2.500	2.543	1.7	101.7
13C5-PFPeA	5.000	4.955	-0.9	99.1
13C6-PFDA	1.250	1.252	0.2	100.2
13C7-PFUnDA	1.250	1.203	-3.8	96.2
13C8-FOSA	2.500	2.715	8.6	108.6
13C8-PFOA	2.500	2.419	-3.2	96.8
13C8-PFOS	2.500	2.550	2.0	102.0
13C9-PFNA	1.250	1.154	-7.7	92.3
4:2FTS	9.375	9.732	3.8	103.8
6:2FTS	9.500	9.367	-1.4	98.6
8:2FTS	9.600	9.914	3.3	103.3
d3-MeFOSAA	5.000	4.955	-0.9	99.1
EtFOSAA	2.500	2.407	-3.7	96.3
FOSA	2.500	2.446	-2.2	97.8
MeFOSAA	2.500	2.728	9.1	109.1
PFBA	10.000	10.140	1.4	101.4
PFBS	2.218	2.331	5.1	105.1
PFDA	2.500	2.594	3.8	103.8
PFDoDA	2.500	2.415	-3.4	96.6
PFDS	2.413	2.433	0.8	100.8
PFHpA	2.500	2.312	-7.5	92.5
PFHpS	2.383	2.396	0.5	100.5
PFHxA	2.500	2.434	-2.6	97.4
PFHxS	2.285	2.351	2.9	102.9
PFNA	2.500	2.581	3.2	103.2
PFNS	2.405	2.396	-0.4	99.6
PFOA	2.500	2.515	0.6	100.6
PFOS	2.320	2.235	-3.7	96.3

Continuing Calibration Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q260-CC258
 Lab FileID: 6Q17237.D

PFPeA	5.000	5.112	2.2	102.2
PFPeS	2.353	2.401	2.0	102.0
PFTeDA	2.500	2.633	5.3	105.3
PFTTrDA	2.500	2.970	18.8	118.8
PFUnDA	2.500	2.510	0.4	100.4
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	4.725	5.337	13.0	113.0
13C3-HFPO-DA	10.000	9.685	-3.1	96.9
9C1-PF3ONS	4.675	5.155	10.3	110.3
ADONA	4.725	5.236	10.8	110.8
HFPO-DA	5.000	5.131	2.6	102.6
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.458	-0.2	99.8
5:3FTCA	62.400	63.191	1.3	101.3
7:3FTCA	62.400	62.349	-0.1	99.9
d3-MeFOSA	2.500	2.434	-2.6	97.4
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.168	3.4	103.4
EtFOSE	12.500	13.606	8.8	108.8
MeFOSA	5.000	5.274	5.5	105.5
MeFOSE	12.500	12.519	0.2	100.2
PFDODS	2.425	2.589	6.7	106.7
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.305	6.1	106.1
d7-MeFOSE	25.000	25.146	0.6	100.6
d9-EtFOSE	25.000	23.703	-5.2	94.8
d5-EtFOSA	2.500	2.552	2.1	102.1
NFDHA	5.000	5.057	1.1	101.1
PFMBA	5.000	5.228	4.6	104.6
PFMPA	5.000	5.293	5.9	105.9
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.515	1.5	101.5

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q260-CC258
 Lab FileID: 6Q17238.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\050123_1633_S6Q260\s6q260.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\042823_1633_S6Q258\6Q17051.d
 2:D:\MassHunter\Data\042823_1633_S6Q258\6Q17052.d
 3:D:\MassHunter\Data\042823_1633_S6Q258\6Q17053.d
 4:D:\MassHunter\Data\042823_1633_S6Q258\6Q17054.d
 5:D:\MassHunter\Data\042823_1633_S6Q258\6Q17055.d
 6:D:\MassHunter\Data\042823_1633_S6Q258\6Q17056.d
 7:D:\MassHunter\Data\042823_1633_S6Q258\6Q17057.d
 8:D:\MassHunter\Data\042823_1633_S6Q258\6Q17058.d

Data File: 6Q17238
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.992	-0.2	99.8
13C2-6:2FTS	5.000	4.847	-3.1	96.9
13C2-8:2FTS	5.000	4.735	-5.3	94.7
13C2-PFDoDA	1.250	1.369	9.5	109.5
13C2-PFTeDA	1.250	1.310	4.8	104.8
13C3-PFBS	2.500	2.434	-2.6	97.4
13C3-PFHxS	2.500	2.425	-3.0	97.0
13C4-PFBA	10.000	10.198	2.0	102.0
13C4-PFHpA	2.500	2.520	0.8	100.8
13C5-PFHxA	2.500	2.476	-1.0	99.0
13C5-PFPeA	5.000	4.910	-1.8	98.2
13C6-PFDA	1.250	1.463	17.1	117.1
13C7-PFUnDA	1.250	1.306	4.5	104.5
13C8-FOSA	2.500	2.678	7.1	107.1
13C8-PFOA	2.500	2.558	2.3	102.3
13C8-PFOS	2.500	2.670	6.8	106.8
13C9-PFNA	1.250	1.160	-7.2	92.8
4:2FTS	0.750	0.743	-1.0	99.0
6:2FTS	0.760	0.767	0.9	100.9
8:2FTS	0.768	0.837	9.0	109.0
d3-MeFOSAA	5.000	5.567	11.3	111.3
EtFOSAA	0.200	0.210	5.1	105.1
FOSA	0.200	0.208	4.0	104.0
MeFOSAA	0.200	0.179	-10.3	89.7
PFBA	0.800	0.801	0.1	100.1
PFBS	0.177	0.199	12.2	112.2
PFDA	0.200	0.200	0.0	100.0
PFDoDA	0.200	0.199	-0.5	99.5
PFDS	0.193	0.208	7.7	107.7
PFHpA	0.200	0.210	5.0	105.0
PFHpS	0.191	0.185	-3.3	96.7
PFHxA	0.200	0.198	-1.2	98.8
PFHxS	0.183	0.209	14.5	114.5
PFNA	0.200	0.200	0.1	100.1
PFNS	0.192	0.172	-10.6	89.4
PFOA	0.200	0.219	9.6	109.6
PFOS	0.186	0.220	18.1	118.1

Continuing Calibration Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q260-CC258
 Lab FileID: 6Q17238.D

PFPeA	0.400	0.407	1.9	101.9
PFPeS	0.188	0.182	-3.1	96.9
PFTeDA	0.200	0.201	0.4	100.4
PFTTrDA	0.200	0.203	1.5	101.5
PFUnDA	0.200	0.203	1.3	101.3
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	0.378	0.382	1.0	101.0
13C3-HFPO-DA	10.000	10.064	0.6	100.6
9C1-PF3ONS	0.367	0.425	15.7	115.7
ADONA	0.378	0.374	-1.0	99.0
HFPO-DA	0.400	0.416	4.0	104.0
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	0.956	-4.3	95.7
5:3FTCA	4.992	5.555	11.3	111.3
7:3FTCA	4.992	4.691	-6.0	94.0
d3-MeFOSA	2.500	2.574	3.0	103.0
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.417	4.2	104.2
EtFOSE	1.000	1.026	2.6	102.6
MeFOSA	0.400	0.418	4.4	104.4
MeFOSE	1.000	1.019	1.9	101.9
PFDoDS	0.194	0.179	-7.6	92.4
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.290	5.8	105.8
d7-MeFOSE	25.000	26.090	4.4	104.4
d9-EtFOSE	25.000	26.163	4.7	104.7
d5-EtFOSA	2.500	2.802	12.1	112.1
NFDHA	0.400	0.450	12.5	112.5
PFMBA	0.400	0.419	4.7	104.7
PFMPA	0.400	0.410	2.5	102.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	0.356	0.364	2.3	102.3

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q260-CC258
 Lab FileID: 6Q17249.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\050123_1633_S6Q260\s6q260.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\042823_1633_S6Q258\6Q17051.d
 2:D:\MassHunter\Data\042823_1633_S6Q258\6Q17052.d
 3:D:\MassHunter\Data\042823_1633_S6Q258\6Q17053.d
 4:D:\MassHunter\Data\042823_1633_S6Q258\6Q17054.d
 5:D:\MassHunter\Data\042823_1633_S6Q258\6Q17055.d
 6:D:\MassHunter\Data\042823_1633_S6Q258\6Q17056.d
 7:D:\MassHunter\Data\042823_1633_S6Q258\6Q17057.d
 8:D:\MassHunter\Data\042823_1633_S6Q258\6Q17058.d

Data File: 6Q17249
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.380	7.6	107.6
13C2-6:2FTS	5.000	5.355	7.1	107.1
13C2-8:2FTS	5.000	5.455	9.1	109.1
13C2-PFDoDA	1.250	1.274	1.9	101.9
13C2-PFTeDA	1.250	1.250	0.0	100.0
13C3-PFBS	2.500	2.558	2.3	102.3
13C3-PFHxS	2.500	2.537	1.5	101.5
13C4-PFBA	10.000	10.108	1.1	101.1
13C4-PFHpA	2.500	2.516	0.7	100.7
13C5-PFHxA	2.500	2.575	3.0	103.0
13C5-PFPeA	5.000	4.951	-1.0	99.0
13C6-PFDA	1.250	1.318	5.4	105.4
13C7-PFUnDA	1.250	1.261	0.9	100.9
13C8-FOSA	2.500	2.559	2.3	102.3
13C8-PFOA	2.500	2.472	-1.1	98.9
13C8-PFOS	2.500	2.643	5.7	105.7
13C9-PFNA	1.250	1.317	5.3	105.3
4:2FTS	9.375	8.710	-7.1	92.9
6:2FTS	9.500	9.149	-3.7	96.3
8:2FTS	9.600	8.994	-6.3	93.7
d3-MeFOSAA	5.000	5.527	10.5	110.5
EtFOSAA	2.500	2.371	-5.2	94.8
FOSA	2.500	2.479	-0.8	99.2
MeFOSAA	2.500	2.322	-7.1	92.9
PFBA	10.000	10.336	3.4	103.4
PFBS	2.218	2.273	2.5	102.5
PFDA	2.500	2.770	10.8	110.8
PFDoDA	2.500	2.341	-6.4	93.6
PFDS	2.413	2.455	1.7	101.7
PFHpA	2.500	2.647	5.9	105.9
PFHpS	2.383	2.276	-4.5	95.5
PFHxA	2.500	2.378	-4.9	95.1
PFHxS	2.285	2.353	3.0	103.0
PFNA	2.500	2.335	-6.6	93.4
PFNS	2.405	2.423	0.8	100.8
PFOA	2.500	2.319	-7.3	92.7
PFOS	2.320	2.324	0.2	100.2

Continuing Calibration Summary

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q260-CC258
 Lab FileID: 6Q17249.D

PFPeA	5.000	5.109	2.2	102.2
PFPeS	2.353	2.328	-1.0	99.0
PFTeDA	2.500	2.591	3.6	103.6
PFTTrDA	2.500	2.712	8.5	108.5
PFUnDA	2.500	2.756	10.2	110.2
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	4.725	5.140	8.8	108.8
13C3-HFPO-DA	10.000	10.171	1.7	101.7
9C1-PF3ONS	4.675	4.871	4.2	104.2
ADONA	4.725	4.944	4.6	104.6
HFPO-DA	5.000	5.072	1.4	101.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.609	1.0	101.0
5:3FTCA	62.400	63.413	1.6	101.6
7:3FTCA	62.400	61.195	-1.9	98.1
d3-MeFOSA	2.500	2.407	-3.7	96.3
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.952	-1.0	99.0
EtFOSE	12.500	12.705	1.6	101.6
MeFOSA	5.000	5.247	4.9	104.9
MeFOSE	12.500	12.672	1.4	101.4
PFDoDS	2.425	2.462	1.5	101.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.371	7.4	107.4
d7-MeFOSE	25.000	25.378	1.5	101.5
d9-EtFOSE	25.000	25.130	0.5	100.5
d5-EtFOSA	2.500	2.562	2.5	102.5
NFDHA	5.000	5.092	1.8	101.8
PFMBA	5.000	5.217	4.3	104.3
PFMPA	5.000	5.231	4.6	104.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.490	0.9	100.9

CC Criteria: +/- 30%

6.8.13

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Run Sequence Report

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q258	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q		
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S6Q258-RT	6Q17048.D	04/28/23 12:06	n/a	Retention Time Marker
S6Q258-RT	6Q17049.D	04/28/23 12:21	n/a	Retention Time Marker
S6Q258-IC258	6Q17050.D	04/28/23 12:35	n/a	Mass Calibration Verification
S6Q258-IC258	6Q17051.D	04/28/23 12:50	n/a	Initial cal 1
S6Q258-IC258	6Q17052.D	04/28/23 13:04	n/a	Initial cal 2
S6Q258-IC258	6Q17053.D	04/28/23 13:19	n/a	Initial cal 3
S6Q258-ICC258	6Q17054.D	04/28/23 13:33	n/a	Initial cal 4
S6Q258-IC258	6Q17055.D	04/28/23 13:48	n/a	Initial cal 5
S6Q258-IC258	6Q17056.D	04/28/23 14:02	n/a	Initial cal 6
S6Q258-IC258	6Q17057.D	04/28/23 14:17	n/a	Initial cal 7
S6Q258-IC258	6Q17058.D	04/28/23 14:31	n/a	Initial cal 8
S6Q258-IBLK	6Q17059.D	04/28/23 14:46	n/a	Instrument Blank
S6Q258-ICV258	6Q17060.D	04/28/23 15:00	n/a	Initial cal verification 4
S6Q258-ICV258	6Q17061.D	04/28/23 15:15	n/a	Initial cal verification 20
S6Q258-CC258	6Q17062.D	04/28/23 15:29	n/a	Continuing cal 4
S6Q258-CC258	6Q17063.D	04/28/23 15:44	n/a	Continuing cal 1.0LL
OP96604-BS	6Q17064.D	04/28/23 15:58	OP96604	Blank Spike
OP96604-LLBS	6Q17065.D	04/28/23 16:13	OP96604	Blank Spike
OP96604-MB	6Q17066.D	04/28/23 16:27	OP96604	Method Blank
ZZZZZZ	6Q17067.D	04/28/23 16:42	OP96604	(unrelated sample)
ZZZZZZ	6Q17068.D	04/28/23 16:56	OP96604	(unrelated sample)
ZZZZZZ	6Q17069.D	04/28/23 17:11	OP96604	(unrelated sample)
S6Q258-CC258	6Q17070.D	04/28/23 17:25	n/a	Continuing cal 4
S6Q258-ICCB	6Q17071.D	04/28/23 17:40	n/a	Continuing Calibration Blank
OP96603-BS	6Q17072.D	04/28/23 17:54	OP96603	Blank Spike
OP96603-LLBS	6Q17073.D	04/28/23 18:09	OP96603	Blank Spike
OP96603-MB	6Q17074.D	04/28/23 18:23	OP96603	Method Blank
ZZZZZZ	6Q17075.D	04/28/23 18:37	OP96603	(unrelated sample)
ZZZZZZ	6Q17076.D	04/28/23 18:52	OP96603	(unrelated sample)
FC5514-3	6Q17077.D	04/28/23 19:06	OP96603	(used for QC only; not part of job FC5487)
OP96603-MS	6Q17078.D	04/28/23 19:21	OP96603	Matrix Spike
ZZZZZZ	6Q17079.D	04/28/23 19:35	OP96603	(unrelated sample)
OP96603-DUP	6Q17080.D	04/28/23 19:50	OP96603	Duplicate
ZZZZZZ	6Q17081.D	04/28/23 20:04	OP96603	(unrelated sample)
S6Q258-CC258	6Q17082.D	04/28/23 20:19	n/a	Continuing cal 4
S6Q258-ICCB	6Q17083.D	04/28/23 20:33	n/a	Continuing Calibration Blank
ZZZZZZ	6Q17084.D	04/28/23 20:48	OP96603	(unrelated sample)
ZZZZZZ	6Q17085.D	04/28/23 21:02	OP96603	(unrelated sample)
ZZZZZZ	6Q17086.D	04/28/23 21:17	OP96603	(unrelated sample)
FC5522-4	6Q17087.D	04/28/23 21:31	OP96603	(used for QC only; not part of job FC5487)
ZZZZZZ	6Q17088.D	04/28/23 21:46	OP96603	(unrelated sample)
ZZZZZZ	6Q17089.D	04/28/23 22:00	OP96603	(unrelated sample)
ZZZZZZ	6Q17090.D	04/28/23 22:15	OP96603	(unrelated sample)
S6Q258-CC258	6Q17091.D	04/28/23 22:29	n/a	Continuing cal 4
S6Q258-ICCB	6Q17092.D	04/28/23 22:44	n/a	Continuing Calibration Blank
OP96579-BS	6Q17093.D	04/28/23 22:58	OP96579	Blank Spike

Run Sequence Report

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q258	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
OP96579-LLBS	6Q17094.D	04/28/23 23:13	OP96579	Blank Spike
OP96579-MB	6Q17095.D	04/28/23 23:27	OP96579	Method Blank
ZZZZZZ	6Q17096.D	04/28/23 23:42	OP96579	(unrelated sample)
ZZZZZZ	6Q17097.D	04/28/23 23:56	OP96579	(unrelated sample)
ZZZZZZ	6Q17099.D	04/29/23 00:25	OP96579	(unrelated sample)
FC5240-5	6Q17100.D	04/29/23 00:40	OP96579	(used for QC only; not part of job FC5487)
S6Q258-CC258	6Q17103.D	04/29/23 01:23	n/a	Continuing cal 4
S6Q258-ICCB	6Q17104.D	04/29/23 01:38	n/a	Continuing Calibration Blank
ZZZZZZ	6Q17105.D	04/29/23 01:52	OP96579	(unrelated sample)
ZZZZZZ	6Q17106.D	04/29/23 02:07	OP96579	(unrelated sample)
ZZZZZZ	6Q17107.D	04/29/23 02:21	OP96579	(unrelated sample)
ZZZZZZ	6Q17108.D	04/29/23 02:36	OP96579	(unrelated sample)
ZZZZZZ	6Q17109.D	04/29/23 02:50	OP96579	(unrelated sample)
ZZZZZZ	6Q17110.D	04/29/23 03:04	OP96579	(unrelated sample)
ZZZZZZ	6Q17111.D	04/29/23 03:19	OP96579	(unrelated sample)
ZZZZZZ	6Q17112.D	04/29/23 03:33	OP96579	(unrelated sample)
ZZZZZZ	6Q17113.D	04/29/23 03:48	OP96579	(unrelated sample)
FC5487-1	6Q17114.D	04/29/23 04:02	OP96579	AF-RHMW225401-WGN01B-2304W3
S6Q258-CC258	6Q17115.D	04/29/23 04:17	n/a	Continuing cal 4
S6Q258-CC258	6Q17116.D	04/29/23 04:31	n/a	Continuing cal 1.0LL
S6Q258-ICCB	6Q17117.D	04/29/23 04:46	n/a	Continuing Calibration Blank
ZZZZZZ	6Q17118.D	04/29/23 05:00	OP96491	(unrelated sample)
OP96566-BS	6Q17119.D	04/29/23 05:15	OP96566	Blank Spike
OP96566-LLBS	6Q17120.D	04/29/23 05:29	OP96566	Blank Spike
OP96566-MB	6Q17121.D	04/29/23 05:44	OP96566	Method Blank
ZZZZZZ	6Q17122.D	04/29/23 05:58	OP96566	(unrelated sample)
FC5200-2	6Q17123.D	04/29/23 06:13	OP96566	(used for QC only; not part of job FC5487)
OP96566-MS	6Q17124.D	04/29/23 06:27	OP96566	Matrix Spike
OP96566-MSD	6Q17125.D	04/29/23 06:42	OP96566	Matrix Spike Duplicate
ZZZZZZ	6Q17126.D	04/29/23 06:56	OP96566	(unrelated sample)
ZZZZZZ	6Q17127.D	04/29/23 07:11	OP96566	(unrelated sample)
S6Q258-CC258	6Q17128.D	04/29/23 07:25	n/a	Continuing cal 4
S6Q258-ICCB	6Q17129.D	04/29/23 07:40	n/a	Continuing Calibration Blank
ZZZZZZ	6Q17130.D	04/29/23 07:54	OP96566	(unrelated sample)
ZZZZZZ	6Q17131.D	04/29/23 08:09	OP96566	(unrelated sample)
ZZZZZZ	6Q17132.D	04/29/23 08:23	OP96566	(unrelated sample)
ZZZZZZ	6Q17133.D	04/29/23 08:38	OP96566	(unrelated sample)
ZZZZZZ	6Q17134.D	04/29/23 08:52	OP96566	(unrelated sample)
ZZZZZZ	6Q17135.D	04/29/23 09:07	OP96566	(unrelated sample)
ZZZZZZ	6Q17136.D	04/29/23 09:21	OP96566	(unrelated sample)
ZZZZZZ	6Q17137.D	04/29/23 09:35	OP96566	(unrelated sample)
ZZZZZZ	6Q17138.D	04/29/23 09:50	OP96566	(unrelated sample)
ZZZZZZ	6Q17139.D	04/29/23 10:04	OP96566	(unrelated sample)
S6Q258-CC258	6Q17140.D	04/29/23 10:19	n/a	Continuing cal 4
S6Q258-ICCB	6Q17141.D	04/29/23 10:33	n/a	Continuing Calibration Blank
ZZZZZZ	6Q17142.D	04/29/23 10:48	OP96566	(unrelated sample)

6.9.1
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Run Sequence Report

Job Number: FC5487
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q258	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	6Q17143.D	04/29/23 11:02	OP96566	(unrelated sample)
ZZZZZZ	6Q17144.D	04/29/23 11:17	OP96566	(unrelated sample)
ZZZZZZ	6Q17145.D	04/29/23 11:31	OP96566	(unrelated sample)
S6Q258-ECC258	6Q17146.D	04/29/23 11:46	n/a	Ending cal 4
S6Q258-ICCB	6Q17147.D	04/29/23 12:00	n/a	Continuing Calibration Blank

6.9.1

6

Run Sequence Report

Job Number: FC5487
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q260	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q		
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S6Q260-RT	6Q17233.D	05/01/23 11:49	n/a	Retention Time Marker
S6Q260-RT	6Q17234.D	05/01/23 12:04	n/a	Retention Time Marker
S6Q260-IBLK	6Q17236.D	05/01/23 14:16	n/a	Instrument Blank
S6Q260-IBLK	6Q17236.D	05/01/23 14:16	n/a	Instrument Blank
S6Q260-CC258	6Q17237.D	05/01/23 14:31	n/a	Continuing cal 4
S6Q260-CC258	6Q17238.D	05/01/23 14:45	n/a	Continuing cal 1.0LL
ZZZZZZ	6Q17239.D	05/01/23 15:00	OP96603	(unrelated sample)
ZZZZZZ	6Q17240.D	05/01/23 15:14	OP96579	(unrelated sample)
ZZZZZZ	6Q17241.D	05/01/23 15:29	OP96579	(unrelated sample)
FC5240-5	6Q17242.D	05/01/23 15:43	OP96579	(used for QC only; not part of job FC5487)
OP96579-MS	6Q17243.D	05/01/23 15:58	OP96579	Matrix Spike
OP96579-MSD	6Q17244.D	05/01/23 16:12	OP96579	Matrix Spike Duplicate
ZZZZZZ	6Q17245.D	05/01/23 16:27	OP96579	(unrelated sample)
ZZZZZZ	6Q17246.D	05/01/23 16:41	OP96579	(unrelated sample)
ZZZZZZ	6Q17247.D	05/01/23 16:56	OP96609	(unrelated sample)
ZZZZZZ	6Q17248.D	05/01/23 17:10	OP96516	(unrelated sample)
S6Q260-CC258	6Q17249.D	05/01/23 17:25	n/a	Continuing cal 4
S6Q260-ICCB	6Q17250.D	05/01/23 17:39	n/a	Continuing Calibration Blank
ZZZZZZ	6Q17251.D	05/01/23 17:54	OP96516	(unrelated sample)
FC5063-4	6Q17252.D	05/01/23 18:08	OP96516	(used for QC only; not part of job FC5487)
OP96516-MS	6Q17253.D	05/01/23 18:23	OP96516	Matrix Spike
OP96516-MSD	6Q17254.D	05/01/23 18:37	OP96516	Matrix Spike Duplicate
ZZZZZZ	6Q17255.D	05/01/23 18:52	OP96516	(unrelated sample)
OP96628-BS	6Q17256.D	05/01/23 19:06	OP96628	Blank Spike
OP96628-LLBS	6Q17257.D	05/01/23 19:20	OP96628	Blank Spike
OP96628-MB	6Q17258.D	05/01/23 19:35	OP96628	Method Blank
ZZZZZZ	6Q17259.D	05/01/23 19:50	OP96628	(unrelated sample)
S6Q260-CC258	6Q17260.D	05/01/23 20:04	n/a	Continuing cal 4
S6Q260-ICCB	6Q17261.D	05/01/23 20:18	n/a	Continuing Calibration Blank
OP96581-BS	6Q17262.D	05/01/23 20:33	OP96581	Blank Spike
OP96581-LLBS	6Q17263.D	05/01/23 20:47	OP96581	Blank Spike
OP96581-MB	6Q17264.D	05/01/23 21:02	OP96581	Method Blank
ZZZZZZ	6Q17265.D	05/01/23 21:16	OP96581	(unrelated sample)
ZZZZZZ	6Q17266.D	05/01/23 21:31	OP96581	(unrelated sample)
ZZZZZZ	6Q17267.D	05/01/23 21:45	OP96581	(unrelated sample)
ZZZZZZ	6Q17268.D	05/01/23 22:00	OP96581	(unrelated sample)
ZZZZZZ	6Q17269.D	05/01/23 22:14	OP96581	(unrelated sample)
ZZZZZZ	6Q17270.D	05/01/23 22:29	OP96581	(unrelated sample)
ZZZZZZ	6Q17271.D	05/01/23 22:43	OP96581	(unrelated sample)
S6Q260-CC258	6Q17272.D	05/01/23 22:58	n/a	Continuing cal 4
S6Q260-ICCB	6Q17273.D	05/01/23 23:12	n/a	Continuing Calibration Blank
ZZZZZZ	6Q17274.D	05/01/23 23:27	OP96581	(unrelated sample)
ZZZZZZ	6Q17275.D	05/01/23 23:41	OP96581	(unrelated sample)
FC5488-1	6Q17276.D	05/01/23 23:56	OP96581	(used for QC only; not part of job FC5487)
OP96581-MS	6Q17277.D	05/02/23 00:10	OP96581	Matrix Spike
FC5488-2	6Q17278.D	05/02/23 00:25	OP96581	(used for QC only; not part of job FC5487)

Run Sequence Report

Job Number: FC5487
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q260	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
OP96581-DUP	6Q17279.D	05/02/23 00:39	OP96581	Duplicate
ZZZZZZ	6Q17280.D	05/02/23 00:54	OP96581	(unrelated sample)
ZZZZZZ	6Q17281.D	05/02/23 01:08	OP96581	(unrelated sample)
ZZZZZZ	6Q17282.D	05/02/23 01:23	OP96581	(unrelated sample)
S6Q260-ECC258	6Q17283.D	05/02/23 01:37	n/a	Ending cal 4
S6Q260-ICCB	6Q17284.D	05/02/23 01:52	n/a	Continuing Calibration Blank

6.9.2

6

MS Semi-volatiles

Raw Data

Manual Integrations
APPROVED
 (compounds with "m" flag)
 Norman Farmer
 05/01/23 00:03

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17114.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/29/2023 4:02:54 AM
 Sample Name : FC5487-1
 Vial : P4-C2
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96579,S6Q258,540,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	174907	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	65231	5.00 µg/L	0.000
M5-PFHxA	5.480	318.0 -> 273.0	67920	2.50 µg/L	0.012
M4-PFHpA	6.419	367.1 -> 322.0	61012	2.50 µg/L	0.000
M8-PFOA	7.074	421.1 -> 376.0	79679	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	27834	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	20402	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	27501	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	24632	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	12980	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	17843	2.50 µg/L	0.000
M3-PFBS	5.411	302.1 -> 79.9	23444	2.50 µg/L	0.012
M3-PFHxS	7.179	402.1 -> 79.9	12821	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	10780	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2376	5.00 µg/L	0.000
M2-6:2FTS	6.851	429.1 -> 80.9	2700	5.00 µg/L	0.012
M2-8:2FTS	7.864	529.1 -> 80.9	2762	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	23324	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	40645	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	18586	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	49703	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	62765	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	6739	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	5479	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	14405	2.50 µg/L	0.000
13C3-PFBA	2.914	216.0 -> 172.0	75190	5.00 µg/L	0.012
18O2-PFHxS	7.177	403.0 -> 83.9	9480	2.50 µg/L	0.000
13C4-PFOA	7.075	417.1 -> 372.0	83186	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	23928	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	27193	1.25 µg/L	0.000
13C2-PFHxA	5.482	315.1 -> 270.0	55913	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2376	5.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.0%		
13C2-6:2FTS	6.851	429.1 -> 80.9	2700	5.10 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2762	4.85 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C2-PFDoDA	8.960	615.1 -> 570.0	24632	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C2-PFTeDA	9.689	715.2 -> 670.0	12980	0.96 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 77.1%		
13C3-PFBS	5.411	302.1 -> 79.9	23444	2.63 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.2%		
13C3-PFHxS	7.179	402.1 -> 79.9	12821	2.54 µg/L	0.000

7.1.1
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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 = 101.6%	
13C4-PFBA	2.910	216.8 -> 171.9	174907	10.07 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C4-PFHpA	6.419	367.1 -> 322.0	61012	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.7%	
13C5-PFHxA	5.480	318.0 -> 273.0	67920	2.52 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C5-PFPeA	4.270	268.3 -> 223.0	65231	5.22 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C6-PFDA	8.076	519.1 -> 474.1	20402	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C7-PFUnDA	8.530	570.0 -> 525.1	27501	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.9%	
13C8-FOSA	9.623	506.1 -> 77.8	17843	1.87 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 74.9%	
13C8-PFOA	7.074	421.1 -> 376.0	79679	2.48 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C8-PFOS	8.239	507.1 -> 79.9	10780	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C9-PFNA	7.594	472.1 -> 427.0	27834	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.4%	
d3-MeFOSAA	8.134	573.2 -> 419.0	23324	5.43 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.7%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	40645	10.27 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
d3-MeFOSA	10.728	515.0 -> 219.0	5479	1.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 60.9%	
d5-EtFOSAA	8.330	589.2 -> 419.0	18586	5.21 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.2%	
d7-MeFOSE	10.647	623.2 -> 58.9	49703	13.15 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 52.6%	
d9-EtFOSE	10.894	639.2 -> 58.9	62765	13.59 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 54.3%	
d5-EtFOSA	10.960	531.1 -> 219.0	6739	1.53 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 61.0%	

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	5.400	298.7 -> 79.9	835	0.08 µg/L	93
		298.7 -> 98.8	308		
PFDA	8.658	512.9 -> 469.0	0	µg/L	m 1
		512.9 -> 219.0	0		
PFDODA	8.998	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)
PFHpA	6.432	599.0 -> 98.8				
		363.1 -> 319.0	3849	0.13	µg/L	97
PFHpS	-	363.1 -> 169.0	621			
		449.0 -> 79.9	-	N.D.		
PFHxA	5.483	449.0 -> 98.9				
		313.0 -> 269.0	4172	0.16	µg/L	98
PFHxS	7.180	313.0 -> 118.9	158			
		398.7 -> 79.9	1155	0.17	µg/L	m
PFNA	7.770	398.7 -> 98.9	587			
		463.0 -> 419.0	0		µg/L	m
PFNS	-	463.0 -> 219.0	0			
		548.8 -> 79.9	-	N.D.		
PFOA	7.076	548.8 -> 98.9				
		413.0 -> 369.0	4800	0.19	µg/L	m
PFOS	8.228	413.0 -> 169.0	882			
		498.9 -> 79.9	1255	0.24	µg/L	#m
PFPeA	4.285	498.9 -> 98.8	344			
		263.0 -> 219.0	3453	0.19	µg/L	
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	9.139	563.1 -> 519.0	0		µg/L	m
		563.1 -> 269.1	0			
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	-	N.D.		
MeFOSA	-	511.9 -> 169.0				
		616.1 -> 58.9	-	N.D.		
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	-	N.D.		
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

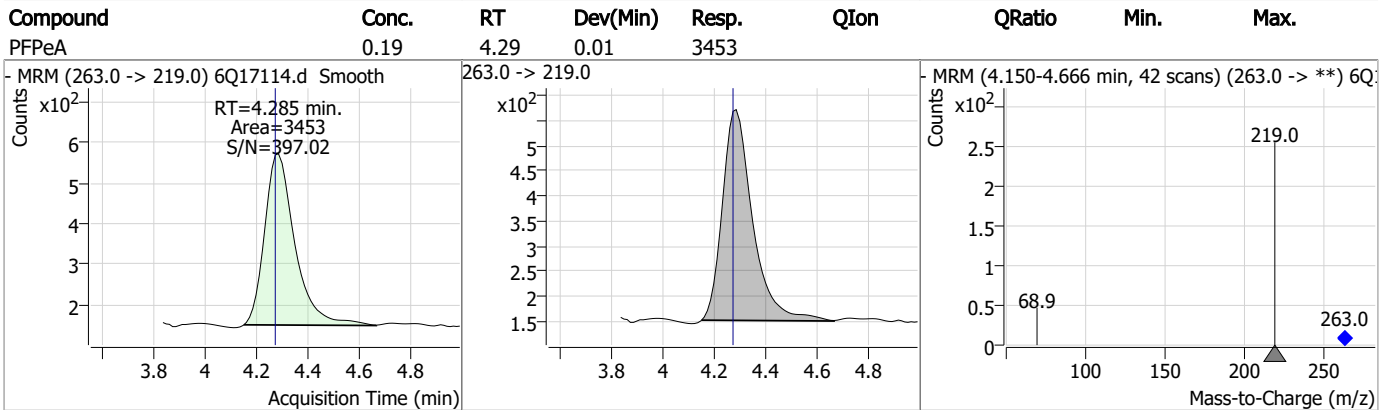
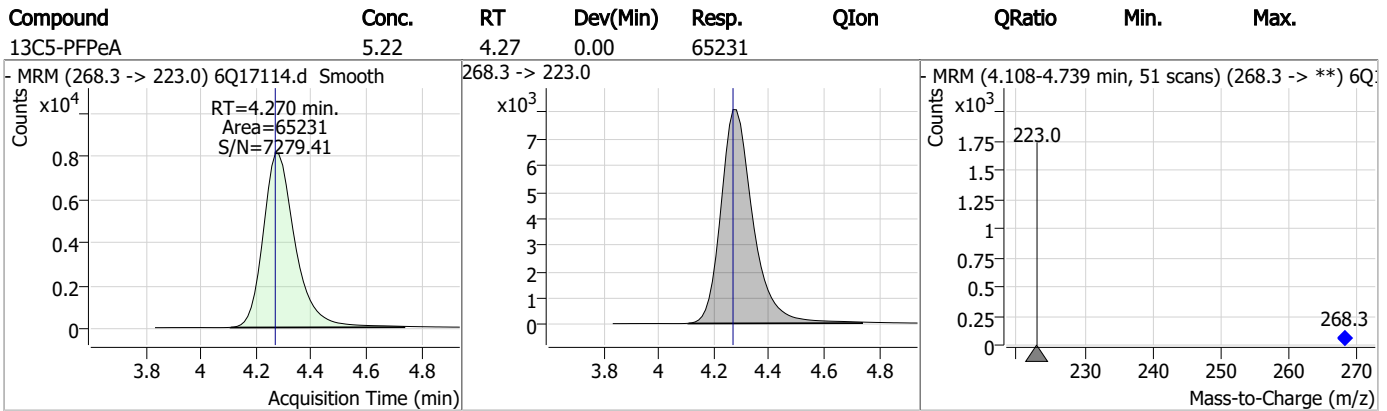
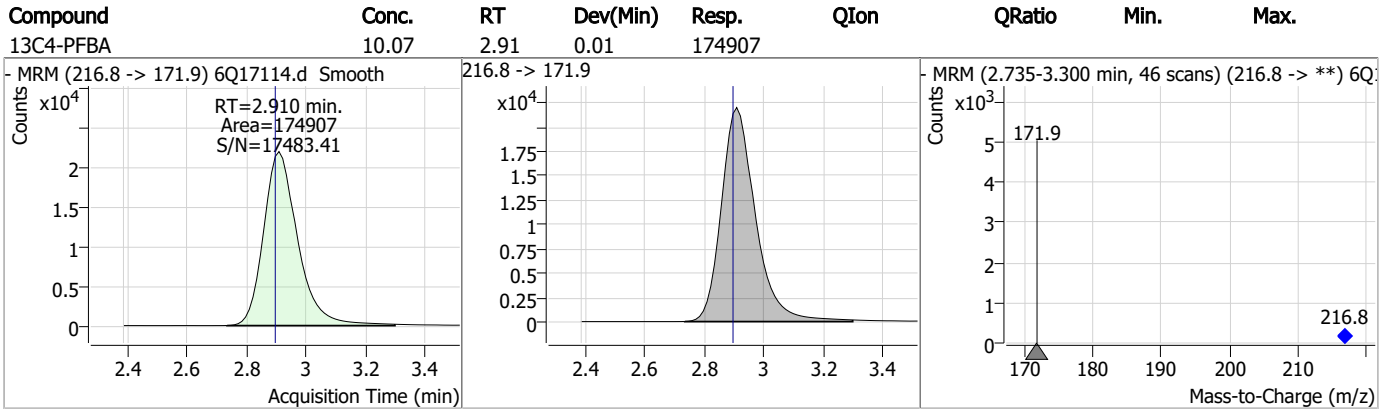
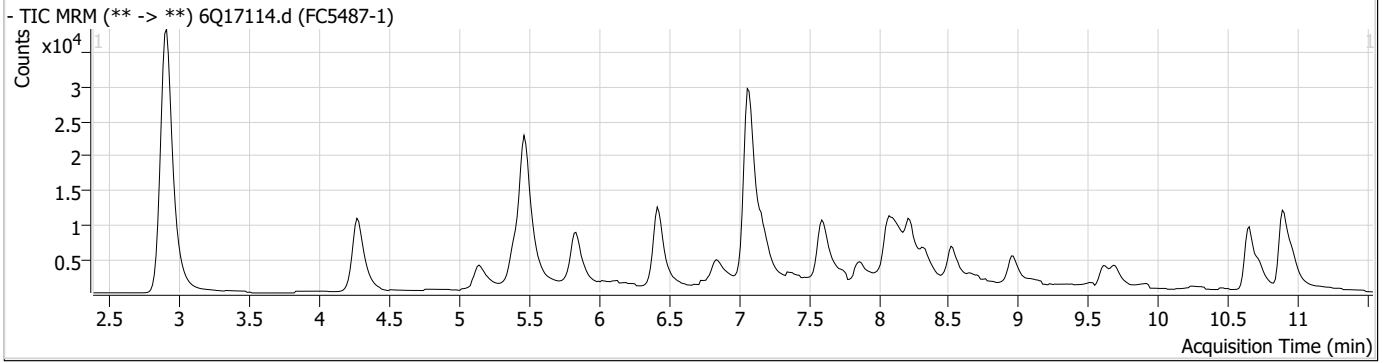
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.1.1
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Perfluorinated Compounds by LC/MS/MS



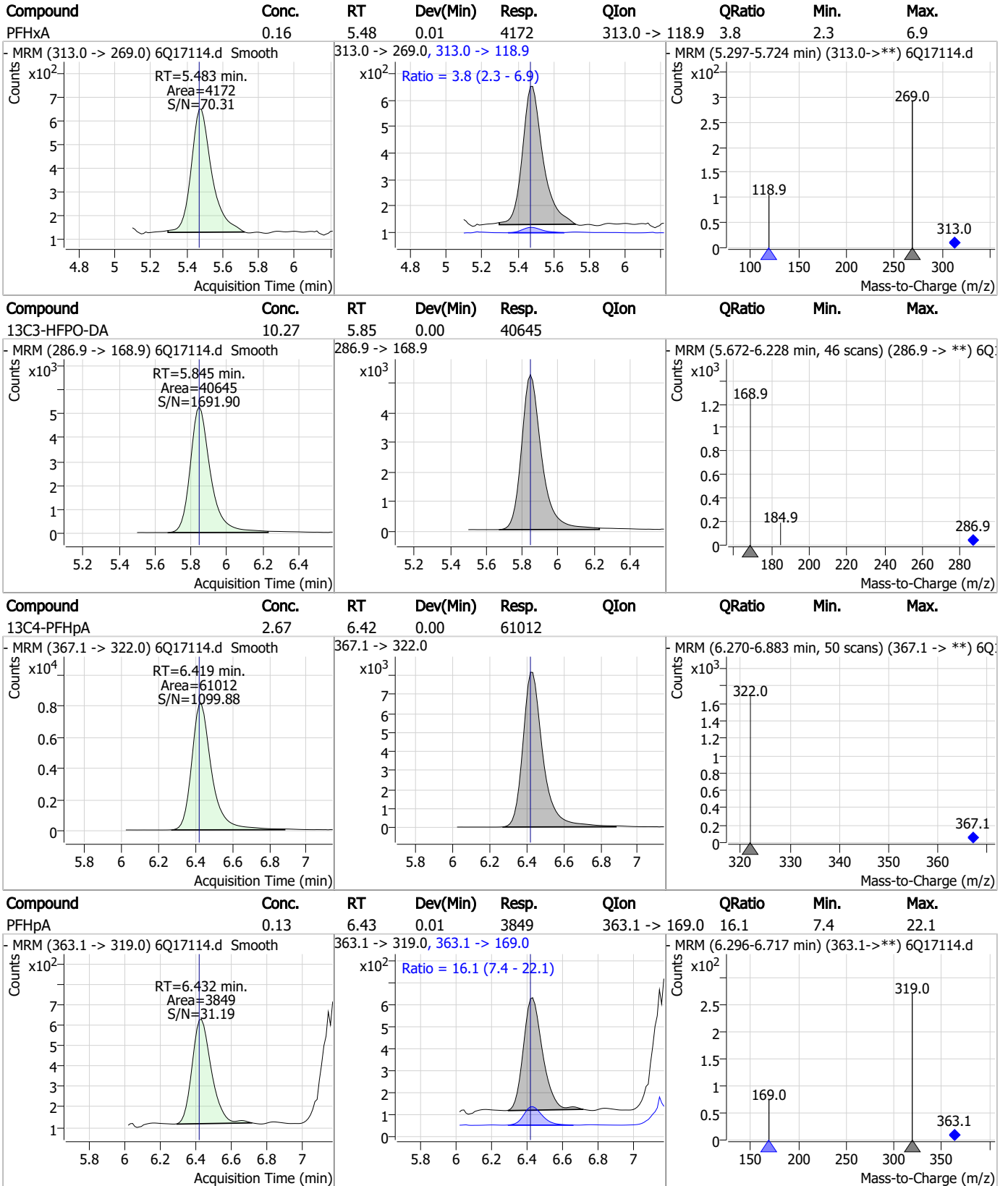
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	5.45	5.14	0.00	2376				
13C3-PFBS	2.63	5.41	0.01	23444				
PFBS	0.08	5.40	0.00	835	298.7 -> 98.8	36.9	20.6	61.7
13C5-PFHxA	2.52	5.48	0.01	67920				

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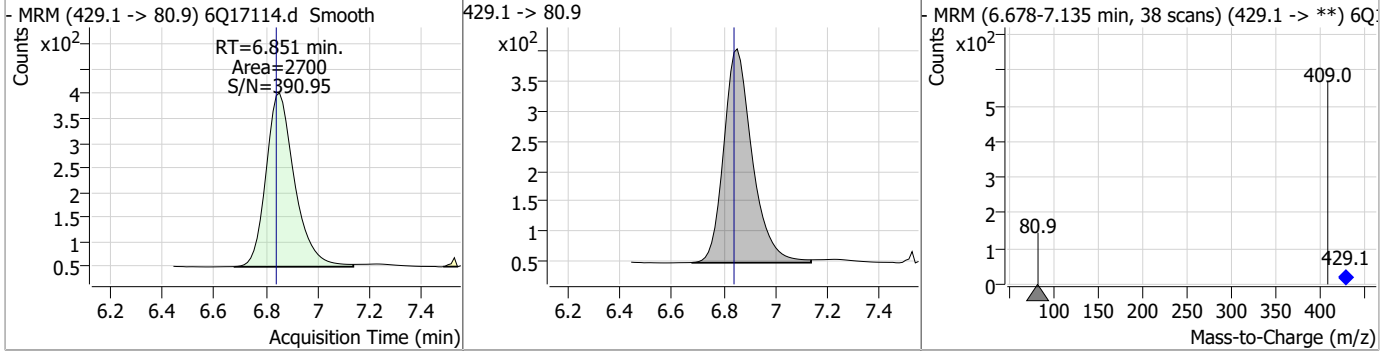
Perfluorinated Compounds by LC/MS/MS



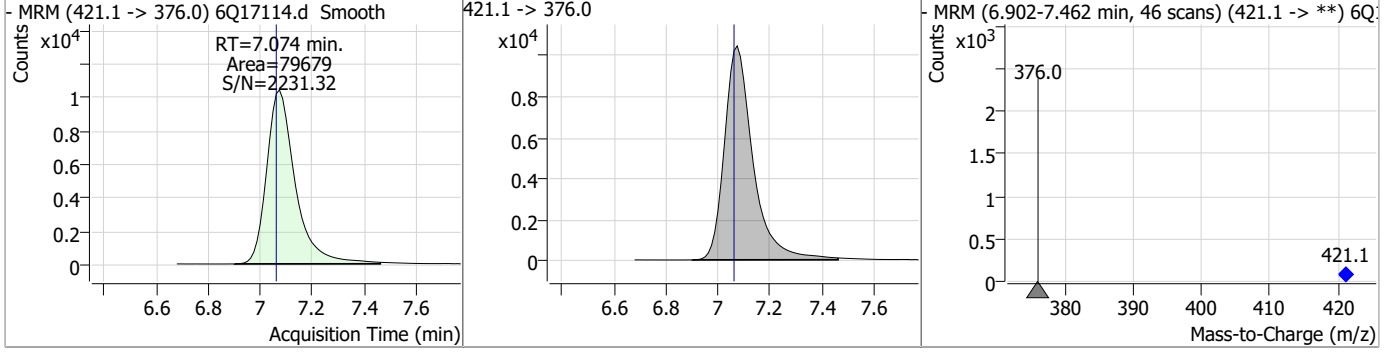
7.1.1
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Perfluorinated Compounds by LC/MS/MS

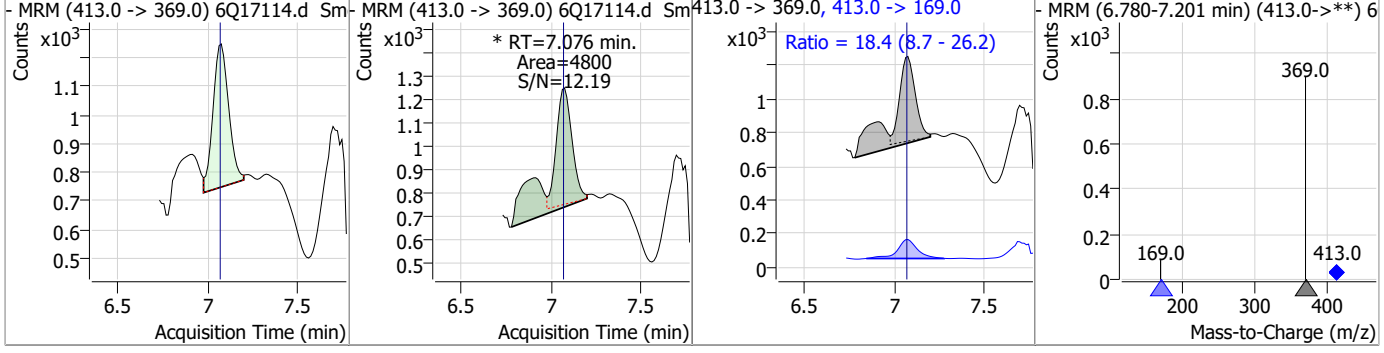
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.10	6.85	0.01	2700				



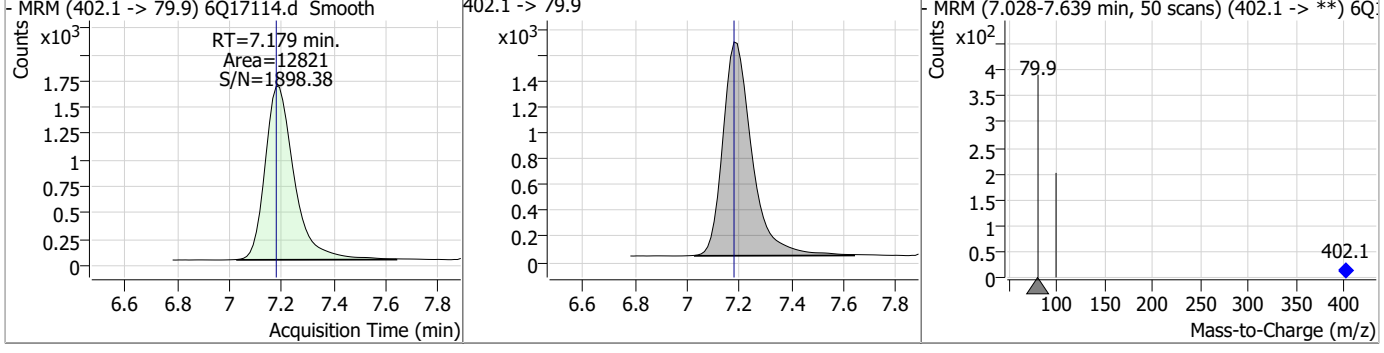
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.48	7.07	0.01	79679				



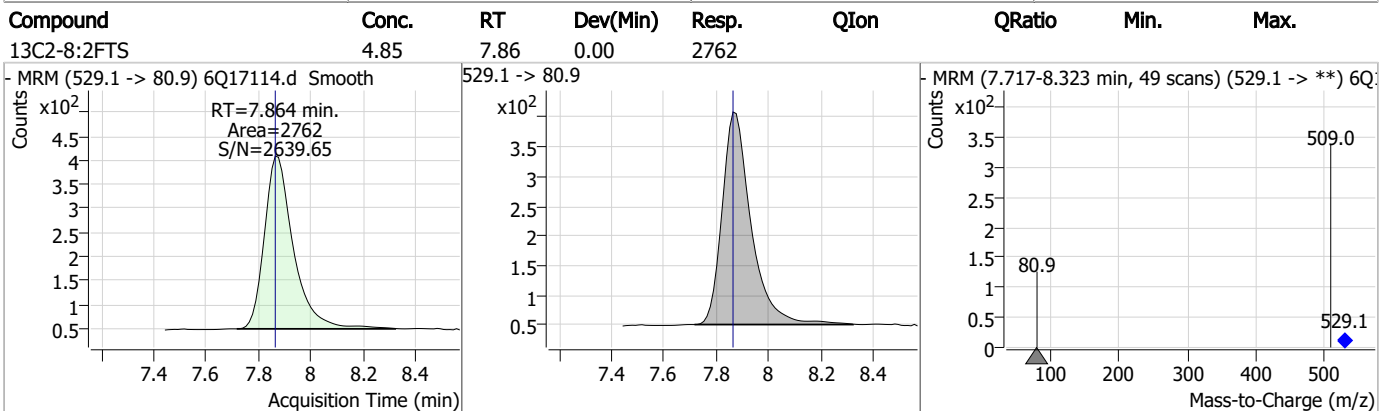
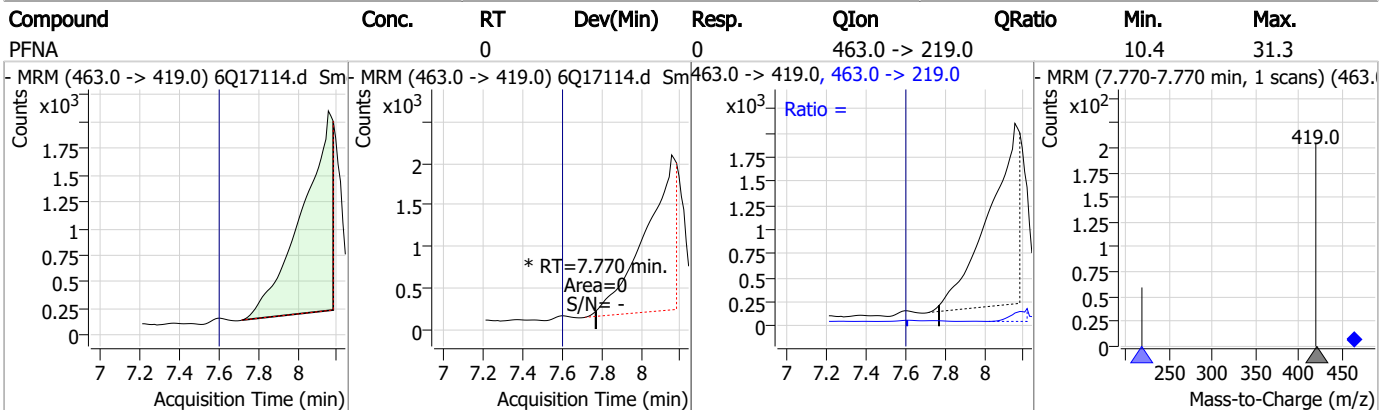
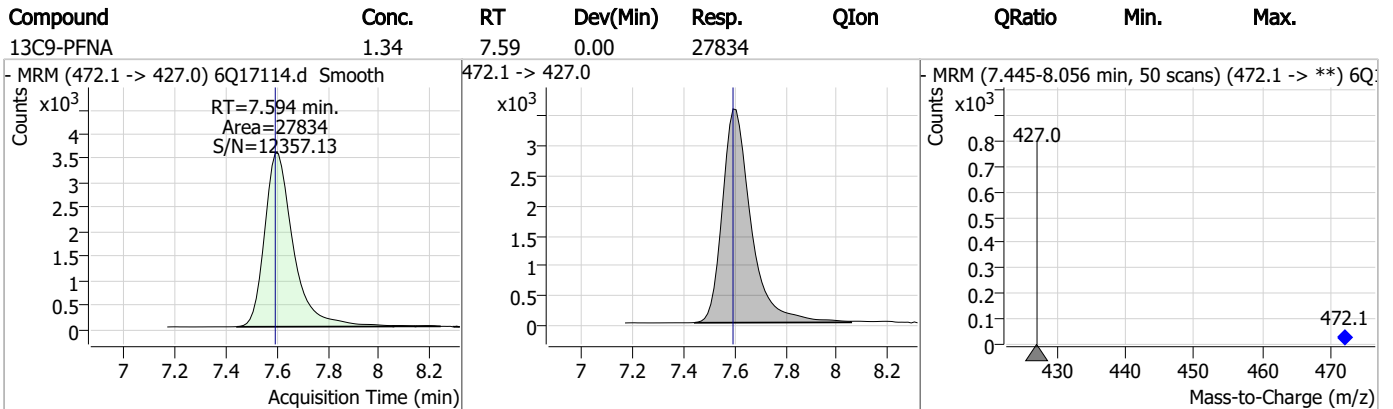
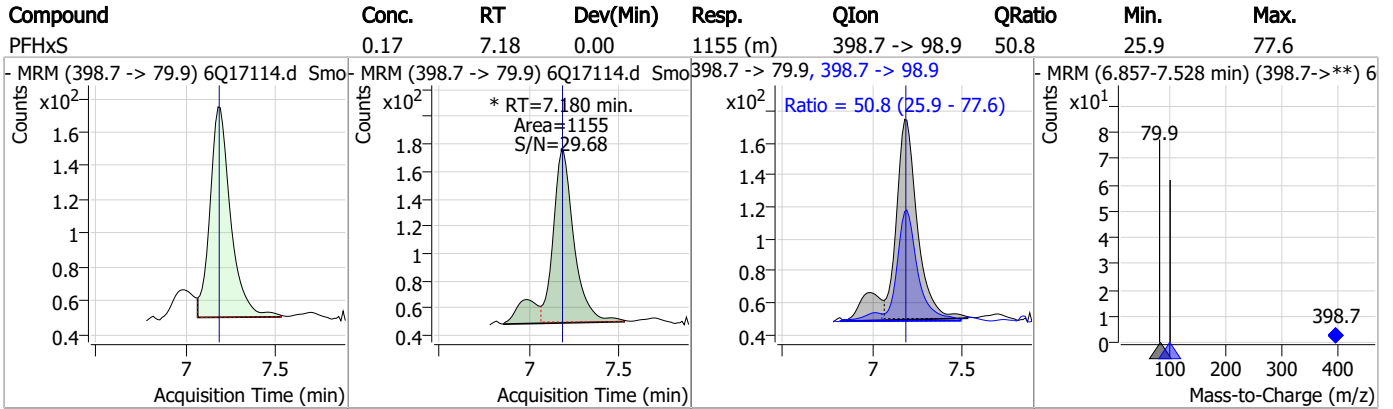
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.19	7.08	0.01	4800 (m)	413.0 -> 169.0	18.4	8.7	26.2



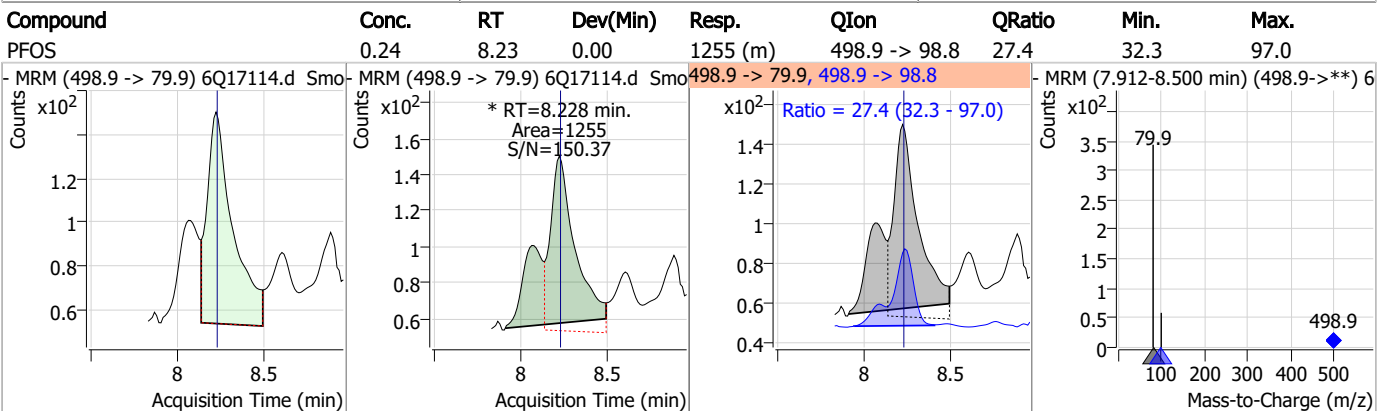
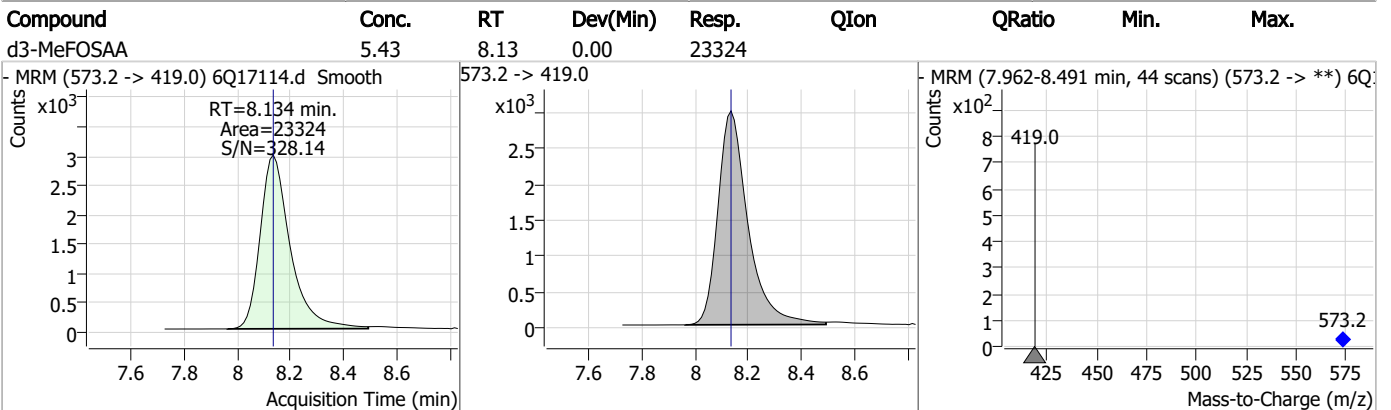
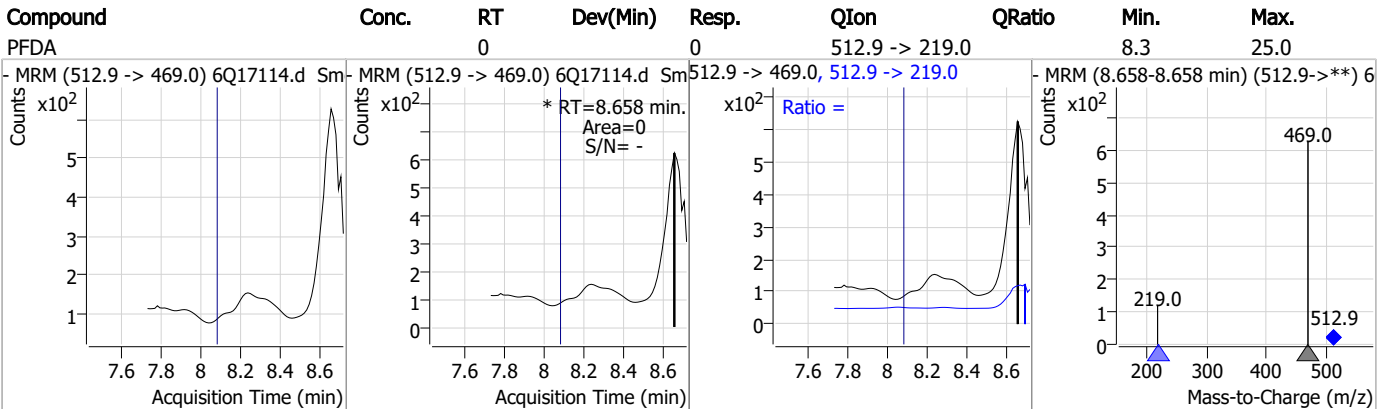
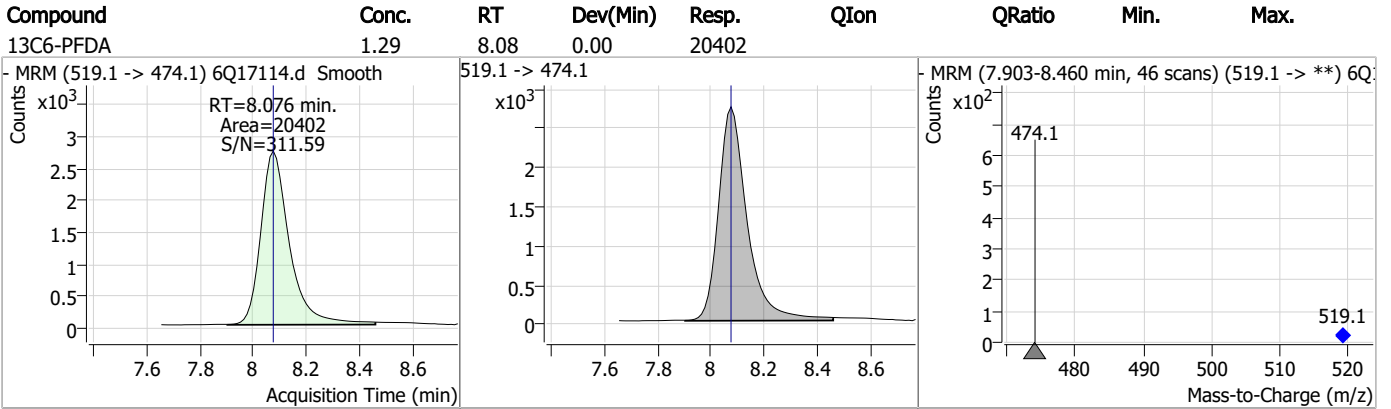
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.54	7.18	0.00	12821				



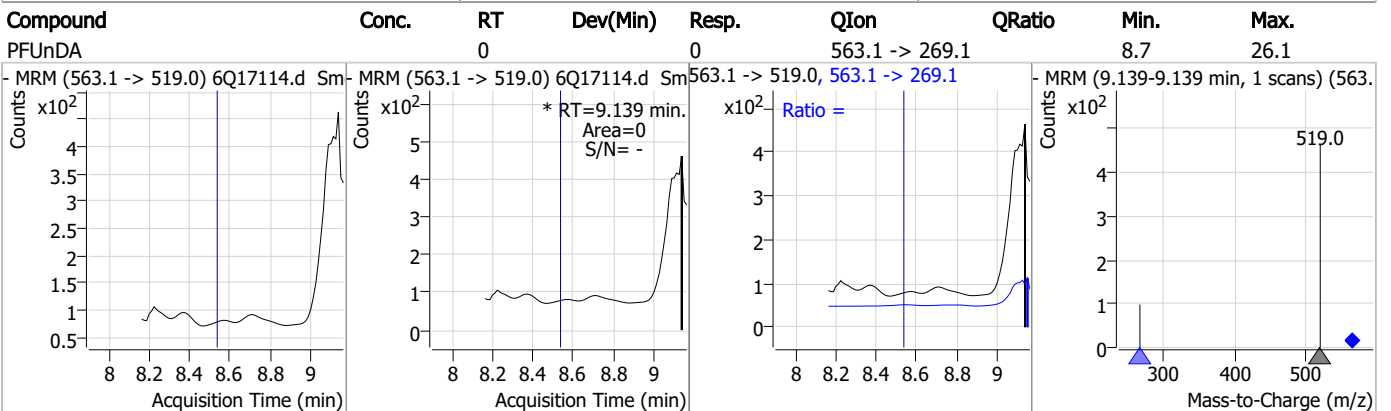
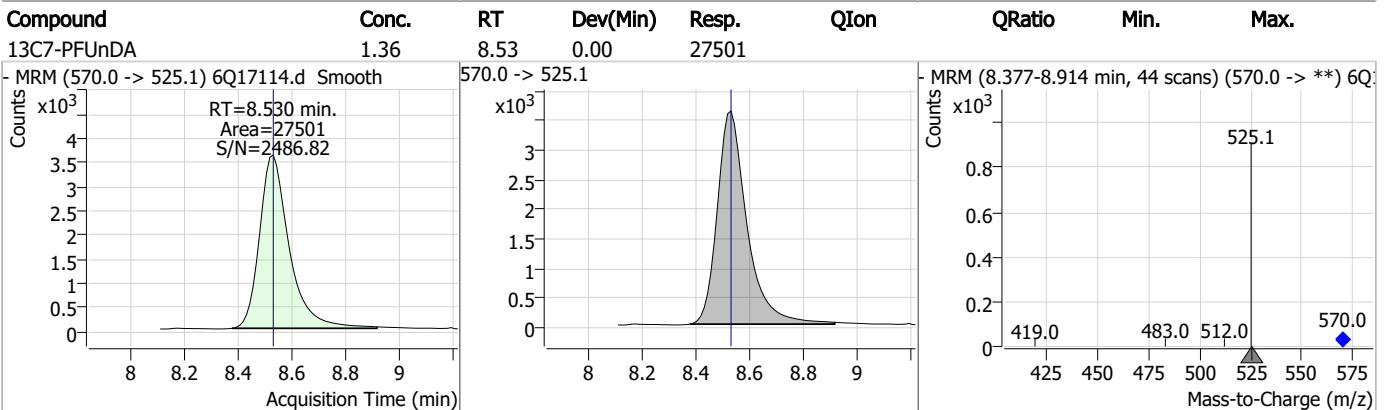
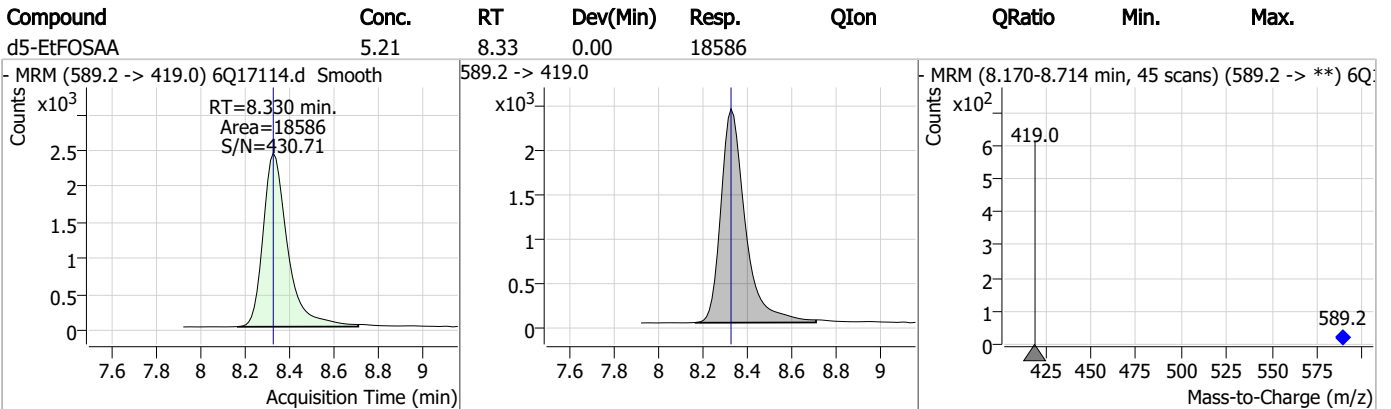
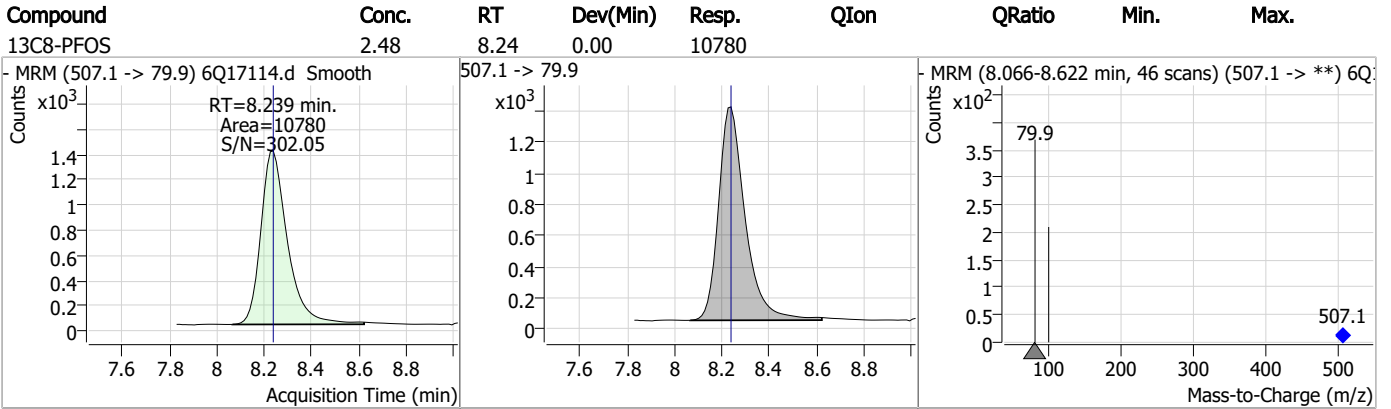
Perfluorinated Compounds by LC/MS/MS



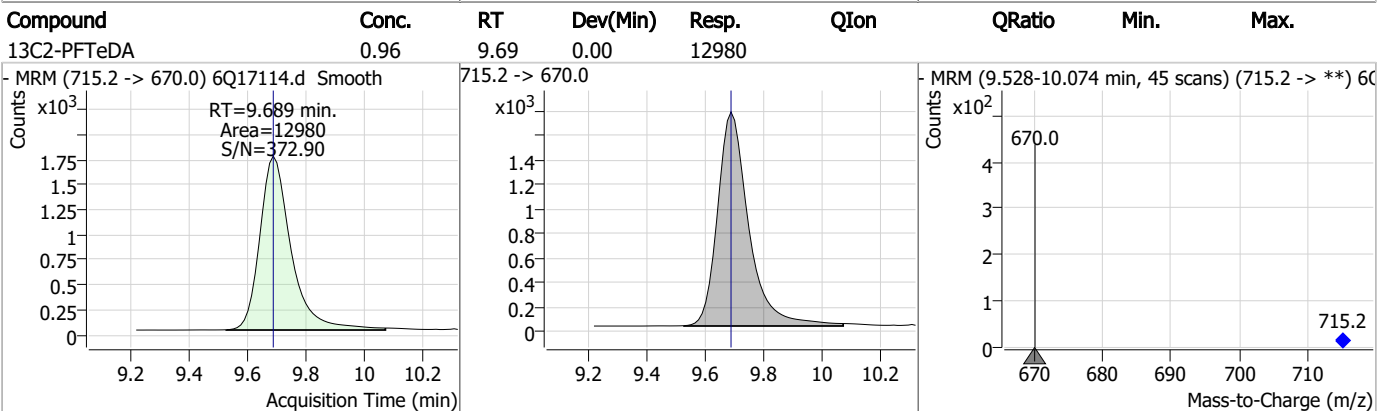
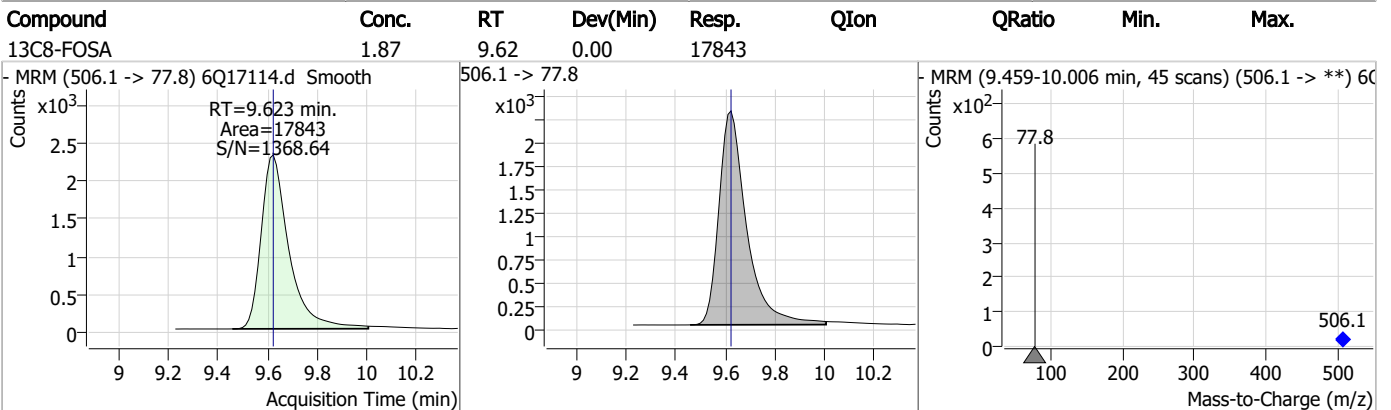
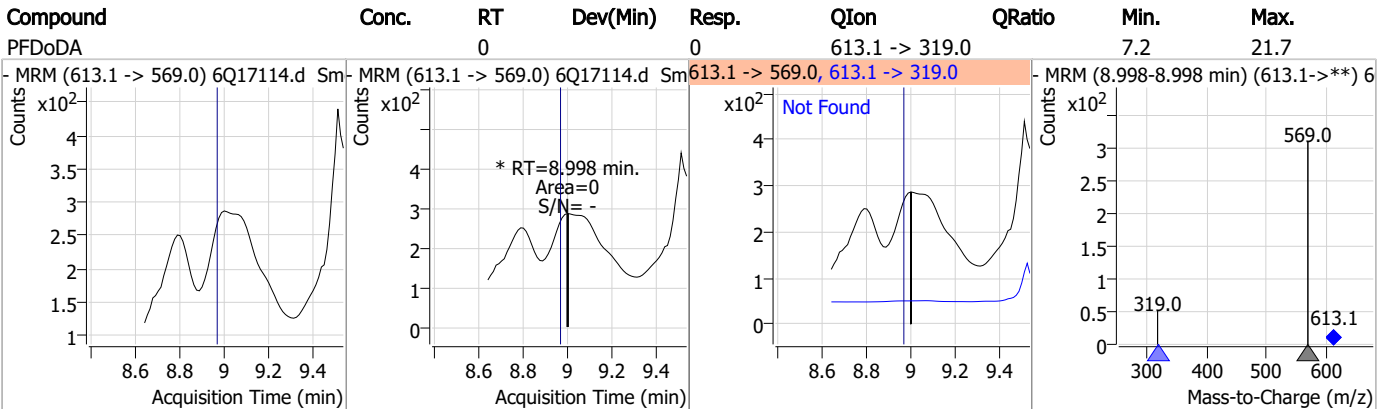
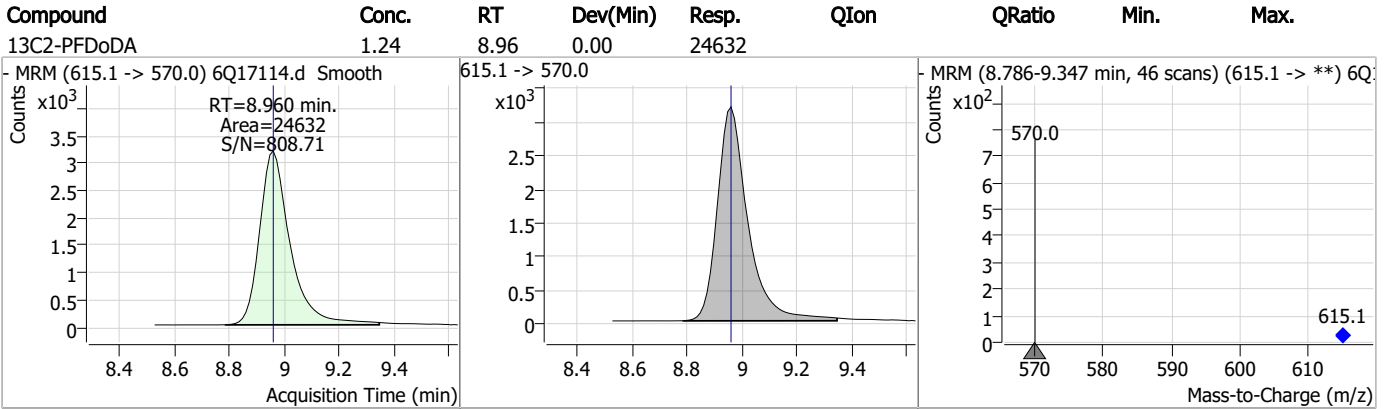
Perfluorinated Compounds by LC/MS/MS



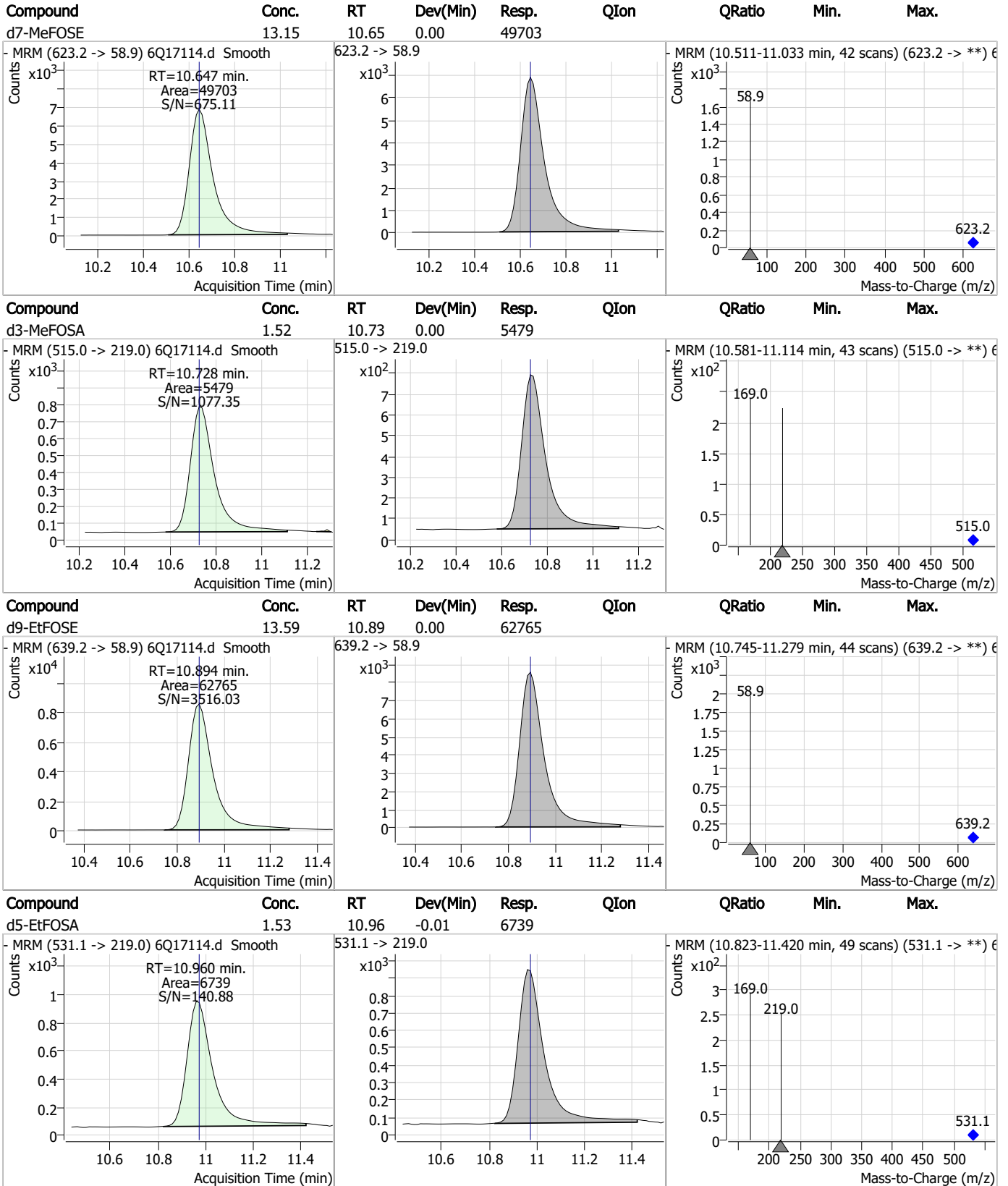
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Manual Integration Approval Summary

Sample Number: FC5487-1 Method: EPA DRAFT 1633
Lab FileID: 6Q17114.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/29/23 04:02 Supervisor approved: 05/01/23 00:03 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.08	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak

7.1.1.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17095.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 11:27:42 PM
 Sample Name : op96579-mb
 Vial : P4-A3
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96579,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	181776	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	64401	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	65869	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	59722	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	84082	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	27224	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	19997	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	24635	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	21077	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	12292	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	8495	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22396	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12750	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	10799	2.50 µg/L	0.000
M2-4:2FTS	5.132	329.1 -> 80.9	2344	5.00 µg/L	-0.012
M2-6:2FTS	6.839	429.1 -> 80.9	2998	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2973	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	21360	5.00 µg/L	0.000
M3-HFPO-DA	5.833	286.9 -> 168.9	37860	10.00 µg/L	-0.012
M5-EtFOSAA	8.330	589.2 -> 419.0	16134	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	19753	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	26033	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	3148	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	2717	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	16397	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	91701	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	10944	2.50 µg/L	0.000
13C4-PFOA	7.075	417.1 -> 372.0	103377	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	27969	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	33223	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	67461	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.132	329.1 -> 80.9	2344	4.66 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.2%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2998	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2973	4.53 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.5%		
13C2-PFDoDA	8.960	615.1 -> 570.0	21077	0.91 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 72.4%		
13C2-PFTeDA	9.689	715.2 -> 670.0	12292	0.78 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 62.5%		
13C3-PFBS	5.398	302.1 -> 79.9	22396	2.18 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 87.0%		
13C3-PFHxS	7.179	402.1 -> 79.9	12750	2.19 µg/L	0.000

7.2.1
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 = 87.5%	
13C4-PFBA	2.910	216.8 -> 171.9	181776	8.58 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 85.8%	
13C4-PFHpA	6.419	367.1 -> 322.0	59722	2.16 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.6%	
13C5-PFHxA	5.468	318.0 -> 273.0	65869	2.02 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 81.0%	
13C5-PFPeA	4.270	268.3 -> 223.0	64401	4.27 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 85.5%	
13C6-PFDA	8.076	519.1 -> 474.1	19997	1.08 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 86.7%	
13C7-PFUnDA	8.530	570.0 -> 525.1	24635	1.04 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 83.4%	
13C8-FOSA	9.623	506.1 -> 77.8	8495	0.78 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 31.3%	
13C8-PFOA	7.062	421.1 -> 376.0	84082	2.11 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.3%	
13C8-PFOS	8.239	507.1 -> 79.9	10799	2.19 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.4%	
13C9-PFNA	7.594	472.1 -> 427.0	27224	1.07 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 86.0%	
d3-MeFOSAA	8.134	573.2 -> 419.0	21360	4.37 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 87.4%	
13C3-HFPO-DA	5.833	286.9 -> 168.9	37860	7.93 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.3%	
d3-MeFOSA	10.728	515.0 -> 219.0	2717	0.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 26.5%	
d5-EtFOSAA	8.330	589.2 -> 419.0	16134	3.97 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 79.4%	
d7-MeFOSE	10.647	623.2 -> 58.9	19753	4.59 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 18.4%	
d9-EtFOSE	10.894	639.2 -> 58.9	26033	4.95 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 19.8%	
d5-EtFOSA	10.960	531.1 -> 219.0	3148	0.63 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 25.0%	

7.2.1
7

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	8.695	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	0		
PFDODA	-	613.1 -> 569.0	-	N.D.	
		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)
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	8.180	398.7 -> 98.9	0	µg/L	m	1
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	600			
		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	9.139	563.1 -> 519.0	0	µg/L	m	1
		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

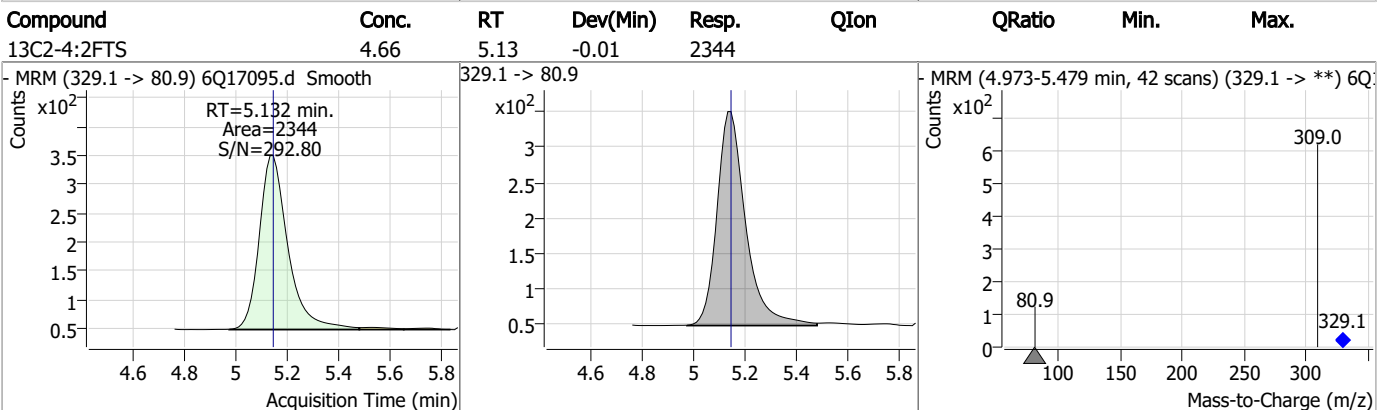
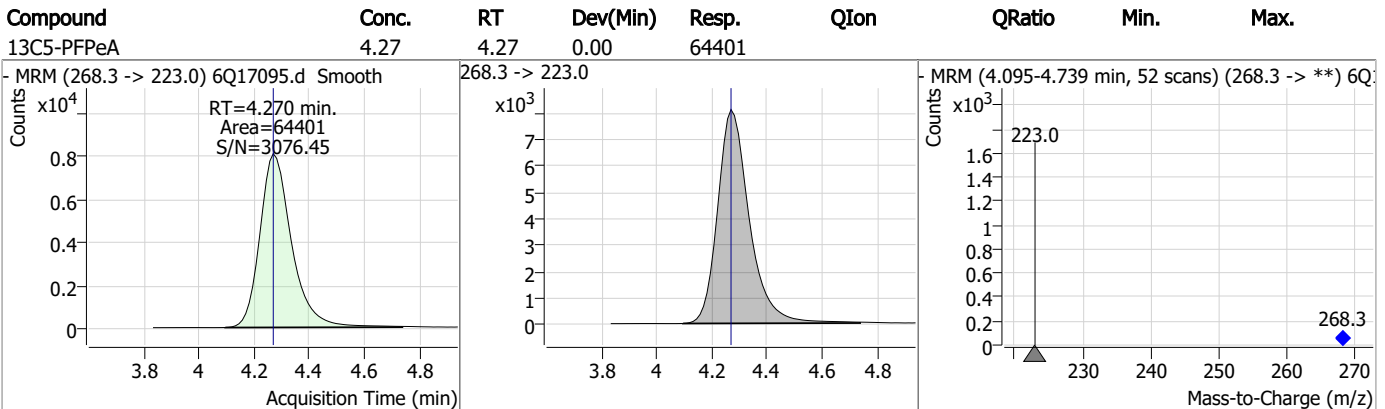
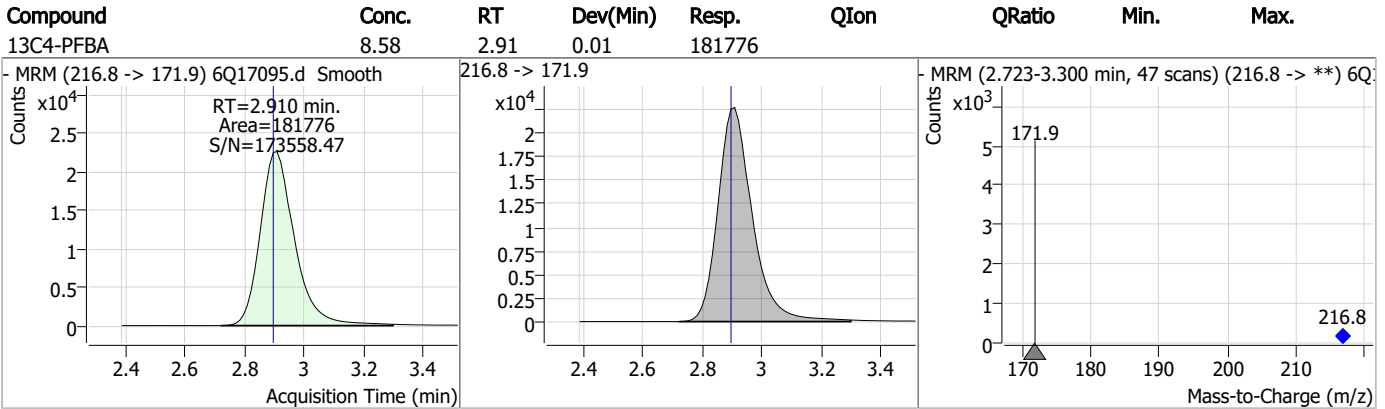
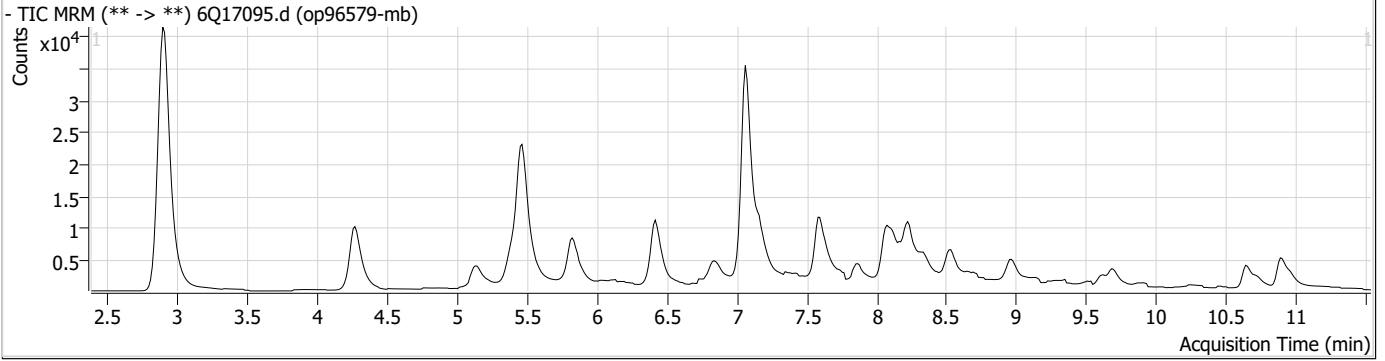
Perfluorinated Compounds by LC/MS/MS

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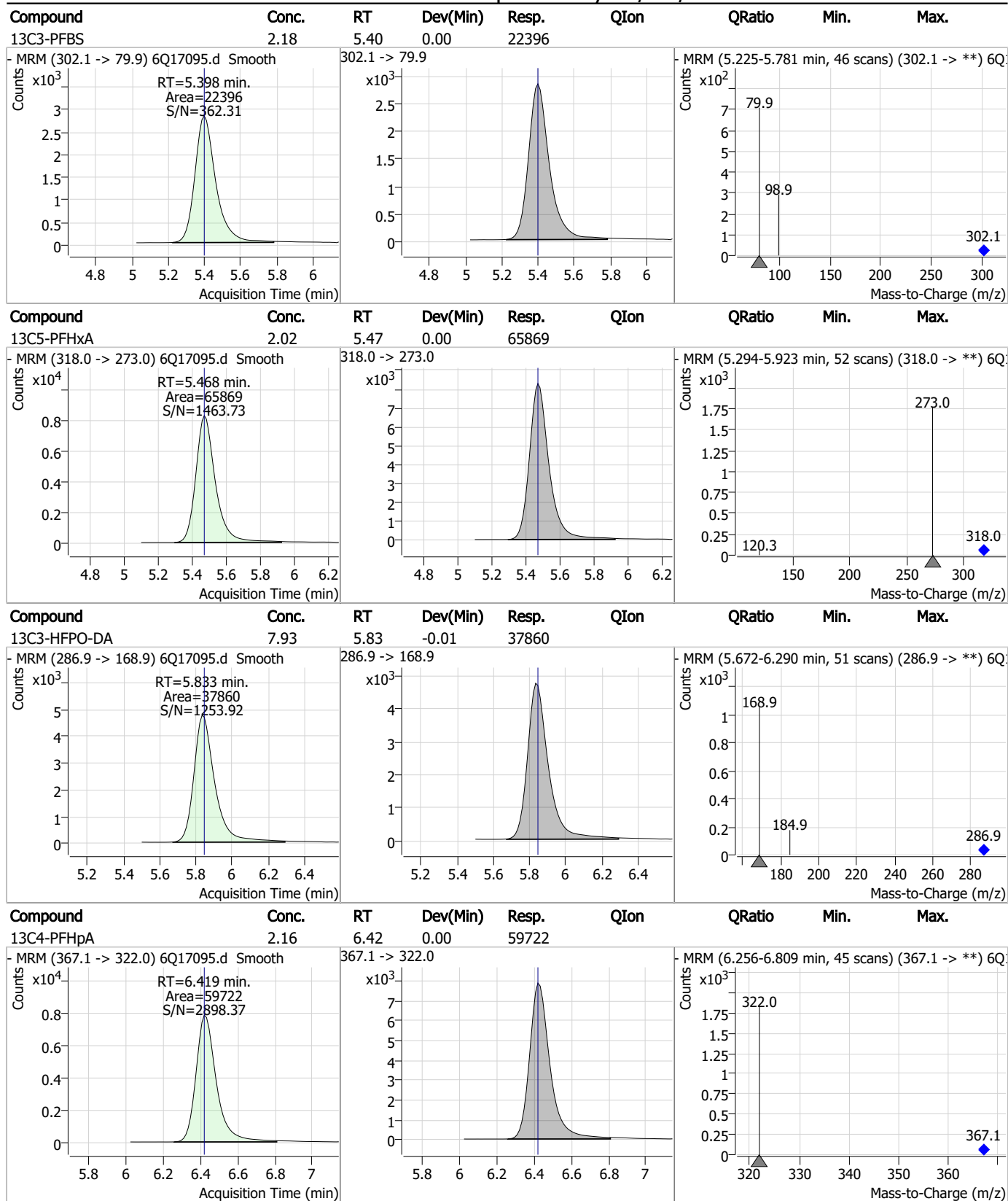
7.2.1

7

Perfluorinated Compounds by LC/MS/MS

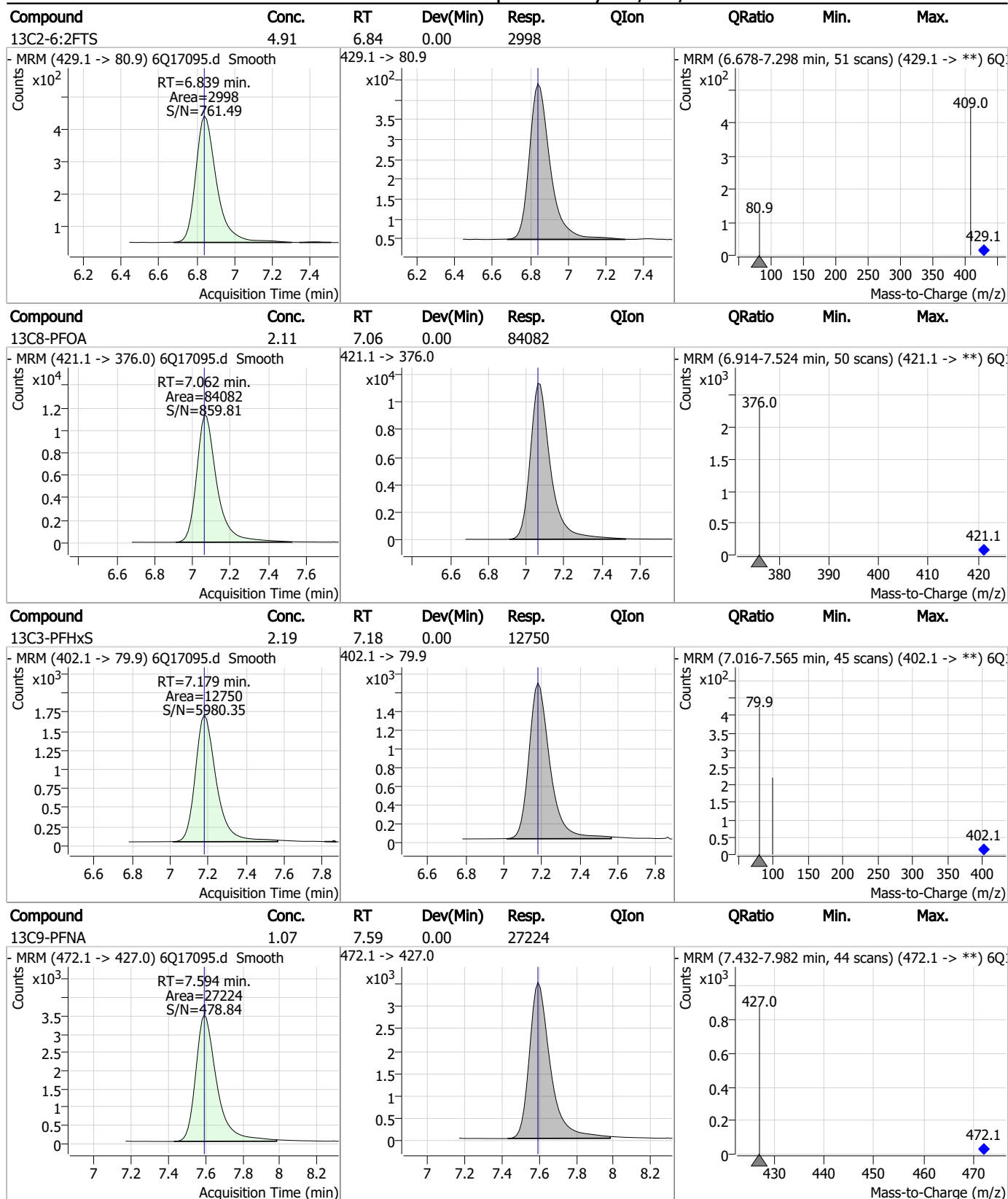


Perfluorinated Compounds by LC/MS/MS



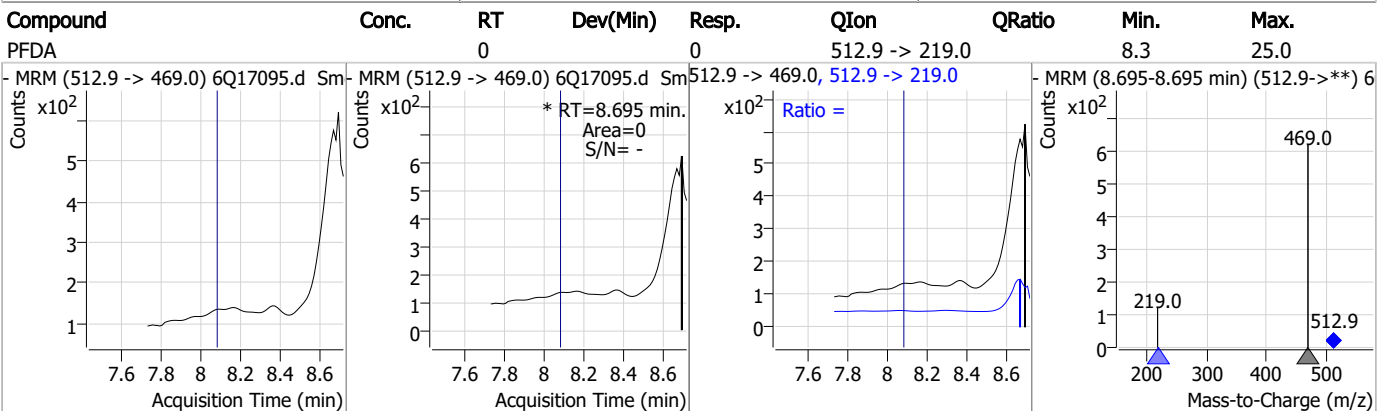
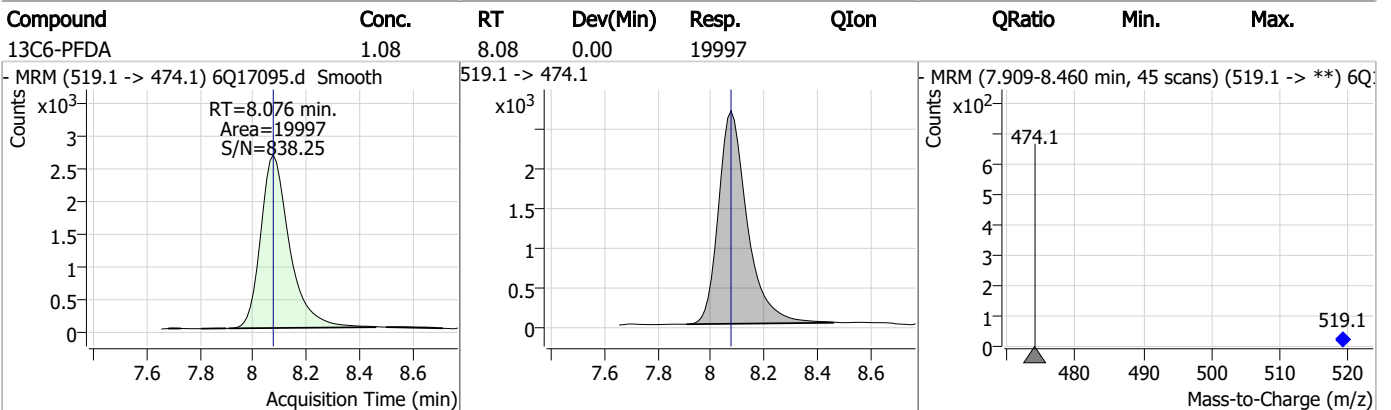
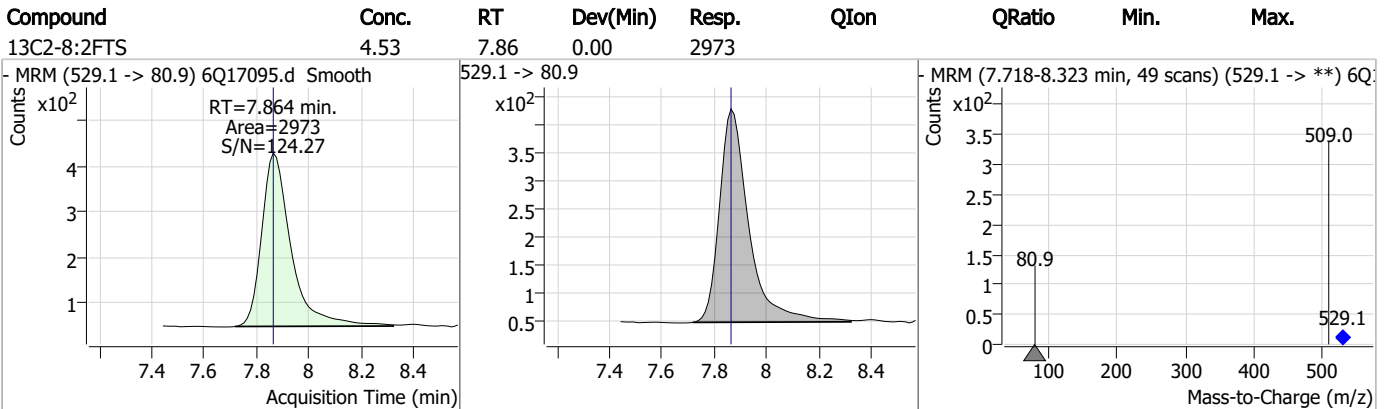
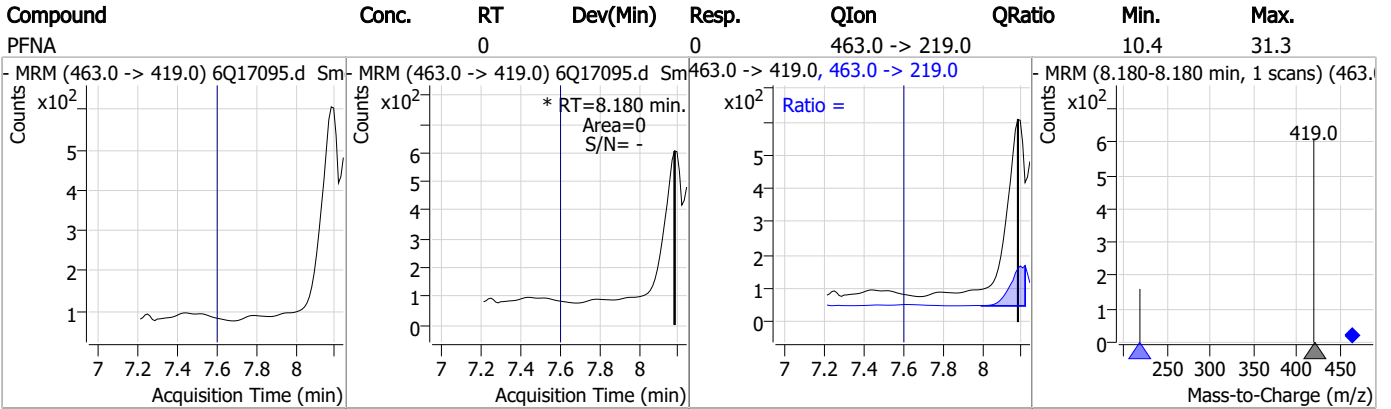
7.2.1
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Perfluorinated Compounds by LC/MS/MS

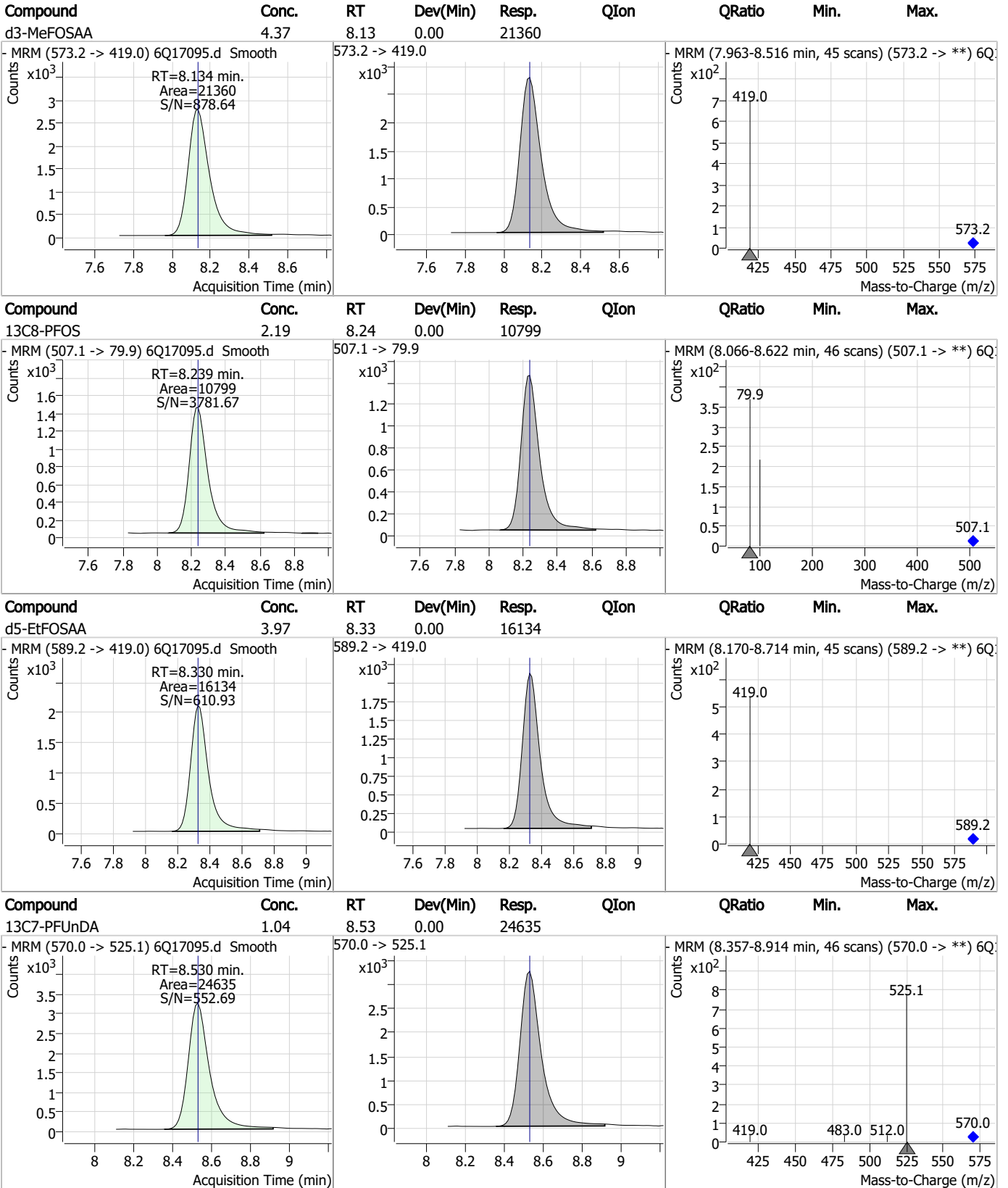


7.2.1
7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

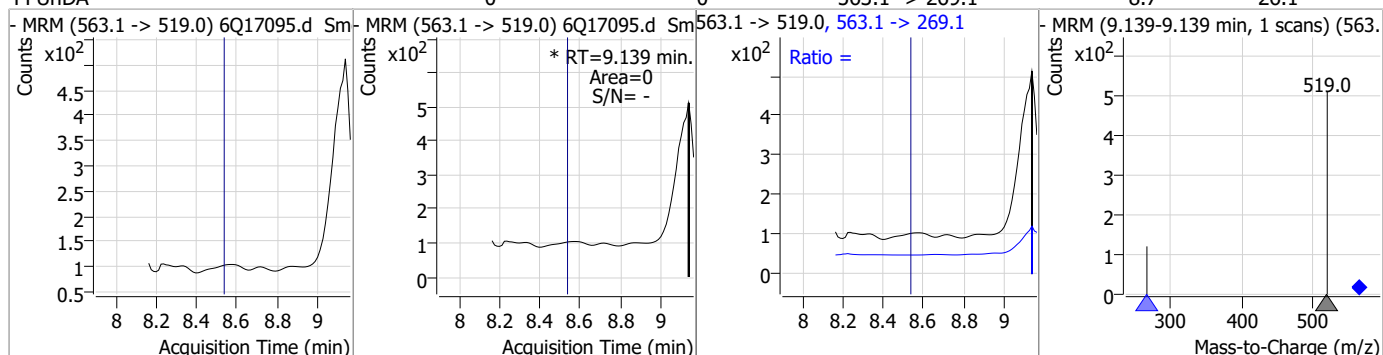


7.2.1

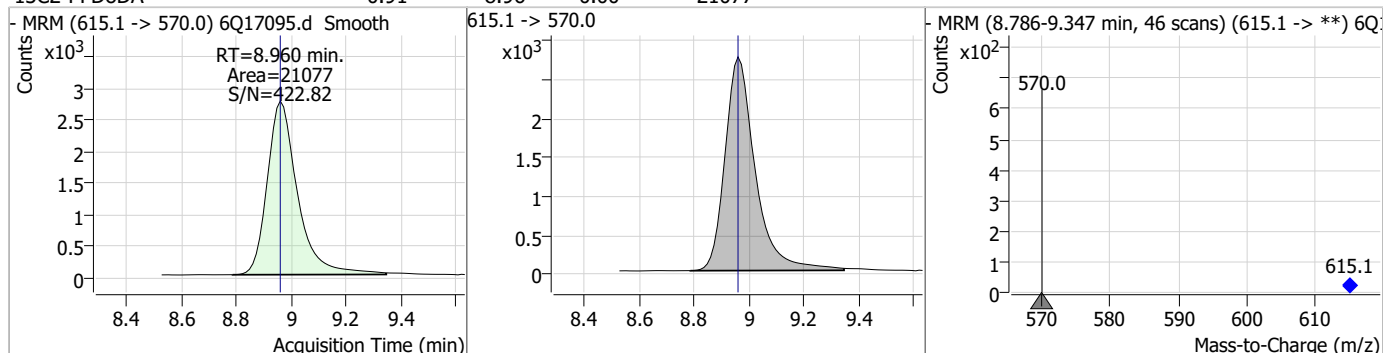
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Perfluorinated Compounds by LC/MS/MS

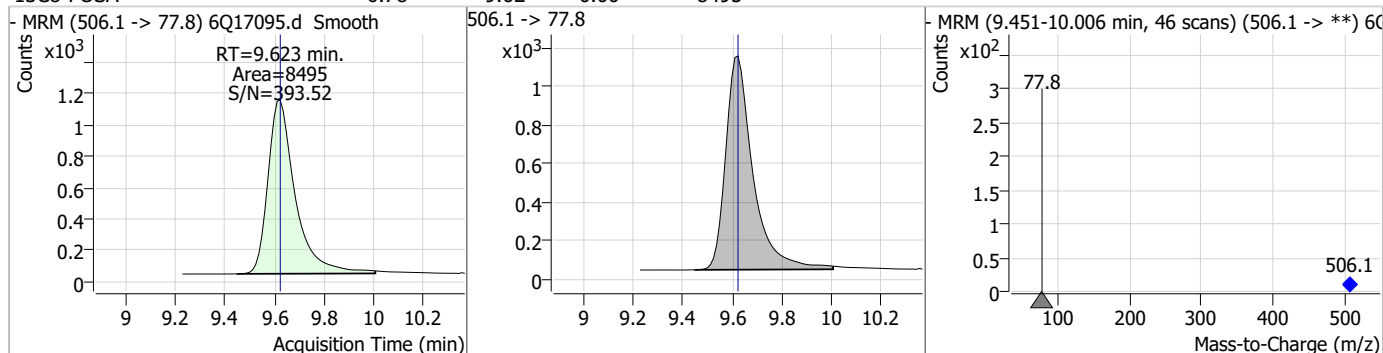
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0	0		0	563.1 -> 269.1		8.7	26.1



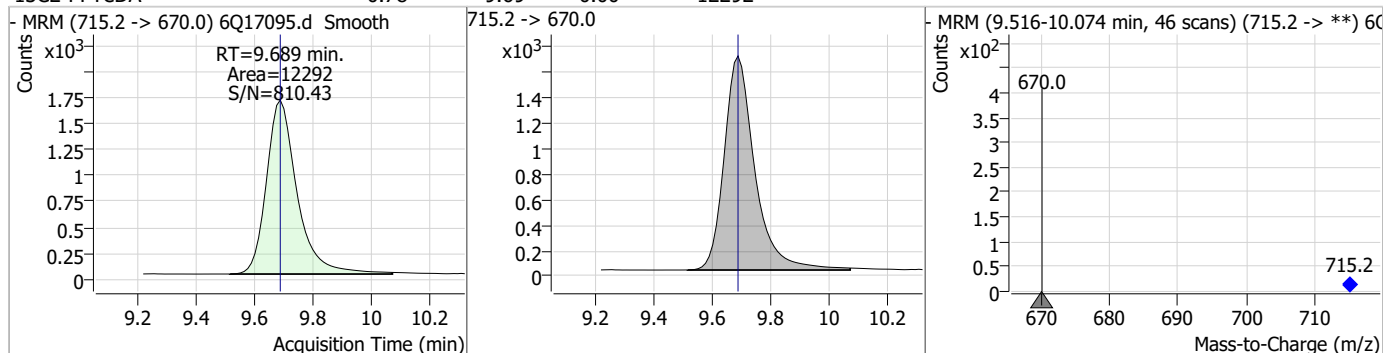
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	0.91	8.96	0.00	21077				



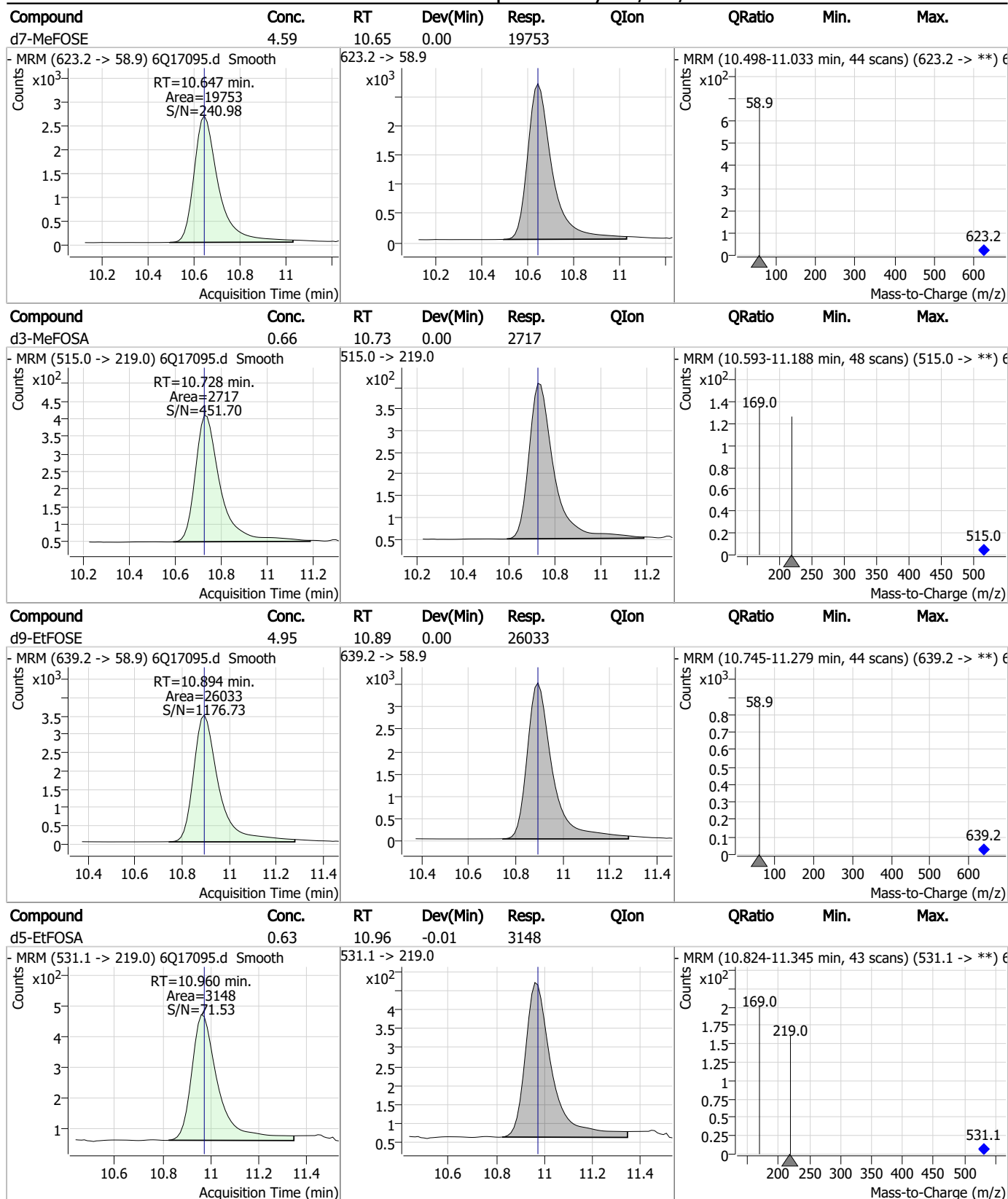
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	0.78	9.62	0.00	8495				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	0.78	9.69	0.00	12292				



Perfluorinated Compounds by LC/MS/MS



7.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17059.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 2:46:13 PM
 Sample Name : iblk
 Vial : P1-A1
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	184264	10.00 µg/L	0.012
M5-PFPeA	4.283	268.3 -> 223.0	65966	5.00 µg/L	0.012
M5-PFHxA	5.480	318.0 -> 273.0	68453	2.50 µg/L	0.012
M4-PFHpA	6.419	367.1 -> 322.0	61577	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	84416	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	26676	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	21481	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	26217	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	25328	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	16333	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	25721	2.50 µg/L	-0.012
M3-PFBS	5.398	302.1 -> 79.9	23760	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12982	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	11985	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2268	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2945	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	3142	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	23059	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	43471	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	18997	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	93375	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	120838	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	11258	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	9180	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	13878	2.50 µg/L	-0.012
13C3-PFBA	2.902	216.0 -> 172.0	80797	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9664	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	90270	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	23942	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	29317	1.25 µg/L	0.000
13C2-PFHxA	5.482	315.1 -> 270.0	60055	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2268	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2945	5.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.2%		
13C2-8:2FTS	7.864	529.1 -> 80.9	3142	5.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.4%		
13C2-PFDoDA	8.960	615.1 -> 570.0	25328	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C2-PFTeDA	9.689	715.2 -> 670.0	16333	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C3-PFBS	5.398	302.1 -> 79.9	23760	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.5%		
13C3-PFHxS	7.179	402.1 -> 79.9	12982	2.52 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 = 100.9%	
13C4-PFBA	2.910	216.8 -> 171.9	184264	9.87 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C4-PFHpA	6.419	367.1 -> 322.0	61577	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C5-PFHxA	5.480	318.0 -> 273.0	68453	2.36 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.5%	
13C5-PFPeA	4.283	268.3 -> 223.0	65966	4.92 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C6-PFDA	8.076	519.1 -> 474.1	21481	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.8%	
13C7-PFUnDA	8.530	570.0 -> 525.1	26217	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C8-FOSA	9.611	506.1 -> 77.8	25721	2.80 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.1%	
13C8-PFOA	7.062	421.1 -> 376.0	84416	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%	
13C8-PFOS	8.239	507.1 -> 79.9	11985	2.87 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.7%	
13C9-PFNA	7.594	472.1 -> 427.0	26676	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.5%	
d3-MeFOSAA	8.134	573.2 -> 419.0	23059	5.58 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 111.5%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	43471	10.22 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
d3-MeFOSA	10.728	515.0 -> 219.0	9180	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.9%	
d5-EtFOSAA	8.330	589.2 -> 419.0	18997	5.53 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.5%	
d7-MeFOSE	10.647	623.2 -> 58.9	93375	25.64 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.5%	
d9-EtFOSE	10.894	639.2 -> 58.9	120838	27.15 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 108.6%	
d5-EtFOSA	10.960	531.1 -> 219.0	11258	2.65 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.8%	

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	8.658	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	0		
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

7.22
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	8.180	398.7 -> 98.9	0	µg/L	m	1
		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	9.115	563.1 -> 519.0	0	µg/L	m	1
		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	10.907	630.0 -> 58.9	1282	0.25 µg/L	m	100
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

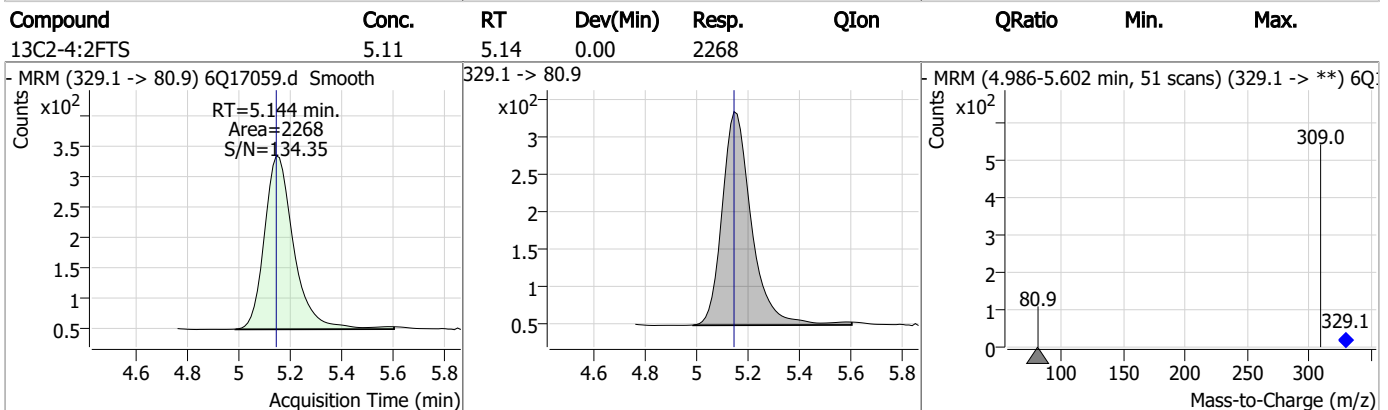
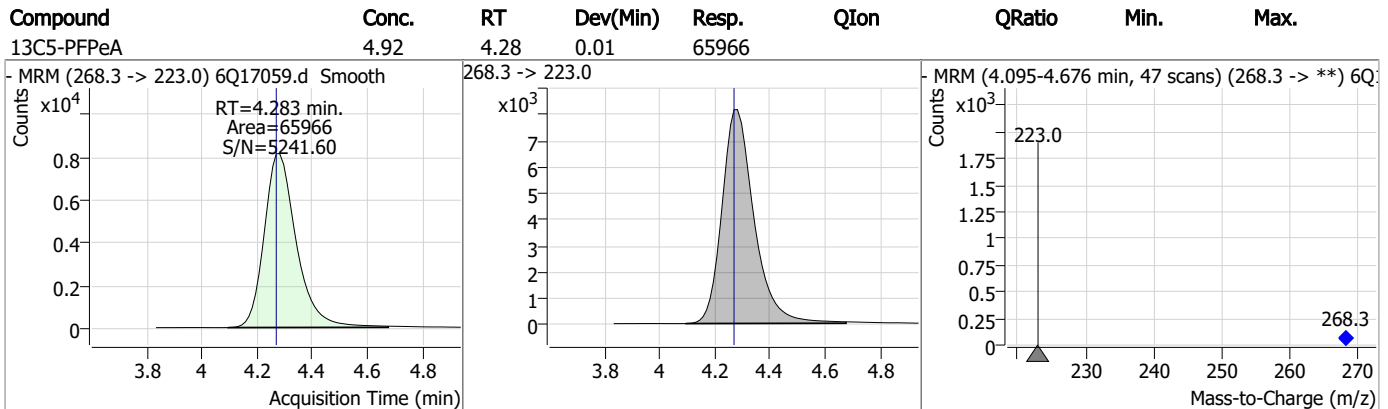
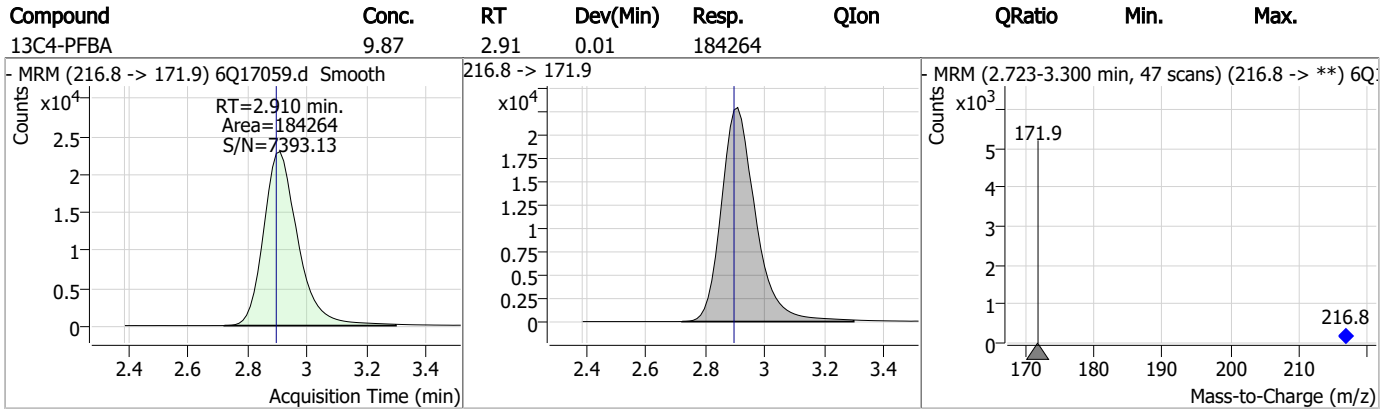
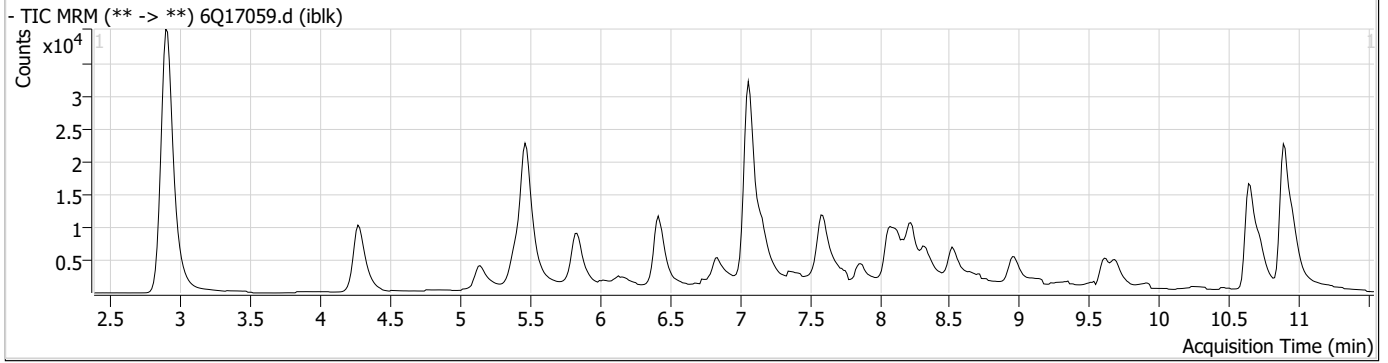
Perfluorinated Compounds by LC/MS/MS

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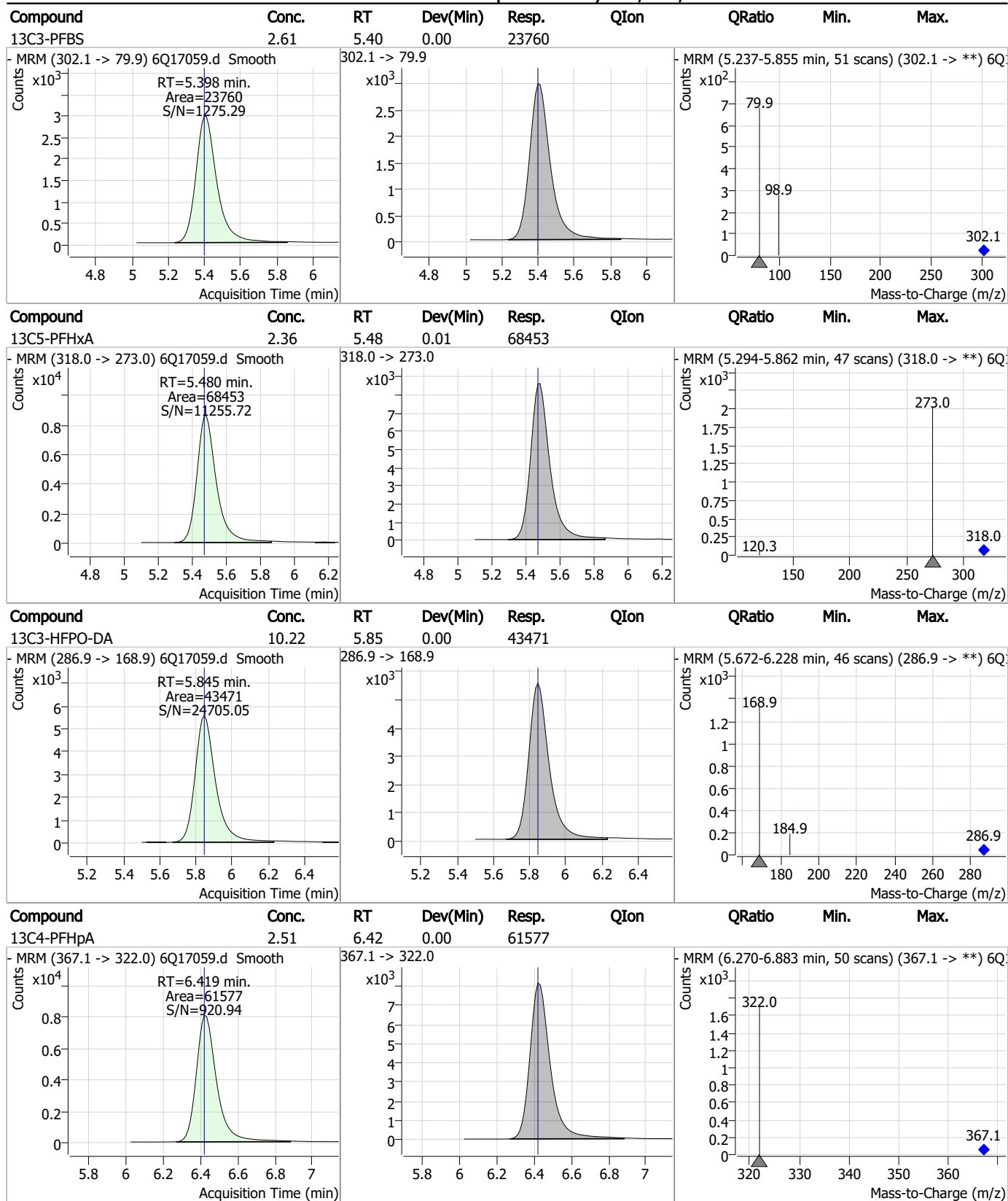
7.2.2

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Perfluorinated Compounds by LC/MS/MS

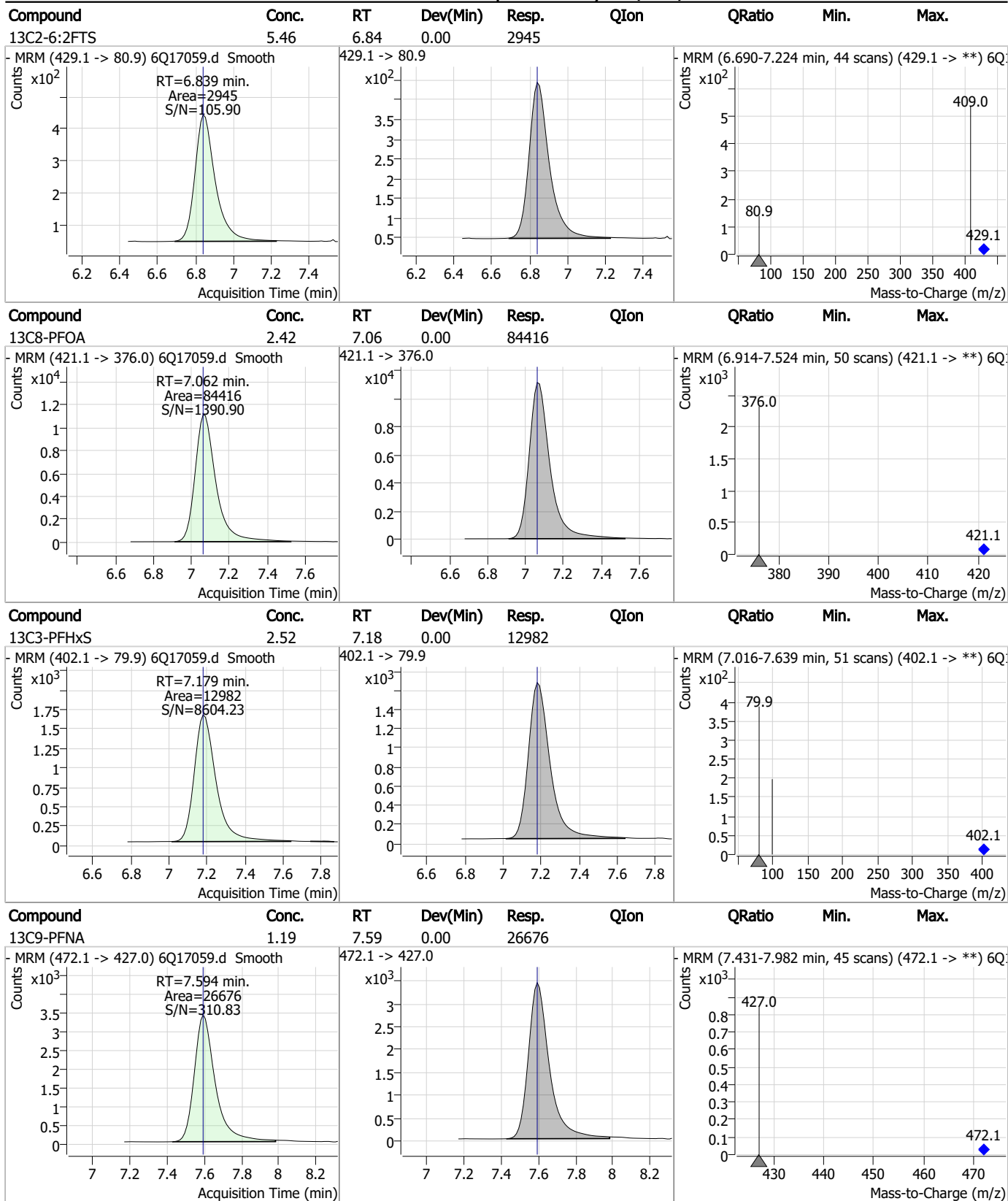


Perfluorinated Compounds by LC/MS/MS



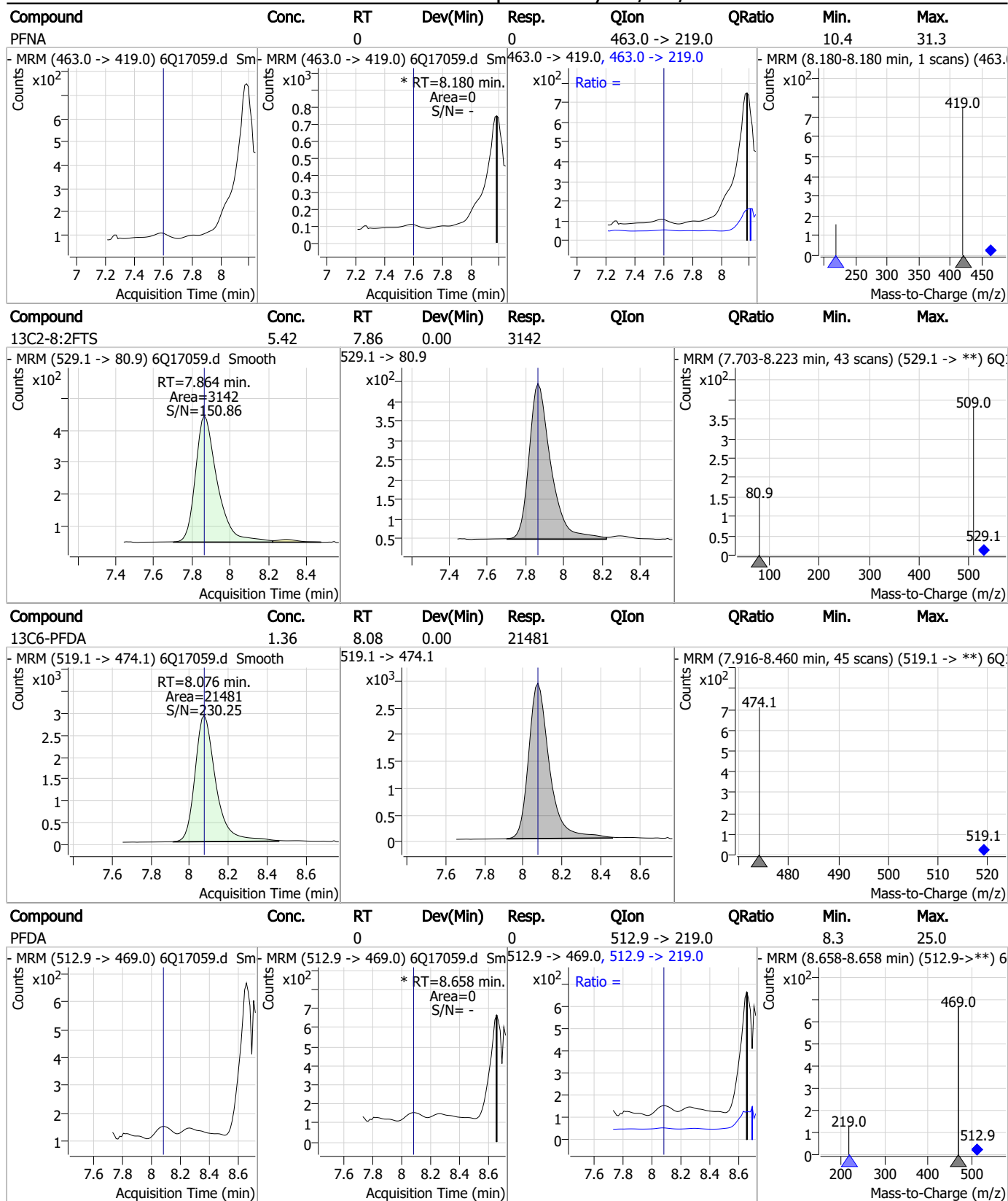
7.22
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Perfluorinated Compounds by LC/MS/MS



7.2.2
7

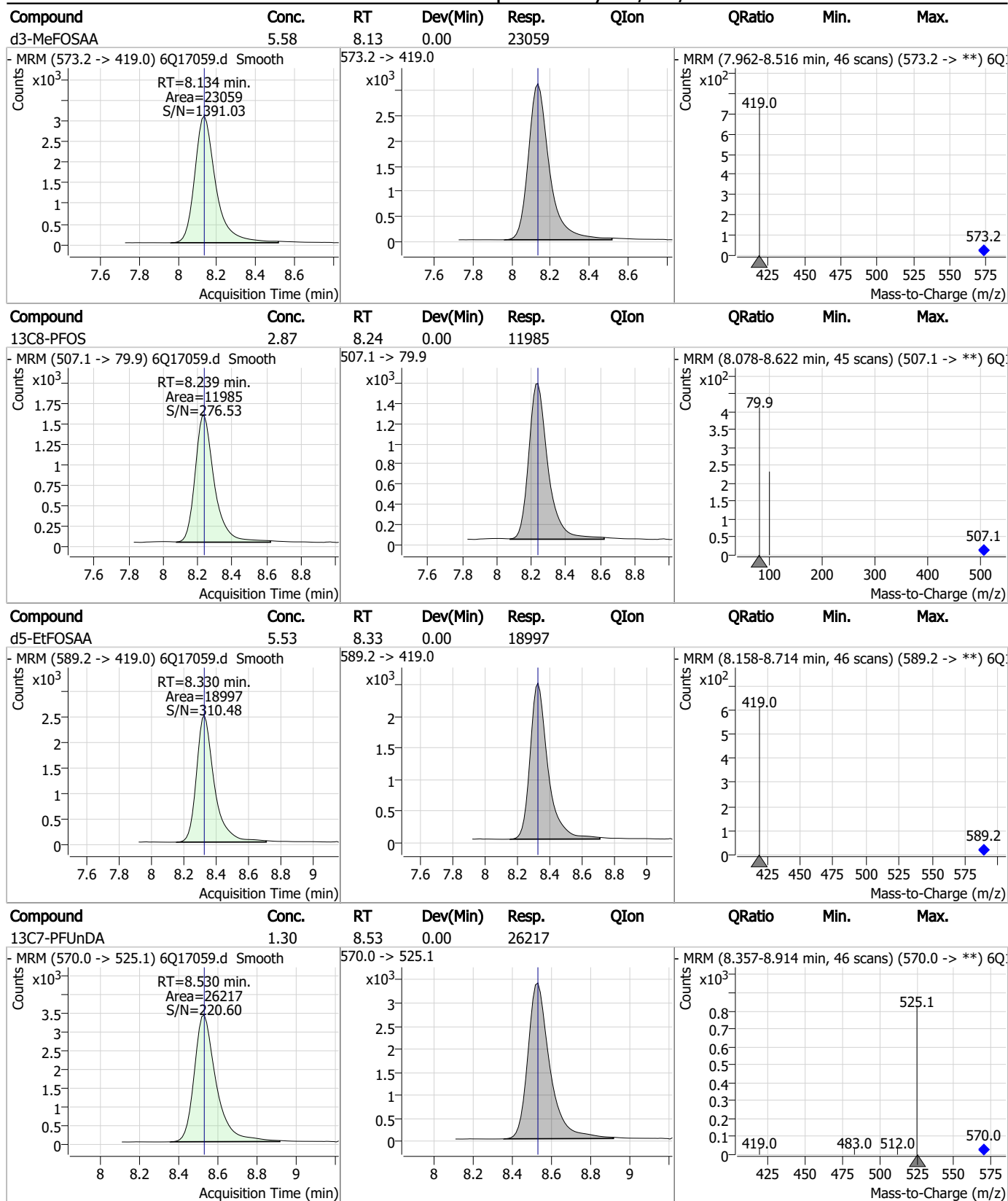
Perfluorinated Compounds by LC/MS/MS



7.2.2
7

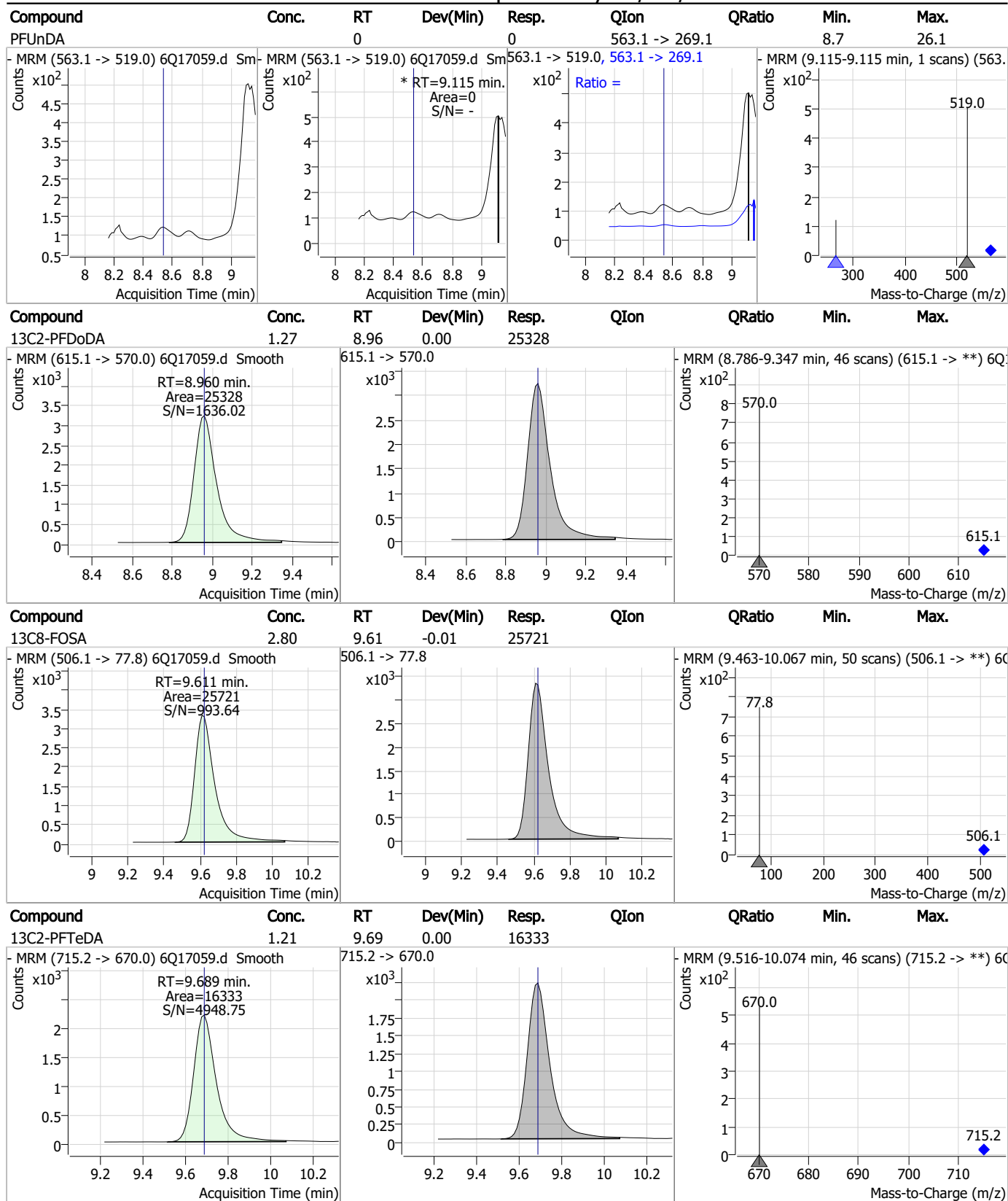


Perfluorinated Compounds by LC/MS/MS



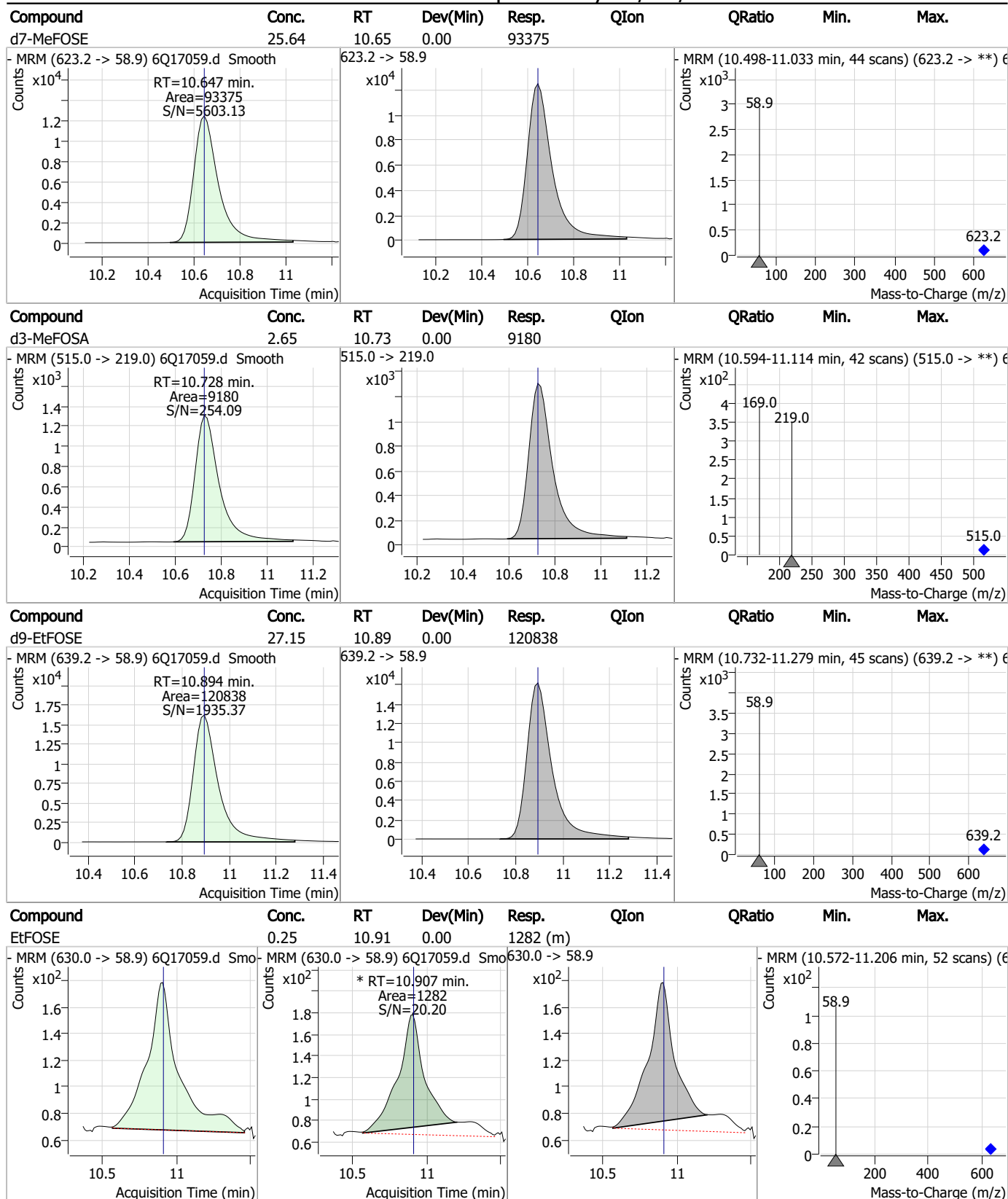
7.2.2
7

Perfluorinated Compounds by LC/MS/MS



7.2.2
7

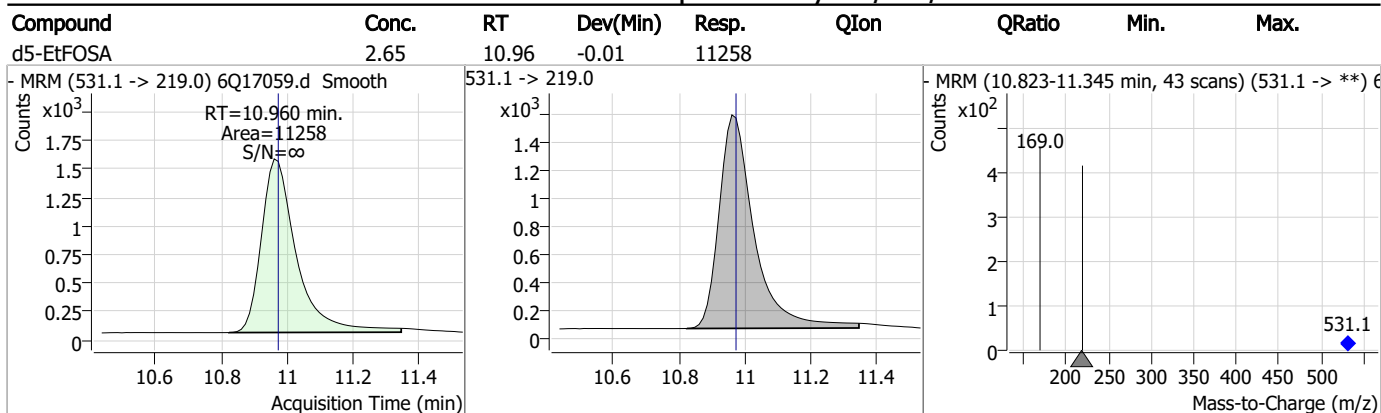
Perfluorinated Compounds by LC/MS/MS



7.2.2
7



Perfluorinated Compounds by LC/MS/MS



7.22
7

Manual Integration Approval Summary

Sample Number: S6Q258-IBLK Method: EPA DRAFT 1633
Lab FileID: 6Q17059.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 14:46 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
EiFOSE	1691-99-2		10.91	Split peak

7.2.2.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17104.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/29/2023 1:38:02 AM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	188001	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	66335	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	71484	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	59969	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	85009	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	28526	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	20700	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	26728	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	26208	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	16384	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	25430	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	23519	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	13495	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	11815	2.50 µg/L	-0.012
M2-4:2FTS	5.144	329.1 -> 80.9	2509	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2974	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2793	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	23784	5.00 µg/L	0.000
M3-HFPO-DA	5.833	286.9 -> 168.9	40503	10.00 µg/L	-0.012
M5-EtFOSAA	8.330	589.2 -> 419.0	20188	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	99688	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	117820	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	11443	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	9527	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	14457	2.50 µg/L	-0.012
13C3-PFBA	2.902	216.0 -> 172.0	81377	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9800	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	91901	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	23536	1.25 µg/L	-0.012
13C5-PFNA	7.595	468.0 -> 423.0	28452	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	58974	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2509	5.57 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.4%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2974	5.44 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.8%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2793	4.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.0%		
13C2-PFDoDA	8.960	615.1 -> 570.0	26208	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.1%		
13C2-PFTeDA	9.689	715.2 -> 670.0	16384	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C3-PFBS	5.398	302.1 -> 79.9	23519	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C3-PFHxS	7.179	402.1 -> 79.9	13495	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 = 103.5%	
13C4-PFBA	2.910	216.8 -> 171.9	188001	10.00 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFHpA	6.419	367.1 -> 322.0	59969	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C5-PFHxA	5.468	318.0 -> 273.0	71484	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C5-PFPeA	4.270	268.3 -> 223.0	66335	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C6-PFDA	8.076	519.1 -> 474.1	20700	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.7%	
13C7-PFUnDA	8.530	570.0 -> 525.1	26728	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.6%	
13C8-FOSA	9.623	506.1 -> 77.8	25430	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.4%	
13C8-PFOA	7.062	421.1 -> 376.0	85009	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.9%	
13C8-PFOS	8.226	507.1 -> 79.9	11815	2.71 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.5%	
13C9-PFNA	7.594	472.1 -> 427.0	28526	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.2%	
d3-MeFOSAA	8.134	573.2 -> 419.0	23784	5.52 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.4%	
13C3-HFPO-DA	5.833	286.9 -> 168.9	40503	9.70 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.0%	
d3-MeFOSA	10.728	515.0 -> 219.0	9527	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.5%	
d5-EtFOSAA	8.330	589.2 -> 419.0	20188	5.64 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.8%	
d7-MeFOSE	10.647	623.2 -> 58.9	99688	26.27 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 105.1%	
d9-EtFOSE	10.894	639.2 -> 58.9	117820	25.41 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.7%	
d5-EtFOSA	10.960	531.1 -> 219.0	11443	2.58 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%	

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	8.670	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	0		
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	



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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	8.168	398.7 -> 98.9	0	µg/L	m	1
		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	9.917	663.0 -> 619.0	0	µg/L	m	1
		663.0 -> 168.9				
PFUnDA	9.127	563.1 -> 519.0	0	µg/L	m	1
		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

7.2.3
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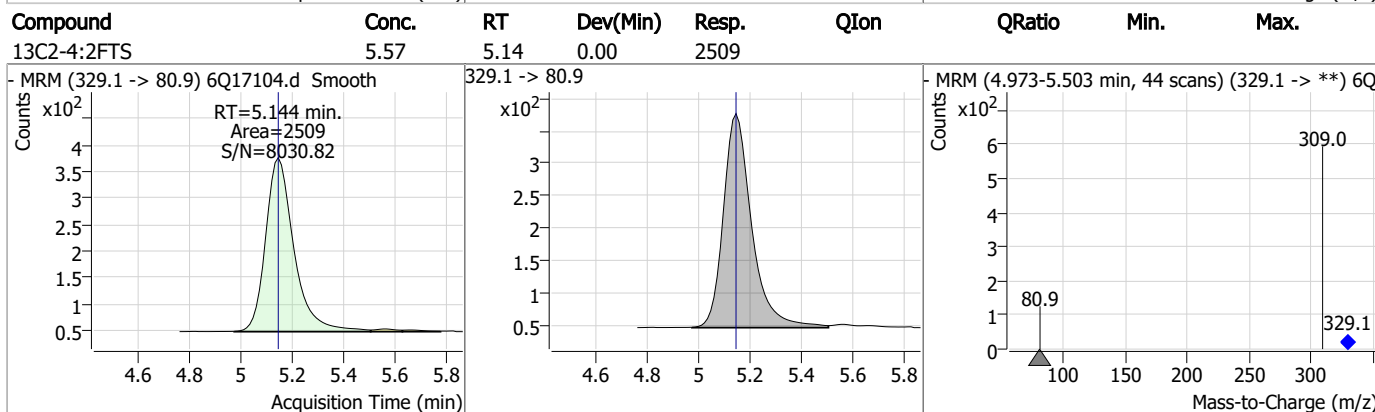
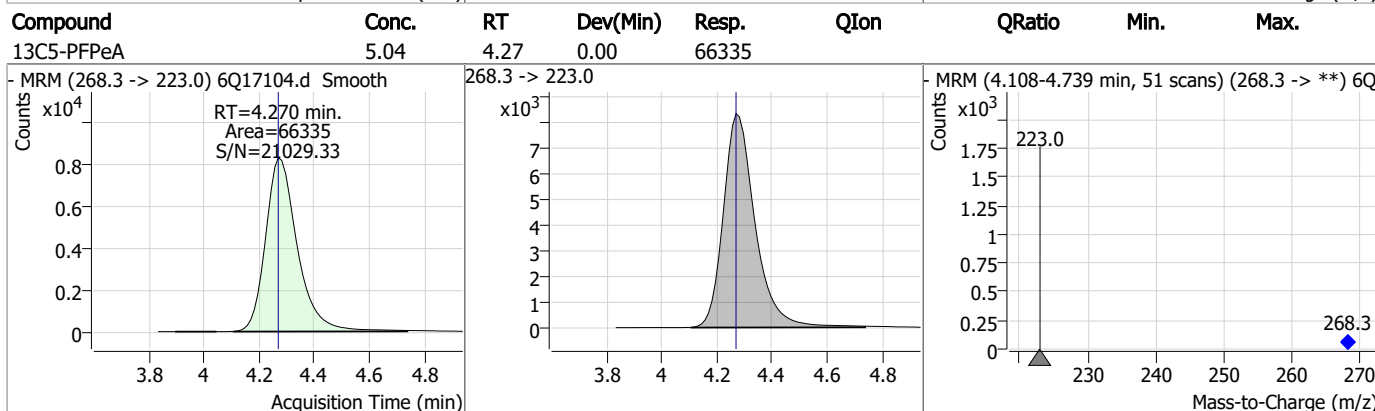
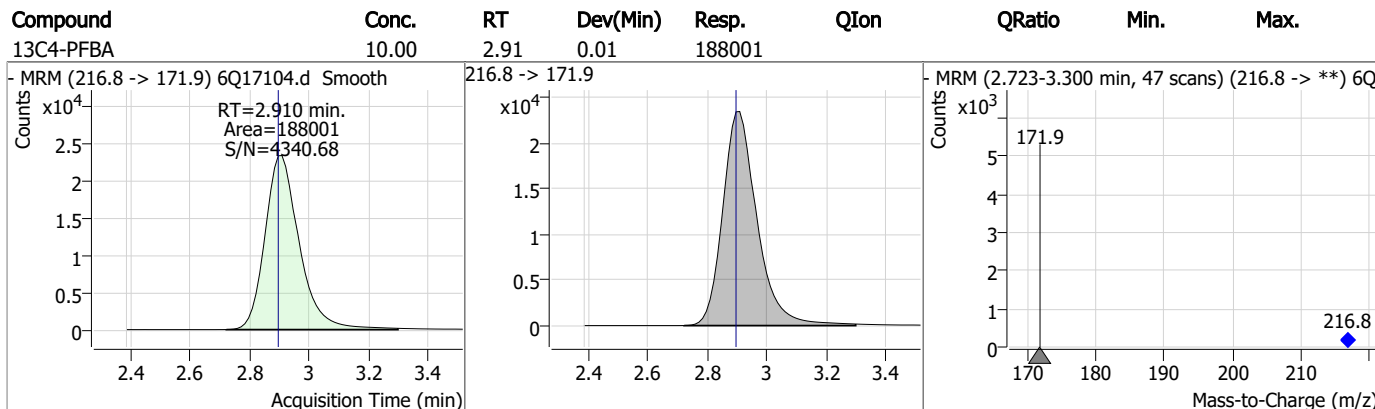
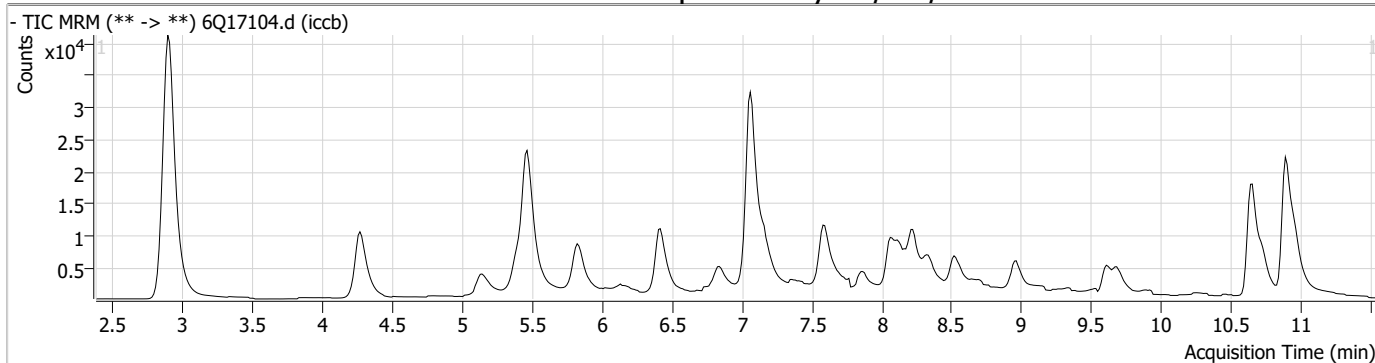
Perfluorinated Compounds by LC/MS/MS

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

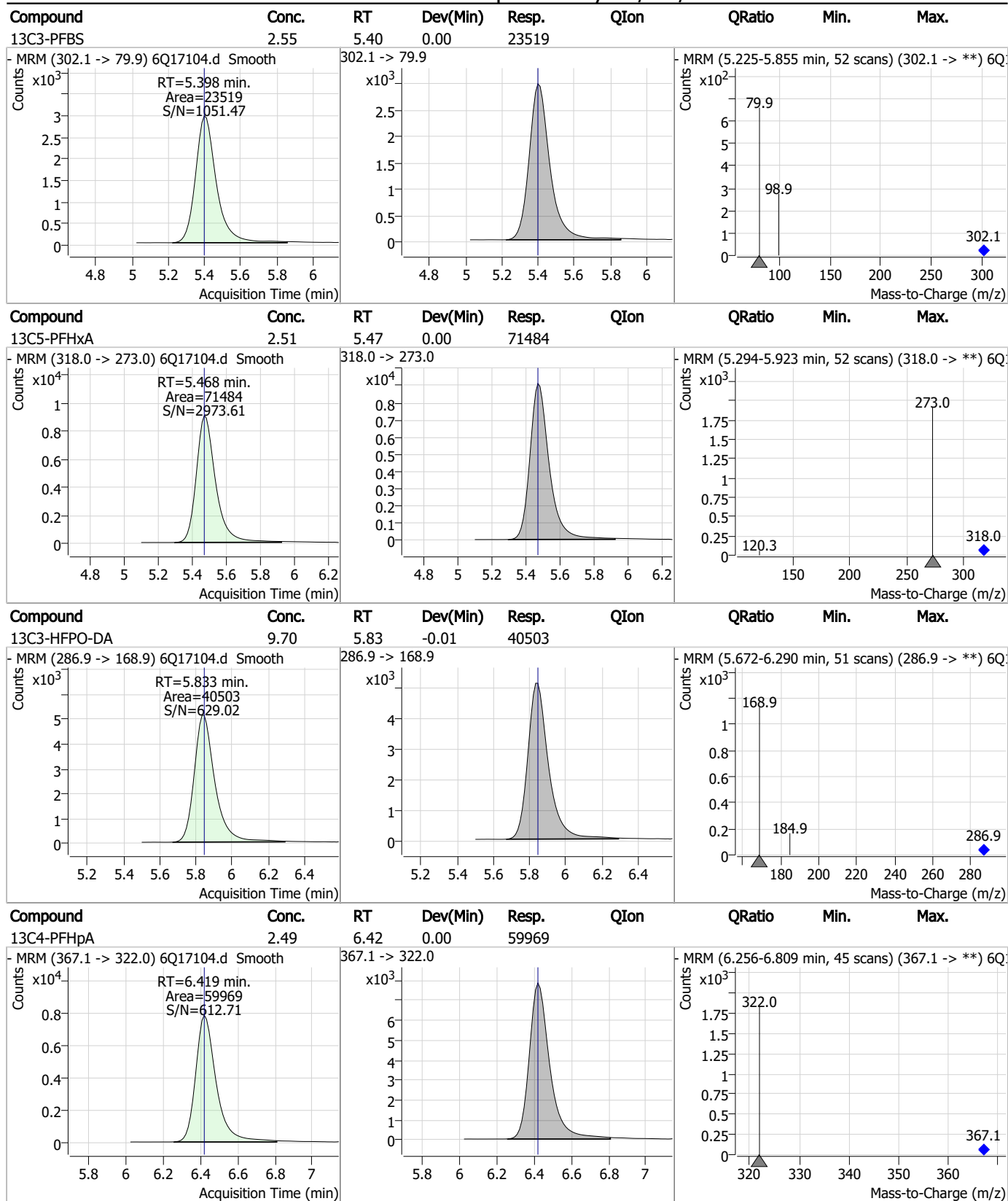
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Perfluorinated Compounds by LC/MS/MS



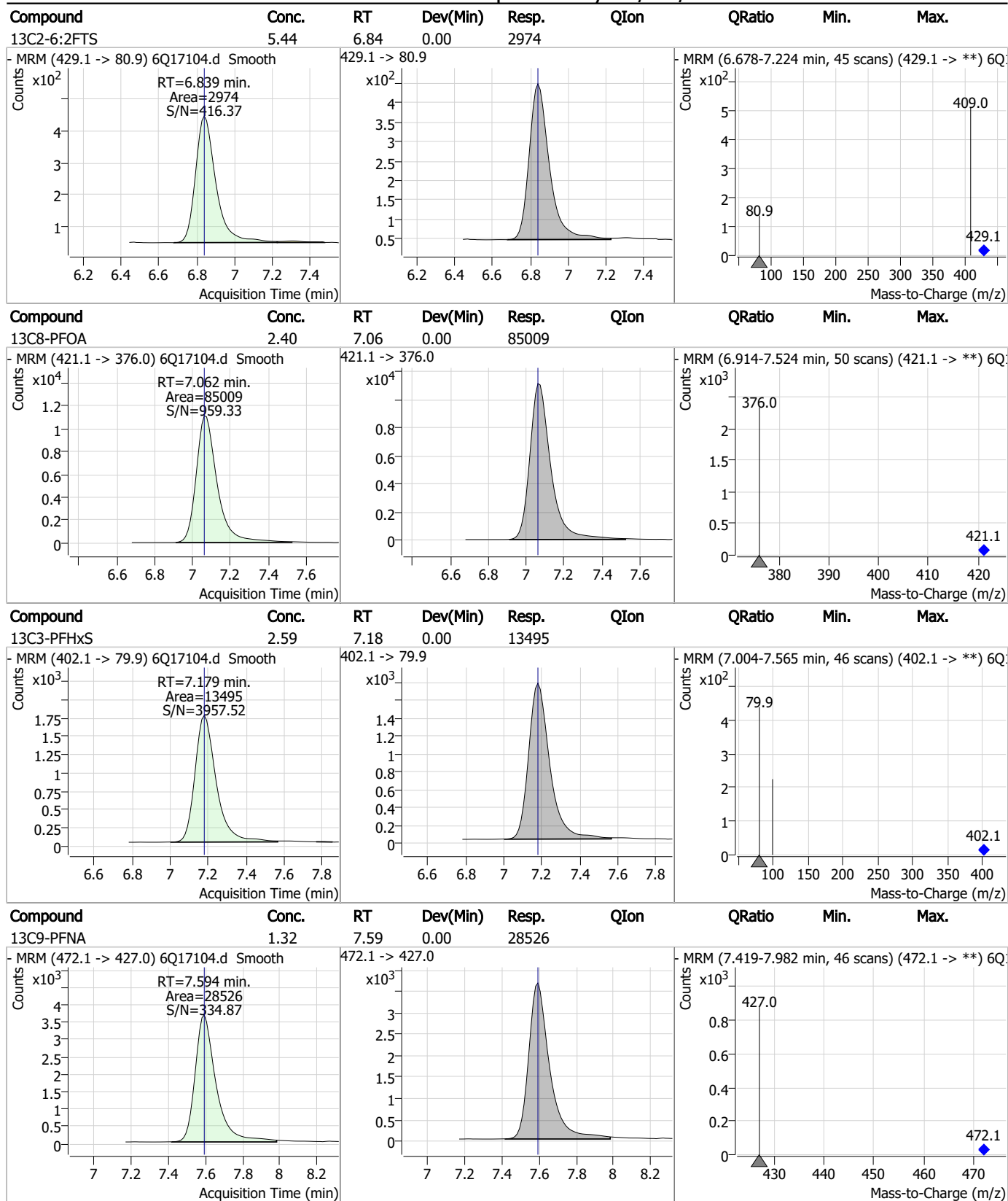
7.2.3
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Perfluorinated Compounds by LC/MS/MS



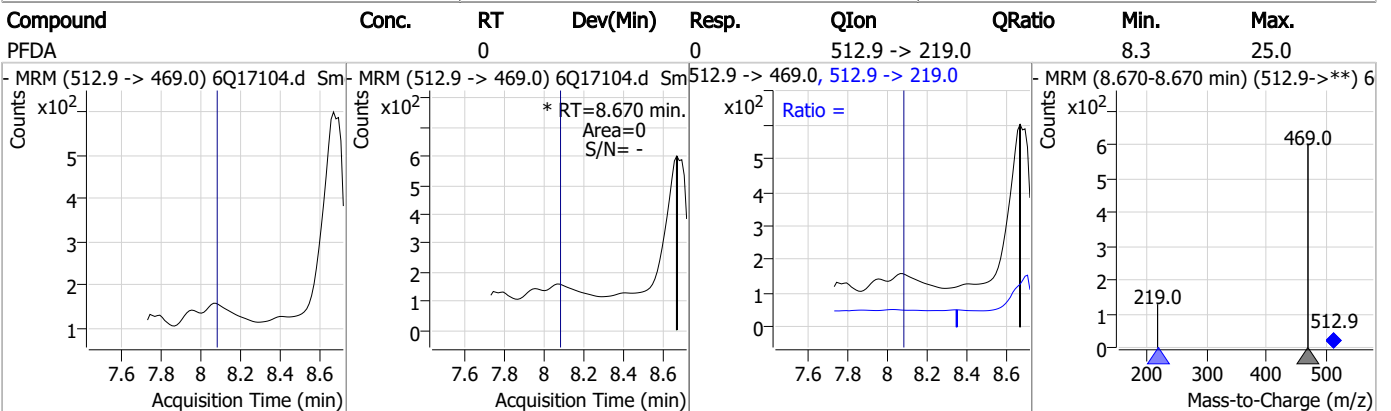
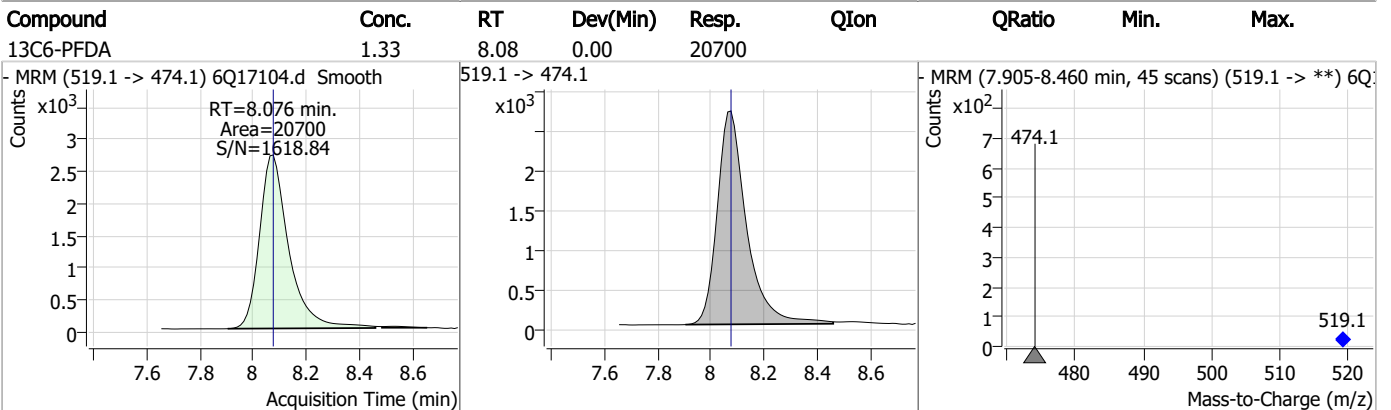
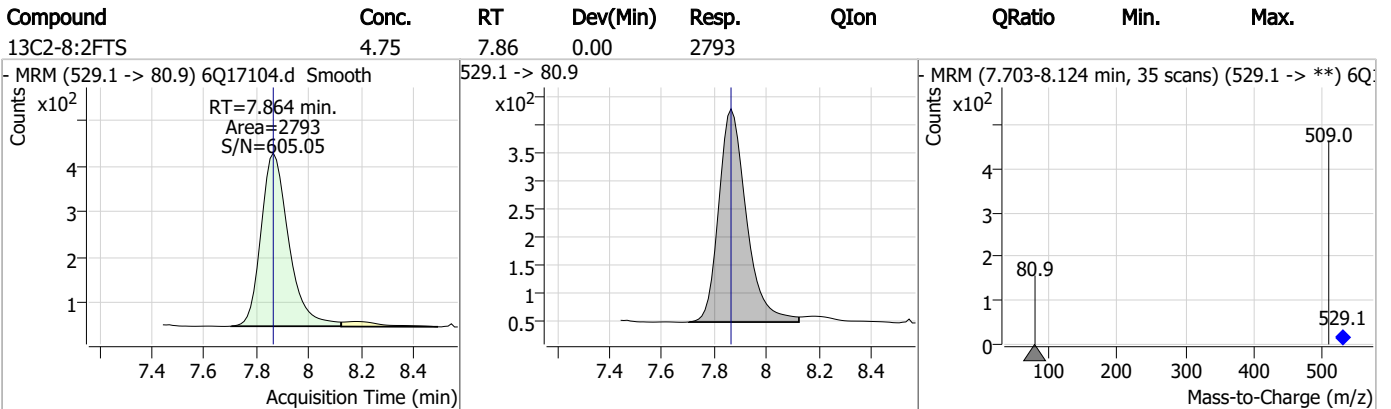
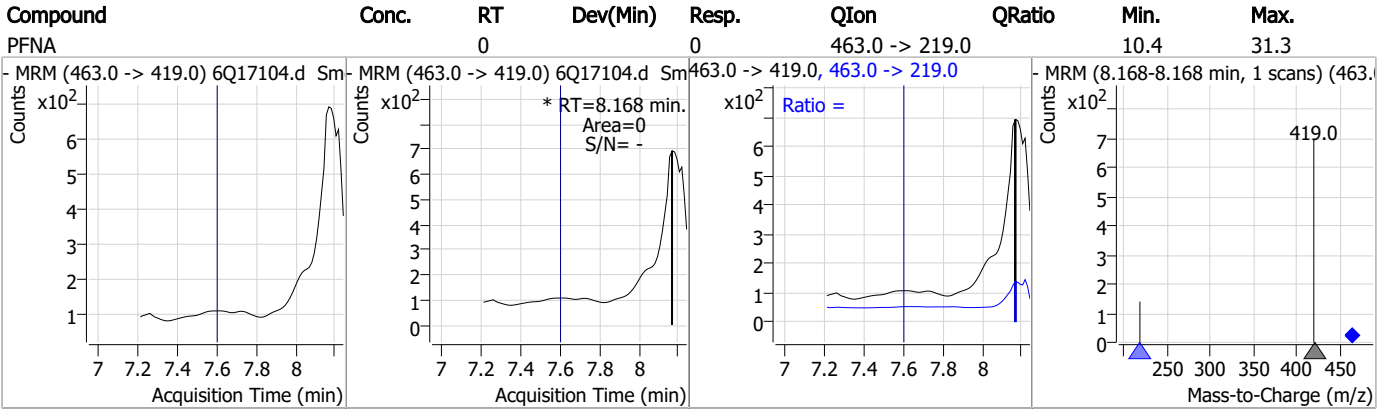
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Perfluorinated Compounds by LC/MS/MS

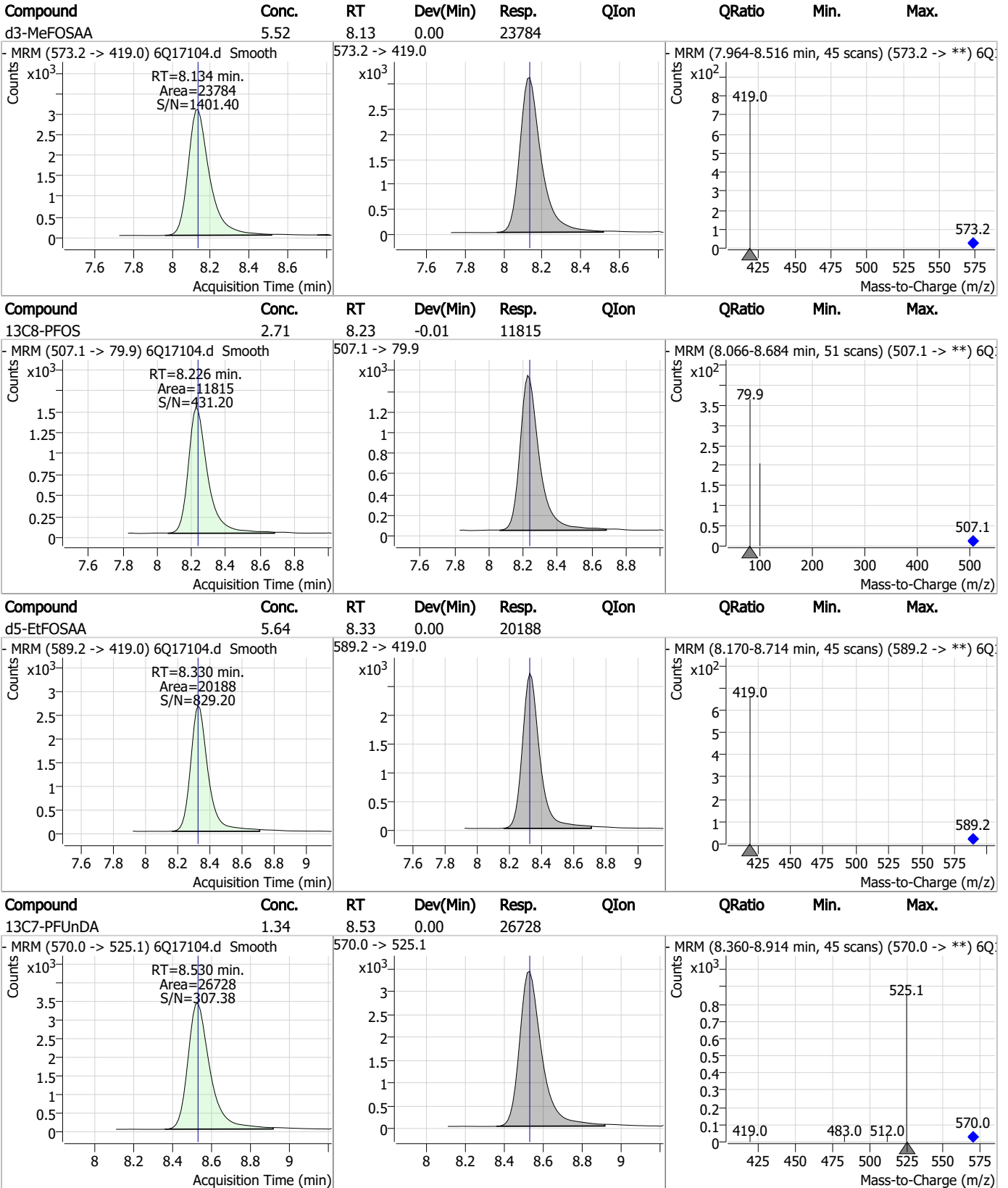


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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

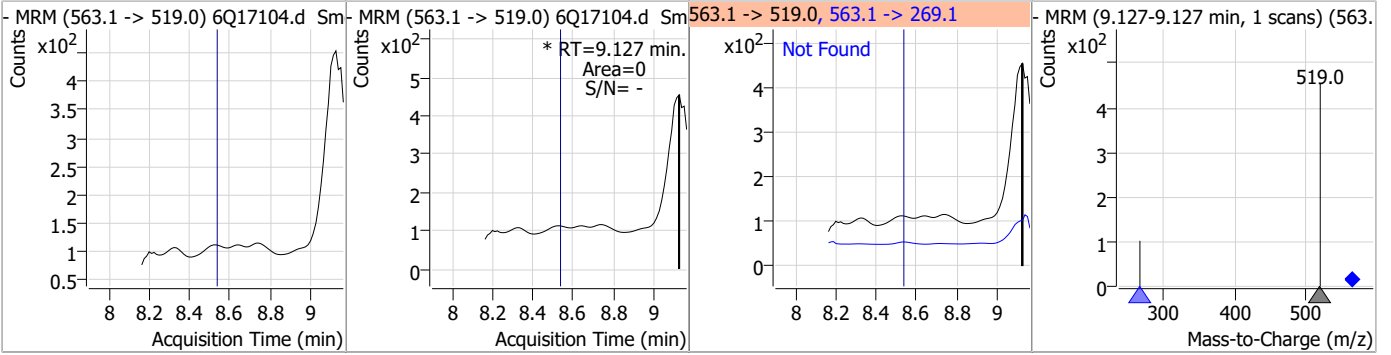


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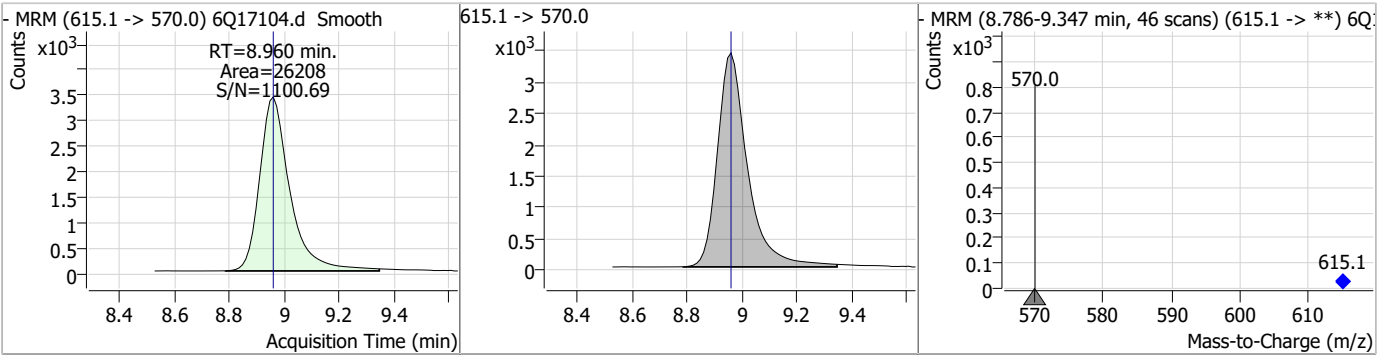
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Perfluorinated Compounds by LC/MS/MS

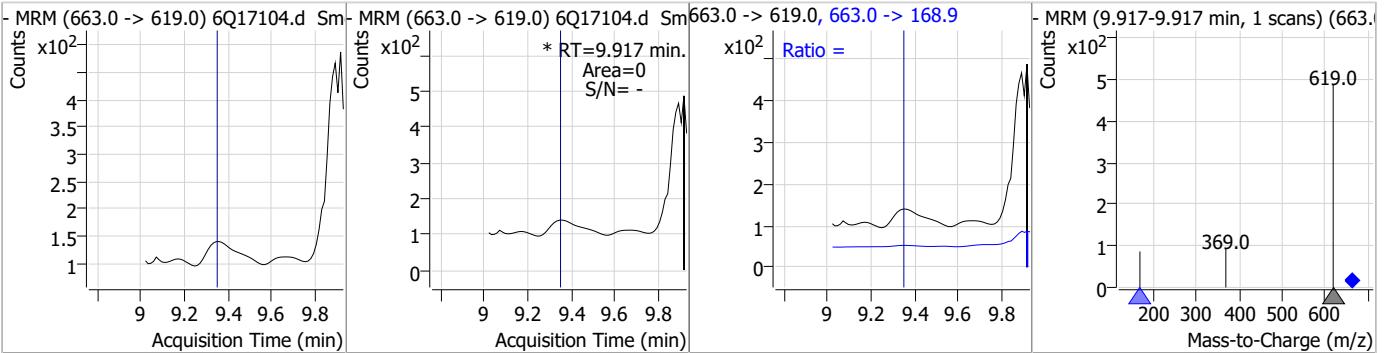
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0	0		0	563.1 -> 269.1		8.7	26.1



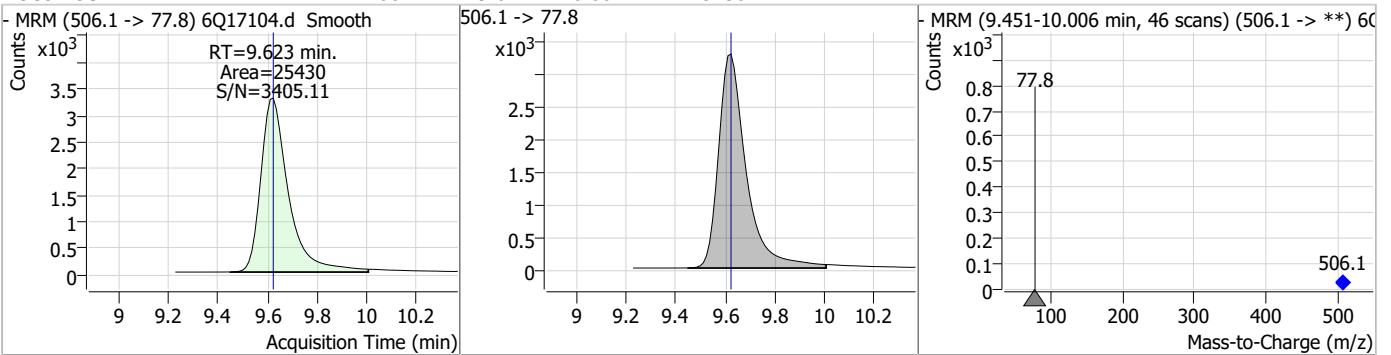
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.34	8.96	0.00	26208				



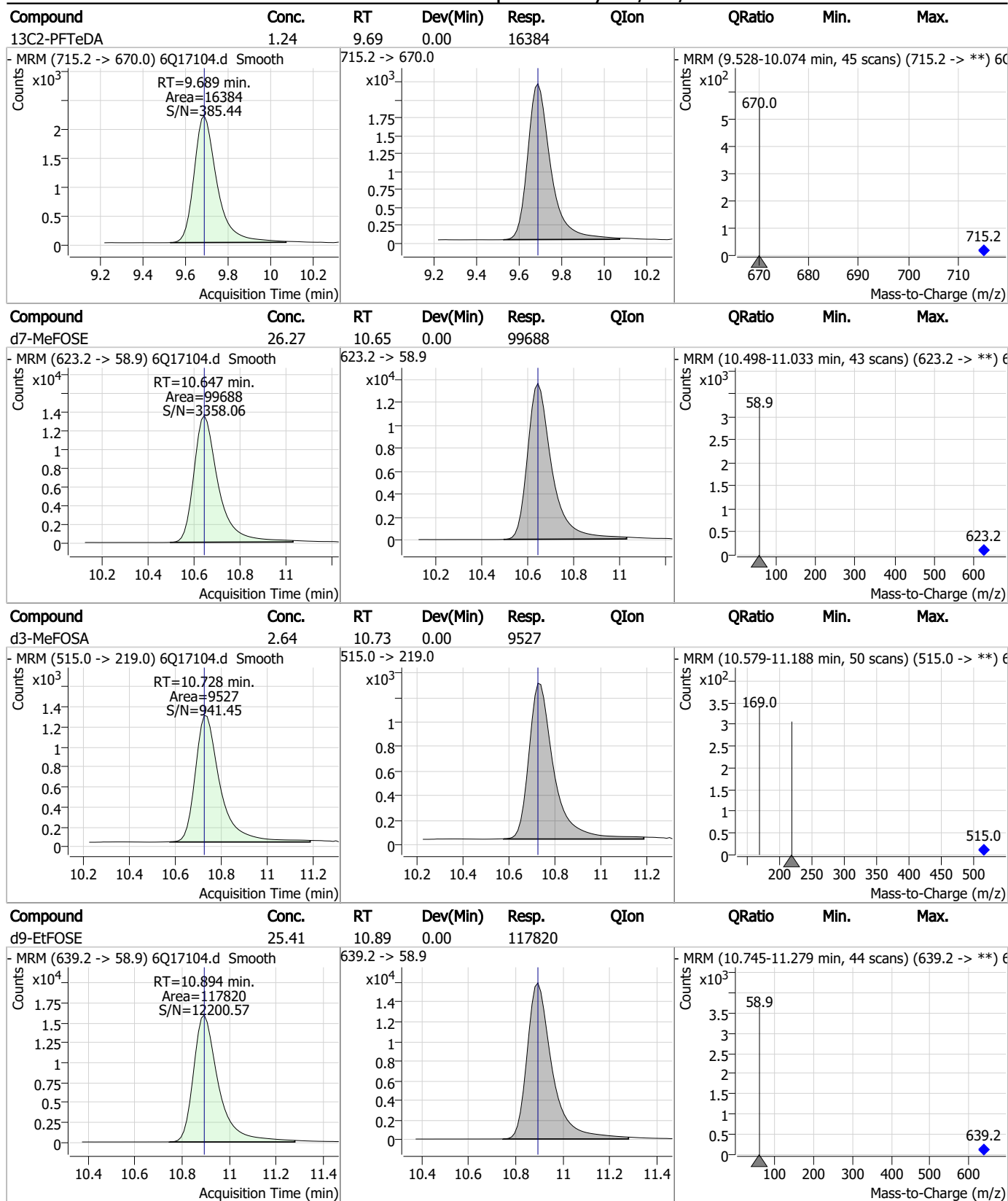
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0	0		0	663.0 -> 168.9		4.6	13.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.66	9.62	0.00	25430				

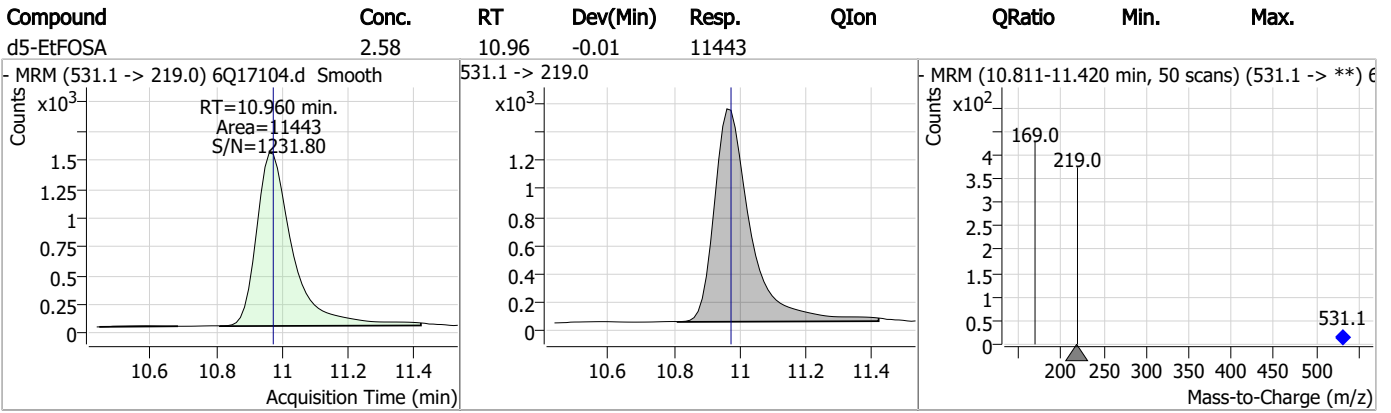


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17092.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 10:44:15 PM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	189230	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	67776	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	72611	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	61024	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	89100	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	27206	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	21037	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	27888	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	25493	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17881	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	24732	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	23965	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	13333	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	11972	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2096	5.00 µg/L	0.000
M2-6:2FTS	6.851	429.1 -> 80.9	2971	5.00 µg/L	0.012
M2-8:2FTS	7.864	529.1 -> 80.9	3203	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	23428	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	41029	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	19792	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	100358	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	116690	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	12072	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	9391	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	15378	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	81262	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9413	2.50 µg/L	0.000
13C4-PFOA	7.075	417.1 -> 372.0	89585	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	25764	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	32073	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	61218	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2096	4.84 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C2-6:2FTS	6.851	429.1 -> 80.9	2971	5.66 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.1%		
13C2-8:2FTS	7.864	529.1 -> 80.9	3203	5.67 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.4%		
13C2-PFDoDA	8.960	615.1 -> 570.0	25493	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.1%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17881	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C3-PFBS	5.398	302.1 -> 79.9	23965	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.3%		
13C3-PFHxS	7.179	402.1 -> 79.9	13333	2.66 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 = 106.4%	
13C4-PFBA	2.910	216.8 -> 171.9	189230	10.08 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C4-PFHpA	6.419	367.1 -> 322.0	61024	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C5-PFHxA	5.468	318.0 -> 273.0	72611	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C5-PFPeA	4.270	268.3 -> 223.0	67776	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C6-PFDA	8.076	519.1 -> 474.1	21037	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C7-PFUnDA	8.530	570.0 -> 525.1	27888	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C8-FOSA	9.623	506.1 -> 77.8	24732	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C8-PFOA	7.062	421.1 -> 376.0	89100	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C8-PFOS	8.239	507.1 -> 79.9	11972	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C9-PFNA	7.594	472.1 -> 427.0	27206	1.11 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 89.0%	
d3-MeFOSAA	8.134	573.2 -> 419.0	23428	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	41029	9.47 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.7%	
d3-MeFOSA	10.728	515.0 -> 219.0	9391	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
d5-EtFOSAA	8.330	589.2 -> 419.0	19792	5.20 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.9%	
d7-MeFOSE	10.647	623.2 -> 58.9	100358	24.87 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
d9-EtFOSE	10.894	639.2 -> 58.9	116690	23.66 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.6%	
d5-EtFOSA	10.960	531.1 -> 219.0	12072	2.56 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	

7.2.4
7

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	8.658	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	0		
PFDODA	-	613.1 -> 569.0	-	N.D.	
		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)
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	8.180	398.7 -> 98.9	0	µg/L	m	1
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	0	N.D.		
		548.8 -> 79.9				
PFOA	7.264	548.8 -> 98.9	0	µg/L	m	1
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	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	9.677	713.1 -> 669.0	485	0.03 µg/L	m	90
		713.1 -> 168.9	21			
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	9.102	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1				
11CI-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9CI-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

7.24
7

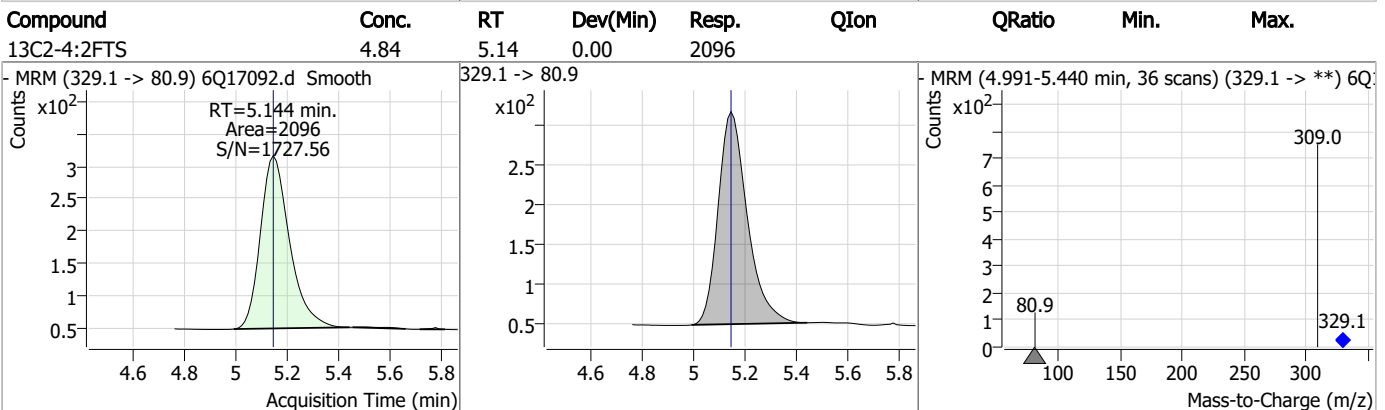
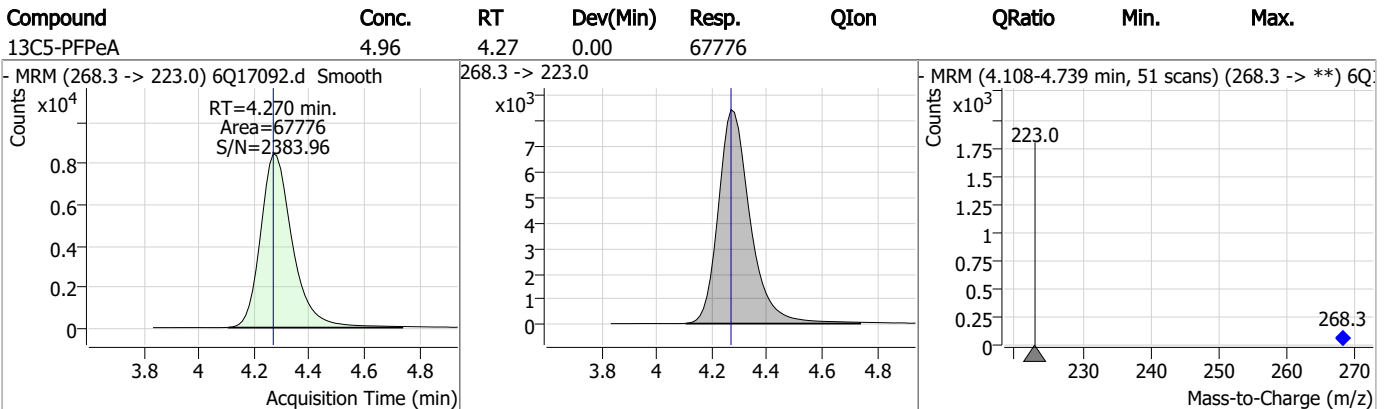
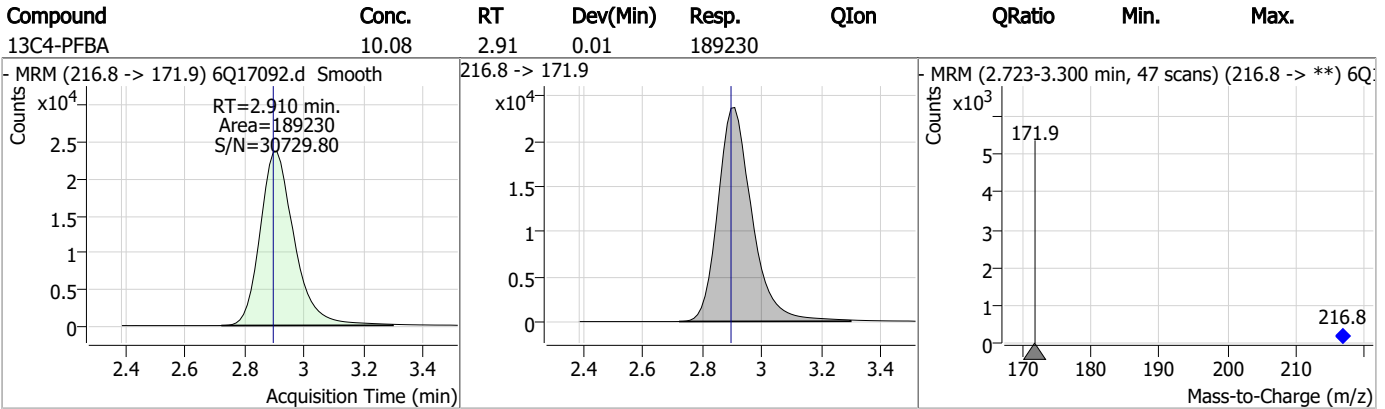
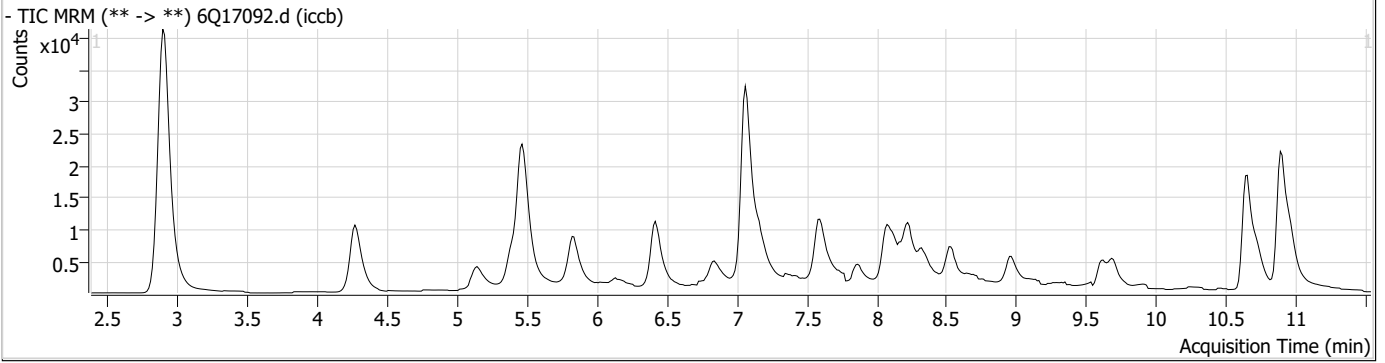
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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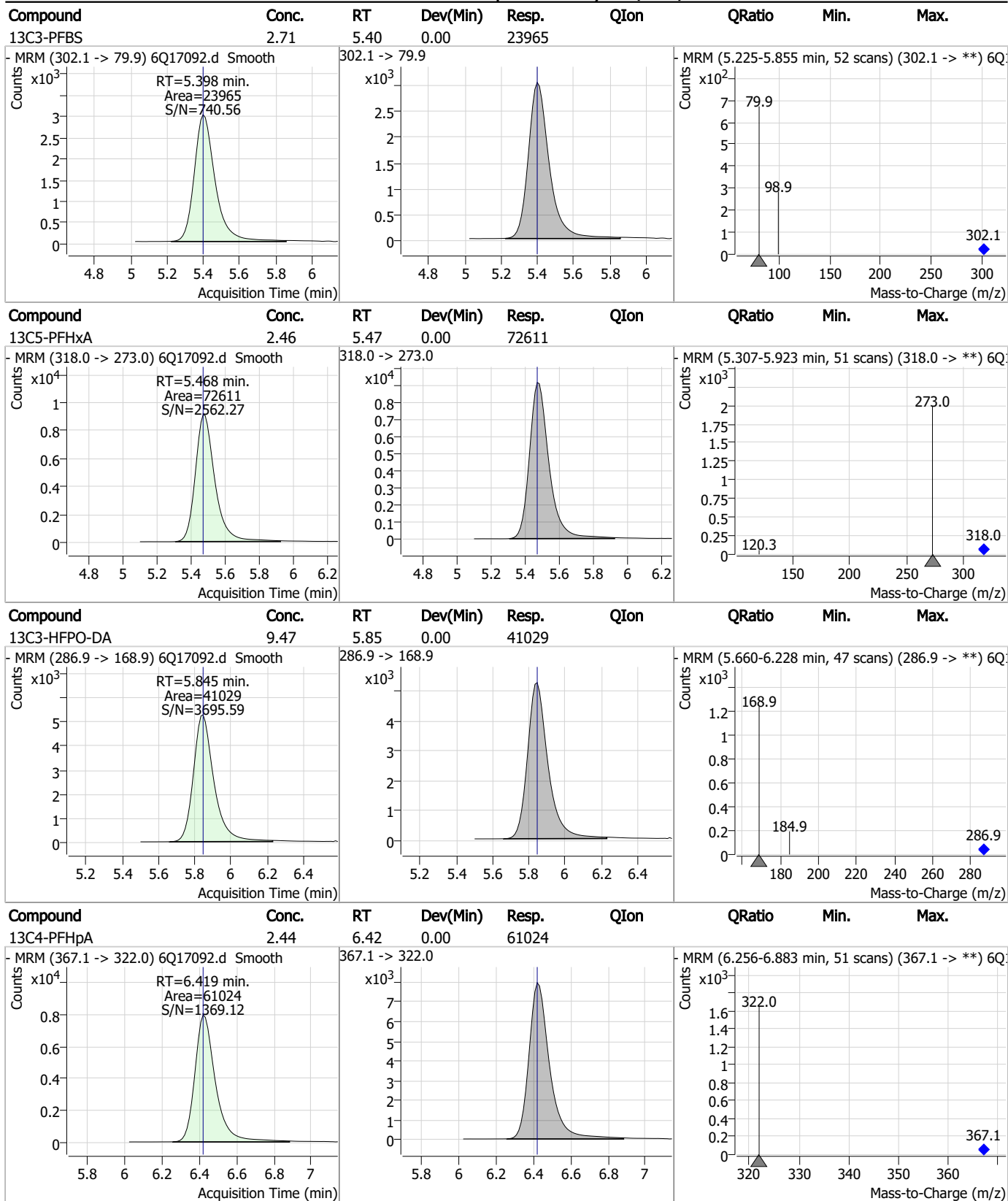
7.2.4

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Perfluorinated Compounds by LC/MS/MS

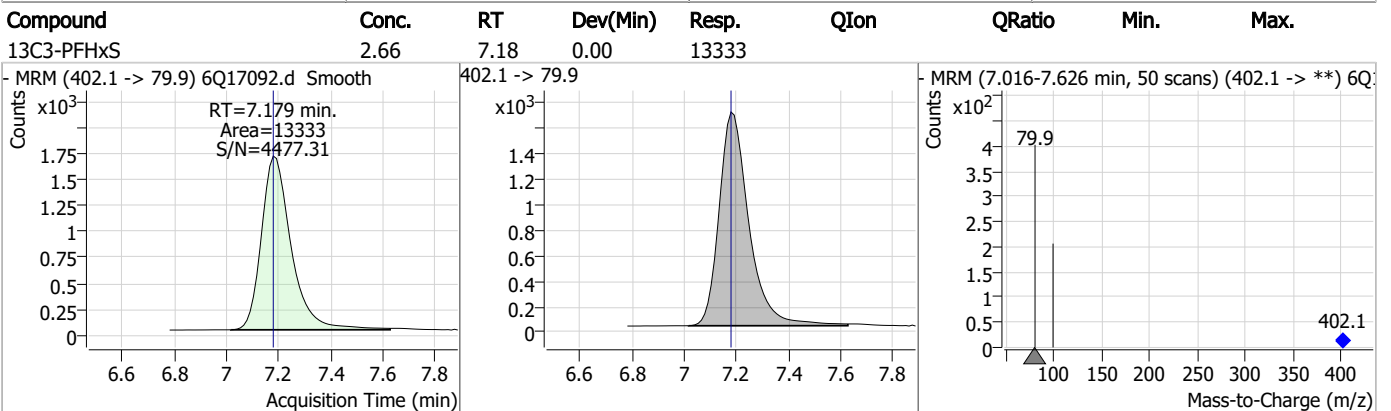
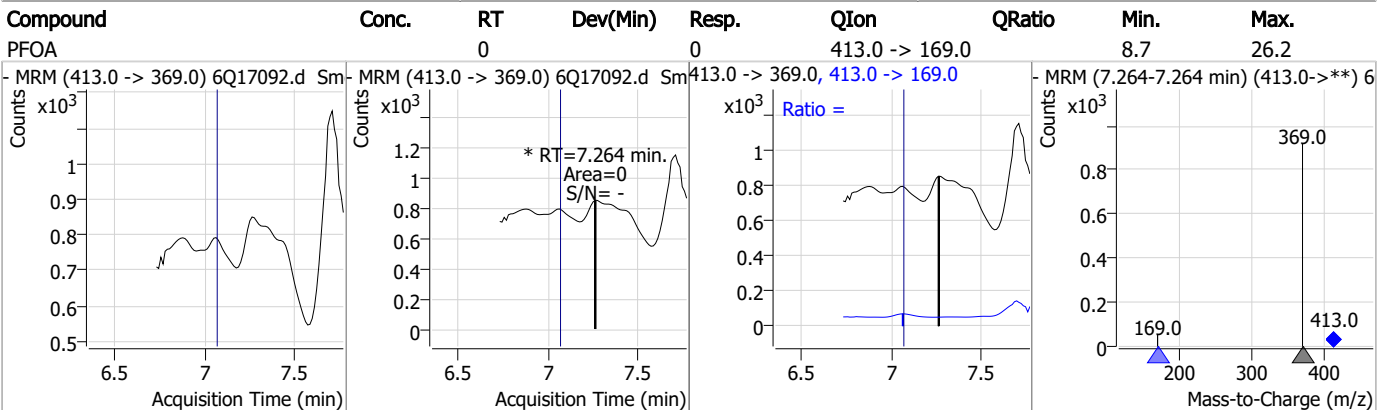
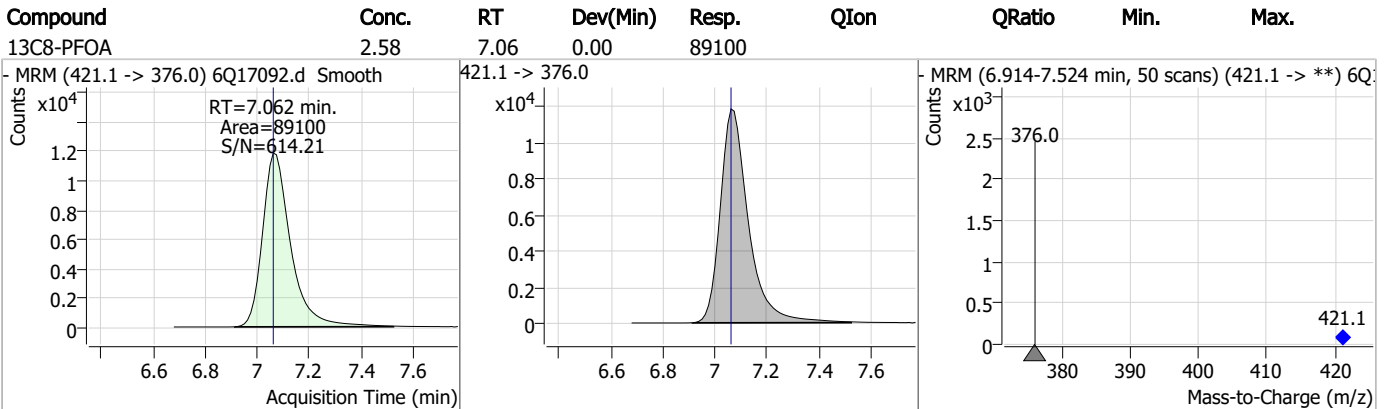
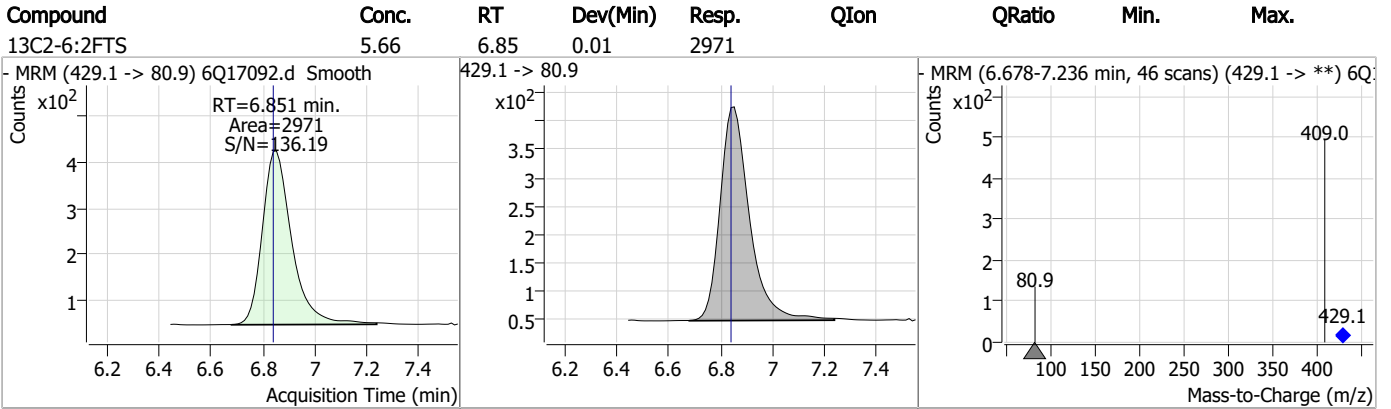


Perfluorinated Compounds by LC/MS/MS



7.2.4
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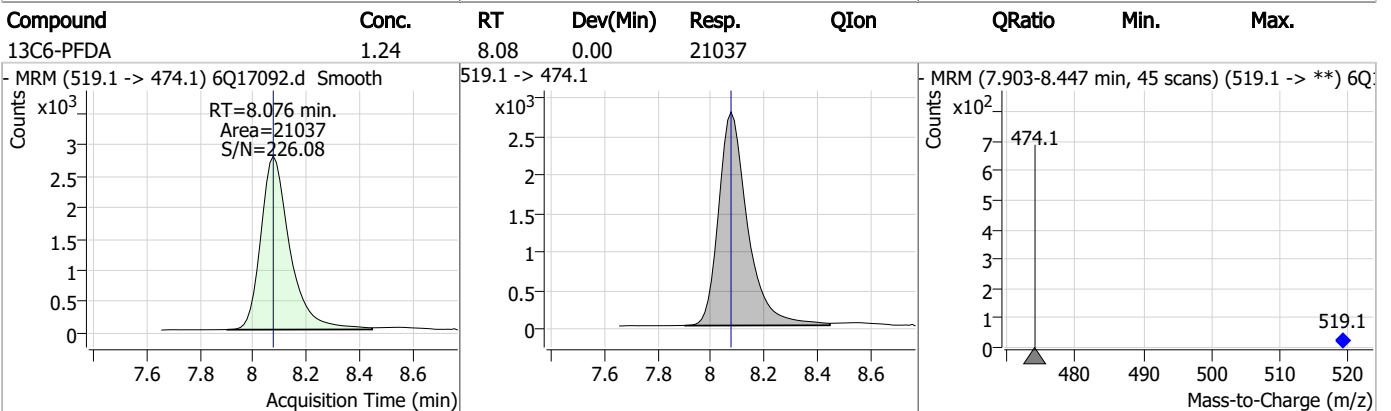
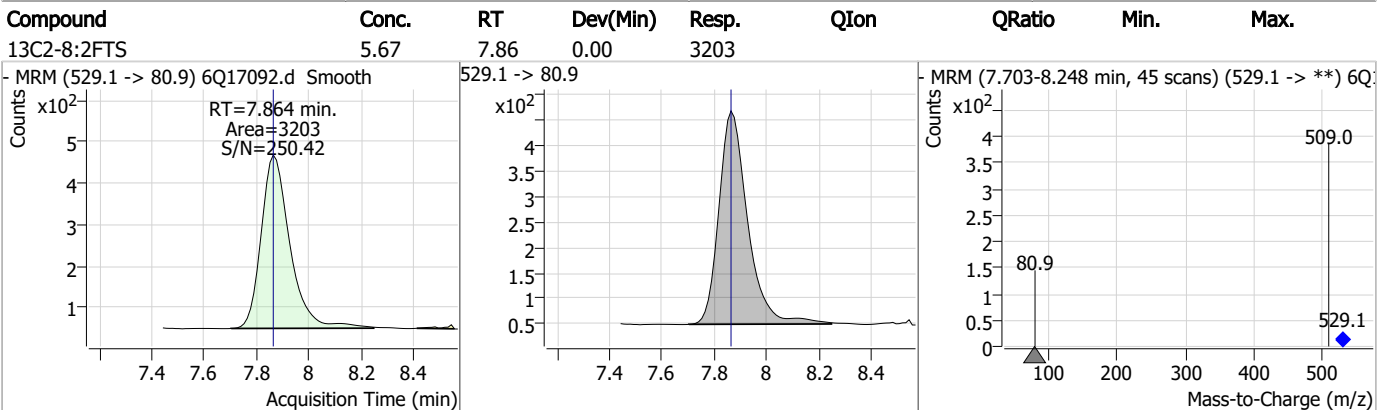
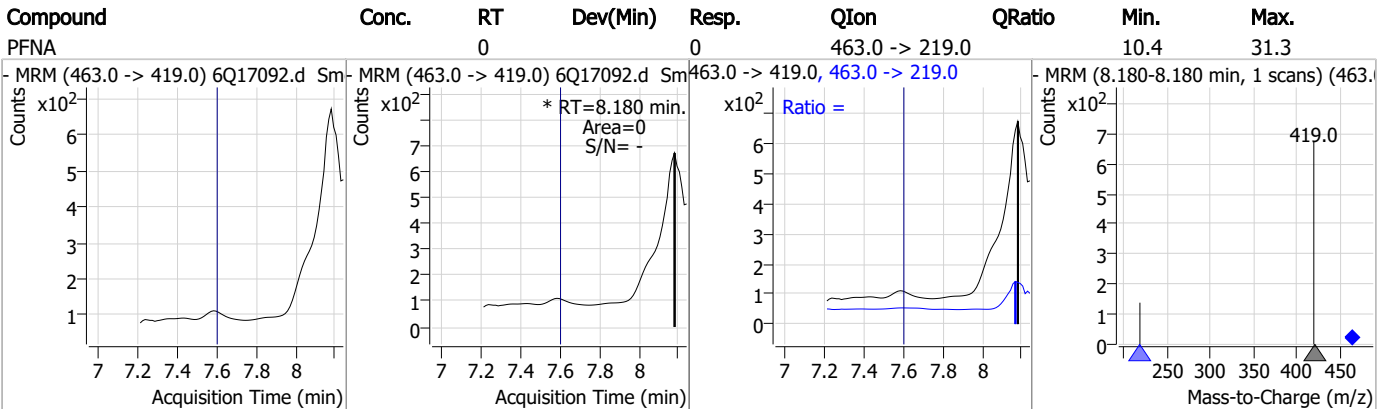
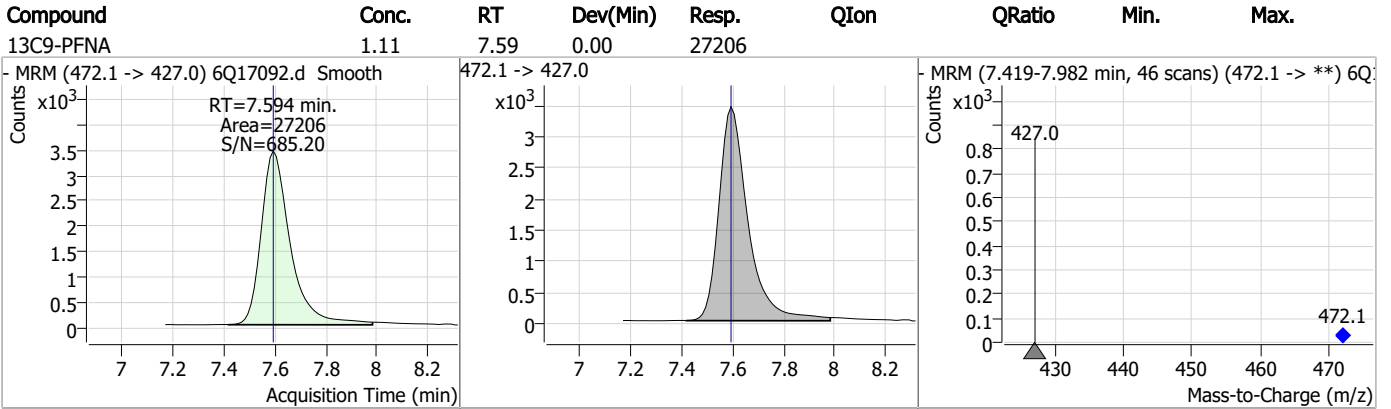
Perfluorinated Compounds by LC/MS/MS



7.2.4

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Perfluorinated Compounds by LC/MS/MS

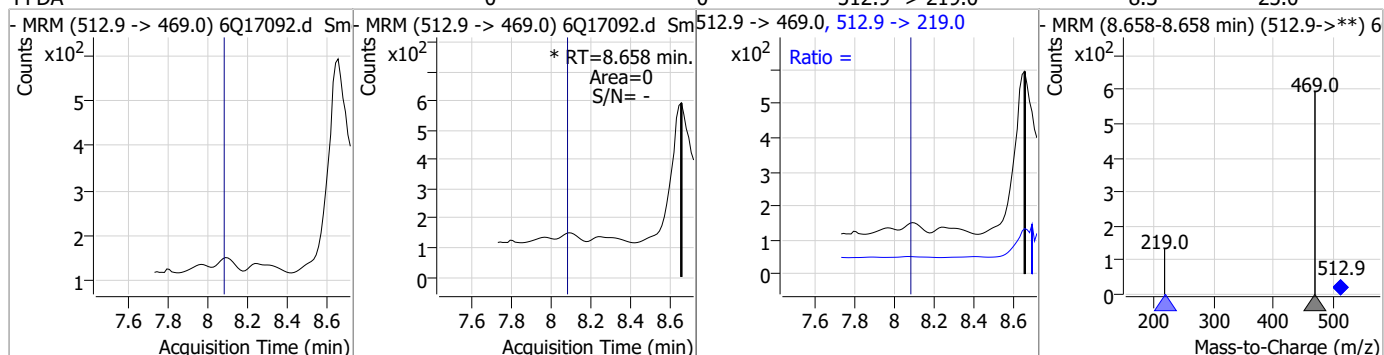


7.2.4

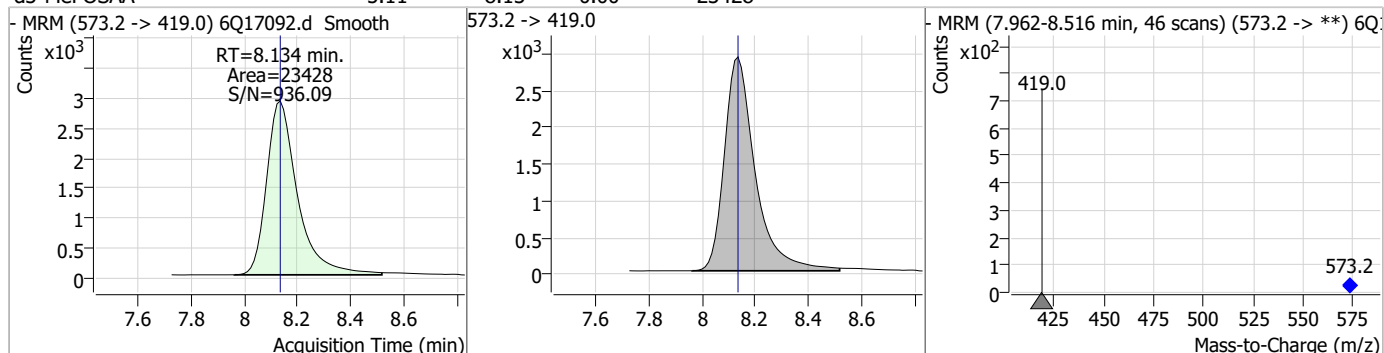
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Perfluorinated Compounds by LC/MS/MS

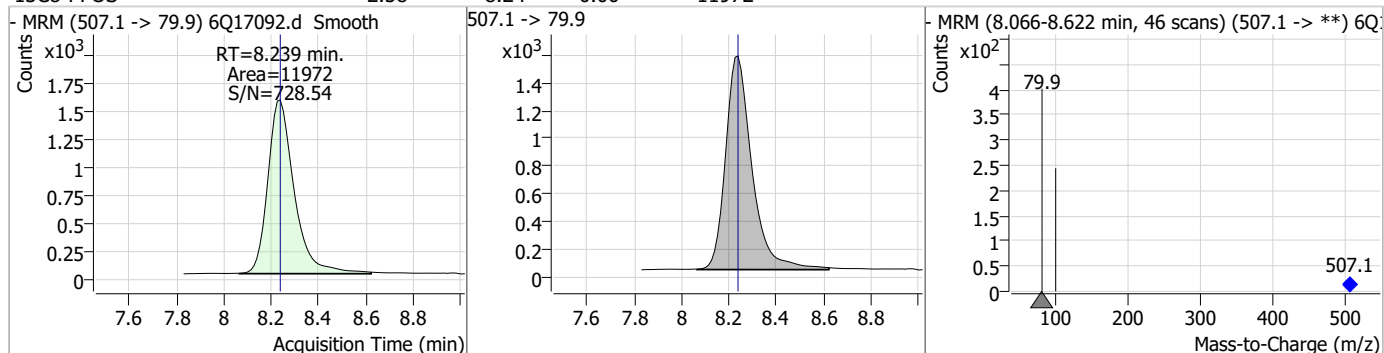
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0	8.3		0	512.9 -> 219.0		8.3	25.0



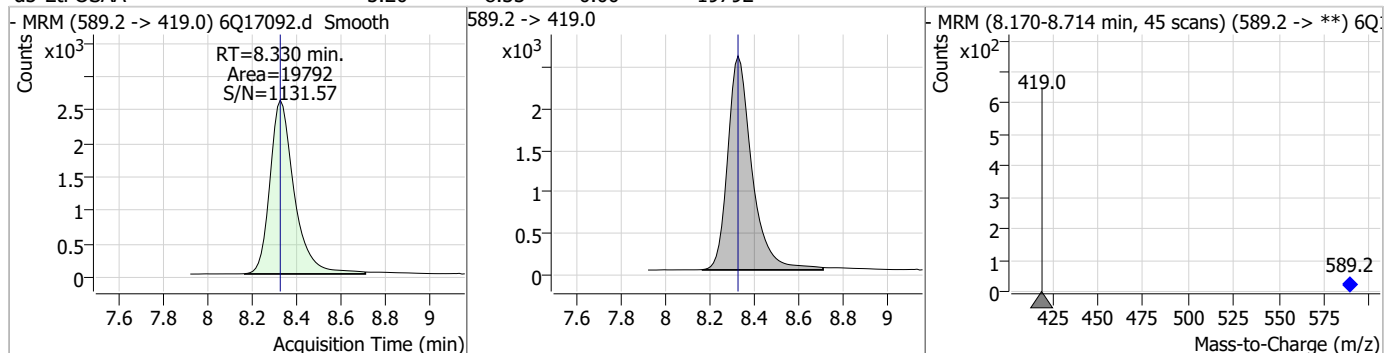
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.11	8.13	0.00	23428				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.58	8.24	0.00	11972				

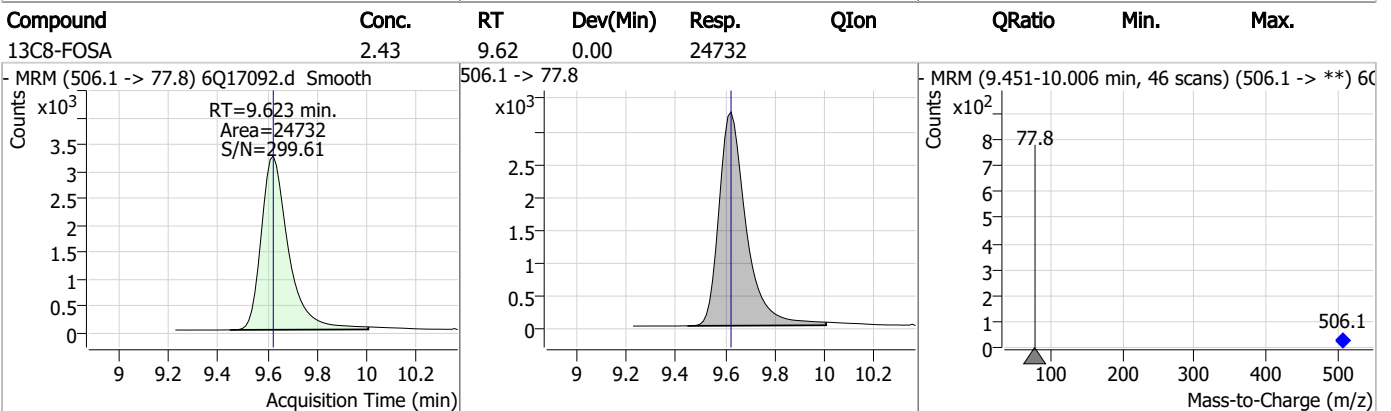
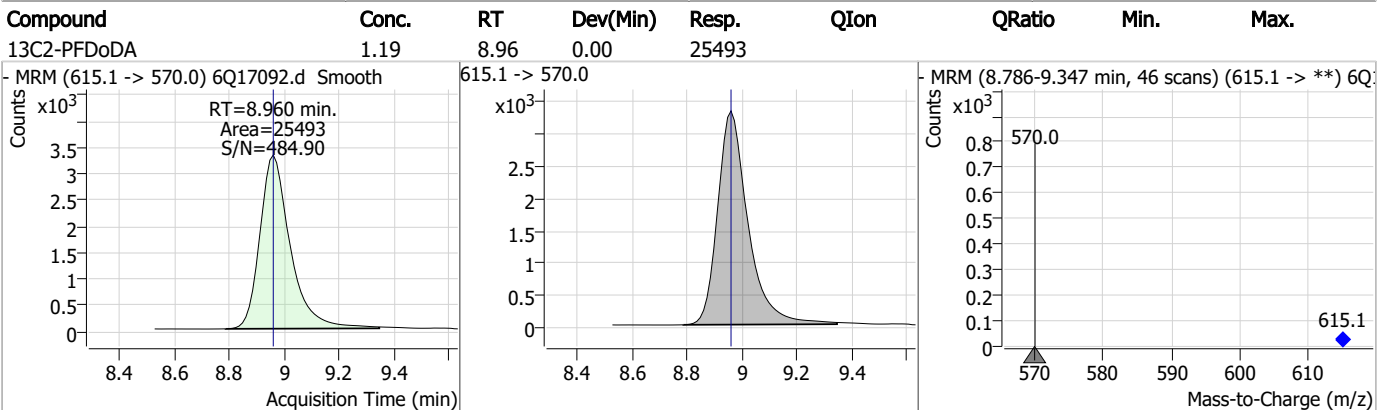
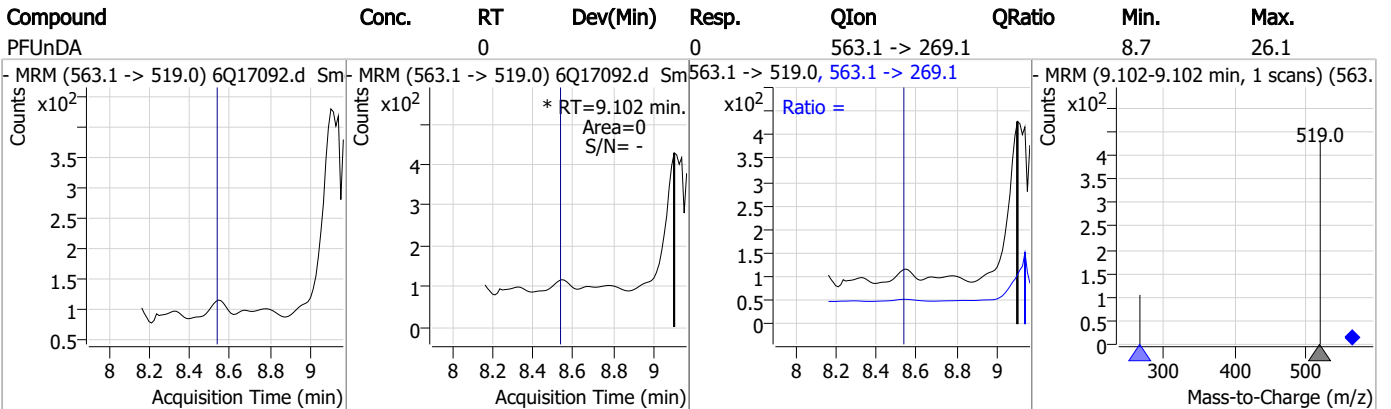
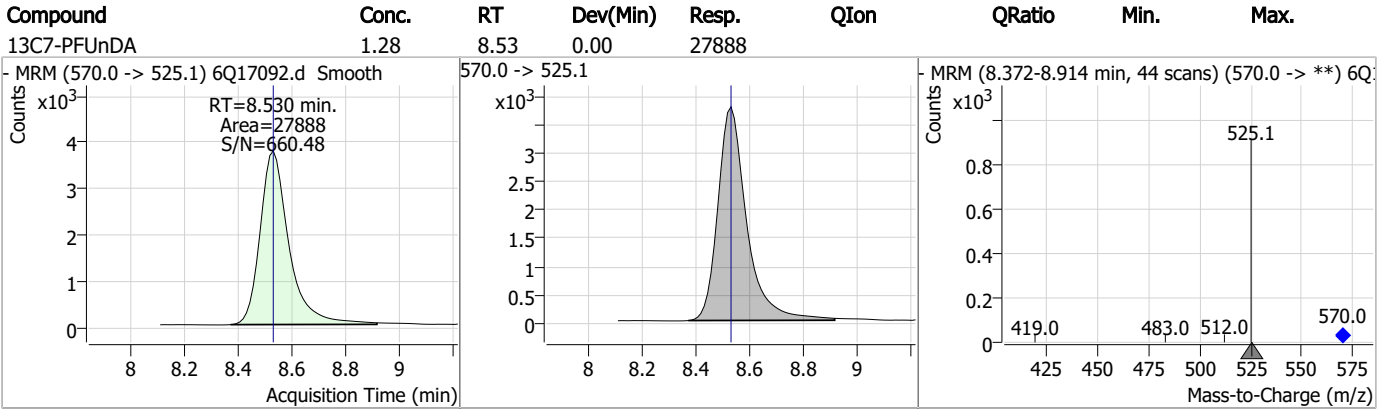


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.20	8.33	0.00	19792				



7.2.4
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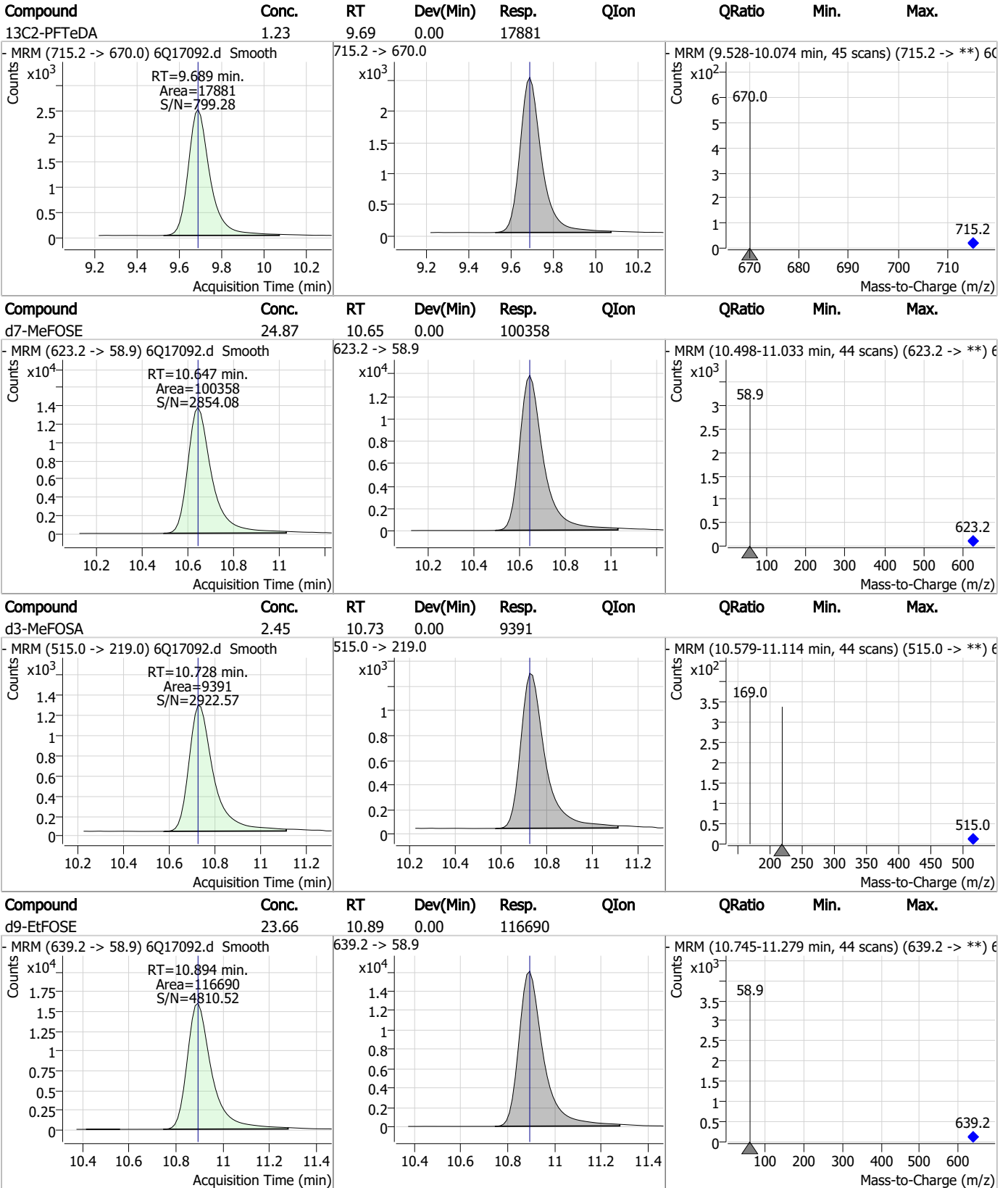
Perfluorinated Compounds by LC/MS/MS



7.2.4

7

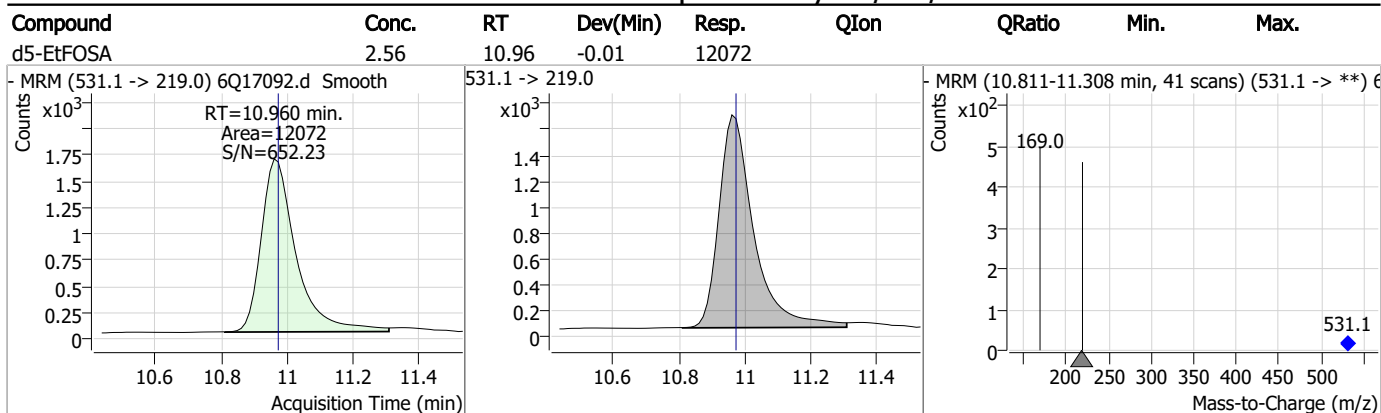
Perfluorinated Compounds by LC/MS/MS



7.2.4

7

Perfluorinated Compounds by LC/MS/MS



7.2.4

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Manual Integration Approval Summary

Sample Number: S6Q258-ICCB Method: EPA DRAFT 1633
Lab FileID: 6Q17092.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 22:44 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorotetradecanoic acid	376-06-7		9.68	Split peak

7.2.4.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17236.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/1/2023 2:16:43 PM
 Sample Name : iblk
 Vial : P1-A1
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q260.batch.bin
 Sample Information : OP96301,S6Q260,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	182879	10.00 µg/L	0.012
M5-PFPeA	4.283	268.3 -> 223.0	61423	5.00 µg/L	0.012
M5-PFHxA	5.480	318.0 -> 273.0	67127	2.50 µg/L	0.012
M4-PFHpA	6.431	367.1 -> 322.0	59060	2.50 µg/L	0.012
M8-PFOA	7.062	421.1 -> 376.0	82712	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	26632	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	20279	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	25548	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	23769	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	16345	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	25164	2.50 µg/L	0.000
M3-PFBS	5.411	302.1 -> 79.9	21343	2.50 µg/L	0.012
M3-PFHxS	7.179	402.1 -> 79.9	12907	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	11757	2.50 µg/L	-0.012
M2-4:2FTS	5.157	329.1 -> 80.9	2257	5.00 µg/L	0.012
M2-6:2FTS	6.839	429.1 -> 80.9	2514	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2718	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	22367	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	40439	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	19400	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	98093	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	120195	25.00 µg/L	0.000
M5-EtFOSA	10.973	531.1 -> 219.0	11120	2.50 µg/L	0.000
M3-MeFOSA	10.741	515.0 -> 219.0	9155	2.50 µg/L	0.012
13C4-PFOS	8.227	502.8 -> 79.9	14341	2.50 µg/L	-0.012
13C3-PFBA	2.902	216.0 -> 172.0	78150	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9727	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	85058	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	22992	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	28864	1.25 µg/L	0.000
13C2-PFHxA	5.482	315.1 -> 270.0	55906	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.157	329.1 -> 80.9	2257	5.05 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2514	4.63 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.6%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2718	4.66 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.1%		
13C2-PFDoDA	8.960	615.1 -> 570.0	23769	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C2-PFTeDA	9.689	715.2 -> 670.0	16345	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C3-PFBS	5.411	302.1 -> 79.9	21343	2.33 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.3%		
13C3-PFHxS	7.179	402.1 -> 79.9	12907	2.49 µg/L	0.000

7.2.5
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 = 99.7%	
13C4-PFBA	2.910	216.8 -> 171.9	182879	10.13 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C4-PFHpA	6.431	367.1 -> 322.0	59060	2.58 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C5-PFHxA	5.480	318.0 -> 273.0	67127	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C5-PFPeA	4.283	268.3 -> 223.0	61423	4.92 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C6-PFDA	8.076	519.1 -> 474.1	20279	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.0%	
13C7-PFUnDA	8.530	570.0 -> 525.1	25548	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.3%	
13C8-FOSA	9.623	506.1 -> 77.8	25164	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.2%	
13C8-PFOA	7.062	421.1 -> 376.0	82712	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C8-PFOS	8.226	507.1 -> 79.9	11757	2.72 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.8%	
13C9-PFNA	7.594	472.1 -> 427.0	26632	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.8%	
d3-MeFOSAA	8.134	573.2 -> 419.0	22367	5.23 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.7%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	40439	10.22 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
d3-MeFOSA	10.741	515.0 -> 219.0	9155	2.56 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.2%	
d5-EtFOSAA	8.330	589.2 -> 419.0	19400	5.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.2%	
d7-MeFOSE	10.647	623.2 -> 58.9	98093	26.06 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.2%	
d9-EtFOSE	10.894	639.2 -> 58.9	120195	26.13 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.5%	
d5-EtFOSA	10.973	531.1 -> 219.0	11120	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.1%	

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	8.356	584.2 -> 419.1	230	0.07 µg/L	#m 50
		584.2 -> 526.0	39		
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	8.658	512.9 -> 469.0	0	µg/L	m 1
		512.9 -> 219.0	0		
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	



7.25
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	8.180	398.7 -> 98.9	0	µg/L	m	1
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	0	N.D.		
		548.8 -> 79.9				
PFOA	7.711	548.8 -> 98.9	0	µg/L	m	1
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	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	9.917	663.0 -> 619.0	0	µg/L	m	1
		663.0 -> 168.9				
PFUnDA	9.152	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1				
11CI-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9CI-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

7.2.5
7

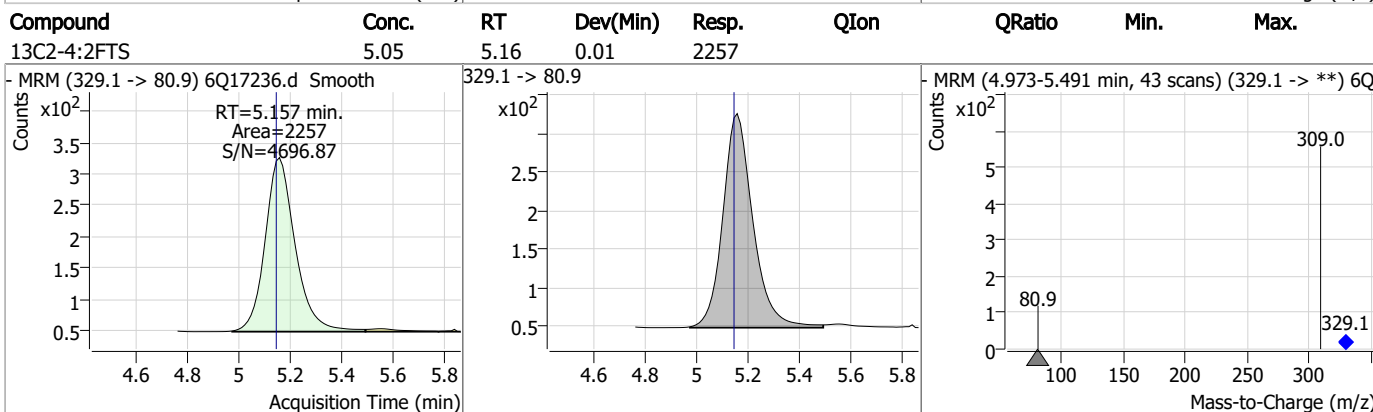
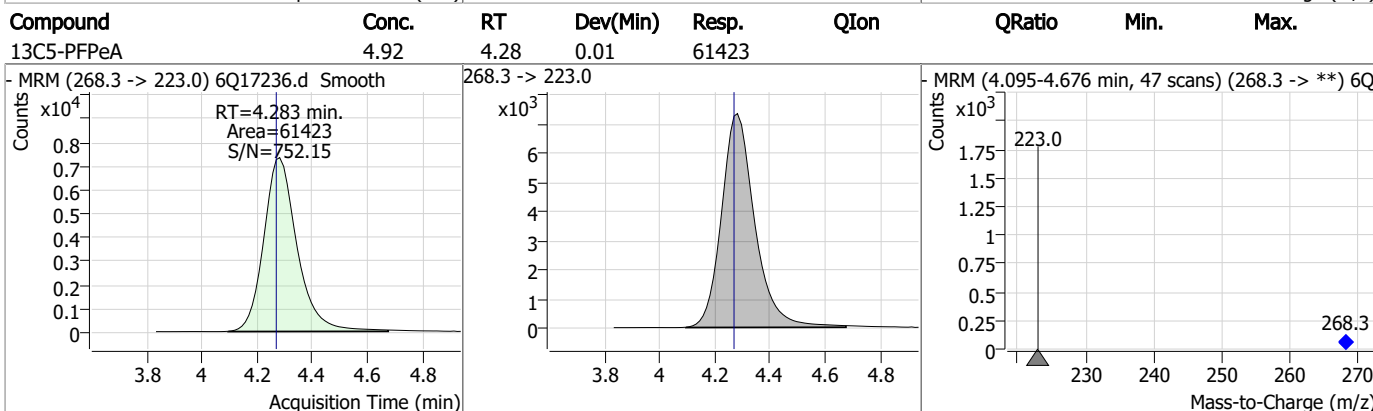
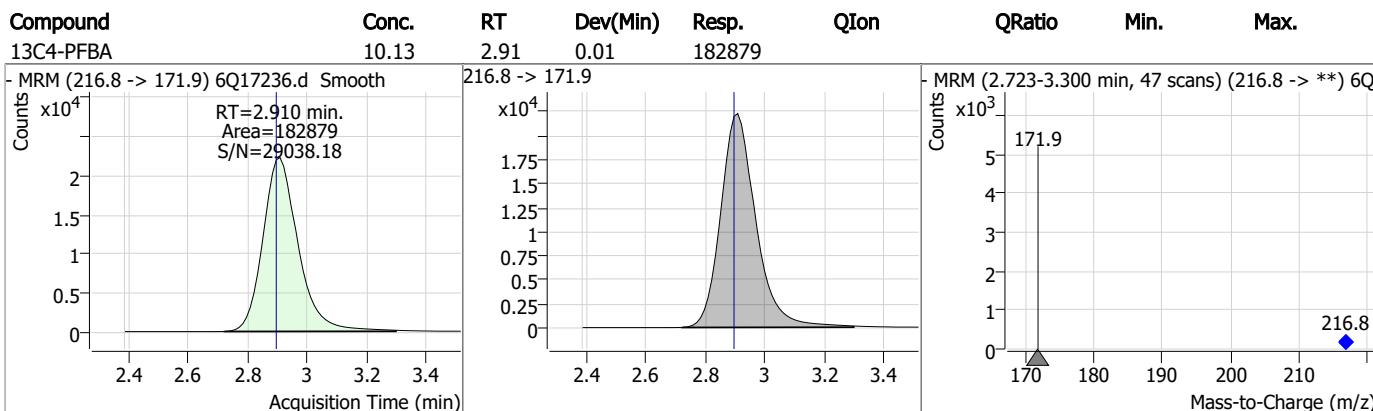
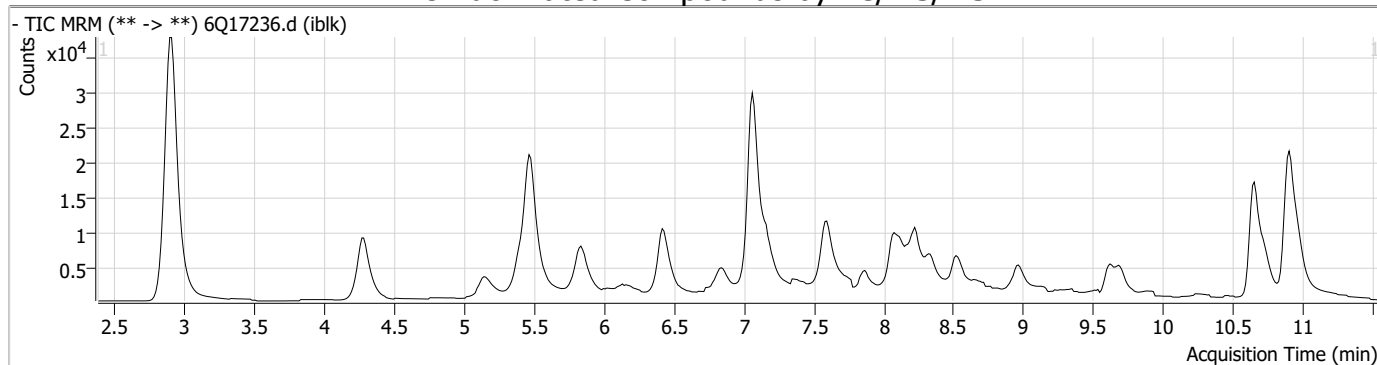
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.2.5

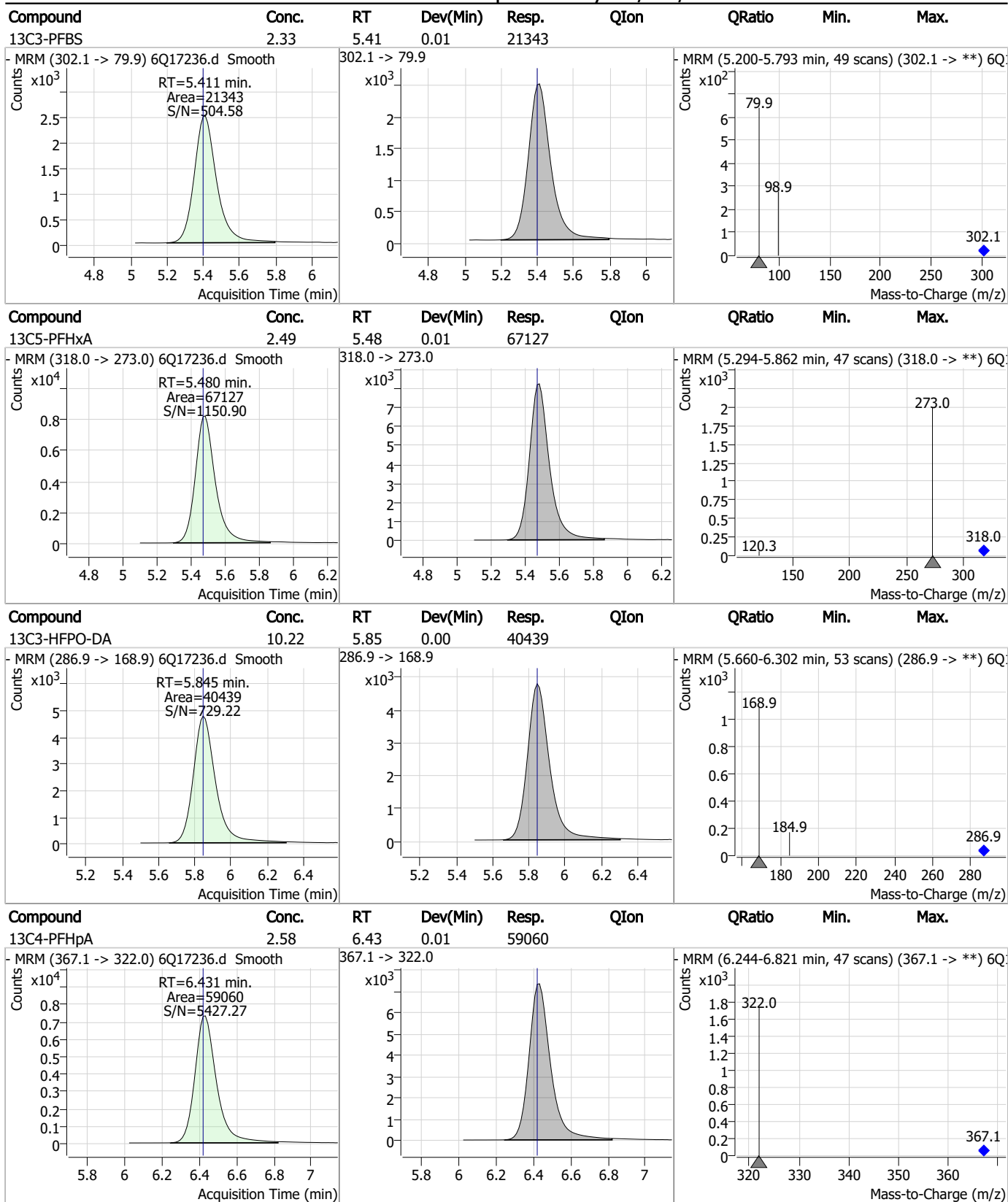
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Perfluorinated Compounds by LC/MS/MS



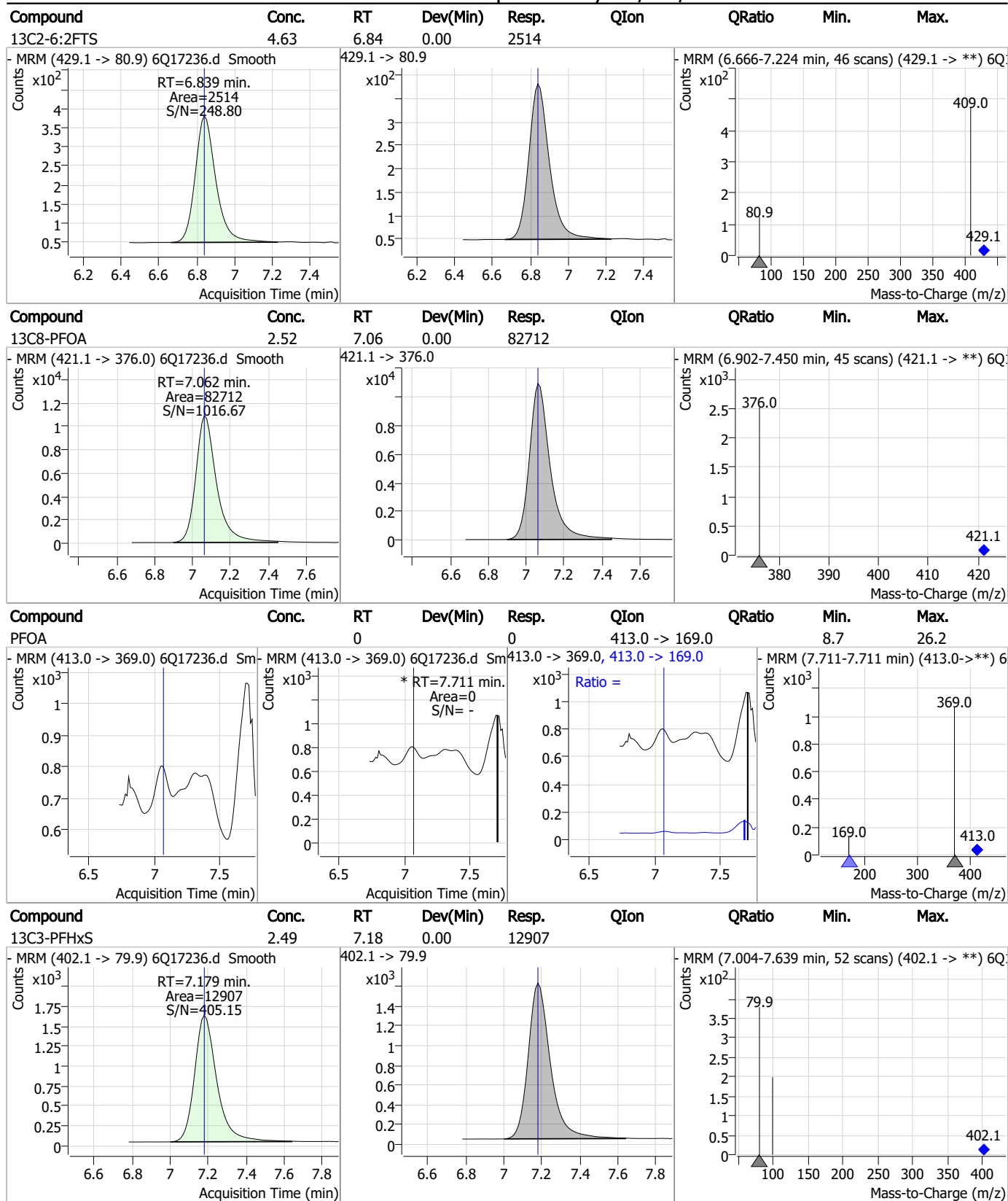
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Perfluorinated Compounds by LC/MS/MS



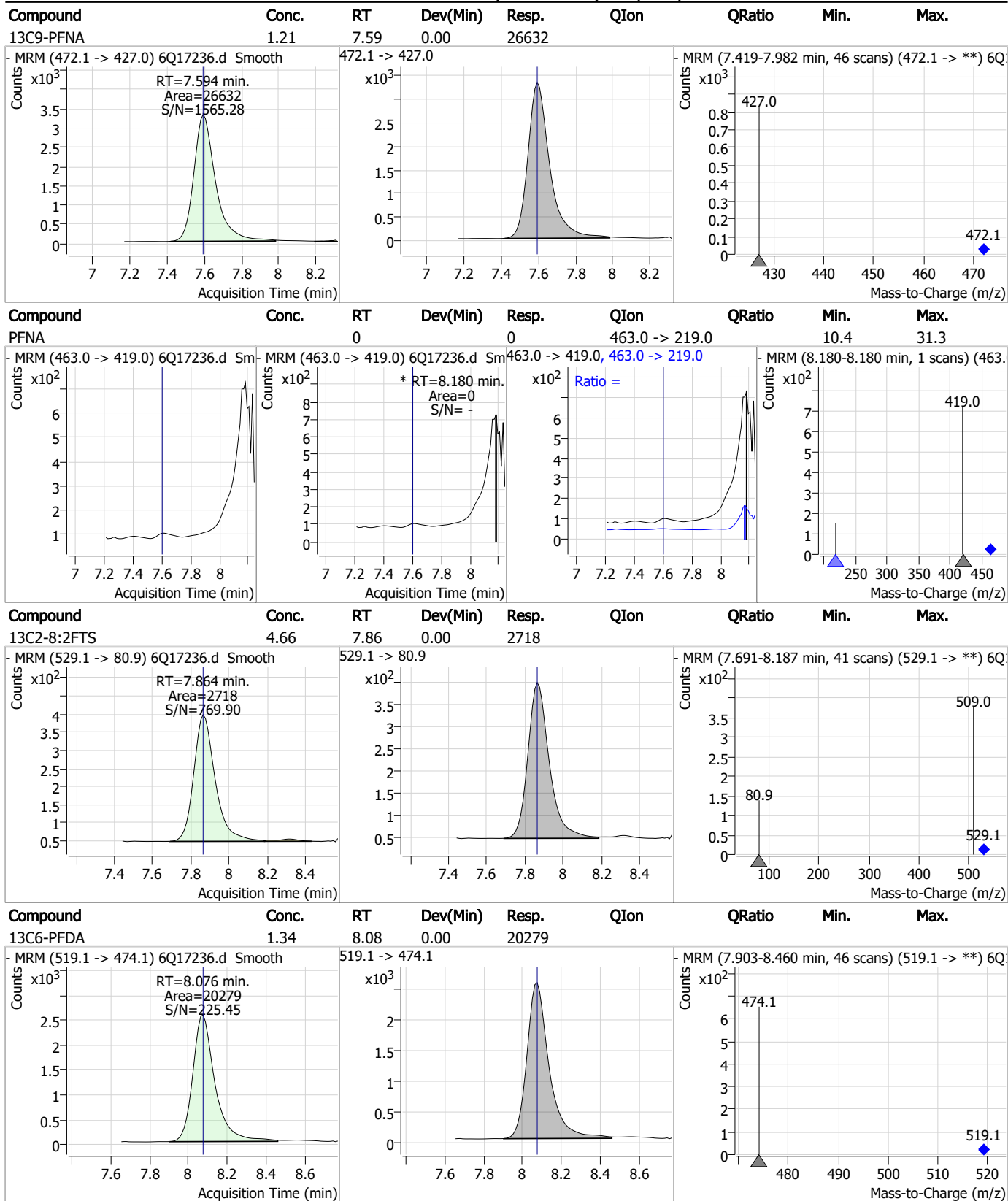
7.2.5
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Perfluorinated Compounds by LC/MS/MS



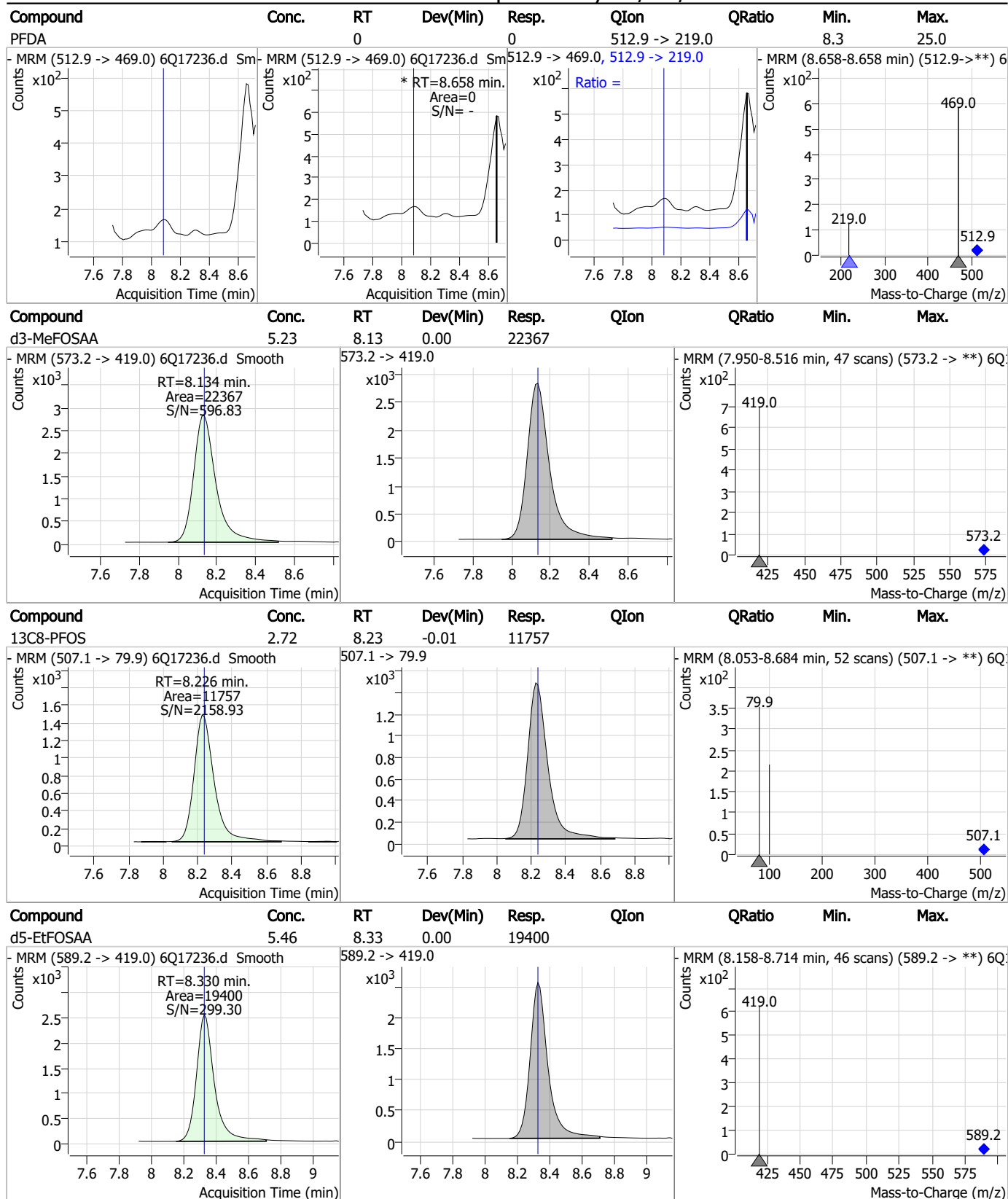
7.25
7

Perfluorinated Compounds by LC/MS/MS



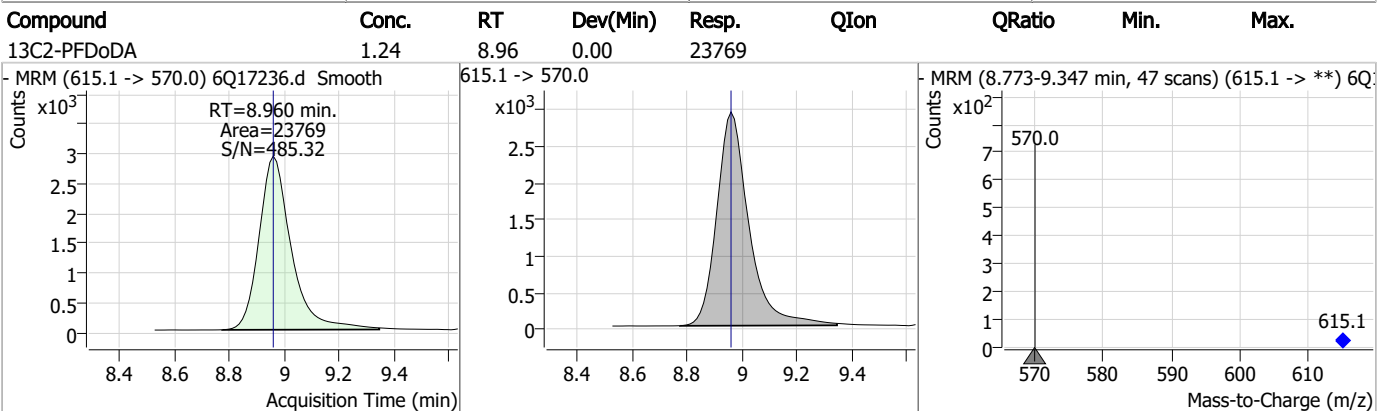
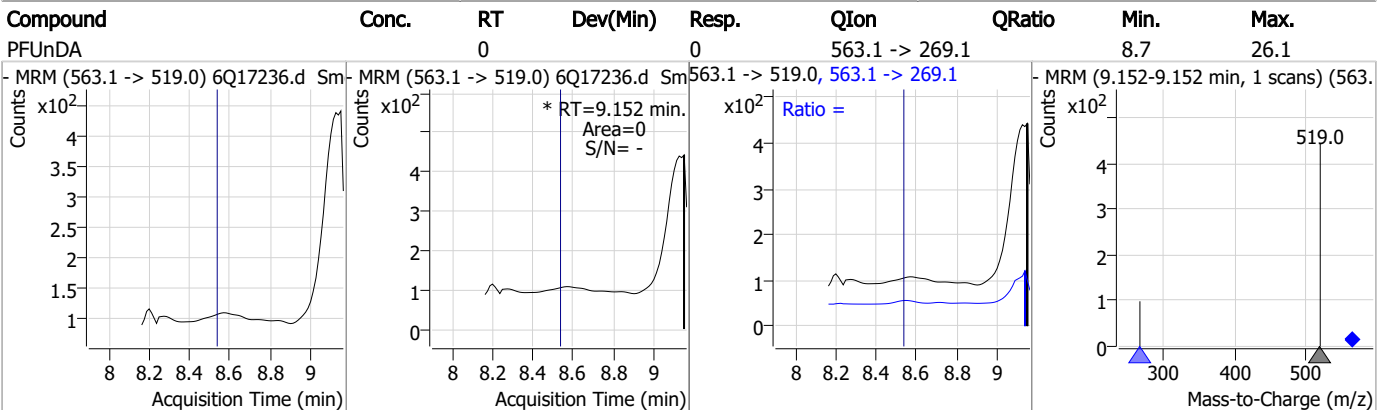
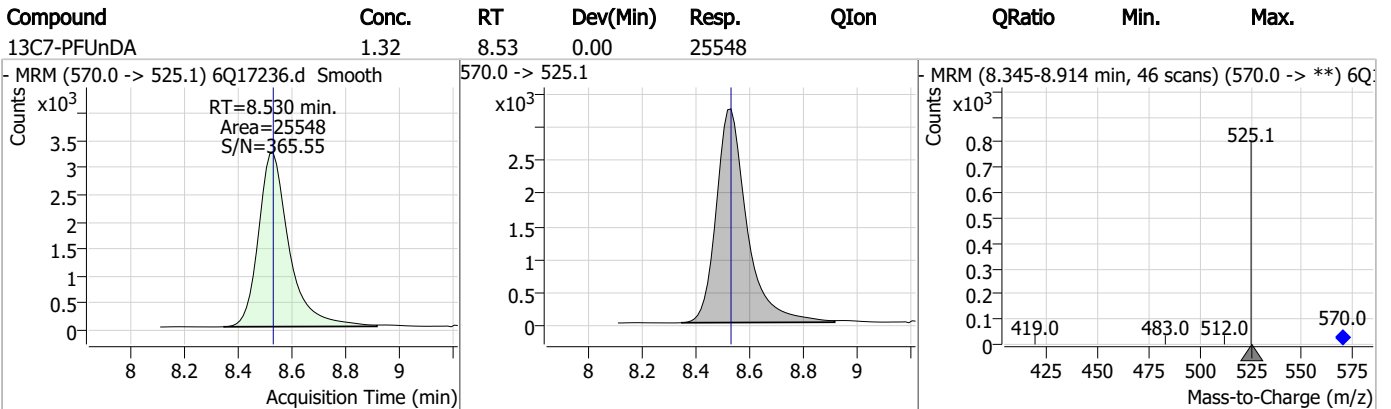
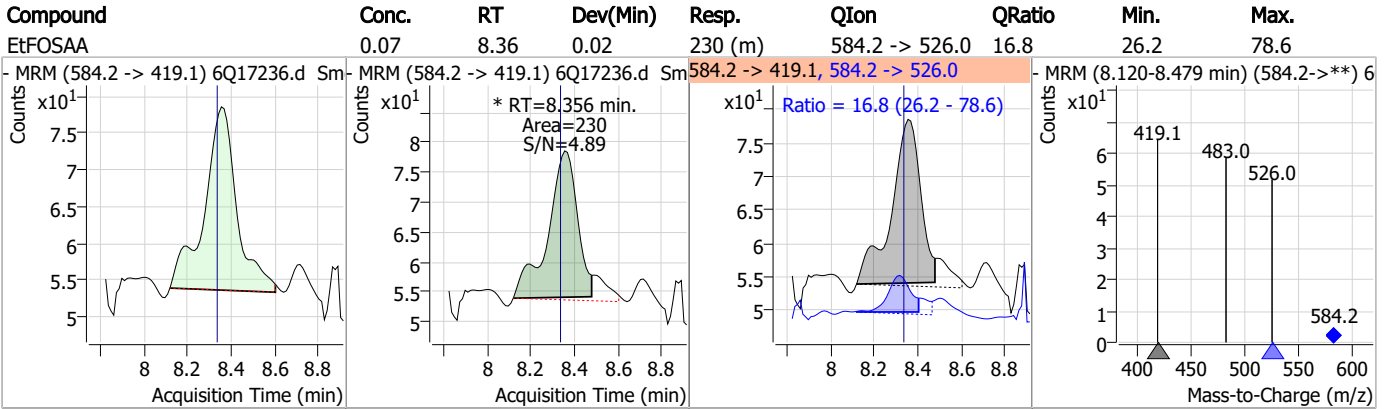
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Perfluorinated Compounds by LC/MS/MS



7.2.5
7

Perfluorinated Compounds by LC/MS/MS

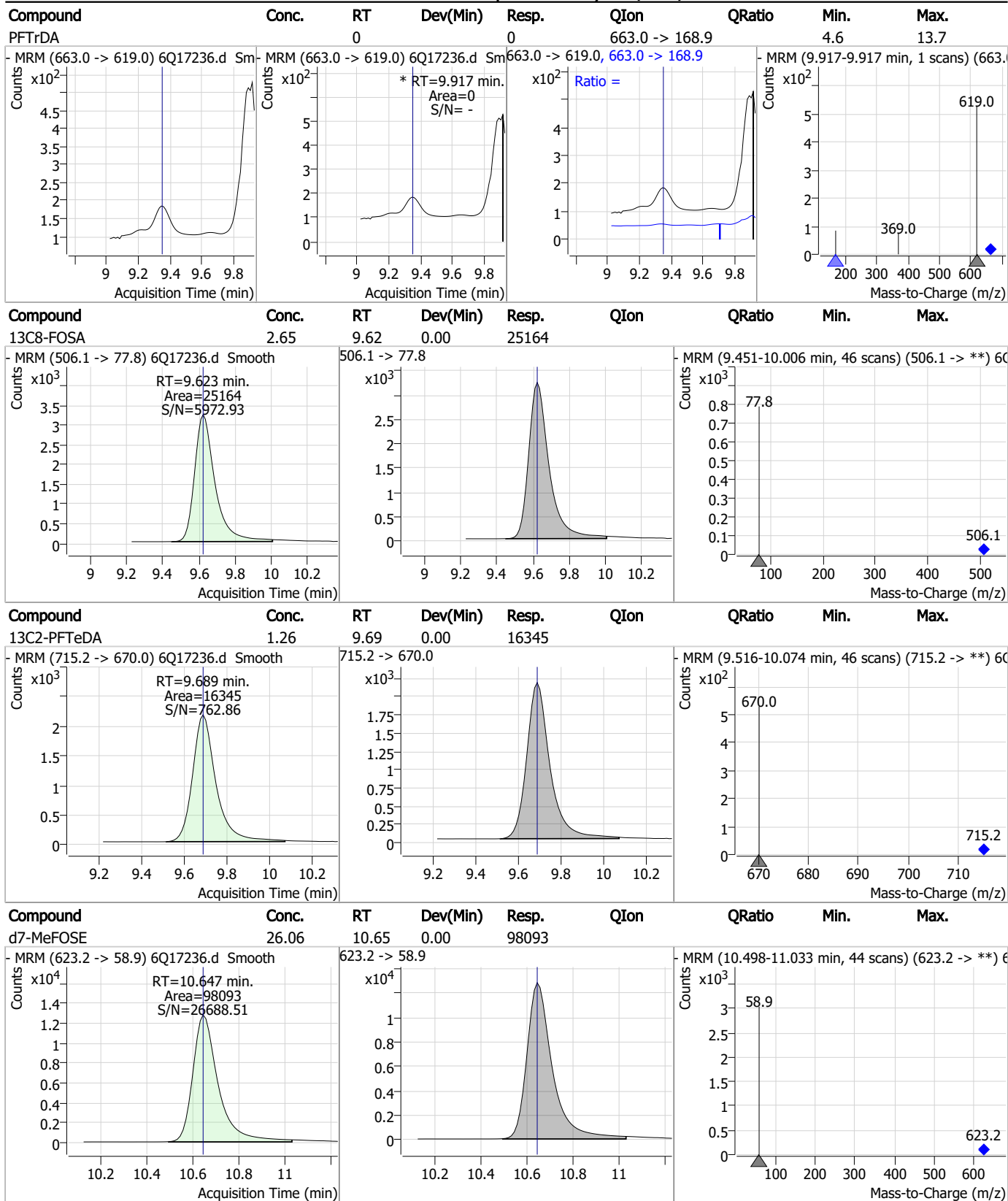


7.25

7

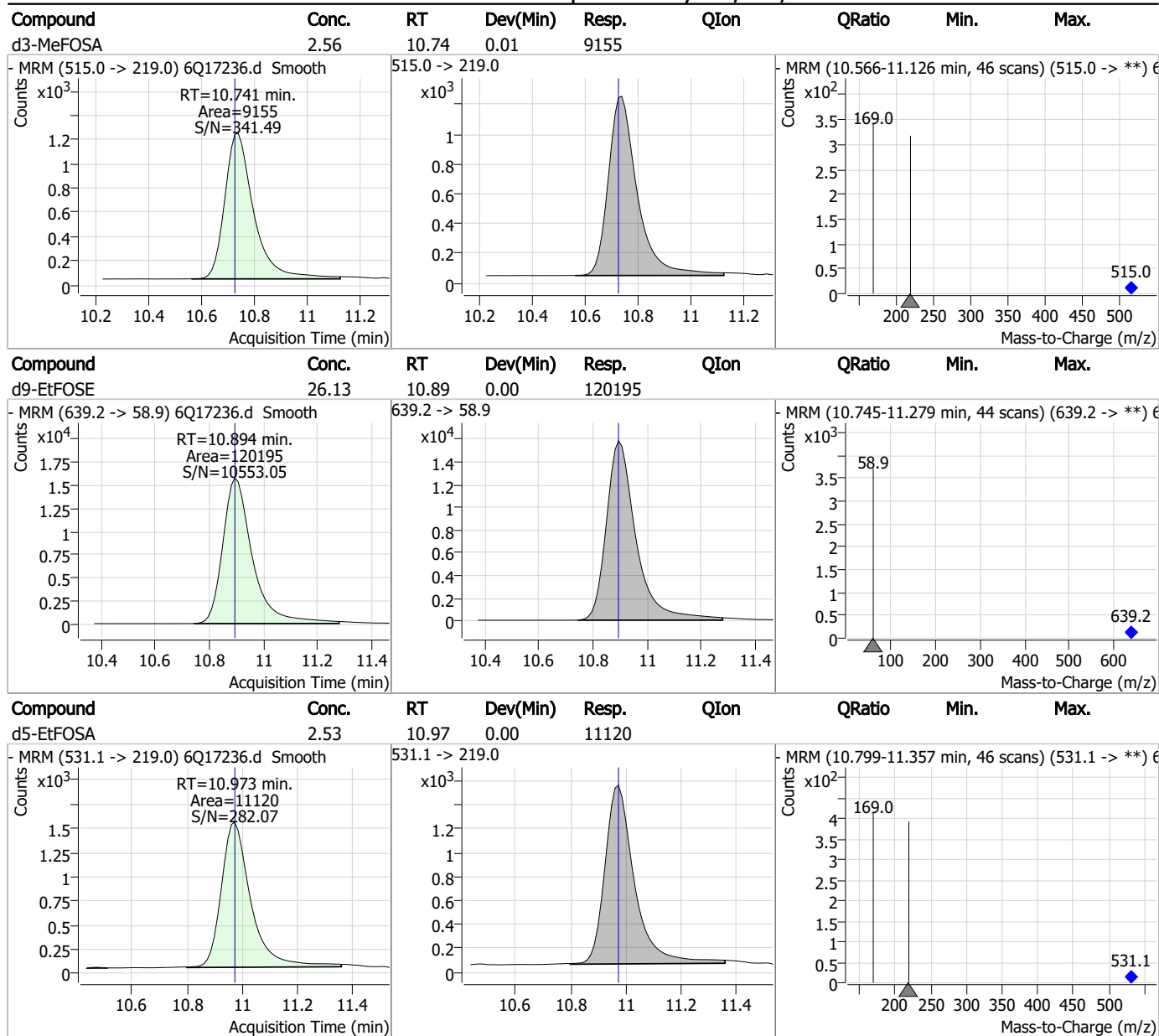


Perfluorinated Compounds by LC/MS/MS



7.25
7

Perfluorinated Compounds by LC/MS/MS



7.2.5
7



Manual Integration Approval Summary

Sample Number: S6Q260-IBLK Method: EPA DRAFT 1633
Lab FileID: 6Q17236.D Analyst approved: 05/02/23 13:38 Martha Valls
Injection Time: 05/01/23 14:16 Supervisor approved: 05/02/23 15:59 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
EiFOSAA	2991-50-6		8.36	Split peak

7.2.5.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17093.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 10:58:44 PM
 Sample Name : op96579-bs
 Vial : P4-A1
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96579,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.885	216.8 -> 171.9	186708	10.00 µg/L	-0.012
M5-PFPeA	4.270	268.3 -> 223.0	65447	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	74873	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	60857	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	85149	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	27019	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	19814	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	27865	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	24329	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	13845	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	11274	2.50 µg/L	-0.012
M3-PFBS	5.398	302.1 -> 79.9	23503	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	13082	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	11546	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2444	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2755	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2863	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	21687	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	41981	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	17589	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	19071	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	24897	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	4276	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	3868	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	14040	2.50 µg/L	0.000
13C3-PFBA	2.889	216.0 -> 172.0	74795	5.00 µg/L	-0.012
18O2-PFHxS	7.177	403.0 -> 83.9	8998	2.50 µg/L	0.000
13C4-PFOA	7.075	417.1 -> 372.0	82686	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	23101	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	28384	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	53473	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2444	5.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 118.2%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2755	5.49 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.7%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2863	5.30 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C2-PFDoDA	8.960	615.1 -> 570.0	24329	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C2-PFTeDA	9.689	715.2 -> 670.0	13845	1.06 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 85.2%		
13C3-PFBS	5.398	302.1 -> 79.9	23503	2.78 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.1%		
13C3-PFHxS	7.179	402.1 -> 79.9	13082	2.73 µg/L	0.000

7.31
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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 = 109.2%	
13C4-PFBA	2.885	216.8 -> 171.9	186708	10.80 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.0%	
13C4-PFHpA	6.419	367.1 -> 322.0	60857	2.78 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.3%	
13C5-PFHxA	5.468	318.0 -> 273.0	74873	2.90 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 116.1%	
13C5-PFPeA	4.270	268.3 -> 223.0	65447	5.48 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.6%	
13C6-PFDA	8.076	519.1 -> 474.1	19814	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C7-PFUnDA	8.530	570.0 -> 525.1	27865	1.43 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 114.3%	
13C8-FOSA	9.611	506.1 -> 77.8	11274	1.21 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 48.6%	
13C8-PFOA	7.062	421.1 -> 376.0	85149	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.7%	
13C8-PFOS	8.239	507.1 -> 79.9	11546	2.73 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.2%	
13C9-PFNA	7.594	472.1 -> 427.0	27019	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.9%	
d3-MeFOSAA	8.134	573.2 -> 419.0	21687	5.18 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	41981	11.09 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 110.9%	
d3-MeFOSA	10.728	515.0 -> 219.0	3868	1.10 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 44.1%	
d5-EtFOSAA	8.330	589.2 -> 419.0	17589	5.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
d7-MeFOSE	10.647	623.2 -> 58.9	19071	5.18 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 20.7%	
d9-EtFOSE	10.894	639.2 -> 58.9	24897	5.53 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 22.1%	
d5-EtFOSA	10.960	531.1 -> 219.0	4276	0.99 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 39.7%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	31523	8.52 µg/L	100
		327.1 -> 80.9	11752		
6:2FTS	6.839	427.1 -> 407.0	27279	9.00 µg/L	96
		427.1 -> 80.9	9155		
8:2FTS	7.865	527.1 -> 507.0	17498	10.27 µg/L	96
		527.1 -> 80.8	6653		
EtFOSAA	8.343	584.2 -> 419.1	7604	2.54 µg/L	96
		584.2 -> 526.0	4207		
FOSA	9.614	498.1 -> 77.9	11524	2.85 µg/L	98
		498.1 -> 478.0	403		
MeFOSAA	8.136	570.1 -> 419.0	10549	2.59 µg/L	89
		570.1 -> 483.0	2012		
PFBA	2.893	212.8 -> 168.9	60095	9.60 µg/L	100
PFBS	5.400	298.7 -> 79.9	22757	2.16 µg/L	94
		298.7 -> 98.8	8459		
PFDA	8.077	512.9 -> 469.0	60719	2.82 µg/L	99
		512.9 -> 219.0	9900		
PFDoDA	8.961	613.1 -> 569.0	46378	2.43 µg/L	97
		613.1 -> 319.0	6092		
PFDS	9.125	599.0 -> 79.9	7623	2.07 µg/L	96

7.3.1
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.420	599.0 -> 98.8	3991	2.42	µg/L	96
		363.1 -> 319.0	72528			
PFHpS	7.734	363.1 -> 169.0	11816	2.33	µg/L	96
		449.0 -> 79.9	14604			
PFHxA	5.470	449.0 -> 98.9	7051	2.28	µg/L	99
		313.0 -> 269.0	67473			
PFHxS	7.180	313.0 -> 118.9	2963	2.16	µg/L	91
		398.7 -> 79.9	15386			
PFNA	7.595	398.7 -> 98.9	7001	2.45	µg/L	99
		463.0 -> 419.0	45703			
PFNS	8.694	463.0 -> 219.0	9272	2.21	µg/L	94
		548.8 -> 79.9	12295			
PFOA	7.063	548.8 -> 98.9	6277	2.31	µg/L	100
		413.0 -> 369.0	92381			
PFOS	8.228	413.0 -> 169.0	16262	2.11	µg/L	89
		498.9 -> 79.9	11784			
PFPeA	4.273	498.9 -> 98.8	6641	4.88	µg/L	100
		263.0 -> 219.0	86982			
PFPeS	6.472	349.1 -> 79.9	16089	2.16	µg/L	100
		349.1 -> 98.9	7821			
PFTeDA	9.690	713.1 -> 669.0	36586	2.61	µg/L	99
		713.1 -> 168.9	2642			
PFTrDA	9.345	663.0 -> 619.0	46803	2.22	µg/L	99
		663.0 -> 168.9	4531			
PFUnDA	8.531	563.1 -> 519.0	42637	2.21	µg/L	98
		563.1 -> 269.1	6958			
11CI-PF3OUdS	9.398	630.9 -> 450.9	54123	3.76	µg/L	99
		632.9 -> 452.9	17583			
9CI-PF3ONS	8.569	530.8 -> 351.0	106826	4.69	µg/L	91
		532.8 -> 353.0	36891			
ADONA	6.681	376.9 -> 250.9	286220	4.51	µg/L	97
		376.9 -> 84.8	78166			
HFPO-DA	5.846	284.9 -> 168.9	18214	4.58	µg/L	97
		284.9 -> 184.9	2344			
3:3FTCA	3.771	241.0 -> 177.0	11099	9.96	µg/L	98
		241.0 -> 117.0	1407			
5:3FTCA	6.160	341.0 -> 237.1	224332	46.83	µg/L	88
		341.0 -> 217.0	171601			
7:3FTCA	7.573	441.0 -> 316.9	92196	42.36	µg/L	99
		441.0 -> 336.9	201550			
EtFOSA	10.962	526.0 -> 219.0	8462	4.81	µg/L	99
		526.0 -> 169.0	10156			
EtFOSE	10.907	630.0 -> 58.9	12630	12.18	µg/L	100
		511.9 -> 219.0	8196			
MeFOSA	10.730	511.9 -> 169.0	11070	4.71	µg/L	100
		616.1 -> 58.9	10239			
MeFOSE	10.661	699.1 -> 79.9	3385	12.04	µg/L	100
		699.1 -> 98.8	1909			
PFDoDS	9.817	295.0 -> 201.0	14871	1.78	µg/L	99
		295.0 -> 84.9	3593			
NFDHA	5.350	279.0 -> 85.1	56346	4.64	µg/L	100
		229.0 -> 84.9	42910			
PFMBA	4.687	314.8 -> 134.9	151815	4.81	µg/L	100
		314.8 -> 82.9	5364			
PFMPA	3.426			4.06	µg/L	99
PFEESA	5.937					

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

7.3.1
7

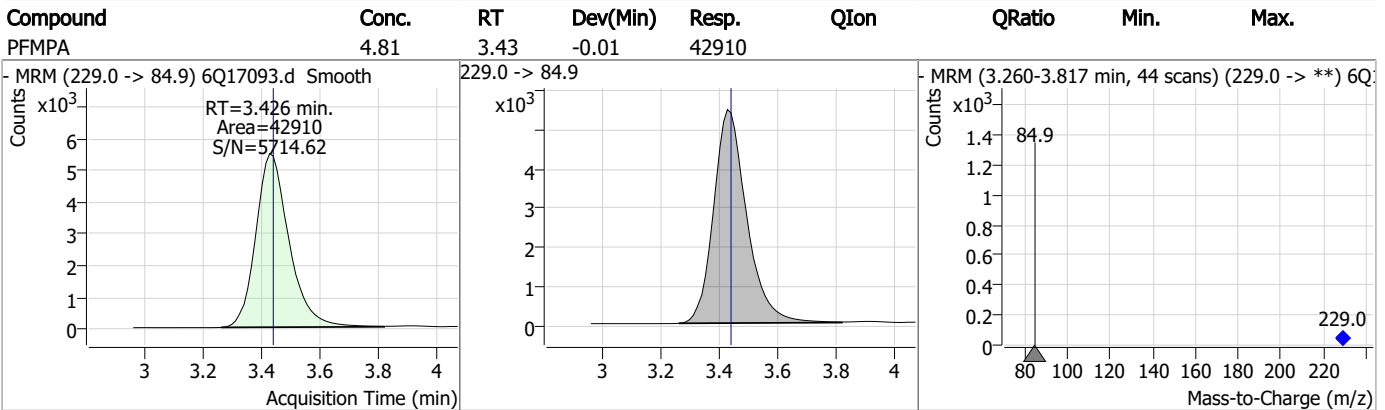
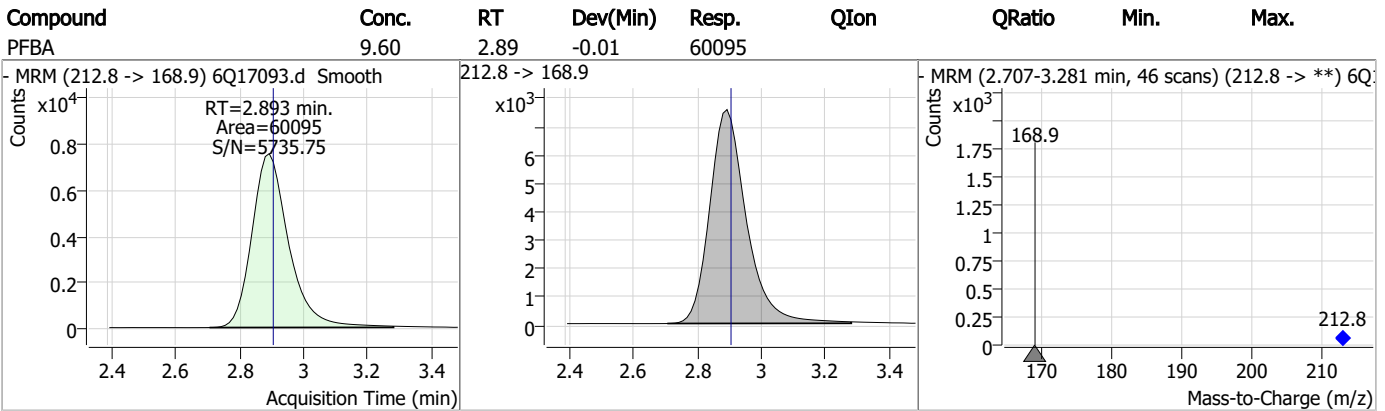
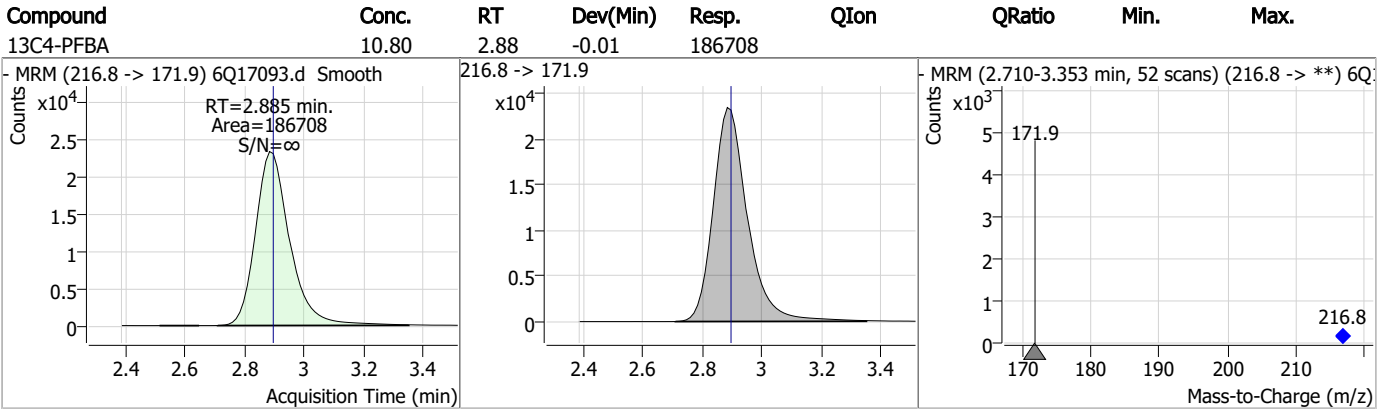
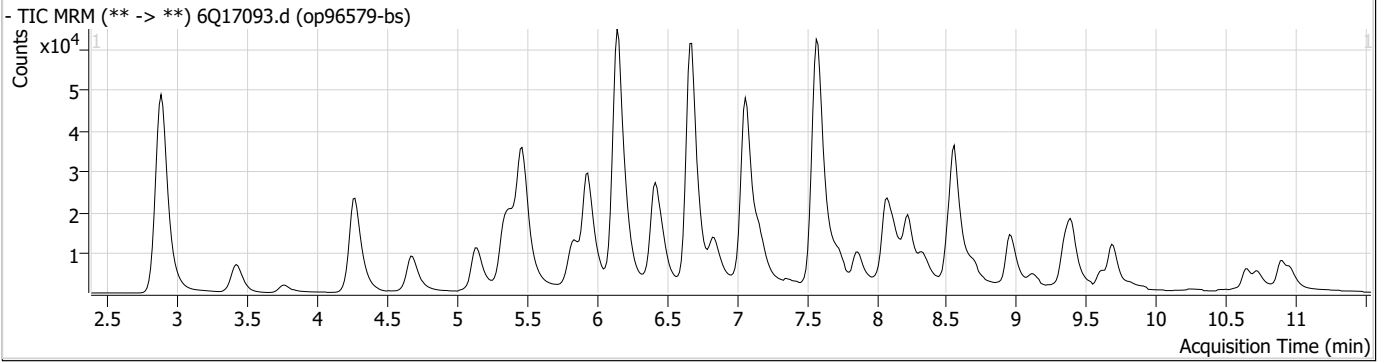
Perfluorinated Compounds by LC/MS/MS

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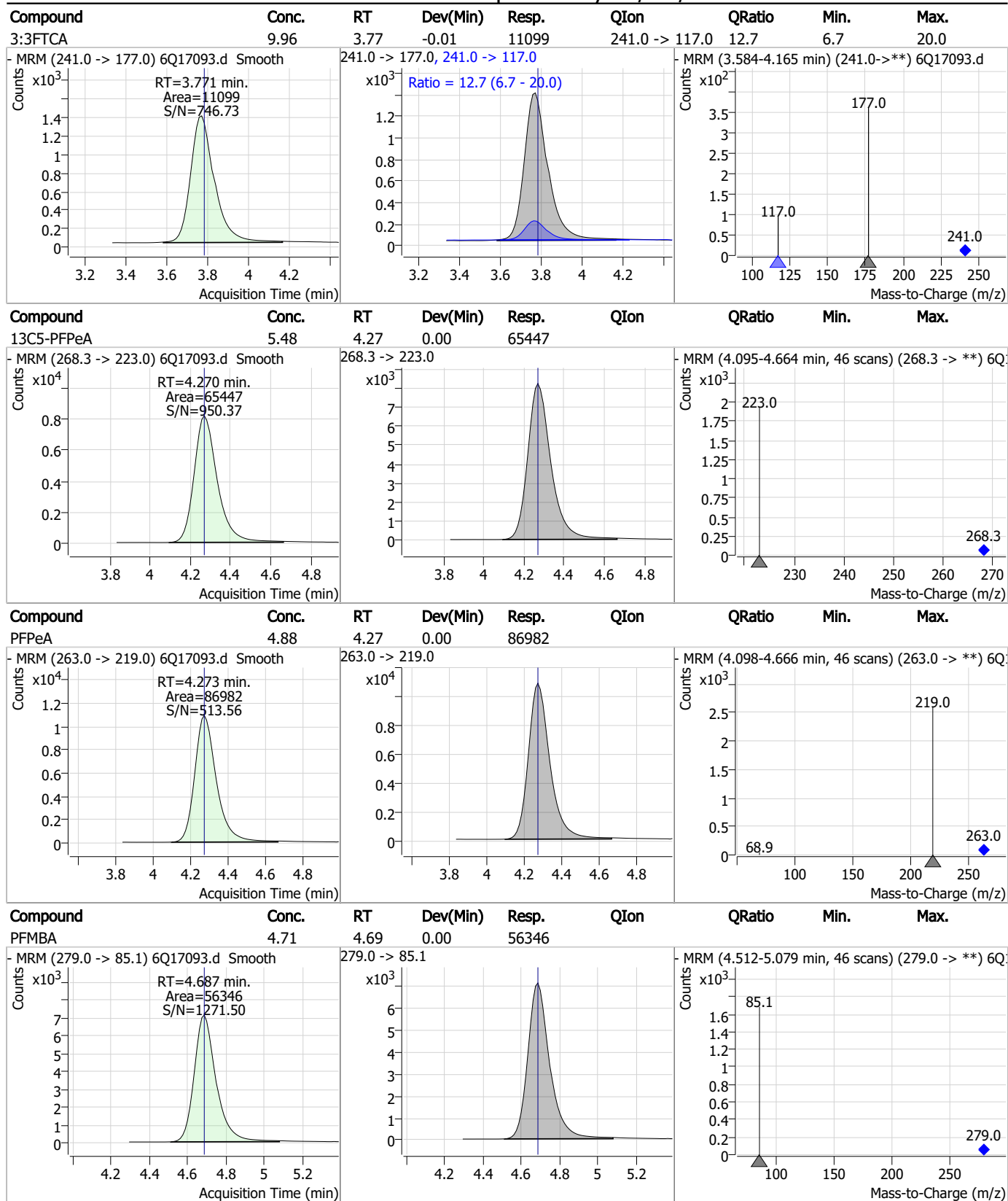
7.3.1

7

Perfluorinated Compounds by LC/MS/MS

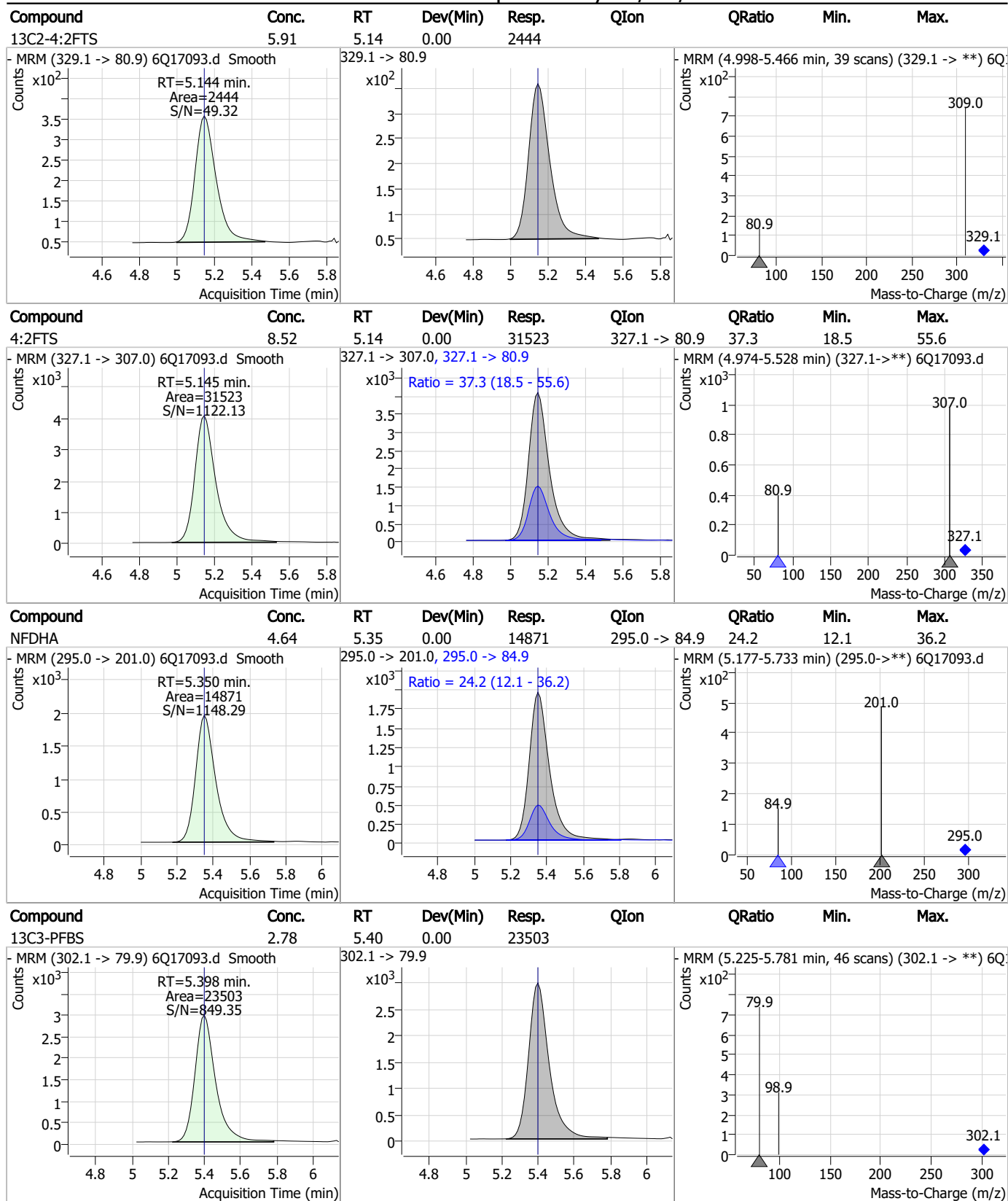


Perfluorinated Compounds by LC/MS/MS



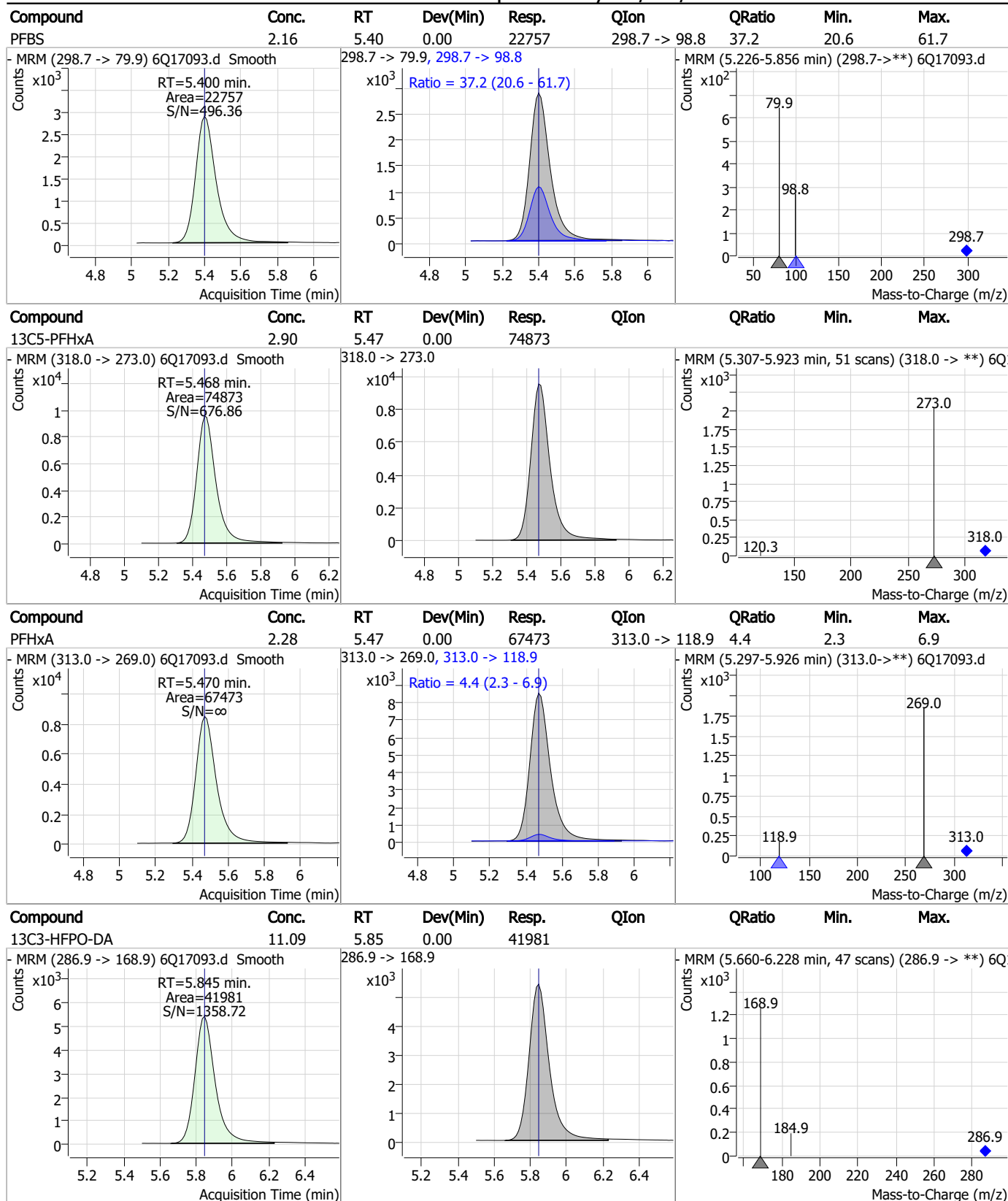
7.3.1
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Perfluorinated Compounds by LC/MS/MS



7.3.1
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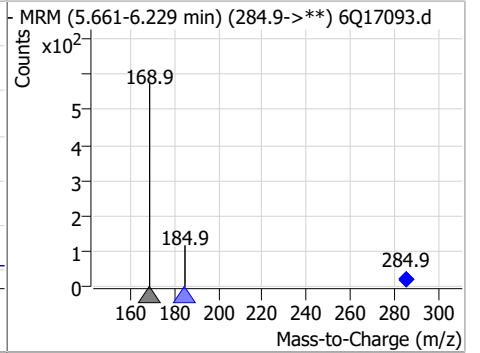
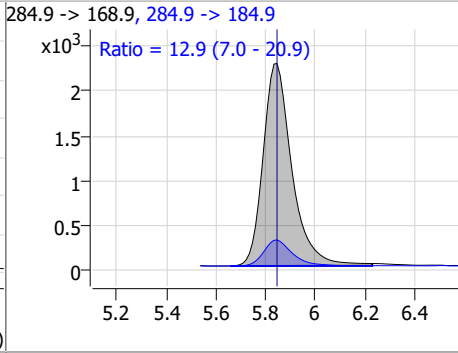
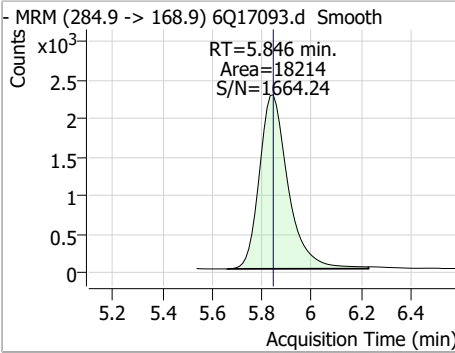
Perfluorinated Compounds by LC/MS/MS



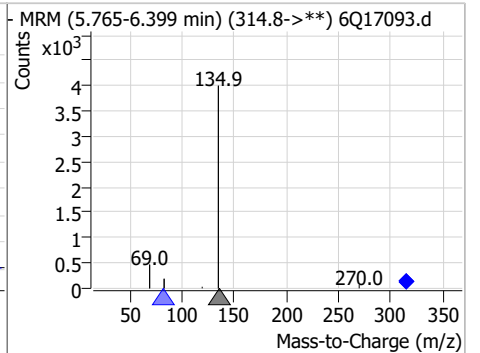
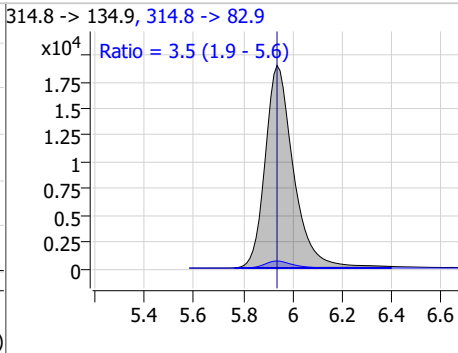
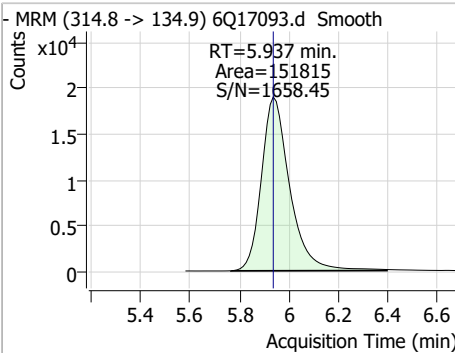
7.3.1
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Perfluorinated Compounds by LC/MS/MS

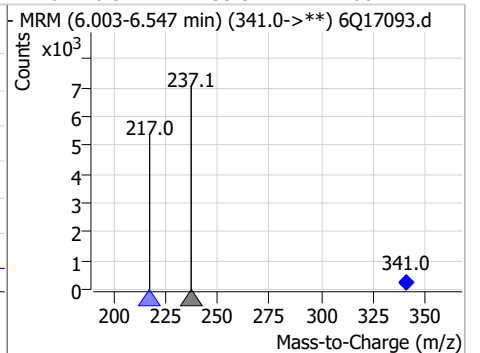
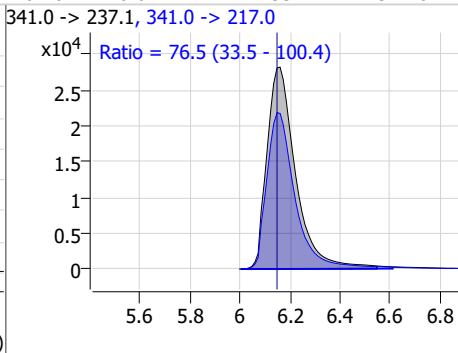
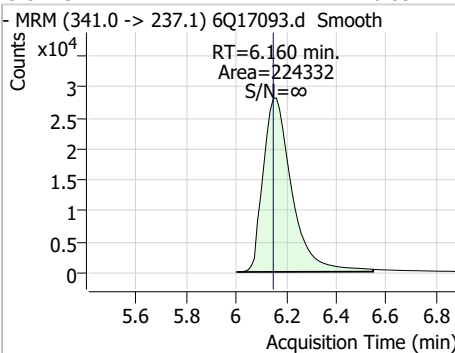
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.58	5.85	0.00	18214	284.9 -> 184.9	12.9	7.0	20.9



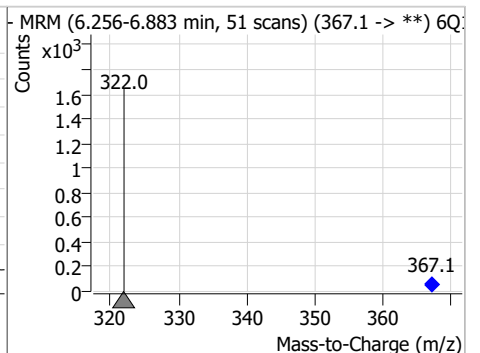
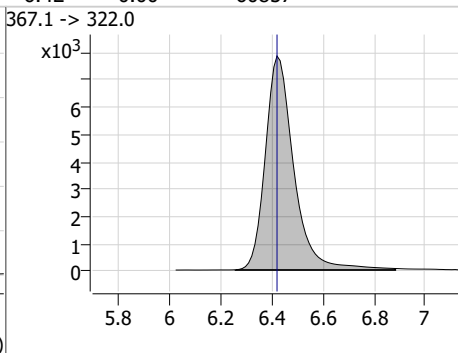
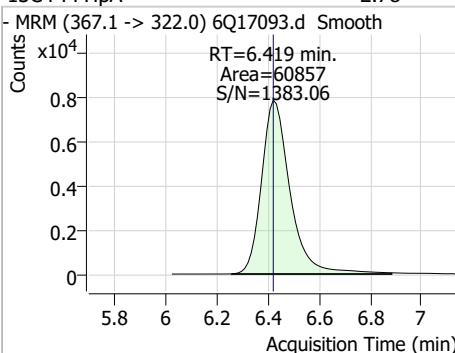
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.06	5.94	0.00	151815	314.8 -> 82.9	3.5	1.9	5.6



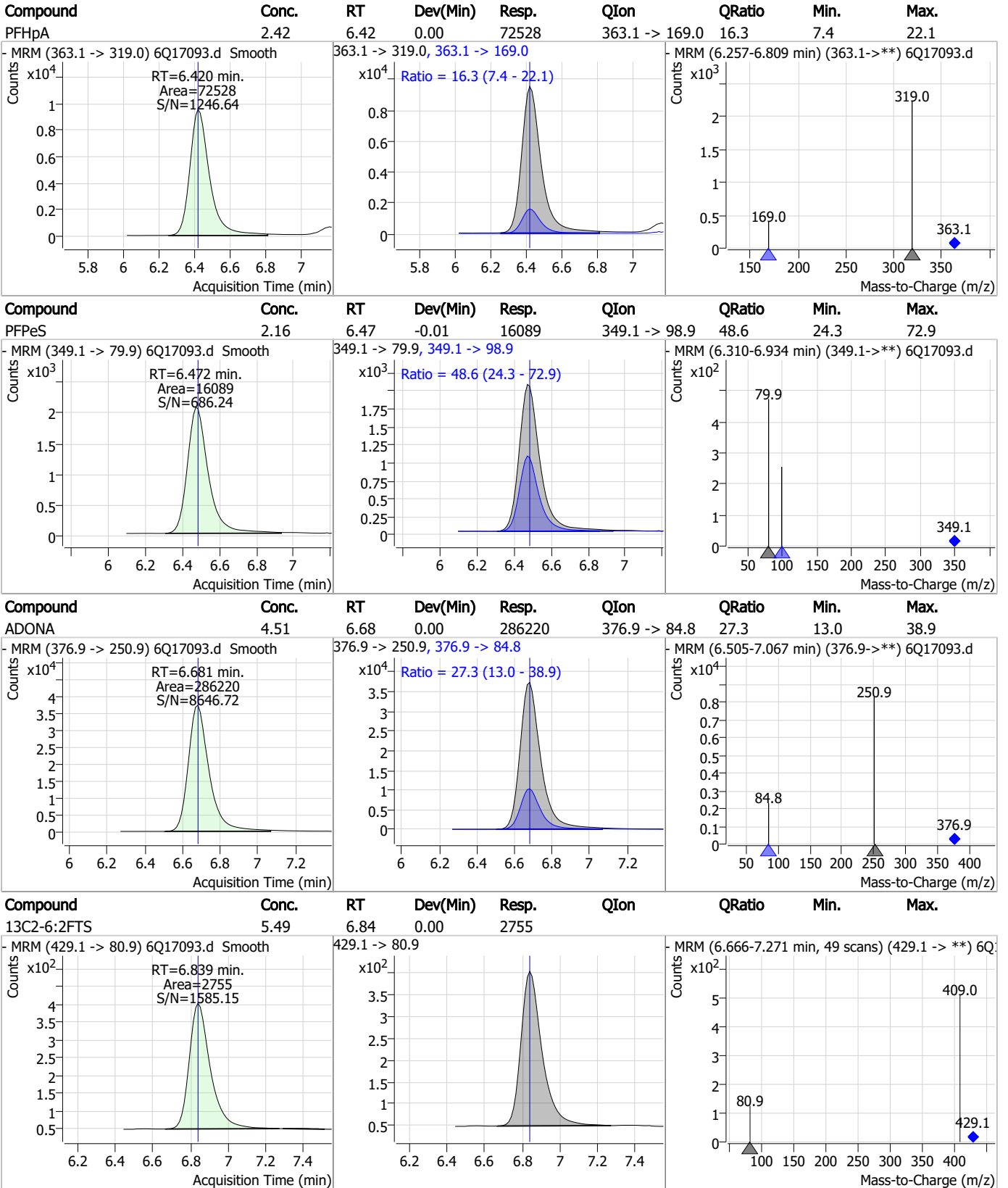
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	46.83	6.16	0.01	224332	341.0 -> 217.0	76.5	33.5	100.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.78	6.42	0.00	60857	367.1 -> 322.0			



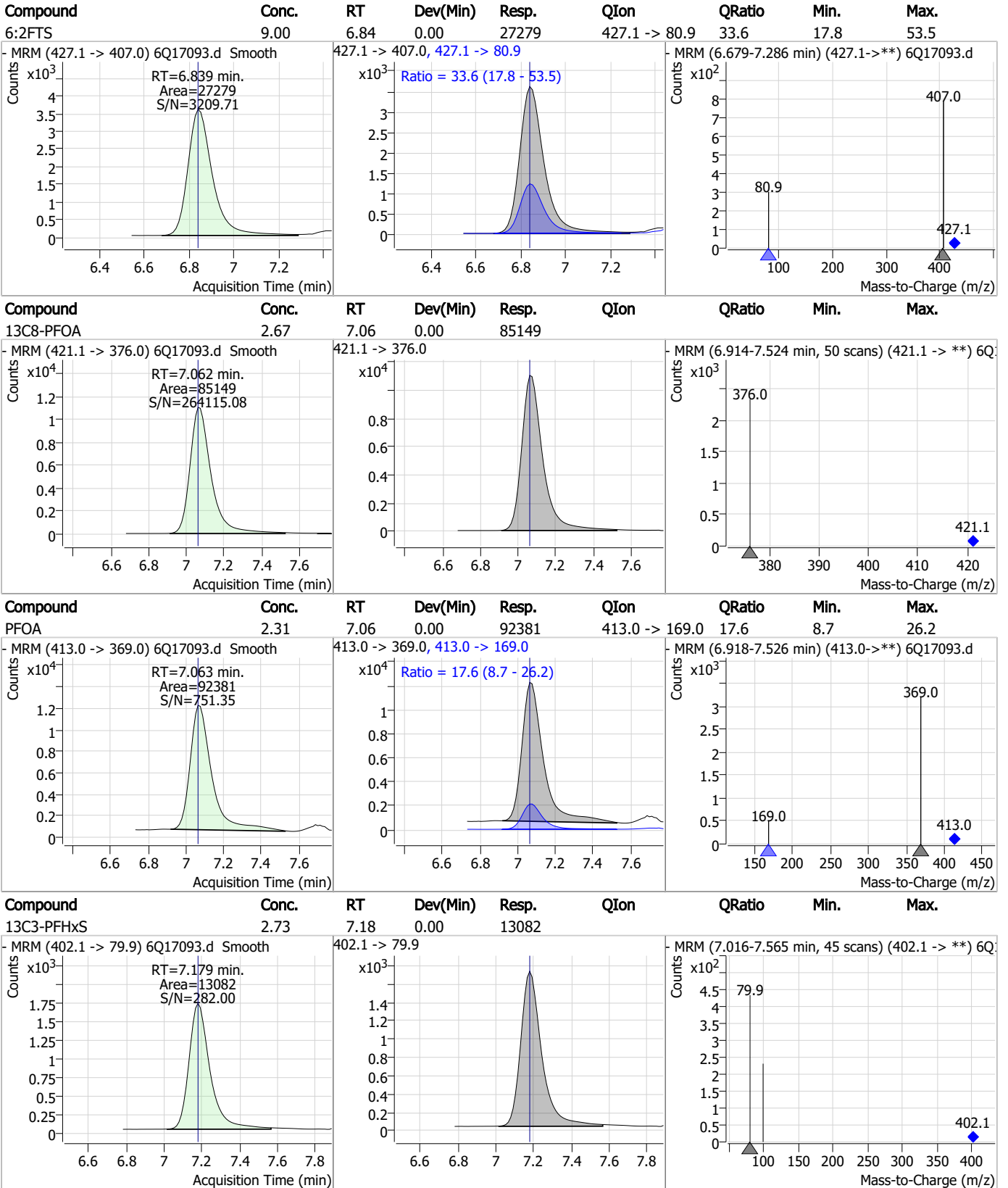
Perfluorinated Compounds by LC/MS/MS



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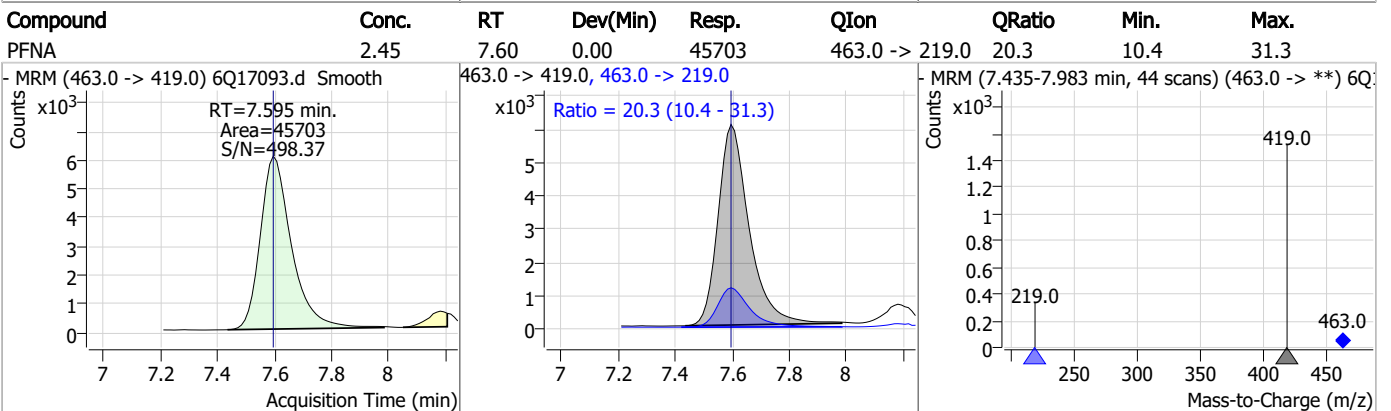
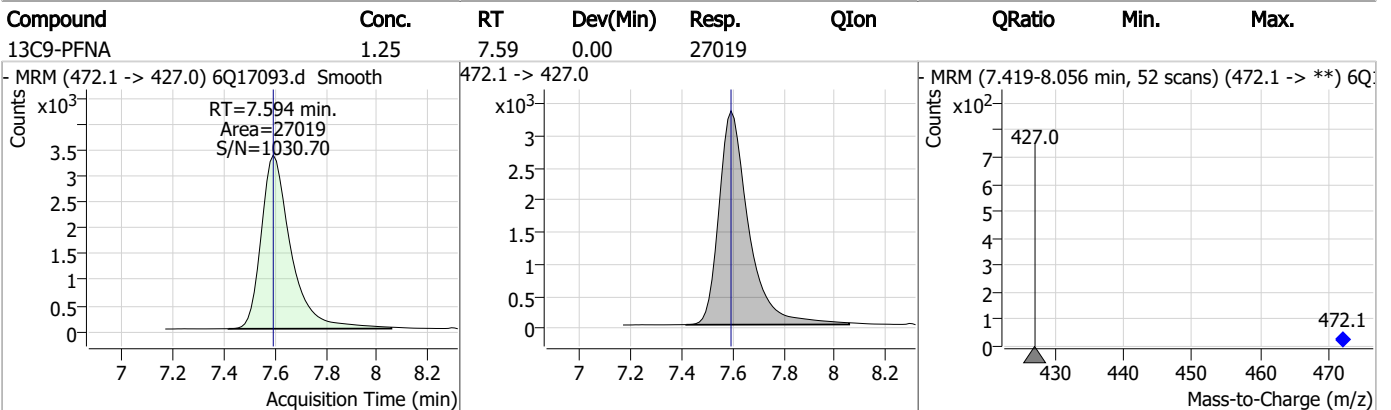
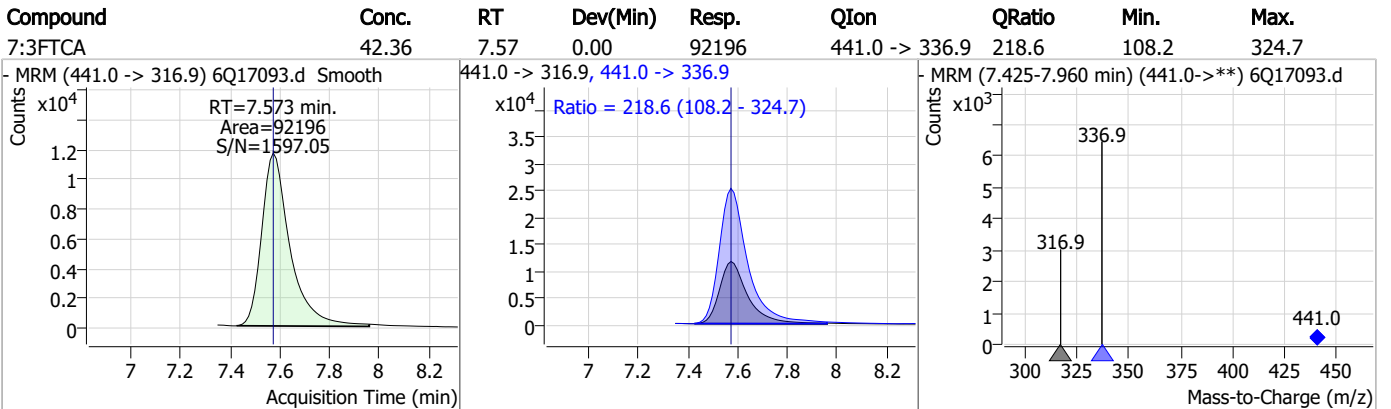
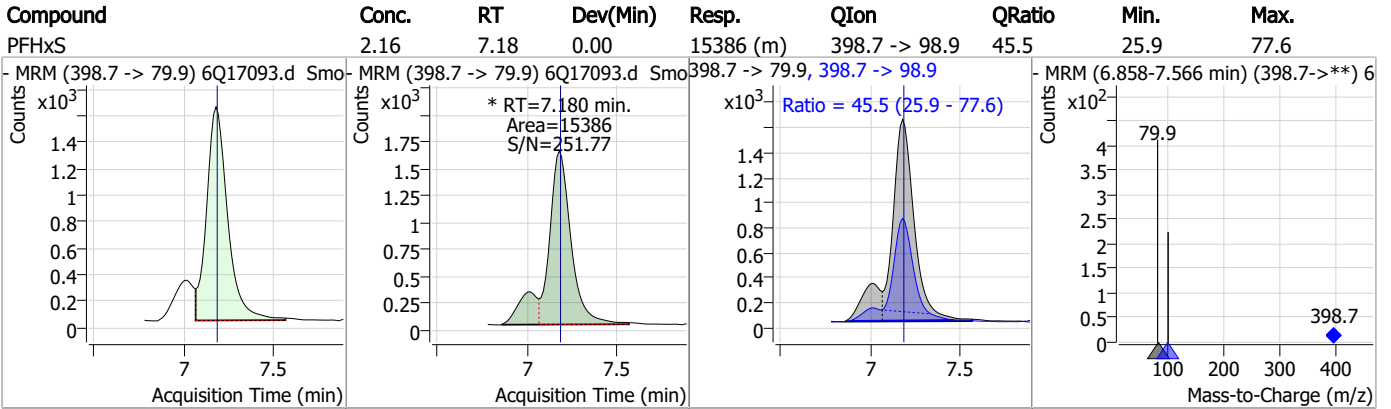
Perfluorinated Compounds by LC/MS/MS



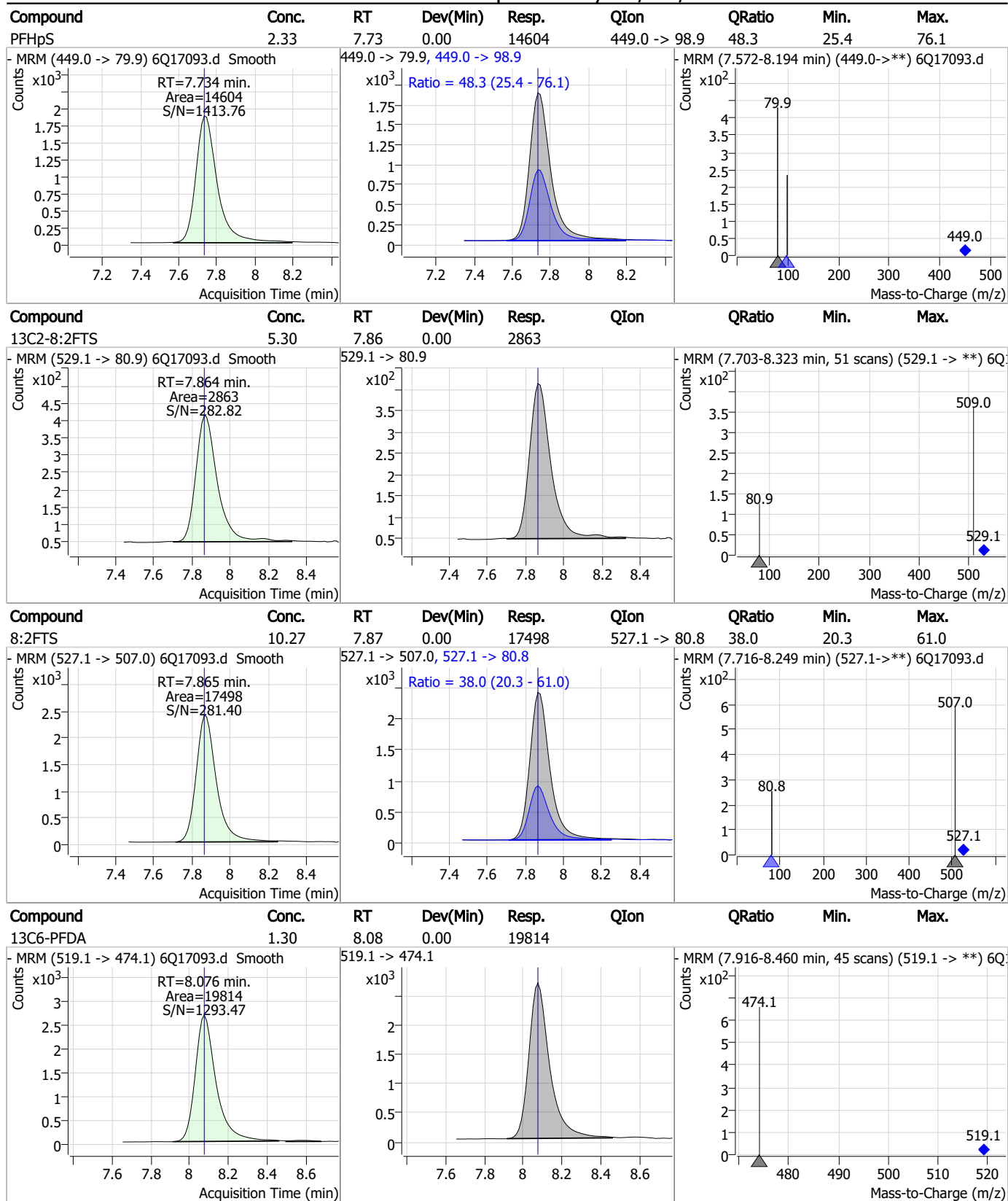
7.3.1

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Perfluorinated Compounds by LC/MS/MS

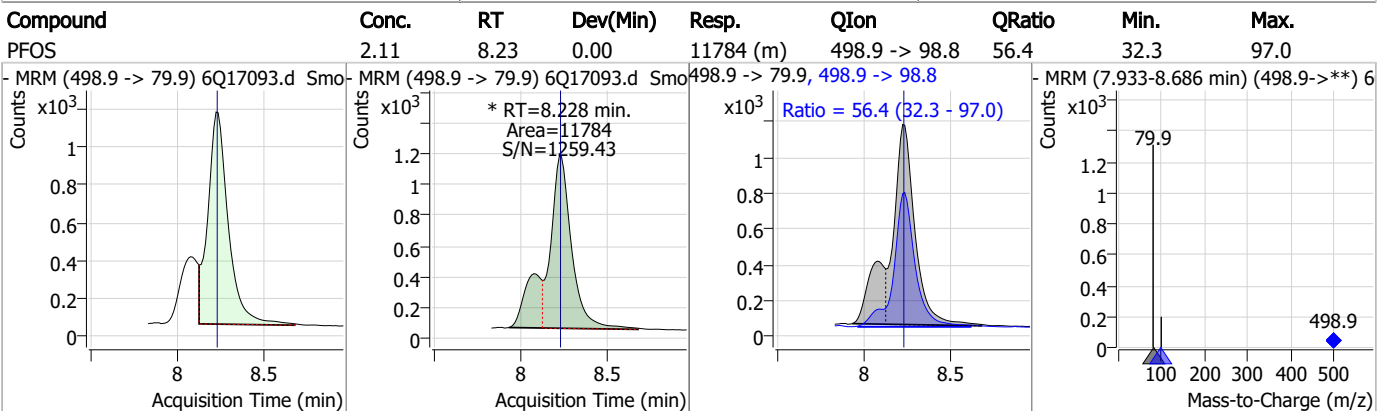
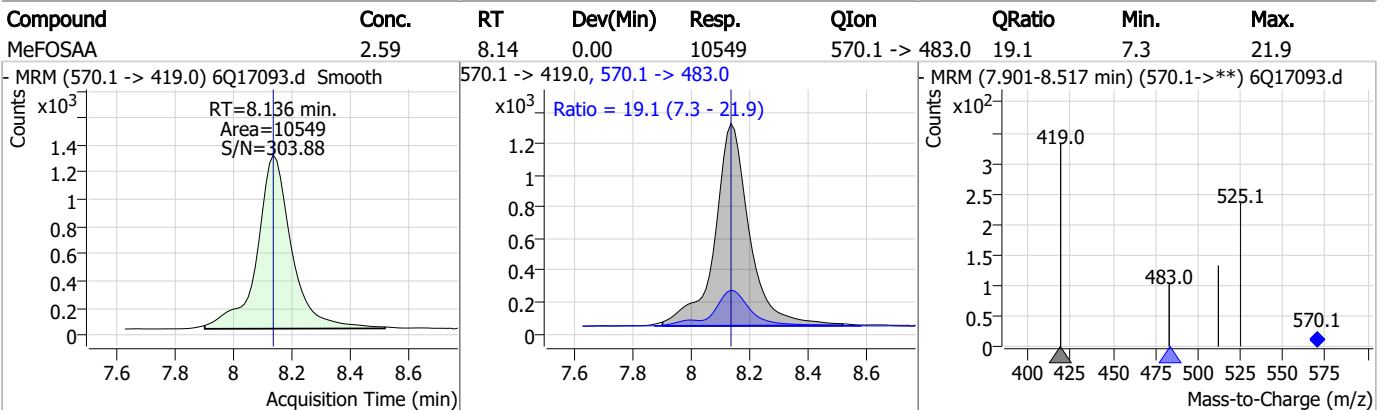
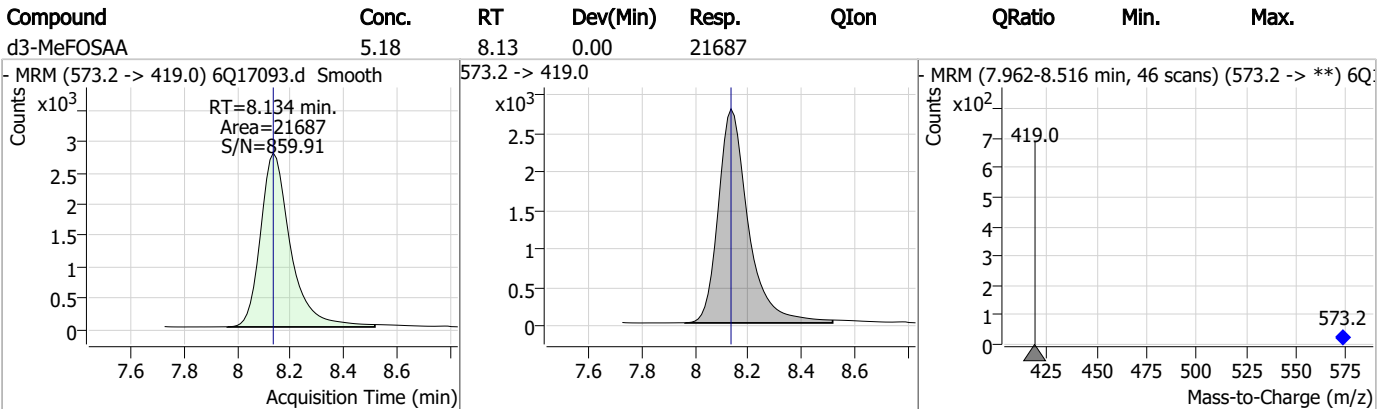
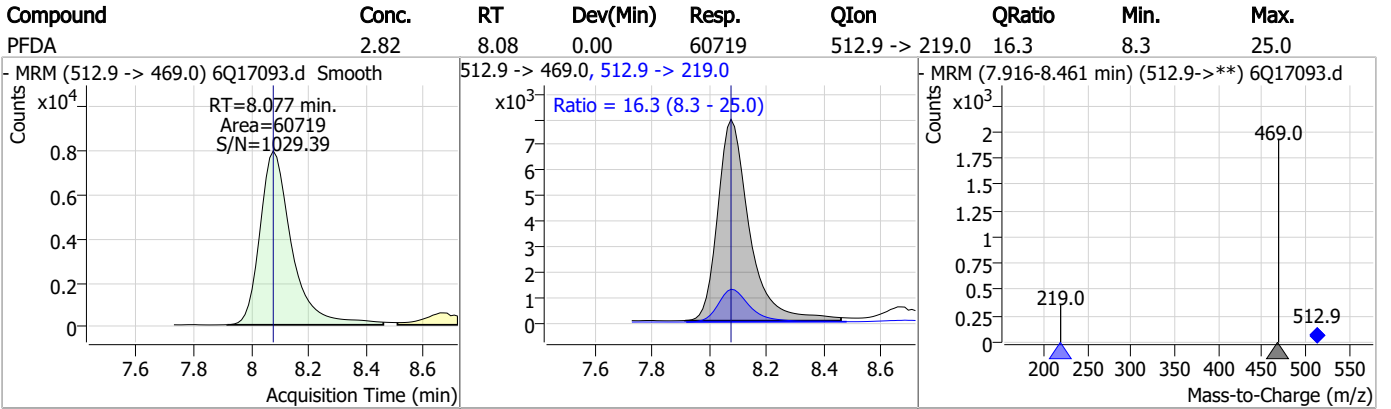


Perfluorinated Compounds by LC/MS/MS



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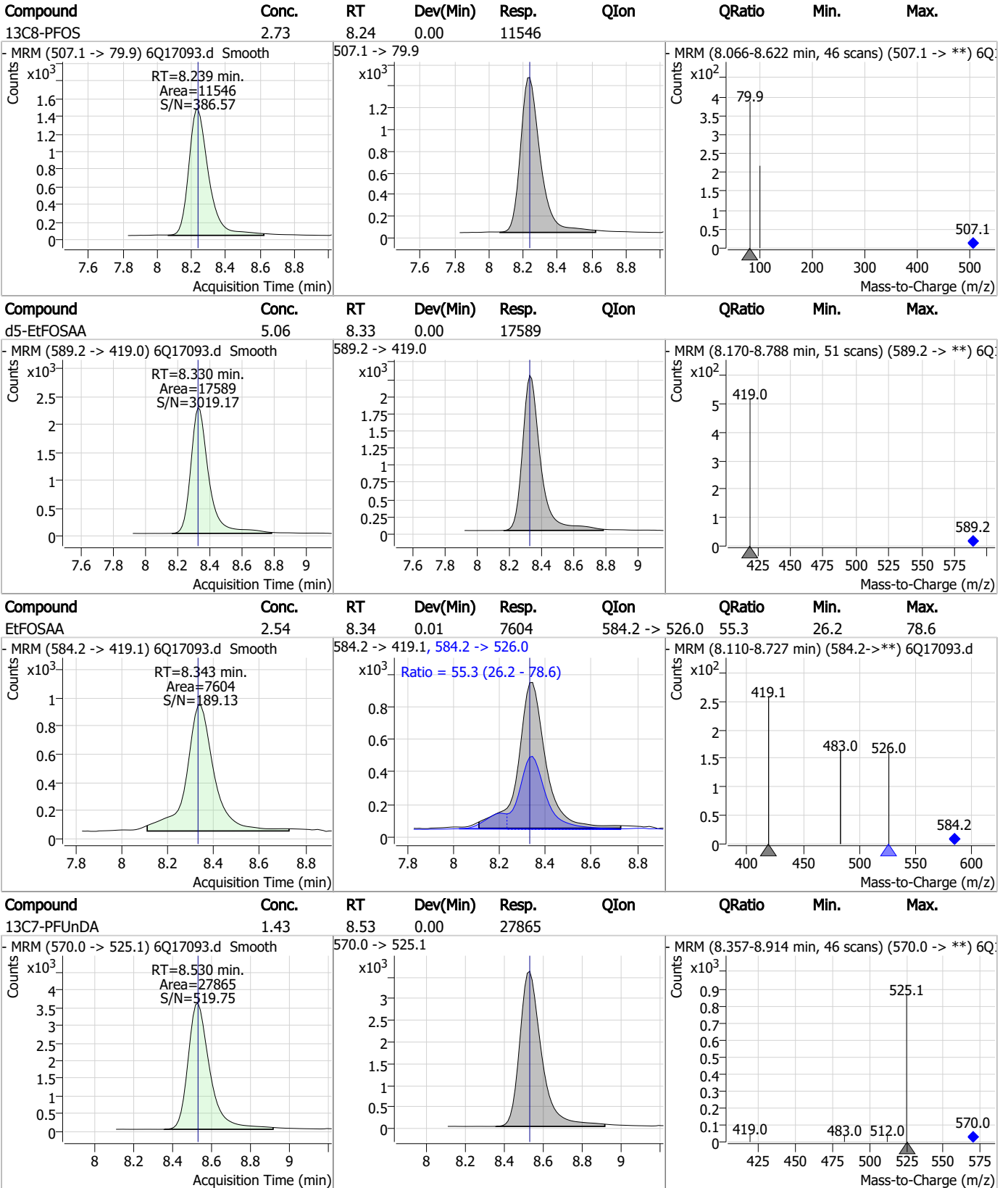
Perfluorinated Compounds by LC/MS/MS



7.3.1

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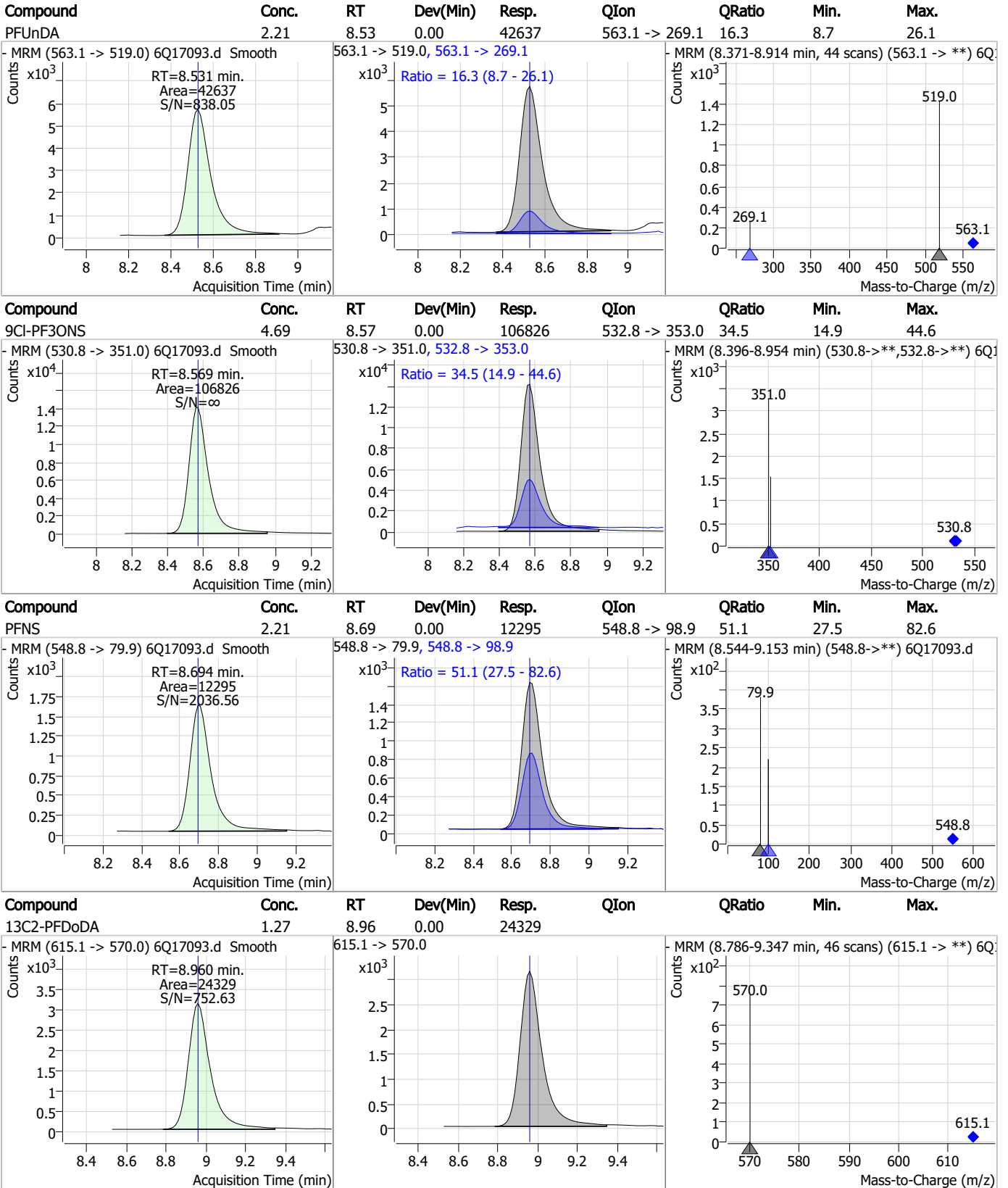
Perfluorinated Compounds by LC/MS/MS



7.3.1

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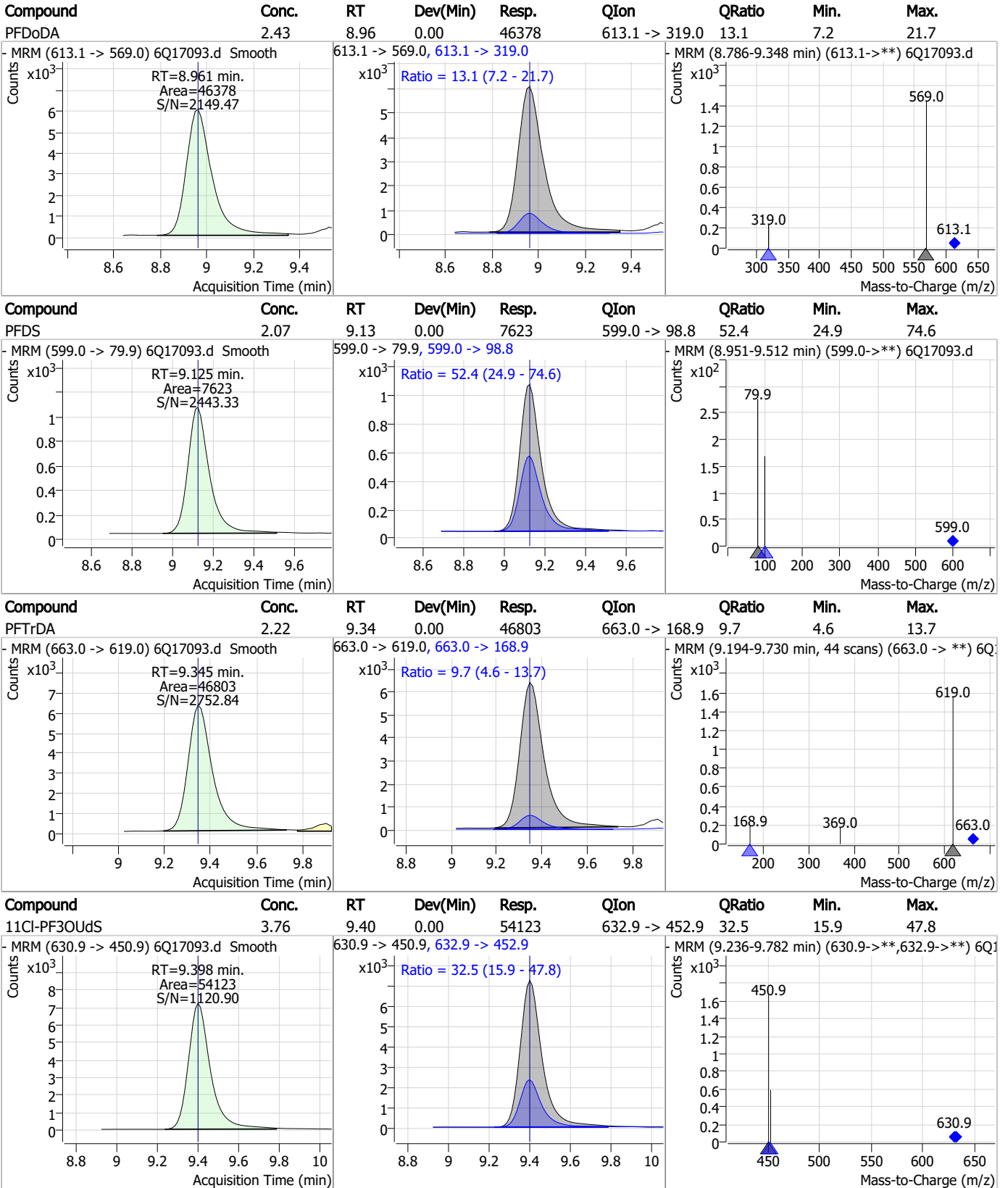
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



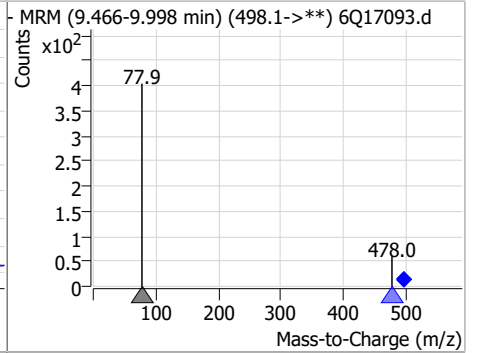
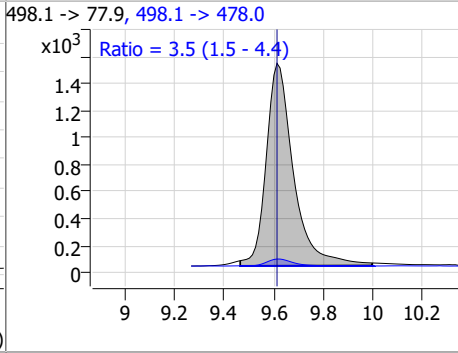
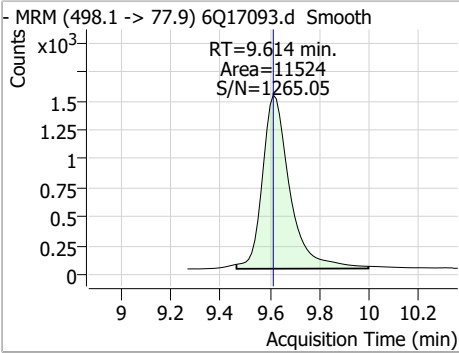
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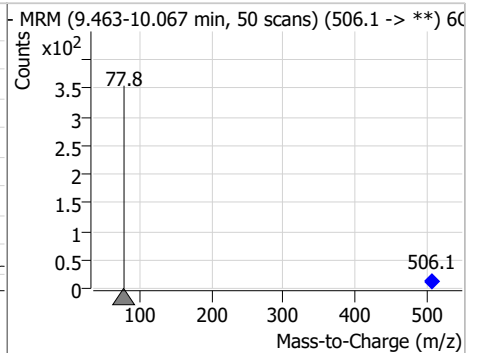
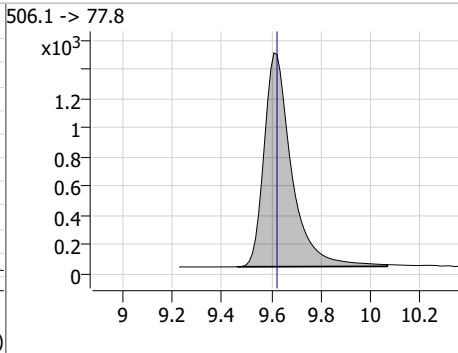
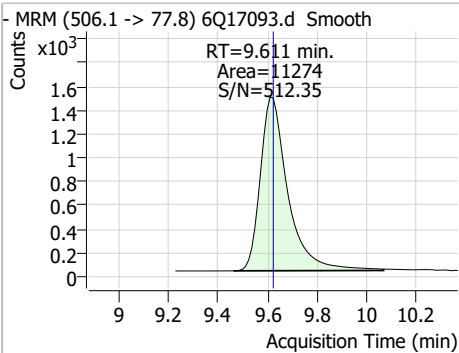


Perfluorinated Compounds by LC/MS/MS

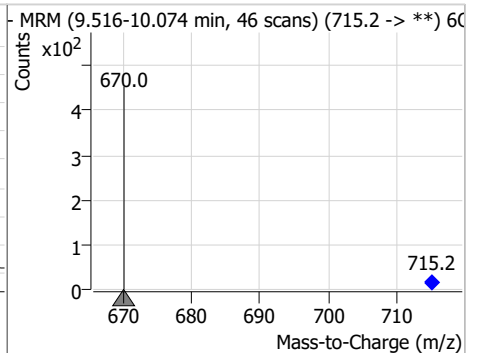
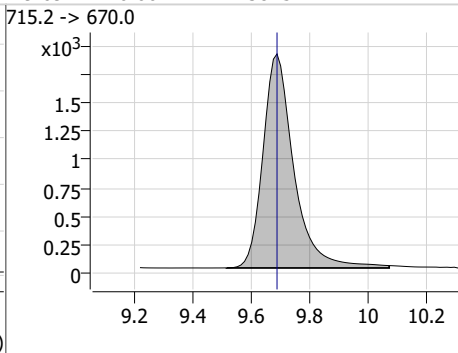
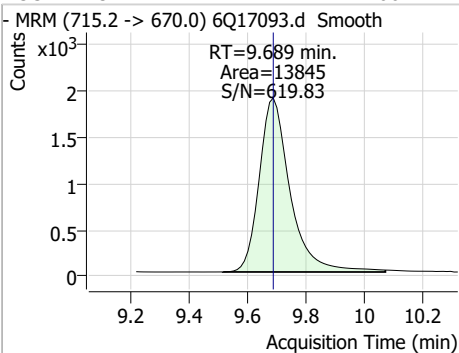
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.85	9.61	0.00	11524	498.1 -> 478.0	3.5	1.5	4.4



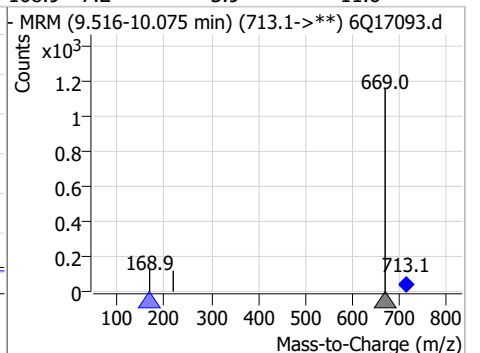
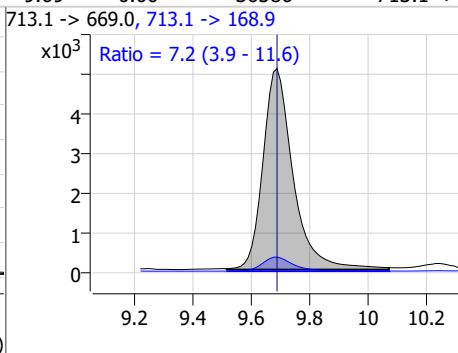
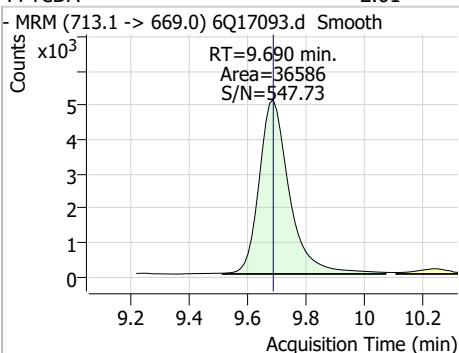
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	1.21	9.61	-0.01	11274				



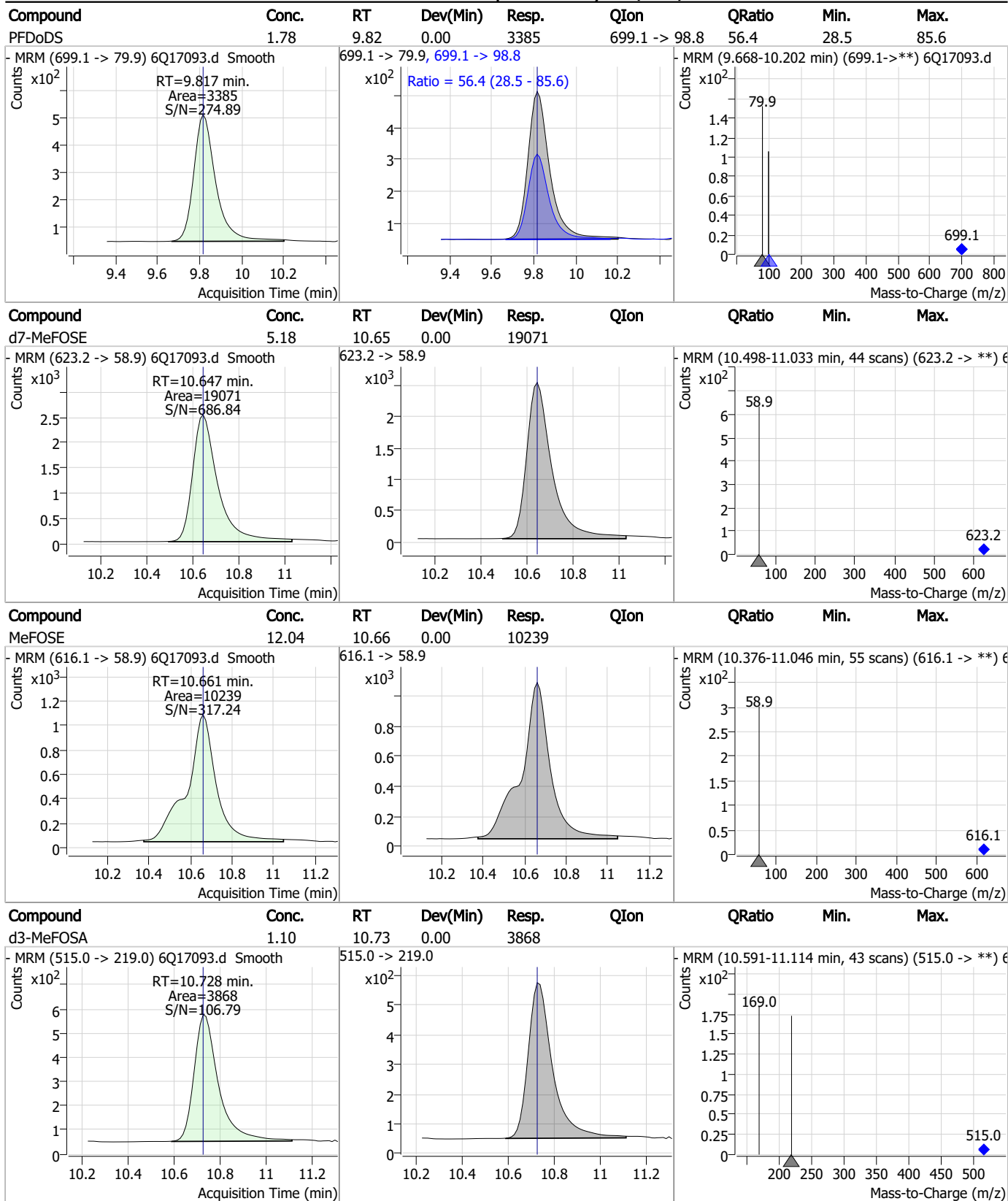
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.06	9.69	0.00	13845				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.61	9.69	0.00	36586	713.1 -> 168.9	7.2	3.9	11.6

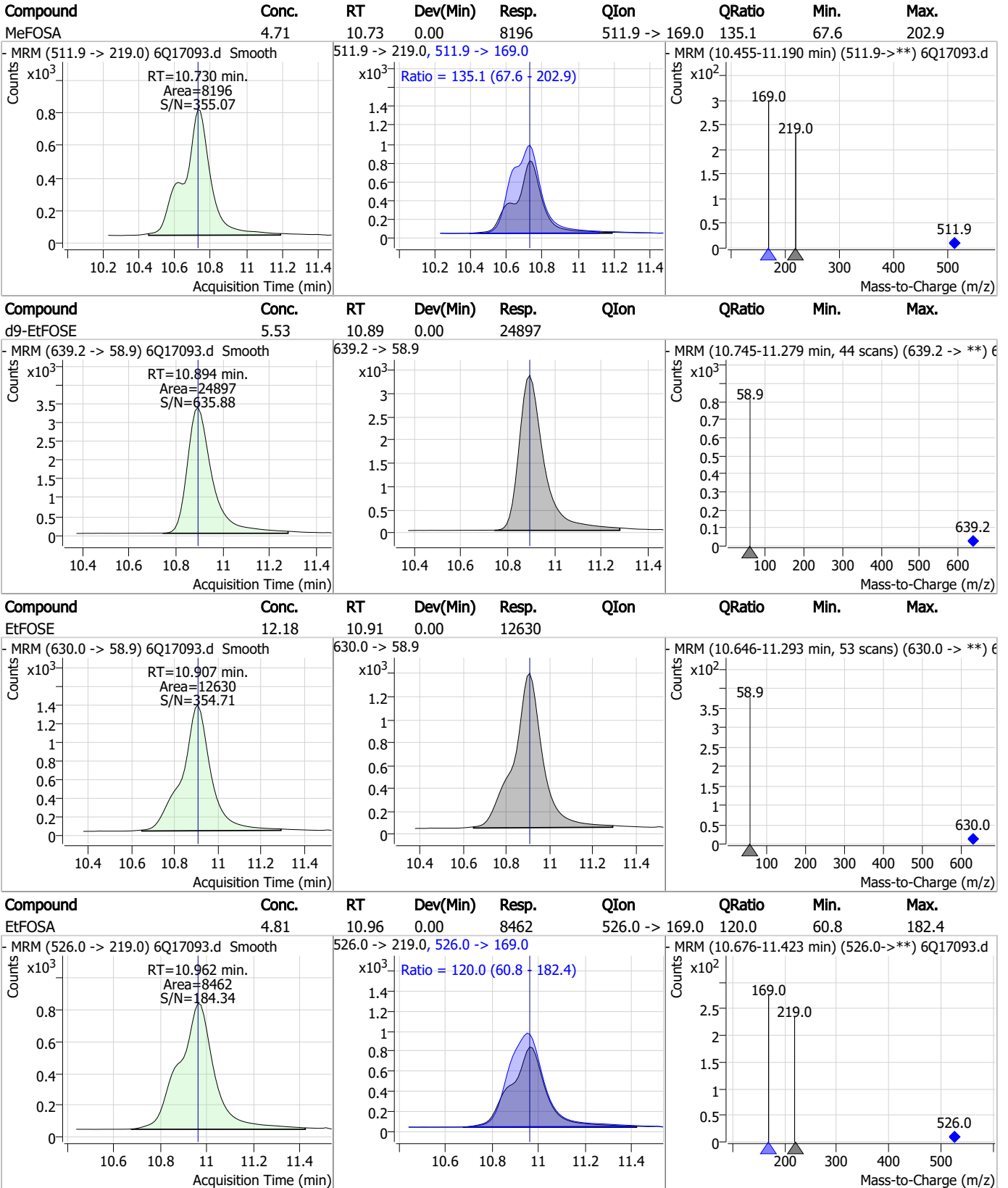


Perfluorinated Compounds by LC/MS/MS



7.3.1
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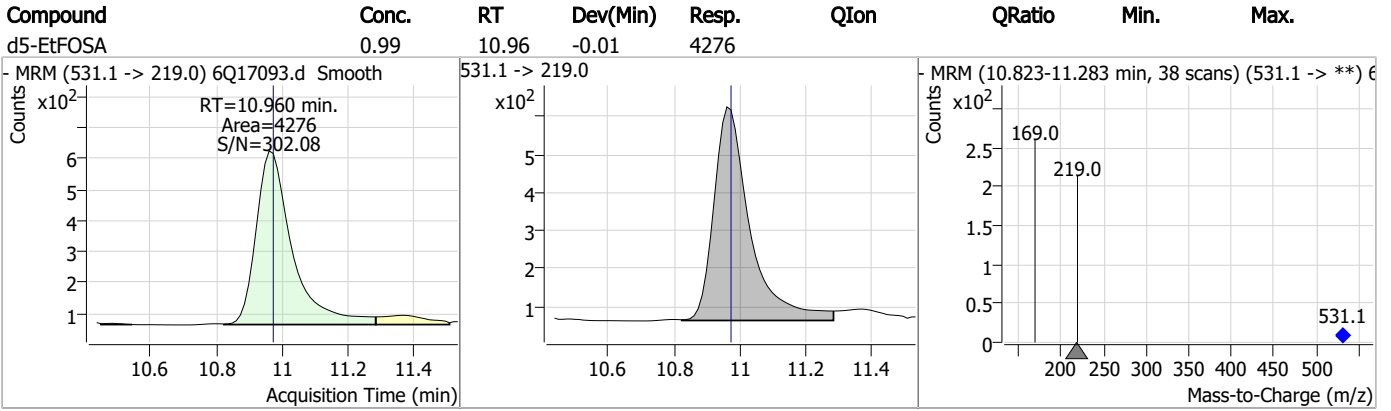
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: OP96579-BS Method: EPA DRAFT 1633
Lab FileID: 6Q17093.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 22:58 Supervisor approved: 05/01/23 00:03 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17094.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 11:13:13 PM
 Sample Name : op96579-llbs:3
 Vial : P4-A2
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96579,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	179760	10.00 µg/L	0.000
M5-PFPeA	4.270	268.3 -> 223.0	63835	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	69991	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	56277	2.50 µg/L	0.000
M8-PFOA	7.074	421.1 -> 376.0	81568	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	25749	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	20510	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	24212	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	22506	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	13378	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	10178	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22437	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12448	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	9868	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2179	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2627	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2752	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	21314	5.00 µg/L	0.000
M3-HFPO-DA	5.833	286.9 -> 168.9	37992	10.00 µg/L	-0.012
M5-EtFOSAA	8.330	589.2 -> 419.0	17149	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	18377	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	24366	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	2874	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	2690	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	13471	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	75102	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	8706	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	86017	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	22547	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	26758	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	54147	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2179	5.44 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.9%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2627	5.41 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.2%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2752	5.27 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.3%		
13C2-PFDoDA	8.960	615.1 -> 570.0	22506	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.0%		
13C2-PFTeDA	9.689	715.2 -> 670.0	13378	1.05 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 84.3%		
13C3-PFBS	5.398	302.1 -> 79.9	22437	2.74 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.6%		
13C3-PFHxS	7.179	402.1 -> 79.9	12448	2.69 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 = 107.4%	
13C4-PFBA	2.897	216.8 -> 171.9	179760	10.36 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C4-PFHpA	6.419	367.1 -> 322.0	56277	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C5-PFHxA	5.468	318.0 -> 273.0	69991	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.2%	
13C5-PFPeA	4.270	268.3 -> 223.0	63835	5.28 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C6-PFDA	8.076	519.1 -> 474.1	20510	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.3%	
13C7-PFUnDA	8.530	570.0 -> 525.1	24212	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C8-FOSA	9.623	506.1 -> 77.8	10178	1.14 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 45.7%	
13C8-PFOA	7.074	421.1 -> 376.0	81568	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C8-PFOS	8.239	507.1 -> 79.9	9868	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C9-PFNA	7.594	472.1 -> 427.0	25749	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.0%	
d3-MeFOSAA	8.134	573.2 -> 419.0	21314	5.31 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.2%	
13C3-HFPO-DA	5.833	286.9 -> 168.9	37992	9.91 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
d3-MeFOSA	10.728	515.0 -> 219.0	2690	0.80 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 32.0%	
d5-EtFOSAA	8.330	589.2 -> 419.0	17149	5.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.8%	
d7-MeFOSE	10.647	623.2 -> 58.9	18377	5.20 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 20.8%	
d9-EtFOSE	10.894	639.2 -> 58.9	24366	5.64 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 22.6%	
d5-EtFOSA	10.960	531.1 -> 219.0	2874	0.70 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 27.8%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	9588	2.91 µg/L	100
		327.1 -> 80.9	3543		
6:2FTS	6.839	427.1 -> 407.0	8322	2.88 µg/L	94
		427.1 -> 80.9	2702		
8:2FTS	7.865	527.1 -> 507.0	5105	3.12 µg/L	94
		527.1 -> 80.8	1890		
EtFOSAA	8.343	584.2 -> 419.1	2475	0.85 µg/L	96
		584.2 -> 526.0	1374		
FOSA	9.614	498.1 -> 77.9	2852	0.78 µg/L	99
		498.1 -> 478.0	76		
MeFOSAA	8.136	570.1 -> 419.0	3011	0.75 µg/L	# 78
		570.1 -> 483.0	712		
PFBA	2.906	212.8 -> 168.9	18215	3.02 µg/L	100
PFBS	5.400	298.7 -> 79.9	6548	0.65 µg/L	94
		298.7 -> 98.8	2433		
PFDA	8.077	512.9 -> 469.0	16149	0.72 µg/L	93
		512.9 -> 219.0	2199		
PFDoDA	8.961	613.1 -> 569.0	13299	0.75 µg/L	97
		613.1 -> 319.0	1747		
PFDS	9.125	599.0 -> 79.9	2326	0.74 µg/L	95

7.3.2
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.420	599.0 -> 98.8	1075	0.77	µg/L	96
		363.1 -> 319.0	21411			
PFHpS	7.734	363.1 -> 169.0	3498	0.83	µg/L	98
		449.0 -> 79.9	4435			
PFHxA	5.470	449.0 -> 98.9	2193	0.71	µg/L	99
		313.0 -> 269.0	19710			
PFHxS	7.180	313.0 -> 118.9	960	0.65	µg/L	96
		398.7 -> 79.9	4379			
PFNA	7.595	398.7 -> 98.9	2139	0.74	µg/L	98
		463.0 -> 419.0	13130			
PFNS	8.694	463.0 -> 219.0	2635	0.84	µg/L	89
		548.8 -> 79.9	4014			
PFOA	7.063	548.8 -> 98.9	1885	0.76	µg/L	100
		413.0 -> 369.0	27491			
PFOS	8.228	413.0 -> 169.0	4787	0.70	µg/L	92
		498.9 -> 79.9	3358			
PFPeA	4.273	498.9 -> 98.8	1971	1.50	µg/L	100
		263.0 -> 219.0	26055			
PFPeS	6.472	349.1 -> 79.9	4984	0.70	µg/L	98
		349.1 -> 98.9	2368			
PFTeDA	9.690	713.1 -> 669.0	10286	0.76	µg/L	97
		713.1 -> 168.9	693			
PFTrDA	9.345	663.0 -> 619.0	13629	0.70	µg/L	100
		663.0 -> 168.9	1256			
PFUnDA	8.531	563.1 -> 519.0	10660	0.63	µg/L	99
		563.1 -> 269.1	1892			
11CI-PF3OUdS	9.398	630.9 -> 450.9	15995	1.23	µg/L	93
		632.9 -> 452.9	5753			
9CI-PF3ONS	8.569	530.8 -> 351.0	31847	1.54	µg/L	89
		532.8 -> 353.0	11299			
ADONA	6.681	376.9 -> 250.9	88869	1.55	µg/L	98
		376.9 -> 84.8	22210			
HFPO-DA	5.834	284.9 -> 168.9	5755	1.60	µg/L	94
		284.9 -> 184.9	658			
3:3FTCA	3.784	241.0 -> 177.0	3475	3.20	µg/L	96
		241.0 -> 117.0	521			
5:3FTCA	6.160	341.0 -> 237.1	70200	15.68	µg/L	95
		341.0 -> 217.0	49906			
7:3FTCA	7.573	441.0 -> 316.9	26693	13.12	µg/L	94
		441.0 -> 336.9	60478			
EtFOSA	10.962	526.0 -> 219.0	1816	1.54	µg/L	99
		526.0 -> 169.0	2182			
EtFOSE	10.907	630.0 -> 58.9	3506	3.46	µg/L	100
		511.9 -> 219.0	1815			
MeFOSA	10.730	511.9 -> 169.0	2374	1.50	µg/L	96
		616.1 -> 58.9	3065			
MeFOSE	10.661	699.1 -> 79.9	1012	3.74	µg/L	100
		699.1 -> 98.8	531			
PFDoDS	9.817	295.0 -> 201.0	4207	0.62	µg/L	94
		295.0 -> 84.9	1098			
NFDHA	5.350	279.0 -> 85.1	17049	1.46	µg/L	100
		229.0 -> 84.9	12819			
PFMBA	4.687	314.8 -> 134.9	44456	1.47	µg/L	100
		314.8 -> 82.9	1411			
PFMPA	3.438			1.27	µg/L	98
PFEESA	5.937					

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

7.3.2
7

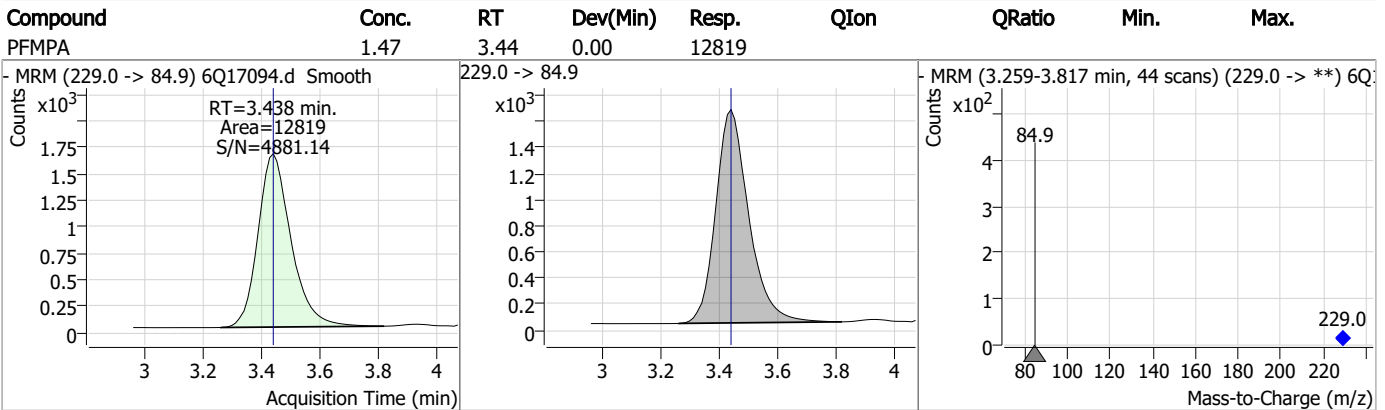
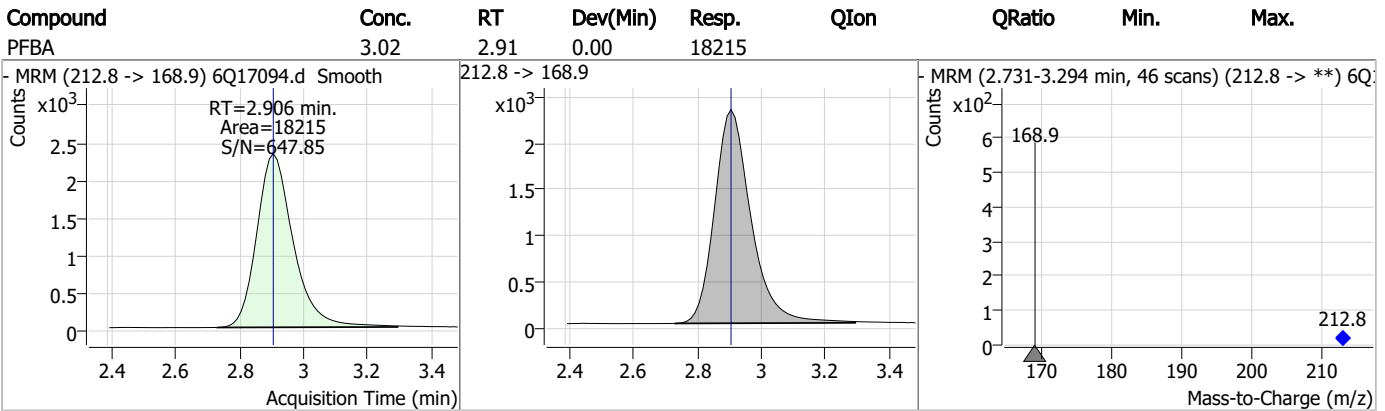
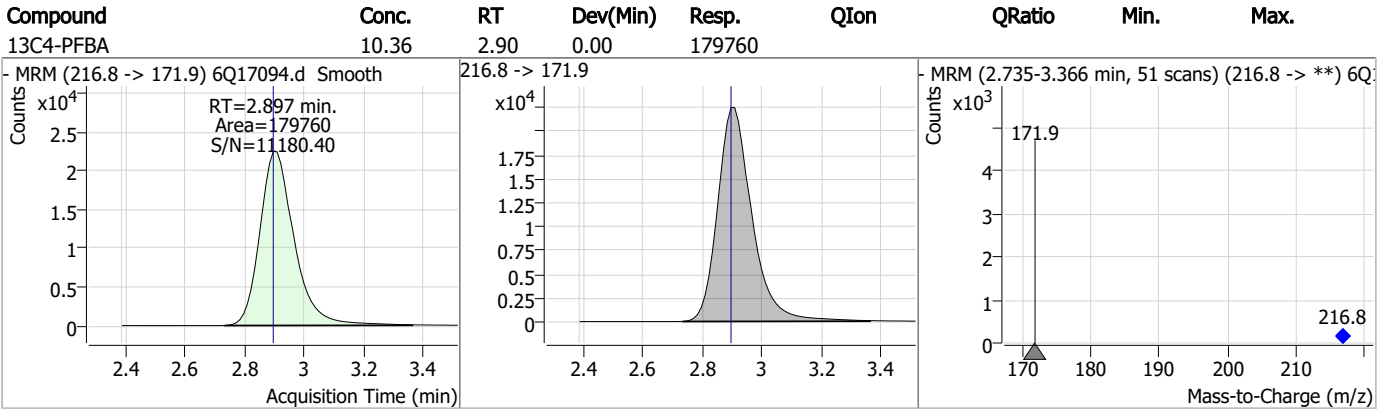
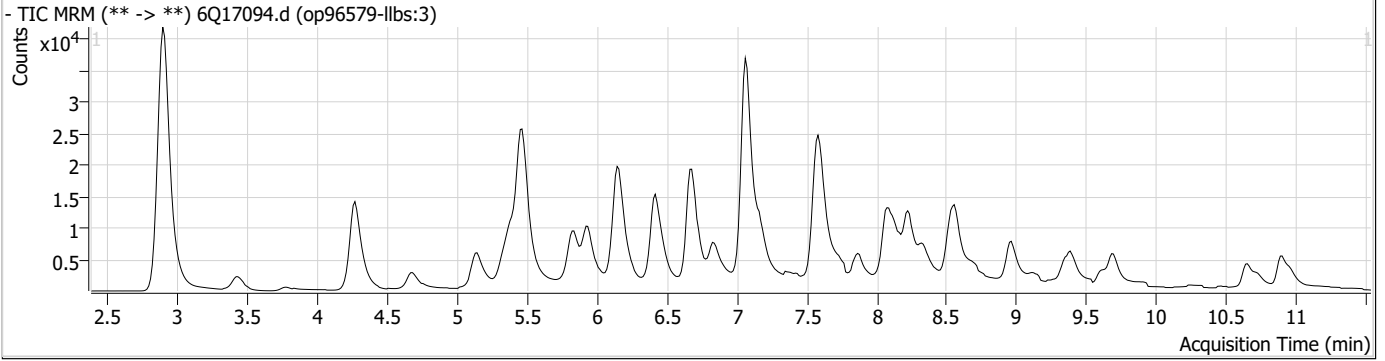
Perfluorinated Compounds by LC/MS/MS

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

7

Perfluorinated Compounds by LC/MS/MS

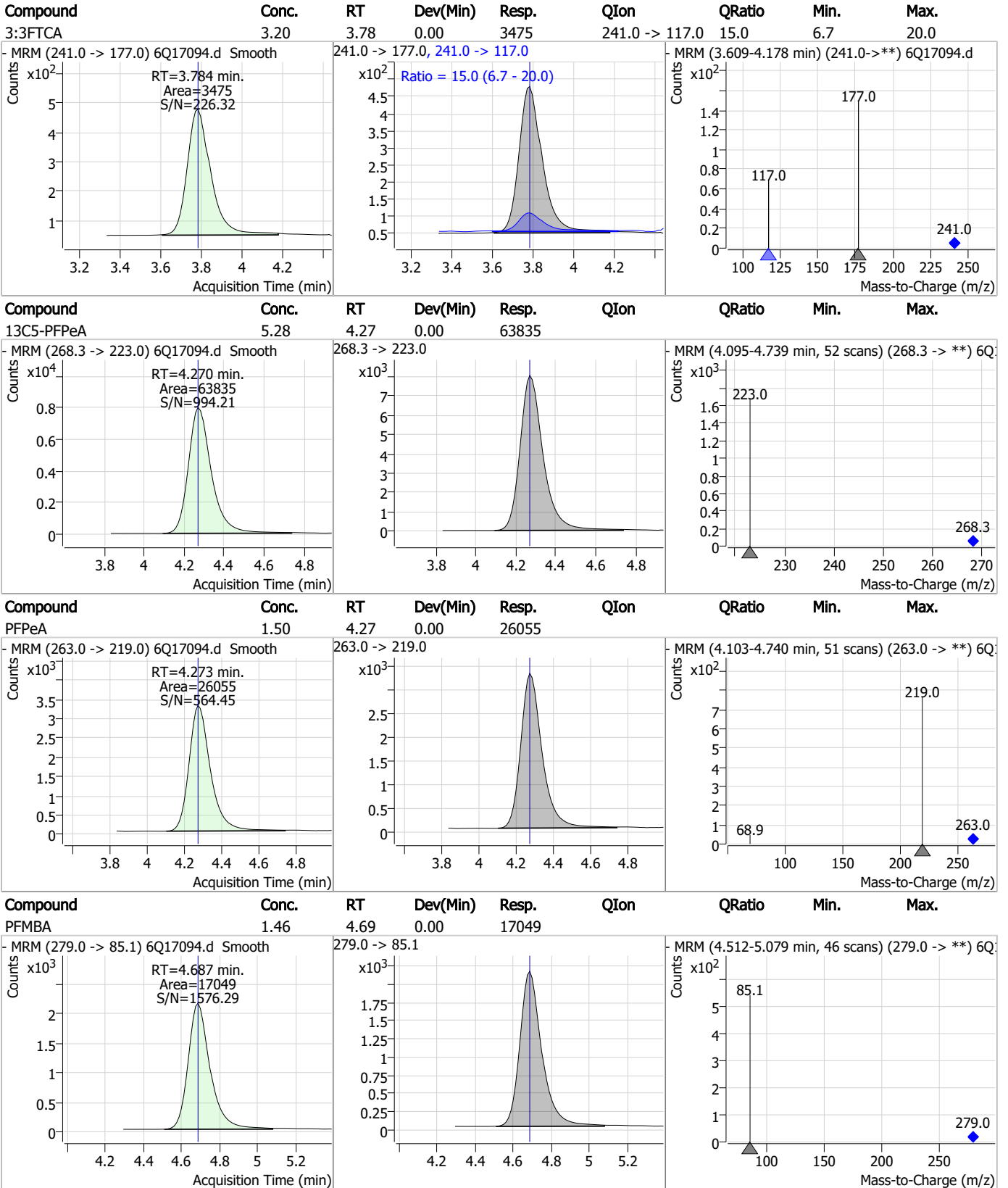


7.3.2

7

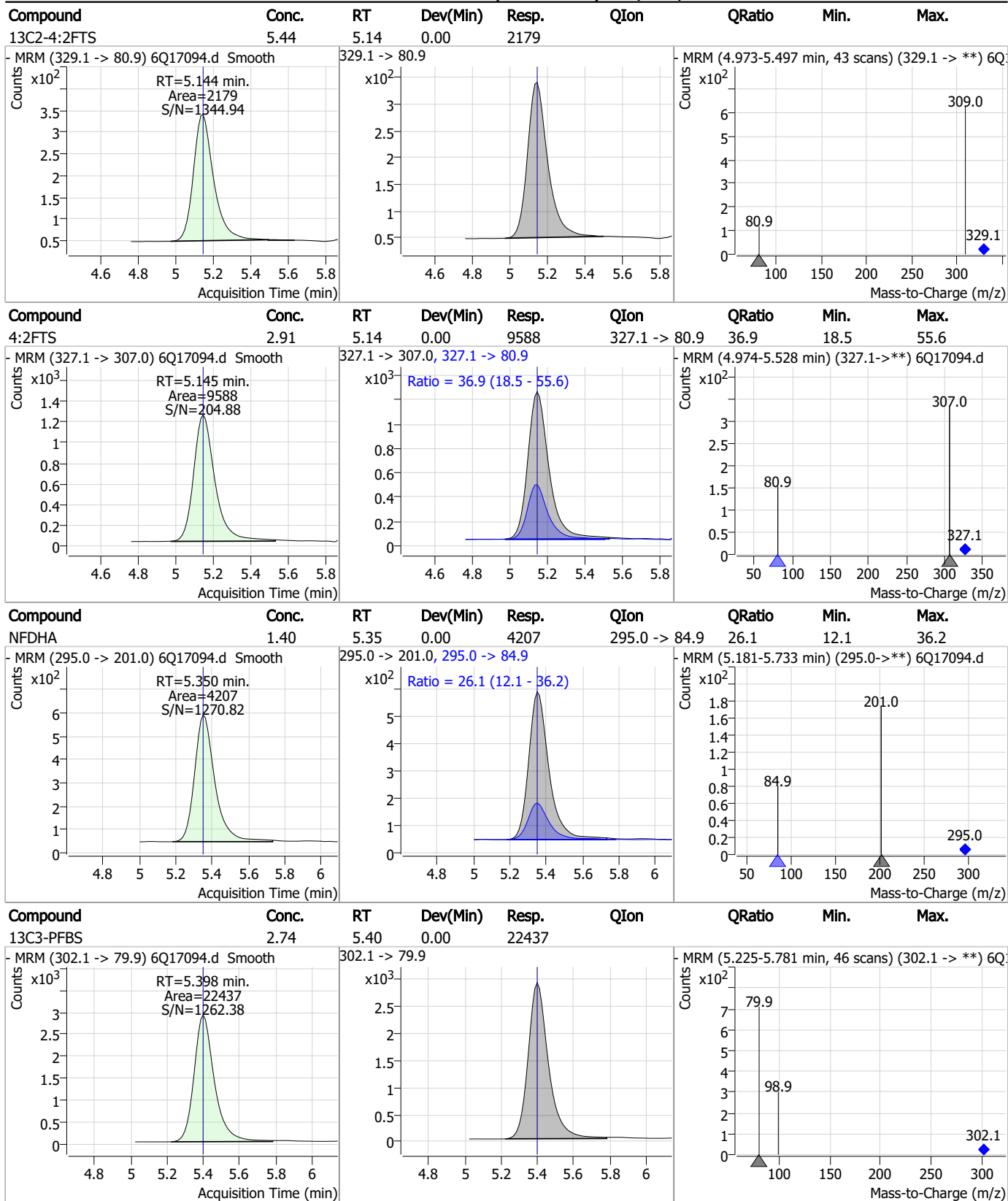


Perfluorinated Compounds by LC/MS/MS



7.3.2
7

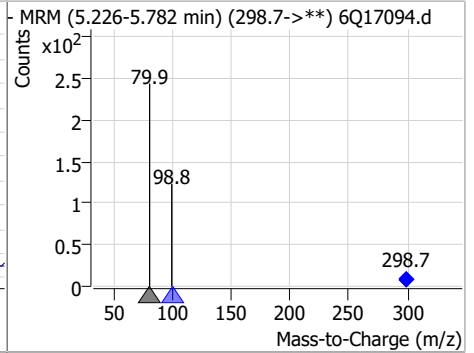
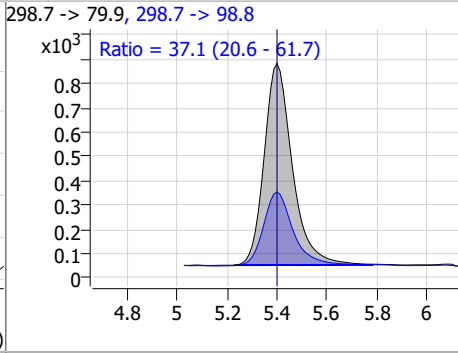
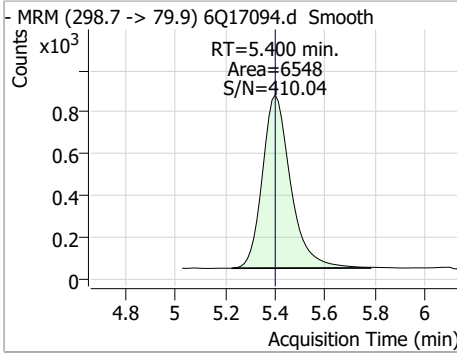
Perfluorinated Compounds by LC/MS/MS



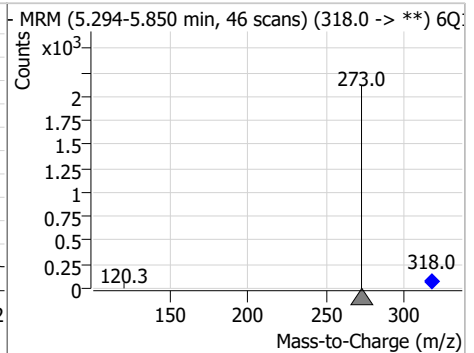
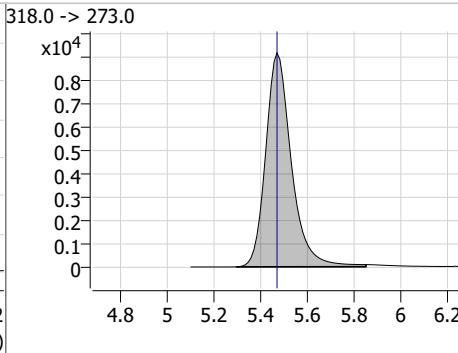
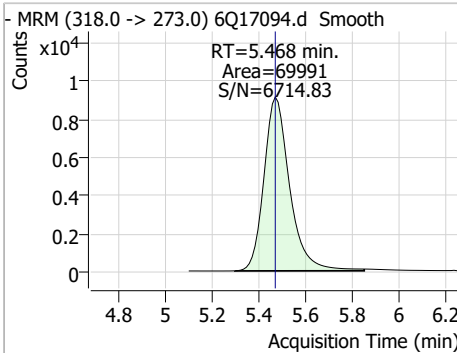
7.3.2
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Perfluorinated Compounds by LC/MS/MS

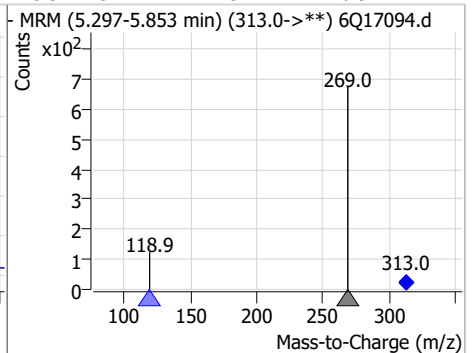
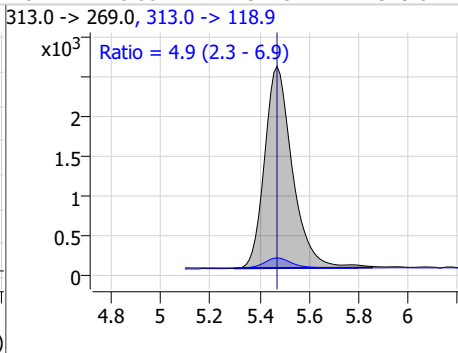
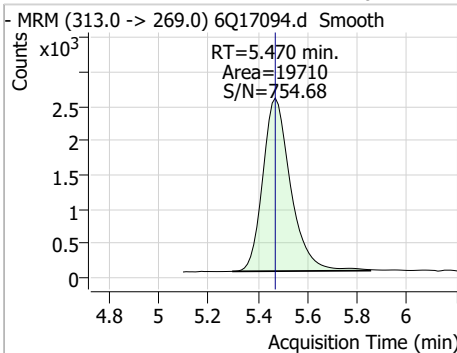
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.65	5.40	0.00	6548	298.7 -> 98.8	37.1	20.6	61.7



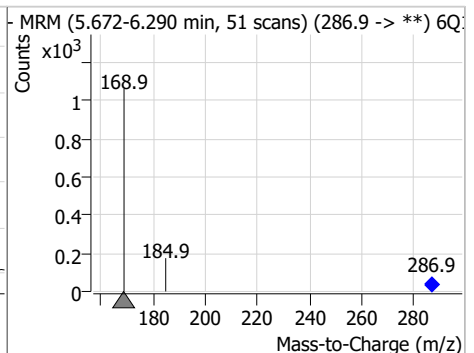
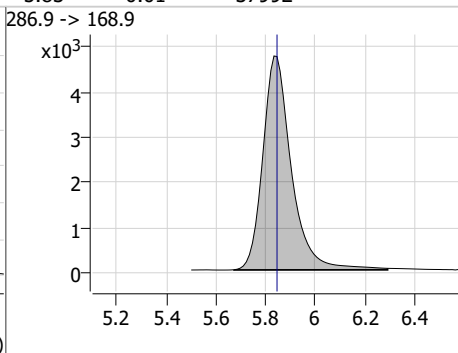
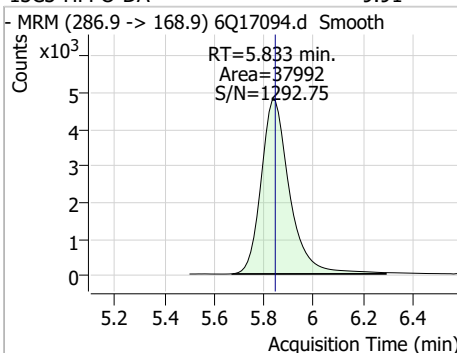
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.68	5.47	0.00	69991				



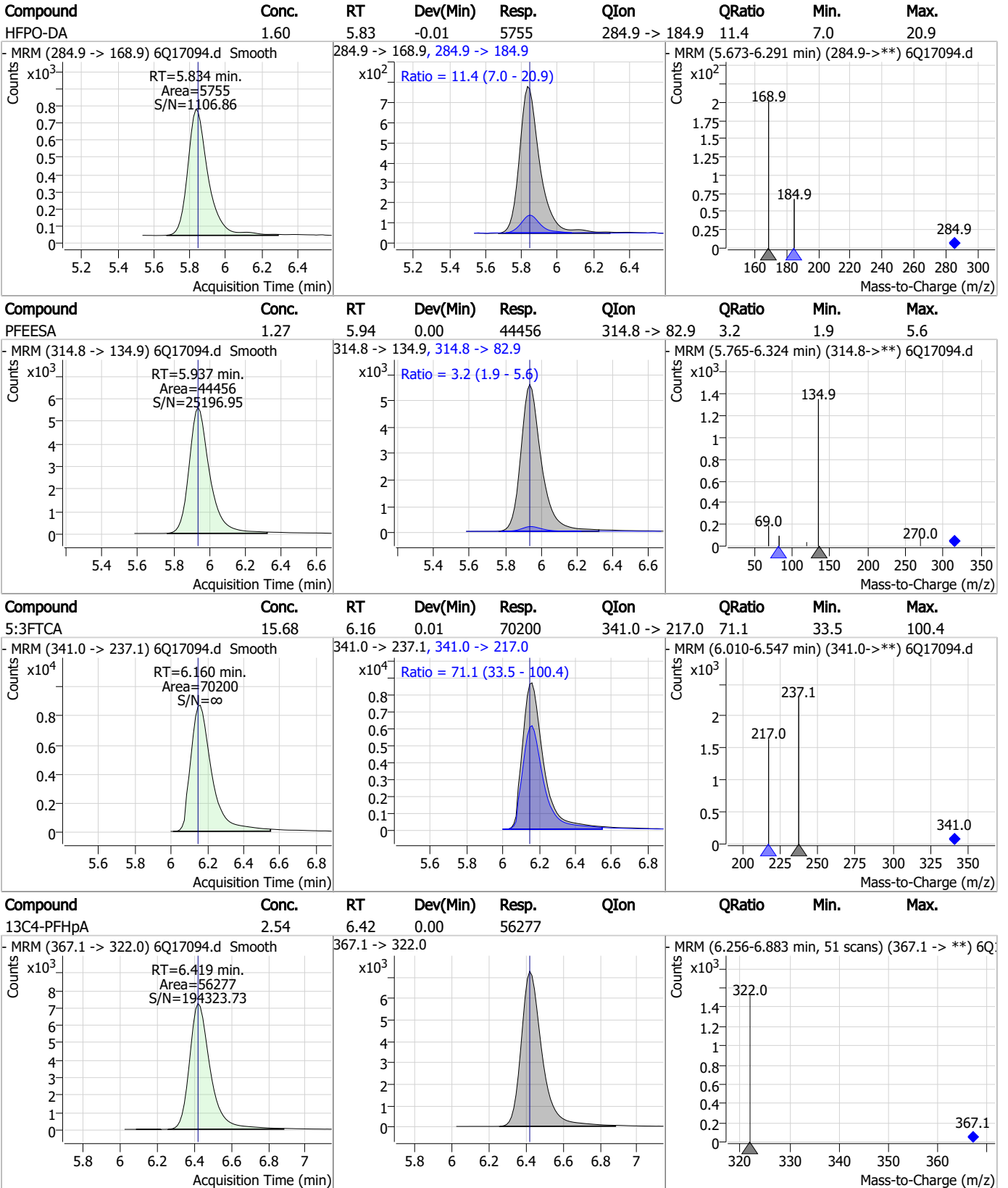
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.71	5.47	0.00	19710	313.0 -> 118.9	4.9	2.3	6.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.91	5.83	-0.01	37992				



Perfluorinated Compounds by LC/MS/MS



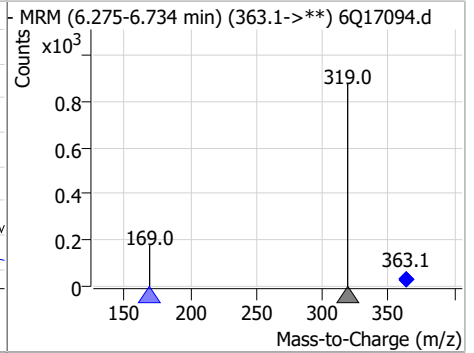
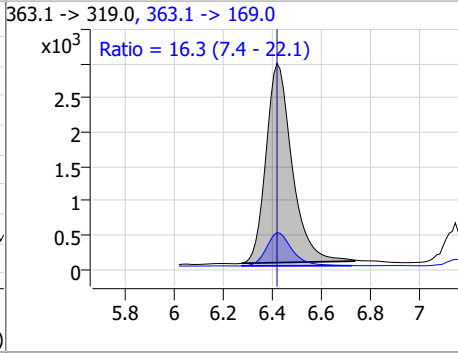
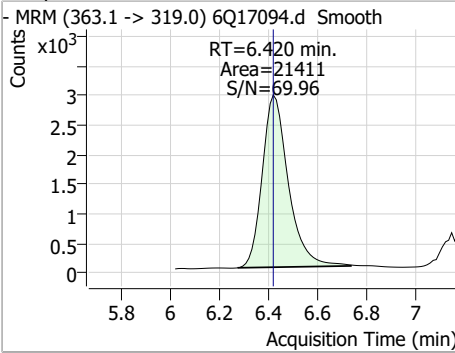
7.3.2

7

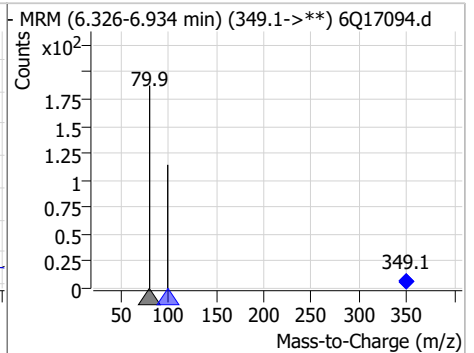
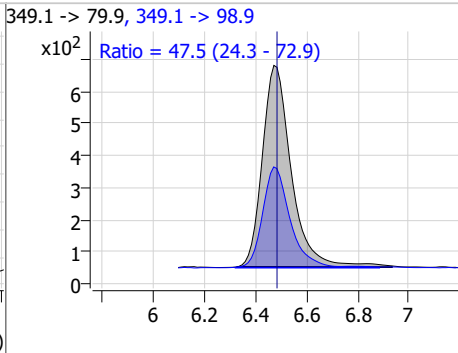
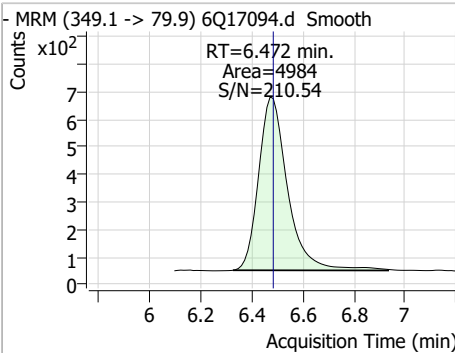


Perfluorinated Compounds by LC/MS/MS

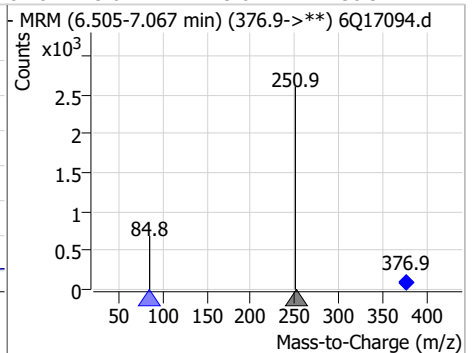
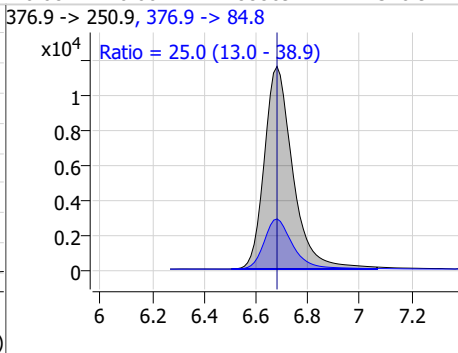
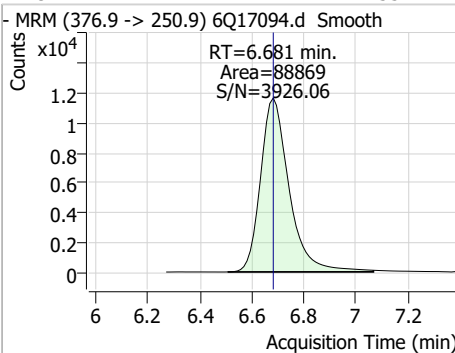
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.77	6.42	0.00	21411	363.1 -> 169.0	16.3	7.4	22.1



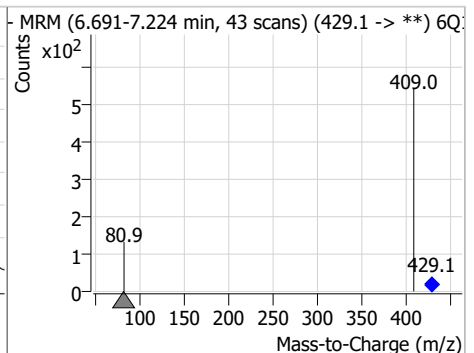
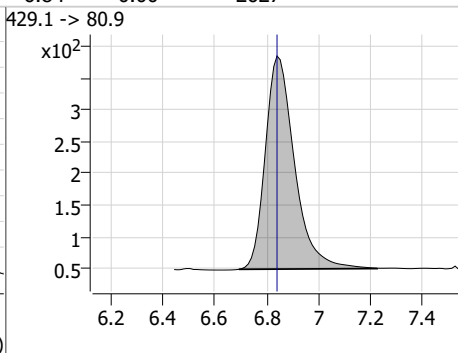
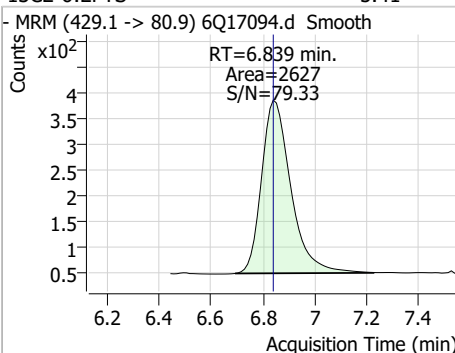
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.70	6.47	-0.01	4984	349.1 -> 98.9	47.5	24.3	72.9



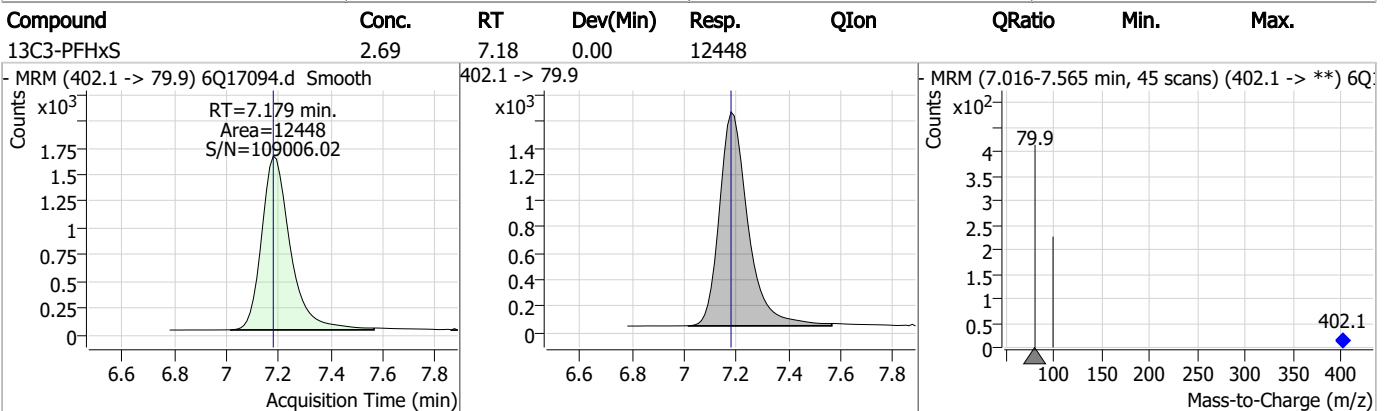
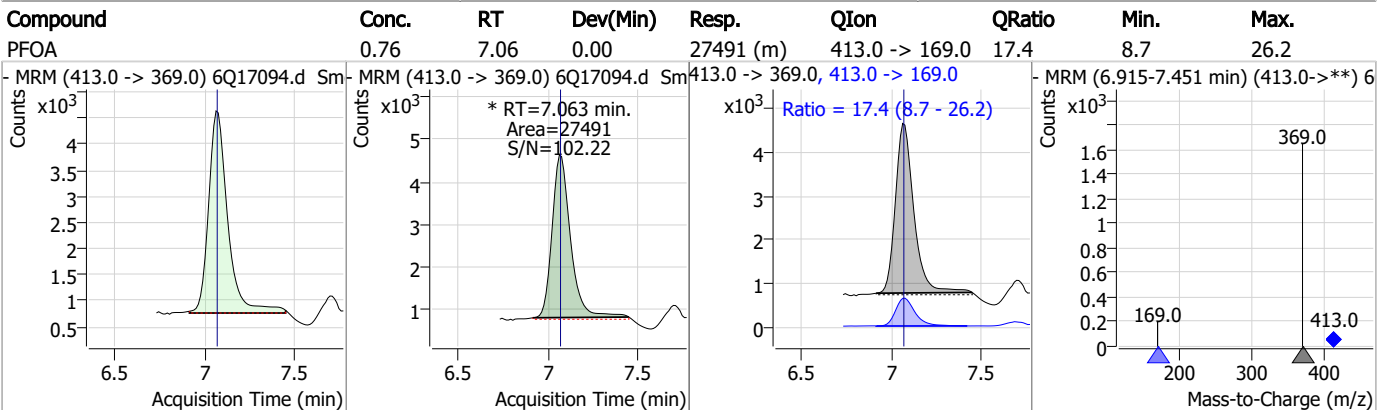
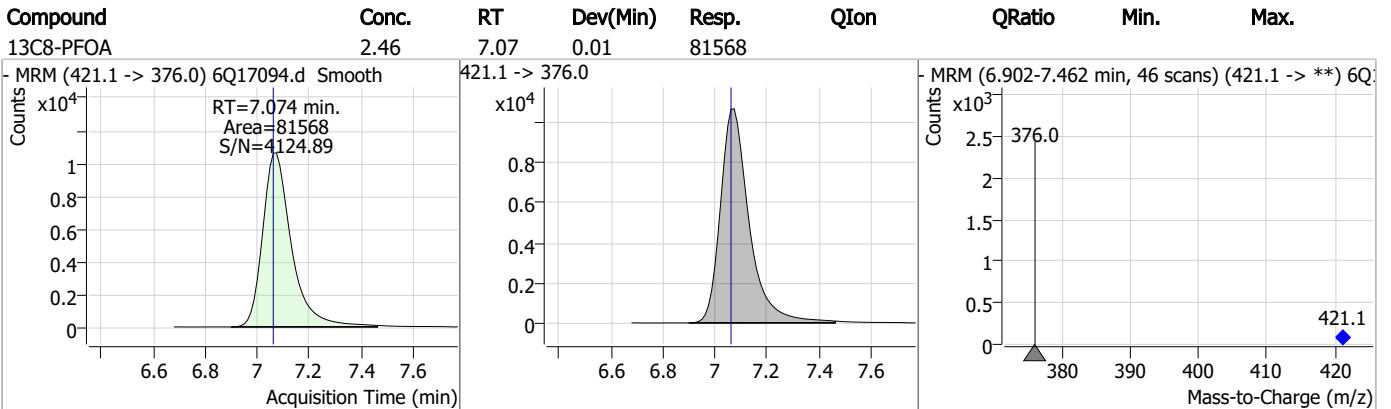
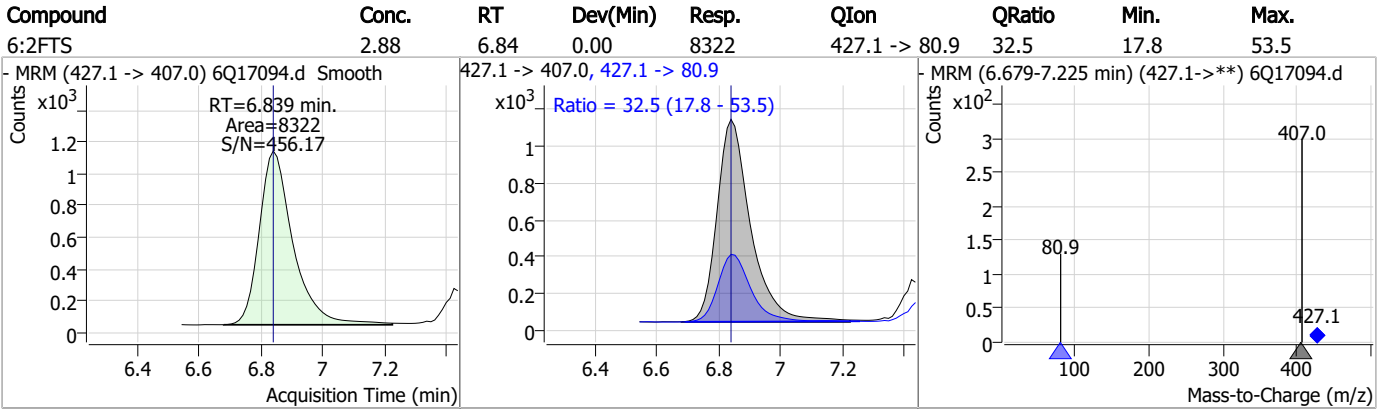
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	1.55	6.68	0.00	88869	376.9 -> 84.8	25.0	13.0	38.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.41	6.84	0.00	2627	429.1 -> 80.9			



Perfluorinated Compounds by LC/MS/MS

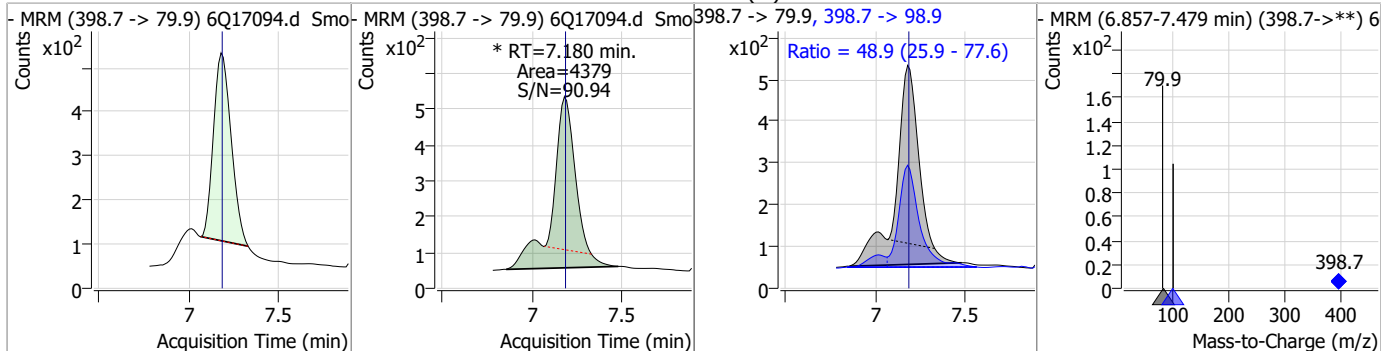


7.3.2

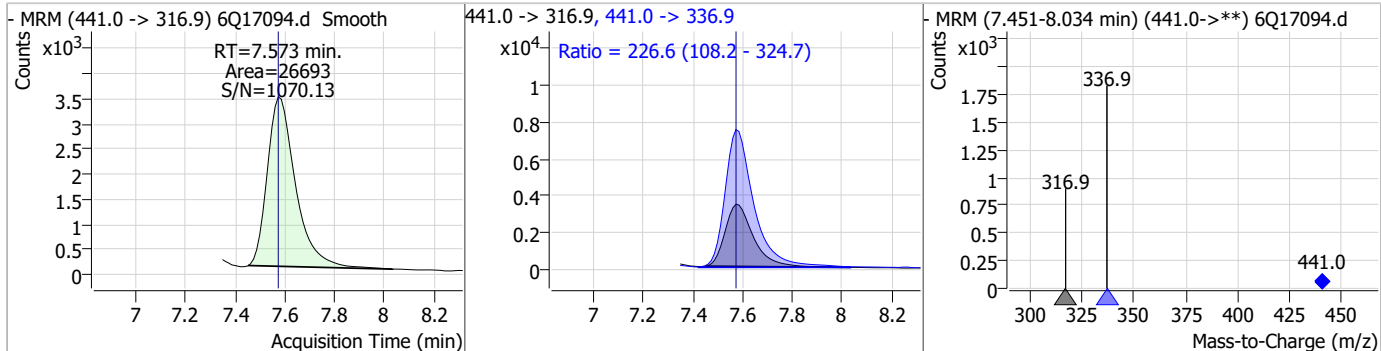
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Perfluorinated Compounds by LC/MS/MS

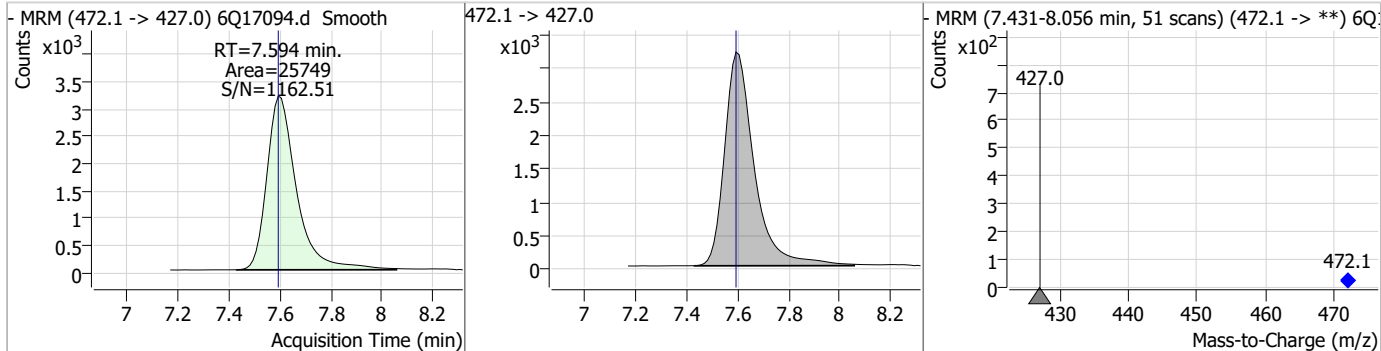
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.65	7.18	0.00	4379 (m)	398.7 -> 98.9	48.9	25.9	77.6



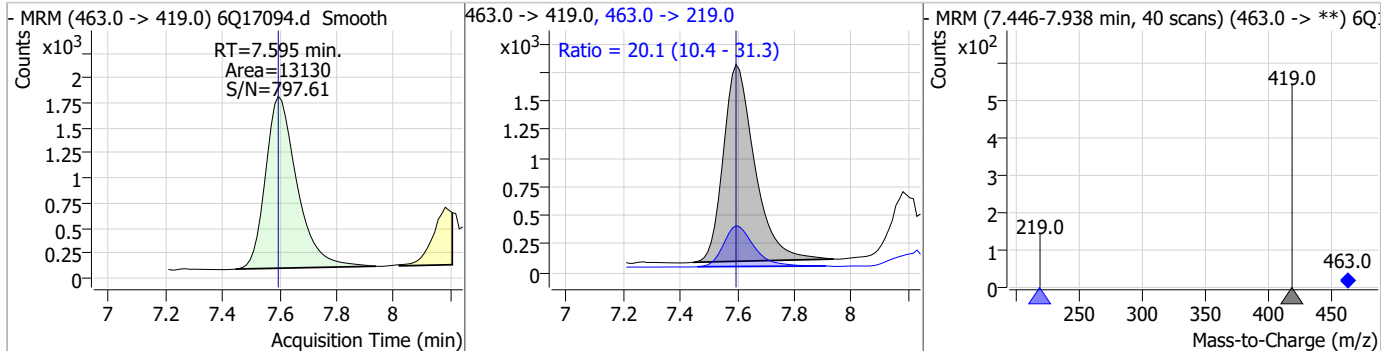
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	13.12	7.57	0.00	26693	441.0 -> 336.9	226.6	108.2	324.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.26	7.59	0.00	25749	472.1 -> 427.0			

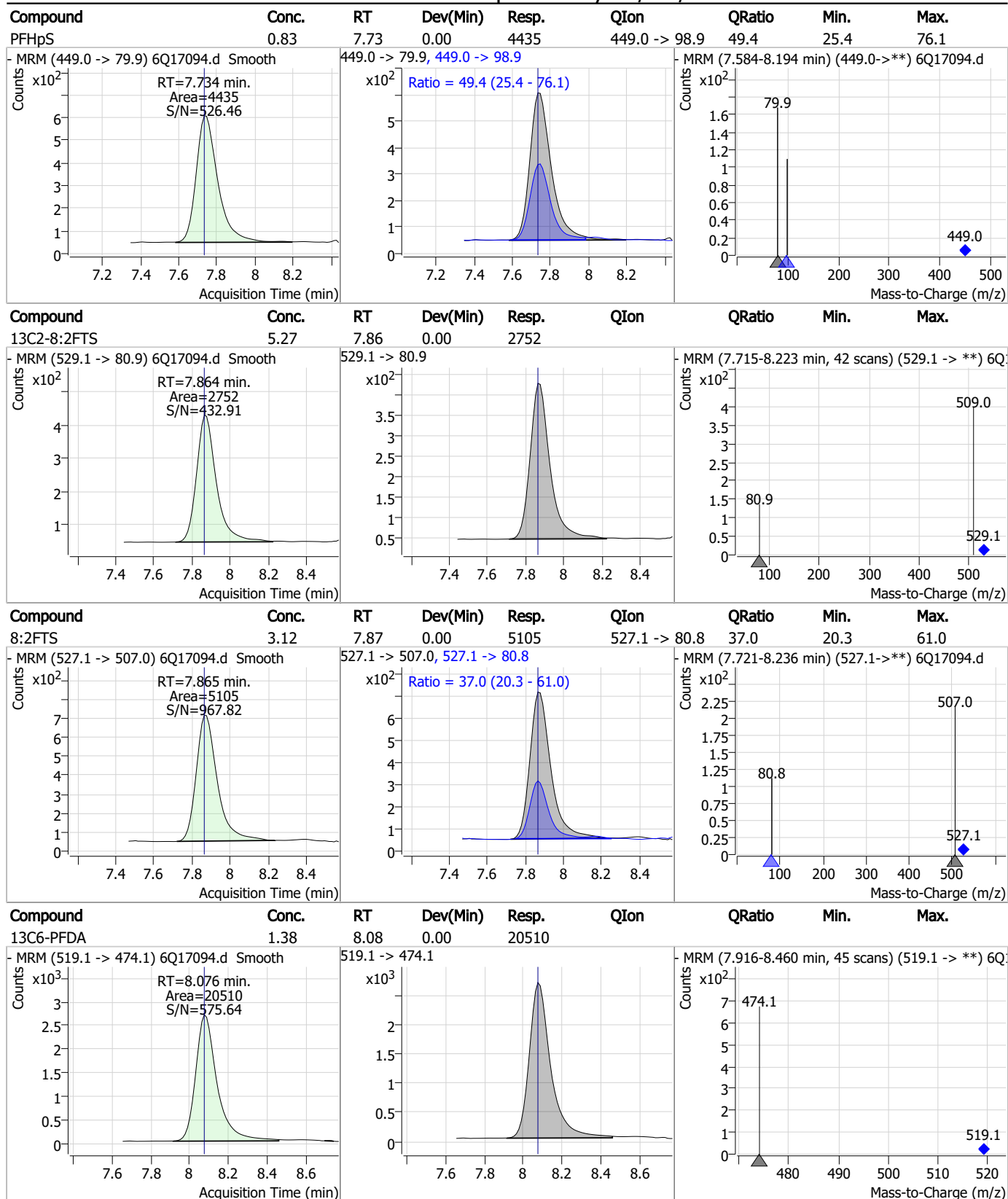


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.74	7.60	0.00	13130	463.0 -> 219.0	20.1	10.4	31.3



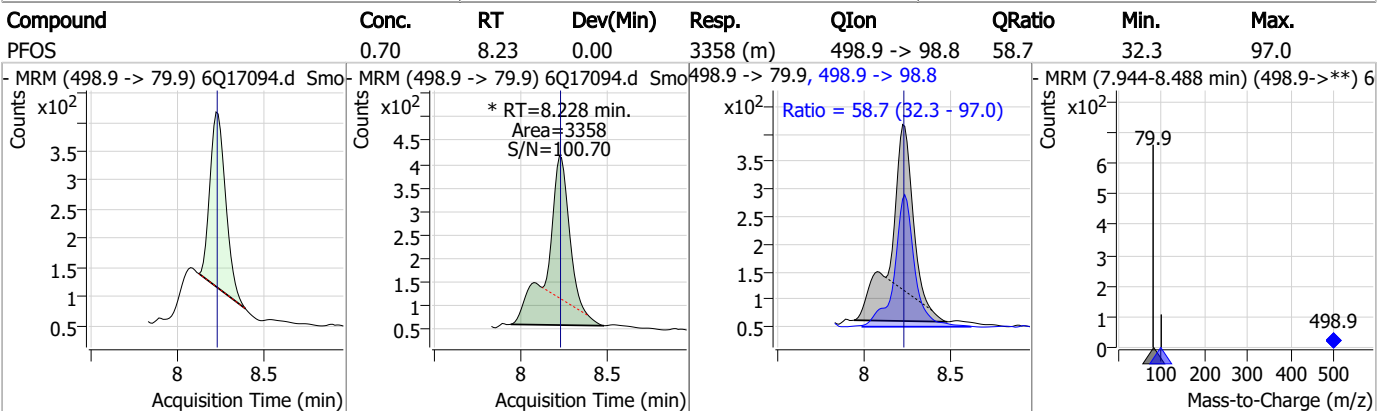
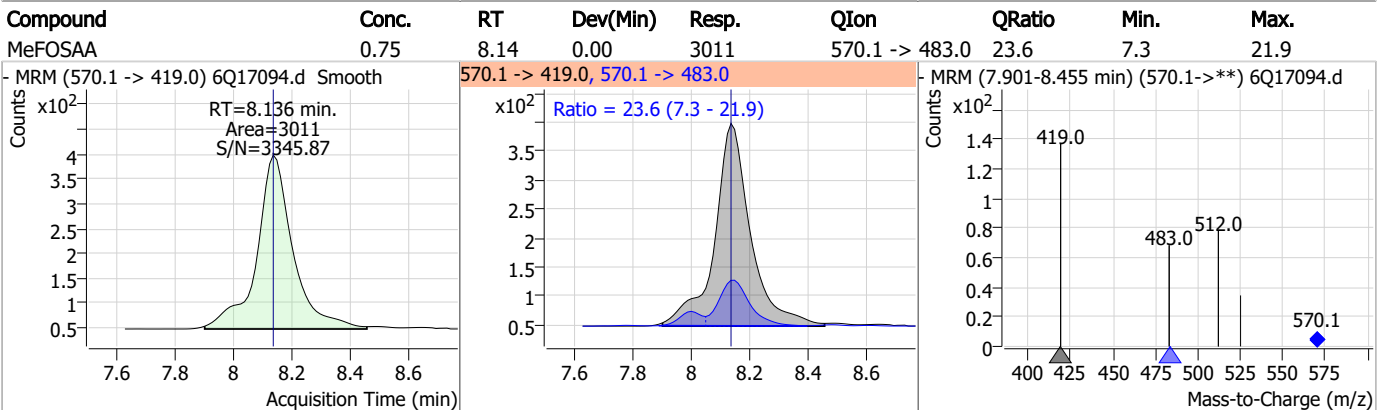
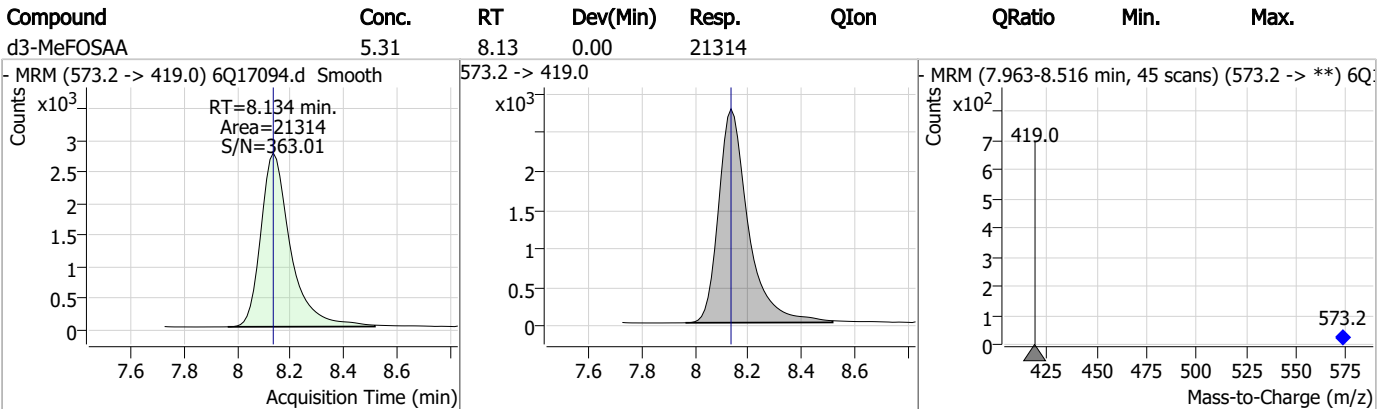
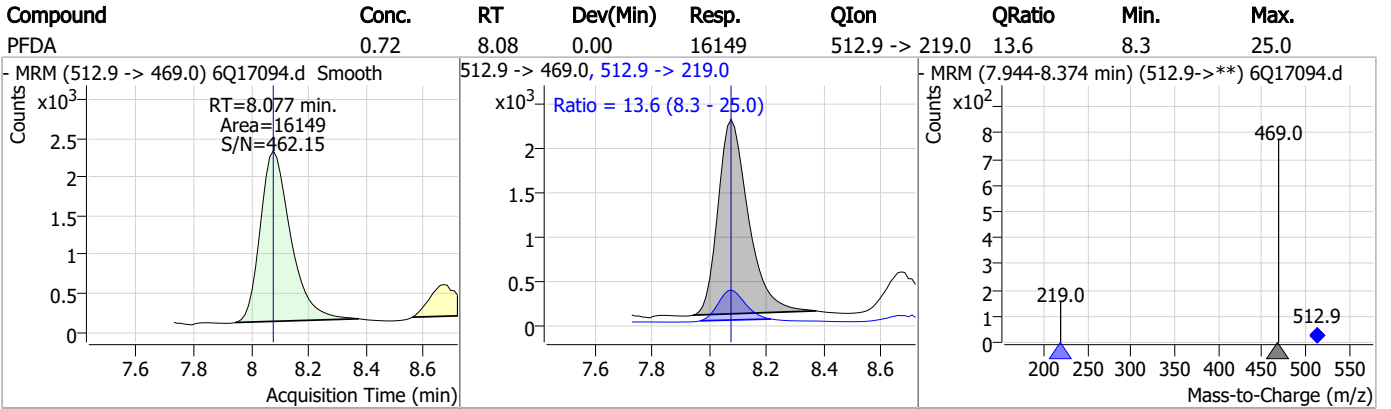
7.3.2
7

Perfluorinated Compounds by LC/MS/MS

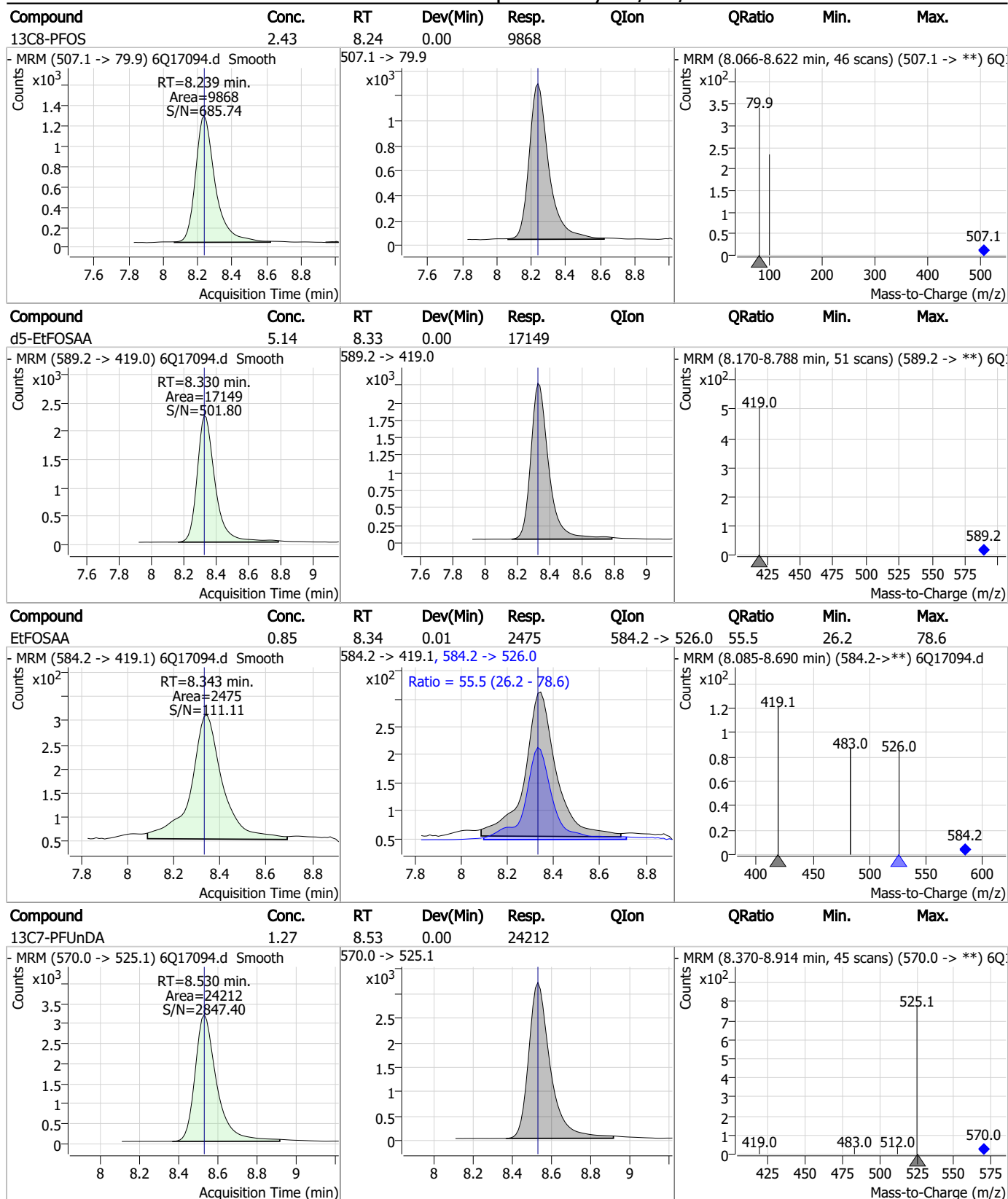


7.3.2
7

Perfluorinated Compounds by LC/MS/MS



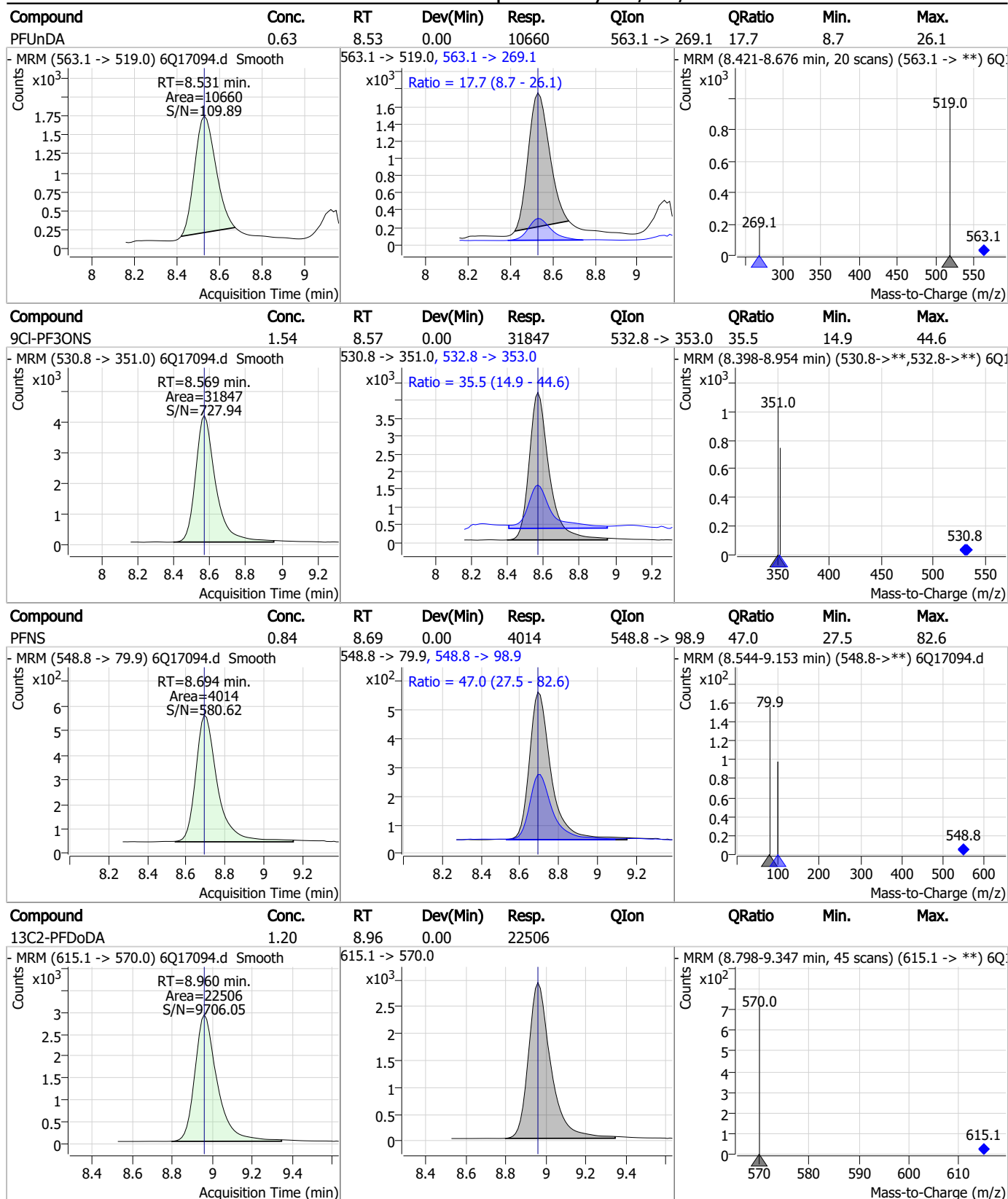
Perfluorinated Compounds by LC/MS/MS



7.3.2
7

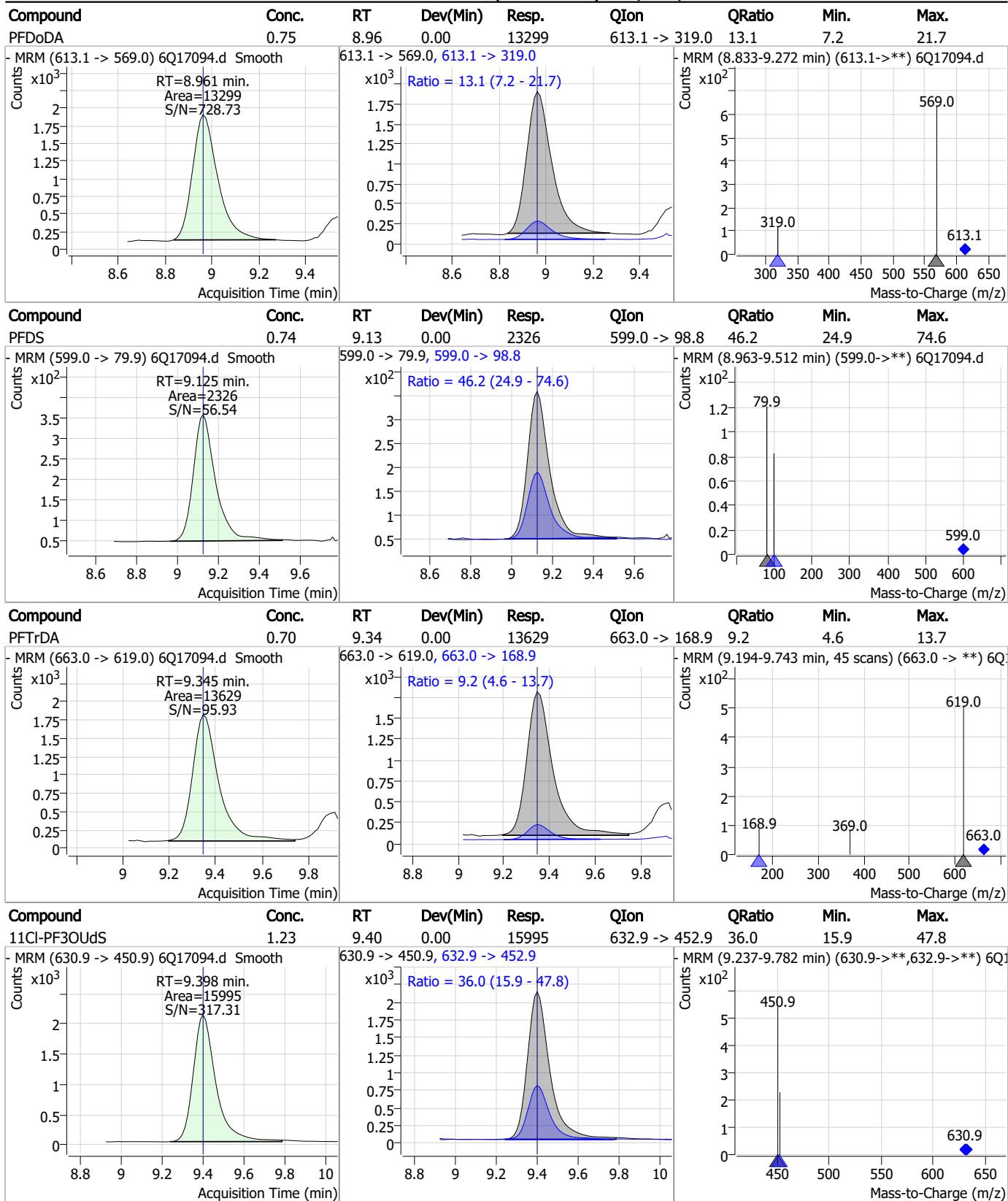


Perfluorinated Compounds by LC/MS/MS



7.3.2
7

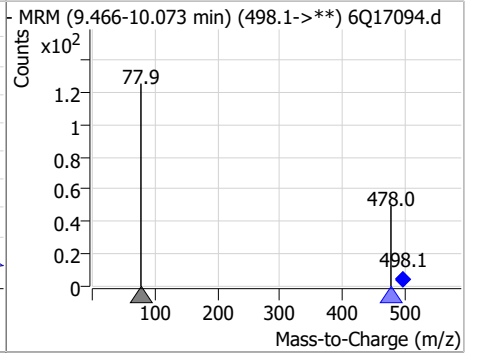
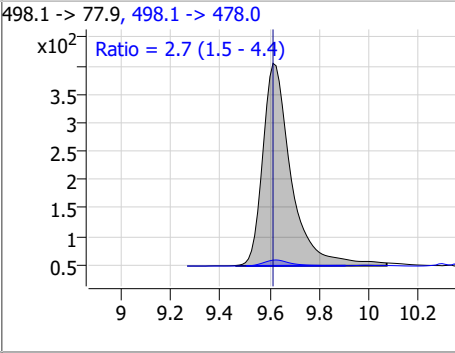
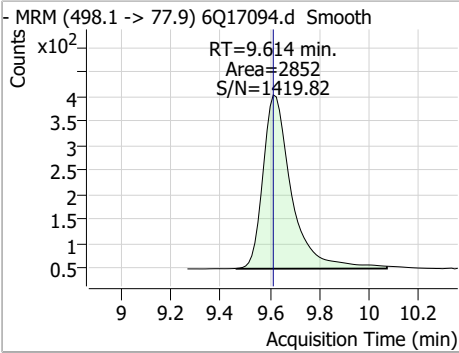
Perfluorinated Compounds by LC/MS/MS



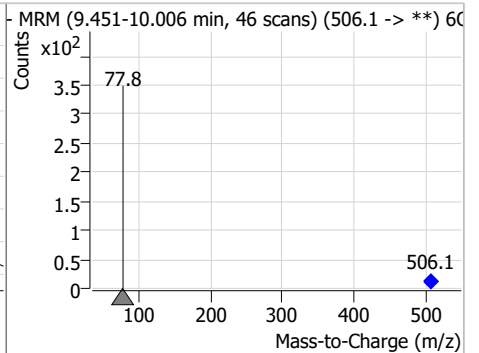
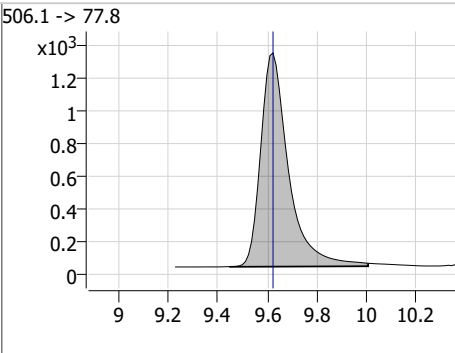
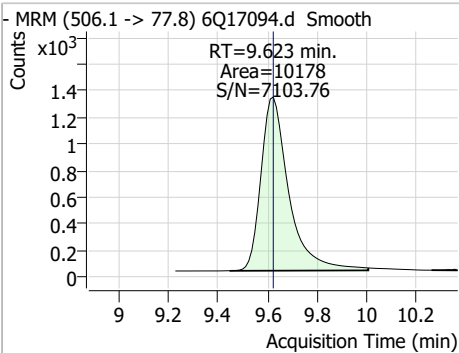
7.3.2
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Perfluorinated Compounds by LC/MS/MS

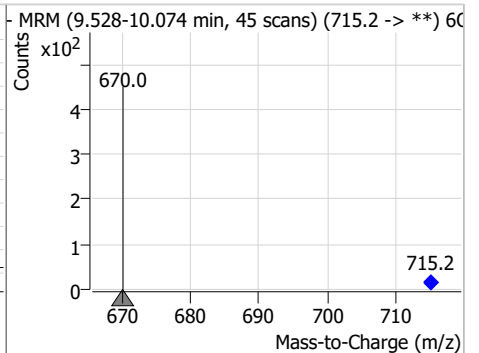
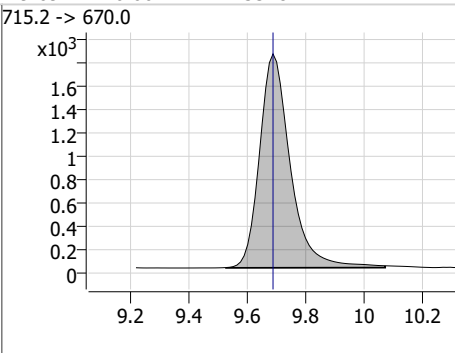
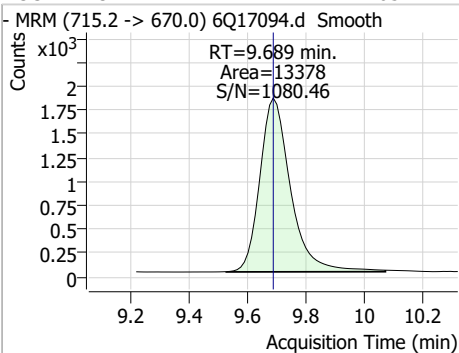
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.78	9.61	0.00	2852	498.1 -> 478.0	2.7	1.5	4.4



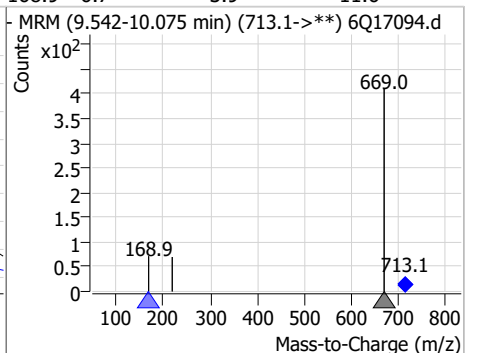
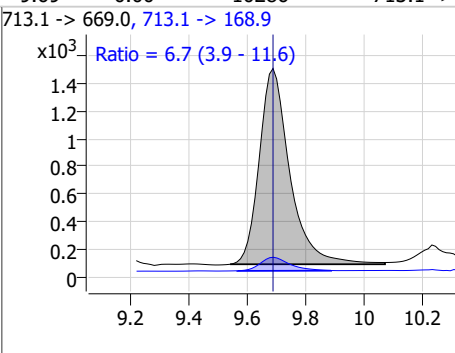
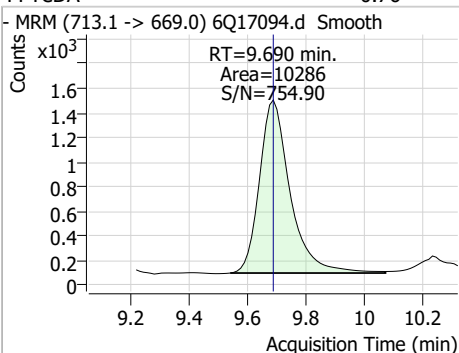
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	1.14	9.62	0.00	10178				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.05	9.69	0.00	13378				

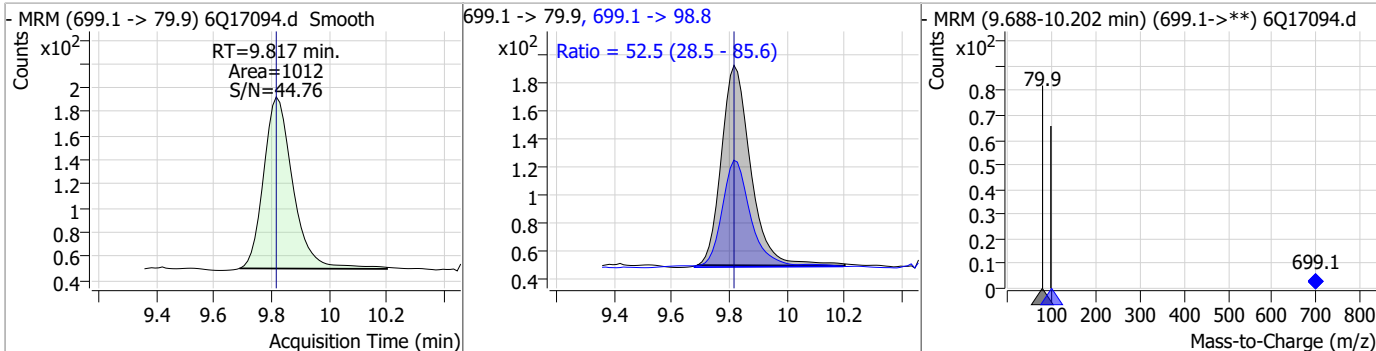


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.76	9.69	0.00	10286	713.1 -> 168.9	6.7	3.9	11.6

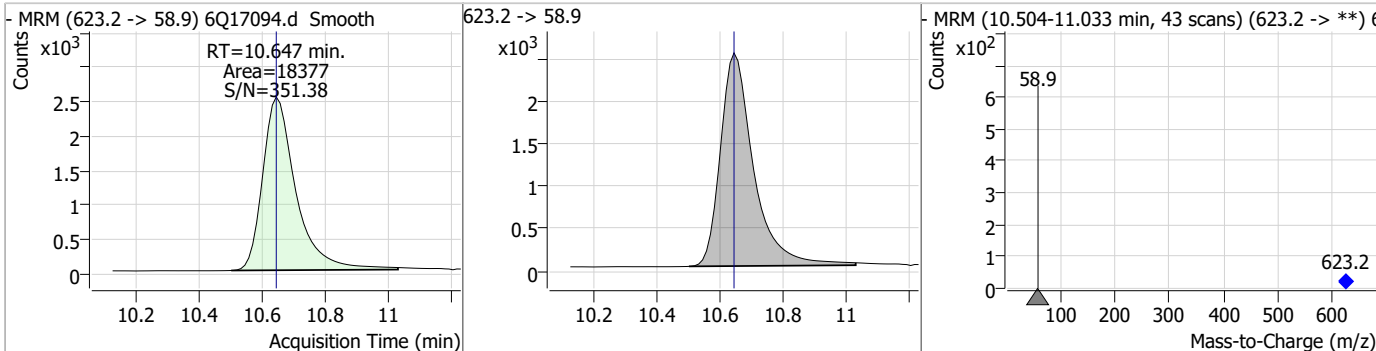


Perfluorinated Compounds by LC/MS/MS

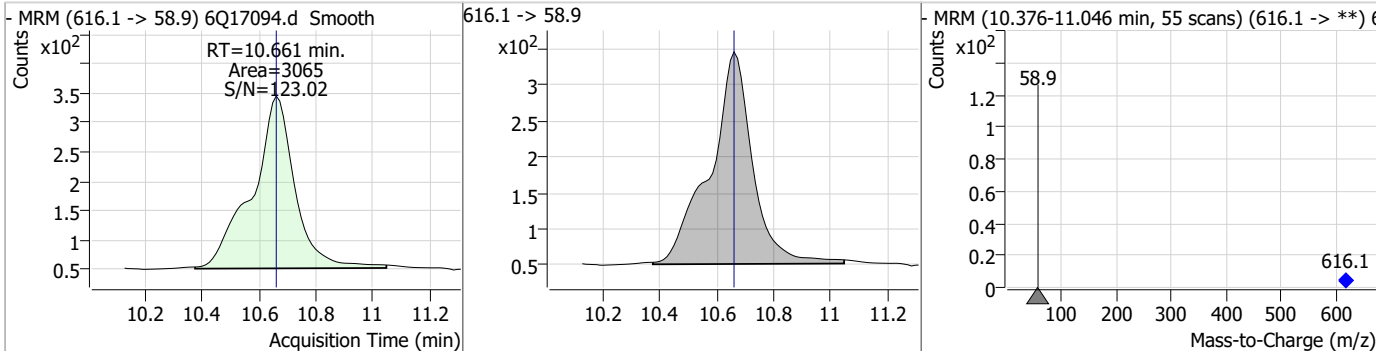
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.62	9.82	0.00	1012	699.1 -> 98.8	52.5	28.5	85.6



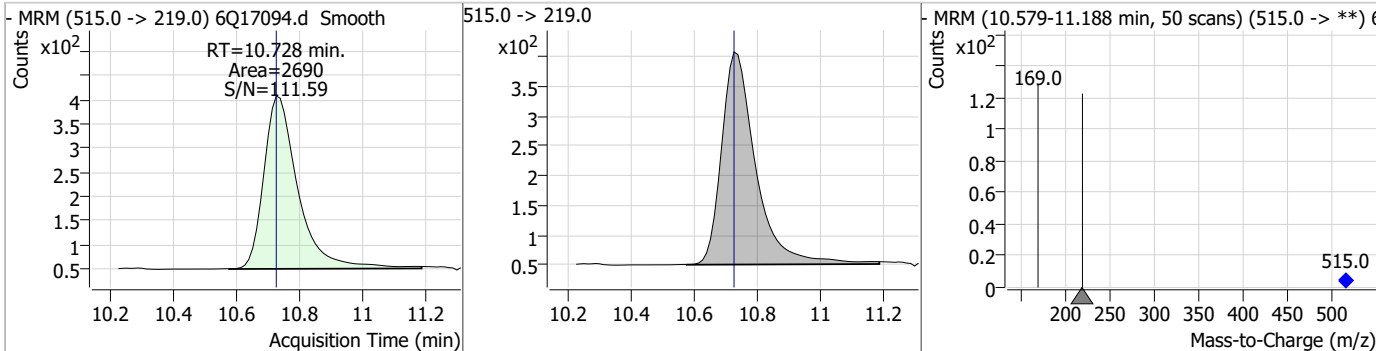
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	5.20	10.65	0.00	18377				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	3.74	10.66	0.00	3065				



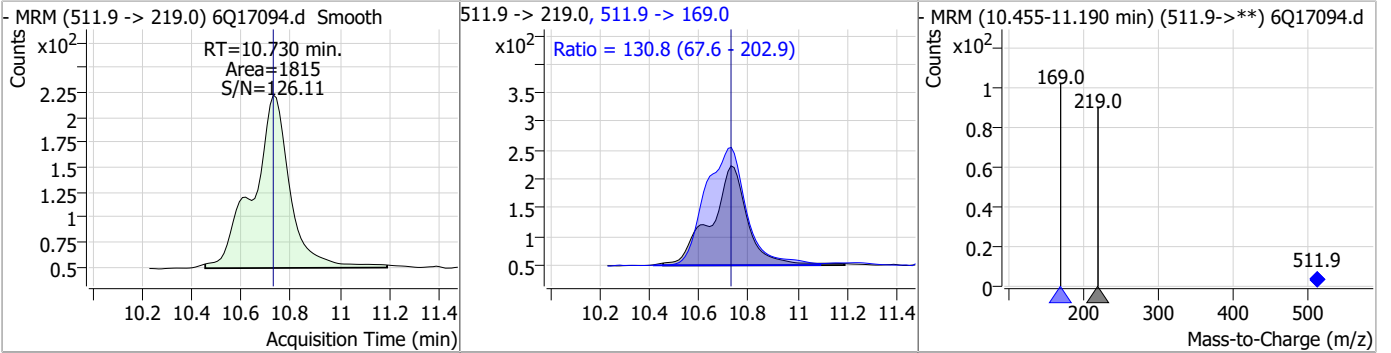
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	0.80	10.73	0.00	2690				



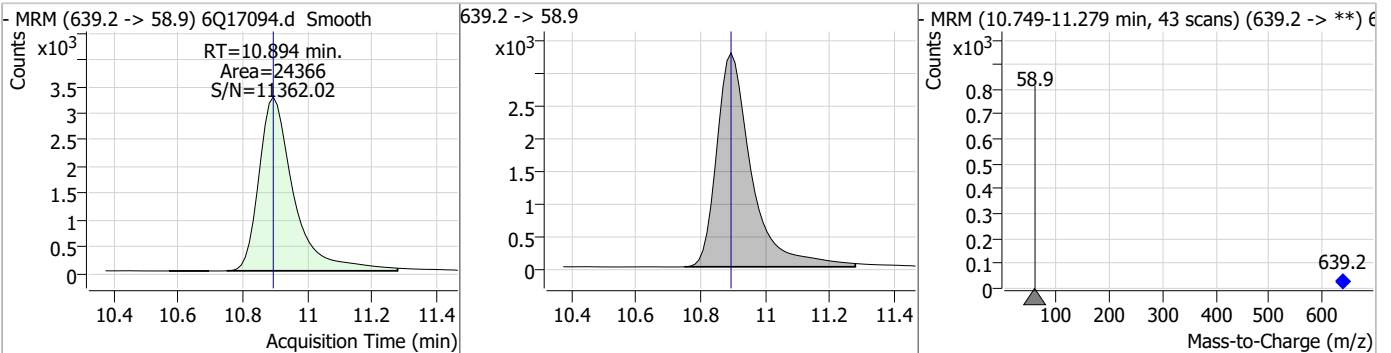
7.3.2
7

Perfluorinated Compounds by LC/MS/MS

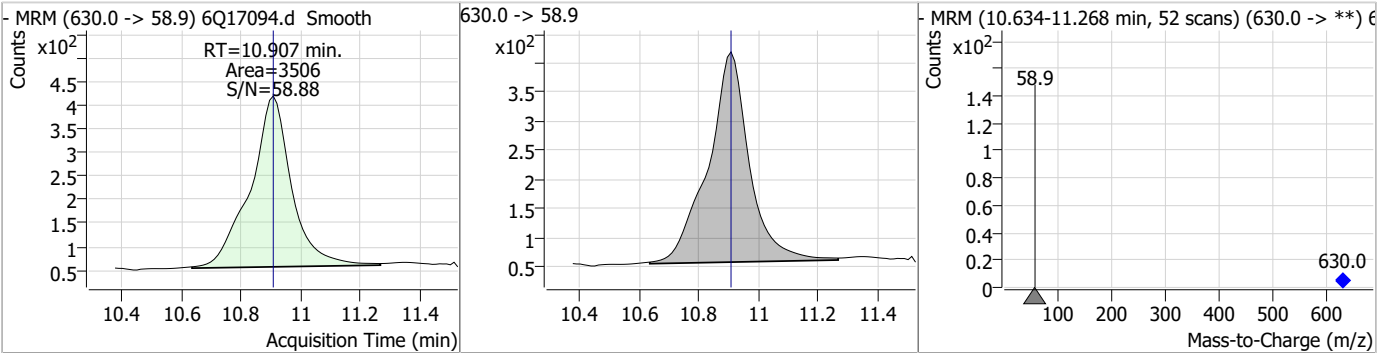
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOFA	1.50	10.73	0.00	1815	511.9 -> 169.0	130.8	67.6	202.9



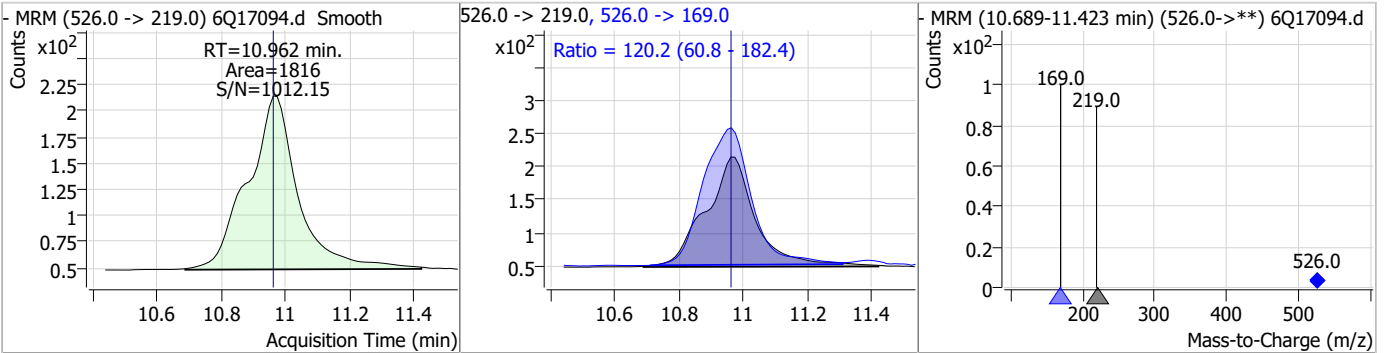
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	5.64	10.89	0.00	24366				



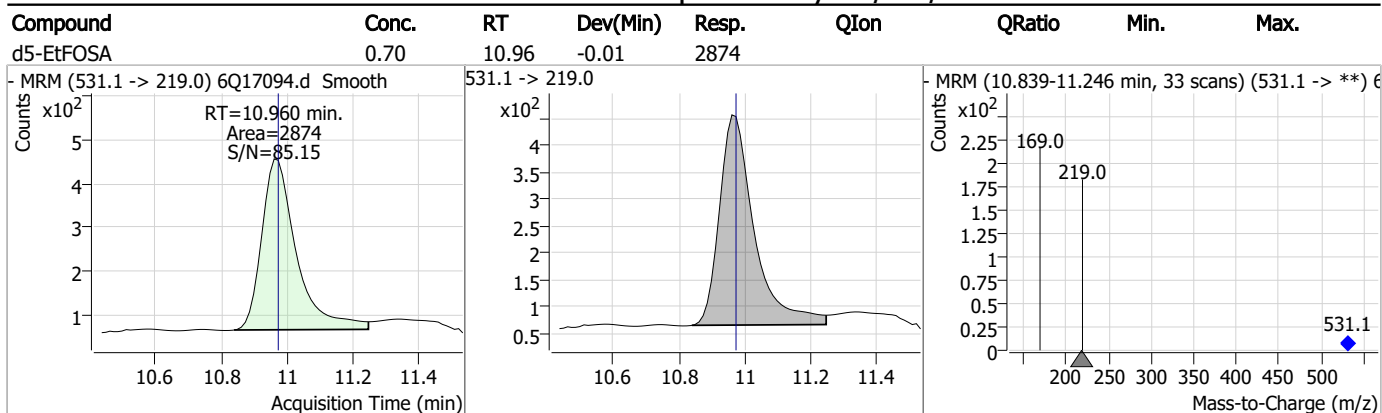
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	3.46	10.91	0.00	3506				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOFA	1.54	10.96	0.00	1816	526.0 -> 169.0	120.2	60.8	182.4



Perfluorinated Compounds by LC/MS/MS



7.3.2
7

Manual Integration Approval Summary

Sample Number: OP96579-LLBS Method: EPA DRAFT 1633
Lab FileID: 6Q17094.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 23:13 Supervisor approved: 05/01/23 00:03 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.06	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak

7.3.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17243.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/1/2023 3:58:08 PM
 Sample Name : op96579-ms
 Vial : P2-A5
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q260.batch.bin
 Sample Information : OP96579,S6Q260,570,,,5.0,10,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	10103	1.00 µg/L	0.000
M5-PFPeA	4.270	268.3 -> 223.0	4810	0.50 µg/L	0.000
M5-PFHxA	5.480	318.0 -> 273.0	5811	0.25 µg/L	0.012
M4-PFHpA	6.431	367.1 -> 322.0	5320	0.25 µg/L	0.012
M8-PFOA	7.074	421.1 -> 376.0	7035	0.25 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	2371	0.13 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	1653	0.13 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	1739	0.13 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	1509	0.13 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	1038	0.13 µg/L	-0.012
M8-FOSA	9.623	506.1 -> 77.8	1025	0.25 µg/L	0.000
M3-PFBS	5.411	302.1 -> 79.9	1945	0.25 µg/L	0.012
M3-PFHxS	7.191	402.1 -> 79.9	1145	0.25 µg/L	0.012
M8-PFOS	8.239	507.1 -> 79.9	935	0.25 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	164	0.50 µg/L	0.000
M2-6:2FTS	6.851	429.1 -> 80.9	358	0.50 µg/L	0.012
M2-8:2FTS	7.877	529.1 -> 80.9	226	0.50 µg/L	0.012
M3-MeFOSAA	8.134	573.2 -> 419.0	1640	0.50 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	3687	1.00 µg/L	0.000
M5-EtFOSAA	8.342	589.2 -> 419.0	1134	0.50 µg/L	0.012
M7-MeFOSE	10.647	623.2 -> 58.9	2076	2.50 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	2833	2.50 µg/L	0.000
M5-EtFOSA	10.973	531.1 -> 219.0	275	0.25 µg/L	0.000
M3-MeFOSA	10.728	515.0 -> 219.0	256	0.25 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	1345	0.25 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	7250	0.50 µg/L	0.000
18O2-PFHxS	7.190	403.0 -> 83.9	971	0.25 µg/L	0.012
13C4-PFOA	7.075	417.1 -> 372.0	7486	0.25 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	2386	0.13 µg/L	0.000
13C5-PFNA	7.607	468.0 -> 423.0	2535	0.13 µg/L	0.012
13C2-PFHxA	5.482	315.1 -> 270.0	5521	0.25 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	164	0.37 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 7.3%		
13C2-6:2FTS	6.851	429.1 -> 80.9	358	0.66 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 13.2%		
13C2-8:2FTS	7.877	529.1 -> 80.9	226	0.39 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 7.8%		
13C2-PFDoDA	8.960	615.1 -> 570.0	1509	0.08 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 6.1%		
13C2-PFTeDA	9.677	715.2 -> 670.0	1038	0.08 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 6.2%		
13C3-PFBS	5.411	302.1 -> 79.9	1945	0.21 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 8.5%		
13C3-PFHxS	7.191	402.1 -> 79.9	1145	0.22 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 = 8.9%	
13C4-PFBA	2.897	216.8 -> 171.9	10103	0.60 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 6.0%	
13C4-PFHpA	6.431	367.1 -> 322.0	5320	0.24 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 9.4%	
13C5-PFHxA	5.480	318.0 -> 273.0	5811	0.22 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 8.7%	
13C5-PFPeA	4.270	268.3 -> 223.0	4810	0.39 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 7.8%	
13C6-PFDA	8.076	519.1 -> 474.1	1653	0.11 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 8.4%	
13C7-PFUnDA	8.530	570.0 -> 525.1	1739	0.09 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 6.9%	
13C8-FOSA	9.623	506.1 -> 77.8	1025	0.12 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 4.6%	
13C8-PFOA	7.074	421.1 -> 376.0	7035	0.24 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 9.7%	
13C8-PFOS	8.239	507.1 -> 79.9	935	0.23 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 9.2%	
13C9-PFNA	7.594	472.1 -> 427.0	2371	0.12 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 9.8%	
d3-MeFOSAA	8.134	573.2 -> 419.0	1640	0.41 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 8.2%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	3687	0.94 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 9.4%	
d3-MeFOSA	10.728	515.0 -> 219.0	256	0.08 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 3.0%	
d5-EtFOSAA	8.342	589.2 -> 419.0	1134	0.34 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 6.8%	
d7-MeFOSE	10.647	623.2 -> 58.9	2076	0.59 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 2.4%	
d9-EtFOSE	10.894	639.2 -> 58.9	2833	0.66 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 2.6%	
d5-EtFOSA	10.973	531.1 -> 219.0	275	0.07 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 2.7%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	13648	5.51 µg/L	96
		327.1 -> 80.9	5375		
6:2FTS	6.851	427.1 -> 407.0	181331	46.06 µg/L	94
		427.1 -> 80.9	58460		
8:2FTS	7.877	527.1 -> 507.0	1430	1.06 µg/L	95
		527.1 -> 80.8	537		
EtFOSAA	8.343	584.2 -> 419.1	556	0.29 µg/L	m 96
		584.2 -> 526.0	307		
FOSA	9.626	498.1 -> 77.9	939	0.26 µg/L	100
		498.1 -> 478.0	28		
MeFOSAA	8.136	570.1 -> 419.0	771	0.25 µg/L	91
		570.1 -> 483.0	140		
PFBA	2.906	212.8 -> 168.9	27524	8.12 µg/L	100
PFBS	5.400	298.7 -> 79.9	92170	10.56 µg/L	m 99
		298.7 -> 98.8	38555		
PFDA	8.077	512.9 -> 469.0	5274	0.29 µg/L	99
		512.9 -> 219.0	849		
PFDODA	8.961	613.1 -> 569.0	3280	0.28 µg/L	100
		613.1 -> 319.0	470		
PFDS	9.113	599.0 -> 79.9	646	0.22 µg/L	94

7.4.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	293			
PFHpA	6.432	363.1 -> 319.0	228369	8.70	µg/L	m
		363.1 -> 169.0	41127			
PFHpS	7.746	449.0 -> 79.9	4462	0.88	µg/L	89
		449.0 -> 98.9	2595			
PFHxA	5.483	313.0 -> 269.0	963945	41.95	µg/L	99
		313.0 -> 118.9	46166			
PFHxS	7.192	398.7 -> 79.9	351802	56.36	µg/L	97
		398.7 -> 98.9	173652			
PFNA	7.471	463.0 -> 419.0	34410	2.10	µg/L	m
		463.0 -> 219.0	6923			
PFNS	8.694	548.8 -> 79.9	952	0.21	µg/L	95
		548.8 -> 98.9	490			
PFOA	7.076	413.0 -> 369.0	1663158	48.97	µg/L	98
		413.0 -> 169.0	274383			
PFOS	8.055	498.9 -> 79.9	3538	0.78	µg/L	m
		498.9 -> 98.8	2277			
PFPeA	4.273	263.0 -> 219.0	372666	28.44	µg/L	100
PFPeS	6.484	349.1 -> 79.9	78152	11.99	µg/L	m
		349.1 -> 98.9	37009			
PFTeDA	9.690	713.1 -> 669.0	3032	0.29	µg/L	96
		713.1 -> 168.9	195			
PFTrDA	9.345	663.0 -> 619.0	2905	0.22	µg/L	95
		663.0 -> 168.9	321			
PFUnDA	8.531	563.1 -> 519.0	2800	0.23	µg/L	91
		563.1 -> 269.1	592			
11CI-PF3OUdS	9.398	630.9 -> 450.9	4248	0.34	µg/L	98
		632.9 -> 452.9	1318			
9CI-PF3ONS	8.569	530.8 -> 351.0	8338	0.42	µg/L	100
		532.8 -> 353.0	2461			
ADONA	6.681	376.9 -> 250.9	26990	0.48	µg/L	99
		376.9 -> 84.8	7165			
HFPO-DA	5.858	284.9 -> 168.9	1663	0.48	µg/L	99
		284.9 -> 184.9	227			
3:3FTCA	3.796	241.0 -> 177.0	876	1.07	µg/L	94
		241.0 -> 117.0	95			
5:3FTCA	6.172	341.0 -> 237.1	21835	5.87	µg/L	90
		341.0 -> 217.0	16333			
7:3FTCA	7.585	441.0 -> 316.9	9010	5.33	µg/L	73
		441.0 -> 336.9	15676			
EtFOSA	10.975	526.0 -> 219.0	612	0.54	µg/L	m
		526.0 -> 169.0	771			
EtFOSE	10.907	630.0 -> 58.9	1383	1.17	µg/L	m
MeFOSA	10.743	511.9 -> 219.0	585	0.51	µg/L	92
		511.9 -> 169.0	851			
MeFOSE	10.661	616.1 -> 58.9	1056	1.14	µg/L	m
PFDoDS	9.817	699.1 -> 79.9	326	0.21	µg/L	86
		699.1 -> 98.8	153			
NFDHA	5.363	295.0 -> 201.0	1260	0.51	µg/L	94
		295.0 -> 84.9	339			
PFMBA	4.687	279.0 -> 85.1	5044	0.57	µg/L	100
PFMPA	3.438	229.0 -> 84.9	3118	0.48	µg/L	100
PFEESA	5.949	314.8 -> 134.9	14106	0.49	µg/L	100
		314.8 -> 82.9	537			

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

7.4.1
7

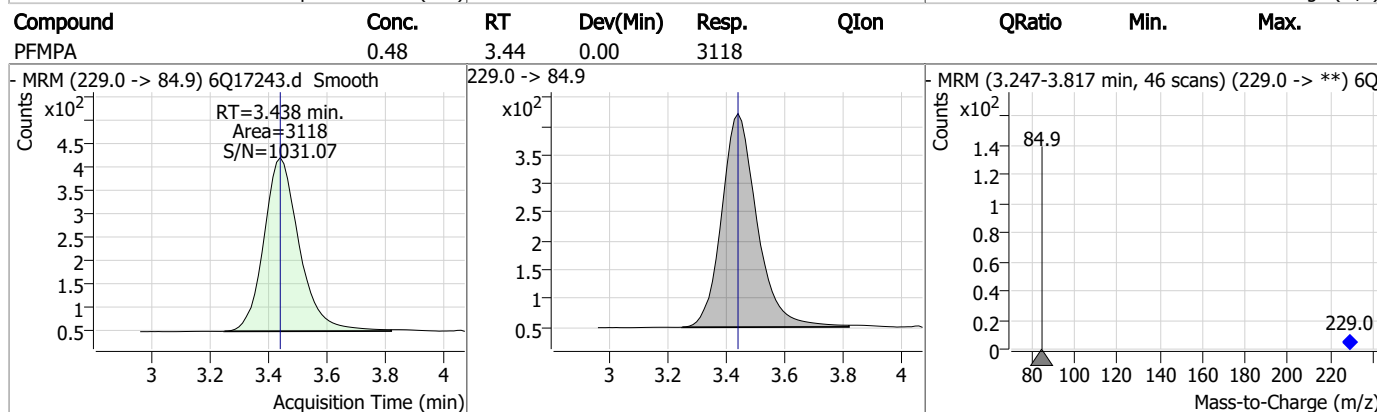
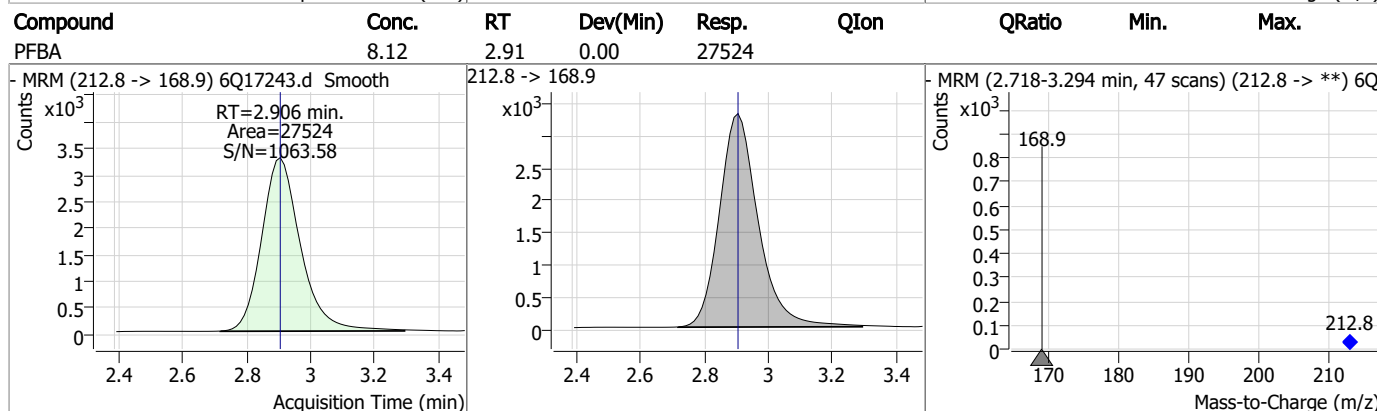
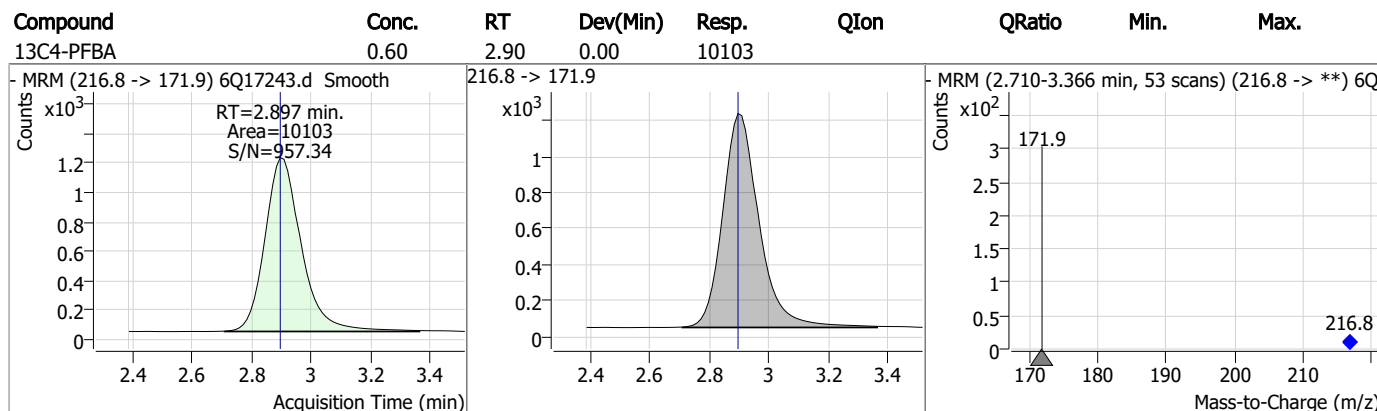
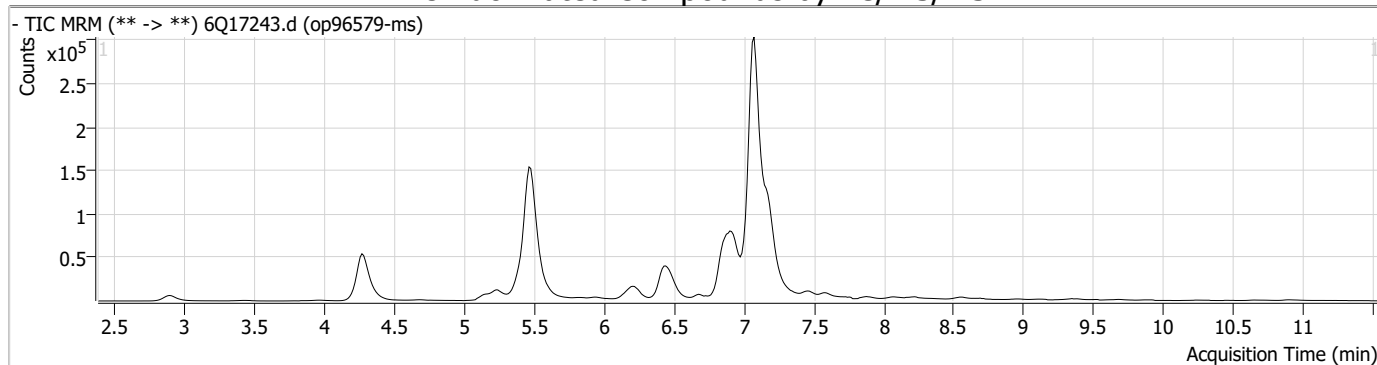
Perfluorinated Compounds by LC/MS/MS

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

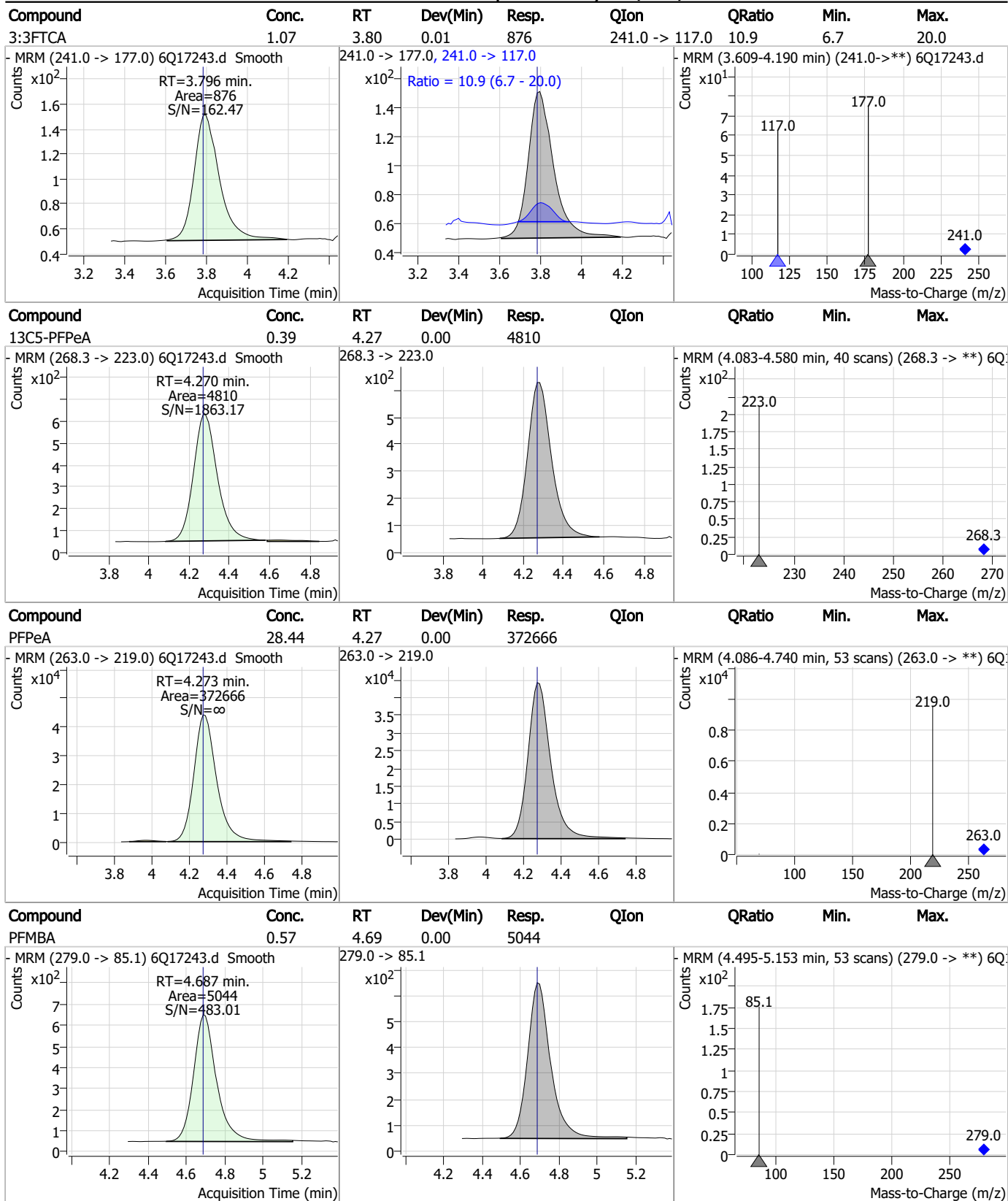
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Perfluorinated Compounds by LC/MS/MS



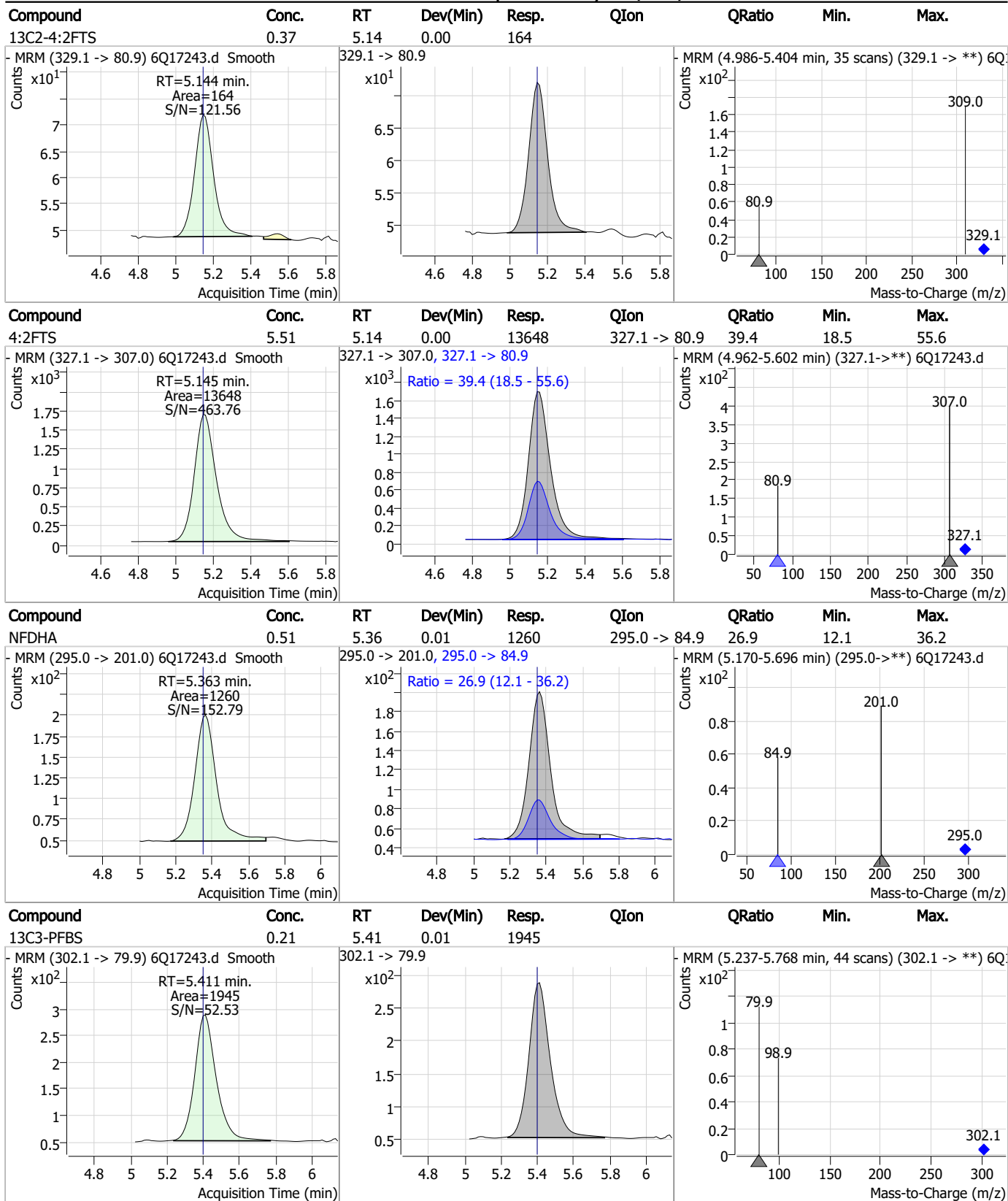
7.4.1
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Perfluorinated Compounds by LC/MS/MS



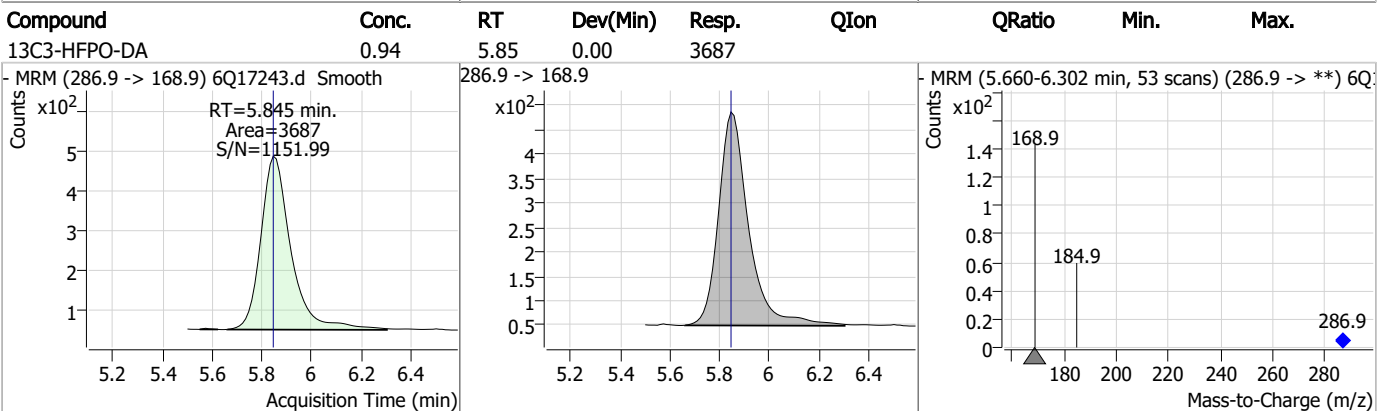
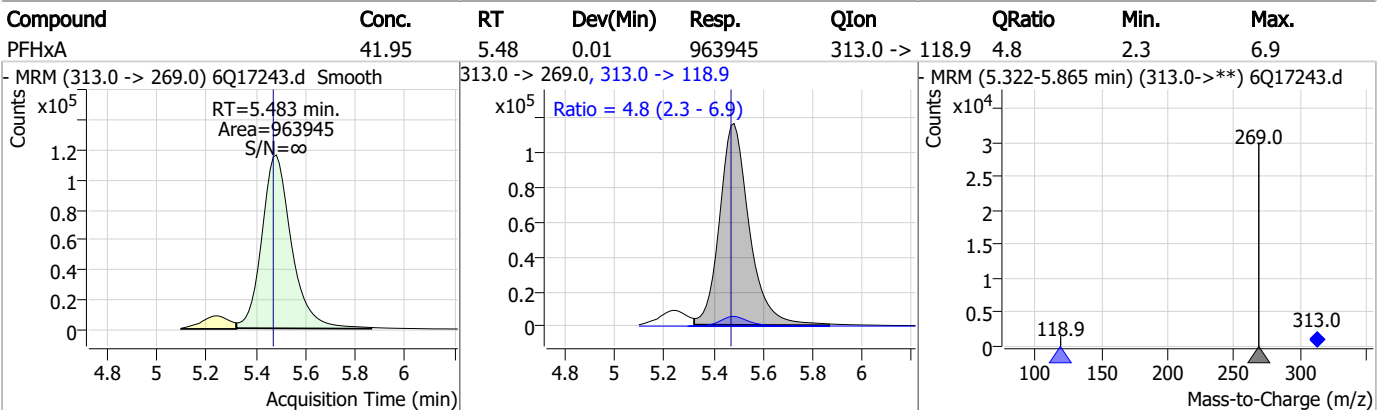
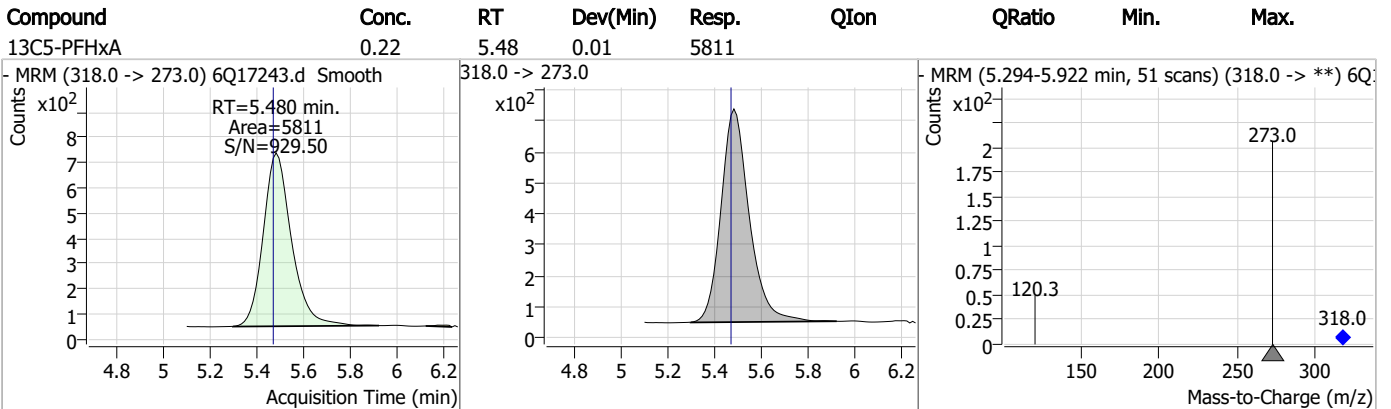
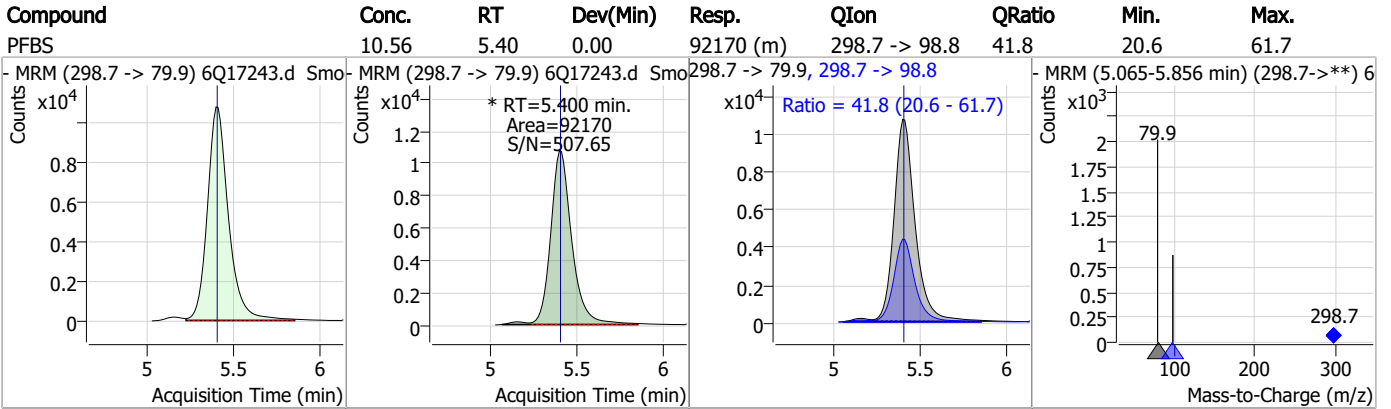
7.4.1
7

Perfluorinated Compounds by LC/MS/MS



7.4.1
7

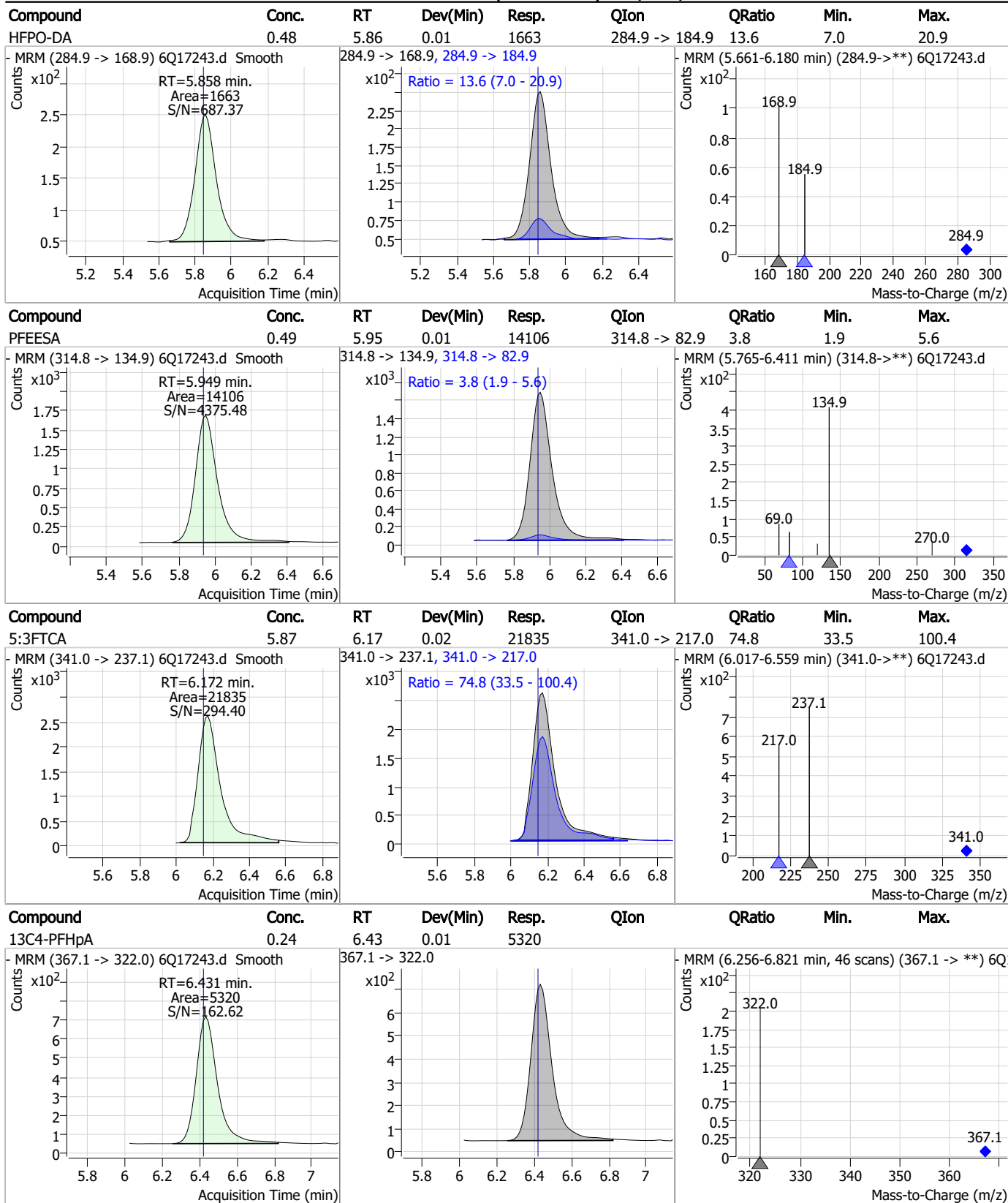
Perfluorinated Compounds by LC/MS/MS



7.4.1

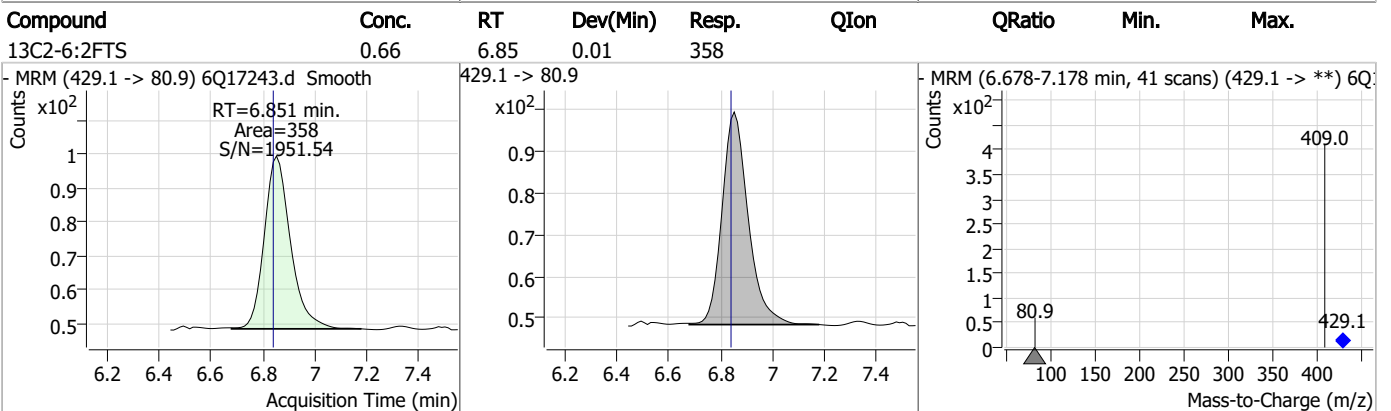
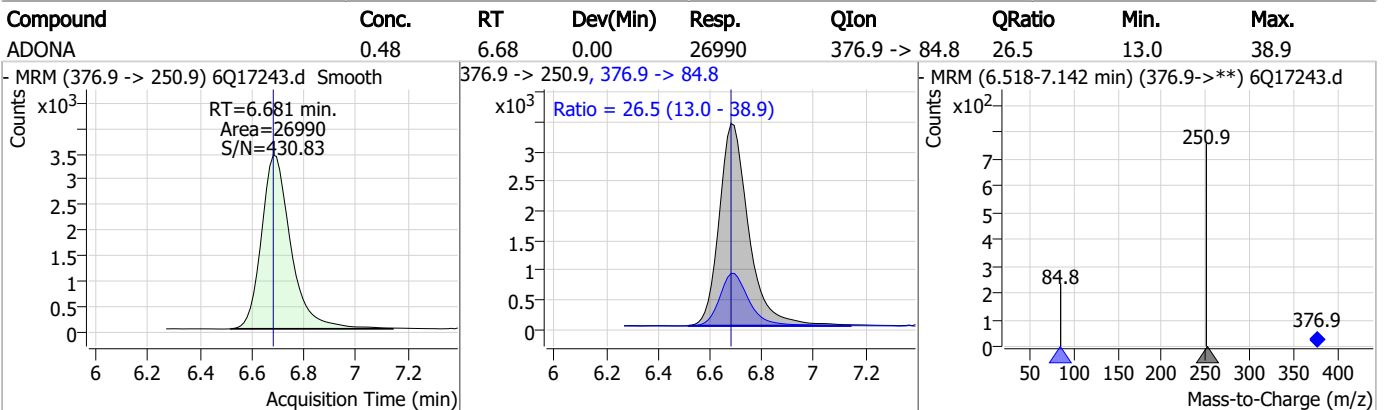
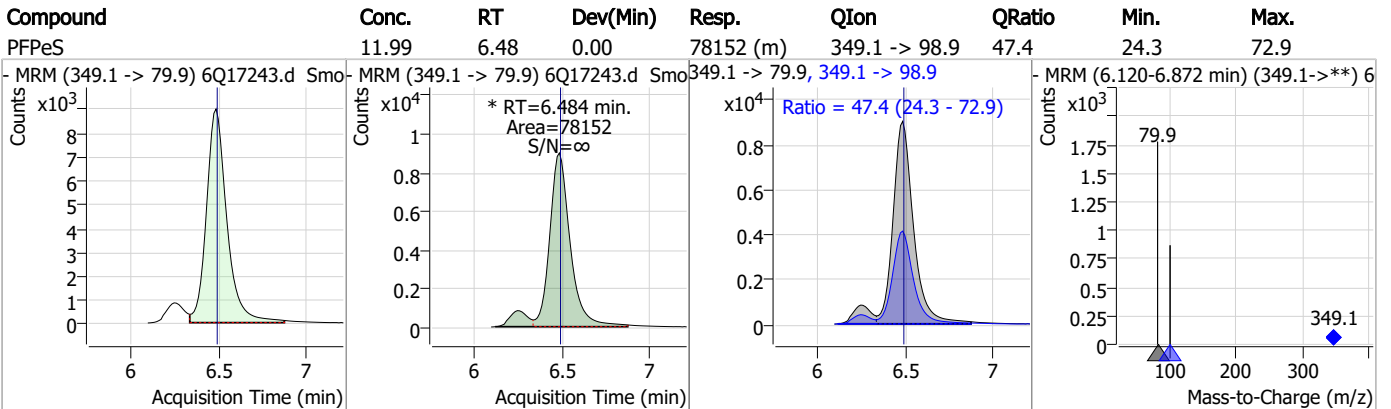
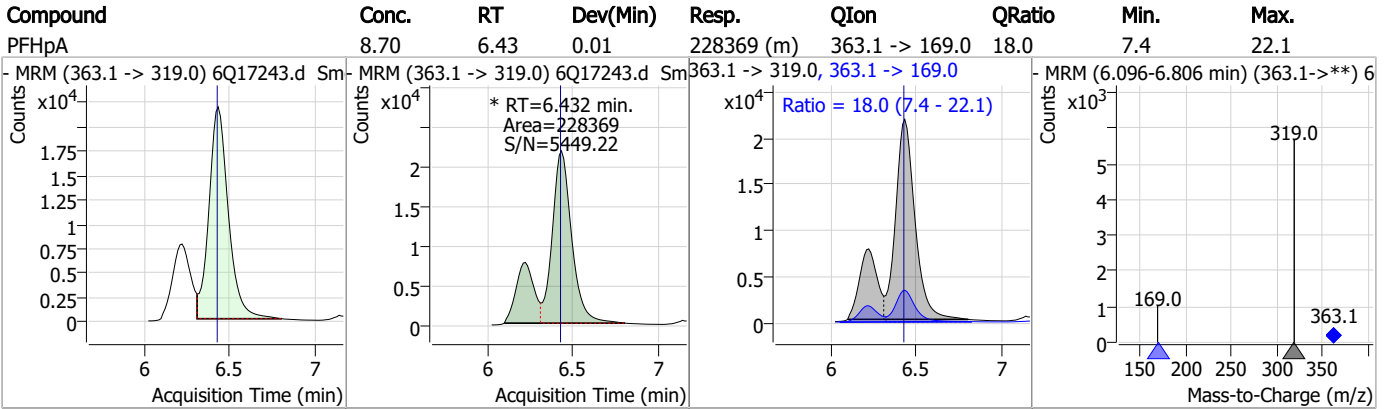
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Perfluorinated Compounds by LC/MS/MS

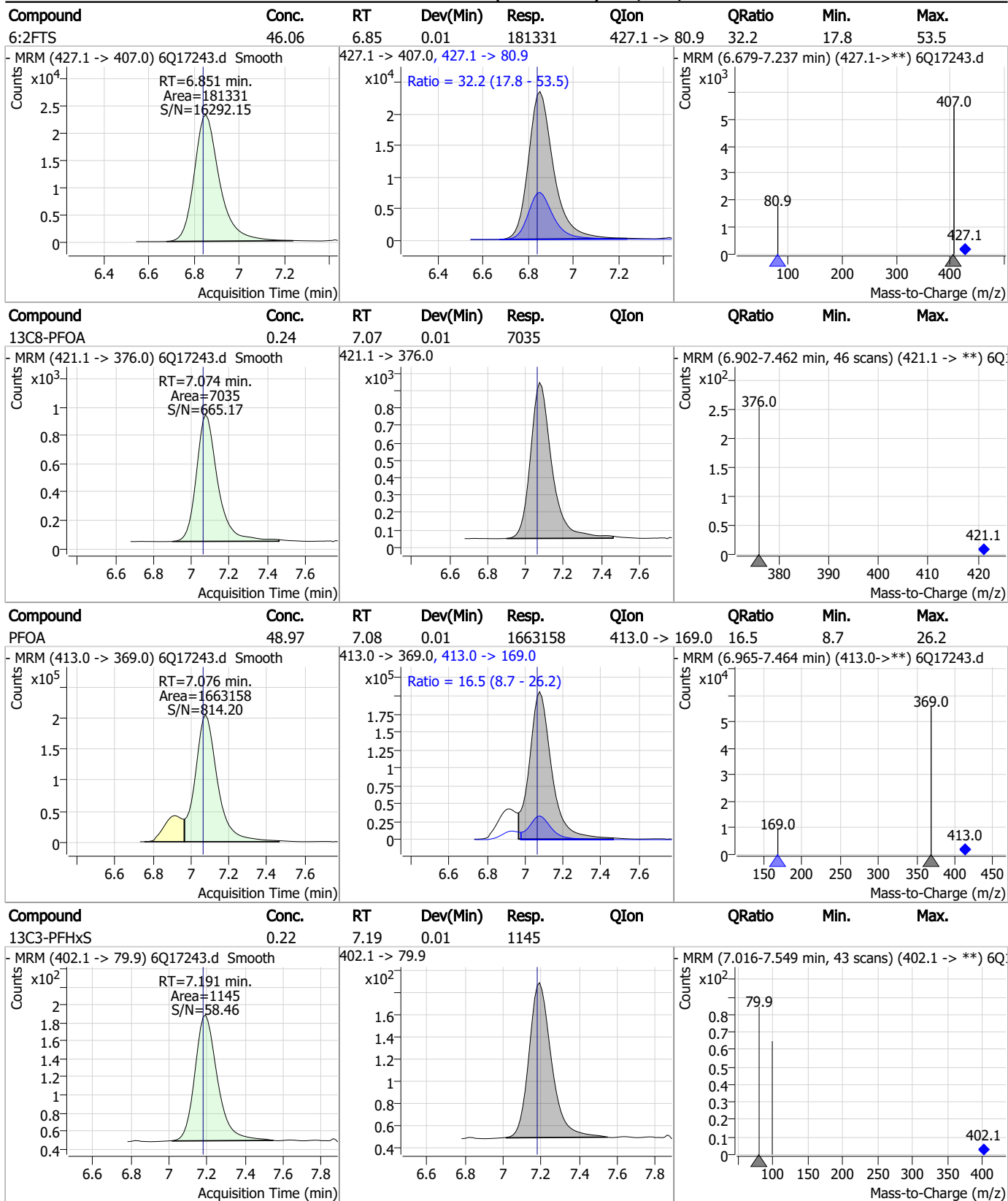


7.4.1
7

Perfluorinated Compounds by LC/MS/MS

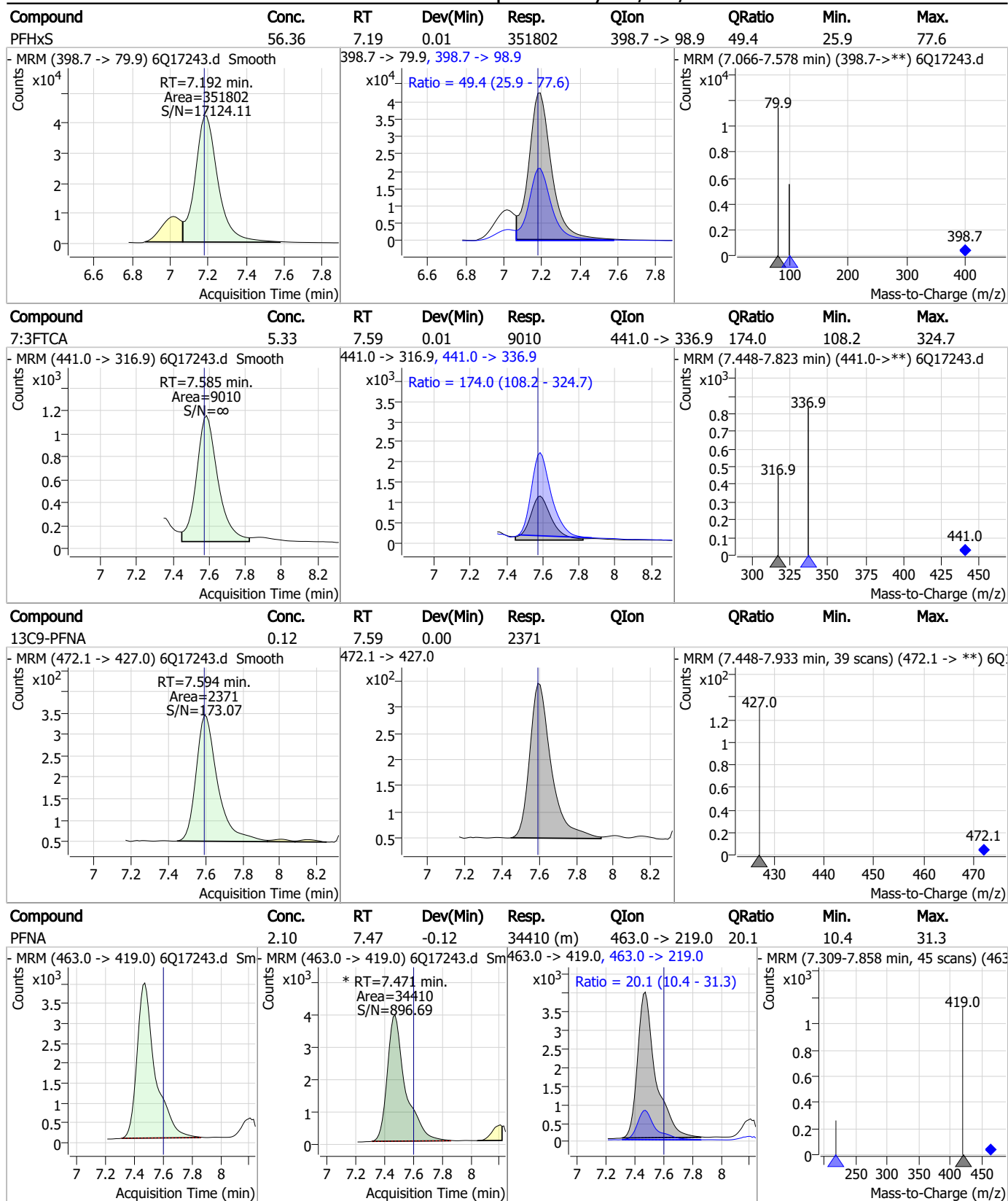


Perfluorinated Compounds by LC/MS/MS



7.4.1
7

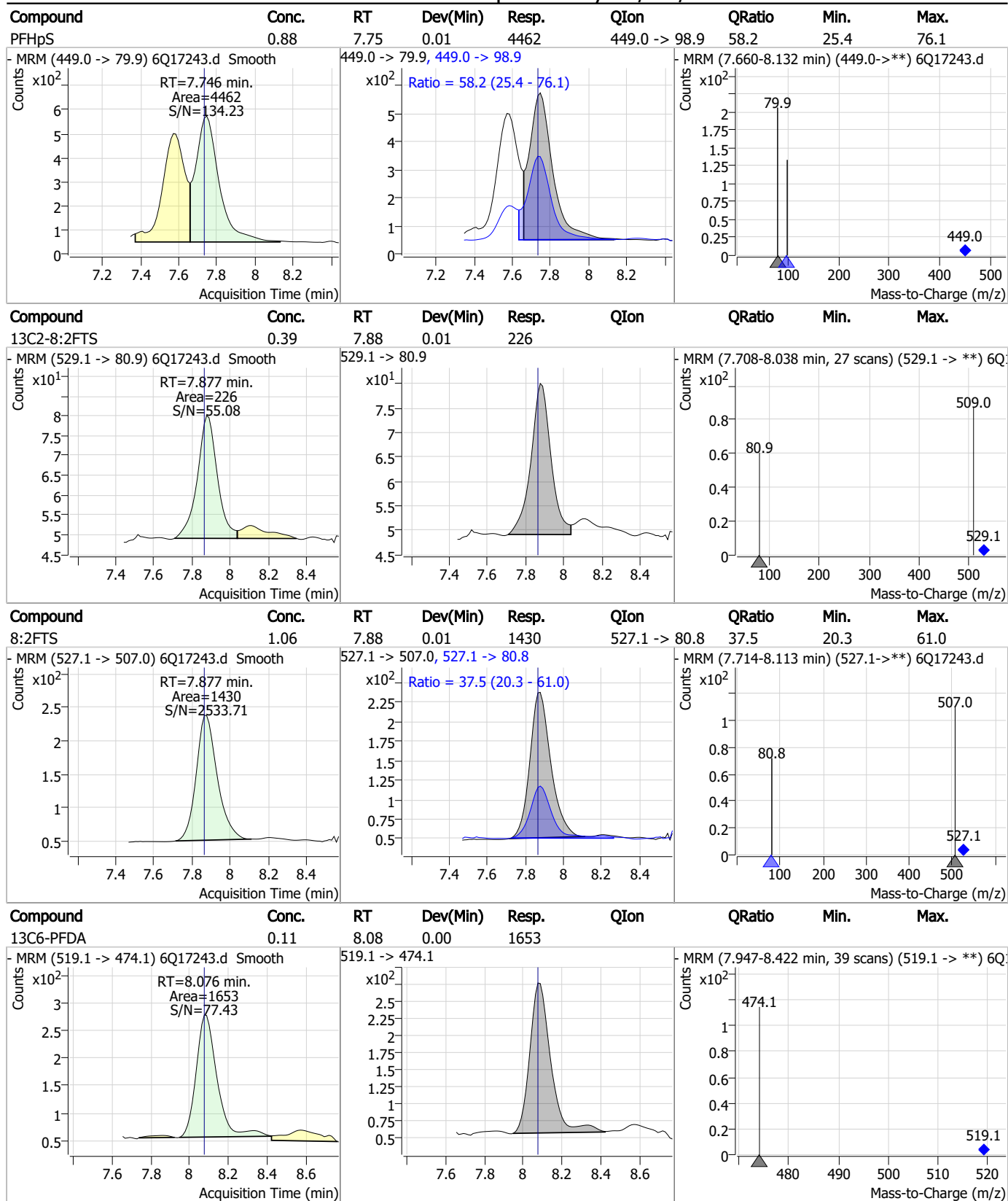
Perfluorinated Compounds by LC/MS/MS



7.4.1
7



Perfluorinated Compounds by LC/MS/MS

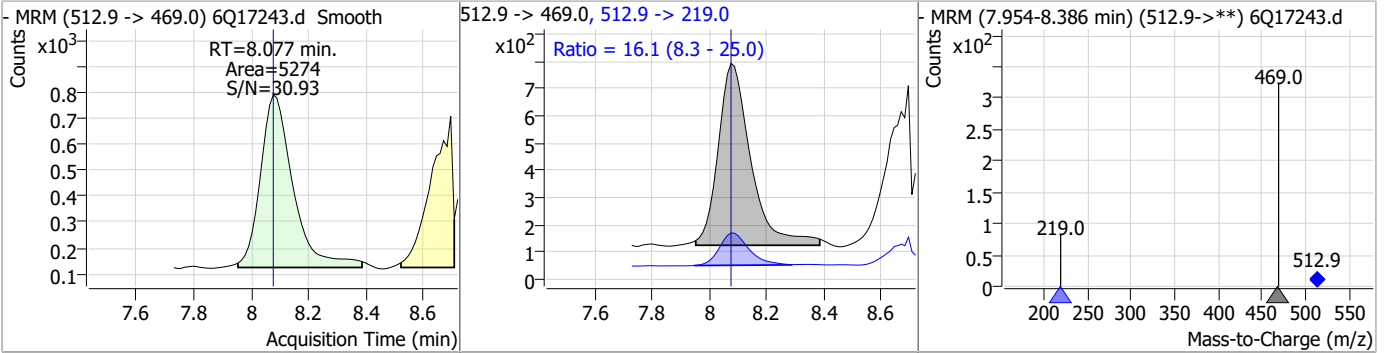


7.4.1
7

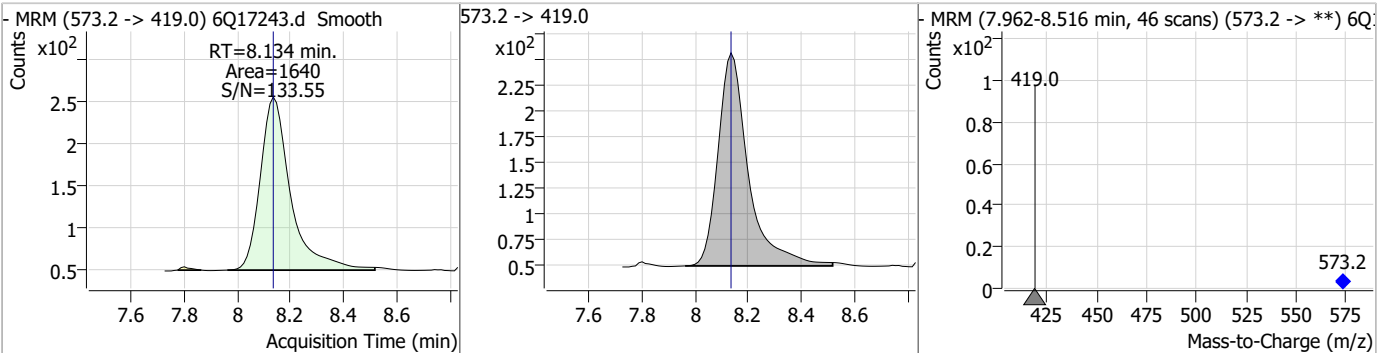


Perfluorinated Compounds by LC/MS/MS

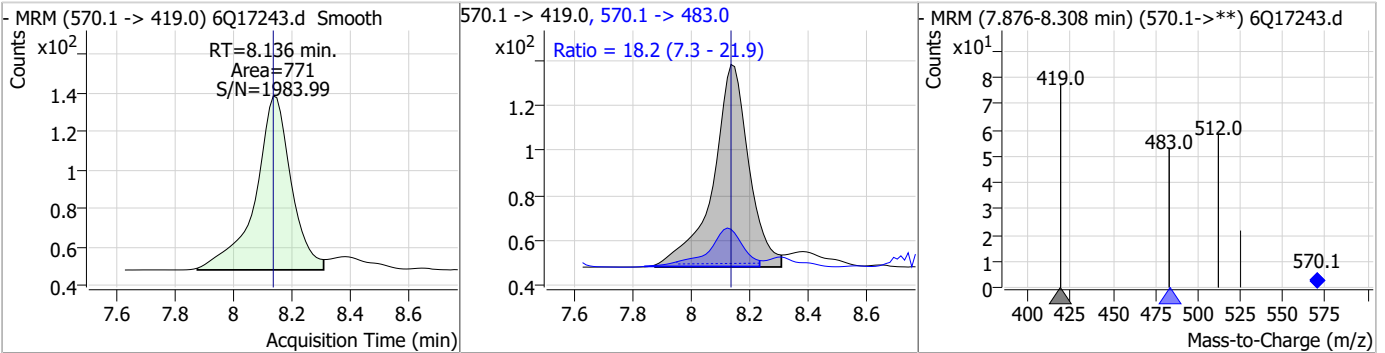
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.29	8.08	0.00	5274	512.9 -> 219.0	16.1	8.3	25.0



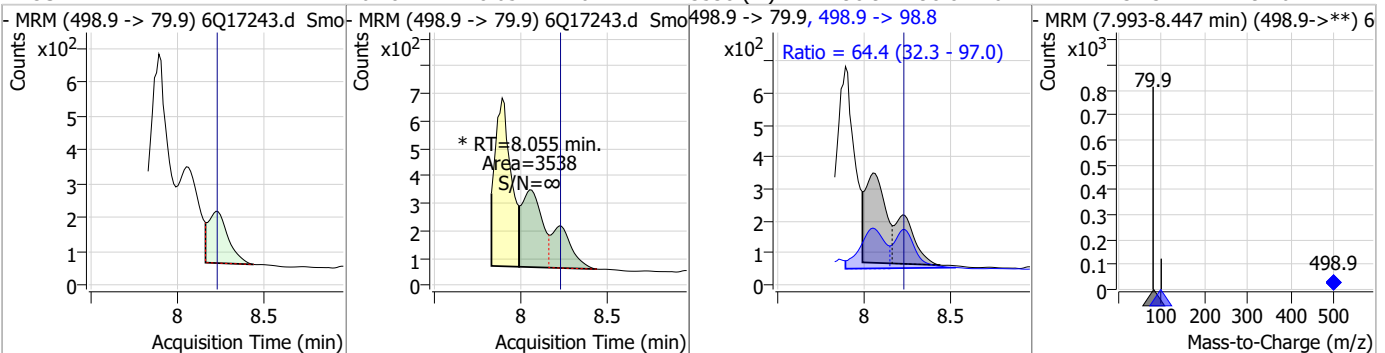
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	0.41	8.13	0.00	1640				



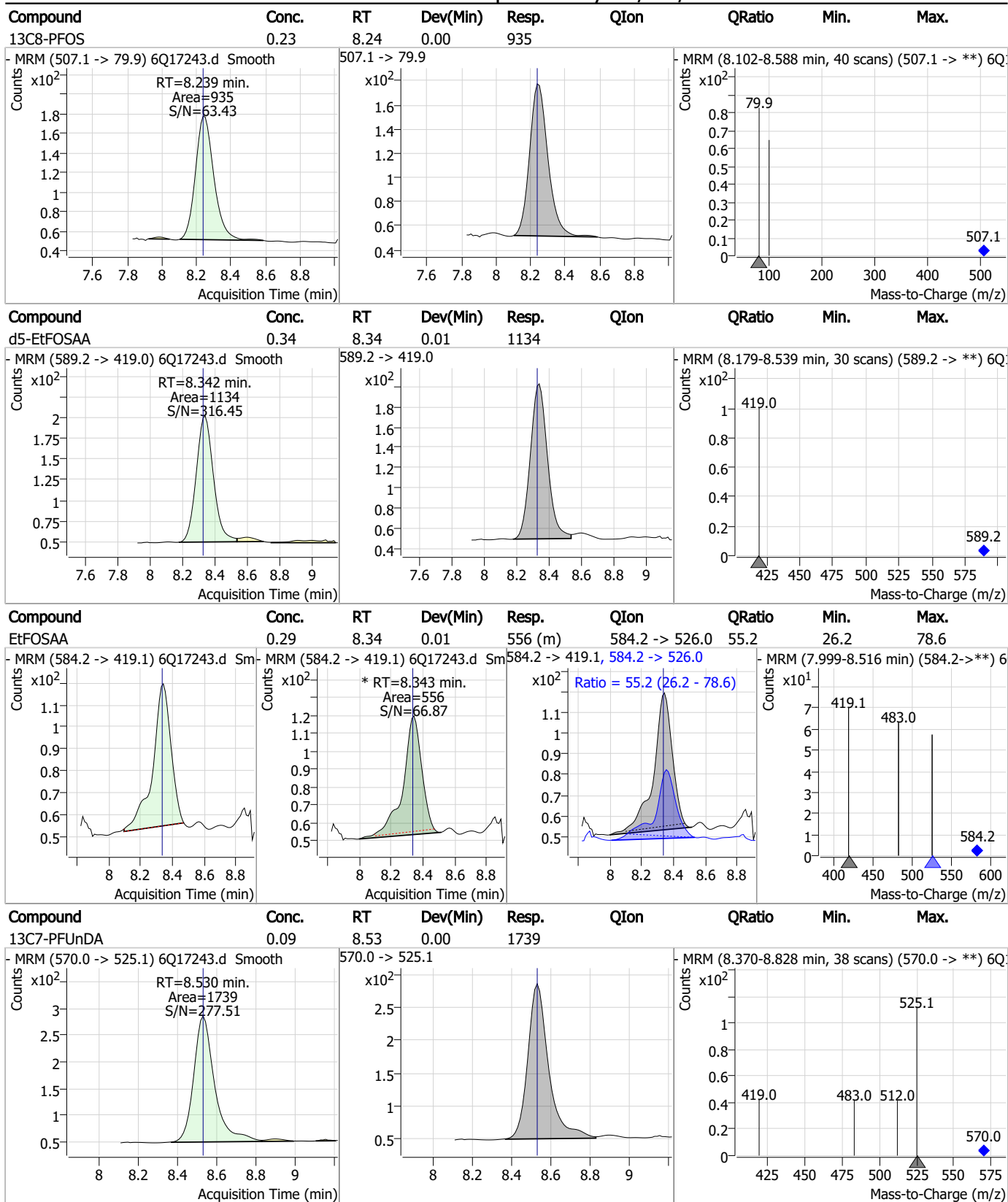
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.25	8.14	0.00	771	570.1 -> 483.0	18.2	7.3	21.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.78	8.05	-0.17	3538 (m)	498.9 -> 98.8	64.4	32.3	97.0

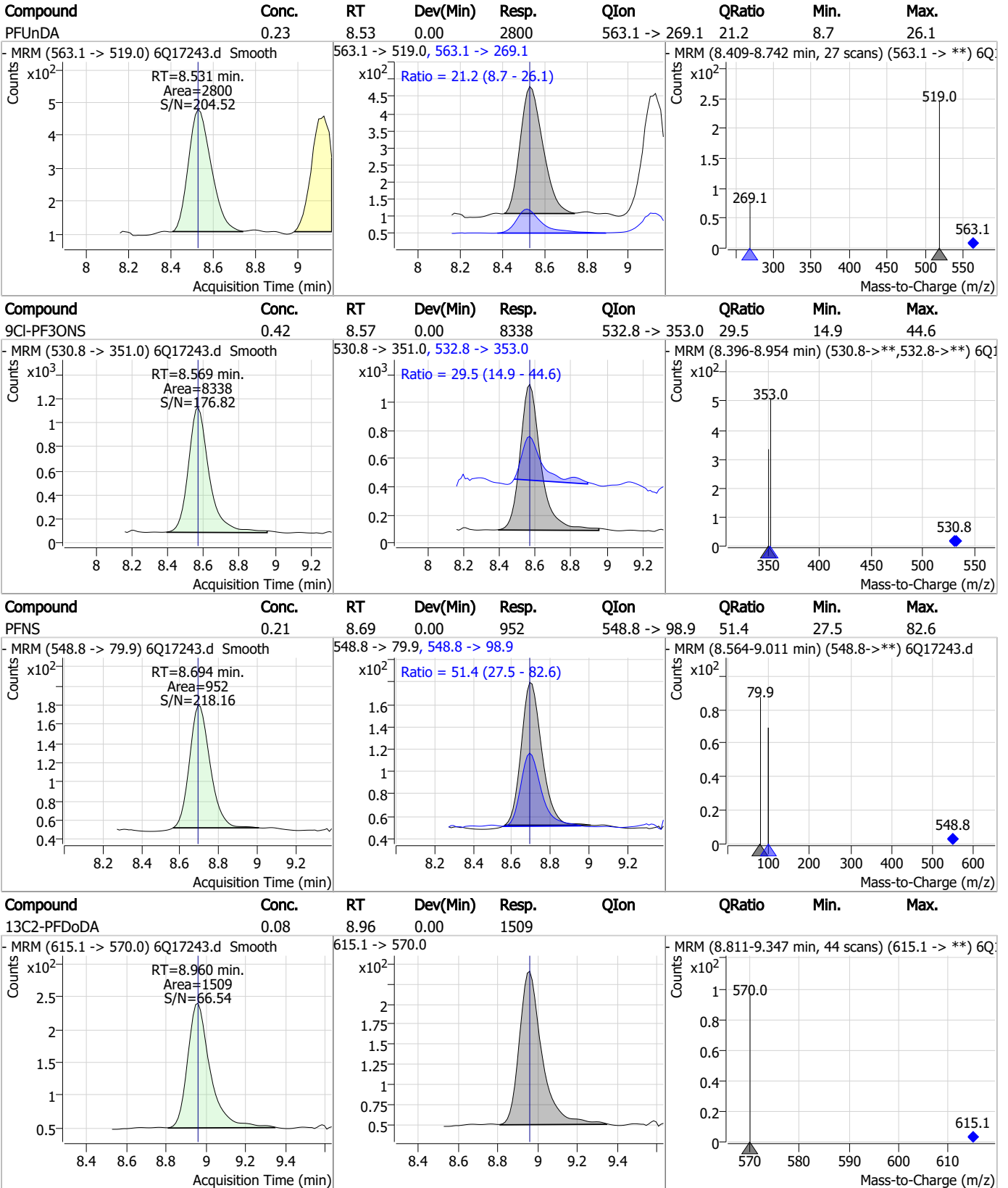


Perfluorinated Compounds by LC/MS/MS



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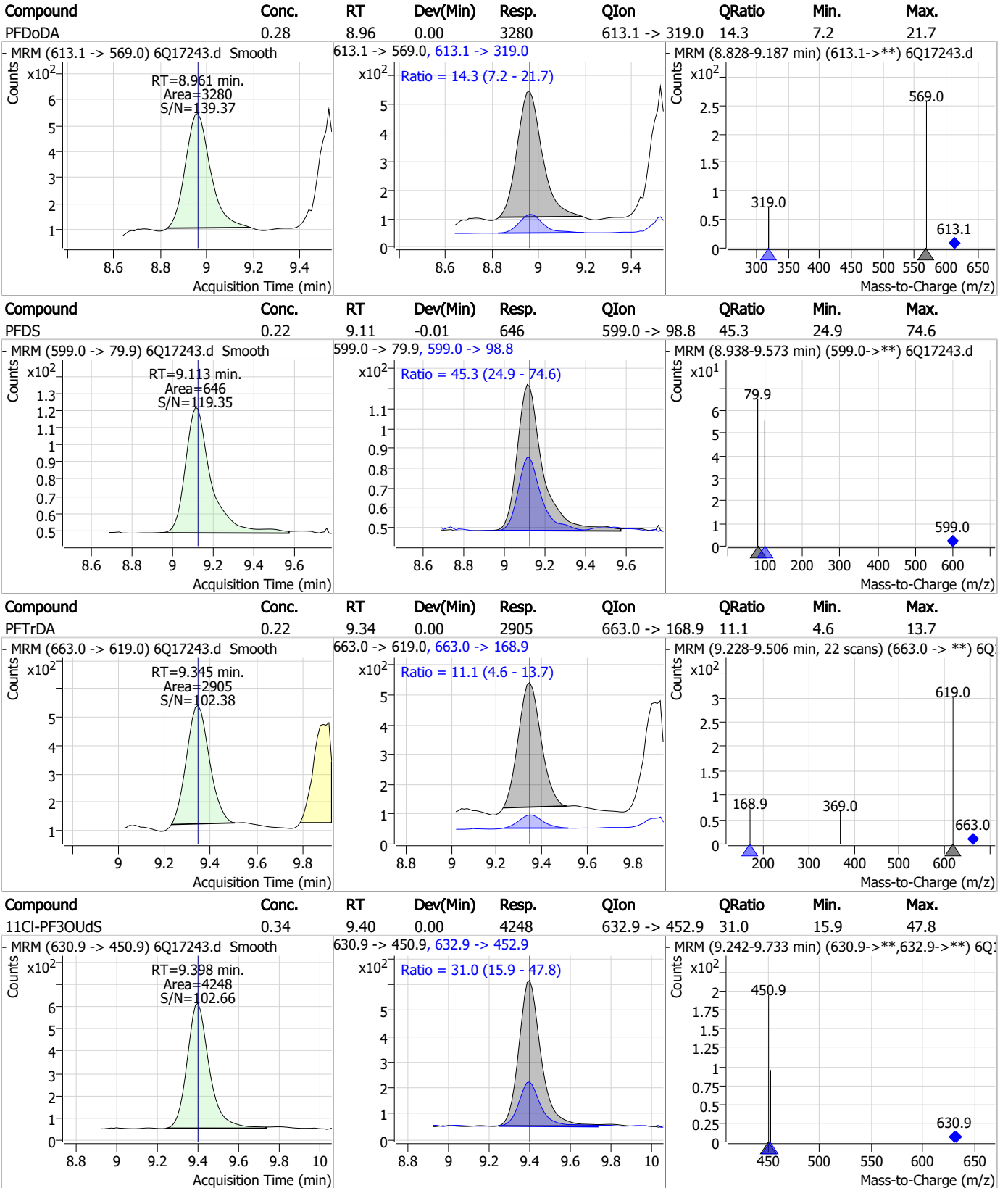
Perfluorinated Compounds by LC/MS/MS



7.4.1

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Perfluorinated Compounds by LC/MS/MS

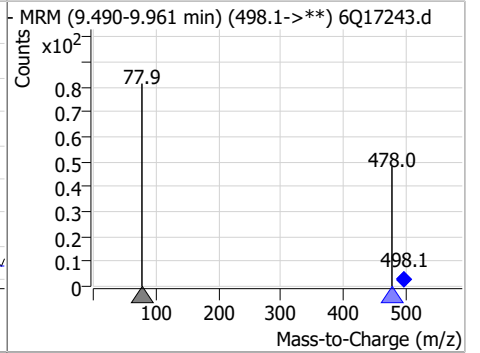
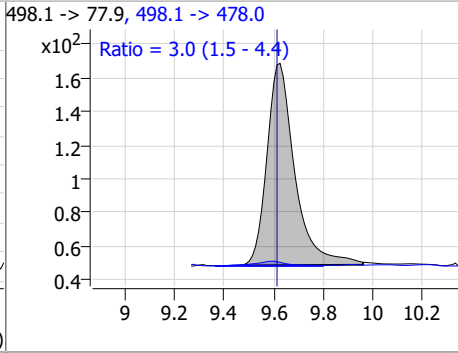
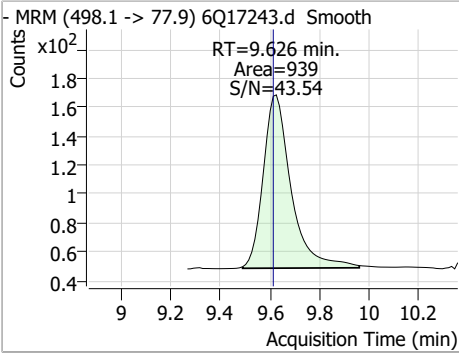


7.4.1

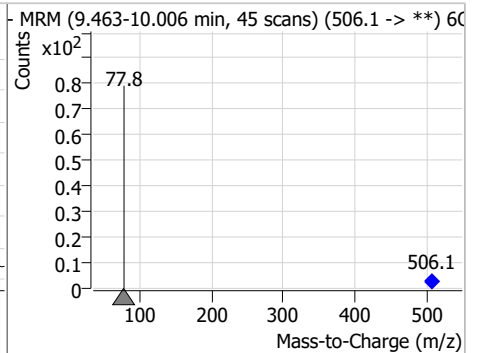
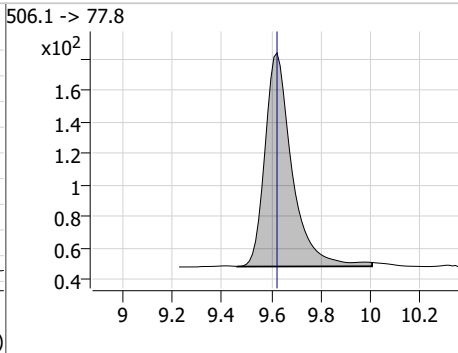
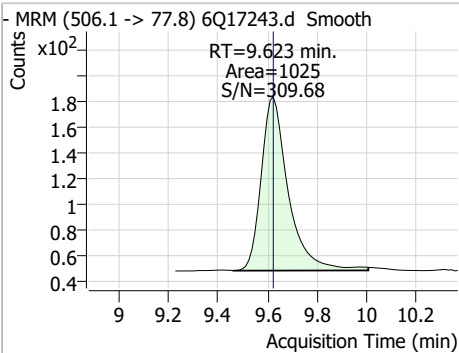
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Perfluorinated Compounds by LC/MS/MS

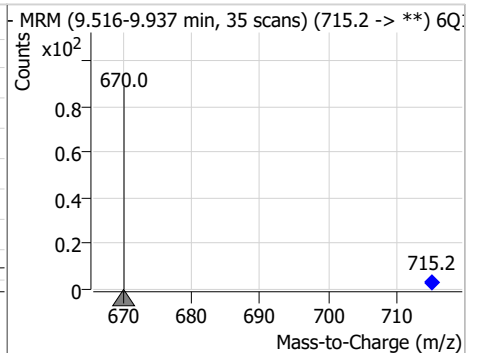
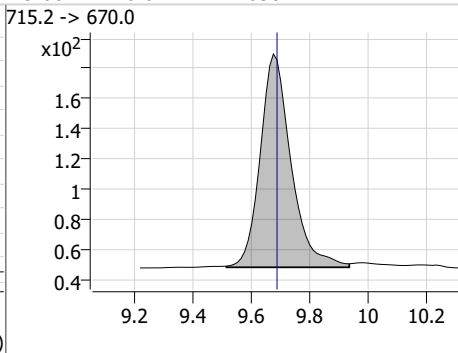
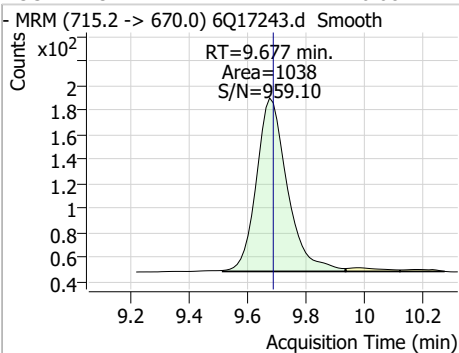
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.26	9.63	0.01	939	498.1 -> 478.0	3.0	1.5	4.4



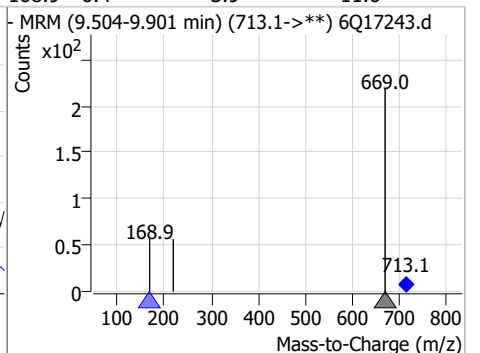
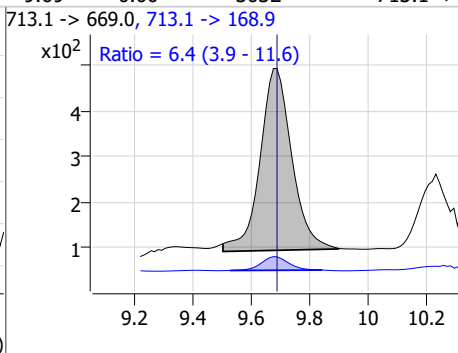
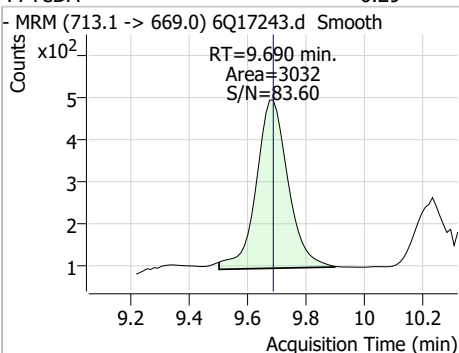
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	0.12	9.62	0.00	1025				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	0.08	9.68	-0.01	1038				

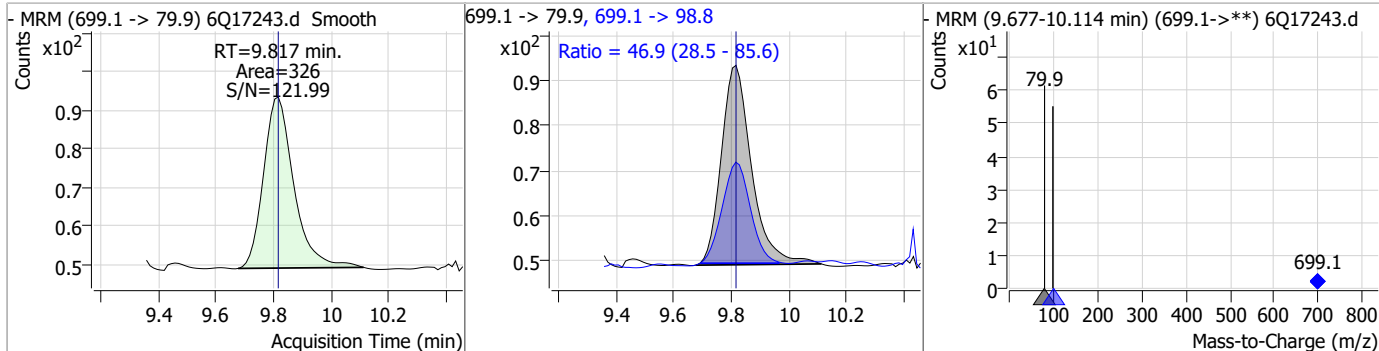


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.29	9.69	0.00	3032	713.1 -> 168.9	6.4	3.9	11.6

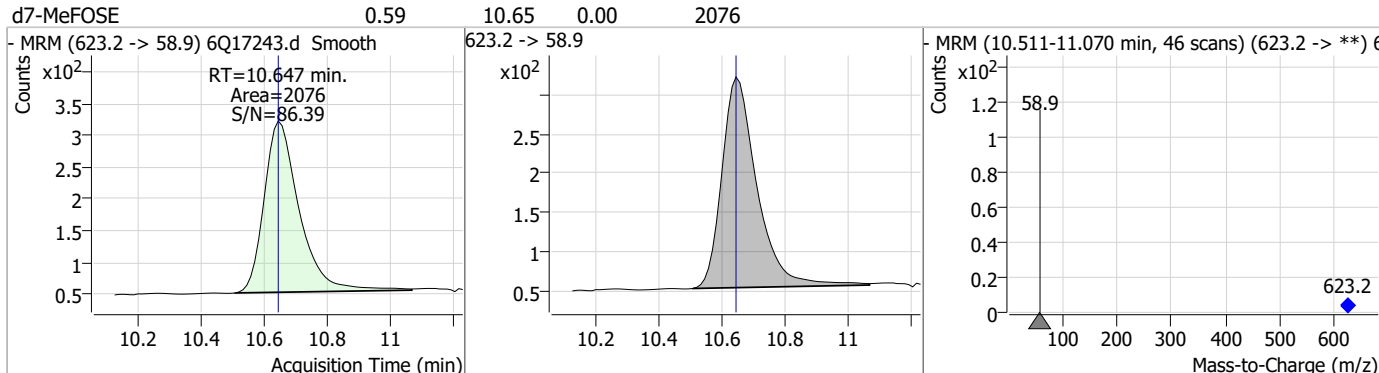


Perfluorinated Compounds by LC/MS/MS

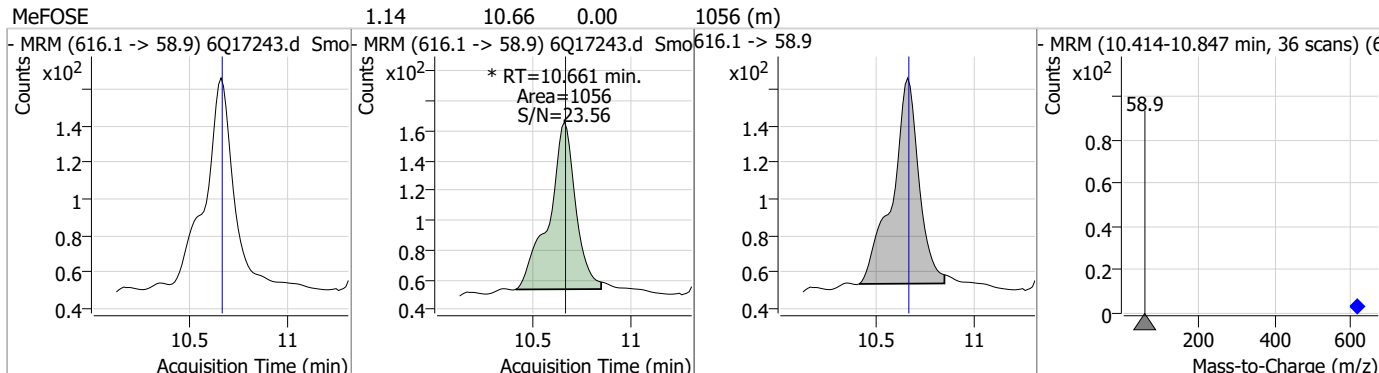
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.21	9.82	0.00	326	699.1 -> 98.8	46.9	28.5	85.6



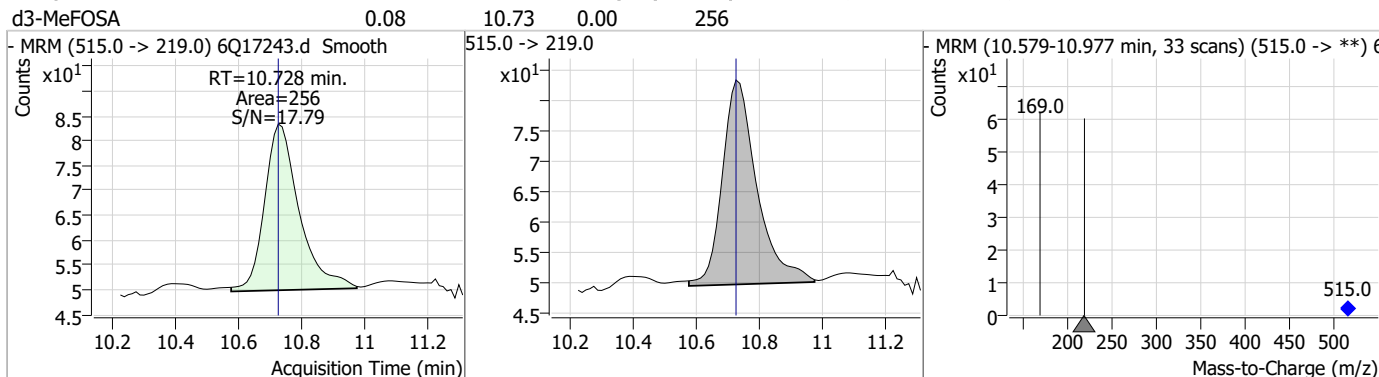
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	0.59	10.65	0.00	2076				



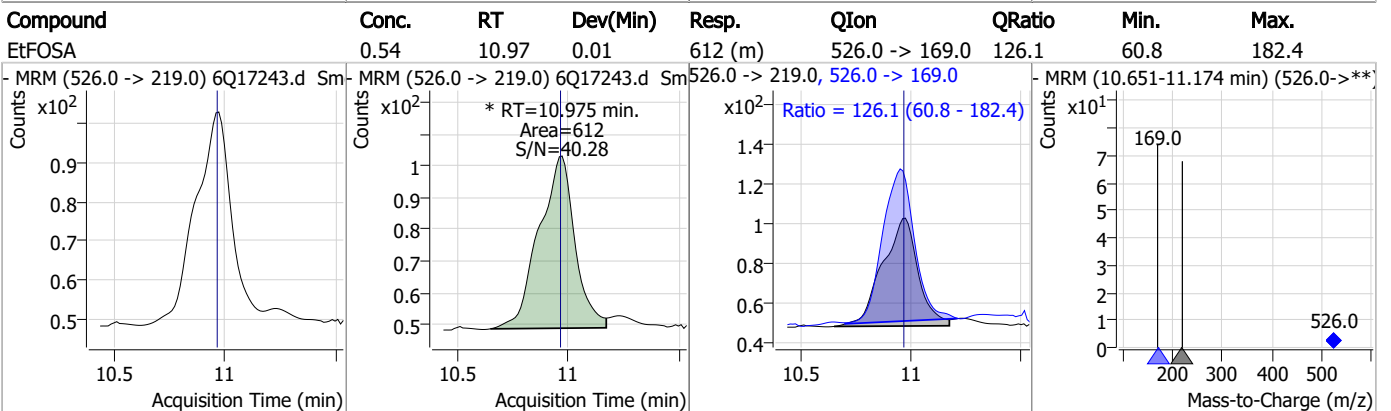
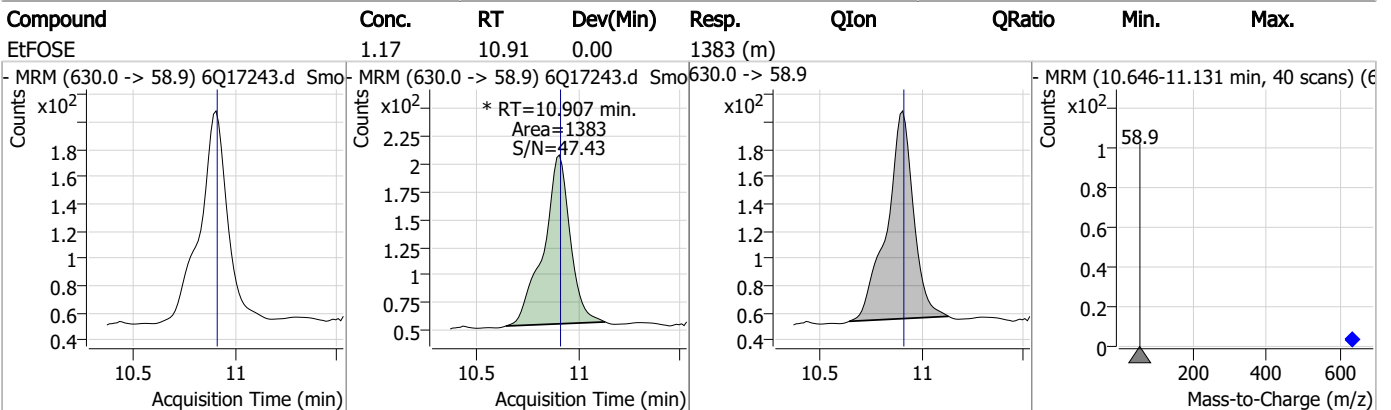
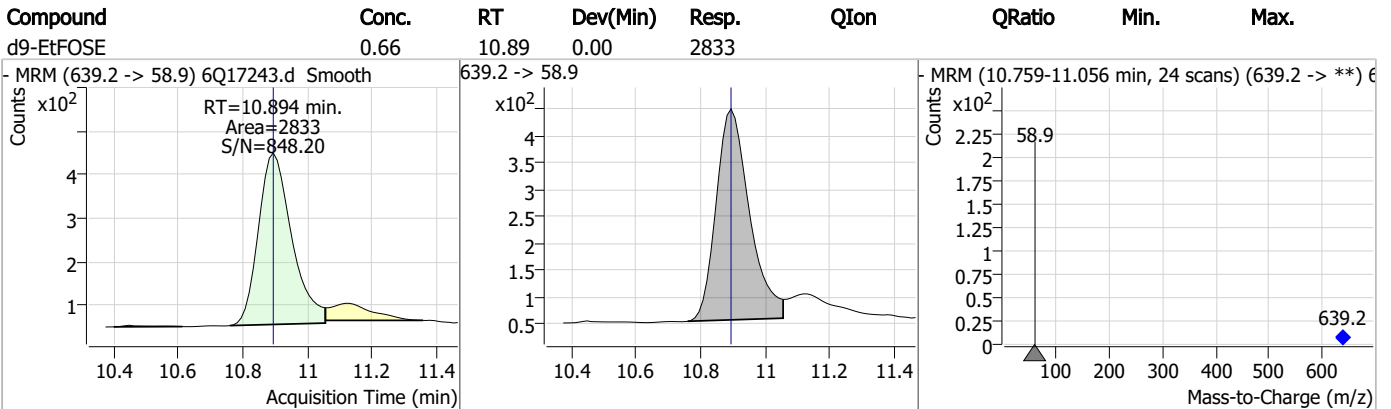
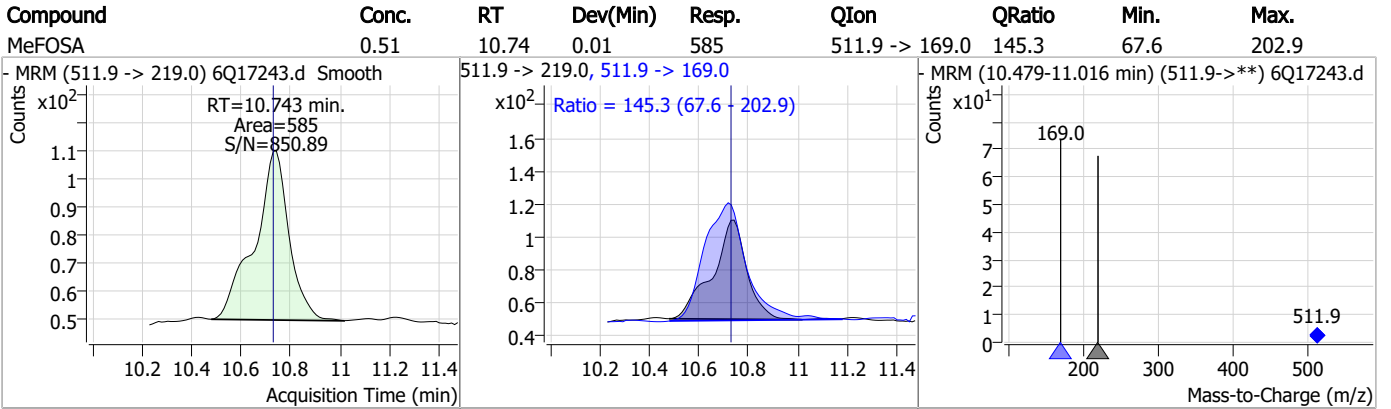
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	1.14	10.66	0.00	1056 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	0.08	10.73	0.00	256				



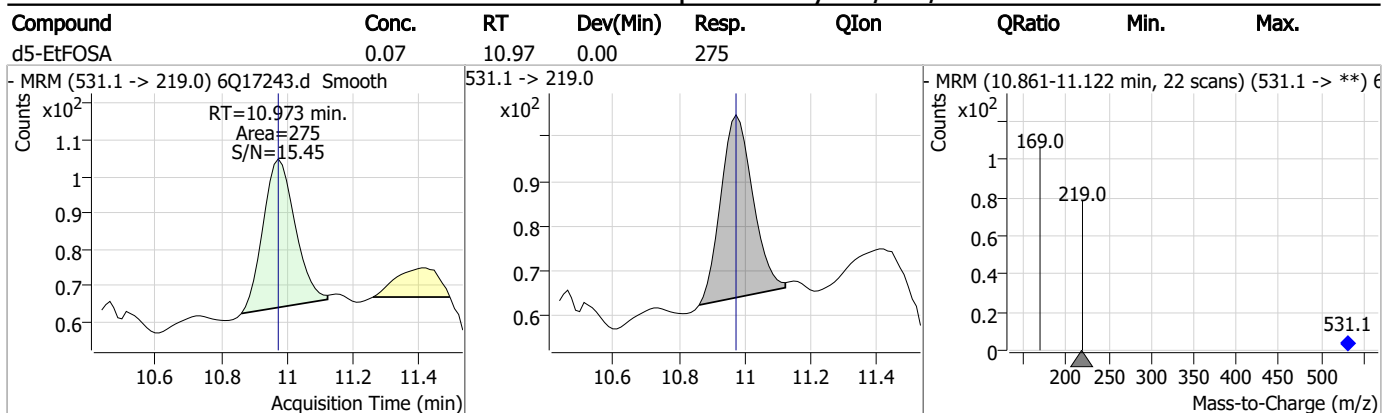
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



7.4.1

7

Manual Integration Approval Summary

Sample Number: OP96579-MS Method: EPA DRAFT 1633
Lab FileID: 6Q17243.D Analyst approved: 05/02/23 19:32 Norman Farmer
Injection Time: 05/01/23 15:58 Supervisor approved: 05/02/23 19:39 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorobutanesulfonic acid	375-73-5		5.40	Split peak
Perfluoroheptanoic acid	375-85-9		6.43	Split peak
Perfluoropentanesulfonic acid	2706-91-4		6.48	Split peak
Perfluorononanoic acid	375-95-1		7.47	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.05	Split peak
EtFOSAA	2991-50-6		8.34	Missed peak
MeFOSE	24448-09-7		10.66	Missed peak
EtFOSE	1691-99-2		10.91	Missed peak
EtFOSA	4151-50-2		10.97	Missed peak

7.4.1.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17244.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/1/2023 4:12:37 PM
 Sample Name : op96579-msd
 Vial : P2-A6
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q260.batch.bin
 Sample Information : OP96579,S6Q260,530,,,5.0,10,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	9958	1.00 µg/L	0.000
M5-PFPeA	4.270	268.3 -> 223.0	4709	0.50 µg/L	0.000
M5-PFHxA	5.480	318.0 -> 273.0	5074	0.25 µg/L	0.012
M4-PFHpA	6.431	367.1 -> 322.0	4841	0.25 µg/L	0.012
M8-PFOA	7.074	421.1 -> 376.0	6614	0.25 µg/L	0.012
M9-PFNA	7.607	472.1 -> 427.0	2182	0.13 µg/L	0.012
M6-PFDA	8.088	519.1 -> 474.1	1458	0.13 µg/L	0.012
M7-PFUnDA	8.530	570.0 -> 525.1	1533	0.13 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	1285	0.13 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	884	0.13 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	869	0.25 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	1757	0.25 µg/L	0.000
M3-PFHxS	7.191	402.1 -> 79.9	1091	0.25 µg/L	0.012
M8-PFOS	8.239	507.1 -> 79.9	921	0.25 µg/L	0.000
M2-4:2FTS	5.157	329.1 -> 80.9	200	0.50 µg/L	0.012
M2-6:2FTS	6.851	429.1 -> 80.9	284	0.50 µg/L	0.012
M2-8:2FTS	7.864	529.1 -> 80.9	205	0.50 µg/L	0.000
M3-MeFOSAA	8.147	573.2 -> 419.0	1433	0.50 µg/L	0.012
M3-HFPO-DA	5.845	286.9 -> 168.9	3169	1.00 µg/L	0.000
M5-EtFOSAA	8.342	589.2 -> 419.0	986	0.50 µg/L	0.012
M7-MeFOSE	10.647	623.2 -> 58.9	1773	2.50 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	2343	2.50 µg/L	0.000
M5-EtFOSA	10.973	531.1 -> 219.0	292	0.25 µg/L	0.000
M3-MeFOSA	10.741	515.0 -> 219.0	268	0.25 µg/L	0.012
13C4-PFOS	8.252	502.8 -> 79.9	1420	0.25 µg/L	0.013
13C3-PFBA	2.902	216.0 -> 172.0	6742	0.50 µg/L	0.000
18O2-PFHxS	7.190	403.0 -> 83.9	877	0.25 µg/L	0.012
13C4-PFOA	7.075	417.1 -> 372.0	7218	0.25 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	2199	0.13 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	2569	0.13 µg/L	0.000
13C2-PFHxA	5.482	315.1 -> 270.0	5268	0.25 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.157	329.1 -> 80.9	200	0.50 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 9.9%		
13C2-6:2FTS	6.851	429.1 -> 80.9	284	0.58 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 11.6%		
13C2-8:2FTS	7.864	529.1 -> 80.9	205	0.39 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 7.8%		
13C2-PFDoDA	8.960	615.1 -> 570.0	1285	0.07 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 5.6%		
13C2-PFTeDA	9.689	715.2 -> 670.0	884	0.07 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 5.7%		
13C3-PFBS	5.398	302.1 -> 79.9	1757	0.21 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 8.5%		
13C3-PFHxS	7.191	402.1 -> 79.9	1091	0.23 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 = 9.3%		
13C4-PFBA	2.897	216.8 -> 171.9	9958	0.64 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 6.4%		
13C4-PFHpA	6.431	367.1 -> 322.0	4841	0.22 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 9.0%		
13C5-PFHxA	5.480	318.0 -> 273.0	5074	0.20 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 8.0%		
13C5-PFPeA	4.270	268.3 -> 223.0	4709	0.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 8.0%		
13C6-PFDA	8.088	519.1 -> 474.1	1458	0.10 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 8.0%		
13C7-PFUnDA	8.530	570.0 -> 525.1	1533	0.08 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 6.6%		
13C8-FOSA	9.623	506.1 -> 77.8	869	0.09 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 3.7%		
13C8-PFOA	7.074	421.1 -> 376.0	6614	0.24 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 9.5%		
13C8-PFOS	8.239	507.1 -> 79.9	921	0.22 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 8.6%		
13C9-PFNA	7.607	472.1 -> 427.0	2182	0.11 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 8.9%		
d3-MeFOSAA	8.147	573.2 -> 419.0	1433	0.34 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 6.8%		
13C3-HFPO-DA	5.845	286.9 -> 168.9	3169	0.85 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 8.5%		
d3-MeFOSA	10.741	515.0 -> 219.0	268	0.08 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 3.0%		
d5-EtFOSAA	8.342	589.2 -> 419.0	986	0.28 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 5.6%		
d7-MeFOSE	10.647	623.2 -> 58.9	1773	0.48 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 1.9%		
d9-EtFOSE	10.894	639.2 -> 58.9	2343	0.51 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 2.1%		
d5-EtFOSA	10.973	531.1 -> 219.0	278	0.06 µg/L	m 0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 2.6%		
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	12699	4.19 µg/L	96
		327.1 -> 80.9	4979		
6:2FTS	6.851	427.1 -> 407.0	164336	52.56 µg/L	96
		427.1 -> 80.9	55180		
8:2FTS	7.877	527.1 -> 507.0	1496	1.22 µg/L	90
		527.1 -> 80.8	520		
EtFOSAA	8.343	584.2 -> 419.1	518	0.31 µg/L	m 84
		584.2 -> 526.0	331		
FOSA	9.626	498.1 -> 77.9	836	0.27 µg/L	100
		498.1 -> 478.0	25		
MeFOSAA	8.136	570.1 -> 419.0	725	0.27 µg/L	m 86
		570.1 -> 483.0	149		
PFBA	2.906	212.8 -> 168.9	28117	8.42 µg/L	100
PFBS	5.400	298.7 -> 79.9	87920	11.15 µg/L	m 97
		298.7 -> 98.8	34371		
PFDA	8.089	512.9 -> 469.0	4812	0.30 µg/L	97
		512.9 -> 219.0	727		
PFDODA	8.961	613.1 -> 569.0	2924	0.29 µg/L	99
		613.1 -> 319.0	430		
PFDS	9.125	599.0 -> 79.9	616	0.21 µg/L	92

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.432	599.0 -> 98.8	271	8.32	µg/L	m
		363.1 -> 319.0	198778			
PFHpS	7.746	363.1 -> 169.0	36631	0.76	µg/L	83
		449.0 -> 79.9	3772			
PFHxA	5.483	449.0 -> 98.9	2358	45.44	µg/L	100
		313.0 -> 269.0	911751			
PFHxS	7.180	313.0 -> 118.9	42596	64.28	µg/L	m
		398.7 -> 79.9	382139			
PFNA	7.471	398.7 -> 98.9	184086	1.99	µg/L	95
		463.0 -> 419.0	30085			
PFNS	8.694	463.0 -> 219.0	6940	0.20	µg/L	91
		548.8 -> 79.9	880			
PFOA	7.076	548.8 -> 98.9	541	45.45	µg/L	100
		413.0 -> 369.0	1451480			
PFOS	8.055	413.0 -> 169.0	256925	0.82	µg/L	m
		498.9 -> 79.9	3667			
PFPeA	4.273	498.9 -> 98.8	2071	28.03	µg/L	100
		263.0 -> 219.0	359510			
PFPeS	6.484	349.1 -> 79.9	72047	11.61	µg/L	m
		349.1 -> 98.9	34499			
PFTeDA	9.690	713.1 -> 669.0	2884	0.32	µg/L	97
		713.1 -> 168.9	197			
PFTrDA	9.345	663.0 -> 619.0	3398	0.30	µg/L	97
		663.0 -> 168.9	280			
PFUnDA	8.531	563.1 -> 519.0	3595	0.34	µg/L	92
		563.1 -> 269.1	494			
11Cl-PF3OUdS	9.398	630.9 -> 450.9	4517	0.42	µg/L	91
		632.9 -> 452.9	1223			
9Cl-PF3ONS	8.569	530.8 -> 351.0	8961	0.52	µg/L	99
		532.8 -> 353.0	2733			
ADONA	6.681	376.9 -> 250.9	27498	0.57	µg/L	97
		376.9 -> 84.8	7480			
HFPO-DA	5.846	284.9 -> 168.9	1748	0.58	µg/L	96
		284.9 -> 184.9	217			
3:3FTCA	3.784	241.0 -> 177.0	968	1.21	µg/L	96
		241.0 -> 117.0	143			
5:3FTCA	6.172	341.0 -> 237.1	22700	6.99	µg/L	94
		341.0 -> 217.0	16363			
7:3FTCA	7.585	441.0 -> 316.9	8401	5.70	µg/L	93
		441.0 -> 336.9	17186			
EtFOSA	10.962	526.0 -> 219.0	677	0.57	µg/L	97
		526.0 -> 169.0	845			
EtFOSE	10.907	630.0 -> 58.9	1380	1.41	µg/L	m
		511.9 -> 219.0	642			
MeFOSA	10.730	511.9 -> 169.0	908	0.53	µg/L	95
		616.1 -> 58.9	1049			
MeFOSE	10.661	699.1 -> 79.9	365	1.33	µg/L	m
		699.1 -> 98.8	145			
PFDoDS	9.817	295.0 -> 201.0	1230	0.24	µg/L	77
		295.0 -> 84.9	343			
NFDHA	5.363	279.0 -> 85.1	5296	0.62	µg/L	100
		229.0 -> 84.9	3354			
PFMBA	4.687	314.8 -> 134.9	14333	0.57	µg/L	99
		314.8 -> 82.9	567			

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

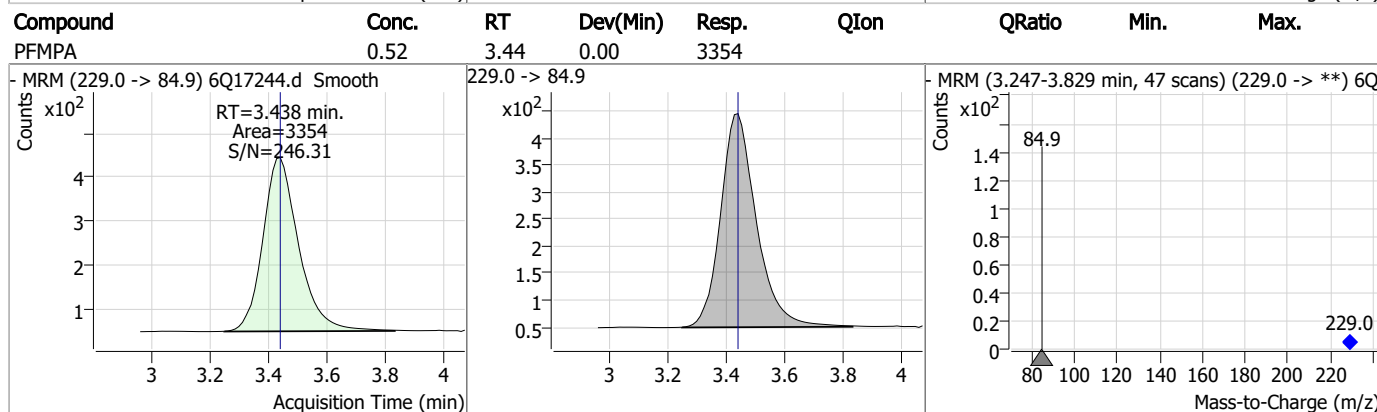
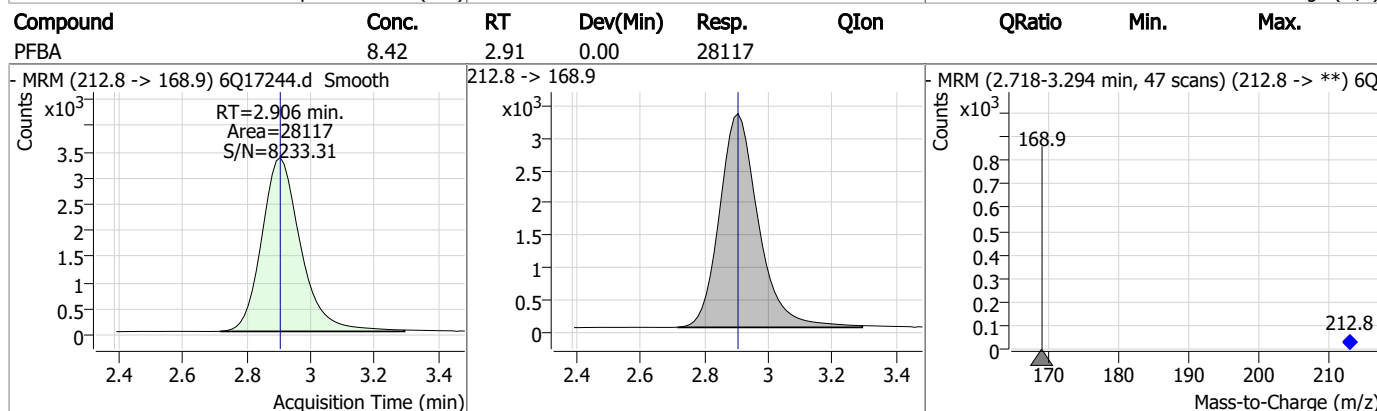
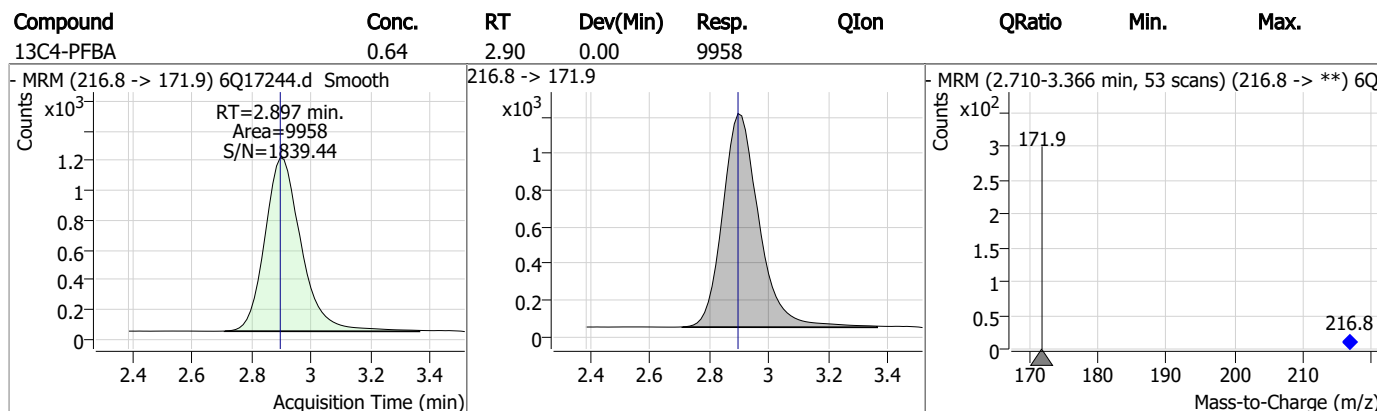
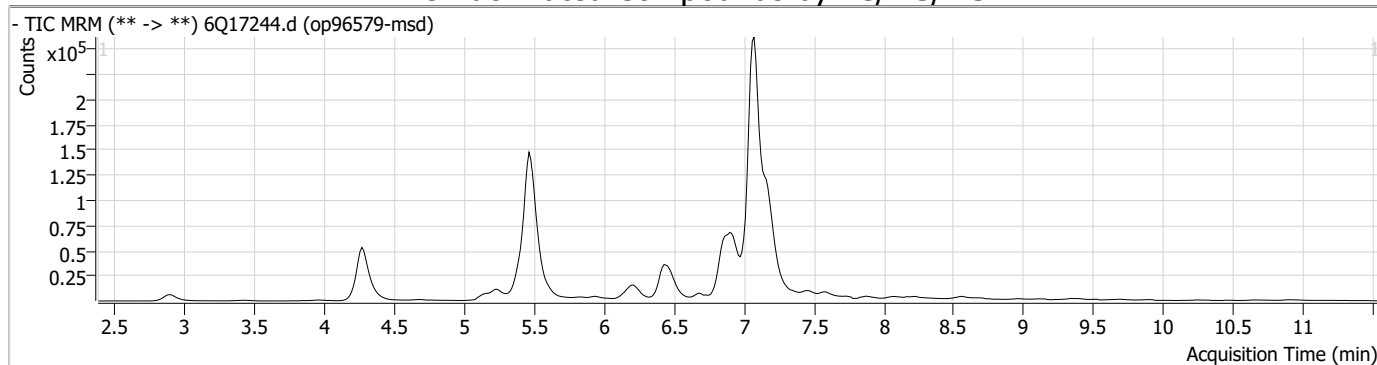
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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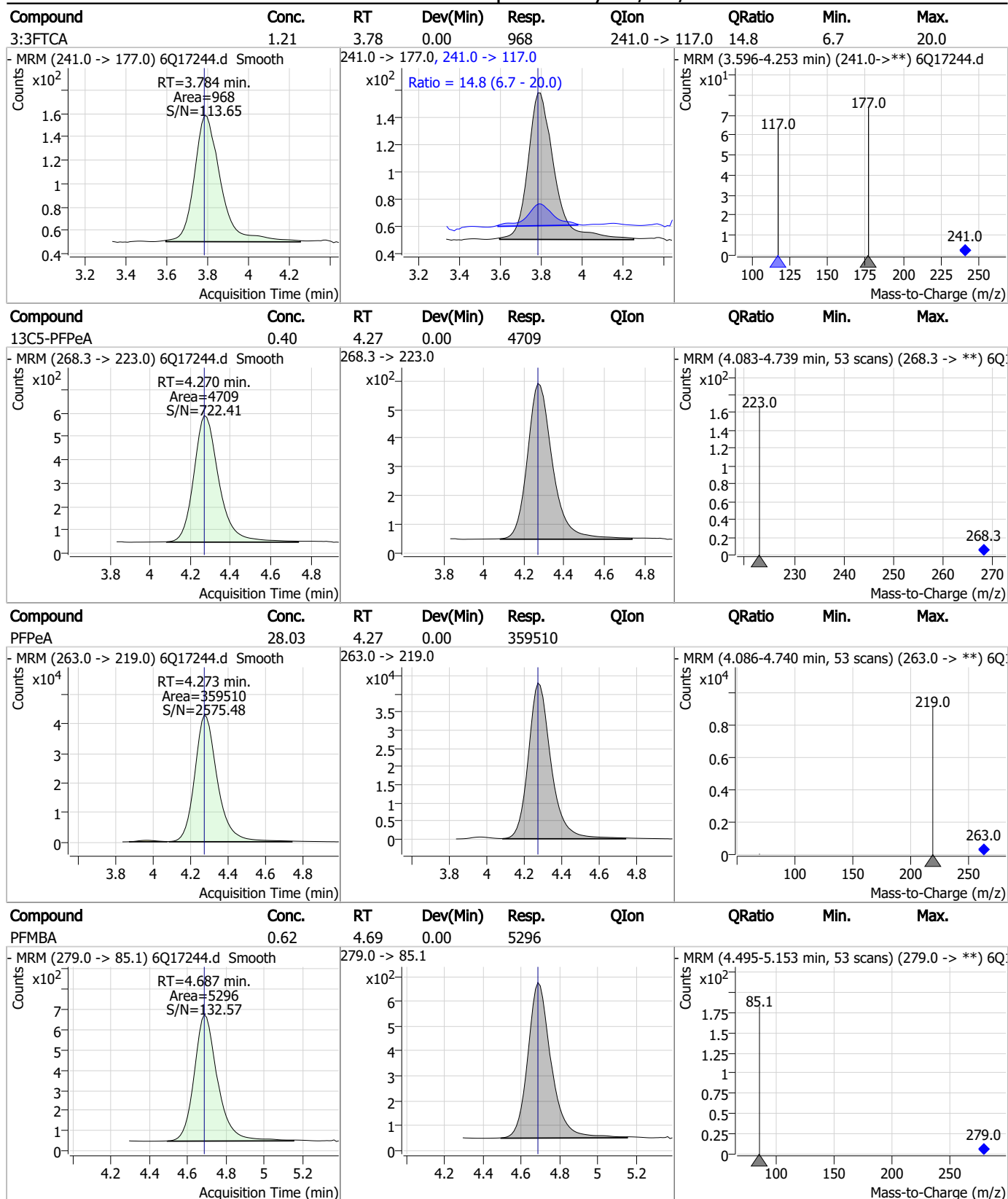
7.4.2
7



Perfluorinated Compounds by LC/MS/MS

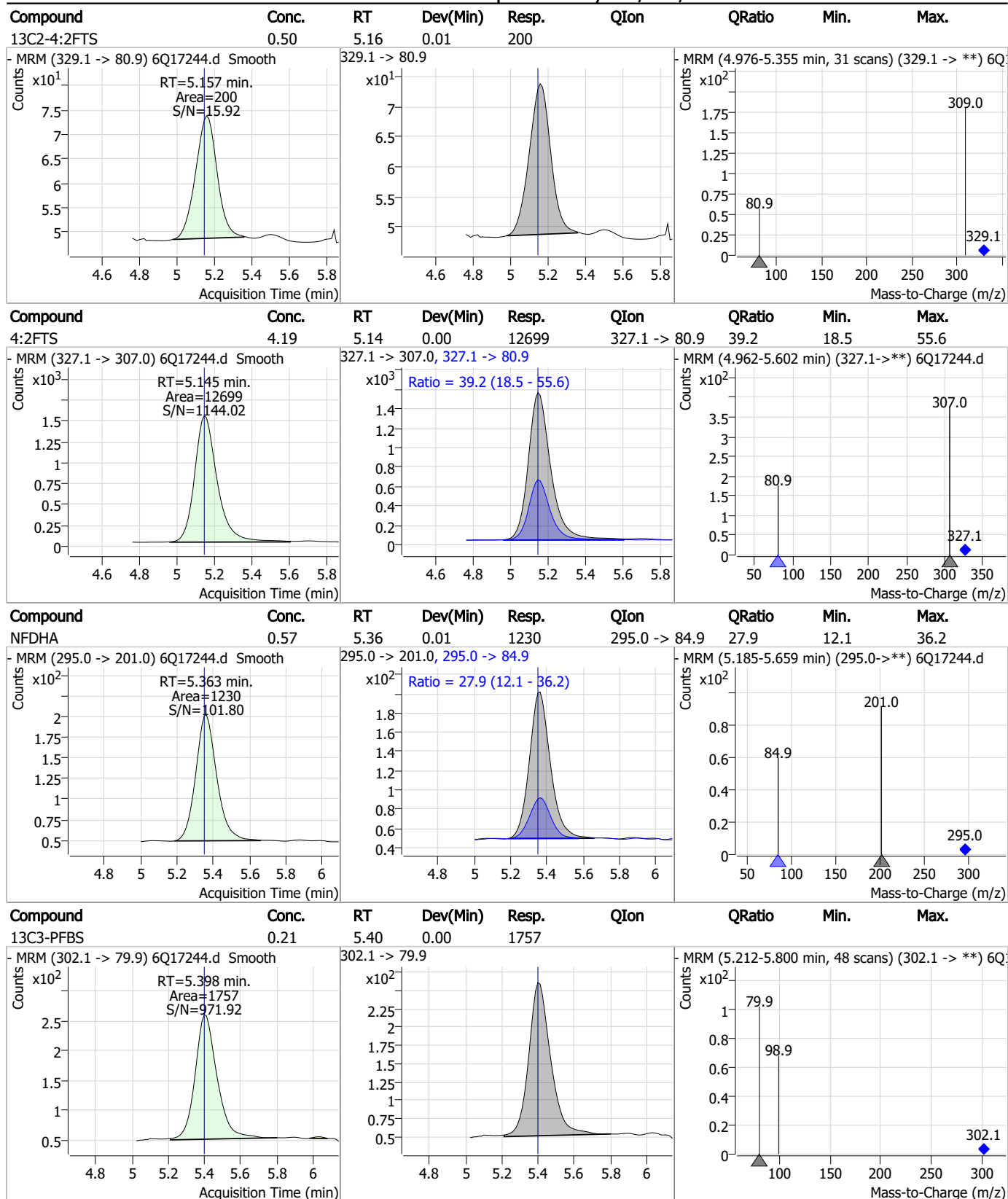


Perfluorinated Compounds by LC/MS/MS



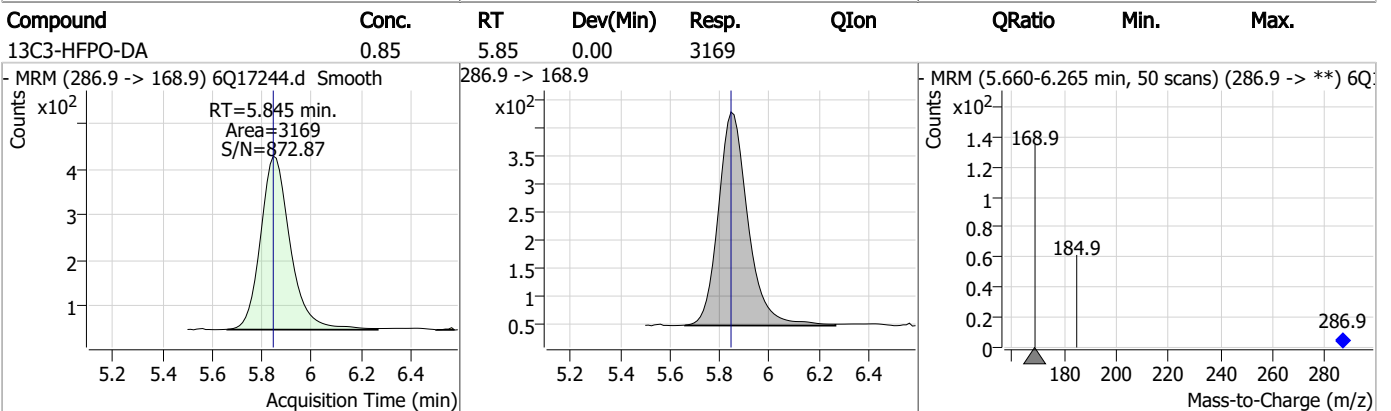
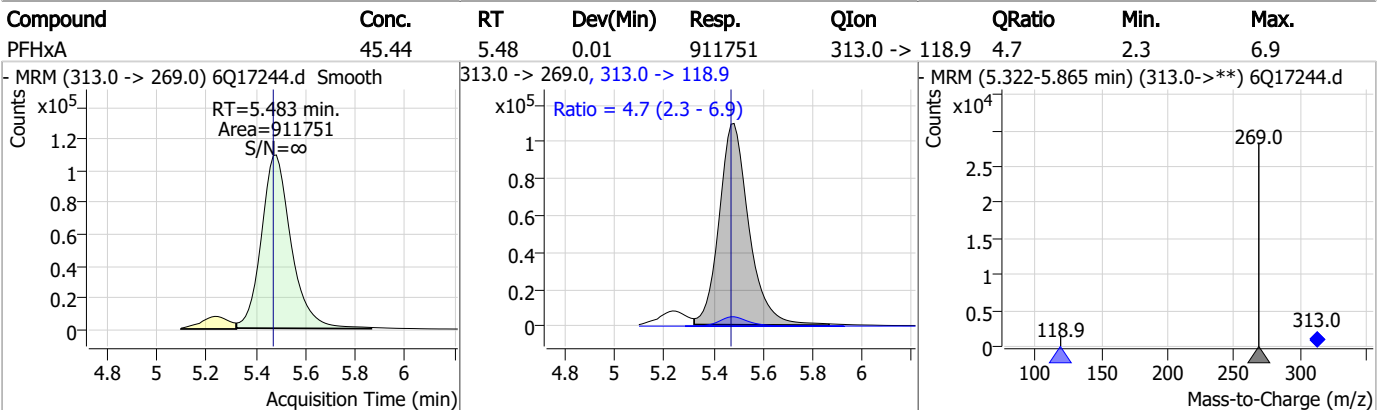
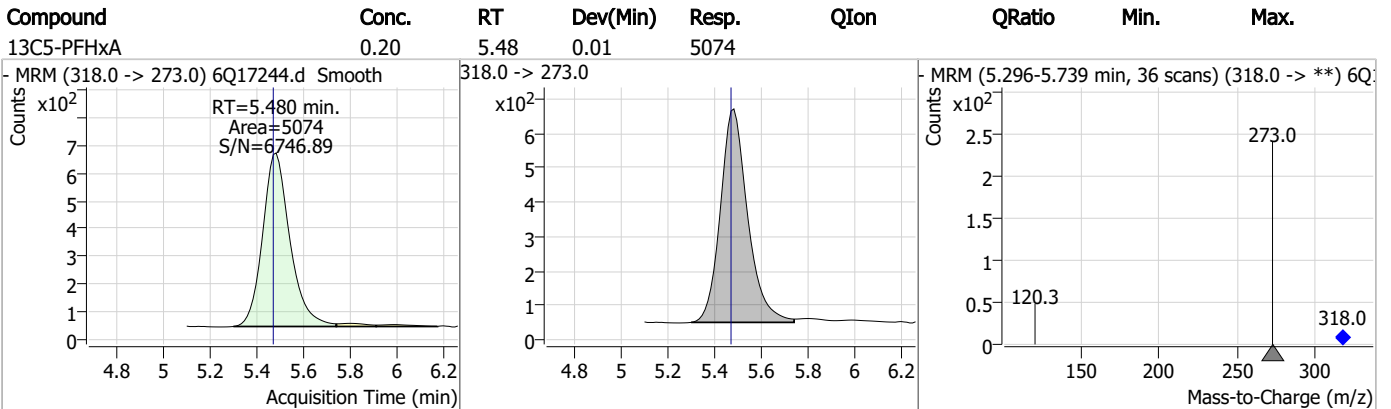
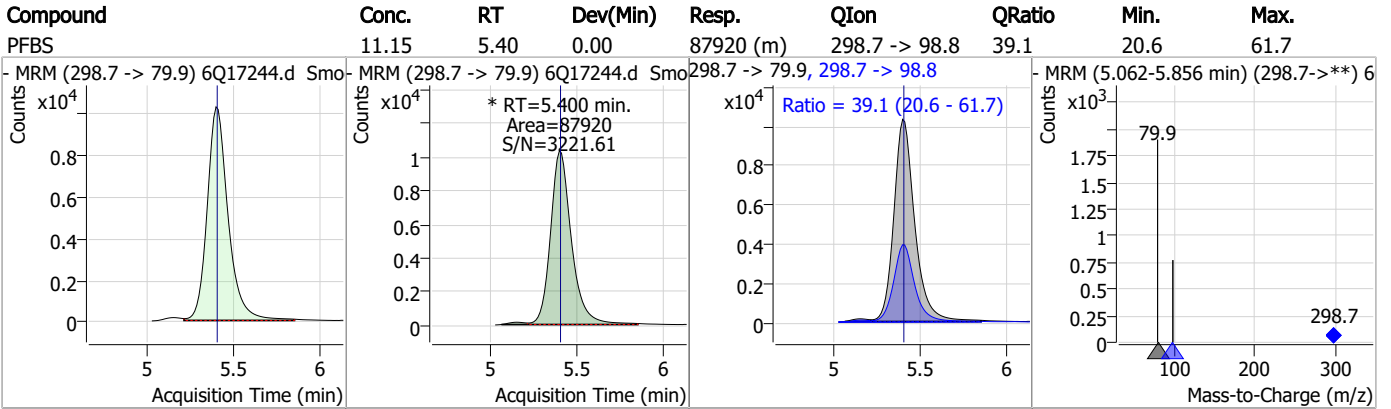
7.4.2
7

Perfluorinated Compounds by LC/MS/MS



7.4.2
7

Perfluorinated Compounds by LC/MS/MS

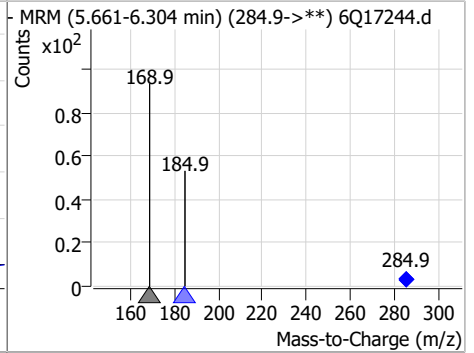
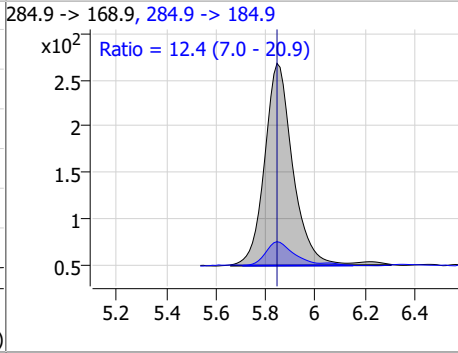
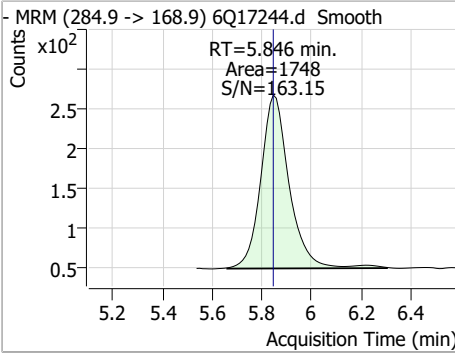


7.4.2

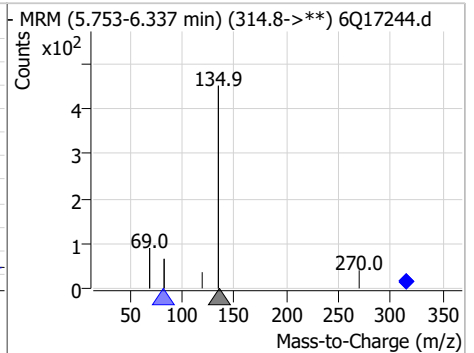
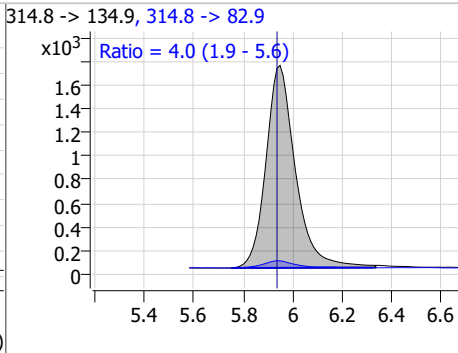
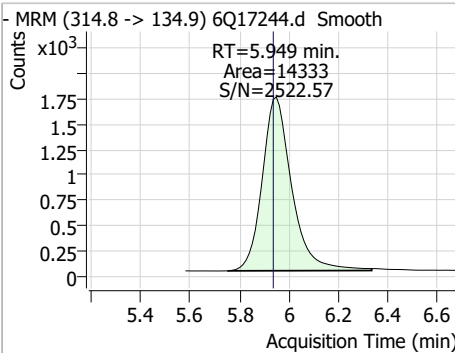
7

Perfluorinated Compounds by LC/MS/MS

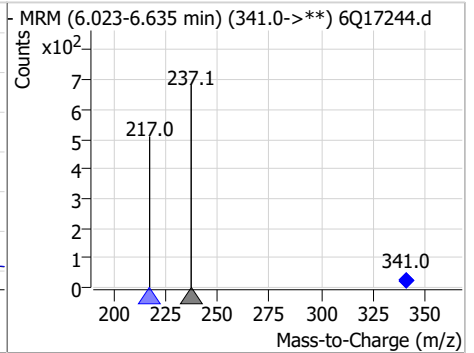
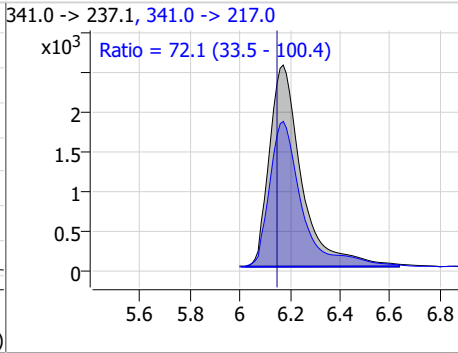
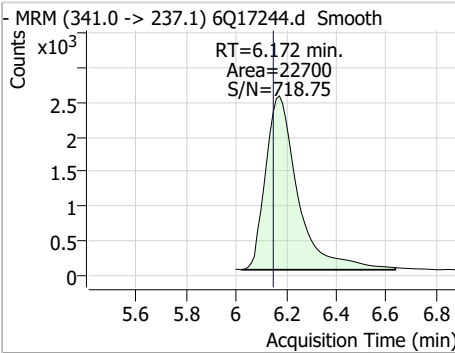
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.58	5.85	0.00	1748	284.9 -> 184.9	12.4	7.0	20.9



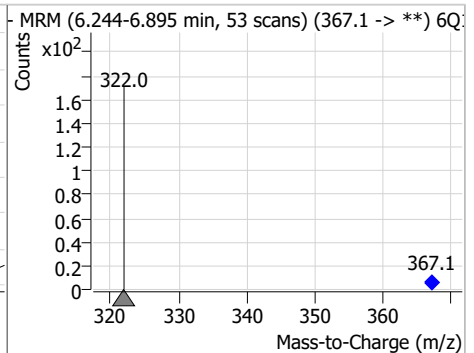
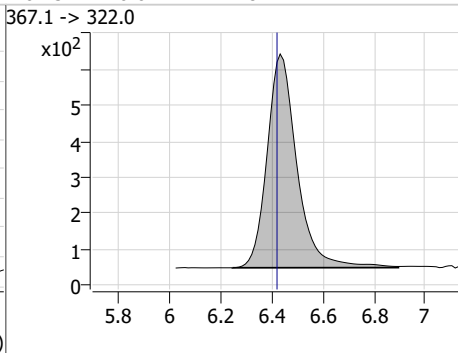
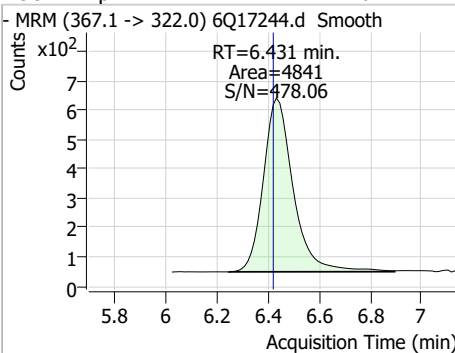
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.57	5.95	0.01	14333	314.8 -> 82.9	4.0	1.9	5.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	6.99	6.17	0.02	22700	341.0 -> 217.0	72.1	33.5	100.4



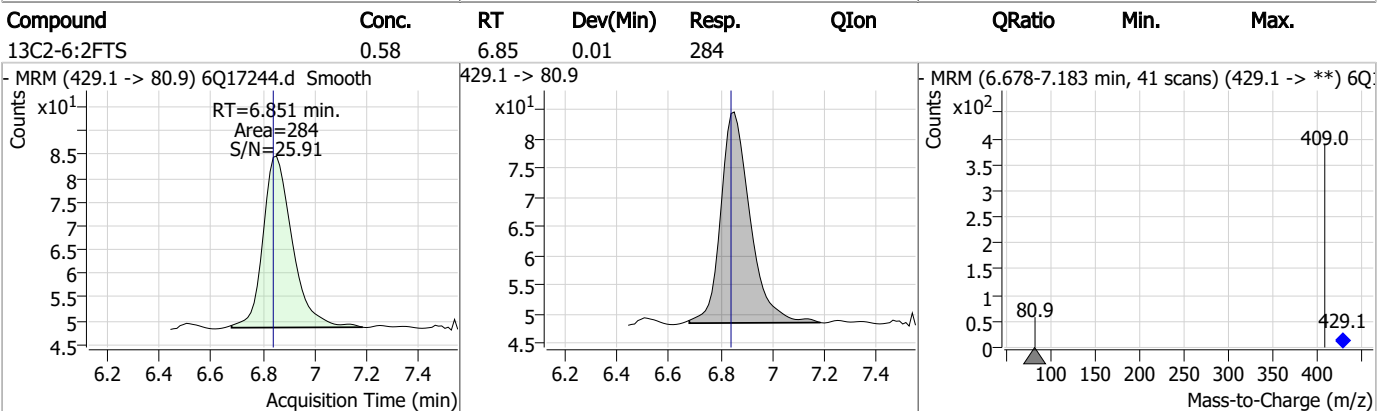
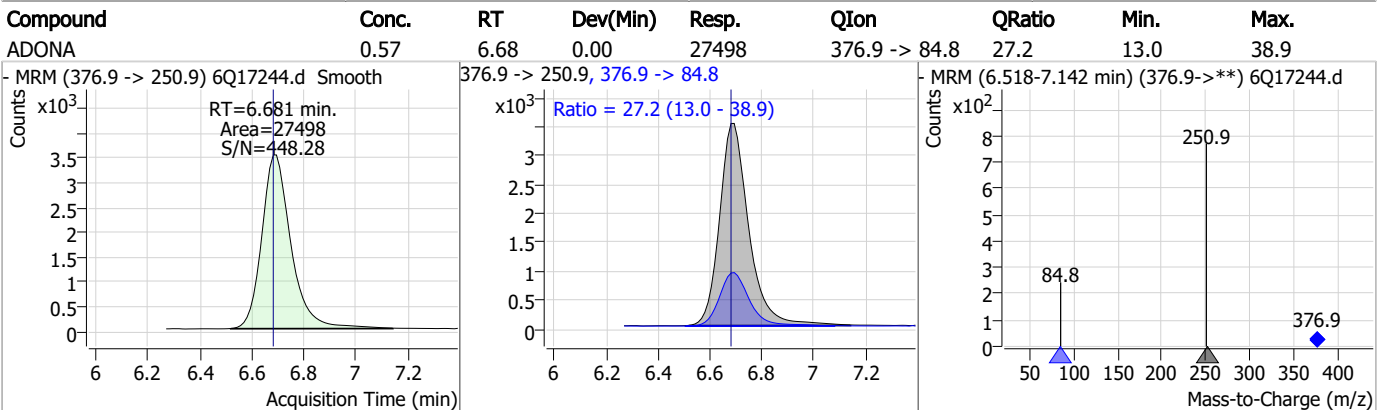
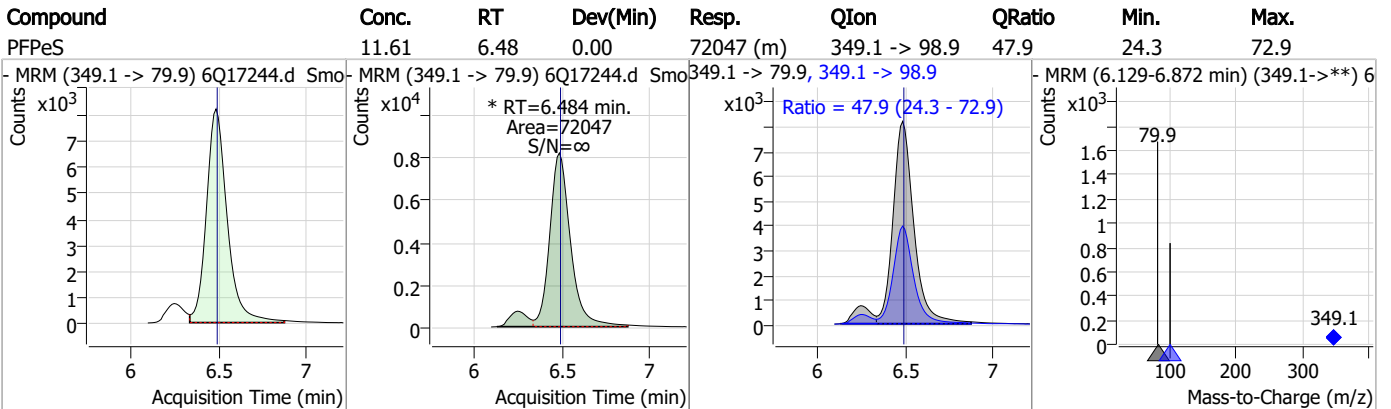
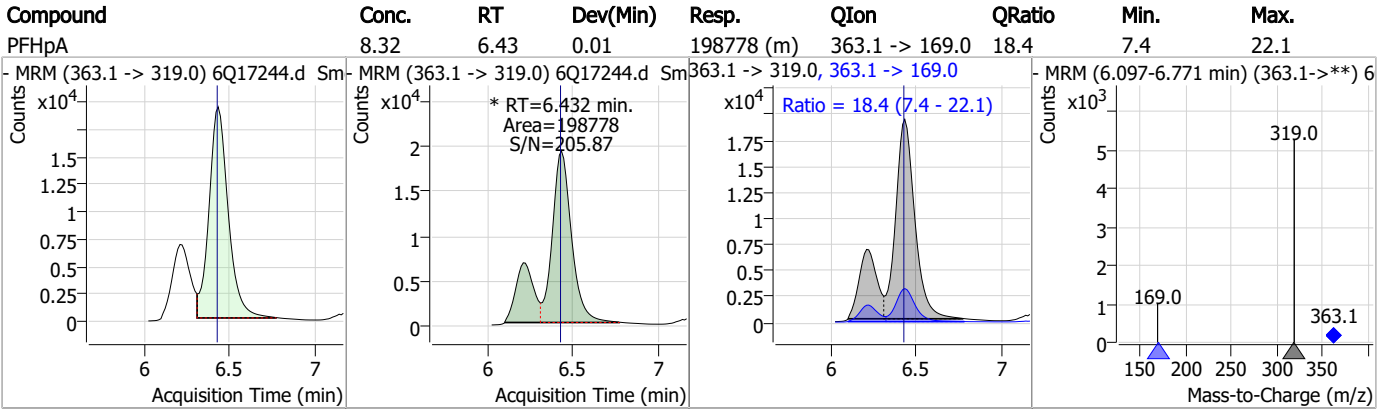
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	0.22	6.43	0.01	4841	367.1 -> 322.0			



7.4.2

7

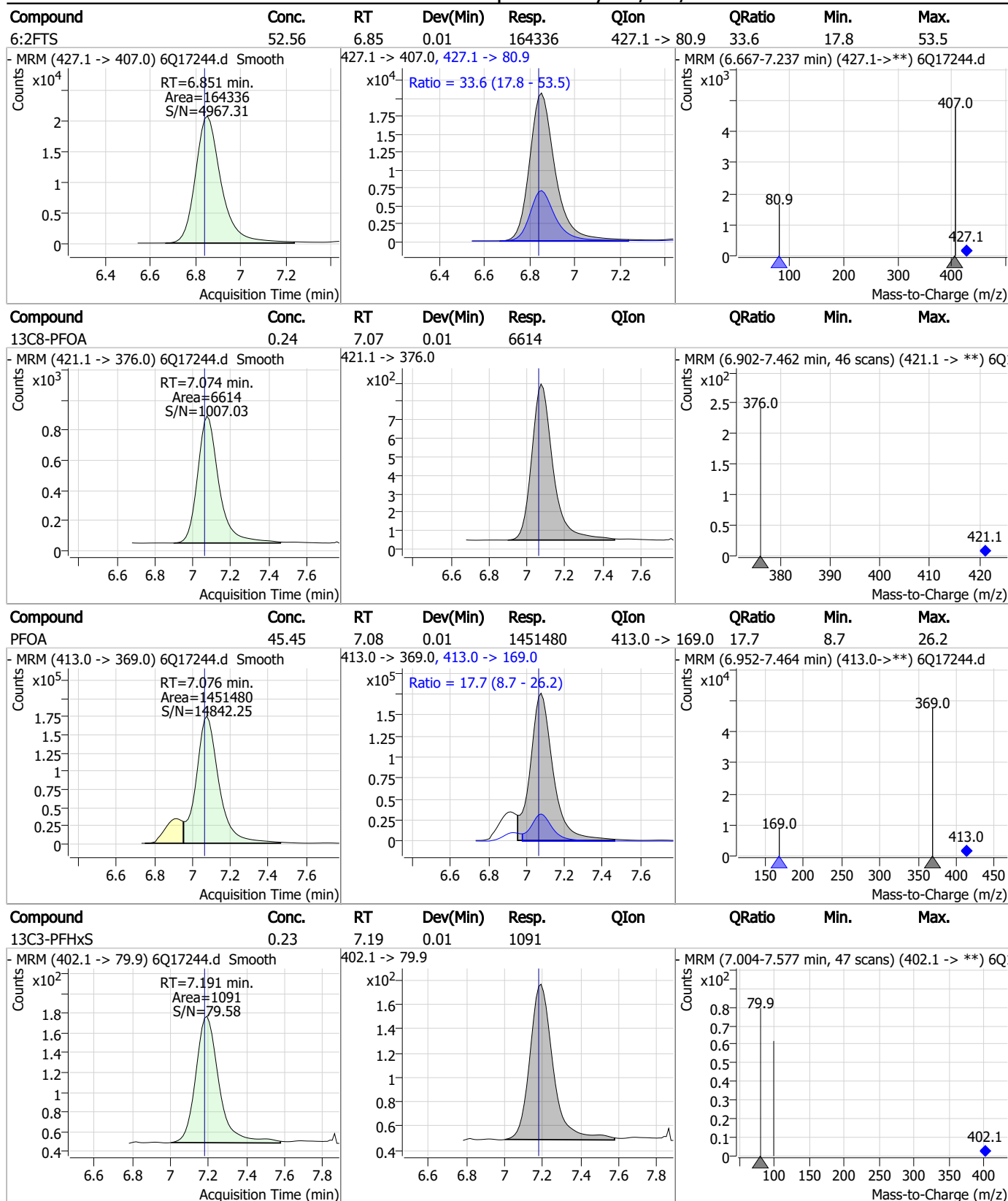
Perfluorinated Compounds by LC/MS/MS



7.4.2

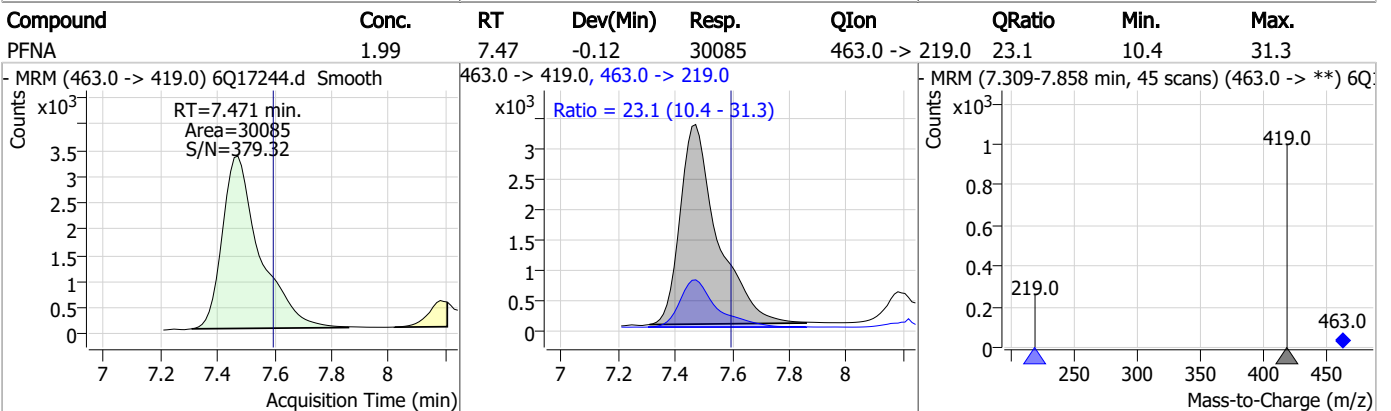
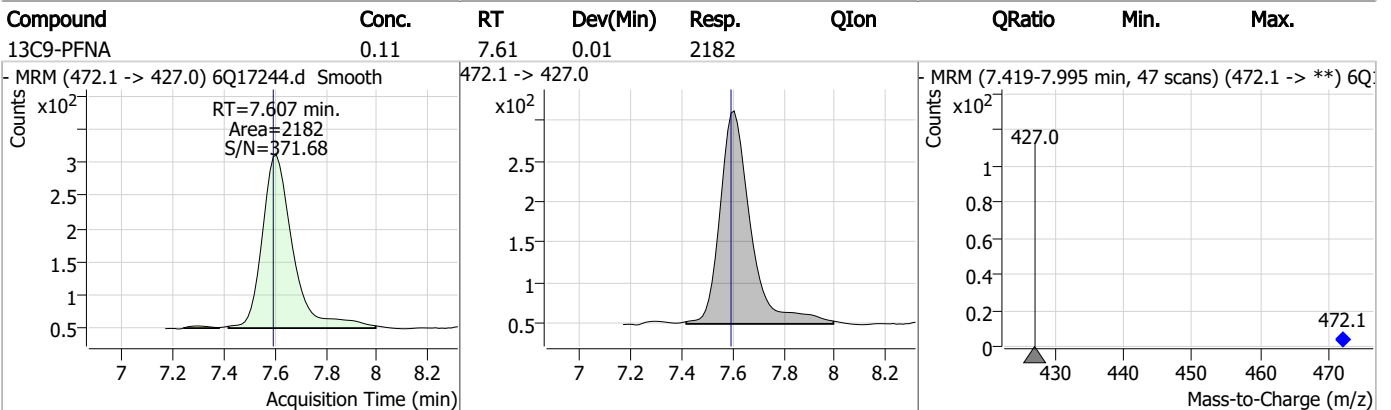
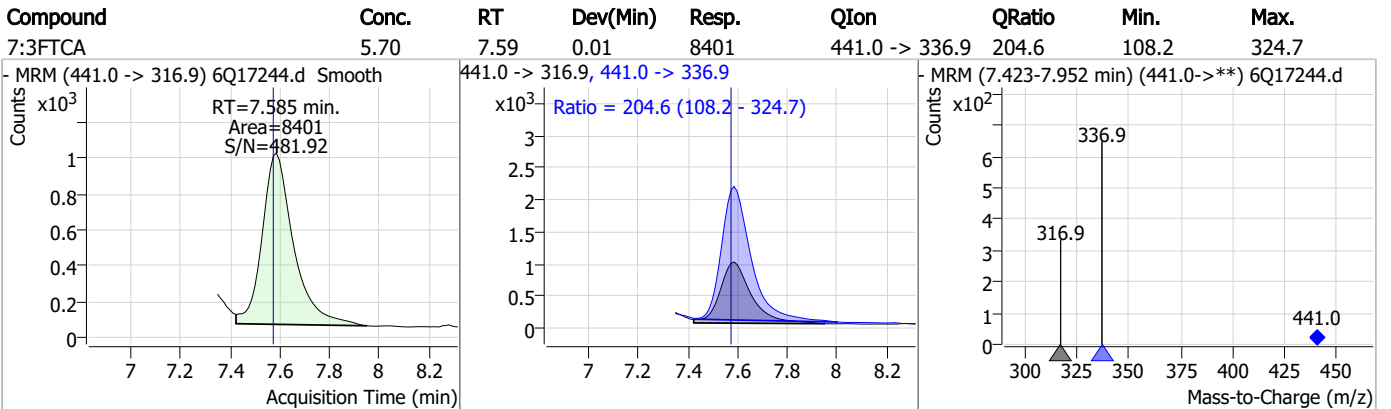
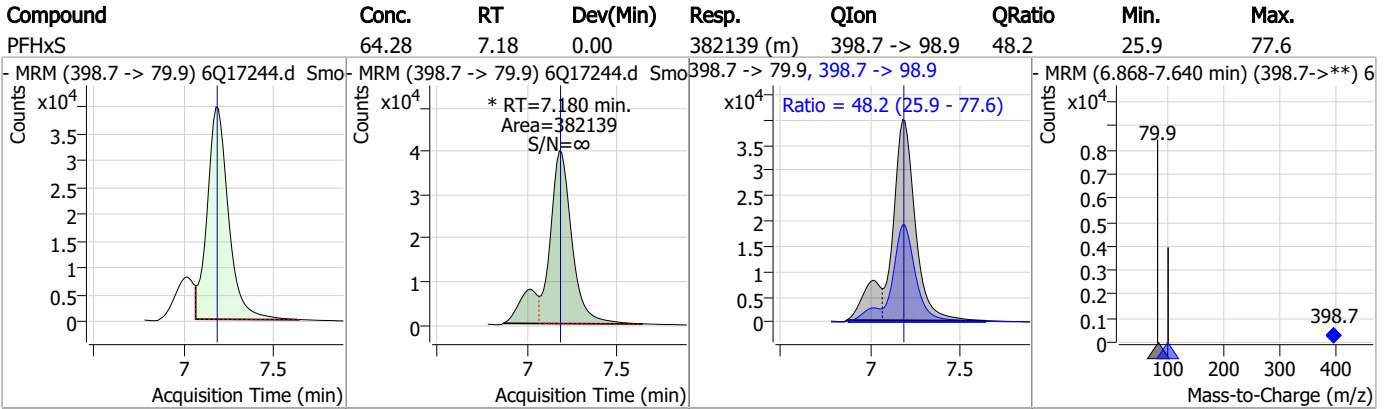
7

Perfluorinated Compounds by LC/MS/MS



7.4.2
7

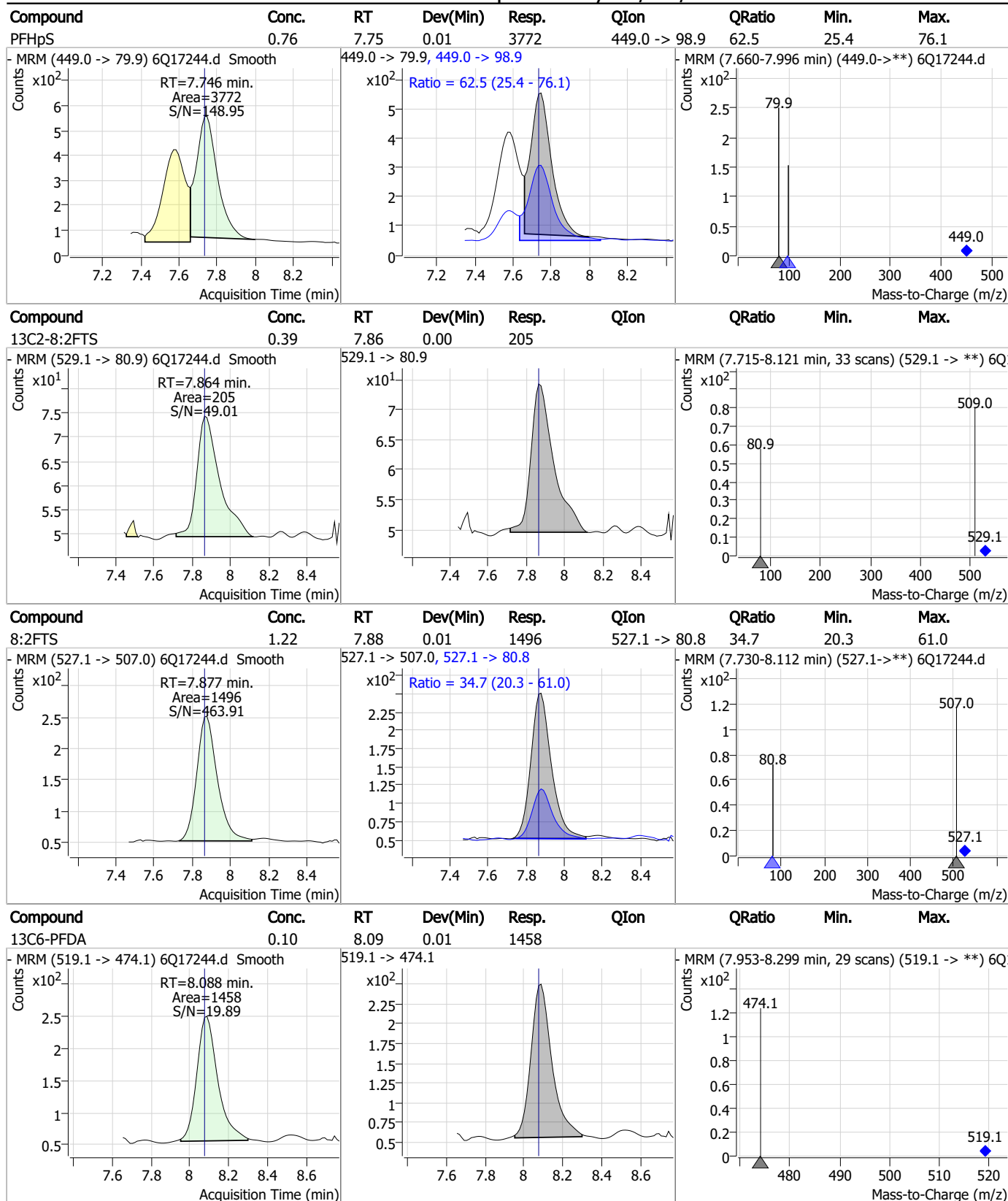
Perfluorinated Compounds by LC/MS/MS



7.4.2

7

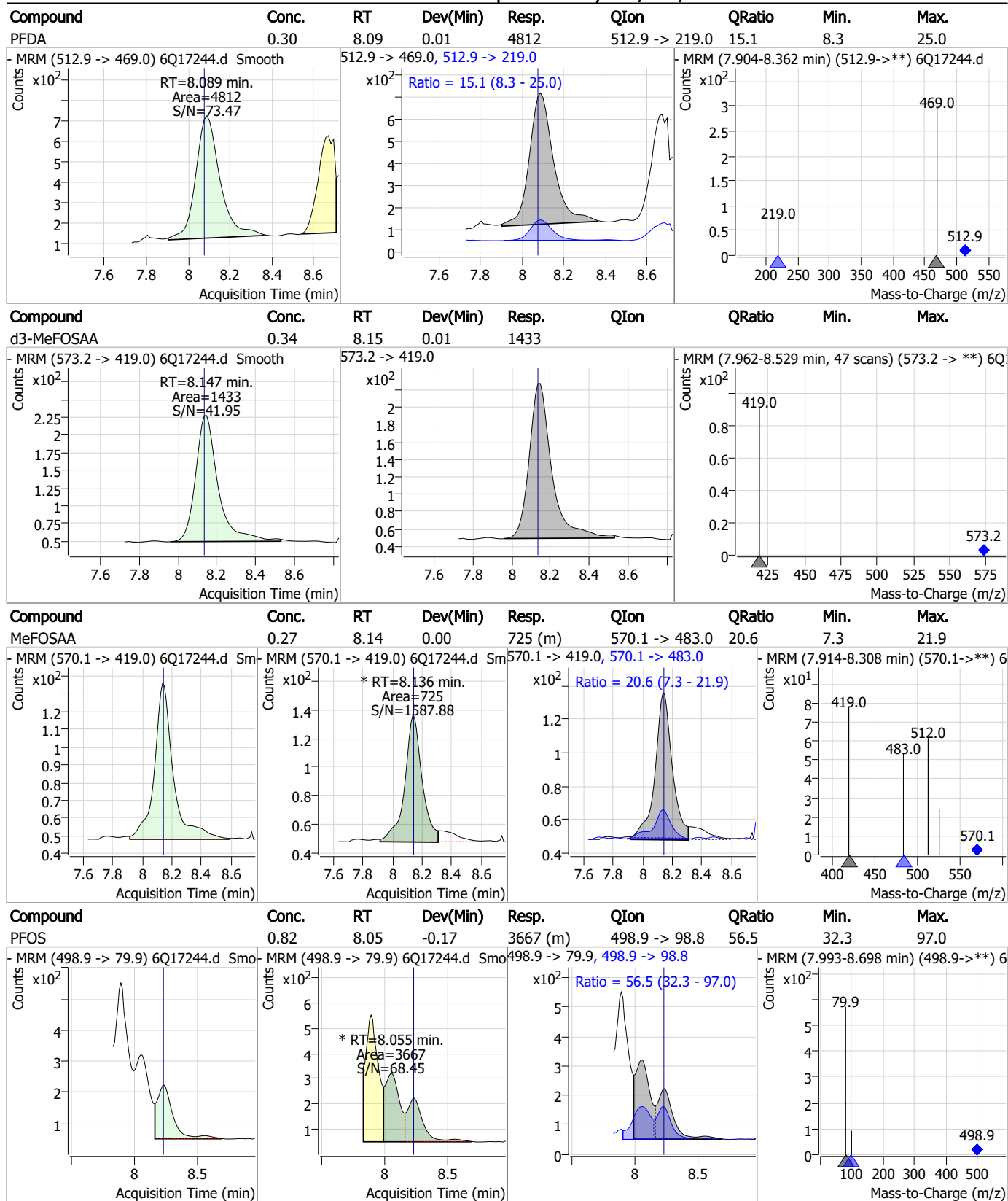
Perfluorinated Compounds by LC/MS/MS



7.4.2
7



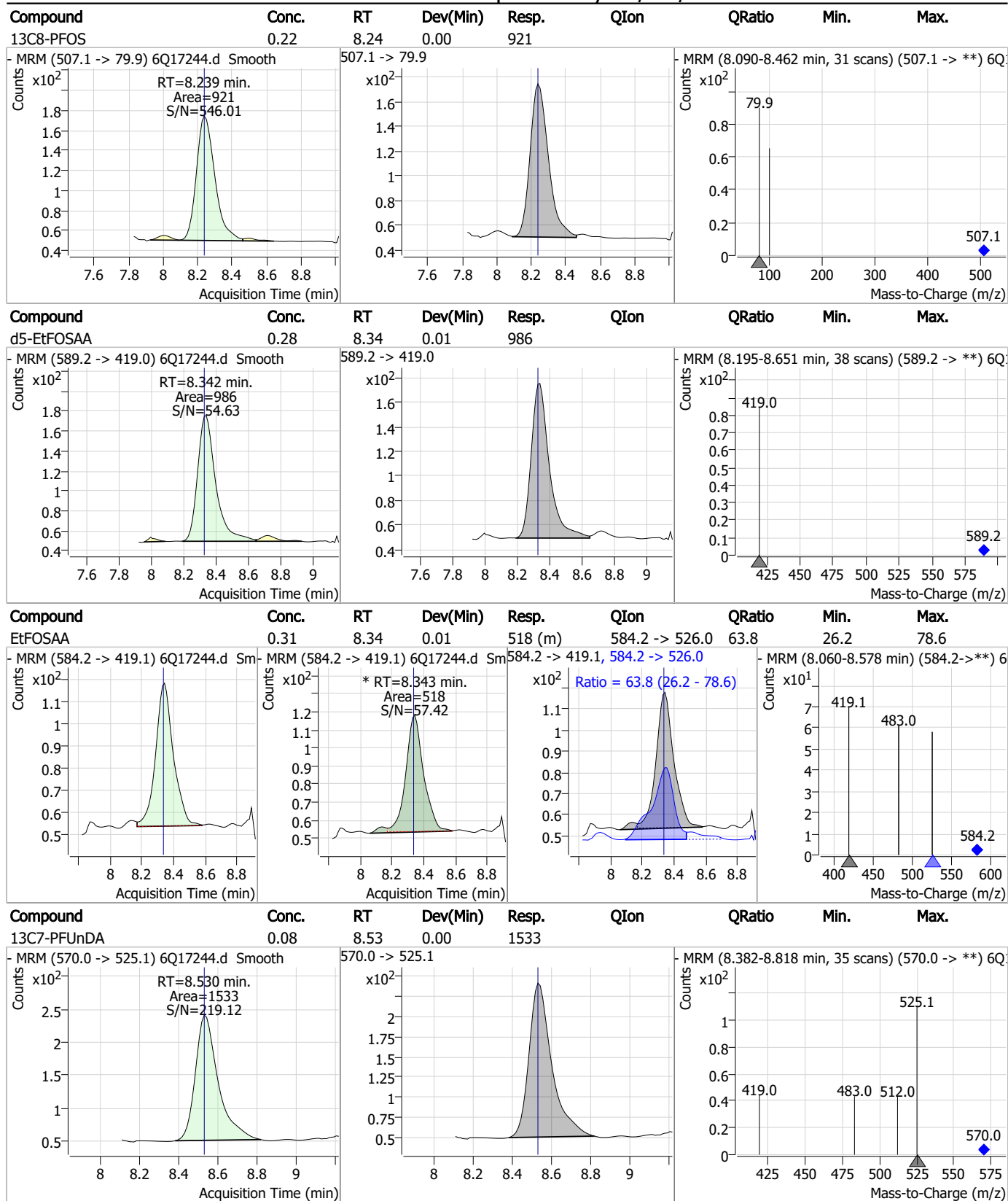
Perfluorinated Compounds by LC/MS/MS



7.4.2

7

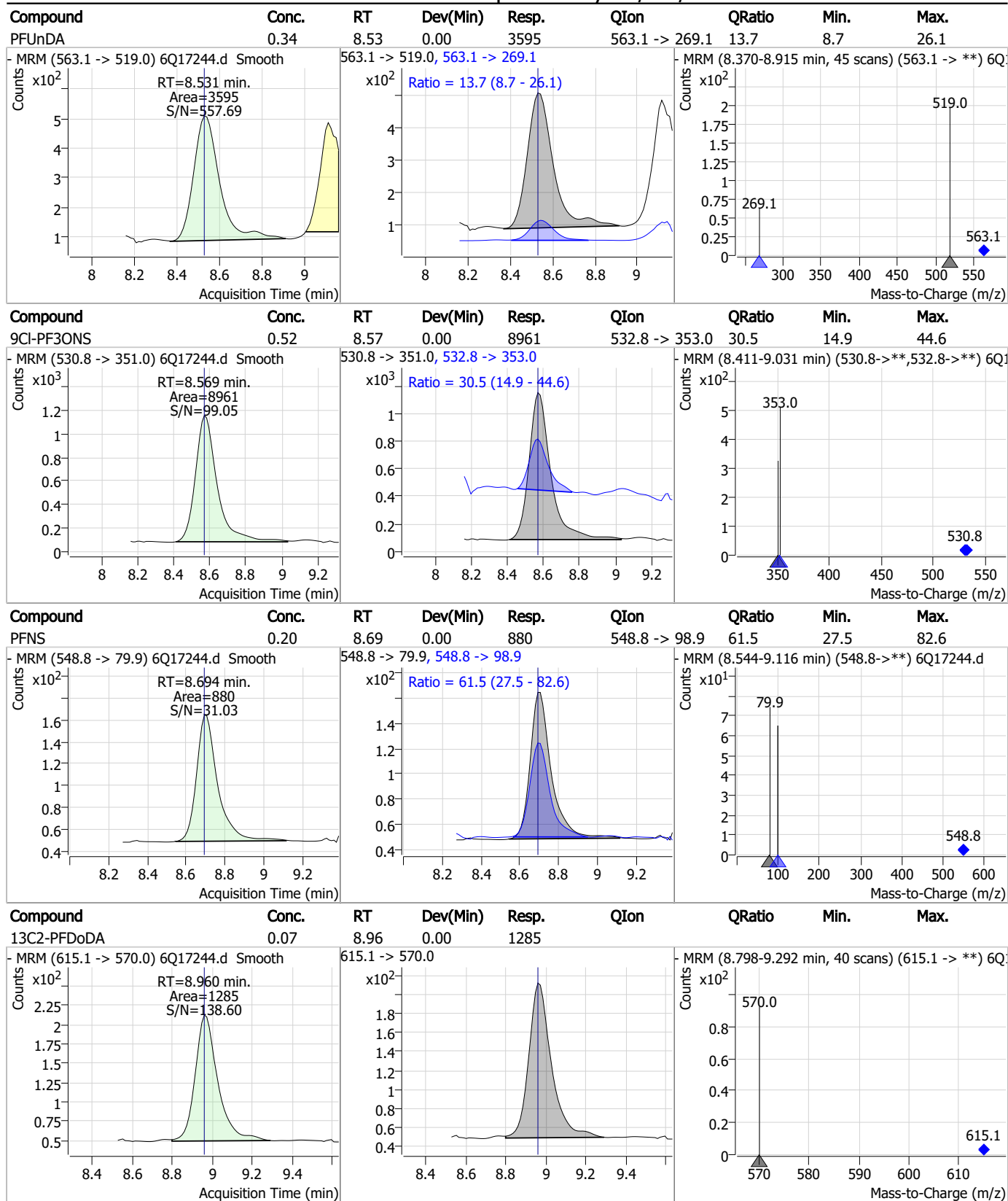
Perfluorinated Compounds by LC/MS/MS



7.4.2
7



Perfluorinated Compounds by LC/MS/MS

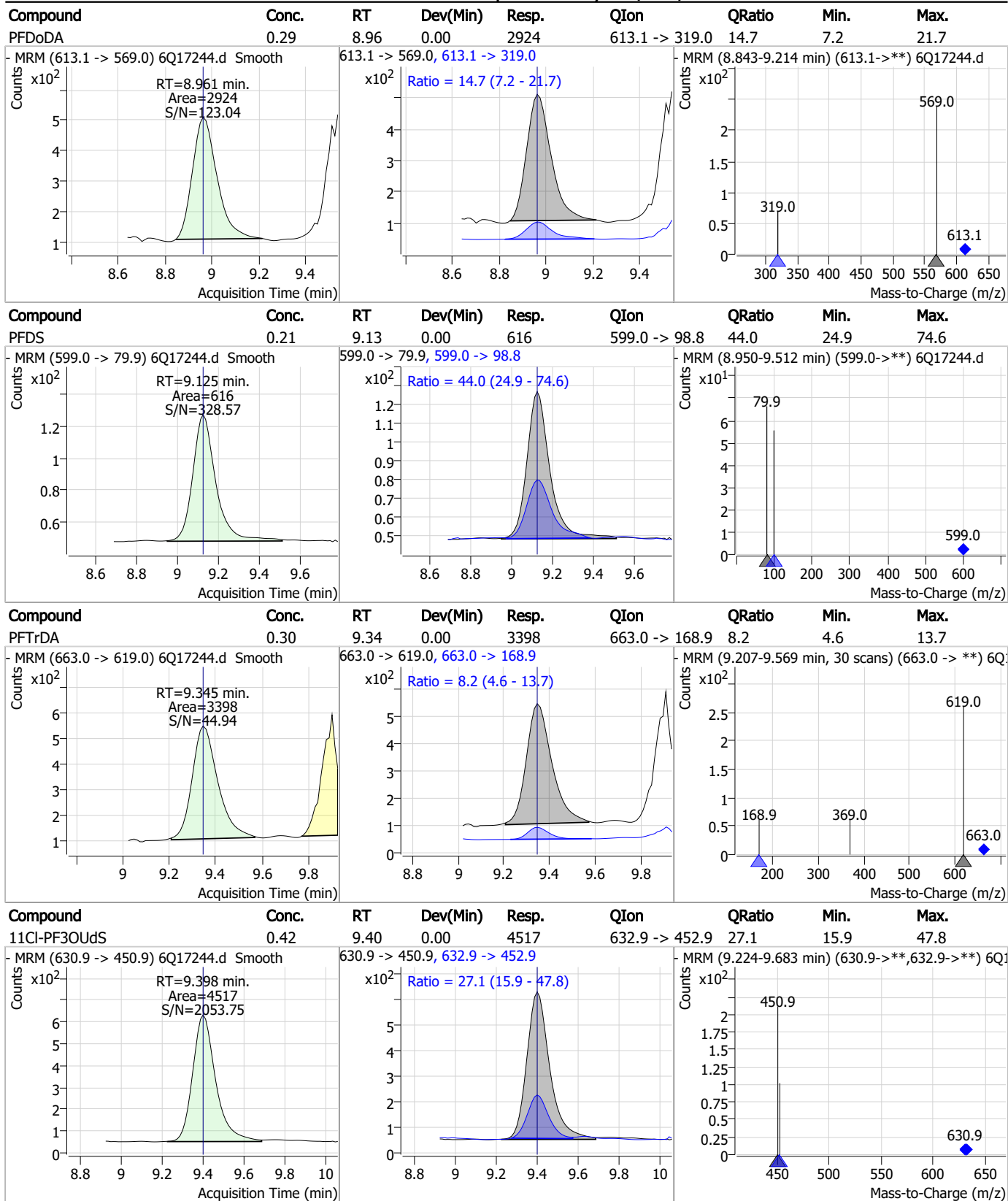


7.4.2

7



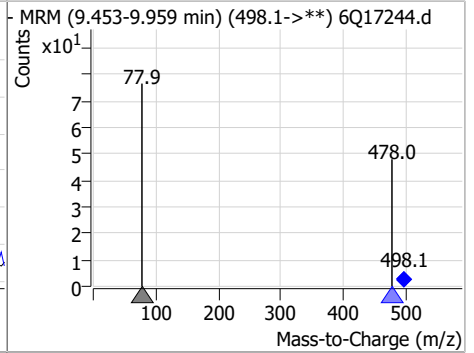
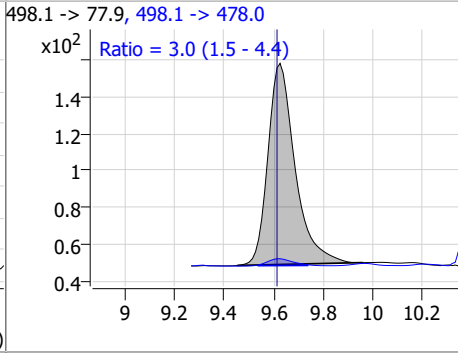
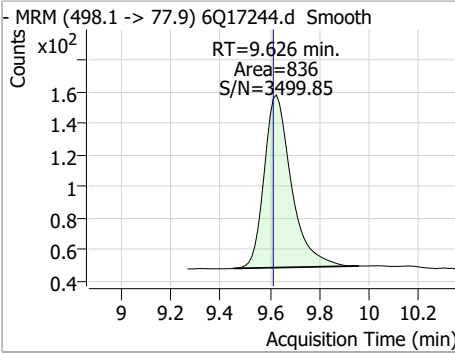
Perfluorinated Compounds by LC/MS/MS



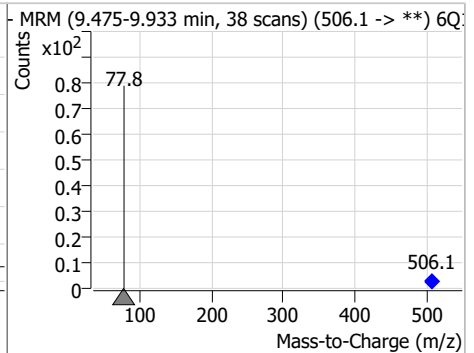
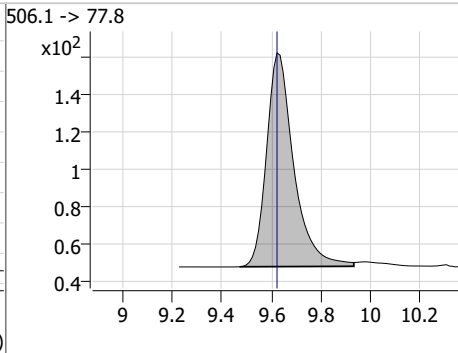
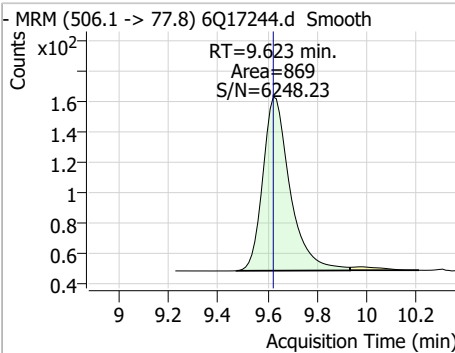
7.4.2
7

Perfluorinated Compounds by LC/MS/MS

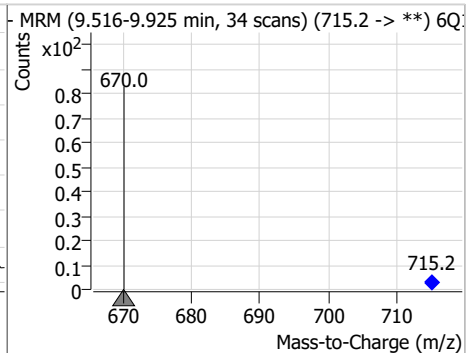
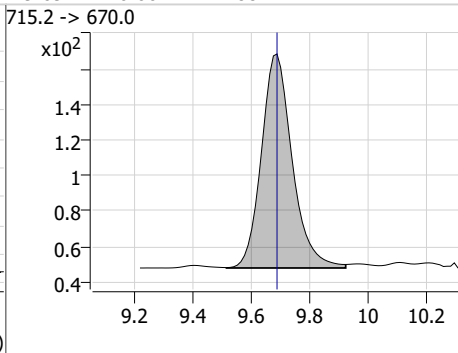
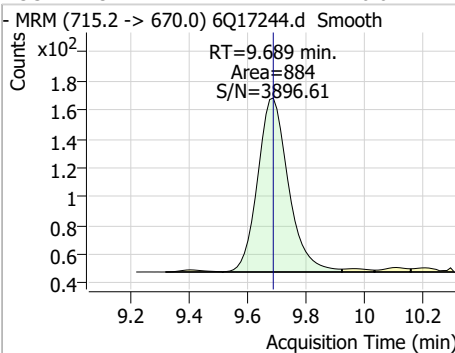
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.27	9.63	0.01	836	498.1 -> 478.0	3.0	1.5	4.4



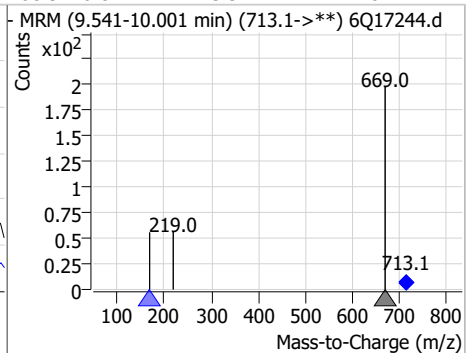
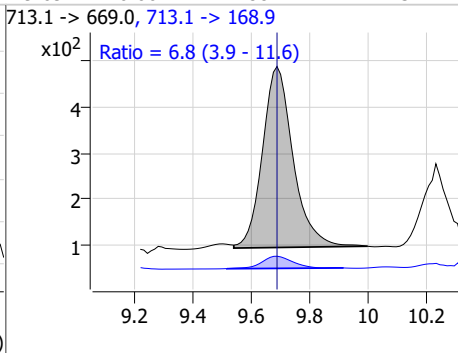
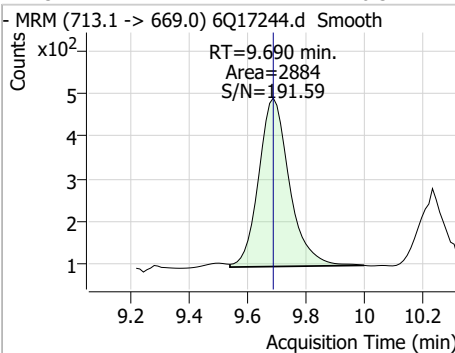
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	0.09	9.62	0.00	869				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	0.07	9.69	0.00	884				

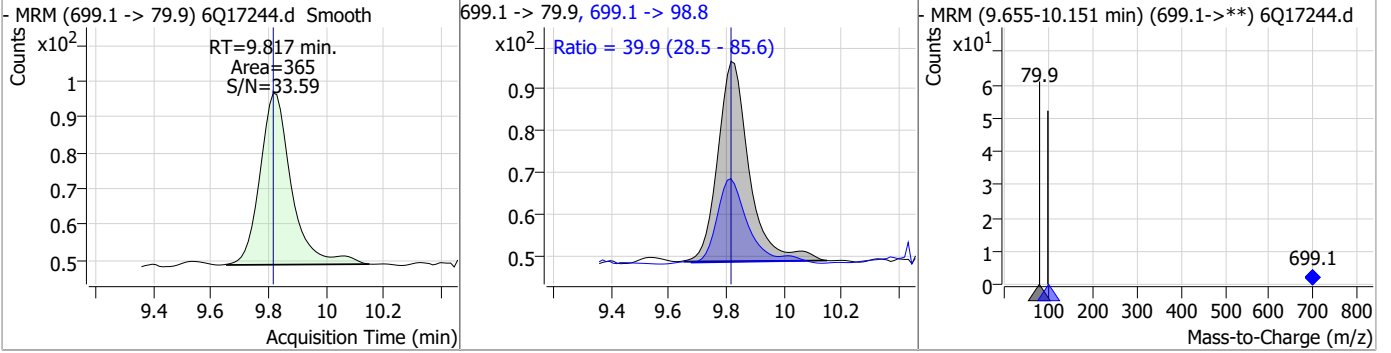


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.32	9.69	0.00	2884	713.1 -> 168.9	6.8	3.9	11.6

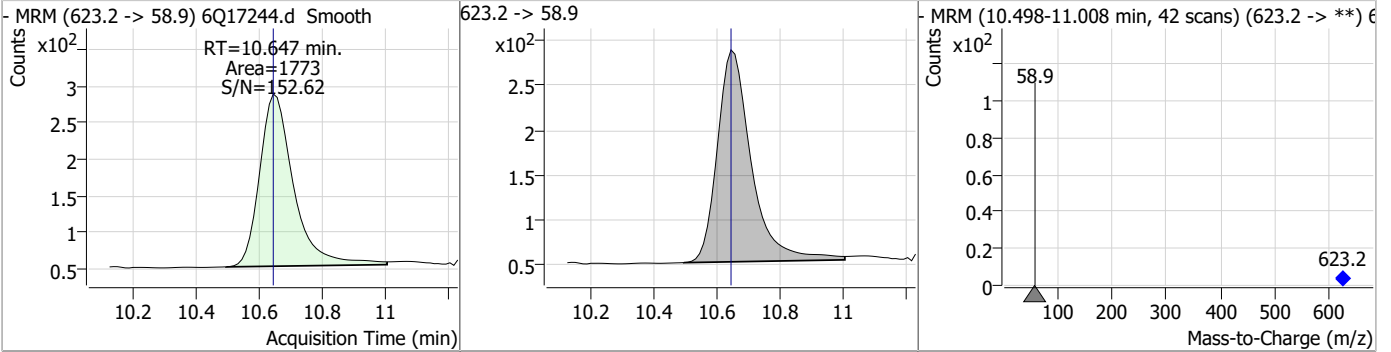


Perfluorinated Compounds by LC/MS/MS

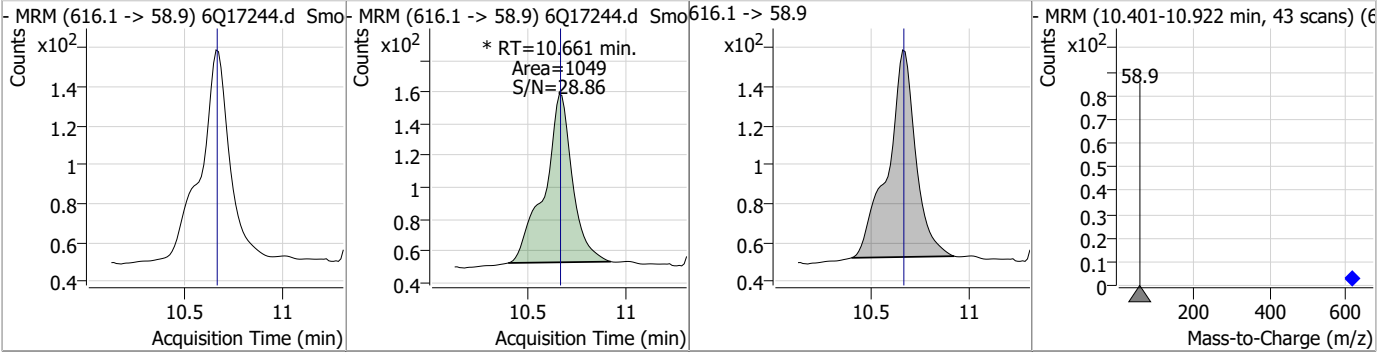
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.24	9.82	0.00	365	699.1 -> 98.8	39.9	28.5	85.6



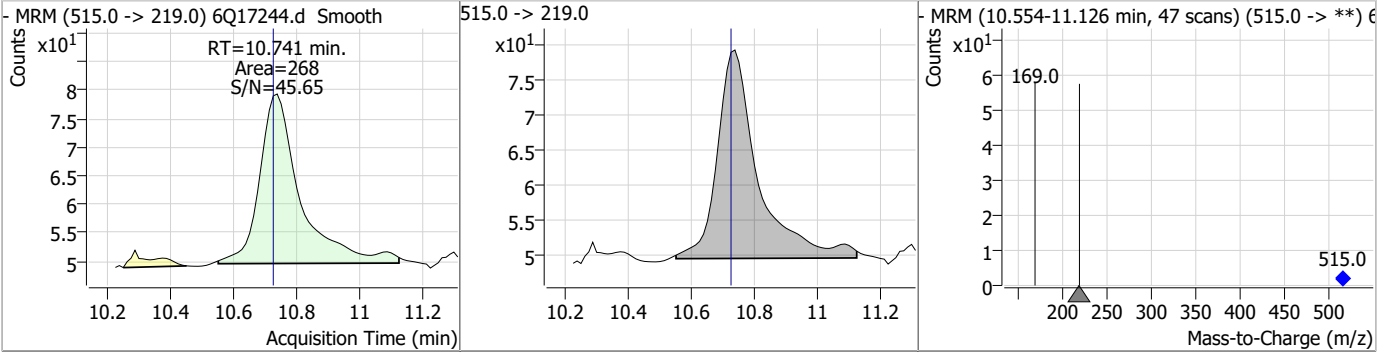
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	0.48	10.65	0.00	1773				



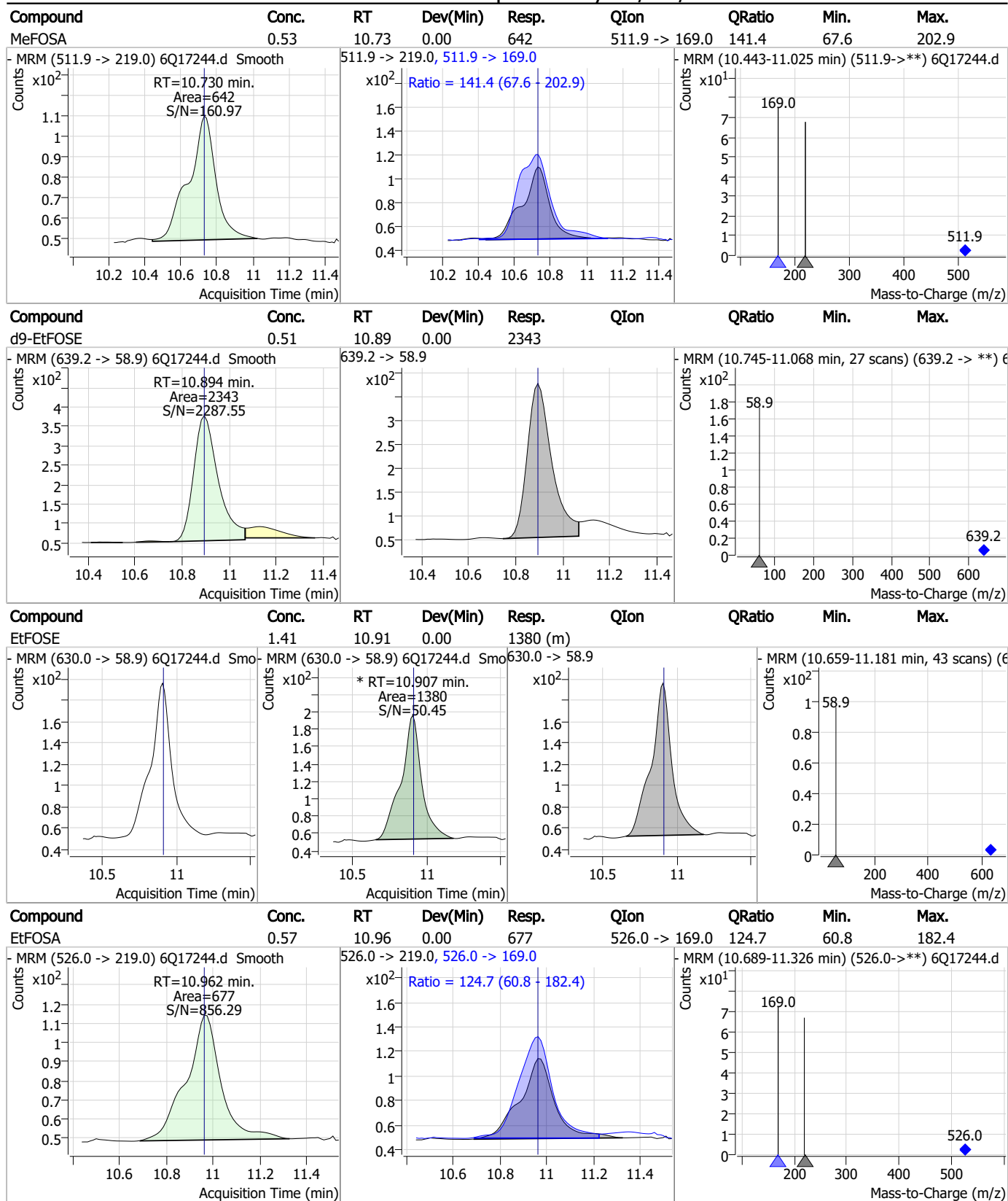
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	1.33	10.66	0.00	1049 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	0.08	10.74	0.01	268				



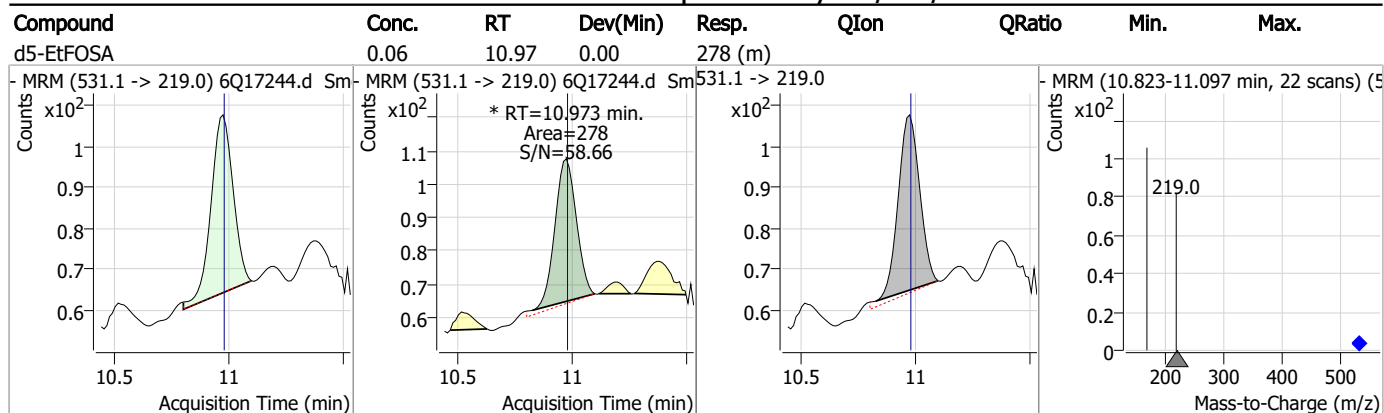
Perfluorinated Compounds by LC/MS/MS



7.4.2

7

Perfluorinated Compounds by LC/MS/MS



7.4.2

7

Manual Integration Approval Summary

Sample Number: OP96579-MSD **Method:** EPA DRAFT 1633
Lab FileID: 6Q17244.D **Analyst approved:** 05/02/23 19:32 Norman Farmer
Injection Time: 05/01/23 16:12 **Supervisor approved:** 05/02/23 19:39 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorobutanesulfonic acid	375-73-5		5.40	Split peak
Perfluoroheptanoic acid	375-85-9		6.43	Split peak
Perfluoropentanesulfonic acid	2706-91-4		6.48	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.05	Split peak
MeFOSAA	2355-31-9		8.14	Split peak
EtFOSAA	2991-50-6		8.34	Split peak
MeFOSE	24448-09-7		10.66	Missed peak
EtFOSE	1691-99-2		10.91	Missed peak
d5-EtFOSA			10.97	Split peak

7.4.2.1
7

Manual Integrations
APPROVED
 (compounds with "m" flag)
 Norman Farmer
 04/30/23 23:39

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17048.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 12:06:49 PM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s6q258 TDCA.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

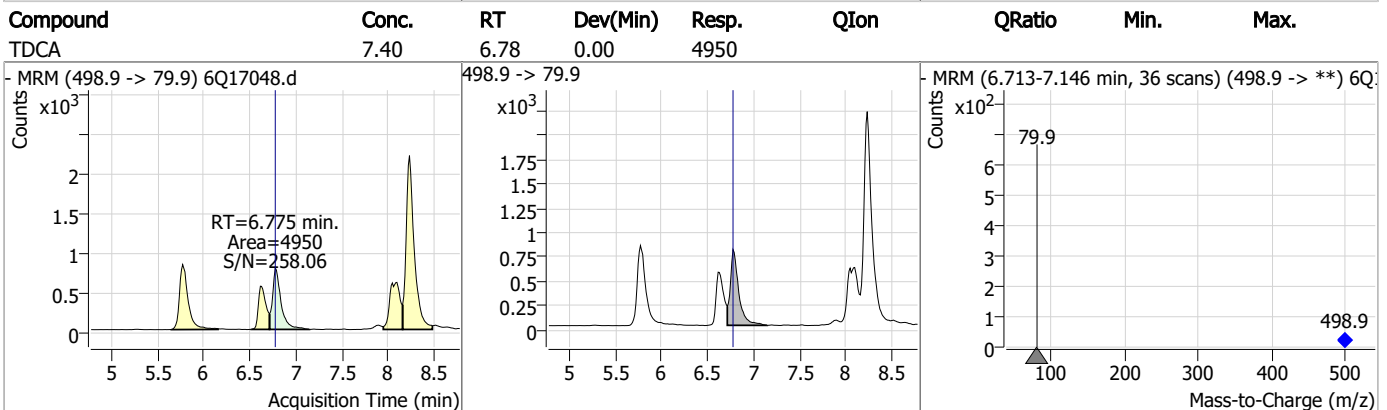
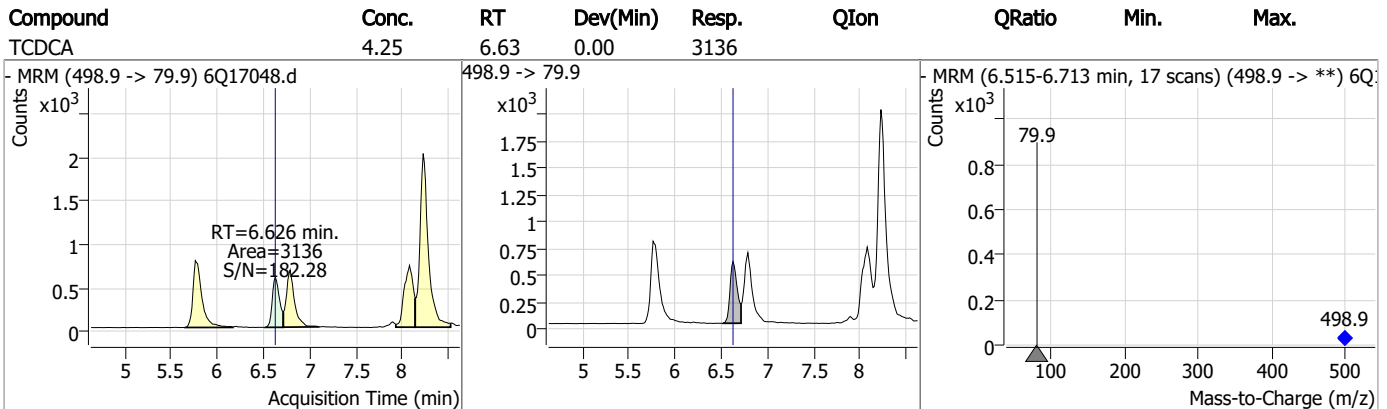
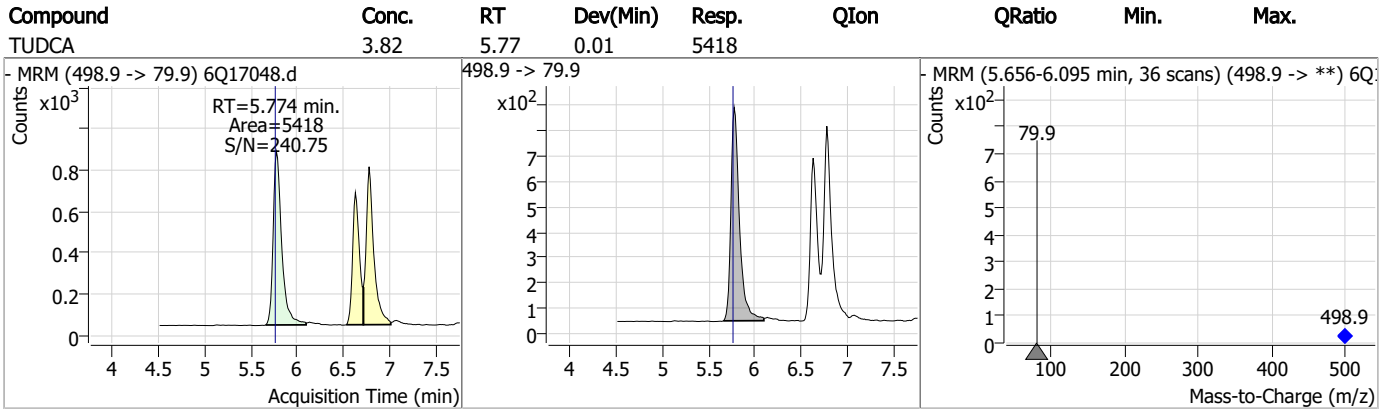
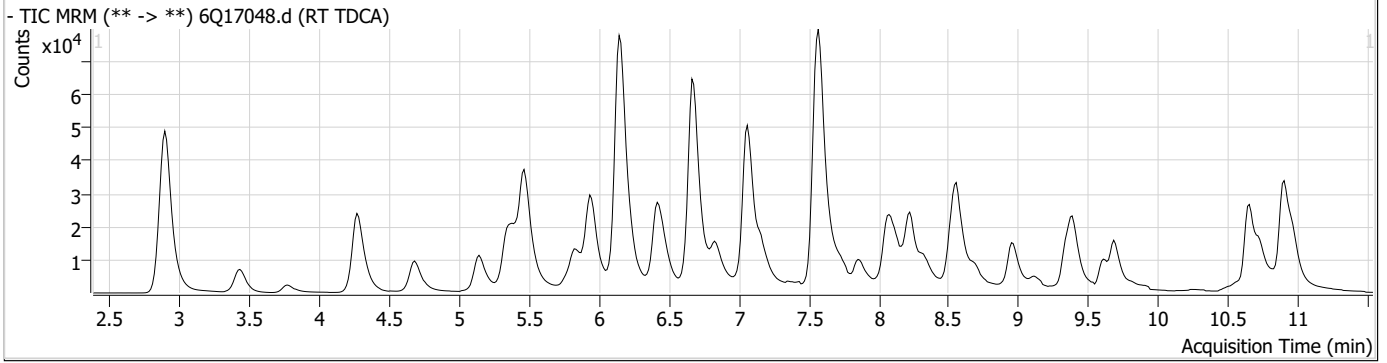
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.226	507.1 -> 79.9	16002	2.50	µg/L	-0.012	
13C4-PFOS	8.227	502.8 -> 79.9	20090	2.50	µg/L	-0.012	
System Monitoring Compounds							
13C8-PFOS	8.226	507.1 -> 79.9	16002	2.02	µg/L	-0.012	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 80.8%				
Target Compounds							
PFOS	8.228	498.9 -> 79.9 498.9 -> 98.8	16996 8673	3.11	µg/L	m	82
TCDCa	6.626	498.9 -> 79.9	3136	4.25	ng/ml		100
TDCA	6.775	498.9 -> 79.9	4950	7.40	ng/ml		100
TUDCA	5.774	498.9 -> 79.9	5418	3.82	ng/ml		100

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

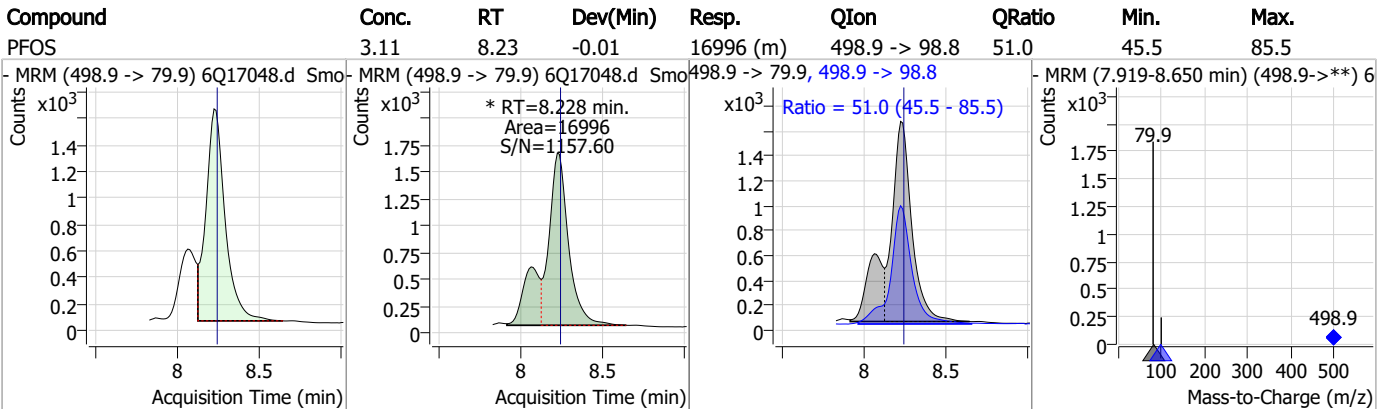
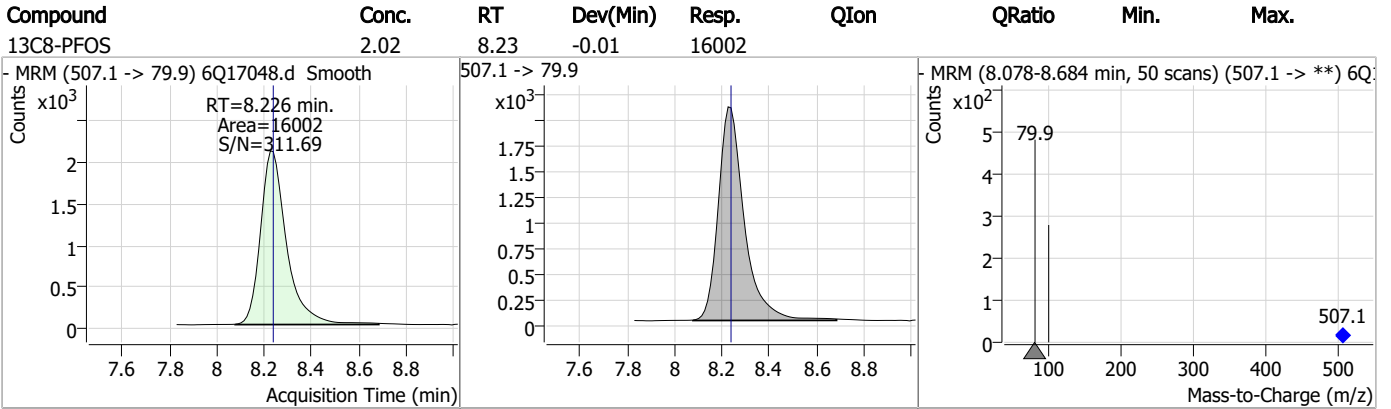
7.5.1
7



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.5.1

7

Manual Integration Approval Summary

Sample Number: S6Q258-RT Method: EPA DRAFT 1633
Lab FileID: 6Q17048.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 12:06 Supervisor approved: 04/30/23 23:39 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17049.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 12:21:19 PM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	171083	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	62201	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	64326	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	57751	2.50 µg/L	0.000
M8-PFOA	7.074	421.1 -> 376.0	79741	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	25663	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	20362	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	26150	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	25196	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17054	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	24114	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22749	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	11896	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	10763	2.50 µg/L	0.000
M2-4:2FTS	5.157	329.1 -> 80.9	2117	5.00 µg/L	0.012
M2-6:2FTS	6.839	429.1 -> 80.9	2602	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2983	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	19657	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	39060	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	18274	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	89275	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	110708	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	10680	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	9461	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	14092	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	75322	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9185	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	83641	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	22953	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	26302	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	55131	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.157	329.1 -> 80.9	2117	5.01 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2602	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2983	5.41 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.2%		
13C2-PFDoDA	8.960	615.1 -> 570.0	25196	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.5%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17054	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.6%		
13C3-PFBS	5.398	302.1 -> 79.9	22749	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.3%		
13C3-PFHxS	7.179	402.1 -> 79.9	11896	2.43 µg/L	0.000



7.5.2
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 = 97.3%	
13C4-PFBA	2.910	216.8 -> 171.9	171083	9.83 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C4-PFHpA	6.419	367.1 -> 322.0	57751	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C5-PFHxA	5.468	318.0 -> 273.0	64326	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C5-PFPeA	4.270	268.3 -> 223.0	62201	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C6-PFDA	8.076	519.1 -> 474.1	20362	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.6%	
13C7-PFUnDA	8.530	570.0 -> 525.1	26150	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.9%	
13C8-FOSA	9.623	506.1 -> 77.8	24114	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C8-PFOA	7.074	421.1 -> 376.0	79741	2.47 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C8-PFOS	8.239	507.1 -> 79.9	10763	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C9-PFNA	7.594	472.1 -> 427.0	25663	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.4%	
d3-MeFOSAA	8.134	573.2 -> 419.0	19657	4.68 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.6%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	39060	10.01 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
d3-MeFOSA	10.728	515.0 -> 219.0	9461	2.69 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.5%	
d5-EtFOSAA	8.330	589.2 -> 419.0	18274	5.24 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.7%	
d7-MeFOSE	10.647	623.2 -> 58.9	89275	24.14 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.6%	
d9-EtFOSE	10.894	639.2 -> 58.9	110708	24.50 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
d5-EtFOSA	10.960	531.1 -> 219.0	10680	2.47 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	161089	50.29 µg/L	100
		327.1 -> 80.9	59753		
6:2FTS	6.839	427.1 -> 407.0	144708	50.55 µg/L	95
		427.1 -> 80.9	47633		
8:2FTS	7.865	527.1 -> 507.0	85122	47.96 µg/L	99
		527.1 -> 80.8	35097		
EtFOSAA	8.331	584.2 -> 419.1	41169	13.26 µg/L	99
		584.2 -> 526.0	21718		
FOSA	9.614	498.1 -> 77.9	277513	32.12 µg/L	99
		498.1 -> 478.0	7576		
MeFOSAA	8.136	570.1 -> 419.0	54891	14.87 µg/L	89
		570.1 -> 483.0	10430		
PFBA	2.906	212.8 -> 168.9	313891	54.71 µg/L	100
PFBS	5.400	298.7 -> 79.9	115522	11.32 µg/L	96
		298.7 -> 98.8	44913		
PFDA	8.077	512.9 -> 469.0	309357	13.98 µg/L	100
		512.9 -> 219.0	51661		
PFDoDA	8.961	613.1 -> 569.0	267403	13.54 µg/L	99
		613.1 -> 319.0	37690		
PFDS	9.125	599.0 -> 79.9	45824	13.36 µg/L	98

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
		599.0 -> 98.8	23398		
PFHpA	6.420	363.1 -> 319.0	379066	13.30 µg/L	98
		363.1 -> 169.0	58738		
PFHpS	7.734	449.0 -> 79.9	76363	13.09 µg/L	95
		449.0 -> 98.9	36076		
PFHxA	5.470	313.0 -> 269.0	364382	14.33 µg/L	99
		313.0 -> 118.9	16079		
PFHxS	7.180	398.7 -> 79.9	69625	10.74 µg/L	98
		398.7 -> 98.9	34896		
PFNA	7.583	463.0 -> 419.0	272781	15.37 µg/L	100
		463.0 -> 219.0	56502		
PFNS	8.694	548.8 -> 79.9	69480	13.37 µg/L	100
		548.8 -> 98.9	38403		
PFOA	7.063	413.0 -> 369.0	1020780	26.58 µg/L	99
		413.0 -> 169.0	172403		
PFOS	8.240	498.9 -> 79.9	54204	10.43 µg/L	98
		498.9 -> 98.8	34321		
PFPeA	4.273	263.0 -> 219.0	457335	26.99 µg/L	100
PFPeS	6.484	349.1 -> 79.9	84715	12.51 µg/L	98
		349.1 -> 98.9	40297		
PFTeDA	9.690	713.1 -> 669.0	236649	13.73 µg/L	99
		713.1 -> 168.9	17343		
PFTrDA	9.345	663.0 -> 619.0	304546	13.93 µg/L	99
		663.0 -> 168.9	26425		
PFUnDA	8.531	563.1 -> 519.0	226163	12.47 µg/L	99
		563.1 -> 269.1	40725		
11CI-PF3OUdS	9.398	630.9 -> 450.9	349446	26.07 µg/L	98
		632.9 -> 452.9	107433		
9CI-PF3ONS	8.569	530.8 -> 351.0	553273	26.10 µg/L	98
		532.8 -> 353.0	171603		
ADONA	6.681	376.9 -> 250.9	1485563	25.18 µg/L	98
		376.9 -> 84.8	397204		
HFPO-DA	5.846	284.9 -> 168.9	96123	25.98 µg/L	98
		284.9 -> 184.9	12798		
3:3FTCA	3.784	241.0 -> 177.0	70658	66.70 µg/L	97
		241.0 -> 117.0	8689		
5:3FTCA	6.160	341.0 -> 237.1	1422375	345.57 µg/L	97
		341.0 -> 217.0	991188		
7:3FTCA	7.573	441.0 -> 316.9	673865	360.39 µg/L	95
		441.0 -> 336.9	1403411		
EtFOSA	10.962	526.0 -> 219.0	208567	47.51 µg/L	91
		526.0 -> 169.0	275120		
EtFOSE	10.907	630.0 -> 58.9	410058	88.94 µg/L	100
MeFOSA	10.730	511.9 -> 219.0	184326	43.29 µg/L	99
		511.9 -> 169.0	251723		
MeFOSE	10.661	616.1 -> 58.9	369093	92.70 µg/L	100
PFDoDS	9.817	699.1 -> 79.9	23237	13.10 µg/L	97
		699.1 -> 98.8	12700		
NFDHA	5.350	295.0 -> 201.0	74421	27.00 µg/L	96
		295.0 -> 84.9	19459		
PFMBA	4.687	279.0 -> 85.1	309902	27.27 µg/L	100
PFMPA	3.438	229.0 -> 84.9	228374	26.93 µg/L	100
PFEESA	5.937	314.8 -> 134.9	813277	25.34 µg/L	99
		314.8 -> 82.9	26166		

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

7.5.2
7

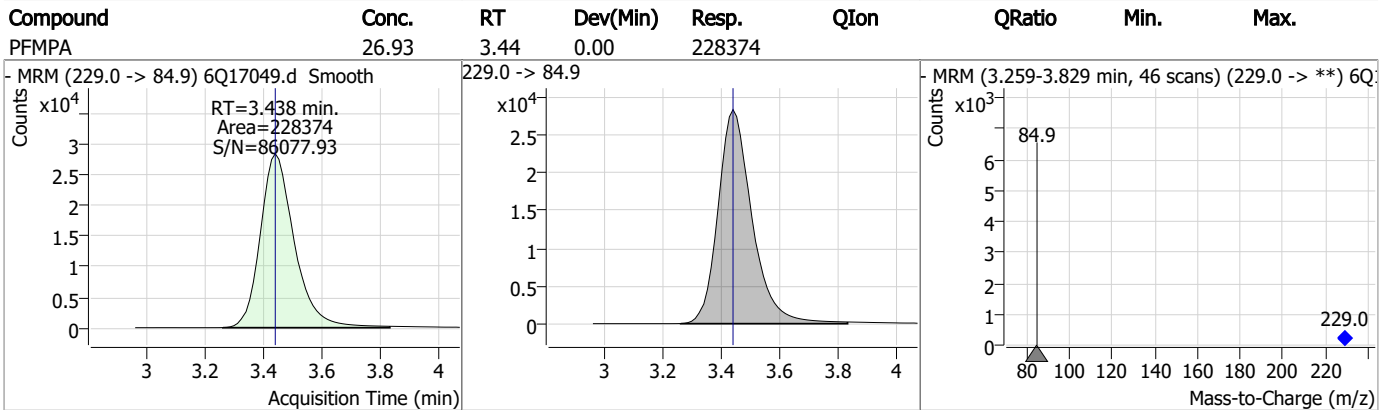
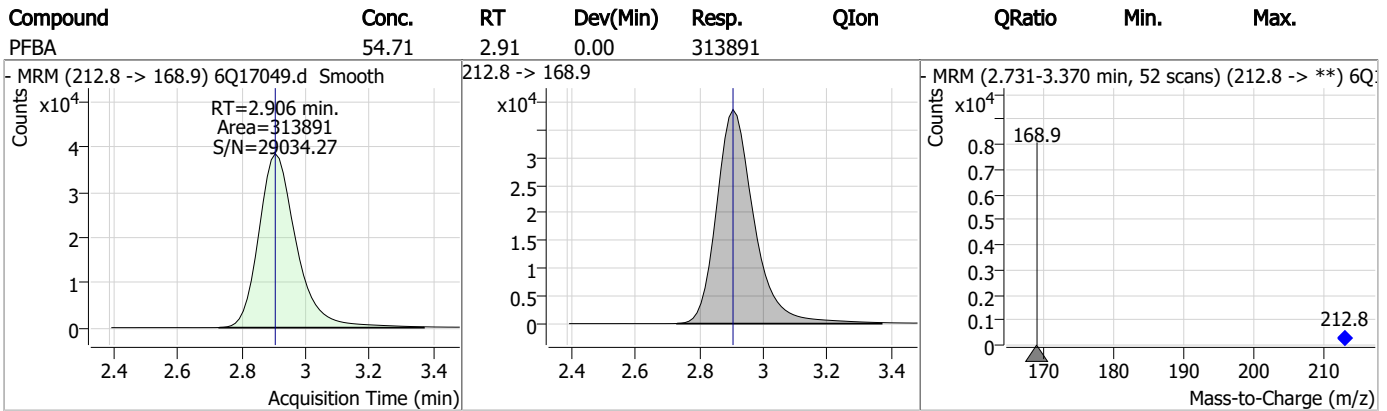
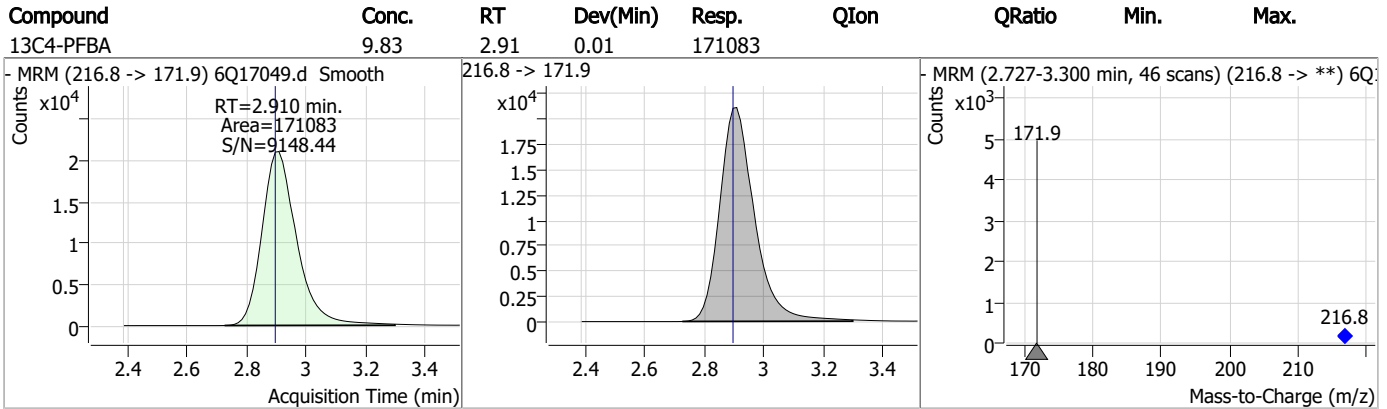
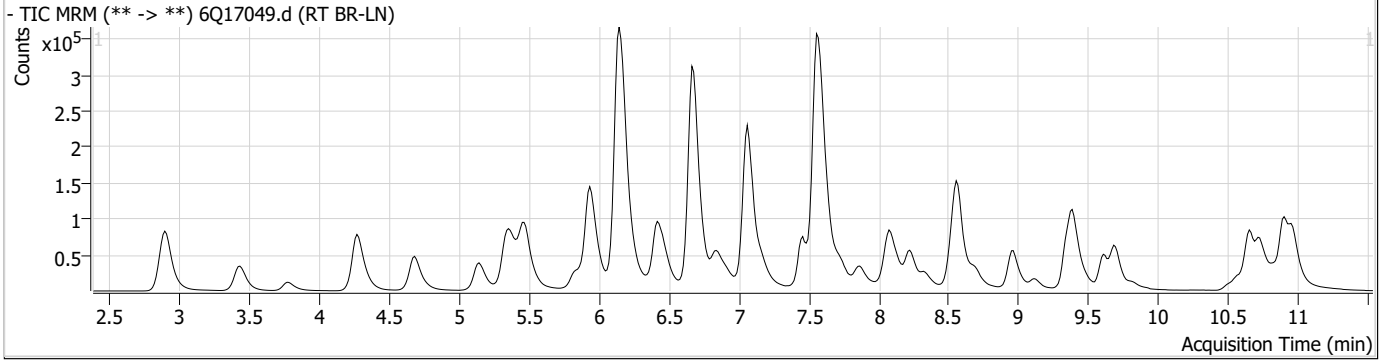
Perfluorinated Compounds by LC/MS/MS

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

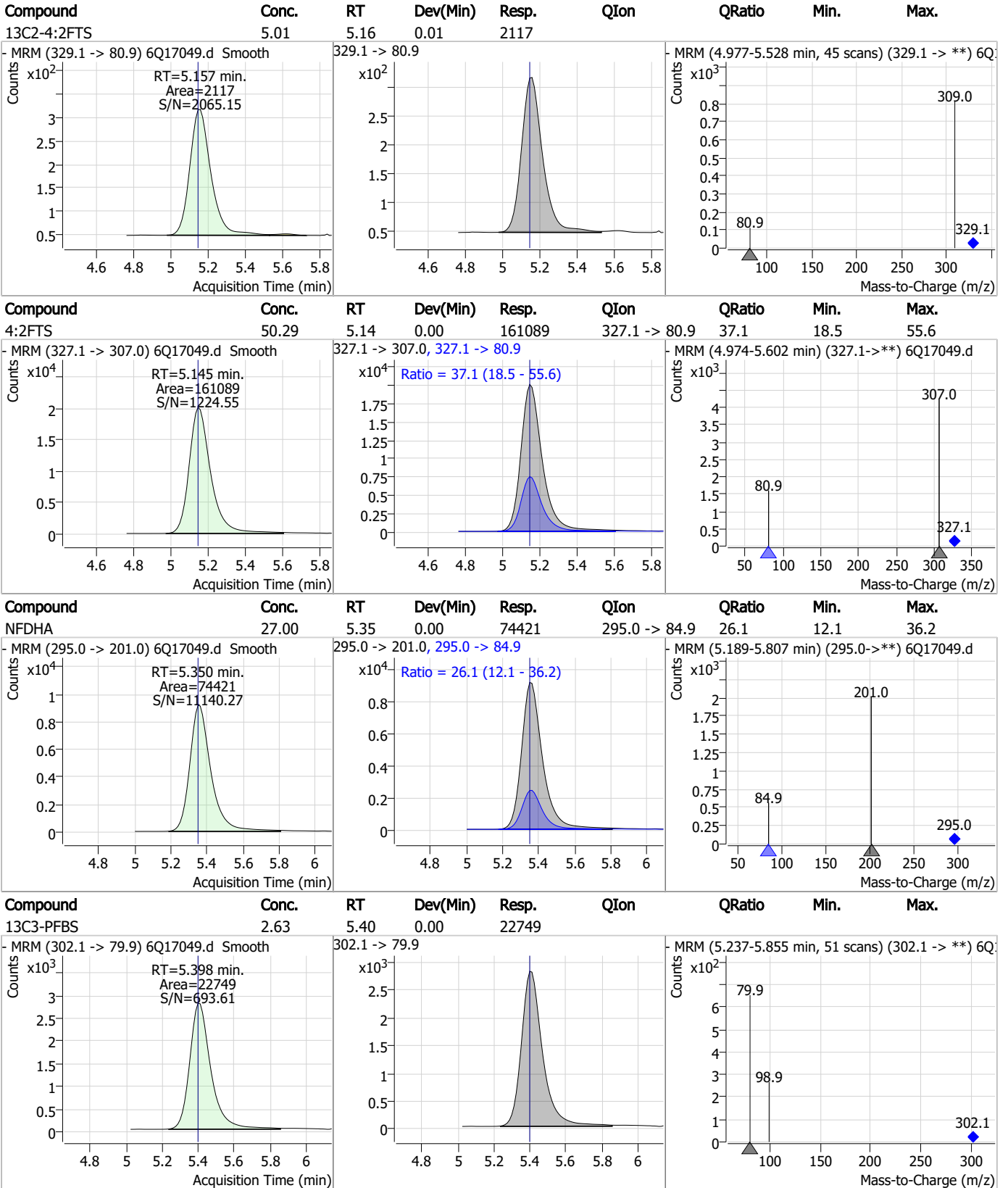
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	66.70	3.78	0.00	70658	241.0 -> 117.0	12.3	6.7	20.0
13C5-PFPeA	5.05	4.27	0.00	62201	268.3 -> 223.0	-	-	-
PFPeA	26.99	4.27	0.00	457335	263.0 -> 219.0	-	-	-
PFMBA	27.27	4.69	0.00	309902	279.0 -> 85.1	-	-	-

7.5.2

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Perfluorinated Compounds by LC/MS/MS

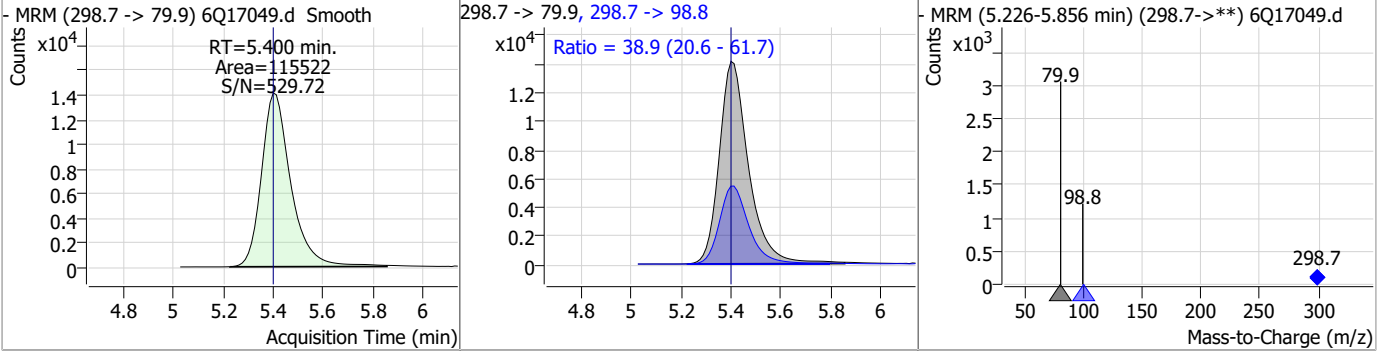


7.5.2

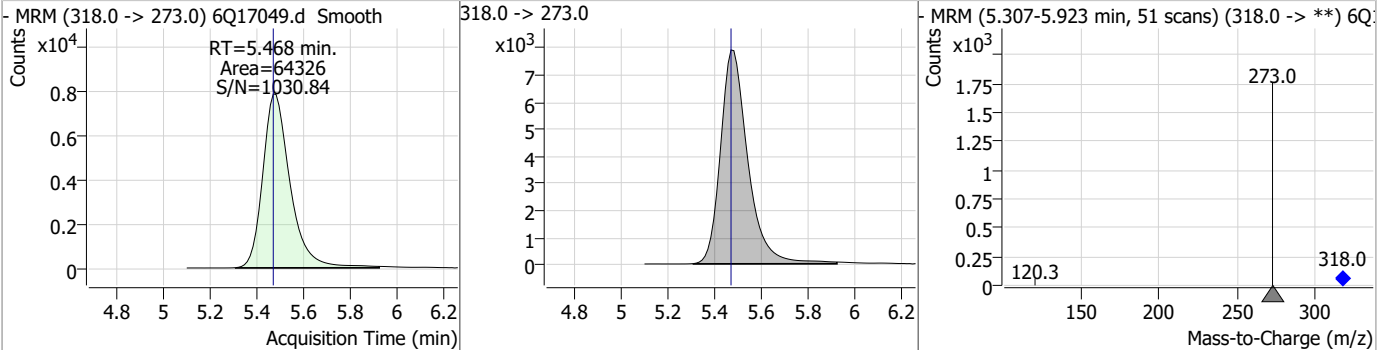
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Perfluorinated Compounds by LC/MS/MS

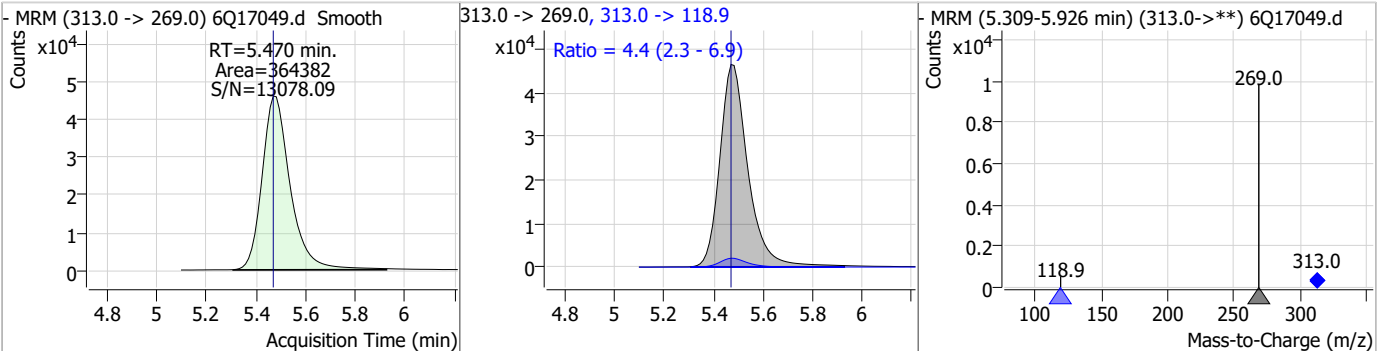
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	11.32	5.40	0.00	115522	298.7 -> 98.8	38.9	20.6	61.7



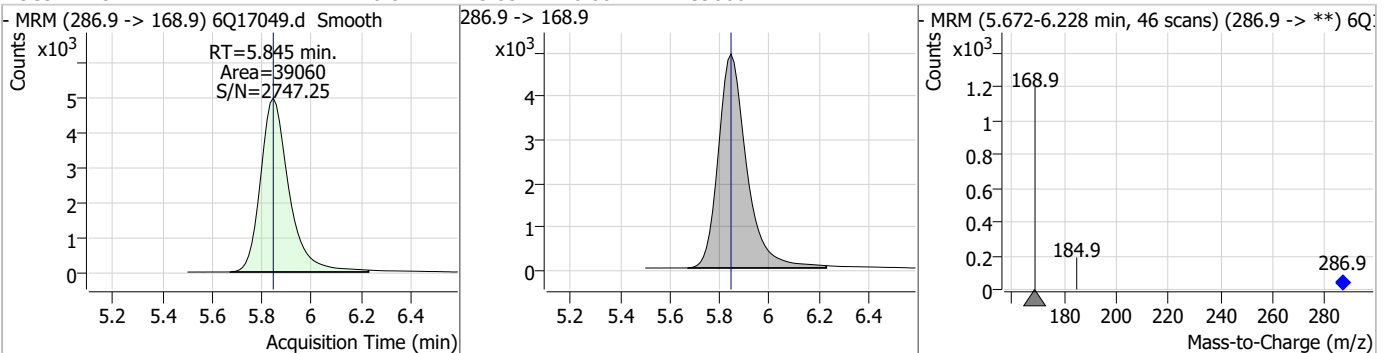
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.42	5.47	0.00	64326				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	14.33	5.47	0.00	364382	313.0 -> 118.9	4.4	2.3	6.9

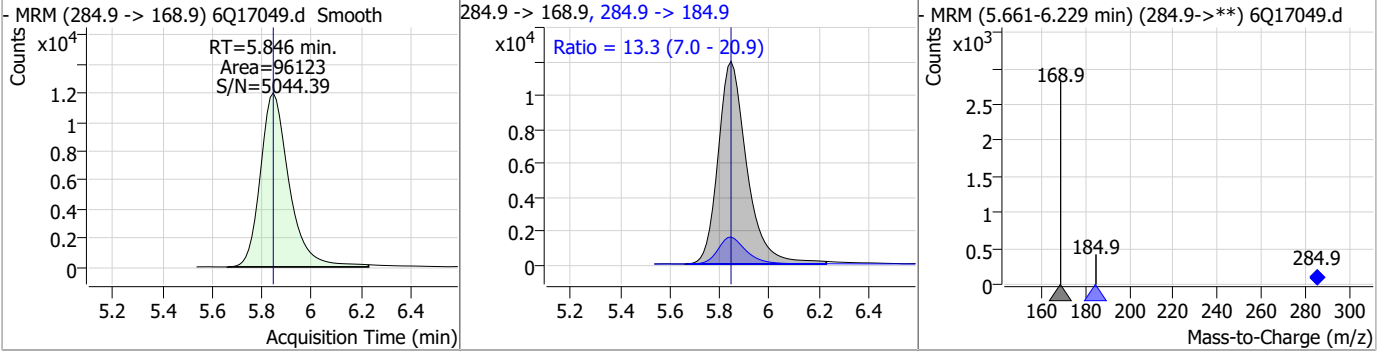


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.01	5.85	0.00	39060				

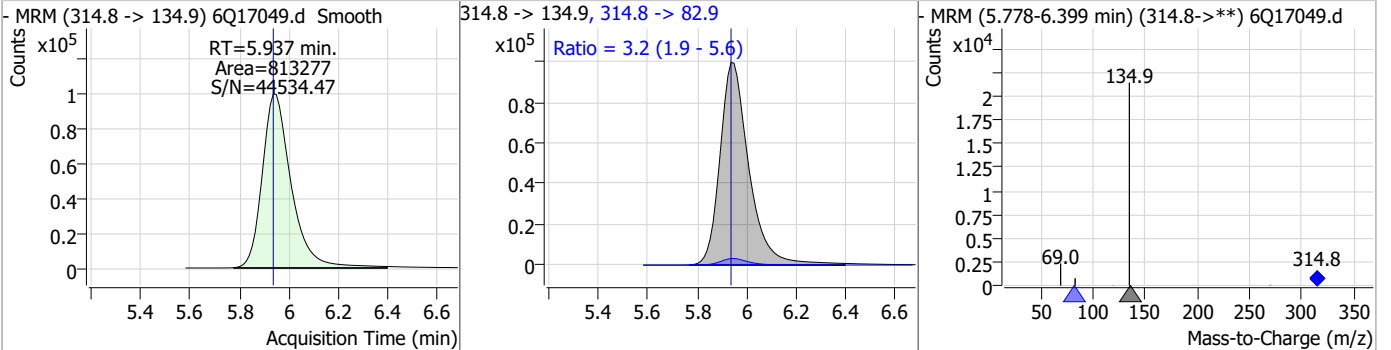


Perfluorinated Compounds by LC/MS/MS

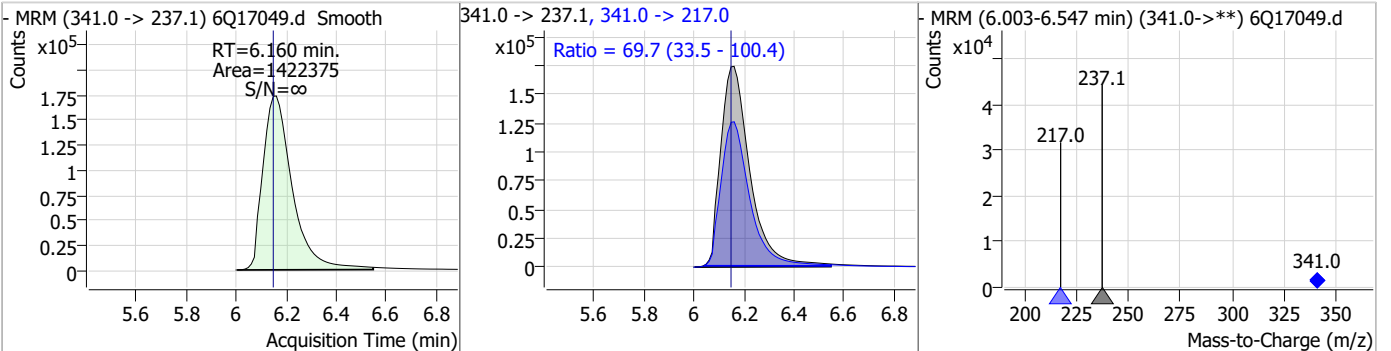
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	25.98	5.85	0.00	96123	284.9 -> 184.9	13.3	7.0	20.9



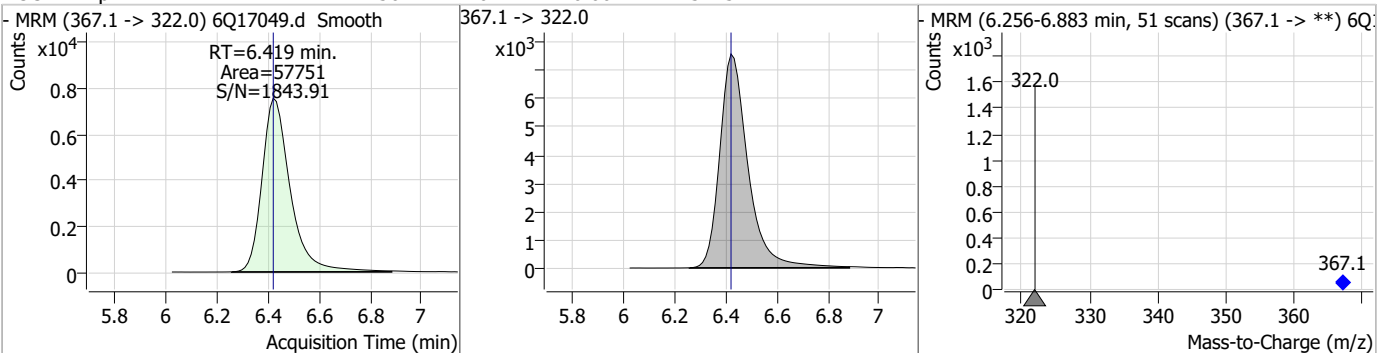
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	25.34	5.94	0.00	813277	314.8 -> 82.9	3.2	1.9	5.6



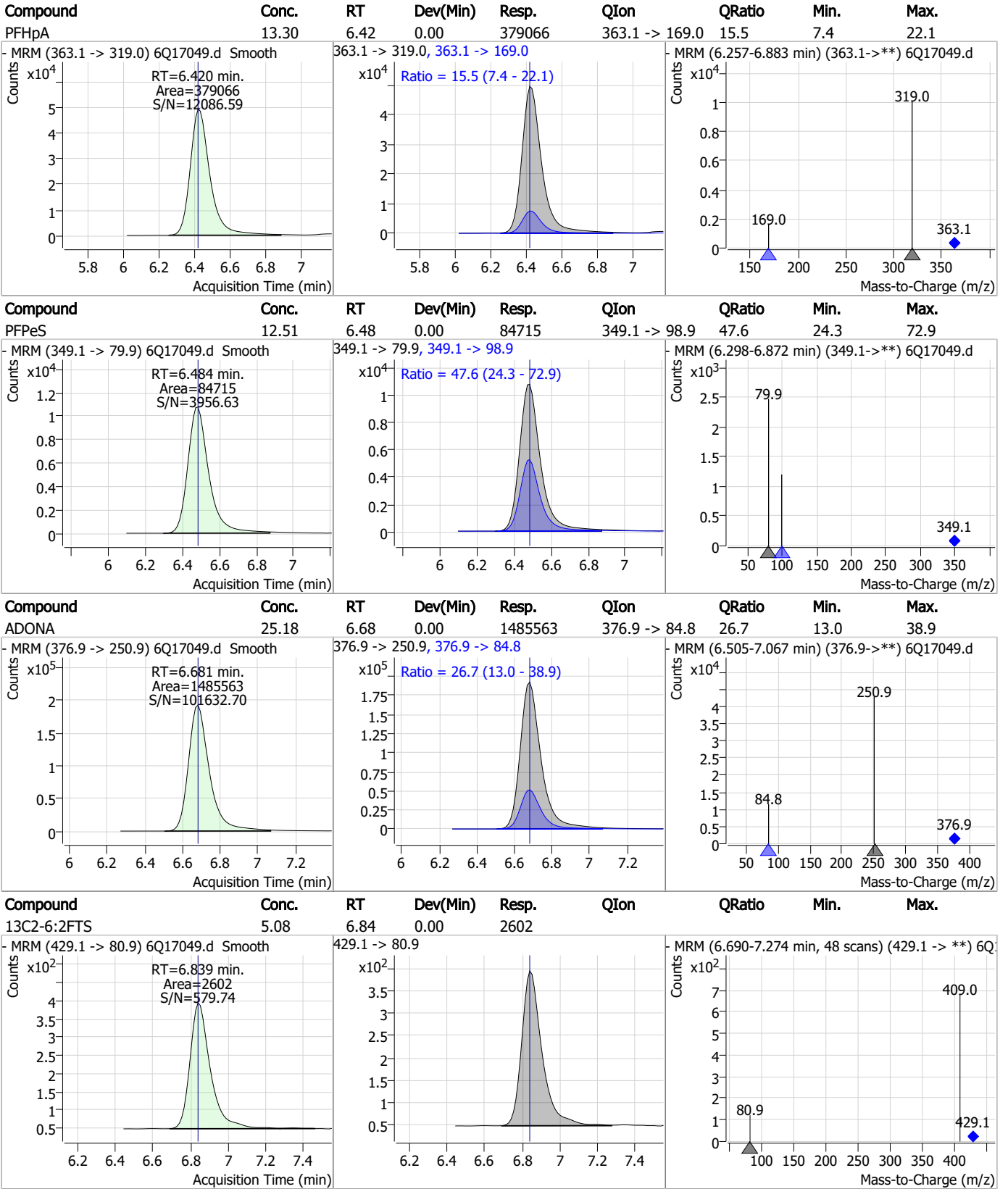
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	345.57	6.16	0.01	1422375	341.0 -> 217.0	69.7	33.5	100.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.56	6.42	0.00	57751	367.1 -> 322.0	-	-	-



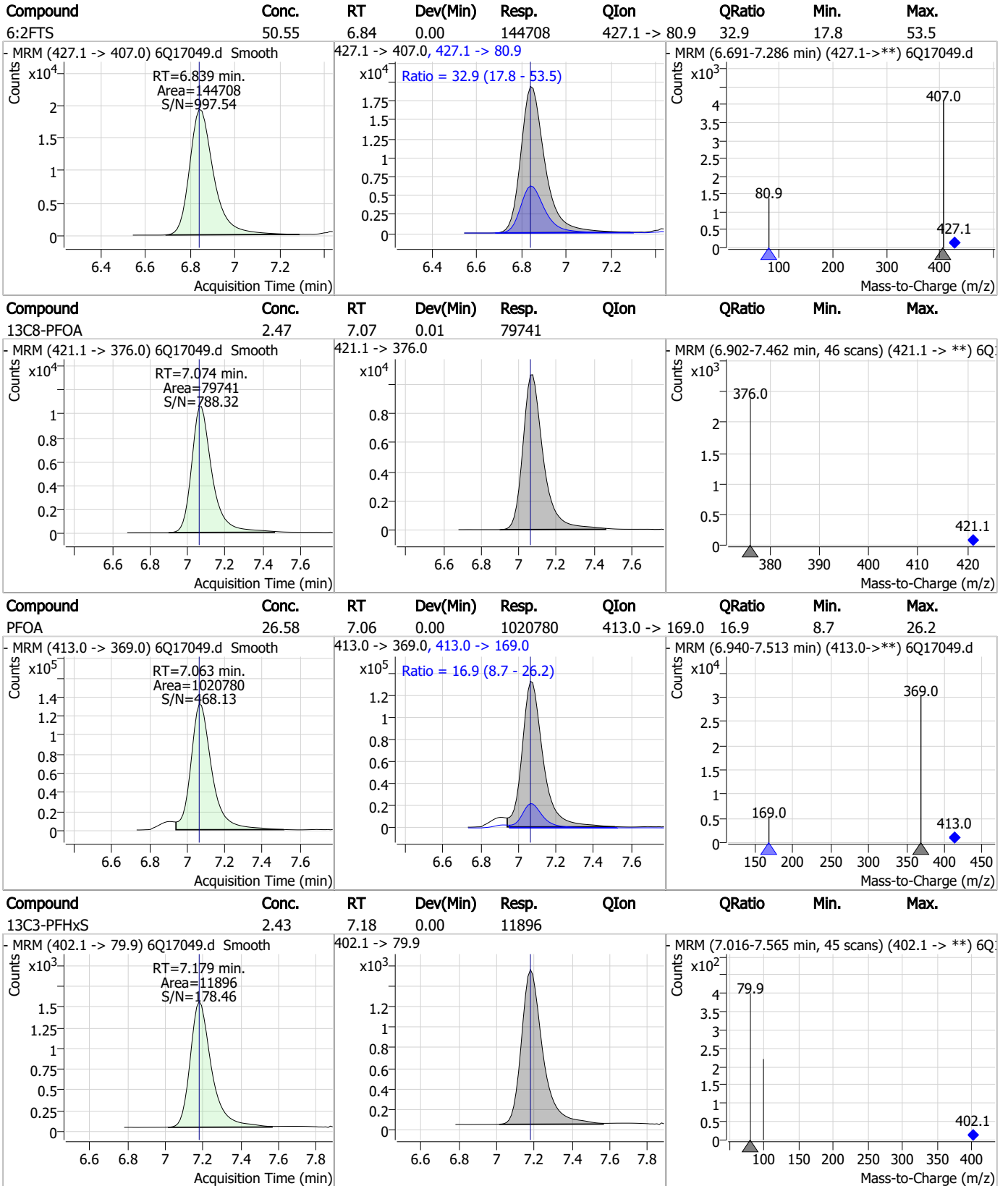
Perfluorinated Compounds by LC/MS/MS



7.5.2

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Perfluorinated Compounds by LC/MS/MS

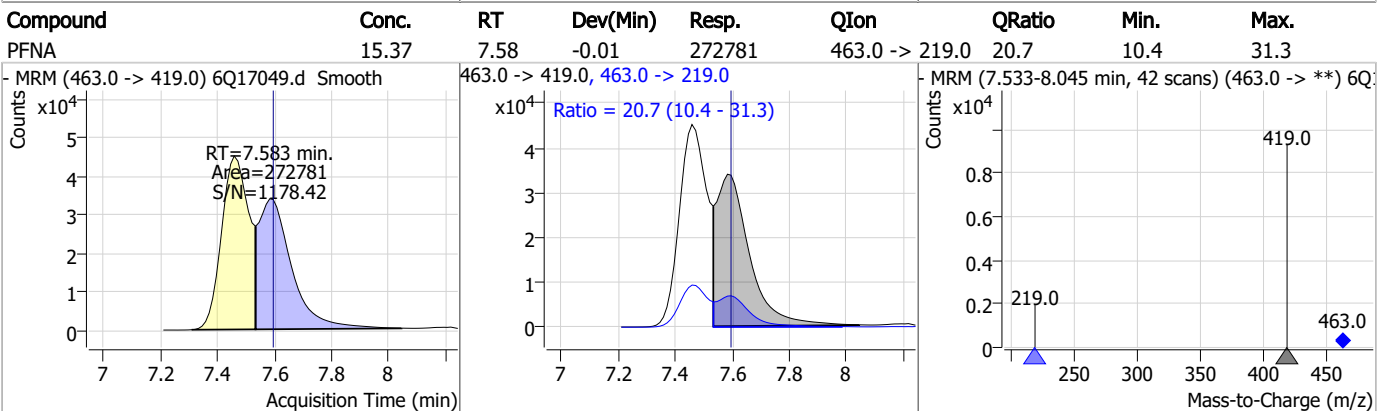
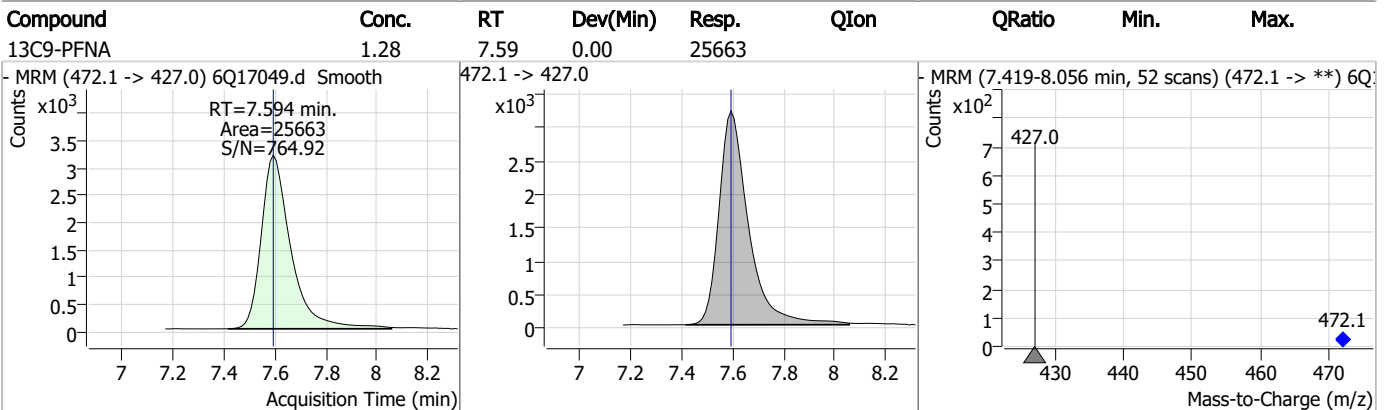
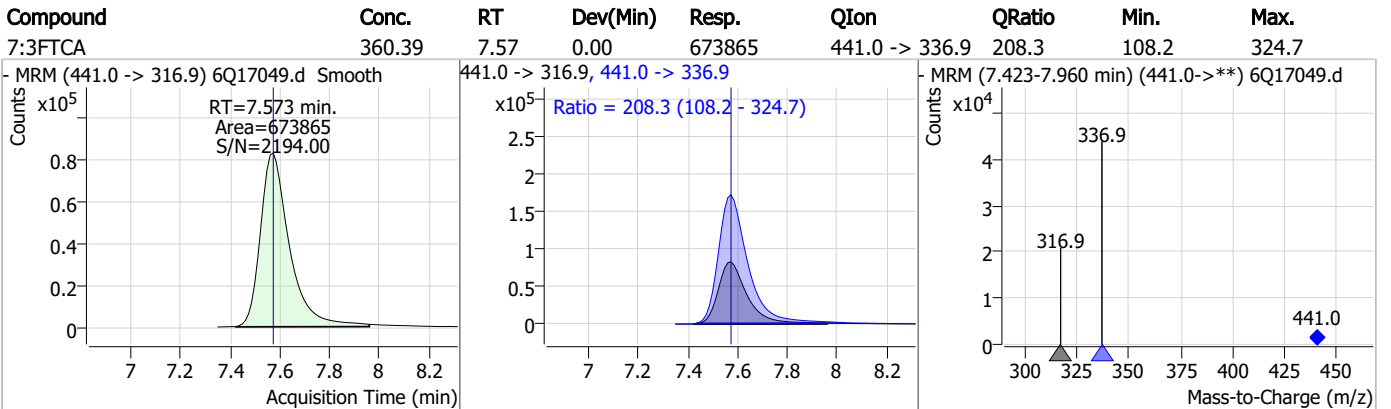
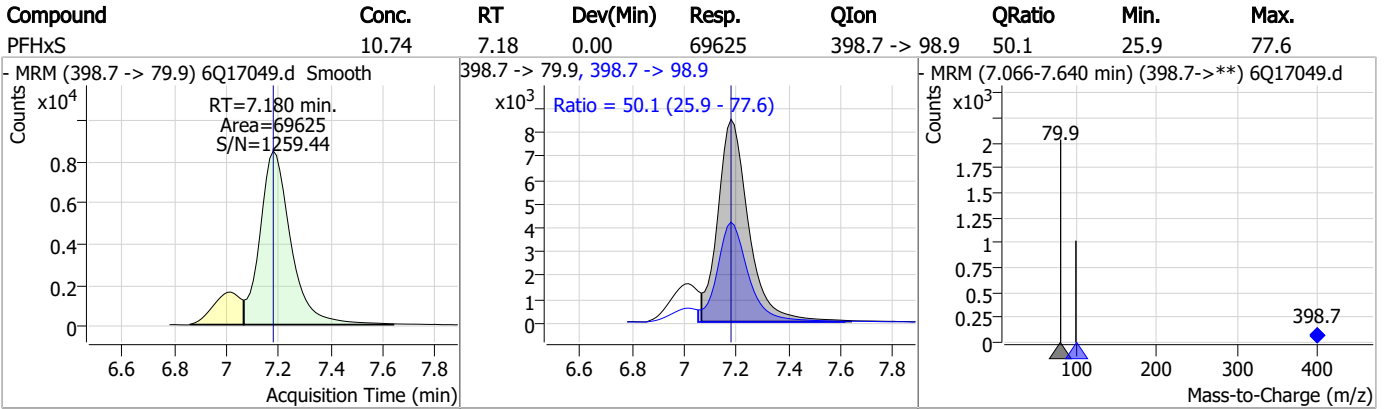


7.5.2

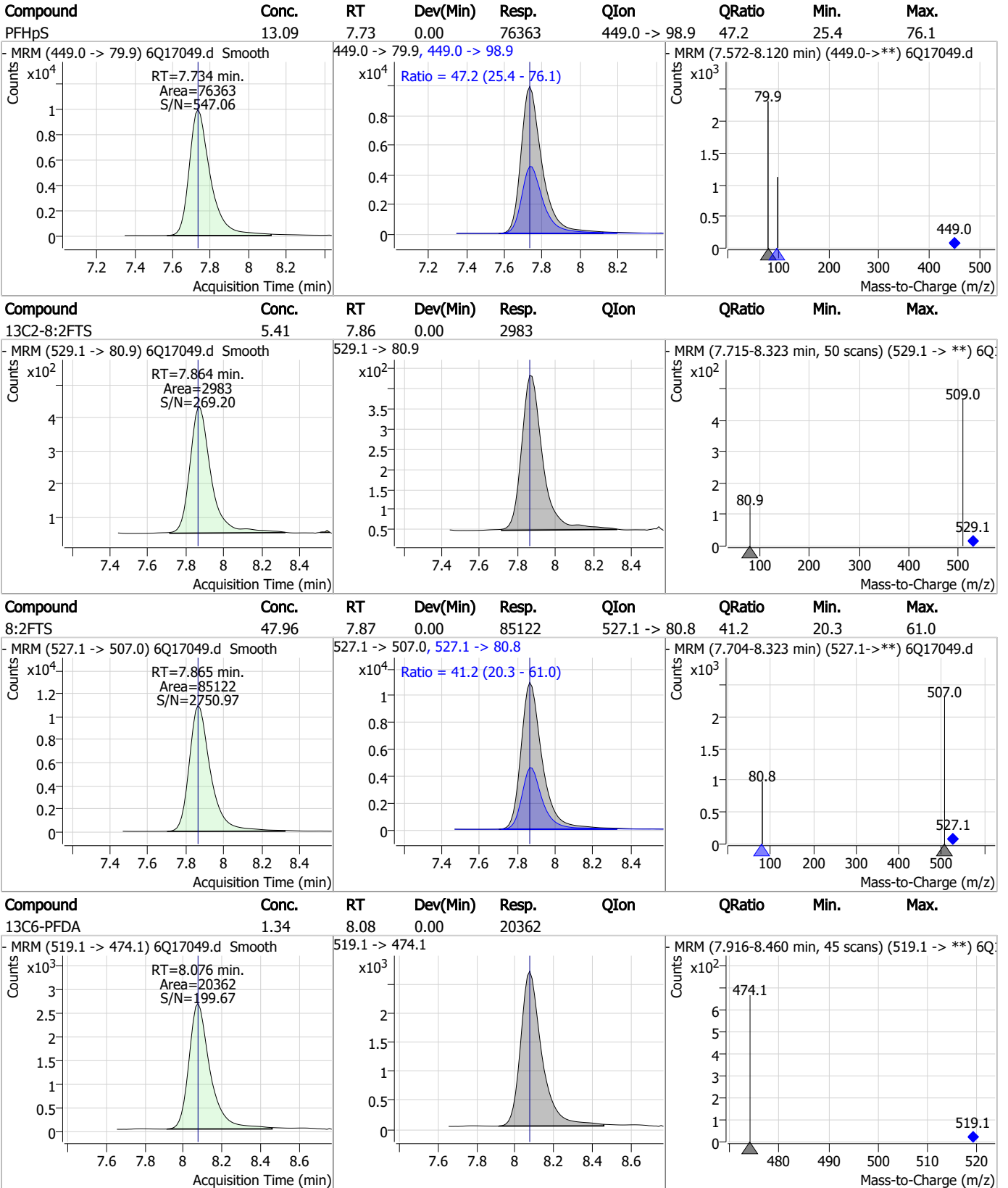
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

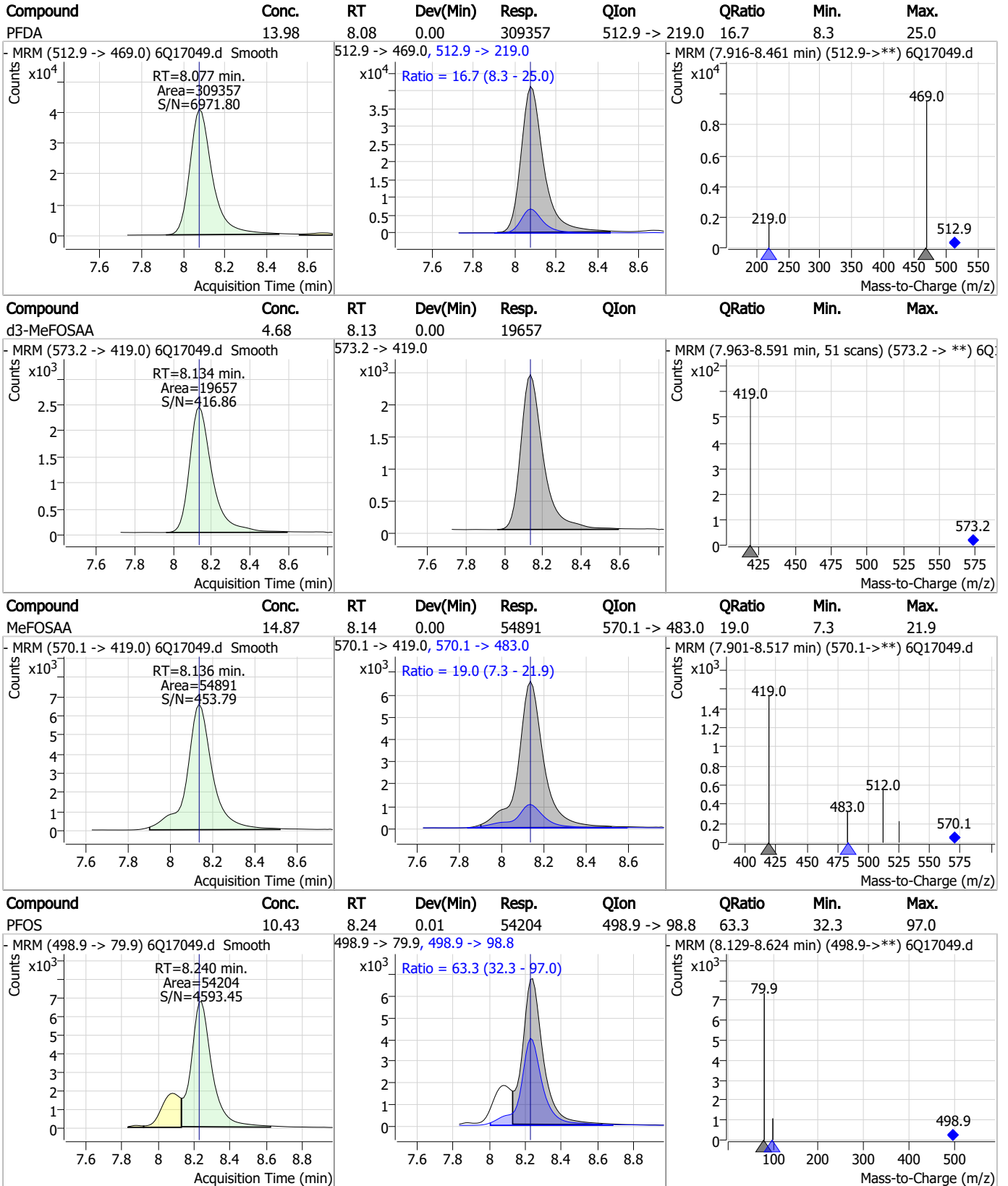


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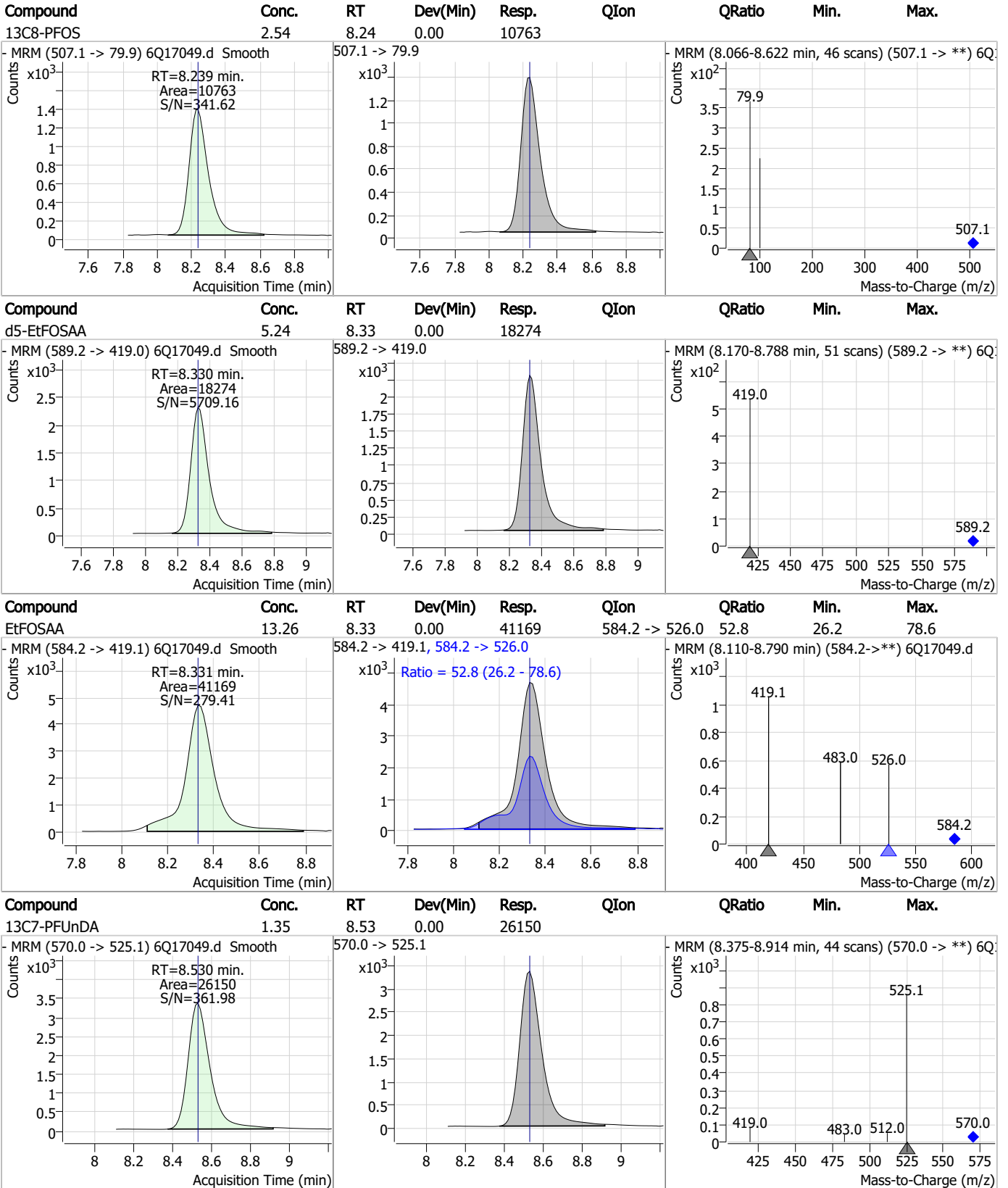
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Perfluorinated Compounds by LC/MS/MS



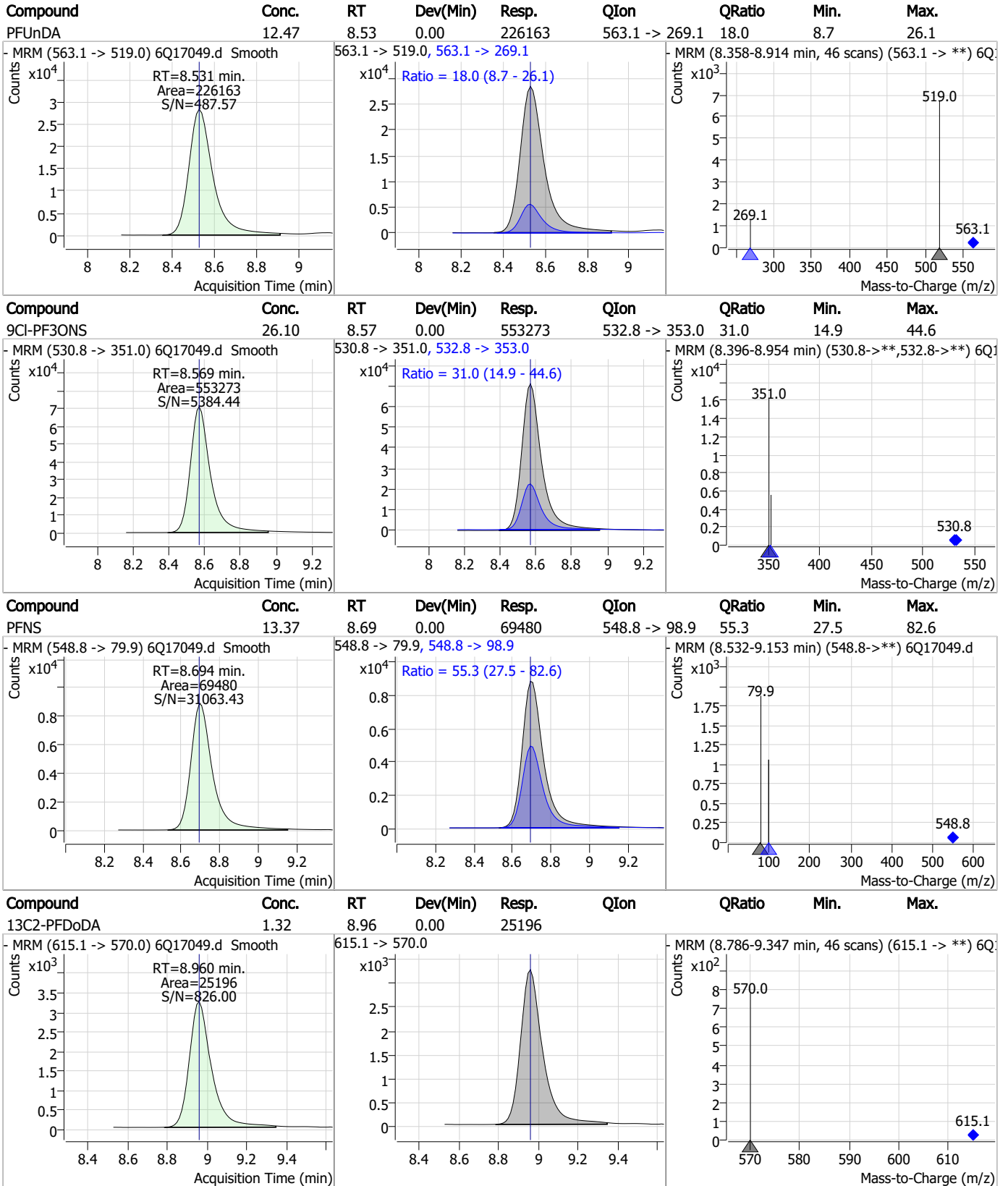
Perfluorinated Compounds by LC/MS/MS



7.5.2

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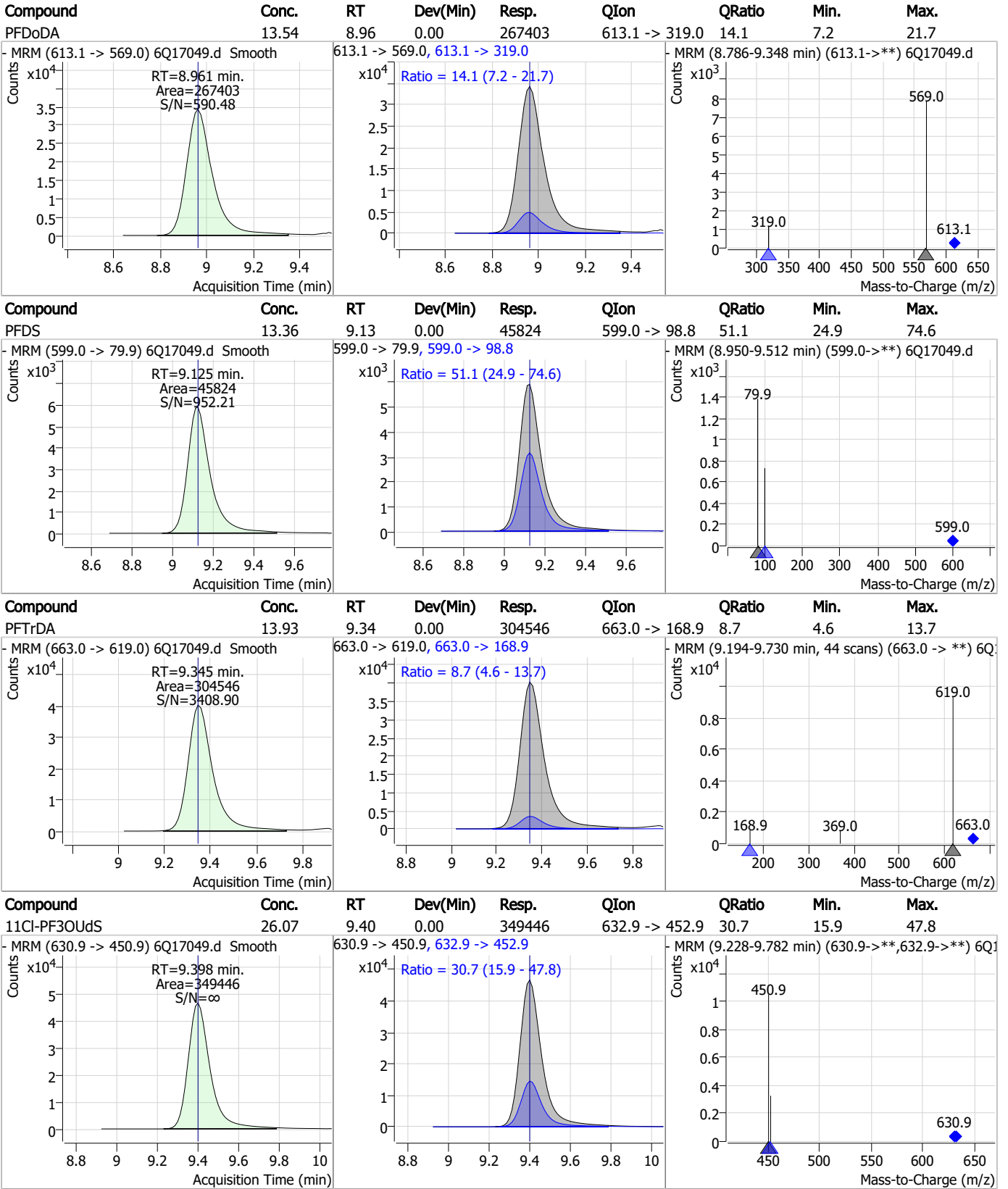
Perfluorinated Compounds by LC/MS/MS



7.5.2

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Perfluorinated Compounds by LC/MS/MS



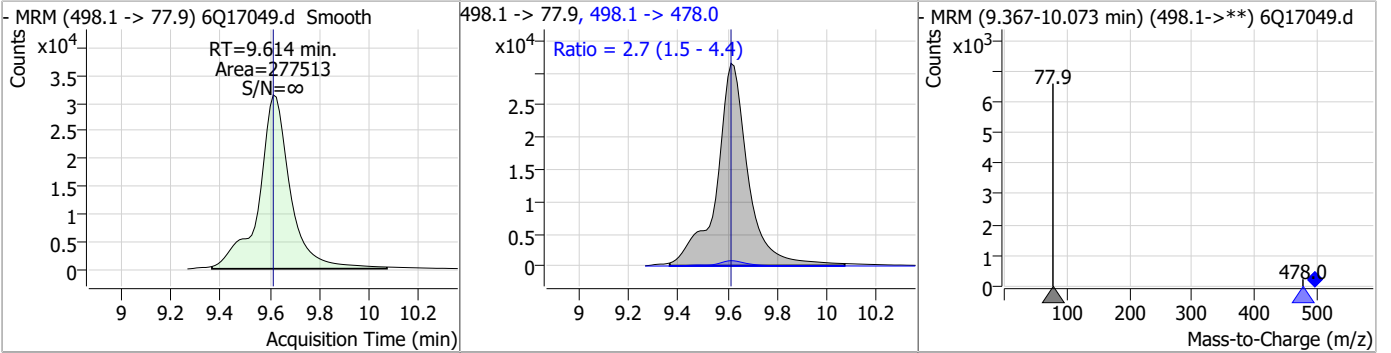
7.5.2

7

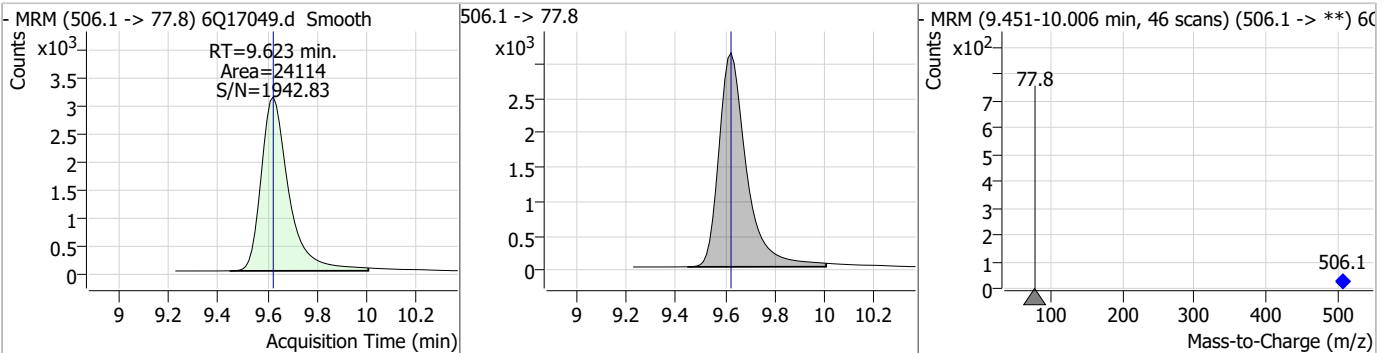


Perfluorinated Compounds by LC/MS/MS

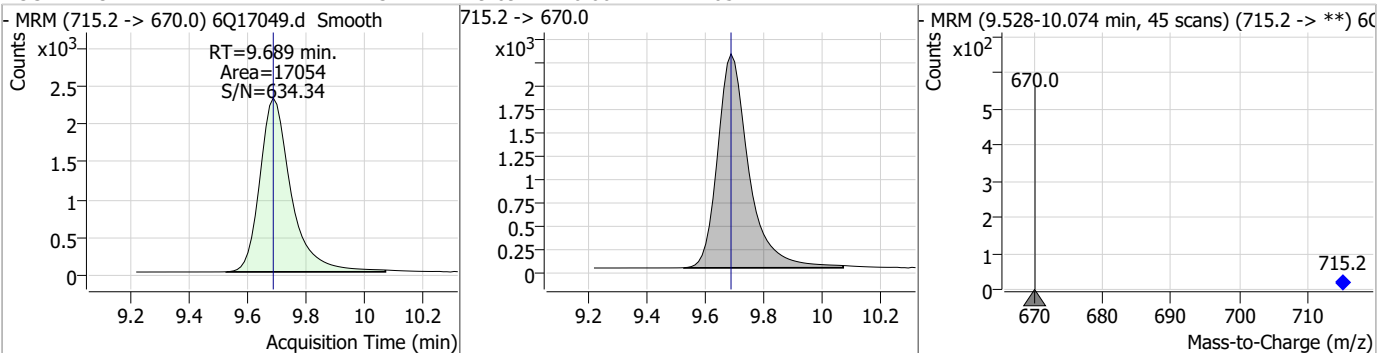
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	32.12	9.61	0.00	277513	498.1 -> 478.0	2.7	1.5	4.4



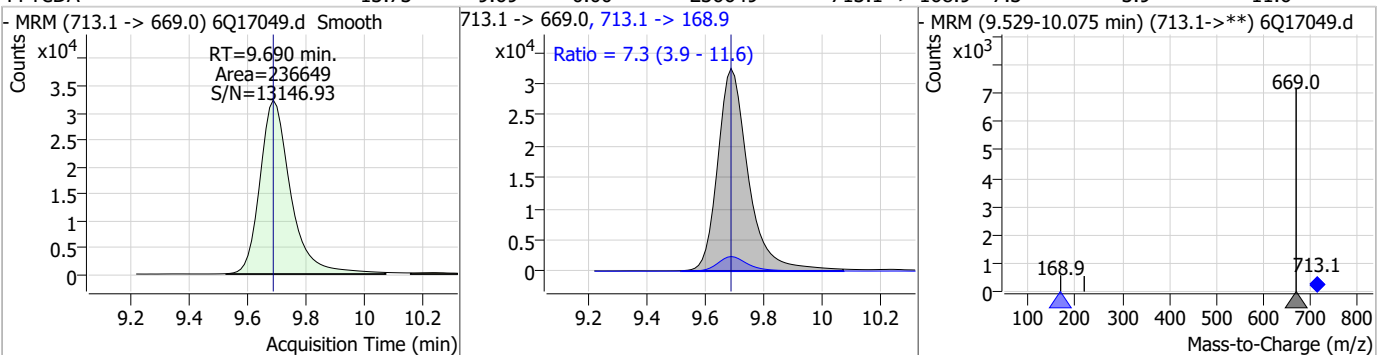
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.59	9.62	0.00	24114				



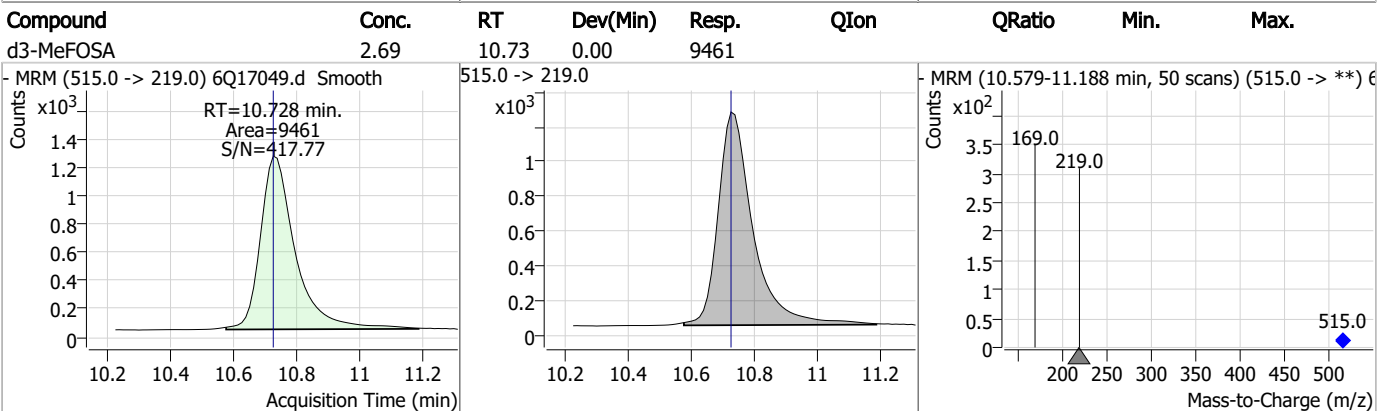
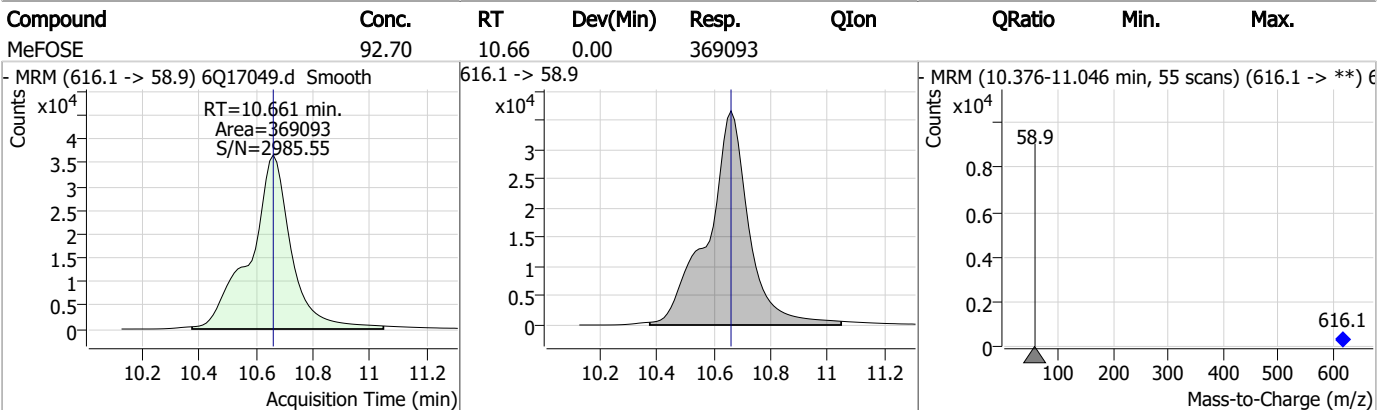
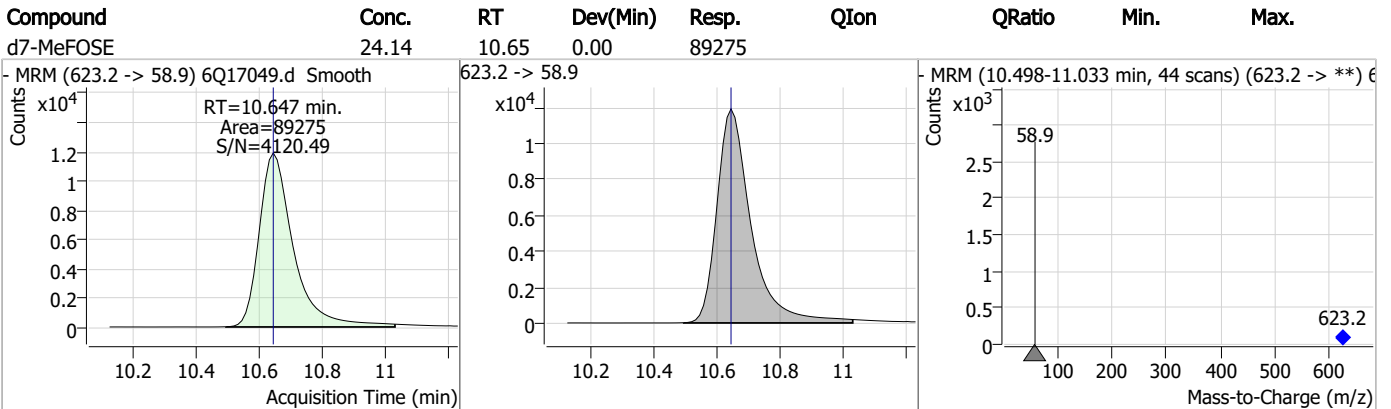
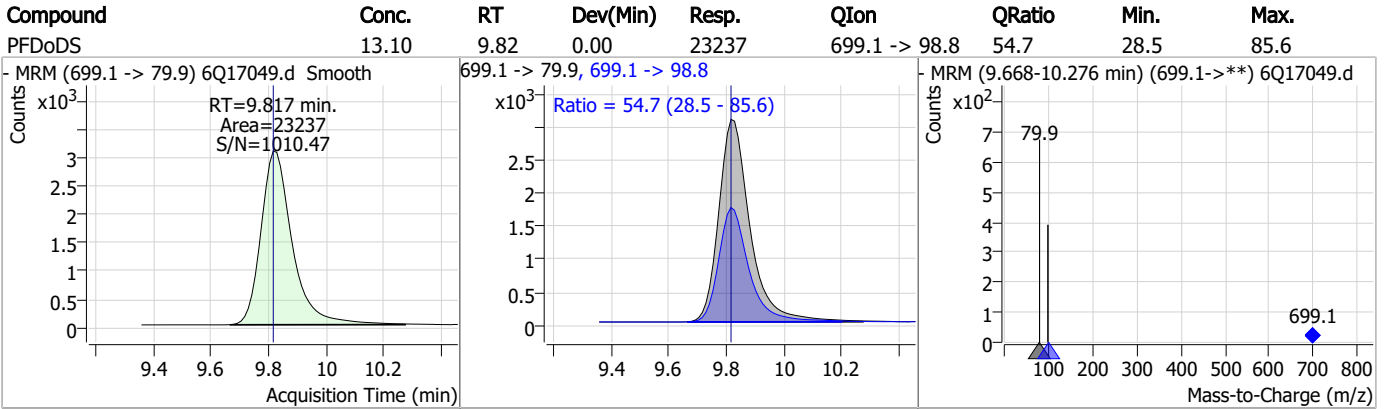
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.32	9.69	0.00	17054				



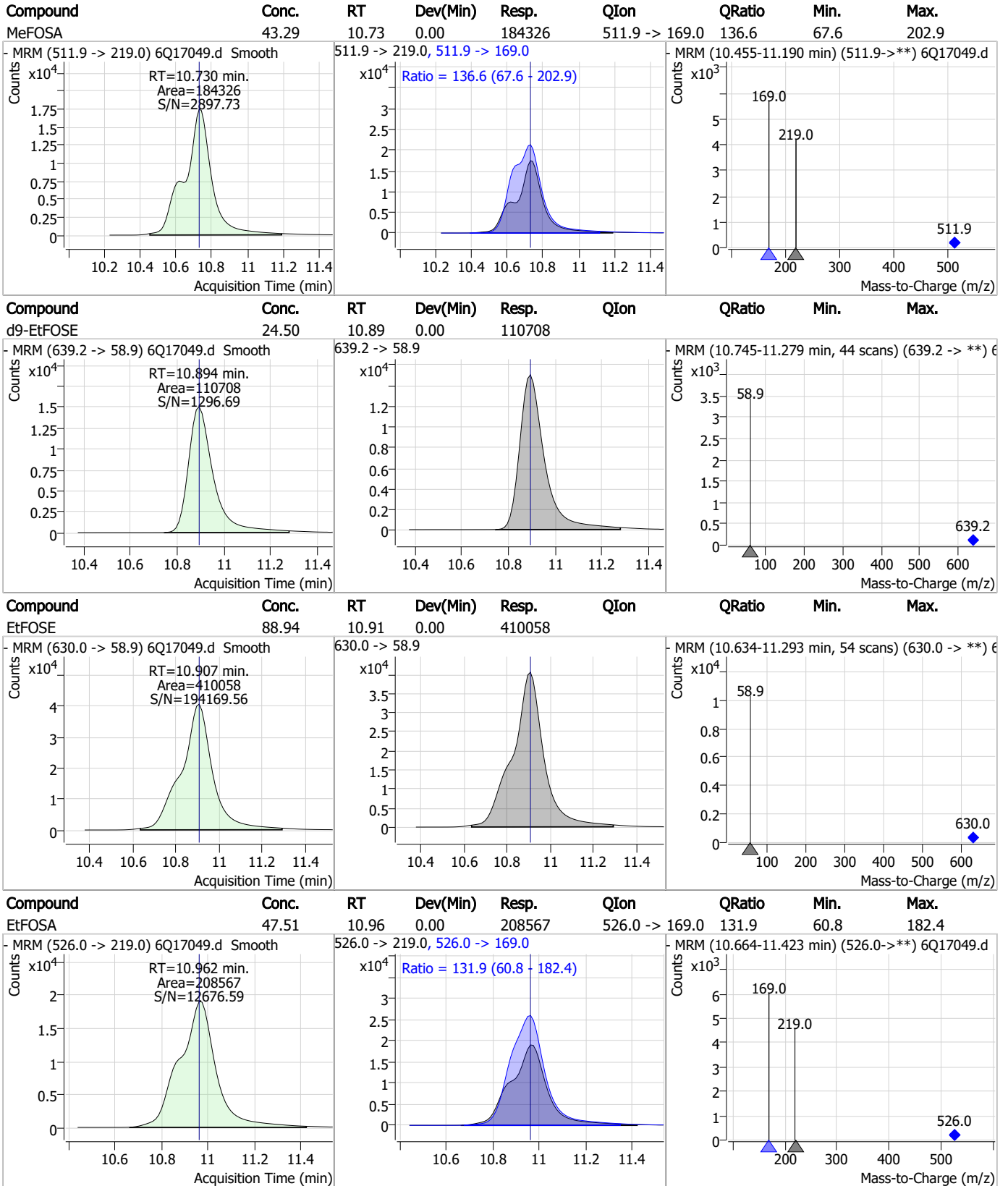
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	13.73	9.69	0.00	236649	713.1 -> 168.9	7.3	3.9	11.6



Perfluorinated Compounds by LC/MS/MS



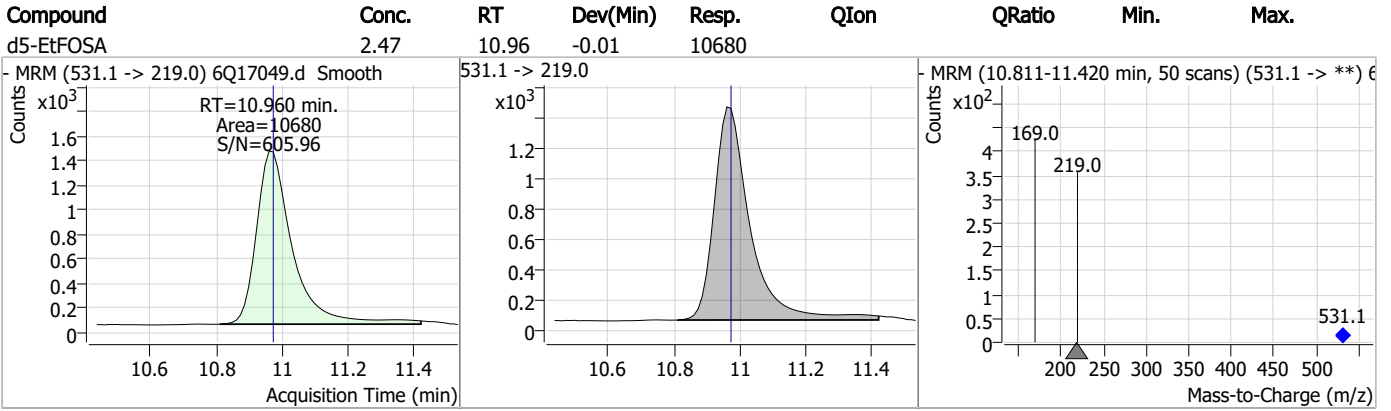
Perfluorinated Compounds by LC/MS/MS



7.5.2

7

Perfluorinated Compounds by LC/MS/MS



7.5.2

7

Manual Integrations
APPROVED
 (compounds with "m" flag)
 Norman Farmer
 05/02/23 15:59

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17233.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/1/2023 11:49:46 AM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : S6Q260 TDCA.batch.bin
 Sample Information : OP96301,S6Q260,500,,,5.0,1,water

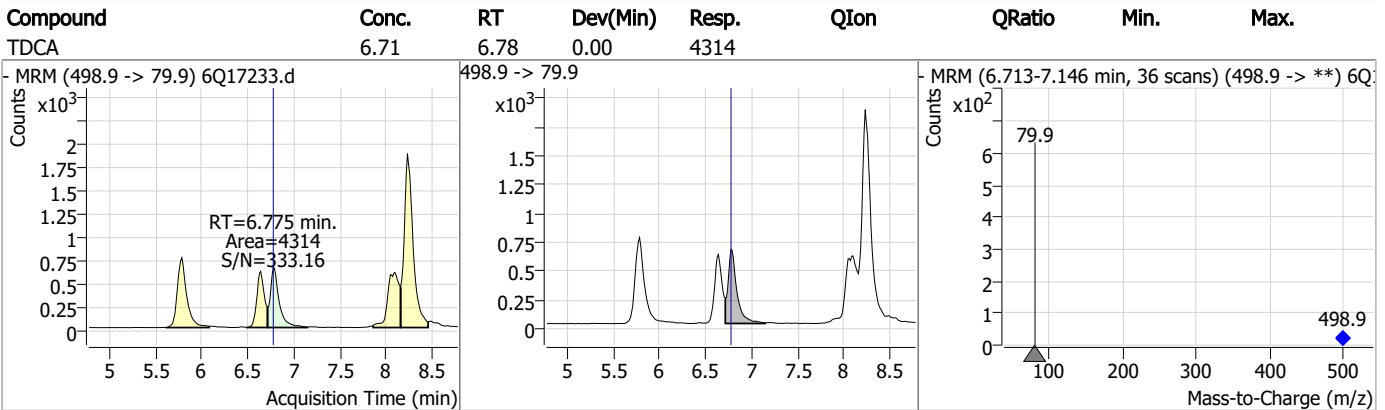
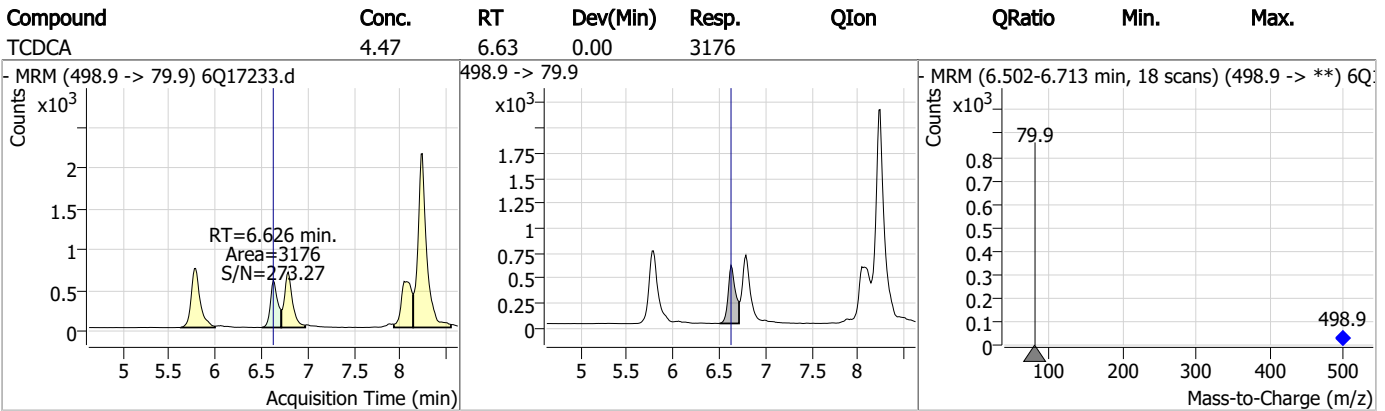
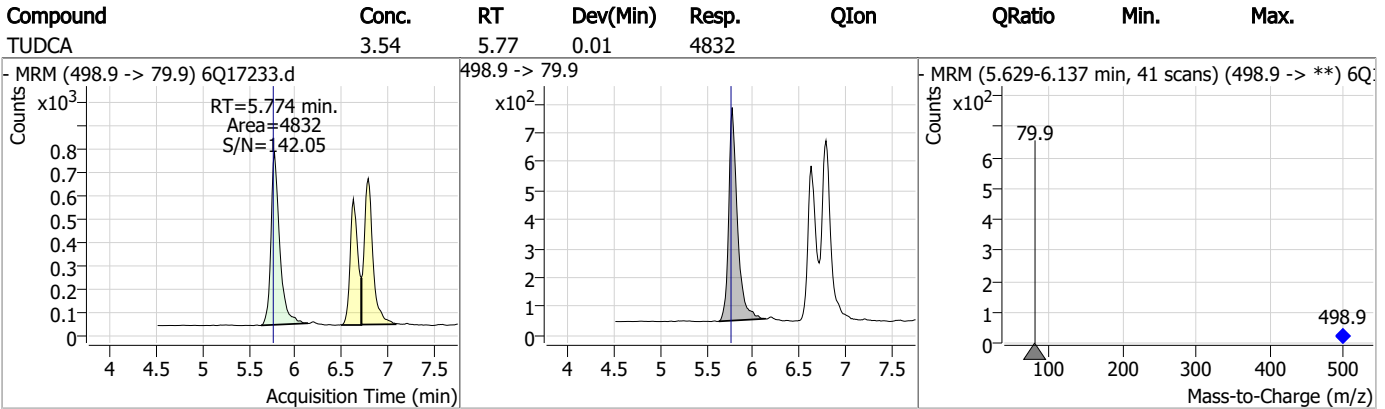
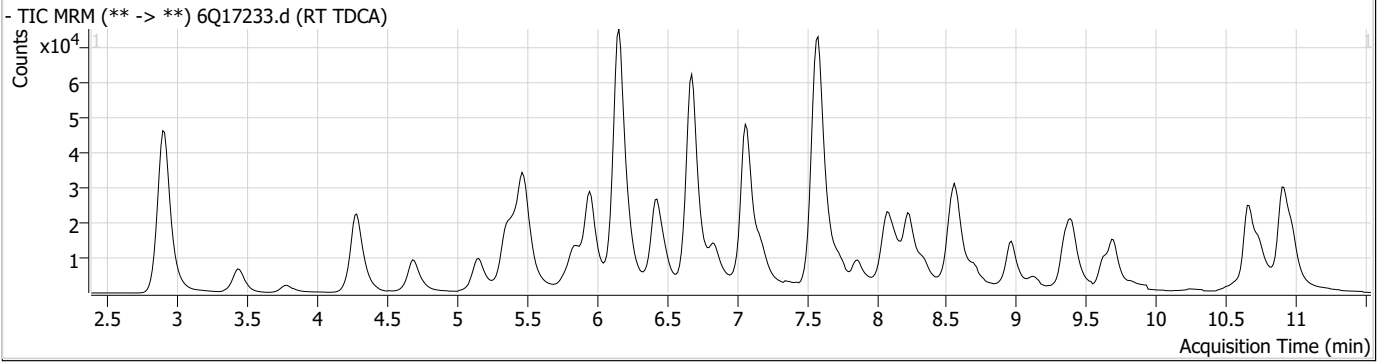
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M8-PFOS	8.239	507.1 -> 79.9	15382	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	20787	2.50 µg/L	0.000
System Monitoring Compounds					
13C8-PFOS	8.239	507.1 -> 79.9	15382	1.88 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 75.1%		
Target Compounds					
PFOS	8.240	498.9 -> 79.9 498.9 -> 98.8	15850 8698	3.02 µg/L m	87
TCDCa	6.626	498.9 -> 79.9	3176	4.47 ng/ml	100
TDCA	6.775	498.9 -> 79.9	4314	6.71 ng/ml	100
TUDCA	5.774	498.9 -> 79.9	4832	3.54 ng/ml	100

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

7.5.3

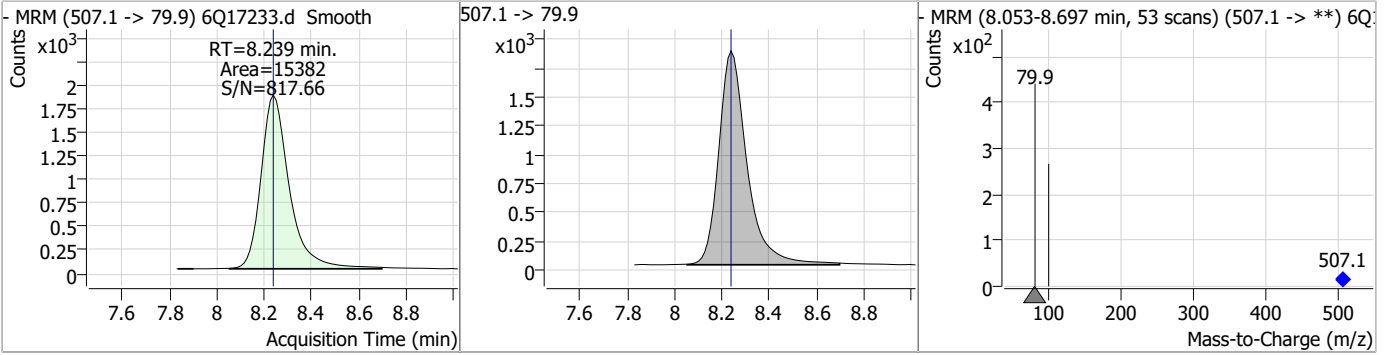
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Perfluorinated Compounds by LC/MS/MS

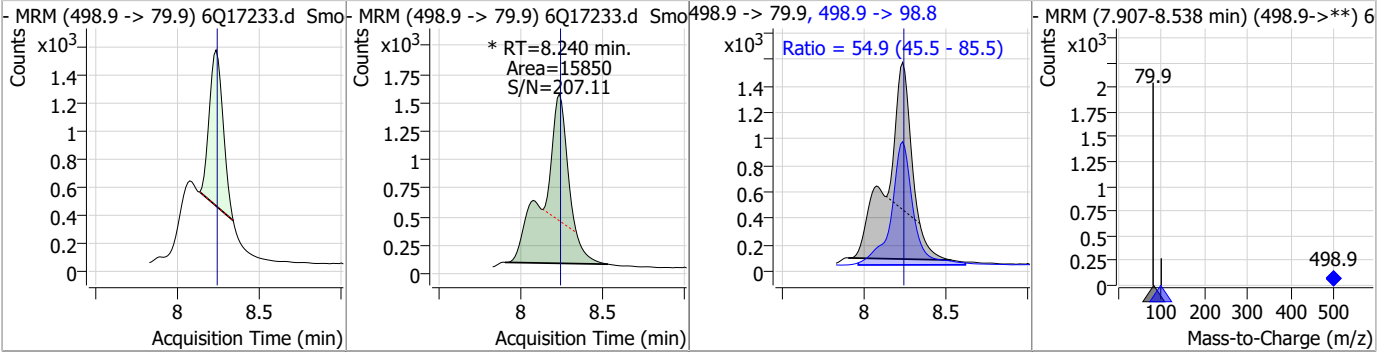


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	1.88	8.24	0.00	15382				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	3.02	8.24	0.00	15850 (m)	498.9 -> 98.8	54.9	45.5	85.5



7.5.3
7

Manual Integration Approval Summary

Sample Number: S6Q260-RT Method: EPA DRAFT 1633
Lab FileID: 6Q17233.D Analyst approved: 05/02/23 13:38 Martha Valls
Injection Time: 05/01/23 11:49 Supervisor approved: 05/02/23 15:59 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.24	Split peak

7.5.3.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17234.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/1/2023 12:04:15 PM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q260.batch.bin
 Sample Information : OP96301,S6Q260,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	171005	10.00 µg/L	0.012
M5-PFPeA	4.283	268.3 -> 223.0	61544	5.00 µg/L	0.012
M5-PFHxA	5.480	318.0 -> 273.0	66850	2.50 µg/L	0.012
M4-PFHpA	6.419	367.1 -> 322.0	55636	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	79938	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	25903	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	19759	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	25161	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	25132	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	16896	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	23907	2.50 µg/L	0.000
M3-PFBS	5.411	302.1 -> 79.9	22245	2.50 µg/L	0.012
M3-PFHxS	7.179	402.1 -> 79.9	12567	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	11048	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2181	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2459	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2539	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	20492	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	40258	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	17584	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	88520	25.00 µg/L	0.012
M9-EtFOSE	10.894	639.2 -> 58.9	109657	25.00 µg/L	0.000
M5-EtFOSA	10.973	531.1 -> 219.0	11019	2.50 µg/L	0.000
M3-MeFOSA	10.741	515.0 -> 219.0	8985	2.50 µg/L	0.012
13C4-PFOS	8.227	502.8 -> 79.9	14335	2.50 µg/L	-0.012
13C3-PFBA	2.914	216.0 -> 172.0	73576	5.00 µg/L	0.012
18O2-PFHxS	7.177	403.0 -> 83.9	9187	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	80038	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	21839	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	27173	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	53936	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2181	5.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.3%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2459	4.80 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.9%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2539	4.61 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.1%		
13C2-PFDoDA	8.960	615.1 -> 570.0	25132	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 110.6%		
13C2-PFTeDA	9.689	715.2 -> 670.0	16896	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 109.9%		
13C3-PFBS	5.411	302.1 -> 79.9	22245	2.57 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.0%		
13C3-PFHxS	7.179	402.1 -> 79.9	12567	2.57 µg/L	0.000

7.54
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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 = 102.8%	
13C4-PFBA	2.910	216.8 -> 171.9	171005	10.06 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C4-PFHpA	6.419	367.1 -> 322.0	55636	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C5-PFHxA	5.480	318.0 -> 273.0	66850	2.57 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C5-PFPeA	4.283	268.3 -> 223.0	61544	5.11 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C6-PFDA	8.076	519.1 -> 474.1	19759	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.7%	
13C7-PFUnDA	8.530	570.0 -> 525.1	25161	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.2%	
13C8-FOSA	9.623	506.1 -> 77.8	23907	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C8-PFOA	7.062	421.1 -> 376.0	79938	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C8-PFOS	8.239	507.1 -> 79.9	11048	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C9-PFNA	7.594	472.1 -> 427.0	25903	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.0%	
d3-MeFOSAA	8.134	573.2 -> 419.0	20492	4.80 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.9%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	40258	10.54 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.4%	
d3-MeFOSA	10.741	515.0 -> 219.0	8985	2.51 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
d5-EtFOSAA	8.330	589.2 -> 419.0	17584	4.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
d7-MeFOSE	10.660	623.2 -> 58.9	88520	23.53 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.1%	
d9-EtFOSE	10.894	639.2 -> 58.9	109657	23.85 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.4%	
d5-EtFOSA	10.973	531.1 -> 219.0	11019	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	153605	46.55 µg/L	99
		327.1 -> 80.9	58158		
6:2FTS	6.839	427.1 -> 407.0	135625	50.15 µg/L	93
		427.1 -> 80.9	42833		
8:2FTS	7.865	527.1 -> 507.0	75288	49.82 µg/L	98
		527.1 -> 80.8	29708		
EtFOSAA	8.331	584.2 -> 419.1	40029	13.39 µg/L	97
		584.2 -> 526.0	20178		
FOSA	9.626	498.1 -> 77.9	258906	30.23 µg/L	100
		498.1 -> 478.0	7427		
MeFOSAA	8.136	570.1 -> 419.0	53426	13.88 µg/L	88
		570.1 -> 483.0	10359		
PFBA	2.906	212.8 -> 168.9	305100	53.20 µg/L	100
PFBS	5.412	298.7 -> 79.9	121916	12.21 µg/L	93
		298.7 -> 98.8	44767		
PFDA	8.077	512.9 -> 469.0	296903	13.83 µg/L	100
		512.9 -> 219.0	49118		
PFDoDA	8.961	613.1 -> 569.0	233441	11.85 µg/L	98
		613.1 -> 319.0	35448		
PFDS	9.125	599.0 -> 79.9	45518	12.93 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	22282			
PFHpA	6.420	363.1 -> 319.0	378825	13.80	µg/L	97
		363.1 -> 169.0	61206			
PFHpS	7.734	449.0 -> 79.9	70421	11.76	µg/L	96
		449.0 -> 98.9	37691			
PFHxA	5.470	313.0 -> 269.0	343725	13.00	µg/L	100
		313.0 -> 118.9	15988			
PFHxS	7.180	398.7 -> 79.9	82413	12.03	µg/L	m 94
		398.7 -> 98.9	39245			
PFNA	7.458	463.0 -> 419.0	585122	32.65	µg/L	m 98
		463.0 -> 219.0	118095			
PFNS	8.694	548.8 -> 79.9	66032	12.38	µg/L	98
		548.8 -> 98.9	35602			
PFOA	7.063	413.0 -> 369.0	1029074	26.73	µg/L	m 97
		413.0 -> 169.0	193182			
PFOS	8.240	498.9 -> 79.9	59656	11.18	µg/L	m 86
		498.9 -> 98.8	32123			
PFPeA	4.285	263.0 -> 219.0	451053	26.91	µg/L	100
PFPeS	6.484	349.1 -> 79.9	87435	12.23	µg/L	96
		349.1 -> 98.9	40263			
PFTeDA	9.690	713.1 -> 669.0	220634	12.92	µg/L	99
		713.1 -> 168.9	16216			
PFTrDA	9.345	663.0 -> 619.0	308833	14.16	µg/L	98
		663.0 -> 168.9	26593			
PFUnDA	8.531	563.1 -> 519.0	246145	14.11	µg/L	96
		563.1 -> 269.1	38505			
11CI-PF3OUdS	9.398	630.9 -> 450.9	355969	25.77	µg/L	97
		632.9 -> 452.9	107501			
9CI-PF3ONS	8.569	530.8 -> 351.0	556934	25.50	µg/L	95
		532.8 -> 353.0	180590			
ADONA	6.681	376.9 -> 250.9	1588318	26.12	µg/L	97
		376.9 -> 84.8	384653			
HFPO-DA	5.846	284.9 -> 168.9	98113	25.73	µg/L	99
		284.9 -> 184.9	13270			
3:3FTCA	3.784	241.0 -> 177.0	68307	65.16	µg/L	98
		241.0 -> 117.0	8431			
5:3FTCA	6.160	341.0 -> 237.1	1375136	321.48	µg/L	93
		341.0 -> 217.0	992411			
7:3FTCA	7.573	441.0 -> 316.9	651427	335.24	µg/L	91
		441.0 -> 336.9	1319092			
EtFOSA	10.975	526.0 -> 219.0	213367	47.12	µg/L	96
		526.0 -> 169.0	267943			
EtFOSE	10.907	630.0 -> 58.9	413174	90.48	µg/L	100
MeFOSA	10.743	511.9 -> 219.0	185595	45.90	µg/L	97
		511.9 -> 169.0	257020			
MeFOSE	10.661	616.1 -> 58.9	355722	90.11	µg/L	100
PFDoDS	9.817	699.1 -> 79.9	23557	12.94	µg/L	98
		699.1 -> 98.8	13039			
NFDHA	5.363	295.0 -> 201.0	78000	27.23	µg/L	99
		295.0 -> 84.9	19314			
PFMBA	4.687	279.0 -> 85.1	306582	27.26	µg/L	100
PFMPA	3.438	229.0 -> 84.9	229373	27.34	µg/L	100
PFEESA	5.949	314.8 -> 134.9	789889	23.68	µg/L	99
		314.8 -> 82.9	26885			

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

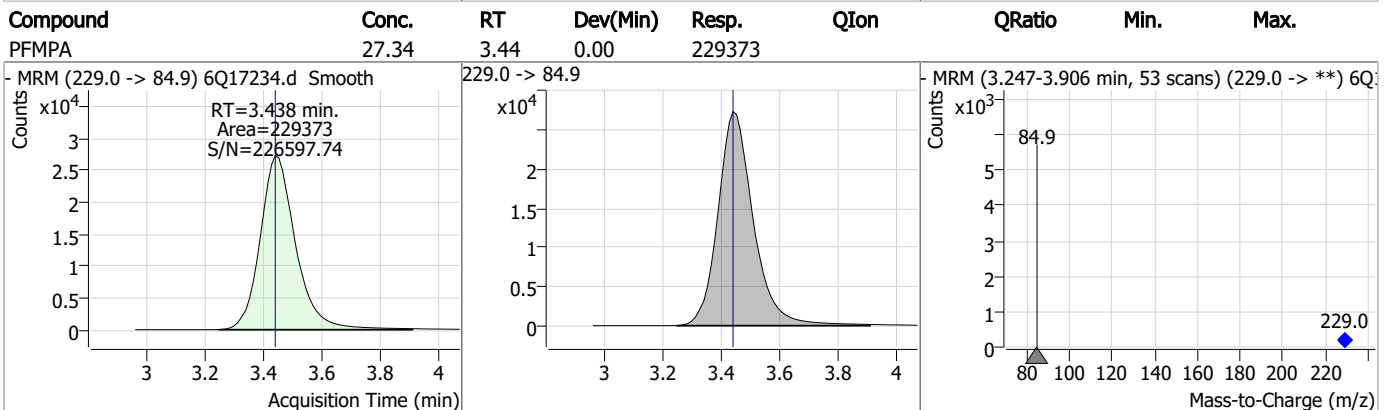
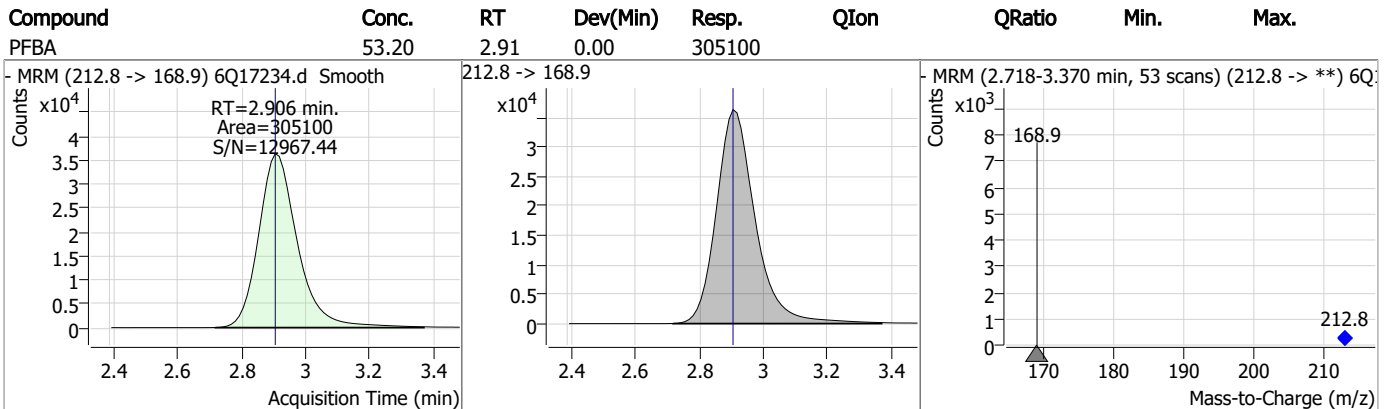
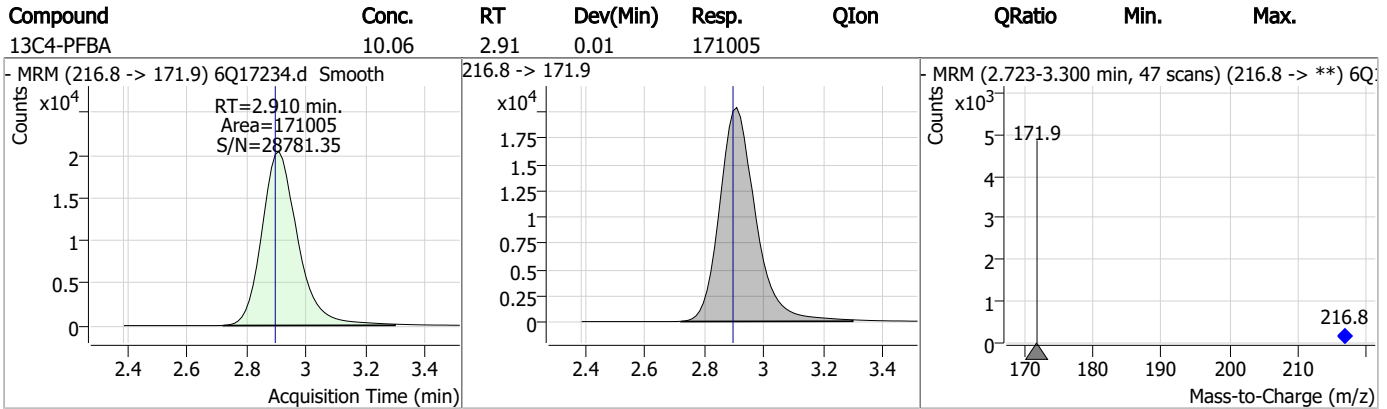
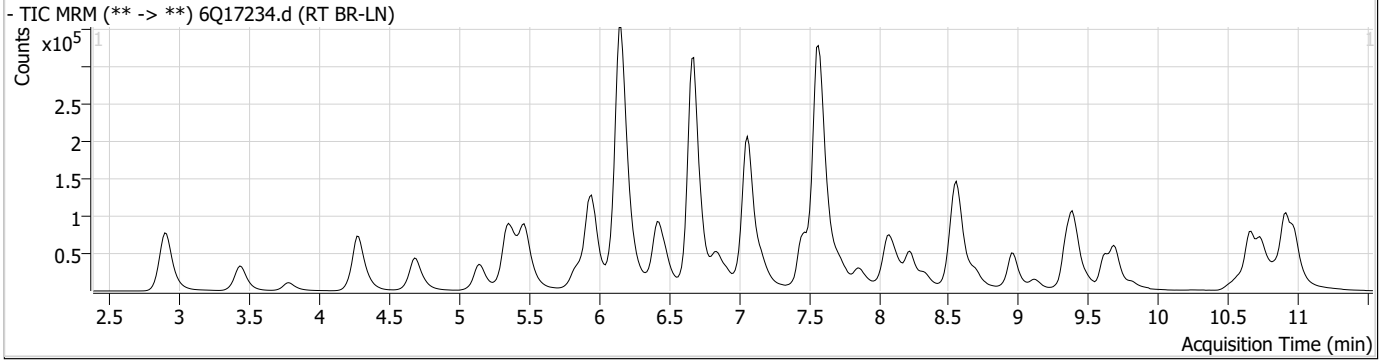
Perfluorinated Compounds by LC/MS/MS

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

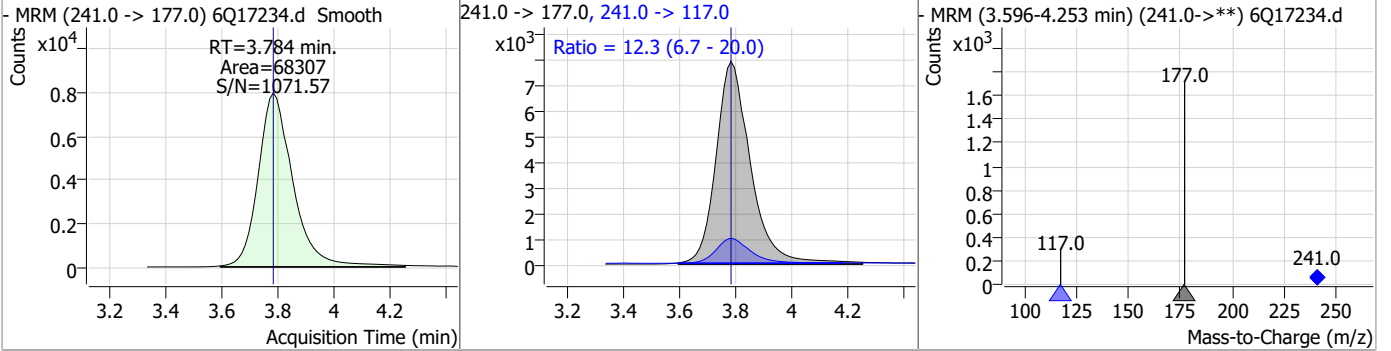
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Perfluorinated Compounds by LC/MS/MS

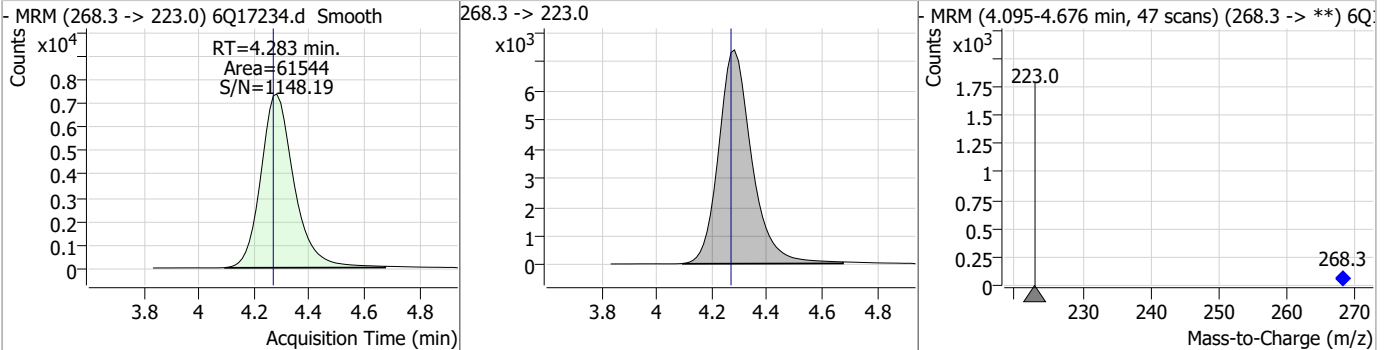


Perfluorinated Compounds by LC/MS/MS

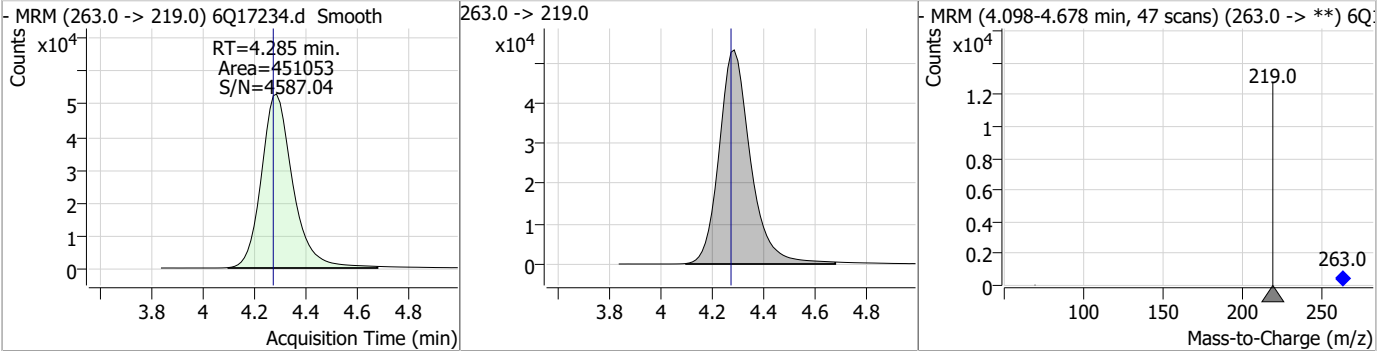
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	65.16	3.78	0.00	68307	241.0 -> 117.0	12.3	6.7	20.0



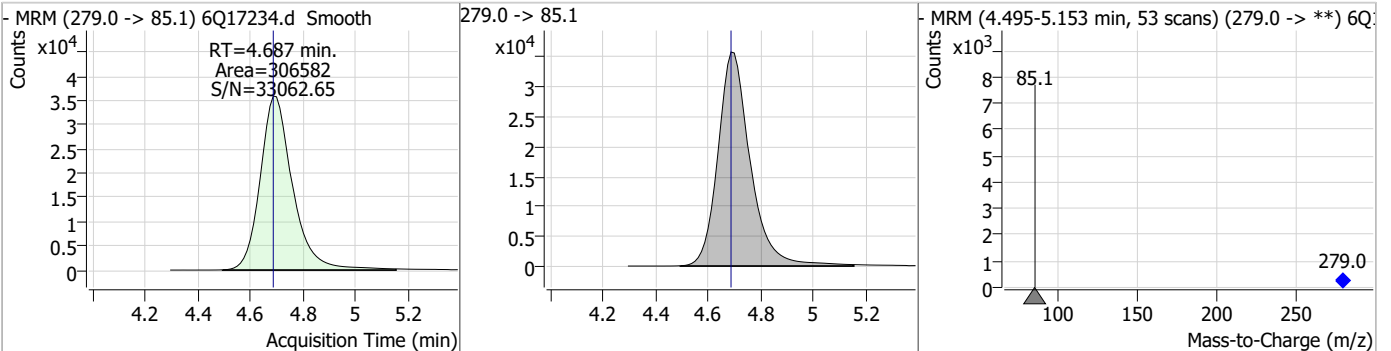
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.11	4.28	0.01	61544				



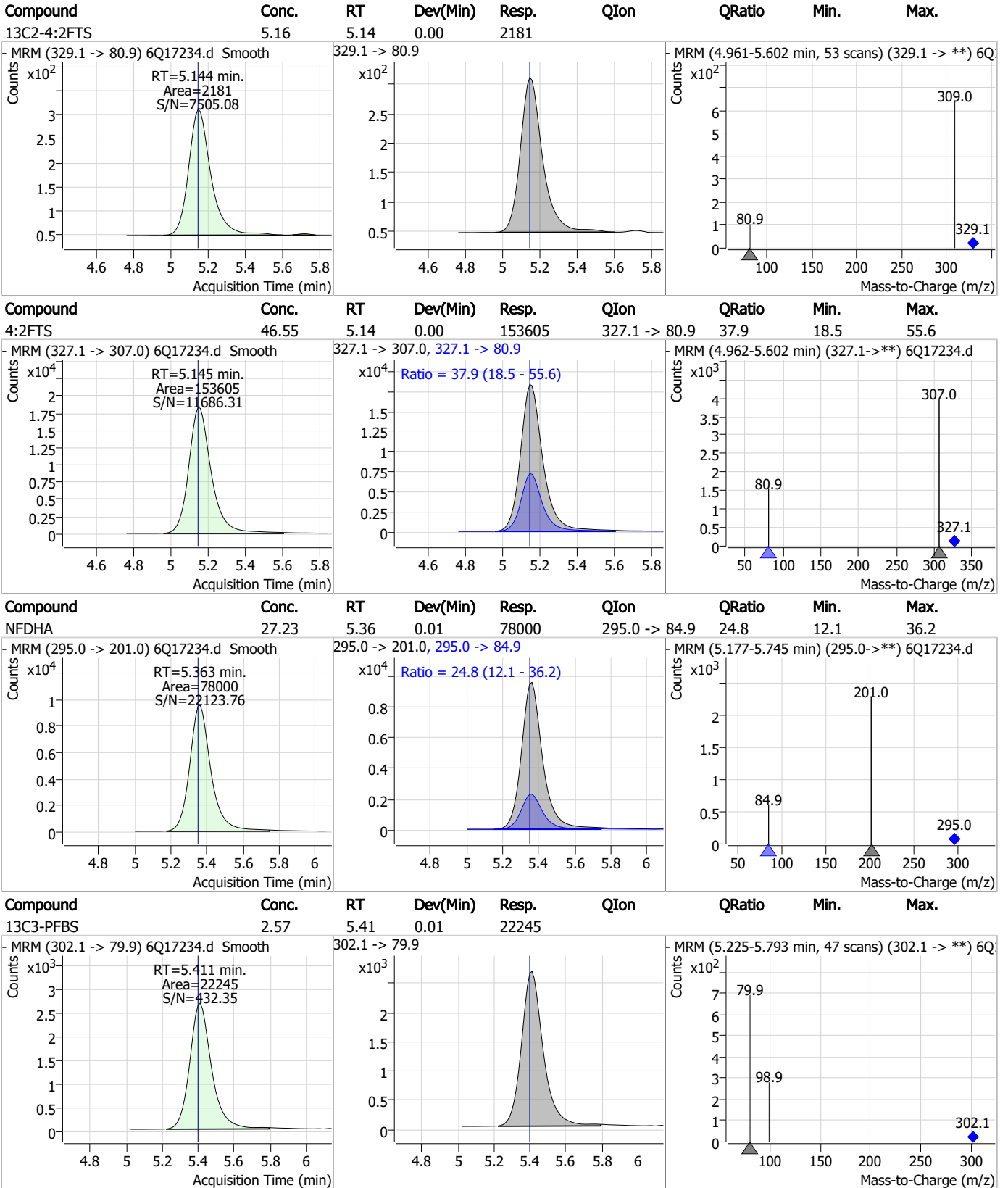
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	26.91	4.29	0.01	451053				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	27.26	4.69	0.00	306582				



Perfluorinated Compounds by LC/MS/MS



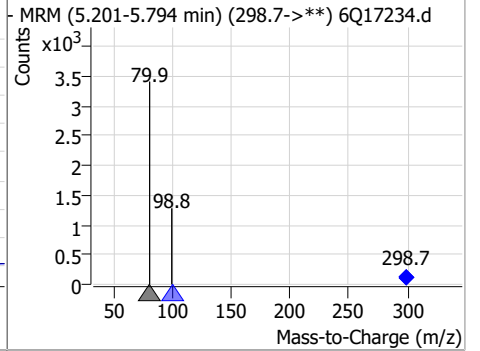
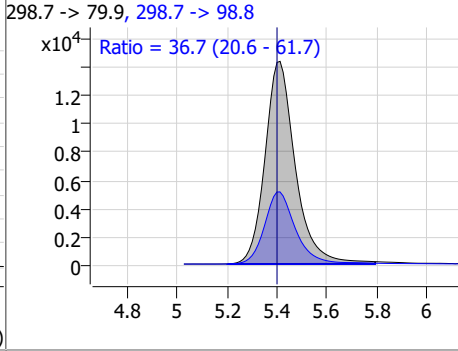
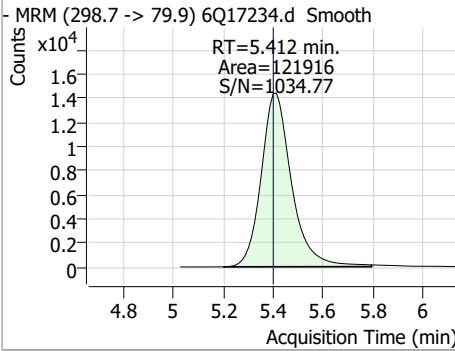
7.5.4

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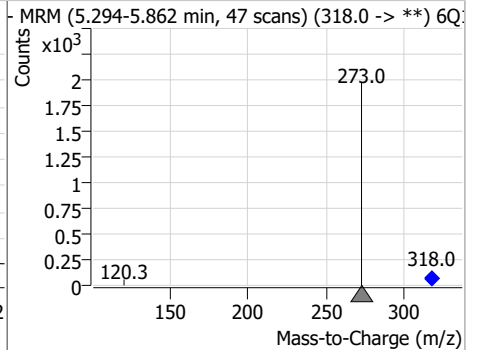
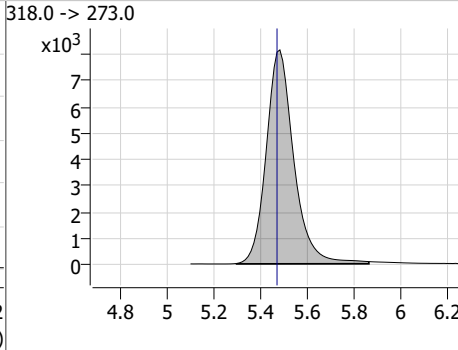
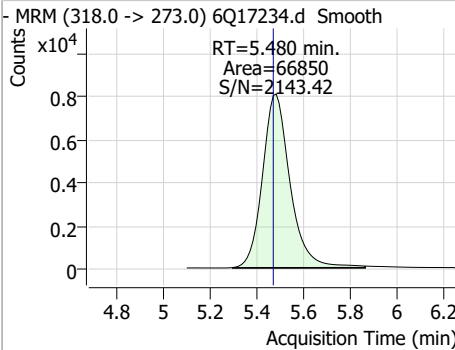


Perfluorinated Compounds by LC/MS/MS

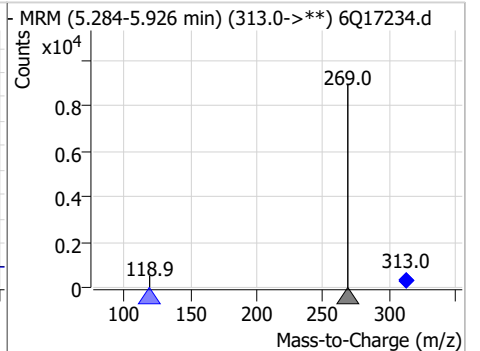
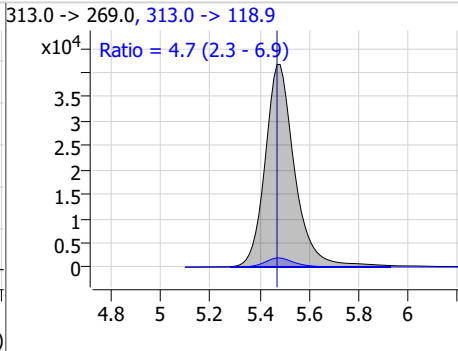
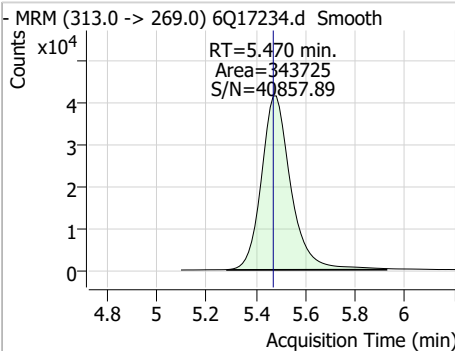
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	12.21	5.41	0.01	121916	298.7 -> 98.8	36.7	20.6	61.7



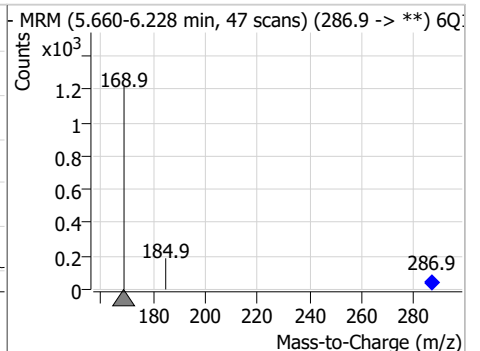
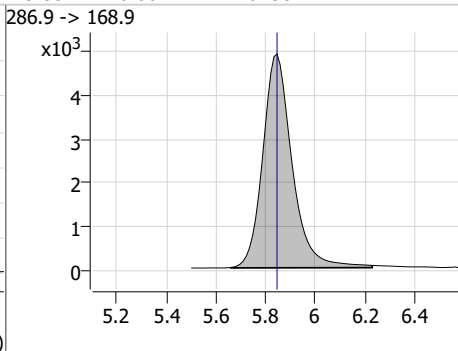
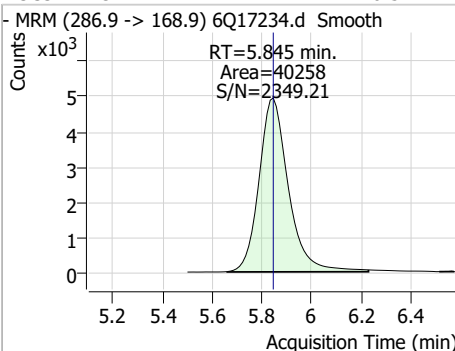
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.57	5.48	0.01	66850				



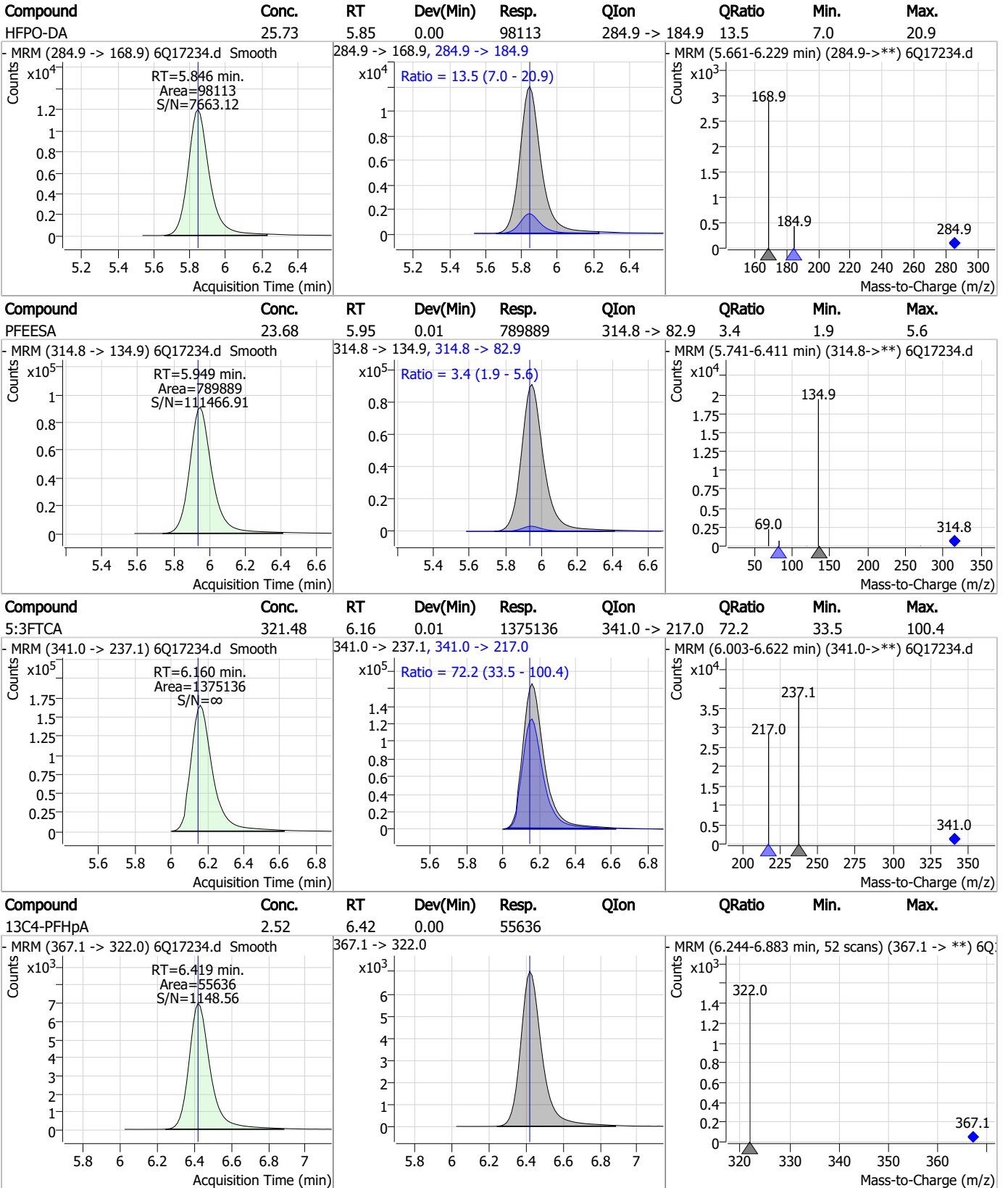
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	13.00	5.47	0.00	343725	313.0 -> 118.9	4.7	2.3	6.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.54	5.85	0.00	40258				



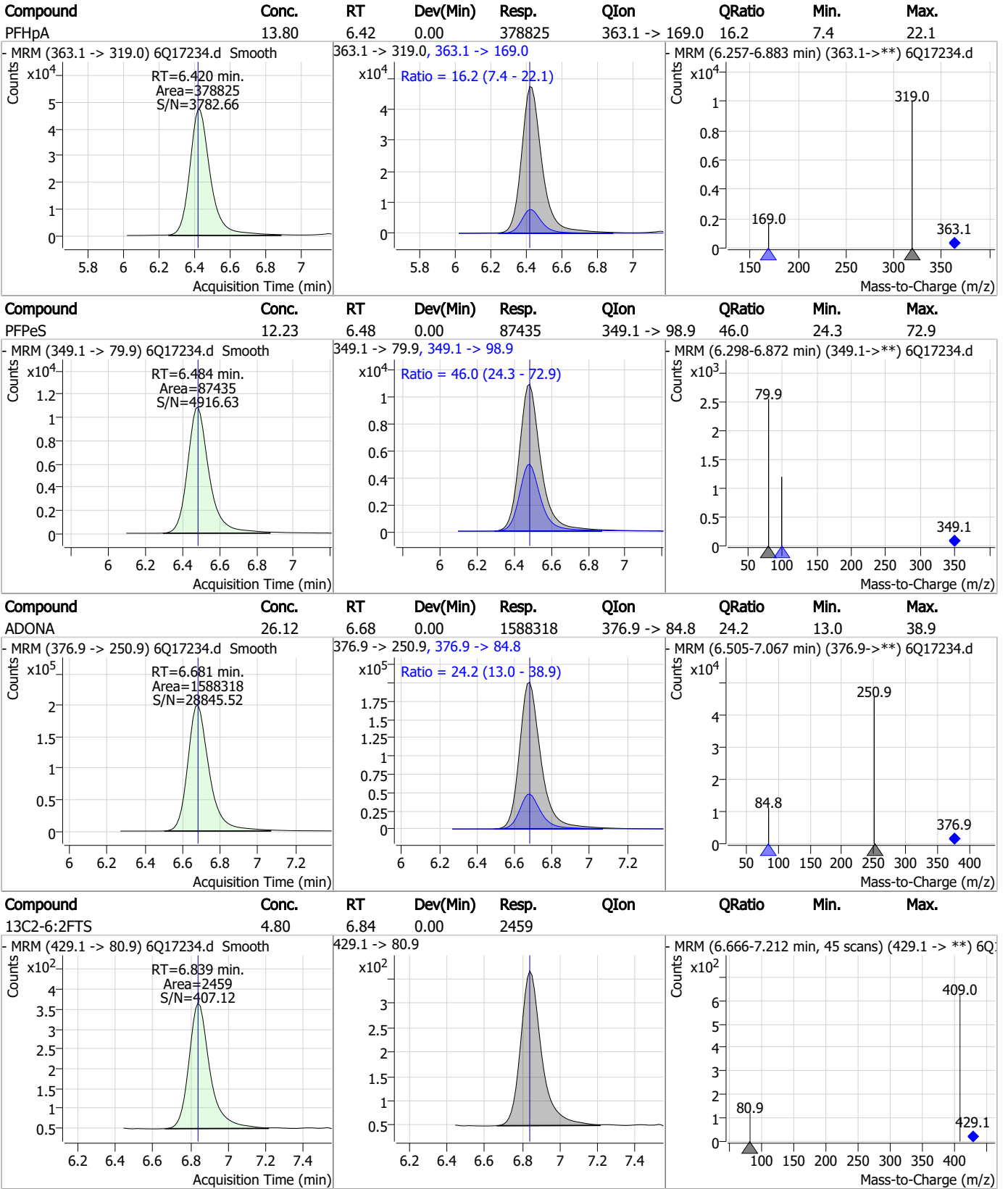
Perfluorinated Compounds by LC/MS/MS



7.5.4

7

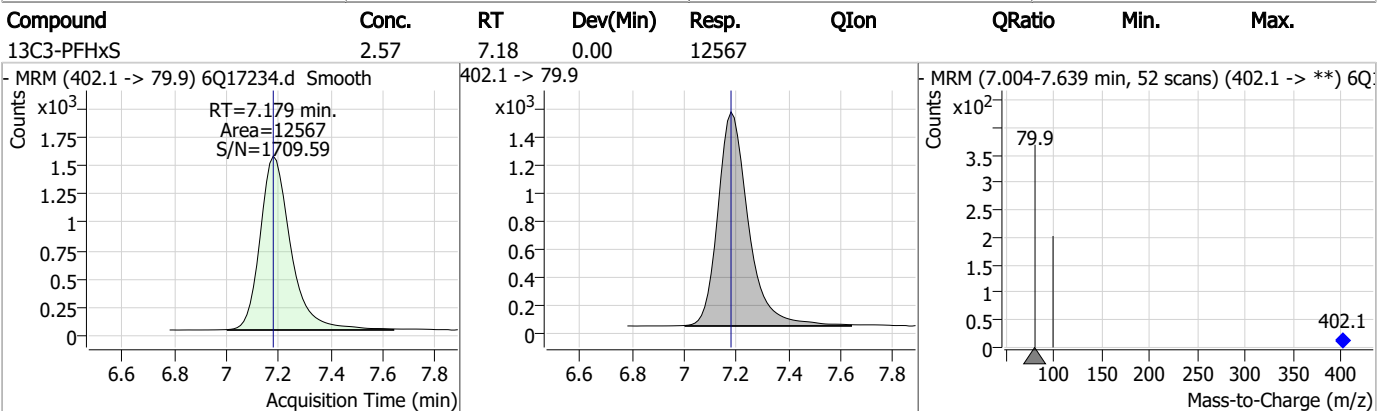
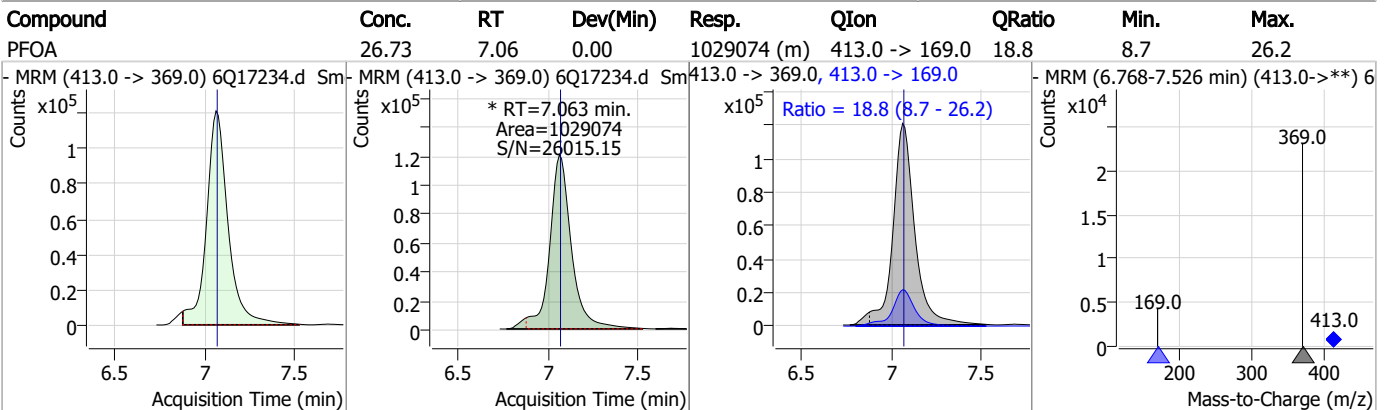
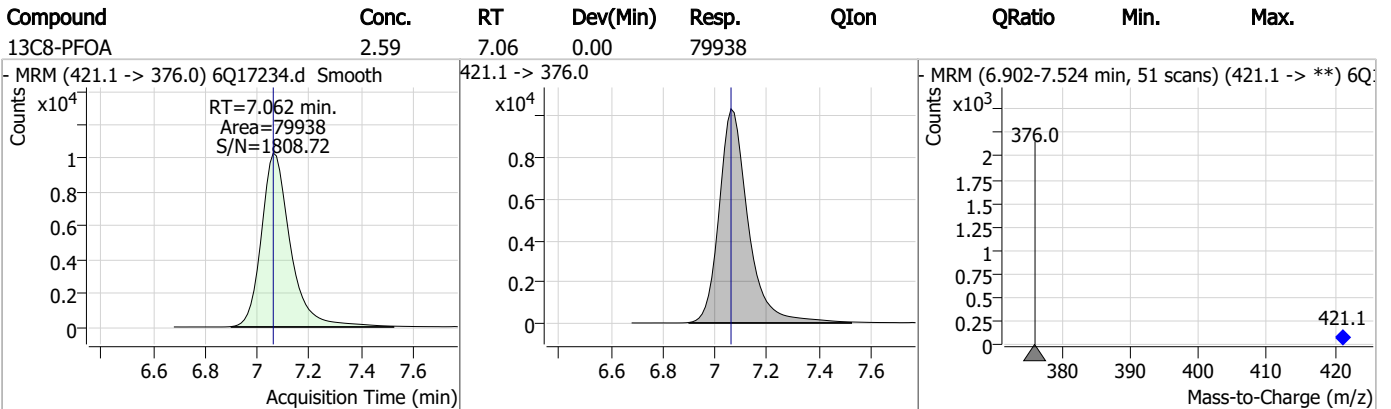
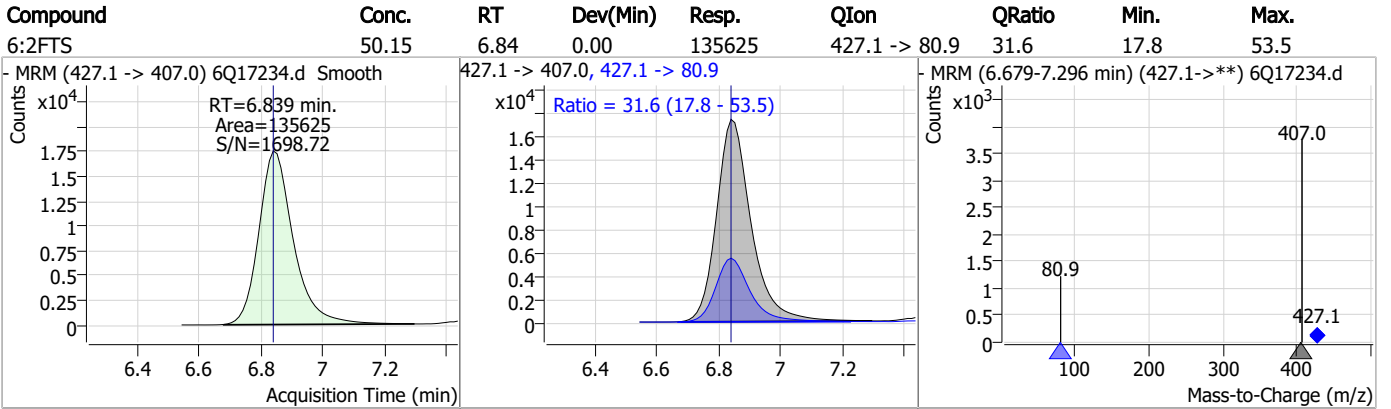
Perfluorinated Compounds by LC/MS/MS



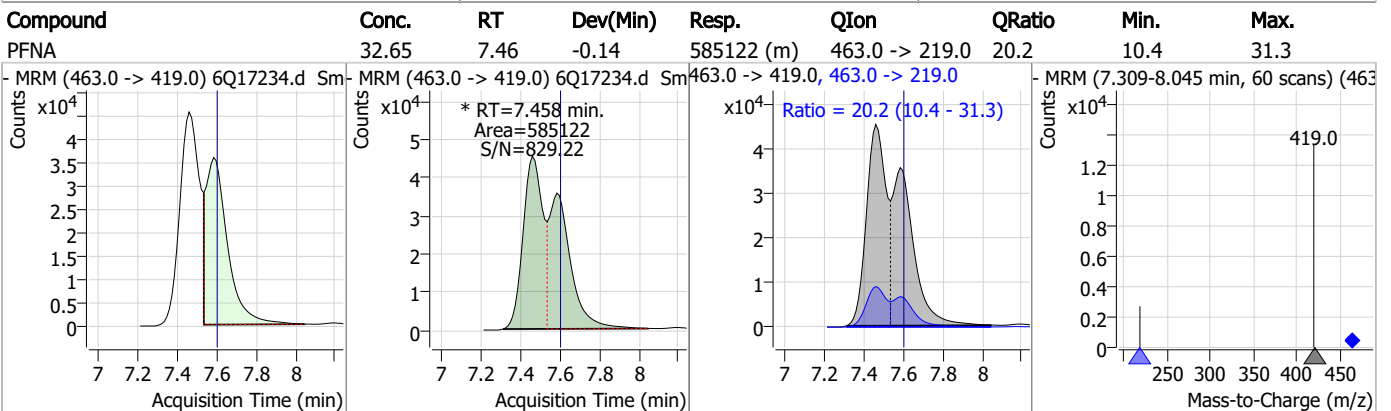
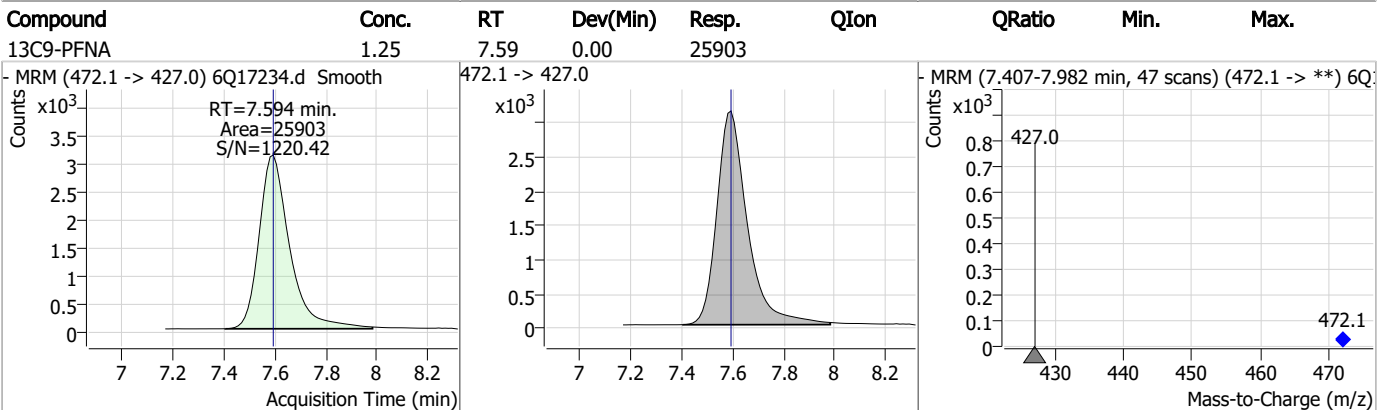
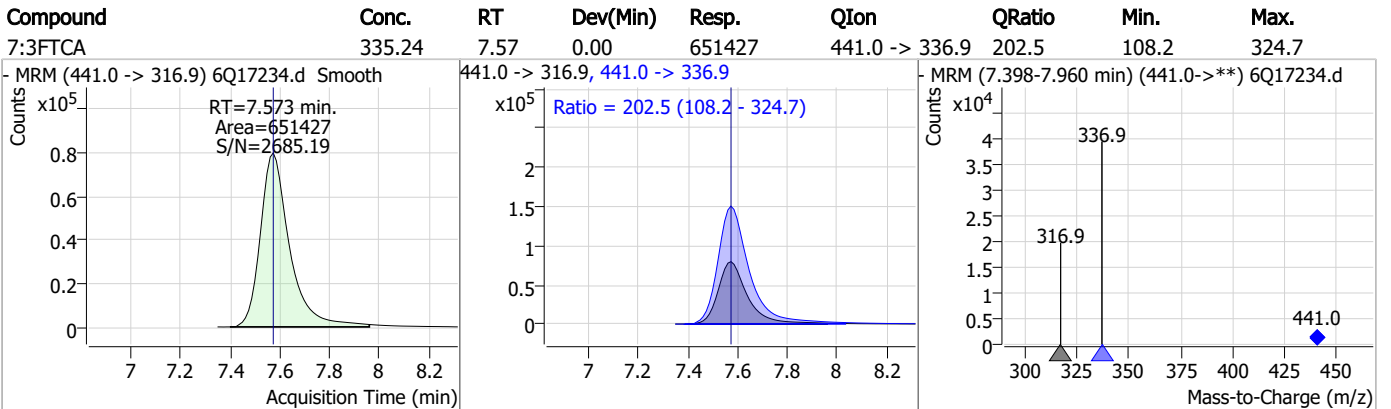
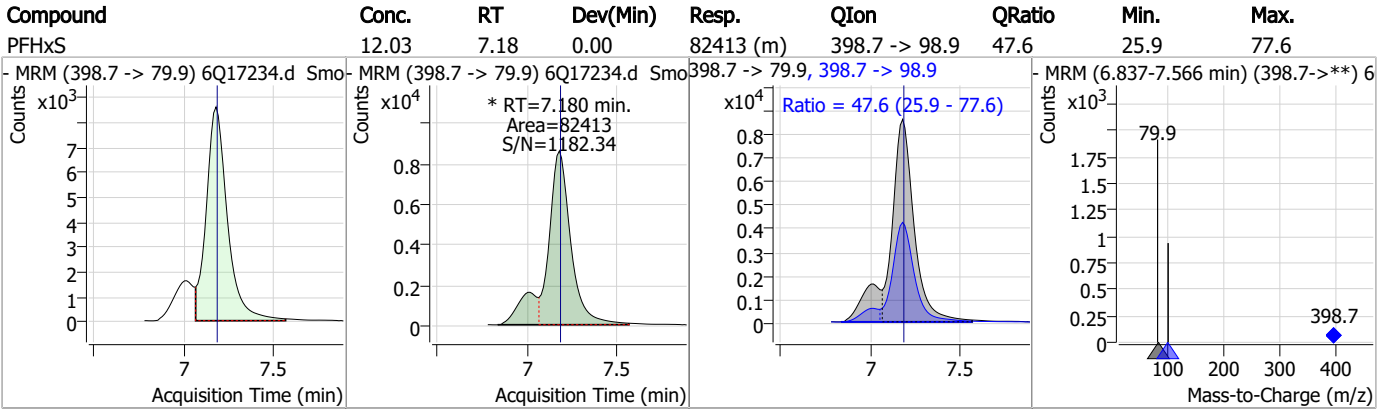
7.5.4
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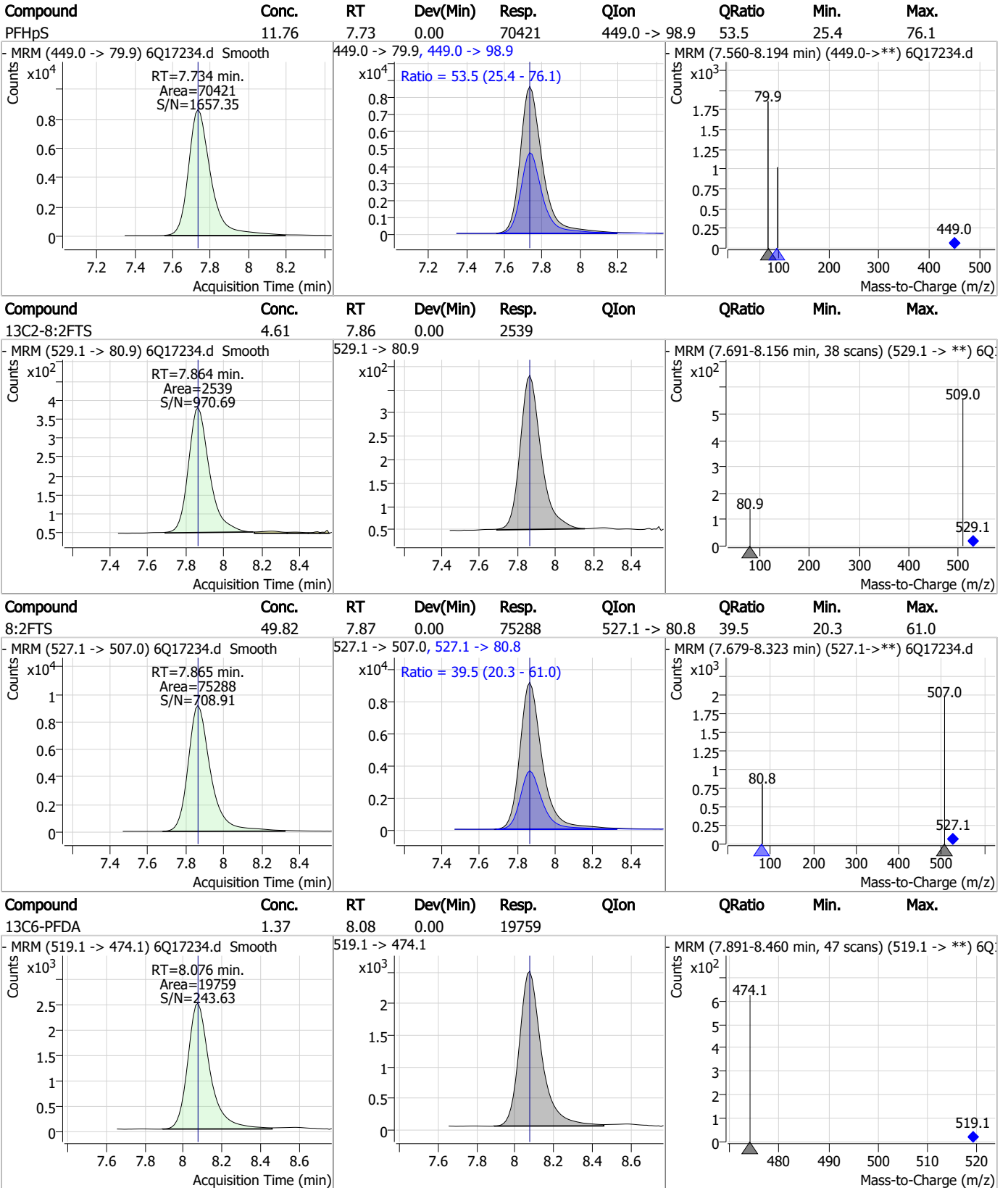
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

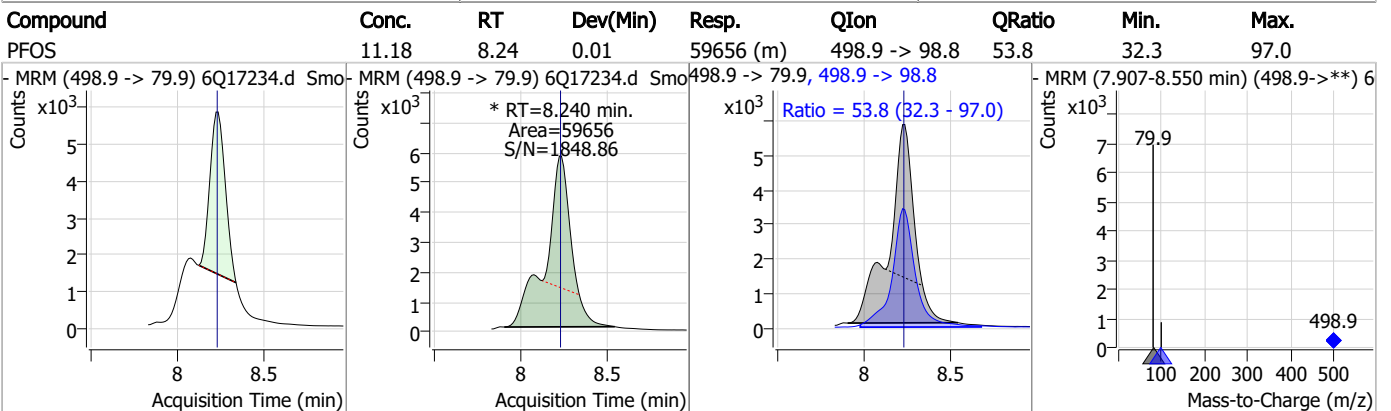
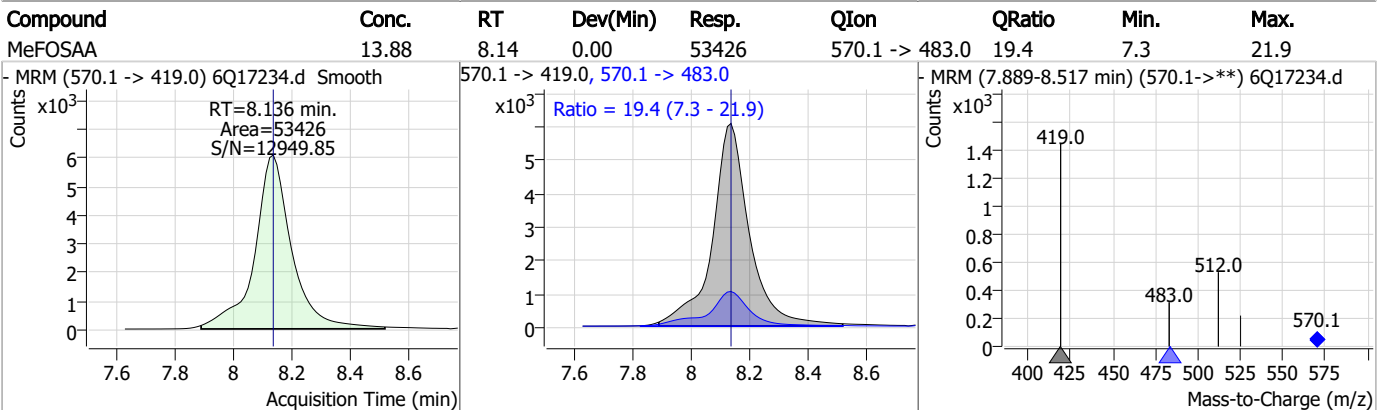
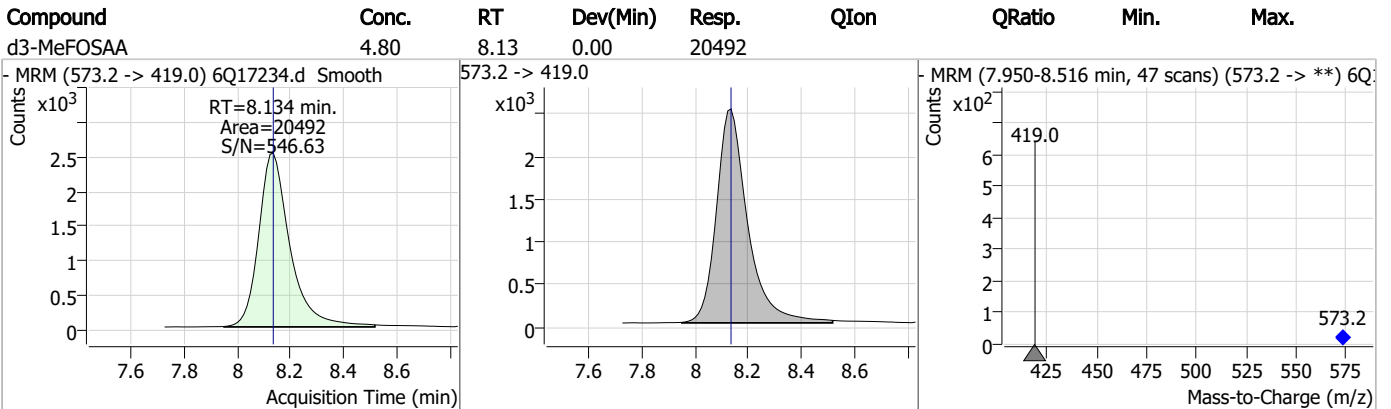
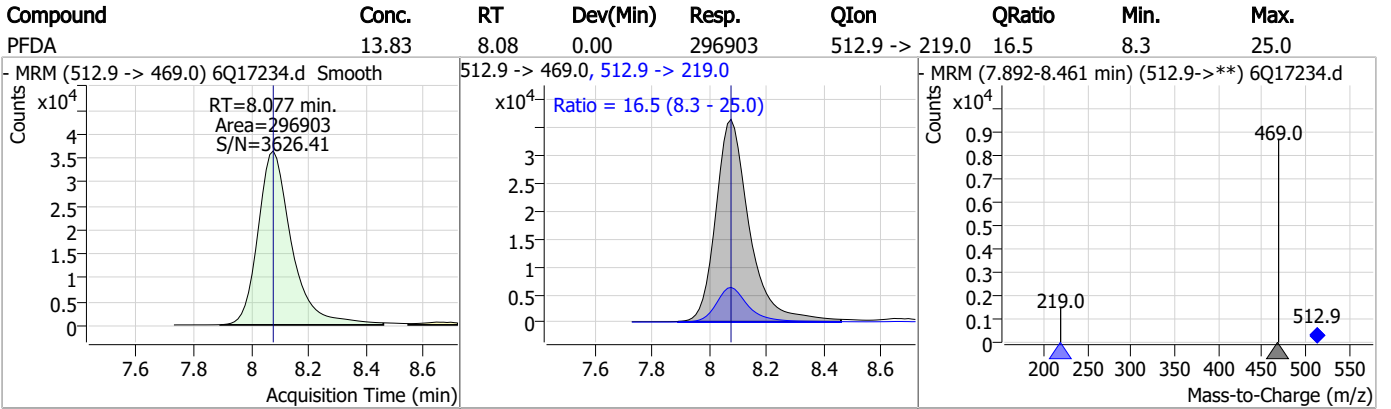


7.5.4

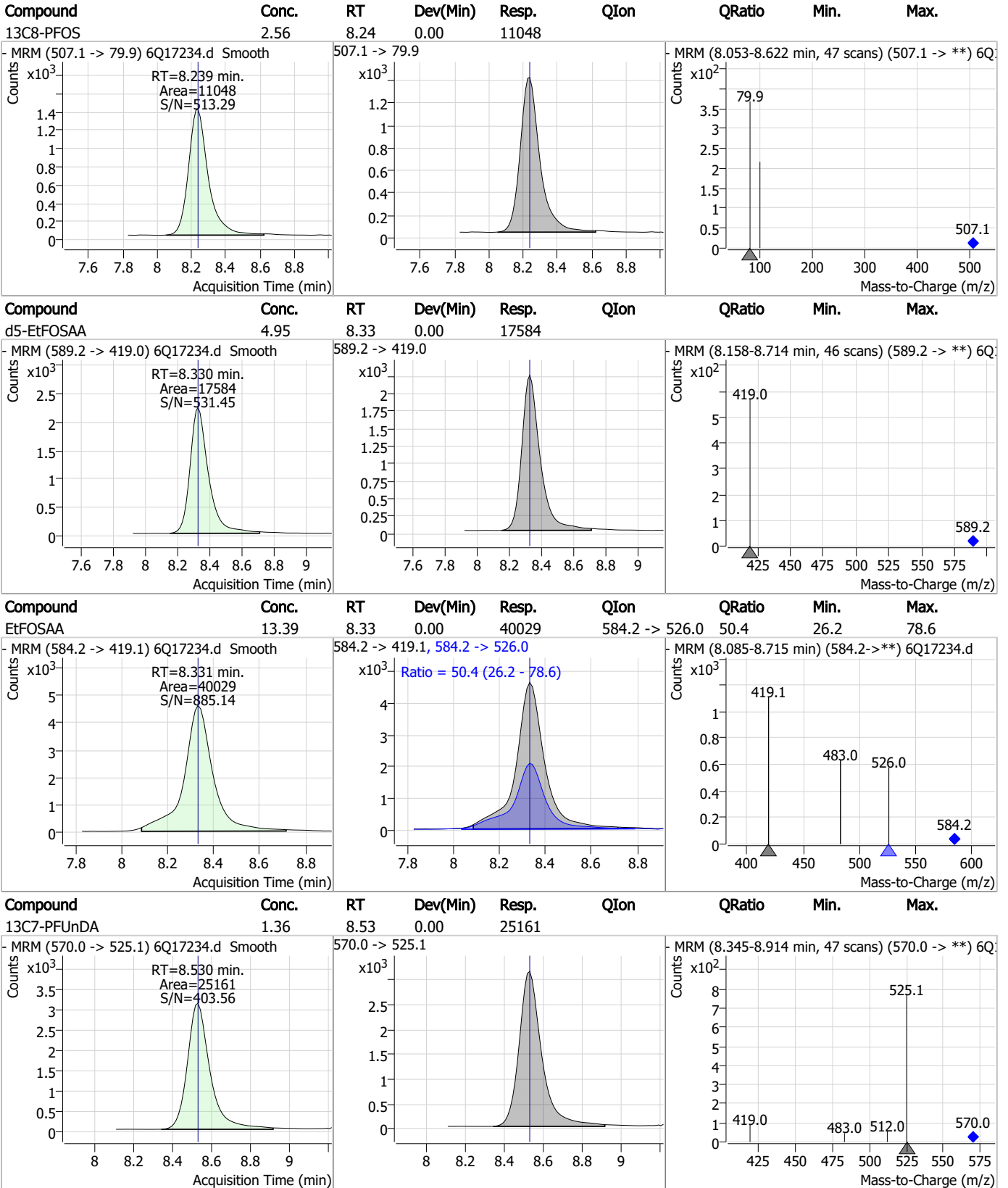
7



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



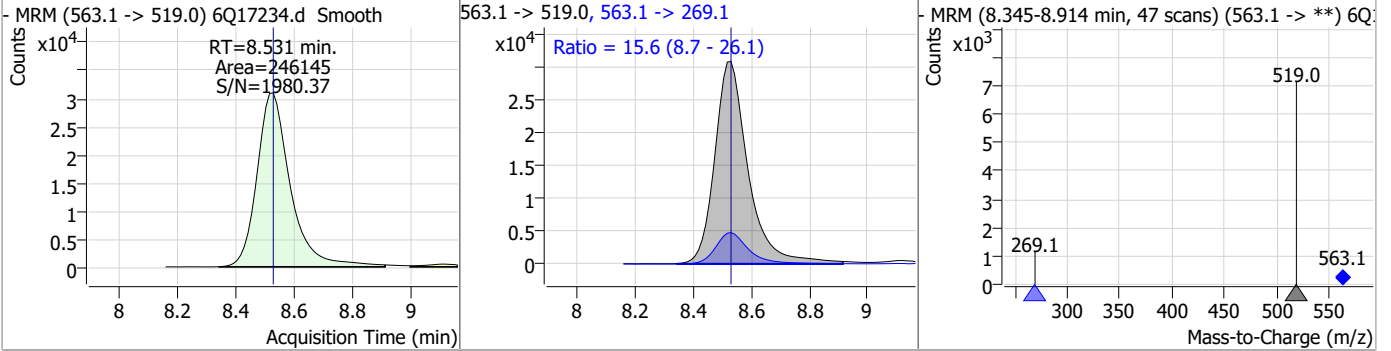
7.5.4

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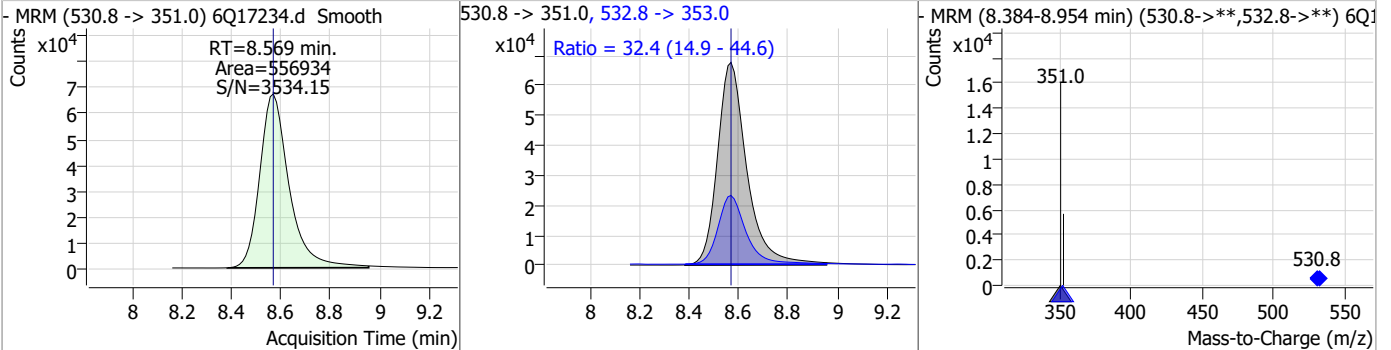


Perfluorinated Compounds by LC/MS/MS

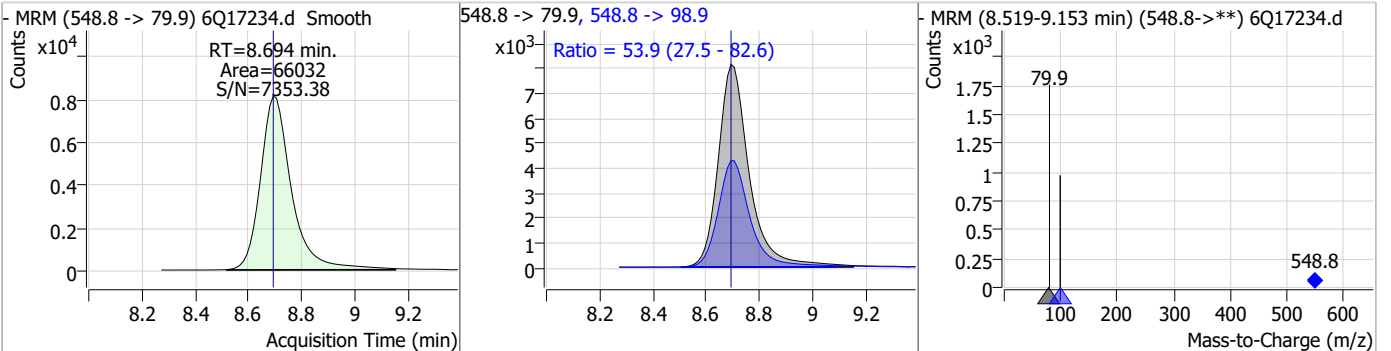
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	14.11	8.53	0.00	246145	563.1 -> 269.1	15.6	8.7	26.1



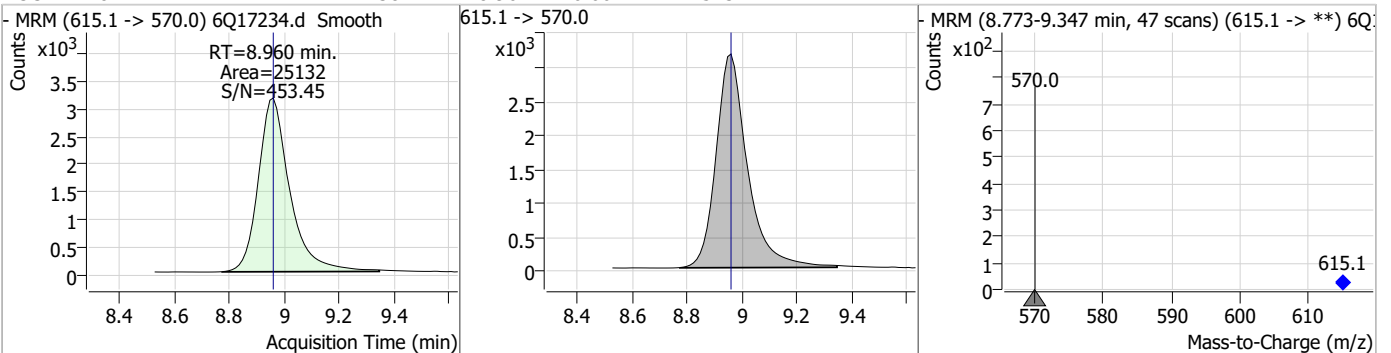
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	25.50	8.57	0.00	556934	532.8 -> 353.0	32.4	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	12.38	8.69	0.00	66032	548.8 -> 98.9	53.9	27.5	82.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.38	8.96	0.00	25132	615.1 -> 570.0			



Perfluorinated Compounds by LC/MS/MS

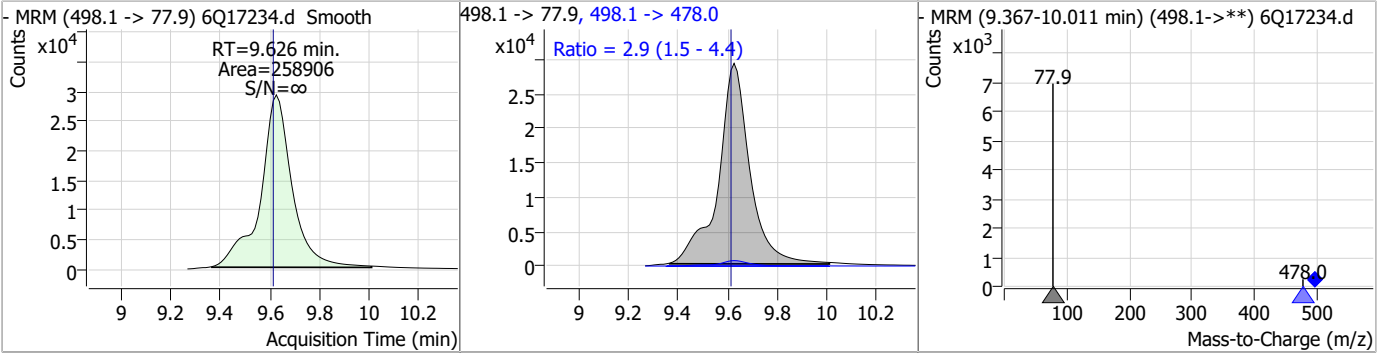
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DA	11.85	8.96	0.00	233441	613.1 -> 319.0	15.2	7.2	21.7
PFDS	12.93	9.13	0.00	45518	599.0 -> 98.8	49.0	24.9	74.6
PFT _r DA	14.16	9.34	0.00	308833	663.0 -> 168.9	8.6	4.6	13.7
11Cl-PF3OUds	25.77	9.40	0.00	355969	632.9 -> 452.9	30.2	15.9	47.8

7.5.4

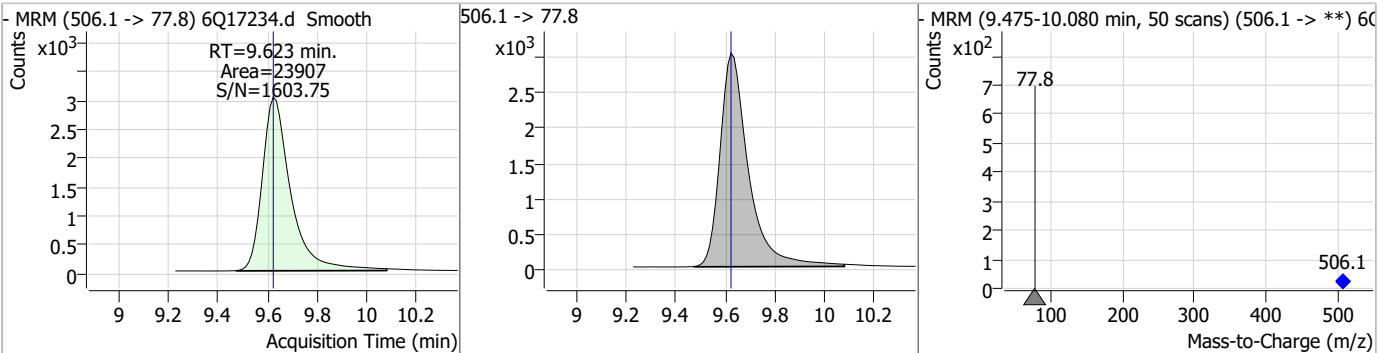
7

Perfluorinated Compounds by LC/MS/MS

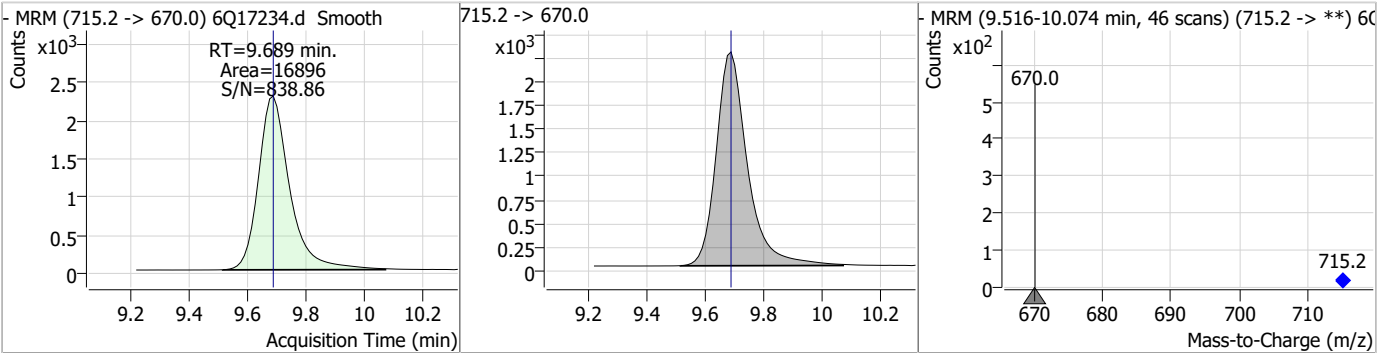
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	30.23	9.63	0.01	258906	498.1 -> 478.0	2.9	1.5	4.4



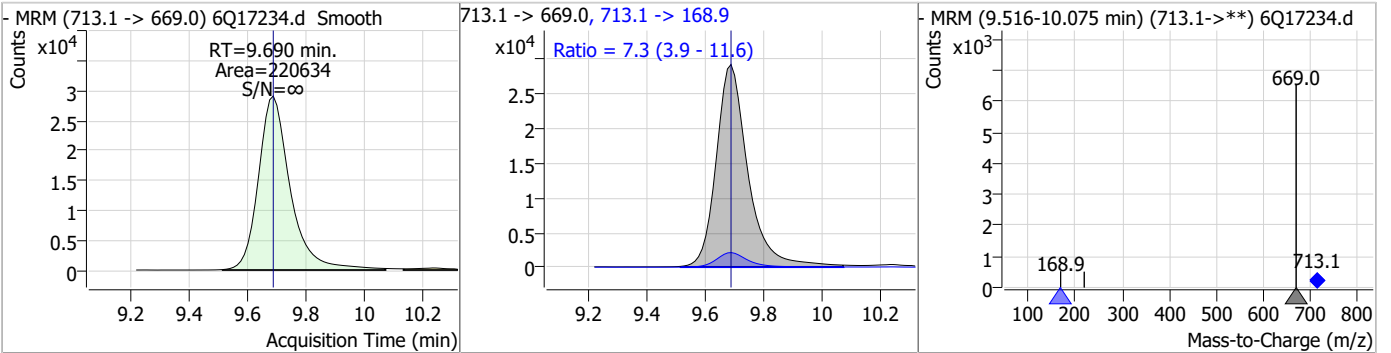
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.52	9.62	0.00	23907				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.37	9.69	0.00	16896				

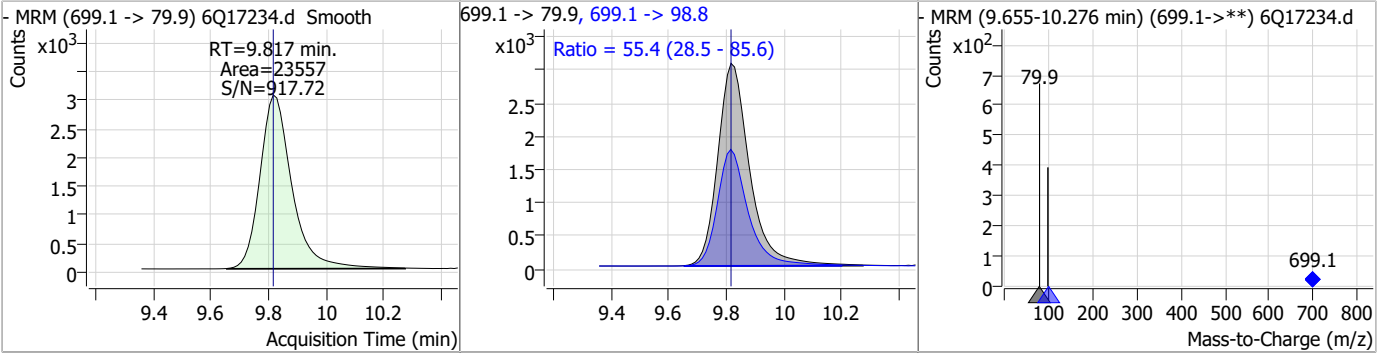


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	12.92	9.69	0.00	220634	713.1 -> 168.9	7.3	3.9	11.6

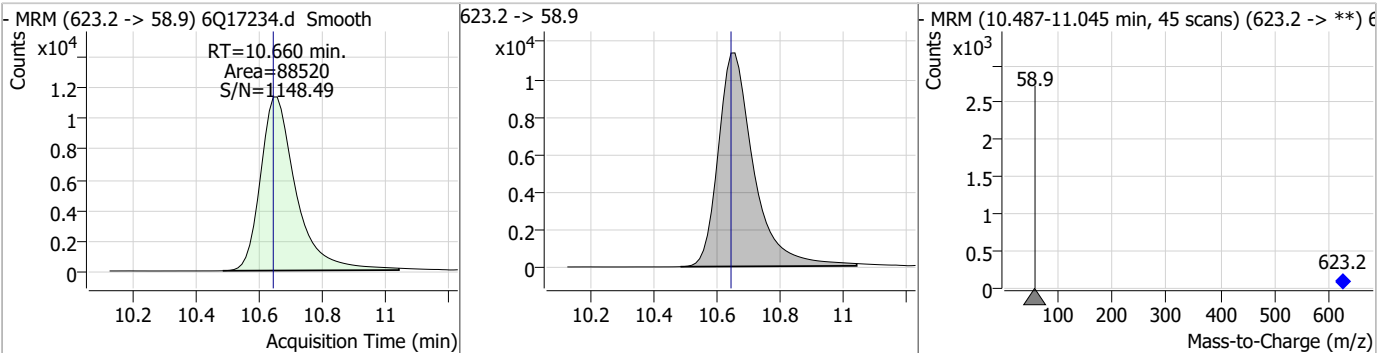


Perfluorinated Compounds by LC/MS/MS

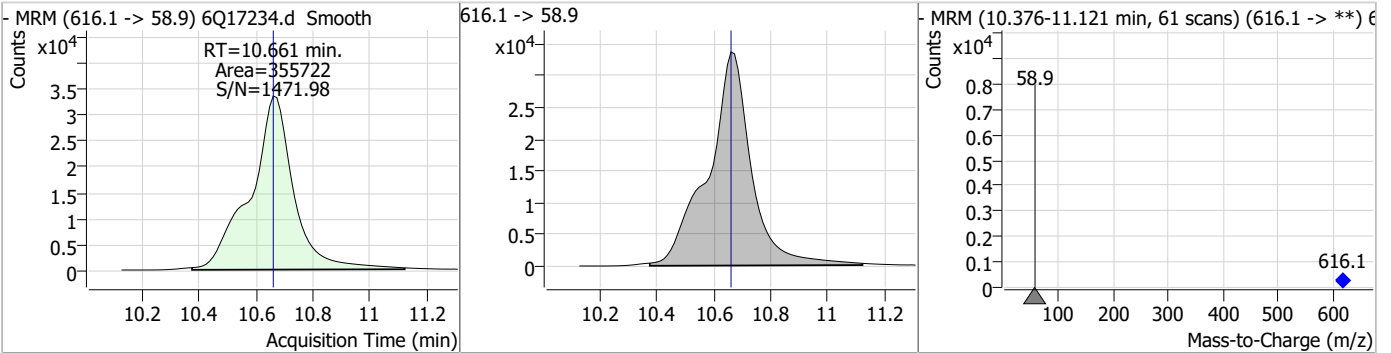
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	12.94	9.82	0.00	23557	699.1 -> 98.8	55.4	28.5	85.6



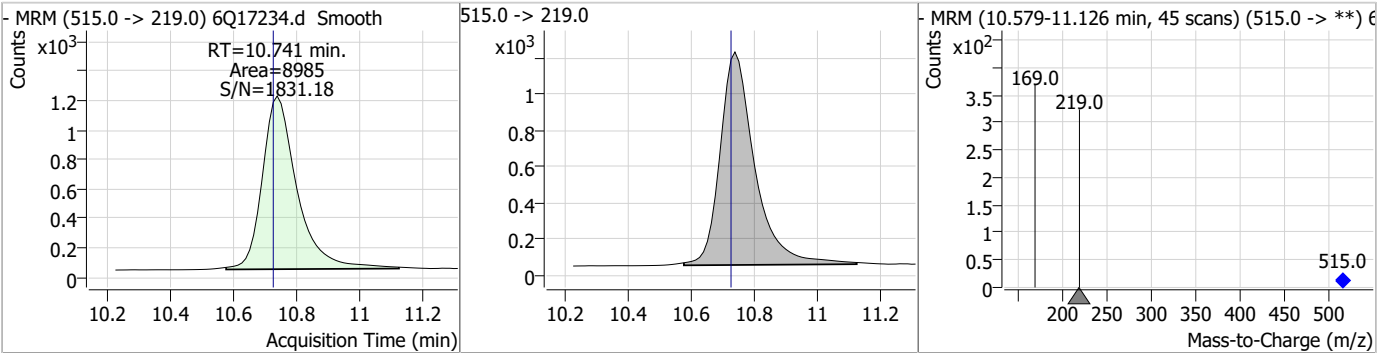
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.53	10.66	0.01	88520				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	90.11	10.66	0.00	355722				

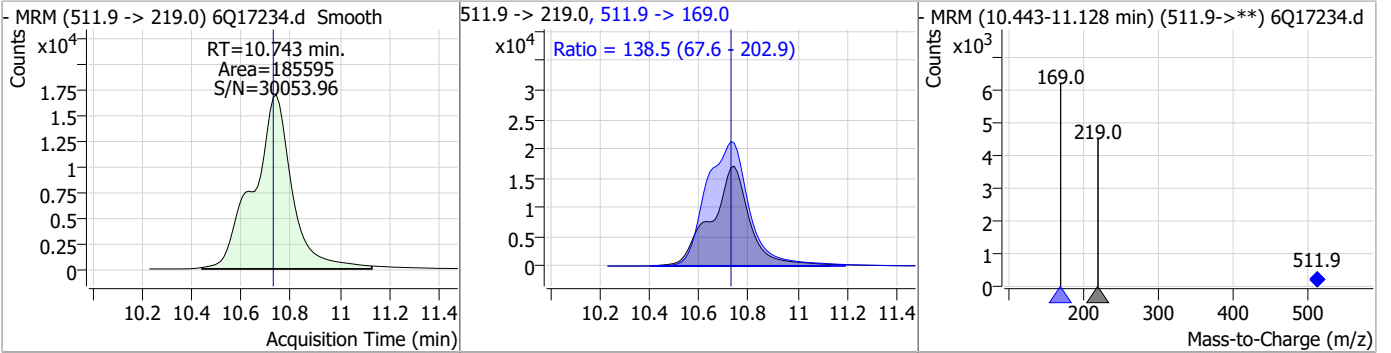


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.51	10.74	0.01	8985				

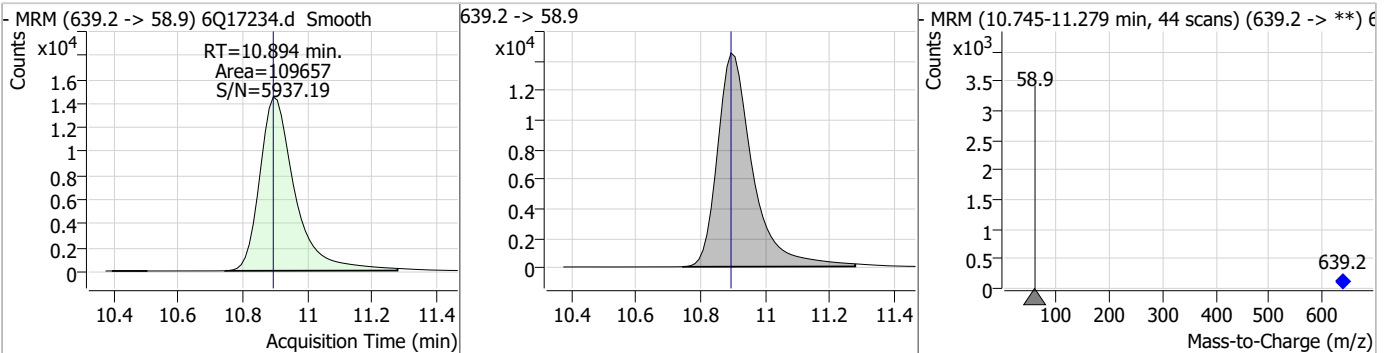


Perfluorinated Compounds by LC/MS/MS

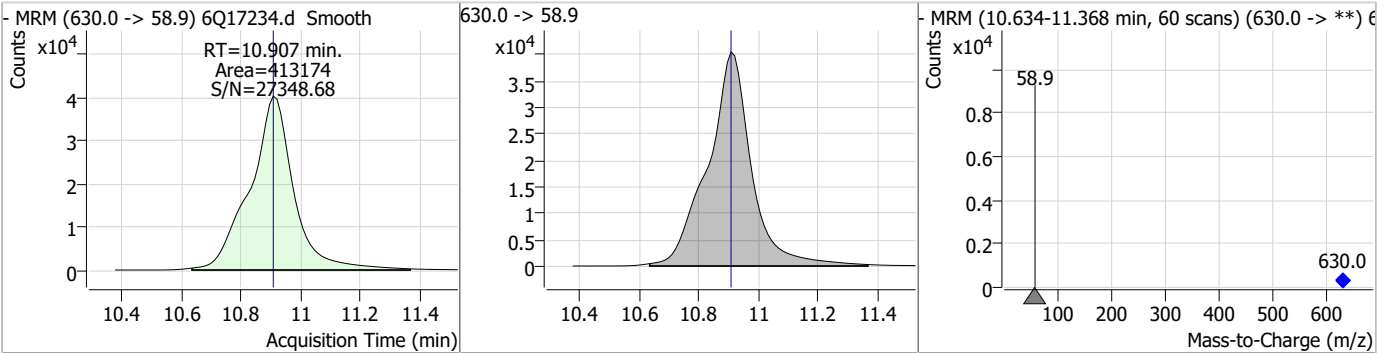
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	45.90	10.74	0.01	185595	511.9 -> 169.0	138.5	67.6	202.9



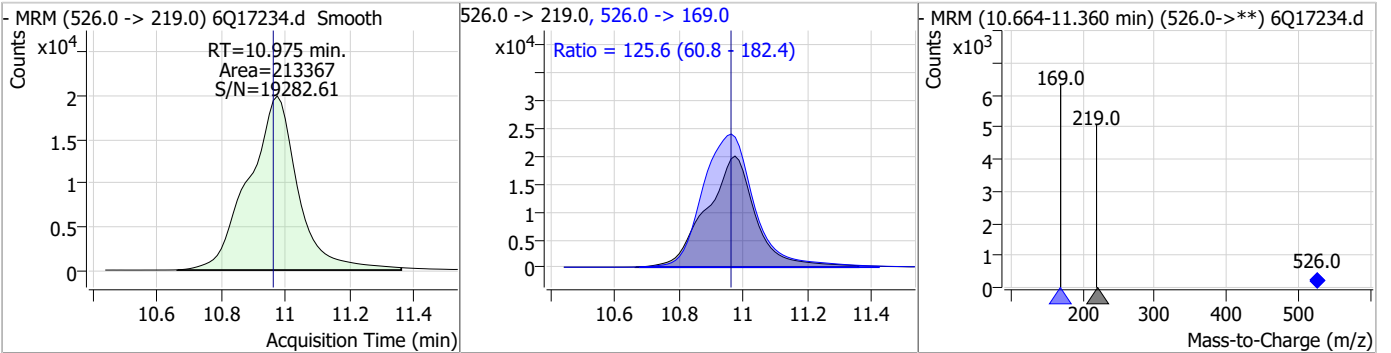
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.85	10.89	0.00	109657				



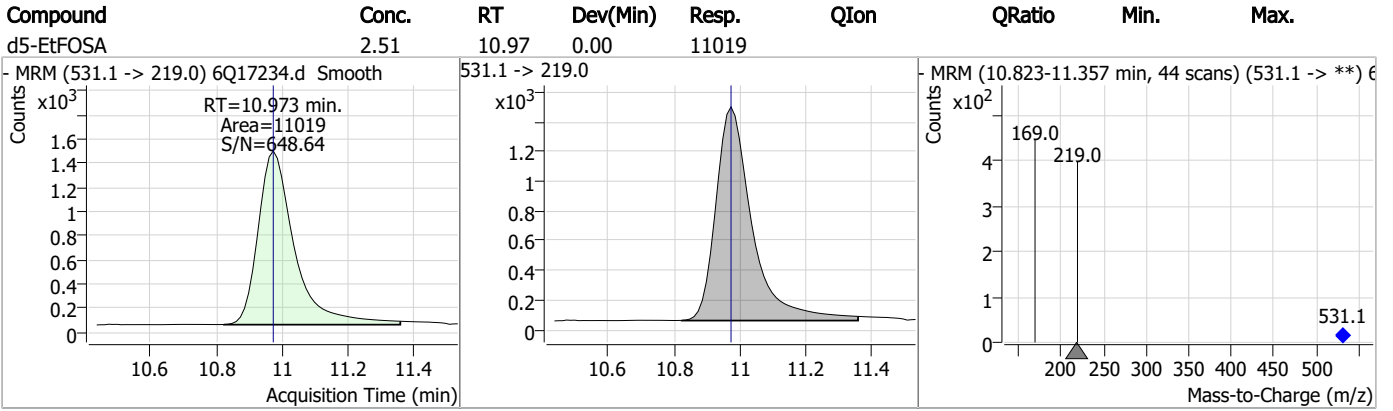
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	90.48	10.91	0.00	413174				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	47.12	10.97	0.01	213367	526.0 -> 169.0	125.6	60.8	182.4



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q260-RT Method: EPA DRAFT 1633
Lab FileID: 6Q17234.D Analyst approved: 05/02/23 13:38 Martha Valls
Injection Time: 05/01/23 12:04 Supervisor approved: 05/02/23 15:59 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.06	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorononanoic acid	375-95-1		7.46	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.24	Split peak

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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 21 April 2023 16:42:07
File Path D:\MassHunter\Tune\QQQ\G6495B\atunes.TUNE.XML
Ion Source AJS ESI
Ionization Mode AJS ESI
Tuned Resolution All
Vacuum Pressure 1.73E+0 [R] (Torr); 3.15E-5 [H] (Torr)

Source Parameters

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

Positive Results

Analyzer: MS1 Polarity: Positive Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
118.09	118.11	0.02	Pass	0.70	0.68	-0.02	Pass	1712349
322.05	322.09	0.04	Pass	0.70	0.69	-0.01	Pass	1367900
622.03	621.91	-0.12	Pass	0.70	0.70	0.00	Pass	1874880
922.01	921.91	-0.10	Pass	0.70	0.70	0.00	Pass	1041451
1521.97	1521.86	-0.11	Pass	0.70	0.66	-0.04	Pass	158214
2121.93	2121.78	-0.15	Pass	0.70	0.70	0.00	Pass	43141

Analyzer: MS2 Polarity: Positive Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
58.07	58.14	0.07	Pass	0.70	0.57	-0.13	Pass	556605
118.09	118.06	-0.03	Pass	0.70	0.63	-0.07	Pass	1970997
322.05	322.01	-0.04	Pass	0.70	0.71	0.01	Pass	1666060
622.03	621.98	-0.05	Pass	0.70	0.71	0.01	Pass	1905375
922.01	921.91	-0.10	Pass	0.70	0.75	0.05	Pass	819505
1521.97	1521.90	-0.07	Pass	0.70	0.72	0.02	Pass	190618
2121.93	2121.83	-0.10	Pass	0.70	0.71	0.01	Pass	48061

Analyzer: MS1 Polarity: Positive Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
118.09	118.13	0.04	Pass	1.20	1.40	0.20	Pass	3602917
322.05	322.00	-0.05	Pass	1.20	1.52	0.32	Pass	2388617
622.03	622.00	-0.03	Pass	1.20	1.53	0.33	Pass	3421723
922.01	921.93	-0.08	Pass	1.20	1.40	0.20	Pass	2494574
1521.97	1521.88	-0.09	Pass	1.20	1.29	0.09	Pass	531796
2121.93	2121.82	-0.11	Pass	1.20	1.11	-0.09	Pass	207195

Analyzer: MS2 Polarity: Positive Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
58.07	58.11	0.04	Pass	1.20	1.16	-0.04	Pass	909874
118.09	118.03	-0.06	Pass	1.20	1.26	0.06	Pass	2956146
322.05	322.09	0.04	Pass	1.20	1.43	0.23	Pass	2346697
622.03	621.90	-0.13	Pass	1.20	1.24	0.04	Pass	3186612
922.01	922.01	0.00	Pass	1.20	1.34	0.14	Pass	1549696
1521.97	1521.92	-0.05	Pass	1.20	1.29	0.09	Pass	390217
2121.93	2121.75	-0.18	Pass	1.20	1.23	0.03	Pass	134355

Analyzer: MS1 Polarity: Positive Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
118.09	117.89	-0.20	Pass	2.50	2.50	0.00	Pass	5097401
322.05	321.99	-0.06	Pass	2.50	3.17	0.67	Pass	3138893
622.03	621.96	-0.07	Pass	2.50	3.03	0.53	Pass	4167132
922.01	921.90	-0.11	Pass	2.50	3.00	0.50	Pass	3418628
1521.97	1521.84	-0.13	Pass	2.50	2.71	0.21	Pass	1054324
2121.93	2121.60	-0.33	Pass	2.50	2.73	0.23	Pass	577744

7.6.1

QQQ Check Tune Report



Analyzer: MS2 Polarity: Positive Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
58.07	57.92	-0.15	Pass	2.50	2.59	0.09	Pass	1318333
118.09	118.00	-0.09	Pass	2.50	2.63	0.13	Pass	5069616
322.05	322.23	0.18	Pass	2.50	2.82	0.32	Pass	3102879
622.03	621.99	-0.04	Pass	2.50	2.72	0.22	Pass	4250991
922.01	922.01	0.00	Pass	2.50	2.73	0.23	Pass	2895443
1521.97	1521.89	-0.08	Pass	2.50	2.84	0.34	Pass	1085946
2121.93	2121.74	-0.19	Pass	2.50	2.84	0.34	Pass	675885

7.6.1

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QQQ Check Tune Report



Negative Results

Analyzer: MS1 Polarity: Negative Width: Unit

m/z	m/z	Delta	Result	FWHM	FWHM	Delta	Result	Abundance
Expected	Measured			Expected	Measured			
112.99	112.97	-0.02	Pass	0.70	0.70	0.00	Pass	280663
302.00	301.94	-0.06	Pass	0.70	0.77	0.07	Pass	1174361
601.98	601.95	-0.03	Pass	0.70	0.74	0.04	Pass	3314113
1033.99	1033.95	-0.04	Pass	0.70	0.66	-0.04	Pass	1111513
1633.95	1633.89	-0.06	Pass	0.70	0.68	-0.02	Pass	1041900
2233.91	2233.76	-0.15	Pass	0.70	0.72	0.02	Pass	475314

Analyzer: MS2 Polarity: Negative Width: Unit

m/z	m/z	Delta	Result	FWHM	FWHM	Delta	Result	Abundance
Expected	Measured			Expected	Measured			
69.00	69.02	0.02	Pass	0.70	0.74	0.04	Pass	79084
112.99	112.97	-0.02	Pass	0.70	0.75	0.05	Pass	336048
302.00	301.94	-0.06	Pass	0.70	0.63	-0.07	Pass	1854456
601.98	601.99	0.01	Pass	0.70	0.66	-0.04	Pass	3616583
1033.99	1033.85	-0.14	Pass	0.70	0.78	0.08	Pass	1197307
1633.95	1633.76	-0.19	Pass	0.70	0.80	0.10	Pass	1551614
2233.91	2233.69	-0.22	Pass	0.70	0.80	0.10	Pass	879381

Analyzer: MS1 Polarity: Negative Width: Wide

m/z	m/z	Delta	Result	FWHM	FWHM	Delta	Result	Abundance
Expected	Measured			Expected	Measured			
112.99	112.88	-0.11	Pass	1.20	1.14	-0.06	Pass	371210
302.00	301.96	-0.04	Pass	1.20	1.54	0.34	Pass	1841827
601.98	601.93	-0.05	Pass	1.20	1.72	0.52	Pass	4338111
1033.99	1033.98	-0.01	Pass	1.20	1.63	0.43	Pass	1752240
1633.95	1633.73	-0.22	Pass	1.20	1.51	0.31	Pass	2128895
2233.91	2233.90	-0.01	Pass	1.20	1.47	0.27	Pass	1236282

Analyzer: MS2 Polarity: Negative Width: Wide

m/z	m/z	Delta	Result	FWHM	FWHM	Delta	Result	Abundance
Expected	Measured			Expected	Measured			
69.00	69.09	0.09	Pass	1.20	1.13	-0.07	Pass	132092
112.99	113.04	0.05	Pass	1.20	1.21	0.01	Pass	432295
302.00	301.95	-0.05	Pass	1.20	1.22	0.02	Pass	2083166
601.98	602.00	0.02	Pass	1.20	1.30	0.10	Pass	4539558
1033.99	1034.01	0.02	Pass	1.20	1.23	0.03	Pass	1859414
1633.95	1633.89	-0.06	Pass	1.20	1.17	-0.03	Pass	2404725
2233.91	2233.80	-0.11	Pass	1.20	1.06	-0.14	Pass	1445876

Analyzer: MS1 Polarity: Negative Width: Widest

m/z	m/z	Delta	Result	FWHM	FWHM	Delta	Result	Abundance
Expected	Measured			Expected	Measured			
112.99	113.11	0.12	Pass	2.50	2.40	-0.10	Pass	332508
302.00	301.99	-0.01	Pass	2.50	2.53	0.03	Pass	1674144
601.98	601.94	-0.04	Pass	2.50	2.57	0.07	Pass	5262626
1033.99	1034.04	0.05	Pass	2.50	2.37	-0.13	Pass	2286888
1633.95	1633.92	-0.03	Pass	2.50	2.69	0.19	Pass	2589242
2233.91	2233.71	-0.20	Pass	2.50	2.72	0.22	Pass	1428495

Analyzer: MS2 Polarity: Negative Width: Widest

m/z	m/z	Delta	Result	FWHM	FWHM	Delta	Result	Abundance
Expected	Measured			Expected	Measured			
69.00	68.99	-0.01	Pass	2.50	2.65	0.15	Pass	168726
112.99	112.91	-0.08	Pass	2.50	2.48	-0.02	Pass	829124
302.00	301.92	-0.08	Pass	2.50	2.58	0.08	Pass	2833231
601.98	601.93	-0.05	Pass	2.50	2.82	0.32	Pass	6188038
1033.99	1033.90	-0.09	Pass	2.50	2.35	-0.15	Pass	3393113
1633.95	1633.83	-0.12	Pass	2.50	2.27	-0.23	Pass	5263089
2233.91	2233.57	-0.34	Pass	2.50	2.27	-0.23	Pass	3433253

7.6.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17051.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 12:50:16 PM
 Sample Name : ic258-1
 Vial : P1-A2
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	186819	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	66641	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	69077	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	60355	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	84734	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	27394	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	18971	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	26035	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	25781	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17287	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	26073	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22557	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	13242	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	10610	2.50 µg/L	-0.012
M2-4:2FTS	5.144	329.1 -> 80.9	2247	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2798	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2856	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	23497	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	41439	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	18738	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	102084	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	128810	25.00 µg/L	0.000
M5-EtFOSA	10.973	531.1 -> 219.0	11979	2.50 µg/L	0.000
M3-MeFOSA	10.741	515.0 -> 219.0	9281	2.50 µg/L	0.012
13C4-PFOS	8.239	502.8 -> 79.9	14866	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	80751	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9952	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	88403	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	24365	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	29325	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	59809	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2247	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2798	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2856	4.78 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.6%		
13C2-PFDoDA	8.960	615.1 -> 570.0	25781	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17287	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C3-PFBS	5.398	302.1 -> 79.9	22557	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.4%		
13C3-PFHxS	7.179	402.1 -> 79.9	13242	2.50 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 = 100.0%		
13C4-PFBA	2.910	216.8 -> 171.9	186819	10.01 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C4-PFHpA	6.419	367.1 -> 322.0	60355	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C5-PFHxA	5.468	318.0 -> 273.0	69077	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.8%		
13C5-PFPeA	4.270	268.3 -> 223.0	66641	4.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C6-PFDA	8.076	519.1 -> 474.1	18971	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.4%		
13C7-PFUnDA	8.530	570.0 -> 525.1	26035	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C8-FOSA	9.623	506.1 -> 77.8	26073	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.1%		
13C8-PFOA	7.062	421.1 -> 376.0	84734	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C8-PFOS	8.226	507.1 -> 79.9	10610	2.37 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.8%		
13C9-PFNA	7.594	472.1 -> 427.0	27394	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.0%		
d3-MeFOSAA	8.134	573.2 -> 419.0	23497	5.30 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.1%		
13C3-HFPO-DA	5.845	286.9 -> 168.9	41439	9.79 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 97.9%		
d3-MeFOSA	10.741	515.0 -> 219.0	9281	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.0%		
d5-EtFOSAA	8.330	589.2 -> 419.0	18738	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.8%		
d7-MeFOSE	10.647	623.2 -> 58.9	102084	26.16 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 104.7%		
d9-EtFOSE	10.894	639.2 -> 58.9	128810	27.02 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 108.1%		
d5-EtFOSA	10.973	531.1 -> 219.0	11979	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.1%		
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	2219	0.65 µg/L	95
		327.1 -> 80.9	754		
6:2FTS	6.839	427.1 -> 407.0	1782	0.58 µg/L	m 93
		427.1 -> 80.9	710		
8:2FTS	7.865	527.1 -> 507.0	1265	0.74 µg/L	93
		527.1 -> 80.8	457		
EtFOSAA	8.331	584.2 -> 419.1	611	0.19 µg/L	96
		584.2 -> 526.0	337		
FOSA	9.614	498.1 -> 77.9	1510	0.16 µg/L	98
		498.1 -> 478.0	54		
MeFOSAA	8.136	570.1 -> 419.0	704	0.16 µg/L	100
		570.1 -> 483.0	103		
PFBA	2.906	212.8 -> 168.9	4004	0.64 µg/L	100
PFBS	5.400	298.7 -> 79.9	1581	0.16 µg/L	100
		298.7 -> 98.8	651		
PFDA	8.077	512.9 -> 469.0	3202	0.16 µg/L	84
		512.9 -> 219.0	751		
PFDODA	8.961	613.1 -> 569.0	3505	0.17 µg/L	92
		613.1 -> 319.0	395		
PFDS	9.125	599.0 -> 79.9	536	0.16 µg/L	m 91

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	233			
PFHpA	6.420	363.1 -> 319.0	4833	0.16	µg/L	99
		363.1 -> 169.0	705			
PFHpS	7.734	449.0 -> 79.9	1005	0.17	µg/L	84
		449.0 -> 98.9	402			
PFHxA	5.470	313.0 -> 269.0	5160	0.19	µg/L	99
		313.0 -> 118.9	224			
PFHxS	7.180	398.7 -> 79.9	1096	0.15	µg/L	m 98
		398.7 -> 98.9	553			
PFNA	7.595	463.0 -> 419.0	2858	0.15	µg/L	99
		463.0 -> 219.0	590			
PFNS	8.694	548.8 -> 79.9	875	0.17	µg/L	82
		548.8 -> 98.9	370			
PFOA	7.063	413.0 -> 369.0	5042	0.19	µg/L	m 90
		413.0 -> 169.0	1111			
PFOS	8.253	498.9 -> 79.9	854	0.17	µg/L	m 87
		498.9 -> 98.8	463			
PFPeA	4.273	263.0 -> 219.0	5806	0.32	µg/L	100
PFPeS	6.472	349.1 -> 79.9	1110	0.15	µg/L	100
		349.1 -> 98.9	536			
PFTeDA	9.690	713.1 -> 669.0	3401	0.19	µg/L	99
		713.1 -> 168.9	251			
PFTrDA	9.358	663.0 -> 619.0	3630	0.16	µg/L	97
		663.0 -> 168.9	293			
PFUnDA	8.531	563.1 -> 519.0	3096	0.17	µg/L	93
		563.1 -> 269.1	444			
11CI-PF3OUdS	9.398	630.9 -> 450.9	4598	0.32	µg/L	93
		632.9 -> 452.9	1288			
9CI-PF3ONS	8.569	530.8 -> 351.0	6928	0.31	µg/L	79
		532.8 -> 353.0	2844			
ADONA	6.681	376.9 -> 250.9	19563	0.31	µg/L	99
		376.9 -> 84.8	4948			
HFPO-DA	5.846	284.9 -> 168.9	1269	0.32	µg/L	100
		284.9 -> 184.9	176			
3:3FTCA	3.784	241.0 -> 177.0	938	0.83	µg/L	95
		241.0 -> 117.0	144			
5:3FTCA	6.160	341.0 -> 237.1	19892	4.50	µg/L	92
		341.0 -> 217.0	14528			
7:3FTCA	7.573	441.0 -> 316.9	8675	4.32	µg/L	99
		441.0 -> 336.9	18680			
EtFOSA	10.975	526.0 -> 219.0	1611	0.33	µg/L	94
		526.0 -> 169.0	1849			
EtFOSE	10.907	630.0 -> 58.9	4208	0.78	µg/L	100
MeFOSA	10.730	511.9 -> 219.0	1397	0.33	µg/L	100
		511.9 -> 169.0	1895			
MeFOSE	10.661	616.1 -> 58.9	3713	0.82	µg/L	100
PFDoDS	9.817	699.1 -> 79.9	299	0.17	µg/L	92
		699.1 -> 98.8	189			
NFDHA	5.350	295.0 -> 201.0	1022	0.35	µg/L	85
		295.0 -> 84.9	324			
PFMBA	4.687	279.0 -> 85.1	3886	0.32	µg/L	100
PFMPA	3.438	229.0 -> 84.9	2950	0.32	µg/L	100
PFEESA	5.937	314.8 -> 134.9	10269	0.30	µg/L	98
		314.8 -> 82.9	433			

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

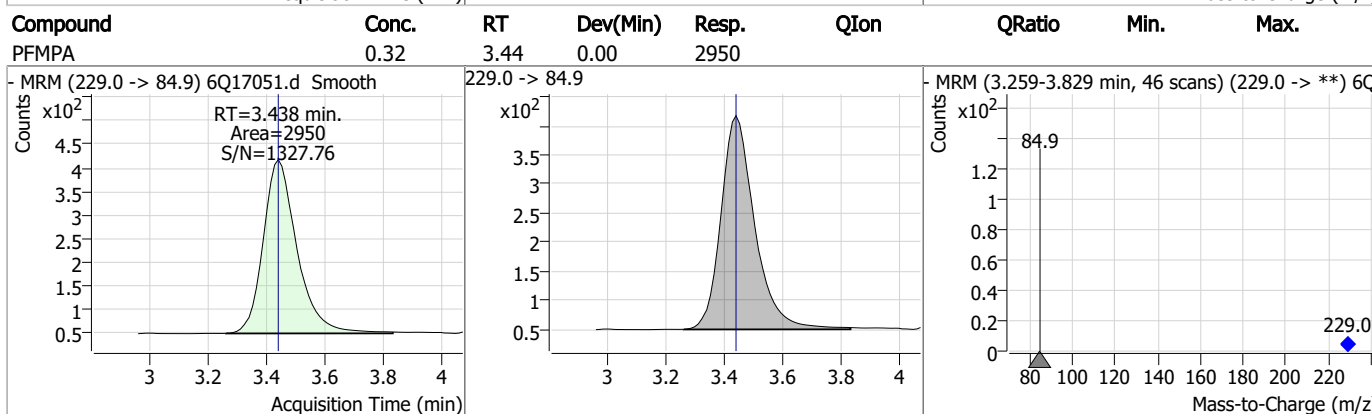
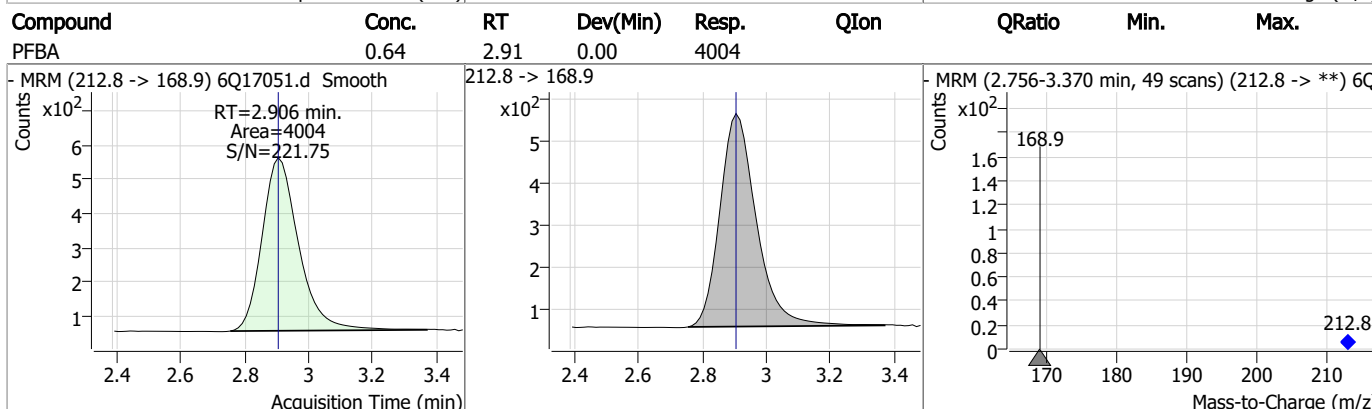
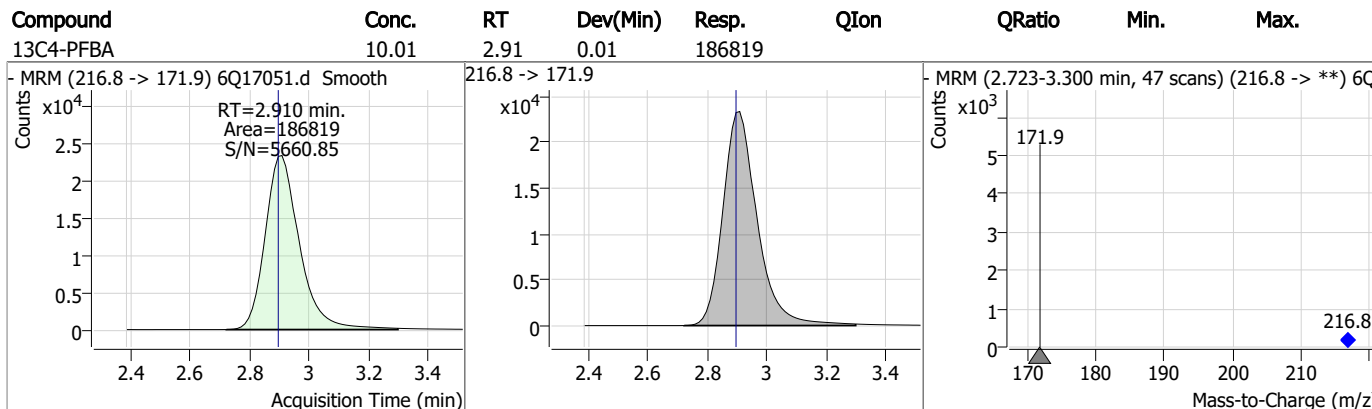
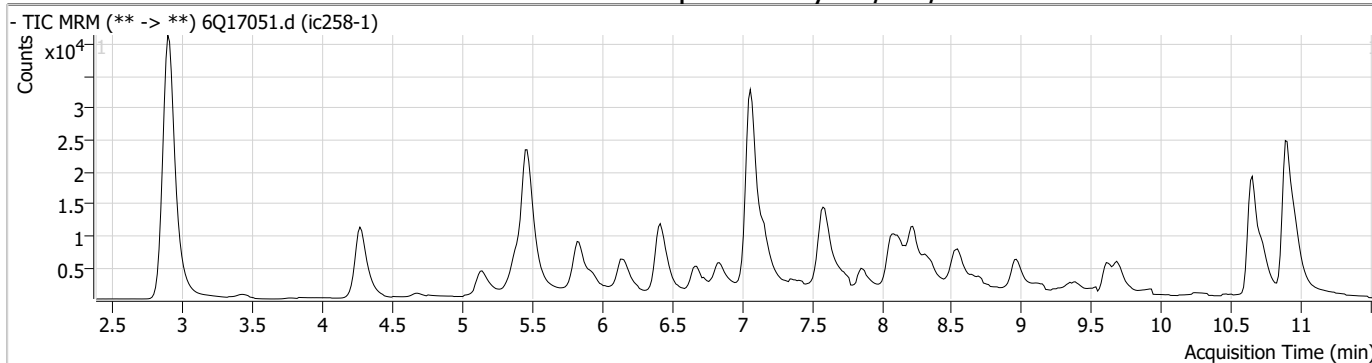
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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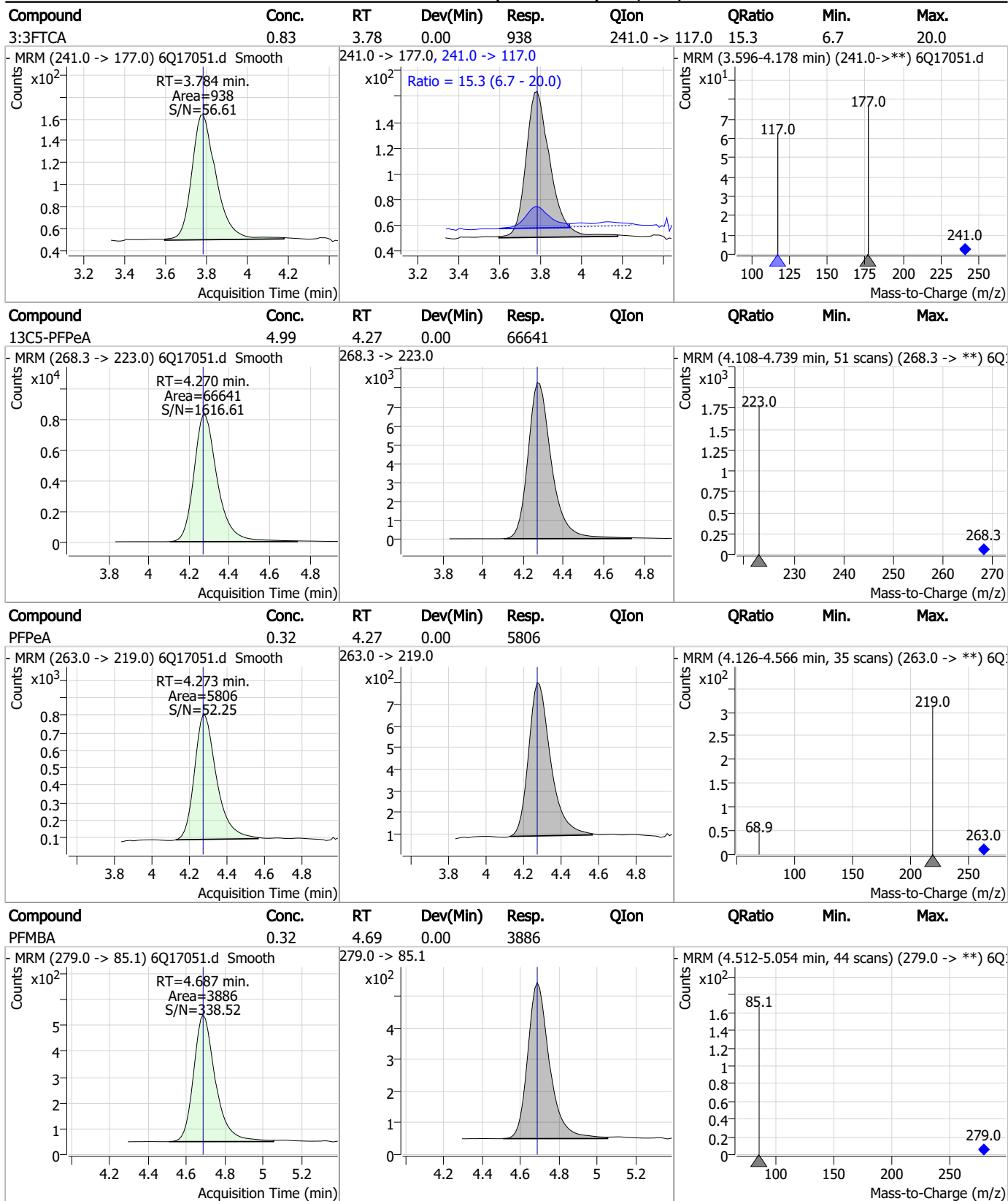
7.6.2
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Perfluorinated Compounds by LC/MS/MS



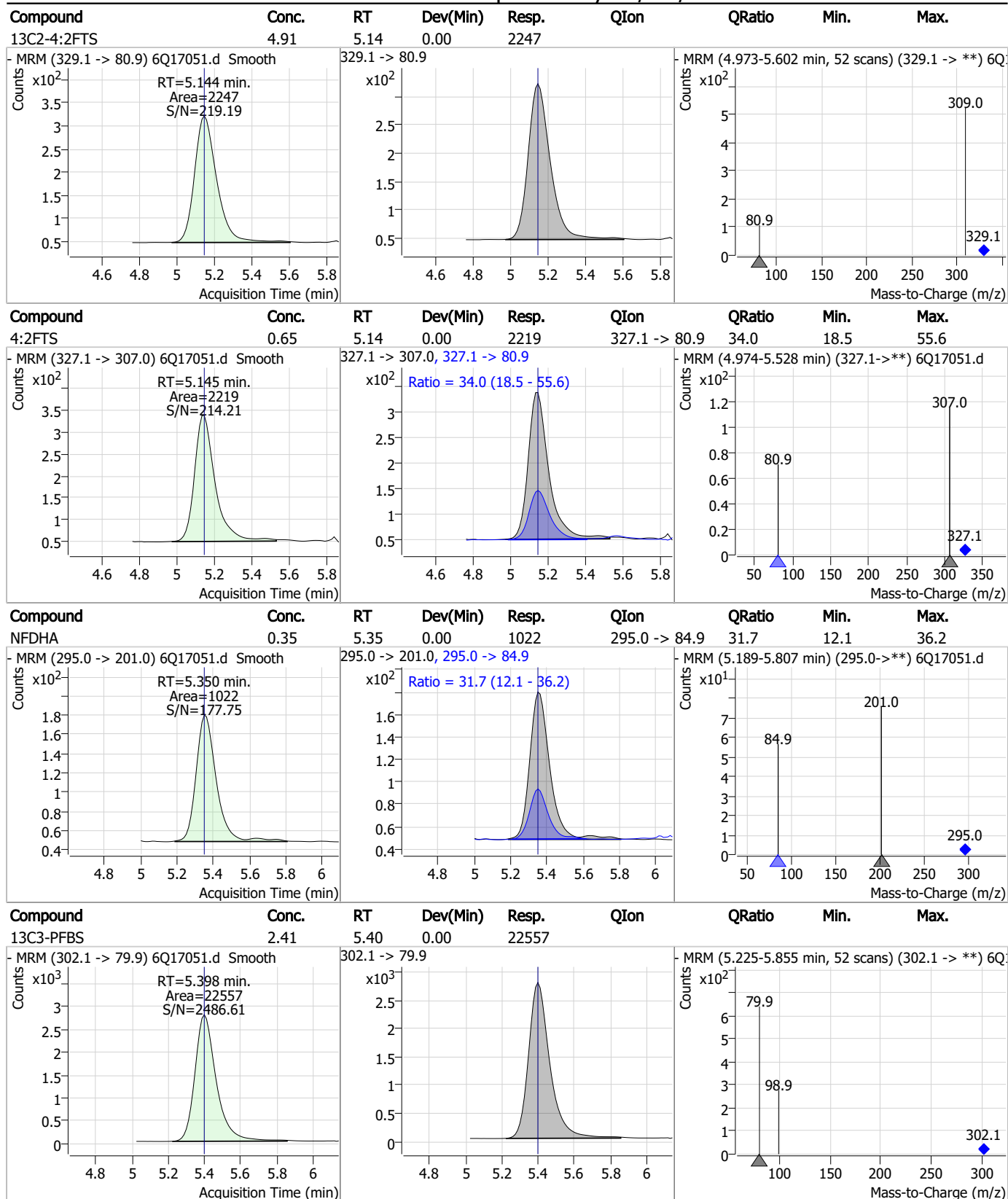
Perfluorinated Compounds by LC/MS/MS



7.6.2
7



Perfluorinated Compounds by LC/MS/MS

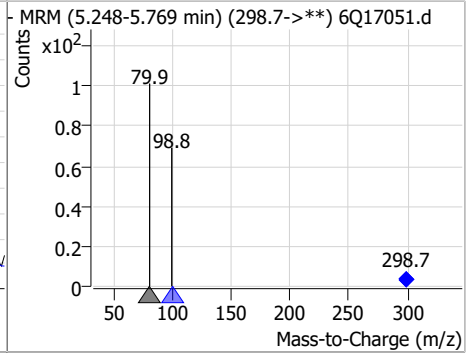
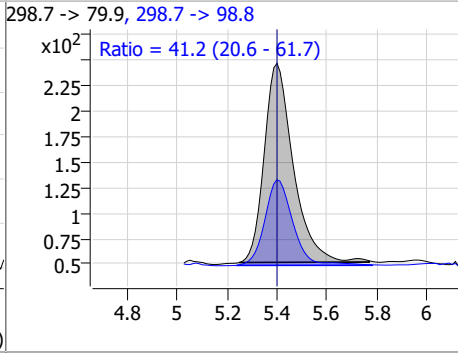
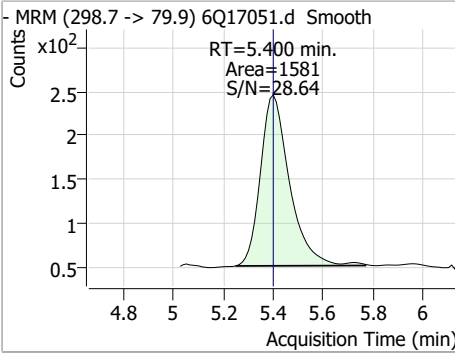


7.6.2
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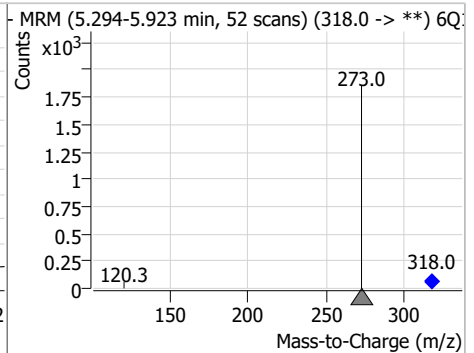
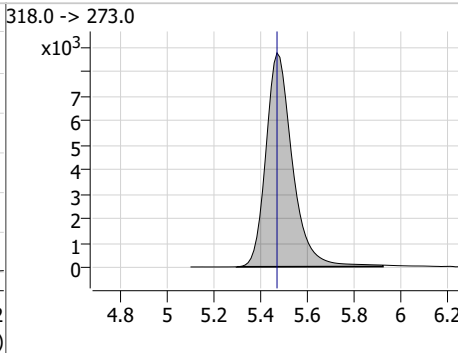
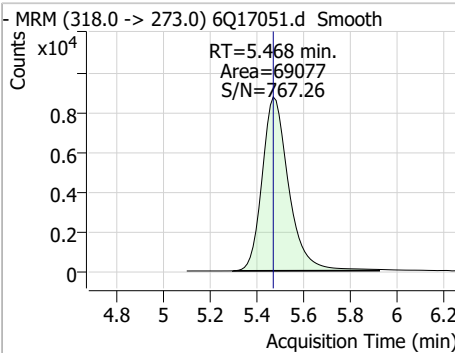


Perfluorinated Compounds by LC/MS/MS

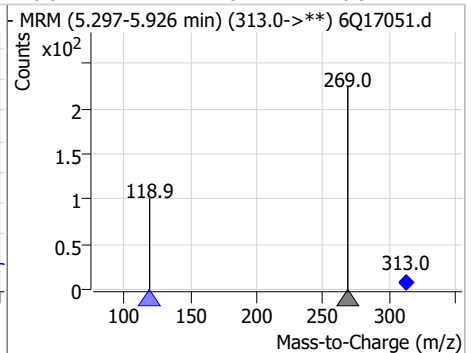
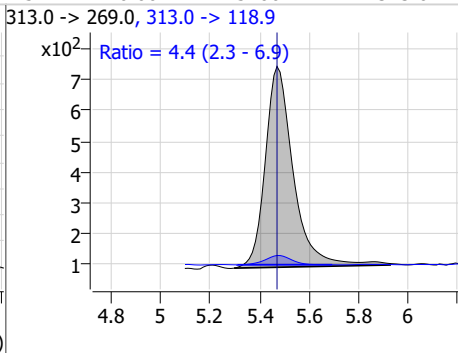
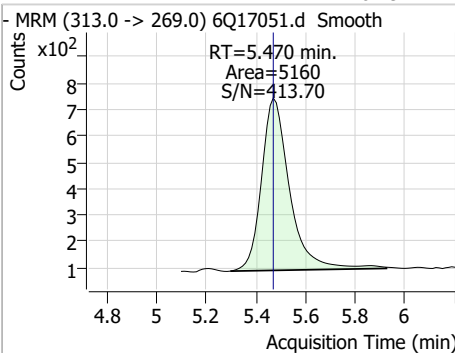
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.16	5.40	0.00	1581	298.7 -> 98.8	41.2	20.6	61.7



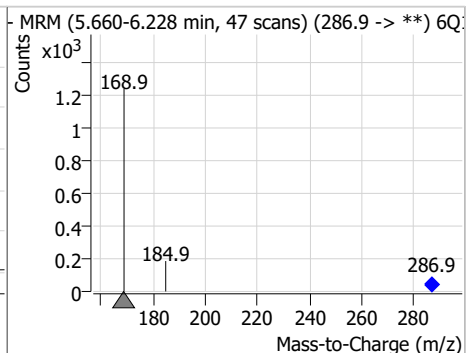
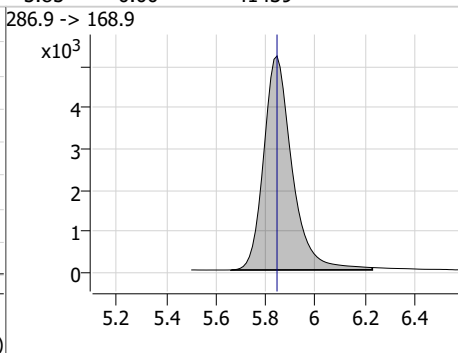
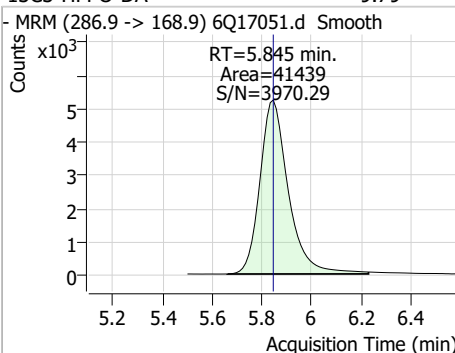
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.39	5.47	0.00	69077	318.0 -> 273.0	4.4	2.3	6.9



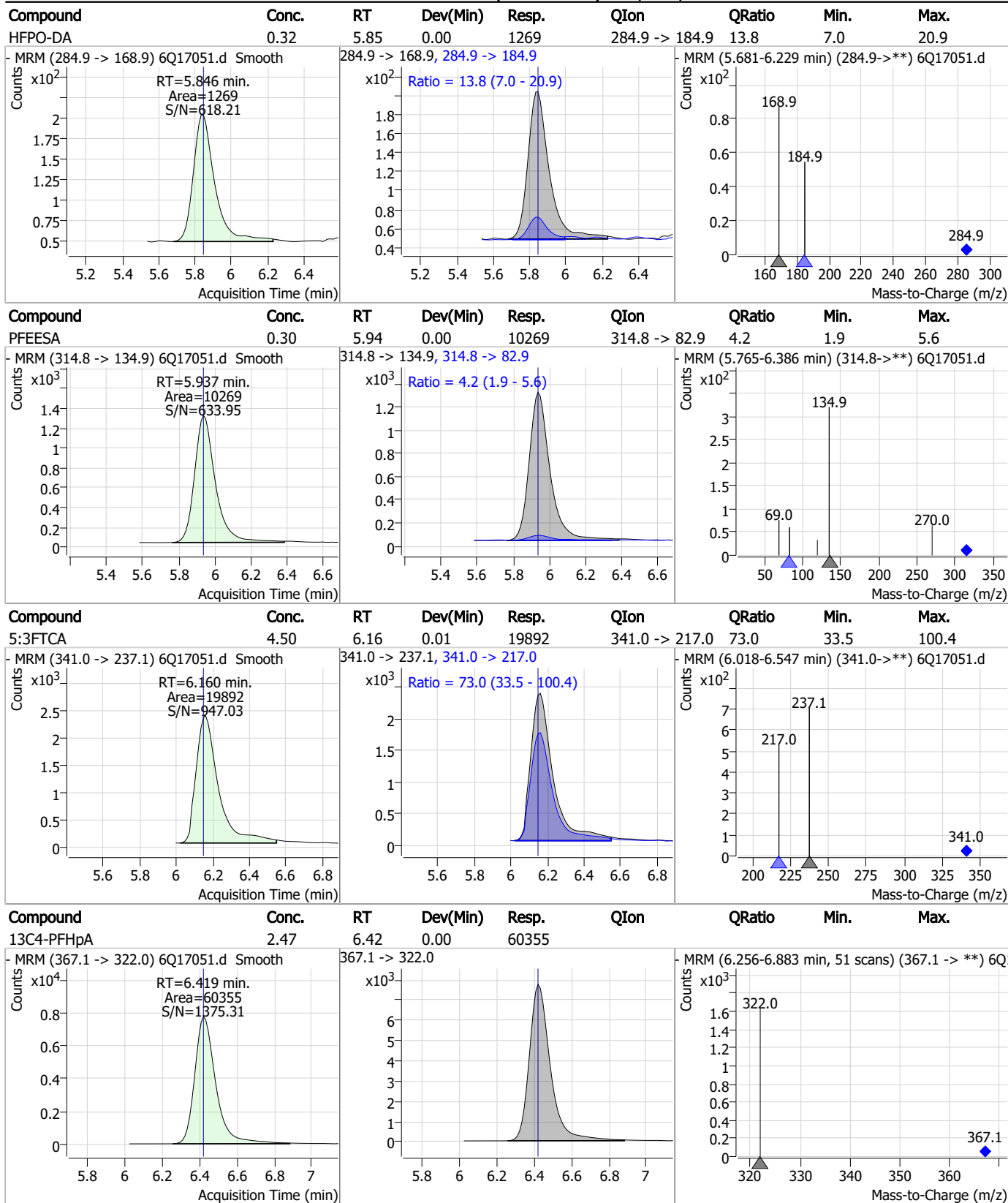
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.19	5.47	0.00	5160	313.0 -> 118.9	4.4	2.3	6.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.79	5.85	0.00	41439	286.9 -> 168.9	4.4	2.3	6.9

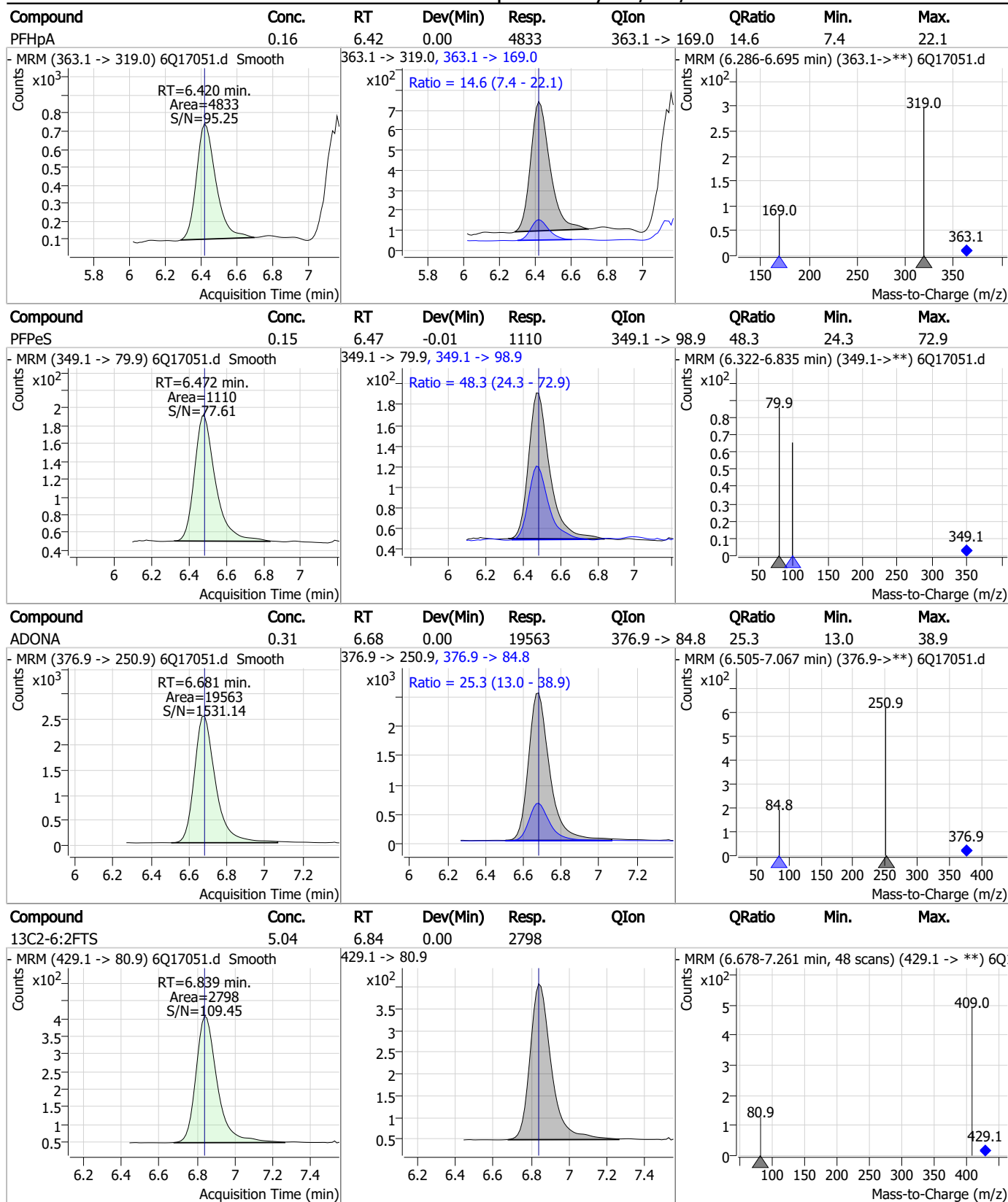


Perfluorinated Compounds by LC/MS/MS



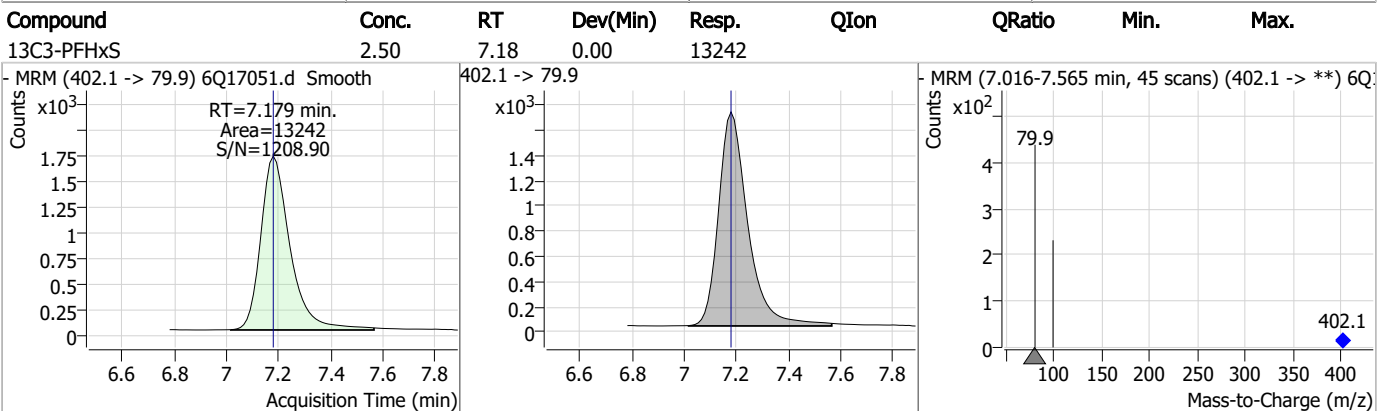
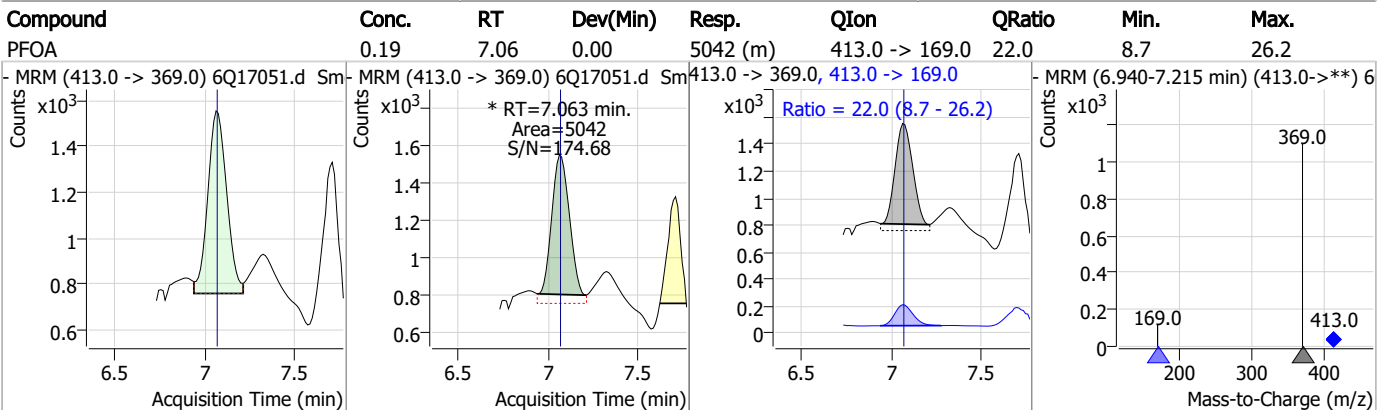
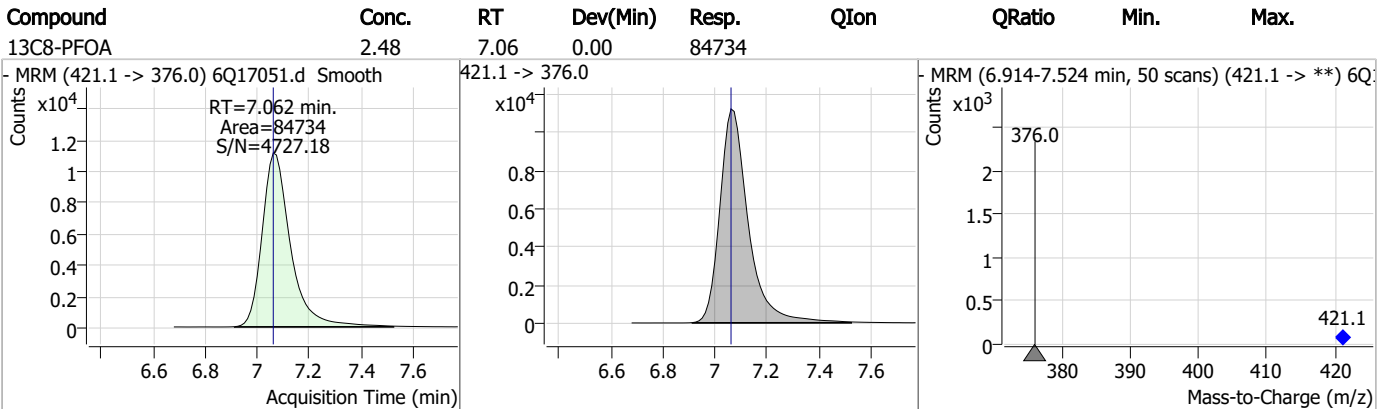
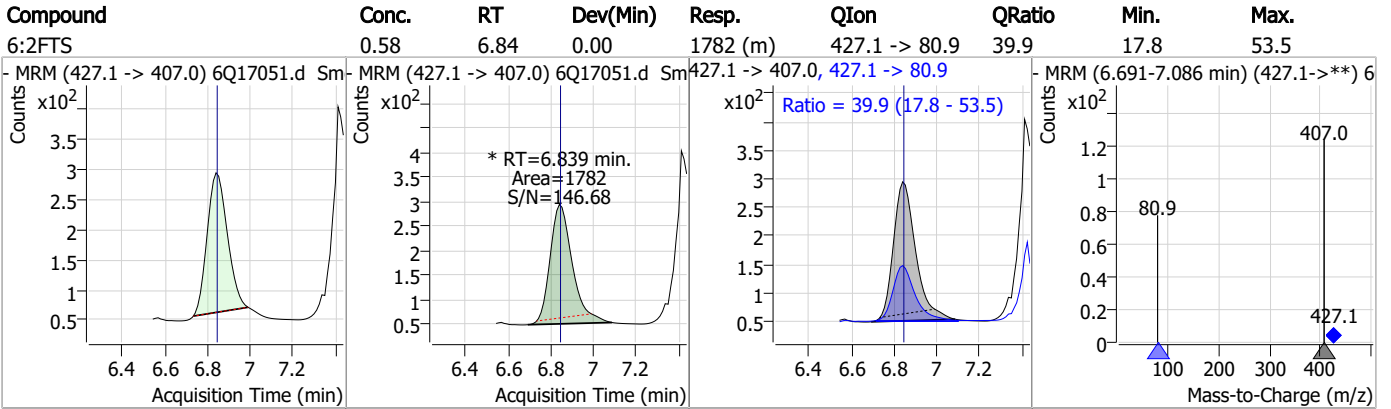
7.6.2
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Perfluorinated Compounds by LC/MS/MS



7.6.2
7

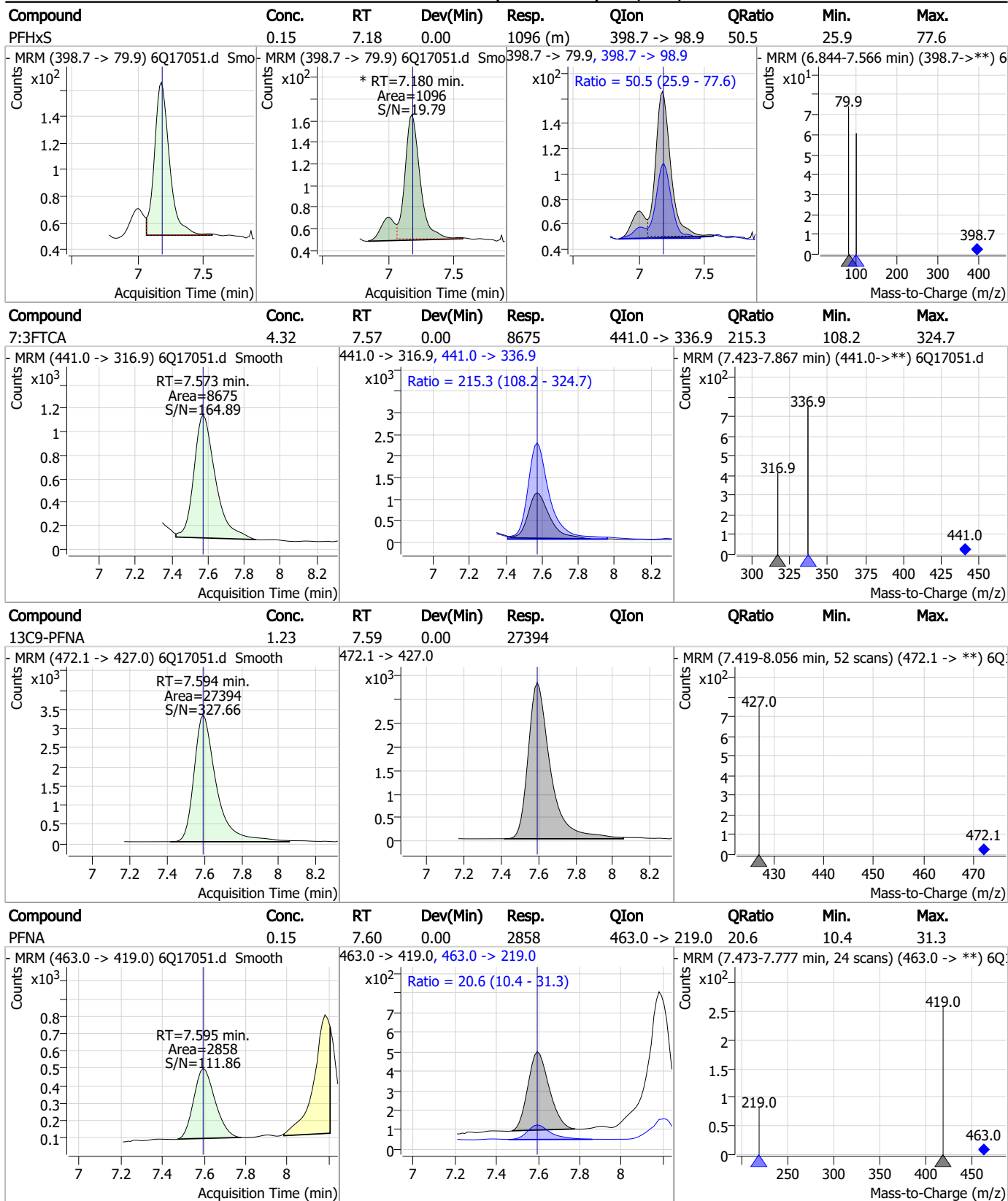
Perfluorinated Compounds by LC/MS/MS



7.6.2

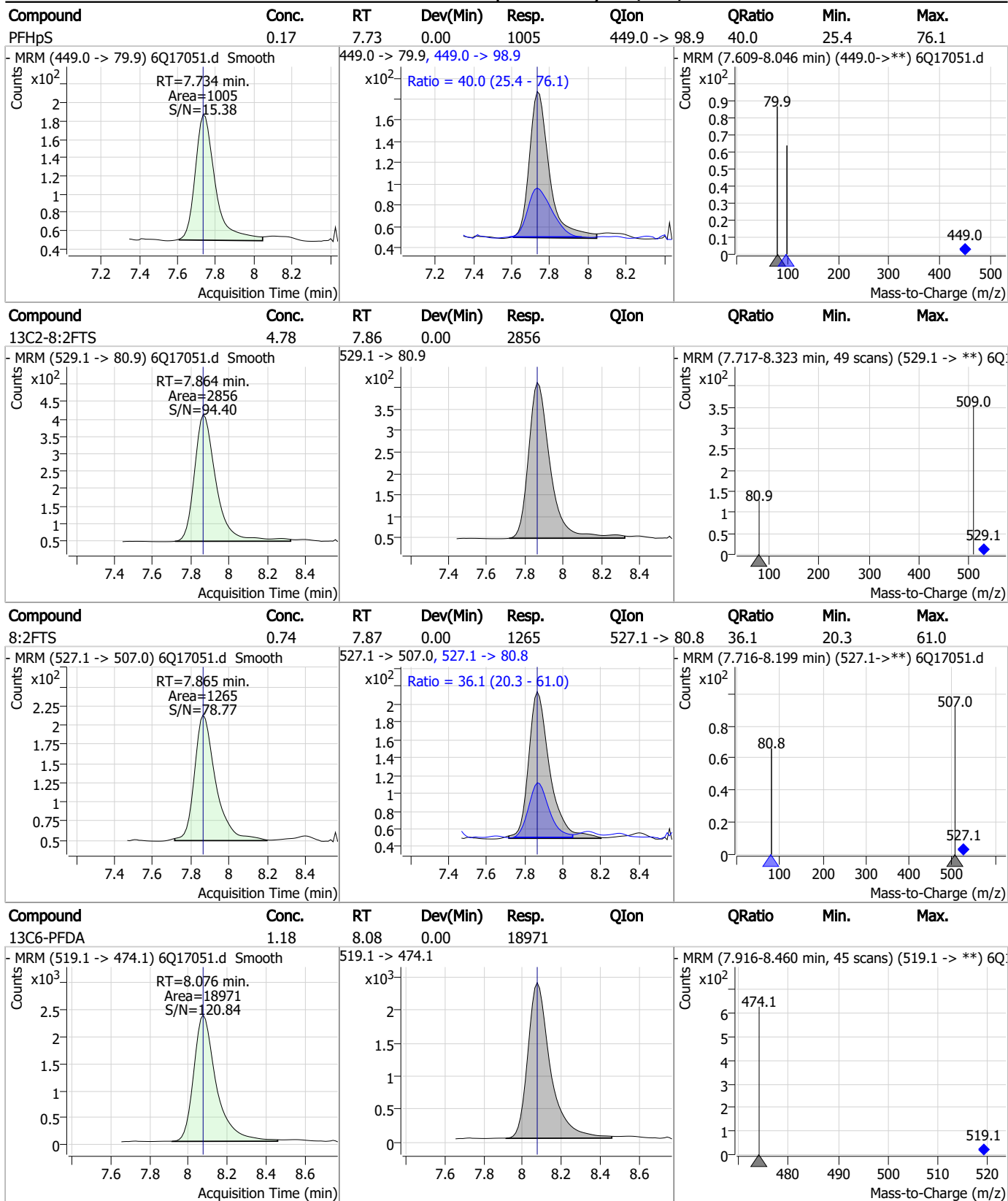
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Perfluorinated Compounds by LC/MS/MS



7.6.2
7

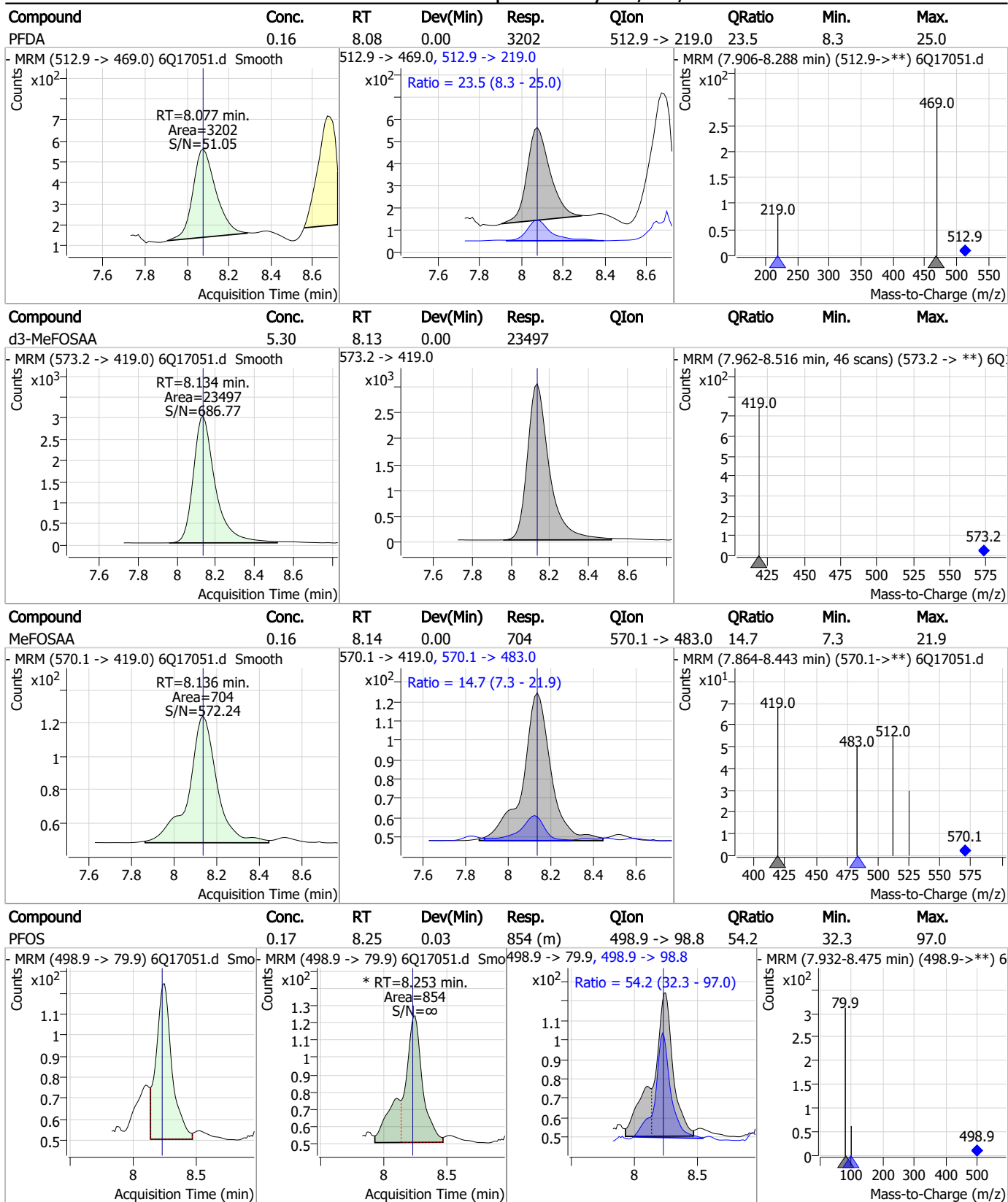
Perfluorinated Compounds by LC/MS/MS



7.6.2
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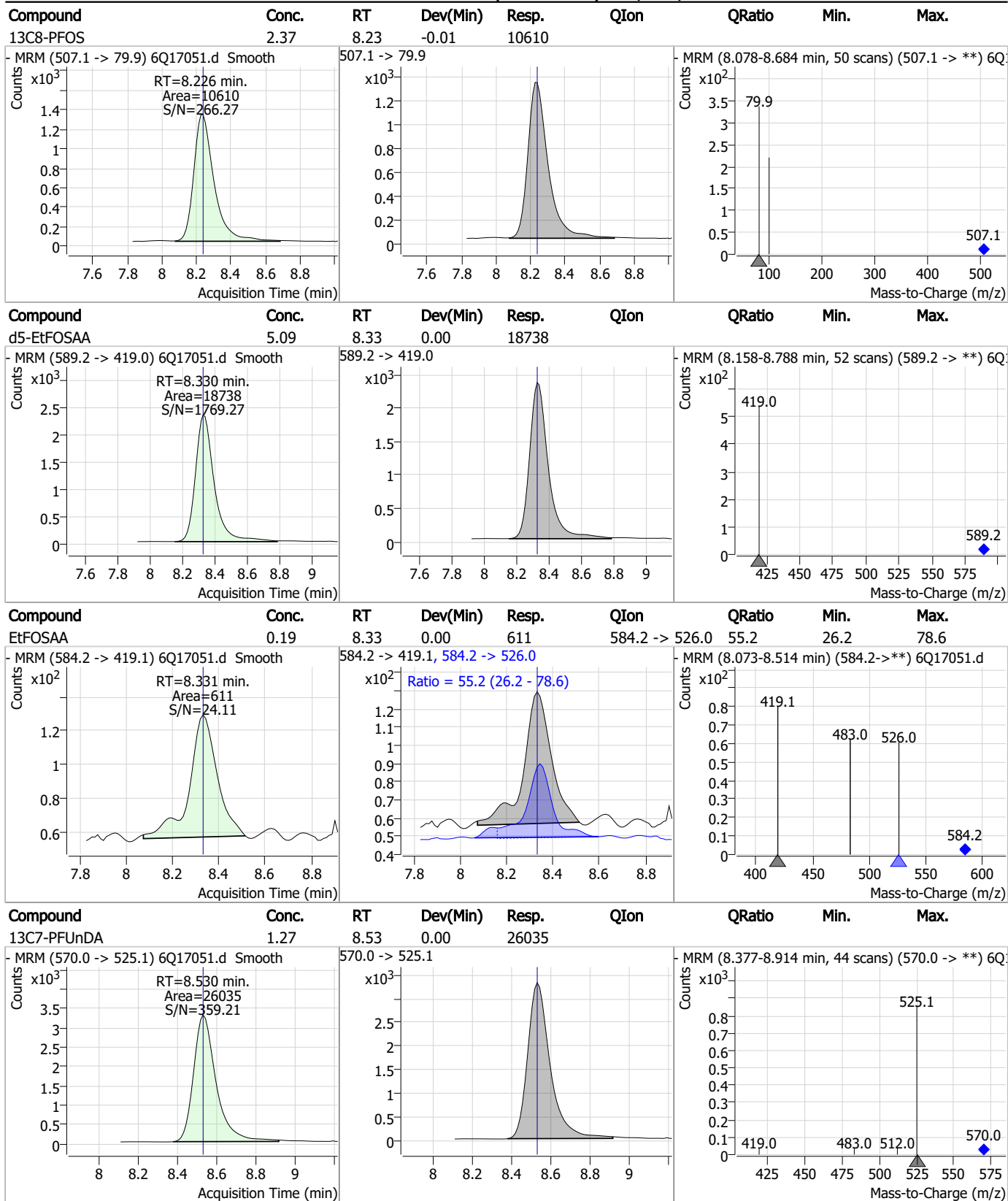


Perfluorinated Compounds by LC/MS/MS



7.6.2
7

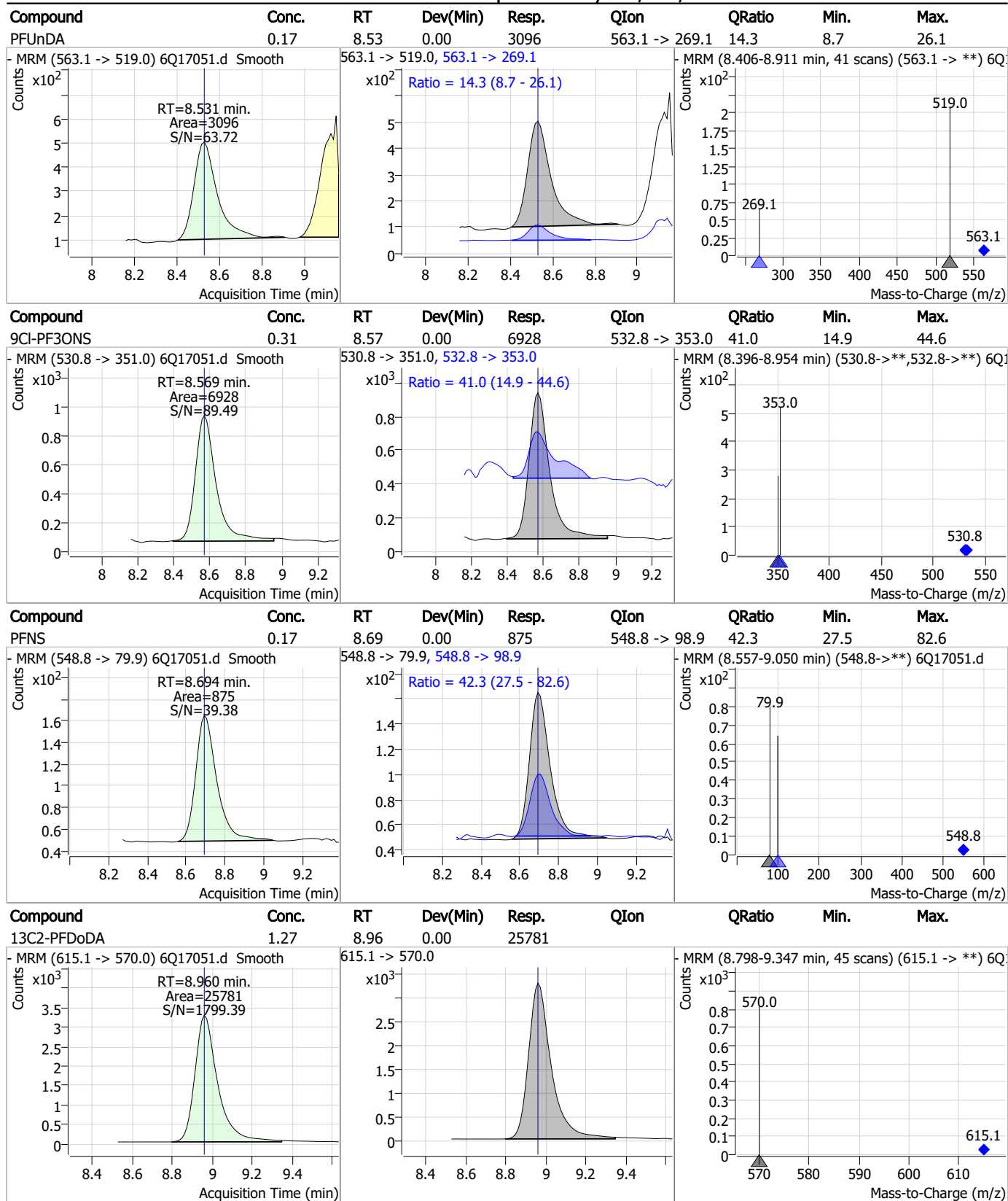
Perfluorinated Compounds by LC/MS/MS



7.6.2
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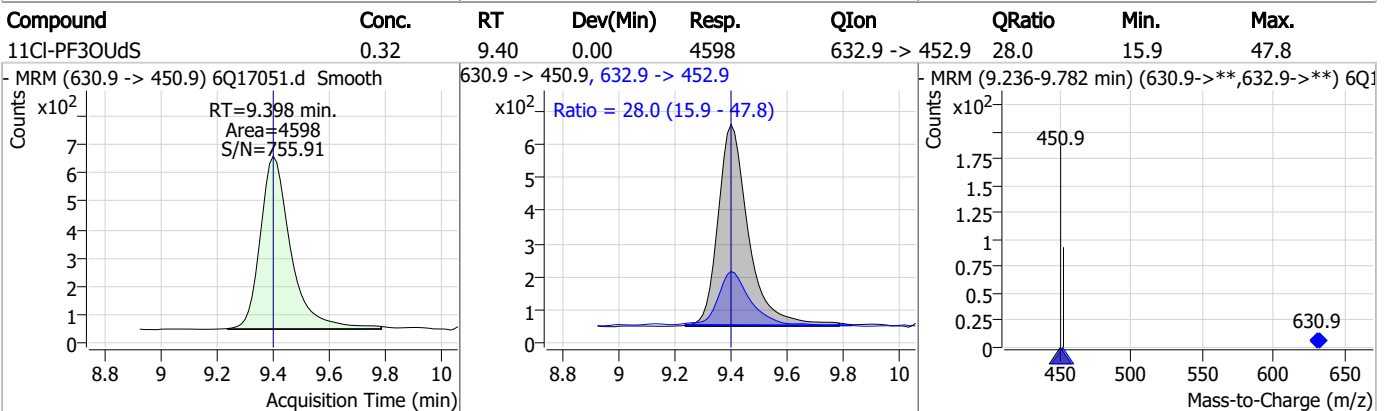
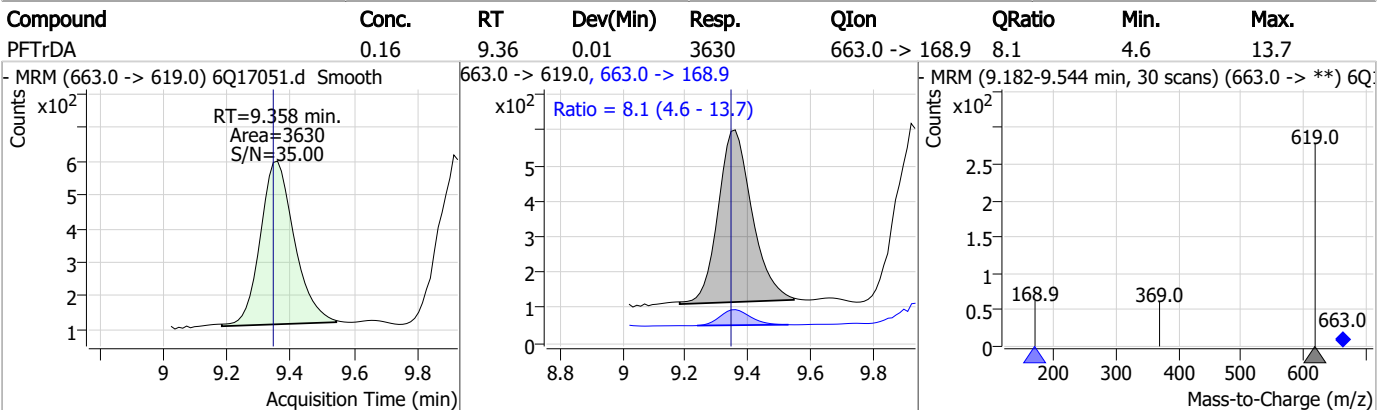
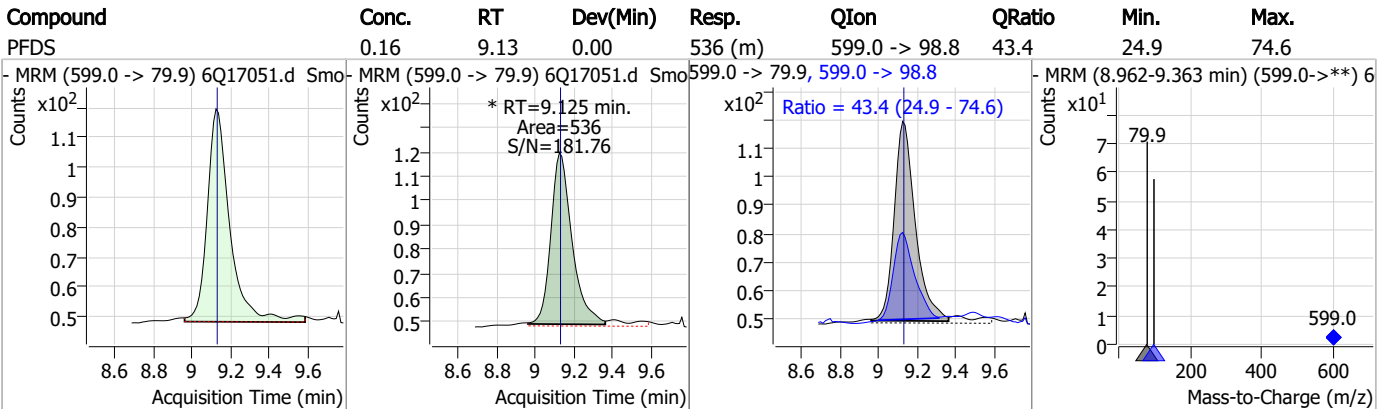
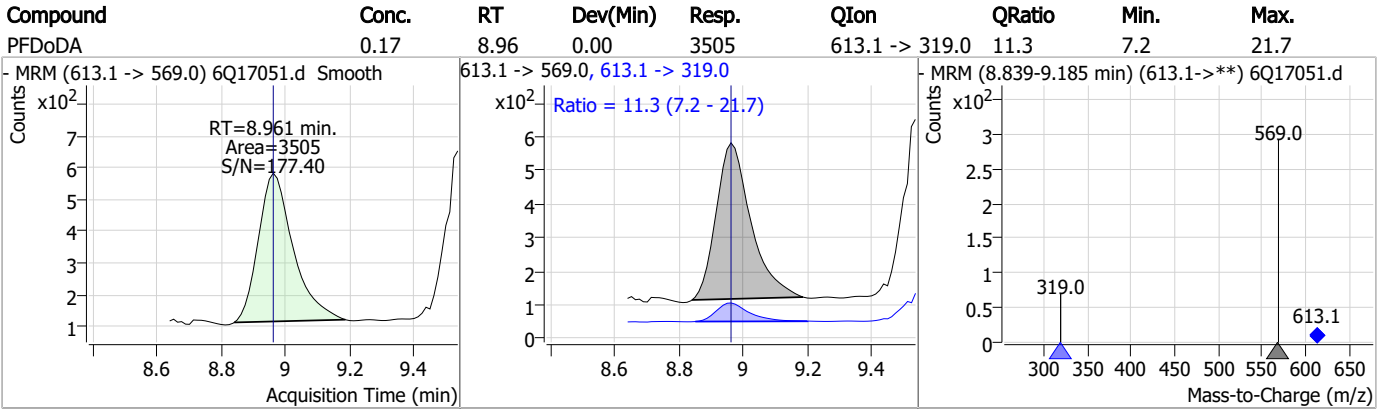


Perfluorinated Compounds by LC/MS/MS



7.6.2
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Perfluorinated Compounds by LC/MS/MS

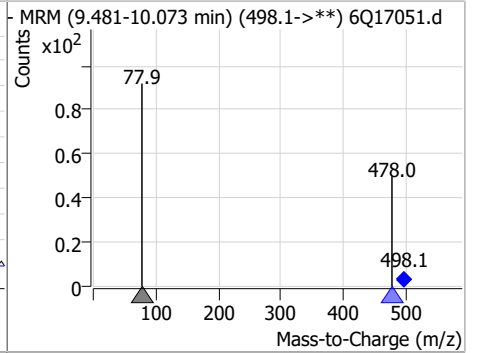
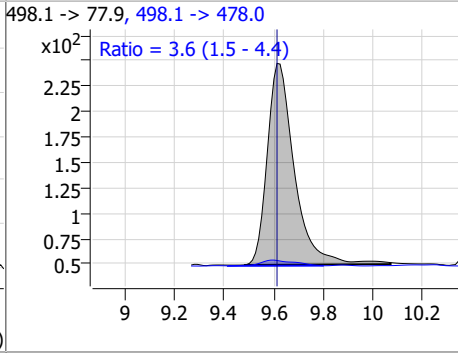
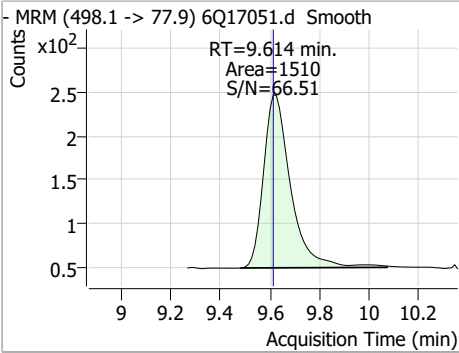


7.6.2

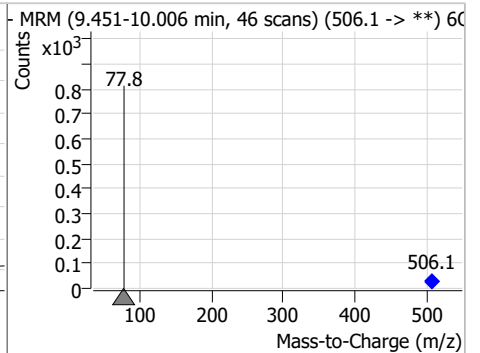
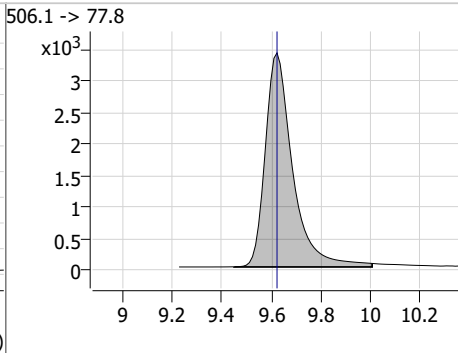
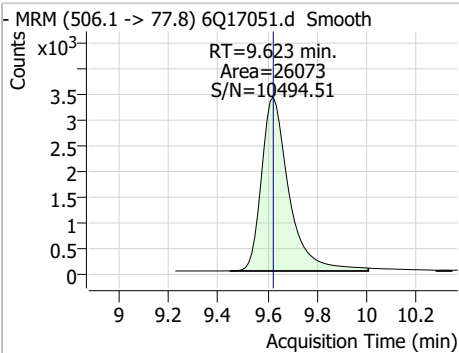
7

Perfluorinated Compounds by LC/MS/MS

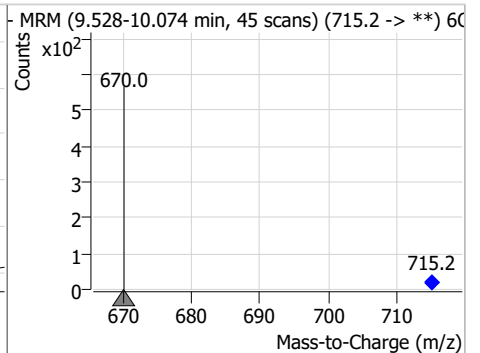
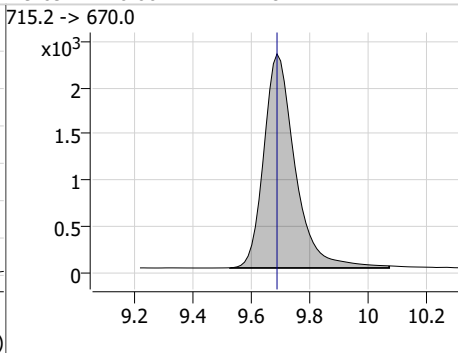
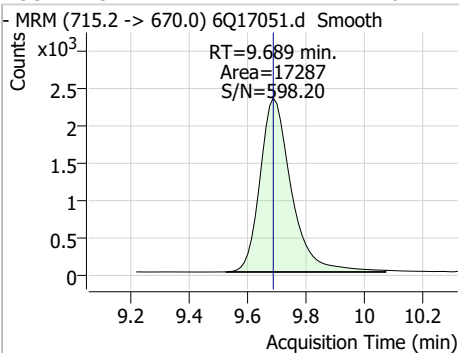
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.16	9.61	0.00	1510	498.1 -> 478.0	3.6	1.5	4.4



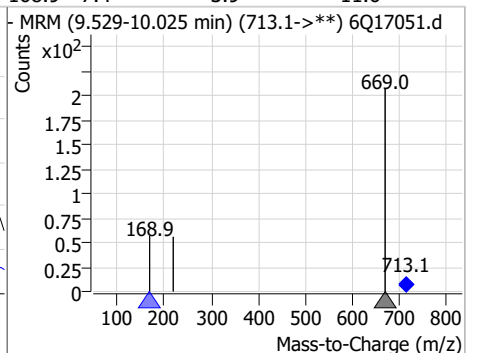
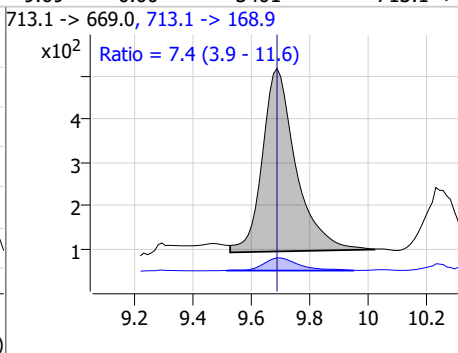
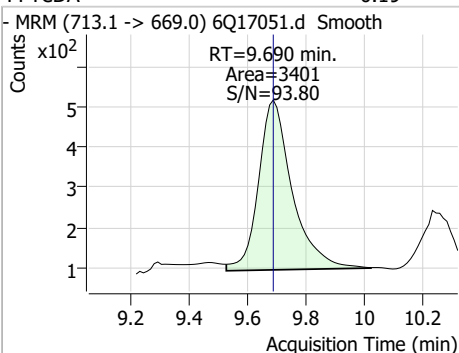
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.65	9.62	0.00	26073				



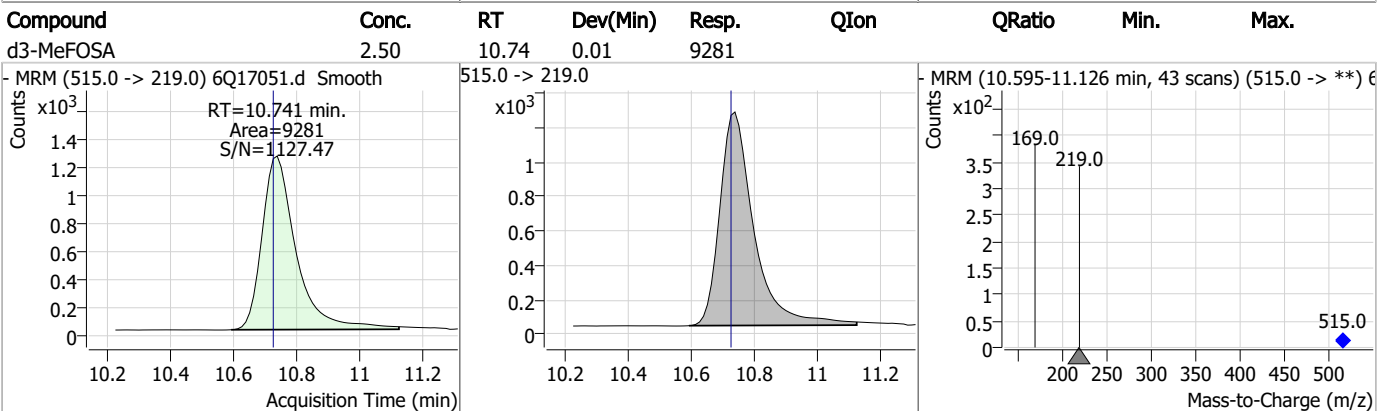
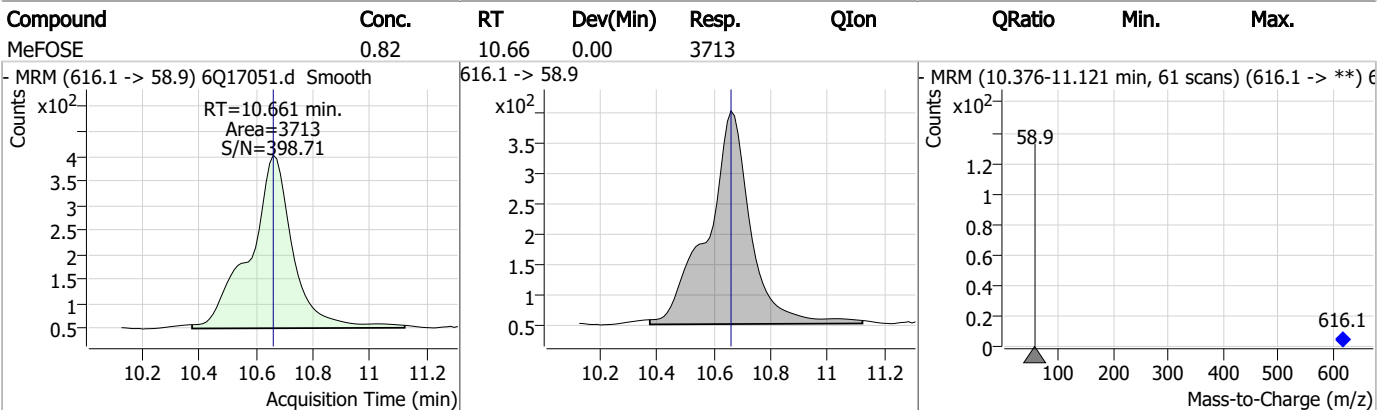
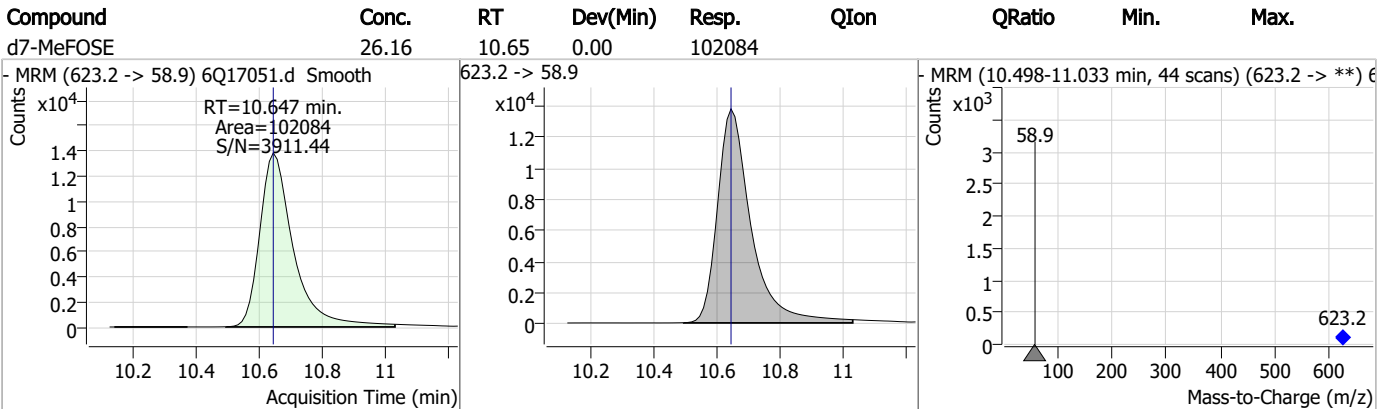
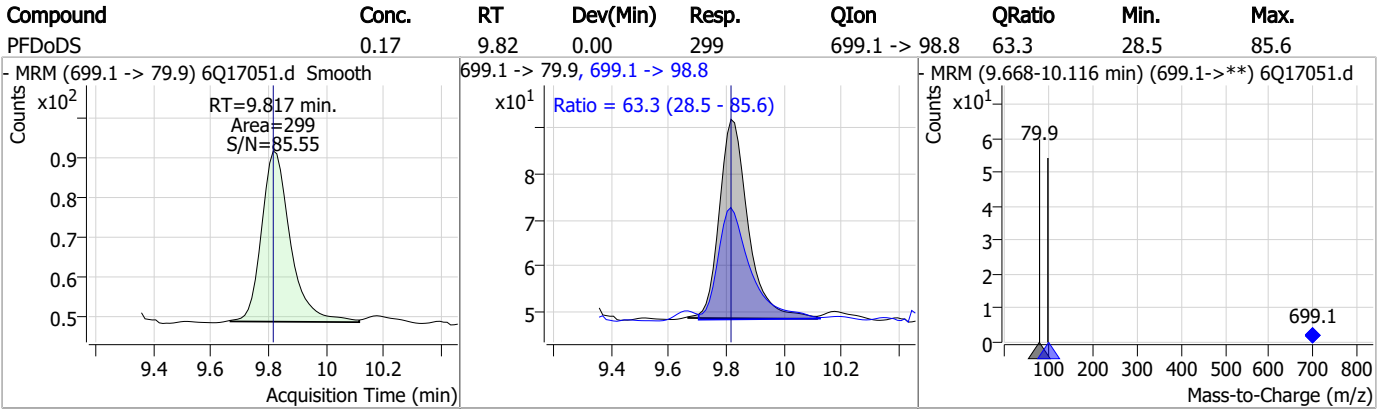
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.26	9.69	0.00	17287				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.19	9.69	0.00	3401	713.1 -> 168.9	7.4	3.9	11.6



Perfluorinated Compounds by LC/MS/MS

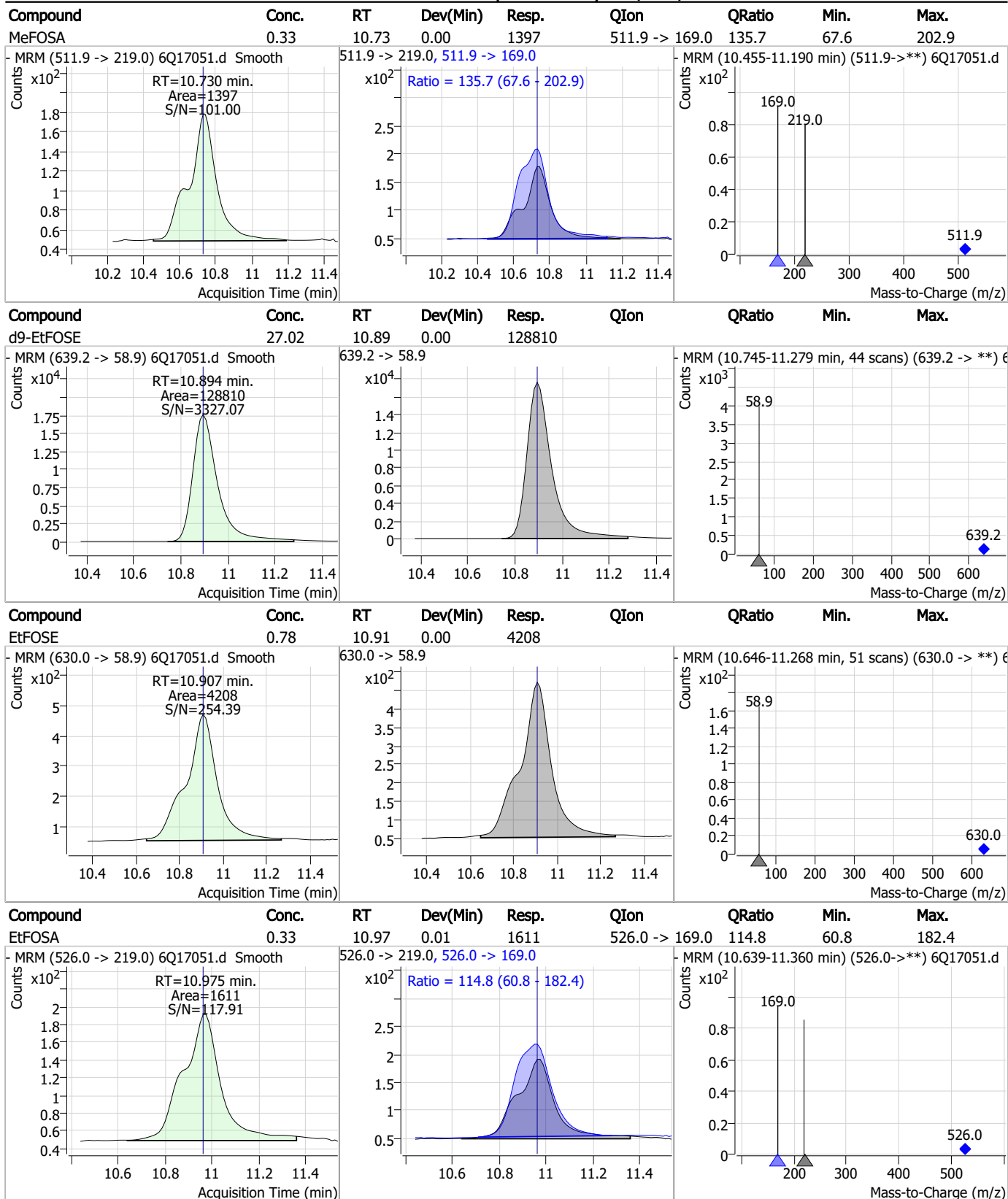


7.6.2

7



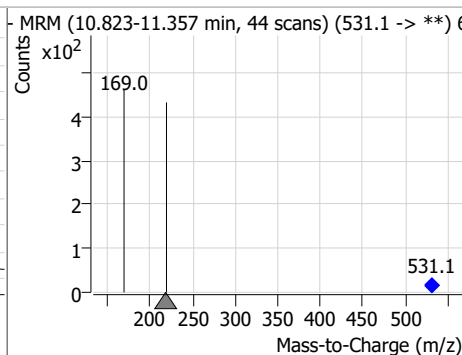
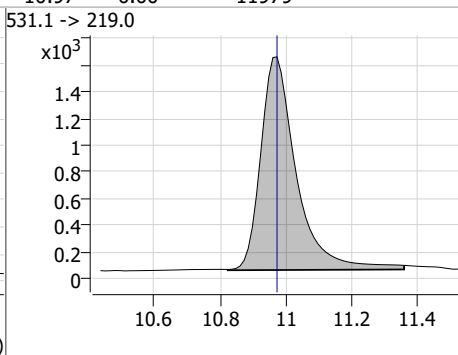
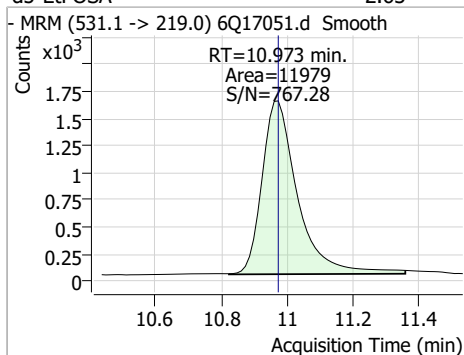
Perfluorinated Compounds by LC/MS/MS



7.6.2
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.63	10.97	0.00	11979				



7.6.2
7

Manual Integration Approval Summary

Sample Number: S6Q258-IC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17051.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 12:50 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
6:2 Fluorotelomer sulfonate	27619-97-2		6.84	Poor instrument integration
Perfluorooctanoic acid	335-67-1		7.06	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.25	Split peak
Perfluorodecanesulfonic acid	335-77-3		9.12	Poor instrument integration

7.6.2.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17052.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 1:04:45 PM
 Sample Name : ic258-2
 Vial : P1-A3
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	191249	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	68489	5.00 µg/L	0.000
M5-PFHxA	5.480	318.0 -> 273.0	73356	2.50 µg/L	0.012
M4-PFHpA	6.431	367.1 -> 322.0	60888	2.50 µg/L	0.012
M8-PFOA	7.074	421.1 -> 376.0	87189	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	27968	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	22037	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	25442	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	26702	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	19305	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	25553	2.50 µg/L	-0.012
M3-PFBS	5.398	302.1 -> 79.9	23778	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	13696	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	12098	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2380	5.00 µg/L	0.000
M2-6:2FTS	6.851	429.1 -> 80.9	2699	5.00 µg/L	0.012
M2-8:2FTS	7.864	529.1 -> 80.9	3016	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	25263	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	42056	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	19497	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	104174	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	133008	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	11903	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	9604	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	16032	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	82834	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	10320	2.50 µg/L	0.000
13C4-PFOA	7.075	417.1 -> 372.0	90721	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	25548	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	29483	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	61704	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2380	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C2-6:2FTS	6.851	429.1 -> 80.9	2699	4.69 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.7%		
13C2-8:2FTS	7.864	529.1 -> 80.9	3016	4.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.4%		
13C2-PFDoDA	8.960	615.1 -> 570.0	26702	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C2-PFTeDA	9.689	715.2 -> 670.0	19305	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.4%		
13C3-PFBS	5.398	302.1 -> 79.9	23778	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.0%		
13C3-PFHxS	7.179	402.1 -> 79.9	13696	2.49 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 = 99.7%	
13C4-PFBA	2.910	216.8 -> 171.9	191249	9.99 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C4-PFHpA	6.431	367.1 -> 322.0	60888	2.41 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.5%	
13C5-PFHxA	5.480	318.0 -> 273.0	73356	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C5-PFPeA	4.270	268.3 -> 223.0	68489	4.97 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C6-PFDA	8.076	519.1 -> 474.1	22037	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C7-PFUnDA	8.530	570.0 -> 525.1	25442	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.3%	
13C8-FOSA	9.611	506.1 -> 77.8	25553	2.41 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.4%	
13C8-PFOA	7.074	421.1 -> 376.0	87189	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C8-PFOS	8.239	507.1 -> 79.9	12098	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C9-PFNA	7.594	472.1 -> 427.0	27968	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.5%	
d3-MeFOSAA	8.134	573.2 -> 419.0	25263	5.29 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.8%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	42056	9.63 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
d3-MeFOSA	10.728	515.0 -> 219.0	9604	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.9%	
d5-EtFOSAA	8.330	589.2 -> 419.0	19497	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
d7-MeFOSE	10.647	623.2 -> 58.9	104174	24.76 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
d9-EtFOSE	10.894	639.2 -> 58.9	133008	25.87 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
d5-EtFOSA	10.960	531.1 -> 219.0	11903	2.42 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	5443	1.51 µg/L	93
		327.1 -> 80.9	2238		
6:2FTS	6.839	427.1 -> 407.0	5215	1.76 µg/L	93
		427.1 -> 80.9	1642		
8:2FTS	7.865	527.1 -> 507.0	2967	1.65 µg/L	92
		527.1 -> 80.8	1064		
EtFOSAA	8.343	584.2 -> 419.1	1293	0.39 µg/L	92
		584.2 -> 526.0	747		
FOSA	9.614	498.1 -> 77.9	3607	0.39 µg/L	97
		498.1 -> 478.0	67		
MeFOSAA	8.136	570.1 -> 419.0	1634	0.34 µg/L	83
		570.1 -> 483.0	351		
PFBA	2.906	212.8 -> 168.9	10438	1.63 µg/L	100
PFBS	5.412	298.7 -> 79.9	3580	0.34 µg/L	99
		298.7 -> 98.8	1498		
PFDA	8.077	512.9 -> 469.0	7589	0.32 µg/L	96
		512.9 -> 219.0	1386		
PFDODA	8.961	613.1 -> 569.0	8628	0.41 µg/L	96
		613.1 -> 319.0	1115		
PFDS	9.125	599.0 -> 79.9	1485	0.39 µg/L	95

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	689			
PFHpA	6.432	363.1 -> 319.0	11942	0.40	µg/L	93
		363.1 -> 169.0	2110			
PFHpS	7.746	449.0 -> 79.9	2561	0.39	µg/L	91
		449.0 -> 98.9	1149			
PFHxA	5.483	313.0 -> 269.0	11443	0.39	µg/L	98
		313.0 -> 118.9	596			
PFHxS	7.180	398.7 -> 79.9	2724	0.36	µg/L	m 87
		398.7 -> 98.9	1152			
PFNA	7.595	463.0 -> 419.0	7817	0.40	µg/L	96
		463.0 -> 219.0	1768			
PFNS	8.694	548.8 -> 79.9	2457	0.42	µg/L	89
		548.8 -> 98.9	1167			
PFOA	7.063	413.0 -> 369.0	15132	0.43	µg/L	m 97
		413.0 -> 169.0	2836			
PFOS	8.228	498.9 -> 79.9	2331	0.40	µg/L	m 84
		498.9 -> 98.8	1216			
PFPeA	4.273	263.0 -> 219.0	15471	0.83	µg/L	100
PFPeS	6.484	349.1 -> 79.9	2796	0.36	µg/L	100
		349.1 -> 98.9	1356			
PFTeDA	9.690	713.1 -> 669.0	7199	0.37	µg/L	100
		713.1 -> 168.9	555			
PFTrDA	9.345	663.0 -> 619.0	9228	0.40	µg/L	98
		663.0 -> 168.9	779			
PFUnDA	8.531	563.1 -> 519.0	7041	0.40	µg/L	99
		563.1 -> 269.1	1250			
11Cl-PF3OUdS	9.398	630.9 -> 450.9	11378	0.79	µg/L	95
		632.9 -> 452.9	3287			
9Cl-PF3ONS	8.569	530.8 -> 351.0	17108	0.75	µg/L	88
		532.8 -> 353.0	3995			
ADONA	6.681	376.9 -> 250.9	50774	0.80	µg/L	99
		376.9 -> 84.8	12974			
HFPO-DA	5.846	284.9 -> 168.9	3221	0.81	µg/L	99
		284.9 -> 184.9	468			
3:3FTCA	3.784	241.0 -> 177.0	2332	2.00	µg/L	96
		241.0 -> 117.0	269			
5:3FTCA	6.160	341.0 -> 237.1	48920	10.42	µg/L	88
		341.0 -> 217.0	37403			
7:3FTCA	7.573	441.0 -> 316.9	21351	10.01	µg/L	89
		441.0 -> 336.9	42303			
EtFOSA	10.962	526.0 -> 219.0	4105	0.84	µg/L	97
		526.0 -> 169.0	5149			
EtFOSE	10.907	630.0 -> 58.9	10551	1.90	µg/L	100
MeFOSA	10.730	511.9 -> 219.0	3748	0.87	µg/L	95
		511.9 -> 169.0	4864			
MeFOSE	10.661	616.1 -> 58.9	9404	2.02	µg/L	100
PFDoDS	9.817	699.1 -> 79.9	771	0.39	µg/L	94
		699.1 -> 98.8	473			
NFDHA	5.350	295.0 -> 201.0	2486	0.79	µg/L	98
		295.0 -> 84.9	632			
PFMBA	4.687	279.0 -> 85.1	10270	0.82	µg/L	100
PFMPA	3.438	229.0 -> 84.9	7625	0.82	µg/L	100
PFEESA	5.949	314.8 -> 134.9	26589	0.73	µg/L	100
		314.8 -> 82.9	1021			

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

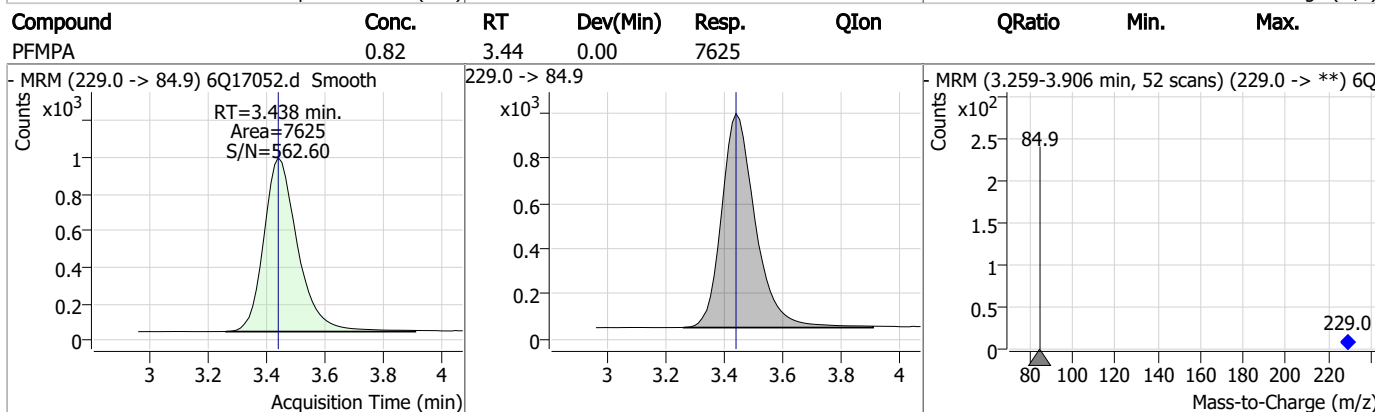
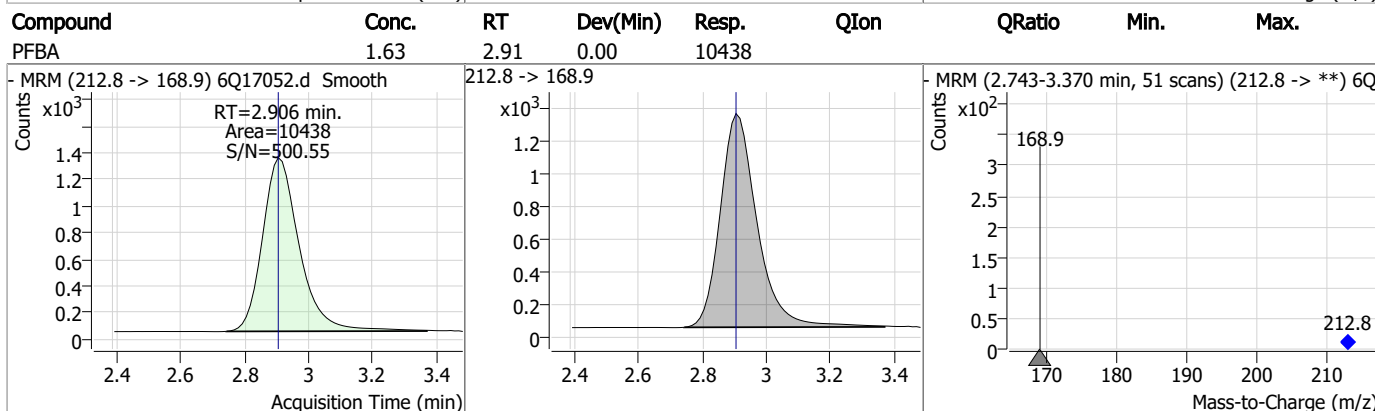
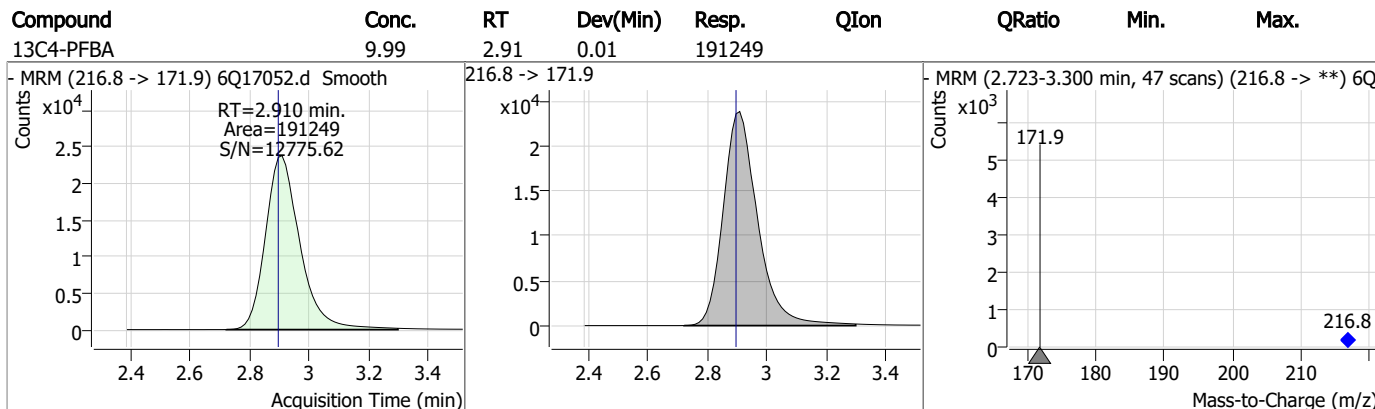
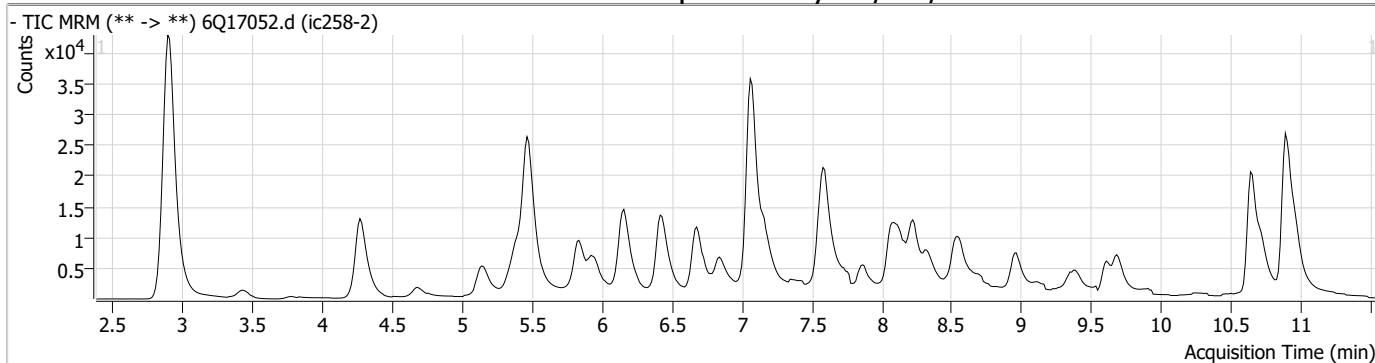
Perfluorinated Compounds by LC/MS/MS

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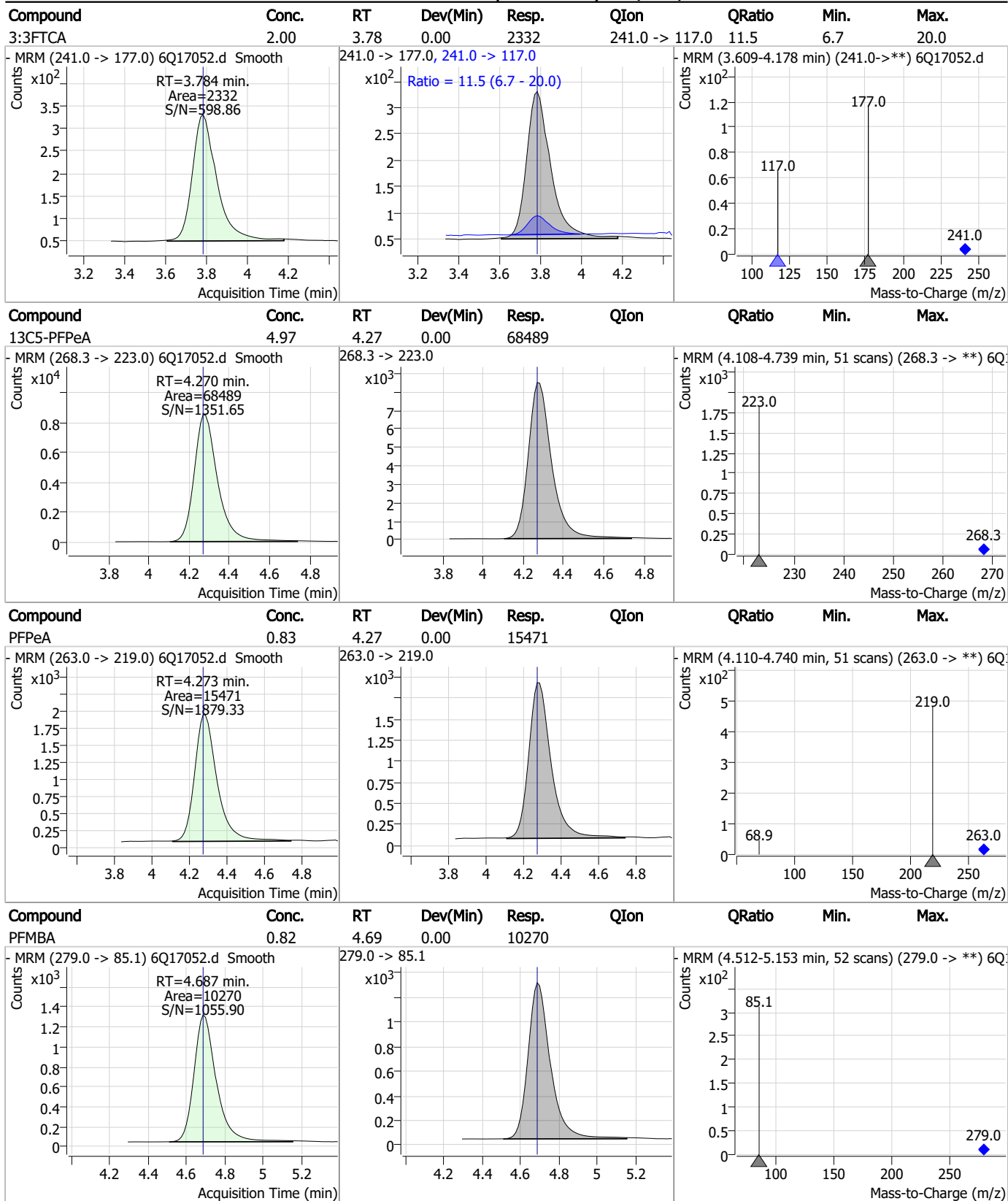
7.6.3

7

Perfluorinated Compounds by LC/MS/MS

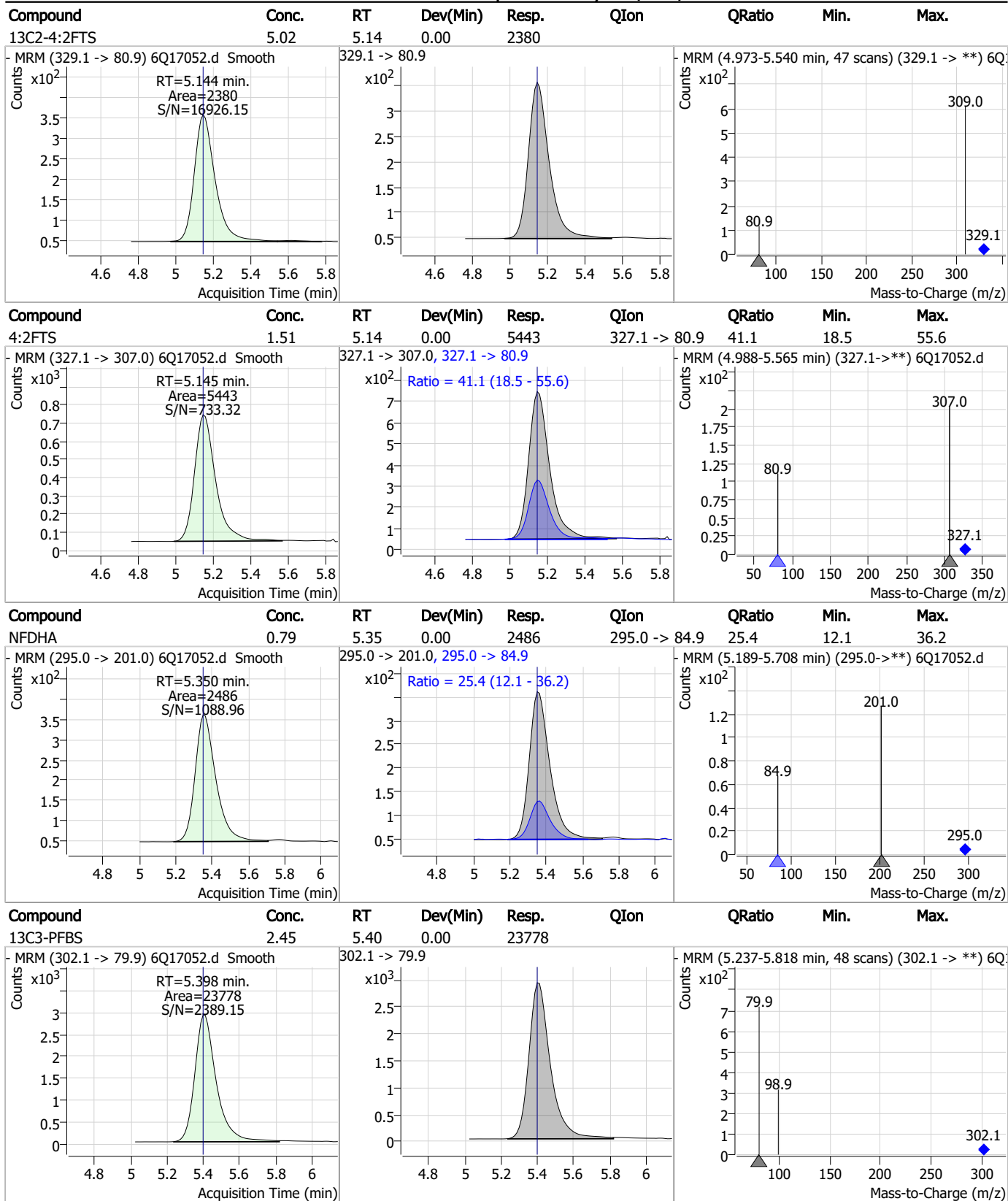


Perfluorinated Compounds by LC/MS/MS



7.6.3
7

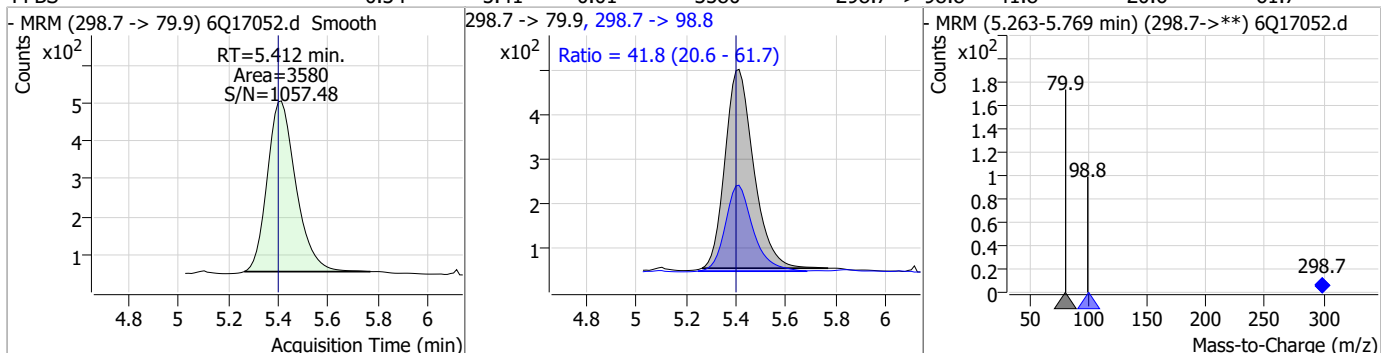
Perfluorinated Compounds by LC/MS/MS



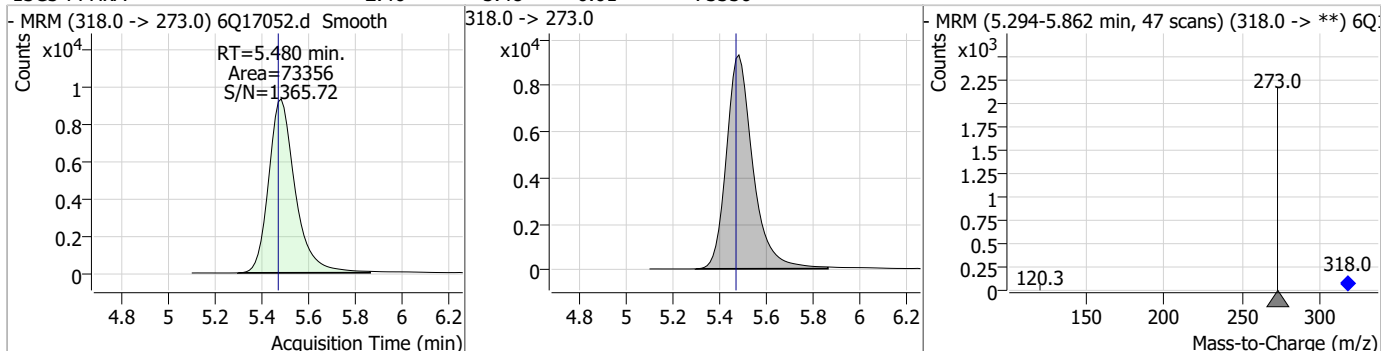
7.6.3
7

Perfluorinated Compounds by LC/MS/MS

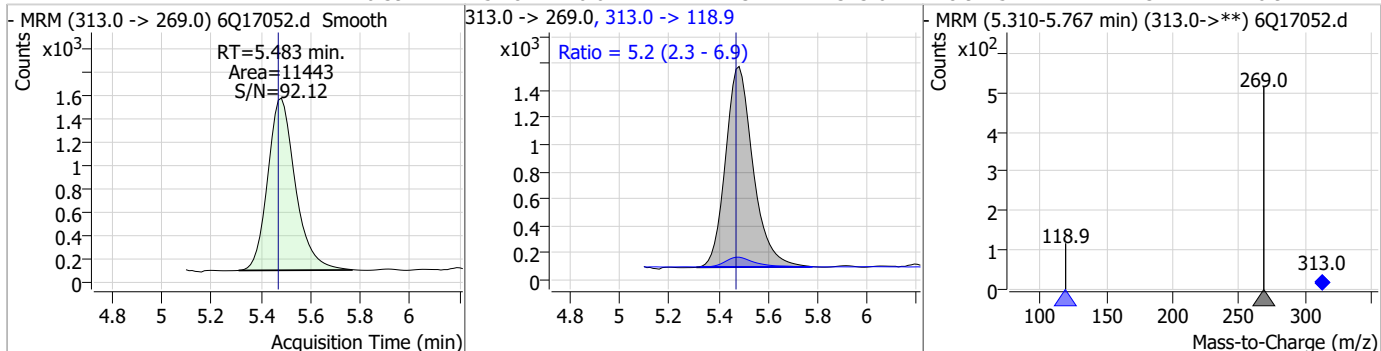
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.34	5.41	0.01	3580	298.7 -> 98.8	41.8	20.6	61.7



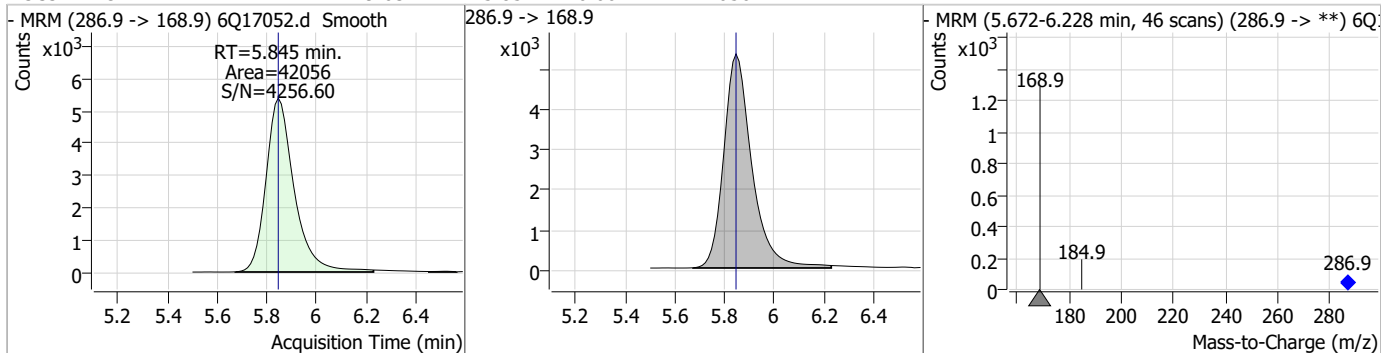
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.46	5.48	0.01	73356	318.0 -> 273.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.39	5.48	0.01	11443	313.0 -> 118.9	5.2	2.3	6.9

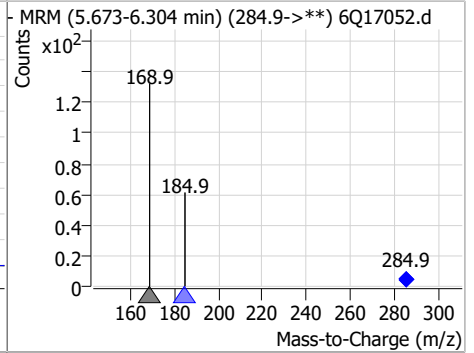
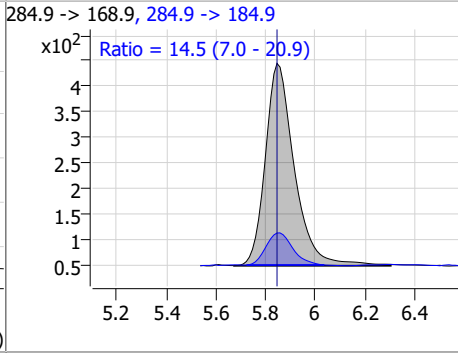
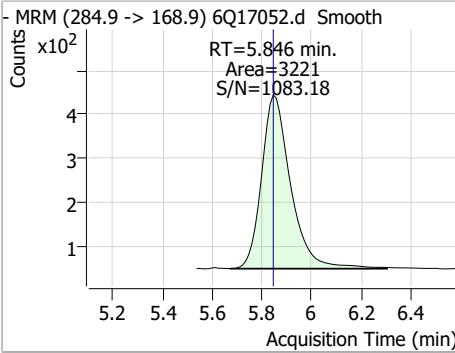


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.63	5.85	0.00	42056	286.9 -> 168.9			

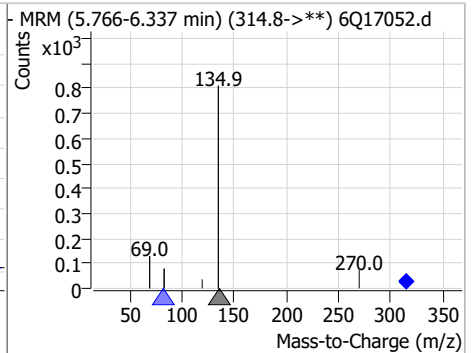
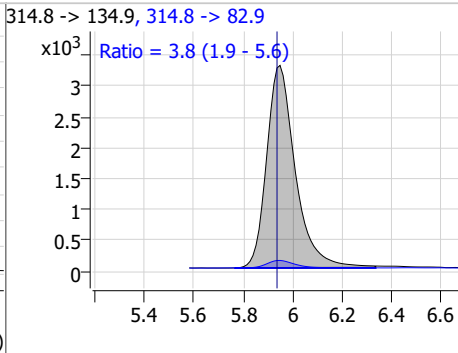
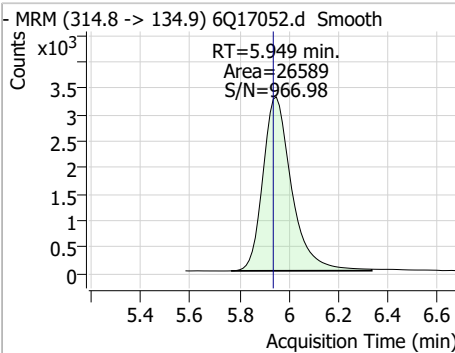


Perfluorinated Compounds by LC/MS/MS

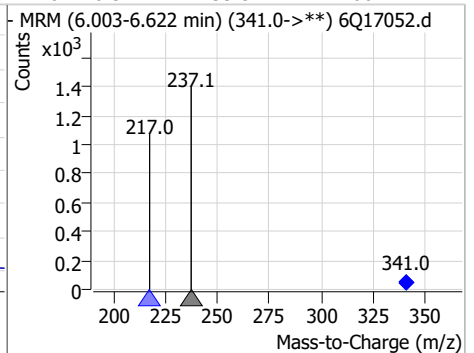
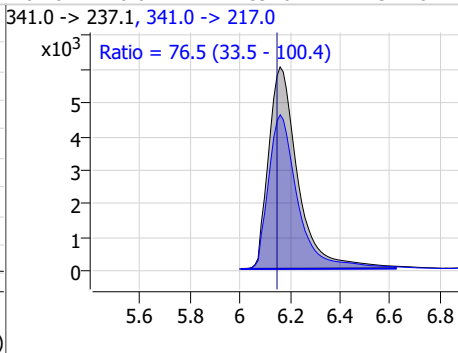
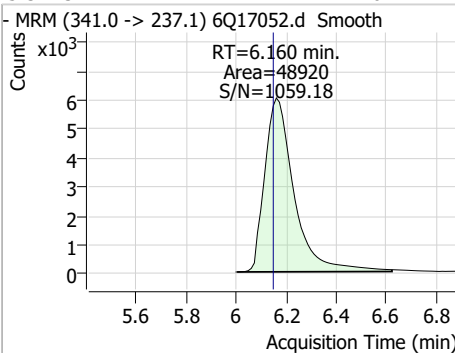
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.81	5.85	0.00	3221	284.9 -> 184.9	14.5	7.0	20.9



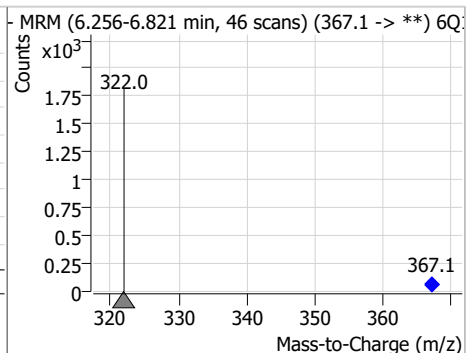
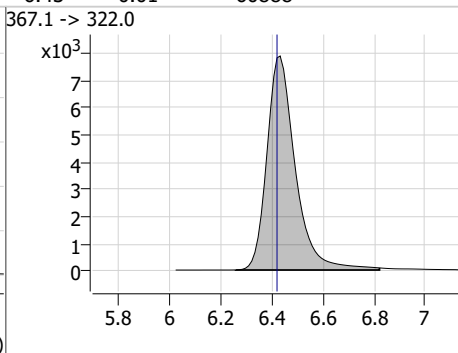
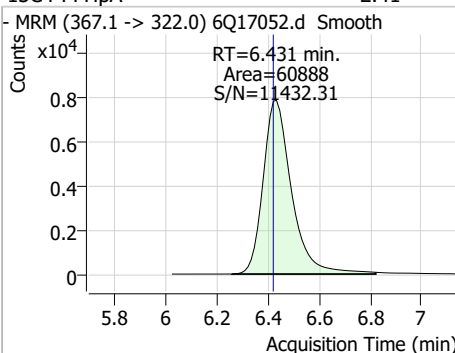
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.73	5.95	0.01	26589	314.8 -> 82.9	3.8	1.9	5.6



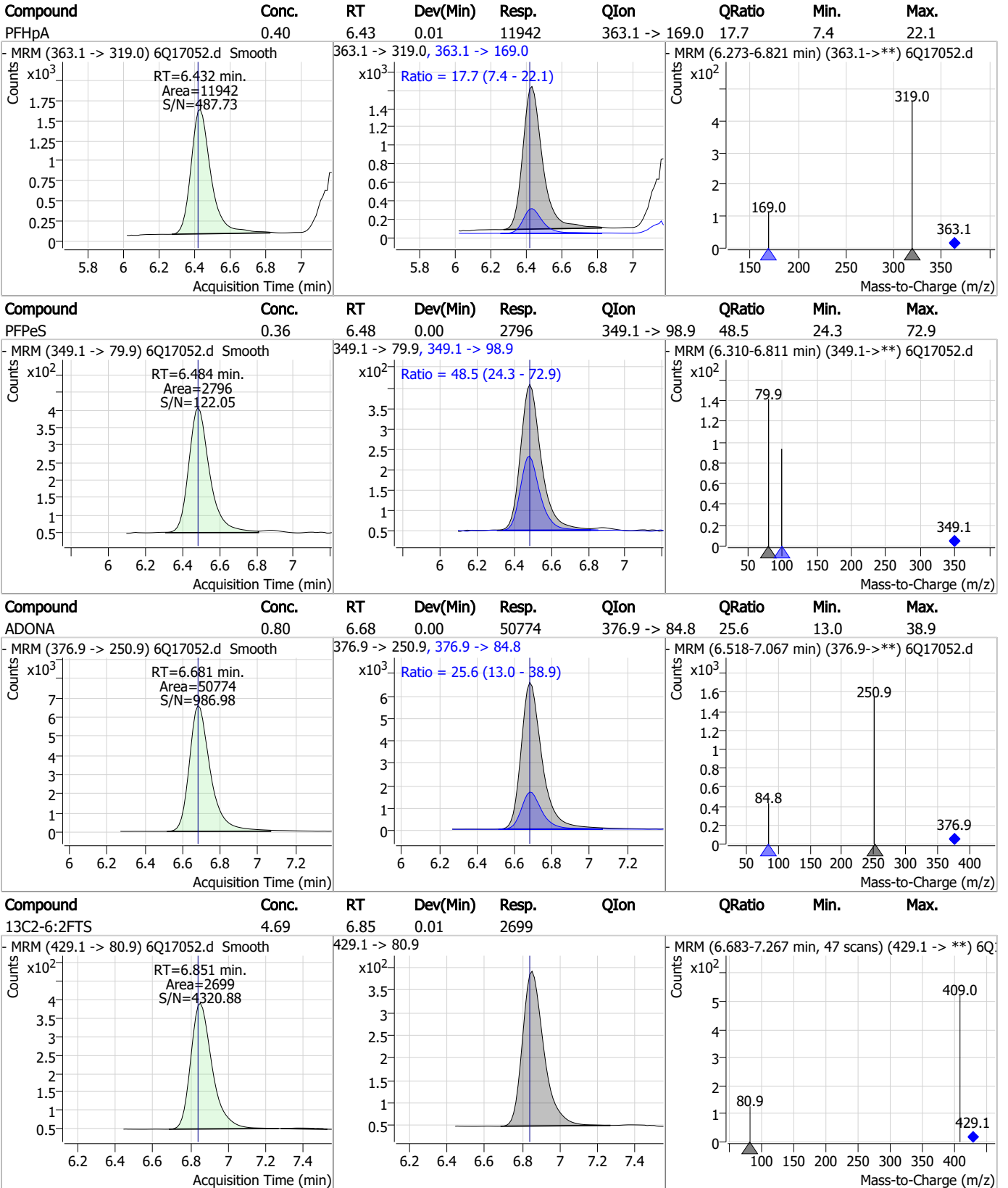
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	10.42	6.16	0.01	48920	341.0 -> 217.0	76.5	33.5	100.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.41	6.43	0.01	60888	367.1 -> 322.0			



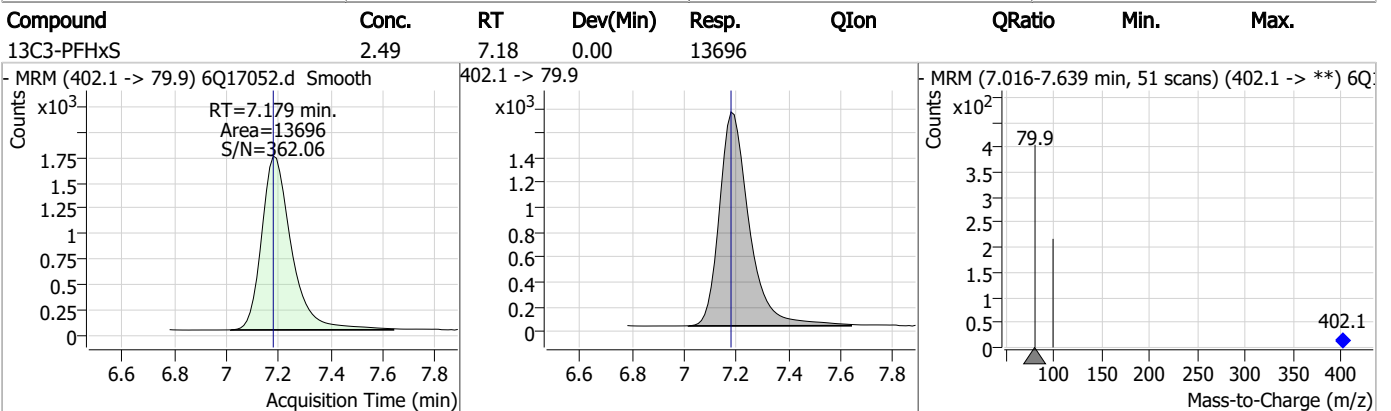
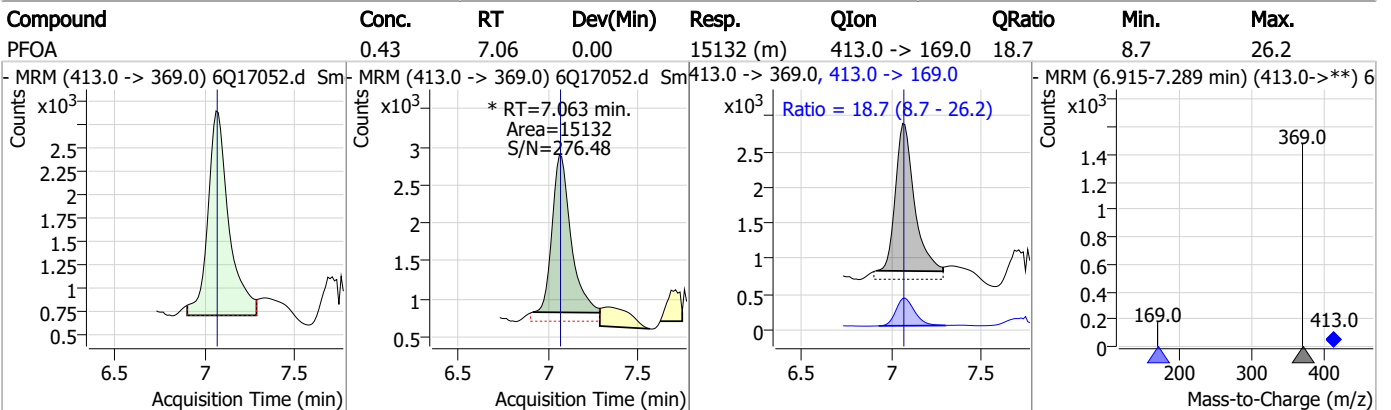
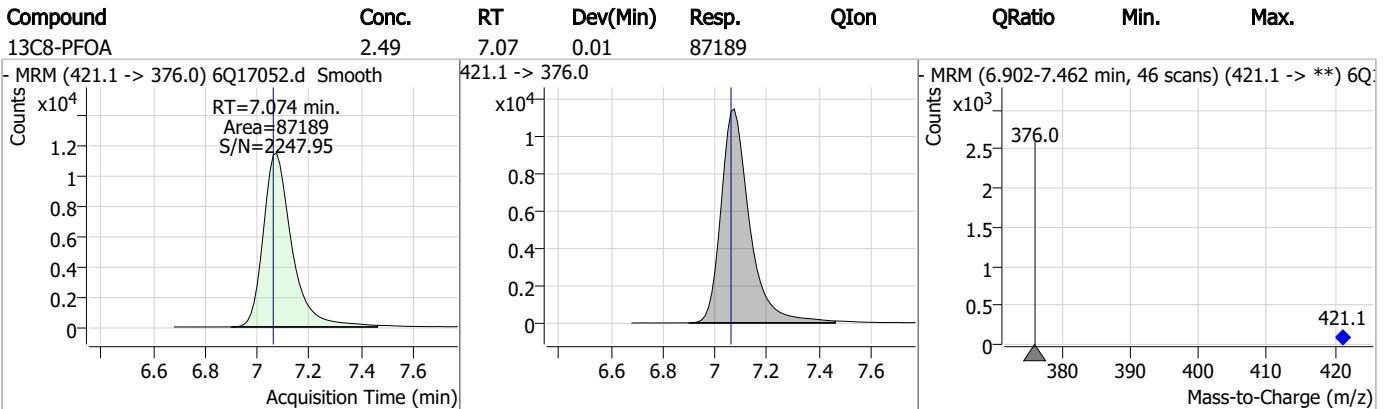
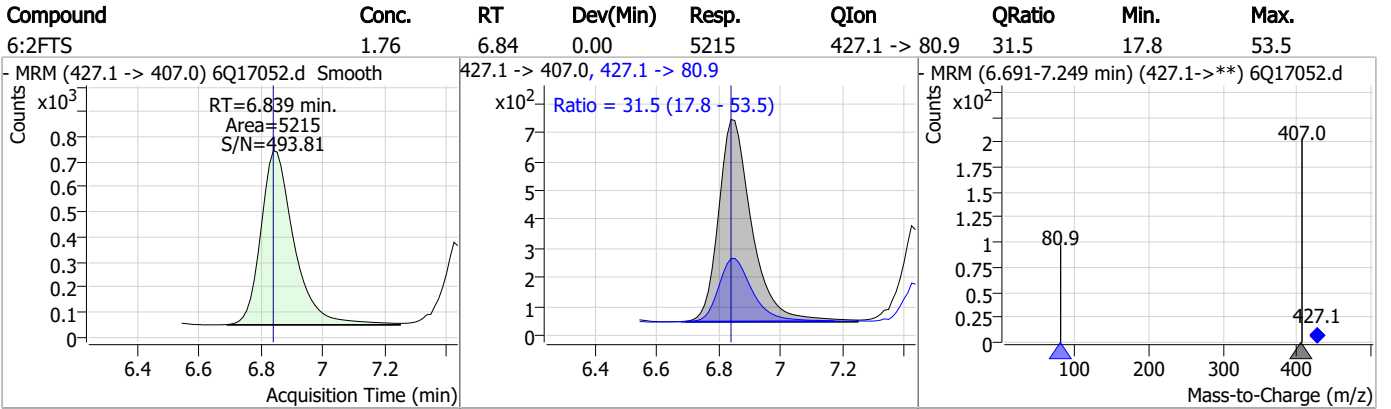
Perfluorinated Compounds by LC/MS/MS



7.6.3

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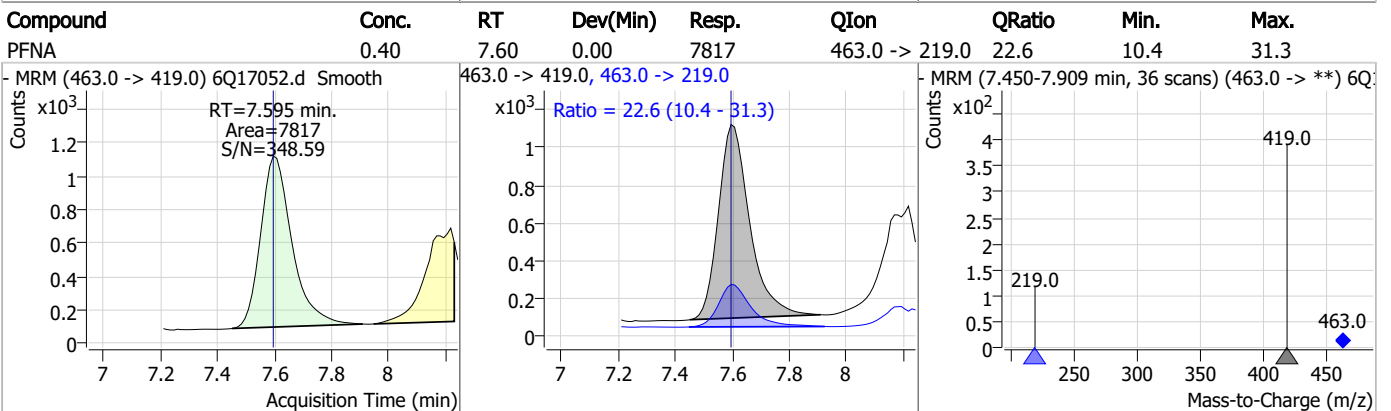
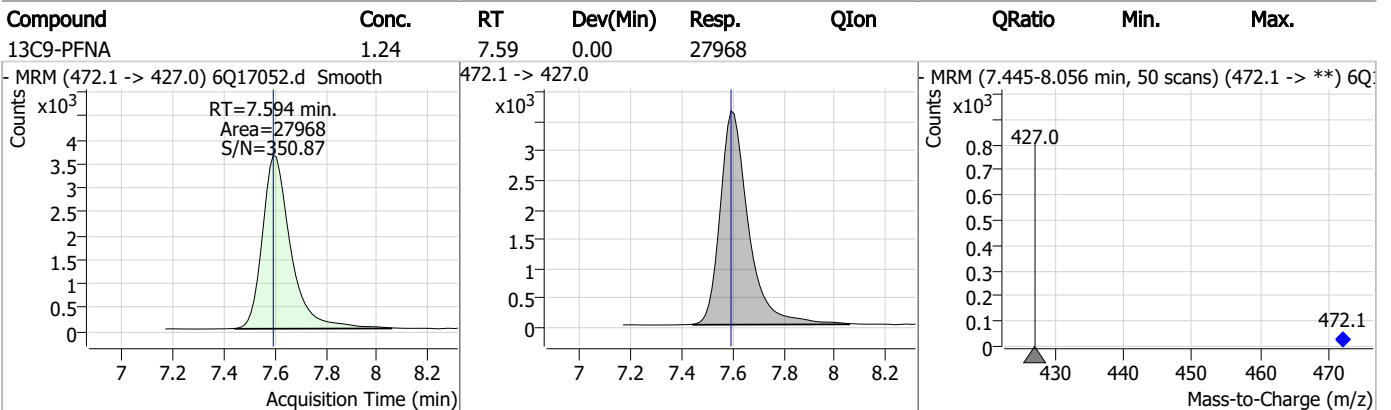
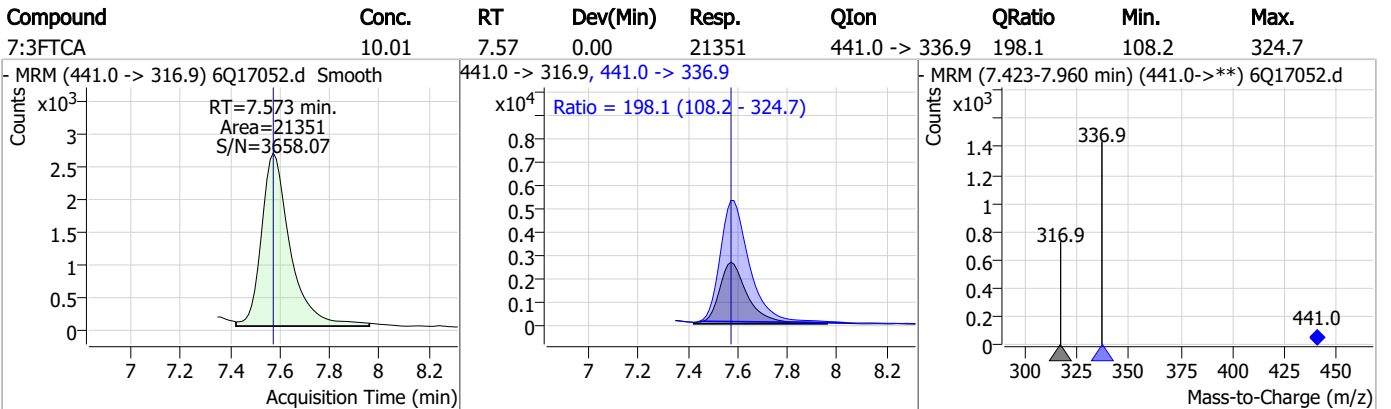
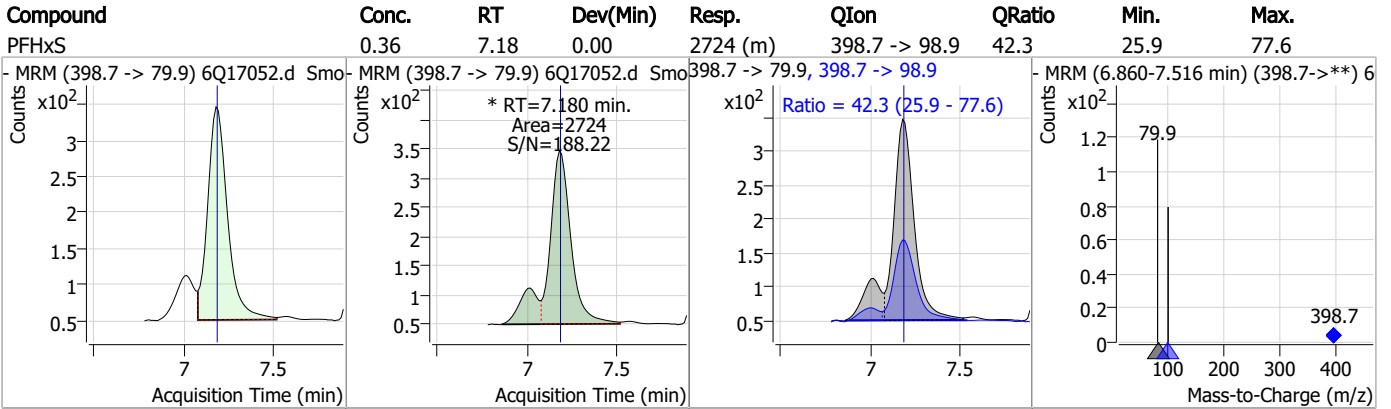
Perfluorinated Compounds by LC/MS/MS



7.6.3

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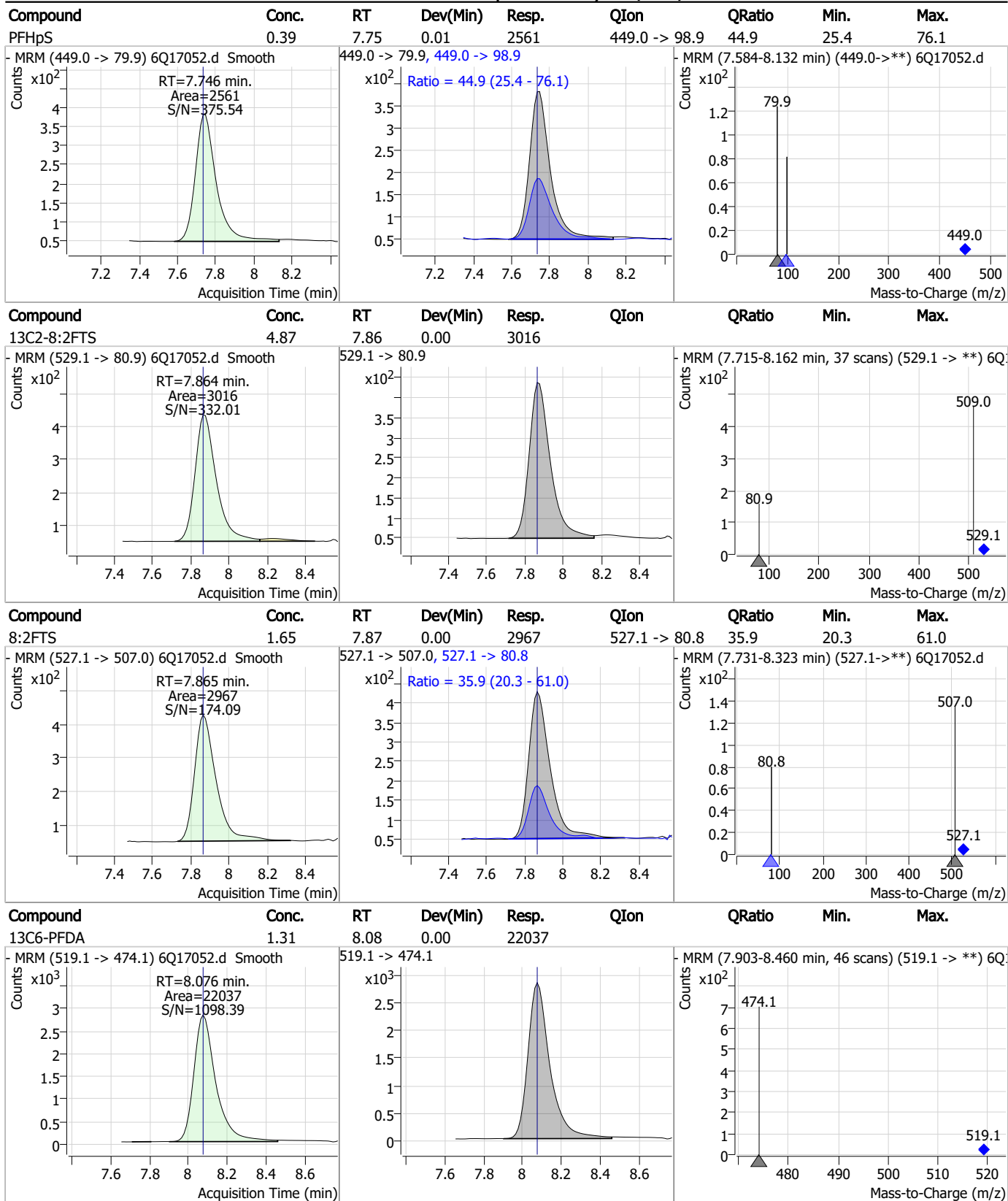
Perfluorinated Compounds by LC/MS/MS



7.6.3

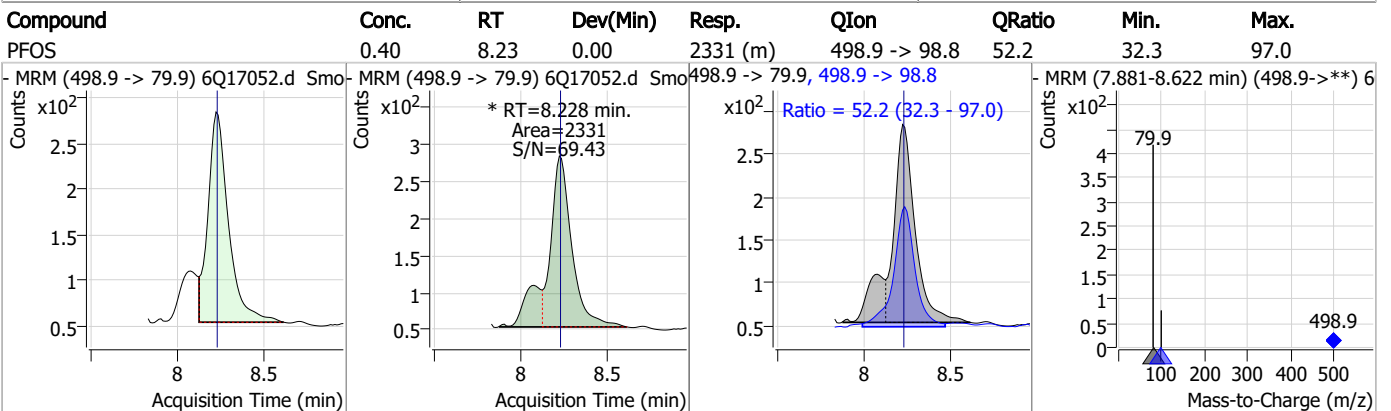
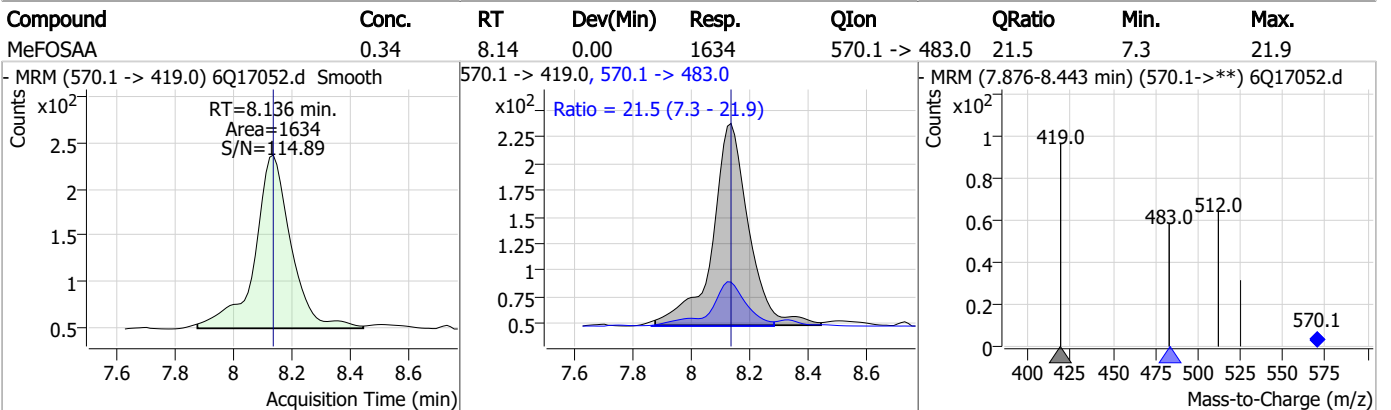
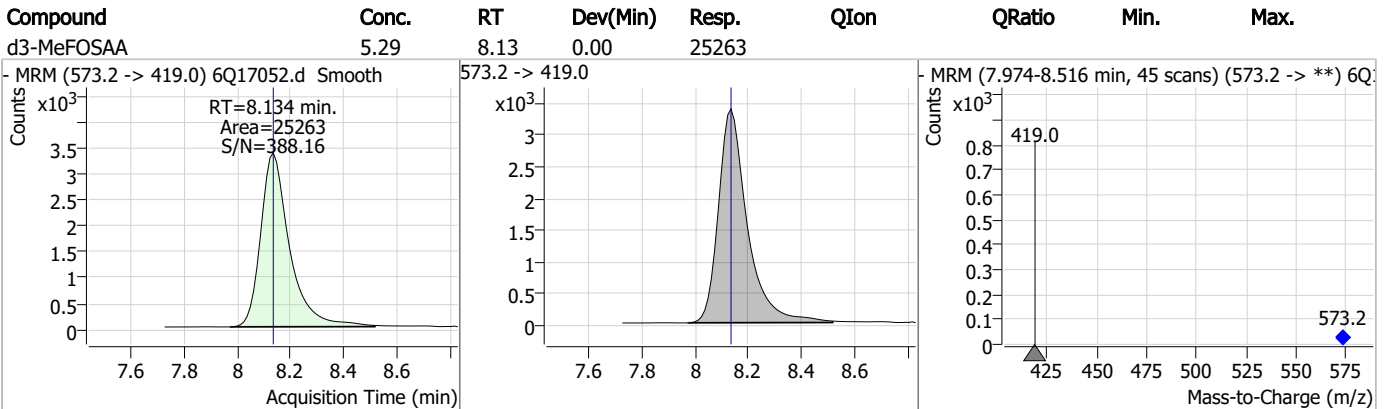
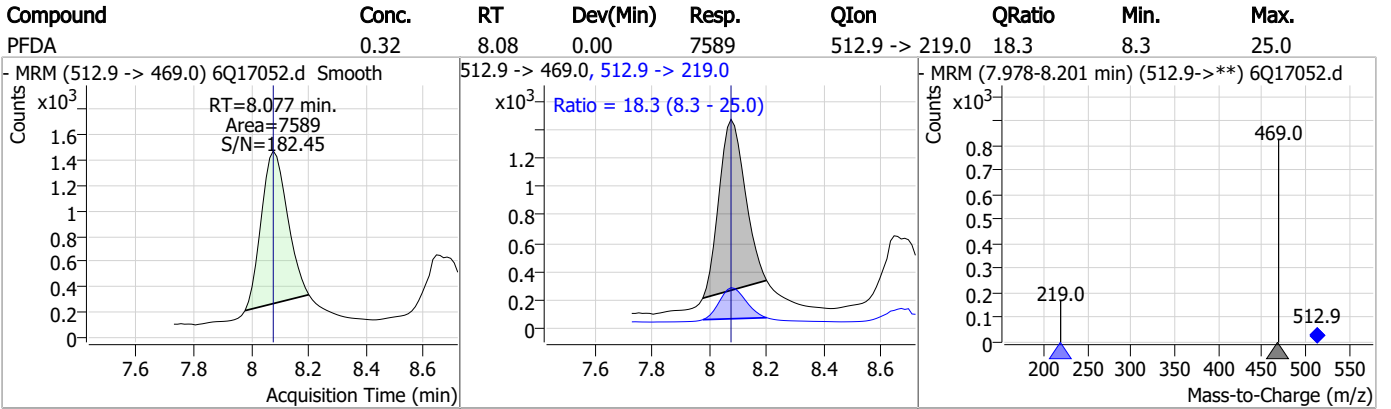
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Perfluorinated Compounds by LC/MS/MS



7.6.3
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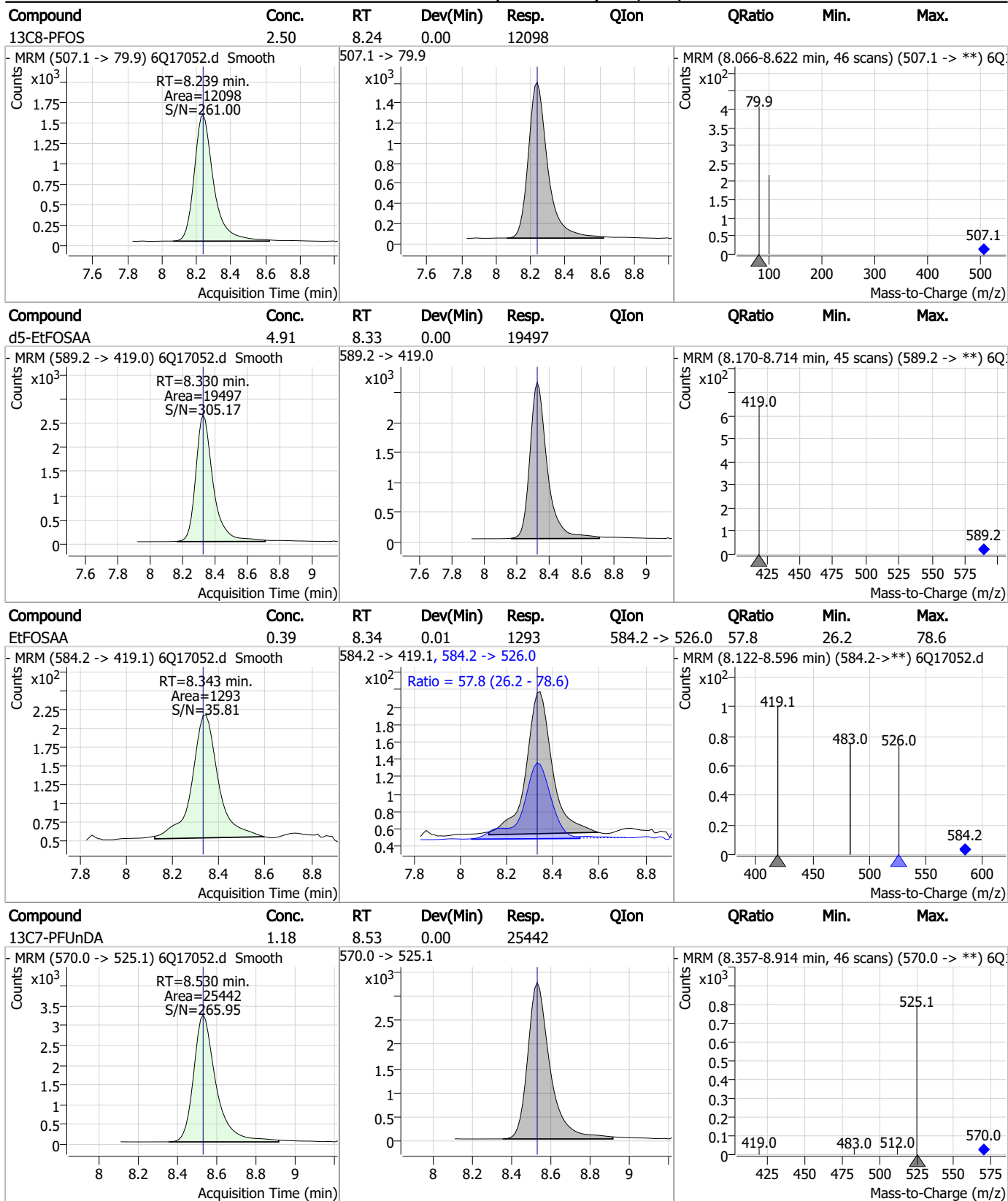
Perfluorinated Compounds by LC/MS/MS



7.6.3

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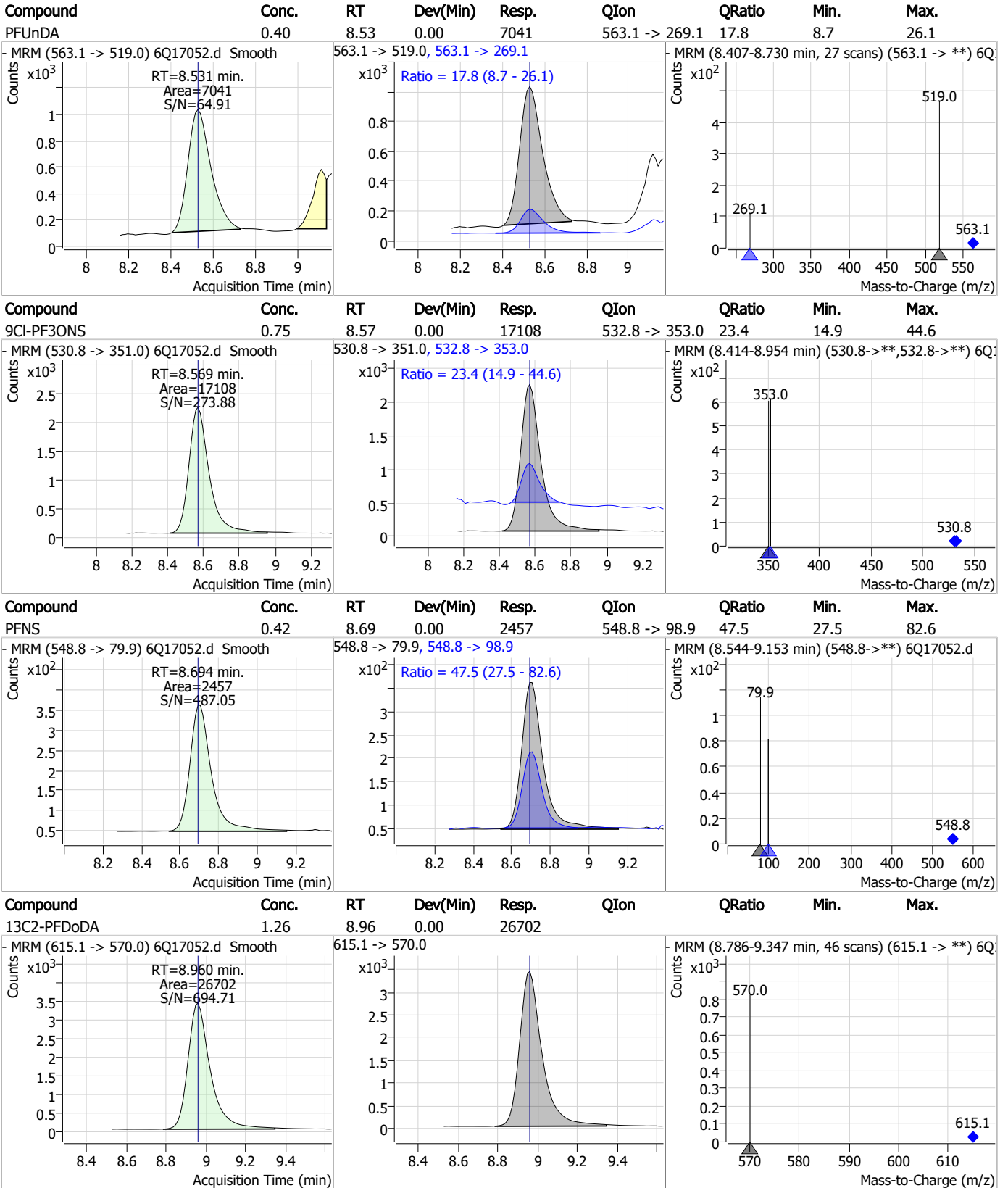
Perfluorinated Compounds by LC/MS/MS



7.6.3

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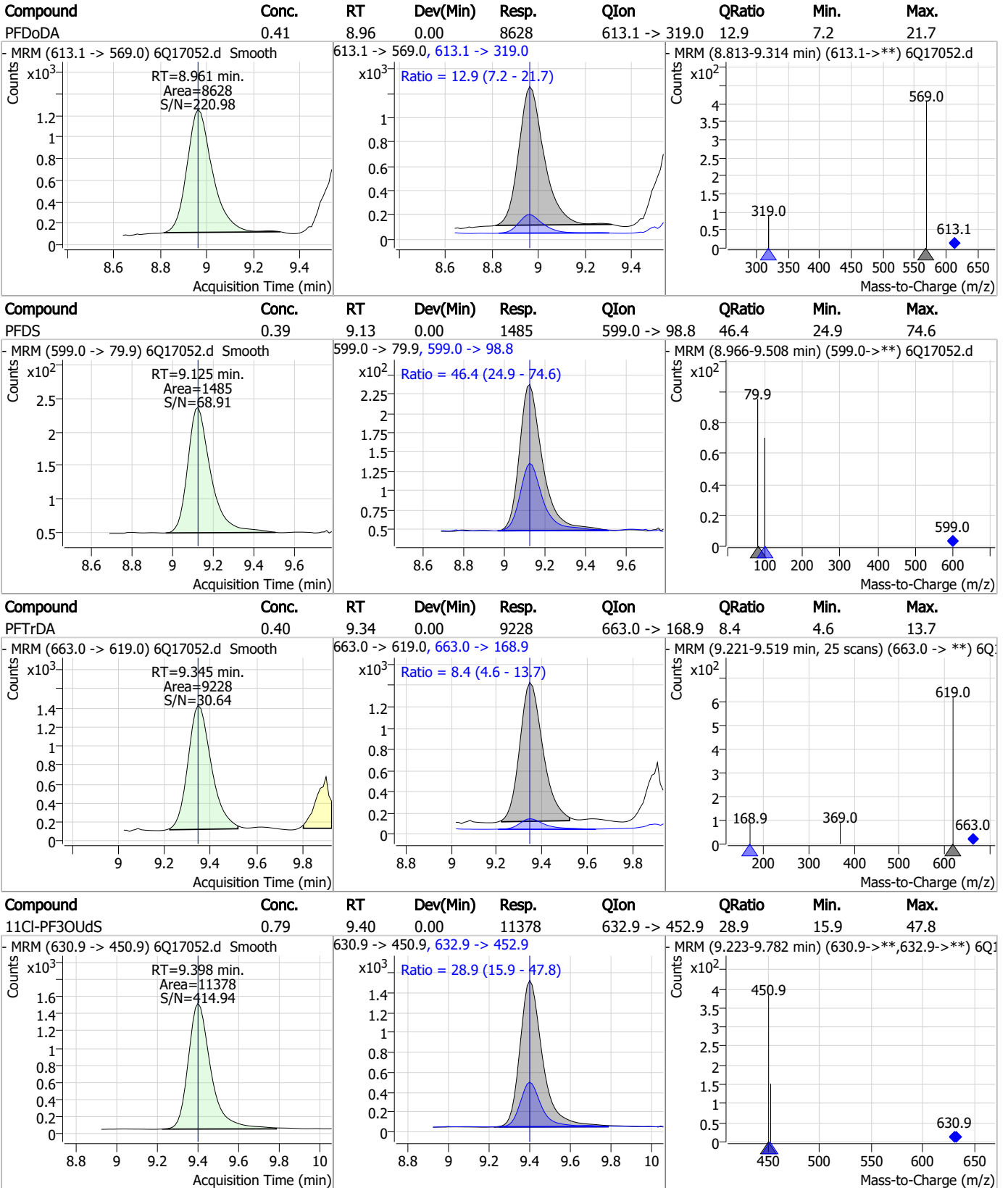
Perfluorinated Compounds by LC/MS/MS



7.6.3

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Perfluorinated Compounds by LC/MS/MS

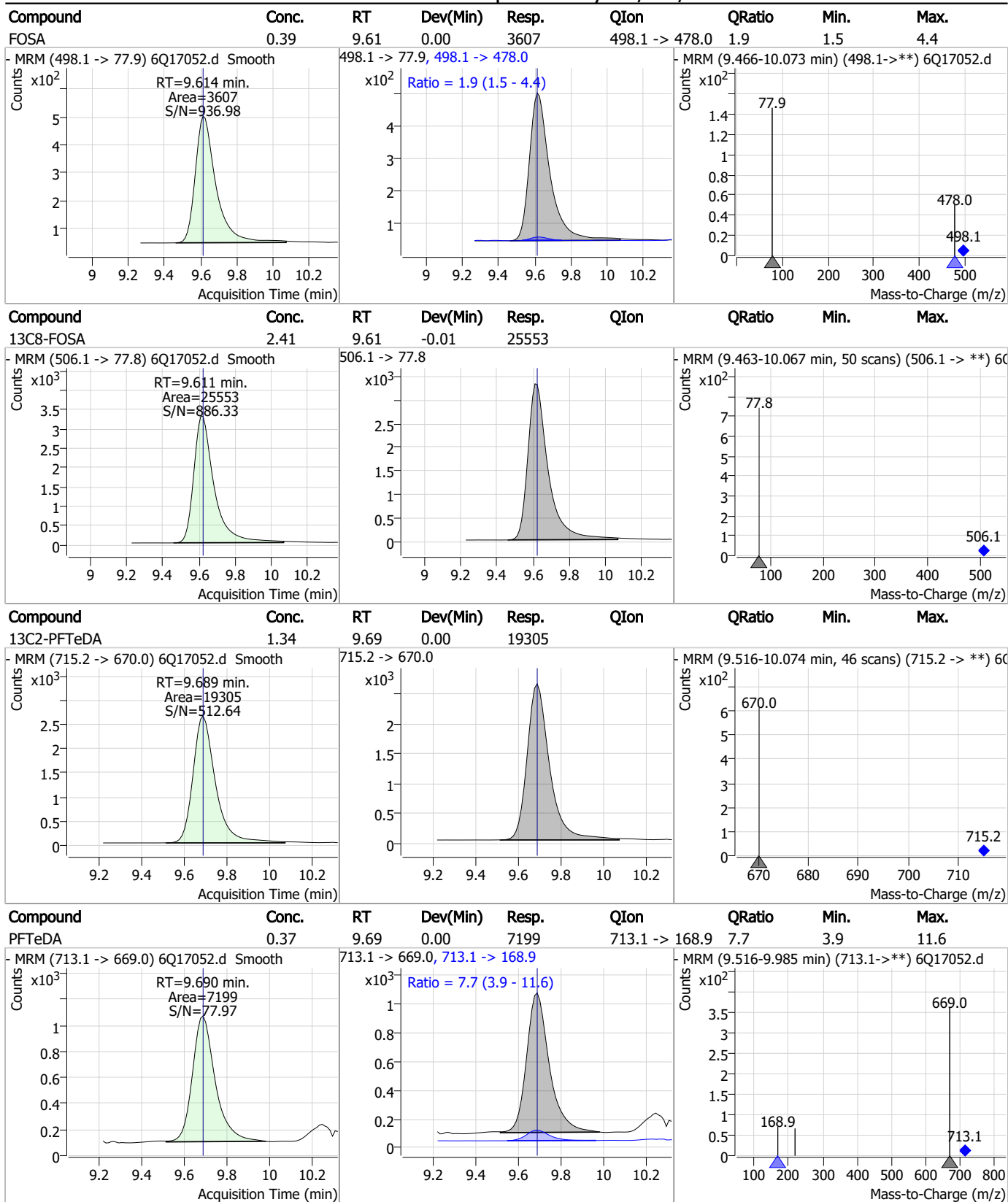


7.6.3

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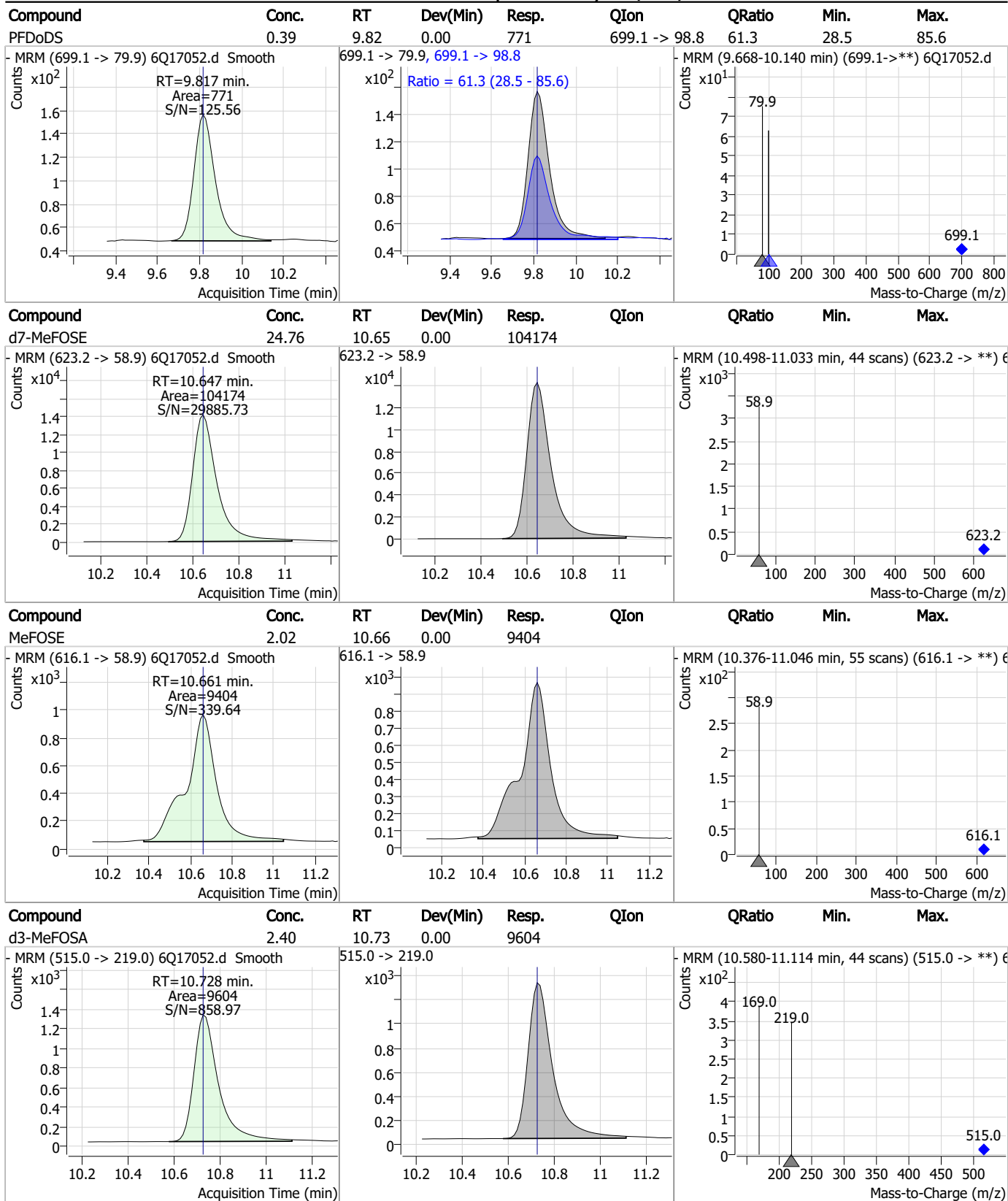


Perfluorinated Compounds by LC/MS/MS



7.6.3
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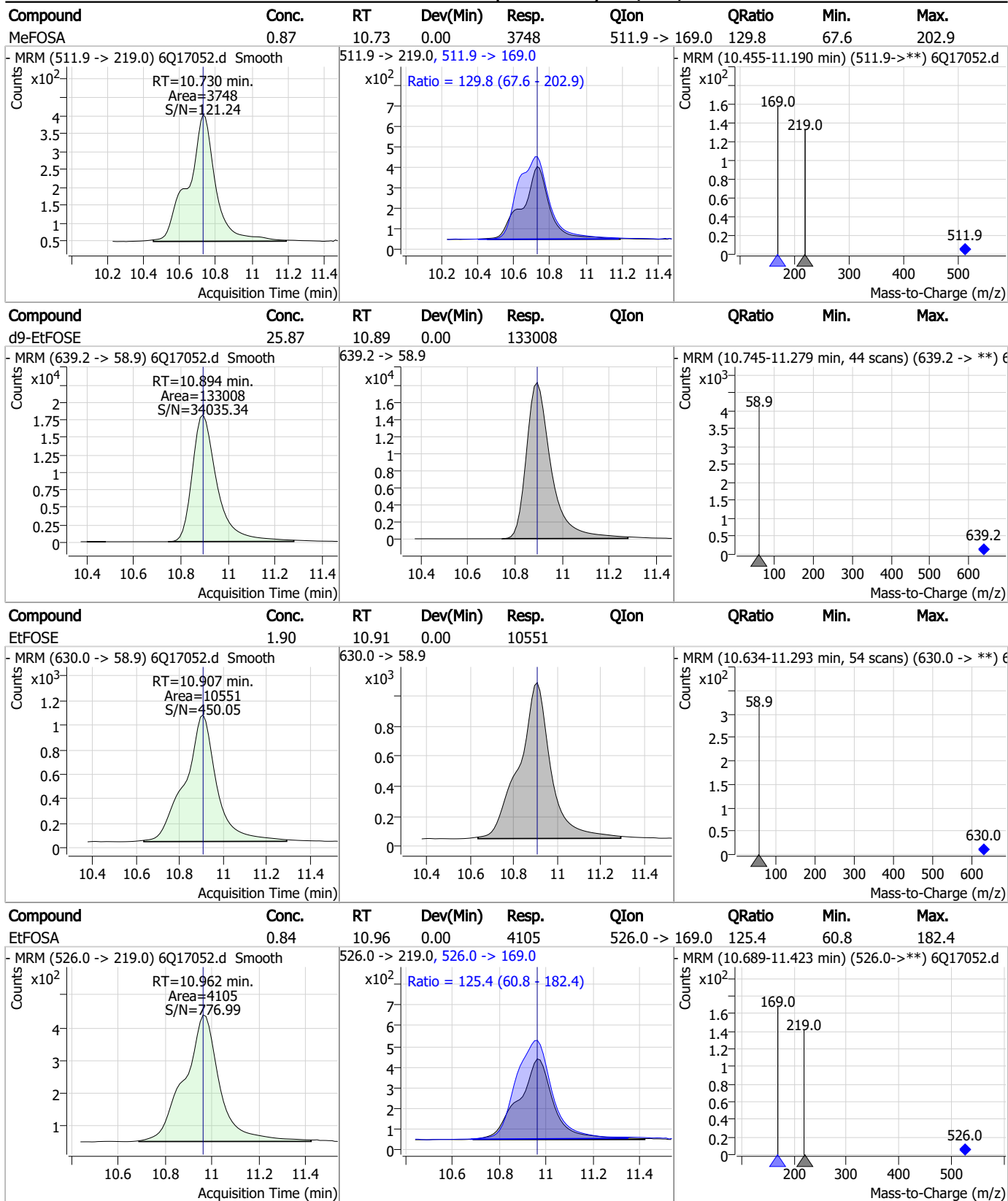
Perfluorinated Compounds by LC/MS/MS



7.6.3

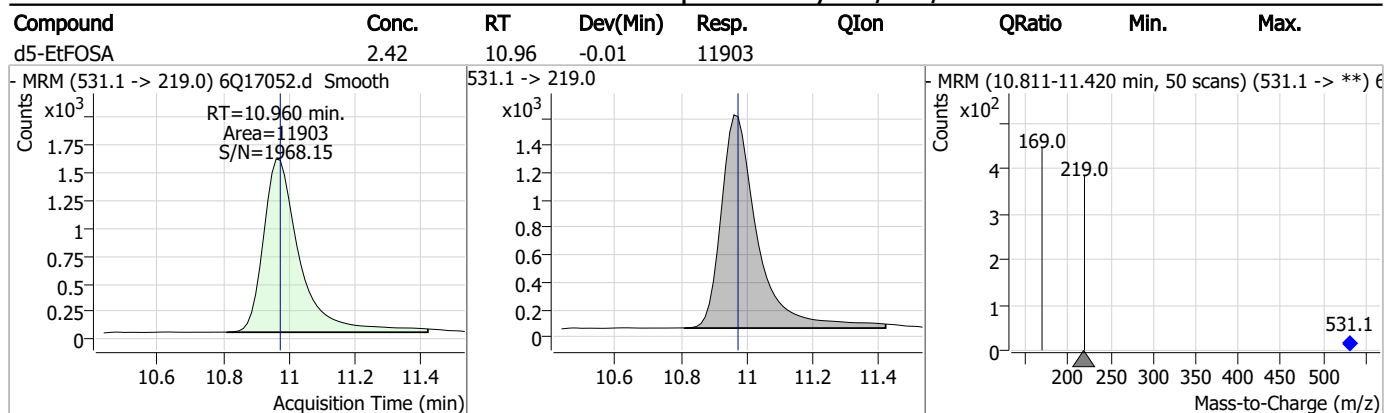
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Perfluorinated Compounds by LC/MS/MS



7.6.3
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Perfluorinated Compounds by LC/MS/MS



7.6.3

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Manual Integration Approval Summary

Sample Number: S6Q258-IC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17052.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 13:04 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.06	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak

7.6.3.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17053.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 1:19:14 PM
 Sample Name : ic258-3
 Vial : P1-A4
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	191572	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	67974	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	74853	2.50 µg/L	0.000
M4-PFHpA	6.431	367.1 -> 322.0	64801	2.50 µg/L	0.012
M8-PFOA	7.074	421.1 -> 376.0	85689	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	28510	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	21004	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	28444	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	24718	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17772	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	26081	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	23225	2.50 µg/L	0.000
M3-PFHxS	7.191	402.1 -> 79.9	13656	2.50 µg/L	0.012
M8-PFOS	8.239	507.1 -> 79.9	11956	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2305	5.00 µg/L	0.000
M2-6:2FTS	6.851	429.1 -> 80.9	2886	5.00 µg/L	0.012
M2-8:2FTS	7.864	529.1 -> 80.9	2845	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	21974	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	42854	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	18672	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	107605	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	134292	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	12109	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	9352	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	15112	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	82831	5.00 µg/L	0.000
18O2-PFHxS	7.190	403.0 -> 83.9	9850	2.50 µg/L	0.012
13C4-PFOA	7.075	417.1 -> 372.0	90328	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	23654	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	29469	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	58289	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2305	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C2-6:2FTS	6.851	429.1 -> 80.9	2886	5.25 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.0%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2845	4.81 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C2-PFDoDA	8.960	615.1 -> 570.0	24718	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17772	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.8%		
13C3-PFBS	5.398	302.1 -> 79.9	23225	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C3-PFHxS	7.191	402.1 -> 79.9	13656	2.60 µg/L	0.012

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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 = 104.2%	
13C4-PFBA	2.910	216.8 -> 171.9	191572	10.01 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.431	367.1 -> 322.0	64801	2.72 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.7%	
13C5-PFHxA	5.468	318.0 -> 273.0	74853	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C5-PFPeA	4.270	268.3 -> 223.0	67974	5.22 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C6-PFDA	8.076	519.1 -> 474.1	21004	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.7%	
13C7-PFUnDA	8.530	570.0 -> 525.1	28444	1.42 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.9%	
13C8-FOSA	9.623	506.1 -> 77.8	26081	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C8-PFOA	7.074	421.1 -> 376.0	85689	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C8-PFOS	8.239	507.1 -> 79.9	11956	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C9-PFNA	7.594	472.1 -> 427.0	28510	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.5%	
d3-MeFOSAA	8.134	573.2 -> 419.0	21974	4.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	42854	10.39 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.9%	
d3-MeFOSA	10.728	515.0 -> 219.0	9352	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
d5-EtFOSAA	8.330	589.2 -> 419.0	18672	4.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
d7-MeFOSE	10.647	623.2 -> 58.9	107605	27.13 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 108.5%	
d9-EtFOSE	10.894	639.2 -> 58.9	134292	27.71 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 110.8%	
d5-EtFOSA	10.960	531.1 -> 219.0	12109	2.61 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.5%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	16860	4.84 µg/L	98
		327.1 -> 80.9	6076		
6:2FTS	6.851	427.1 -> 407.0	14989	4.72 µg/L	99
		427.1 -> 80.9	5421		
8:2FTS	7.865	527.1 -> 507.0	9570	5.65 µg/L	94
		527.1 -> 80.8	3539		
EtFOSAA	8.343	584.2 -> 419.1	3961	1.25 µg/L	92
		584.2 -> 526.0	2303		
FOSA	9.614	498.1 -> 77.9	12049	1.29 µg/L	99
		498.1 -> 478.0	383		
MeFOSAA	8.136	570.1 -> 419.0	5431	1.32 µg/L	87
		570.1 -> 483.0	1089		
PFBA	2.906	212.8 -> 168.9	32090	4.99 µg/L	100
PFBS	5.400	298.7 -> 79.9	12402	1.19 µg/L	97
		298.7 -> 98.8	4874		
PFDA	8.077	512.9 -> 469.0	27773	1.22 µg/L	94
		512.9 -> 219.0	5281		
PFDODA	8.961	613.1 -> 569.0	25585	1.32 µg/L	98
		613.1 -> 319.0	3480		
PFDS	9.125	599.0 -> 79.9	4310	1.13 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2140			
PFHpA	6.432	363.1 -> 319.0	37275	1.17	µg/L	95
		363.1 -> 169.0	6278			
PFHpS	7.746	449.0 -> 79.9	7638	1.18	µg/L	97
		449.0 -> 98.9	4032			
PFHxA	5.470	313.0 -> 269.0	36373	1.23	µg/L	100
		313.0 -> 118.9	1707			
PFHxS	7.192	398.7 -> 79.9	8263	1.11	µg/L	m 99
		398.7 -> 98.9	4186			
PFNA	7.595	463.0 -> 419.0	23263	1.18	µg/L	100
		463.0 -> 219.0	4812			
PFNS	8.706	548.8 -> 79.9	6549	1.13	µg/L	98
		548.8 -> 98.9	3506			
PFOA	7.076	413.0 -> 369.0	47697	1.22	µg/L	97
		413.0 -> 169.0	8907			
PFOS	8.240	498.9 -> 79.9	6668	1.15	µg/L	m 84
		498.9 -> 98.8	3482			
PFPeA	4.273	263.0 -> 219.0	45980	2.48	µg/L	100
PFPeS	6.484	349.1 -> 79.9	8912	1.15	µg/L	99
		349.1 -> 98.9	4281			
PFTeDA	9.690	713.1 -> 669.0	22648	1.26	µg/L	99
		713.1 -> 168.9	1703			
PFTrDA	9.358	663.0 -> 619.0	30131	1.40	µg/L	96
		663.0 -> 168.9	2293			
PFUnDA	8.531	563.1 -> 519.0	23133	1.17	µg/L	98
		563.1 -> 269.1	3831			
11CI-PF3OUdS	9.398	630.9 -> 450.9	34449	2.34	µg/L	96
		632.9 -> 452.9	11770			
9CI-PF3ONS	8.569	530.8 -> 351.0	56487	2.43	µg/L	99
		532.8 -> 353.0	16982			
ADONA	6.681	376.9 -> 250.9	155433	2.40	µg/L	97
		376.9 -> 84.8	42362			
HFPO-DA	5.846	284.9 -> 168.9	10320	2.54	µg/L	94
		284.9 -> 184.9	1174			
3:3FTCA	3.784	241.0 -> 177.0	7118	6.15	µg/L	99
		241.0 -> 117.0	920			
5:3FTCA	6.160	341.0 -> 237.1	150845	31.49	µg/L	92
		341.0 -> 217.0	111042			
7:3FTCA	7.573	441.0 -> 316.9	68001	31.25	µg/L	99
		441.0 -> 336.9	146321			
EtFOSA	10.962	526.0 -> 219.0	12429	2.50	µg/L	93
		526.0 -> 169.0	16155			
EtFOSE	10.907	630.0 -> 58.9	34082	6.09	µg/L	100
MeFOSA	10.730	511.9 -> 219.0	11103	2.64	µg/L	100
		511.9 -> 169.0	15014			
MeFOSE	10.661	616.1 -> 58.9	29147	6.07	µg/L	100
PFDoDS	9.817	699.1 -> 79.9	2475	1.26	µg/L	94
		699.1 -> 98.8	1298			
NFDHA	5.350	295.0 -> 201.0	8125	2.53	µg/L	99
		295.0 -> 84.9	1939			
PFMBA	4.687	279.0 -> 85.1	31615	2.55	µg/L	100
PFMPA	3.438	229.0 -> 84.9	22901	2.47	µg/L	100
PFEESA	5.949	314.8 -> 134.9	82814	2.22	µg/L	99
		314.8 -> 82.9	2883			

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

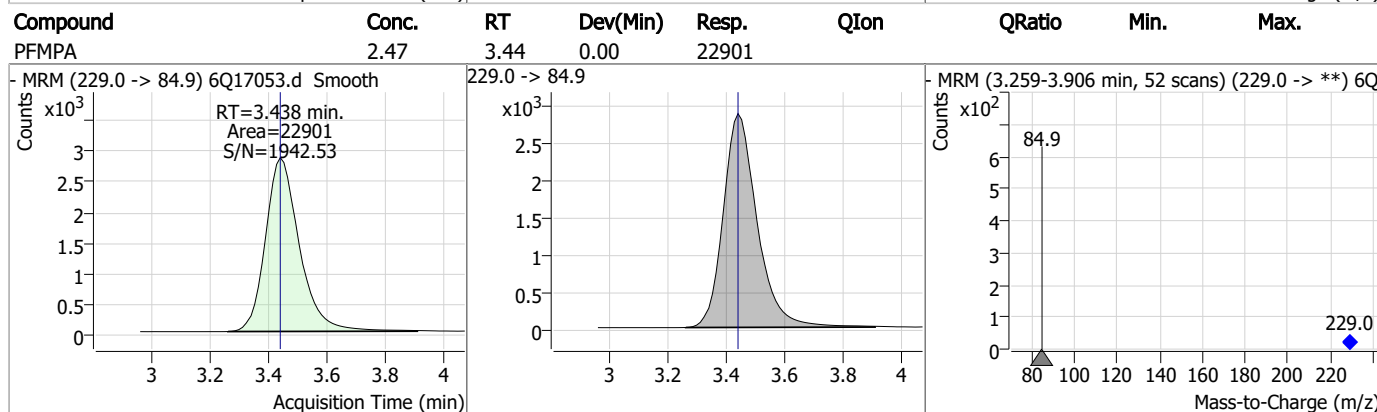
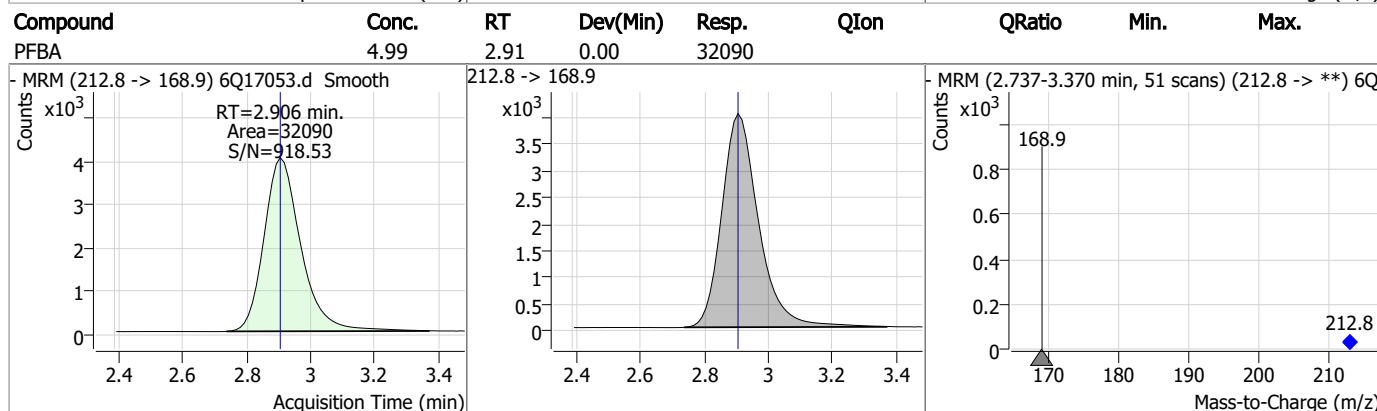
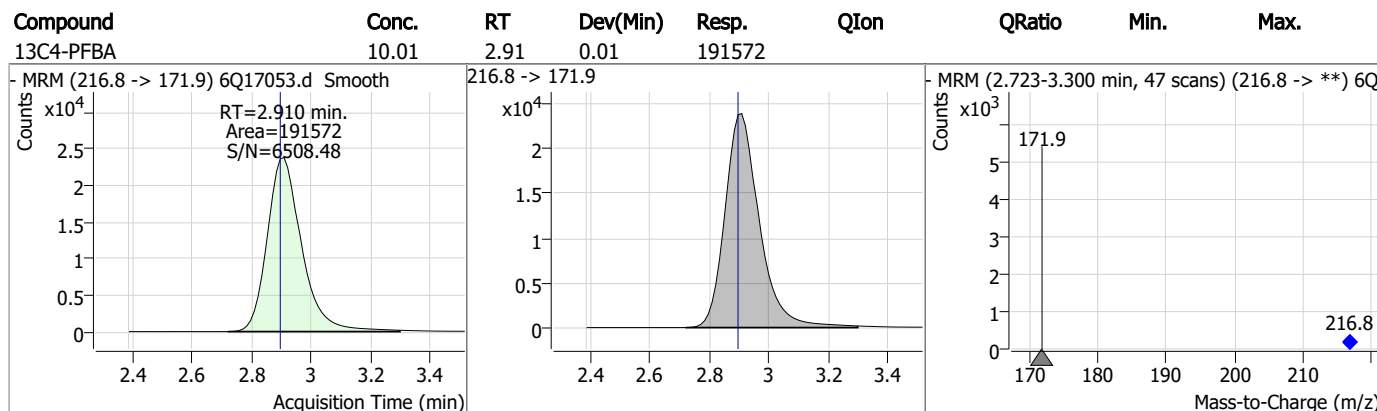
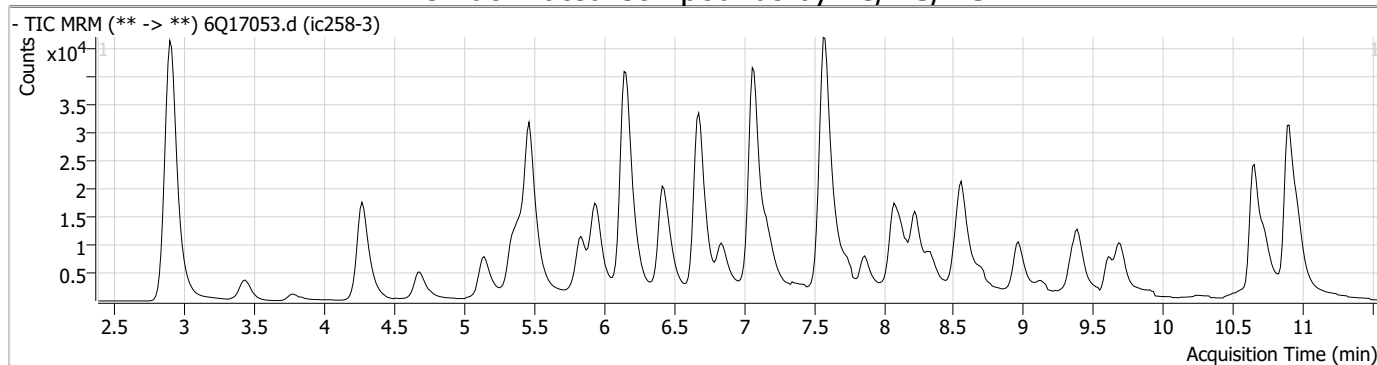
Perfluorinated Compounds by LC/MS/MS

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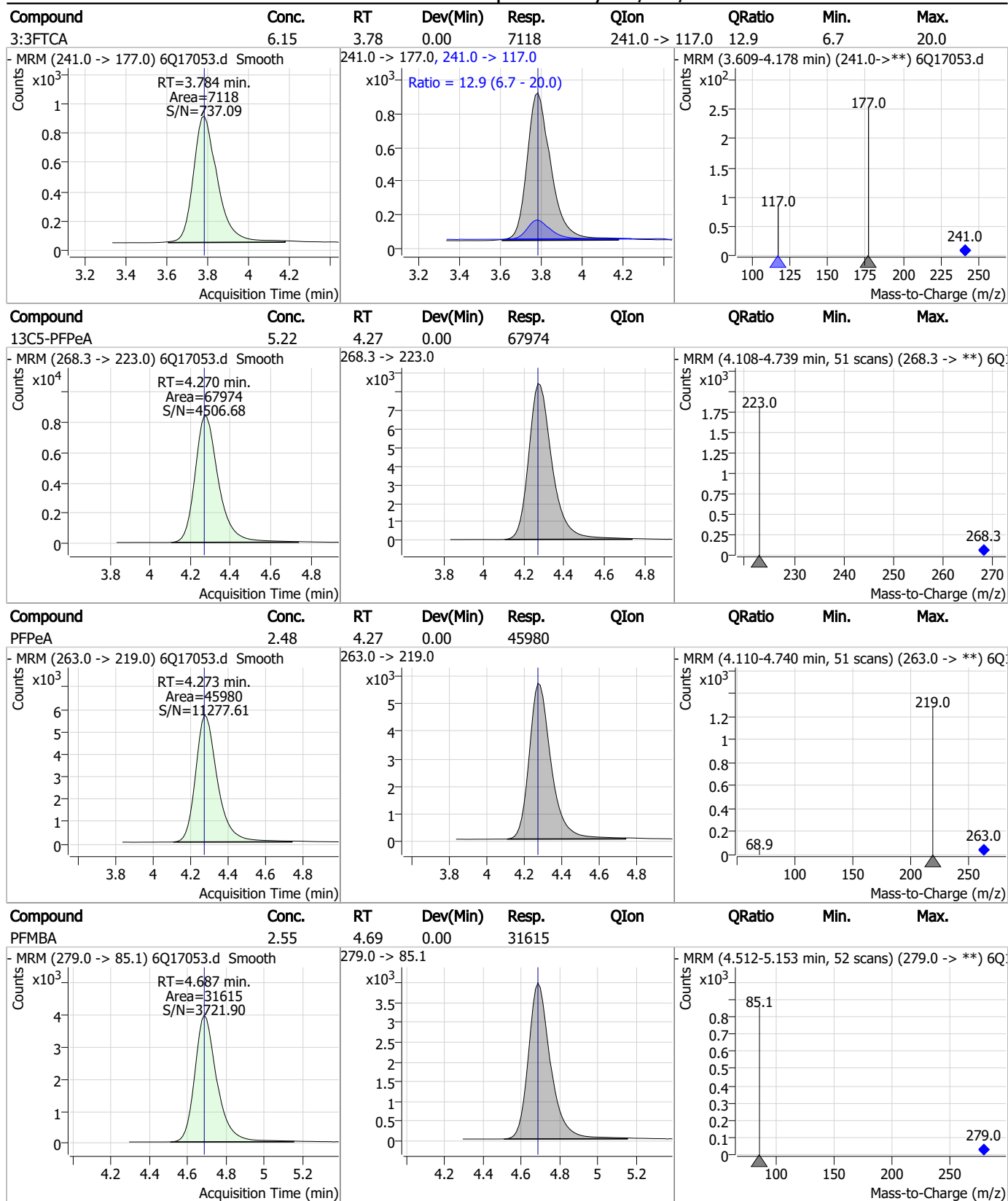
7.6.4

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Perfluorinated Compounds by LC/MS/MS



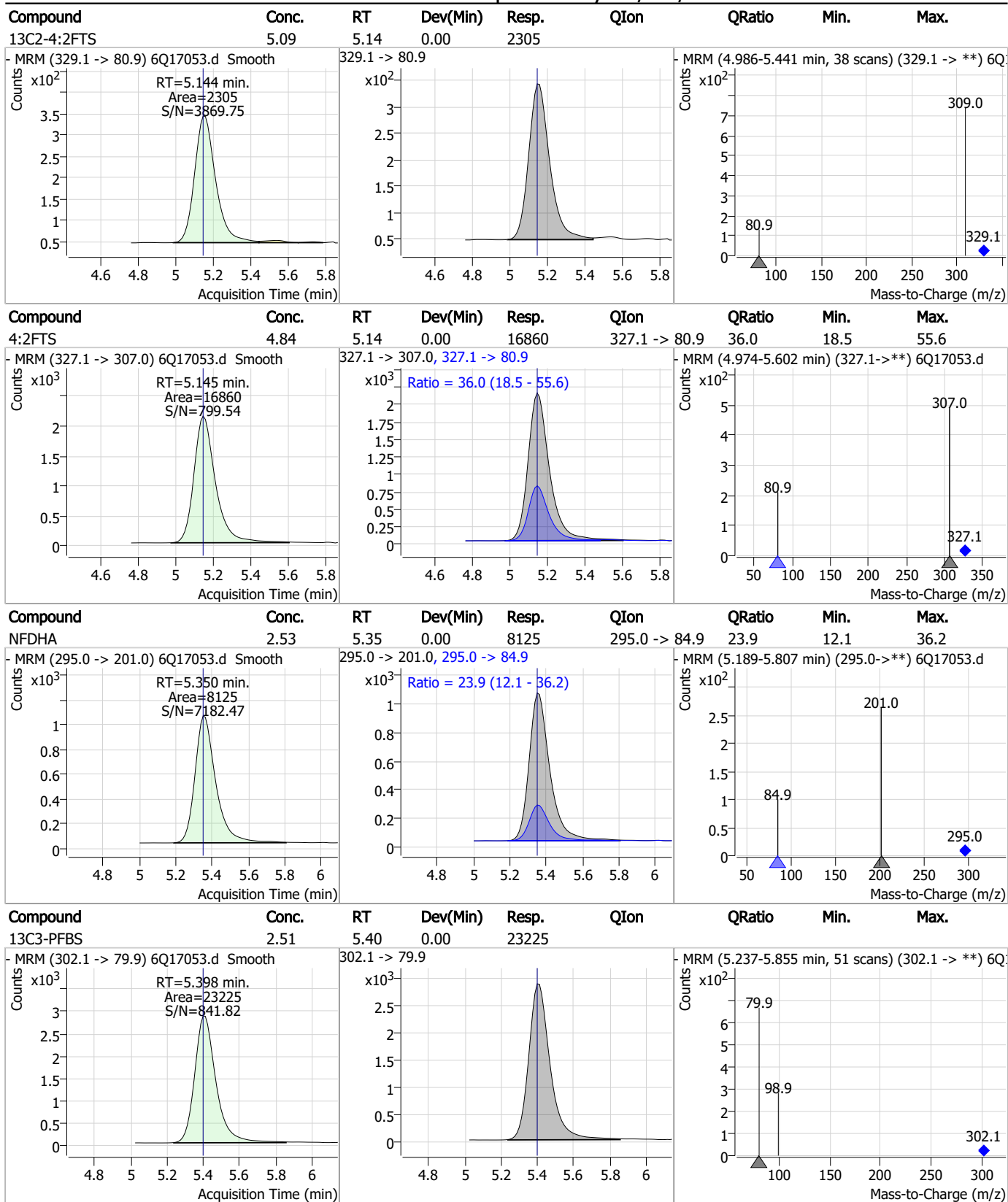
Perfluorinated Compounds by LC/MS/MS



7.6.4

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Perfluorinated Compounds by LC/MS/MS

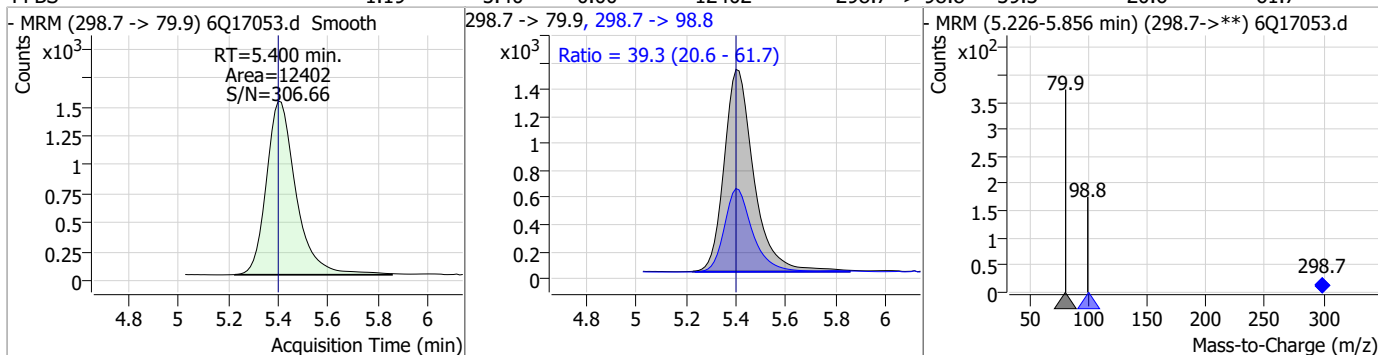


7.6.4
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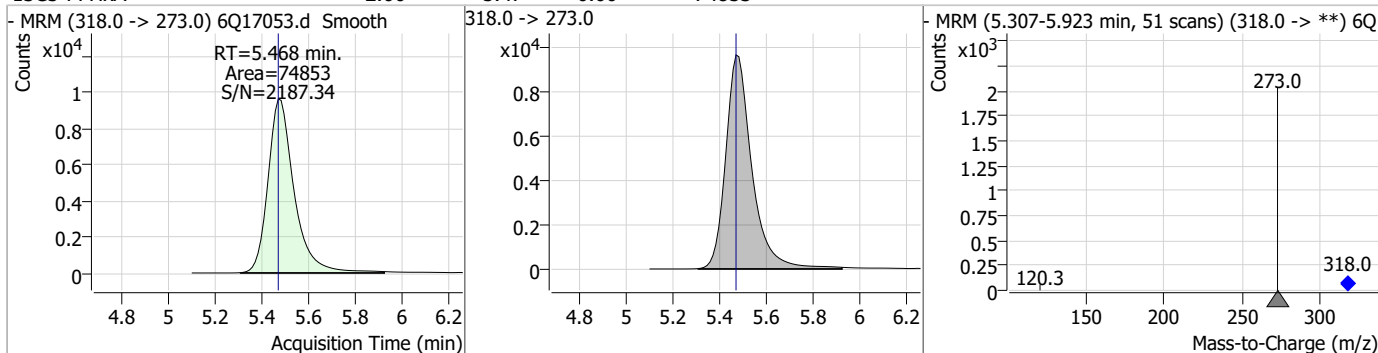


Perfluorinated Compounds by LC/MS/MS

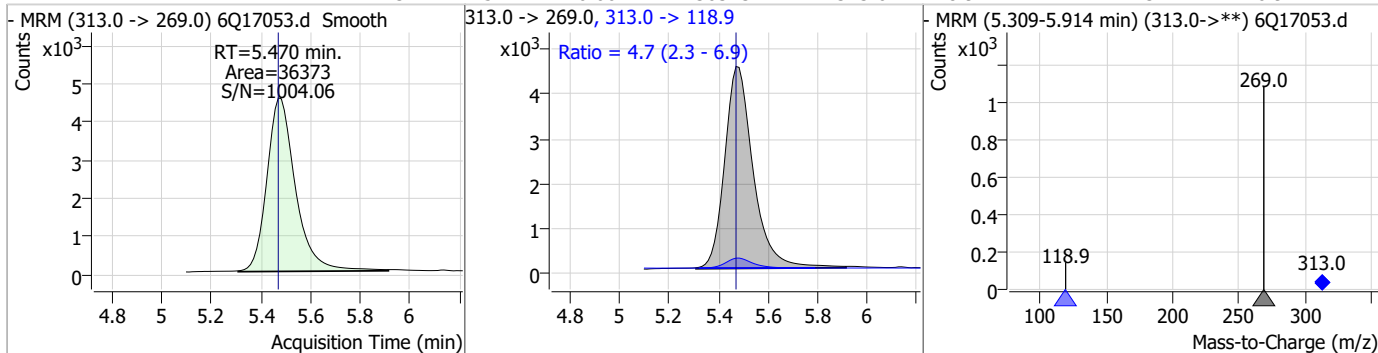
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.19	5.40	0.00	12402	298.7 -> 98.8	39.3	20.6	61.7



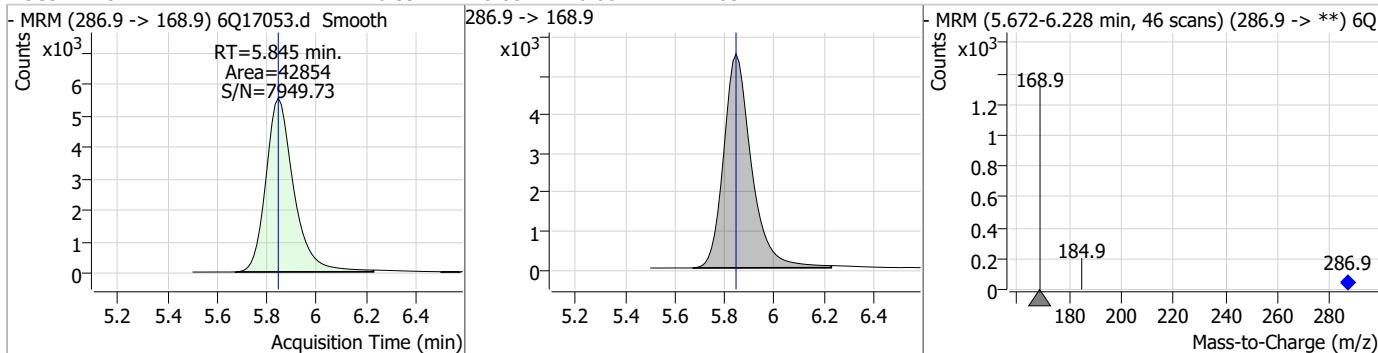
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.66	5.47	0.00	74853				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.23	5.47	0.00	36373	313.0 -> 118.9	4.7	2.3	6.9

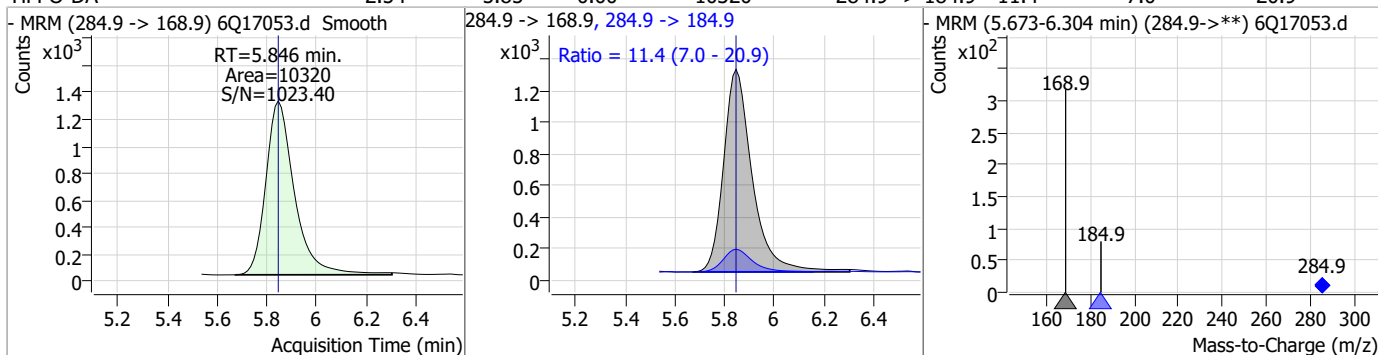


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.39	5.85	0.00	42854				

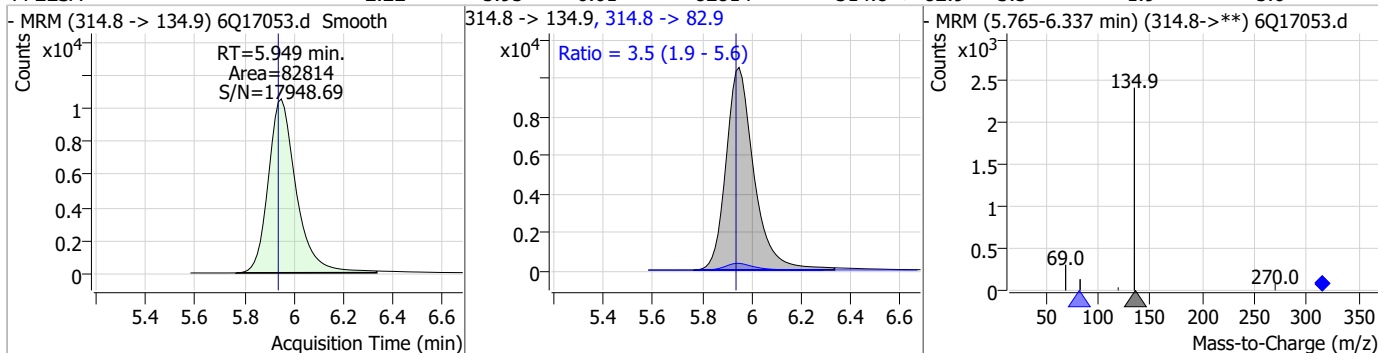


Perfluorinated Compounds by LC/MS/MS

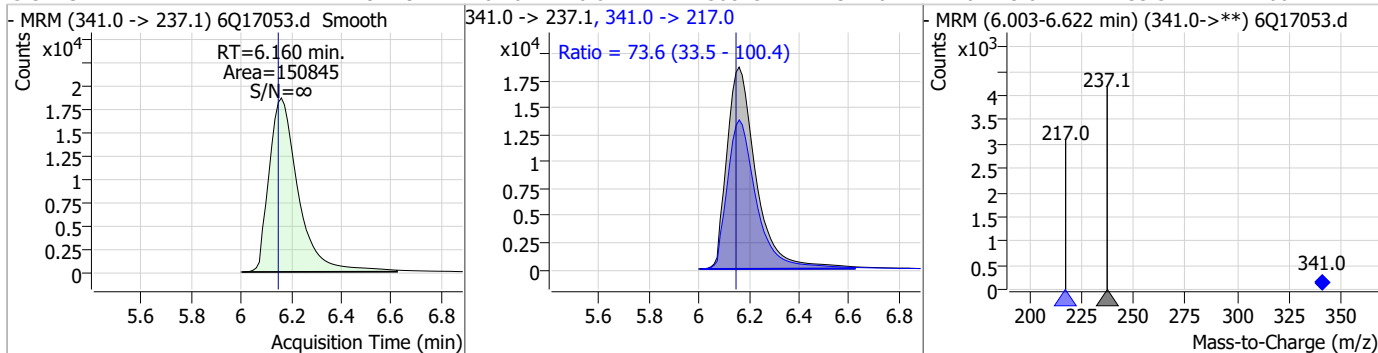
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	2.54	5.85	0.00	10320	284.9 -> 184.9	11.4	7.0	20.9



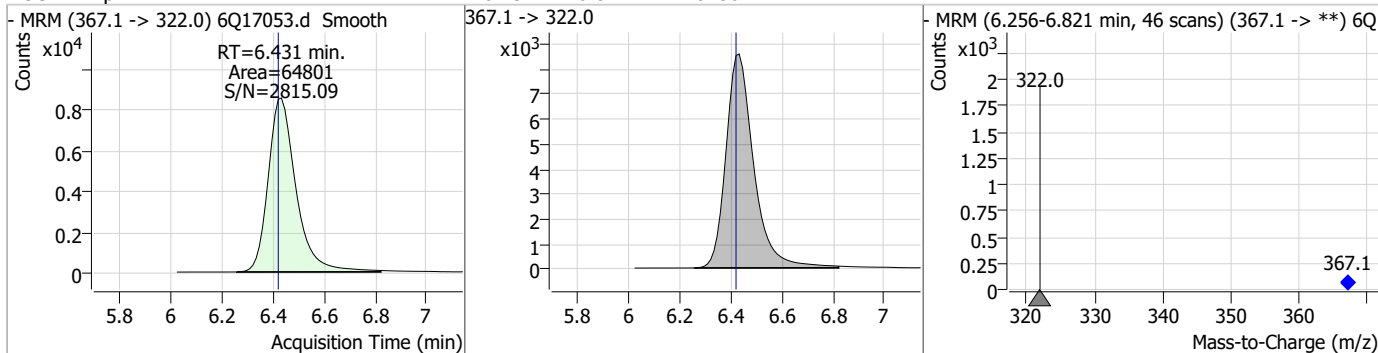
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	2.22	5.95	0.01	82814	314.8 -> 82.9	3.5	1.9	5.6



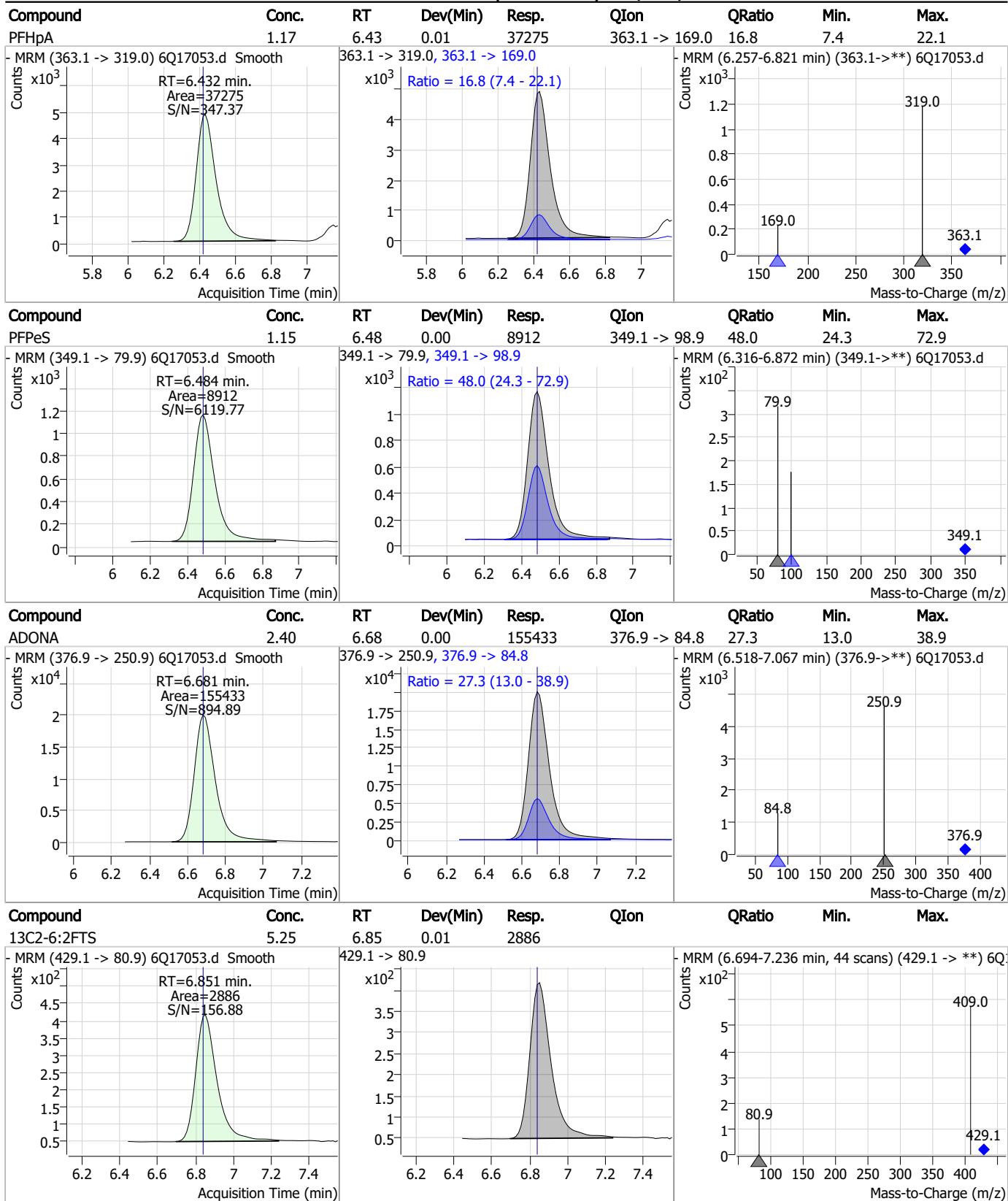
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	31.49	6.16	0.01	150845	341.0 -> 217.0	73.6	33.5	100.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.72	6.43	0.01	64801	367.1 -> 322.0			

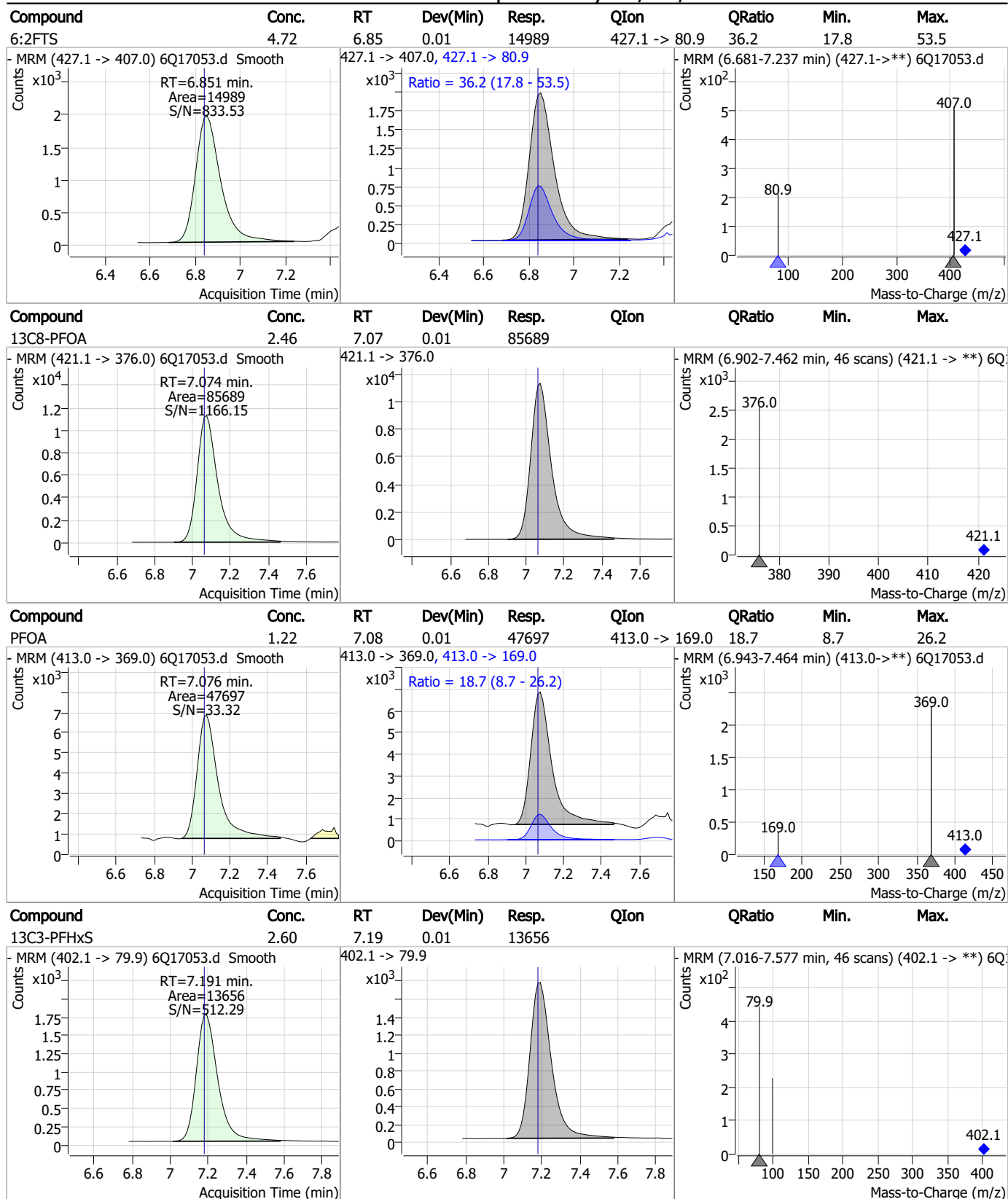


Perfluorinated Compounds by LC/MS/MS



7.6.4
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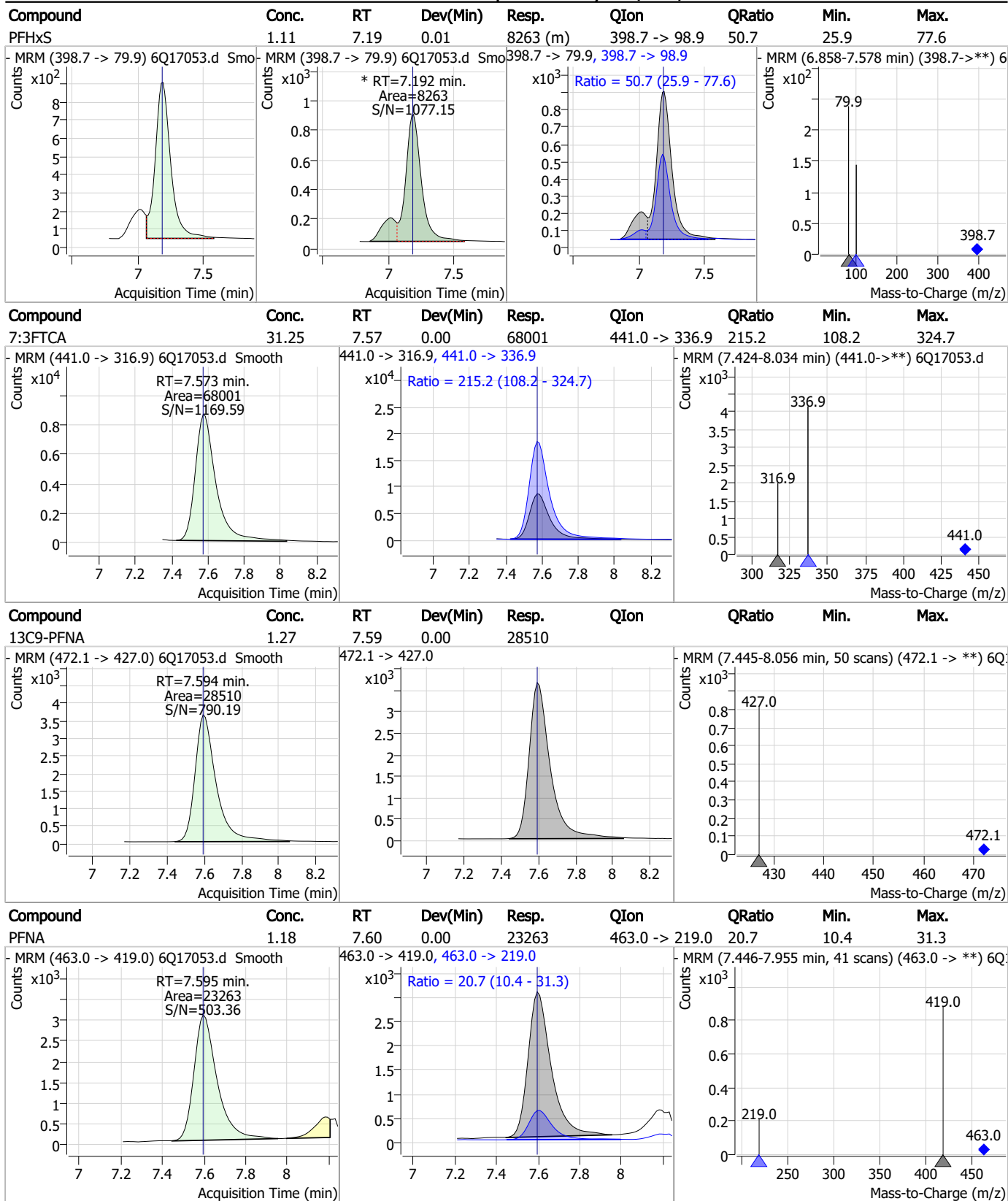
Perfluorinated Compounds by LC/MS/MS



7.6.4

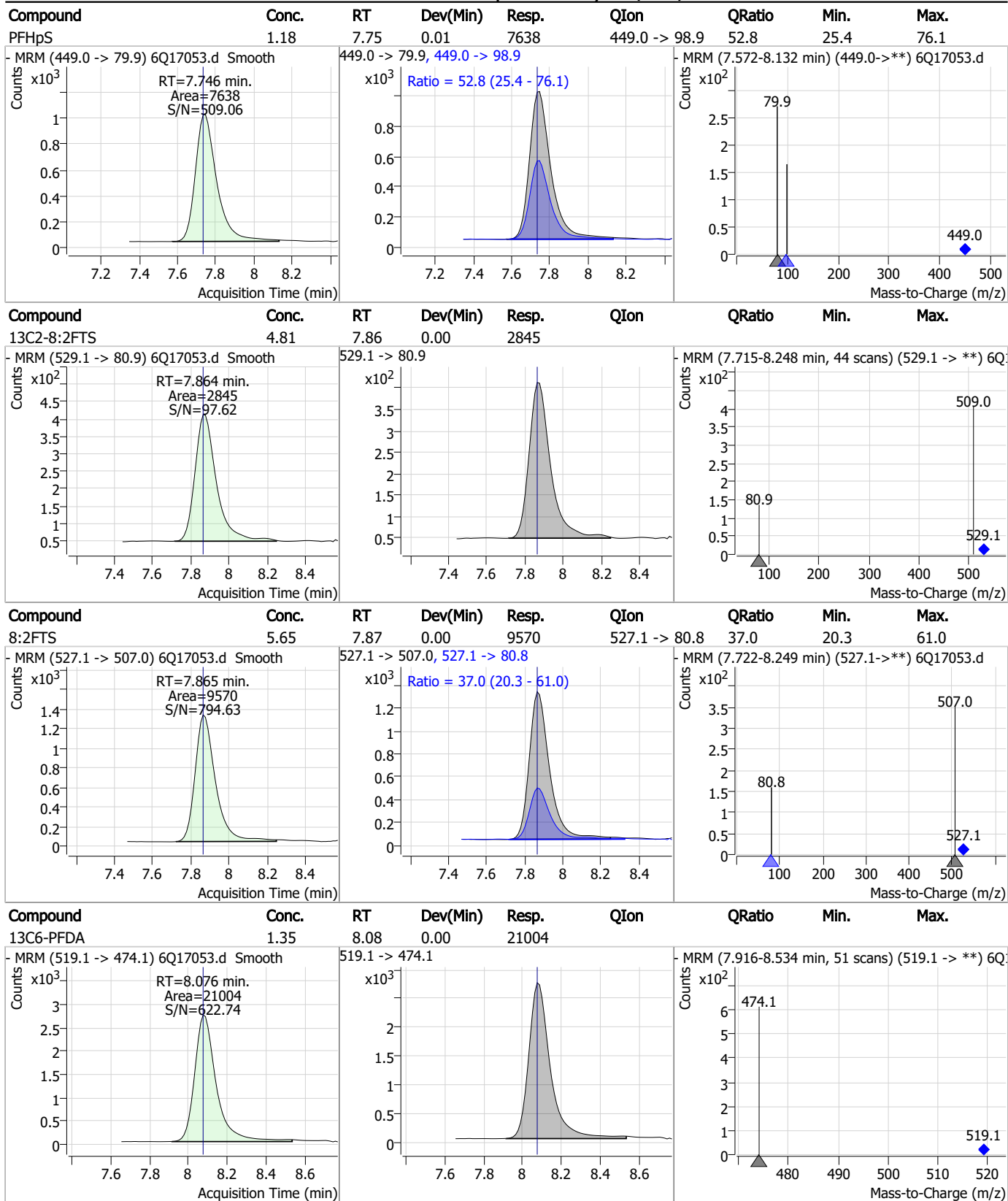
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Perfluorinated Compounds by LC/MS/MS



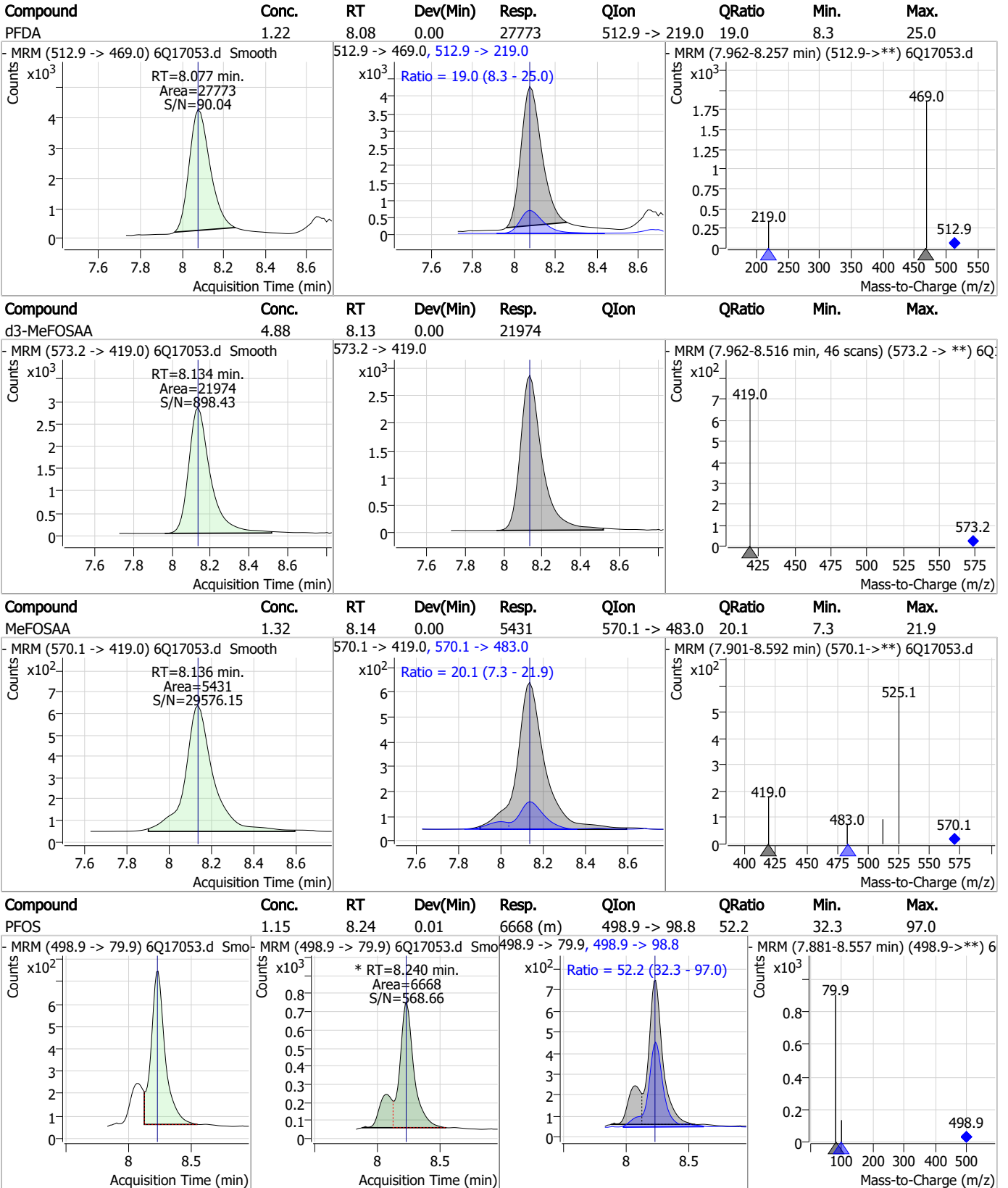
7.6.4
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Perfluorinated Compounds by LC/MS/MS



7.6.4
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Perfluorinated Compounds by LC/MS/MS

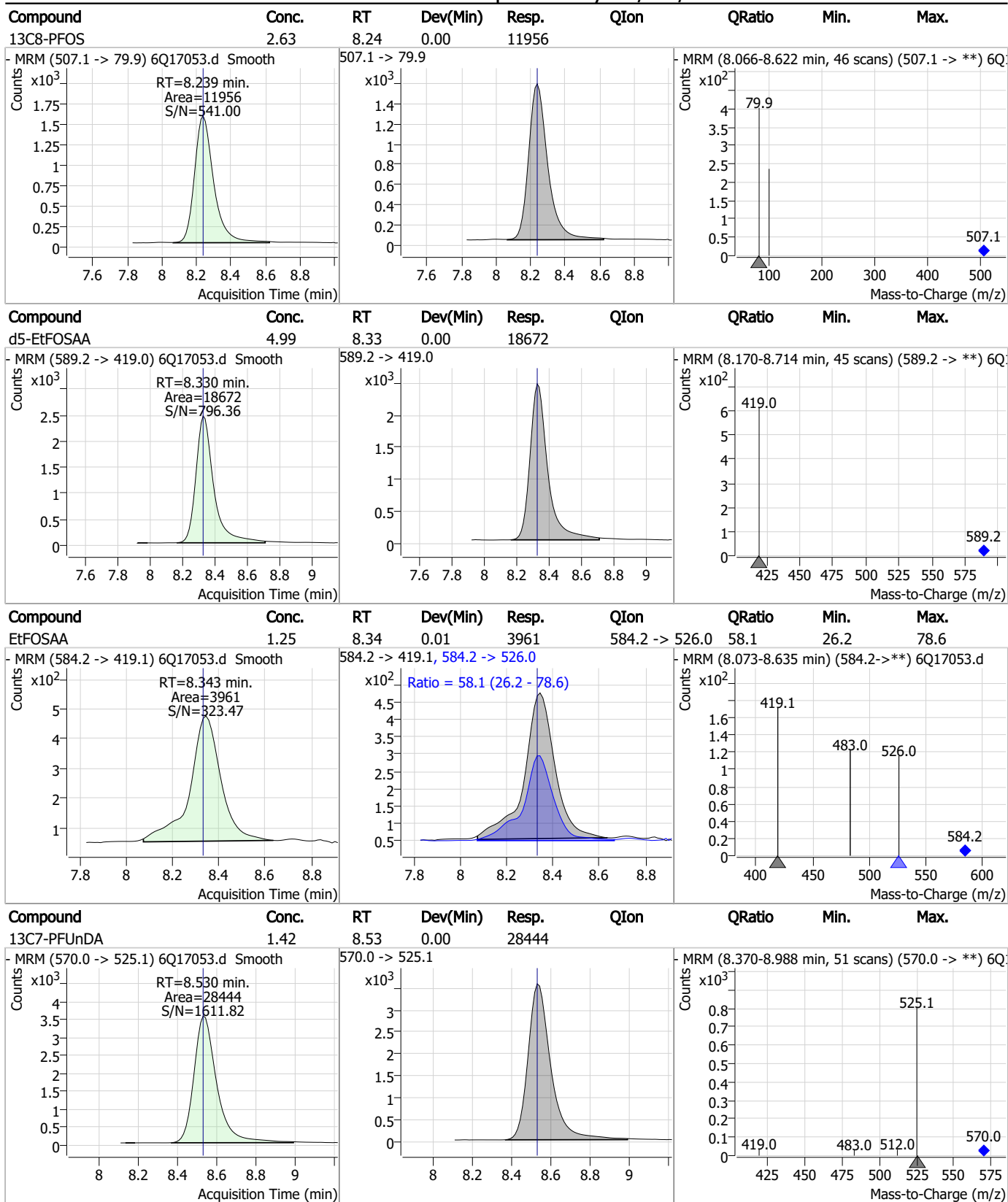


7.6.4

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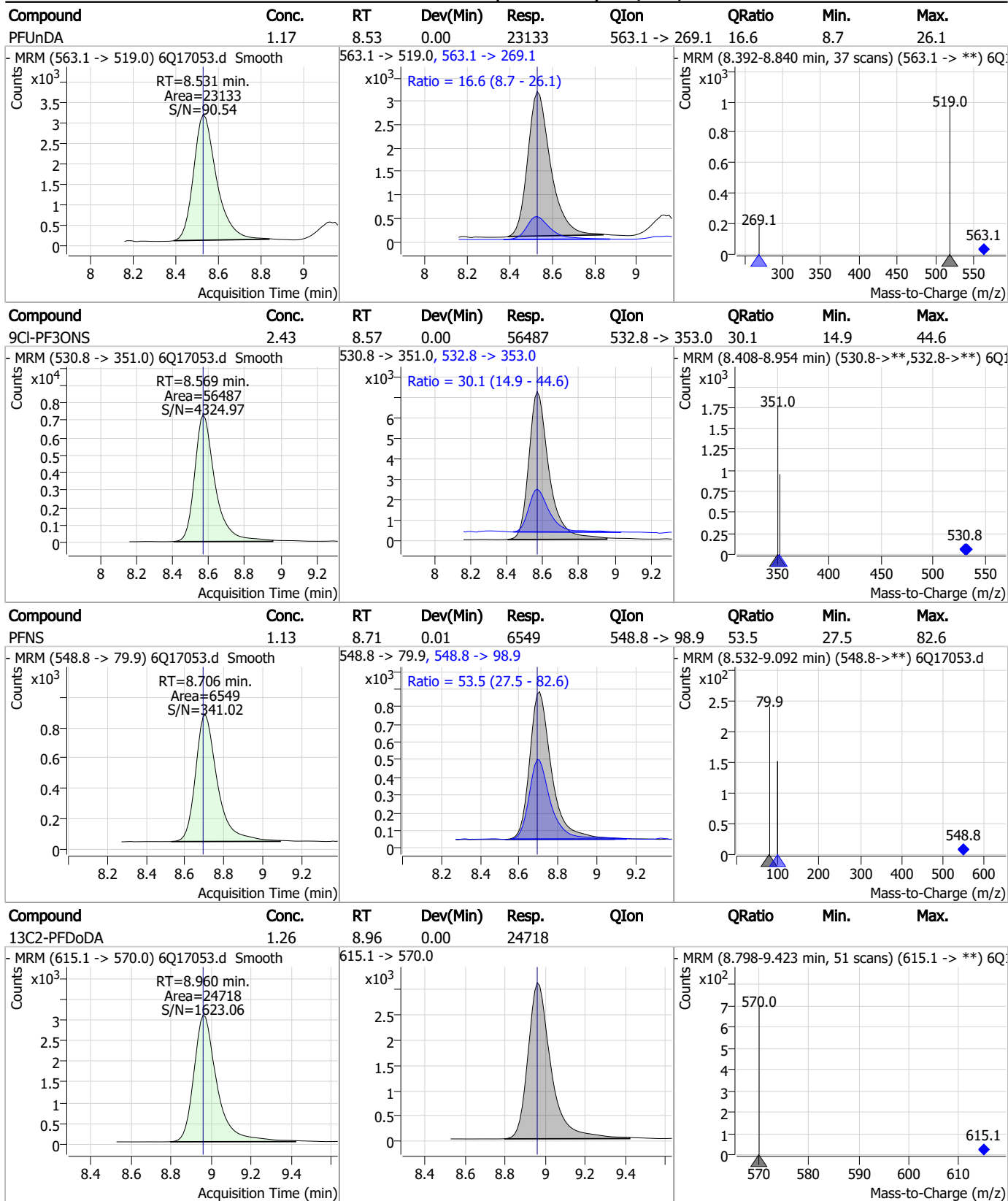
Perfluorinated Compounds by LC/MS/MS



7.6.4

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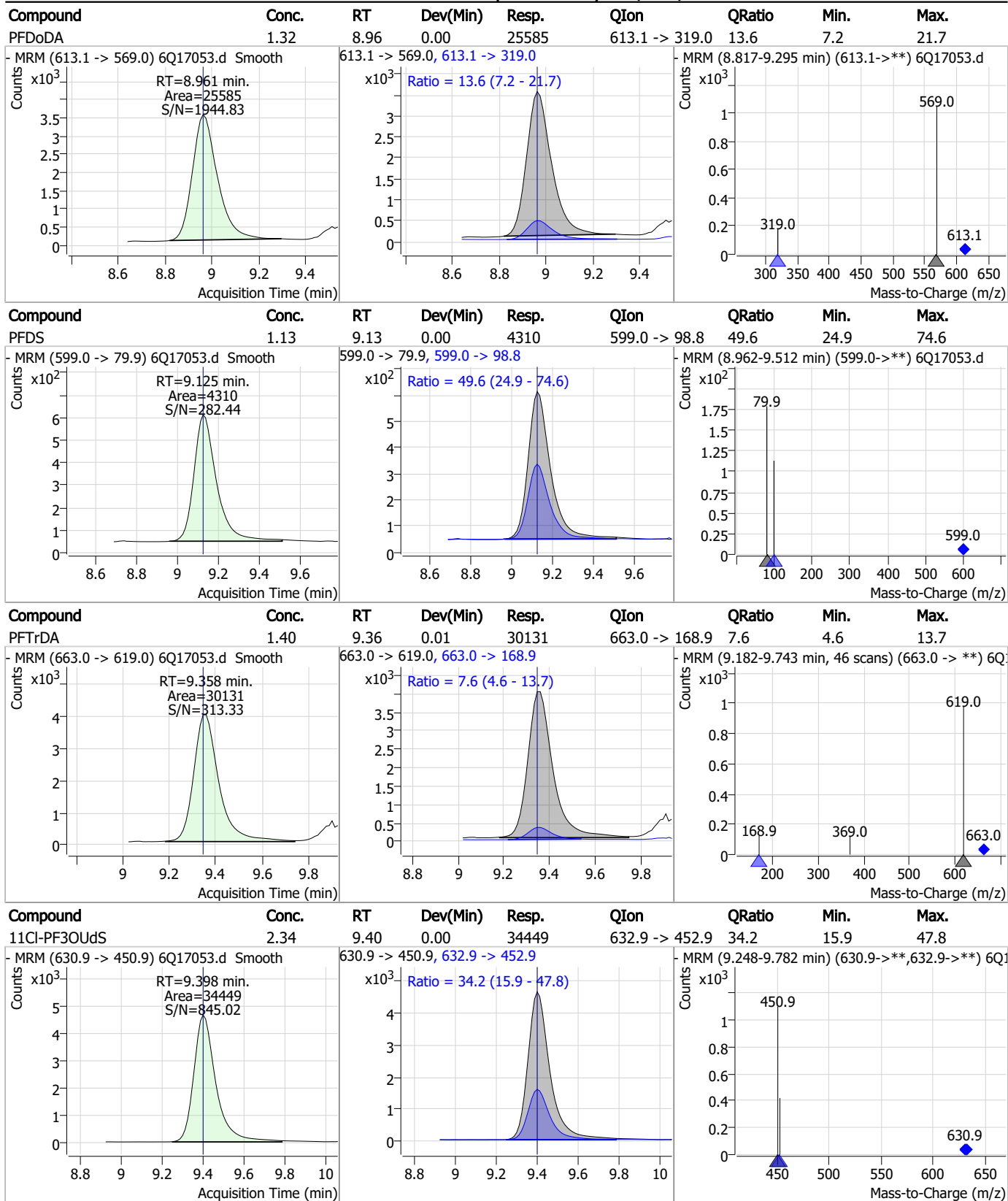
Perfluorinated Compounds by LC/MS/MS



7.6.4

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Perfluorinated Compounds by LC/MS/MS

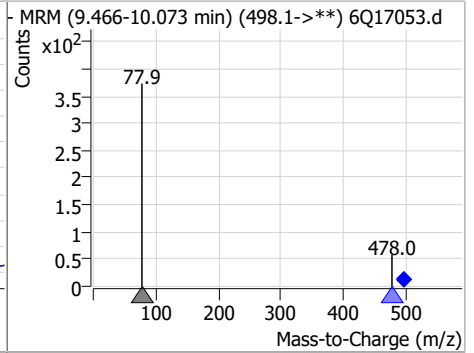
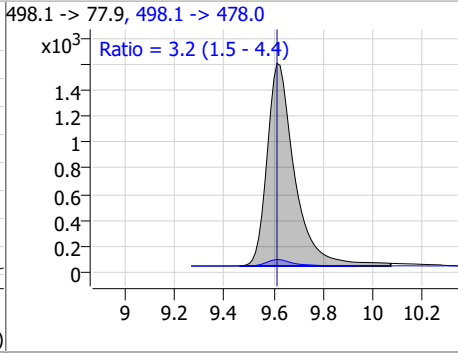
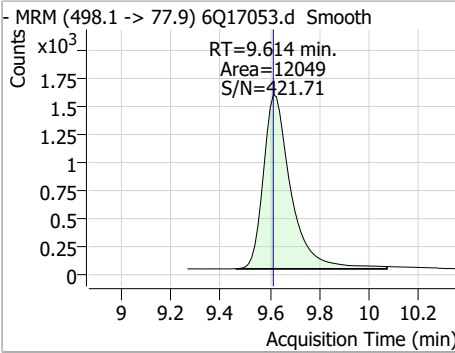


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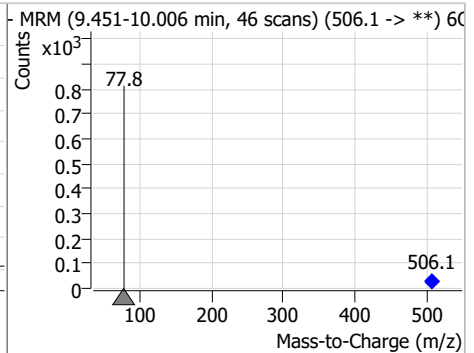
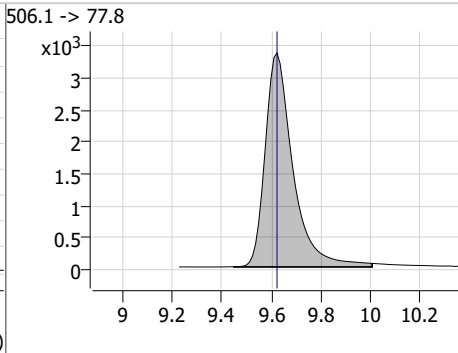
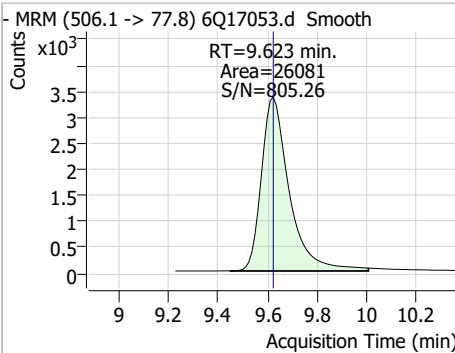
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Perfluorinated Compounds by LC/MS/MS

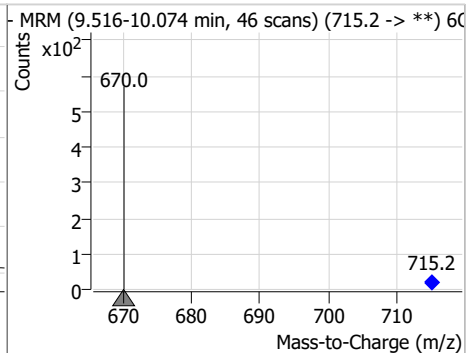
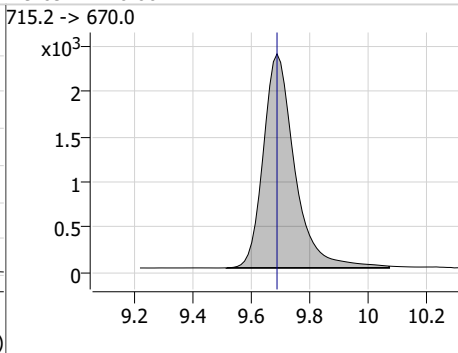
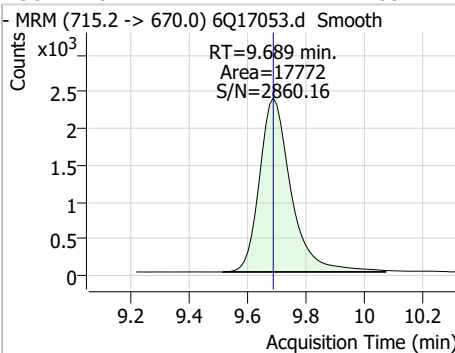
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	1.29	9.61	0.00	12049	498.1 -> 478.0	3.2	1.5	4.4



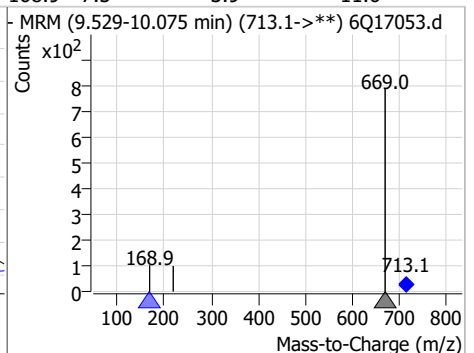
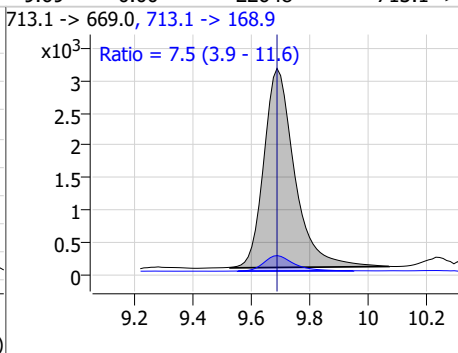
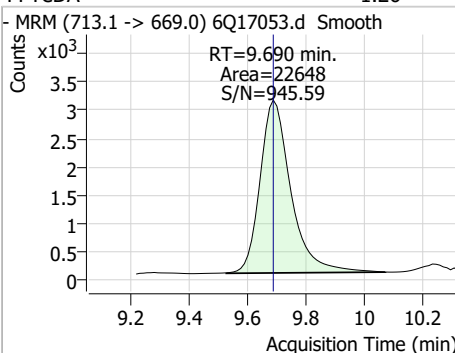
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.61	9.62	0.00	26081				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.33	9.69	0.00	17772				



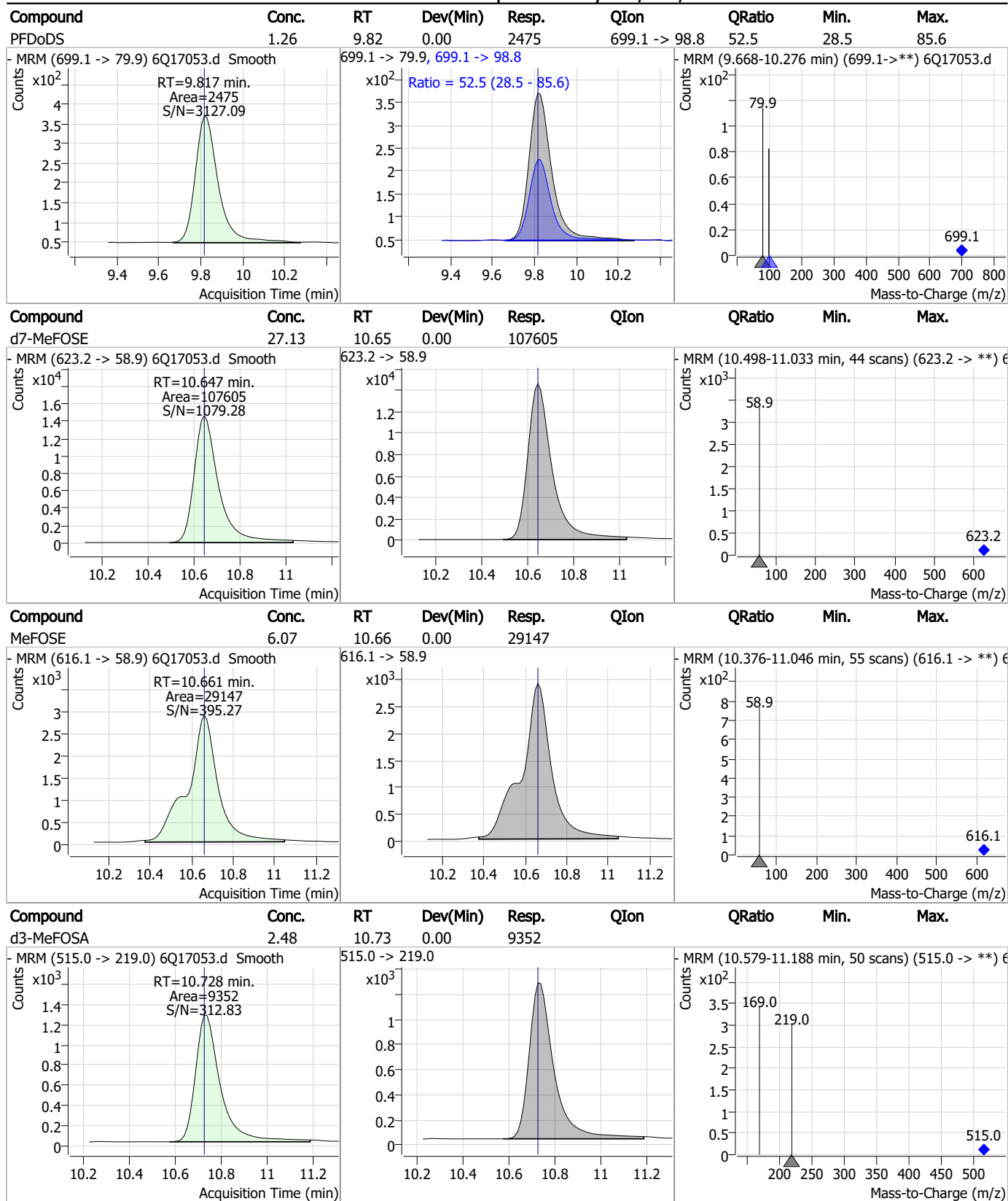
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.26	9.69	0.00	22648	713.1 -> 168.9	7.5	3.9	11.6



7.6.4

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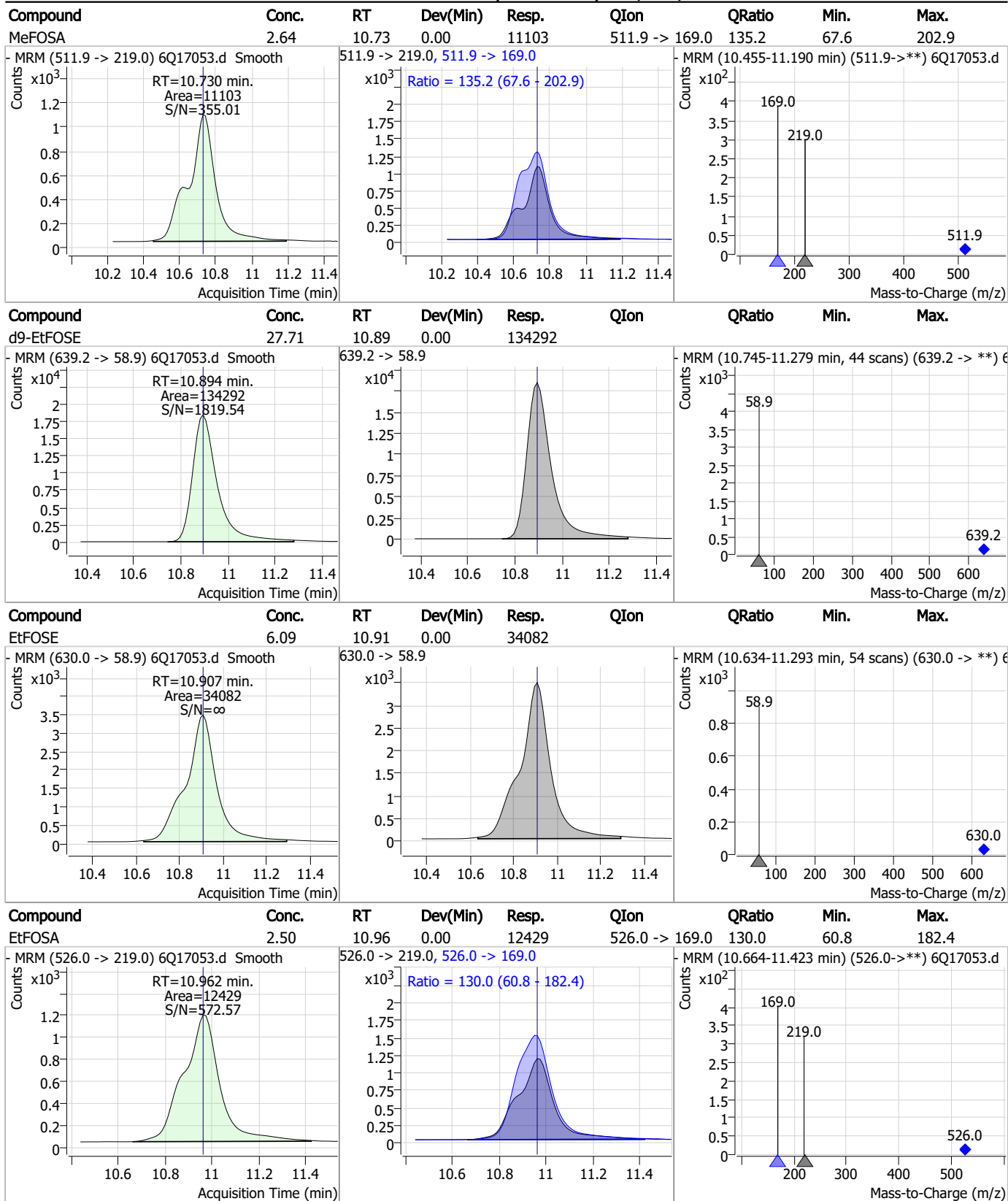
Perfluorinated Compounds by LC/MS/MS



7.6.4

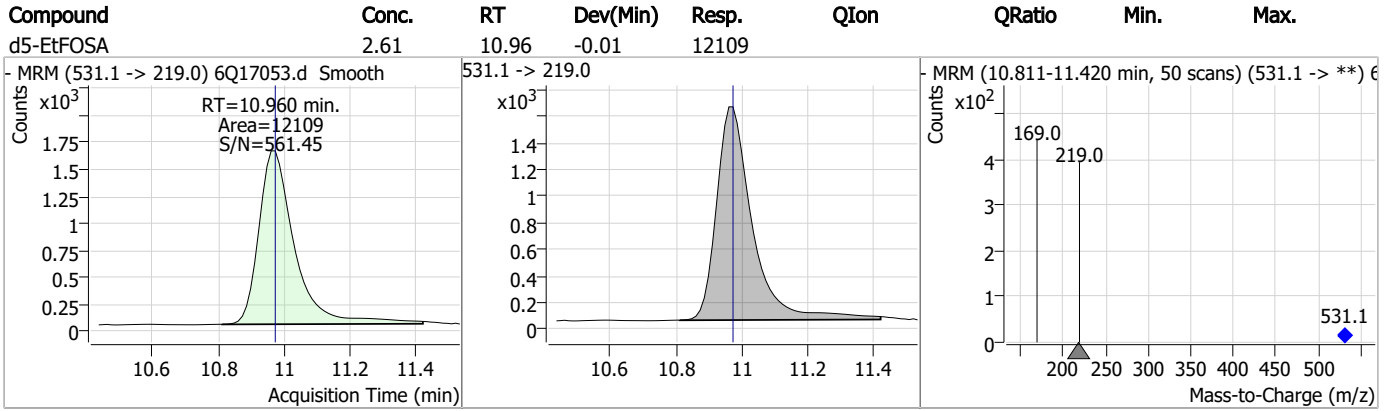
7

Perfluorinated Compounds by LC/MS/MS



7.6.4
7

Perfluorinated Compounds by LC/MS/MS



7.6.4

7

Manual Integration Approval Summary

Sample Number: S6Q258-IC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17053.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 13:19 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.19	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.24	Split peak

7.6.4.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
04/30/23 23:52

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17054.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 1:33:42 PM
 Sample Name : icc258-4
 Vial : P1-A5
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	184703	10.00 µg/L	0.000
M5-PFPeA	4.270	268.3 -> 223.0	64257	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	68171	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	59630	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	86144	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	27345	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	20912	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	25662	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	24665	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	16522	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	24136	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22860	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12221	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	10632	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2112	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2758	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2915	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	22010	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	42432	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	18224	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	96650	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	116881	25.00 µg/L	0.000
M5-EtFOSA	10.973	531.1 -> 219.0	11419	2.50 µg/L	0.000
M3-MeFOSA	10.728	515.0 -> 219.0	9200	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	14764	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	79420	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9502	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	85814	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	24059	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	27794	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	56303	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2112	4.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2758	5.20 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.1%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2915	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C2-PFDoDA	8.960	615.1 -> 570.0	24665	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C2-PFTeDA	9.689	715.2 -> 670.0	16522	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.6%		
13C3-PFBS	5.398	302.1 -> 79.9	22860	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.3%		
13C3-PFHxS	7.179	402.1 -> 79.9	12221	2.42 µg/L	0.000

7.65
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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 = 96.6%	
13C4-PFBA	2.897	216.8 -> 171.9	184703	10.06 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C4-PFHpA	6.419	367.1 -> 322.0	59630	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C5-PFHxA	5.468	318.0 -> 273.0	68171	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C5-PFPeA	4.270	268.3 -> 223.0	64257	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C6-PFDA	8.076	519.1 -> 474.1	20912	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C7-PFUnDA	8.530	570.0 -> 525.1	25662	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C8-FOSA	9.623	506.1 -> 77.8	24136	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C8-PFOA	7.062	421.1 -> 376.0	86144	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C8-PFOS	8.239	507.1 -> 79.9	10632	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.6%	
13C9-PFNA	7.594	472.1 -> 427.0	27345	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.2%	
d3-MeFOSAA	8.134	573.2 -> 419.0	22010	5.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	42432	10.65 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.5%	
d3-MeFOSA	10.728	515.0 -> 219.0	9200	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
d5-EtFOSAA	8.330	589.2 -> 419.0	18224	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
d7-MeFOSE	10.647	623.2 -> 58.9	96650	24.94 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
d9-EtFOSE	10.894	639.2 -> 58.9	116881	24.69 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
d5-EtFOSA	10.973	531.1 -> 219.0	11419	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	31634	9.90 µg/L	99
		327.1 -> 80.9	11565		
6:2FTS	6.839	427.1 -> 407.0	29224	9.63 µg/L	96
		427.1 -> 80.9	9755		
8:2FTS	7.865	527.1 -> 507.0	15642	9.02 µg/L	97
		527.1 -> 80.8	6632		
EtFOSAA	8.331	584.2 -> 419.1	7450	2.41 µg/L	99
		584.2 -> 526.0	3971		
FOSA	9.614	498.1 -> 77.9	22474	2.60 µg/L	100
		498.1 -> 478.0	660		
MeFOSAA	8.136	570.1 -> 419.0	10904	2.64 µg/L	93
		570.1 -> 483.0	1913		
PFBA	2.906	212.8 -> 168.9	61789	9.97 µg/L	100
PFBS	5.400	298.7 -> 79.9	22126	2.16 µg/L	97
		298.7 -> 98.8	8757		
PFDA	8.077	512.9 -> 469.0	56192	2.47 µg/L	99
		512.9 -> 219.0	9652		
PFDODA	8.961	613.1 -> 569.0	48944	2.53 µg/L	98
		613.1 -> 319.0	6726		
PFDS	9.125	599.0 -> 79.9	9122	2.69 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	4569			
PFHpA	6.420	363.1 -> 319.0	74210	2.52	µg/L	97
		363.1 -> 169.0	11979			
PFHpS	7.734	449.0 -> 79.9	14210	2.47	µg/L	97
		449.0 -> 98.9	6874			
PFHxA	5.470	313.0 -> 269.0	69863	2.59	µg/L	100
		313.0 -> 118.9	3277			
PFHxS	7.180	398.7 -> 79.9	15681	2.35	µg/L	m 98
		398.7 -> 98.9	7867			
PFNA	7.595	463.0 -> 419.0	48450	2.56	µg/L	98
		463.0 -> 219.0	9629			
PFNS	8.694	548.8 -> 79.9	13122	2.56	µg/L	96
		548.8 -> 98.9	6808			
PFOA	7.063	413.0 -> 369.0	92206	2.28	µg/L	m 99
		413.0 -> 169.0	16505			
PFOS	8.228	498.9 -> 79.9	12592	2.45	µg/L	m 82
		498.9 -> 98.8	6356			
PFPeA	4.273	263.0 -> 219.0	89627	5.12	µg/L	100
PFPeS	6.484	349.1 -> 79.9	17271	2.48	µg/L	95
		349.1 -> 98.9	7790			
PFTeDA	9.690	713.1 -> 669.0	44428	2.66	µg/L	100
		713.1 -> 168.9	3381			
PFTrDA	9.345	663.0 -> 619.0	56915	2.66	µg/L	99
		663.0 -> 168.9	4995			
PFUnDA	8.531	563.1 -> 519.0	45629	2.56	µg/L	98
		563.1 -> 269.1	7616			
11CI-PF3OUdS	9.398	630.9 -> 450.9	62380	4.28	µg/L	96
		632.9 -> 452.9	21239			
9CI-PF3ONS	8.569	530.8 -> 351.0	99628	4.33	µg/L	92
		532.8 -> 353.0	34108			
ADONA	6.681	376.9 -> 250.9	300603	4.69	µg/L	98
		376.9 -> 84.8	80229			
HFPO-DA	5.846	284.9 -> 168.9	19987	4.97	µg/L	94
		284.9 -> 184.9	2276			
3:3FTCA	3.784	241.0 -> 177.0	13690	12.51	µg/L	100
		241.0 -> 117.0	1805			
5:3FTCA	6.147	341.0 -> 237.1	275832	63.24	µg/L	90
		341.0 -> 217.0	207449			
7:3FTCA	7.573	441.0 -> 316.9	127781	64.48	µg/L	98
		441.0 -> 336.9	271844			
EtFOSA	10.962	526.0 -> 219.0	23501	5.01	µg/L	96
		526.0 -> 169.0	27543			
EtFOSE	10.907	630.0 -> 58.9	63011	12.95	µg/L	100
MeFOSA	10.730	511.9 -> 219.0	20684	5.00	µg/L	98
		511.9 -> 169.0	27591			
MeFOSE	10.661	616.1 -> 58.9	55974	12.99	µg/L	100
PFDoDS	9.817	699.1 -> 79.9	4426	2.53	µg/L	98
		699.1 -> 98.8	2609			
NFDHA	5.350	295.0 -> 201.0	15515	5.31	µg/L	96
		295.0 -> 84.9	4053			
PFMBA	4.687	279.0 -> 85.1	58229	4.96	µg/L	100
PFMPA	3.438	229.0 -> 84.9	44504	5.08	µg/L	100
PFEESA	5.937	314.8 -> 134.9	154629	4.55	µg/L	99
		314.8 -> 82.9	5261			

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

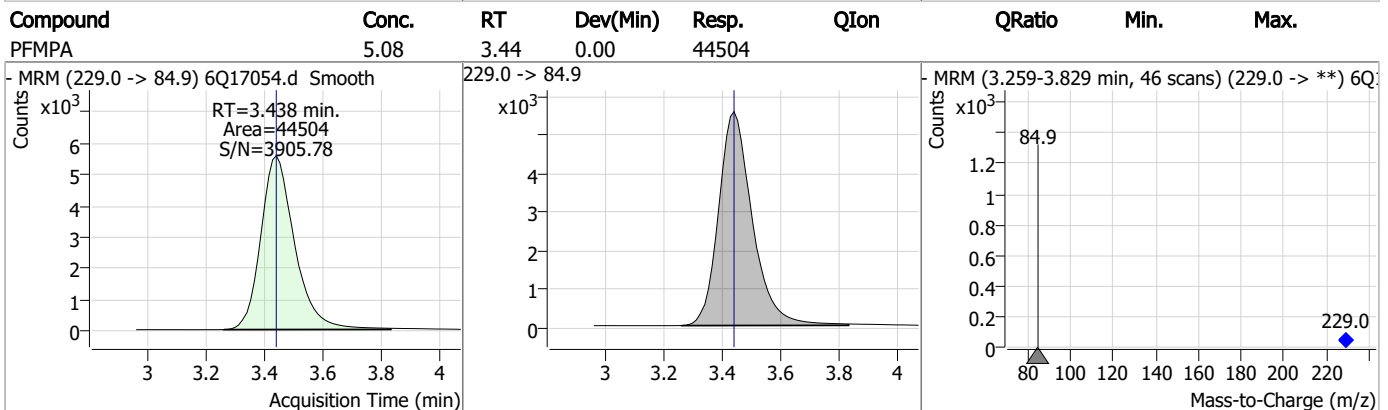
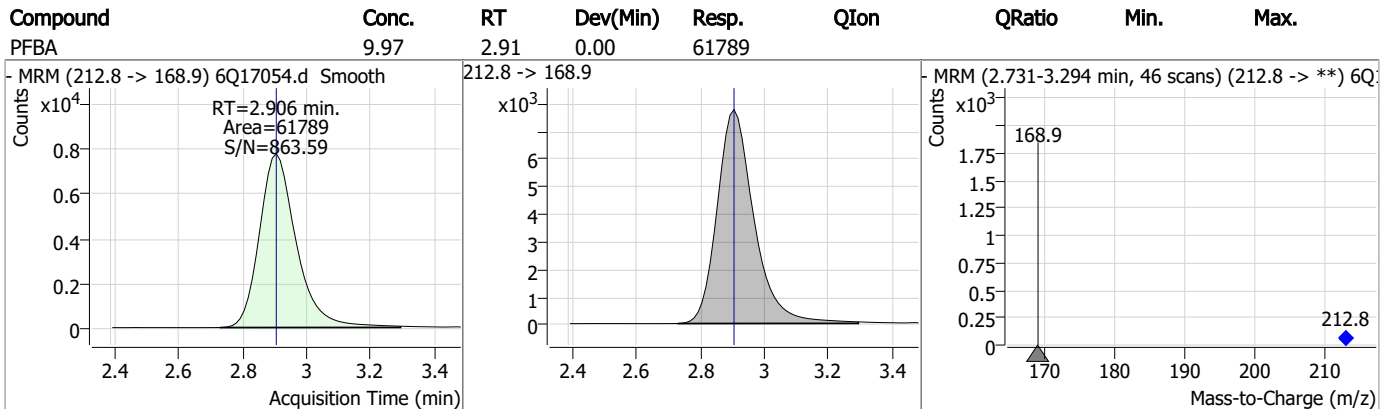
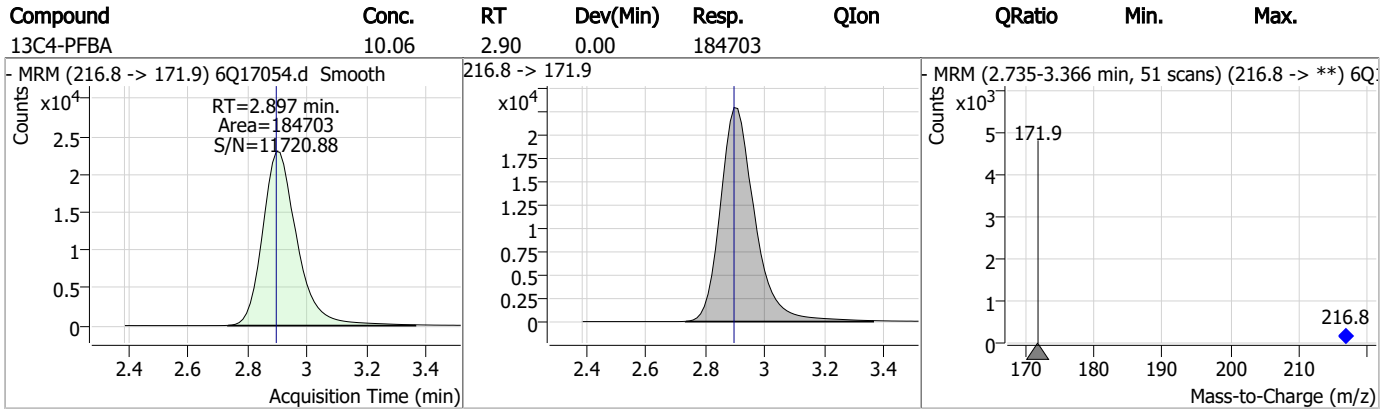
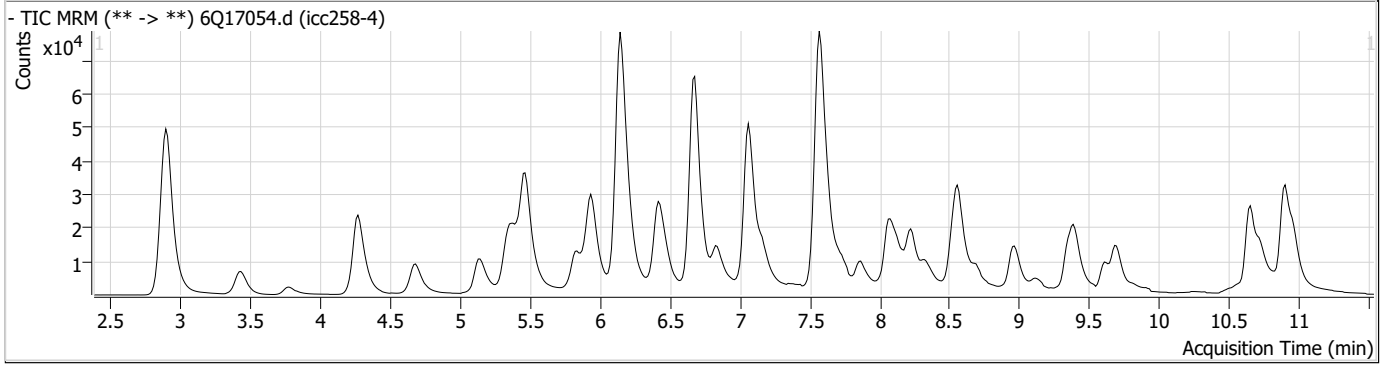
Perfluorinated Compounds by LC/MS/MS

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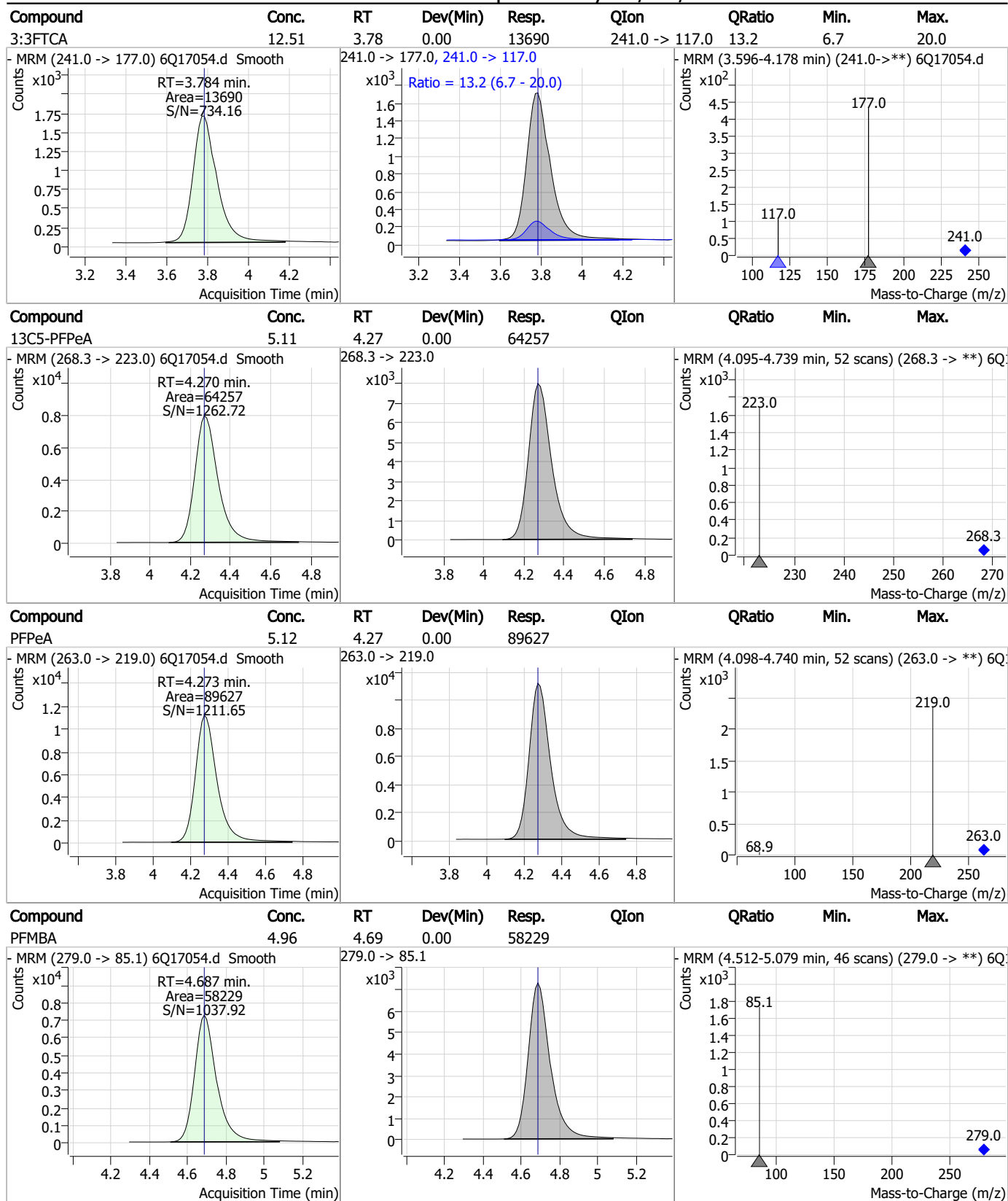
7.6.5
7



Perfluorinated Compounds by LC/MS/MS



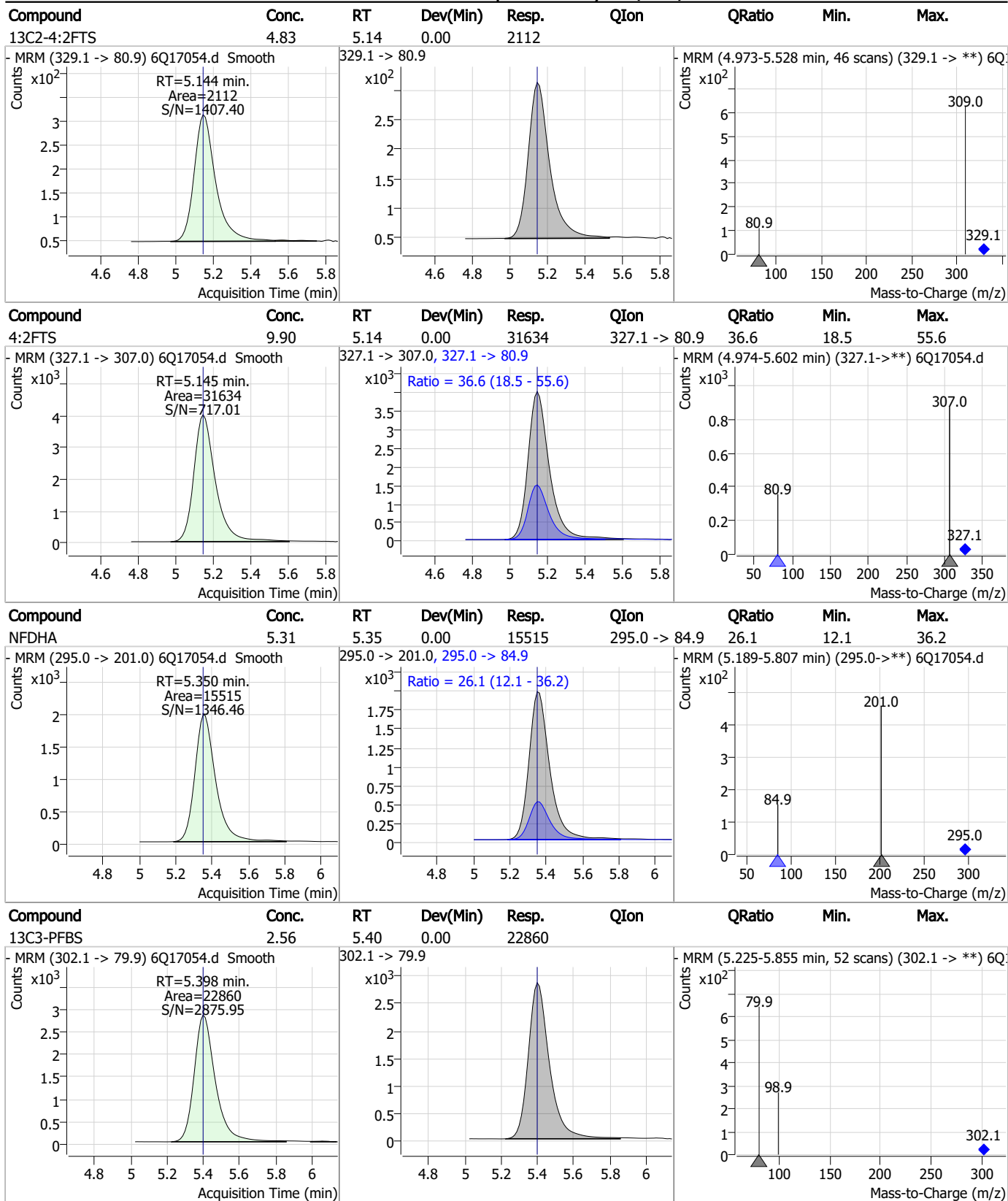
Perfluorinated Compounds by LC/MS/MS



7.6.5

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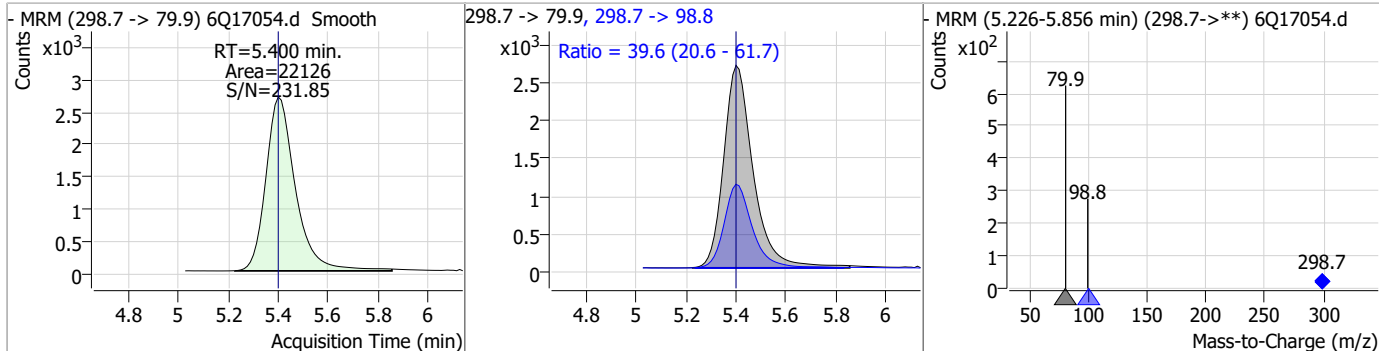
Perfluorinated Compounds by LC/MS/MS



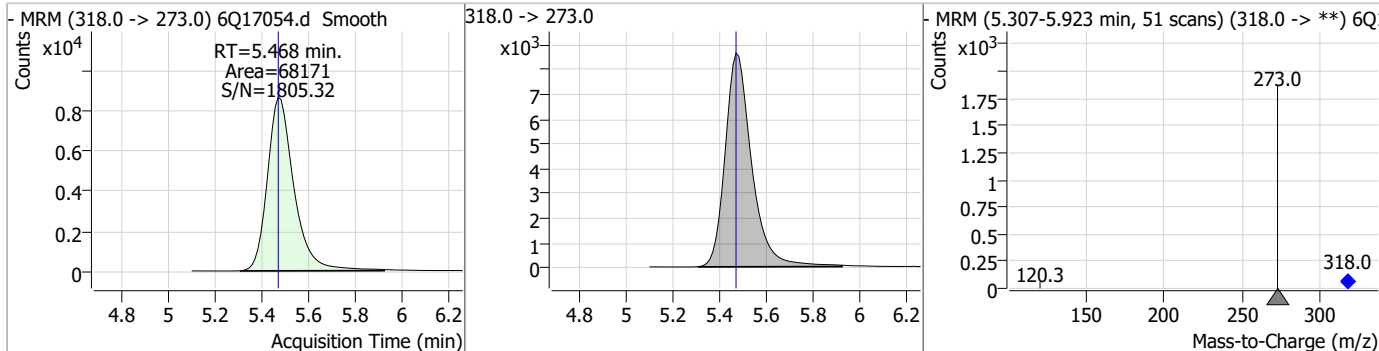
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Perfluorinated Compounds by LC/MS/MS

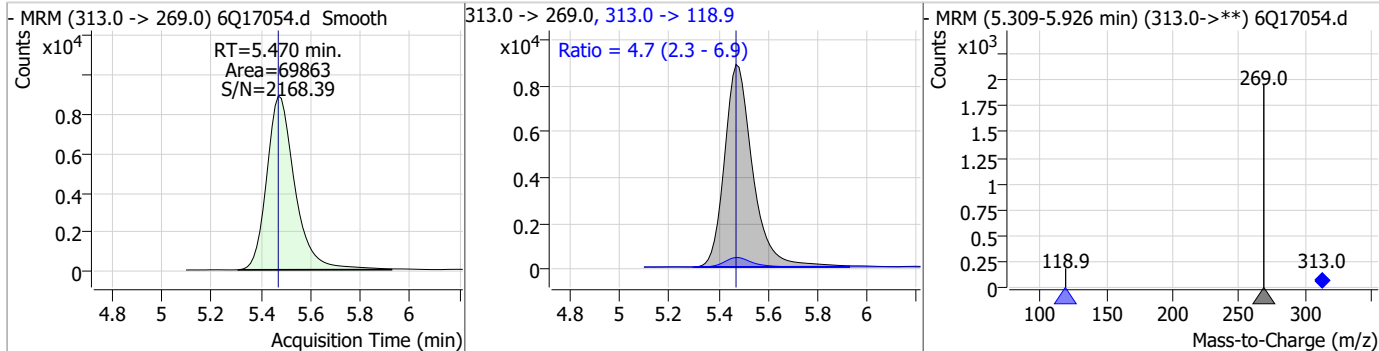
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.16	5.40	0.00	22126	298.7 -> 98.8	39.6	20.6	61.7



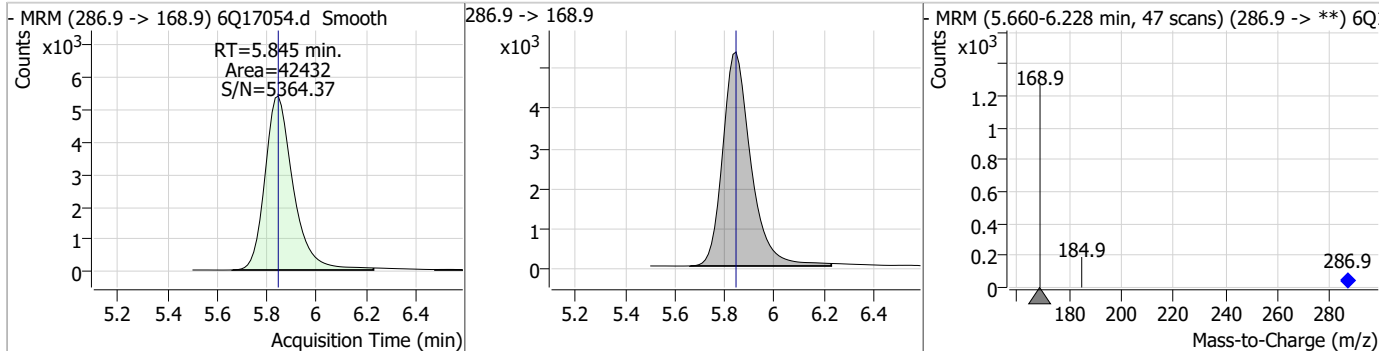
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.51	5.47	0.00	68171				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.59	5.47	0.00	69863	313.0 -> 118.9	4.7	2.3	6.9

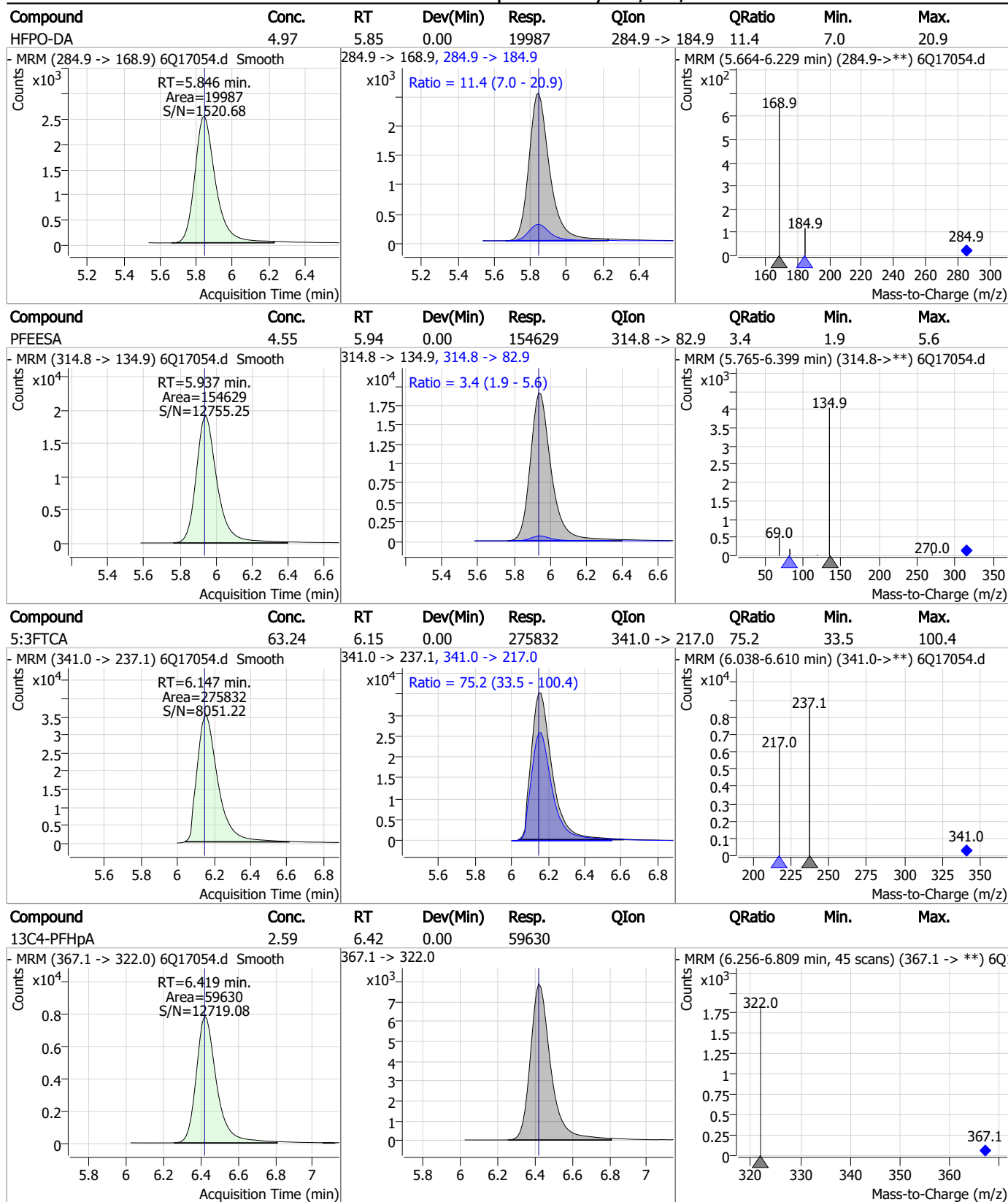


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.65	5.85	0.00	42432				



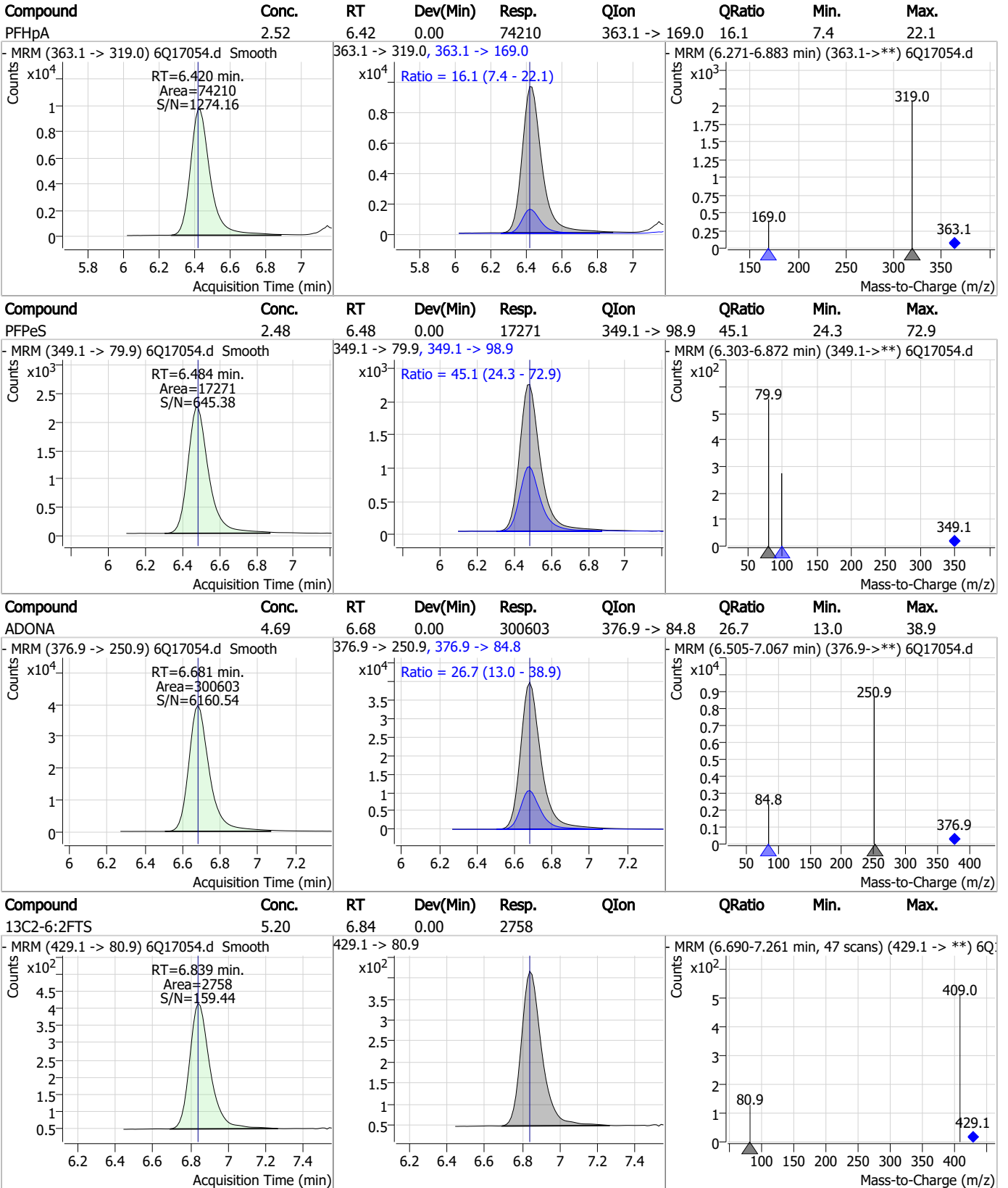
7.6.5
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Perfluorinated Compounds by LC/MS/MS



7.6.5
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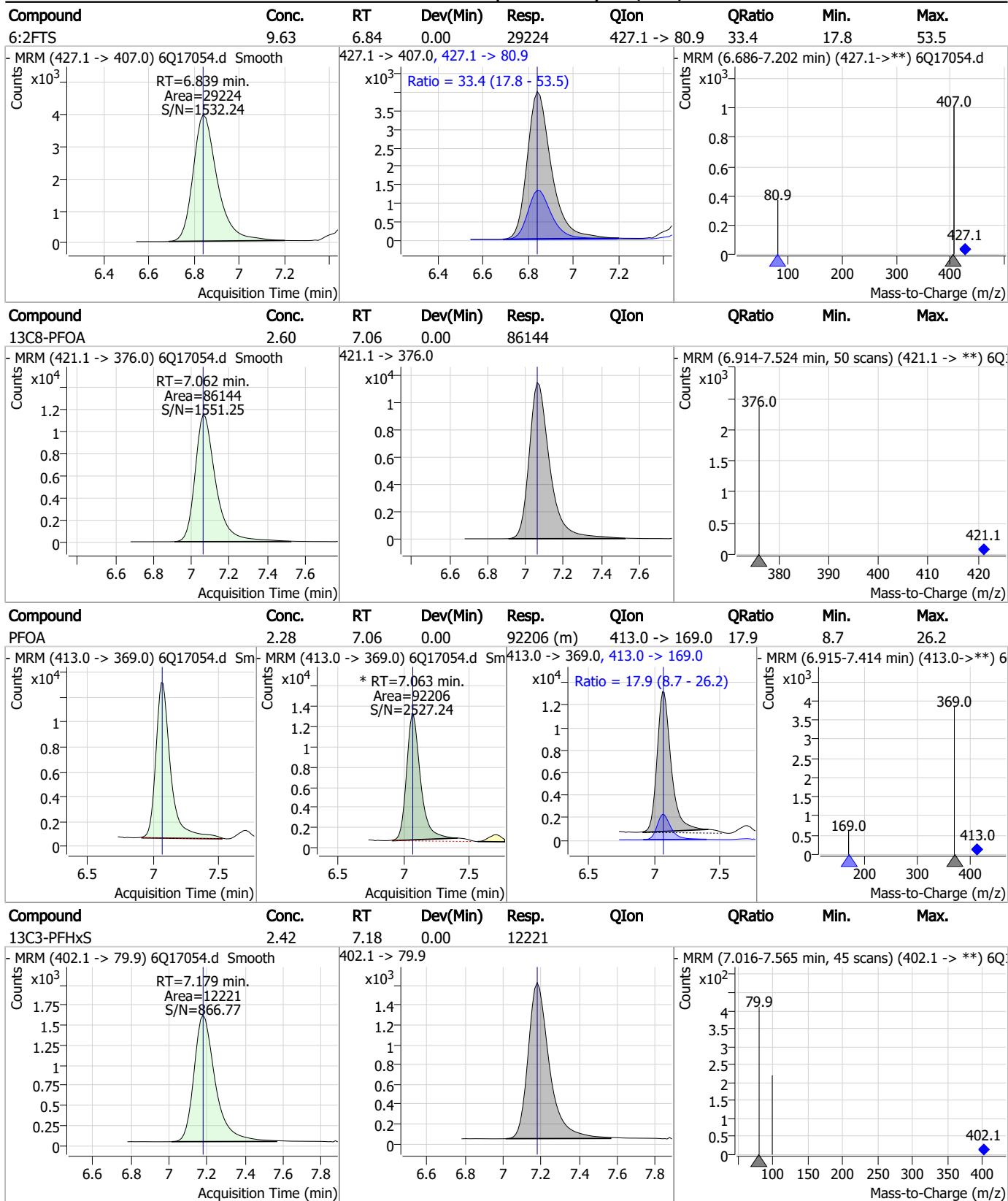
Perfluorinated Compounds by LC/MS/MS



7.6.5

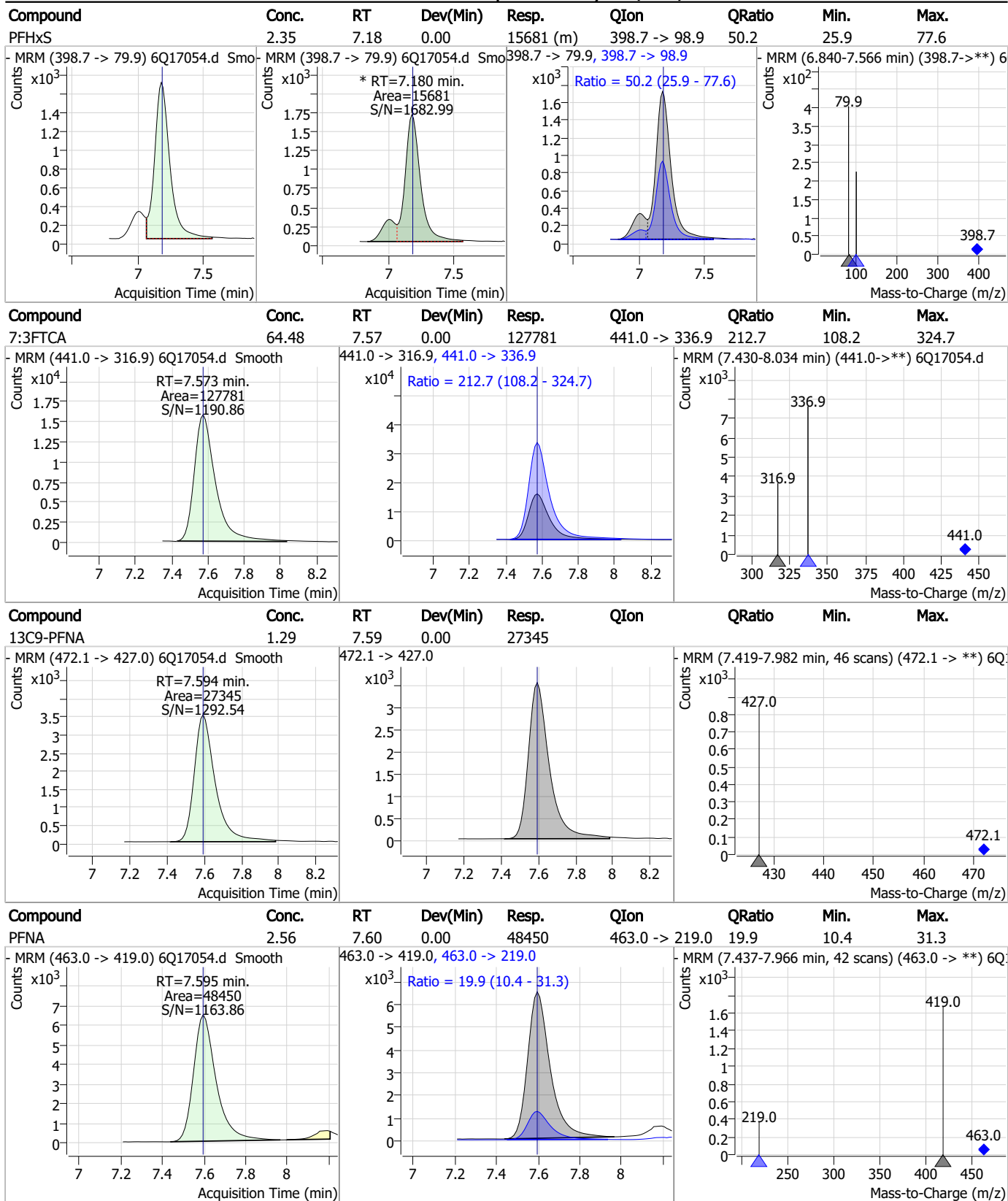
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Perfluorinated Compounds by LC/MS/MS



7.6.5
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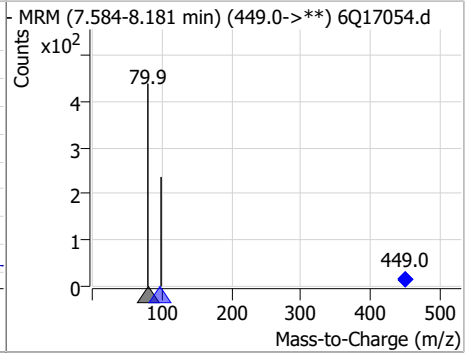
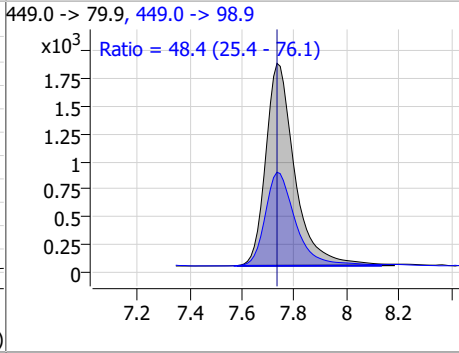
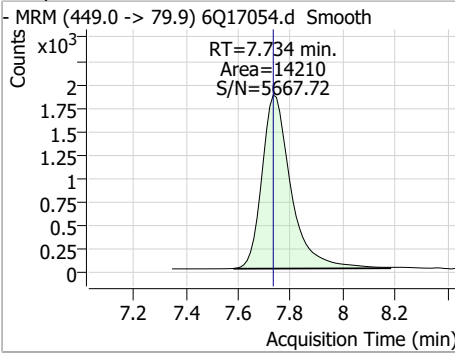
Perfluorinated Compounds by LC/MS/MS



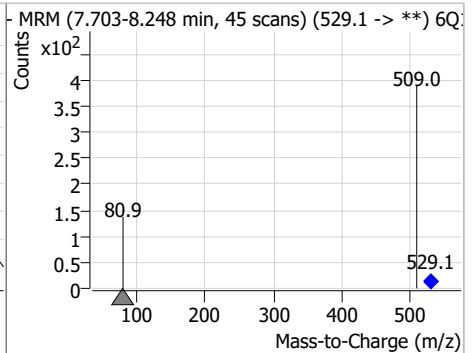
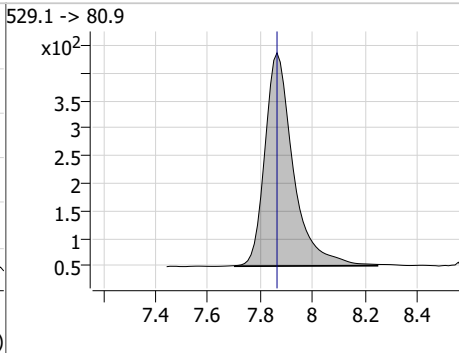
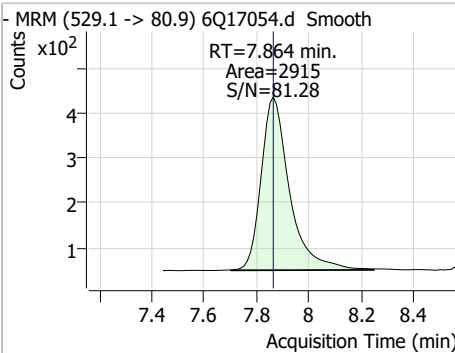
7.6.5
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Perfluorinated Compounds by LC/MS/MS

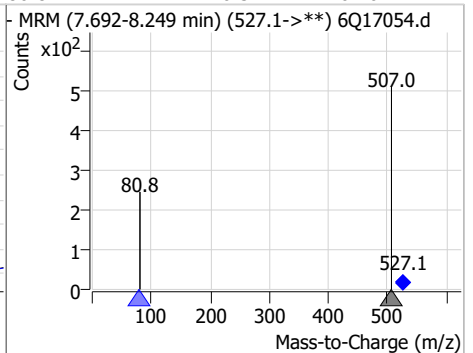
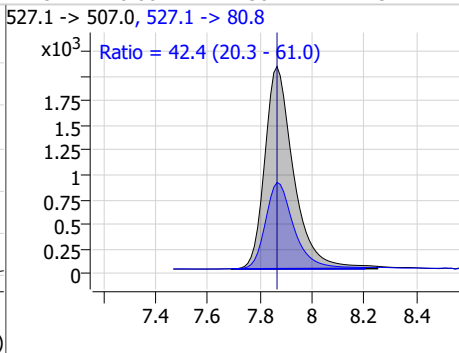
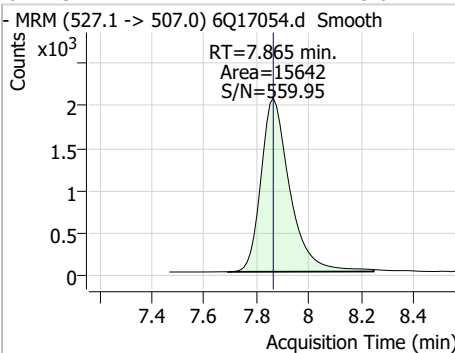
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.47	7.73	0.00	14210	449.0 -> 98.9	48.4	25.4	76.1



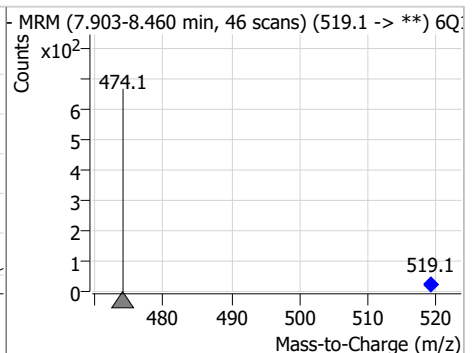
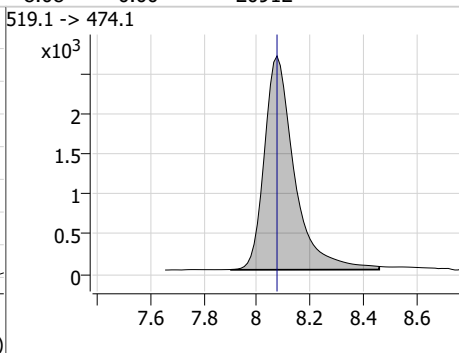
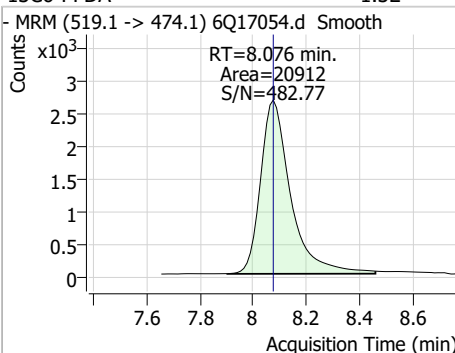
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.11	7.86	0.00	2915	529.1 -> 80.9	42.4	20.3	61.0



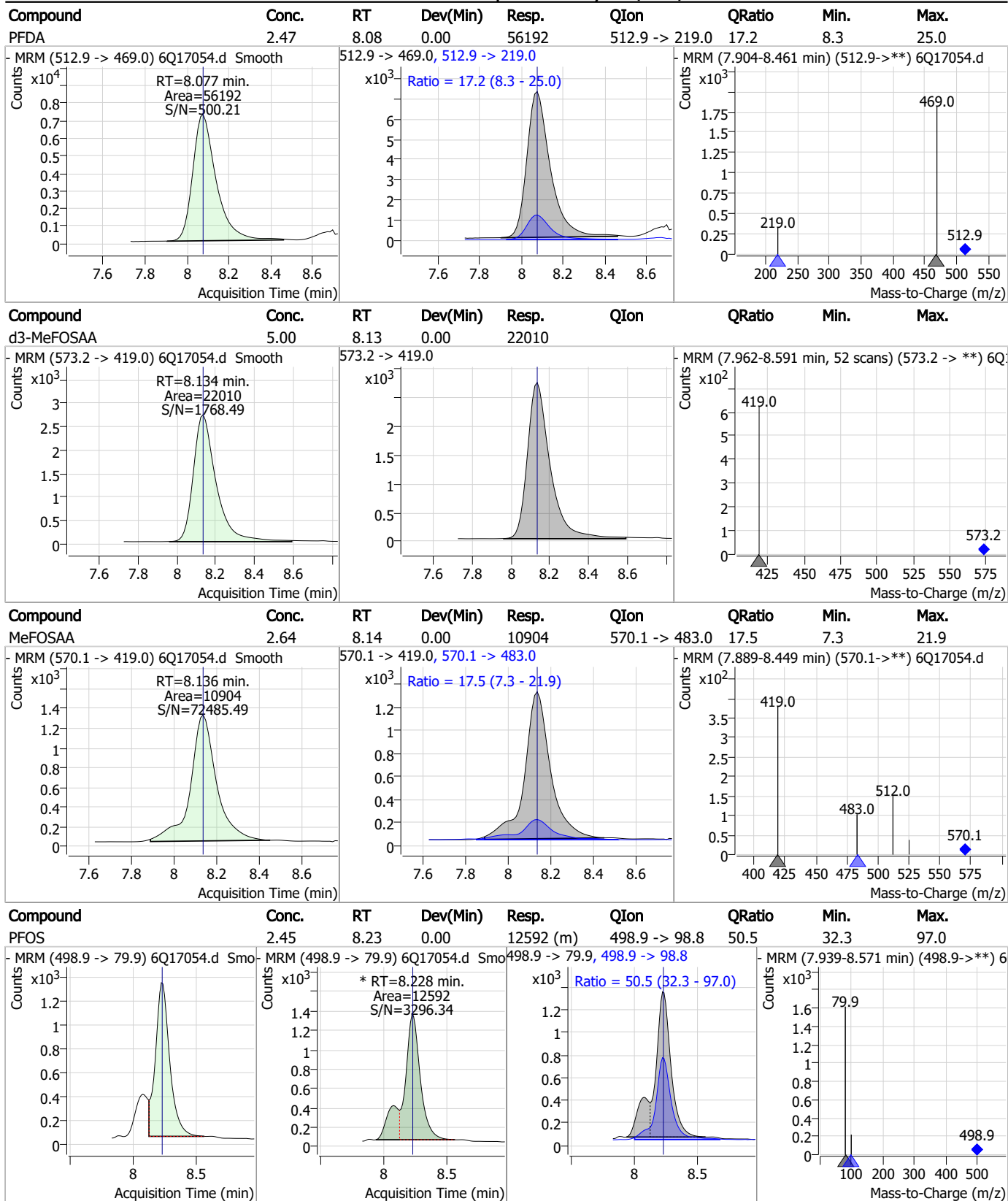
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	9.02	7.87	0.00	15642	527.1 -> 80.8	42.4	20.3	61.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.32	8.08	0.00	20912	519.1 -> 474.1	42.4	20.3	61.0

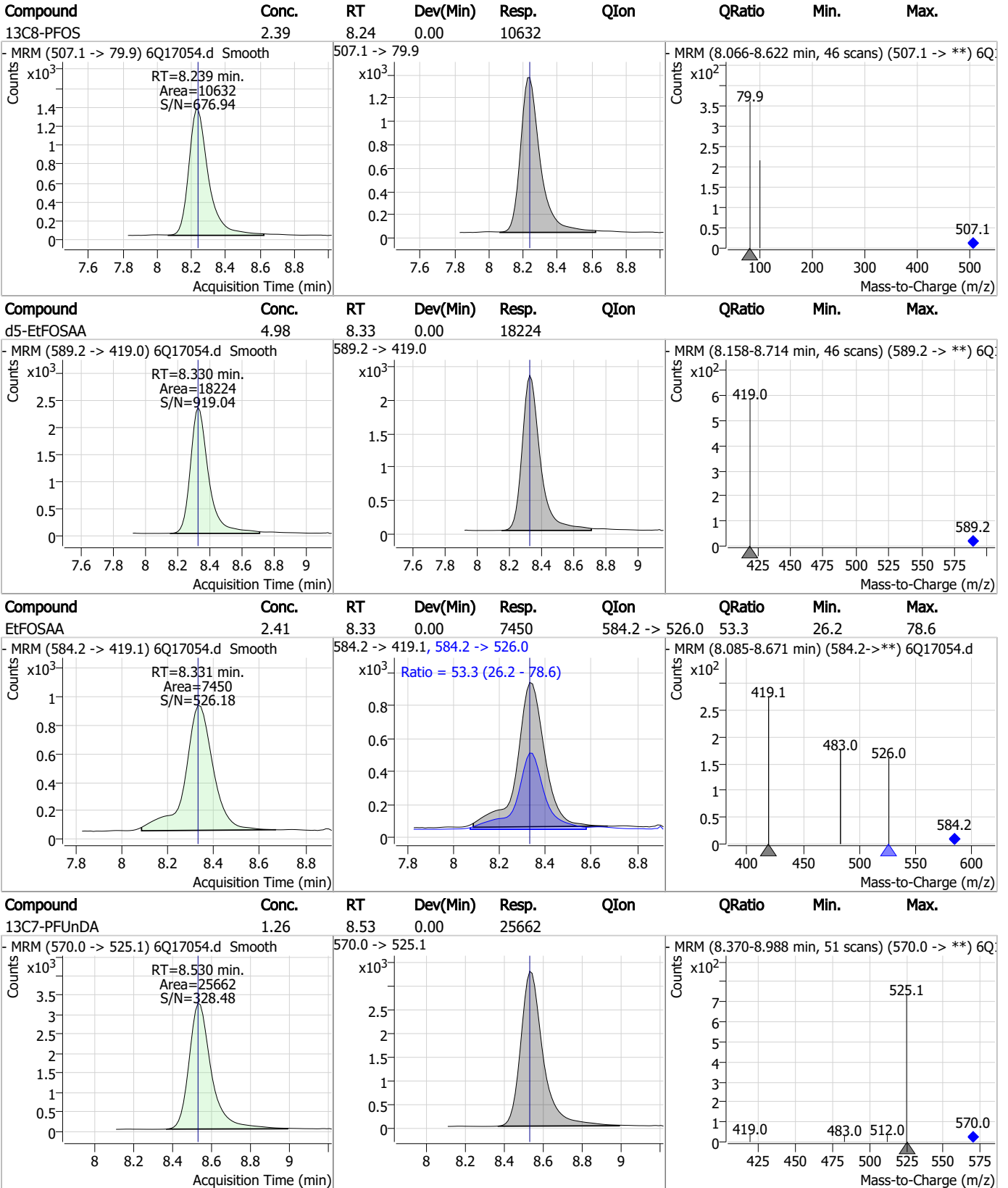


Perfluorinated Compounds by LC/MS/MS



7.6.5
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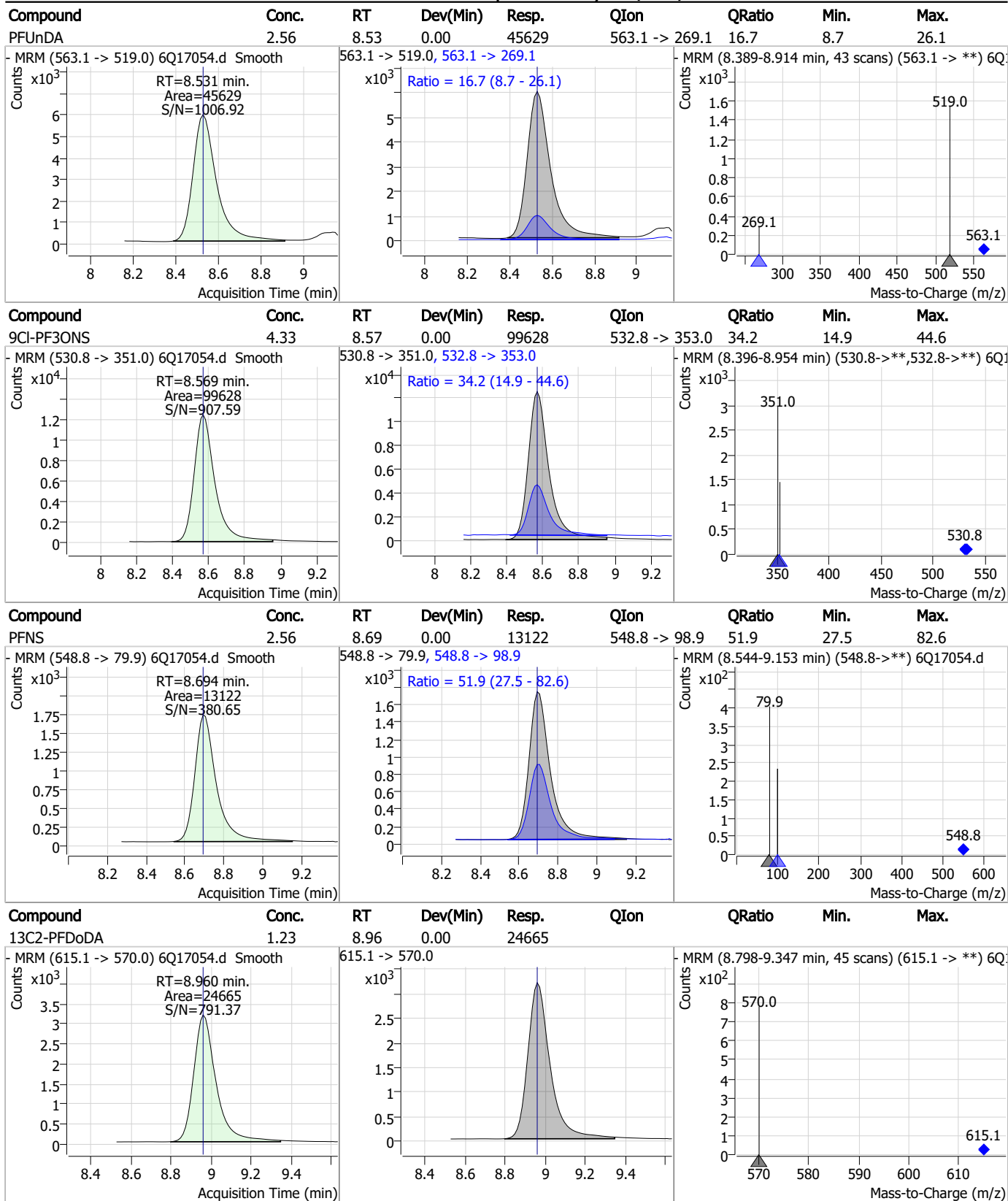
Perfluorinated Compounds by LC/MS/MS



7.6.5

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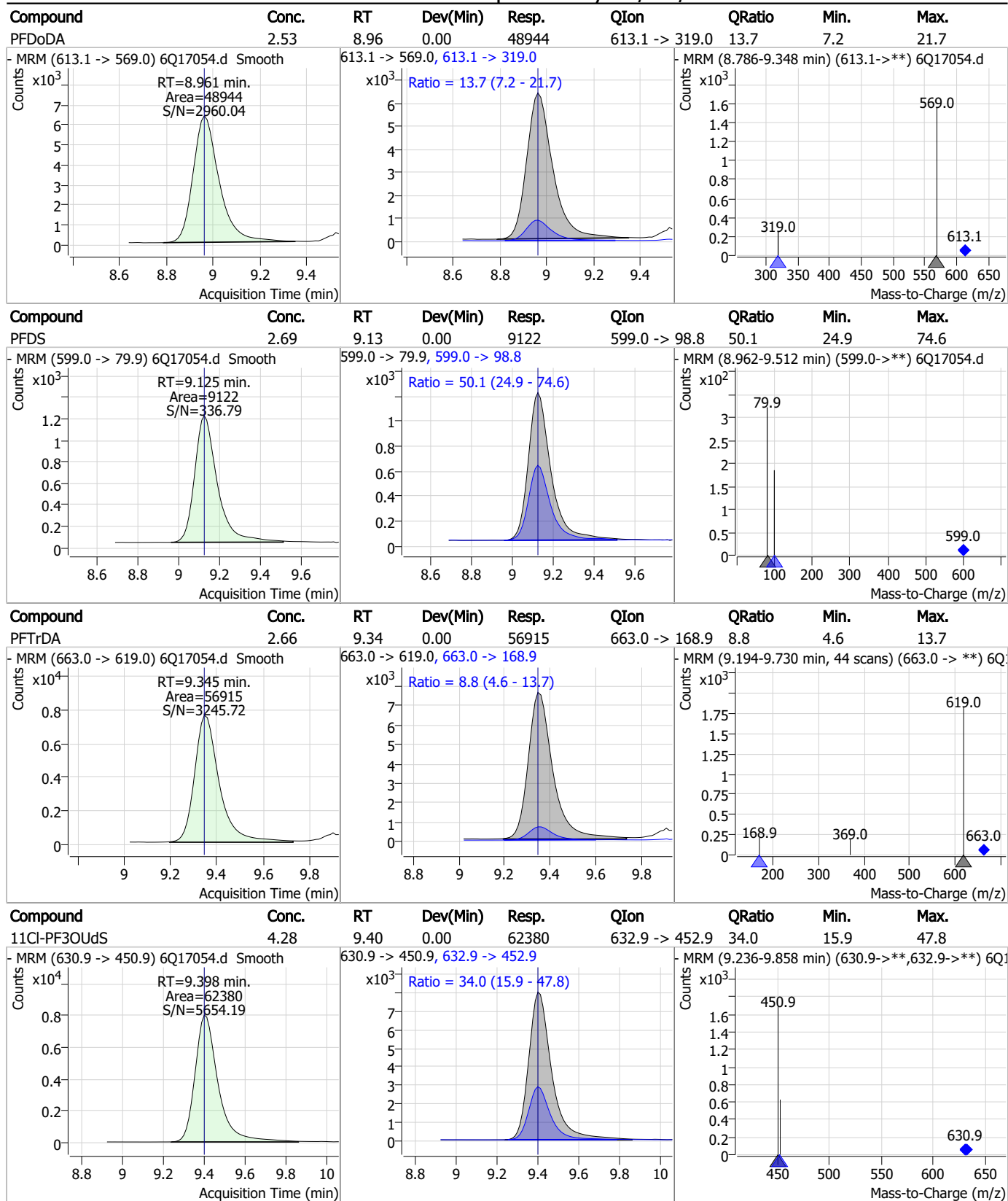
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

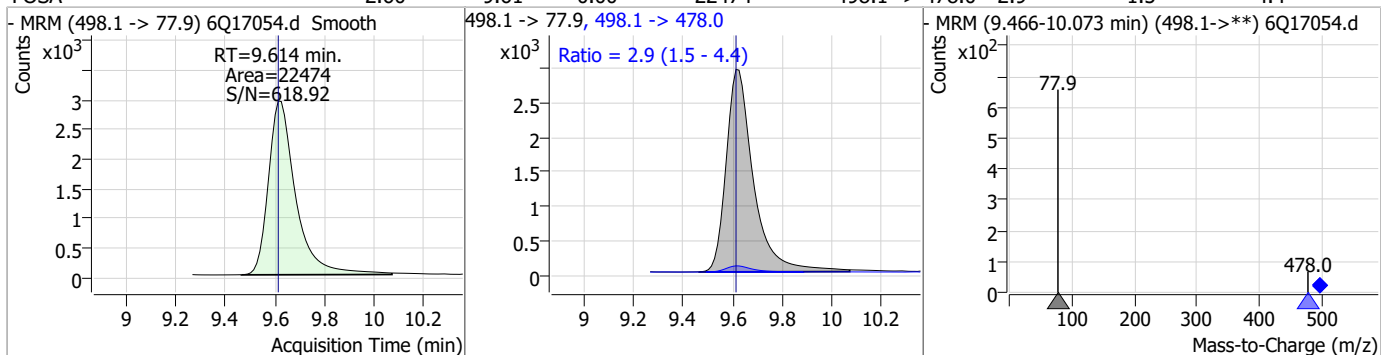


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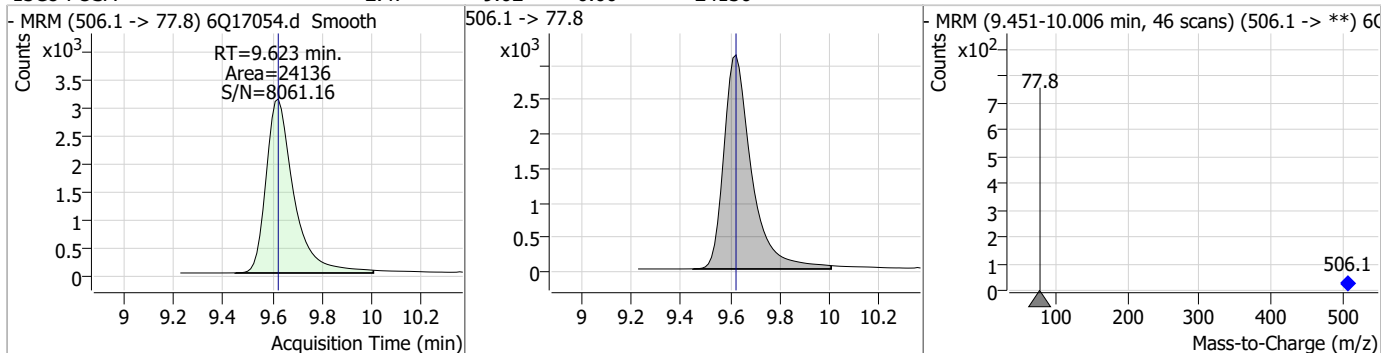
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Perfluorinated Compounds by LC/MS/MS

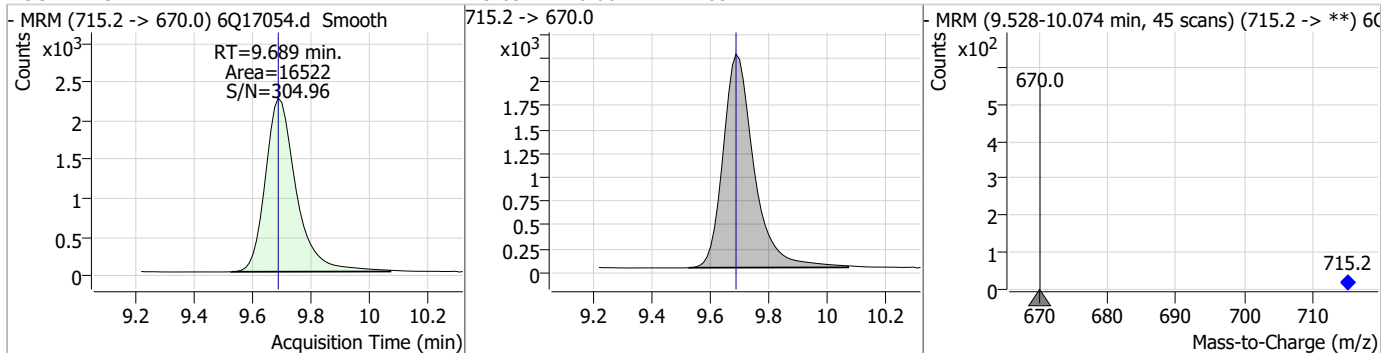
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.60	9.61	0.00	22474	498.1 -> 478.0	2.9	1.5	4.4



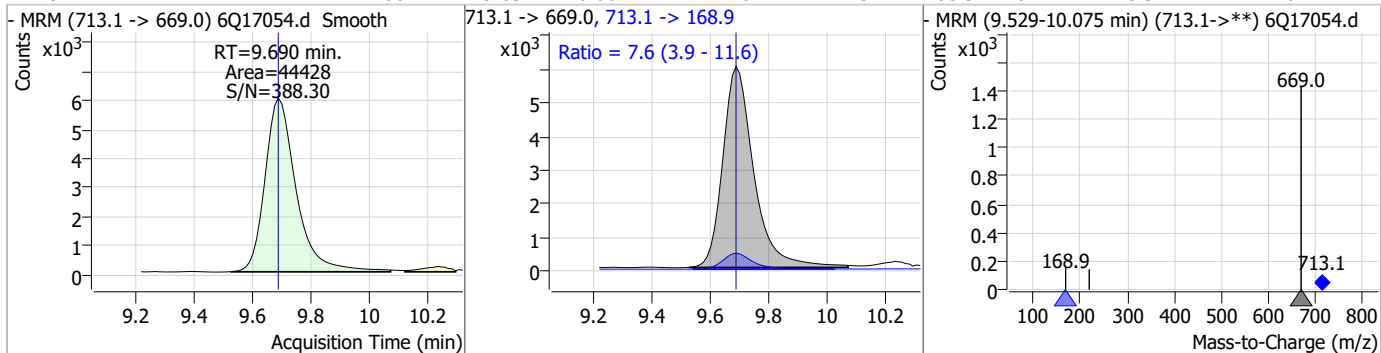
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.47	9.62	0.00	24136				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.22	9.69	0.00	16522				

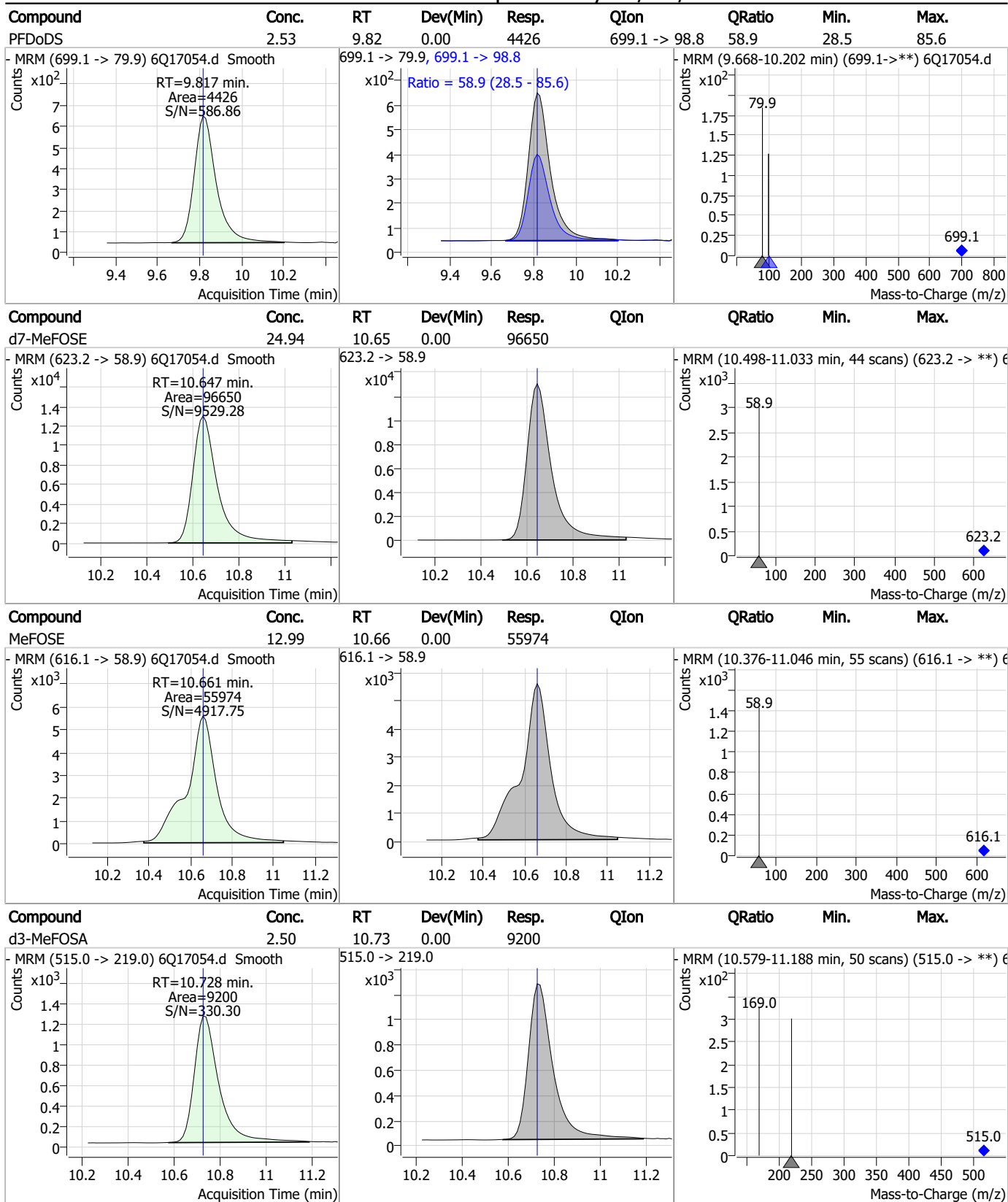


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.66	9.69	0.00	44428	713.1 -> 168.9	7.6	3.9	11.6



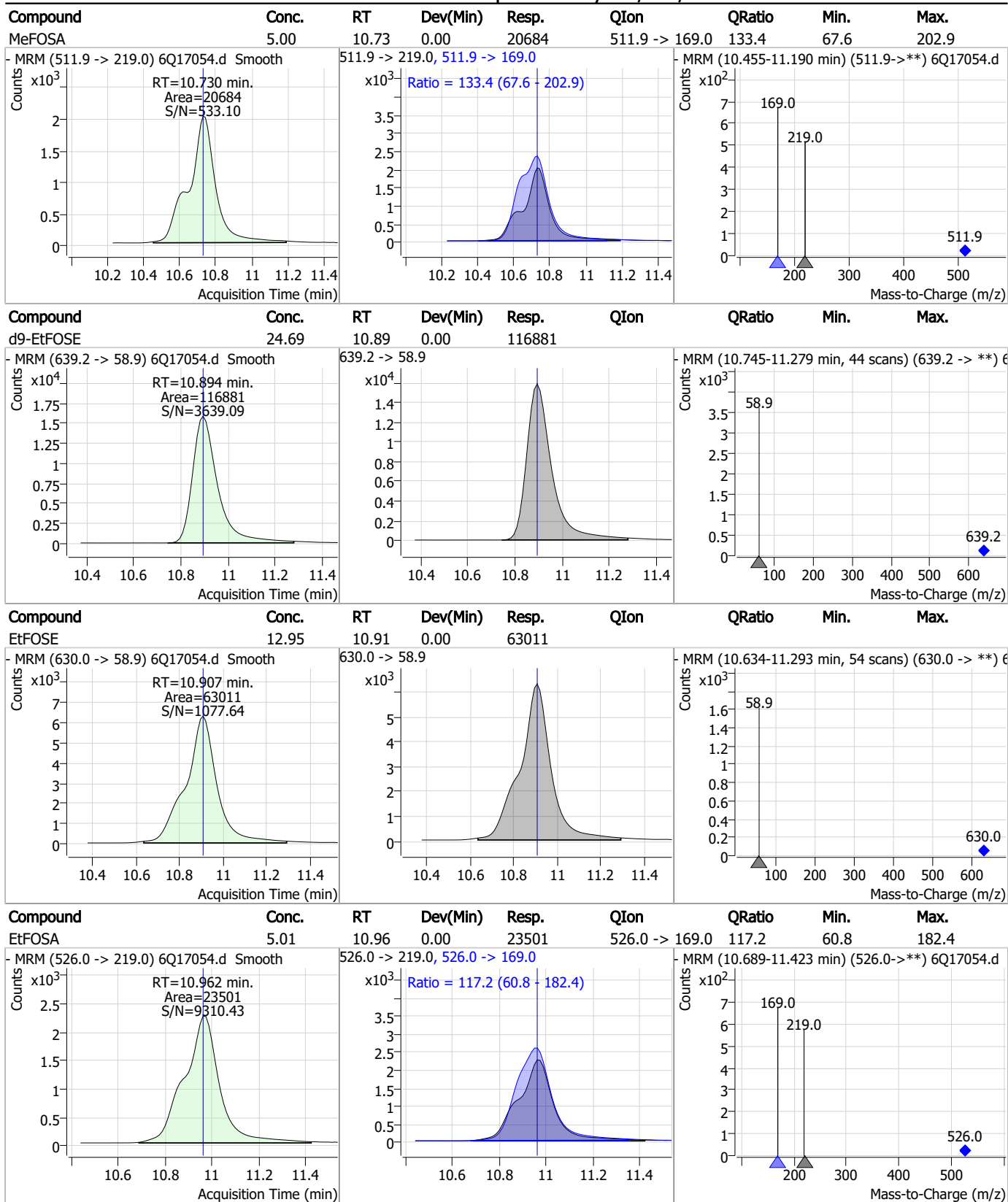
7.6.5
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Perfluorinated Compounds by LC/MS/MS



7.6.5
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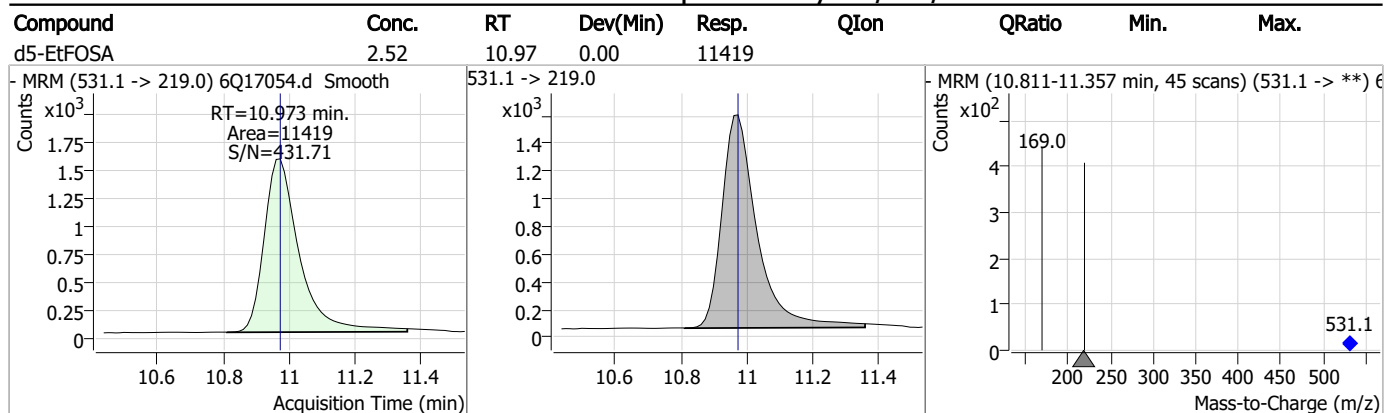
Perfluorinated Compounds by LC/MS/MS



7.6.5

7

Perfluorinated Compounds by LC/MS/MS



7.6.5

7

Manual Integration Approval Summary

Sample Number: S6Q258-ICC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17054.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 13:33 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.06	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak

7.6.5.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
04/30/23 23:52

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17055.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 1:48:12 PM
 Sample Name : ic258-5
 Vial : P1-A6
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	187834	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	67131	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	72319	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	62097	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	87518	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	29148	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	20839	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	27037	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	27295	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17658	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	25318	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	23288	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12418	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	11986	2.50 µg/L	-0.012
M2-4:2FTS	5.144	329.1 -> 80.9	2278	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2696	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2934	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	22528	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	41999	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	19246	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	103618	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	124290	25.00 µg/L	0.000
M5-EtFOSA	10.973	531.1 -> 219.0	11811	2.50 µg/L	0.000
M3-MeFOSA	10.741	515.0 -> 219.0	9531	2.50 µg/L	0.012
13C4-PFOS	8.227	502.8 -> 79.9	15496	2.50 µg/L	-0.012
13C3-PFBA	2.902	216.0 -> 172.0	82123	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9625	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	89654	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	26055	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	28436	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	59569	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2278	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.0%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2696	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2934	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C2-PFDoDA	8.960	615.1 -> 570.0	27295	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17658	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C3-PFBS	5.398	302.1 -> 79.9	23288	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C3-PFHxS	7.179	402.1 -> 79.9	12418	2.42 µg/L	0.000

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 = 96.9%	
13C4-PFBA	2.910	216.8 -> 171.9	187834	9.90 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C4-PFHpA	6.419	367.1 -> 322.0	62097	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C5-PFHxA	5.468	318.0 -> 273.0	72319	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C5-PFPeA	4.270	268.3 -> 223.0	67131	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C6-PFDA	8.076	519.1 -> 474.1	20839	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C7-PFUnDA	8.530	570.0 -> 525.1	27037	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C8-FOSA	9.623	506.1 -> 77.8	25318	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C8-PFOA	7.062	421.1 -> 376.0	87518	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C8-PFOS	8.226	507.1 -> 79.9	11986	2.57 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C9-PFNA	7.594	472.1 -> 427.0	29148	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.6%	
d3-MeFOSAA	8.134	573.2 -> 419.0	22528	4.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	41999	9.96 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
d3-MeFOSA	10.741	515.0 -> 219.0	9531	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
d5-EtFOSAA	8.330	589.2 -> 419.0	19246	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
d7-MeFOSE	10.647	623.2 -> 58.9	103618	25.48 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
d9-EtFOSE	10.894	639.2 -> 58.9	124290	25.01 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
d5-EtFOSA	10.973	531.1 -> 219.0	11811	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	62523	18.14 µg/L	98
		327.1 -> 80.9	24036		
6:2FTS	6.839	427.1 -> 407.0	59295	19.99 µg/L	94
		427.1 -> 80.9	19117		
8:2FTS	7.865	527.1 -> 507.0	32560	18.65 µg/L	100
		527.1 -> 80.8	13155		
EtFOSAA	8.331	584.2 -> 419.1	15971	4.88 µg/L	98
		584.2 -> 526.0	8649		
FOSA	9.614	498.1 -> 77.9	44148	4.87 µg/L	99
		498.1 -> 478.0	1356		
MeFOSAA	8.136	570.1 -> 419.0	21727	5.14 µg/L	93
		570.1 -> 483.0	3790		
PFBA	2.906	212.8 -> 168.9	125595	19.94 µg/L	100
PFBS	5.400	298.7 -> 79.9	47488	4.54 µg/L	94
		298.7 -> 98.8	17896		
PFDA	8.077	512.9 -> 469.0	126808	5.60 µg/L	98
		512.9 -> 219.0	20008		
PFDODA	8.961	613.1 -> 569.0	105006	4.91 µg/L	98
		613.1 -> 319.0	14169		
PFDS	9.125	599.0 -> 79.9	17788	4.66 µg/L	98

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	8603			
PFHpA	6.420	363.1 -> 319.0	149038	4.86	µg/L	96
		363.1 -> 169.0	24368			
PFHpS	7.734	449.0 -> 79.9	28974	4.46	µg/L	94
		449.0 -> 98.9	13472			
PFHxA	5.470	313.0 -> 269.0	135832	4.75	µg/L	100
		313.0 -> 118.9	6251			
PFHxS	7.180	398.7 -> 79.9	33010	4.88	µg/L	m 94
		398.7 -> 98.9	15590			
PFNA	7.595	463.0 -> 419.0	98776	4.90	µg/L	95
		463.0 -> 219.0	18524			
PFNS	8.694	548.8 -> 79.9	25522	4.41	µg/L	98
		548.8 -> 98.9	13722			
PFOA	7.063	413.0 -> 369.0	199591	4.79	µg/L	97
		413.0 -> 169.0	32419			
PFOS	8.228	498.9 -> 79.9	23540	4.07	µg/L	m 91
		498.9 -> 98.8	13635			
PFPeA	4.273	263.0 -> 219.0	181387	9.92	µg/L	100
PFPeS	6.472	349.1 -> 79.9	35261	4.99	µg/L	96
		349.1 -> 98.9	16209			
PFTeDA	9.690	713.1 -> 669.0	88197	4.94	µg/L	99
		713.1 -> 168.9	6619			
PFTrDA	9.345	663.0 -> 619.0	112010	4.73	µg/L	99
		663.0 -> 168.9	10737			
PFUnDA	8.531	563.1 -> 519.0	95301	5.08	µg/L	95
		563.1 -> 269.1	14657			
11Cl-PF3OUdS	9.398	630.9 -> 450.9	131944	9.15	µg/L	100
		632.9 -> 452.9	41738			
9Cl-PF3ONS	8.569	530.8 -> 351.0	205740	9.03	µg/L	94
		532.8 -> 353.0	67919			
ADONA	6.681	376.9 -> 250.9	565822	8.92	µg/L	94
		376.9 -> 84.8	164194			
HFPO-DA	5.846	284.9 -> 168.9	40734	10.24	µg/L	97
		284.9 -> 184.9	5195			
3:3FTCA	3.784	241.0 -> 177.0	27887	24.39	µg/L	98
		241.0 -> 117.0	3443			
5:3FTCA	6.160	341.0 -> 237.1	553365	119.58	µg/L	87
		341.0 -> 217.0	428689			
7:3FTCA	7.573	441.0 -> 316.9	263175	125.19	µg/L	99
		441.0 -> 336.9	564965			
EtFOSA	10.975	526.0 -> 219.0	48759	10.04	µg/L	98
		526.0 -> 169.0	60417			
EtFOSE	10.907	630.0 -> 58.9	126711	24.48	µg/L	100
MeFOSA	10.730	511.9 -> 219.0	41390	9.65	µg/L	96
		511.9 -> 169.0	58201			
MeFOSE	10.661	616.1 -> 58.9	110770	23.97	µg/L	100
PFDoDS	9.817	699.1 -> 79.9	9024	4.57	µg/L	98
		699.1 -> 98.8	5006			
NFDHA	5.350	295.0 -> 201.0	30939	9.98	µg/L	98
		295.0 -> 84.9	7843			
PFMBA	4.687	279.0 -> 85.1	120834	9.85	µg/L	100
PFMPA	3.438	229.0 -> 84.9	90216	9.86	µg/L	100
PFEESA	5.937	314.8 -> 134.9	310054	8.59	µg/L	100
		314.8 -> 82.9	11310			

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

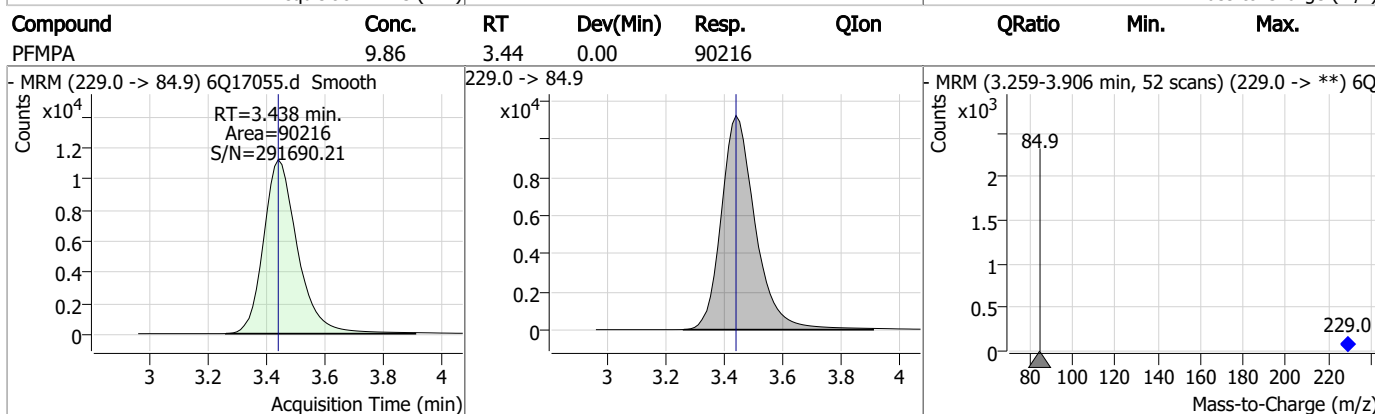
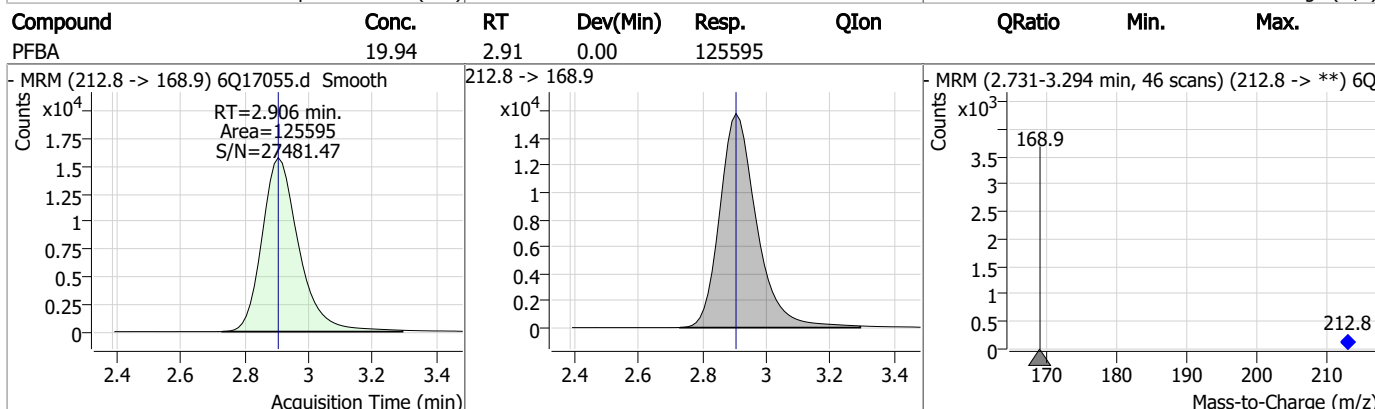
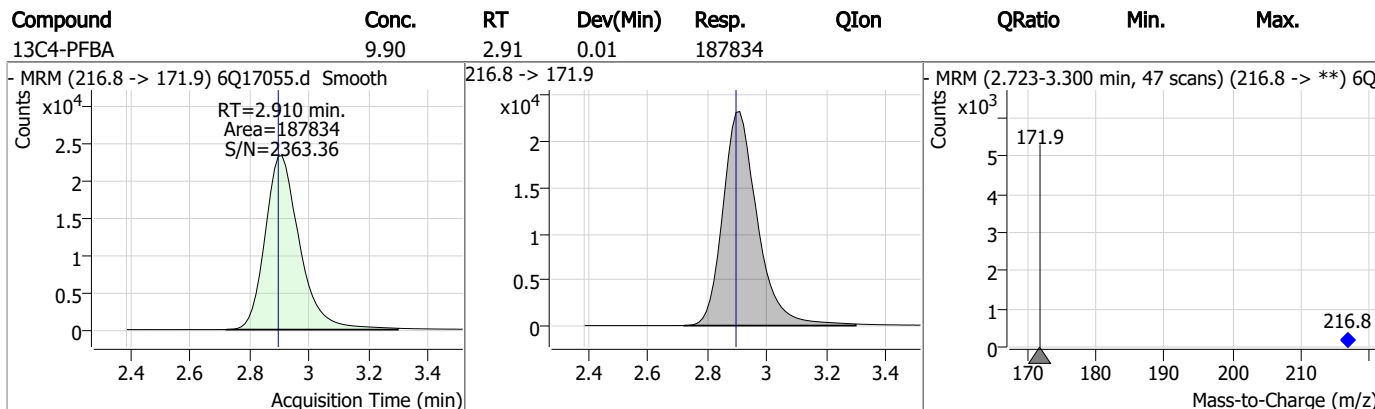
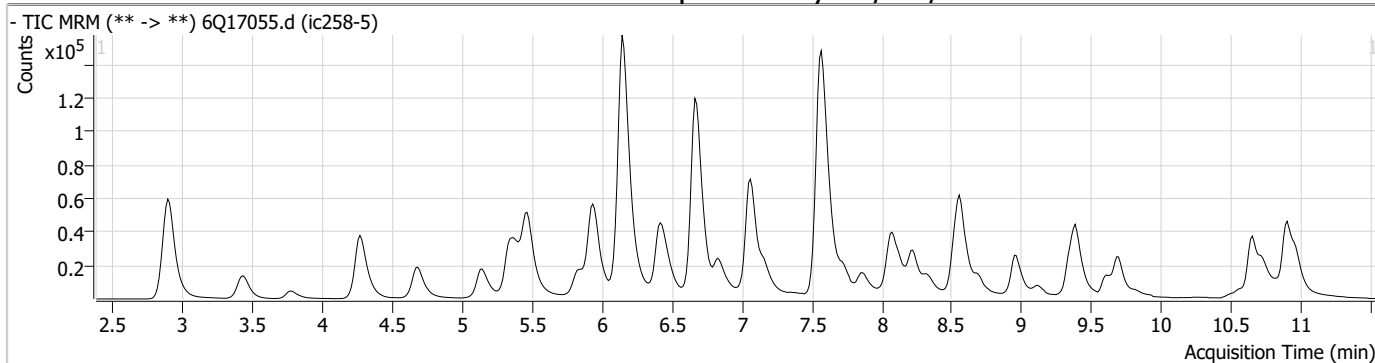
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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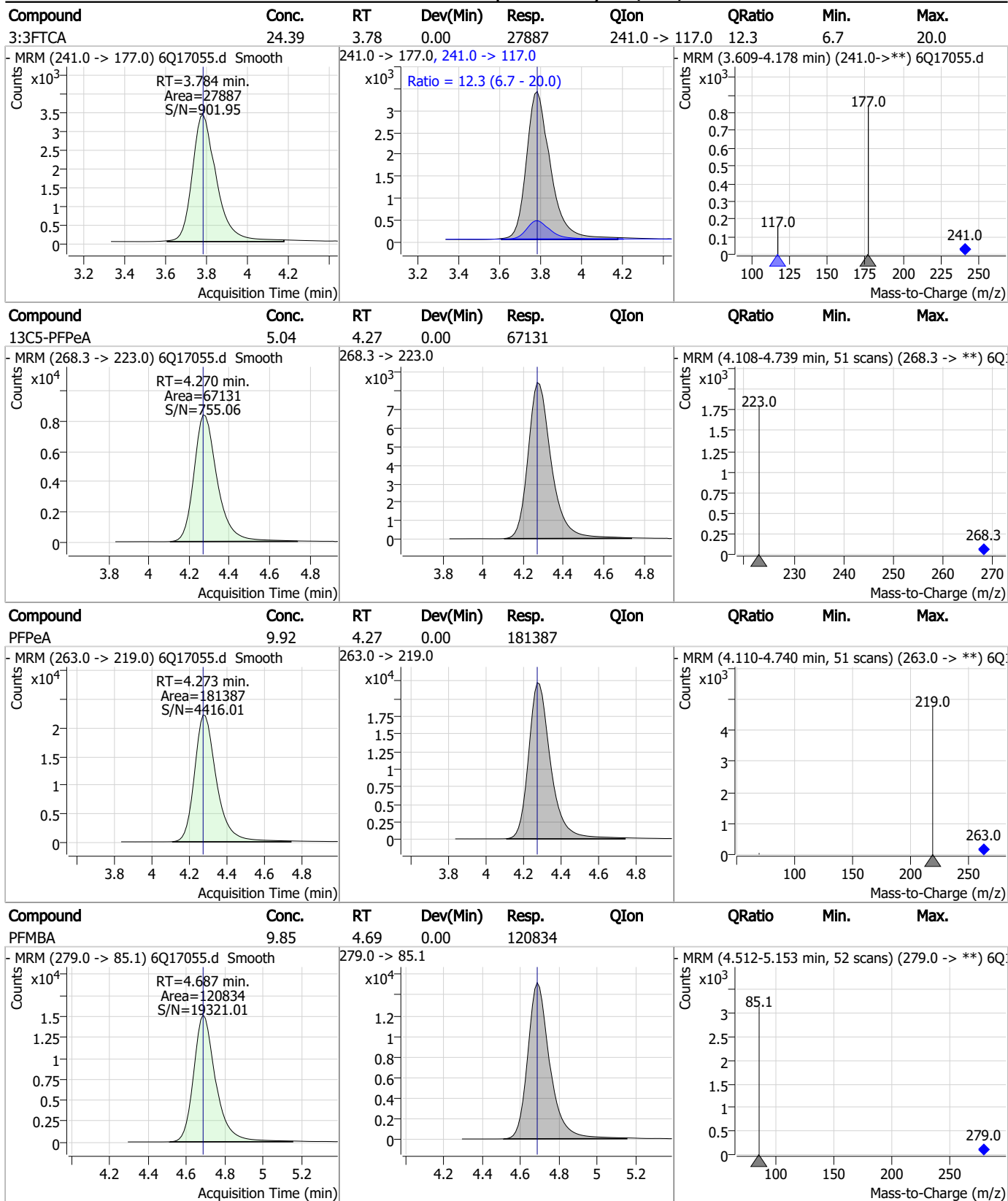
7.6.6
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Perfluorinated Compounds by LC/MS/MS

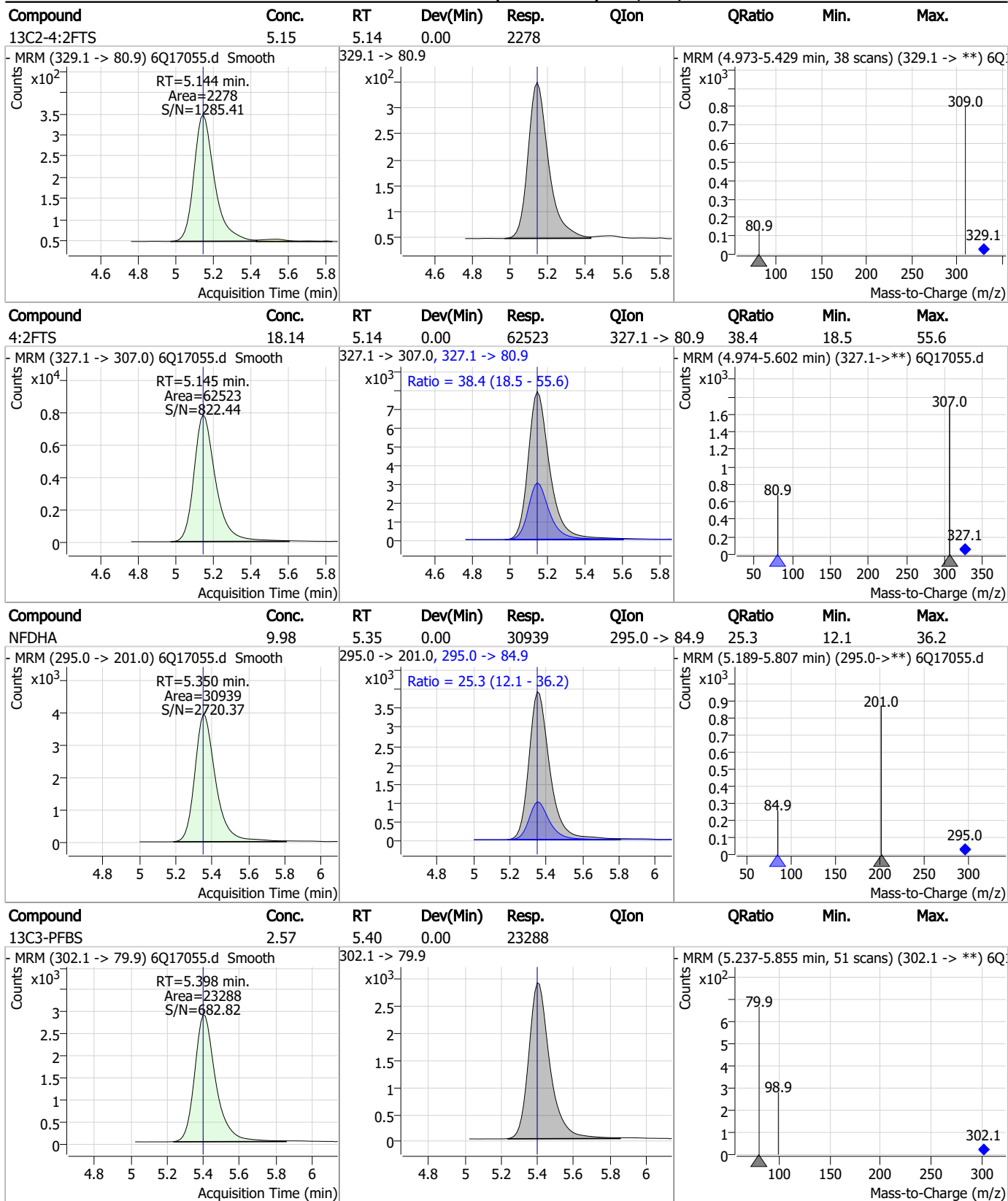


Perfluorinated Compounds by LC/MS/MS



7.6.6
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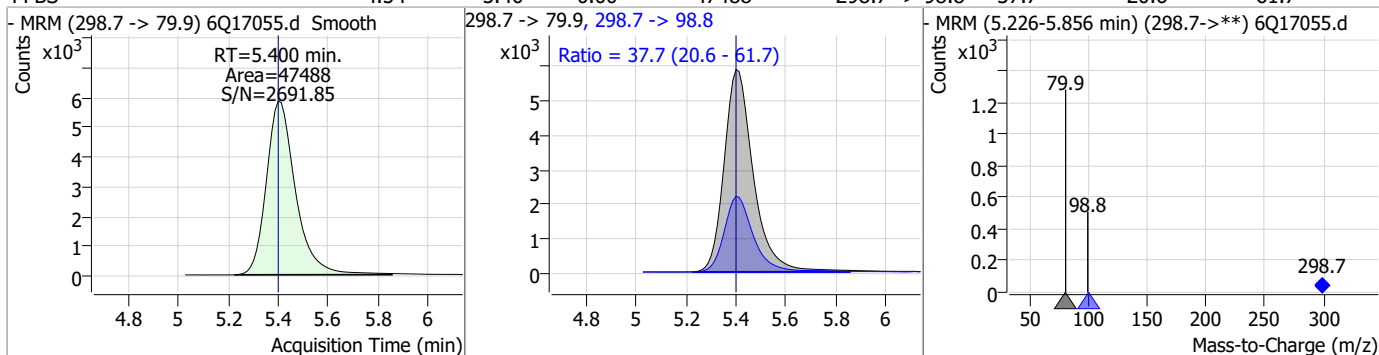
Perfluorinated Compounds by LC/MS/MS



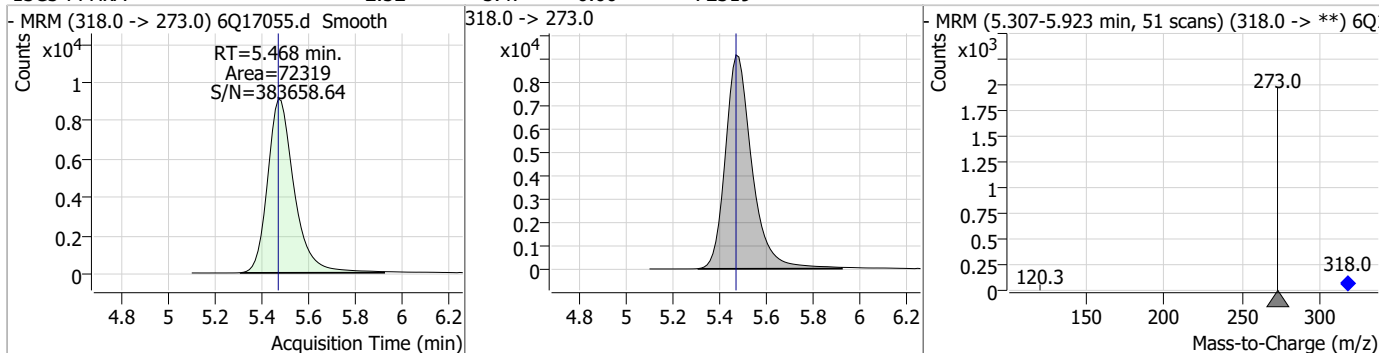
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Perfluorinated Compounds by LC/MS/MS

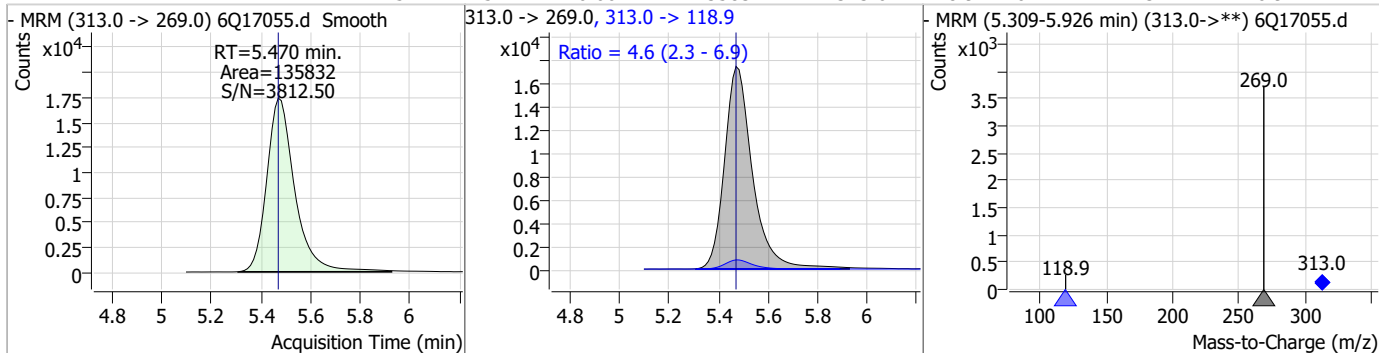
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	4.54	5.40	0.00	47488	298.7 -> 98.8	37.7	20.6	61.7



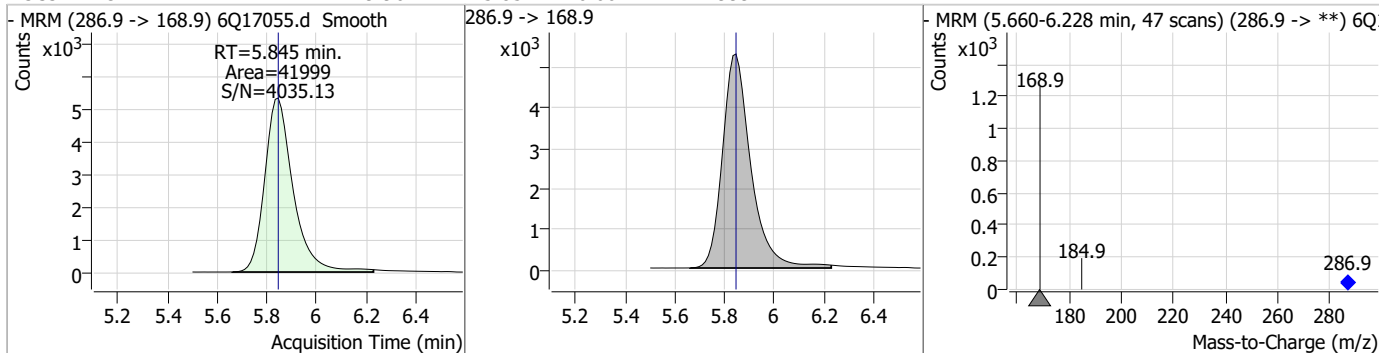
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.52	5.47	0.00	72319				



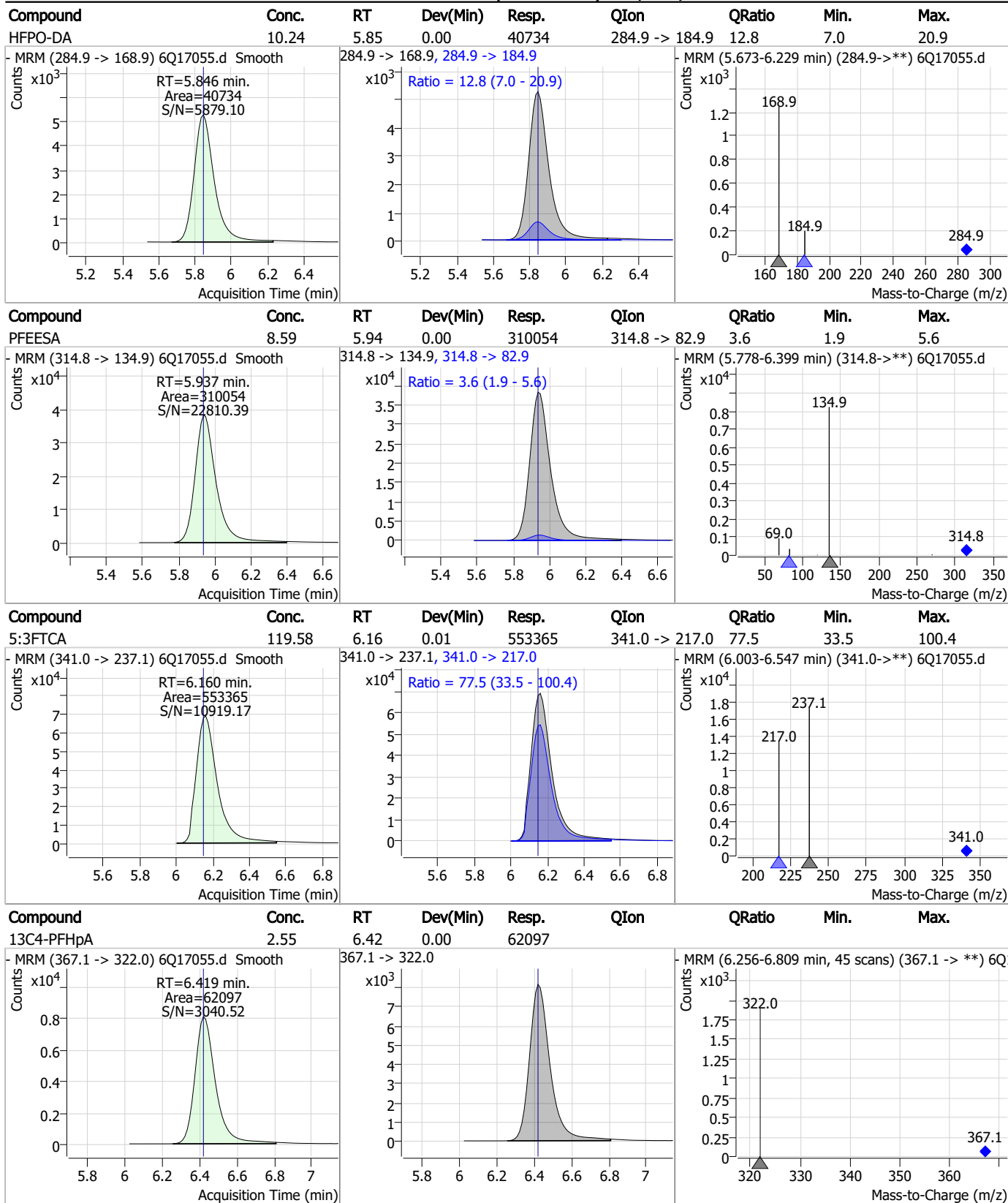
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	4.75	5.47	0.00	135832	313.0 -> 118.9	4.6	2.3	6.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.96	5.85	0.00	41999				

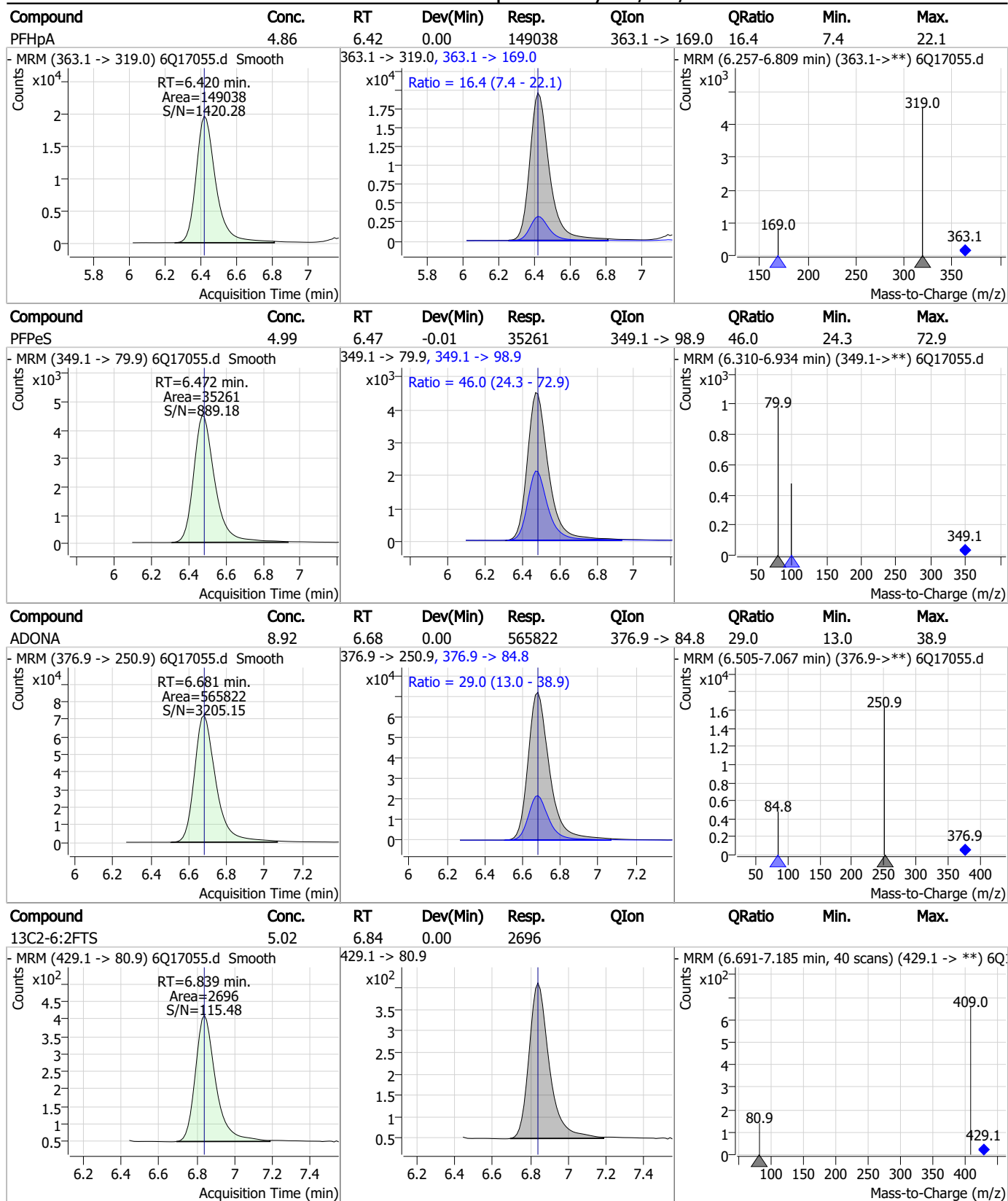


Perfluorinated Compounds by LC/MS/MS



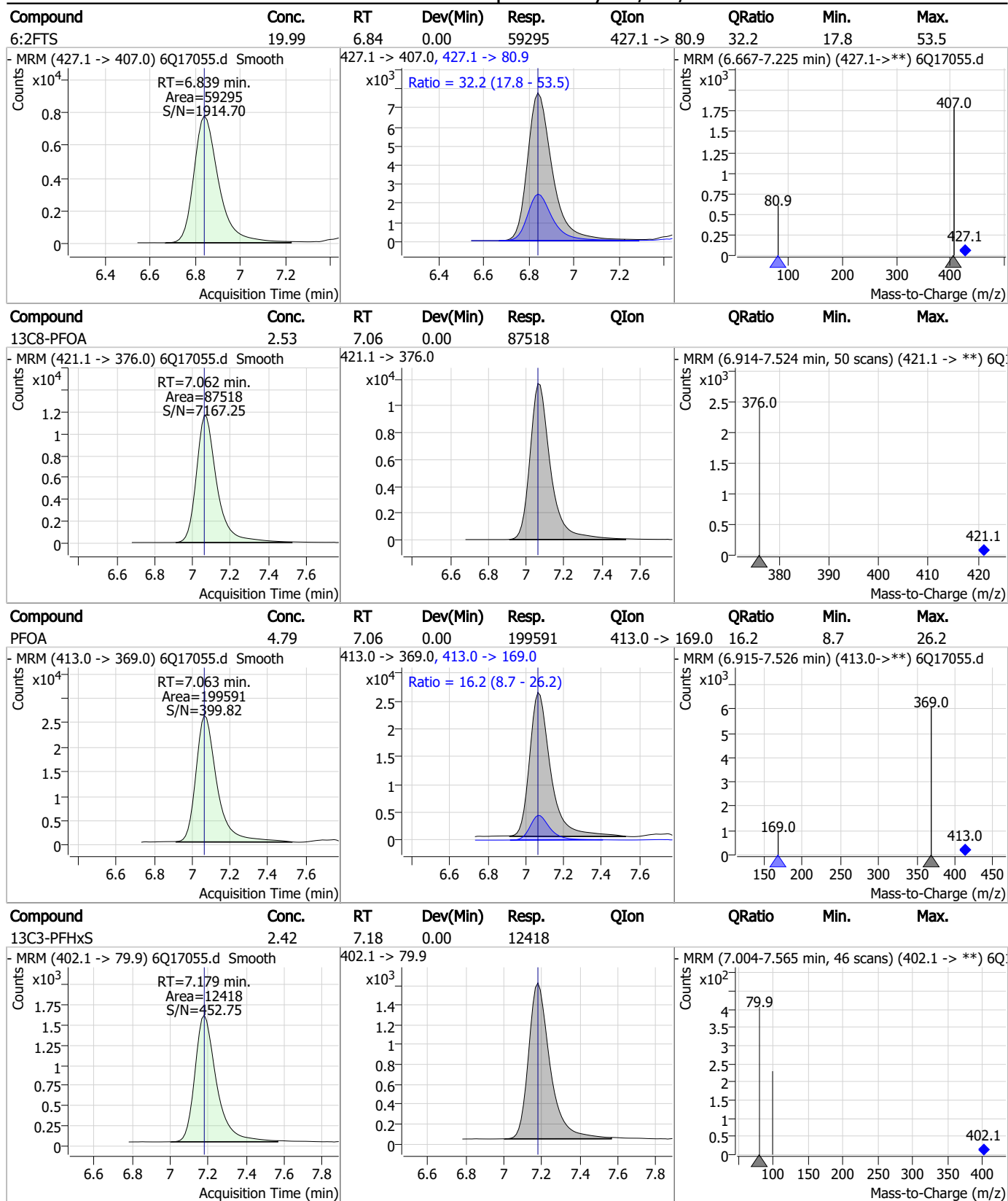
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Perfluorinated Compounds by LC/MS/MS



7.6.6
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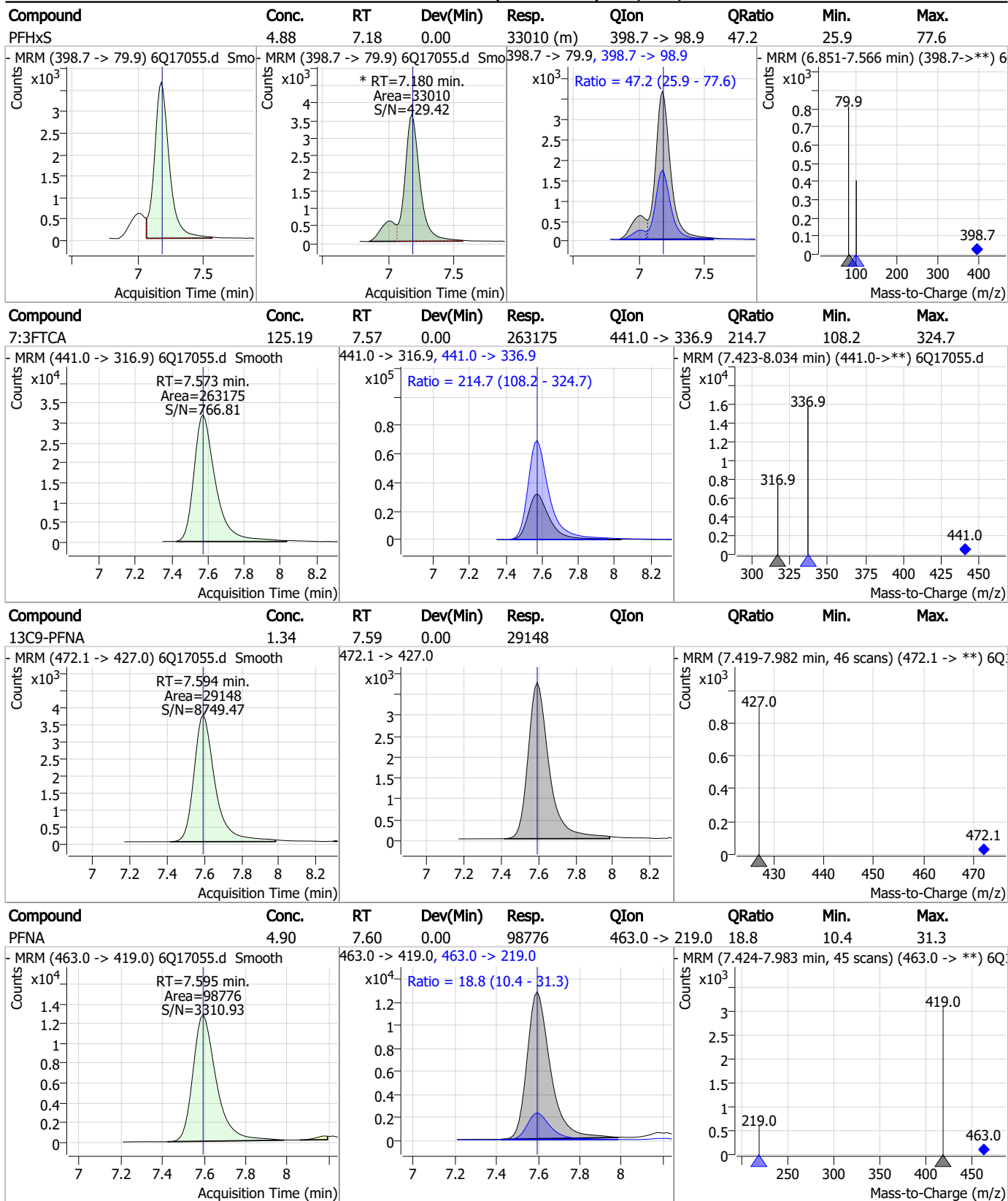
Perfluorinated Compounds by LC/MS/MS



7.6.6

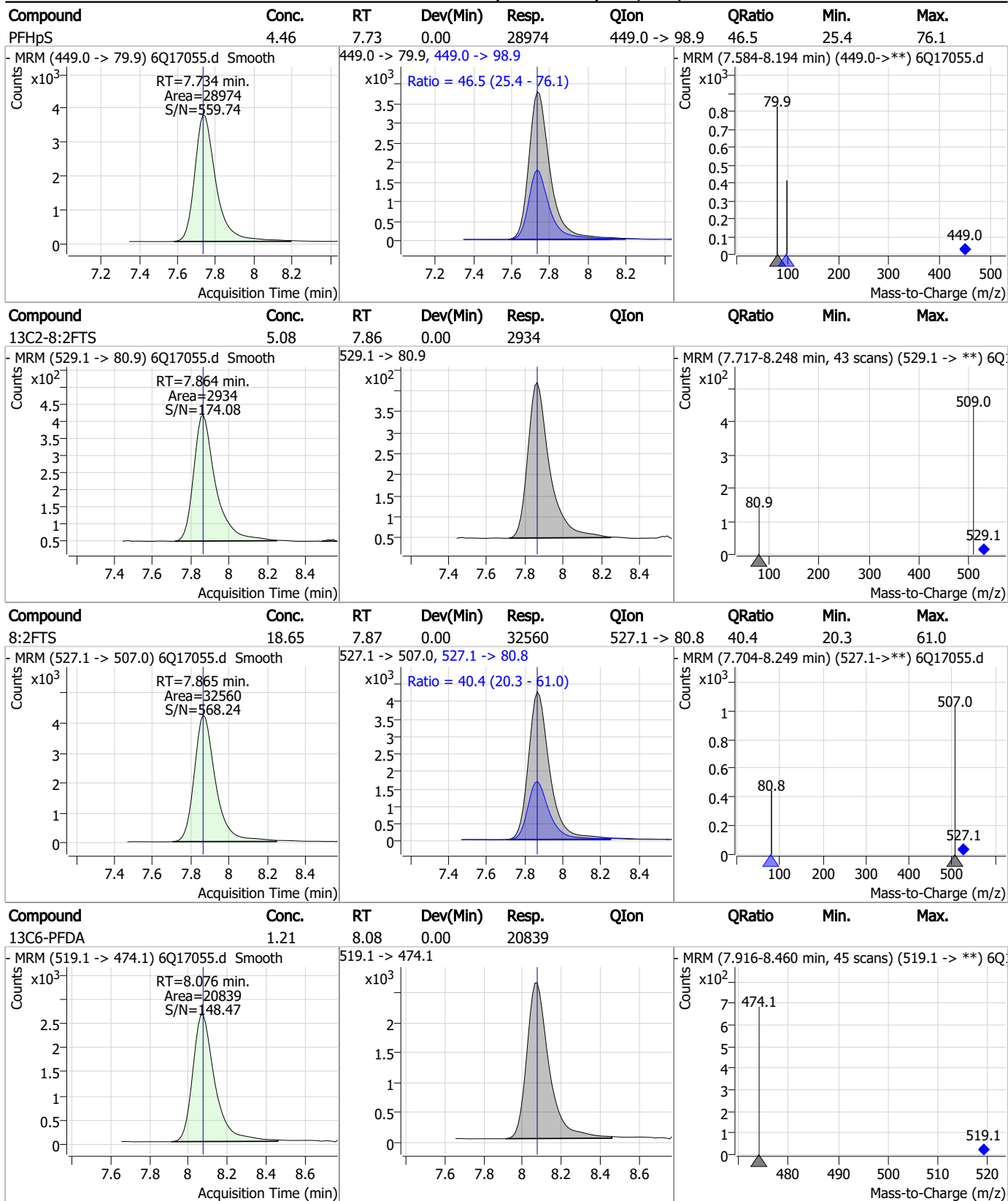
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Perfluorinated Compounds by LC/MS/MS



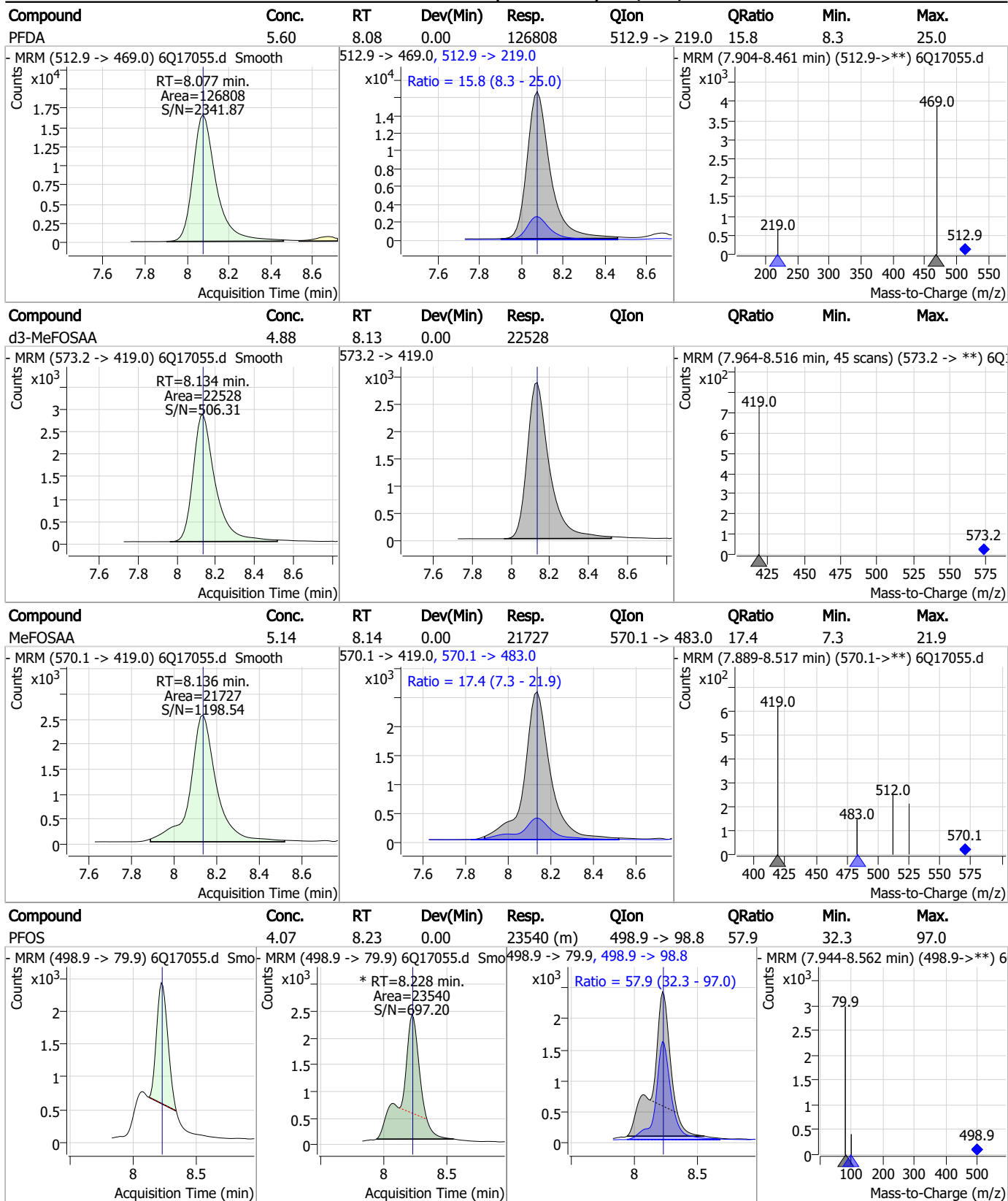
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Perfluorinated Compounds by LC/MS/MS



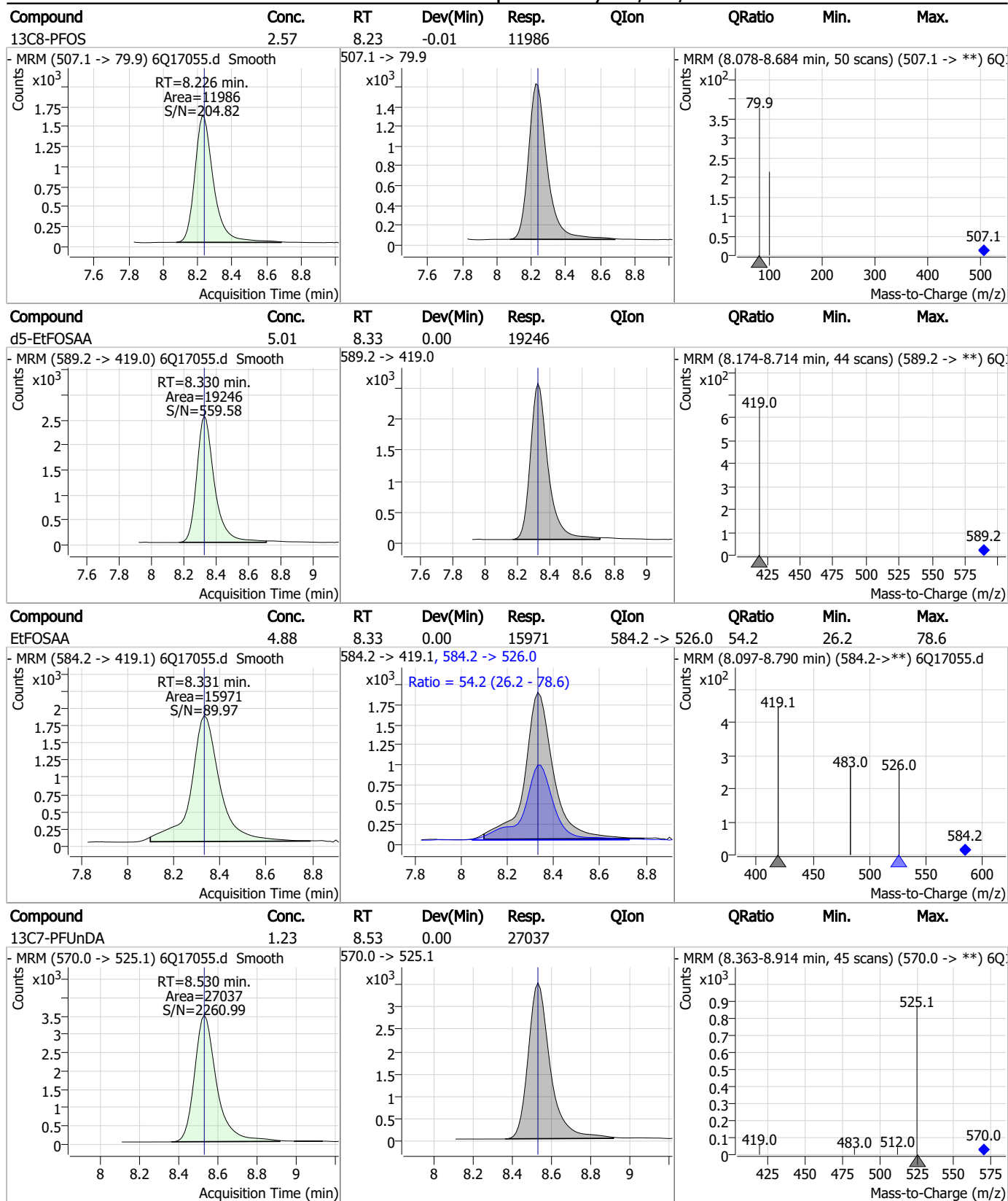
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Perfluorinated Compounds by LC/MS/MS



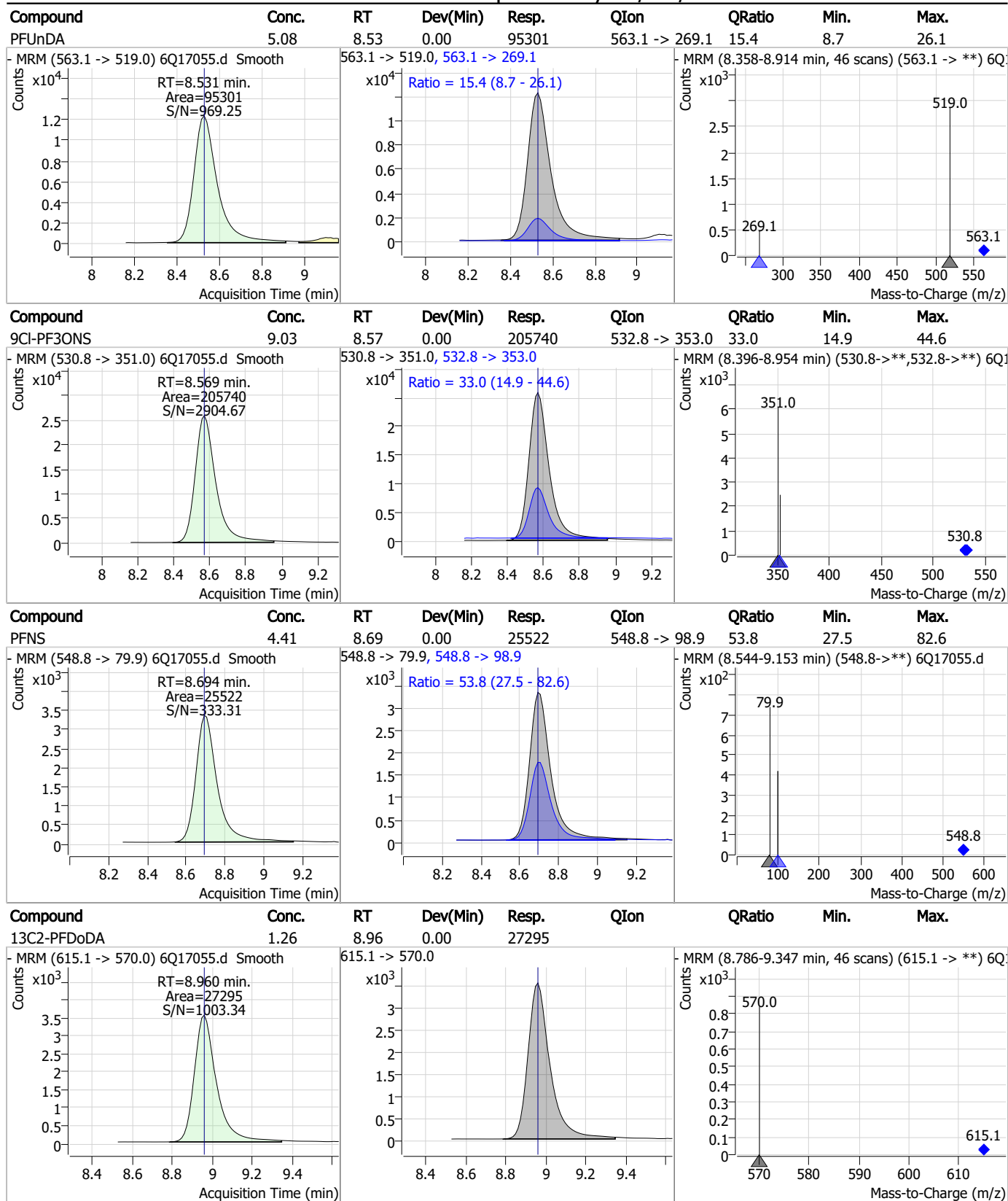
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Perfluorinated Compounds by LC/MS/MS



7.6.6
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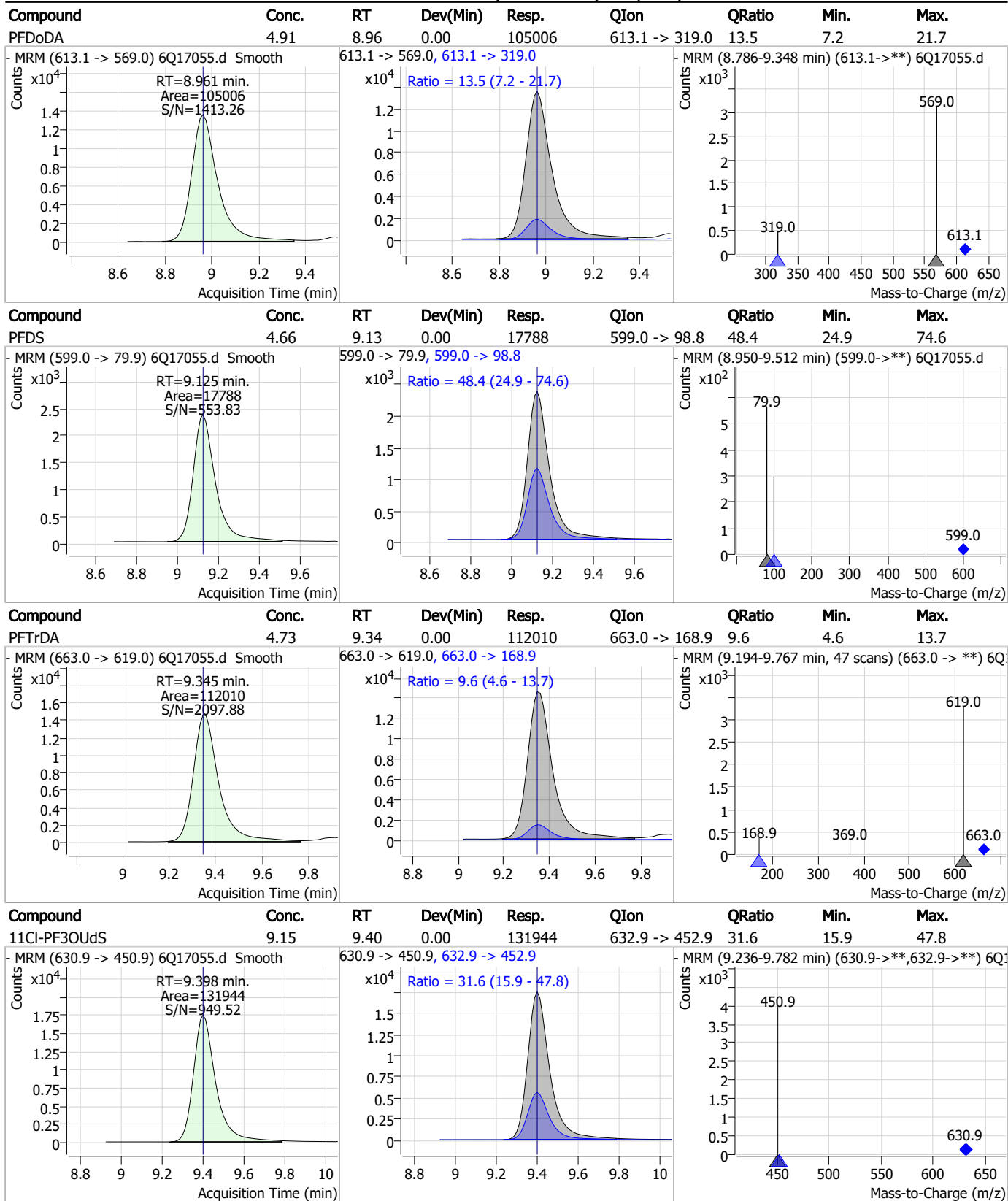
Perfluorinated Compounds by LC/MS/MS



7.6.6

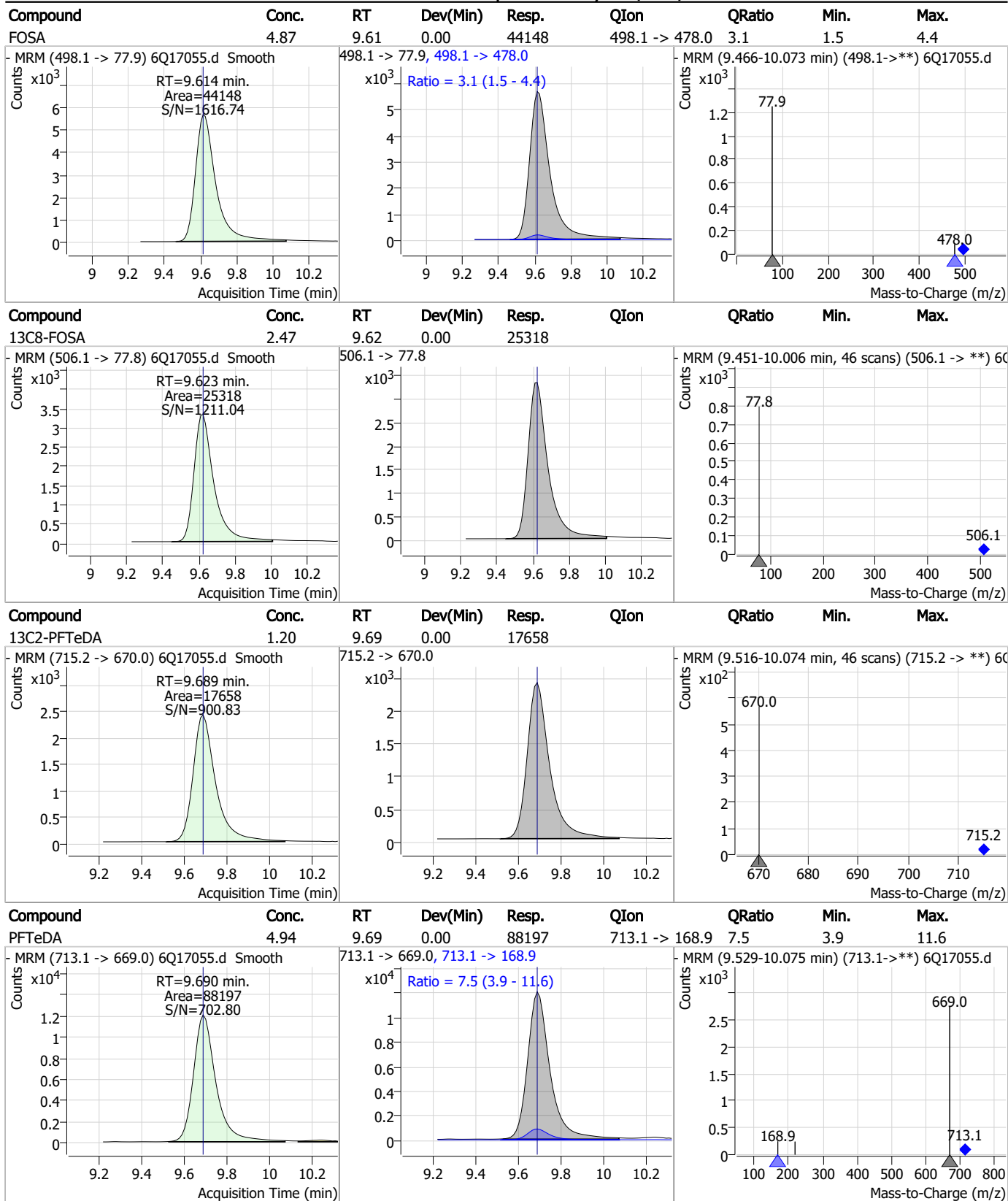
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Perfluorinated Compounds by LC/MS/MS



7.6.6
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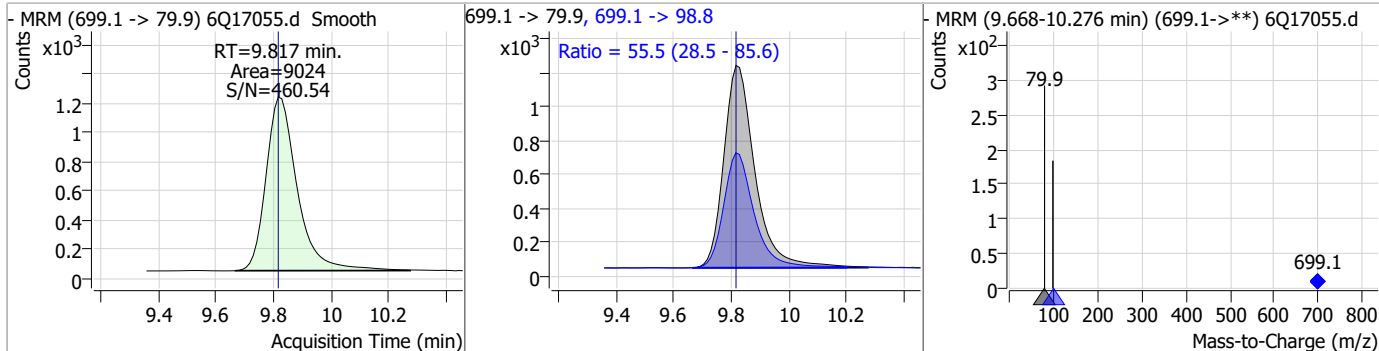
Perfluorinated Compounds by LC/MS/MS



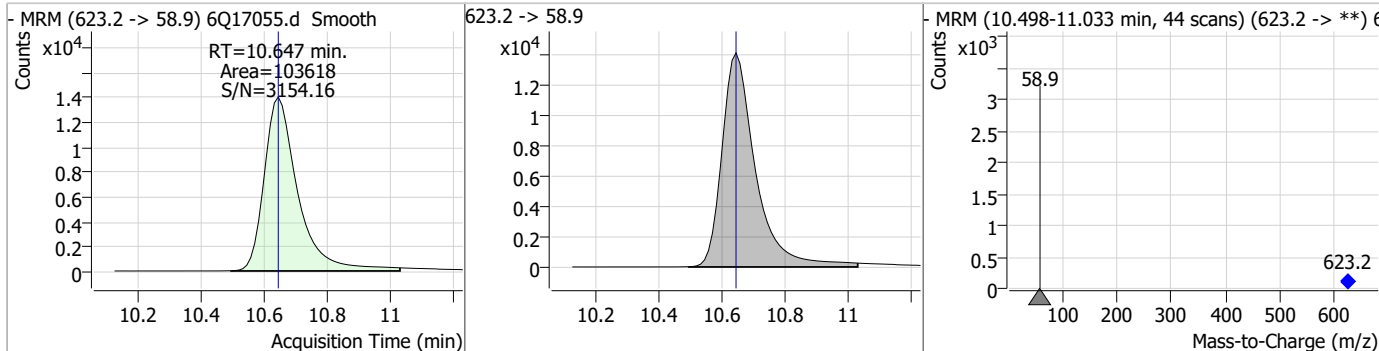
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Perfluorinated Compounds by LC/MS/MS

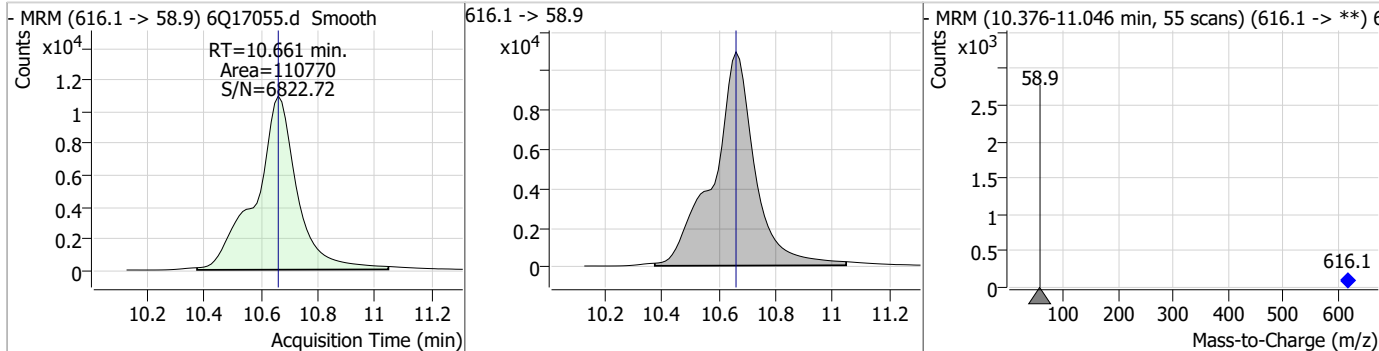
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	4.57	9.82	0.00	9024	699.1 -> 98.8	55.5	28.5	85.6



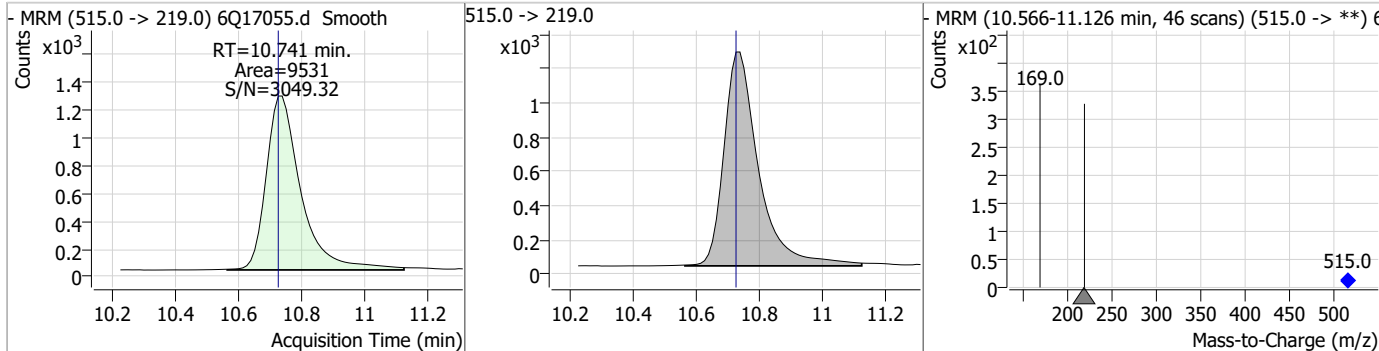
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.48	10.65	0.00	103618				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	23.97	10.66	0.00	110770				

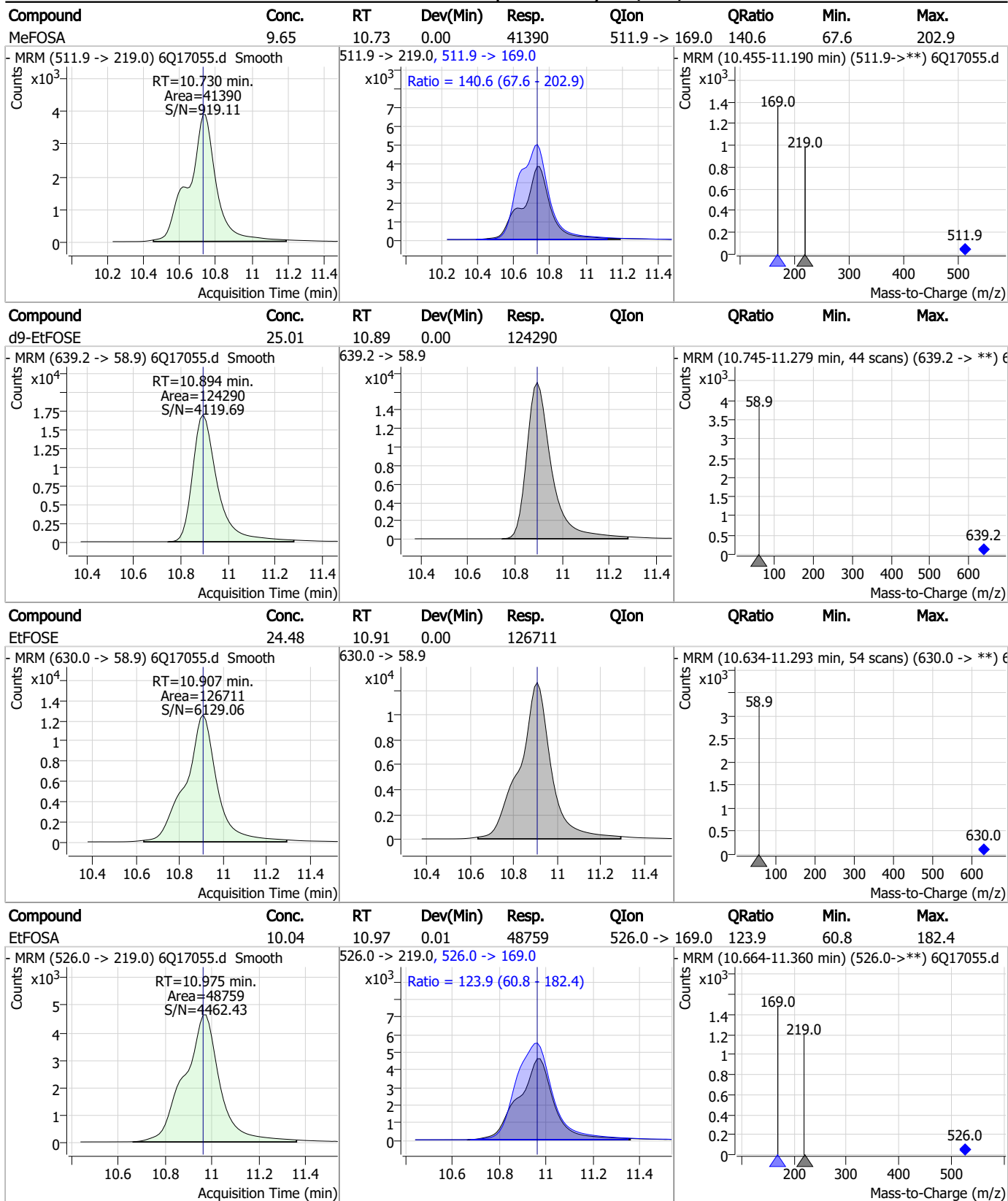


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.46	10.74	0.01	9531				



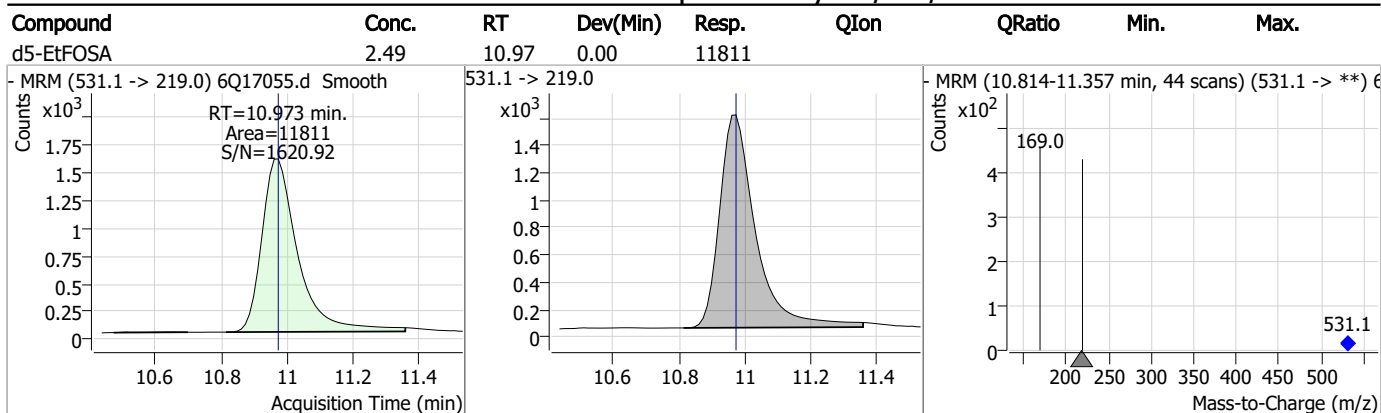
7.6.6
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Perfluorinated Compounds by LC/MS/MS



7.6.6
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Perfluorinated Compounds by LC/MS/MS



7.6.6

7

Manual Integration Approval Summary

Sample Number: S6Q258-IC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17055.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 13:48 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak

7.6.6.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17056.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 2:02:44 PM
 Sample Name : ic258-6
 Vial : P1-A7
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	182918	10.00 µg/L	0.012
M5-PFPeA	4.283	268.3 -> 223.0	65165	5.00 µg/L	0.012
M5-PFHxA	5.480	318.0 -> 273.0	71261	2.50 µg/L	0.012
M4-PFHpA	6.419	367.1 -> 322.0	59927	2.50 µg/L	0.000
M8-PFOA	7.074	421.1 -> 376.0	81944	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	26504	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	20674	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	26640	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	26473	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17149	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	24452	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	23615	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	13137	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	11944	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2357	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2735	5.00 µg/L	0.000
M2-8:2FTS	7.877	529.1 -> 80.9	3025	5.00 µg/L	0.012
M3-MeFOSAA	8.134	573.2 -> 419.0	21028	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	40365	10.00 µg/L	0.000
M5-EtFOSAA	8.342	589.2 -> 419.0	19800	5.00 µg/L	0.012
M7-MeFOSE	10.647	623.2 -> 58.9	97809	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	116301	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	11391	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	9081	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	14625	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	78714	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9890	2.50 µg/L	0.000
13C4-PFOA	7.075	417.1 -> 372.0	89757	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	25299	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	28282	1.25 µg/L	0.000
13C2-PFHxA	5.482	315.1 -> 270.0	59565	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2357	5.18 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.7%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2735	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C2-8:2FTS	7.877	529.1 -> 80.9	3025	5.10 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C2-PFDoDA	8.960	615.1 -> 570.0	26473	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17149	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C3-PFBS	5.398	302.1 -> 79.9	23615	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C3-PFHxS	7.179	402.1 -> 79.9	13137	2.50 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 = 99.8%	
13C4-PFBA	2.910	216.8 -> 171.9	182918	10.06 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C4-PFHpA	6.419	367.1 -> 322.0	59927	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C5-PFHxA	5.480	318.0 -> 273.0	71261	2.48 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C5-PFPeA	4.283	268.3 -> 223.0	65165	4.90 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.9%	
13C6-PFDA	8.076	519.1 -> 474.1	20674	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C7-PFUnDA	8.530	570.0 -> 525.1	26640	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C8-FOSA	9.623	506.1 -> 77.8	24452	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C8-PFOA	7.074	421.1 -> 376.0	81944	2.37 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.6%	
13C8-PFOS	8.239	507.1 -> 79.9	11944	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.4%	
13C9-PFNA	7.594	472.1 -> 427.0	26504	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.3%	
d3-MeFOSAA	8.134	573.2 -> 419.0	21028	4.82 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.5%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	40365	9.57 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.7%	
d3-MeFOSA	10.728	515.0 -> 219.0	9081	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
d5-EtFOSAA	8.342	589.2 -> 419.0	19800	5.47 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.3%	
d7-MeFOSE	10.647	623.2 -> 58.9	97809	25.48 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
d9-EtFOSE	10.894	639.2 -> 58.9	116301	24.80 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
d5-EtFOSA	10.960	531.1 -> 219.0	11391	2.54 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.6%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	164201	46.05 µg/L	99
		327.1 -> 80.9	61547		
6:2FTS	6.839	427.1 -> 407.0	150100	49.89 µg/L	95
		427.1 -> 80.9	48901		
8:2FTS	7.865	527.1 -> 507.0	90493	50.28 µg/L	97
		527.1 -> 80.8	35190		
EtFOSAA	8.343	584.2 -> 419.1	41294	12.27 µg/L	96
		584.2 -> 526.0	20564		
FOSA	9.614	498.1 -> 77.9	116518	13.30 µg/L	100
		498.1 -> 478.0	3568		
MeFOSAA	8.136	570.1 -> 419.0	56008	14.18 µg/L	92
		570.1 -> 483.0	10033		
PFBA	2.906	212.8 -> 168.9	325626	53.08 µg/L	100
PFBS	5.412	298.7 -> 79.9	123146	11.62 µg/L	94
		298.7 -> 98.8	45951		
PFDA	8.077	512.9 -> 469.0	310432	13.82 µg/L	99
		512.9 -> 219.0	49983		
PFDoDA	8.961	613.1 -> 569.0	262334	12.64 µg/L	99
		613.1 -> 319.0	36448		
PFDS	9.125	599.0 -> 79.9	47477	12.47 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	23285			
PFHpA	6.432	363.1 -> 319.0	383701	12.97	µg/L	96
		363.1 -> 169.0	63514			
PFHpS	7.734	449.0 -> 79.9	77309	11.94	µg/L	96
		449.0 -> 98.9	37059			
PFHxA	5.483	313.0 -> 269.0	351148	12.46	µg/L	99
		313.0 -> 118.9	16863			
PFHxS	7.180	398.7 -> 79.9	83675	11.69	µg/L	m 93
		398.7 -> 98.9	39063			
PFNA	7.595	463.0 -> 419.0	245308	13.38	µg/L	97
		463.0 -> 219.0	48340			
PFNS	8.694	548.8 -> 79.9	73363	12.73	µg/L	91
		548.8 -> 98.9	35503			
PFOA	7.076	413.0 -> 369.0	521413	13.24	µg/L	99
		413.0 -> 169.0	88911			
PFOS	8.240	498.9 -> 79.9	64796	11.23	µg/L	m 89
		498.9 -> 98.8	36229			
PFPeA	4.273	263.0 -> 219.0	467679	26.35	µg/L	100
PFPeS	6.484	349.1 -> 79.9	93454	12.50	µg/L	92
		349.1 -> 98.9	40304			
PFTeDA	9.690	713.1 -> 669.0	218682	12.62	µg/L	100
		713.1 -> 168.9	16819			
PFTrDA	9.345	663.0 -> 619.0	293383	12.77	µg/L	100
		663.0 -> 168.9	27108			
PFUnDA	8.531	563.1 -> 519.0	227104	12.29	µg/L	98
		563.1 -> 269.1	37957			
11CI-PF3OUdS	9.398	630.9 -> 450.9	362990	26.20	µg/L	97
		632.9 -> 452.9	109902			
9CI-PF3ONS	8.569	530.8 -> 351.0	570836	26.06	µg/L	100
		532.8 -> 353.0	169030			
ADONA	6.681	376.9 -> 250.9	1545088	25.34	µg/L	99
		376.9 -> 84.8	408733			
HFPO-DA	5.846	284.9 -> 168.9	101426	26.53	µg/L	95
		284.9 -> 184.9	12065			
3:3FTCA	3.784	241.0 -> 177.0	72254	65.10	µg/L	97
		241.0 -> 117.0	8741			
5:3FTCA	6.160	341.0 -> 237.1	1457959	319.75	µg/L	93
		341.0 -> 217.0	1062147			
7:3FTCA	7.573	441.0 -> 316.9	627064	302.73	µg/L	91
		441.0 -> 336.9	1451519			
EtFOSA	10.962	526.0 -> 219.0	119231	25.47	µg/L	92
		526.0 -> 169.0	155669			
EtFOSE	10.907	630.0 -> 58.9	329424	68.02	µg/L	100
MeFOSA	10.730	511.9 -> 219.0	111843	27.37	µg/L	m 100
		511.9 -> 169.0	151496			
MeFOSE	10.661	616.1 -> 58.9	285034	65.35	µg/L	100
PFDoDS	9.817	699.1 -> 79.9	23827	12.10	µg/L	96
		699.1 -> 98.8	12919			
NFDHA	5.363	295.0 -> 201.0	78262	25.63	µg/L	100
		295.0 -> 84.9	19079			
PFMBA	4.687	279.0 -> 85.1	317585	26.67	µg/L	100
PFMPA	3.438	229.0 -> 84.9	234079	26.35	µg/L	100
PFEESA	5.949	314.8 -> 134.9	821610	23.11	µg/L	99
		314.8 -> 82.9	28517			

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

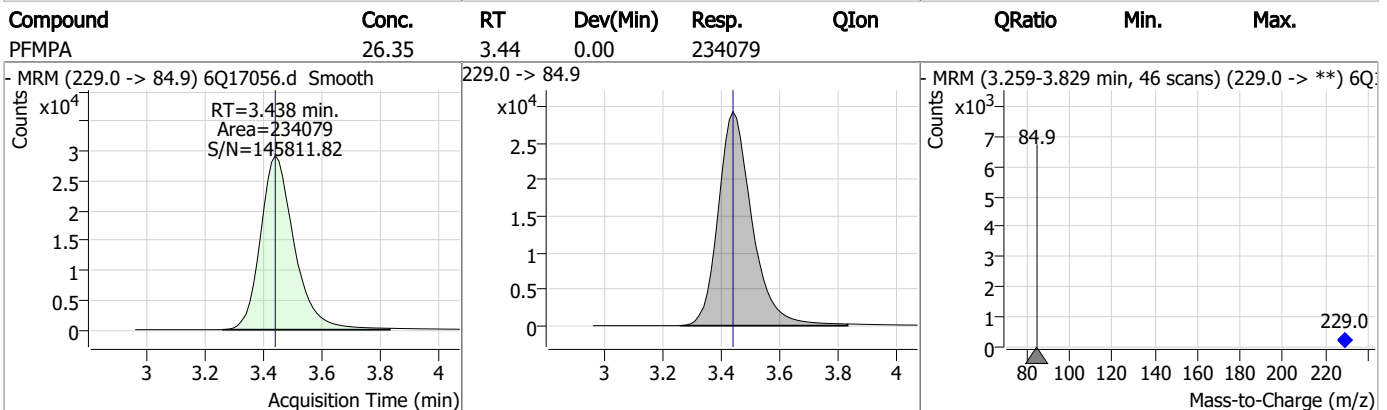
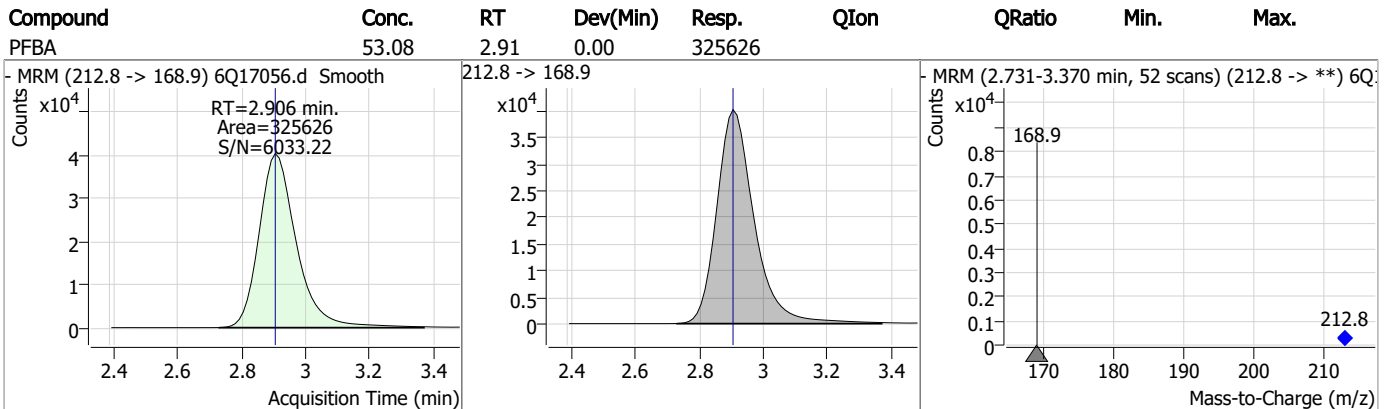
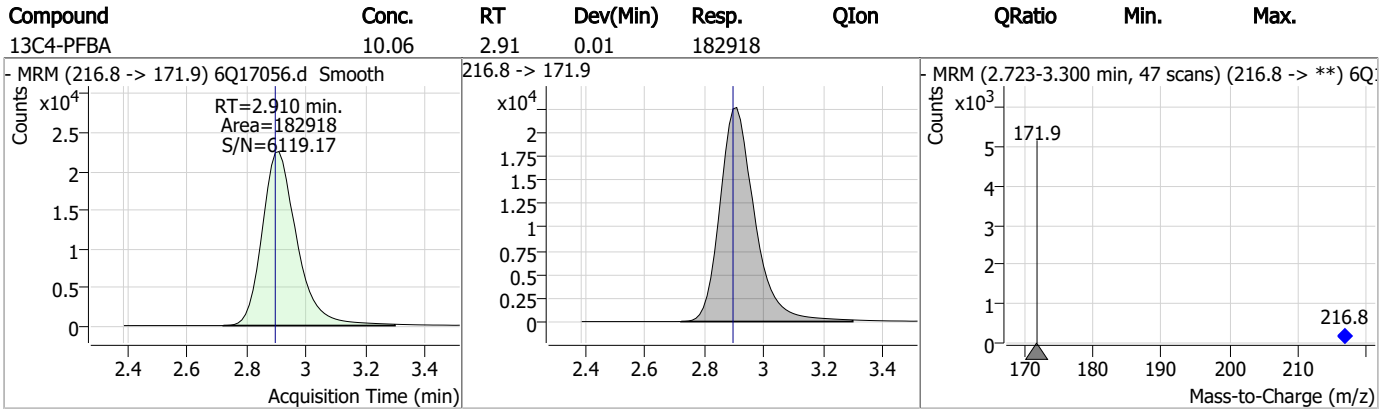
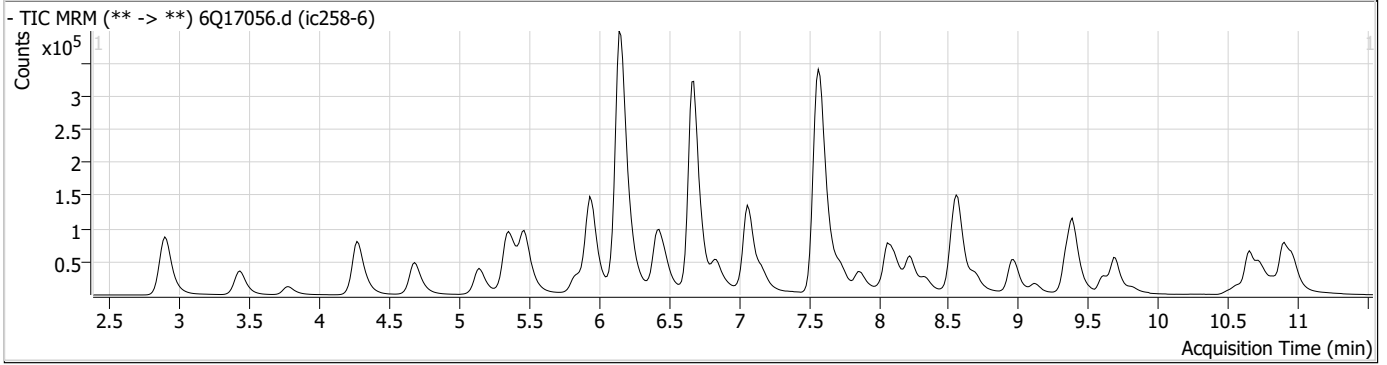
Perfluorinated Compounds by LC/MS/MS

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

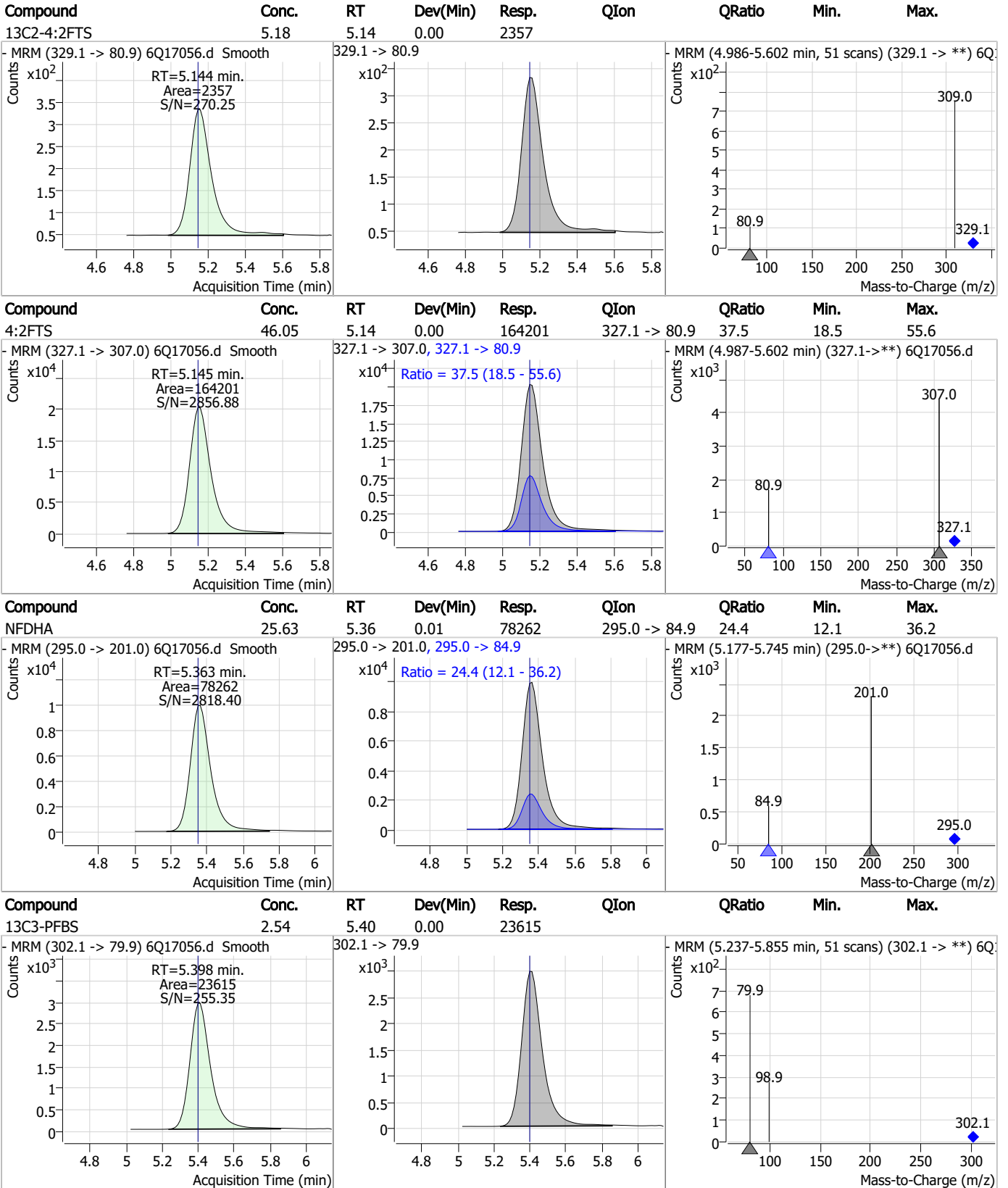


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	65.10	3.78	0.00	72254	241.0 -> 117.0	12.1	6.7	20.0
- MRM (241.0 -> 177.0) 6Q17056.d Smooth			241.0 -> 177.0, 241.0 -> 117.0			- MRM (3.609-4.178 min) (241.0->**) 6Q17056.d		
13C5-PFPeA	4.90	4.28	0.01	65165				
- MRM (268.3 -> 223.0) 6Q17056.d Smooth			268.3 -> 223.0			- MRM (4.095-4.676 min, 47 scans) (268.3 -> **) 6Q17056.d		
PFPeA	26.35	4.27	0.00	467679				
- MRM (263.0 -> 219.0) 6Q17056.d Smooth			263.0 -> 219.0			- MRM (4.110-4.740 min, 51 scans) (263.0 -> **) 6Q17056.d		
PFMBA	26.67	4.69	0.00	317585				
- MRM (279.0 -> 85.1) 6Q17056.d Smooth			279.0 -> 85.1			- MRM (4.512-5.153 min, 52 scans) (279.0 -> **) 6Q17056.d		

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Perfluorinated Compounds by LC/MS/MS

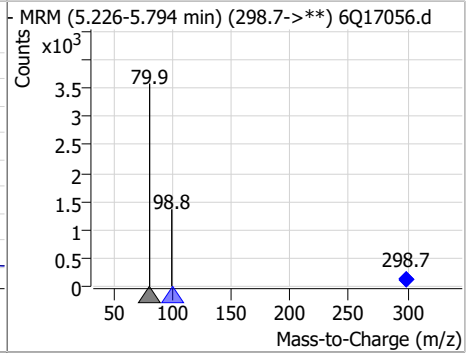
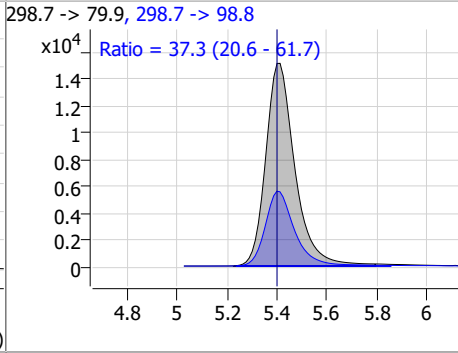
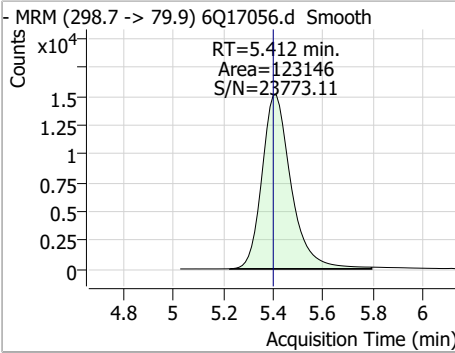


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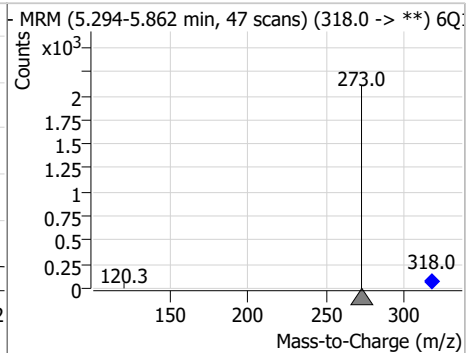
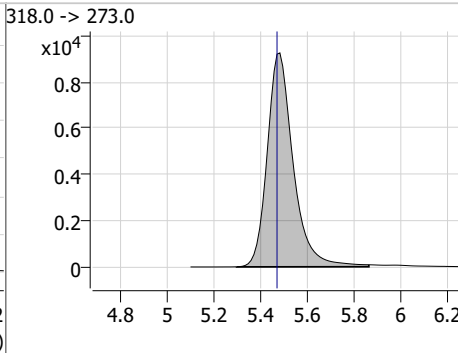
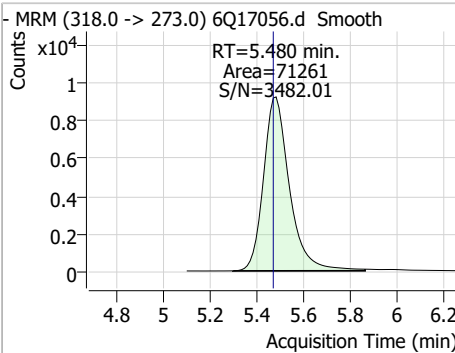
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Perfluorinated Compounds by LC/MS/MS

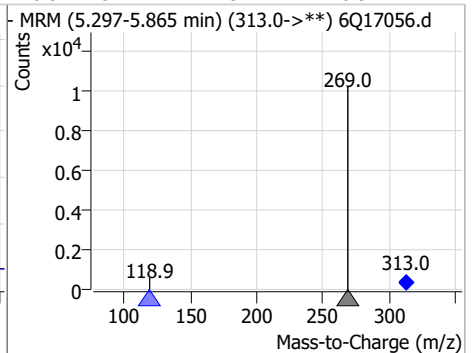
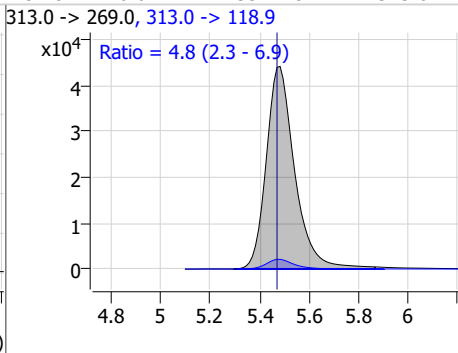
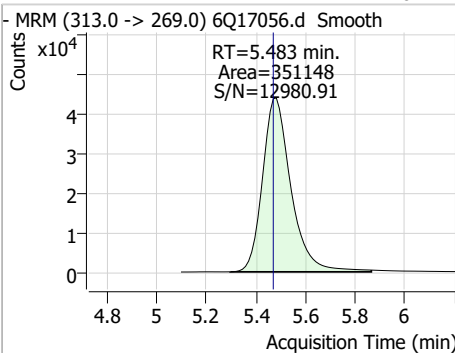
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	11.62	5.41	0.01	123146	298.7 -> 98.8	37.3	20.6	61.7



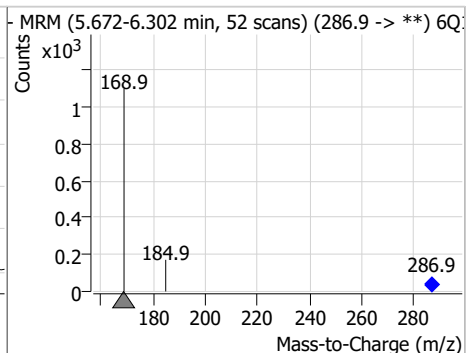
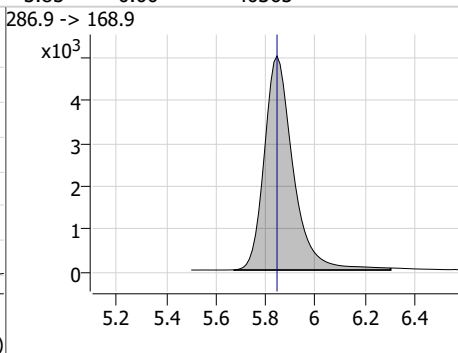
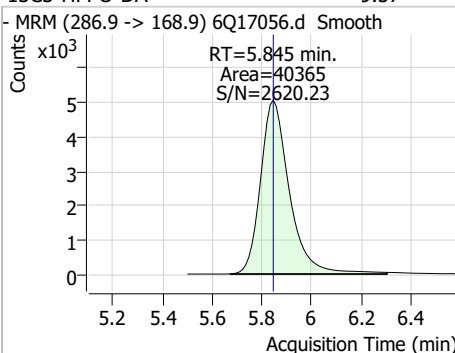
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.48	5.48	0.01	71261				



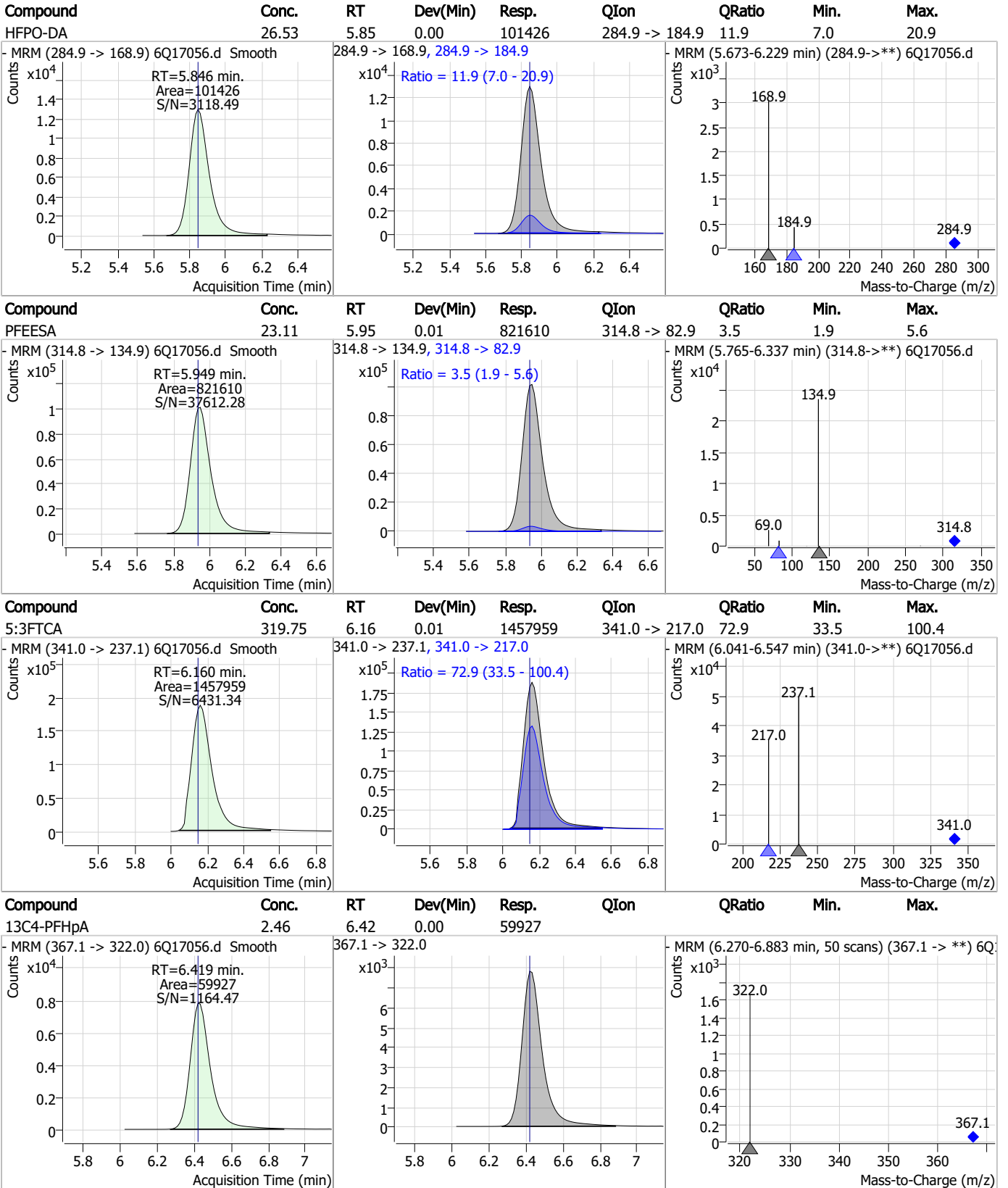
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	12.46	5.48	0.01	351148	313.0 -> 118.9	4.8	2.3	6.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.57	5.85	0.00	40365				



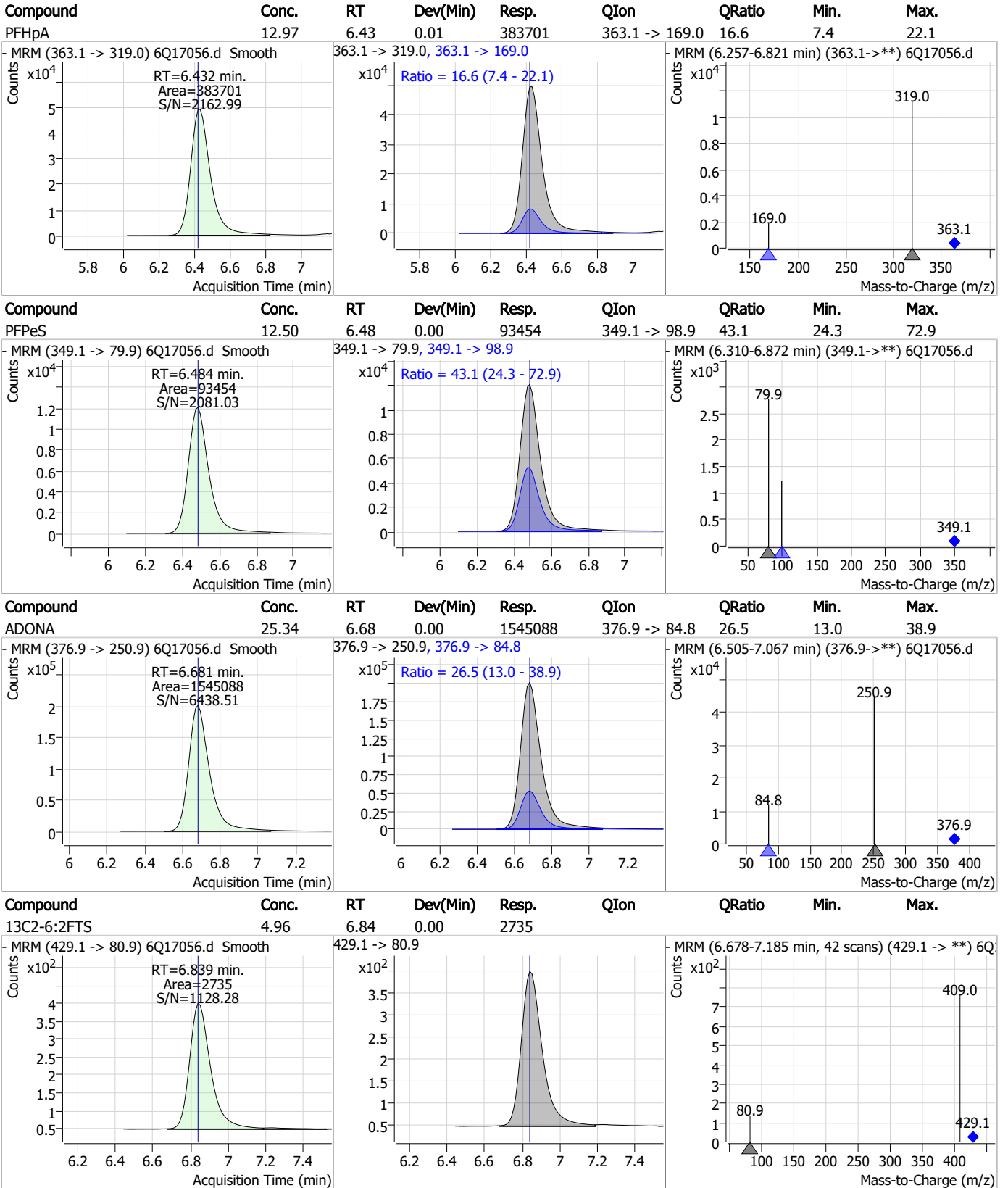
Perfluorinated Compounds by LC/MS/MS



7.6.7

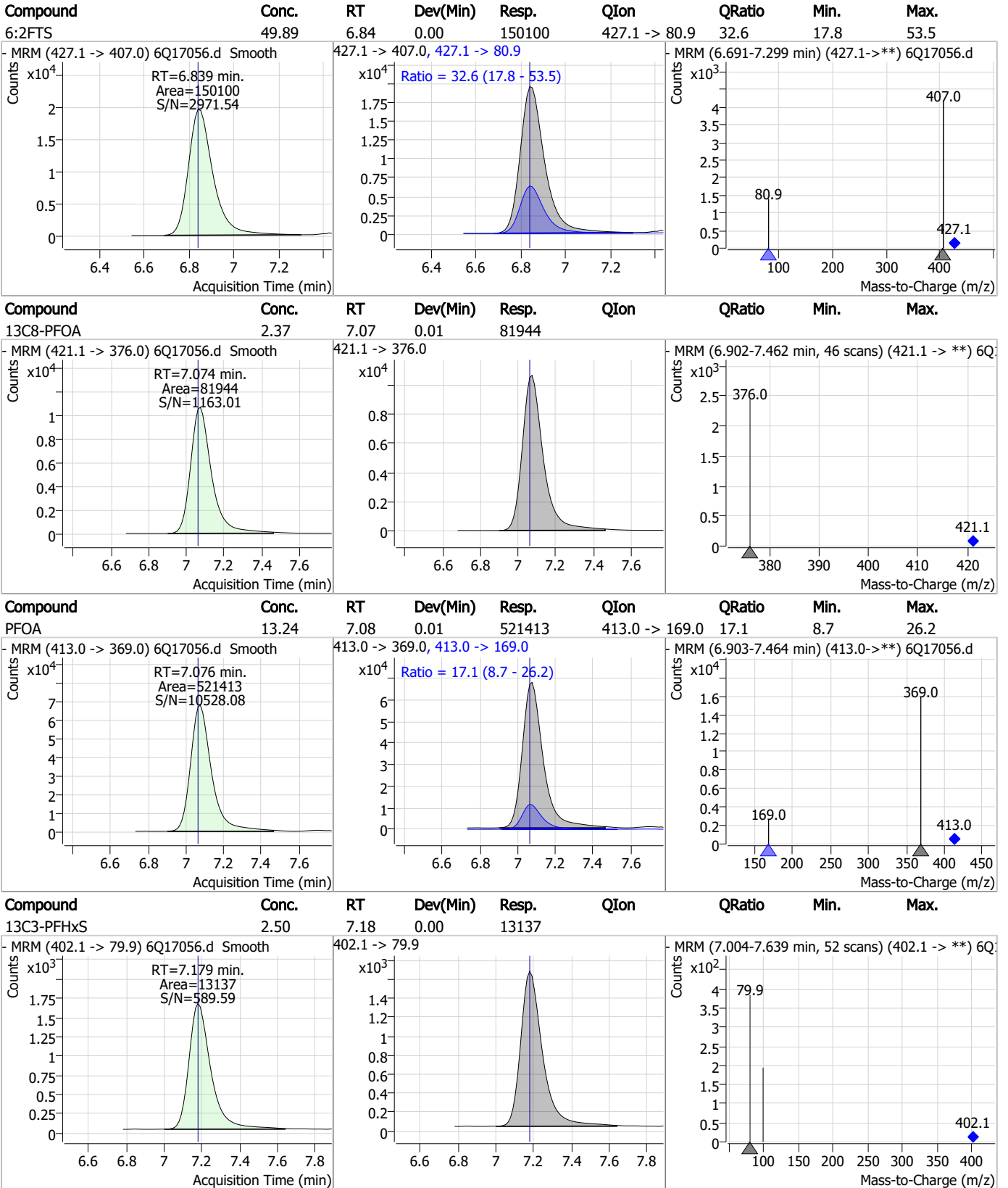
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Perfluorinated Compounds by LC/MS/MS



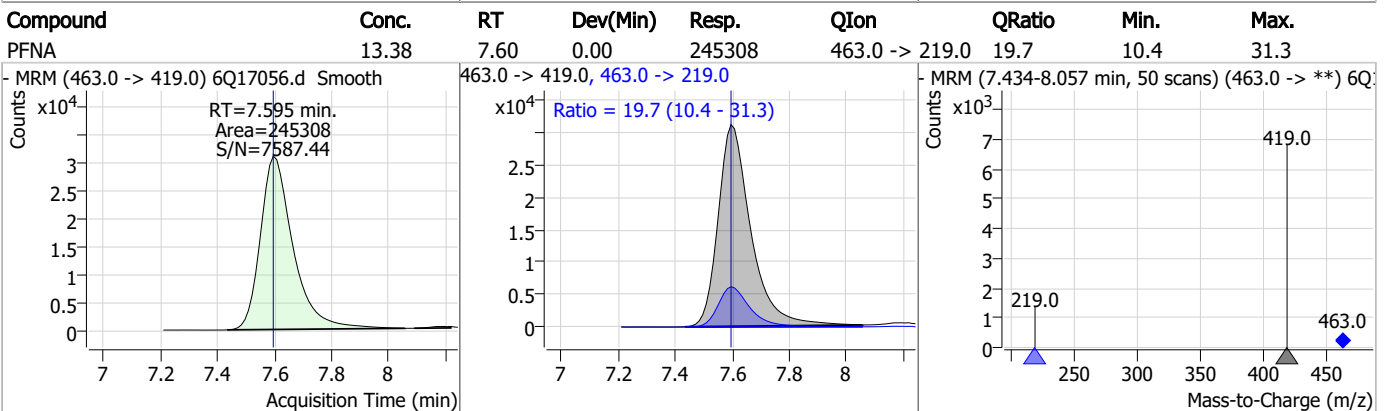
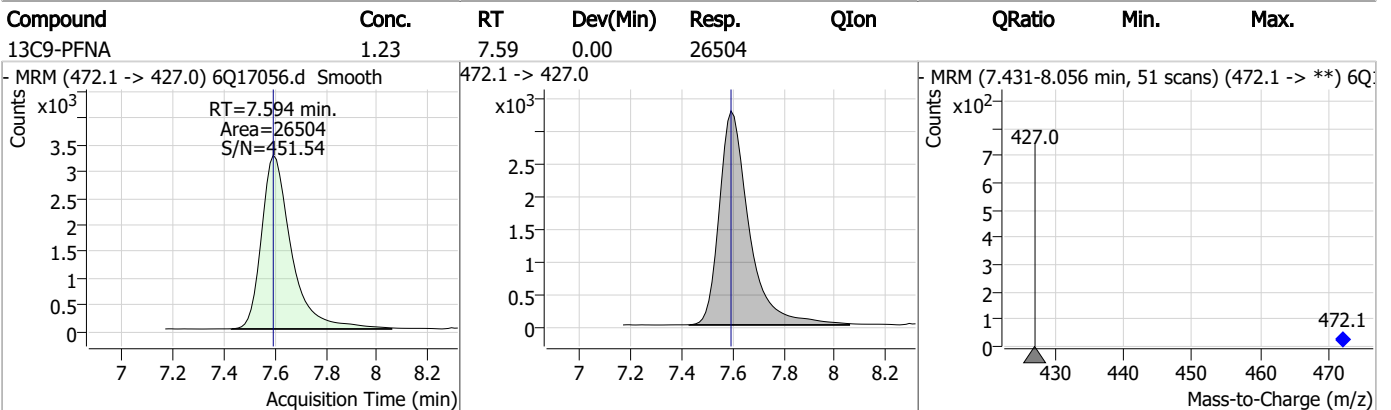
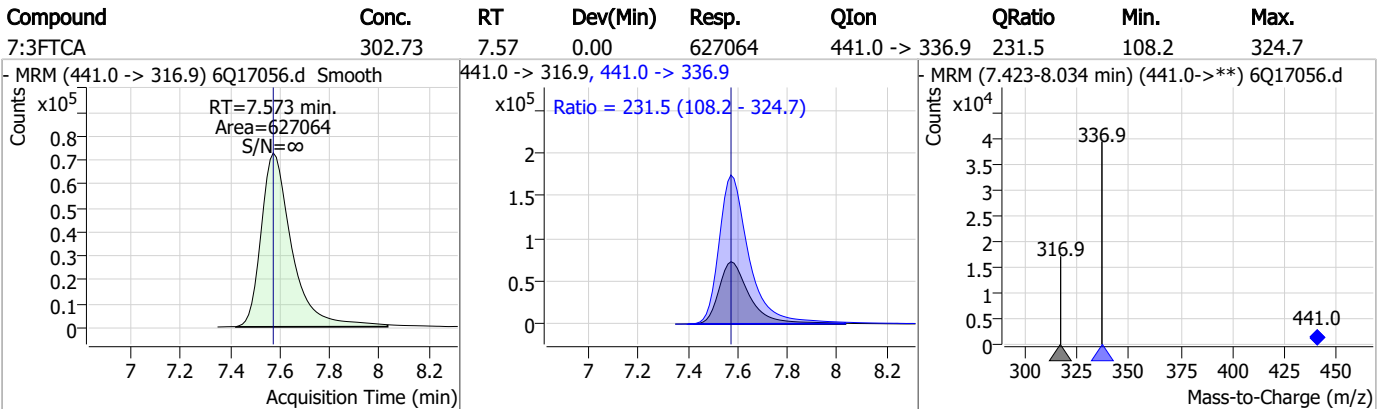
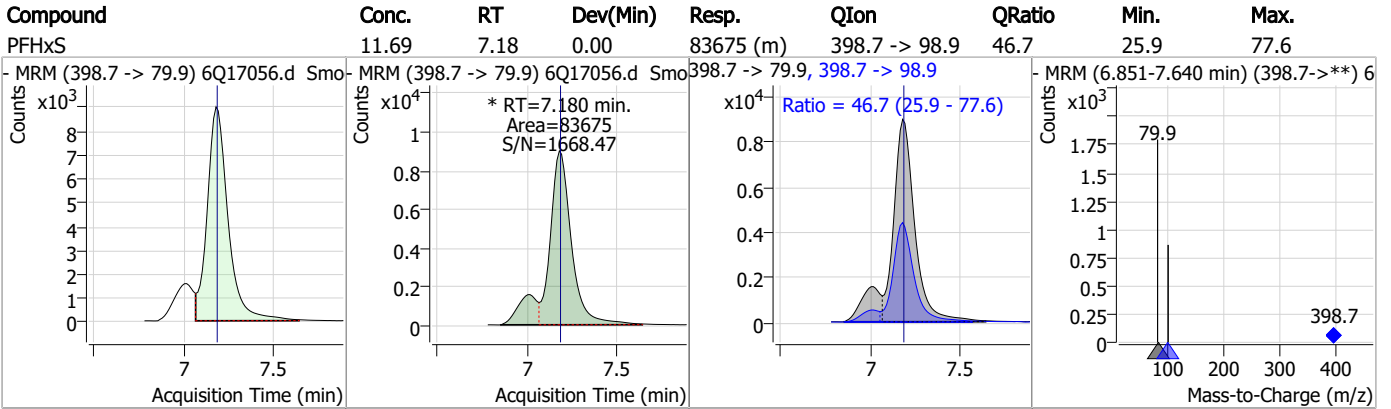
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Perfluorinated Compounds by LC/MS/MS



7.6.7

Perfluorinated Compounds by LC/MS/MS

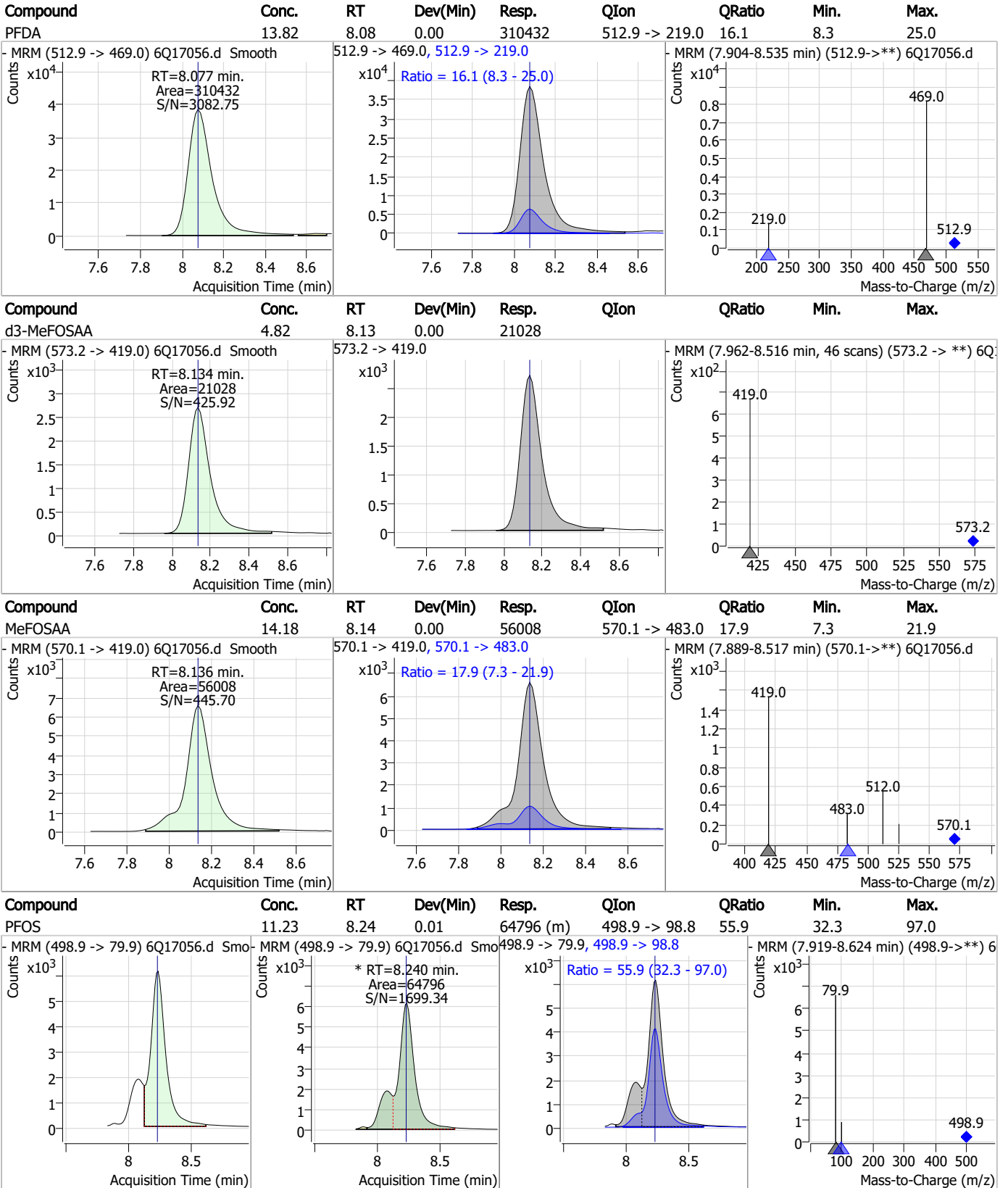


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	11.94	7.73	0.00	77309	449.0 -> 98.9	47.9	25.4	76.1
13C2-8:2FTS	5.10	7.88	0.01	3025	529.1 -> 80.9			
8:2FTS	50.28	7.87	0.00	90493	527.1 -> 80.8	38.9	20.3	61.0
13C6-PFDA	1.24	8.08	0.00	20674	519.1 -> 474.1			

7.6.7
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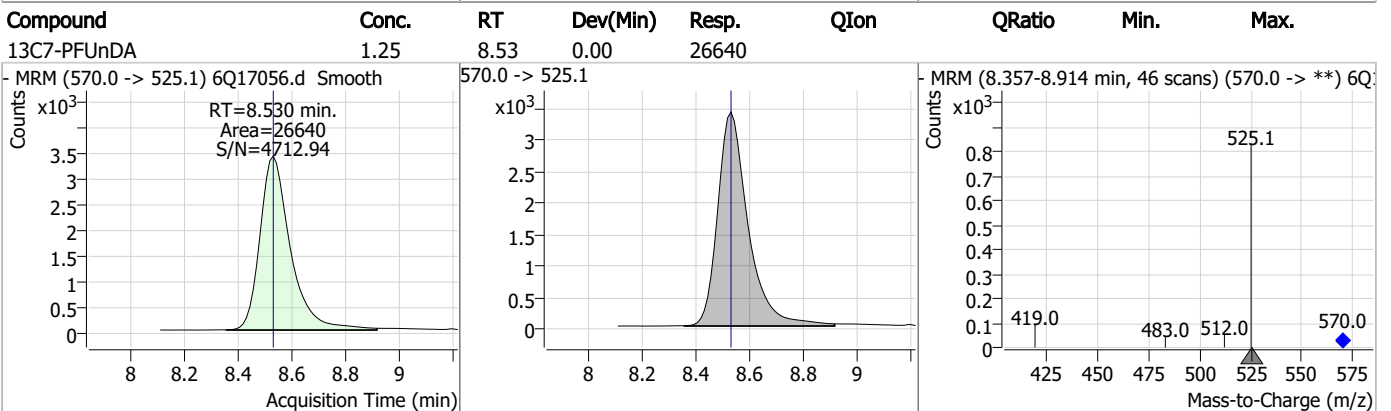
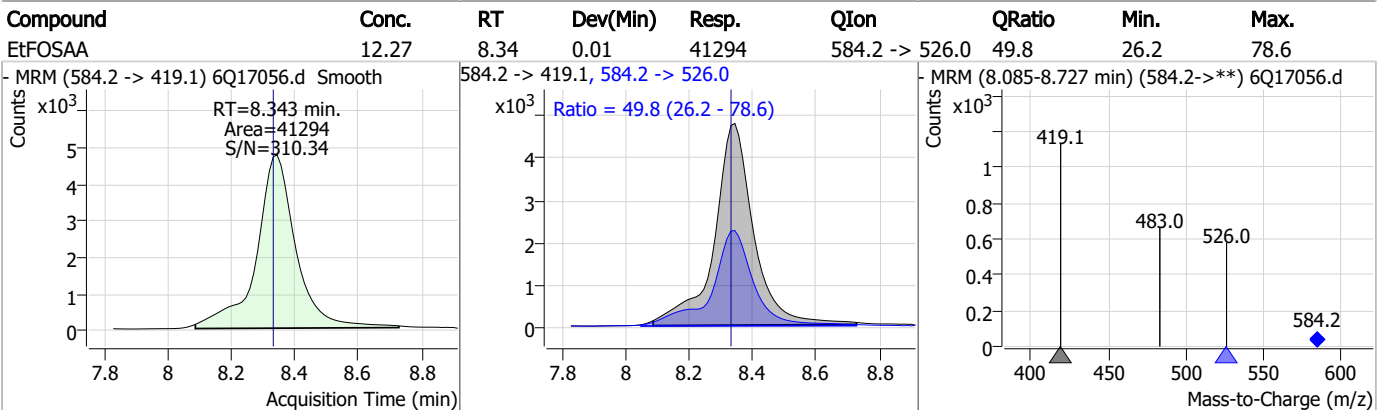
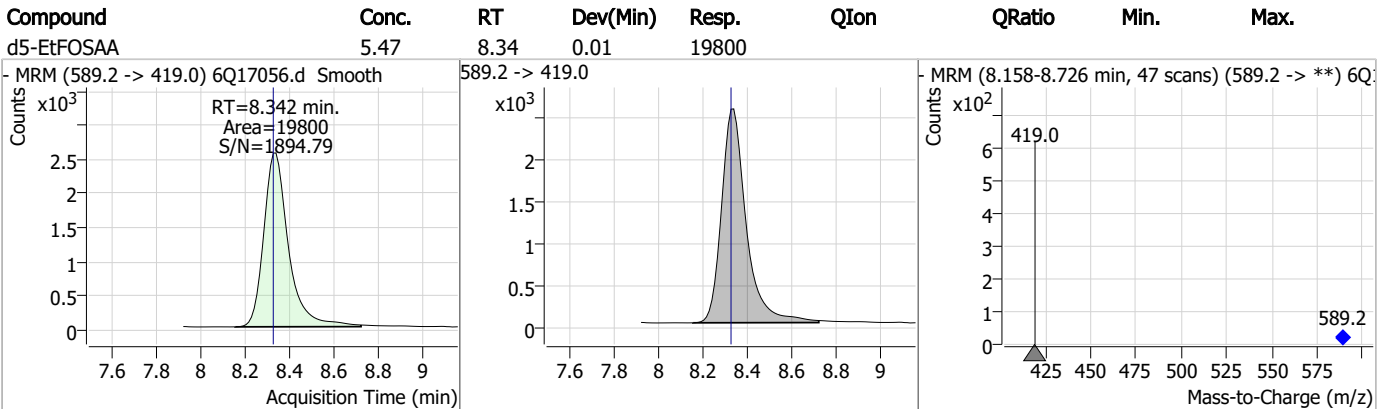
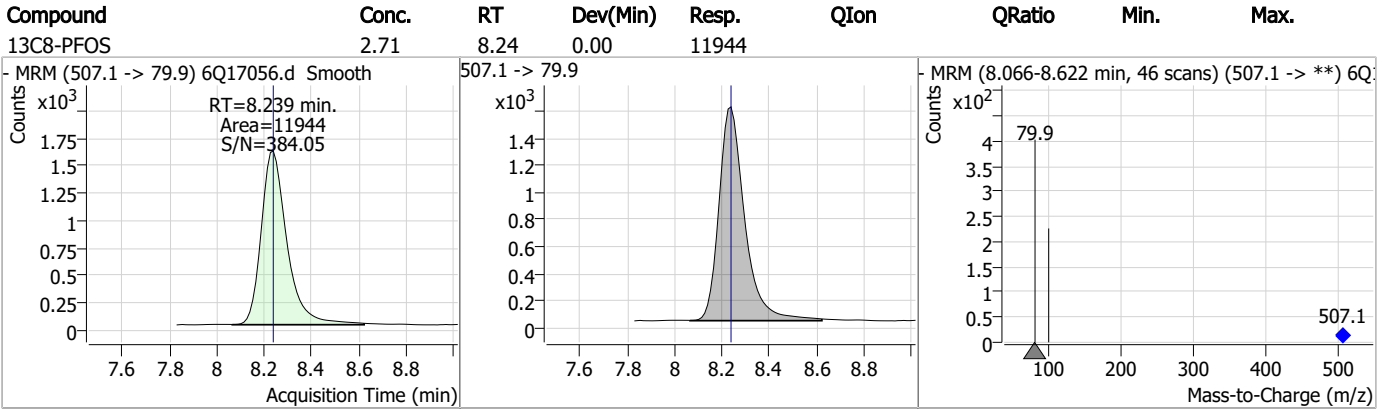
Perfluorinated Compounds by LC/MS/MS



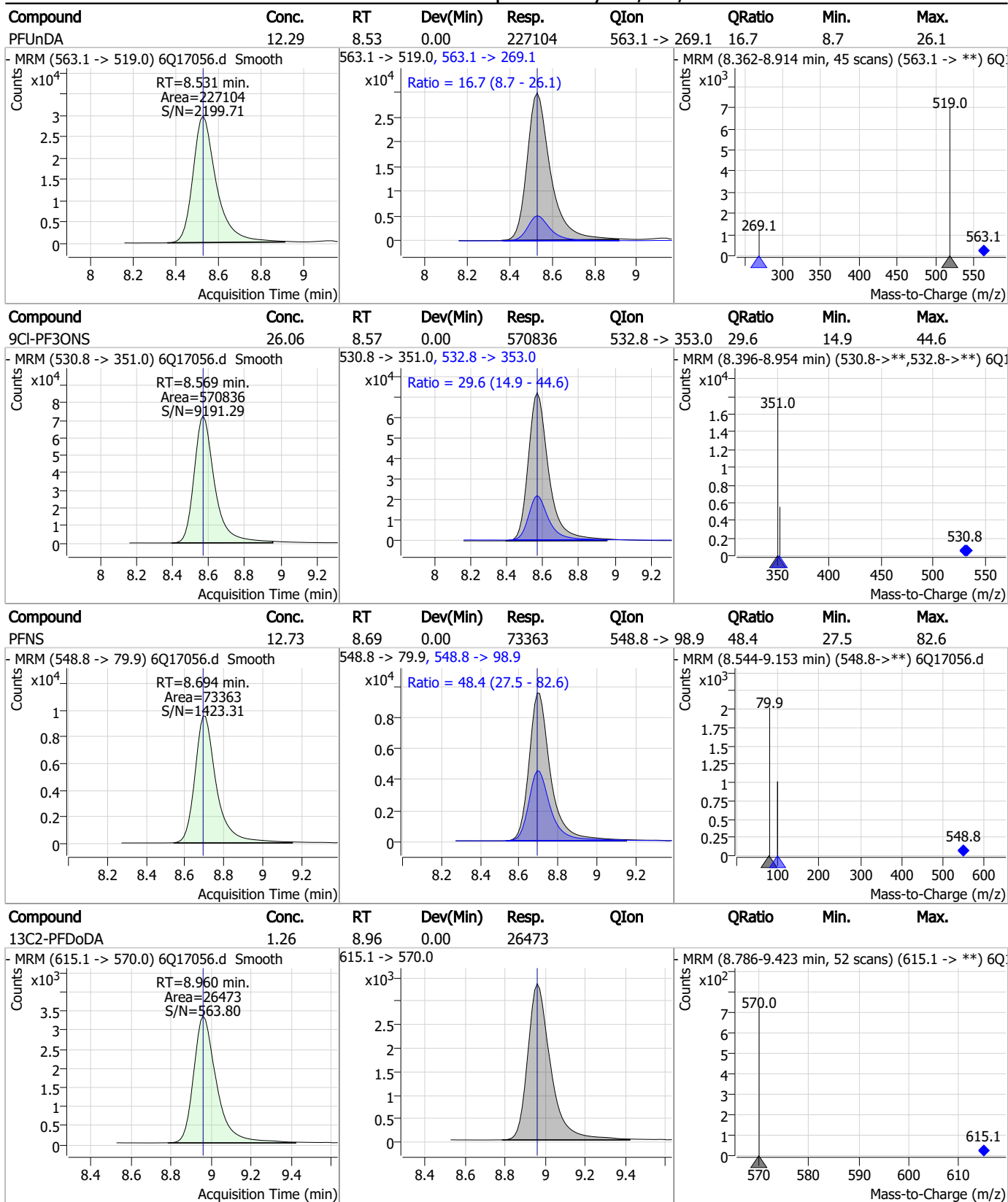
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Perfluorinated Compounds by LC/MS/MS

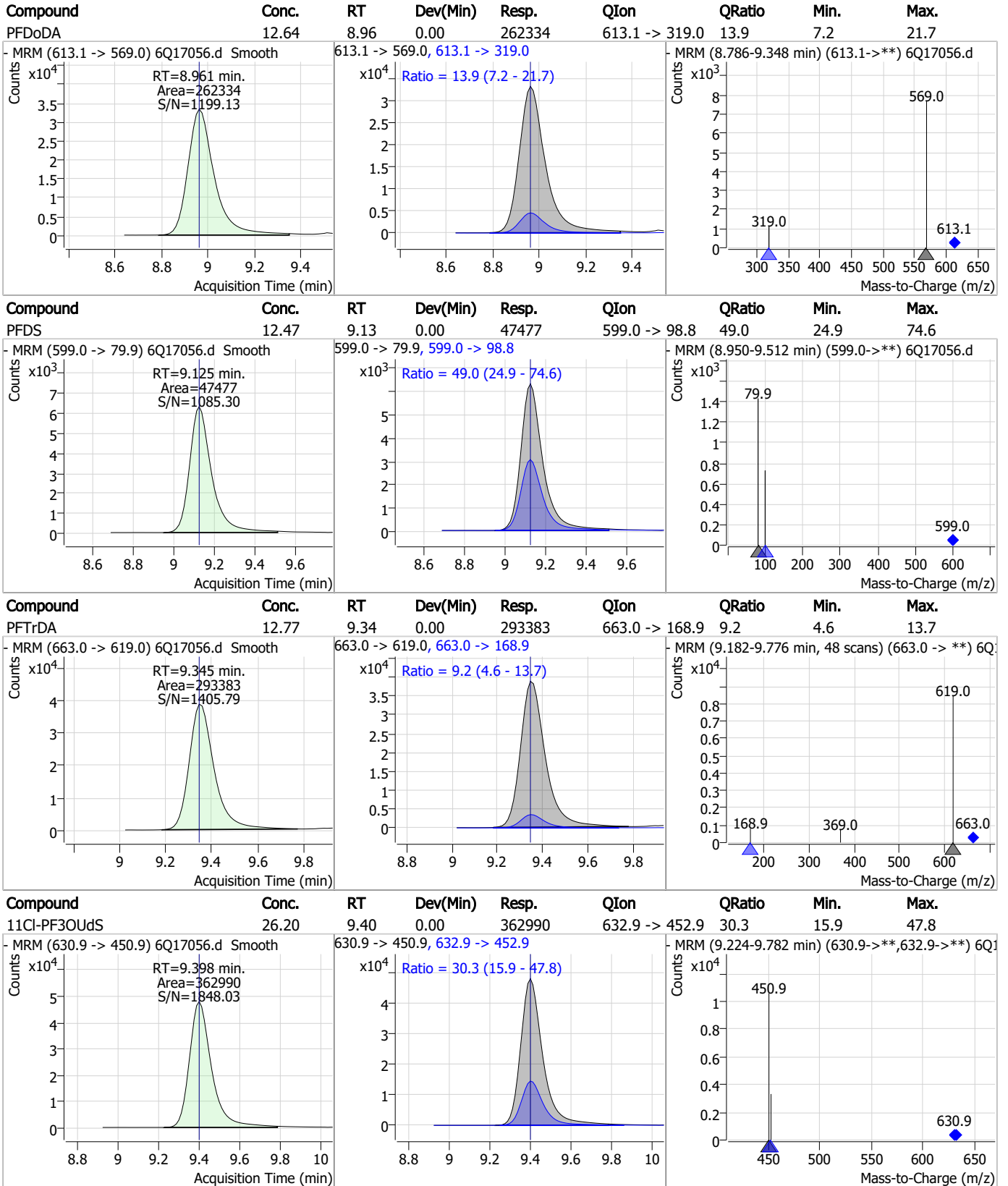


Perfluorinated Compounds by LC/MS/MS



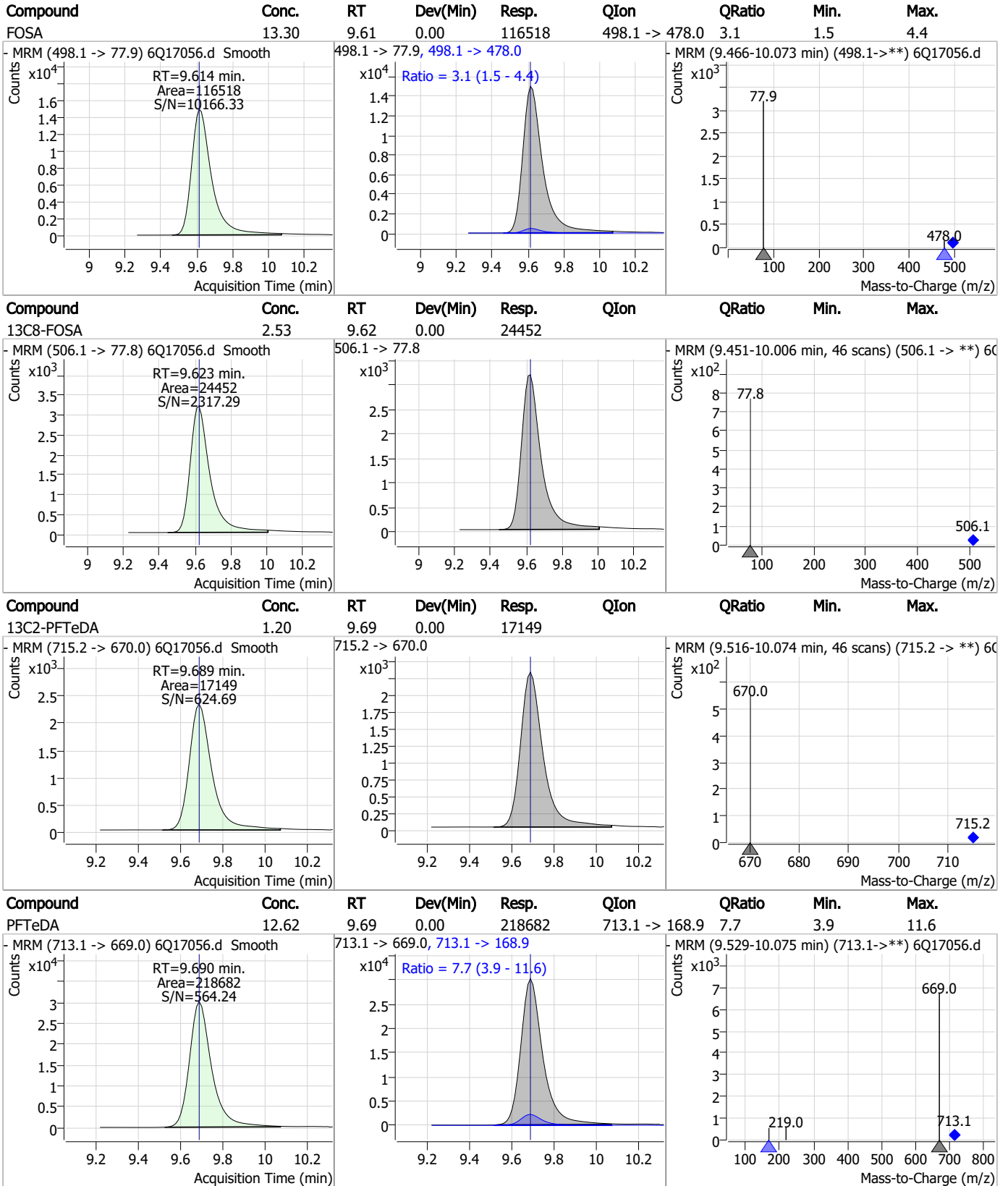
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Perfluorinated Compounds by LC/MS/MS



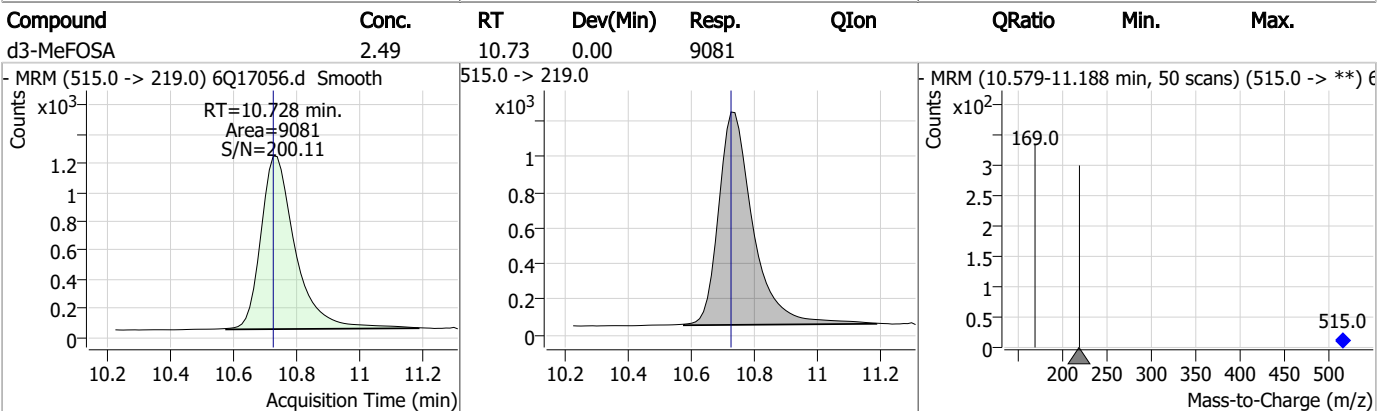
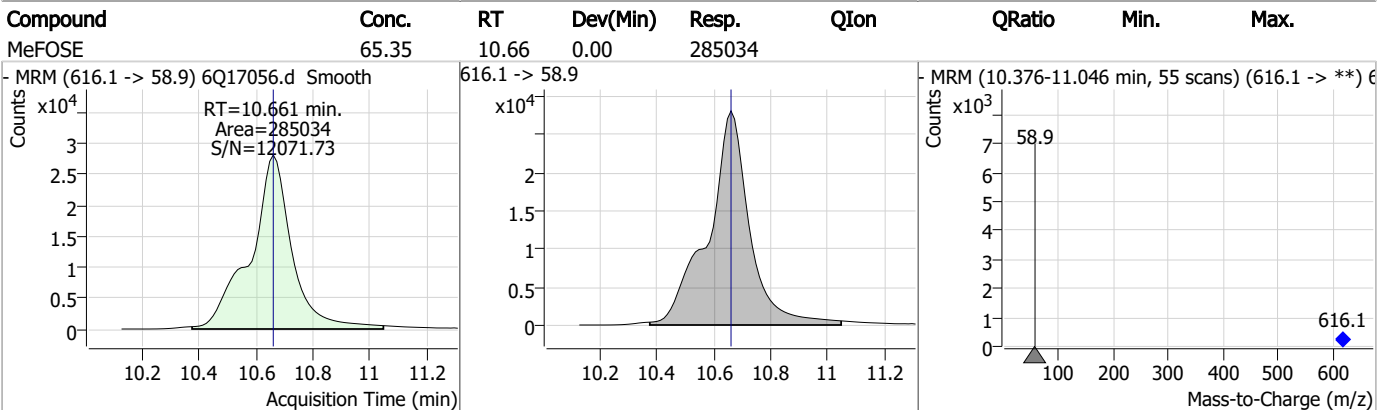
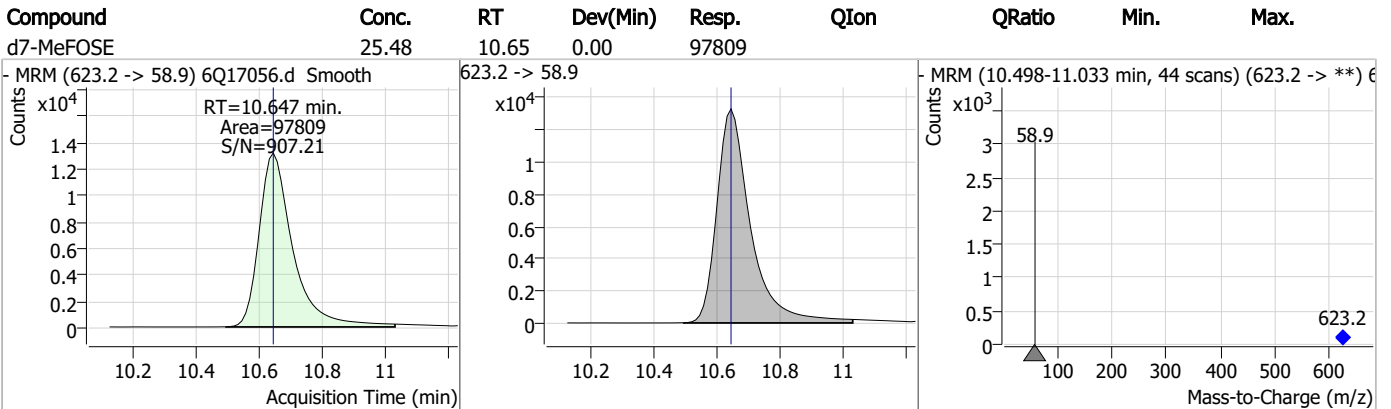
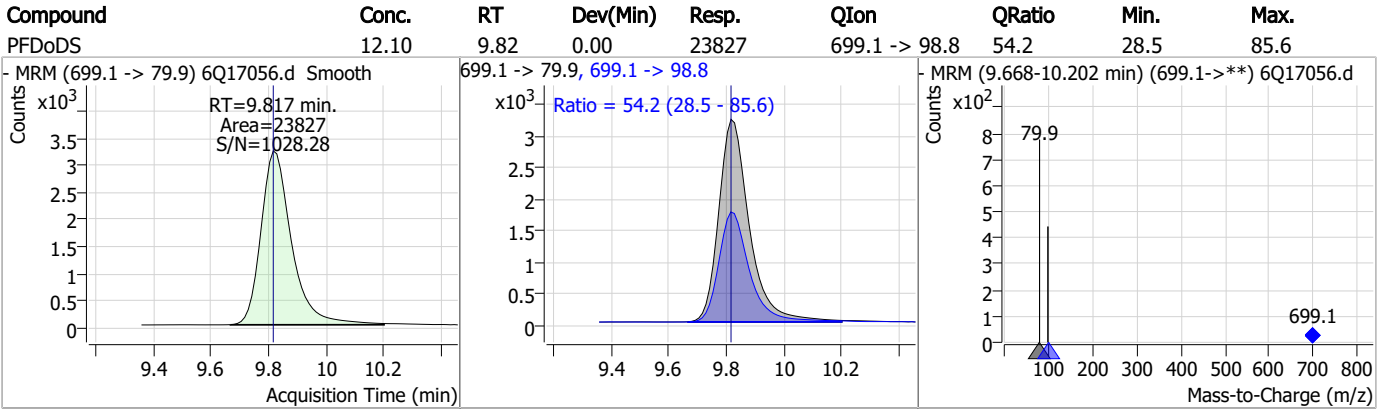
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Perfluorinated Compounds by LC/MS/MS

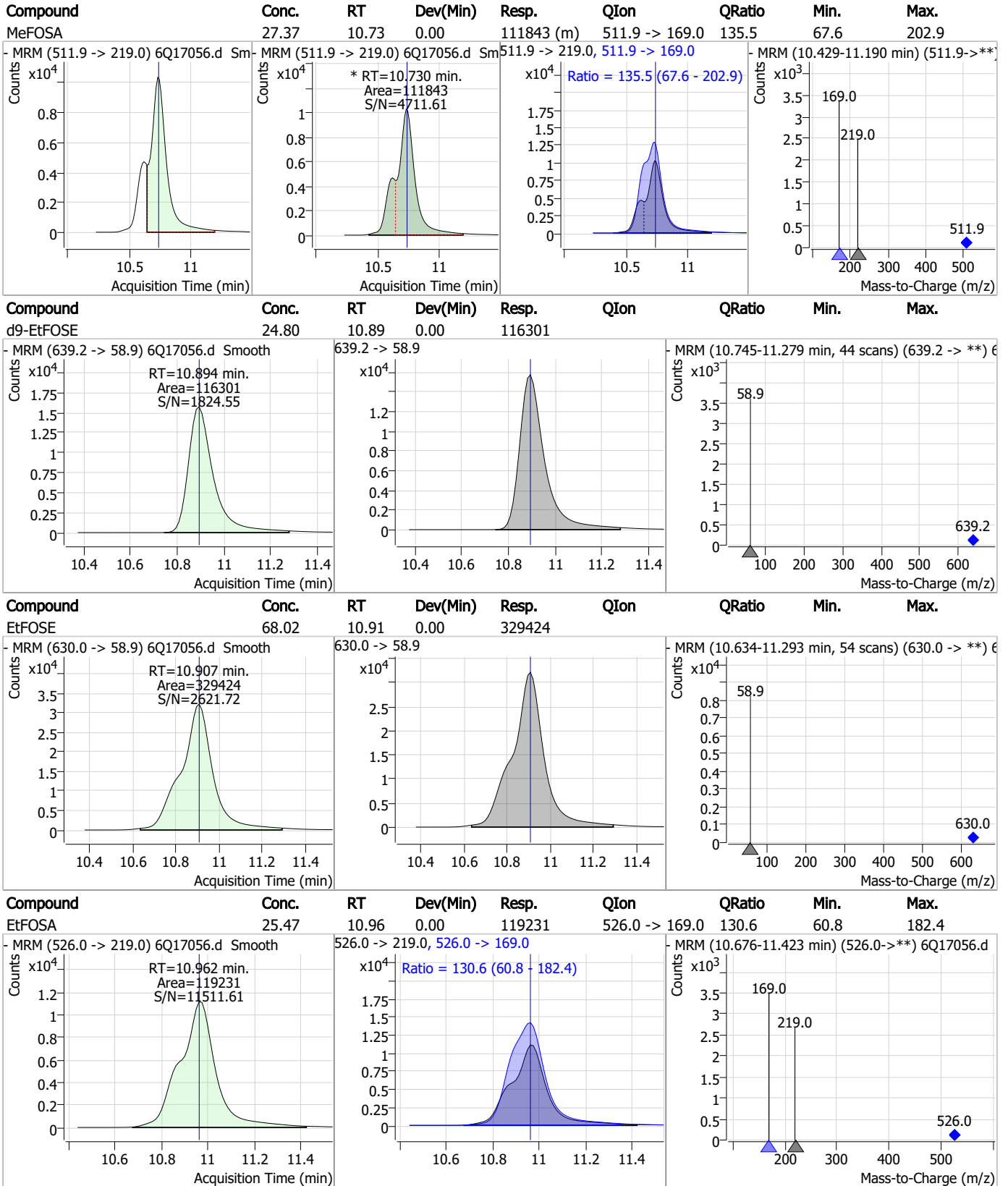


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Perfluorinated Compounds by LC/MS/MS



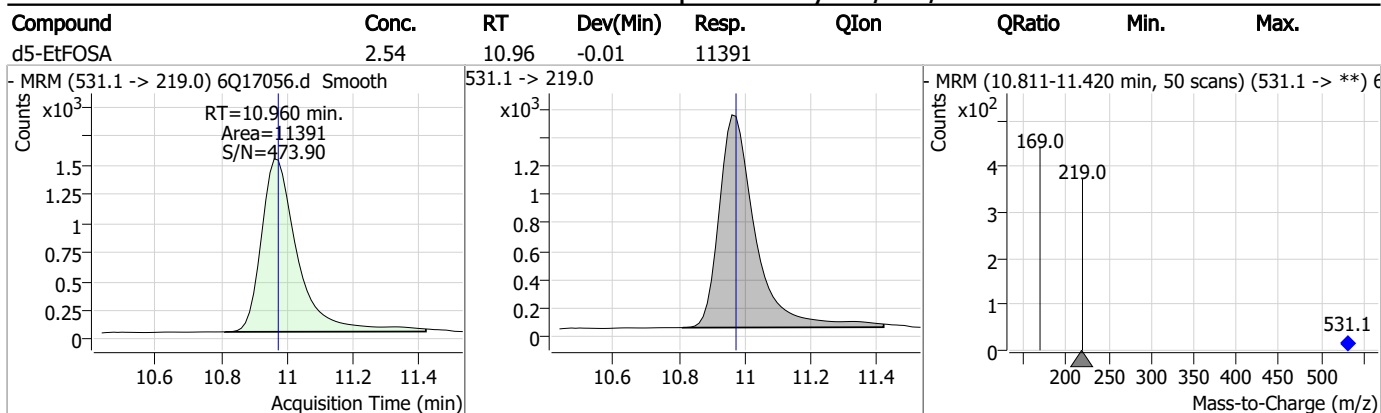
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



7.6.7

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Manual Integration Approval Summary

Sample Number: S6Q258-IC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17056.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 14:02 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.24	Split peak
MeFOSA	31506-32-8		10.73	Split peak

7.6.7.1

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Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
04/30/23 23:52

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17057.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 2:17:14 PM
 Sample Name : ic258-7
 Vial : P1-A8
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	171617	10.00 µg/L	0.000
M5-PFPeA	4.270	268.3 -> 223.0	62728	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	69796	2.50 µg/L	0.000
M4-PFHpA	6.431	367.1 -> 322.0	55432	2.50 µg/L	0.012
M8-PFOA	7.074	421.1 -> 376.0	81941	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	24894	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	19505	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	25578	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	25469	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17051	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	24360	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22160	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	13073	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	10608	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2115	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2521	5.00 µg/L	0.000
M2-8:2FTS	7.877	529.1 -> 80.9	2882	5.00 µg/L	0.012
M3-MeFOSAA	8.134	573.2 -> 419.0	23772	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	40565	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	17664	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	92654	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	108844	25.00 µg/L	0.000
M5-EtFOSA	10.973	531.1 -> 219.0	11433	2.50 µg/L	0.000
M3-MeFOSA	10.728	515.0 -> 219.0	9339	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	15534	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	74277	5.00 µg/L	0.000
18O2-PFHxS	7.190	403.0 -> 83.9	9415	2.50 µg/L	0.012
13C4-PFOA	7.075	417.1 -> 372.0	85076	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	24971	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	28190	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	56669	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2115	4.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2521	4.80 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.0%		
13C2-8:2FTS	7.877	529.1 -> 80.9	2882	5.10 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C2-PFDoDA	8.960	615.1 -> 570.0	25469	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17051	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C3-PFBS	5.398	302.1 -> 79.9	22160	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C3-PFHxS	7.179	402.1 -> 79.9	13073	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 = 104.3%	
13C4-PFBA	2.897	216.8 -> 171.9	171617	10.00 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFHpA	6.431	367.1 -> 322.0	55432	2.39 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.7%	
13C5-PFHxA	5.468	318.0 -> 273.0	69796	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C5-PFPeA	4.270	268.3 -> 223.0	62728	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C6-PFDA	8.076	519.1 -> 474.1	19505	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.7%	
13C7-PFUnDA	8.530	570.0 -> 525.1	25578	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C8-FOSA	9.623	506.1 -> 77.8	24360	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.9%	
13C8-PFOA	7.074	421.1 -> 376.0	81941	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C8-PFOS	8.239	507.1 -> 79.9	10608	2.27 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.7%	
13C9-PFNA	7.594	472.1 -> 427.0	24894	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.7%	
d3-MeFOSAA	8.134	573.2 -> 419.0	23772	5.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	40565	10.11 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
d3-MeFOSA	10.728	515.0 -> 219.0	9339	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.3%	
d5-EtFOSAA	8.330	589.2 -> 419.0	17664	4.59 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 91.8%	
d7-MeFOSE	10.647	623.2 -> 58.9	92654	22.73 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 90.9%	
d9-EtFOSE	10.894	639.2 -> 58.9	108844	21.85 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 87.4%	
d5-EtFOSA	10.973	531.1 -> 219.0	11433	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.0%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	342753	107.12 µg/L	96
		327.1 -> 80.9	117970		
6:2FTS	6.839	427.1 -> 407.0	276504	99.72 µg/L	93
		427.1 -> 80.9	88161		
8:2FTS	7.865	527.1 -> 507.0	158285	92.31 µg/L	97
		527.1 -> 80.8	67442		
EtFOSAA	8.331	584.2 -> 419.1	78711	26.22 µg/L	m 97
		584.2 -> 526.0	42695		
FOSA	9.614	498.1 -> 77.9	227449	26.06 µg/L	100
		498.1 -> 478.0	6609		
MeFOSAA	8.136	570.1 -> 419.0	105513	23.64 µg/L	88
		570.1 -> 483.0	20730		
PFBA	2.906	212.8 -> 168.9	610169	106.01 µg/L	100
PFBS	5.400	298.7 -> 79.9	228961	23.03 µg/L	98
		298.7 -> 98.8	91659		
PFDA	8.077	512.9 -> 469.0	595413	28.09 µg/L	100
		512.9 -> 219.0	97927		
PFDoDA	8.961	613.1 -> 569.0	509639	25.52 µg/L	99
		613.1 -> 319.0	72360		
PFDS	9.125	599.0 -> 79.9	90601	26.80 µg/L	97

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	43202			
PFHpA	6.420	363.1 -> 319.0	772571	28.24	µg/L	97
		363.1 -> 169.0	123104			
PFHpS	7.746	449.0 -> 79.9	148414	25.82	µg/L	94
		449.0 -> 98.9	69407			
PFHxA	5.470	313.0 -> 269.0	707757	25.65	µg/L	100
		313.0 -> 118.9	31996			
PFHxS	7.180	398.7 -> 79.9	160575	22.54	µg/L	m 92
		398.7 -> 98.9	74028			
PFNA	7.595	463.0 -> 419.0	489652	28.43	µg/L	96
		463.0 -> 219.0	92096			
PFNS	8.706	548.8 -> 79.9	130947	25.58	µg/L	94
		548.8 -> 98.9	66596			
PFOA	7.063	413.0 -> 369.0	974708	24.70	µg/L	100
		413.0 -> 169.0	169979			
PFOS	8.228	498.9 -> 79.9	135647	26.48	µg/L	m 82
		498.9 -> 98.8	68222			
PFPeA	4.273	263.0 -> 219.0	902840	52.84	µg/L	100
PFPeS	6.484	349.1 -> 79.9	179655	24.15	µg/L	93
		349.1 -> 98.9	78892			
PFTeDA	9.690	713.1 -> 669.0	440013	25.53	µg/L	100
		713.1 -> 168.9	33368			
PFTrDA	9.345	663.0 -> 619.0	562349	25.45	µg/L	97
		663.0 -> 168.9	57053			
PFUnDA	8.531	563.1 -> 519.0	484125	27.29	µg/L	96
		563.1 -> 269.1	74884			
11CI-PF3OUdS	9.398	630.9 -> 450.9	700187	50.30	µg/L	99
		632.9 -> 452.9	217767			
9CI-PF3ONS	8.569	530.8 -> 351.0	1067589	48.50	µg/L	93
		532.8 -> 353.0	360258			
ADONA	6.681	376.9 -> 250.9	3057274	49.89	µg/L	99
		376.9 -> 84.8	771305			
HFPO-DA	5.834	284.9 -> 168.9	192769	50.17	µg/L	98
		284.9 -> 184.9	25121			
3:3FTCA	3.771	241.0 -> 177.0	143801	134.60	µg/L	97
		241.0 -> 117.0	17541			
5:3FTCA	6.160	341.0 -> 237.1	2859211	640.22	µg/L	94
		341.0 -> 217.0	2041333			
7:3FTCA	7.573	441.0 -> 316.9	1310450	645.92	µg/L	95
		441.0 -> 336.9	2731216			
EtFOSA	10.962	526.0 -> 219.0	245641	52.27	µg/L	99
		526.0 -> 169.0	302019			
EtFOSE	10.907	630.0 -> 58.9	636552	140.43	µg/L	100
MeFOSA	10.730	511.9 -> 219.0	217141	51.66	µg/L	m 98
		511.9 -> 169.0	289808			
MeFOSE	10.661	616.1 -> 58.9	569571	137.84	µg/L	100
PFDoS	9.817	699.1 -> 79.9	47201	27.00	µg/L	94
		699.1 -> 98.8	24753			
NFDHA	5.350	295.0 -> 201.0	151737	50.73	µg/L	99
		295.0 -> 84.9	37223			
PFMBA	4.687	279.0 -> 85.1	609667	53.19	µg/L	100
PFMPA	3.438	229.0 -> 84.9	459603	53.75	µg/L	100
PFEESA	5.937	314.8 -> 134.9	1587215	45.58	µg/L	99
		314.8 -> 82.9	53428			

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

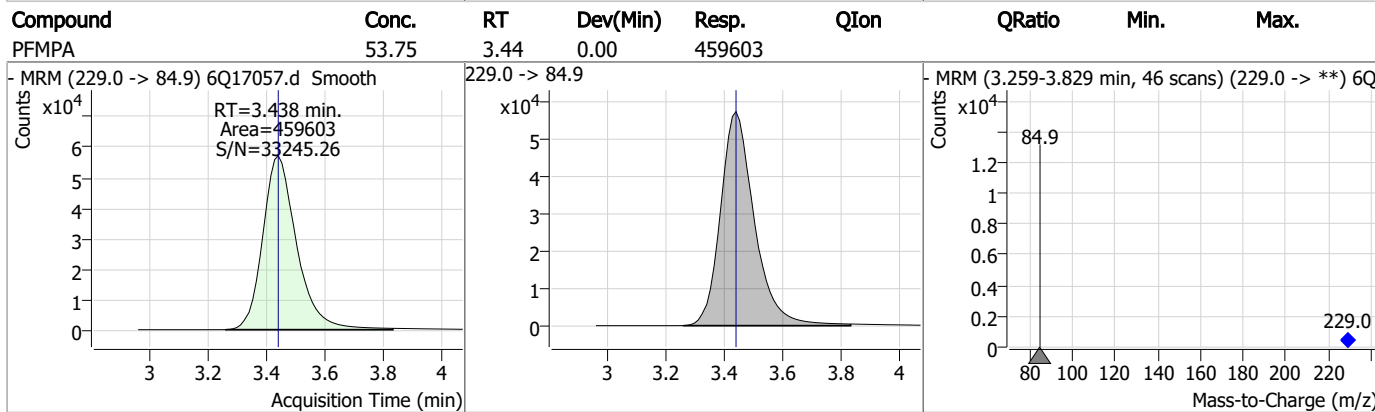
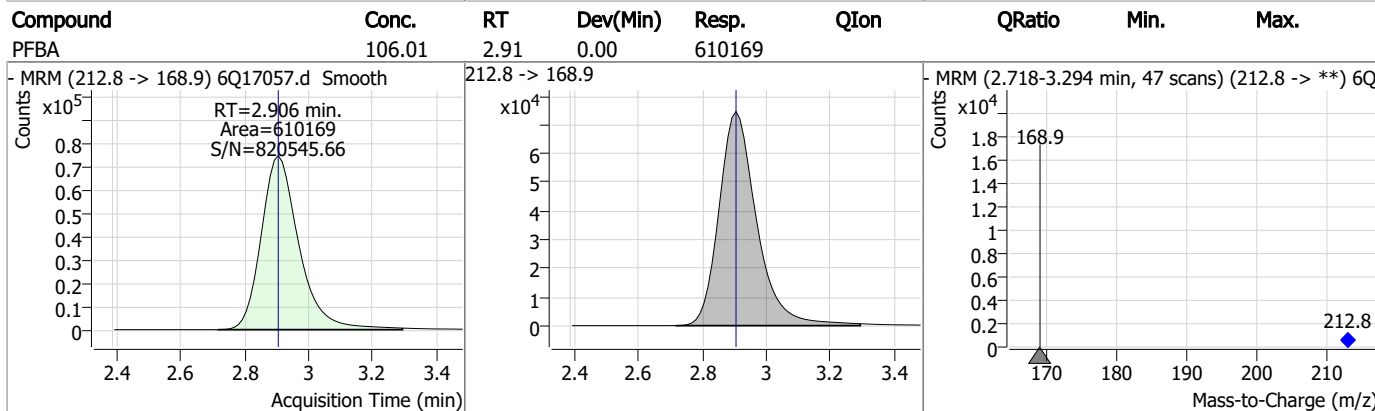
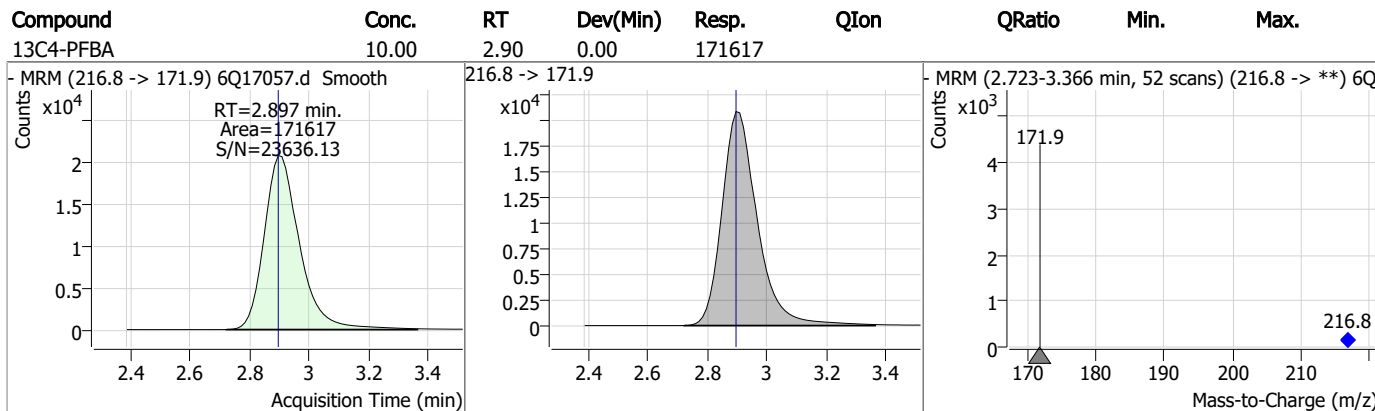
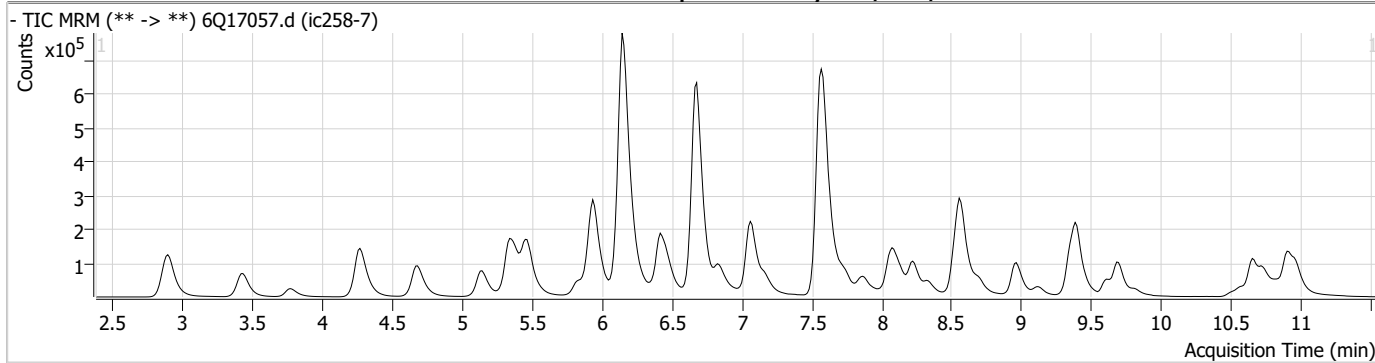
Perfluorinated Compounds by LC/MS/MS

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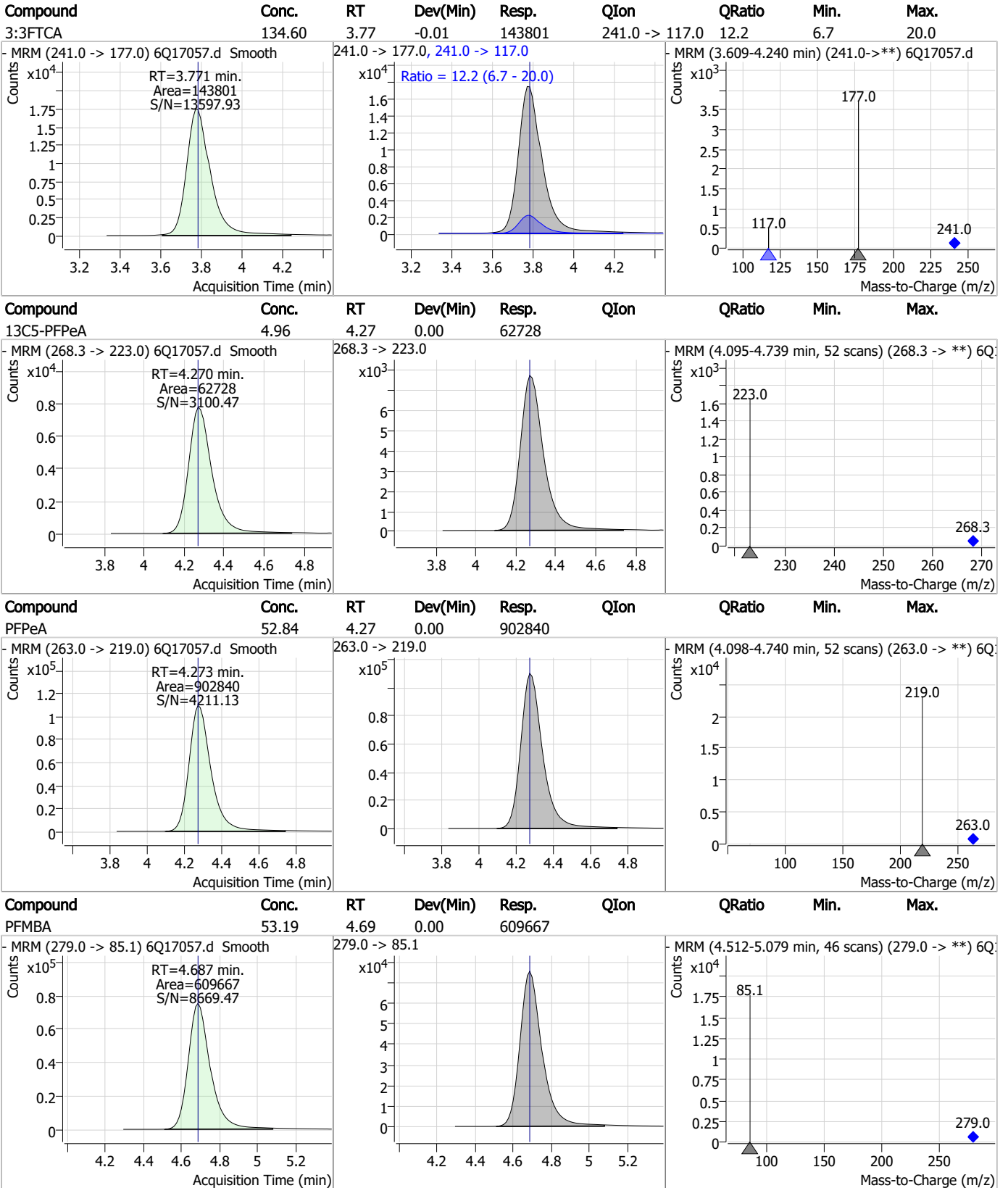
7.6.8
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Perfluorinated Compounds by LC/MS/MS



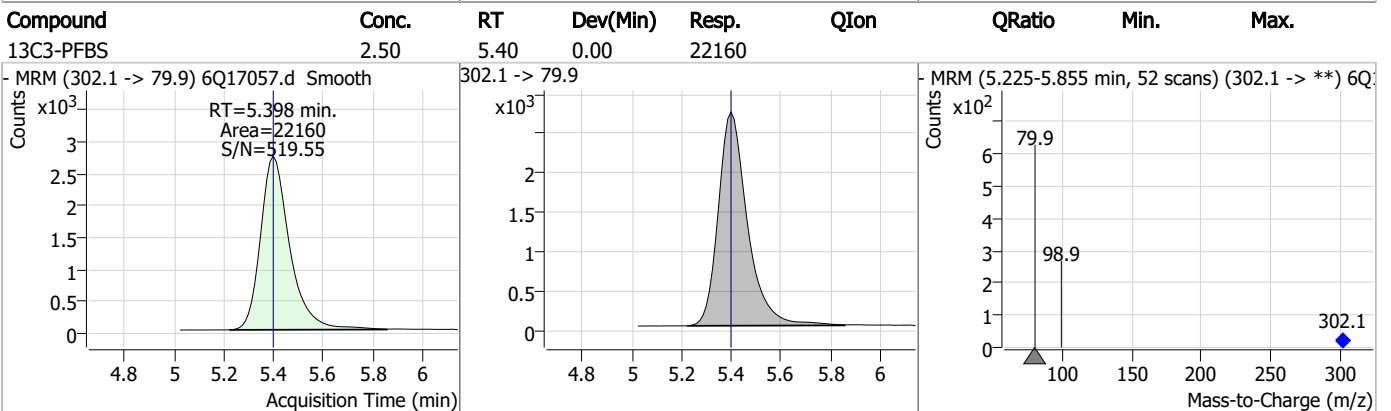
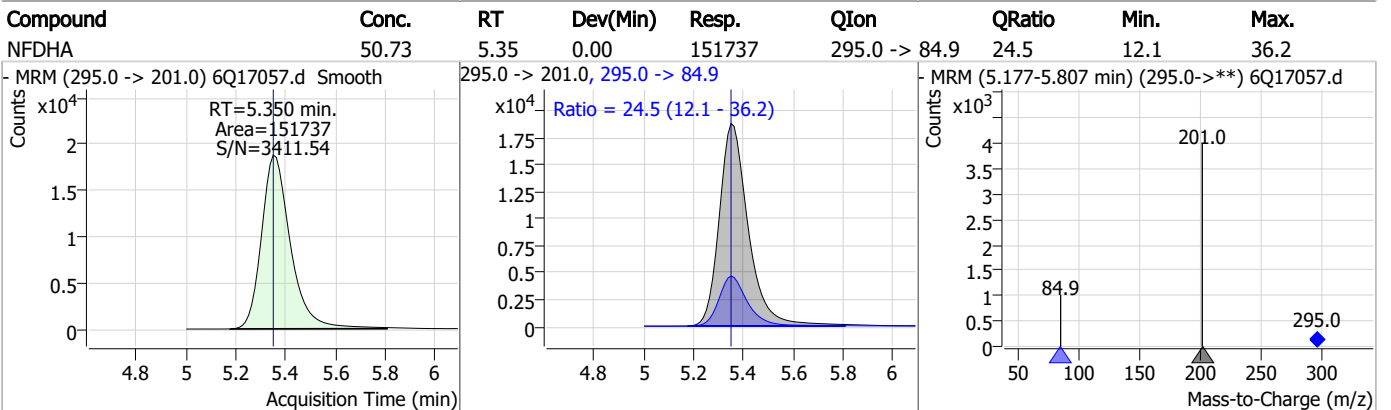
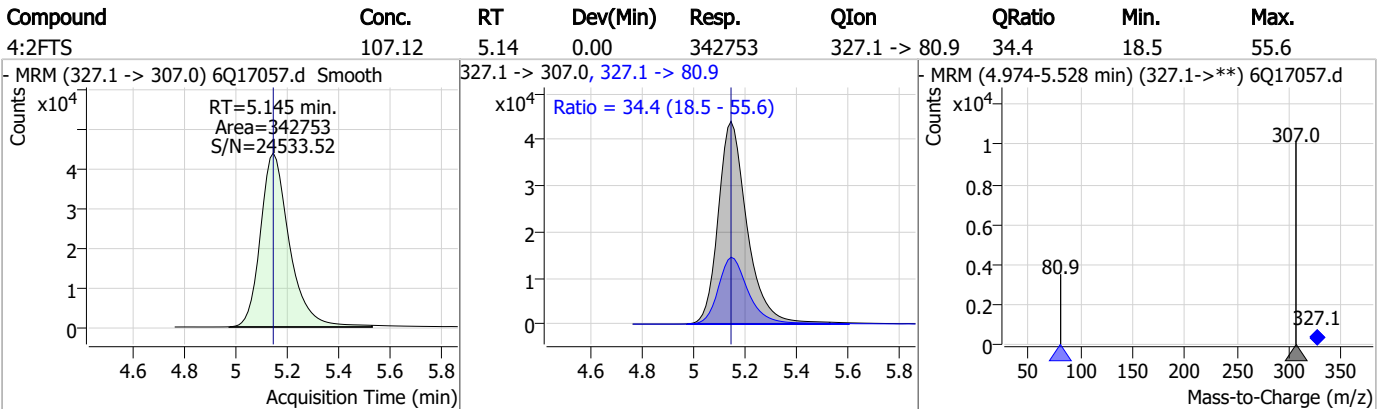
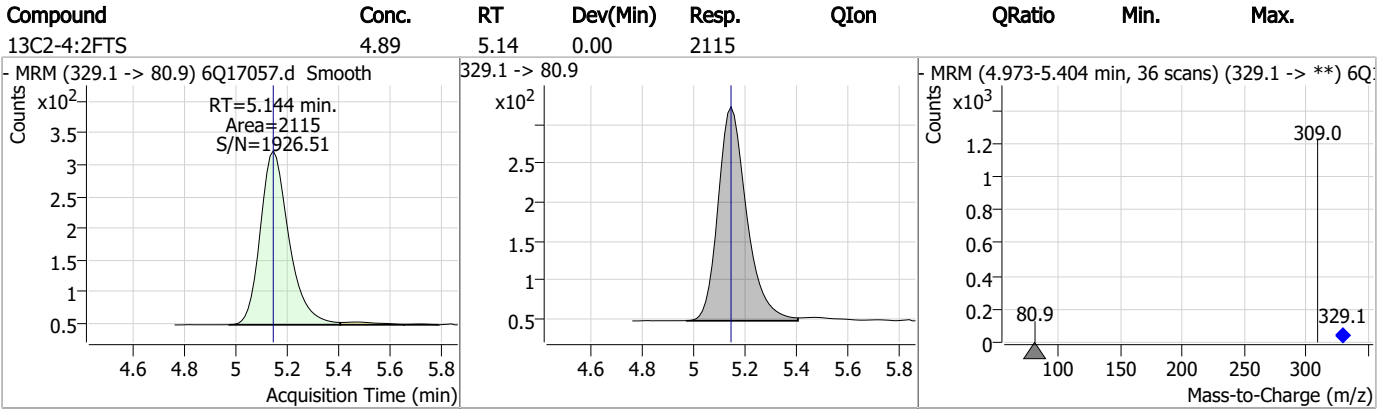
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

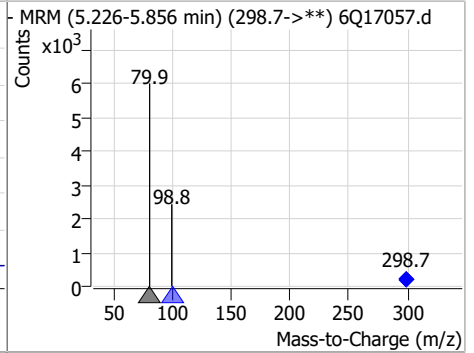
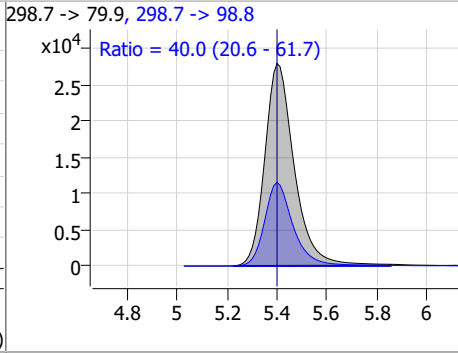
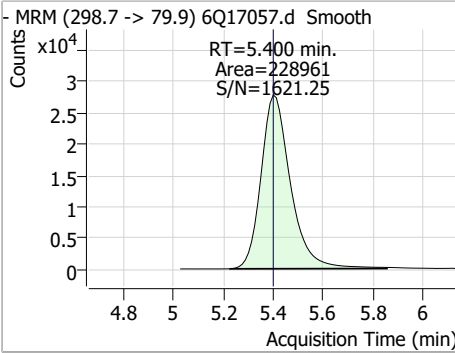


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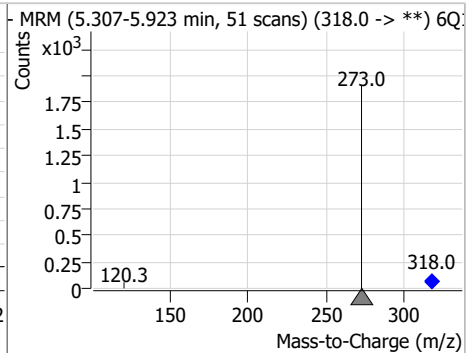
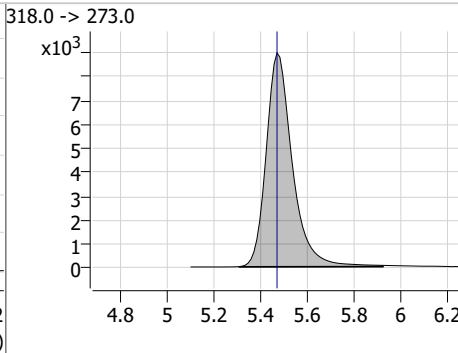
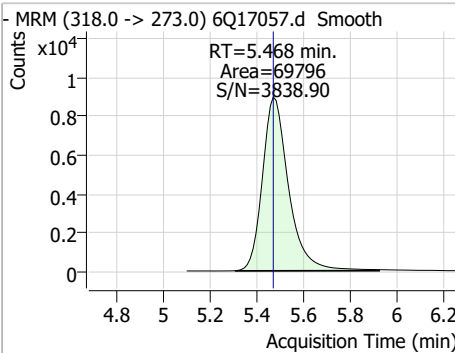
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Perfluorinated Compounds by LC/MS/MS

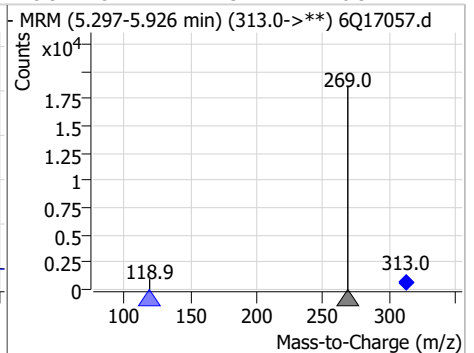
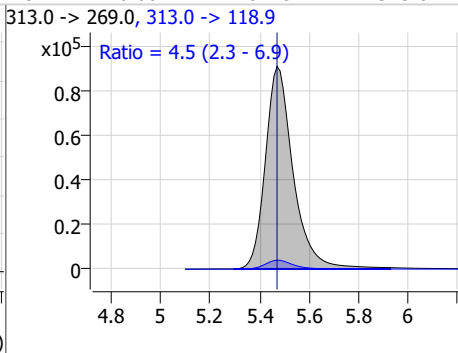
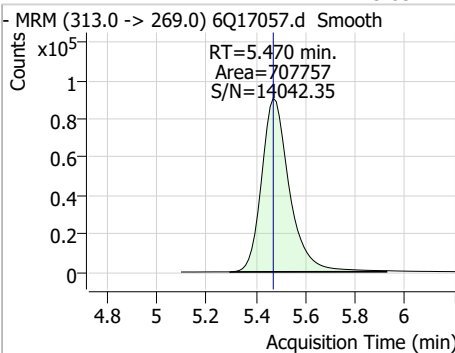
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	23.03	5.40	0.00	228961	298.7 -> 98.8	40.0	20.6	61.7



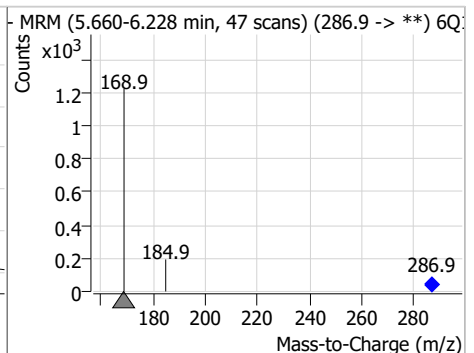
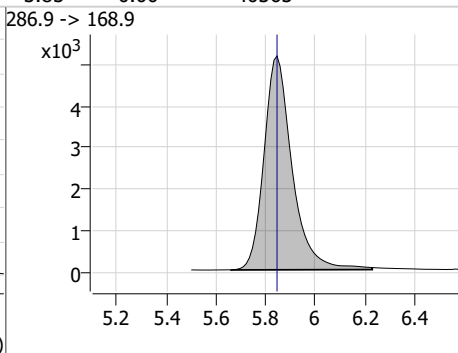
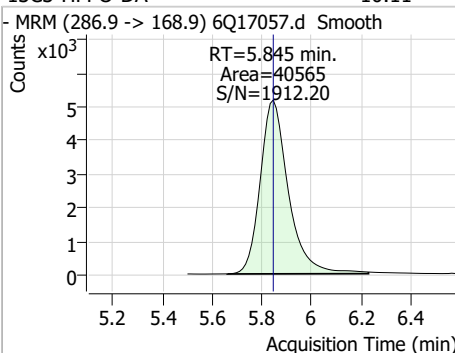
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.55	5.47	0.00	69796	318.0 -> 273.0	4.5	2.3	6.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	25.65	5.47	0.00	707757	313.0 -> 118.9	4.5	2.3	6.9

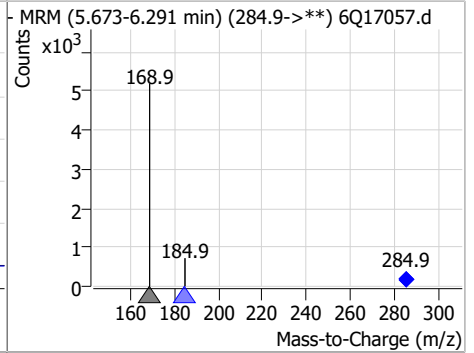
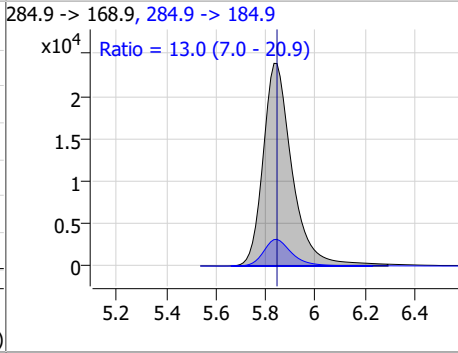
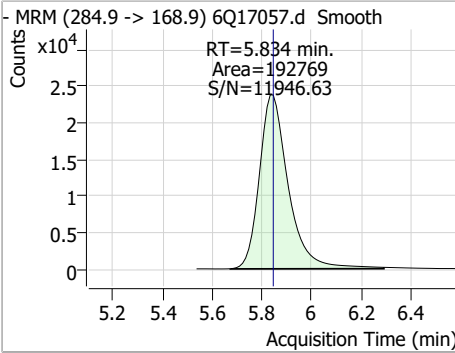


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.11	5.85	0.00	40565	286.9 -> 168.9	4.5	2.3	6.9

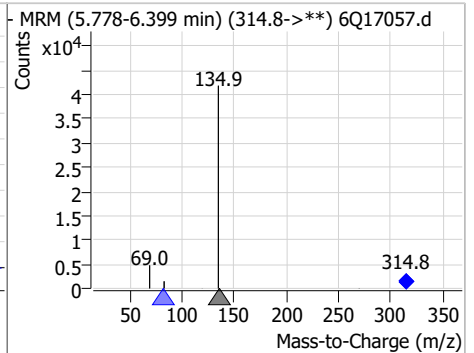
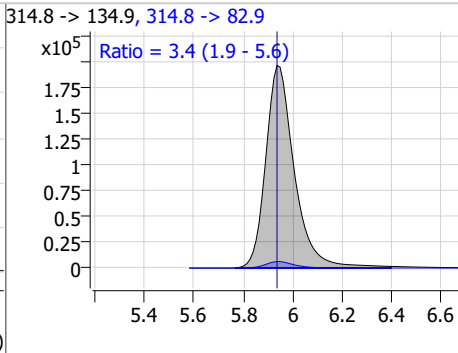
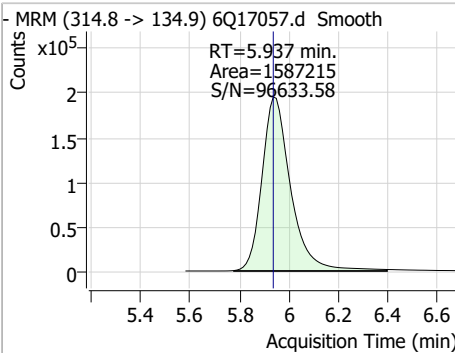


Perfluorinated Compounds by LC/MS/MS

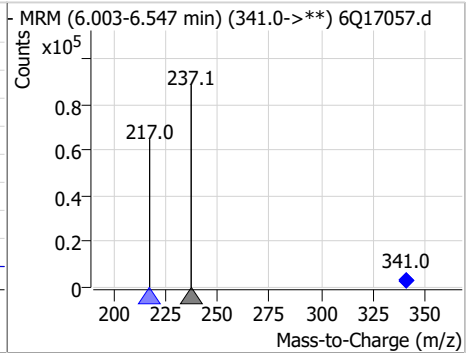
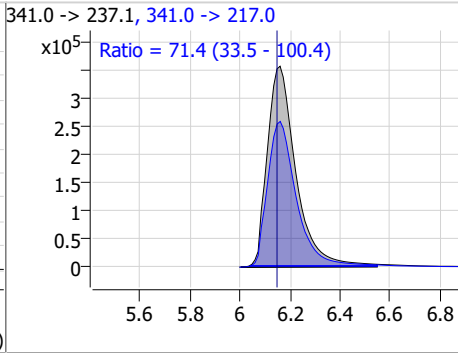
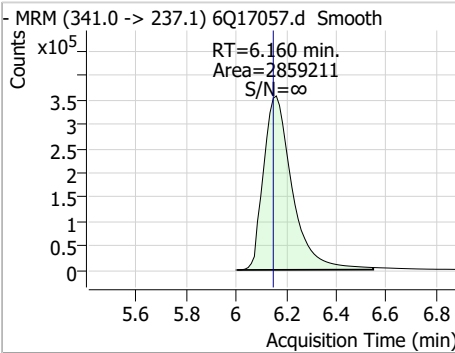
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	50.17	5.83	-0.01	192769	284.9 -> 184.9	13.0	7.0	20.9



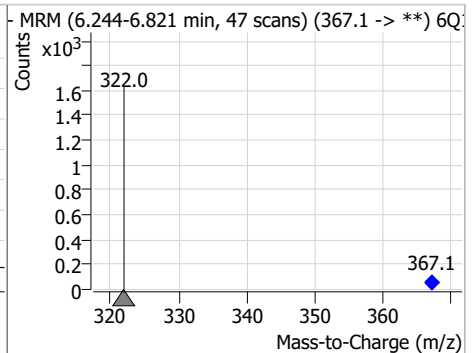
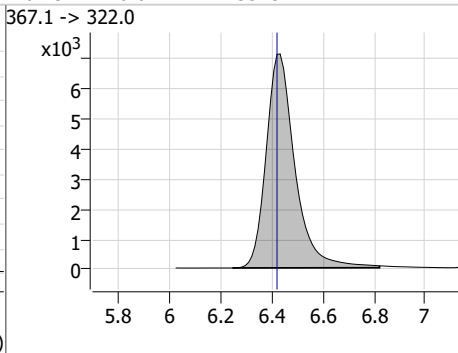
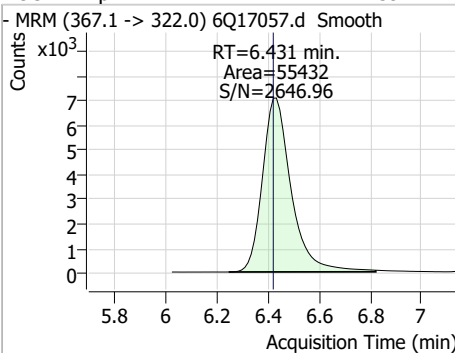
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	45.58	5.94	0.00	1587215	314.8 -> 82.9	3.4	1.9	5.6



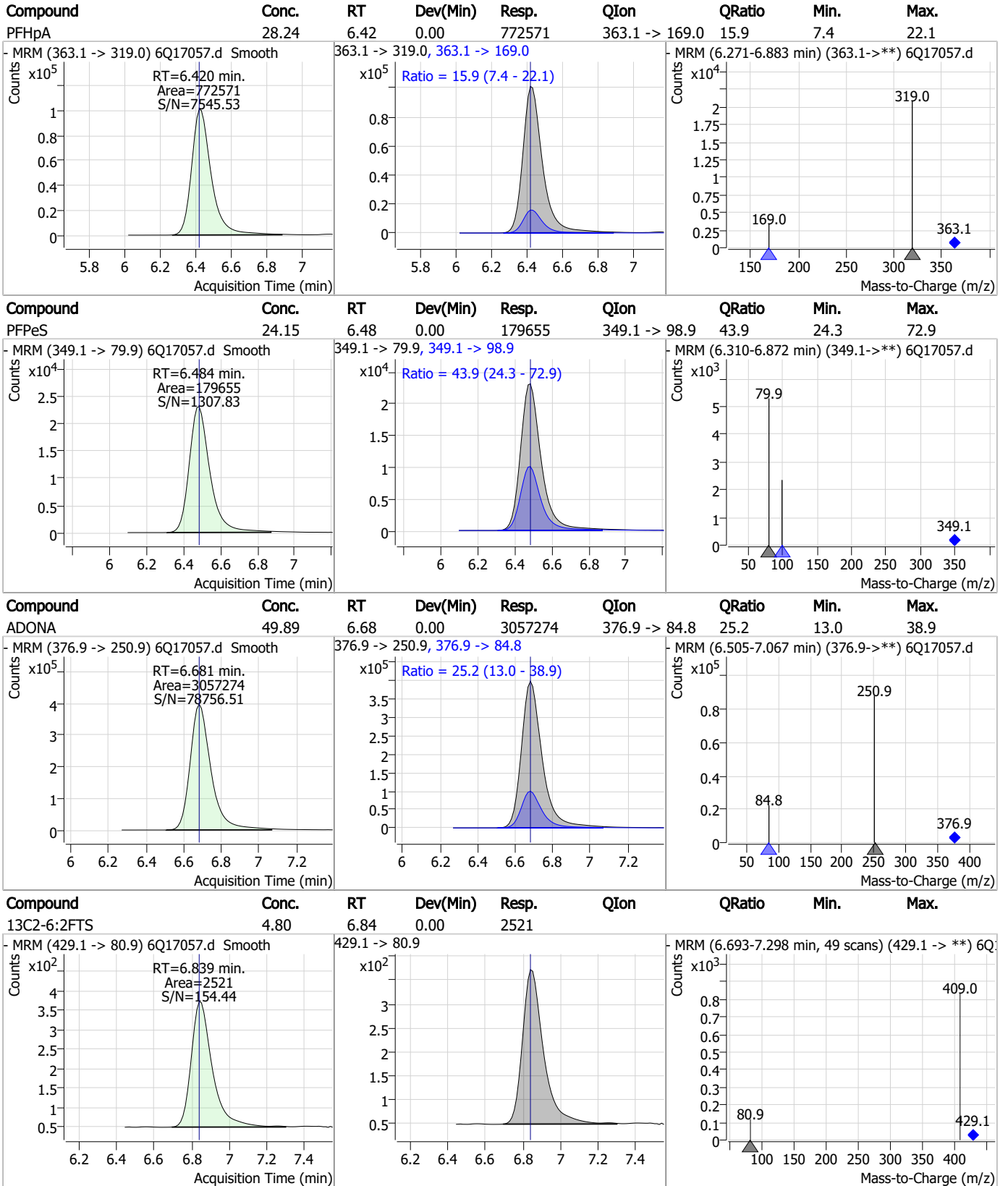
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	640.22	6.16	0.01	2859211	341.0 -> 217.0	71.4	33.5	100.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.39	6.43	0.01	55432	367.1 -> 322.0			



Perfluorinated Compounds by LC/MS/MS

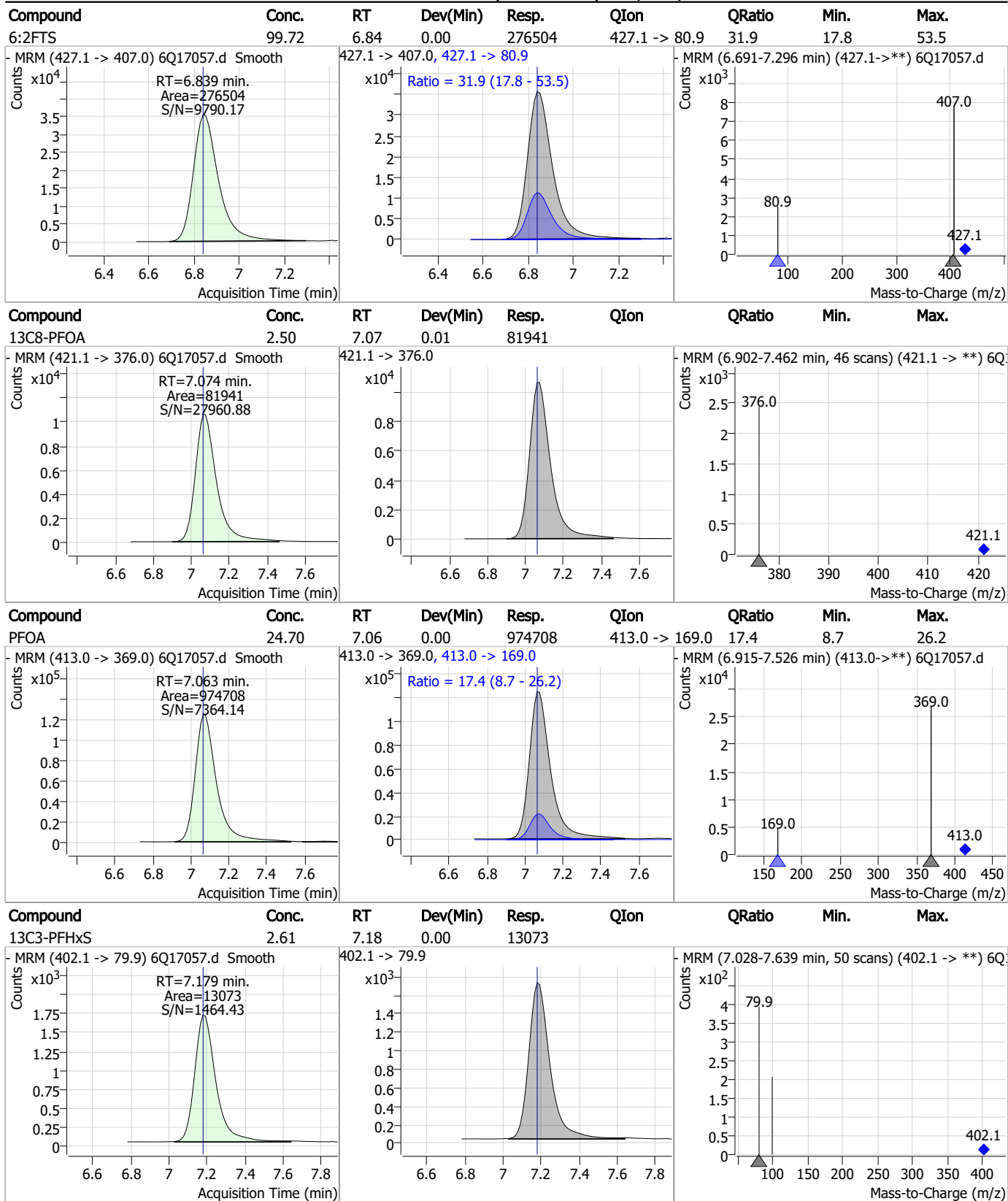


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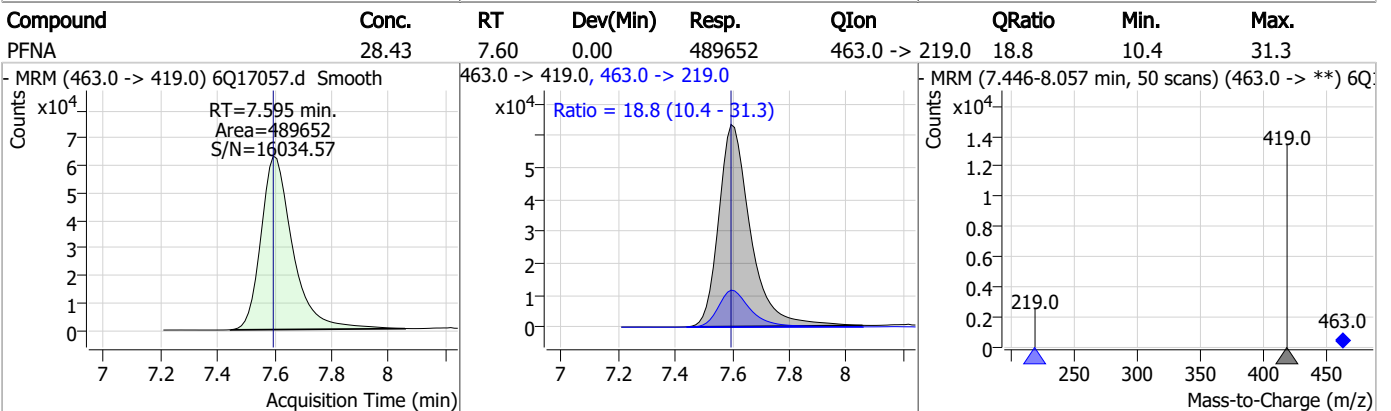
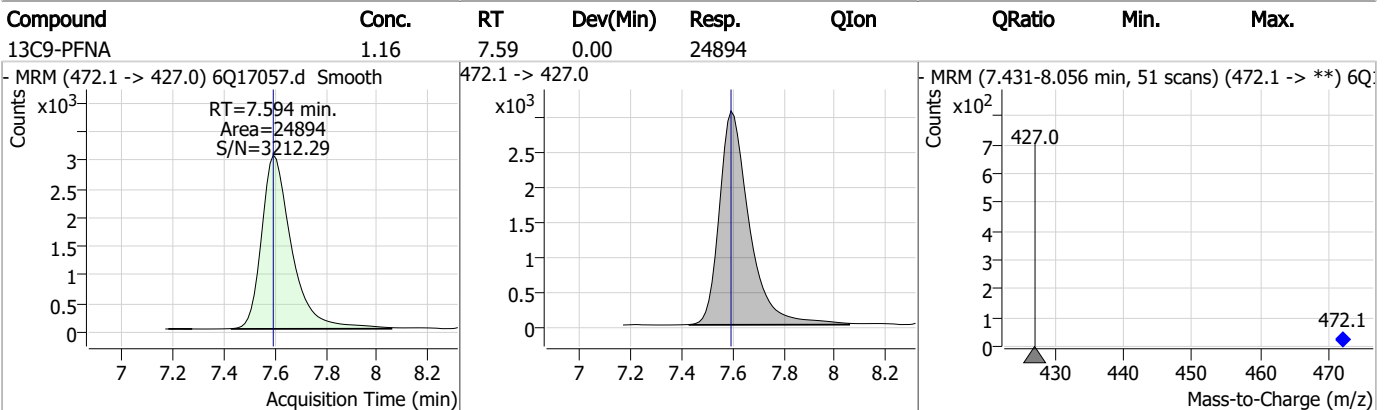
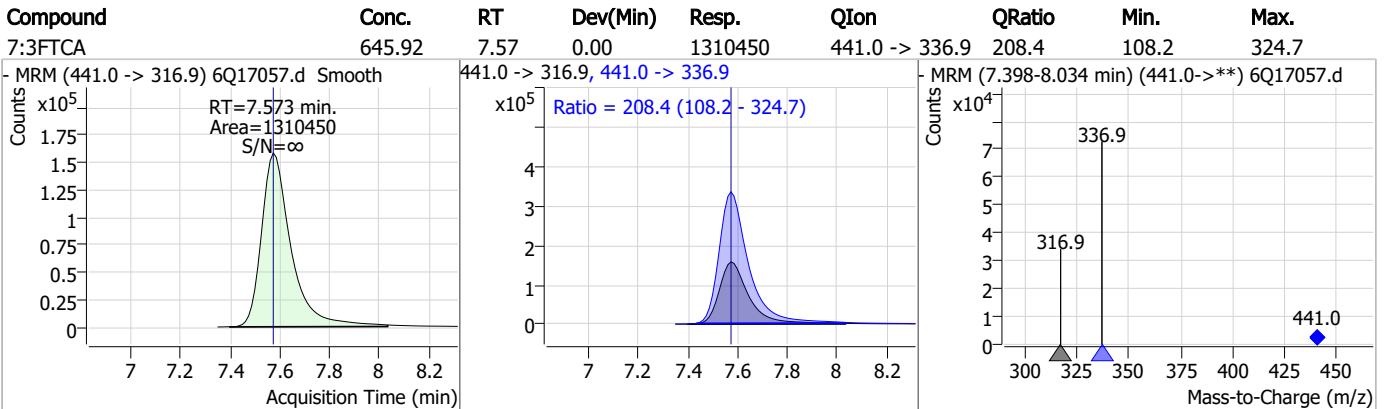
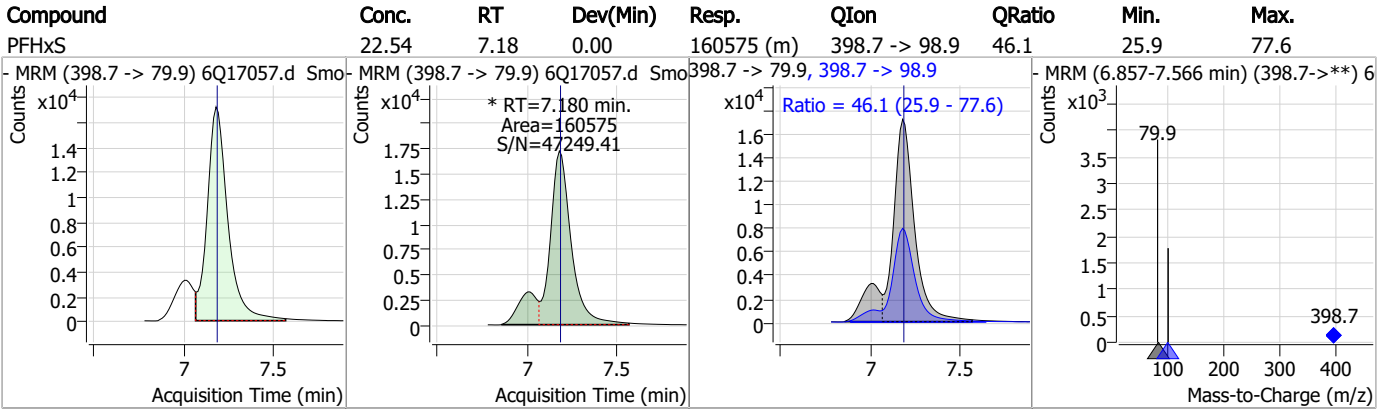


Perfluorinated Compounds by LC/MS/MS



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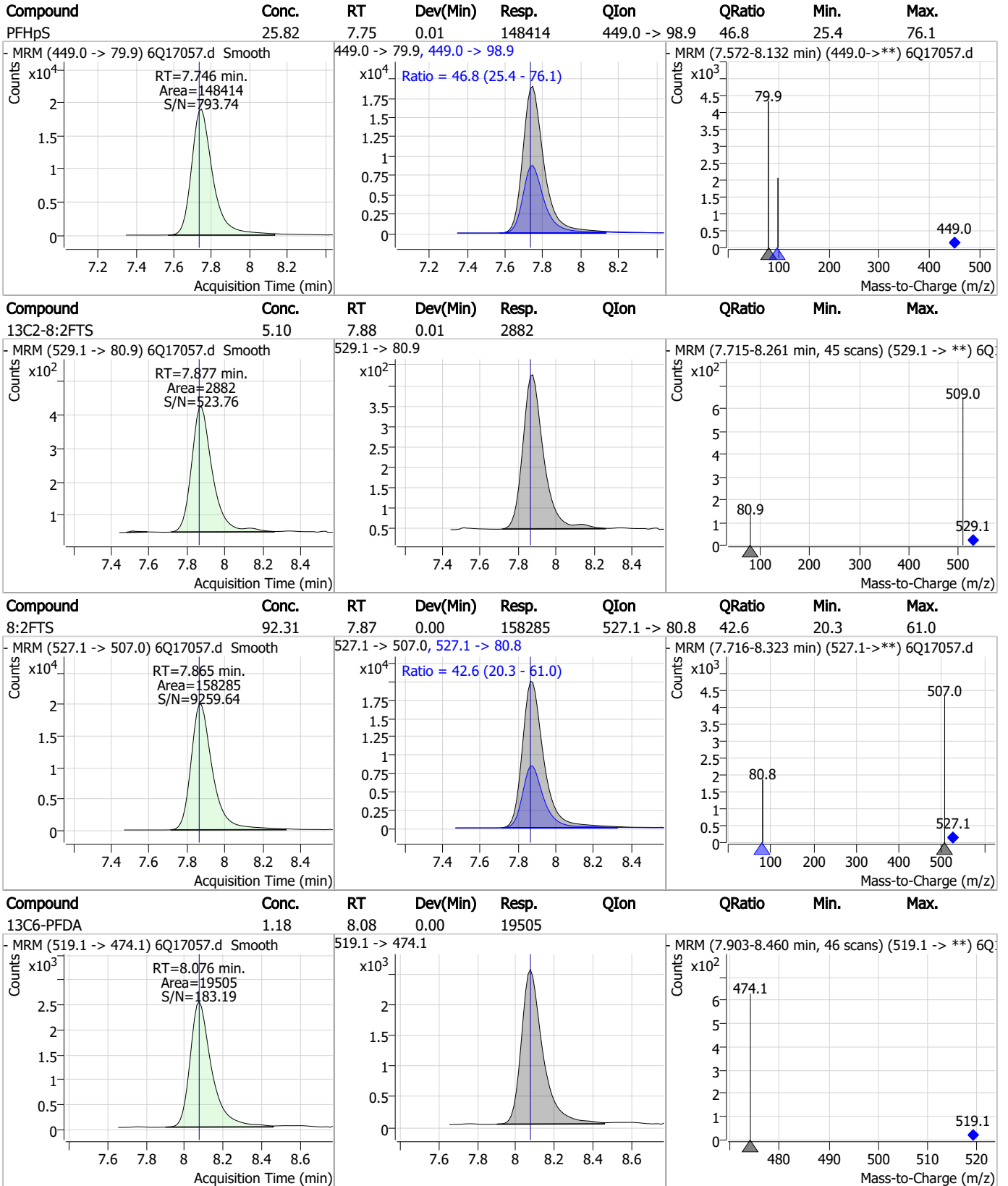
Perfluorinated Compounds by LC/MS/MS



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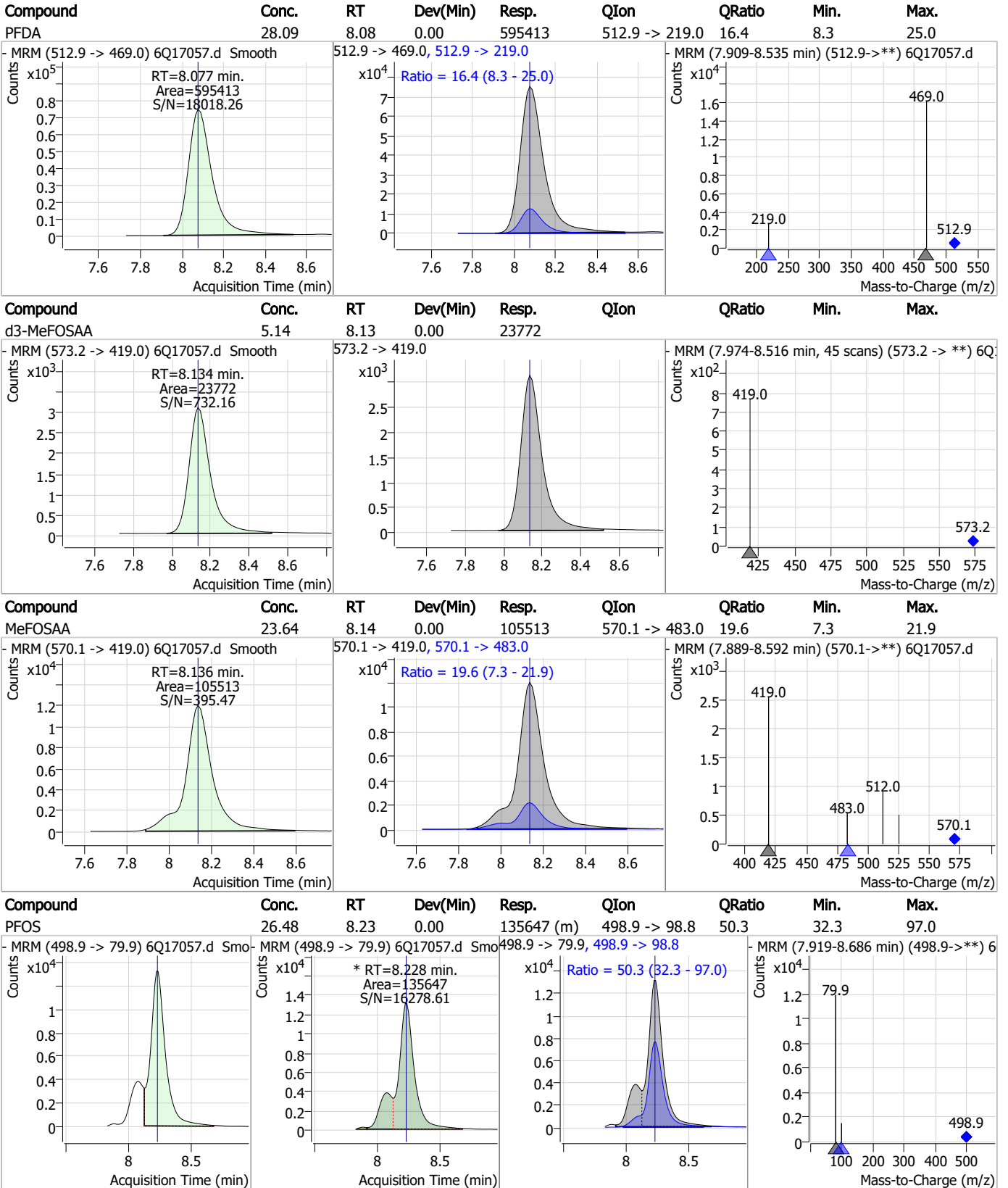
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

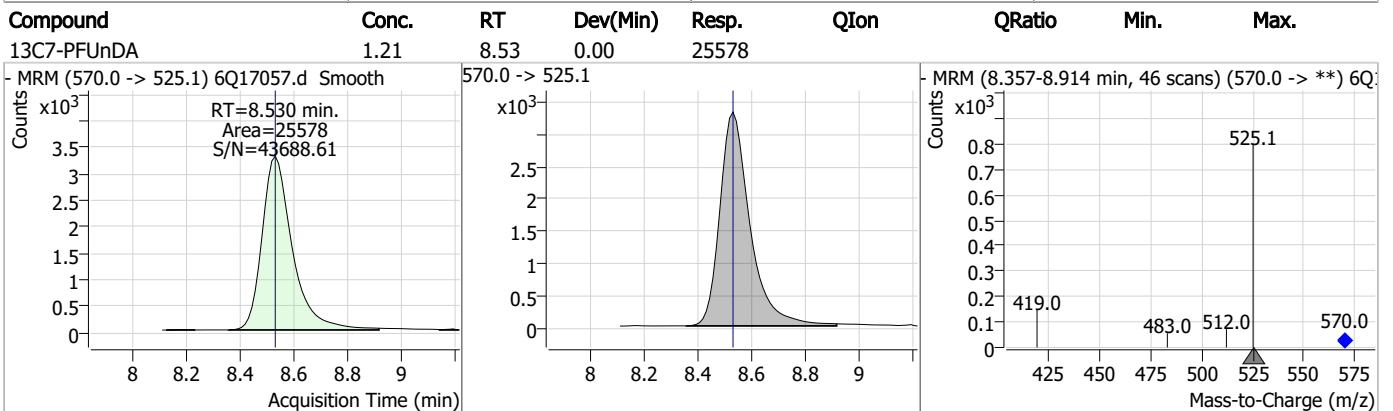
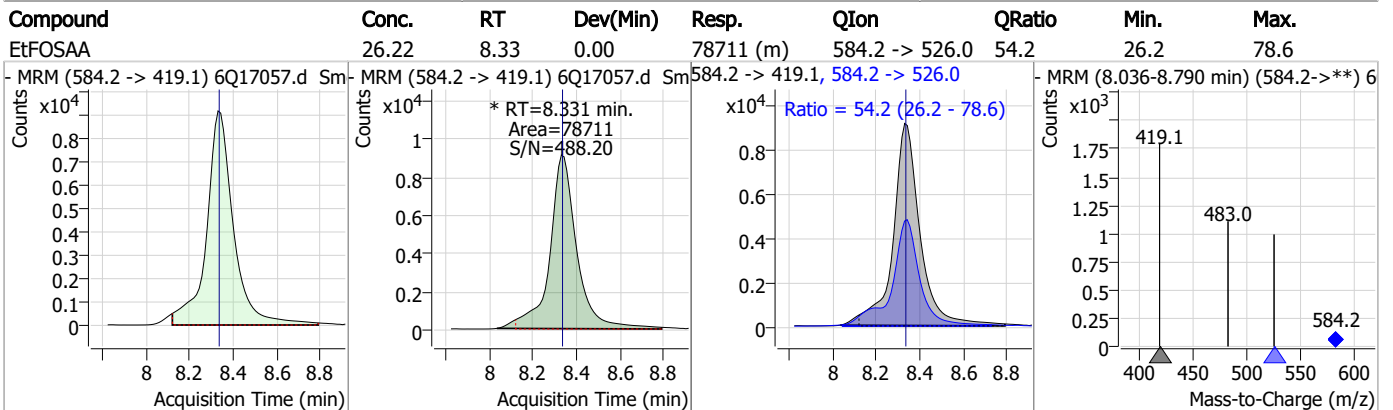
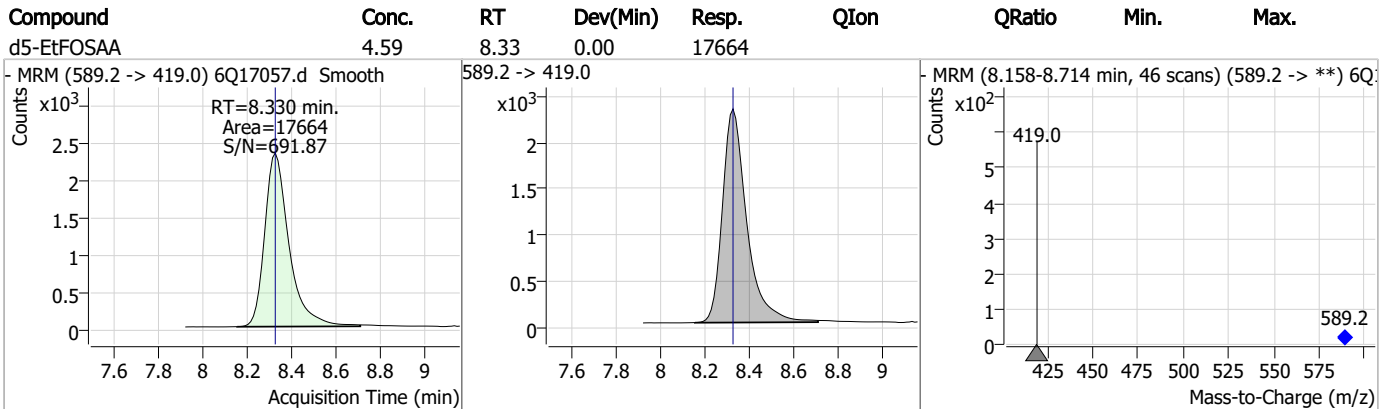
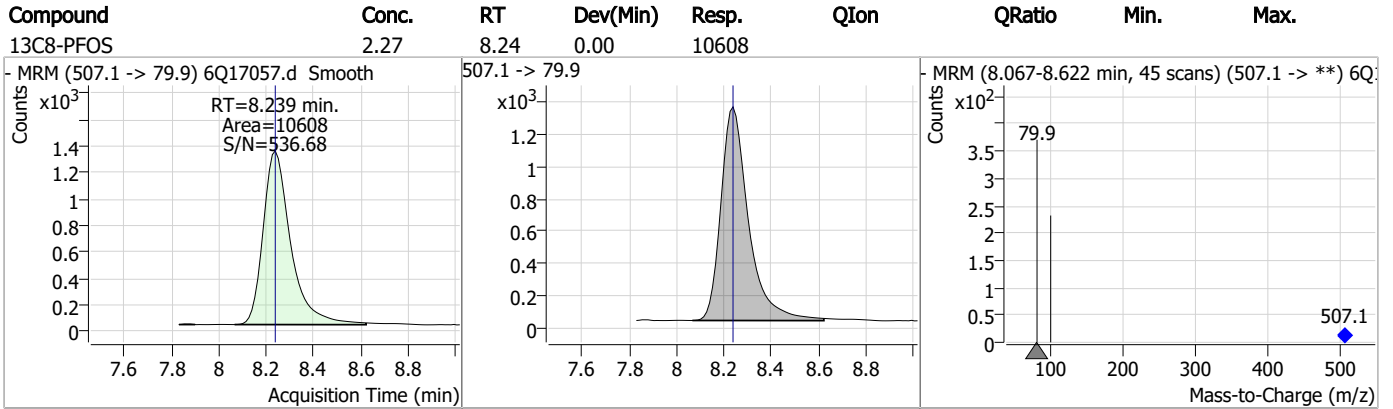


7.6.8

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Perfluorinated Compounds by LC/MS/MS

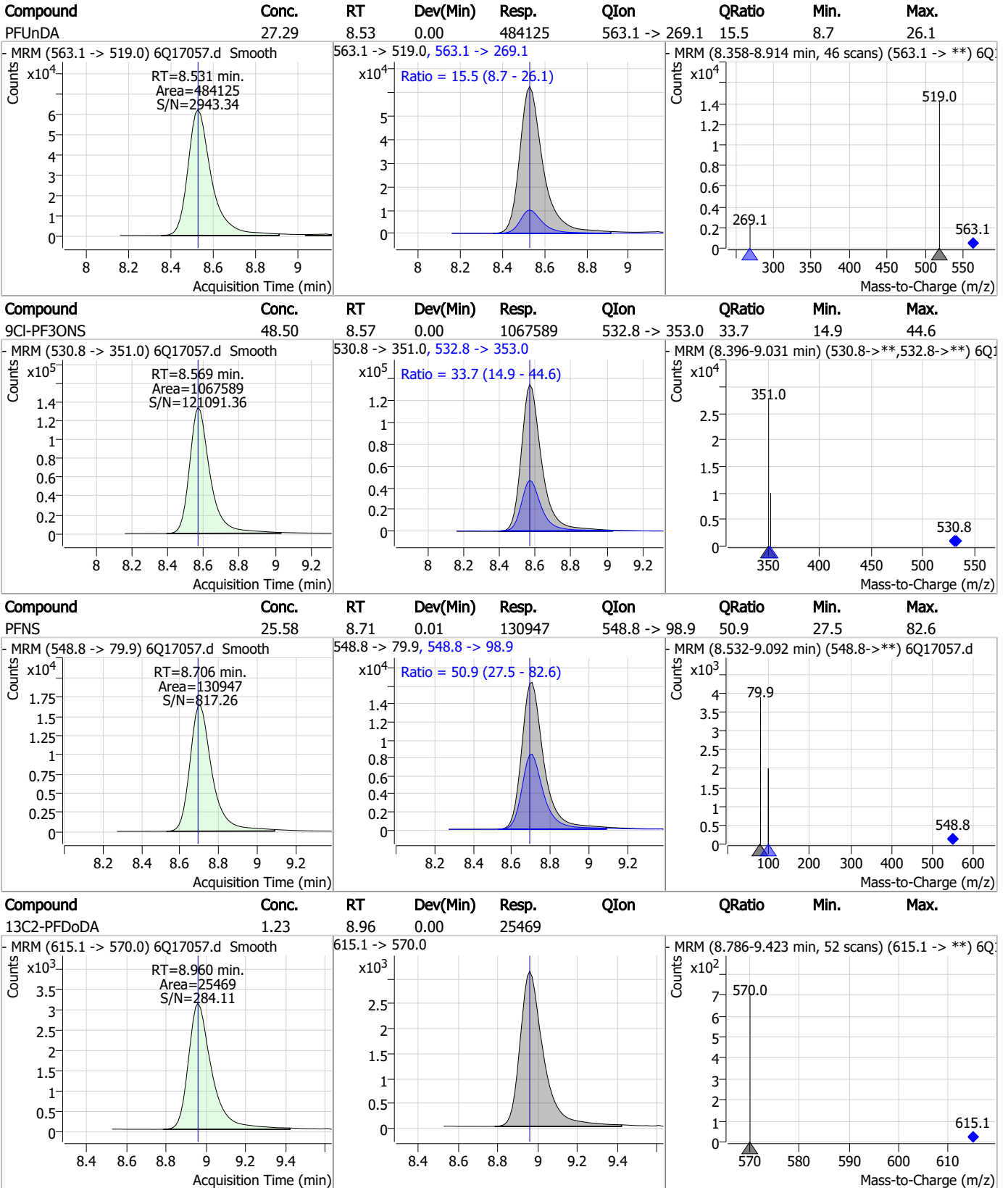


7.6.8

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Perfluorinated Compounds by LC/MS/MS

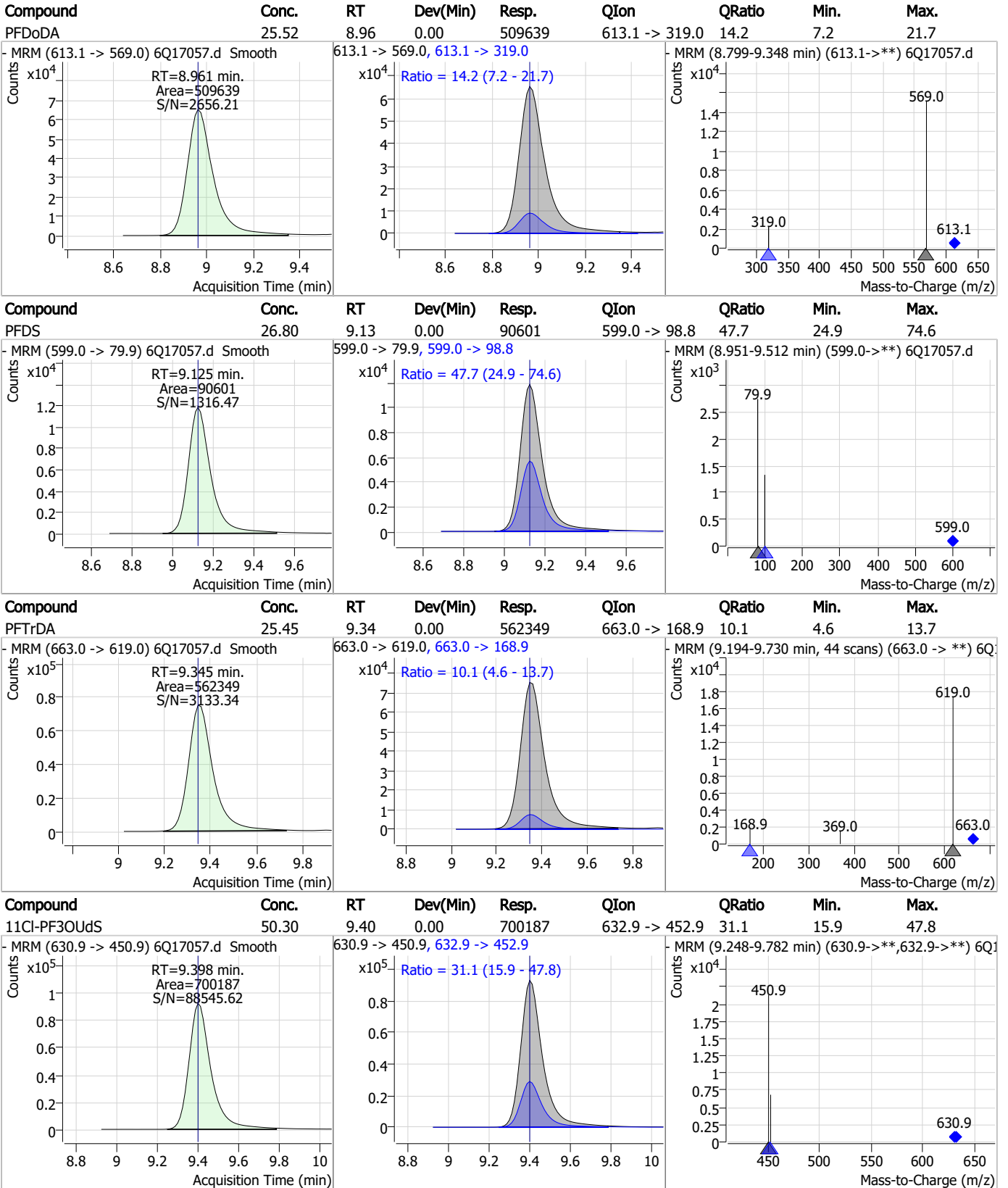


7.6.8

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Perfluorinated Compounds by LC/MS/MS



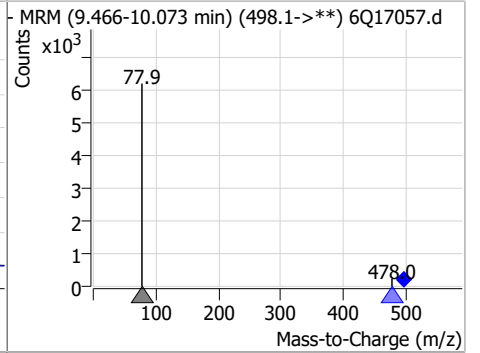
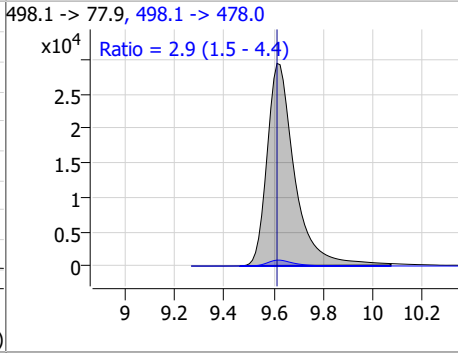
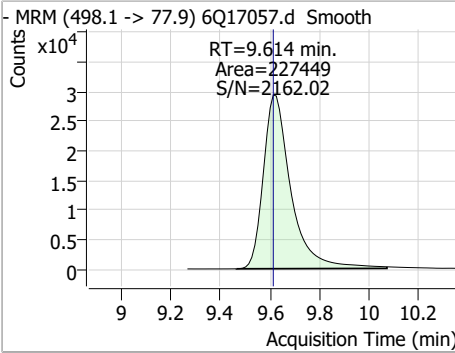
7.6.8

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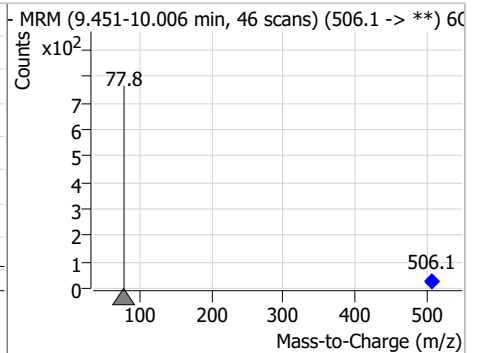
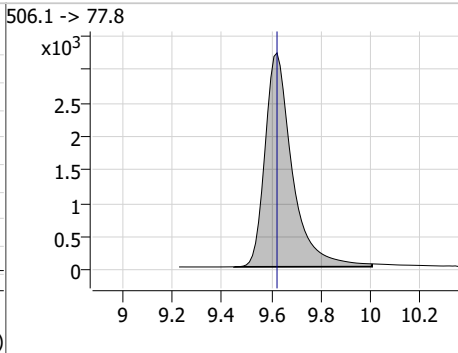
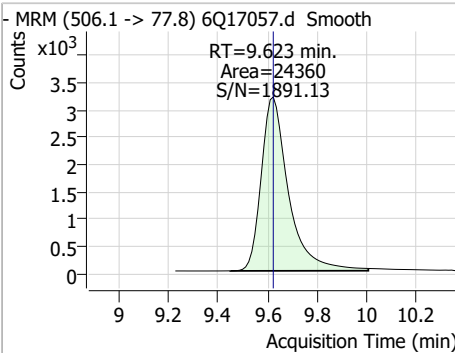


Perfluorinated Compounds by LC/MS/MS

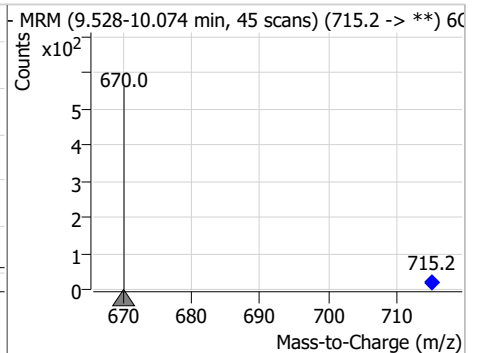
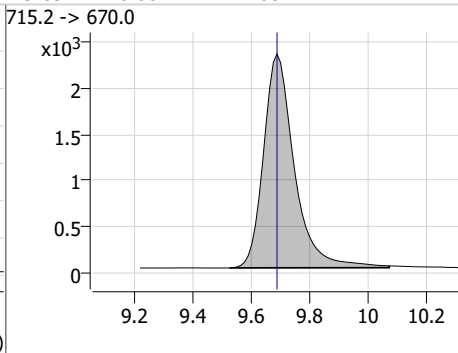
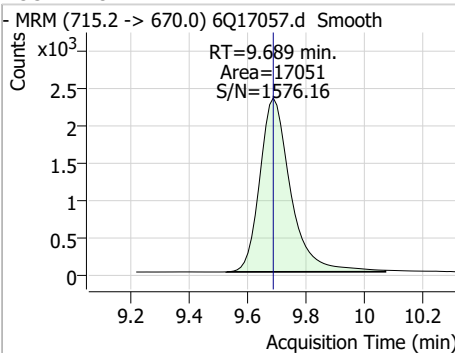
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	26.06	9.61	0.00	227449	498.1 -> 478.0	2.9	1.5	4.4



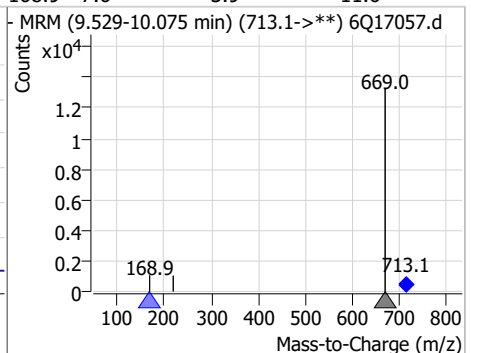
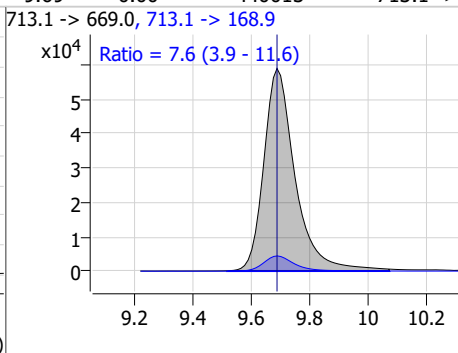
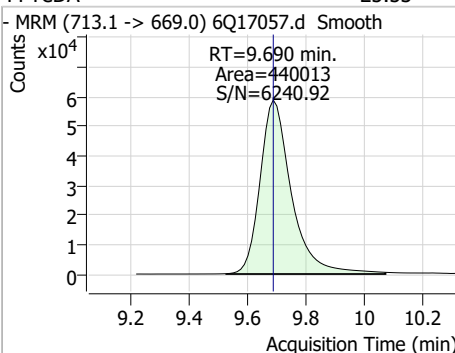
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.37	9.62	0.00	24360				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.21	9.69	0.00	17051				

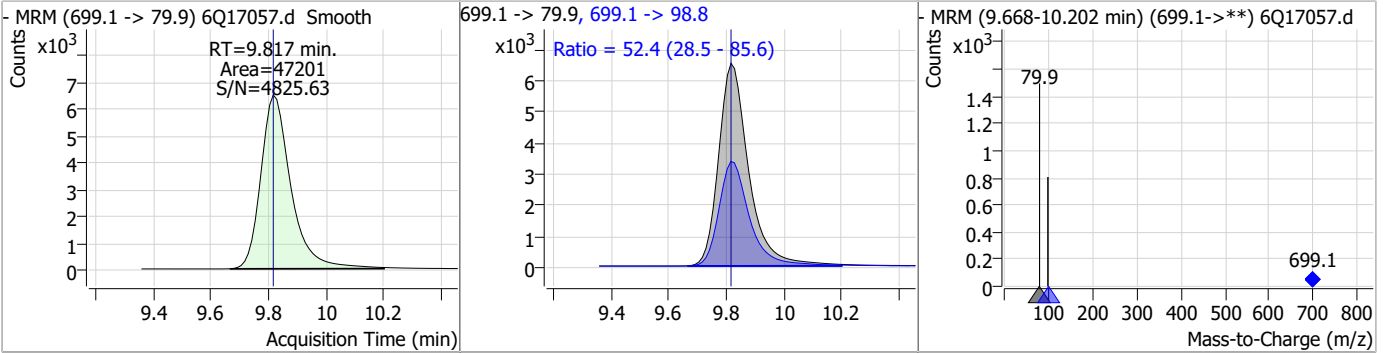


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	25.53	9.69	0.00	440013	713.1 -> 168.9	7.6	3.9	11.6

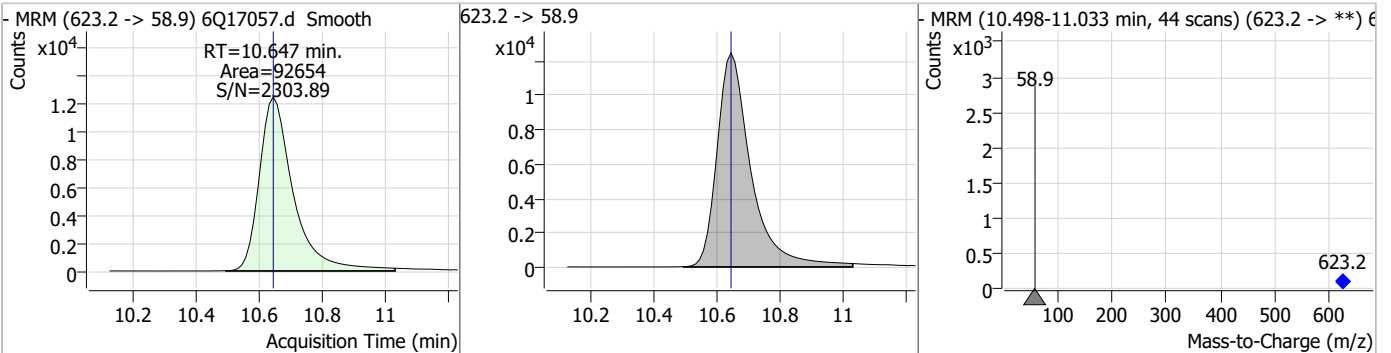


Perfluorinated Compounds by LC/MS/MS

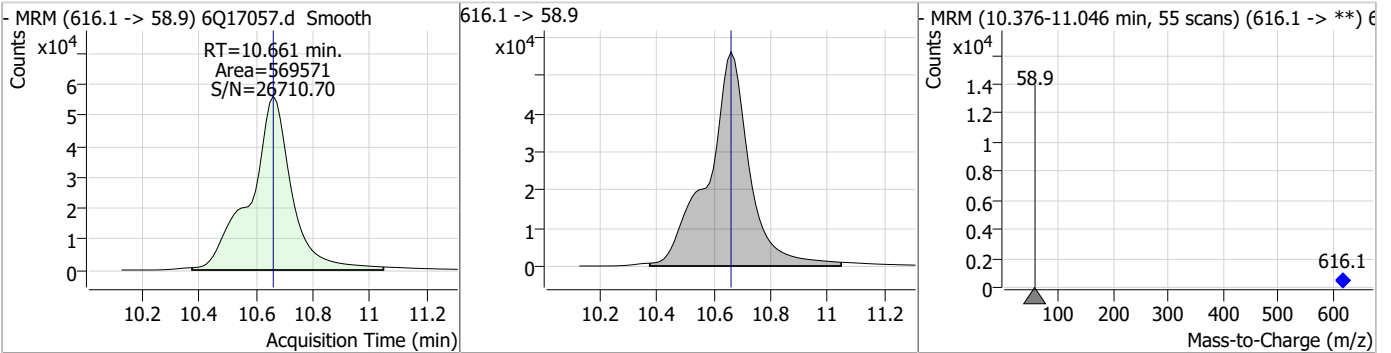
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	27.00	9.82	0.00	47201	699.1 -> 98.8	52.4	28.5	85.6



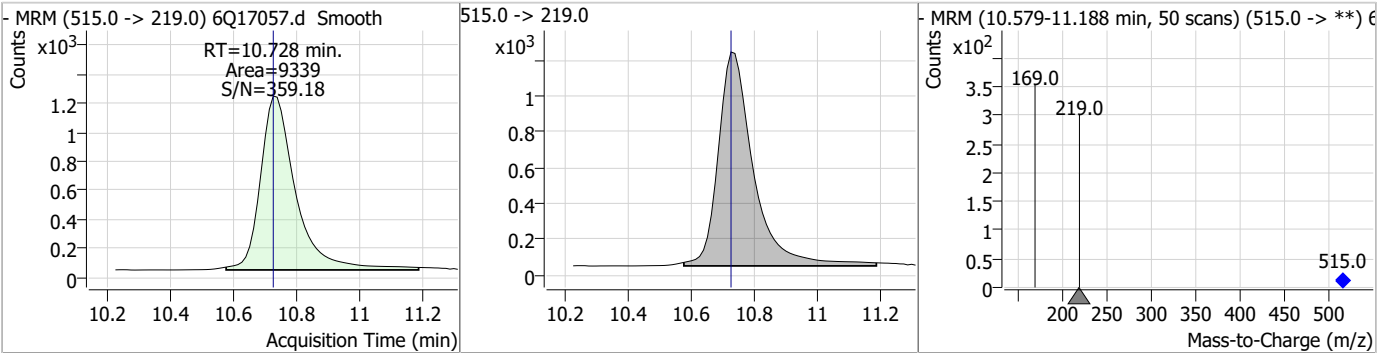
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	22.73	10.65	0.00	92654				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	137.84	10.66	0.00	569571				

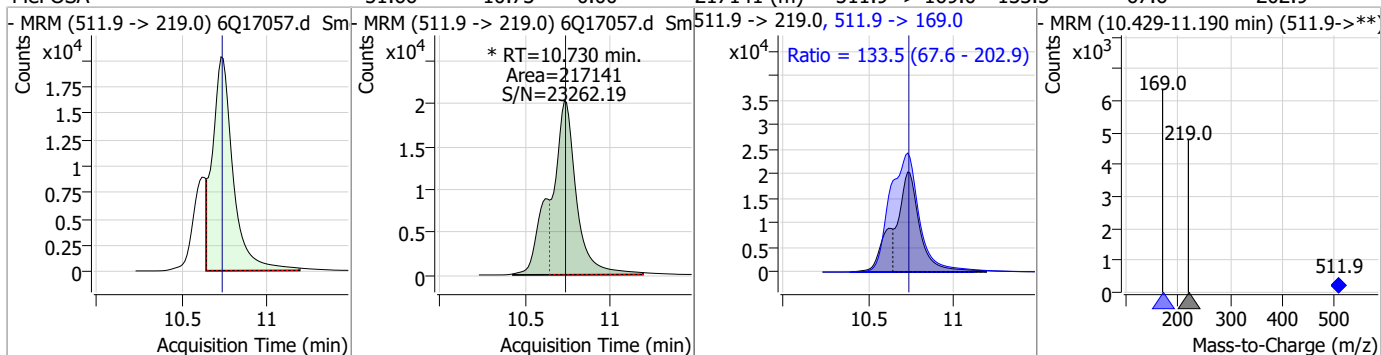


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.41	10.73	0.00	9339				

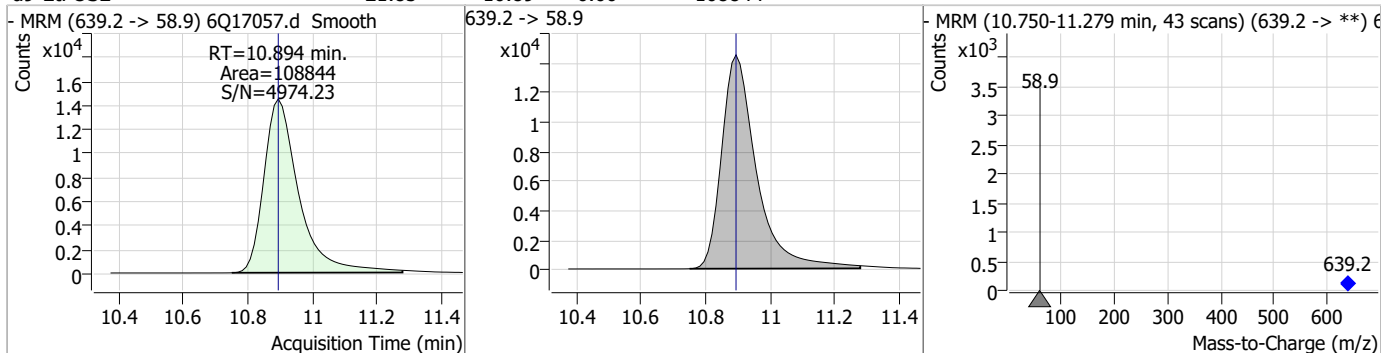


Perfluorinated Compounds by LC/MS/MS

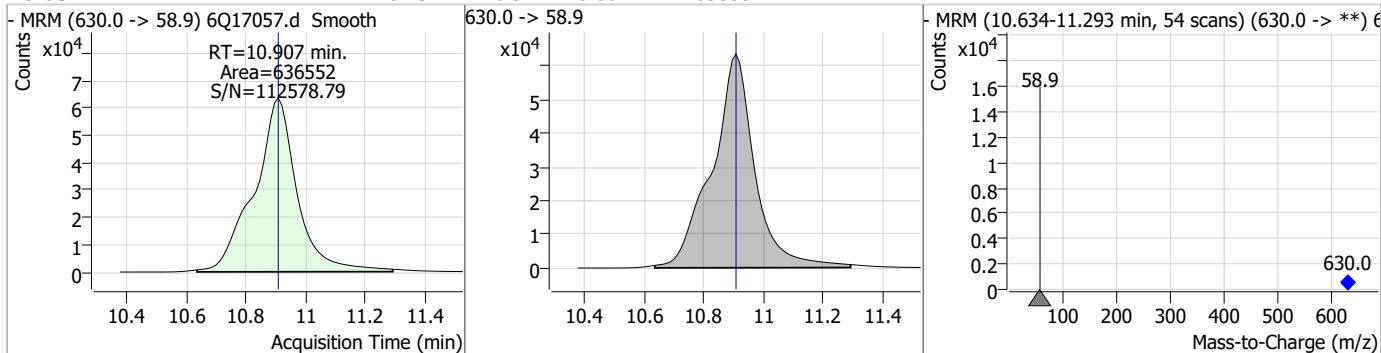
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	51.66	10.73	0.00	217141 (m)	511.9 -> 169.0	133.5	67.6	202.9



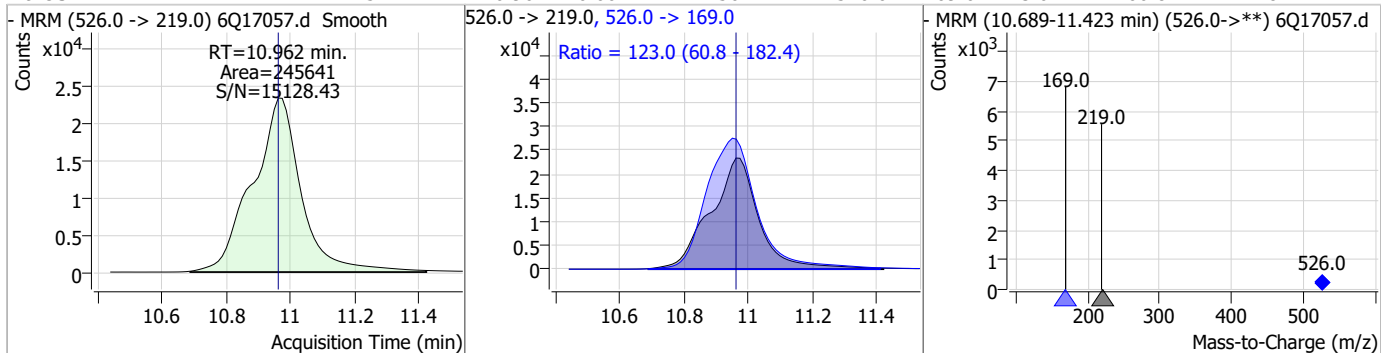
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	21.85	10.89	0.00	108844				



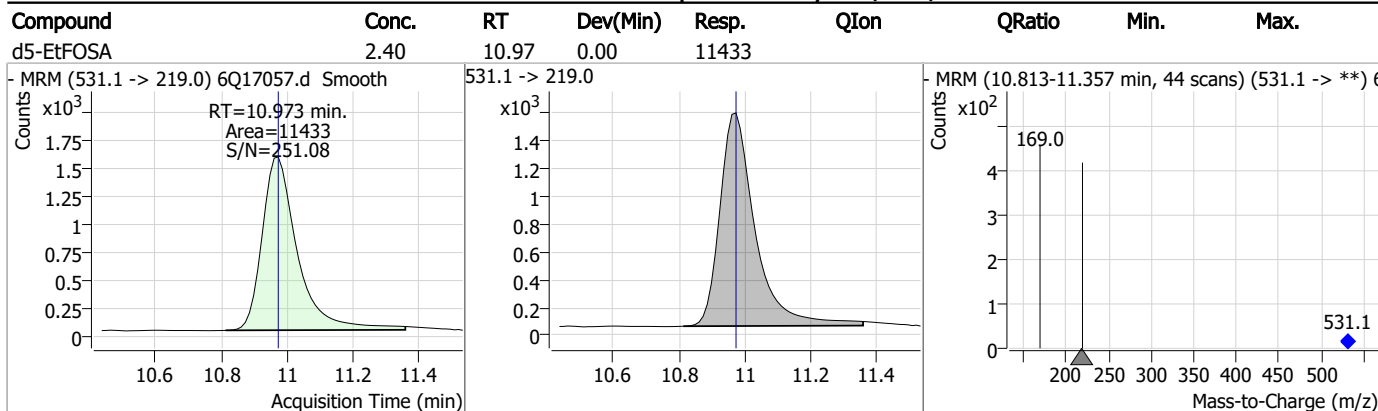
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	140.43	10.91	0.00	636552				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	52.27	10.96	0.00	245641	526.0 -> 169.0	123.0	60.8	182.4



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q258-IC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17057.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 14:17 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
EtFOSAA	2991-50-6		8.33	Split peak
MeFOSA	31506-32-8		10.73	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17058.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 2:31:43 PM
 Sample Name : ic258-8
 Vial : P1-A9
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	151130	10.00 µg/L	0.000
M5-PFPeA	4.270	268.3 -> 223.0	59245	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	64171	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	54383	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	81933	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	24955	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	19248	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	23977	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	24900	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	16568	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	23871	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	21371	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12072	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	11247	2.50 µg/L	-0.012
M2-4:2FTS	5.144	329.1 -> 80.9	2089	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2596	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2849	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	20331	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	38629	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	17875	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	89075	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	107649	25.00 µg/L	0.000
M5-EtFOSA	10.973	531.1 -> 219.0	10678	2.50 µg/L	0.000
M3-MeFOSA	10.728	515.0 -> 219.0	10079	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	14553	2.50 µg/L	-0.012
13C3-PFBA	2.889	216.0 -> 172.0	65582	5.00 µg/L	-0.012
18O2-PFHxS	7.177	403.0 -> 83.9	9221	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	82388	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	24077	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	26423	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	55057	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2089	4.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2596	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2849	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.0%		
13C2-PFDoDA	8.960	615.1 -> 570.0	24900	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C2-PFTeDA	9.689	715.2 -> 670.0	16568	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C3-PFBS	5.398	302.1 -> 79.9	21371	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C3-PFHxS	7.179	402.1 -> 79.9	12072	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	151130	9.97 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C4-PFHpA	6.419	367.1 -> 322.0	54383	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.6%	
13C5-PFHxA	5.468	318.0 -> 273.0	64171	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C5-PFPeA	4.270	268.3 -> 223.0	59245	4.82 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
13C6-PFDA	8.076	519.1 -> 474.1	19248	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C7-PFUnDA	8.530	570.0 -> 525.1	23977	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.3%	
13C8-FOSA	9.623	506.1 -> 77.8	23871	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C8-PFOA	7.062	421.1 -> 376.0	81933	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C8-PFOS	8.226	507.1 -> 79.9	11247	2.57 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C9-PFNA	7.594	472.1 -> 427.0	24955	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.1%	
d3-MeFOSAA	8.134	573.2 -> 419.0	20331	4.69 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.8%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	38629	9.91 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
d3-MeFOSA	10.728	515.0 -> 219.0	10079	2.77 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.9%	
d5-EtFOSAA	8.330	589.2 -> 419.0	17875	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
d7-MeFOSE	10.647	623.2 -> 58.9	89075	23.32 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.3%	
d9-EtFOSE	10.894	639.2 -> 58.9	107649	23.07 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 92.3%	
d5-EtFOSA	10.973	531.1 -> 219.0	10678	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.7%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	697434	220.71 µg/L	99
		327.1 -> 80.9	262914		
6:2FTS	6.839	427.1 -> 407.0	625666	219.13 µg/L	97
		427.1 -> 80.9	214122		
8:2FTS	7.865	527.1 -> 507.0	348850	205.80 µg/L	99
		527.1 -> 80.8	143241		
EtFOSAA	8.331	584.2 -> 419.1	208550	68.65 µg/L	100
		584.2 -> 526.0	109068		
FOSA	9.614	498.1 -> 77.9	564526	66.00 µg/L	100
		498.1 -> 478.0	16955		
MeFOSAA	8.136	570.1 -> 419.0	268599	70.36 µg/L	90
		570.1 -> 483.0	50249		
PFBA	2.893	212.8 -> 168.9	1355052	267.34 µg/L	100
PFBS	5.400	298.7 -> 79.9	539834	56.29 µg/L	99
		298.7 -> 98.8	219827		
PFDA	8.077	512.9 -> 469.0	1462362	69.92 µg/L	98
		512.9 -> 219.0	230825		
PFDoDA	8.961	613.1 -> 569.0	1244394	63.75 µg/L	99
		613.1 -> 319.0	183825		
PFDS	9.125	599.0 -> 79.9	220016	61.38 µg/L	96

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.420	599.0 -> 98.8	104007	69.58	µg/L	99
		363.1 -> 319.0	1867275			
PFHpS	7.734	363.1 -> 169.0	282777	60.34	µg/L	100
		449.0 -> 79.9	367816			
PFHxA	5.470	449.0 -> 98.9	185825	67.28	µg/L	99
		313.0 -> 269.0	1707020			
PFHxS	7.180	313.0 -> 118.9	75498	62.51	µg/L	91
		398.7 -> 79.9	411201			
PFNA	7.595	398.7 -> 98.9	186310	67.51	µg/L	96
		463.0 -> 419.0	1165424			
PFNS	8.694	463.0 -> 219.0	221443	58.41	µg/L	99
		548.8 -> 79.9	317111			
PFOA	7.063	548.8 -> 98.9	176024	62.50	µg/L	97
		413.0 -> 369.0	2469950			
PFOS	8.240	413.0 -> 169.0	403014	57.36	µg/L	83
		498.9 -> 79.9	311549			
PFPeA	4.273	498.9 -> 98.8	160890	130.45	µg/L	100
		263.0 -> 219.0	2105084			
PFPeS	6.472	349.1 -> 79.9	437428	63.67	µg/L	93
		349.1 -> 98.9	193273			
PFTeDA	9.690	713.1 -> 669.0	1058689	63.23	µg/L	100
		713.1 -> 168.9	80979			
PFTrDA	9.345	663.0 -> 619.0	1376902	63.73	µg/L	99
		663.0 -> 168.9	124045			
PFUnDA	8.531	563.1 -> 519.0	1133142	68.14	µg/L	95
		563.1 -> 269.1	173575			
11Cl-PF3OUdS	9.398	630.9 -> 450.9	1661712	125.35	µg/L	98
		632.9 -> 452.9	509572			
9Cl-PF3ONS	8.569	530.8 -> 351.0	2636168	125.77	µg/L	95
		532.8 -> 353.0	857971			
ADONA	6.681	376.9 -> 250.9	7135823	122.28	µg/L	99
		376.9 -> 84.8	1798541			
HFPO-DA	5.834	284.9 -> 168.9	494197	135.07	µg/L	95
		284.9 -> 184.9	59457			
3:3FTCA	3.771	241.0 -> 177.0	341837	338.77	µg/L	97
		241.0 -> 117.0	41885			
5:3FTCA	6.147	341.0 -> 237.1	6507641	1584.88	µg/L	91
		341.0 -> 217.0	4838059			
7:3FTCA	7.573	441.0 -> 316.9	3147148	1687.19	µg/L	93
		441.0 -> 336.9	6469023			
EtFOSA	10.962	526.0 -> 219.0	583690	133.01	µg/L	92
		526.0 -> 169.0	761555			
EtFOSE	10.907	630.0 -> 58.9	1487025	331.70	µg/L	100
		511.9 -> 219.0	528578			
MeFOSA	10.743	511.9 -> 169.0	719548	116.53	µg/L	99
		616.1 -> 58.9	1309183			
MeFOSE	10.661	699.1 -> 79.9	111401	329.56	µg/L	100
		699.1 -> 98.8	65507			
PFDoDS	9.817	295.0 -> 201.0	355695	60.10	µg/L	98
		295.0 -> 84.9	85285			
NFDHA	5.350	279.0 -> 85.1	1422124	129.35	µg/L	100
		229.0 -> 84.9	1058106			
PFMBA	4.687	314.8 -> 134.9	3905822	131.01	µg/L	100
		314.8 -> 82.9	132583			
PFMPA	3.426			121.99	µg/L	99
PFEESA	5.937					

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



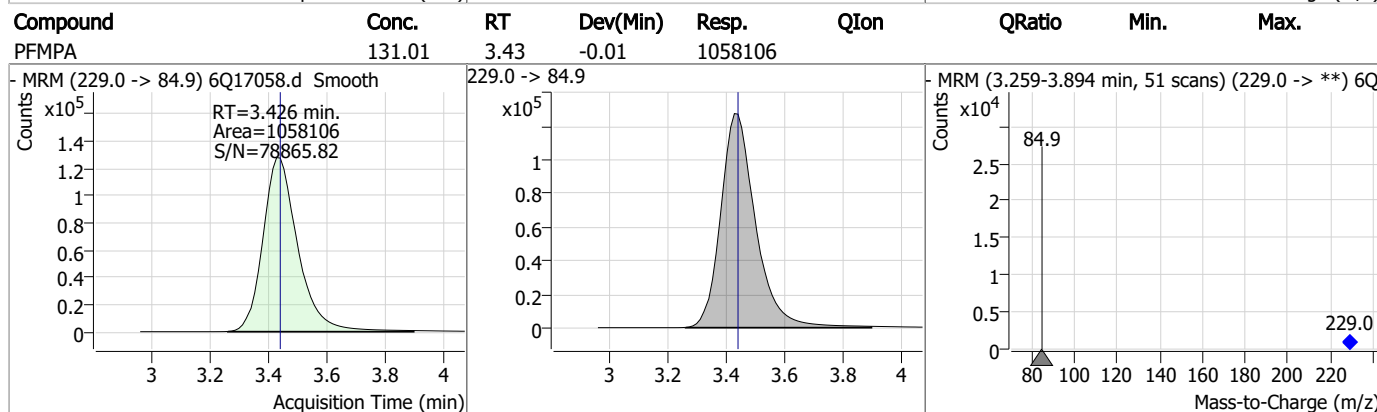
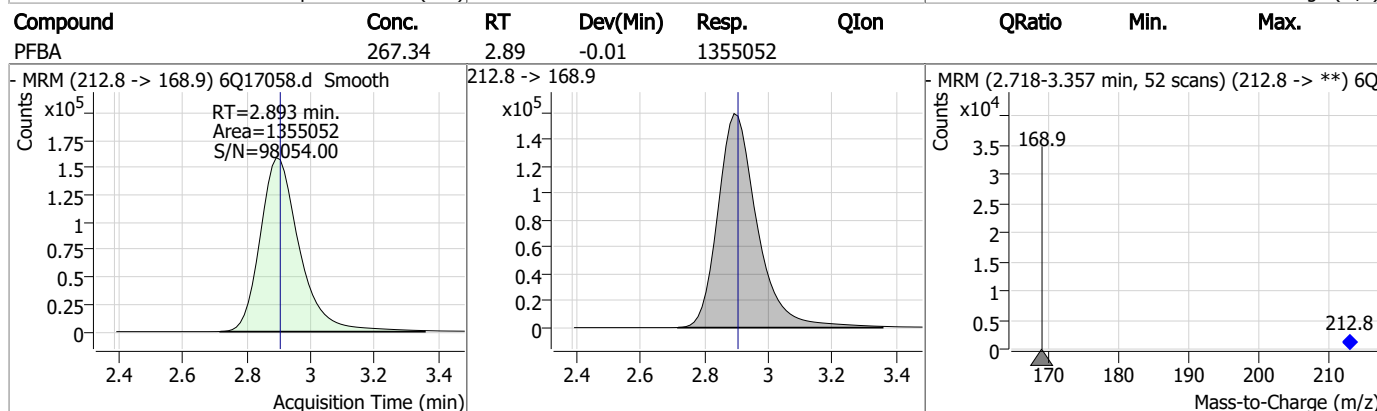
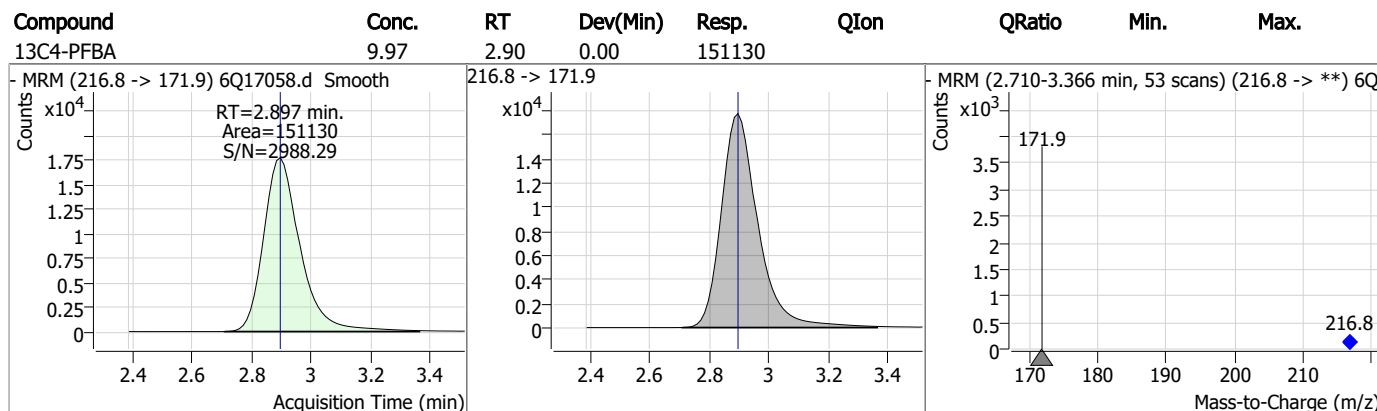
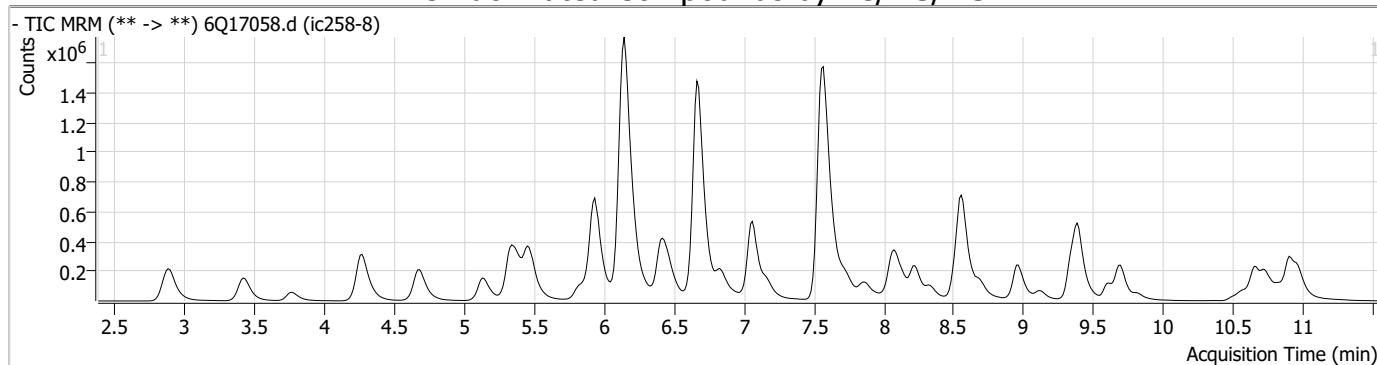
Perfluorinated Compounds by LC/MS/MS

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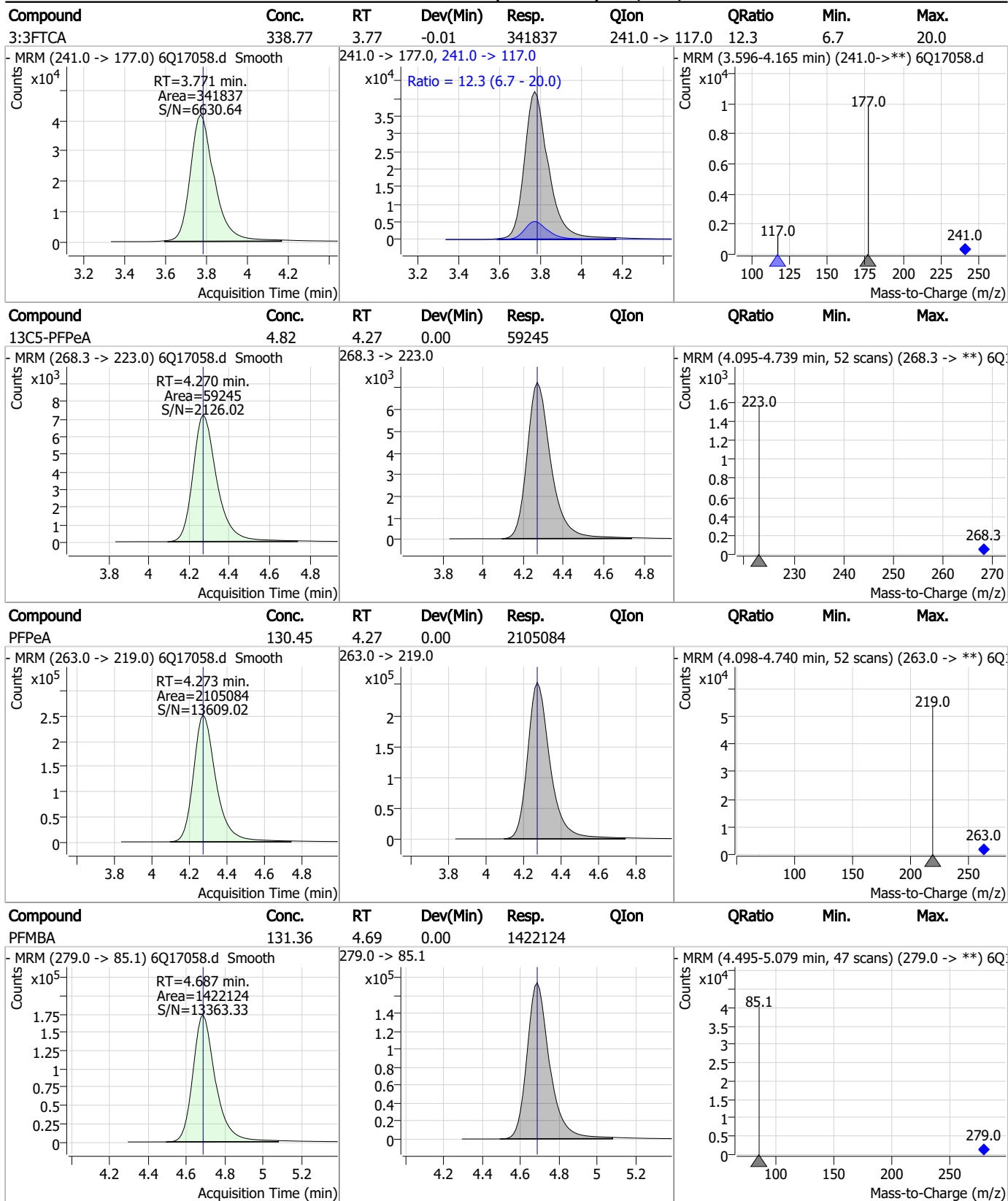
7.6.9

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Perfluorinated Compounds by LC/MS/MS

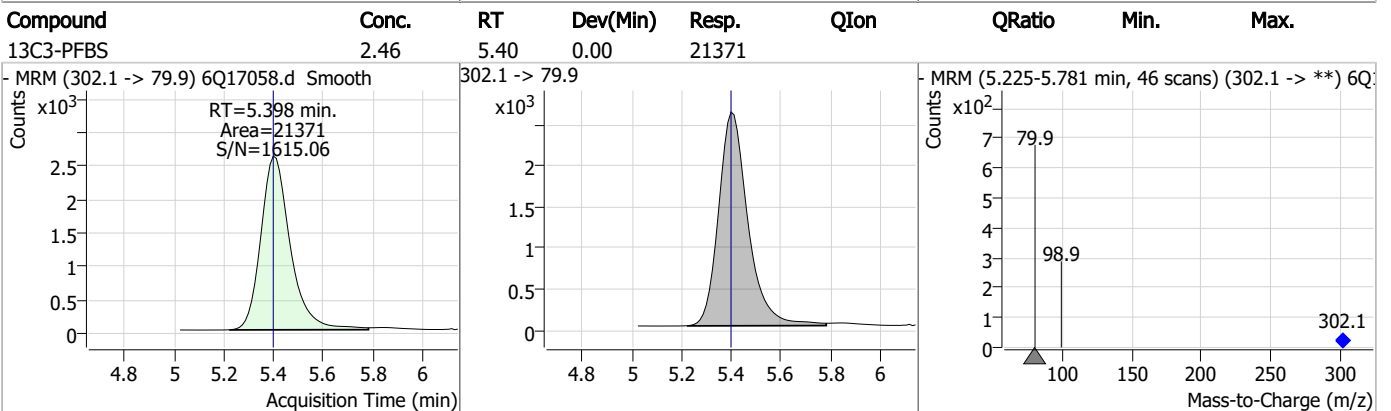
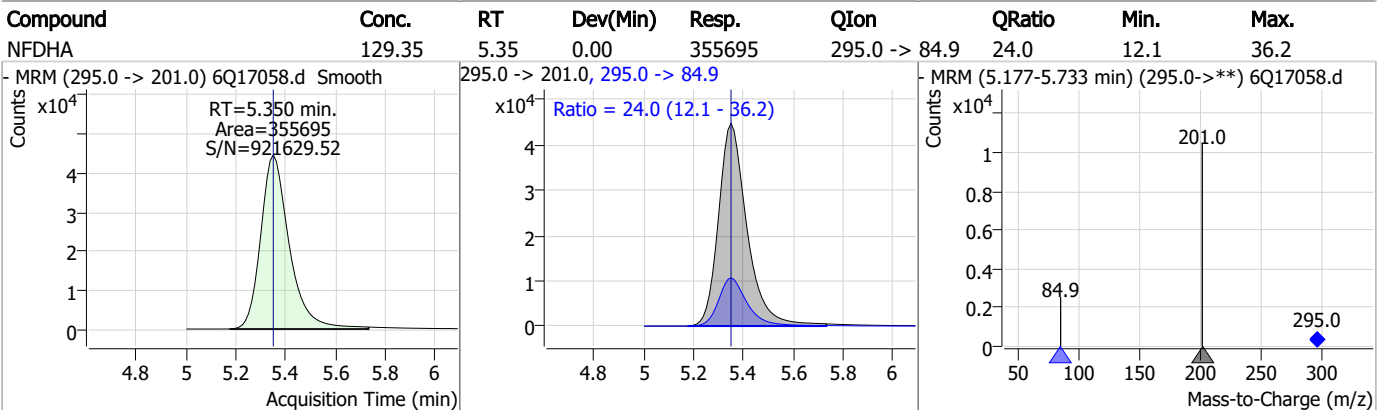
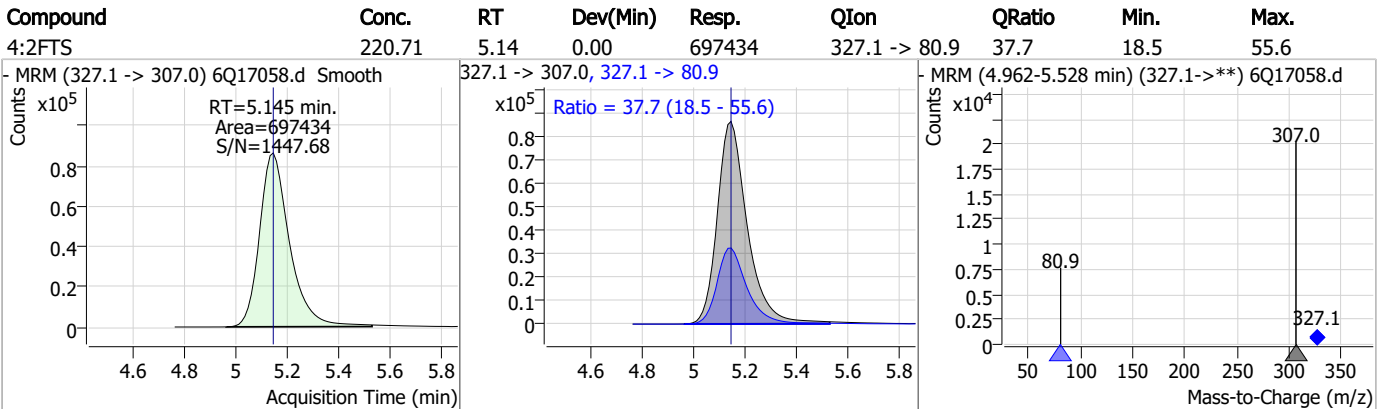
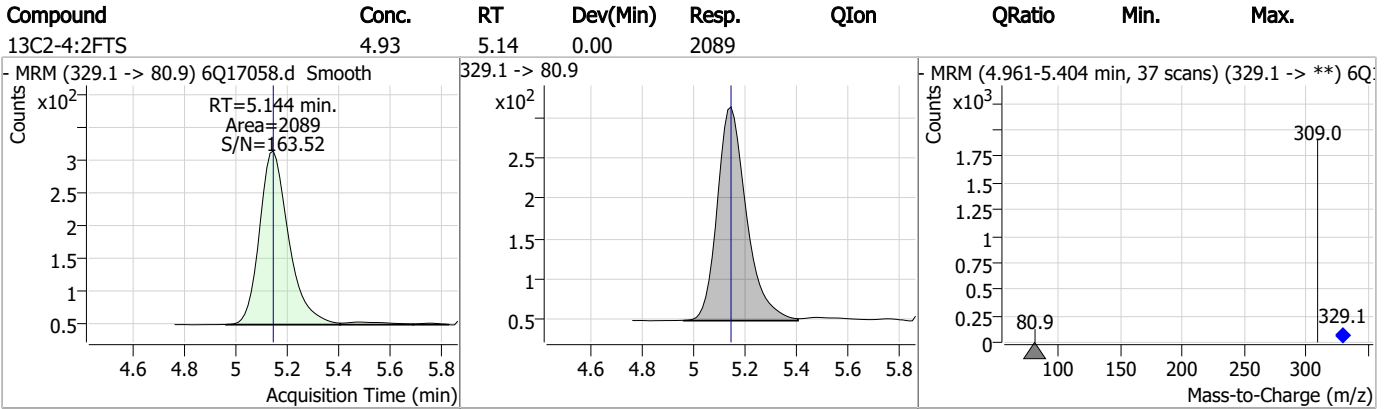


Perfluorinated Compounds by LC/MS/MS



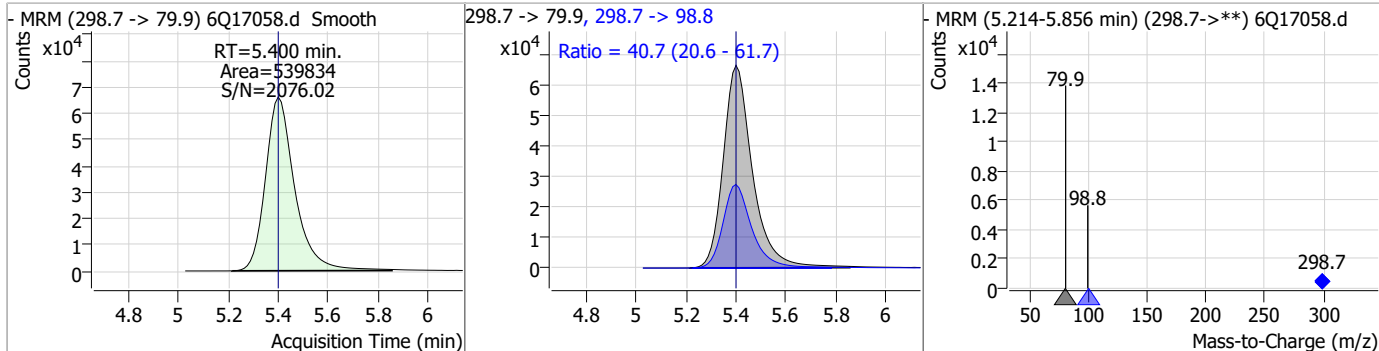
7.6.9
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Perfluorinated Compounds by LC/MS/MS

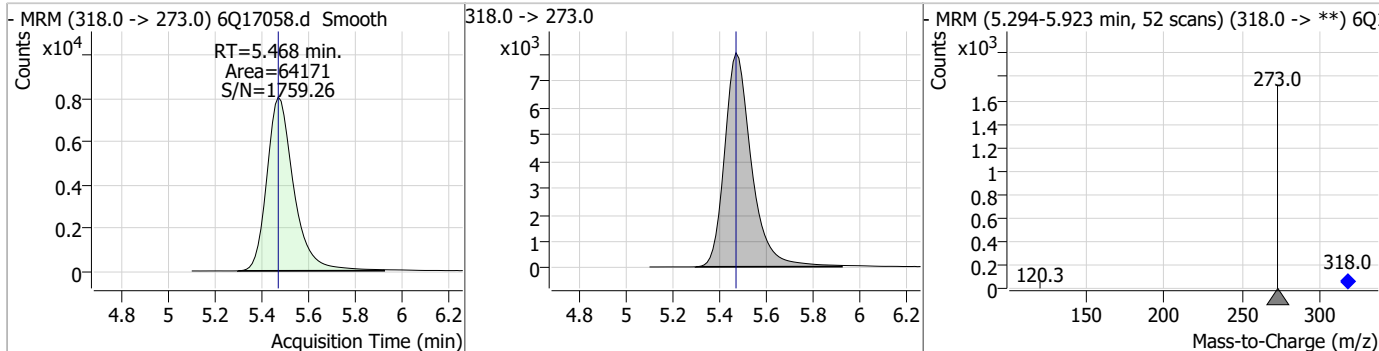


Perfluorinated Compounds by LC/MS/MS

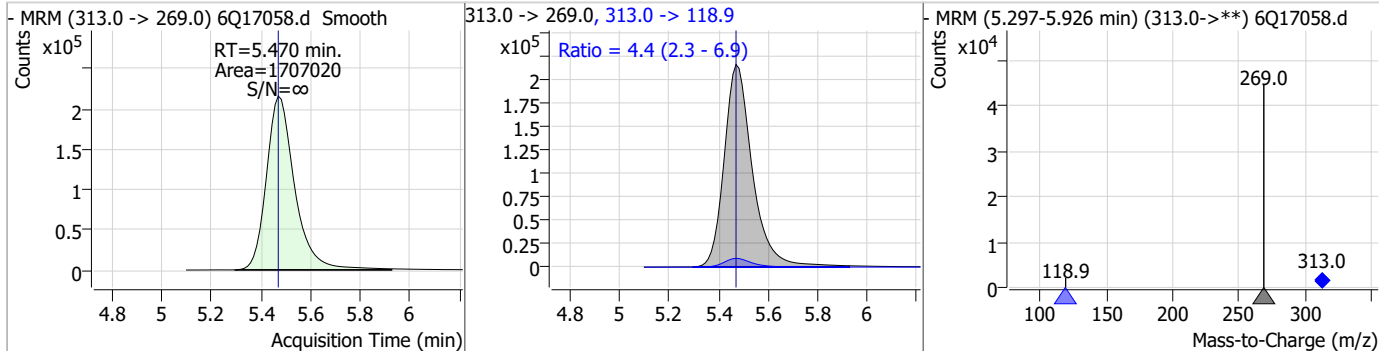
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	56.29	5.40	0.00	539834	298.7 -> 98.8	40.7	20.6	61.7



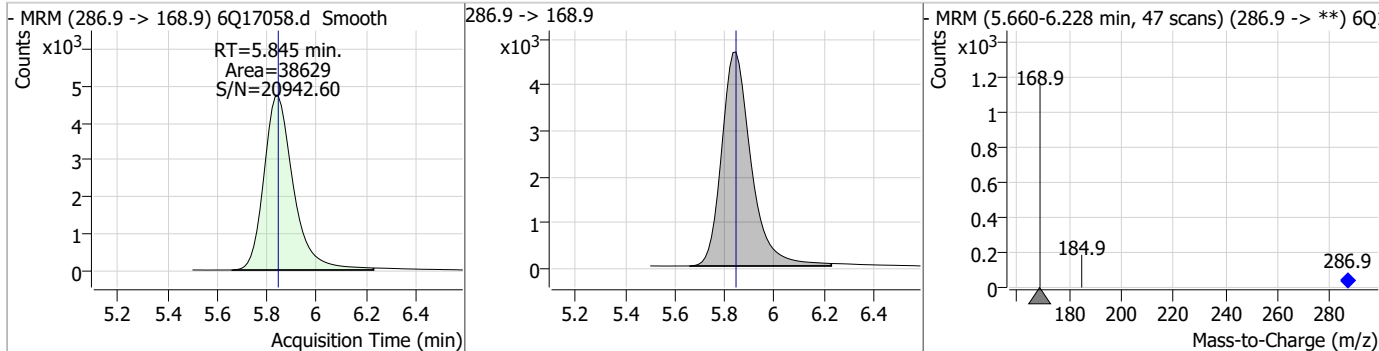
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.42	5.47	0.00	64171				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	67.28	5.47	0.00	1707020	313.0 -> 118.9	4.4	2.3	6.9



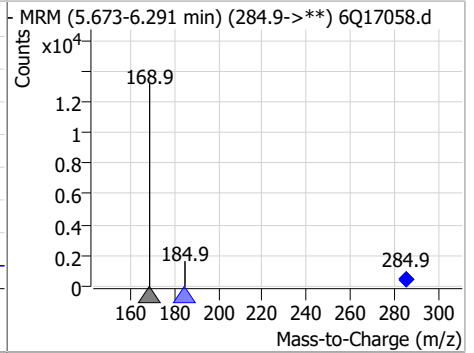
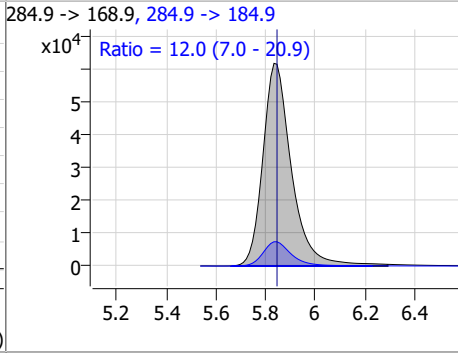
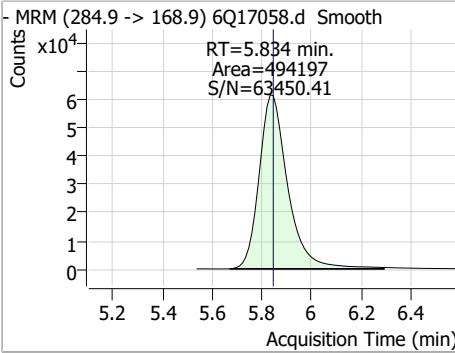
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.91	5.85	0.00	38629				



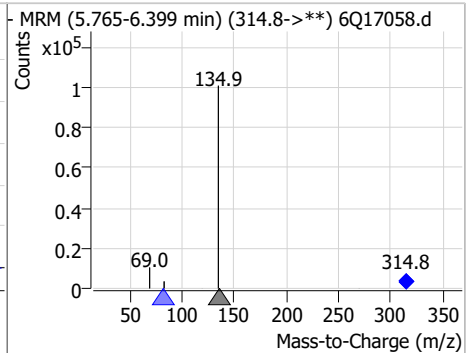
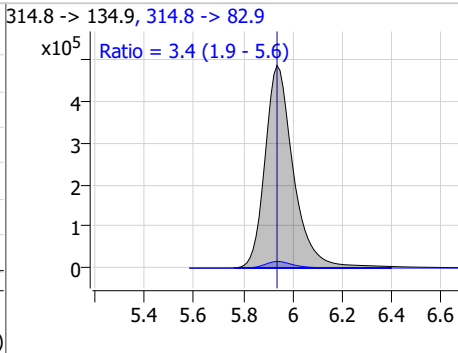
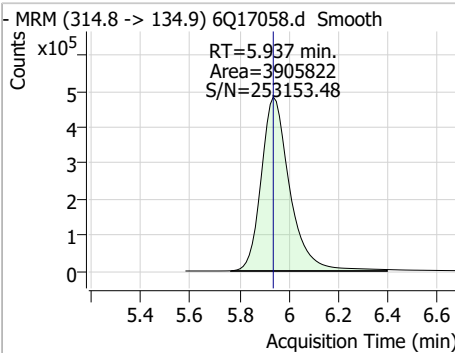
7.6.9
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Perfluorinated Compounds by LC/MS/MS

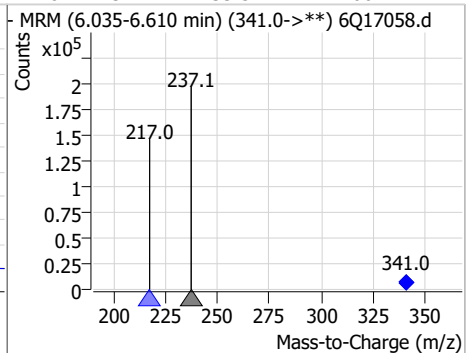
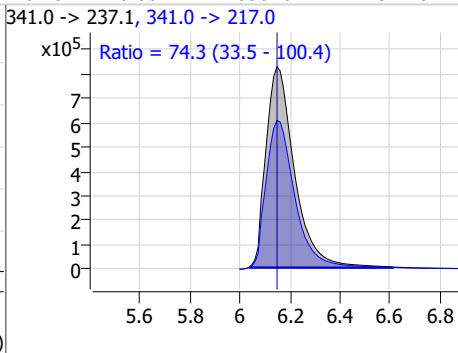
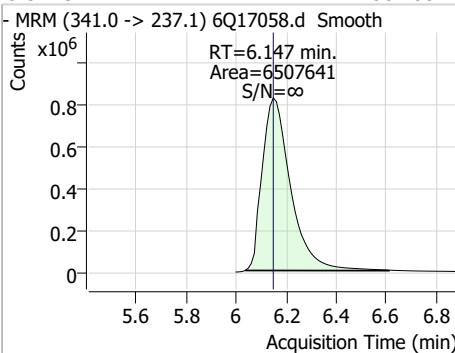
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	135.07	5.83	-0.01	494197	284.9 -> 184.9	12.0	7.0	20.9



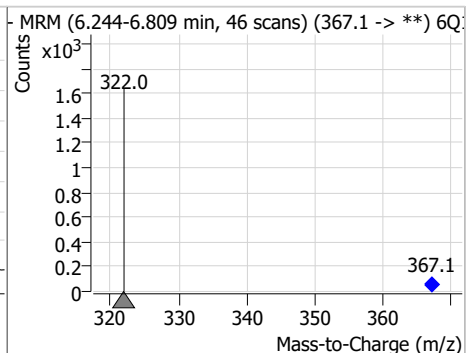
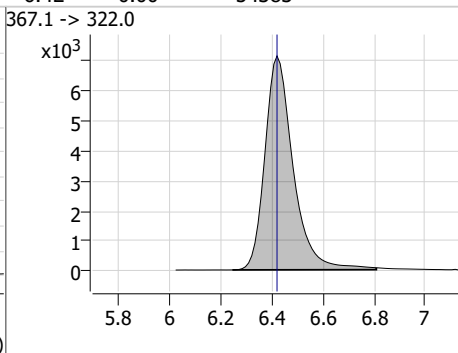
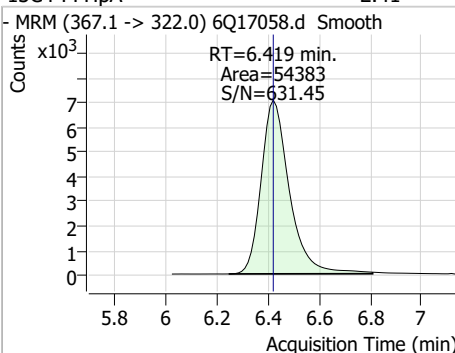
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	121.99	5.94	0.00	3905822	314.8 -> 82.9	3.4	1.9	5.6



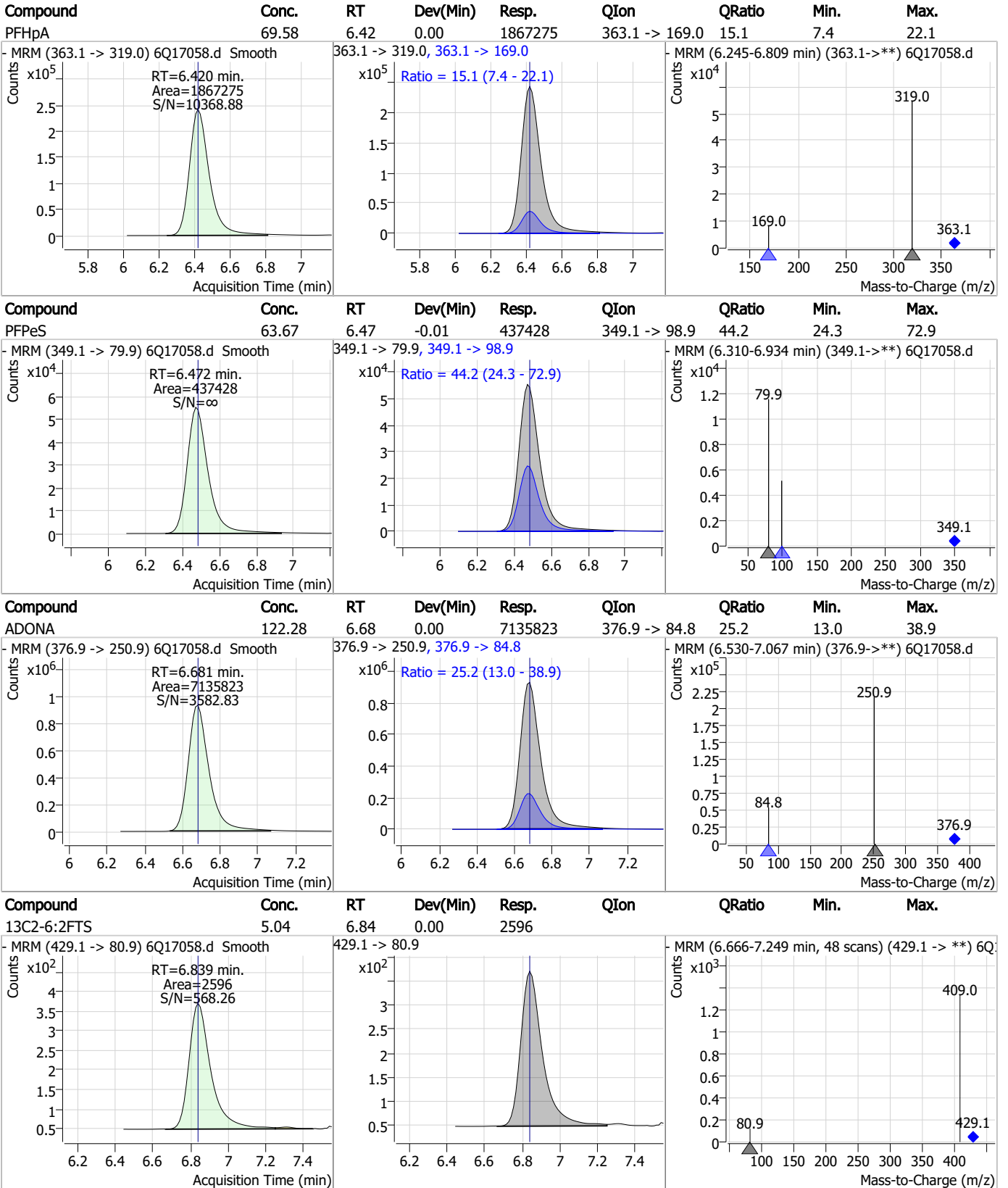
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	1584.88	6.15	0.00	6507641	341.0 -> 217.0	74.3	33.5	100.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.41	6.42	0.00	54383	367.1 -> 322.0			



Perfluorinated Compounds by LC/MS/MS

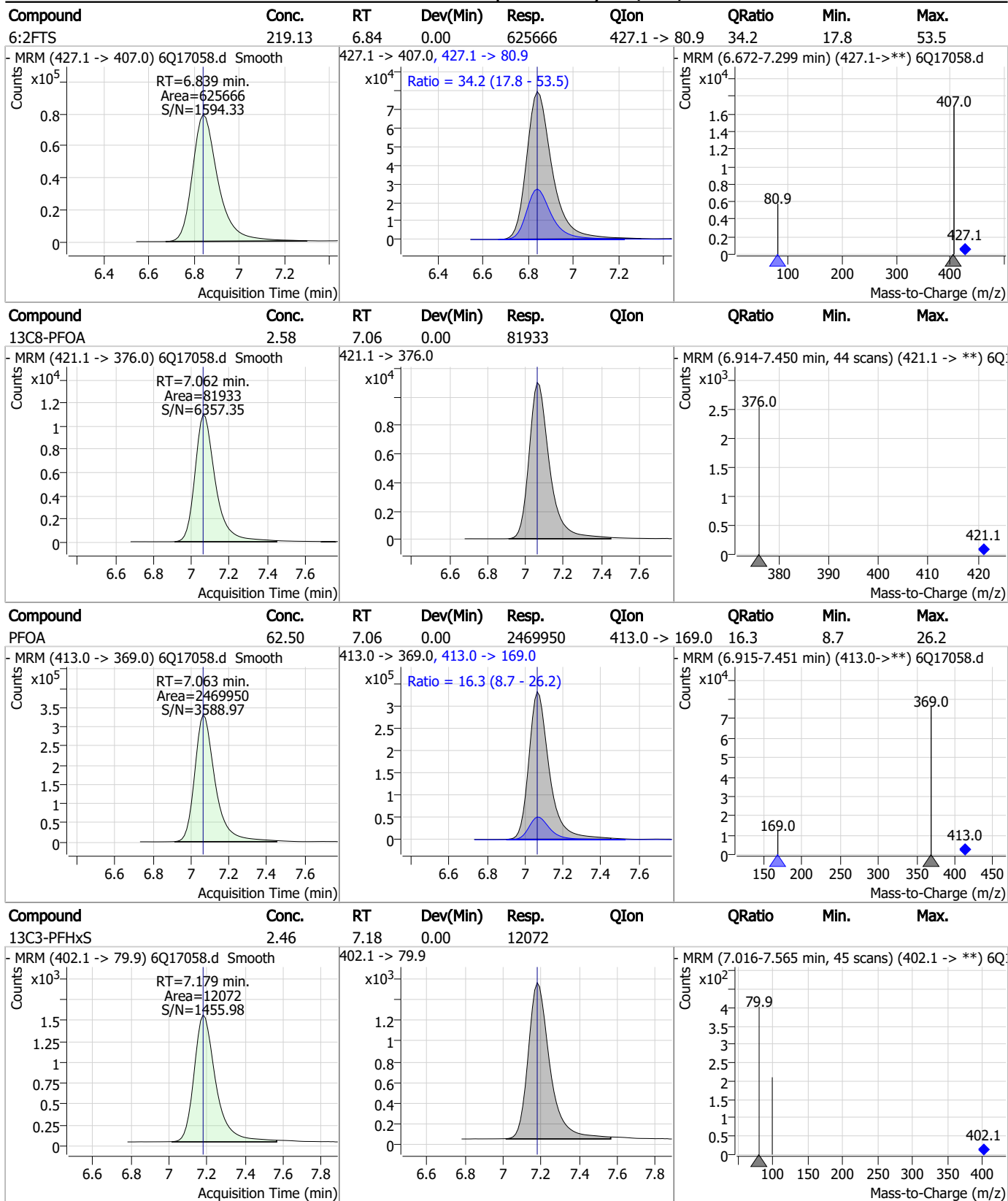


7.6.9

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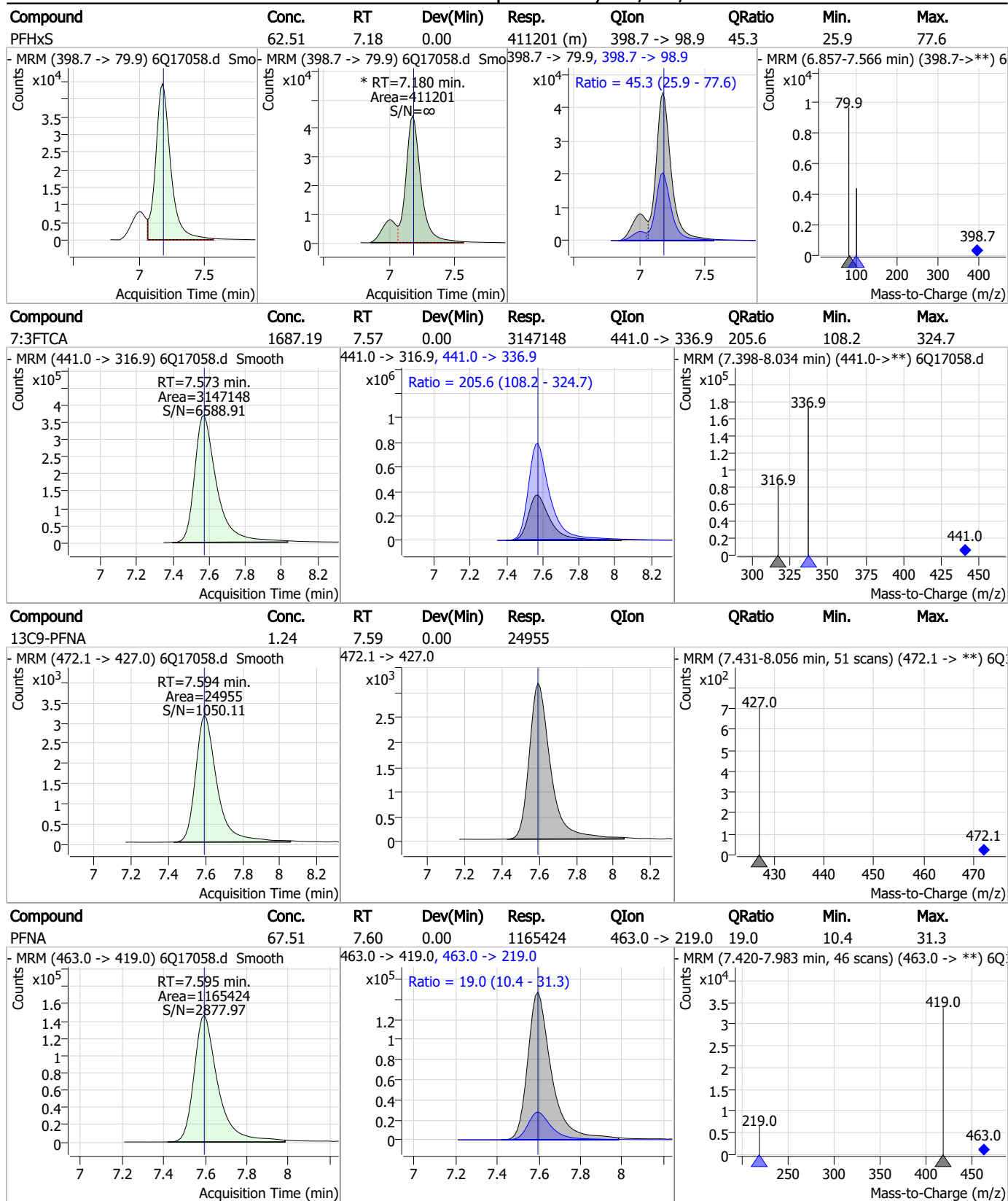


Perfluorinated Compounds by LC/MS/MS



7.6.9
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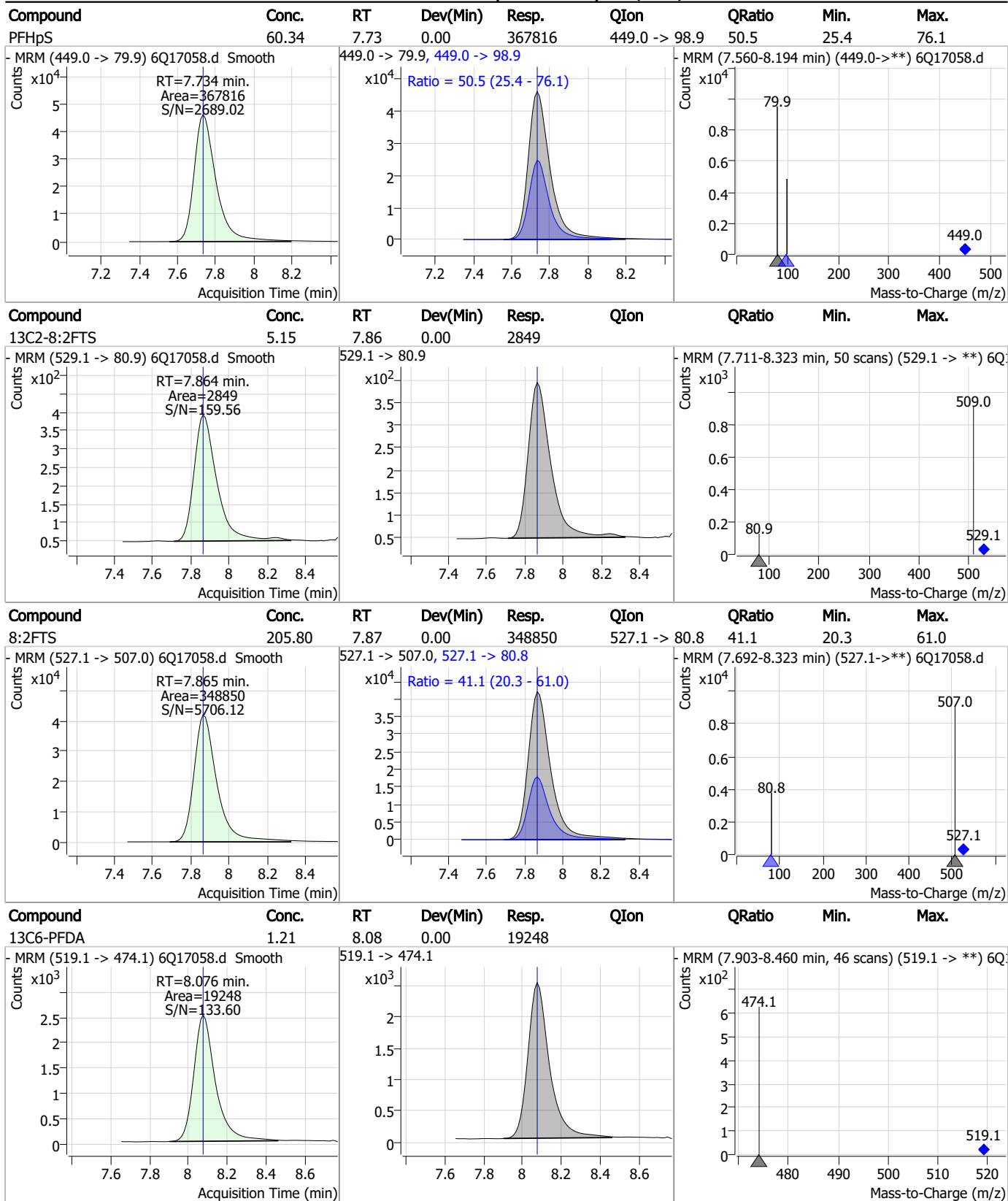
Perfluorinated Compounds by LC/MS/MS



7.6.9

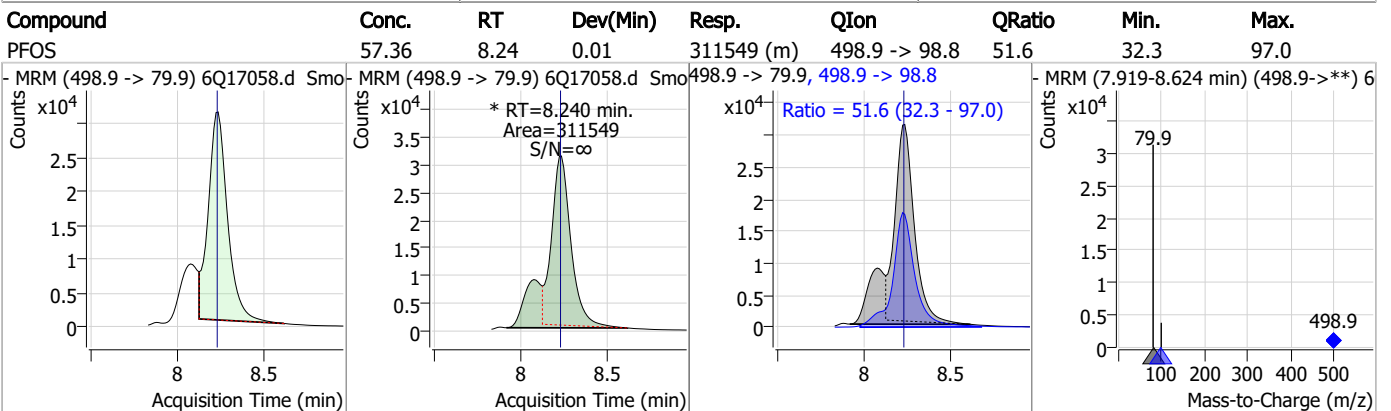
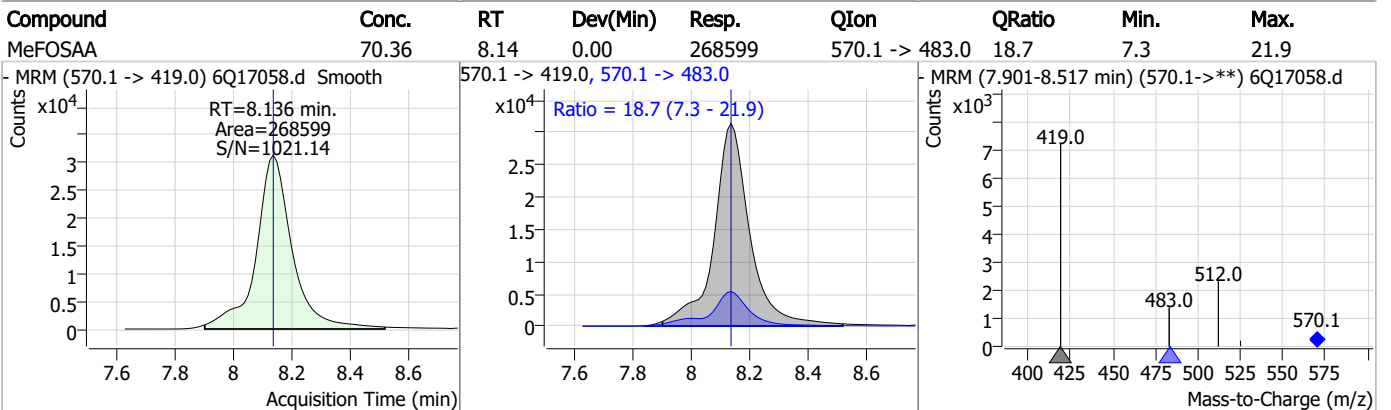
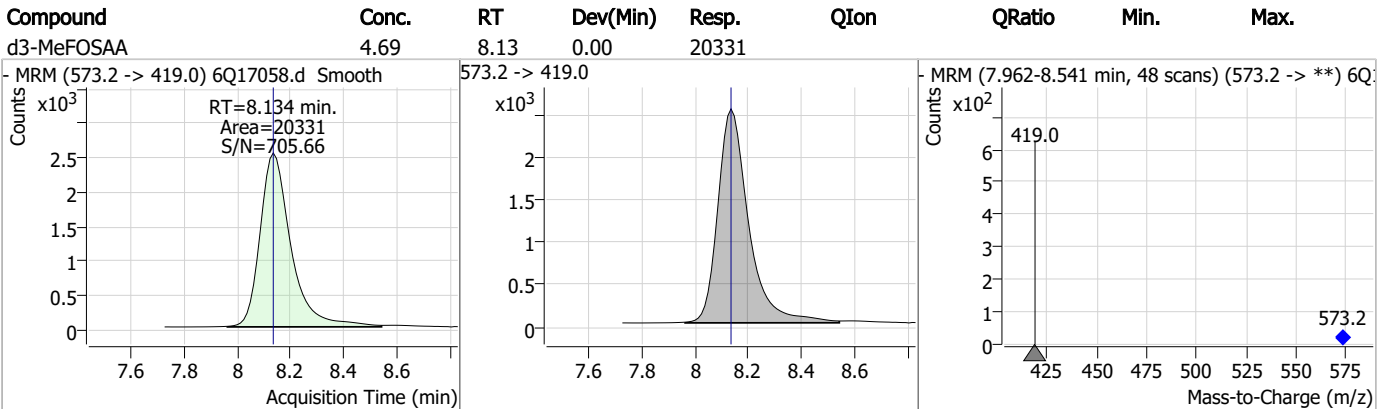
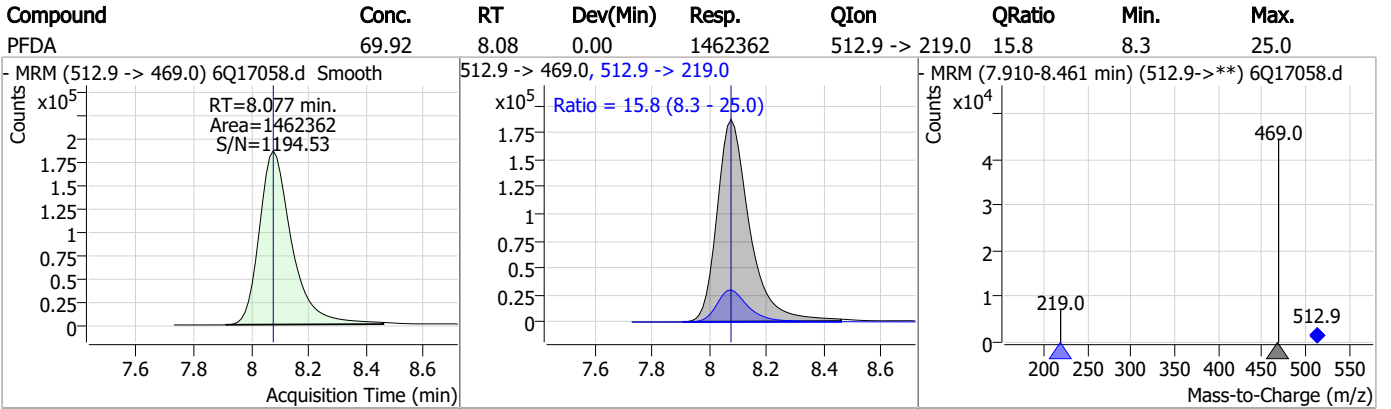
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Perfluorinated Compounds by LC/MS/MS

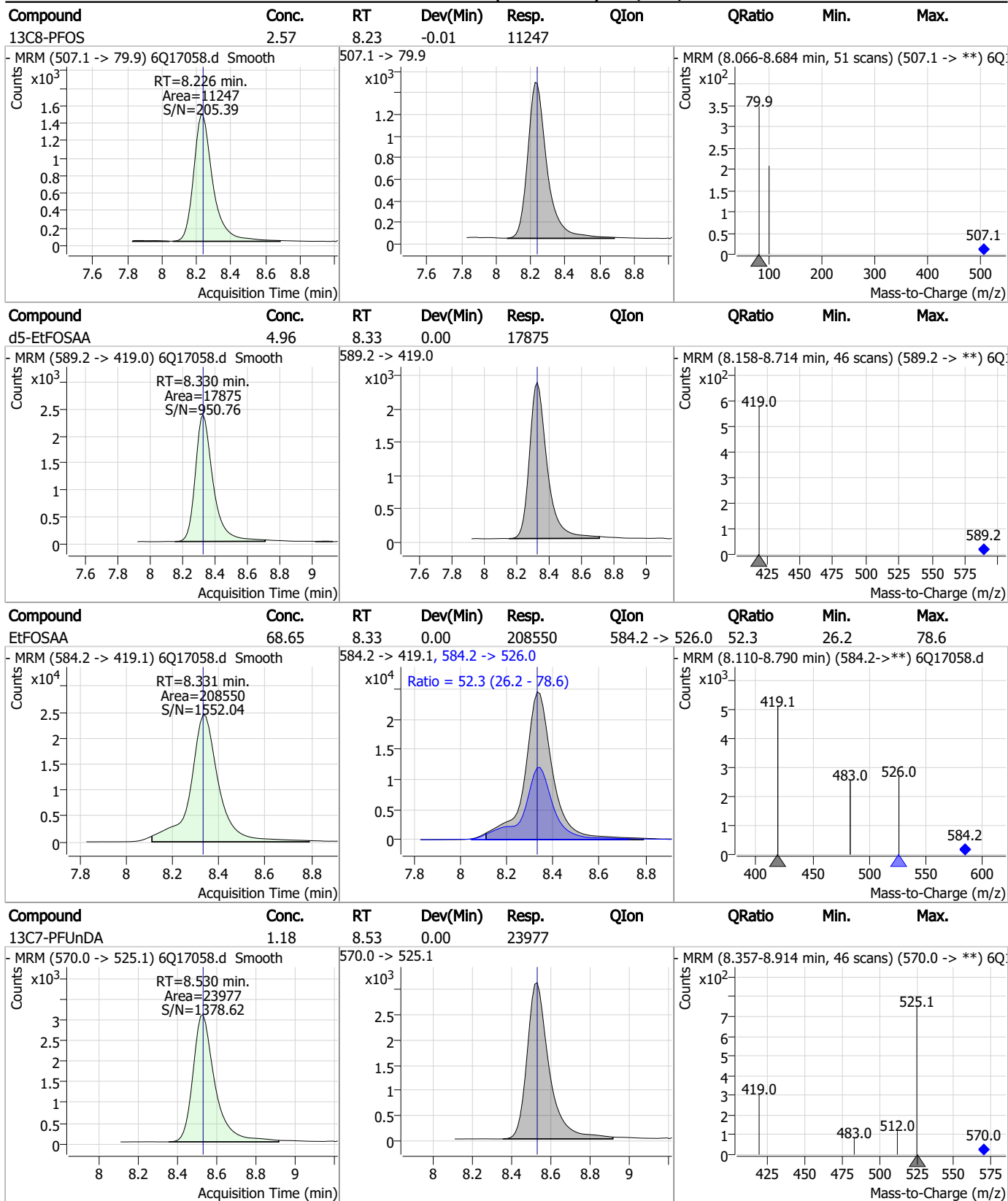


7.6.9

Perfluorinated Compounds by LC/MS/MS

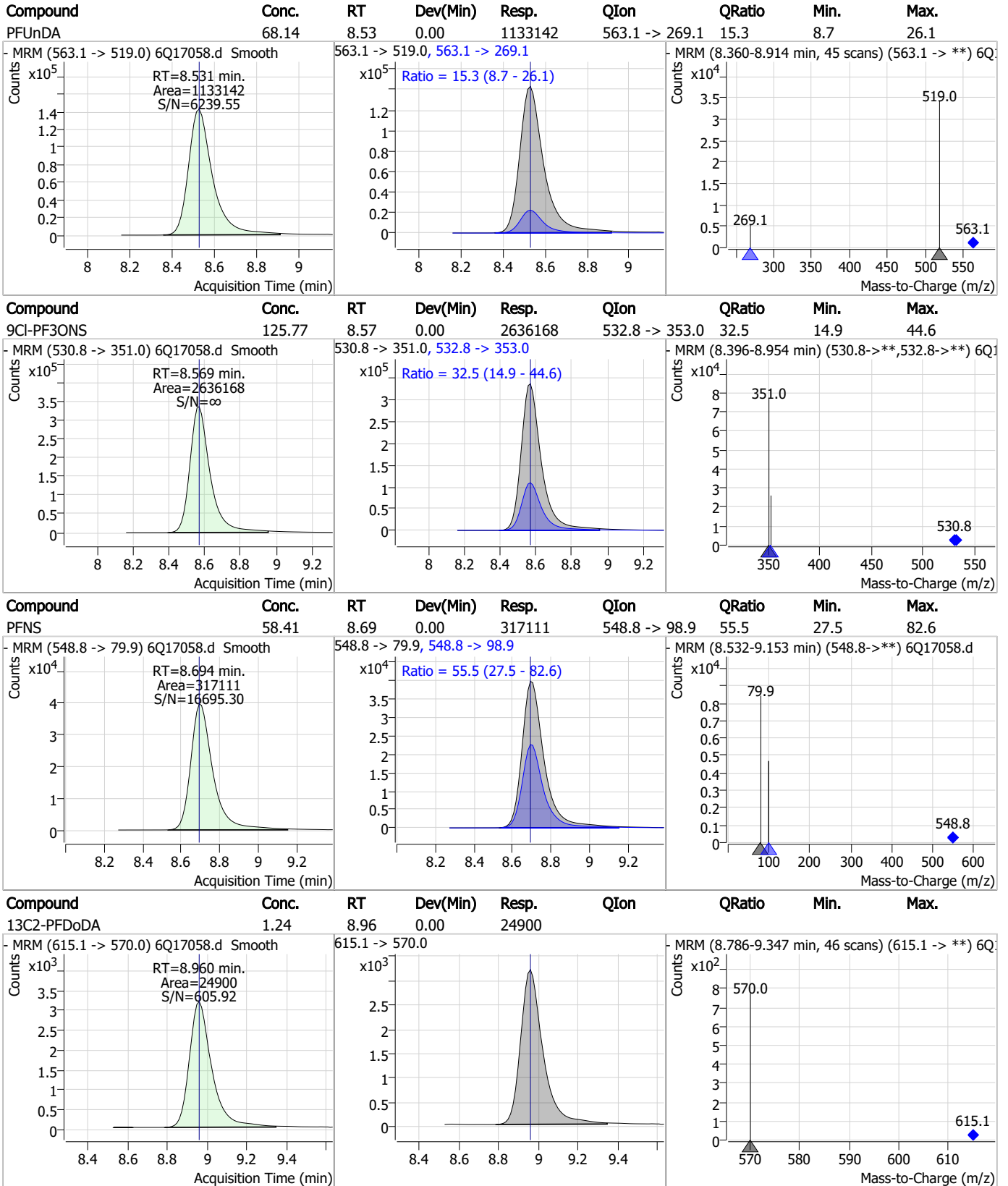


Perfluorinated Compounds by LC/MS/MS



7.6.9
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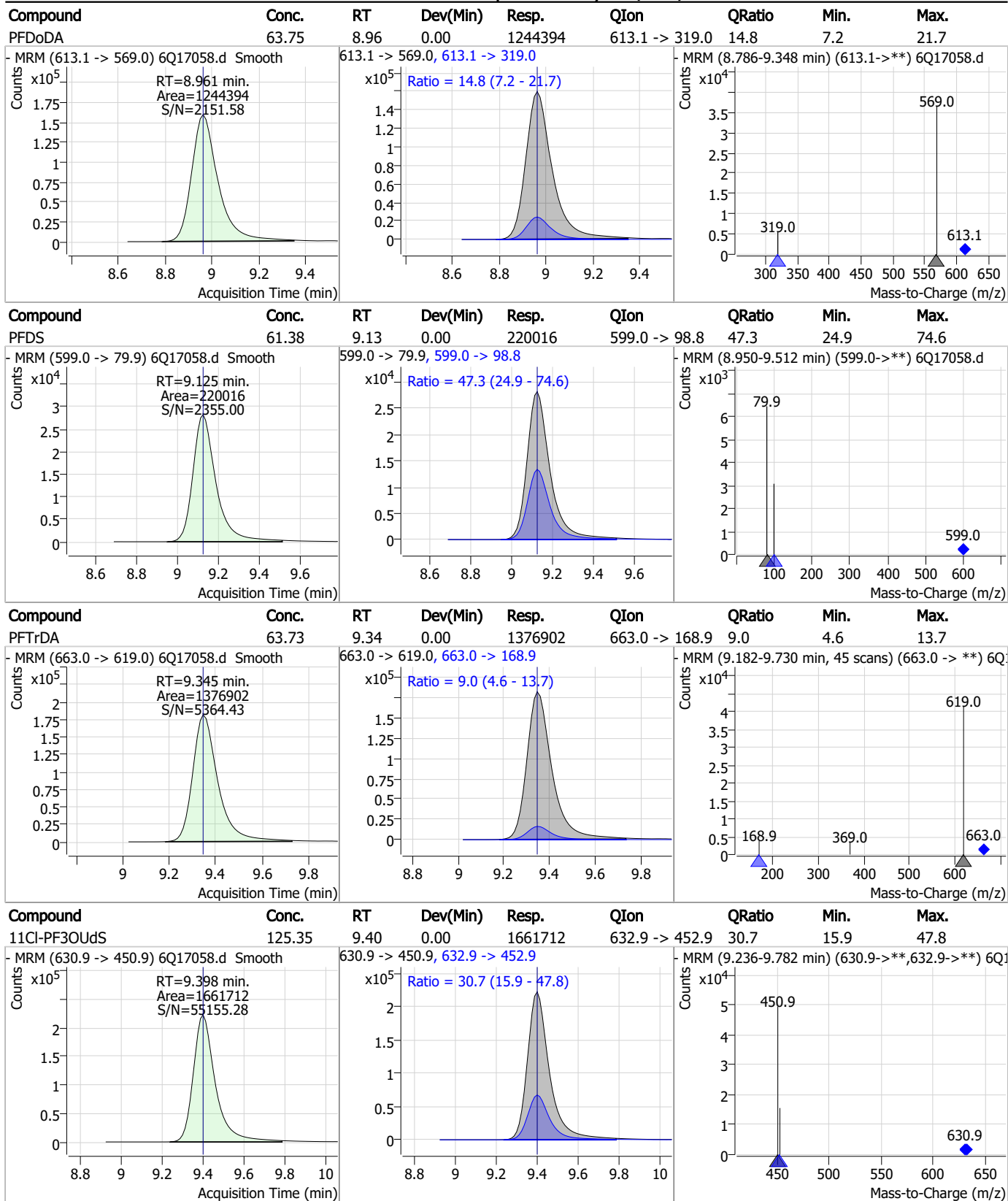
Perfluorinated Compounds by LC/MS/MS



7.6.9

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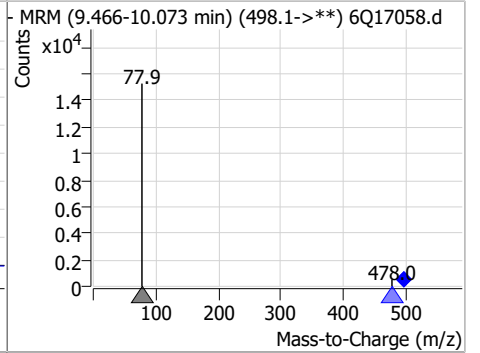
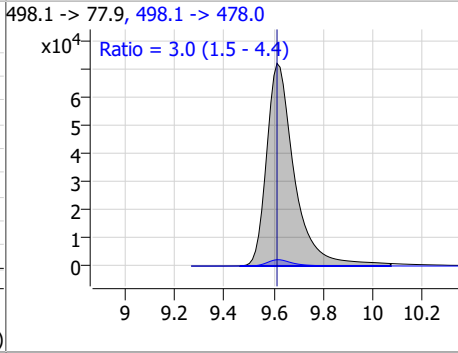
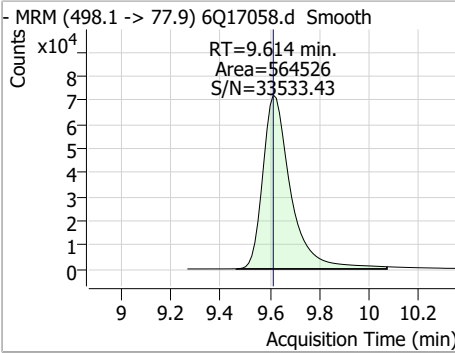
Perfluorinated Compounds by LC/MS/MS



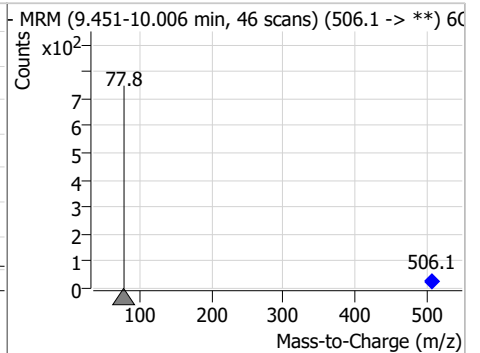
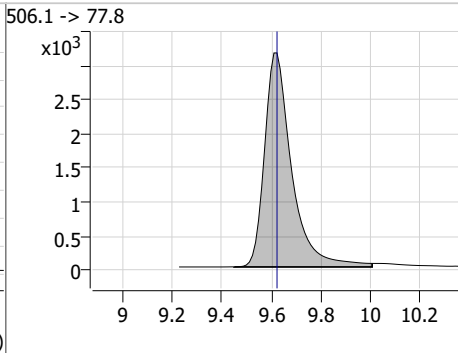
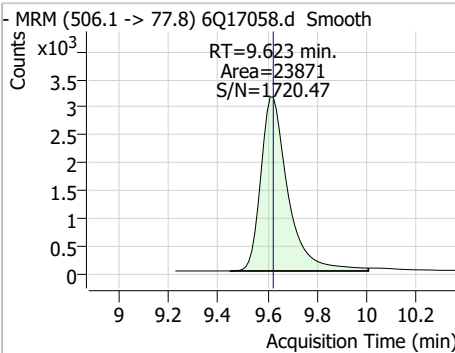
7.6.9
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Perfluorinated Compounds by LC/MS/MS

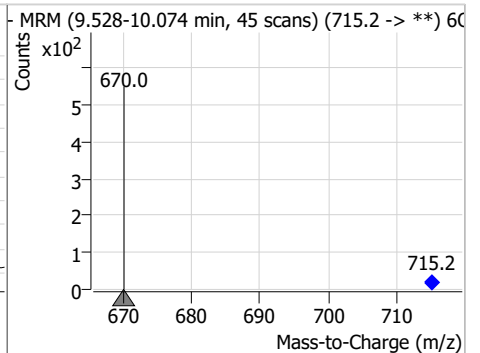
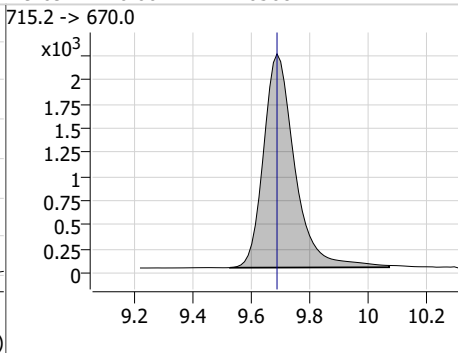
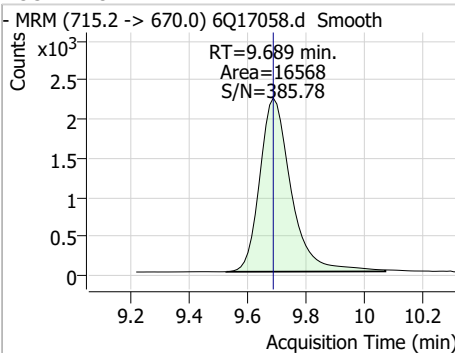
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	66.00	9.61	0.00	564526	498.1 -> 478.0	3.0	1.5	4.4



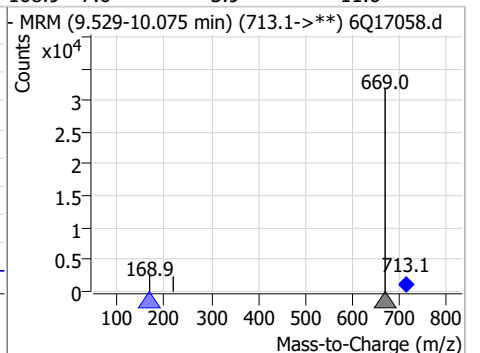
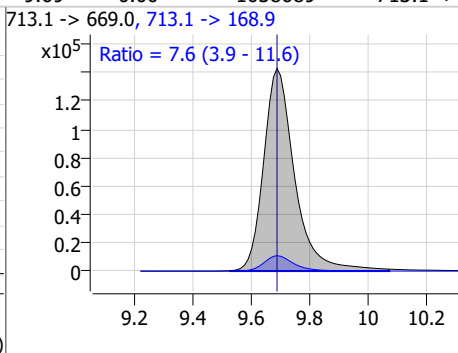
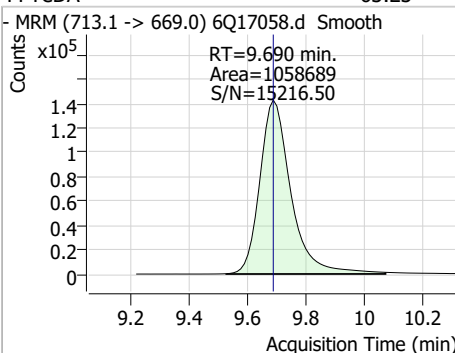
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.48	9.62	0.00	23871				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.22	9.69	0.00	16568				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	63.23	9.69	0.00	1058689	713.1 -> 168.9	7.6	3.9	11.6



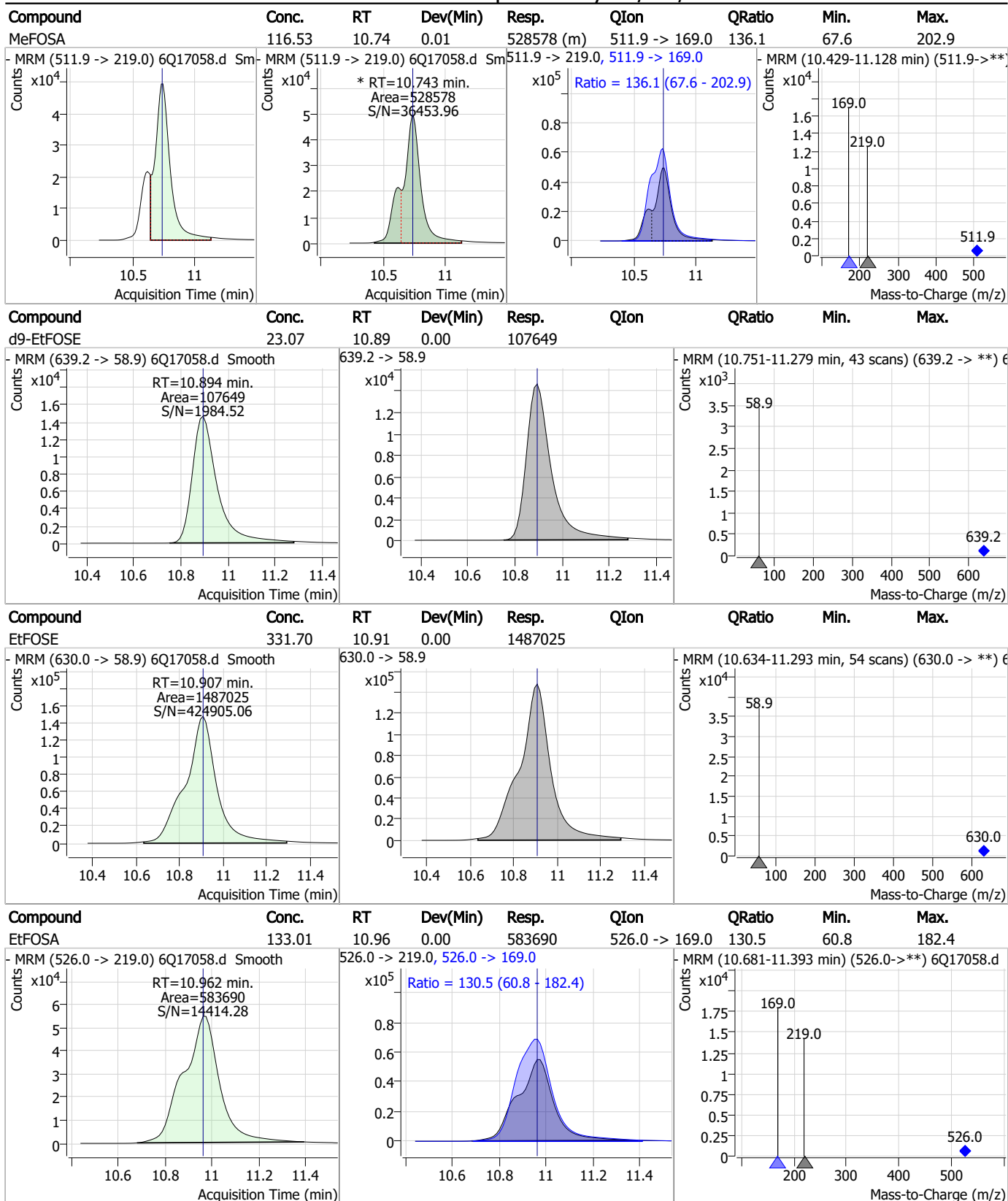
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	60.10	9.82	0.00	111401	699.1 -> 98.8	58.8	28.5	85.6
d7-MeFOSE	23.32	10.65	0.00	89075				
MeFOSE	329.56	10.66	0.00	1309183				
d3-MeFOSA	2.77	10.73	0.00	10079				

7.6.9
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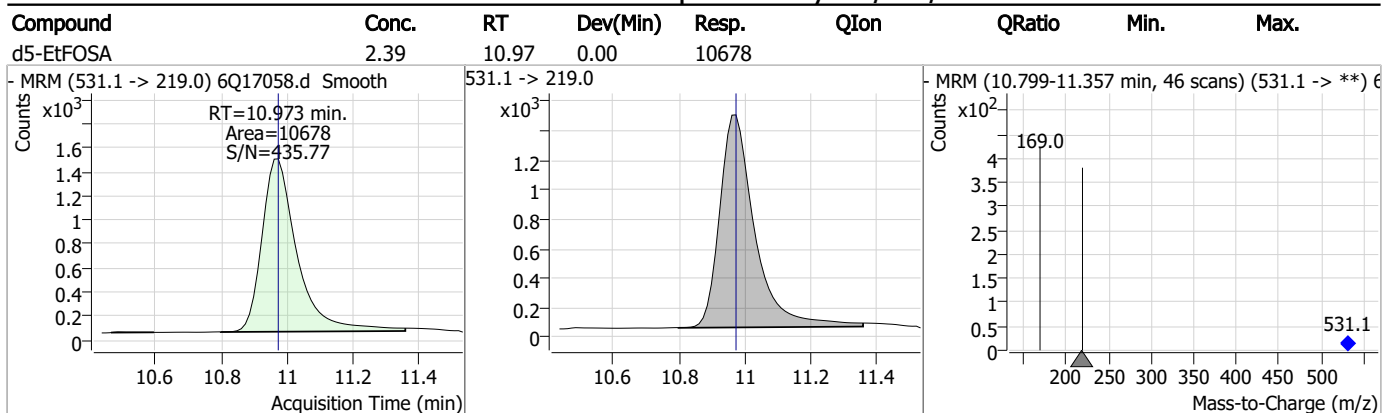


Perfluorinated Compounds by LC/MS/MS



7.6.9
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Perfluorinated Compounds by LC/MS/MS



7.6.9
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Manual Integration Approval Summary

Sample Number: S6Q258-IC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17058.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 14:31 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.24	Split peak
MeFOSA	31506-32-8		10.74	Split peak

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7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17060.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 3:00:42 PM
 Sample Name : icv258-4
 Vial : P1-B1
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	185758	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	65671	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	70680	2.50 µg/L	0.000
M4-PFHpA	6.431	367.1 -> 322.0	60610	2.50 µg/L	0.012
M8-PFOA	7.074	421.1 -> 376.0	87628	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	27751	1.25 µg/L	0.000
M6-PFDA	8.088	519.1 -> 474.1	20874	1.25 µg/L	0.012
M7-PFUnDA	8.530	570.0 -> 525.1	25183	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	25086	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17852	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	25922	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22801	2.50 µg/L	0.000
M3-PFHxS	7.191	402.1 -> 79.9	12509	2.50 µg/L	0.012
M8-PFOS	8.239	507.1 -> 79.9	12071	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2329	5.00 µg/L	0.000
M2-6:2FTS	6.851	429.1 -> 80.9	2864	5.00 µg/L	0.012
M2-8:2FTS	7.877	529.1 -> 80.9	2794	5.00 µg/L	0.012
M3-MeFOSAA	8.134	573.2 -> 419.0	22545	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	40747	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	19446	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	103078	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	122225	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	12086	2.50 µg/L	-0.012
M3-MeFOSA	10.741	515.0 -> 219.0	9186	2.50 µg/L	0.012
13C4-PFOS	8.239	502.8 -> 79.9	14678	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	80020	5.00 µg/L	0.000
18O2-PFHxS	7.190	403.0 -> 83.9	9681	2.50 µg/L	0.012
13C4-PFOA	7.075	417.1 -> 372.0	92837	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	25483	1.25 µg/L	0.000
13C5-PFNA	7.607	468.0 -> 423.0	30806	1.25 µg/L	0.012
13C2-PFHxA	5.469	315.1 -> 270.0	57923	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2329	5.23 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C2-6:2FTS	6.851	429.1 -> 80.9	2864	5.30 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C2-8:2FTS	7.877	529.1 -> 80.9	2794	4.81 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.2%		
13C2-PFDoDA	8.960	615.1 -> 570.0	25086	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.6%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17852	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C3-PFBS	5.398	302.1 -> 79.9	22801	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C3-PFHxS	7.191	402.1 -> 79.9	12509	2.43 µg/L	0.012

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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 = 97.1%	
13C4-PFBA	2.910	216.8 -> 171.9	185758	10.05 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C4-PFHpA	6.431	367.1 -> 322.0	60610	2.56 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C5-PFHxA	5.468	318.0 -> 273.0	70680	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C5-PFPeA	4.270	268.3 -> 223.0	65671	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C6-PFDA	8.088	519.1 -> 474.1	20874	1.24 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C7-PFUnDA	8.530	570.0 -> 525.1	25183	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.6%	
13C8-FOSA	9.623	506.1 -> 77.8	25922	9.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.9%	
13C8-PFOA	7.074	421.1 -> 376.0	87628	2.45 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C8-PFOS	8.239	507.1 -> 79.9	12071	2.73 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.2%	
13C9-PFNA	7.594	472.1 -> 427.0	27751	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.5%	
d3-MeFOSAA	8.134	573.2 -> 419.0	22545	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	40747	9.94 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
d3-MeFOSA	10.741	515.0 -> 219.0	9186	2.51 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
d5-EtFOSAA	8.330	589.2 -> 419.0	19446	5.35 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.0%	
d7-MeFOSE	10.647	623.2 -> 58.9	103078	26.76 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 107.0%	
d9-EtFOSE	10.894	639.2 -> 58.9	122225	25.97 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.9%	
d5-EtFOSA	10.960	531.1 -> 219.0	12086	2.68 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.4%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	32806	9.31 µg/L	100
		327.1 -> 80.9	12117		
6:2FTS	6.851	427.1 -> 407.0	30428	9.66 µg/L	98
		427.1 -> 80.9	10418		
8:2FTS	7.877	527.1 -> 507.0	17789	10.70 µg/L	99
		527.1 -> 80.8	7105		
EtFOSAA	8.343	584.2 -> 419.1	7978	2.41 µg/L	94
		584.2 -> 526.0	4505		
FOSA	9.614	498.1 -> 77.9	23095	2.49 µg/L	100
		498.1 -> 478.0	650		
MeFOSAA	8.136	570.1 -> 419.0	10811	2.55 µg/L	87
		570.1 -> 483.0	2177		
PFBA	2.906	212.8 -> 168.9	64067	10.28 µg/L	100
PFBS	5.400	298.7 -> 79.9	23660	2.31 µg/L	96
		298.7 -> 98.8	9163		
PFDA	8.077	512.9 -> 469.0	63479	2.80 µg/L	96
		512.9 -> 219.0	9425		
PFDODA	8.961	613.1 -> 569.0	51488	2.62 µg/L	98
		613.1 -> 319.0	6984		
PFDS	9.125	599.0 -> 79.9	8759	2.28 µg/L	100

7.6.10
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.432	599.0 -> 98.8	4379	2.60	µg/L	99
		363.1 -> 319.0	77884			
PFHpS	7.746	363.1 -> 169.0	11811	2.33	µg/L	96
		449.0 -> 79.9	15247			
PFHxA	5.470	449.0 -> 98.9	7345	2.46	µg/L	100
		313.0 -> 269.0	68747			
PFHxS	7.180	313.0 -> 118.9	3148	2.36	µg/L	98
		398.7 -> 79.9	16112			
PFNA	7.595	398.7 -> 98.9	8157	2.37	µg/L	100
		463.0 -> 419.0	45525			
PFNS	8.706	463.0 -> 219.0	9535	2.30	µg/L	97
		548.8 -> 79.9	13429			
PFOA	7.076	548.8 -> 98.9	7078	2.42	µg/L	100
		413.0 -> 369.0	99490			
PFOS	8.228	413.0 -> 169.0	17432	2.10	µg/L	90
		498.9 -> 79.9	12245			
PFPeA	4.273	498.9 -> 98.8	6935	5.05	µg/L	100
		263.0 -> 219.0	90362			
PFPeS	6.484	349.1 -> 79.9	17853	2.51	µg/L	96
		349.1 -> 98.9	8187			
PFTeDA	9.690	713.1 -> 669.0	45331	2.51	µg/L	99
		713.1 -> 168.9	3408			
PFTrDA	9.345	663.0 -> 619.0	58210	2.67	µg/L	98
		663.0 -> 168.9	4950			
PFUnDA	8.531	563.1 -> 519.0	46797	2.68	µg/L	99
		563.1 -> 269.1	8019			
11CI-PF3OUdS	9.398	630.9 -> 450.9	68021	4.86	µg/L	100
		632.9 -> 452.9	21705			
9CI-PF3ONS	8.569	530.8 -> 351.0	101879	4.61	µg/L	91
		532.8 -> 353.0	35127			
ADONA	6.681	376.9 -> 250.9	307875	5.00	µg/L	100
		376.9 -> 84.8	79137			
HFPO-DA	5.846	284.9 -> 168.9	19230	4.98	µg/L	98
		284.9 -> 184.9	2564			
3:3FTCA	3.784	241.0 -> 177.0	13980	12.50	µg/L	96
		241.0 -> 117.0	1660			
5:3FTCA	6.160	341.0 -> 237.1	294632	65.15	µg/L	95
		341.0 -> 217.0	207989			
7:3FTCA	7.585	441.0 -> 316.9	127445	62.03	µg/L	91
		441.0 -> 336.9	294921			
EtFOSA	10.962	526.0 -> 219.0	23650	4.76	µg/L	93
		526.0 -> 169.0	30651			
EtFOSE	10.907	630.0 -> 58.9	63023	12.38	µg/L	100
		511.9 -> 219.0	21336			
MeFOSA	10.730	511.9 -> 169.0	29281	5.16	µg/L	98
		616.1 -> 58.9	56132			
MeFOSE	10.661	699.1 -> 79.9	4617	12.21	µg/L	100
		699.1 -> 98.8	2700			
PFDoDS	9.817	295.0 -> 201.0	15697	2.32	µg/L	98
		295.0 -> 84.9	3899			
NFDHA	5.350	279.0 -> 85.1	60631	5.18	µg/L	99
		229.0 -> 84.9	45433			
PFMBA	4.687	314.8 -> 134.9	159368	5.07	µg/L	100
		314.8 -> 82.9	5535			
PFMPA	3.438			4.52	µg/L	99
PFEESA	5.949					

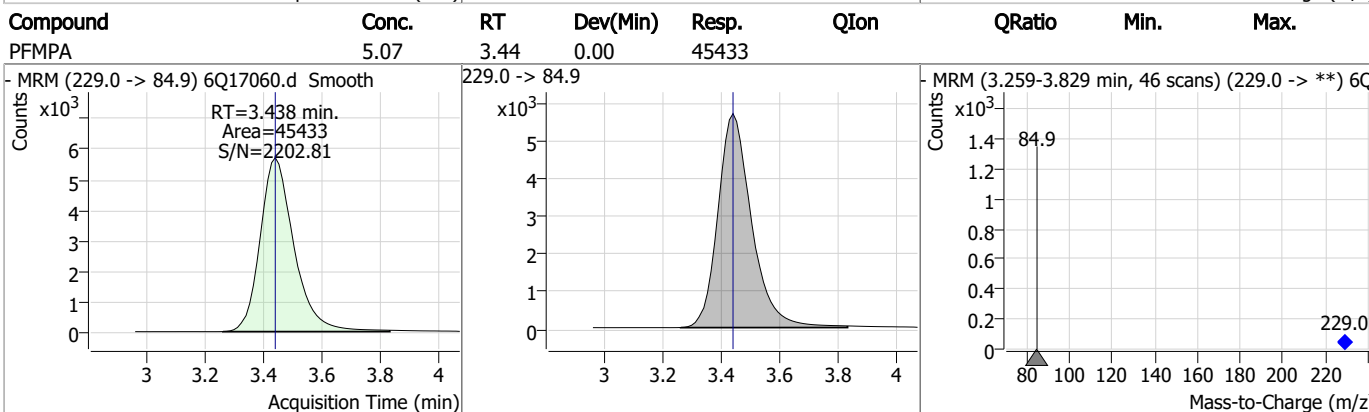
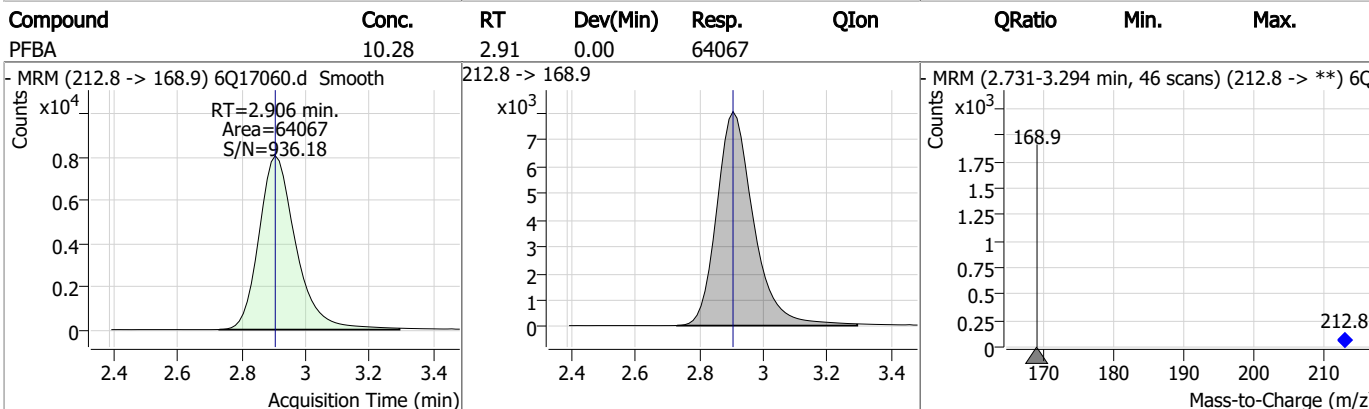
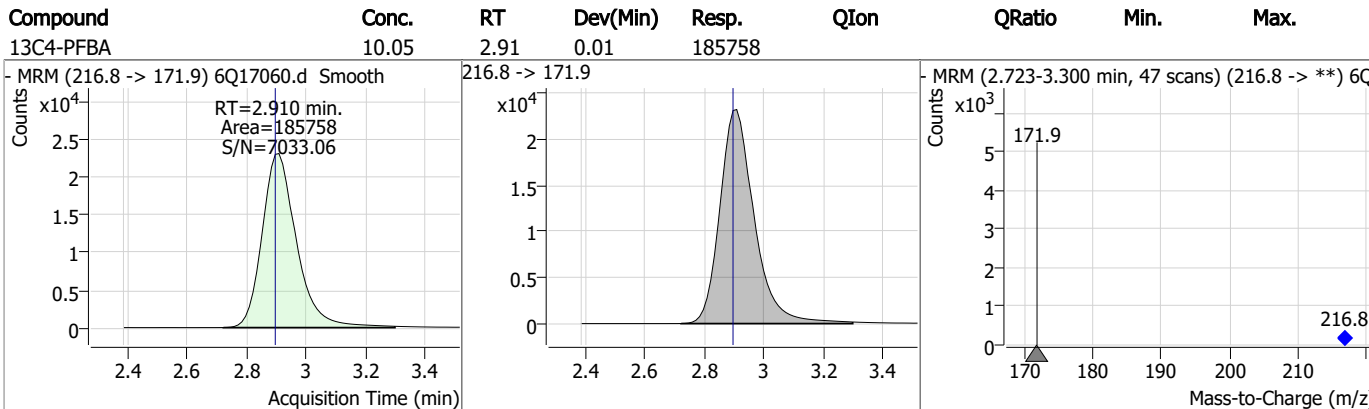
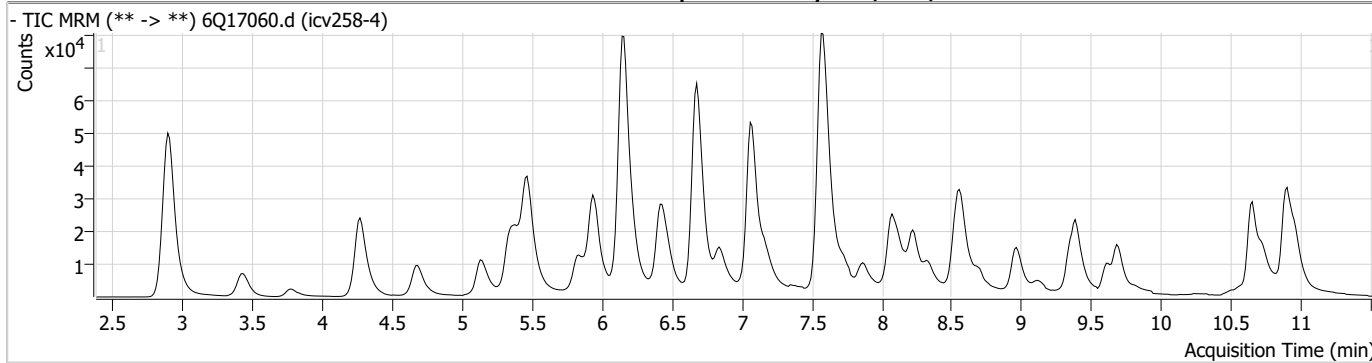
= Qualifier out of range, m = manually integrated, + = Area summed

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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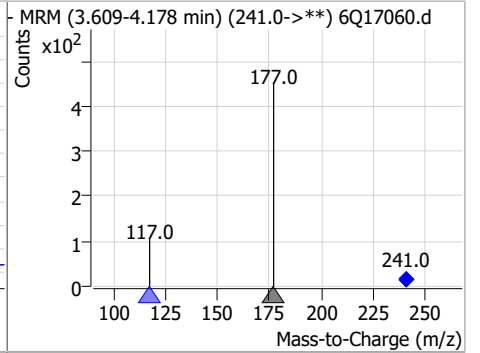
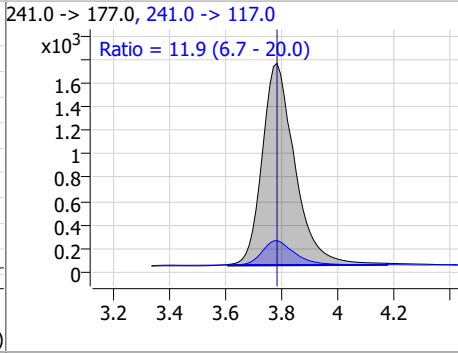
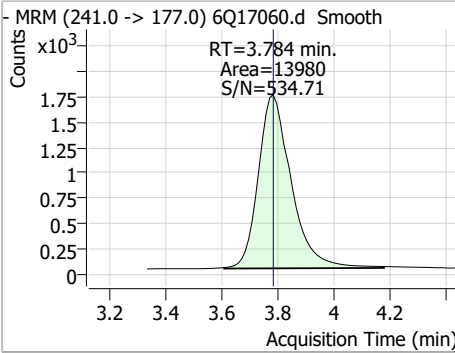
Perfluorinated Compounds by LC/MS/MS



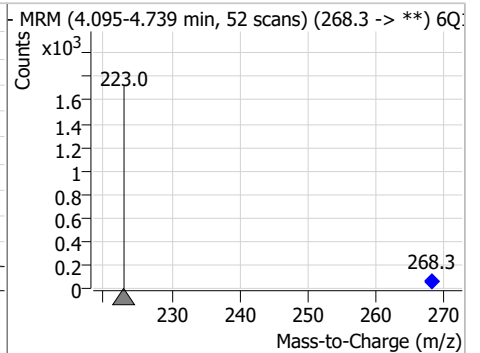
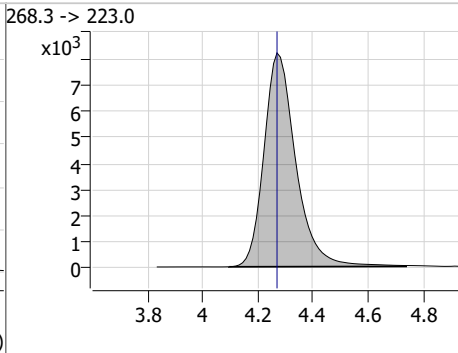
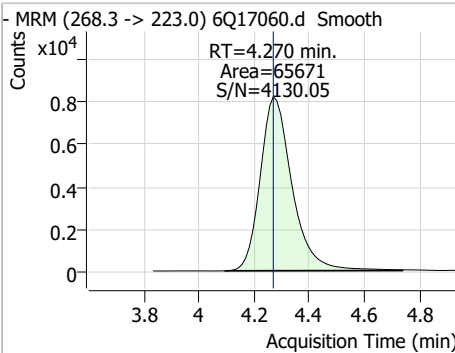
7.6.10
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Perfluorinated Compounds by LC/MS/MS

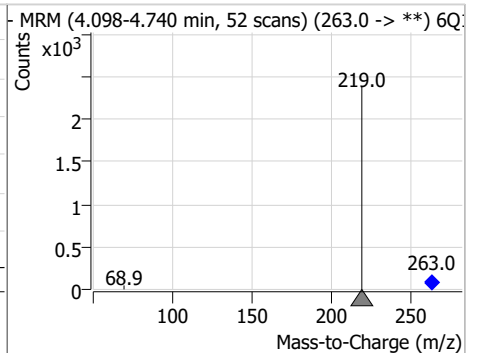
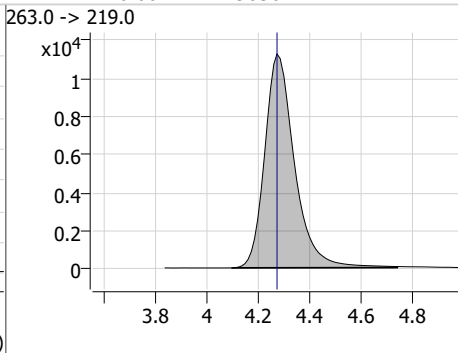
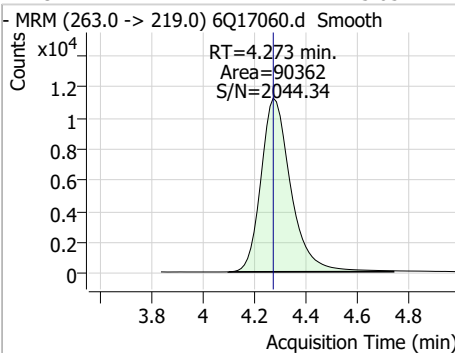
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	12.50	3.78	0.00	13980	241.0 -> 117.0	11.9	6.7	20.0



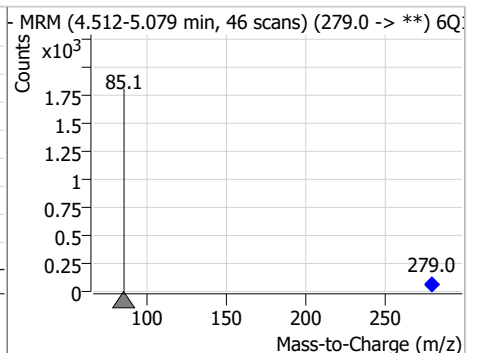
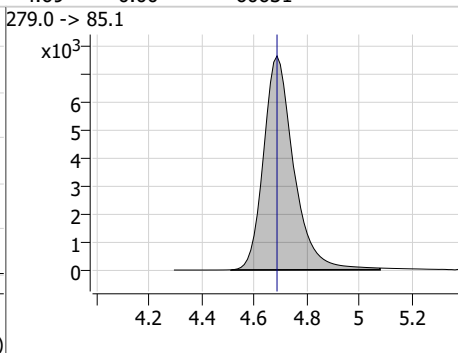
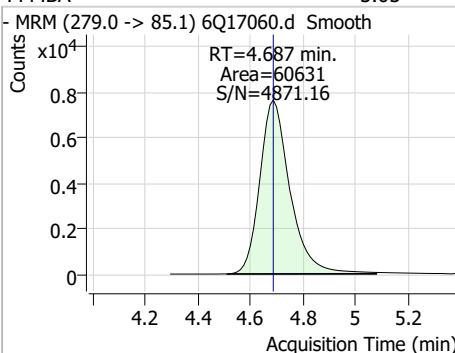
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.08	4.27	0.00	65671				



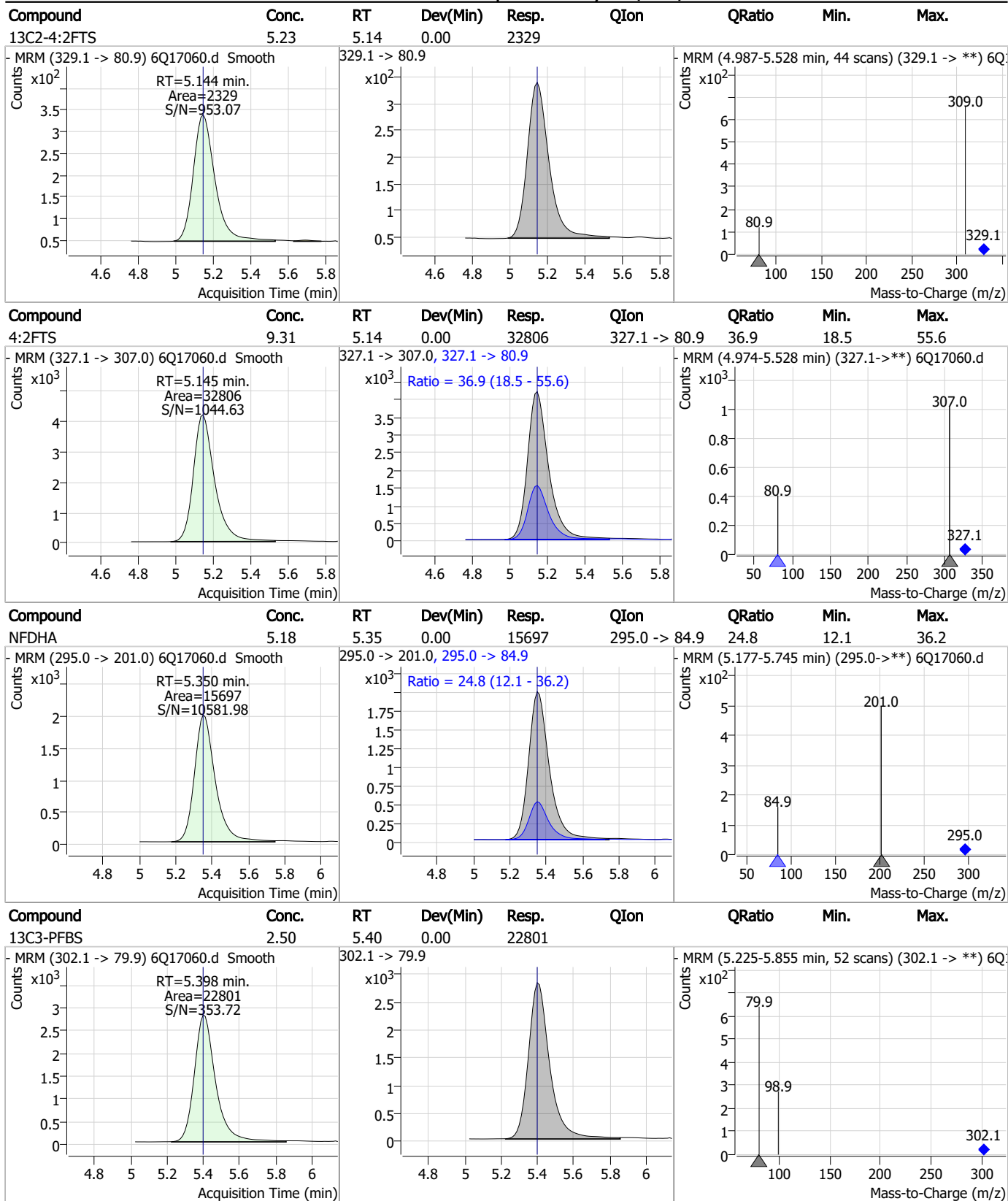
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	5.05	4.27	0.00	90362				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	5.05	4.69	0.00	60631				



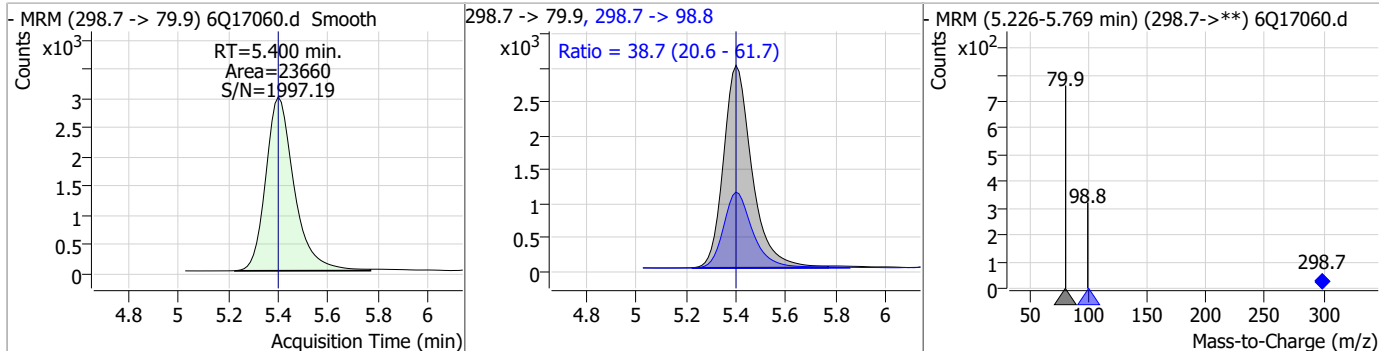
Perfluorinated Compounds by LC/MS/MS



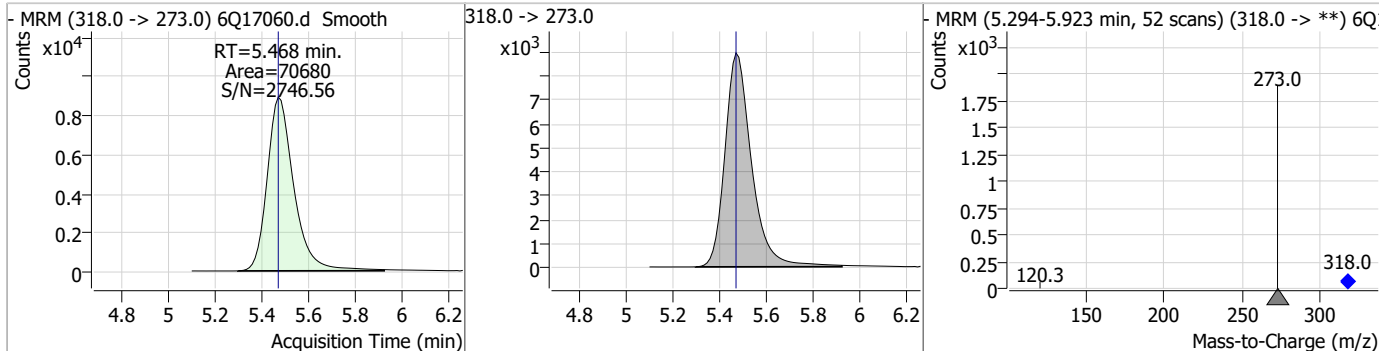
7.6.10 7

Perfluorinated Compounds by LC/MS/MS

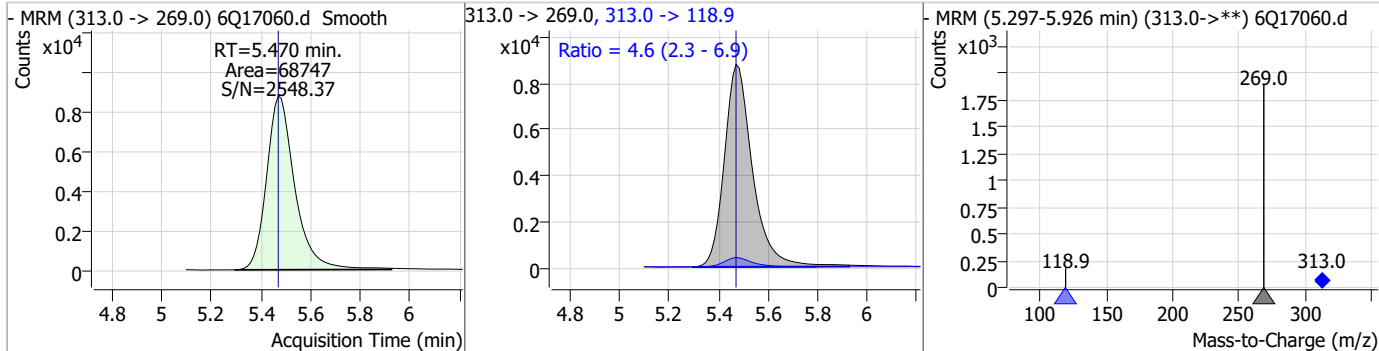
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.31	5.40	0.00	23660	298.7 -> 98.8	38.7	20.6	61.7



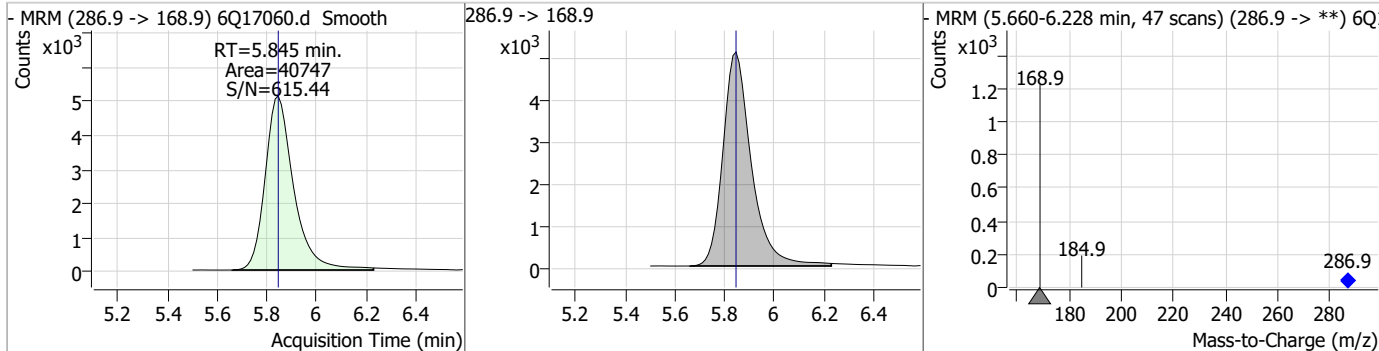
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.53	5.47	0.00	70680				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.46	5.47	0.00	68747	313.0 -> 118.9	4.6	2.3	6.9

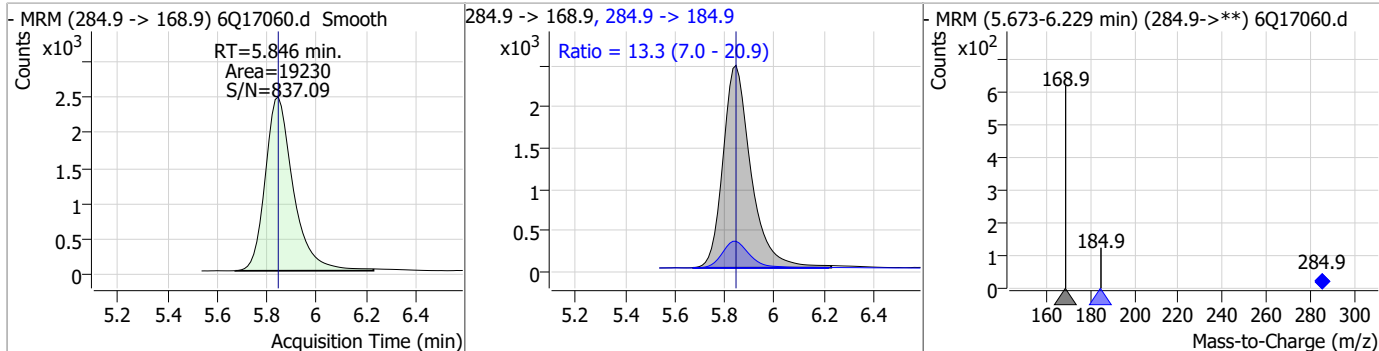


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.94	5.85	0.00	40747				

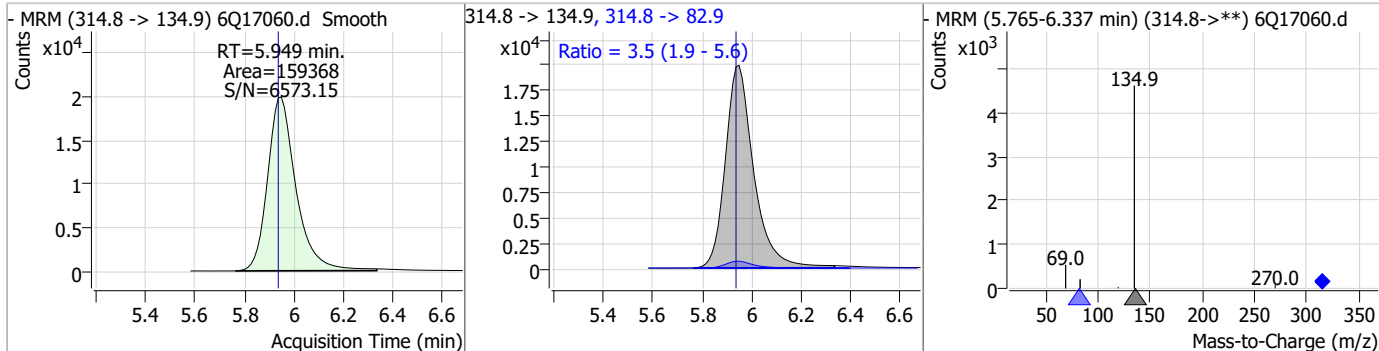


Perfluorinated Compounds by LC/MS/MS

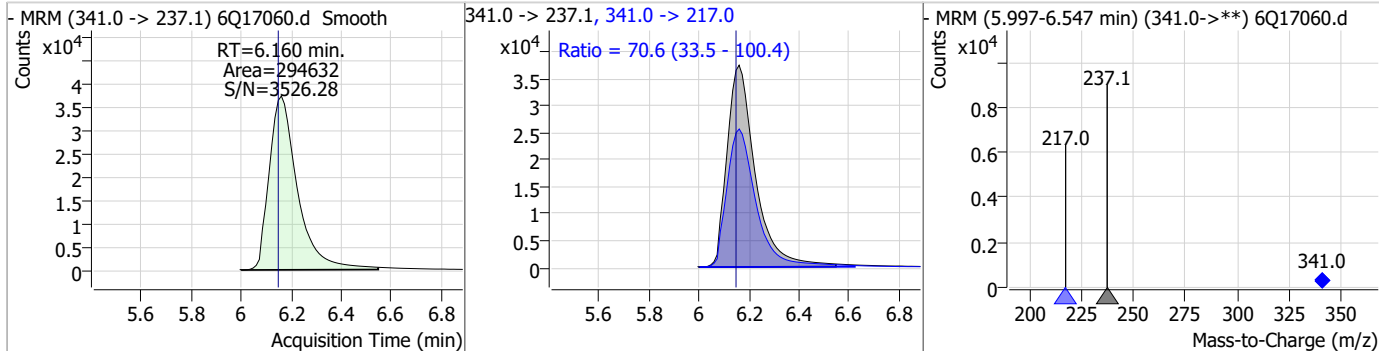
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.98	5.85	0.00	19230	284.9 -> 184.9	13.3	7.0	20.9



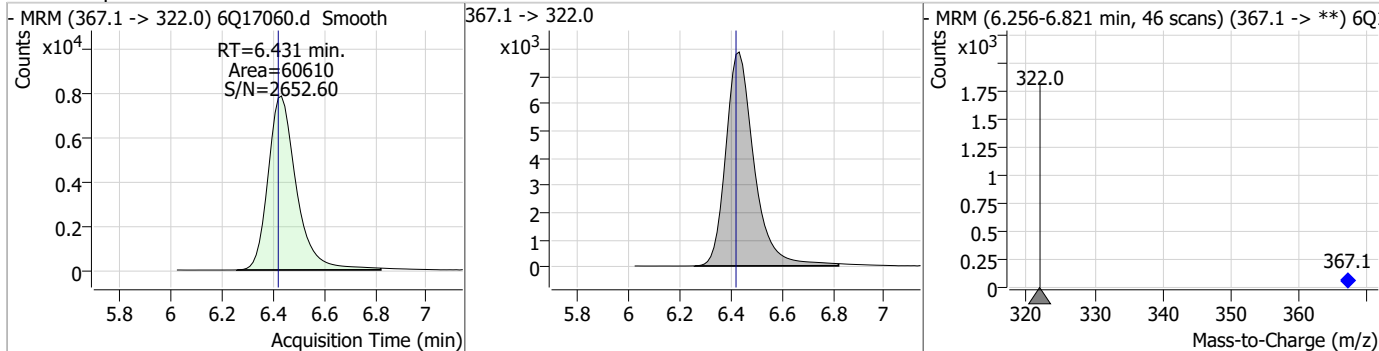
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.52	5.95	0.01	159368	314.8 -> 82.9	3.5	1.9	5.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	65.15	6.16	0.01	294632	341.0 -> 217.0	70.6	33.5	100.4

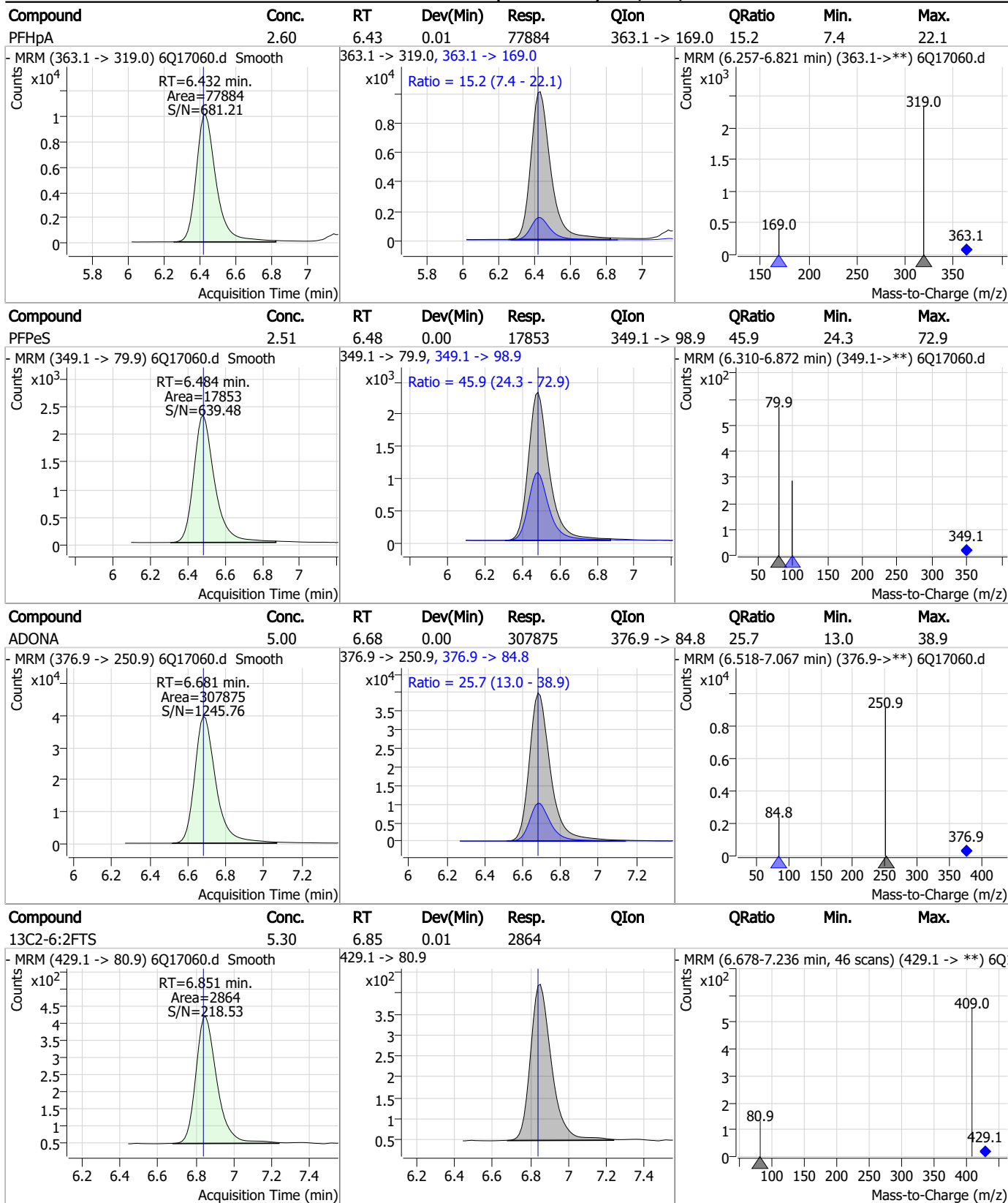


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.56	6.43	0.01	60610	367.1 -> 322.0			



7.6.10 7

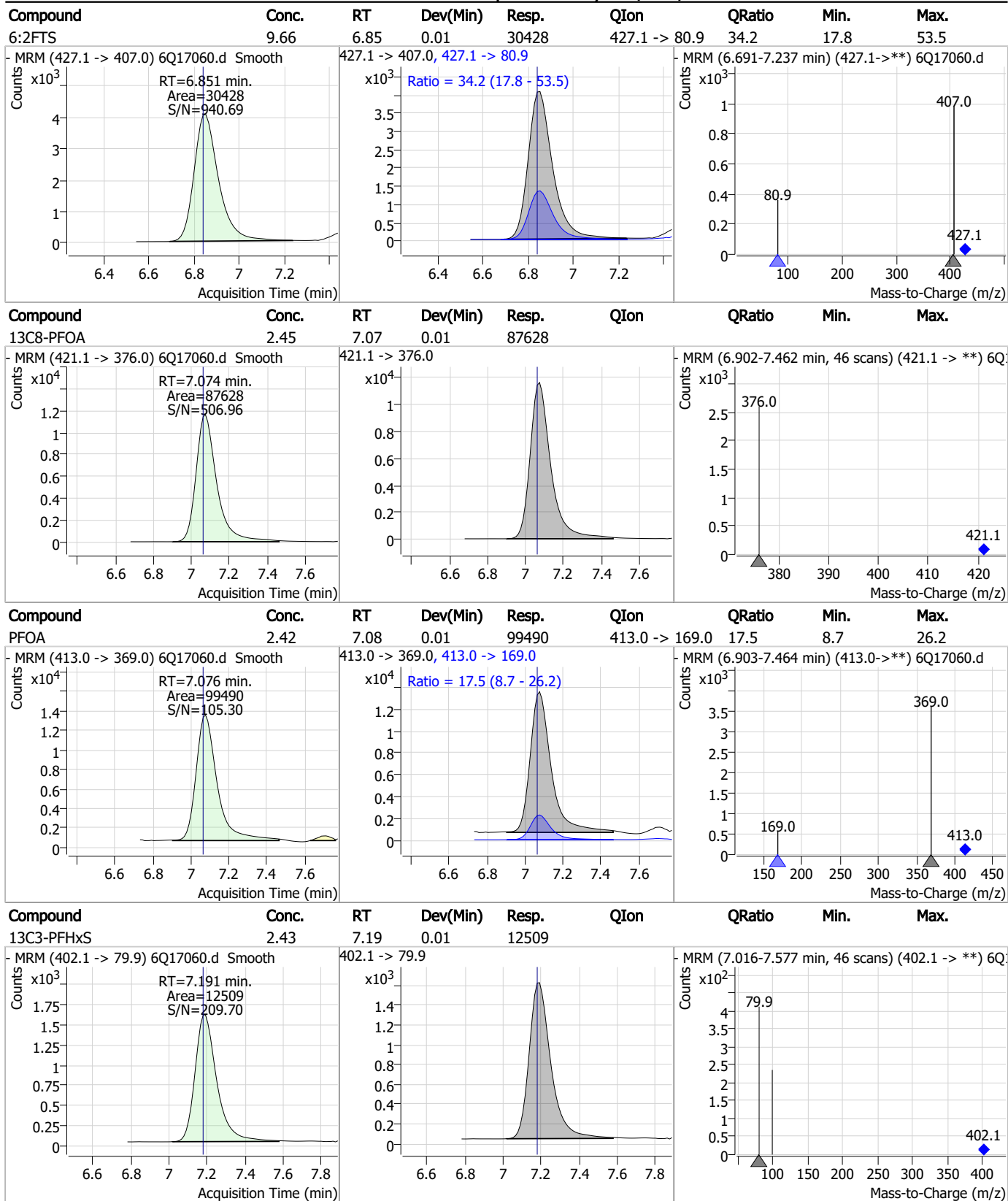
Perfluorinated Compounds by LC/MS/MS



7.6.10 7

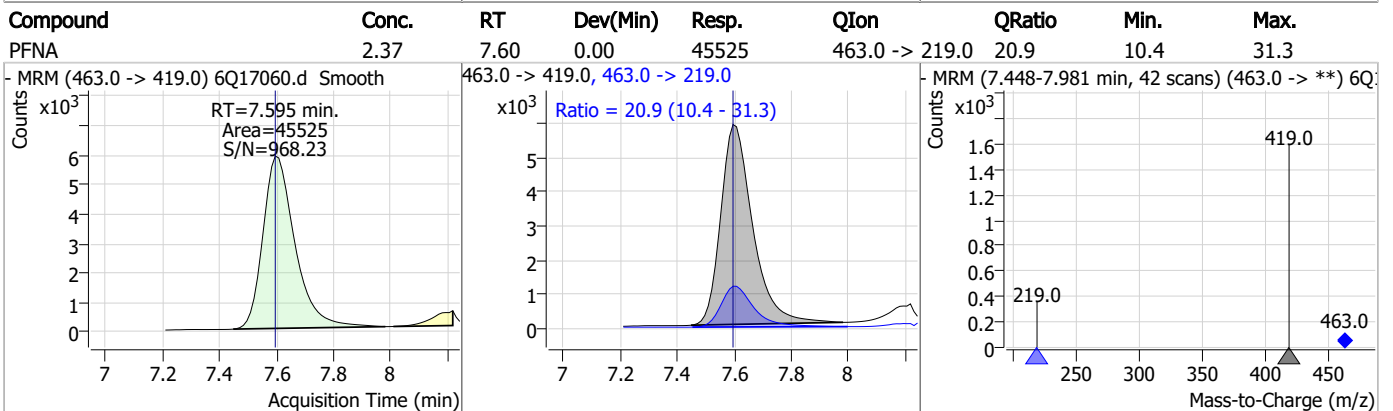
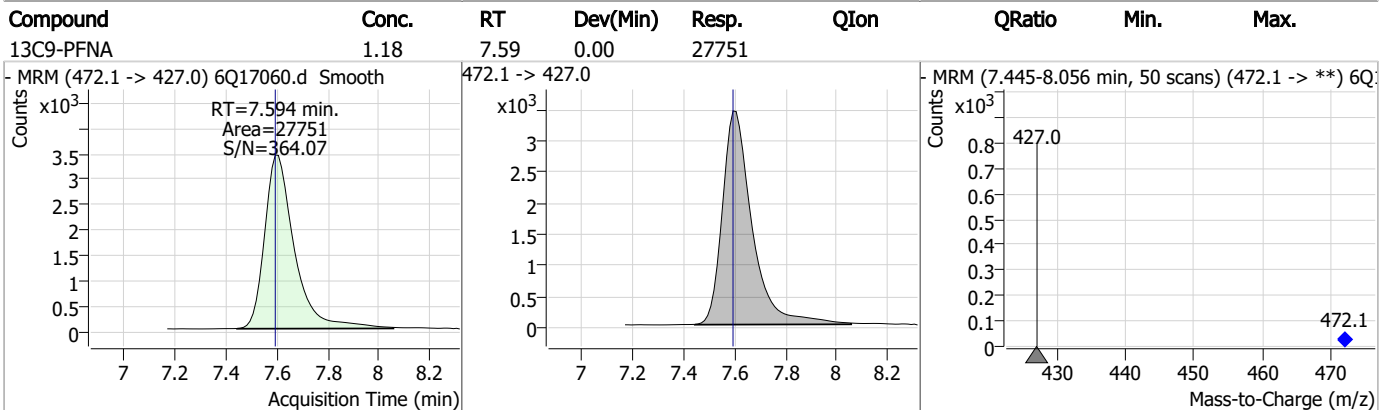
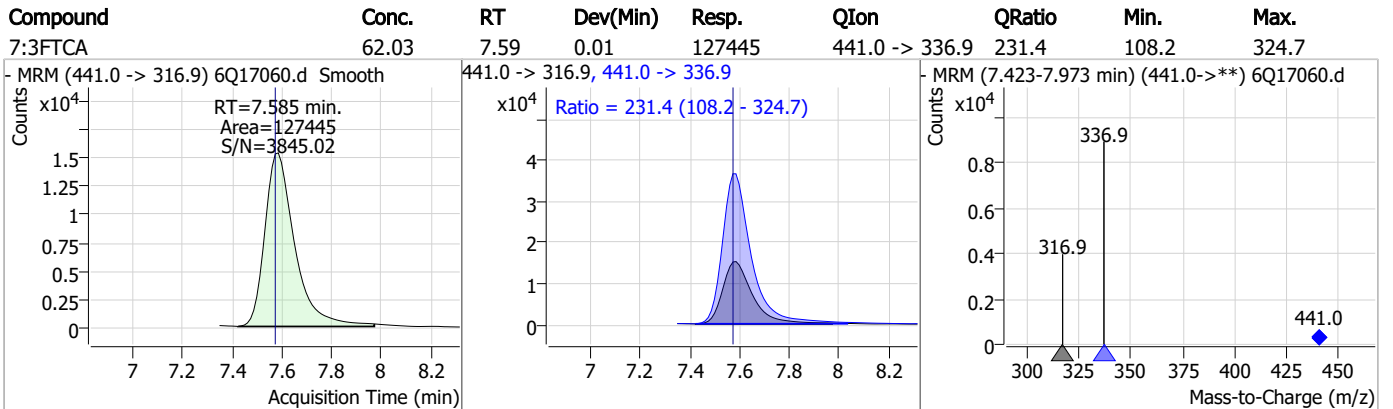
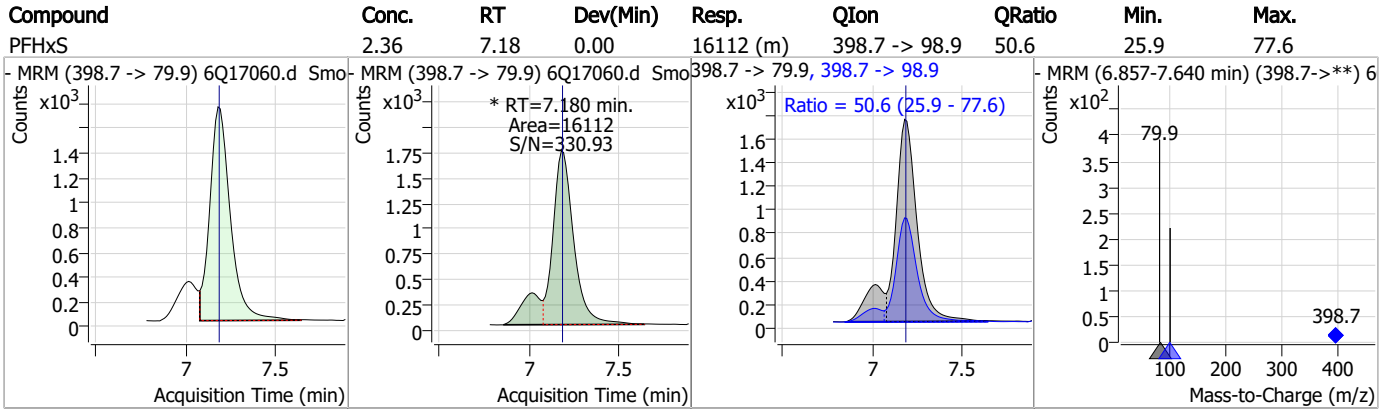


Perfluorinated Compounds by LC/MS/MS



7.6-10
7

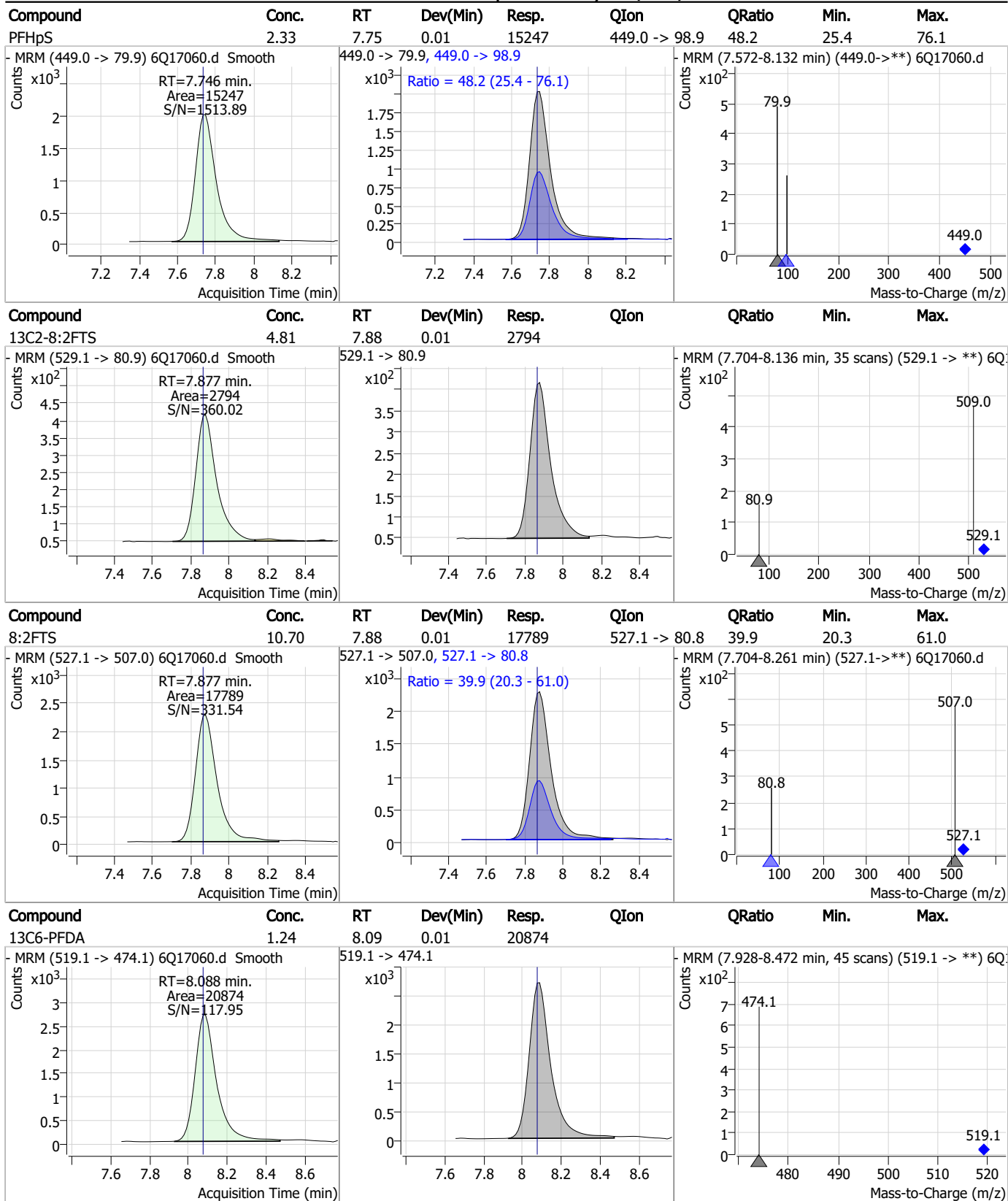
Perfluorinated Compounds by LC/MS/MS



7.6-10 7

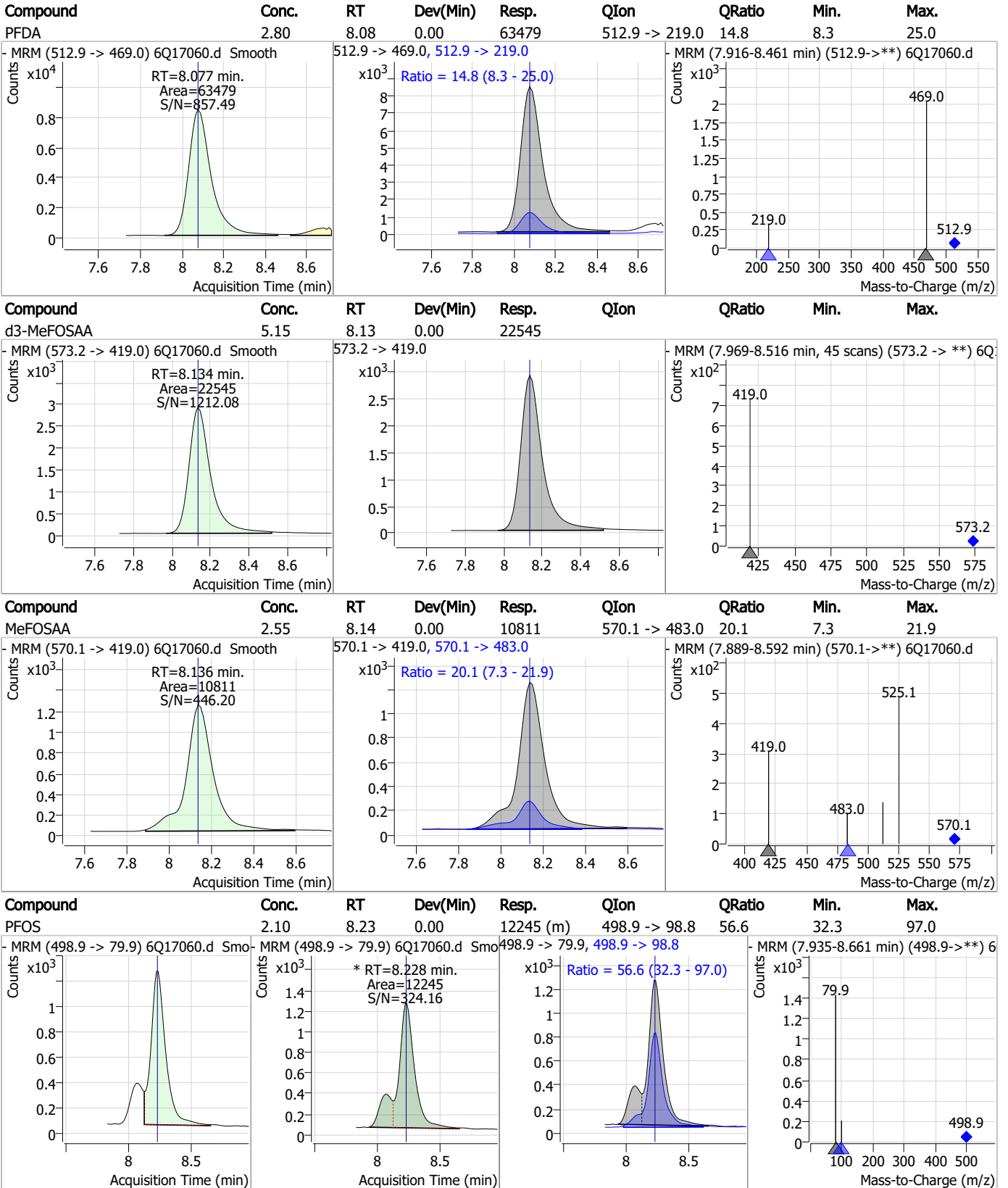


Perfluorinated Compounds by LC/MS/MS



7.6.10 7

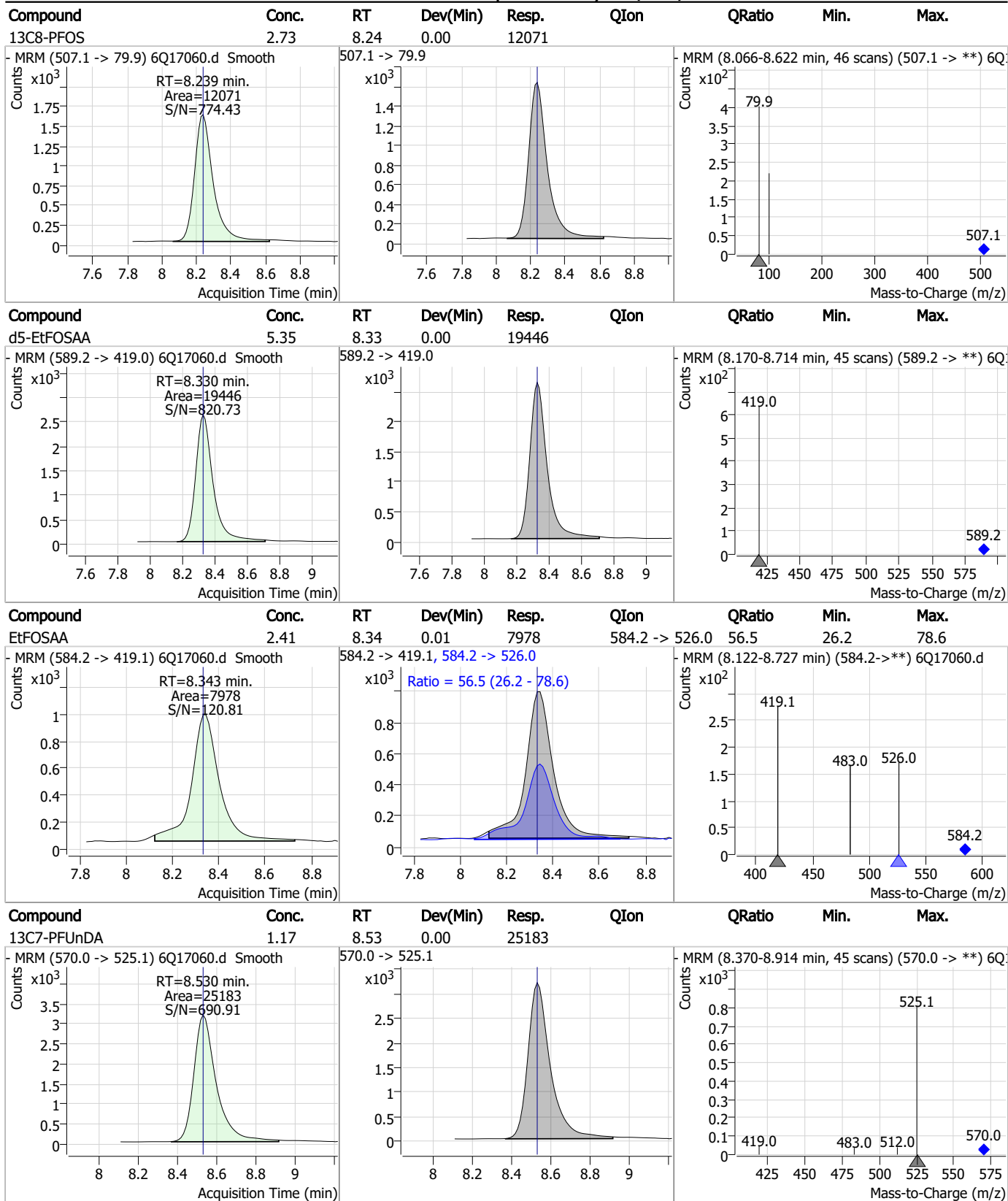
Perfluorinated Compounds by LC/MS/MS



7.6-10
7

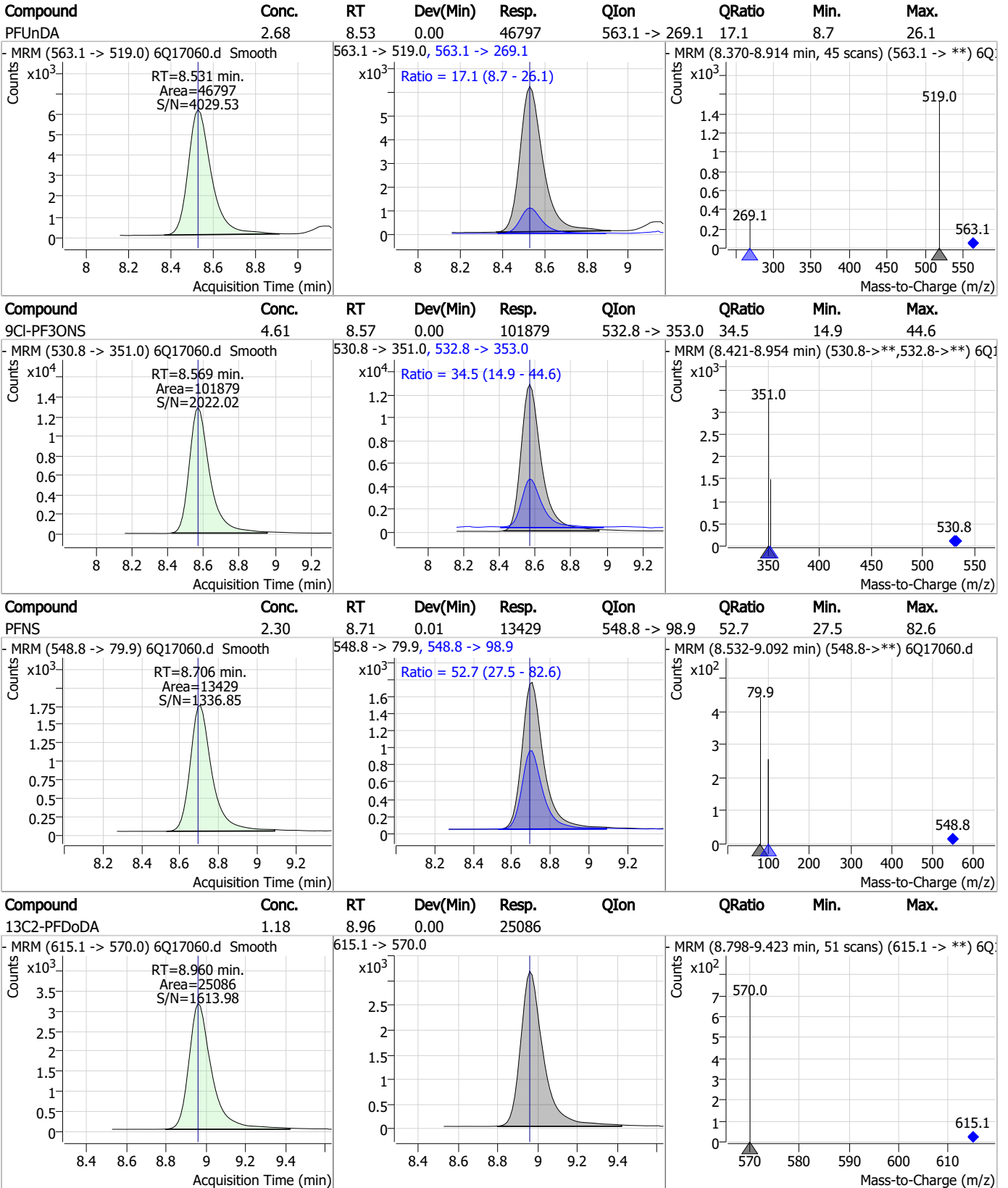


Perfluorinated Compounds by LC/MS/MS



7.6.10 7

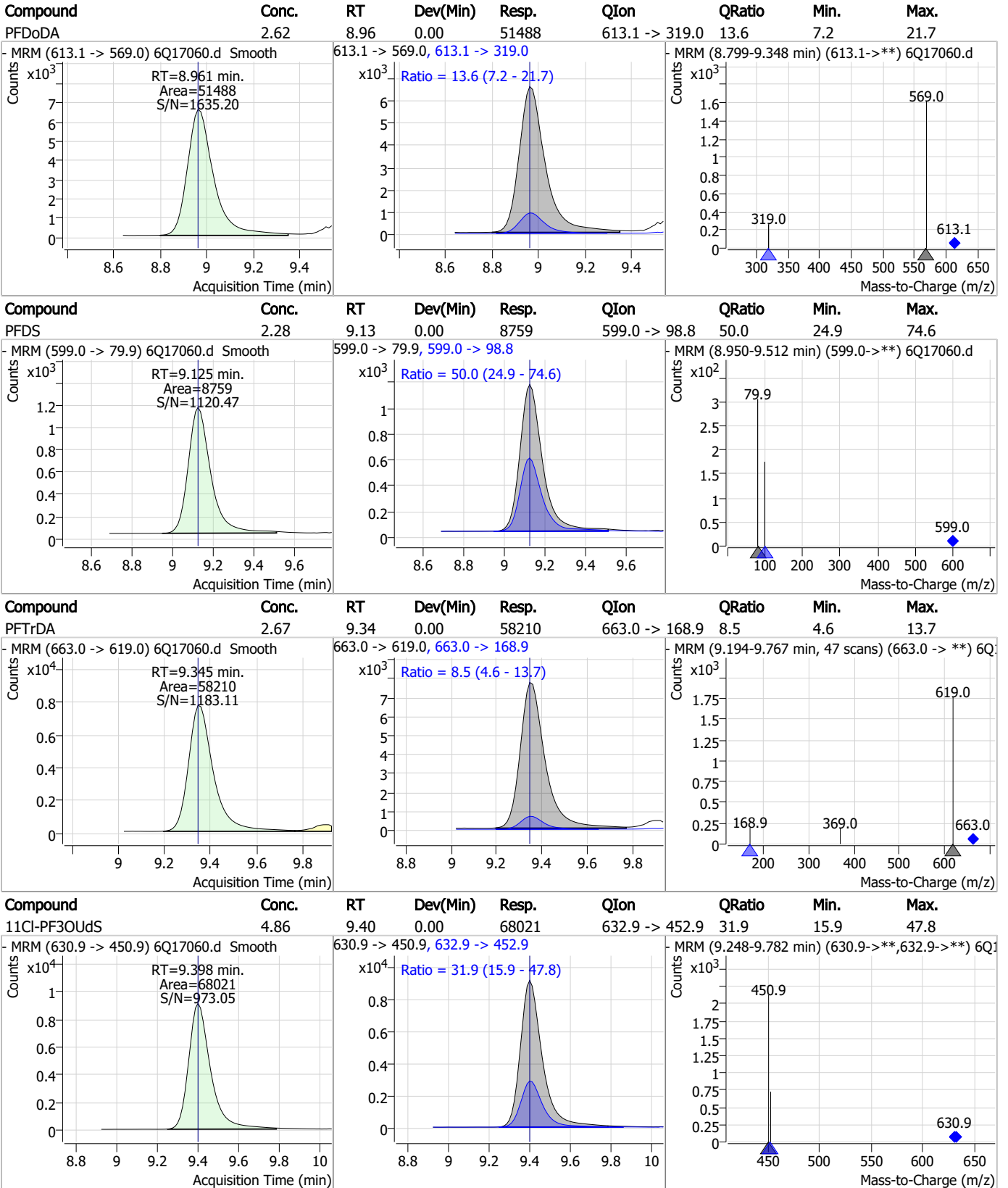
Perfluorinated Compounds by LC/MS/MS



7.6.10 7



Perfluorinated Compounds by LC/MS/MS

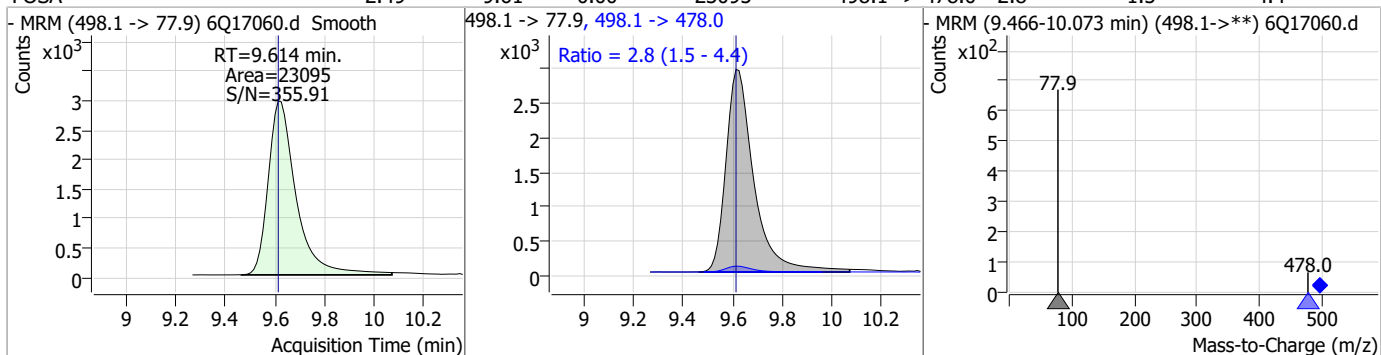


7.6-10
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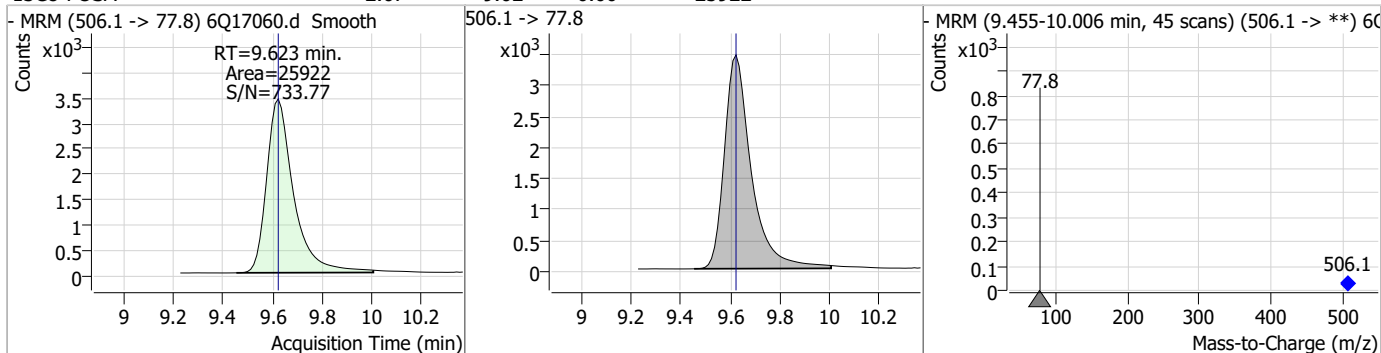


Perfluorinated Compounds by LC/MS/MS

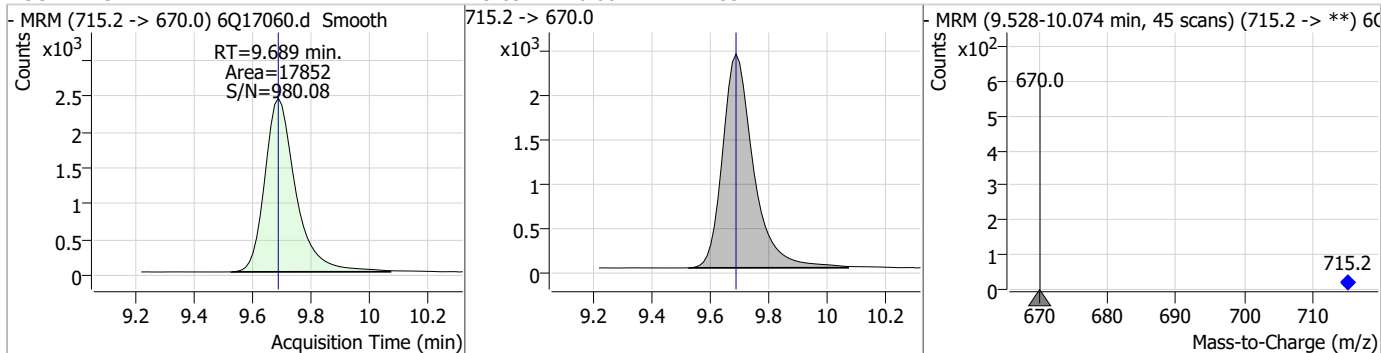
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.49	9.61	0.00	23095	498.1 -> 478.0	2.8	1.5	4.4



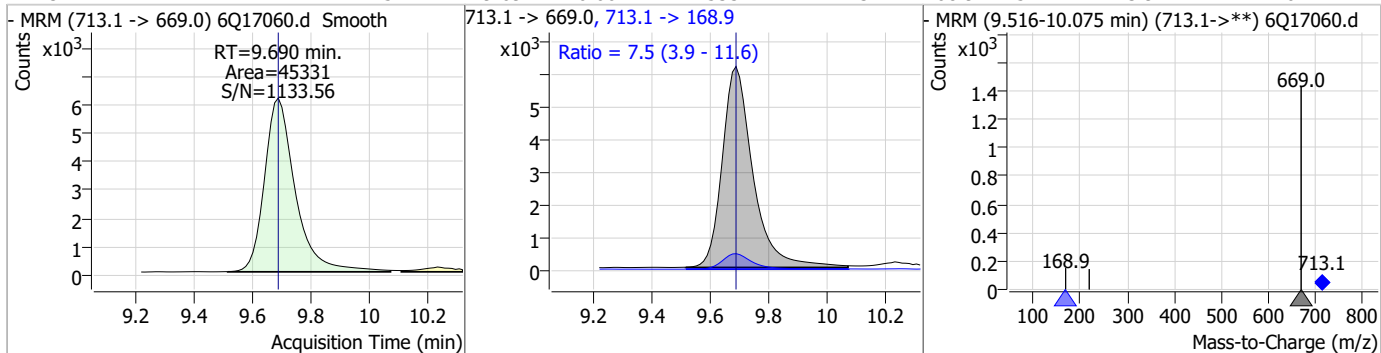
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.67	9.62	0.00	25922				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.24	9.69	0.00	17852				

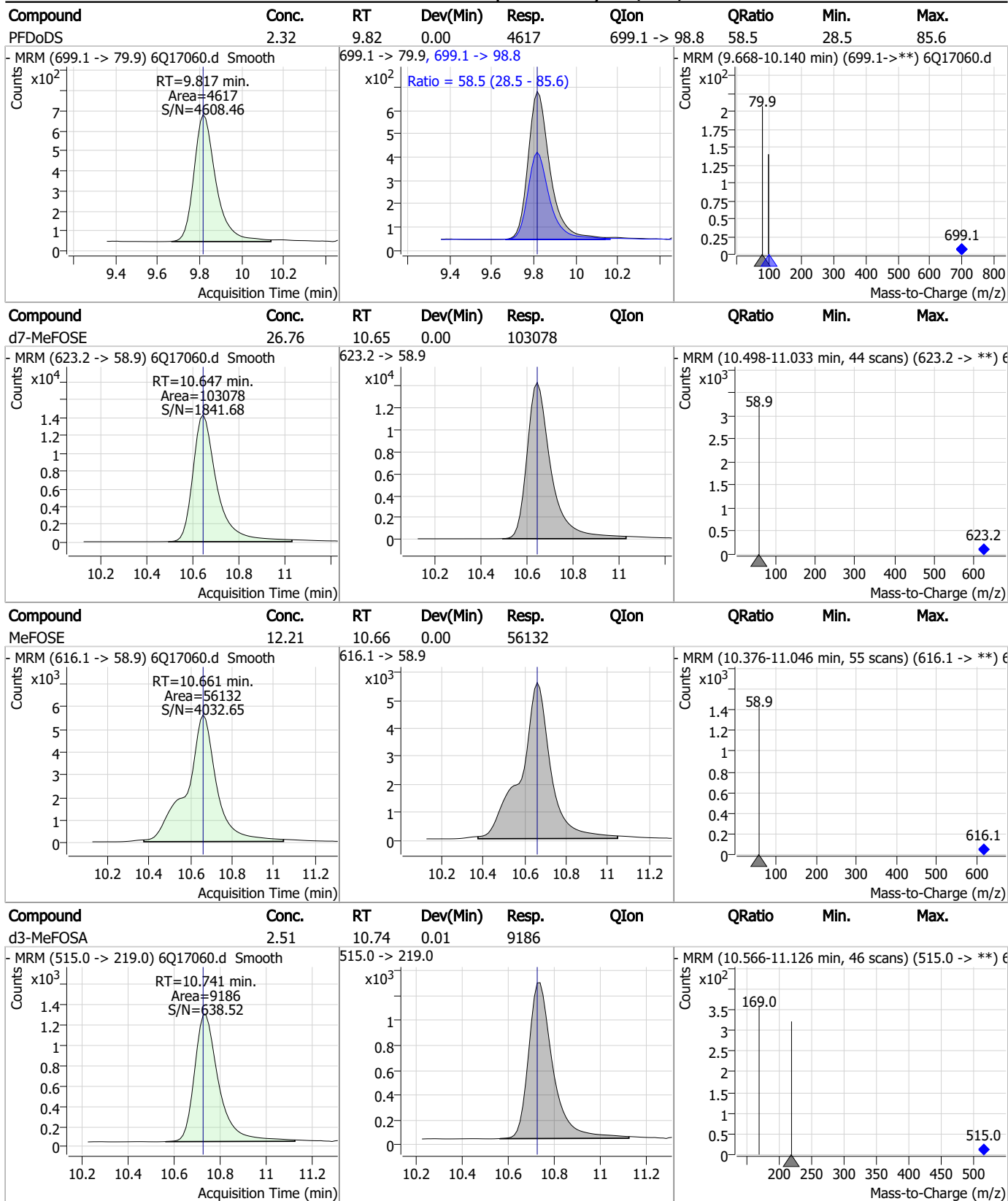


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.51	9.69	0.00	45331	713.1 -> 168.9	7.5	3.9	11.6



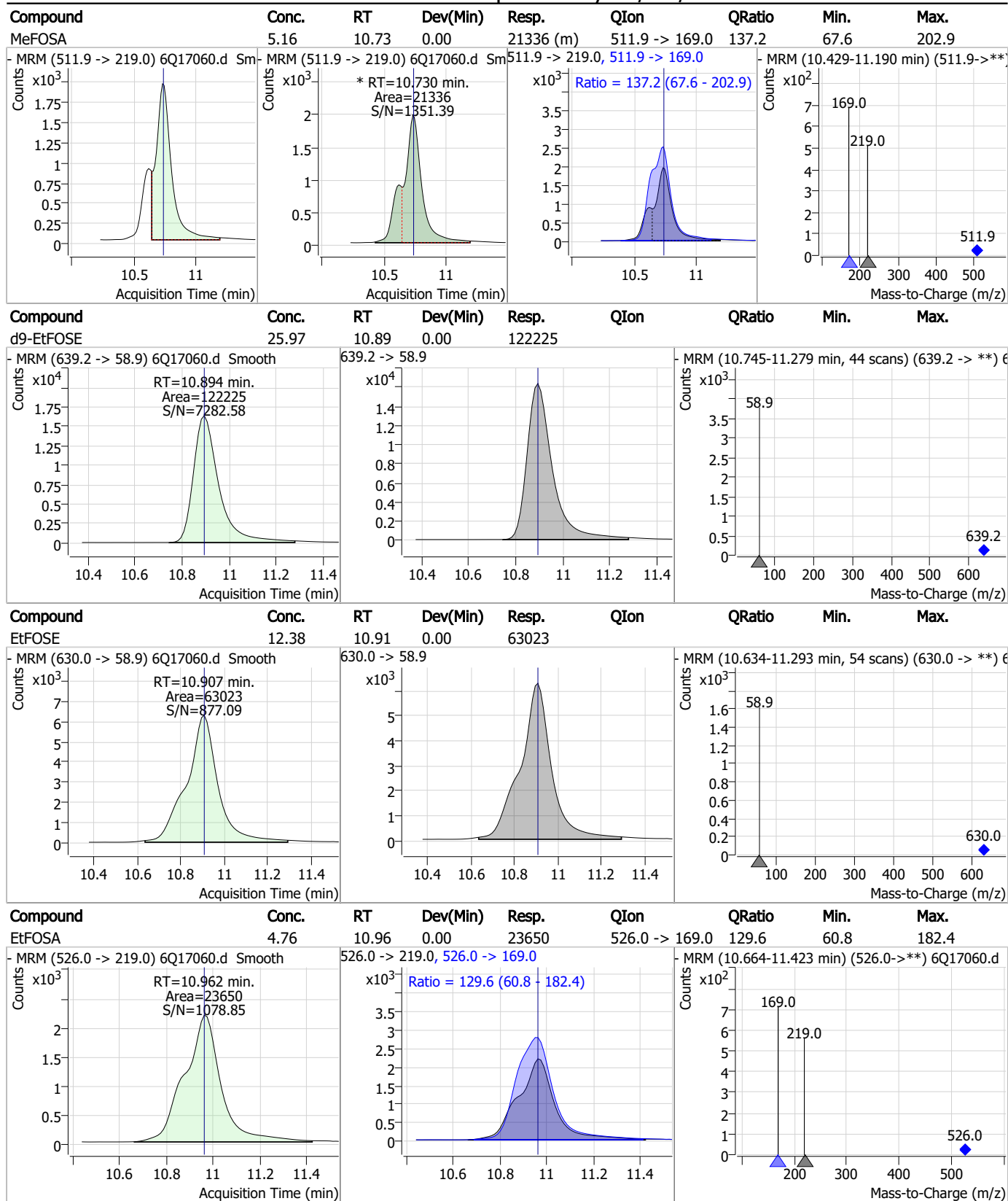
7.6.10
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Perfluorinated Compounds by LC/MS/MS



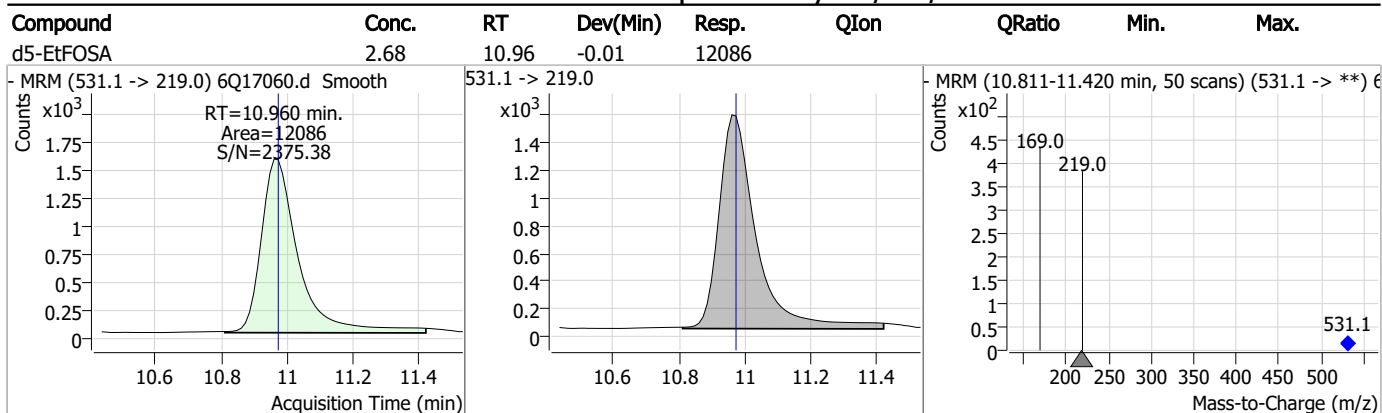
7.6.10
7

Perfluorinated Compounds by LC/MS/MS



7.6.10
7

Perfluorinated Compounds by LC/MS/MS



7.6.10
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Manual Integration Approval Summary

Sample Number: S6Q258-ICV258 Method: EPA DRAFT 1633
Lab FileID: 6Q17060.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 15:00 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
MeFOSA	31506-32-8		10.73	Split peak

7.6.10.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17061.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 3:15:11 PM
 Sample Name : icv258-20
 Vial : P1-B2
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	181883	10.00 µg/L	0.000
M5-PFPeA	4.270	268.3 -> 223.0	63114	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	65831	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	55304	2.50 µg/L	0.000
M8-PFOA	7.074	421.1 -> 376.0	78747	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	26122	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	20235	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	24976	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	26141	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17129	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	23209	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	21977	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12387	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	10720	2.50 µg/L	-0.012
M2-4:2FTS	5.144	329.1 -> 80.9	2129	5.00 µg/L	0.000
M2-6:2FTS	6.851	429.1 -> 80.9	2641	5.00 µg/L	0.012
M2-8:2FTS	7.864	529.1 -> 80.9	3070	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	21714	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	40942	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	18992	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	90949	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	110731	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	10862	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	8899	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	13456	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	78256	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9305	2.50 µg/L	0.000
13C4-PFOA	7.075	417.1 -> 372.0	84999	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	23724	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	29731	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	56306	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2129	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C2-6:2FTS	6.851	429.1 -> 80.9	2641	5.09 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C2-8:2FTS	7.864	529.1 -> 80.9	3070	5.50 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.0%		
13C2-PFDoDA	8.960	615.1 -> 570.0	26141	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.9%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17129	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C3-PFBS	5.398	302.1 -> 79.9	21977	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C3-PFHxS	7.179	402.1 -> 79.9	12387	2.50 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 = 100.0%	
13C4-PFBA	2.897	216.8 -> 171.9	181883	10.06 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C4-PFHpA	6.419	367.1 -> 322.0	55304	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C5-PFHxA	5.468	318.0 -> 273.0	65831	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C5-PFPeA	4.270	268.3 -> 223.0	63114	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C6-PFDA	8.076	519.1 -> 474.1	20235	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C7-PFUnDA	8.530	570.0 -> 525.1	24976	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C8-FOSA	9.623	506.1 -> 77.8	23209	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C8-PFOA	7.074	421.1 -> 376.0	78747	2.40 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C8-PFOS	8.226	507.1 -> 79.9	10720	2.64 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.8%	
13C9-PFNA	7.594	472.1 -> 427.0	26122	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.2%	
d3-MeFOSAA	8.134	573.2 -> 419.0	21714	5.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.3%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	40942	10.27 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
d3-MeFOSA	10.728	515.0 -> 219.0	8899	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.9%	
d5-EtFOSAA	8.330	589.2 -> 419.0	18992	5.70 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 114.0%	
d7-MeFOSE	10.647	623.2 -> 58.9	90949	25.75 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.0%	
d9-EtFOSE	10.894	639.2 -> 58.9	110731	25.66 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
d5-EtFOSA	10.960	531.1 -> 219.0	10862	2.63 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.3%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	72285	22.44 µg/L	98
		327.1 -> 80.9	26001		
6:2FTS	6.839	427.1 -> 407.0	59670	20.54 µg/L	94
		427.1 -> 80.9	19116		
8:2FTS	7.865	527.1 -> 507.0	34354	18.81 µg/L	95
		527.1 -> 80.8	15078		
EtFOSAA	8.331	584.2 -> 419.1	66660	20.65 µg/L	98
		584.2 -> 526.0	36033		
FOSA	9.614	498.1 -> 77.9	185412	22.30 µg/L	100
		498.1 -> 478.0	5114		
MeFOSAA	8.136	570.1 -> 419.0	86089	21.11 µg/L	85
		570.1 -> 483.0	17791		
PFBA	2.906	212.8 -> 168.9	124172	20.36 µg/L	100
PFBS	5.400	298.7 -> 79.9	218020	22.11 µg/L	97
		298.7 -> 98.8	85881		
PFDA	8.077	512.9 -> 469.0	496401	22.58 µg/L	99
		512.9 -> 219.0	81120		
PFDoDA	8.961	613.1 -> 569.0	347308	16.95 µg/L	98
		613.1 -> 319.0	48030		
PFDS	9.125	599.0 -> 79.9	72333	21.17 µg/L	99

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.420	599.0 -> 98.8	36481	21.83	µg/L	97
		363.1 -> 319.0	595758			
PFHpS	7.746	363.1 -> 169.0	96770	20.36	µg/L	93
		449.0 -> 79.9	118260			
PFHxA	5.470	449.0 -> 98.9	65794	21.28	µg/L	100
		313.0 -> 269.0	553947			
PFHxS	7.180	313.0 -> 118.9	25719	22.52	µg/L	90
		398.7 -> 79.9	151988			
PFNA	7.595	398.7 -> 98.9	68078	20.75	µg/L	95
		463.0 -> 419.0	374916			
PFNS	8.706	463.0 -> 219.0	86517	22.36	µg/L	95
		548.8 -> 79.9	115696			
PFOA	7.063	548.8 -> 98.9	59755	20.81	µg/L	100
		413.0 -> 369.0	788785			
PFOS	8.228	413.0 -> 169.0	136616	19.19	µg/L	79
		498.9 -> 79.9	99333			
PFPeA	4.273	498.9 -> 98.8	47997	22.22	µg/L	100
		263.0 -> 219.0	381974			
PFPeS	6.472	349.1 -> 79.9	158163	22.44	µg/L	92
		349.1 -> 98.9	68379			
PFTeDA	9.690	713.1 -> 669.0	372337	21.51	µg/L	100
		713.1 -> 168.9	28247			
PFTrDA	9.345	663.0 -> 619.0	417890	18.42	µg/L	98
		663.0 -> 168.9	35597			
PFUnDA	8.531	563.1 -> 519.0	365576	21.10	µg/L	95
		563.1 -> 269.1	55110			
11CI-PF3OUdS	9.398	630.9 -> 450.9	294122	20.93	µg/L	98
		632.9 -> 452.9	90566			
9CI-PF3ONS	8.569	530.8 -> 351.0	471916	21.24	µg/L	99
		532.8 -> 353.0	142935			
ADONA	6.681	376.9 -> 250.9	1282918	20.74	µg/L	97
		376.9 -> 84.8	315913			
HFPO-DA	5.846	284.9 -> 168.9	73104	18.85	µg/L	99
		284.9 -> 184.9	9797			
3:3FTCA	3.784	241.0 -> 177.0	22317	20.76	µg/L	98
		241.0 -> 117.0	2776			
5:3FTCA	6.160	341.0 -> 237.1	103543	24.58	µg/L	99
		341.0 -> 217.0	70006			
7:3FTCA	7.573	441.0 -> 316.9	42656	22.29	µg/L	92
		441.0 -> 336.9	86728			
EtFOSA	10.975	526.0 -> 219.0	92596	20.74	µg/L	86
		526.0 -> 169.0	98148			
EtFOSE	10.907	630.0 -> 58.9	511139	110.84	µg/L	100
		511.9 -> 219.0	82720			
MeFOSA	10.743	511.9 -> 169.0	91971	20.66	µg/L	80
		616.1 -> 58.9	455307			
MeFOSE	10.661	699.1 -> 79.9	35872	112.25	µg/L	100
		699.1 -> 98.8	21072			
PFDoDS	9.817	295.0 -> 201.0	64405	20.30	µg/L	98
		295.0 -> 84.9	15279			
NFDHA	5.350	279.0 -> 85.1	251755	22.83	µg/L	99
		229.0 -> 84.9	185020			
PFMBA	4.687	314.8 -> 134.9	652973	21.83	µg/L	100
		314.8 -> 82.9	21677			
PFMPA	3.438			21.50	µg/L	100
PFEESA	5.937			19.88	µg/L	99

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



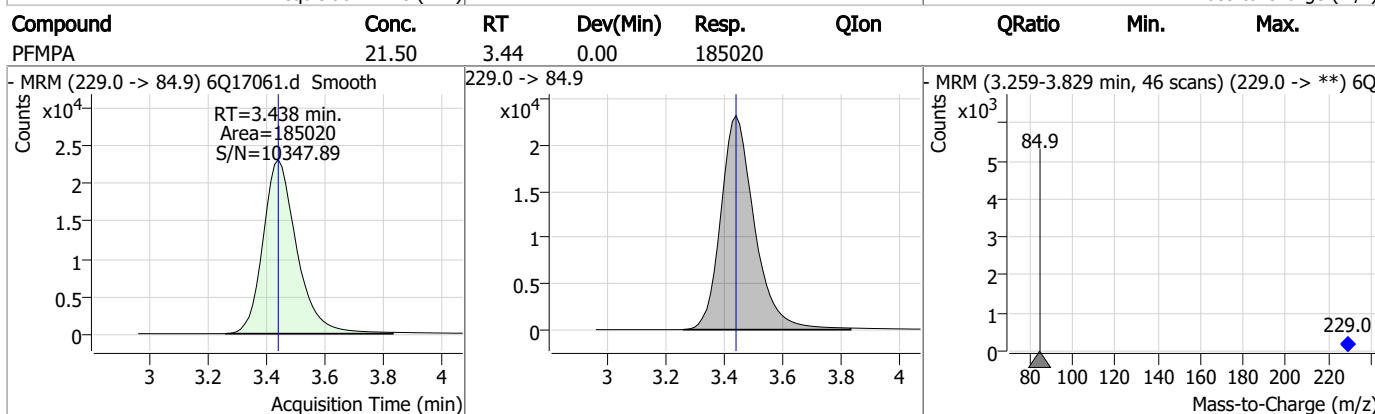
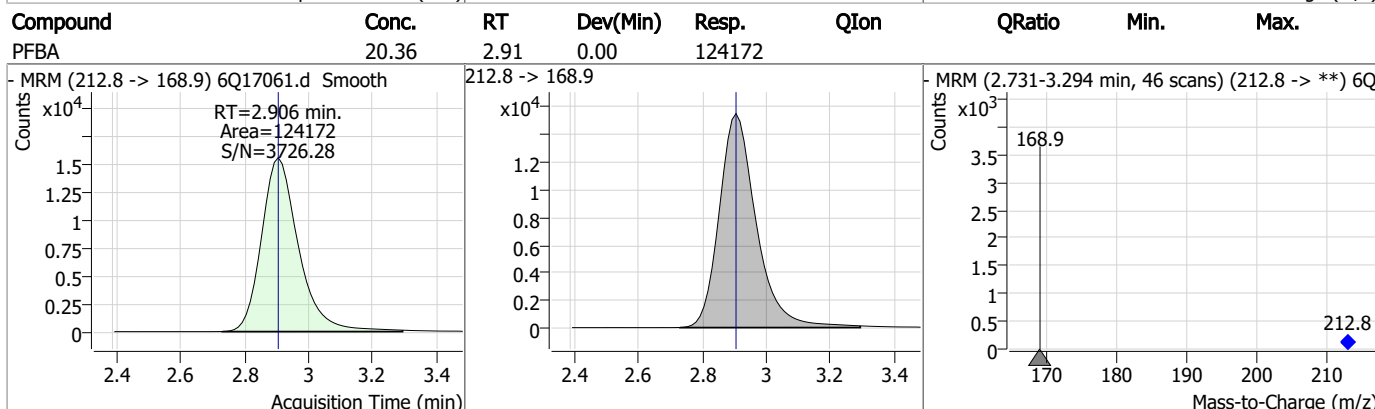
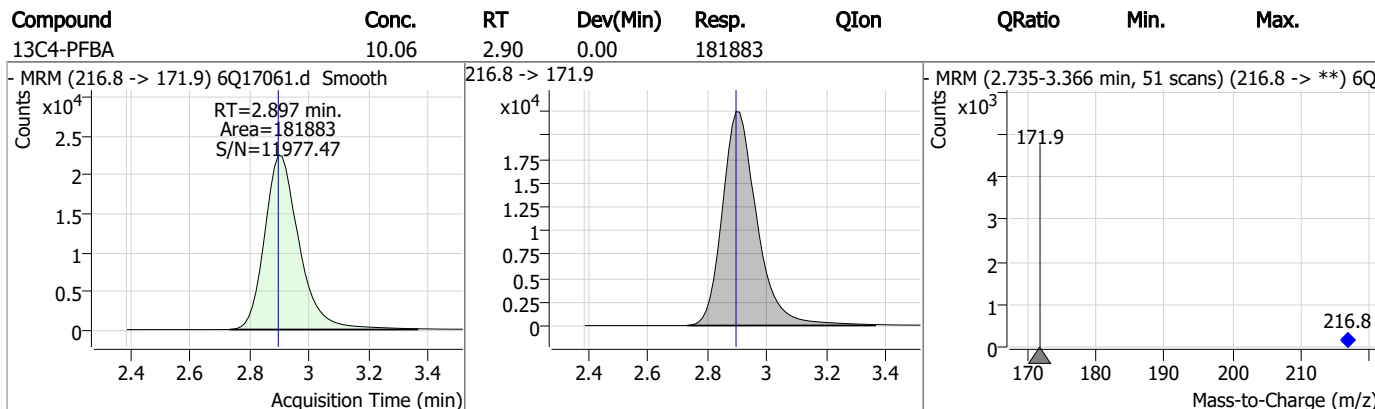
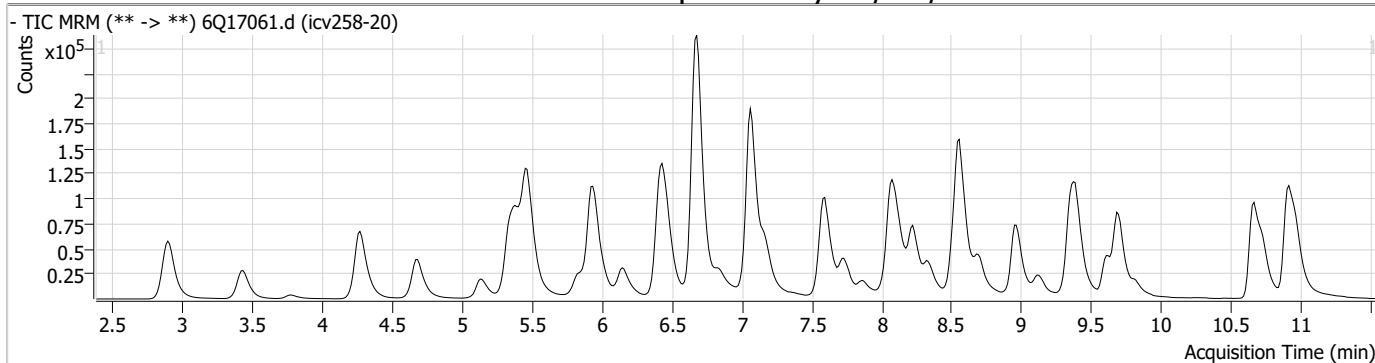
Perfluorinated Compounds by LC/MS/MS

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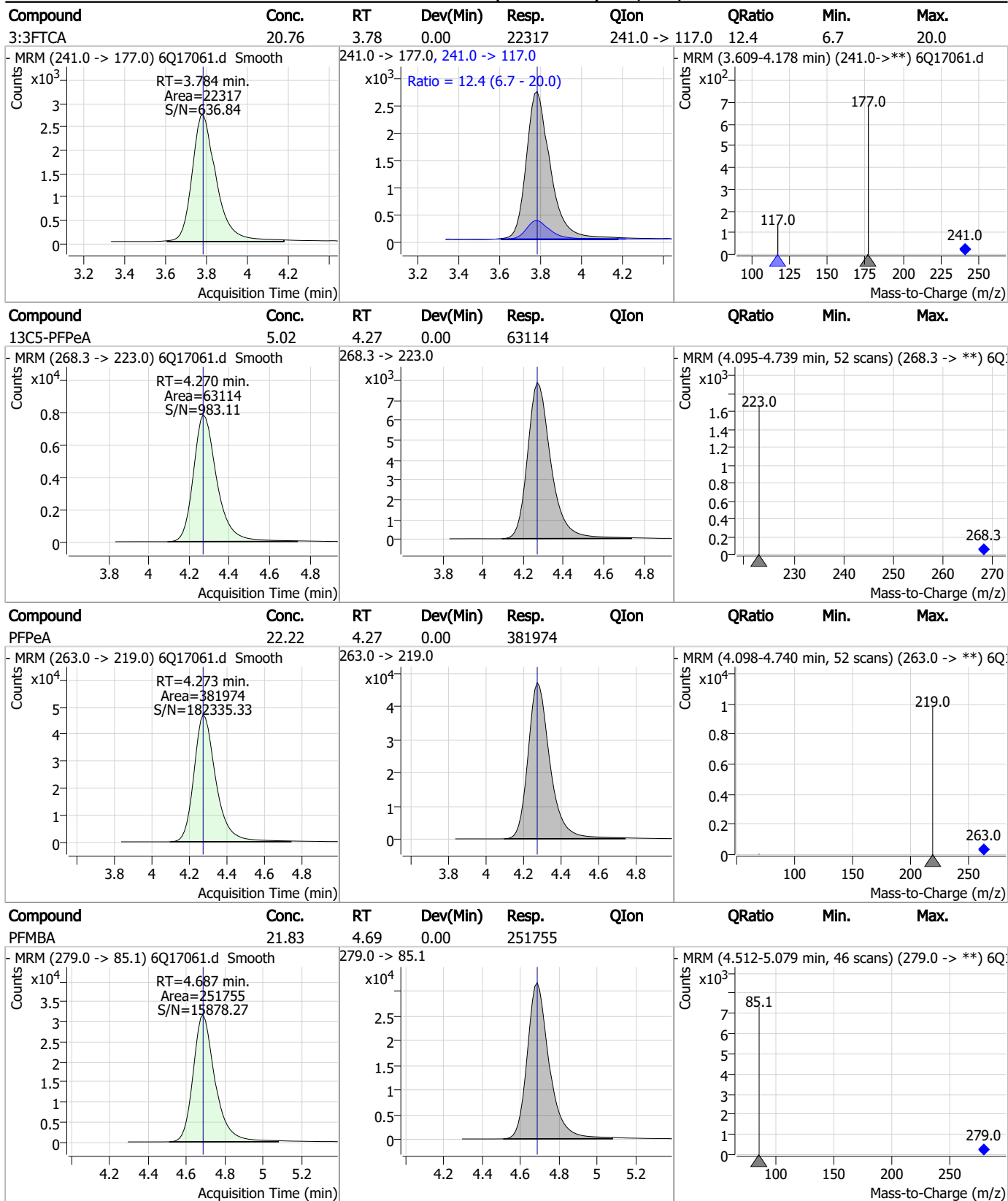
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Perfluorinated Compounds by LC/MS/MS



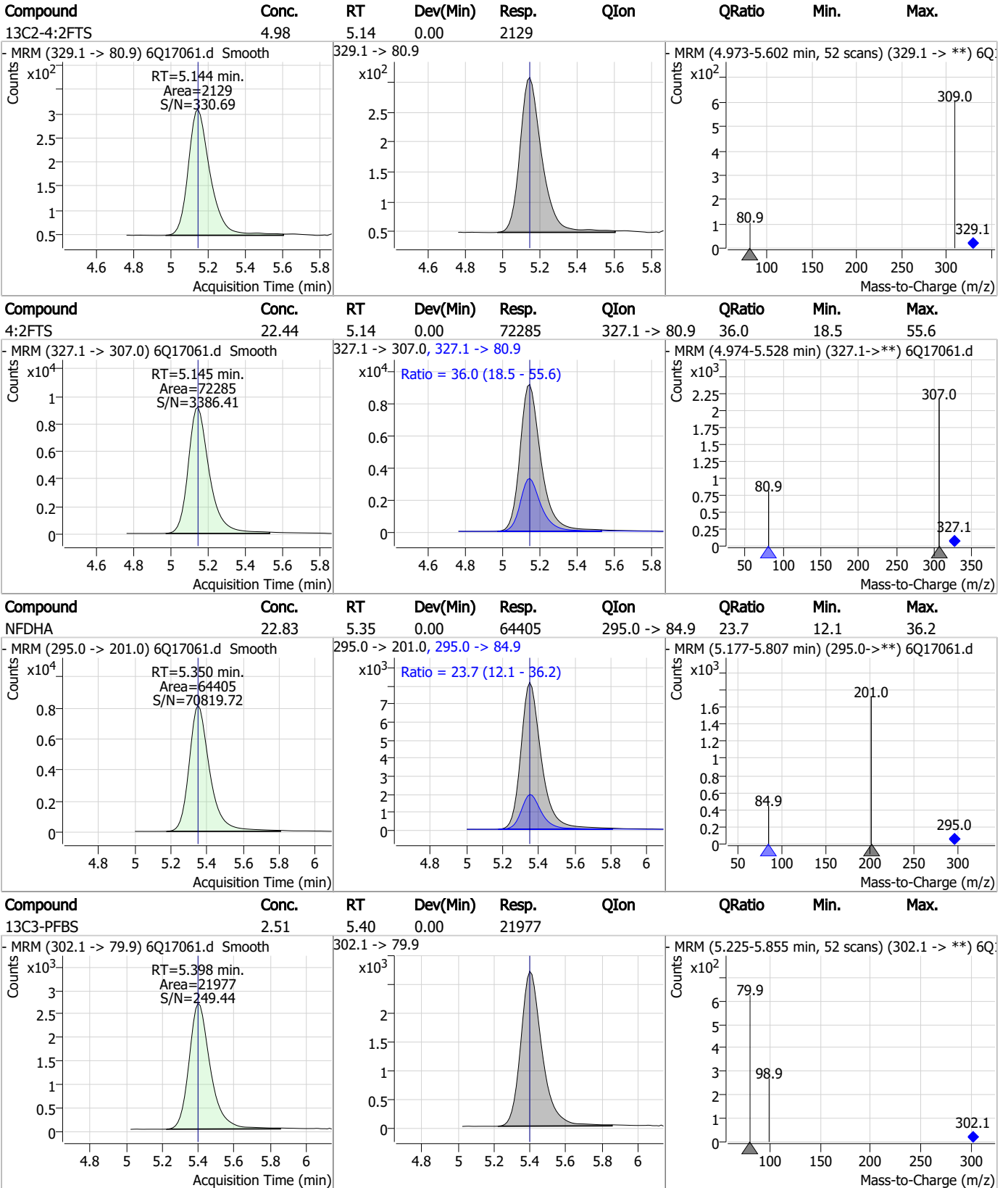
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

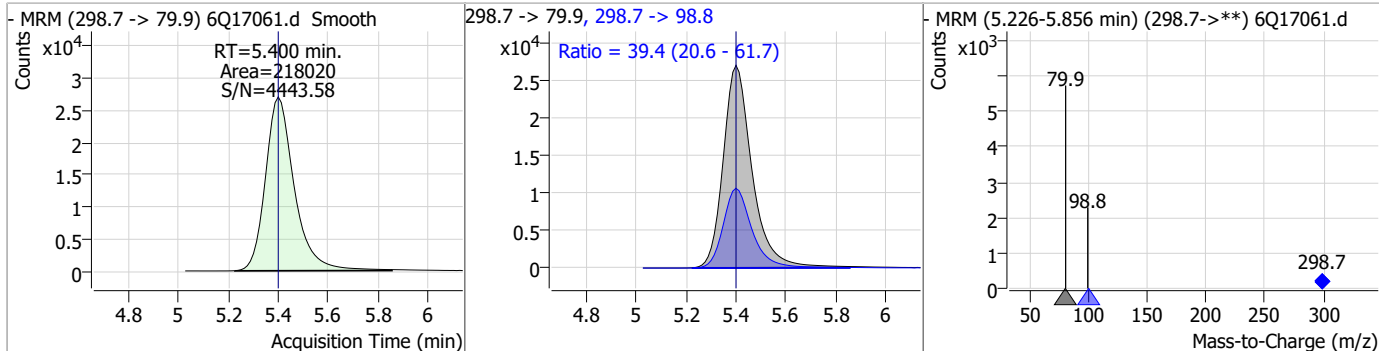


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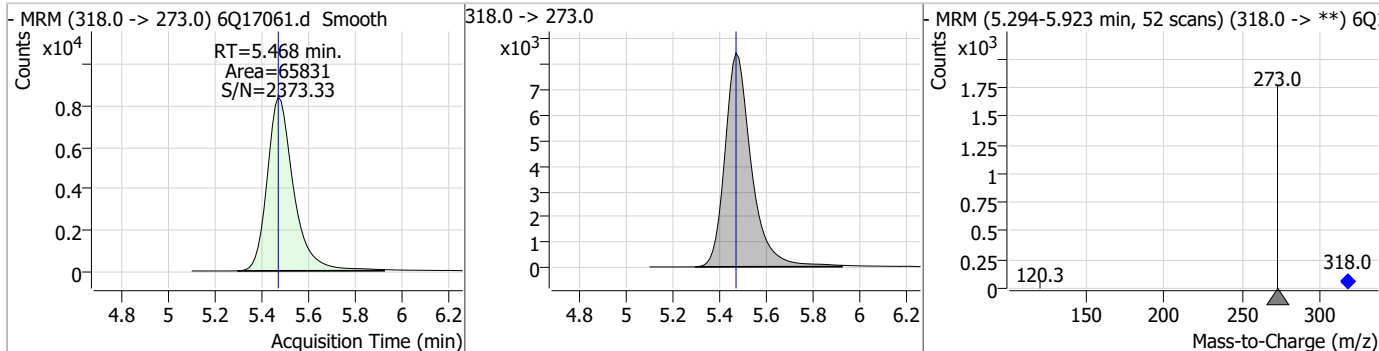
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Perfluorinated Compounds by LC/MS/MS

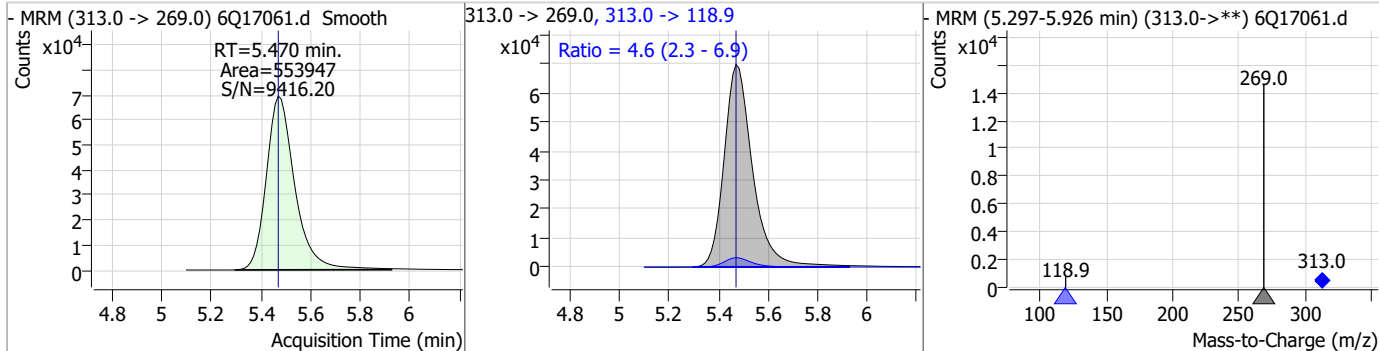
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	22.11	5.40	0.00	218020	298.7 -> 98.8	39.4	20.6	61.7



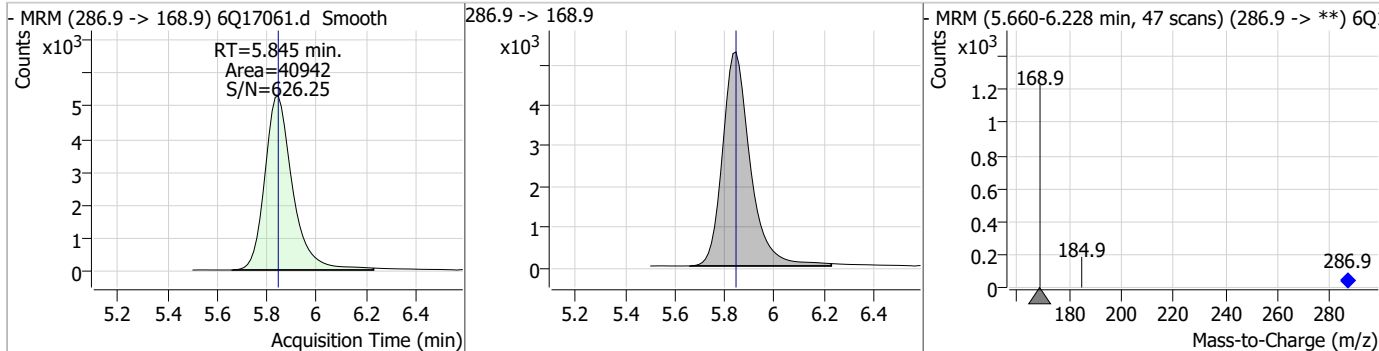
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.42	5.47	0.00	65831				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	21.28	5.47	0.00	553947	313.0 -> 118.9	4.6	2.3	6.9



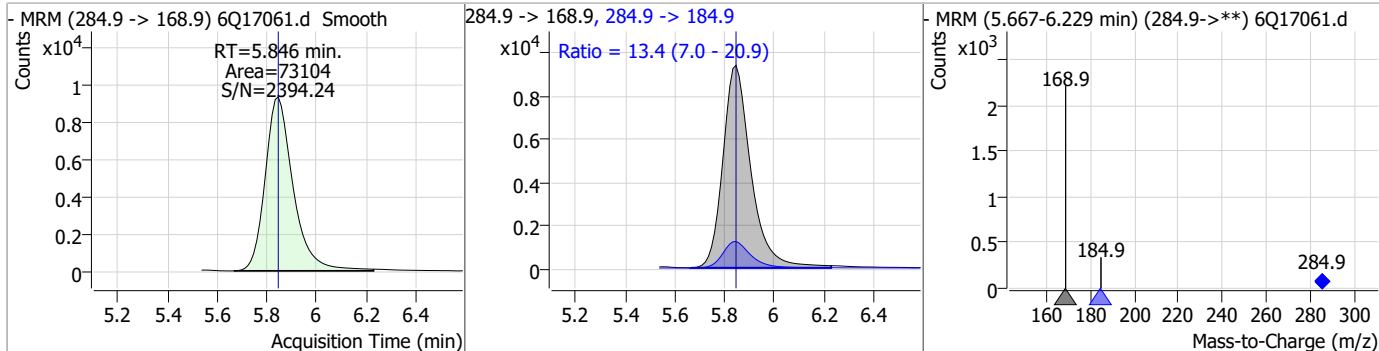
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.27	5.85	0.00	40942				



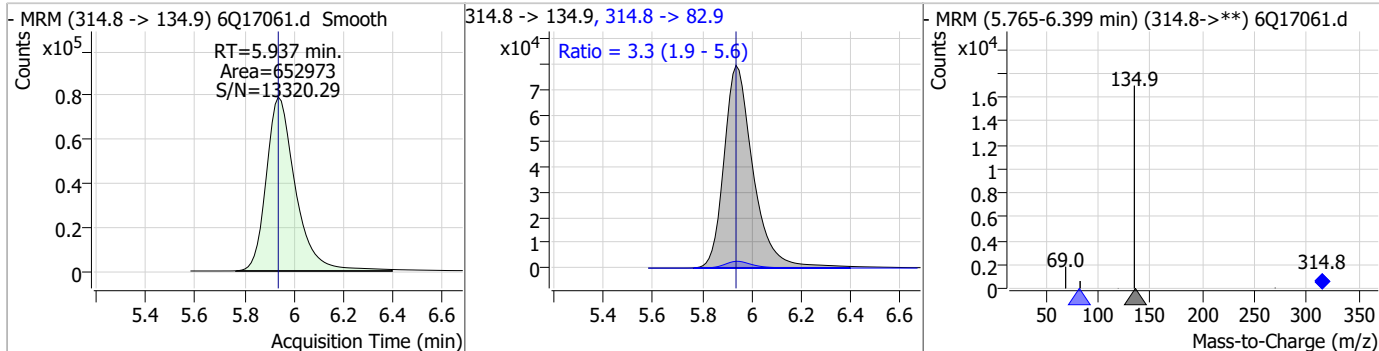
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Perfluorinated Compounds by LC/MS/MS

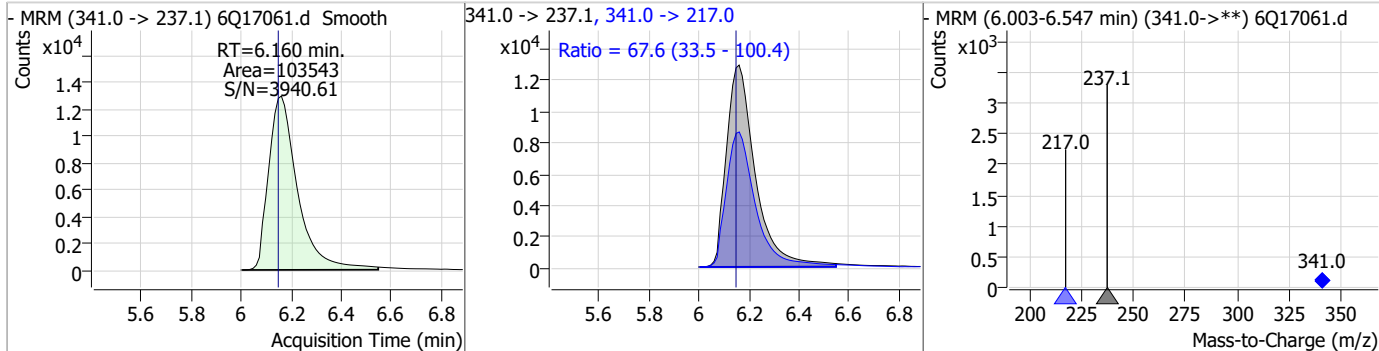
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	18.85	5.85	0.00	73104	284.9 -> 184.9	13.4	7.0	20.9



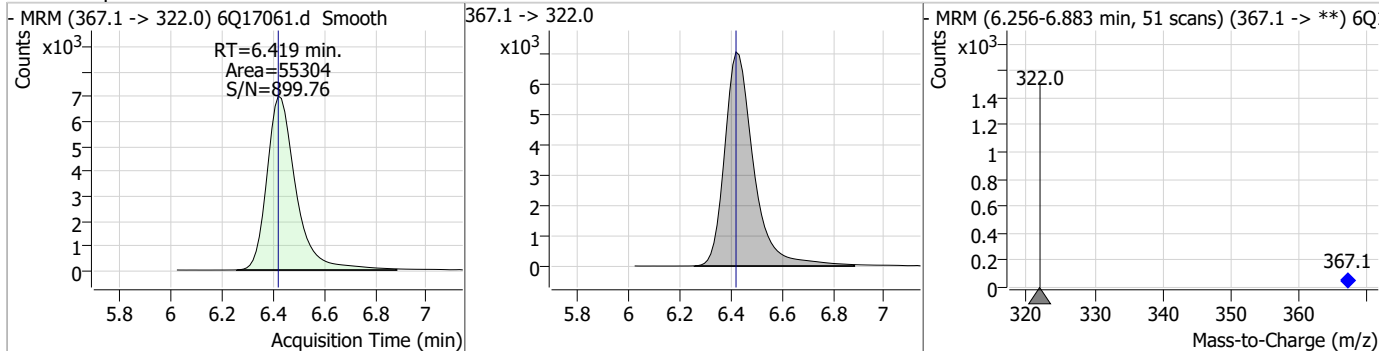
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	19.88	5.94	0.00	652973	314.8 -> 82.9	3.3	1.9	5.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	24.58	6.16	0.01	103543	341.0 -> 217.0	67.6	33.5	100.4

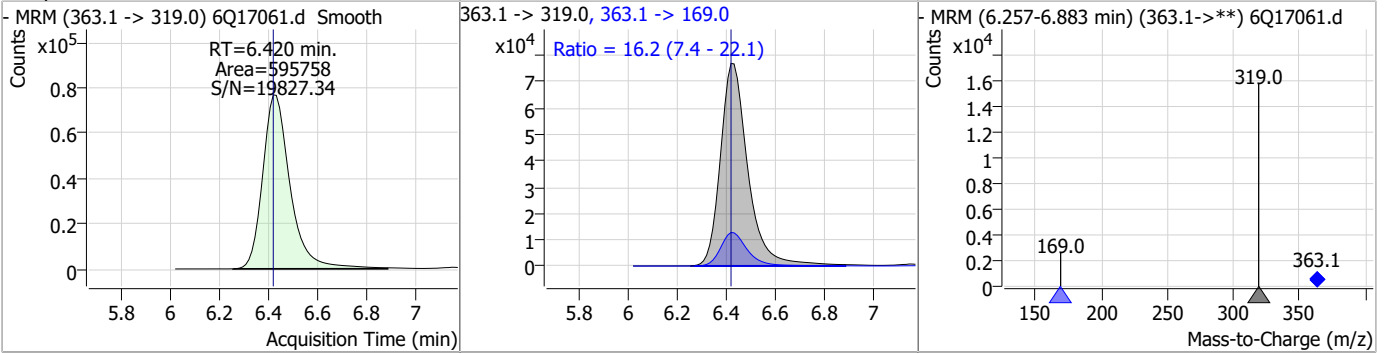


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.40	6.42	0.00	55304	367.1 -> 322.0			

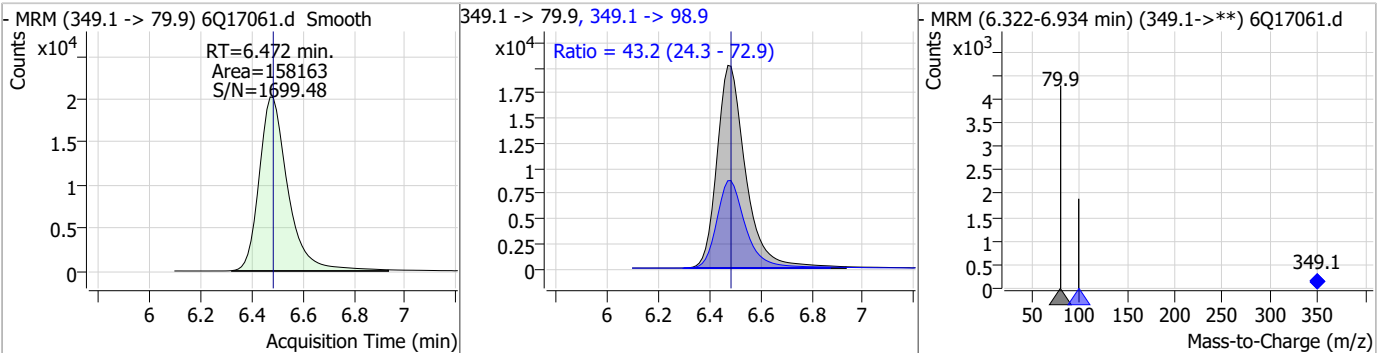


Perfluorinated Compounds by LC/MS/MS

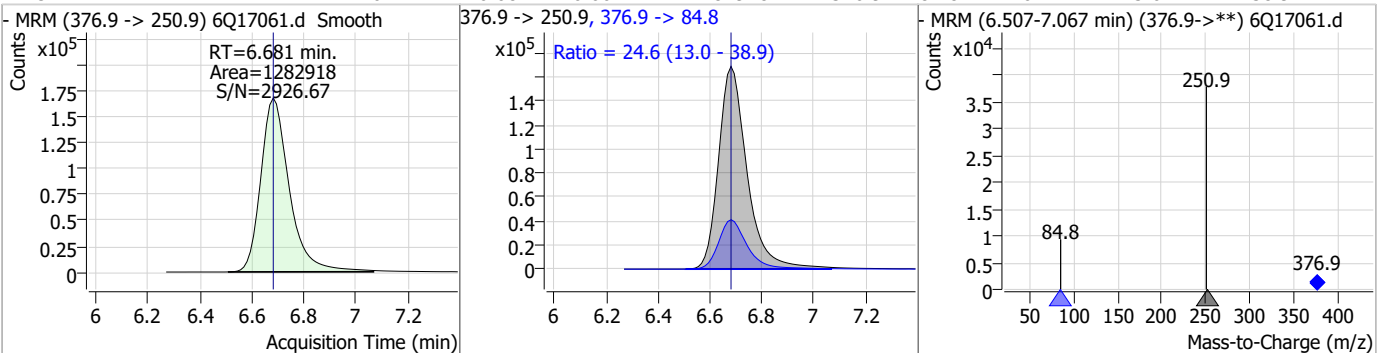
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	21.83	6.42	0.00	595758	363.1 -> 169.0	16.2	7.4	22.1



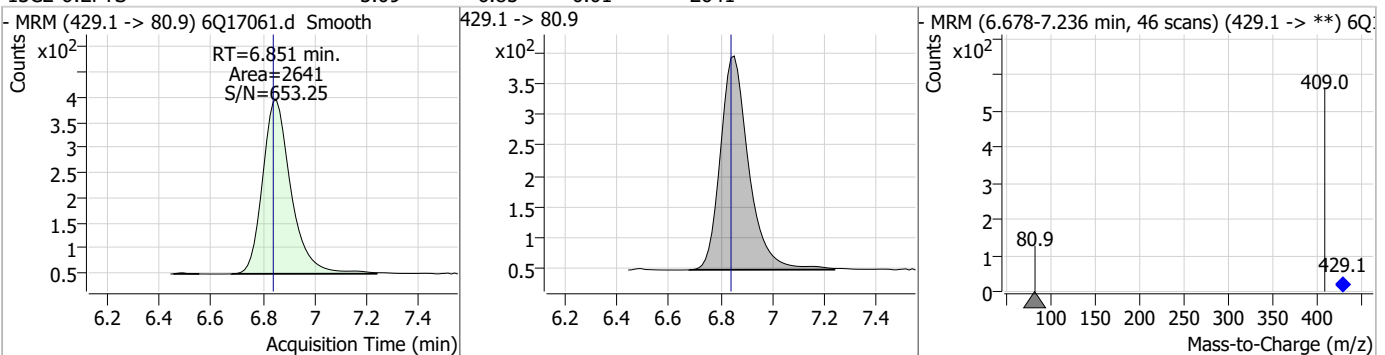
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	22.44	6.47	-0.01	158163	349.1 -> 98.9	43.2	24.3	72.9



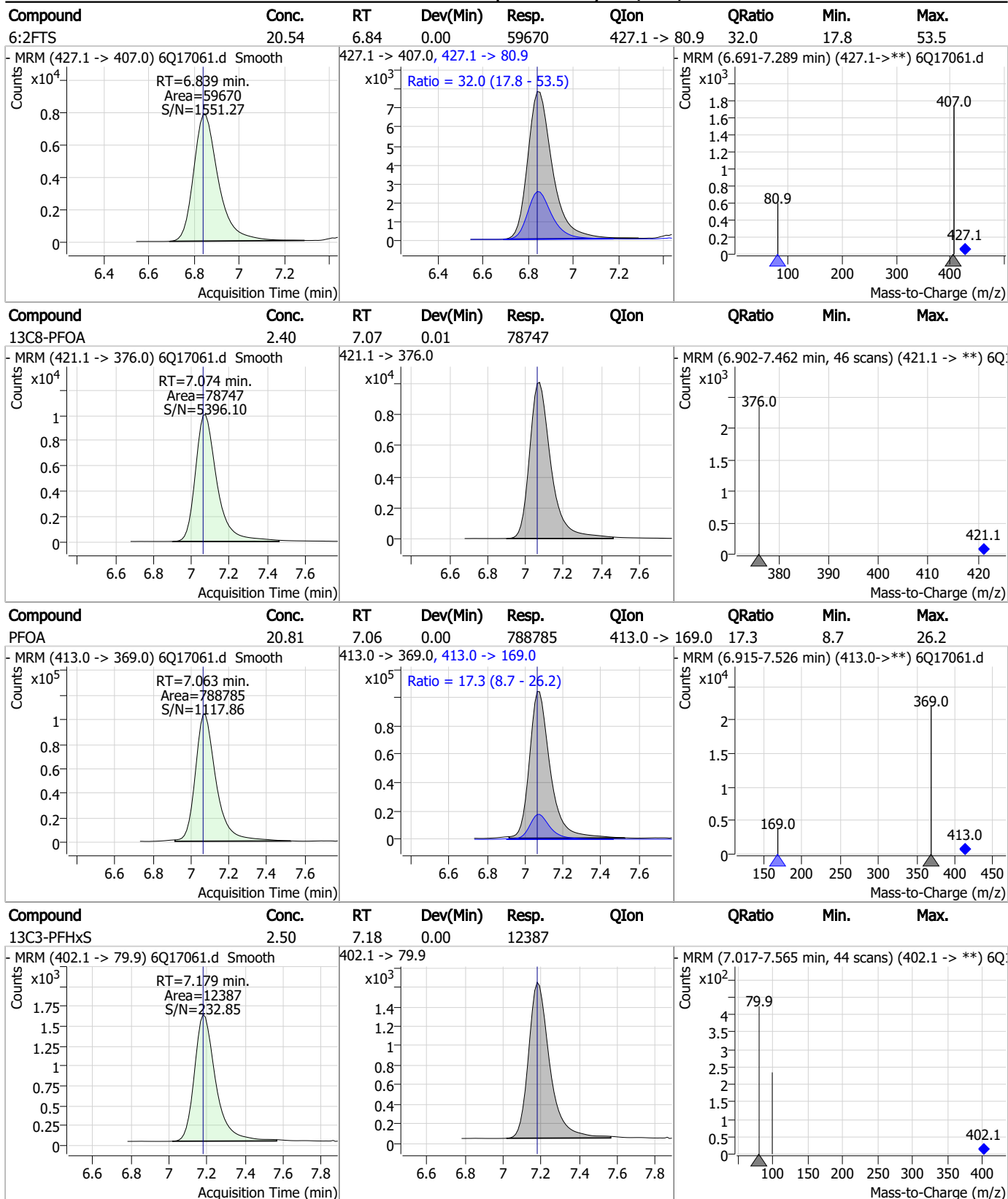
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	20.74	6.68	0.00	1282918	376.9 -> 84.8	24.6	13.0	38.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.09	6.85	0.01	2641	429.1 -> 80.9			



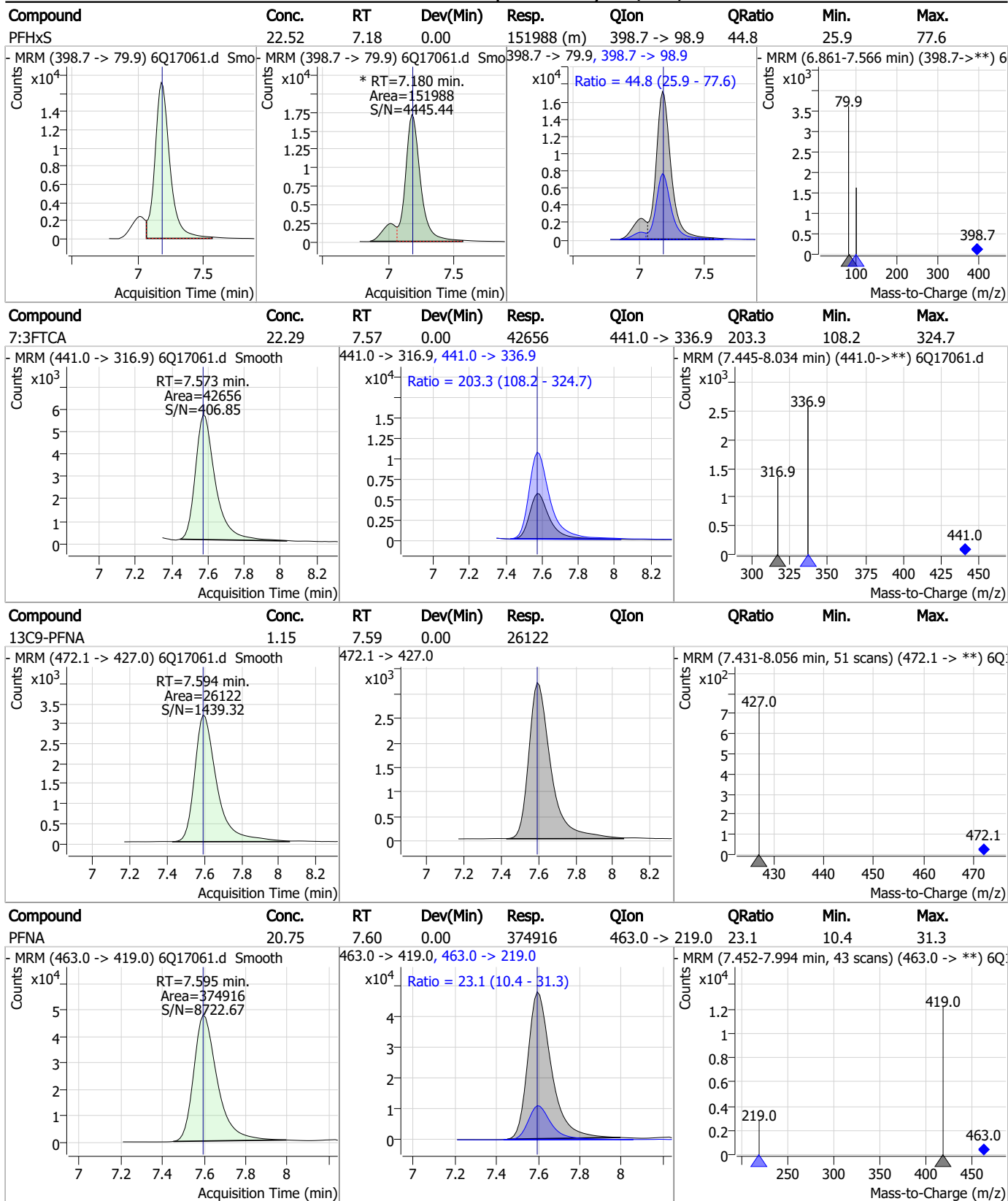
Perfluorinated Compounds by LC/MS/MS



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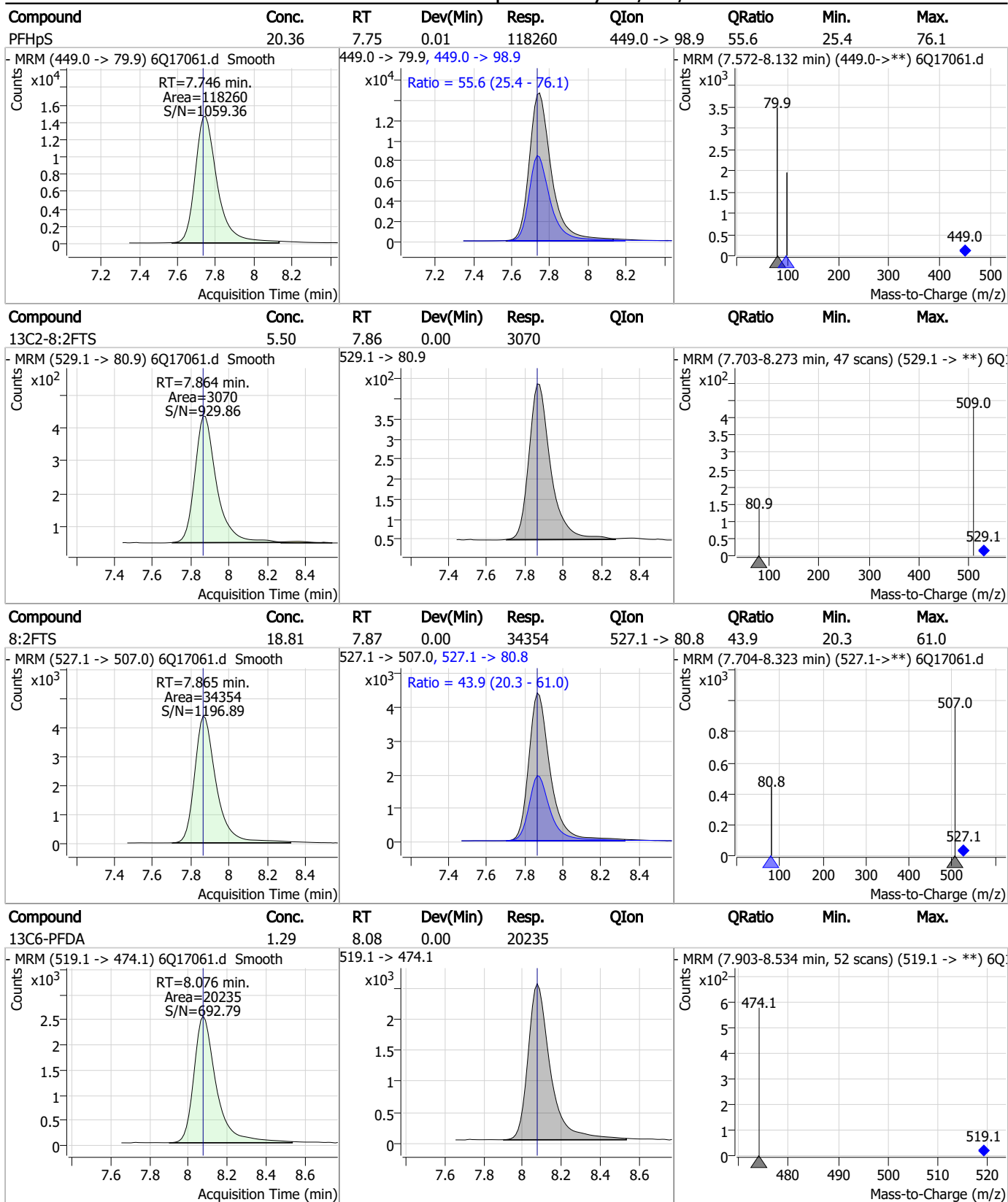
Perfluorinated Compounds by LC/MS/MS



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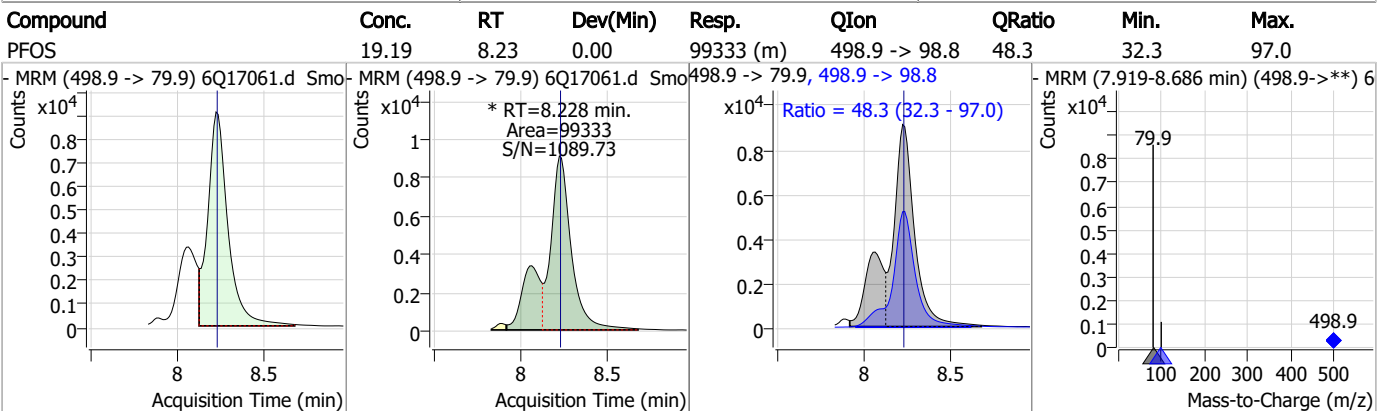
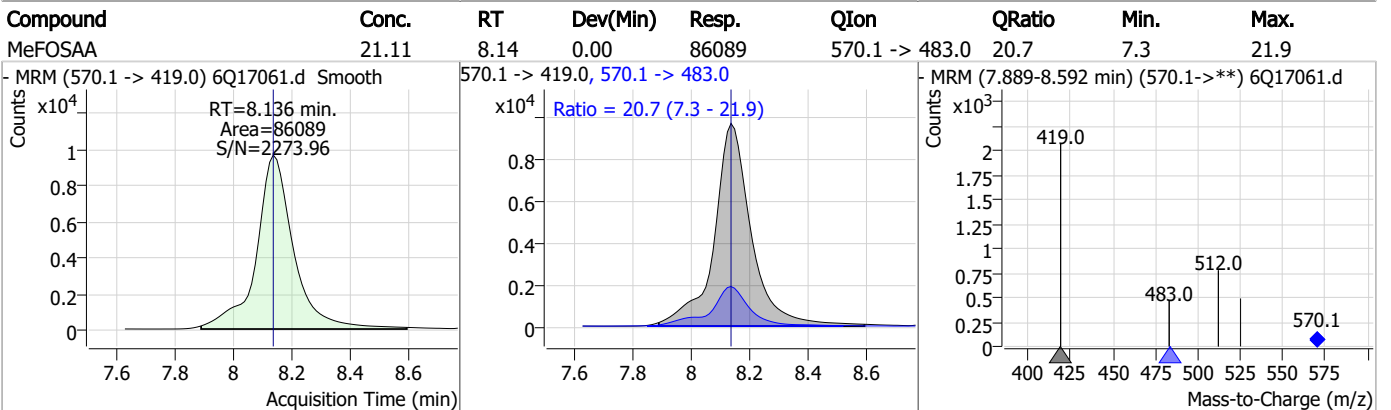
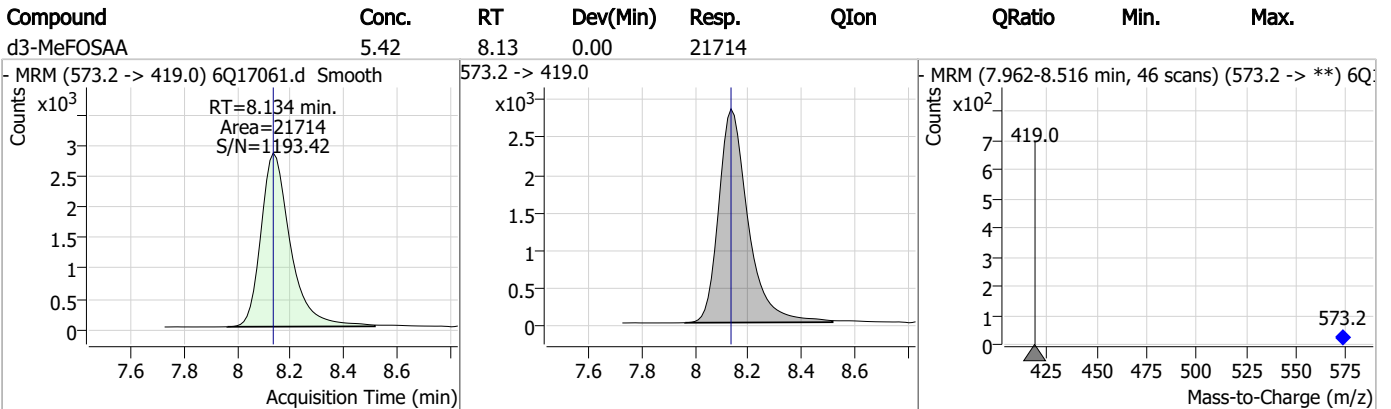
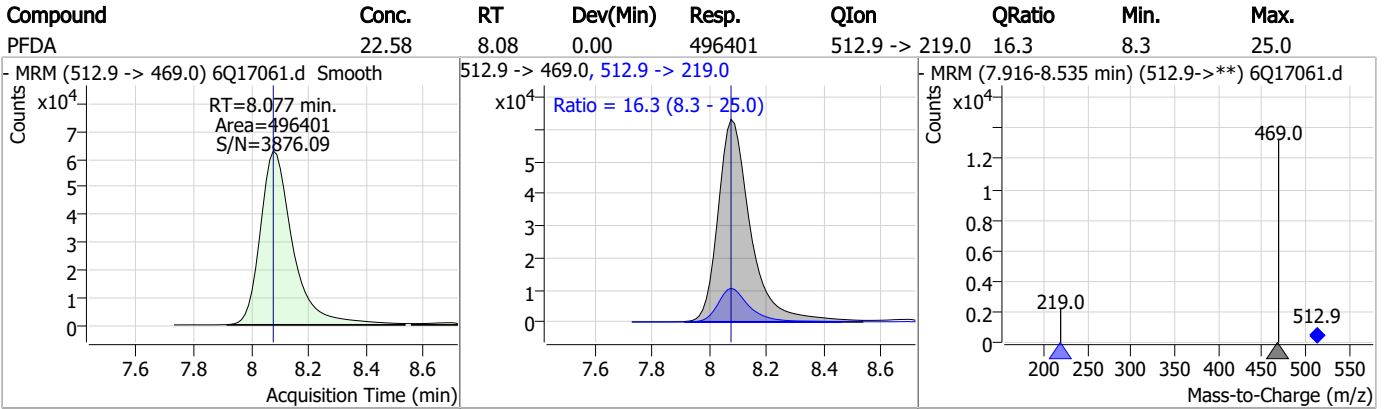
Perfluorinated Compounds by LC/MS/MS



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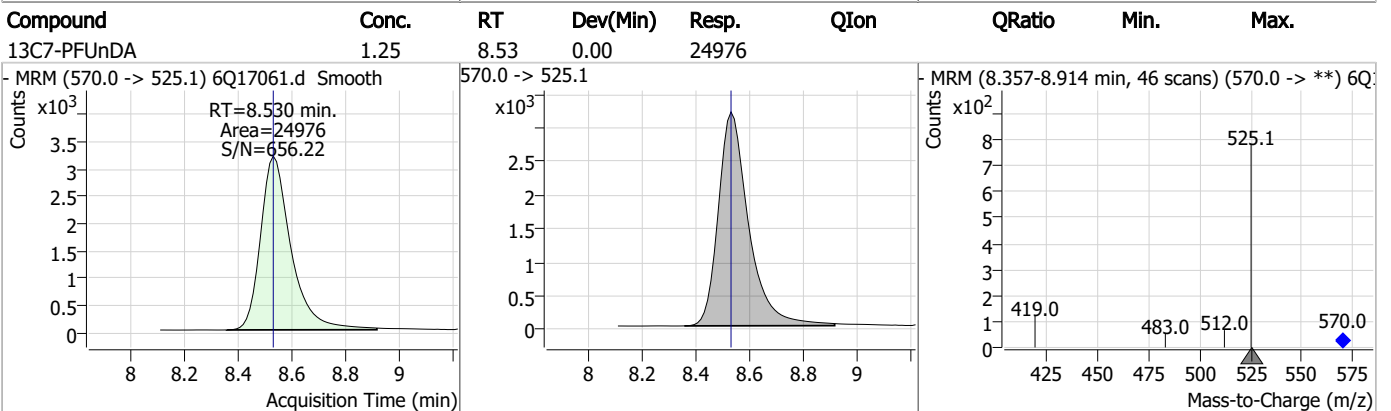
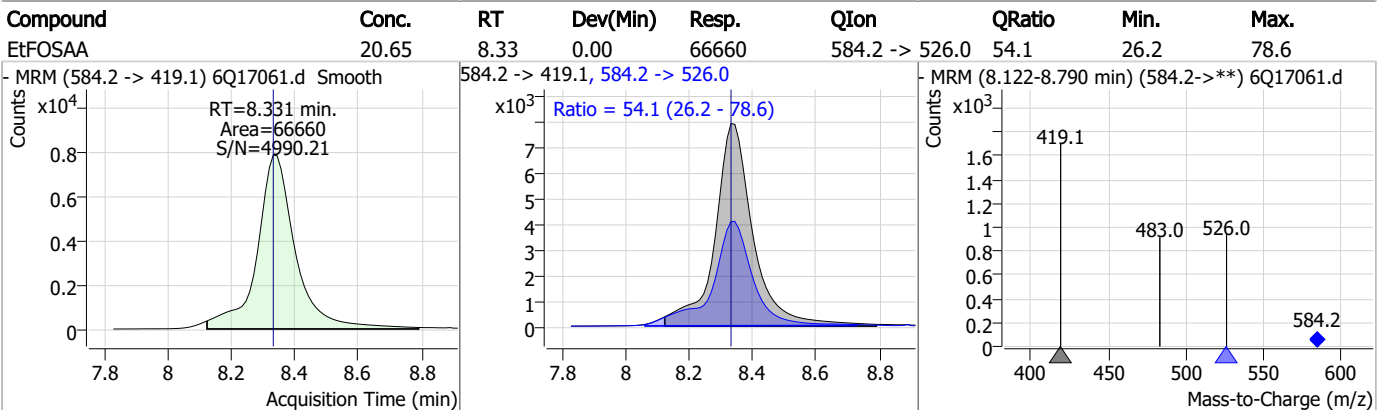
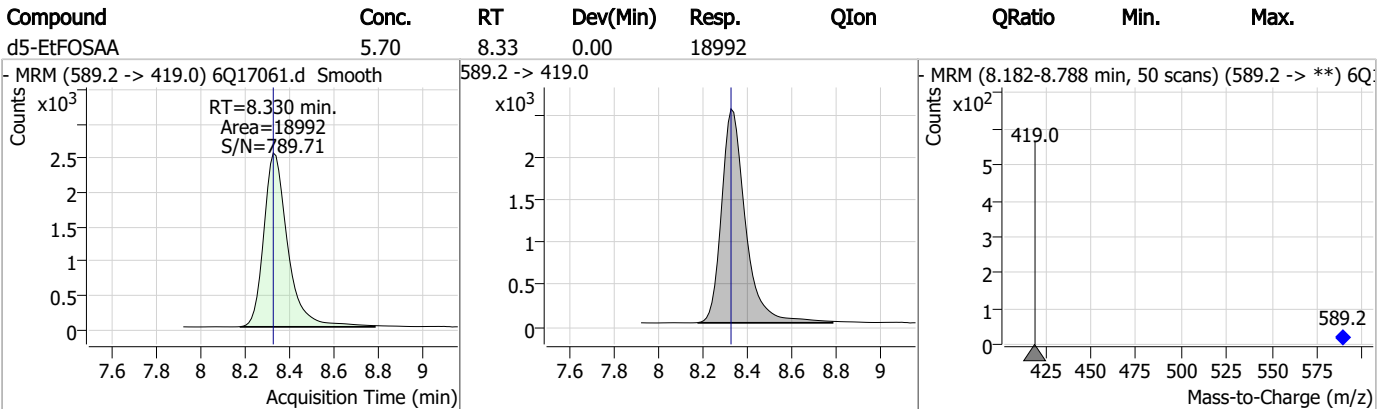
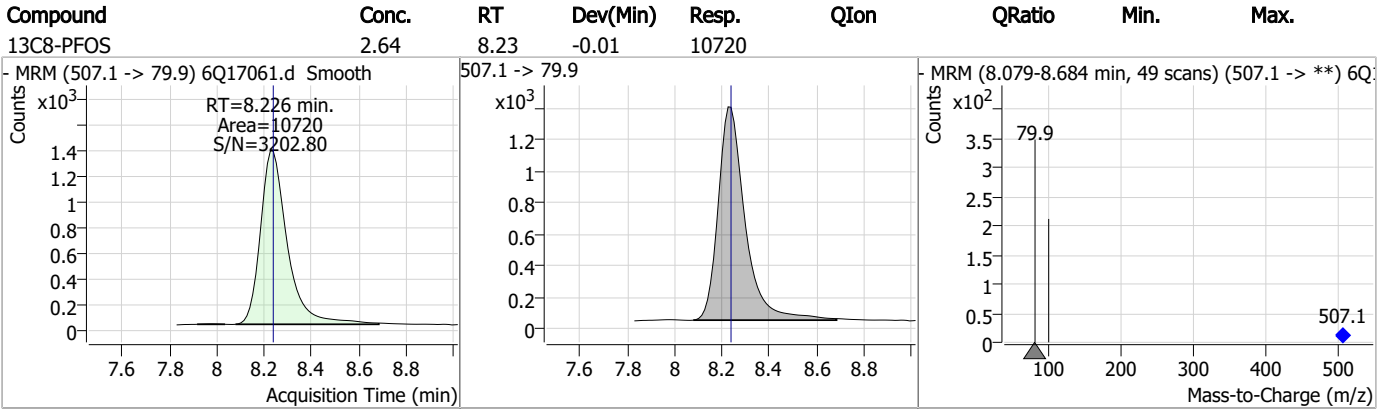
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

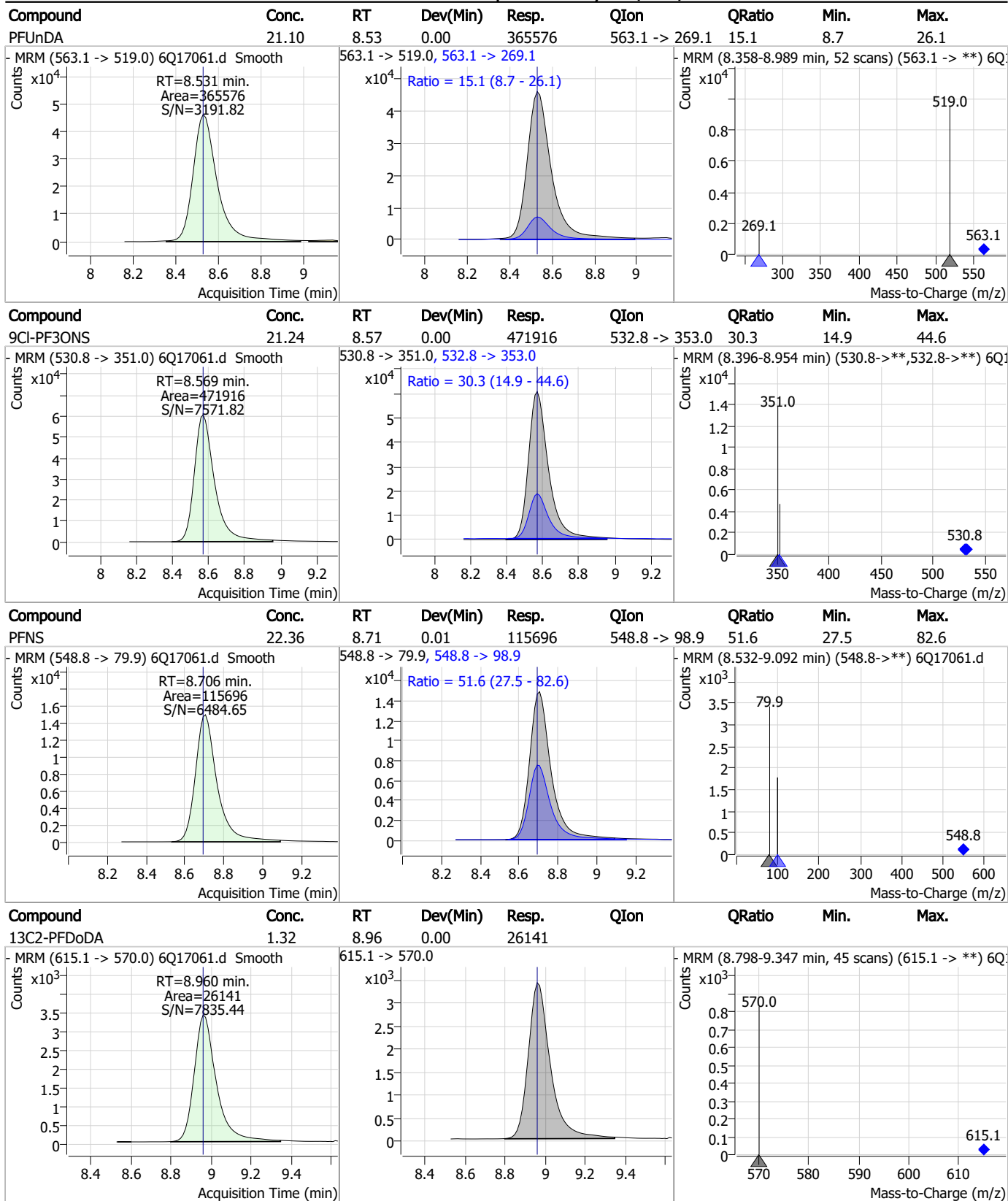


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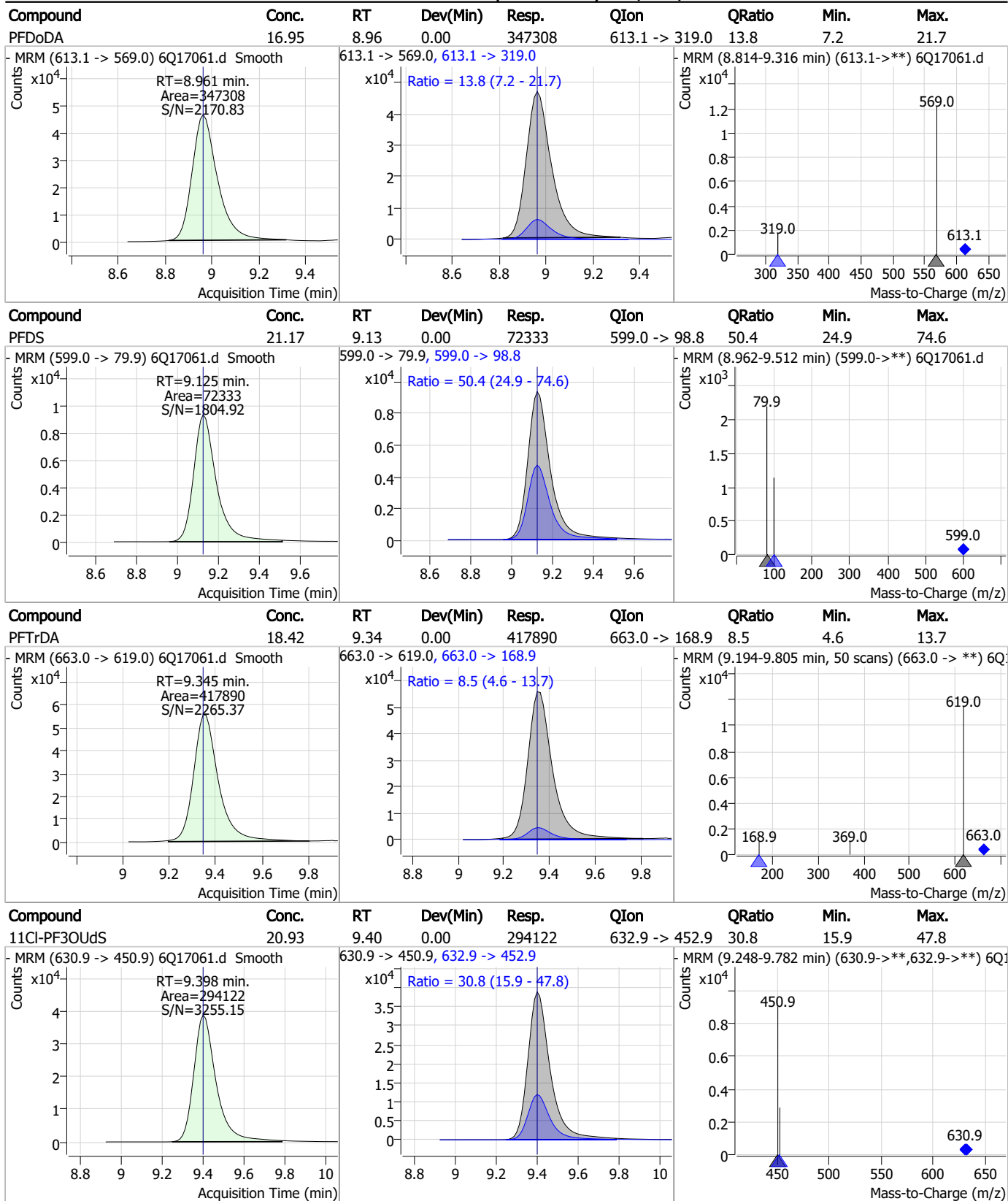
Perfluorinated Compounds by LC/MS/MS



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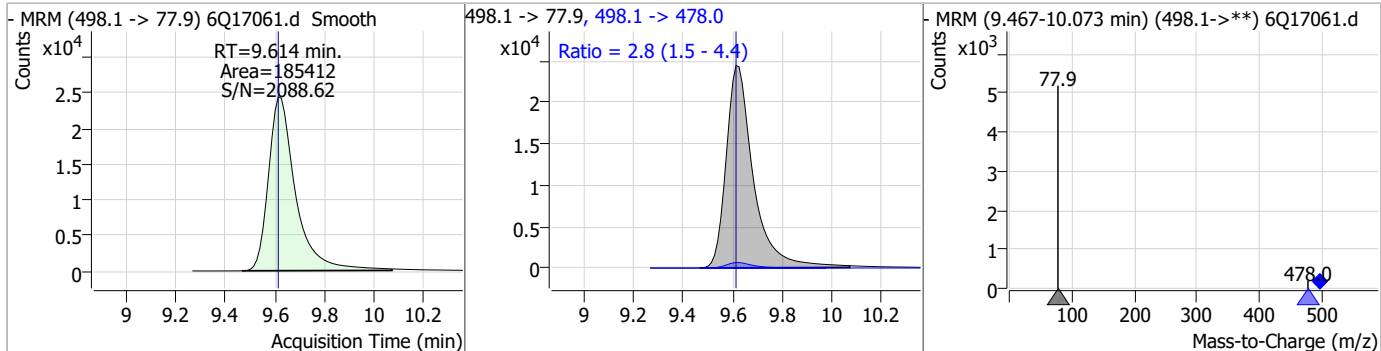
Perfluorinated Compounds by LC/MS/MS



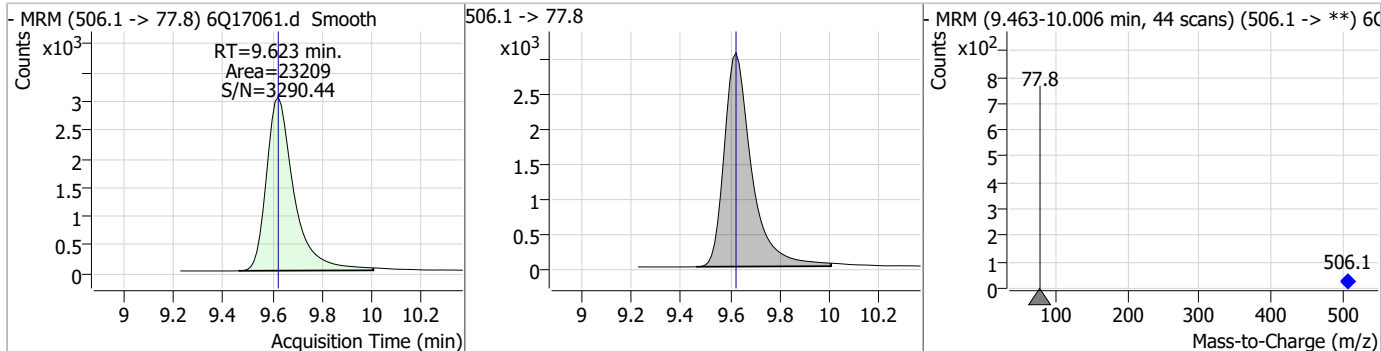
7.6.11 7

Perfluorinated Compounds by LC/MS/MS

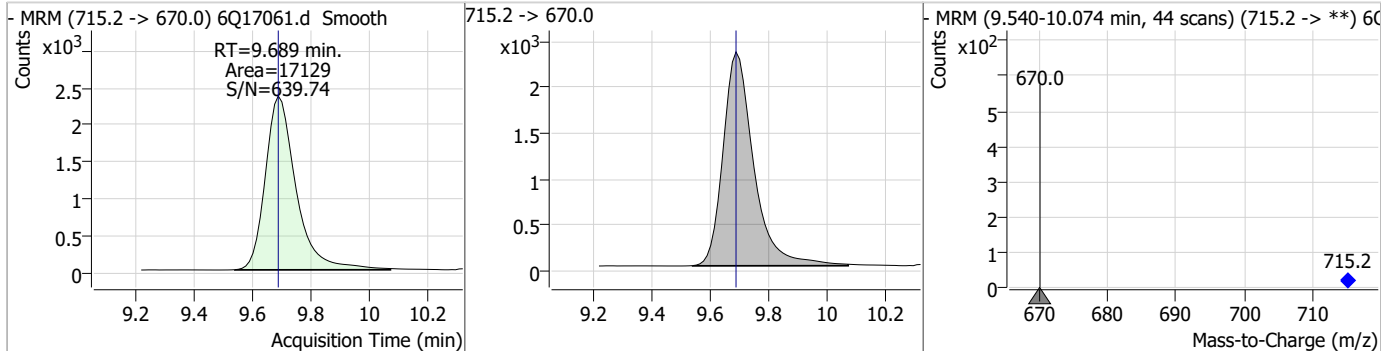
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	22.30	9.61	0.00	185412	498.1 -> 478.0	2.8	1.5	4.4



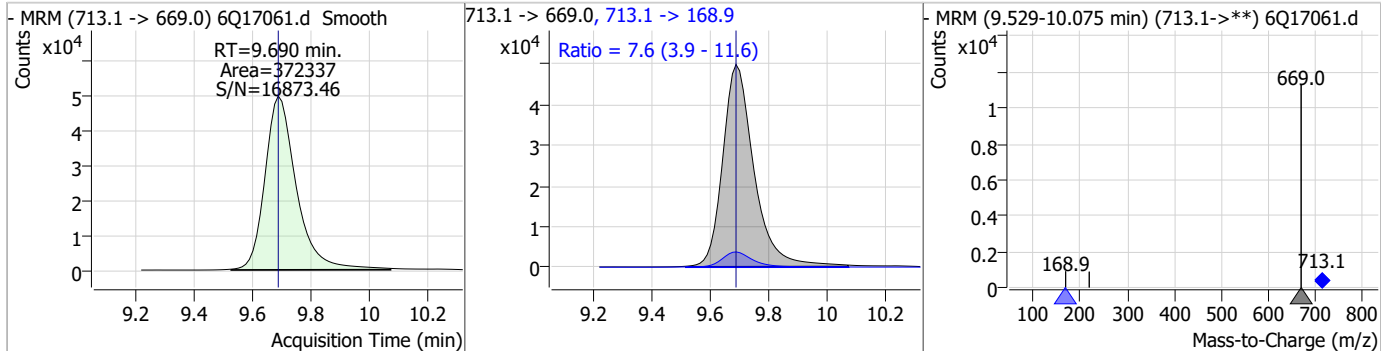
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.61	9.62	0.00	23209	506.1 -> 77.8	7.6	3.9	11.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.28	9.69	0.00	17129	715.2 -> 670.0	7.6	3.9	11.6

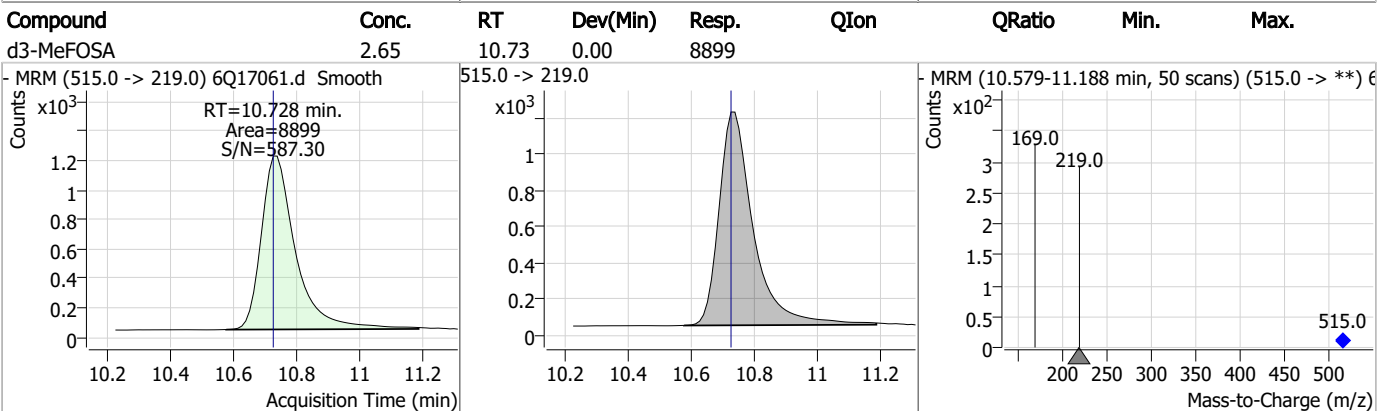
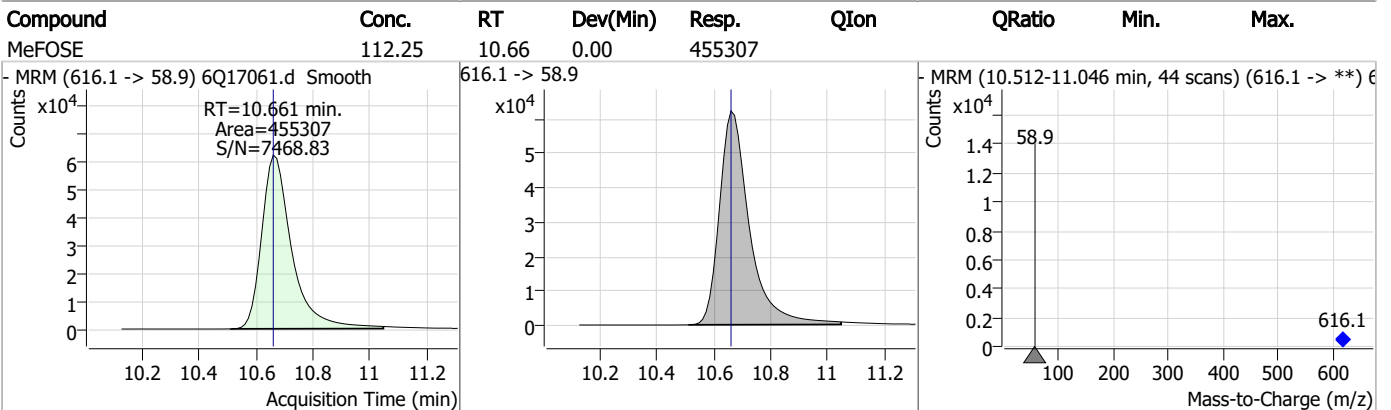
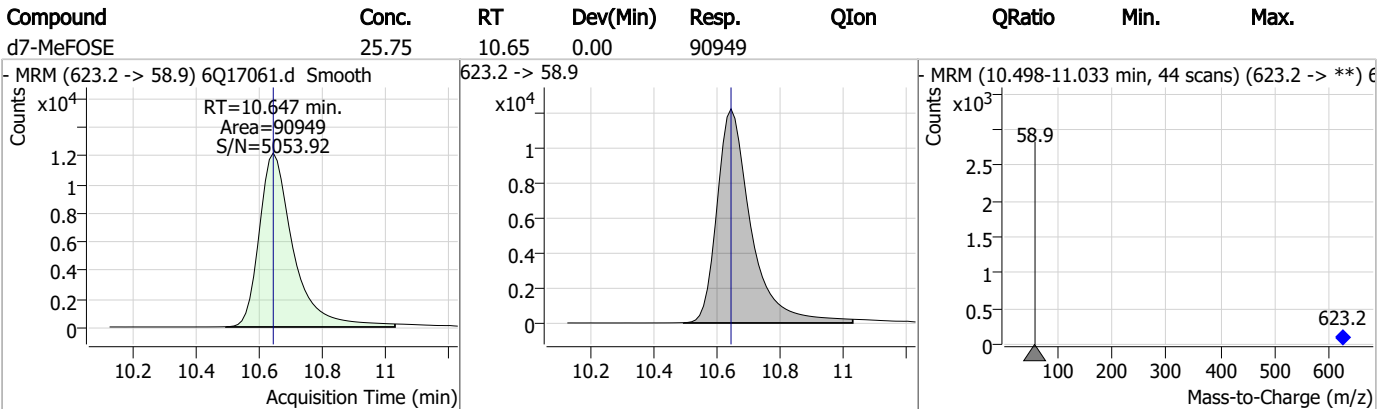
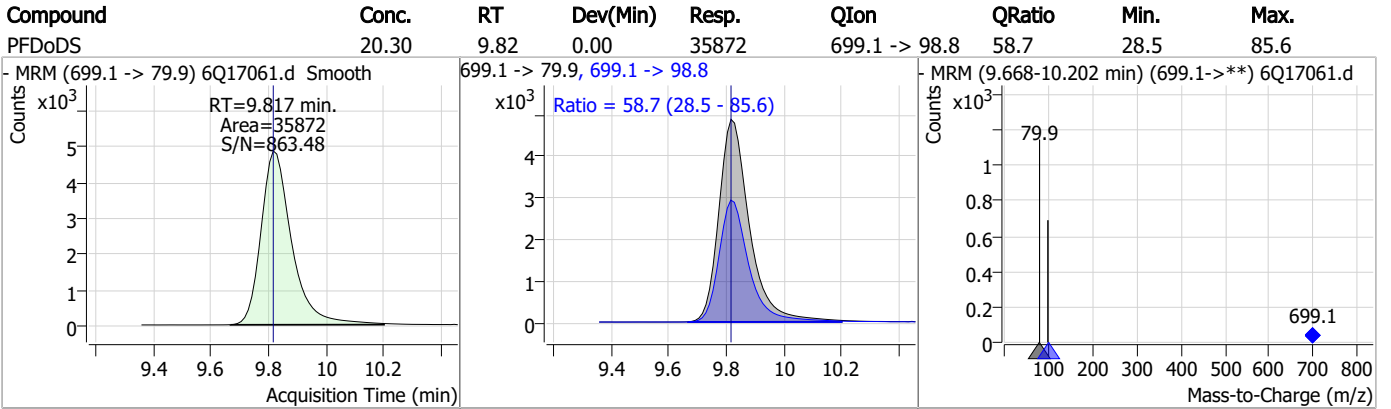


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	21.51	9.69	0.00	372337	713.1 -> 168.9	7.6	3.9	11.6

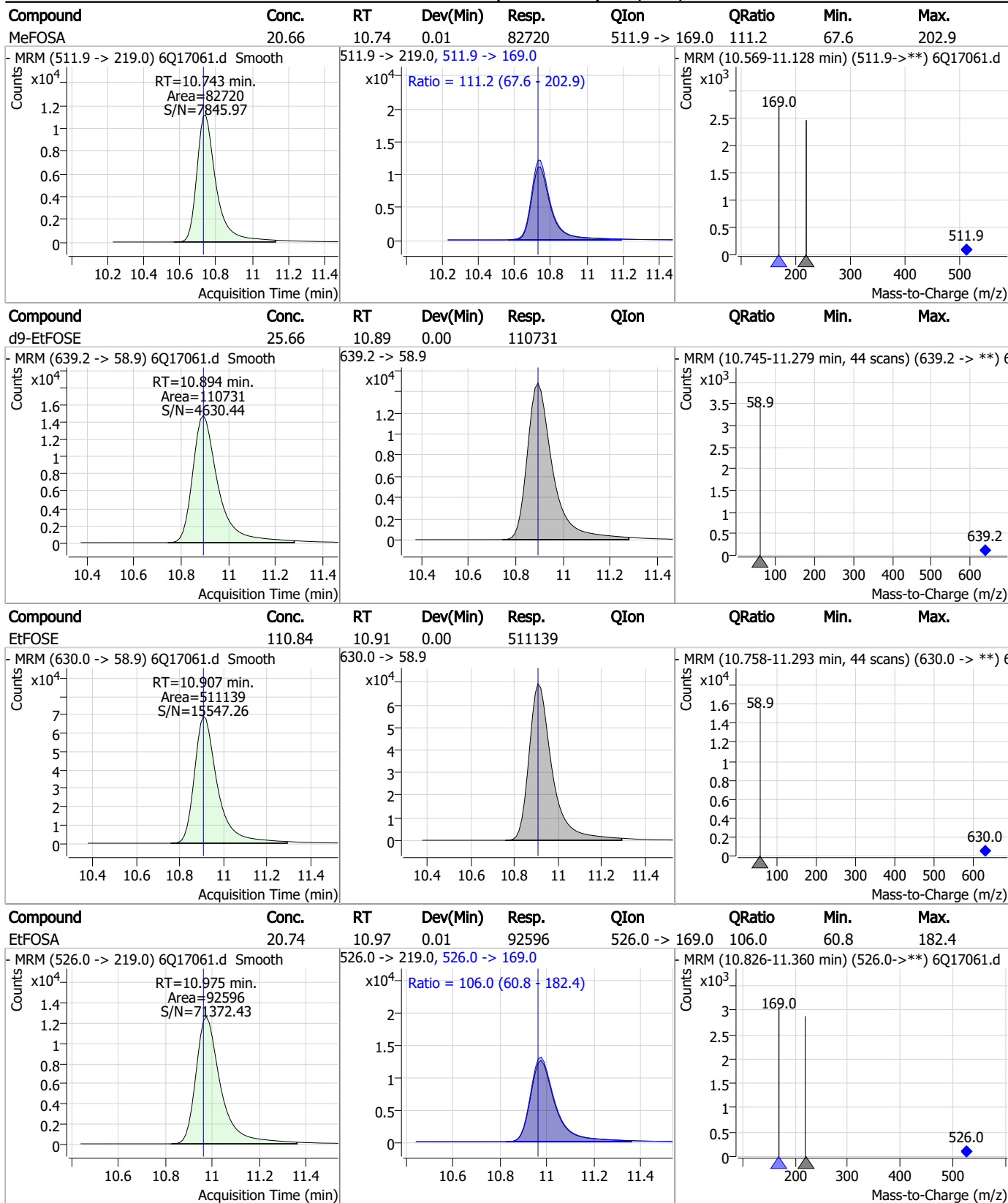


7.6.11
7

Perfluorinated Compounds by LC/MS/MS



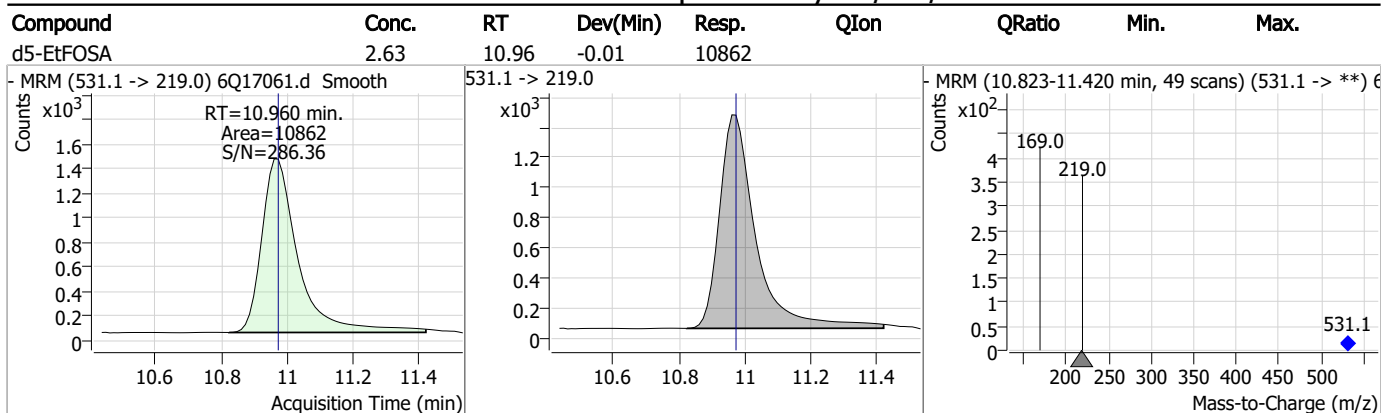
Perfluorinated Compounds by LC/MS/MS



7.6.11

7

Perfluorinated Compounds by LC/MS/MS



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7

Manual Integration Approval Summary

Sample Number: S6Q258-ICV258 Method: EPA DRAFT 1633
Lab FileID: 6Q17061.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 15:15 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak

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7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17062.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 3:29:40 PM
 Sample Name : cc258-4
 Vial : P1-A5
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	181420	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	65106	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	69105	2.50 µg/L	0.000
M4-PFHpA	6.431	367.1 -> 322.0	59484	2.50 µg/L	0.012
M8-PFOA	7.074	421.1 -> 376.0	84575	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	26774	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	19499	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	25842	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	24317	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17014	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	24345	2.50 µg/L	-0.012
M3-PFBS	5.398	302.1 -> 79.9	22622	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12907	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	10978	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2252	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2906	5.00 µg/L	0.000
M2-8:2FTS	7.877	529.1 -> 80.9	2788	5.00 µg/L	0.012
M3-MeFOSAA	8.134	573.2 -> 419.0	23297	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	40159	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	19710	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	95842	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	116150	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	11352	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	8779	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	13931	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	77978	5.00 µg/L	0.000
18O2-PFHxS	7.190	403.0 -> 83.9	9573	2.50 µg/L	0.012
13C4-PFOA	7.075	417.1 -> 372.0	84169	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	24027	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	27824	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	58925	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2252	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.3%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2906	5.44 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.8%		
13C2-8:2FTS	7.877	529.1 -> 80.9	2788	4.85 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C2-PFDoDA	8.960	615.1 -> 570.0	24317	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.3%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17014	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C3-PFBS	5.398	302.1 -> 79.9	22622	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C3-PFHxS	7.179	402.1 -> 79.9	12907	2.53 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 = 101.3%	
13C4-PFBA	2.910	216.8 -> 171.9	181420	10.07 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C4-PFHpA	6.431	367.1 -> 322.0	59484	2.47 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C5-PFHxA	5.468	318.0 -> 273.0	69105	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C5-PFPeA	4.270	268.3 -> 223.0	65106	4.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C6-PFDA	8.076	519.1 -> 474.1	19499	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C7-PFUnDA	8.530	570.0 -> 525.1	25842	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C8-FOSA	9.611	506.1 -> 77.8	24345	2.64 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.7%	
13C8-PFOA	7.074	421.1 -> 376.0	84575	2.60 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.1%	
13C8-PFOS	8.239	507.1 -> 79.9	10978	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C9-PFNA	7.594	472.1 -> 427.0	26774	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.0%	
d3-MeFOSAA	8.134	573.2 -> 419.0	23297	5.61 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.2%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	40159	9.63 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
d3-MeFOSA	10.728	515.0 -> 219.0	8779	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
d5-EtFOSAA	8.330	589.2 -> 419.0	19710	5.71 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 114.2%	
d7-MeFOSE	10.647	623.2 -> 58.9	95842	26.21 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.9%	
d9-EtFOSE	10.894	639.2 -> 58.9	116150	26.00 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.0%	
d5-EtFOSA	10.960	531.1 -> 219.0	11352	2.66 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.3%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	32458	9.53 µg/L	98
		327.1 -> 80.9	12424		
6:2FTS	6.839	427.1 -> 407.0	28850	9.03 µg/L	97
		427.1 -> 80.9	9807		
8:2FTS	7.865	527.1 -> 507.0	16724	10.08 µg/L	99
		527.1 -> 80.8	6661		
EtFOSAA	8.343	584.2 -> 419.1	7962	2.38 µg/L	98
		584.2 -> 526.0	4308		
FOSA	9.614	498.1 -> 77.9	21556	2.47 µg/L	99
		498.1 -> 478.0	687		
MeFOSAA	8.136	570.1 -> 419.0	10629	2.43 µg/L	88
		570.1 -> 483.0	2095		
PFBA	2.906	212.8 -> 168.9	62139	10.21 µg/L	100
PFBS	5.400	298.7 -> 79.9	22846	2.25 µg/L	96
		298.7 -> 98.8	8811		
PFDA	8.077	512.9 -> 469.0	53642	2.53 µg/L	95
		512.9 -> 219.0	10089		
PFDODA	8.961	613.1 -> 569.0	46832	2.46 µg/L	100
		613.1 -> 319.0	6785		
PFDS	9.125	599.0 -> 79.9	9074	2.59 µg/L	95

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.432	599.0 -> 98.8	4209	2.50	µg/L	96
		363.1 -> 319.0	73275			
PFHpS	7.734	363.1 -> 169.0	11962	2.40	µg/L	96
		449.0 -> 79.9	14293			
PFHxA	5.470	449.0 -> 98.9	7685	2.48	µg/L	100
		313.0 -> 269.0	67714			
PFHxS	7.180	313.0 -> 118.9	3166	2.24	µg/L	m
		398.7 -> 79.9	15756			
PFNA	7.595	398.7 -> 98.9	7540	2.57	µg/L	97
		463.0 -> 419.0	47606			
PFNS	8.706	463.0 -> 219.0	9281	2.41	µg/L	95
		548.8 -> 79.9	12765			
PFOA	7.076	548.8 -> 98.9	6603	2.42	µg/L	98
		413.0 -> 369.0	96282			
PFOS	8.228	413.0 -> 169.0	17850	2.53	µg/L	m
		498.9 -> 79.9	13425			
PFPeA	4.273	498.9 -> 98.8	6549	5.02	µg/L	100
		263.0 -> 219.0	89027			
PFPeS	6.484	349.1 -> 79.9	16950	2.31	µg/L	95
		349.1 -> 98.9	7655			
PFTeDA	9.690	713.1 -> 669.0	45092	2.62	µg/L	99
		713.1 -> 168.9	3275			
PFTrDA	9.345	663.0 -> 619.0	51482	2.44	µg/L	99
		663.0 -> 168.9	4930			
PFUnDA	8.531	563.1 -> 519.0	46591	2.60	µg/L	99
		563.1 -> 269.1	7949			
11CI-PF3OUdS	9.398	630.9 -> 450.9	65621	4.76	µg/L	99
		632.9 -> 452.9	20651			
9CI-PF3ONS	8.569	530.8 -> 351.0	106444	4.88	µg/L	96
		532.8 -> 353.0	33733			
ADONA	6.681	376.9 -> 250.9	288930	4.76	µg/L	98
		376.9 -> 84.8	77598			
HFPO-DA	5.846	284.9 -> 168.9	19080	5.02	µg/L	97
		284.9 -> 184.9	2448			
3:3FTCA	3.784	241.0 -> 177.0	13350	12.04	µg/L	99
		241.0 -> 117.0	1728			
5:3FTCA	6.160	341.0 -> 237.1	295070	66.73	µg/L	97
		341.0 -> 217.0	203720			
7:3FTCA	7.573	441.0 -> 316.9	125676	62.56	µg/L	94
		441.0 -> 336.9	283882			
EtFOSA	10.962	526.0 -> 219.0	23848	5.11	µg/L	99
		526.0 -> 169.0	29306			
EtFOSE	10.907	630.0 -> 58.9	63742	13.18	µg/L	100
		511.9 -> 219.0	21142			
MeFOSA	10.730	511.9 -> 169.0	28476	5.35	µg/L	m
		616.1 -> 58.9	54831			
MeFOSE	10.661	699.1 -> 79.9	4581	12.83	µg/L	100
		699.1 -> 98.8	2728			
PFDoDS	9.817	295.0 -> 201.0	14684	2.53	µg/L	97
		295.0 -> 84.9	3681			
NFDHA	5.350	279.0 -> 85.1	58866	4.95	µg/L	100
		229.0 -> 84.9	43455			
PFMBA	3.438	314.8 -> 134.9	160806	4.90	µg/L	100
		314.8 -> 82.9	5301			
PFEESA	5.949			4.66	µg/L	99

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



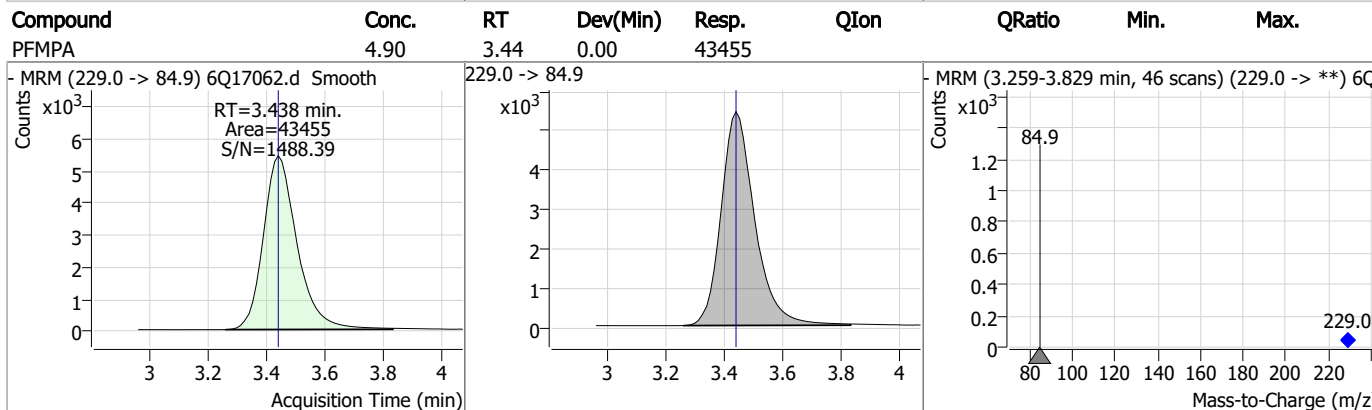
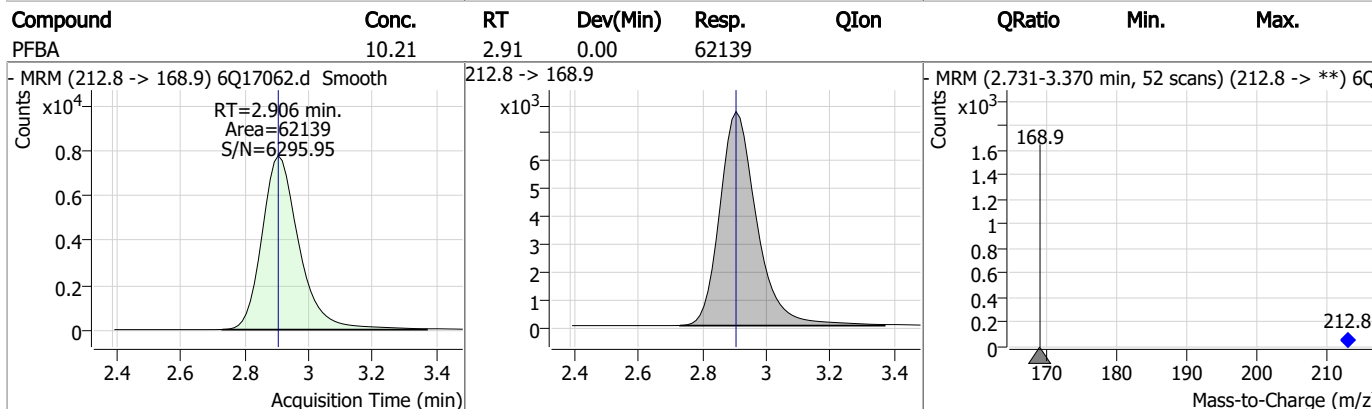
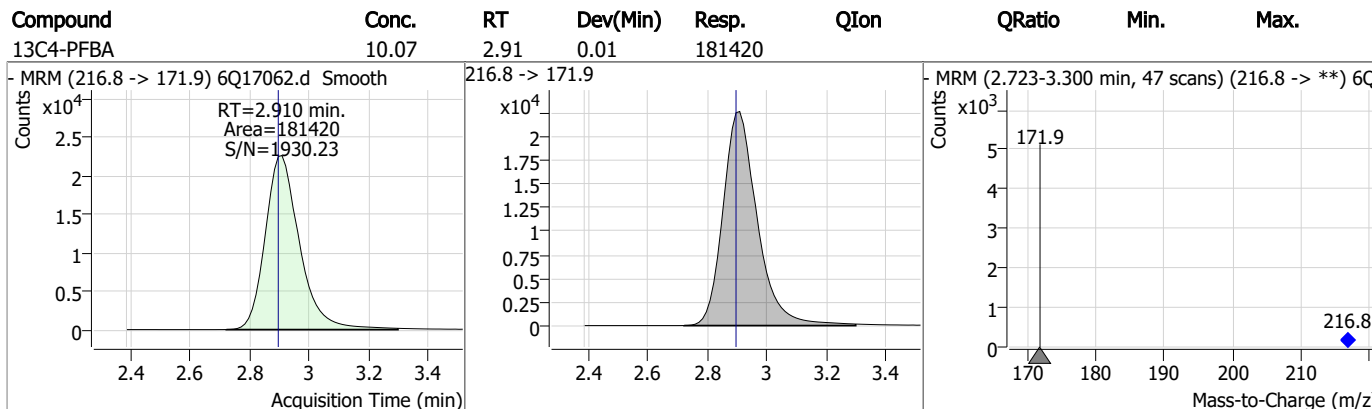
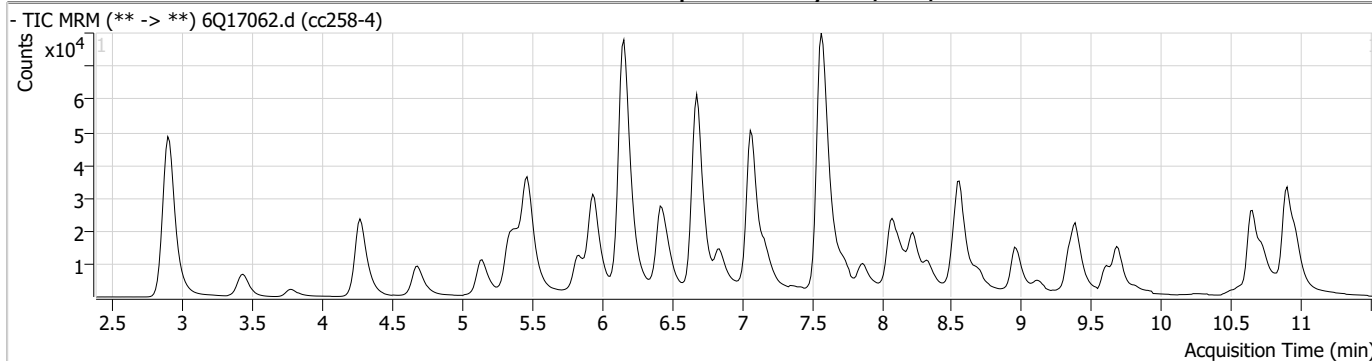
Perfluorinated Compounds by LC/MS/MS

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

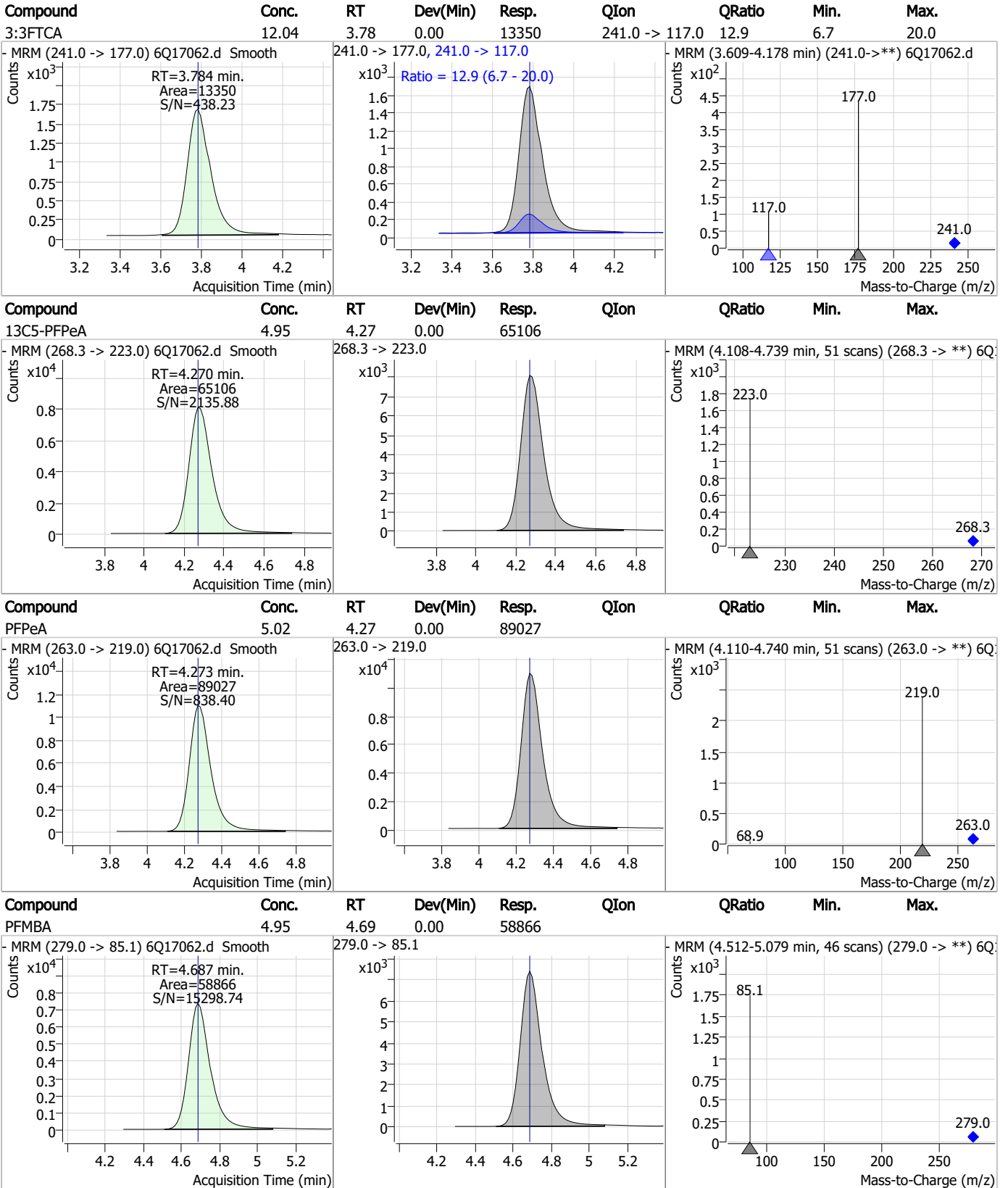
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Perfluorinated Compounds by LC/MS/MS



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7

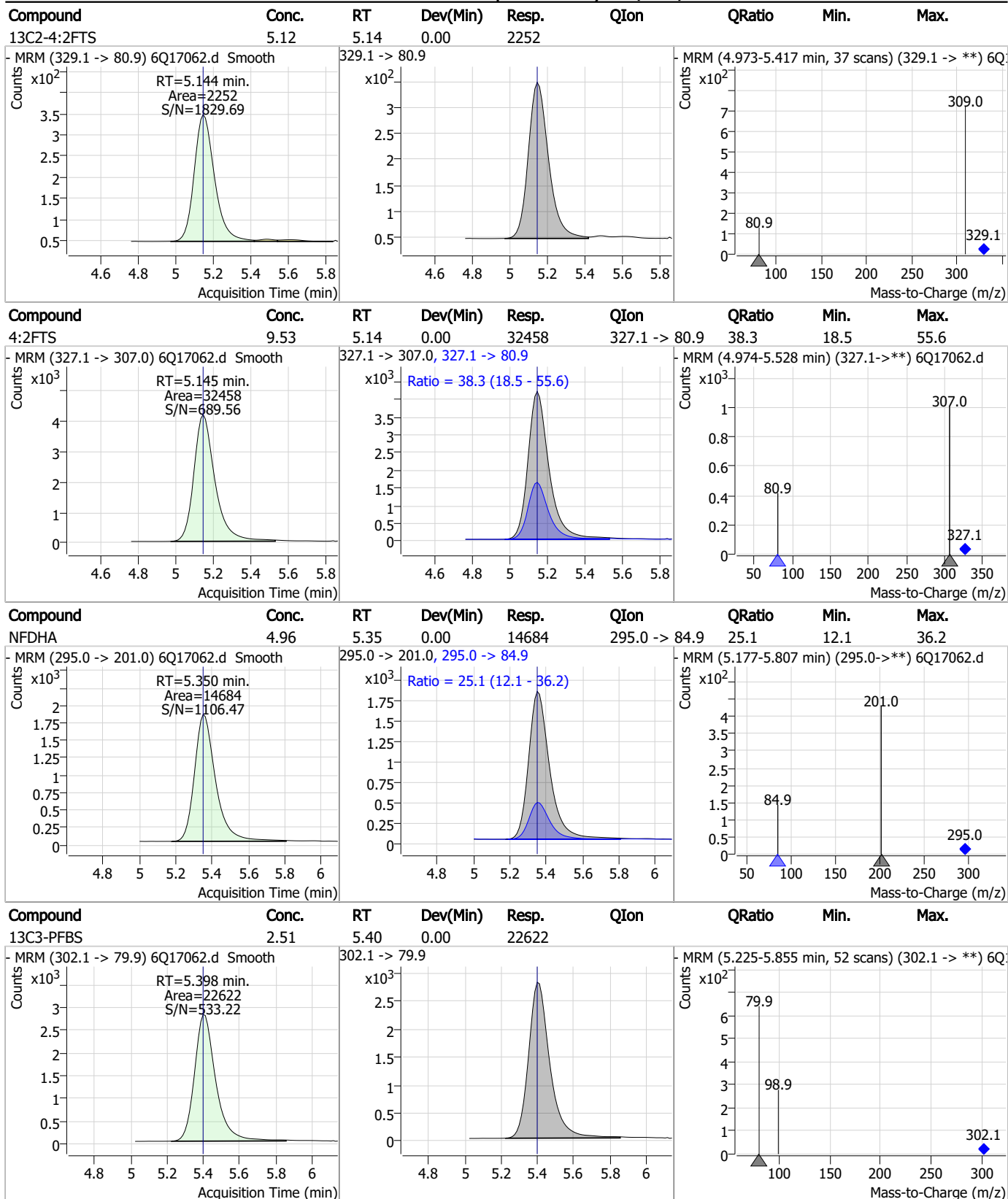
Perfluorinated Compounds by LC/MS/MS



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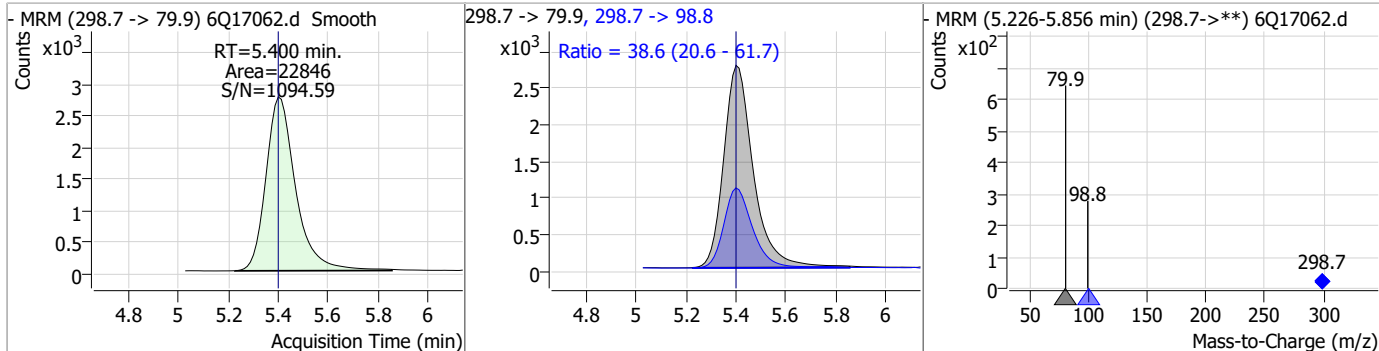
Perfluorinated Compounds by LC/MS/MS



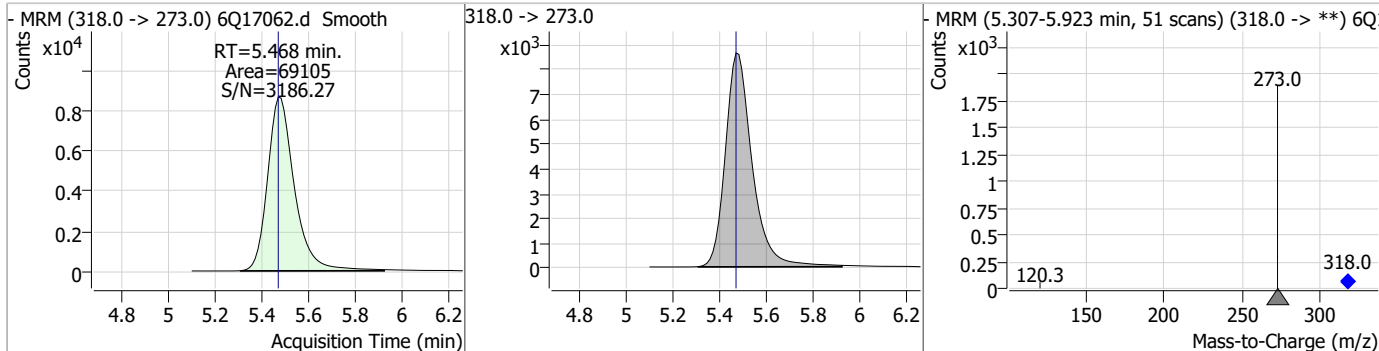
7.6.12 7

Perfluorinated Compounds by LC/MS/MS

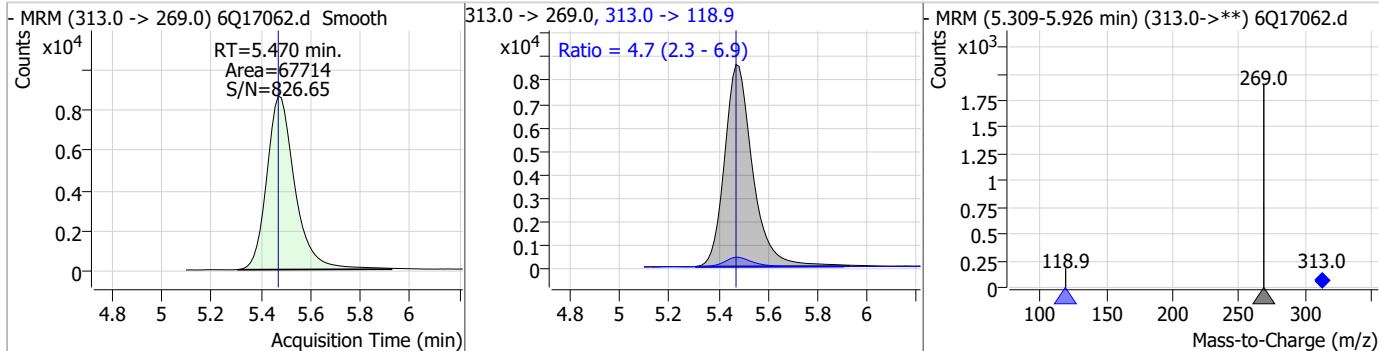
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.25	5.40	0.00	22846	298.7 -> 98.8	38.6	20.6	61.7



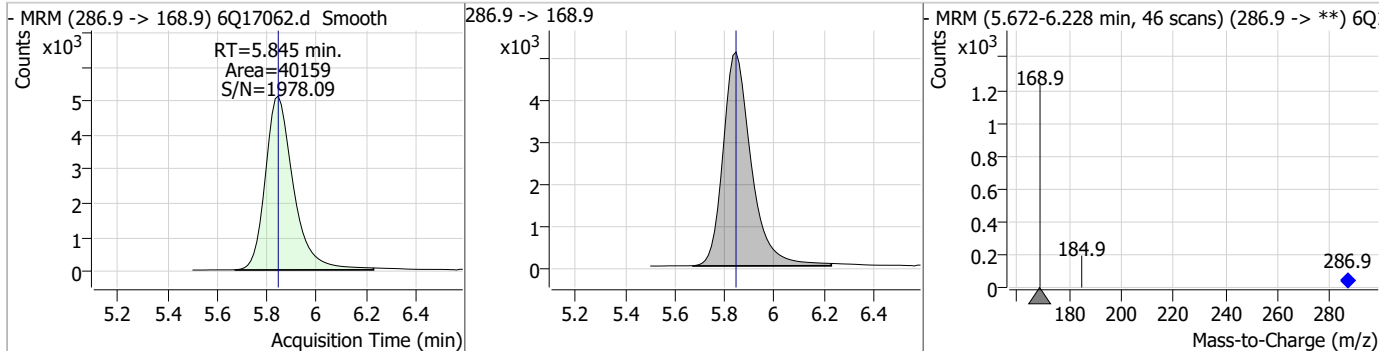
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.43	5.47	0.00	69105				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.48	5.47	0.00	67714	313.0 -> 118.9	4.7	2.3	6.9



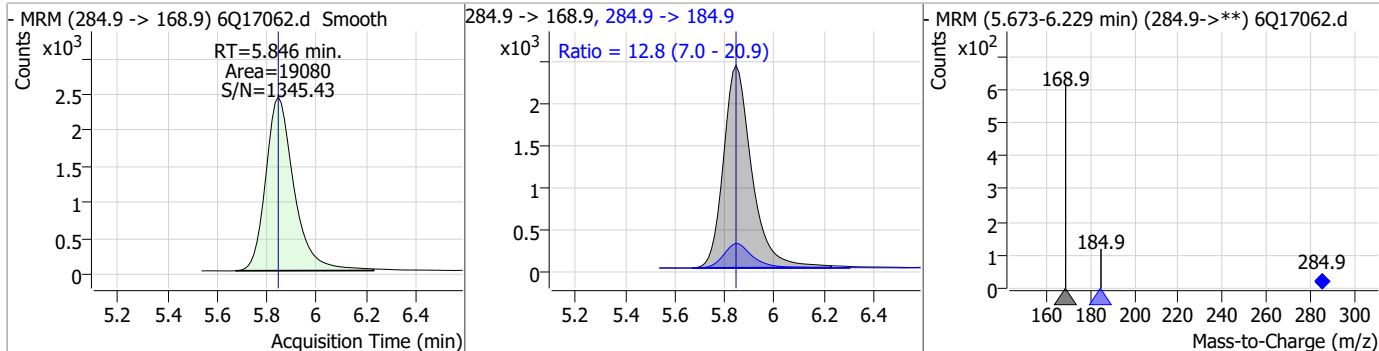
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.63	5.85	0.00	40159				



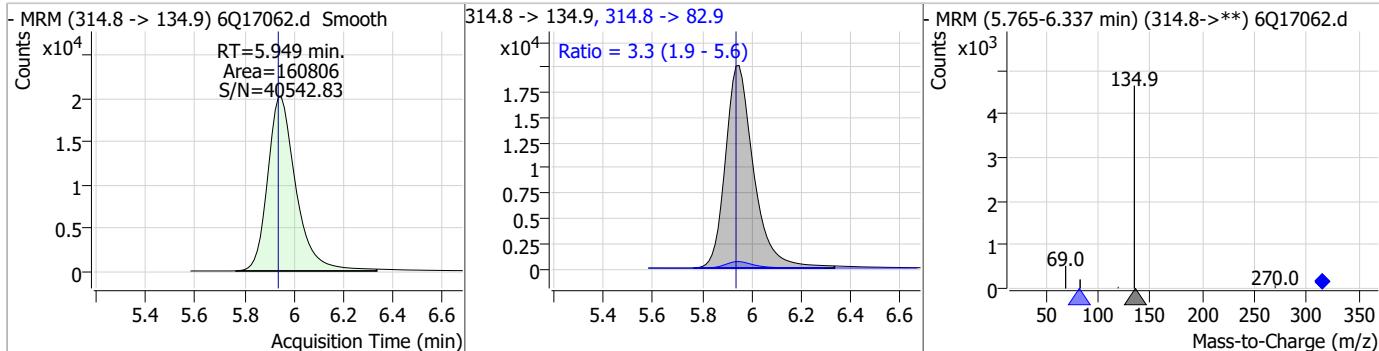
7.6.12
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Perfluorinated Compounds by LC/MS/MS

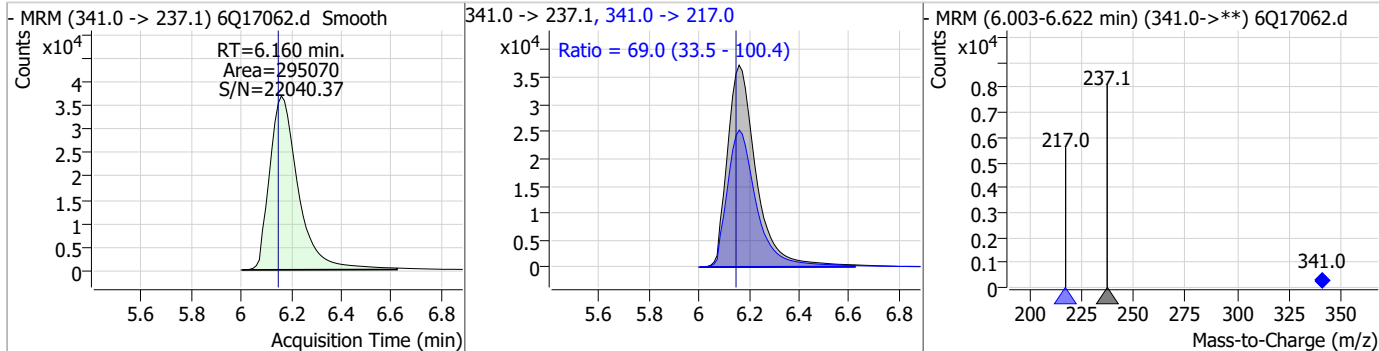
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.02	5.85	0.00	19080	284.9 -> 184.9	12.8	7.0	20.9



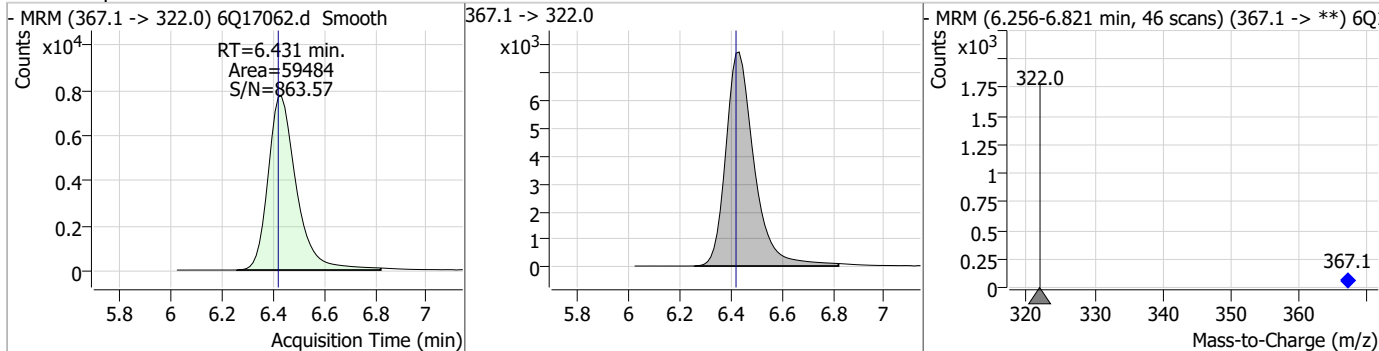
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.66	5.95	0.01	160806	314.8 -> 82.9	3.3	1.9	5.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	66.73	6.16	0.01	295070	341.0 -> 217.0	69.0	33.5	100.4

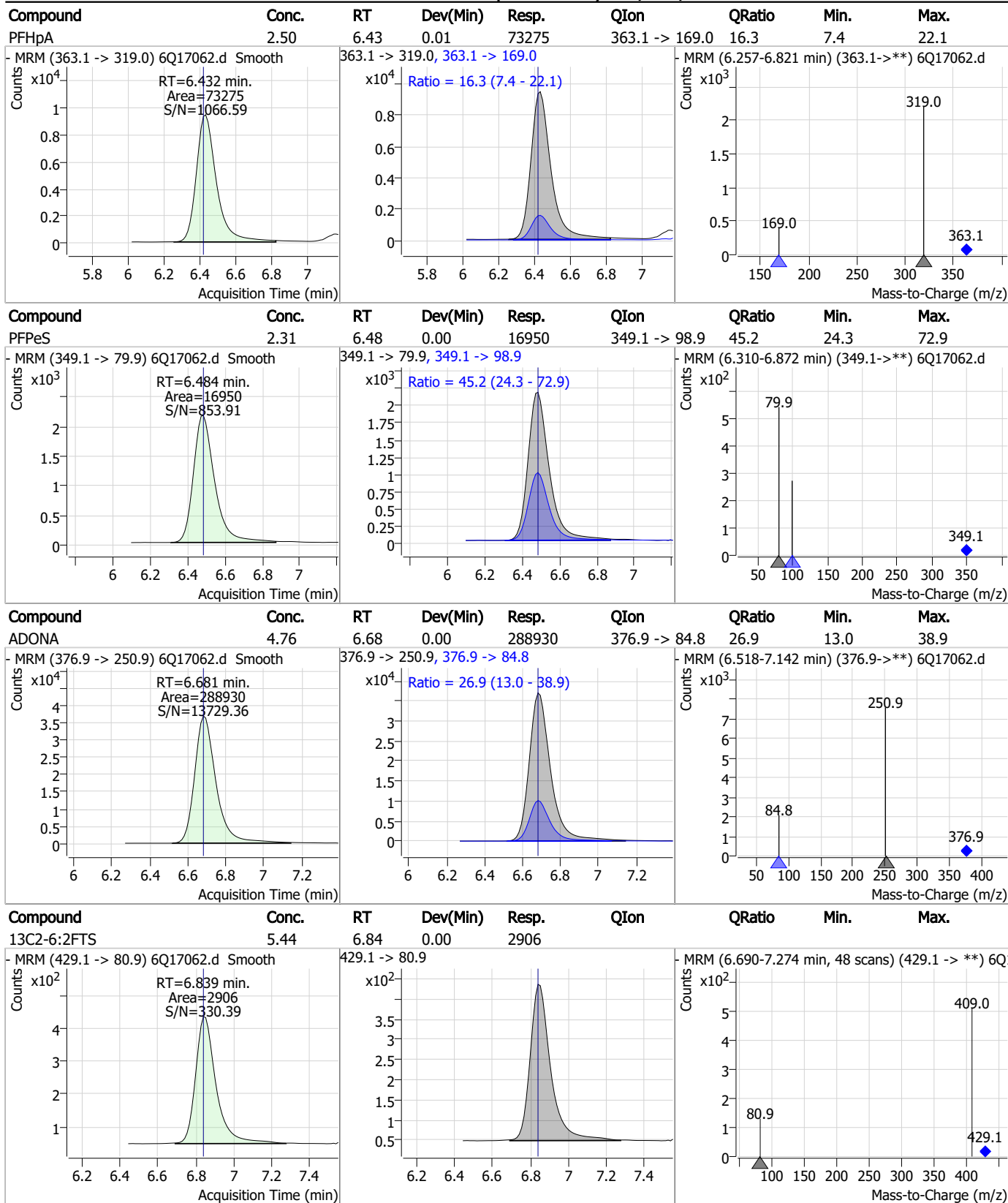


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.47	6.43	0.01	59484	367.1 -> 322.0			



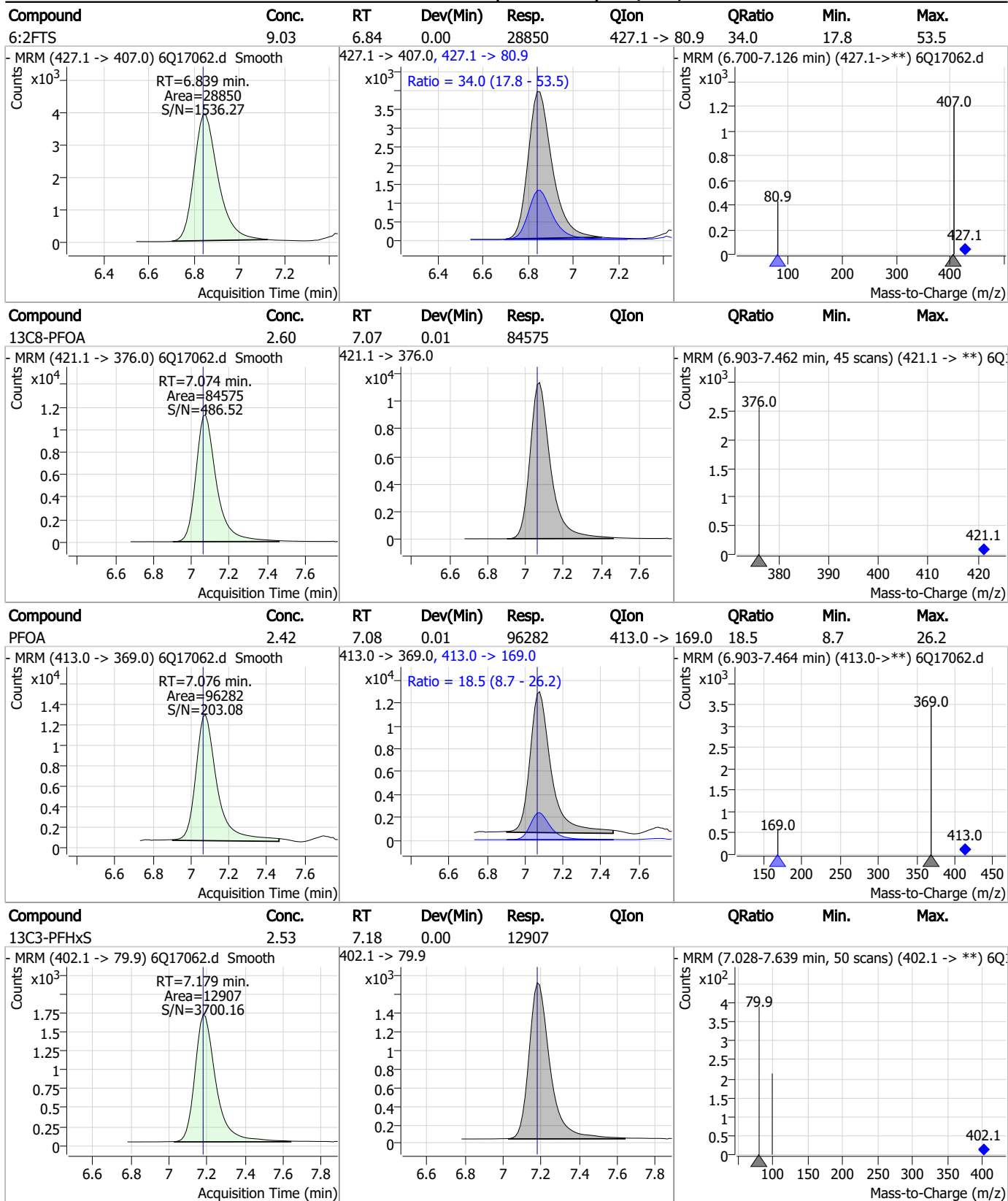
7.6.12
7

Perfluorinated Compounds by LC/MS/MS



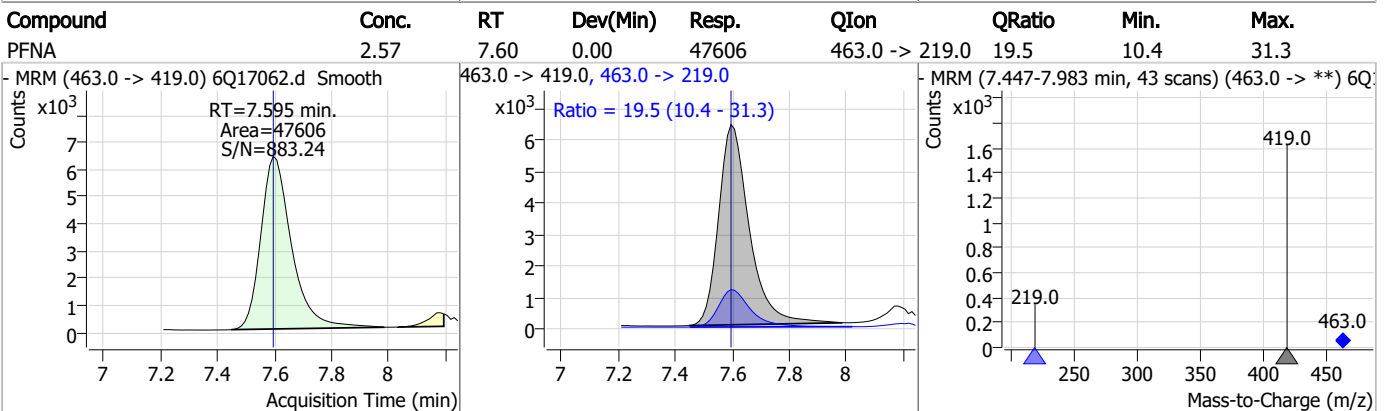
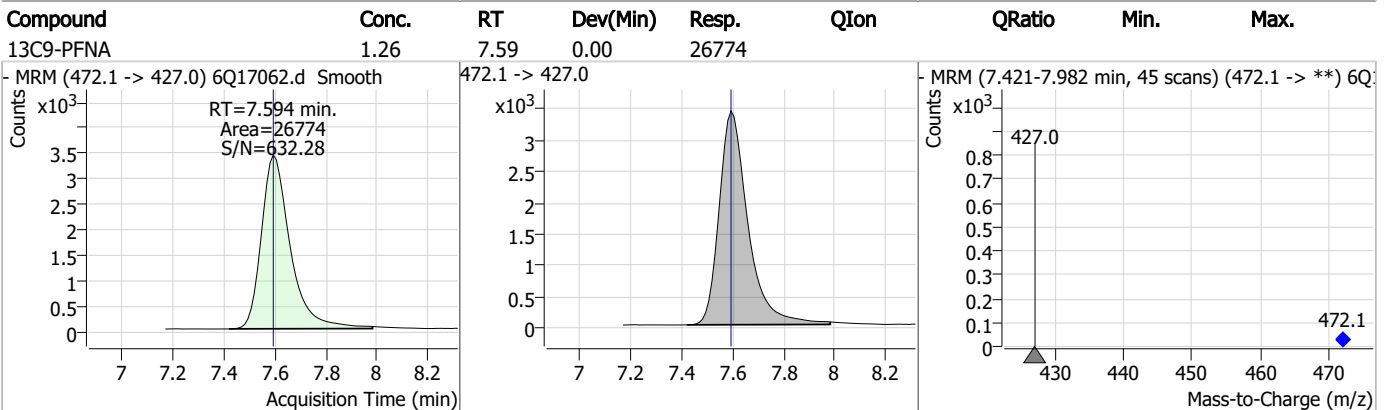
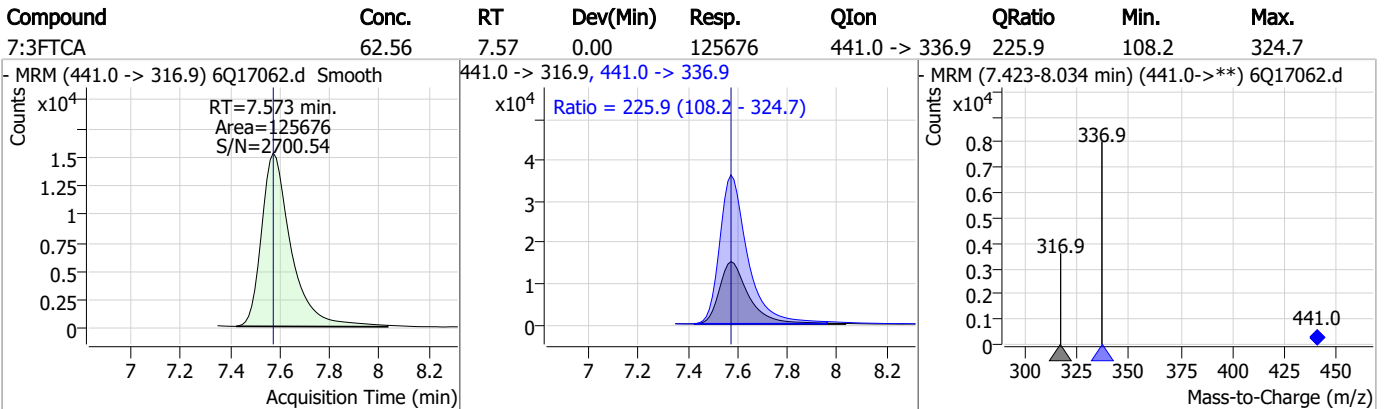
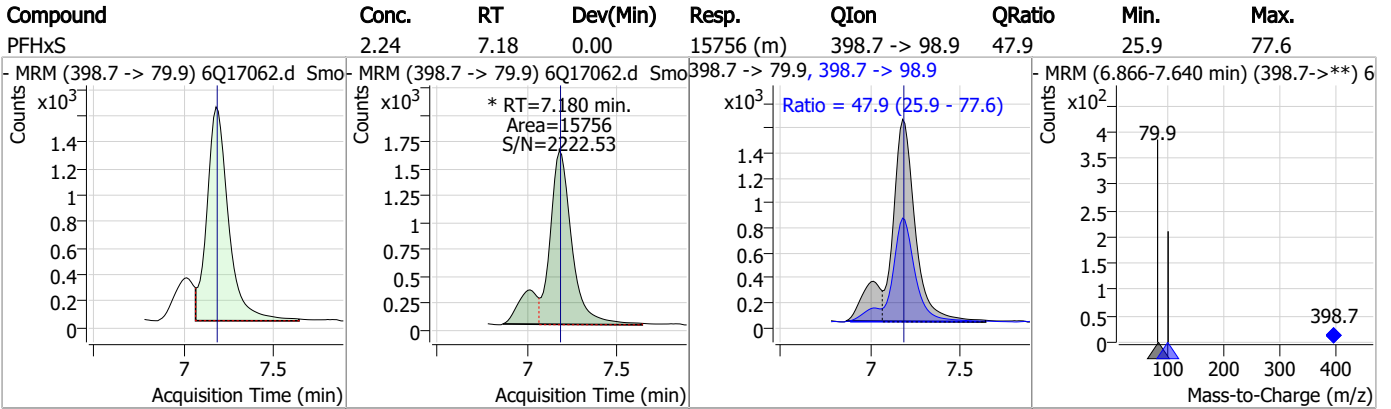
7.6.12 7

Perfluorinated Compounds by LC/MS/MS



7.6.12 7

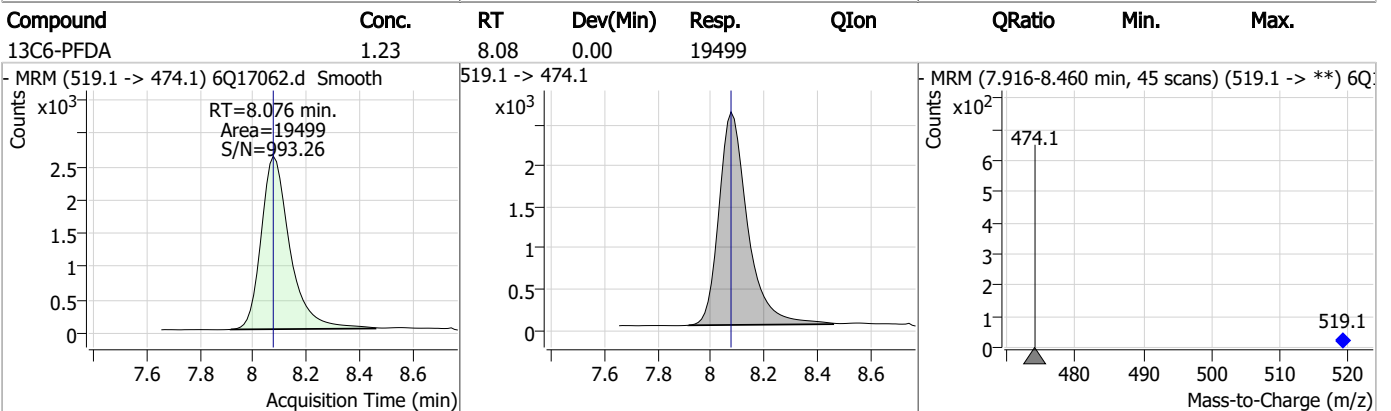
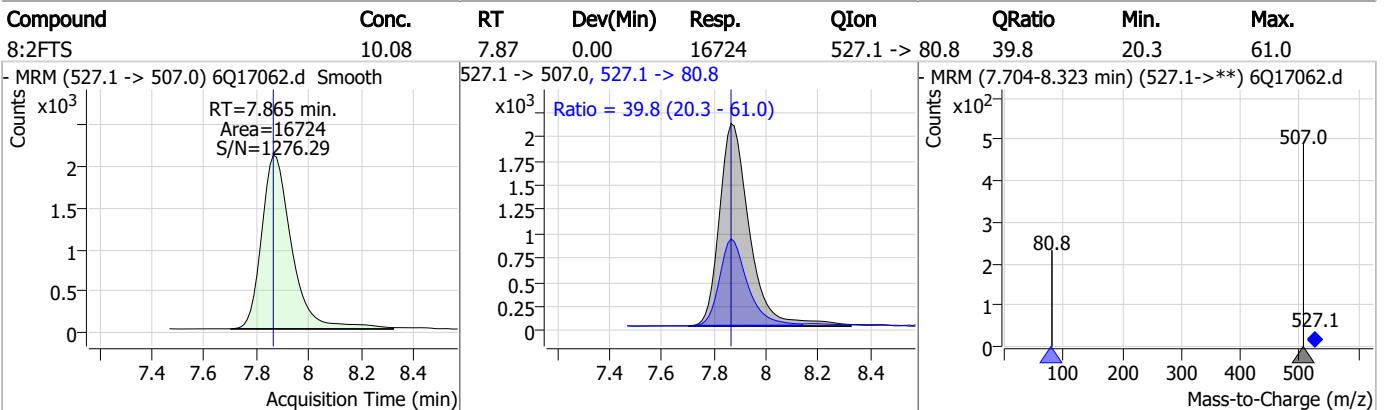
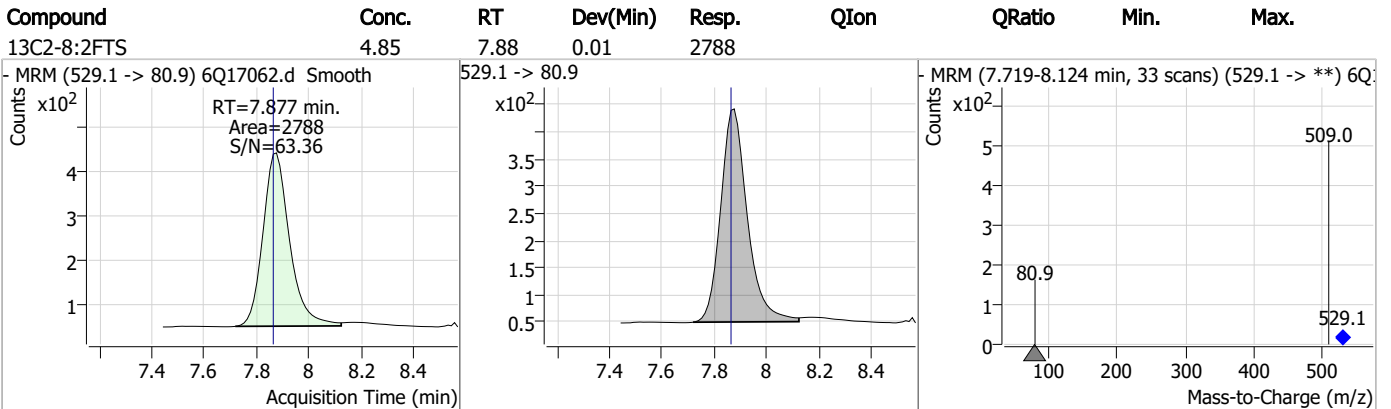
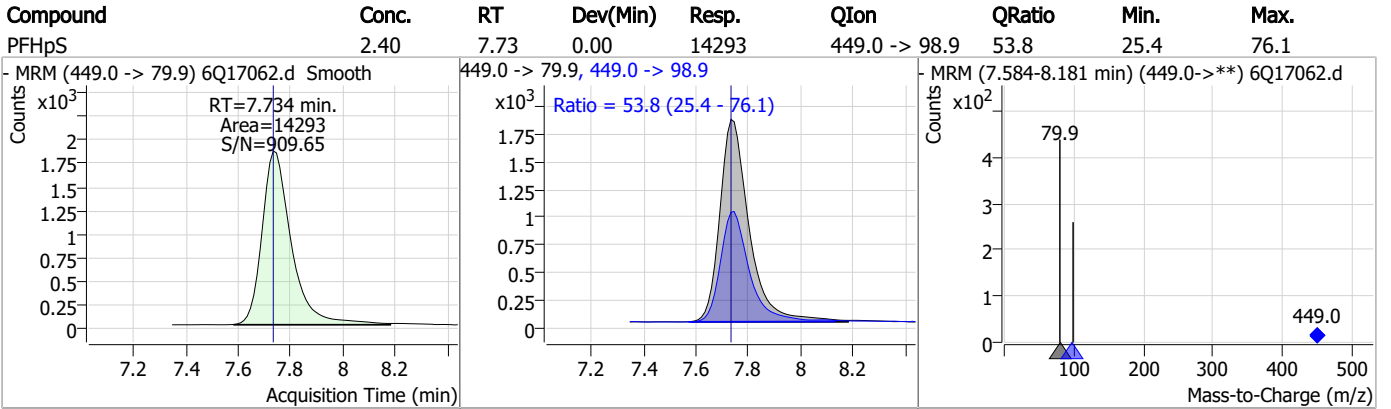
Perfluorinated Compounds by LC/MS/MS



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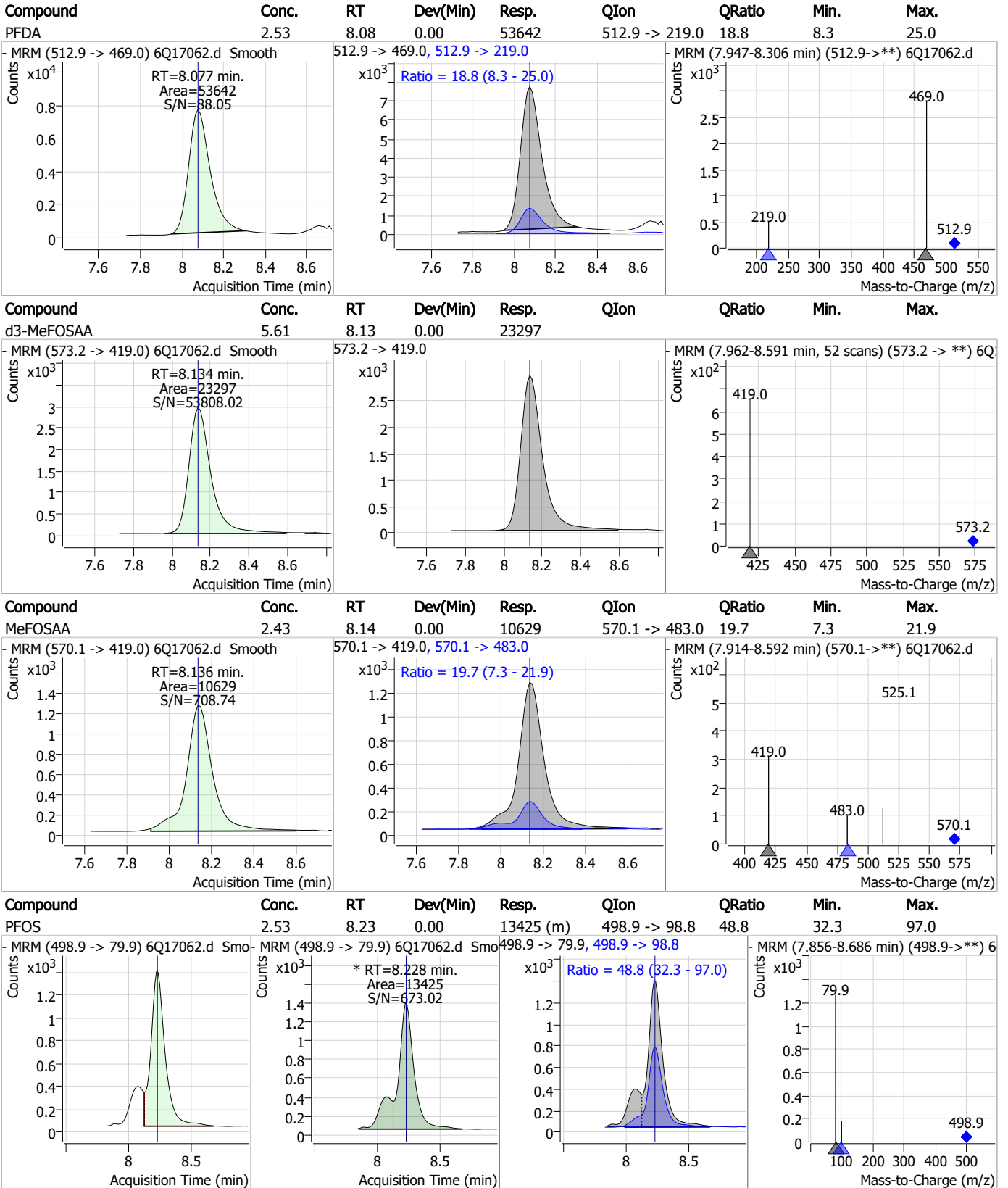


Perfluorinated Compounds by LC/MS/MS



7.6.12 7

Perfluorinated Compounds by LC/MS/MS

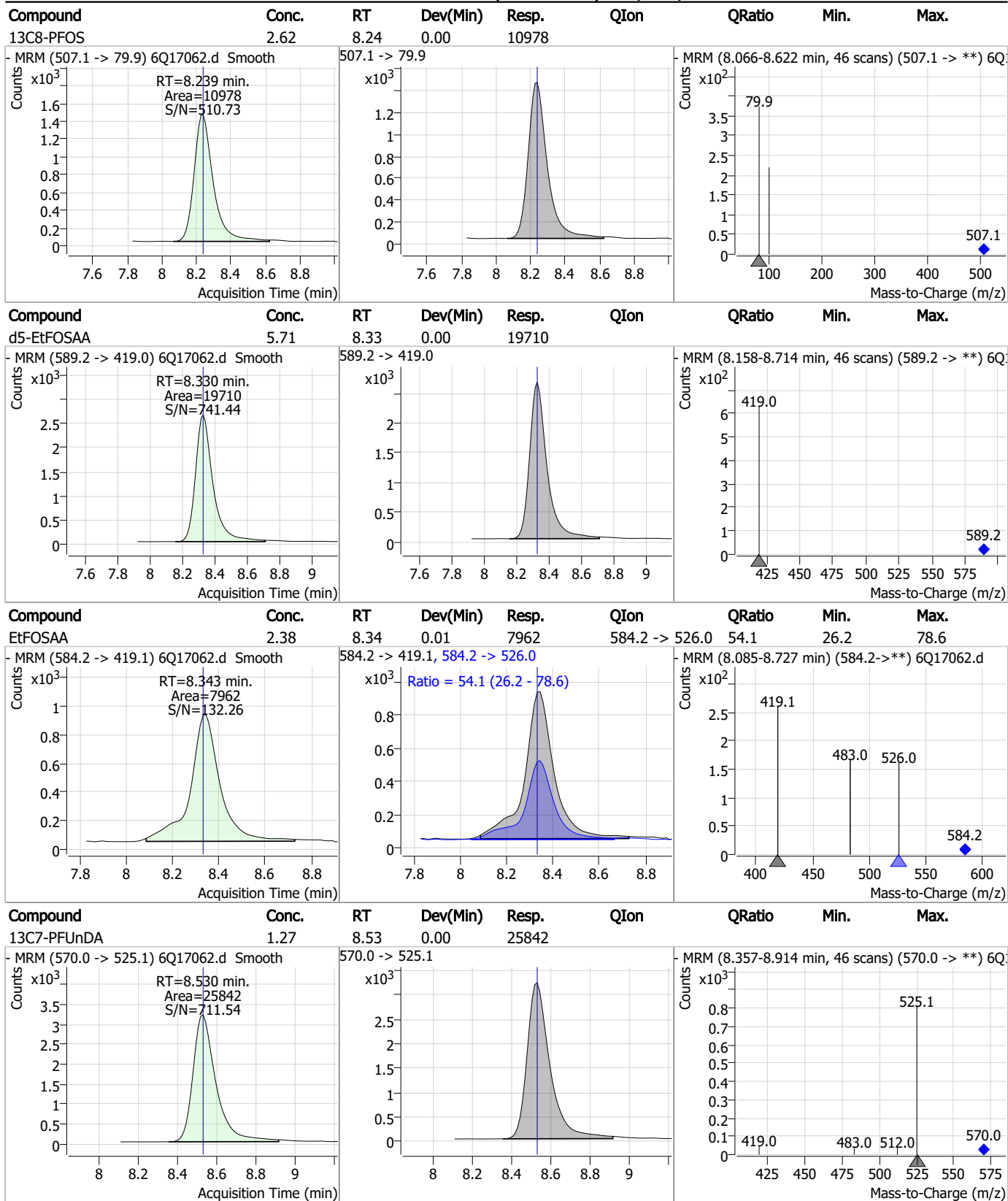


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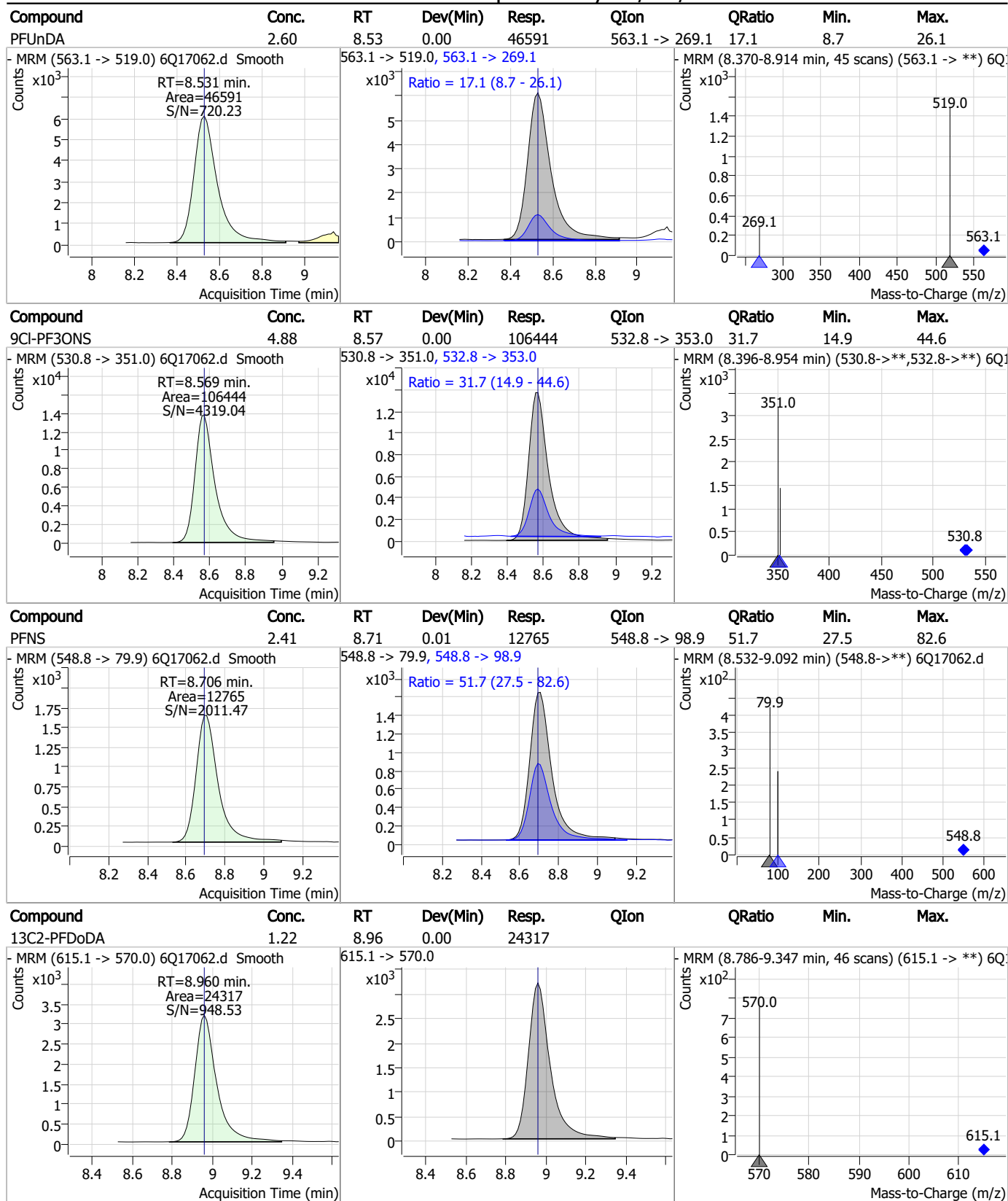


Perfluorinated Compounds by LC/MS/MS



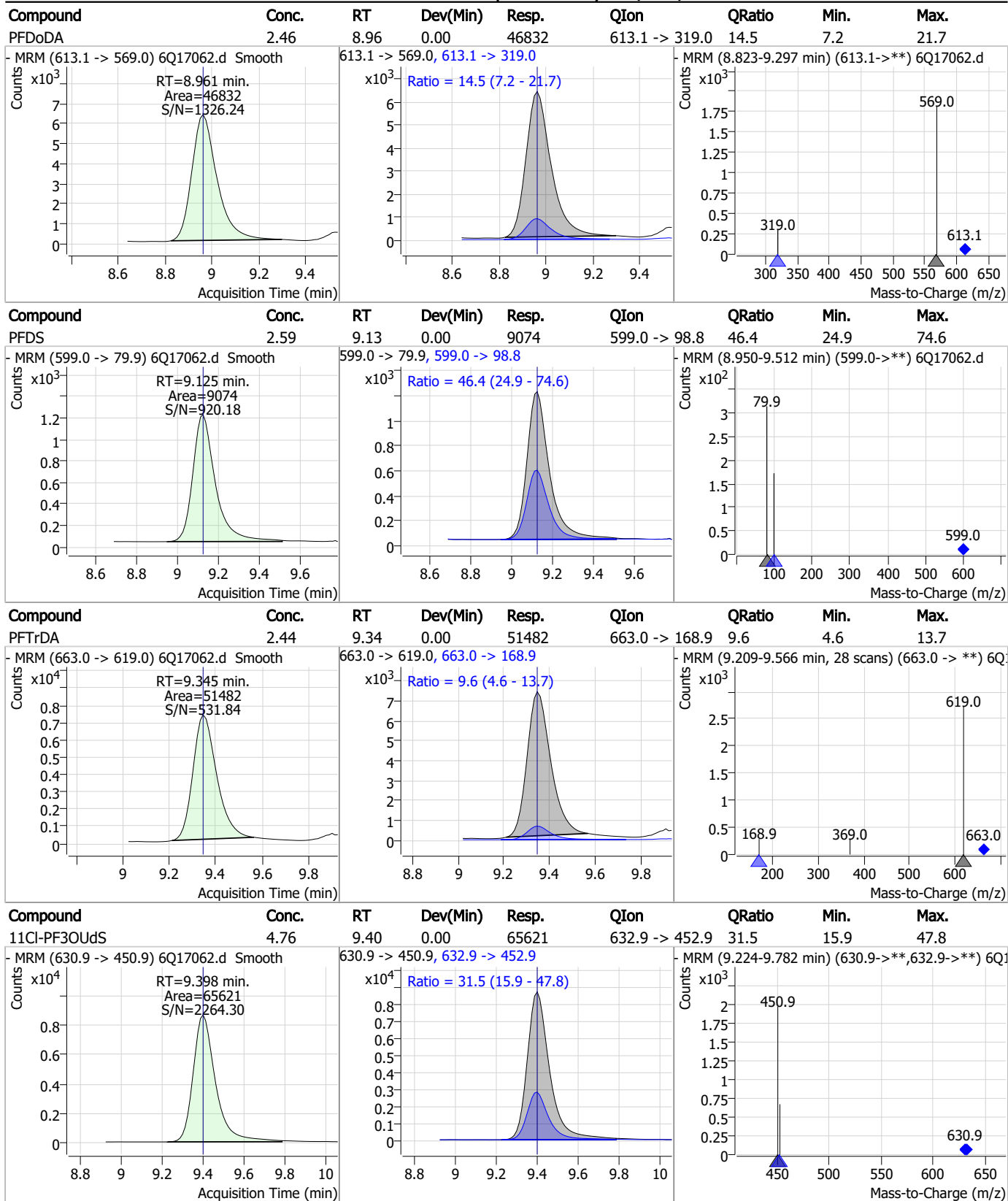
7.6.12
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Perfluorinated Compounds by LC/MS/MS



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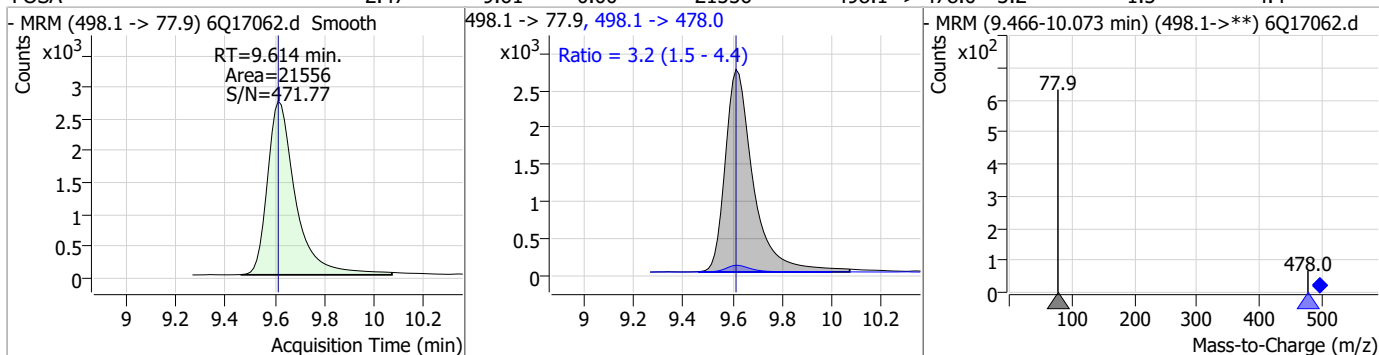
Perfluorinated Compounds by LC/MS/MS



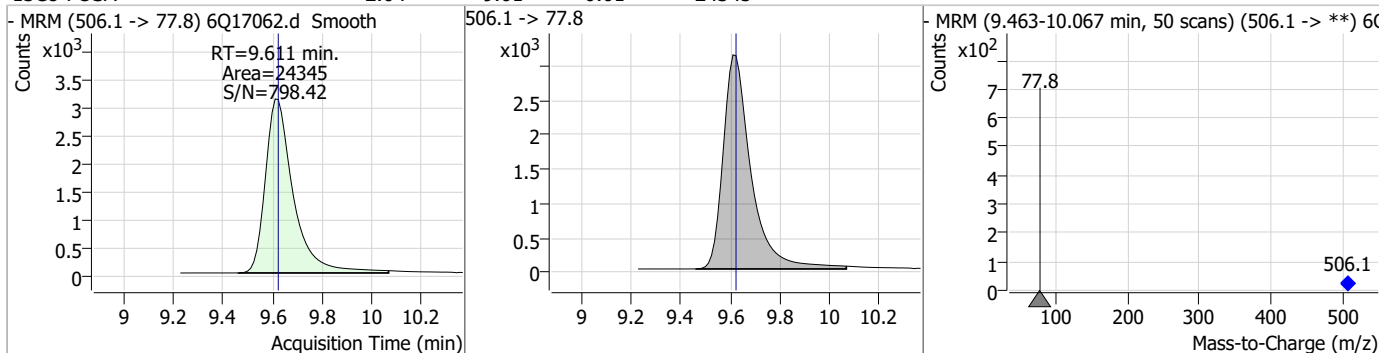
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Perfluorinated Compounds by LC/MS/MS

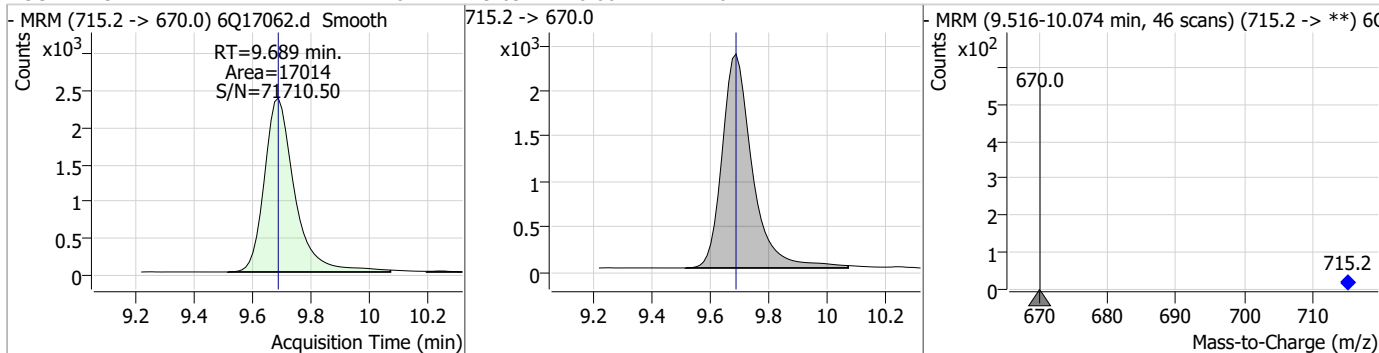
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.47	9.61	0.00	21556	498.1 -> 478.0	3.2	1.5	4.4



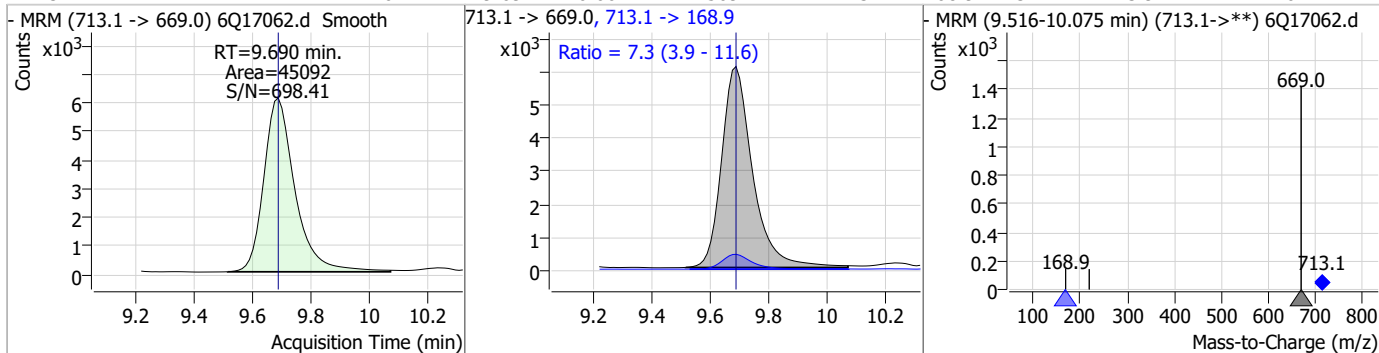
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.64	9.61	-0.01	24345				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.26	9.69	0.00	17014				

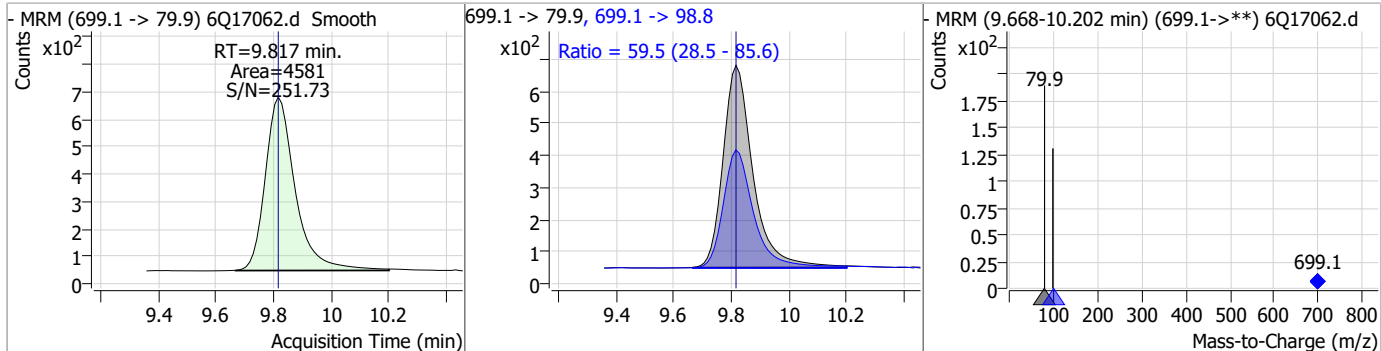


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.62	9.69	0.00	45092	713.1 -> 168.9	7.3	3.9	11.6

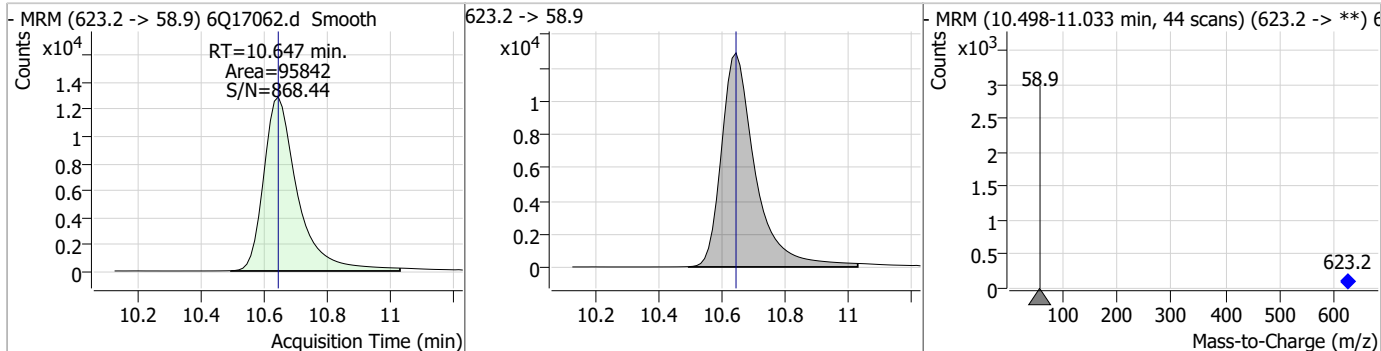


Perfluorinated Compounds by LC/MS/MS

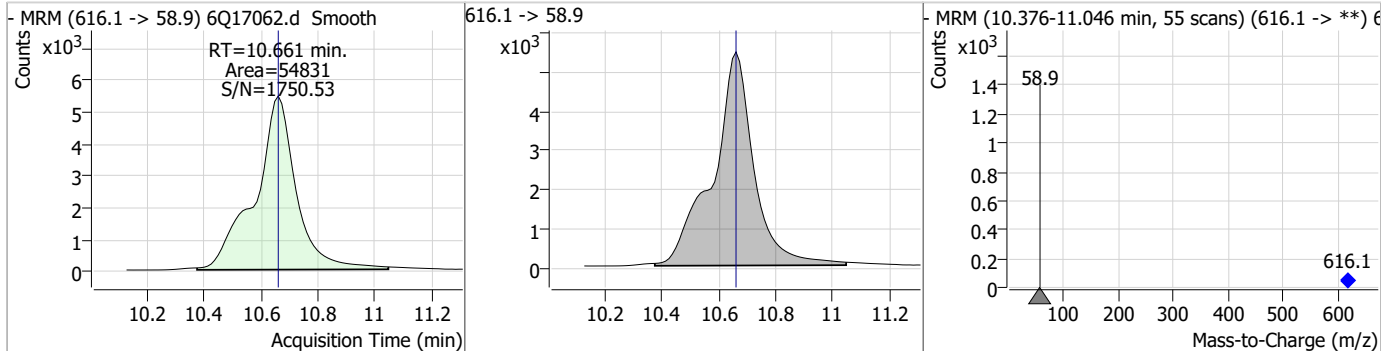
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.53	9.82	0.00	4581	699.1 -> 98.8	59.5	28.5	85.6



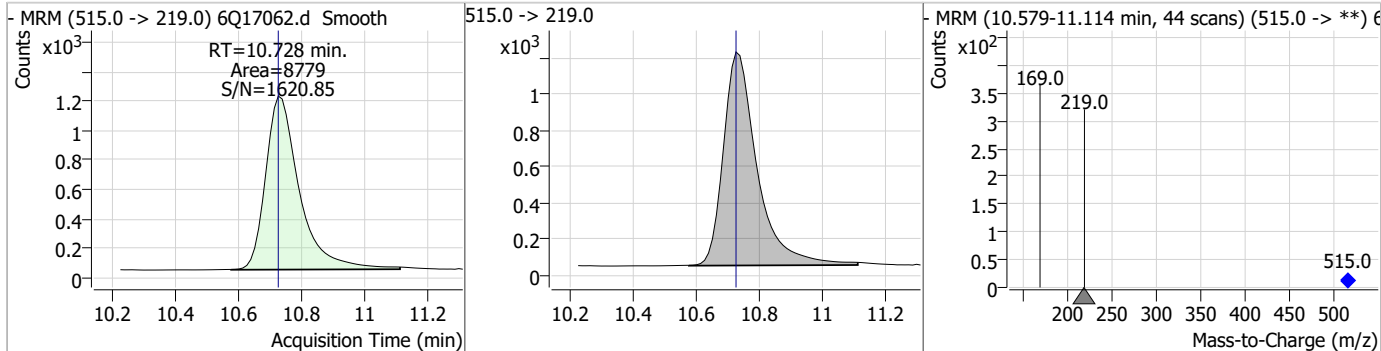
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.21	10.65	0.00	95842				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.83	10.66	0.00	54831				



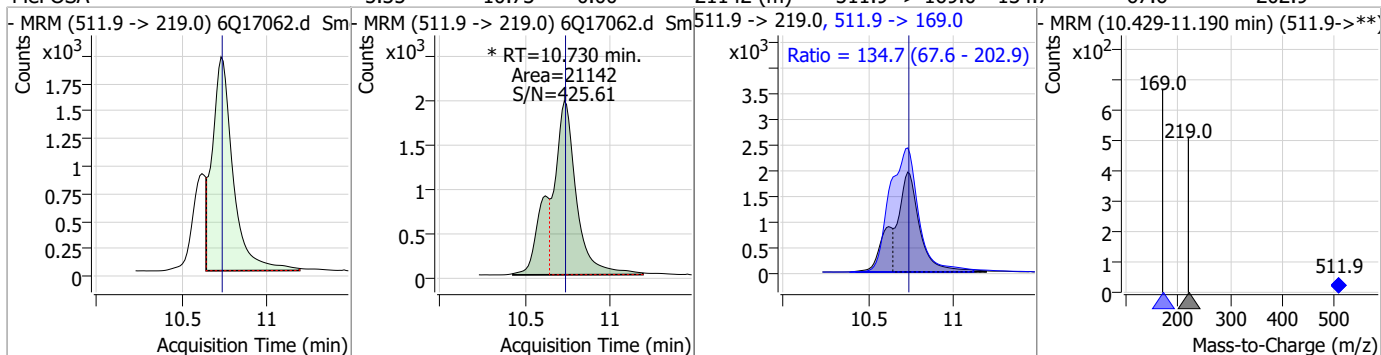
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.52	10.73	0.00	8779				



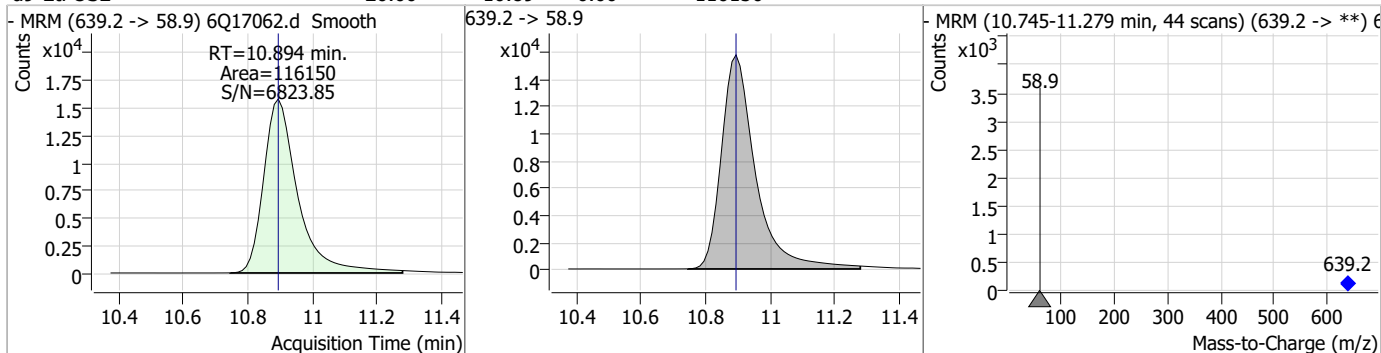
7.6.12
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Perfluorinated Compounds by LC/MS/MS

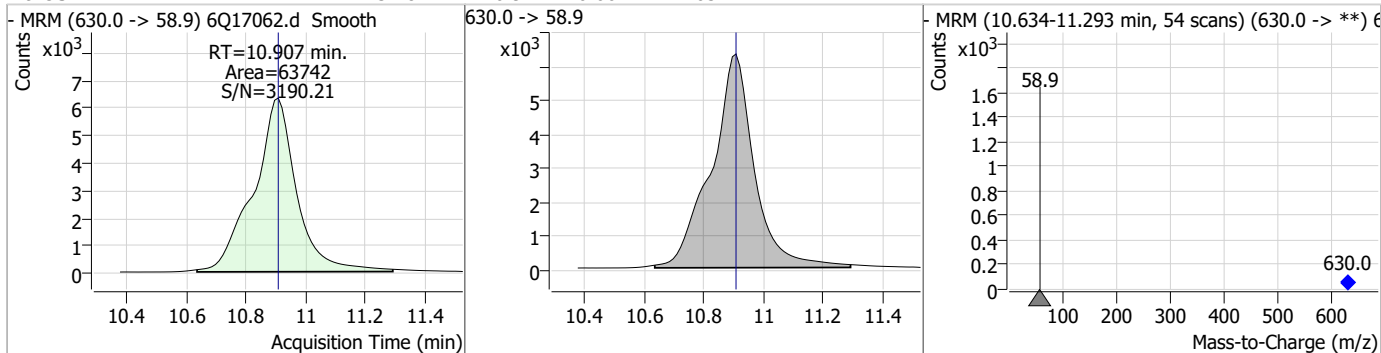
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.35	10.73	0.00	21142 (m)	511.9 -> 169.0	134.7	67.6	202.9



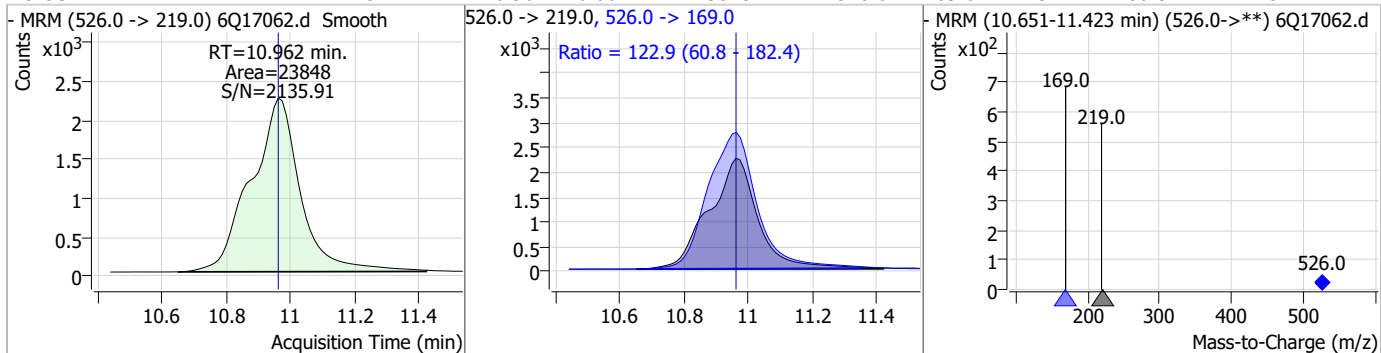
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.00	10.89	0.00	116150				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	13.18	10.91	0.00	63742				

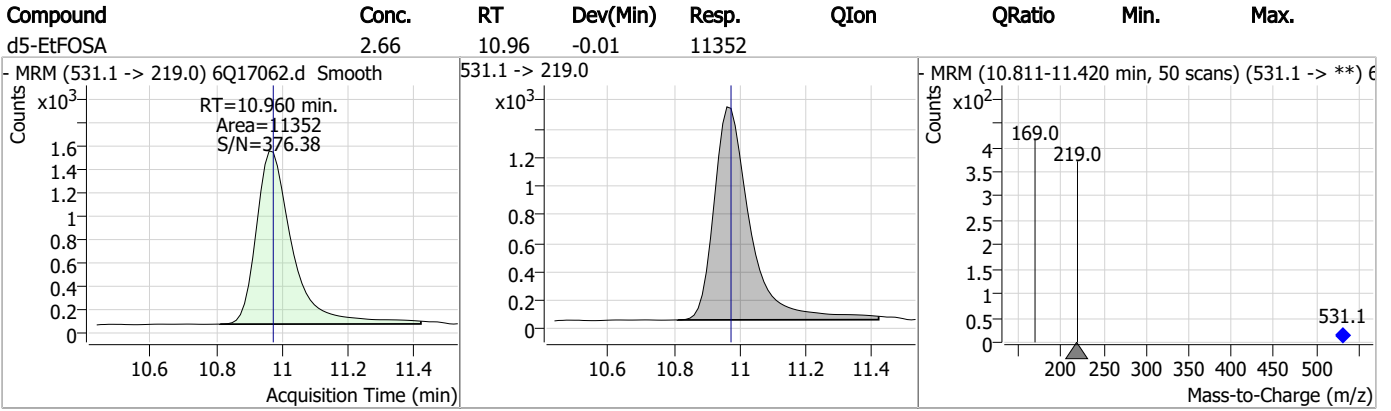


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	5.11	10.96	0.00	23848	526.0 -> 169.0	122.9	60.8	182.4



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q258-CC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17062.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 15:29 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
MeFOSA	31506-32-8		10.73	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17063.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 3:44:09 PM
 Sample Name : cc258-1.0LL
 Vial : P1-A2
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	186729	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	66379	5.00 µg/L	0.000
M5-PFHxA	5.480	318.0 -> 273.0	72736	2.50 µg/L	0.012
M4-PFHpA	6.431	367.1 -> 322.0	61465	2.50 µg/L	0.012
M8-PFOA	7.074	421.1 -> 376.0	86437	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	27990	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	20983	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	28156	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	26626	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	16140	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	25340	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22540	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	13453	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	11428	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2343	5.00 µg/L	0.000
M2-6:2FTS	6.851	429.1 -> 80.9	2767	5.00 µg/L	0.012
M2-8:2FTS	7.877	529.1 -> 80.9	3428	5.00 µg/L	0.012
M3-MeFOSAA	8.134	573.2 -> 419.0	22983	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	40255	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	18190	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	98093	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	122740	25.00 µg/L	0.000
M5-EtFOSA	10.973	531.1 -> 219.0	11298	2.50 µg/L	0.000
M3-MeFOSA	10.741	515.0 -> 219.0	9322	2.50 µg/L	0.012
13C4-PFOS	8.239	502.8 -> 79.9	15211	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	80689	5.00 µg/L	0.000
18O2-PFHxS	7.190	403.0 -> 83.9	9774	2.50 µg/L	0.012
13C4-PFOA	7.075	417.1 -> 372.0	89738	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	24697	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	29354	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	59118	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2343	5.22 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C2-6:2FTS	6.851	429.1 -> 80.9	2767	5.07 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C2-8:2FTS	7.877	529.1 -> 80.9	3428	5.84 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.9%		
13C2-PFDoDA	8.960	615.1 -> 570.0	26626	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C2-PFTeDA	9.689	715.2 -> 670.0	16140	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.9%		
13C3-PFBS	5.398	302.1 -> 79.9	22540	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C3-PFHxS	7.179	402.1 -> 79.9	13453	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	2.910	216.8 -> 171.9	186729	10.01 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.431	367.1 -> 322.0	61465	2.54 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C5-PFHxA	5.480	318.0 -> 273.0	72736	2.55 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C5-PFPeA	4.270	268.3 -> 223.0	66379	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C6-PFDA	8.076	519.1 -> 474.1	20983	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C7-PFUnDA	8.530	570.0 -> 525.1	28156	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.0%	
13C8-FOSA	9.623	506.1 -> 77.8	25340	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C8-PFOA	7.074	421.1 -> 376.0	86437	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C8-PFOS	8.239	507.1 -> 79.9	11428	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C9-PFNA	7.594	472.1 -> 427.0	27990	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.1%	
d3-MeFOSAA	8.134	573.2 -> 419.0	22983	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	40255	9.62 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.2%	
d3-MeFOSA	10.741	515.0 -> 219.0	9322	2.45 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.1%	
d5-EtFOSAA	8.330	589.2 -> 419.0	18190	4.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.6%	
d7-MeFOSE	10.647	623.2 -> 58.9	98093	24.57 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
d9-EtFOSE	10.894	639.2 -> 58.9	122740	25.16 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
d5-EtFOSA	10.973	531.1 -> 219.0	11298	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	2181	0.62 µg/L	94
		327.1 -> 80.9	891		
6:2FTS	6.851	427.1 -> 407.0	1876	0.62 µg/L	92
		427.1 -> 80.9	578		
8:2FTS	7.865	527.1 -> 507.0	1168	0.57 µg/L	99
		527.1 -> 80.8	485		
EtFOSAA	8.331	584.2 -> 419.1	552	0.18 µg/L	94
		584.2 -> 526.0	268		
FOSA	9.614	498.1 -> 77.9	1542	0.17 µg/L	97
		498.1 -> 478.0	27		
MeFOSAA	8.136	570.1 -> 419.0	651	0.15 µg/L	85
		570.1 -> 483.0	135		
PFBA	2.906	212.8 -> 168.9	4027	0.64 µg/L	100
PFBS	5.412	298.7 -> 79.9	1550	0.15 µg/L	93
		298.7 -> 98.8	571		
PFDA	8.077	512.9 -> 469.0	4467	0.20 µg/L	91
		512.9 -> 219.0	577		
PFDODA	8.961	613.1 -> 569.0	3461	0.17 µg/L	97
		613.1 -> 319.0	464		
PFDS	9.125	599.0 -> 79.9	617	0.17 µg/L	92

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.432	599.0 -> 98.8	274	0.15	µg/L	100
		363.1 -> 319.0	4501			
PFHpS	7.746	363.1 -> 169.0	661	0.13	µg/L	m
		449.0 -> 79.9	834			
PFHxA	5.470	449.0 -> 98.9	548	0.15	µg/L	96
		313.0 -> 269.0	4204			
PFHxS	7.180	313.0 -> 118.9	248	0.15	µg/L	m
		398.7 -> 79.9	1118			
PFNA	7.607	398.7 -> 98.9	545	0.16	µg/L	98
		463.0 -> 419.0	3166			
PFNS	8.706	463.0 -> 219.0	632	0.14	µg/L	96
		548.8 -> 79.9	750			
PFOA	7.063	548.8 -> 98.9	434	0.17	µg/L	#
		413.0 -> 369.0	4478			
PFOS	8.240	413.0 -> 169.0	1239	0.18	µg/L	m
		498.9 -> 79.9	966			
PFPeA	4.273	498.9 -> 98.8	455	0.34	µg/L	100
		263.0 -> 219.0	6126			
PFPeS	6.484	349.1 -> 79.9	1125	0.15	µg/L	98
		349.1 -> 98.9	533			
PFTeDA	9.690	713.1 -> 669.0	3098	0.19	µg/L	97
		713.1 -> 168.9	202			
PFTrDA	9.345	663.0 -> 619.0	3712	0.16	µg/L	99
		663.0 -> 168.9	355			
PFUnDA	8.531	563.1 -> 519.0	3205	0.16	µg/L	90
		563.1 -> 269.1	416			
11Cl-PF3OUdS	9.398	630.9 -> 450.9	4552	0.33	µg/L	98
		632.9 -> 452.9	1400			
9Cl-PF3ONS	8.569	530.8 -> 351.0	8159	0.37	µg/L	77
		532.8 -> 353.0	1420			
ADONA	6.681	376.9 -> 250.9	19356	0.32	µg/L	99
		376.9 -> 84.8	4907			
HFPO-DA	5.846	284.9 -> 168.9	1174	0.31	µg/L	88
		284.9 -> 184.9	106			
3:3FTCA	3.784	241.0 -> 177.0	905	0.80	µg/L	99
		241.0 -> 117.0	115			
5:3FTCA	6.160	341.0 -> 237.1	21016	4.52	µg/L	90
		341.0 -> 217.0	15707			
7:3FTCA	7.573	441.0 -> 316.9	8138	3.85	µg/L	90
		441.0 -> 336.9	18860			
EtFOSA	10.962	526.0 -> 219.0	1607	0.35	µg/L	97
		526.0 -> 169.0	2008			
EtFOSE	10.907	630.0 -> 58.9	4246	0.83	µg/L	100
		511.9 -> 219.0	1429			
MeFOSA	10.730	511.9 -> 169.0	1930	0.34	µg/L	100
		616.1 -> 58.9	3878			
MeFOSE	10.661	699.1 -> 79.9	296	0.89	µg/L	100
		699.1 -> 98.8	140			
PFDoDS	9.829	295.0 -> 201.0	981	0.16	µg/L	87
		295.0 -> 84.9	215			
NFDHA	5.363	279.0 -> 85.1	3792	0.31	µg/L	100
		229.0 -> 84.9	2923			
PFMBA	4.687	314.8 -> 134.9	9668	0.32	µg/L	100
		314.8 -> 82.9	343			
PFMPA	3.438			0.27	µg/L	100
PFEESA	5.949					

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

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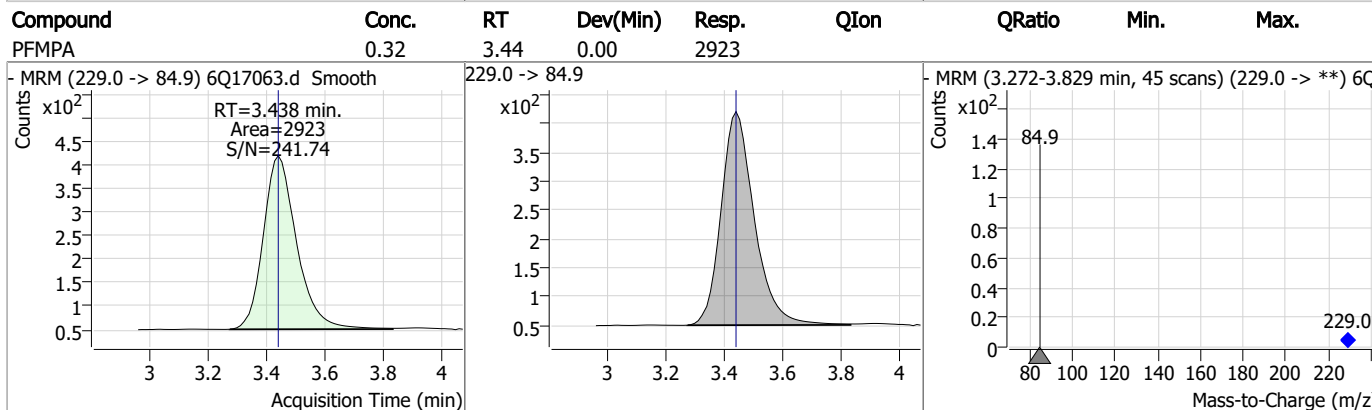
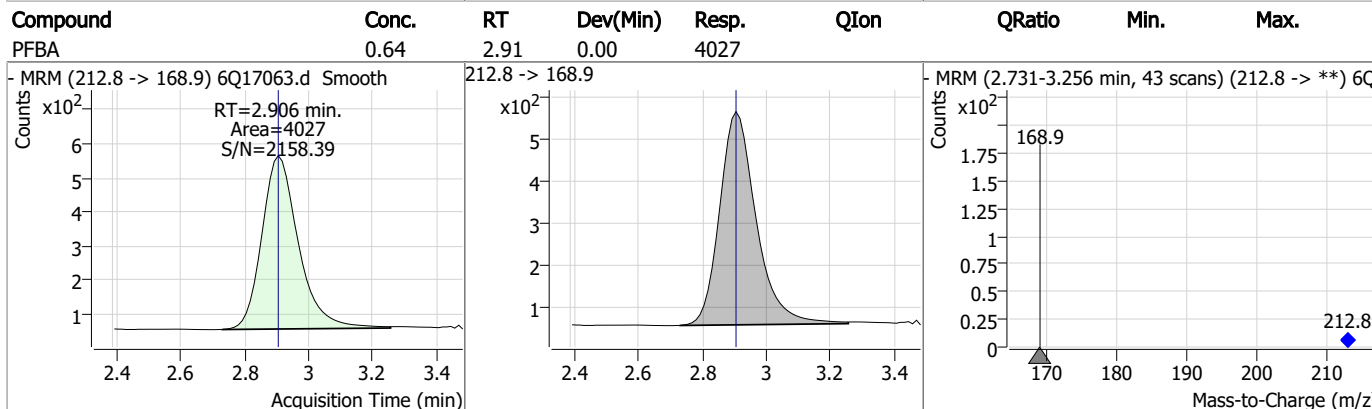
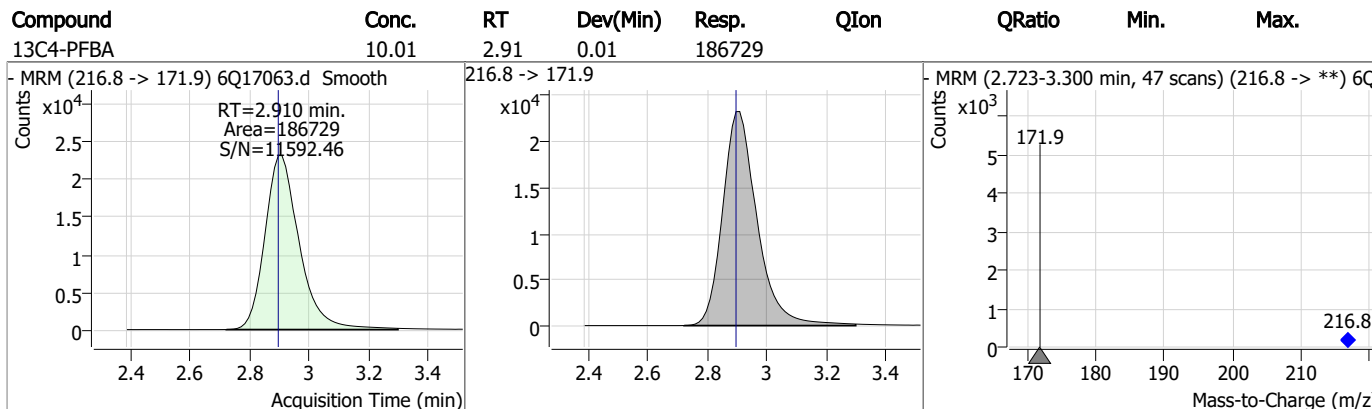
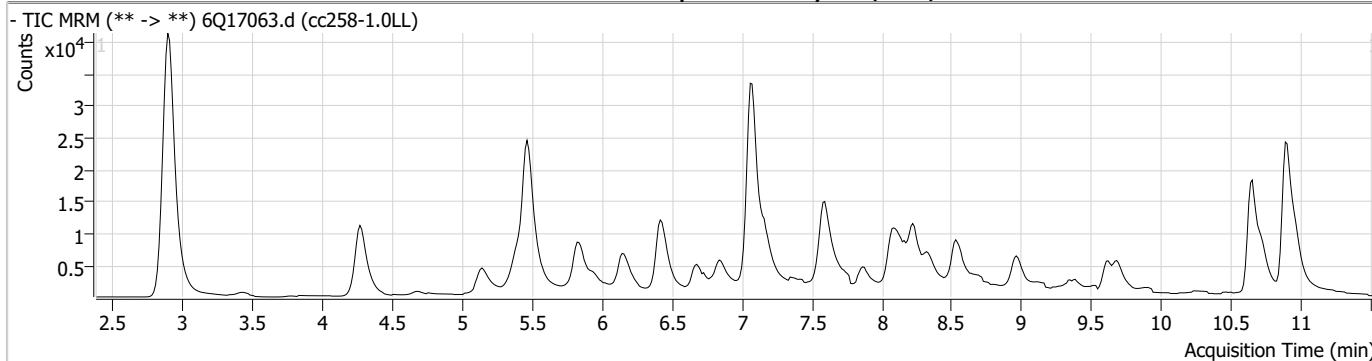
Perfluorinated Compounds by LC/MS/MS

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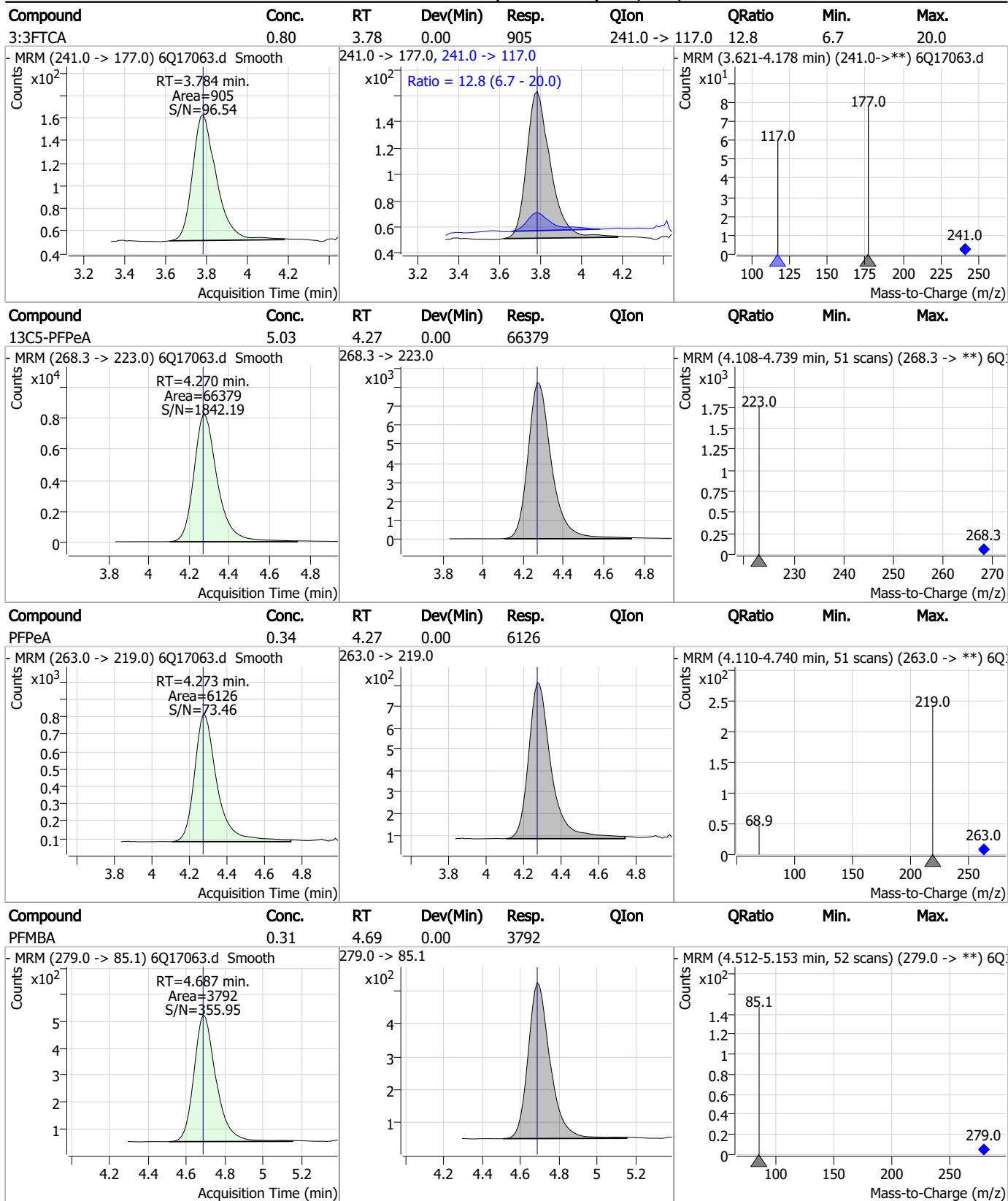
7.6.13

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Perfluorinated Compounds by LC/MS/MS



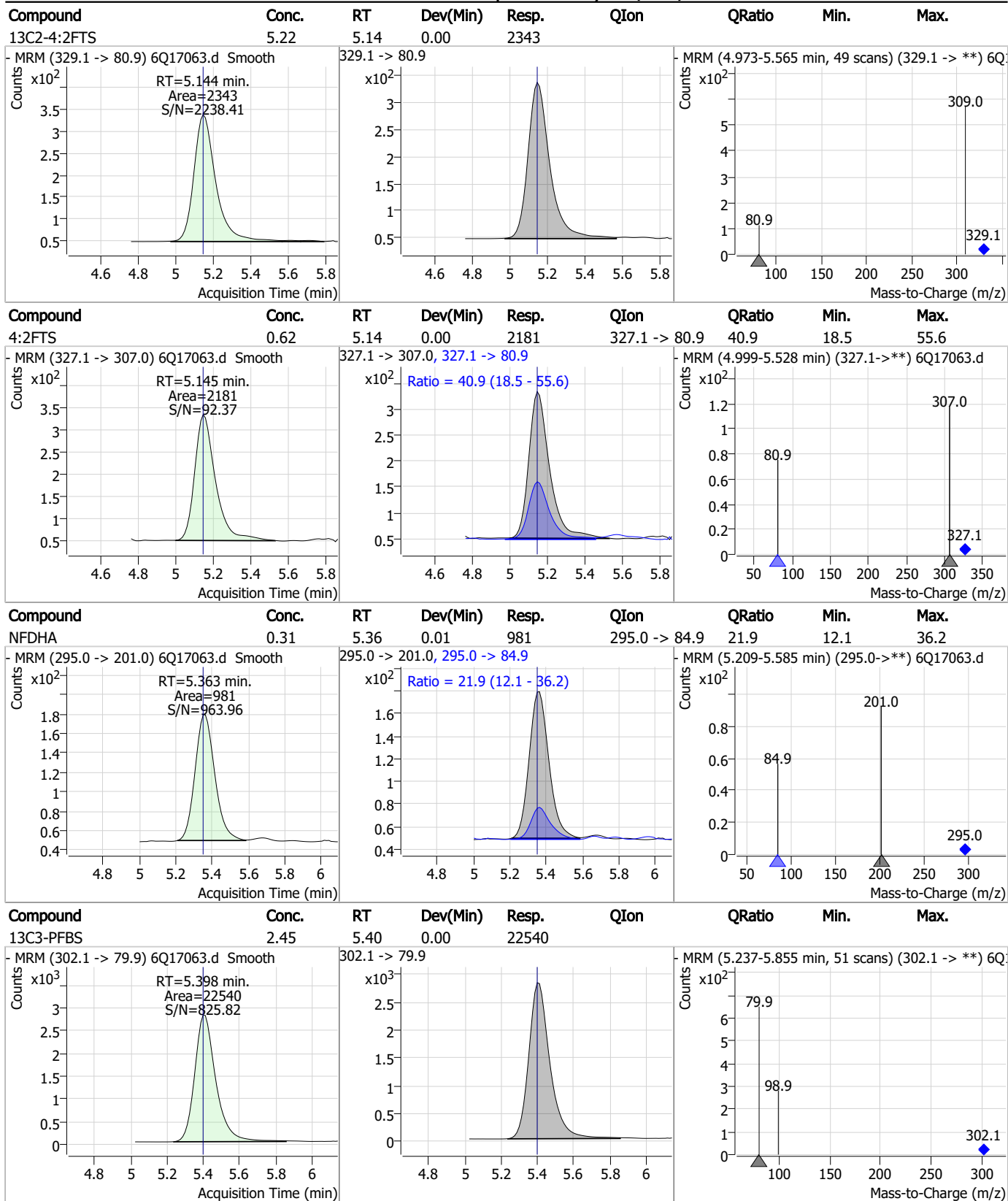
Perfluorinated Compounds by LC/MS/MS



7.6.13

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Perfluorinated Compounds by LC/MS/MS

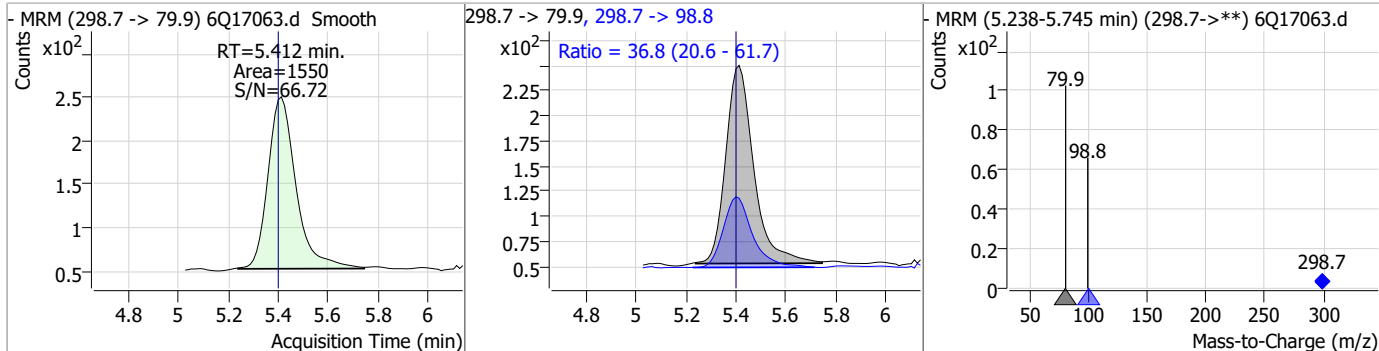


7.6.13

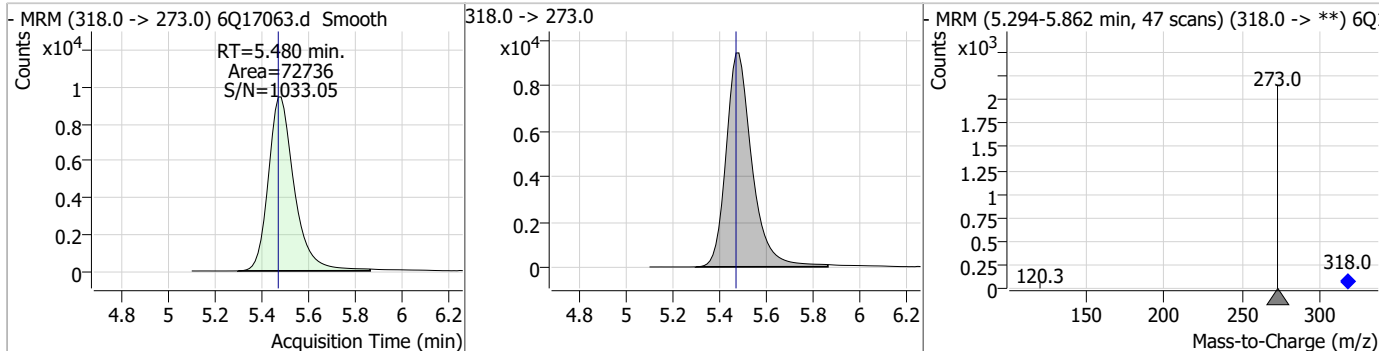
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Perfluorinated Compounds by LC/MS/MS

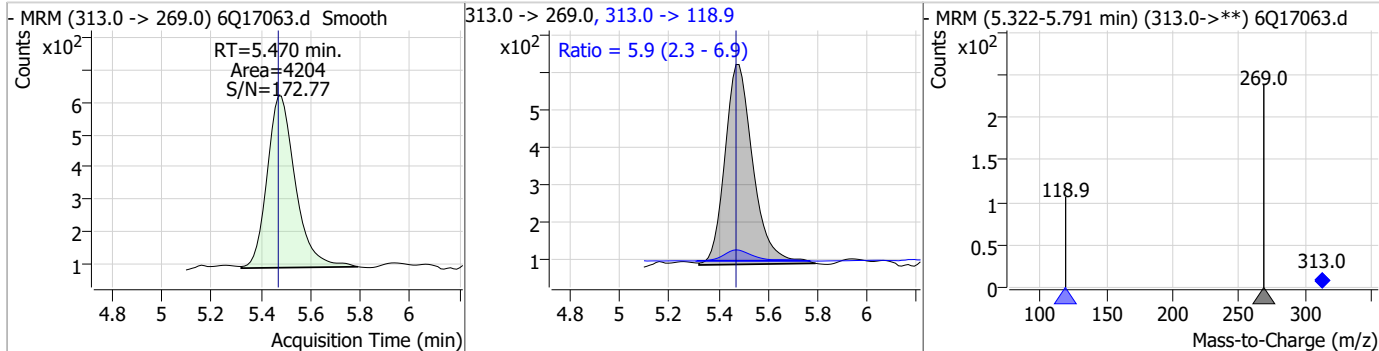
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.15	5.41	0.01	1550	298.7 -> 98.8	36.8	20.6	61.7



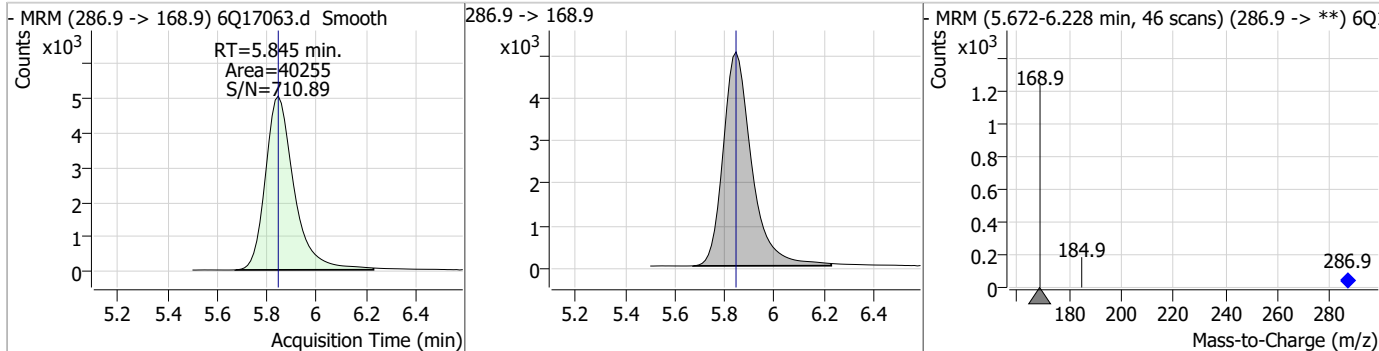
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.55	5.48	0.01	72736				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.15	5.47	0.00	4204	313.0 -> 118.9	5.9	2.3	6.9



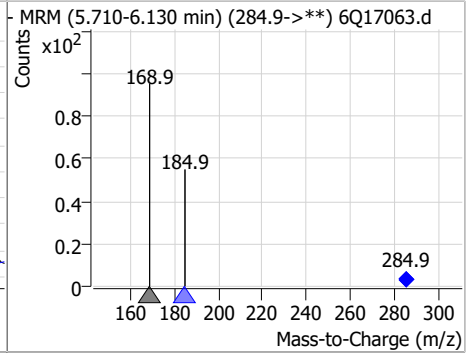
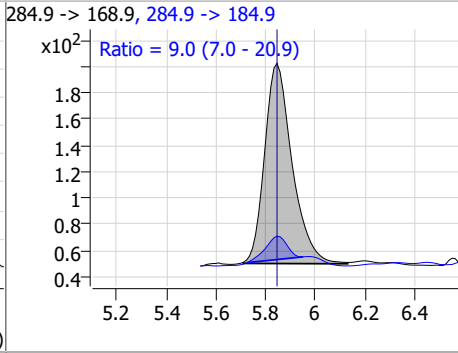
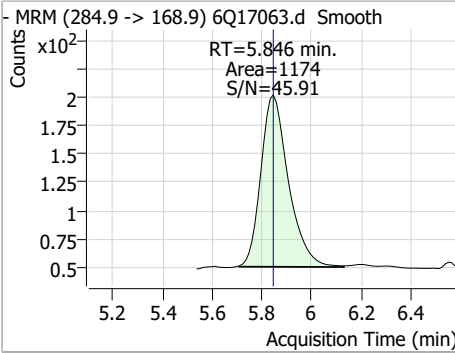
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.62	5.85	0.00	40255				



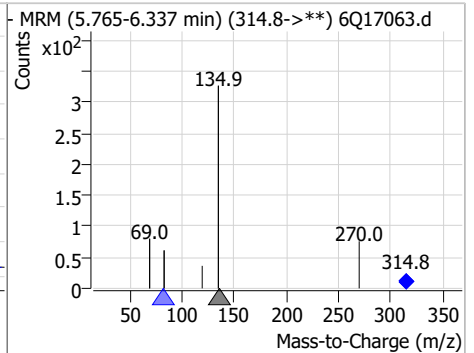
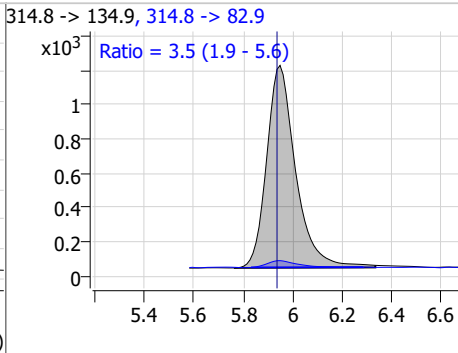
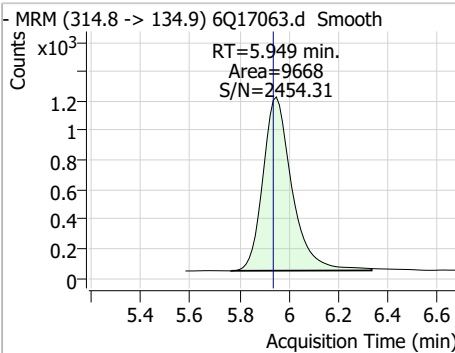
7.6.13
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Perfluorinated Compounds by LC/MS/MS

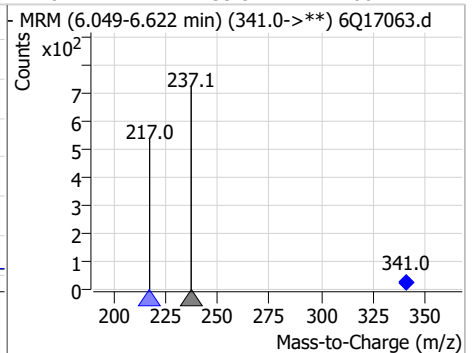
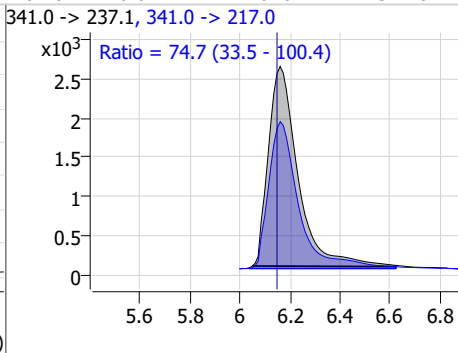
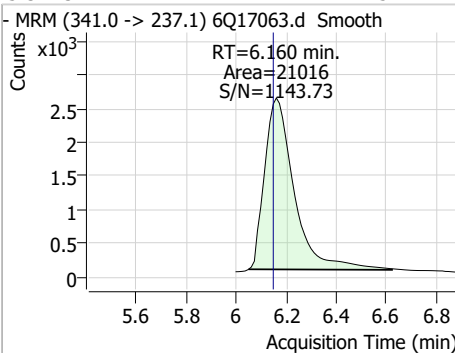
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.31	5.85	0.00	1174	284.9 -> 184.9	9.0	7.0	20.9



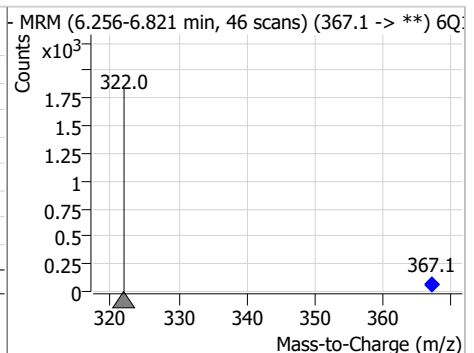
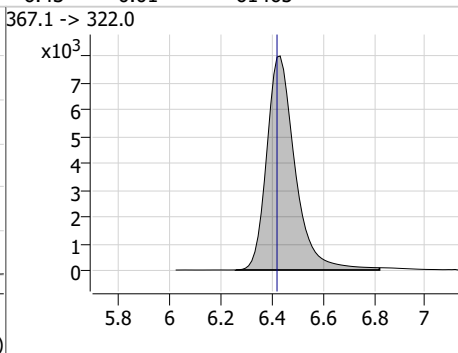
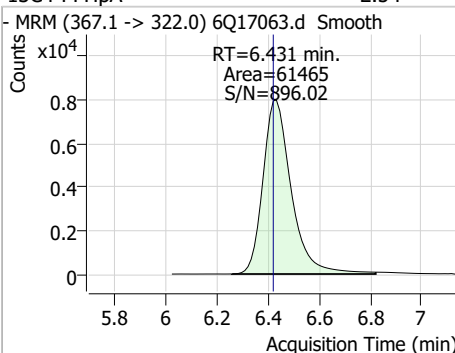
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.27	5.95	0.01	9668	314.8 -> 82.9	3.5	1.9	5.6



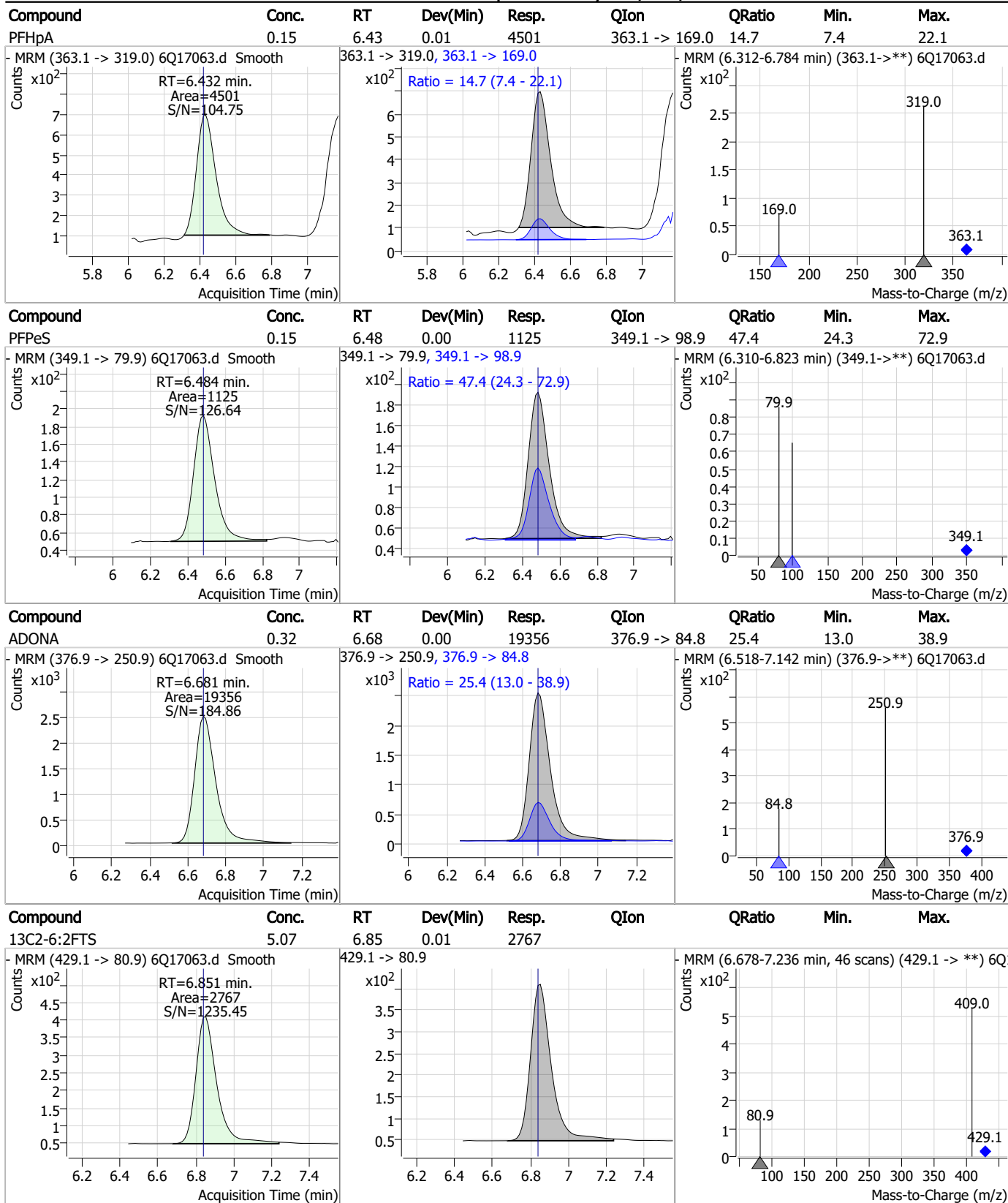
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	4.52	6.16	0.01	21016	341.0 -> 217.0	74.7	33.5	100.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.54	6.43	0.01	61465	367.1 -> 322.0			



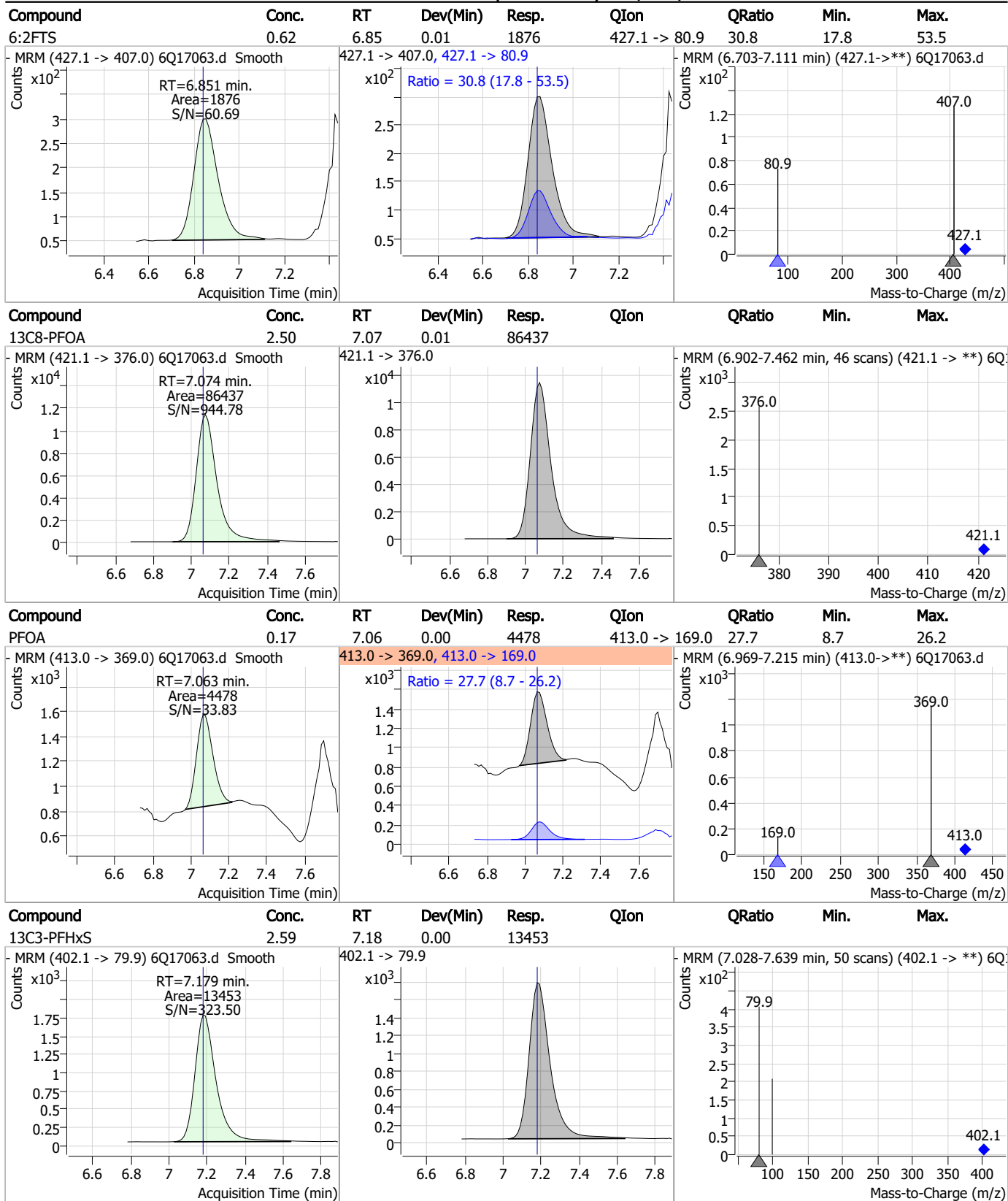
Perfluorinated Compounds by LC/MS/MS



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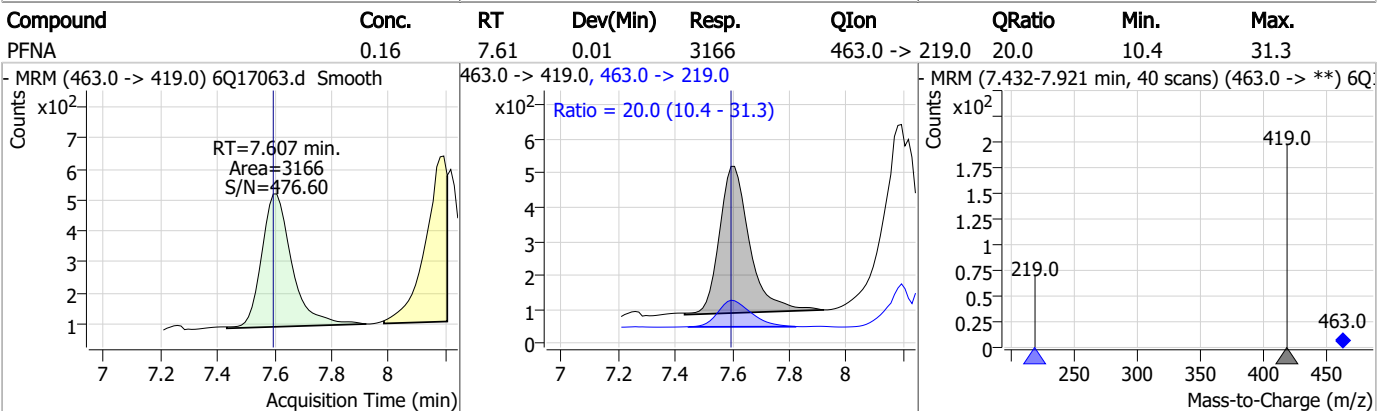
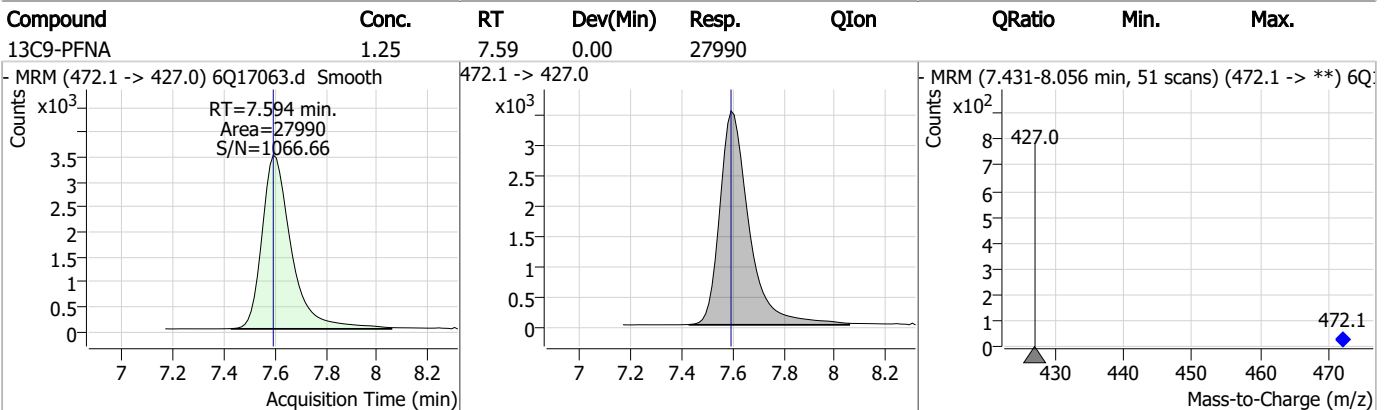
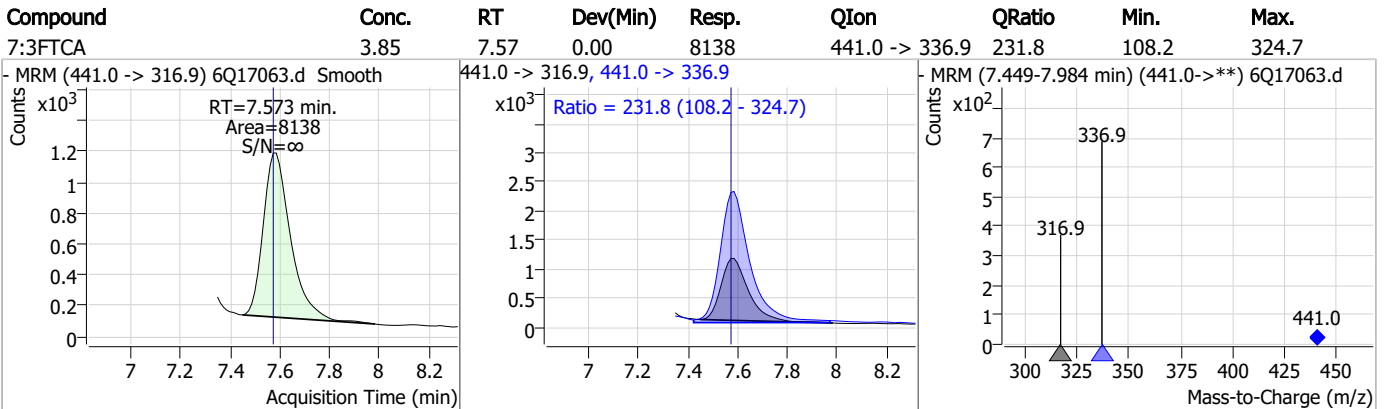
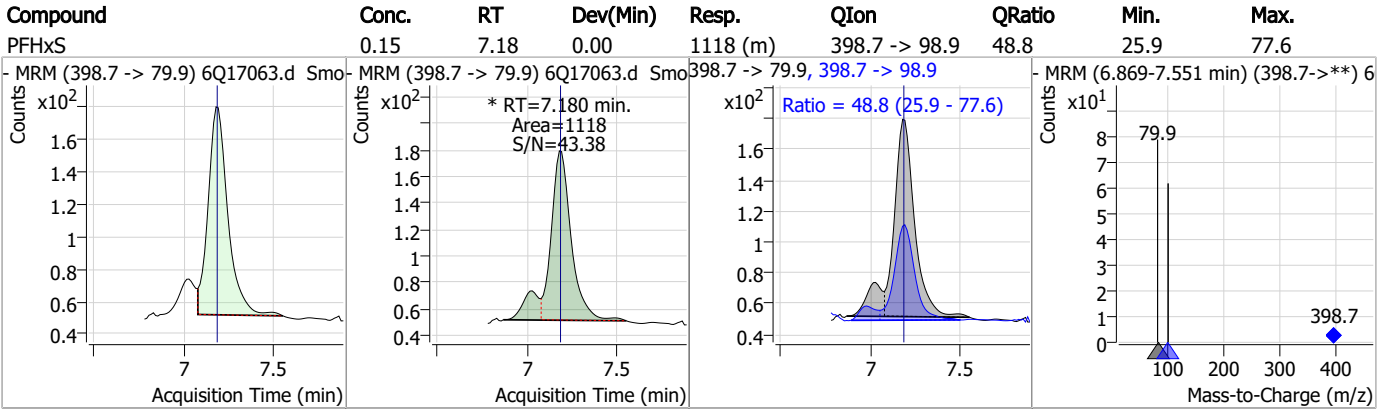
Perfluorinated Compounds by LC/MS/MS



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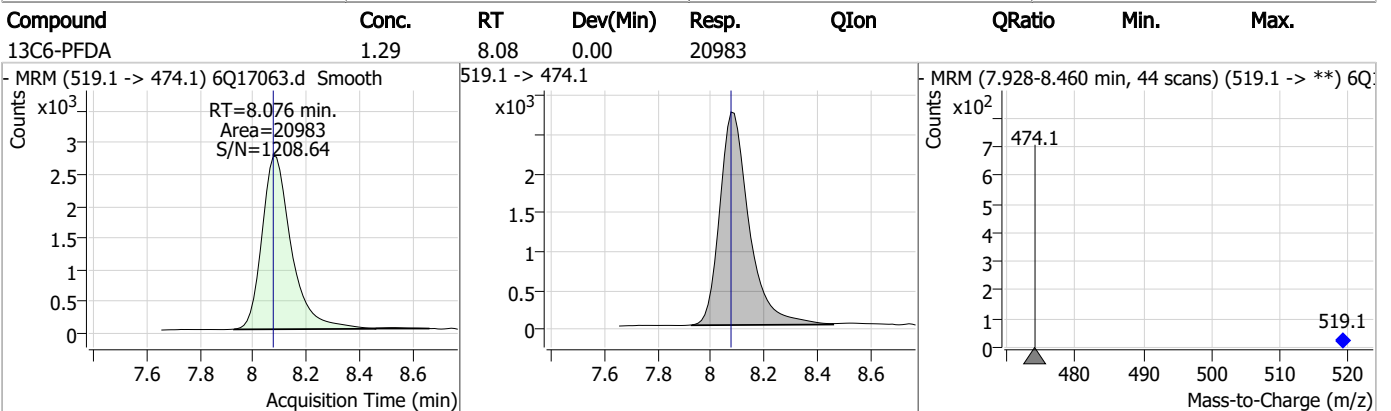
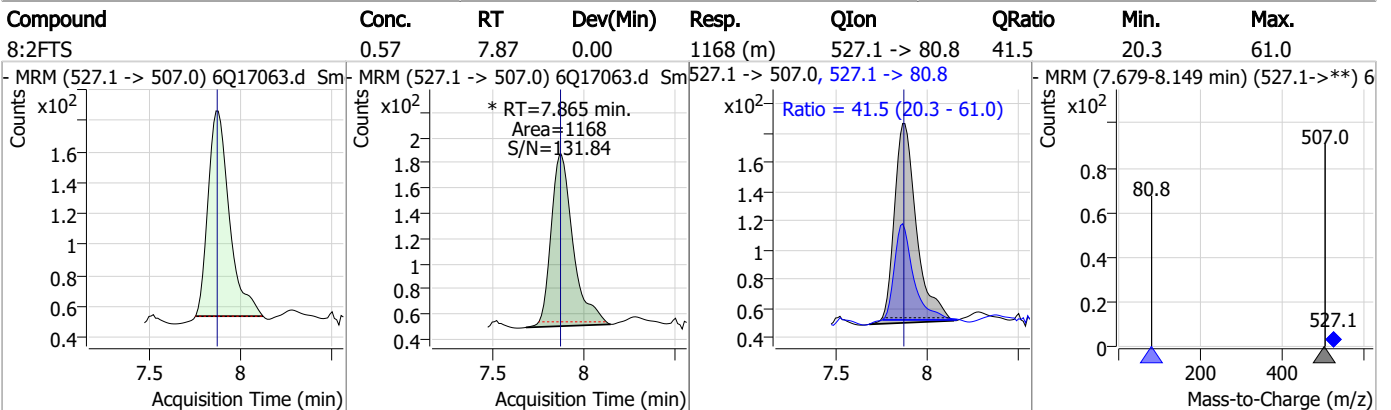
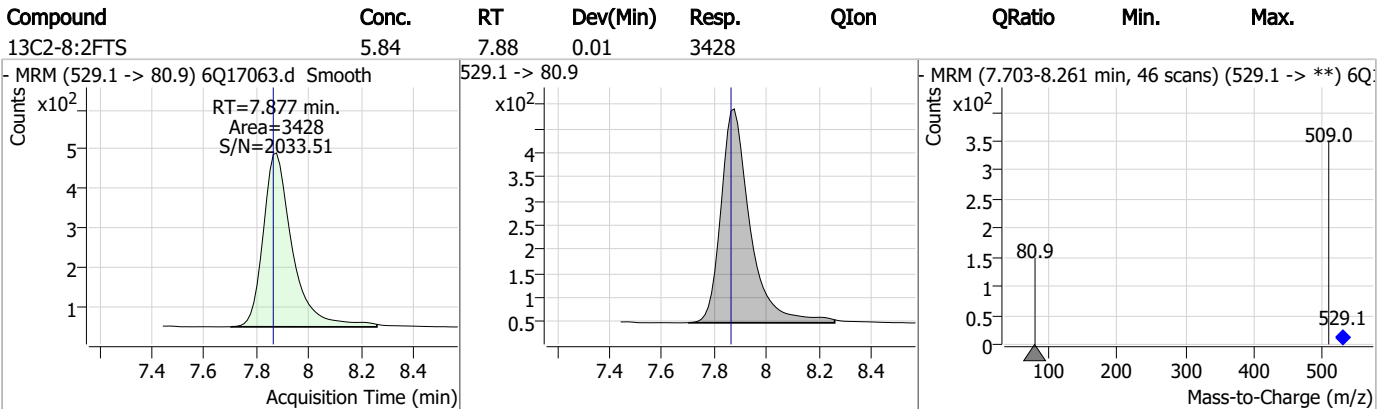
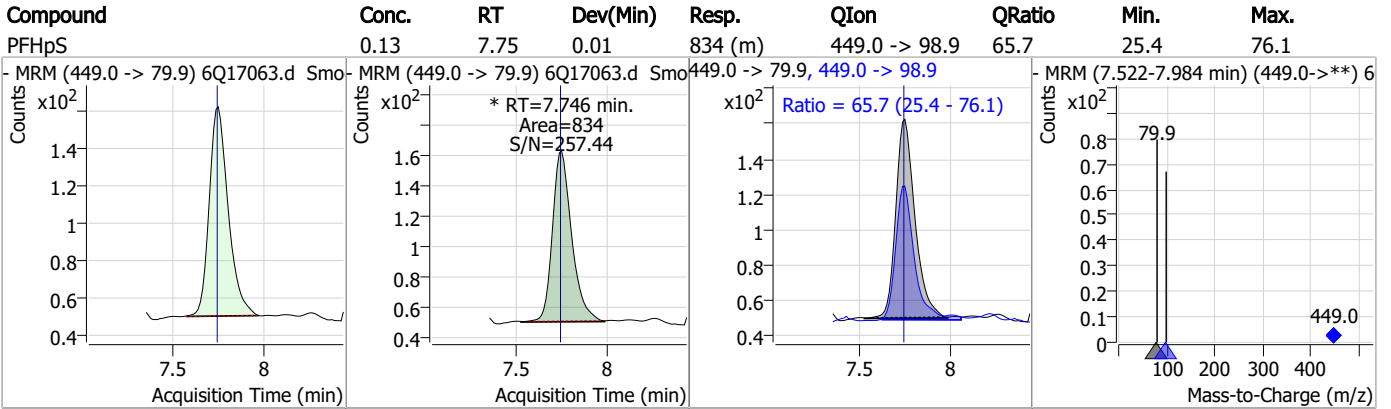
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

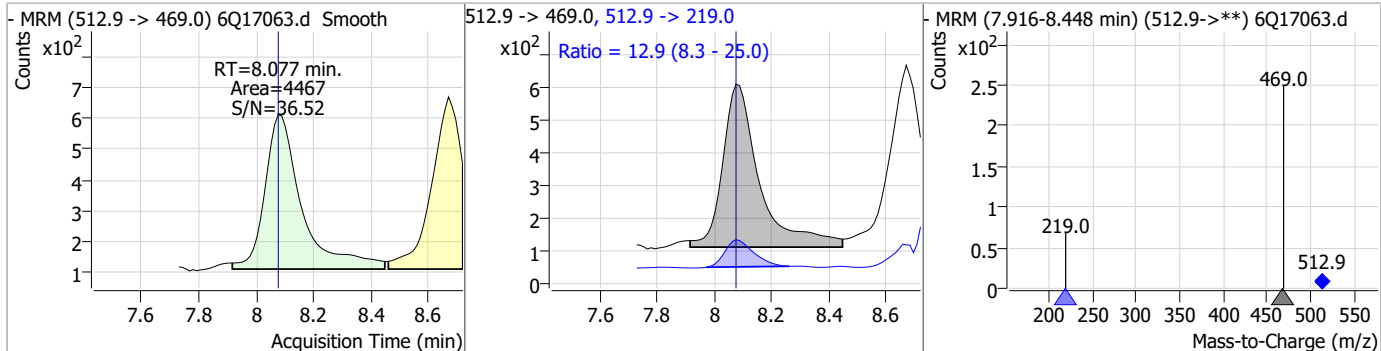


7.6.13
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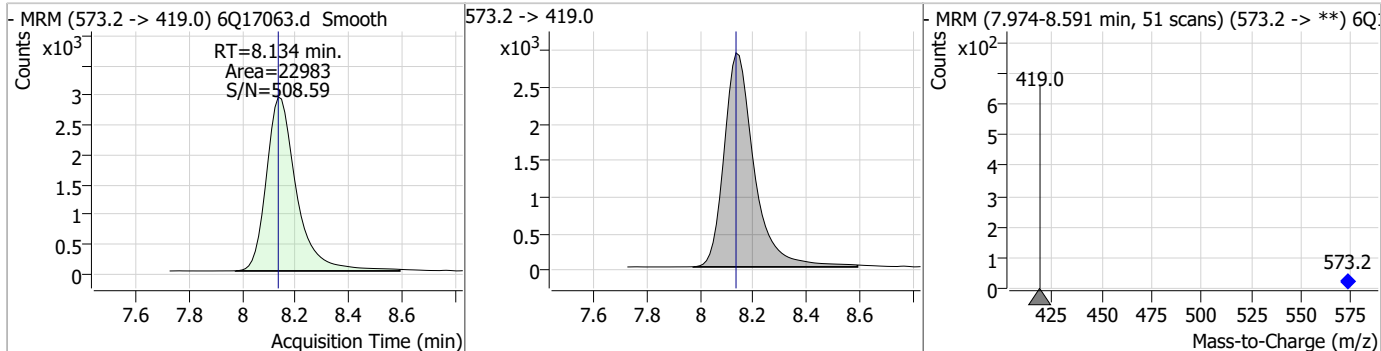


Perfluorinated Compounds by LC/MS/MS

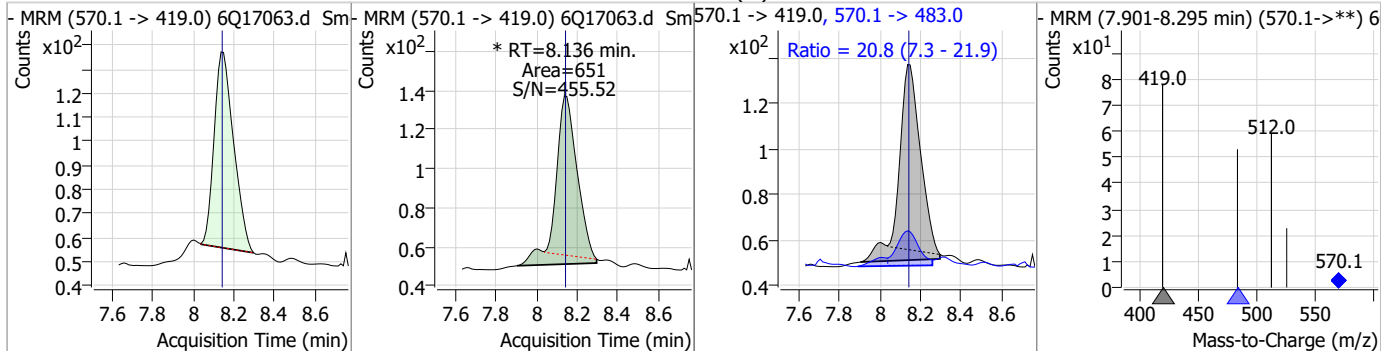
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.20	8.08	0.00	4467	512.9 -> 219.0	12.9	8.3	25.0



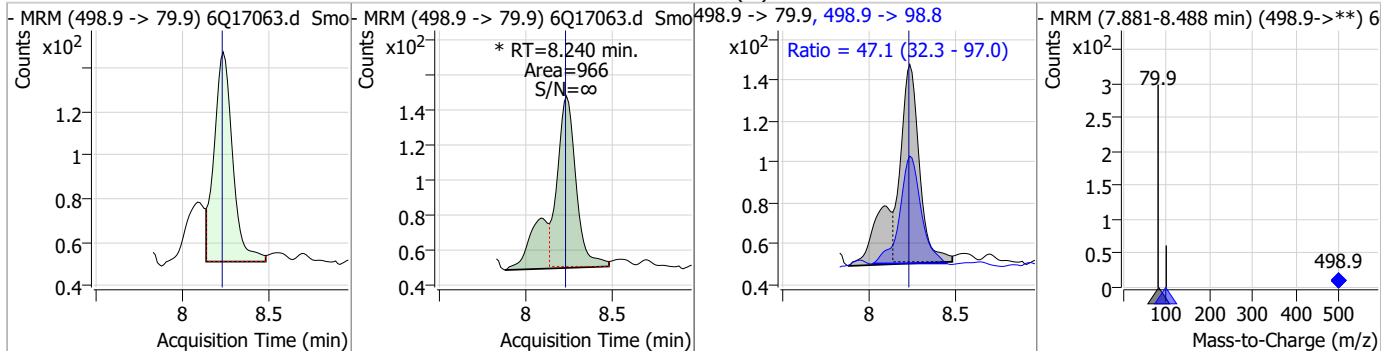
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.07	8.13	0.00	22983				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.15	8.14	0.00	651 (m)	570.1 -> 483.0	20.8	7.3	21.9

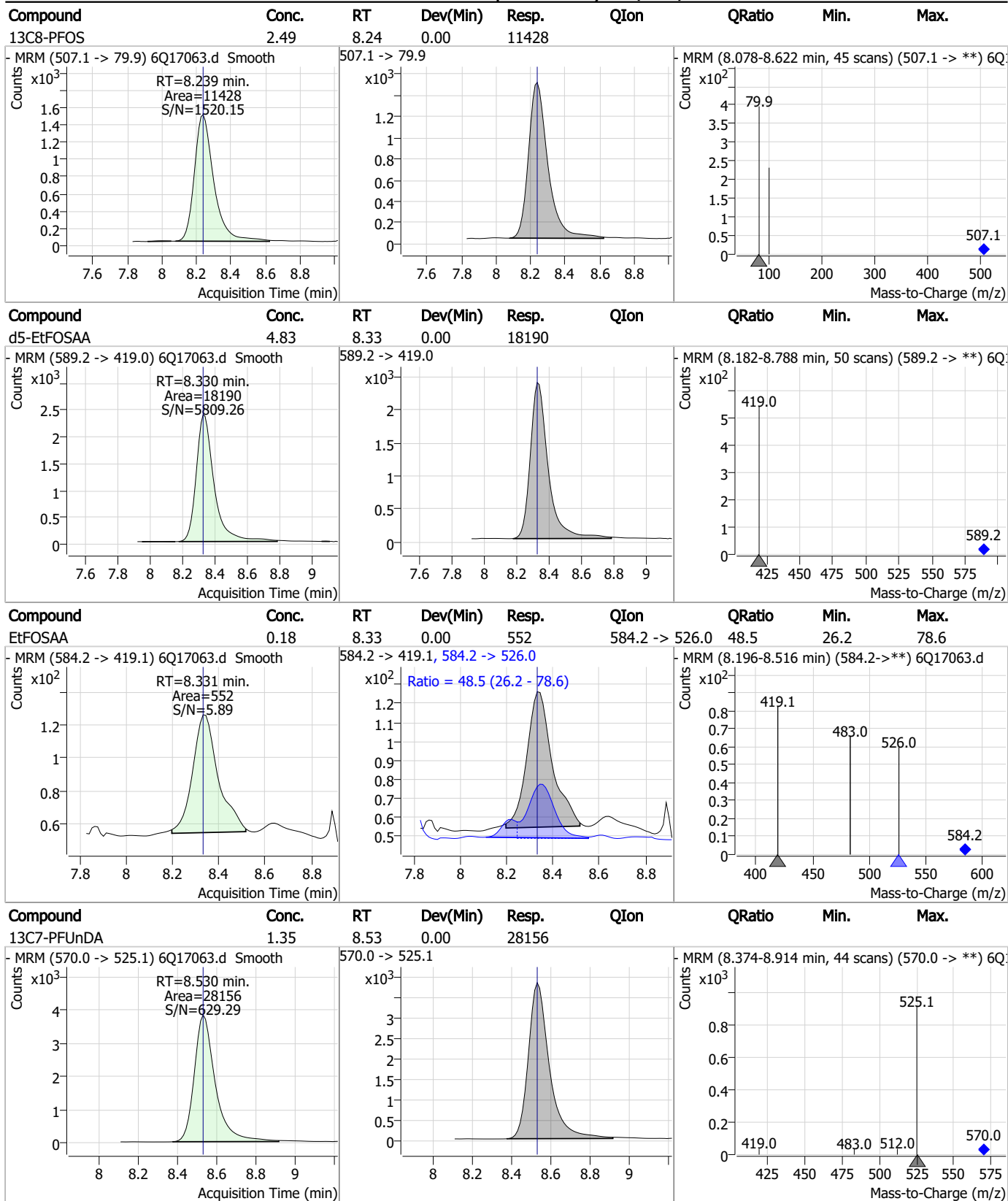


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.18	8.24	0.01	966 (m)	498.9 -> 98.8	47.1	32.3	97.0



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Perfluorinated Compounds by LC/MS/MS

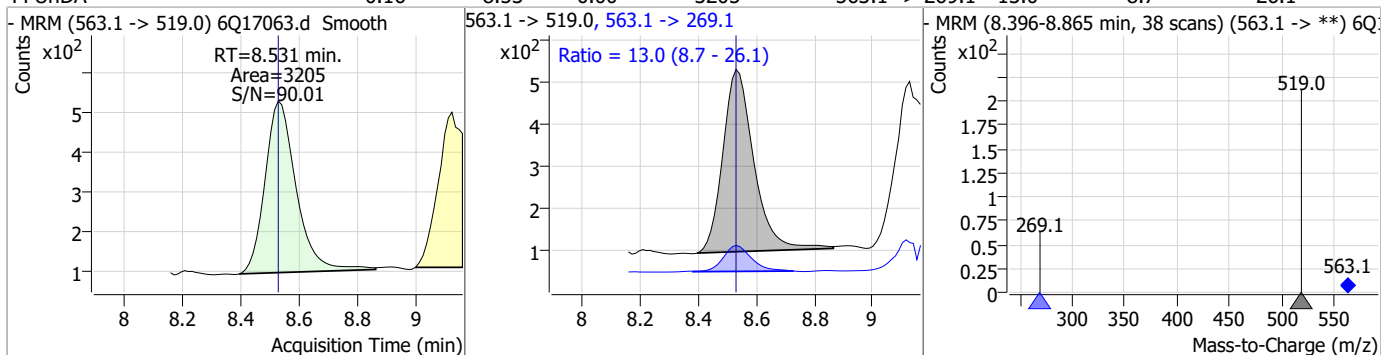


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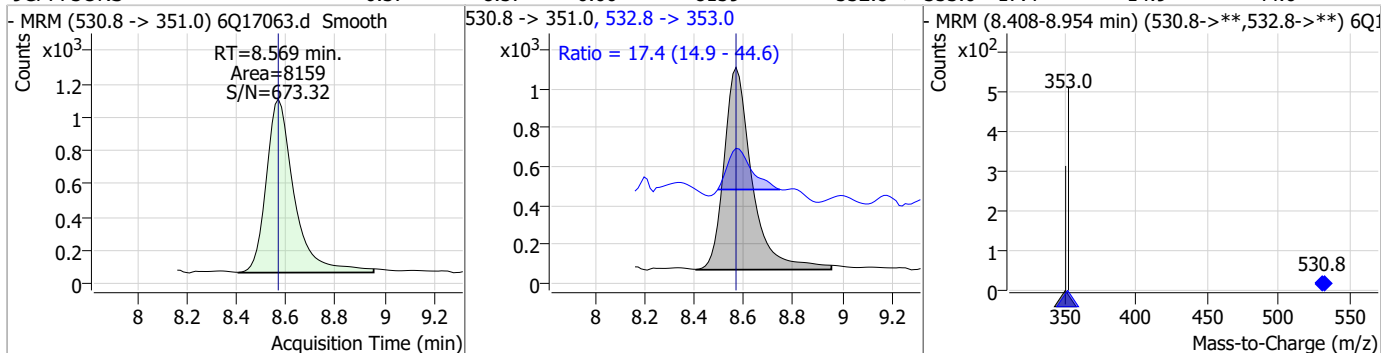
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Perfluorinated Compounds by LC/MS/MS

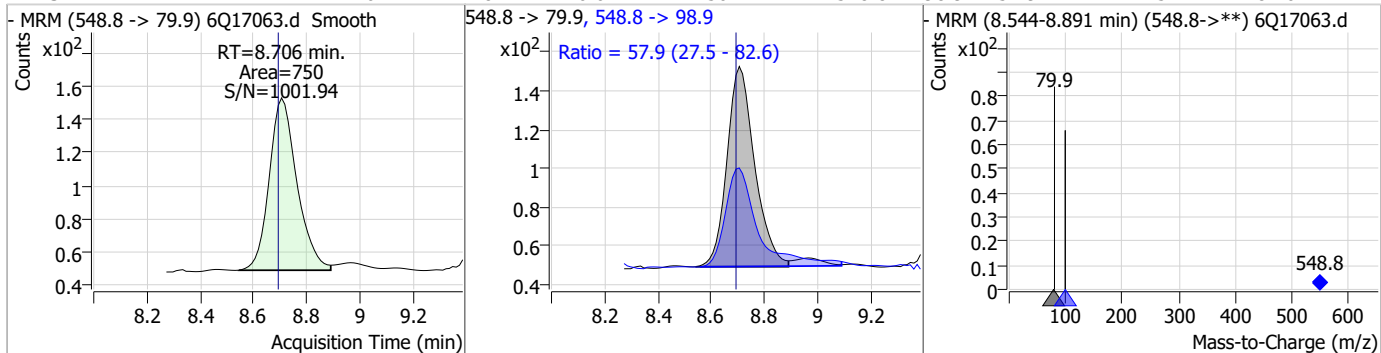
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.16	8.53	0.00	3205	563.1 -> 269.1	13.0	8.7	26.1



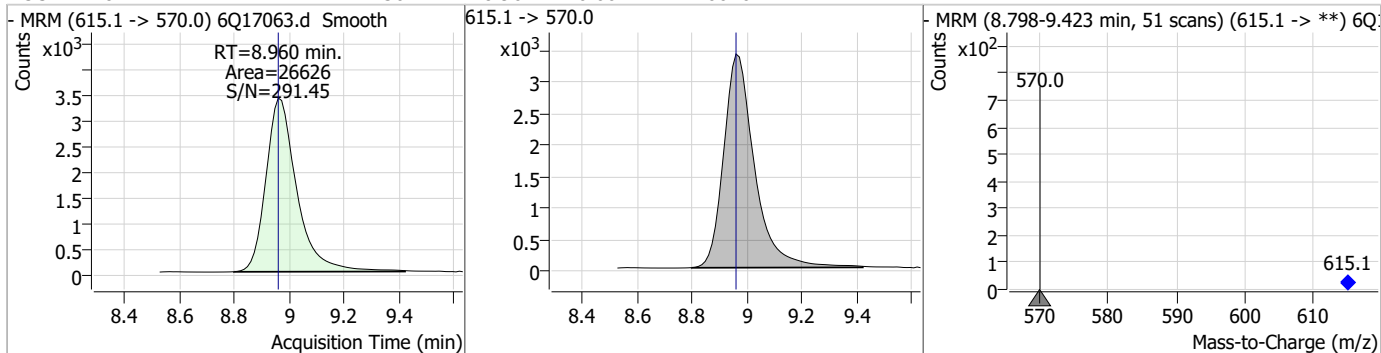
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	0.37	8.57	0.00	8159	532.8 -> 353.0	17.4	14.9	44.6



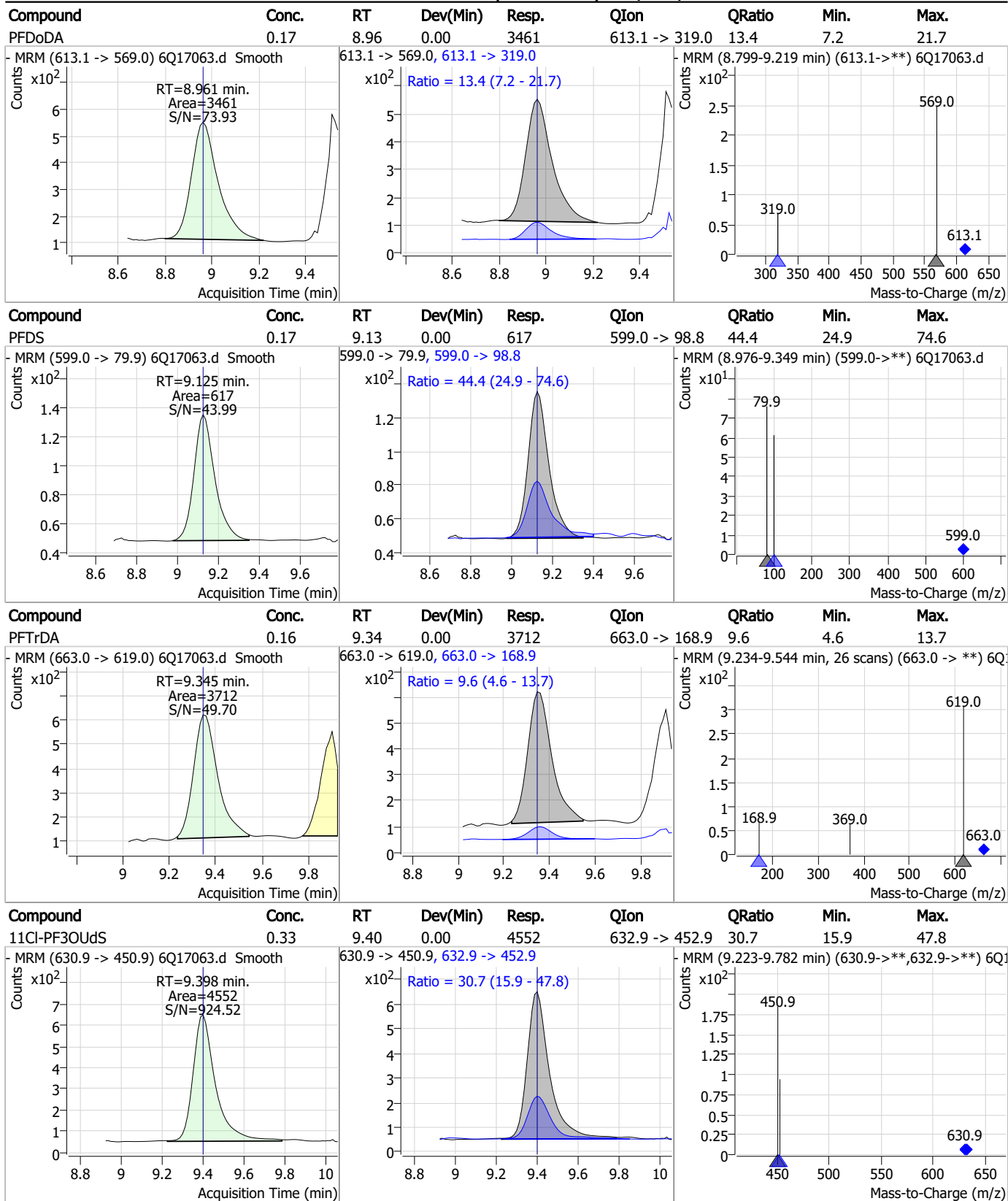
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	0.14	8.71	0.01	750	548.8 -> 98.9	57.9	27.5	82.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.30	8.96	0.00	26626	615.1 -> 570.0			



Perfluorinated Compounds by LC/MS/MS

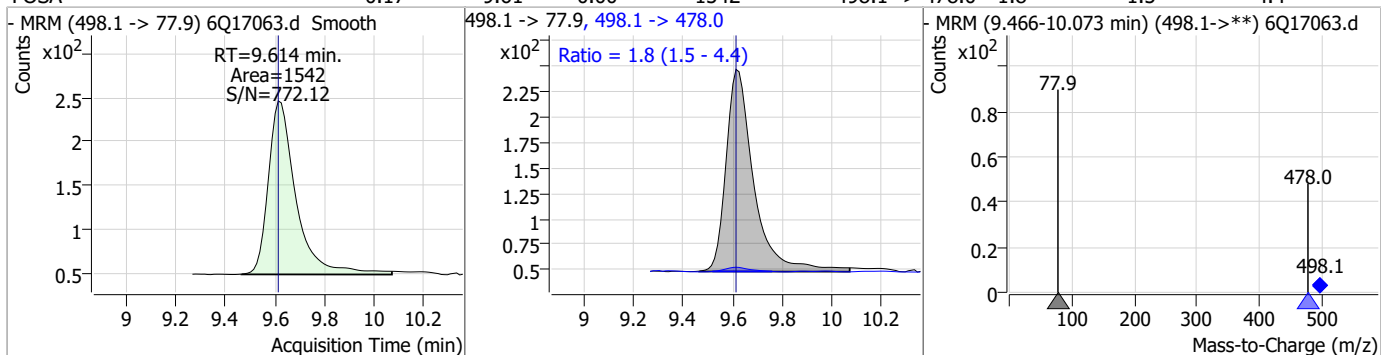


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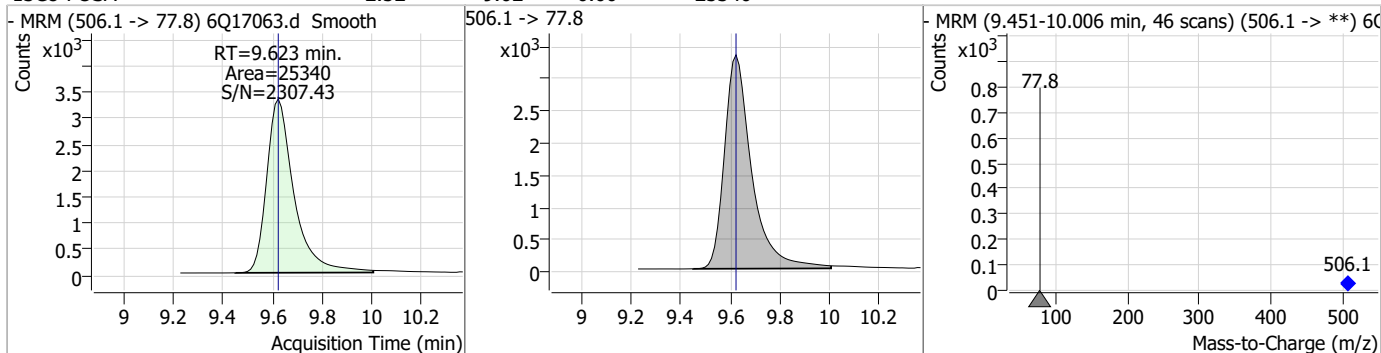
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Perfluorinated Compounds by LC/MS/MS

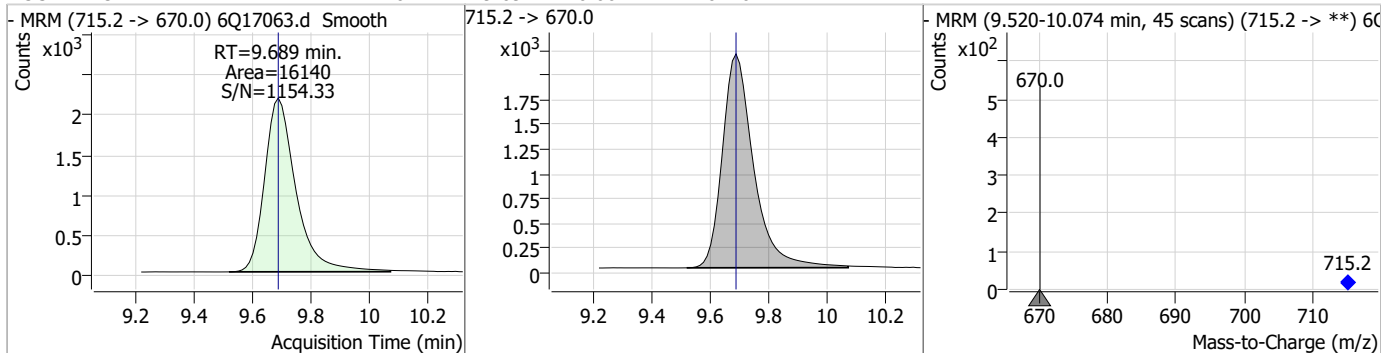
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.17	9.61	0.00	1542	498.1 -> 478.0	1.8	1.5	4.4



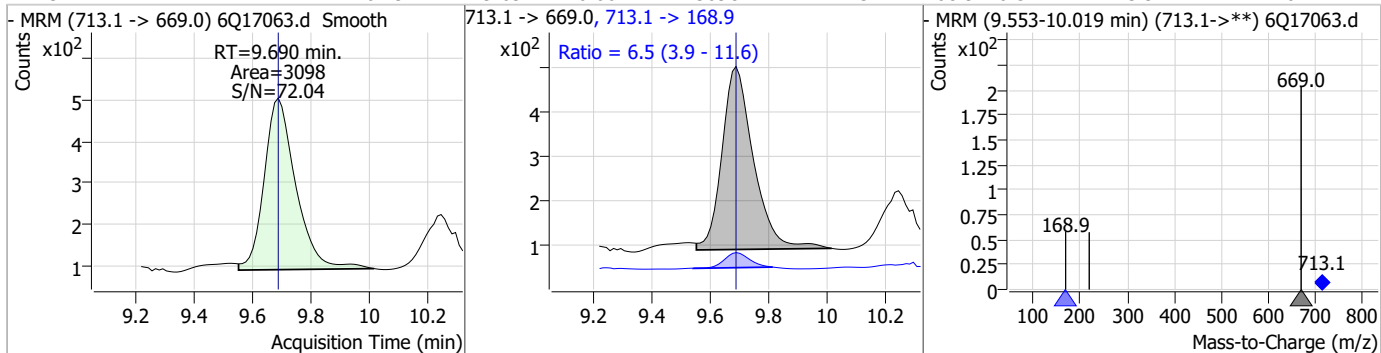
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.52	9.62	0.00	25340				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.16	9.69	0.00	16140				



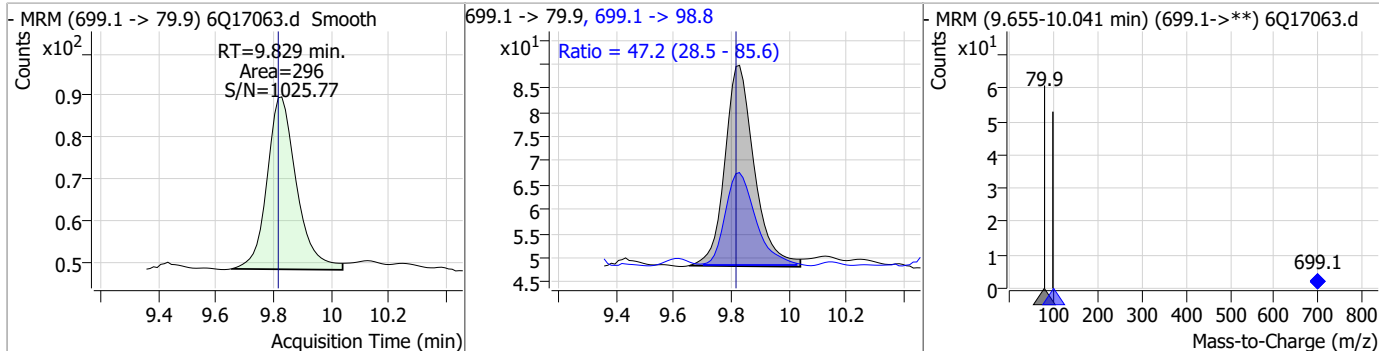
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.19	9.69	0.00	3098	713.1 -> 168.9	6.5	3.9	11.6



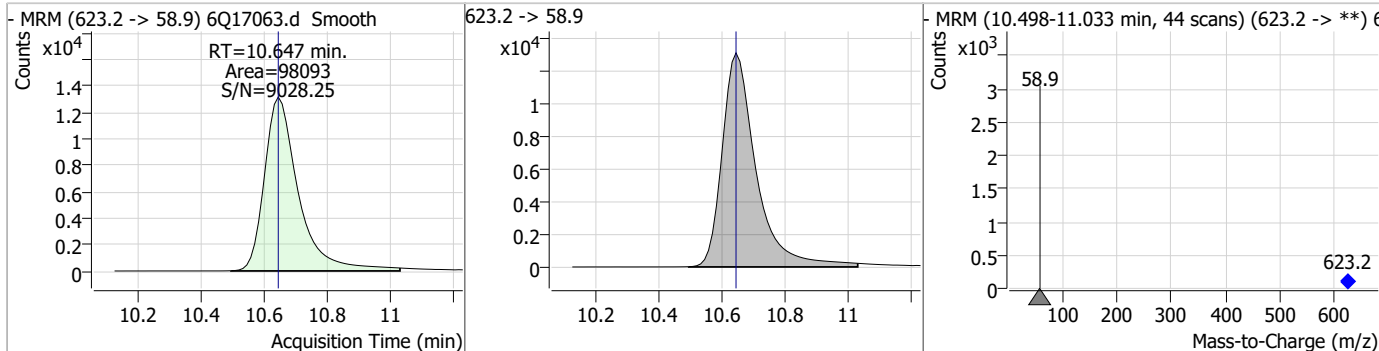
7.6.13
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Perfluorinated Compounds by LC/MS/MS

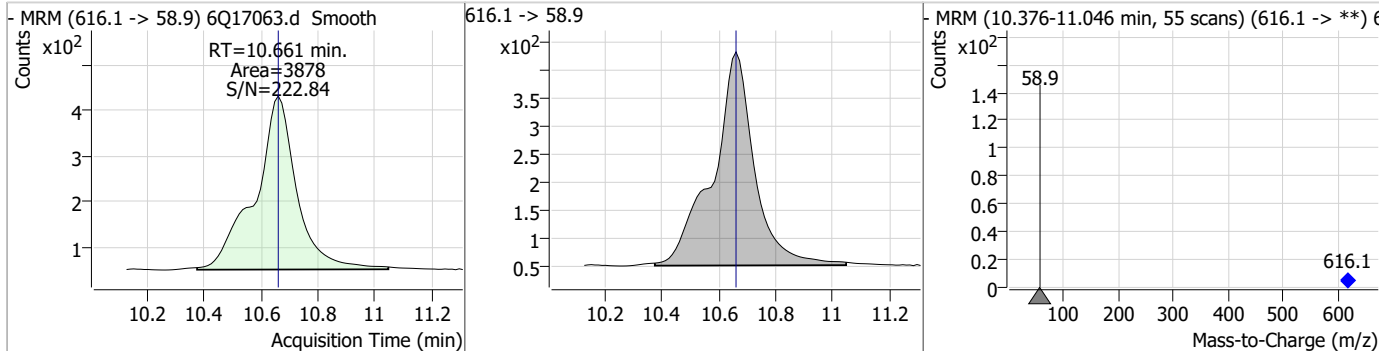
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.16	9.83	0.01	296	699.1 -> 98.8	47.2	28.5	85.6



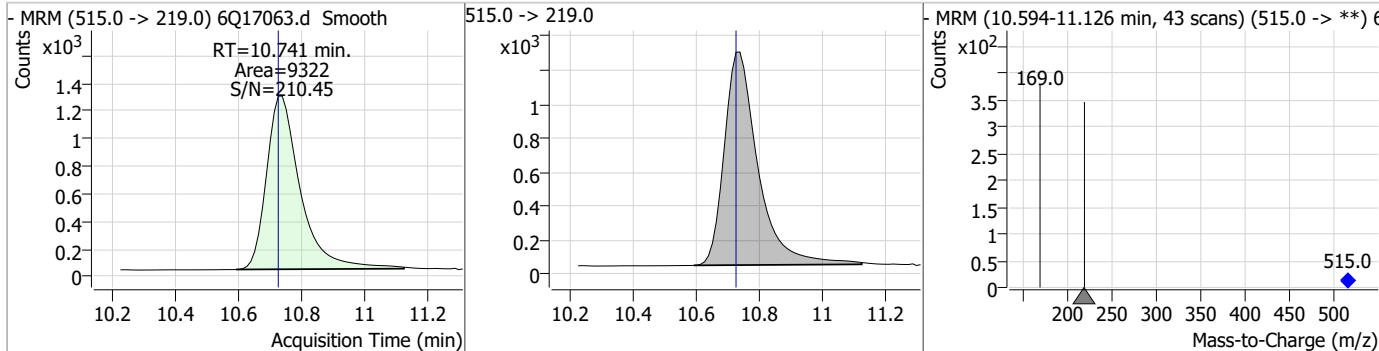
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.57	10.65	0.00	98093				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	0.89	10.66	0.00	3878				

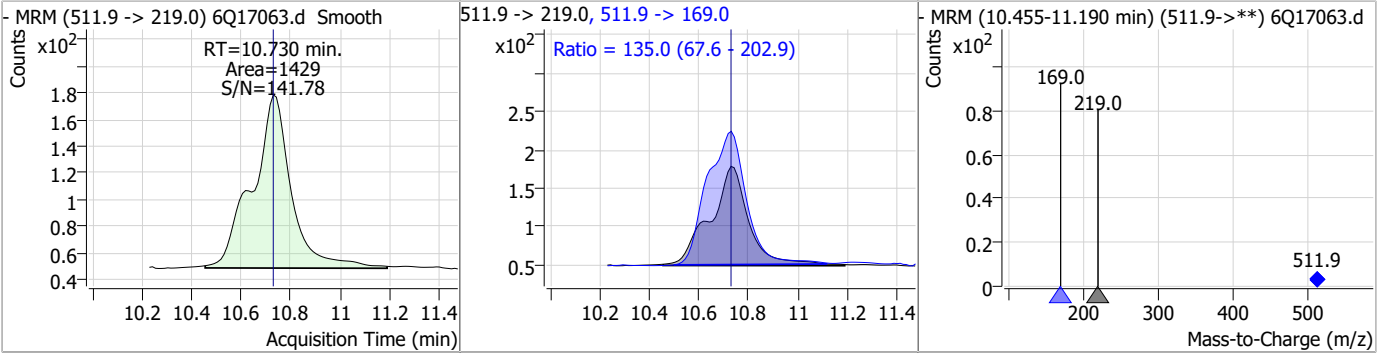


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.45	10.74	0.01	9322				

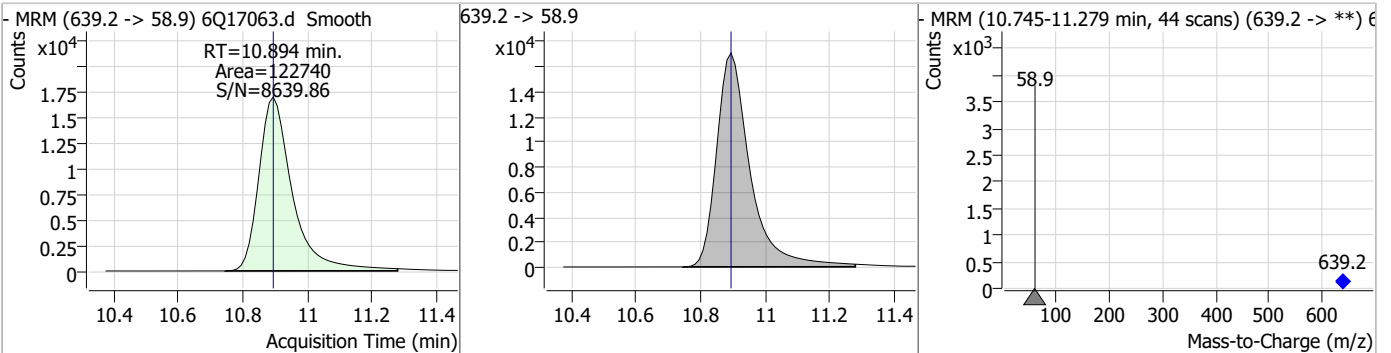


Perfluorinated Compounds by LC/MS/MS

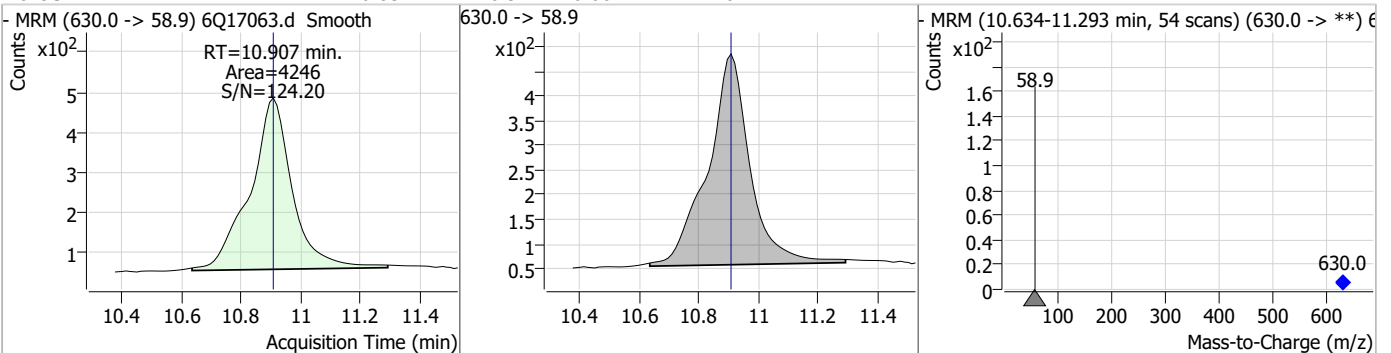
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOsa	0.34	10.73	0.00	1429	511.9 -> 169.0	135.0	67.6	202.9



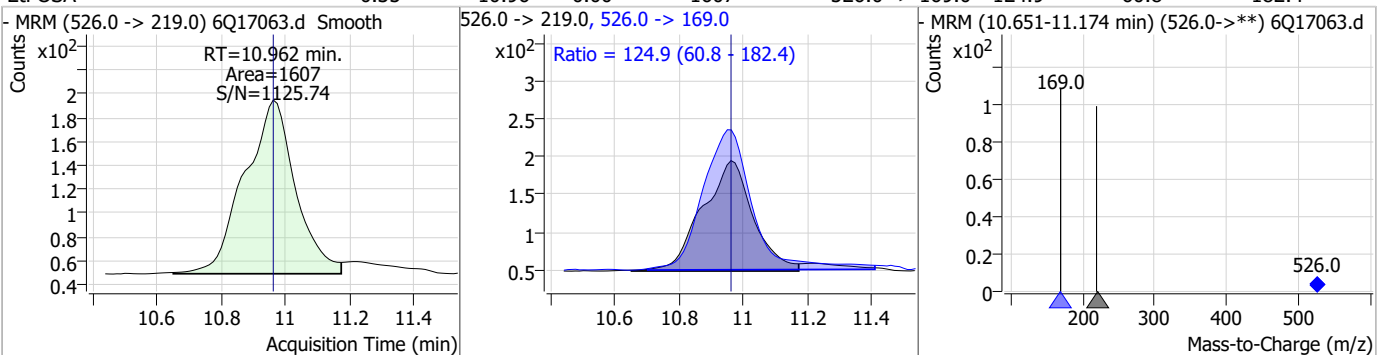
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.16	10.89	0.00	122740				



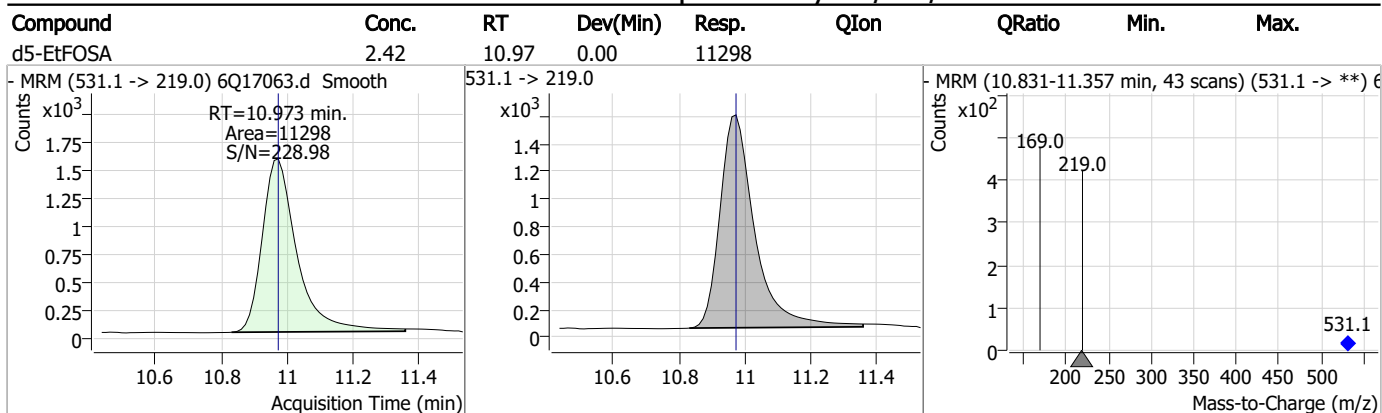
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	0.83	10.91	0.00	4246				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOsa	0.35	10.96	0.00	1607	526.0 -> 169.0	124.9	60.8	182.4



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q258-CC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17063.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 15:44 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluoroheptanesulfonic acid	375-92-8		7.75	Split peak
8:2 Fluorotelomer sulfonate	39108-34-4		7.87	Split peak
MeFOSAA	2355-31-9		8.14	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.24	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17070.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 5:25:33 PM
 Sample Name : cc258-4
 Vial : P1-A5
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	183594	10.00 µg/L	0.012
M5-PFPeA	4.283	268.3 -> 223.0	64502	5.00 µg/L	0.012
M5-PFHxA	5.480	318.0 -> 273.0	67327	2.50 µg/L	0.012
M4-PFHpA	6.431	367.1 -> 322.0	56790	2.50 µg/L	0.012
M8-PFOA	7.074	421.1 -> 376.0	84161	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	27889	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	19826	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	27631	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	25085	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17587	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	24900	2.50 µg/L	-0.012
M3-PFBS	5.398	302.1 -> 79.9	22532	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12430	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	12009	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2292	5.00 µg/L	0.000
M2-6:2FTS	6.851	429.1 -> 80.9	2794	5.00 µg/L	0.012
M2-8:2FTS	7.864	529.1 -> 80.9	2883	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	21433	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	40864	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	18583	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	97247	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	122658	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	11311	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	8938	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	15280	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	80508	5.00 µg/L	0.000
18O2-PFHxS	7.190	403.0 -> 83.9	9596	2.50 µg/L	0.012
13C4-PFOA	7.075	417.1 -> 372.0	82517	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	23971	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	28386	1.25 µg/L	0.000
13C2-PFHxA	5.482	315.1 -> 270.0	58127	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2292	5.20 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.9%		
13C2-6:2FTS	6.851	429.1 -> 80.9	2794	5.22 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.4%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2883	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C2-PFDoDA	8.960	615.1 -> 570.0	25085	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17587	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C3-PFBS	5.398	302.1 -> 79.9	22532	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C3-PFHxS	7.179	402.1 -> 79.9	12430	2.43 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 = 97.3%	
13C4-PFBA	2.910	216.8 -> 171.9	183594	9.87 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C4-PFHpA	6.431	367.1 -> 322.0	56790	2.39 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.5%	
13C5-PFHxA	5.480	318.0 -> 273.0	67327	2.40 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C5-PFPeA	4.283	268.3 -> 223.0	64502	4.97 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C6-PFDA	8.076	519.1 -> 474.1	19826	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C7-PFUnDA	8.530	570.0 -> 525.1	27631	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.2%	
13C8-FOSA	9.611	506.1 -> 77.8	24900	2.46 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C8-PFOA	7.074	421.1 -> 376.0	84161	2.64 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.7%	
13C8-PFOS	8.239	507.1 -> 79.9	12009	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.3%	
13C9-PFNA	7.594	472.1 -> 427.0	27889	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.1%	
d3-MeFOSAA	8.134	573.2 -> 419.0	21433	4.71 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.1%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	40864	9.93 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.3%	
d3-MeFOSA	10.728	515.0 -> 219.0	8938	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.7%	
d5-EtFOSAA	8.330	589.2 -> 419.0	18583	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
d7-MeFOSE	10.647	623.2 -> 58.9	97247	24.25 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.0%	
d9-EtFOSE	10.894	639.2 -> 58.9	122658	25.03 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
d5-EtFOSA	10.960	531.1 -> 219.0	11311	2.41 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.5%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	32074	9.25 µg/L	98
		327.1 -> 80.9	12296		
6:2FTS	6.839	427.1 -> 407.0	29477	9.59 µg/L	95
		427.1 -> 80.9	9625		
8:2FTS	7.865	527.1 -> 507.0	16172	9.43 µg/L	99
		527.1 -> 80.8	6733		
EtFOSAA	8.331	584.2 -> 419.1	7944	2.52 µg/L	97
		584.2 -> 526.0	3983		
FOSA	9.614	498.1 -> 77.9	21747	2.44 µg/L	99
		498.1 -> 478.0	675		
MeFOSAA	8.136	570.1 -> 419.0	10663	2.65 µg/L	91
		570.1 -> 483.0	1963		
PFBA	2.906	212.8 -> 168.9	62697	10.18 µg/L	100
PFBS	5.412	298.7 -> 79.9	22804	2.26 µg/L	97
		298.7 -> 98.8	8918		
PFDA	8.077	512.9 -> 469.0	60032	2.79 µg/L	97
		512.9 -> 219.0	9263		
PFDoDA	8.961	613.1 -> 569.0	48625	2.47 µg/L	100
		613.1 -> 319.0	7127		
PFDS	9.125	599.0 -> 79.9	9034	2.36 µg/L	95

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.432	599.0 -> 98.8	4194	2.66	µg/L	99
		363.1 -> 319.0	74528			
PFHpS	7.734	363.1 -> 169.0	11293	2.14	µg/L	99
		449.0 -> 79.9	13915			
PFHxA	5.470	449.0 -> 98.9	7164	2.57	µg/L	100
		313.0 -> 269.0	68290			
PFHxS	7.180	313.0 -> 118.9	3113	2.33	µg/L	98
		398.7 -> 79.9	15767			
PFNA	7.595	398.7 -> 98.9	7931	2.30	µg/L	98
		463.0 -> 419.0	44326			
PFNS	8.694	463.0 -> 219.0	9713	2.33	µg/L	96
		548.8 -> 79.9	13493			
PFOA	7.076	548.8 -> 98.9	7014	2.52	µg/L	100
		413.0 -> 369.0	99765			
PFOS	8.228	413.0 -> 169.0	17407	2.09	µg/L	92
		498.9 -> 79.9	12140			
PFPeA	4.285	498.9 -> 98.8	7074	5.13	µg/L	100
		263.0 -> 219.0	90062			
PFPeS	6.484	349.1 -> 79.9	17820	2.52	µg/L	92
		349.1 -> 98.9	7650			
PFTeDA	9.690	713.1 -> 669.0	43102	2.43	µg/L	100
		713.1 -> 168.9	3263			
PFTrDA	9.345	663.0 -> 619.0	58819	2.70	µg/L	99
		663.0 -> 168.9	5241			
PFUnDA	8.531	563.1 -> 519.0	44081	2.30	µg/L	100
		563.1 -> 269.1	7659			
11CI-PF3OUdS	9.398	630.9 -> 450.9	64413	4.59	µg/L	95
		632.9 -> 452.9	22389			
9CI-PF3ONS	8.569	530.8 -> 351.0	105572	4.76	µg/L	91
		532.8 -> 353.0	36411			
ADONA	6.681	376.9 -> 250.9	290971	4.71	µg/L	98
		376.9 -> 84.8	78593			
HFPO-DA	5.846	284.9 -> 168.9	18212	4.71	µg/L	98
		284.9 -> 184.9	2431			
3:3FTCA	3.784	241.0 -> 177.0	13638	12.41	µg/L	97
		241.0 -> 117.0	1659			
5:3FTCA	6.160	341.0 -> 237.1	285653	66.31	µg/L	93
		341.0 -> 217.0	206283			
7:3FTCA	7.573	441.0 -> 316.9	131051	66.96	µg/L	100
		441.0 -> 336.9	283213			
EtFOSA	10.962	526.0 -> 219.0	23222	5.00	µg/L	96
		526.0 -> 169.0	29241			
EtFOSE	10.907	630.0 -> 58.9	63532	12.44	µg/L	100
		511.9 -> 219.0	20560			
MeFOSA	10.730	511.9 -> 169.0	28429	5.11	µg/L	98
		616.1 -> 58.9	55365			
MeFOSE	10.661	699.1 -> 79.9	4644	12.77	µg/L	100
		699.1 -> 98.8	2527			
PFDoDS	9.817	295.0 -> 201.0	15299	2.35	µg/L	96
		295.0 -> 84.9	3723			
NFDHA	5.350	279.0 -> 85.1	59905	5.30	µg/L	100
		229.0 -> 84.9	44849			
PFMBA	4.687	314.8 -> 134.9	160751	4.79	µg/L	99
		314.8 -> 82.9	5462			

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



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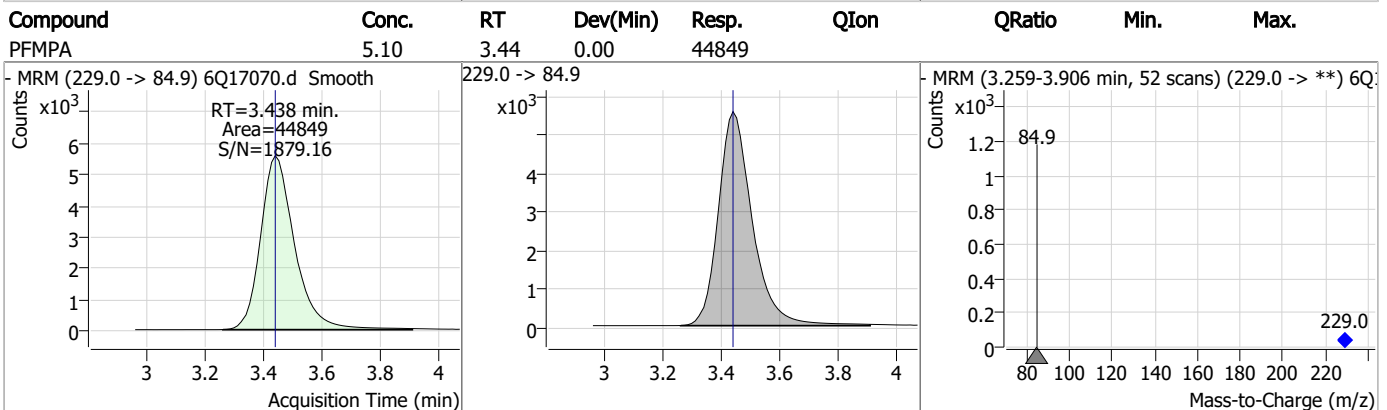
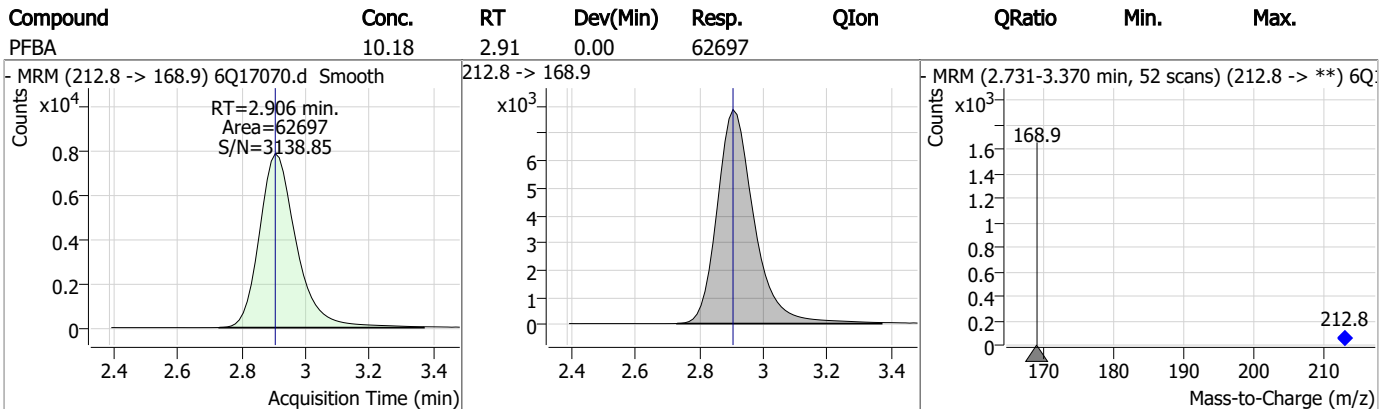
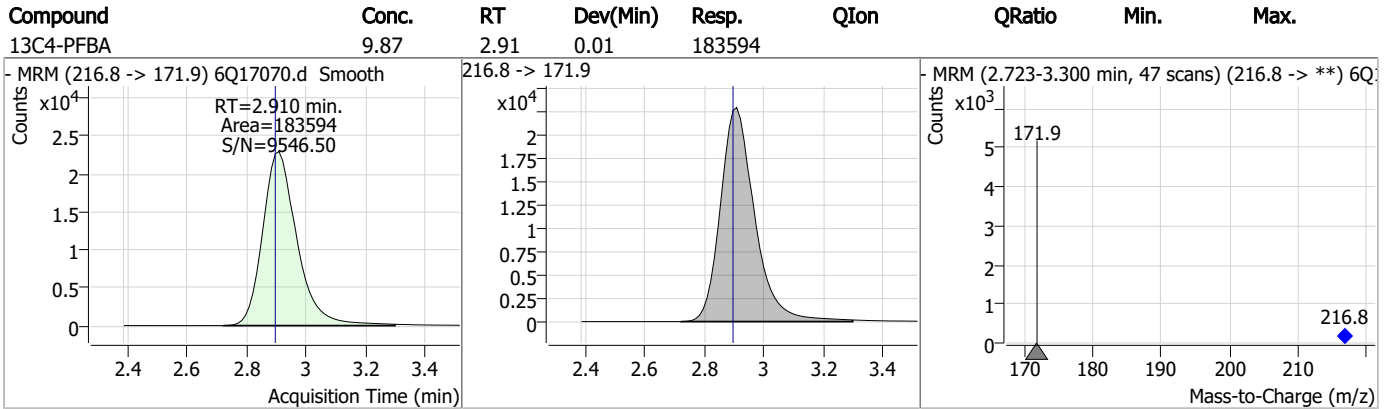
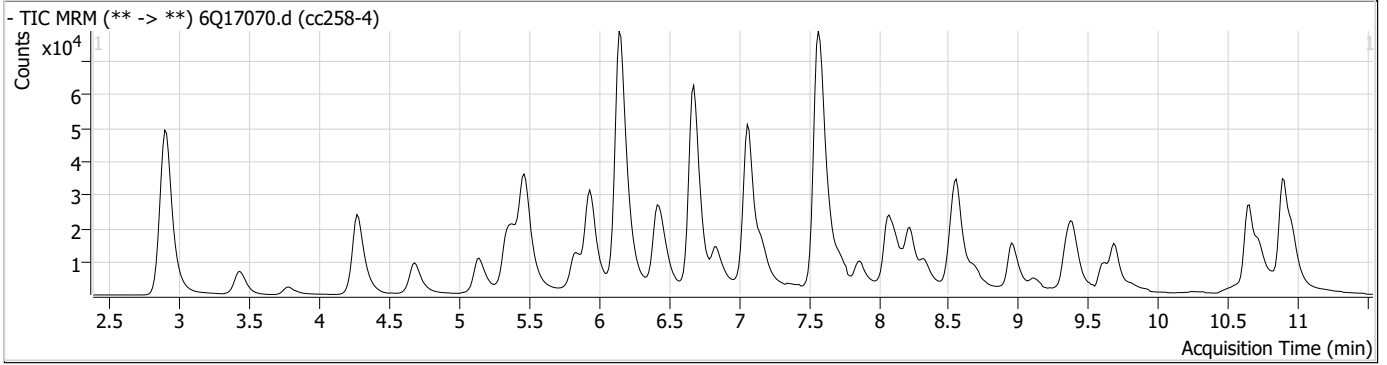
Perfluorinated Compounds by LC/MS/MS

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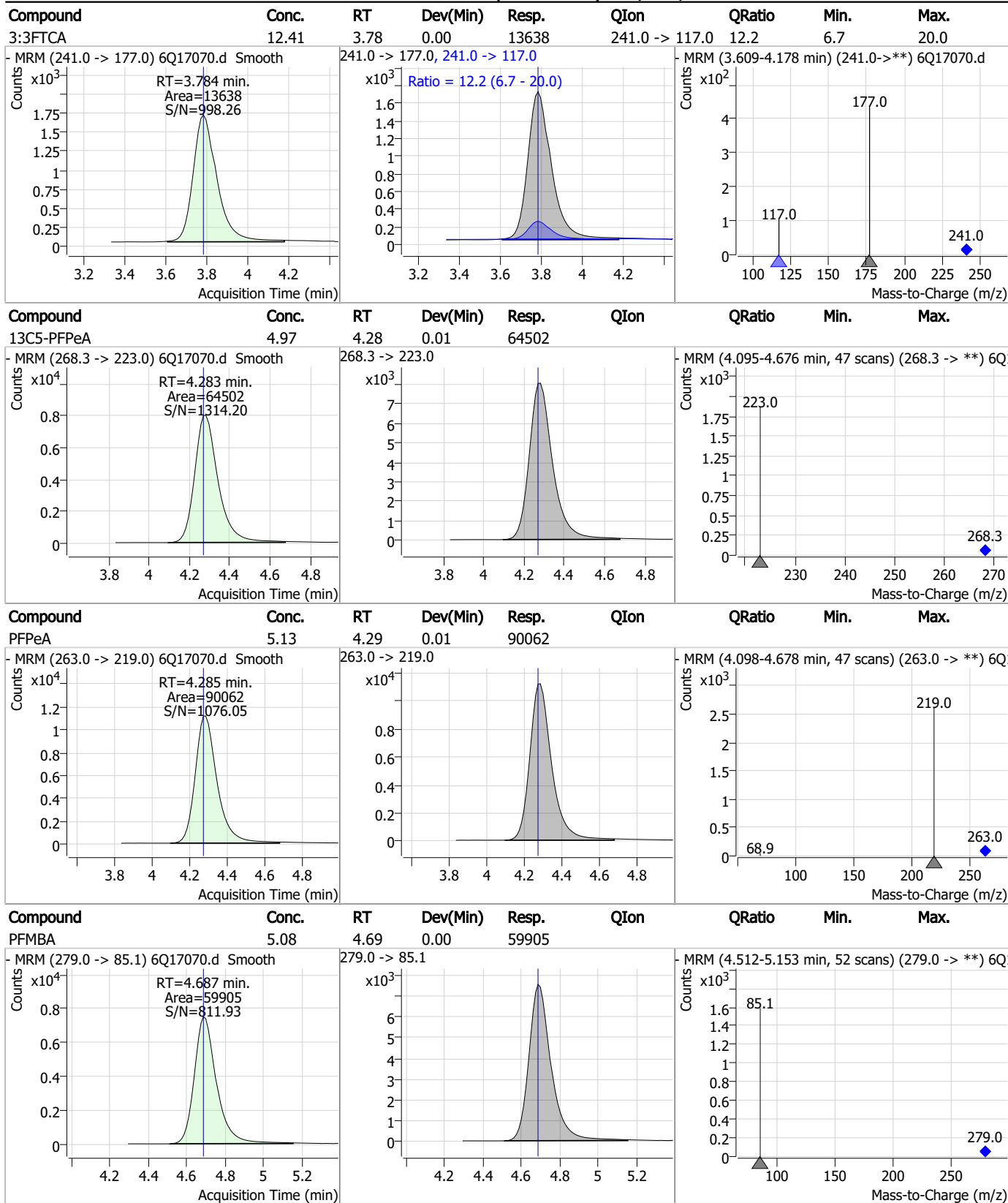
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Perfluorinated Compounds by LC/MS/MS



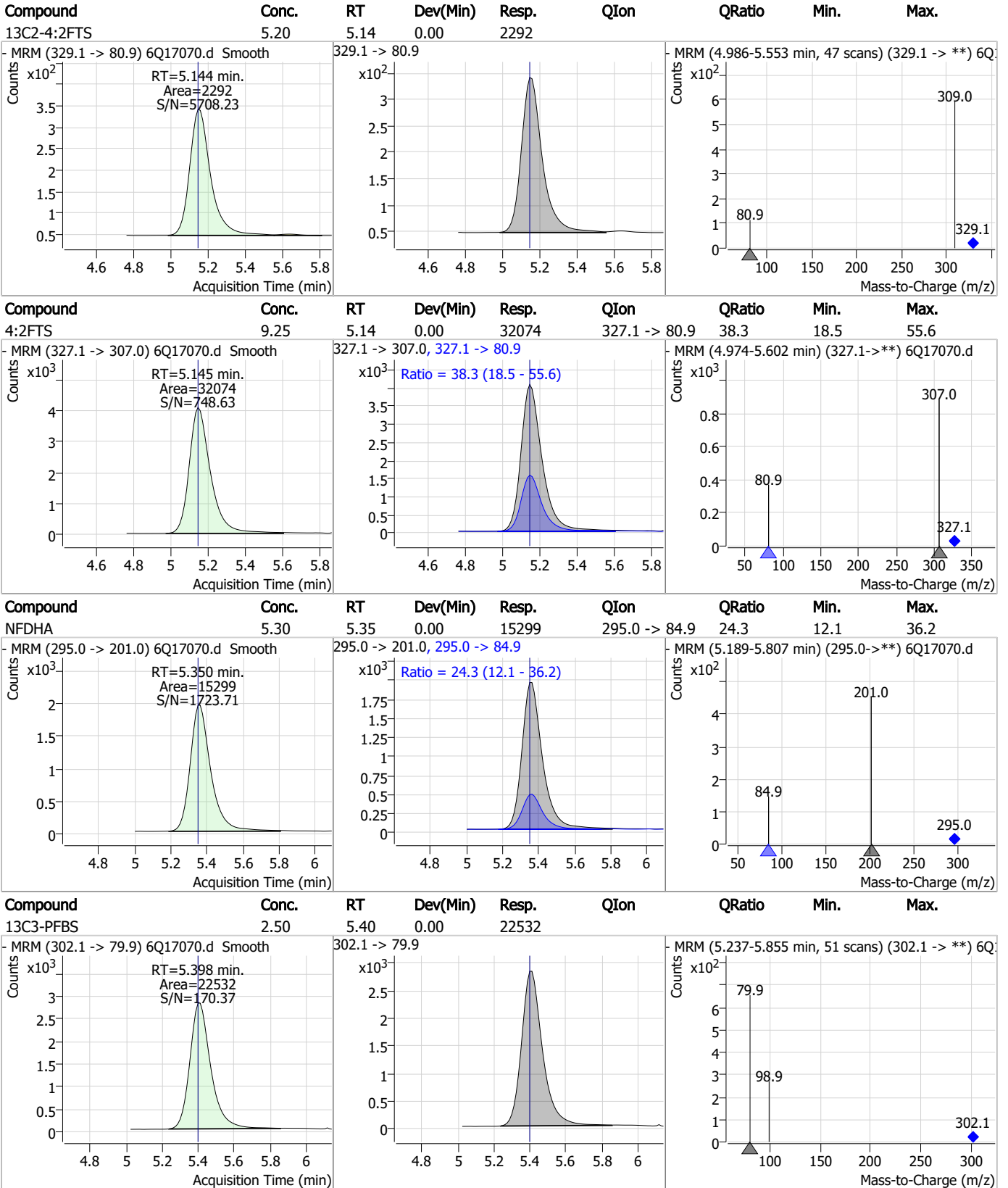
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

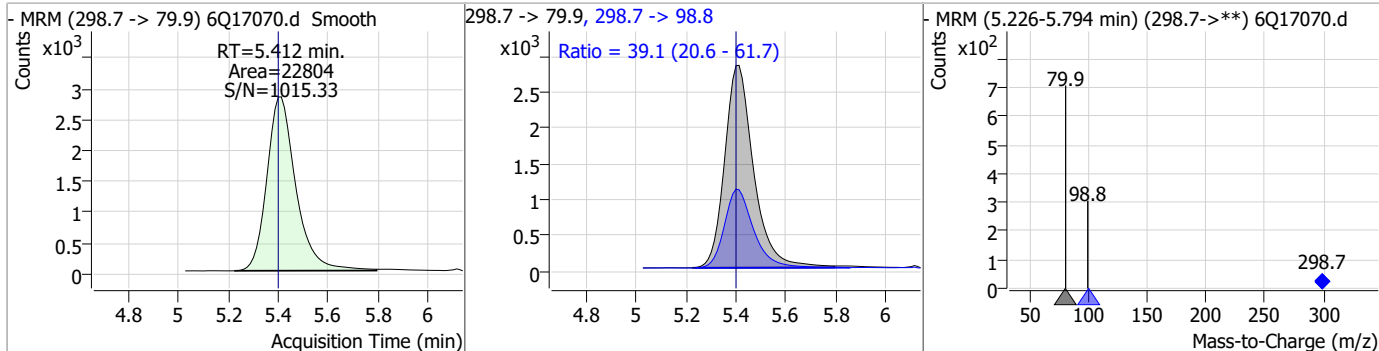


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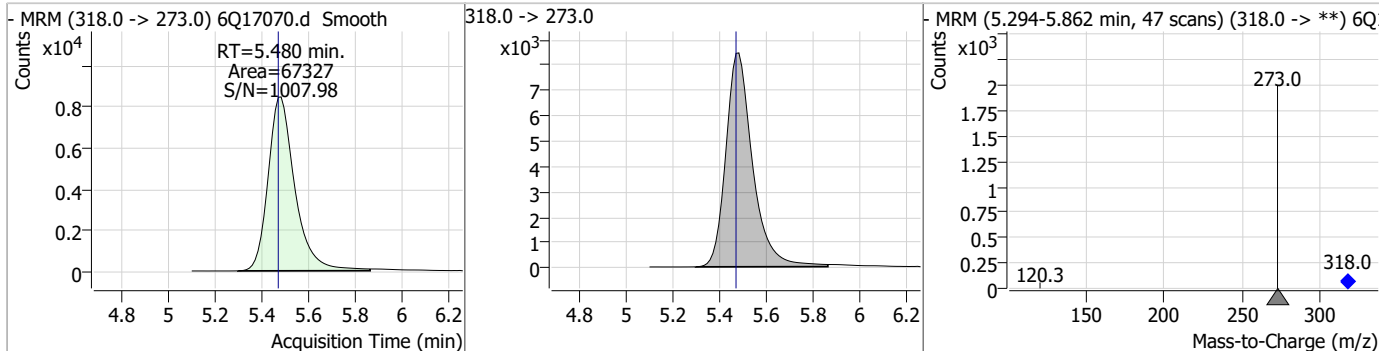


Perfluorinated Compounds by LC/MS/MS

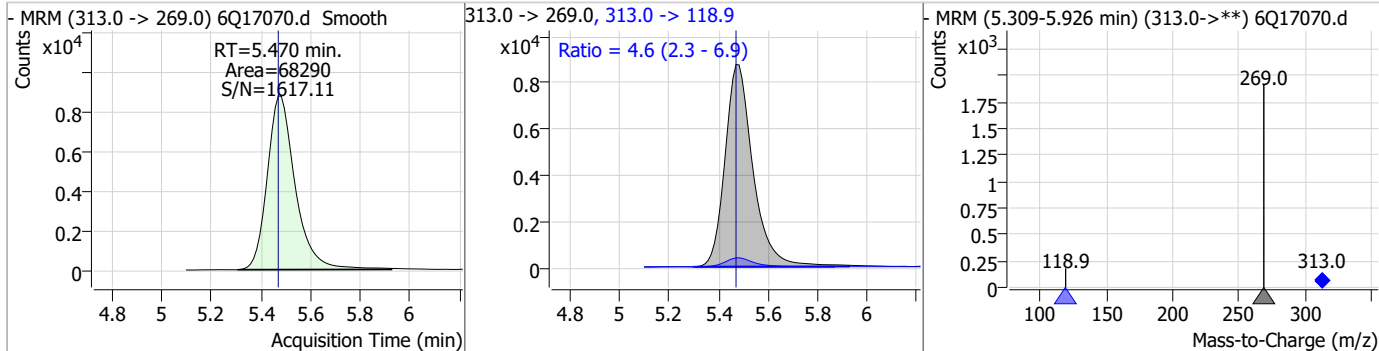
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.26	5.41	0.01	22804	298.7 -> 98.8	39.1	20.6	61.7



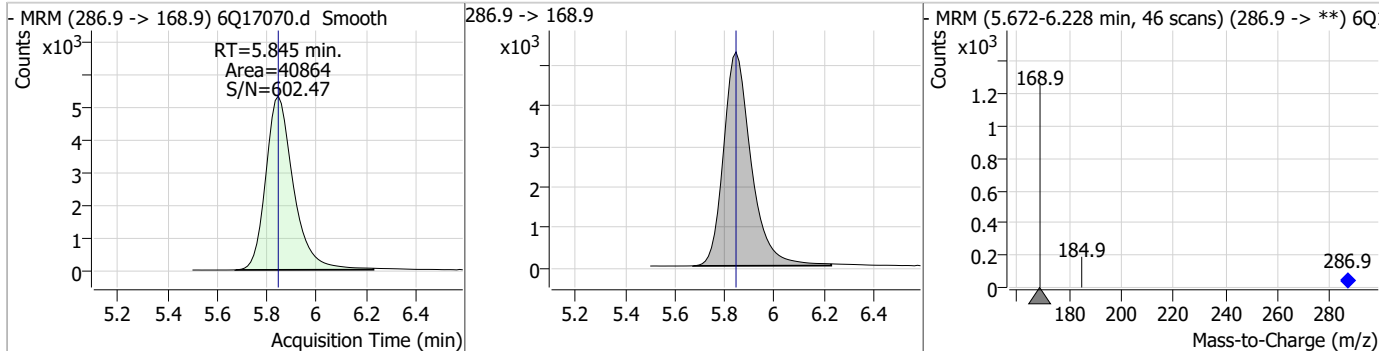
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.40	5.48	0.01	67327	318.0 -> 273.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.57	5.47	0.00	68290	313.0 -> 118.9	4.6	2.3	6.9



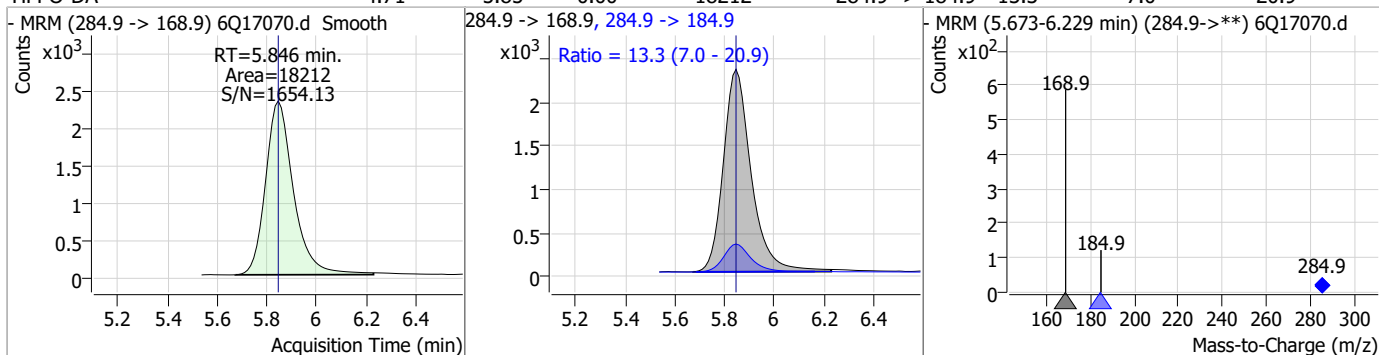
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.93	5.85	0.00	40864	286.9 -> 168.9			



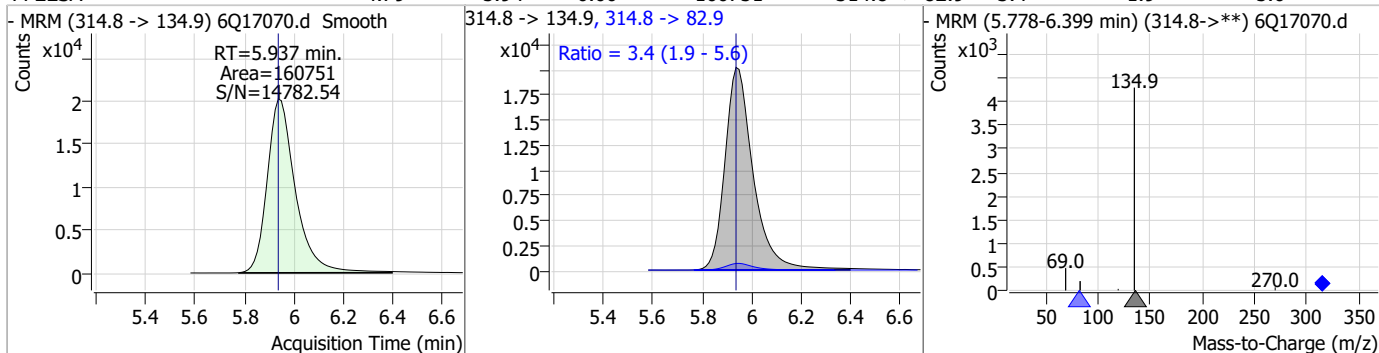
7.6.14
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Perfluorinated Compounds by LC/MS/MS

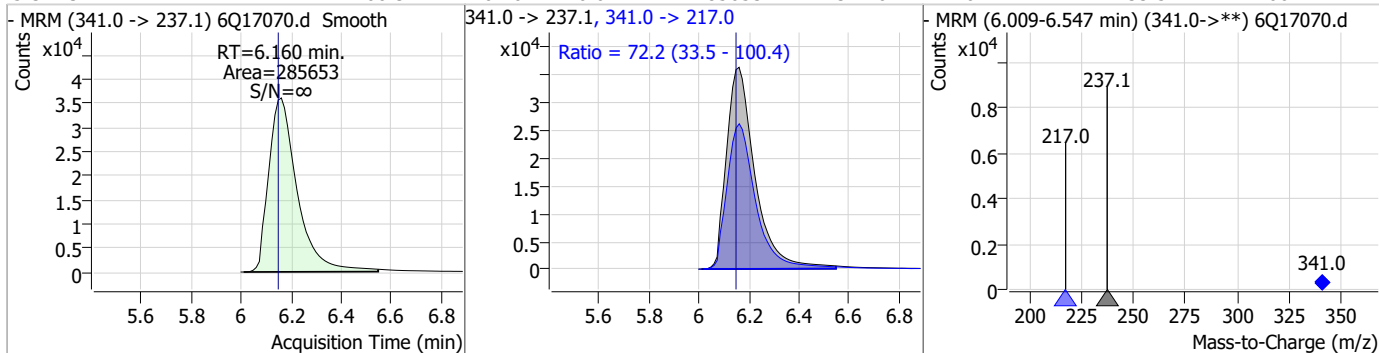
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.71	5.85	0.00	18212	284.9 -> 184.9	13.3	7.0	20.9



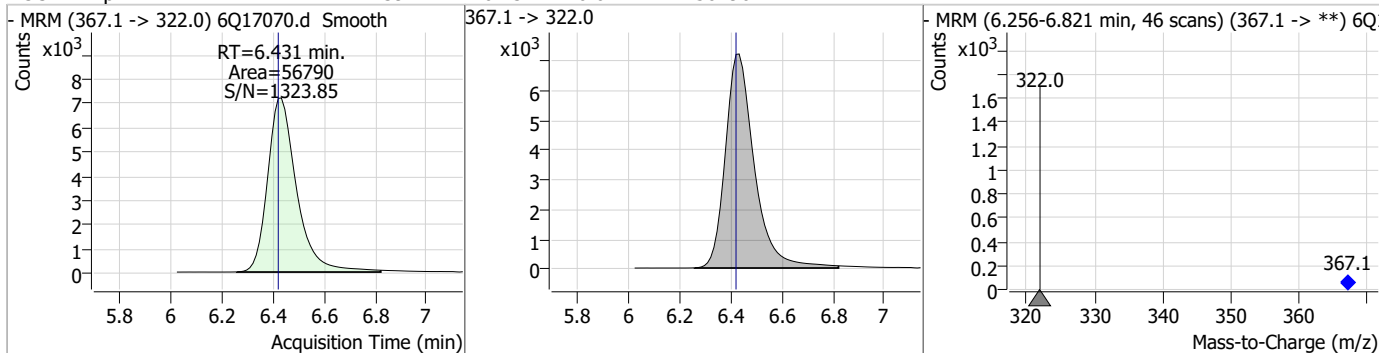
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.79	5.94	0.00	160751	314.8 -> 82.9	3.4	1.9	5.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	66.31	6.16	0.01	285653	341.0 -> 217.0	72.2	33.5	100.4

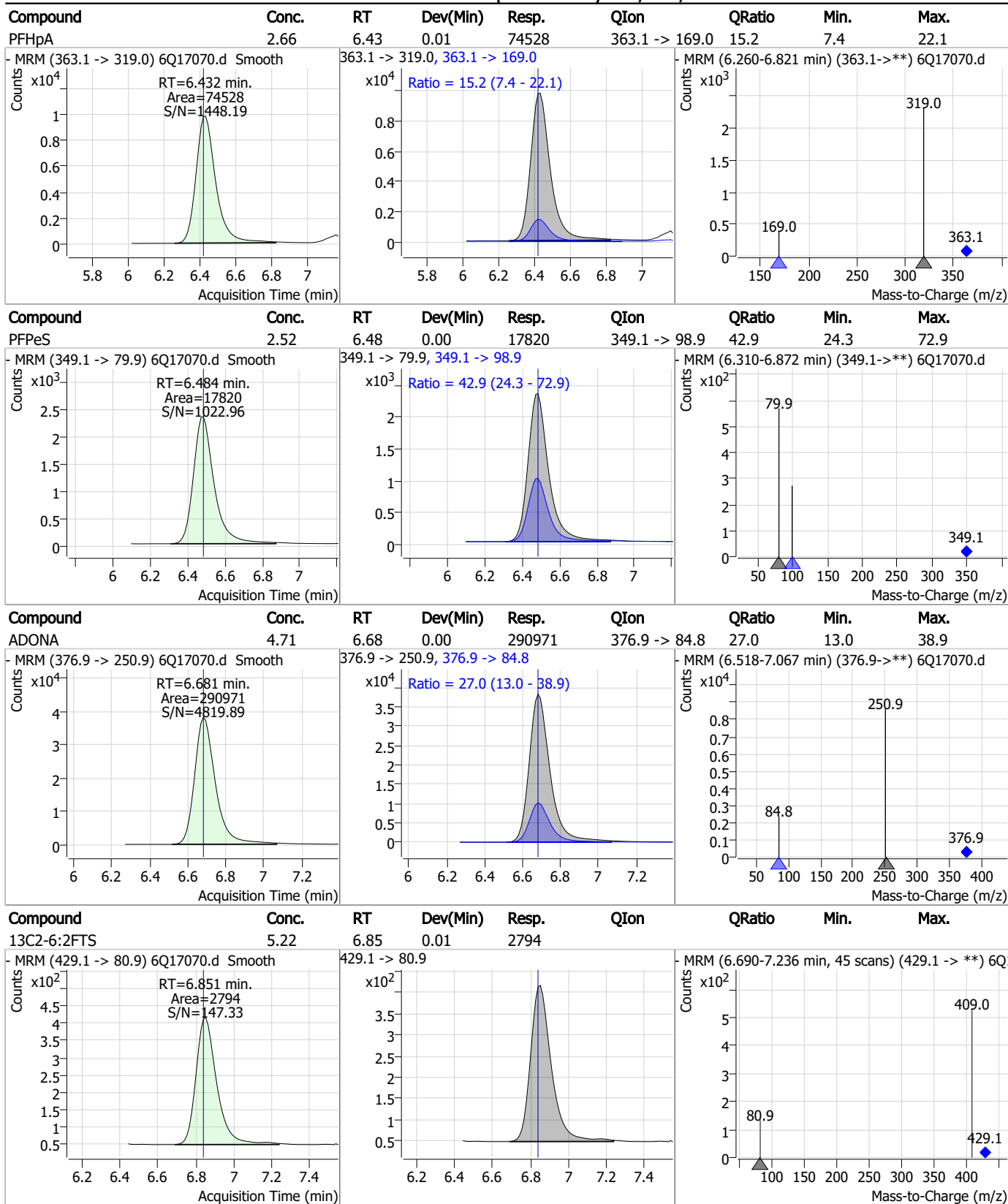


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.39	6.43	0.01	56790	367.1 -> 322.0			



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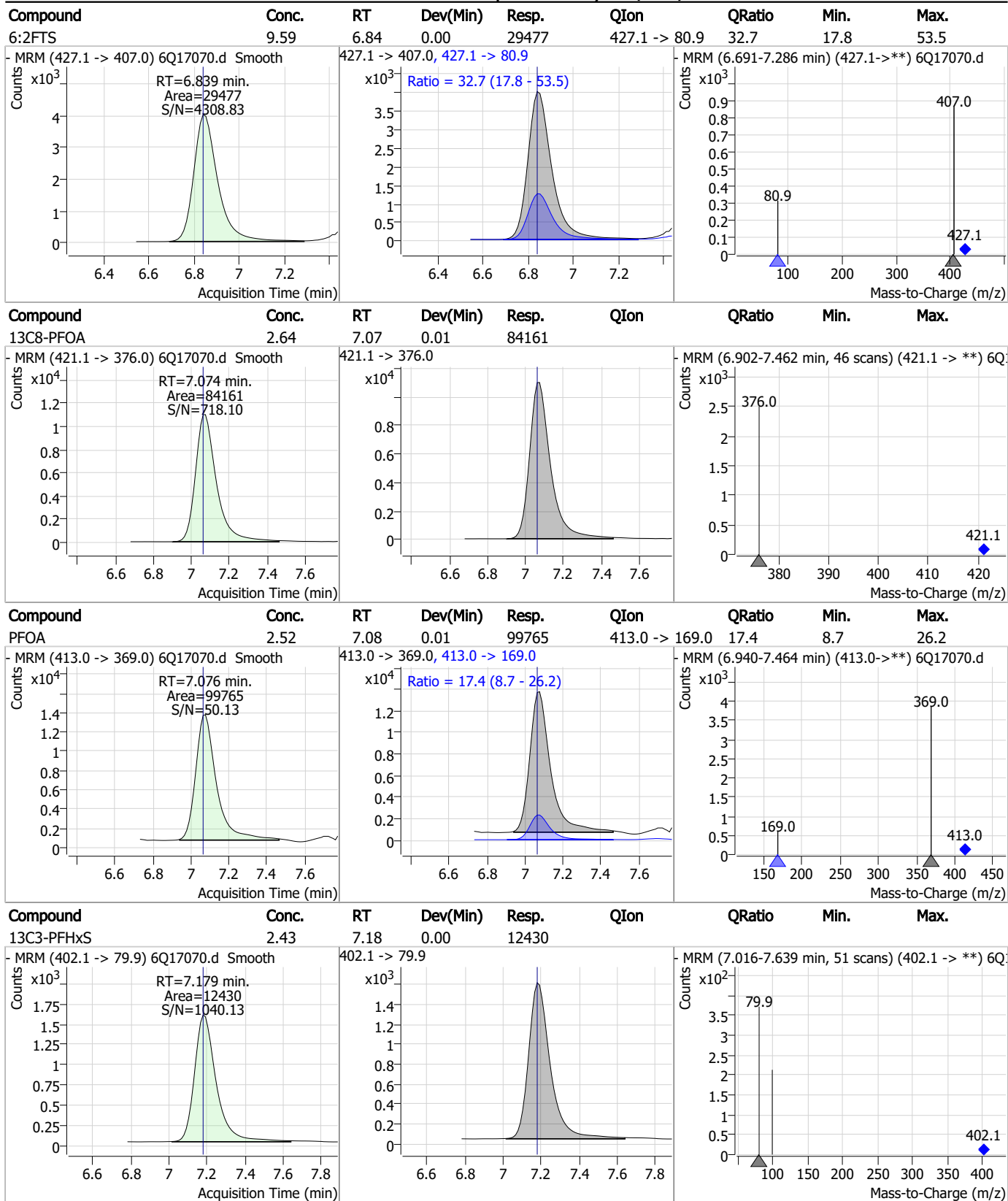
Perfluorinated Compounds by LC/MS/MS



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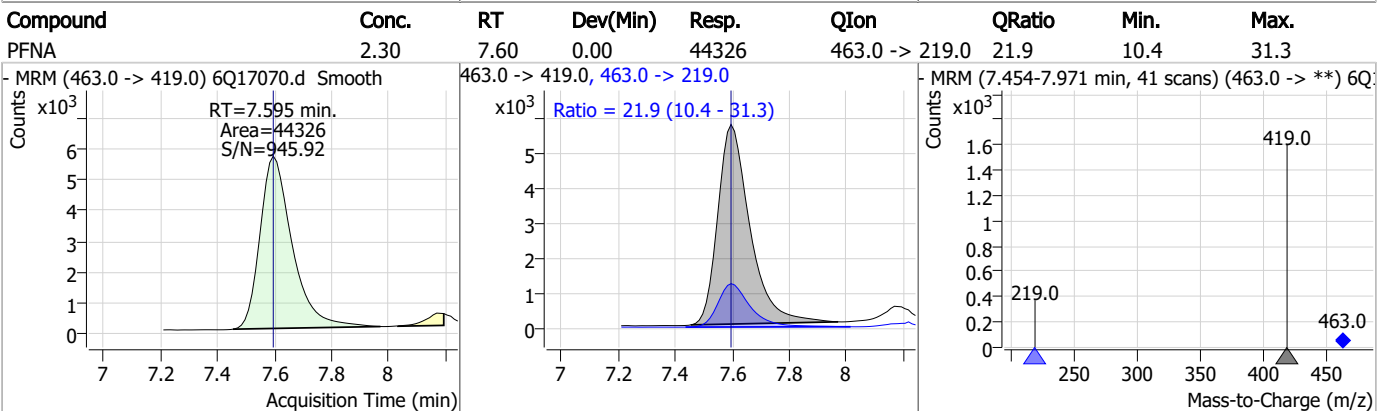
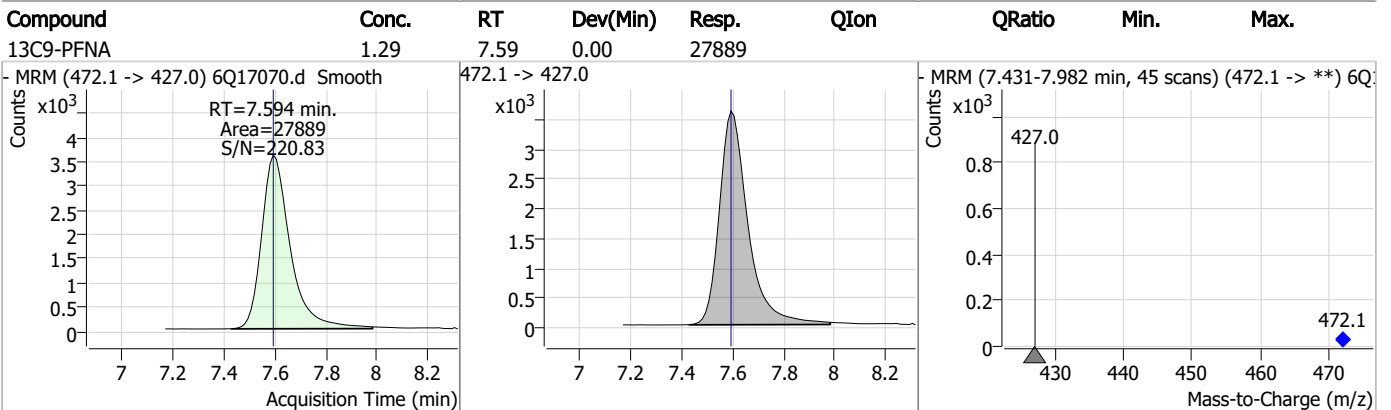
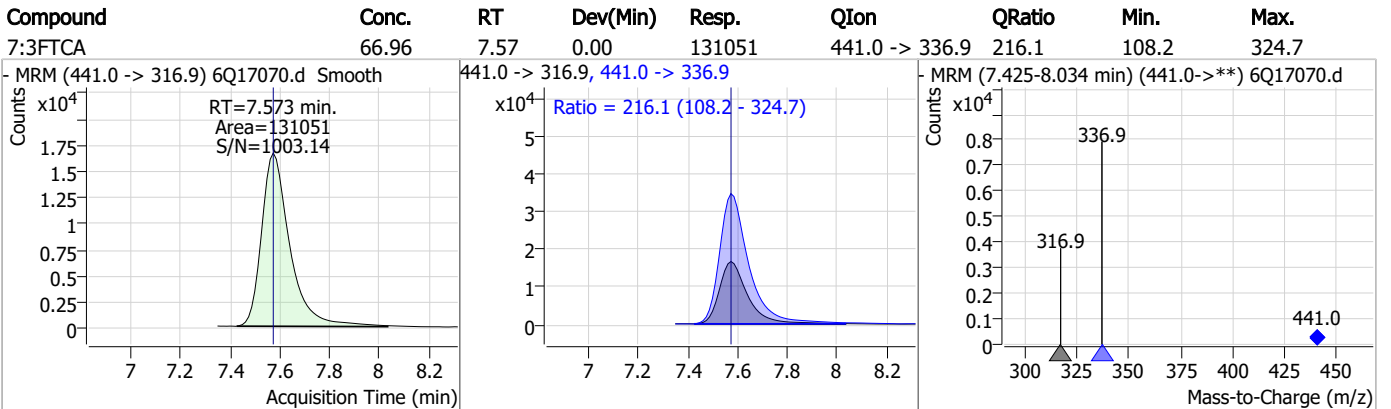
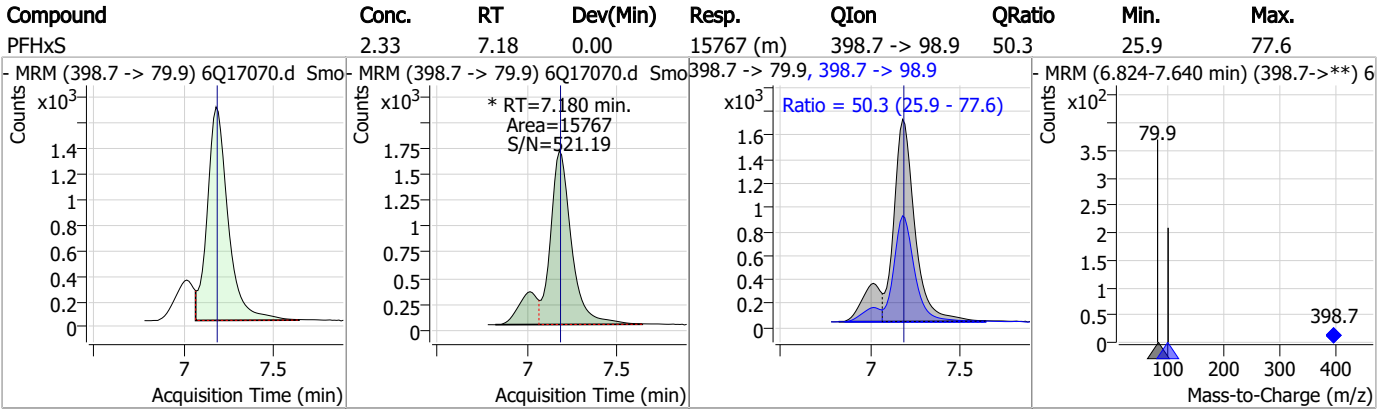
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Perfluorinated Compounds by LC/MS/MS



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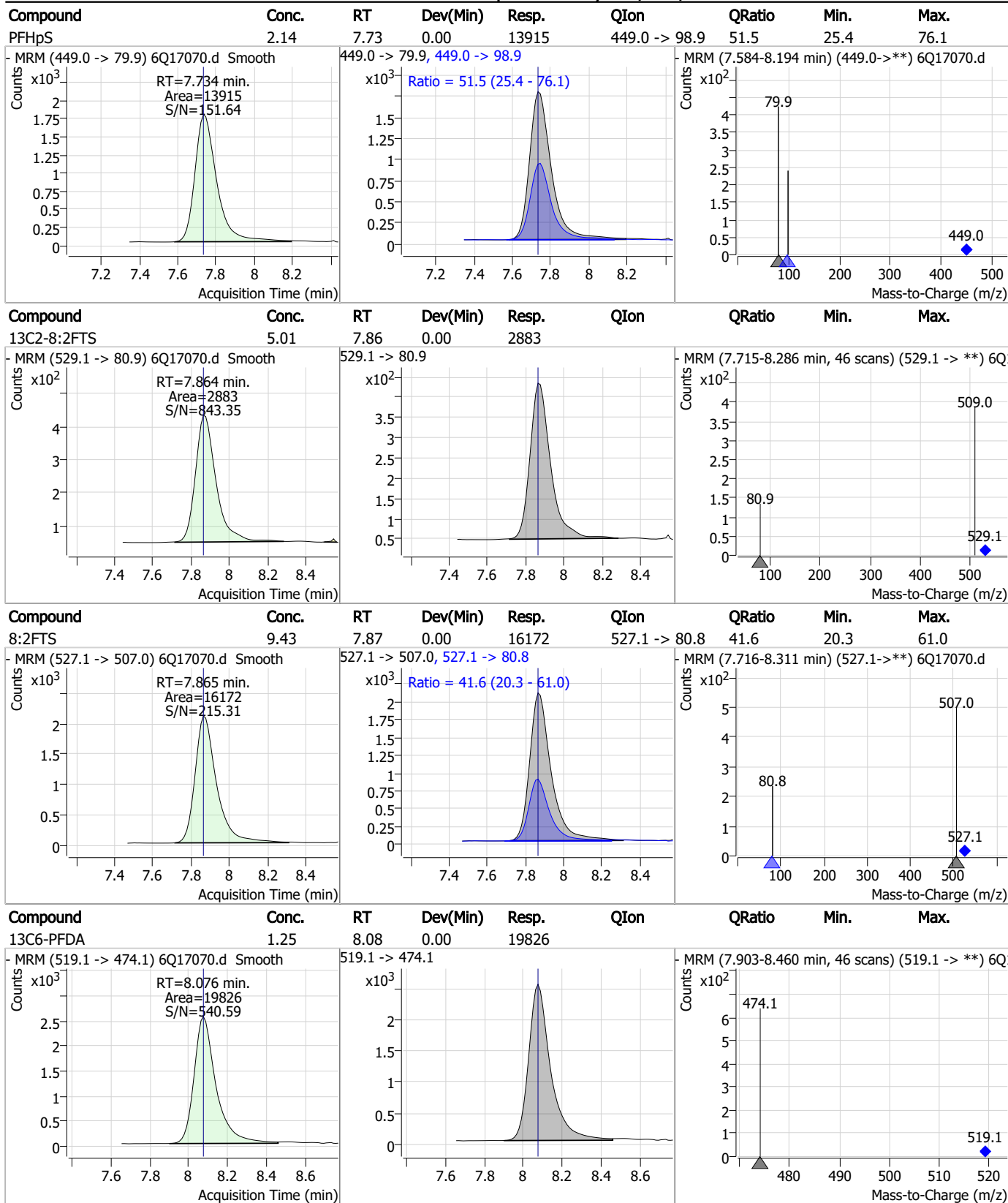
Perfluorinated Compounds by LC/MS/MS



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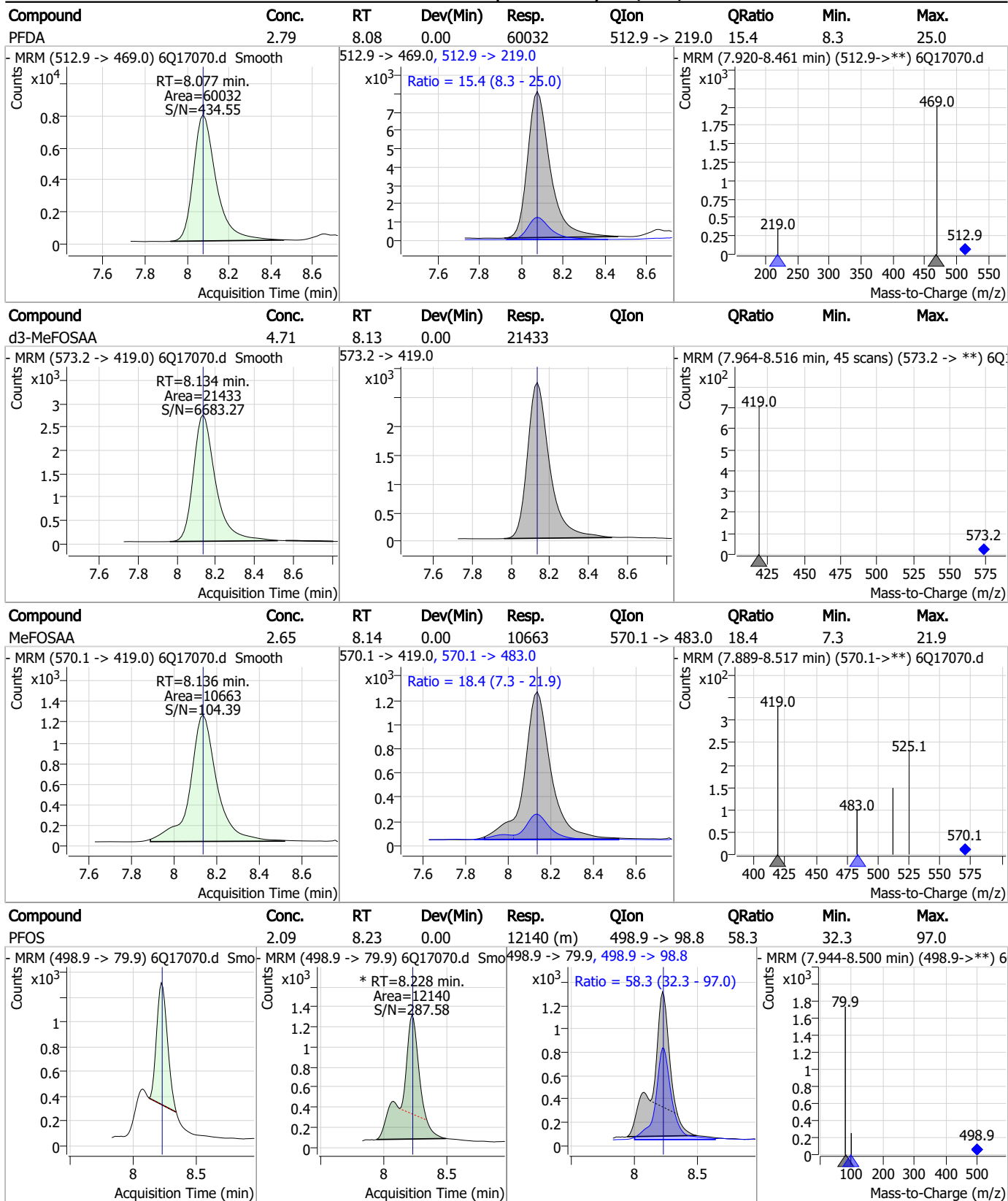
Perfluorinated Compounds by LC/MS/MS



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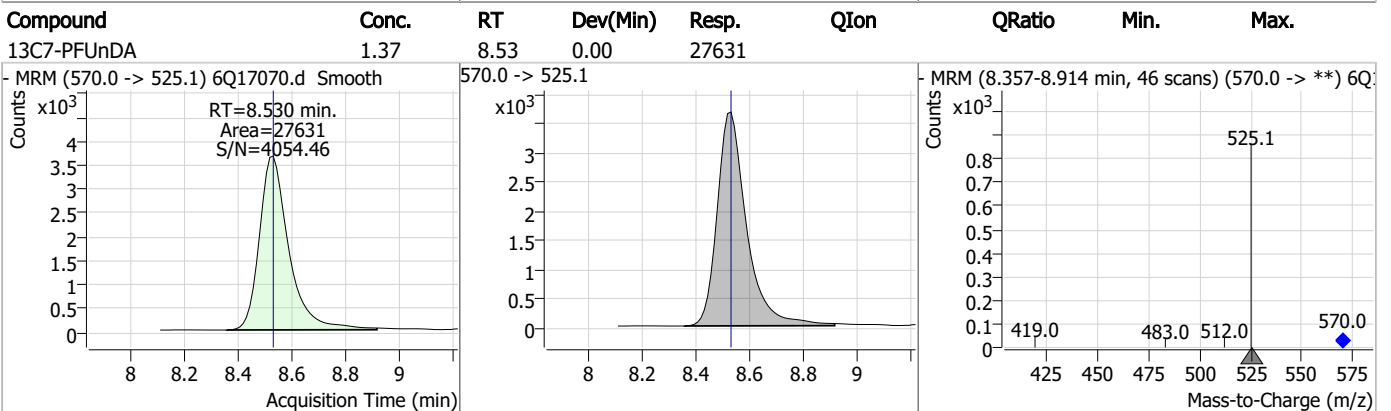
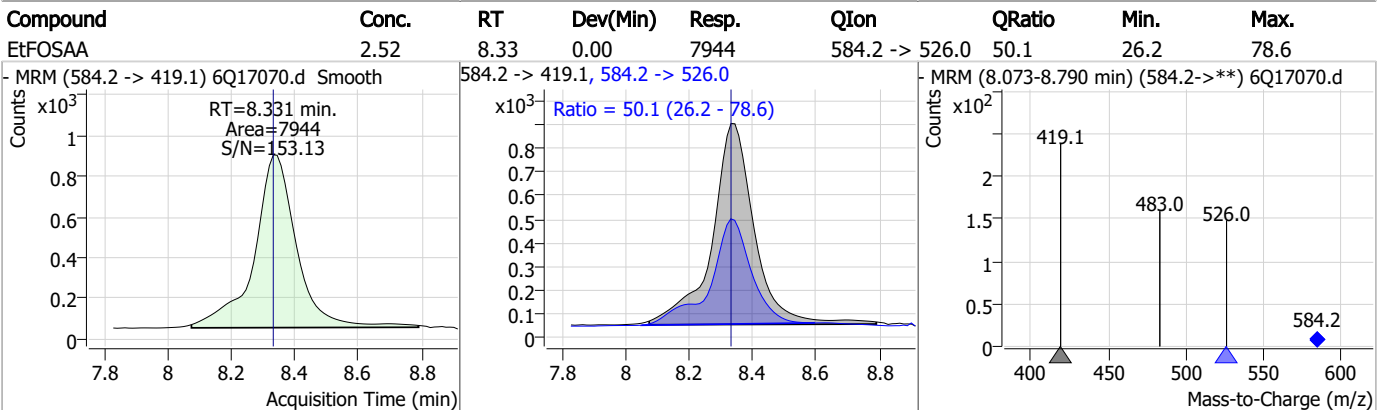
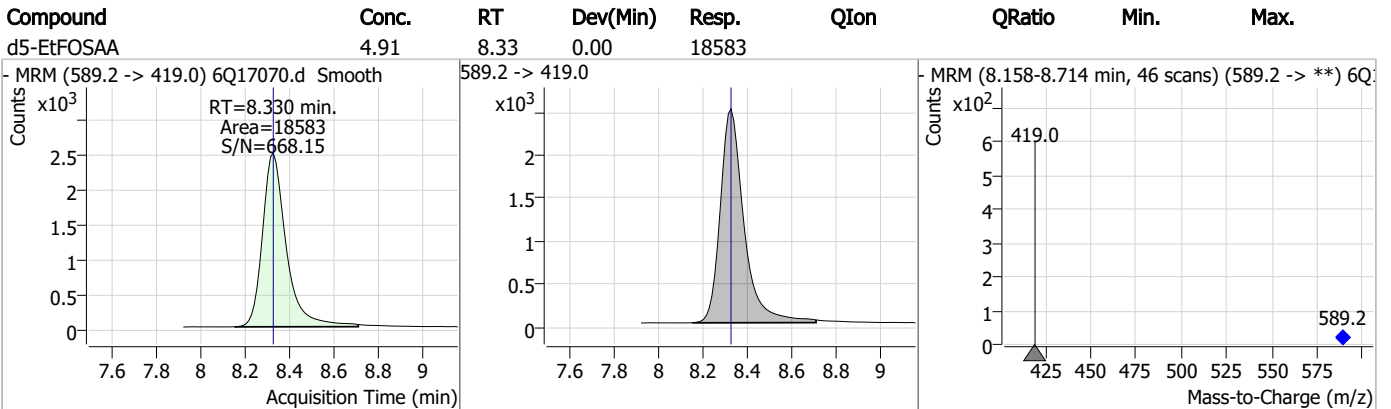
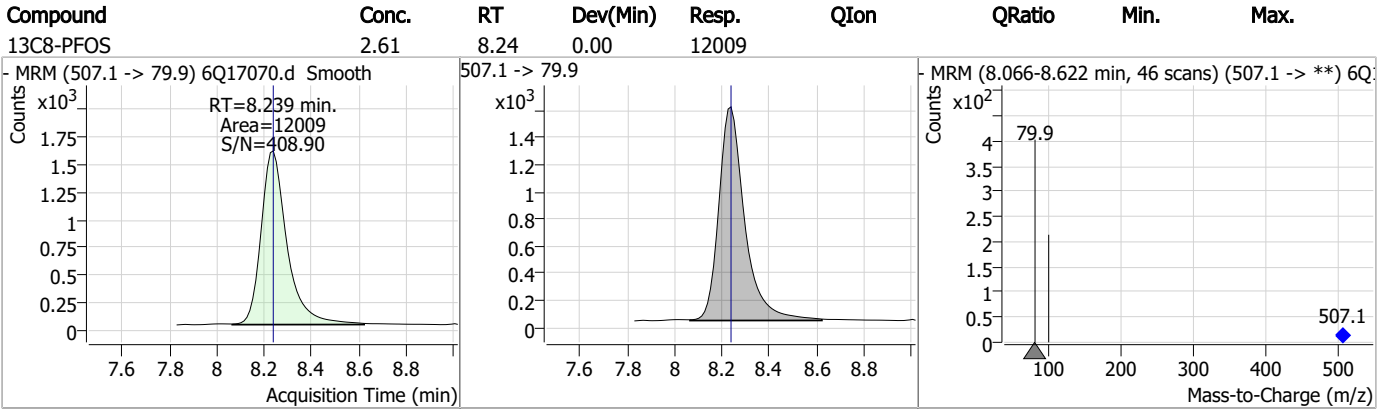
Perfluorinated Compounds by LC/MS/MS



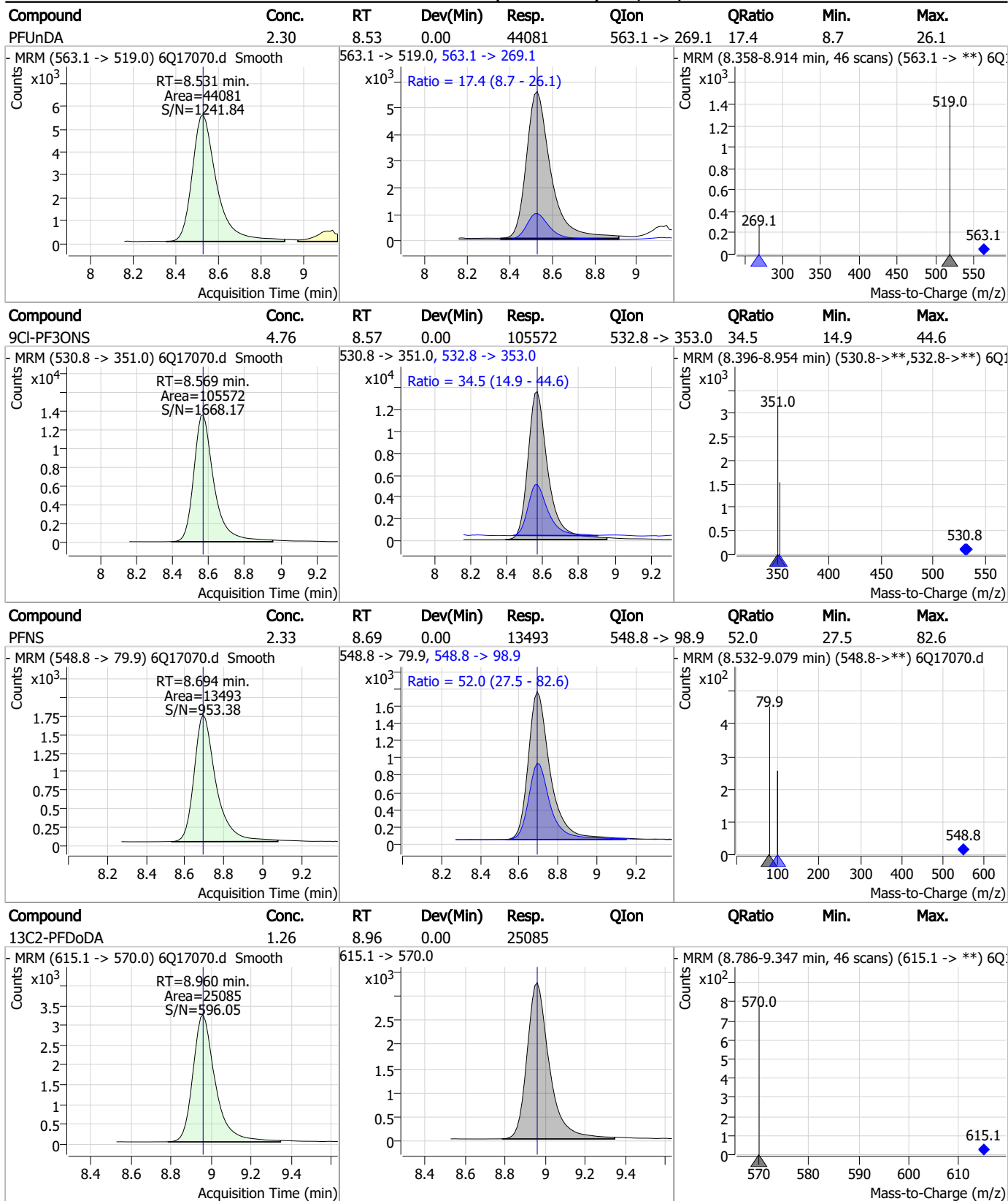
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Perfluorinated Compounds by LC/MS/MS



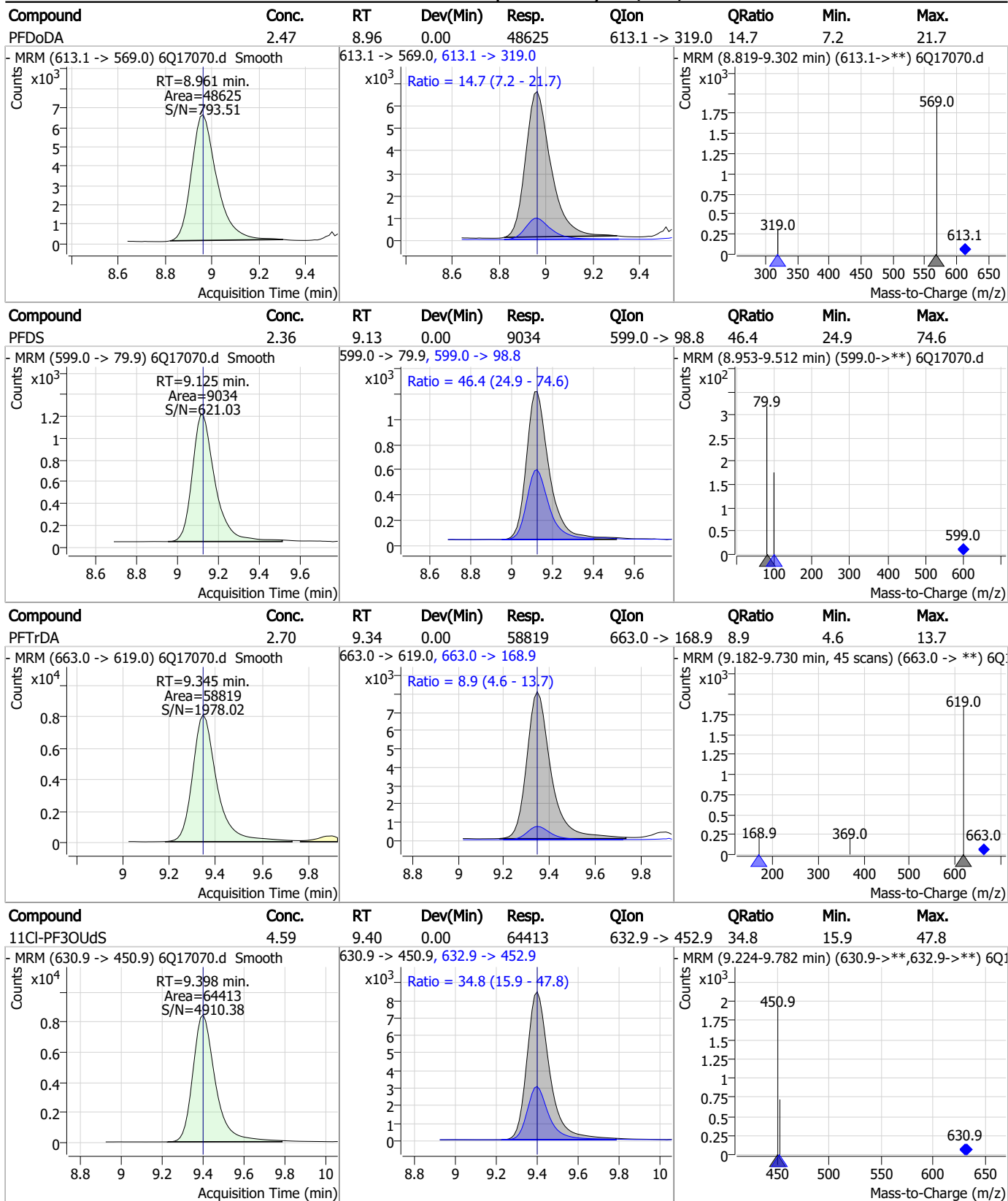
Perfluorinated Compounds by LC/MS/MS



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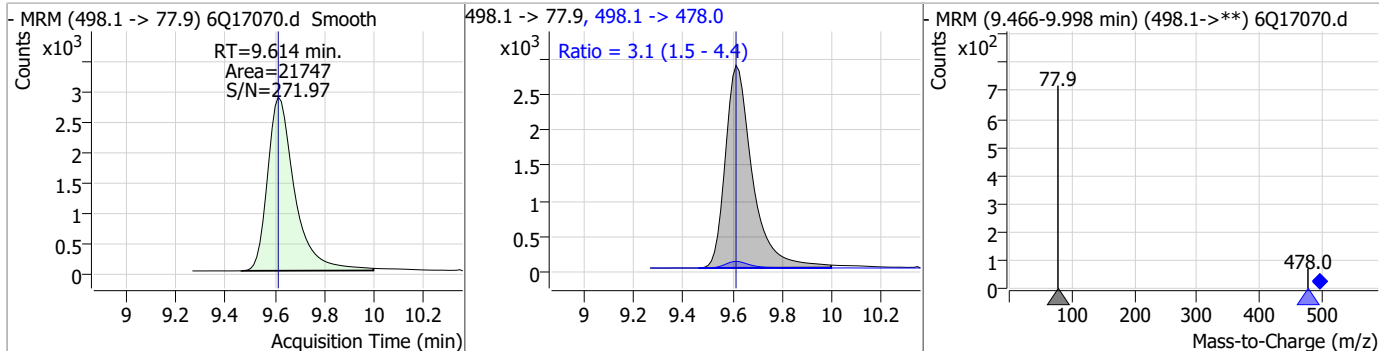
Perfluorinated Compounds by LC/MS/MS



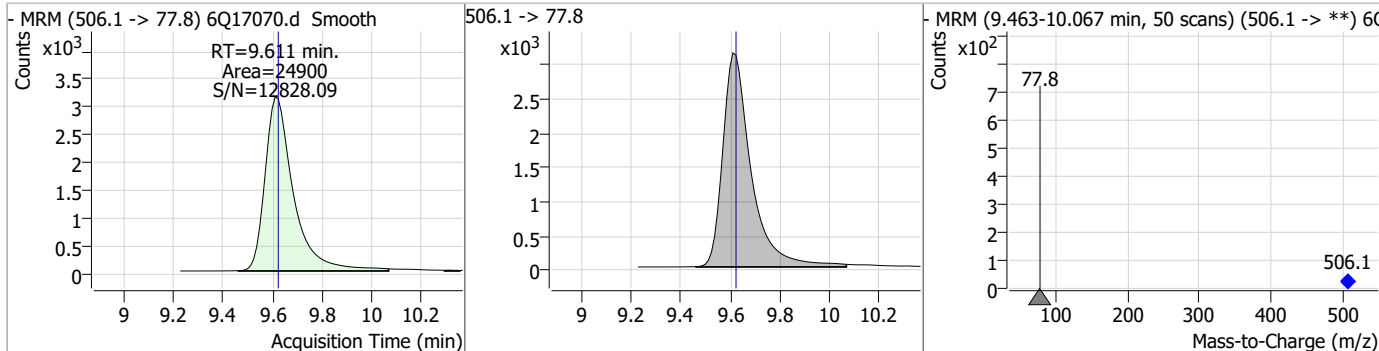
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Perfluorinated Compounds by LC/MS/MS

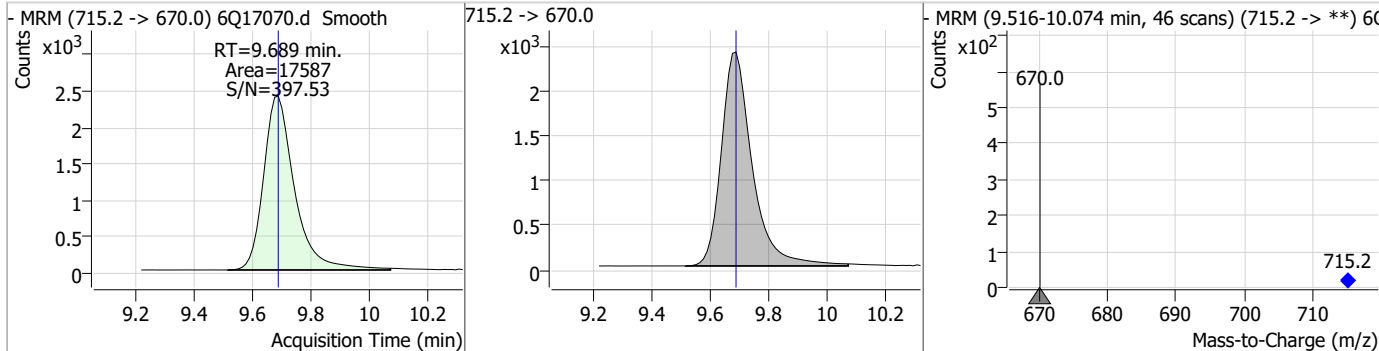
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.44	9.61	0.00	21747	498.1 -> 478.0	3.1	1.5	4.4



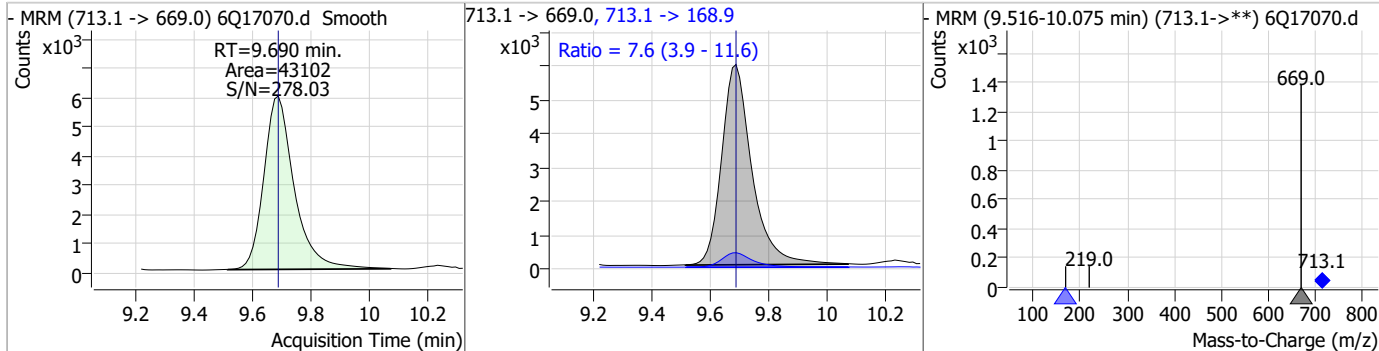
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.46	9.61	-0.01	24900				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.30	9.69	0.00	17587				



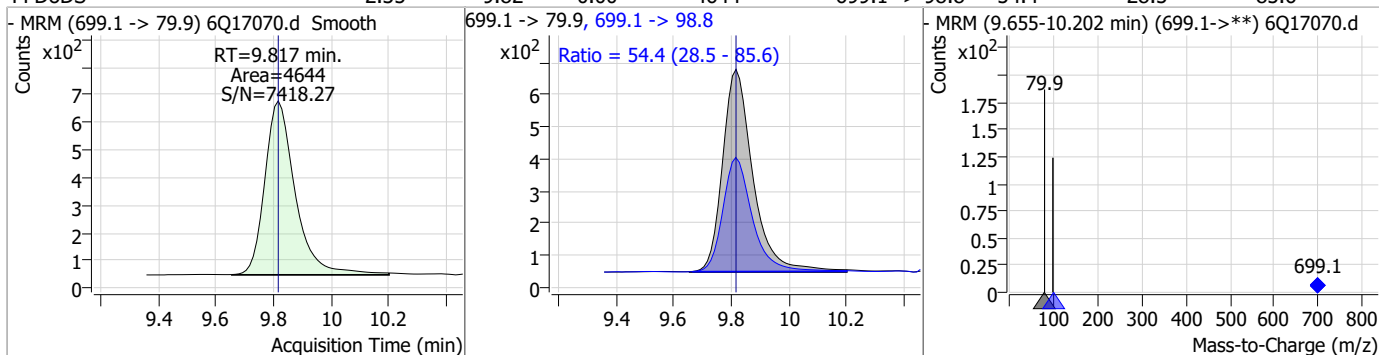
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.43	9.69	0.00	43102	713.1 -> 168.9	7.6	3.9	11.6



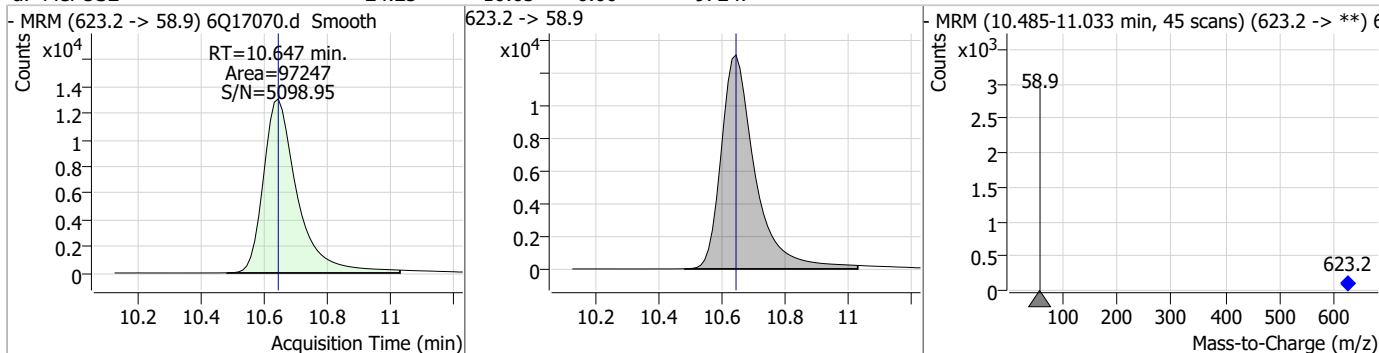
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Perfluorinated Compounds by LC/MS/MS

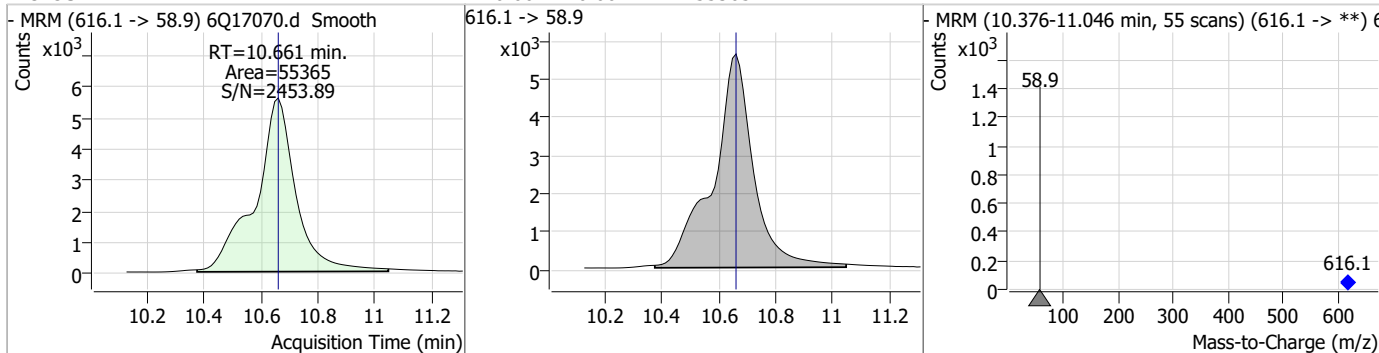
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	2.35	9.82	0.00	4644	699.1 -> 98.8	54.4	28.5	85.6



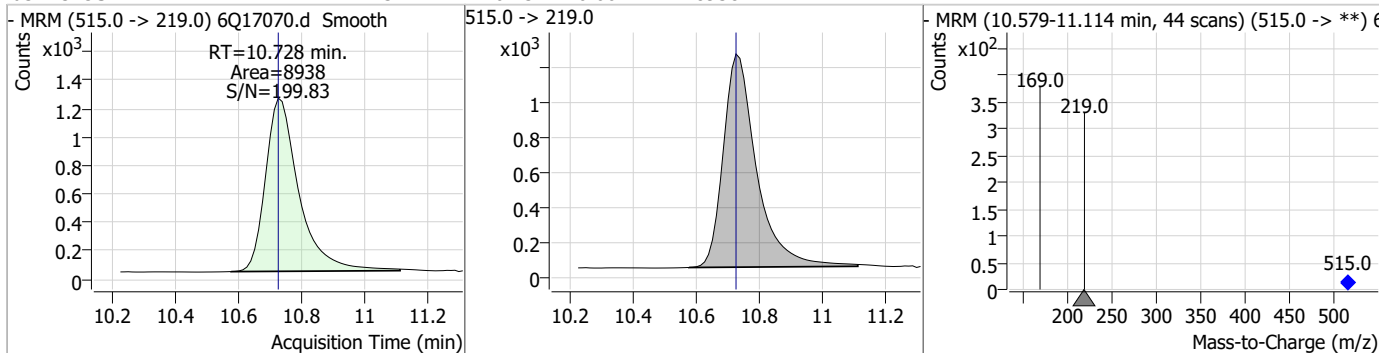
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.25	10.65	0.00	97247				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.77	10.66	0.00	55365				



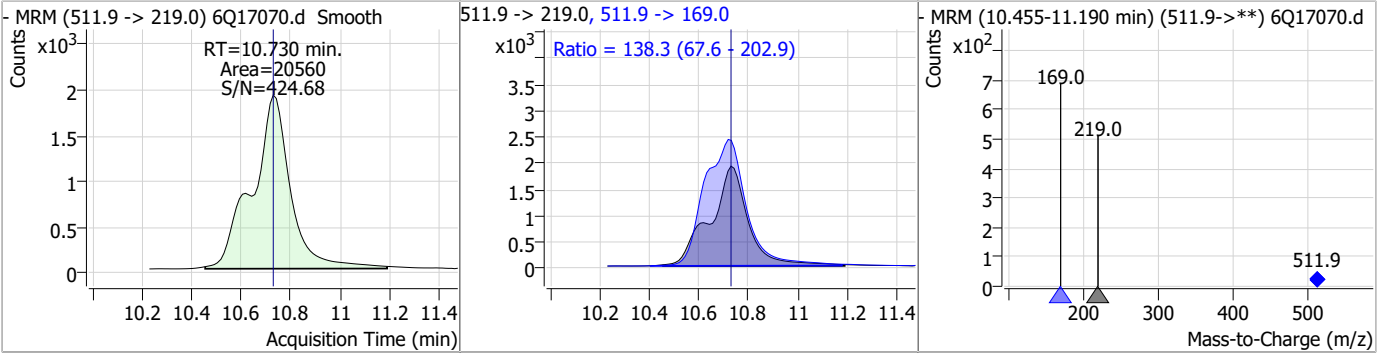
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.34	10.73	0.00	8938				



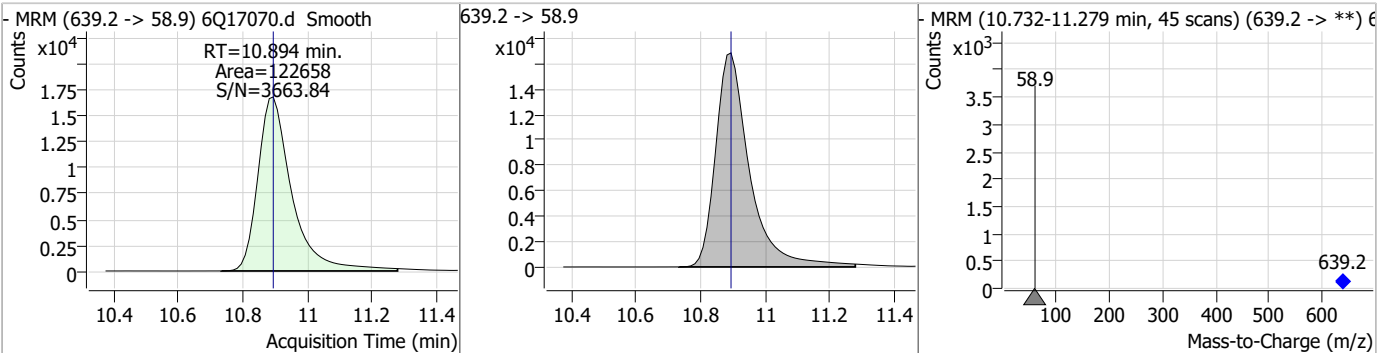
7.6.14
7

Perfluorinated Compounds by LC/MS/MS

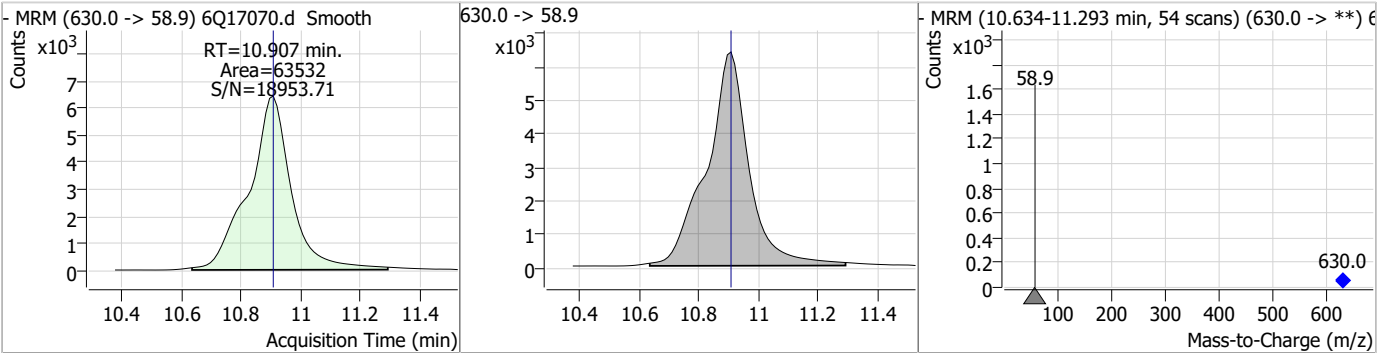
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOsa	5.11	10.73	0.00	20560	511.9 -> 169.0	138.3	67.6	202.9



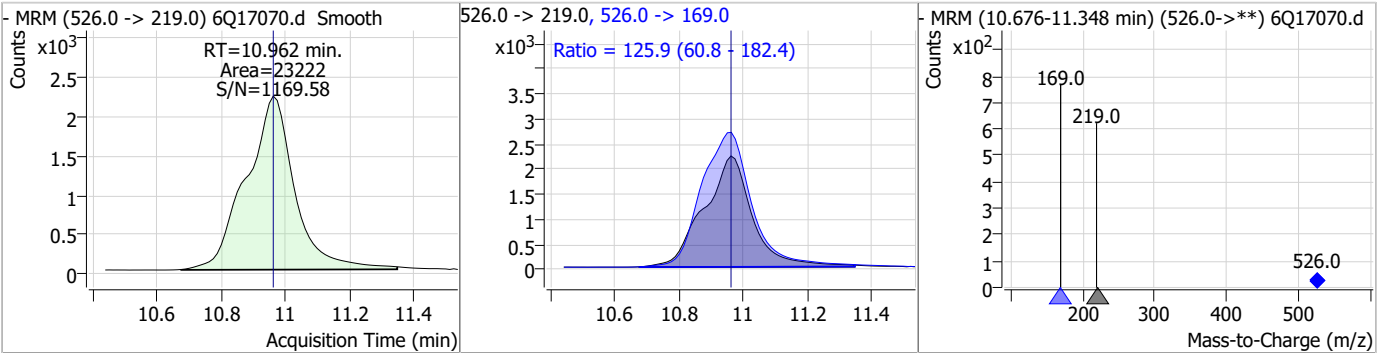
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.03	10.89	0.00	122658				



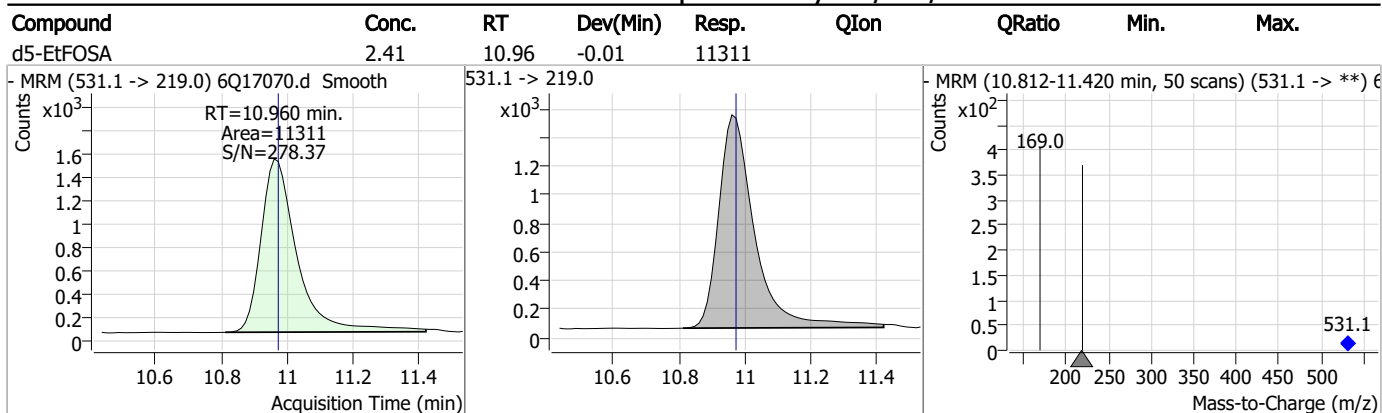
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.44	10.91	0.00	63532				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOsa	5.00	10.96	0.00	23222	526.0 -> 169.0	125.9	60.8	182.4



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q258-CC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17070.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 17:25 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak

7.6.14.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17091.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 10:29:45 PM
 Sample Name : cc258-4
 Vial : P1-A5
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	185196	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	65995	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	69022	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	61083	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	83505	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	27541	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	20249	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	25196	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	25736	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17053	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	24947	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22218	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12288	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	11842	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2149	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2959	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	3033	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	22540	5.00 µg/L	0.000
M3-HFPO-DA	5.833	286.9 -> 168.9	39509	10.00 µg/L	-0.012
M5-EtFOSAA	8.330	589.2 -> 419.0	19382	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	99553	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	118518	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	11787	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	8743	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	15187	2.50 µg/L	-0.012
13C3-PFBA	2.902	216.0 -> 172.0	80467	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9248	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	92267	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	27086	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	29291	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	58684	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2149	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.1%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2959	5.73 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.7%		
13C2-8:2FTS	7.864	529.1 -> 80.9	3033	5.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.3%		
13C2-PFDoDA	8.960	615.1 -> 570.0	25736	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.3%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17053	1.12 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.5%		
13C3-PFBS	5.398	302.1 -> 79.9	22218	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C3-PFHxS	7.179	402.1 -> 79.9	12288	2.50 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 = 99.8%	
13C4-PFBA	2.910	216.8 -> 171.9	185196	9.96 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C4-PFHpA	6.419	367.1 -> 322.0	61083	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C5-PFHxA	5.468	318.0 -> 273.0	69022	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C5-PFPeA	4.270	268.3 -> 223.0	65995	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C6-PFDA	8.076	519.1 -> 474.1	20249	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.7%	
13C7-PFUnDA	8.530	570.0 -> 525.1	25196	1.10 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 88.1%	
13C8-FOSA	9.623	506.1 -> 77.8	24947	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C8-PFOA	7.062	421.1 -> 376.0	83505	2.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.8%	
13C8-PFOS	8.239	507.1 -> 79.9	11842	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C9-PFNA	7.594	472.1 -> 427.0	27541	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.7%	
d3-MeFOSAA	8.134	573.2 -> 419.0	22540	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C3-HFPO-DA	5.833	286.9 -> 168.9	39509	9.51 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.1%	
d3-MeFOSA	10.728	515.0 -> 219.0	8743	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.2%	
d5-EtFOSAA	8.330	589.2 -> 419.0	19382	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.0%	
d7-MeFOSE	10.647	623.2 -> 58.9	99553	24.98 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
d9-EtFOSE	10.894	639.2 -> 58.9	118518	24.33 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.3%	
d5-EtFOSA	10.960	531.1 -> 219.0	11787	2.53 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	33115	10.19 µg/L	98
		327.1 -> 80.9	12720		
6:2FTS	6.839	427.1 -> 407.0	30027	9.22 µg/L	94
		427.1 -> 80.9	9727		
8:2FTS	7.865	527.1 -> 507.0	17127	9.49 µg/L	95
		527.1 -> 80.8	7455		
EtFOSAA	8.331	584.2 -> 419.1	7419	2.25 µg/L	85
		584.2 -> 526.0	4678		
FOSA	9.614	498.1 -> 77.9	23244	2.60 µg/L	100
		498.1 -> 478.0	646		
MeFOSAA	8.136	570.1 -> 419.0	11379	2.69 µg/L	91
		570.1 -> 483.0	2065		
PFBA	2.906	212.8 -> 168.9	63491	10.22 µg/L	100
PFBS	5.400	298.7 -> 79.9	23773	2.38 µg/L	95
		298.7 -> 98.8	9112		
PFDA	8.077	512.9 -> 469.0	54140	2.46 µg/L	97
		512.9 -> 219.0	9580		
PFDoDA	8.961	613.1 -> 569.0	50020	2.48 µg/L	100
		613.1 -> 319.0	7282		
PFDS	9.125	599.0 -> 79.9	8734	2.31 µg/L	95

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.420	599.0 -> 98.8	4643	2.42	µg/L	96
		363.1 -> 319.0	73035			
PFHpS	7.734	363.1 -> 169.0	11923	2.26	µg/L	97
		449.0 -> 79.9	14531			
PFHxA	5.470	449.0 -> 98.9	7052	2.52	µg/L	100
		313.0 -> 269.0	68717			
PFHxS	7.180	313.0 -> 118.9	3241	2.32	µg/L	m
		398.7 -> 79.9	15546			
PFNA	7.595	398.7 -> 98.9	7877	2.48	µg/L	100
		463.0 -> 419.0	47336			
PFNS	8.694	463.0 -> 219.0	9847	2.31	µg/L	97
		548.8 -> 79.9	13213			
PFOA	7.063	548.8 -> 98.9	6968	2.35	µg/L	97
		413.0 -> 369.0	92077			
PFOS	8.228	413.0 -> 169.0	17393	2.14	µg/L	m
		498.9 -> 79.9	12258			
PFPeA	4.273	498.9 -> 98.8	6904	5.04	µg/L	100
		263.0 -> 219.0	90596			
PFPeS	6.472	349.1 -> 79.9	17487	2.50	µg/L	98
		349.1 -> 98.9	8286			
PFTeDA	9.690	713.1 -> 669.0	42551	2.47	µg/L	99
		713.1 -> 168.9	3424			
PFTrDA	9.345	663.0 -> 619.0	57462	2.57	µg/L	99
		663.0 -> 168.9	5446			
PFUnDA	8.531	563.1 -> 519.0	45581	2.61	µg/L	98
		563.1 -> 269.1	7442			
11CI-PF3OUdS	9.398	630.9 -> 450.9	68238	5.03	µg/L	96
		632.9 -> 452.9	20422			
9CI-PF3ONS	8.569	530.8 -> 351.0	109453	5.11	µg/L	97
		532.8 -> 353.0	34419			
ADONA	6.681	376.9 -> 250.9	299889	5.02	µg/L	100
		376.9 -> 84.8	78409			
HFPO-DA	5.846	284.9 -> 168.9	18338	4.90	µg/L	99
		284.9 -> 184.9	2504			
3:3FTCA	3.784	241.0 -> 177.0	13846	12.32	µg/L	98
		241.0 -> 117.0	1730			
5:3FTCA	6.160	341.0 -> 237.1	287147	65.02	µg/L	88
		341.0 -> 217.0	218986			
7:3FTCA	7.573	441.0 -> 316.9	130156	64.87	µg/L	98
		441.0 -> 336.9	285359			
EtFOSA	10.962	526.0 -> 219.0	24127	4.98	µg/L	96
		526.0 -> 169.0	30373			
EtFOSE	10.907	630.0 -> 58.9	64189	13.01	µg/L	100
		511.9 -> 219.0	21416			
MeFOSA	10.730	511.9 -> 169.0	28718	5.44	µg/L	99
		616.1 -> 58.9	54629			
MeFOSE	10.661	699.1 -> 79.9	4586	12.30	µg/L	100
		699.1 -> 98.8	2610			
PFDoDS	9.817	295.0 -> 201.0	15369	2.35	µg/L	100
		295.0 -> 84.9	3805			
NFDHA	5.350	279.0 -> 85.1	61464	5.20	µg/L	99
		229.0 -> 84.9	44781			
PFMBA	4.687	314.8 -> 134.9	152118	4.98	µg/L	100
		314.8 -> 82.9	5858			
PFMPA	3.438			4.42	µg/L	100
PFEESA	5.937			4.42	µg/L	100

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



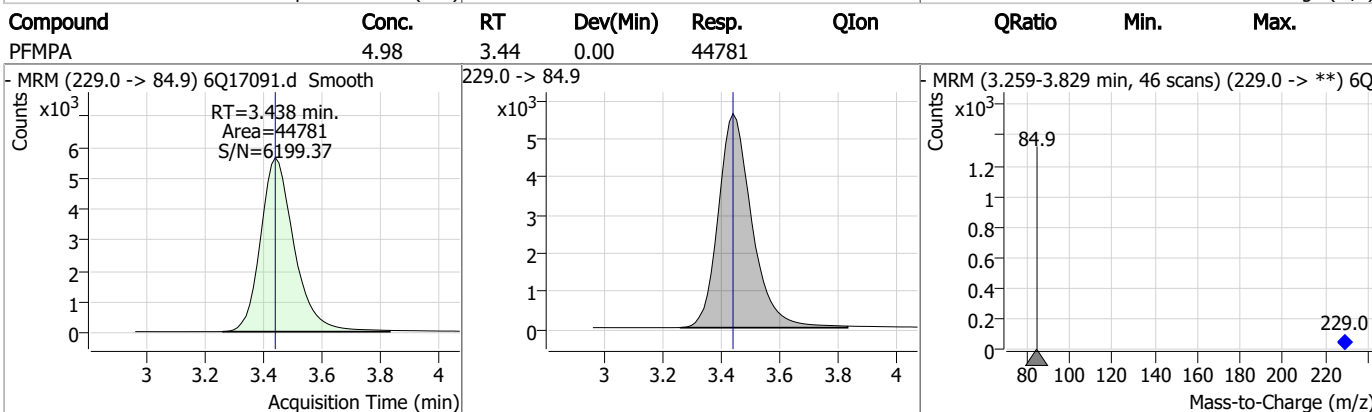
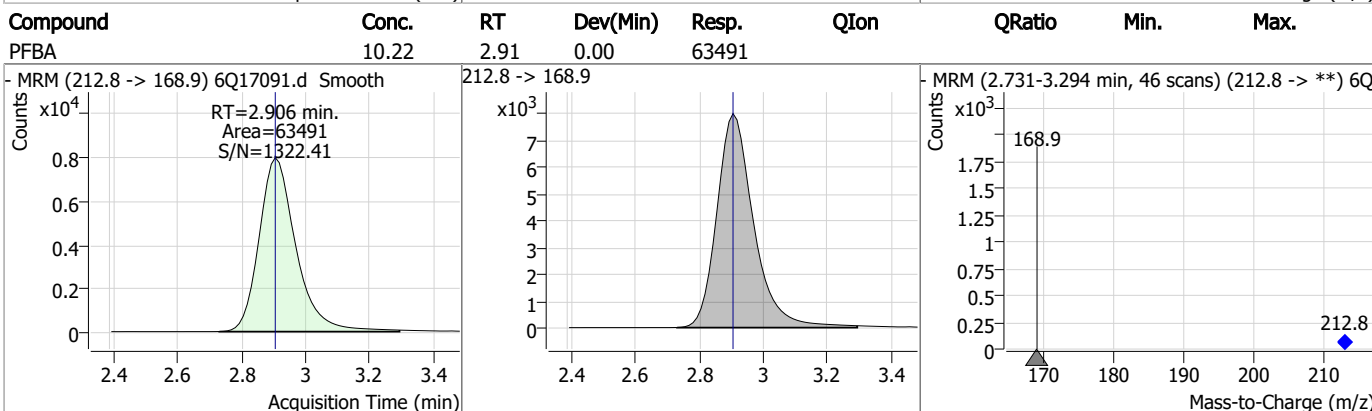
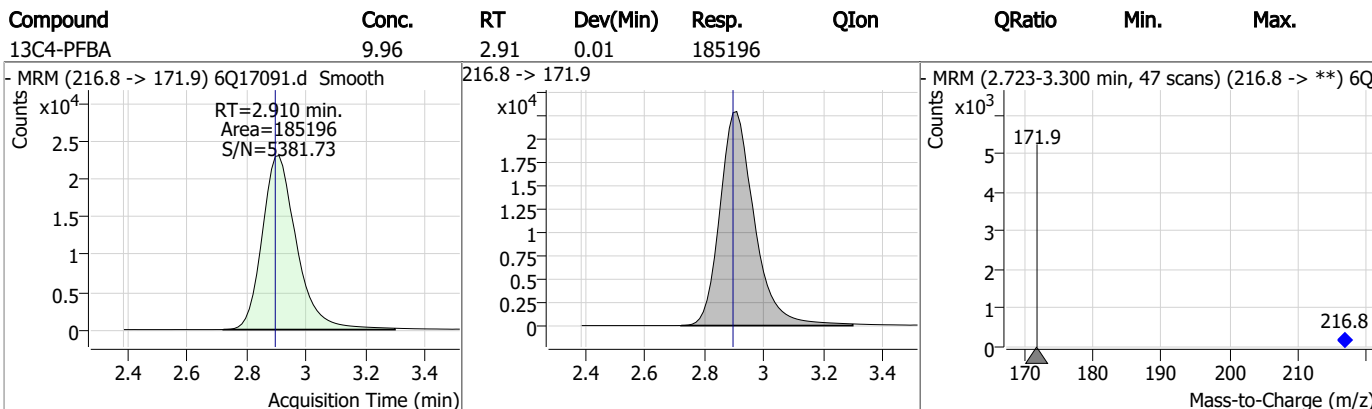
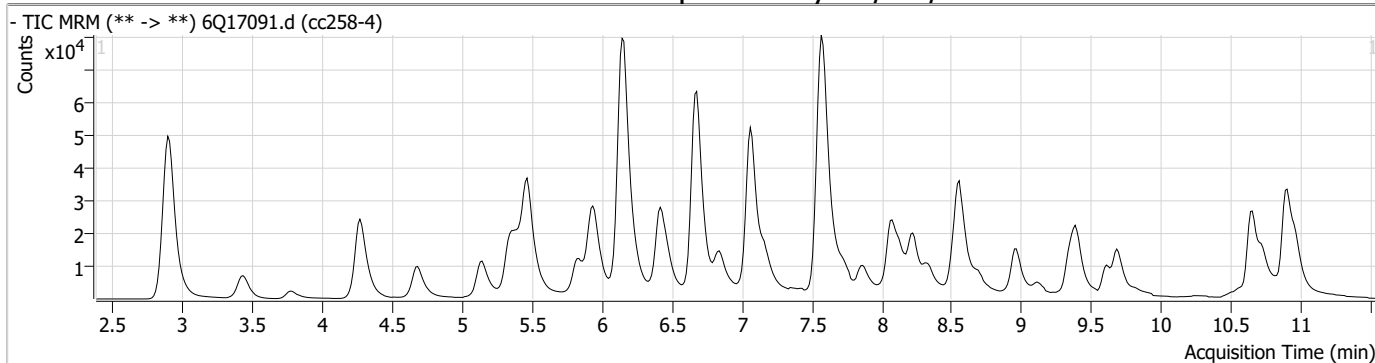
Perfluorinated Compounds by LC/MS/MS

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



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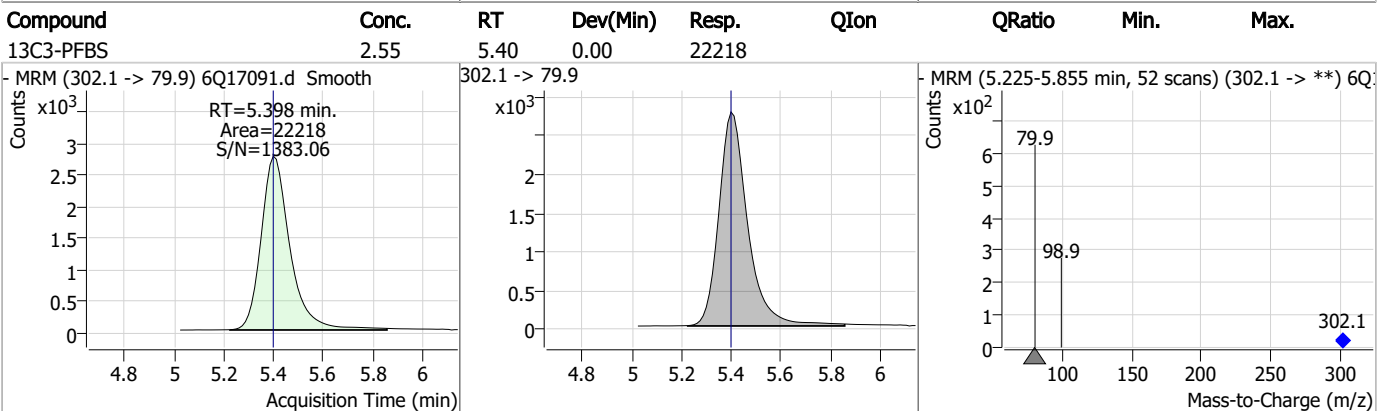
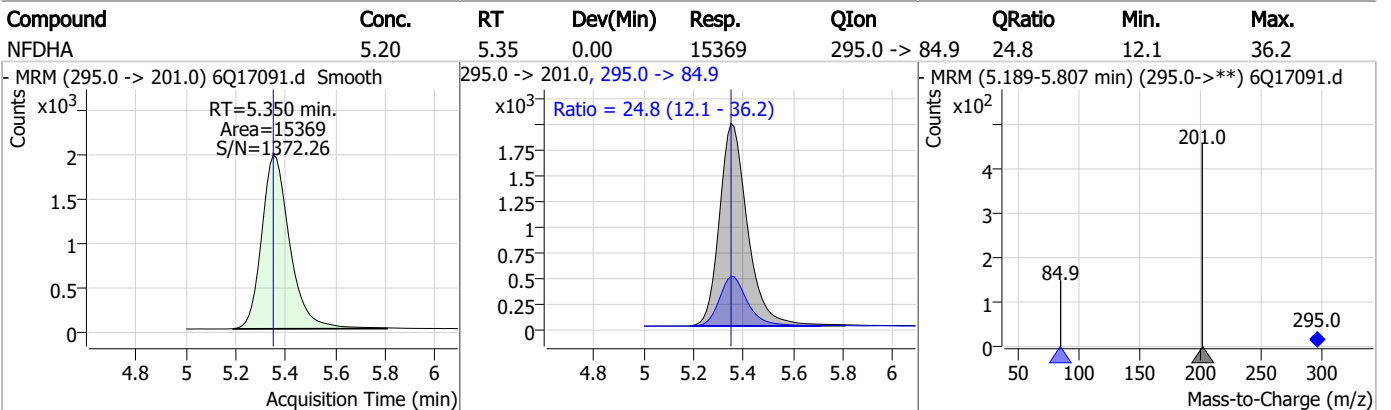
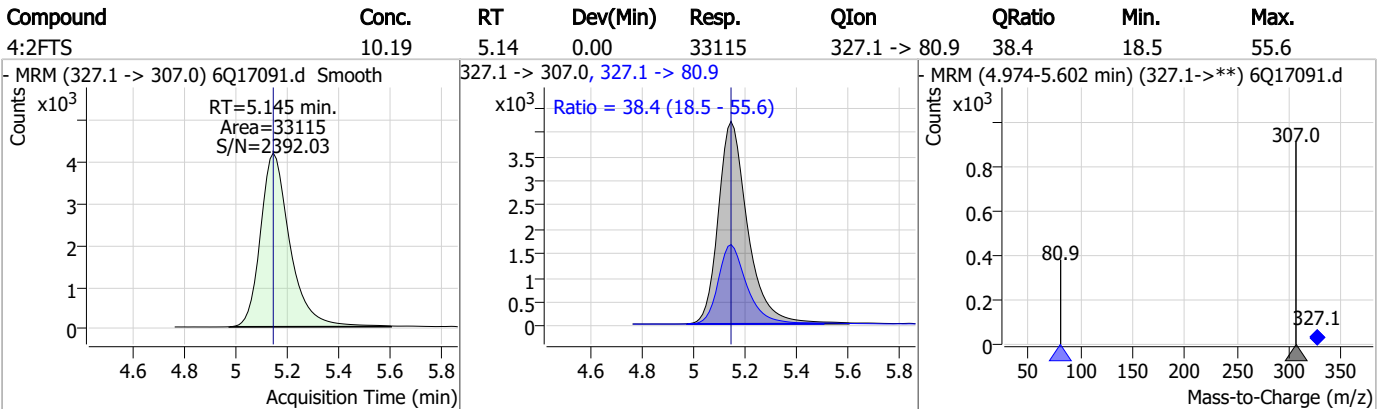
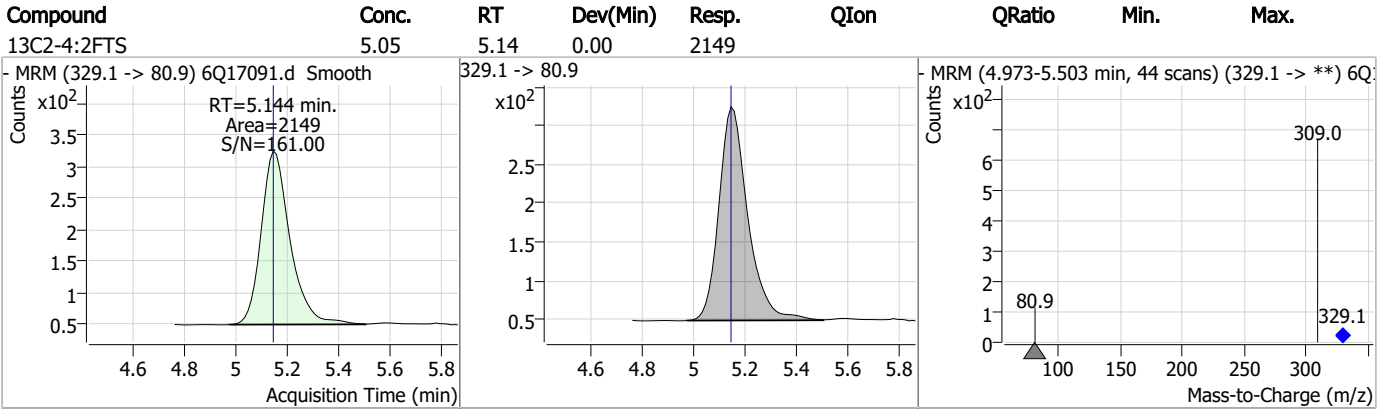
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	12.32	3.78	0.00	13846	241.0 -> 117.0	12.5	6.7	20.0
13C5-PFPeA	5.03	4.27	0.00	65995				
PFPeA	5.04	4.27	0.00	90596				
PFMBA	5.10	4.69	0.00	61464				

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Perfluorinated Compounds by LC/MS/MS

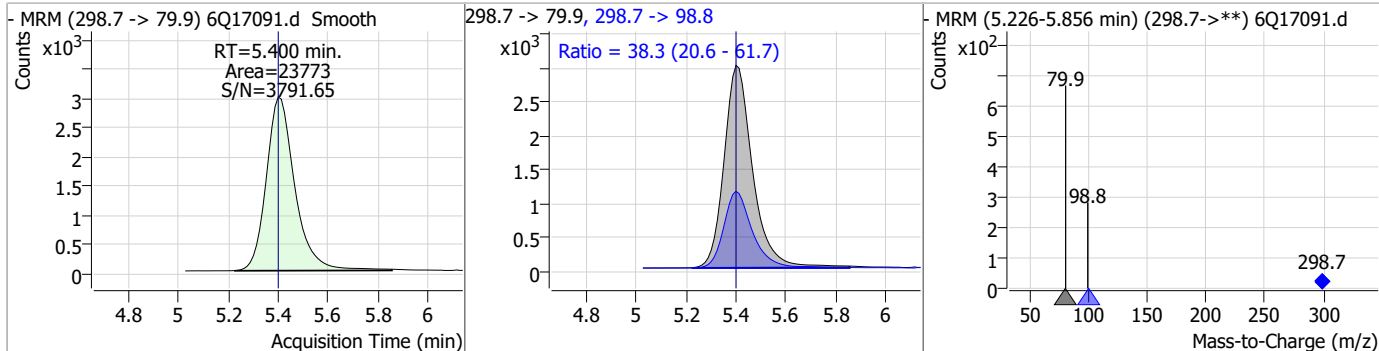


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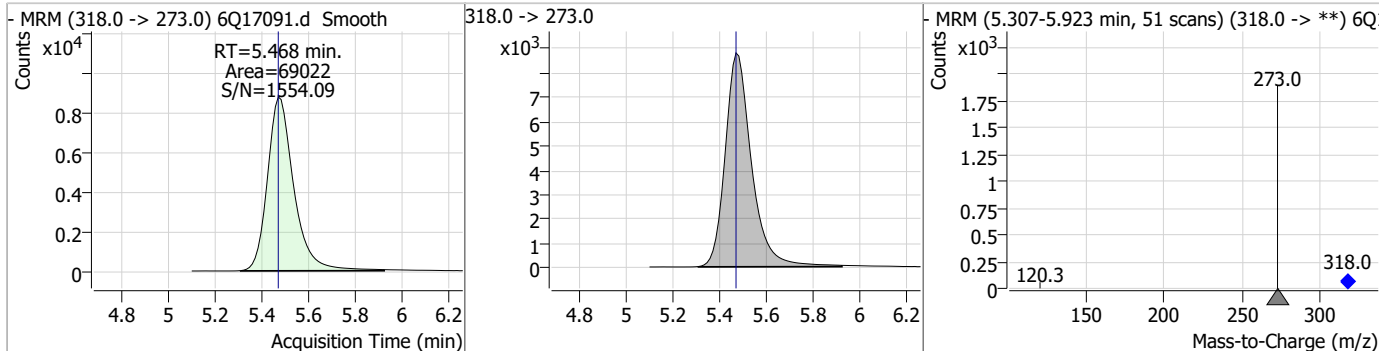


Perfluorinated Compounds by LC/MS/MS

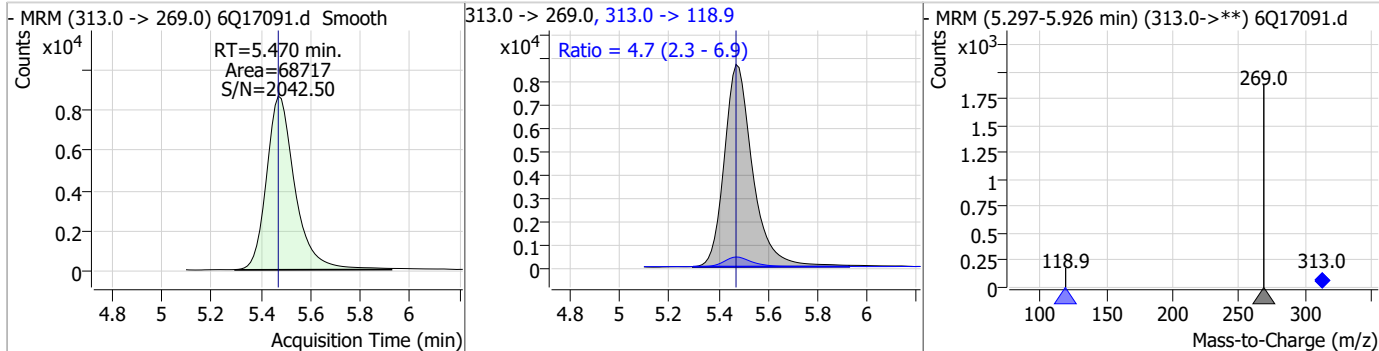
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.38	5.40	0.00	23773	298.7 -> 98.8	38.3	20.6	61.7



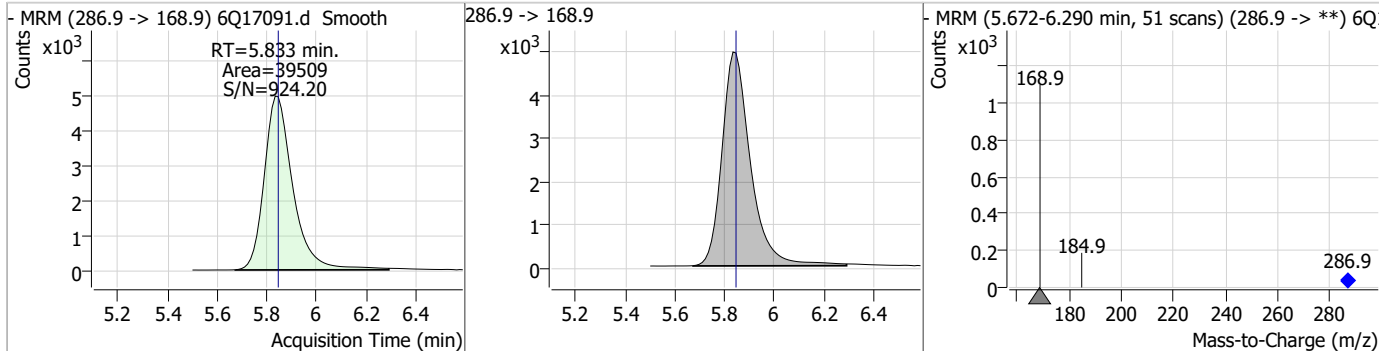
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.44	5.47	0.00	69022	318.0 -> 273.0	4.7	2.3	6.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.52	5.47	0.00	68717	313.0 -> 118.9	4.7	2.3	6.9

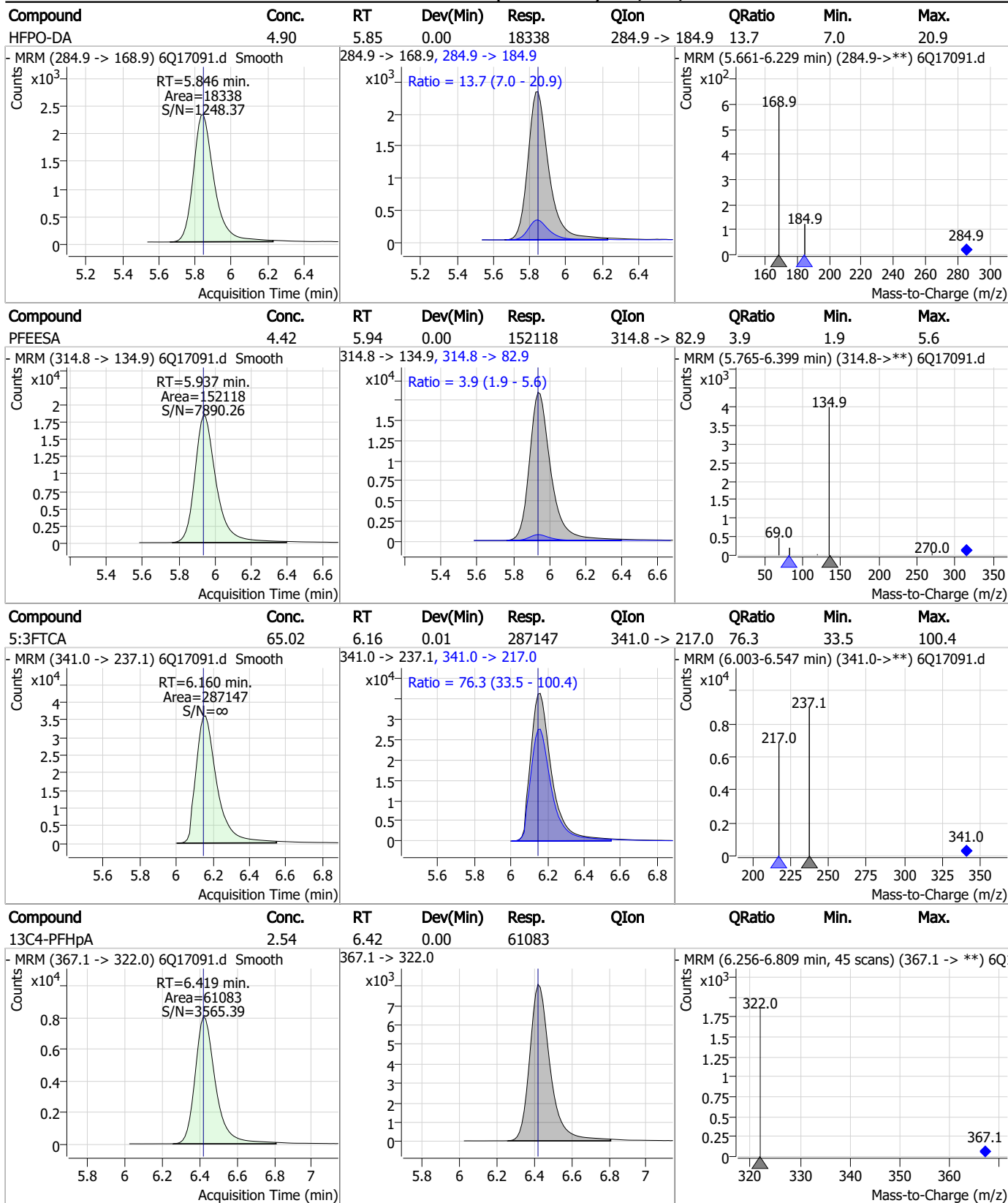


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.51	5.83	-0.01	39509	286.9 -> 168.9	4.7	2.3	6.9



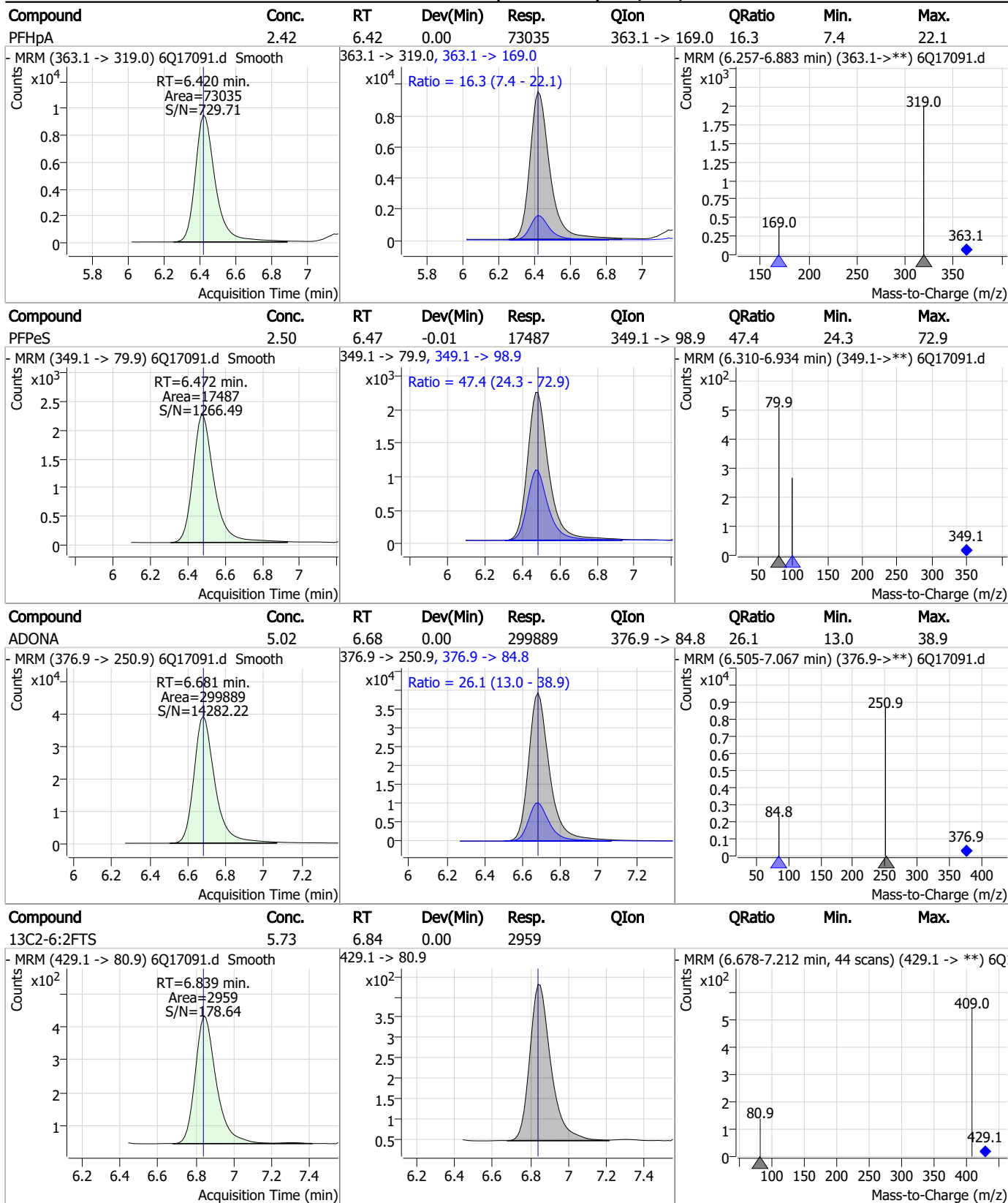
7.6.15
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Perfluorinated Compounds by LC/MS/MS



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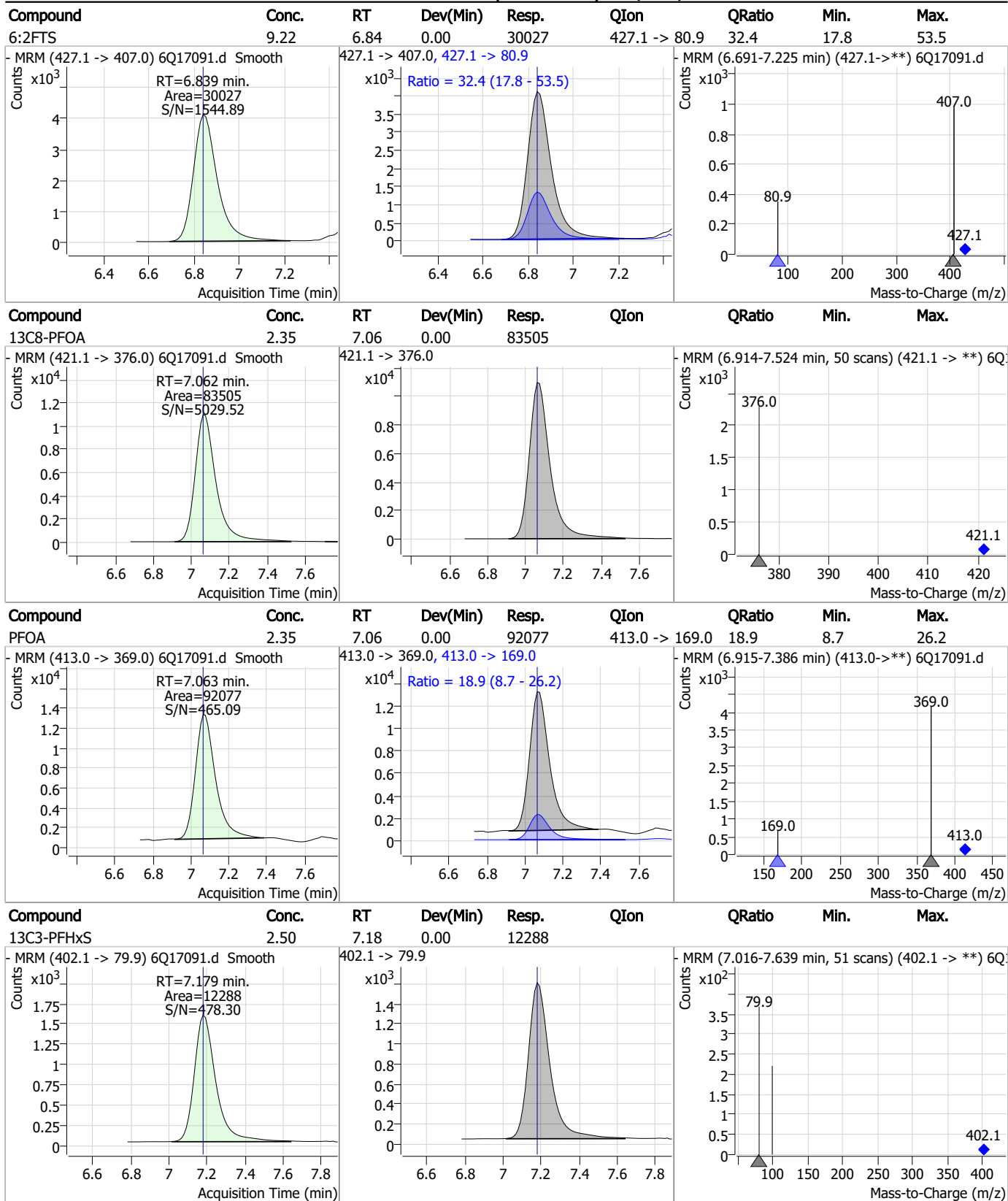
Perfluorinated Compounds by LC/MS/MS



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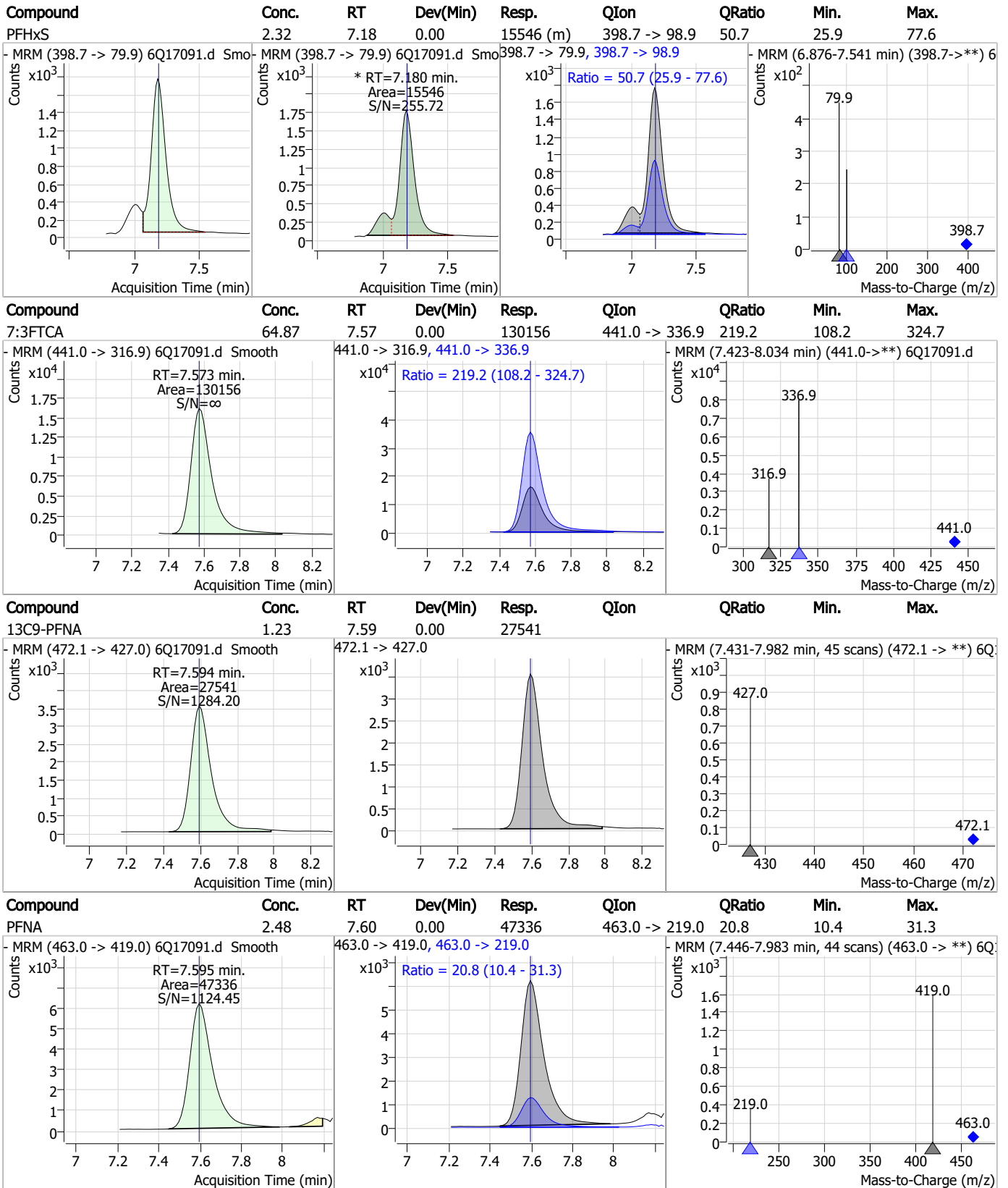
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Perfluorinated Compounds by LC/MS/MS



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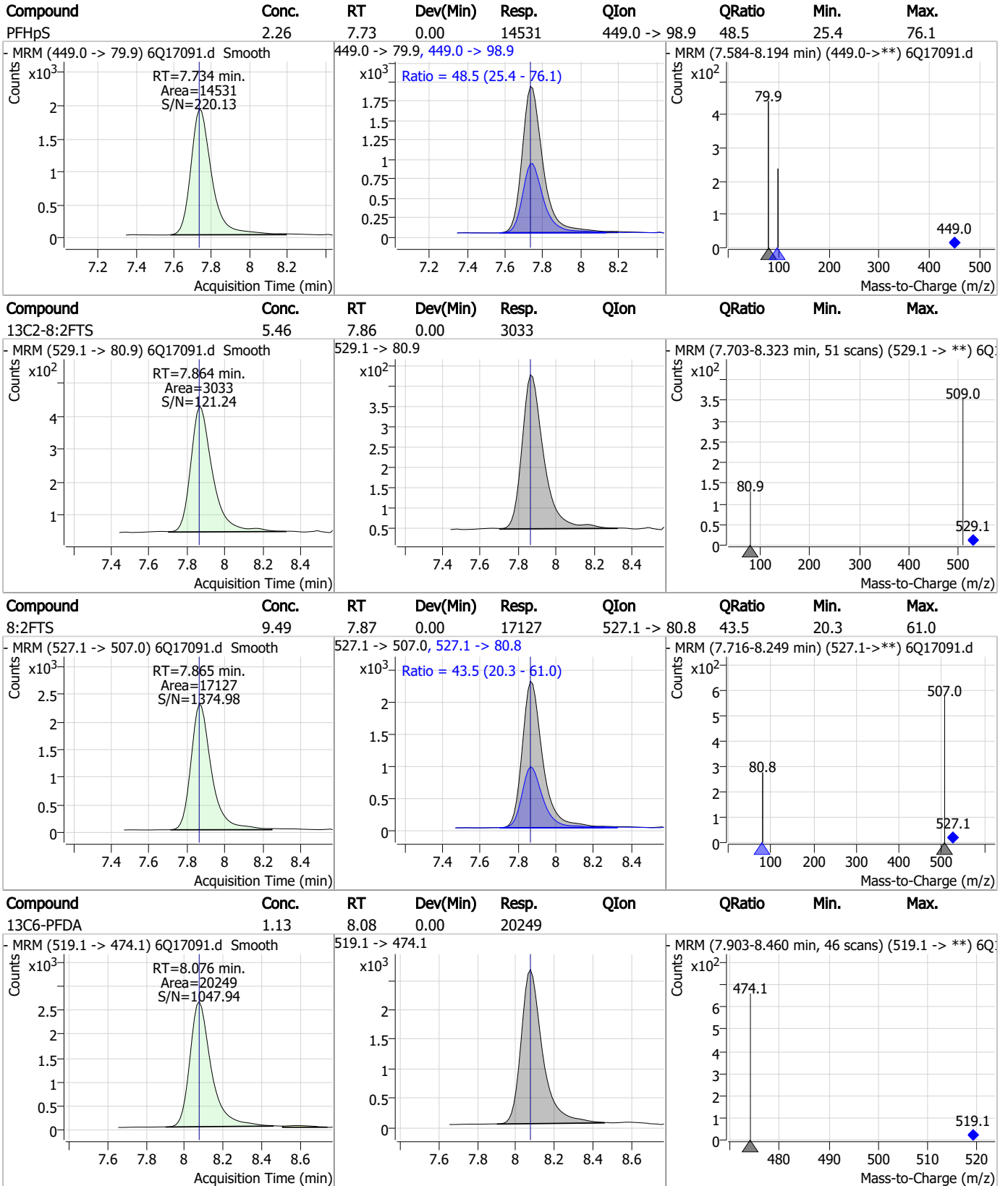
Perfluorinated Compounds by LC/MS/MS



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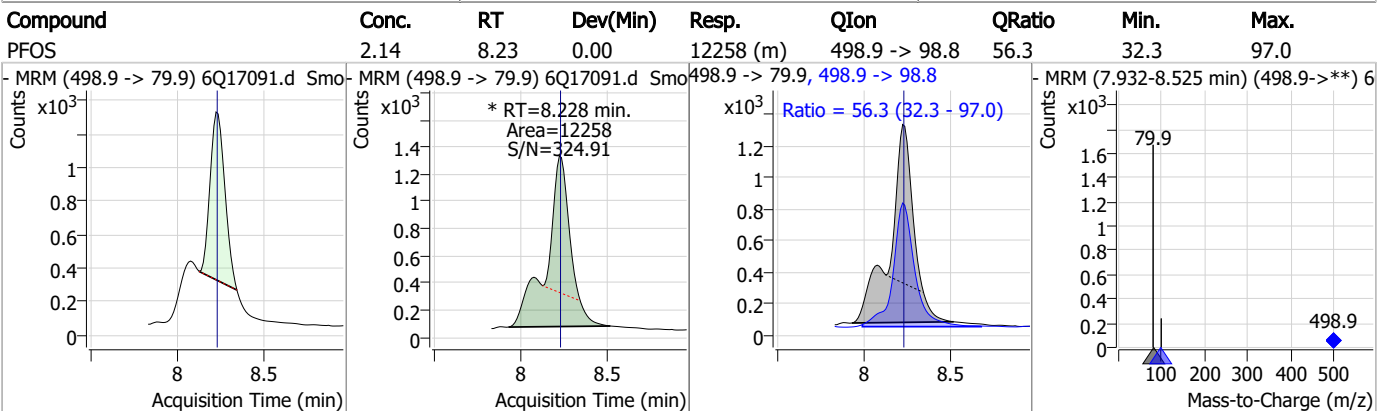
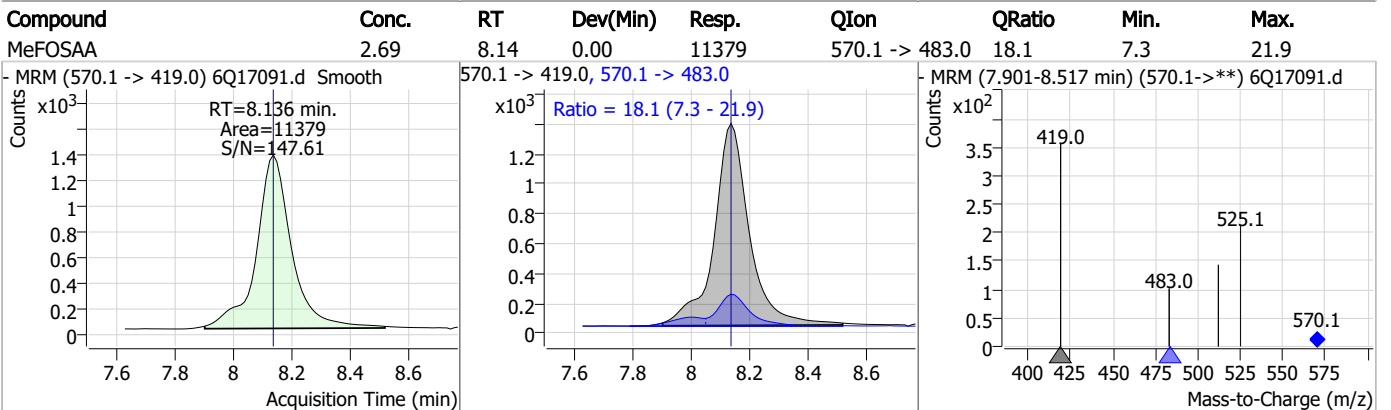
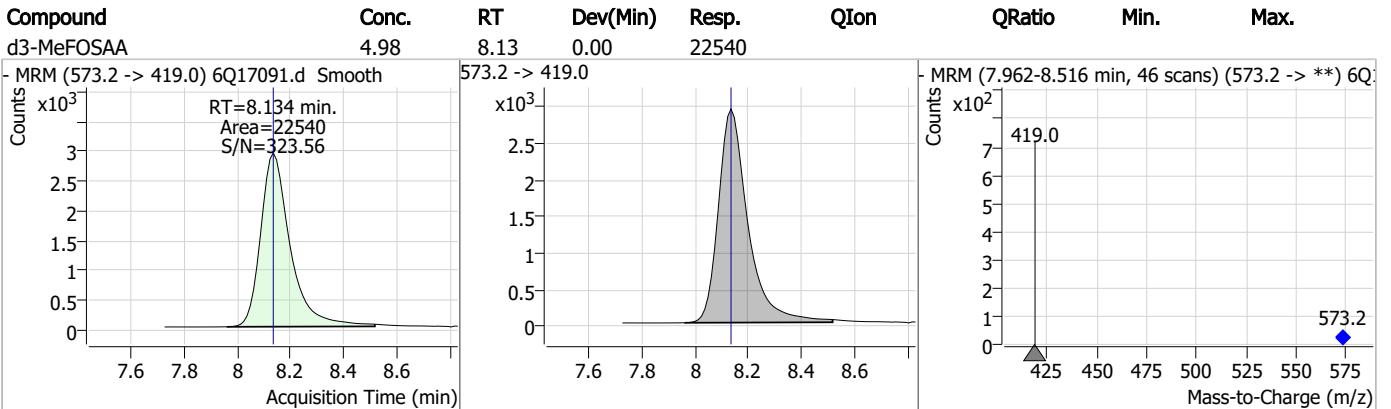
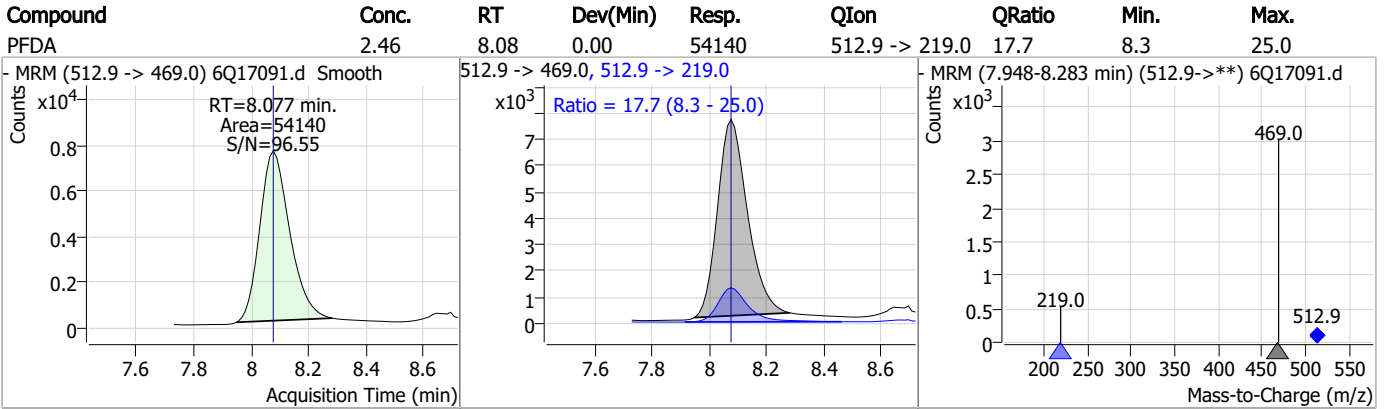
Perfluorinated Compounds by LC/MS/MS



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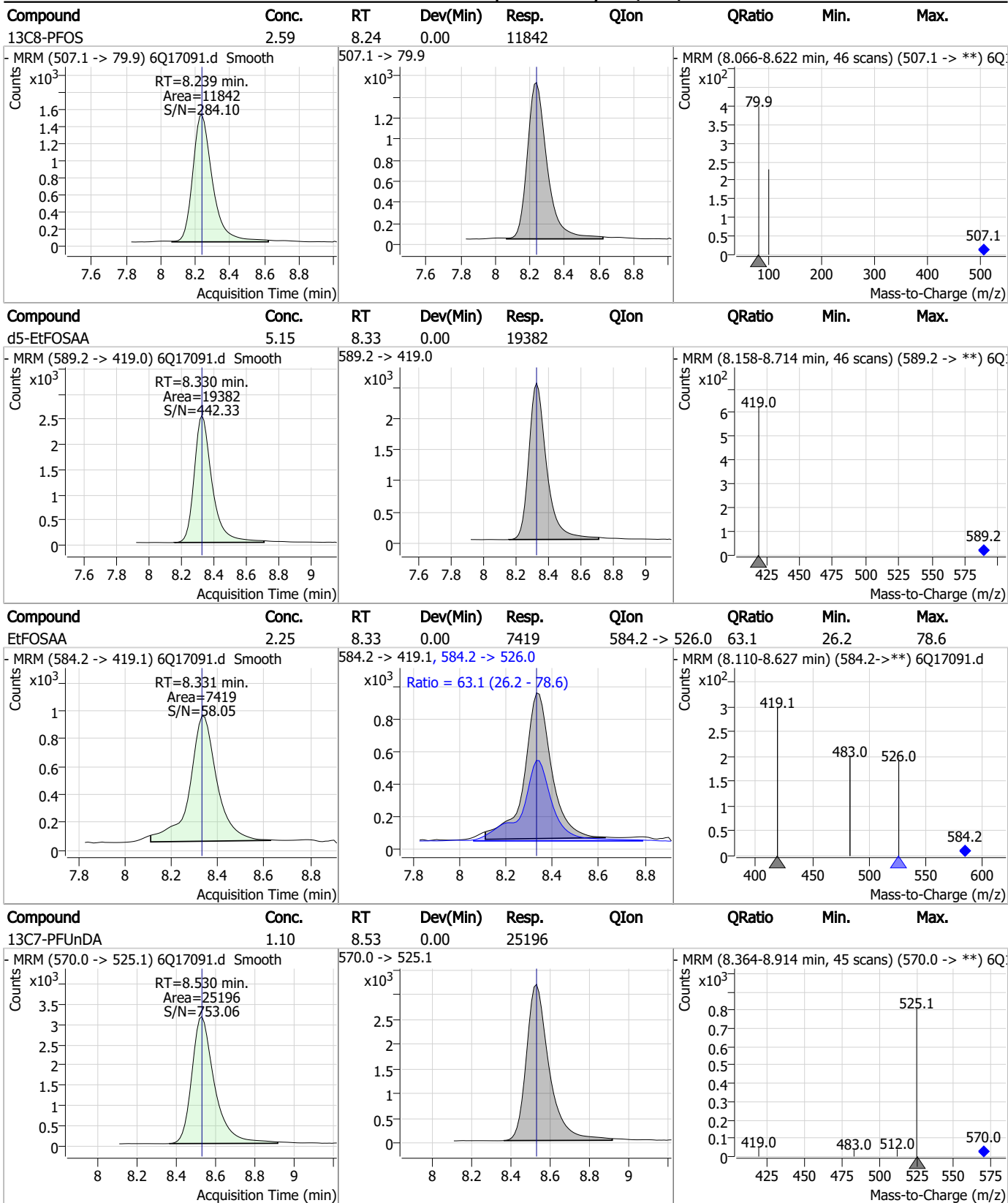
Perfluorinated Compounds by LC/MS/MS



7.6.15
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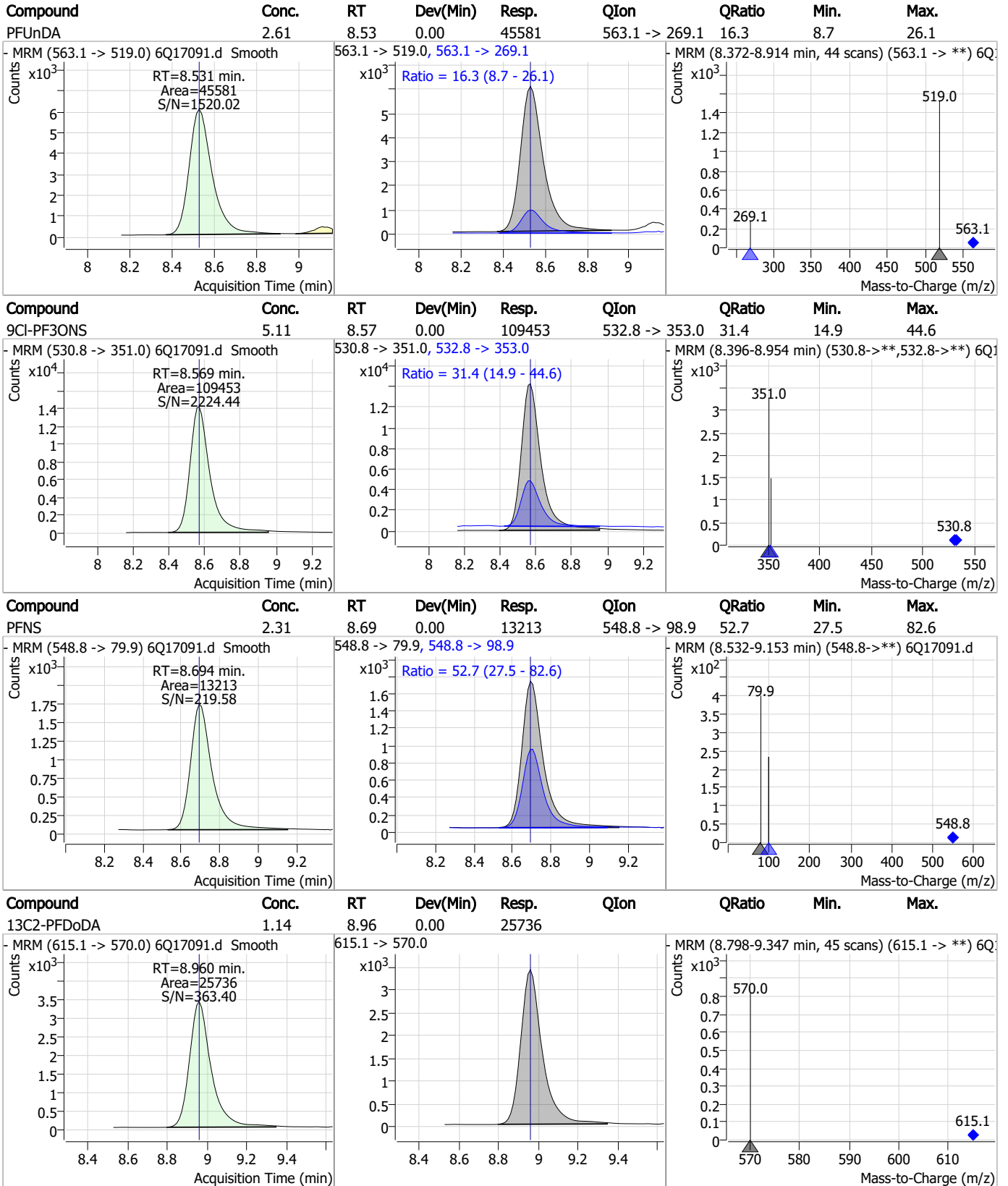
Perfluorinated Compounds by LC/MS/MS



7.6.15

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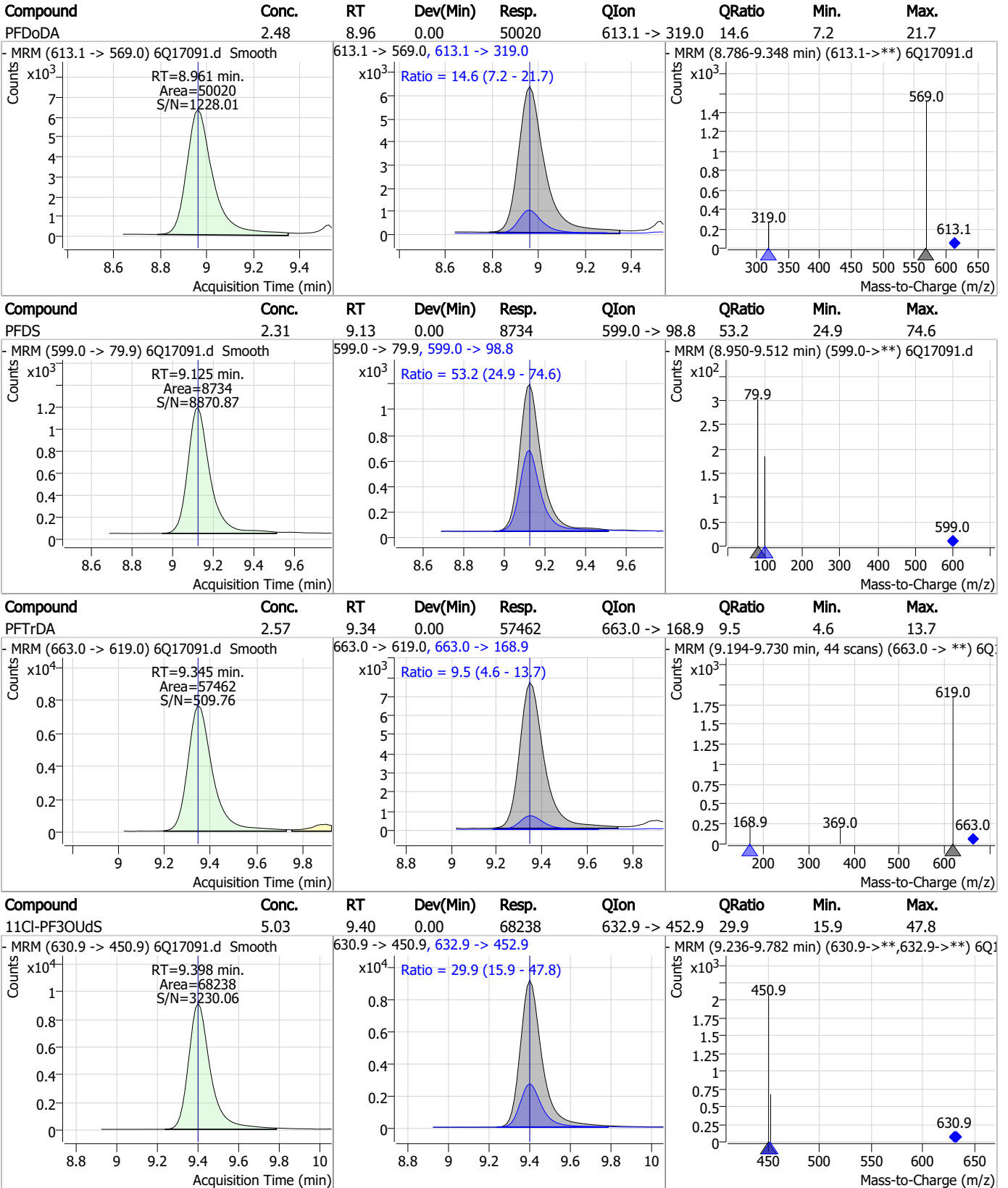
Perfluorinated Compounds by LC/MS/MS



7.6.15 7



Perfluorinated Compounds by LC/MS/MS

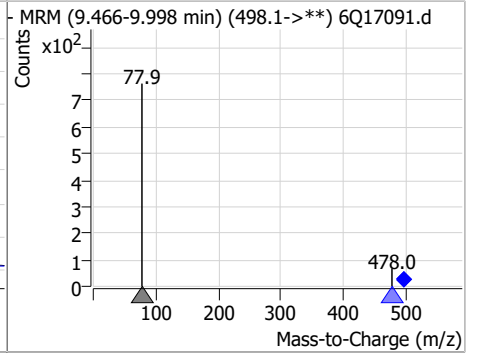
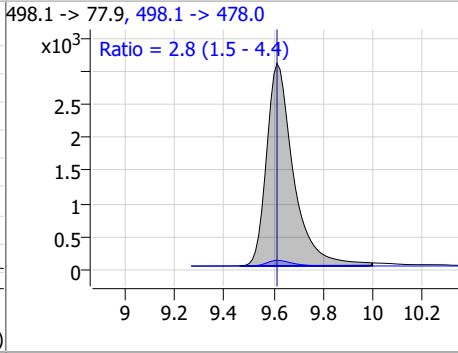
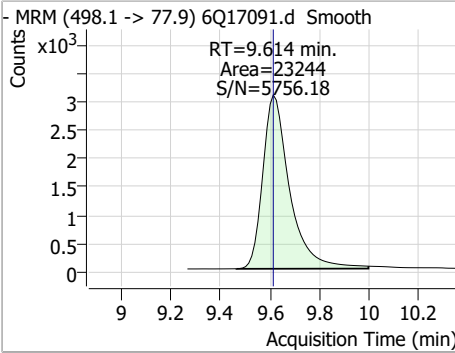


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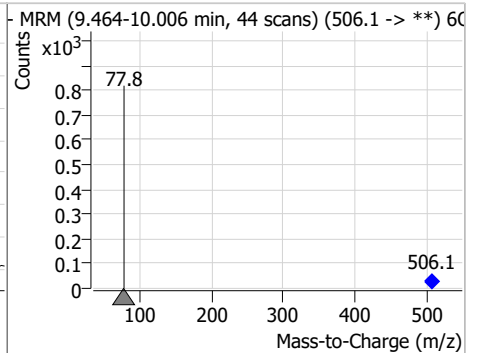
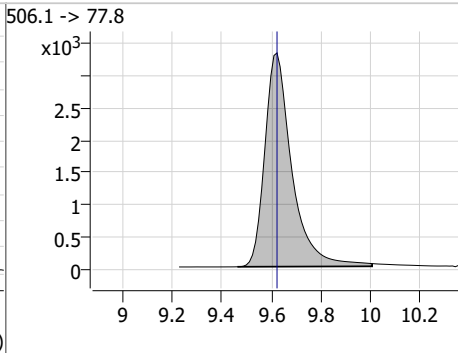
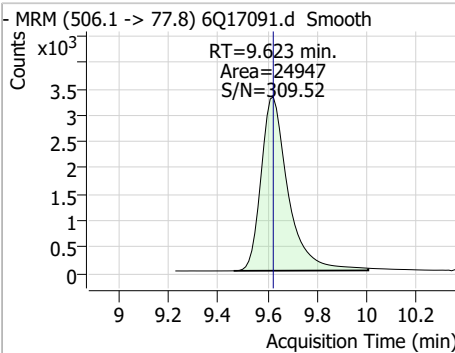
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Perfluorinated Compounds by LC/MS/MS

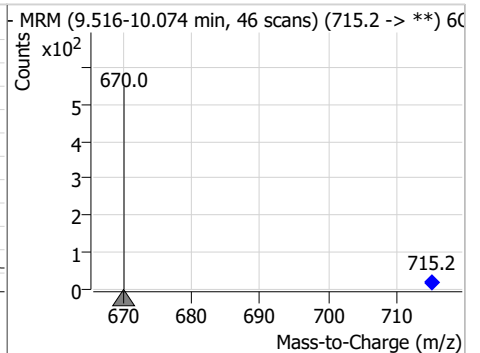
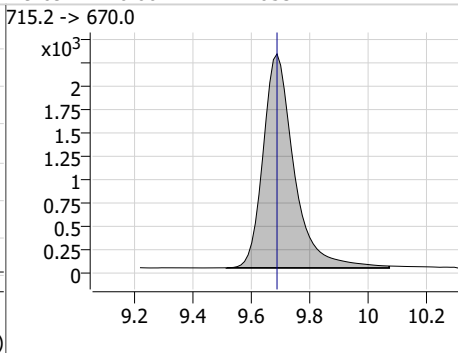
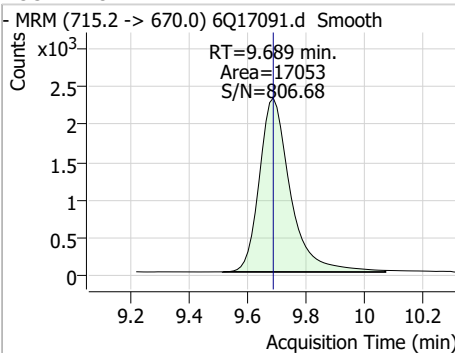
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.60	9.61	0.00	23244	498.1 -> 478.0	2.8	1.5	4.4



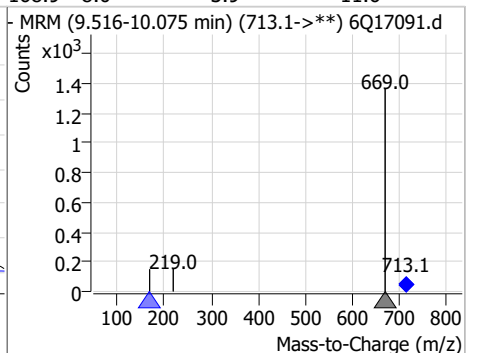
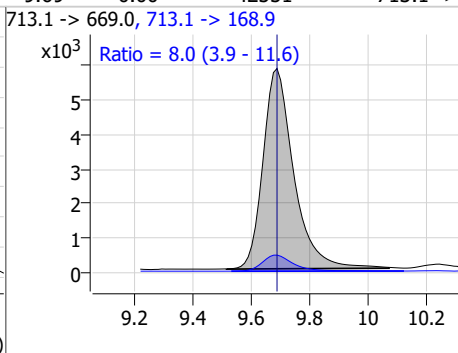
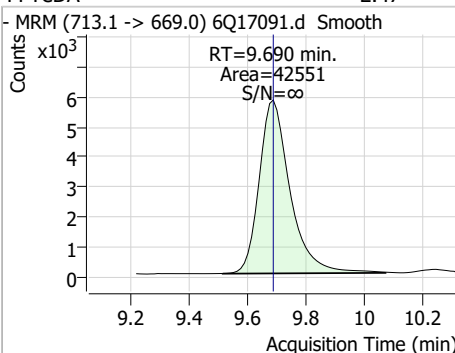
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.48	9.62	0.00	24947				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.12	9.69	0.00	17053				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.47	9.69	0.00	42551	713.1 -> 168.9	8.0	3.9	11.6

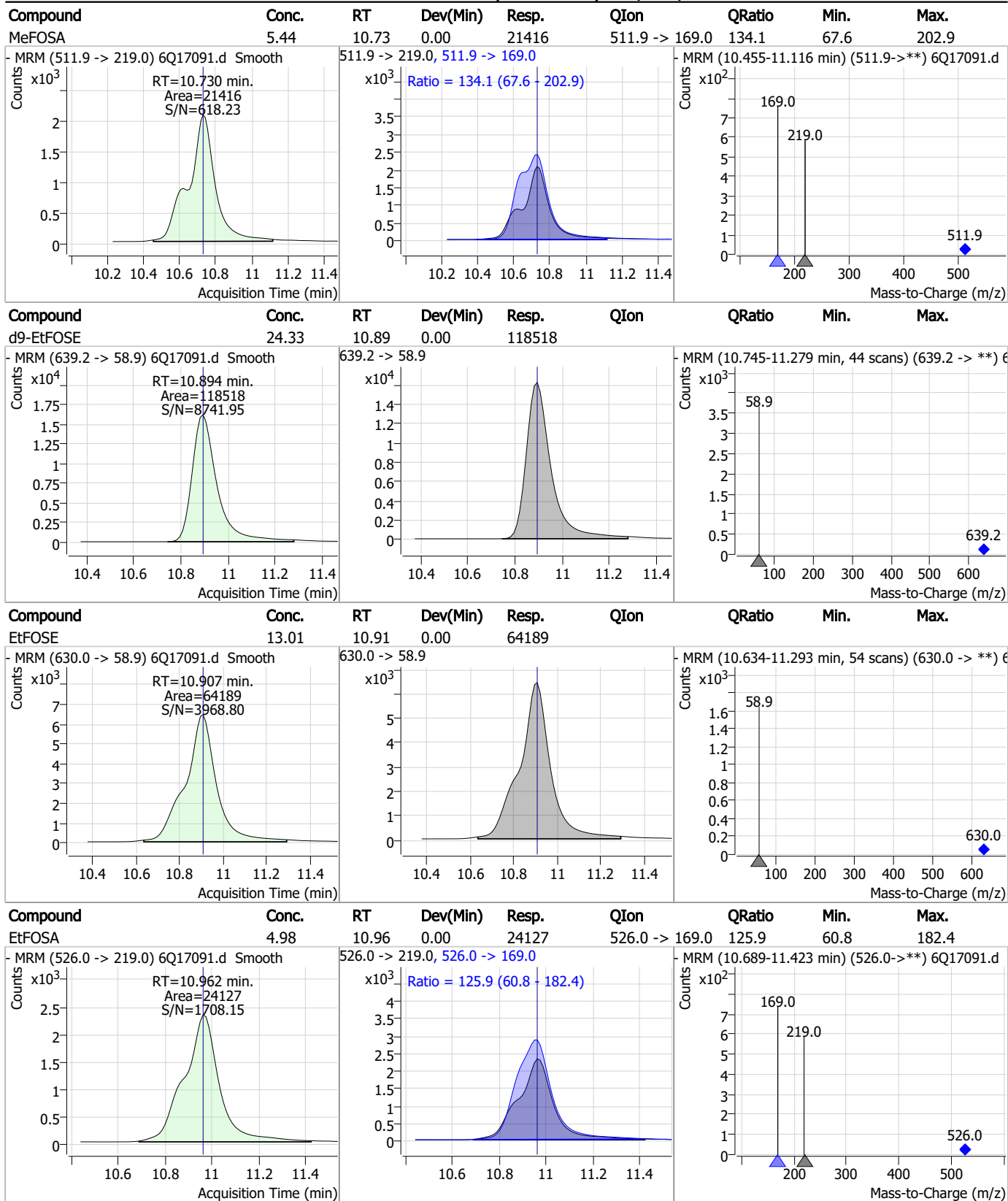


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.35	9.82	0.00	4586	699.1 -> 98.8	56.9	28.5	85.6
d7-MeFOSE	24.98	10.65	0.00	99553				
MeFOSE	12.30	10.66	0.00	54629				
d3-MeFOSA	2.30	10.73	0.00	8743				

7.6.15
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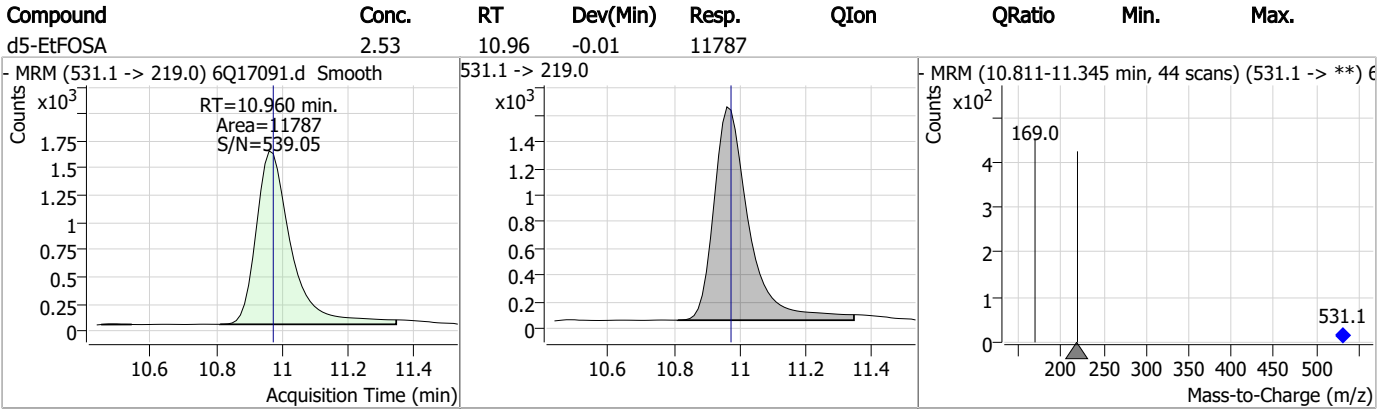
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q258-CC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17091.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 22:29 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak

7.6.15.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17103.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/29/2023 1:23:33 AM
 Sample Name : cc258-4
 Vial : P1-A5
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	183896	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	65477	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	70086	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	59814	2.50 µg/L	0.000
M8-PFOA	7.074	421.1 -> 376.0	80295	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	26919	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	19728	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	26104	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	24867	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	16399	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	25561	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22460	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12865	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	11810	2.50 µg/L	-0.012
M2-4:2FTS	5.144	329.1 -> 80.9	2203	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2960	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	3048	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	22071	5.00 µg/L	0.000
M3-HFPO-DA	5.833	286.9 -> 168.9	39335	10.00 µg/L	-0.012
M5-EtFOSAA	8.330	589.2 -> 419.0	19752	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	97586	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	119323	25.00 µg/L	0.000
M5-EtFOSA	10.973	531.1 -> 219.0	11687	2.50 µg/L	0.000
M3-MeFOSA	10.741	515.0 -> 219.0	8712	2.50 µg/L	0.012
13C4-PFOS	8.239	502.8 -> 79.9	14247	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	79944	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	10083	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	85912	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	24899	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	29842	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	57802	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2203	4.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.1%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2960	5.26 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.2%		
13C2-8:2FTS	7.864	529.1 -> 80.9	3048	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C2-PFDoDA	8.960	615.1 -> 570.0	24867	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.0%		
13C2-PFTeDA	9.689	715.2 -> 670.0	16399	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.6%		
13C3-PFBS	5.398	302.1 -> 79.9	22460	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.7%		
13C3-PFHxS	7.179	402.1 -> 79.9	12865	2.40 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 = 95.9%	
13C4-PFBA	2.910	216.8 -> 171.9	183896	9.95 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C4-PFHpA	6.419	367.1 -> 322.0	59814	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C5-PFHxA	5.468	318.0 -> 273.0	70086	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C5-PFPeA	4.270	268.3 -> 223.0	65477	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C6-PFDA	8.076	519.1 -> 474.1	19728	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C7-PFUnDA	8.530	570.0 -> 525.1	26104	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C8-FOSA	9.623	506.1 -> 77.8	25561	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.6%	
13C8-PFOA	7.074	421.1 -> 376.0	80295	2.42 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%	
13C8-PFOS	8.226	507.1 -> 79.9	11810	2.75 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.1%	
13C9-PFNA	7.594	472.1 -> 427.0	26919	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.7%	
d3-MeFOSAA	8.134	573.2 -> 419.0	22071	5.20 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C3-HFPO-DA	5.833	286.9 -> 168.9	39335	9.61 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.1%	
d3-MeFOSA	10.741	515.0 -> 219.0	8712	2.45 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.9%	
d5-EtFOSAA	8.330	589.2 -> 419.0	19752	5.60 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 111.9%	
d7-MeFOSE	10.647	623.2 -> 58.9	97586	26.10 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.4%	
d9-EtFOSE	10.894	639.2 -> 58.9	119323	26.12 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.5%	
d5-EtFOSA	10.973	531.1 -> 219.0	11687	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.0%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	31912	9.57 µg/L	98
		327.1 -> 80.9	12281		
6:2FTS	6.839	427.1 -> 407.0	29143	8.95 µg/L	96
		427.1 -> 80.9	9643		
8:2FTS	7.865	527.1 -> 507.0	16519	9.11 µg/L	99
		527.1 -> 80.8	6779		
EtFOSAA	8.331	584.2 -> 419.1	7853	2.34 µg/L	96
		584.2 -> 526.0	4316		
FOSA	9.614	498.1 -> 77.9	22344	2.44 µg/L	99
		498.1 -> 478.0	575		
MeFOSAA	8.136	570.1 -> 419.0	10938	2.64 µg/L	89
		570.1 -> 483.0	2076		
PFBA	2.906	212.8 -> 168.9	62778	10.18 µg/L	100
PFBS	5.400	298.7 -> 79.9	23366	2.32 µg/L	95
		298.7 -> 98.8	8901		
PFDA	8.077	512.9 -> 469.0	62633	2.92 µg/L	96
		512.9 -> 219.0	9347		
PFDODA	8.961	613.1 -> 569.0	50596	2.60 µg/L	98
		613.1 -> 319.0	7009		
PFDS	9.125	599.0 -> 79.9	9001	2.39 µg/L	95

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.420	599.0 -> 98.8	4182	2.47	µg/L	97
		363.1 -> 319.0	72762			
PFHpS	7.734	363.1 -> 169.0	11787	2.15	µg/L	99
		449.0 -> 79.9	13770			
PFHxA	5.470	449.0 -> 98.9	6894	2.39	µg/L	100
		313.0 -> 269.0	66255			
PFHxS	7.180	313.0 -> 118.9	3047	2.27	µg/L	95
		398.7 -> 79.9	15937			
PFNA	7.595	398.7 -> 98.9	7691	2.63	µg/L	96
		463.0 -> 419.0	49030			
PFNS	8.694	463.0 -> 219.0	9383	2.32	µg/L	99
		548.8 -> 79.9	13217			
PFOA	7.063	548.8 -> 98.9	7422	2.67	µg/L	96
		413.0 -> 369.0	100789			
PFOS	8.228	413.0 -> 169.0	15781	2.03	µg/L	95
		498.9 -> 79.9	11576			
PFPeA	4.273	498.9 -> 98.8	7045	5.03	µg/L	100
		263.0 -> 219.0	89734			
PFPeS	6.472	349.1 -> 79.9	17760	2.43	µg/L	92
		349.1 -> 98.9	7650			
PFTeDA	9.690	713.1 -> 669.0	44058	2.66	µg/L	99
		713.1 -> 168.9	3536			
PFTrDA	9.345	663.0 -> 619.0	56828	2.63	µg/L	99
		663.0 -> 168.9	4992			
PFUnDA	8.531	563.1 -> 519.0	47709	2.64	µg/L	96
		563.1 -> 269.1	7473			
11CI-PF3OUdS	9.398	630.9 -> 450.9	64645	4.79	µg/L	99
		632.9 -> 452.9	20282			
9CI-PF3ONS	8.569	530.8 -> 351.0	103220	4.84	µg/L	96
		532.8 -> 353.0	32825			
ADONA	6.681	376.9 -> 250.9	281277	4.73	µg/L	95
		376.9 -> 84.8	80048			
HFPO-DA	5.834	284.9 -> 168.9	18814	5.05	µg/L	98
		284.9 -> 184.9	2476			
3:3FTCA	3.784	241.0 -> 177.0	13521	12.12	µg/L	98
		241.0 -> 117.0	1671			
5:3FTCA	6.160	341.0 -> 237.1	255398	56.95	µg/L	84
		341.0 -> 217.0	204172			
7:3FTCA	7.573	441.0 -> 316.9	130657	64.13	µg/L	96
		441.0 -> 336.9	290590			
EtFOSA	10.962	526.0 -> 219.0	22780	4.74	µg/L	93
		526.0 -> 169.0	29415			
EtFOSE	10.907	630.0 -> 58.9	63479	12.77	µg/L	100
		511.9 -> 219.0	20927			
MeFOSA	10.730	511.9 -> 169.0	28649	5.34	µg/L	99
		616.1 -> 58.9	54536			
MeFOSE	10.661	699.1 -> 79.9	4265	12.53	µg/L	100
		699.1 -> 98.8	2497			
PFDoDS	9.817	295.0 -> 201.0	15515	2.19	µg/L	98
		295.0 -> 84.9	3789			
NFDHA	5.350	279.0 -> 85.1	59263	5.17	µg/L	100
		229.0 -> 84.9	43962			
PFMBA	4.687	314.8 -> 134.9	156656	4.92	µg/L	100
		314.8 -> 82.9	5510			
PFMPA	3.438			4.48	µg/L	99
PFEESA	5.937					

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

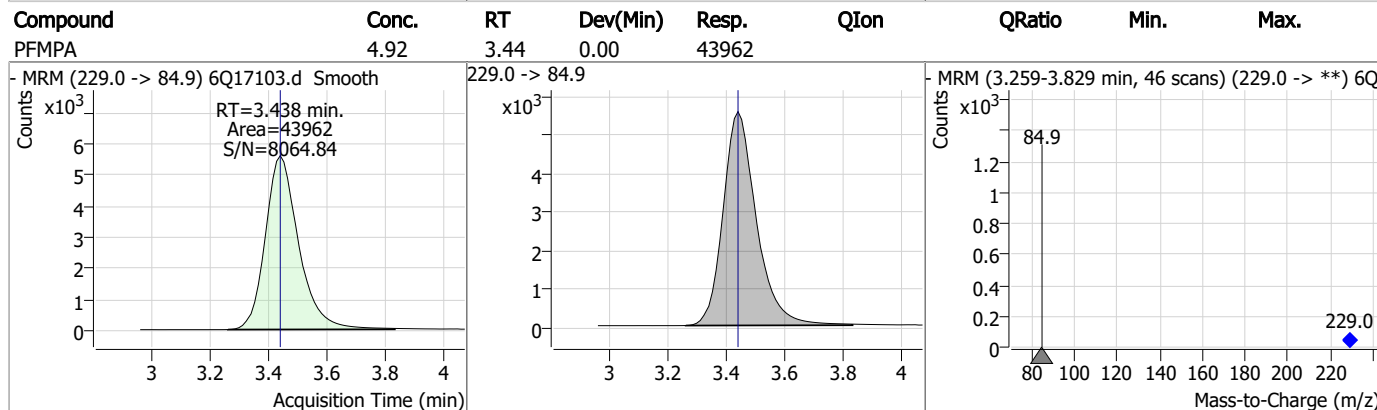
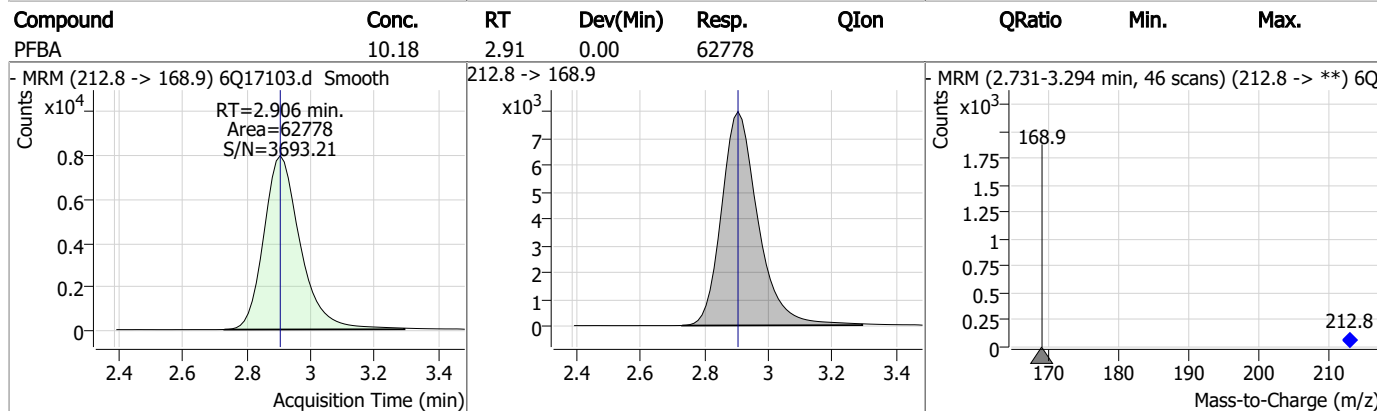
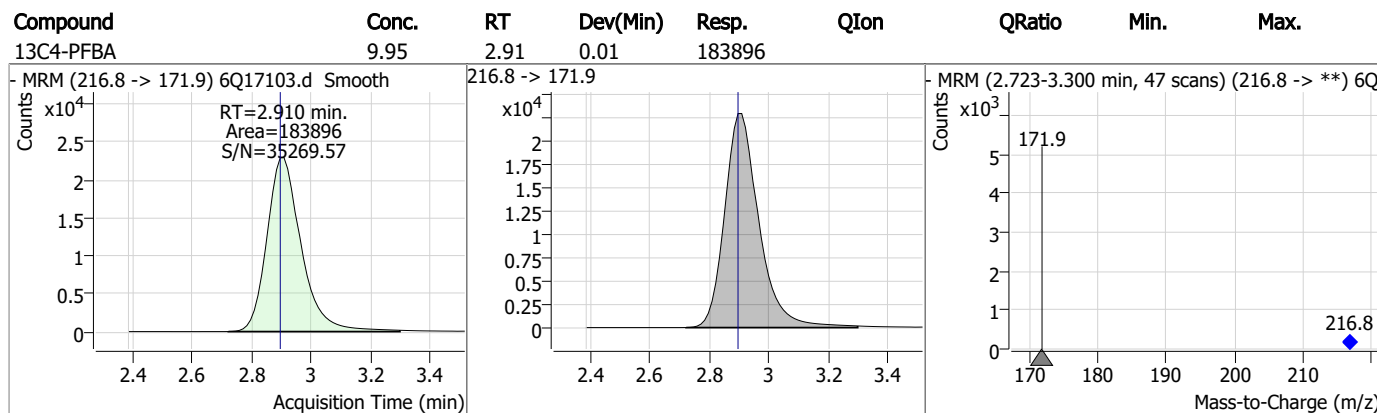
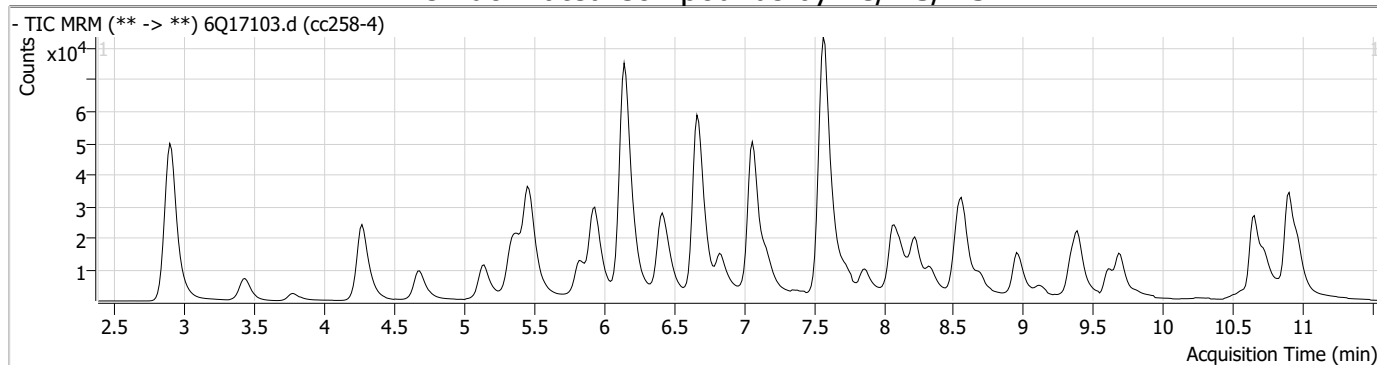
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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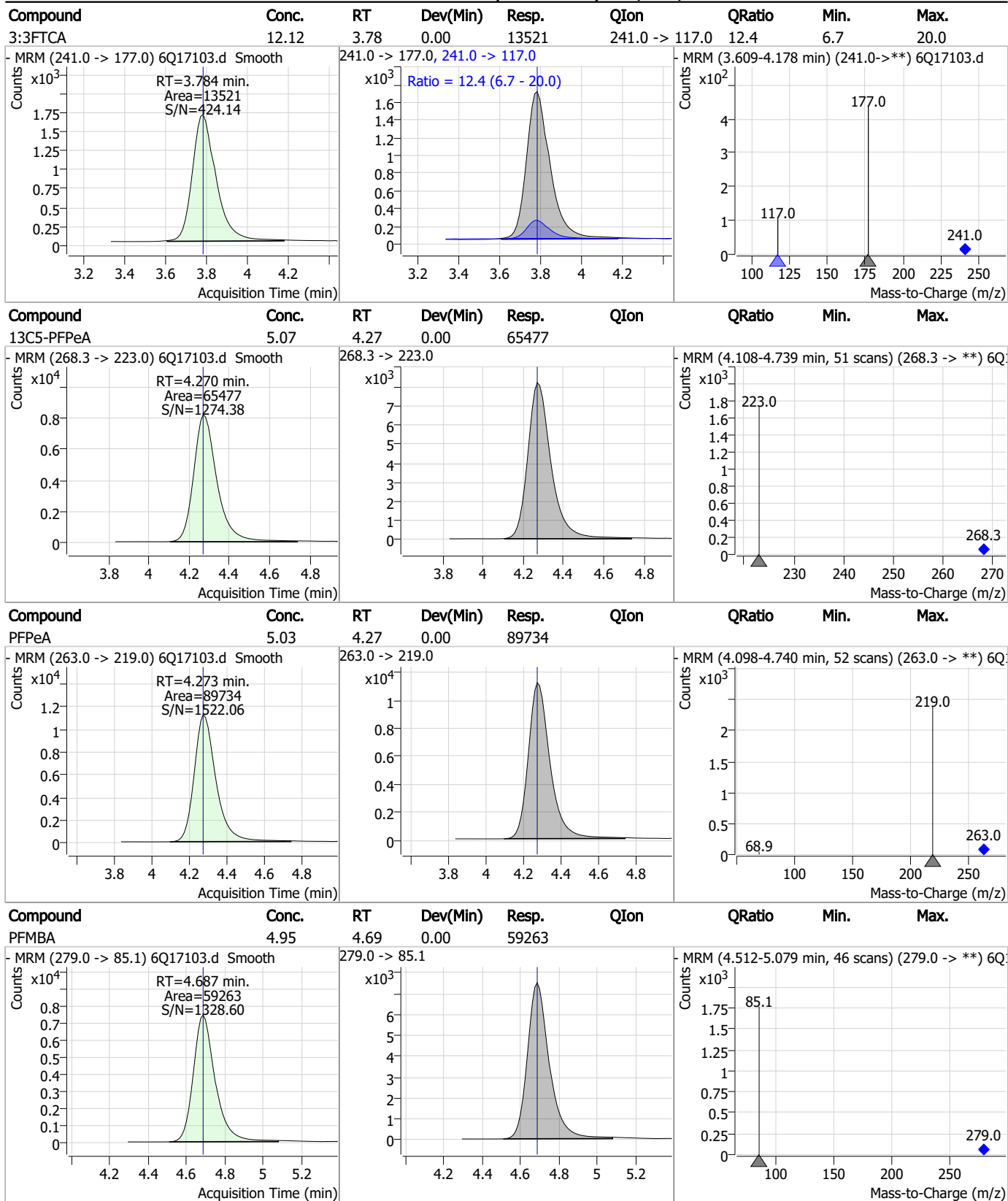
7.6.16

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Perfluorinated Compounds by LC/MS/MS



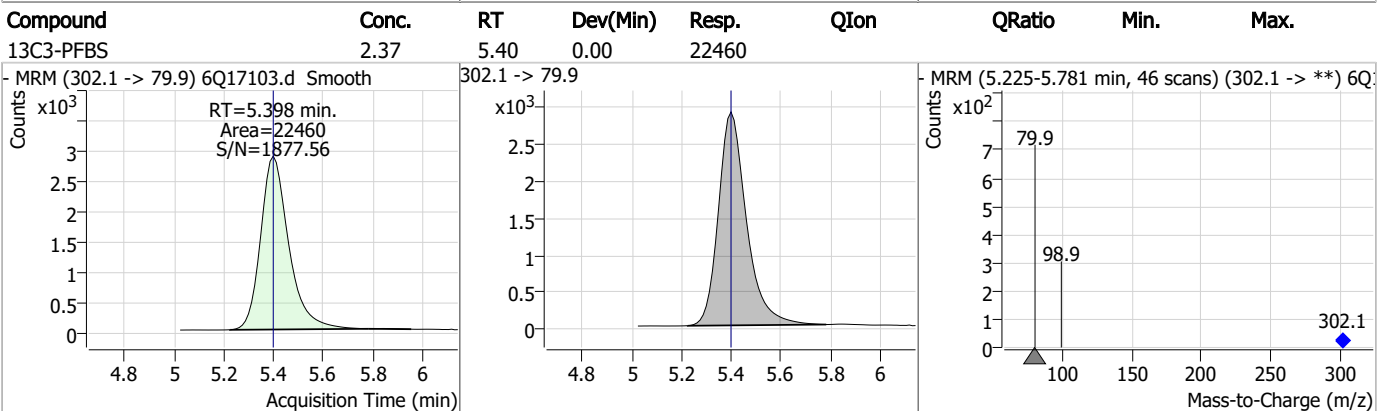
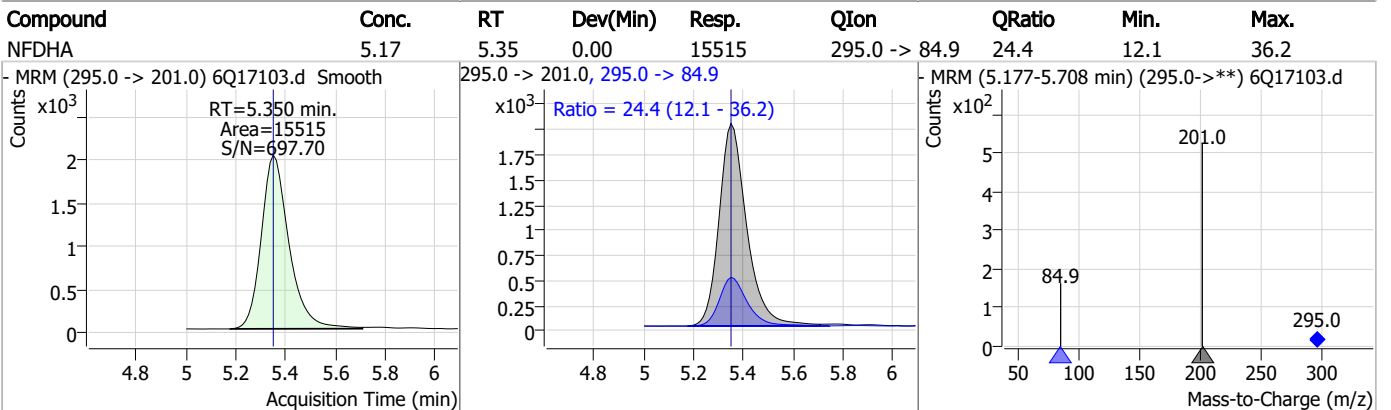
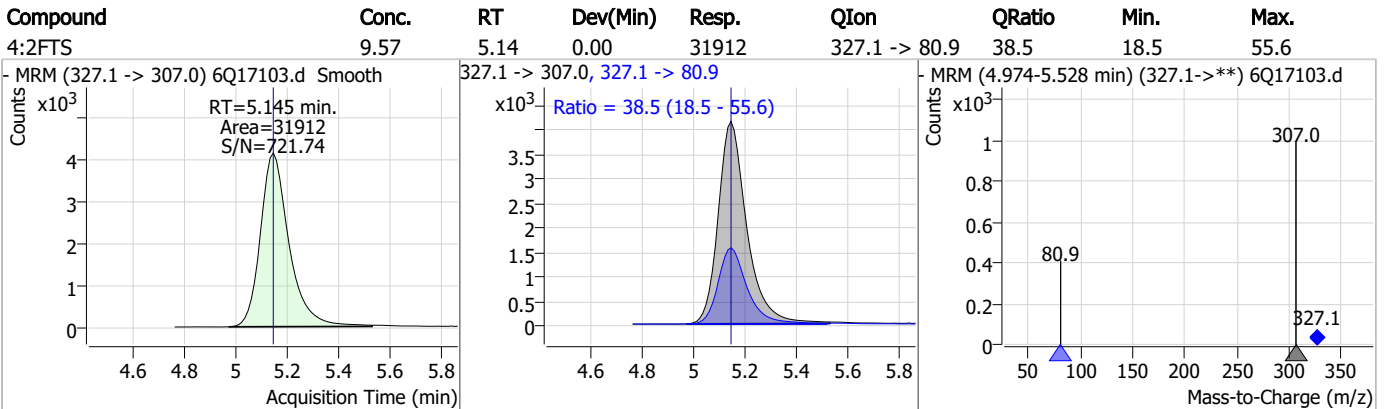
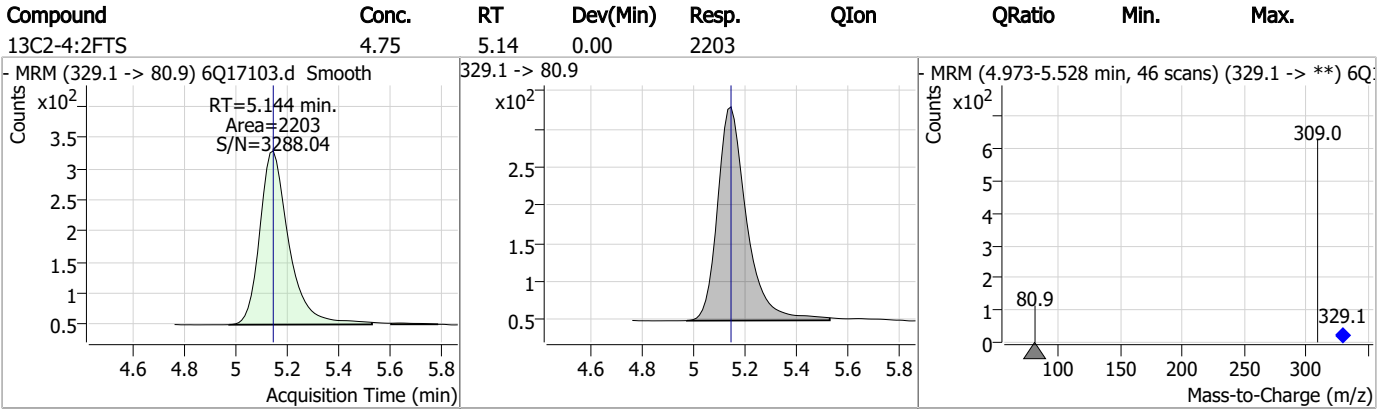
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

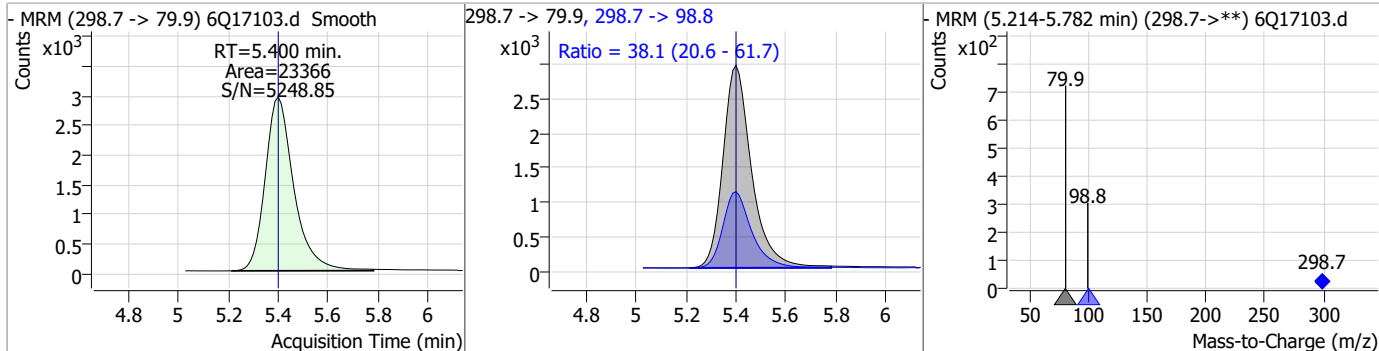


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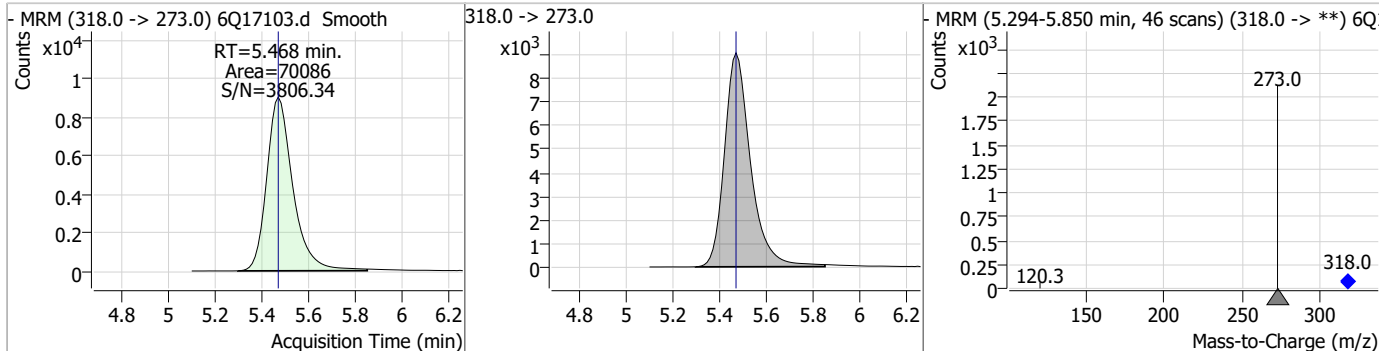


Perfluorinated Compounds by LC/MS/MS

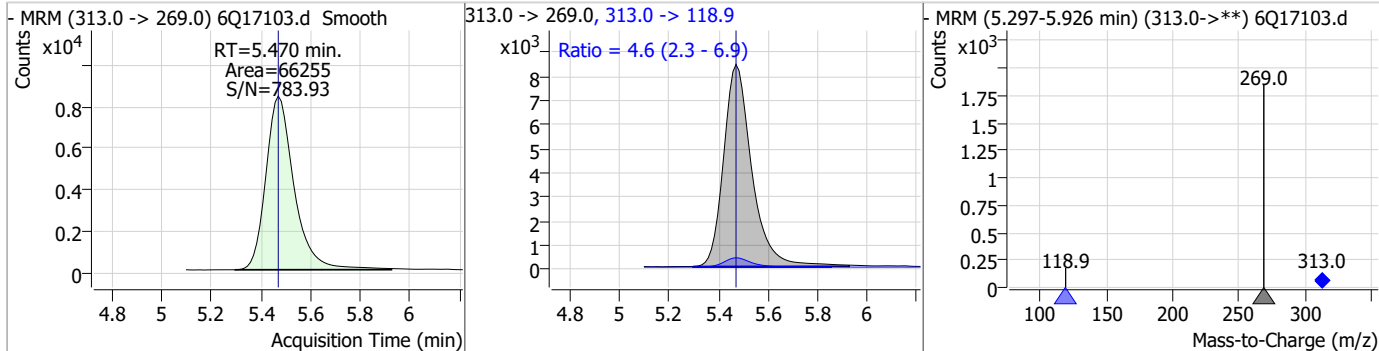
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.32	5.40	0.00	23366	298.7 -> 98.8	38.1	20.6	61.7



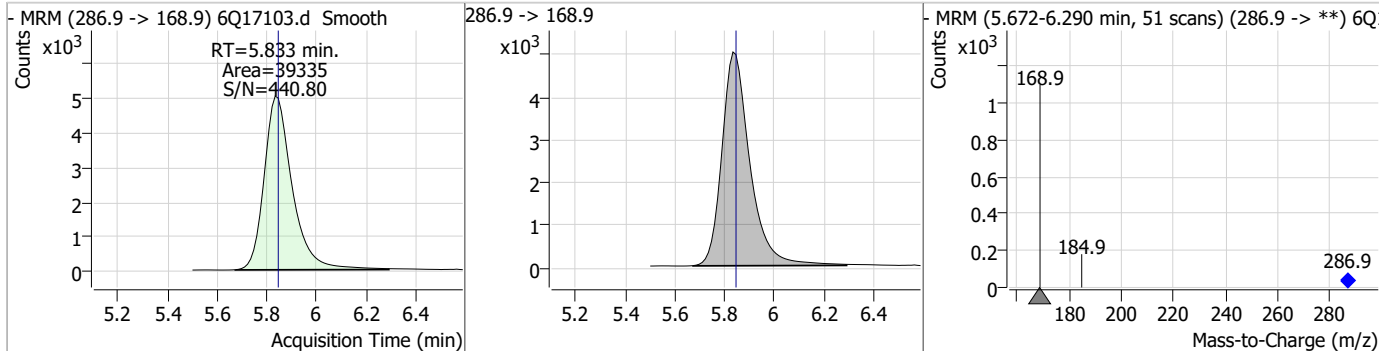
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.51	5.47	0.00	70086				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.39	5.47	0.00	66255	313.0 -> 118.9	4.6	2.3	6.9

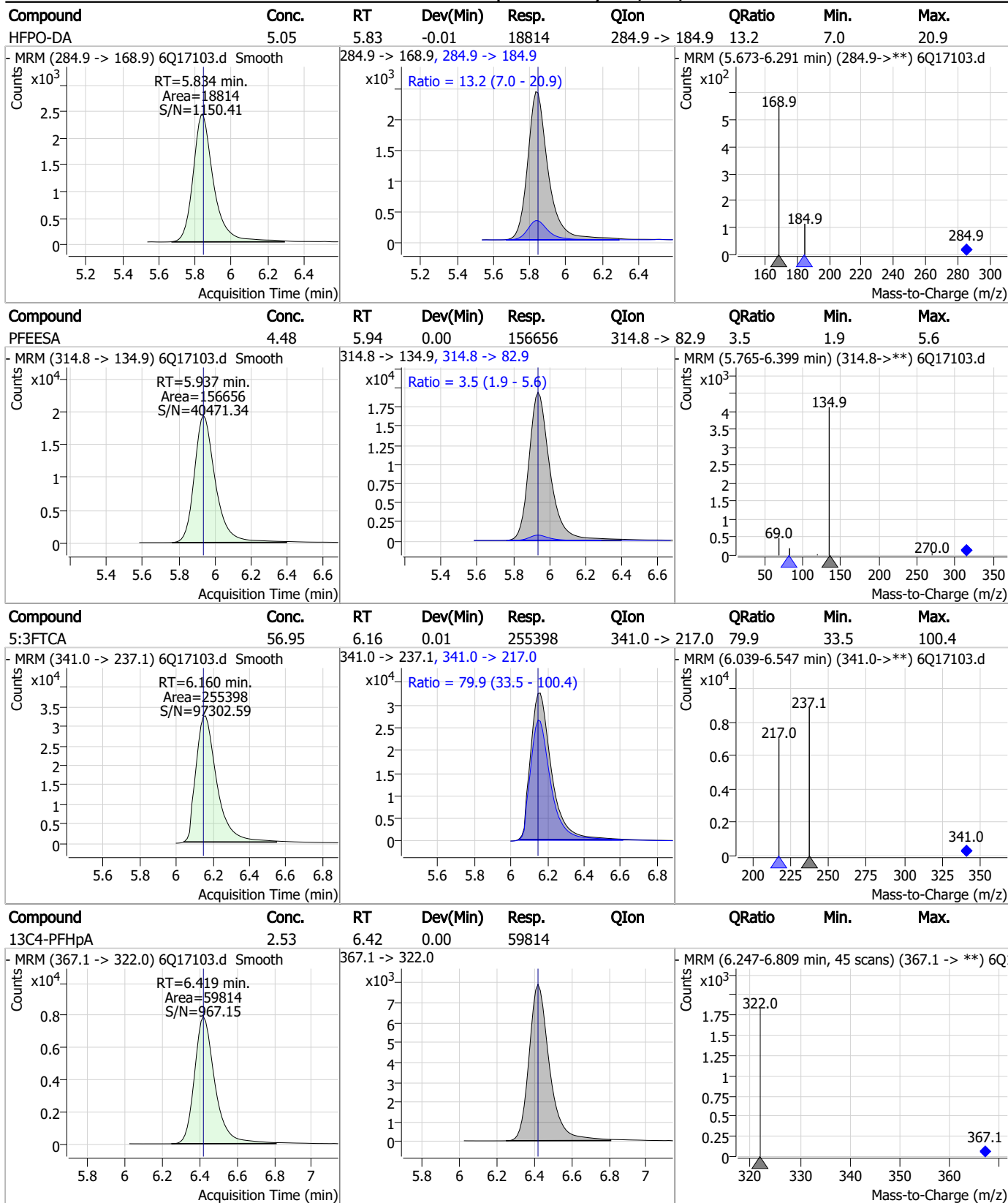


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.61	5.83	-0.01	39335				



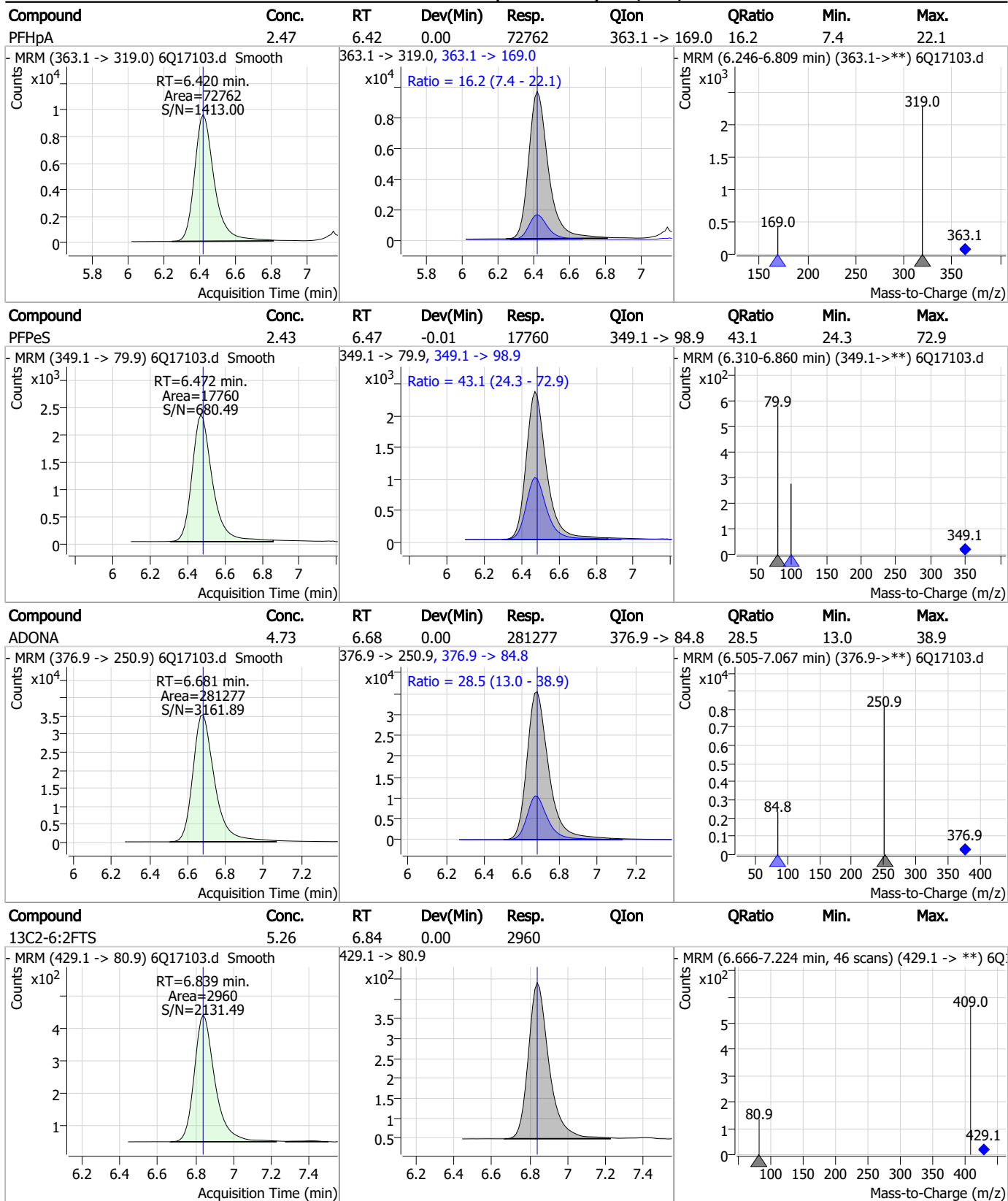
7.6.16
7

Perfluorinated Compounds by LC/MS/MS



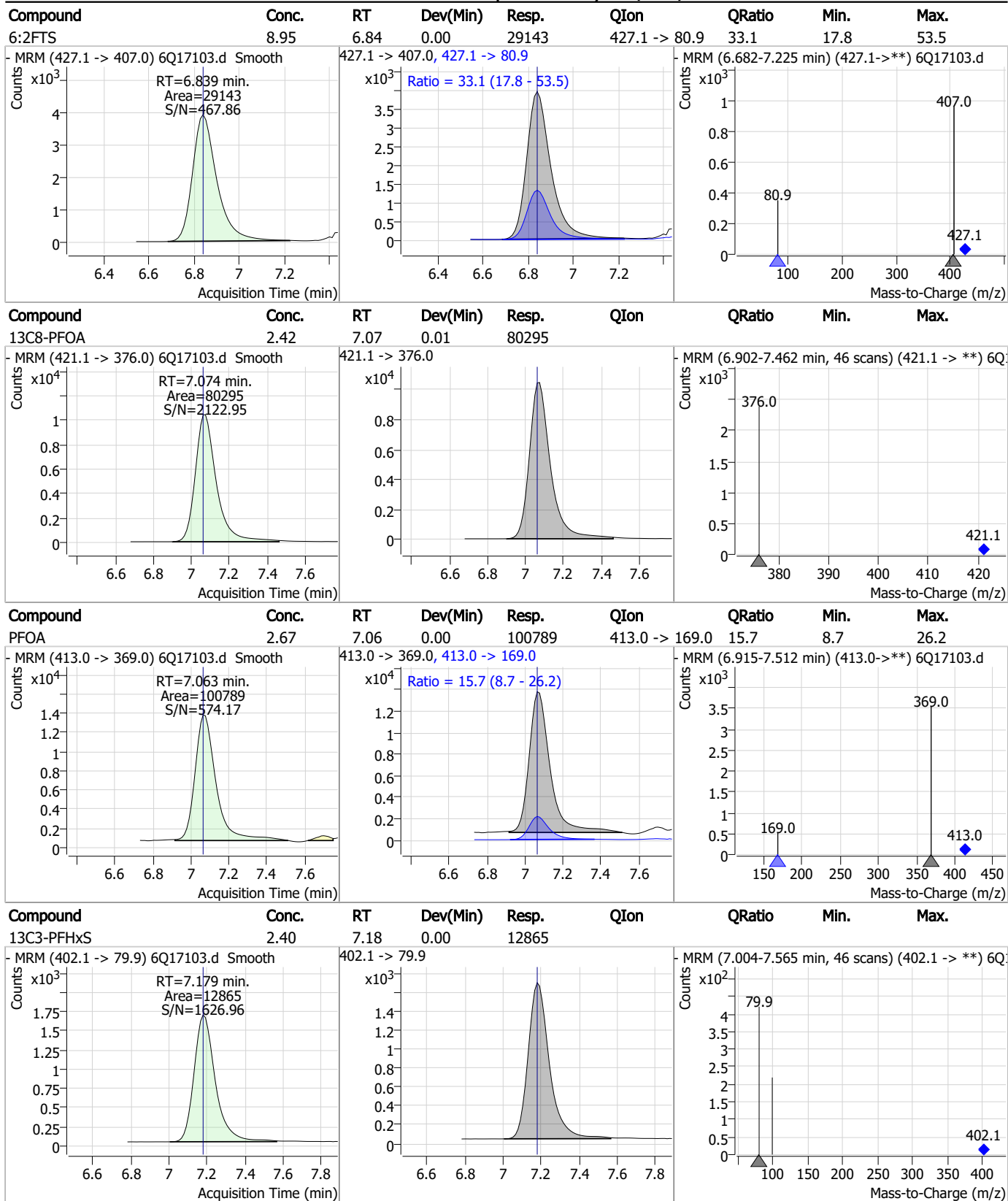
7.6.16 7

Perfluorinated Compounds by LC/MS/MS



7.6.16 7

Perfluorinated Compounds by LC/MS/MS

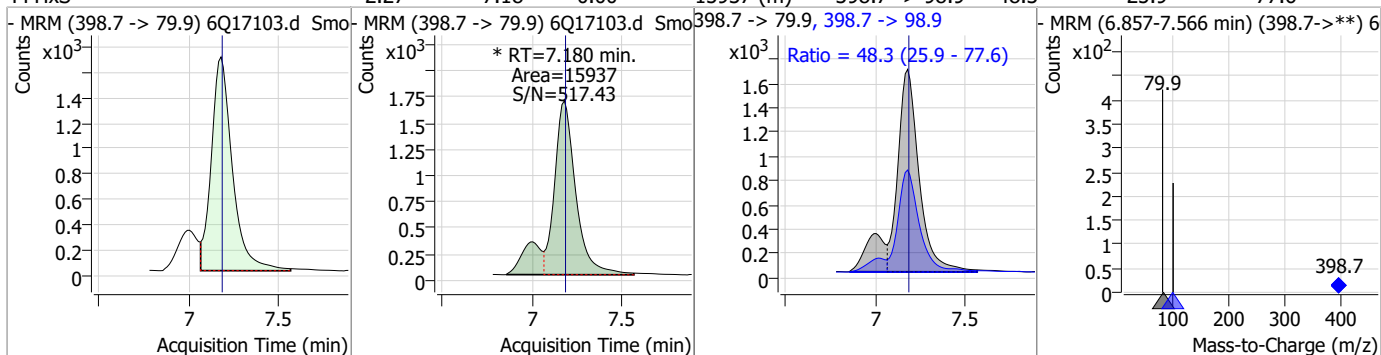


7.6.16

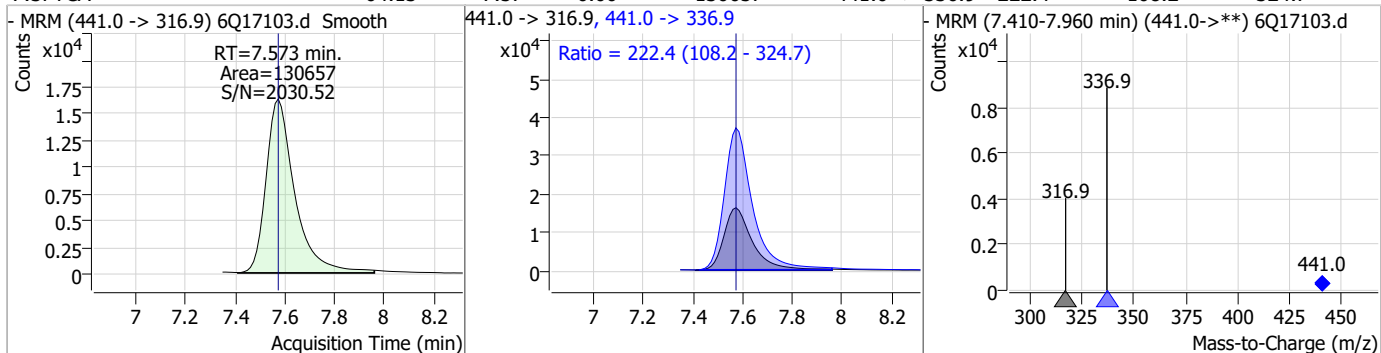
7

Perfluorinated Compounds by LC/MS/MS

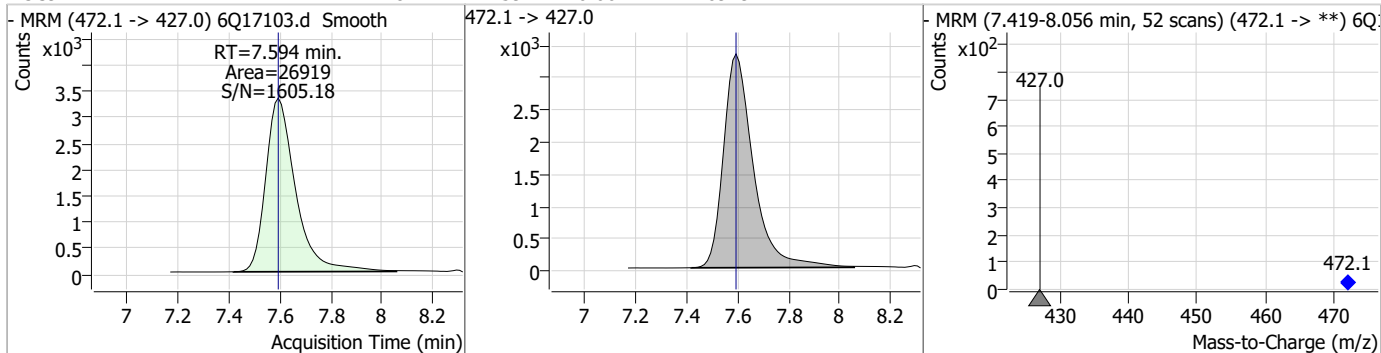
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.27	7.18	0.00	15937 (m)	398.7 -> 98.9	48.3	25.9	77.6



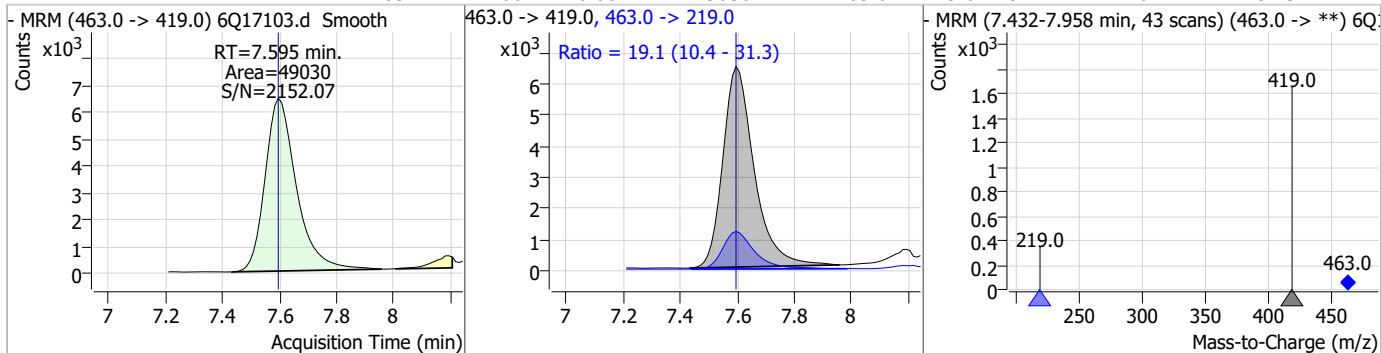
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	64.13	7.57	0.00	130657	441.0 -> 336.9	222.4	108.2	324.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.18	7.59	0.00	26919	472.1 -> 427.0			

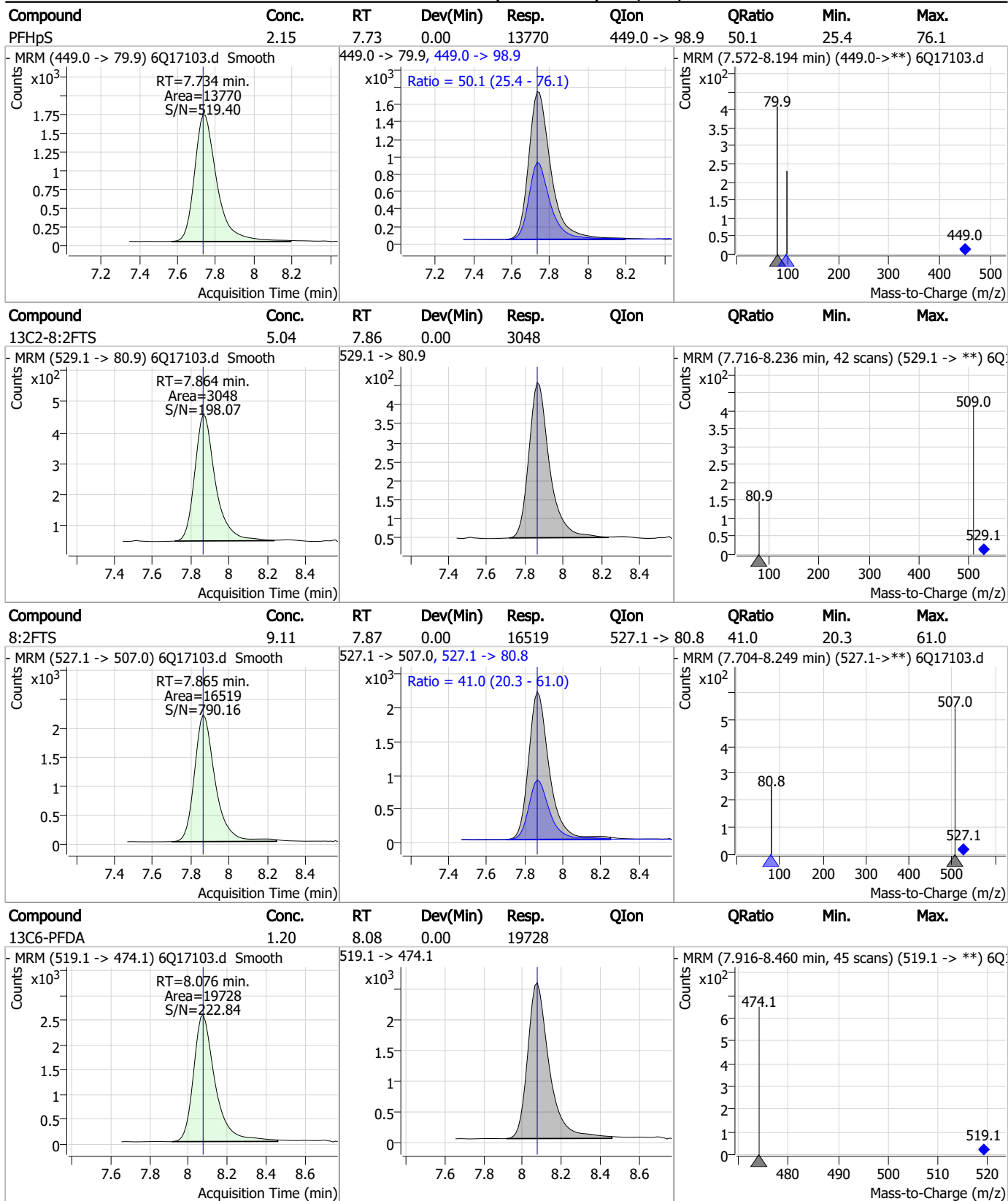


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.63	7.60	0.00	49030	463.0 -> 219.0	19.1	10.4	31.3



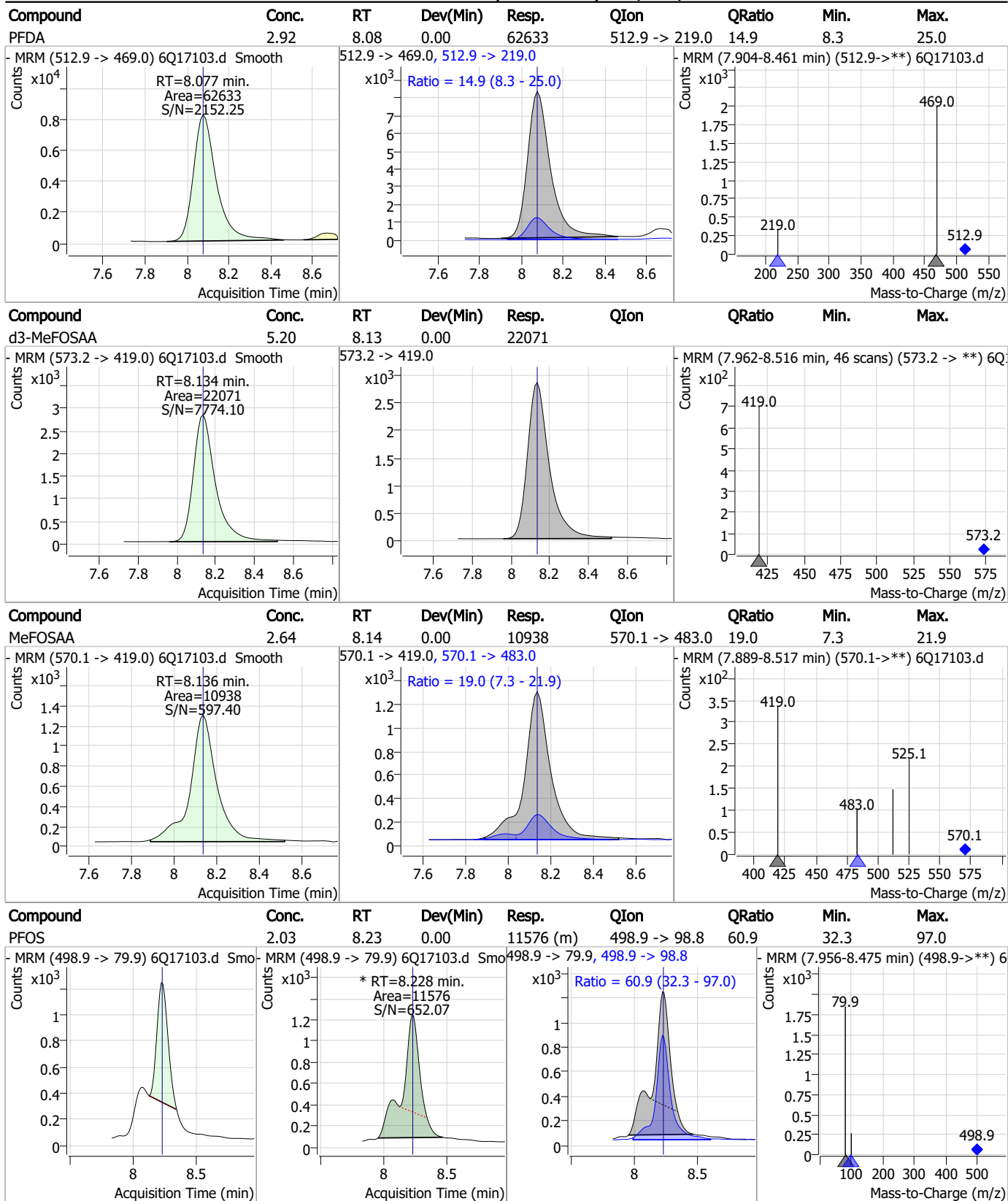
7.6.16
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Perfluorinated Compounds by LC/MS/MS



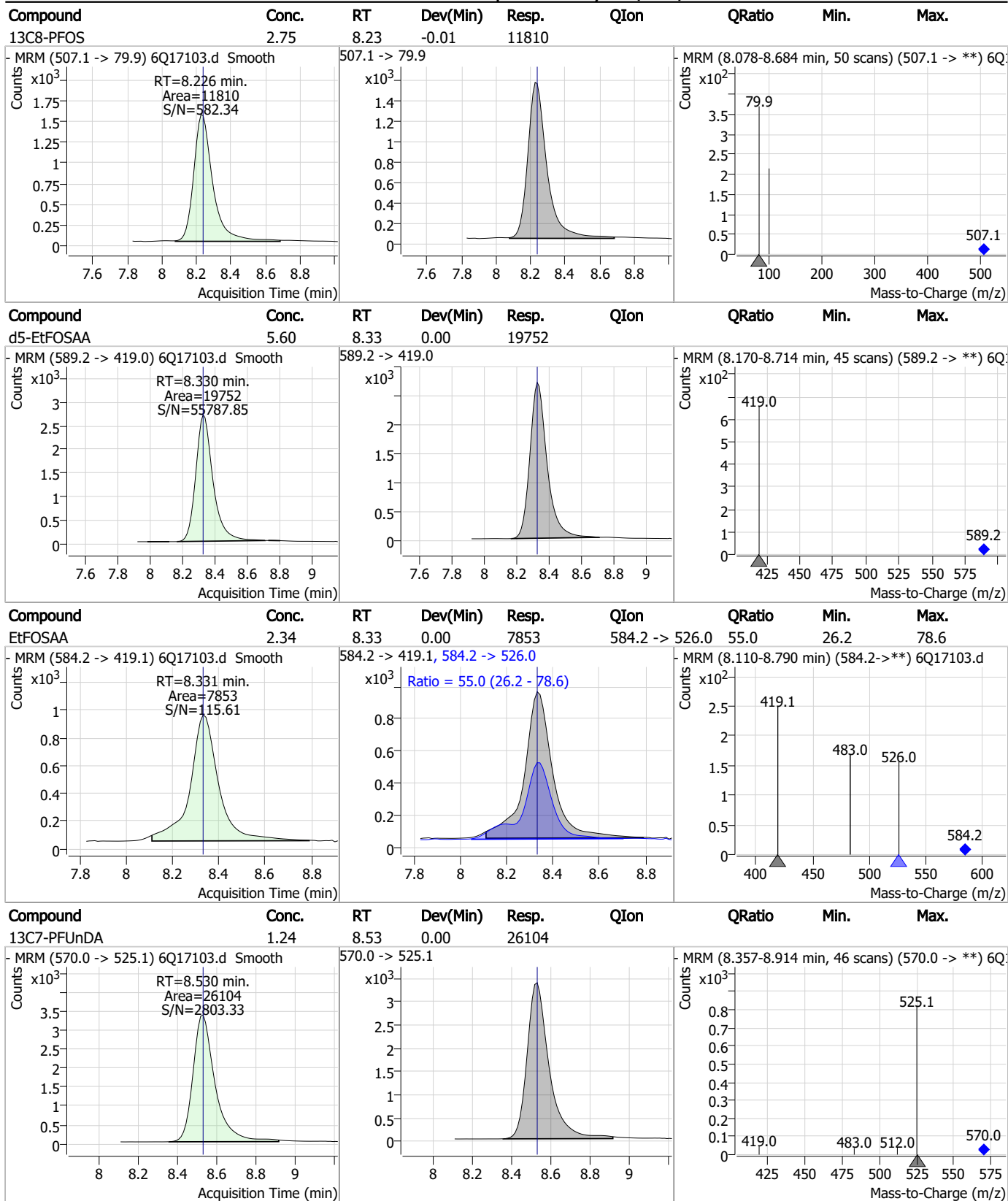
7.6.16

Perfluorinated Compounds by LC/MS/MS



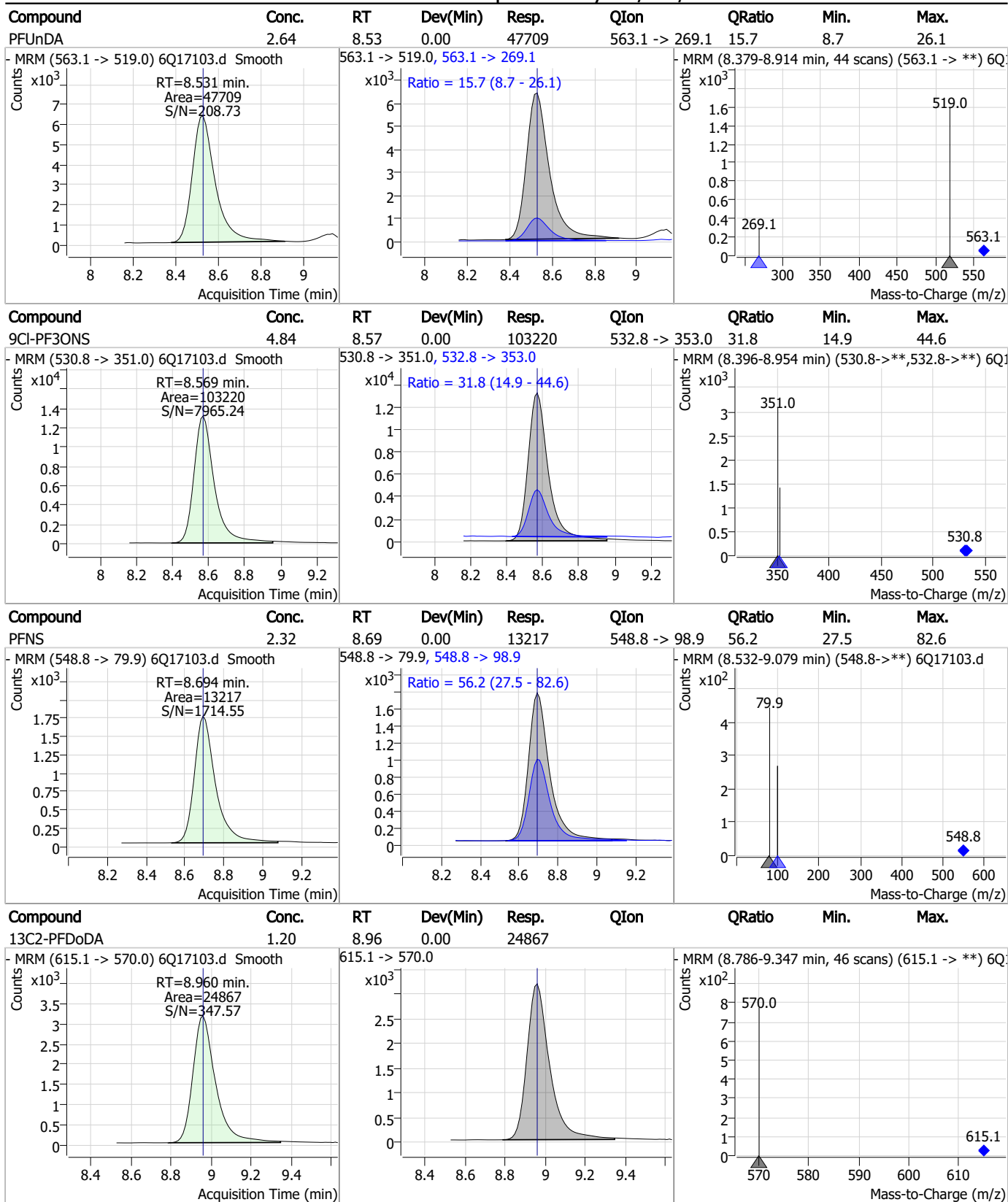
7.6.16
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Perfluorinated Compounds by LC/MS/MS



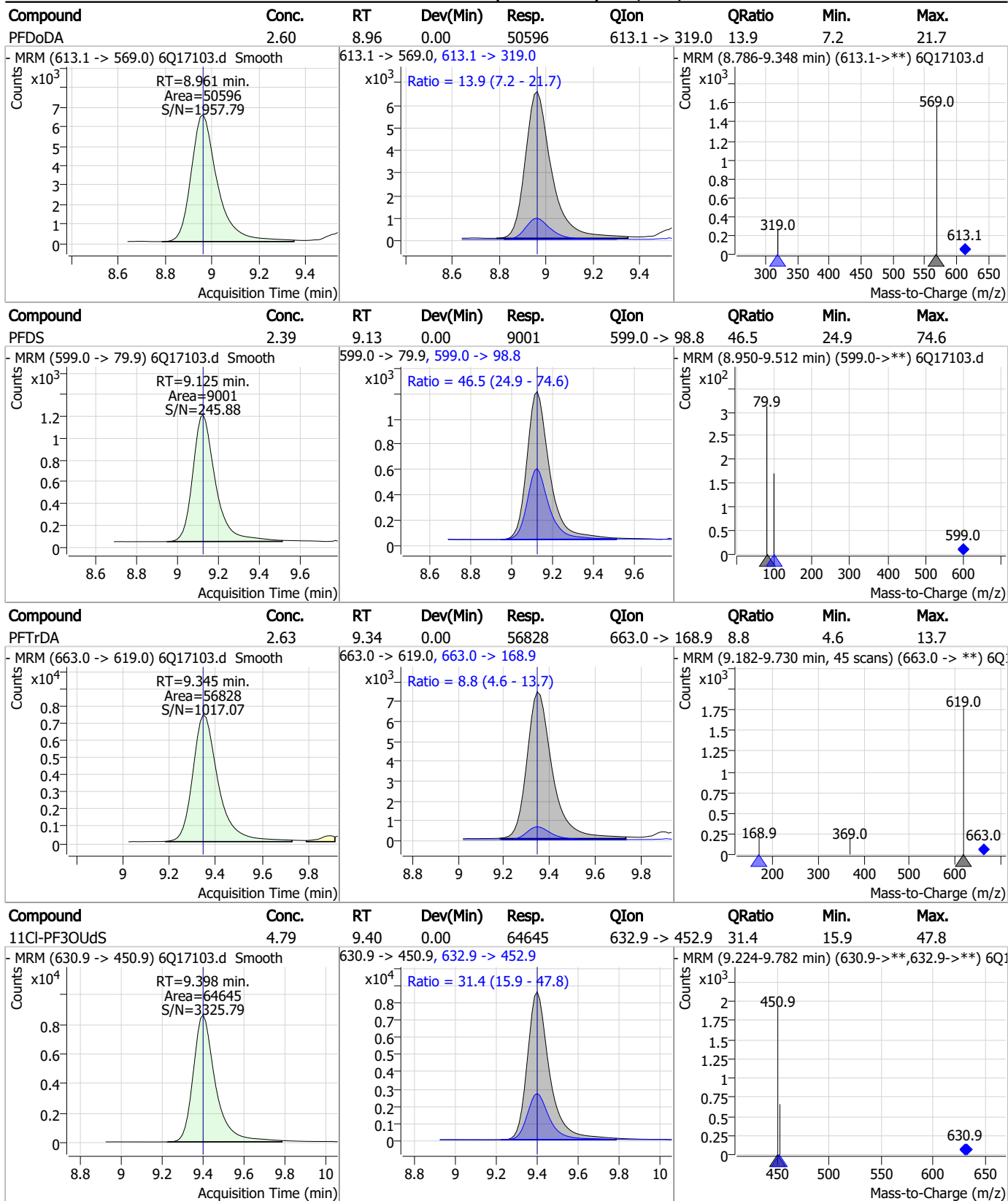
7.6.16 7

Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

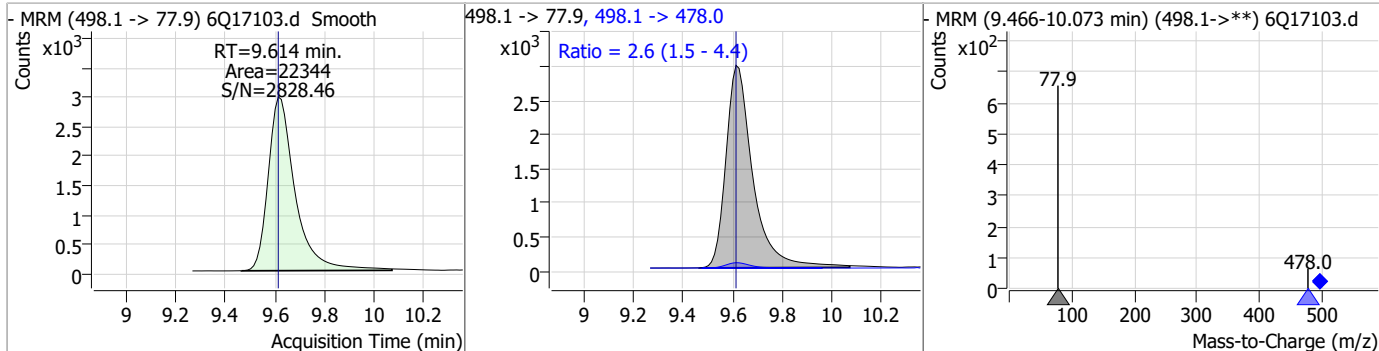


7.6.16

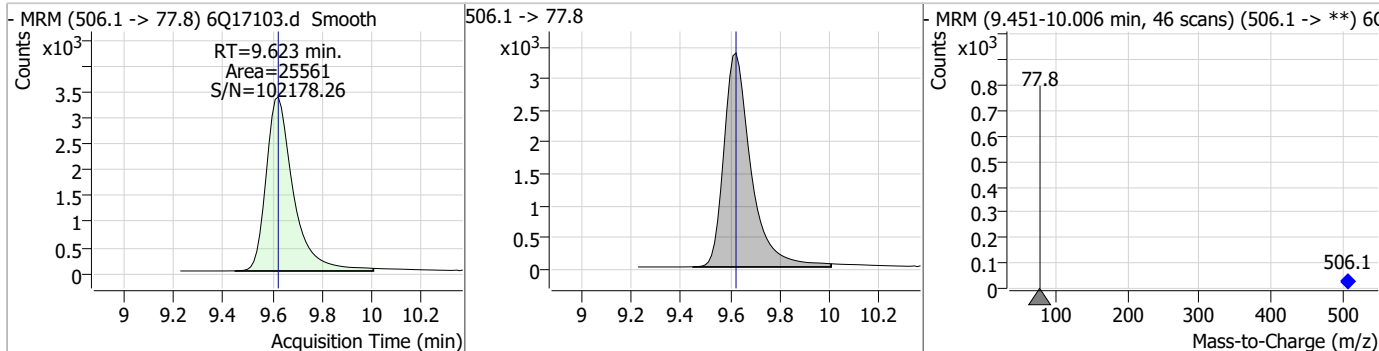
7

Perfluorinated Compounds by LC/MS/MS

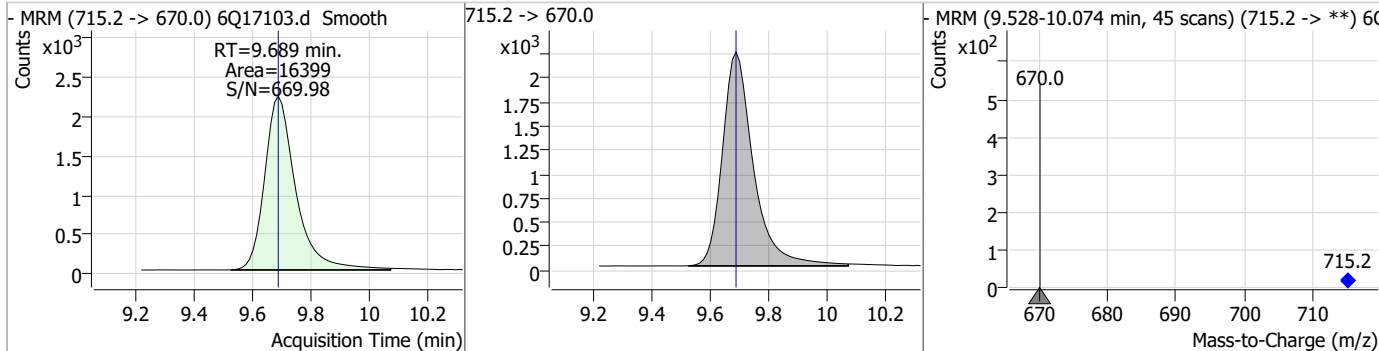
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.44	9.61	0.00	22344	498.1 -> 478.0	2.6	1.5	4.4



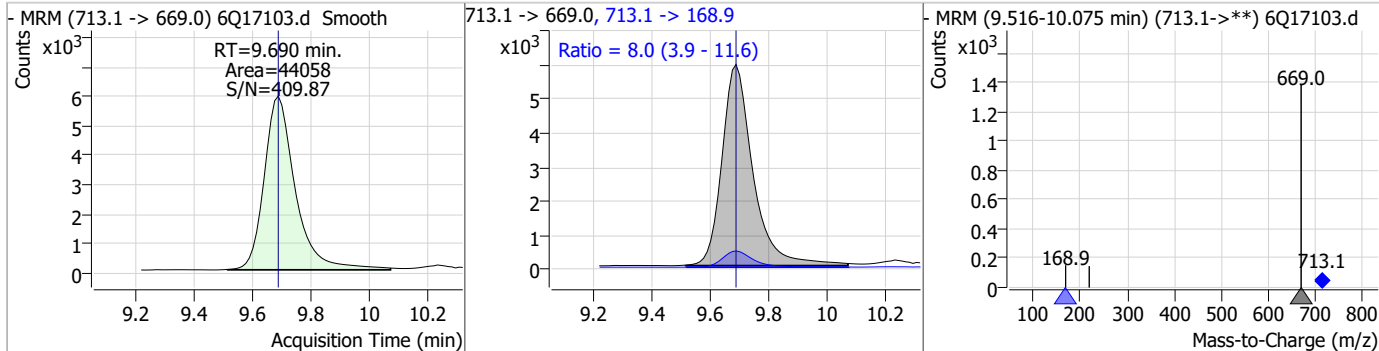
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.71	9.62	0.00	25561				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.17	9.69	0.00	16399				



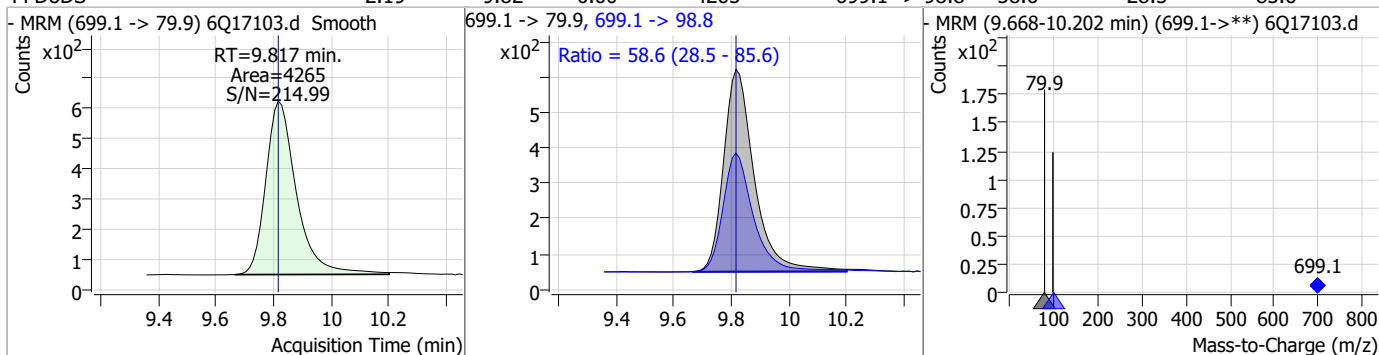
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.66	9.69	0.00	44058	713.1 -> 168.9	8.0	3.9	11.6



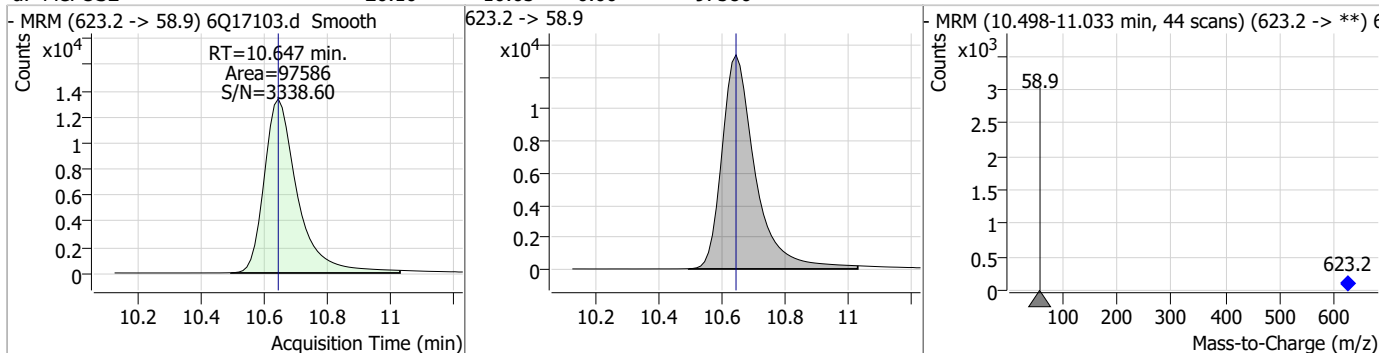
7.6.16
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Perfluorinated Compounds by LC/MS/MS

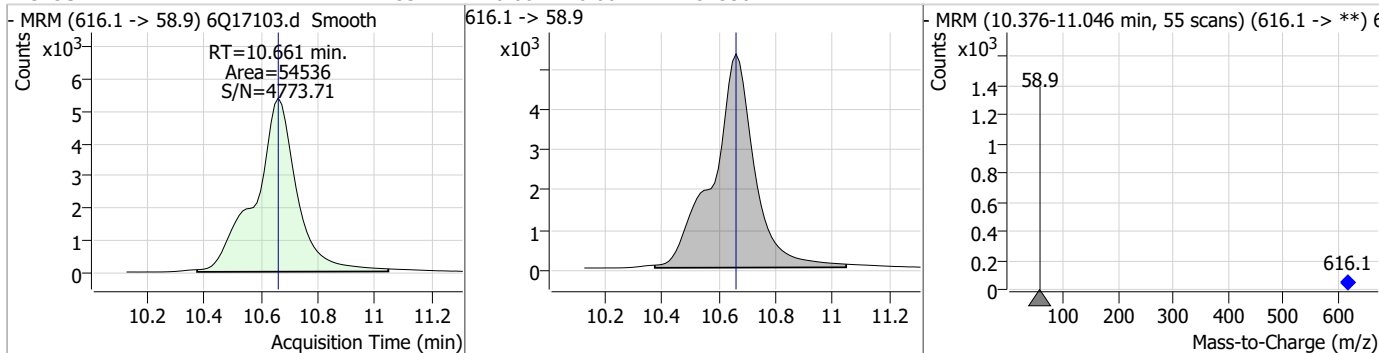
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.19	9.82	0.00	4265	699.1 -> 98.8	58.6	28.5	85.6



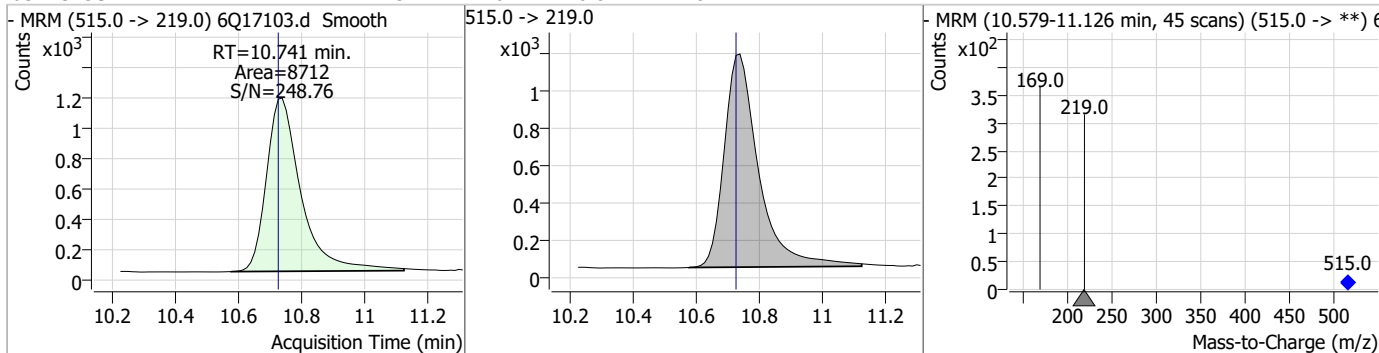
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.10	10.65	0.00	97586				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.53	10.66	0.00	54536				

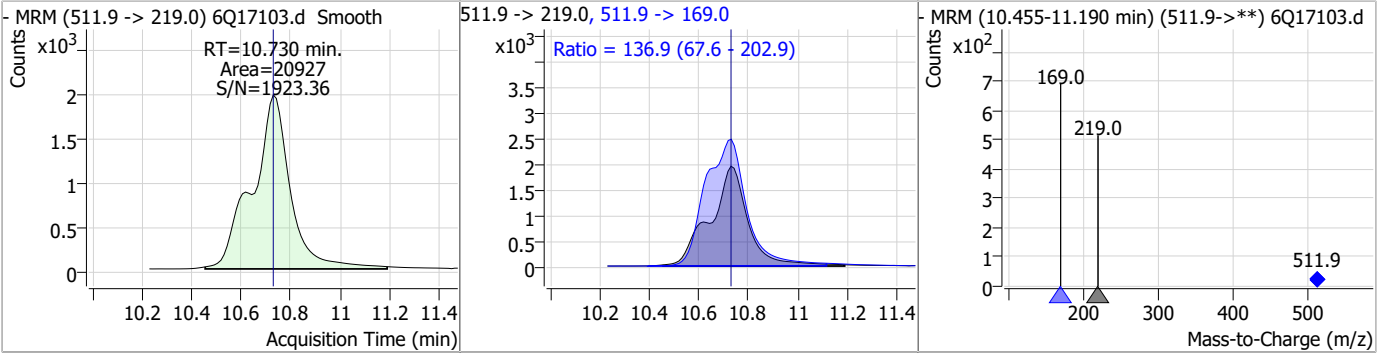


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.45	10.74	0.01	8712				

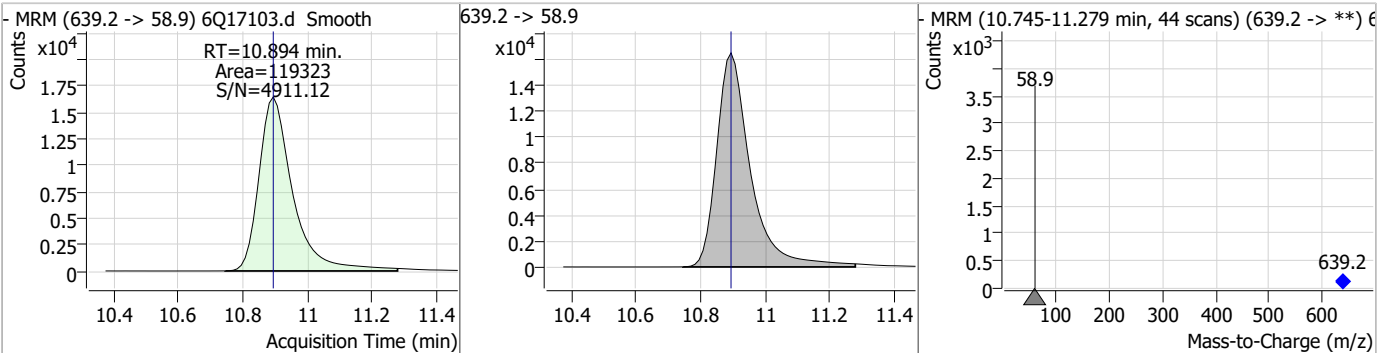


Perfluorinated Compounds by LC/MS/MS

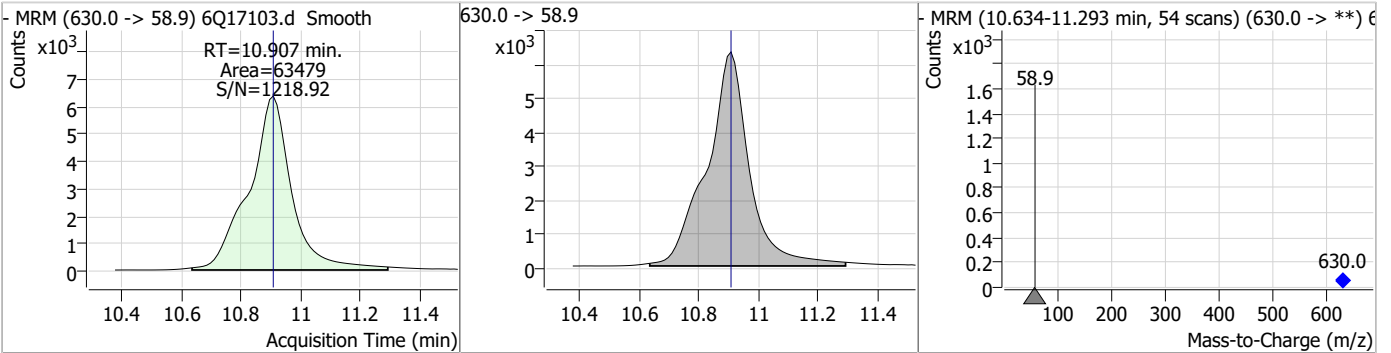
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOsa	5.34	10.73	0.00	20927	511.9 -> 169.0	136.9	67.6	202.9



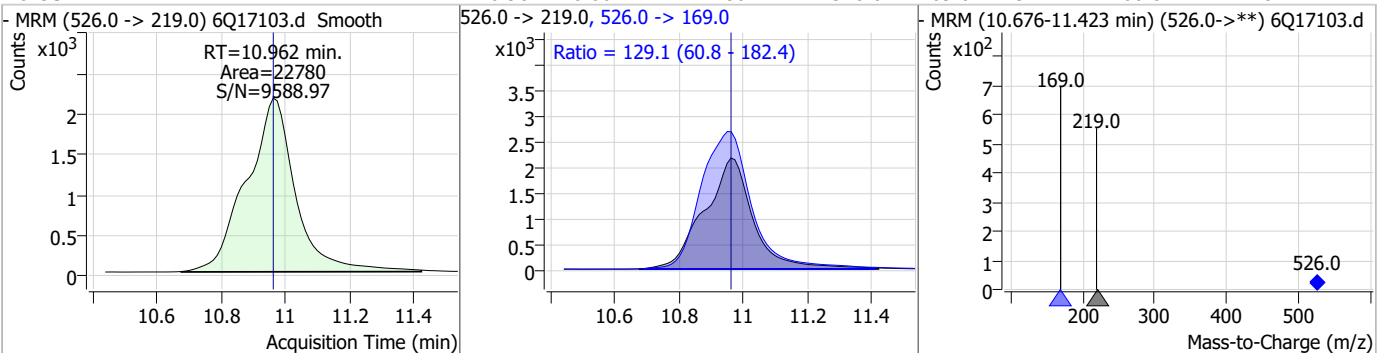
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.12	10.89	0.00	119323				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.77	10.91	0.00	63479				

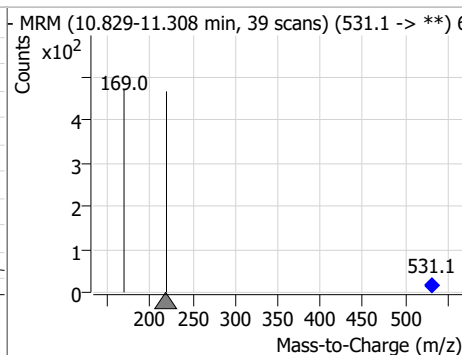
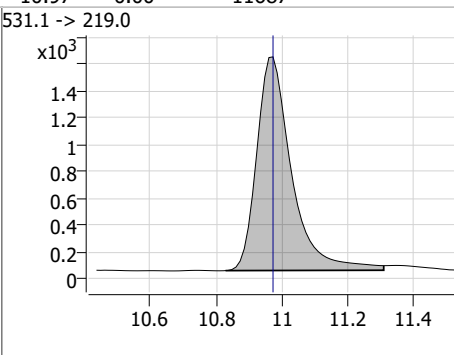
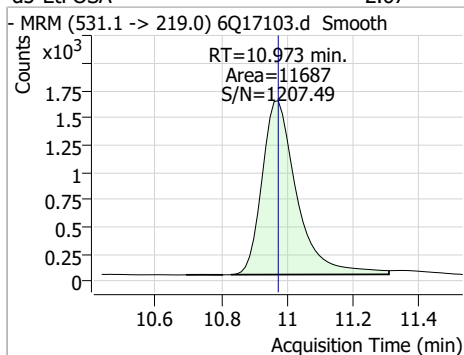


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOsa	4.74	10.96	0.00	22780	526.0 -> 169.0	129.1	60.8	182.4



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.67	10.97	0.00	11687				



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Manual Integration Approval Summary

Sample Number: S6Q258-CC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17103.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/29/23 01:23 Supervisor approved: 05/01/23 00:00 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak

7.6.16.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17115.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/29/2023 4:17:22 AM
 Sample Name : cc258-4
 Vial : P1-A5
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	183492	10.00 µg/L	0.000
M5-PFPeA	4.270	268.3 -> 223.0	65241	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	68626	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	61061	2.50 µg/L	0.000
M8-PFOA	7.074	421.1 -> 376.0	81589	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	28509	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	19193	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	25942	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	24975	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	16946	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	25308	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22795	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12862	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	11153	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2235	5.00 µg/L	0.000
M2-6:2FTS	6.851	429.1 -> 80.9	2802	5.00 µg/L	0.012
M2-8:2FTS	7.864	529.1 -> 80.9	3050	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	22130	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	40277	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	18886	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	98720	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	114933	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	11660	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	9251	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	14771	2.50 µg/L	-0.012
13C3-PFBA	2.902	216.0 -> 172.0	79069	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9296	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	85914	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	24090	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	28233	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	56104	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2235	5.23 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.6%		
13C2-6:2FTS	6.851	429.1 -> 80.9	2802	5.40 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.0%		
13C2-8:2FTS	7.864	529.1 -> 80.9	3050	5.47 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.3%		
13C2-PFDoDA	8.960	615.1 -> 570.0	24975	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C2-PFTeDA	9.689	715.2 -> 670.0	16946	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C3-PFBS	5.398	302.1 -> 79.9	22795	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C3-PFHxS	7.179	402.1 -> 79.9	12862	2.60 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 = 104.0%	
13C4-PFBA	2.897	216.8 -> 171.9	183492	10.04 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C4-PFHpA	6.419	367.1 -> 322.0	61061	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.4%	
13C5-PFHxA	5.468	318.0 -> 273.0	68626	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C5-PFPeA	4.270	268.3 -> 223.0	65241	5.21 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.1%	
13C6-PFDA	8.076	519.1 -> 474.1	19193	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.6%	
13C7-PFUnDA	8.530	570.0 -> 525.1	25942	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C8-FOSA	9.623	506.1 -> 77.8	25308	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C8-PFOA	7.074	421.1 -> 376.0	81589	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C8-PFOS	8.239	507.1 -> 79.9	11153	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C9-PFNA	7.594	472.1 -> 427.0	28509	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.0%	
d3-MeFOSAA	8.134	573.2 -> 419.0	22130	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	40277	10.14 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
d3-MeFOSA	10.728	515.0 -> 219.0	9251	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
d5-EtFOSAA	8.330	589.2 -> 419.0	18886	5.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.2%	
d7-MeFOSE	10.647	623.2 -> 58.9	98720	25.46 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
d9-EtFOSE	10.894	639.2 -> 58.9	114933	24.26 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.0%	
d5-EtFOSA	10.960	531.1 -> 219.0	11660	2.57 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.0%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0 327.1 -> 80.9	31826 12772	9.41 µg/L	95
6:2FTS	6.839	427.1 -> 407.0 427.1 -> 80.9	29353 10242	9.52 µg/L	99
8:2FTS	7.865	527.1 -> 507.0 527.1 -> 80.8	16387 6962	9.03 µg/L	97
EtFOSAA	8.331	584.2 -> 419.1 584.2 -> 526.0	8117 4359	2.53 µg/L	98
FOSA	9.626	498.1 -> 77.9 498.1 -> 478.0	21592 687	2.38 µg/L	99
MeFOSAA	8.136	570.1 -> 419.0 570.1 -> 483.0	10823 1991	2.60 µg/L	91
PFBA	2.906	212.8 -> 168.9	62731	10.19 µg/L	100
PFBS	5.400	298.7 -> 79.9 298.7 -> 98.8	22303 8995	2.18 µg/L	99
PFDA	8.077	512.9 -> 469.0 512.9 -> 219.0	60288 9378	2.89 µg/L	98
PFDODA	8.961	613.1 -> 569.0 613.1 -> 319.0	49442 7119	2.53 µg/L	100
PFDS	9.125	599.0 -> 79.9	8906	2.51 µg/L	100

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.420	599.0 -> 98.8	4426	2.43	µg/L	98
		363.1 -> 319.0	73130			
PFHpS	7.734	363.1 -> 169.0	11492	2.27	µg/L	97
		449.0 -> 79.9	13718			
PFHxA	5.470	449.0 -> 98.9	7285	2.63	µg/L	99
		313.0 -> 269.0	71298			
PFHxS	7.180	313.0 -> 118.9	3112	2.24	µg/L	m
		398.7 -> 79.9	15710			
PFNA	7.595	398.7 -> 98.9	8077	2.39	µg/L	99
		463.0 -> 419.0	47172			
PFNS	8.694	463.0 -> 219.0	9597	2.42	µg/L	97
		548.8 -> 79.9	13010			
PFOA	7.076	548.8 -> 98.9	7410	2.63	µg/L	99
		413.0 -> 369.0	100849			
PFOS	8.228	413.0 -> 169.0	17257	2.37	µg/L	m
		498.9 -> 79.9	12768			
PFPeA	4.273	498.9 -> 98.8	6993	5.01	µg/L	100
		263.0 -> 219.0	89050			
PFPeS	6.484	349.1 -> 79.9	17739	2.42	µg/L	94
		349.1 -> 98.9	7952			
PFTeDA	9.690	713.1 -> 669.0	43776	2.56	µg/L	99
		713.1 -> 168.9	3169			
PFTrDA	9.345	663.0 -> 619.0	57376	2.65	µg/L	99
		663.0 -> 168.9	5155			
PFUnDA	8.531	563.1 -> 519.0	47684	2.65	µg/L	95
		563.1 -> 269.1	7270			
11CI-PF3OUdS	9.398	630.9 -> 450.9	64267	4.65	µg/L	99
		632.9 -> 452.9	20684			
9CI-PF3ONS	8.569	530.8 -> 351.0	118330	5.41	µg/L	97
		532.8 -> 353.0	33307			
ADONA	6.681	376.9 -> 250.9	296257	4.87	µg/L	98
		376.9 -> 84.8	79343			
HFPO-DA	5.846	284.9 -> 168.9	18198	4.77	µg/L	98
		284.9 -> 184.9	2374			
3:3FTCA	3.784	241.0 -> 177.0	13578	12.22	µg/L	97
		241.0 -> 117.0	1643			
5:3FTCA	6.160	341.0 -> 237.1	285146	64.94	µg/L	93
		341.0 -> 217.0	206939			
7:3FTCA	7.573	441.0 -> 316.9	125705	63.02	µg/L	94
		441.0 -> 336.9	259131			
EtFOSA	10.962	526.0 -> 219.0	24046	5.02	µg/L	97
		526.0 -> 169.0	30085			
EtFOSE	10.907	630.0 -> 58.9	61742	12.90	µg/L	100
		511.9 -> 219.0	21374			
MeFOSA	10.730	511.9 -> 169.0	28030	5.13	µg/L	m
		616.1 -> 58.9	54135			
MeFOSE	10.661	699.1 -> 79.9	4820	12.30	µg/L	100
		699.1 -> 98.8	2561			
PFDoDS	9.817	295.0 -> 201.0	15457	2.62	µg/L	95
		295.0 -> 84.9	3637			
NFDHA	5.350	279.0 -> 85.1	60465	5.26	µg/L	99
		229.0 -> 84.9	44790			
PFMBA	4.687	314.8 -> 134.9	153435	5.07	µg/L	100
PFMPA	3.438	314.8 -> 82.9	5574	5.04	µg/L	100
PFEESA	5.937			4.48	µg/L	100

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

7.6.17
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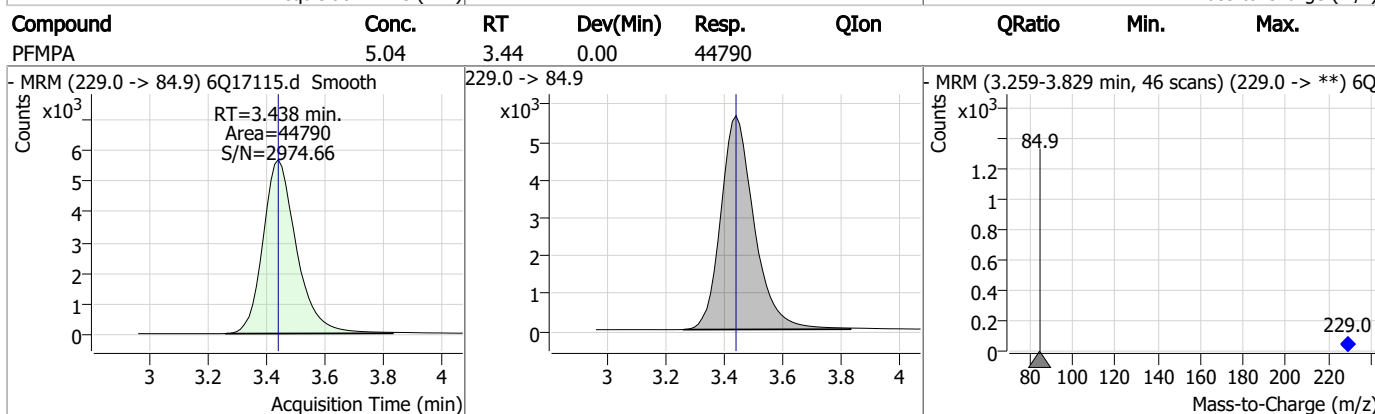
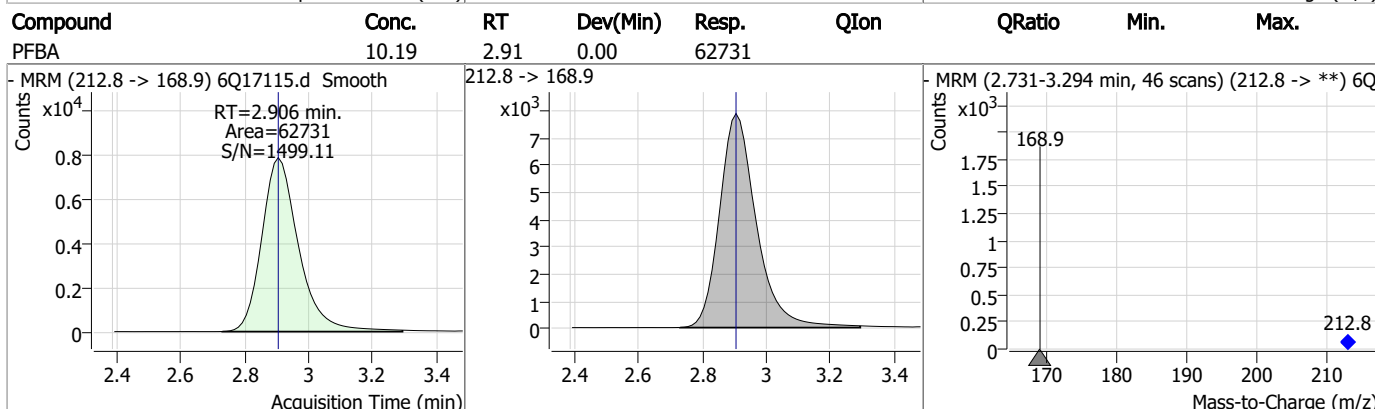
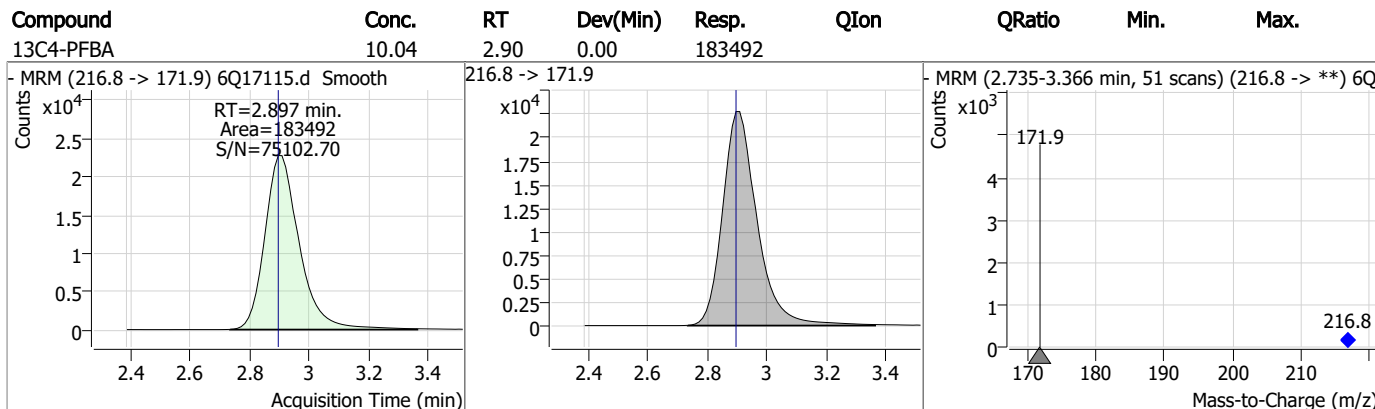
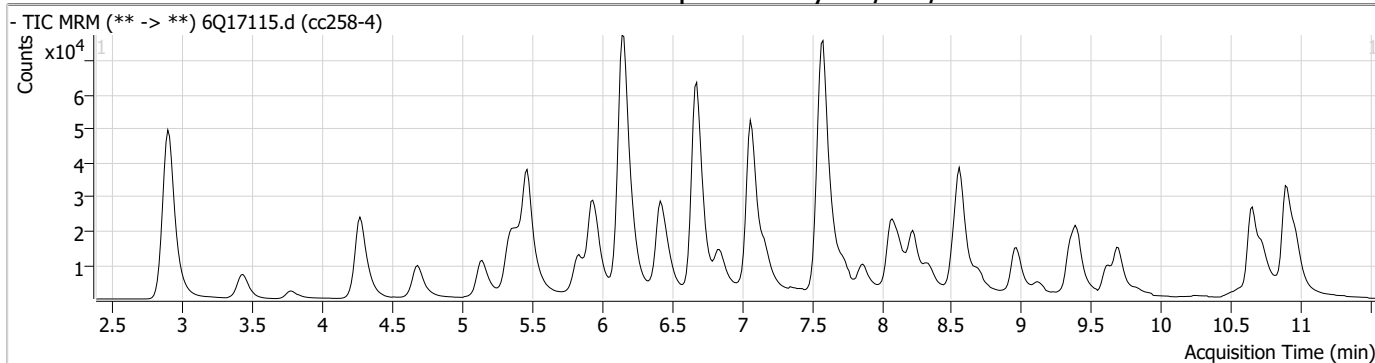
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.6.17

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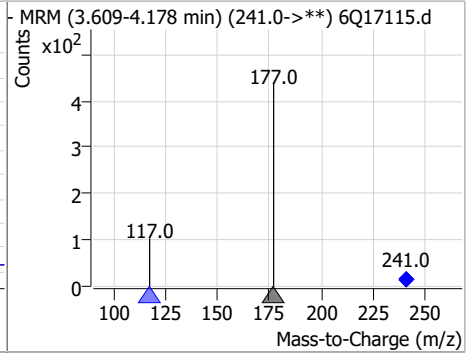
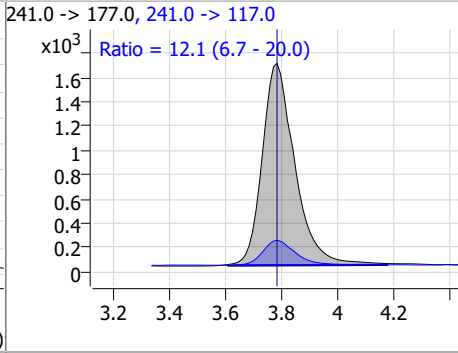
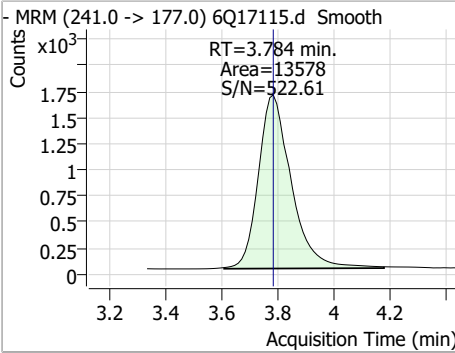
Perfluorinated Compounds by LC/MS/MS



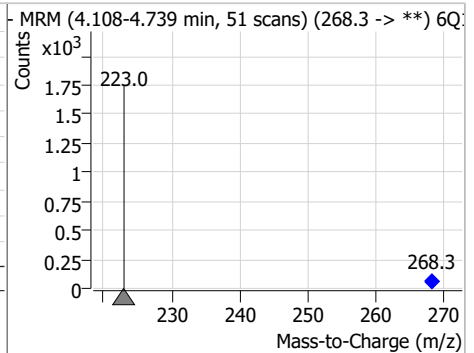
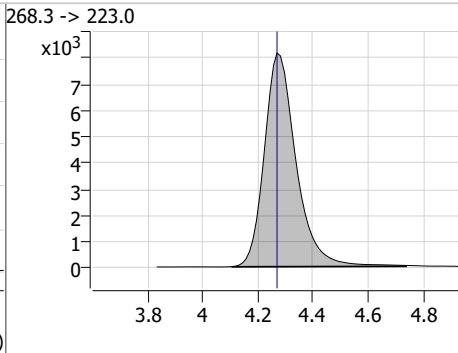
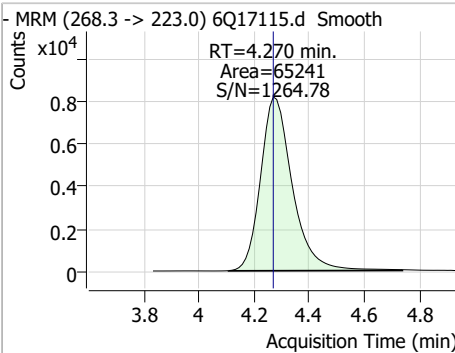
7.6.17
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Perfluorinated Compounds by LC/MS/MS

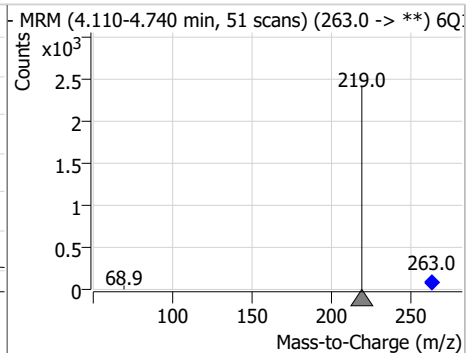
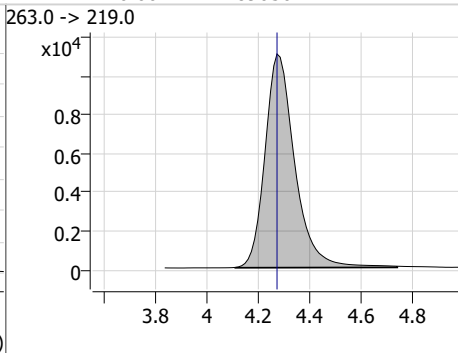
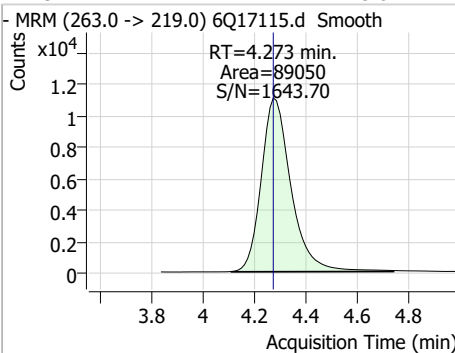
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	12.22	3.78	0.00	13578	241.0 -> 117.0	12.1	6.7	20.0



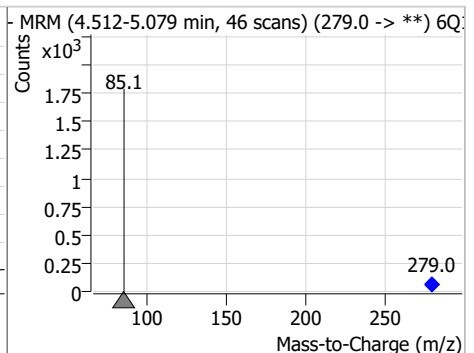
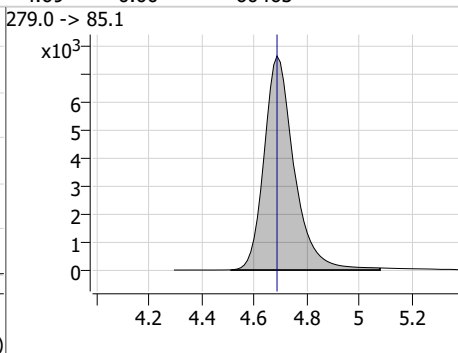
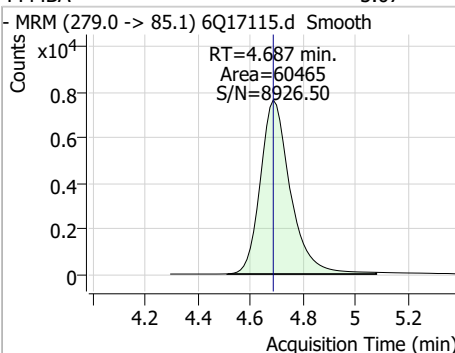
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.21	4.27	0.00	65241				



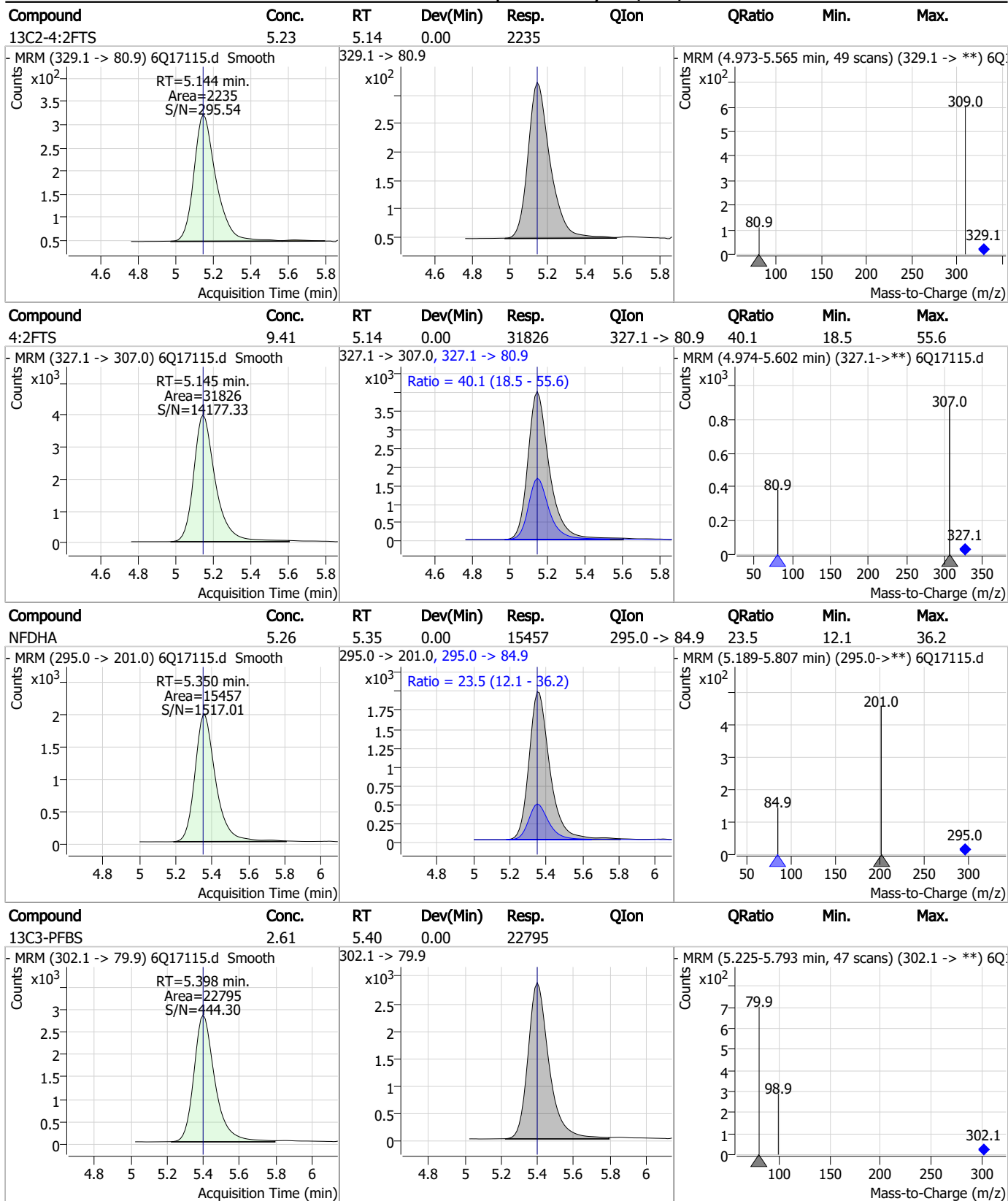
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	5.01	4.27	0.00	89050				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	5.07	4.69	0.00	60465				



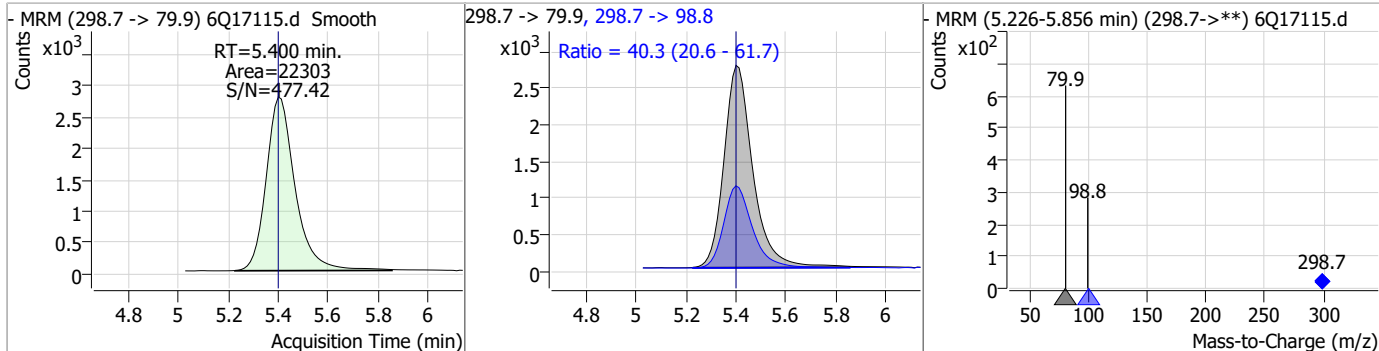
Perfluorinated Compounds by LC/MS/MS



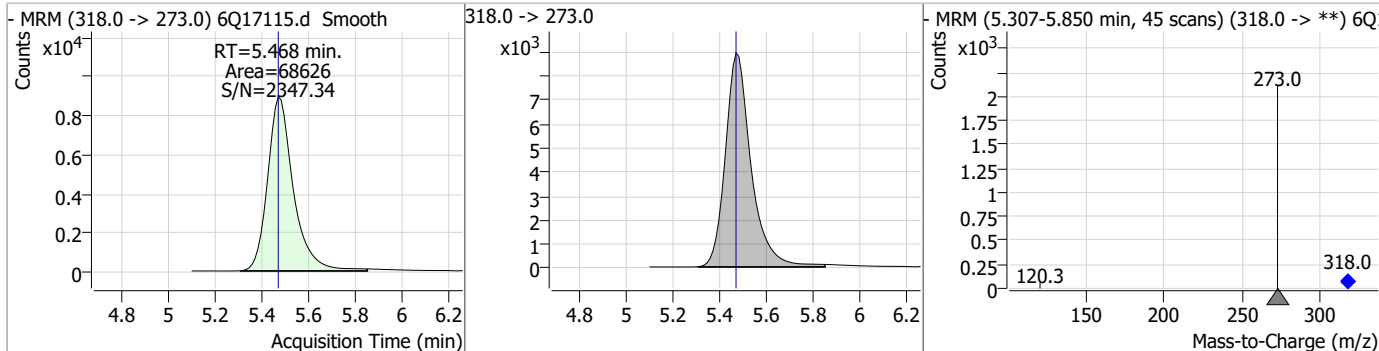
7.6.17

Perfluorinated Compounds by LC/MS/MS

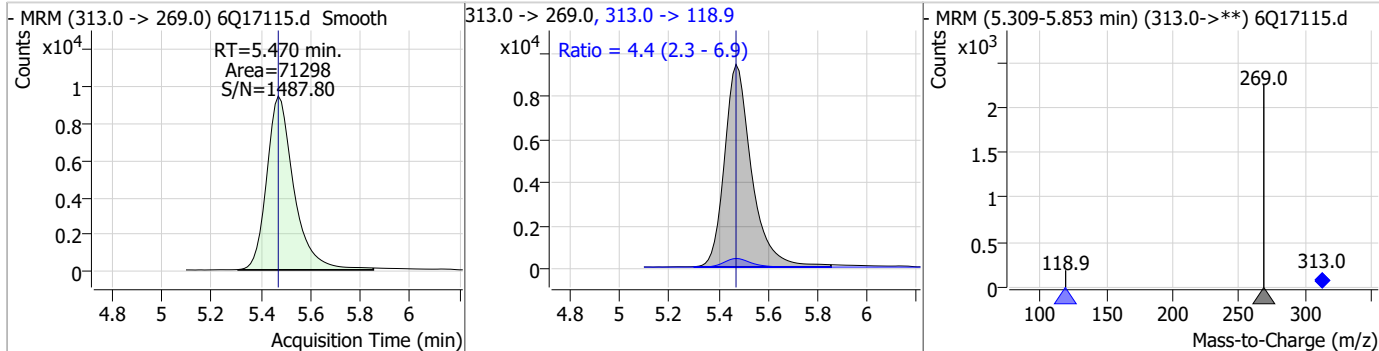
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.18	5.40	0.00	22303	298.7 -> 98.8	40.3	20.6	61.7



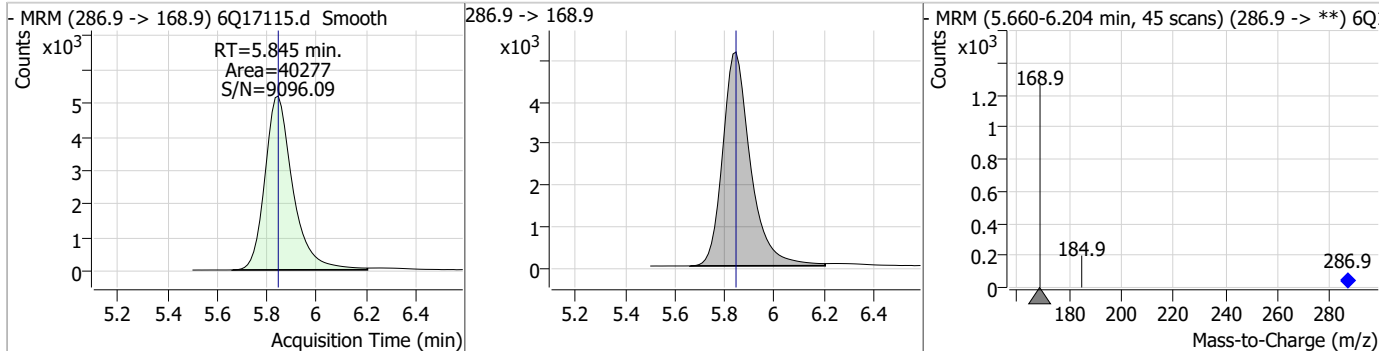
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.54	5.47	0.00	68626				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.63	5.47	0.00	71298	313.0 -> 118.9	4.4	2.3	6.9



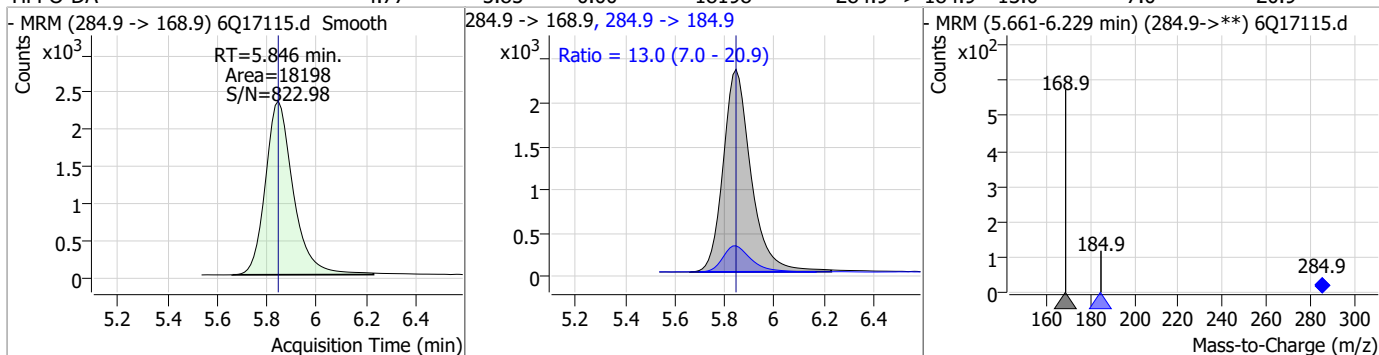
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.14	5.85	0.00	40277				



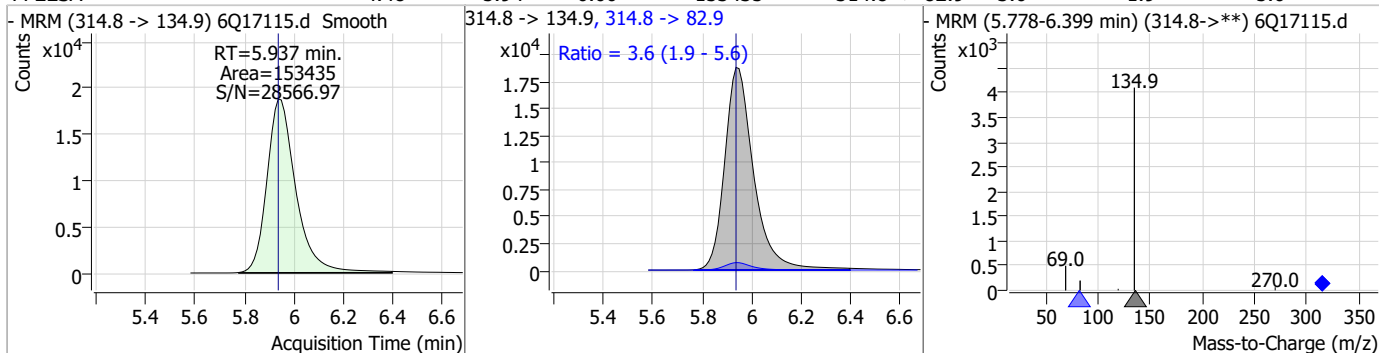
7.6.17
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Perfluorinated Compounds by LC/MS/MS

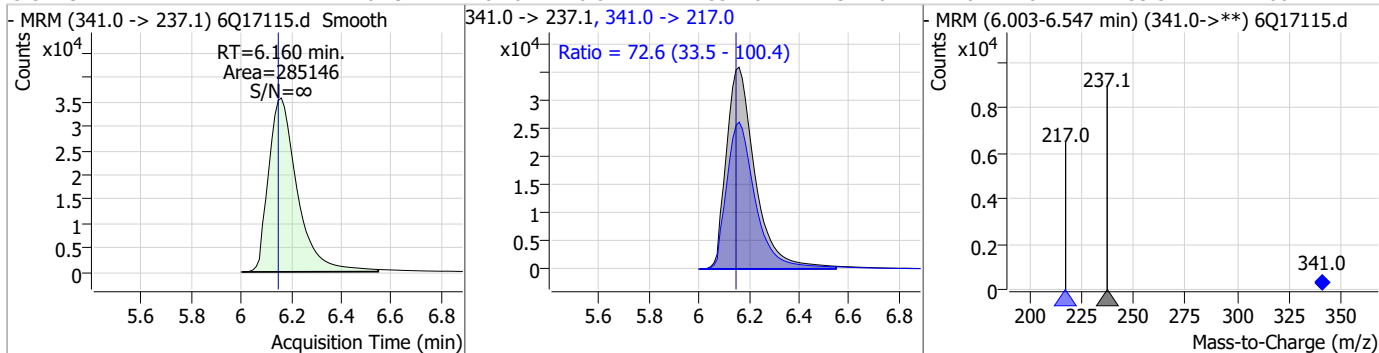
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.77	5.85	0.00	18198	284.9 -> 184.9	13.0	7.0	20.9



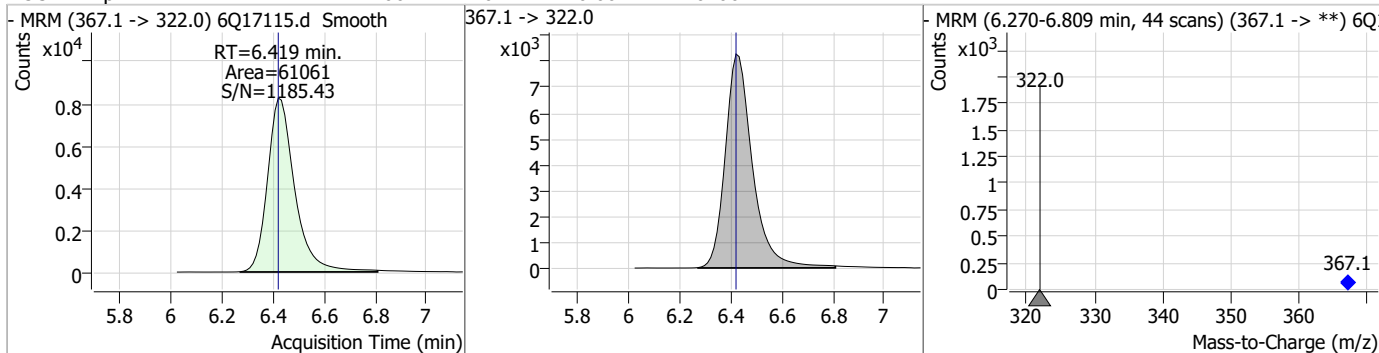
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.48	5.94	0.00	153435	314.8 -> 82.9	3.6	1.9	5.6



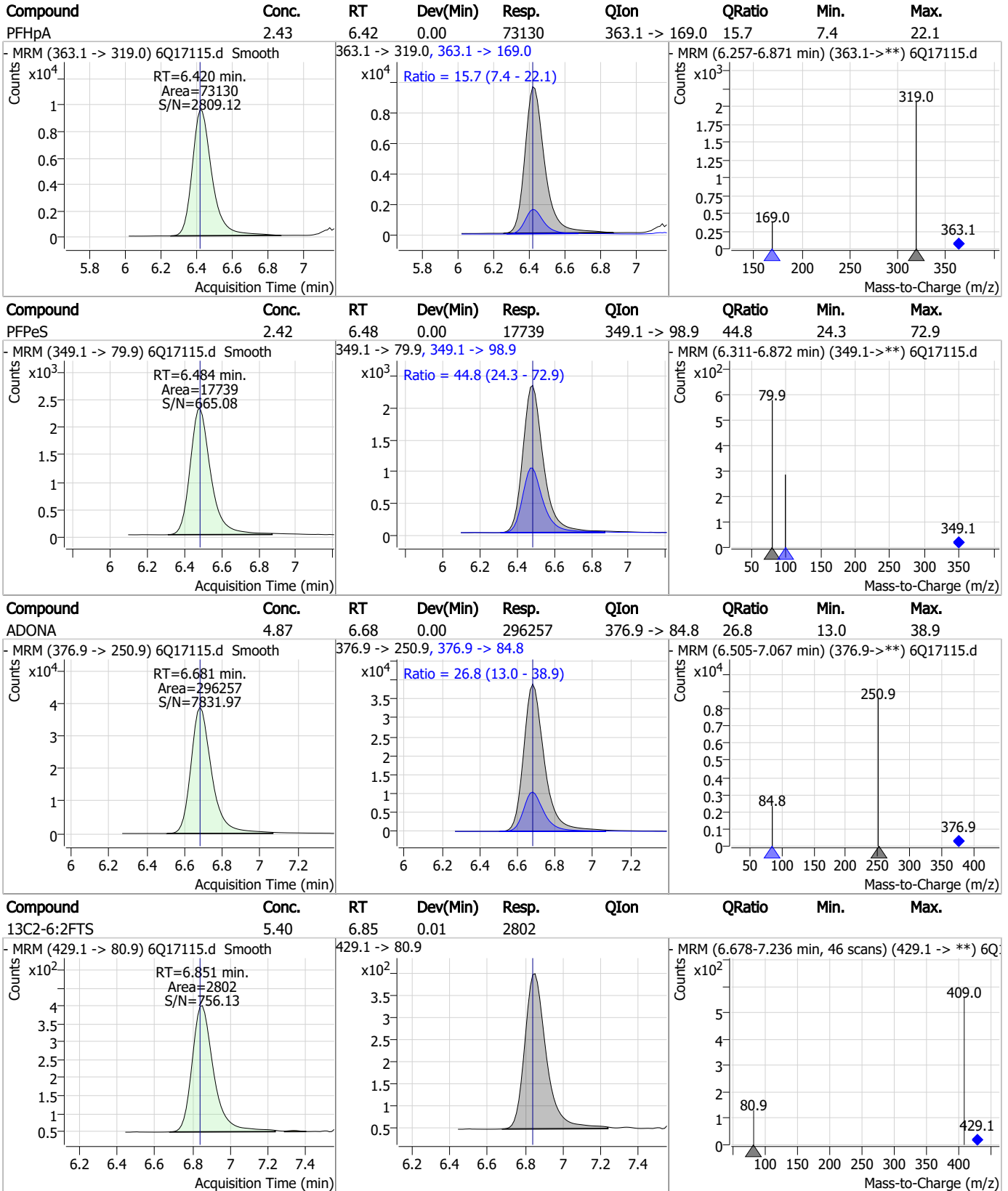
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	64.94	6.16	0.01	285146	341.0 -> 217.0	72.6	33.5	100.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.66	6.42	0.00	61061	367.1 -> 322.0			



Perfluorinated Compounds by LC/MS/MS

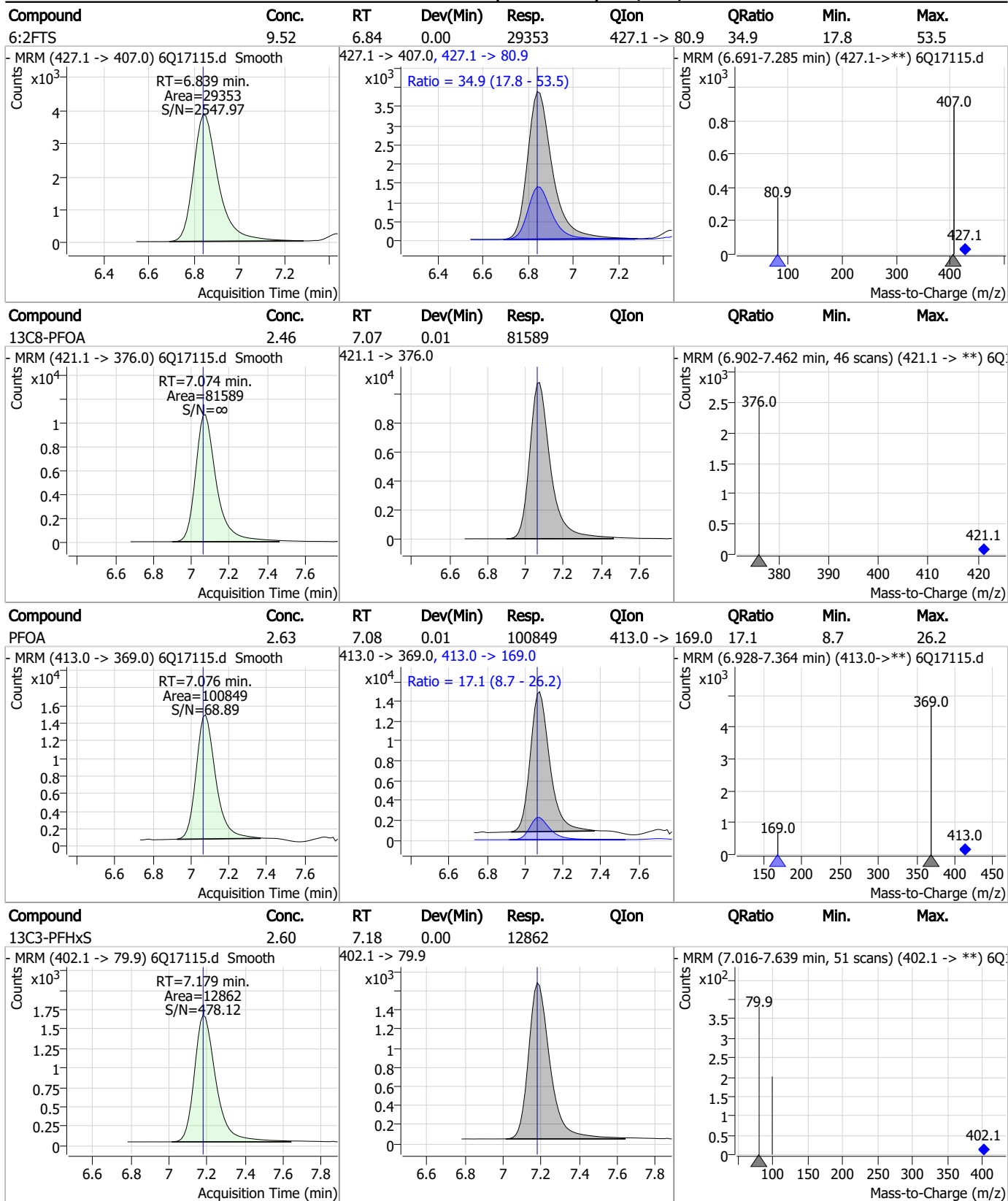


7.6.17

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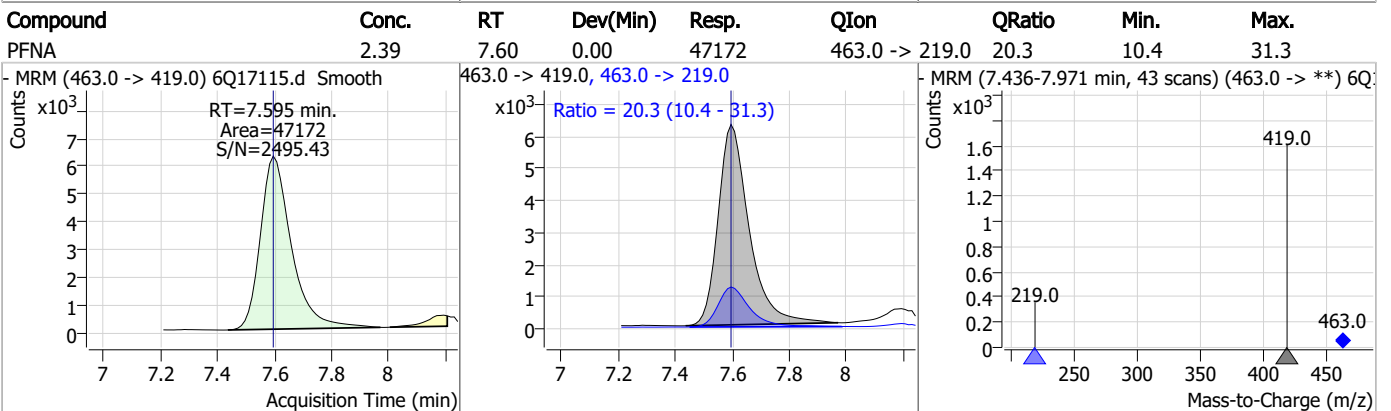
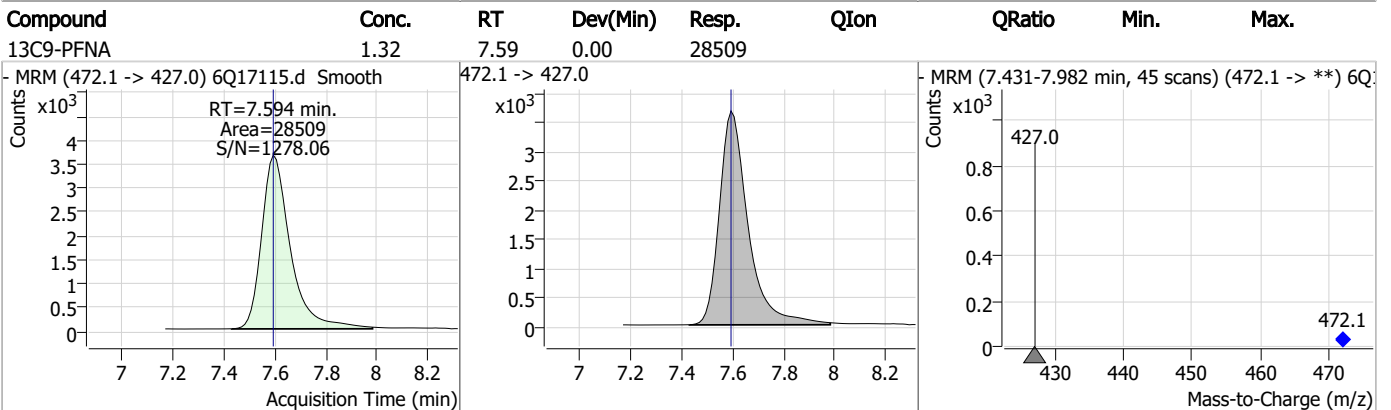
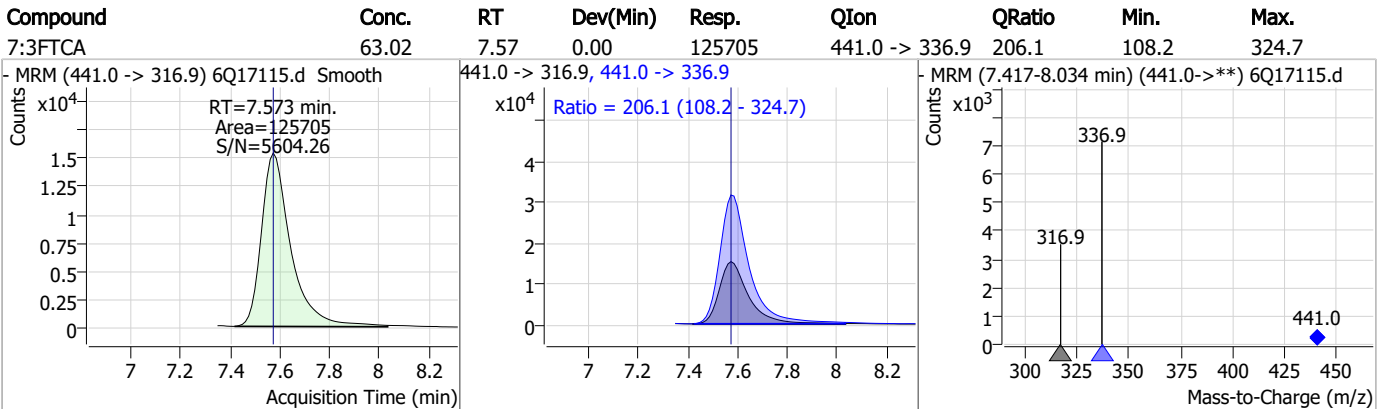
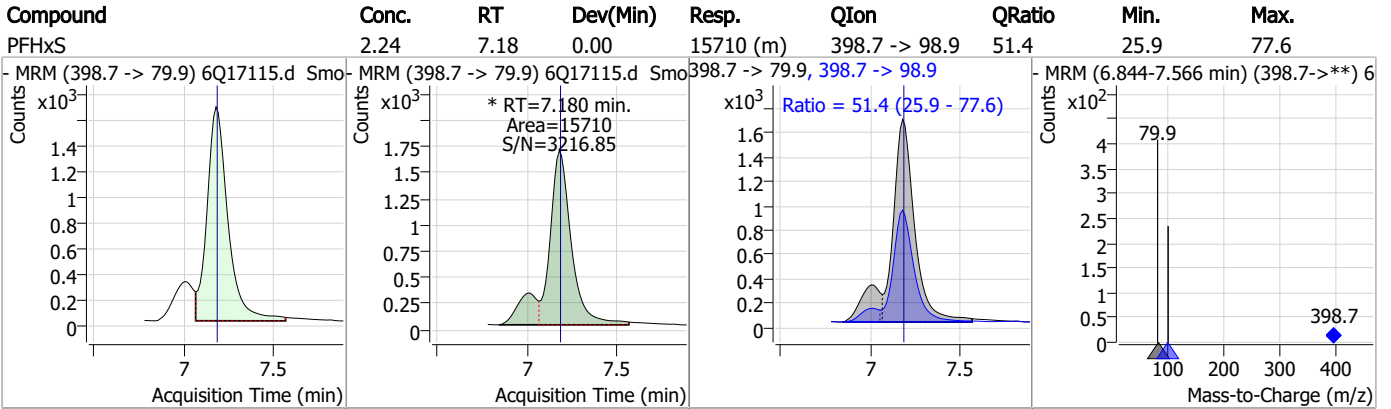


Perfluorinated Compounds by LC/MS/MS



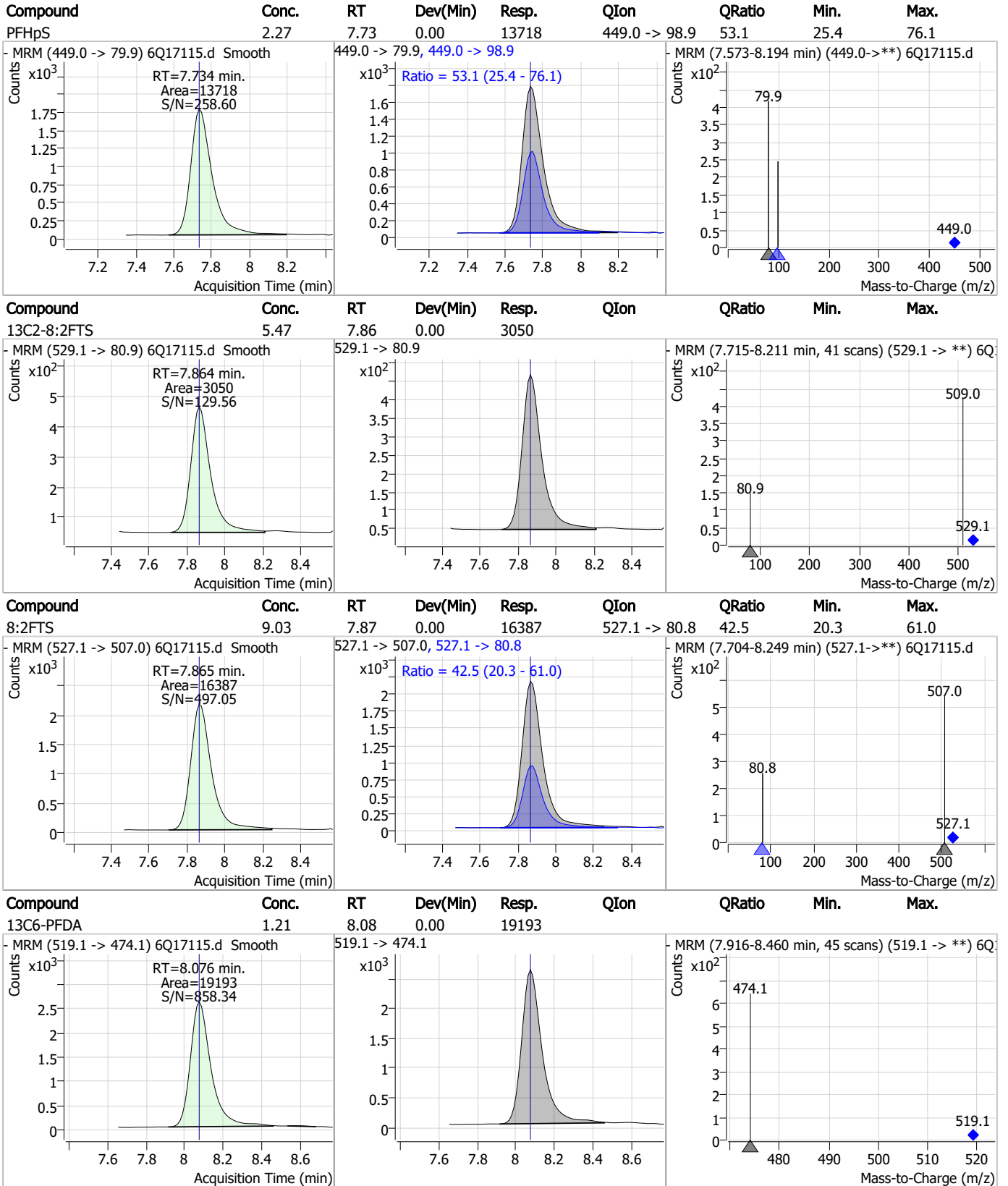
7.6.17

Perfluorinated Compounds by LC/MS/MS



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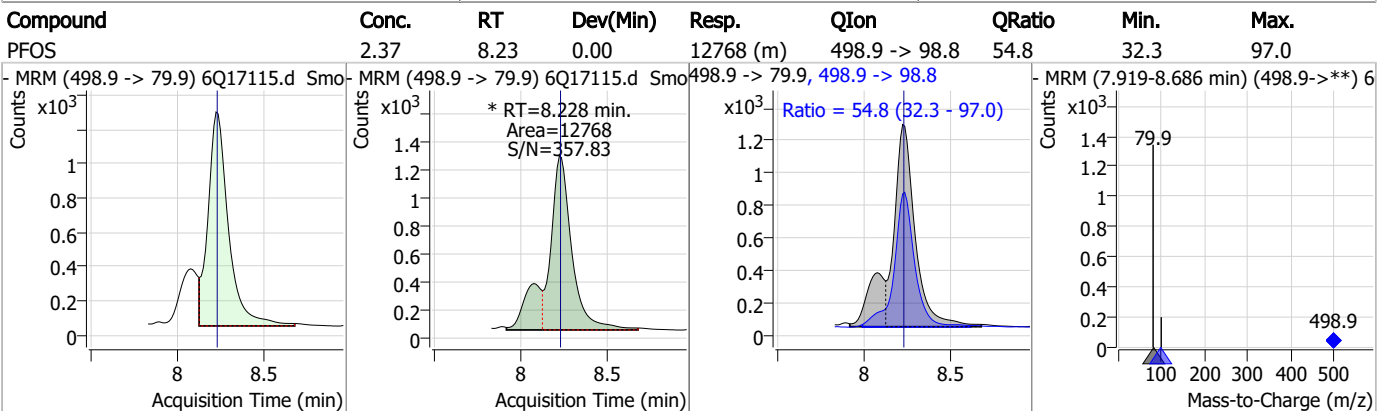
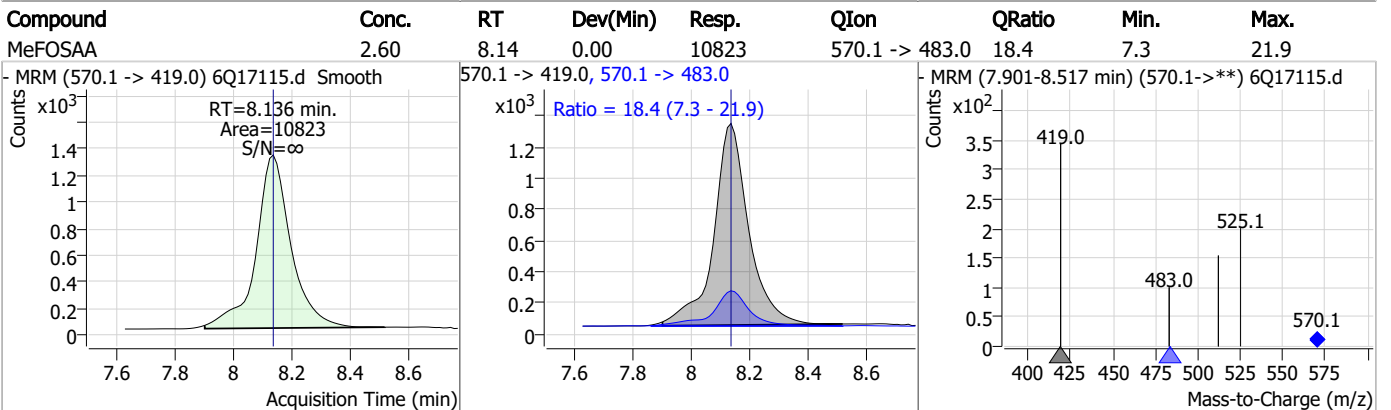
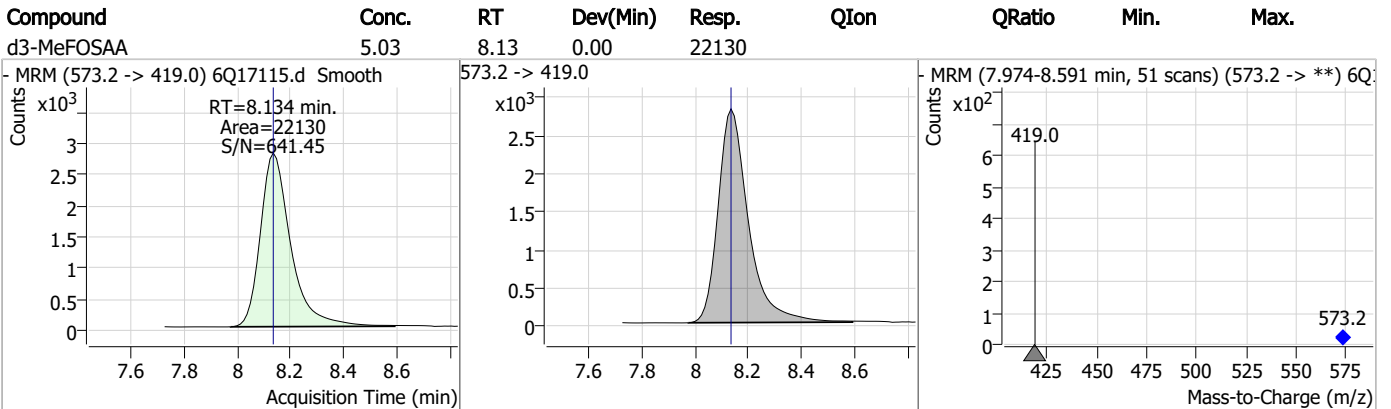
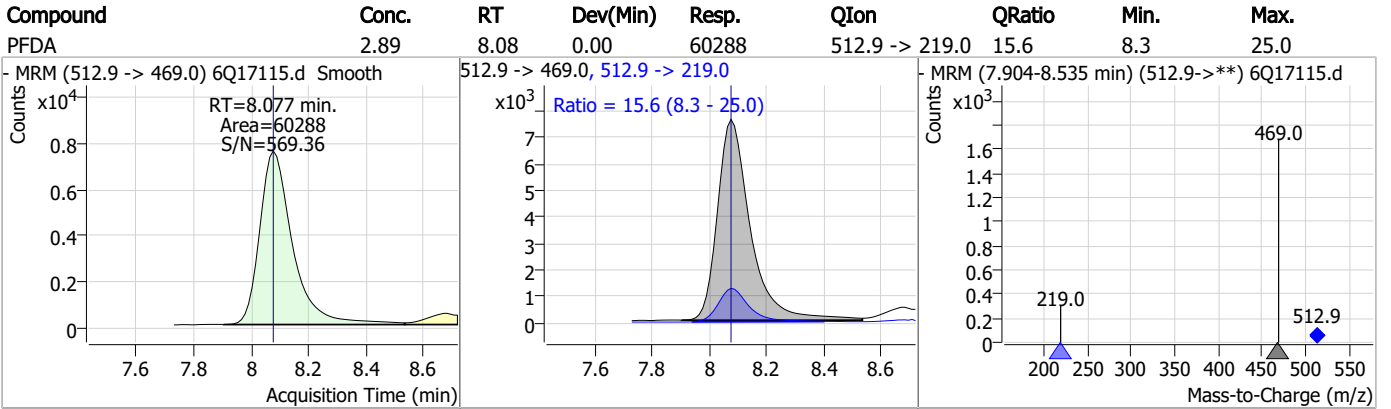
Perfluorinated Compounds by LC/MS/MS



7.6.17



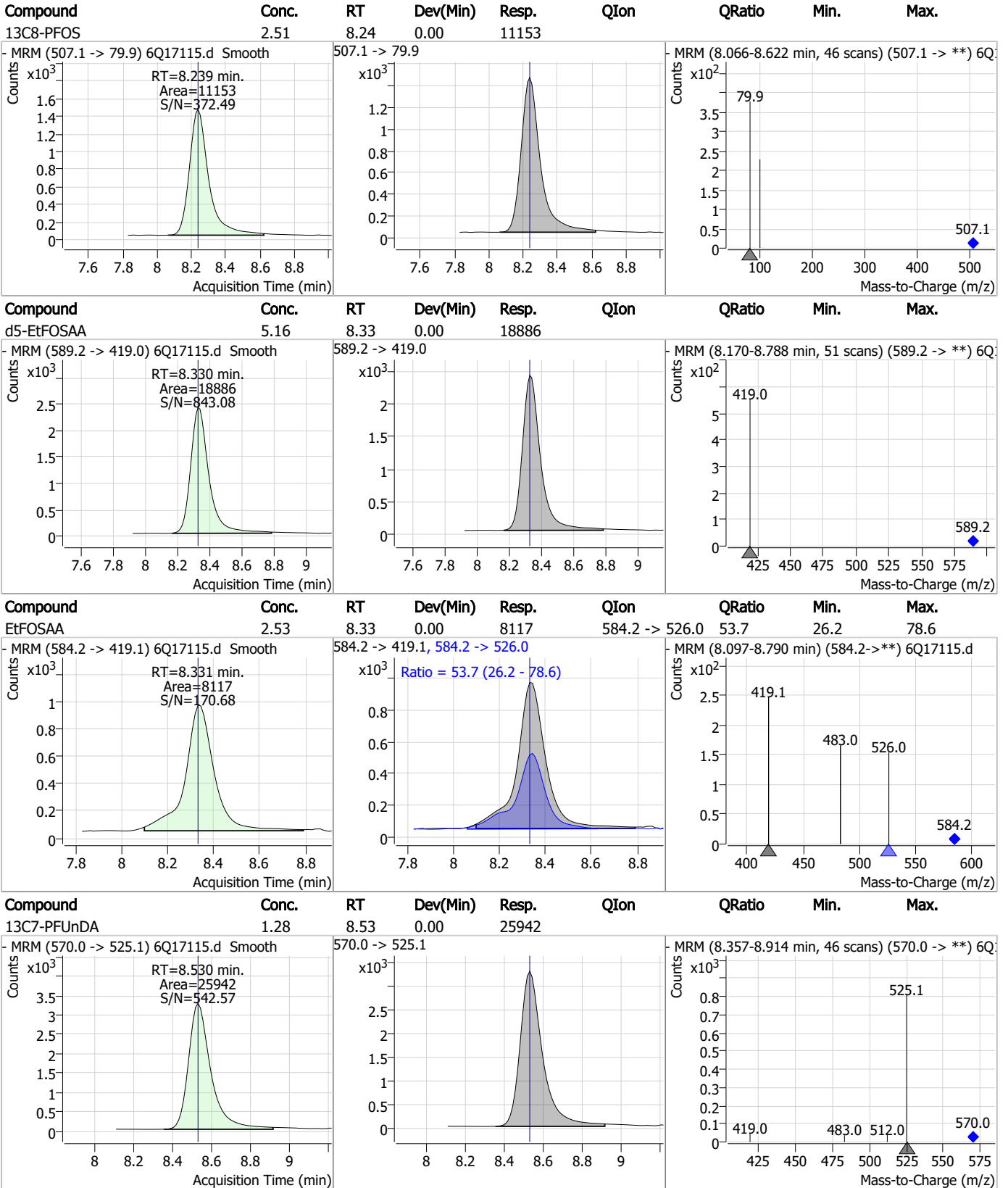
Perfluorinated Compounds by LC/MS/MS



7.6.17



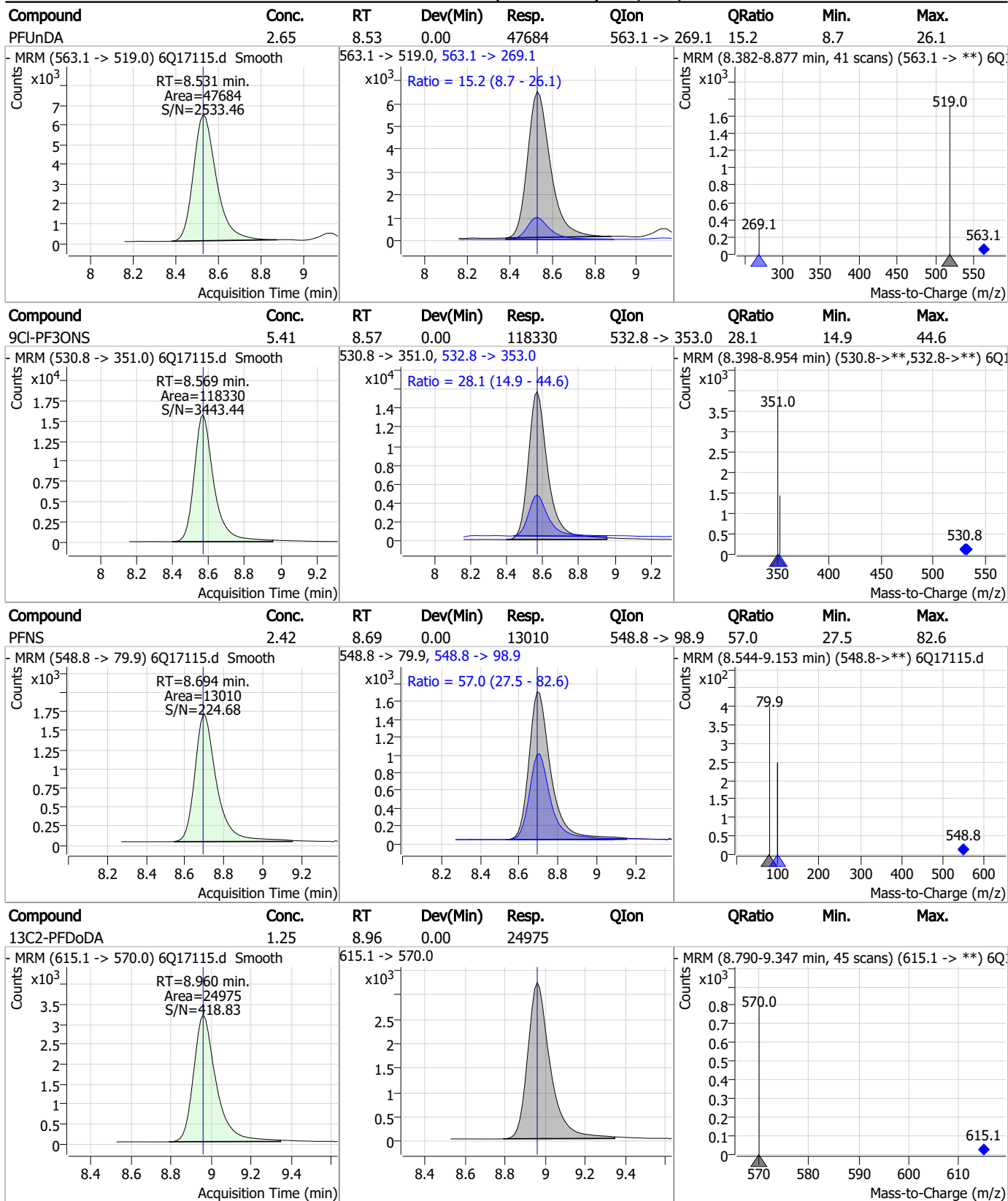
Perfluorinated Compounds by LC/MS/MS



7.6.17

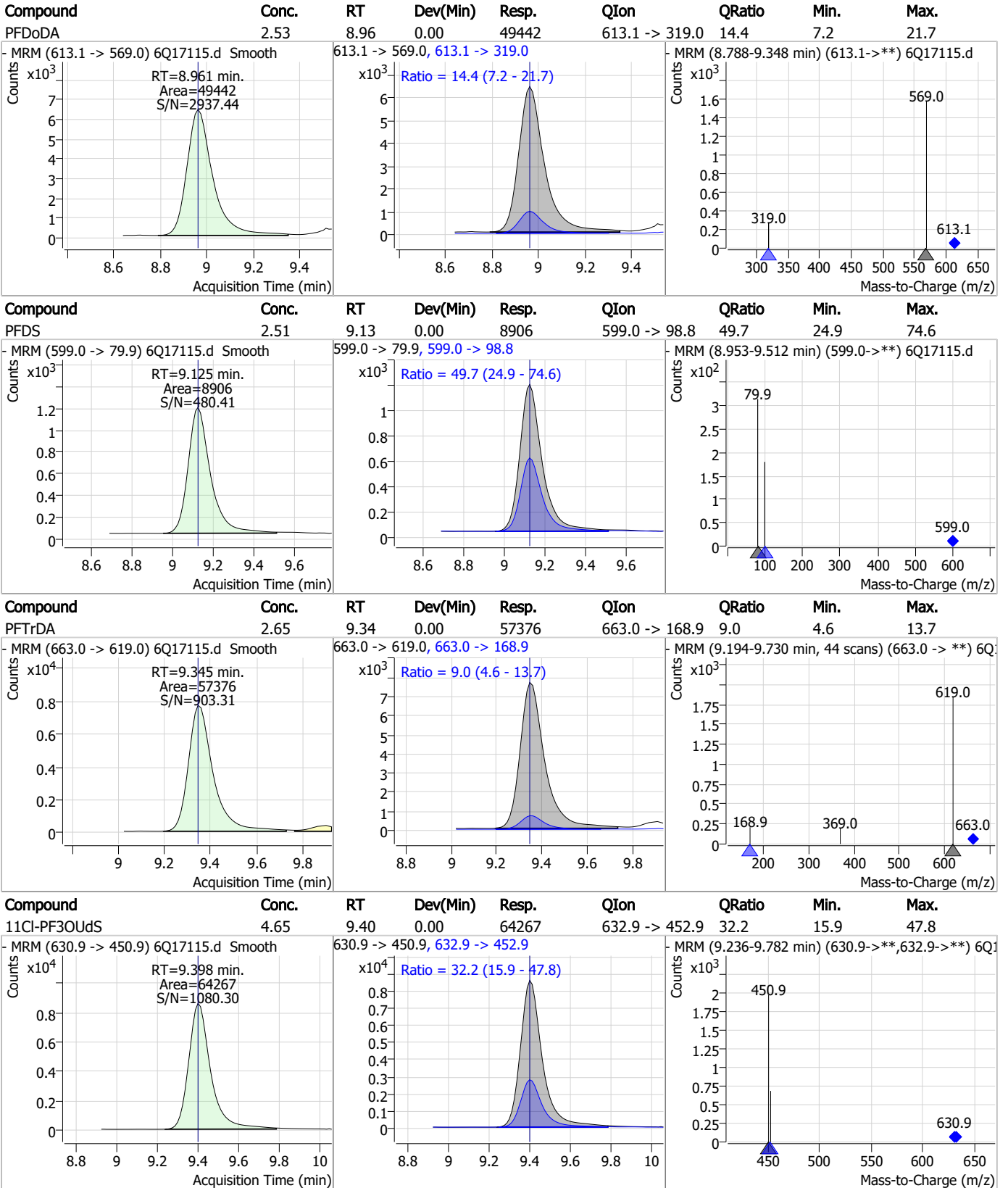


Perfluorinated Compounds by LC/MS/MS



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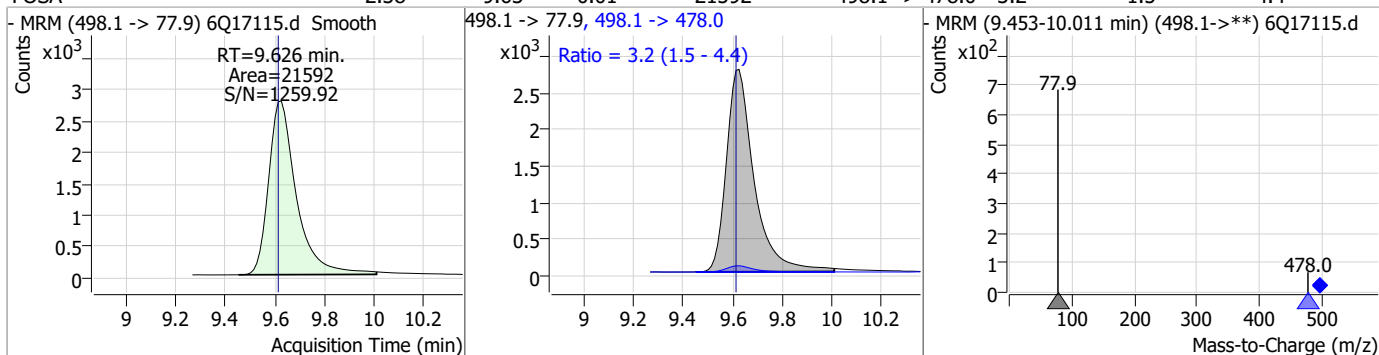
Perfluorinated Compounds by LC/MS/MS



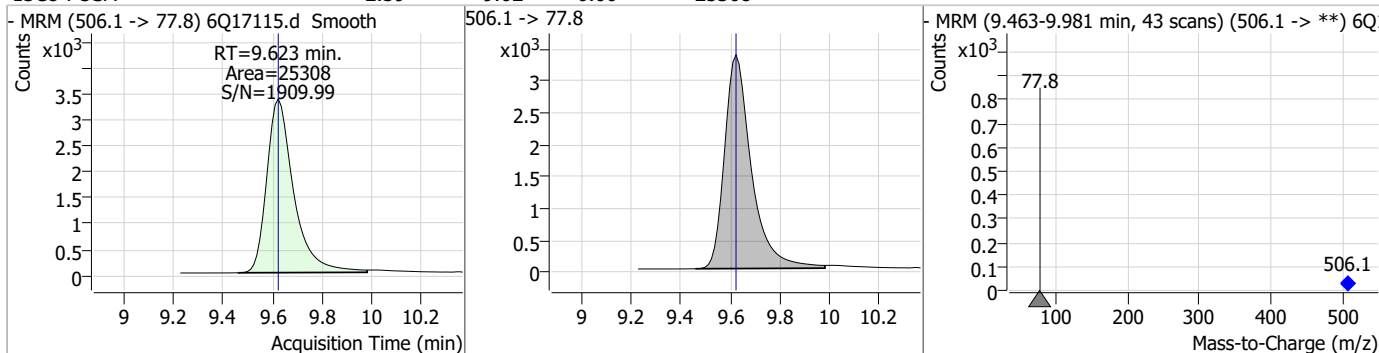
7.6.17

Perfluorinated Compounds by LC/MS/MS

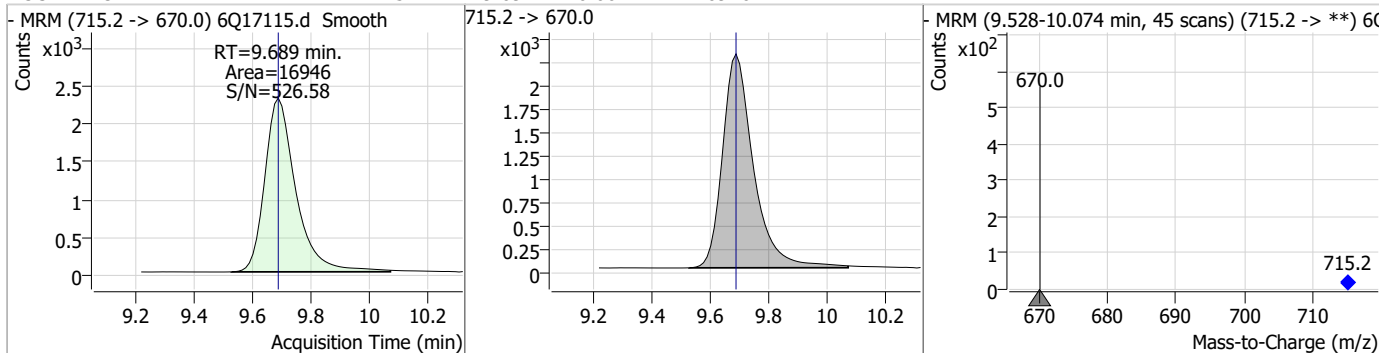
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.38	9.63	0.01	21592	498.1 -> 478.0	3.2	1.5	4.4



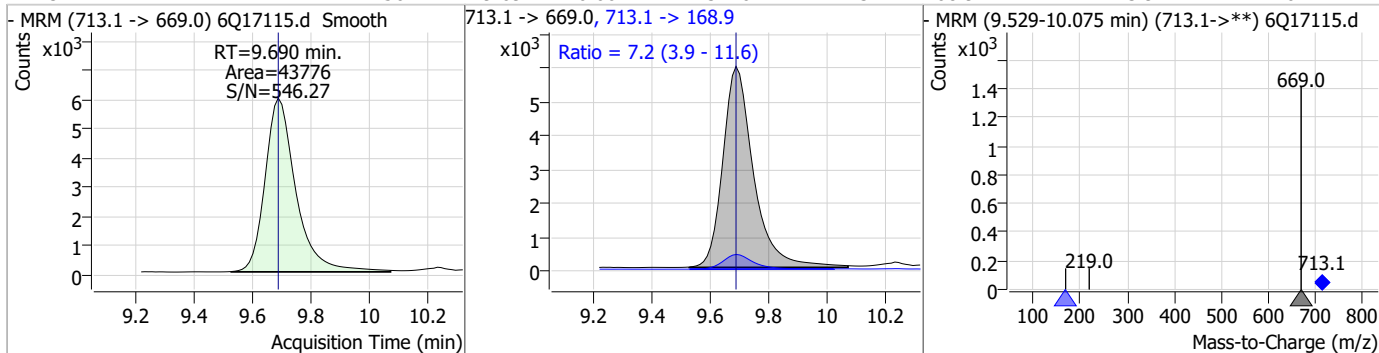
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.59	9.62	0.00	25308				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.25	9.69	0.00	16946				

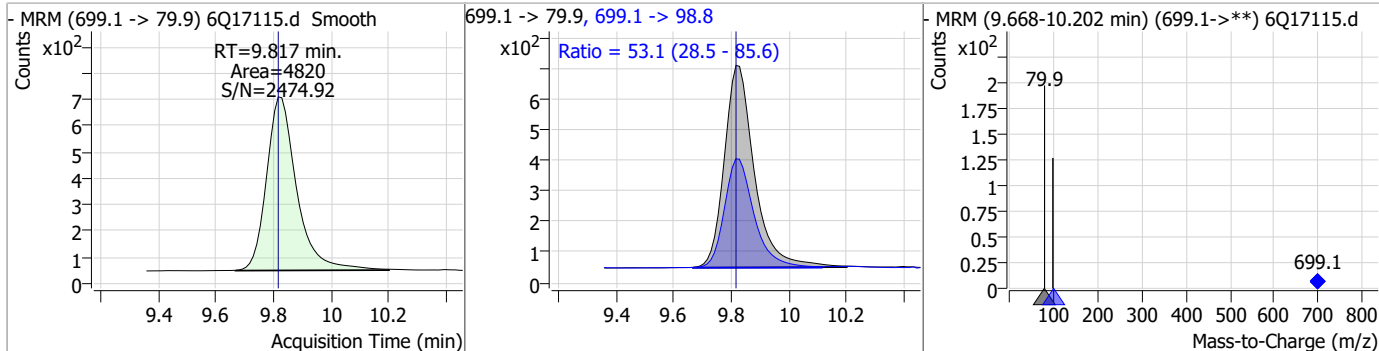


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.56	9.69	0.00	43776	713.1 -> 168.9	7.2	3.9	11.6

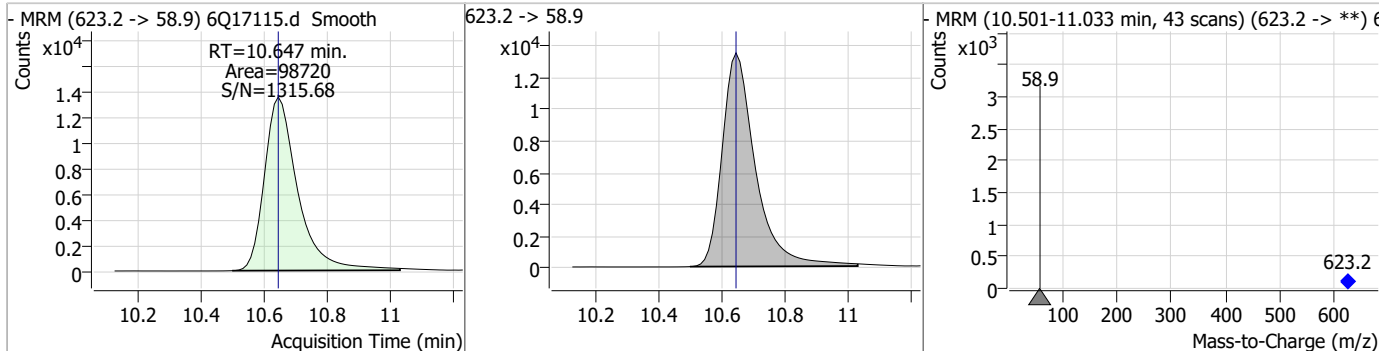


Perfluorinated Compounds by LC/MS/MS

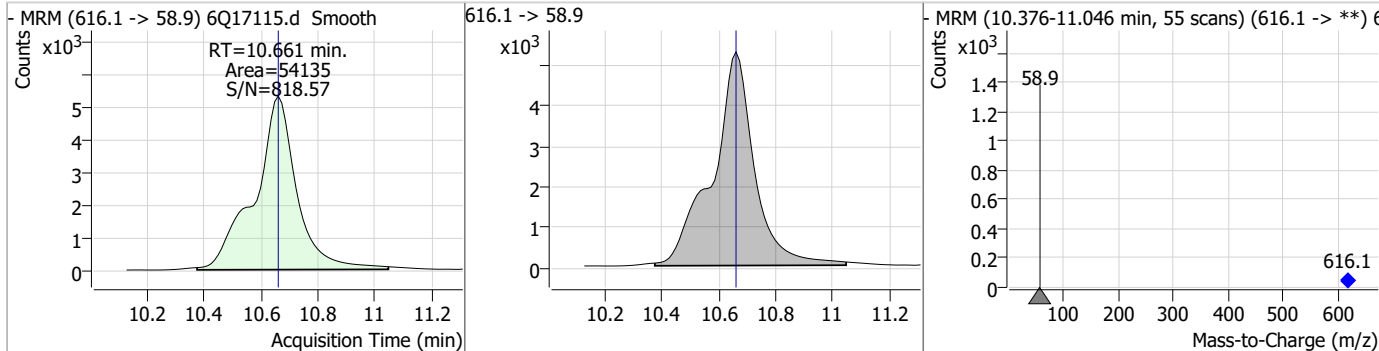
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.62	9.82	0.00	4820	699.1 -> 98.8	53.1	28.5	85.6



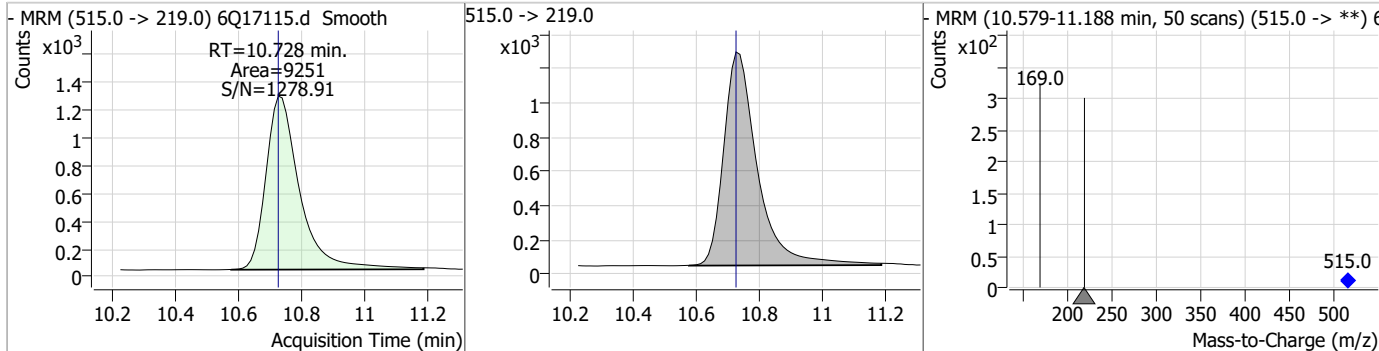
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.46	10.65	0.00	98720				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.30	10.66	0.00	54135				

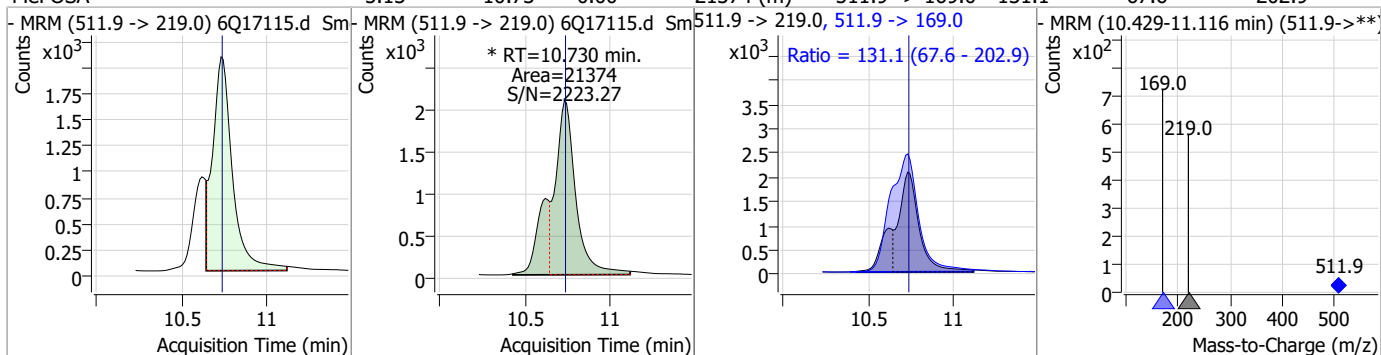


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.51	10.73	0.00	9251				

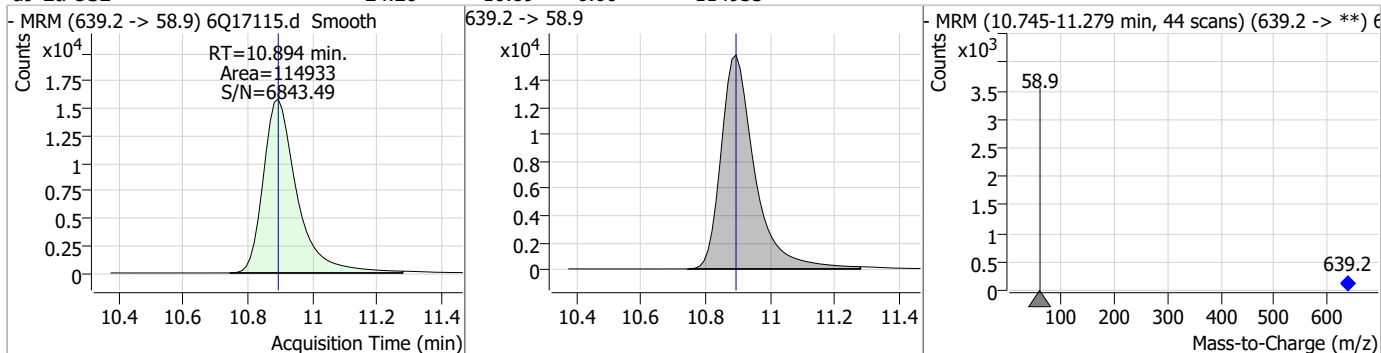


Perfluorinated Compounds by LC/MS/MS

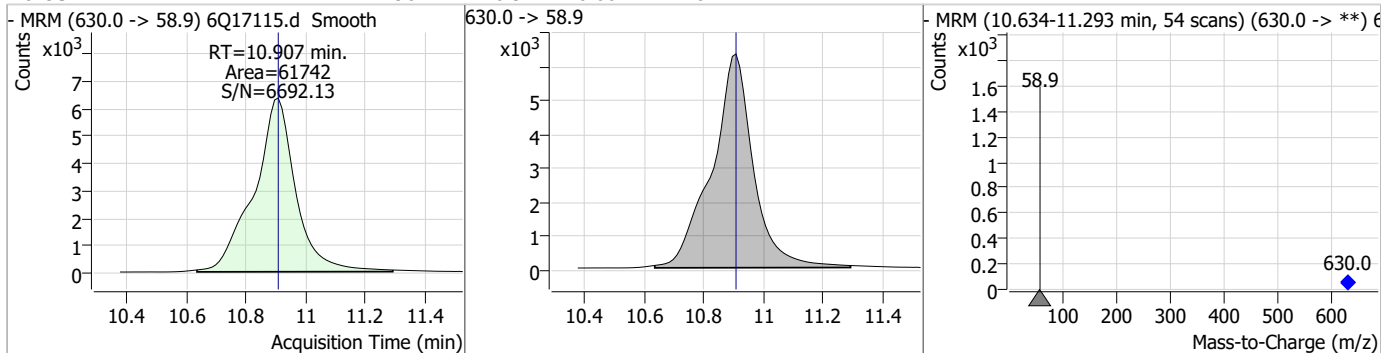
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.13	10.73	0.00	21374 (m)	511.9 -> 169.0	131.1	67.6	202.9



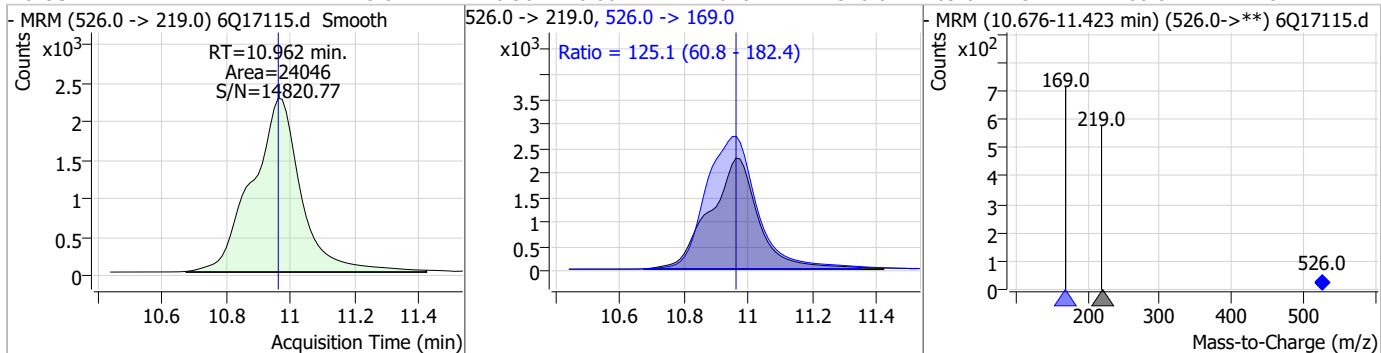
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.26	10.89	0.00	114933				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.90	10.91	0.00	61742				

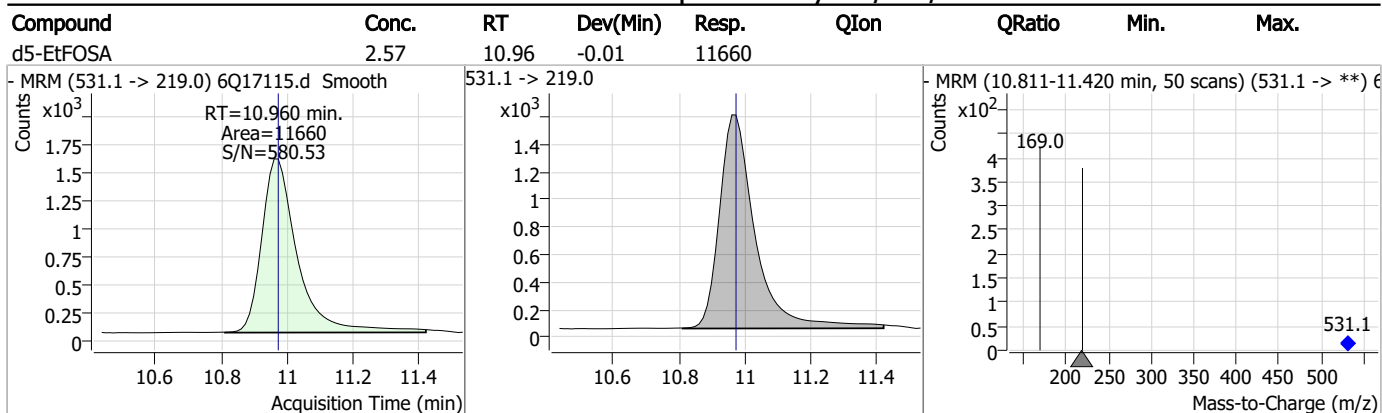


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	5.02	10.96	0.00	24046	526.0 -> 169.0	125.1	60.8	182.4



7.6.17
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Perfluorinated Compounds by LC/MS/MS



7.6.17
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Manual Integration Approval Summary

Sample Number: S6Q258-CC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17115.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/29/23 04:17 Supervisor approved: 05/01/23 00:01 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
MeFOSA	31506-32-8		10.73	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17116.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/29/2023 4:31:54 AM
 Sample Name : cc258-1.0LL
 Vial : P1-A2
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	185265	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	66222	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	70650	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	61494	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	90454	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	26222	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	20766	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	25241	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	27010	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	16780	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	25034	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	23544	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12936	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	11355	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2392	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2660	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2885	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	23268	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	40096	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	20153	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	100345	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	122270	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	11479	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	9322	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	14145	2.50 µg/L	-0.012
13C3-PFBA	2.902	216.0 -> 172.0	80998	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9863	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	91913	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	24762	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	30151	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	60004	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2392	5.28 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.5%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2660	4.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2885	4.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C2-PFDoDA	8.960	615.1 -> 570.0	27010	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.9%		
13C2-PFTeDA	9.689	715.2 -> 670.0	16780	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C3-PFBS	5.398	302.1 -> 79.9	23544	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C3-PFHxS	7.179	402.1 -> 79.9	12936	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 = 98.6%	
13C4-PFBA	2.910	216.8 -> 171.9	185265	9.90 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C4-PFHpA	6.419	367.1 -> 322.0	61494	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C5-PFHxA	5.468	318.0 -> 273.0	70650	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C5-PFPeA	4.270	268.3 -> 223.0	66222	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C6-PFDA	8.076	519.1 -> 474.1	20766	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C7-PFUnDA	8.530	570.0 -> 525.1	25241	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.6%	
13C8-FOSA	9.623	506.1 -> 77.8	25034	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.1%	
13C8-PFOA	7.062	421.1 -> 376.0	90454	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C8-PFOS	8.239	507.1 -> 79.9	11355	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.6%	
13C9-PFNA	7.594	472.1 -> 427.0	26222	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.3%	
d3-MeFOSAA	8.134	573.2 -> 419.0	23268	5.52 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.4%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	40096	9.44 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.4%	
d3-MeFOSA	10.728	515.0 -> 219.0	9322	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.5%	
d5-EtFOSAA	8.330	589.2 -> 419.0	20153	5.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 115.0%	
d7-MeFOSE	10.647	623.2 -> 58.9	100345	27.03 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 108.1%	
d9-EtFOSE	10.894	639.2 -> 58.9	122270	26.95 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 107.8%	
d5-EtFOSA	10.960	531.1 -> 219.0	11479	2.65 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.8%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	2062	0.57 µg/L	95
		327.1 -> 80.9	826		
6:2FTS	6.839	427.1 -> 407.0	1952	0.67 µg/L	95
		427.1 -> 80.9	644		
8:2FTS	7.865	527.1 -> 507.0	1248	0.73 µg/L	98
		527.1 -> 80.8	522		
EtFOSAA	8.343	584.2 -> 419.1	613	0.18 µg/L	96
		584.2 -> 526.0	303		
FOSA	9.614	498.1 -> 77.9	1680	0.19 µg/L	100
		498.1 -> 478.0	47		
MeFOSAA	8.136	570.1 -> 419.0	713	0.16 µg/L	m 86
		570.1 -> 483.0	144		
PFBA	2.906	212.8 -> 168.9	4100	0.66 µg/L	100
PFBS	5.400	298.7 -> 79.9	1418	0.13 µg/L	88
		298.7 -> 98.8	688		
PFDA	8.077	512.9 -> 469.0	3457	0.15 µg/L	96
		512.9 -> 219.0	632		
PFDODA	8.961	613.1 -> 569.0	3507	0.17 µg/L	94
		613.1 -> 319.0	423		
PFDS	9.125	599.0 -> 79.9	493	0.14 µg/L	m 98

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	239			
PFHpA	6.420	363.1 -> 319.0	4883	0.16	µg/L	99
		363.1 -> 169.0	737			
PFHpS	7.734	449.0 -> 79.9	902	0.15	µg/L	97
		449.0 -> 98.9	437			
PFHxA	5.470	313.0 -> 269.0	4277	0.15	µg/L	99
		313.0 -> 118.9	184			
PFHxS	7.180	398.7 -> 79.9	1051	0.15	µg/L	m 99
		398.7 -> 98.9	538			
PFNA	7.595	463.0 -> 419.0	2900	0.16	µg/L	100
		463.0 -> 219.0	608			
PFNS	8.694	548.8 -> 79.9	778	0.14	µg/L	91
		548.8 -> 98.9	380			
PFOA	7.063	413.0 -> 369.0	5224	0.19	µg/L	89
		413.0 -> 169.0	1156			
PFOS	8.228	498.9 -> 79.9	857	0.16	µg/L	m 81
		498.9 -> 98.8	423			
PFPeA	4.273	263.0 -> 219.0	5968	0.33	µg/L	100
PFPeS	6.472	349.1 -> 79.9	1258	0.17	µg/L	81
		349.1 -> 98.9	447			
PFTeDA	9.690	713.1 -> 669.0	2681	0.16	µg/L	97
		713.1 -> 168.9	180			
PFTrDA	9.345	663.0 -> 619.0	4059	0.17	µg/L	94
		663.0 -> 168.9	284			
PFUnDA	8.531	563.1 -> 519.0	2772	0.16	µg/L	96
		563.1 -> 269.1	531			
11Cl-PF3OUdS	9.398	630.9 -> 450.9	4206	0.31	µg/L	98
		632.9 -> 452.9	1395			
9Cl-PF3ONS	8.569	530.8 -> 351.0	6550	0.30	µg/L	83
		532.8 -> 353.0	2528			
ADONA	6.681	376.9 -> 250.9	19291	0.32	µg/L	98
		376.9 -> 84.8	4849			
HFPO-DA	5.834	284.9 -> 168.9	1299	0.34	µg/L	97
		284.9 -> 184.9	166			
3:3FTCA	3.784	241.0 -> 177.0	899	0.80	µg/L	98
		241.0 -> 117.0	128			
5:3FTCA	6.160	341.0 -> 237.1	20420	4.52	µg/L	91
		341.0 -> 217.0	15088			
7:3FTCA	7.573	441.0 -> 316.9	7346	3.58	µg/L	80
		441.0 -> 336.9	18245			
EtFOSA	10.962	526.0 -> 219.0	1568	0.33	µg/L	98
		526.0 -> 169.0	1935			
EtFOSE	10.907	630.0 -> 58.9	4127	0.81	µg/L	100
MeFOSA	10.730	511.9 -> 219.0	1444	0.34	µg/L	100
		511.9 -> 169.0	1956			
MeFOSE	10.661	616.1 -> 58.9	3669	0.82	µg/L	100
PFDoDS	9.817	699.1 -> 79.9	331	0.18	µg/L	85
		699.1 -> 98.8	153			
NFDHA	5.350	295.0 -> 201.0	1063	0.35	µg/L	97
		295.0 -> 84.9	242			
PFMBA	4.687	279.0 -> 85.1	3972	0.33	µg/L	100
PFMPA	3.438	229.0 -> 84.9	3015	0.33	µg/L	100
PFEESA	5.937	314.8 -> 134.9	9959	0.28	µg/L	100
		314.8 -> 82.9	370			

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

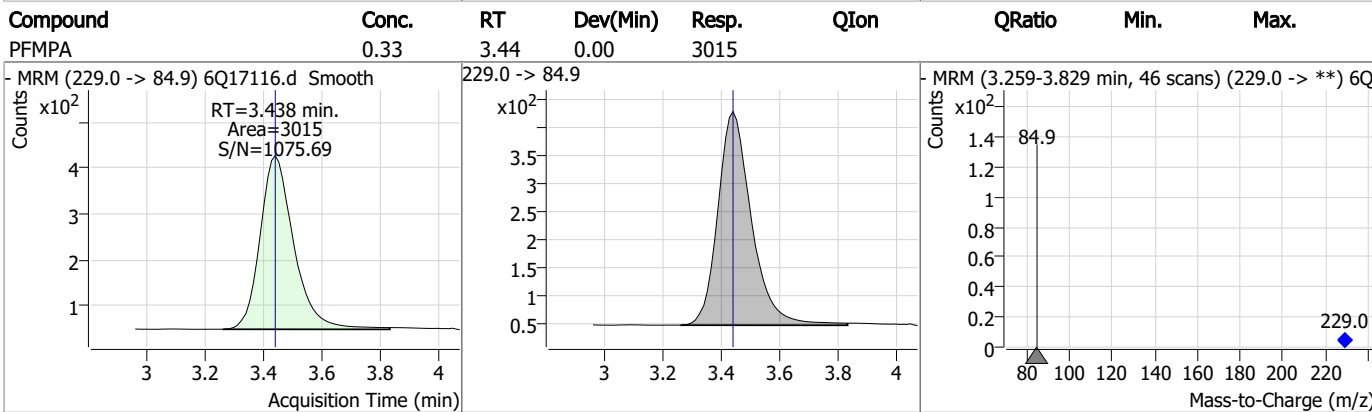
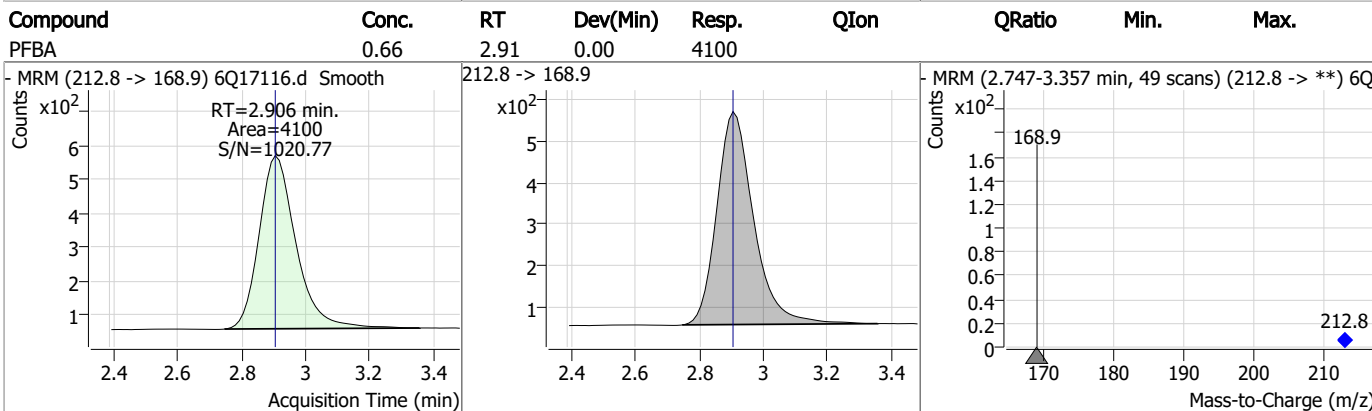
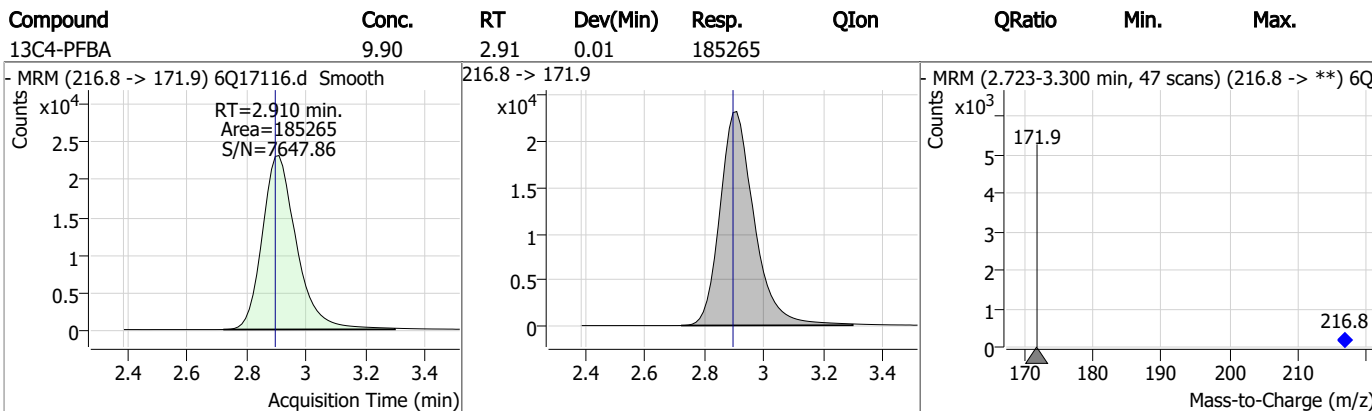
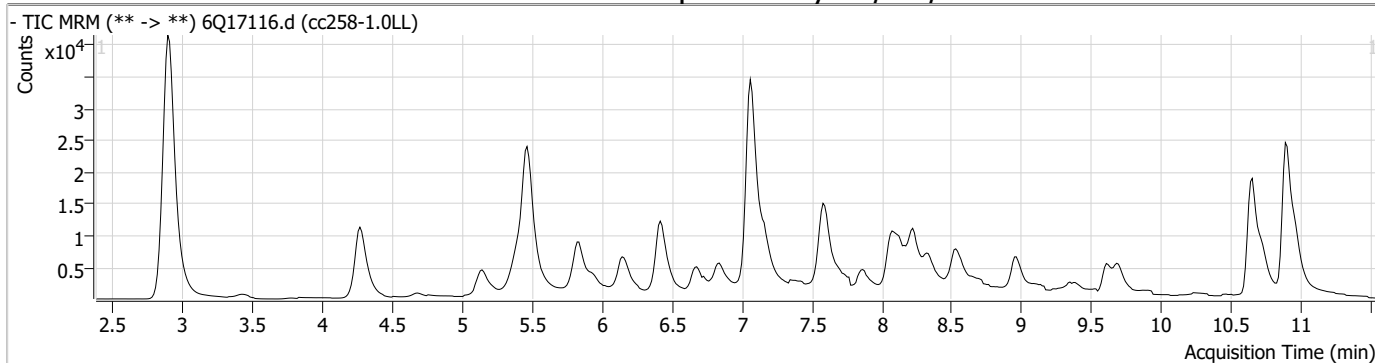
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Perfluorinated Compounds by LC/MS/MS

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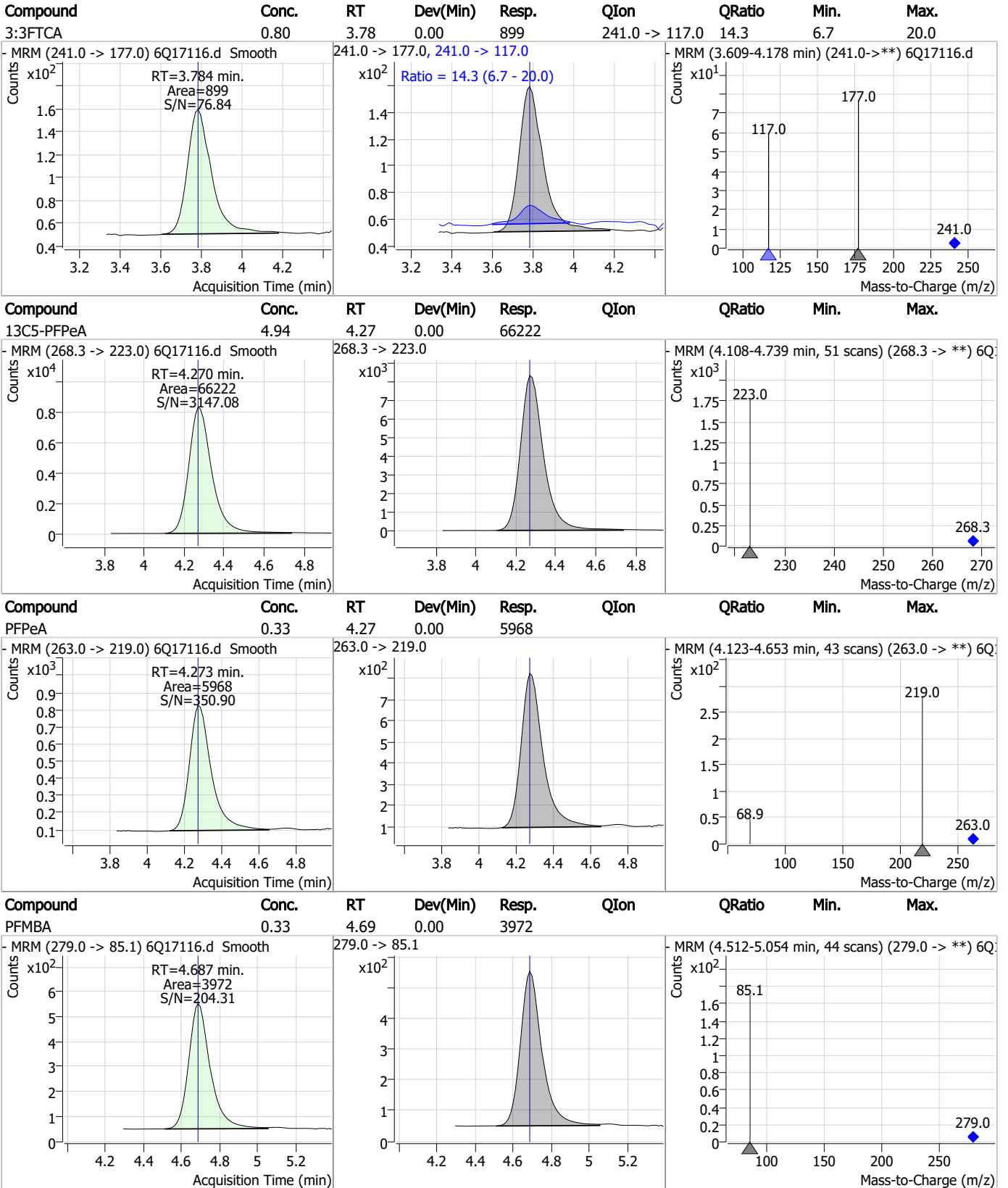
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Perfluorinated Compounds by LC/MS/MS



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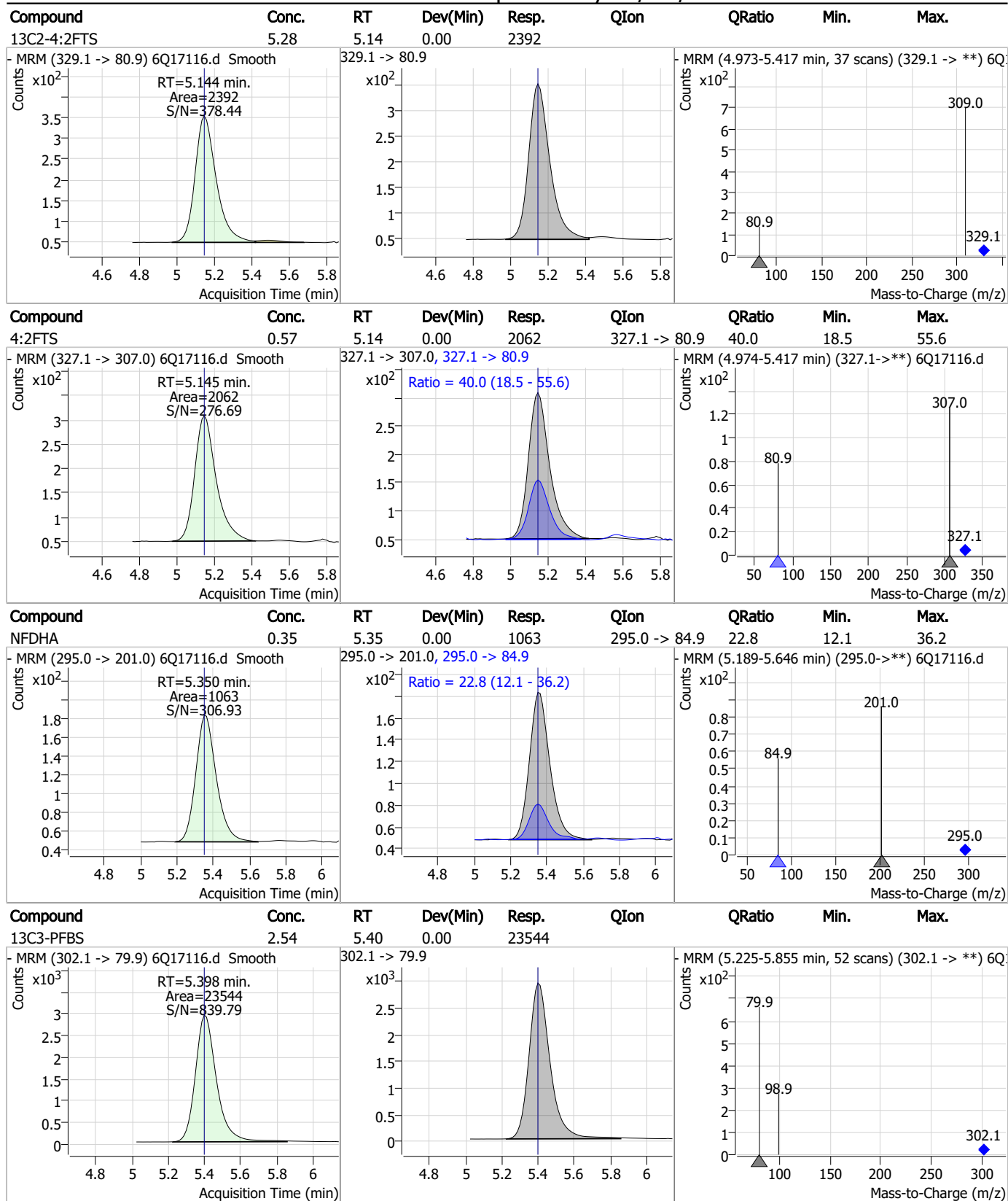
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

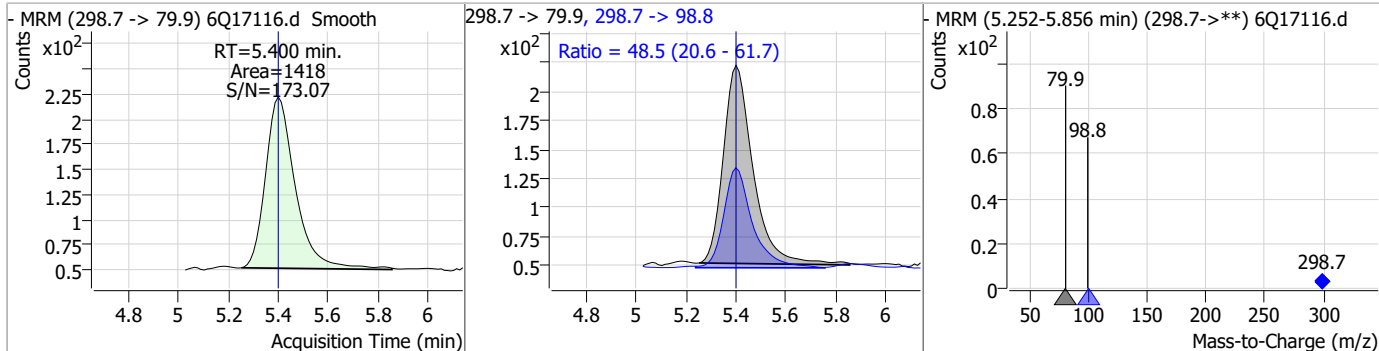


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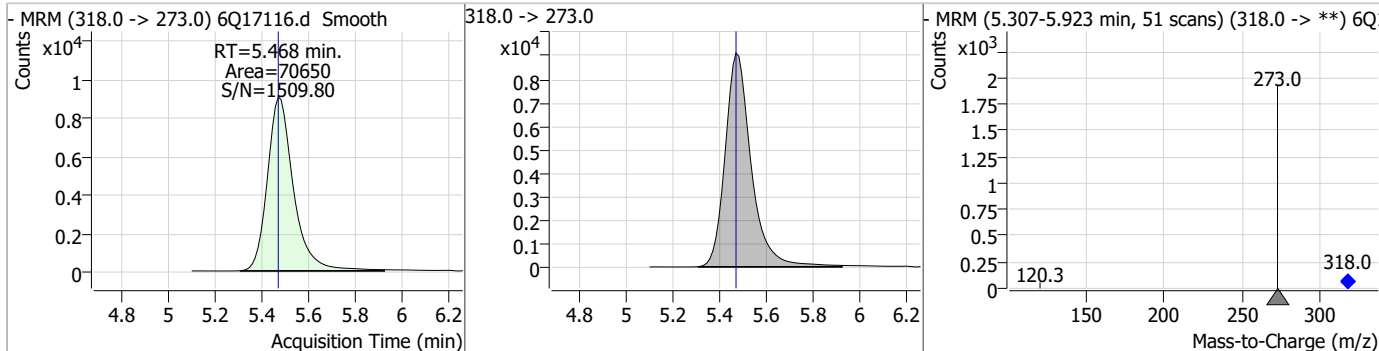
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Perfluorinated Compounds by LC/MS/MS

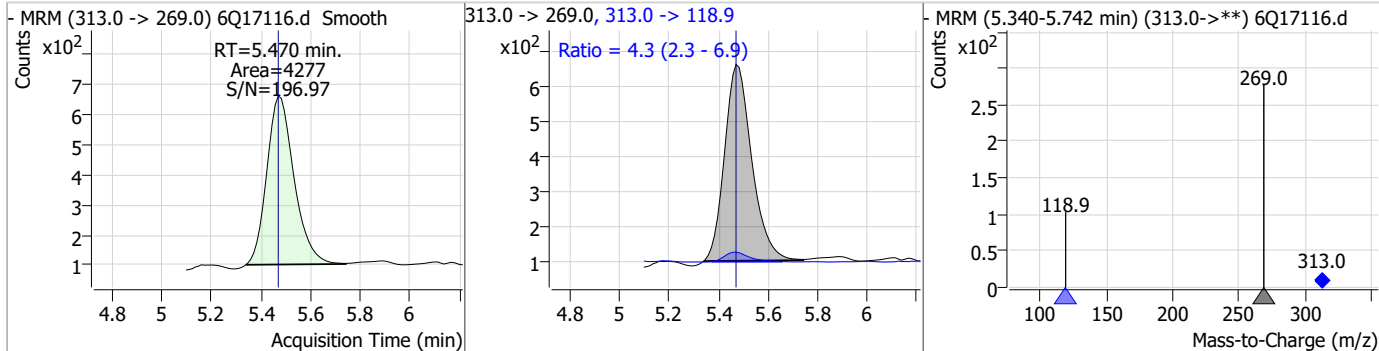
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.13	5.40	0.00	1418	298.7 -> 98.8	48.5	20.6	61.7



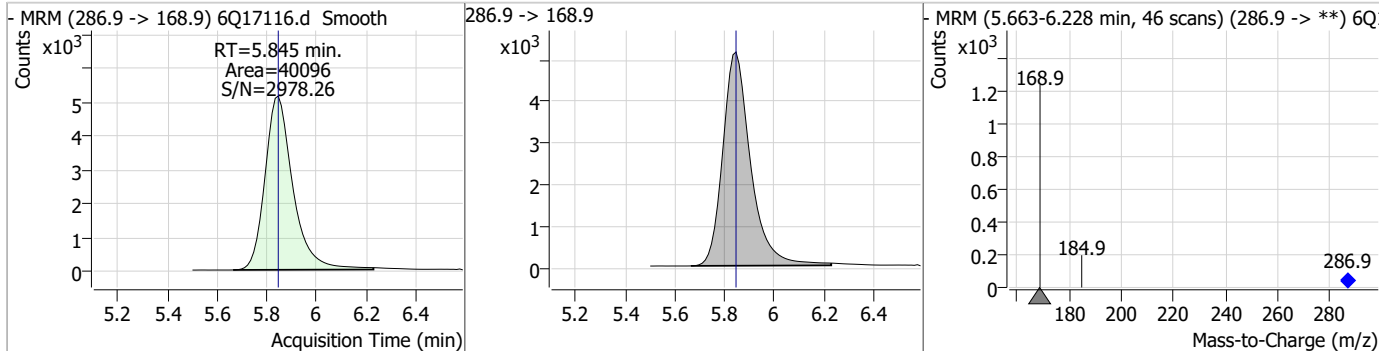
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.44	5.47	0.00	70650	318.0 -> 273.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.15	5.47	0.00	4277	313.0 -> 118.9	4.3	2.3	6.9



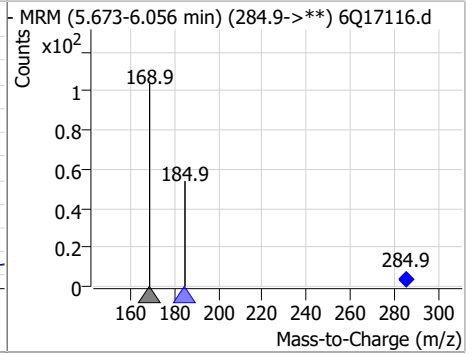
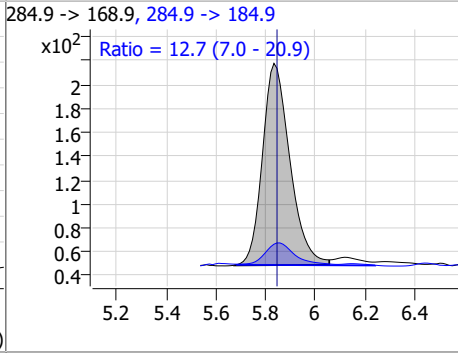
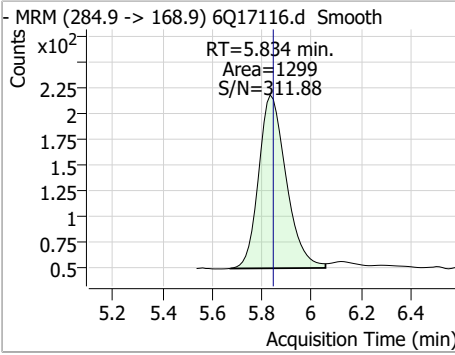
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.44	5.85	0.00	40096	286.9 -> 168.9			



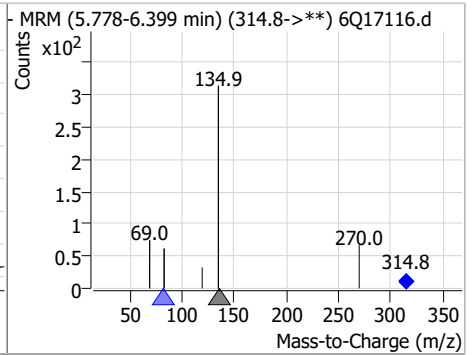
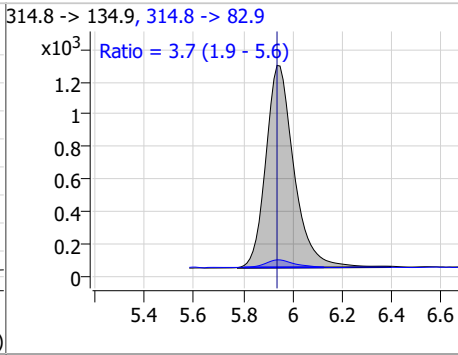
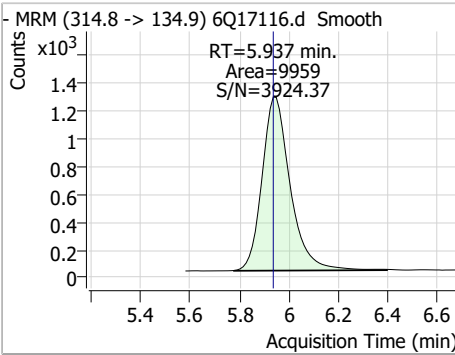
7.6.18
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Perfluorinated Compounds by LC/MS/MS

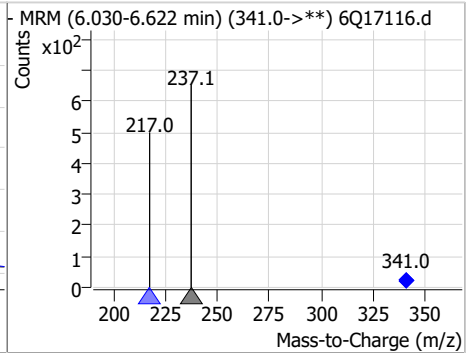
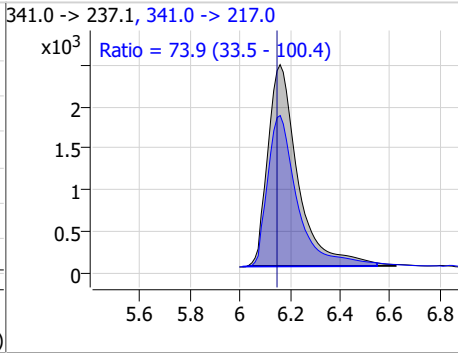
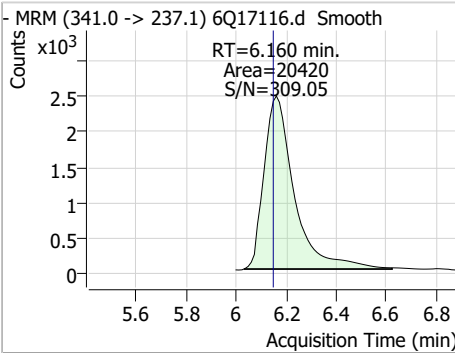
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.34	5.83	-0.01	1299	284.9 -> 184.9	12.7	7.0	20.9



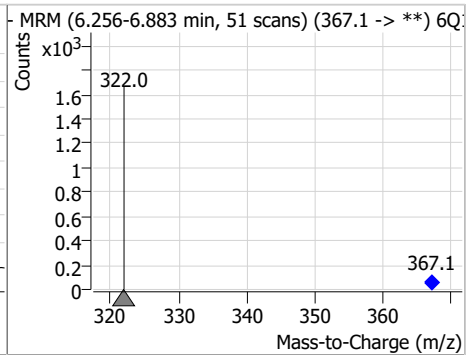
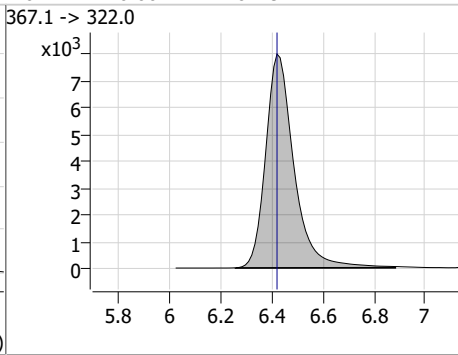
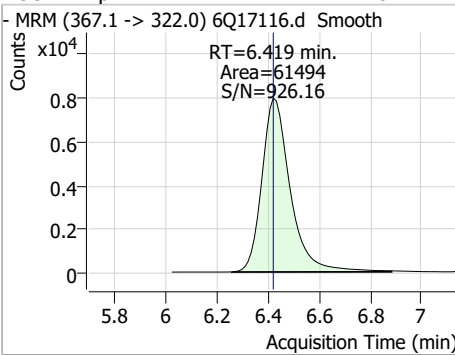
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.28	5.94	0.00	9959	314.8 -> 82.9	3.7	1.9	5.6



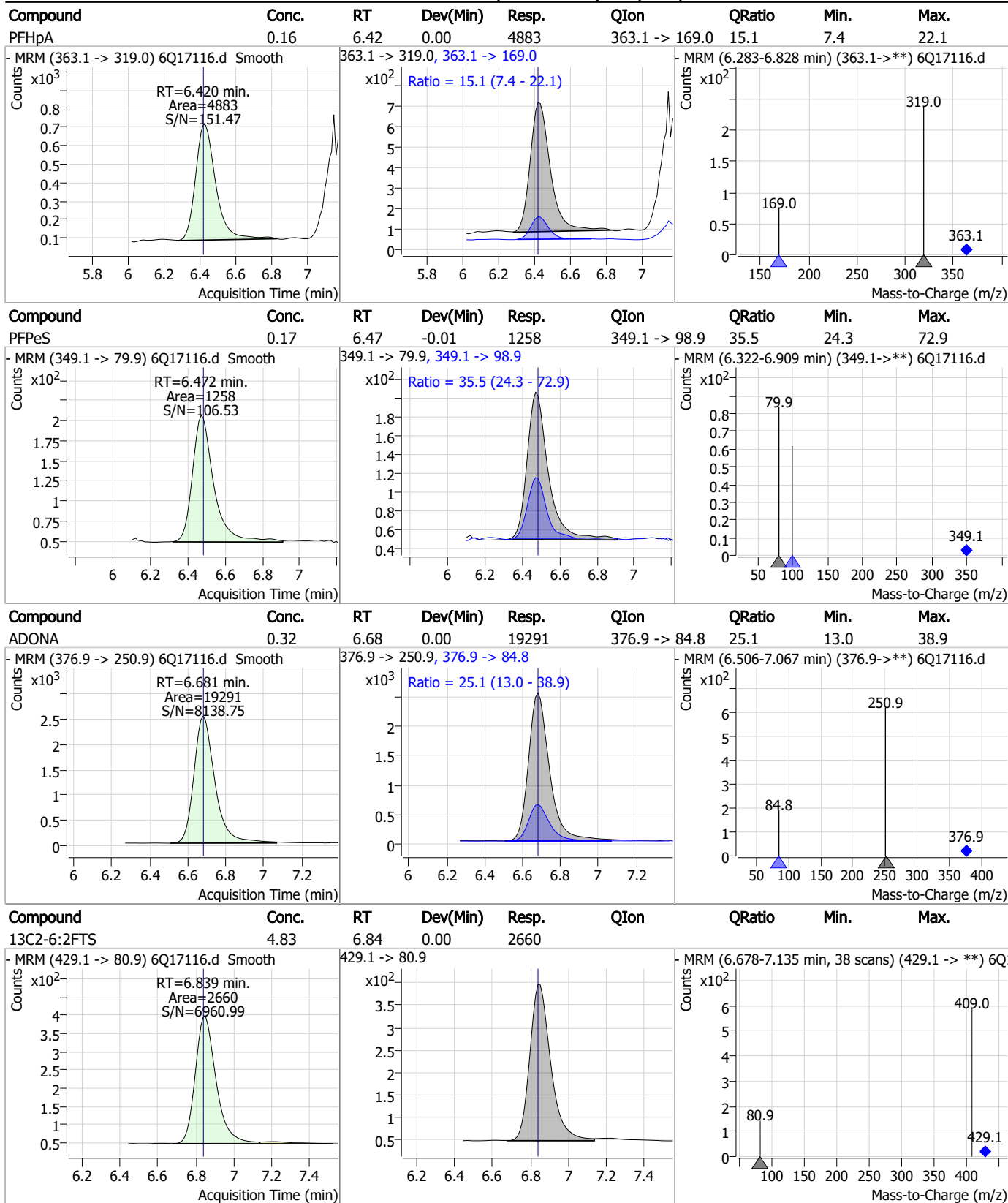
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	4.52	6.16	0.01	20420	341.0 -> 217.0	73.9	33.5	100.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.51	6.42	0.00	61494				

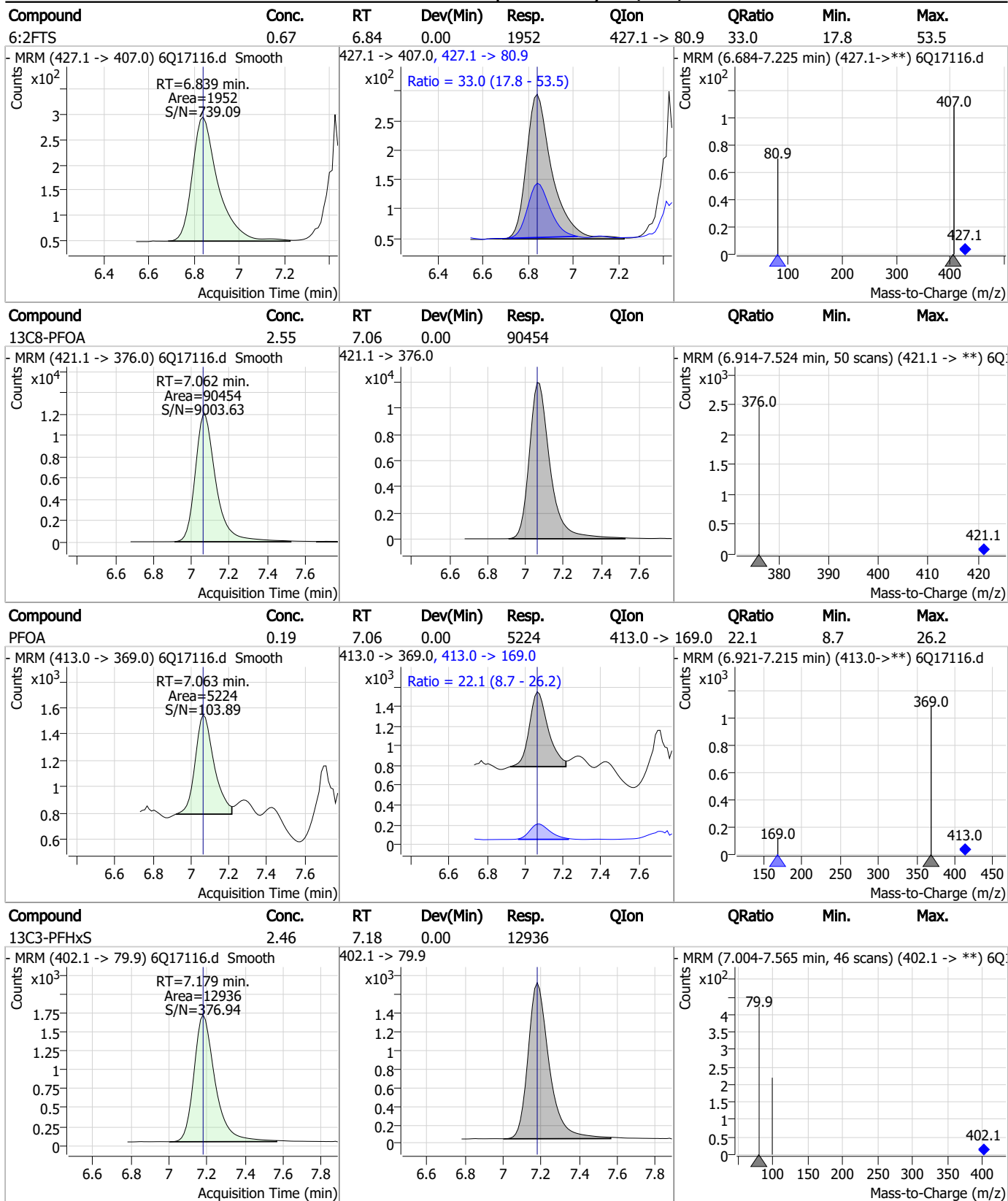


Perfluorinated Compounds by LC/MS/MS



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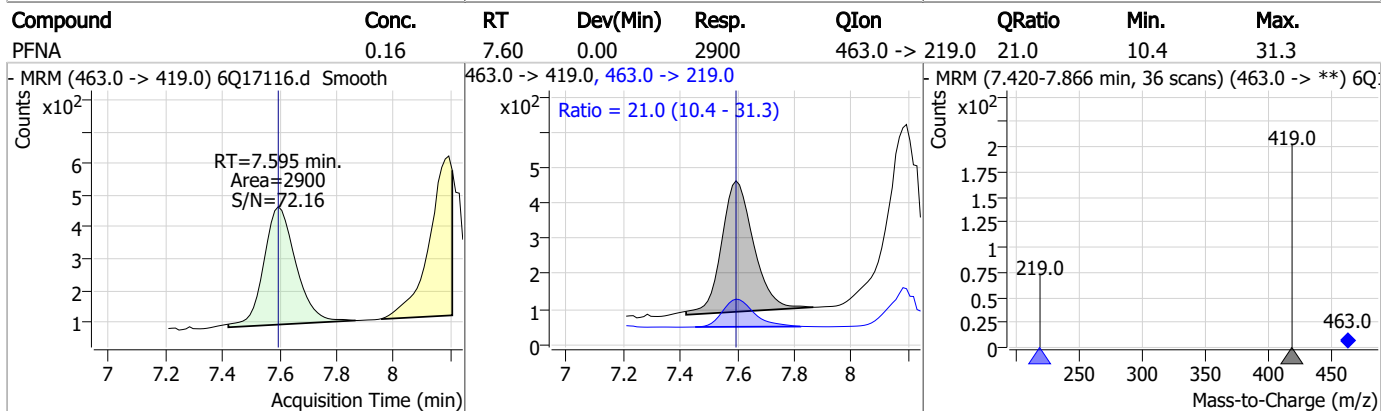
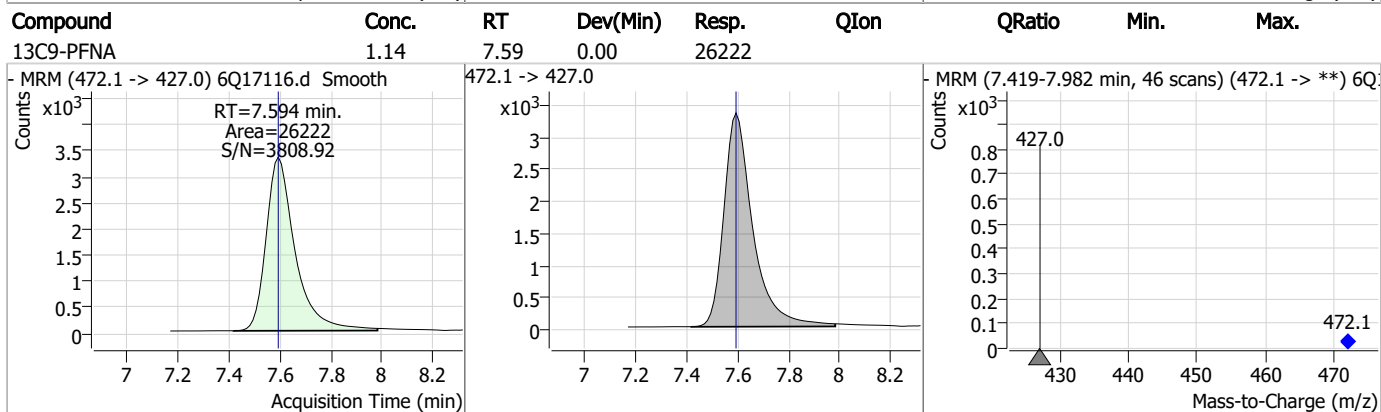
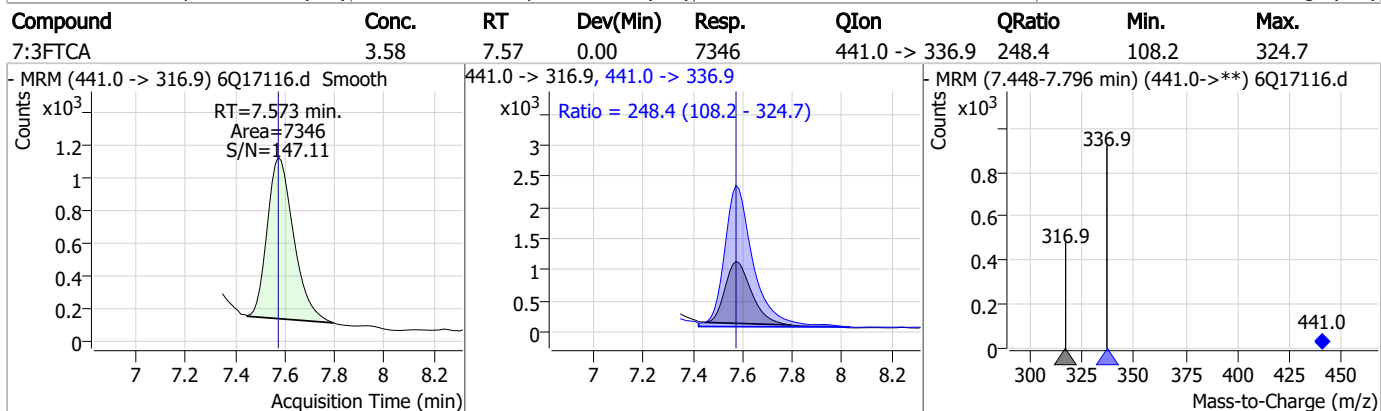
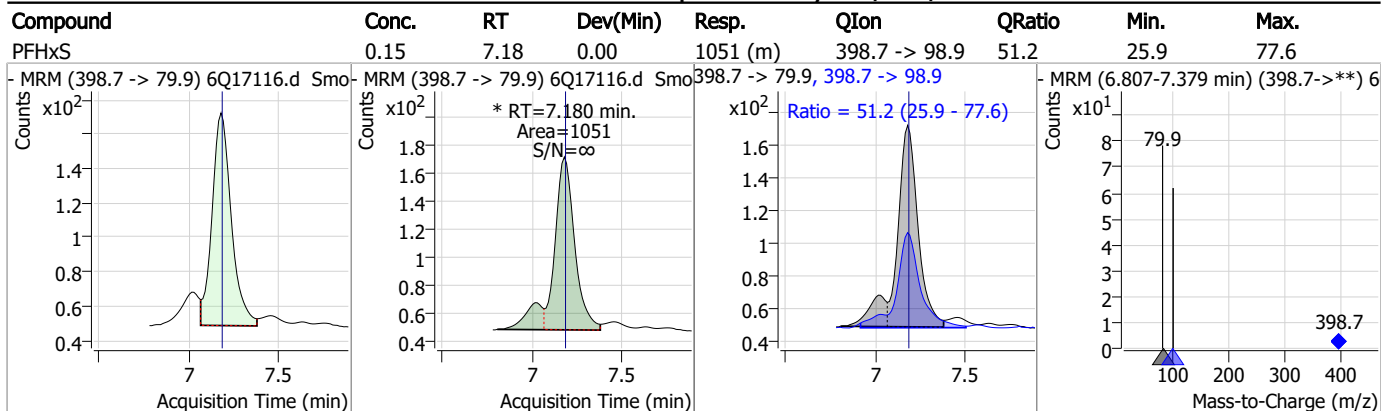
Perfluorinated Compounds by LC/MS/MS



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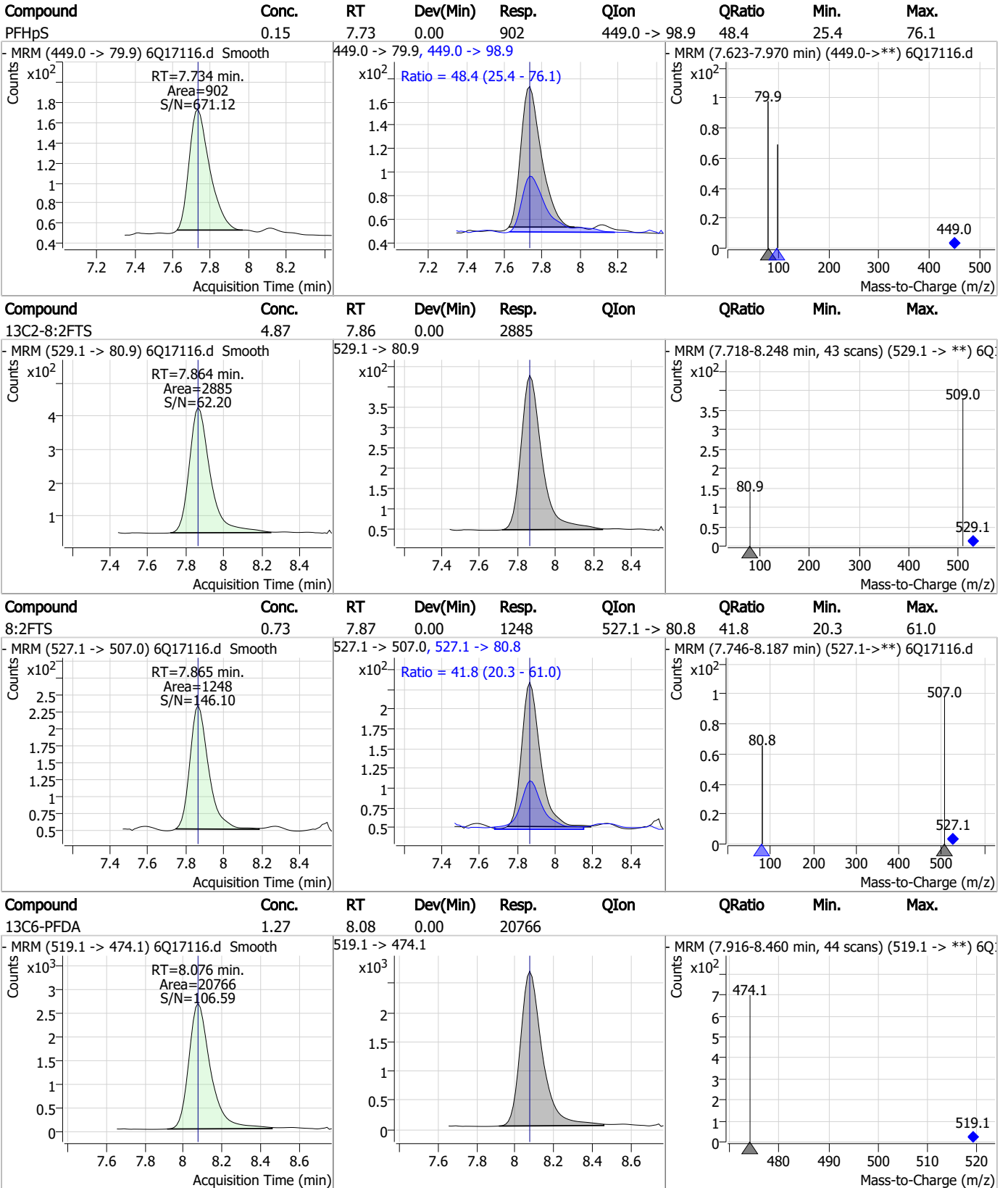
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

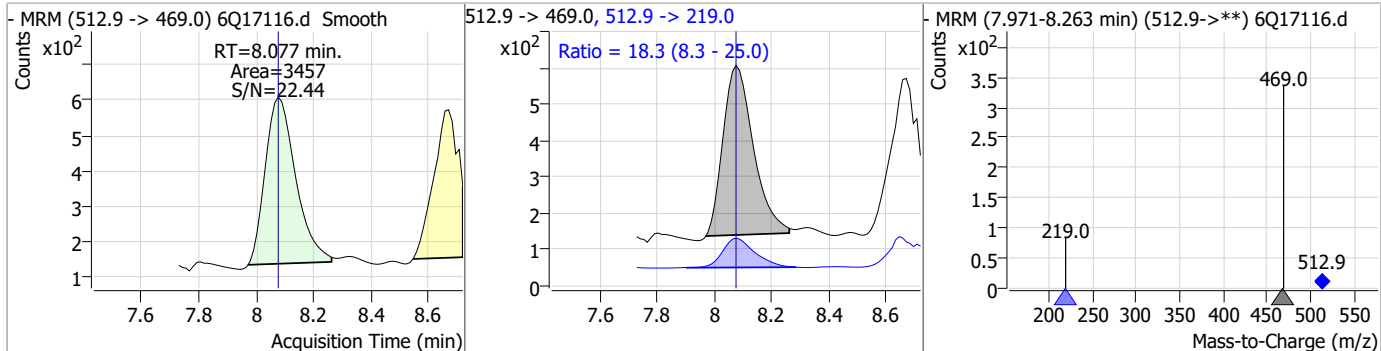


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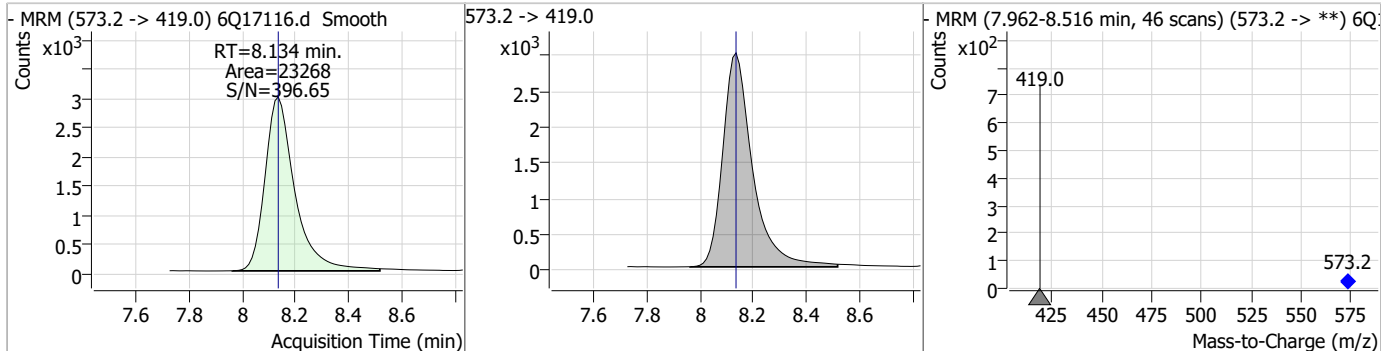
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Perfluorinated Compounds by LC/MS/MS

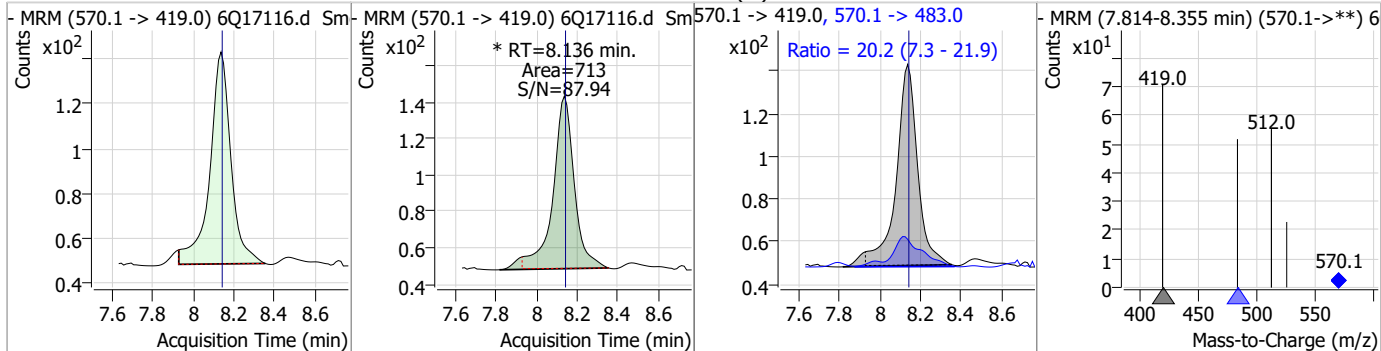
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.15	8.08	0.00	3457	512.9 -> 219.0	18.3	8.3	25.0



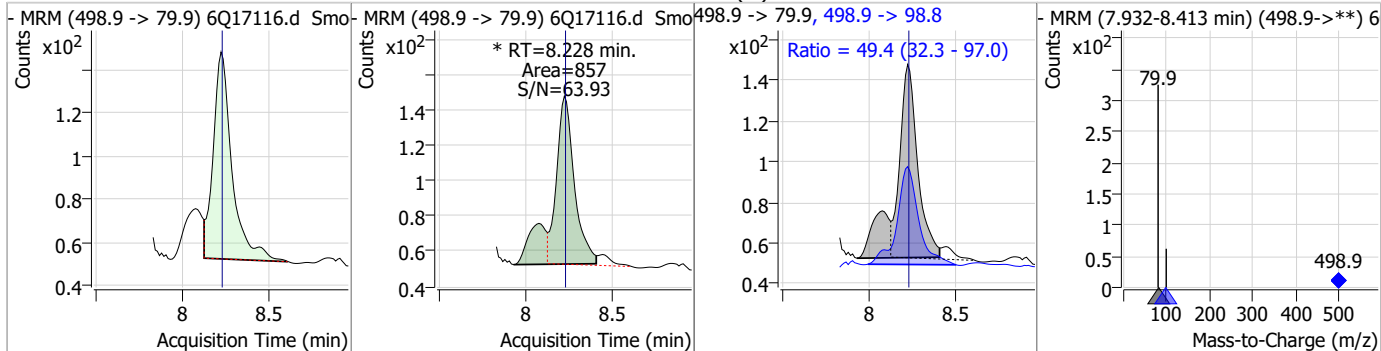
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.52	8.13	0.00	23268				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.16	8.14	0.00	713 (m)	570.1 -> 483.0	20.2	7.3	21.9

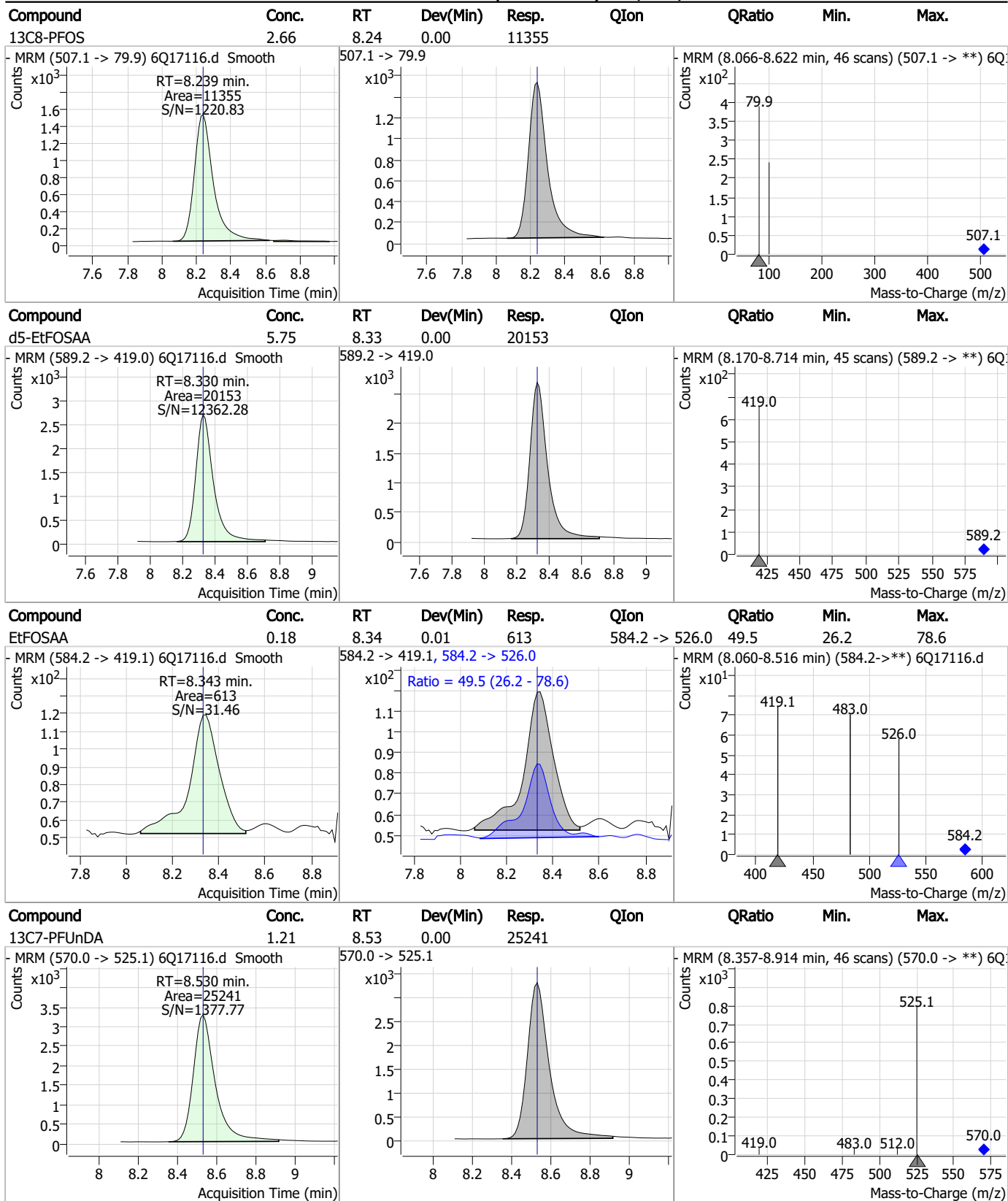


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.16	8.23	0.00	857 (m)	498.9 -> 98.8	49.4	32.3	97.0



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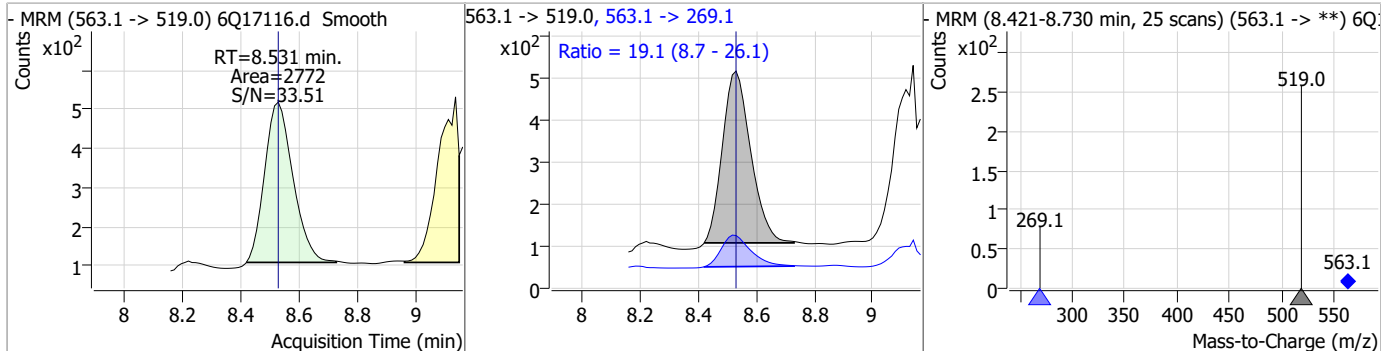
Perfluorinated Compounds by LC/MS/MS



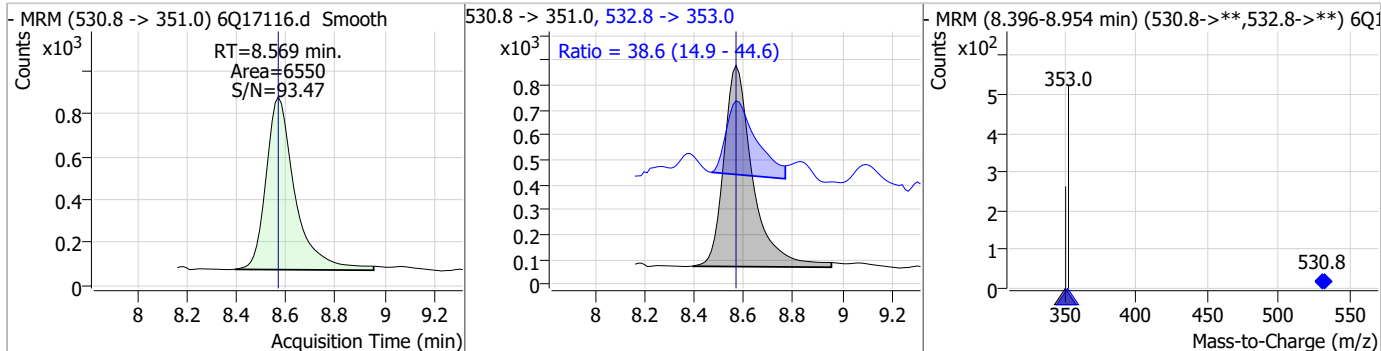
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Perfluorinated Compounds by LC/MS/MS

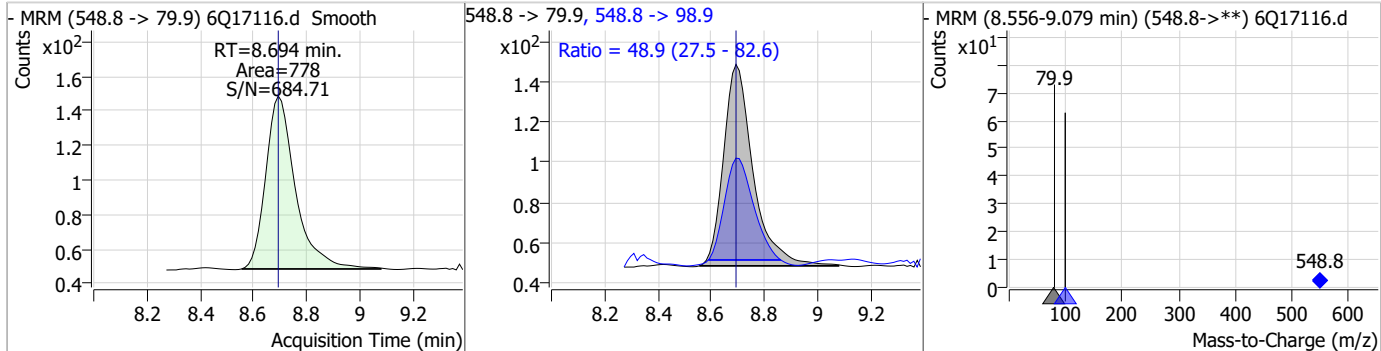
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.16	8.53	0.00	2772	563.1 -> 269.1	19.1	8.7	26.1



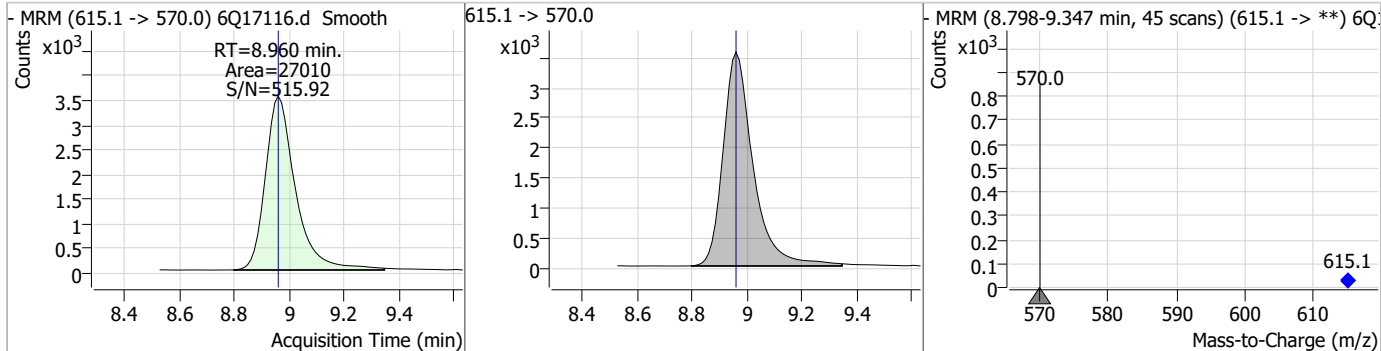
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	0.30	8.57	0.00	6550	532.8 -> 353.0	38.6	14.9	44.6



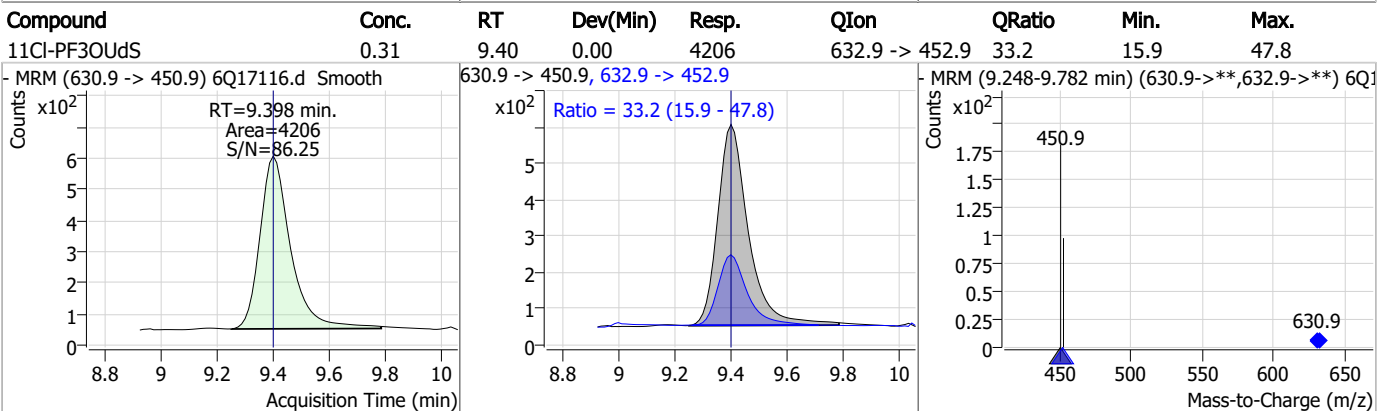
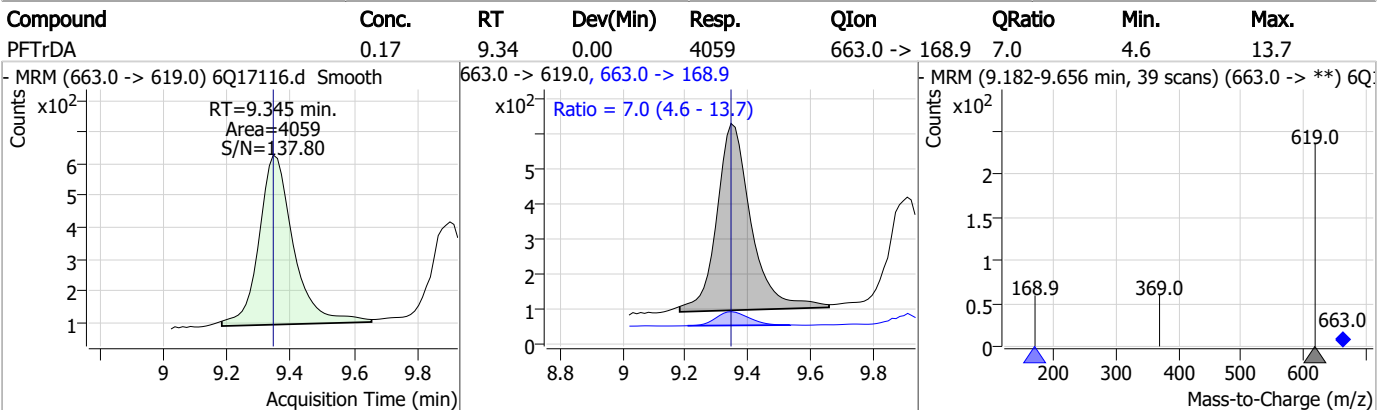
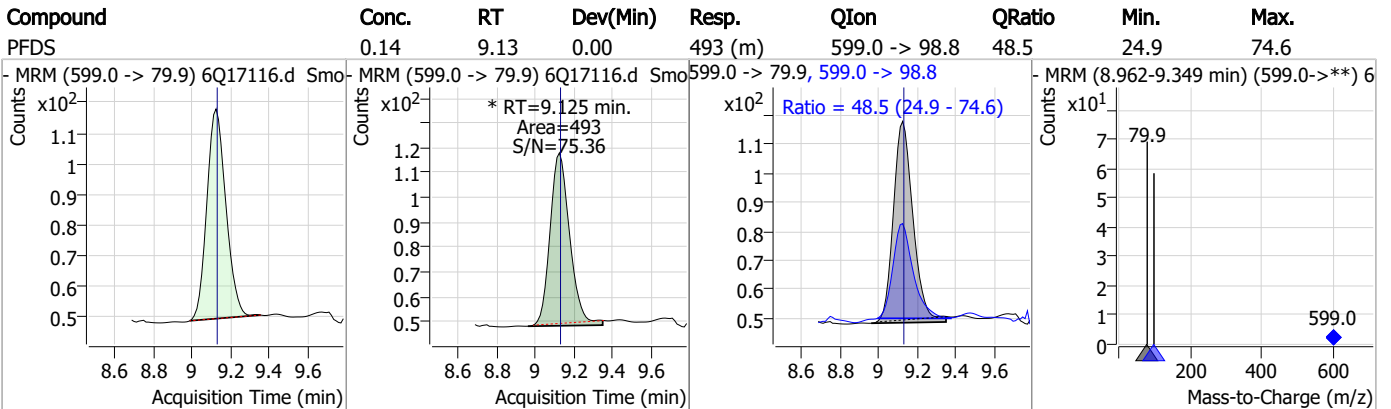
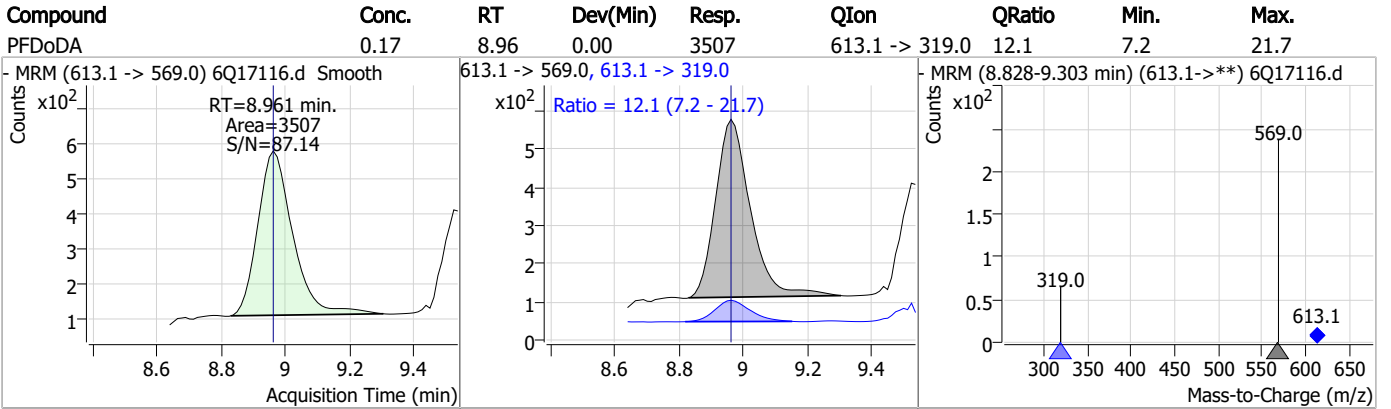
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	0.14	8.69	0.00	778	548.8 -> 98.9	48.9	27.5	82.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.31	8.96	0.00	27010	615.1 -> 570.0			



Perfluorinated Compounds by LC/MS/MS

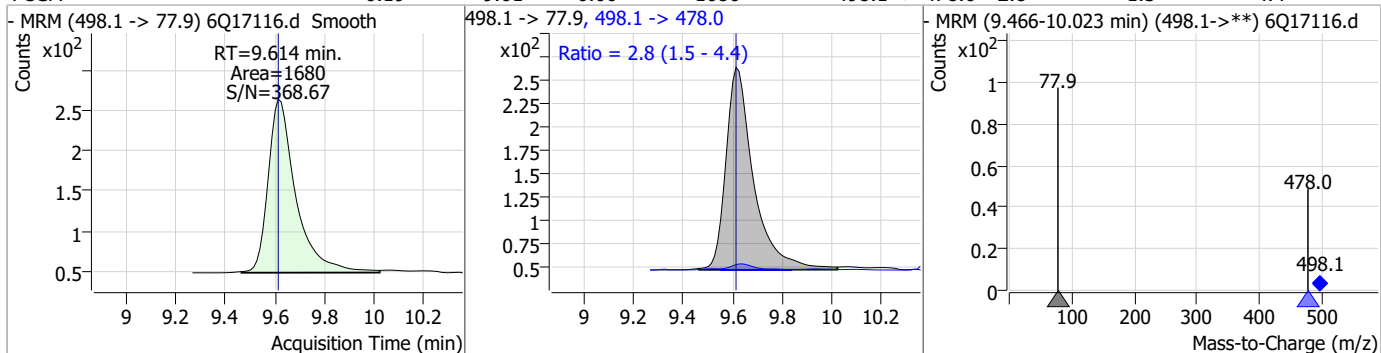


7.6.18 7

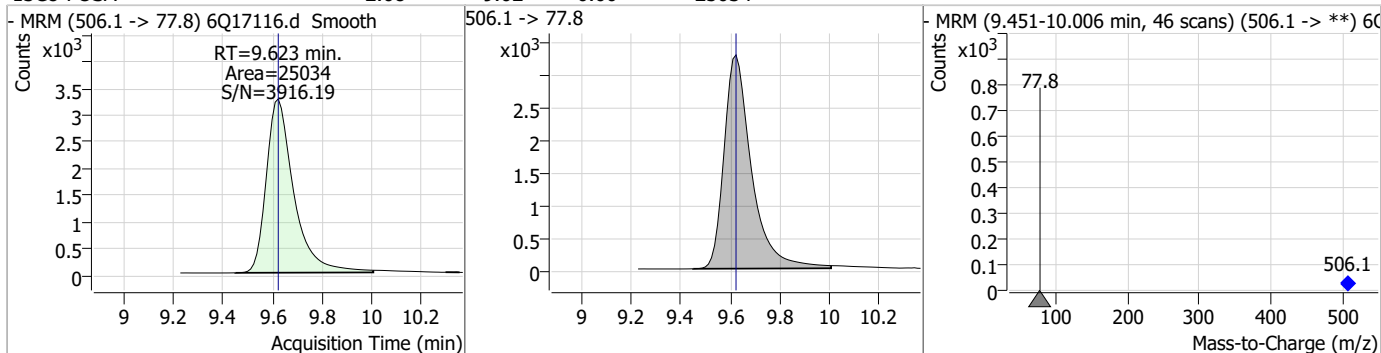


Perfluorinated Compounds by LC/MS/MS

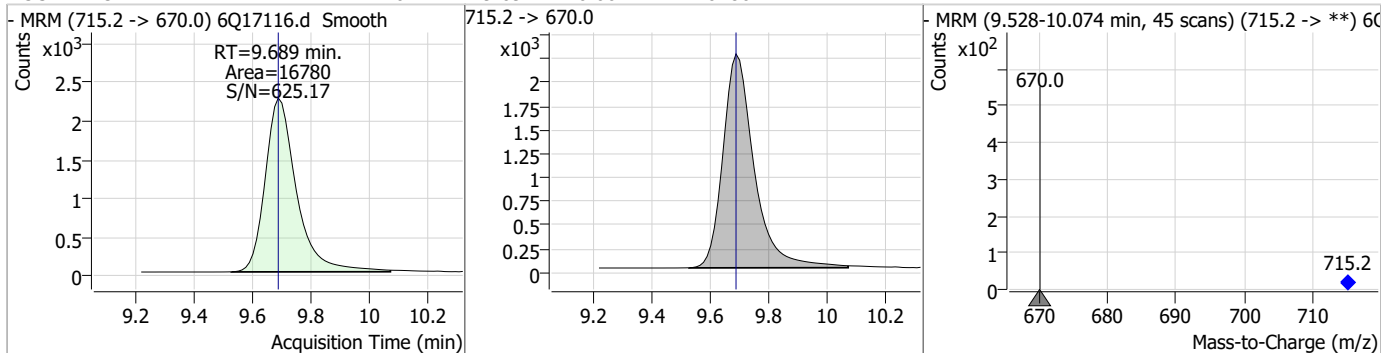
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.19	9.61	0.00	1680	498.1 -> 478.0	2.8	1.5	4.4



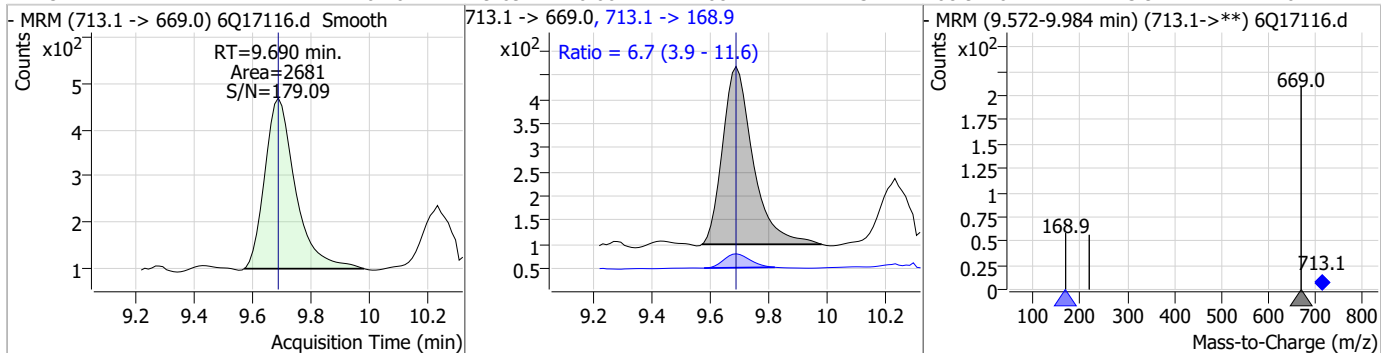
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.68	9.62	0.00	25034				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.20	9.69	0.00	16780				



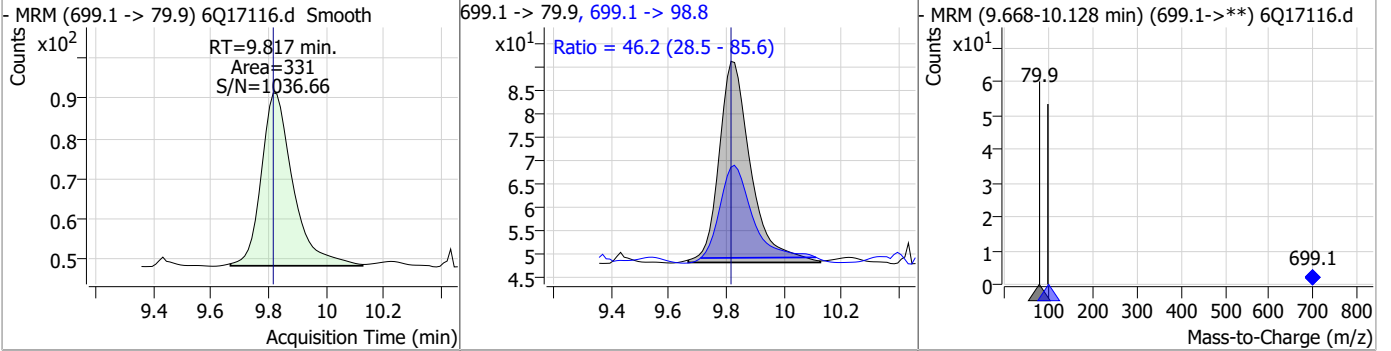
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.16	9.69	0.00	2681	713.1 -> 168.9	6.7	3.9	11.6



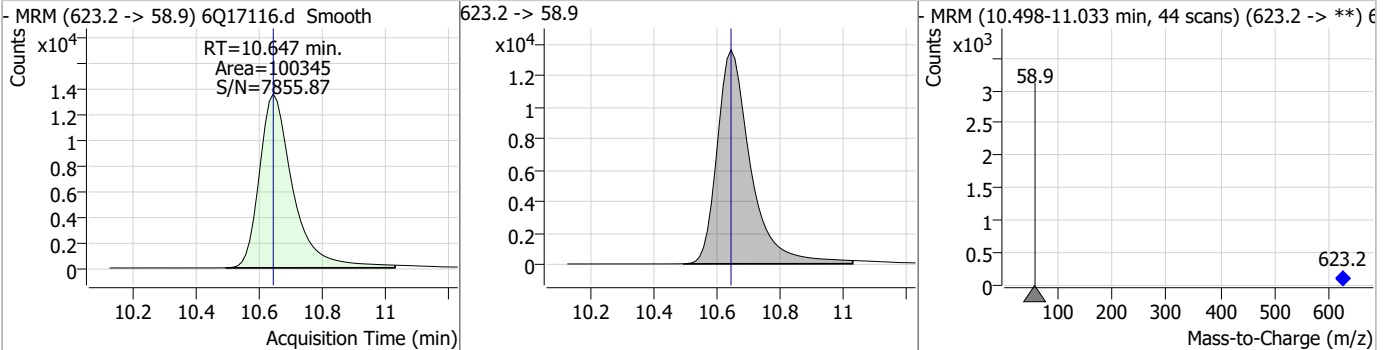
7.6.18
7

Perfluorinated Compounds by LC/MS/MS

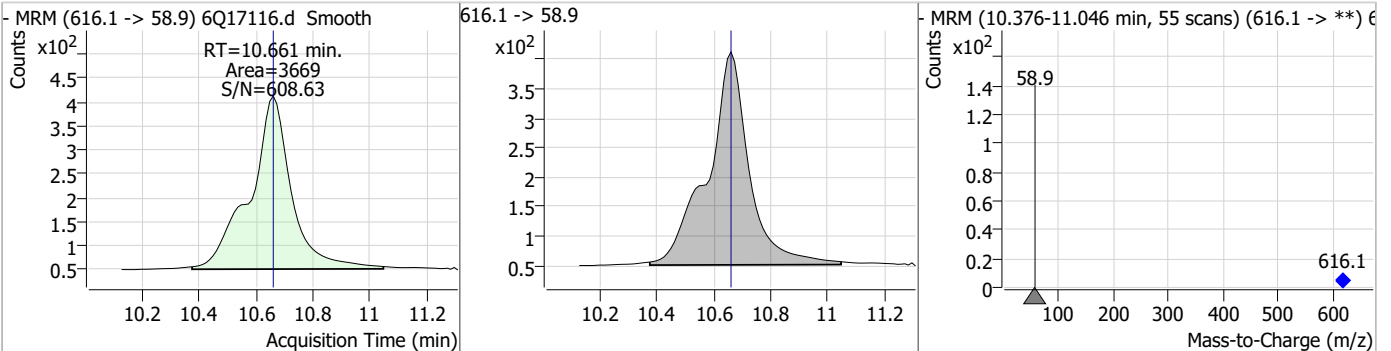
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.18	9.82	0.00	331	699.1 -> 98.8	46.2	28.5	85.6



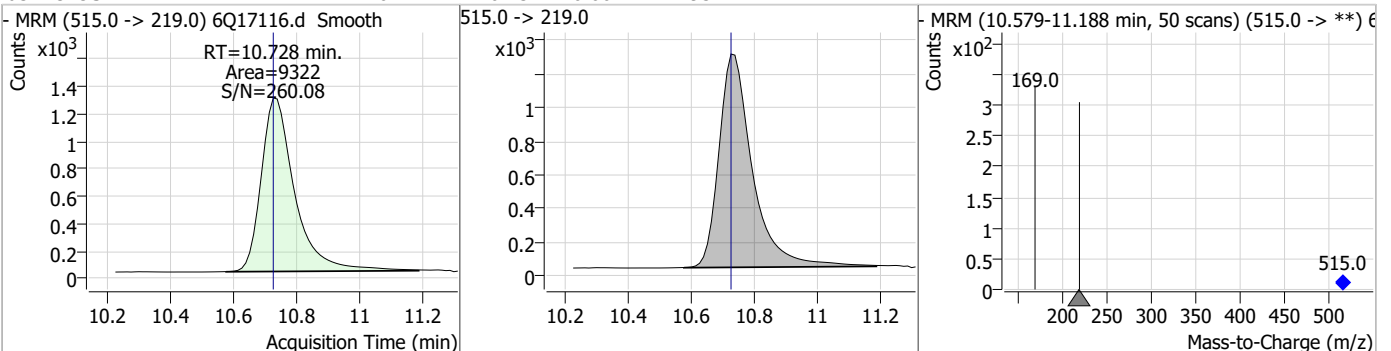
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	27.03	10.65	0.00	100345				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	0.82	10.66	0.00	3669				



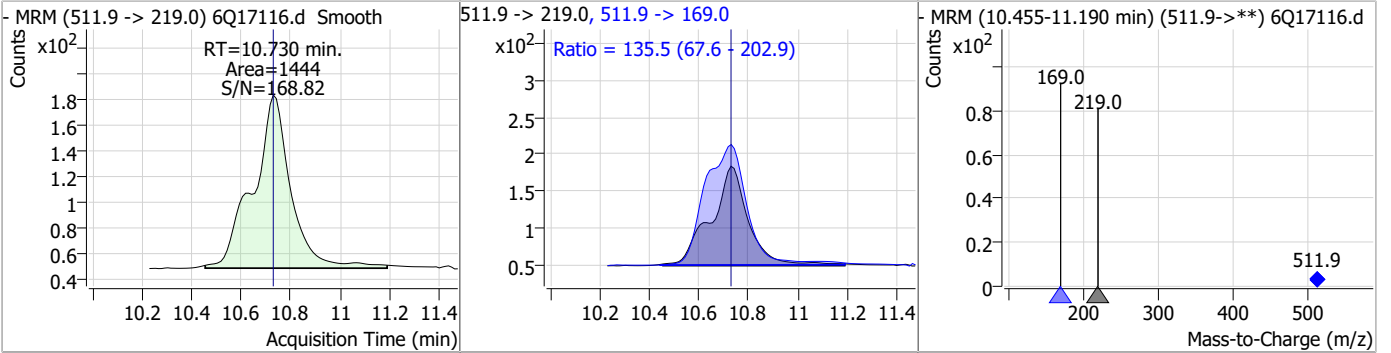
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.64	10.73	0.00	9322				



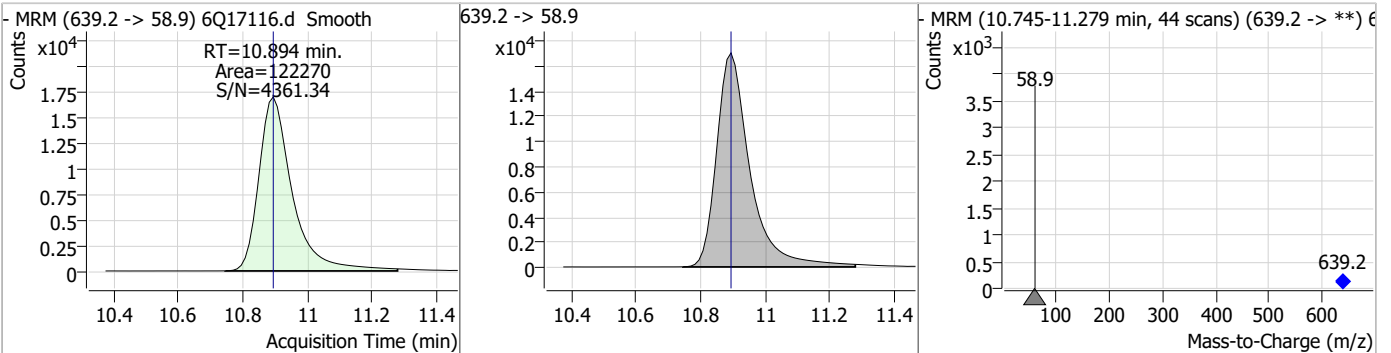
7.6.18 7

Perfluorinated Compounds by LC/MS/MS

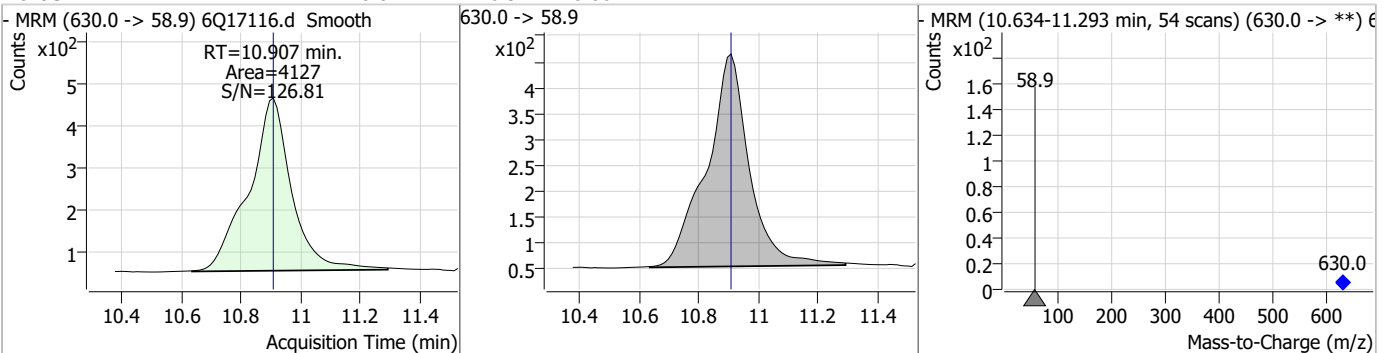
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.34	10.73	0.00	1444	511.9 -> 169.0	135.5	67.6	202.9



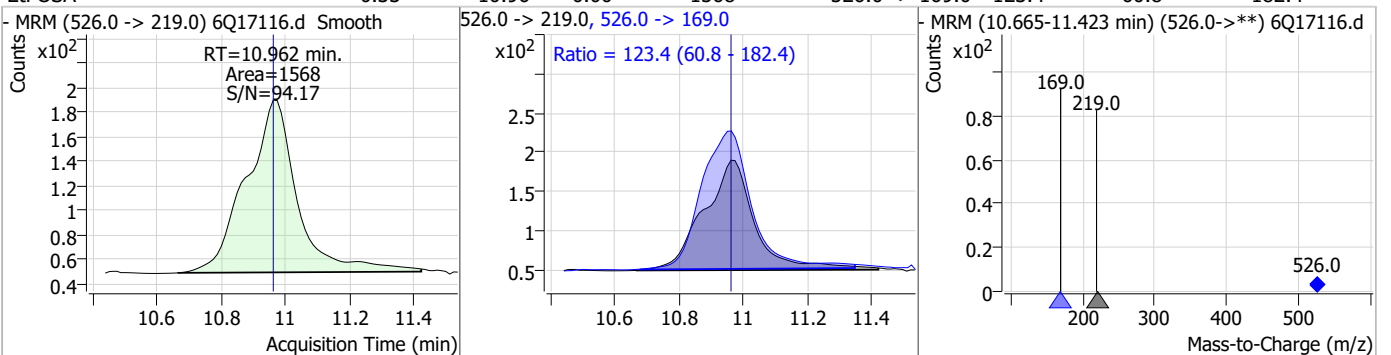
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.95	10.89	0.00	122270				



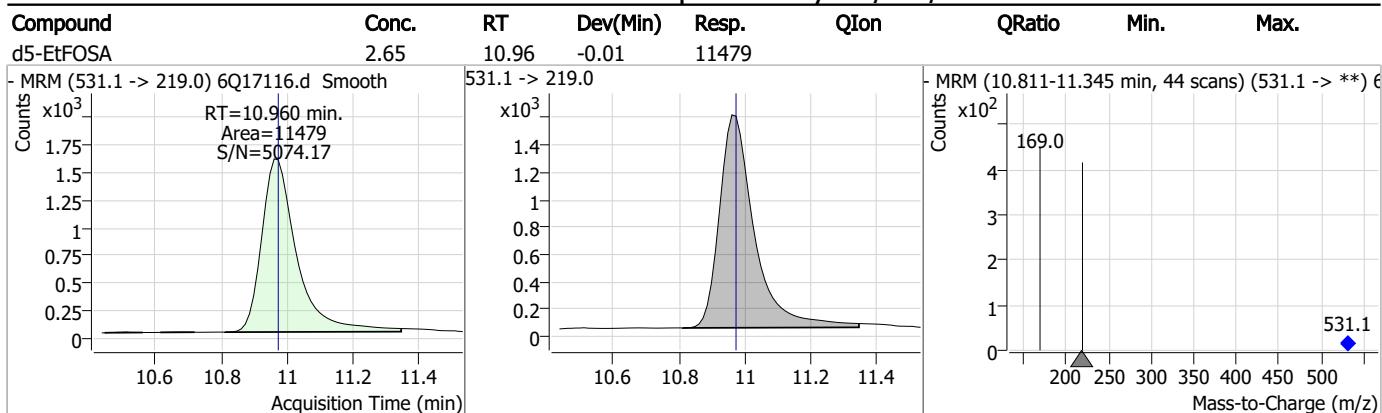
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	0.81	10.91	0.00	4127				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	0.33	10.96	0.00	1568	526.0 -> 169.0	123.4	60.8	182.4



Perfluorinated Compounds by LC/MS/MS



7.6.18
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Manual Integration Approval Summary

Sample Number: S6Q258-CC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17116.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/29/23 04:31 Supervisor approved: 05/01/23 00:01 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
MeFOSAA	2355-31-9		8.14	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
Perfluorodecanesulfonic acid	335-77-3		9.12	Split peak

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7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17237.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/1/2023 2:31:12 PM
 Sample Name : cc258-4
 Vial : P1-A5
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q260.batch.bin
 Sample Information : OP96301,S6Q260,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	179150	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	60088	5.00 µg/L	0.000
M5-PFHxA	5.480	318.0 -> 273.0	66574	2.50 µg/L	0.012
M4-PFHpA	6.431	367.1 -> 322.0	58485	2.50 µg/L	0.012
M8-PFOA	7.074	421.1 -> 376.0	79870	2.50 µg/L	0.012
M9-PFNA	7.607	472.1 -> 427.0	25737	1.25 µg/L	0.012
M6-PFDA	8.076	519.1 -> 474.1	19939	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	24519	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	23333	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	15909	1.25 µg/L	-0.012
M8-FOSA	9.623	506.1 -> 77.8	25601	2.50 µg/L	0.000
M3-PFBS	5.411	302.1 -> 79.9	21369	2.50 µg/L	0.012
M3-PFHxS	7.191	402.1 -> 79.9	12250	2.50 µg/L	0.012
M8-PFOS	8.239	507.1 -> 79.9	10960	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2099	5.00 µg/L	0.000
M2-6:2FTS	6.851	429.1 -> 80.9	2644	5.00 µg/L	0.012
M2-8:2FTS	7.864	529.1 -> 80.9	2673	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	21065	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	37222	10.00 µg/L	0.000
M5-EtFOSAA	8.342	589.2 -> 419.0	18744	5.00 µg/L	0.012
M7-MeFOSE	10.647	623.2 -> 58.9	94147	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	108440	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	11166	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	8673	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	14265	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	76977	5.00 µg/L	0.000
18O2-PFHxS	7.190	403.0 -> 83.9	9568	2.50 µg/L	0.012
13C4-PFOA	7.075	417.1 -> 372.0	85540	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	24144	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	29258	1.25 µg/L	0.000
13C2-PFHxA	5.482	315.1 -> 270.0	54286	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2099	4.77 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.4%		
13C2-6:2FTS	6.851	429.1 -> 80.9	2644	4.95 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2673	4.66 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.1%		
13C2-PFDoDA	8.960	615.1 -> 570.0	23333	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.9%		
13C2-PFTeDA	9.677	715.2 -> 670.0	15909	1.17 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.6%		
13C3-PFBS	5.411	302.1 -> 79.9	21369	2.37 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.0%		
13C3-PFHxS	7.191	402.1 -> 79.9	12250	2.40 µg/L	0.012

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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 = 96.2%	
13C4-PFBA	2.910	216.8 -> 171.9	179150	10.07 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C4-PFHpA	6.431	367.1 -> 322.0	58485	2.63 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.3%	
13C5-PFHxA	5.480	318.0 -> 273.0	66574	2.54 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C5-PFPeA	4.270	268.3 -> 223.0	60088	4.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C6-PFDA	8.076	519.1 -> 474.1	19939	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C7-PFUnDA	8.530	570.0 -> 525.1	24519	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C8-FOSA	9.623	506.1 -> 77.8	25601	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.6%	
13C8-PFOA	7.074	421.1 -> 376.0	79870	2.42 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C8-PFOS	8.239	507.1 -> 79.9	10960	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C9-PFNA	7.607	472.1 -> 427.0	25737	1.15 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.3%	
d3-MeFOSAA	8.134	573.2 -> 419.0	21065	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	37222	9.69 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.9%	
d3-MeFOSA	10.728	515.0 -> 219.0	8673	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.4%	
d5-EtFOSAA	8.342	589.2 -> 419.0	18744	5.30 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.1%	
d7-MeFOSE	10.647	623.2 -> 58.9	94147	25.15 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
d9-EtFOSE	10.894	639.2 -> 58.9	108440	23.70 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.8%	
d5-EtFOSA	10.960	531.1 -> 219.0	11166	2.55 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%	
Target Compounds					QValue
4:2FTS	5.157	327.1 -> 307.0	30899	9.73 µg/L	98
		327.1 -> 80.9	10981		
6:2FTS	6.851	427.1 -> 407.0	27246	9.37 µg/L	96
		427.1 -> 80.9	9097		
8:2FTS	7.865	527.1 -> 507.0	15771	9.91 µg/L	99
		527.1 -> 80.8	6494		
EtFOSAA	8.343	584.2 -> 419.1	7668	2.41 µg/L	97
		584.2 -> 526.0	4154		
FOSA	9.614	498.1 -> 77.9	22433	2.45 µg/L	99
		498.1 -> 478.0	565		
MeFOSAA	8.136	570.1 -> 419.0	10789	2.73 µg/L	90
		570.1 -> 483.0	2026		
PFBA	2.906	212.8 -> 168.9	60926	10.14 µg/L	100
PFBS	5.412	298.7 -> 79.9	22350	2.33 µg/L	96
		298.7 -> 98.8	8694		
PFDA	8.089	512.9 -> 469.0	56208	2.59 µg/L	98
		512.9 -> 219.0	9908		
PFDODA	8.961	613.1 -> 569.0	44179	2.42 µg/L	99
		613.1 -> 319.0	6574		
PFDS	9.125	599.0 -> 79.9	8500	2.43 µg/L	99

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.432	599.0 -> 98.8	4287	2.31	µg/L	96
		363.1 -> 319.0	66732			
PFHpS	7.746	363.1 -> 169.0	10897	2.40	µg/L	99
		449.0 -> 79.9	14231			
PFHxA	5.483	449.0 -> 98.9	7115	2.43	µg/L	99
		313.0 -> 269.0	64072			
PFHxS	7.192	313.0 -> 118.9	3264	2.35	µg/L	95
		398.7 -> 79.9	15692			
PFNA	7.607	398.7 -> 98.9	7593	2.58	µg/L	98
		463.0 -> 419.0	45954			
PFNS	8.706	463.0 -> 219.0	9145	2.40	µg/L	98
		548.8 -> 79.9	12677			
PFOA	7.076	548.8 -> 98.9	6760	2.52	µg/L	98
		413.0 -> 369.0	94427			
PFOS	8.240	413.0 -> 169.0	17177	2.23	µg/L	91
		498.9 -> 79.9	11827			
PFPeA	4.273	498.9 -> 98.8	6782	5.11	µg/L	100
		263.0 -> 219.0	83662			
PFPeS	6.484	349.1 -> 79.9	16738	2.40	µg/L	95
		349.1 -> 98.9	7556			
PFTeDA	9.677	713.1 -> 669.0	42328	2.63	µg/L	98
		713.1 -> 168.9	2998			
PFTrDA	9.345	663.0 -> 619.0	60121	2.97	µg/L	98
		663.0 -> 168.9	5039			
PFUnDA	8.543	563.1 -> 519.0	42683	2.51	µg/L	96
		563.1 -> 269.1	6645			
11CI-PF3OUdS	9.398	630.9 -> 450.9	68172	5.34	µg/L	95
		632.9 -> 452.9	19781			
9CI-PF3ONS	8.569	530.8 -> 351.0	104112	5.15	µg/L	93
		532.8 -> 353.0	34744			
ADONA	6.681	376.9 -> 250.9	294437	5.24	µg/L	99
		376.9 -> 84.8	77304			
HFPO-DA	5.846	284.9 -> 168.9	18089	5.13	µg/L	97
		284.9 -> 184.9	2330			
3:3FTCA	3.784	241.0 -> 177.0	12750	12.46	µg/L	97
		241.0 -> 117.0	1526			
5:3FTCA	6.172	341.0 -> 237.1	269181	63.19	µg/L	94
		341.0 -> 217.0	193652			
7:3FTCA	7.585	441.0 -> 316.9	120657	62.35	µg/L	98
		441.0 -> 336.9	265472			
EtFOSA	10.962	526.0 -> 219.0	23717	5.17	µg/L	99
		526.0 -> 169.0	29156			
EtFOSE	10.907	630.0 -> 58.9	61445	13.61	µg/L	100
		511.9 -> 219.0	20586			
MeFOSA	10.730	511.9 -> 169.0	27924	5.27	µg/L	100
		616.1 -> 58.9	52563			
MeFOSE	10.661	699.1 -> 79.9	4676	12.52	µg/L	100
		699.1 -> 98.8	2547			
PFDoDS	9.804	295.0 -> 201.0	14426	2.59	µg/L	96
		295.0 -> 84.9	3649			
NFDHA	5.363	279.0 -> 85.1	57403	5.06	µg/L	98
		229.0 -> 84.9	43361			
PFMBA	4.687	314.8 -> 134.9	149988	5.23	µg/L	100
		314.8 -> 82.9	5578			
PFMPA	3.438			5.29	µg/L	100
PFEESA	5.949			4.52	µg/L	100

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

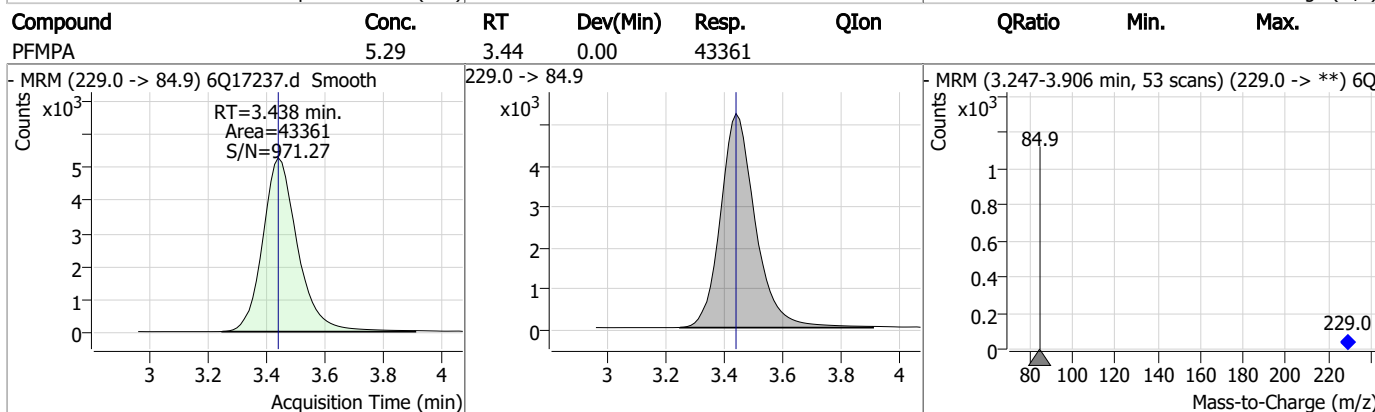
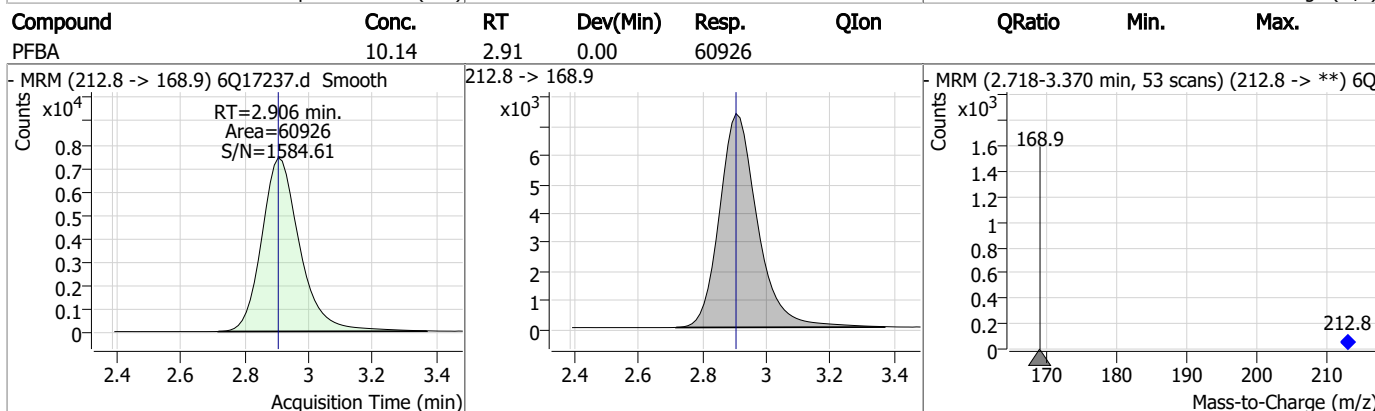
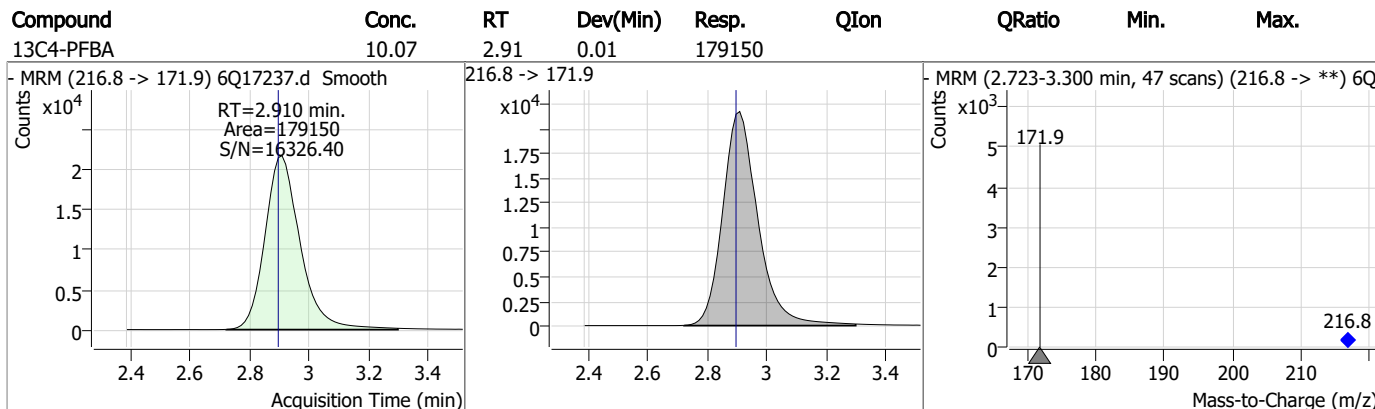
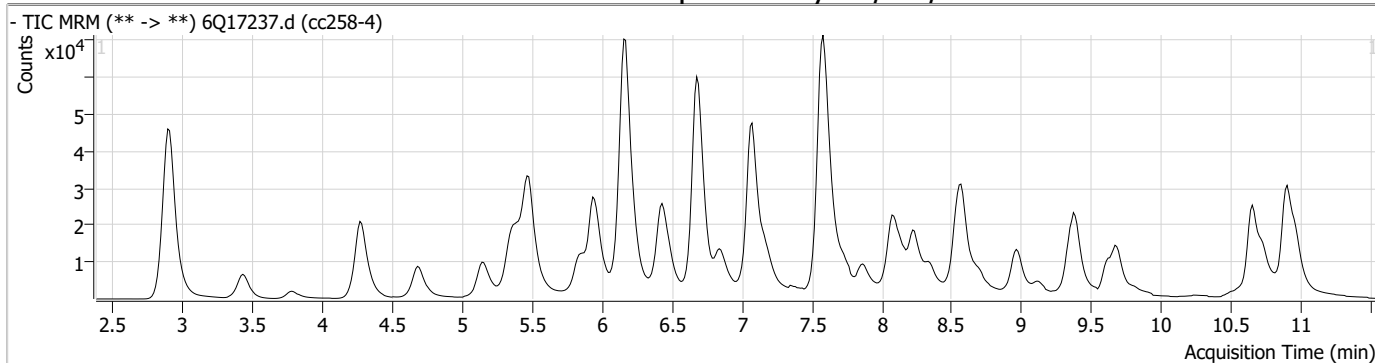
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.6.19

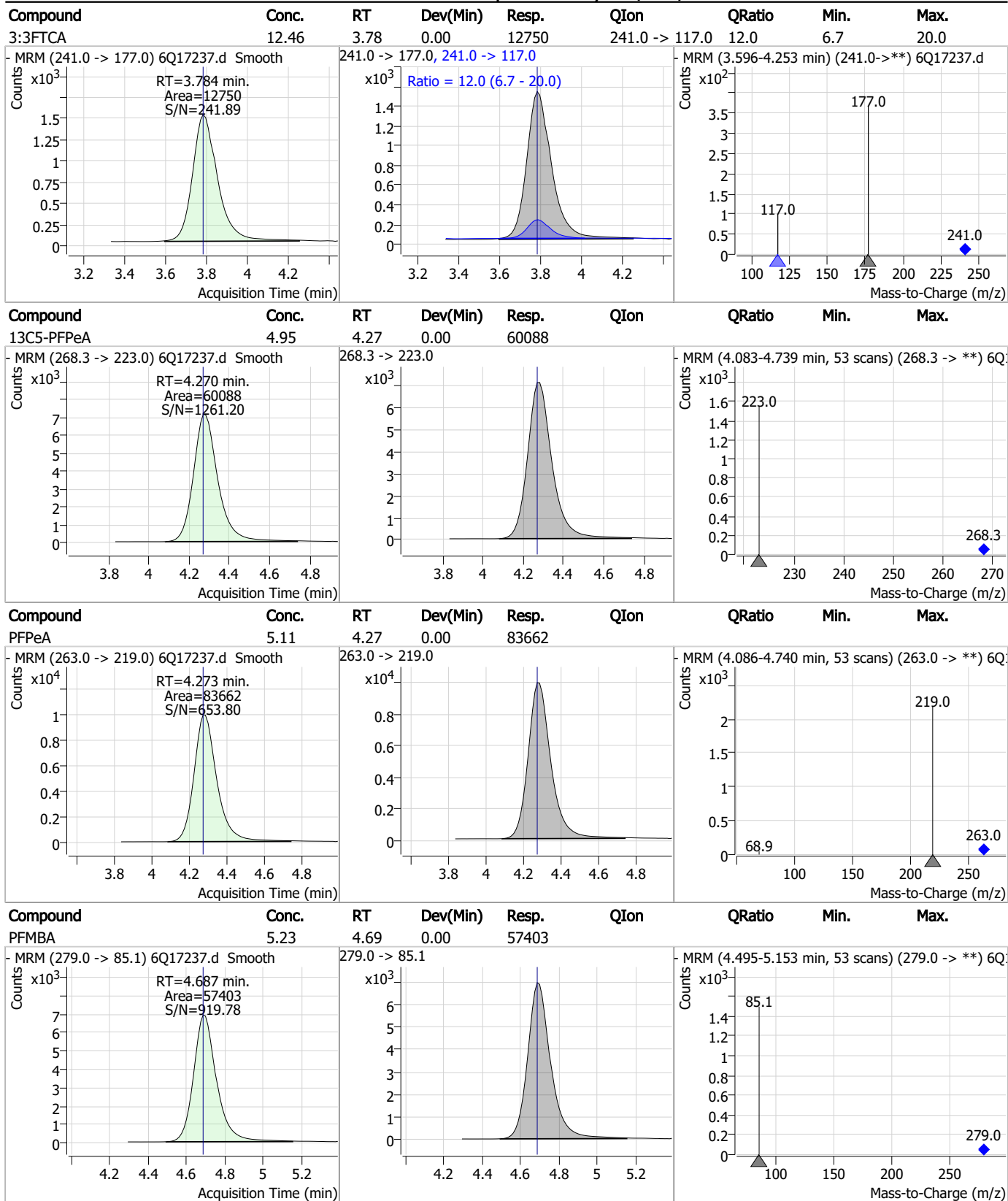
7

Perfluorinated Compounds by LC/MS/MS



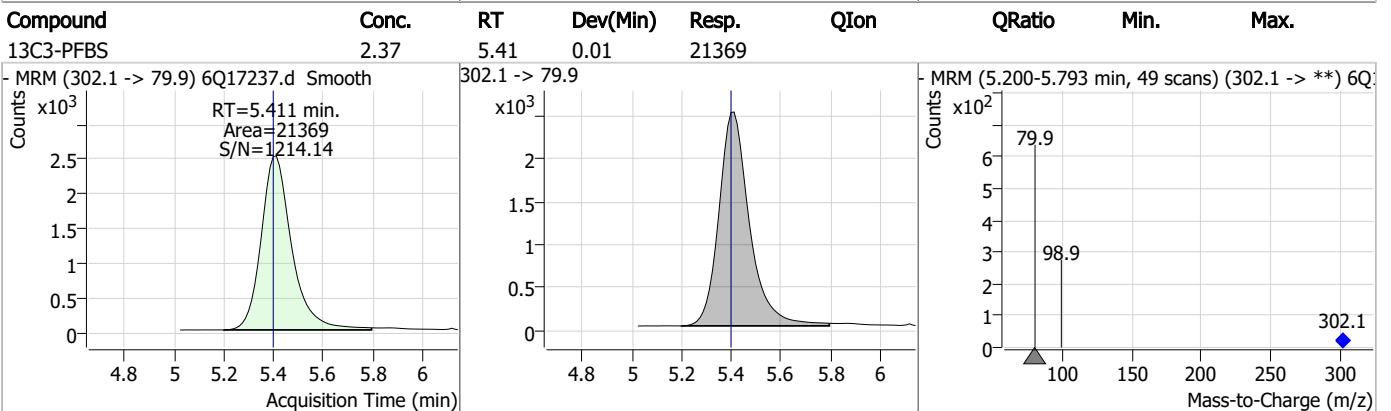
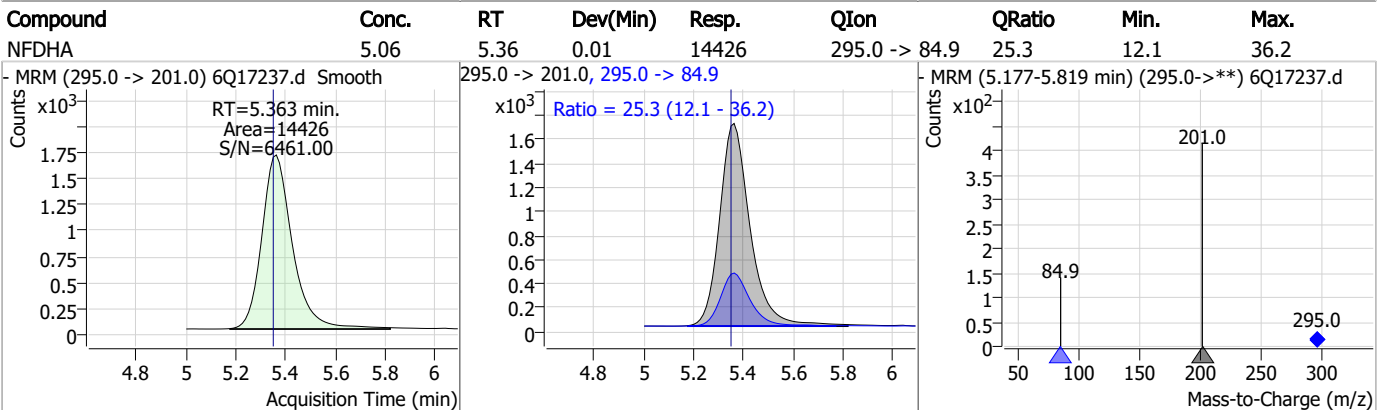
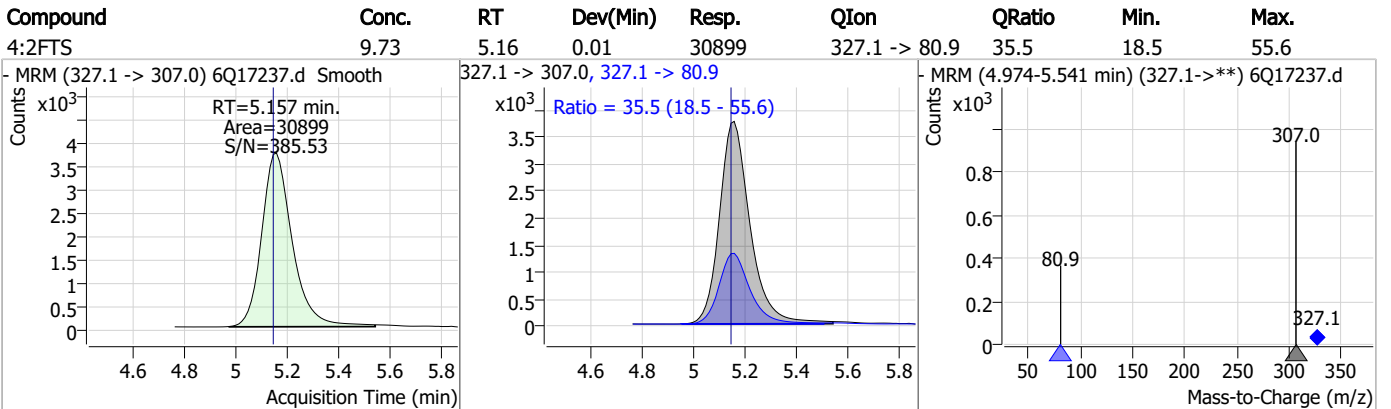
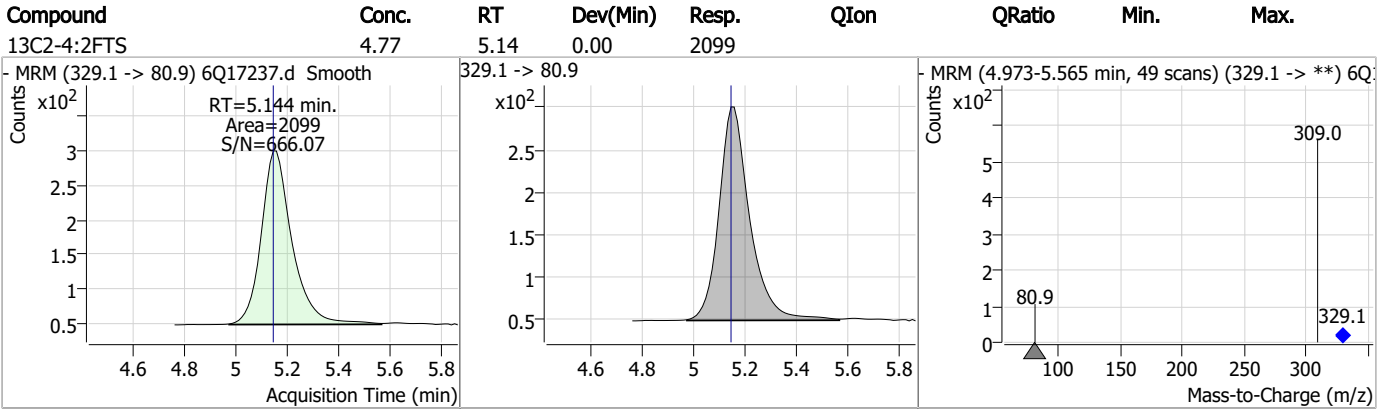
7.6.19
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Perfluorinated Compounds by LC/MS/MS



7.6.19

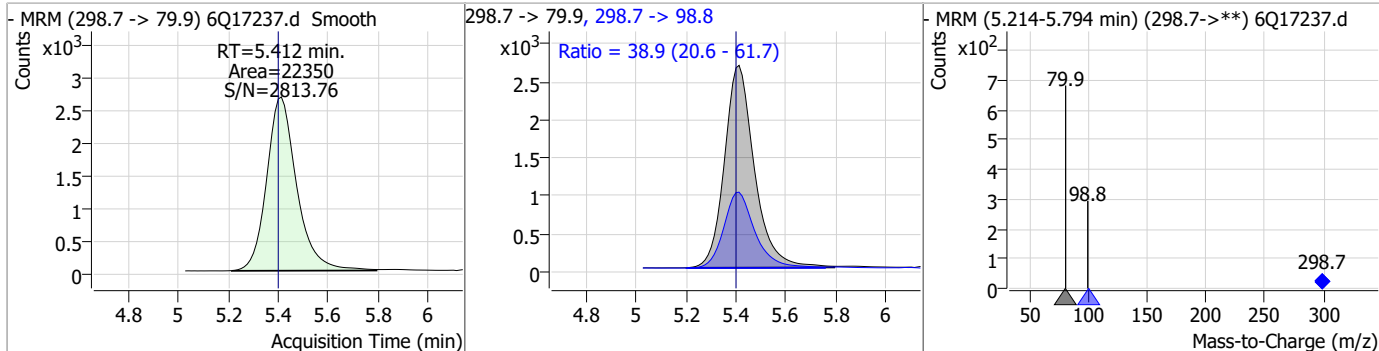
Perfluorinated Compounds by LC/MS/MS



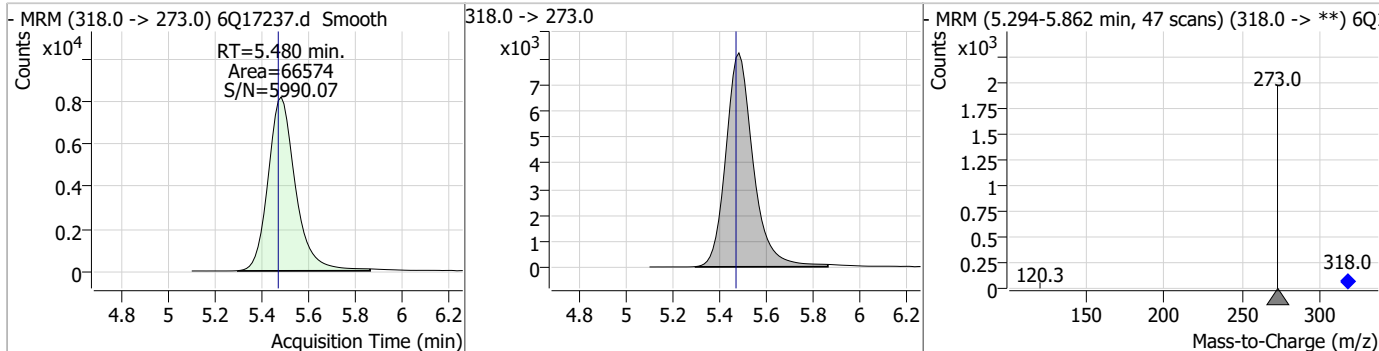
7.6.19 7

Perfluorinated Compounds by LC/MS/MS

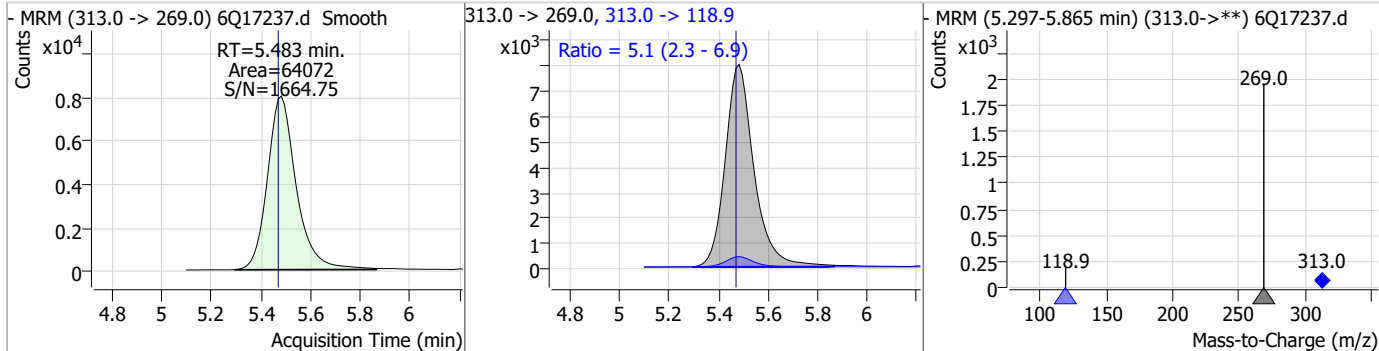
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.33	5.41	0.01	22350	298.7 -> 98.8	38.9	20.6	61.7



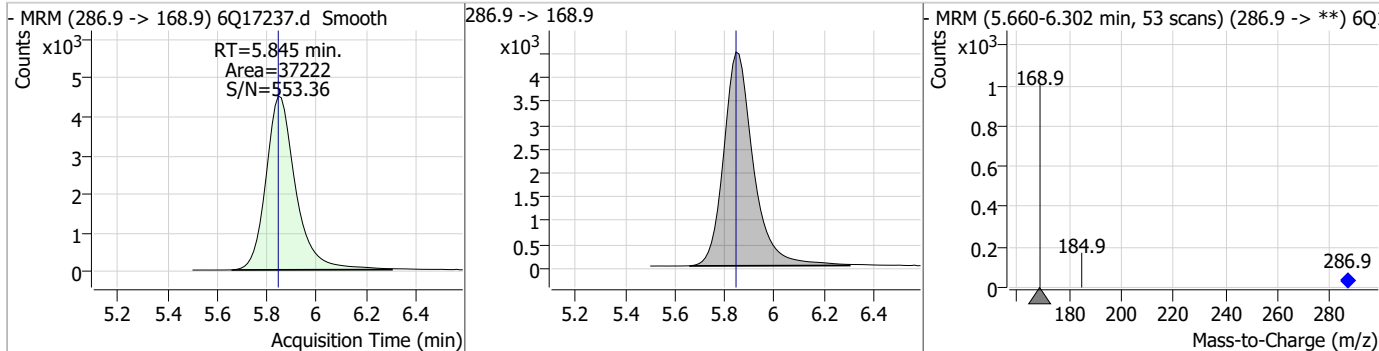
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.54	5.48	0.01	66574				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.43	5.48	0.01	64072	313.0 -> 118.9	5.1	2.3	6.9

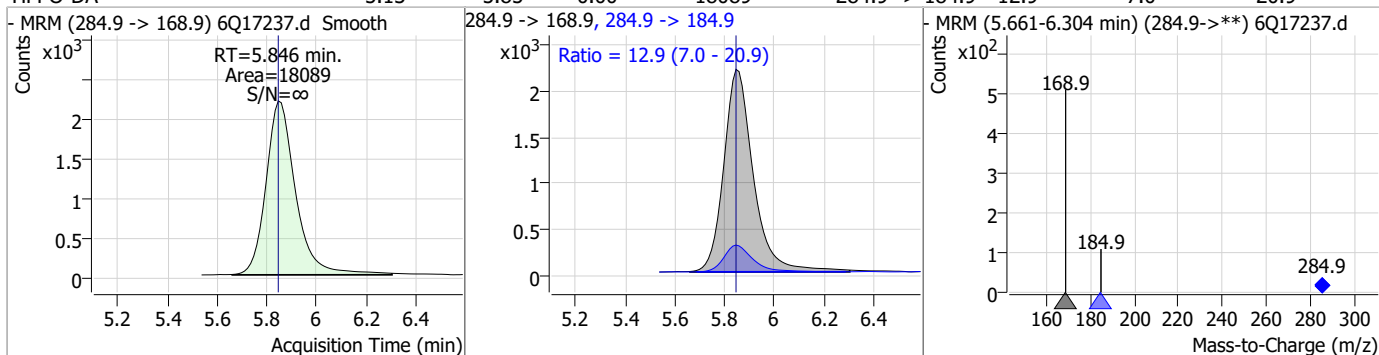


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.69	5.85	0.00	37222				

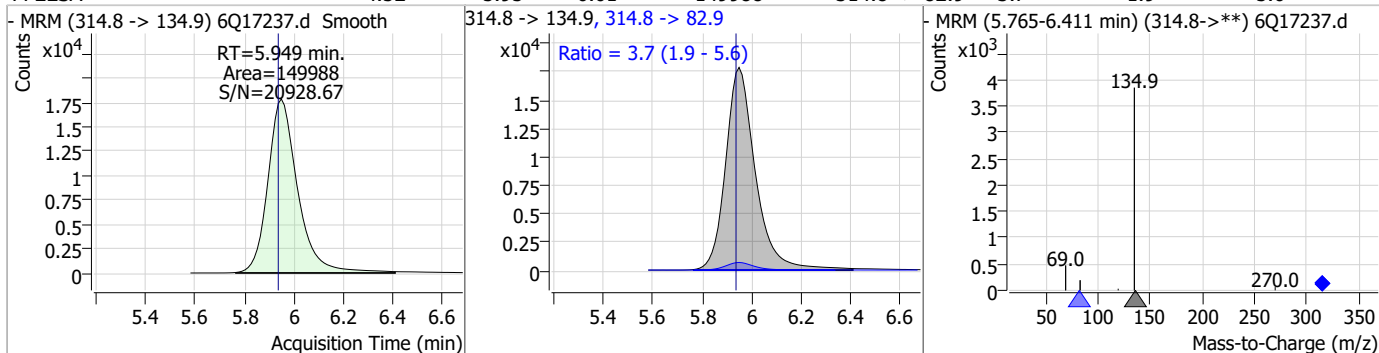


Perfluorinated Compounds by LC/MS/MS

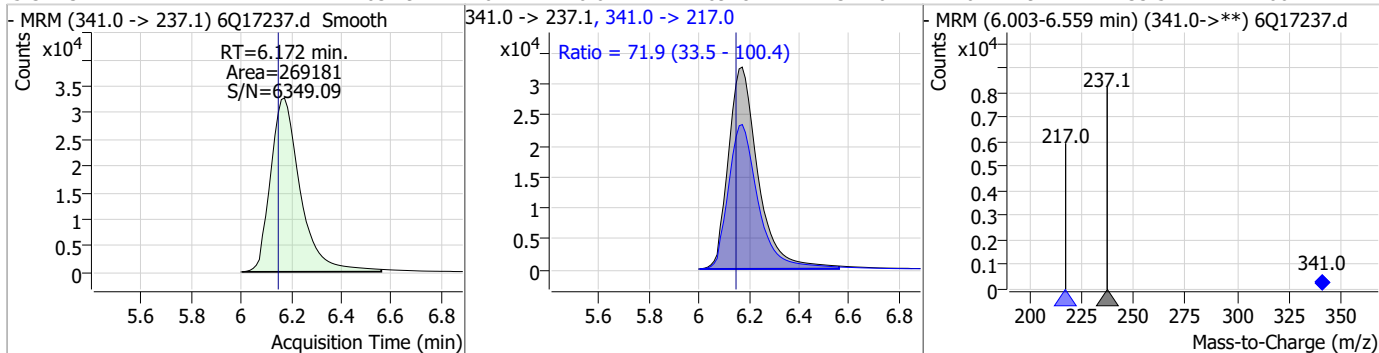
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.13	5.85	0.00	18089	284.9 -> 184.9	12.9	7.0	20.9



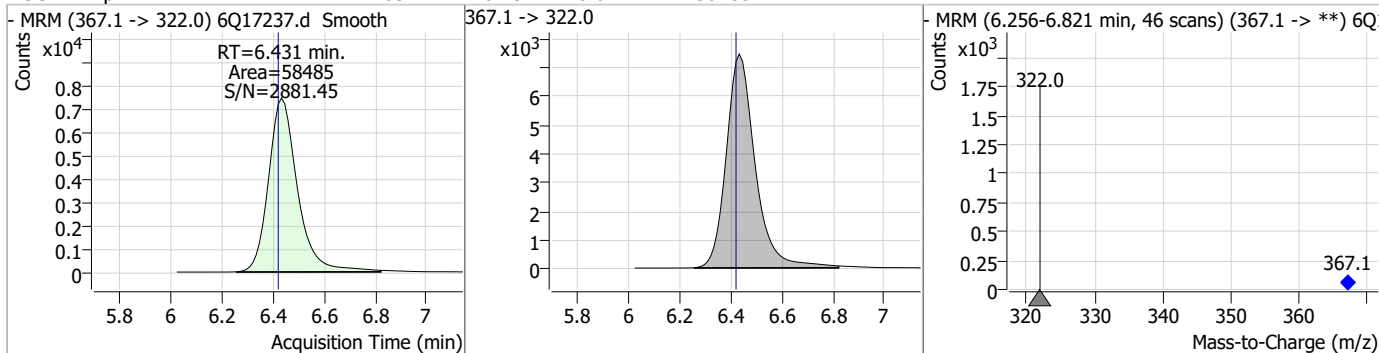
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.52	5.95	0.01	149988	314.8 -> 82.9	3.7	1.9	5.6



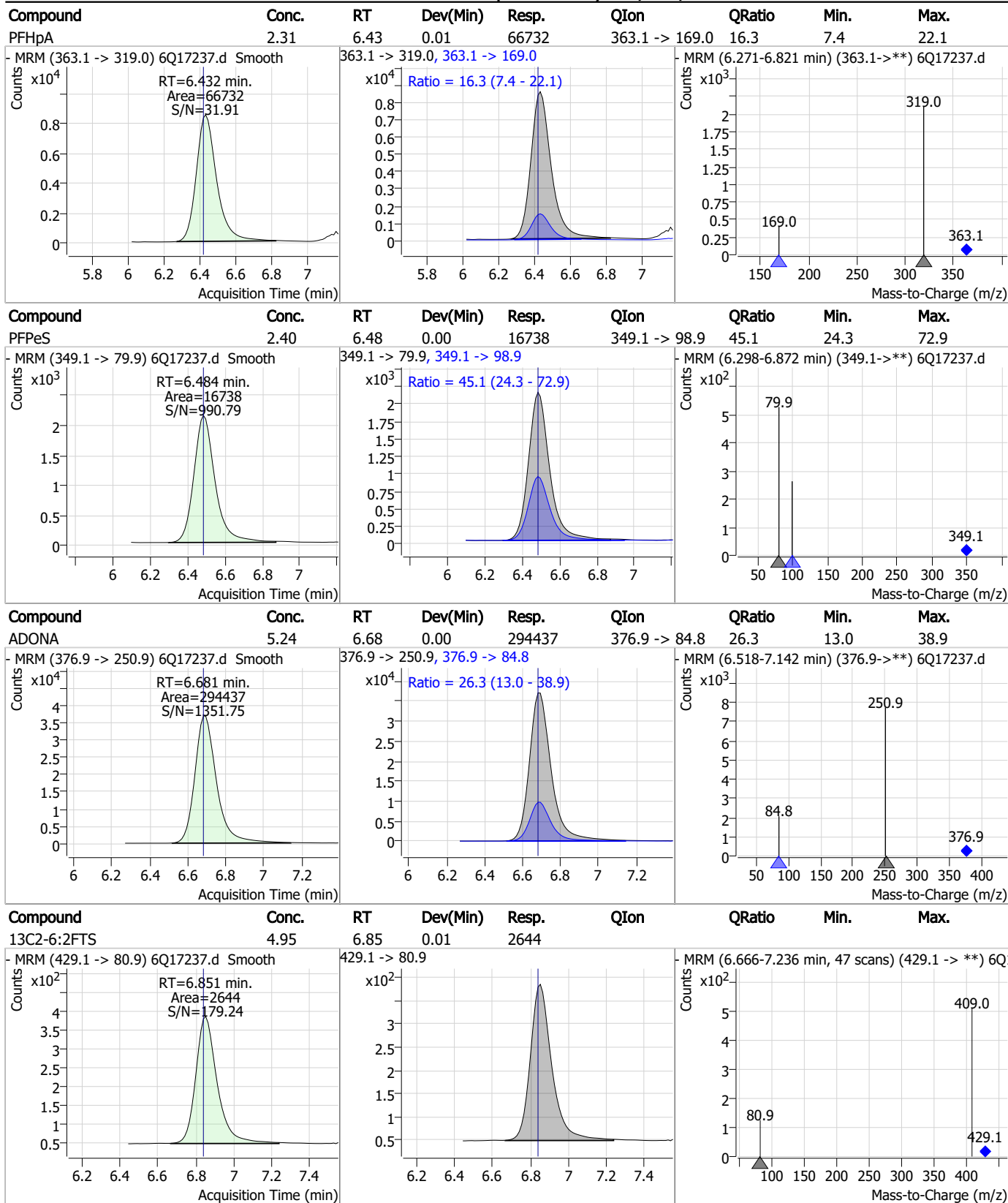
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	63.19	6.17	0.02	269181	341.0 -> 217.0	71.9	33.5	100.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.63	6.43	0.01	58485	367.1 -> 322.0			

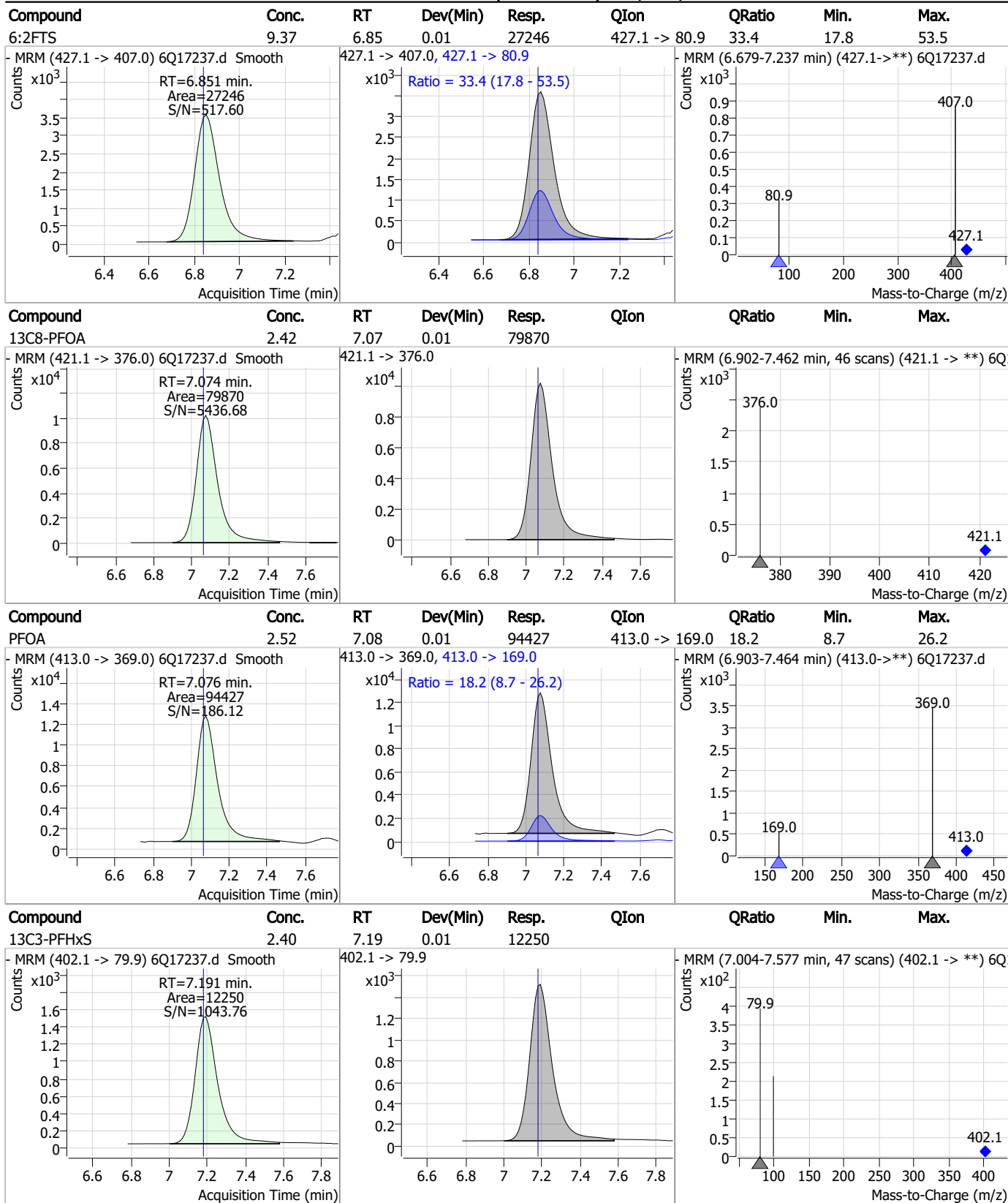


Perfluorinated Compounds by LC/MS/MS



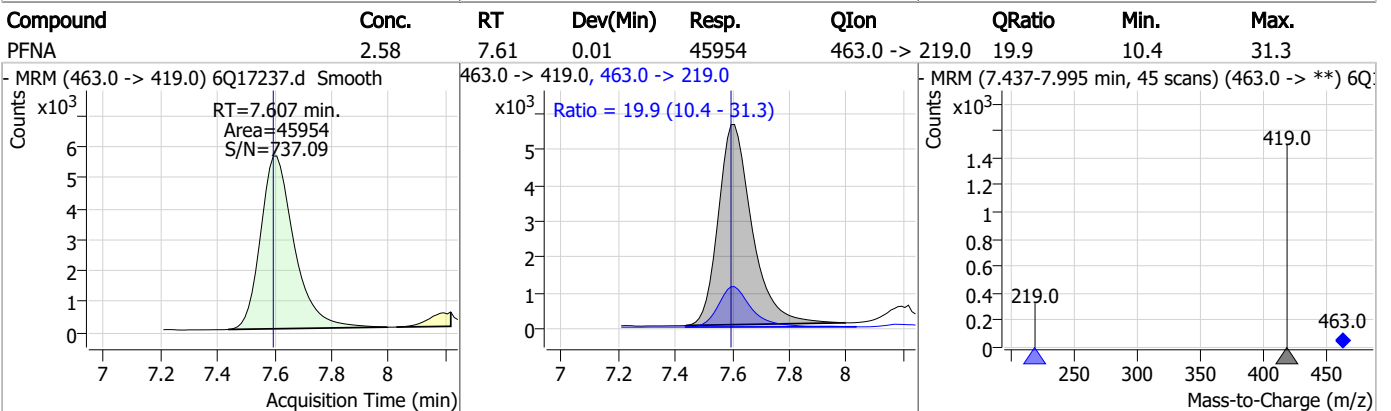
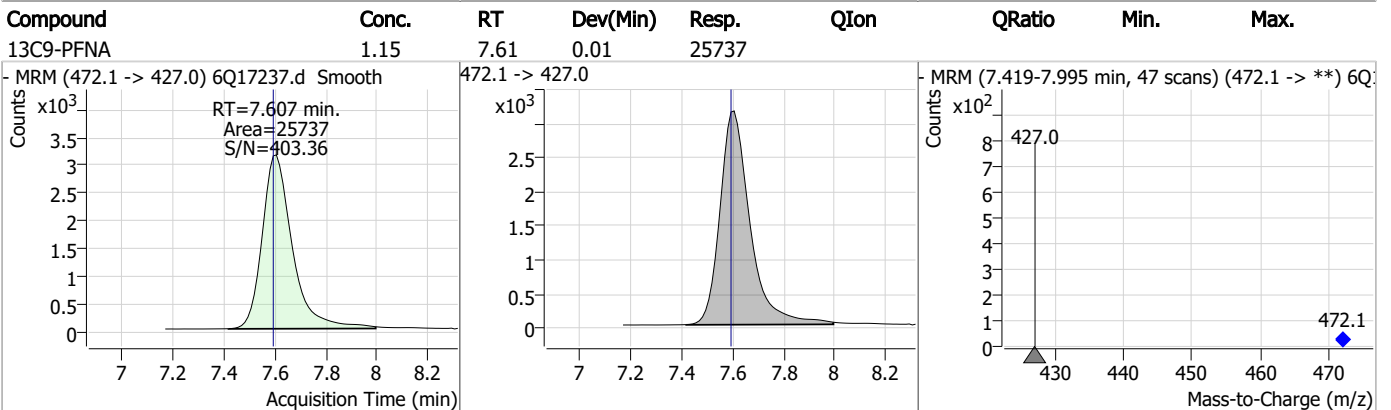
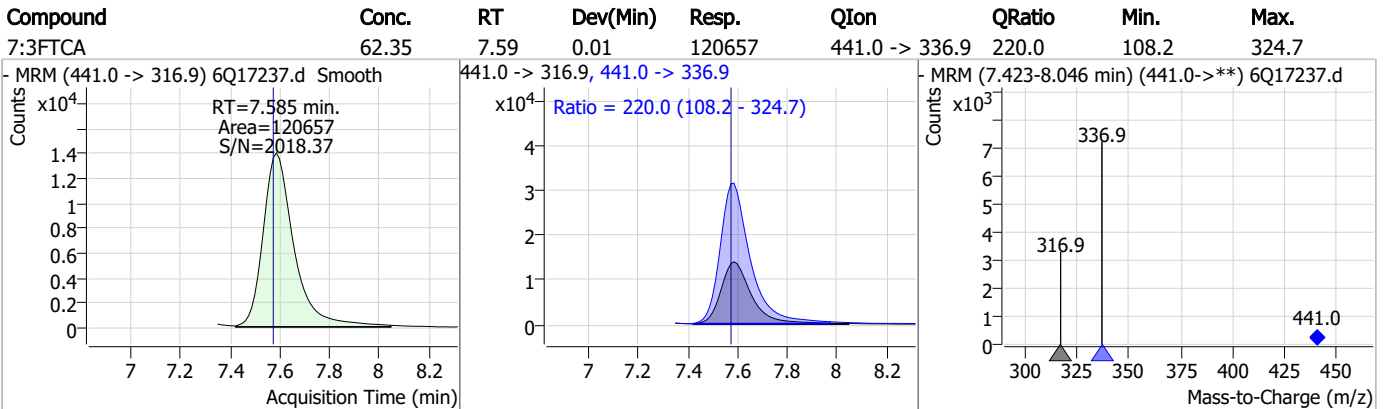
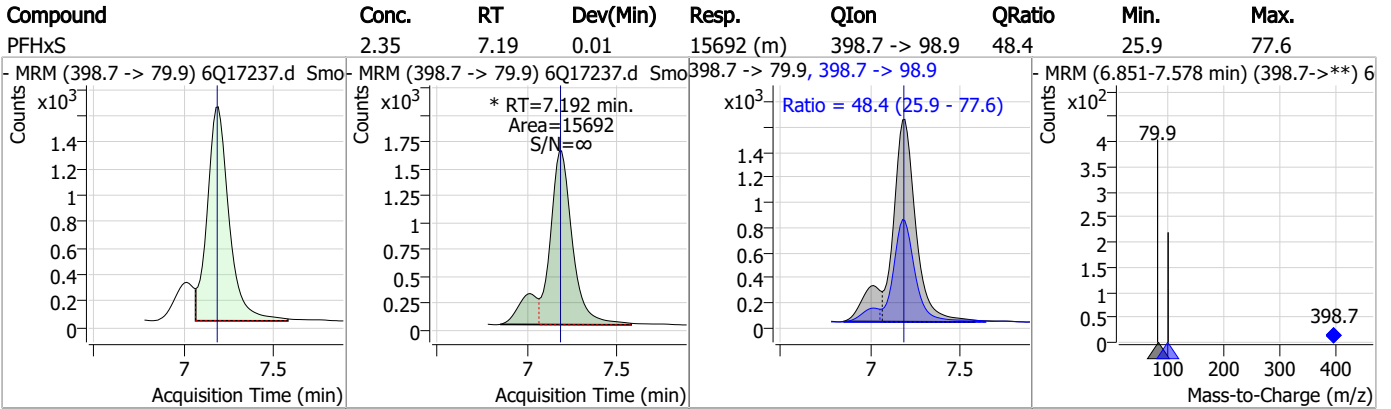
7.6.19 7

Perfluorinated Compounds by LC/MS/MS



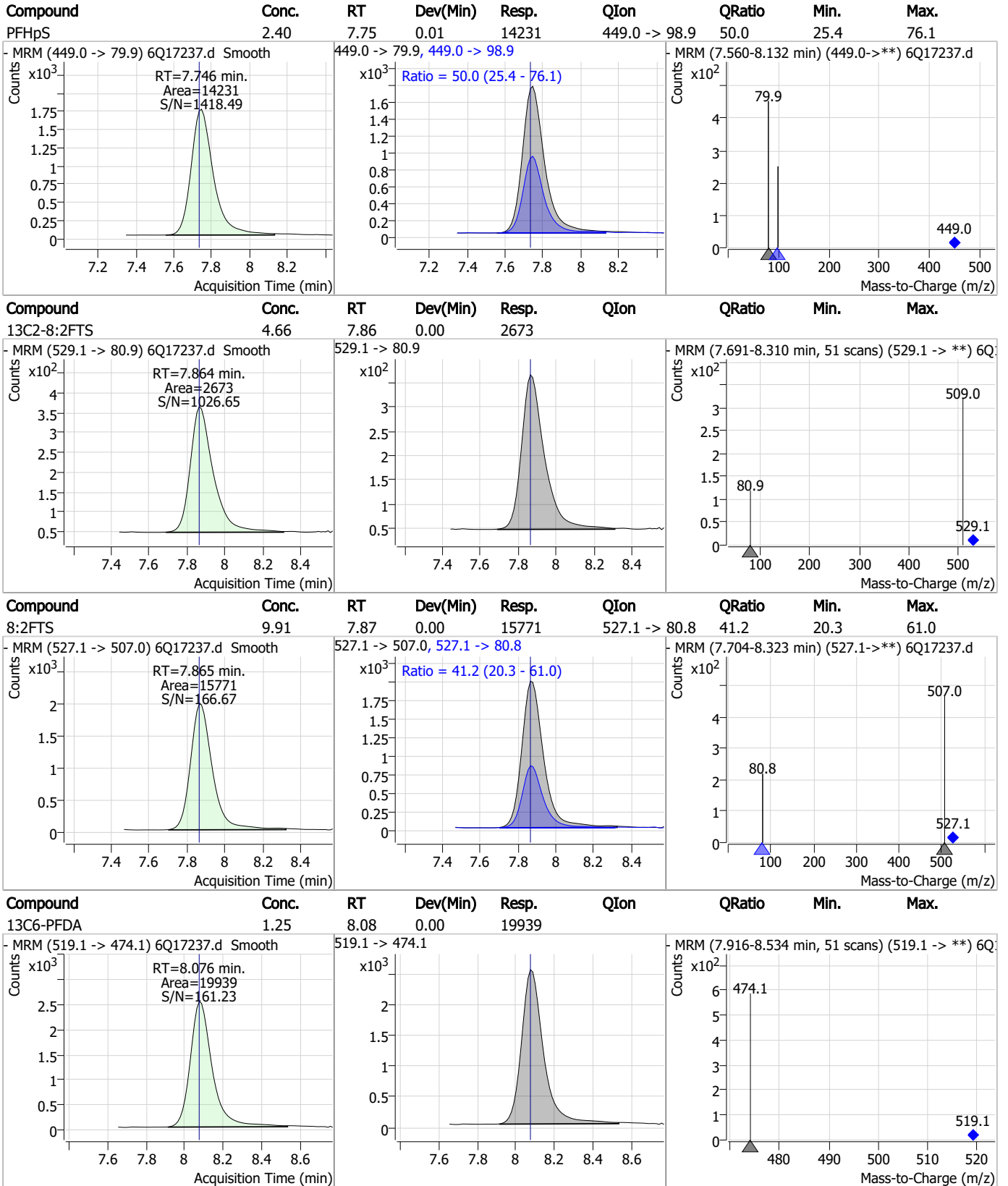
7.6.19 7

Perfluorinated Compounds by LC/MS/MS



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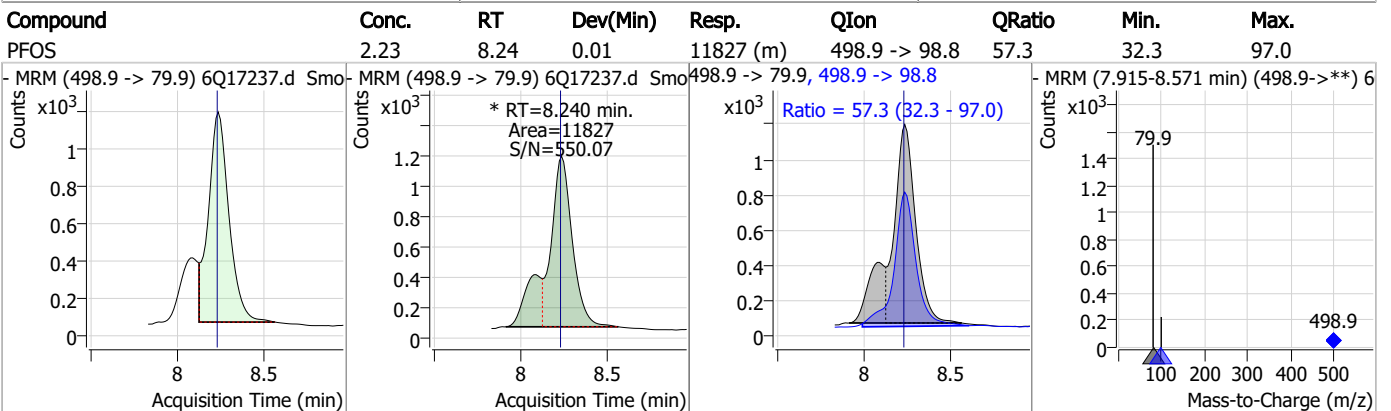
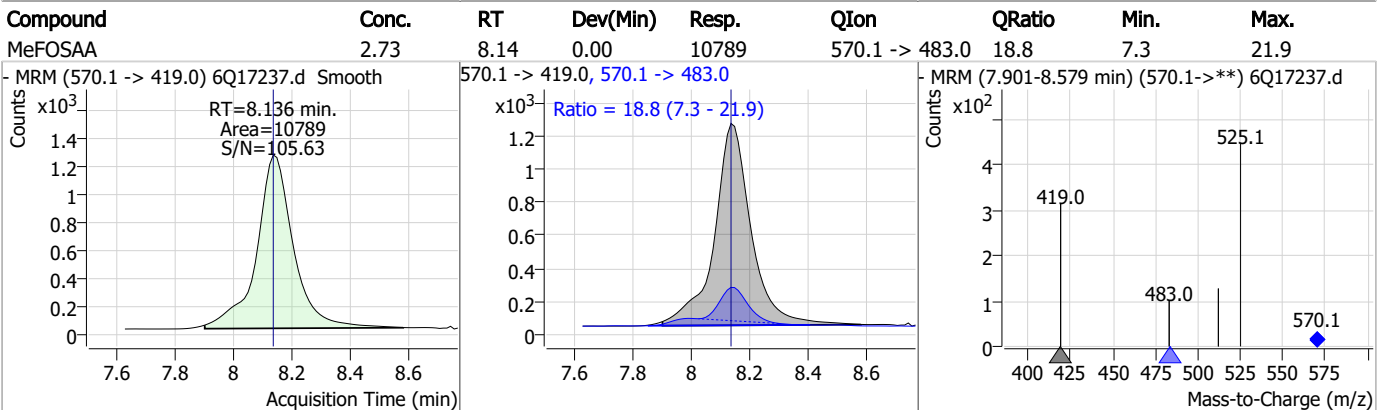
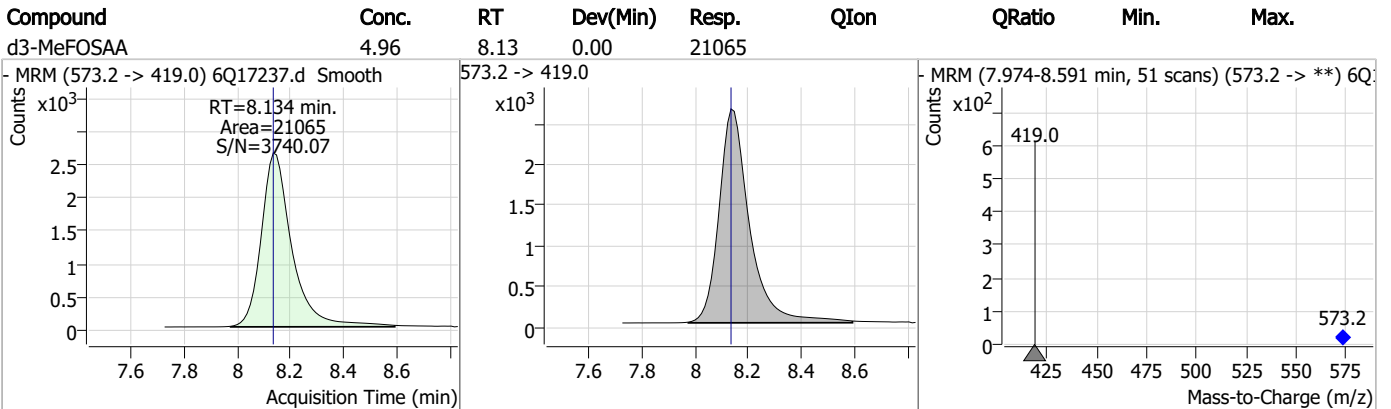
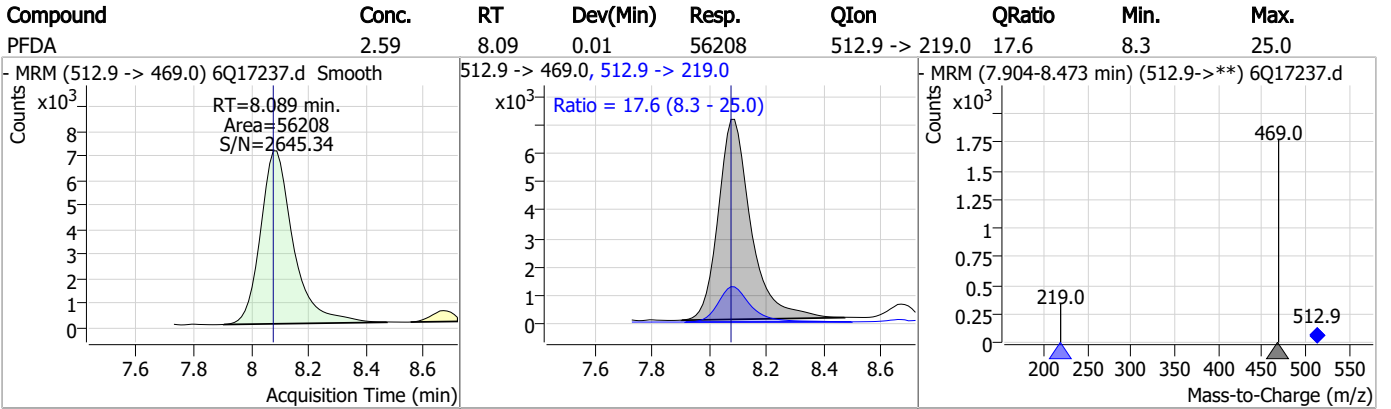
Perfluorinated Compounds by LC/MS/MS



7.6.19 7

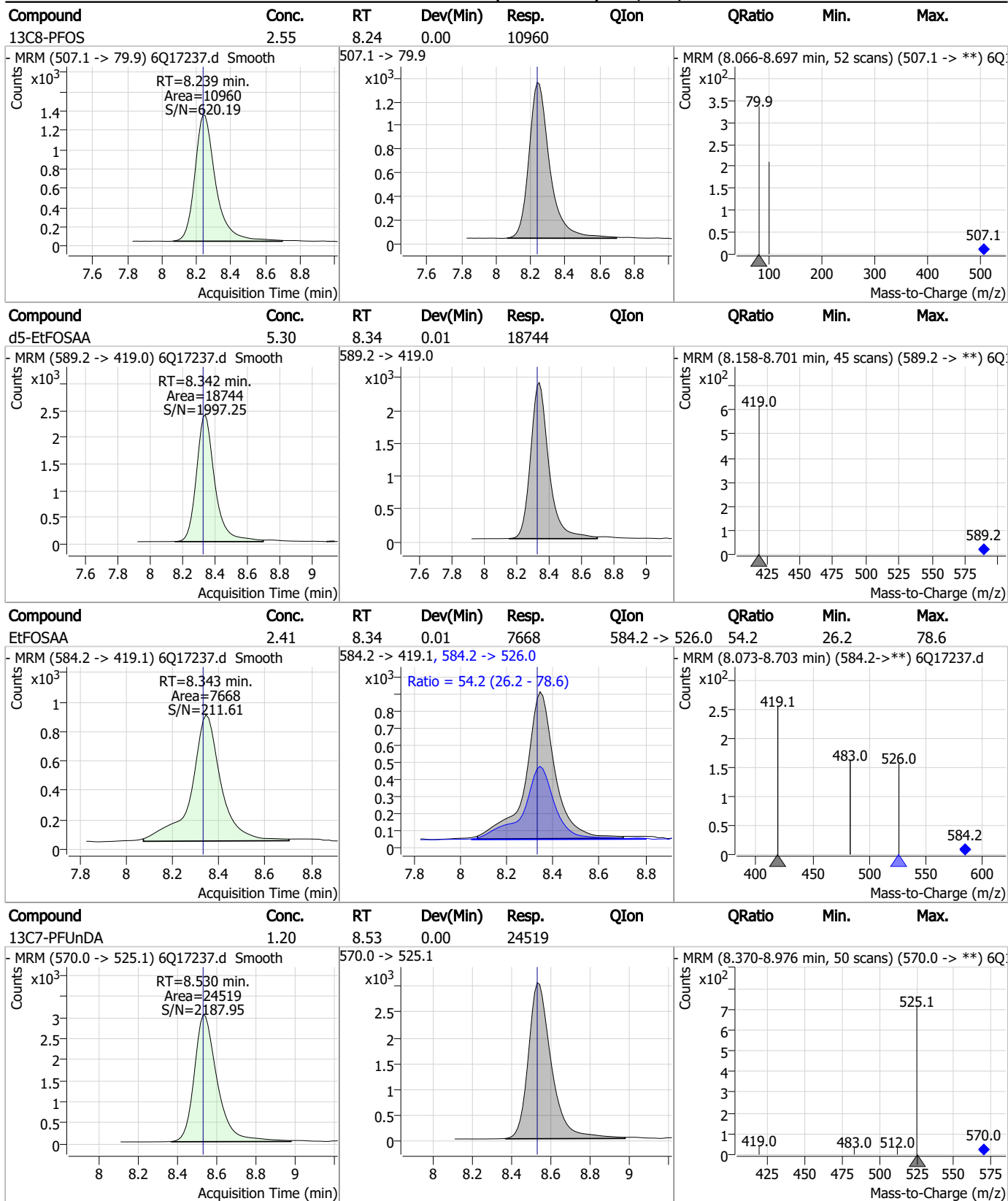


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

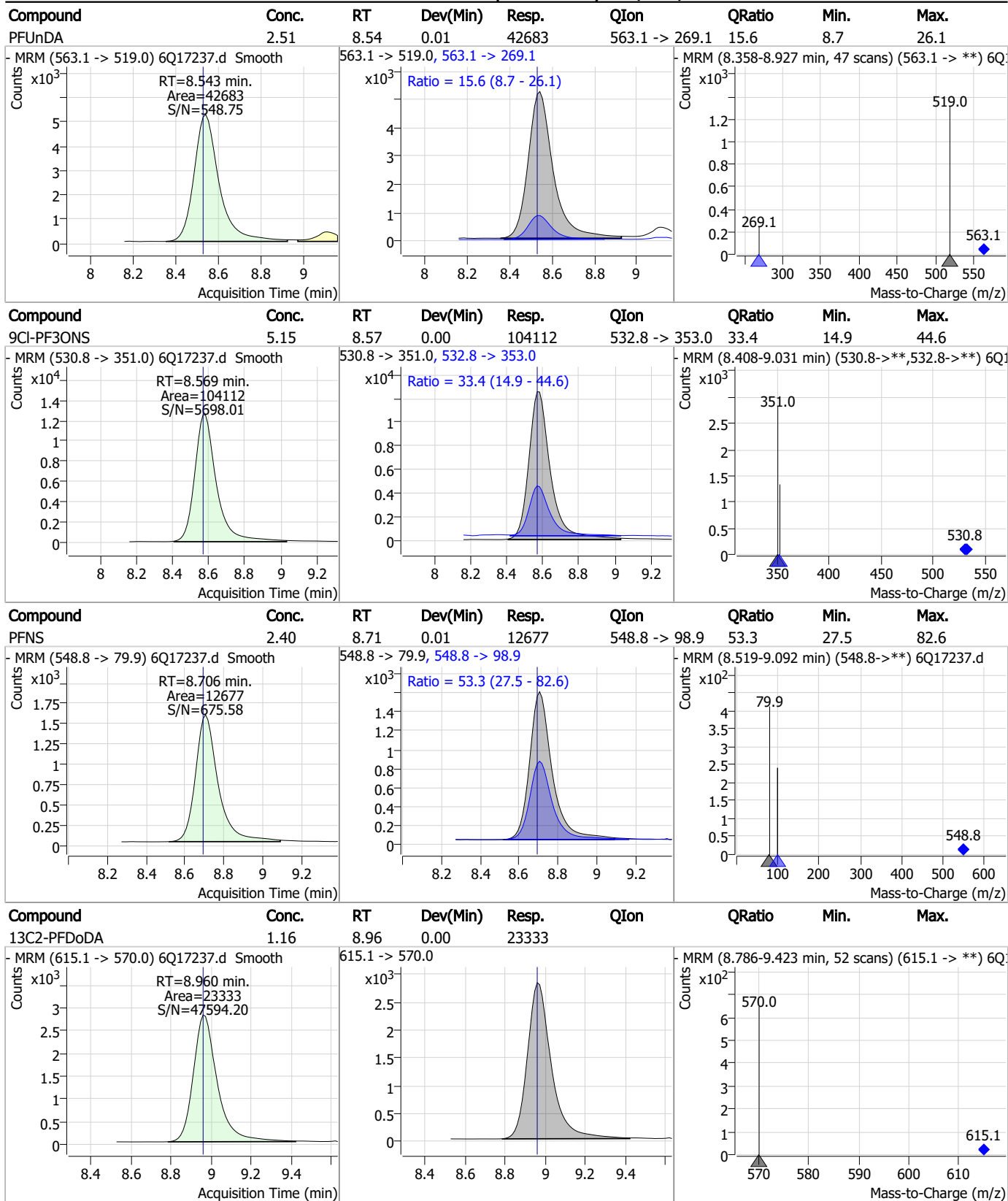


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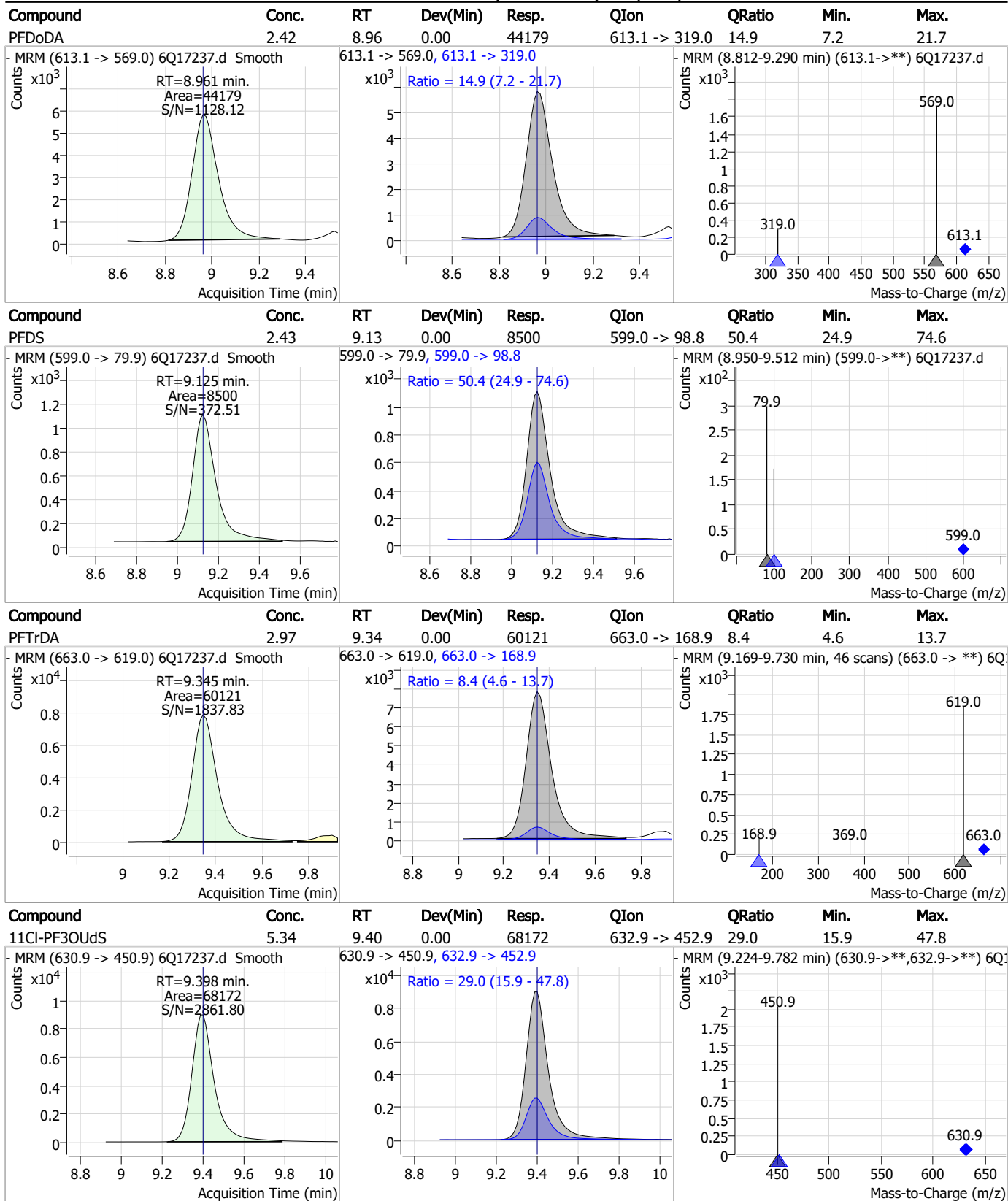
Perfluorinated Compounds by LC/MS/MS



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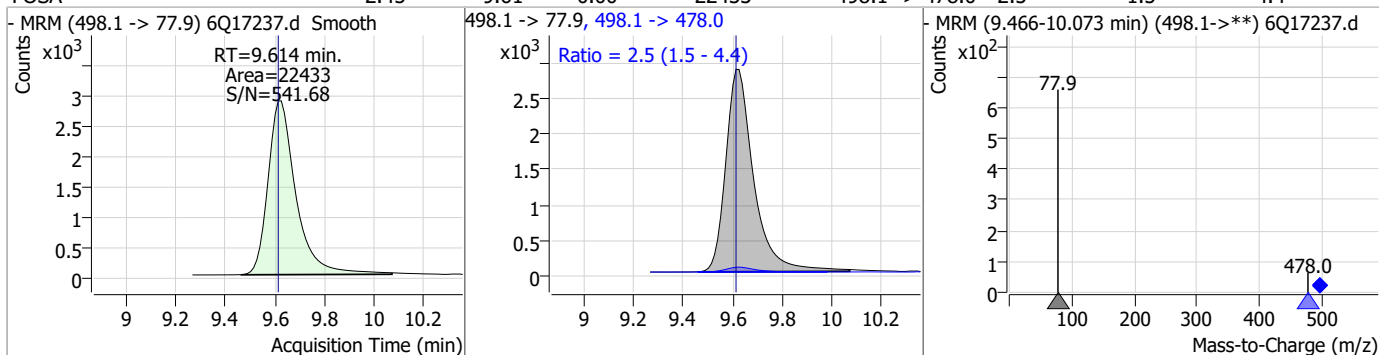
Perfluorinated Compounds by LC/MS/MS



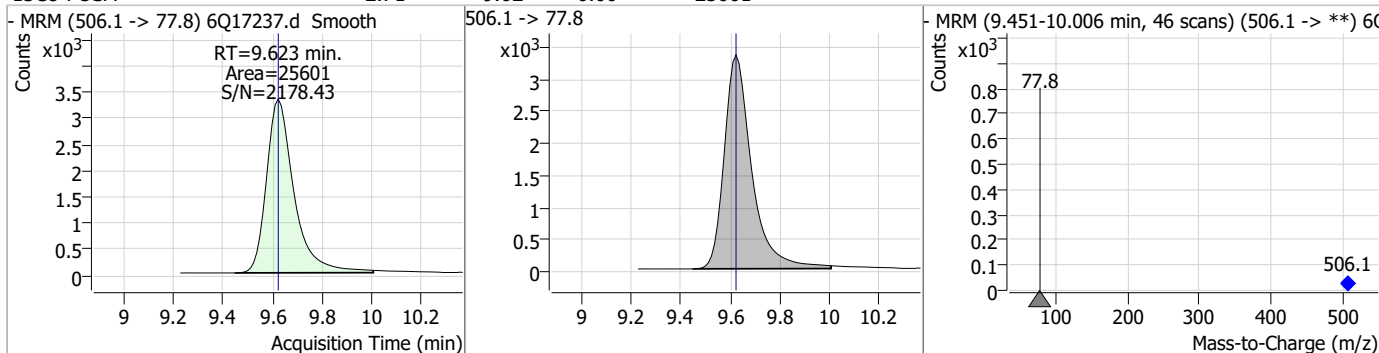
7.6.19
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Perfluorinated Compounds by LC/MS/MS

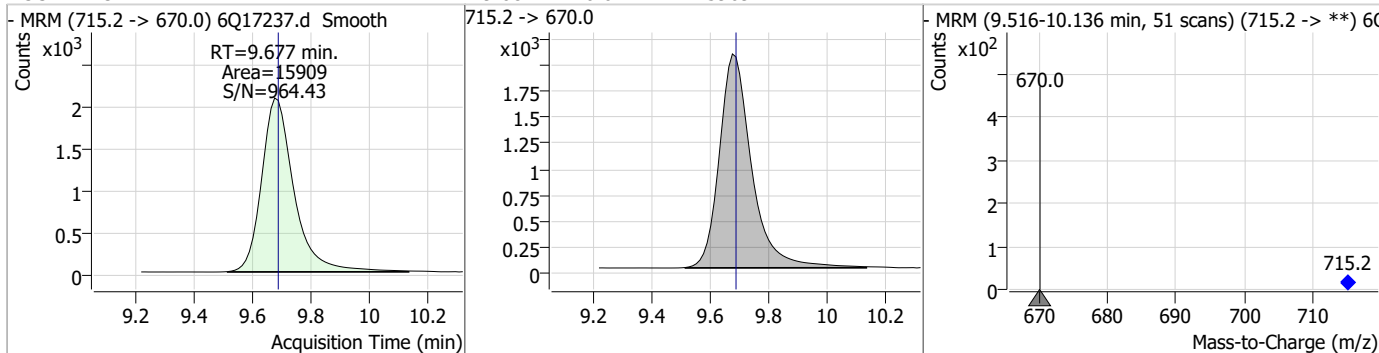
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.45	9.61	0.00	22433	498.1 -> 478.0	2.5	1.5	4.4



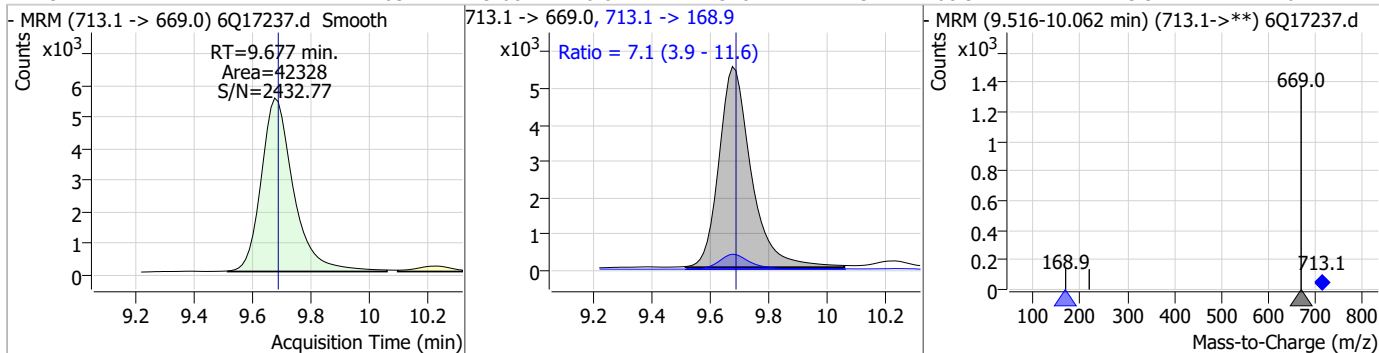
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.71	9.62	0.00	25601				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.17	9.68	-0.01	15909				

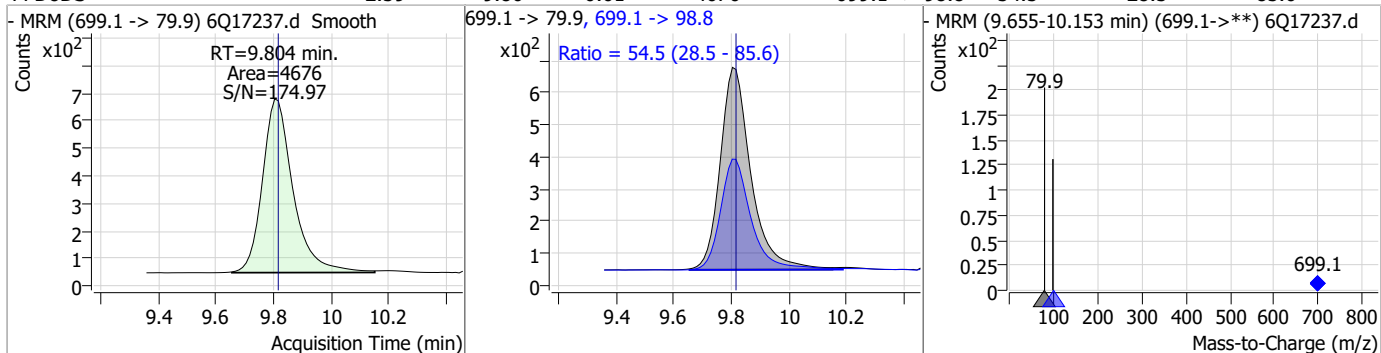


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.63	9.68	-0.01	42328	713.1 -> 168.9	7.1	3.9	11.6

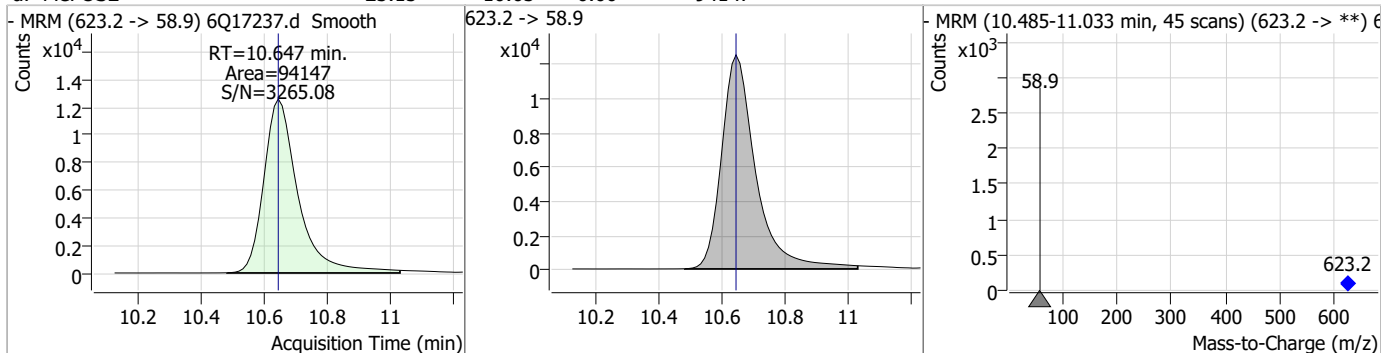


Perfluorinated Compounds by LC/MS/MS

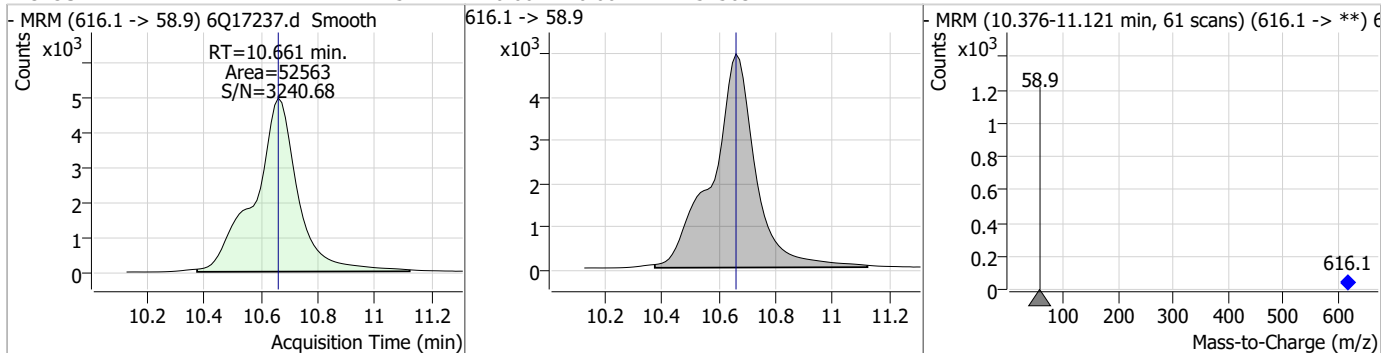
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	2.59	9.80	-0.01	4676	699.1 -> 98.8	54.5	28.5	85.6



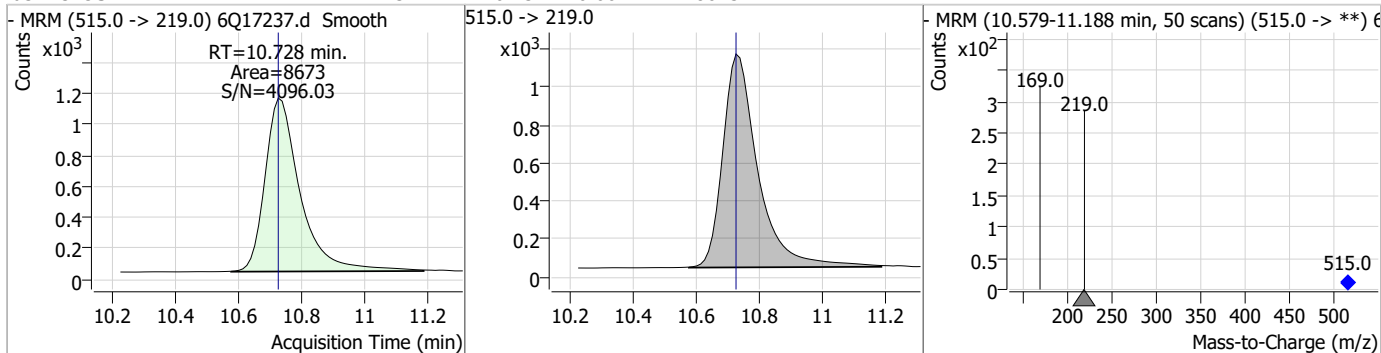
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.15	10.65	0.00	94147				



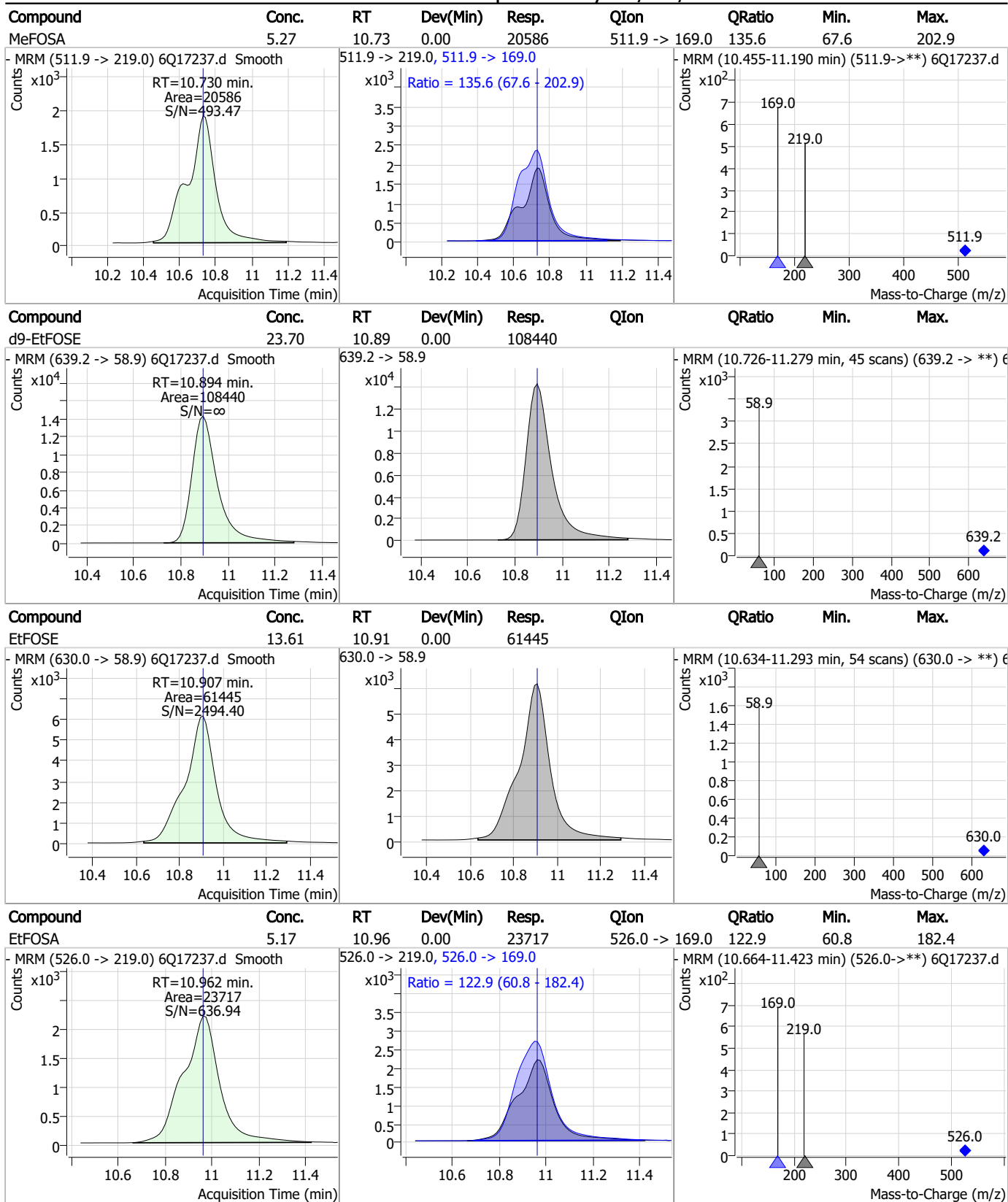
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.52	10.66	0.00	52563				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.43	10.73	0.00	8673				



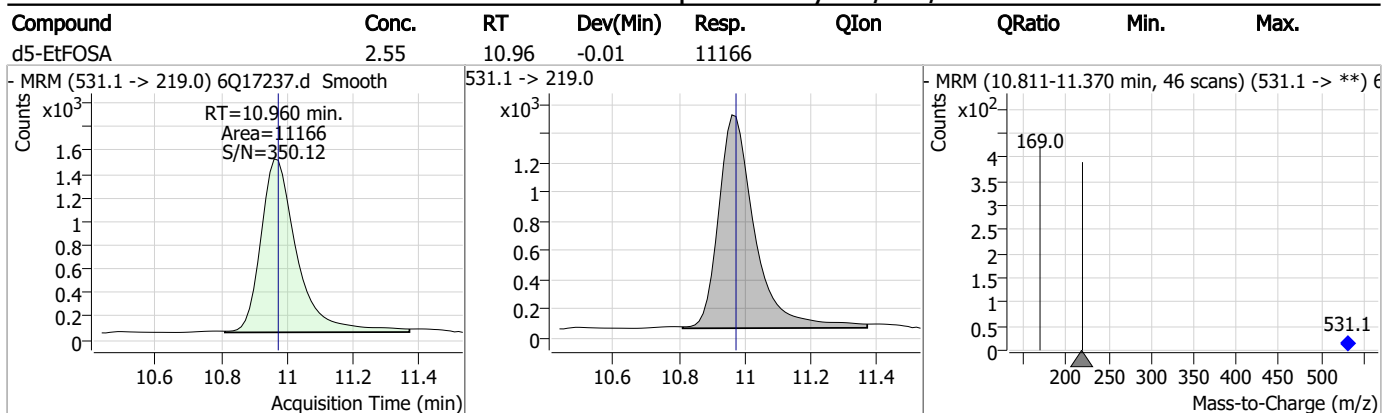
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q260-CC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17237.D Analyst approved: 05/02/23 13:38 Martha Valls
Injection Time: 05/01/23 14:31 Supervisor approved: 05/02/23 15:59 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.19	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.24	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17238.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/1/2023 2:45:41 PM
 Sample Name : cc258-1.0LL
 Vial : P1-A2
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q260.batch.bin
 Sample Information : OP96301,S6Q260,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	181734	10.00 µg/L	0.012
M5-PFPeA	4.283	268.3 -> 223.0	61078	5.00 µg/L	0.012
M5-PFHxA	5.480	318.0 -> 273.0	66504	2.50 µg/L	0.012
M4-PFHpA	6.419	367.1 -> 322.0	57400	2.50 µg/L	0.000
M8-PFOA	7.074	421.1 -> 376.0	83847	2.50 µg/L	0.012
M9-PFNA	7.607	472.1 -> 427.0	25865	1.25 µg/L	0.012
M6-PFDA	8.076	519.1 -> 474.1	21965	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	25096	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	25922	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	16783	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	24430	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22126	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12474	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	11098	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2218	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2614	5.00 µg/L	0.000
M2-8:2FTS	7.877	529.1 -> 80.9	2747	5.00 µg/L	0.012
M3-MeFOSAA	8.134	573.2 -> 419.0	22891	5.00 µg/L	0.000
M3-HFPO-DA	5.833	286.9 -> 168.9	39671	10.00 µg/L	-0.012
M5-EtFOSAA	8.342	589.2 -> 419.0	18079	5.00 µg/L	0.012
M7-MeFOSE	10.647	623.2 -> 58.9	94488	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	115779	25.00 µg/L	0.000
M5-EtFOSA	10.973	531.1 -> 219.0	11859	2.50 µg/L	0.000
M3-MeFOSA	10.741	515.0 -> 219.0	8870	2.50 µg/L	0.012
13C4-PFOS	8.239	502.8 -> 79.9	13799	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	77114	5.00 µg/L	0.000
18O2-PFHxS	7.190	403.0 -> 83.9	9665	2.50 µg/L	0.012
13C4-PFOA	7.075	417.1 -> 372.0	84923	2.50 µg/L	0.012
13C2-PFDA	8.089	515.1 -> 470.1	22759	1.25 µg/L	0.012
13C5-PFNA	7.607	468.0 -> 423.0	29241	1.25 µg/L	0.012
13C2-PFHxA	5.469	315.1 -> 270.0	55683	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2218	4.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2614	4.85 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C2-8:2FTS	7.877	529.1 -> 80.9	2747	4.74 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.7%		
13C2-PFDoDA	8.960	615.1 -> 570.0	25922	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 109.5%		
13C2-PFTeDA	9.689	715.2 -> 670.0	16783	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.8%		
13C3-PFBS	5.398	302.1 -> 79.9	22126	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.4%		
13C3-PFHxS	7.179	402.1 -> 79.9	12474	2.42 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 = 97.0%	
13C4-PFBA	2.910	216.8 -> 171.9	181734	10.20 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C4-PFHpA	6.419	367.1 -> 322.0	57400	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C5-PFHxA	5.480	318.0 -> 273.0	66504	2.48 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C5-PFPeA	4.283	268.3 -> 223.0	61078	4.91 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C6-PFDA	8.076	519.1 -> 474.1	21965	1.46 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 117.1%	
13C7-PFUnDA	8.530	570.0 -> 525.1	25096	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C8-FOSA	9.623	506.1 -> 77.8	24430	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.1%	
13C8-PFOA	7.074	421.1 -> 376.0	83847	2.56 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C8-PFOS	8.239	507.1 -> 79.9	11098	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.8%	
13C9-PFNA	7.607	472.1 -> 427.0	25865	1.16 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.8%	
d3-MeFOSAA	8.134	573.2 -> 419.0	22891	5.57 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 111.3%	
13C3-HFPO-DA	5.833	286.9 -> 168.9	39671	10.06 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
d3-MeFOSA	10.741	515.0 -> 219.0	8870	2.57 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.0%	
d5-EtFOSAA	8.342	589.2 -> 419.0	18079	5.29 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.8%	
d7-MeFOSE	10.647	623.2 -> 58.9	94488	26.09 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.4%	
d9-EtFOSE	10.894	639.2 -> 58.9	115779	26.16 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.7%	
d5-EtFOSA	10.973	531.1 -> 219.0	11859	2.80 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.1%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	2492	0.74 µg/L	100
		327.1 -> 80.9	917		
6:2FTS	6.851	427.1 -> 407.0	2205	0.77 µg/L	94
		427.1 -> 80.9	703		
8:2FTS	7.877	527.1 -> 507.0	1368	0.84 µg/L	92
		527.1 -> 80.8	486		
EtFOSAA	8.331	584.2 -> 419.1	646	0.21 µg/L	90
		584.2 -> 526.0	382		
FOSA	9.626	498.1 -> 77.9	1821	0.21 µg/L	99
		498.1 -> 478.0	47		
MeFOSAA	8.136	570.1 -> 419.0	771	0.18 µg/L	90
		570.1 -> 483.0	145		
PFBA	2.906	212.8 -> 168.9	4883	0.80 µg/L	100
PFBS	5.400	298.7 -> 79.9	1971	0.20 µg/L	95
		298.7 -> 98.8	751		
PFDA	8.089	512.9 -> 469.0	4774	0.20 µg/L	96
		512.9 -> 219.0	720		
PFDODA	8.961	613.1 -> 569.0	4042	0.20 µg/L	98
		613.1 -> 319.0	548		
PFDS	9.125	599.0 -> 79.9	735	0.21 µg/L	96

7.6.20
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.432	599.0 -> 98.8	346	0.21	µg/L	100
		363.1 -> 319.0	5950			
PFHpS	7.746	363.1 -> 169.0	886	0.18	µg/L	97
		449.0 -> 79.9	1111			
PFHxA	5.470	449.0 -> 98.9	540	0.20	µg/L	98
		313.0 -> 269.0	5194			
PFHxS	7.180	313.0 -> 118.9	276	0.21	µg/L	95
		398.7 -> 79.9	1424			
PFNA	7.607	398.7 -> 98.9	685	0.20	µg/L	94
		463.0 -> 419.0	3583			
PFNS	8.694	463.0 -> 219.0	842	0.17	µg/L	91
		548.8 -> 79.9	920			
PFOA	7.076	548.8 -> 98.9	568	0.22	µg/L	89
		413.0 -> 369.0	6178			
PFOS	8.240	413.0 -> 169.0	1368	0.22	µg/L	89
		498.9 -> 79.9	1177			
PFPeA	4.273	498.9 -> 98.8	664	0.41	µg/L	100
		263.0 -> 219.0	6779			
PFPeS	6.484	349.1 -> 79.9	1294	0.18	µg/L	99
		349.1 -> 98.9	639			
PFTeDA	9.690	713.1 -> 669.0	3407	0.20	µg/L	99
		713.1 -> 168.9	250			
PFTrDA	9.345	663.0 -> 619.0	4566	0.20	µg/L	100
		663.0 -> 168.9	422			
PFUnDA	8.531	563.1 -> 519.0	3525	0.20	µg/L	92
		563.1 -> 269.1	489			
11CI-PF3OUdS	9.398	630.9 -> 450.9	5199	0.38	µg/L	97
		632.9 -> 452.9	1756			
9CI-PF3ONS	8.569	530.8 -> 351.0	9153	0.43	µg/L	88
		532.8 -> 353.0	2117			
ADONA	6.681	376.9 -> 250.9	22429	0.37	µg/L	96
		376.9 -> 84.8	6241			
HFPO-DA	5.834	284.9 -> 168.9	1562	0.42	µg/L	90
		284.9 -> 184.9	157			
3:3FTCA	3.784	241.0 -> 177.0	994	0.96	µg/L	95
		241.0 -> 117.0	113			
5:3FTCA	6.160	341.0 -> 237.1	23638	5.55	µg/L	92
		341.0 -> 217.0	17314			
7:3FTCA	7.585	441.0 -> 316.9	9069	4.69	µg/L	90
		441.0 -> 336.9	21025			
EtFOSA	10.962	526.0 -> 219.0	2031	0.42	µg/L	99
		526.0 -> 169.0	2504			
EtFOSE	10.907	630.0 -> 58.9	4947	1.03	µg/L	100
		511.9 -> 219.0	1668			
MeFOSA	10.730	511.9 -> 169.0	2286	0.42	µg/L	99
		616.1 -> 58.9	4293			
MeFOSE	10.661	699.1 -> 79.9	328	1.02	µg/L	100
		699.1 -> 98.8	166			
PFDoDS	9.817	295.0 -> 201.0	1282	0.18	µg/L	91
		295.0 -> 84.9	315			
NFDHA	5.350	279.0 -> 85.1	4675	0.45	µg/L	99
		279.0 -> 85.1	315			
PFMBA	4.687	229.0 -> 84.9	3415	0.42	µg/L	100
		229.0 -> 84.9	3415			
PFMPA	3.438	314.8 -> 134.9	12090	0.41	µg/L	100
		314.8 -> 82.9	380			
PFEESA	5.937			0.36	µg/L	98

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

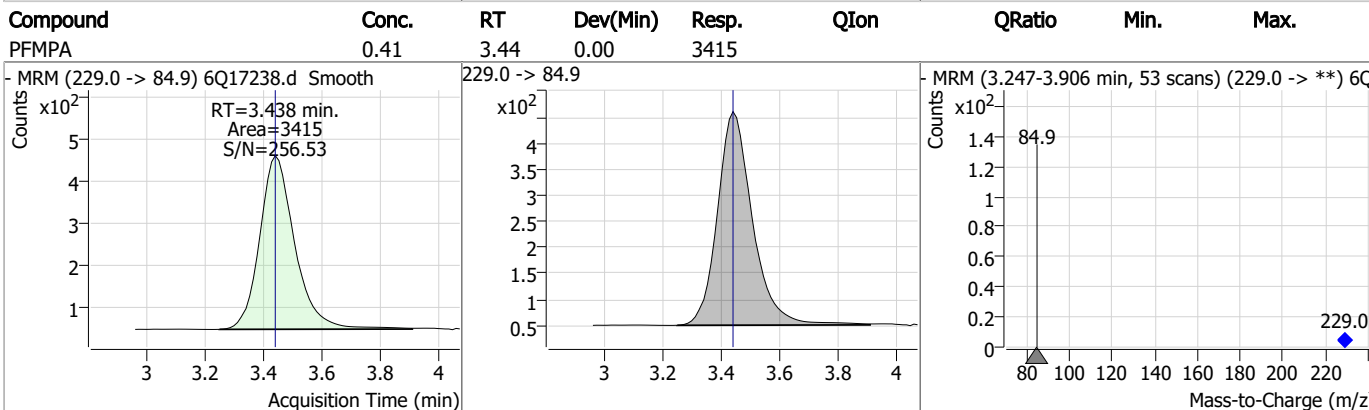
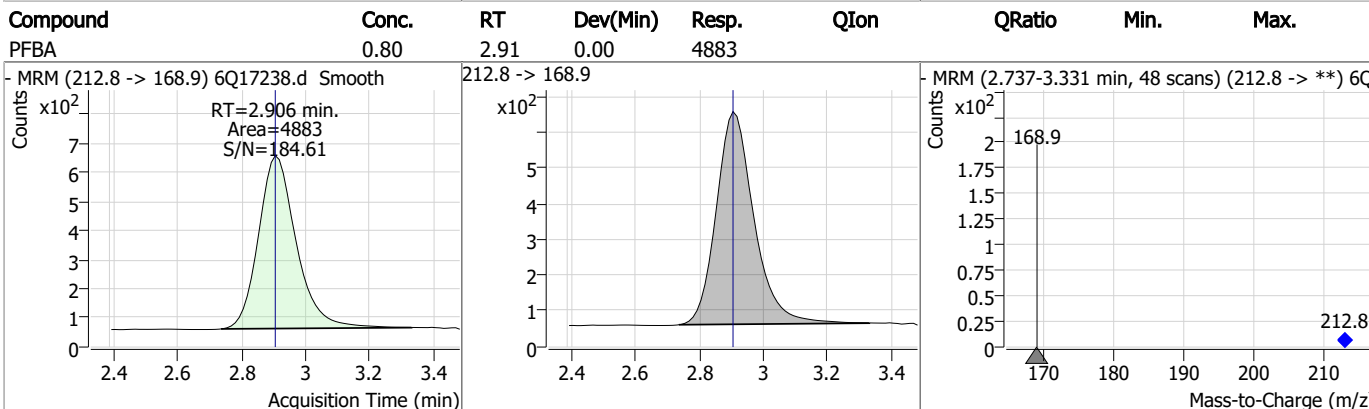
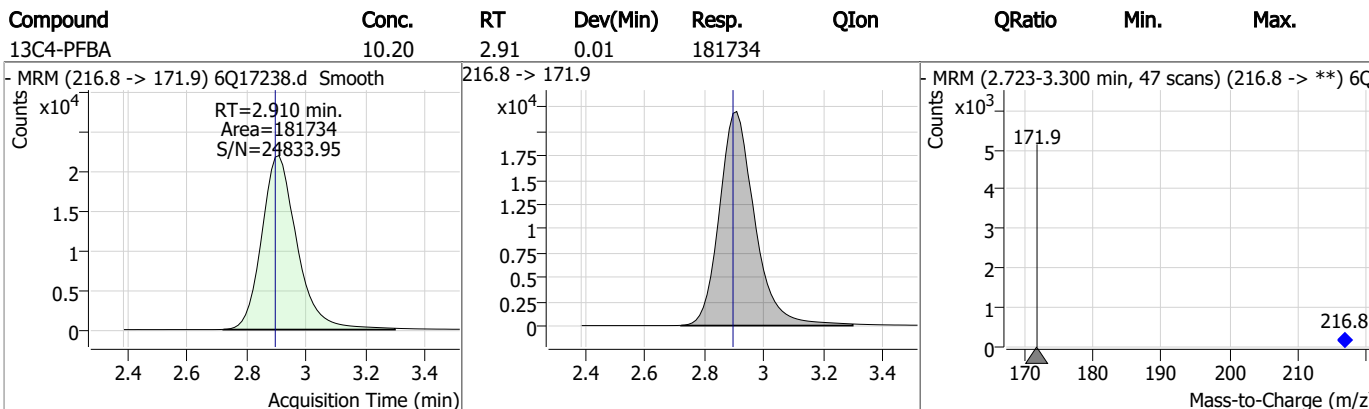
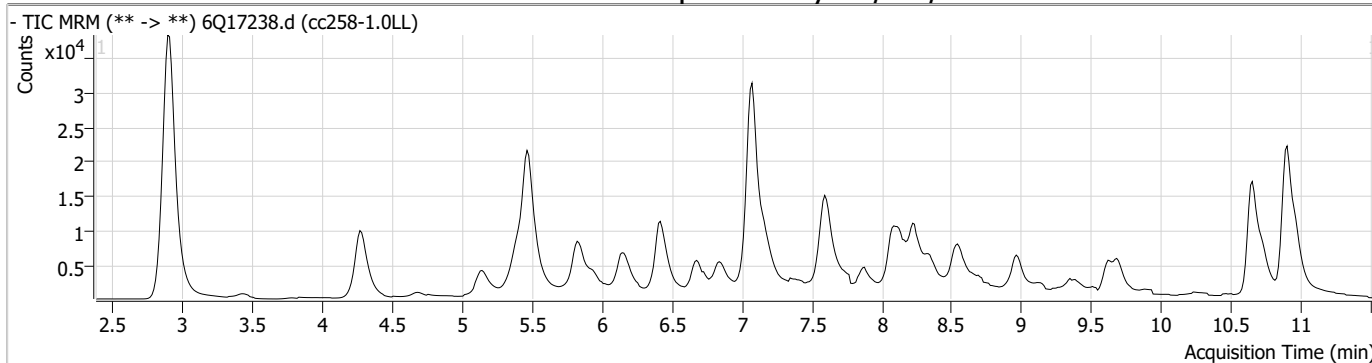
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.6.20

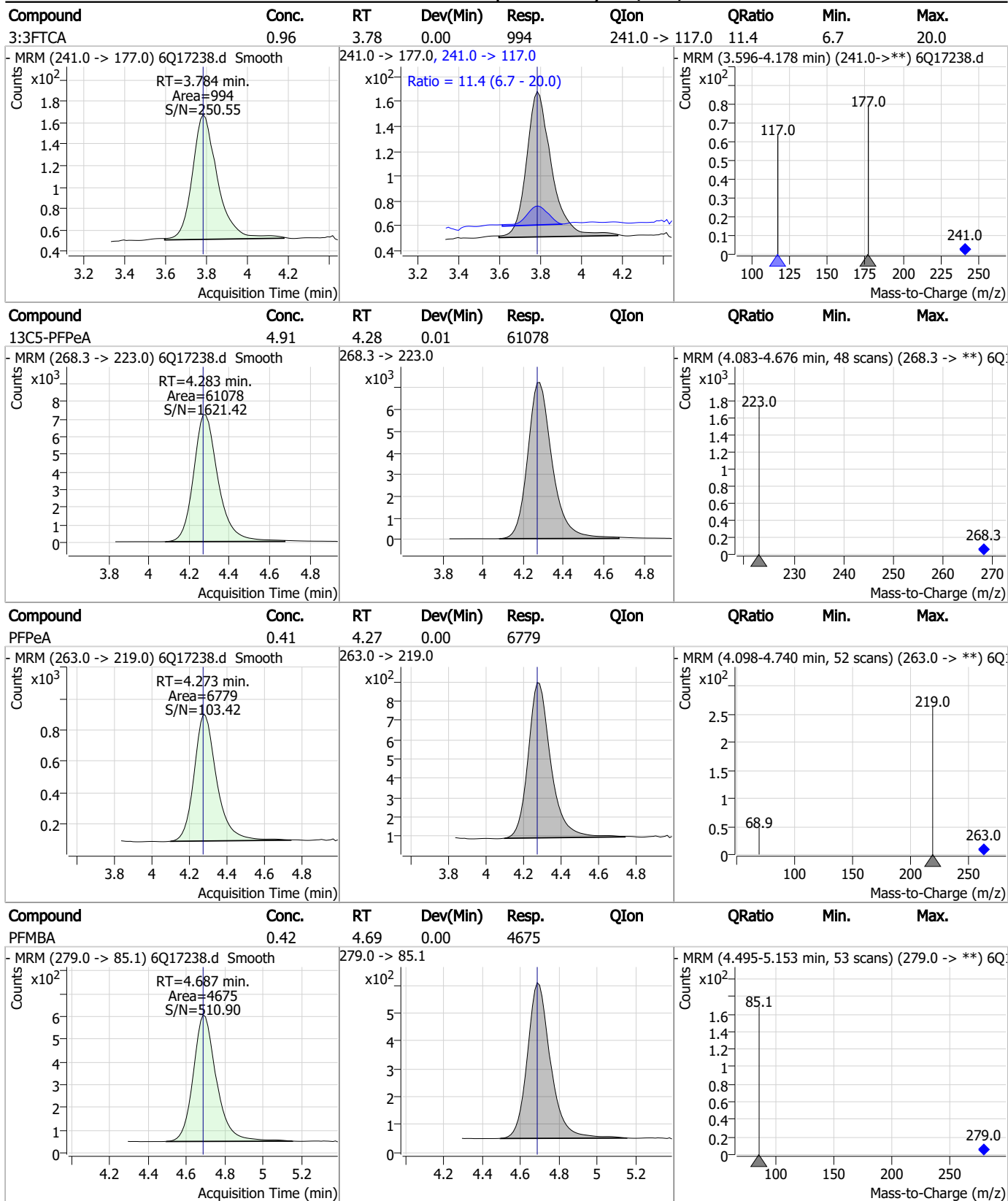
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Perfluorinated Compounds by LC/MS/MS



7.6.20
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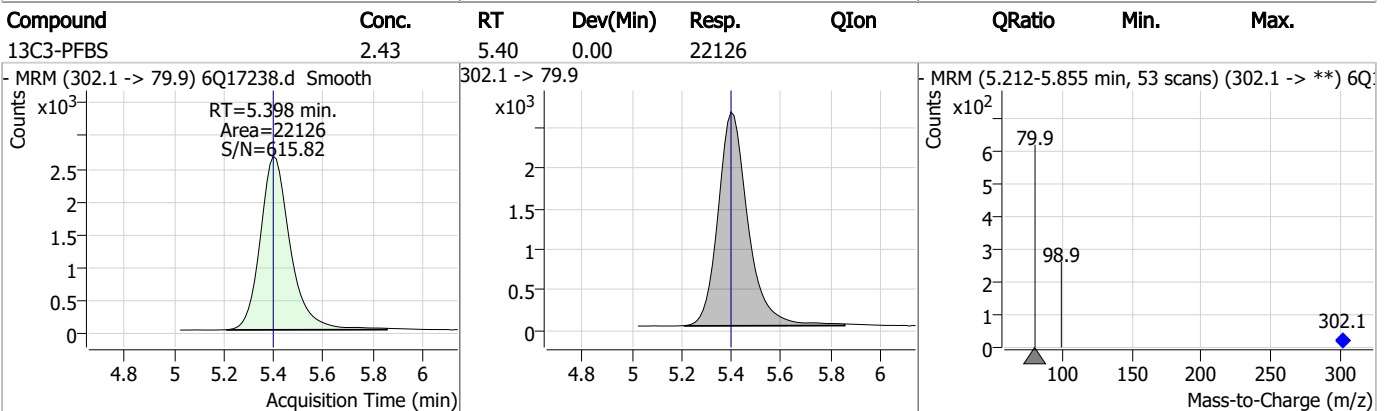
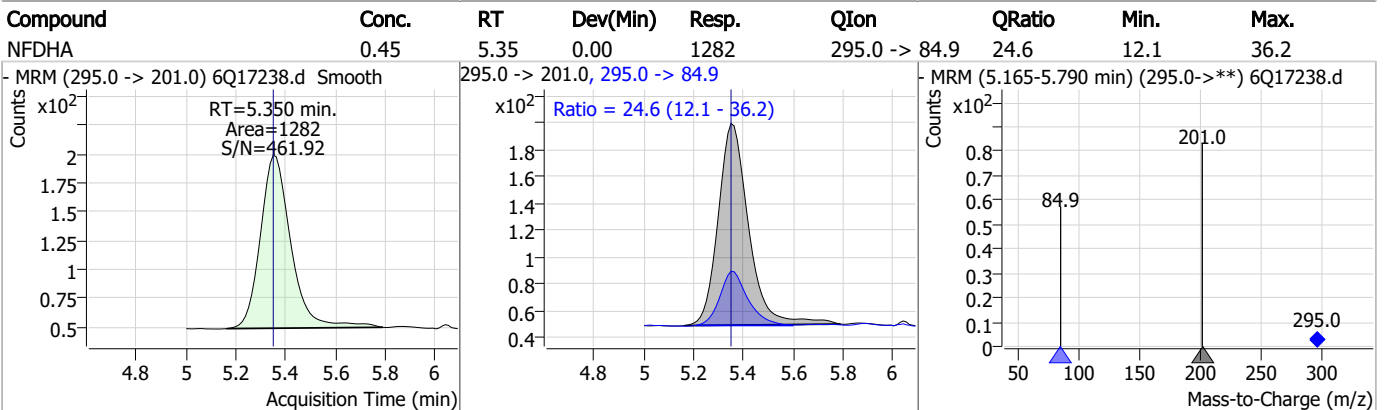
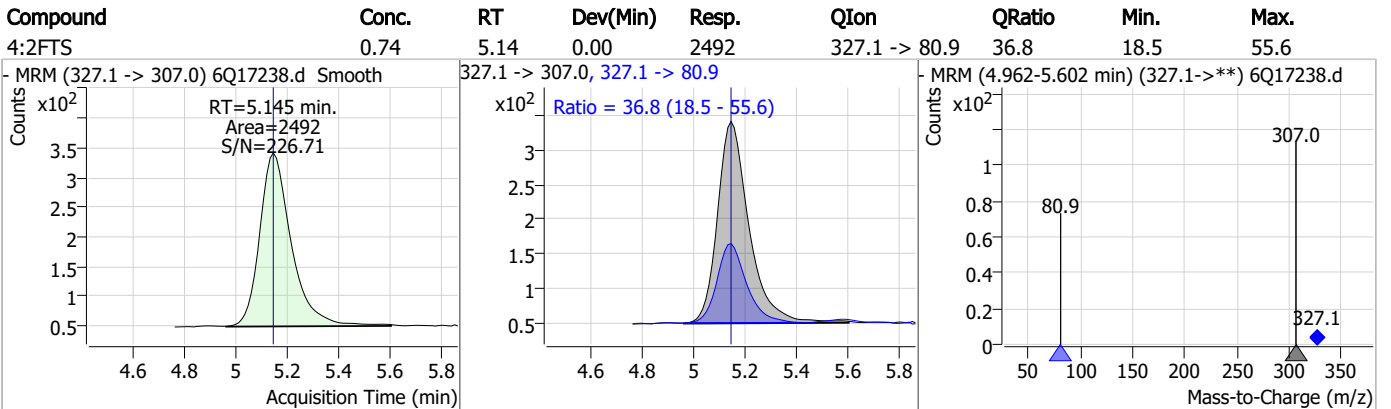
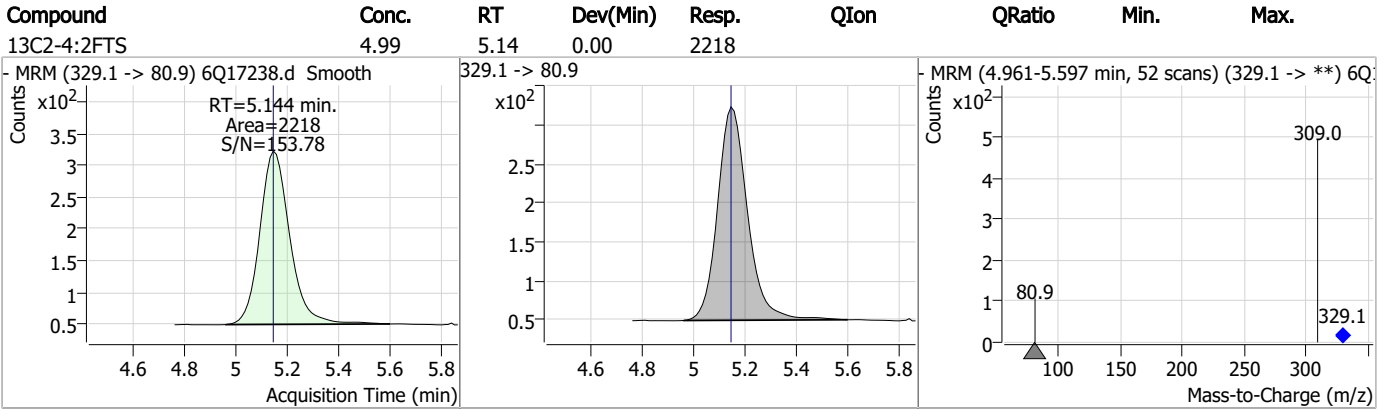
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

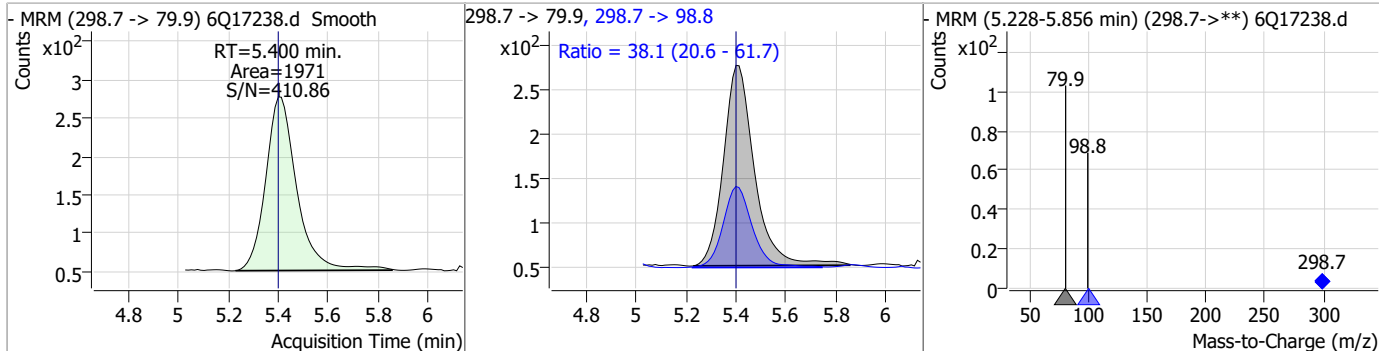


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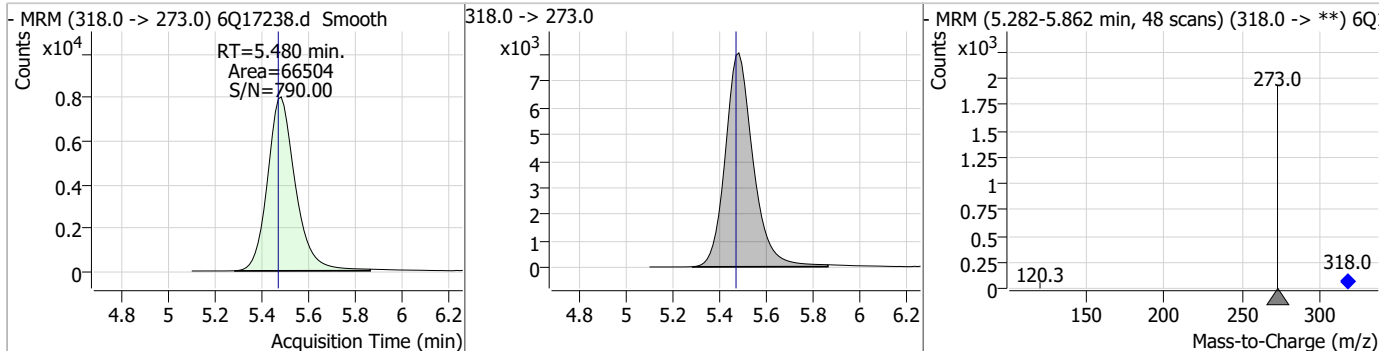


Perfluorinated Compounds by LC/MS/MS

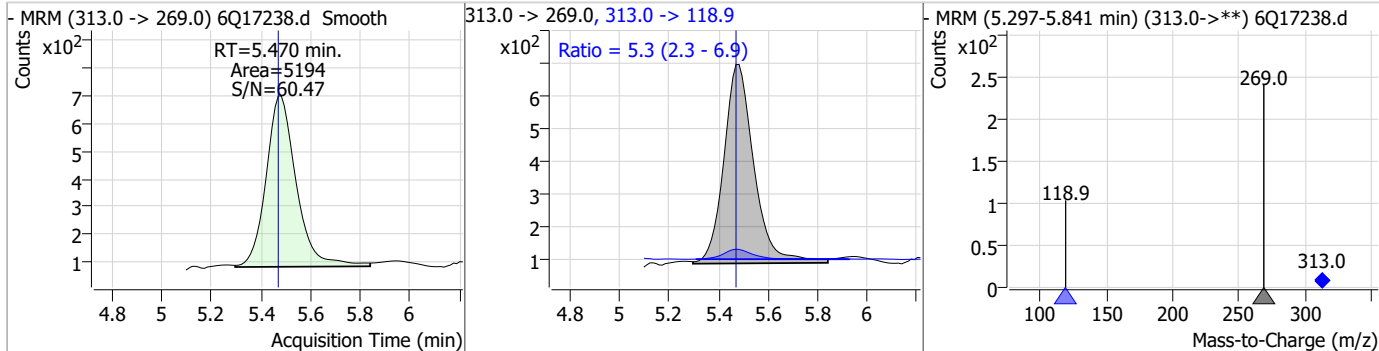
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.20	5.40	0.00	1971	298.7 -> 98.8	38.1	20.6	61.7



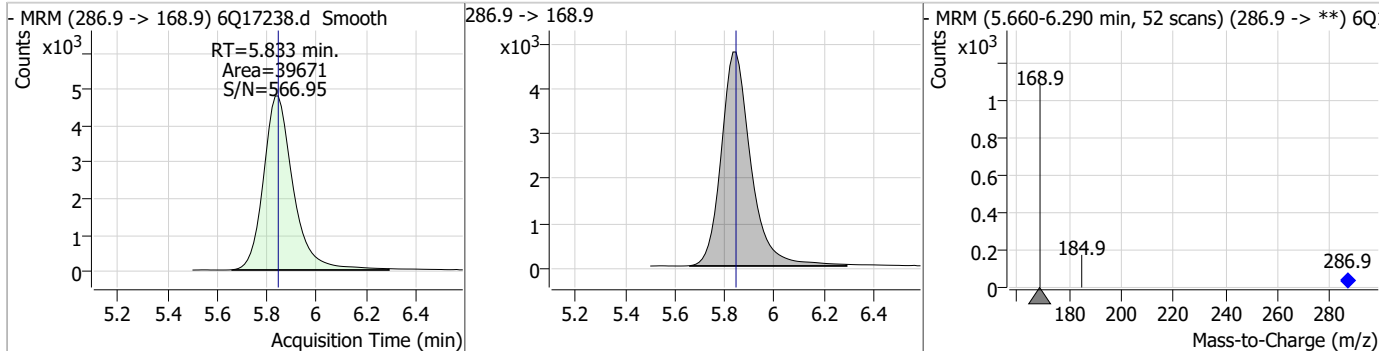
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.48	5.48	0.01	66504				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.20	5.47	0.00	5194	313.0 -> 118.9	5.3	2.3	6.9

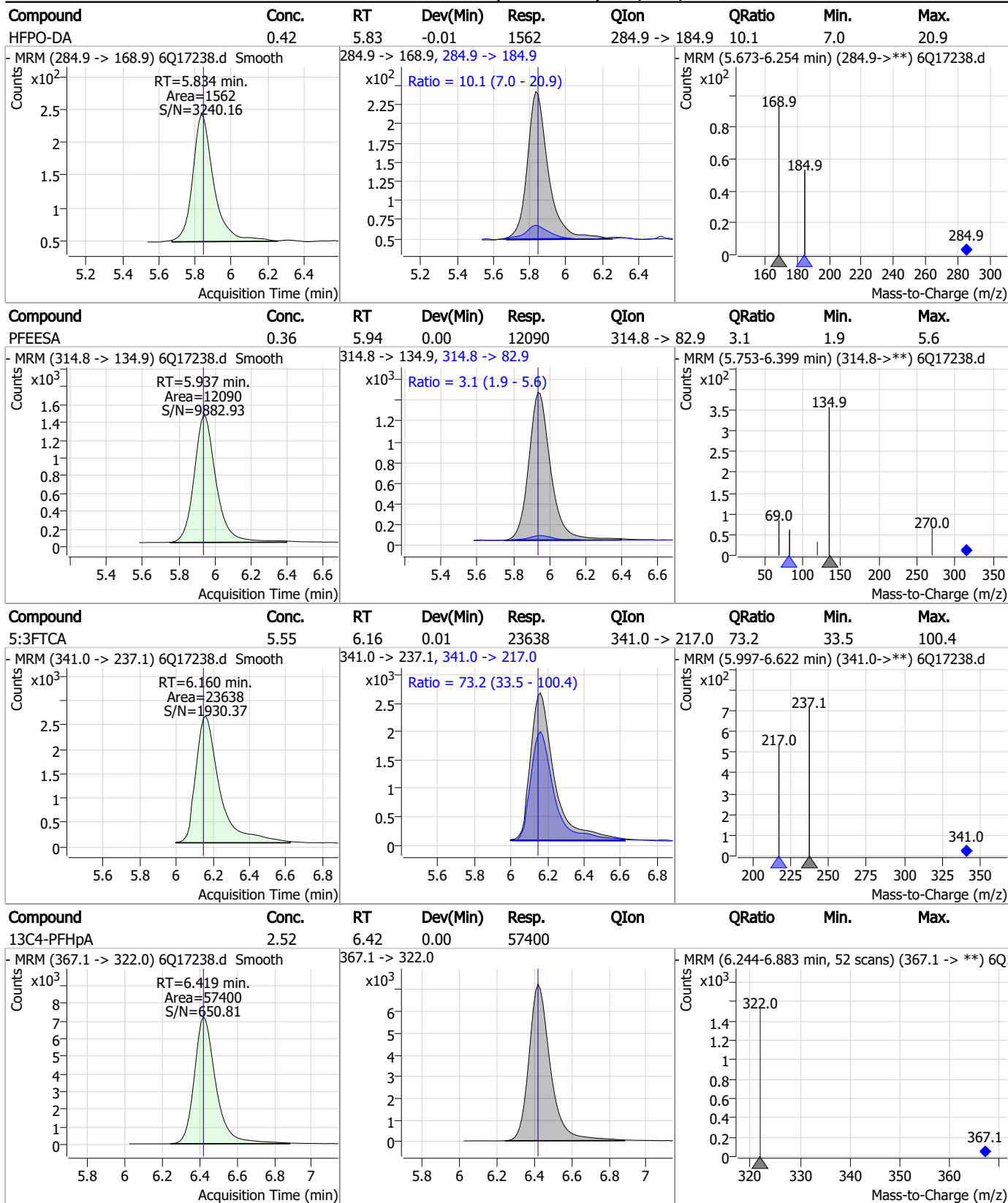


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.06	5.83	-0.01	39671				



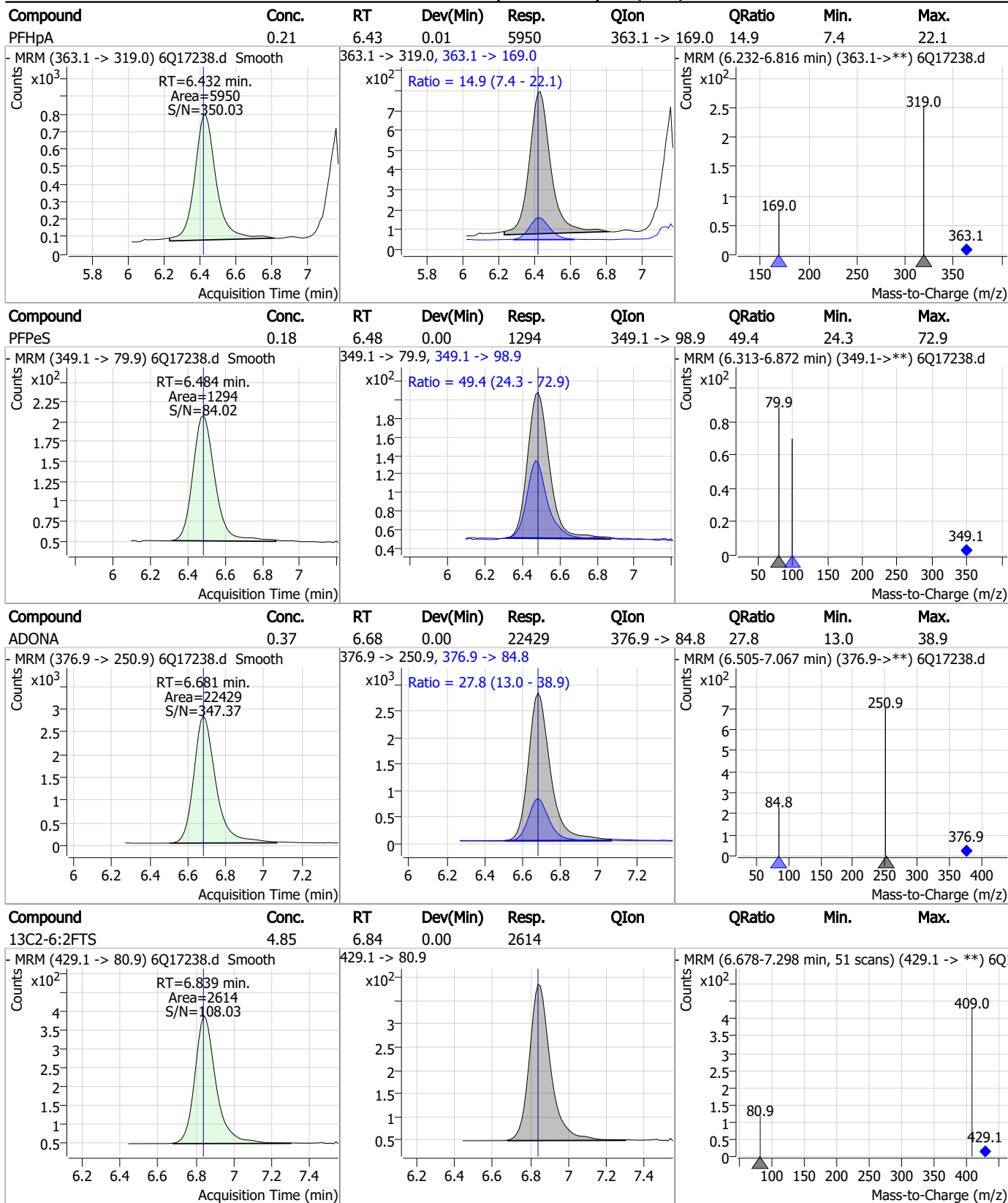
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Perfluorinated Compounds by LC/MS/MS



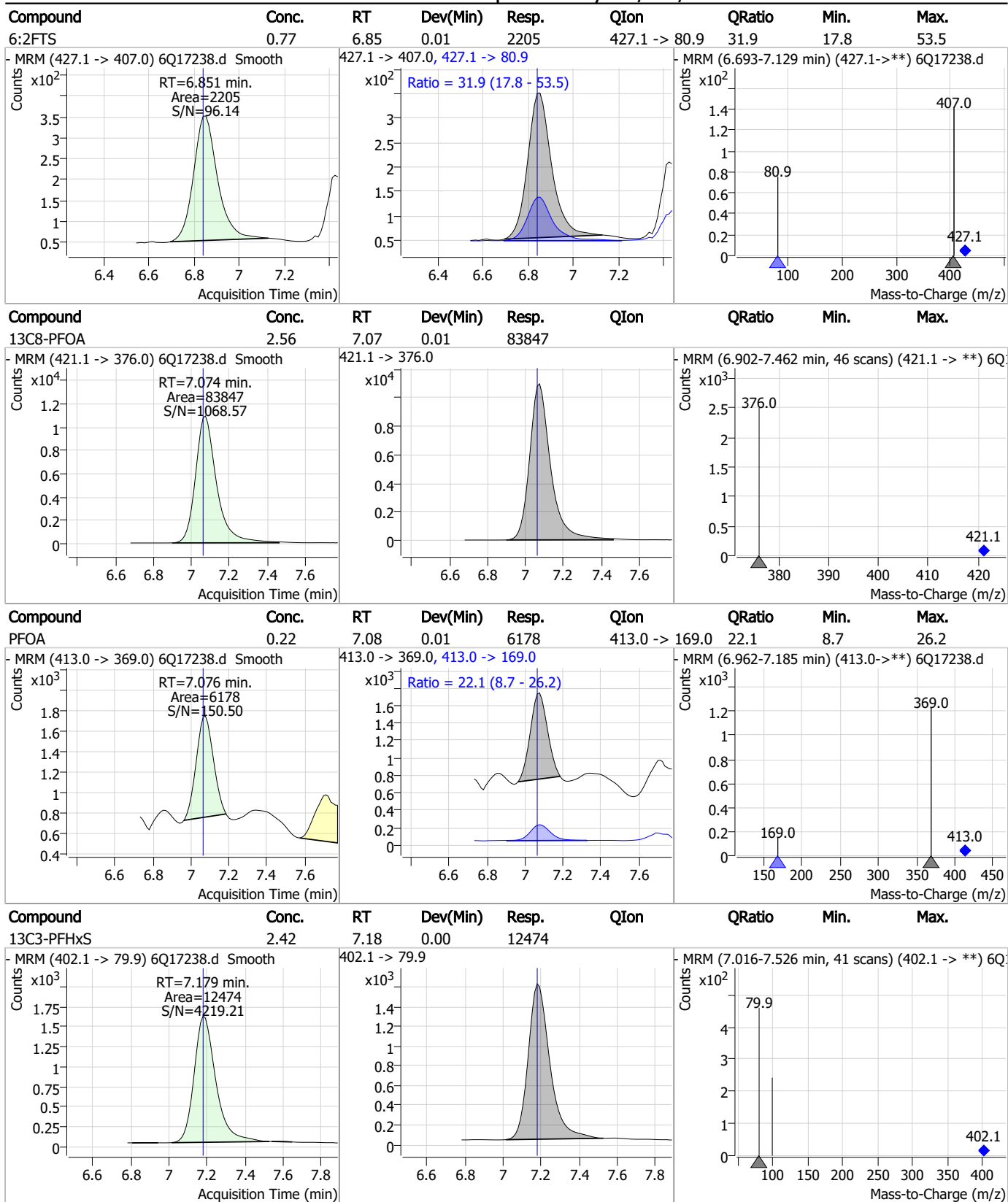
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Perfluorinated Compounds by LC/MS/MS



7.6.20 7

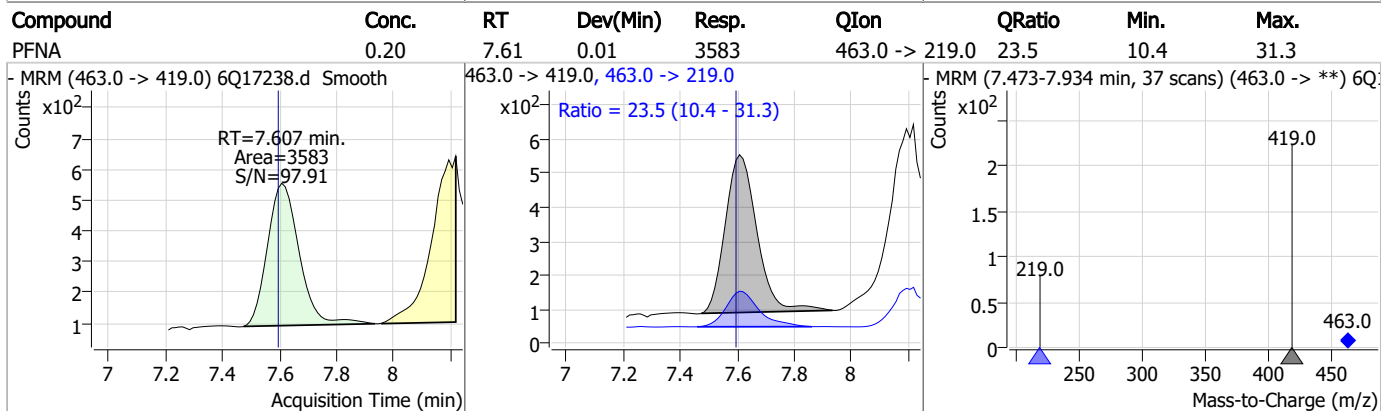
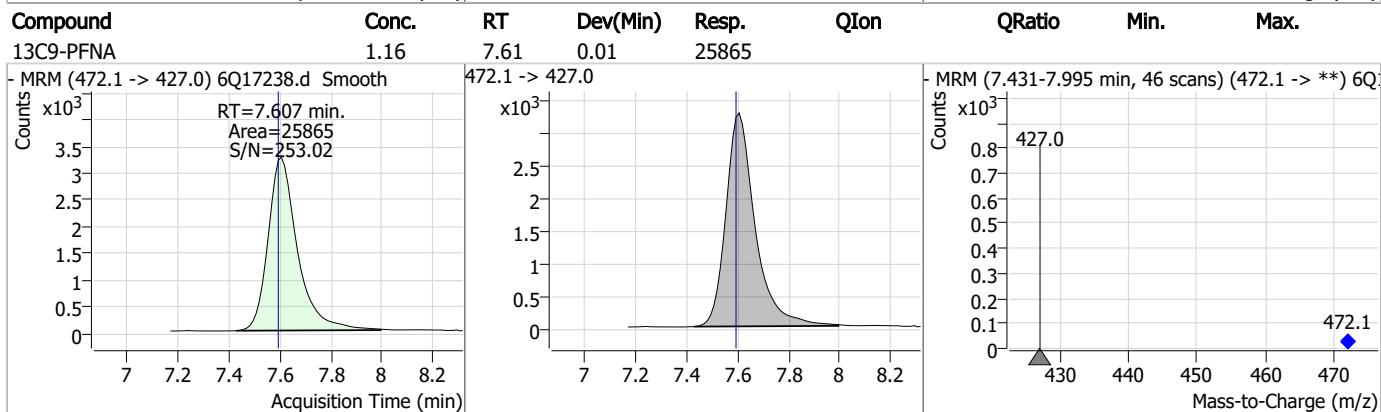
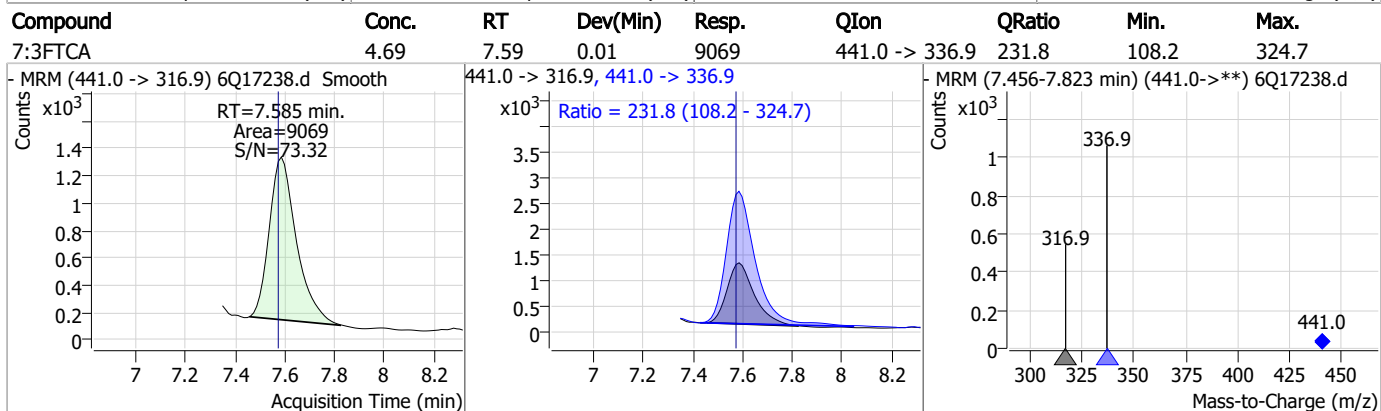
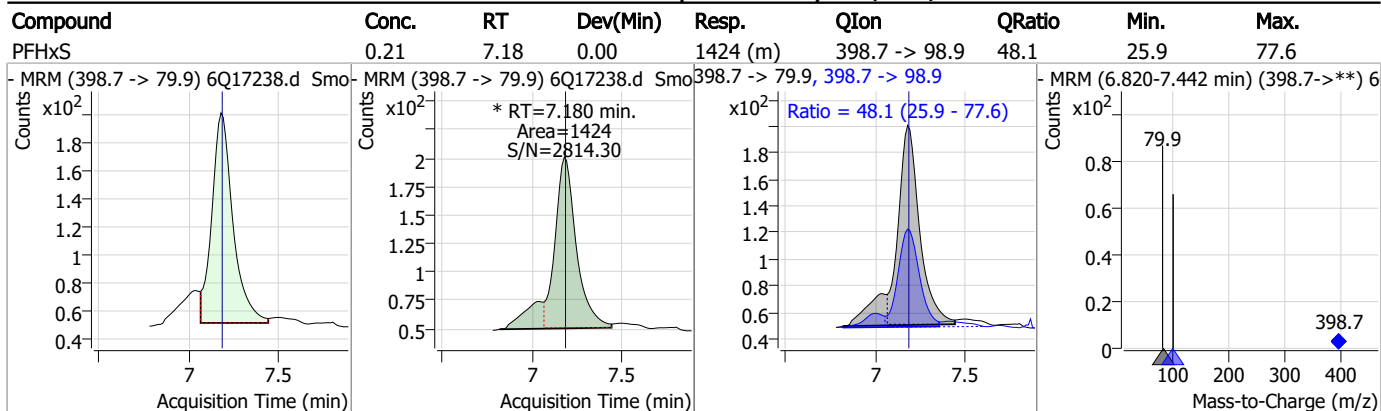
Perfluorinated Compounds by LC/MS/MS



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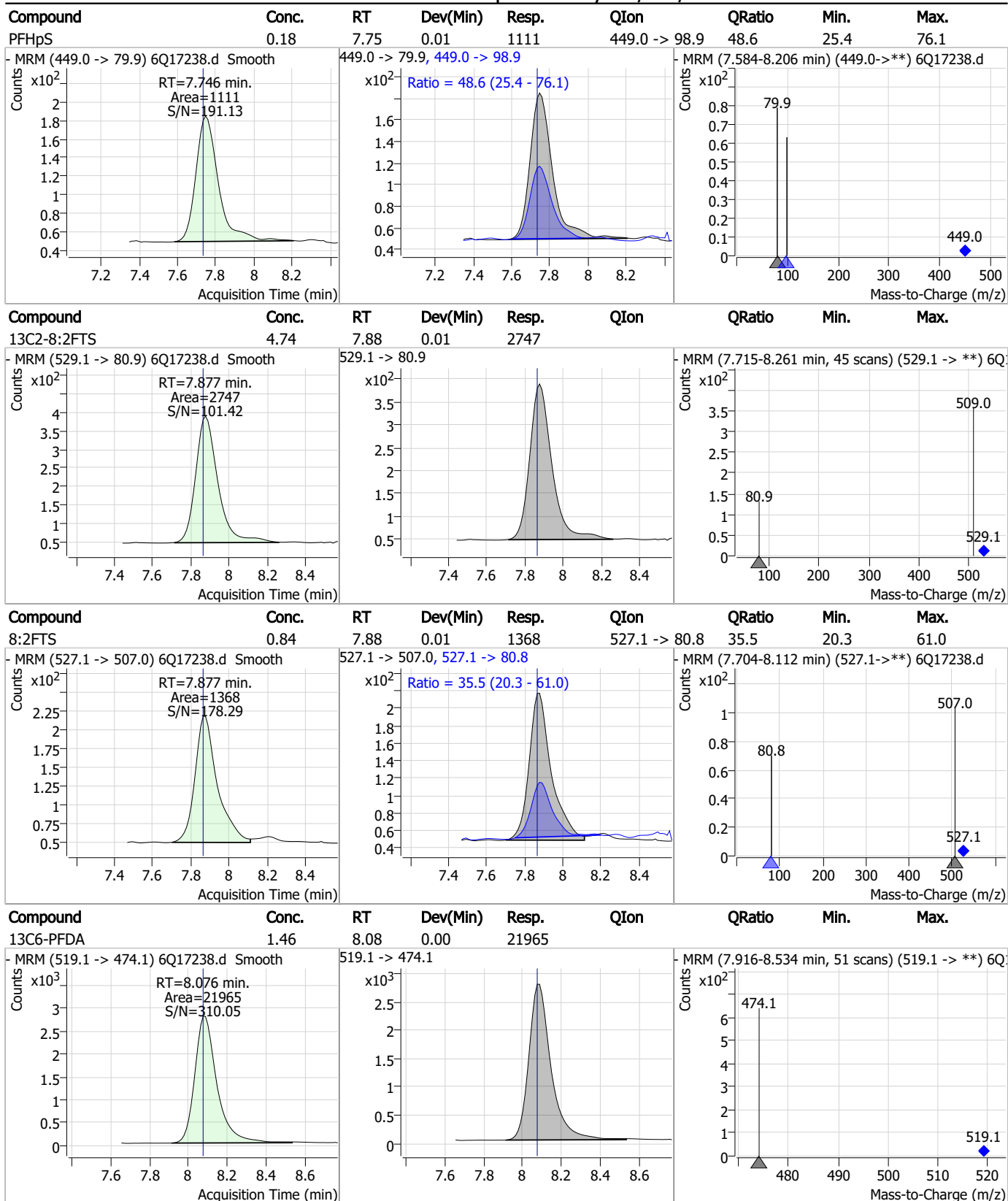
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

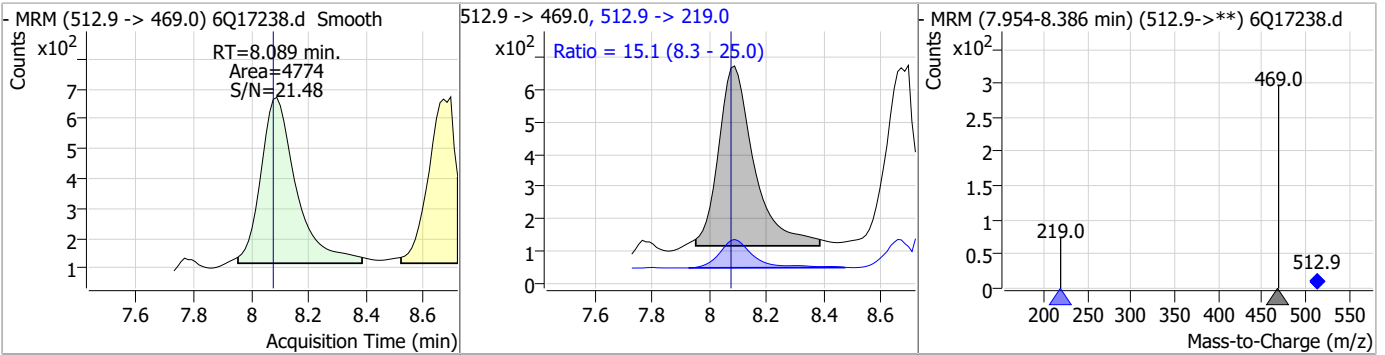


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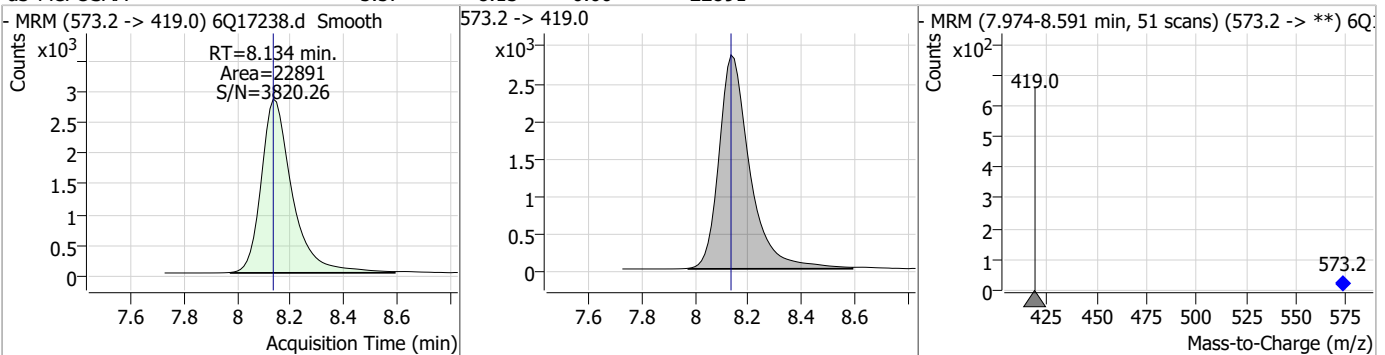
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Perfluorinated Compounds by LC/MS/MS

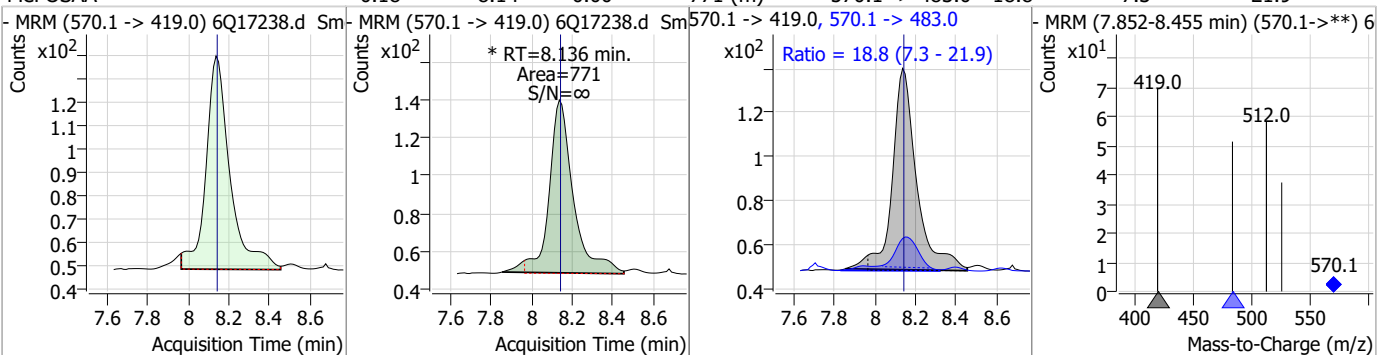
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.20	8.09	0.01	4774	512.9 -> 219.0	15.1	8.3	25.0



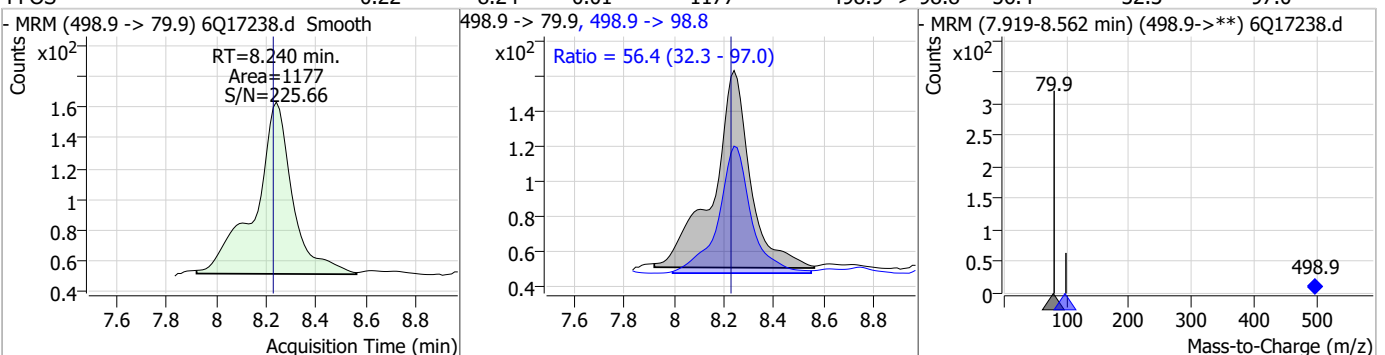
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.57	8.13	0.00	22891				



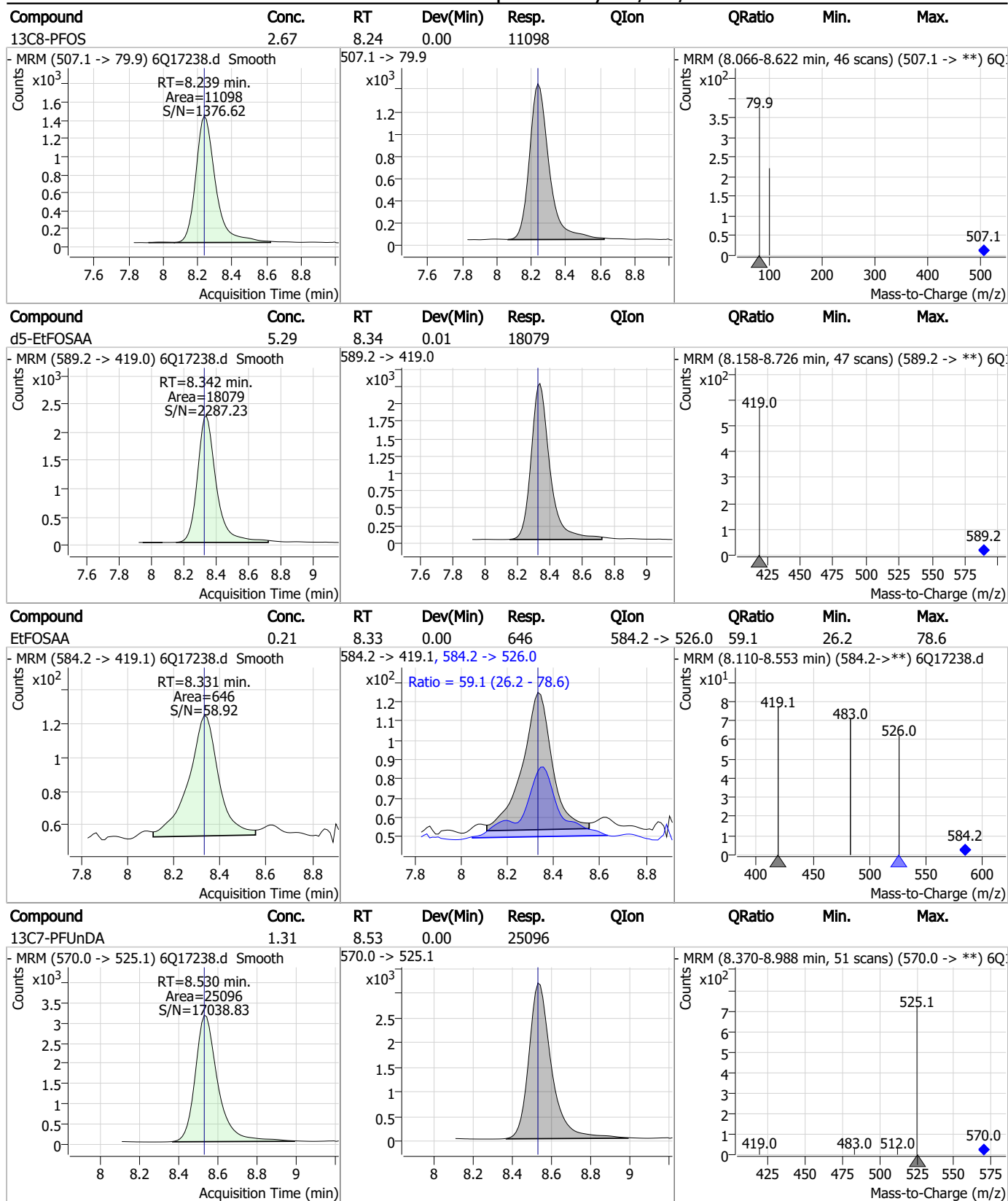
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.18	8.14	0.00	771 (m)	570.1 -> 483.0	18.8	7.3	21.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.22	8.24	0.01	1177	498.9 -> 98.8	56.4	32.3	97.0



Perfluorinated Compounds by LC/MS/MS

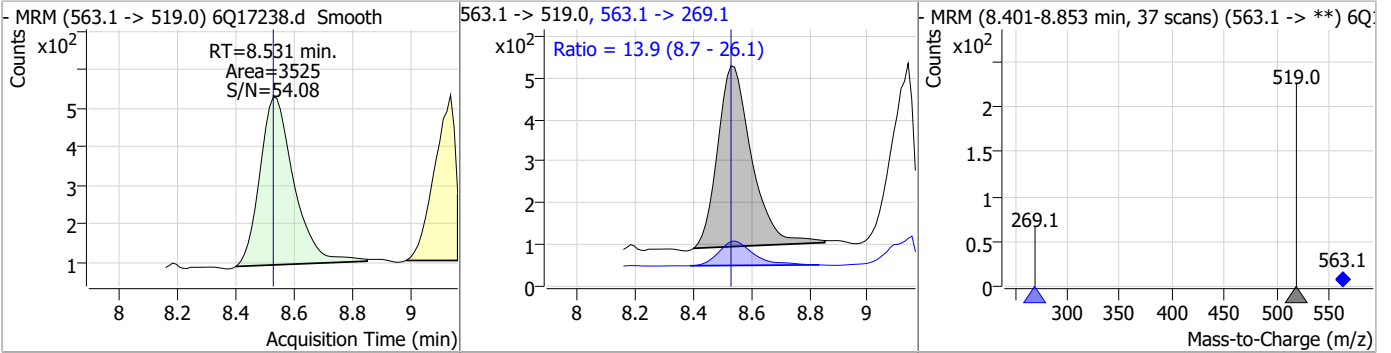


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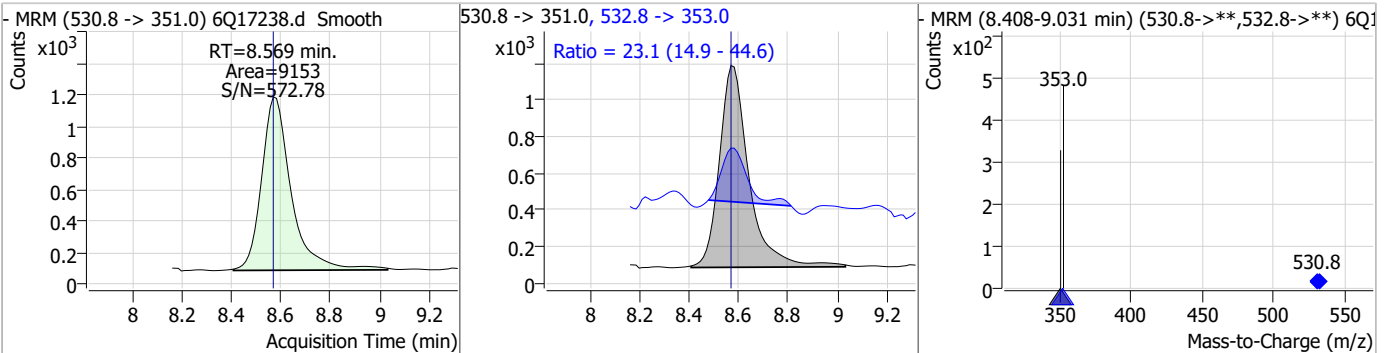
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Perfluorinated Compounds by LC/MS/MS

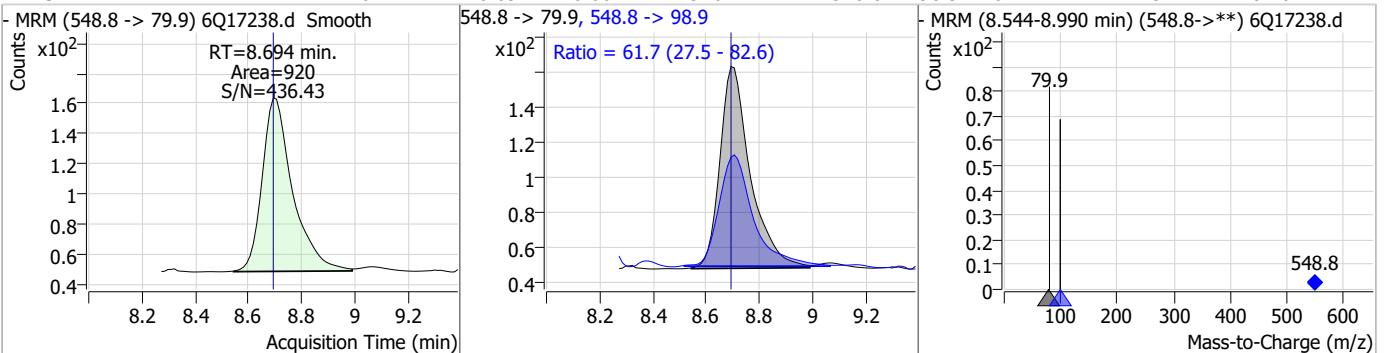
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.20	8.53	0.00	3525	563.1 -> 269.1	13.9	8.7	26.1



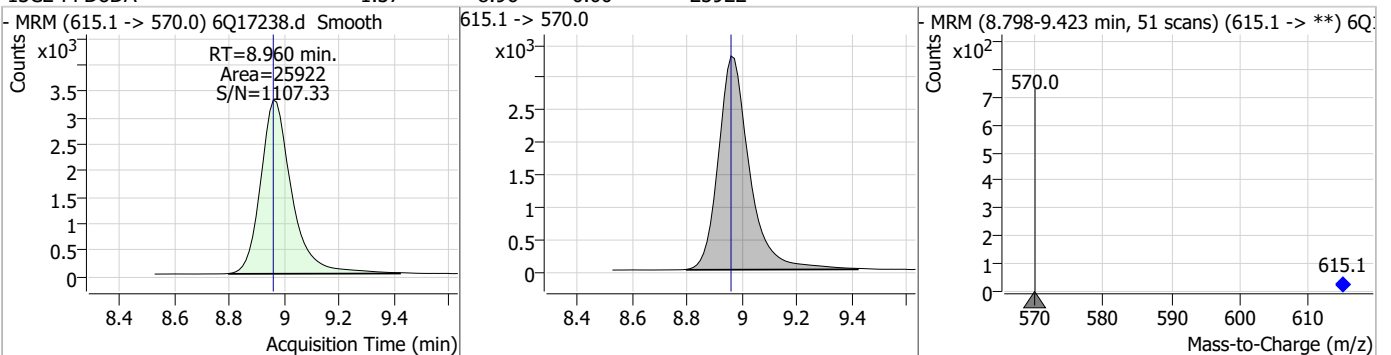
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	0.43	8.57	0.00	9153	532.8 -> 353.0	23.1	14.9	44.6



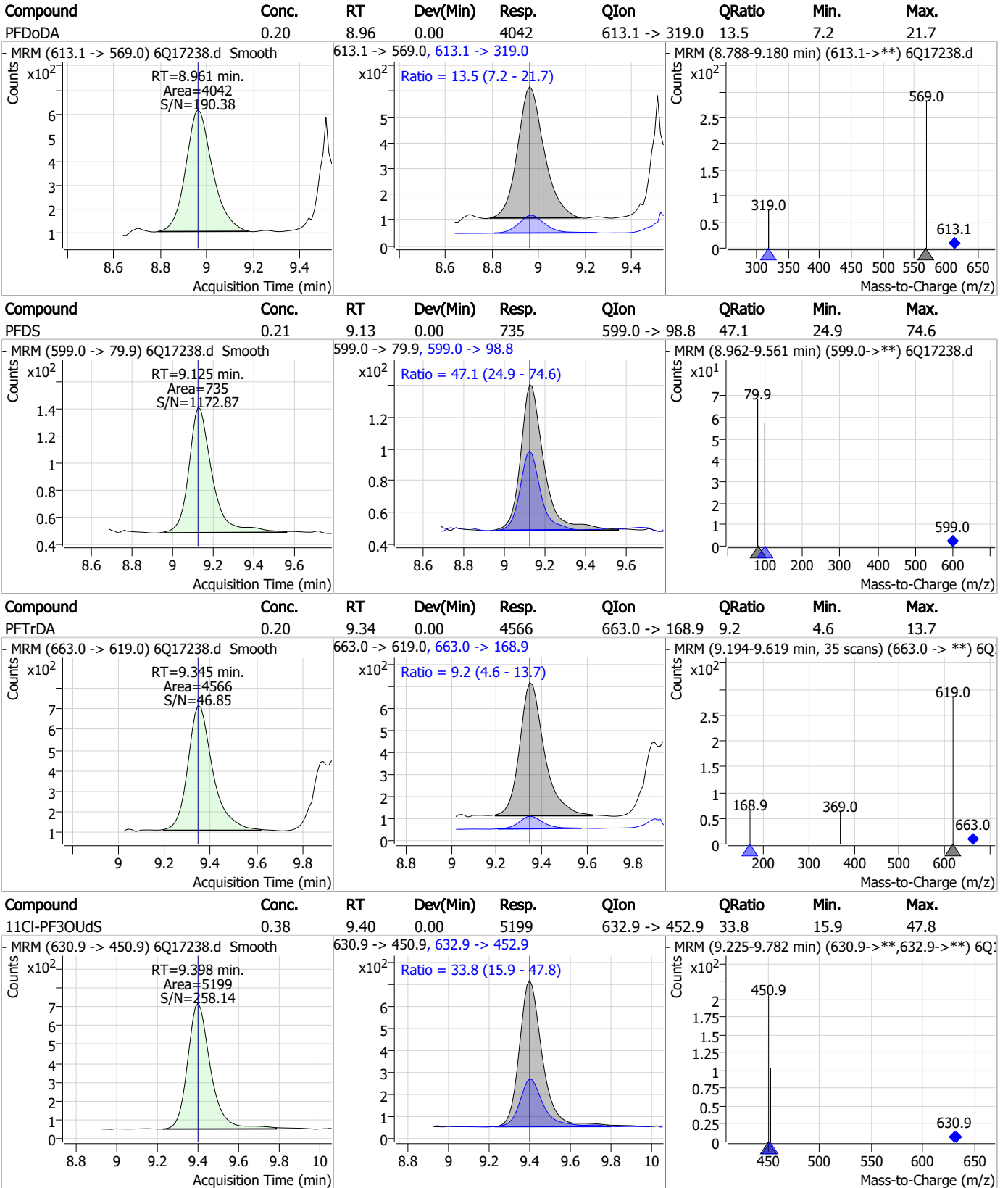
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	0.17	8.69	0.00	920	548.8 -> 98.9	61.7	27.5	82.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.37	8.96	0.00	25922	615.1 -> 570.0			



Perfluorinated Compounds by LC/MS/MS

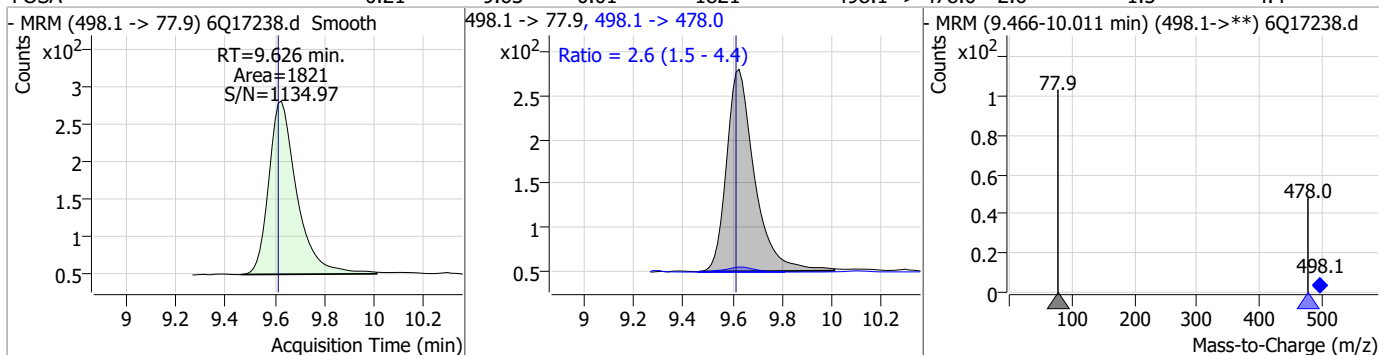


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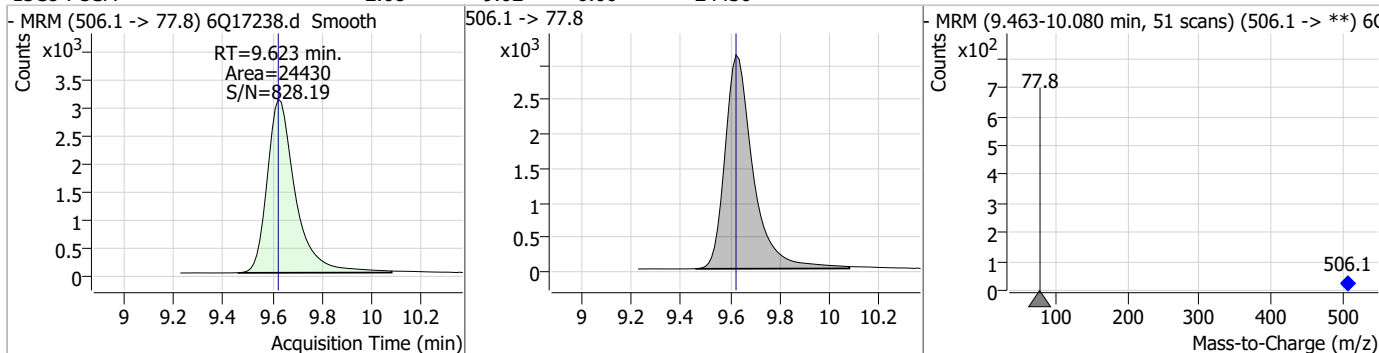


Perfluorinated Compounds by LC/MS/MS

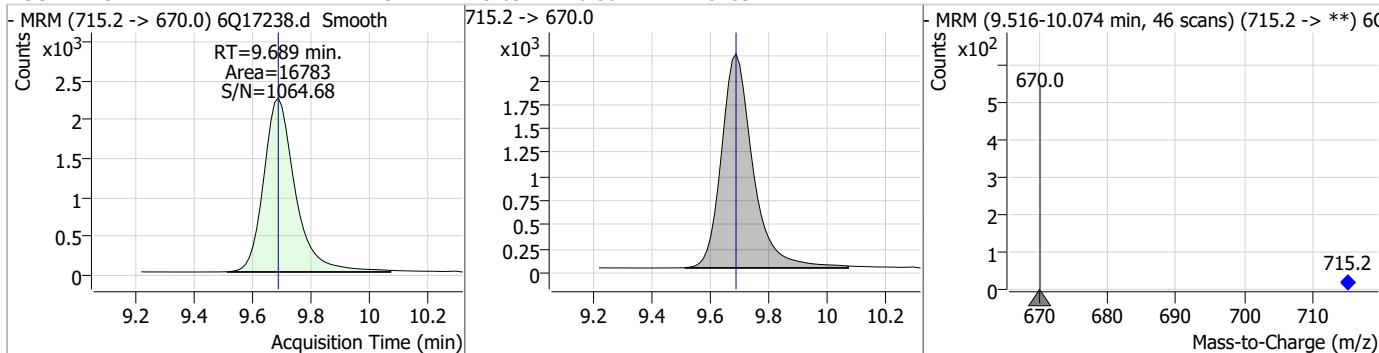
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.21	9.63	0.01	1821	498.1 -> 478.0	2.6	1.5	4.4



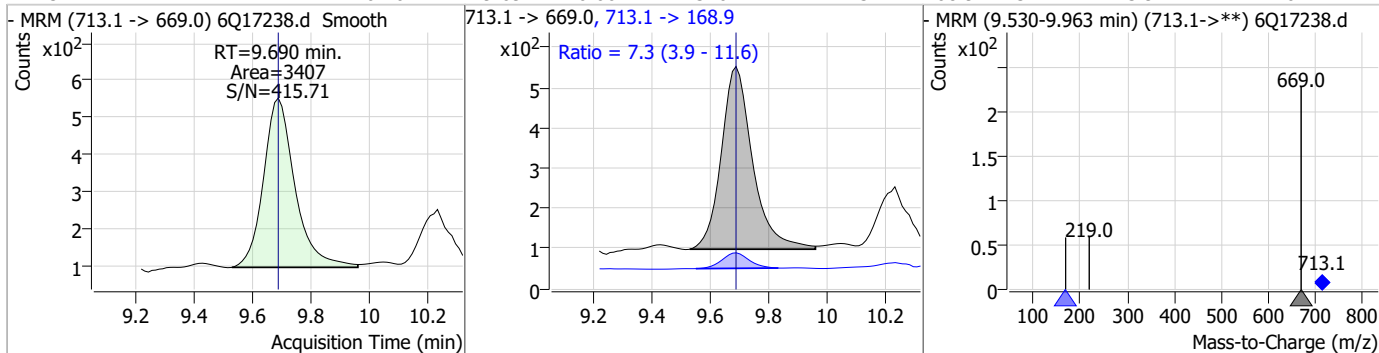
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.68	9.62	0.00	24430				



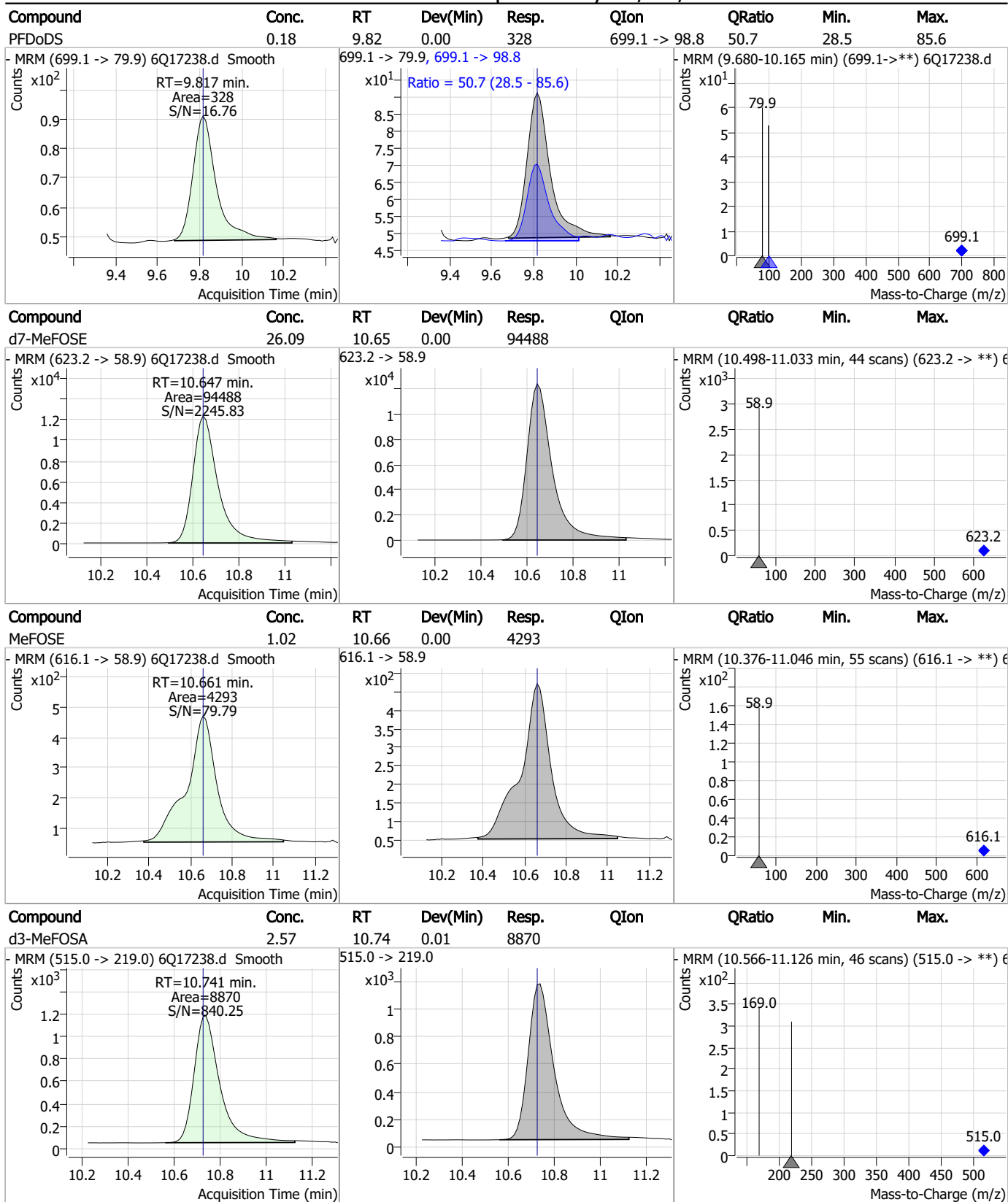
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.31	9.69	0.00	16783				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.20	9.69	0.00	3407	713.1 -> 168.9	7.3	3.9	11.6



Perfluorinated Compounds by LC/MS/MS

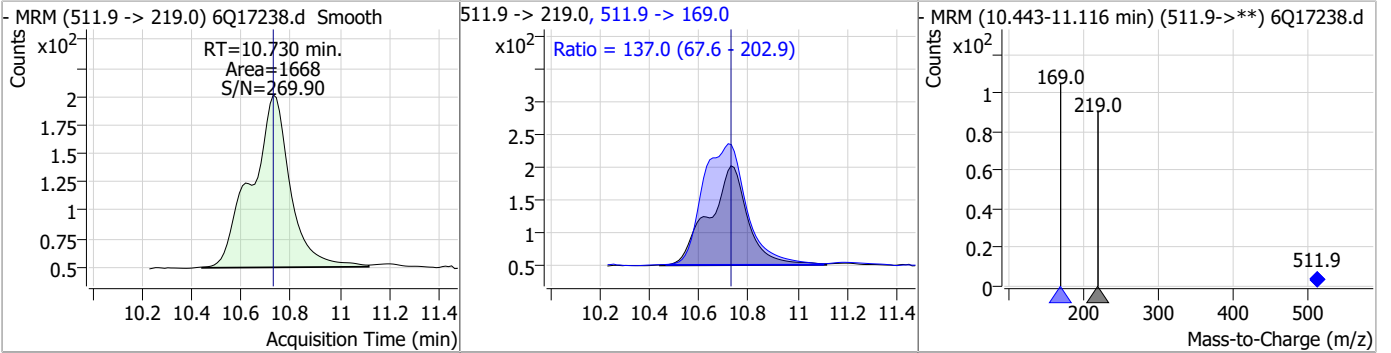


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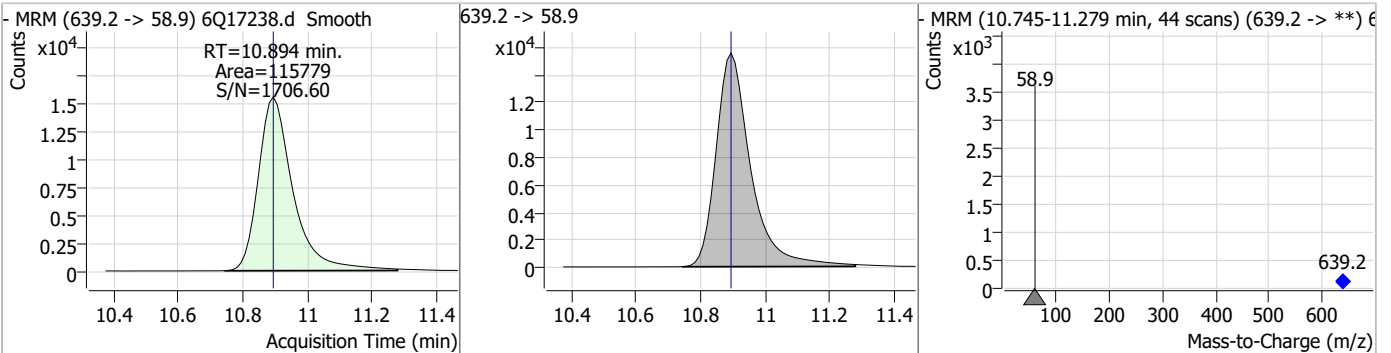
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Perfluorinated Compounds by LC/MS/MS

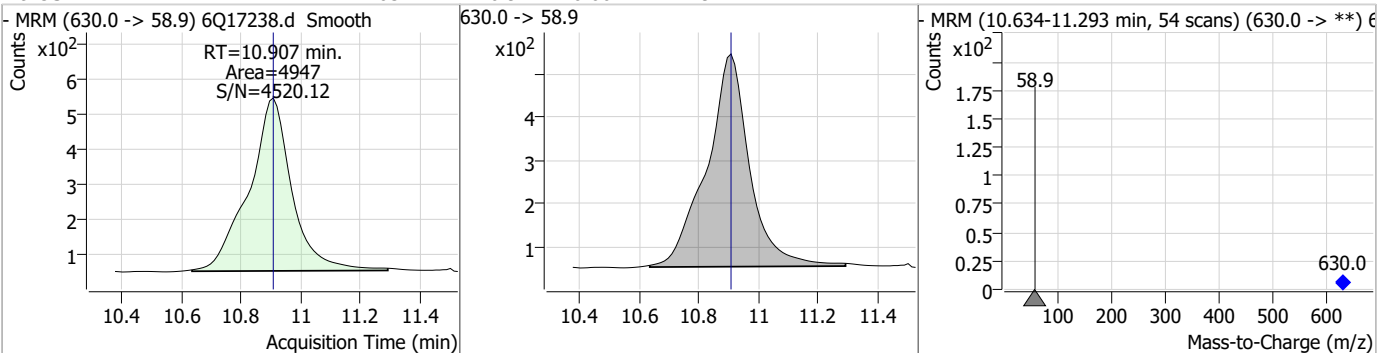
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.42	10.73	0.00	1668	511.9 -> 169.0	137.0	67.6	202.9



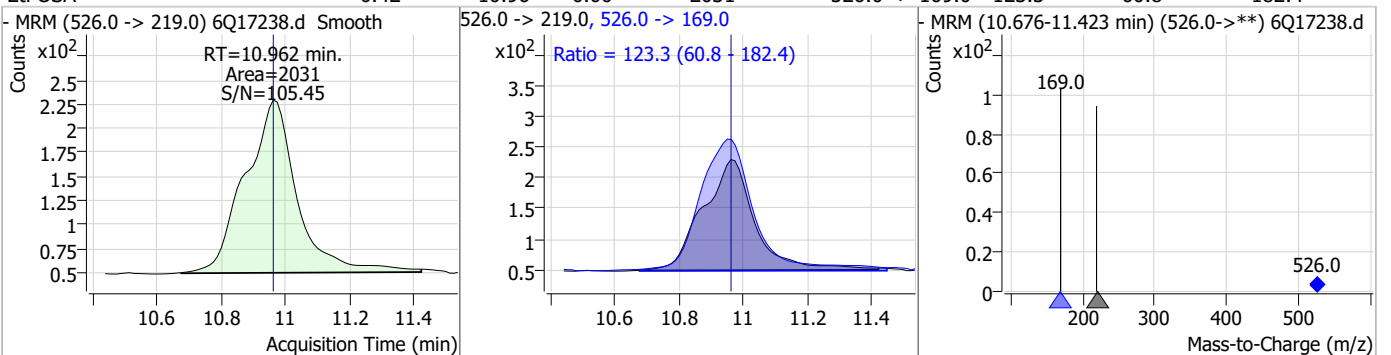
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.16	10.89	0.00	115779				



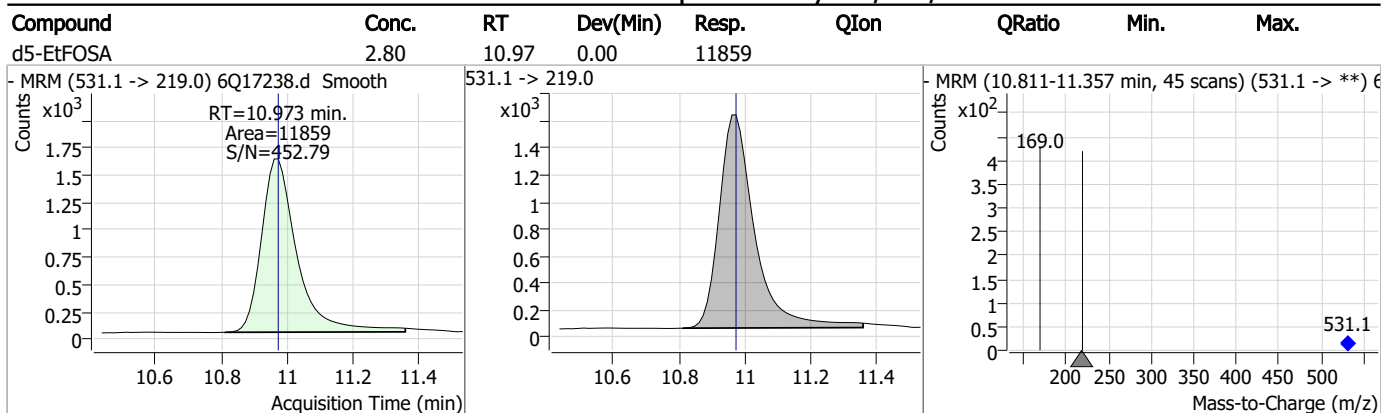
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	1.03	10.91	0.00	4947				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	0.42	10.96	0.00	2031	526.0 -> 169.0	123.3	60.8	182.4



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q260-CC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17238.D Analyst approved: 05/02/23 13:38 Martha Valls
Injection Time: 05/01/23 14:45 Supervisor approved: 05/02/23 15:59 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
MeFOSAA	2355-31-9		8.14	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17249.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/1/2023 5:25:07 PM
 Sample Name : cc258-4
 Vial : P1-A5
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q260.batch.bin
 Sample Information : OP96301,S6Q260,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	177638	10.00 µg/L	0.012
M5-PFPeA	4.283	268.3 -> 223.0	59063	5.00 µg/L	0.012
M5-PFHxA	5.480	318.0 -> 273.0	66328	2.50 µg/L	0.012
M4-PFHpA	6.431	367.1 -> 322.0	54974	2.50 µg/L	0.012
M8-PFOA	7.074	421.1 -> 376.0	80074	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	27362	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	19717	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	24155	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	24051	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	15968	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	23802	2.50 µg/L	0.000
M3-PFBS	5.411	302.1 -> 79.9	21803	2.50 µg/L	0.012
M3-PFHxS	7.179	402.1 -> 79.9	12239	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	11206	2.50 µg/L	-0.012
M2-4:2FTS	5.157	329.1 -> 80.9	2241	5.00 µg/L	0.012
M2-6:2FTS	6.851	429.1 -> 80.9	2707	5.00 µg/L	0.012
M2-8:2FTS	7.864	529.1 -> 80.9	2966	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	23175	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	38454	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	18719	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	93721	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	113402	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	11056	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	8458	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	14071	2.50 µg/L	-0.012
13C3-PFBA	2.914	216.0 -> 172.0	76052	5.00 µg/L	0.012
18O2-PFHxS	7.190	403.0 -> 83.9	9061	2.50 µg/L	0.012
13C4-PFOA	7.075	417.1 -> 372.0	83926	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	22685	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	27255	1.25 µg/L	0.000
13C2-PFHxA	5.482	315.1 -> 270.0	53407	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.157	329.1 -> 80.9	2241	5.38 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.6%		
13C2-6:2FTS	6.851	429.1 -> 80.9	2707	5.35 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.1%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2966	5.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.1%		
13C2-PFDoDA	8.960	615.1 -> 570.0	24051	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C2-PFTeDA	9.689	715.2 -> 670.0	15968	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C3-PFBS	5.411	302.1 -> 79.9	21803	2.56 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.3%		
13C3-PFHxS	7.179	402.1 -> 79.9	12239	2.54 µg/L	0.000

7.6.21
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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 = 101.5%	
13C4-PFBA	2.910	216.8 -> 171.9	177638	10.11 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C4-PFHpA	6.431	367.1 -> 322.0	54974	2.52 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C5-PFHxA	5.480	318.0 -> 273.0	66328	2.57 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C5-PFPeA	4.283	268.3 -> 223.0	59063	4.95 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C6-PFDA	8.076	519.1 -> 474.1	19717	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C7-PFUnDA	8.530	570.0 -> 525.1	24155	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C8-FOSA	9.623	506.1 -> 77.8	23802	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C8-PFOA	7.074	421.1 -> 376.0	80074	2.47 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C8-PFOS	8.226	507.1 -> 79.9	11206	2.64 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.7%	
13C9-PFNA	7.594	472.1 -> 427.0	27362	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.3%	
d3-MeFOSAA	8.134	573.2 -> 419.0	23175	5.53 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.5%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	38454	10.17 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.7%	
d3-MeFOSA	10.728	515.0 -> 219.0	8458	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.3%	
d5-EtFOSAA	8.330	589.2 -> 419.0	18719	5.37 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.4%	
d7-MeFOSE	10.647	623.2 -> 58.9	93721	25.38 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
d9-EtFOSE	10.894	639.2 -> 58.9	113402	25.13 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
d5-EtFOSA	10.960	531.1 -> 219.0	11056	2.56 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.5%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	29524	8.71 µg/L	99
		327.1 -> 80.9	11157		
6:2FTS	6.851	427.1 -> 407.0	27243	9.15 µg/L	95
		427.1 -> 80.9	8971		
8:2FTS	7.865	527.1 -> 507.0	15875	8.99 µg/L	98
		527.1 -> 80.8	6247		
EtFOSAA	8.343	584.2 -> 419.1	7542	2.37 µg/L	99
		584.2 -> 526.0	3910		
FOSA	9.626	498.1 -> 77.9	21144	2.48 µg/L	99
		498.1 -> 478.0	668		
MeFOSAA	8.136	570.1 -> 419.0	10104	2.32 µg/L	90
		570.1 -> 483.0	1893		
PFBA	2.906	212.8 -> 168.9	61580	10.34 µg/L	100
PFBS	5.412	298.7 -> 79.9	22239	2.27 µg/L	96
		298.7 -> 98.8	8647		
PFDA	8.077	512.9 -> 469.0	59338	2.77 µg/L	99
		512.9 -> 219.0	9696		
PFDODA	8.961	613.1 -> 569.0	44138	2.34 µg/L	99
		613.1 -> 319.0	6642		
PFDS	9.125	599.0 -> 79.9	8768	2.46 µg/L	95

7.6.21
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.432	599.0 -> 98.8	4068	2.65	µg/L	98
		363.1 -> 319.0	71809			
PFHpS	7.734	363.1 -> 169.0	11132	2.28	µg/L	98
		449.0 -> 79.9	13823			
PFHxA	5.483	449.0 -> 98.9	7233	2.38	µg/L	100
		313.0 -> 269.0	62375			
PFHxS	7.192	313.0 -> 118.9	2949	2.35	µg/L	96
		398.7 -> 79.9	15694			
PFNA	7.595	398.7 -> 98.9	7670	2.34	µg/L	100
		463.0 -> 419.0	44205			
PFNS	8.694	463.0 -> 219.0	9162	2.42	µg/L	98
		548.8 -> 79.9	13106			
PFOA	7.076	548.8 -> 98.9	7042	2.32	µg/L	96
		413.0 -> 369.0	87076			
PFOS	8.228	413.0 -> 169.0	16731	2.32	µg/L	86
		498.9 -> 79.9	12574			
PFPeA	4.285	498.9 -> 98.8	6764	5.11	µg/L	100
		263.0 -> 219.0	82191			
PFPeS	6.484	349.1 -> 79.9	16217	2.33	µg/L	97
		349.1 -> 98.9	7574			
PFTeDA	9.677	713.1 -> 669.0	41805	2.59	µg/L	99
		713.1 -> 168.9	3346			
PFTrDA	9.345	663.0 -> 619.0	56593	2.71	µg/L	97
		663.0 -> 168.9	4686			
PFUnDA	8.531	563.1 -> 519.0	46170	2.76	µg/L	95
		563.1 -> 269.1	7029			
11CI-PF3OUdS	9.385	630.9 -> 450.9	67833	5.14	µg/L	94
		632.9 -> 452.9	19401			
9CI-PF3ONS	8.569	530.8 -> 351.0	101627	4.87	µg/L	89
		532.8 -> 353.0	36479			
ADONA	6.681	376.9 -> 250.9	287186	4.94	µg/L	100
		376.9 -> 84.8	74860			
HFPO-DA	5.846	284.9 -> 168.9	18472	5.07	µg/L	97
		284.9 -> 184.9	2338			
3:3FTCA	3.784	241.0 -> 177.0	12684	12.61	µg/L	98
		241.0 -> 117.0	1561			
5:3FTCA	6.172	341.0 -> 237.1	269130	63.41	µg/L	97
		341.0 -> 217.0	186376			
7:3FTCA	7.585	441.0 -> 316.9	117985	61.20	µg/L	97
		441.0 -> 336.9	260093			
EtFOSA	10.962	526.0 -> 219.0	22504	4.95	µg/L	96
		526.0 -> 169.0	28427			
EtFOSE	10.907	630.0 -> 58.9	60002	12.71	µg/L	100
		511.9 -> 219.0	19972			
MeFOSA	10.730	511.9 -> 169.0	27124	5.25	µg/L	100
		616.1 -> 58.9	52967			
MeFOSE	10.661	699.1 -> 79.9	4547	12.67	µg/L	100
		699.1 -> 98.8	2440			
PFDoDS	9.817	295.0 -> 201.0	14474	2.46	µg/L	95
		295.0 -> 84.9	3586			
NFDHA	5.363	279.0 -> 85.1	56311	5.09	µg/L	99
		229.0 -> 84.9	42116			
PFMBA	4.687	314.8 -> 134.9	148584	5.23	µg/L	100
		314.8 -> 82.9	5012			
PFMPA	3.438			4.49	µg/L	99
PFEESA	5.949					

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

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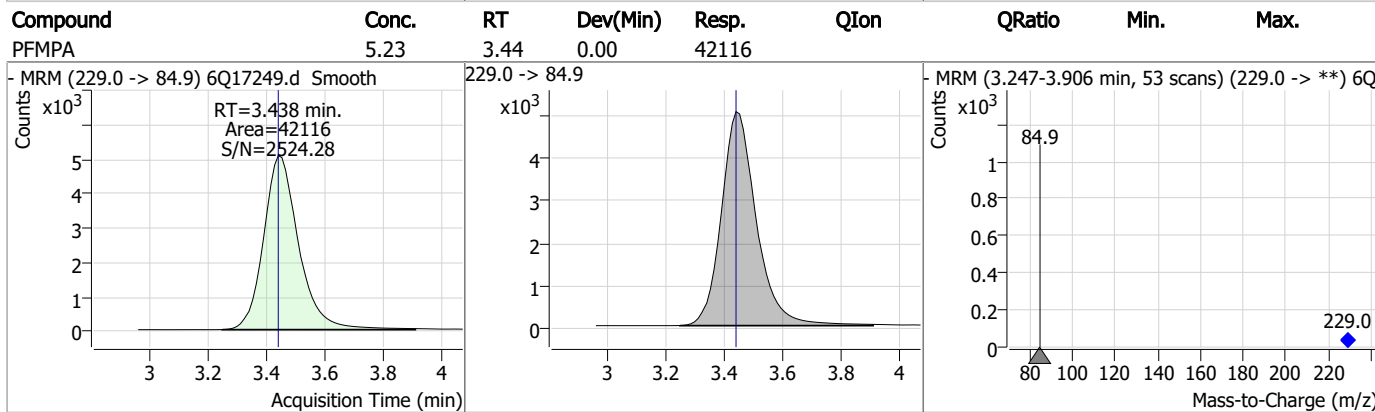
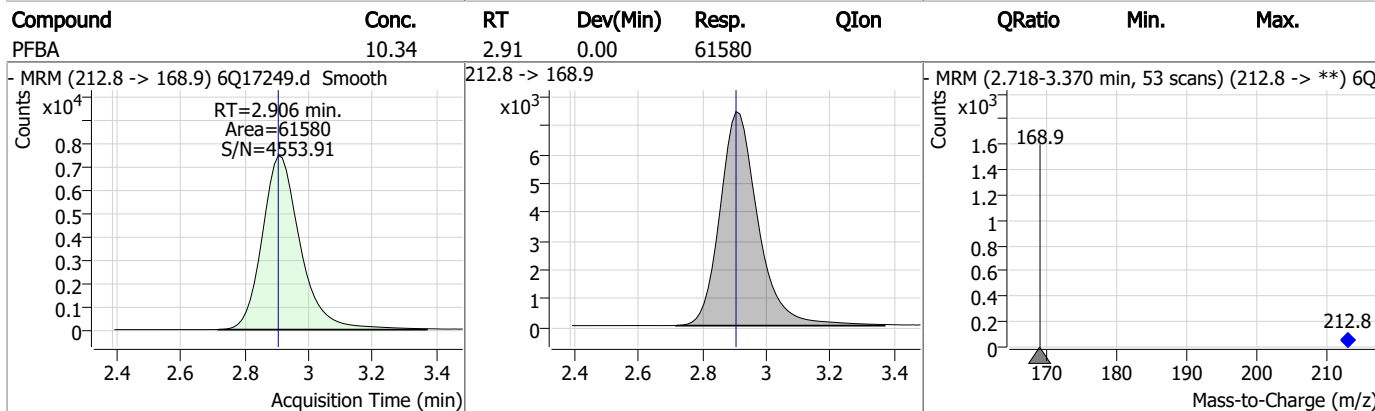
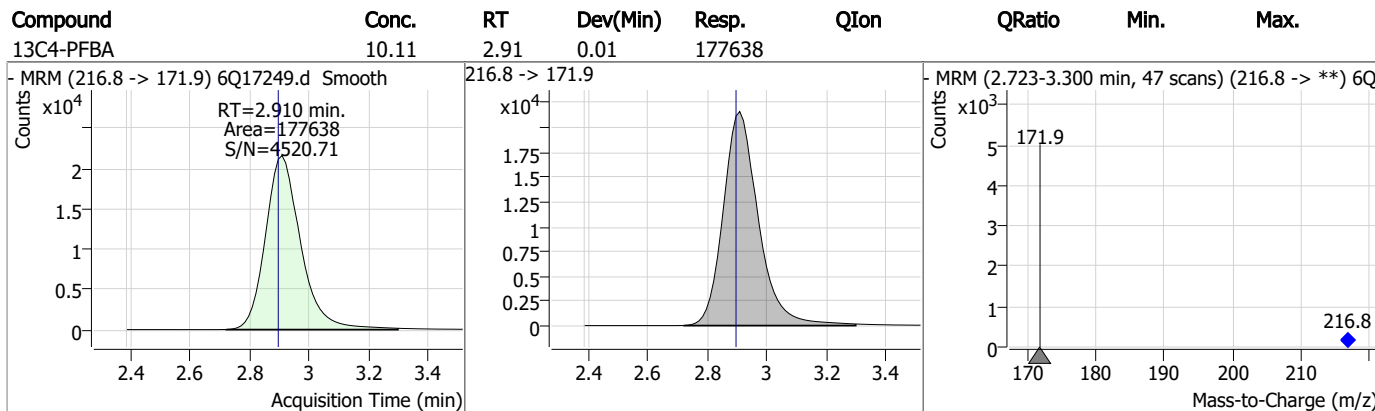
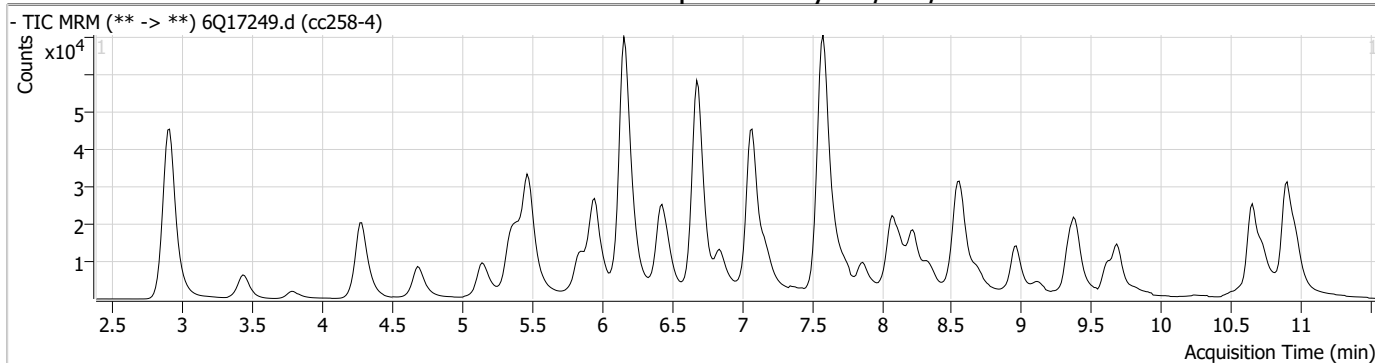
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.6.21

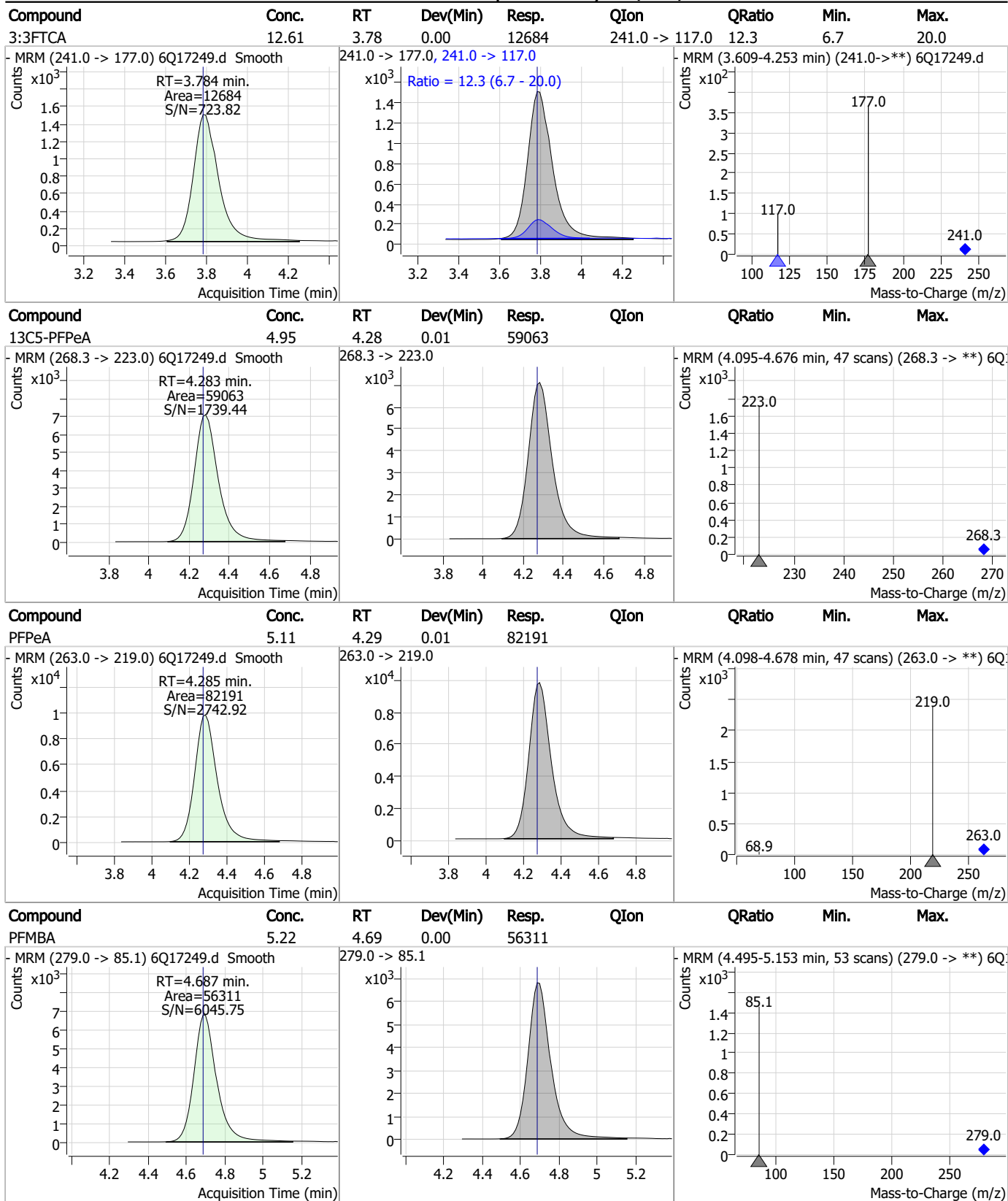
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Perfluorinated Compounds by LC/MS/MS



7.6.21
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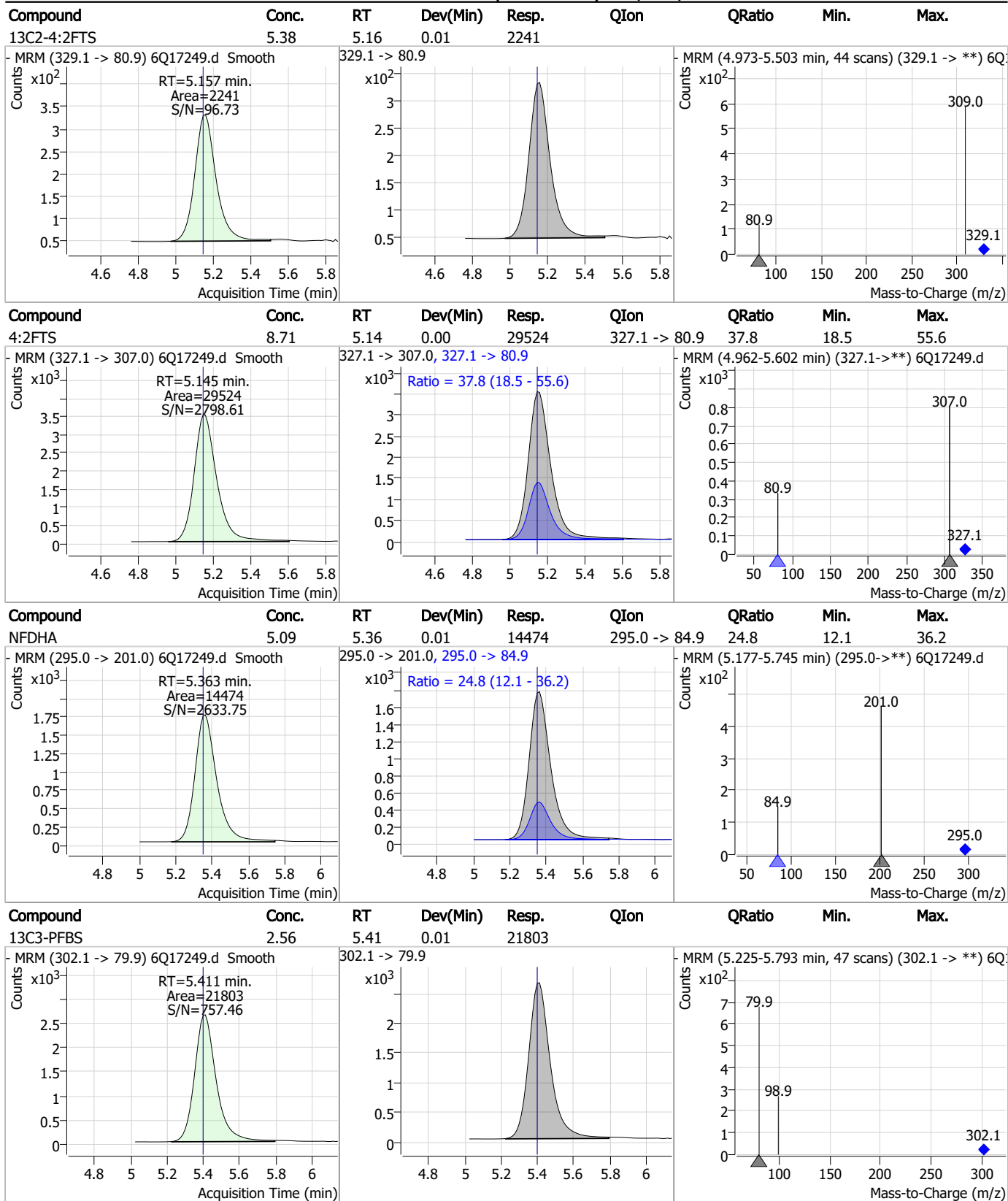
Perfluorinated Compounds by LC/MS/MS



7.6.21

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Perfluorinated Compounds by LC/MS/MS

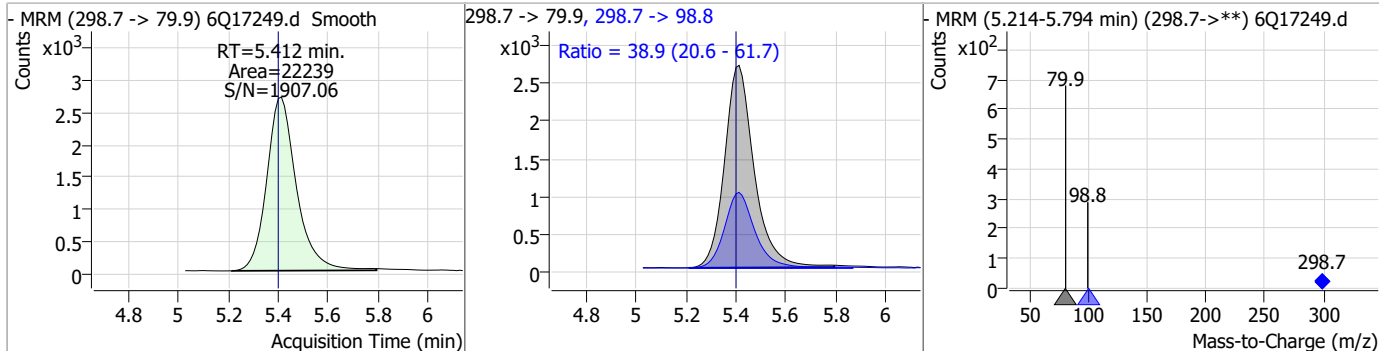


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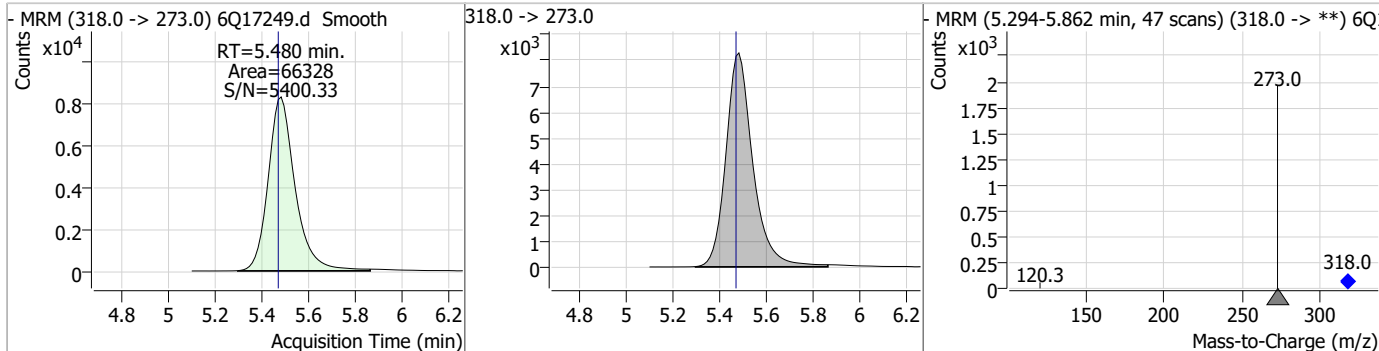
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Perfluorinated Compounds by LC/MS/MS

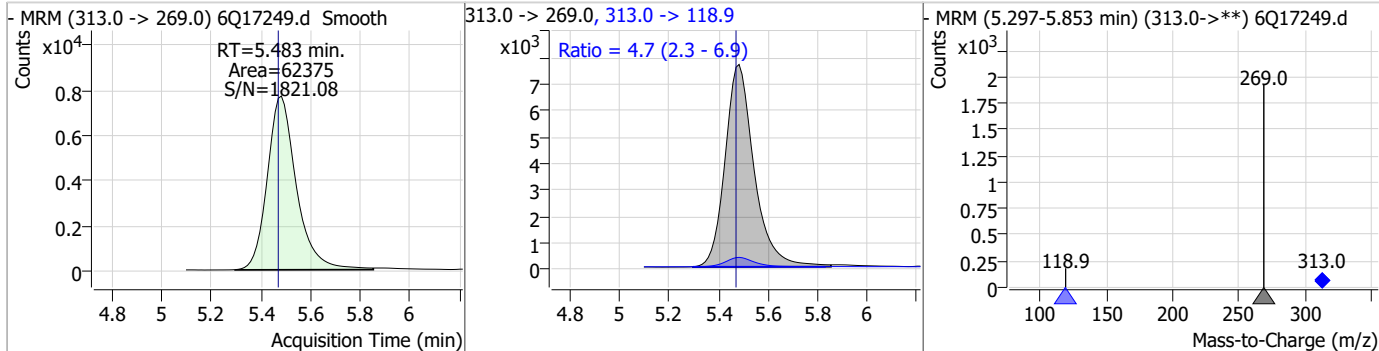
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.27	5.41	0.01	22239	298.7 -> 98.8	38.9	20.6	61.7



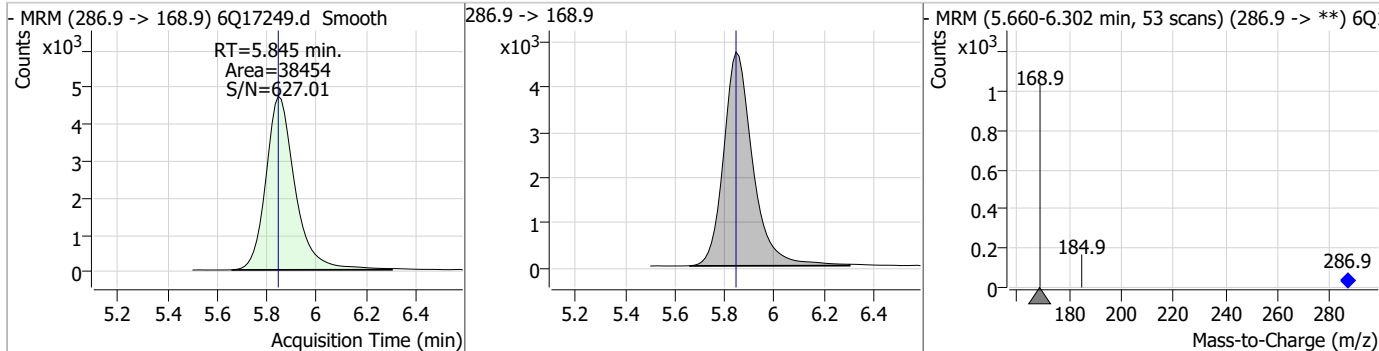
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.57	5.48	0.01	66328				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.38	5.48	0.01	62375	313.0 -> 118.9	4.7	2.3	6.9



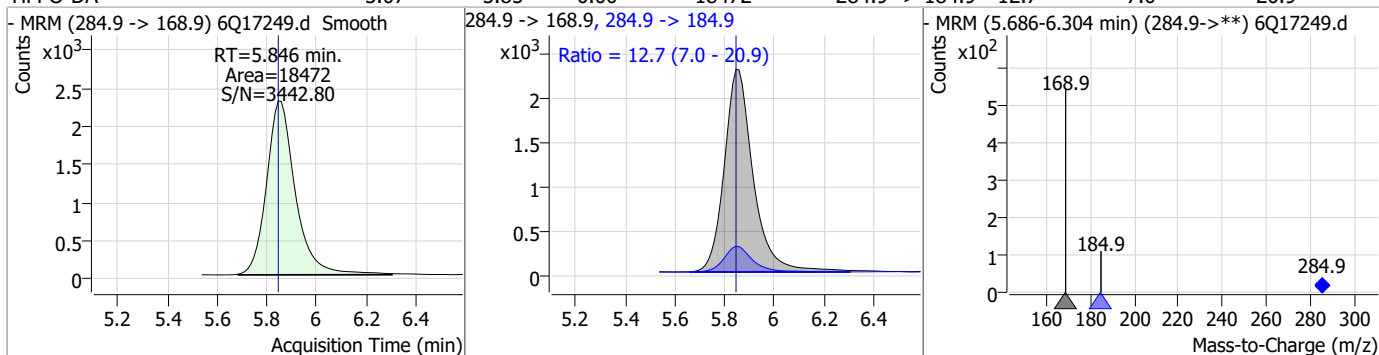
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.17	5.85	0.00	38454				



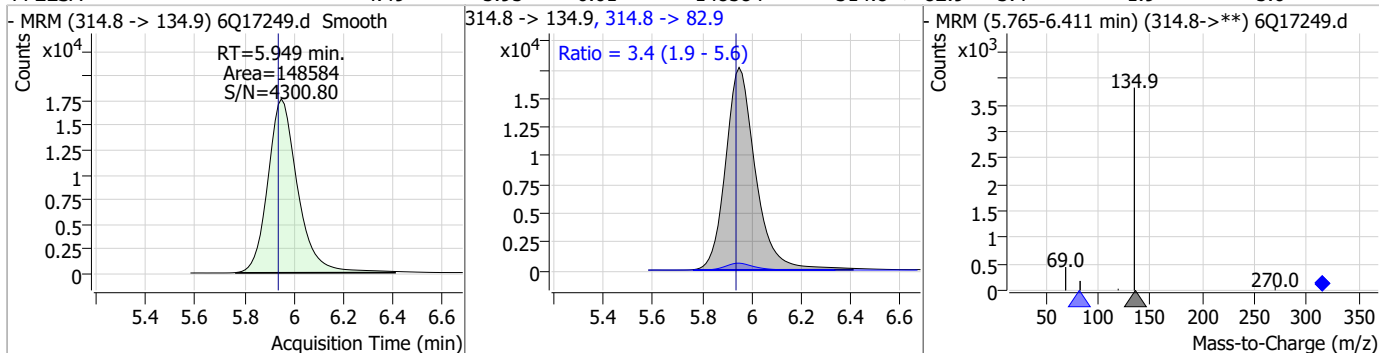
7.6.21
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Perfluorinated Compounds by LC/MS/MS

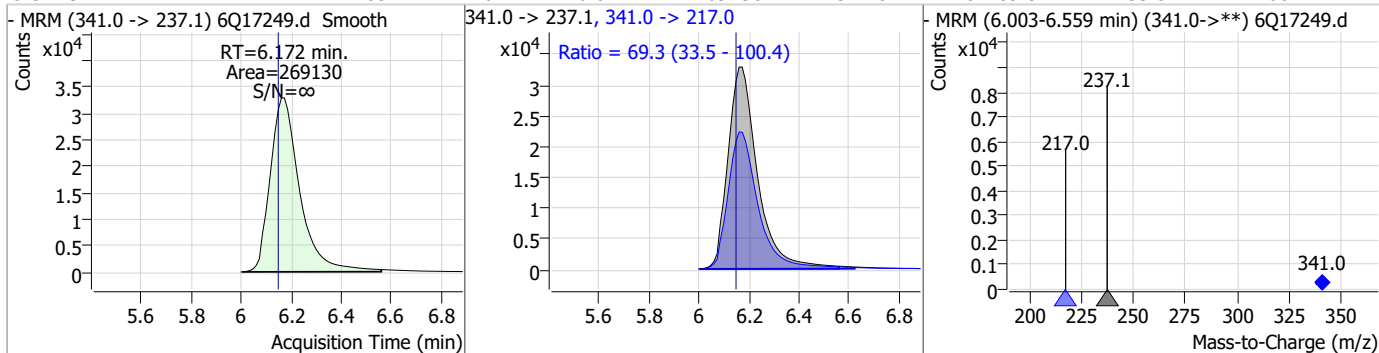
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.07	5.85	0.00	18472	284.9 -> 184.9	12.7	7.0	20.9



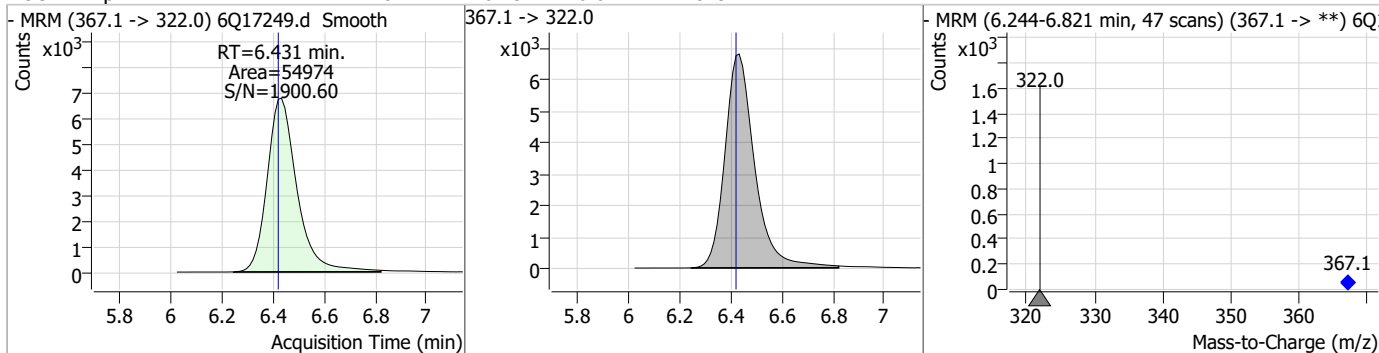
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.49	5.95	0.01	148584	314.8 -> 82.9	3.4	1.9	5.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	63.41	6.17	0.02	269130	341.0 -> 217.0	69.3	33.5	100.4

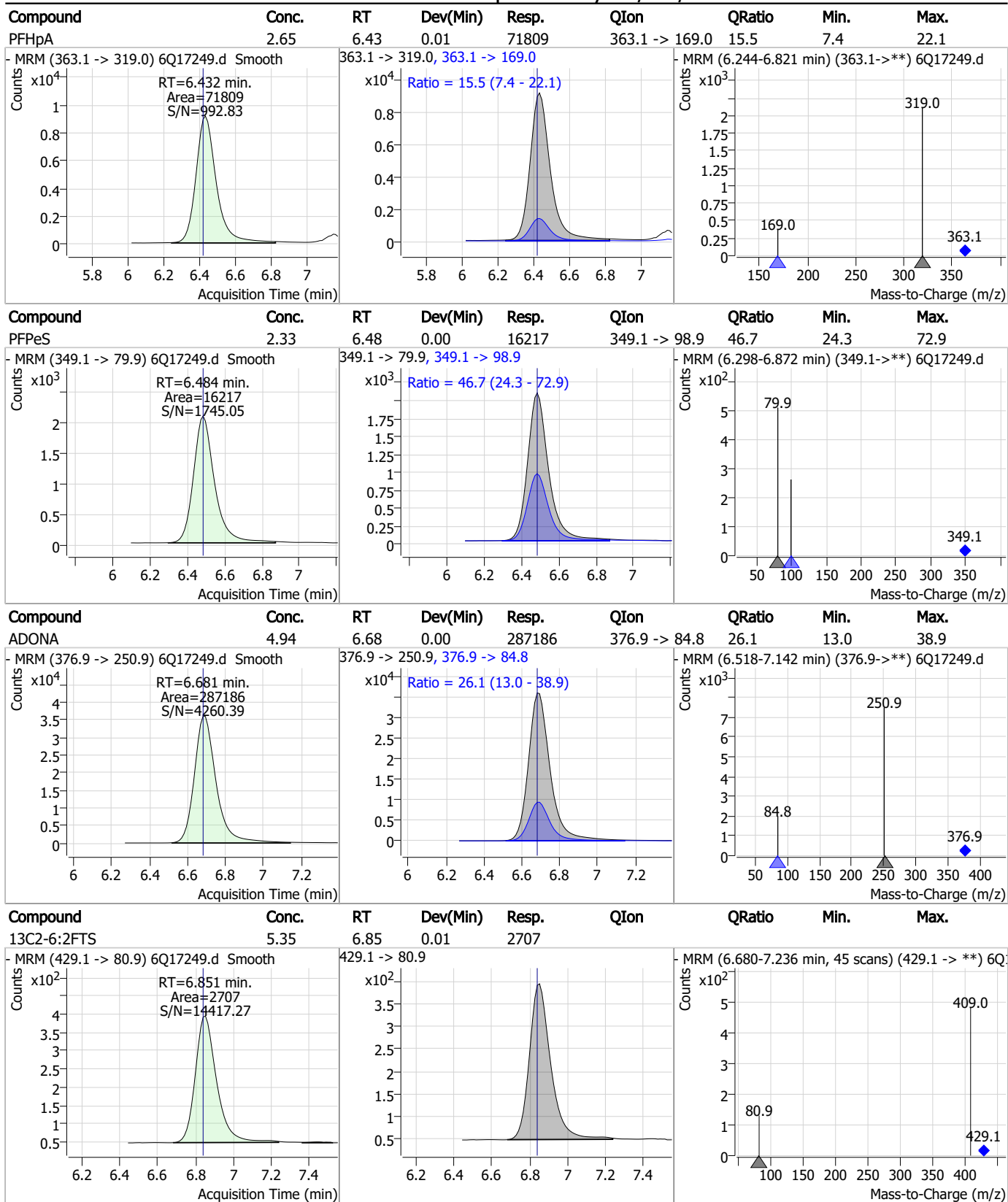


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.52	6.43	0.01	54974				



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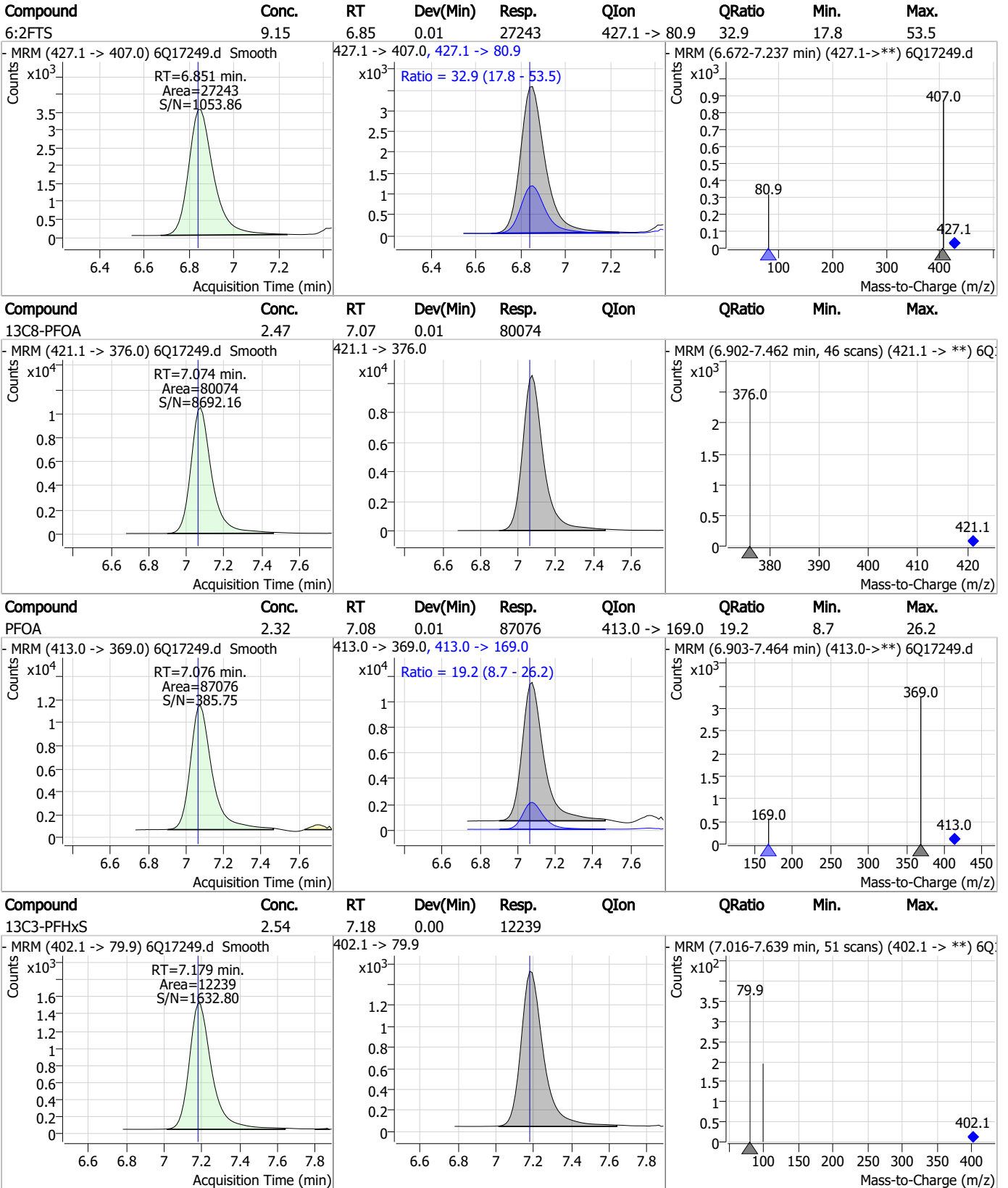
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

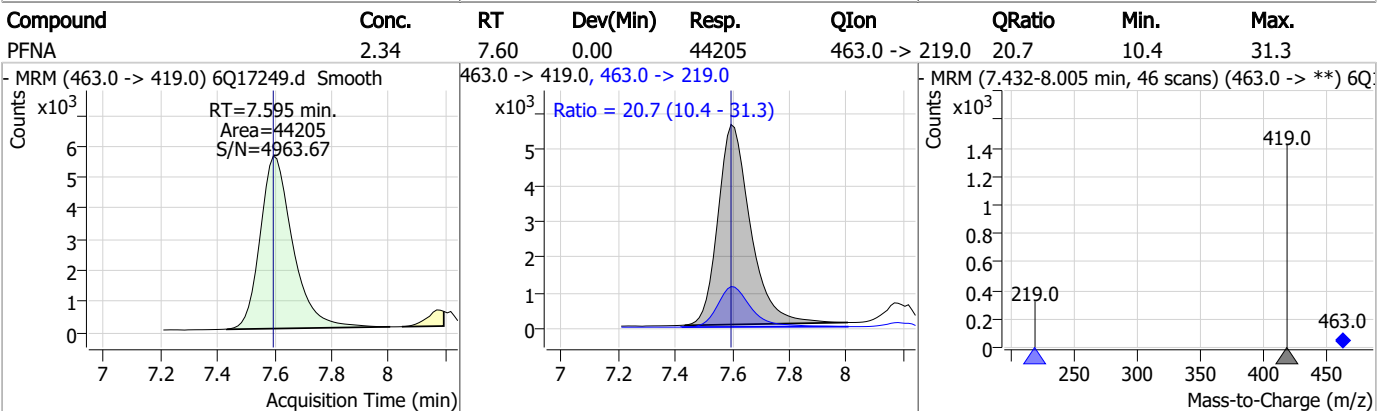
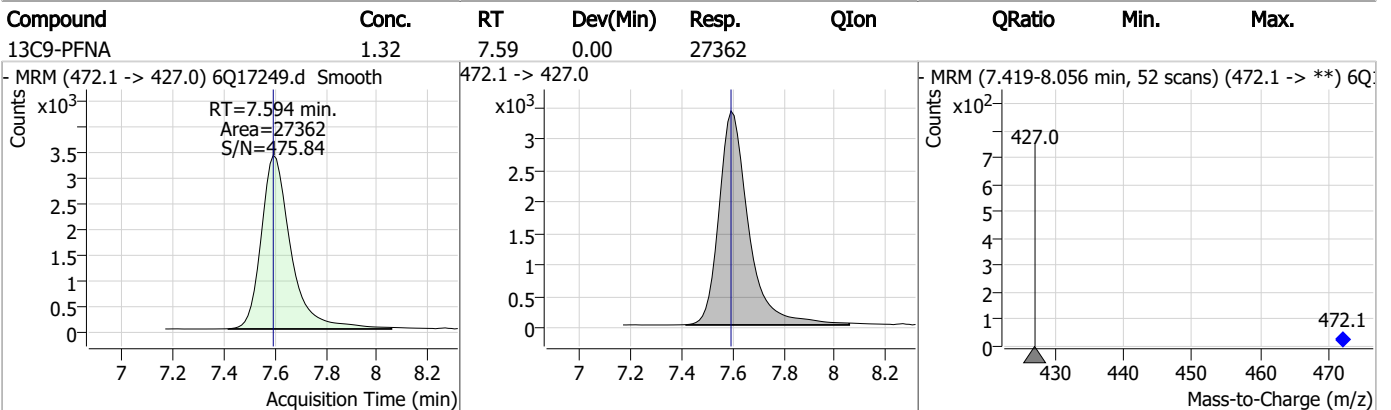
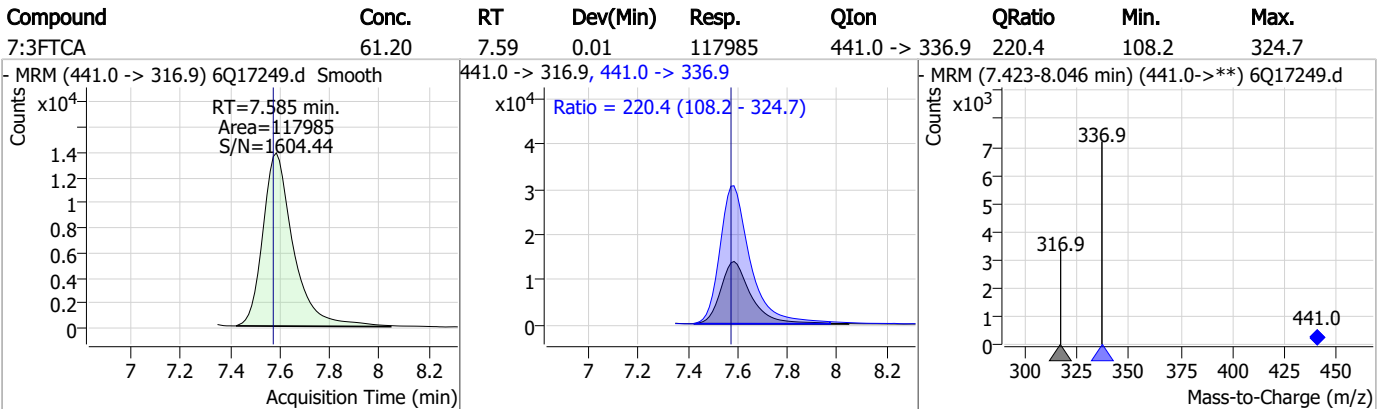
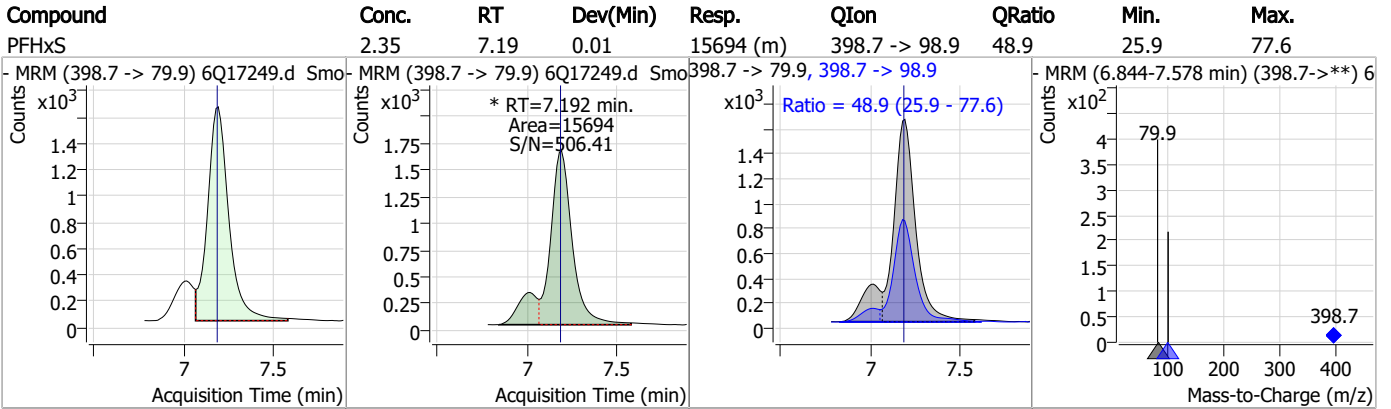


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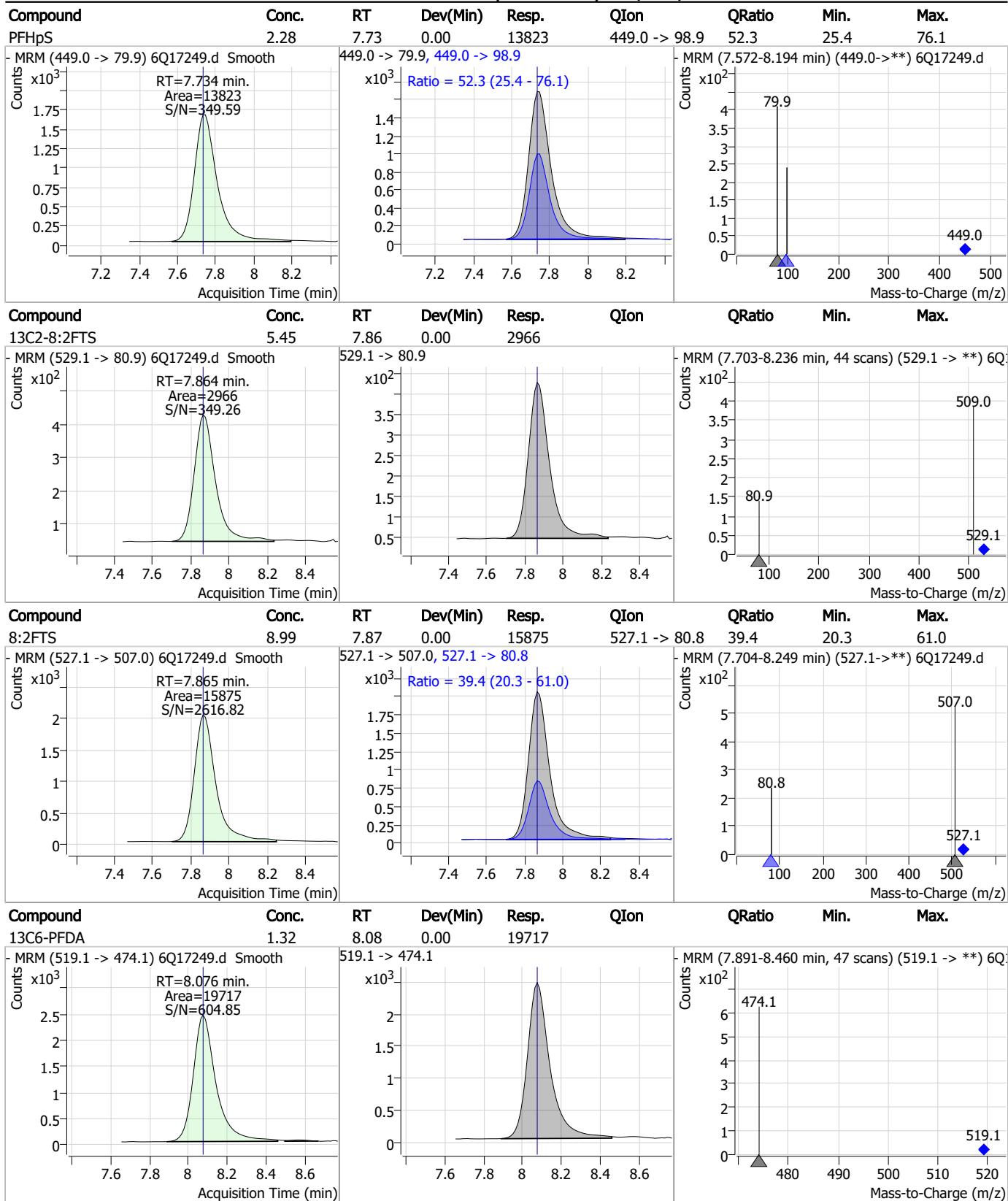
Perfluorinated Compounds by LC/MS/MS



7.6.21 7



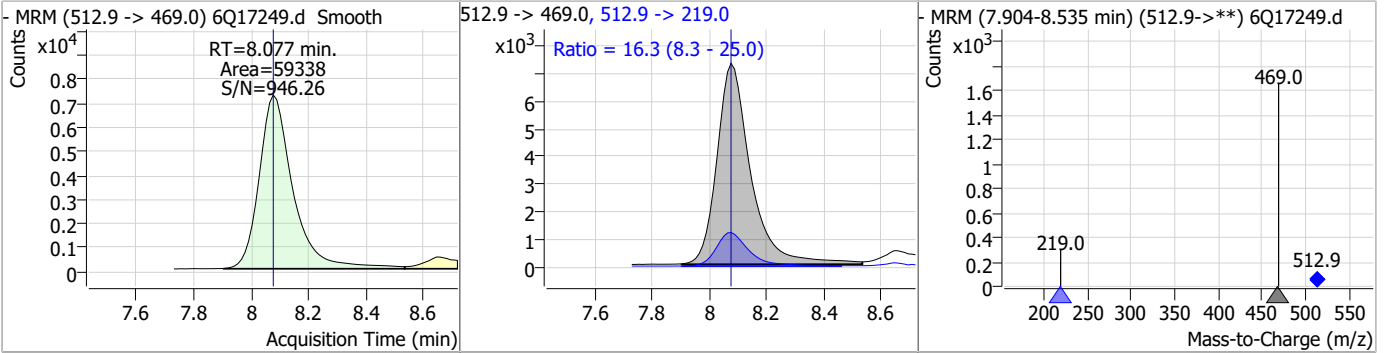
Perfluorinated Compounds by LC/MS/MS



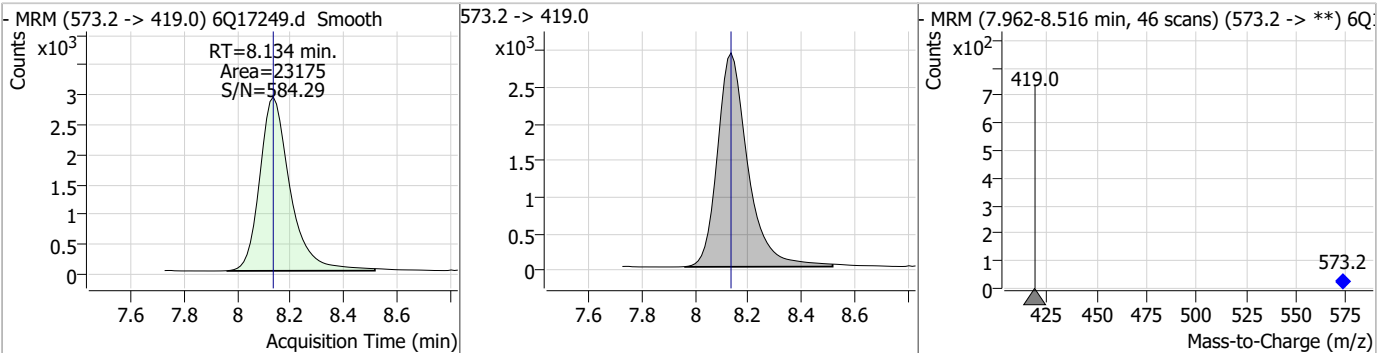
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Perfluorinated Compounds by LC/MS/MS

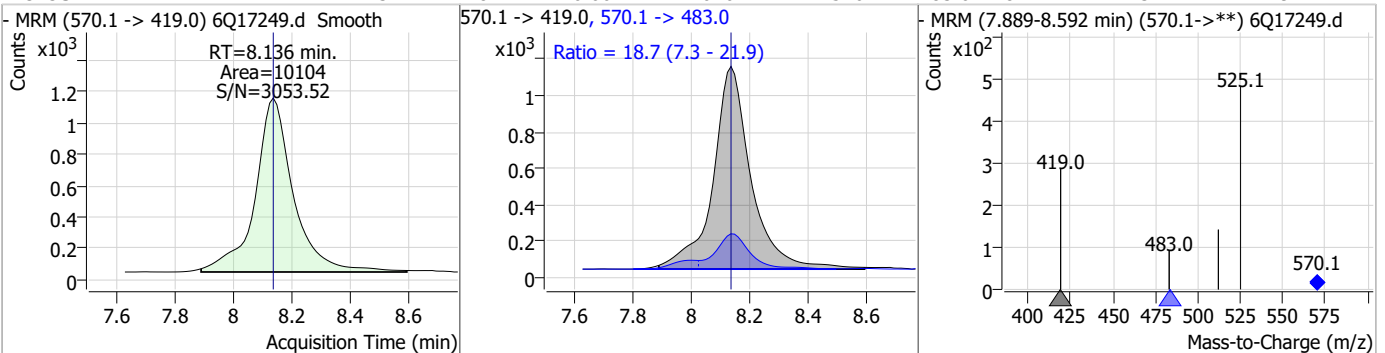
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.77	8.08	0.00	59338	512.9 -> 219.0	16.3	8.3	25.0



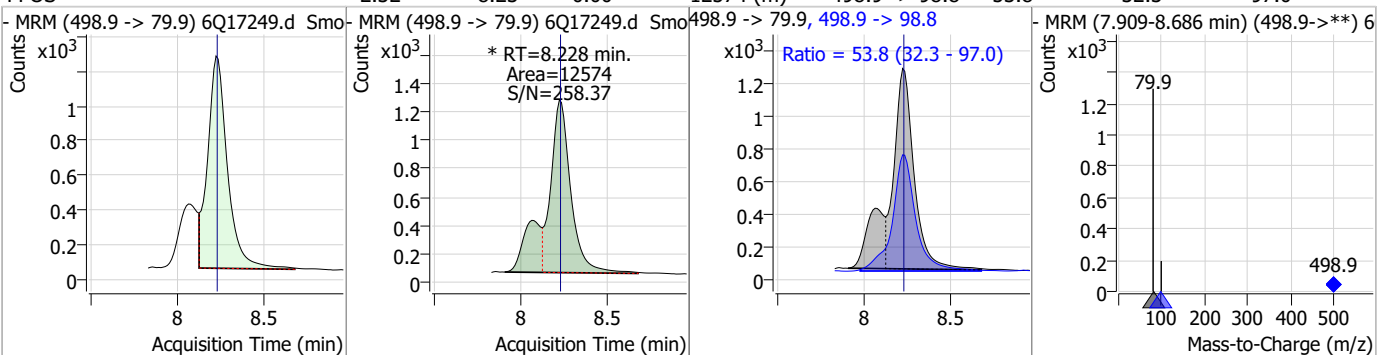
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.53	8.13	0.00	23175				



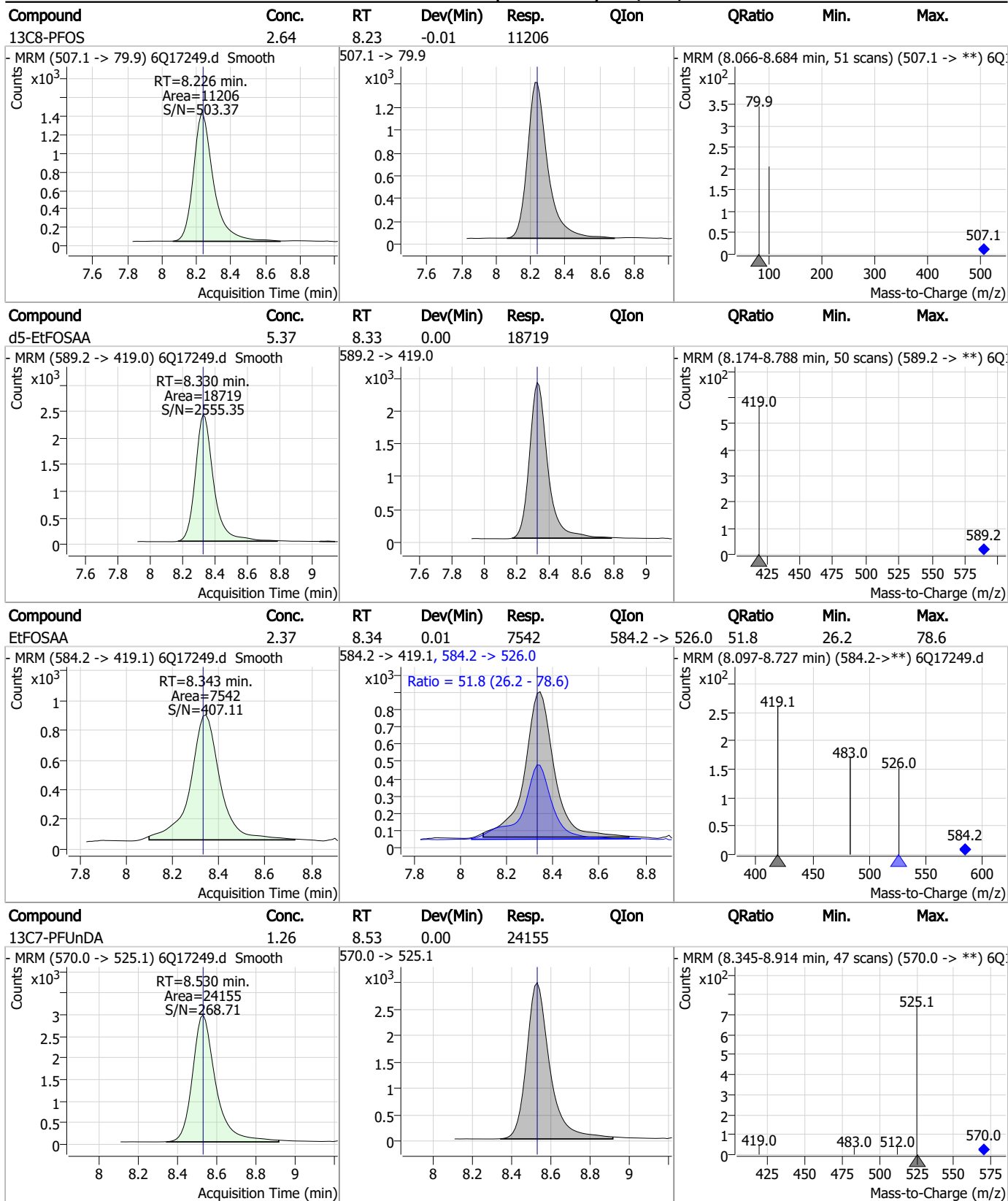
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.32	8.14	0.00	10104	570.1 -> 483.0	18.7	7.3	21.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.32	8.23	0.00	12574 (m)	498.9 -> 98.8	53.8	32.3	97.0



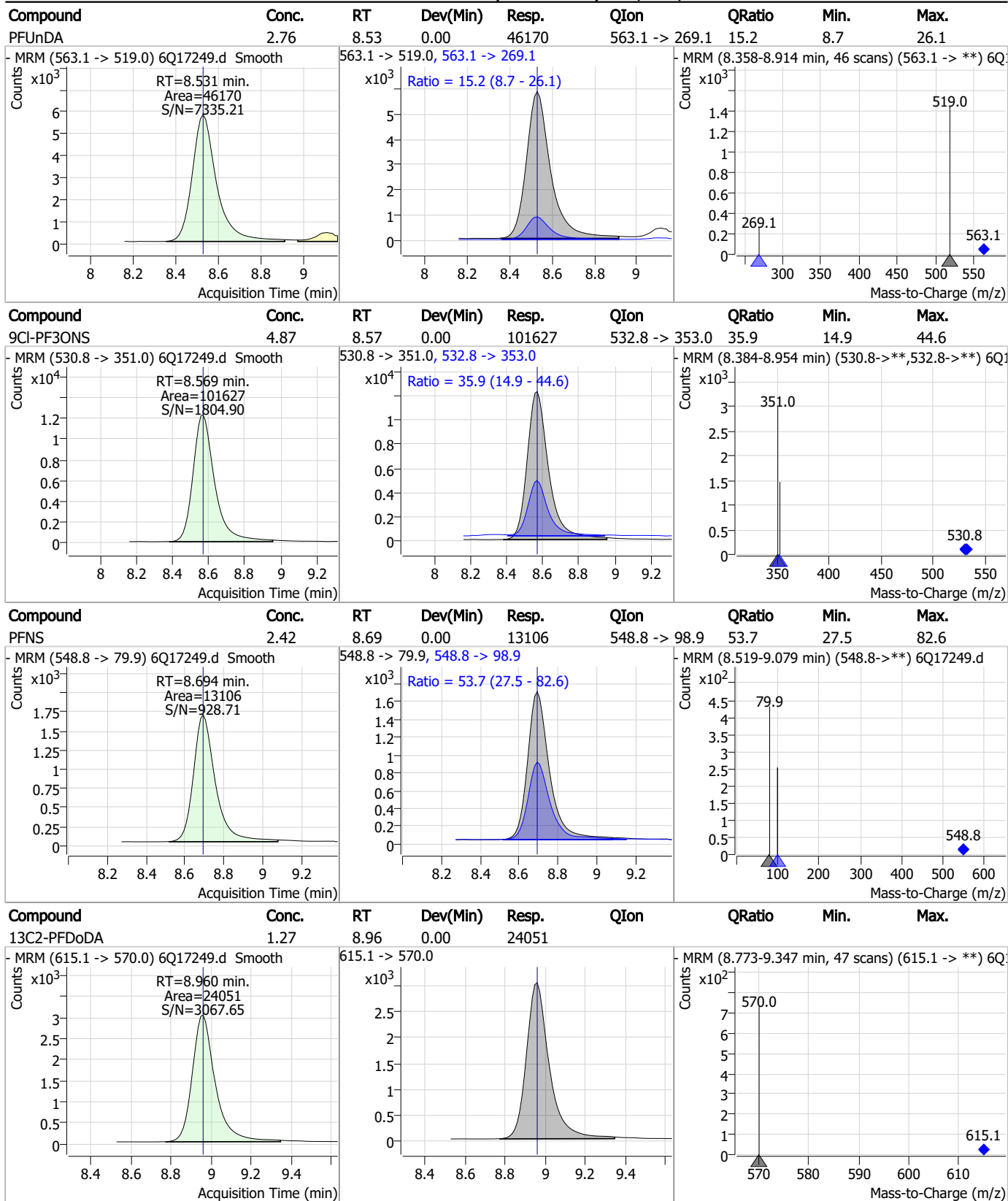
Perfluorinated Compounds by LC/MS/MS



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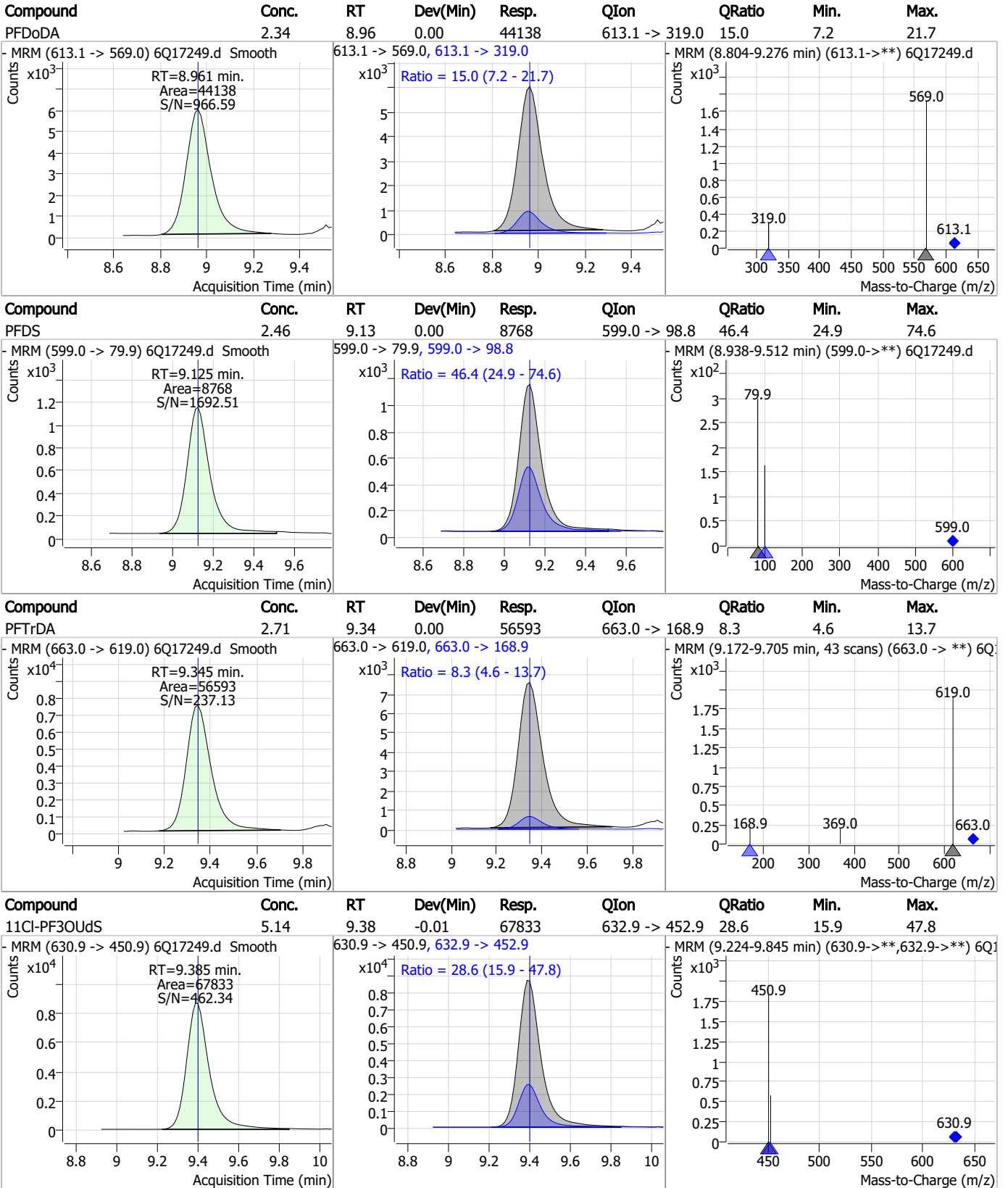
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



7.6.21 7



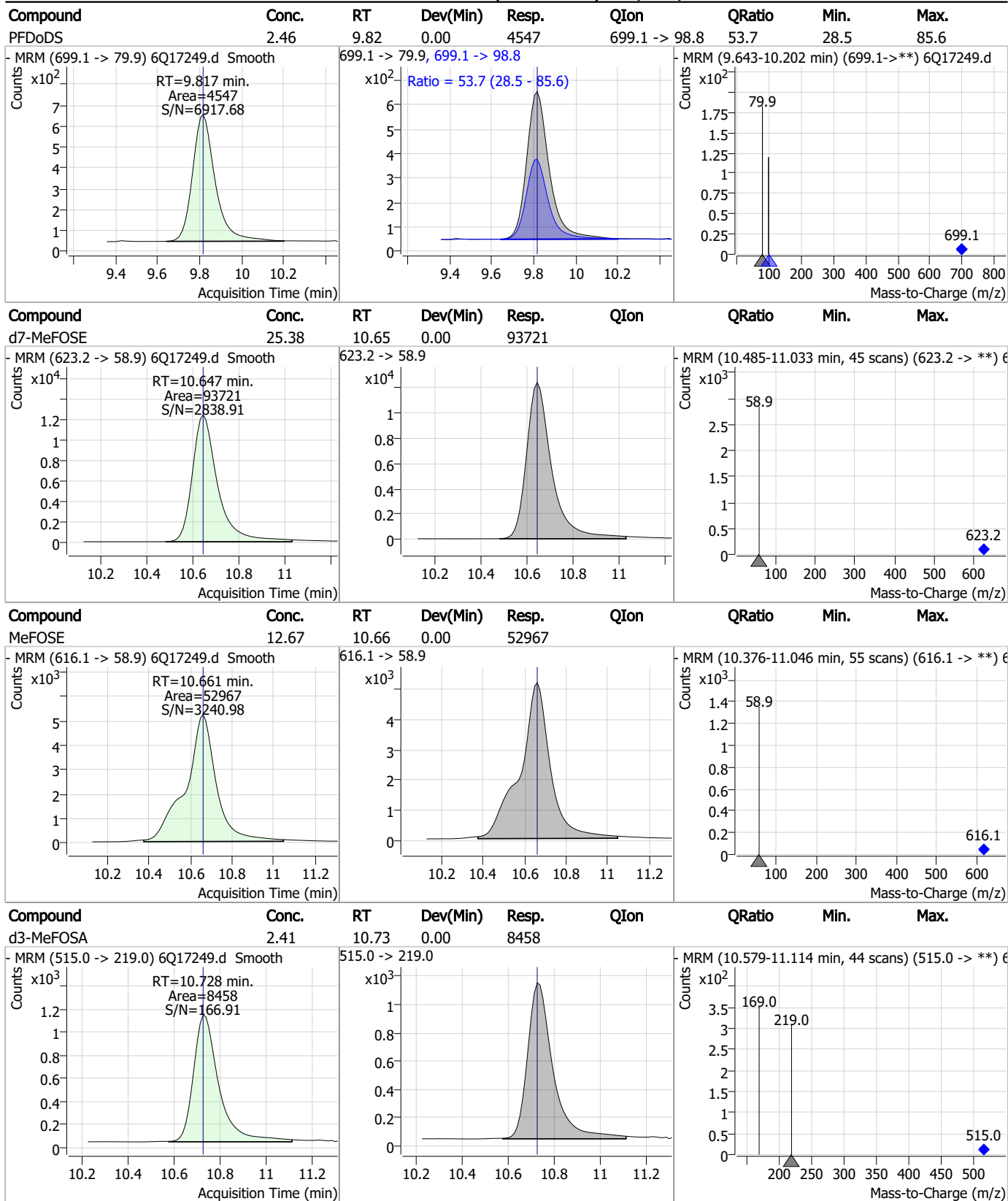
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.48	9.63	0.01	21144	498.1 -> 478.0	3.2	1.5	4.4
13C8-FOSA	2.56	9.62	0.00	23802	506.1 -> 77.8			
13C2-PFTeDA	1.25	9.69	0.00	15968	715.2 -> 670.0			
PFTeDA	2.59	9.68	-0.01	41805	713.1 -> 168.9	8.0	3.9	11.6

7.6.21

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Perfluorinated Compounds by LC/MS/MS

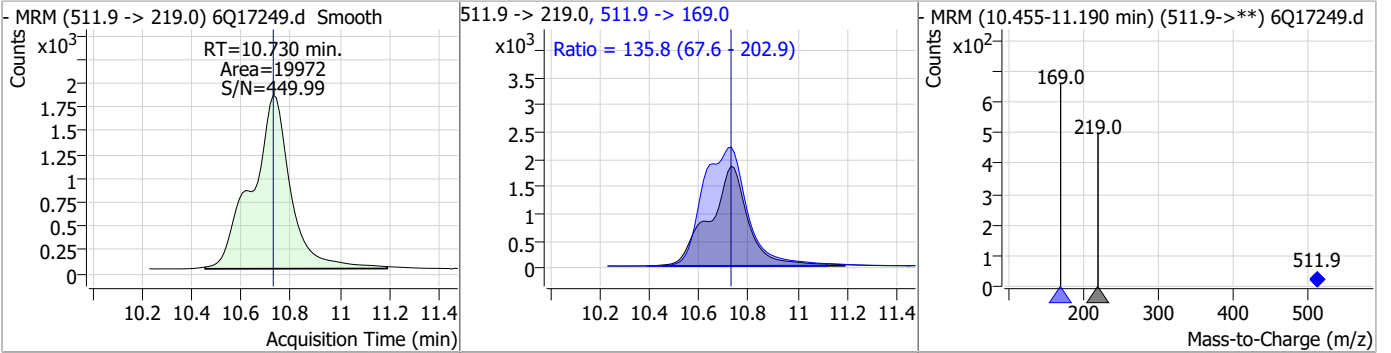


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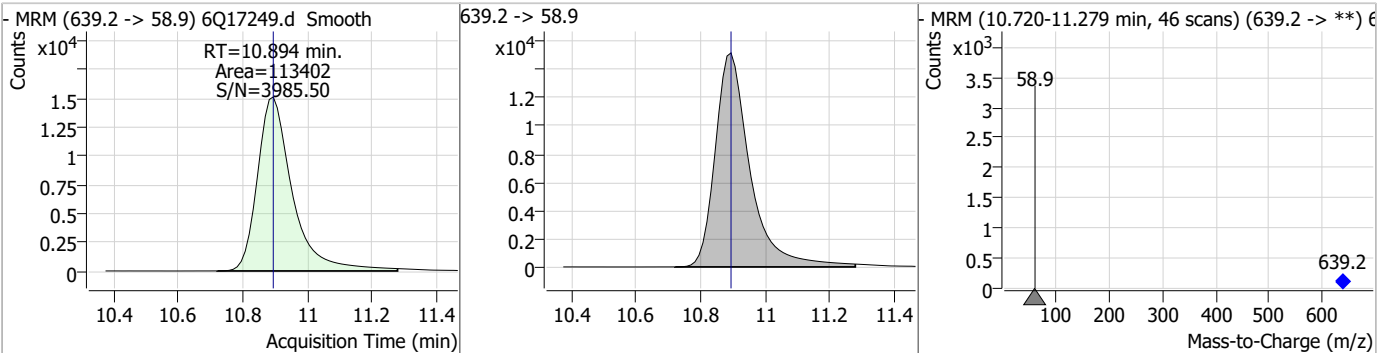
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Perfluorinated Compounds by LC/MS/MS

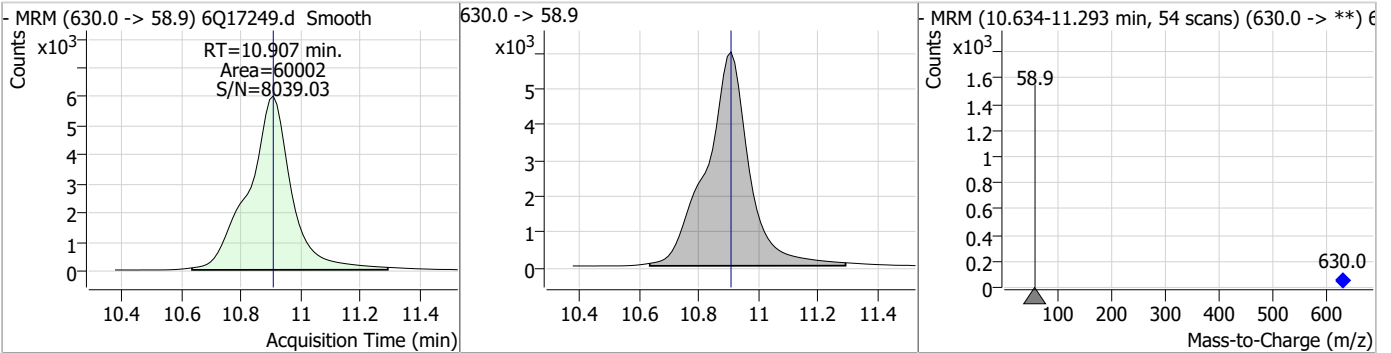
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.25	10.73	0.00	19972	511.9 -> 169.0	135.8	67.6	202.9



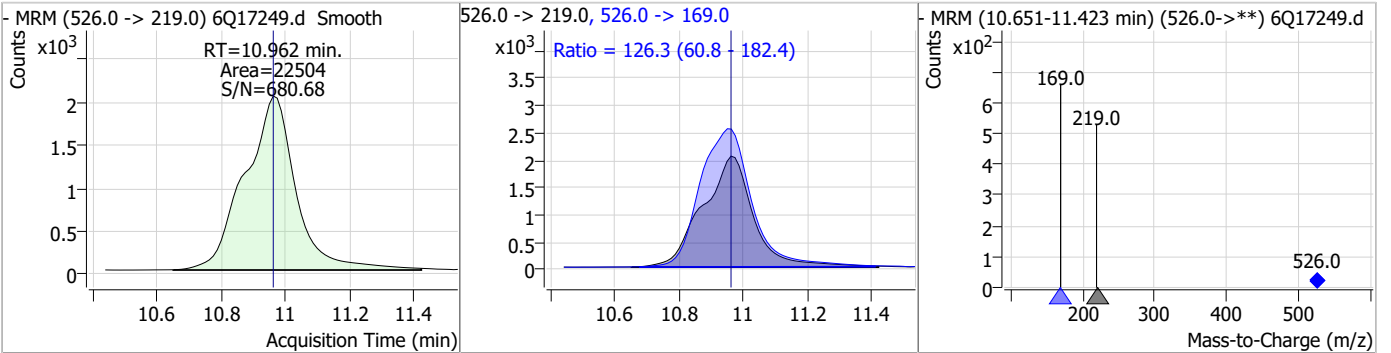
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.13	10.89	0.00	113402				



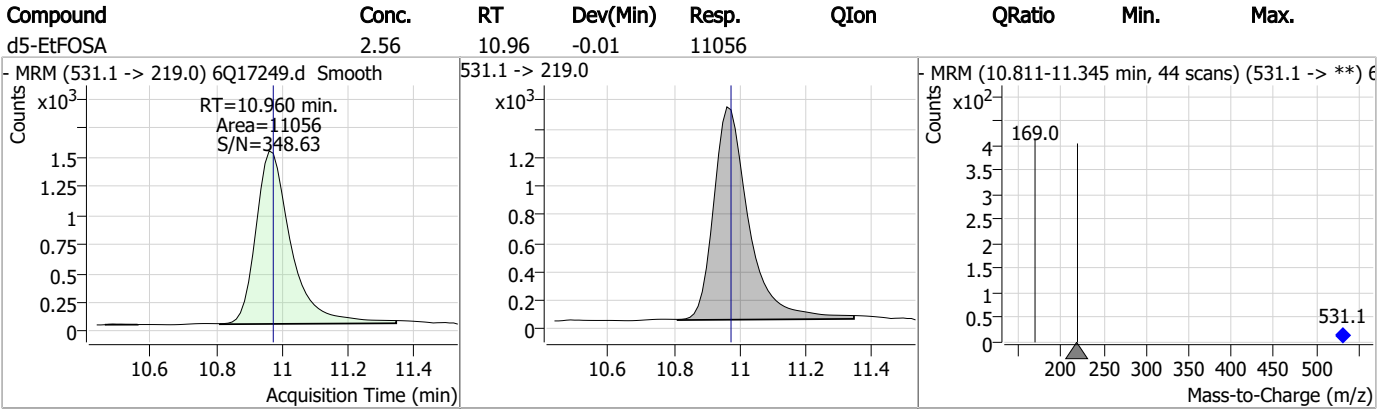
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.71	10.91	0.00	60002				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	4.95	10.96	0.00	22504	526.0 -> 169.0	126.3	60.8	182.4



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q260-CC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17249.D Analyst approved: 05/02/23 13:38 Martha Valls
Injection Time: 05/01/23 17:25 Supervisor approved: 05/02/23 15:59 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.19	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak

7.6.21.1

7

SGS ORLANDO

DATE:	04/28/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 ul
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_042823_S6Q258
CAL DATE:	04/28/23
ANALYST:	M. Valls
RUN BATCH:	S6Q258

ELUENT A LOT #:	ACN 220228
ELUENT B LOT #:	HPLC WATER LOT: 224870 W5% ACN 220225 2mlM AMAC: 11387
IC/CC STD LOT #:	LCMS 2107C
ICV STD LOT #:	LCMS 2107C/2100B
ISTD/ID STD LOT #:	11765/11764

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	6Q17046.d	P1-A1	CCB	1633full.m	Sample		OP96301,S6Q258,500,,,5.0,1,water	✓
2	6Q17047.d	P1-A1	CCB	1633full.m	Sample		OP96301,S6Q258,500,,,5.0,1,water	✓
3	6Q17048.d	P1-B3	RT TDCA	1633full.m	Sample		OP96301,S6Q258,500,,,5.0,1,water	✓
4	6Q17049.d	P1-B4	RT BR-LN	1633full.m	Sample		OP96301,S6Q258,500,,,5.0,1,water	✓
5	6Q17050.d	P1-A1	ic258-0	1633full.m	Sample		OP96301,S6Q258,500,,,5.0,1,water	✓
6	6Q17051.d	P1-A2	ic258-1	1633full.m	Calibration	1.6/500	OP96301,S6Q258,500,,,5.0,1,water	✓
7	6Q17052.d	P1-A3	ic258-2	1633full.m	Calibration	3.2/500	OP96301,S6Q258,500,,,5.0,1,water	✓
8	6Q17053.d	P1-A4	ic258-3	1633full.m	Calibration	10/500	OP96301,S6Q258,500,,,5.0,1,water	✓
9	6Q17054.d	P1-A5	icc258-4	1633full.m	Calibration	20/500	OP96301,S6Q258,500,,,5.0,1,water	✓
10	6Q17055.d	P1-A6	ic258-5	1633full.m	Calibration	40/500	OP96301,S6Q258,500,,,5.0,1,water	✓
11	6Q17056.d	P1-A7	ic258-6	1633full.m	Calibration	100/500	OP96301,S6Q258,500,,,5.0,1,water	✓
12	6Q17057.d	P1-A8	ic258-7	1633full.m	Calibration	200/500	OP96301,S6Q258,500,,,5.0,1,water	✓
13	6Q17058.d	P1-A9	ic258-8	1633full.m	Calibration	1x	OP96301,S6Q258,500,,,5.0,1,water	✓
14	6Q17059.d	P1-A1	iblk	1633full.m	Sample		OP96301,S6Q258,500,,,5.0,1,water	✓
15	6Q17060.d	P1-B1	icv258-4	1633full.m	Sample	20/500	OP96301,S6Q258,500,,,5.0,1,water	✓
16	6Q17061.d	P1-B2	icv258-20	1633full.m	Sample	100/500	OP96301,S6Q258,500,,,5.0,1,water	✓
17	6Q17062.d	P1-A5	cc258-4	1633full.m	QC	20/500	OP96301,S6Q258,500,,,5.0,1,water	✓
18	6Q17063.d	P1-A2	cc258-1,0LL	1633full.m	QC	1.6/500	OP96301,S6Q258,500,,,5.0,1,water	✓
19	6Q17064.d	P4-F1	op96604-bs	1633full.m	Sample		OP96604,S6Q258,500,,,5.0,1,water	✓
20	6Q17065.d	P4-F2	op96604-llbs:3	1633full.m	Sample		OP96604,S6Q258,500,,,5.0,1,water	✓
21	6Q17066.d	P4-F3	op96604-mb	1633full.m	Sample		OP96604,S6Q258,500,,,5.0,1,water	✓
22	6Q17067.d	P4-F4	FC5144-9	1633full.m	Sample		OP96604,S6Q258,560,,,5.0,1,water	✓
23	6Q17068.d	P4-F5	FC5144-10	1633full.m	Sample		OP96604,S6Q258,570,,,5.0,1,water	✓
24	6Q17069.d	P4-F6	FC5144-11	1633full.m	Sample		OP96604,S6Q258,560,,,5.0,1,water	✓
25	6Q17070.d	P1-A5	cc258-4	1633full.m	QC	20/500	OP96301,S6Q258,500,,,5.0,1,water	✓
26	6Q17071.d	P1-A1	iccb	1633full.m	Sample		OP96301,S6Q258,500,,,5.0,1,water	✓
27	6Q17072.d	P3-A1	op96603-bs	1633full.m	Sample		OP96603,S6Q258,500,,,5.0,1,water	✓
28	6Q17073.d	P3-A2	op96603-llbs:3	1633full.m	Sample		OP96603,S6Q258,500,,,5.0,1,water	✓
29	6Q17074.d	P3-A3	op96603-mb	1633full.m	Sample		OP96603,S6Q258,500,,,5.0,1,water	✓
30	6Q17075.d	P3-A4	FC5514-1	1633full.m	Sample		OP96603,S6Q258,570,,,5.0,1,water	✓
31	6Q17076.d	P3-A5	FC5514-2	1633full.m	Sample		OP96603,S6Q258,570,,,5.0,1,water	✓
32	6Q17077.d	P3-A6	FC5514-3	1633full.m	Sample		OP96603,S6Q258,560,,,5.0,1,water	✓
33	6Q17078.d	P3-A7	op96603-ms	1633full.m	Sample		OP96603,S6Q258,540,,,5.0,1,water	✓
34	6Q17079.d	P3-A8	FC5514-4	1633full.m	Sample		OP96603,S6Q258,570,,,5.0,1,water	✓
35	6Q17080.d	P3-A9	op96603-dup	1633full.m	Sample		OP96603,S6Q258,530,,,5.0,1,water	✓



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36	6Q17081.d	P3-B1	FC5514-5	1633full.m	Sample	OP96603.S6Q258.520,,,5.0,1,water	✓
37	6Q17082.d	P1-A5	cc258-4	1633full.m	QC	OP96301.S6Q258.500,,,5.0,1,water	✓
38	6Q17083.d	P1-A1	iccb	1633full.m	Sample	OP96301.S6Q258.500,,,5.0,1,water	✓
39	6Q17084.d	P3-B2	FC5522-1	1633full.m	Sample	OP96603.S6Q258.540,,,5.0,1,water	✓
40	6Q17085.d	P3-B3	FC5522-2	1633full.m	Sample	OP96603.S6Q258.570,,,5.0,1,water	✓
41	6Q17086.d	P3-B4	FC5522-3	1633full.m	Sample	OP96603.S6Q258.570,,,5.0,1,water	✓
42	6Q17087.d	P3-B5	FC5522-4	1633full.m	Sample	OP96603.S6Q258.540,,,5.0,1,water	✓
43	6Q17088.d	P3-B6	FC5522-5	1633full.m	Sample	OP96603.S6Q258.560,,,5.0,1,water	✓
44	6Q17089.d	P3-B7	FC5578-1	1633full.m	Sample	OP96603.S6Q258.540,,,5.0,1,water	mefose low. Rf5x
45	6Q17090.d	P3-B8	FC5578-2	1633full.m	Sample	OP96603.S6Q258.570,,,5.0,1,water	✓
46	6Q17091.d	P1-A5	cc258-4	1633full.m	QC	OP96301.S6Q258.500,,,5.0,1,water	✓
47	6Q17092.d	P1-A1	iccb	1633full.m	Sample	OP96301.S6Q258.500,,,5.0,1,water	✓
48	6Q17093.d	P4-A1	op96579-bs	1633full.m	Sample	OP96579.S6Q258.500,,,5.0,1,water	✓
49	6Q17094.d	P4-A2	op96579-llbs:3	1633full.m	Sample	OP96579.S6Q258.500,,,5.0,1,water	✓
50	6Q17095.d	P4-A3	op96579-mb	1633full.m	Sample	OP96579.S6Q258.500,,,5.0,1,water	✓
51	6Q17096.d	P4-A4	FC5240-1	1633full.m	Sample	OP96579.S6Q258.540,,,5.0,1,water	✓
52	6Q17097.d	P4-A5	FC5240-2	1633full.m	Sample	OP96579.S6Q258.550,,,5.0,1,water	rr2x
53	6Q17098.d	P4-A6	FC5240-3	1633full.m	Sample	OP96579.S6Q258.540,,,5.0,1,water	rr1x co
54	6Q17099.d	P4-A7	FC5240-4	1633full.m	Sample	OP96579.S6Q258.560,,,5.0,1,water	✓
55	6Q17100.d	P4-A8	FC5240-5	1633full.m	Sample	OP96579.S6Q258.560,,,5.0,1,water	rr10x + redo lower volume
56	6Q17101.d	P4-A9	op96579-ms	1633full.m	Sample	OP96579.S6Q258.570,,,5.0,1,water	rr10x
57	6Q17102.d	P4-B1	op96579-msd	1633full.m	Sample	OP96579.S6Q258.530,,,5.0,1,water	rr10x
58	6Q17103.d	P1-A5	cc258-4	1633full.m	QC	OP96301.S6Q258.500,,,5.0,1,water	✓
59	6Q17104.d	P1-A1	iccb	1633full.m	Sample	OP96301.S6Q258.500,,,5.0,1,water	✓
60	6Q17105.d	P4-B2	FC5240-6	1633full.m	Sample	OP96579.S6Q258.560,,,5.0,1,water	rr10x + redo lower volume
61	6Q17106.d	P4-B3	FC5395-1	1633full.m	Sample	OP96579.S6Q258.560,,,5.0,1,water	rr1x co
62	6Q17107.d	P4-B4	FC5395-2	1633full.m	Sample	OP96579.S6Q258.570,,,5.0,1,water	✓
63	6Q17108.d	P4-B5	FC5395-3	1633full.m	Sample	OP96579.S6Q258.570,,,5.0,1,water	✓
64	6Q17109.d	P4-B6	FC5395-4	1633full.m	Sample	OP96579.S6Q258.560,,,5.0,1,water	✓
65	6Q17110.d	P4-B7	FC5395-5	1633full.m	Sample	OP96579.S6Q258.560,,,5.0,1,water	✓
66	6Q17111.d	P4-B8	FC5395-6	1633full.m	Sample	OP96579.S6Q258.520,,,5.0,1,water	✓
67	6Q17112.d	P4-B9	FC5395-7	1633full.m	Sample	OP96579.S6Q258.570,,,5.0,1,water	✓
68	6Q17113.d	P4-C1	FC5396-10	1633full.m	Sample	OP96579.S6Q258.540,,,5.0,1,water	✓
69	6Q17114.d	P4-C2	FC5487-1	1633full.m	Sample	OP96579.S6Q258.540,,,5.0,1,water	✓
70	6Q17115.d	P1-A5	cc258-4	1633full.m	QC	OP96301.S6Q258.500,,,5.0,1,water	✓
71	6Q17116.d	P1-A2	cc258-1.0LL	1633full.m	QC	OP96301.S6Q258.500,,,5.0,1,water	✓
72	6Q17117.d	P1-A1	iccb	1633full.m	Sample	OP96301.S6Q258.500,,,5.0,1,water	✓
73	6Q17118.d	P4-C3	FC5092-9	1633full.m	Sample	OP96491.S6Q258.550,,,5.0,2,water	✓
74	6Q17119.d	P4-C4	op96566-bs	1633full.m	Sample	OP96566.S6Q258.500,,,5.0,1,water	✓
75	6Q17120.d	P4-C5	op96566-llbs:3	1633full.m	Sample	OP96566.S6Q258.500,,,5.0,1,water	✓
76	6Q17121.d	P4-C6	op96566-mb	1633full.m	Sample	OP96566.S6Q258.500,,,5.0,1,water	✓
77	6Q17122.d	P4-C7	FC5200-1	1633full.m	Sample	OP96566.S6Q258.570,,,5.0,1,water	✓
78	6Q17123.d	P4-C8	FC5200-2	1633full.m	Sample	OP96566.S6Q258.550,,,5.0,1,water	✓



LCMS6-6Q ANALYSIS LOG

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79	6Q17124.d	P4-C9	op96566-ms	1633full.m	Sample	OP96566.S6Q258.560,,,5.0,1,water	✓
80	6Q17125.d	P4-D1	op96566-msd	1633full.m	Sample	OP96566.S6Q258.570,,,5.0,1,water	✓
81	6Q17126.d	P4-D2	FC5200-3	1633full.m	Sample	OP96566.S6Q258.570,,,5.0,1,water	✓
82	6Q17127.d	P4-D3	FC5200-4	1633full.m	Sample	OP96566.S6Q258.530,,,5.0,1,water	✓
83	6Q17128.d	P1-A5	cc258-4	1633full.m	QC	20/500	✓
84	6Q17129.d	P1-A1	iccb	1633full.m	Sample	OP96301.S6Q258.500,,,5.0,1,water	✓
85	6Q17130.d	P4-D4	FC5200-5	1633full.m	Sample	OP96566.S6Q258.560,,,5.0,1,water	✓
86	6Q17131.d	P4-D5	FC5200-6	1633full.m	Sample	OP96566.S6Q258.560,,,5.0,1,water	✓
87	6Q17132.d	P4-D6	FC5200-7	1633full.m	Sample	OP96566.S6Q258.570,,,5.0,1,water	✓
88	6Q17133.d	P4-D7	FC5200-8	1633full.m	Sample	OP96566.S6Q258.570,,,5.0,1,water	✓
89	6Q17134.d	P4-D8	FC5200-9	1633full.m	Sample	OP96566.S6Q258.550,,,5.0,1,water	✓
90	6Q17135.d	P4-D9	FC5200-10	1633full.m	Sample	OP96566.S6Q258.530,,,5.0,1,water	✓
91	6Q17136.d	P4-E1	FC5200-11	1633full.m	Sample	OP96566.S6Q258.550,,,5.0,1,water	✓
92	6Q17137.d	P4-E2	FC5200-12	1633full.m	Sample	OP96566.S6Q258.550,,,5.0,1,water	✓
93	6Q17138.d	P4-E3	FC5200-13	1633full.m	Sample	OP96566.S6Q258.570,,,5.0,1,water	✓
94	6Q17139.d	P4-E4	FC5200-14	1633full.m	Sample	OP96566.S6Q258.550,,,5.0,1,water	✓
95	6Q17140.d	P1-A5	cc258-4	1633full.m	QC	20/500	✓
96	6Q17141.d	P1-A1	iccb	1633full.m	Sample	OP96301.S6Q258.500,,,5.0,1,water	✓
97	6Q17142.d	P4-E5	FC5200-15	1633full.m	Sample	OP96566.S6Q258.560,,,5.0,1,water	✓
98	6Q17143.d	P4-E6	FC5200-16	1633full.m	Sample	OP96566.S6Q258.520,,,5.0,1,water	✓
99	6Q17144.d	P4-E7	FC5200-17	1633full.m	Sample	OP96566.S6Q258.560,,,5.0,1,water	✓
100	6Q17145.d	P4-E8	FC5200-18	1633full.m	Sample	OP96566.S6Q258.530,,,5.0,1,water	✓
101	6Q17146.d	P1-A5	ecc258-4	1633full.m	QC	20/500	✓
102	6Q17147.d	P1-A1	iccb	1633full.m	Sample	OP96301.S6Q258.500,,,5.0,1,water	✓



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DATE:	05/01/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 ul
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_042823_S6Q258
CAL DATE:	04/28/23
ANALYST:	M. Valls
RUN BATCH:	S6Q260

ELUENT A LOT #:	ACN 220228
ELUENT B LOT #:	HPLC WATER LOT: 224870 W5% ACN 220225 2mM AMAC: 11387
IC/CC STD LOT #:	LCMS 2107C
ICV STD LOT #:	LCMS 2107C/2100B
ISTD/ID STD LOT #:	11765/11764

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	6Q17231.d	P1-B9	CCB	1633full.m	Sample		OP96301,S6Q260,500,,,5.0,1,water	✓
2	6Q17232.d	P1-B9	CCB	1633full.m	Sample		OP96301,S6Q260,500,,,5.0,1,water	✓
3	6Q17233.d	P1-B3	RT TDCA	1633full.m	Sample		OP96301,S6Q260,500,,,5.0,1,water	✓
4	6Q17234.d	P1-B4	RT BR-LN	1633full.m	Sample		OP96301,S6Q260,500,,,5.0,1,water	✓
5	6Q17235.d	P1-A9	High Std	1633full.m	Sample		OP96301,S6Q260,500,,,5.0,1,water	✓
6	6Q17236.d	P1-A1	iblk	1633full.m	Sample		OP96301,S6Q260,500,,,5.0,1,water	✓
7	6Q17237.d	P1-A5	cc258-4	1633full.m	QC	20/500	OP96301,S6Q260,500,,,5.0,1,water	✓
8	6Q17238.d	P1-A2	cc258-1,0LL	1633full.m	QC	1.6/500	OP96301,S6Q260,500,,,5.0,1,water	✓
9	6Q17239.d	P2-A1	FC5578-1	1633full.m	Sample	100/500	OP96603,S6Q260,540,,,5.0,5,water	mefose low, Redo
10	6Q17240.d	P2-A2	FC5240-2	1633full.m	Sample	250/500	OP96579,S6Q260,550,,,5.0,2,water	✓
11	6Q17241.d	P2-A3	FC5240-3	1633full.m	Sample		OP96579,S6Q260,540,,,5.0,1,water	✓
12	6Q17242.d	P2-A4	FC5240-5	1633full.m	Sample	50/500	OP96579,S6Q260,560,,,5.0,10,water	Redo lower volume
13	6Q17243.d	P2-A5	op96579-ms	1633full.m	Sample	50/500	OP96579,S6Q260,570,,,5.0,10,water	✓
14	6Q17244.d	P2-A6	op96579-msd	1633full.m	Sample	50/500	OP96579,S6Q260,530,,,5.0,10,water	✓
15	6Q17245.d	P2-A7	FC5240-6	1633full.m	Sample	50/500	OP96579,S6Q260,560,,,5.0,10,water	Redo lower volume
16	6Q17246.d	P2-A8	FC5395-1	1633full.m	Sample		OP96579,S6Q260,560,,,5.0,1,water	rt1 x co
17	6Q17247.d	P2-A9	FC5398-6	1633full.m	Sample	100/500	OP96579,S6Q260,570,,,5.0,5,water	✓
18	6Q17248.d	P2-B1	FC5063-1	1633full.m	Sample	100/500	OP96516,S6Q260,565,,,5.0,5,water	Pfba low, Redo
19	6Q17249.d	P1-A5	cc258-4	1633full.m	QC	20/500	OP96301,S6Q260,500,,,5.0,1,water	✓
20	6Q17250.d	P1-A1	iccb	1633full.m	Sample		OP96301,S6Q260,500,,,5.0,1,water	✓
21	6Q17251.d	P2-B2	FC5063-2	1633full.m	Sample	100/500	OP96516,S6Q260,565,,,5.0,5,water	Pfba low, Redo
22	6Q17252.d	P2-B3	FC5063-4	1633full.m	Sample	50/500	OP96516,S6Q260,555,,,5.0,10,water	✓
23	6Q17253.d	P2-B4	op96516-ms	1633full.m	Sample	50/500	OP96516,S6Q260,560,,,5.0,10,water	✓
24	6Q17254.d	P2-B5	op96516-msd	1633full.m	Sample	50/500	OP96516,S6Q260,560,,,5.0,10,water	✓
25	6Q17255.d	P2-B6	FC5063-5	1633full.m	Sample	50/500	OP96516,S6Q260,550,,,5.0,10,water	✓
26	6Q17256.d	P2-C1	op96628-bs	1633full.m	Sample		OP96628,S6Q260,500,,,5.0,1,water	✓
27	6Q17257.d	P2-C2	op96628-llbs:2	1633full.m	Sample		OP96628,S6Q260,500,,,5.0,1,water	✓
28	6Q17258.d	P2-C3	op96628-mb	1633full.m	Sample		OP96628,S6Q260,500,,,5.0,1,water	✓
29	6Q17259.d	P2-C4	FC5046-1	1633full.m	Sample		OP96628,S6Q260,550,,,5.0,1,water	✓
30	6Q17260.d	P1-A5	cc258-4	1633full.m	QC	20/500	OP96301,S6Q260,500,,,5.0,1,water	✓
31	6Q17261.d	P1-A1	iccb	1633full.m	Sample		OP96301,S6Q260,500,,,5.0,1,water	✓
32	6Q17262.d	P2-C5	op96581-bs	1633full.m	Sample		OP96581,S6Q260,500,,,5.0,1,water	✓
33	6Q17263.d	P2-C6	op96581-llbs:2	1633full.m	Sample		OP96581,S6Q260,500,,,5.0,1,water	✓
34	6Q17264.d	P2-C7	op96581-mb	1633full.m	Sample		OP96581,S6Q260,500,,,5.0,1,water	✓
35	6Q17265.d	P2-C8	FC5263-1	1633full.m	Sample		OP96581,S6Q260,535,,,5.0,1,water	✓

LCMS6-6Q ANALYSIS LOG

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36	6Q17266.d	P2-C9	FC5263-2	1633full.m	Sample	OP96581,S6Q260,565,,,5.0,1,water	✓
37	6Q17267.d	P2-D1	FC5263-3	1633full.m	Sample	OP96581,S6Q260,495,,,5.0,1,water	✓
38	6Q17268.d	P2-D2	FC5263-4	1633full.m	Sample	OP96581,S6Q260,565,,,5.0,1,water	✓
39	6Q17269.d	P2-D3	FC5263-5	1633full.m	Sample	OP96581,S6Q260,565,,,5.0,1,water	rf5x for unda
40	6Q17270.d	P2-D4	FC5263-6	1633full.m	Sample	OP96581,S6Q260,565,,,5.0,1,water	✓
41	6Q17271.d	P2-D5	FC5263-7	1633full.m	Sample	OP96581,S6Q260,530,,,5.0,1,water	✓
42	6Q17272.d	P1-A5	cc258-4	1633full.m	QC	OP96301,S6Q260,500,,,5.0,1,water	✓
43	6Q17273.d	P1-A1	iccb	1633full.m	Sample	OP96301,S6Q260,500,,,5.0,1,water	✓
44	6Q17274.d	P2-D6	FC5263-8	1633full.m	Sample	OP96581,S6Q260,525,,,5.0,1,water	✓
45	6Q17275.d	P2-D7	FC5359-1	1633full.m	Sample	OP96581,S6Q260,490,,,5.0,1,water	✓
46	6Q17276.d	P2-D8	FC5488-1	1633full.m	Sample	OP96581,S6Q260,60,,,5.0,1,water	✓
47	6Q17277.d	P2-D9	op96581-ms	1633full.m	Sample	OP96581,S6Q260,500,,,5.0,1,water	✓
48	6Q17278.d	P2-E1	FC5488-2	1633full.m	Sample	OP96581,S6Q260,530,,,5.0,1,water	✓
49	6Q17279.d	P2-E2	op96581-dup	1633full.m	Sample	OP96581,S6Q260,500,,,5.0,1,water	✓
50	6Q17280.d	P2-E3	FC5488-4	1633full.m	Sample	OP96581,S6Q260,490,,,5.0,1,water	✓
51	6Q17281.d	P2-E4	JD63993-2A	1633full.m	Sample	OP96581,S6Q260,125,,,5.0,1,water	✓
52	6Q17282.d	P2-E5	JD63993-3A	1633full.m	Sample	OP96581,S6Q260,445,,,5.0,1,water	✓
53	6Q17283.d	P1-A5	ecc258-4	1633full.m	QC	OP96301,S6Q260,500,,,5.0,1,water	✓
54	6Q17284.d	P1-A1	iccb	1633full.m	Sample	OP96301,S6Q260,500,,,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 2106A-B	PFC SPIKE	11653	PFOA-DOD (28 comps)	Absolute Wellington Labs	11/08/27	10/18/24	1.0ppm	2mL	5mL	400ppb	MS/MNH 5/14/20	01/18/23	10/18/23	NG
		11432	N-He-FOSA-m	Wellington Labs	02/18/27	03/13/24	50ppm	40uL						NG
		11513	FBSA-1		11/10/26	04/18/24								NG
		11514	FHSA-1		12/19/26	04/18/24								NG
		11332	PFERHS		03/18/27	10/18/24								NG
LCMS 2107A-C	1633-OPiKE Cal Std.	11734	PFAC MXH	Wellington	8/8/27	4/14/24	1-4 ppb	250uL	4mL	62.5 125 250ppb	1633 MIX	4/19/23	10/19/23	MV
		11736	PFAC MXF	Wellington	11/11/25	4/14/24	2ppm	250uL		125ppb	2688mL			
		11737	PFAC MXG		12/11/27	4/11/24	2ppm	250uL		312.5ppb				
		11676	PFAC MXJ		9/11/26	4/19/24	2ppm	250uL		125ppb				
		11689	MPFAC 24-ES	Wellington Labs	01/18/28	04/18/24	1.0ppm	2.4mL	~50mL	312uL				
LCMS 2108A-O	PFC ID SURT	11763	MPFAC 24-ES	Wellington Labs	01/18/28	04/18/24	1.0ppm	2.4mL	~50mL	312uL				
		11635A	M3HFO-DA		11/08/28	04/18/24	50ppm	48uL						
		11431	d-N-MADOSAM		05/06/27	03/13/24	50ppm	48uL						NG
LCMS-2109	537.1 DW STD.	11653	PFOA-DOD (28 comps)	Absolute	11/09/27	04/18/24	1.0ug/mL	4mL	100ppb	90% MeOH 4% H ₂ O		09/10/23	09/10/23	JR
		2080	DW SURT		07/06/23		1.0/2.0 PPM	400uL	100/200 PPB					JR

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



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 20915A-E	(10ppb) PFC ID SURR	A-5 11669	PFAC-2YES	Wilmington Labs	01/16/18	03/18/24	10ppm	2.4mL	~50mL	0.5ppm	151mech 51420	03/18/23	09/18/23	NS
↓	↓	11585	MTHRO-DA	↓	11/08/15	01/26/24	50ppm	48uL	↓	↓	↓	↓	↓	NS
↓	↓	11431	d-N-METOSAM	↓	05/10/07	03/13/24	50ppm	48uL	↓	↓	↓	↓	↓	NS
LCMS 20916A-B	1033 spike Cal w/d.	11672	PFAC-MxH	Wilmington	8/8/17	3/23/24	1-4 ppm	250uL	4mL	0.25 125 250ppb	1033 MIX	3/30/23	9/18/23	MU
↓	↓	11686	PFAC-MxI	↓	2/27/28	3/30/24	170 ppm	250uL	↓	0.25 0.25ppb	↓	↓	↓	↓
↓	↓	11674A	PFAC-MxJ	↓	11/1/25	3/23/24	2ppm	500uL	↓	250ppb	↓	↓	↓	↓
↓	↓	11674B	PFAC-MxK	↓	12/1/27	3/16/24	2ppm	250uL	↓	125ppb	↓	↓	↓	↓
↓	↓	11660	PFAC-MxL	↓	9/11/26	3/23/24	4-20 ppm	312uL	↓	312/100 ppb	↓	↓	↓	↓
↓	↓	11675	PFAC-MxM	↓	10/28/23	10/28/23	50ppm	200uL	5mL	2ppm 5ppm	1033 MIX	4/16/23	10/28/23	MU
LCMS 2097A-B	BR-LN metel for 1033	11497	br-N metosa	Wilmington	08/23/17	10/28/23	50ppm	200uL	↓	2ppm	↓	↓	↓	↓
↓	↓	11498	br-N Effosa	↓	10/07/17	10/28/23	50ppm	200uL	↓	5ppm	↓	↓	↓	↓
↓	↓	11495	br-N metosa	↓	10/28/17	10/28/23	50ppm	500uL	↓	5ppm	↓	↓	↓	↓
↓	↓	11494	br-N Effosa	↓	10/7/17	10/28/23	50ppm	500uL	↓	5ppm	↓	↓	↓	↓
↓	↓					4/16/25								

* tested 3/22 10/27

* 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 2098A	1033 spike Cal std.	11672A	PFAC	Wellington	8/18/27	3/23/24	1-4 ppm	250uL	4mL	62.5 125 250ppb	1033 mix	4/6/23	10/6/23	MW
		LCMS 2097	Br-1n Et-Me	SGS Labo	NA	10/28/23	3ppm 5ppm	250uL		125ppb 312.5ppb				
		11674B	PFAC Mx F	Wellington	1/11/25	3/30/24	2ppm	250uL 500uL 750uL		125ppb				
		11675	PFAC Mx G		12/1/27	3/30/24	2ppm	250uL		125ppb				
		11672B	PFAC Mx J		9/14/26	3/23/24	4-20 ppm	312uL		312/100 ppb				
LCMS 2099	537.1 Du std. (Fumeral)	11670	M3P-PEA	Wellington Labs	07/08/25	04/06/24	50ppm	80uL	4mL	1.0ppm	0161168H 41. H2O	04/06/23	05/15/23	NG
		10436A	Mx 2 FTS		11/05/25	04/06/24		80uL		1.0ppm				NG
		10528B	d3-N-NEOSAA		10/22/25	08/15/23		160uL		2.0ppm				NG
		10498A	M1FOS		11/02/25	03/22/24		80uL		1.0ppm				NG
		11669	M2RFA		12/01/26	03/22/24		80uL		1.0ppm				NG
LCMS 2100	Full List (40)	11626	PFOR 28 Comp.	Absolute	11/19/27	4/11/24	1.0ppm	400uL	4.0mL	100ppb	95% MeOH 5% H2O	4/11/23	7/24/23	MW
91B	List 40 spike (50)	LCMS 2067	40 List ADD #1	SGS Add.		8/23/23	1.0ppm	400uL			(2,40021)			
		LCMS 2070	40 List ADD #2			5/12/23	1.0ppm	400uL						
		LCMS 2054	FOSSE Std.			7/24/23	5.0ppm	400uL		50ppb				
LCMS 2101	Fose std.	11336	N-et Fose	Wellington	5/13/27	9/19/23	50ppm	200uL	2.0mL	5ppm	95% MeOH 5% H2O	9/11/23	9/19/23	MW
		11338	N-me fose		5/13/27	9/19/23	50ppm	200uL						

* based on date opened as specified in each SGS - Orlando SOP. (1,600)

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



Organic Standards Preparation Log

SGS - Orlando Std. #	Parent 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 2067	40 List std. ADD-ON #1	10720A	10:2 FTS	Wellington	3/3/26	3/21/23	50 ppm	80 uL	4.0 mL	1 ppm	95% MeOH 5% H2O	2/8/23	3/21/23 8/23/23	MV
		10840	L- PFDOS		7/9/26	10/18/23							8/23/23	
		10829	N- MCFOSA		8/3/26	8/23/23								
		10837	N- E-FOSA		8/3/26	8/23/23								
		10842	PFHxDA		9/3/26	10/18/23								
		10841	PFOA		5/7/26	10/18/23								
		11116B	3:3FTCA PFRPA		2/3/27	2/8/24								
		10685A	5:3FTCA PF2PA		11/1/25	8/23/23								
		11116A	7:3FTCA FHPA		11/12/25	2/8/24								
		11332	PFECHS		3/2/27	10/18/23								
		10762B	PFEESA		5/13/25	10/18/23								
		10763B	PFMBA		3/31/25	10/18/23								
		10764	PFMPA		3/31/25	2/8/24								
		10765B	NFHDA 3.6-OPHPA		3/31/25	10/18/23								
					NG 02/10/23									

* 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 Sid. #	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 2074 A-B	PFC SPIKE	11613	PROA-DOD CASCOMP	Absolute Wellington Labs	11/09/27	02/23/24	1.0ppm	2mL	5mL	400ppb	95% MeOH 5% H2O	02/23/23	05/23/23	NG
		10829	N-ME-FBSA-M	Wellington Labs	08/23/26	08/23/23	50ppm	40uL						NG
		11250	FBSA-1		11/10/26	11/08/23								NG
		11249	FBSA-1		12/29/26	11/03/23								NG
		11322	PFECHS		02/28/27	10/18/23								NG
LCMS 2075A-F	(10 PPB) PFC ID SURF	11639	MPPAC-24ES	Wellington Labs	03/24/27	02/23/24	1.0ppm	2.4mL	~50 mL	0.5ppm	95% MeOH 5% H2O	02/23/23	05/23/23	NG
		11585	N2HFO-DA	Wellington Labs	11/08/25	01/26/24	50ppm	48uL						NG
		11385	B-N-NFCSA-M	Wellington Labs	05/10/27	01/01/24	50ppm	48uL						NG
LCMS 2076	40 List std. ADDON #2	11250	FBSA-1	Wellington Labs	11/10/26	11/8/23	50ppm	80uL	4.0mL	1ppm	95% MeOH 5% H2O	2/27/23	5/2/26	MW
		11249	FBSA-1		2/29/26	11/3/23	50ppm	80uL						
		11140	L-PFRG		7/12/26	5/26/23	50ppm	80uL						
LCMS 2077A-B	1633 Solvent B	11387	Ammonium Sulfate Acetate drich			1/25/24	99.9%	0.62g	4L	2mM	95% MeOH 5% H2O	2/28/23	4/28/23	MW
		224870	HPLC water	Fisher		2/28/23		3,800ml		95%				
		220225	Acetoni trile			2/20/24		200mL		5%				
						aka new 2/28/23								
						Continue next page #1								

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 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 2052	1633 prep mix	221044 Lot:	MeOH	Fisher	—	1/4/24	99.9%	92mL	100mL	92%	N/A	1/19/23	2/19/23	MV
		219481 Lot:	NH4OH		—	9/19/23	100%	3.3mL		1%				
		224863 Lot:	H2O		—	1/17/24	100%	1.7mL		4%				
		224297 Lot:	Acetic Acid		—	6/24	99.7%	0.625mL		.625%				
LCMS 2053	(spike) Full list std	11568	PFOA DOP 28 Calc	SGS Standards	11/9/27	11/10/24	1.0ppm	400uL	4.0mL	100ppb	95% MeOH 5% H2O	12/4/23	3/21/23	MV
		1987	LCMS 40 list Addon #1		—	3/21/23	1.0ppm	400uL						
		1986	LCMS 40 list Add on #2		—	4/18/23	1.0ppm	400uL						
		2054	LCMS Fose std.		—	7/7/23	5.0ppm	400uL		500ppb				
LCMS 2054	Fose std.	11336	N- Et- FOSE	Wellington	5/13/27	9/19/23	50ppm	200uL	2.0mL	5ppm	95% MeOH 5% H2O	12/4/23	7/24/23	MV
		11338	N- Me FOSE		5/13/27	9/19/23	50ppm	200uL						
LCMS 2055	1633 Cal std.	10855 J	PFAC MXH	Wellington	9/14/26	1/17/24	1-4 ppm	2.50uL	4mL	62.5 125 250ppb	1633 MIX	1/24/23	7/24/23	MV
		10853 J	PFAC MXI		9/14/26	1/11/24	1-10 ppm	2.50uL		62.5 125 250ppb				
		11549 B	PFAC MX F		1/11/25	1/11/24	2ppm	500uL		250ppb				
		10854 J	PFAC MX G		3/4/25	1/24/24	2ppm	250uL		125ppb				
		11492	PFAC MX J		9/14/26	1/11/24	4-20 ppm	312uL		312/100 ppb				
		11603.				1/24/24								

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

11494



**WELLINGTON
LABORATORIES**

**CERTIFICATE OF ANALYSIS
DOCUMENTATION**

br-NMeFOSE

**2-(N-Methylperfluorooctanesulfonamido)ethanol
Isomeric Mix**

<u>PRODUCT CODE:</u>	br-NMeFOSE
<u>LOT NUMBER:</u>	brNMeFOSE0922
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/02/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/07/2022 (HRGC/LRMS) 10/07/2022 (LC/MS)
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	10/07/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-methylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
 Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
 Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
 Figure 3: LC/MS Data (SIR)
 Figure 4: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 24448-09-7 (for linear isomer).

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**Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com**

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

brNMeFOSE0922 (1 of 7)
rev1

7.8.1

7

11495



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NEtFOSE

**2-(N-Ethylperfluorooctanesulfonamido)ethanol
Isomeric Mix**

<u>PRODUCT CODE:</u>	br-NEtFOSE
<u>LOT NUMBER:</u>	brNEtFOSE1022
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/12/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/12/2022 (HRGC/LRMS) 10/07/2022 (LC/MS)
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	10/07/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-ethylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
- Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 3: LC/MS Data (SIR)
- Figure 4: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 1691-99-2 (for linear isomer).

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Form#:13, Issued 2004-11-10
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brNEtFOSE1022 (1 of 7)
rev1

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WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NMeFOSA

N-Methylperfluorooctanesulfonamide Isomeric Mix

PRODUCT CODE: br-NMeFOSA
LOT NUMBER: brNMeFOSA0822
CONCENTRATION: 50.0 ± 2.5 µg/mL
SOLVENT(S): Methanol
DATE PREPARED: (mm/dd/yyyy) 08/18/2022
LAST TESTED: (mm/dd/yyyy) 08/23/2022
EXPIRY DATE: (mm/dd/yyyy) 08/23/2027
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% N-methylperfluorooctanesulfonamide (linear and branched isomers). The full name, structure, and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
 Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
 Figure 2: LC/MS Data (SIR)
 Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 31506-32-8 (for linear isomer).

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

brNMeFOSA0822 (1 of 6)
 rev1

7.8.1

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WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NEtFOSA

N-Ethylperfluorooctanesulfonamide Isomeric Mix

<u>PRODUCT CODE:</u>	br-NEtFOSA
<u>LOT NUMBER:</u>	brNEtFOSA0922
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	08/23/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	10/07/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	10/07/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% N-ethylperfluorooctanesulfonamide (linear and branched isomers). The full name, structure, and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (SIR)
- Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 4151-50-2 (for linear isomer).

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

brNEtFOSA0922 (1 of 6)
rev1

7.8.1
7

11676
rec'd: 02/23/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture

PRODUCT CODE:	PFAC-MXJ
LOT NUMBER:	PFACMXJ0921
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	09/08/2021
LAST TESTED: (mm/dd/yyyy)	09/14/2021
EXPIRY DATE: (mm/dd/yyyy)	09/14/2026
RECOMMENDED STORAGE:	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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Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Table A: PFAC-MXJ; Components and Concentrations (µg/mL; ± 5% in methanol)

Compound	Acronym	Concentration (µg/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
(mm/dd/yyyy)

11688
rec'd 103/03/23



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)
rev0

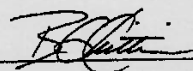
7.8.1

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Table A: PFAC-MXG; 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-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
Potassium perfluoro(2-ethoxyethane)sulfonate	PFEESA	2000	1780	

* Concentrations have been rounded to three significant figures.

Certified By: 
 B.G. Chittim, General Manager

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

7.8.1

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11689
rec'd: 03/03/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture

PRODUCT CODE:	PFAC-MXJ
LOT NUMBER:	PFACMXJ0921
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	09/08/2021
LAST TESTED: (mm/dd/yyyy)	09/14/2021
EXPIRY DATE: (mm/dd/yyyy)	09/14/2026
RECOMMENDED STORAGE:	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

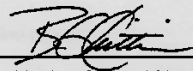
PFACMXJ0921 (1 of 5)
rev1

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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

(mm/dd/yyyy)

11734
rec'd: 03/29/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

Native PFAS
Solution/Mixture

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

DESCRIPTION:

PFAC-MXH is a solution/mixture of 11 native linear perfluoroalkylcarboxylic acids (C₄-C₁₄), eight native perfluoroalkanesulfonates (C₄, C₆, C₇, C₈, 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

PFACMXH3822 11 of 11
rev0

7.8.1
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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 ^b	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-butanedisulfonate	L-PFBS	1000	887	3
Sodium perfluoro-1-pentadisulfonate	L-PFPeS	1000	941	6
Potassium perfluorohexadisulfonate ^c	PFHxSK: linear isomer	811	741	9
	PFHxSK: ∑ branched isomers	189	173	8
Sodium perfluoro-1-heptadisulfonate	L-PFHpS	1000	953	12
Potassium perfluorooctadisulfonate ^d	PFOSK: linear isomer	788	732	15
	PFOSK: ∑ branched isomers	211	196	13
Sodium perfluoro-1-nonadisulfonate	L-PFNs	1000	962	19
Sodium perfluoro-1-decadisulfonate	L-PFDS	1000	965	25
Sodium perfluoro-1-dodecadisulfonate	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-perfluorodecane sulfonate	8:2FTS	4000	3840	16

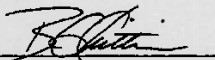
^a See Table B for percent composition of linear and branched N-MeFOSAA isomers.

^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)

11736
rec'd: 03/29/23



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-dioxanonoate (NaDONA), the major and minor components of F-53B (9Cl-PF3ONS and 11Cl-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# 3, 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; ± 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-dioxanonoate	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)

11737
rec'd: 03/29/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXG

Native Perfluoroalkyl Ether Carboxylic
Acids and Sulfonate Solution/Mixture

PRODUCT CODE: PFAC-MXG
LOT NUMBER: PFACMXG1122
SOLVENT(S): Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 11/30/2022
LAST TESTED: (mm/dd/yyyy) 12/01/2022
EXPIRY DATE: (mm/dd/yyyy) 12/01/2027
RECOMMENDED STORAGE: 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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Revision# 9, Revised 2020-12-23

PFACMXG1122 (1 of 5)
rev0

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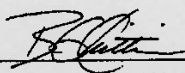
Table A:

PFAC-MXG; 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-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)

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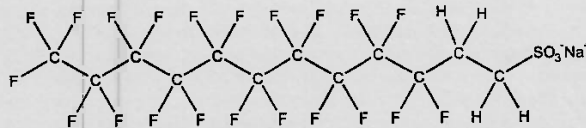


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CERTIFICATE OF ANALYSIS DOCUMENTATION

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

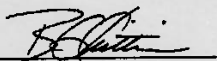
DOCUMENTATION/ DATA ATTACHED:

- 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.

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

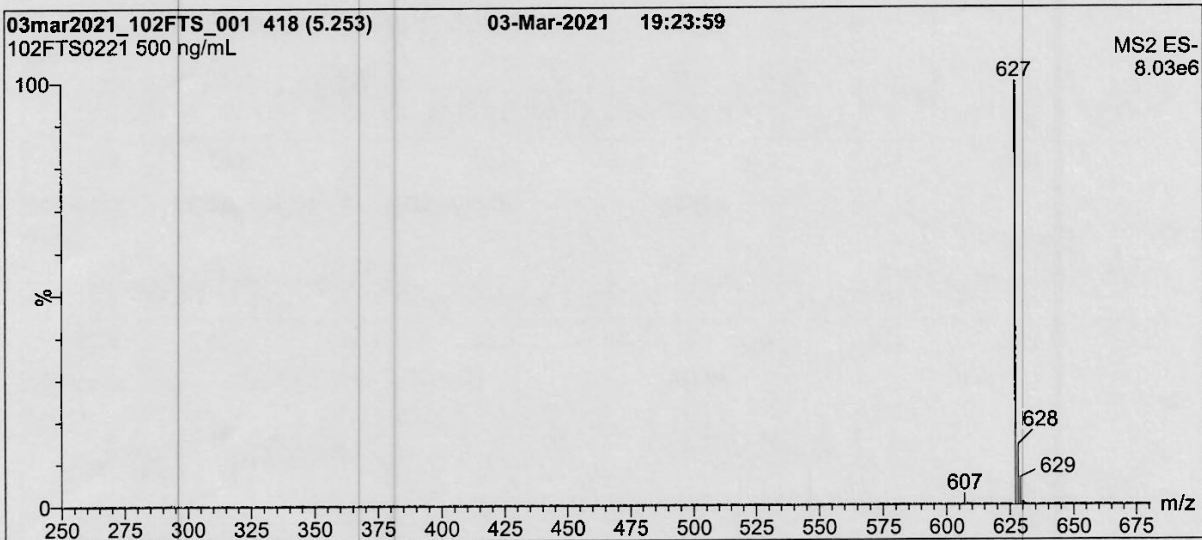
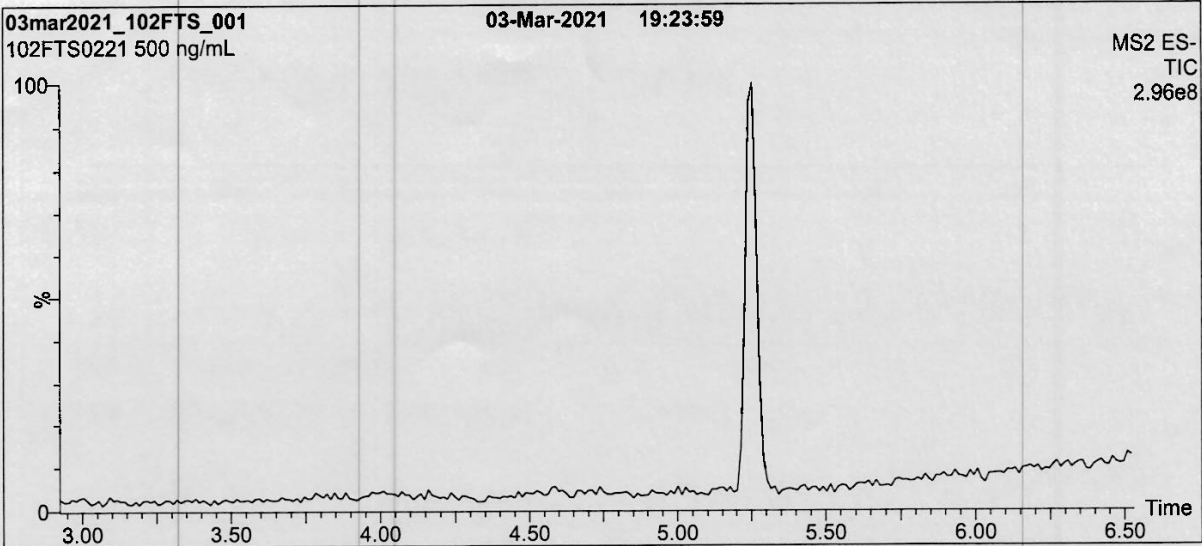
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Revision#: 9, Revised 2020-12-23

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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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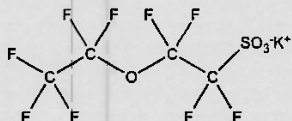
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CERTIFICATE OF ANALYSIS DOCUMENTATION

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: C₄F₉SO₄K **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:

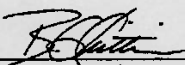
Figure 1: LC/MS Data (TIC and Mass Spectrum)

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).

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Certified By:  **Date:** 05/29/2020
(mm/dd/yyyy)

B.G. Chittim, General Manager

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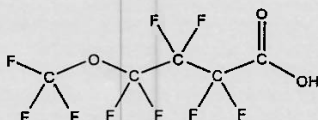
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

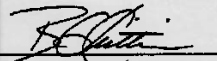
DOCUMENTATION/ DATA ATTACHED:

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

PF5OHxA0320 (1 of 4)
rev1

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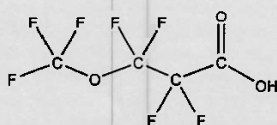
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

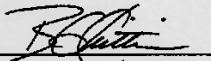
DOCUMENTATION/ DATA ATTACHED:

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

PF4OPeA0320 (1 of 4)
rev1

7.8.1

7

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

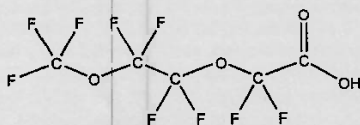
COMPOUND:

Perfluoro-3,6-dioxaheptanoic acid

STRUCTURE:

CAS #:

151772-58-6



MOLECULAR FORMULA:

C₆H₂F₉O₄

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, General Manager

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

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10829



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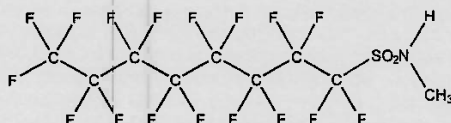
CERTIFICATE OF ANALYSIS DOCUMENTATION

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: C₈H₄F₁₇NO₂S
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

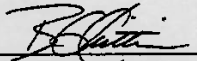
DOCUMENTATION/ DATA ATTACHED:

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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager

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

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-EtFOSA-M

10837

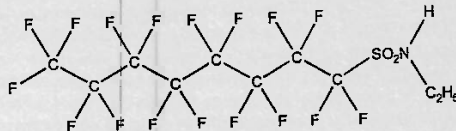
LOT NUMBER: NEtFOSA0821M

COMPOUND:

N-ethylperfluoro-1-octanesulfonamide

STRUCTURE:

CAS #: 4151-50-2



MOLECULAR FORMULA:

$C_{10}H_9F_{17}NO_2S$

MOLECULAR WEIGHT:

527.20

CONCENTRATION:

$50.0 \pm 2.5 \mu\text{g/mL}$

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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10



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CERTIFICATE OF ANALYSIS DOCUMENTATION

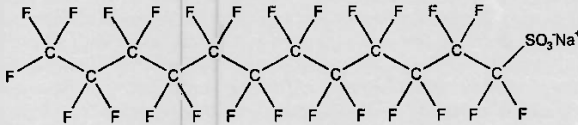
10840

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).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager
Date: 07/16/2021
(mm/dd/yyyy)

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

LPFDoS0721 (1 of 4)
rev0

7.8.1

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFODA

10847 NG 01/18/23

LOT NUMBER:

PFODA0821

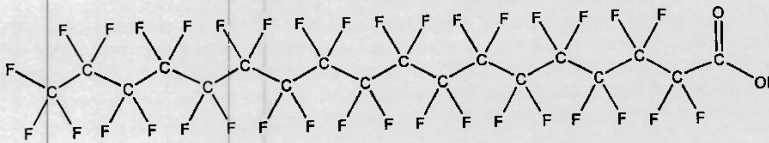
COMPOUND:

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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 09/28/2021

(mm/dd/yyyy)

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7.8.1
7



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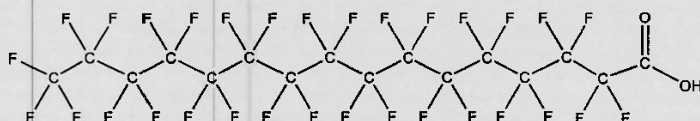
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

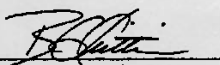
DOCUMENTATION/ DATA ATTACHED:

- 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.

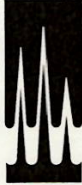
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Certified By:  **Date:** 05/25/2021
 B.G. Chittim, General Manager (mm/dd/yyyy)

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1116 A/B NW

1116B on the back NW



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHpPA

LOT NUMBER:

FHpPA1020

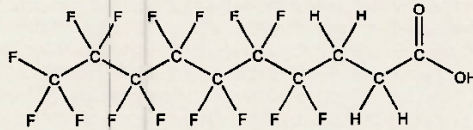
COMPOUND:

3-Perfluoroheptyl propanoic acid

STRUCTURE:

CAS #:

812-70-4



MOLECULAR FORMULA:

C₁₀H₅F₁₅O₂

MOLECULAR WEIGHT:

442.12

CONCENTRATION:

50.0 ± 2.5 µg/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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 11/27/2020

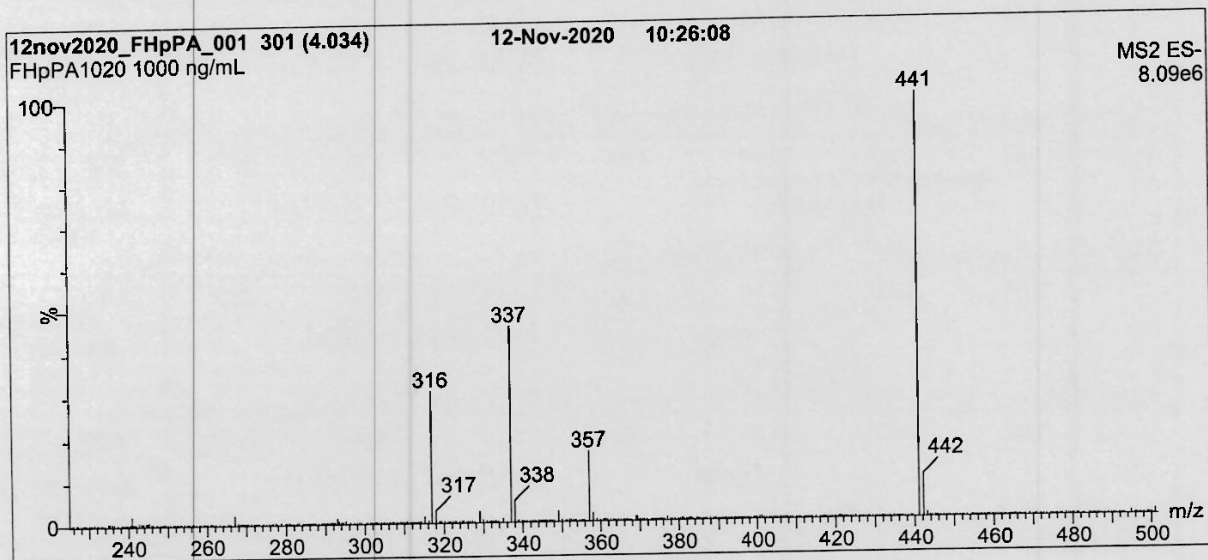
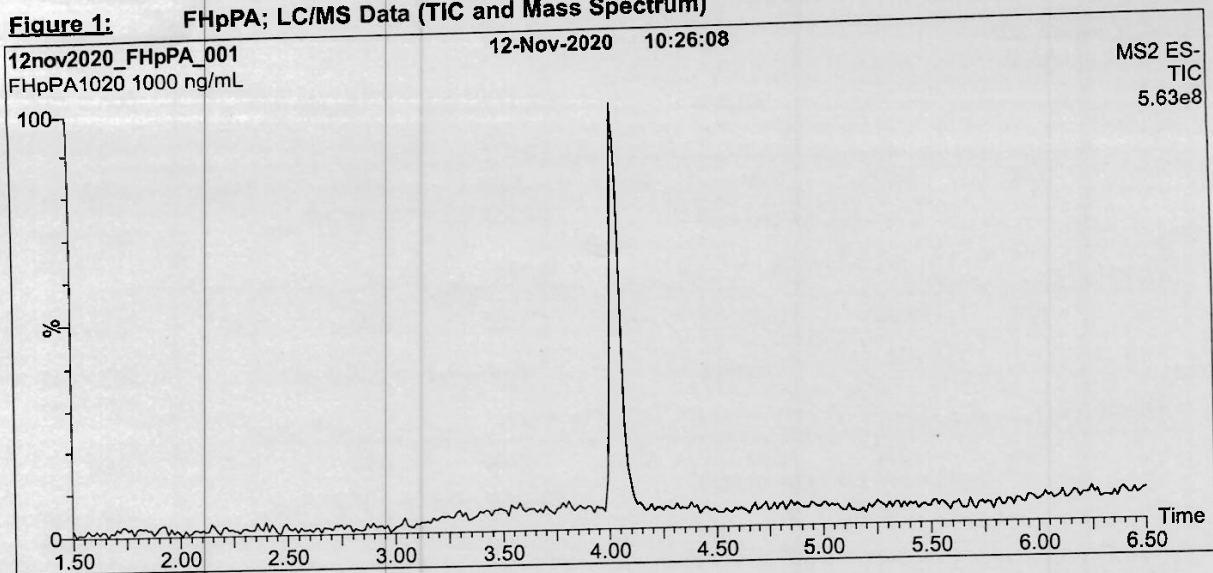
(mm/dd/yyyy)

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

FHpPA1020 (1 of 4)
rev0

Figure 1: FHpPA; 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 RP₁₈
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) = 28.50
Desolvation Temperature ($^{\circ}$ C) = 500
Desolvation Gas Flow (L/hr) = 1000

FPPrPA(3:3FTCA) 1116 B



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CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:

FPPrPA

LOT NUMBER:

FPPrPA0122

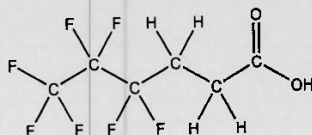
COMPOUND:

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)

02/03/2022

EXPIRY DATE: (mm/dd/yyyy)

02/03/2027

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.
- Contains <1% of the unsaturated 3:3 telomer acid ($C_6H_3F_7O_2$) as an impurity determined by ^{19}F NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 02/04/2022
(mm/dd/yyyy)

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11332



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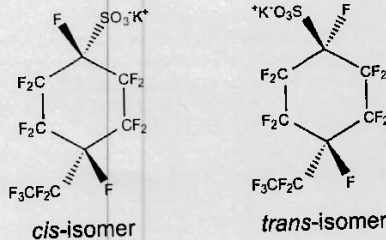
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:
COMPOUND:

PFECHS
Potassium perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)

LOT NUMBER: PFECHS0222

STRUCTURE:



CAS #: 335-24-0

MOLECULAR FORMULA:
CONCENTRATION:

$C_8F_{15}SO_3K$
50.0 ± 2.5 µg/mL (K salt)
46.2 ± 2.3 µg/mL (PFECHS acid)
46.1 ± 2.3 µg/mL (PFECHS anion)
>98%

MOLECULAR WEIGHT: 500.22
SOLVENT(S): Methanol

CHEMICAL PURITY:

LAST TESTED: (mm/dd/yyyy)

03/28/2022

EXPIRY DATE: (mm/dd/yyyy)

03/28/2027

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:

B.G. Chittim, General Manager

Date: 03/30/2022
(mm/dd/yyyy)

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11626
rec'd 01/26/23

CERTIFIED WEIGHT REPORT

Part Number: **64029A**
Lot Number: **110922**
Description: **PFOA - DOD**
28 components
Expiration Date: **110827**
Recommended Storage: **Freezer (0 °C)**
Nominal Concentration (µg/mL): **1.0**
NIST Test ID#: **6UTB**

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

Formulated By: <i>P. S. Chauhan</i>	110922
Prepared By: <i>Pedro L. Rentas</i>	110822
DATE	DATE

Volume(s) shown below were combined and diluted to (mL):
Note: All assigned values are arion 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-rat 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	rat 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 (PFDoA)	99196	071522	0.02	2.00	0.017	50.1	1.00	0.02	307-55-1	N/A	N/A
10. Perfluorotridecanoic acid (PTTDA)	99204	110922	0.02	2.00	0.017	50.1	1.00	0.02	72629-94-8	N/A	N/A
11. Perfluorotetradecanoic acid (PTeDA)	99203	033022	0.02	2.00	0.017	50.1	1.00	0.02	376-06-7	N/A	N/A
12. Perfluorooctanesulfonamide (FOSA)	3677	FOSA03221	0.02	2.00	0.017	50.0	1.00	0.05	2355-31-9 (L)	N/A	N/A
13. N-Methylperfluorooctanesulfonamidoacetic acid (br-NMeFOSAA)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	50.0	1.00	0.05	2991-50-6 (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 (6:2FTS)	65272	071522	0.02	2.00	0.017	50.2	1.00	0.05	29108-34-4	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	3763-23-1 (L)	N/A	N/A
25. 2-(Heptafluoropropoxy)-2,3,3,3-tetrafluoropropionic acid (HFPO-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-oxadecane-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-Chlorooctadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	4164	9ClPF3ONS0522	0.021	2.14	0.017	46.8	1.00	0.05	756426-56-1	N/A	N/A
28. 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-rat 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-rat 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	6.3	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 Kaye, 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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11140



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

L-PFPrS

LOT NUMBER:

LPFPrS0721

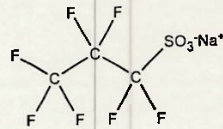
COMPOUND:

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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

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

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11252 11249
7/1/22 KA



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHxSA-I

LOT NUMBER:

FHxSA12211

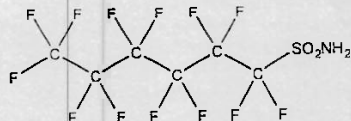
COMPOUND:

Perfluoro-1-hexanesulfonamide

STRUCTURE:

CAS #:

41997-13-1



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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7.8.1
7

11338



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-MeFOSE-M

LOT NUMBER:

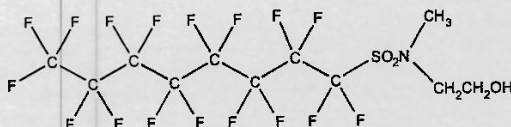
NMeFOSE0522M

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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11764 A-5
rec'd: 04/20/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-IS

Mass-Labelled PFAS Injection
Standard Solution/Mixture

PRODUCT CODE: MPFAC-HIF-IS
LQT NUMBER: MPFACHIFIS1122
SOLVENT(S): Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 11/28/2022
LAST TESTED: (mm/dd/yyyy) 11/29/2022
EXPIRY DATE: (mm/dd/yyyy) 11/29/2027
RECOMMENDED STORAGE: 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 (C₆ and C₈). 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.

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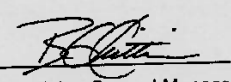
Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

MPFACHIFIS1122 (1 of 5)
rev0

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:  Date: 12/05/2022
(mm/dd/yyyy)
R.G. Chittim, General Manager

11765 A-J
Rec'd: 04/20/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-ES

Mass-Labelled PFAS Extraction Standard Solution/Mixture

PRODUCT CODE: MPFAC-HIF-ES
LOT NUMBER: MPFACHIFES1022
SOLVENT(S): Methanol/Isopropanol (1%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 10/28/2022
LAST TESTED: (mm/dd/yyyy) 11/23/2022
EXPIRY DATE: (mm/dd/yyyy) 11/23/2025
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) perfluorooctanesulfonamidoethanols, 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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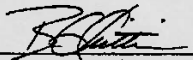
Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

MPFACHIFES1022 (1 of 7)
rev0

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 ₂)butanoic acid	MPFBA	2000		1
Perfluoro-n-(¹³ C ₃)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 ₅)heptanoic acid	M4PFHpA	500		7
Perfluoro-n-(¹³ C ₆)octanoic acid	M8PFOA	500		10
Perfluoro-n-(¹³ C ₇)nonanoic acid	M9PFNA	250		11
Perfluoro-n-(1,2,3,4,5,6- ¹³ C ₇)decanoic acid	M6PFDA	250		14
Perfluoro-n-(1,2,3,4,5,6,7- ¹³ C ₈)undecanoic acid	M7PFUdA	250		18
Perfluoro-n-(1,2- ¹³ C ₂)dodecanoic acid	MPFD _o A	250		19
Perfluoro-n-(1,2- ¹³ C ₂)tetradecanoic acid	M2PFTeDA	250		22
Perfluoro-1-(¹³ C ₈)octanesulfonamide	M8FOSA	500		17
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 ₂ -ol	d7-N-MeFOSE	5000		20
2-(N-ethyl-d ₅ -perfluoro-1-octanesulfonamido)ethan-d ₂ -ol	d9-N-EtFOSE	5000		23
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: 11/24/2022
(mm/dd/yyyy)

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 04/26/23 11:00
Started (mm/dd/yy 24:00)

Method: EPA 1633 Draft (QSM)

Date/Time: 4/27/23 14:00
Finished (mm/dd/yy 24:00)

Balance ID: _____

Batch#: OP96579 Ext. By: GH

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 96579 MB		500	7	N/A	25		5	E	
OP 96579 BS		500	7			200			
OP 96579 LLBS		500	7						
FC5240-1	1	540	6			60			
	2	550							
	3	540							
	4	560							
	5	560							
	6	560							
FC5395-1	3	560							
	2	576							
	3	570							
	4	560							
	5	560							
	6	520							
	7	570							
FC5396-10	2	540	6						
FC5487-1	2	540	6	N/A	25		5	F	decant, escape dist
OP FC5240-SMS	3	570	6	N/A	25	200	5	E	
OP FC5240-MSD	4	530	6	N/A	25	200	5	E	
OP DUP									

Comments:

EIS (SURR) ID: 11765 D-F Conc: 250-5000 ng/ml Exp. Date: 04/20/24 Inj. By: GH Ver. By: CM
 SPIKE.1 ID: LMS2107C Conc: VARIOUS Exp. Date: 10/19/23 Inj. By: GH Ver. By: CM
 SPIKE.2 ID: _____ Conc: _____ Exp. Date: _____ Inj. By: _____ Ver. By: _____
 NIS (ISTD) ID: 117646-T Conc: 250-1000 ng/ml Exp. Date: 4/27/24 Inj. By: MW Ver. By: NG

TurboVap Temp (Therm ID): _____ N-Evap Temp (Therm ID): _____
 Observed Temp °C: _____ Carr. Temp °C: _____ Observed Temp °C: _____ Corr. Temp °C: _____

Methanol Lot # 224231 1% NH4OH MeOH PF374 SPE Lot # 014-0-05
 Water Lot# OP96253 0.3M Formic Acid PF368 Syringe filter Lot #
 Acetic Acid# 194003 3% NH4OH Sol pH paper Lot# 215322
 0.1M Formic PF372 5% Formic Acid Carbon Lot# 160898

Relinquished By: Michelle Vaclant
 Accepted By: MW

Date: 04/26/23
 Date: 4/27/23