

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

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Automated Report

Technical Report for

AECOM, INC.

N6274223F0104 RH Fire Suppression System

60697810

SGS Job Number: FC2313

Sampling Date: 01/31/23



Report to:

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ATTN: Katie Abbott

Total number of pages in report: 760



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: FC2313

N6274223F0104 RH Fire Suppression System
Project No: 60697810

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FC2313-1	01/31/23	11:15 NT	02/01/23	AQ	Ground Water	AF-HDMW225303-WGN01LF-2301W5

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM, INC.

Job No: FC2313

Site: N6274223F0104 RH Fire Suppression System

Report Date: 2/8/2023 4:15:21 PM

On 02/01/2023, 1 Sample(s), 0 Trip Blank(s) and 0 Field Blanks were received at SGS North America Inc - Orlando. at a maximum corrected temperature of 2 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC2313 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: OP95294

Sample(s) FC2294-2MS, FC2294-3DUP were used as the QC samples indicated.

RPD(s) for Duplicate for Perfluorohexanoic acid are outside control limits for sample OP95294-DUP. Probable cause is due to sample non-homogeneity.

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: FC2313
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 01/31/23



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
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FC2313-1 AF-HDMW225303-WGN01LF-2301W5

No hits reported in this sample.

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-HDMW225303-WGN01LF-2301W5		
Lab Sample ID:	FC2313-1	Date Sampled:	01/31/23
Matrix:	AQ - Ground Water	Date Received:	02/01/23
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	6Q13221.D	1	02/08/23 12:55	MV	02/03/23 09:00	OP95294	S6Q202
Run #2							

Run #	Initial Volume	Final Volume
Run #1	570 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.5 U	18	3.5	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8 U	8.8	1.8	0.82	ng/l	
307-24-4	Perfluorohexanoic acid	0.88 U	4.4	0.88	0.44	ng/l	
375-85-9	Perfluoroheptanoic acid	0.88 U	4.4	0.88	0.44	ng/l	
335-67-1	Perfluorooctanoic acid	0.88 U	4.4	0.88	0.44	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	4.4	1.8	0.54	ng/l	
335-76-2	Perfluorodecanoic acid	0.88 U	4.4	0.88	0.44	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	4.4	1.8	0.53	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	4.4	1.8	0.53	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	4.4	1.8	0.74	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.88 U	4.4	0.88	0.44	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	0.88 U	4.4	0.88	0.44	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.5 U	4.4	3.5	0.98	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	4.4	1.8	0.61	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.88 U	4.4	0.88	0.44	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	4.4	1.8	0.47	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	4.4	1.8	0.50	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	4.4	1.8	0.56	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.5 U	4.4	3.5	1.0	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.0 U	18	7.0	2.8	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.0 U	18	7.0	3.0	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.0 U	18	7.0	3.6	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.8 U	4.4	1.8	0.59	ng/l	
31506-32-8	MeFOSA	1.8 U	4.4	1.8	0.88	ng/l	
4151-50-2	EtFOSA	1.8 U	4.4	1.8	0.88	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-HDMW225303-WGN01LF-2301W5		
Lab Sample ID:	FC2313-1	Date Sampled:	01/31/23
Matrix:	AQ - Ground Water	Date Received:	02/01/23
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	3.5 U	4.4	3.5	0.88	ng/l	
2991-50-6	EtFOSAA	3.5 U	4.4	3.5	1.2	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	8.8 U	44	8.8	3.8	ng/l	
1691-99-2	EtFOSE	18 U	44	18	6.5	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	3.5 U	18	3.5	0.88	ng/l	
919005-14-4	ADONA	3.5 U	18	3.5	1.6	ng/l	
377-73-1	PFMPA	1.8 U	8.8	1.8	0.88	ng/l	
863090-89-5	PFMBA	3.5 U	8.8	3.5	1.0	ng/l	
151772-58-6	NFDHA	3.5 U	8.8	3.5	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.5 U	18	3.5	1.2	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.5 U	18	3.5	1.5	ng/l	
113507-82-7	PFEESA	1.8 U	8.8	1.8	0.68	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	8.8 U	22	8.8	4.0	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	110	18	7.7	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	18 U	110	18	6.9	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	114%		20-150%
	13C5-PFPeA	114%		20-150%
	13C5-PFHxA	113%		20-150%
	13C4-PFHpA	110%		20-150%
	13C8-PFOA	110%		20-150%
	13C9-PFNA	112%		20-150%
	13C6-PFDA	103%		20-150%
	13C7-PFUnDA	91%		20-150%
	13C2-PFDoDA	87%		20-150%
	13C2-PFTeDA	88%		20-150%
	13C3-PFBS	114%		20-150%
	13C3-PFHxS	113%		20-150%

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

Report of Analysis

Client Sample ID:	AF-HDMW225303-WGN01LF-2301W5		
Lab Sample ID:	FC2313-1	Date Sampled:	01/31/23
Matrix:	AQ - Ground Water	Date Received:	02/01/23
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	105%		20-150%
	13C8-FOSA	111%		20-150%
	d3-MeFOSA	96%		20-150%
	d5-EtFOSA	101%		20-150%
	d3-MeFOSAA	109%		20-150%
	d5-EtFOSAA	106%		20-150%
	d7-MeFOSE	91%		20-150%
	d9-EtFOSE	94%		20-150%
	13C2-4:2FTS	116%		20-150%
	13C2-6:2FTS	125%		20-150%
	13C2-8:2FTS	113%		20-150%
	13C3-HFPO-DA	108%		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



FC2313

SGS North America Inc - Orlando

Chain of Custody

FC2313

SGS - ORLANDO JOB # :

SQC # 2301W5AFSG04

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="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: small;">PFAS EPA Draft 1633</div> <div style="margin-left: 20px; text-align: center;"> <p>NT</p> <p>1/31/2023</p> </div> </div>										DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe
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 # 60697610												
Project Manager: Watson Tanji Email: watson.tanji@aecom.com		Fax #												
Phone #: 303-796-4624 / 808-954-4512		Client Purchase Order #												
Sampler(s) Name(s) (Printed)														
Sampler 1: NGAH TURNER Sampler 2: CHRIS UXMACK														
SGS Orlando Sample #	COLLECTION			CONTAINER INFORMATION										LAB USE ONLY
	Field ID / Point of Collection	DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NDVE	HCl	NH3	H2SO4	NACH-ZNAC	DI WATER	
1	AF-HDMW225303-WGN01LF-2301W5	1/31/23	1115	NT/KW/MS	GW	3		X						
<div style="display: flex; justify-content: space-between;"> <div style="width: 40%;"> <p>NT</p> <p>1/31/2023</p> </div> <div style="width: 30%;"> <p>INITIAL ASSESSMENT <i>ch</i></p> <p>LABEL VERIFICATION <i>ch</i></p> </div> <div style="width: 20%;"></div> </div>														
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 AWG 016-52240915						
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		
1 <i>NT/AECOM</i>		1/31/2023		2 <i>Ken Gam AECOM</i>		1/31/23		3 <i>Ken Gam</i>		1/31/23		4 <i>Ken Gam</i>		
5				6				7				8		
Lab Use Only : Cooler Temperature (s) Celsius (corrected): <i>1.8701</i>														

PFAS_COCS_ALL.xls Rev 031318

FC2313: Chain of Custody

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5.1 5

SGS Sample Receipt Summary

Job Number: FC2313

Client: AECOM

Project: N6274223F0104 RH Fire Suppression System

Date / Time Received: 2/1/2023 3:30:00 PM

Delivery Method: United Cargo/Airspace

Airbill #'s: United Cargo AWB #: 016-52240915

Therm ID: IR 1;

Therm CF: 0.2;

of Coolers: 1

Cooler Temps (Raw Measured) °C: Cooler 1: (1.8);

Cooler Temps (Corrected) °C: Cooler 1: (2.0);

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) | |

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"/> |
| | <u>W or S</u> | | <u>N/A</u> |
| 3. Type Of TB Received | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

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"/> |

Misc. Information

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

Number of 5035 Field Kits: _____

Number of Lab Filtered Metals: _____

Test Strip Lot #: pH 0-3 _____ 230315 _____

pH 10-12 _____ 219813A _____

Other: (Specify) _____

Residual Chlorine Test Strip Lot #: _____

Comments

SM001
Rev. Date 05/24/17

Technician: CARLOSD

Date: 2/1/2023 3:30:00 PM

Reviewer: CD

Date: 2/2/2023

FC2313: Chain of Custody

Page 2 of 2

QC Evaluation: DOD QSM5.x Limits

Job Number: FC2313
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 01/31/23

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 FC2313

5.2
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
- Isotope Dilution Standard Recovery Summaries
- Initial and Continuing Calibration Summaries
- Run Sequence Reports

Instrument Blank

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q202-IBLK	6Q13187.D	1	02/07/23	MV	n/a	n/a	S6Q202

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2313-1

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.020	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.010	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0050	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0050	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0050	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0050	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0050	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0050	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0050	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0050	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0050	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0050	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0050	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0050	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0050	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0050	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0050	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0050	0.00067	ug/l	
31506-32-8	MeFOSA	0.0015	0.0050	0.0010	ug/l	J
4151-50-2	EtFOSA	0.0025	0.0050	0.0010	ug/l	J
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	0.0121	0.050	0.0044	ug/l	J
1691-99-2	EtFOSE	0.0258	0.050	0.0074	ug/l	J
13252-13-6	HFPO-DA (GenX)	ND	0.020	0.0010	ug/l	
919005-14-4	ADONA	ND	0.020	0.0019	ug/l	
377-73-1	PFMPA	ND	0.010	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.010	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.010	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.020	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.020	0.0018	ug/l	

Instrument Blank

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q202-IBLK	6Q13187.D	1	02/07/23	MV	n/a	n/a	S6Q202

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2313-1

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

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

6.1.1
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Instrument Blank

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q202-IBLK	6Q13212.D	1	02/08/23	MV	n/a	n/a	S6Q202

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2313-1

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.020	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.010	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0050	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0050	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0050	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0050	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0050	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0050	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0050	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0050	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0050	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0050	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0050	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0050	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0050	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0050	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0050	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0050	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0050	0.0010	ug/l	
4151-50-2	EtFOSA	0.0032	0.0050	0.0010	ug/l	J
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	0.0126	0.050	0.0044	ug/l	J
1691-99-2	EtFOSE	0.0253	0.050	0.0074	ug/l	J
13252-13-6	HFPO-DA (GenX)	ND	0.020	0.0010	ug/l	
919005-14-4	ADONA	ND	0.020	0.0019	ug/l	
377-73-1	PFMPA	ND	0.010	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.010	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.010	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.020	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.020	0.0018	ug/l	

Instrument Blank

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q202-IBLK	6Q13212.D	1	02/08/23	MV	n/a	n/a	S6Q202

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2313-1

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

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	101% 20-150%
	13C5-PFPeA	100% 20-150%
	13C5-PFHxA	104% 20-150%
	13C4-PFHpA	98% 20-150%
	13C8-PFOA	92% 20-150%
	13C9-PFNA	108% 20-150%
	13C6-PFDA	107% 20-150%
	13C7-PFUnDA	104% 20-150%
	13C2-PFDoDA	108% 20-150%
	13C2-PFTeDA	110% 20-150%
	13C3-PFBS	102% 20-150%
	13C3-PFHxS	103% 20-150%
	13C8-PFOS	88% 20-150%
	13C8-FOSA	94% 20-150%
	d3-MeFOSAA	102% 20-150%
	d5-EtFOSAA	95% 20-150%
	13C2-4:2FTS	112% 20-150%
	13C2-6:2FTS	103% 20-150%
	13C2-8:2FTS	90% 20-150%

Method Blank Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95294-MB	6Q13195.D	1	02/07/23	MV	02/03/23	OP95294	S6Q202

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2313-1

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

Method Blank Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95294-MB	6Q13195.D	1	02/07/23	MV	02/03/23	OP95294	S6Q202

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2313-1

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

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	113% 20-150%
	13C5-PFPeA	118% 20-150%
	13C5-PFHxA	116% 20-150%
	13C4-PFHpA	124% 20-150%
	13C8-PFOA	108% 20-150%
	13C9-PFNA	115% 20-150%
	13C6-PFDA	124% 20-150%
	13C7-PFUnDA	121% 20-150%
	13C2-PFDoDA	106% 20-150%
	13C2-PFTeDA	95% 20-150%
	13C3-PFBS	107% 20-150%
	13C3-PFHxS	102% 20-150%
	13C8-PFOS	107% 20-150%
	13C8-FOSA	99% 20-150%
	d3-MeFOSA	83% 20-150%
	d5-EtFOSA	85% 20-150%
	d3-MeFOSAA	104% 20-150%
	d5-EtFOSAA	108% 20-150%
	d7-MeFOSE	83% 20-150%
	d9-EtFOSE	81% 20-150%
	13C2-4:2FTS	112% 20-150%
	13C2-6:2FTS	113% 20-150%
	13C2-8:2FTS	101% 20-150%
	13C3-HFPO-DA	116% 20-150%

Method Blank Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95294-MB	6Q13217.D	1	02/08/23	MV	02/03/23	OP95294	S6Q202

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2313-1

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

Method Blank Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95294-MB	6Q13217.D	1	02/08/23	MV	02/03/23	OP95294	S6Q202

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2313-1

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

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	112% 20-150%
	13C5-PFPeA	119% 20-150%
	13C5-PFHxA	124% 20-150%
	13C4-PFHpA	113% 20-150%
	13C8-PFOA	112% 20-150%
	13C9-PFNA	107% 20-150%
	13C6-PFDA	122% 20-150%
	13C7-PFUnDA	116% 20-150%
	13C2-PFDoDA	109% 20-150%
	13C2-PFTeDA	86% 20-150%
	13C3-PFBS	112% 20-150%
	13C3-PFHxS	113% 20-150%
	13C8-PFOS	100% 20-150%
	13C8-FOSA	101% 20-150%
	d3-MeFOSA	79% 20-150%
	d5-EtFOSA	76% 20-150%
	d3-MeFOSAA	108% 20-150%
	d5-EtFOSAA	109% 20-150%
	d7-MeFOSE	75% 20-150%
	d9-EtFOSE	78% 20-150%
	13C2-4:2FTS	128% 20-150%
	13C2-6:2FTS	125% 20-150%
	13C2-8:2FTS	115% 20-150%
	13C3-HFPO-DA	115% 20-150%

Continuing Calibration Blank

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q202-ICCB	6Q13201.D	1	02/07/23	MV	n/a	n/a	S6Q202

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

S6Q202-IBLK, S6Q202-RT

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

Continuing Calibration Blank

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q202-ICCB	6Q13201.D	1	02/07/23	MV	n/a	n/a	S6Q202

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

S6Q202-IBLK, S6Q202-RT

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

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	102% 20-150%
	13C5-PFPeA	105% 20-150%
	13C5-PFHxA	103% 20-150%
	13C4-PFHpA	106% 20-150%
	13C8-PFOA	103% 20-150%
	13C9-PFNA	104% 20-150%
	13C6-PFDA	110% 20-150%
	13C7-PFUnDA	100% 20-150%
	13C2-PFDoDA	100% 20-150%
	13C2-PFTeDA	98% 20-150%
	13C3-PFBS	97% 20-150%
	13C3-PFHxS	101% 20-150%
	13C8-PFOS	99% 20-150%
	13C8-FOSA	94% 20-150%
	d3-MeFOSAA	93% 20-150%
	d5-EtFOSAA	94% 20-150%
	13C2-4:2FTS	108% 20-150%
	13C2-6:2FTS	106% 20-150%
	13C2-8:2FTS	94% 20-150%

6.1.5

6

Blank Spike Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95294-LLBS	6Q13194.D	1	02/07/23	MV	02/03/23	OP95294	S6Q202

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2313-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.04	0.0389	97	40-150
2706-90-3	Perfluoropentanoic acid	0.02	0.0193	97	40-150
307-24-4	Perfluorohexanoic acid	0.01	0.0100	100	40-150
375-85-9	Perfluoroheptanoic acid	0.01	0.0095	95	40-150
335-67-1	Perfluorooctanoic acid	0.01	0.0100	100	40-150
375-95-1	Perfluorononanoic acid	0.01	0.0084	84	40-150
335-76-2	Perfluorodecanoic acid	0.01	0.0096	96	40-150
2058-94-8	Perfluoroundecanoic acid	0.01	0.0097	97	40-150
307-55-1	Perfluorododecanoic acid	0.01	0.0093	93	40-150
72629-94-8	Perfluorotridecanoic acid	0.01	0.0086	86	40-150
376-06-7	Perfluorotetradecanoic acid	0.01	0.0103	103	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00887	0.0088	99	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00941	0.0088	94	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00914	0.0087	95	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00953	0.0066	69	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00928	0.0091	98	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00962	0.0085	88	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00965	0.0083	86	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0097	0.0065	67	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0375	0.0338	90	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.038	0.0399	105	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0384	0.0382	99	40-150
754-91-6	PFOSA	0.01	0.0090	90	40-150
31506-32-8	MeFOSA	0.01	0.0097	97	40-150
4151-50-2	EtFOSA	0.01	0.0096	96	40-150
2355-31-9	MeFOSAA	0.01	0.0094	94	40-150
2991-50-6	EtFOSAA	0.01	0.0091	91	40-150
24448-09-7	MeFOSE	0.1	0.0952	95	40-150
1691-99-2	EtFOSE	0.1	0.0836	84	40-150
13252-13-6	HFPO-DA (GenX)	0.04	0.0353	88	40-150
919005-14-4	ADONA	0.0378	0.0374	99	40-150
377-73-1	PFMPA	0.02	0.0200	100	40-150
863090-89-5	PFMBA	0.02	0.0209	105	40-150
151772-58-6	NFDHA	0.02	0.0223	112	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0374	0.0367	98	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0378	0.0337	89	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95294-LLBS	6Q13194.D	1	02/07/23	MV	02/03/23	OP95294	S6Q202

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2313-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0178	0.0171	96	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.05	0.0371	74	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.25	0.246	98	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.25	0.197	79	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	102%	20-150%
	13C5-PFPeA	111%	20-150%
	13C5-PFHxA	110%	20-150%
	13C4-PFHpA	110%	20-150%
	13C8-PFOA	105%	20-150%
	13C9-PFNA	111%	20-150%
	13C6-PFDA	111%	20-150%
	13C7-PFUnDA	115%	20-150%
	13C2-PFDoDA	116%	20-150%
	13C2-PFTeDA	92%	20-150%
	13C3-PFBS	110%	20-150%
	13C3-PFHxS	114%	20-150%
	13C8-PFOS	112%	20-150%
	13C8-FOSA	112%	20-150%
	d3-MeFOSA	84%	20-150%
	d5-EtFOSA	84%	20-150%
	d3-MeFOSAA	115%	20-150%
	d5-EtFOSAA	104%	20-150%
	d7-MeFOSE	80%	20-150%
	d9-EtFOSE	83%	20-150%
	13C2-4:2FTS	122%	20-150%
	13C2-6:2FTS	112%	20-150%
	13C2-8:2FTS	115%	20-150%
	13C3-HFPO-DA	109%	20-150%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95294-LLBS	6Q13216.D	1	02/08/23	MV	02/03/23	OP95294	S6Q202

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2313-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.04	0.0391	98	40-150
2706-90-3	Perfluoropentanoic acid	0.02	0.0189	95	40-150
307-24-4	Perfluorohexanoic acid	0.01	0.0099	99	40-150
375-85-9	Perfluoroheptanoic acid	0.01	0.0096	96	40-150
335-67-1	Perfluorooctanoic acid	0.01	0.0098	98	40-150
375-95-1	Perfluorononanoic acid	0.01	0.0090	90	40-150
335-76-2	Perfluorodecanoic acid	0.01	0.0104	104	40-150
2058-94-8	Perfluoroundecanoic acid	0.01	0.0097	97	40-150
307-55-1	Perfluorododecanoic acid	0.01	0.0094	94	40-150
72629-94-8	Perfluorotridecanoic acid	0.01	0.0093	93	40-150
376-06-7	Perfluorotetradecanoic acid	0.01	0.0110	110	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00887	0.0095	107	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00941	0.0084	89	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00914	0.0085	93	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00953	0.0086	90	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00928	0.0084	91	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00962	0.0085	88	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00965	0.0079	82	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0097	0.0076	78	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0375	0.0344	92	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.038	0.0351	92	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0384	0.0413	108	40-150
754-91-6	PFOSA	0.01	0.0092	92	40-150
31506-32-8	MeFOSA	0.01	0.0105	105	40-150
4151-50-2	EtFOSA	0.01	0.0086	86	40-150
2355-31-9	MeFOSAA	0.01	0.0097	97	40-150
2991-50-6	EtFOSAA	0.01	0.0084	84	40-150
24448-09-7	MeFOSE	0.1	0.0926	93	40-150
1691-99-2	EtFOSE	0.1	0.0845	85	40-150
13252-13-6	HFPO-DA (GenX)	0.04	0.0399	100	40-150
919005-14-4	ADONA	0.0378	0.0366	97	40-150
377-73-1	PFMPA	0.02	0.0193	97	40-150
863090-89-5	PFMBA	0.02	0.0207	104	40-150
151772-58-6	NFDHA	0.02	0.0199	100	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0374	0.0344	92	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0378	0.0322	85	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95294-LLBS	6Q13216.D	1	02/08/23	MV	02/03/23	OP95294	S6Q202

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2313-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0178	0.0165	93	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.05	0.0370	74	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.25	0.236	94	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.25	0.197	79	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	103%	20-150%
	13C5-PFPeA	116%	20-150%
	13C5-PFHxA	119%	20-150%
	13C4-PFHpA	111%	20-150%
	13C8-PFOA	102%	20-150%
	13C9-PFNA	107%	20-150%
	13C6-PFDA	106%	20-150%
	13C7-PFUnDA	111%	20-150%
	13C2-PFDoDA	112%	20-150%
	13C2-PFTeDA	88%	20-150%
	13C3-PFBS	108%	20-150%
	13C3-PFHxS	114%	20-150%
	13C8-PFOS	111%	20-150%
	13C8-FOSA	108%	20-150%
	d3-MeFOSA	78%	20-150%
	d5-EtFOSA	84%	20-150%
	d3-MeFOSAA	120%	20-150%
	d5-EtFOSAA	117%	20-150%
	d7-MeFOSE	79%	20-150%
	d9-EtFOSE	85%	20-150%
	13C2-4:2FTS	130%	20-150%
	13C2-6:2FTS	122%	20-150%
	13C2-8:2FTS	108%	20-150%
	13C3-HFPO-DA	111%	20-150%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95294-BS	6Q13193.D	1	02/07/23	MV	02/03/23	OP95294	S6Q202

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2313-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.102	102	40-150
2706-90-3	Perfluoropentanoic acid	0.05	0.0520	104	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0258	103	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0252	101	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0244	98	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0239	96	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0252	101	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0280	112	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0259	104	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0248	99	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0277	111	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0239	108	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0259	110	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0253	111	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0254	107	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0232	100	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0238	99	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0225	93	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0213	88	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0938	0.0926	99	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.0974	103	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.102	106	40-150
754-91-6	PFOSA	0.025	0.0254	102	40-150
31506-32-8	MeFOSA	0.025	0.0258	103	40-150
4151-50-2	EtFOSA	0.025	0.0250	100	40-150
2355-31-9	MeFOSAA	0.025	0.0255	102	40-150
2991-50-6	EtFOSAA	0.025	0.0229	92	40-150
24448-09-7	MeFOSE	0.25	0.241	96	40-150
1691-99-2	EtFOSE	0.25	0.233	93	40-150
13252-13-6	HFPO-DA (GenX)	0.1	0.0960	96	40-150
919005-14-4	ADONA	0.0945	0.0917	97	40-150
377-73-1	PFMPA	0.05	0.0221	44	40-150
863090-89-5	PFMBA	0.05	0.0562	112	40-150
151772-58-6	NFDHA	0.05	0.0548	110	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0935	0.0923	99	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0945	0.0858	91	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95294-BS	6Q13193.D	1	02/07/23	MV	02/03/23	OP95294	S6Q202

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2313-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0466	105	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.0703	56	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.625	0.621	99	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.524	84	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	20%	20-150%
	13C5-PFPeA	107%	20-150%
	13C5-PFHxA	110%	20-150%
	13C4-PFHpA	106%	20-150%
	13C8-PFOA	113%	20-150%
	13C9-PFNA	107%	20-150%
	13C6-PFDA	106%	20-150%
	13C7-PFUnDA	101%	20-150%
	13C2-PFDoDA	104%	20-150%
	13C2-PFTeDA	99%	20-150%
	13C3-PFBS	99%	20-150%
	13C3-PFHxS	101%	20-150%
	13C8-PFOS	105%	20-150%
	13C8-FOSA	105%	20-150%
	d3-MeFOSA	95%	20-150%
	d5-EtFOSA	88%	20-150%
	d3-MeFOSAA	106%	20-150%
	d5-EtFOSAA	110%	20-150%
	d7-MeFOSE	90%	20-150%
	d9-EtFOSE	88%	20-150%
	13C2-4:2FTS	109%	20-150%
	13C2-6:2FTS	106%	20-150%
	13C2-8:2FTS	99%	20-150%
	13C3-HFPO-DA	113%	20-150%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95294-BS	6Q13215.D	1	02/08/23	MV	02/03/23	OP95294	S6Q202

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2313-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.103	103	40-150
2706-90-3	Perfluoropentanoic acid	0.05	0.0513	103	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0252	101	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0258	103	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0249	100	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0253	101	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0268	107	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0263	105	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0274	110	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0275	110	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0264	106	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0251	113	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0234	99	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0221	97	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0259	109	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0247	106	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0232	96	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0232	96	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0232	96	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0938	0.102	109	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.101	106	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.104	108	40-150
754-91-6	PFOSA	0.025	0.0249	100	40-150
31506-32-8	MeFOSA	0.025	0.0249	100	40-150
4151-50-2	EtFOSA	0.025	0.0235	94	40-150
2355-31-9	MeFOSAA	0.025	0.0279	112	40-150
2991-50-6	EtFOSAA	0.025	0.0231	92	40-150
24448-09-7	MeFOSE	0.25	0.248	99	40-150
1691-99-2	EtFOSE	0.25	0.238	95	40-150
13252-13-6	HFPO-DA (GenX)	0.1	0.101	101	40-150
919005-14-4	ADONA	0.0945	0.0956	101	40-150
377-73-1	PFMPA	0.05	0.0222	44	40-150
863090-89-5	PFMBA	0.05	0.0558	112	40-150
151772-58-6	NFDHA	0.05	0.0505	101	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0935	0.0922	99	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0945	0.0918	97	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95294-BS	6Q13215.D	1	02/08/23	MV	02/03/23	OP95294	S6Q202

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2313-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0437	98	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.0706	56	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.625	0.626	100	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.531	85	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	20%	20-150%
	13C5-PFPeA	110%	20-150%
	13C5-PFHxA	118%	20-150%
	13C4-PFHpA	110%	20-150%
	13C8-PFOA	106%	20-150%
	13C9-PFNA	102%	20-150%
	13C6-PFDA	112%	20-150%
	13C7-PFUnDA	106%	20-150%
	13C2-PFDoDA	103%	20-150%
	13C2-PFTeDA	96%	20-150%
	13C3-PFBS	103%	20-150%
	13C3-PFHxS	110%	20-150%
	13C8-PFOS	100%	20-150%
	13C8-FOSA	101%	20-150%
	d3-MeFOSA	91%	20-150%
	d5-EtFOSA	91%	20-150%
	d3-MeFOSAA	109%	20-150%
	d5-EtFOSAA	113%	20-150%
	d7-MeFOSE	84%	20-150%
	d9-EtFOSE	87%	20-150%
	13C2-4:2FTS	116%	20-150%
	13C2-6:2FTS	112%	20-150%
	13C2-8:2FTS	108%	20-150%
	13C3-HFPO-DA	110%	20-150%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95294-MS	6Q13199.D	1	02/07/23	MV	02/03/23	OP95294	S6Q202
FC2294-2	6Q13198.D	1	02/07/23	MV	02/03/23	OP95294	S6Q202

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2313-1

CAS No.	Compound	FC2294-2 ug/l	Spike Q	MS ug/l	MS %	Limits	
375-22-4	Perfluorobutanoic acid	0.018 U		0.0893	0.0903	101	40-150
2706-90-3	Perfluoropentanoic acid	0.0048 J		0.0446	0.0494	100	40-150
307-24-4	Perfluorohexanoic acid	0.0012 J		0.0223	0.0228	97	40-150
375-85-9	Perfluoroheptanoic acid	0.0044 U		0.0223	0.0213	95	40-150
335-67-1	Perfluorooctanoic acid	0.0044 U		0.0223	0.0223	100	40-150
375-95-1	Perfluorononanoic acid	0.0044 U		0.0223	0.0243	109	40-150
335-76-2	Perfluorodecanoic acid	0.0044 U		0.0223	0.0232	104	40-150
2058-94-8	Perfluoroundecanoic acid	0.0044 U		0.0223	0.0243	109	40-150
307-55-1	Perfluorododecanoic acid	0.0044 U		0.0223	0.0236	106	40-150
72629-94-8	Perfluorotridecanoic acid	0.0044 U		0.0223	0.0233	104	40-150
376-06-7	Perfluorotetradecanoic acid	0.0044 U		0.0223	0.0261	117	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0044 U		0.0198	0.0201	102	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0044 U		0.021	0.0217	103	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0044 U		0.0204	0.0215	105	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0044 U		0.0213	0.0215	101	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0044 U		0.0207	0.0211	102	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0044 U		0.0215	0.0206	96	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0044 U		0.0215	0.0179	83	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0044 U		0.0217	0.0164	76	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.018 U		0.0837	0.0830	99	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.018 U		0.0848	0.0873	103	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.018 U		0.0857	0.0996	116	40-150
754-91-6	PFOSA	0.0044 U		0.0223	0.0215	96	40-150
31506-32-8	MeFOSA	0.0044 U		0.0223	0.0216	97	40-150
4151-50-2	EtFOSA	0.0044 U		0.0223	0.0212	95	40-150
2355-31-9	MeFOSAA	0.0044 U		0.0223	0.0201	90	40-150
2991-50-6	EtFOSAA	0.0044 U		0.0223	0.0210	94	40-150
24448-09-7	MeFOSE	0.044 U		0.223	0.218	98	40-150
1691-99-2	EtFOSE	0.044 U		0.223	0.222	99	40-150
13252-13-6	HFPO-DA (GenX)	0.018 U		0.0893	0.0911	102	40-150
919005-14-4	ADONA	0.018 U		0.0844	0.0844	100	40-150
377-73-1	PFMPA	0.0088 U		0.0446	0.0277	62	40-150
863090-89-5	PFMBA	0.0088 U		0.0446	0.0479	107	40-150
151772-58-6	NFDHA	0.0088 U		0.0446	0.0462	103	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.018 U		0.0835	0.0751	90	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.018 U		0.0844	0.0669	79	40-150

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95294-MS	6Q13199.D	1	02/07/23	MV	02/03/23	OP95294	S6Q202
FC2294-2	6Q13198.D	1	02/07/23	MV	02/03/23	OP95294	S6Q202

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2313-1

CAS No.	Compound	FC2294-2 ug/l	Spike Q	MS ug/l	MS %	Limits
113507-82-7	PFEESA	0.0088 U	0.0397	0.0398	100	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.022 U	0.112	0.106	95	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.11 U	0.558	0.547	98	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.11 U	0.558	0.428	77	40-150

CAS No.	ID Standard Recoveries	MS	FC2294-2	Limits
	13C4-PFBA	24%	37%	20-150%
	13C5-PFPeA	109%	106%	20-150%
	13C5-PFHxA	111%	105%	20-150%
	13C4-PFHpA	110%	105%	20-150%
	13C8-PFOA	106%	108%	20-150%
	13C9-PFNA	110%	108%	20-150%
	13C6-PFDA	110%	95%	20-150%
	13C7-PFUnDA	102%	97%	20-150%
	13C2-PFDoDA	91%	94%	20-150%
	13C2-PFTeDA	83%	90%	20-150%
	13C3-PFBS	115%	109%	20-150%
	13C3-PFHxS	114%	112%	20-150%
	13C8-PFOS	101%	105%	20-150%
	13C8-FOSA	100%	118%	20-150%
	d3-MeFOSA	87%	96%	20-150%
	d5-EtFOSA	81%	97%	20-150%
	d3-MeFOSAA	111%	103%	20-150%
	d5-EtFOSAA	103%	109%	20-150%
	d7-MeFOSE	73%	92%	20-150%
	d9-EtFOSE	69%	88%	20-150%
	13C2-4:2FTS	118%	114%	20-150%
	13C2-6:2FTS	113%	116%	20-150%
	13C2-8:2FTS	96%	108%	20-150%
	13C3-HFPO-DA	109%	108%	20-150%

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95294-DUP	6Q13219.D	1	02/08/23	MV	02/03/23	OP95294	S6Q202
FC2294-3	6Q13218.D	1	02/08/23	MV	02/03/23	OP95294	S6Q202

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2313-1

CAS No.	Compound	FC2294-3 ug/l	DUP Q	ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.019 U		ND		nc	30
2706-90-3	Perfluoropentanoic acid	0.0036 J		0.0035 J		3	30
307-24-4	Perfluorohexanoic acid	0.0046 U		0.0021 J		200*	30
375-85-9	Perfluoroheptanoic acid	0.0018 J		0.0017 J		6	30
335-67-1	Perfluorooctanoic acid	0.0046 U		ND		nc	30
375-95-1	Perfluorononanoic acid	0.0046 U		ND		nc	30
335-76-2	Perfluorodecanoic acid	0.0046 U		ND		nc	30
2058-94-8	Perfluoroundecanoic acid	0.0046 U		ND		nc	30
307-55-1	Perfluorododecanoic acid	0.0046 U		ND		nc	30
72629-94-8	Perfluorotridecanoic acid	0.0046 U		ND		nc	30
376-06-7	Perfluorotetradecanoic acid	0.0046 U		ND		nc	30
375-73-5	Perfluorobutanesulfonic acid	0.0046 U		ND		nc	30
2706-91-4	Perfluoropentanesulfonic acid	0.0046 U		ND		nc	30
355-46-4	Perfluorohexanesulfonic acid	0.0046 U		ND		nc	30
375-92-8	Perfluoroheptanesulfonic acid	0.0046 U		ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	0.0046 U		ND		nc	30
68259-12-1	Perfluorononanesulfonic acid	0.0046 U		ND		nc	30
335-77-3	Perfluorodecanesulfonic acid	0.0046 U		ND		nc	30
79780-39-5	Perfluorododecanesulfonic aci	0.0046 U		ND		nc	30
757124-72-44:2	Fluorotelomer sulfonate	0.019 U		ND		nc	30
27619-97-2	6:2 Fluorotelomer sulfonate	0.0069 J		0.0061 J		12	30
39108-34-4	8:2 Fluorotelomer sulfonate	0.019 U		ND		nc	30
754-91-6	PFOSA	0.0046 U		ND		nc	30
31506-32-8	MeFOSA	0.0046 U		ND		nc	30
4151-50-2	EtFOSA	0.0046 U		ND		nc	30
2355-31-9	MeFOSAA	0.0046 U		ND		nc	30
2991-50-6	EtFOSAA	0.0046 U		ND		nc	30
24448-09-7	MeFOSE	0.046 U		ND		nc	30
1691-99-2	EtFOSE	0.046 U		ND		nc	30
13252-13-6	HFPO-DA (GenX)	0.019 U		ND		nc	30
919005-14-4	ADONA	0.019 U		ND		nc	30
377-73-1	PFMPA	0.0093 U		ND		nc	30
863090-89-5	PFMBA	0.0093 U		ND		nc	30
151772-58-6	NFDHA	0.0093 U		ND		nc	30
756426-58-19	Cl-PF3ONS (F-53B Major)	0.019 U		ND		nc	30
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.019 U		ND		nc	30

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95294-DUP	6Q13219.D	1	02/08/23	MV	02/03/23	OP95294	S6Q202
FC2294-3	6Q13218.D	1	02/08/23	MV	02/03/23	OP95294	S6Q202

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2313-1

CAS No.	Compound	FC2294-3 ug/l	DUP Q ug/l	Q RPD	Limits
113507-82-7	PFEESA	0.0093 U	ND	nc	30
356-02-5	3:3 Fluorotelomer carboxylate	0.023 U	ND	nc	30
914637-49-35:3	Fluorotelomer carboxylate	0.12 U	ND	nc	30
812-70-4	7:3 Fluorotelomer carboxylate	0.12 U	ND	nc	30

CAS No.	ID Standard Recoveries	DUP	FC2294-3	Limits
	13C4-PFBA	99%	96%	20-150%
	13C5-PFPeA	109%	104%	20-150%
	13C5-PFHxA	109%	103%	20-150%
	13C4-PFHpA	105%	101%	20-150%
	13C8-PFOA	100%	94%	20-150%
	13C9-PFNA	98%	104%	20-150%
	13C6-PFDA	94%	108%	20-150%
	13C7-PFUnDA	81%	101%	20-150%
	13C2-PFDoDA	73%	87%	20-150%
	13C2-PFTeDA	70%	82%	20-150%
	13C3-PFBS	103%	101%	20-150%
	13C3-PFHxS	107%	99%	20-150%
	13C8-PFOS	97%	97%	20-150%
	13C8-FOSA	101%	94%	20-150%
	d3-MeFOSA	76%	81%	20-150%
	d5-EtFOSA	76%	75%	20-150%
	d3-MeFOSAA	102%	100%	20-150%
	d5-EtFOSAA	94%	96%	20-150%
	d7-MeFOSE	75%	71%	20-150%
	d9-EtFOSE	72%	73%	20-150%
	13C2-4:2FTS	89%	84%	20-150%
	13C2-6:2FTS	90%	88%	20-150%
	13C2-8:2FTS	87%	87%	20-150%
	13C3-HFPO-DA	104%	98%	20-150%

* = Outside of Control Limits.

Injection Standard Area Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q202-CC196	Injection Date:	02/07/23
Lab File ID:	6Q13188.D	Injection Time:	10:48
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	34482	2.98	35210	5.58	78269	7.16	31770	7.69	27529	8.17
Check Std ^c	40882	2.98	40432	5.56	91011	7.15	28482	7.68	26529	8.16
Upper Limit ^d	68964	3.38	70420	5.96	156538	7.55	63540	8.08	55058	8.56
Lower Limit ^e	10345	2.58	10563	5.16	23481	6.75	9531	7.28	8259	7.76

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	36879	3.00	34891	5.56	79524	7.15	24787	7.68	22926	8.16	1
ZZZZZZ	35516	3.00	34469	5.58	75221	7.15	24755	7.67	24338	8.14	1
ZZZZZZ	35924	3.00	36119	5.58	76849	7.15	26364	7.68	23076	8.16	1
OP95294-BS	34300	2.99	32839	5.56	69474	7.13	25187	7.67	23098	8.16	1
OP95294-LLBS	33453	3.02	32234	5.58	71580	7.15	24479	7.67	22386	8.16	1
OP95294-MB	32652	3.00	30497	5.56	70811	7.15	22991	7.68	20218	8.16	1
ZZZZZZ	32907	3.00	32697	5.58	73537	7.15	23993	7.68	22128	8.16	1
ZZZZZZ	32370	3.02	29892	5.58	68454	7.15	22967	7.68	21148	8.16	1
FC2294-2	33589	3.03	33460	5.58	68608	7.15	23734	7.68	23045	8.16	1
OP95294-MS	32962	3.02	32526	5.58	70389	7.15	22828	7.68	21465	8.16	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: S6Q196-ICC196 6Q12726.D 02/01/23 18:33. 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.

6.5.1
6

Injection Standard Area Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q202-CC196	Injection Date:	02/07/23
Lab File ID:	6Q13188.D	Injection Time:	10:48
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	6781	7.29	10607	8.35
Check Std ^c	7508	7.27	11694	8.33
Upper Limit ^d	13562	7.67	21214	8.73
Lower Limit ^e	2034	6.87	3182	7.93

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
ZZZZZZ	6762	7.27	10329	8.33	1
ZZZZZZ	6359	7.27	10311	8.32	1
ZZZZZZ	6764	7.27	10220	8.33	1
OP95294-BS	6529	7.27	9482	8.33	1
OP95294-LLBS	6103	7.27	9190	8.33	1
OP95294-MB	6366	7.27	9160	8.33	1
ZZZZZZ	5802	7.27	11270	8.32	1
ZZZZZZ	6051	7.27	10083	8.33	1
FC2294-2	5995	7.27	8929	8.33	1
OP95294-MS	5832	7.27	9598	8.33	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q196-ICC196 6Q12726.D 02/01/23 18:33. 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: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q202-CC196	Injection Date:	02/07/23
Lab File ID:	6Q13200.D	Injection Time:	13:36
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	34482	2.98	35210	5.58	78269	7.16	31770	7.69	27529	8.17
Check Std ^c	41242	2.98	41107	5.56	88239	7.15	29624	7.68	27559	8.16
Upper Limit ^d	68964	3.38	70420	5.96	156538	7.55	63540	8.08	55058	8.56
Lower Limit ^e	10345	2.58	10563	5.16	23481	6.75	9531	7.28	8259	7.76

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
S6Q202-ICCB	36409	2.98	34974	5.56	77878	7.15	27004	7.68	24379	8.16	1
S6Q202-RT											
S6Q202-RT	39518	2.98	37785	5.56	79850	7.15	27597	7.68	26656	8.16	1
S6Q202-IBLK	39005	3.00	38967	5.58	87642	7.13	26474	7.67	25087	8.16	1
S6Q202-IBLK	39005	3.00	38967	5.58	87642	7.13	26474	7.67	25087	8.16	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: S6Q196-ICC196 6Q12726.D 02/01/23 18:33. 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.

6.5.2
6

Injection Standard Area Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q202-CC196	Injection Date:	02/07/23
Lab File ID:	6Q13200.D	Injection Time:	13:36
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	6781	7.29	10607	8.35
Check Std ^c	7531	7.27	11522	8.33
Upper Limit ^d	13562	7.67	21214	8.73
Lower Limit ^e	2034	6.87	3182	7.93

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S6Q202-ICCB	6985	7.27	10528	8.33	1
S6Q202-RT			15162	8.33	1
S6Q202-RT	7183	7.27	10725	8.33	1
S6Q202-IBLK	7204	7.26	11429	8.33	1
S6Q202-IBLK	7204	7.26	11429	8.33	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q196-ICC196 6Q12726.D 02/01/23 18:33. 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.

6.5.2
6

Injection Standard Area Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q202-CC196	Injection Date:	02/08/23
Lab File ID:	6Q13213.D	Injection Time:	11:03
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	34482	2.98	35210	5.58	78269	7.16	31770	7.69	27529	8.17
Check Std ^c	44480	2.98	43012	5.56	95969	7.15	32405	7.68	27860	8.17
Upper Limit ^d	68964	3.38	70420	5.96	156538	7.55	63540	8.08	55058	8.57
Lower Limit ^e	10345	2.58	10563	5.16	23481	6.75	9531	7.28	8259	7.77

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
OP95294-BS	36250	2.99	33644	5.56	76788	7.15	26739	7.68	24033	8.16	1
OP95294-LLBS	35309	3.00	33260	5.56	78765	7.15	25806	7.68	23072	8.16	1
OP95294-MB	34680	3.00	31877	5.58	71275	7.15	24609	7.68	22170	8.16	1
FC2294-3	32941	3.00	34030	5.56	74895	7.15	23349	7.68	21827	8.16	1
OP95294-DUP	32642	3.00	32484	5.58	72518	7.15	24134	7.68	23423	8.16	1
ZZZZZZ	25702	2.99	33931	5.56	76297	7.15	24905	7.68	22337	8.16	1
FC2313-1	34417	3.00	34228	5.56	71427	7.13	23897	7.68	23913	8.16	1
ZZZZZZ	34355	3.00	32948	5.56	76208	7.13	23678	7.68	22911	8.16	1
ZZZZZZ	33750	3.00	34631	5.56	70766	7.15	22575	7.68	22121	8.16	1
ZZZZZZ	33897	3.00	31915	5.56	72288	7.13	24791	7.67	22590	8.16	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: S6Q196-ICC196 6Q12726.D 02/01/23 18:33. 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.

6.5.3
6

Injection Standard Area Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q202-CC196	Injection Date:	02/08/23
Lab File ID:	6Q13213.D	Injection Time:	11:03
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	6781	7.29	10607	8.35
Check Std ^c	7696	7.27	12832	8.33
Upper Limit ^d	13562	7.67	21214	8.73
Lower Limit ^e	2034	6.87	3182	7.93

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
OP95294-BS	6474	7.27	10099	8.33	1
OP95294-LLBS	6398	7.27	9743	8.33	1
OP95294-MB	6226	7.27	10377	8.33	1
FC2294-3	6392	7.27	9692	8.33	1
OP95294-DUP	6294	7.27	8796	8.33	1
ZZZZZZ	5764	7.27	9184	8.33	1
FC2313-1	6261	7.26	9326	8.33	1
ZZZZZZ	6189	7.26	9700	8.33	1
ZZZZZZ	6209	7.27	9564	8.33	1
ZZZZZZ	6181	7.26	9415	8.33	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q196-ICC196 6Q12726.D 02/01/23 18:33. 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.

6.5.3
6

TDCA Retention Time Check

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q196-RT	Injection Date:	02/01/23
Lab File ID:	6Q12720.D	Injection Time:	17:09
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.347	--	--
TDCA	6.832	1.515	1.000
TCDCA	6.671	1.676	1.000
TUDCA	5.819	2.528	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
S6Q196-IC196	6Q12722.D	02/01/23	17:37	00:28	Mass Calibration Verification
S6Q196-IC196	6Q12723.D	02/01/23	17:51	00:42	Initial cal 1
S6Q196-IC196	6Q12724.D	02/01/23	18:05	00:56	Initial cal 2
S6Q196-IC196	6Q12725.D	02/01/23	18:19	01:10	Initial cal 3
S6Q196-ICC196	6Q12726.D	02/01/23	18:33	01:24	Initial cal 4
S6Q196-IC196	6Q12727.D	02/01/23	18:47	01:38	Initial cal 5
S6Q196-IC196	6Q12728.D	02/01/23	19:01	01:52	Initial cal 6
S6Q196-IC196	6Q12729.D	02/01/23	19:15	02:06	Initial cal 7
S6Q196-IC196	6Q12730.D	02/01/23	19:29	02:20	Initial cal 8
S6Q196-IBLK	6Q12731.D	02/01/23	19:43	02:34	Instrument Blank
S6Q196-IBLK	6Q12731.D	02/01/23	19:43	02:34	Instrument Blank
S6Q196-ICV196	6Q12732.D	02/01/23	19:57	02:48	Initial cal verification 4
S6Q196-ICV196	6Q12733.D	02/01/23	20:11	03:02	Initial cal verification 4
S6Q196-CC196	6Q12734.D	02/01/23	20:25	03:16	Continuing cal 4
S6Q196-CC196	6Q12735.D	02/01/23	20:39	03:30	Continuing cal 1.0LL
OP94938-BS	6Q12736.D	02/01/23	20:53	03:44	Blank Spike
OP94938-LLBS	6Q12737.D	02/01/23	21:07	03:58	Blank Spike
OP94938-MB	6Q12738.D	02/01/23	21:21	04:12	Method Blank
ZZZZZZ	6Q12739.D	02/01/23	21:35	04:26	(unrelated sample)
ZZZZZZ	6Q12740.D	02/01/23	21:49	04:40	(unrelated sample)
ZZZZZZ	6Q12741.D	02/01/23	22:03	04:54	(unrelated sample)
ZZZZZZ	6Q12742.D	02/01/23	22:17	05:08	(unrelated sample)
ZZZZZZ	6Q12743.D	02/01/23	22:31	05:22	(unrelated sample)
FC1643-12	6Q12744.D	02/01/23	22:45	05:36	(used for QC only; not part of job FC2313)
OP94938-MS	6Q12745.D	02/01/23	22:59	05:50	Matrix Spike
S6Q196-CC196	6Q12746.D	02/01/23	23:13	06:04	Continuing cal 4
S6Q196-ICCB	6Q12747.D	02/01/23	23:27	06:18	Continuing Calibration Blank
FC1643-13	6Q12748.D	02/01/23	23:41	06:32	(used for QC only; not part of job FC2313)
OP94938-DUP	6Q12749.D	02/01/23	23:55	06:46	Duplicate
ZZZZZZ	6Q12750.D	02/02/23	00:09	07:00	(unrelated sample)
ZZZZZZ	6Q12751.D	02/02/23	00:22	07:13	(unrelated sample)
ZZZZZZ	6Q12752.D	02/02/23	00:36	07:27	(unrelated sample)
ZZZZZZ	6Q12753.D	02/02/23	00:50	07:41	(unrelated sample)
ZZZZZZ	6Q12755.D	02/02/23	01:18	08:09	(unrelated sample)

TDCA Retention Time Check

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q196-RT	Injection Date:	02/01/23
Lab File ID:	6Q12720.D	Injection Time:	17:09
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	6Q12756.D	02/02/23	01:32	08:23	(unrelated sample)
ZZZZZZ	6Q12757.D	02/02/23	01:46	08:37	(unrelated sample)
S6Q196-CC196	6Q12758.D	02/02/23	02:00	08:51	Continuing cal 4
S6Q196-ICCB	6Q12759.D	02/02/23	02:14	09:05	Continuing Calibration Blank
ZZZZZZ	6Q12761.D	02/02/23	02:42	09:33	(unrelated sample)
ZZZZZZ	6Q12762.D	02/02/23	02:56	09:47	(unrelated sample)
ZZZZZZ	6Q12763.D	02/02/23	03:10	10:01	(unrelated sample)
ZZZZZZ	6Q12764.D	02/02/23	03:24	10:15	(unrelated sample)
ZZZZZZ	6Q12765.D	02/02/23	03:38	10:29	(unrelated sample)
ZZZZZZ	6Q12766.D	02/02/23	03:52	10:43	(unrelated sample)
ZZZZZZ	6Q12767.D	02/02/23	04:06	10:57	(unrelated sample)
S6Q196-CC196	6Q12770.D	02/02/23	04:34	11:25	Continuing cal 4
S6Q196-CC196	6Q12771.D	02/02/23	04:48	11:39	Continuing cal 1.0LL
S6Q196-ICCB	6Q12772.D	02/02/23	05:02	11:53	Continuing Calibration Blank
OP94945-BS	6Q12773.D	02/02/23	05:16	12:07	Blank Spike
OP94945-LLBS	6Q12774.D	02/02/23	05:30	12:21	Blank Spike

6.6.1
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TDCA Retention Time Check

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q202-RT	Injection Date:	02/07/23
Lab File ID:	6Q13184.D	Injection Time:	09:51
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.334	--	--
TDCA	6.820	1.514	1.000
TCDCA	6.671	1.663	1.000
TUDCA	5.819	2.515	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
S6Q202-IBLK	6Q13187.D	02/07/23	10:34	00:43	Instrument Blank
S6Q202-IBLK	6Q13187.D	02/07/23	10:34	00:43	Instrument Blank
S6Q202-CC196	6Q13188.D	02/07/23	10:48	00:57	Continuing cal 4
S6Q202-CC196	6Q13189.D	02/07/23	11:02	01:11	Continuing cal 1.0LL
ZZZZZZ	6Q13190.D	02/07/23	11:16	01:25	(unrelated sample)
ZZZZZZ	6Q13191.D	02/07/23	11:30	01:39	(unrelated sample)
ZZZZZZ	6Q13192.D	02/07/23	11:43	01:52	(unrelated sample)
OP95294-BS	6Q13193.D	02/07/23	11:57	02:06	Blank Spike
OP95294-LLBS	6Q13194.D	02/07/23	12:11	02:20	Blank Spike
OP95294-MB	6Q13195.D	02/07/23	12:25	02:34	Method Blank
ZZZZZZ	6Q13196.D	02/07/23	12:39	02:48	(unrelated sample)
ZZZZZZ	6Q13197.D	02/07/23	12:53	03:02	(unrelated sample)
FC2294-2	6Q13198.D	02/07/23	13:08	03:17	(used for QC only; not part of job FC2313)
OP95294-MS	6Q13199.D	02/07/23	13:22	03:31	Matrix Spike
S6Q202-CC196	6Q13200.D	02/07/23	13:36	03:45	Continuing cal 4
S6Q202-ICCB	6Q13201.D	02/07/23	13:50	03:59	Continuing Calibration Blank

TDCA Retention Time Check

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q202-RT	Injection Date:	02/08/23
Lab File ID:	6Q13209.D	Injection Time:	10:05
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.334	--	--
TDCA	6.820	1.514	1.000
TCDCA	6.658	1.676	1.000
TUDCA	5.806	2.528	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
S6Q202-IBLK	6Q13212.D	02/08/23	10:49	00:44	Instrument Blank
S6Q202-IBLK	6Q13212.D	02/08/23	10:49	00:44	Instrument Blank
S6Q202-CC196	6Q13213.D	02/08/23	11:03	00:58	Continuing cal 4
S6Q202-CC196	6Q13214.D	02/08/23	11:17	01:12	Continuing cal 1.0LL
OP95294-BS	6Q13215.D	02/08/23	11:31	01:26	Blank Spike
OP95294-LLBS	6Q13216.D	02/08/23	11:45	01:40	Blank Spike
OP95294-MB	6Q13217.D	02/08/23	11:59	01:54	Method Blank
FC2294-3	6Q13218.D	02/08/23	12:13	02:08	(used for QC only; not part of job FC2313)
OP95294-DUP	6Q13219.D	02/08/23	12:27	02:22	Duplicate
ZZZZZZ	6Q13220.D	02/08/23	12:41	02:36	(unrelated sample)
FC2313-1	6Q13221.D	02/08/23	12:55	02:50	AF-HDMW225303-WGN01LF-2301W5
ZZZZZZ	6Q13222.D	02/08/23	13:09	03:04	(unrelated sample)
ZZZZZZ	6Q13223.D	02/08/23	13:23	03:18	(unrelated sample)
ZZZZZZ	6Q13224.D	02/08/23	13:37	03:32	(unrelated sample)
S6Q202-CC196	6Q13225.D	02/08/23	13:51	03:46	Continuing cal 4
S6Q202-ICCB	6Q13226.D	02/08/23	14:05	04:00	Continuing Calibration Blank

Isotope Dilution Standard Recovery Summary

Job Number: FC2313
 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
FC2313-1	6Q13221.D	114	114	113	110	110	112	103	91
OP95294-BS	6Q13193.D	20	107	110	106	113	107	106	101
OP95294-BS	6Q13215.D	20	110	118	110	106	102	112	106
OP95294-DUP	6Q13219.D	99	109	109	105	100	98	94	81
OP95294-LLBS	6Q13194.D	102	111	110	110	105	111	111	115
OP95294-LLBS	6Q13216.D	103	116	119	111	102	107	106	111
OP95294-MB	6Q13195.D	113	118	116	124	108	115	124	121
OP95294-MB	6Q13217.D	112	119	124	113	112	107	122	116
OP95294-MS	6Q13199.D	24	109	111	110	106	110	110	102
S6Q202-IBLK	6Q13187.D	101	102	102	102	99	100	111	109
S6Q202-IBLK	6Q13212.D	101	100	104	98	92	108	107	104
S6Q202-ICCB	6Q13201.D	102	105	103	106	103	104	110	100

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

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Isotope Dilution Standard Recovery Summary

Job Number: FC2313
 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
FC2313-1	6Q13221.D	87	88	114	113	105	111	96	101
OP95294-BS	6Q13193.D	104	99	99	101	105	105	95	88
OP95294-BS	6Q13215.D	103	96	103	110	100	101	91	91
OP95294-DUP	6Q13219.D	73	70	103	107	97	101	76	76
OP95294-LLBS	6Q13194.D	116	92	110	114	112	112	84	84
OP95294-LLBS	6Q13216.D	112	88	108	114	111	108	78	84
OP95294-MB	6Q13195.D	106	95	107	102	107	99	83	85
OP95294-MB	6Q13217.D	109	86	112	113	100	101	79	76
OP95294-MS	6Q13199.D	91	83	115	114	101	100	87	81
S6Q202-IBLK	6Q13187.D	105	106	101	108	103	109		
S6Q202-IBLK	6Q13212.D	108	110	102	103	88	94		
S6Q202-ICCB	6Q13201.D	100	98	97	101	99	94		

Isotope Dilution Standards	Recovery Limits
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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
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Isotope Dilution Standard Recovery Summary

Job Number: FC2313
 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
FC2313-1	6Q13221.D	109	106	91	94	116	125	113	108
OP95294-BS	6Q13193.D	106	110	90	88	109	106	99	113
OP95294-BS	6Q13215.D	109	113	84	87	116	112	108	110
OP95294-DUP	6Q13219.D	102	94	75	72	89	90	87	104
OP95294-LLBS	6Q13194.D	115	104	80	83	122	112	115	109
OP95294-LLBS	6Q13216.D	120	117	79	85	130	122	108	111
OP95294-MB	6Q13195.D	104	108	83	81	112	113	101	116
OP95294-MB	6Q13217.D	108	109	75	78	128	125	115	115
OP95294-MS	6Q13199.D	111	103	73	69	118	113	96	109
S6Q202-IBLK	6Q13187.D	104	102			105	102	95	
S6Q202-IBLK	6Q13212.D	102	95			112	103	90	
S6Q202-ICCB	6Q13201.D	93	94			108	106	94	

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

Initial Calibration Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q196-ICC196
 Lab FileID: 6Q12726.D

Initial Calibration Report

Method Path	D:\MassHunter\Methods											
Method File	1633_020223_S6Q196.quantmethod.xml											
Batch Name	D:\MassHunter\Data\020123_1633_S6Q196\QuantResults\S6Q196.batch.bin											
Last Calib Update	2/2/2023 9:18:07 AM											
Level Name	Calibration Files	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
1	D:\MassHunter\Data\020123_1633_S6Q196\6Q12723.d											
2	D:\MassHunter\Data\020123_1633_S6Q196\6Q12724.d											
3	D:\MassHunter\Data\020123_1633_S6Q196\6Q12725.d											
4	D:\MassHunter\Data\020123_1633_S6Q196\6Q12726.d											
5	D:\MassHunter\Data\020123_1633_S6Q196\6Q12727.d											
6	D:\MassHunter\Data\020123_1633_S6Q196\6Q12728.d											
7	D:\MassHunter\Data\020123_1633_S6Q196\6Q12729.d											
8	D:\MassHunter\Data\020123_1633_S6Q196\6Q12730.d											
Compound	Acq. Date-Time	Level Last Update Time	ISTD	ISTD	ISTD	ISTD	ISTD	ISTD	ISTD	ISTD	ISTD	ISTD
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 PFESA												
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												

Generated at 9:25 AM on 2/2/2023

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Initial Calibration Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q196-ICC196
 Lab FileID: 6Q12726.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	1.0869	0.8485	0.8749	0.8659	0.8957	0.9382	0.9315	0.8856	0.9159	8.257
T PFTfDA	Avg RF	0.8998	0.9351	0.8755	0.8081	0.9157	0.8672	0.9244	0.7824	0.8760	6.317
I M2-PFTeDA	Avg RF	1.4016	1.4058	1.3373	1.2453	1.3806	1.4287	1.3422	1.2474	1.3486	5.213
I M8-FOSA	Avg RF	1.0891	0.9836	0.9477	0.9188	0.9805	1.0433	1.0192	0.9998	0.9978	5.373
I M3-PFBS	Avg RF	1.0164	0.9927	0.8723	0.9341	0.9337	0.9182	0.9839	1.0317	0.9604	5.669
I M3-PFHxS	Avg RF	1.4478	1.3486	1.3135	1.2398	1.2409	1.2780	1.2732	1.3102	1.3065	5.213
T PFPeS	Avg RF	1.1838	1.1824	1.1680	1.0216	1.0951	1.0861	1.1297	1.1193	1.1233	4.959
I M8-PFOS	Avg RF	1.0476	0.9667	1.0647	0.9956	1.0452	1.0704	1.2115	1.0825	1.0605	6.839
T PFHpS	Avg RF	1.1857	1.2286	1.1889	1.0099	1.0487	1.1202	1.2552	1.1386	1.1470	7.432
T PFOS	Avg RF	1.1067	1.0964	1.1371	1.0284	1.0840	1.1028	1.1930	1.1426	1.1114	4.337
T PFNS	Avg RF	1.0305	0.7885	0.8257	0.7592	0.8124	0.8558	0.8595	0.8435	0.8469	9.647
T PFDoDS	Avg RF	0.5549	0.4534	0.5598	0.4511	0.5036	0.4958	0.5543	0.4792	0.5065	8.898
I M2-4:2FTS	Avg RF	11.19	11.51	10.01	11.13	12.29	12.08	10.61	10.87	11.21	6.675
T 4:2FTS	Avg RF	7.5607	7.5633	6.7468	7.1612	7.3014	7.5899	7.6131	7.0353	7.3215	4.353
I M2-8:2FTS	Avg RF	4.8811	3.8177	3.8178	4.2246	3.1202	3.9674	3.8311	3.4051	3.8831	13.562
T 8:2FTS	Avg RF	0.9674	0.8304	0.8441	0.8334	0.9649	0.9193	0.9903	0.9808	0.9163	7.613
I M3-MeFOSAA	Avg RF	0.8589	0.9429	0.8775	0.8316	1.0035	1.0176	0.9671	0.9835	0.9353	7.533
T HFPO-DA	Avg RF	23.52	20.89	19.96	19.80	22.49	22.43	22.58	21.89	21.69	6.174
T ADONA	Avg RF	12.20	11.68	12.28	11.41	12.43	12.47	12.67	11.91	12.13	3.544
T 9Cl-PF3ONS	Avg RF	7.5319	6.9540	6.8739	6.5937	7.4538	7.7075	7.3631	6.9299	7.1760	5.426
T 11Cl-PF3OUds	Avg RF	0.9077	0.7765	0.8579	0.7570	0.7208	0.7665	0.8126	0.8076	0.8008	7.457
I M5-EFOSAA	Avg RF	1.0489	0.9573	0.8407	0.9142	1.0213	1.0748	1.0489	1.0722	0.9973	8.521
T EFOSE	Avg RF	1.1380	1.0263	0.9375	0.9659	1.0687	1.0494	1.1224	1.2521	1.0700	9.428

Generated at 9:25 AM on 2/2/2023

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Initial Calibration Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q196-ICC196
 Lab FileID: 6Q12726.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-EFOSA		1.2028	1.2186	1.1488	1.1382	1.2362	1.1454	1.2307	1.2247	1.1932	3.507
T EFOSA						ISTD					
I M3-MeFOSA		1.0138	1.1668	1.0985	1.0489	1.0960	1.1108	1.0839	1.0328	1.0814	4.511
T MeFOSA						ISTD					
I 13C4-PFOS		1.3569	1.4568	1.3571	1.3674	1.4321	1.3628	1.3447	1.2851	1.3704	3.865
S d3-MeFOSAA	Linear	0.7870	0.8704	0.7773	0.8452	0.8821	0.8224	0.7658	0.8219	0.8219	5.220
S 13C8-PFOS	Linear	1.1118	1.1374	1.0231	1.0810	1.2855	1.1796	1.1416	1.1353	1.1369	6.700
S d5-EFOSAA	Linear	1.5538	1.7346	1.6616	1.6593	1.6703	1.5708	1.5605	1.6168	1.6285	3.934
S 13C8-FOSA	Linear	0.2778	0.3024	0.2941	0.2850	0.2948	0.2700	0.2780	0.2687	0.2839	4.337
S d7-MeFOSE	Linear	0.6548	0.6685	0.6762	0.6713	0.7405	0.7128	0.7266	0.7615	0.7015	5.574
S d3-MeFOSA	Linear	0.1853	0.2058	0.2028	0.1928	0.2076	0.2049	0.1907	0.1752	0.1956	5.931
S d9-EFOSE	Linear	0.7202	0.7499	0.7557	0.7451	0.7856	0.8086	0.7716	0.7687	0.7632	3.530
S d5-EFOSA	Linear					ISTD					
I 13C3-PFBA		1.0956	1.1107	1.1148	1.1092	1.1080	1.0994	1.1283	1.1114	1.1097	0.890
S 13C4-PFBA	Linear					ISTD					
I 1802-PFHxS		0.1768	0.1841	0.1871	0.1586	0.1563	0.1495	0.1597	0.1285	0.1626	11.994
S 13C2-4:2FTS	Linear	2.0574	2.1353	2.0836	1.9350	2.0478	2.0947	1.9897	1.9483	2.0365	3.531
S 13C3-PFBS	Linear	0.2319	0.2311	0.2354	0.2185	0.2245	0.2074	0.1992	0.1774	0.2157	9.240
S 13C2-6:2FTS	Linear	1.2719	1.2903	1.2870	1.2640	1.3253	1.3372	1.3914	1.3481	1.3144	3.325
S 13C3-PFHxS	Linear	0.2200	0.2385	0.2366	0.1955	0.2234	0.2057	0.2105	0.2027	0.2166	7.265
S 13C2-8:2FTS	Linear					ISTD					
I 13C4-PFOA		0.8679	0.8294	0.8117	0.8535	0.8360	0.8507	0.8137	0.8159	0.8348	2.505
S 13C8-PFOA	Linear					ISTD					
I 13C2-PFDA		0.7226	0.6539	0.7100	0.7085	0.6791	0.7016	0.6964	0.6915	0.6954	3.058
S 13C6-PFDA	Linear	0.8718	0.7912	0.8611	0.8732	0.8156	0.8562	0.8084	0.7752	0.8316	4.644
S 13C7-PFUnDA	Linear	0.9377	0.8998	0.9674	0.9856	0.9570	0.9483	0.9260	0.9877	0.9512	3.151
S 13C2-PFDODA	Linear	0.5454	0.5096	0.5432	0.5657	0.5411	0.5437	0.5638	0.5823	0.5493	3.949
S 13C2-PFTeDA	Linear					ISTD					
I 13C5-PFNA		0.8608	0.8203	0.9476	0.9161	0.8220	0.8447	0.8814	0.9452	0.8798	5.871
S 13C9-PFNA	Linear					ISTD					
I 13C2-PFHxA		0.5721	0.5315	0.5921	0.5764	0.5544	0.5415	0.5295	0.5595	0.5571	4.015
S 13C5-PPeA	Linear	1.0323	0.9467	1.0342	0.9981	0.9985	0.9768	0.9156	1.0123	0.9893	4.178
S 13C5-PFHxA	Linear	1.0333	1.027	1.078	1.044	1.007	0.0955	0.1003	0.1025	0.1022	3.480
S 13C3-HPOD-A	Linear	1.0274	1.0208	1.0891	1.0647	1.0182	1.0227	0.9510	1.0603	1.0318	4.032
S 13C4-PFHpA	Linear					ISTD					

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

Initial Calibration Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q196-ICC196
 Lab FileID: 6Q12726.D

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	%RSE
S 13C4-PBBA	Linear	$y = 1.1109666 * x$	
S 13C5-PFPeA	Linear	$y = 0.557122 * x$	
S 13C2-4:2FTS	Linear	$y = 0.162589 * x$	
S 13C3-PFBS	Linear	$y = 2.036463 * x$	
S 13C5-PFHxA	Linear	$y = 0.989296 * x$	
S 13C3-HFPO-DA	Linear	$y = 0.102160 * x$	
S 13C4-PFHpA	Linear	$y = 1.031788 * x$	
S 13C8-PFOA	Linear	$y = 0.215677 * x$	
S 13C3-PFHxS	Linear	$y = 0.834844 * x$	
S 13C9-PFNA	Linear	$y = 1.314395 * x$	
S 13C2-8:2FTS	Linear	$y = 0.879761 * x$	
S 13C6-PEDA	Linear	$y = 0.216620 * x$	
S d3-MeFOSAA	Linear	$y = 0.695428 * x$	
S 13C8-PFOS	Linear	$y = 1.370372 * x$	
S d5-EFOSAA	Linear	$y = 0.821867 * x$	
S 13C7-PFUInDA	Linear	$y = 1.136923 * x$	
S 13C2-PFDODA	Linear	$y = 0.831601 * x$	
S 13C8-FOSA	Linear	$y = 0.951192 * x$	
S 13C2-PFTeDA	Linear	$y = 1.628463 * x$	
S d7-MeFOSE	Linear	$y = 0.549346 * x$	
S d3-MeFOSA	Linear	$y = 0.283861 * x$	
S d9-EFOSE	Linear	$y = 0.701522 * x$	
S d5-EFOSA	Linear	$y = 0.195634 * x$	
S d5-EFOSA	Linear	$y = 0.763177 * x$	

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

Initial Calibration Verification

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q196-ICV196
 Lab FileID: 6Q12732.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\020123_1633_S6Q196\S6Q196.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\020123_1633_S6Q196\6Q12723.d
 2:D:\MassHunter\Data\020123_1633_S6Q196\6Q12724.d
 3:D:\MassHunter\Data\020123_1633_S6Q196\6Q12725.d
 4:D:\MassHunter\Data\020123_1633_S6Q196\6Q12726.d
 5:D:\MassHunter\Data\020123_1633_S6Q196\6Q12727.d
 6:D:\MassHunter\Data\020123_1633_S6Q196\6Q12728.d
 7:D:\MassHunter\Data\020123_1633_S6Q196\6Q12729.d
 8:D:\MassHunter\Data\020123_1633_S6Q196\6Q12730.d

Data File: 6Q12732
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.205	4.1	104.1
13C2-6:2FTS	5.000	4.783	-4.3	95.7
13C2-8:2FTS	5.000	5.360	7.2	107.2
13C2-PFDoDA	1.250	1.214	-2.9	97.1
13C2-PFTeDA	1.250	1.262	1.0	101.0
13C3-PFBS	2.500	2.408	-3.7	96.3
13C3-PFHxS	2.500	2.594	3.8	103.8
13C4-PFBA	10.000	10.155	1.5	101.5
13C4-PFHpA	2.500	2.572	2.9	102.9
13C5-PFHxA	2.500	2.583	3.3	103.3
13C5-PFPeA	5.000	5.009	0.2	100.2
13C6-PFDA	1.250	1.234	-1.3	98.7
13C7-PFUnDA	1.250	1.306	4.5	104.5
13C8-FOSA	2.500	2.421	-3.1	96.9
13C8-PFOA	2.500	2.460	-1.6	98.4
13C8-PFOS	2.500	2.148	-14.1	85.9
13C9-PFNA	1.250	1.323	5.8	105.8
4:2FTS	9.375	9.356	-0.2	99.8
6:2FTS	9.500	10.247	7.9	107.9
8:2FTS	9.600	8.962	-6.6	93.4
d3-MeFOSAA	5.000	4.572	-8.6	91.4
EtFOSAA	2.500	2.406	-3.8	96.2
FOSA	2.500	2.417	-3.3	96.7
MeFOSAA	2.500	2.534	1.3	101.3
PFBA	10.000	9.843	-1.6	98.4
PFBS	2.218	2.206	-0.5	99.5
PFDA	2.500	2.494	-0.3	99.7
PFDoDA	2.500	2.527	1.1	101.1
PFDS	2.413	2.460	1.9	101.9
PFHpA	2.500	2.308	-7.7	92.3
PFHpS	2.383	2.541	6.6	106.6
PFHxA	2.500	2.400	-4.0	96.0
PFHxS	2.285	2.057	-10.0	90.0
PFNA	2.500	2.317	-7.3	92.7
PFNS	2.405	2.686	11.7	111.7
PFOA	2.500	2.378	-4.9	95.1
PFOS	2.320	2.546	9.7	109.7

Initial Calibration Verification

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q196-ICV196
 Lab FileID: 6Q12732.D

PFPeA	5.000	5.008	0.2	100.2
PFPeS	2.353	2.227	-5.4	94.6
PFTeDA	2.500	2.395	-4.2	95.8
PFTTrDA	2.500	2.528	1.1	101.1
PFUnDA	2.500	2.451	-2.0	98.0
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	9.450	9.292	-1.7	98.3
13C3-HFPO-DA	10.000	10.088	0.9	100.9
9C1-PF3ONS	9.350	9.080	-2.9	97.1
ADONA	9.450	9.393	-0.6	99.4
HFPO-DA	10.000	10.009	0.1	100.1
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.036	-3.6	96.4
5:3FTCA	62.400	60.099	-3.7	96.3
7:3FTCA	62.400	61.061	-2.1	97.9
d3-MeFOSA	2.500	2.337	-6.5	93.5
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.581	3.2	103.2
EtFOSE	25.000	23.324	-6.7	93.3
MeFOSA	2.500	2.516	0.6	100.6
MeFOSE	25.000	26.157	4.6	104.6
PFDoDS	2.425	2.443	0.7	100.7
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.681	-6.4	93.6
d7-MeFOSE	25.000	22.426	-10.3	89.7
d9-EtFOSE	25.000	24.207	-3.2	96.8
d5-EtFOSA	2.500	2.277	-8.9	91.1
NFDHA	5.000	5.074	1.5	101.5
PFMBA	5.000	5.051	1.0	101.0
PFMPA	5.000	5.022	0.4	100.4
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.329	-2.7	97.3

CC Criteria: +/- 30%

Initial Calibration Verification

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q196-ICV196
 Lab FileID: 6Q12733.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\020123_1633_S6Q196\S6Q196.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\020123_1633_S6Q196\6Q12723.d
 2:D:\MassHunter\Data\020123_1633_S6Q196\6Q12724.d
 3:D:\MassHunter\Data\020123_1633_S6Q196\6Q12725.d
 4:D:\MassHunter\Data\020123_1633_S6Q196\6Q12726.d
 5:D:\MassHunter\Data\020123_1633_S6Q196\6Q12727.d
 6:D:\MassHunter\Data\020123_1633_S6Q196\6Q12728.d
 7:D:\MassHunter\Data\020123_1633_S6Q196\6Q12729.d
 8:D:\MassHunter\Data\020123_1633_S6Q196\6Q12730.d

Data File: 6Q12733
 Type : QC
 Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.593	11.9	111.9
13C2-6:2FTS	5.000	5.181	3.6	103.6
13C2-8:2FTS	5.000	5.492	9.8	109.8
13C2-PFDoDA	1.250	1.252	0.2	100.2
13C2-PFTeDA	1.250	1.200	-4.0	96.0
13C3-PFBS	2.500	2.722	8.9	108.9
13C3-PFHxS	2.500	2.672	6.9	106.9
13C4-PFBA	10.000	10.158	1.6	101.6
13C4-PFHpA	2.500	2.649	6.0	106.0
13C5-PFHxA	2.500	2.567	2.7	102.7
13C5-PFPeA	5.000	5.175	3.5	103.5
13C6-PFDA	1.250	1.282	2.5	102.5
13C7-PFUnDA	1.250	1.226	-1.9	98.1
13C8-FOSA	2.500	2.462	-1.5	98.5
13C8-PFOA	2.500	2.518	0.7	100.7
13C8-PFOS	2.500	2.373	-5.1	94.9
13C9-PFNA	1.250	1.320	5.6	105.6
4:2FTS	20.000	19.315	-3.4	96.6
6:2FTS	20.000	20.624	3.1	103.1
8:2FTS	20.000	20.446	2.2	102.2
d3-MeFOSAA	5.000	4.841	-3.2	96.8
EtFOSAA	20.000	19.986	-0.1	99.9
FOSA	20.000	19.512	-2.4	97.6
MeFOSAA	20.000	18.847	-5.8	94.2
PFBA	20.000	18.040	-9.8	90.2
PFBS	20.000	18.840	-5.8	94.2
PFDA	20.000	19.107	-4.5	95.5
PFDoDA	20.000	17.445	-12.8	87.2
PFDS	20.000	18.543	-7.3	92.7
PFHpA	20.000	17.611	-11.9	88.1
PFHpS	20.000	19.526	-2.4	97.6
PFHxA	20.000	21.244	6.2	106.2
PFHxS	20.000	19.561	-2.2	97.8
PFNA	20.000	19.101	-4.5	95.5
PFNS	20.000	19.797	-1.0	99.0
PFOA	20.000	17.925	-10.4	89.6
PFOS	20.000	16.352	-18.2	81.8

Initial Calibration Verification

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q196-ICV196
 Lab FileID: 6Q12733.D

PFPeA	20.000	20.419	2.1	102.1
PFPeS	20.000	19.996	0.0	100.0
PFTeDA	20.000	20.962	4.8	104.8
PFTrDA	20.000	17.258	-13.7	86.3
PFUnDA	20.000	18.333	-8.3	91.7
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	20.000	20.535	2.7	102.7
13C3-HFPO-DA	10.000	10.808	8.1	108.1
9C1-PF3ONS	20.000	18.389	-8.1	91.9
ADONA	20.000	19.883	-0.6	99.4
HFPO-DA	20.000	18.803	-6.0	94.0
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	19.461	-2.7	97.3
5:3FTCA	20.000	19.982	-0.1	99.9
7:3FTCA	20.000	18.979	-5.1	94.9
d3-MeFOSA	2.500	2.381	-4.8	95.2
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	19.114	-4.4	95.6
EtFOSE	100.000	93.804	-6.2	93.8
MeFOSA	20.000	20.123	0.6	100.6
MeFOSE	100.000	89.300	-10.7	89.3
PFDoDS	20.000	18.241	-8.8	91.2
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.685	-6.3	93.7
d7-MeFOSE	25.000	23.932	-4.3	95.7
d9-EtFOSE	25.000	24.440	-2.2	97.8
d5-EtFOSA	2.500	2.410	-3.6	96.4
NFDHA	20.000	18.187	-9.1	90.9
PFMBA	20.000	19.219	-3.9	96.1
PFMPA	20.000	19.012	-4.9	95.1
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	20.000	17.298	-13.5	86.5

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q202-CC196
 Lab FileID: 6Q13188.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\020723_1633_S6Q202\s6q202.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\020123_1633_S6Q196\6Q12723.d
 2:D:\MassHunter\Data\020123_1633_S6Q196\6Q12724.d
 3:D:\MassHunter\Data\020123_1633_S6Q196\6Q12725.d
 4:D:\MassHunter\Data\020123_1633_S6Q196\6Q12726.d
 5:D:\MassHunter\Data\020123_1633_S6Q196\6Q12727.d
 6:D:\MassHunter\Data\020123_1633_S6Q196\6Q12728.d
 7:D:\MassHunter\Data\020123_1633_S6Q196\6Q12729.d
 8:D:\MassHunter\Data\020123_1633_S6Q196\6Q12730.d

Data File: 6Q13188
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.495	9.9	109.9
13C2-6:2FTS	5.000	5.135	2.7	102.7
13C2-8:2FTS	5.000	4.558	-8.8	91.2
13C2-PFDoDA	1.250	1.339	7.1	107.1
13C2-PFTeDA	1.250	1.324	5.9	105.9
13C3-PFBS	2.500	2.568	2.7	102.7
13C3-PFHxS	2.500	2.549	2.0	102.0
13C4-PFBA	10.000	10.202	2.0	102.0
13C4-PFHpA	2.500	2.428	-2.9	97.1
13C5-PFHxA	2.500	2.497	-0.1	99.9
13C5-PFPeA	5.000	5.048	1.0	101.0
13C6-PFDA	1.250	1.343	7.5	107.5
13C7-PFUnDA	1.250	1.351	8.0	108.0
13C8-FOSA	2.500	2.619	4.7	104.7
13C8-PFOA	2.500	2.422	-3.1	96.9
13C8-PFOS	2.500	2.421	-3.2	96.8
13C9-PFNA	1.250	1.391	11.3	111.3
4:2FTS	9.375	7.931	-15.4	84.6
6:2FTS	9.500	8.779	-7.6	92.4
8:2FTS	9.600	9.787	1.9	101.9
d3-MeFOSAA	5.000	4.883	-2.3	97.7
EtFOSAA	2.500	2.096	-16.1	83.9
FOSA	2.500	2.201	-11.9	88.1
MeFOSAA	2.500	2.318	-7.3	92.7
PFBA	10.000	9.153	-8.5	91.5
PFBS	2.218	2.050	-7.6	92.4
PFDA	2.500	2.408	-3.7	96.3
PFDoDA	2.500	2.321	-7.2	92.8
PFDS	2.413	1.999	-17.2	82.8
PFHpA	2.500	2.354	-5.8	94.2
PFHpS	2.383	2.300	-3.5	96.5
PFHxA	2.500	2.315	-7.4	92.6
PFHxS	2.285	2.146	-6.1	93.9
PFNA	2.500	2.117	-15.3	84.7
PFNS	2.405	2.197	-8.6	91.4
PFOA	2.500	2.306	-7.8	92.2
PFOS	2.320	2.205	-5.0	95.0

Continuing Calibration Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q202-CC196
 Lab FileID: 6Q13188.D

PFPeA	5.000	4.522	-9.6	90.4
PFPeS	2.353	2.188	-7.0	93.0
PFTeDA	2.500	2.407	-3.7	96.3
PFTTrDA	2.500	2.367	-5.3	94.7
PFUnDA	2.500	2.282	-8.7	91.3
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	9.450	7.819	-17.3	82.7
13C3-HFPO-DA	10.000	10.565	5.7	105.7
9C1-PF3ONS	9.350	7.766	-16.9	83.1
ADONA	9.450	8.443	-10.7	89.3
HFPO-DA	10.000	8.646	-13.5	86.5
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.140	-10.7	89.3
5:3FTCA	62.400	56.794	-9.0	91.0
7:3FTCA	62.400	48.953	-21.5	78.5
d3-MeFOSA	2.500	2.209	-11.6	88.4
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.140	-14.4	85.6
EtFOSE	25.000	21.222	-15.1	84.9
MeFOSA	2.500	2.445	-2.2	97.8
MeFOSE	25.000	22.238	-11.0	89.0
PFDoDS	2.425	2.073	-14.5	85.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.026	0.5	100.5
d7-MeFOSE	25.000	21.587	-13.7	86.3
d9-EtFOSE	25.000	21.460	-14.2	85.8
d5-EtFOSA	2.500	2.175	-13.0	87.0
NFDHA	5.000	4.954	-0.9	99.1
PFMBA	5.000	4.829	-3.4	96.6
PFMPA	5.000	4.578	-8.4	91.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	3.905	-12.2	87.8

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q202-CC196
 Lab FileID: 6Q13189.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\020723_1633_S6Q202\s6q202.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\020123_1633_S6Q196\6Q12723.d
 2:D:\MassHunter\Data\020123_1633_S6Q196\6Q12724.d
 3:D:\MassHunter\Data\020123_1633_S6Q196\6Q12725.d
 4:D:\MassHunter\Data\020123_1633_S6Q196\6Q12726.d
 5:D:\MassHunter\Data\020123_1633_S6Q196\6Q12727.d
 6:D:\MassHunter\Data\020123_1633_S6Q196\6Q12728.d
 7:D:\MassHunter\Data\020123_1633_S6Q196\6Q12729.d
 8:D:\MassHunter\Data\020123_1633_S6Q196\6Q12730.d

Data File: 6Q13189
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.122	2.4	102.4
13C2-6:2FTS	5.000	5.187	3.7	103.7
13C2-8:2FTS	5.000	5.220	4.4	104.4
13C2-PFDoDA	1.250	1.285	2.8	102.8
13C2-PFTeDA	1.250	1.217	-2.6	97.4
13C3-PFBS	2.500	2.597	3.9	103.9
13C3-PFHxS	2.500	2.530	1.2	101.2
13C4-PFBA	10.000	9.981	-0.2	99.8
13C4-PFHpA	2.500	2.472	-1.1	98.9
13C5-PFHxA	2.500	2.486	-0.5	99.5
13C5-PFPeA	5.000	4.913	-1.7	98.3
13C6-PFDA	1.250	1.196	-4.3	95.7
13C7-PFUnDA	1.250	1.272	1.7	101.7
13C8-FOSA	2.500	2.480	-0.8	99.2
13C8-PFOA	2.500	2.459	-1.6	98.4
13C8-PFOS	2.500	2.390	-4.4	95.6
13C9-PFNA	1.250	1.228	-1.7	98.3
4:2FTS	0.750	0.785	4.6	104.6
6:2FTS	0.760	0.775	2.0	102.0
8:2FTS	0.768	0.917	19.4	119.4
d3-MeFOSAA	5.000	4.955	-0.9	99.1
EtFOSAA	0.200	0.205	2.7	102.7
FOSA	0.200	0.214	6.8	106.8
MeFOSAA	0.200	0.209	4.6	104.6
PFBA	0.800	0.878	9.8	109.8
PFBS	0.177	0.186	4.9	104.9
PFDA	0.200	0.243	21.5	121.5
PFDoDA	0.200	0.213	6.5	106.5
PFDS	0.193	0.238	23.3	123.3
PFHpA	0.200	0.216	8.0	108.0
PFHpS	0.191	0.203	6.5	106.5
PFHxA	0.200	0.187	-6.3	93.7
PFHxS	0.183	0.210	14.9	114.9
PFNA	0.200	0.232	16.2	116.2
PFNS	0.192	0.224	16.4	116.4
PFOA	0.200	0.236	18.1	118.1
PFOS	0.186	0.208	11.9	111.9

Continuing Calibration Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q202-CC196
 Lab FileID: 6Q13189.D

PFPeA	0.400	0.410	2.5	102.5
PFPeS	0.188	0.196	4.2	104.2
PFTeDA	0.200	0.233	16.3	116.3
PFTTrDA	0.200	0.225	12.4	112.4
PFUnDA	0.200	0.210	5.0	105.0
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	0.756	0.725	-4.1	95.9
13C3-HFPO-DA	10.000	9.536	-4.6	95.4
9C1-PF3ONS	0.748	0.726	-2.9	97.1
ADONA	0.756	0.797	5.5	105.5
HFPO-DA	0.800	0.778	-2.7	97.3
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	1.003	0.4	100.4
5:3FTCA	4.992	5.251	5.2	105.2
7:3FTCA	4.992	4.206	-15.7	84.3
d3-MeFOSA	2.500	2.194	-12.3	87.7
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.200	0.222	10.9	110.9
EtFOSE	2.000	2.039	2.0	102.0
MeFOSA	0.200	0.213	6.4	106.4
MeFOSE	2.000	2.125	6.3	106.3
PFDODS	0.194	0.210	8.5	108.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.030	0.6	100.6
d7-MeFOSE	25.000	22.311	-10.8	89.2
d9-EtFOSE	25.000	21.353	-14.6	85.4
d5-EtFOSA	2.500	2.233	-10.7	89.3
NFDHA	0.400	0.380	-5.0	95.0
PFMBA	0.400	0.418	4.5	104.5
PFMPA	0.400	0.408	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--		
PFEEESA	0.356	0.355	-0.2	99.8

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q202-CC196
 Lab FileID: 6Q13200.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\020723_1633_S6Q202\s6q202.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\020123_1633_S6Q196\6Q12723.d
 2:D:\MassHunter\Data\020123_1633_S6Q196\6Q12724.d
 3:D:\MassHunter\Data\020123_1633_S6Q196\6Q12725.d
 4:D:\MassHunter\Data\020123_1633_S6Q196\6Q12726.d
 5:D:\MassHunter\Data\020123_1633_S6Q196\6Q12727.d
 6:D:\MassHunter\Data\020123_1633_S6Q196\6Q12728.d
 7:D:\MassHunter\Data\020123_1633_S6Q196\6Q12729.d
 8:D:\MassHunter\Data\020123_1633_S6Q196\6Q12730.d

Data File: 6Q13200
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.139	2.8	102.8
13C2-6:2FTS	5.000	5.088	1.8	101.8
13C2-8:2FTS	5.000	5.119	2.4	102.4
13C2-PFDoDA	1.250	1.250	0.0	100.0
13C2-PFTeDA	1.250	1.270	1.6	101.6
13C3-PFBS	2.500	2.511	0.5	100.5
13C3-PFHxS	2.500	2.443	-2.3	97.7
13C4-PFBA	10.000	10.062	0.6	100.6
13C4-PFHpA	2.500	2.627	5.1	105.1
13C5-PFHxA	2.500	2.534	1.4	101.4
13C5-PFPeA	5.000	4.992	-0.2	99.8
13C6-PFDA	1.250	1.221	-2.3	97.7
13C7-PFUnDA	1.250	1.316	5.3	105.3
13C8-FOSA	2.500	2.572	2.9	102.9
13C8-PFOA	2.500	2.513	0.5	100.5
13C8-PFOS	2.500	2.369	-5.2	94.8
13C9-PFNA	1.250	1.261	0.9	100.9
4:2FTS	9.375	8.509	-9.2	90.8
6:2FTS	9.500	8.833	-7.0	93.0
8:2FTS	9.600	8.357	-13.0	87.0
d3-MeFOSAA	5.000	5.099	2.0	102.0
EtFOSAA	2.500	2.027	-18.9	81.1
FOSA	2.500	2.151	-14.0	86.0
MeFOSAA	2.500	2.234	-10.7	89.3
PFBA	10.000	9.208	-7.9	92.1
PFBS	2.218	2.149	-3.1	96.9
PFDA	2.500	2.401	-4.0	96.0
PFDoDA	2.500	2.348	-6.1	93.9
PFDS	2.413	2.040	-15.5	84.5
PFHpA	2.500	2.076	-17.0	83.0
PFHpS	2.383	2.354	-1.2	98.8
PFHxA	2.500	2.234	-10.6	89.4
PFHxS	2.285	2.286	0.0	100.0
PFNA	2.500	2.194	-12.2	87.8
PFNS	2.405	2.340	-2.7	97.3
PFOA	2.500	2.233	-10.7	89.3
PFOS	2.320	1.955	-15.7	84.3

Continuing Calibration Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q202-CC196
 Lab FileID: 6Q13200.D

PFPeA	5.000	4.529	-9.4	90.6
PFPeS	2.353	2.261	-3.9	96.1
PFTeDA	2.500	2.506	0.2	100.2
PFTTrDA	2.500	2.347	-6.1	93.9
PFUnDA	2.500	2.256	-9.8	90.2
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDODA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	9.450	7.873	-16.7	83.3
13C3-HFPO-DA	10.000	10.051	0.5	100.5
9C1-PF3ONS	9.350	8.668	-7.3	92.7
ADONA	9.450	8.517	-9.9	90.1
HFPO-DA	10.000	9.079	-9.2	90.8
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.413	-8.6	91.4
5:3FTCA	62.400	56.053	-10.2	89.8
7:3FTCA	62.400	46.962	-24.7	75.3
d3-MeFOSA	2.500	2.260	-9.6	90.4
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.210	-11.6	88.4
EtFOSE	25.000	21.109	-15.6	84.4
MeFOSA	2.500	2.358	-5.7	94.3
MeFOSE	25.000	22.117	-11.5	88.5
PFDODS	2.425	2.123	-12.5	87.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.349	7.0	107.0
d7-MeFOSE	25.000	21.799	-12.8	87.2
d9-EtFOSE	25.000	21.296	-14.8	85.2
d5-EtFOSA	2.500	2.166	-13.4	86.6
NFDHA	5.000	4.796	-4.1	95.9
PFMBA	5.000	4.813	-3.7	96.3
PFMPA	5.000	4.655	-6.9	93.1
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	3.915	-12.0	88.0

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q202-CC196
 Lab FileID: 6Q13213.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\020723_1633_S6Q202\s6q202.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\020123_1633_S6Q196\6Q12723.d
 2:D:\MassHunter\Data\020123_1633_S6Q196\6Q12724.d
 3:D:\MassHunter\Data\020123_1633_S6Q196\6Q12725.d
 4:D:\MassHunter\Data\020123_1633_S6Q196\6Q12726.d
 5:D:\MassHunter\Data\020123_1633_S6Q196\6Q12727.d
 6:D:\MassHunter\Data\020123_1633_S6Q196\6Q12728.d
 7:D:\MassHunter\Data\020123_1633_S6Q196\6Q12729.d
 8:D:\MassHunter\Data\020123_1633_S6Q196\6Q12730.d

Data File: 6Q13213
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.622	12.4	112.4
13C2-6:2FTS	5.000	5.480	9.6	109.6
13C2-8:2FTS	5.000	4.787	-4.3	95.7
13C2-PFDoDA	1.250	1.310	4.8	104.8
13C2-PFTeDA	1.250	1.368	9.4	109.4
13C3-PFBS	2.500	2.545	1.8	101.8
13C3-PFHxS	2.500	2.724	9.0	109.0
13C4-PFBA	10.000	10.073	0.7	100.7
13C4-PFHpA	2.500	2.567	2.7	102.7
13C5-PFHxA	2.500	2.505	0.2	100.2
13C5-PFPeA	5.000	5.042	0.8	100.8
13C6-PFDA	1.250	1.336	6.9	106.9
13C7-PFUnDA	1.250	1.343	7.4	107.4
13C8-FOSA	2.500	2.387	-4.5	95.5
13C8-PFOA	2.500	2.389	-4.4	95.6
13C8-PFOS	2.500	2.232	-10.7	89.3
13C9-PFNA	1.250	1.194	-4.5	95.5
4:2FTS	9.375	8.700	-7.2	92.8
6:2FTS	9.500	8.422	-11.4	88.6
8:2FTS	9.600	10.115	5.4	105.4
d3-MeFOSAA	5.000	5.066	1.3	101.3
EtFOSAA	2.500	1.968	-21.3	78.7
FOSA	2.500	2.293	-8.3	91.7
MeFOSAA	2.500	2.231	-10.8	89.2
PFBA	10.000	9.266	-7.3	92.7
PFBS	2.218	2.064	-6.9	93.1
PFDA	2.500	2.430	-2.8	97.2
PFDoDA	2.500	2.245	-10.2	89.8
PFDS	2.413	2.342	-3.0	97.0
PFHpA	2.500	2.256	-9.7	90.3
PFHpS	2.383	2.308	-3.1	96.9
PFHxA	2.500	2.323	-7.1	92.9
PFHxS	2.285	2.024	-11.4	88.6
PFNA	2.500	2.322	-7.1	92.9
PFNS	2.405	2.137	-11.1	88.9
PFOA	2.500	2.315	-7.4	92.6
PFOS	2.320	2.302	-0.8	99.2

Continuing Calibration Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q202-CC196
 Lab FileID: 6Q13213.D

PFPeA	5.000	4.549	-9.0	91.0
PFPeS	2.353	2.125	-9.7	90.3
PFTeDA	2.500	2.375	-5.0	95.0
PFTTrDA	2.500	2.406	-3.8	96.2
PFUnDA	2.500	2.512	0.5	100.5
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	9.450	8.217	-13.1	86.9
13C3-HFPO-DA	10.000	9.910	-0.9	99.1
9C1-PF3ONS	9.350	8.148	-12.9	87.1
ADONA	9.450	8.931	-5.5	94.5
HFPO-DA	10.000	8.536	-14.6	85.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.031	-3.6	96.4
5:3FTCA	62.400	57.478	-7.9	92.1
7:3FTCA	62.400	49.991	-19.9	80.1
d3-MeFOSA	2.500	2.199	-12.0	88.0
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.235	-10.6	89.4
EtFOSE	25.000	22.336	-10.7	89.3
MeFOSA	2.500	2.426	-2.9	97.1
MeFOSE	25.000	21.976	-12.1	87.9
PFDODS	2.425	2.102	-13.3	86.7
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.113	2.3	102.3
d7-MeFOSE	25.000	22.438	-10.2	89.8
d9-EtFOSE	25.000	21.683	-13.3	86.7
d5-EtFOSA	2.500	2.188	-12.5	87.5
NFDHA	5.000	5.109	2.2	102.2
PFMBA	5.000	4.920	-1.6	98.4
PFMPA	5.000	4.729	-5.4	94.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.151	-6.7	93.3

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q202-CC196
 Lab FileID: 6Q13214.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\020723_1633_S6Q202\s6q202.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\020123_1633_S6Q196\6Q12723.d
 2:D:\MassHunter\Data\020123_1633_S6Q196\6Q12724.d
 3:D:\MassHunter\Data\020123_1633_S6Q196\6Q12725.d
 4:D:\MassHunter\Data\020123_1633_S6Q196\6Q12726.d
 5:D:\MassHunter\Data\020123_1633_S6Q196\6Q12727.d
 6:D:\MassHunter\Data\020123_1633_S6Q196\6Q12728.d
 7:D:\MassHunter\Data\020123_1633_S6Q196\6Q12729.d
 8:D:\MassHunter\Data\020123_1633_S6Q196\6Q12730.d

Data File: 6Q13214
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.612	12.2	112.2
13C2-6:2FTS	5.000	5.153	3.1	103.1
13C2-8:2FTS	5.000	5.119	2.4	102.4
13C2-PFDoDA	1.250	1.157	-7.4	92.6
13C2-PFTeDA	1.250	1.235	-1.2	98.8
13C3-PFBS	2.500	2.585	3.4	103.4
13C3-PFHxS	2.500	2.449	-2.1	97.9
13C4-PFBA	10.000	10.100	1.0	101.0
13C4-PFHpA	2.500	2.529	1.2	101.2
13C5-PFHxA	2.500	2.515	0.6	100.6
13C5-PFPeA	5.000	4.998	0.0	100.0
13C6-PFDA	1.250	1.213	-2.9	97.1
13C7-PFUnDA	1.250	1.196	-4.3	95.7
13C8-FOSA	2.500	2.658	6.3	106.3
13C8-PFOA	2.500	2.421	-3.2	96.8
13C8-PFOS	2.500	2.823	12.9	112.9
13C9-PFNA	1.250	1.290	3.2	103.2
4:2FTS	0.750	0.807	7.6	107.6
6:2FTS	0.760	0.861	13.3	113.3
8:2FTS	0.768	0.795	3.5	103.5
d3-MeFOSAA	5.000	5.572	11.4	111.4
EtFOSAA	0.200	0.243	21.4	121.4
FOSA	0.200	0.209	4.7	104.7
MeFOSAA	0.200	0.244	22.2	122.2
PFBA	0.800	0.837	4.7	104.7
PFBS	0.177	0.200	12.8	112.8
PFDA	0.200	0.199	-0.3	99.7
PFDoDA	0.200	0.216	8.0	108.0
PFDS	0.193	0.183	-5.1	94.9
PFHpA	0.200	0.195	-2.5	97.5
PFHpS	0.191	0.190	-0.7	99.3
PFHxA	0.200	0.191	-4.4	95.6
PFHxS	0.183	0.186	1.4	101.4
PFNA	0.200	0.214	7.2	107.2
PFNS	0.192	0.193	0.7	100.7
PFOA	0.200	0.196	-2.2	97.8
PFOS	0.186	0.175	-5.9	94.1

Continuing Calibration Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q202-CC196
 Lab FileID: 6Q13214.D

PFPeA	0.400	0.425	6.3	106.3
PFPeS	0.188	0.221	17.8	117.8
PFTeDA	0.200	0.202	1.0	101.0
PFTTrDA	0.200	0.205	2.6	102.6
PFUnDA	0.200	0.202	0.9	100.9
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDODA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	0.756	0.640	-15.4	84.6
13C3-HFPO-DA	10.000	9.703	-3.0	97.0
9C1-PF3ONS	0.748	0.694	-7.2	92.8
ADONA	0.756	0.760	0.5	100.5
HFPO-DA	0.800	0.862	7.8	107.8
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	1.103	10.4	110.4
5:3FTCA	4.992	5.051	1.2	101.2
7:3FTCA	4.992	4.334	-13.2	86.8
d3-MeFOSA	2.500	2.364	-5.4	94.6
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.200	0.207	3.6	103.6
EtFOSE	2.000	2.071	3.5	103.5
MeFOSA	0.200	0.210	5.2	105.2
MeFOSE	2.000	1.978	-1.1	98.9
PFDODS	0.194	0.196	1.0	101.0
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.349	7.0	107.0
d7-MeFOSE	25.000	24.520	-1.9	98.1
d9-EtFOSE	25.000	23.833	-4.7	95.3
d5-EtFOSA	2.500	2.490	-0.4	99.6
NFDHA	0.400	0.440	10.0	110.0
PFMBA	0.400	0.445	11.1	111.1
PFMPA	0.400	0.421	5.3	105.3
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	0.356	0.350	-1.6	98.4

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q202-CC196
 Lab FileID: 6Q13225.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\020723_1633_S6Q202\s6q202.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\020123_1633_S6Q196\6Q12723.d
 2:D:\MassHunter\Data\020123_1633_S6Q196\6Q12724.d
 3:D:\MassHunter\Data\020123_1633_S6Q196\6Q12725.d
 4:D:\MassHunter\Data\020123_1633_S6Q196\6Q12726.d
 5:D:\MassHunter\Data\020123_1633_S6Q196\6Q12727.d
 6:D:\MassHunter\Data\020123_1633_S6Q196\6Q12728.d
 7:D:\MassHunter\Data\020123_1633_S6Q196\6Q12729.d
 8:D:\MassHunter\Data\020123_1633_S6Q196\6Q12730.d

Data File: 6Q13225
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.423	8.5	108.5
13C2-6:2FTS	5.000	5.497	9.9	109.9
13C2-8:2FTS	5.000	4.902	-2.0	98.0
13C2-PFDoDA	1.250	1.268	1.5	101.5
13C2-PFTeDA	1.250	1.308	4.7	104.7
13C3-PFBS	2.500	2.563	2.5	102.5
13C3-PFHxS	2.500	2.598	3.9	103.9
13C4-PFBA	10.000	9.983	-0.2	99.8
13C4-PFHpA	2.500	2.405	-3.8	96.2
13C5-PFHxA	2.500	2.544	1.8	101.8
13C5-PFPeA	5.000	4.892	-2.2	97.8
13C6-PFDA	1.250	1.222	-2.2	97.8
13C7-PFUnDA	1.250	1.430	14.4	114.4
13C8-FOSA	2.500	2.778	11.1	111.1
13C8-PFOA	2.500	2.649	6.0	106.0
13C8-PFOS	2.500	2.567	2.7	102.7
13C9-PFNA	1.250	1.310	4.8	104.8
4:2FTS	9.375	8.974	-4.3	95.7
6:2FTS	9.500	8.677	-8.7	91.3
8:2FTS	9.600	9.987	4.0	104.0
d3-MeFOSAA	5.000	5.440	8.8	108.8
EtFOSAA	2.500	2.090	-16.4	83.6
FOSA	2.500	2.163	-13.5	86.5
MeFOSAA	2.500	2.413	-3.5	96.5
PFBA	10.000	9.331	-6.7	93.3
PFBS	2.218	2.108	-5.0	95.0
PFDA	2.500	2.631	5.2	105.2
PFDoDA	2.500	2.352	-5.9	94.1
PFDS	2.413	2.103	-12.8	87.2
PFHpA	2.500	2.219	-11.2	88.8
PFHpS	2.383	2.202	-7.6	92.4
PFHxA	2.500	2.126	-15.0	85.0
PFHxS	2.285	2.003	-12.3	87.7
PFNA	2.500	2.143	-14.3	85.7
PFNS	2.405	2.185	-9.2	90.8
PFOA	2.500	2.132	-14.7	85.3
PFOS	2.320	2.200	-5.2	94.8

Continuing Calibration Summary

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q202-CC196
 Lab FileID: 6Q13225.D

PFPeA	5.000	4.611	-7.8	92.2
PFPeS	2.353	2.129	-9.5	90.5
PFTeDA	2.500	2.313	-7.5	92.5
PFTTrDA	2.500	2.401	-4.0	96.0
PFUnDA	2.500	2.090	-16.4	83.6
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	9.450	8.595	-9.1	90.9
13C3-HFPO-DA	10.000	9.062	-9.4	90.6
9C1-PF3ONS	9.350	8.507	-9.0	91.0
ADONA	9.450	8.953	-5.3	94.7
HFPO-DA	10.000	9.384	-6.2	93.8
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.647	-6.7	93.3
5:3FTCA	62.400	54.976	-11.9	88.1
7:3FTCA	62.400	47.246	-24.3	75.7
d3-MeFOSA	2.500	2.442	-2.3	97.7
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.165	-13.4	86.6
EtFOSE	25.000	21.432	-14.3	85.7
MeFOSA	2.500	2.324	-7.0	93.0
MeFOSE	25.000	22.128	-11.5	88.5
PFDoDS	2.425	2.196	-9.5	90.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	6.141	22.8	122.8
d7-MeFOSE	25.000	23.579	-5.7	94.3
d9-EtFOSE	25.000	23.003	-8.0	92.0
d5-EtFOSA	2.500	2.392	-4.3	95.7
NFDHA	5.000	4.611	-7.8	92.2
PFMBA	5.000	4.819	-3.6	96.4
PFMPA	5.000	4.736	-5.3	94.7
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	3.793	-14.8	85.2

CC Criteria: +/- 30%

Run Sequence Report

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q196	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
S6Q196-RT	6Q12720.D	02/01/23 17:09	n/a	Retention Time Marker
S6Q196-RT	6Q12721.D	02/01/23 17:23	n/a	Retention Time Marker
S6Q196-IC196	6Q12722.D	02/01/23 17:37	n/a	Mass Calibration Verification
S6Q196-IC196	6Q12723.D	02/01/23 17:51	n/a	Initial cal 1
S6Q196-IC196	6Q12724.D	02/01/23 18:05	n/a	Initial cal 2
S6Q196-IC196	6Q12725.D	02/01/23 18:19	n/a	Initial cal 3
S6Q196-ICC196	6Q12726.D	02/01/23 18:33	n/a	Initial cal 4
S6Q196-IC196	6Q12727.D	02/01/23 18:47	n/a	Initial cal 5
S6Q196-IC196	6Q12728.D	02/01/23 19:01	n/a	Initial cal 6
S6Q196-IC196	6Q12729.D	02/01/23 19:15	n/a	Initial cal 7
S6Q196-IC196	6Q12730.D	02/01/23 19:29	n/a	Initial cal 8
S6Q196-IBLK	6Q12731.D	02/01/23 19:43	n/a	Instrument Blank
S6Q196-IBLK	6Q12731.D	02/01/23 19:43	n/a	Instrument Blank
S6Q196-ICV196	6Q12732.D	02/01/23 19:57	n/a	Initial cal verification 4
S6Q196-ICV196	6Q12733.D	02/01/23 20:11	n/a	Initial cal verification 4
S6Q196-CC196	6Q12734.D	02/01/23 20:25	n/a	Continuing cal 4
S6Q196-CC196	6Q12735.D	02/01/23 20:39	n/a	Continuing cal 1.0LL
OP94938-BS	6Q12736.D	02/01/23 20:53	OP94938	Blank Spike
OP94938-LLBS	6Q12737.D	02/01/23 21:07	OP94938	Blank Spike
OP94938-MB	6Q12738.D	02/01/23 21:21	OP94938	Method Blank
ZZZZZZ	6Q12739.D	02/01/23 21:35	OP94938	(unrelated sample)
ZZZZZZ	6Q12740.D	02/01/23 21:49	OP94938	(unrelated sample)
ZZZZZZ	6Q12741.D	02/01/23 22:03	OP94938	(unrelated sample)
ZZZZZZ	6Q12742.D	02/01/23 22:17	OP94938	(unrelated sample)
ZZZZZZ	6Q12743.D	02/01/23 22:31	OP94938	(unrelated sample)
FC1643-12	6Q12744.D	02/01/23 22:45	OP94938	(used for QC only; not part of job FC2313)
OP94938-MS	6Q12745.D	02/01/23 22:59	OP94938	Matrix Spike
S6Q196-CC196	6Q12746.D	02/01/23 23:13	n/a	Continuing cal 4
S6Q196-ICCB	6Q12747.D	02/01/23 23:27	n/a	Continuing Calibration Blank
FC1643-13	6Q12748.D	02/01/23 23:41	OP94938	(used for QC only; not part of job FC2313)
OP94938-DUP	6Q12749.D	02/01/23 23:55	OP94938	Duplicate
ZZZZZZ	6Q12750.D	02/02/23 00:09	OP94938	(unrelated sample)
ZZZZZZ	6Q12751.D	02/02/23 00:22	OP94938	(unrelated sample)
ZZZZZZ	6Q12752.D	02/02/23 00:36	OP94938	(unrelated sample)
ZZZZZZ	6Q12753.D	02/02/23 00:50	OP94938	(unrelated sample)
ZZZZZZ	6Q12755.D	02/02/23 01:18	OP94914	(unrelated sample)
ZZZZZZ	6Q12756.D	02/02/23 01:32	OP94914	(unrelated sample)
ZZZZZZ	6Q12757.D	02/02/23 01:46	OP94914	(unrelated sample)
S6Q196-CC196	6Q12758.D	02/02/23 02:00	n/a	Continuing cal 4
S6Q196-ICCB	6Q12759.D	02/02/23 02:14	n/a	Continuing Calibration Blank
ZZZZZZ	6Q12761.D	02/02/23 02:42	OP95176	(unrelated sample)
ZZZZZZ	6Q12762.D	02/02/23 02:56	OP95176	(unrelated sample)
ZZZZZZ	6Q12763.D	02/02/23 03:10	OP95176	(unrelated sample)
ZZZZZZ	6Q12764.D	02/02/23 03:24	OP95176	(unrelated sample)
ZZZZZZ	6Q12765.D	02/02/23 03:38	OP95176	(unrelated sample)
ZZZZZZ	6Q12766.D	02/02/23 03:52	OP94914	(unrelated sample)

Run Sequence Report

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q196	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	6Q12767.D	02/02/23 04:06	OP94914	(unrelated sample)
S6Q196-CC196	6Q12770.D	02/02/23 04:34	n/a	Continuing cal 4
S6Q196-CC196	6Q12771.D	02/02/23 04:48	n/a	Continuing cal 1.0LL
S6Q196-ICCB	6Q12772.D	02/02/23 05:02	n/a	Continuing Calibration Blank
OP94945-BS	6Q12773.D	02/02/23 05:16	OP94945	Blank Spike
OP94945-LLBS	6Q12774.D	02/02/23 05:30	OP94945	Blank Spike
S6Q196-RT	6Q12783.D	02/02/23 09:56	n/a	Retention Time Marker
S6Q196-RT	6Q12784.D	02/02/23 10:10	n/a	Retention Time Marker
S6Q196-IBLK	6Q12786.D	02/02/23 10:38	n/a	Instrument Blank
S6Q196-IBLK	6Q12786.D	02/02/23 10:38	n/a	Instrument Blank
S6Q196-CC196	6Q12787.D	02/02/23 10:52	n/a	Continuing cal 4
S6Q196-CC196	6Q12788.D	02/02/23 11:06	n/a	Continuing cal 1.0LL
OP94945-BS	6Q12789.D	02/02/23 11:20	OP94945	Blank Spike
S6Q196-ICCB	6Q12800.D	02/02/23 13:58	n/a	Continuing Calibration Blank
ZZZZZZ	6Q12801.D	02/02/23 14:12	OP94945	(unrelated sample)
ZZZZZZ	6Q12802.D	02/02/23 14:46	OP94945	(unrelated sample)
ZZZZZZ	6Q12803.D	02/02/23 15:07	OP94945	(unrelated sample)
ZZZZZZ	6Q12804.D	02/02/23 15:20	OP94945	(unrelated sample)
FC1656-11	6Q12805.D	02/02/23 15:37	OP94945	(used for QC only; not part of job FC2313)
OP94945-MS	6Q12806.D	02/02/23 15:51	OP94945	Matrix Spike
OP94945-MSD	6Q12807.D	02/02/23 16:05	OP94945	Matrix Spike Duplicate
ZZZZZZ	6Q12808.D	02/02/23 16:19	OP94945	(unrelated sample)
ZZZZZZ	6Q12809.D	02/02/23 16:33	OP94945	(unrelated sample)
ZZZZZZ	6Q12810.D	02/02/23 16:47	OP94938	(unrelated sample)
S6Q196-CC196	6Q12811.D	02/02/23 17:01	n/a	Continuing cal 4
S6Q196-ICCB	6Q12812.D	02/02/23 17:15	n/a	Continuing Calibration Blank
ZZZZZZ	6Q12813.D	02/02/23 17:29	OP94938	(unrelated sample)
ZZZZZZ	6Q12814.D	02/02/23 17:43	OP94938	(unrelated sample)
ZZZZZZ	6Q12815.D	02/02/23 17:57	OP94938	(unrelated sample)
ZZZZZZ	6Q12817.D	02/02/23 18:25	OP95176	(unrelated sample)
S6Q196-ECC196	6Q12818.D	02/02/23 18:39	n/a	Ending cal 4
S6Q196-ICCB	6Q12819.D	02/02/23 18:53	n/a	Continuing Calibration Blank

Run Sequence Report

Job Number: FC2313
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q202	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
S6Q202-RT	6Q13184.D	02/07/23 09:51	n/a	Retention Time Marker
S6Q202-RT	6Q13185.D	02/07/23 10:05	n/a	Retention Time Marker
S6Q202-IBLK	6Q13187.D	02/07/23 10:34	n/a	Instrument Blank
S6Q202-IBLK	6Q13187.D	02/07/23 10:34	n/a	Instrument Blank
S6Q202-CC196	6Q13188.D	02/07/23 10:48	n/a	Continuing cal 4
S6Q202-CC196	6Q13189.D	02/07/23 11:02	n/a	Continuing cal 1.0LL
ZZZZZZ	6Q13190.D	02/07/23 11:16	OP94912	(unrelated sample)
ZZZZZZ	6Q13191.D	02/07/23 11:30	OP94912	(unrelated sample)
ZZZZZZ	6Q13192.D	02/07/23 11:43	OP94912	(unrelated sample)
OP95294-BS	6Q13193.D	02/07/23 11:57	OP95294	Blank Spike
OP95294-LLBS	6Q13194.D	02/07/23 12:11	OP95294	Blank Spike
OP95294-MB	6Q13195.D	02/07/23 12:25	OP95294	Method Blank
ZZZZZZ	6Q13196.D	02/07/23 12:39	OP95294	(unrelated sample)
ZZZZZZ	6Q13197.D	02/07/23 12:53	OP95294	(unrelated sample)
FC2294-2	6Q13198.D	02/07/23 13:08	OP95294	(used for QC only; not part of job FC2313)
OP95294-MS	6Q13199.D	02/07/23 13:22	OP95294	Matrix Spike
S6Q202-CC196	6Q13200.D	02/07/23 13:36	n/a	Continuing cal 4
S6Q202-ICCB	6Q13201.D	02/07/23 13:50	n/a	Continuing Calibration Blank
S6Q202-RT	6Q13209.D	02/08/23 10:05	n/a	Retention Time Marker
S6Q202-RT	6Q13210.D	02/08/23 10:19	n/a	Retention Time Marker
S6Q202-IBLK	6Q13212.D	02/08/23 10:49	n/a	Instrument Blank
S6Q202-IBLK	6Q13212.D	02/08/23 10:49	n/a	Instrument Blank
S6Q202-CC196	6Q13213.D	02/08/23 11:03	n/a	Continuing cal 4
S6Q202-CC196	6Q13214.D	02/08/23 11:17	n/a	Continuing cal 1.0LL
OP95294-BS	6Q13215.D	02/08/23 11:31	OP95294	Blank Spike
OP95294-LLBS	6Q13216.D	02/08/23 11:45	OP95294	Blank Spike
OP95294-MB	6Q13217.D	02/08/23 11:59	OP95294	Method Blank
FC2294-3	6Q13218.D	02/08/23 12:13	OP95294	(used for QC only; not part of job FC2313)
OP95294-DUP	6Q13219.D	02/08/23 12:27	OP95294	Duplicate
ZZZZZZ	6Q13220.D	02/08/23 12:41	OP95294	(unrelated sample)
FC2313-1	6Q13221.D	02/08/23 12:55	OP95294	AF-HDMW225303-WGN01LF-2301W5
ZZZZZZ	6Q13222.D	02/08/23 13:09	OP95294	(unrelated sample)
ZZZZZZ	6Q13223.D	02/08/23 13:23	OP95294	(unrelated sample)
ZZZZZZ	6Q13224.D	02/08/23 13:37	OP95294	(unrelated sample)
S6Q202-CC196	6Q13225.D	02/08/23 13:51	n/a	Continuing cal 4
S6Q202-ICCB	6Q13226.D	02/08/23 14:05	n/a	Continuing Calibration Blank

MS Semi-volatiles

Raw Data

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13221.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/8/2023 12:55:06 PM
 Sample Name : FC2313-1
 Vial : P3-D5
 DA Method File : 1633_020223_S6Q196.quantmethod.xml
 Batch Name : s6q202.batch.bin
 Sample Information : OP95294,S6Q202,570,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.013	216.8 -> 171.9	87357	10.00 µg/L	0.037
M5-PFPeA	4.386	268.3 -> 223.0	43300	5.00 µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	38209	2.50 µg/L	0.000
M4-PFHpA	6.490	367.1 -> 322.0	38894	2.50 µg/L	-0.012
M8-PFOA	7.134	421.1 -> 376.0	65414	2.50 µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	23480	1.25 µg/L	0.000
M6-PFDA	8.157	519.1 -> 474.1	17108	1.25 µg/L	0.000
M7-PFUnDA	8.624	570.0 -> 525.1	18061	1.25 µg/L	0.012
M2-PFDoDA	9.054	615.1 -> 570.0	19872	1.25 µg/L	0.000
M2-PFTeDA	9.781	715.2 -> 670.0	11512	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	16884	2.50 µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	14484	2.50 µg/L	0.000
M3-PFHxS	7.262	402.1 -> 79.9	9302	2.50 µg/L	-0.012
M8-PFOS	8.333	507.1 -> 79.9	8026	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2358	5.00 µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	3388	5.00 µg/L	0.000
M2-8:2FTS	7.944	529.1 -> 80.9	3056	5.00 µg/L	0.000
M3-MeFOSAA	8.202	573.2 -> 419.0	27753	5.00 µg/L	0.000
M3-HFPO-DA	5.927	286.9 -> 168.9	15103	10.00 µg/L	-0.012
M5-EtFOSAA	8.398	589.2 -> 419.0	22379	5.00 µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	24217	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	17163	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7218	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	6255	2.50 µg/L	0.000
13C4-PFOS	8.333	502.8 -> 79.9	9326	2.50 µg/L	0.000
13C3-PFBA	3.004	216.0 -> 172.0	34417	5.00 µg/L	0.025
18O2-PFHxS	7.261	403.0 -> 83.9	6261	2.50 µg/L	-0.012
13C4-PFOA	7.135	417.1 -> 372.0	71427	2.50 µg/L	-0.012
13C2-PFDA	8.158	515.1 -> 470.1	23913	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	23897	1.25 µg/L	0.000
13C2-PFHxA	5.563	315.1 -> 270.0	34228	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.240	329.1 -> 80.9	2358	5.79 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.8%		
13C2-6:2FTS	6.908	429.1 -> 80.9	3388	6.27 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 125.5%		
13C2-8:2FTS	7.944	529.1 -> 80.9	3056	5.63 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.7%		
13C2-PFDoDA	9.054	615.1 -> 570.0	19872	1.09 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.4%		
13C2-PFTeDA	9.781	715.2 -> 670.0	11512	1.10 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.6%		
13C3-PFBS	5.518	302.1 -> 79.9	14484	2.84 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 113.6%		
13C3-PFHxS	7.262	402.1 -> 79.9	9302	2.83 µg/L	-0.012



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 = 113.0%	
13C4-PFBA	3.013	216.8 -> 171.9	87357	11.44 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 114.4%	
13C4-PFHpA	6.490	367.1 -> 322.0	38894	2.75 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.1%	
13C5-PFHxA	5.563	318.0 -> 273.0	38209	2.82 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.8%	
13C5-PFPeA	4.386	268.3 -> 223.0	43300	5.68 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 113.5%	
13C6-PFDA	8.157	519.1 -> 474.1	17108	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C7-PFUnDA	8.624	570.0 -> 525.1	18061	1.14 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.8%	
13C8-FOSA	9.567	506.1 -> 77.8	16884	2.78 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.2%	
13C8-PFOA	7.134	421.1 -> 376.0	65414	2.74 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.7%	
13C8-PFOS	8.333	507.1 -> 79.9	8026	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.7%	
13C9-PFNA	7.677	472.1 -> 427.0	23480	1.40 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.7%	
d3-MeFOSAA	8.202	573.2 -> 419.0	27753	5.43 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.6%	
13C3-HFPO-DA	5.927	286.9 -> 168.9	15103	10.80 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.0%	
d3-MeFOSA	10.680	515.0 -> 219.0	6255	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.6%	
d5-EtFOSAA	8.398	589.2 -> 419.0	22379	5.28 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.5%	
d7-MeFOSE	10.589	623.2 -> 58.9	24217	22.87 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 91.5%	
d9-EtFOSE	10.847	639.2 -> 58.9	17163	23.52 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.1%	
d5-EtFOSA	10.925	531.1 -> 219.0	7218	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.4%	

Target Compounds

QValue

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

Perfluorinated Compounds by LC/MS/MS

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

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

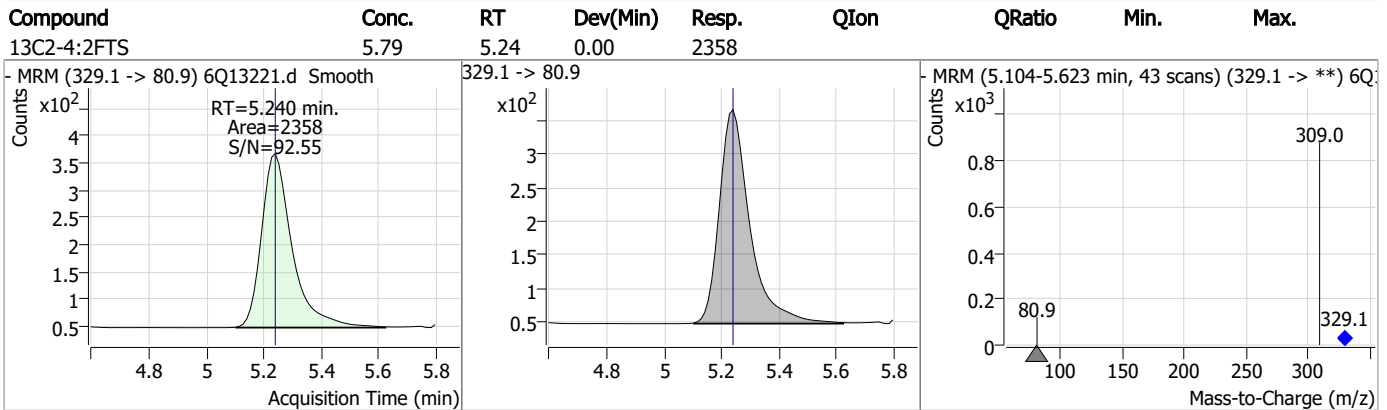
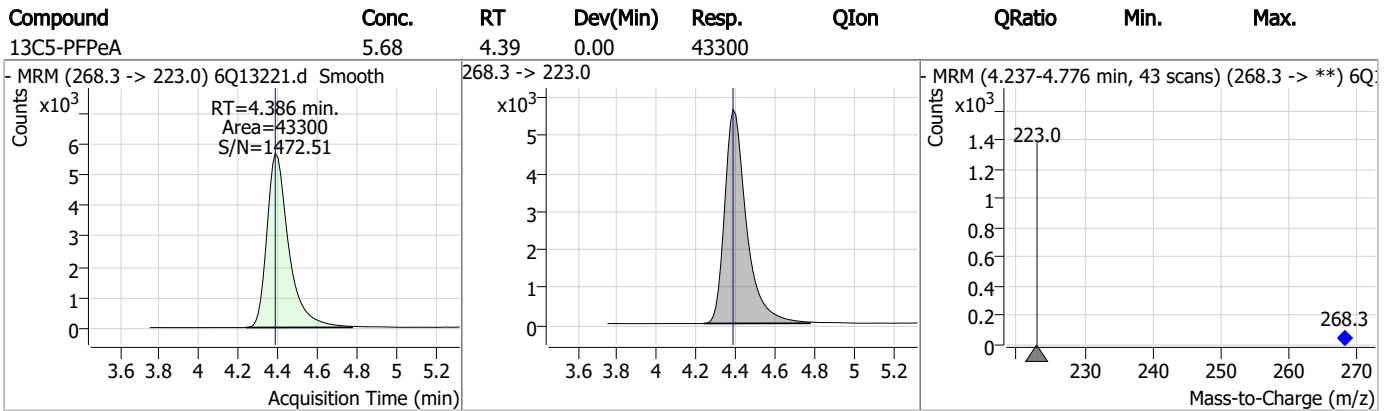
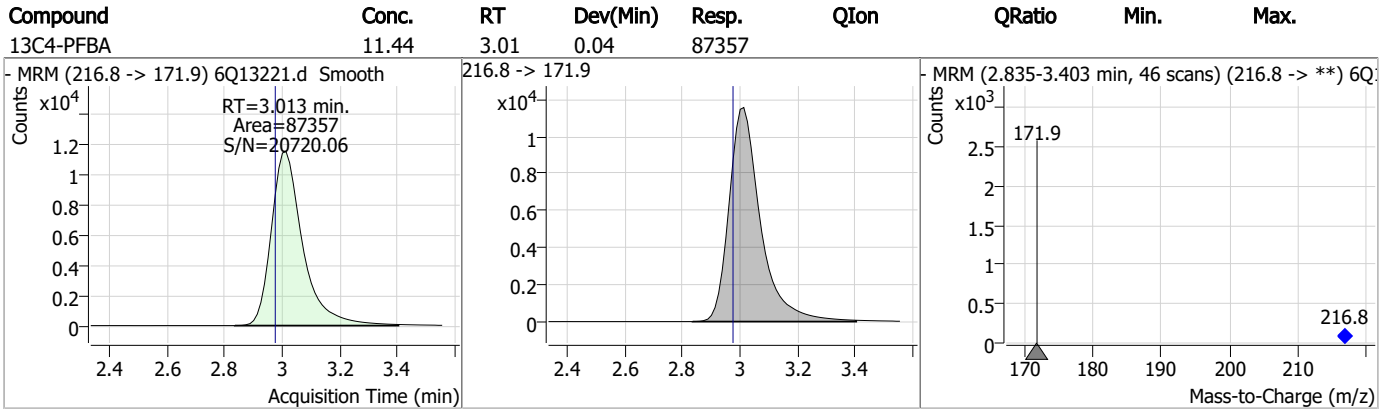
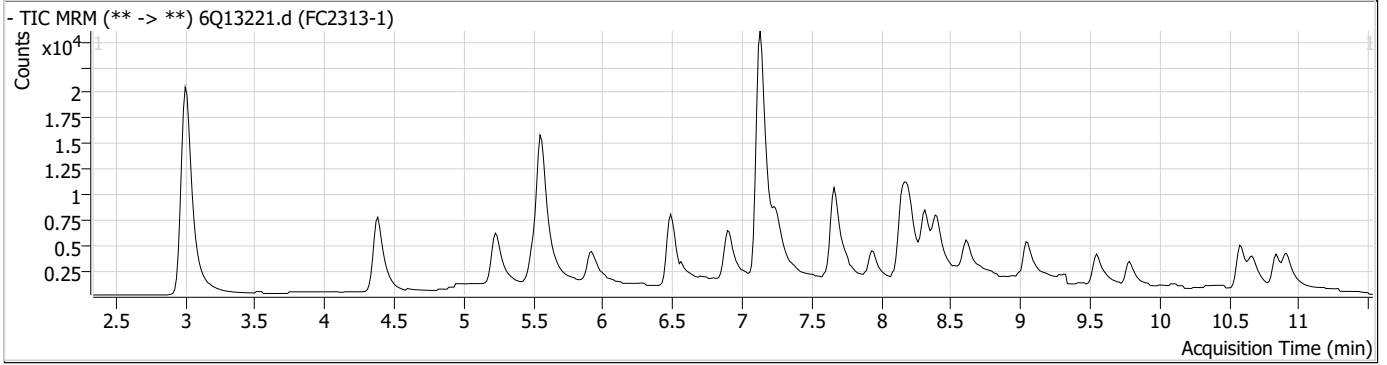
Perfluorinated Compounds by LC/MS/MS

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



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.84	5.52	0.00	14484				
13C5-PFHxA	2.82	5.56	0.00	38209				
13C3-HFPO-DA	10.80	5.93	-0.01	15103				
13C4-PFHpA	2.75	6.49	-0.01	38894				

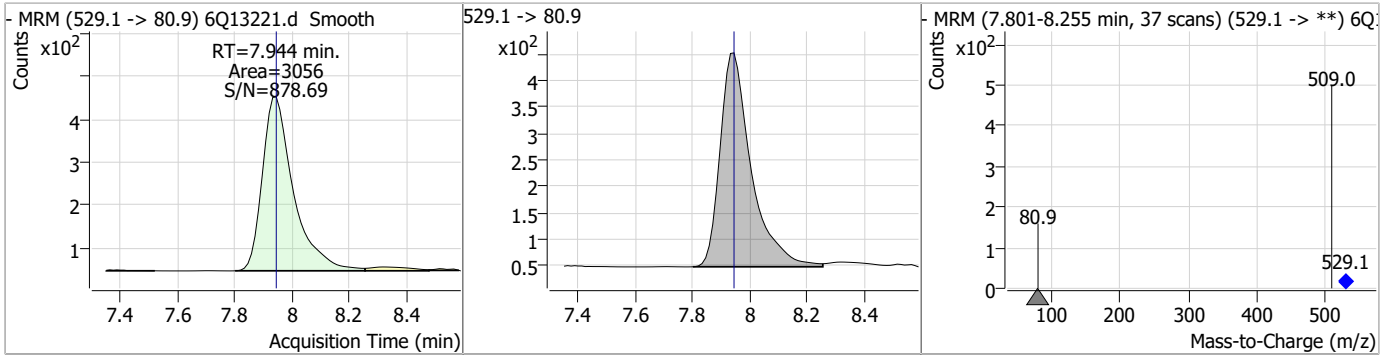
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	6.27	6.91	0.00	3388				
13C8-PFOA	2.74	7.13	-0.01	65414				
13C3-PFHxS	2.83	7.26	-0.01	9302				
13C9-PFNA	1.40	7.68	0.00	23480				

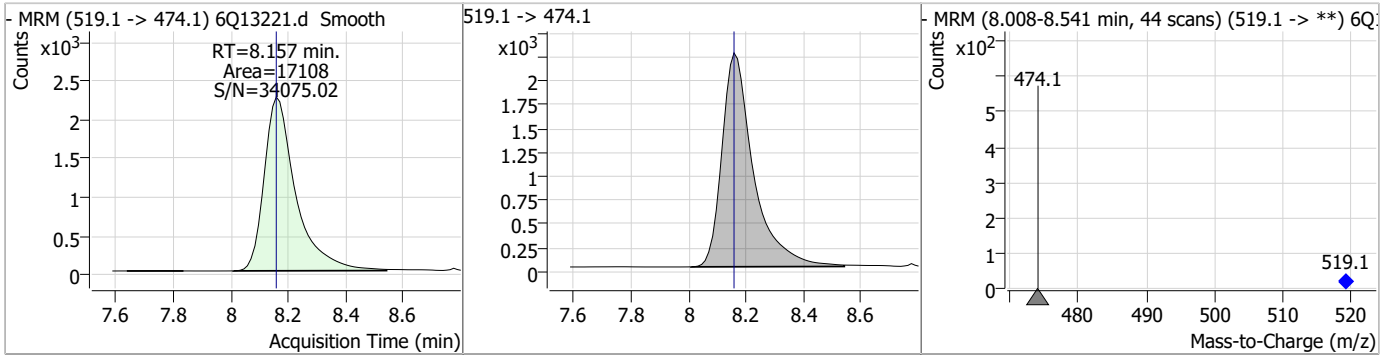
7.1.1
7

Perfluorinated Compounds by LC/MS/MS

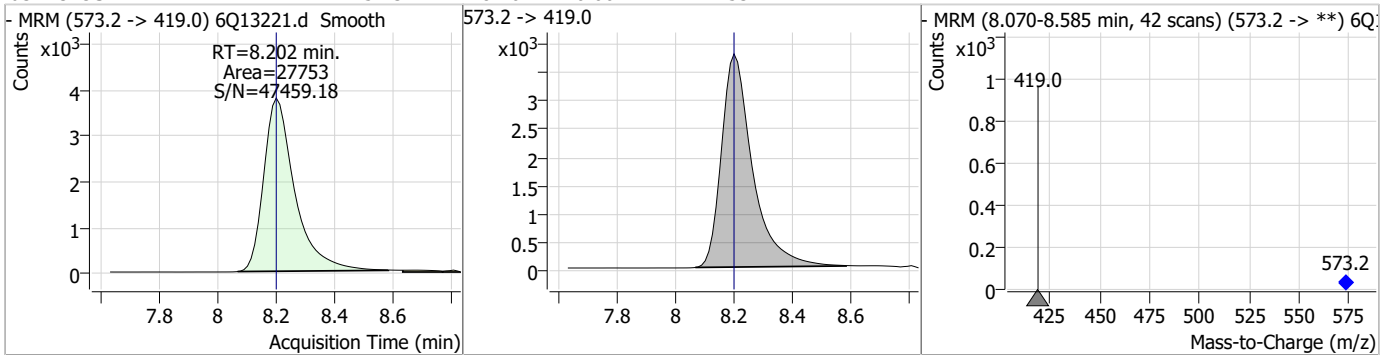
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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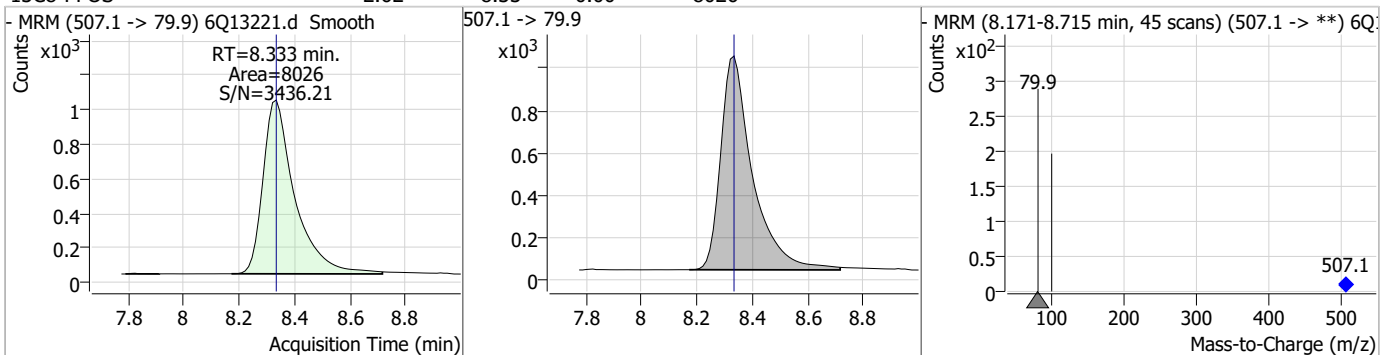
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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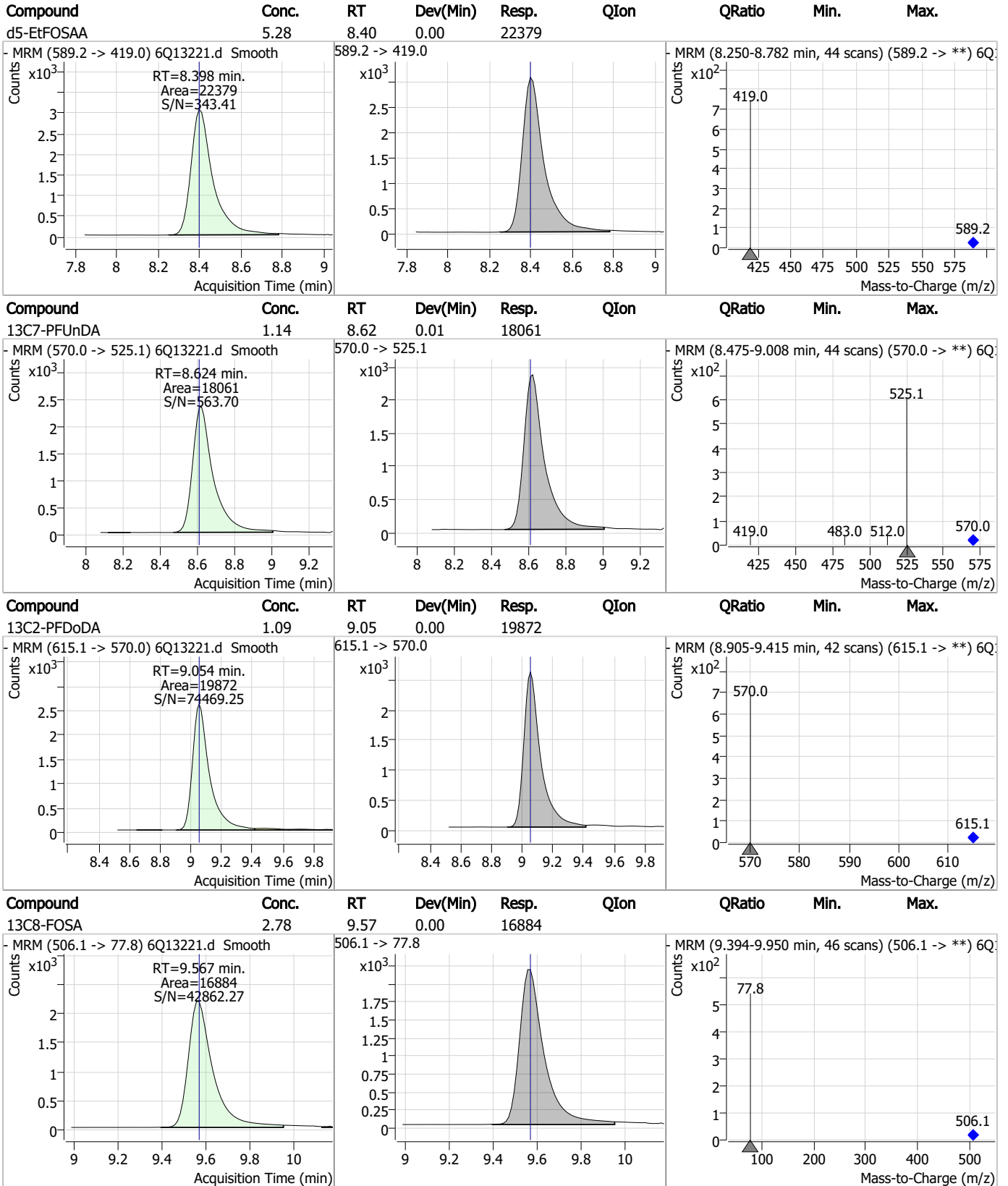
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Perfluorinated Compounds by LC/MS/MS

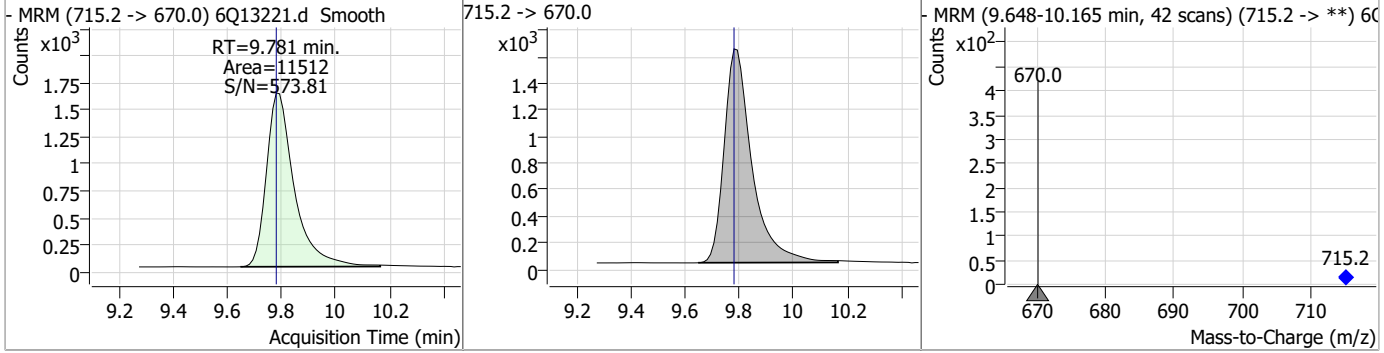


7.1.1

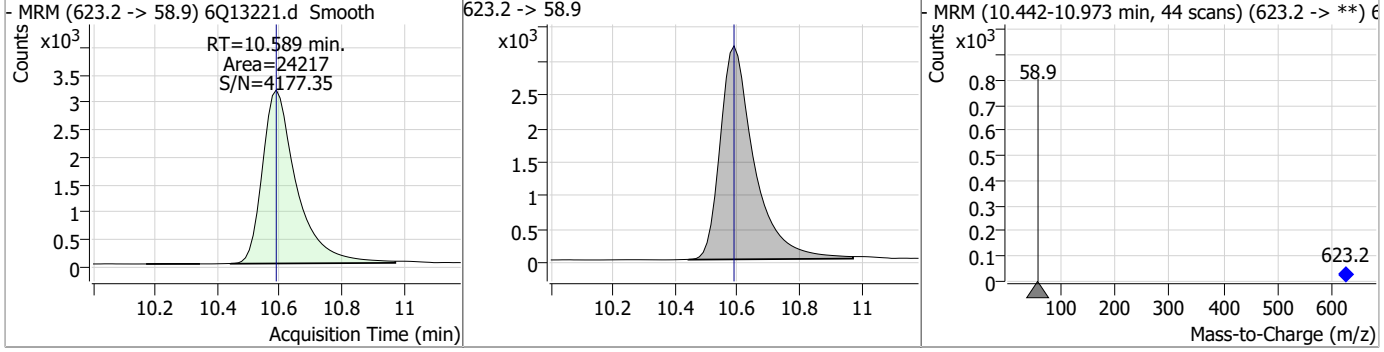
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Perfluorinated Compounds by LC/MS/MS

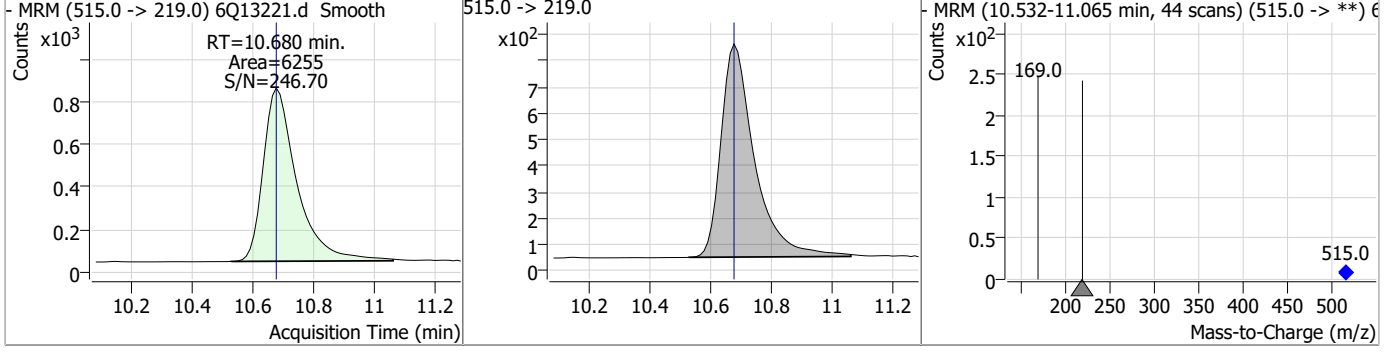
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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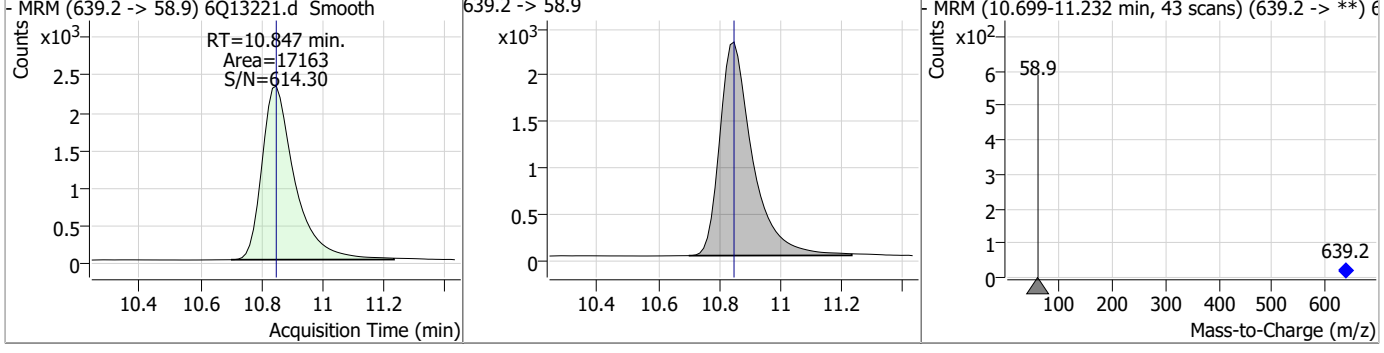
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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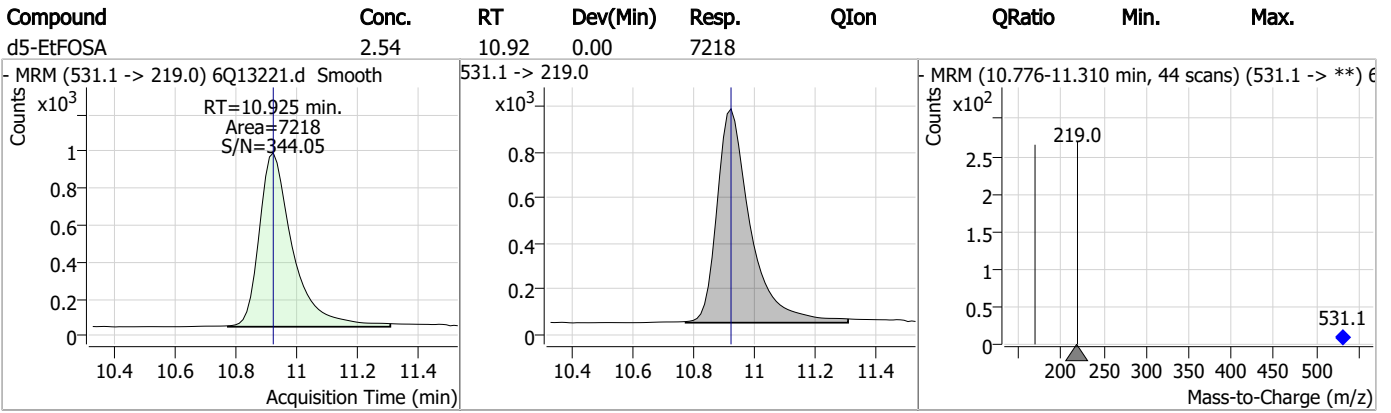
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Perfluorinated Compounds by LC/MS/MS



7.1.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13195.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/7/2023 12:25:54 PM
 Sample Name : op95294-mb
 Vial : P3-C6
 DA Method File : 1633_020223_S6Q196.quantmethod.xml
 Batch Name : s6q202.batch.bin
 Sample Information : OP95294,S6Q202,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.013	216.8 -> 171.9	82117	10.00 µg/L	0.037
M5-PFPeA	4.386	268.3 -> 223.0	40198	5.00 µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	35043	2.50 µg/L	0.012
M4-PFHpA	6.502	367.1 -> 322.0	38967	2.50 µg/L	0.000
M8-PFOA	7.146	421.1 -> 376.0	63939	2.50 µg/L	0.000
M9-PFNA	7.677	472.1 -> 427.0	23197	1.25 µg/L	0.000
M6-PFDA	8.157	519.1 -> 474.1	17480	1.25 µg/L	0.000
M7-PFUnDA	8.624	570.0 -> 525.1	20420	1.25 µg/L	0.012
M2-PFDoDA	9.054	615.1 -> 570.0	20404	1.25 µg/L	0.000
M2-PFTeDA	9.781	715.2 -> 670.0	10581	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	14797	2.50 µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	13870	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	8497	2.50 µg/L	0.000
M8-PFOS	8.333	507.1 -> 79.9	8035	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2314	5.00 µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	3091	5.00 µg/L	0.012
M2-8:2FTS	7.944	529.1 -> 80.9	2773	5.00 µg/L	0.000
M3-MeFOSAA	8.202	573.2 -> 419.0	26216	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	14435	10.00 µg/L	0.000
M5-EtFOSAA	8.398	589.2 -> 419.0	22453	5.00 µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	21623	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	14458	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	5910	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	5321	2.50 µg/L	0.000
13C4-PFOS	8.333	502.8 -> 79.9	9160	2.50 µg/L	0.000
13C3-PFBA	3.004	216.0 -> 172.0	32652	5.00 µg/L	0.025
18O2-PFHxS	7.273	403.0 -> 83.9	6366	2.50 µg/L	0.000
13C4-PFOA	7.147	417.1 -> 372.0	70811	2.50 µg/L	0.000
13C2-PFDA	8.158	515.1 -> 470.1	20218	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	22991	1.25 µg/L	0.000
13C2-PFHxA	5.563	315.1 -> 270.0	30497	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.240	329.1 -> 80.9	2314	5.59 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.8%		
13C2-6:2FTS	6.920	429.1 -> 80.9	3091	5.63 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.6%		
13C2-8:2FTS	7.944	529.1 -> 80.9	2773	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C2-PFDoDA	9.054	615.1 -> 570.0	20404	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.1%		
13C2-PFTeDA	9.781	715.2 -> 670.0	10581	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.3%		
13C3-PFBS	5.518	302.1 -> 79.9	13870	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.0%		
13C3-PFHxS	7.274	402.1 -> 79.9	8497	2.54 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 = 101.5%	
13C4-PFBA	3.013	216.8 -> 171.9	82117	11.33 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 113.3%	
13C4-PFHpA	6.502	367.1 -> 322.0	38967	3.10 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 123.8%	
13C5-PFHxA	5.575	318.0 -> 273.0	35043	2.90 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 116.1%	
13C5-PFPeA	4.386	268.3 -> 223.0	40198	5.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 118.3%	
13C6-PFDA	8.157	519.1 -> 474.1	17480	1.55 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 124.3%	
13C7-PFUnDA	8.624	570.0 -> 525.1	20420	1.52 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 121.5%	
13C8-FOSA	9.567	506.1 -> 77.8	14797	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C8-PFOA	7.146	421.1 -> 376.0	63939	2.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.2%	
13C8-PFOS	8.333	507.1 -> 79.9	8035	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.7%	
13C9-PFNA	7.677	472.1 -> 427.0	23197	1.43 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 114.7%	
d3-MeFOSAA	8.202	573.2 -> 419.0	26216	5.22 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	14435	11.58 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 115.8%	
d3-MeFOSA	10.680	515.0 -> 219.0	5321	2.07 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 82.8%	
d5-EtFOSAA	8.398	589.2 -> 419.0	22453	5.39 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.8%	
d7-MeFOSE	10.589	623.2 -> 58.9	21623	20.79 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 83.2%	
d9-EtFOSE	10.847	639.2 -> 58.9	14458	20.17 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 80.7%	
d5-EtFOSA	10.925	531.1 -> 219.0	5910	2.11 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.5%	

Target Compounds

QValue

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

7.2.1
7

Perfluorinated Compounds by LC/MS/MS

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

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

7.2.1
7

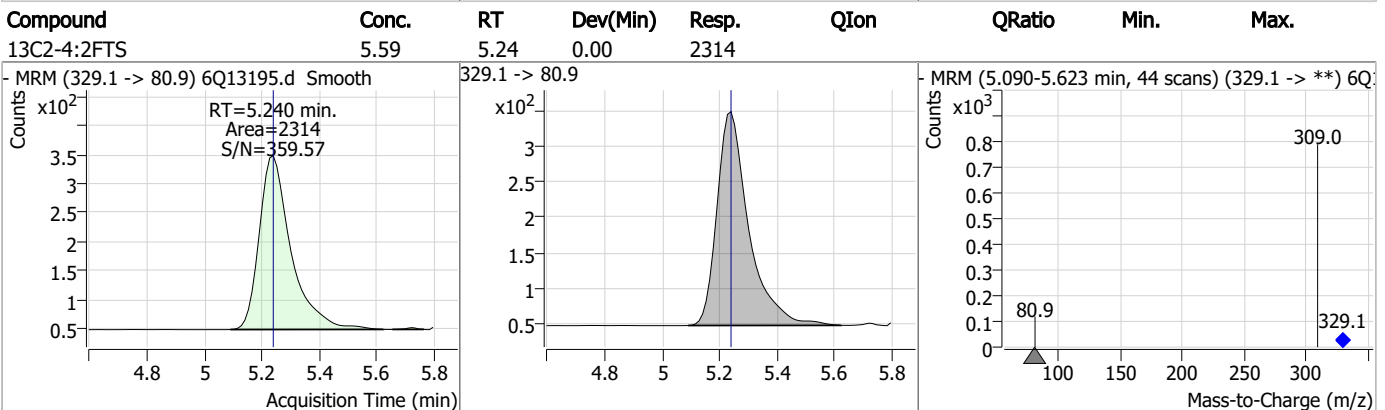
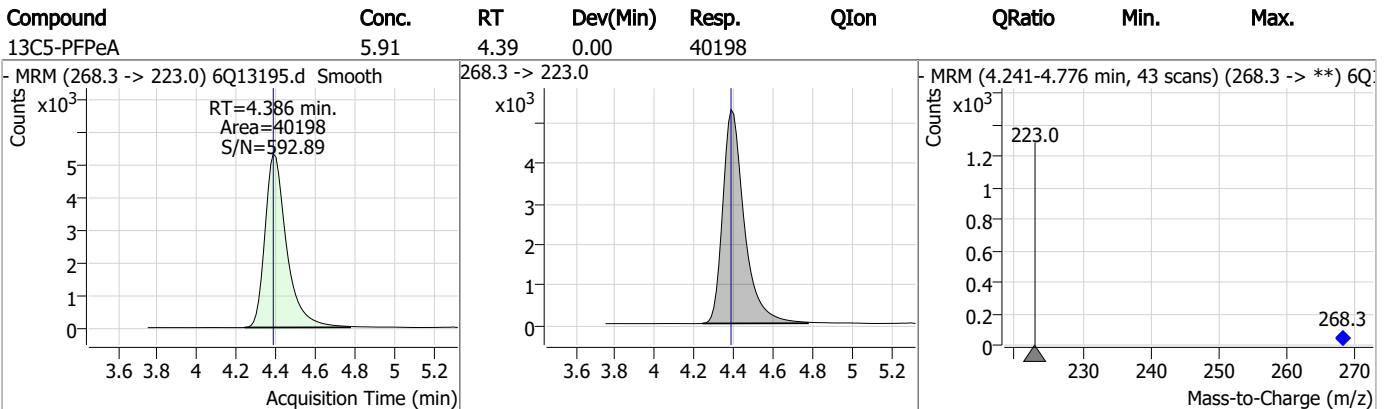
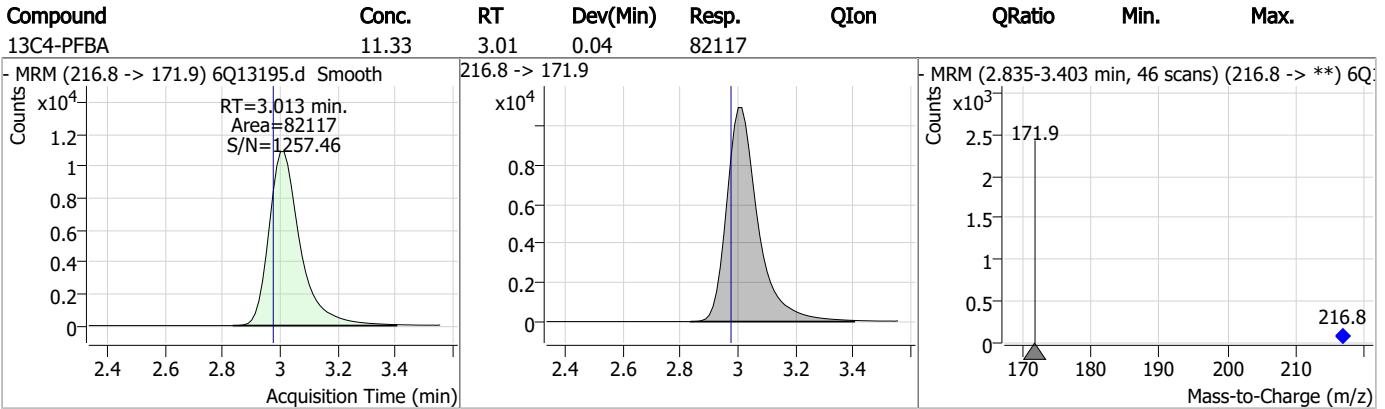
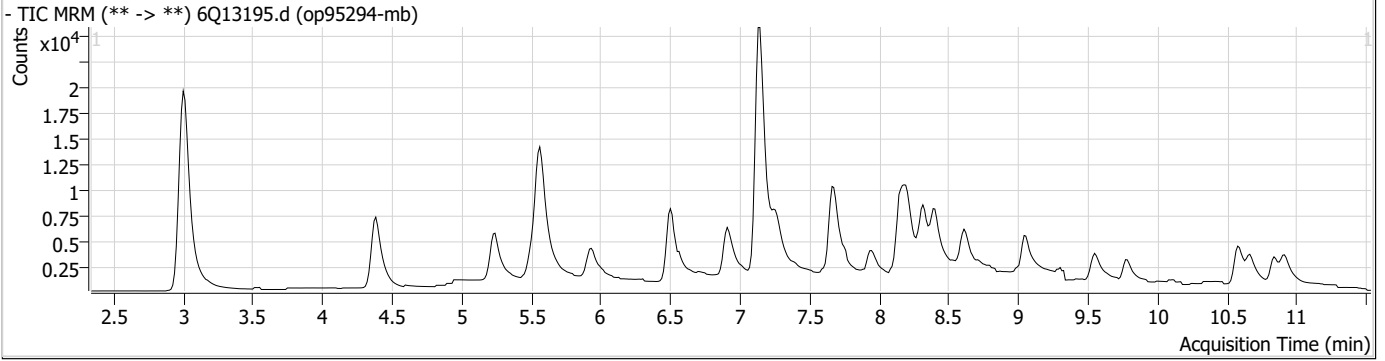
Perfluorinated Compounds by LC/MS/MS

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

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Perfluorinated Compounds by LC/MS/MS

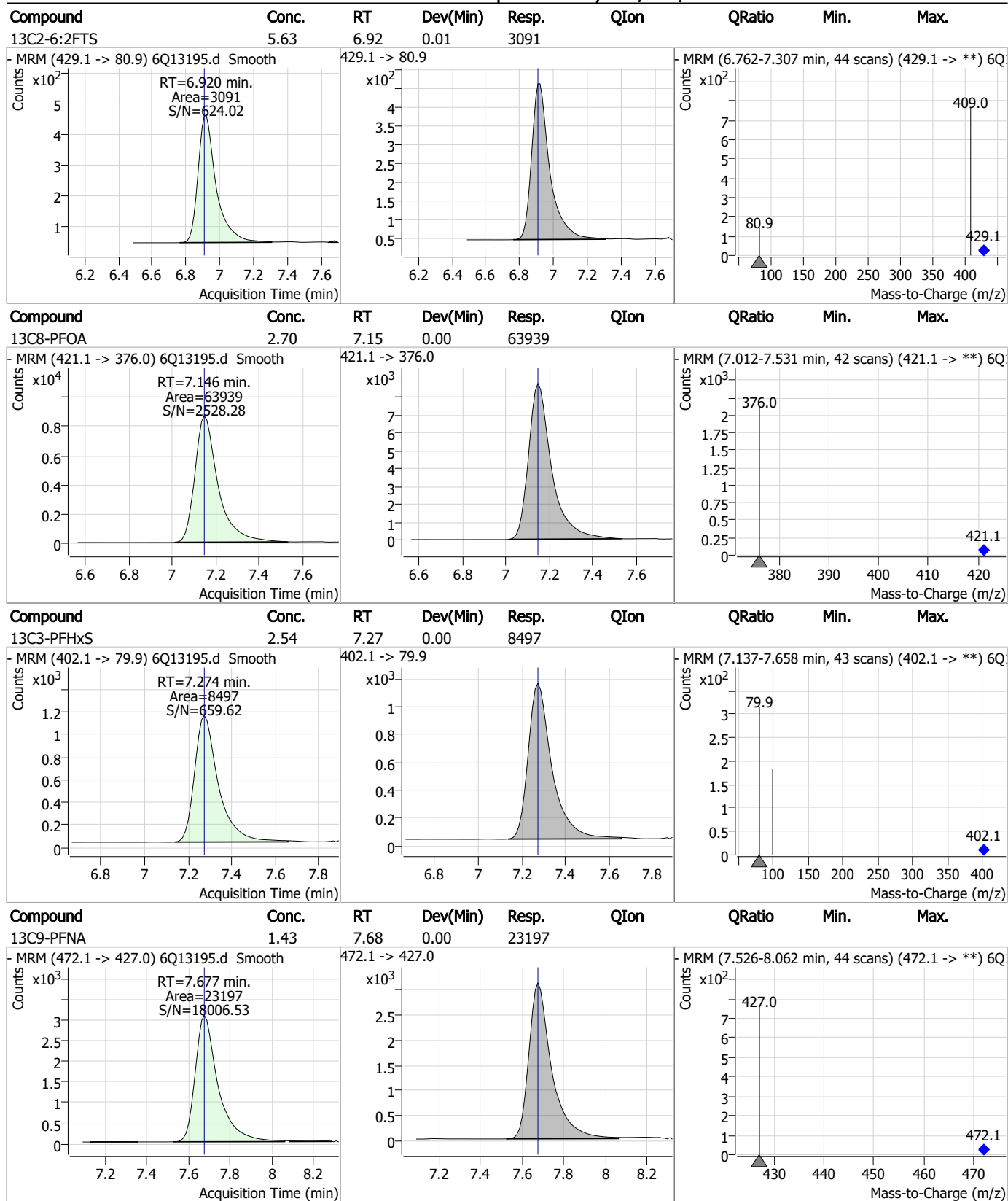


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.67	5.52	0.00	13870				
13C5-PFHxA	2.90	5.57	0.01	35043				
13C3-HFPO-DA	11.58	5.94	0.00	14435				
13C4-PFHpA	3.10	6.50	0.00	38967				

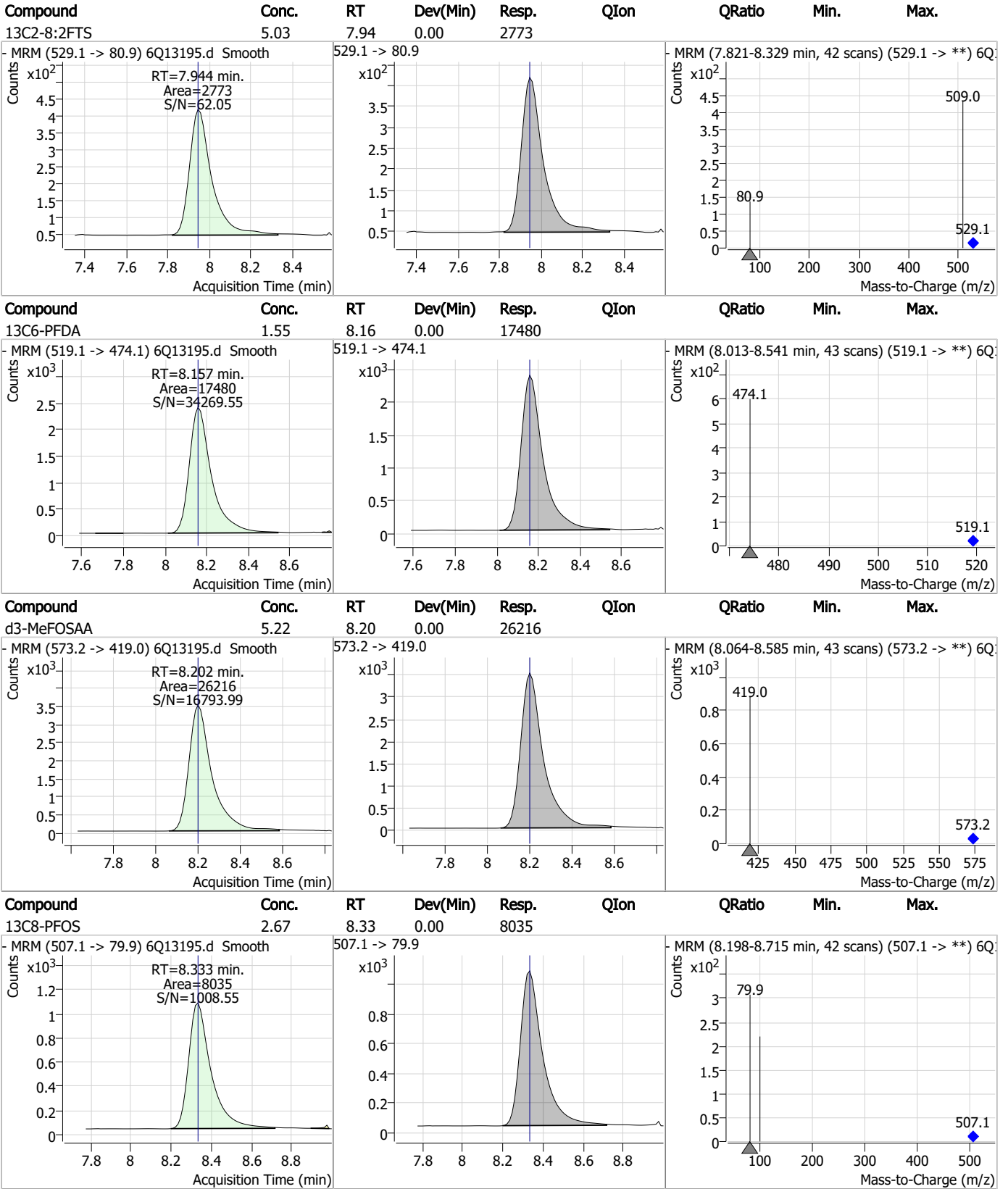
7.2.1
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Perfluorinated Compounds by LC/MS/MS



7.2.1
7

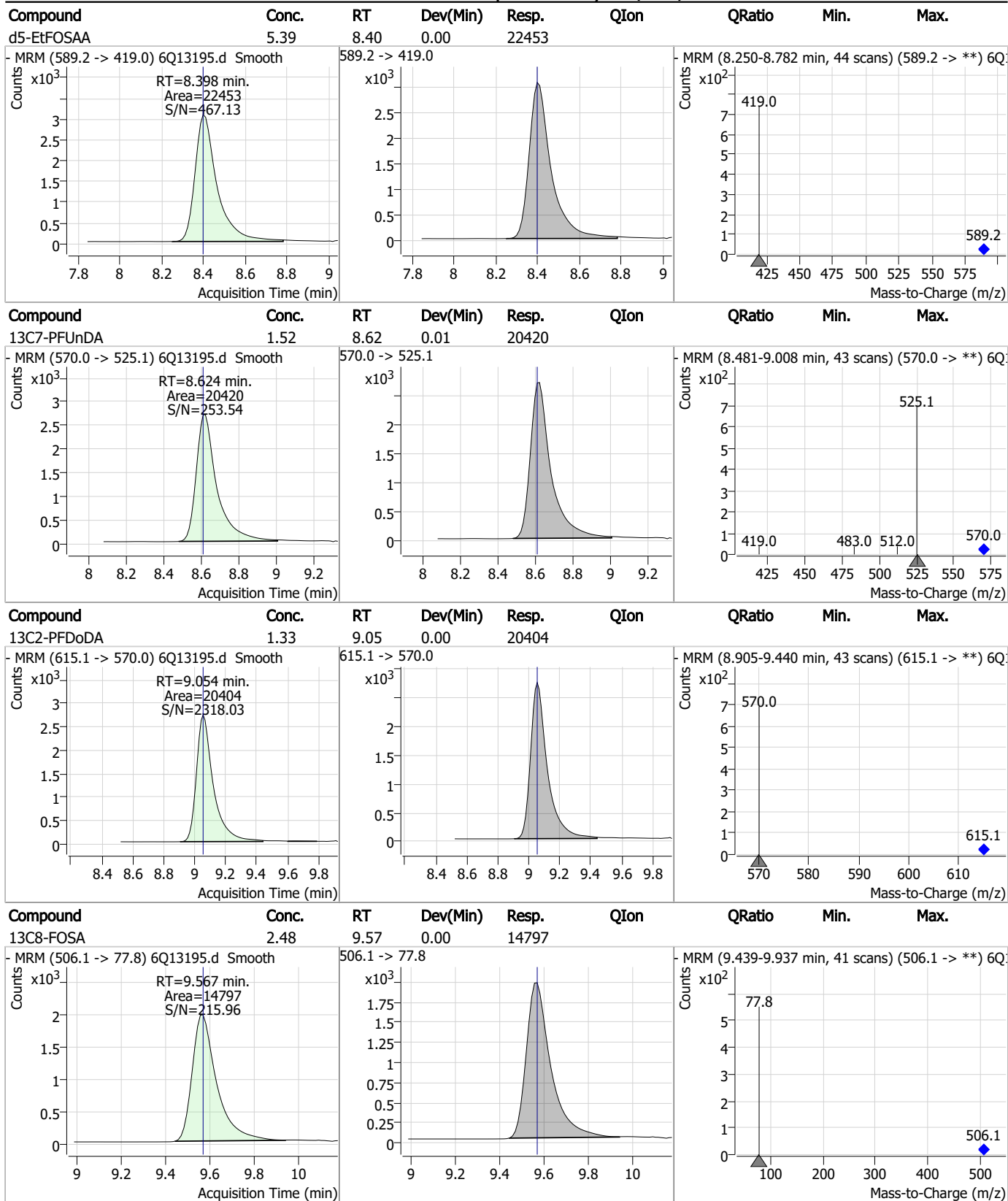
Perfluorinated Compounds by LC/MS/MS



7.2.1

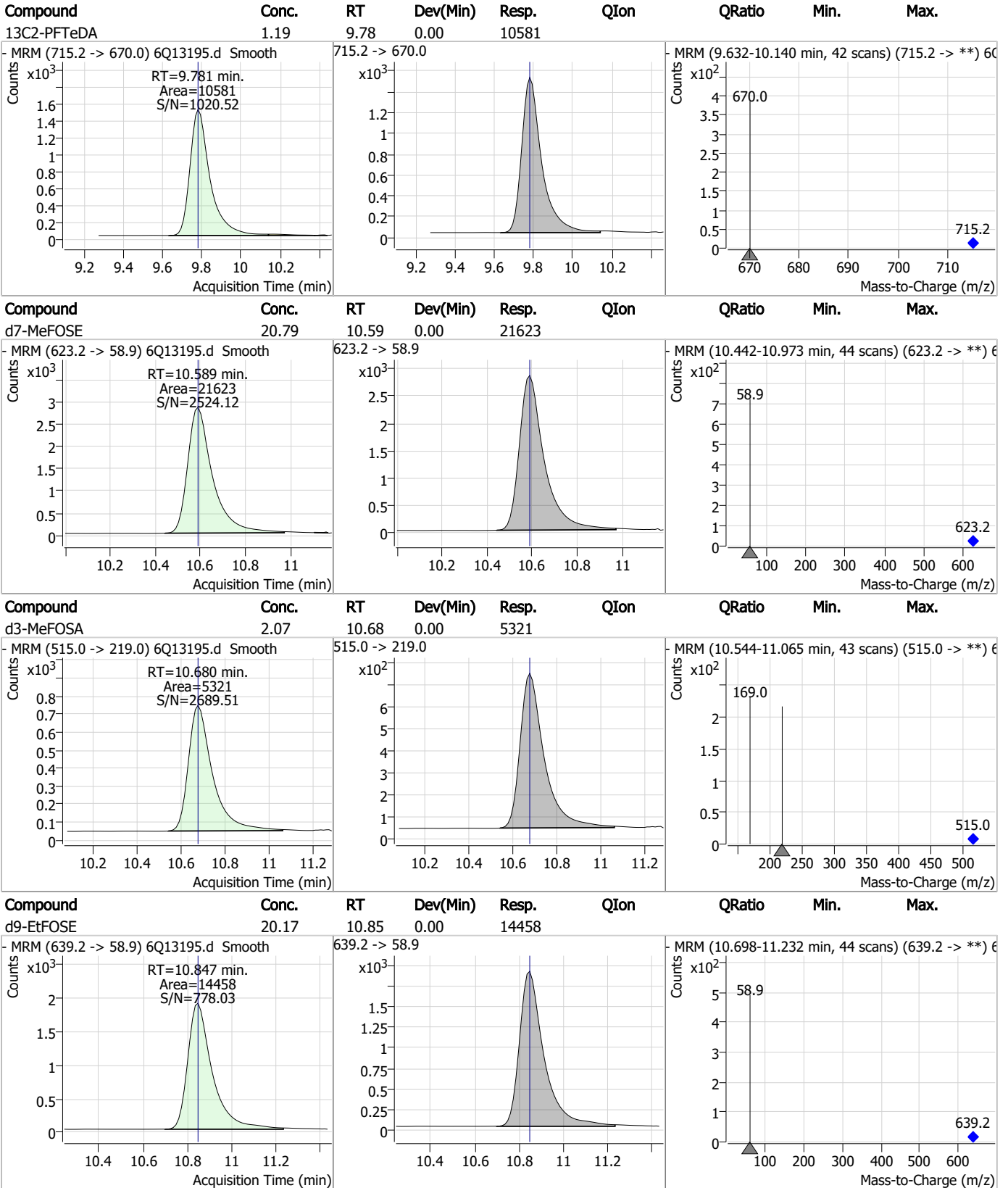
7

Perfluorinated Compounds by LC/MS/MS



7.2.1
7

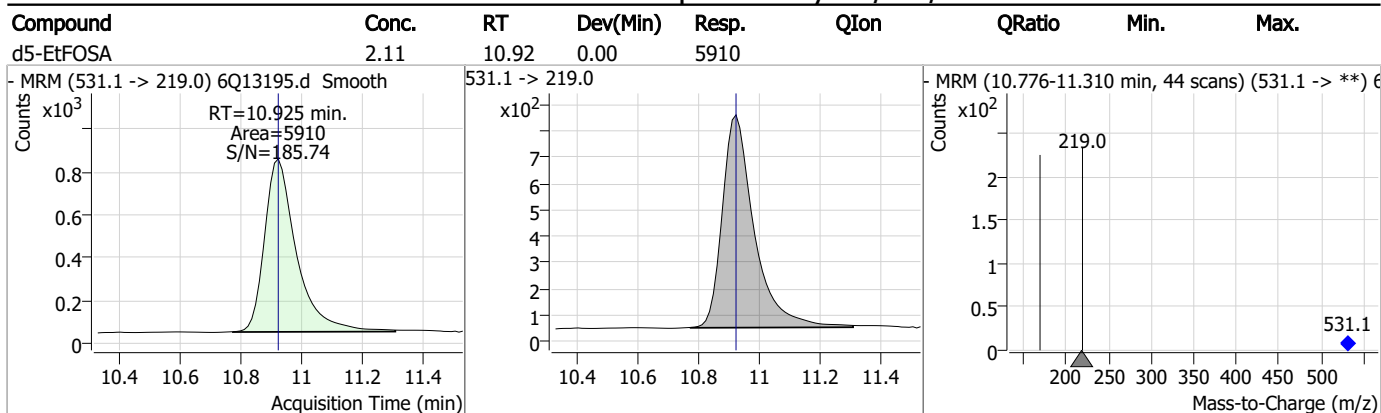
Perfluorinated Compounds by LC/MS/MS



7.2.1

7

Perfluorinated Compounds by LC/MS/MS



7.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13217.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/8/2023 11:59:11 AM
 Sample Name : op95294-mb
 Vial : P3-C6
 DA Method File : 1633_020223_S6Q196.quantmethod.xml
 Batch Name : s6q202.batch.bin
 Sample Information : OP95294,S6Q202,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.013	216.8 -> 171.9	86508	10.00 µg/L	0.037
M5-PFPeA	4.386	268.3 -> 223.0	42355	5.00 µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	39215	2.50 µg/L	0.012
M4-PFHpA	6.515	367.1 -> 322.0	37063	2.50 µg/L	0.012
M8-PFOA	7.146	421.1 -> 376.0	66431	2.50 µg/L	0.000
M9-PFNA	7.677	472.1 -> 427.0	23084	1.25 µg/L	0.000
M6-PFDA	8.157	519.1 -> 474.1	18744	1.25 µg/L	0.000
M7-PFUnDA	8.624	570.0 -> 525.1	21323	1.25 µg/L	0.012
M2-PFDoDA	9.054	615.1 -> 570.0	22960	1.25 µg/L	0.000
M2-PFTeDA	9.781	715.2 -> 670.0	10429	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	17078	2.50 µg/L	-0.012
M3-PFBS	5.530	302.1 -> 79.9	14153	2.50 µg/L	0.012
M3-PFHxS	7.274	402.1 -> 79.9	9216	2.50 µg/L	0.000
M8-PFOS	8.333	507.1 -> 79.9	8559	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2589	5.00 µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	3344	5.00 µg/L	0.012
M2-8:2FTS	7.944	529.1 -> 80.9	3103	5.00 µg/L	0.000
M3-MeFOSAA	8.202	573.2 -> 419.0	30848	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	14962	10.00 µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	25791	5.00 µg/L	0.012
M7-MeFOSE	10.589	623.2 -> 58.9	22238	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	15844	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	6000	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	5759	2.50 µg/L	0.000
13C4-PFOS	8.333	502.8 -> 79.9	10377	2.50 µg/L	0.000
13C3-PFBA	3.004	216.0 -> 172.0	34680	5.00 µg/L	0.025
18O2-PFHxS	7.273	403.0 -> 83.9	6226	2.50 µg/L	0.000
13C4-PFOA	7.147	417.1 -> 372.0	71275	2.50 µg/L	0.000
13C2-PFDA	8.158	515.1 -> 470.1	22170	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	24609	1.25 µg/L	0.000
13C2-PFHxA	5.576	315.1 -> 270.0	31877	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.240	329.1 -> 80.9	2589	6.39 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 127.9%		
13C2-6:2FTS	6.920	429.1 -> 80.9	3344	6.23 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 124.5%		
13C2-8:2FTS	7.944	529.1 -> 80.9	3103	5.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.0%		
13C2-PFDoDA	9.054	615.1 -> 570.0	22960	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.9%		
13C2-PFTeDA	9.781	715.2 -> 670.0	10429	1.07 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 85.6%		
13C3-PFBS	5.530	302.1 -> 79.9	14153	2.79 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.6%		
13C3-PFHxS	7.274	402.1 -> 79.9	9216	2.82 µg/L	0.000

7.22
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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 = 112.6%	
13C4-PFBA	3.013	216.8 -> 171.9	86508	11.24 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 112.4%	
13C4-PFHpA	6.515	367.1 -> 322.0	37063	2.82 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.7%	
13C5-PFHxA	5.575	318.0 -> 273.0	39215	3.11 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 124.3%	
13C5-PFPeA	4.386	268.3 -> 223.0	42355	5.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 119.2%	
13C6-PFDA	8.157	519.1 -> 474.1	18744	1.52 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 121.6%	
13C7-PFUnDA	8.624	570.0 -> 525.1	21323	1.45 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 115.7%	
13C8-FOSA	9.555	506.1 -> 77.8	17078	2.53 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C8-PFOA	7.146	421.1 -> 376.0	66431	2.79 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.6%	
13C8-PFOS	8.333	507.1 -> 79.9	8559	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C9-PFNA	7.677	472.1 -> 427.0	23084	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.6%	
d3-MeFOSAA	8.202	573.2 -> 419.0	30848	5.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.5%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	14962	11.49 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 114.9%	
d3-MeFOSA	10.680	515.0 -> 219.0	5759	1.98 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 79.1%	
d5-EtFOSAA	8.410	589.2 -> 419.0	25791	5.47 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.3%	
d7-MeFOSE	10.589	623.2 -> 58.9	22238	18.87 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 75.5%	
d9-EtFOSE	10.847	639.2 -> 58.9	15844	19.51 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 78.0%	
d5-EtFOSA	10.925	531.1 -> 219.0	6000	1.89 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 75.8%	

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	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

7.22
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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	-	398.7 -> 98.9	-	N.D.	
		463.0 -> 419.0			
PFNS	-	463.0 -> 219.0	-	N.D.	
		548.8 -> 79.9			
PFOA	-	548.8 -> 98.9	-	N.D.	
		413.0 -> 369.0			
PFOS	-	413.0 -> 169.0	-	N.D.	
		498.9 -> 79.9			
PFPeA	-	498.9 -> 98.8	-	N.D.	
		263.0 -> 219.0			
PFPeS	-	349.1 -> 79.9	-	N.D.	
		349.1 -> 98.9			
PFTeDA	-	713.1 -> 669.0	-	N.D.	
		713.1 -> 168.9			
PFTrDA	-	663.0 -> 619.0	-	N.D.	
		663.0 -> 168.9			
PFUnDA	-	563.1 -> 519.0	-	N.D.	
		563.1 -> 269.1			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.	
		632.9 -> 452.9			
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.	
		532.8 -> 353.0			
ADONA	-	376.9 -> 250.9	-	N.D.	
		376.9 -> 84.8			
HFPO-DA	-	284.9 -> 168.9	-	N.D.	
		284.9 -> 184.9			
3:3FTCA	-	241.0 -> 177.0	-	N.D.	
		241.0 -> 117.0			
5:3FTCA	-	341.0 -> 237.1	-	N.D.	
		341.0 -> 217.0			
7:3FTCA	-	441.0 -> 316.9	-	N.D.	
		441.0 -> 336.9			
EtFOSA	-	526.0 -> 219.0	-	N.D.	
		526.0 -> 169.0			
EtFOSE	-	630.0 -> 58.9	-	N.D.	
		511.9 -> 219.0			
MeFOSA	-	511.9 -> 169.0	-	N.D.	
		616.1 -> 58.9			
MeFOSE	-	699.1 -> 79.9	-	N.D.	
		699.1 -> 98.8			
PFDoDS	-	295.0 -> 201.0	-	N.D.	
		295.0 -> 84.9			
NFDHA	-	279.0 -> 85.1	-	N.D.	
		229.0 -> 84.9			
PFMBA	-	314.8 -> 134.9	-	N.D.	
		314.8 -> 82.9			

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

7.2.2
7

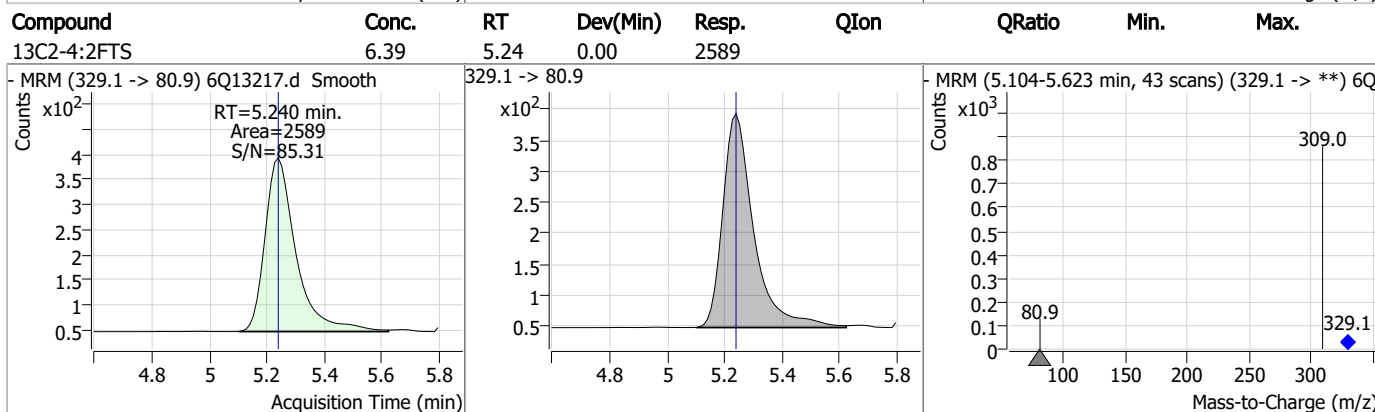
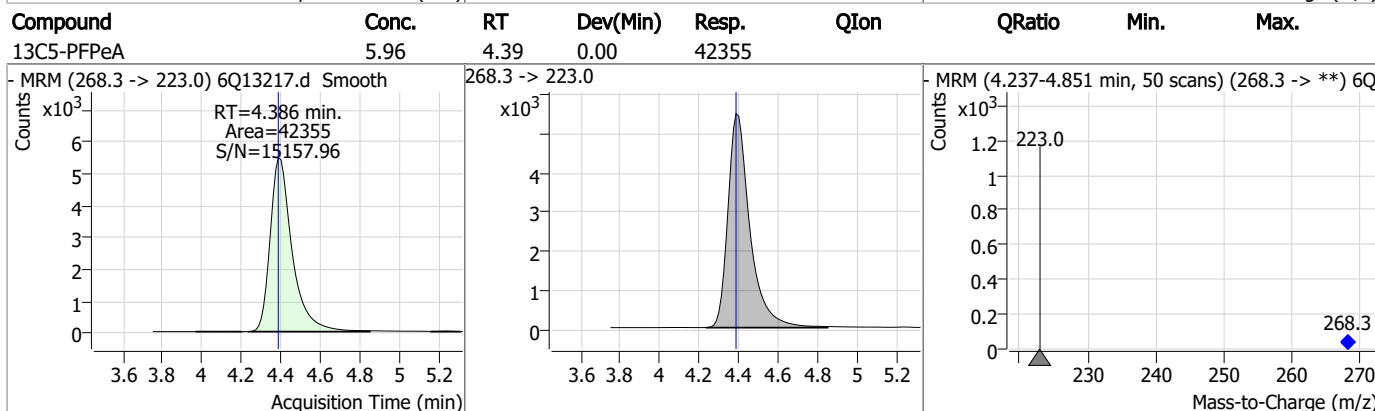
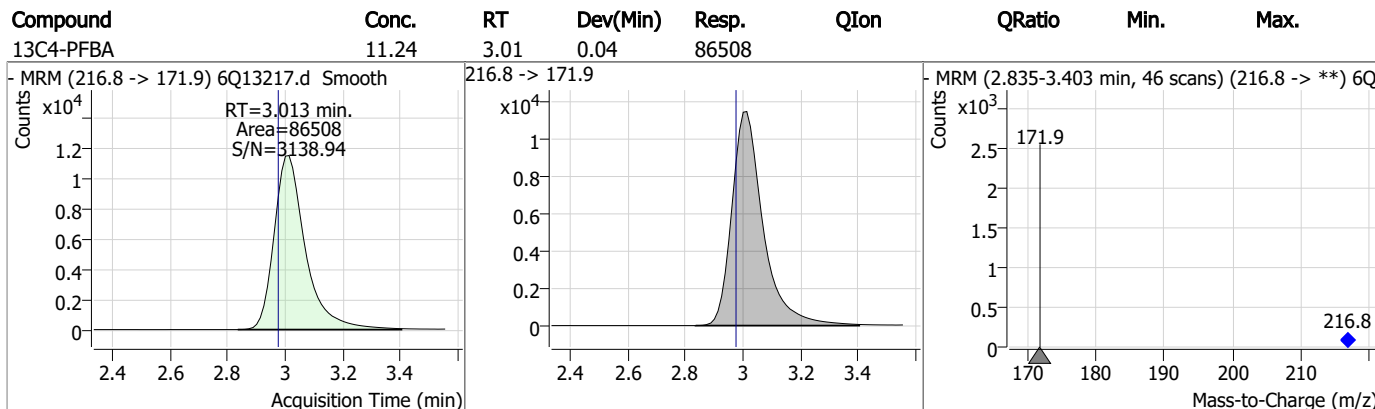
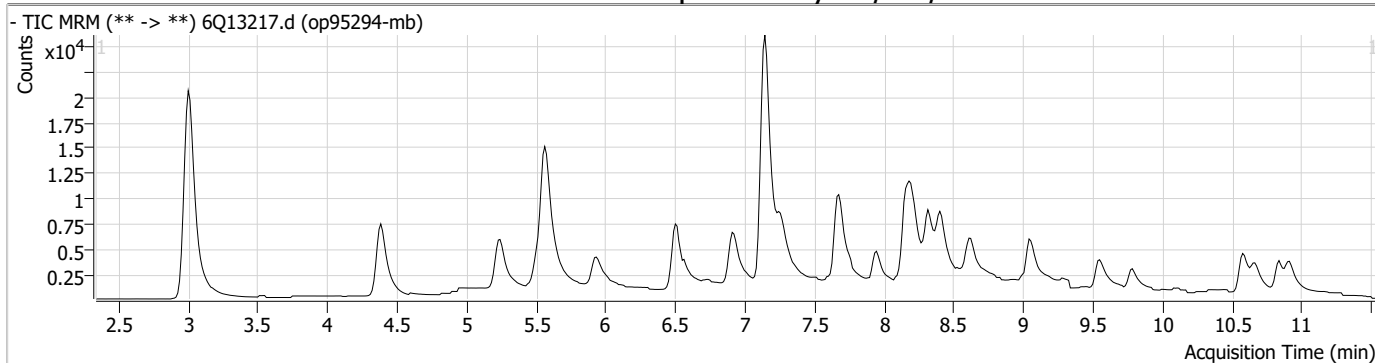
Perfluorinated Compounds by LC/MS/MS

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

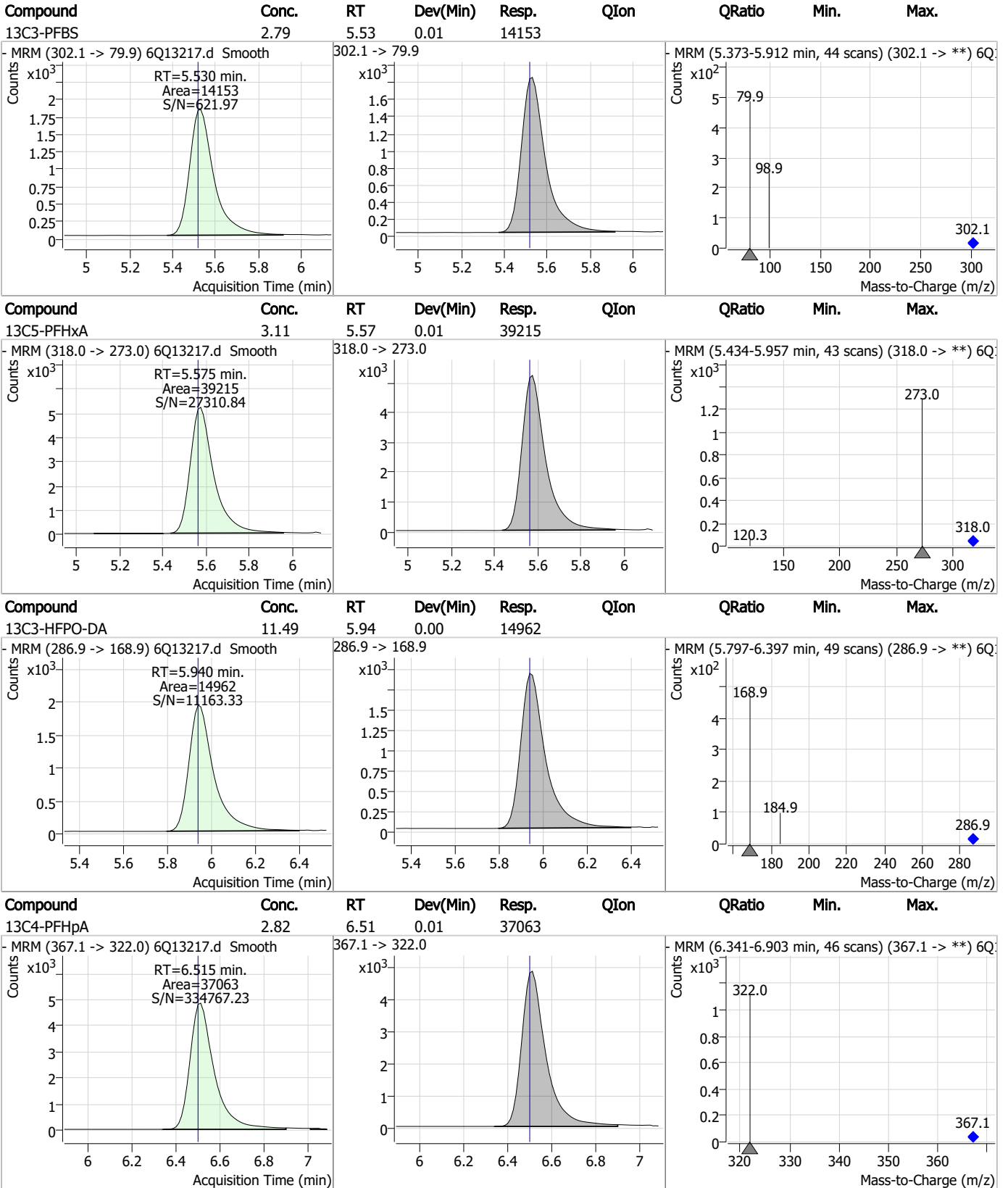
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Perfluorinated Compounds by LC/MS/MS



7.2.2
7

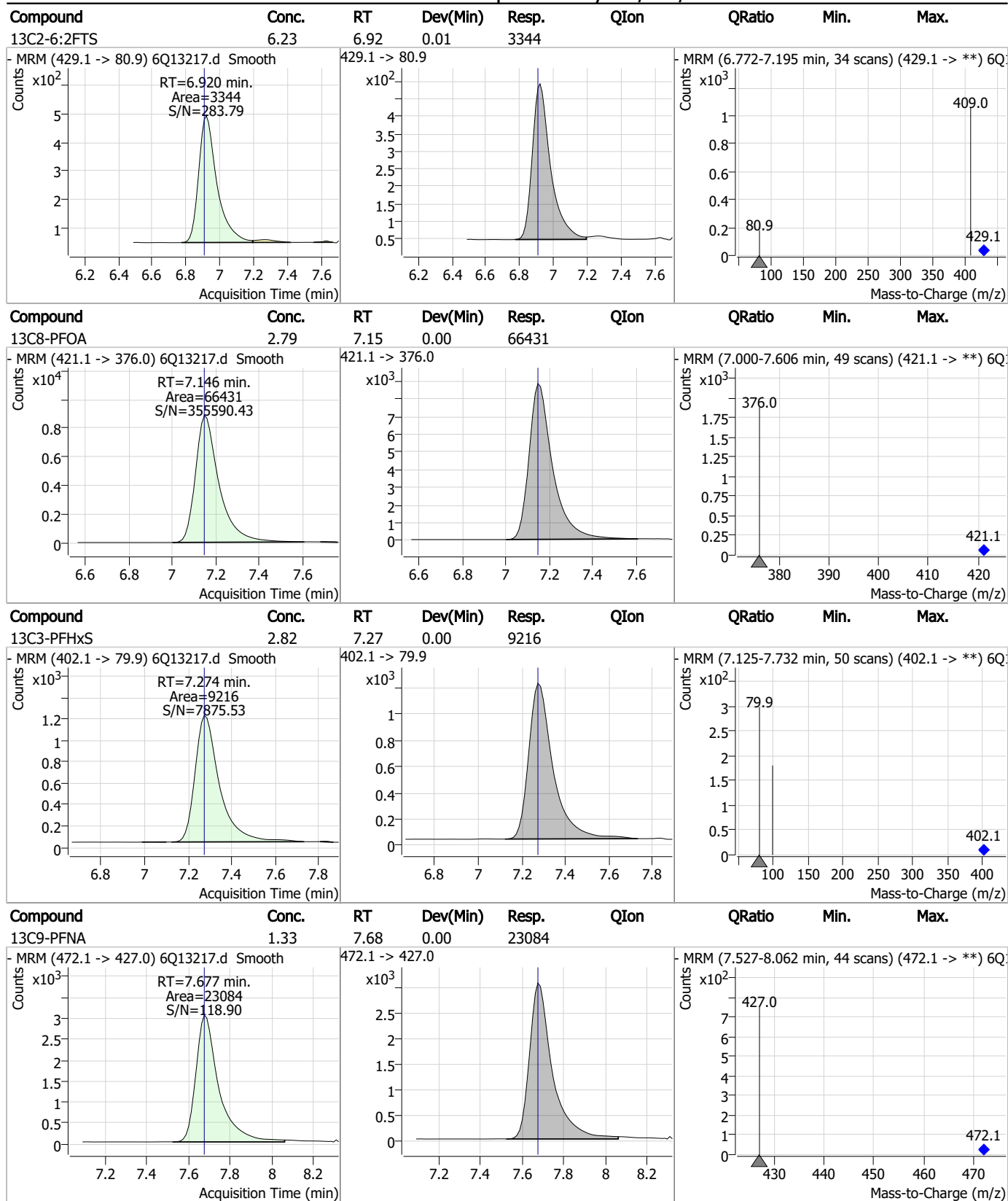
Perfluorinated Compounds by LC/MS/MS



7.2.2

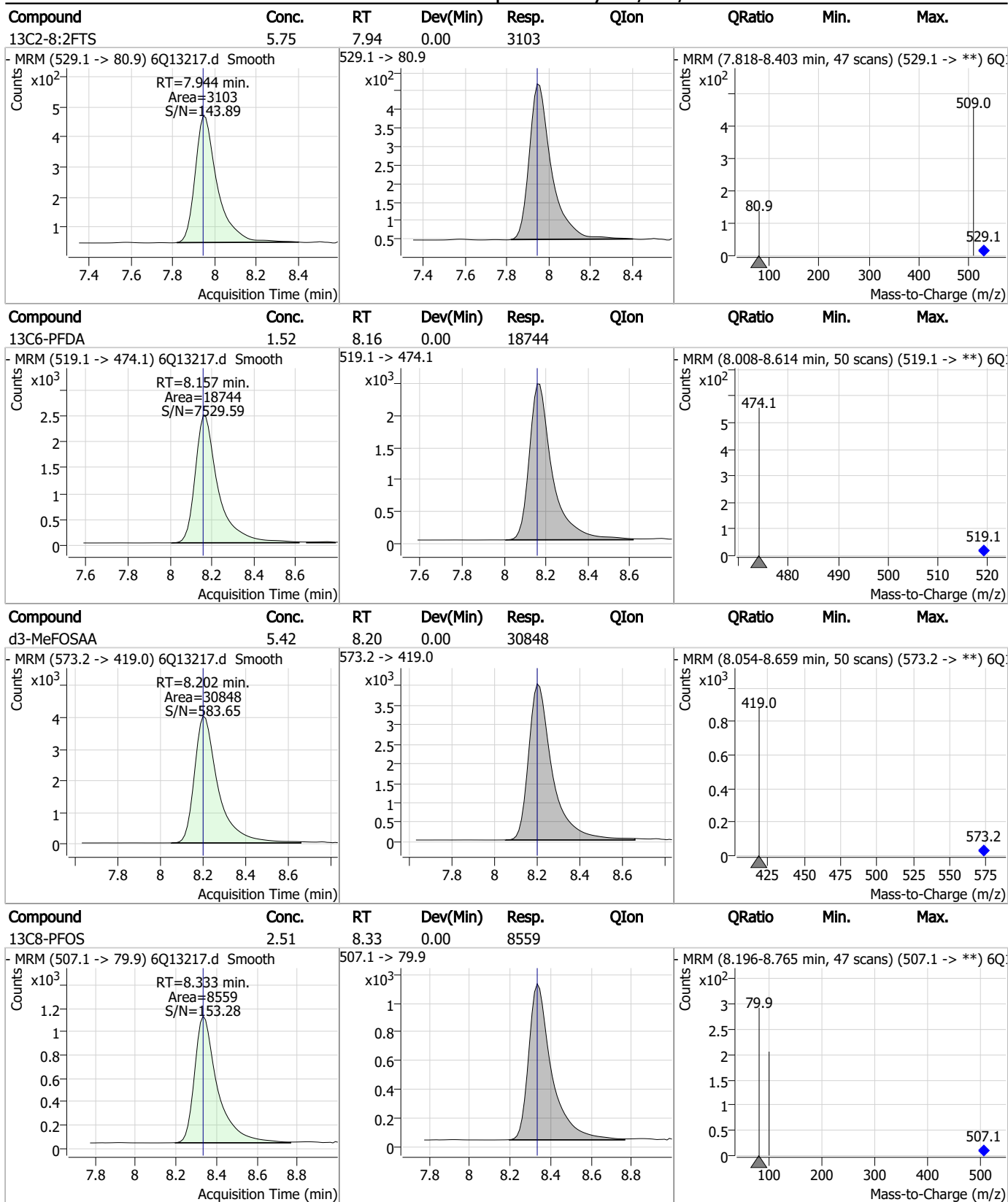
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Perfluorinated Compounds by LC/MS/MS



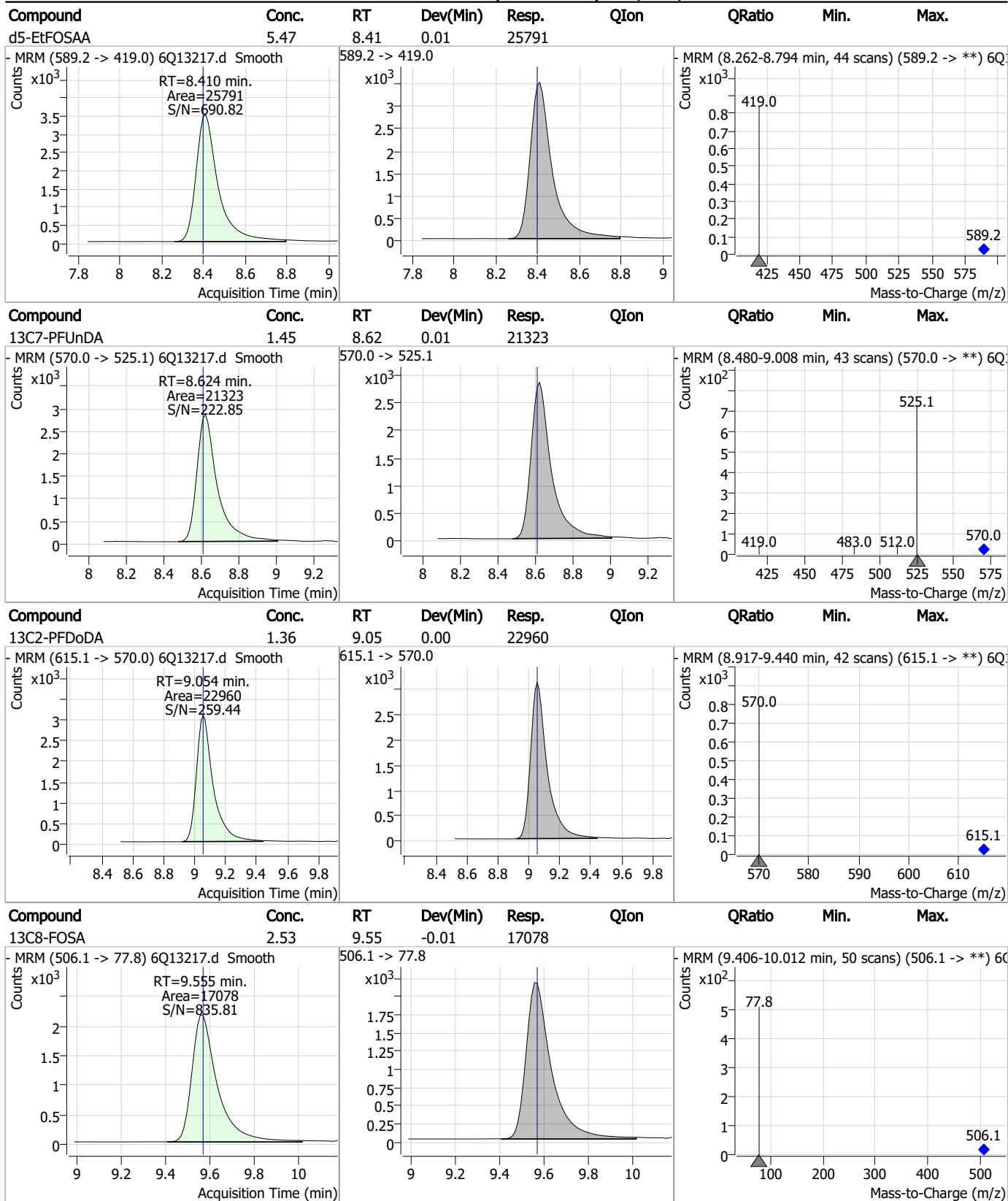
7.22
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Perfluorinated Compounds by LC/MS/MS



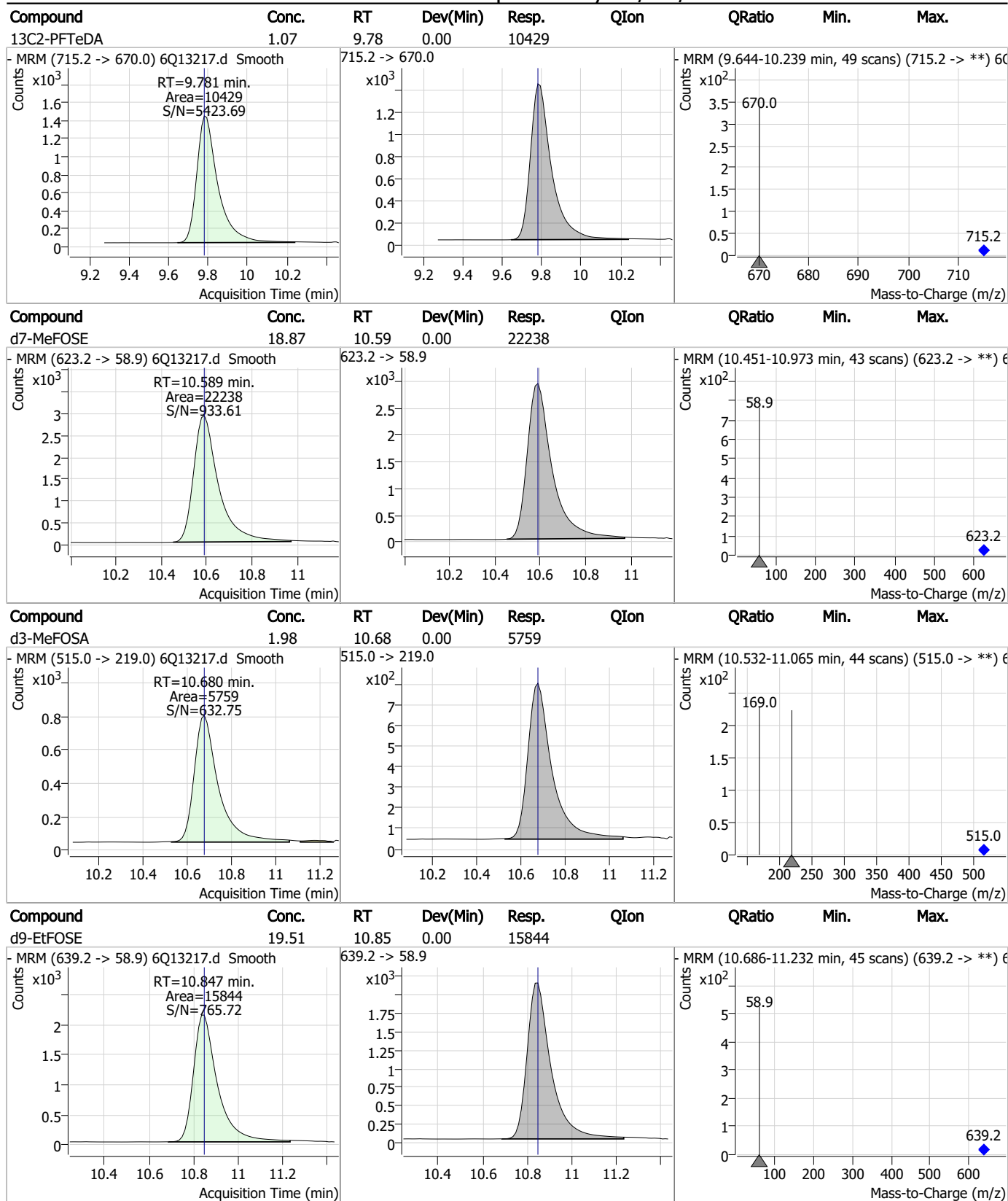
7.22
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Perfluorinated Compounds by LC/MS/MS



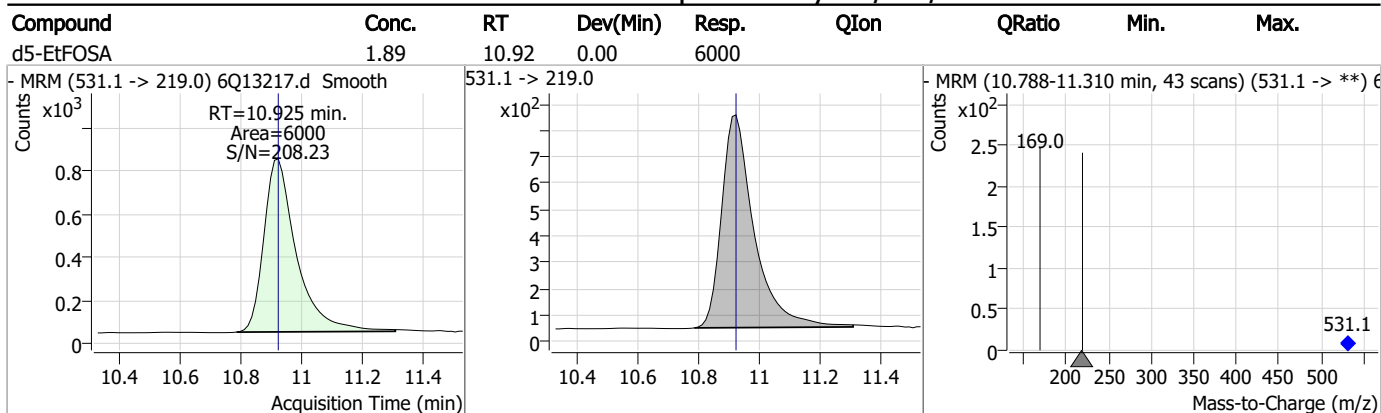
7.22
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Perfluorinated Compounds by LC/MS/MS



7.2.2
7

Perfluorinated Compounds by LC/MS/MS



7.2.2
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13187.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/7/2023 10:34:03 AM
 Sample Name : IBLK
 Vial : P1-A1
 DA Method File : 1633_020223_S6Q196.quantmethod.xml
 Batch Name : s6q202.batch.bin
 Sample Information : OP95070,S6Q202,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.975	216.8 -> 171.9	81318	10.00 µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	40466	5.00 µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	36191	2.50 µg/L	0.000
M4-PFHpA	6.502	367.1 -> 322.0	37612	2.50 µg/L	0.000
M8-PFOA	7.146	421.1 -> 376.0	66132	2.50 µg/L	0.000
M9-PFNA	7.664	472.1 -> 427.0	22894	1.25 µg/L	-0.012
M6-PFDA	8.157	519.1 -> 474.1	18220	1.25 µg/L	0.000
M7-PFUnDA	8.612	570.0 -> 525.1	21329	1.25 µg/L	0.000
M2-PFDoDA	9.054	615.1 -> 570.0	23489	1.25 µg/L	0.000
M2-PFTeDA	9.781	715.2 -> 670.0	13802	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	17392	2.50 µg/L	-0.012
M3-PFBS	5.518	302.1 -> 79.9	14392	2.50 µg/L	0.000
M3-PFHxS	7.262	402.1 -> 79.9	9940	2.50 µg/L	-0.012
M8-PFOS	8.319	507.1 -> 79.9	8323	2.50 µg/L	-0.013
M2-4:2FTS	5.240	329.1 -> 80.9	2388	5.00 µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	3061	5.00 µg/L	0.000
M2-8:2FTS	7.944	529.1 -> 80.9	2869	5.00 µg/L	0.000
M3-MeFOSAA	8.190	573.2 -> 419.0	28037	5.00 µg/L	-0.012
M3-HFPO-DA	5.940	286.9 -> 168.9	14741	10.00 µg/L	0.000
M5-EtFOSAA	8.398	589.2 -> 419.0	22814	5.00 µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	26926	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	16975	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7126	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	6242	2.50 µg/L	0.000
13C4-PFOS	8.320	502.8 -> 79.9	9818	2.50 µg/L	-0.013
13C3-PFBA	2.979	216.0 -> 172.0	36201	5.00 µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	6987	2.50 µg/L	0.000
13C4-PFOA	7.147	417.1 -> 372.0	79981	2.50 µg/L	0.000
13C2-PFDA	8.158	515.1 -> 470.1	23601	1.25 µg/L	0.000
13C5-PFNA	7.665	468.0 -> 423.0	26116	1.25 µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	35713	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.240	329.1 -> 80.9	2388	5.26 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.1%		
13C2-6:2FTS	6.908	429.1 -> 80.9	3061	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C2-8:2FTS	7.944	529.1 -> 80.9	2869	4.74 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.8%		
13C2-PFDoDA	9.054	615.1 -> 570.0	23489	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.6%		
13C2-PFTeDA	9.781	715.2 -> 670.0	13802	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.5%		
13C3-PFBS	5.518	302.1 -> 79.9	14392	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C3-PFHxS	7.262	402.1 -> 79.9	9940	2.71 µg/L	-0.012

7.2.3
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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 = 108.2%	
13C4-PFBA	2.975	216.8 -> 171.9	81318	10.12 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C4-PFHpA	6.502	367.1 -> 322.0	37612	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C5-PFHxA	5.563	318.0 -> 273.0	36191	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C5-PFPeA	4.386	268.3 -> 223.0	40466	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C6-PFDA	8.157	519.1 -> 474.1	18220	1.39 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.0%	
13C7-PFUnDA	8.612	570.0 -> 525.1	21329	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.7%	
13C8-FOSA	9.555	506.1 -> 77.8	17392	2.72 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.8%	
13C8-PFOA	7.146	421.1 -> 376.0	66132	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C8-PFOS	8.319	507.1 -> 79.9	8323	2.58 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C9-PFNA	7.664	472.1 -> 427.0	22894	1.25 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.6%	
d3-MeFOSAA	8.190	573.2 -> 419.0	28037	5.21 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	14741	10.10 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
d3-MeFOSA	10.680	515.0 -> 219.0	6242	2.27 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.6%	
d5-EtFOSAA	8.398	589.2 -> 419.0	22814	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
d7-MeFOSE	10.589	623.2 -> 58.9	26926	24.15 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.6%	
d9-EtFOSE	10.847	639.2 -> 58.9	16975	22.09 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 88.4%	
d5-EtFOSA	10.925	531.1 -> 219.0	7126	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.1%	

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

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	-	548.8 -> 98.9	-	N.D.		
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	10.902	526.0 -> 219.0	847	0.25 µg/L	m	98
		526.0 -> 169.0	911			
EtFOSE	10.835	630.0 -> 58.9	1878	2.58 µg/L	m	100
		511.9 -> 219.0	399	0.15 µg/L	m	82
MeFOSA	10.657	511.9 -> 169.0	393			
		616.1 -> 58.9	1303	1.21 µg/L	m	100
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.2.3
7

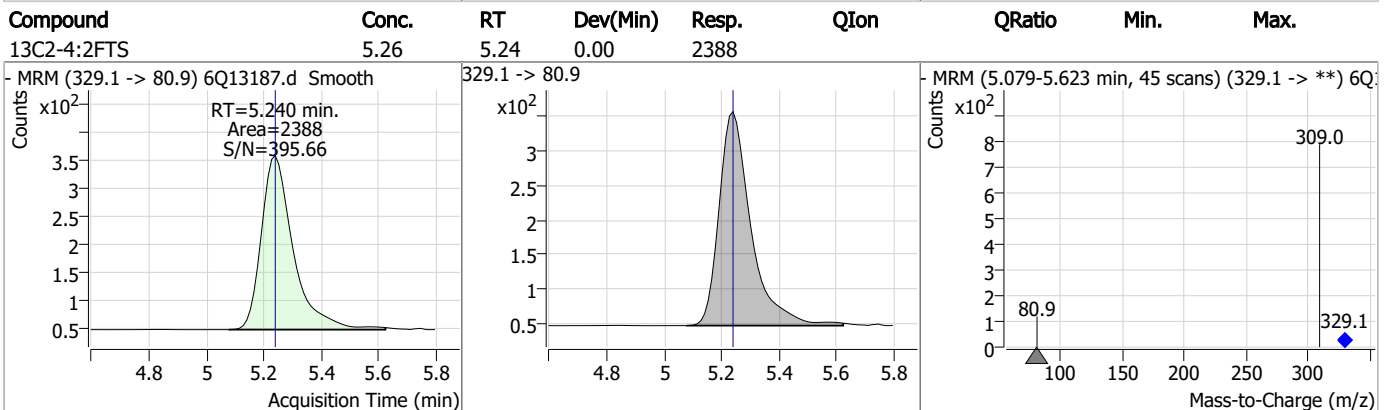
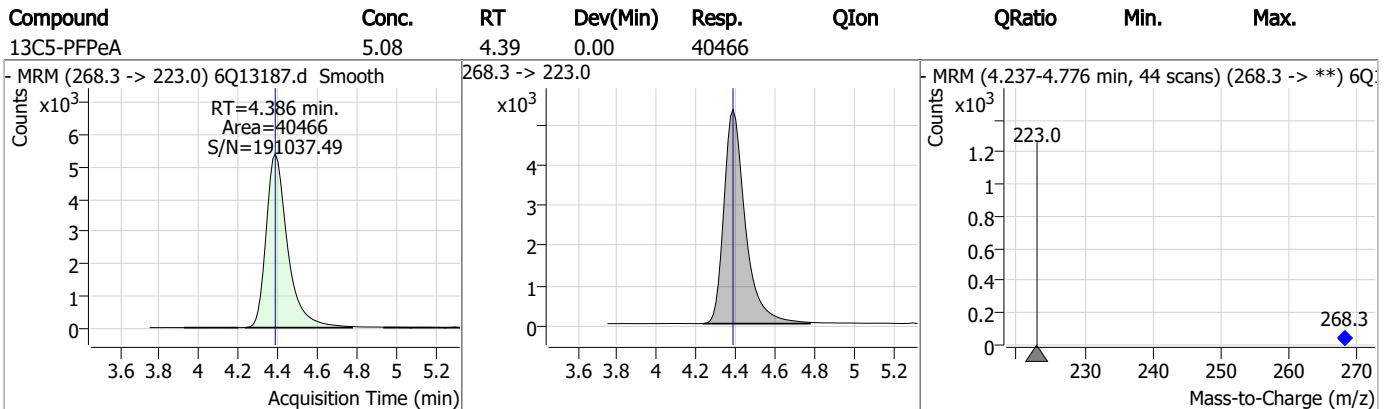
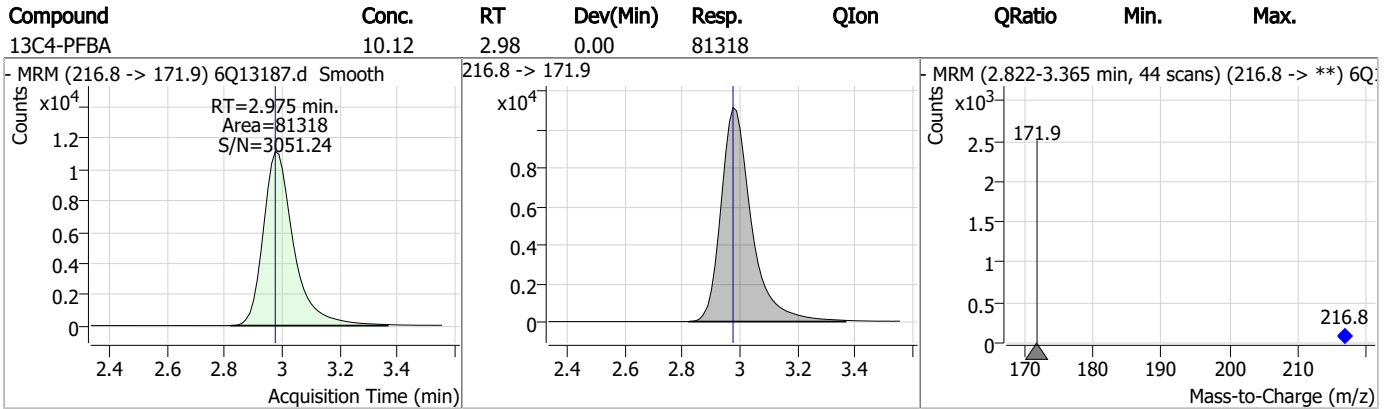
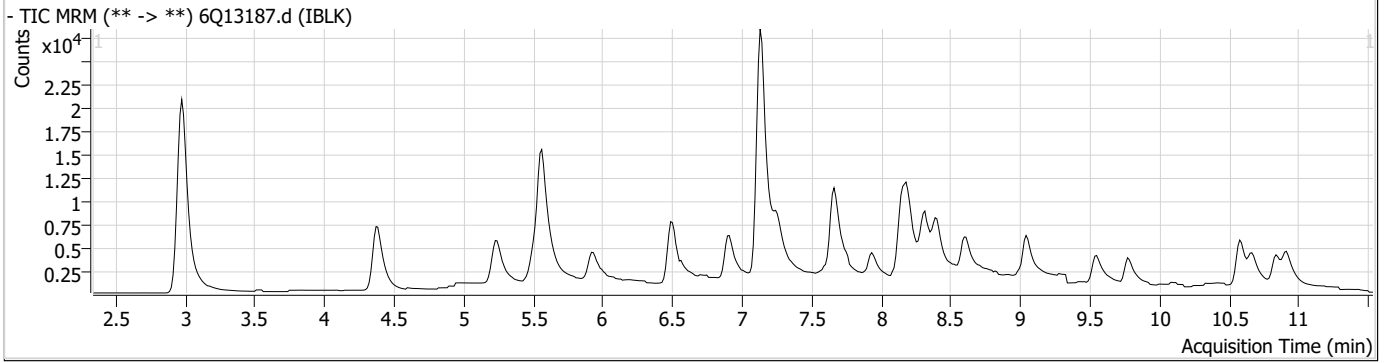
Perfluorinated Compounds by LC/MS/MS

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

7

Perfluorinated Compounds by LC/MS/MS

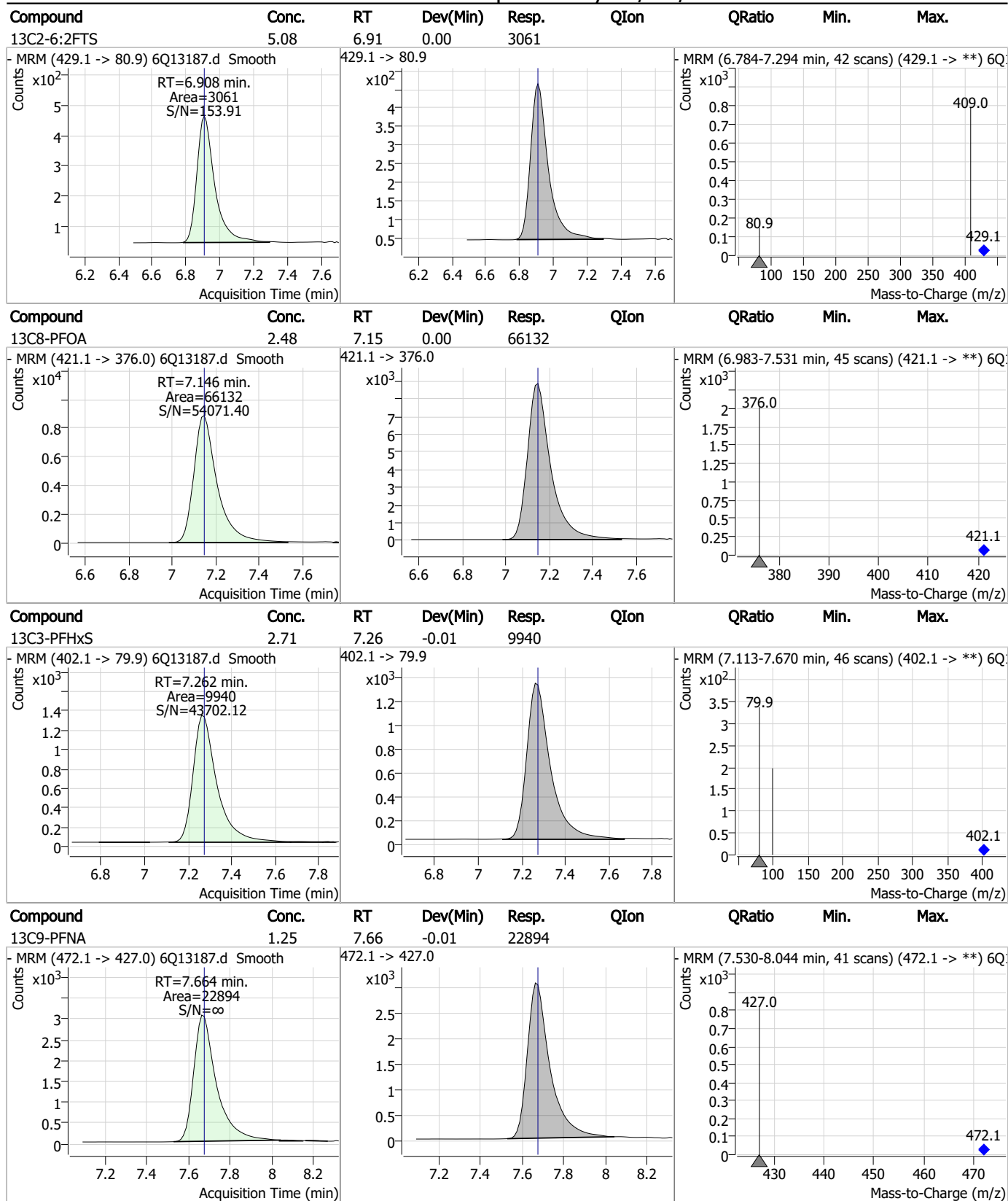


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.53	5.52	0.00	14392				
13C5-PFHxA	2.56	5.56	0.00	36191				
13C3-HFPO-DA	10.10	5.94	0.00	14741				
13C4-PFHpA	2.55	6.50	0.00	37612				

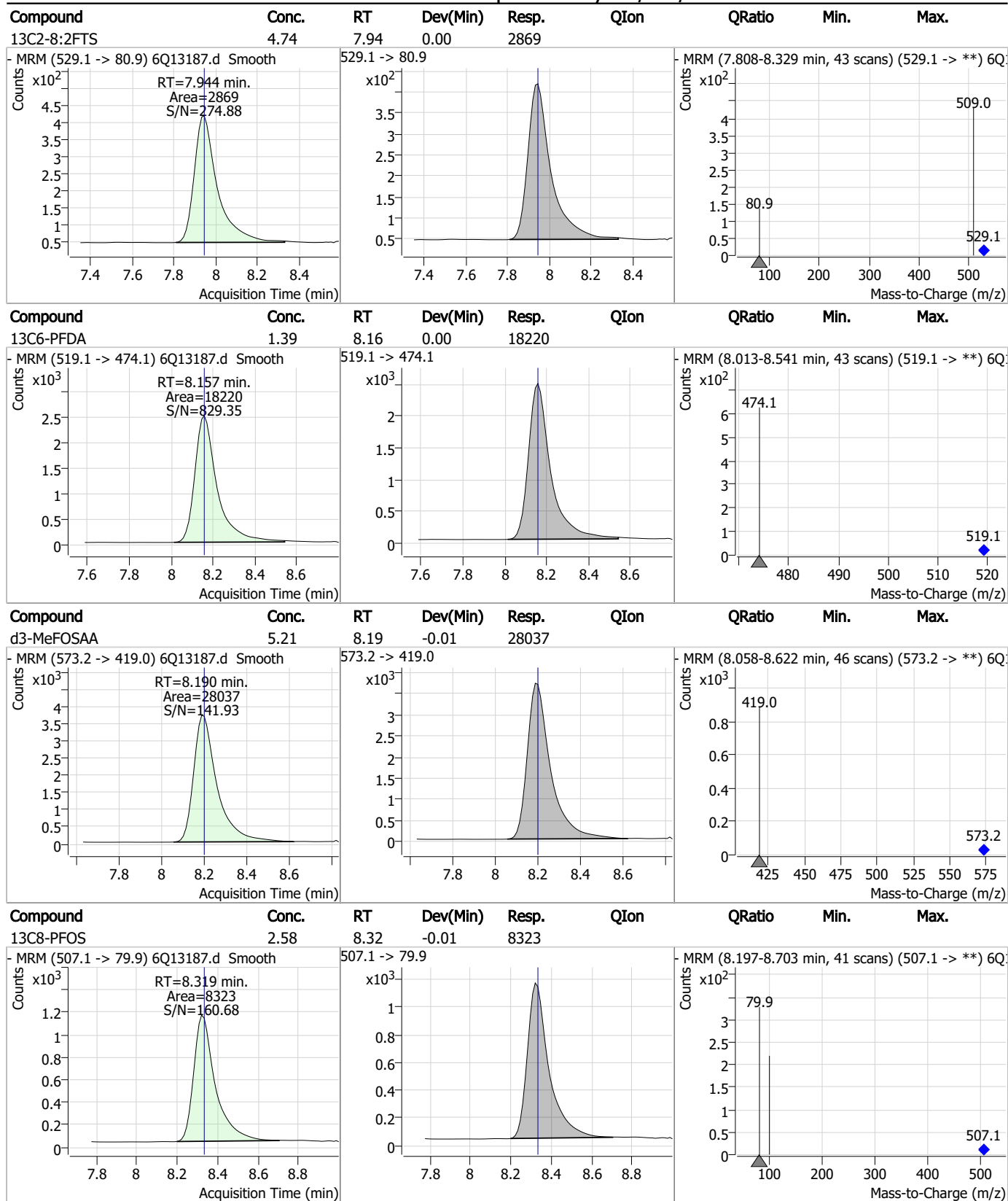
7.2.3
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Perfluorinated Compounds by LC/MS/MS



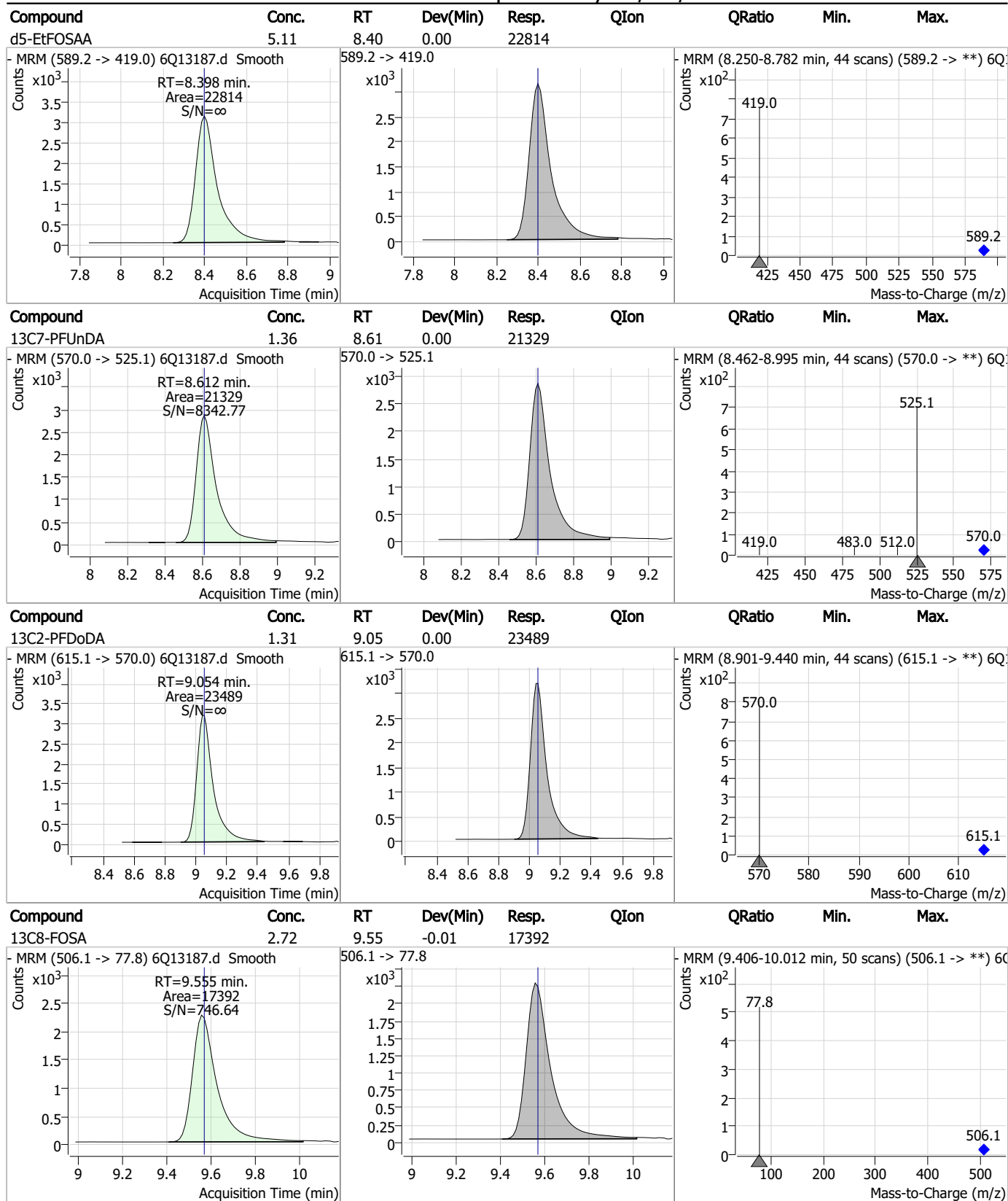
7.2.3
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Perfluorinated Compounds by LC/MS/MS



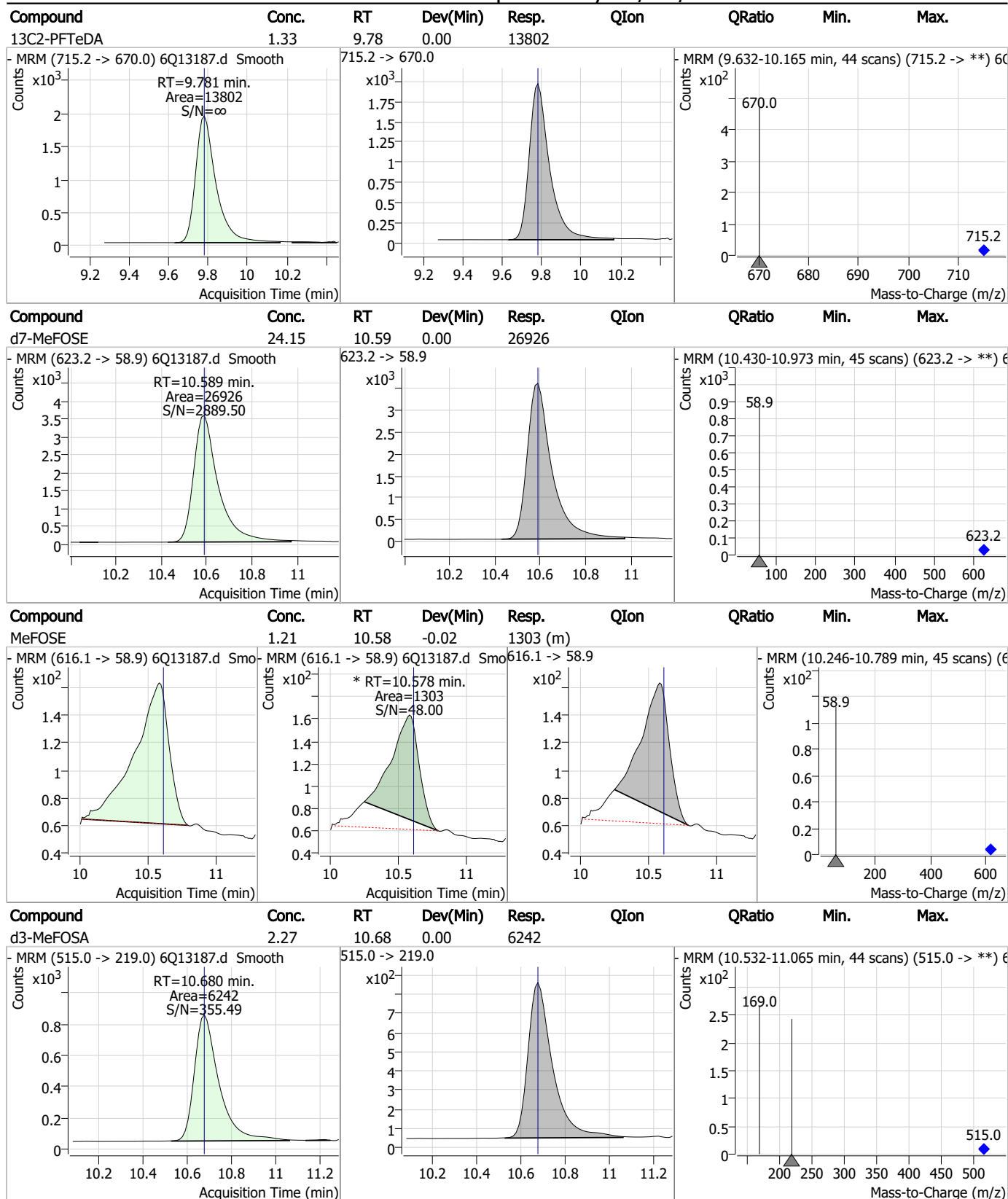
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Perfluorinated Compounds by LC/MS/MS



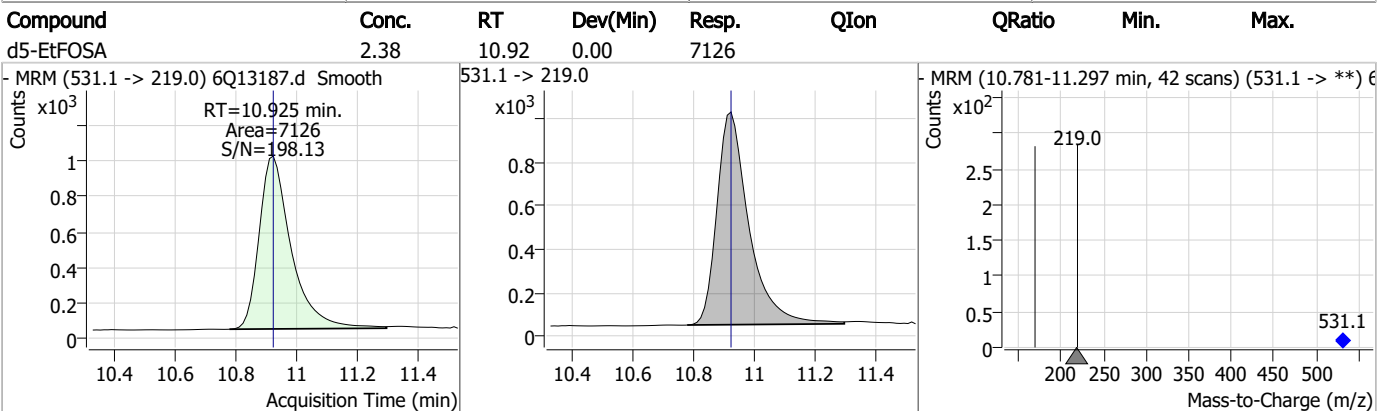
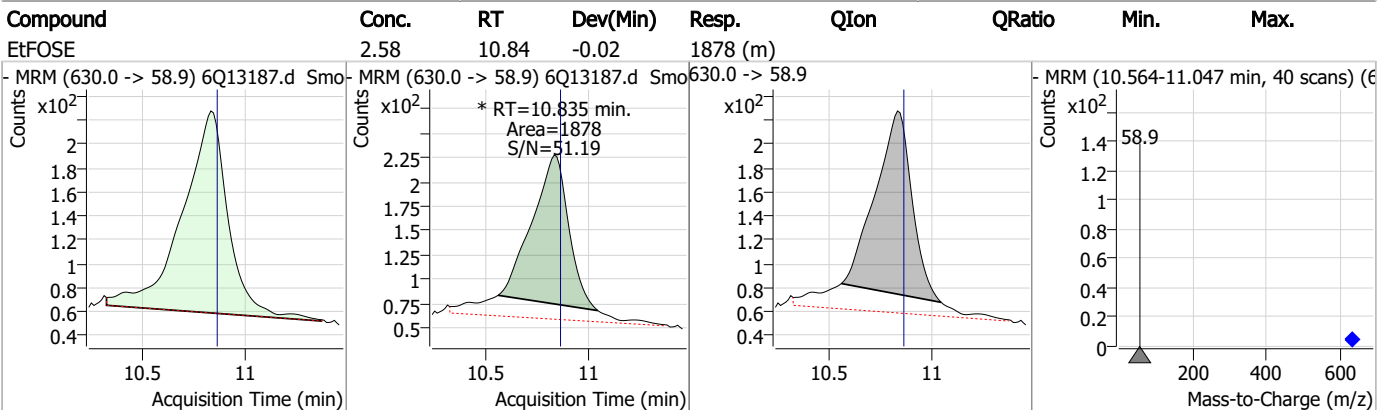
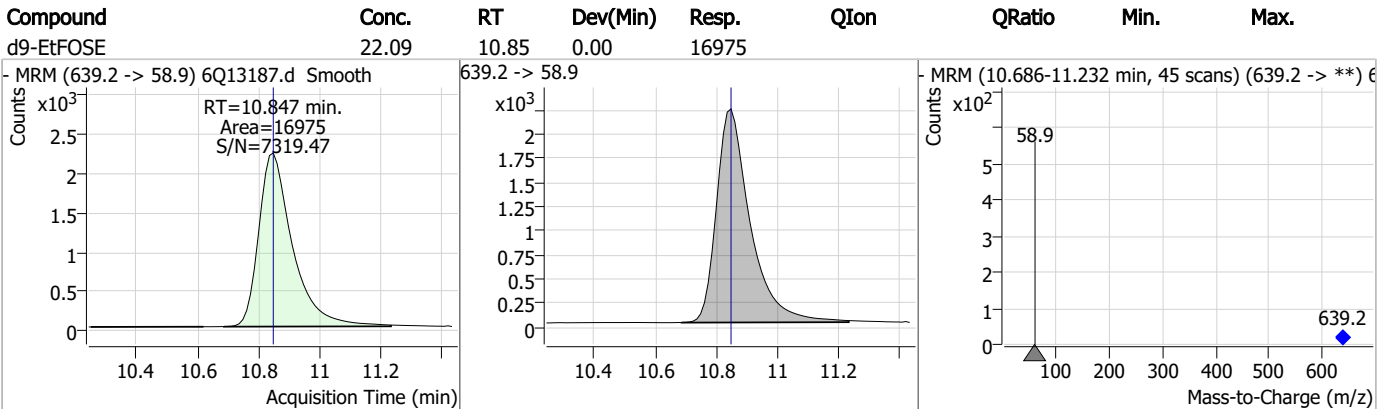
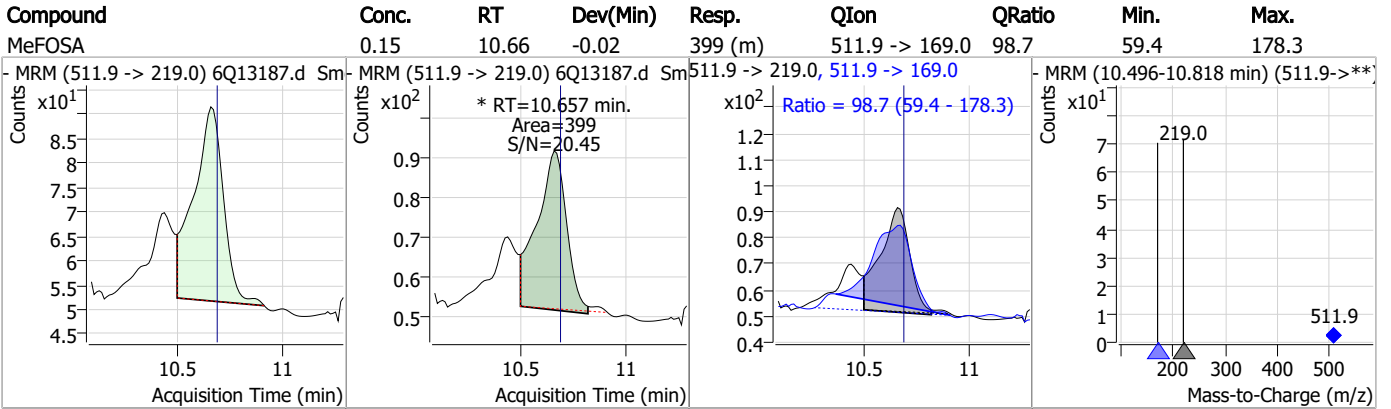
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Perfluorinated Compounds by LC/MS/MS



7.2.3
7

Perfluorinated Compounds by LC/MS/MS

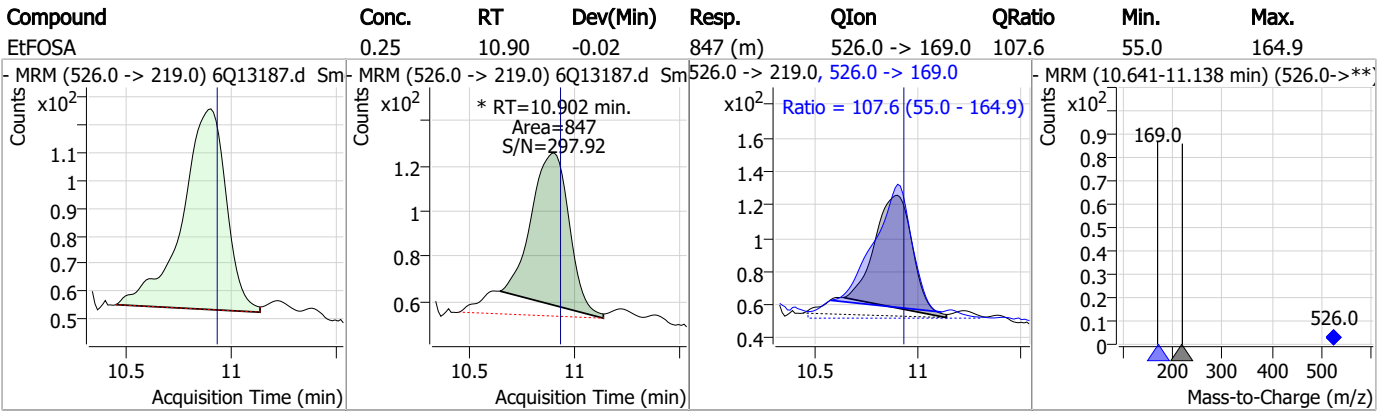


7.2.3

7



Perfluorinated Compounds by LC/MS/MS



7.2.3
7



Manual Integration Approval Summary

Sample Number: S6Q202-IBLK Method: EPA DRAFT 1633
Lab FileID: 6Q13187.D Analyst approved: 02/08/23 10:34 Martha Valls
Injection Time: 02/07/23 10:34 Supervisor approved: 02/08/23 11:27 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
MeFOSE	24448-09-7		10.58	Split peak
MeFOSA	31506-32-8		10.66	Split peak
EtFOSE	1691-99-2		10.84	Split peak
EtFOSA	4151-50-2		10.90	Split peak

7.2.3.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13212.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/8/2023 10:49:12 AM
 Sample Name : IBLK
 Vial : P1-A1
 DA Method File : 1633_020223_S6Q196.quantmethod.xml
 Batch Name : s6q202.batch.bin
 Sample Information : OP95070,S6Q202,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.000	216.8 -> 171.9	87069	10.00 µg/L	0.025
M5-PFPeA	4.400	268.3 -> 223.0	43422	5.00 µg/L	0.014
M5-PFHxA	5.575	318.0 -> 273.0	40156	2.50 µg/L	0.012
M4-PFHpA	6.502	367.1 -> 322.0	39516	2.50 µg/L	0.000
M8-PFOA	7.134	421.1 -> 376.0	67109	2.50 µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	25088	1.25 µg/L	0.000
M6-PFDA	8.157	519.1 -> 474.1	18644	1.25 µg/L	0.000
M7-PFUnDA	8.624	570.0 -> 525.1	21744	1.25 µg/L	0.012
M2-PFDoDA	9.054	615.1 -> 570.0	25744	1.25 µg/L	0.000
M2-PFTeDA	9.781	715.2 -> 670.0	15167	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	17409	2.50 µg/L	-0.012
M3-PFBS	5.518	302.1 -> 79.9	14939	2.50 µg/L	0.000
M3-PFHxS	7.262	402.1 -> 79.9	9764	2.50 µg/L	-0.012
M8-PFOS	8.333	507.1 -> 79.9	8256	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2621	5.00 µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	3191	5.00 µg/L	0.000
M2-8:2FTS	7.944	529.1 -> 80.9	2799	5.00 µg/L	0.000
M3-MeFOSAA	8.202	573.2 -> 419.0	32078	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	15959	10.00 µg/L	0.000
M5-EtFOSAA	8.398	589.2 -> 419.0	24661	5.00 µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	28921	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	19909	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7285	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7131	2.50 µg/L	0.000
13C4-PFOS	8.333	502.8 -> 79.9	11429	2.50 µg/L	0.000
13C3-PFBA	3.004	216.0 -> 172.0	39005	5.00 µg/L	0.025
18O2-PFHxS	7.261	403.0 -> 83.9	7204	2.50 µg/L	-0.012
13C4-PFOA	7.135	417.1 -> 372.0	87642	2.50 µg/L	-0.012
13C2-PFDA	8.158	515.1 -> 470.1	25087	1.25 µg/L	0.000
13C5-PFNA	7.665	468.0 -> 423.0	26474	1.25 µg/L	-0.012
13C2-PFHxA	5.576	315.1 -> 270.0	38967	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.240	329.1 -> 80.9	2621	5.59 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.9%		
13C2-6:2FTS	6.908	429.1 -> 80.9	3191	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C2-8:2FTS	7.944	529.1 -> 80.9	2799	4.48 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.7%		
13C2-PFDoDA	9.054	615.1 -> 570.0	25744	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.9%		
13C2-PFTeDA	9.781	715.2 -> 670.0	15167	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 110.1%		
13C3-PFBS	5.518	302.1 -> 79.9	14939	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C3-PFHxS	7.262	402.1 -> 79.9	9764	2.58 µg/L	-0.012

7.24
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 = 103.1%	
13C4-PFBA	3.000	216.8 -> 171.9	87069	10.06 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C4-PFHpA	6.502	367.1 -> 322.0	39516	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C5-PFHxA	5.575	318.0 -> 273.0	40156	2.60 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C5-PFPeA	4.400	268.3 -> 223.0	43422	5.00 µg/L	0.014
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C6-PFDA	8.157	519.1 -> 474.1	18644	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.9%	
13C7-PFUnDA	8.624	570.0 -> 525.1	21744	1.30 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C8-FOSA	9.555	506.1 -> 77.8	17409	2.34 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.5%	
13C8-PFOA	7.134	421.1 -> 376.0	67109	2.29 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.7%	
13C8-PFOS	8.333	507.1 -> 79.9	8256	2.20 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.9%	
13C9-PFNA	7.677	472.1 -> 427.0	25088	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.7%	
d3-MeFOSAA	8.202	573.2 -> 419.0	32078	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	15959	10.02 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
d3-MeFOSA	10.680	515.0 -> 219.0	7131	2.22 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.9%	
d5-EtFOSAA	8.398	589.2 -> 419.0	24661	4.74 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.9%	
d7-MeFOSE	10.589	623.2 -> 58.9	28921	22.29 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.1%	
d9-EtFOSE	10.847	639.2 -> 58.9	19909	22.26 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.0%	
d5-EtFOSA	10.925	531.1 -> 219.0	7285	2.09 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 83.5%	

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



7.2.4
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	-	548.8 -> 98.9	-	N.D.		
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	10.902	526.0 -> 219.0	1098	0.32 µg/L	m	76
		526.0 -> 169.0	925			
EtFOSE	10.836	630.0 -> 58.9	2157	2.53 µg/L	m	100
		511.9 -> 219.0	0	µg/L	m	1
MeFOSA	10.644	511.9 -> 169.0	0			
		616.1 -> 58.9	1454	1.26 µg/L	m	100
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

7.2.4
7

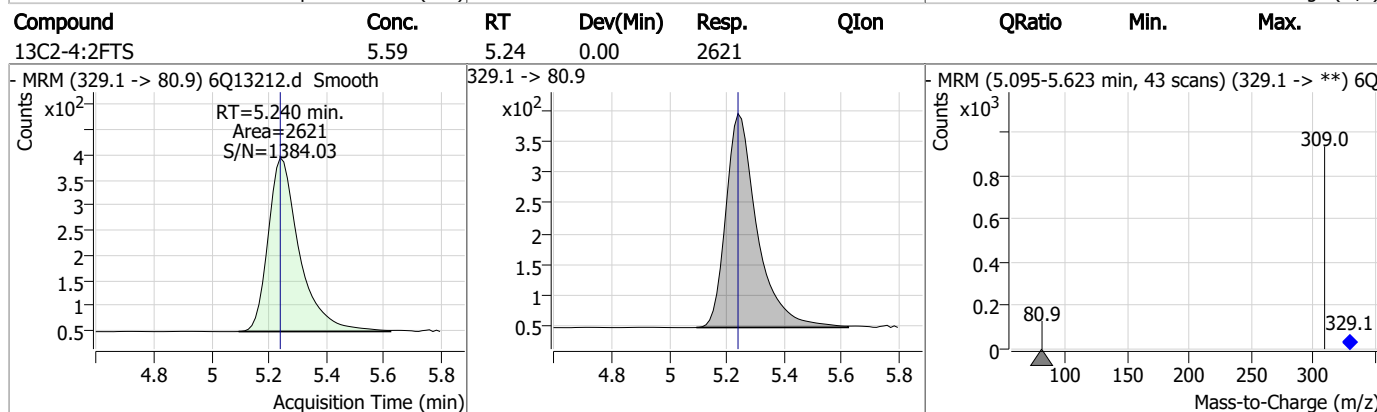
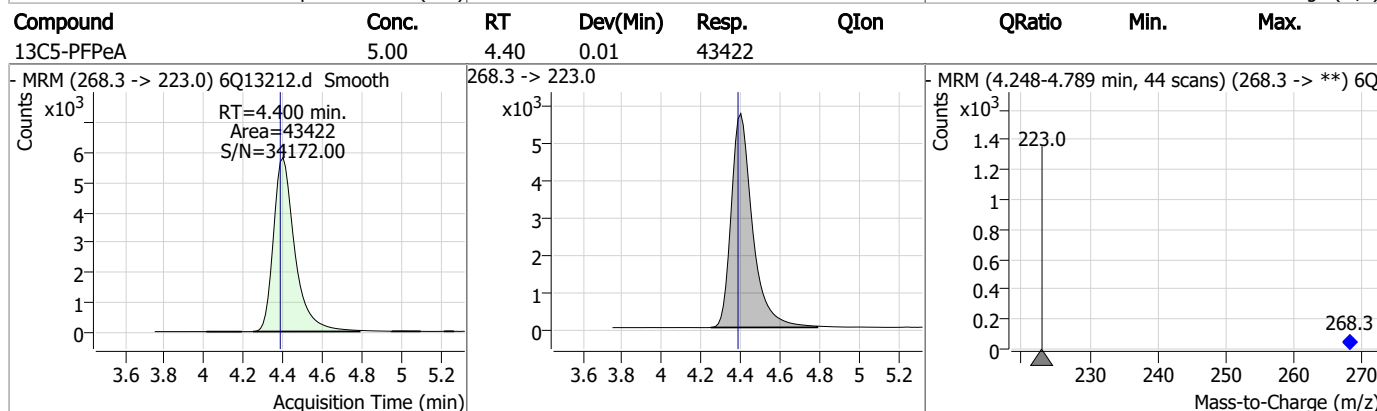
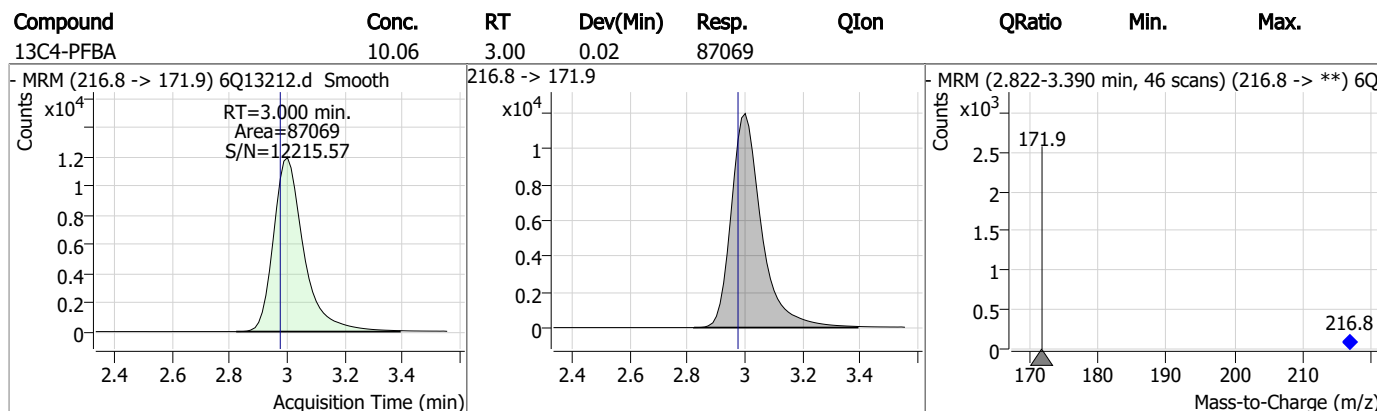
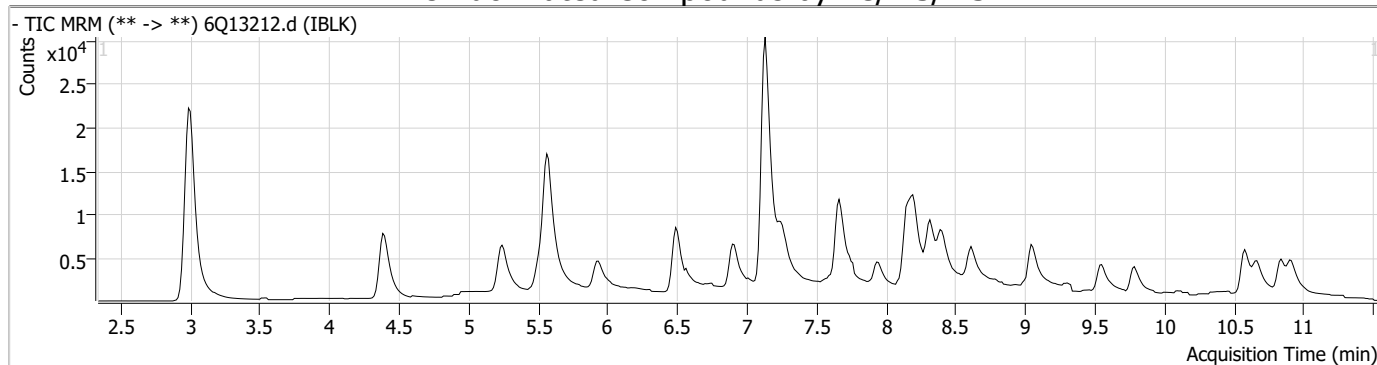
Perfluorinated Compounds by LC/MS/MS

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

7

Perfluorinated Compounds by LC/MS/MS



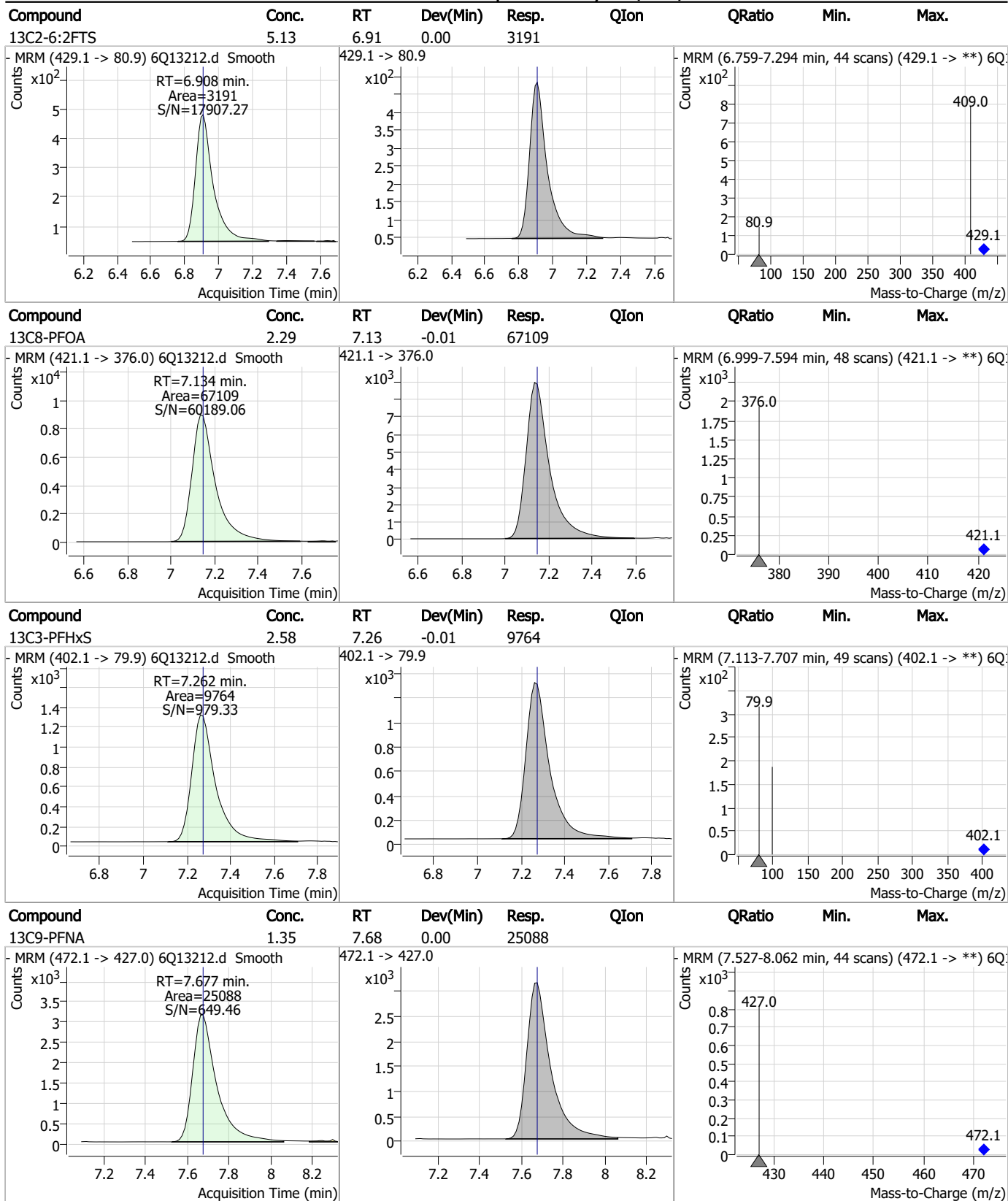
7.2.4
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.55	5.52	0.00	14939				
13C5-PFHxA	2.60	5.57	0.01	40156				
13C3-HFPO-DA	10.02	5.94	0.00	15959				
13C4-PFHpA	2.46	6.50	0.00	39516				

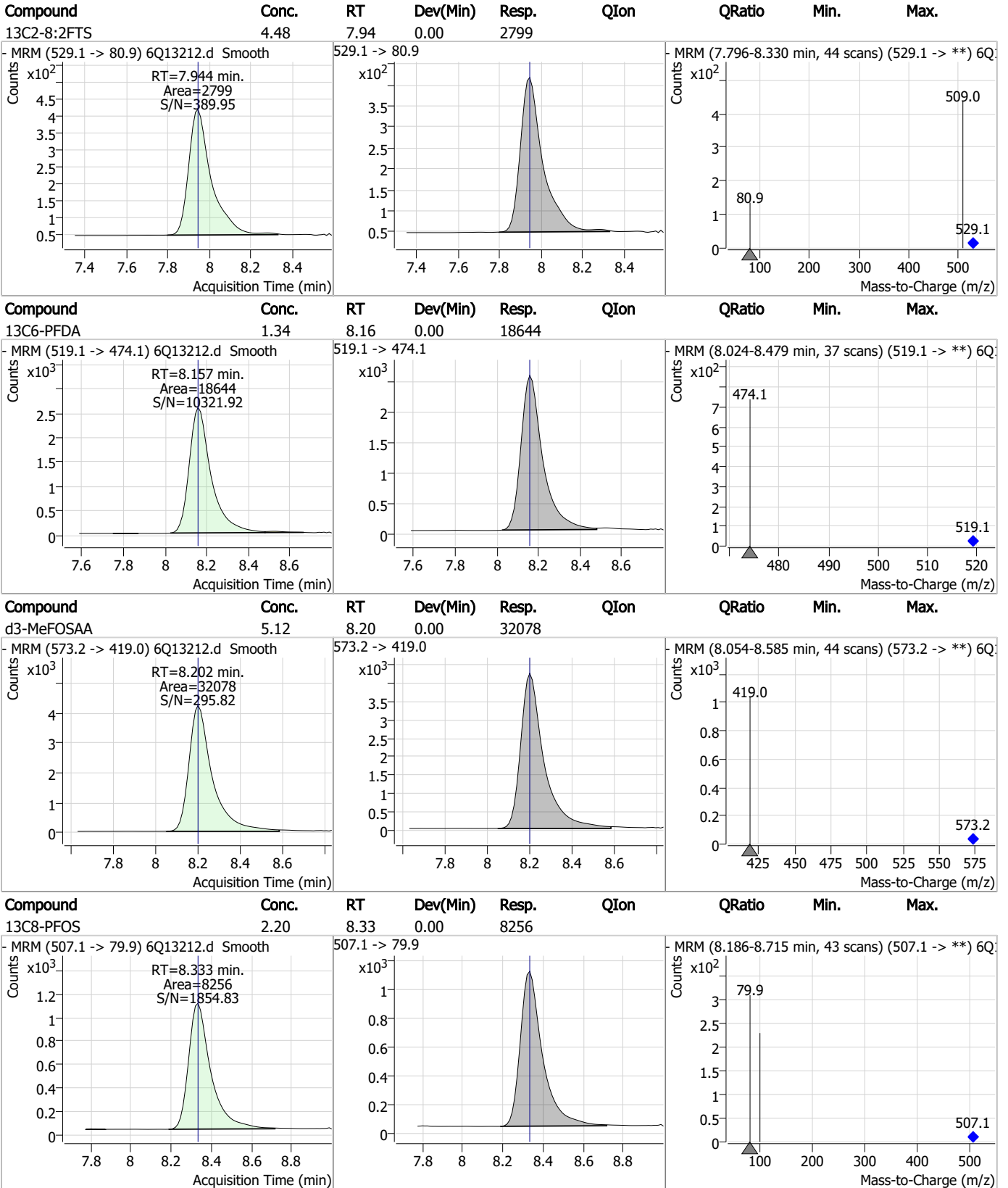
7.2.4
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Perfluorinated Compounds by LC/MS/MS



7.2.4
7

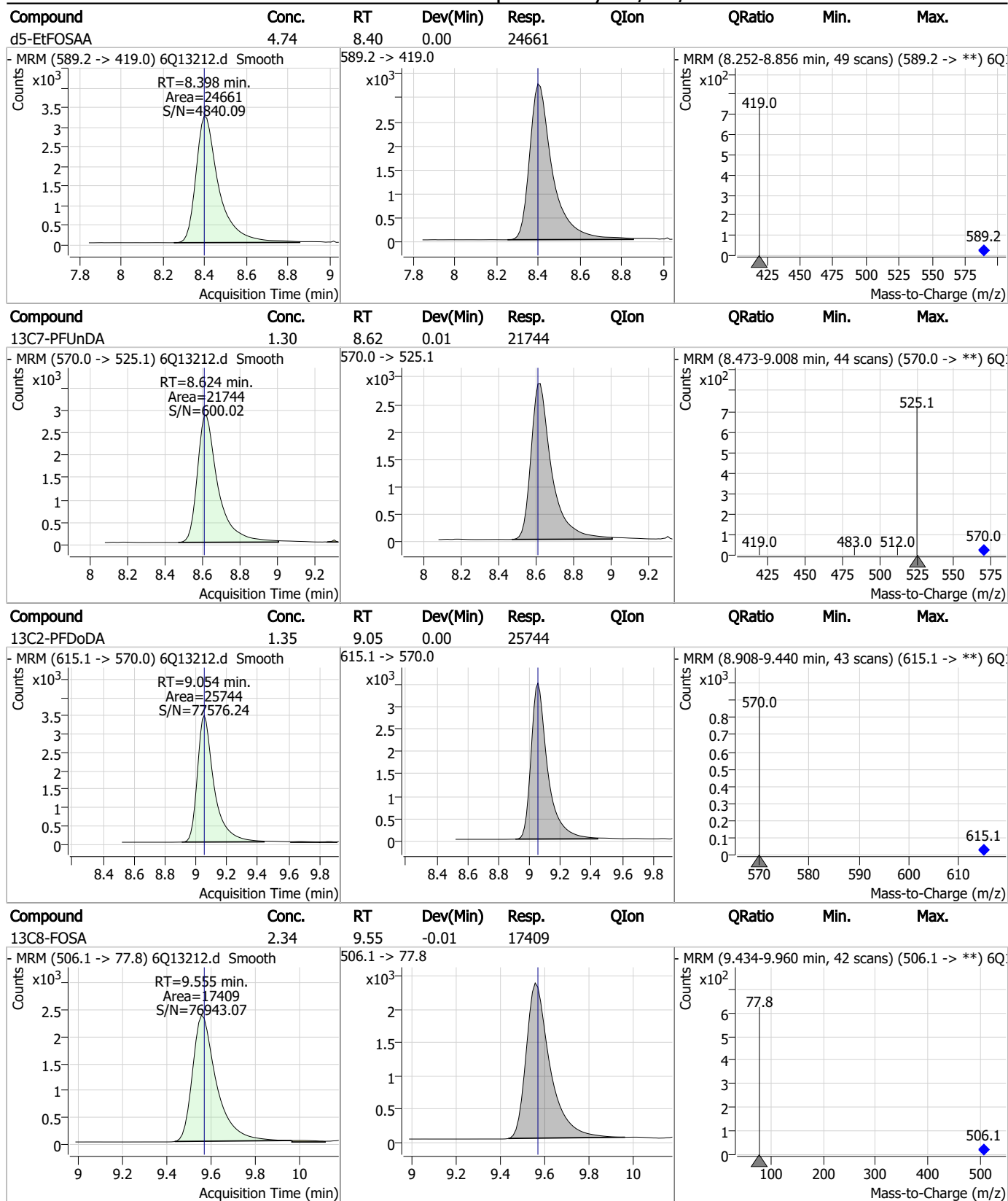
Perfluorinated Compounds by LC/MS/MS



7.2.4

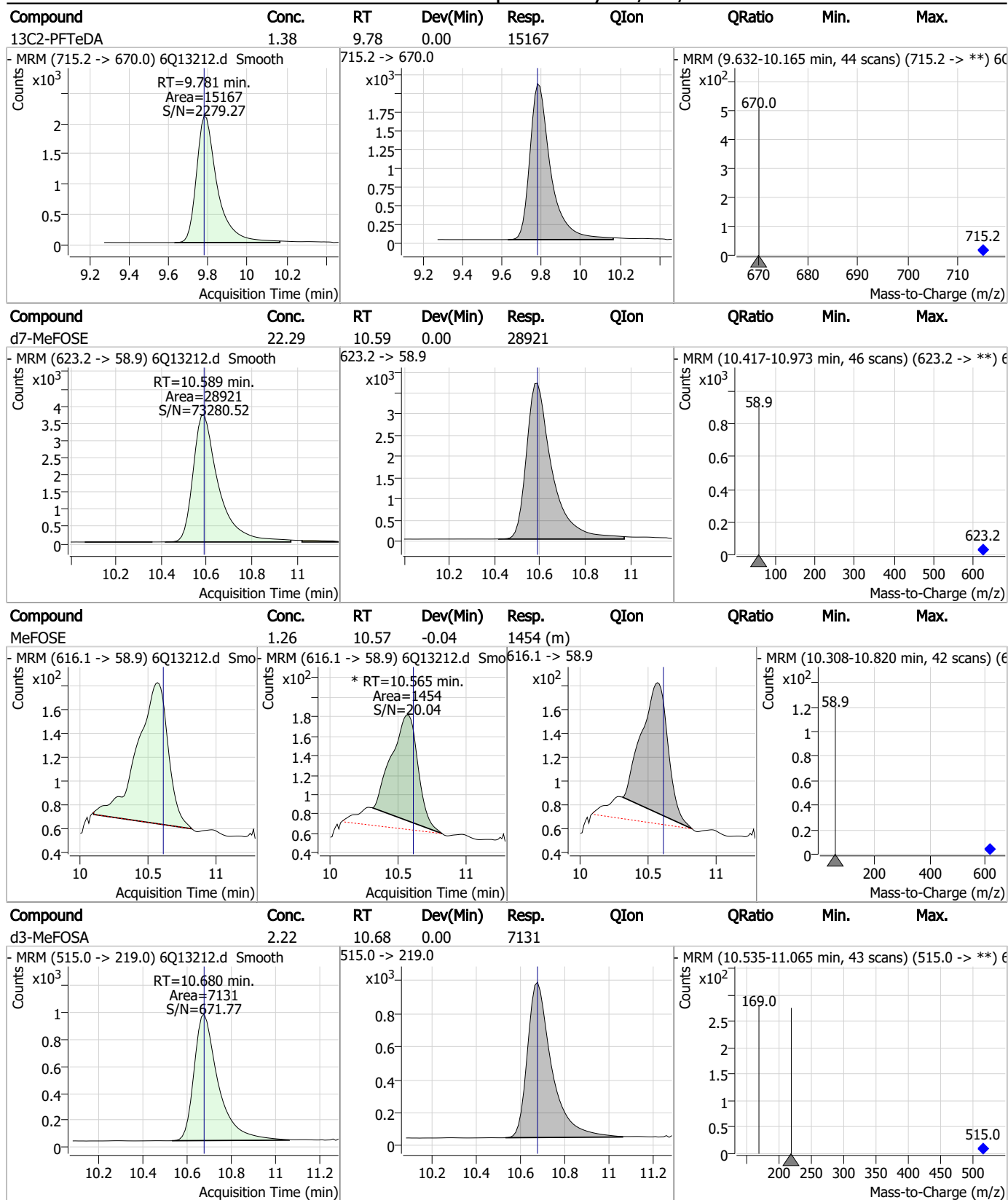
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Perfluorinated Compounds by LC/MS/MS



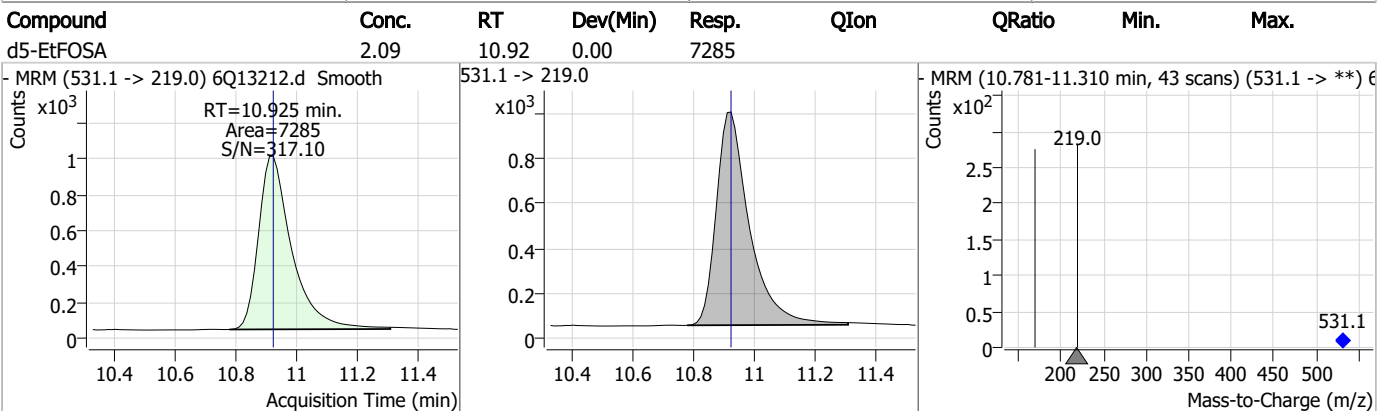
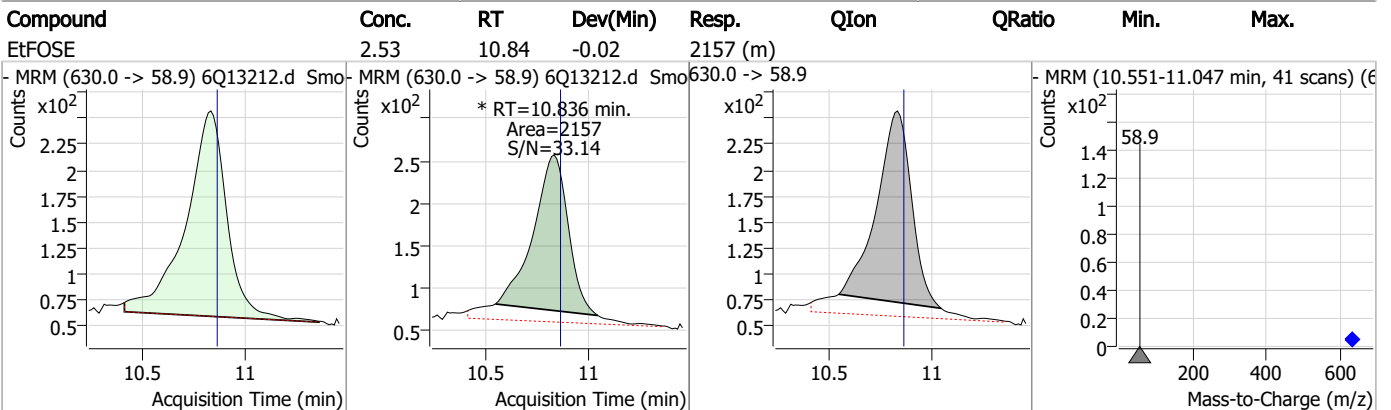
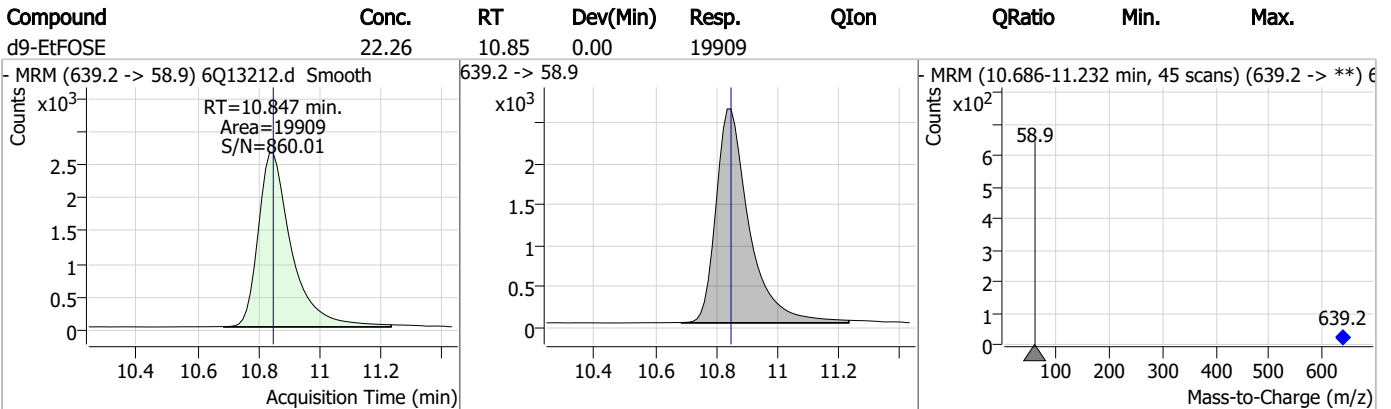
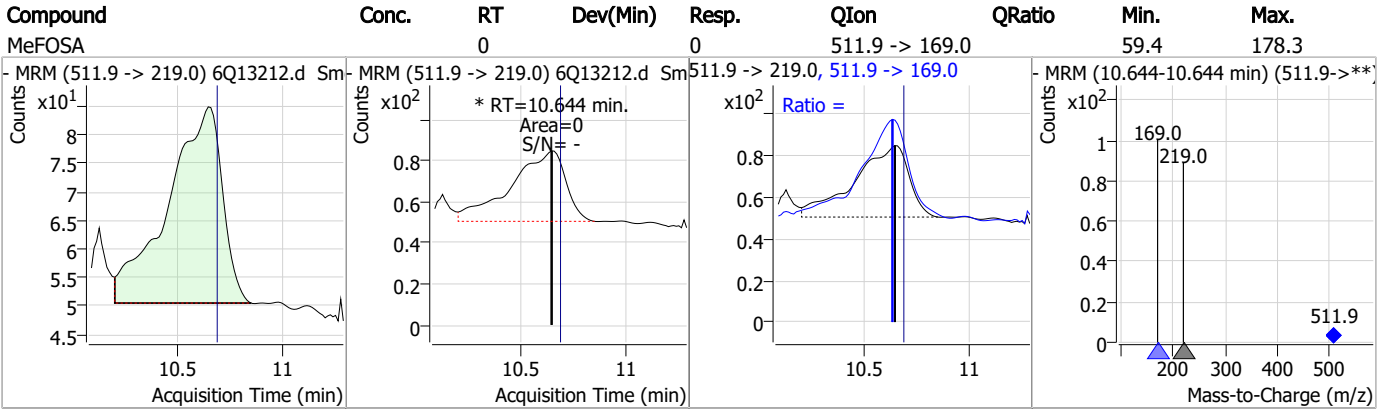
7.2.4
7

Perfluorinated Compounds by LC/MS/MS



7.2.4
7

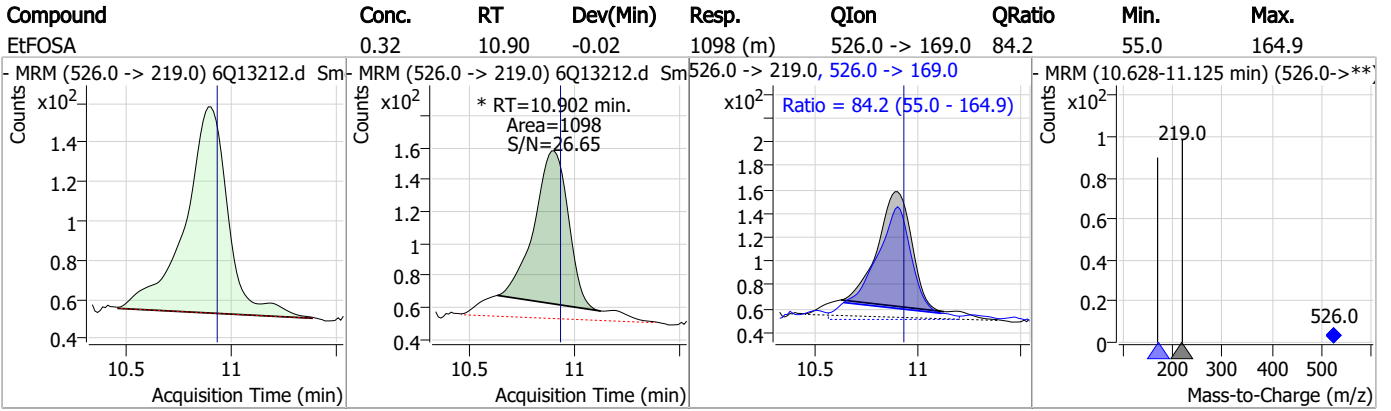
Perfluorinated Compounds by LC/MS/MS



7.2.4

7

Perfluorinated Compounds by LC/MS/MS



7.2.4

7

Manual Integration Approval Summary

Sample Number: S6Q202-IBLK Method: EPA DRAFT 1633
Lab FileID: 6Q13212.D Analyst approved: 02/08/23 15:18 Martha Valls
Injection Time: 02/08/23 10:49 Supervisor approved: 02/08/23 15:53 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
MeFOSE	24448-09-7		10.56	Split peak
EiFOSE	1691-99-2		10.84	Split peak
EiFOSA	4151-50-2		10.90	Split peak

7.2.4.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13201.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/7/2023 1:50:35 PM
 Sample Name : ICCB
 Vial : P1-A1
 DA Method File : 1633_020223_S6Q196.quantmethod.xml
 Batch Name : s6q202.batch.bin
 Sample Information : OP95070,S6Q202,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.975	216.8 -> 171.9	82197	10.00 µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	40966	5.00 µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	35728	2.50 µg/L	0.000
M4-PFHpA	6.502	367.1 -> 322.0	38359	2.50 µg/L	0.000
M8-PFOA	7.146	421.1 -> 376.0	66767	2.50 µg/L	0.000
M9-PFNA	7.677	472.1 -> 427.0	24795	1.25 µg/L	0.000
M6-PFDA	8.157	519.1 -> 474.1	18587	1.25 µg/L	0.000
M7-PFUnDA	8.612	570.0 -> 525.1	20256	1.25 µg/L	0.000
M2-PFDoDA	9.054	615.1 -> 570.0	23138	1.25 µg/L	0.000
M2-PFTeDA	9.781	715.2 -> 670.0	13153	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	16162	2.50 µg/L	-0.012
M3-PFBS	5.518	302.1 -> 79.9	13786	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	9264	2.50 µg/L	0.000
M8-PFOS	8.333	507.1 -> 79.9	8548	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2455	5.00 µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	3186	5.00 µg/L	0.000
M2-8:2FTS	7.944	529.1 -> 80.9	2841	5.00 µg/L	0.000
M3-MeFOSAA	8.202	573.2 -> 419.0	26907	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	14235	10.00 µg/L	0.000
M5-EtFOSAA	8.398	589.2 -> 419.0	22460	5.00 µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	25117	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	16437	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7006	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	6314	2.50 µg/L	0.000
13C4-PFOS	8.333	502.8 -> 79.9	10528	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	36409	5.00 µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	6985	2.50 µg/L	0.000
13C4-PFOA	7.147	417.1 -> 372.0	77878	2.50 µg/L	0.000
13C2-PFDA	8.158	515.1 -> 470.1	24379	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	27004	1.25 µg/L	0.000
13C2-PFHxA	5.563	315.1 -> 270.0	34974	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.240	329.1 -> 80.9	2455	5.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.1%		
13C2-6:2FTS	6.908	429.1 -> 80.9	3186	5.29 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.8%		
13C2-8:2FTS	7.944	529.1 -> 80.9	2841	4.69 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.9%		
13C2-PFDoDA	9.054	615.1 -> 570.0	23138	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C2-PFTeDA	9.781	715.2 -> 670.0	13153	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C3-PFBS	5.518	302.1 -> 79.9	13786	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C3-PFHxS	7.274	402.1 -> 79.9	9264	2.52 µg/L	0.000



7.2.5
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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	2.975	216.8 -> 171.9	82197	10.17 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C4-PFHpA	6.502	367.1 -> 322.0	38359	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.3%	
13C5-PFHxA	5.563	318.0 -> 273.0	35728	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C5-PFPeA	4.386	268.3 -> 223.0	40966	5.26 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.1%	
13C6-PFDA	8.157	519.1 -> 474.1	18587	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.6%	
13C7-PFUnDA	8.612	570.0 -> 525.1	20256	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C8-FOSA	9.555	506.1 -> 77.8	16162	2.36 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.3%	
13C8-PFOA	7.146	421.1 -> 376.0	66767	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C8-PFOS	8.333	507.1 -> 79.9	8548	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C9-PFNA	7.677	472.1 -> 427.0	24795	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.4%	
d3-MeFOSAA	8.202	573.2 -> 419.0	26907	4.66 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.3%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	14235	9.96 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
d3-MeFOSA	10.680	515.0 -> 219.0	6314	2.14 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 85.5%	
d5-EtFOSAA	8.398	589.2 -> 419.0	22460	4.69 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.8%	
d7-MeFOSE	10.589	623.2 -> 58.9	25117	21.01 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 84.0%	
d9-EtFOSE	10.847	639.2 -> 58.9	16437	19.95 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.8%	
d5-EtFOSA	10.925	531.1 -> 219.0	7006	2.18 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.2%	

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	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	



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

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



7.2.5
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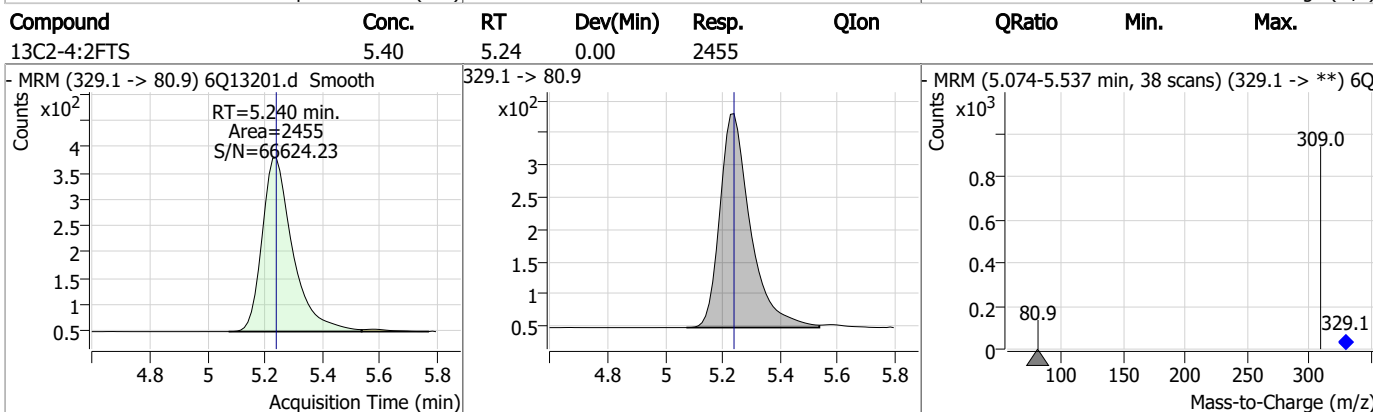
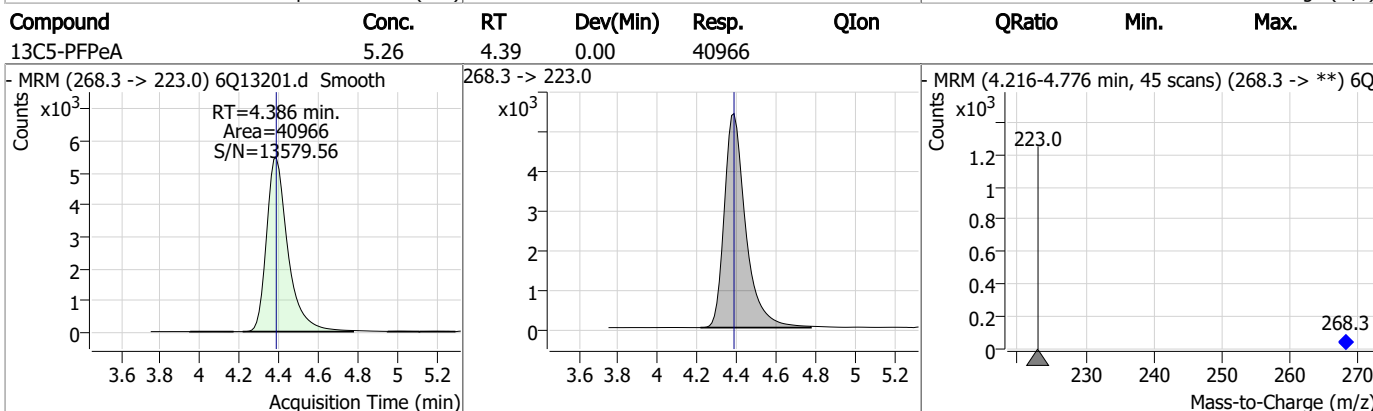
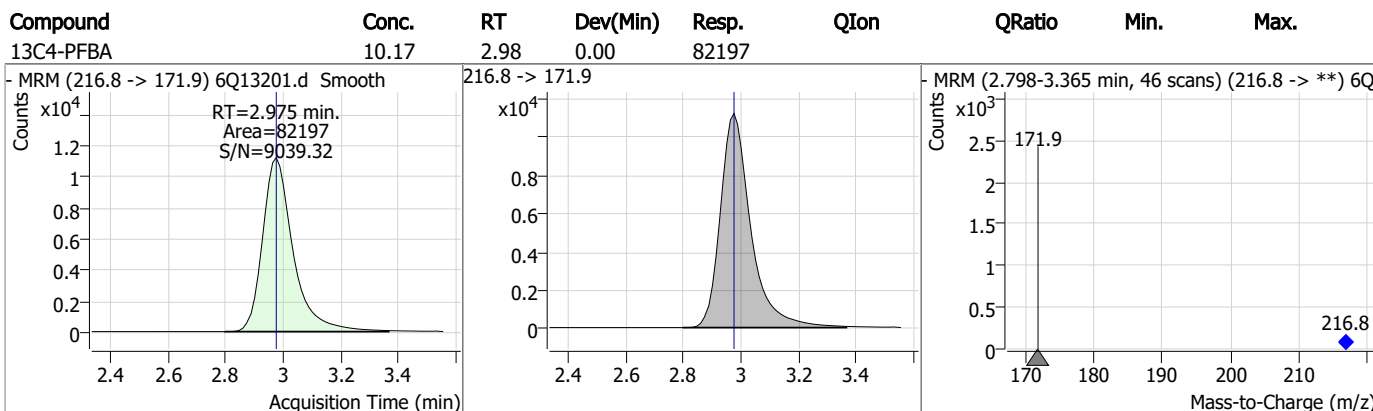
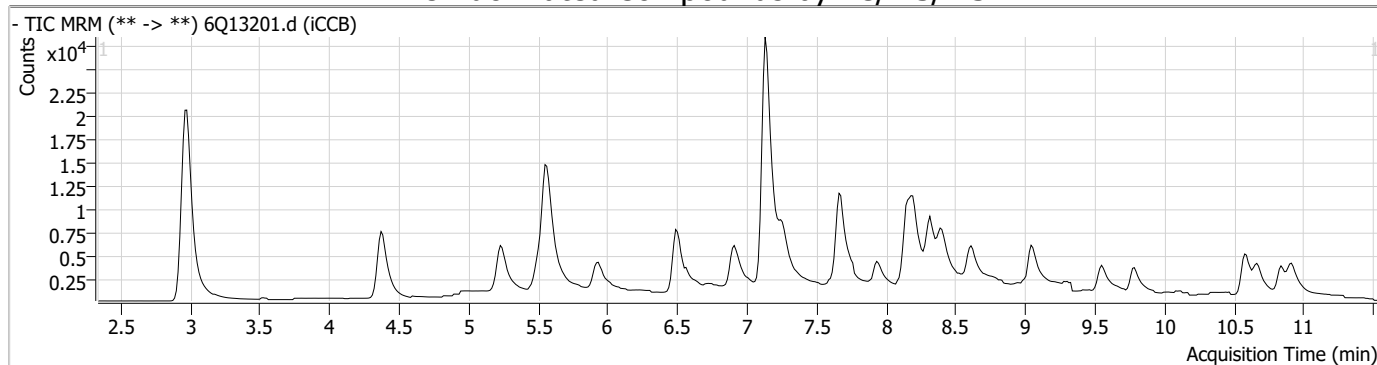
Perfluorinated Compounds by LC/MS/MS

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

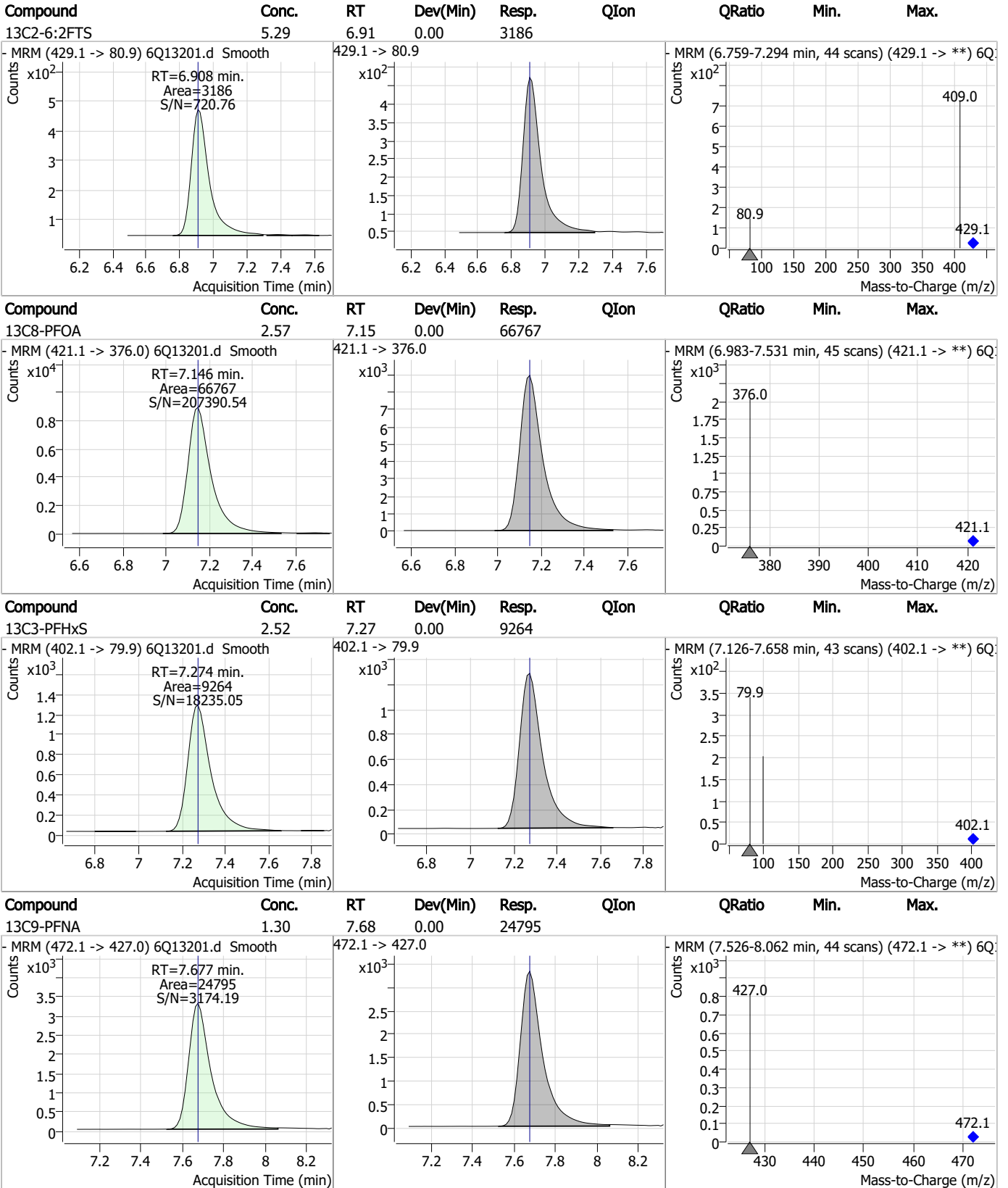


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.42	5.52	0.00	13786				
13C5-PFHxA	2.58	5.56	0.00	35728				
13C3-HFPO-DA	9.96	5.94	0.00	14235				
13C4-PFHpA	2.66	6.50	0.00	38359				

7.2.5
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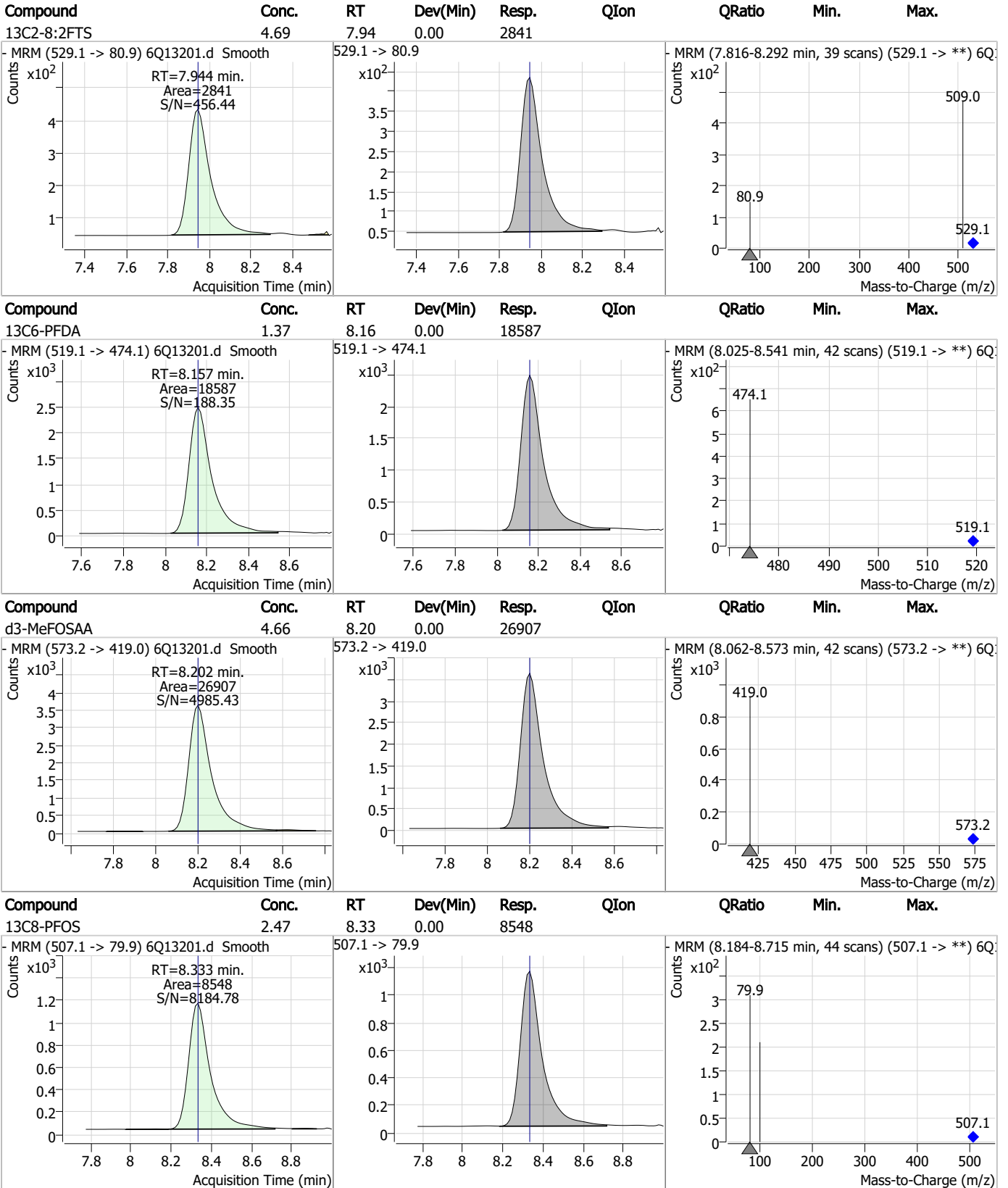
Perfluorinated Compounds by LC/MS/MS



7.2.5

7

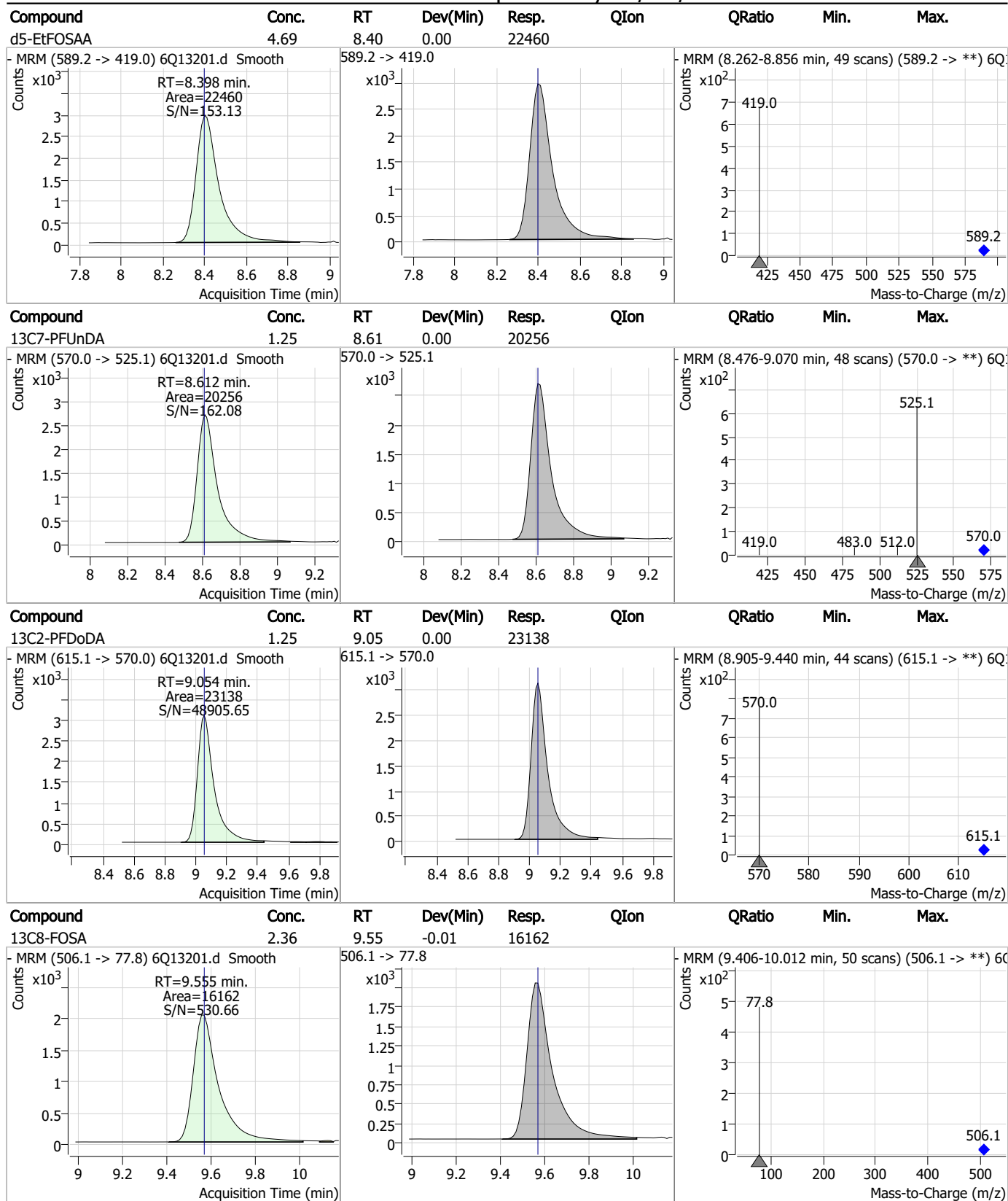
Perfluorinated Compounds by LC/MS/MS



7.25

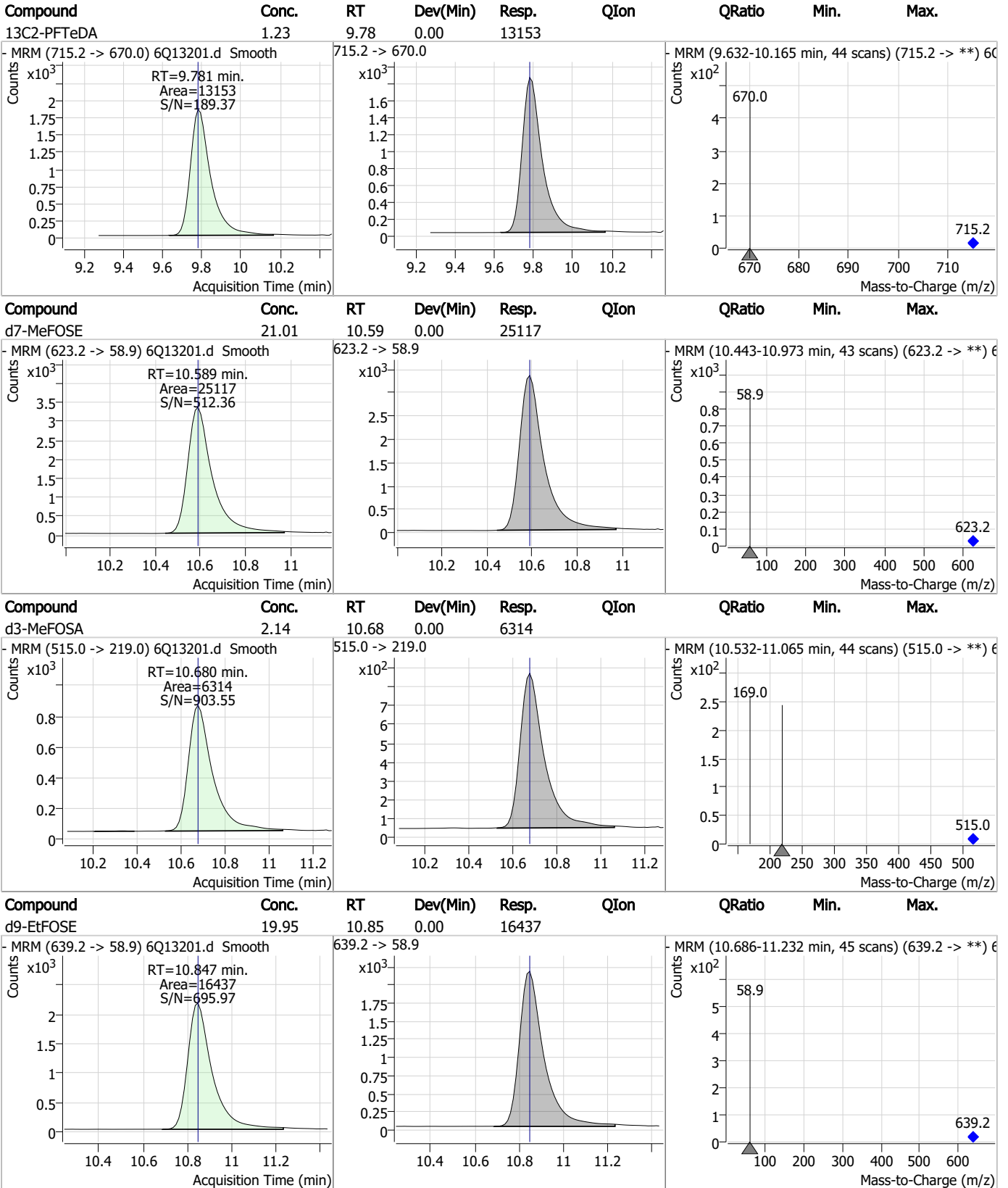
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Perfluorinated Compounds by LC/MS/MS



7.25
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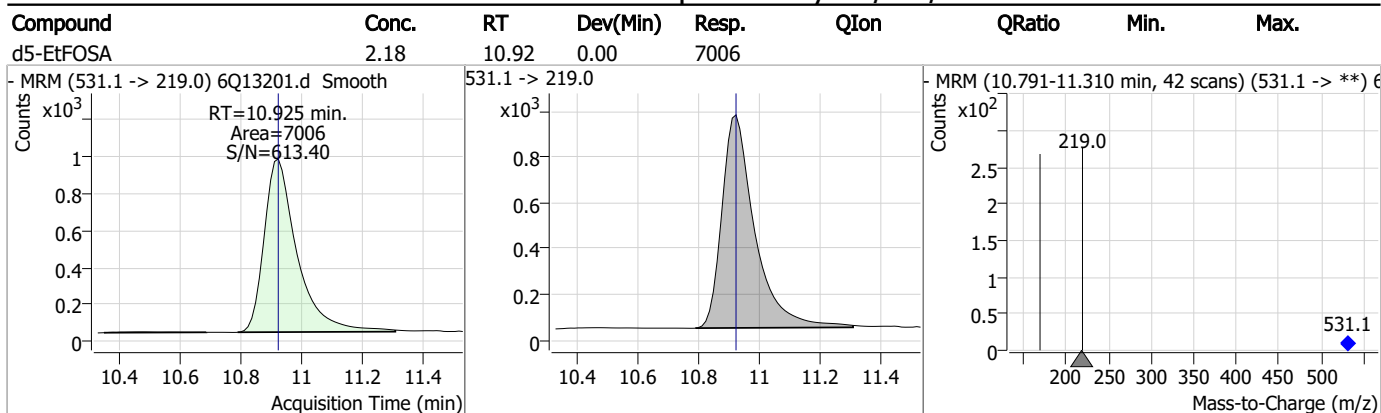
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13193.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/7/2023 11:57:56 AM
 Sample Name : op95294-bs
 Vial : P3-C4
 DA Method File : 1633_020223_S6Q196.quantmethod.xml
 Batch Name : s6q202.batch.bin
 Sample Information : OP95294,S6Q202,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.000	216.8 -> 171.9	14998	10.00 µg/L	0.025
M5-PFPeA	4.386	268.3 -> 223.0	39312	5.00 µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	35752	2.50 µg/L	0.000
M4-PFHpA	6.502	367.1 -> 322.0	36063	2.50 µg/L	0.000
M8-PFOA	7.134	421.1 -> 376.0	65383	2.50 µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	23685	1.25 µg/L	0.000
M6-PFDA	8.157	519.1 -> 474.1	16954	1.25 µg/L	0.000
M7-PFUnDA	8.624	570.0 -> 525.1	19453	1.25 µg/L	0.012
M2-PFDoDA	9.054	615.1 -> 570.0	22923	1.25 µg/L	0.000
M2-PFTeDA	9.781	715.2 -> 670.0	12533	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	16140	2.50 µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	13188	2.50 µg/L	0.000
M3-PFHxS	7.262	402.1 -> 79.9	8683	2.50 µg/L	-0.012
M8-PFOS	8.333	507.1 -> 79.9	8157	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2308	5.00 µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	2974	5.00 µg/L	0.000
M2-8:2FTS	7.944	529.1 -> 80.9	2787	5.00 µg/L	0.000
M3-MeFOSAA	8.202	573.2 -> 419.0	27508	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	15101	10.00 µg/L	0.000
M5-EtFOSAA	8.398	589.2 -> 419.0	23813	5.00 µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	24114	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	16247	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	6390	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	6343	2.50 µg/L	0.000
13C4-PFOS	8.334	502.8 -> 79.9	9482	2.50 µg/L	0.000
13C3-PFBA	2.991	216.0 -> 172.0	34300	5.00 µg/L	0.012
18O2-PFHxS	7.273	403.0 -> 83.9	6529	2.50 µg/L	0.000
13C4-PFOA	7.135	417.1 -> 372.0	69474	2.50 µg/L	-0.012
13C2-PFDA	8.158	515.1 -> 470.1	23098	1.25 µg/L	0.000
13C5-PFNA	7.665	468.0 -> 423.0	25187	1.25 µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	32839	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.240	329.1 -> 80.9	2308	5.43 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.7%		
13C2-6:2FTS	6.908	429.1 -> 80.9	2974	5.28 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.6%		
13C2-8:2FTS	7.944	529.1 -> 80.9	2787	4.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C2-PFDoDA	9.054	615.1 -> 570.0	22923	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C2-PFTeDA	9.781	715.2 -> 670.0	12533	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.8%		
13C3-PFBS	5.518	302.1 -> 79.9	13188	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.2%		
13C3-PFHxS	7.262	402.1 -> 79.9	8683	2.53 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 = 101.2%	
13C4-PFBA	3.000	216.8 -> 171.9	14998	1.97 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 19.7%	
13C4-PFHpA	6.502	367.1 -> 322.0	36063	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.4%	
13C5-PFHxA	5.563	318.0 -> 273.0	35752	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.0%	
13C5-PFPeA	4.386	268.3 -> 223.0	39312	5.37 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C6-PFDA	8.157	519.1 -> 474.1	16954	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C7-PFUnDA	8.624	570.0 -> 525.1	19453	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C8-FOSA	9.567	506.1 -> 77.8	16140	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C8-PFOA	7.134	421.1 -> 376.0	65383	2.82 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.7%	
13C8-PFOS	8.333	507.1 -> 79.9	8157	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.7%	
13C9-PFNA	7.677	472.1 -> 427.0	23685	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.9%	
d3-MeFOSAA	8.202	573.2 -> 419.0	27508	5.29 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.8%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	15101	11.25 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 112.5%	
d3-MeFOSA	10.680	515.0 -> 219.0	6343	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.4%	
d5-EtFOSAA	8.398	589.2 -> 419.0	23813	5.52 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.4%	
d7-MeFOSE	10.589	623.2 -> 58.9	24114	22.40 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.6%	
d9-EtFOSE	10.847	639.2 -> 58.9	16247	21.90 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 87.6%	
d5-EtFOSA	10.925	531.1 -> 219.0	6390	2.21 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.3%	
Target Compounds					QValue
4:2FTS	5.240	327.1 -> 307.0	47895	9.26 µg/L	99
		327.1 -> 80.9	10510		
6:2FTS	6.908	427.1 -> 407.0	42401	9.74 µg/L	96
		427.1 -> 80.9	8863		
8:2FTS	7.945	527.1 -> 507.0	22174	10.24 µg/L	96
		527.1 -> 80.8	5741		
EtFOSAA	8.411	584.2 -> 419.1	8727	2.29 µg/L	m 92
		584.2 -> 526.0	4966		
FOSA	9.557	498.1 -> 77.9	16347	2.54 µg/L	99
		498.1 -> 478.0	584		
MeFOSAA	8.203	570.1 -> 419.0	12844	2.55 µg/L	97
		570.1 -> 483.0	2556		
PFBA	2.994	212.8 -> 168.9	3416	10.20 µg/L	100
PFBS	5.518	298.7 -> 79.9	12109	2.39 µg/L	98
		298.7 -> 98.8	5799		
PFDA	8.158	512.9 -> 469.0	48541	2.52 µg/L	97
		512.9 -> 219.0	7176		
PFDoDA	9.054	613.1 -> 569.0	43478	2.59 µg/L	99
		613.1 -> 319.0	5175		
PFDS	9.229	599.0 -> 79.9	6207	2.25 µg/L	100

7.3.1
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3308			
PFHpA	6.503	363.1 -> 319.0	53840	2.52	µg/L	99
		363.1 -> 169.0	7571			
PFHpS	7.828	449.0 -> 79.9	8792	2.54	µg/L	99
		449.0 -> 98.9	4777			
PFHxA	5.566	313.0 -> 269.0	36244	2.58	µg/L	99
		313.0 -> 118.9	1419			
PFHxS	7.263	398.7 -> 79.9	9866	2.53	µg/L	m 99
		398.7 -> 98.9	5342			
PFNA	7.677	463.0 -> 419.0	38259	2.39	µg/L	97
		463.0 -> 219.0	7353			
PFNS	8.798	548.8 -> 79.9	8620	2.38	µg/L	98
		548.8 -> 98.9	5009			
PFOA	7.135	413.0 -> 369.0	70160	2.44	µg/L	98
		413.0 -> 169.0	9666			
PFOS	8.334	498.9 -> 79.9	8696	2.32	µg/L	m 98
		498.9 -> 98.8	5174			
PFPeA	4.388	263.0 -> 219.0	43205	5.20	µg/L	100
PFPeS	6.569	349.1 -> 79.9	11736	2.59	µg/L	96
		349.1 -> 98.9	6108			
PFTeDA	9.781	713.1 -> 669.0	37499	2.77	µg/L	98
		713.1 -> 168.9	2552			
PFTrDA	9.437	663.0 -> 619.0	39870	2.48	µg/L	99
		663.0 -> 168.9	2994			
PFUnDA	8.624	563.1 -> 519.0	42384	2.80	µg/L	100
		563.1 -> 269.1	6133			
11CI-PF3OUdS	9.502	630.9 -> 450.9	92995	8.58	µg/L	100
		632.9 -> 452.9	28352			
9CI-PF3ONS	8.663	530.8 -> 351.0	169144	9.23	µg/L	98
		532.8 -> 353.0	53600			
ADONA	6.753	376.9 -> 250.9	300351	9.17	µg/L	98
		376.9 -> 84.8	65833			
HFPO-DA	5.940	284.9 -> 168.9	13558	9.60	µg/L	99
		284.9 -> 184.9	1540			
3:3FTCA	3.866	241.0 -> 177.0	2866	7.03	µg/L	97
		241.0 -> 117.0	393			
5:3FTCA	6.206	341.0 -> 237.1	182122	62.11	µg/L	98
		341.0 -> 217.0	157855			
7:3FTCA	7.605	441.0 -> 316.9	100479	52.43	µg/L	98
		441.0 -> 336.9	199357			
EtFOSA	10.927	526.0 -> 219.0	7632	2.50	µg/L	87
		526.0 -> 169.0	7345			
EtFOSE	10.860	630.0 -> 58.9	16232	23.34	µg/L	100
MeFOSA	10.682	511.9 -> 219.0	7066	2.58	µg/L	77
		511.9 -> 169.0	6576			
MeFOSE	10.602	616.1 -> 58.9	23142	24.06	µg/L	100
PFDoDS	9.920	699.1 -> 79.9	3528	2.13	µg/L	99
		699.1 -> 98.8	2362			
NFDHA	5.457	295.0 -> 201.0	4540	5.48	µg/L	98
		295.0 -> 84.9	2217			
PFMBA	4.800	279.0 -> 85.1	13121	5.62	µg/L	100
PFMPA	3.553	229.0 -> 84.9	4890	2.21	µg/L	100
PFEESA	6.059	314.8 -> 134.9	94006	4.66	µg/L	99
		314.8 -> 82.9	2180			

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

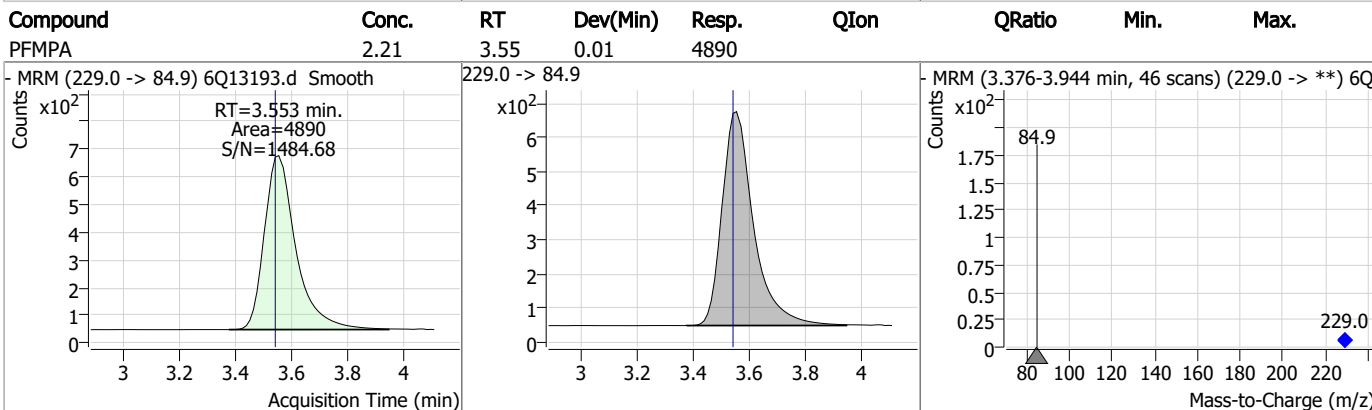
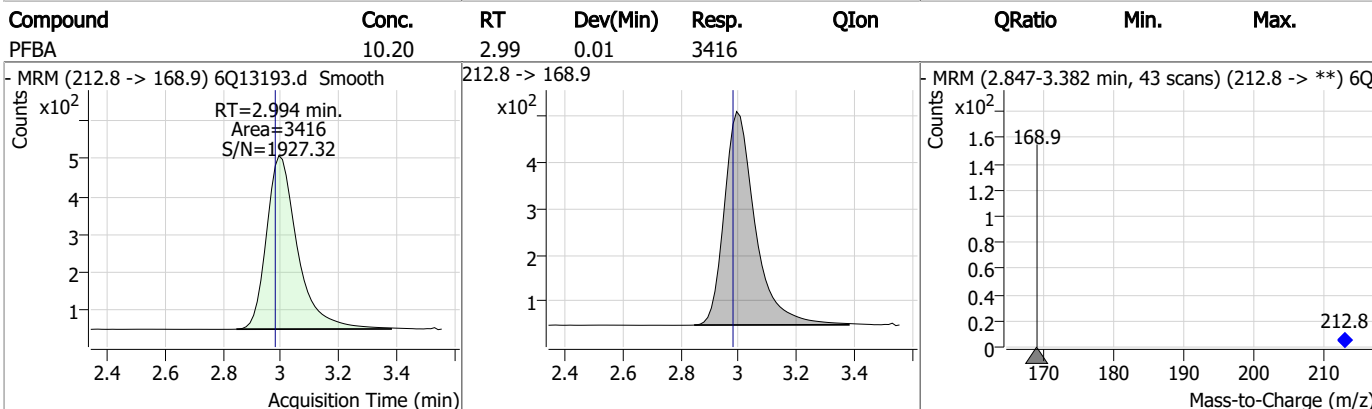
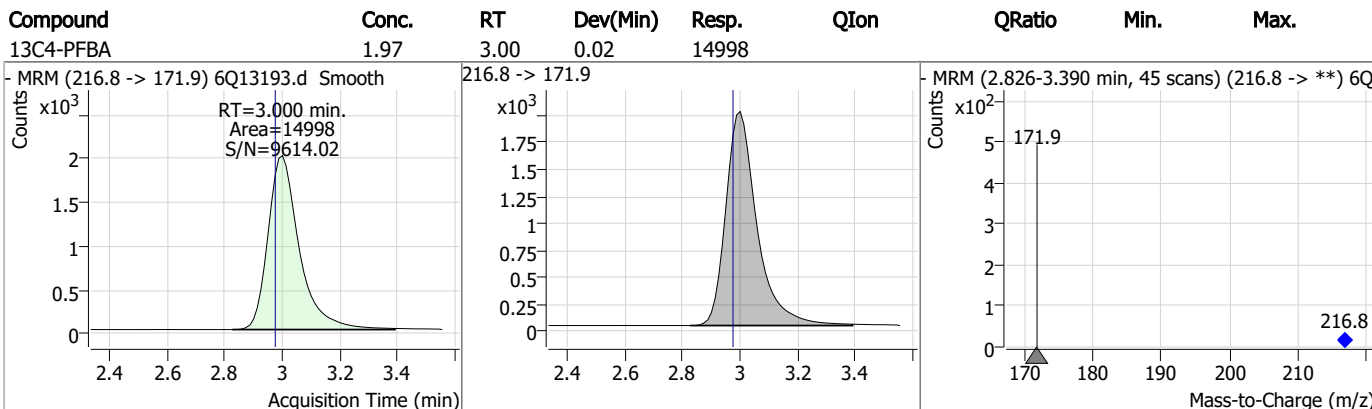
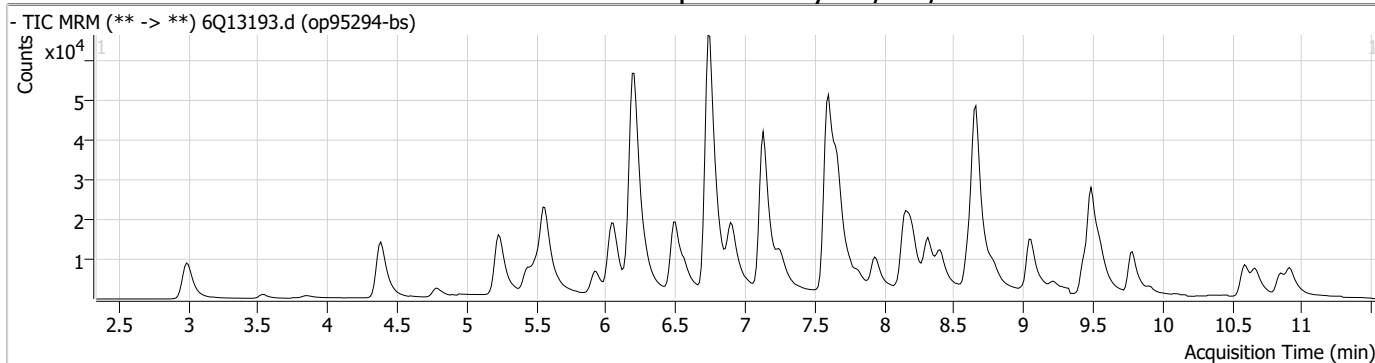
Perfluorinated Compounds by LC/MS/MS

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

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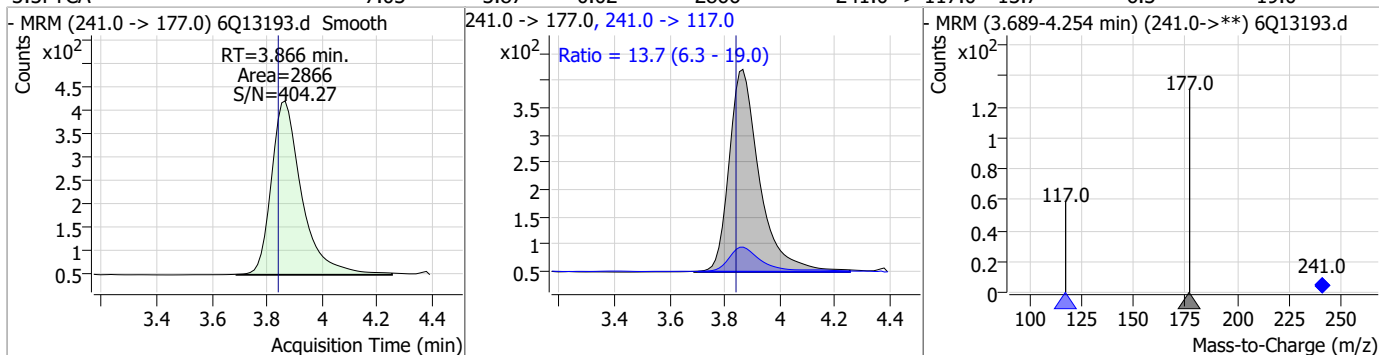
Perfluorinated Compounds by LC/MS/MS



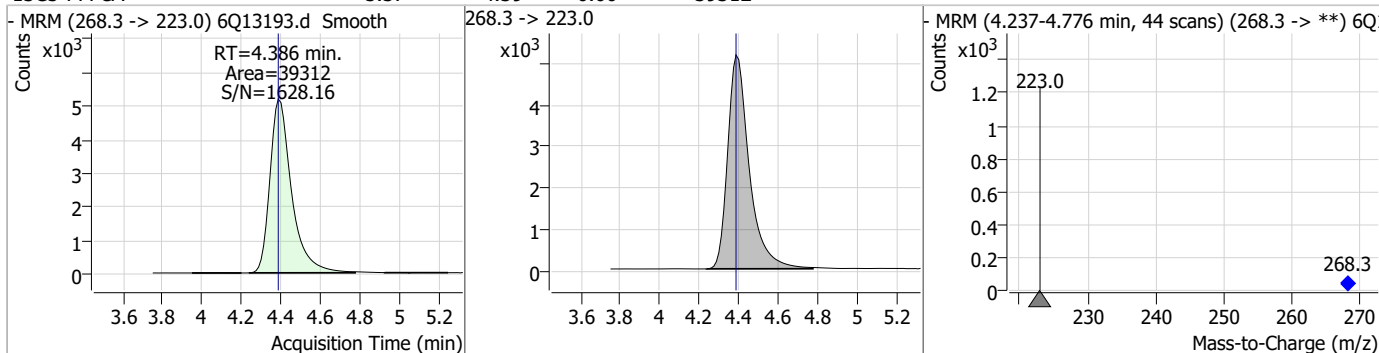
7.3.1
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Perfluorinated Compounds by LC/MS/MS

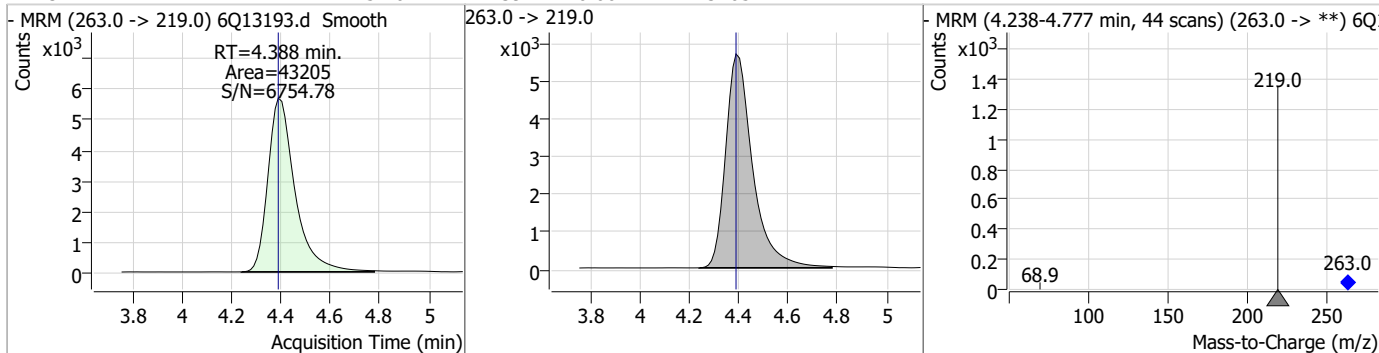
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	7.03	3.87	0.02	2866	241.0 -> 117.0	13.7	6.3	19.0



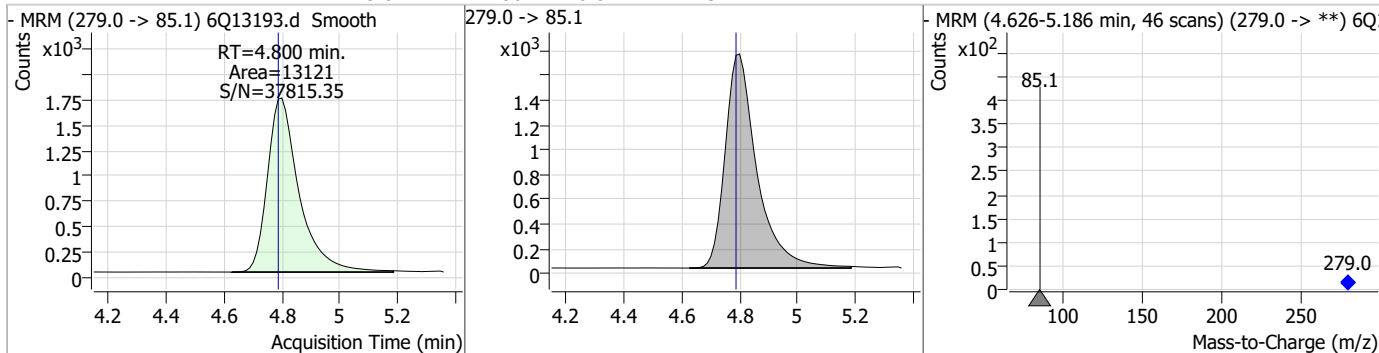
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.37	4.39	0.00	39312				



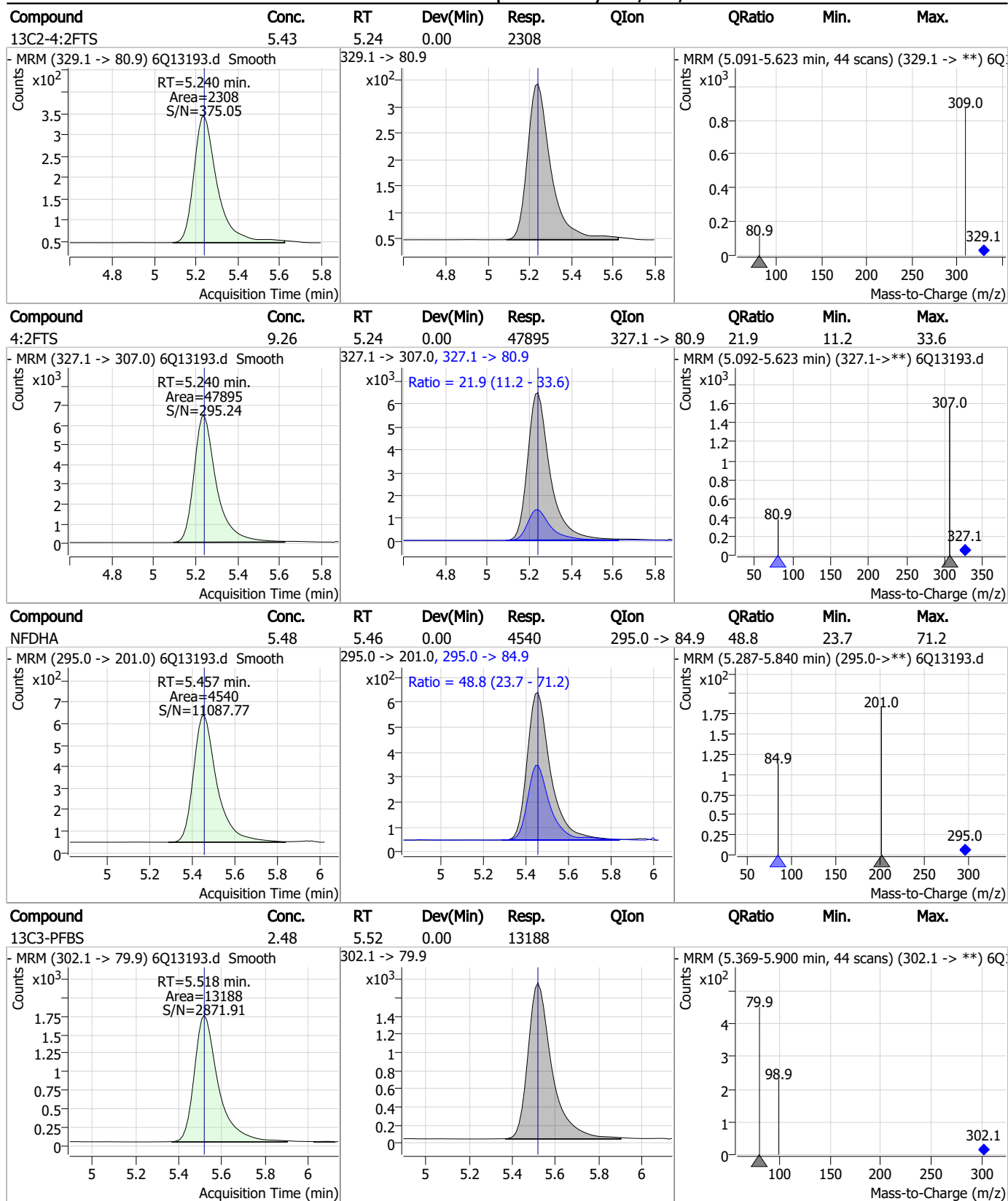
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	5.20	4.39	0.00	43205				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	5.62	4.80	0.01	13121				



Perfluorinated Compounds by LC/MS/MS

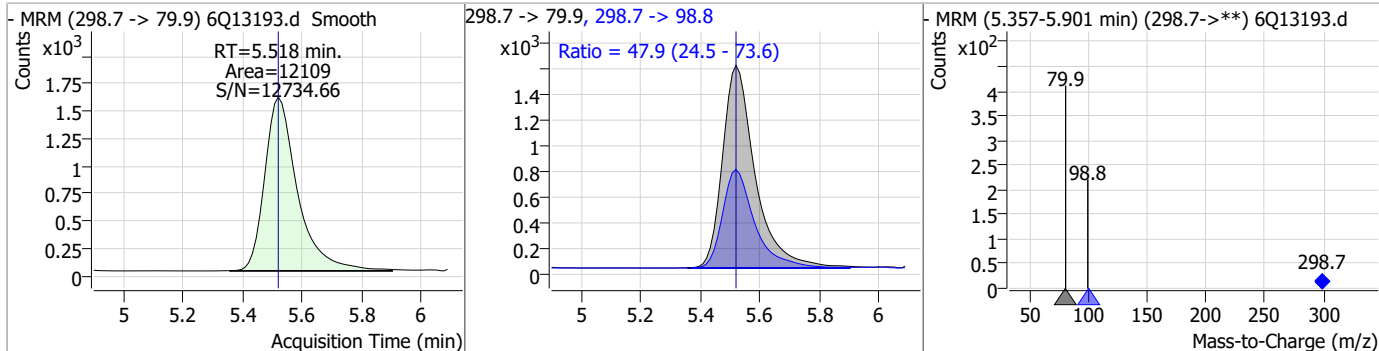


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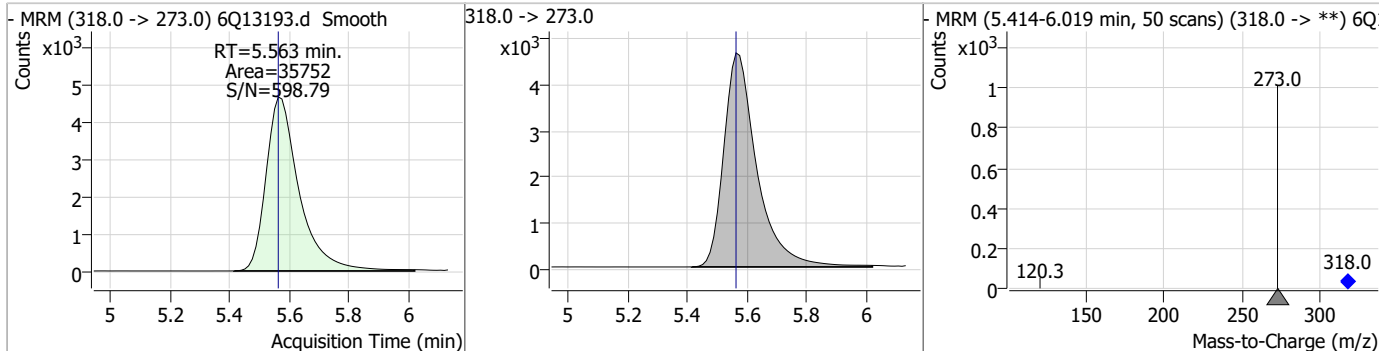


Perfluorinated Compounds by LC/MS/MS

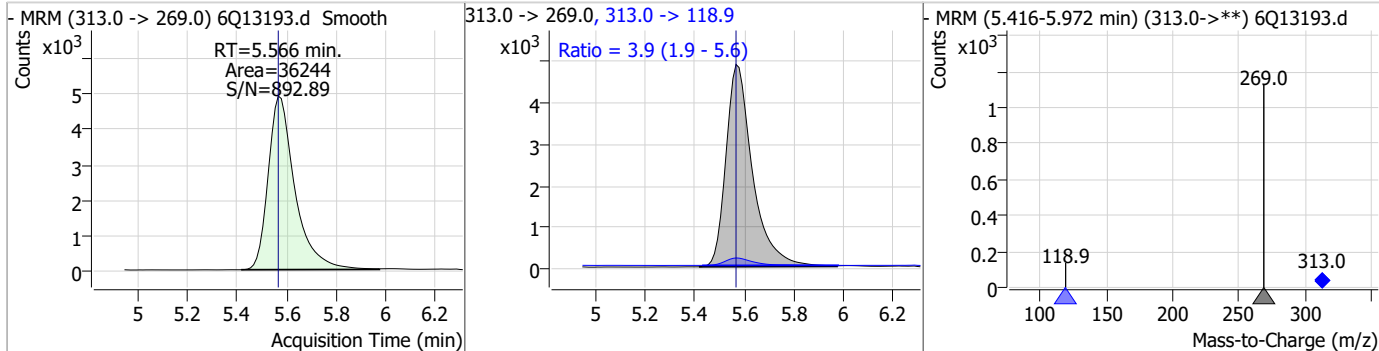
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.39	5.52	0.00	12109	298.7 -> 98.8	47.9	24.5	73.6



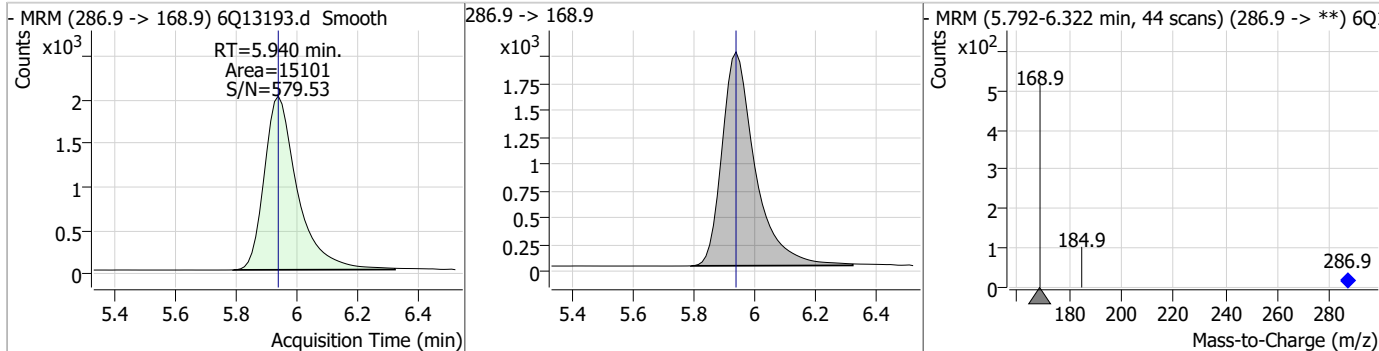
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.75	5.56	0.00	35752				



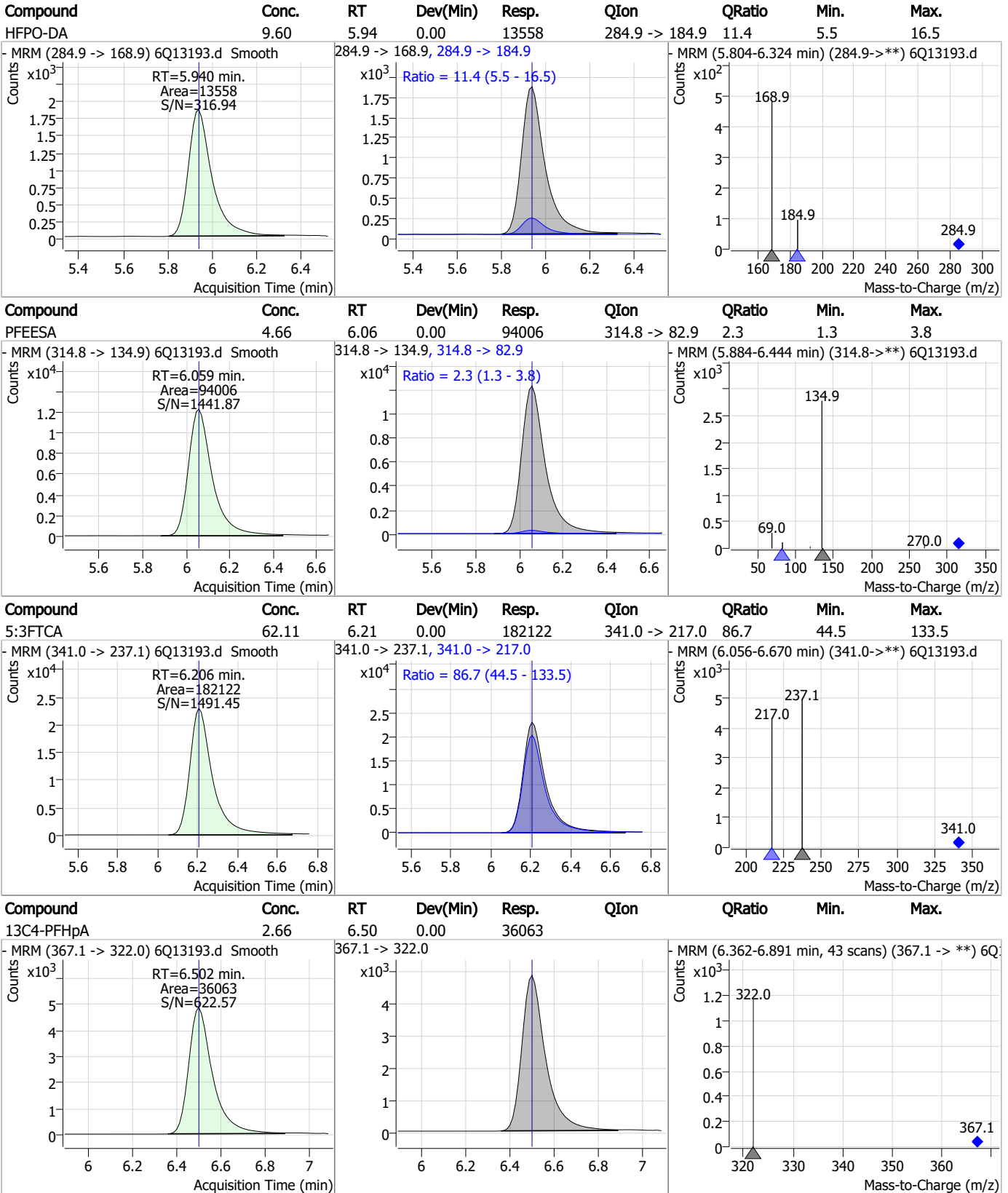
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.58	5.57	0.00	36244	313.0 -> 118.9	3.9	1.9	5.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	11.25	5.94	0.00	15101				



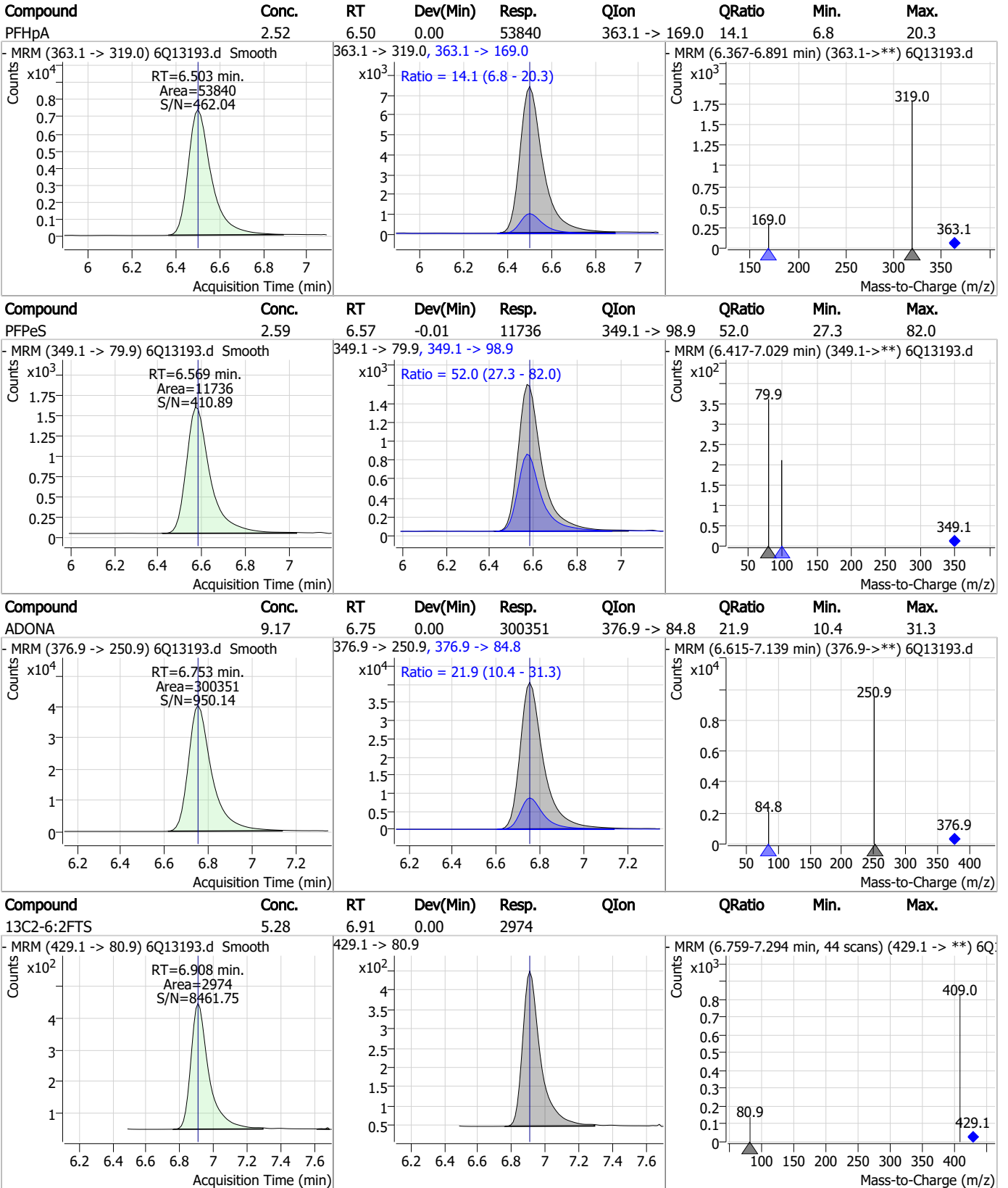
Perfluorinated Compounds by LC/MS/MS



7.3.1

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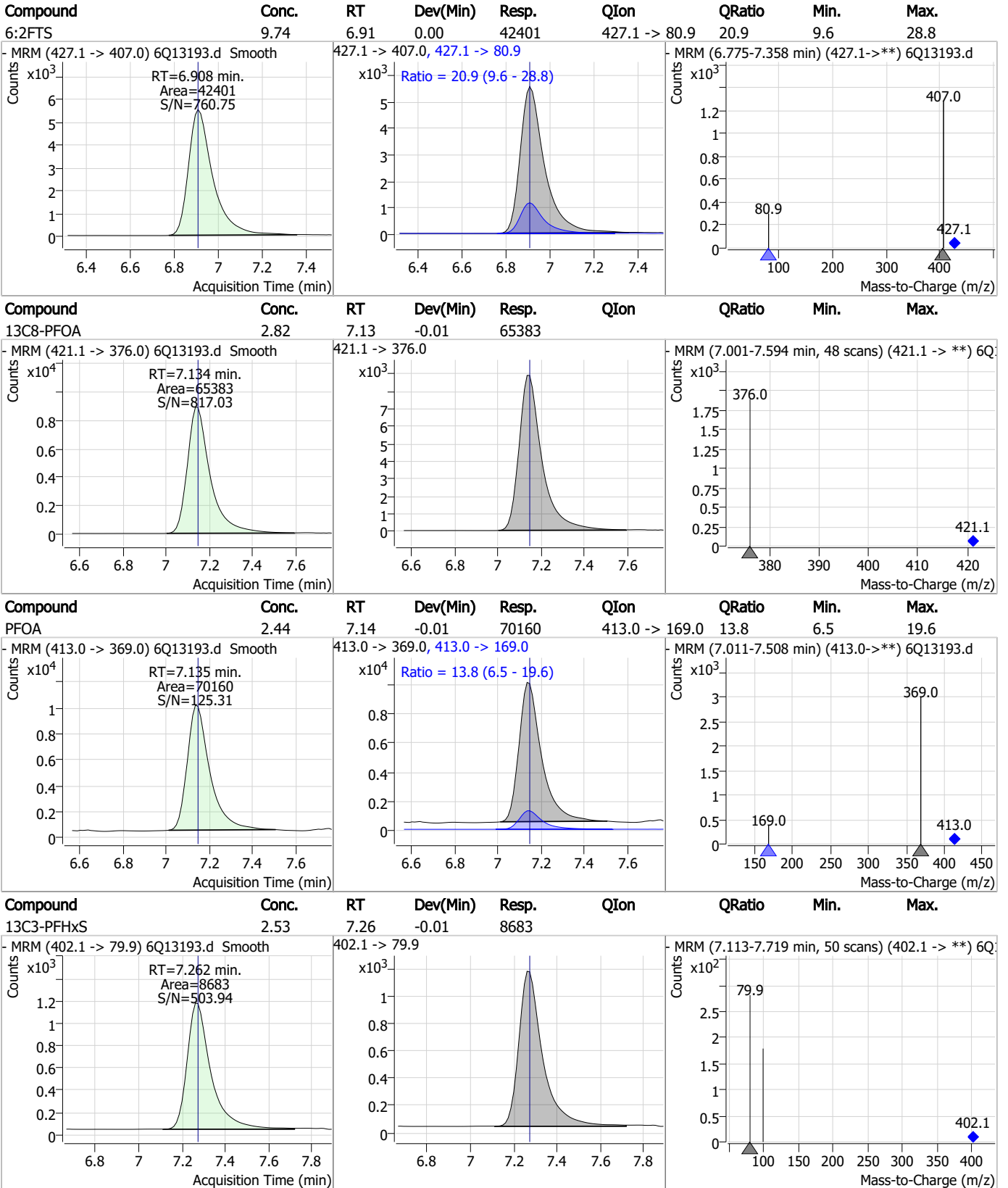
Perfluorinated Compounds by LC/MS/MS



7.3.1

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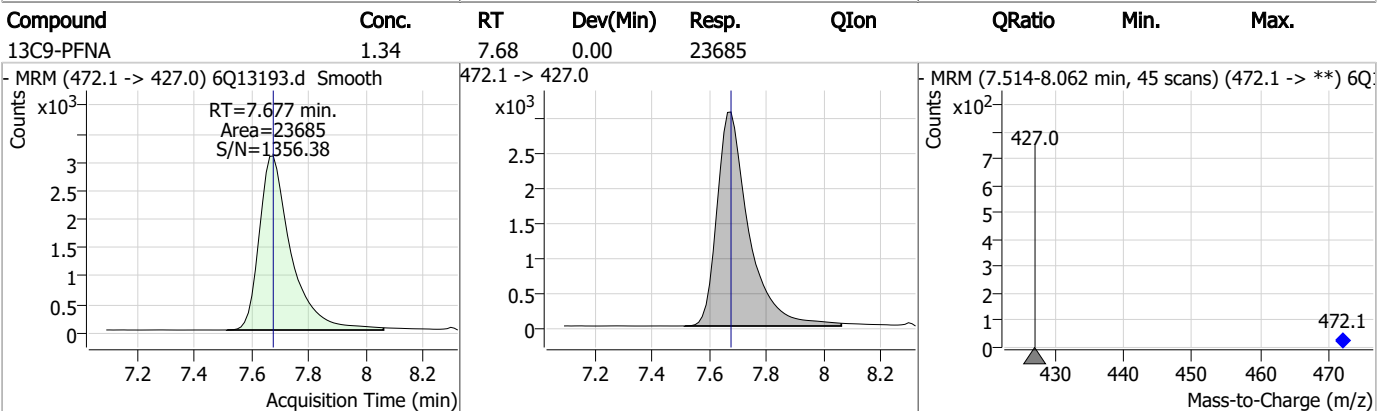
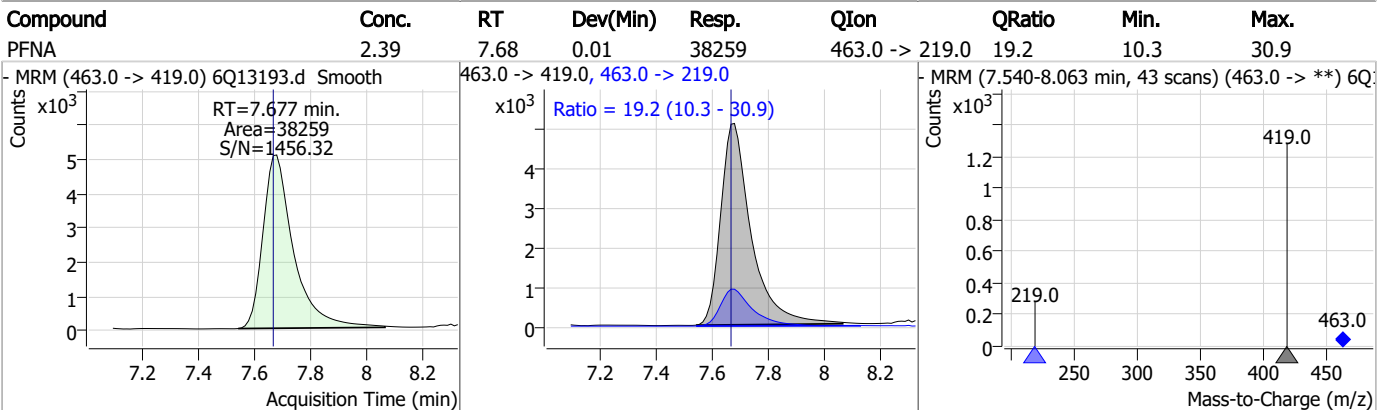
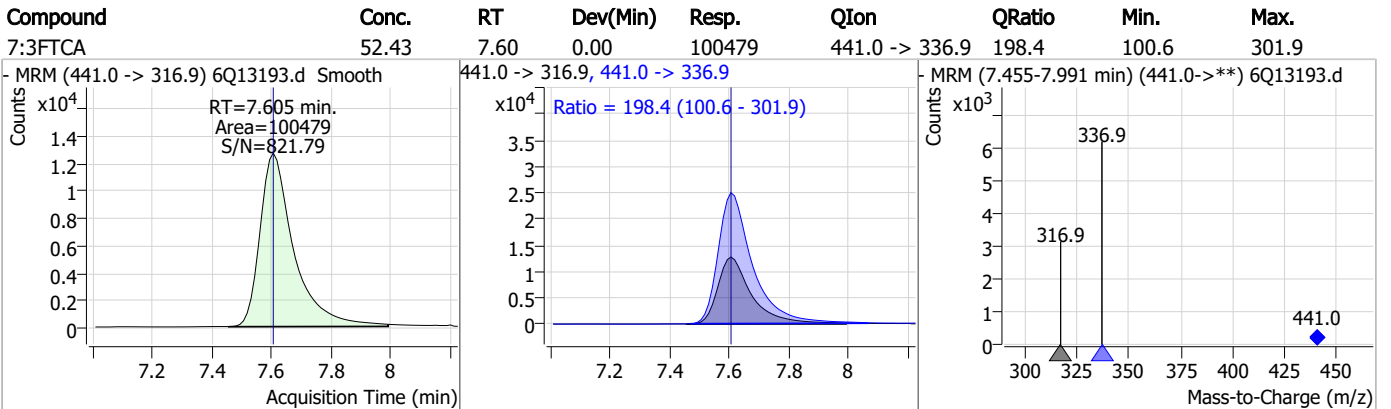
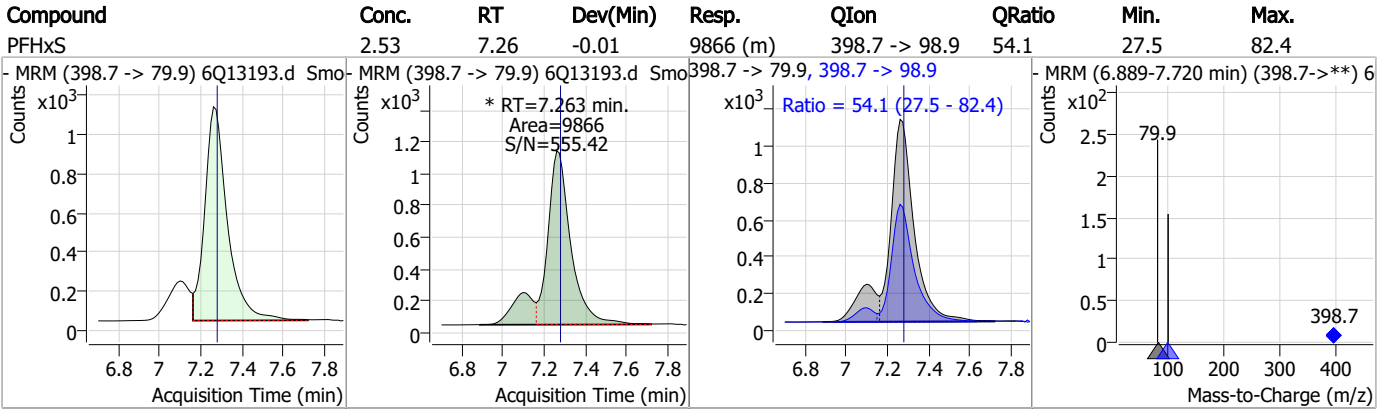
Perfluorinated Compounds by LC/MS/MS



7.3.1

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Perfluorinated Compounds by LC/MS/MS

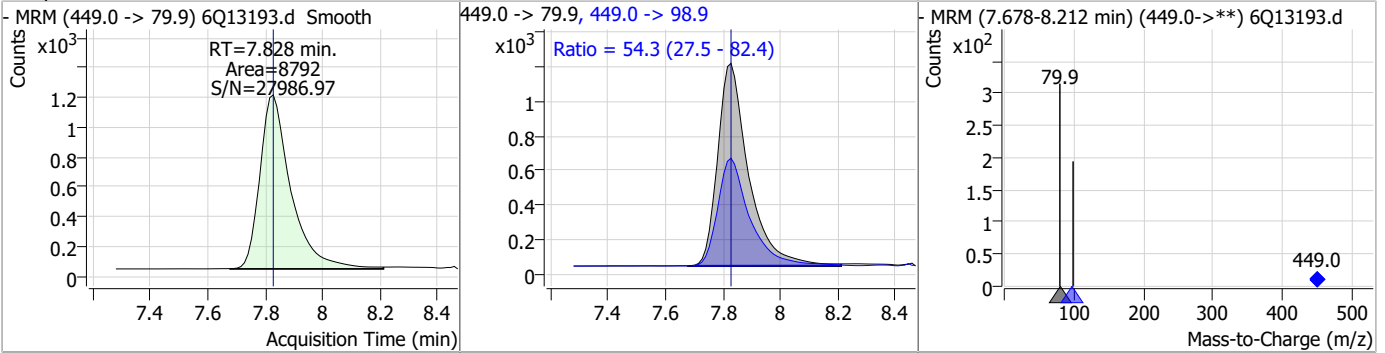


7.3.1

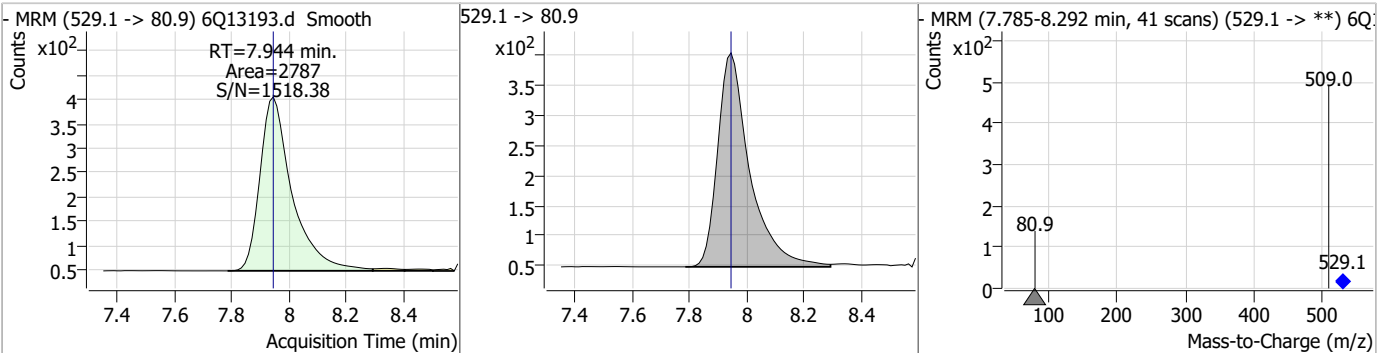
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Perfluorinated Compounds by LC/MS/MS

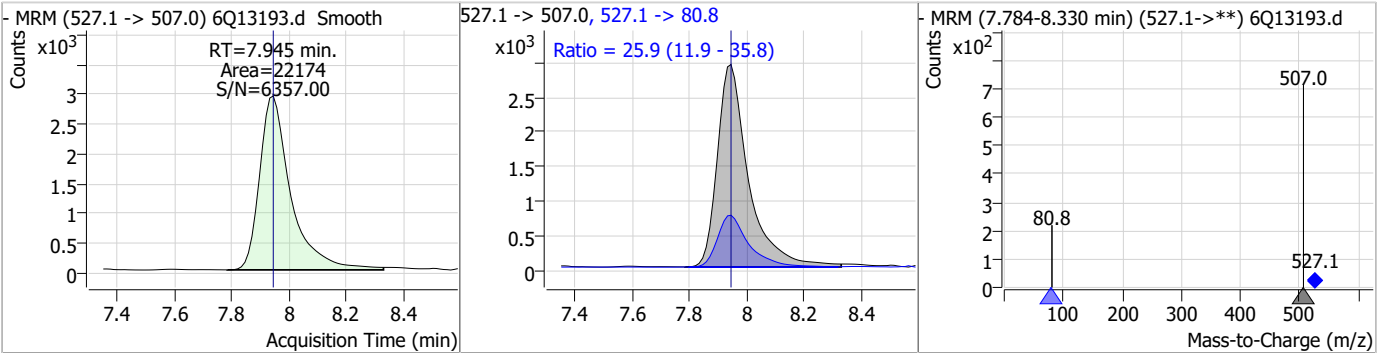
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.54	7.83	0.00	8792	449.0 -> 98.9	54.3	27.5	82.4



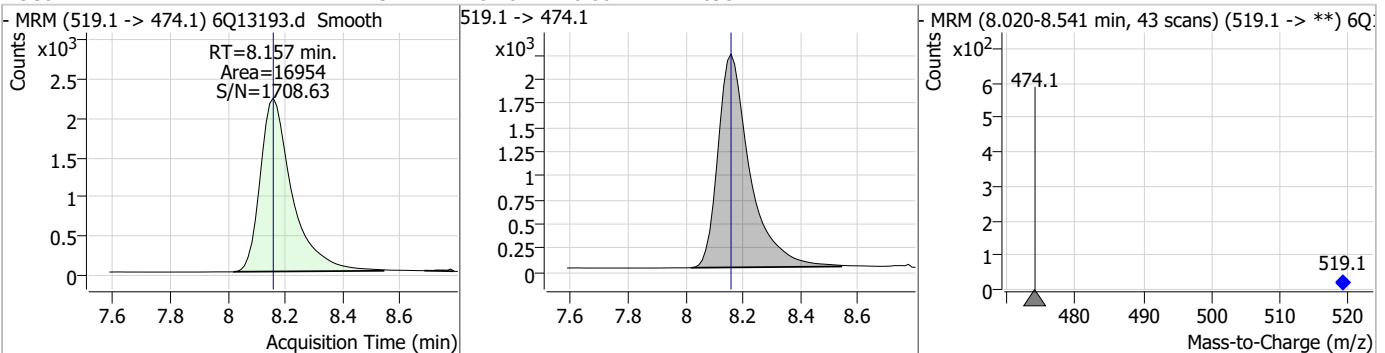
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	4.93	7.94	0.00	2787	529.1 -> 80.9			



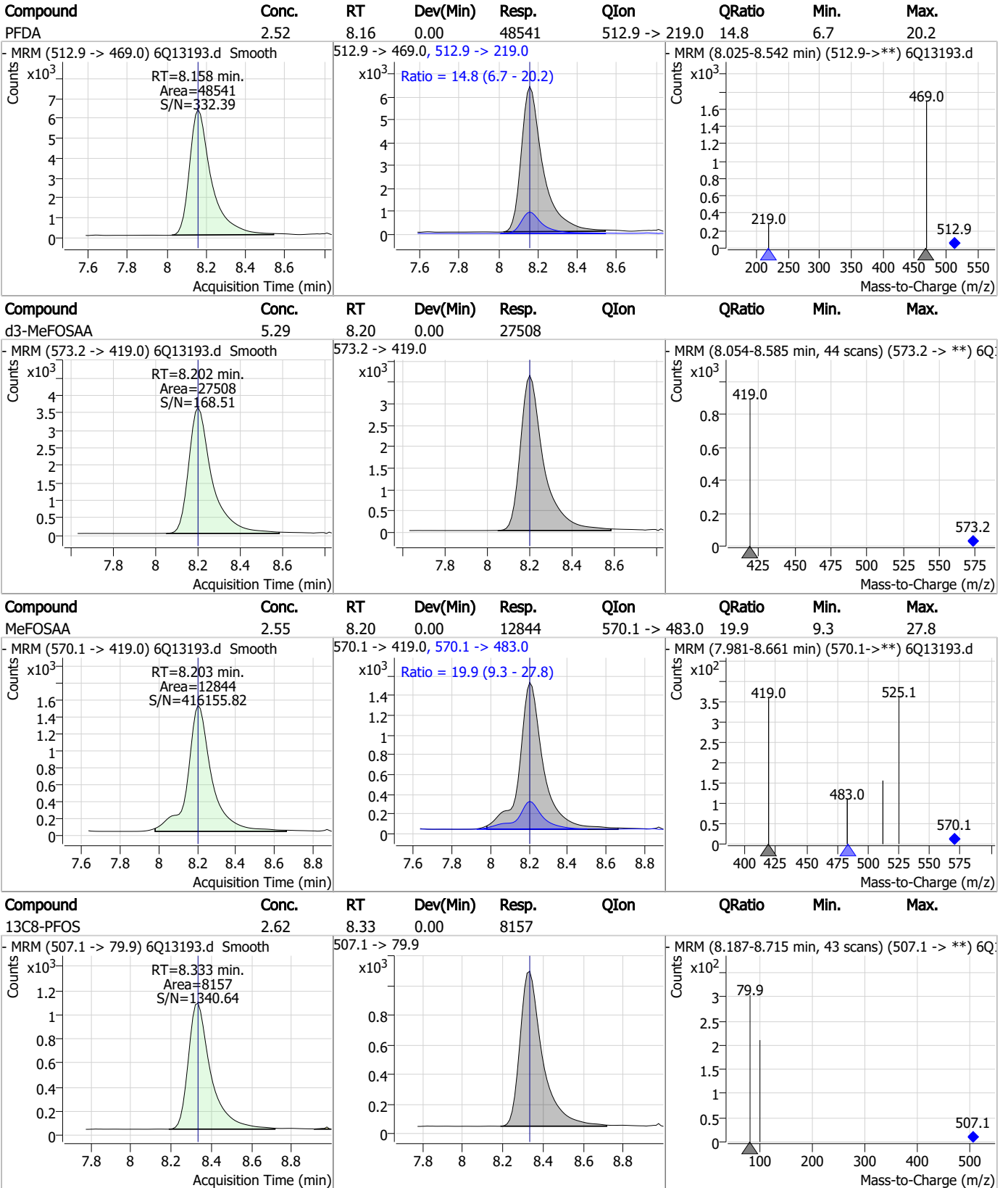
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	10.24	7.95	0.00	22174	527.1 -> 80.8	25.9	11.9	35.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.32	8.16	0.00	16954	519.1 -> 474.1			



Perfluorinated Compounds by LC/MS/MS



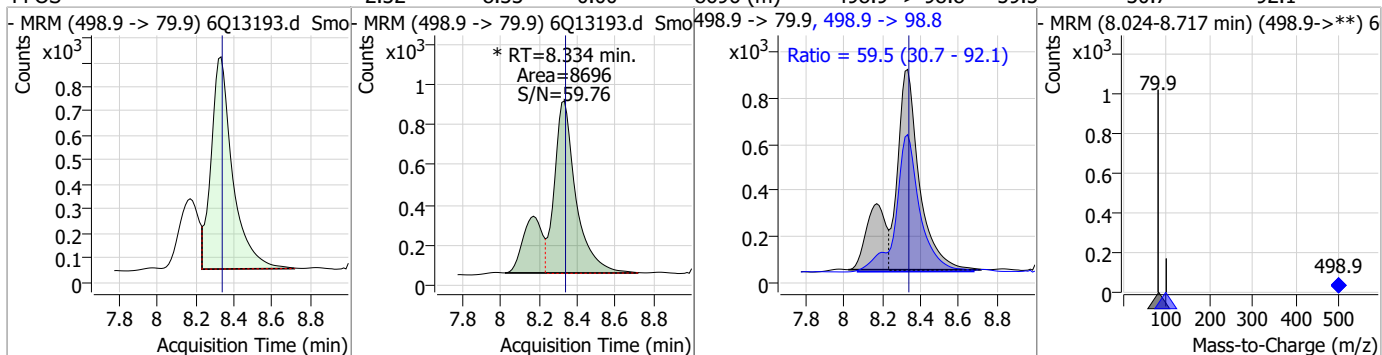
7.3.1

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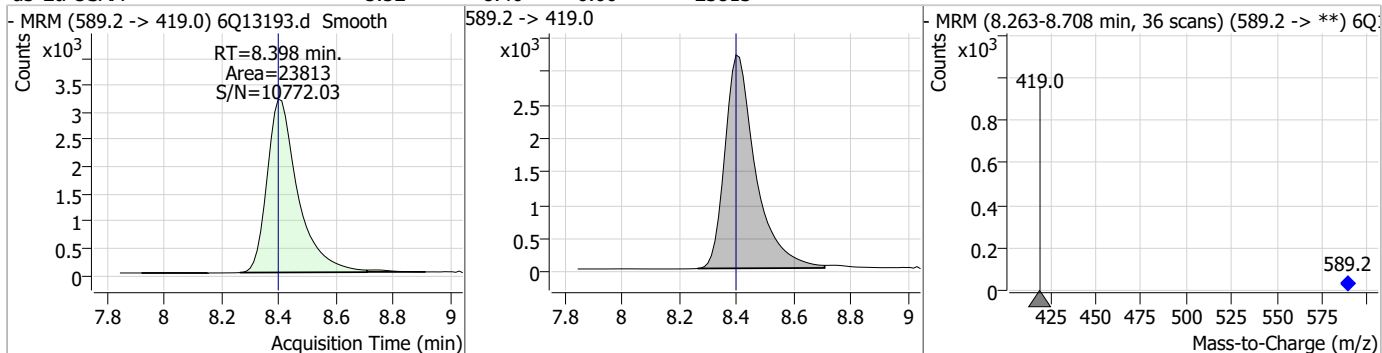


Perfluorinated Compounds by LC/MS/MS

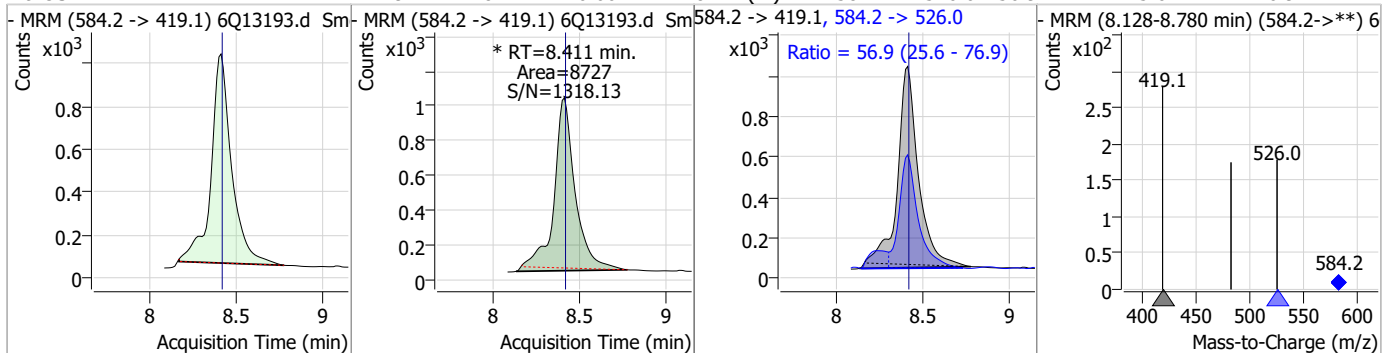
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.32	8.33	0.00	8696 (m)	498.9 -> 98.8	59.5	30.7	92.1



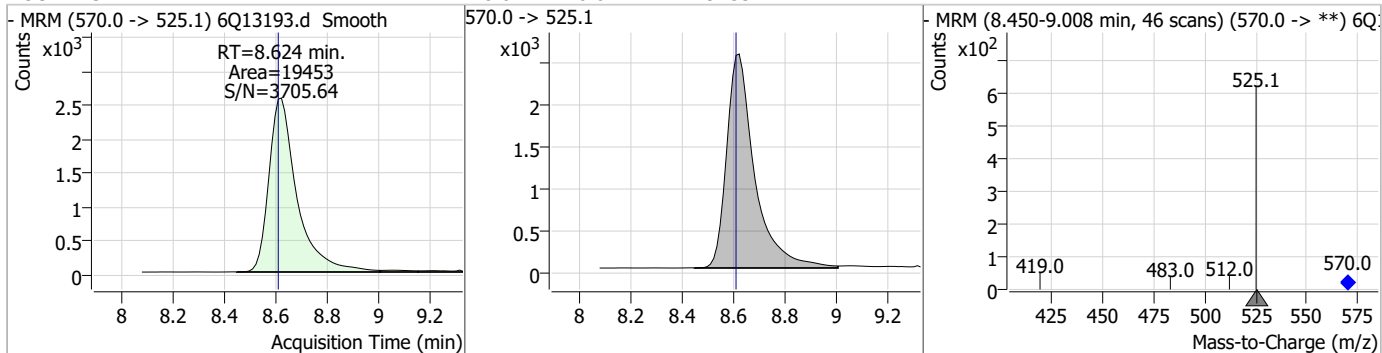
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.52	8.40	0.00	23813				



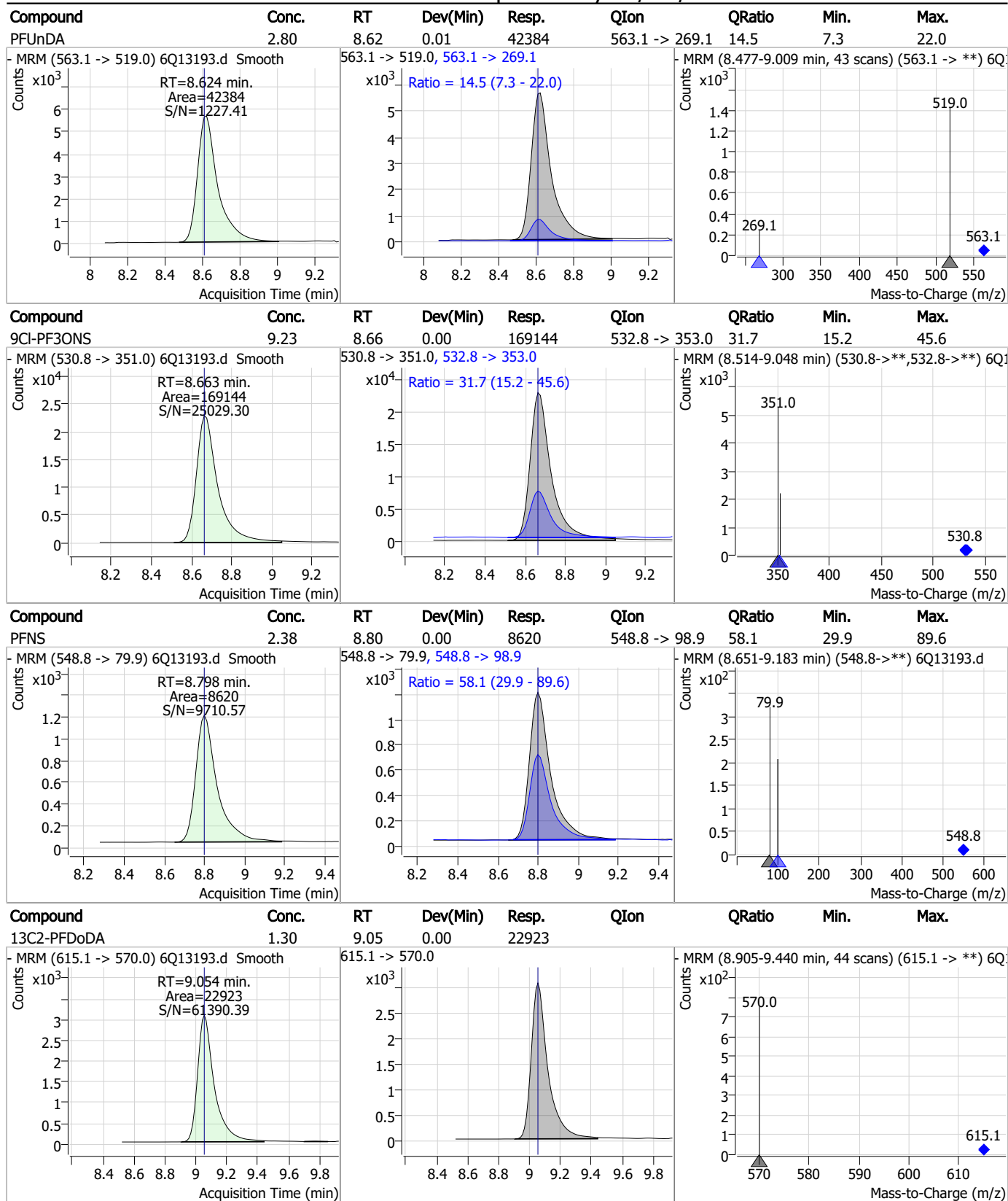
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.29	8.41	0.00	8727 (m)	584.2 -> 526.0	56.9	25.6	76.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.27	8.62	0.01	19453				



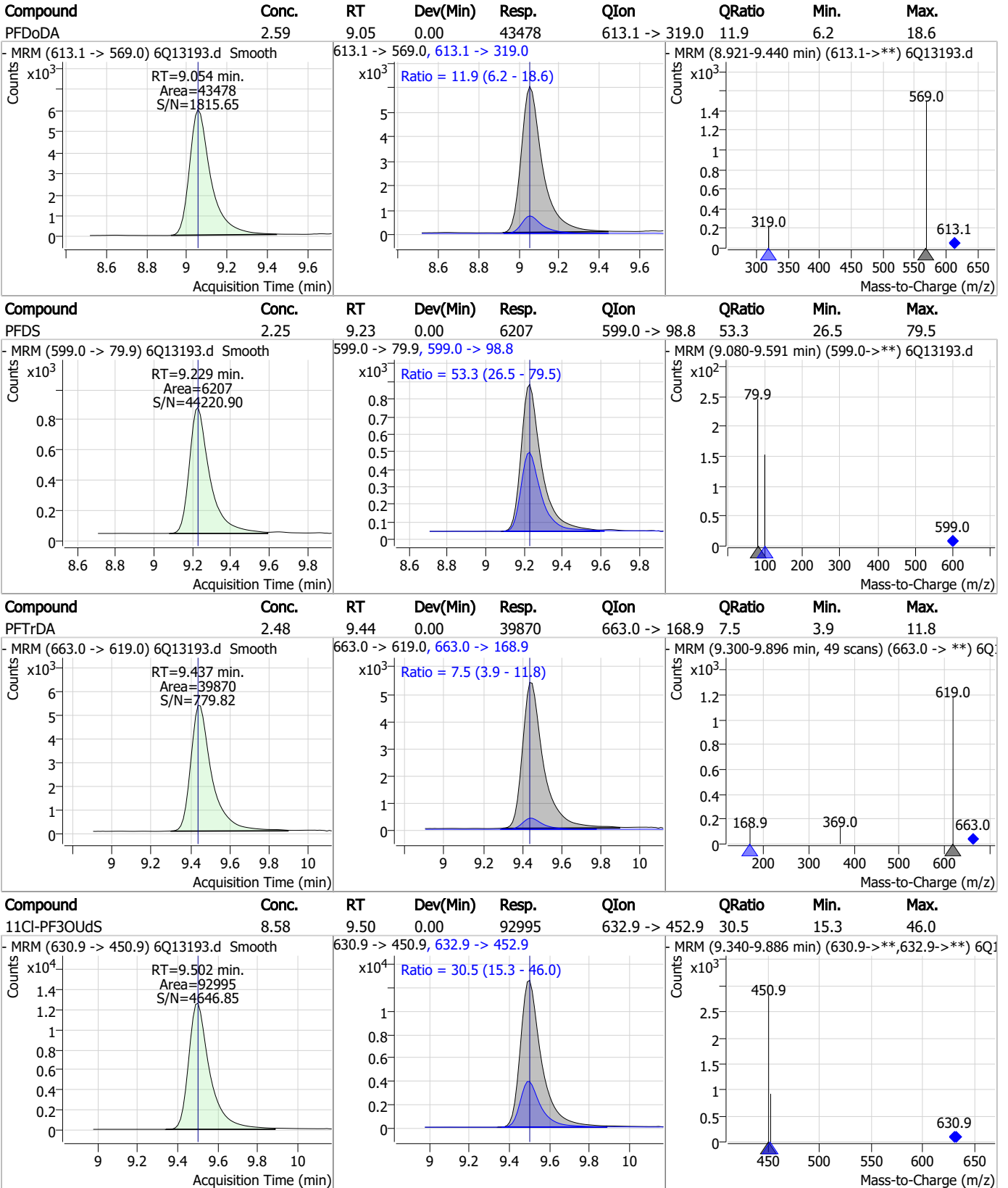
Perfluorinated Compounds by LC/MS/MS



7.3.1

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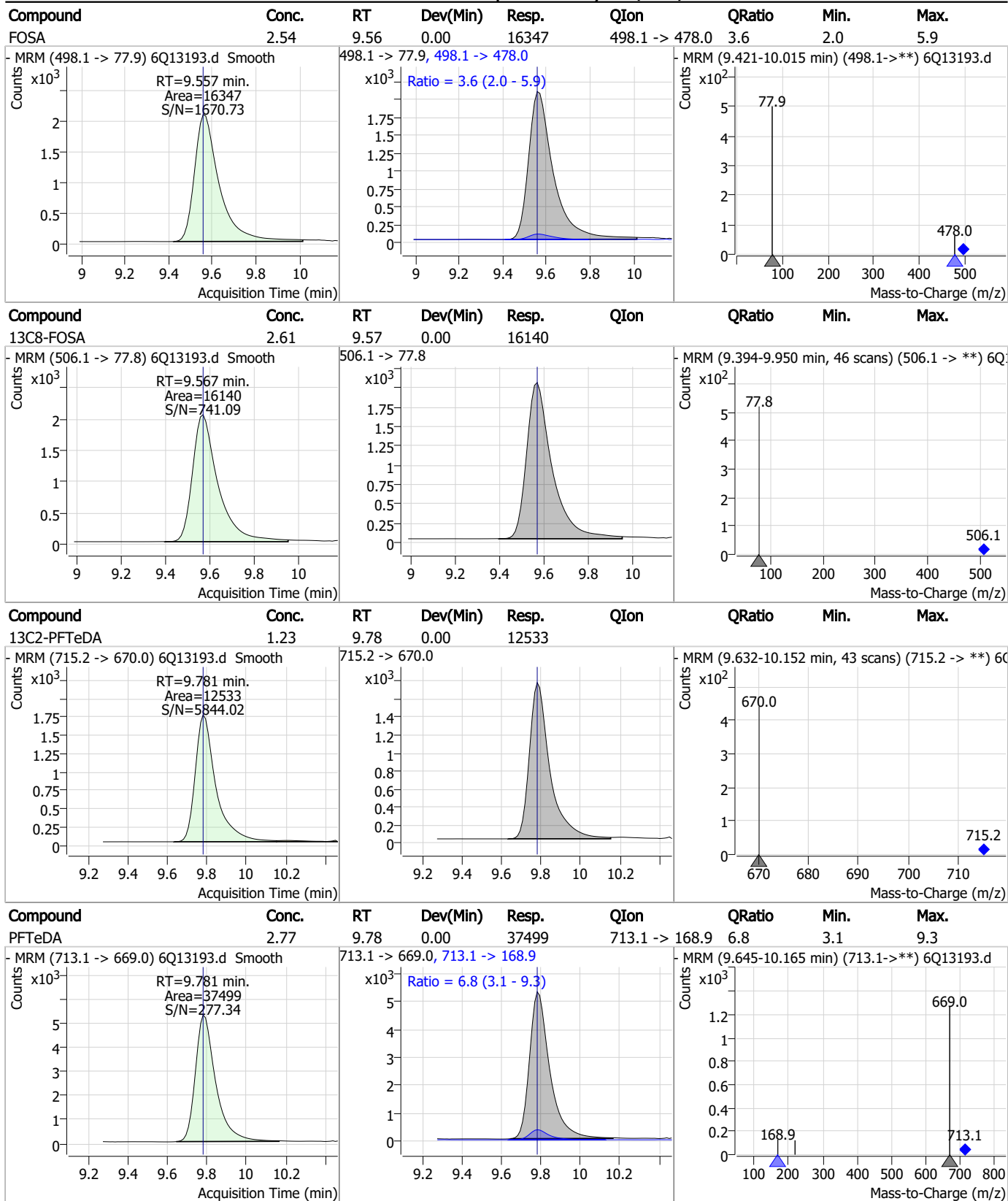
Perfluorinated Compounds by LC/MS/MS



7.3.1

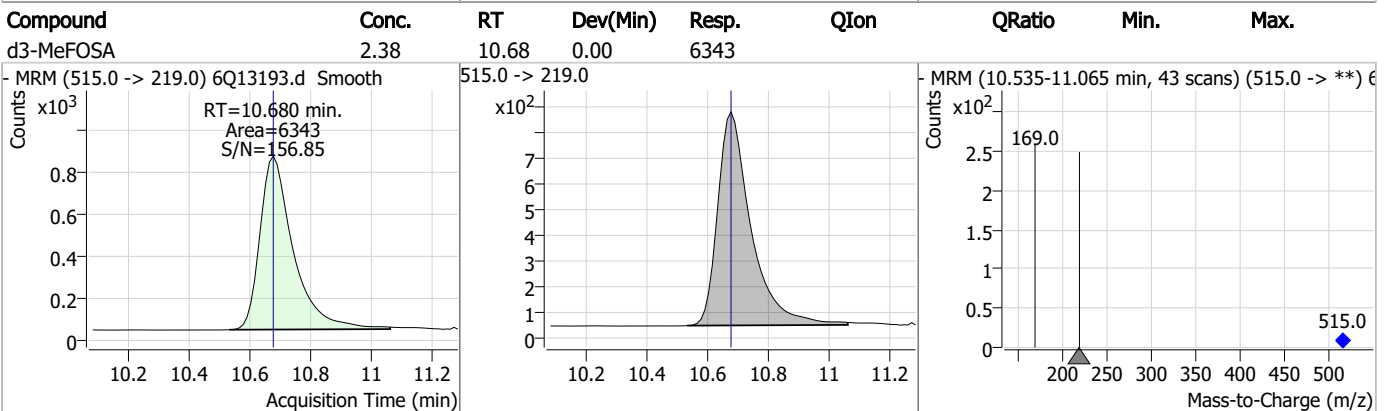
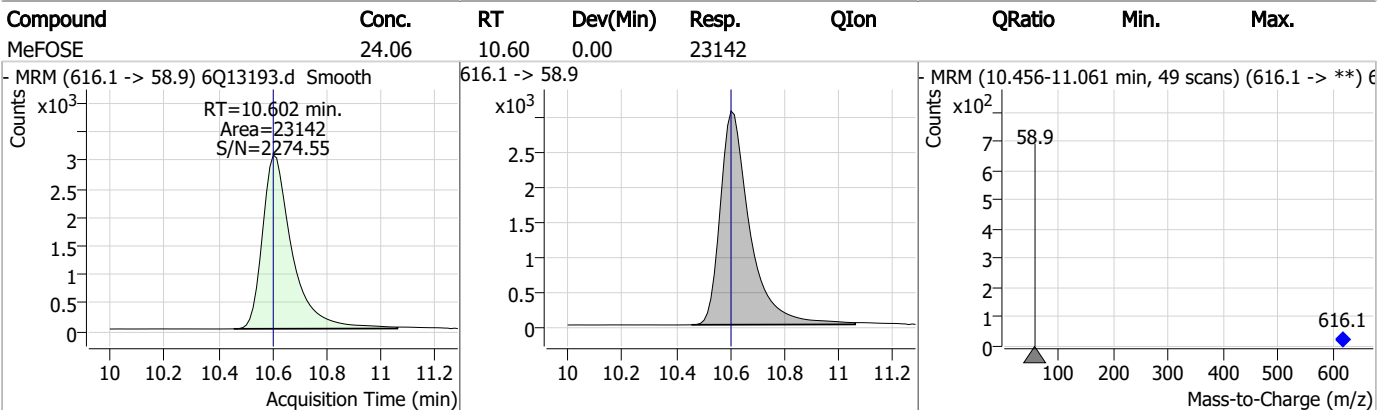
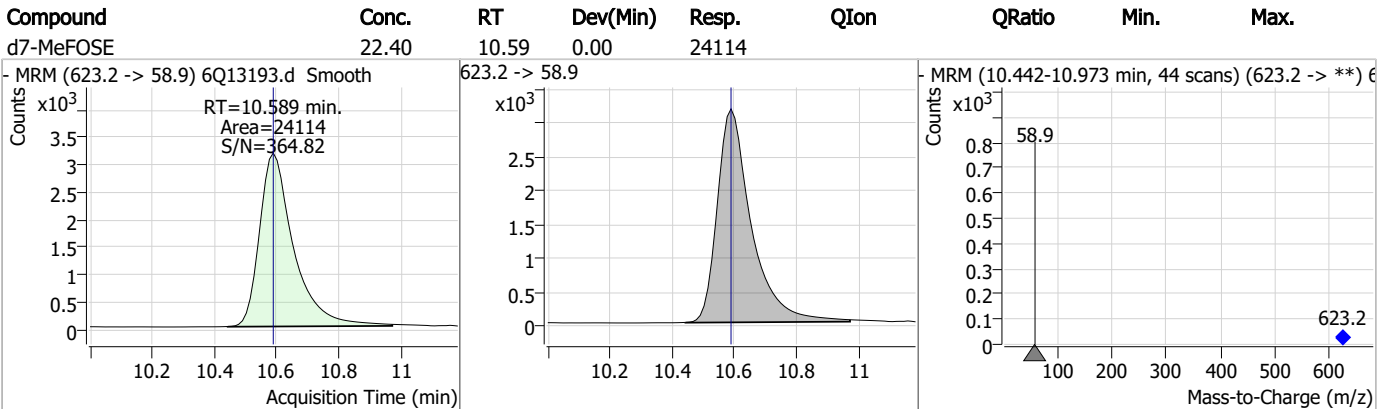
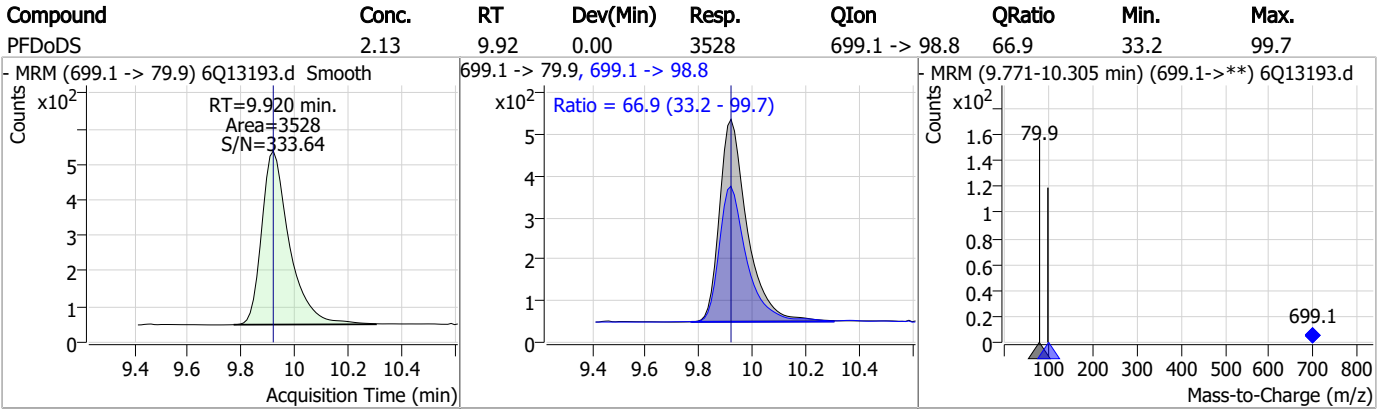
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Perfluorinated Compounds by LC/MS/MS

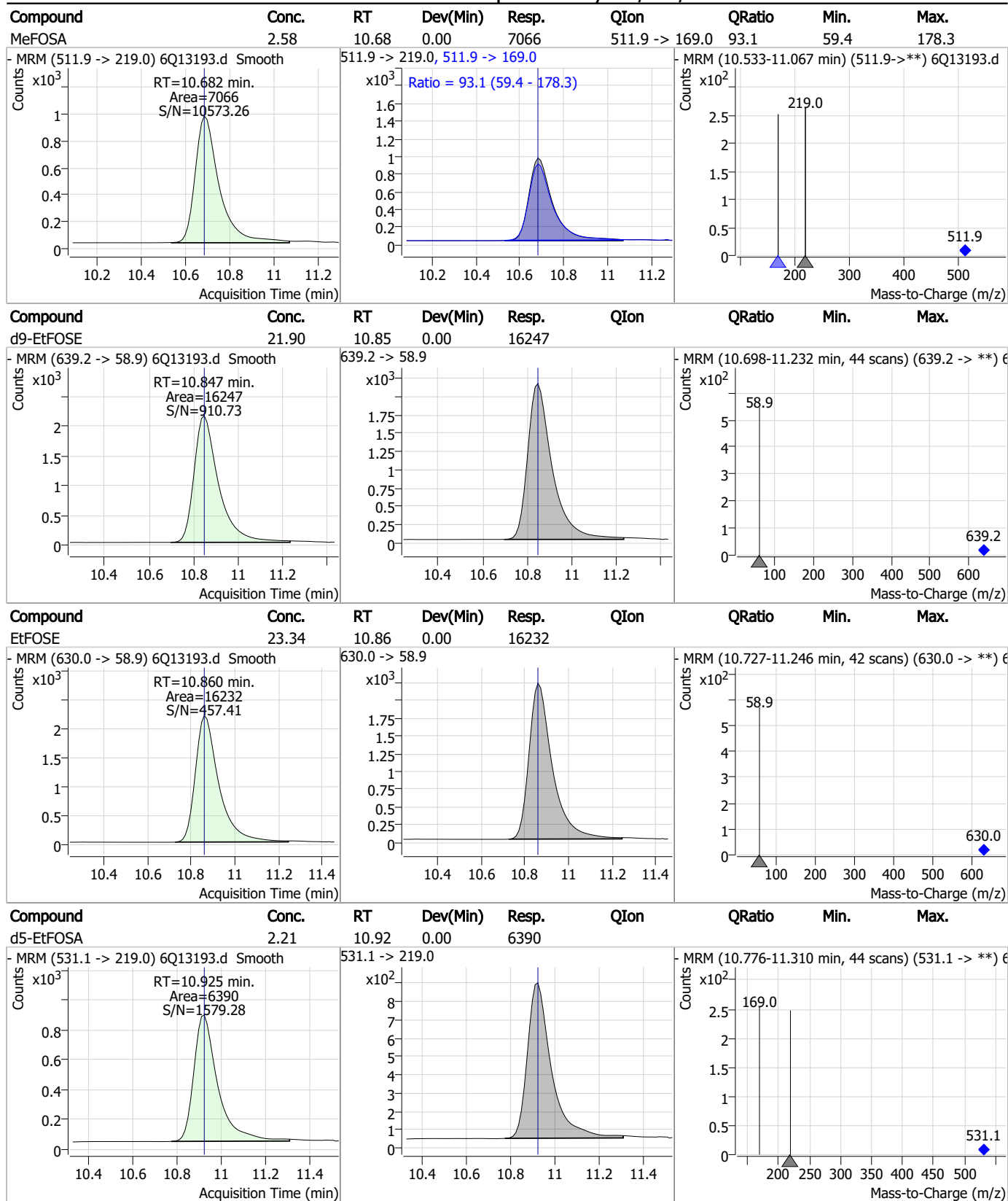


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Perfluorinated Compounds by LC/MS/MS

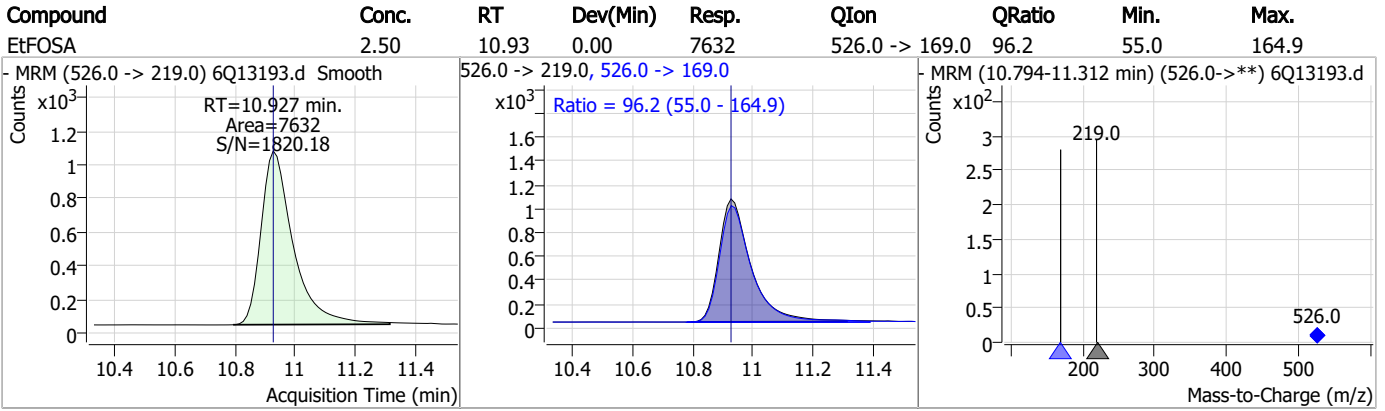


Perfluorinated Compounds by LC/MS/MS



7.3.1
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Perfluorinated Compounds by LC/MS/MS



7.3.1

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Manual Integration Approval Summary

Sample Number: OP95294-BS Method: EPA DRAFT 1633
Lab FileID: 6Q13193.D Analyst approved: 02/08/23 10:34 Martha Valls
Injection Time: 02/07/23 11:57 Supervisor approved: 02/08/23 11:28 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.26	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.41	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13194.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/7/2023 12:11:55 PM
 Sample Name : op95294-llbs:3
 Vial : P3-C5
 DA Method File : 1633_020223_S6Q196.quantmethod.xml
 Batch Name : s6q202.batch.bin
 Sample Information : OP95294,S6Q202,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.013	216.8 -> 171.9	75798	10.00 µg/L	0.037
M5-PFPeA	4.400	268.3 -> 223.0	39853	5.00 µg/L	0.014
M5-PFHxA	5.575	318.0 -> 273.0	34995	2.50 µg/L	0.012
M4-PFHpA	6.502	367.1 -> 322.0	36750	2.50 µg/L	0.000
M8-PFOA	7.146	421.1 -> 376.0	62562	2.50 µg/L	0.000
M9-PFNA	7.677	472.1 -> 427.0	23907	1.25 µg/L	0.000
M6-PFDA	8.157	519.1 -> 474.1	17277	1.25 µg/L	0.000
M7-PFUnDA	8.612	570.0 -> 525.1	21421	1.25 µg/L	0.000
M2-PFDoDA	9.054	615.1 -> 570.0	24606	1.25 µg/L	0.000
M2-PFTeDA	9.781	715.2 -> 670.0	11348	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	16700	2.50 µg/L	-0.012
M3-PFBS	5.518	302.1 -> 79.9	13712	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	9171	2.50 µg/L	0.000
M8-PFOS	8.333	507.1 -> 79.9	8484	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2428	5.00 µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	2935	5.00 µg/L	0.000
M2-8:2FTS	7.944	529.1 -> 80.9	3041	5.00 µg/L	0.000
M3-MeFOSAA	8.202	573.2 -> 419.0	28927	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	14308	10.00 µg/L	0.000
M5-EtFOSAA	8.398	589.2 -> 419.0	21662	5.00 µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	20865	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	14971	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	5879	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	5400	2.50 µg/L	0.000
13C4-PFOS	8.333	502.8 -> 79.9	9190	2.50 µg/L	0.000
13C3-PFBA	3.016	216.0 -> 172.0	33453	5.00 µg/L	0.037
18O2-PFHxS	7.273	403.0 -> 83.9	6103	2.50 µg/L	0.000
13C4-PFOA	7.147	417.1 -> 372.0	71580	2.50 µg/L	0.000
13C2-PFDA	8.158	515.1 -> 470.1	22386	1.25 µg/L	0.000
13C5-PFNA	7.665	468.0 -> 423.0	24479	1.25 µg/L	-0.012
13C2-PFHxA	5.576	315.1 -> 270.0	32234	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.240	329.1 -> 80.9	2428	6.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 122.4%		
13C2-6:2FTS	6.908	429.1 -> 80.9	2935	5.58 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.5%		
13C2-8:2FTS	7.944	529.1 -> 80.9	3041	5.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.0%		
13C2-PFDoDA	9.054	615.1 -> 570.0	24606	1.44 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 115.6%		
13C2-PFTeDA	9.781	715.2 -> 670.0	11348	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.3%		
13C3-PFBS	5.518	302.1 -> 79.9	13712	2.76 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.3%		
13C3-PFHxS	7.274	402.1 -> 79.9	9171	2.86 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 = 114.3%	
13C4-PFBA	3.013	216.8 -> 171.9	75798	10.21 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C4-PFHpA	6.502	367.1 -> 322.0	36750	2.76 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.5%	
13C5-PFHxA	5.575	318.0 -> 273.0	34995	2.74 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.7%	
13C5-PFPeA	4.400	268.3 -> 223.0	39853	5.55 µg/L	0.014
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 111.0%	
13C6-PFDA	8.157	519.1 -> 474.1	17277	1.39 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.0%	
13C7-PFUnDA	8.612	570.0 -> 525.1	21421	1.44 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 115.1%	
13C8-FOSA	9.555	506.1 -> 77.8	16700	2.79 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.6%	
13C8-PFOA	7.146	421.1 -> 376.0	62562	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.7%	
13C8-PFOS	8.333	507.1 -> 79.9	8484	2.81 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.3%	
13C9-PFNA	7.677	472.1 -> 427.0	23907	1.39 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.0%	
d3-MeFOSAA	8.202	573.2 -> 419.0	28927	5.74 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 114.8%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	14308	10.86 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.6%	
d3-MeFOSA	10.680	515.0 -> 219.0	5400	2.09 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 83.8%	
d5-EtFOSAA	8.398	589.2 -> 419.0	21662	5.18 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.7%	
d7-MeFOSE	10.589	623.2 -> 58.9	20865	20.00 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 80.0%	
d9-EtFOSE	10.847	639.2 -> 58.9	14971	20.82 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 83.3%	
d5-EtFOSA	10.925	531.1 -> 219.0	5879	2.10 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 83.8%	
Target Compounds					QValue
4:2FTS	5.240	327.1 -> 307.0	18387	3.38 µg/L	98
		327.1 -> 80.9	3956		
6:2FTS	6.908	427.1 -> 407.0	17155	3.99 µg/L	100
		427.1 -> 80.9	3283		
8:2FTS	7.945	527.1 -> 507.0	9012	3.82 µg/L	95
		527.1 -> 80.8	2352		
EtFOSAA	8.411	584.2 -> 419.1	3141	0.91 µg/L	m 96
		584.2 -> 526.0	1693		
FOSA	9.557	498.1 -> 77.9	5998	0.90 µg/L	100
		498.1 -> 478.0	231		
MeFOSAA	8.203	570.1 -> 419.0	4962	0.94 µg/L	m 95
		570.1 -> 483.0	797		
PFBA	3.007	212.8 -> 168.9	6593	3.89 µg/L	100
PFBS	5.518	298.7 -> 79.9	4614	0.88 µg/L	97
		298.7 -> 98.8	2173		
PFDA	8.158	512.9 -> 469.0	18928	0.96 µg/L	98
		512.9 -> 219.0	2736		
PFDODA	9.054	613.1 -> 569.0	16762	0.93 µg/L	99
		613.1 -> 319.0	1982		
PFDS	9.229	599.0 -> 79.9	2385	0.83 µg/L	97

7.3.2
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.503	599.0 -> 98.8	1218	0.95	µg/L	97
		363.1 -> 319.0	20679			
PFHpS	7.828	363.1 -> 169.0	3010	0.66	µg/L	66
		449.0 -> 79.9	2375			
PFHxA	5.578	449.0 -> 98.9	1890	1.00	µg/L	100
		313.0 -> 269.0	13734			
PFHxS	7.263	313.0 -> 118.9	501	0.87	µg/L	96
		398.7 -> 79.9	3572			
PFNA	7.677	398.7 -> 98.9	2066	0.84	µg/L	97
		463.0 -> 419.0	13613			
PFNS	8.798	463.0 -> 219.0	2591	0.85	µg/L	99
		548.8 -> 79.9	3216			
PFOA	7.148	548.8 -> 98.9	1886	1.00	µg/L	98
		413.0 -> 369.0	27673			
PFOS	8.334	413.0 -> 169.0	3803	0.91	µg/L	97
		498.9 -> 79.9	3542			
PFPeA	4.402	498.9 -> 98.8	2261	1.93	µg/L	100
		263.0 -> 219.0	16217			
PFPeS	6.581	349.1 -> 79.9	4207	0.88	µg/L	97
		349.1 -> 98.9	2389			
PFTeDA	9.781	713.1 -> 669.0	12633	1.03	µg/L	98
		713.1 -> 168.9	856			
PFTrDA	9.437	663.0 -> 619.0	14779	0.86	µg/L	100
		663.0 -> 168.9	1151			
PFUnDA	8.612	563.1 -> 519.0	16099	0.97	µg/L	96
		563.1 -> 269.1	2088			
11CI-PF3OUdS	9.489	630.9 -> 450.9	34635	3.37	µg/L	97
		632.9 -> 452.9	10014			
9CI-PF3ONS	8.663	530.8 -> 351.0	63620	3.67	µg/L	97
		532.8 -> 353.0	20445			
ADONA	6.753	376.9 -> 250.9	116063	3.74	µg/L	99
		376.9 -> 84.8	24883			
HFPO-DA	5.940	284.9 -> 168.9	4724	3.53	µg/L	95
		284.9 -> 184.9	611			
3:3FTCA	3.878	241.0 -> 177.0	1534	3.71	µg/L	99
		241.0 -> 117.0	191			
5:3FTCA	6.206	341.0 -> 237.1	70594	24.60	µg/L	98
		341.0 -> 217.0	61585			
7:3FTCA	7.605	441.0 -> 316.9	37029	19.74	µg/L	96
		441.0 -> 336.9	76930			
EtFOSA	10.927	526.0 -> 219.0	2683	0.96	µg/L	82
		526.0 -> 169.0	2444			
EtFOSE	10.860	630.0 -> 58.9	5360	8.36	µg/L	100
		511.9 -> 219.0	2256			
MeFOSA	10.682	511.9 -> 169.0	2327	0.97	µg/L	86
		616.1 -> 58.9	7926			
MeFOSE	10.602	699.1 -> 79.9	1125	9.52	µg/L	100
		699.1 -> 98.8	795			
PFDoDS	9.920	295.0 -> 201.0	1806	0.65	µg/L	95
		295.0 -> 84.9	780			
NFDHA	5.457	279.0 -> 85.1	4938	2.09	µg/L	100
		229.0 -> 84.9	4492			
PFMBA	4.800	314.8 -> 134.9	33811	1.71	µg/L	100
		314.8 -> 82.9	797			

7.3.2
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= Qualifier out of range, m = manually integrated, + = Area summed



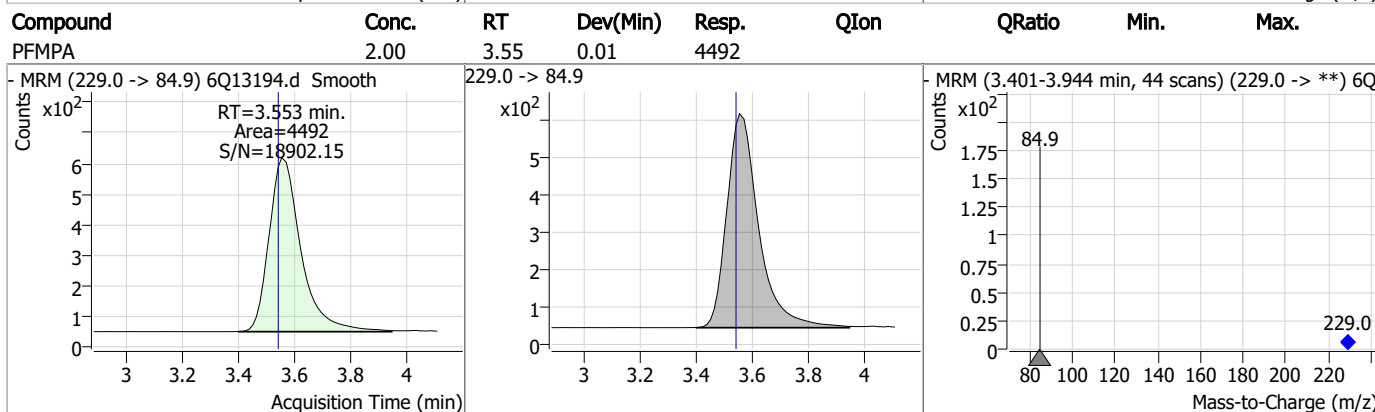
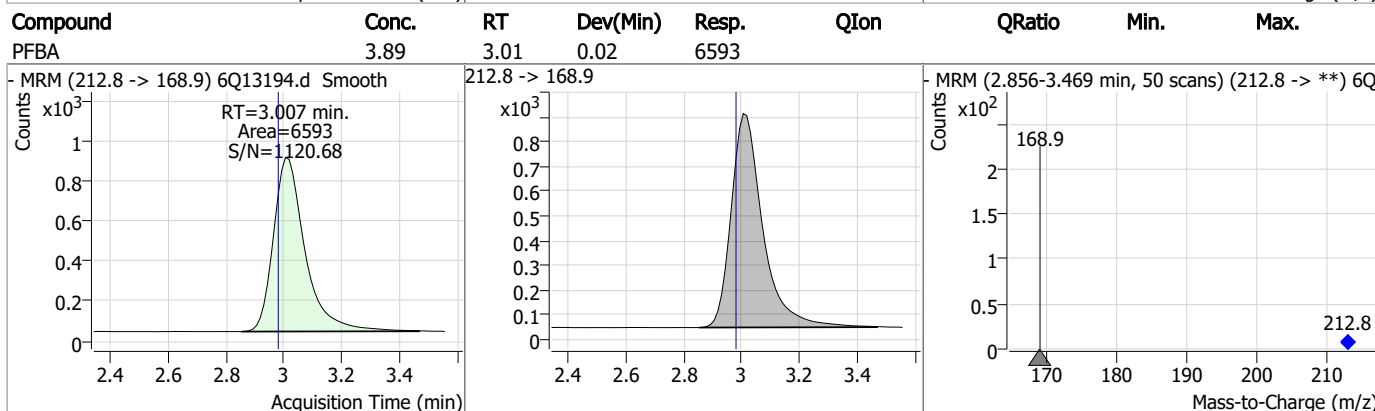
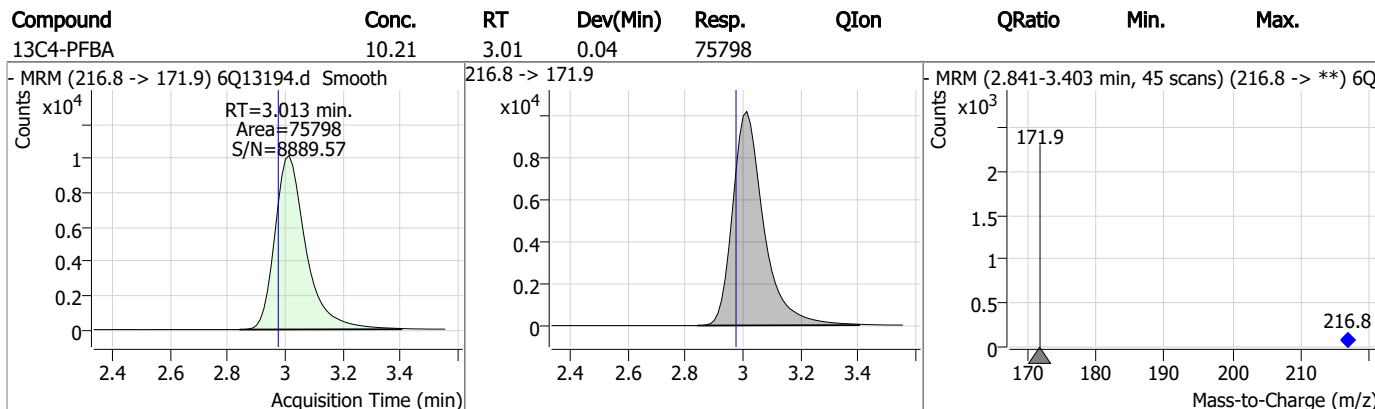
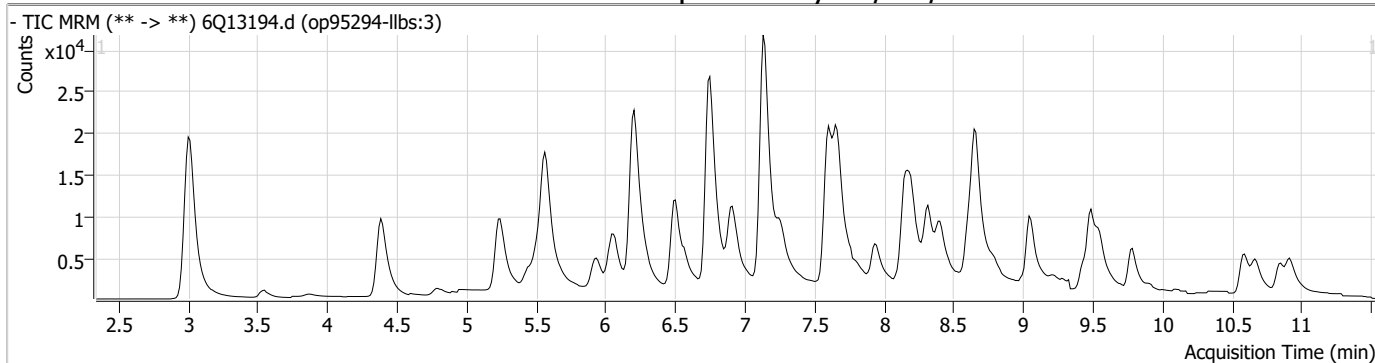
Perfluorinated Compounds by LC/MS/MS

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

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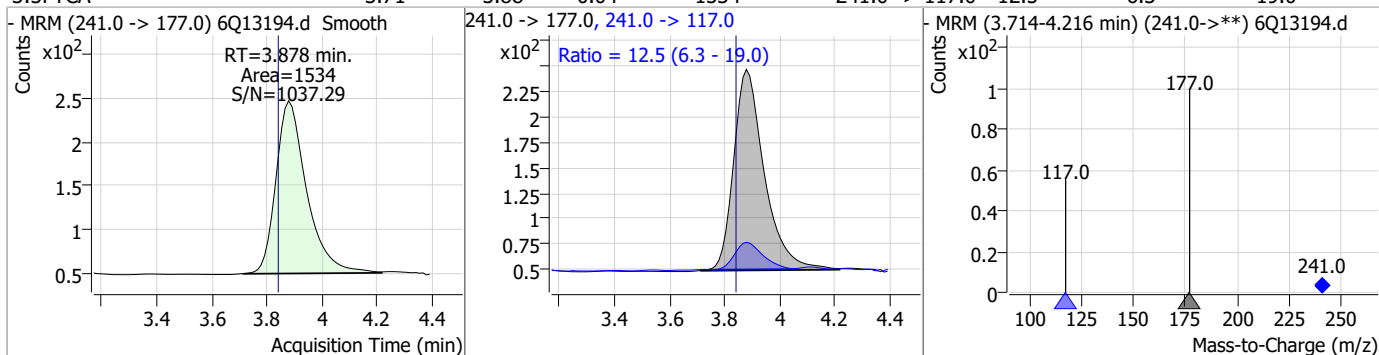
Perfluorinated Compounds by LC/MS/MS



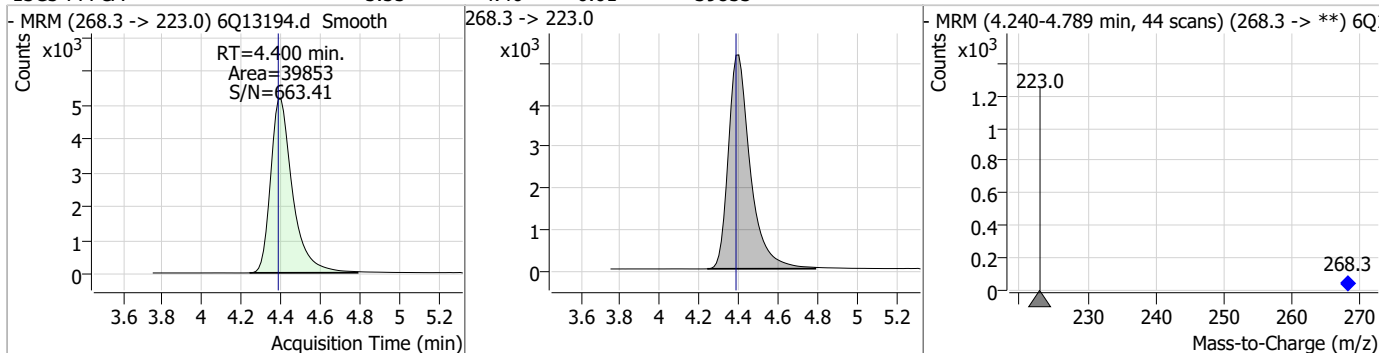
7.3.2
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Perfluorinated Compounds by LC/MS/MS

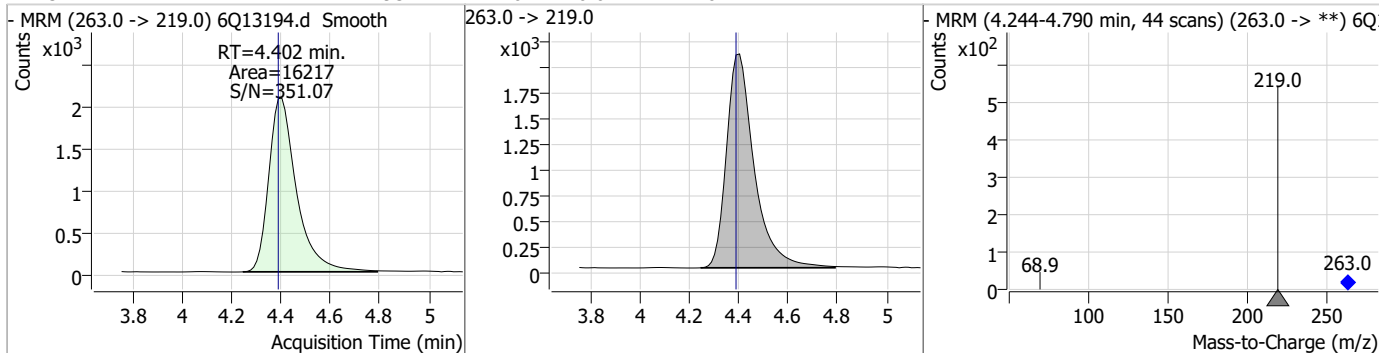
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	3.71	3.88	0.04	1534	241.0 -> 117.0	12.5	6.3	19.0



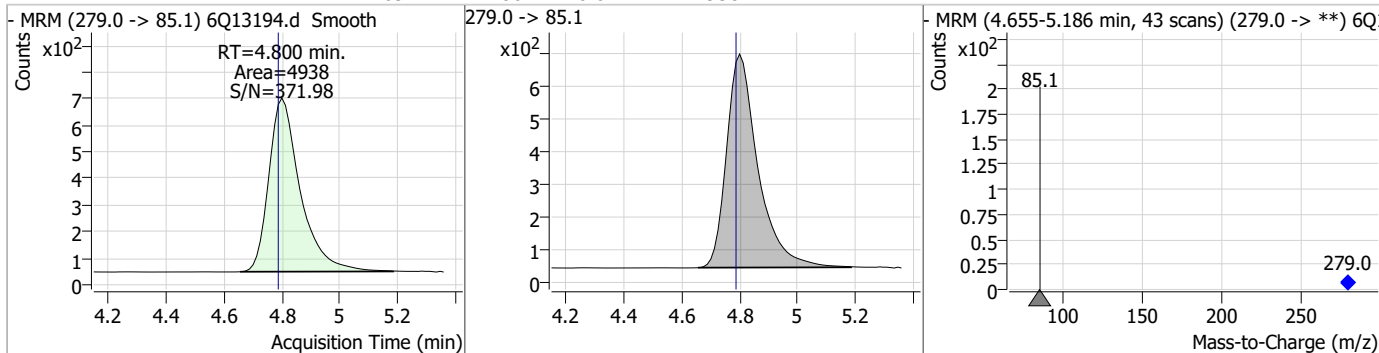
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.55	4.40	0.01	39853				



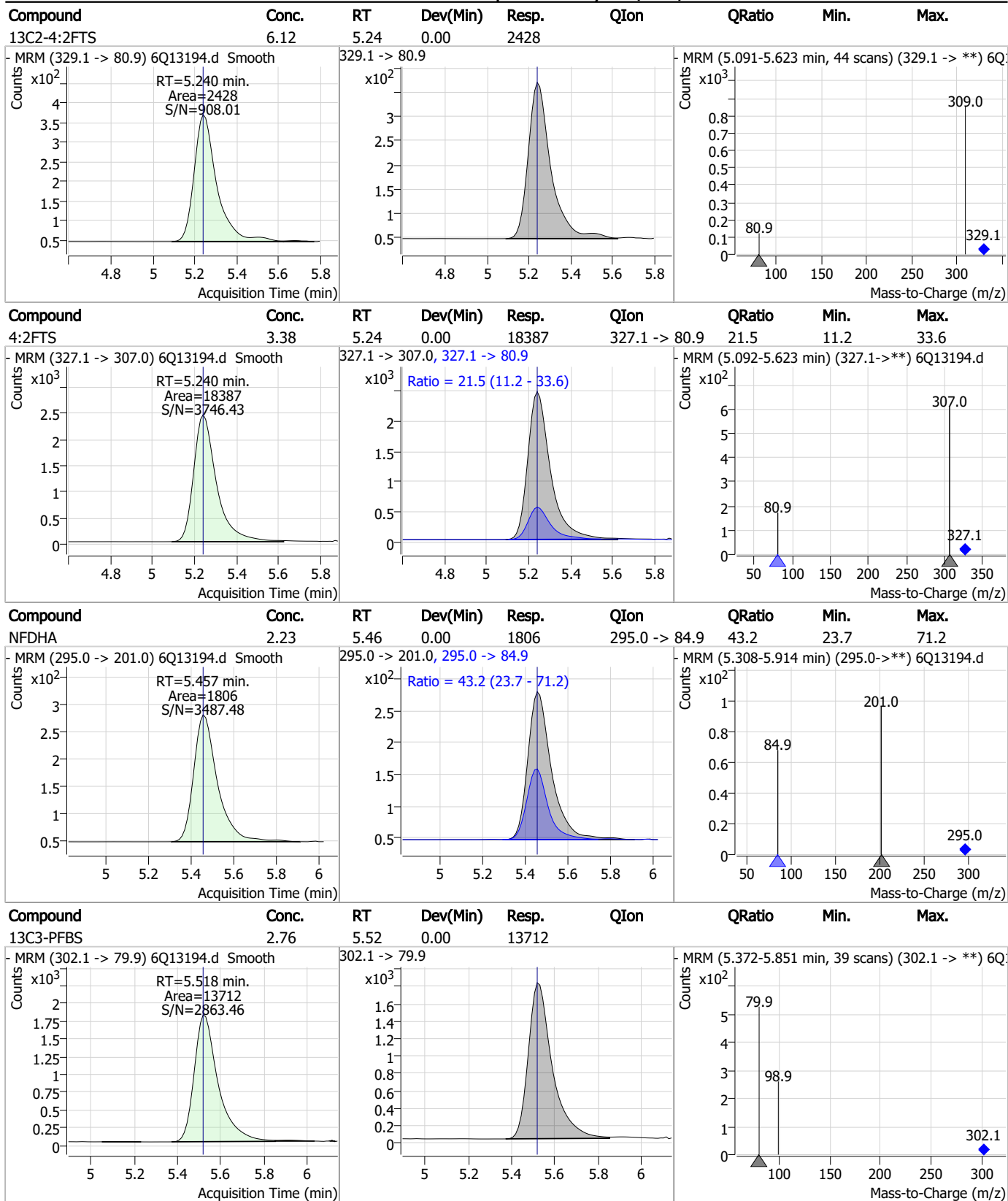
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.93	4.40	0.01	16217				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	2.09	4.80	0.01	4938				



Perfluorinated Compounds by LC/MS/MS

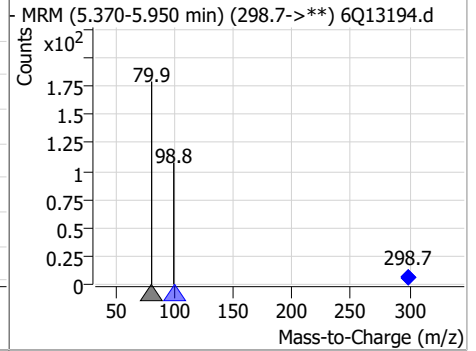
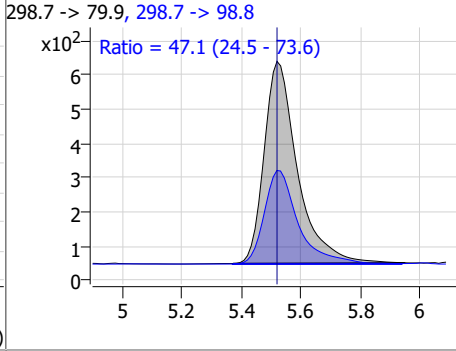
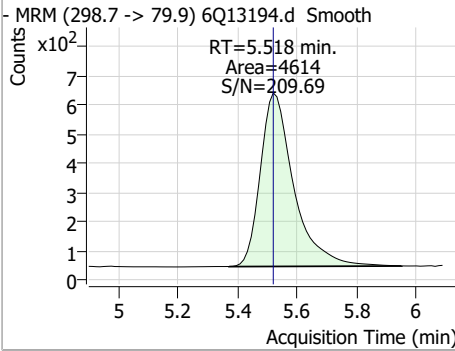


7.3.2
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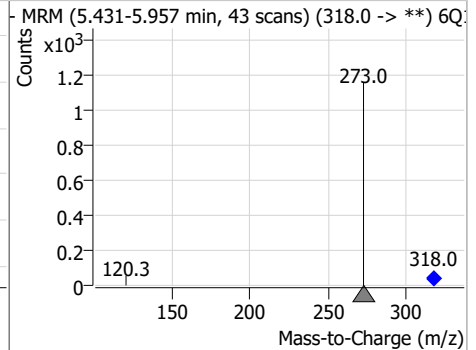
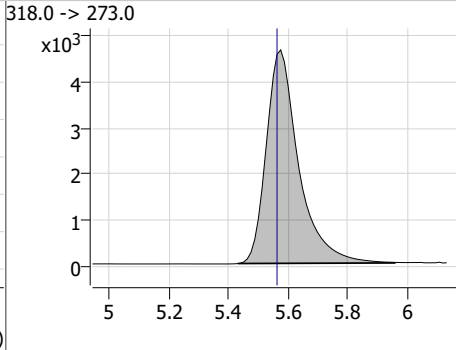
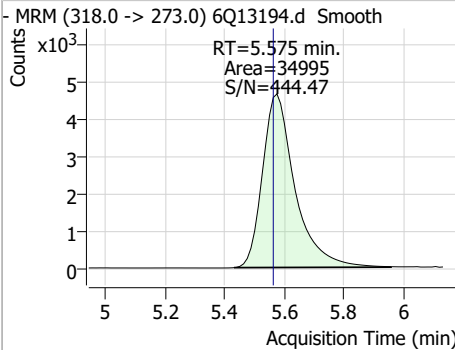


Perfluorinated Compounds by LC/MS/MS

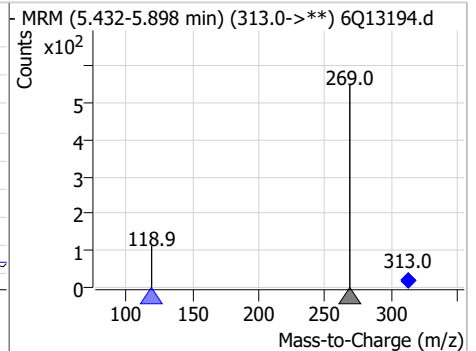
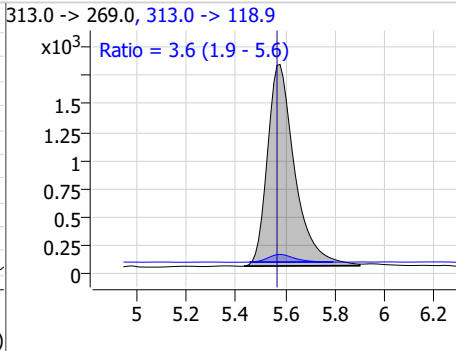
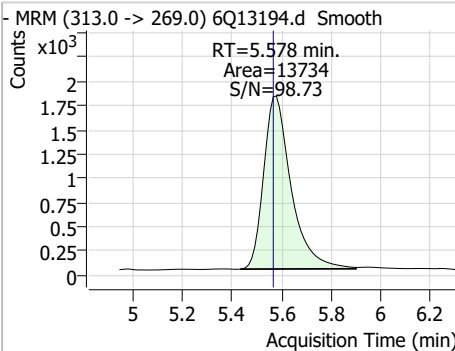
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.88	5.52	0.00	4614	298.7 -> 98.8	47.1	24.5	73.6



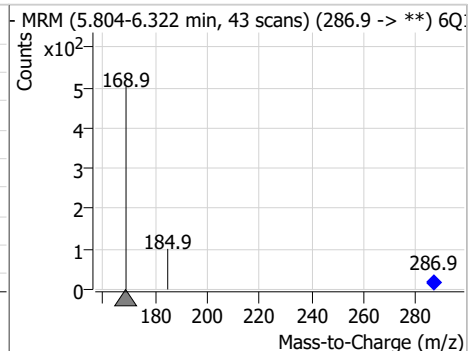
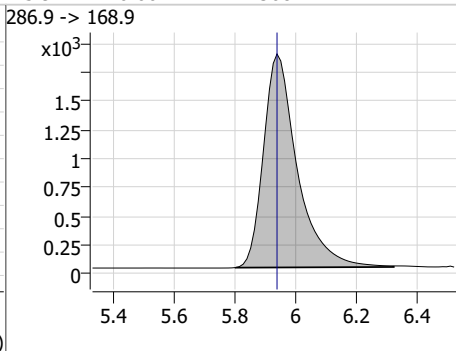
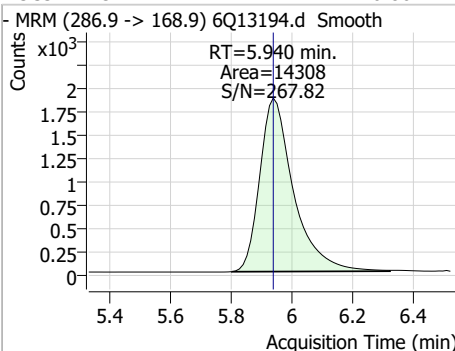
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.74	5.57	0.01	34995	318.0 -> 273.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.00	5.58	0.01	13734	313.0 -> 118.9	3.6	1.9	5.6

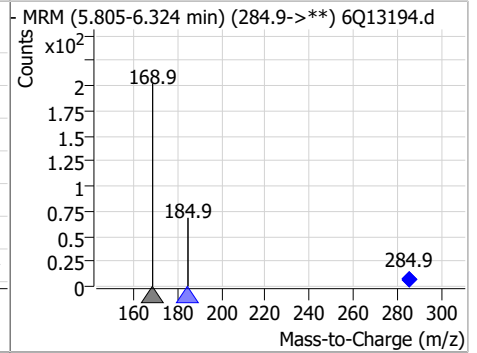
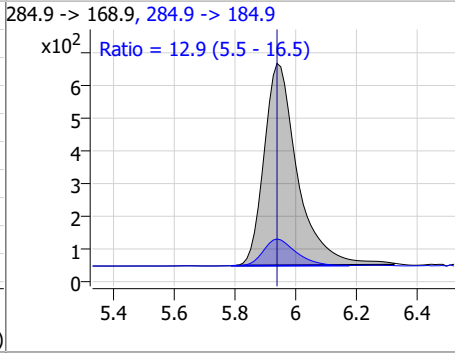
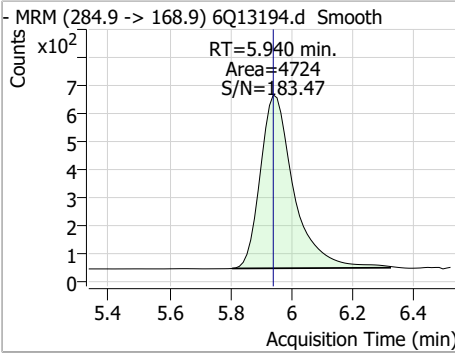


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.86	5.94	0.00	14308	286.9 -> 168.9			

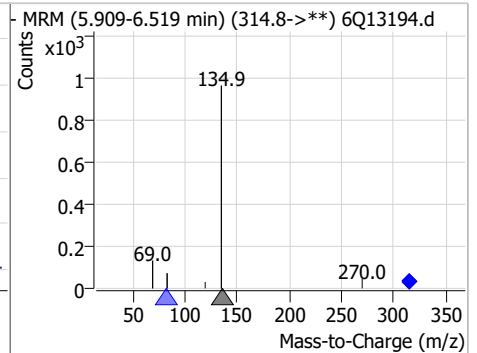
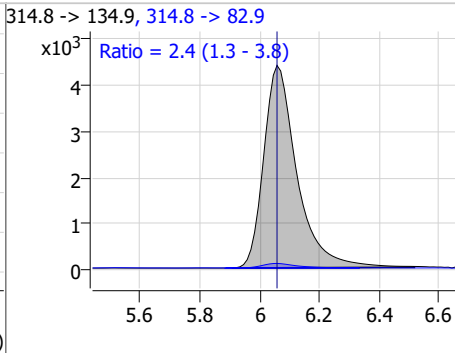
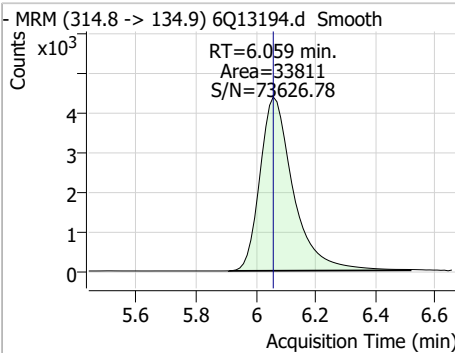


Perfluorinated Compounds by LC/MS/MS

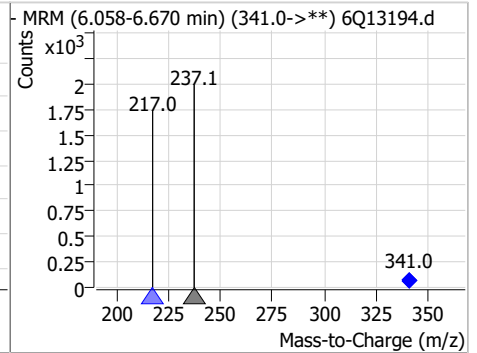
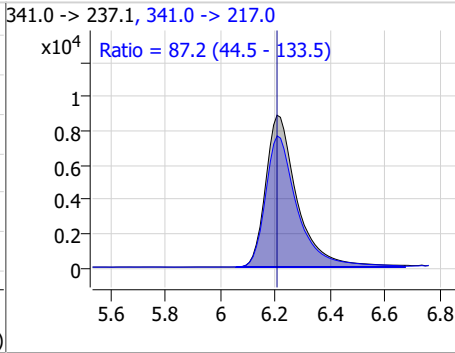
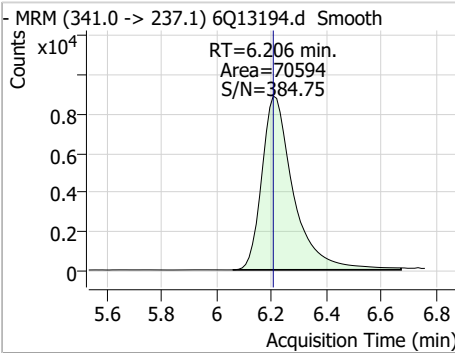
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	3.53	5.94	0.00	4724	284.9 -> 184.9	12.9	5.5	16.5



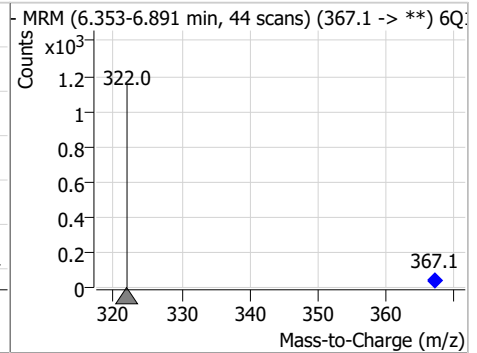
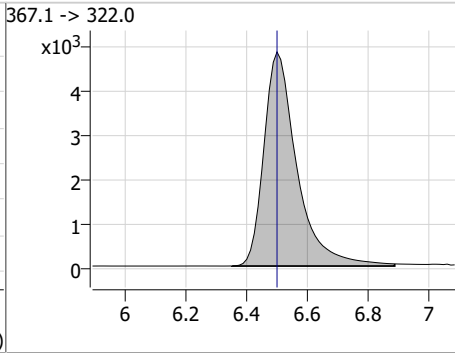
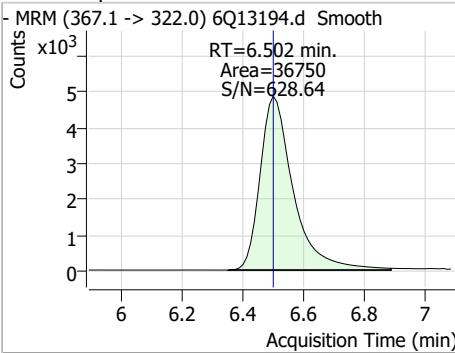
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	1.71	6.06	0.00	33811	314.8 -> 82.9	2.4	1.3	3.8



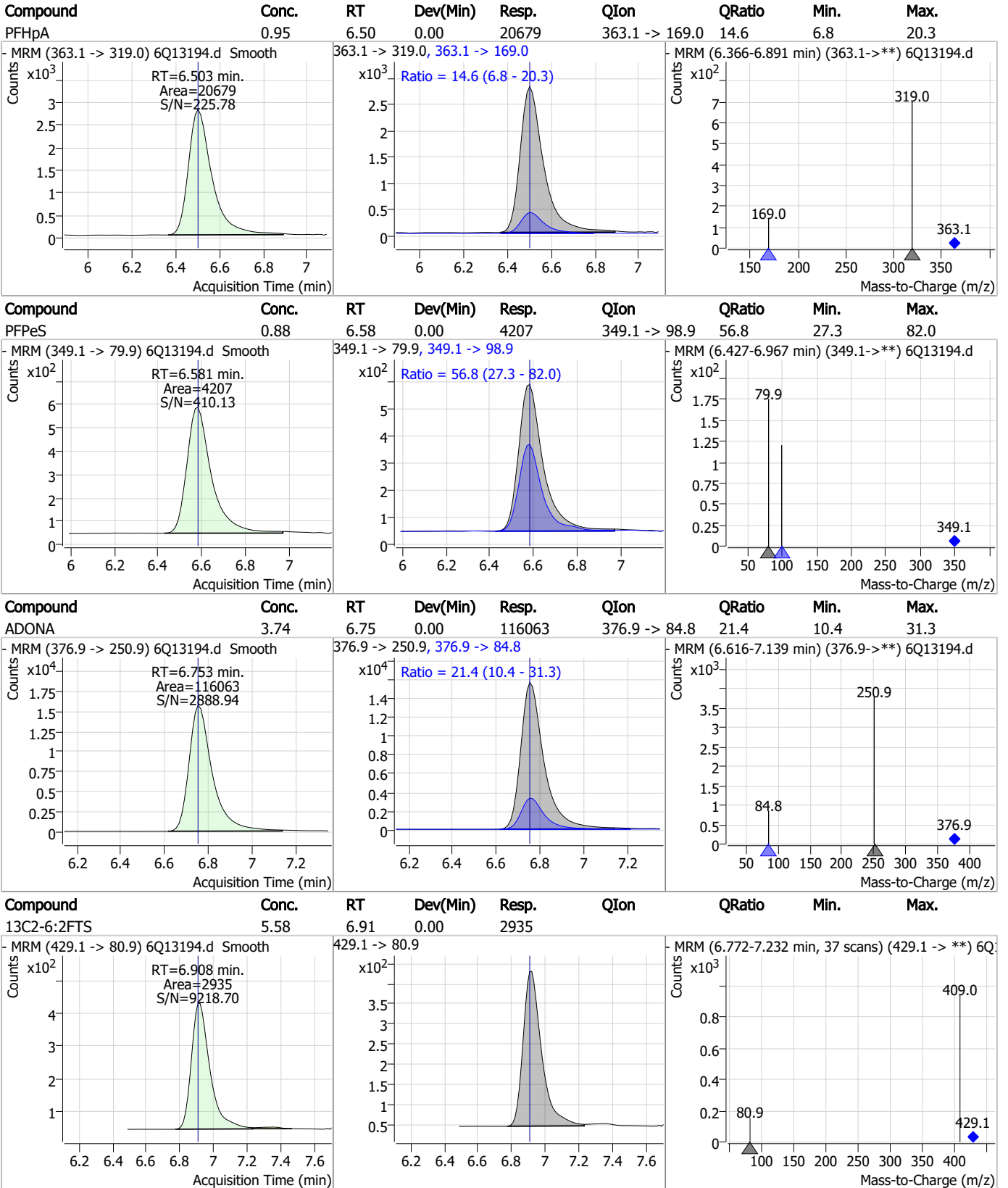
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	24.60	6.21	0.00	70594	341.0 -> 217.0	87.2	44.5	133.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.76	6.50	0.00	36750	367.1 -> 322.0			



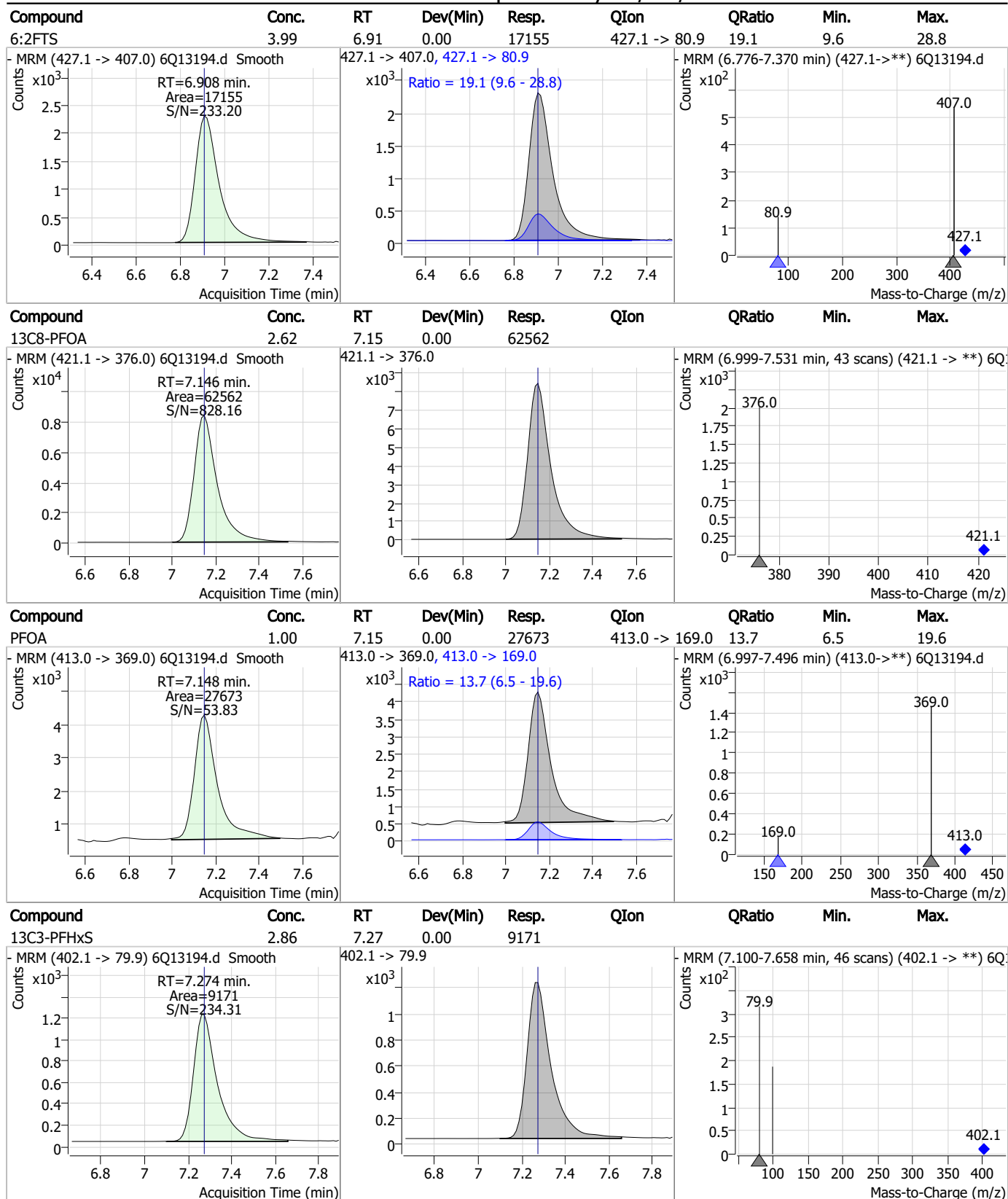
Perfluorinated Compounds by LC/MS/MS



7.3.2
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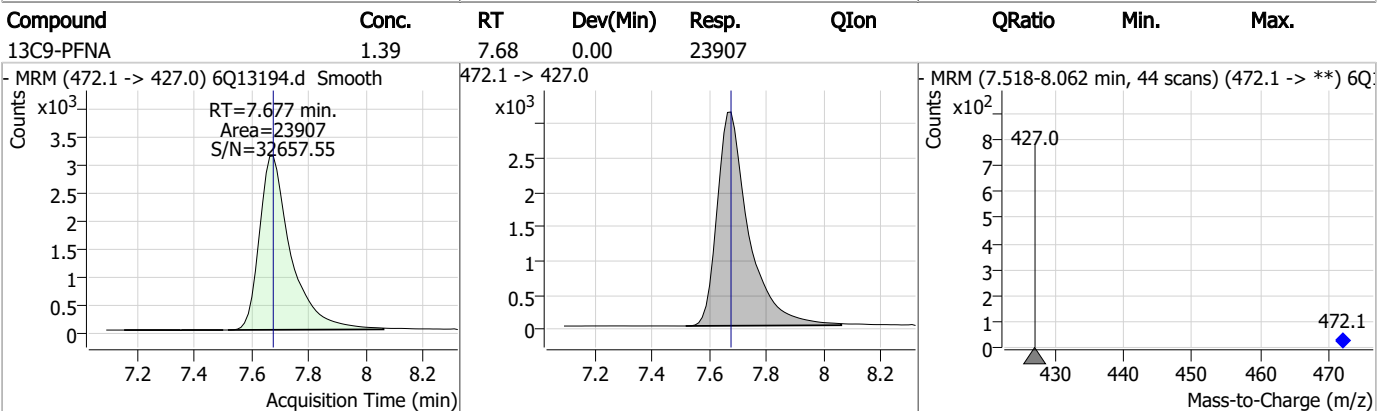
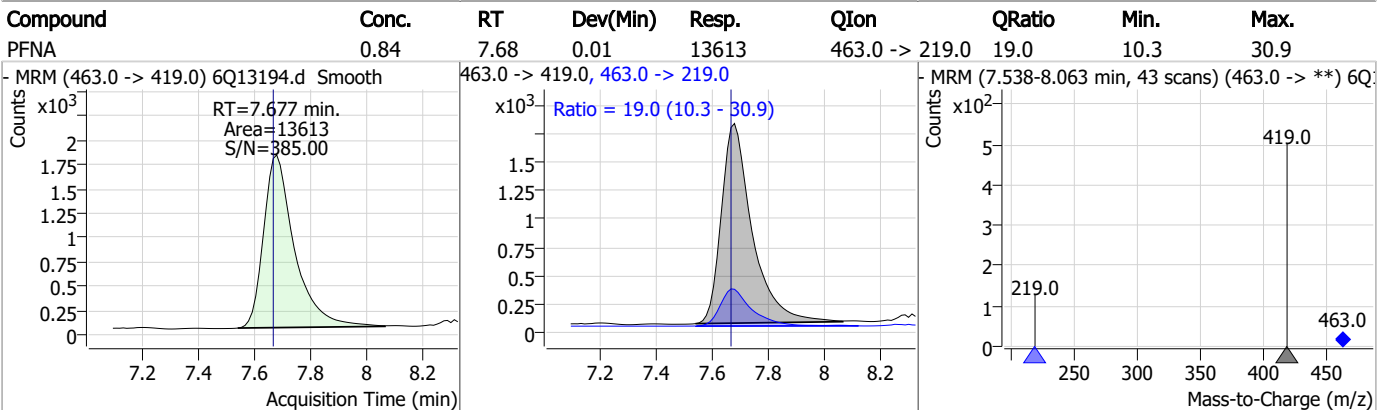
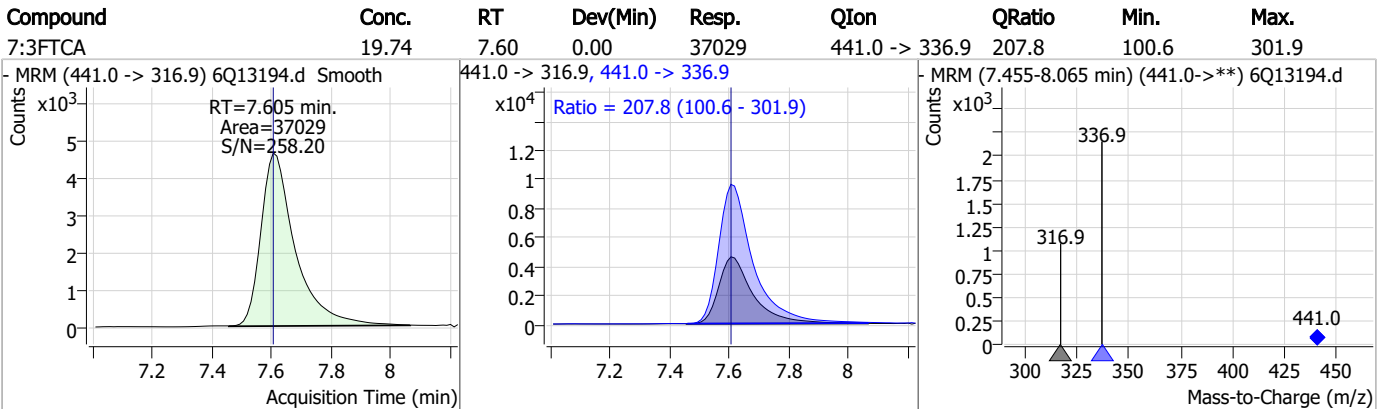
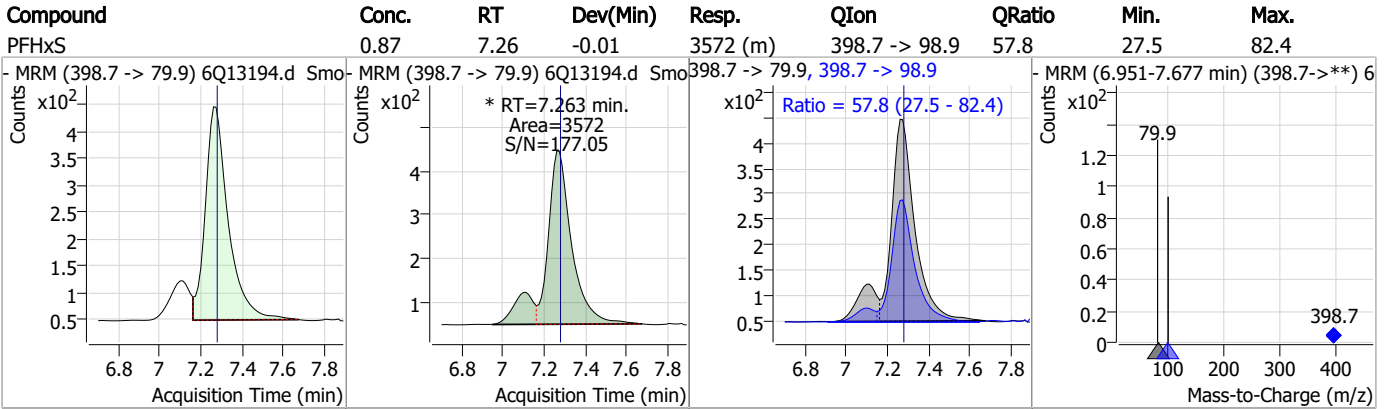


Perfluorinated Compounds by LC/MS/MS

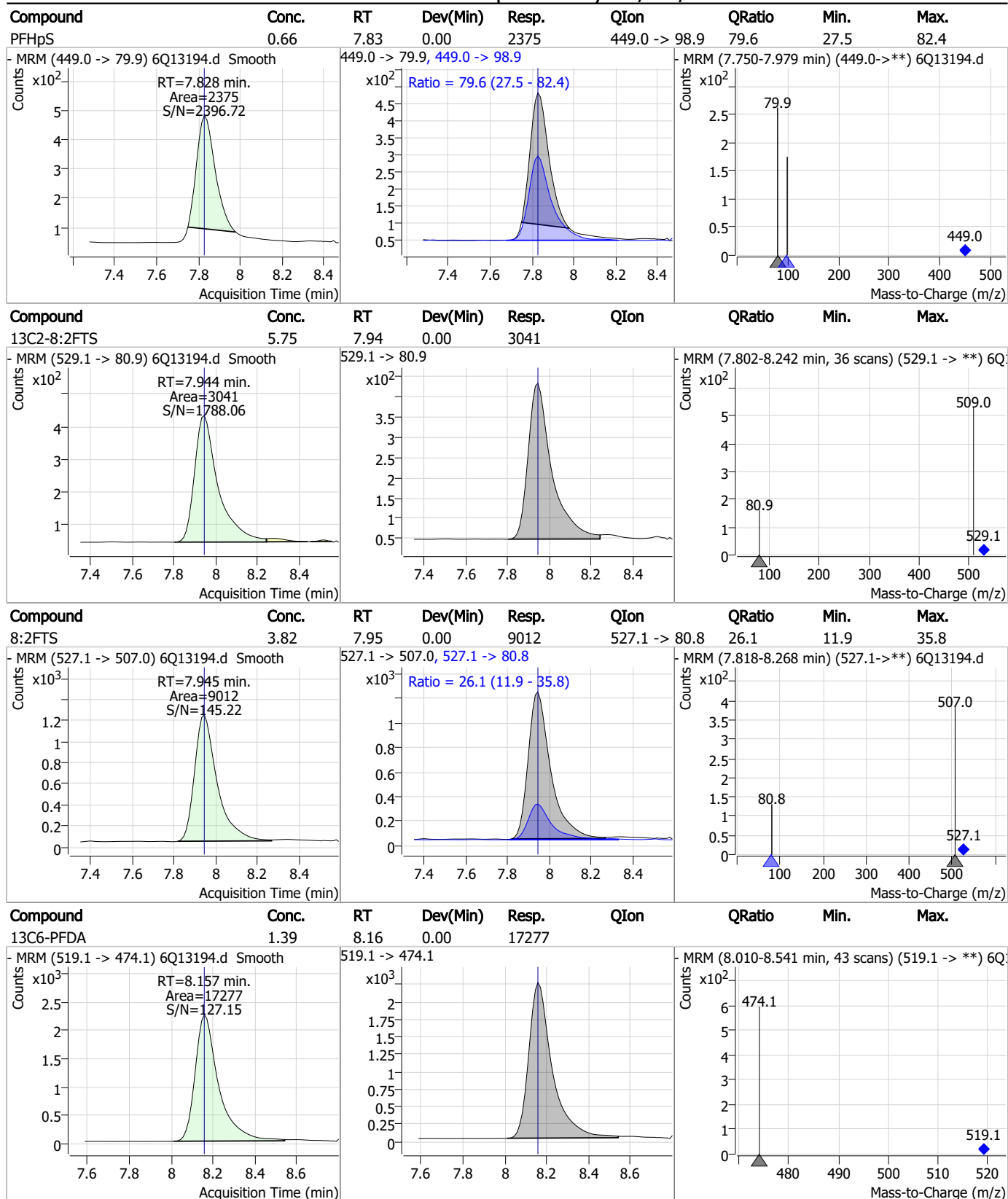


7.3.2
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Perfluorinated Compounds by LC/MS/MS

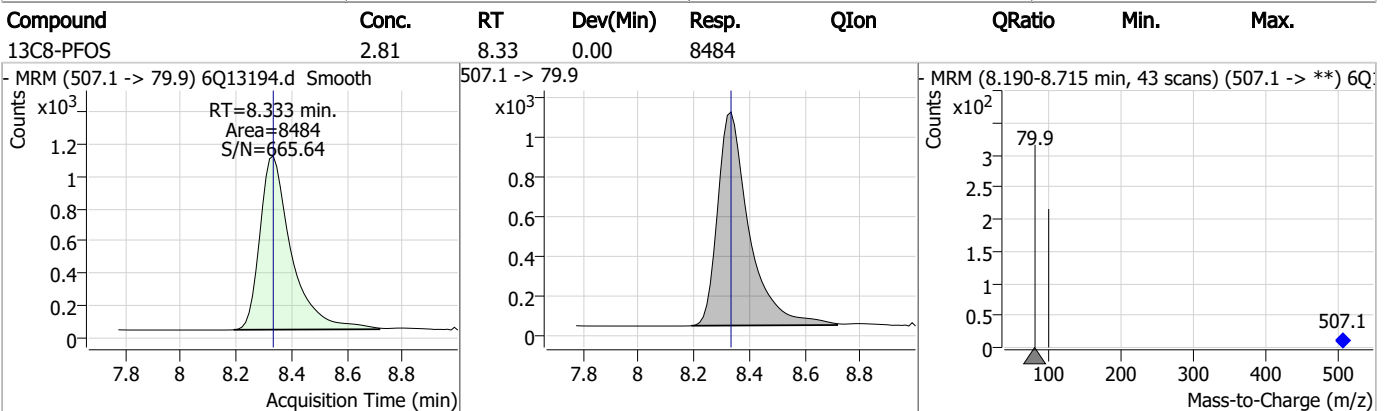
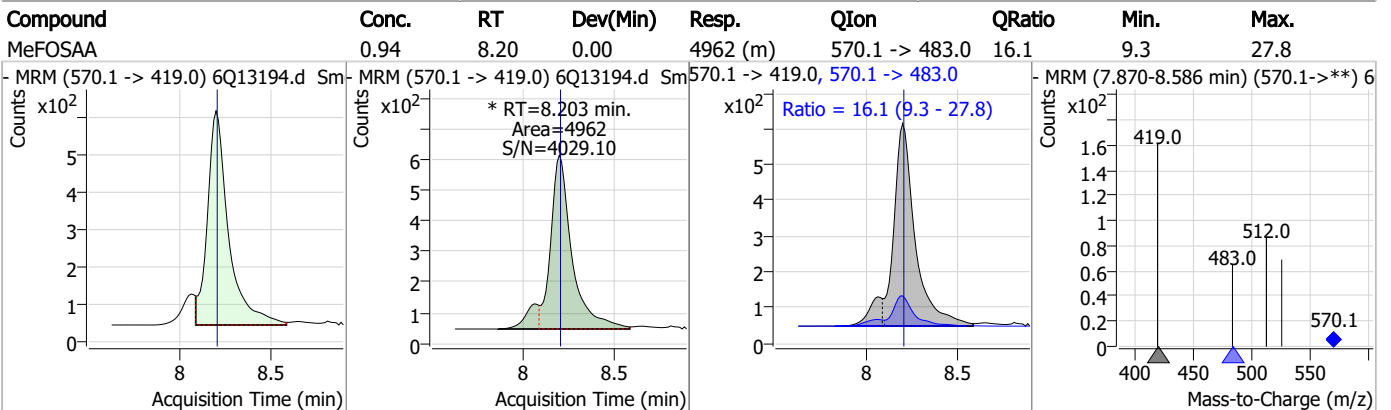
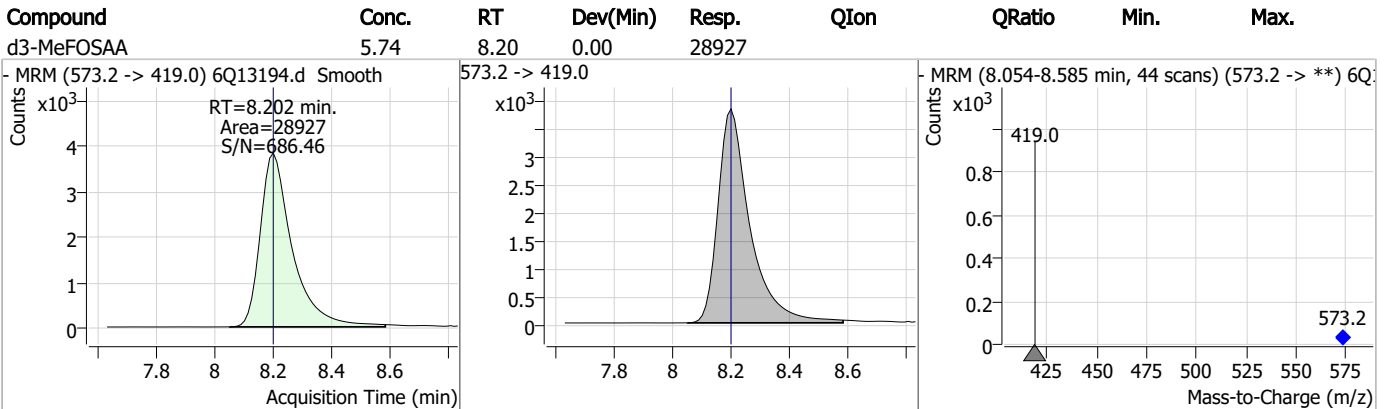
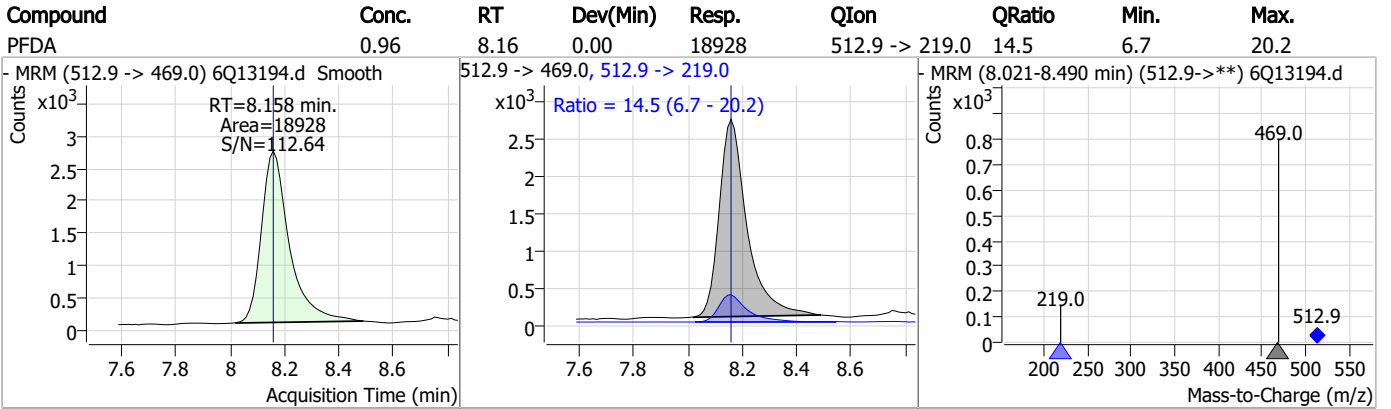


Perfluorinated Compounds by LC/MS/MS



7.3.2
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Perfluorinated Compounds by LC/MS/MS

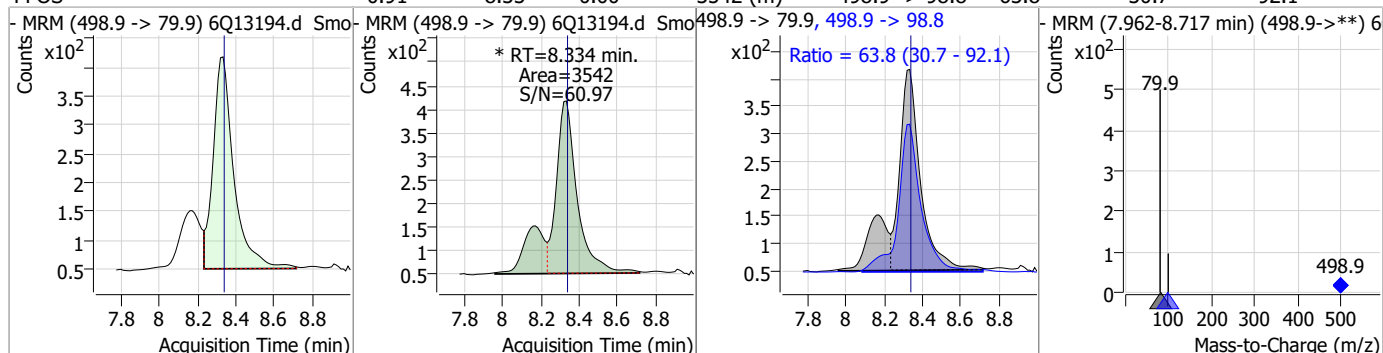


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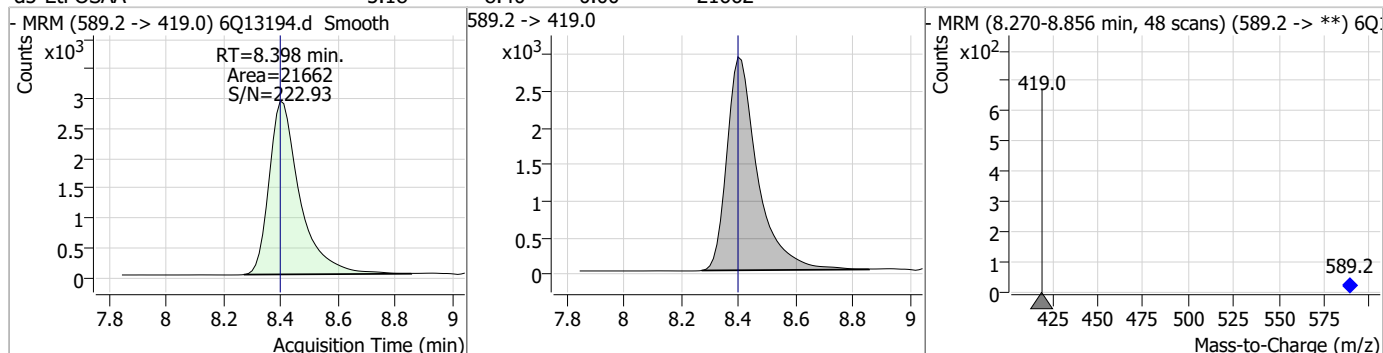
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Perfluorinated Compounds by LC/MS/MS

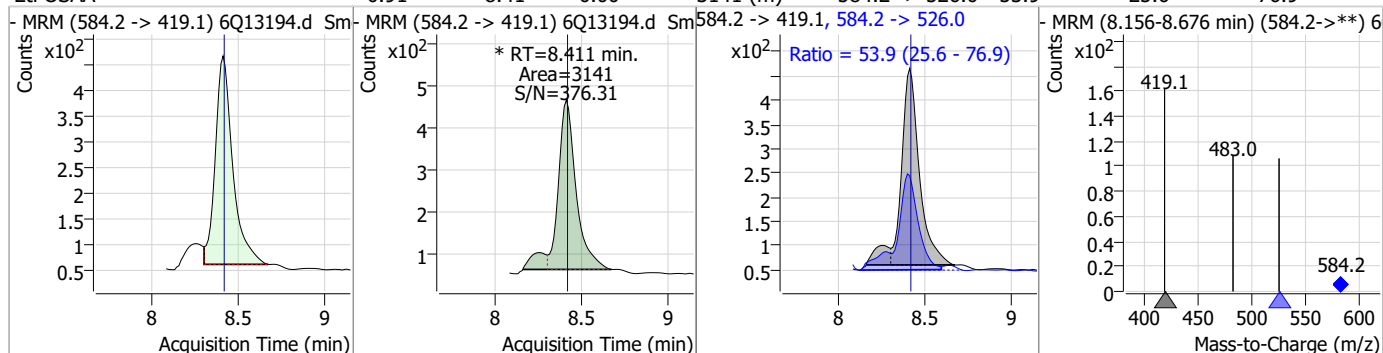
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.91	8.33	0.00	3542 (m)	498.9 -> 98.8	63.8	30.7	92.1



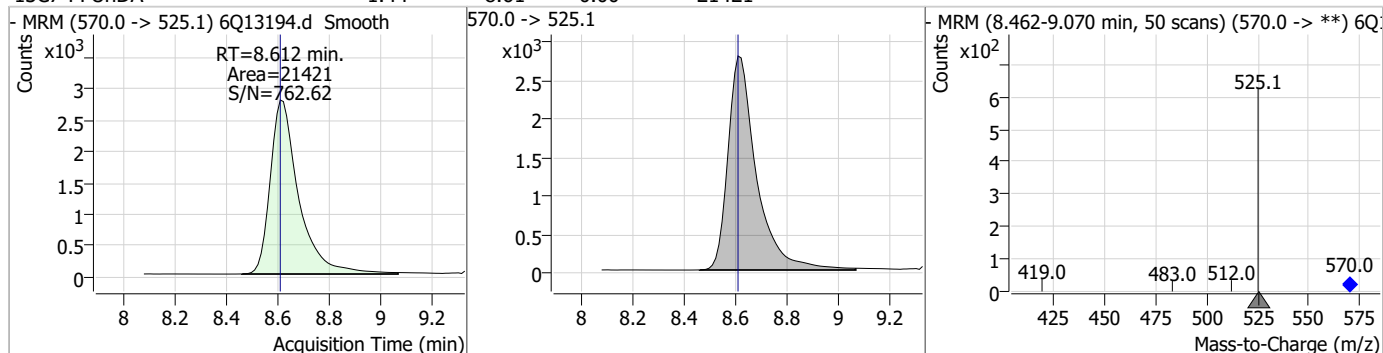
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.18	8.40	0.00	21662				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.91	8.41	0.00	3141 (m)	584.2 -> 526.0	53.9	25.6	76.9

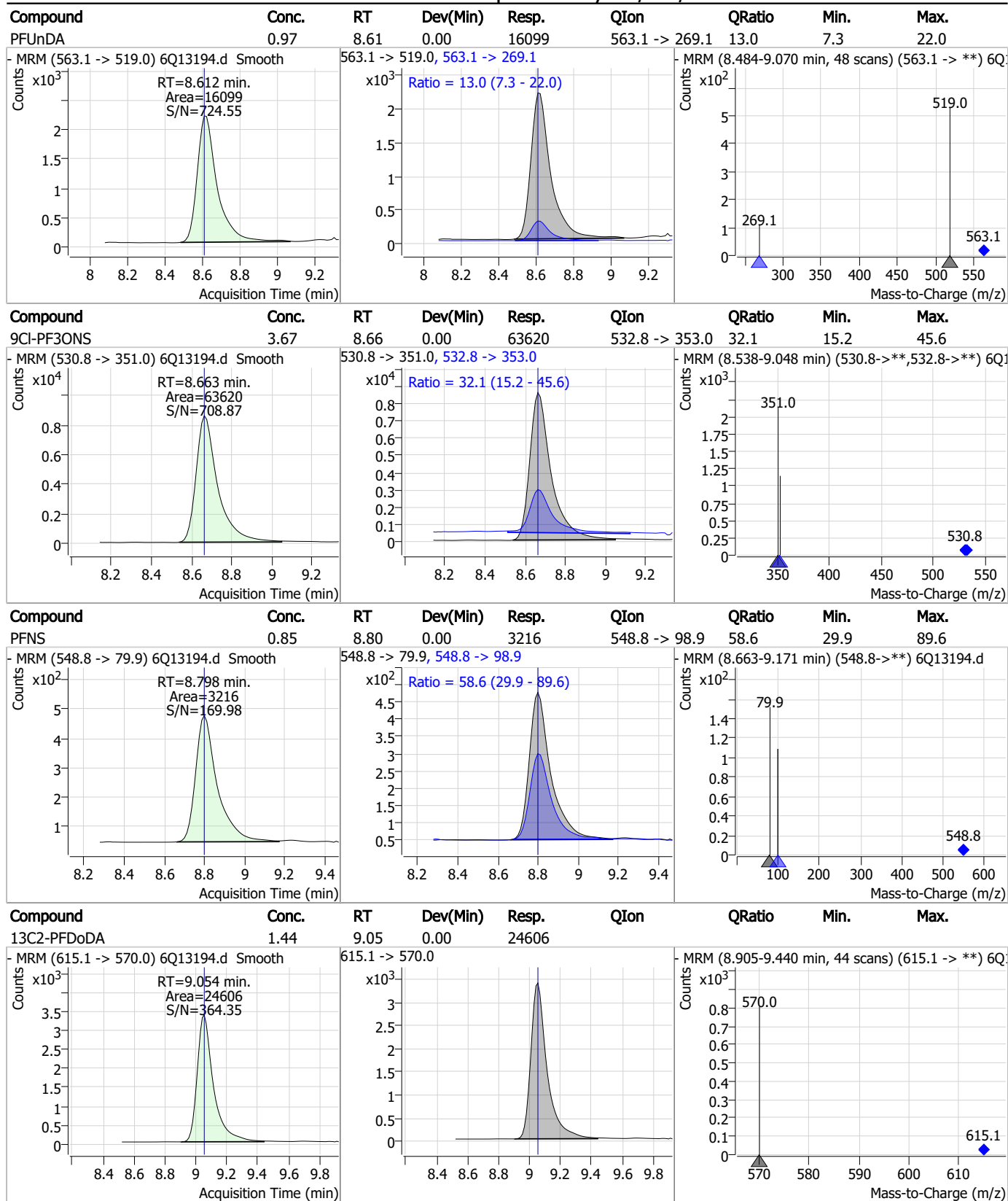


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.44	8.61	0.00	21421				



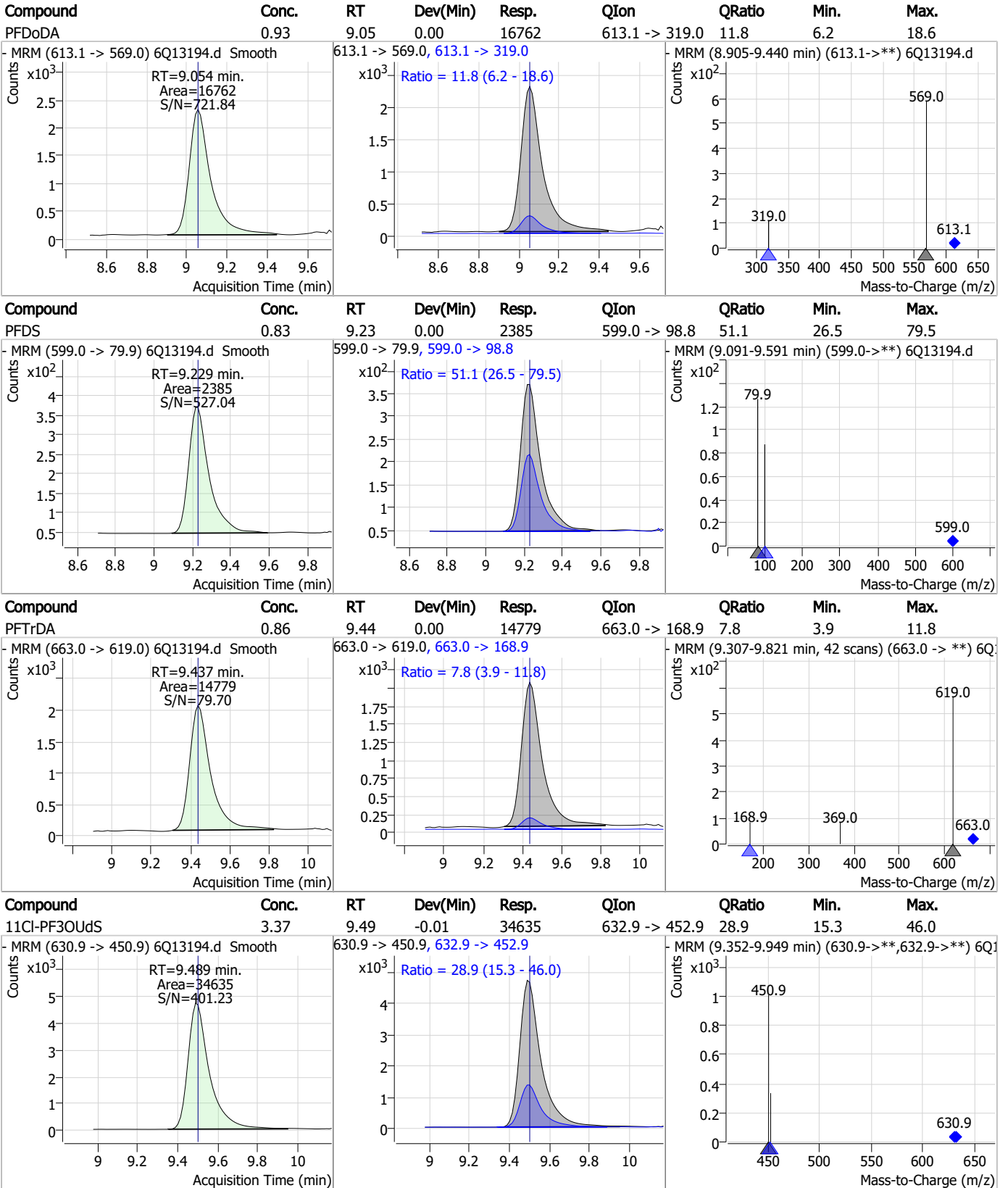
7.3.2
7

Perfluorinated Compounds by LC/MS/MS



7.3.2
7

Perfluorinated Compounds by LC/MS/MS



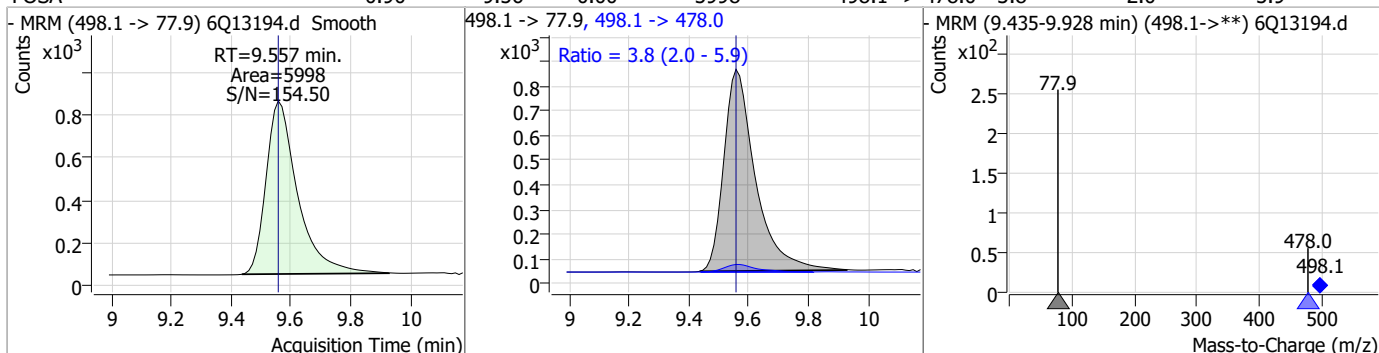
7.3.2

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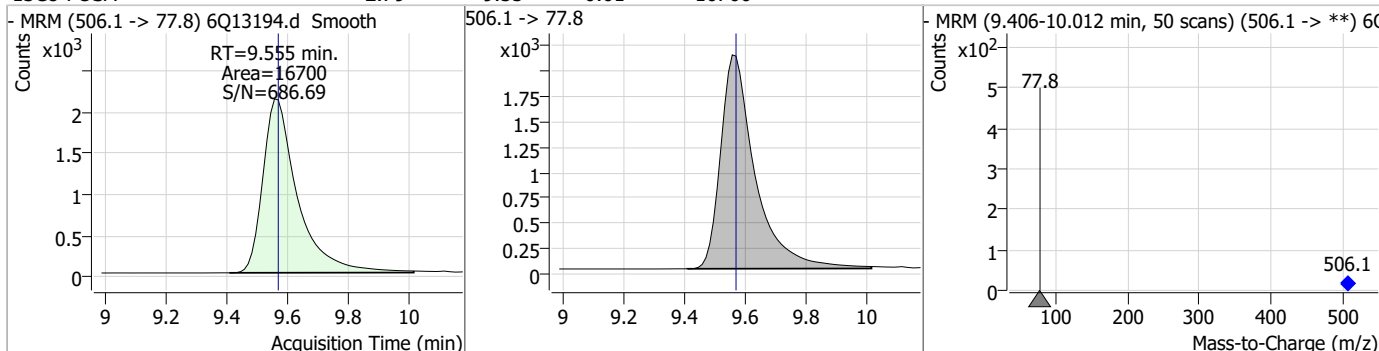


Perfluorinated Compounds by LC/MS/MS

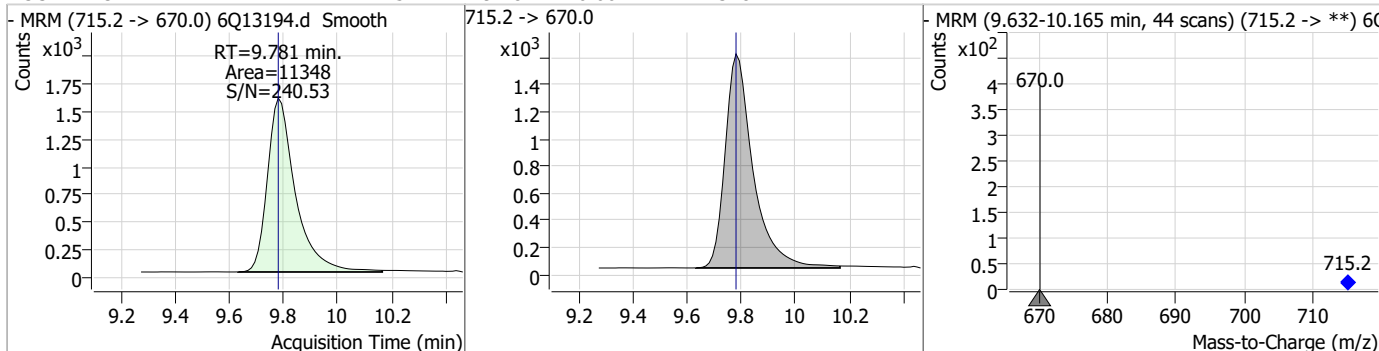
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.90	9.56	0.00	5998	498.1 -> 478.0	3.8	2.0	5.9



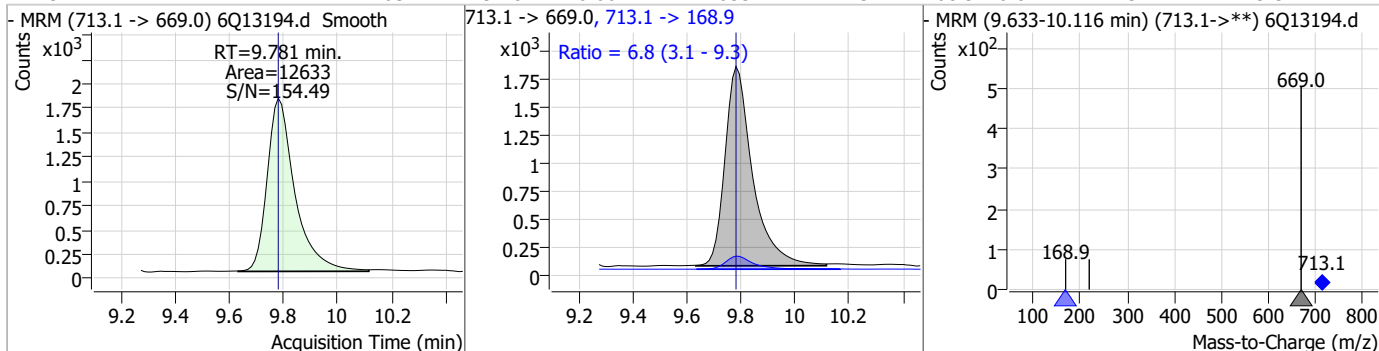
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.79	9.55	-0.01	16700				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.15	9.78	0.00	11348				



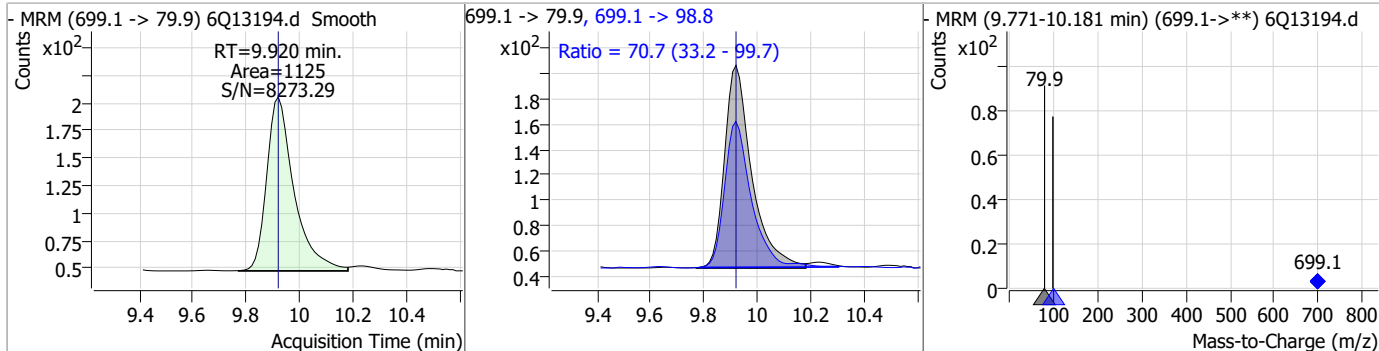
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.03	9.78	0.00	12633	713.1 -> 168.9	6.8	3.1	9.3



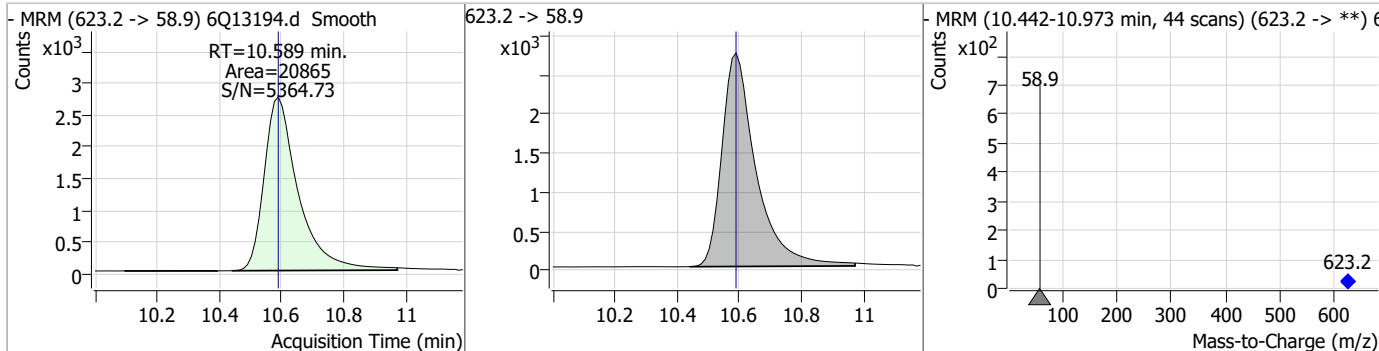
7.3.2
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Perfluorinated Compounds by LC/MS/MS

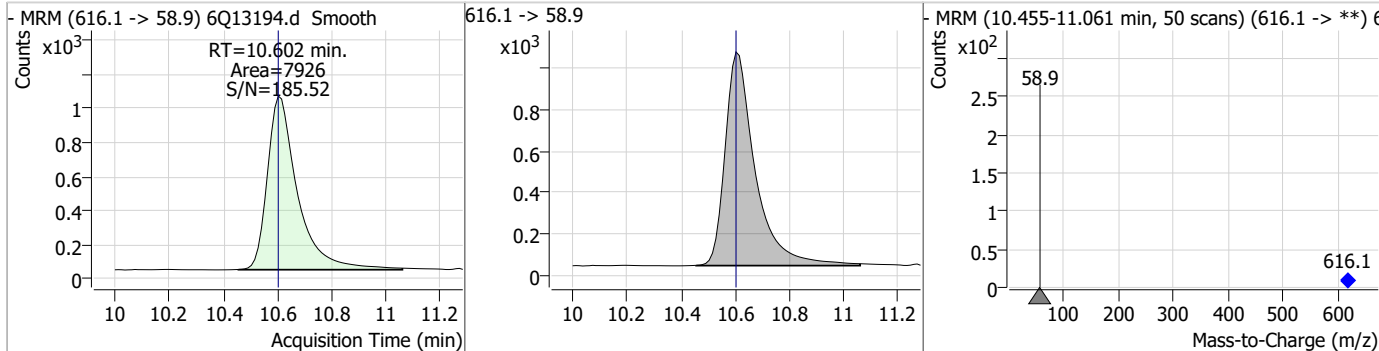
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.65	9.92	0.00	1125	699.1 -> 98.8	70.7	33.2	99.7



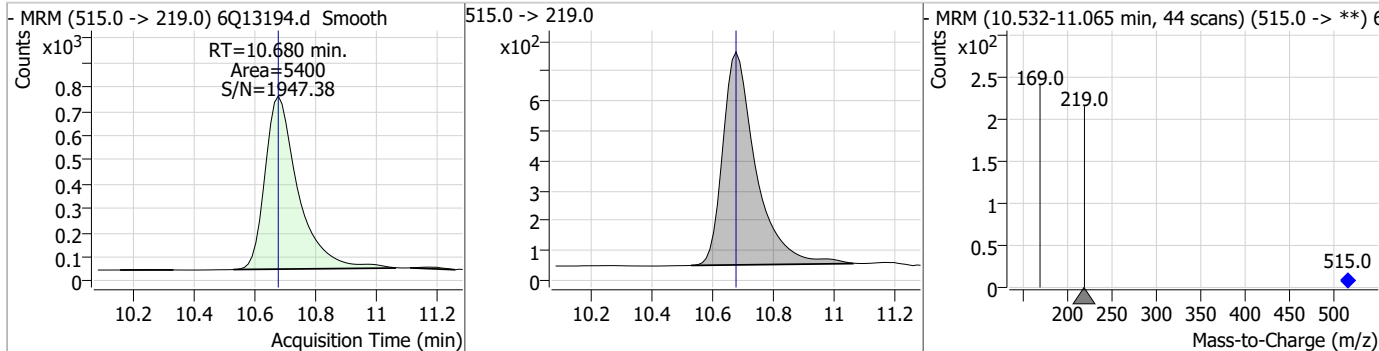
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	20.00	10.59	0.00	20865				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	9.52	10.60	0.00	7926				



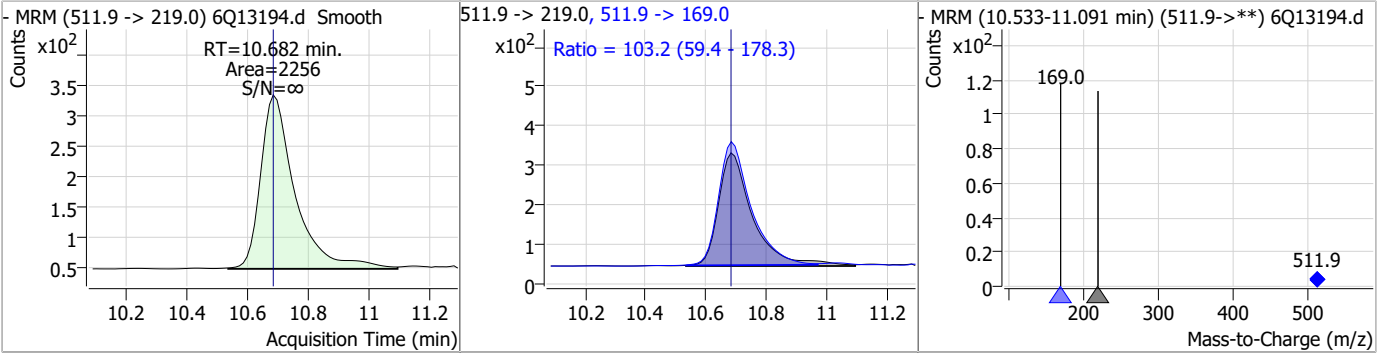
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.09	10.68	0.00	5400				



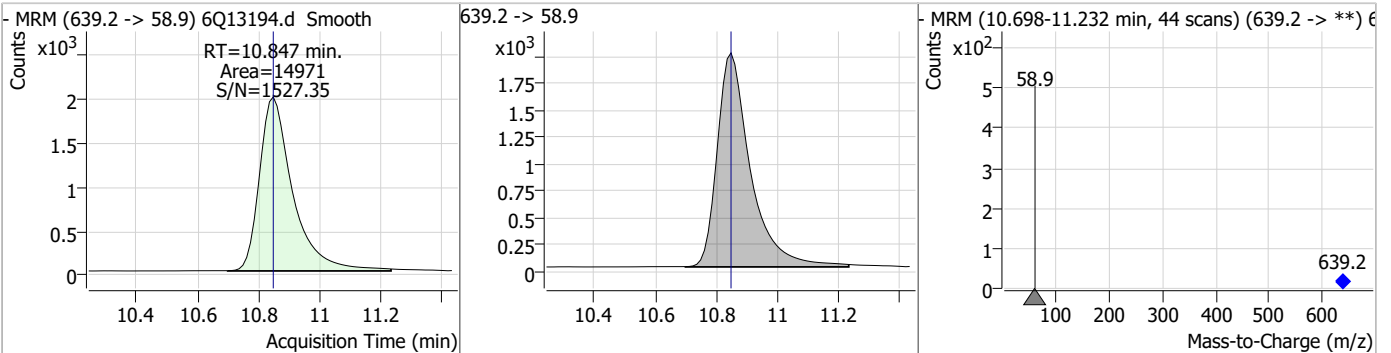
7.3.2
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Perfluorinated Compounds by LC/MS/MS

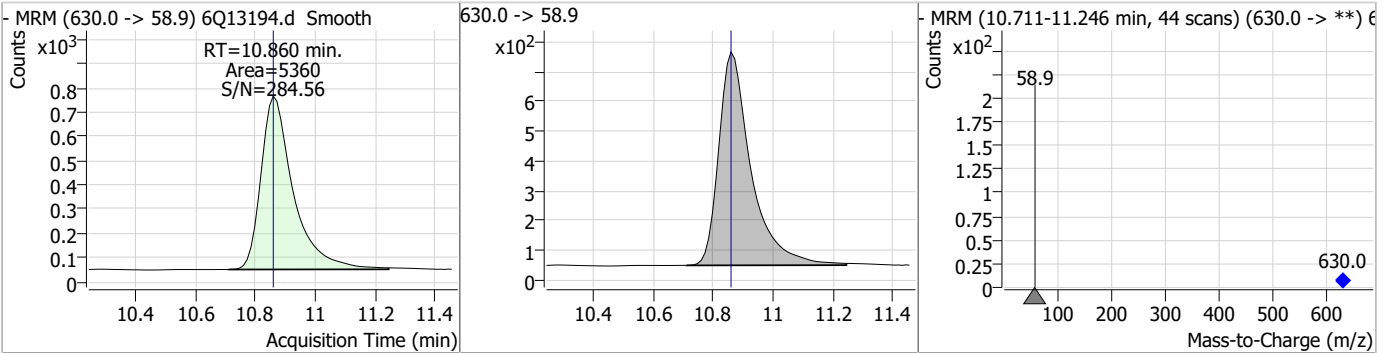
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.97	10.68	0.00	2256	511.9 -> 169.0	103.2	59.4	178.3



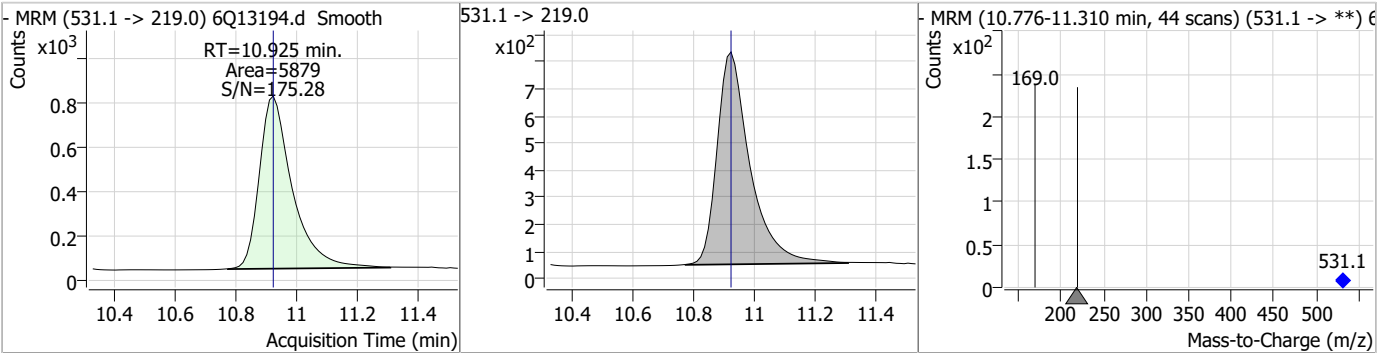
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	20.82	10.85	0.00	14971				



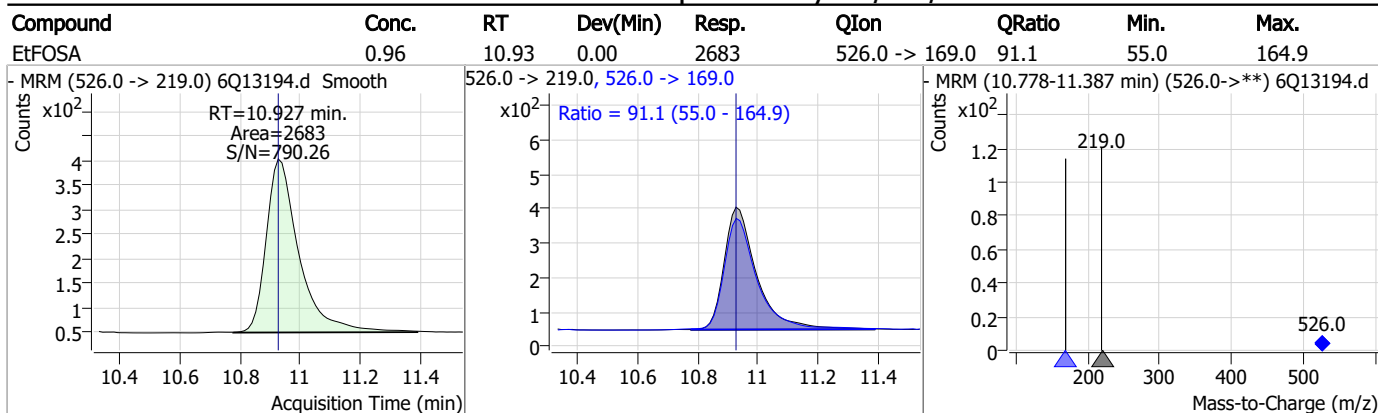
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	8.36	10.86	0.00	5360				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.10	10.92	0.00	5879				



Perfluorinated Compounds by LC/MS/MS



7.3.2
7

Manual Integration Approval Summary

Sample Number: OP95294-LLBS Method: EPA DRAFT 1633
Lab FileID: 6Q13194.D Analyst approved: 02/08/23 10:34 Martha Valls
Injection Time: 02/07/23 12:11 Supervisor approved: 02/08/23 11:28 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.26	Split peak
MeFOSAA	2355-31-9		8.20	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.41	Split peak

7.3.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13215.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/8/2023 11:31:11 AM
 Sample Name : op95294-bs
 Vial : P3-C4
 DA Method File : 1633_020223_S6Q196.quantmethod.xml
 Batch Name : s6q202.batch.bin
 Sample Information : OP95294,S6Q202,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.988	216.8 -> 171.9	15802	10.00 µg/L	0.012
M5-PFPeA	4.386	268.3 -> 223.0	41156	5.00 µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	39288	2.50 µg/L	0.000
M4-PFHpA	6.502	367.1 -> 322.0	38284	2.50 µg/L	0.000
M8-PFOA	7.146	421.1 -> 376.0	67757	2.50 µg/L	0.000
M9-PFNA	7.677	472.1 -> 427.0	23924	1.25 µg/L	0.000
M6-PFDA	8.157	519.1 -> 474.1	18663	1.25 µg/L	0.000
M7-PFUnDA	8.624	570.0 -> 525.1	21256	1.25 µg/L	0.012
M2-PFDoDA	9.054	615.1 -> 570.0	23505	1.25 µg/L	0.000
M2-PFTeDA	9.781	715.2 -> 670.0	12724	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	16617	2.50 µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	13594	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	9331	2.50 µg/L	0.000
M8-PFOS	8.333	507.1 -> 79.9	8305	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2448	5.00 µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	3120	5.00 µg/L	0.000
M2-8:2FTS	7.944	529.1 -> 80.9	3023	5.00 µg/L	0.000
M3-MeFOSAA	8.202	573.2 -> 419.0	30191	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	15108	10.00 µg/L	0.000
M5-EtFOSAA	8.398	589.2 -> 419.0	25871	5.00 µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	23969	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	17180	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7047	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	6412	2.50 µg/L	0.000
13C4-PFOS	8.333	502.8 -> 79.9	10099	2.50 µg/L	0.000
13C3-PFBA	2.991	216.0 -> 172.0	36250	5.00 µg/L	0.012
18O2-PFHxS	7.273	403.0 -> 83.9	6474	2.50 µg/L	0.000
13C4-PFOA	7.147	417.1 -> 372.0	76788	2.50 µg/L	0.000
13C2-PFDA	8.158	515.1 -> 470.1	24033	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	26739	1.25 µg/L	0.000
13C2-PFHxA	5.563	315.1 -> 270.0	33644	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.240	329.1 -> 80.9	2448	5.81 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.3%		
13C2-6:2FTS	6.908	429.1 -> 80.9	3120	5.59 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.7%		
13C2-8:2FTS	7.944	529.1 -> 80.9	3023	5.39 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.8%		
13C2-PFDoDA	9.054	615.1 -> 570.0	23505	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C2-PFTeDA	9.781	715.2 -> 670.0	12724	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.4%		
13C3-PFBS	5.518	302.1 -> 79.9	13594	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C3-PFHxS	7.274	402.1 -> 79.9	9331	2.74 µg/L	0.000

7.3.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.7%		
13C4-PFBA	2.988	216.8 -> 171.9	15802	1.96 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 19.6%		
13C4-PFHpA	6.502	367.1 -> 322.0	38284	2.76 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.3%		
13C5-PFHxA	5.563	318.0 -> 273.0	39288	2.95 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 118.0%		
13C5-PFPeA	4.386	268.3 -> 223.0	41156	5.49 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.8%		
13C6-PFDA	8.157	519.1 -> 474.1	18663	1.40 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 111.7%		
13C7-PFUnDA	8.624	570.0 -> 525.1	21256	1.33 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.4%		
13C8-FOSA	9.567	506.1 -> 77.8	16617	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C8-PFOA	7.146	421.1 -> 376.0	67757	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.7%		
13C8-PFOS	8.333	507.1 -> 79.9	8305	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C9-PFNA	7.677	472.1 -> 427.0	23924	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.7%		
d3-MeFOSAA	8.202	573.2 -> 419.0	30191	5.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.1%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	15108	10.99 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 109.9%		
d3-MeFOSA	10.680	515.0 -> 219.0	6412	2.26 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 90.5%		
d5-EtFOSAA	8.398	589.2 -> 419.0	25871	5.63 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.7%		
d7-MeFOSE	10.589	623.2 -> 58.9	23969	20.90 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 83.6%		
d9-EtFOSE	10.847	639.2 -> 58.9	17180	21.74 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 87.0%		
d5-EtFOSA	10.925	531.1 -> 219.0	7047	2.29 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 91.4%		
Target Compounds					QValue
4:2FTS	5.228	327.1 -> 307.0	55776	10.16 µg/L	99
		327.1 -> 80.9	12124		
6:2FTS	6.908	427.1 -> 407.0	46217	10.12 µg/L	99
		427.1 -> 80.9	9050		
8:2FTS	7.945	527.1 -> 507.0	24324	10.36 µg/L	97
		527.1 -> 80.8	6129		
EtFOSAA	8.411	584.2 -> 419.1	9589	2.31 µg/L	96
		584.2 -> 526.0	5195		
FOSA	9.557	498.1 -> 77.9	16515	2.49 µg/L	99
		498.1 -> 478.0	697		
MeFOSAA	8.203	570.1 -> 419.0	15426	2.79 µg/L	m 96
		570.1 -> 483.0	2599		
PFBA	2.994	212.8 -> 168.9	3637	10.30 µg/L	100
PFBS	5.518	298.7 -> 79.9	13102	2.51 µg/L	91
		298.7 -> 98.8	5658		
PFDA	8.158	512.9 -> 469.0	56956	2.68 µg/L	99
		512.9 -> 219.0	7489		
PFDODA	9.054	613.1 -> 569.0	47127	2.74 µg/L	99
		613.1 -> 319.0	5599		
PFDS	9.229	599.0 -> 79.9	6522	2.32 µg/L	99

7.3.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.503	599.0 -> 98.8	3486	2.58	µg/L	100
		363.1 -> 319.0	58523			
PFHpS	7.828	363.1 -> 169.0	7883	2.59	µg/L	94
		449.0 -> 79.9	9128			
PFHxA	5.566	449.0 -> 98.9	5416	2.52	µg/L	100
		313.0 -> 269.0	38915			
PFHxS	7.275	313.0 -> 118.9	1376	2.21	µg/L	93
		398.7 -> 79.9	9268			
PFNA	7.677	398.7 -> 98.9	5581	2.53	µg/L	100
		463.0 -> 419.0	40811			
PFNS	8.798	463.0 -> 219.0	8341	2.32	µg/L	99
		548.8 -> 79.9	8556			
PFOA	7.148	548.8 -> 98.9	5185	2.49	µg/L	99
		413.0 -> 369.0	74415			
PFOS	8.334	413.0 -> 169.0	10191	2.47	µg/L	96
		498.9 -> 79.9	9409			
PFPeA	4.388	498.9 -> 98.8	5458	5.13	µg/L	100
		263.0 -> 219.0	44595			
PFPeS	6.569	349.1 -> 79.9	11407	2.34	µg/L	98
		349.1 -> 98.9	6049			
PFTeDA	9.781	713.1 -> 669.0	36212	2.64	µg/L	96
		713.1 -> 168.9	2694			
PFTrDA	9.437	663.0 -> 619.0	45234	2.75	µg/L	99
		663.0 -> 168.9	3434			
PFUnDA	8.624	563.1 -> 519.0	43555	2.63	µg/L	99
		563.1 -> 269.1	6224			
11CI-PF3OUdS	9.502	630.9 -> 450.9	99500	9.18	µg/L	98
		632.9 -> 452.9	29624			
9CI-PF3ONS	8.663	530.8 -> 351.0	168924	9.22	µg/L	97
		532.8 -> 353.0	48957			
ADONA	6.753	376.9 -> 250.9	313412	9.56	µg/L	96
		376.9 -> 84.8	71318			
HFPO-DA	5.940	284.9 -> 168.9	14218	10.06	µg/L	97
		284.9 -> 184.9	1749			
3:3FTCA	3.854	241.0 -> 177.0	3014	7.06	µg/L	98
		241.0 -> 117.0	412			
5:3FTCA	6.206	341.0 -> 237.1	201737	62.61	µg/L	95
		341.0 -> 217.0	170566			
7:3FTCA	7.605	441.0 -> 316.9	111772	53.07	µg/L	88
		441.0 -> 336.9	204458			
EtFOSA	10.927	526.0 -> 219.0	7903	2.35	µg/L	87
		526.0 -> 169.0	7572			
EtFOSE	10.860	630.0 -> 58.9	17529	23.84	µg/L	100
		511.9 -> 219.0	6899			
MeFOSA	10.682	511.9 -> 169.0	6839	2.49	µg/L	82
		616.1 -> 58.9	23728			
MeFOSE	10.602	699.1 -> 79.9	3898	24.82	µg/L	100
		699.1 -> 98.8	2326			
PFDoDS	9.920	295.0 -> 201.0	4600	2.32	µg/L	92
		295.0 -> 84.9	2228			
NFDHA	5.445	279.0 -> 85.1	13632	5.05	µg/L	99
		229.0 -> 84.9	5148			
PFMBA	4.787	314.8 -> 134.9	96912	4.37	µg/L	100
PFMPA	3.541	314.8 -> 82.9	2424			
PFEESA	6.059					

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

7.3.3
7

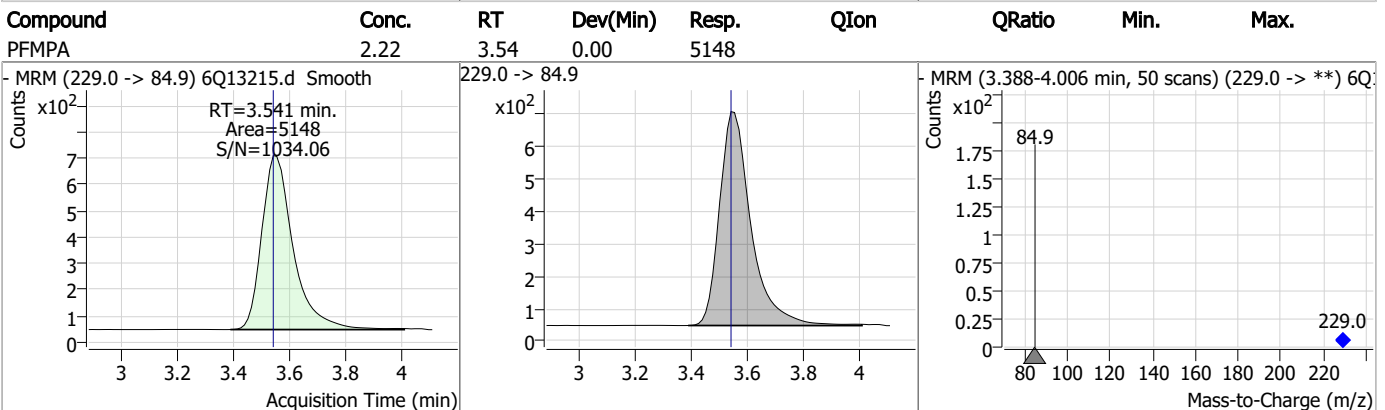
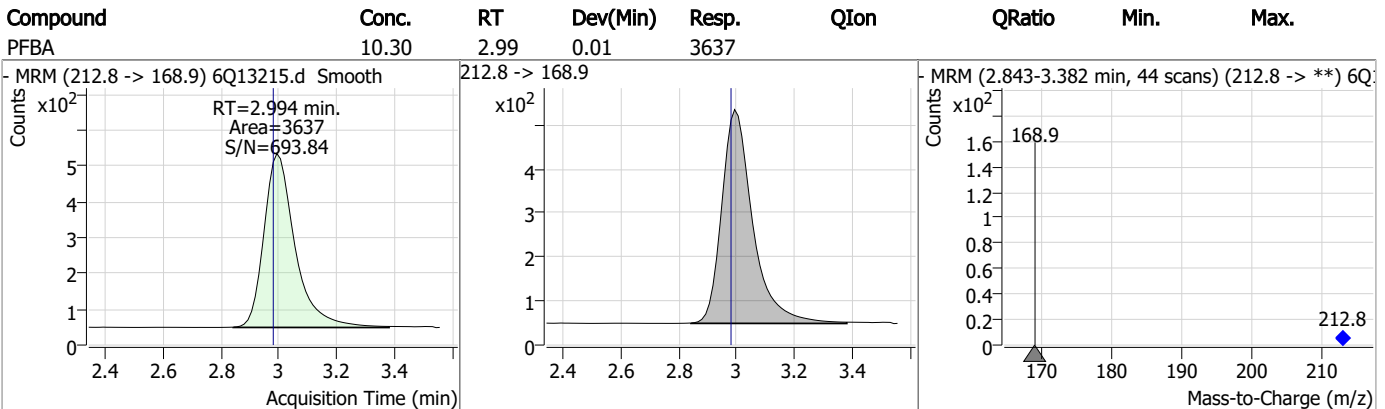
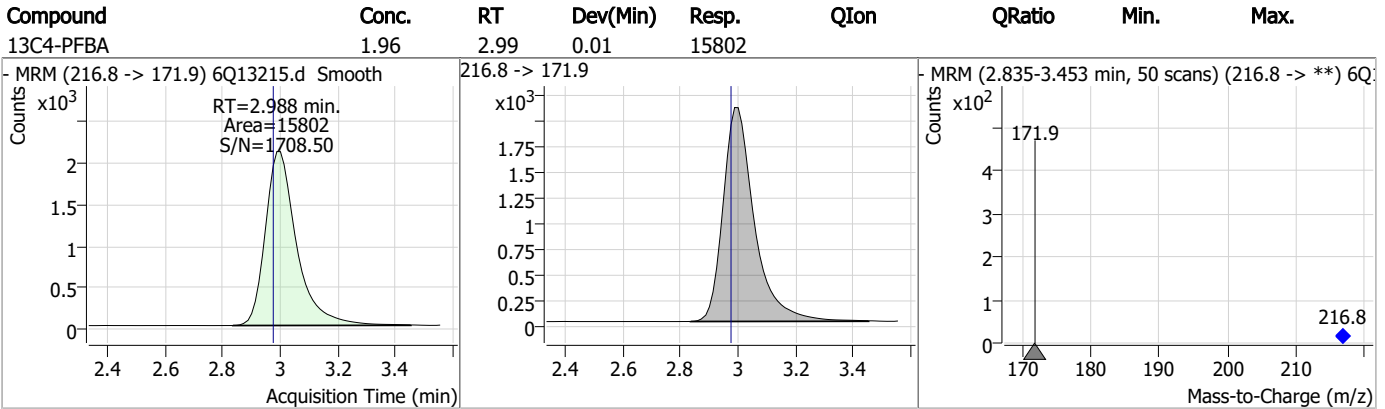
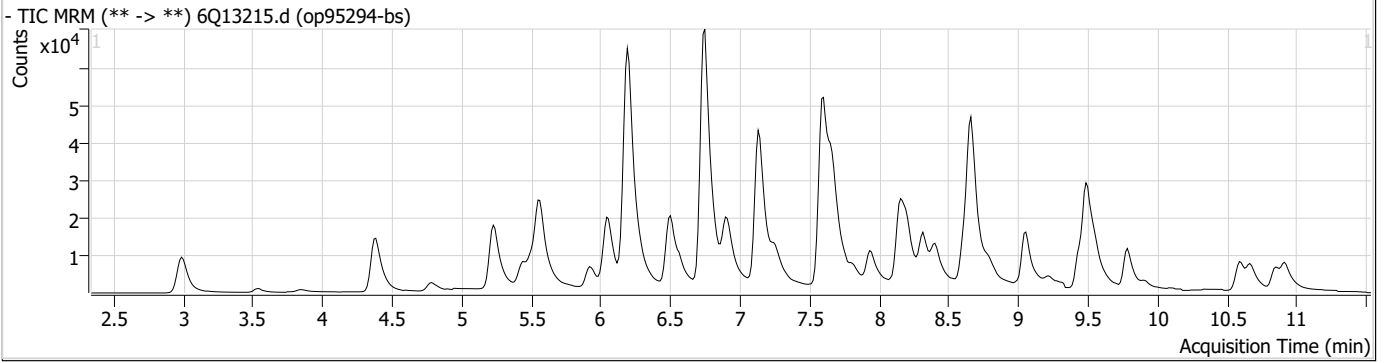
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.3.3

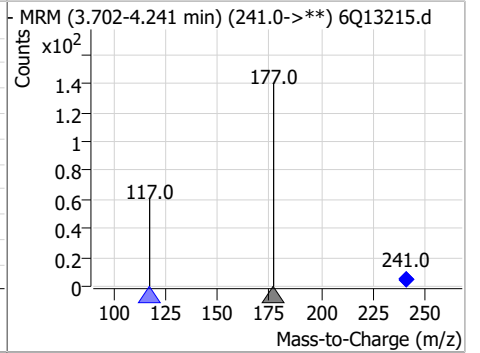
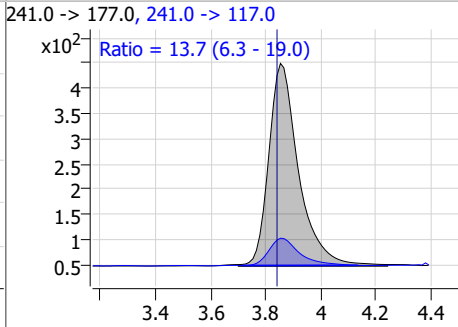
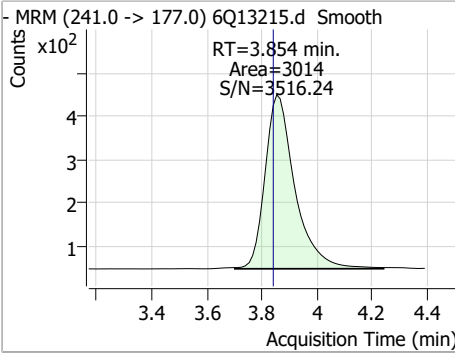
7

Perfluorinated Compounds by LC/MS/MS

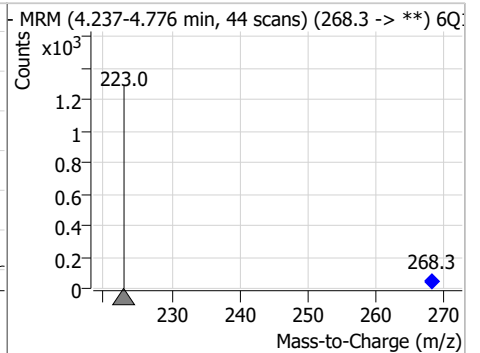
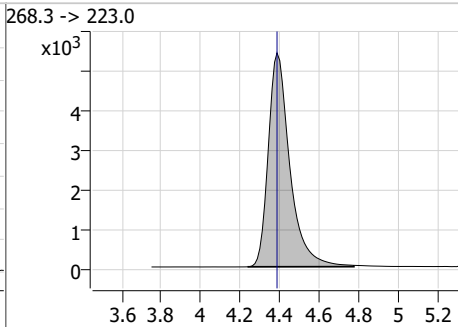
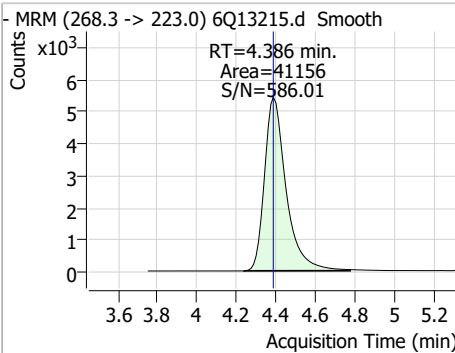


Perfluorinated Compounds by LC/MS/MS

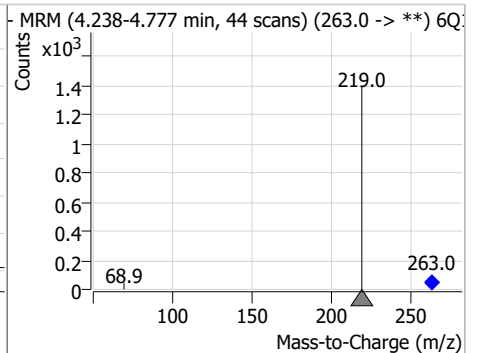
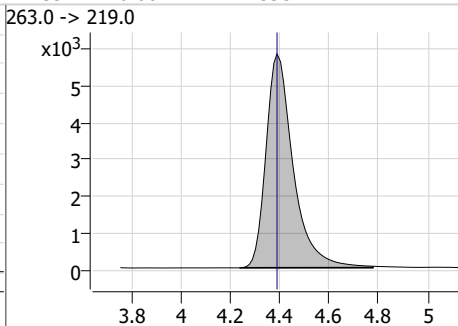
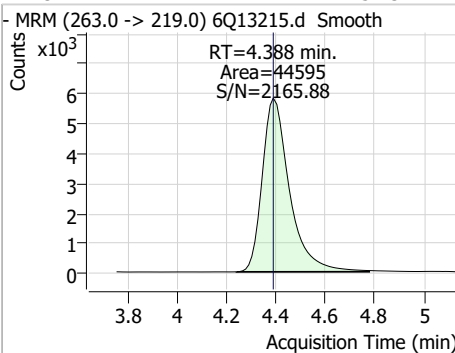
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	7.06	3.85	0.01	3014	241.0 -> 117.0	13.7	6.3	19.0



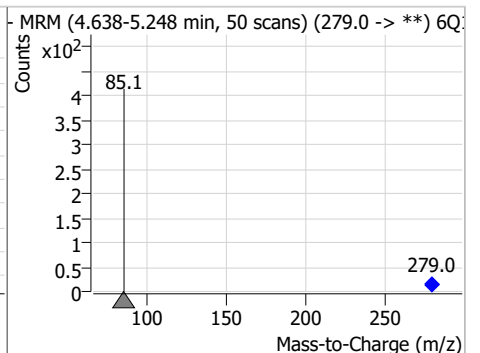
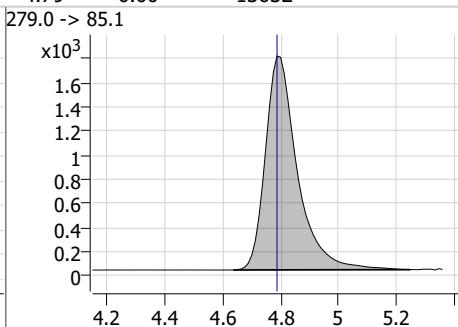
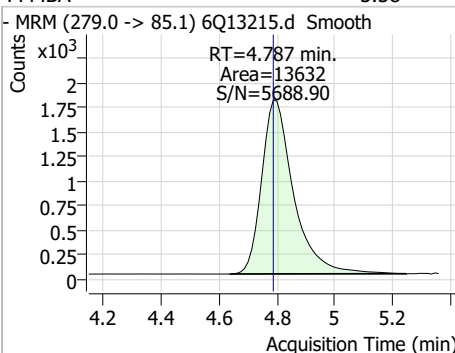
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.49	4.39	0.00	41156				



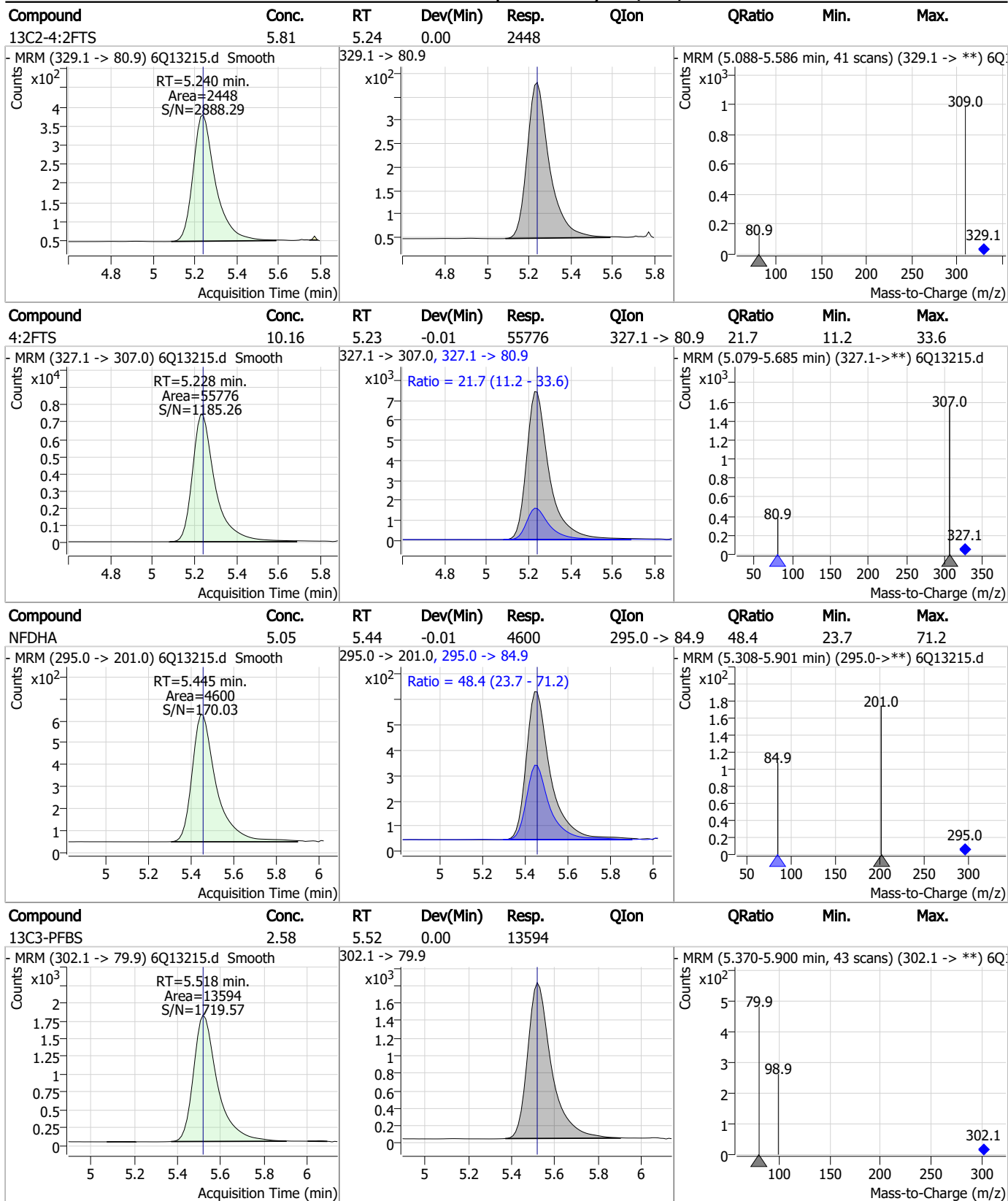
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	5.13	4.39	0.00	44595				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	5.58	4.79	0.00	13632				

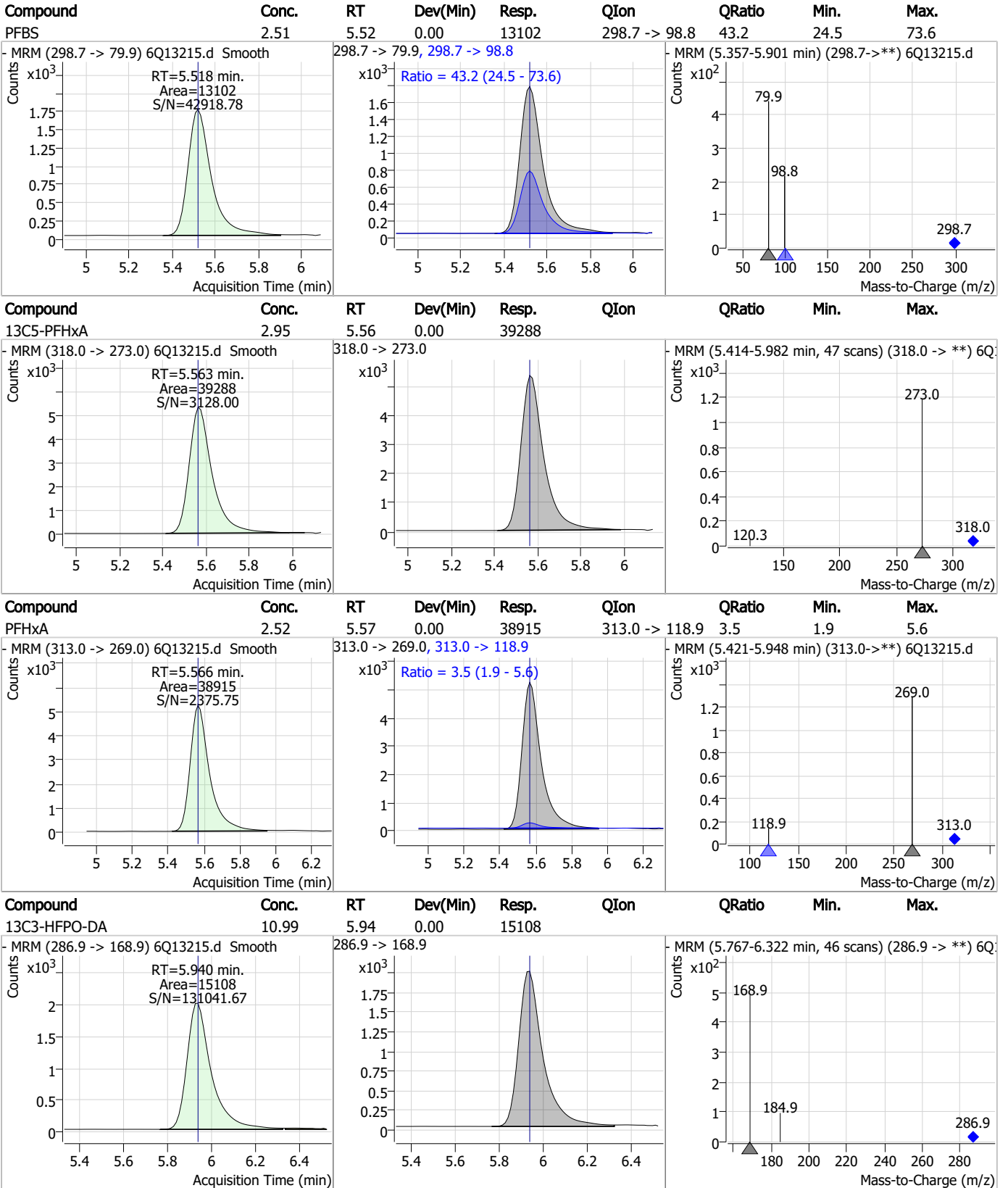


Perfluorinated Compounds by LC/MS/MS



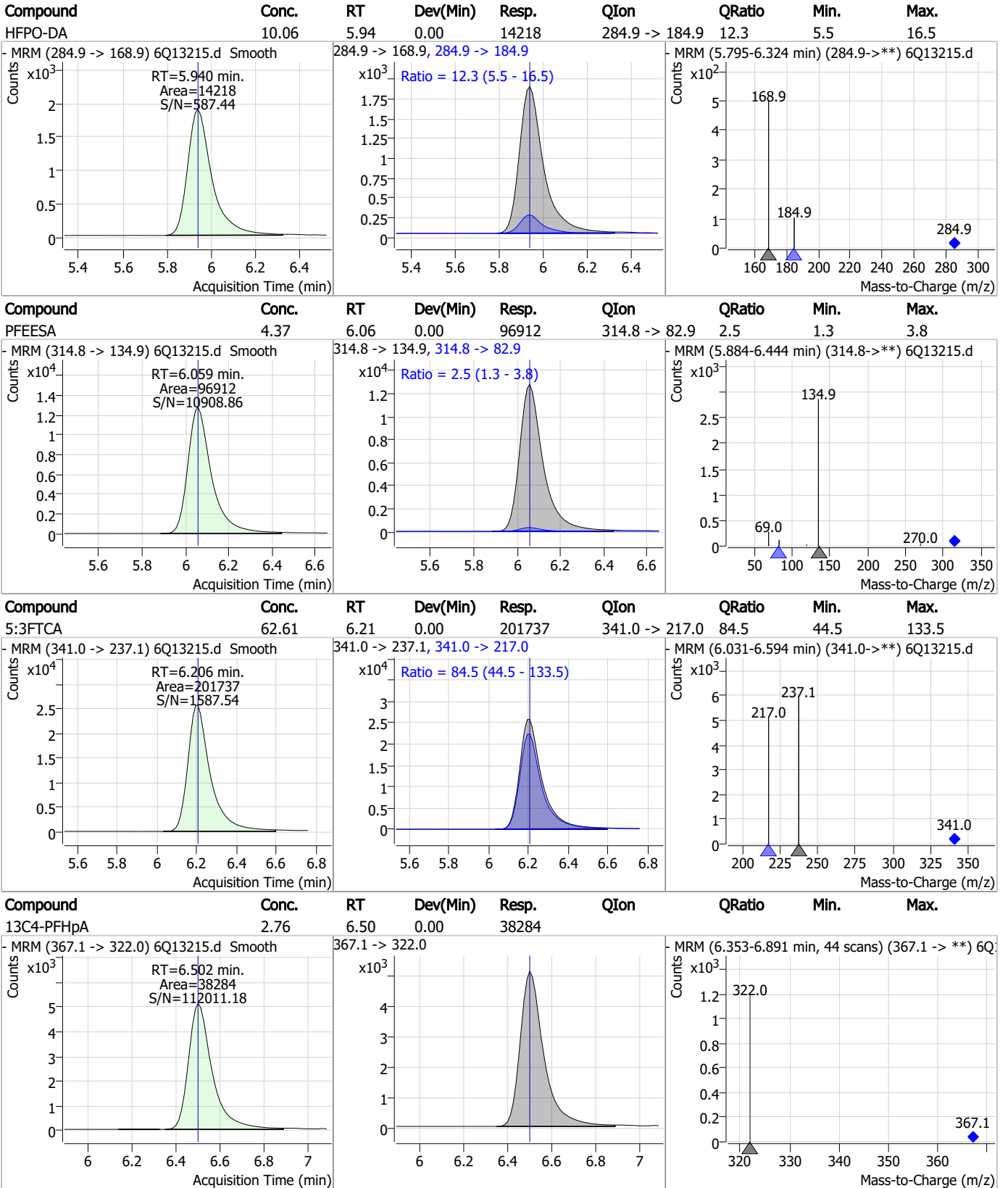
7.3.3
7

Perfluorinated Compounds by LC/MS/MS



7.3.3
7

Perfluorinated Compounds by LC/MS/MS

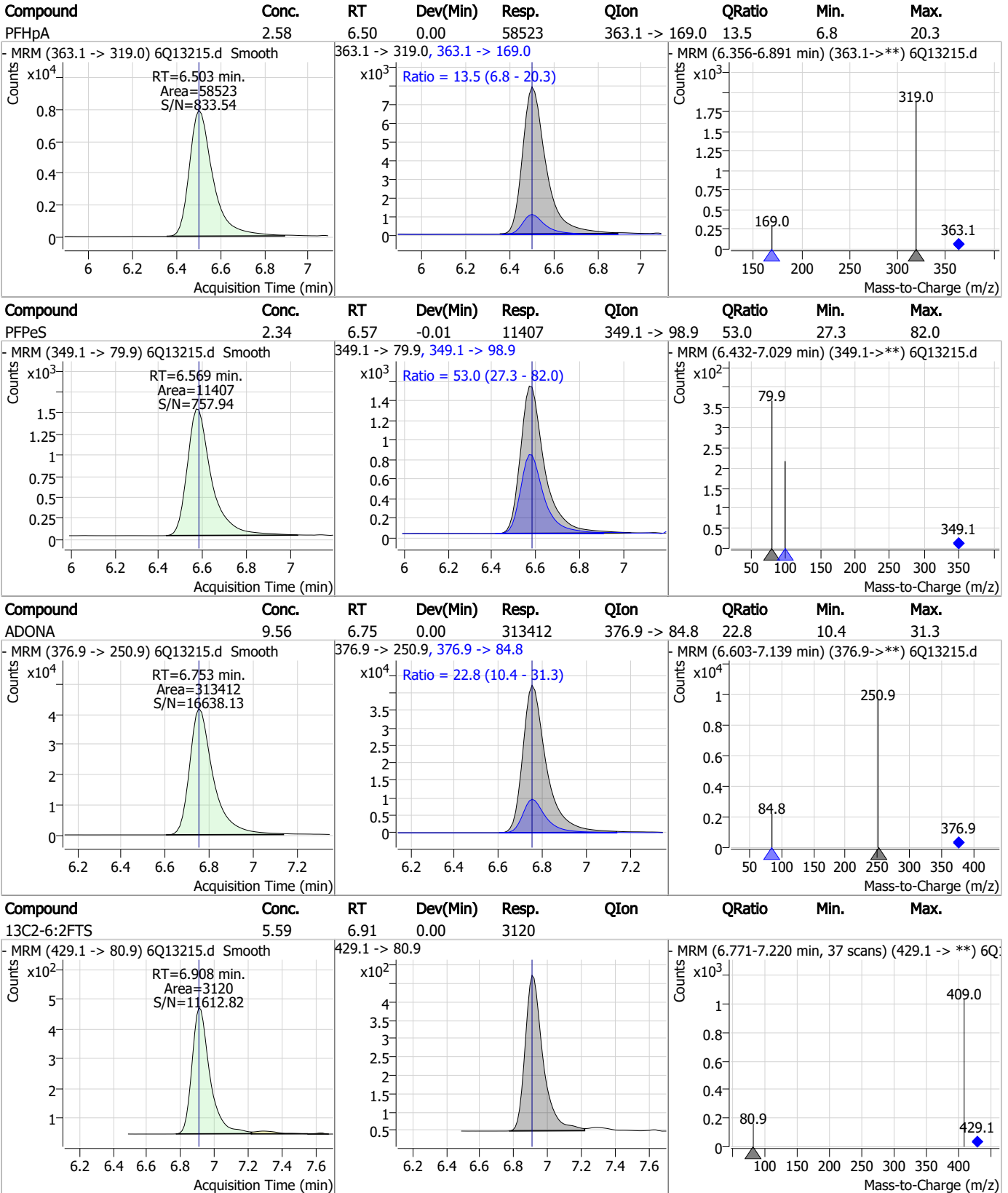


7.3.3

7



Perfluorinated Compounds by LC/MS/MS

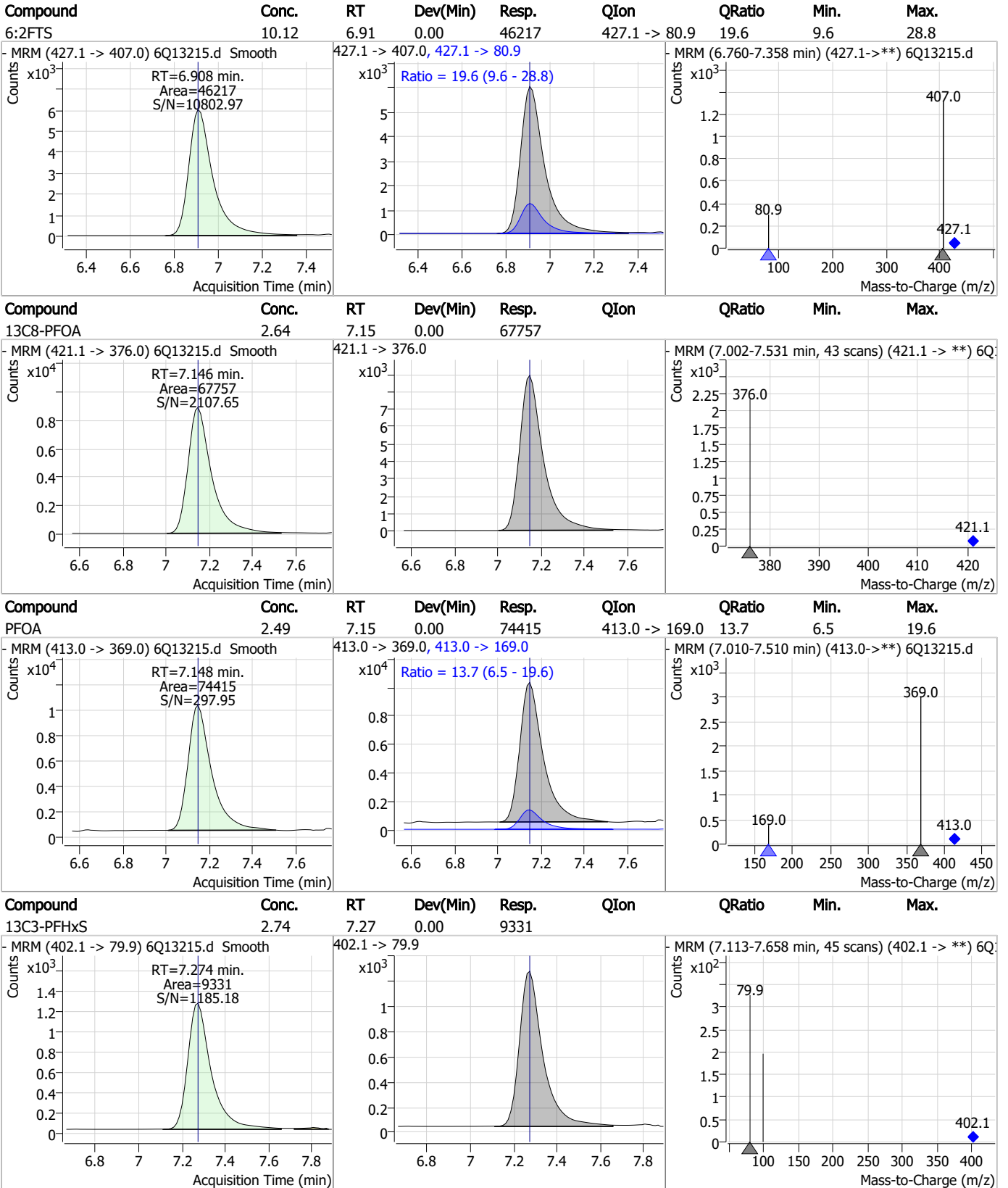


7.3.3

7



Perfluorinated Compounds by LC/MS/MS

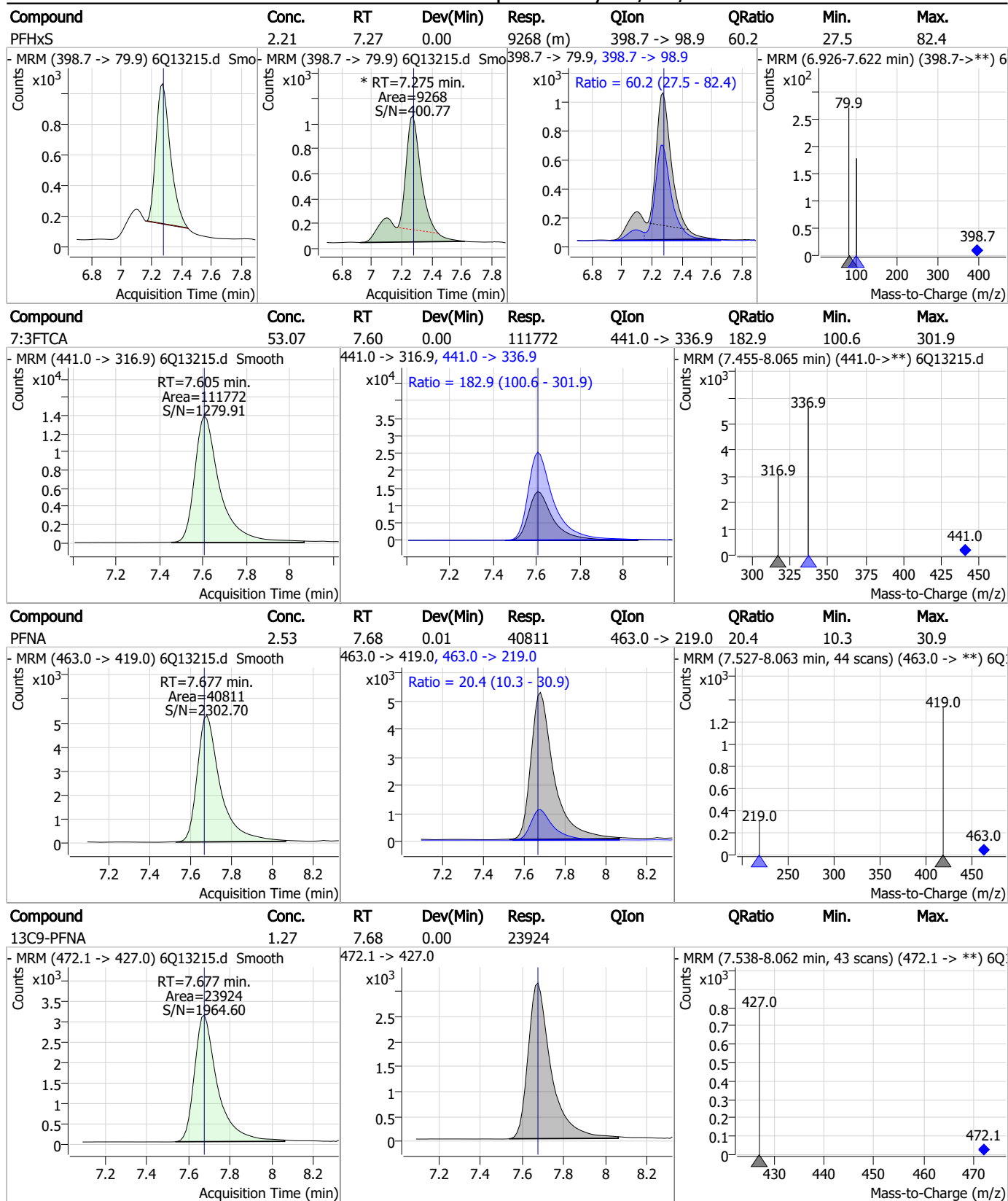


7.3.3

7



Perfluorinated Compounds by LC/MS/MS

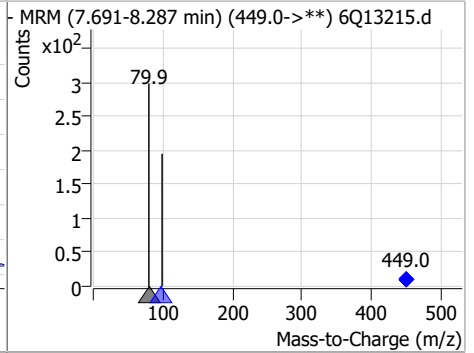
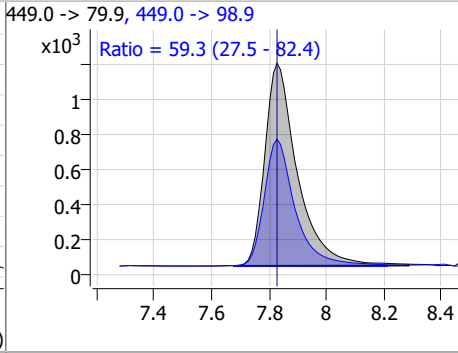
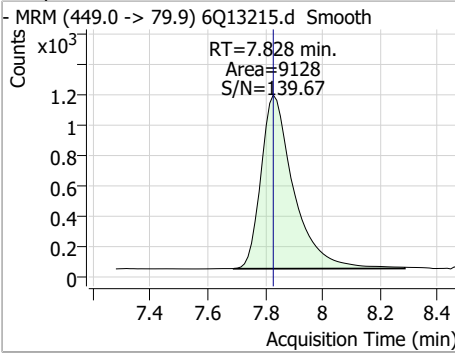


7.3.3
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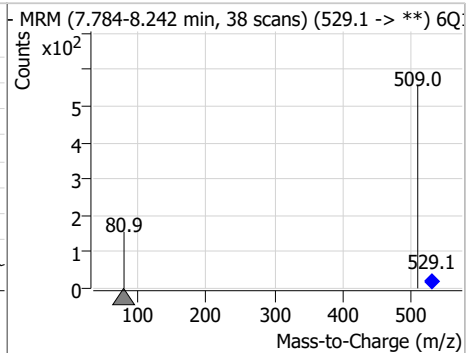
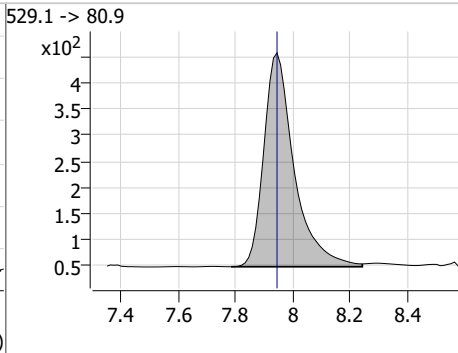
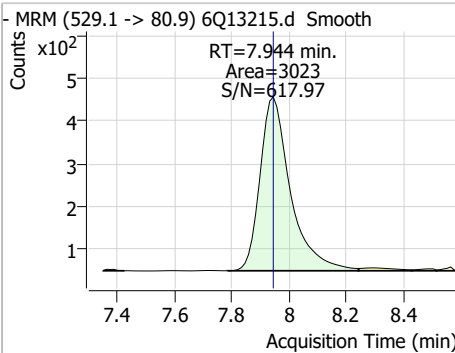


Perfluorinated Compounds by LC/MS/MS

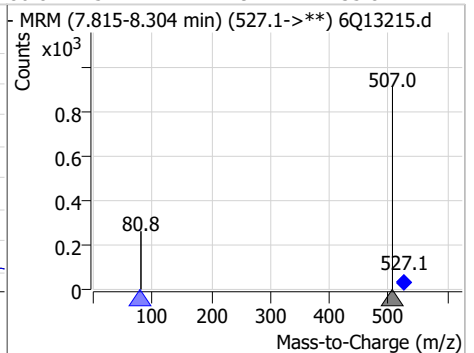
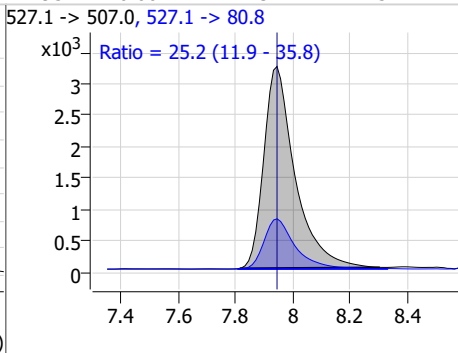
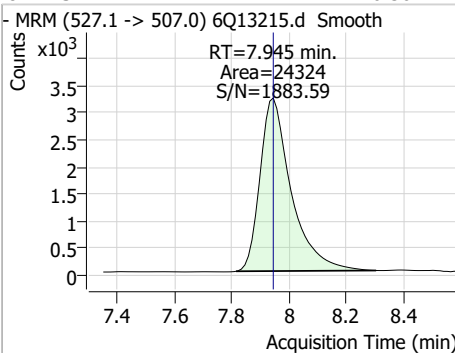
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.59	7.83	0.00	9128	449.0 -> 98.9	59.3	27.5	82.4



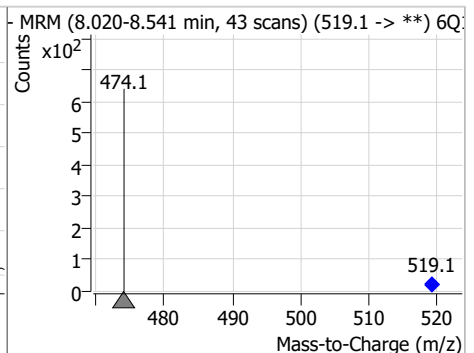
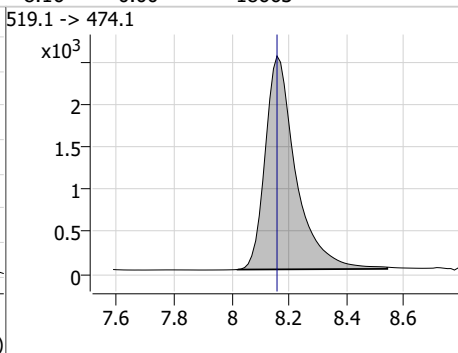
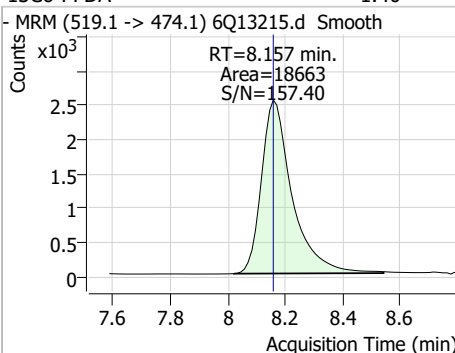
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.39	7.94	0.00	3023	529.1 -> 80.9			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	10.36	7.95	0.00	24324	527.1 -> 80.8	25.2	11.9	35.8

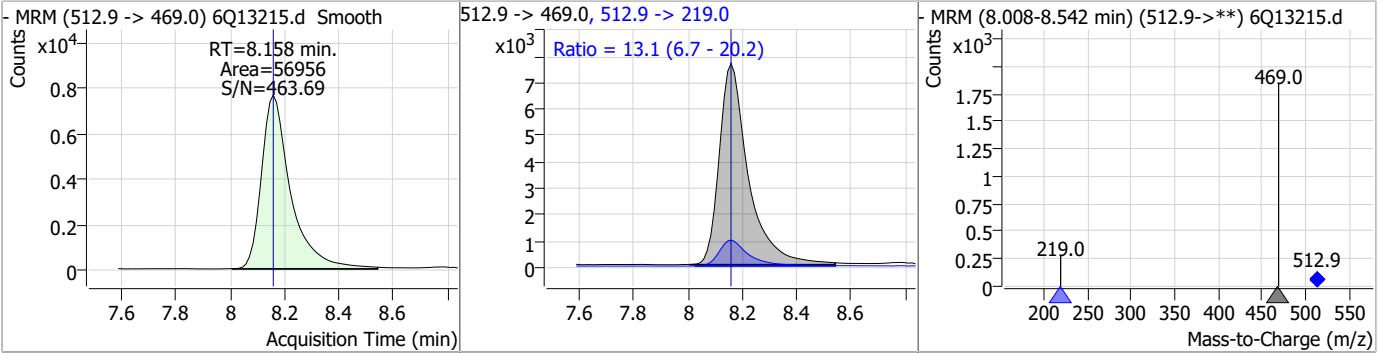


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.40	8.16	0.00	18663	519.1 -> 474.1			

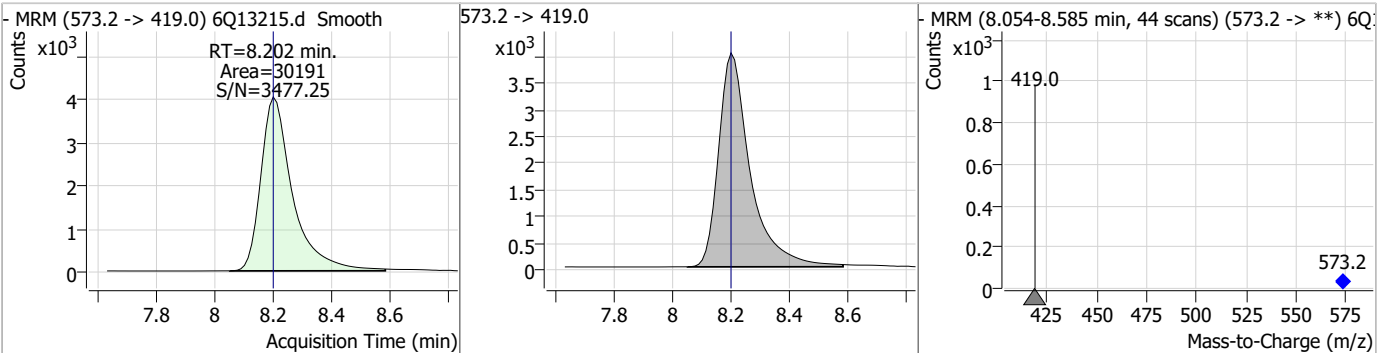


Perfluorinated Compounds by LC/MS/MS

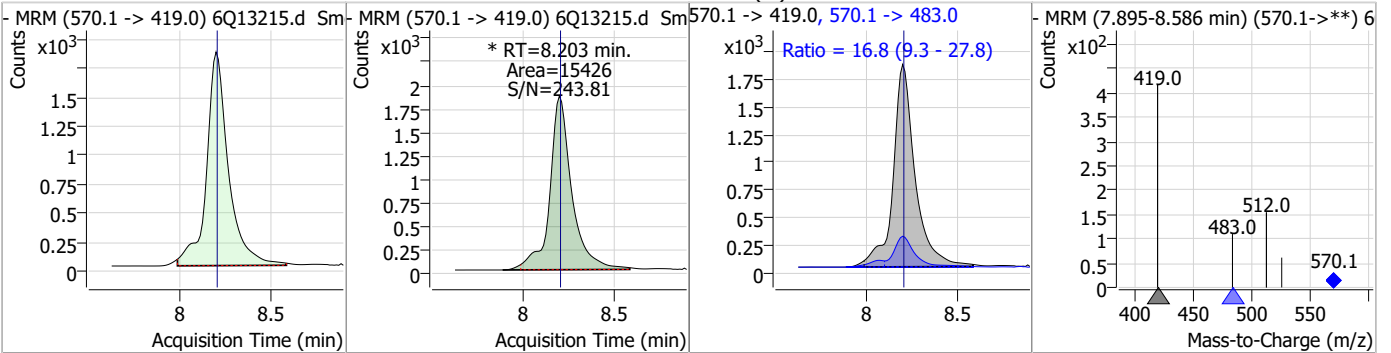
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.68	8.16	0.00	56956	512.9 -> 219.0	13.1	6.7	20.2



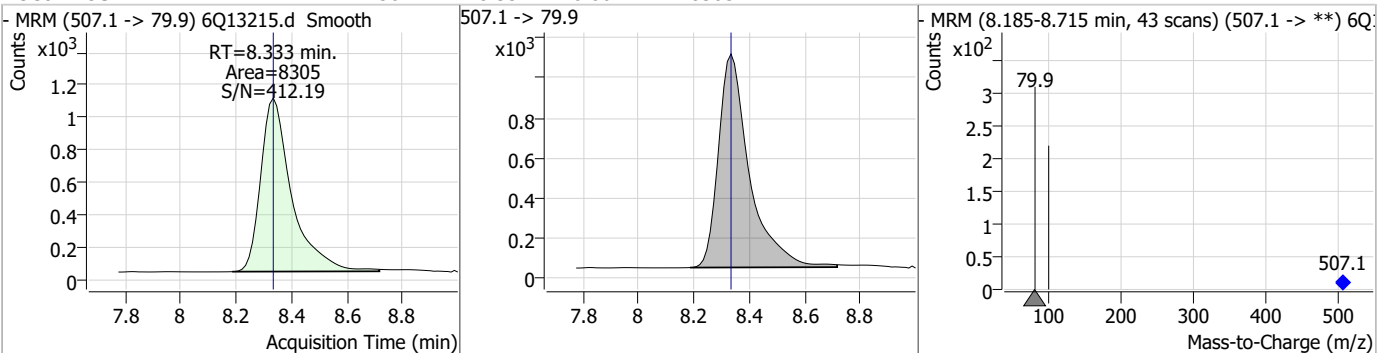
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.45	8.20	0.00	30191				



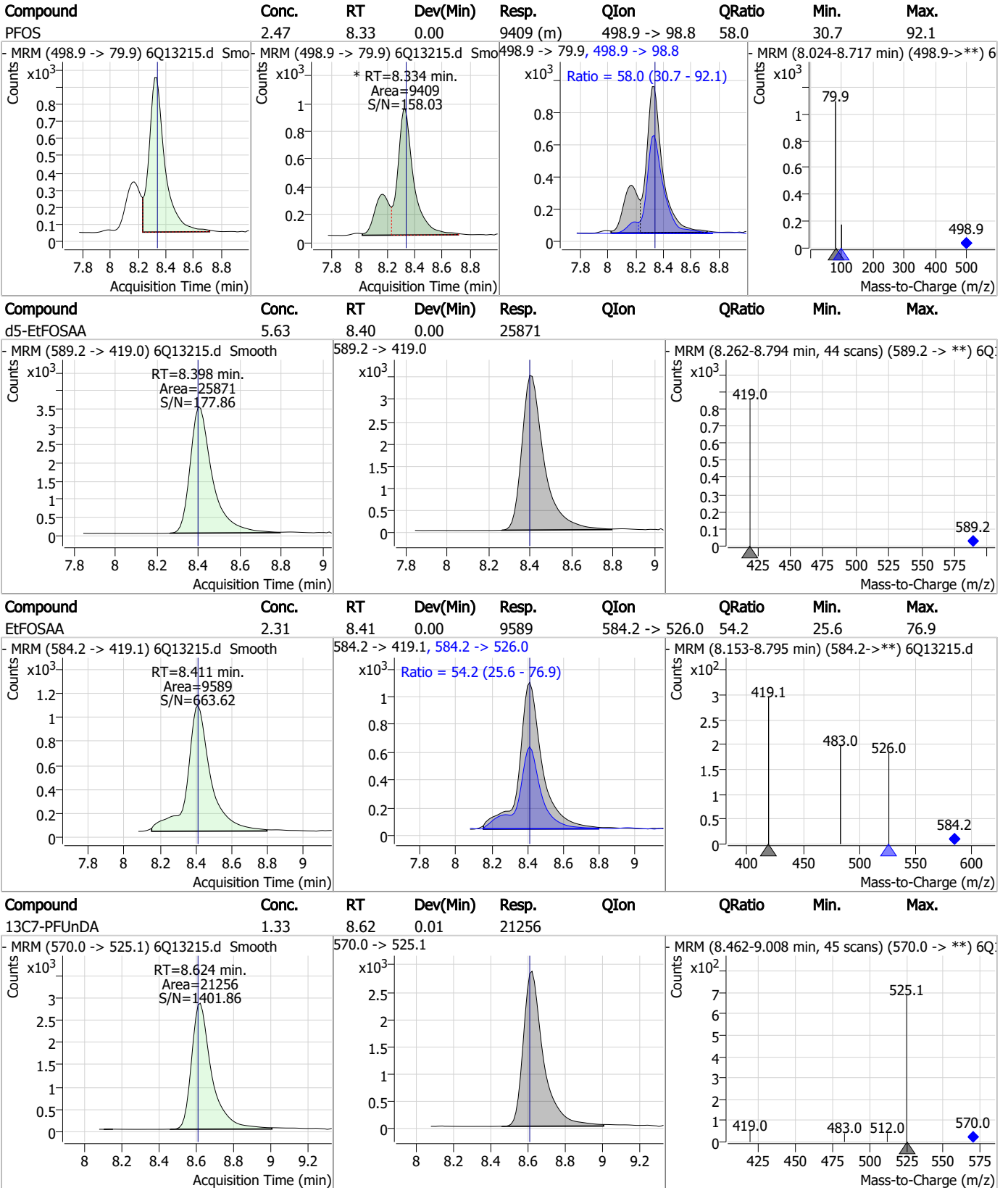
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.79	8.20	0.00	15426 (m)	570.1 -> 483.0	16.8	9.3	27.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.50	8.33	0.00	8305				



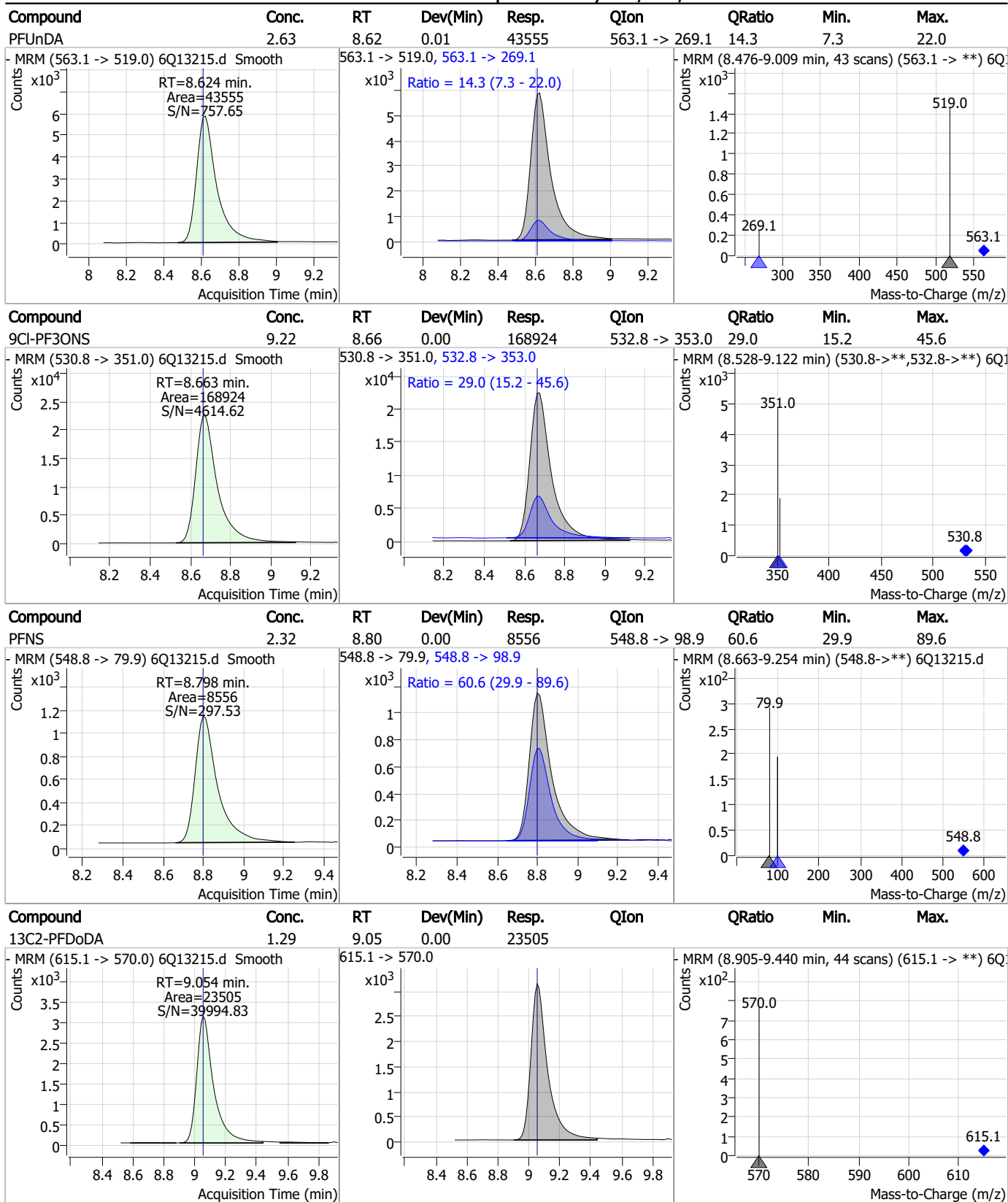
Perfluorinated Compounds by LC/MS/MS



7.3.3

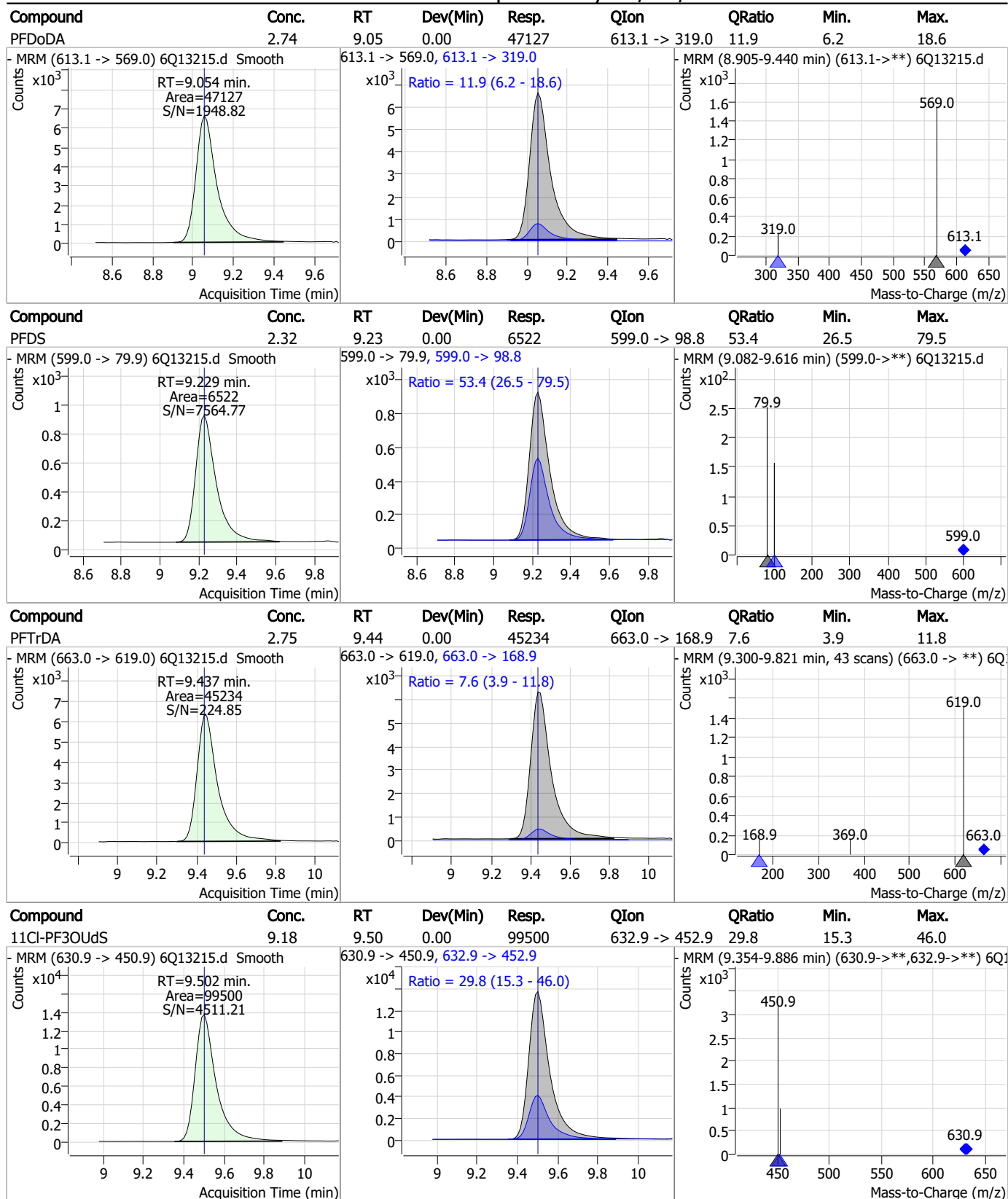
7

Perfluorinated Compounds by LC/MS/MS



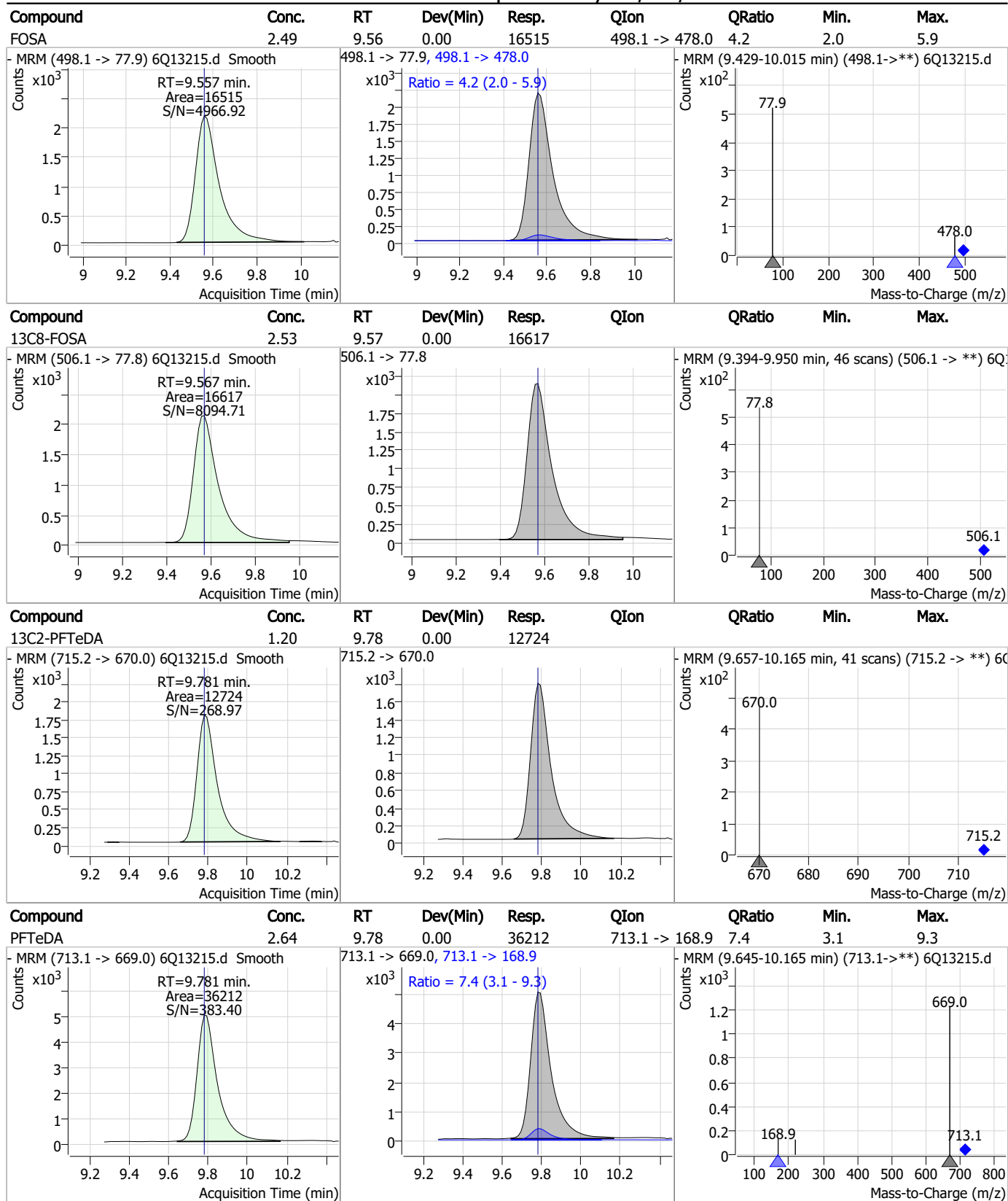
7.3.3
7

Perfluorinated Compounds by LC/MS/MS



7.3.3
7

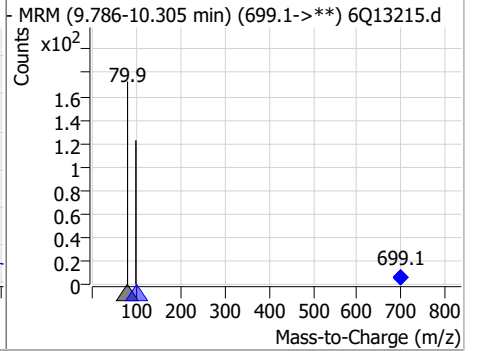
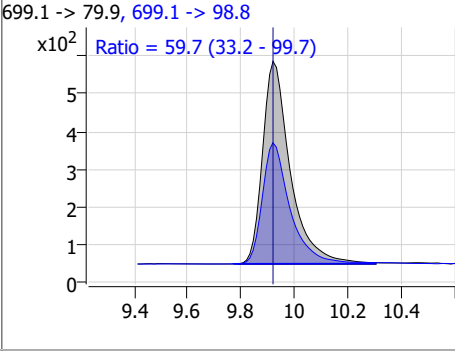
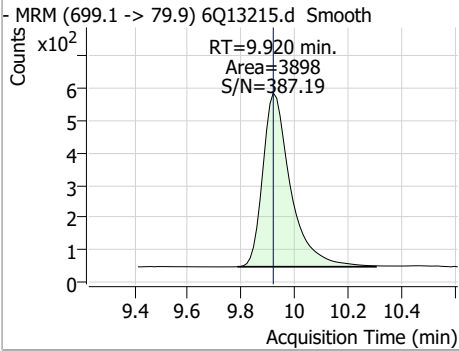
Perfluorinated Compounds by LC/MS/MS



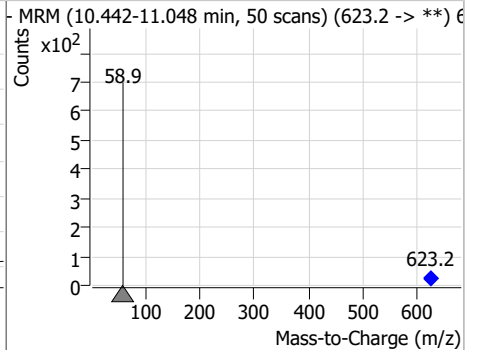
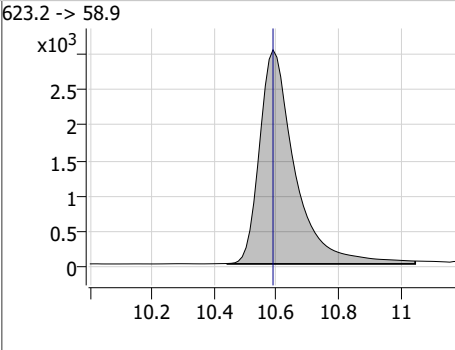
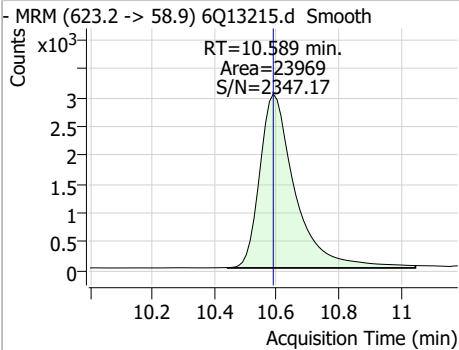
7.3.3
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Perfluorinated Compounds by LC/MS/MS

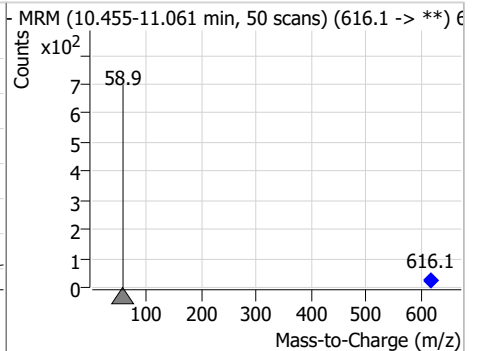
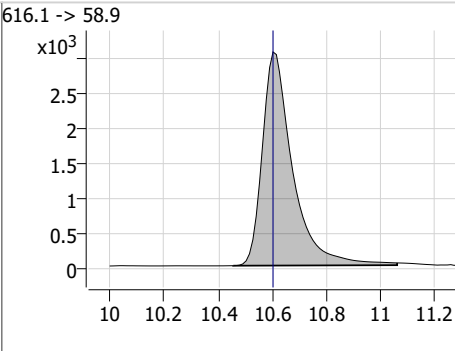
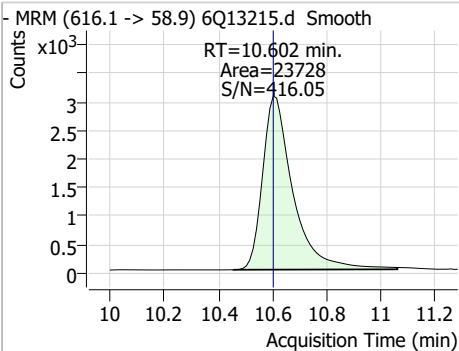
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.32	9.92	0.00	3898	699.1 -> 98.8	59.7	33.2	99.7



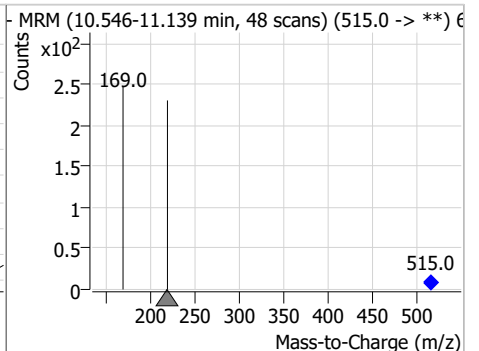
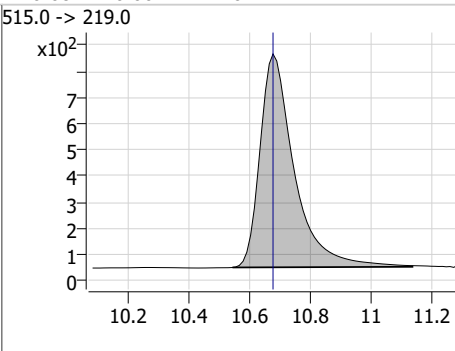
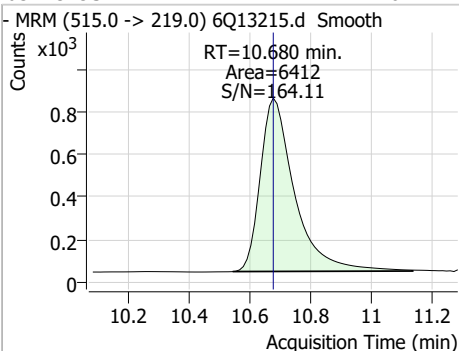
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	20.90	10.59	0.00	23969				



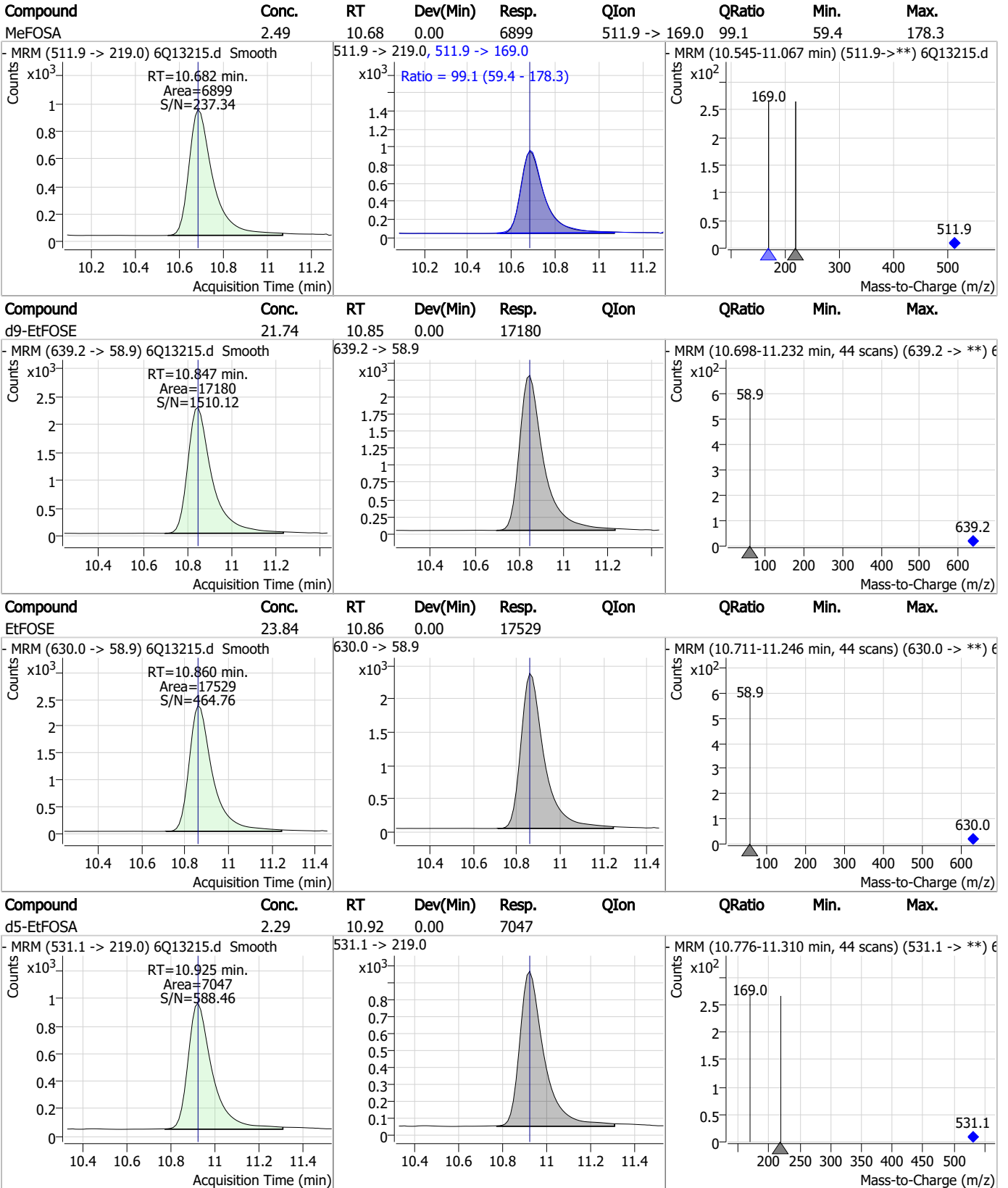
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	24.82	10.60	0.00	23728				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.26	10.68	0.00	6412				



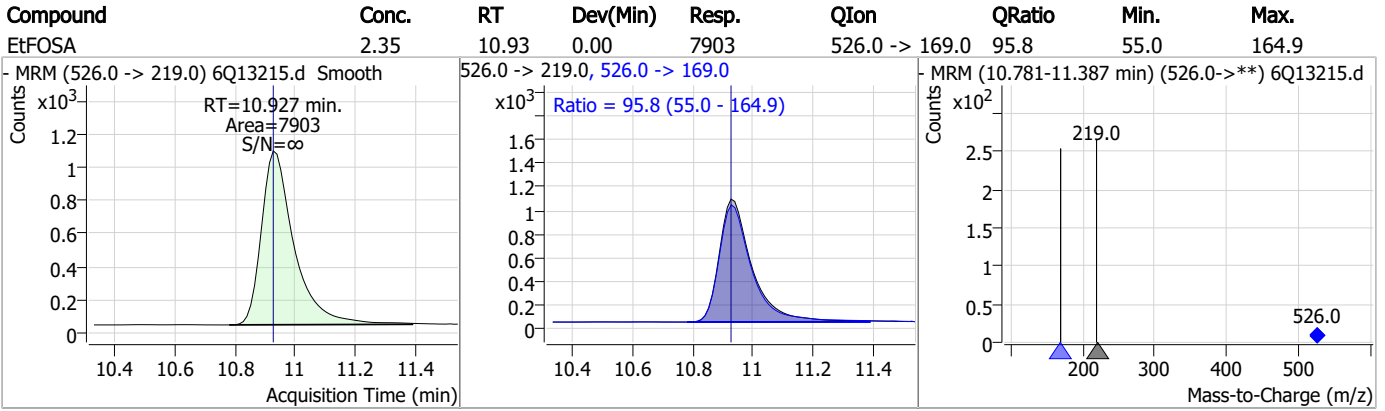
Perfluorinated Compounds by LC/MS/MS



7.3.3

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Perfluorinated Compounds by LC/MS/MS



7.3.3

7

Manual Integration Approval Summary

Sample Number: OP95294-BS Method: EPA DRAFT 1633
Lab FileID: 6Q13215.D Analyst approved: 02/08/23 15:18 Martha Valls
Injection Time: 02/08/23 11:31 Supervisor approved: 02/08/23 15:53 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
MeFOSAA	2355-31-9		8.20	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak

7.3.3.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13216.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/8/2023 11:45:09 AM
 Sample Name : op95294-llbs:3
 Vial : P3-C5
 DA Method File : 1633_020223_S6Q196.quantmethod.xml
 Batch Name : s6q202.batch.bin
 Sample Information : OP95294,S6Q202,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.013	216.8 -> 171.9	80548	10.00 µg/L	0.037
M5-PFPeA	4.386	268.3 -> 223.0	42863	5.00 µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	39103	2.50 µg/L	0.000
M4-PFHpA	6.502	367.1 -> 322.0	38099	2.50 µg/L	0.000
M8-PFOA	7.146	421.1 -> 376.0	66832	2.50 µg/L	0.000
M9-PFNA	7.677	472.1 -> 427.0	24338	1.25 µg/L	0.000
M6-PFDA	8.157	519.1 -> 474.1	16929	1.25 µg/L	0.000
M7-PFUnDA	8.624	570.0 -> 525.1	21390	1.25 µg/L	0.012
M2-PFDoDA	9.054	615.1 -> 570.0	24497	1.25 µg/L	0.000
M2-PFTeDA	9.781	715.2 -> 670.0	11143	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	17138	2.50 µg/L	-0.012
M3-PFBS	5.518	302.1 -> 79.9	14036	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	9621	2.50 µg/L	0.000
M8-PFOS	8.333	507.1 -> 79.9	8887	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2697	5.00 µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	3379	5.00 µg/L	0.012
M2-8:2FTS	7.944	529.1 -> 80.9	2998	5.00 µg/L	0.000
M3-MeFOSAA	8.202	573.2 -> 419.0	31920	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	15143	10.00 µg/L	0.000
M5-EtFOSAA	8.398	589.2 -> 419.0	25884	5.00 µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	21859	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	16162	25.00 µg/L	0.000
M5-EtFOSA	10.913	531.1 -> 219.0	6263	2.50 µg/L	-0.012
M3-MeFOSA	10.680	515.0 -> 219.0	5341	2.50 µg/L	0.000
13C4-PFOS	8.333	502.8 -> 79.9	9743	2.50 µg/L	0.000
13C3-PFBA	3.004	216.0 -> 172.0	35309	5.00 µg/L	0.025
18O2-PFHxS	7.273	403.0 -> 83.9	6398	2.50 µg/L	0.000
13C4-PFOA	7.147	417.1 -> 372.0	78765	2.50 µg/L	0.000
13C2-PFDA	8.158	515.1 -> 470.1	23072	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	25806	1.25 µg/L	0.000
13C2-PFHxA	5.563	315.1 -> 270.0	33260	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.240	329.1 -> 80.9	2697	6.48 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 129.6%		
13C2-6:2FTS	6.920	429.1 -> 80.9	3379	6.12 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 122.4%		
13C2-8:2FTS	7.944	529.1 -> 80.9	2998	5.41 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.2%		
13C2-PFDoDA	9.054	615.1 -> 570.0	24497	1.40 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 111.6%		
13C2-PFTeDA	9.781	715.2 -> 670.0	11143	1.10 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.9%		
13C3-PFBS	5.518	302.1 -> 79.9	14036	2.69 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.7%		
13C3-PFHxS	7.274	402.1 -> 79.9	9621	2.86 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 = 114.4%		
13C4-PFBA	3.013	216.8 -> 171.9	80548	10.28 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C4-PFHpA	6.502	367.1 -> 322.0	38099	2.78 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.0%		
13C5-PFHxA	5.563	318.0 -> 273.0	39103	2.97 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 118.8%		
13C5-PFPeA	4.386	268.3 -> 223.0	42863	5.78 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.7%		
13C6-PFDA	8.157	519.1 -> 474.1	16929	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.5%		
13C7-PFUnDA	8.624	570.0 -> 525.1	21390	1.39 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 111.5%		
13C8-FOSA	9.555	506.1 -> 77.8	17138	2.70 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.0%		
13C8-PFOA	7.146	421.1 -> 376.0	66832	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C8-PFOS	8.333	507.1 -> 79.9	8887	2.77 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.0%		
13C9-PFNA	7.677	472.1 -> 427.0	24338	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.2%		
d3-MeFOSAA	8.202	573.2 -> 419.0	31920	5.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.5%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	15143	11.14 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 111.4%		
d3-MeFOSA	10.680	515.0 -> 219.0	5341	1.95 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 78.1%		
d5-EtFOSAA	8.398	589.2 -> 419.0	25884	5.84 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.8%		
d7-MeFOSE	10.589	623.2 -> 58.9	21859	19.76 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 79.0%		
d9-EtFOSE	10.847	639.2 -> 58.9	16162	21.20 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 84.8%		
d5-EtFOSA	10.913	531.1 -> 219.0	6263	2.11 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 84.2%		
Target Compounds					QValue
4:2FTS	5.240	327.1 -> 307.0	20786	3.44 µg/L	98
		327.1 -> 80.9	4896		
6:2FTS	6.921	427.1 -> 407.0	17360	3.51 µg/L	94
		427.1 -> 80.9	3790		
8:2FTS	7.945	527.1 -> 507.0	9623	4.13 µg/L	98
		527.1 -> 80.8	2194		
EtFOSAA	8.411	584.2 -> 419.1	3464	0.84 µg/L	92
		584.2 -> 526.0	1971		
FOSA	9.557	498.1 -> 77.9	6326	0.92 µg/L	97
		498.1 -> 478.0	189		
MeFOSAA	8.203	570.1 -> 419.0	5658	0.97 µg/L	m 96
		570.1 -> 483.0	940		
PFBA	3.007	212.8 -> 168.9	7029	3.91 µg/L	100
PFBS	5.518	298.7 -> 79.9	5146	0.95 µg/L	92
		298.7 -> 98.8	2236		
PFDA	8.158	512.9 -> 469.0	20094	1.04 µg/L	99
		512.9 -> 219.0	2661		
PFDODA	9.054	613.1 -> 569.0	16904	0.94 µg/L	99
		613.1 -> 319.0	2039		
PFDS	9.216	599.0 -> 79.9	2369	0.79 µg/L	98

7.3.4
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	1229			
PFHpA	6.503	363.1 -> 319.0	21621	0.96	µg/L	98
		363.1 -> 169.0	3110			
PFHpS	7.841	449.0 -> 79.9	3238	0.86	µg/L	90
		449.0 -> 98.9	2002			
PFHxA	5.566	313.0 -> 269.0	15113	0.99	µg/L	99
		313.0 -> 118.9	610			
PFHxS	7.275	398.7 -> 79.9	3675	0.85	µg/L	m 98
		398.7 -> 98.9	1962			
PFNA	7.677	463.0 -> 419.0	14707	0.90	µg/L	99
		463.0 -> 219.0	2969			
PFNS	8.798	548.8 -> 79.9	3365	0.85	µg/L	94
		548.8 -> 98.9	1858			
PFOA	7.148	413.0 -> 369.0	28946	0.98	µg/L	99
		413.0 -> 169.0	3721			
PFOS	8.334	498.9 -> 79.9	3430	0.84	µg/L	m 99
		498.9 -> 98.8	2141			
PFPeA	4.402	263.0 -> 219.0	17082	1.89	µg/L	100
PFPeS	6.581	349.1 -> 79.9	4236	0.84	µg/L	99
		349.1 -> 98.9	2350			
PFTeDA	9.781	713.1 -> 669.0	13171	1.10	µg/L	98
		713.1 -> 168.9	739			
PFTrDA	9.437	663.0 -> 619.0	16008	0.93	µg/L	100
		663.0 -> 168.9	1256			
PFUnDA	8.624	563.1 -> 519.0	16159	0.97	µg/L	99
		563.1 -> 269.1	2399			
11CI-PF3OUdS	9.502	630.9 -> 450.9	35014	3.22	µg/L	97
		632.9 -> 452.9	11200			
9CI-PF3ONS	8.663	530.8 -> 351.0	63254	3.44	µg/L	99
		532.8 -> 353.0	19436			
ADONA	6.766	376.9 -> 250.9	120182	3.66	µg/L	97
		376.9 -> 84.8	27022			
HFPO-DA	5.940	284.9 -> 168.9	5657	3.99	µg/L	96
		284.9 -> 184.9	705			
3:3FTCA	3.878	241.0 -> 177.0	1645	3.70	µg/L	95
		241.0 -> 117.0	242			
5:3FTCA	6.206	341.0 -> 237.1	75561	23.56	µg/L	96
		341.0 -> 217.0	64563			
7:3FTCA	7.605	441.0 -> 316.9	41261	19.68	µg/L	97
		441.0 -> 336.9	80964			
EtFOSA	10.927	526.0 -> 219.0	2572	0.86	µg/L	91
		526.0 -> 169.0	2589			
EtFOSE	10.860	630.0 -> 58.9	5845	8.45	µg/L	100
MeFOSA	10.682	511.9 -> 219.0	2436	1.05	µg/L	79
		511.9 -> 169.0	2341			
MeFOSE	10.602	616.1 -> 58.9	8074	9.26	µg/L	100
PFDoDS	9.920	699.1 -> 79.9	1372	0.76	µg/L	87
		699.1 -> 98.8	766			
NFDHA	5.457	295.0 -> 201.0	1805	1.99	µg/L	99
		295.0 -> 84.9	864			
PFMBA	4.800	279.0 -> 85.1	5273	2.07	µg/L	100
PFMPA	3.553	229.0 -> 84.9	4663	1.93	µg/L	100
PFEESA	6.059	314.8 -> 134.9	36514	1.65	µg/L	99
		314.8 -> 82.9	844			

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

7.3.4
7

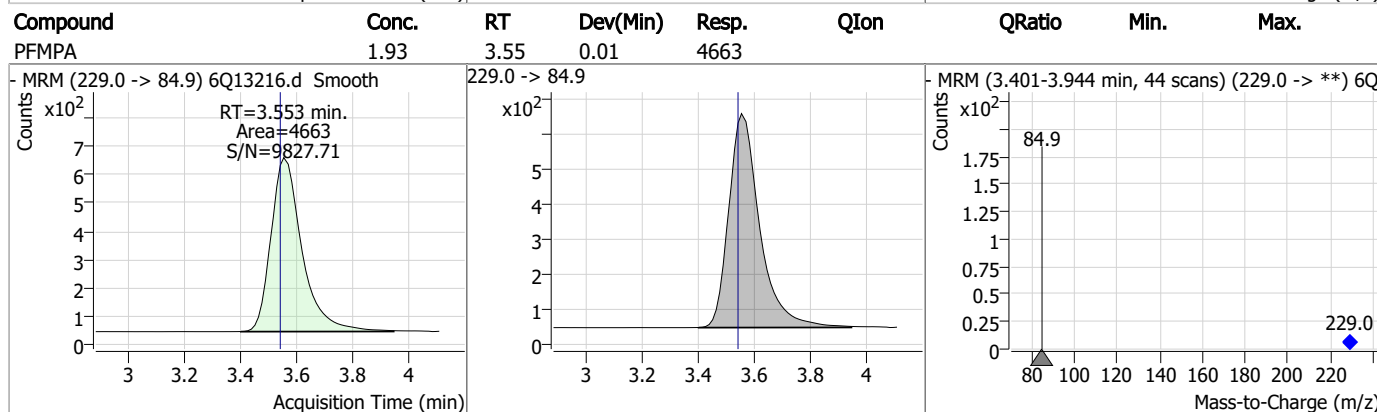
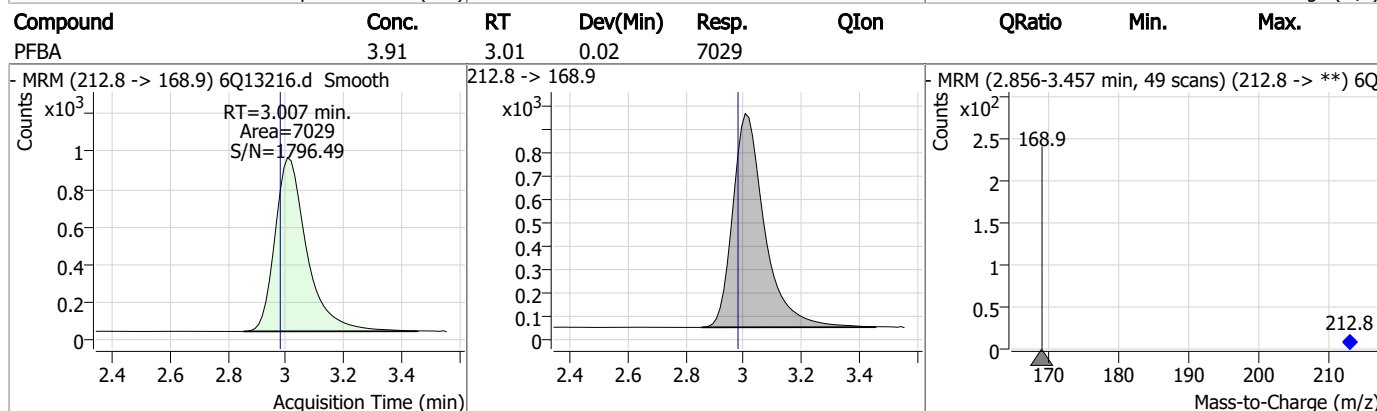
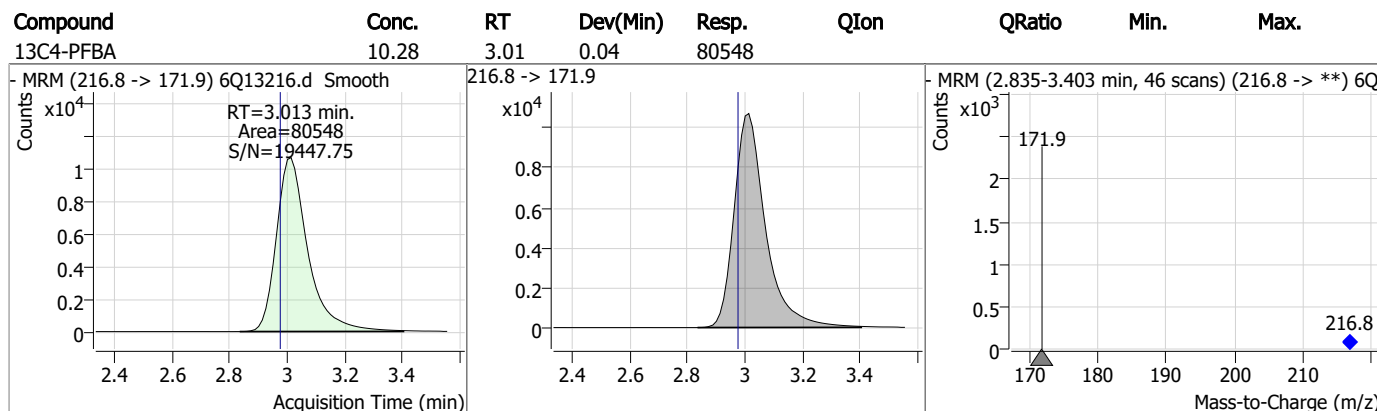
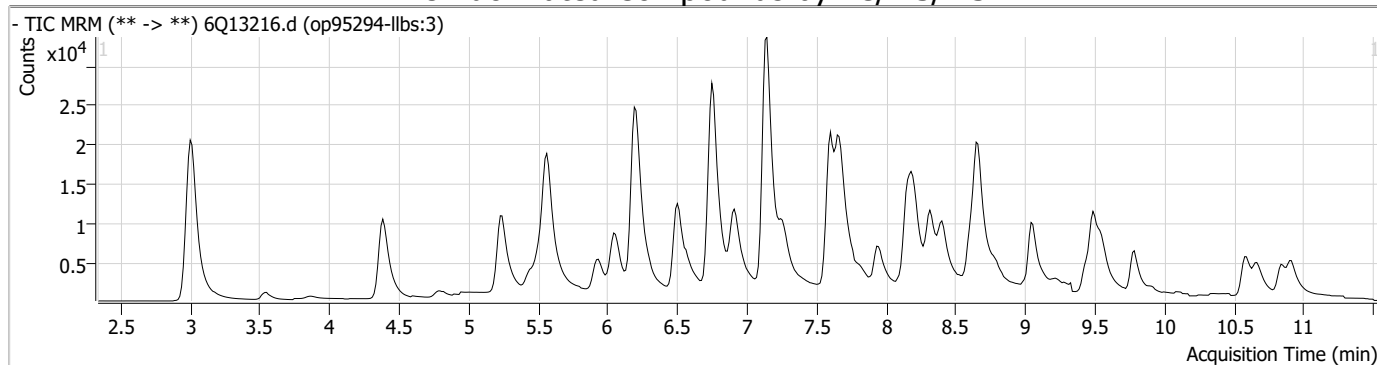
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.3.4

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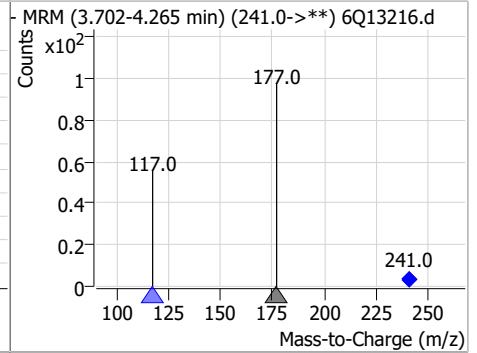
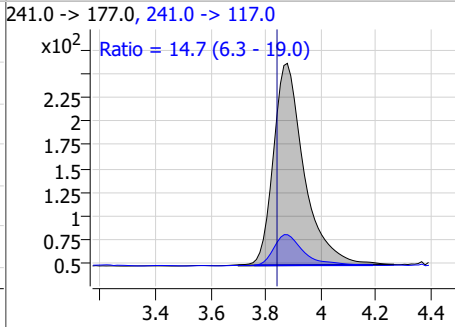
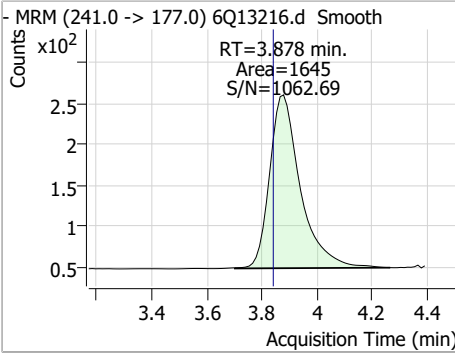
Perfluorinated Compounds by LC/MS/MS



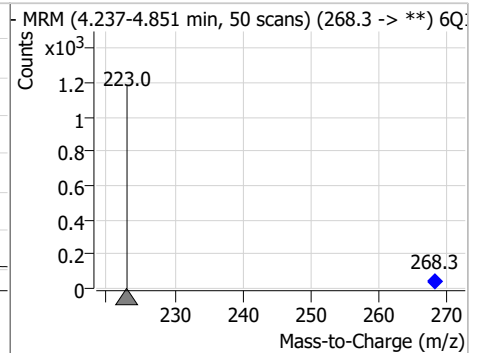
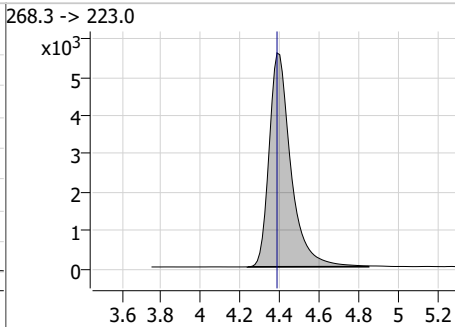
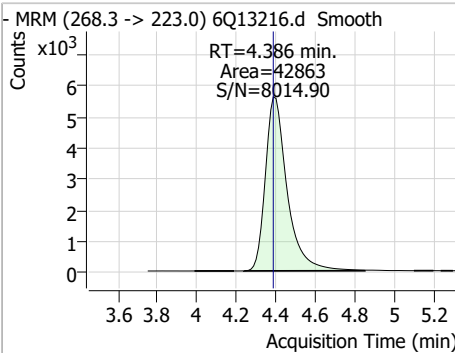
7.3.4
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Perfluorinated Compounds by LC/MS/MS

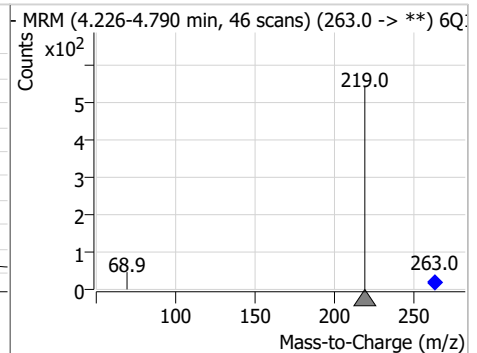
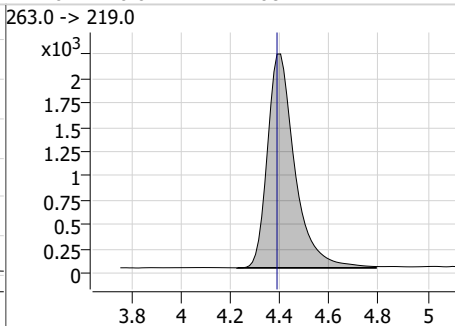
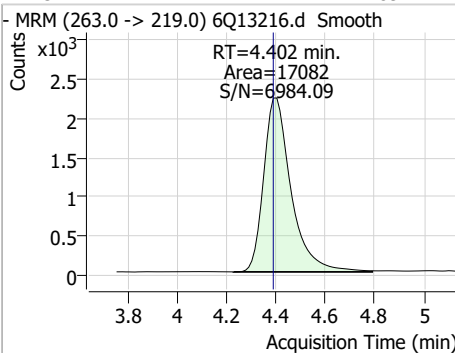
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	3.70	3.88	0.04	1645	241.0 -> 117.0	14.7	6.3	19.0



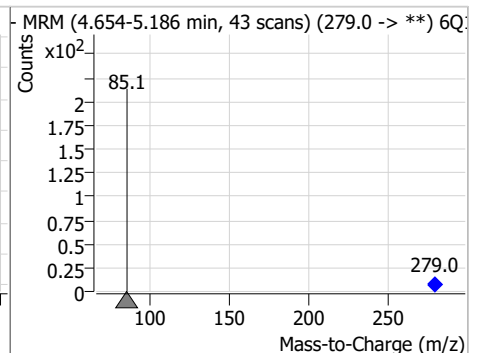
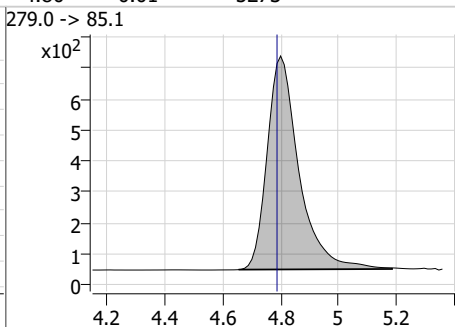
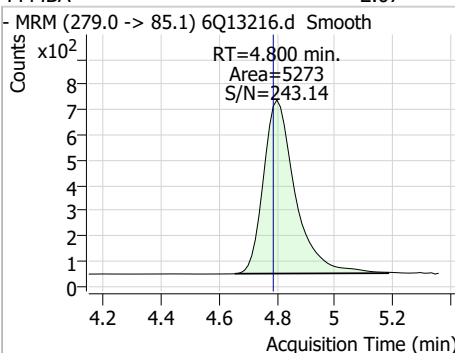
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.78	4.39	0.00	42863				



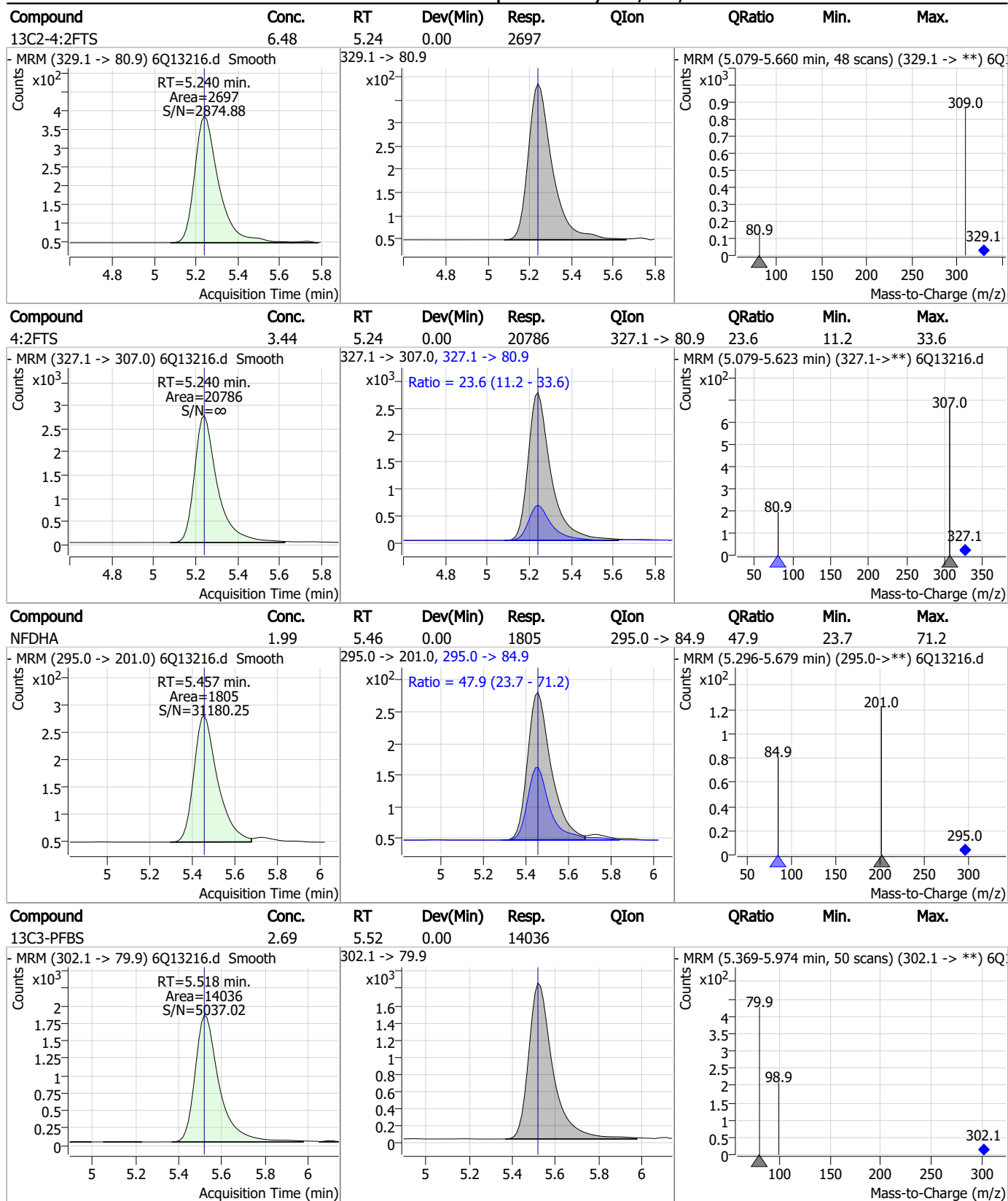
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.89	4.40	0.01	17082				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	2.07	4.80	0.01	5273				



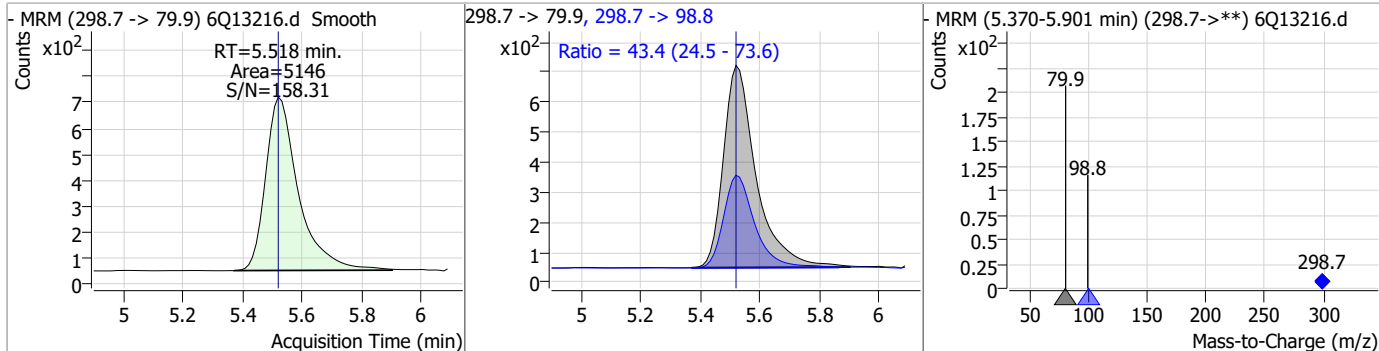
Perfluorinated Compounds by LC/MS/MS



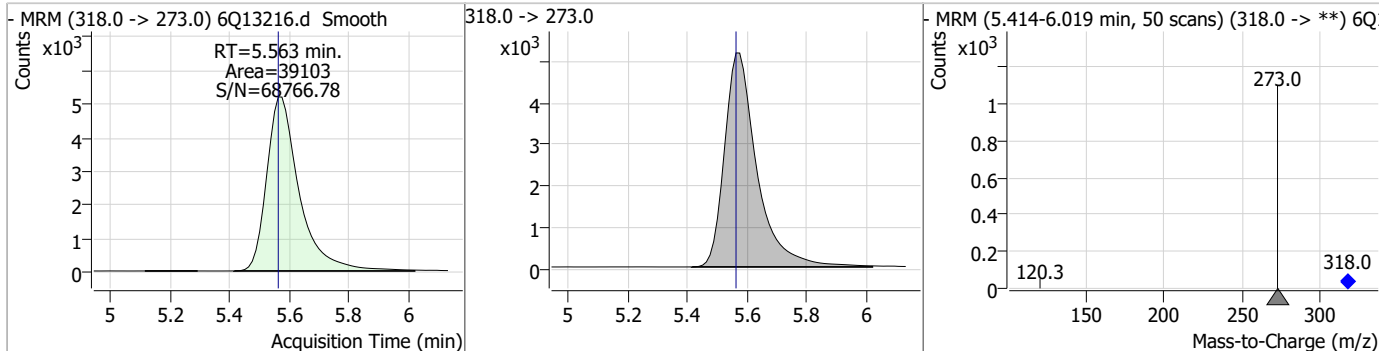
7.3.4
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Perfluorinated Compounds by LC/MS/MS

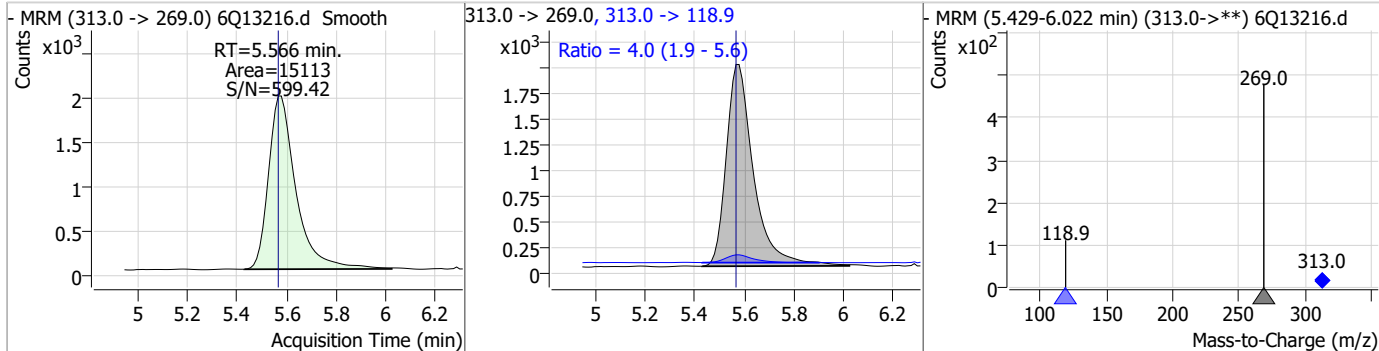
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.95	5.52	0.00	5146	298.7 -> 98.8	43.4	24.5	73.6



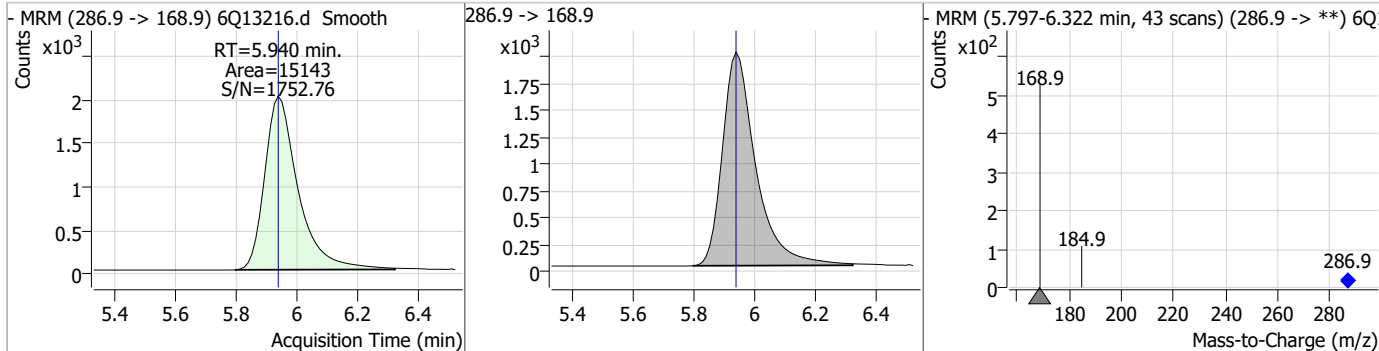
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.97	5.56	0.00	39103				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.99	5.57	0.00	15113	313.0 -> 118.9	4.0	1.9	5.6



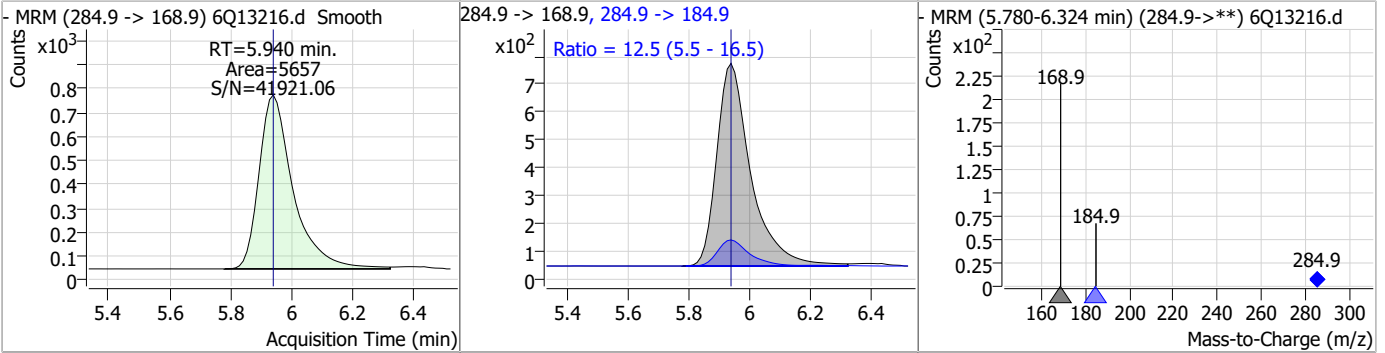
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	11.14	5.94	0.00	15143				



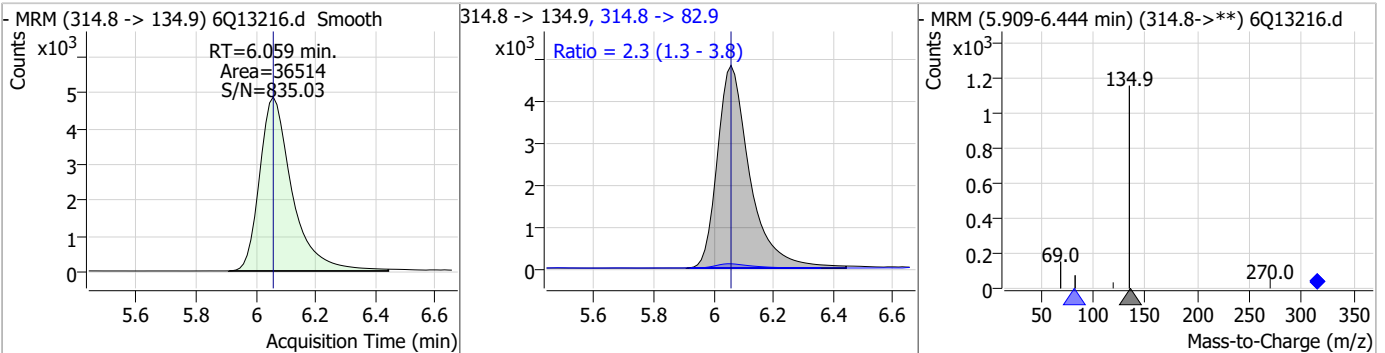
7.3.4
7

Perfluorinated Compounds by LC/MS/MS

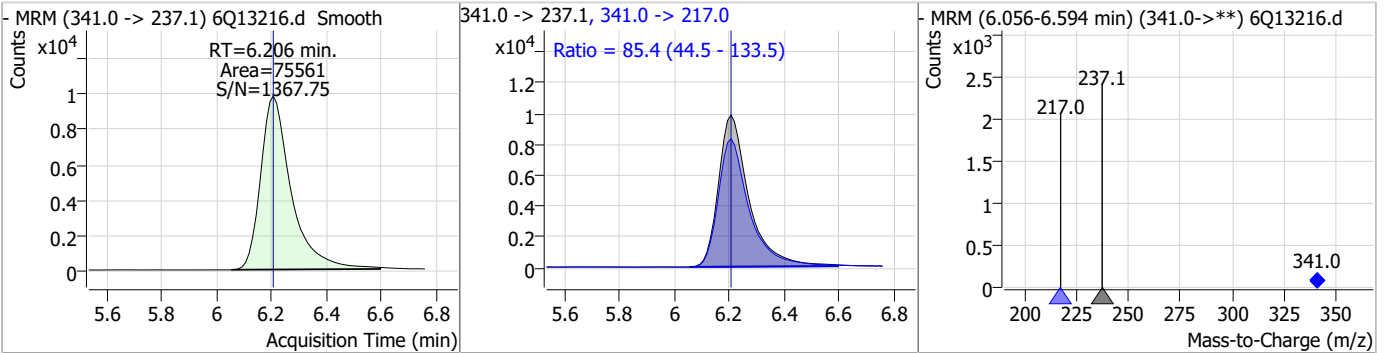
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	3.99	5.94	0.00	5657	284.9 -> 184.9	12.5	5.5	16.5



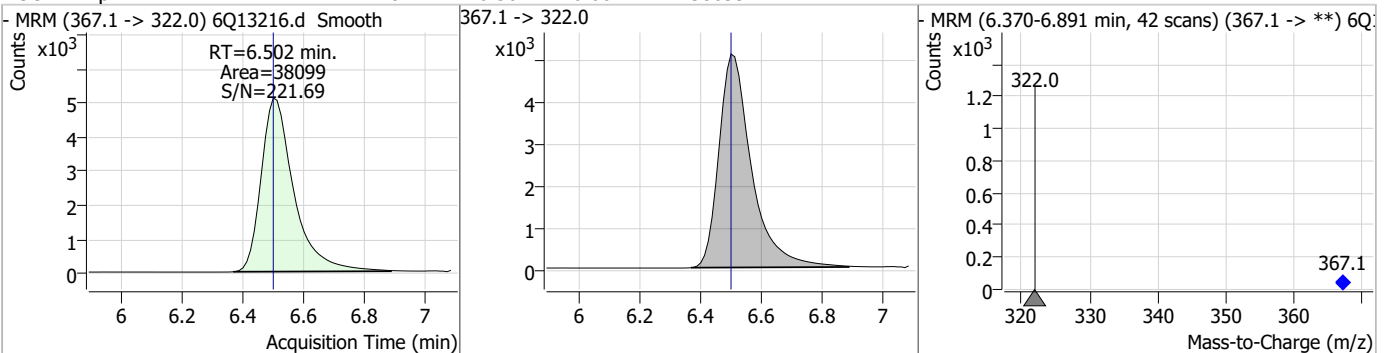
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	1.65	6.06	0.00	36514	314.8 -> 82.9	2.3	1.3	3.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	23.56	6.21	0.00	75561	341.0 -> 217.0	85.4	44.5	133.5

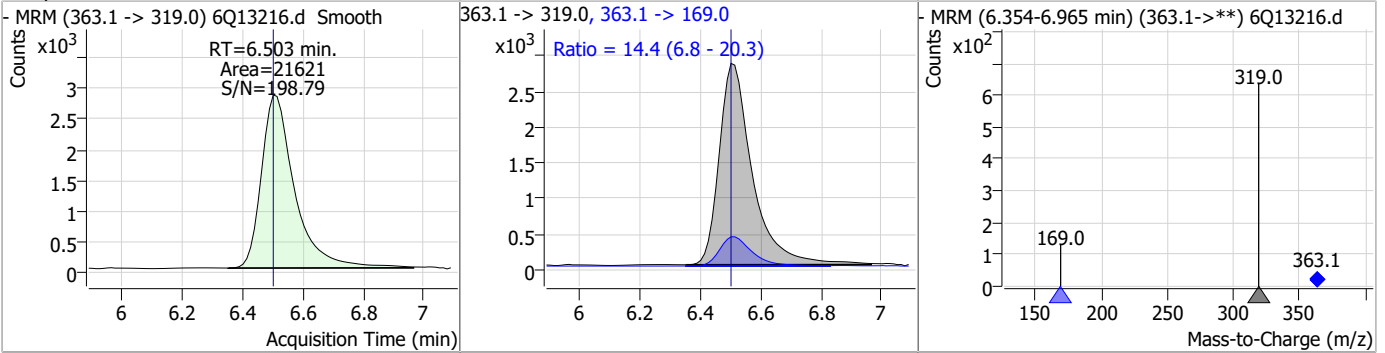


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.78	6.50	0.00	38099	367.1 -> 322.0	-	-	-

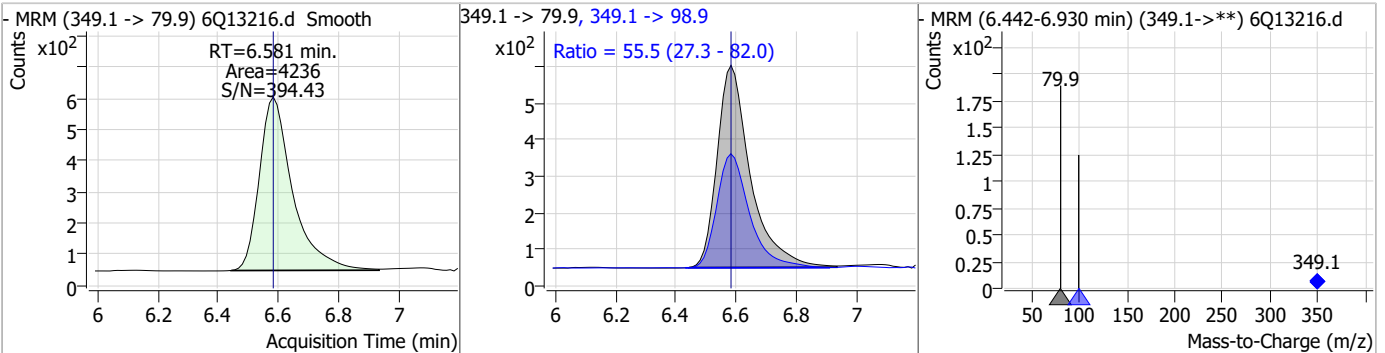


Perfluorinated Compounds by LC/MS/MS

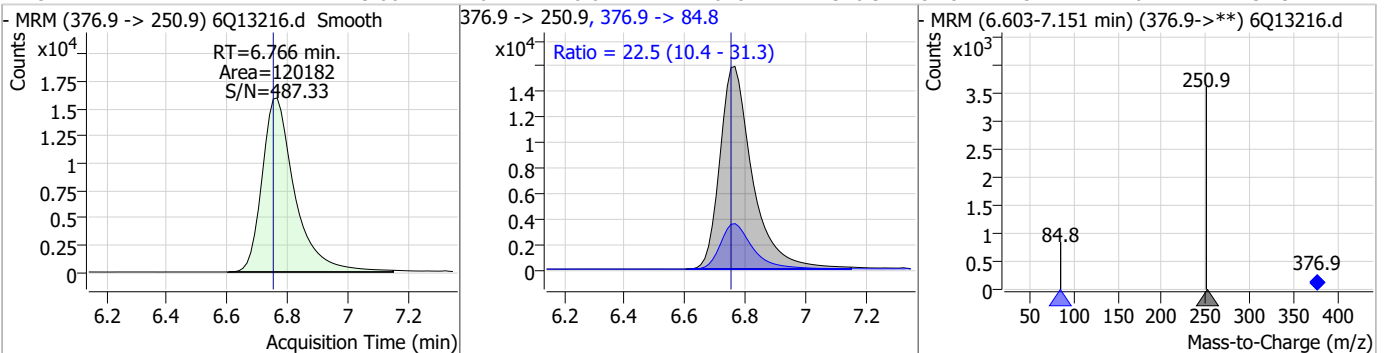
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.96	6.50	0.00	21621	363.1 -> 169.0	14.4	6.8	20.3



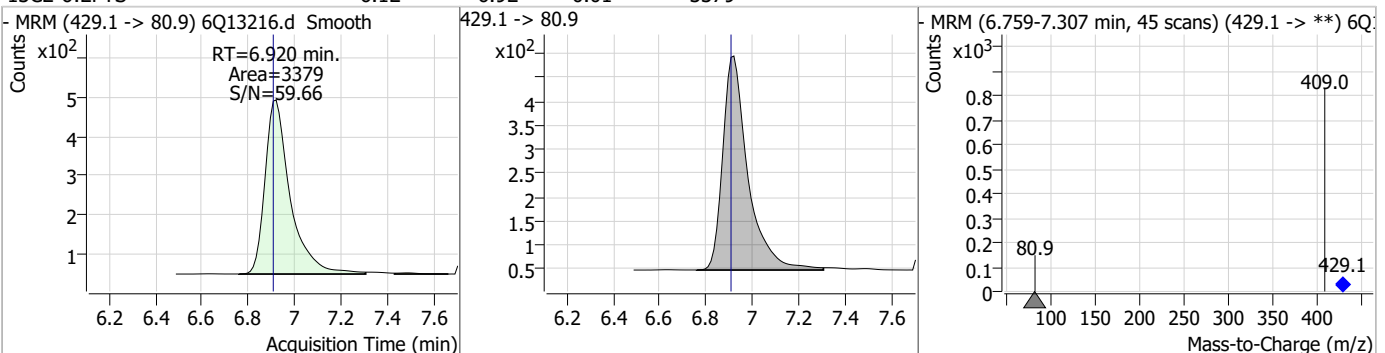
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.84	6.58	0.00	4236	349.1 -> 98.9	55.5	27.3	82.0



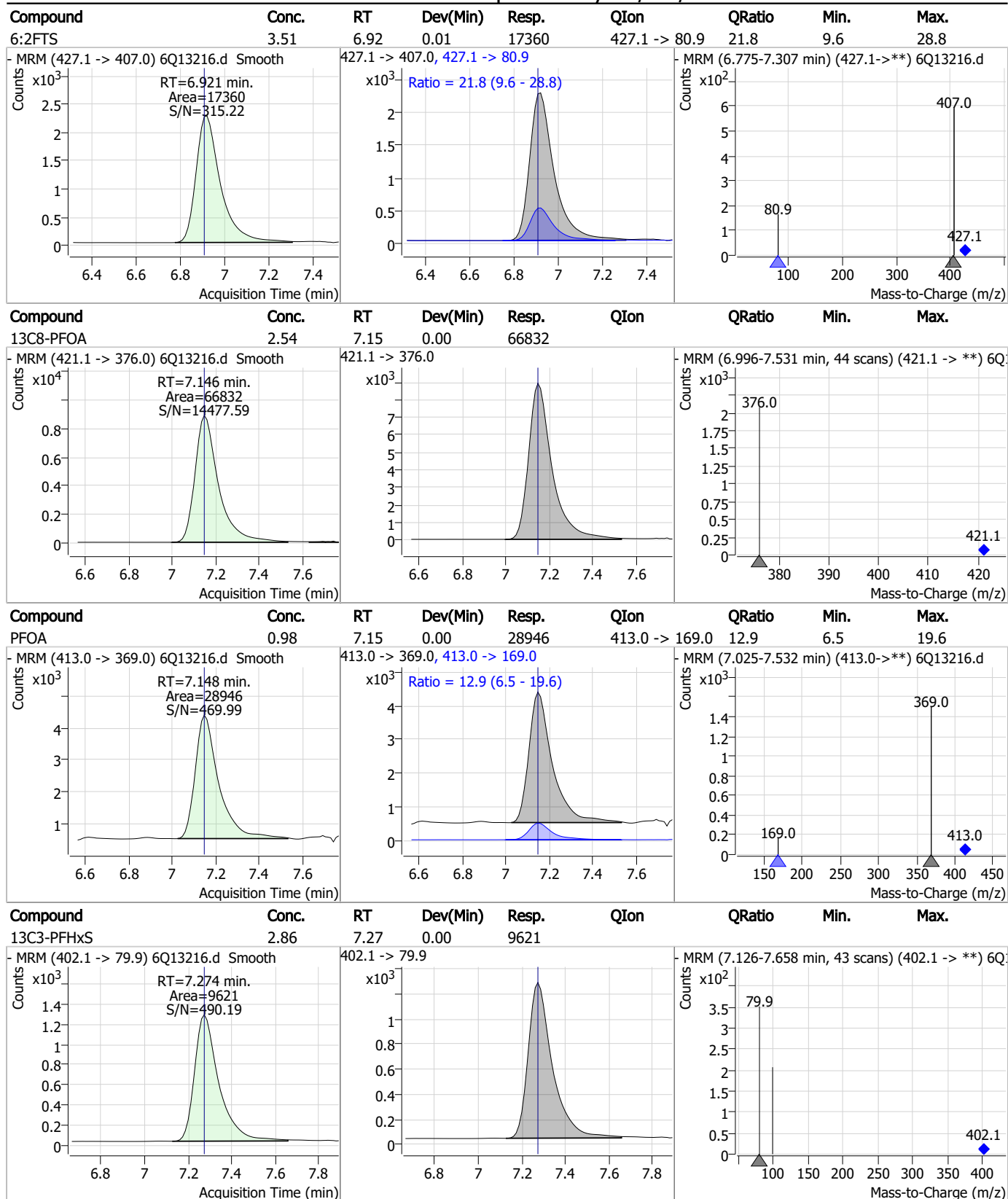
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	3.66	6.77	0.01	120182	376.9 -> 84.8	22.5	10.4	31.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	6.12	6.92	0.01	3379	429.1 -> 80.9			

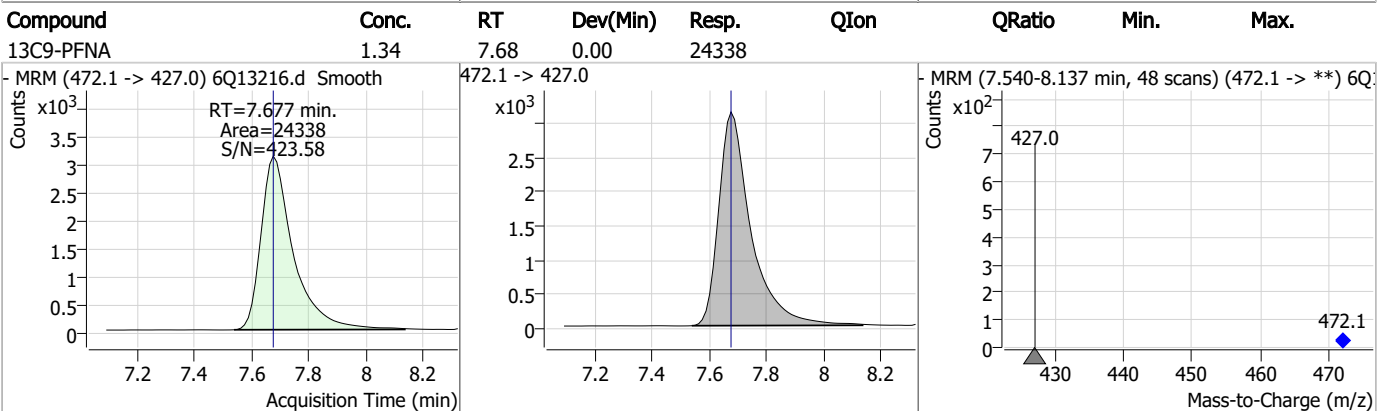
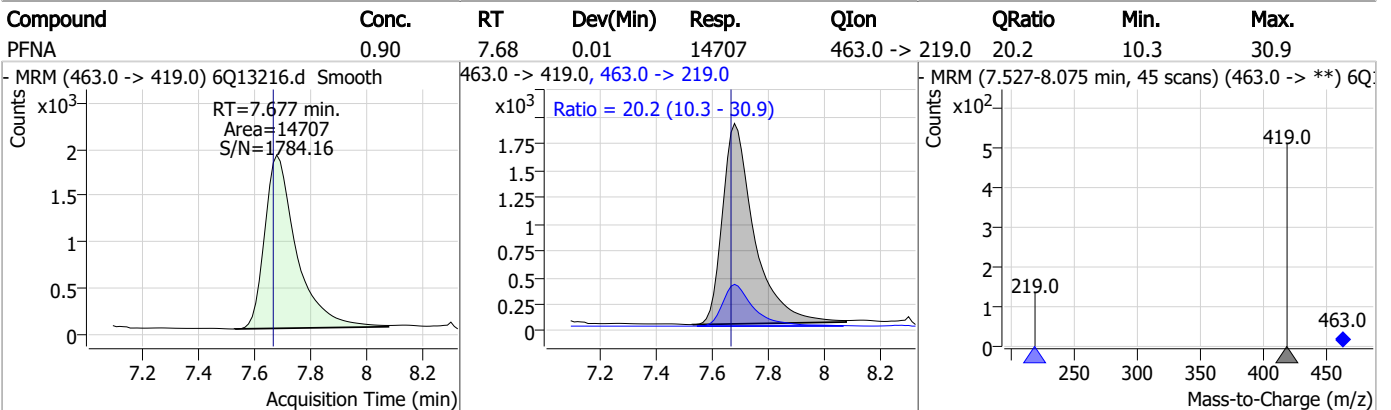
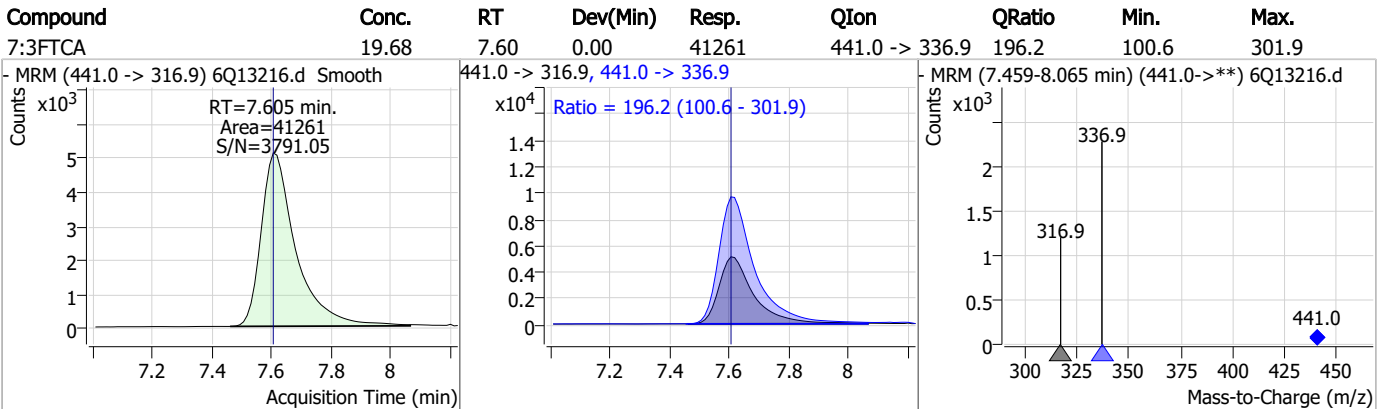
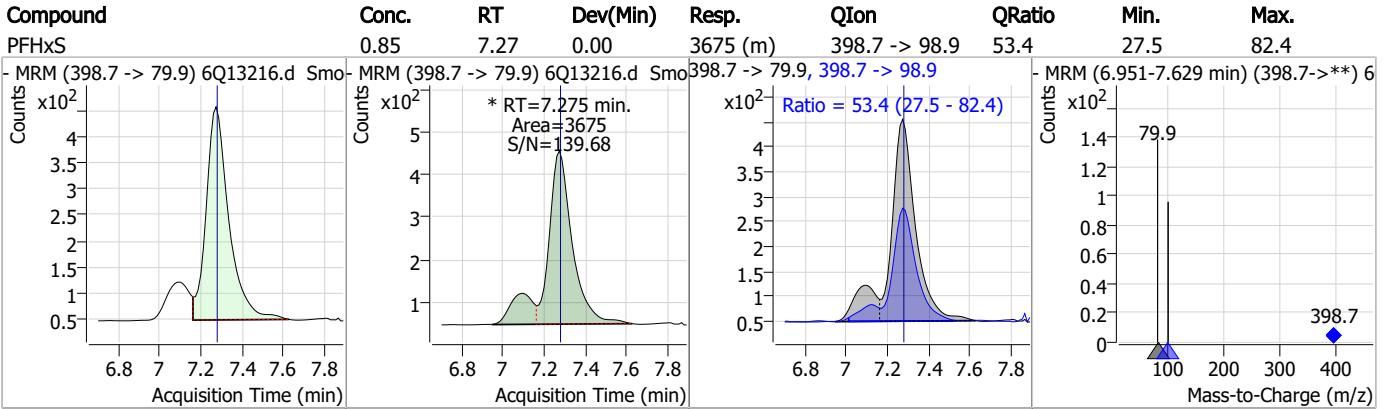


Perfluorinated Compounds by LC/MS/MS



7.3.4
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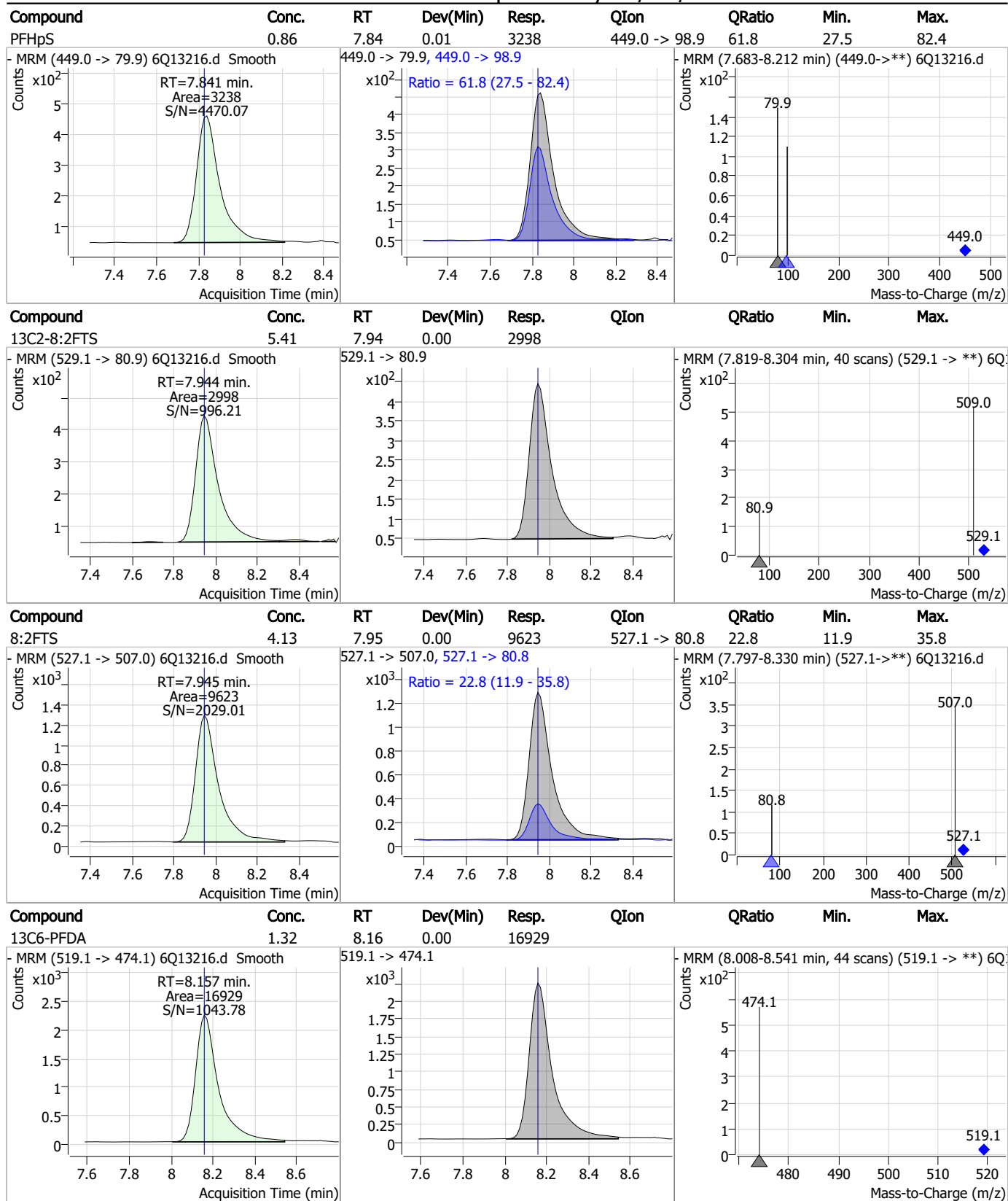
Perfluorinated Compounds by LC/MS/MS



7.3.4

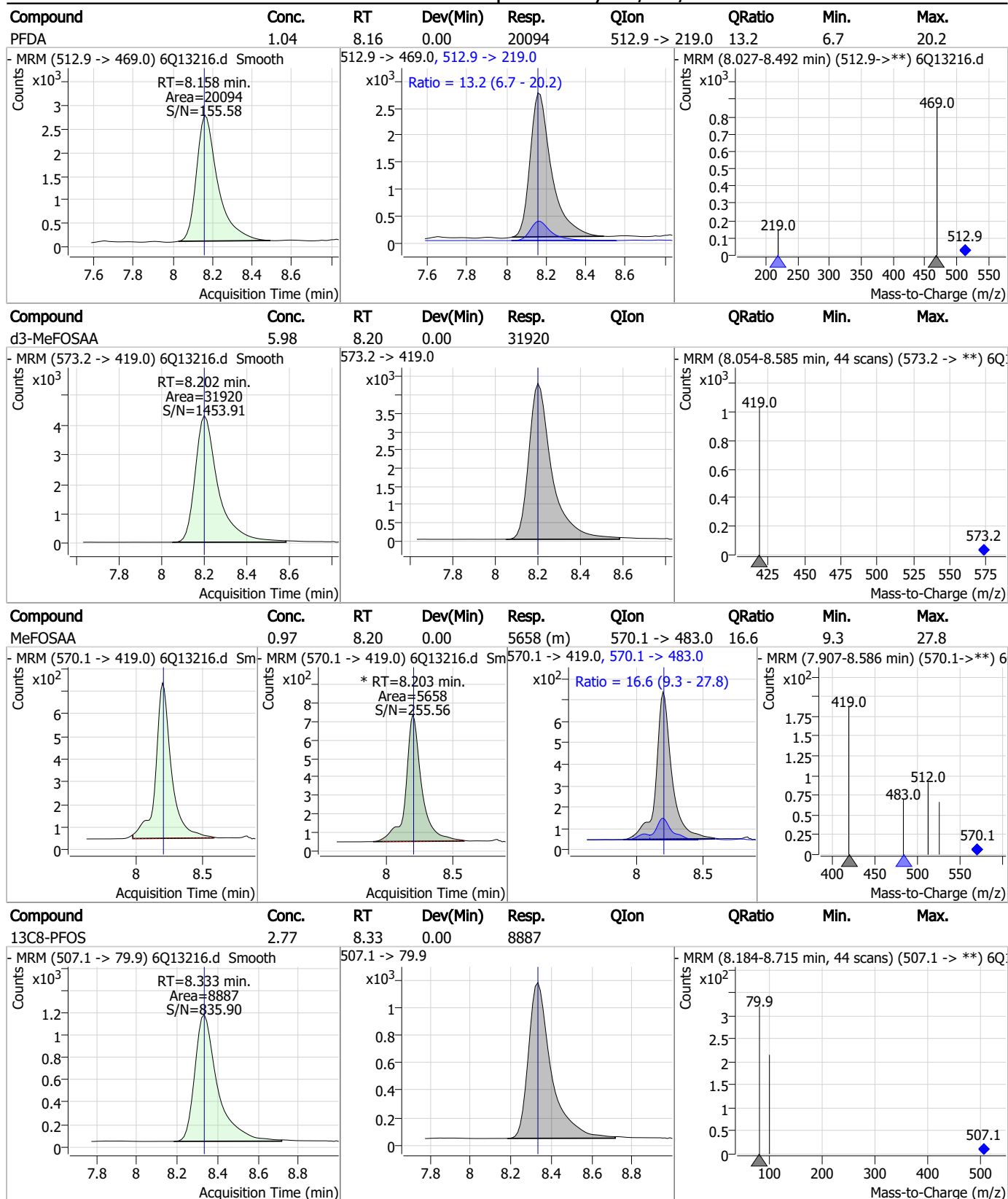
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Perfluorinated Compounds by LC/MS/MS



7.3.4
7

Perfluorinated Compounds by LC/MS/MS

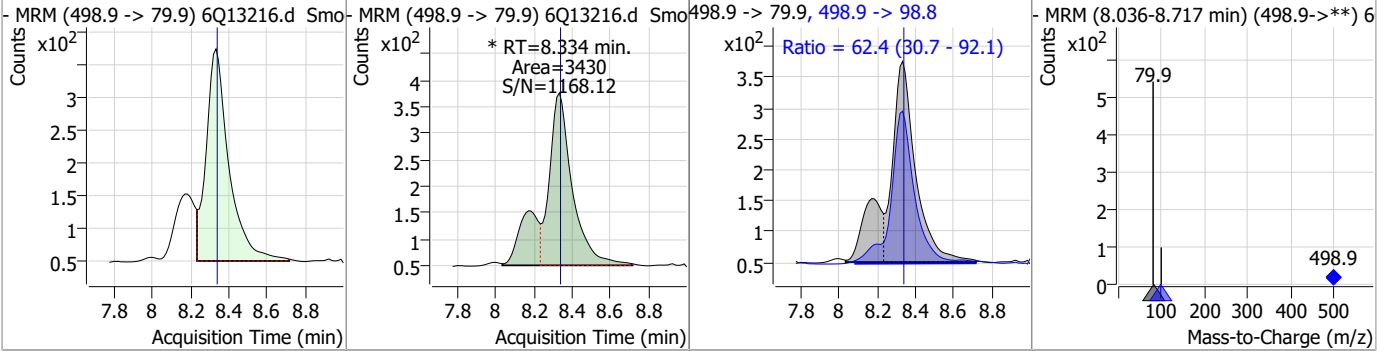


7.3.4
7

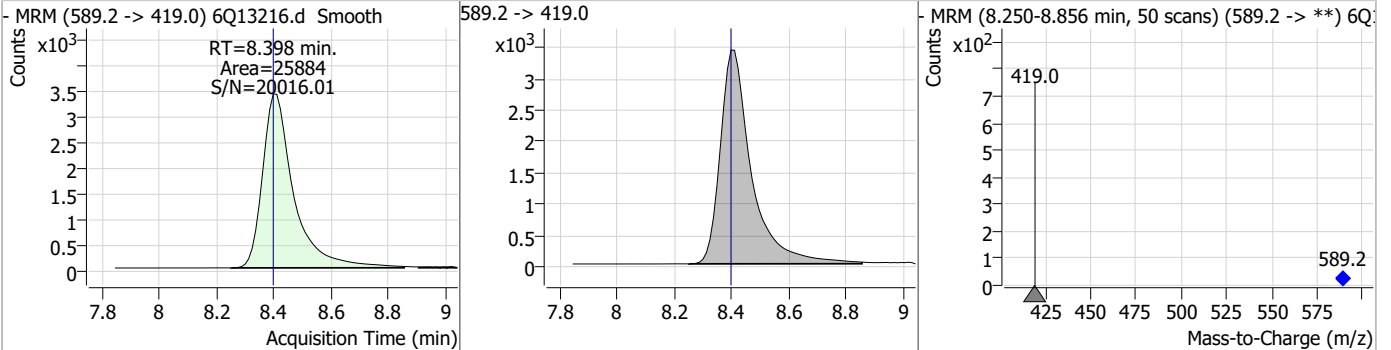


Perfluorinated Compounds by LC/MS/MS

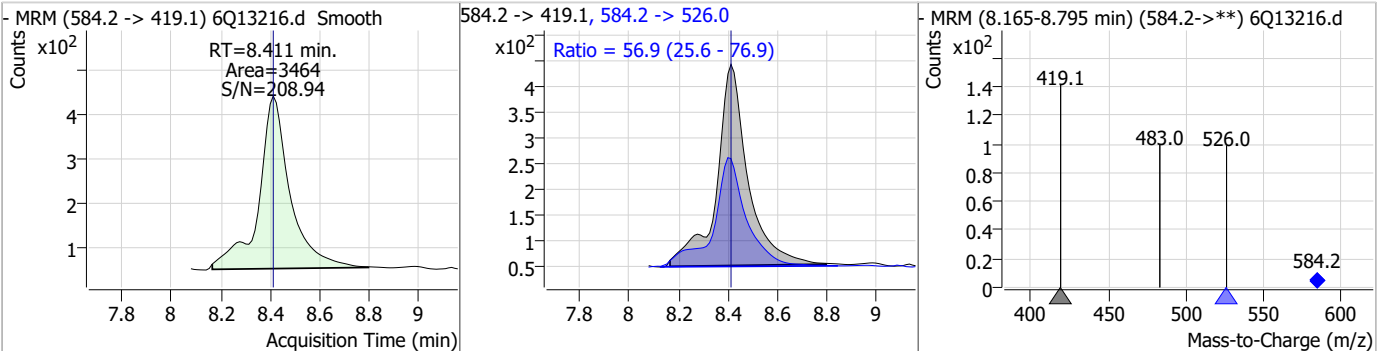
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.84	8.33	0.00	3430 (m)	498.9 -> 98.8	62.4	30.7	92.1



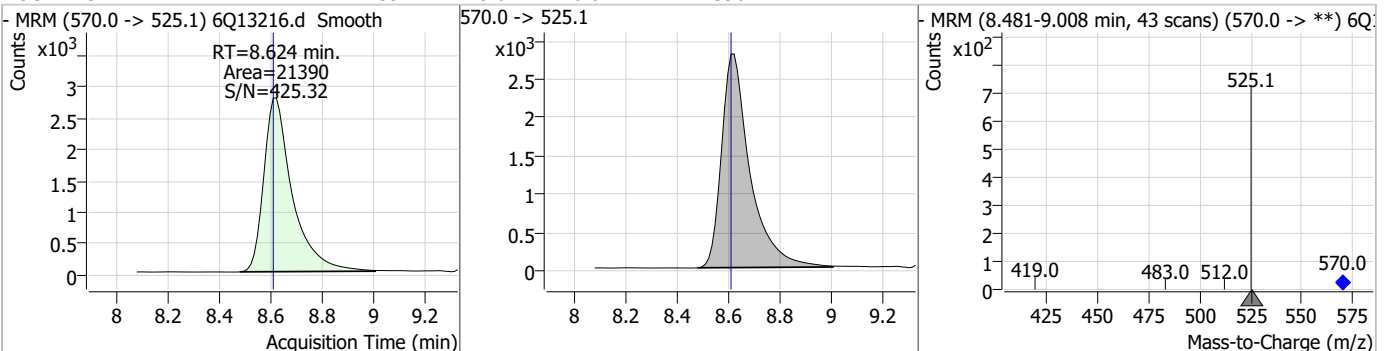
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.84	8.40	0.00	25884				



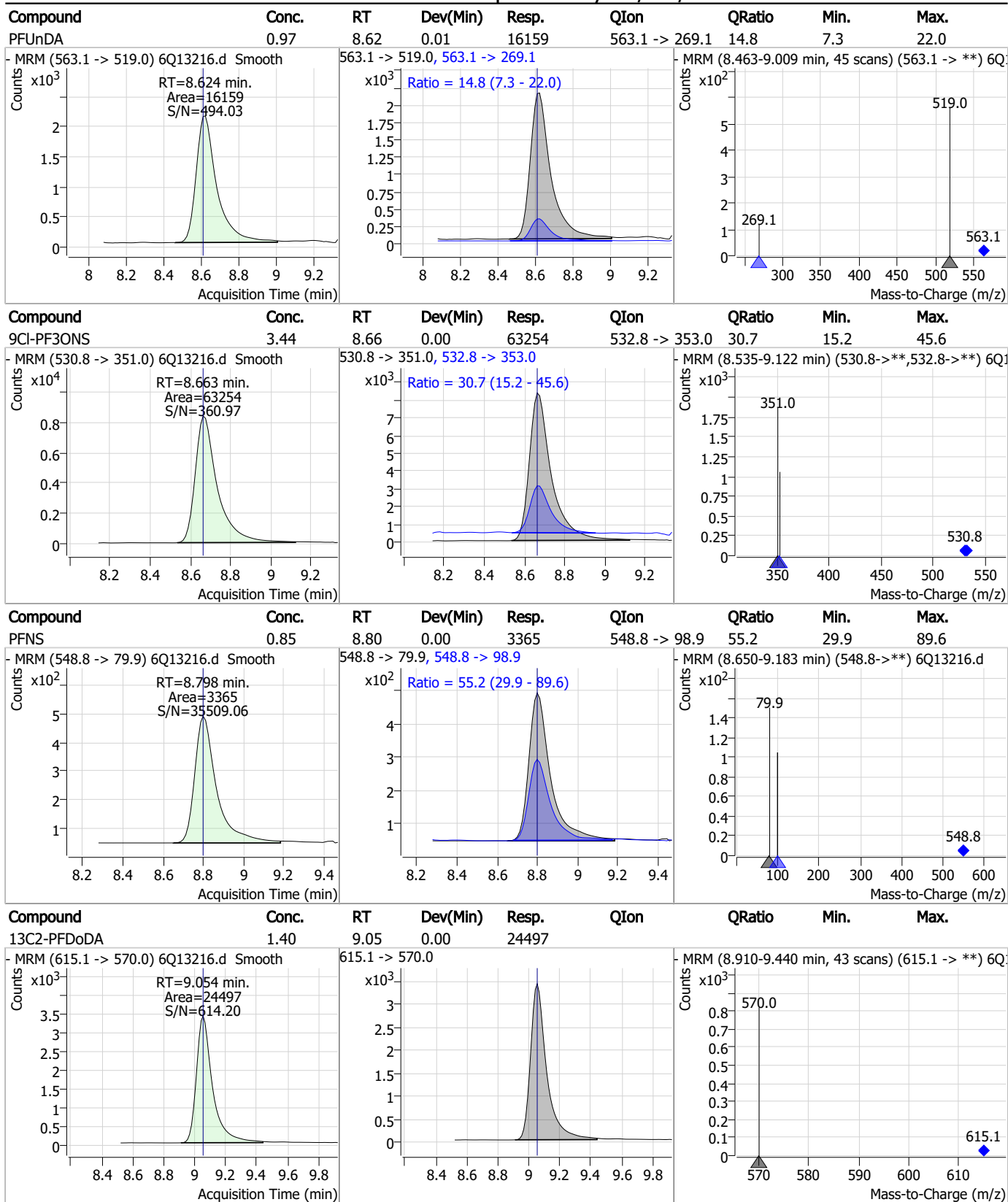
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.84	8.41	0.00	3464	584.2 -> 526.0	56.9	25.6	76.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.39	8.62	0.01	21390				

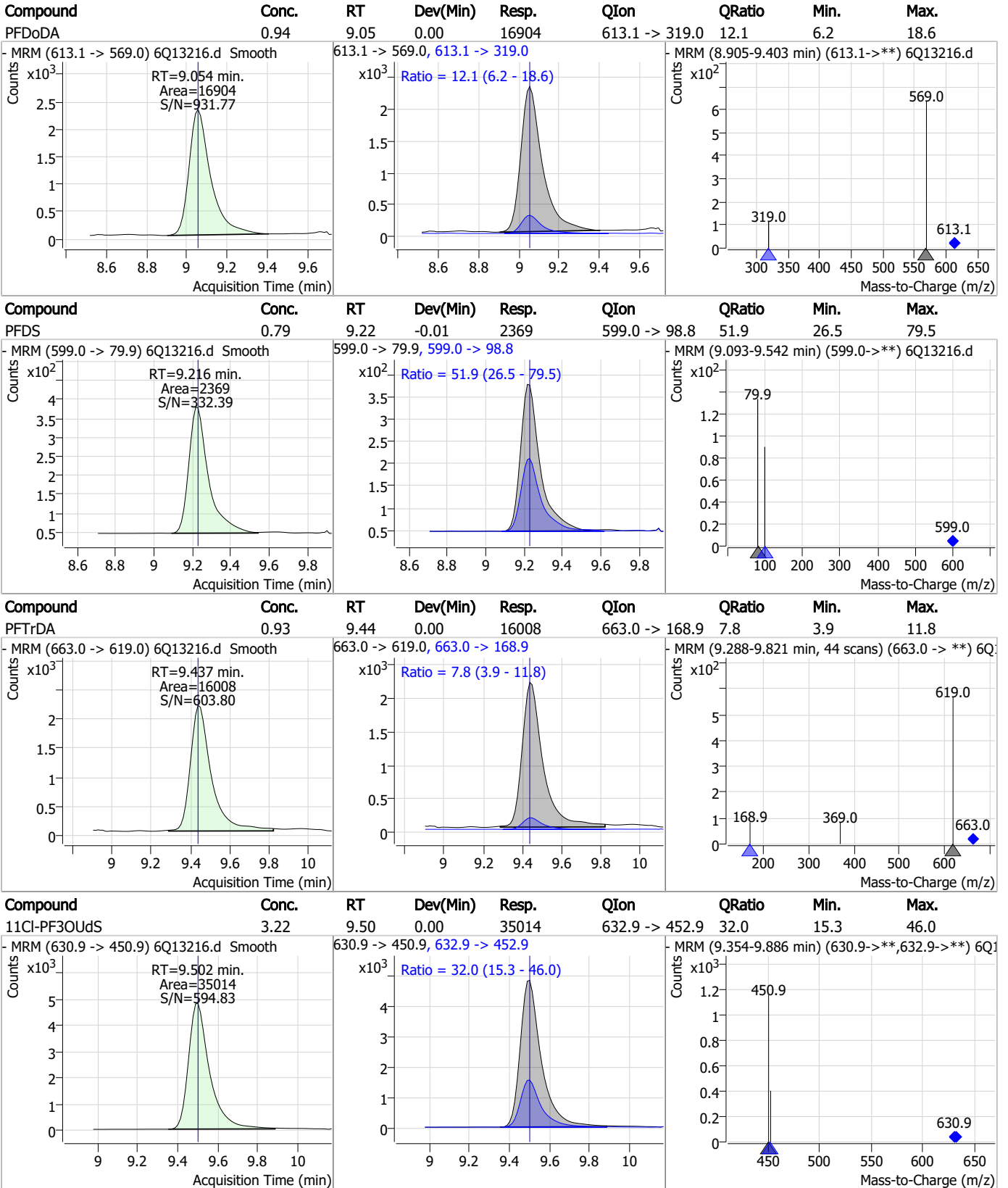


Perfluorinated Compounds by LC/MS/MS



7.3.4
7

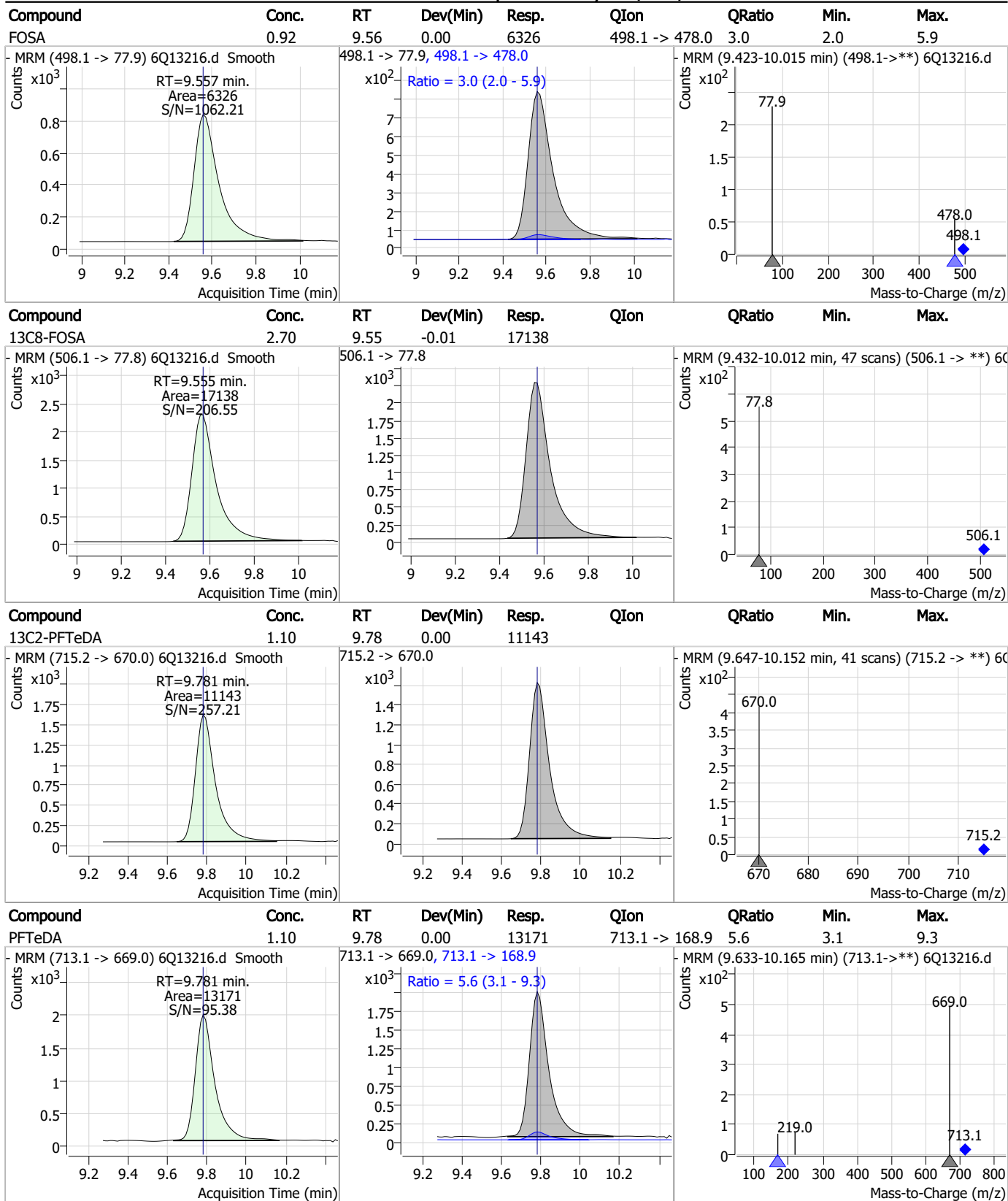
Perfluorinated Compounds by LC/MS/MS



7.3.4

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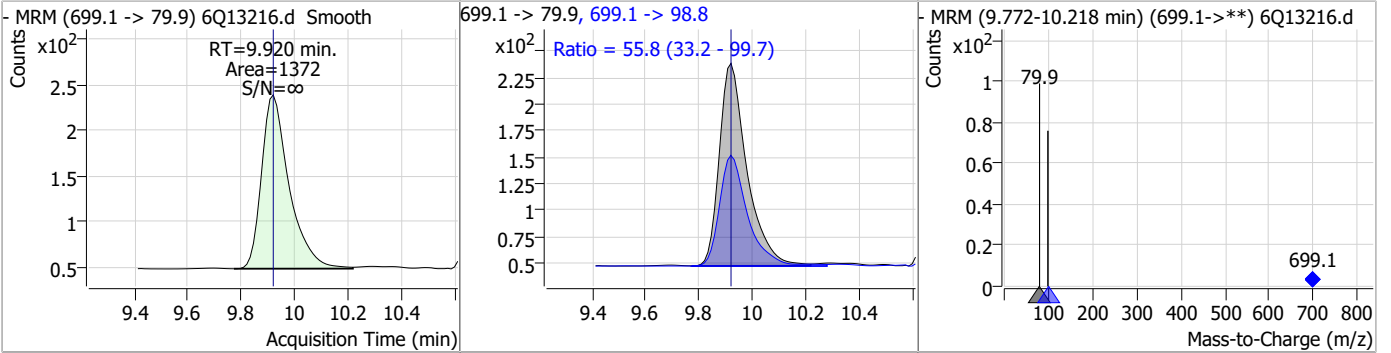
Perfluorinated Compounds by LC/MS/MS



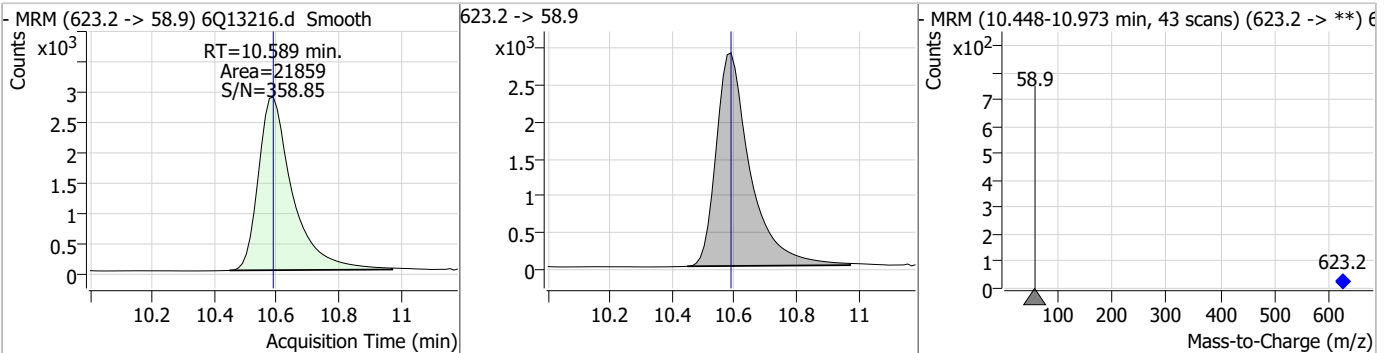
7.3.4
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Perfluorinated Compounds by LC/MS/MS

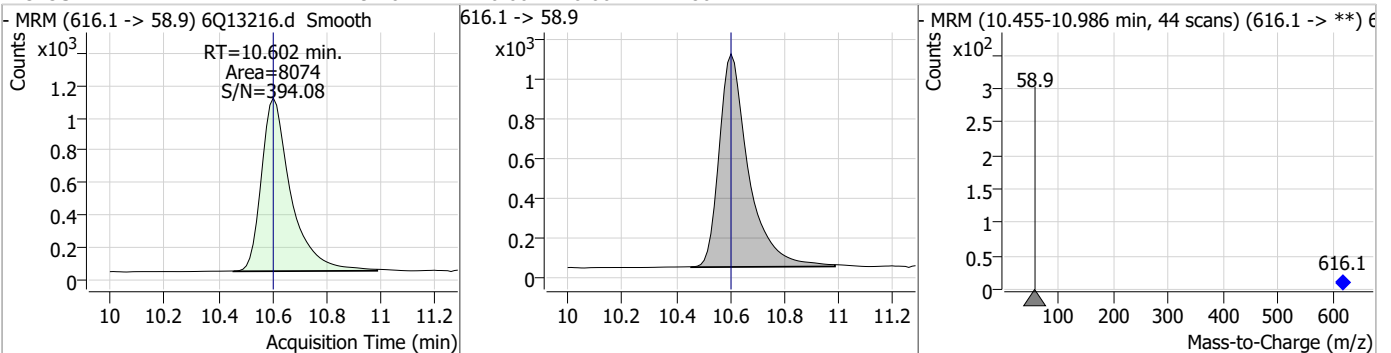
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.76	9.92	0.00	1372	699.1 -> 98.8	55.8	33.2	99.7



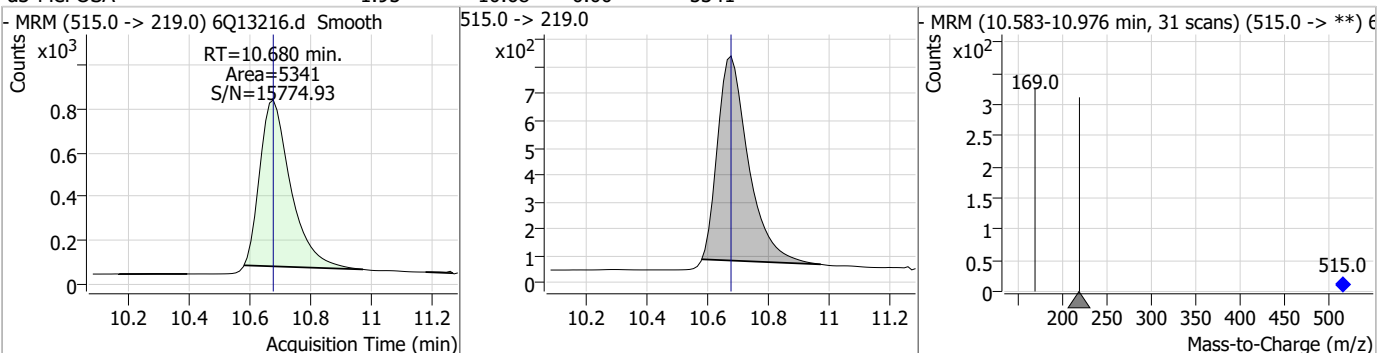
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.76	10.59	0.00	21859				



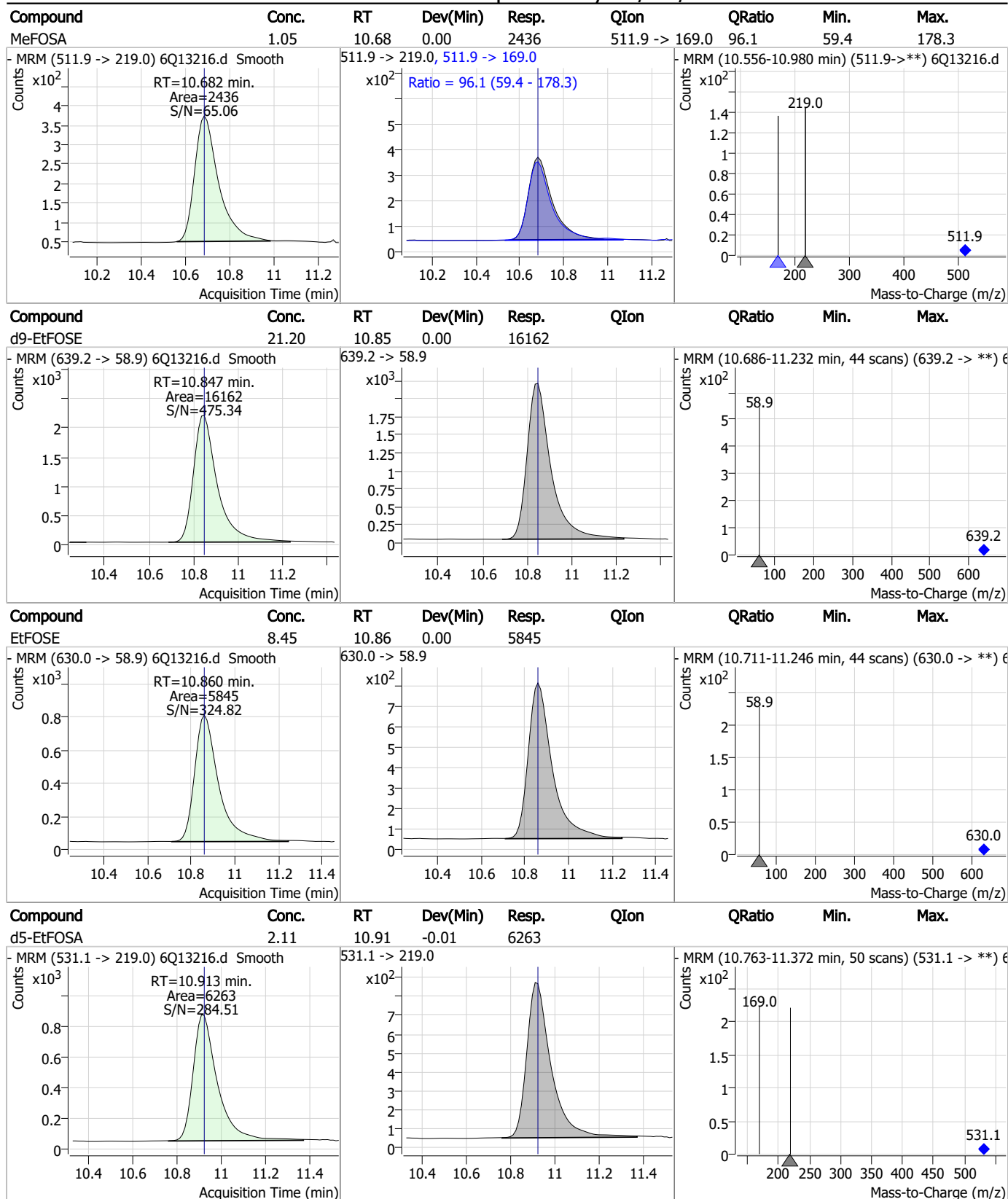
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	9.26	10.60	0.00	8074				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	1.95	10.68	0.00	5341				

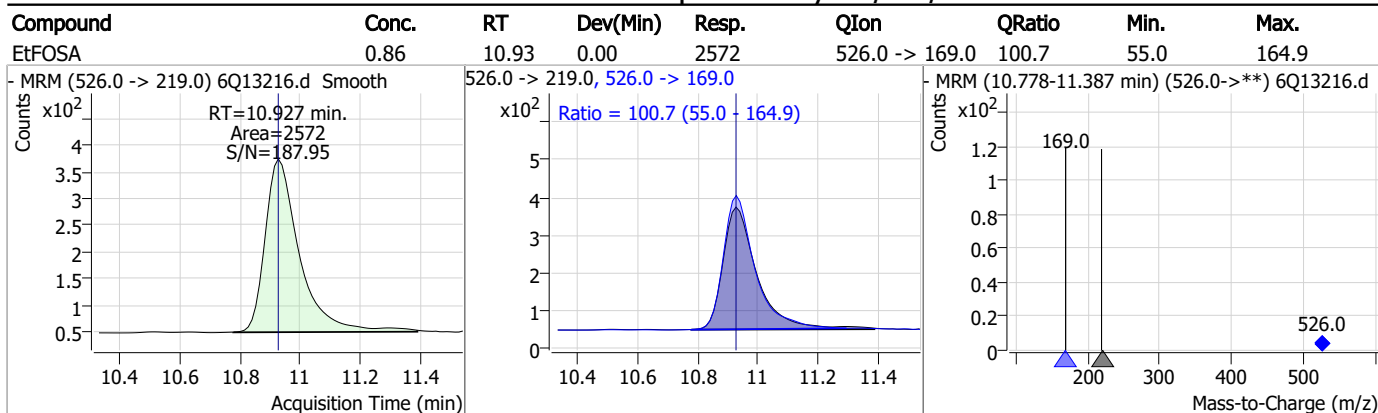


Perfluorinated Compounds by LC/MS/MS



7.3.4
7

Perfluorinated Compounds by LC/MS/MS



7.3.4

7

Manual Integration Approval Summary

Sample Number: OP95294-LLBS Method: EPA DRAFT 1633
Lab FileID: 6Q13216.D Analyst approved: 02/08/23 15:18 Martha Valls
Injection Time: 02/08/23 11:45 Supervisor approved: 02/08/23 15:53 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
MeFOSAA	2355-31-9		8.20	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak

7.3.4.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13199.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/7/2023 1:22:37 PM
 Sample Name : op95294-ms
 Vial : P3-D1
 DA Method File : 1633_020223_S6Q196.quantmethod.xml
 Batch Name : s6q202.batch.bin
 Sample Information : OP95294,S6Q202,560,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.013	216.8 -> 171.9	17389	10.00 µg/L	0.037
M5-PFPeA	4.400	268.3 -> 223.0	39569	5.00 µg/L	0.014
M5-PFHxA	5.575	318.0 -> 273.0	35871	2.50 µg/L	0.012
M4-PFHpA	6.502	367.1 -> 322.0	37075	2.50 µg/L	0.000
M8-PFOA	7.146	421.1 -> 376.0	62507	2.50 µg/L	0.000
M9-PFNA	7.677	472.1 -> 427.0	22028	1.25 µg/L	0.000
M6-PFDA	8.157	519.1 -> 474.1	16476	1.25 µg/L	0.000
M7-PFUnDA	8.612	570.0 -> 525.1	18210	1.25 µg/L	0.000
M2-PFDoDA	9.054	615.1 -> 570.0	18586	1.25 µg/L	0.000
M2-PFTeDA	9.781	715.2 -> 670.0	9749	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	15676	2.50 µg/L	0.000
M3-PFBS	5.530	302.1 -> 79.9	13675	2.50 µg/L	0.012
M3-PFHxS	7.274	402.1 -> 79.9	8773	2.50 µg/L	0.000
M8-PFOS	8.333	507.1 -> 79.9	8004	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2231	5.00 µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	2843	5.00 µg/L	0.000
M2-8:2FTS	7.944	529.1 -> 80.9	2427	5.00 µg/L	0.000
M3-MeFOSAA	8.202	573.2 -> 419.0	29204	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	14545	10.00 µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	22428	5.00 µg/L	0.012
M7-MeFOSE	10.589	623.2 -> 58.9	19995	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	12919	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	5930	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	5835	2.50 µg/L	0.000
13C4-PFOS	8.333	502.8 -> 79.9	9598	2.50 µg/L	0.000
13C3-PFBA	3.016	216.0 -> 172.0	32962	5.00 µg/L	0.037
18O2-PFHxS	7.273	403.0 -> 83.9	5832	2.50 µg/L	0.000
13C4-PFOA	7.147	417.1 -> 372.0	70389	2.50 µg/L	0.000
13C2-PFDA	8.158	515.1 -> 470.1	21465	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	22828	1.25 µg/L	0.000
13C2-PFHxA	5.576	315.1 -> 270.0	32526	2.50 µg/L	0.012

System Monitoring Compounds

13C2-4:2FTS	5.240	329.1 -> 80.9	2231	5.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.7%		
13C2-6:2FTS	6.908	429.1 -> 80.9	2843	5.65 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.0%		
13C2-8:2FTS	7.944	529.1 -> 80.9	2427	4.80 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.0%		
13C2-PFDoDA	9.054	615.1 -> 570.0	18586	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.0%		
13C2-PFTeDA	9.781	715.2 -> 670.0	9749	1.03 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 82.7%		
13C3-PFBS	5.530	302.1 -> 79.9	13675	2.88 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 115.1%		
13C3-PFHxS	7.274	402.1 -> 79.9	8773	2.86 µg/L	0.000

7.4.1
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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 = 114.5%	
13C4-PFBA	3.013	216.8 -> 171.9	17389	2.38 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 23.8%	
13C4-PFHpA	6.502	367.1 -> 322.0	37075	2.76 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.5%	
13C5-PFHxA	5.575	318.0 -> 273.0	35871	2.79 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.5%	
13C5-PFPeA	4.400	268.3 -> 223.0	39569	5.46 µg/L	0.014
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.2%	
13C6-PFDA	8.157	519.1 -> 474.1	16476	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.4%	
13C7-PFUnDA	8.612	570.0 -> 525.1	18210	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C8-FOSA	9.567	506.1 -> 77.8	15676	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C8-PFOA	7.146	421.1 -> 376.0	62507	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.4%	
13C8-PFOS	8.333	507.1 -> 79.9	8004	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C9-PFNA	7.677	472.1 -> 427.0	22028	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.7%	
d3-MeFOSAA	8.202	573.2 -> 419.0	29204	5.55 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 111.0%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	14545	10.94 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 109.4%	
d3-MeFOSA	10.680	515.0 -> 219.0	5835	2.17 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.7%	
d5-EtFOSAA	8.410	589.2 -> 419.0	22428	5.14 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.8%	
d7-MeFOSE	10.589	623.2 -> 58.9	19995	18.35 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 73.4%	
d9-EtFOSE	10.847	639.2 -> 58.9	12919	17.20 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 68.8%	
d5-EtFOSA	10.925	531.1 -> 219.0	5930	2.02 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 81.0%	
Target Compounds					QValue
4:2FTS	5.240	327.1 -> 307.0	46510	9.30 µg/L	99
		327.1 -> 80.9	10252		
6:2FTS	6.921	427.1 -> 407.0	40701	9.78 µg/L	98
		427.1 -> 80.9	8259		
8:2FTS	7.945	527.1 -> 507.0	21031	11.16 µg/L	100
		527.1 -> 80.8	4958		
EtFOSAA	8.411	584.2 -> 419.1	8434	2.35 µg/L	99
		584.2 -> 526.0	4401		
FOSA	9.557	498.1 -> 77.9	15098	2.41 µg/L	100
		498.1 -> 478.0	588		
MeFOSAA	8.203	570.1 -> 419.0	12039	2.25 µg/L	100
		570.1 -> 483.0	2235		
PFBA	3.019	212.8 -> 168.9	3929	10.12 µg/L	100
PFBS	5.531	298.7 -> 79.9	11806	2.25 µg/L	95
		298.7 -> 98.8	5358		
PFDA	8.158	512.9 -> 469.0	48765	2.60 µg/L	99
		512.9 -> 219.0	6731		
PFDoDA	9.054	613.1 -> 569.0	35927	2.64 µg/L	99
		613.1 -> 319.0	4365		
PFDS	9.229	599.0 -> 79.9	5438	2.01 µg/L	99

7.4.1
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2907			
PFHpA	6.503	363.1 -> 319.0	52483	2.39	µg/L	97
		363.1 -> 169.0	7661			
PFHpS	7.828	449.0 -> 79.9	8172	2.41	µg/L	93
		449.0 -> 98.9	4898			
PFHxA	5.578	313.0 -> 269.0	35934	2.55	µg/L	100
		313.0 -> 118.9	1373			
PFHxS	7.275	398.7 -> 79.9	9476	2.40	µg/L	m 98
		398.7 -> 98.9	5062			
PFNA	7.677	463.0 -> 419.0	40393	2.72	µg/L	93
		463.0 -> 219.0	6920			
PFNS	8.798	548.8 -> 79.9	8205	2.31	µg/L	93
		548.8 -> 98.9	4468			
PFOA	7.148	413.0 -> 369.0	68690	2.50	µg/L	100
		413.0 -> 169.0	8921			
PFOS	8.334	498.9 -> 79.9	8680	2.36	µg/L	m 98
		498.9 -> 98.8	5450			
PFPeA	4.402	263.0 -> 219.0	46205	5.53	µg/L	100
PFPeS	6.581	349.1 -> 79.9	11146	2.43	µg/L	96
		349.1 -> 98.9	5771			
PFTeDA	9.781	713.1 -> 669.0	30785	2.93	µg/L	98
		713.1 -> 168.9	2152			
PFTrDA	9.437	663.0 -> 619.0	34023	2.61	µg/L	99
		663.0 -> 168.9	2507			
PFUnDA	8.624	563.1 -> 519.0	38662	2.73	µg/L	96
		563.1 -> 269.1	5047			
11CI-PF3OUdS	9.489	630.9 -> 450.9	78260	7.50	µg/L	96
		632.9 -> 452.9	25607			
9CI-PF3ONS	8.663	530.8 -> 351.0	148361	8.41	µg/L	98
		532.8 -> 353.0	47076			
ADONA	6.766	376.9 -> 250.9	298132	9.45	µg/L	97
		376.9 -> 84.8	66680			
HFPO-DA	5.940	284.9 -> 168.9	13885	10.21	µg/L	96
		284.9 -> 184.9	1727			
3:3FTCA	3.878	241.0 -> 177.0	4891	11.92	µg/L	99
		241.0 -> 117.0	646			
5:3FTCA	6.218	341.0 -> 237.1	180155	61.24	µg/L	95
		341.0 -> 217.0	152412			
7:3FTCA	7.617	441.0 -> 316.9	92162	47.93	µg/L	86
		441.0 -> 336.9	205732			
EtFOSA	10.927	526.0 -> 219.0	6707	2.37	µg/L	86
		526.0 -> 169.0	6372			
EtFOSE	10.860	630.0 -> 58.9	13720	24.81	µg/L	100
MeFOSA	10.682	511.9 -> 219.0	6116	2.42	µg/L	83
		511.9 -> 169.0	6101			
MeFOSE	10.602	616.1 -> 58.9	19499	24.45	µg/L	100
PFDoDS	9.920	699.1 -> 79.9	2985	1.84	µg/L	99
		699.1 -> 98.8	1949			
NFDHA	5.457	295.0 -> 201.0	4304	5.17	µg/L	88
		295.0 -> 84.9	2389			
PFMBA	4.800	279.0 -> 85.1	12598	5.36	µg/L	100
PFMPA	3.553	229.0 -> 84.9	6917	3.10	µg/L	100
PFEESA	6.059	314.8 -> 134.9	90377	4.46	µg/L	100
		314.8 -> 82.9	2295			

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

7.4.1
7

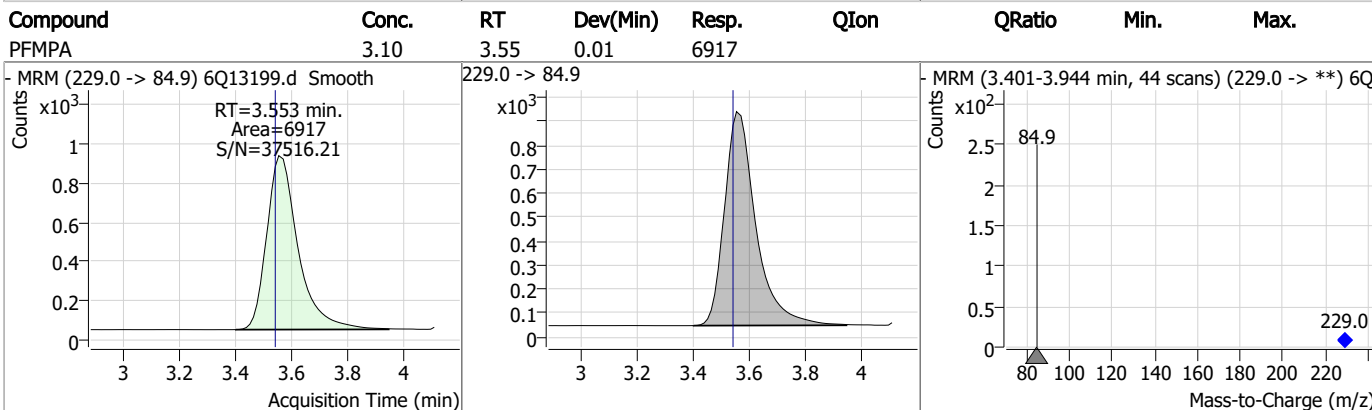
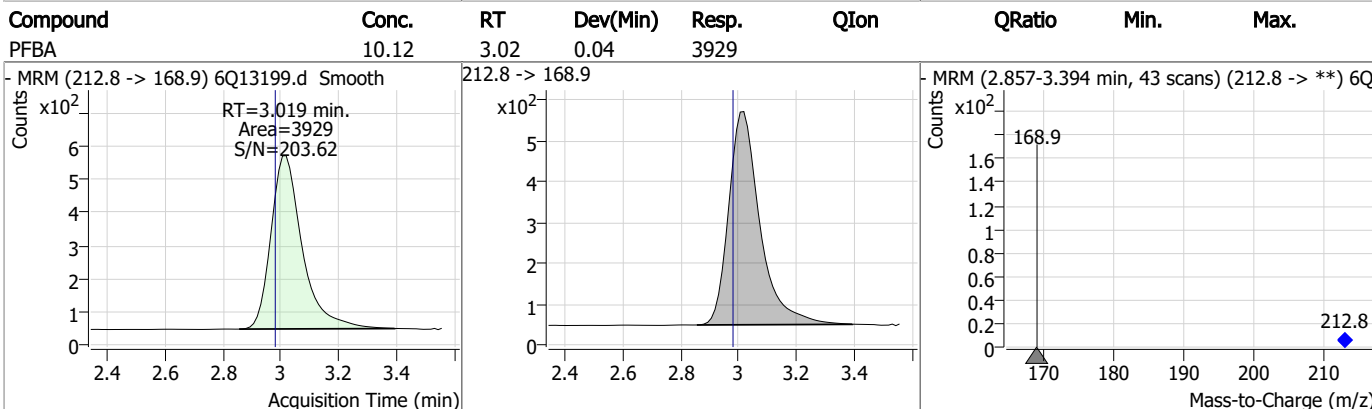
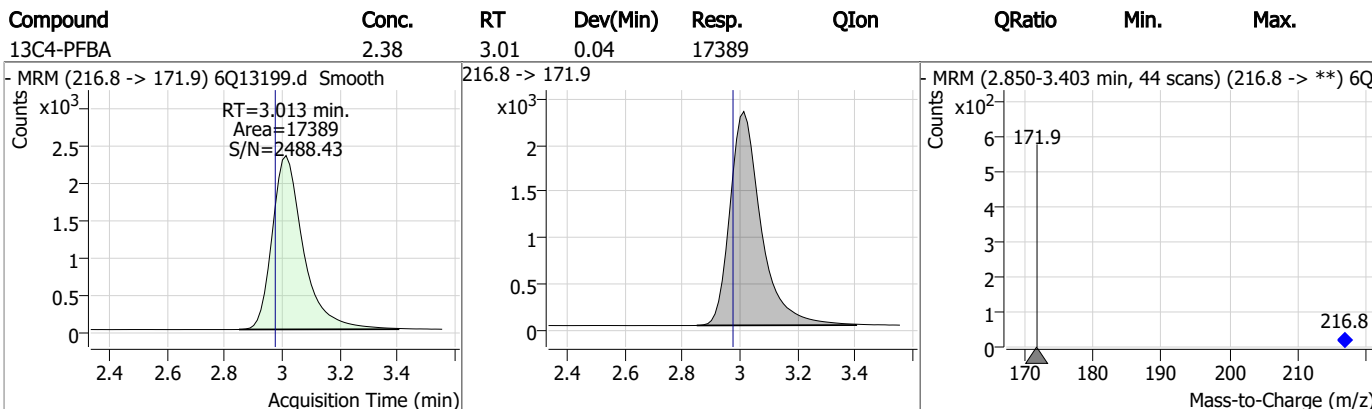
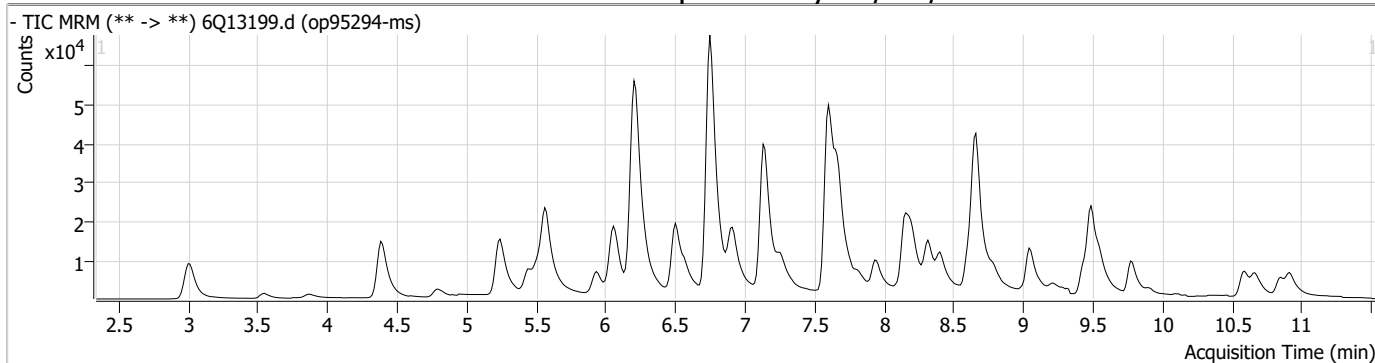
Perfluorinated Compounds by LC/MS/MS

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

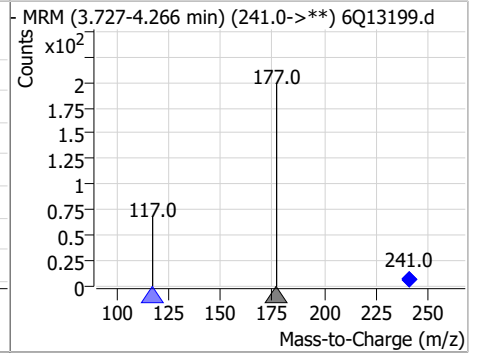
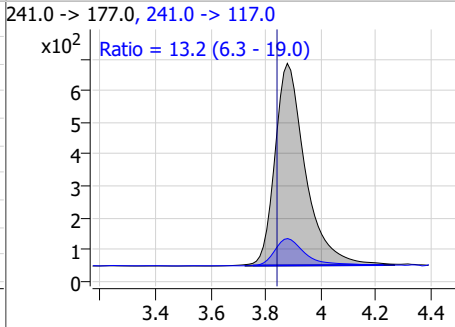
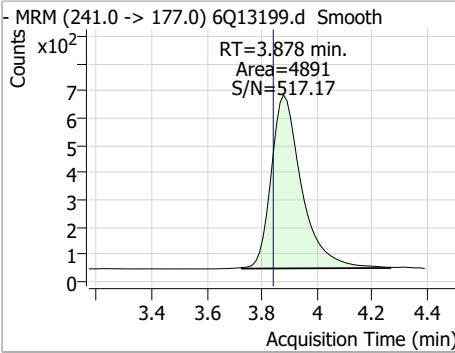
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Perfluorinated Compounds by LC/MS/MS

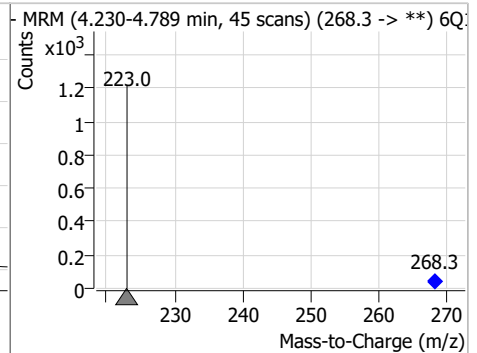
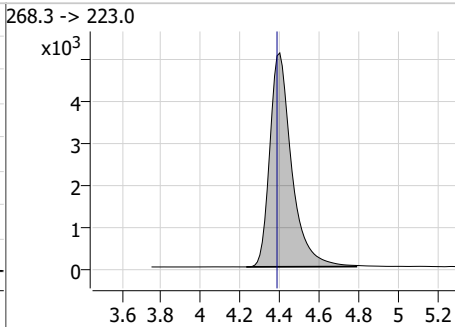
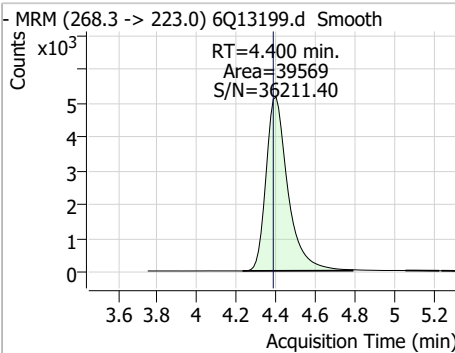


Perfluorinated Compounds by LC/MS/MS

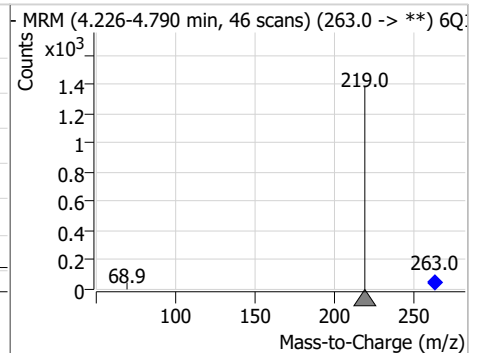
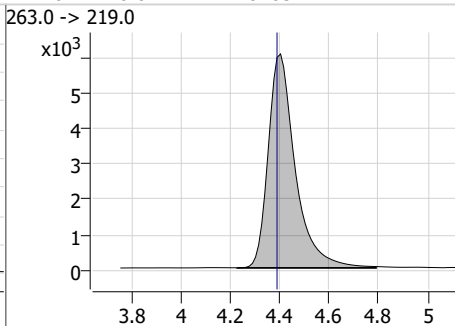
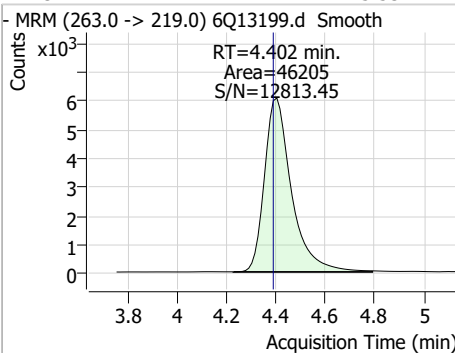
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.92	3.88	0.04	4891	241.0 -> 117.0	13.2	6.3	19.0



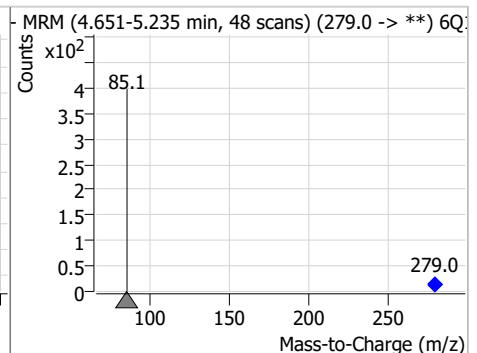
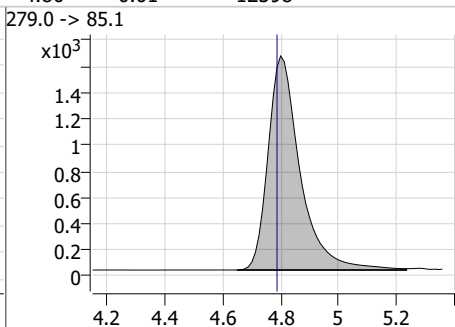
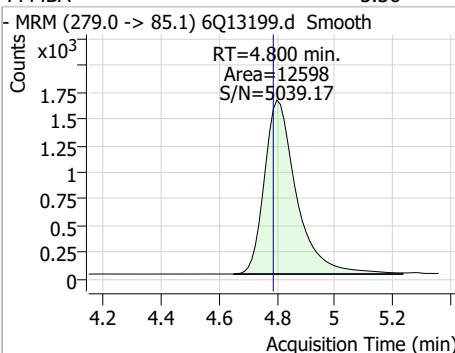
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.46	4.40	0.01	39569				



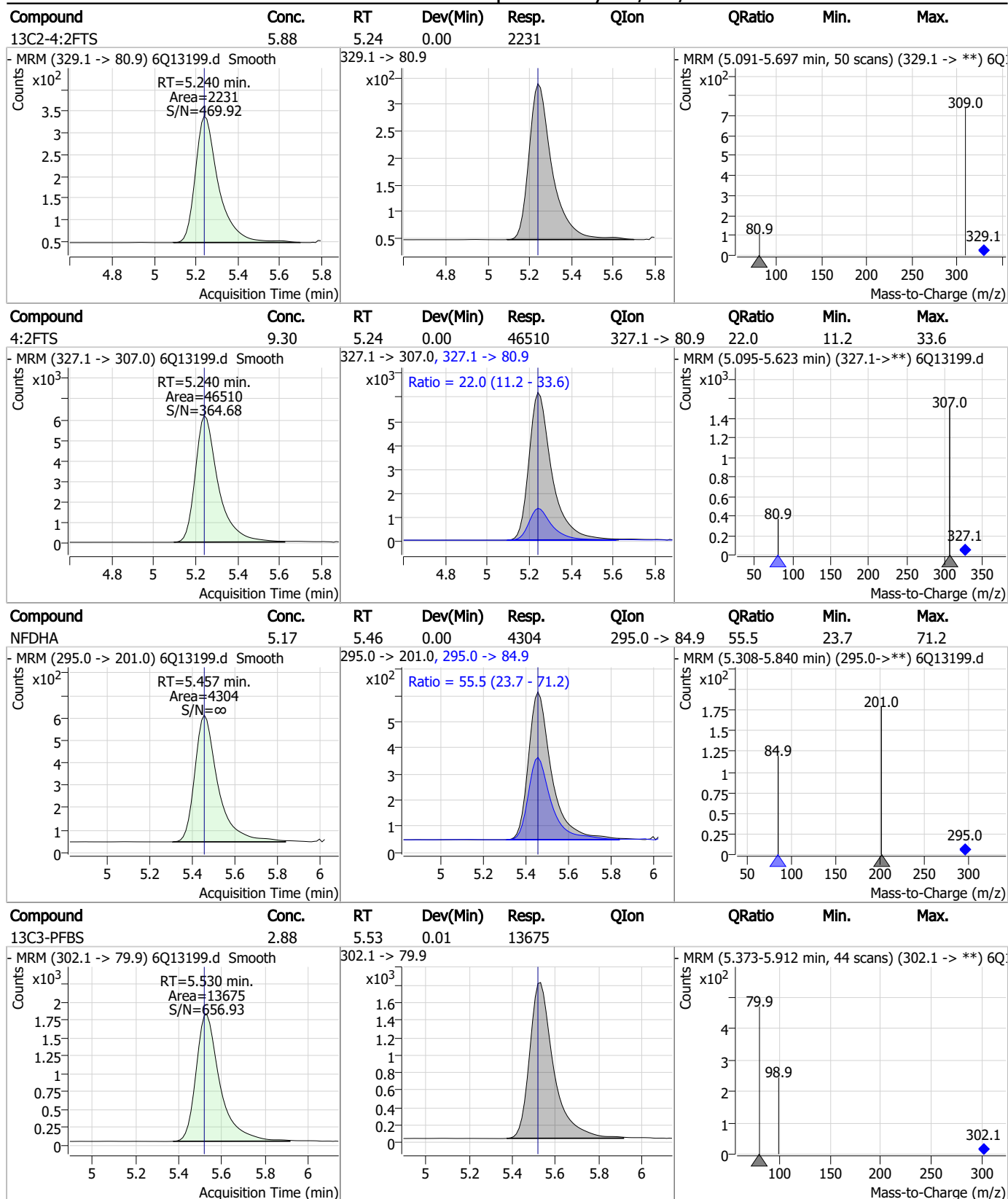
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	5.53	4.40	0.01	46205				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	5.36	4.80	0.01	12598				



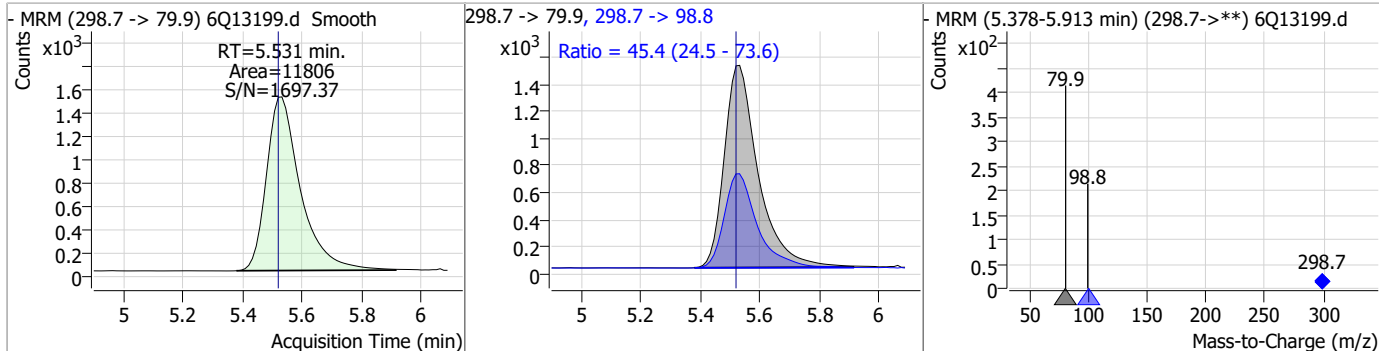
Perfluorinated Compounds by LC/MS/MS



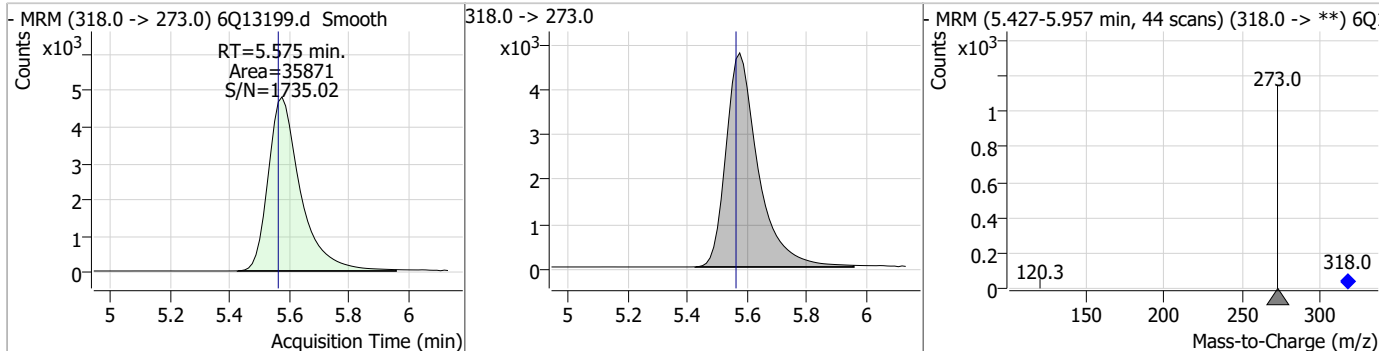
7.4.1
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Perfluorinated Compounds by LC/MS/MS

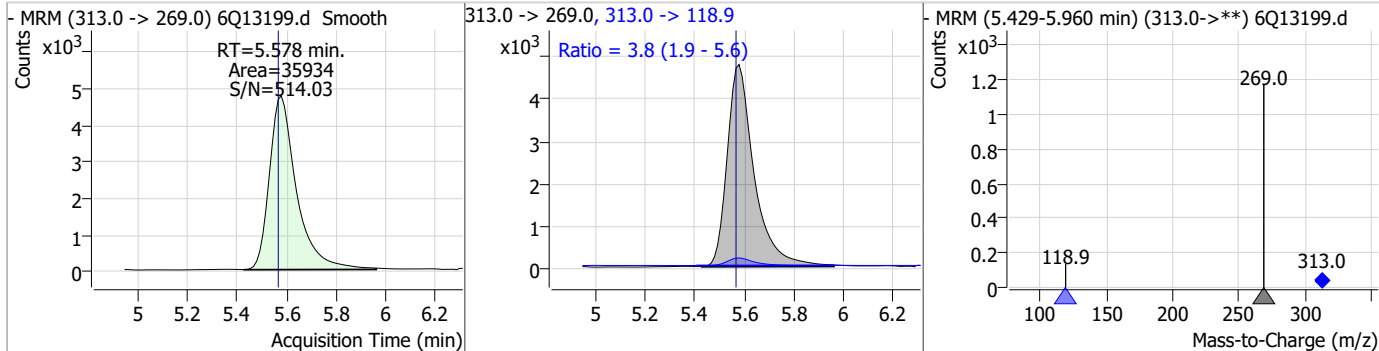
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.25	5.53	0.01	11806	298.7 -> 98.8	45.4	24.5	73.6



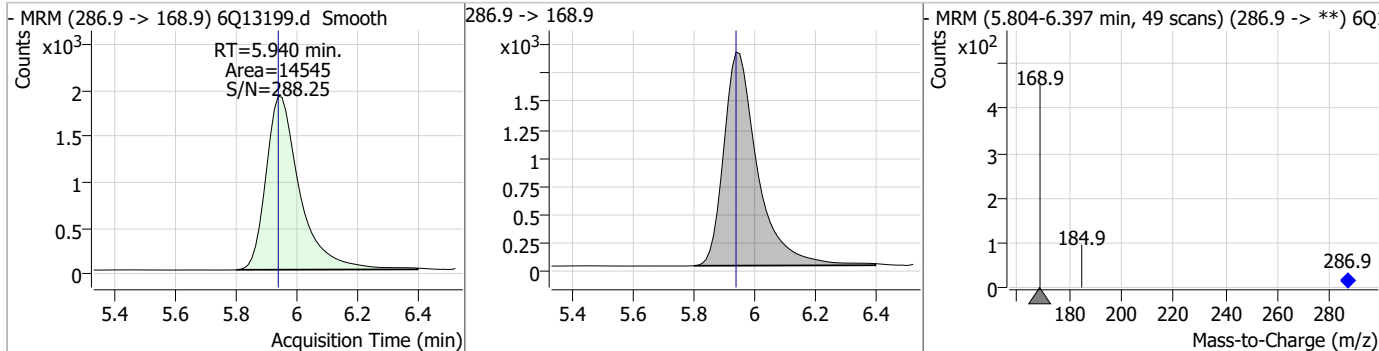
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.79	5.57	0.01	35871				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.55	5.58	0.01	35934	313.0 -> 118.9	3.8	1.9	5.6



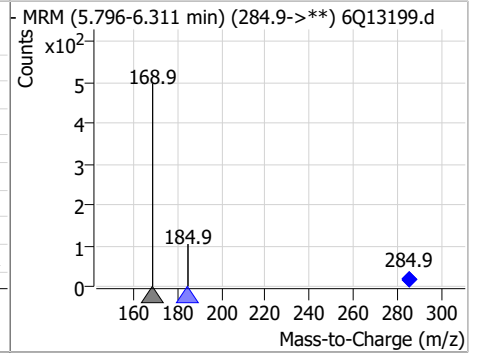
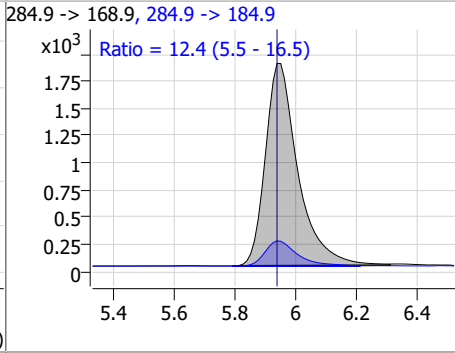
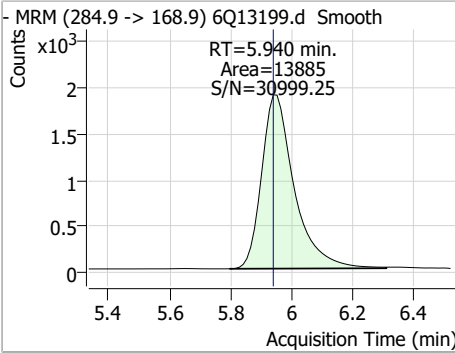
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.94	5.94	0.00	14545				



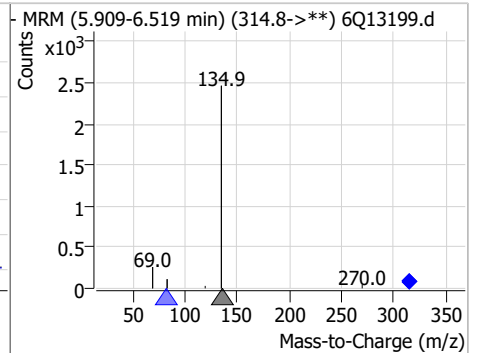
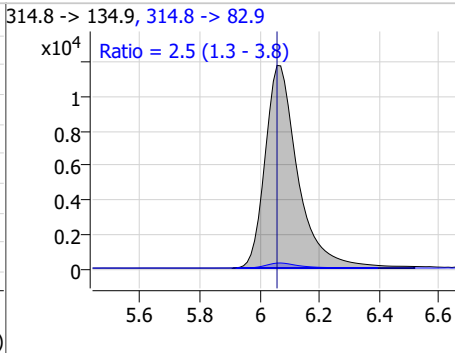
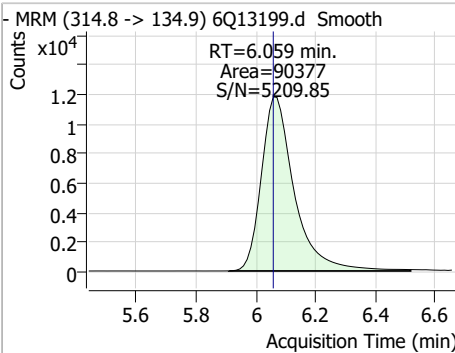
7.4.1
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Perfluorinated Compounds by LC/MS/MS

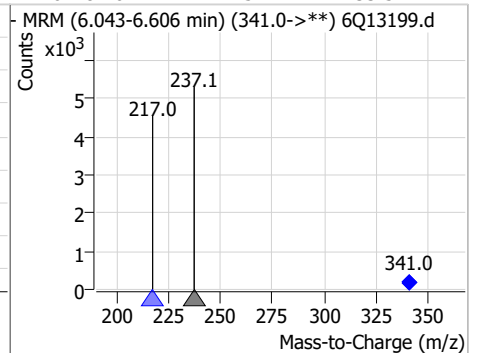
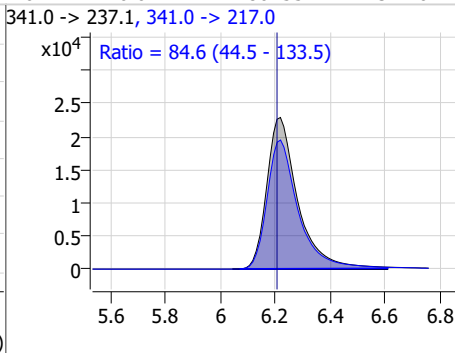
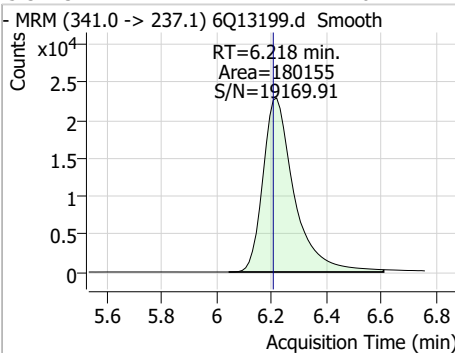
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	10.21	5.94	0.00	13885	284.9 -> 184.9	12.4	5.5	16.5



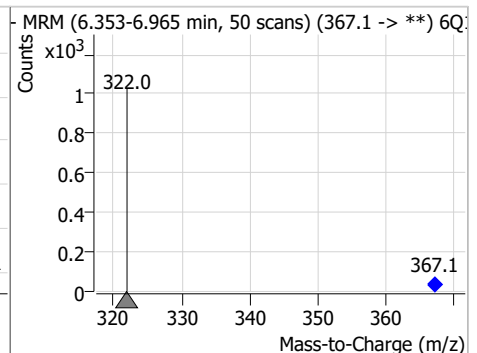
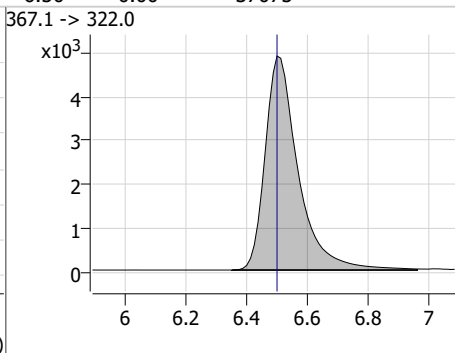
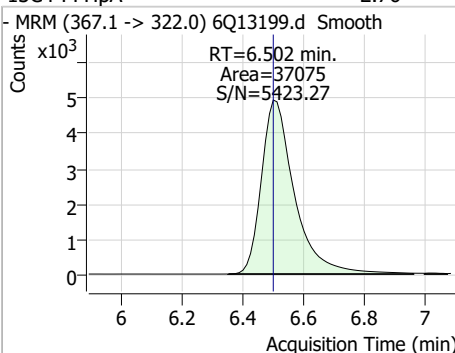
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.46	6.06	0.00	90377	314.8 -> 82.9	2.5	1.3	3.8



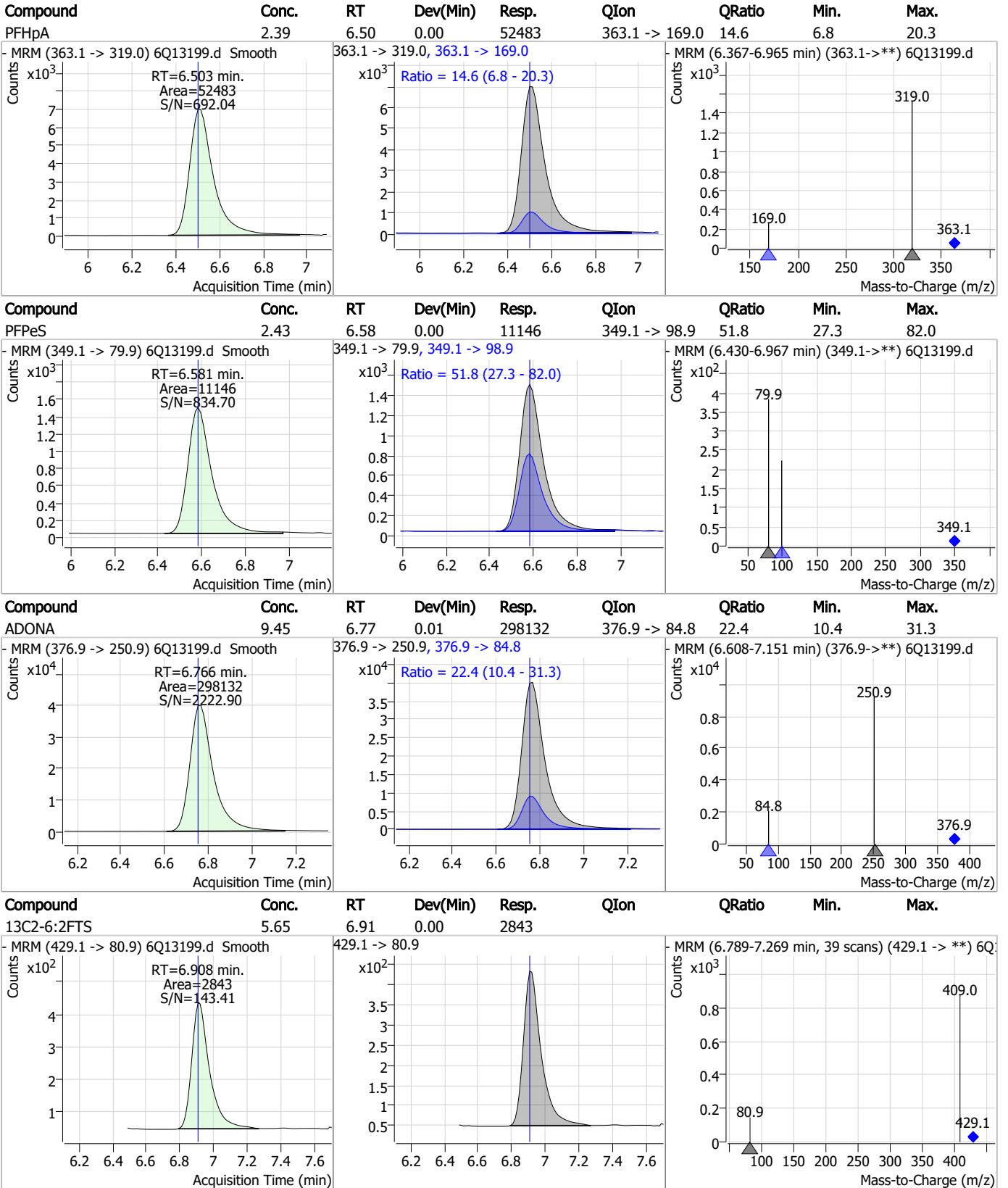
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	61.24	6.22	0.01	180155	341.0 -> 217.0	84.6	44.5	133.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.76	6.50	0.00	37075	367.1 -> 322.0			



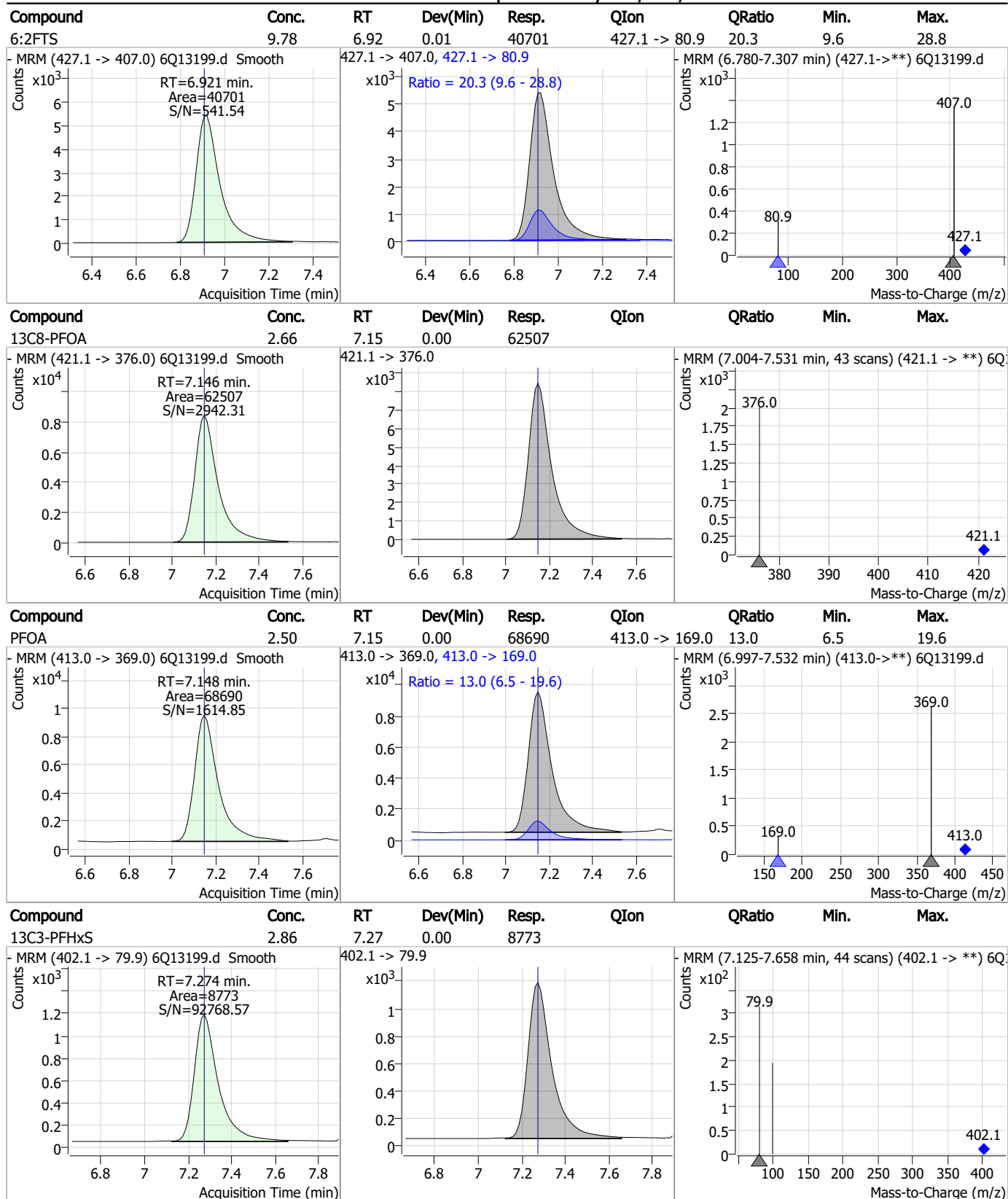
Perfluorinated Compounds by LC/MS/MS



7.4.1

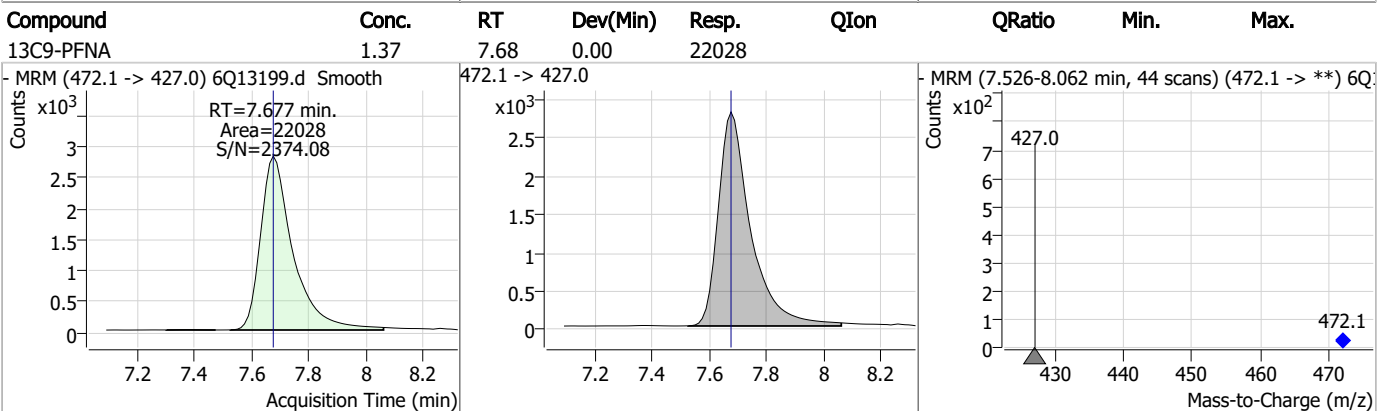
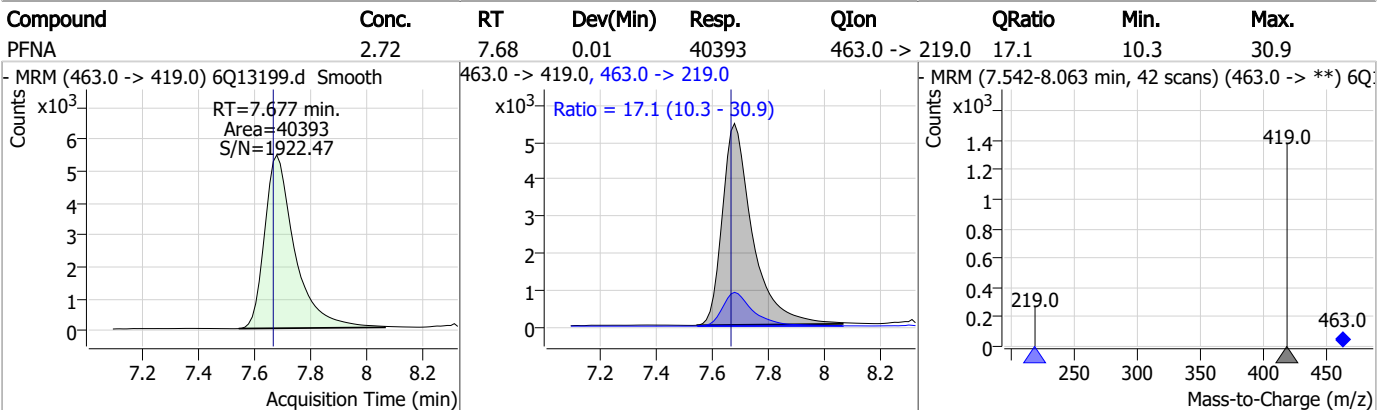
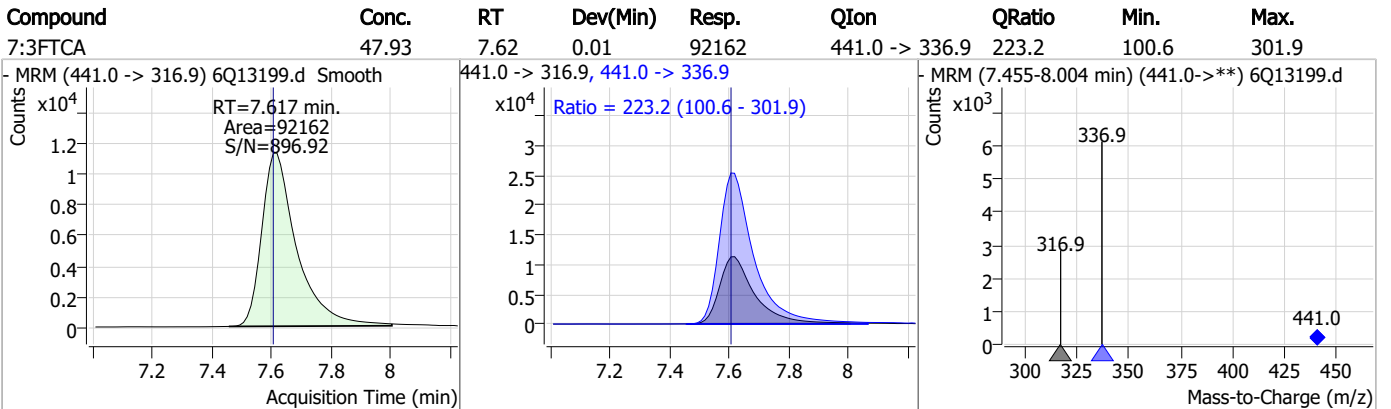
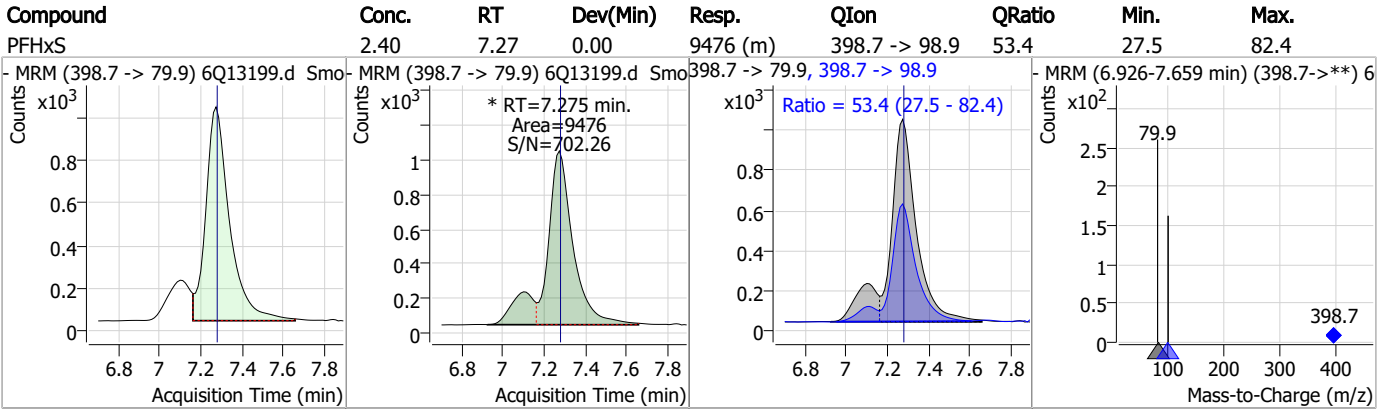
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Perfluorinated Compounds by LC/MS/MS



7.4.1

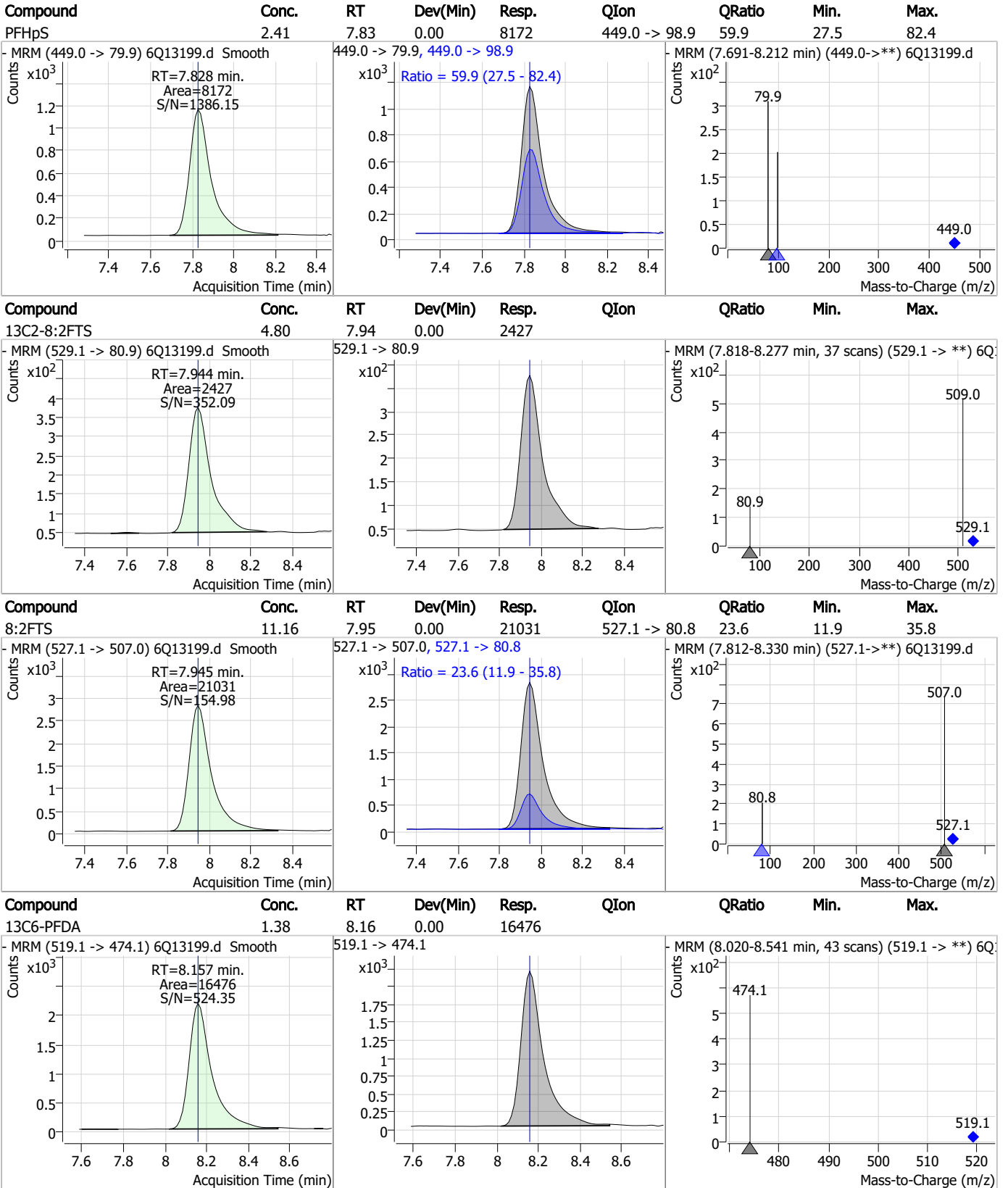
Perfluorinated Compounds by LC/MS/MS



7.4.1

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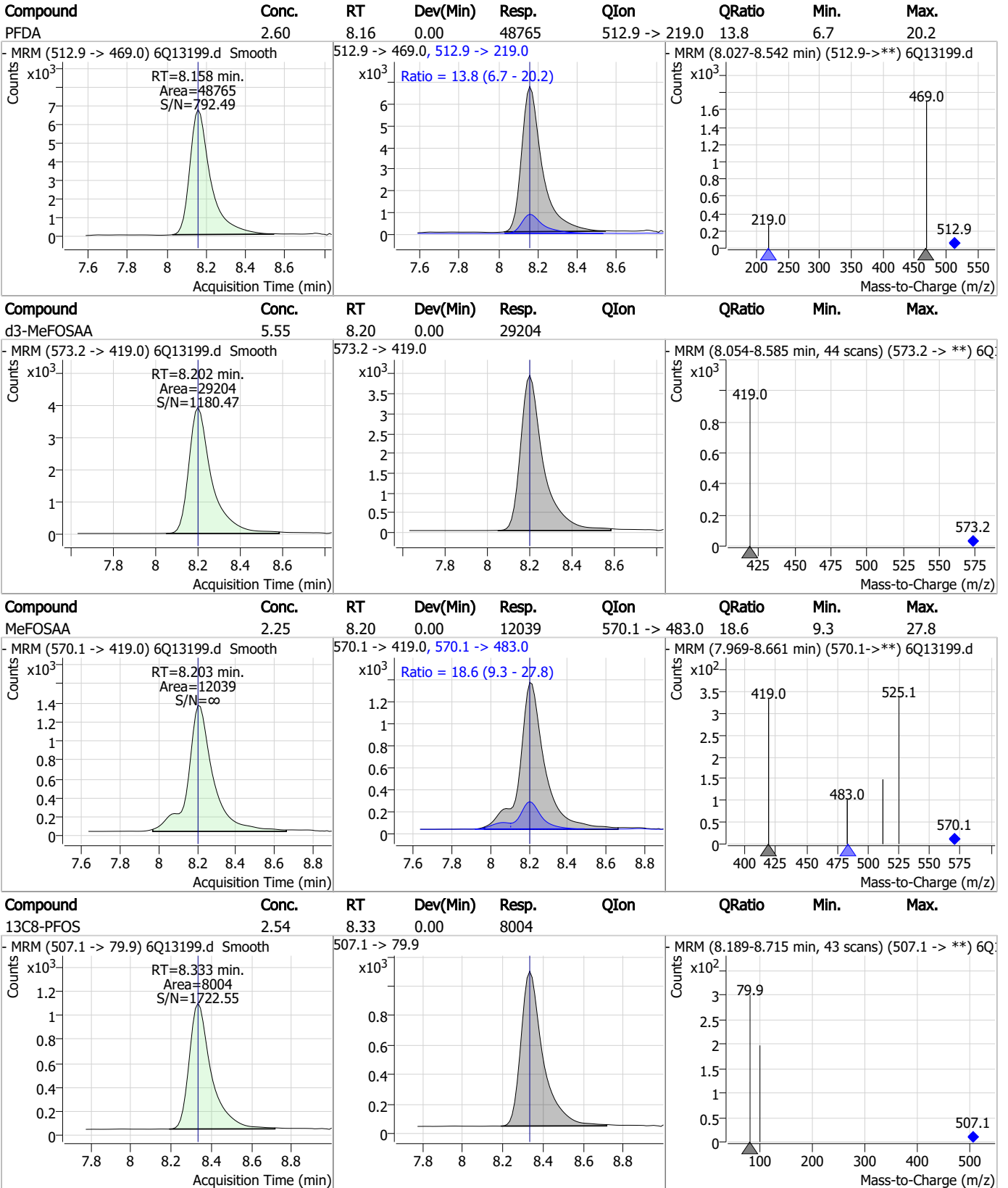
Perfluorinated Compounds by LC/MS/MS



7.4.1

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Perfluorinated Compounds by LC/MS/MS



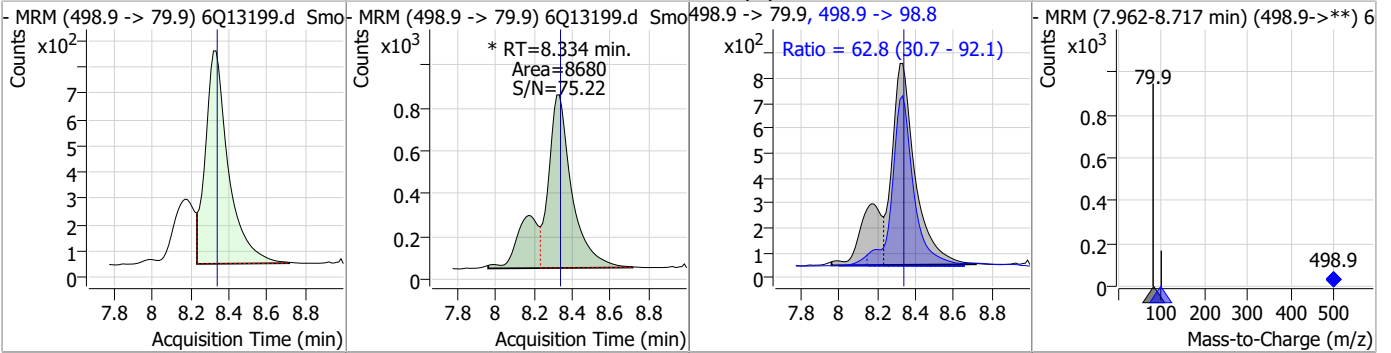
7.4.1

7

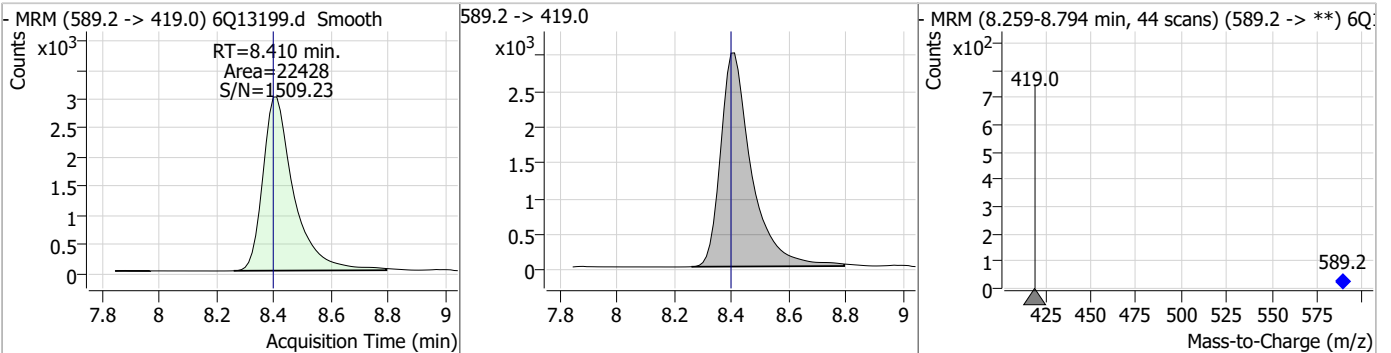


Perfluorinated Compounds by LC/MS/MS

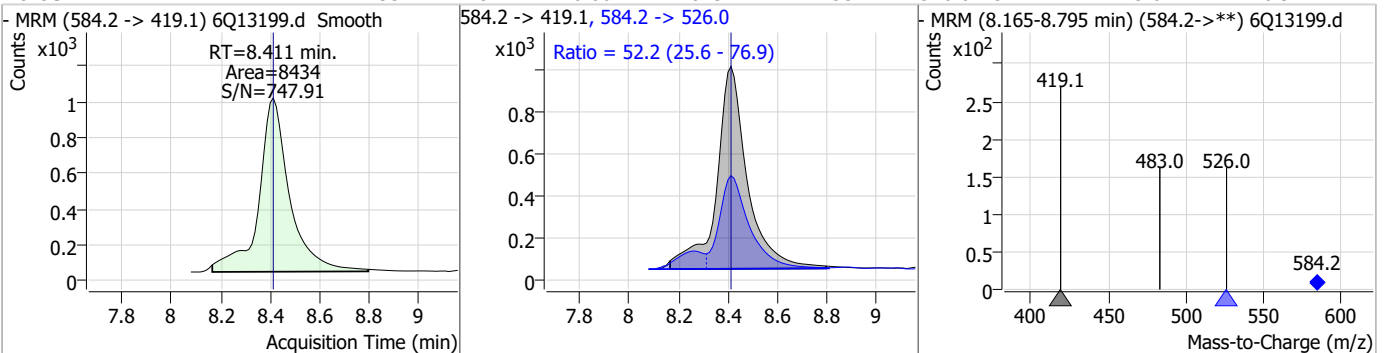
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.36	8.33	0.00	8680 (m)	498.9 -> 98.8	62.8	30.7	92.1



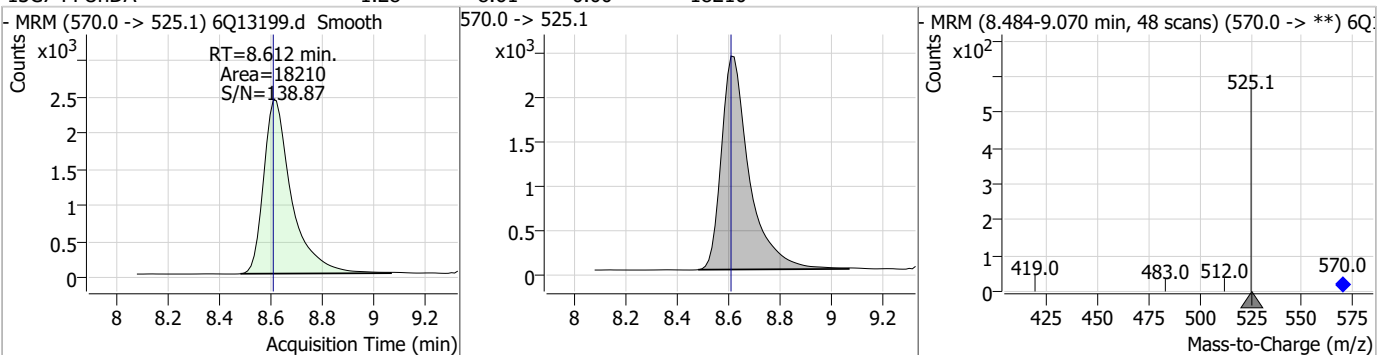
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.14	8.41	0.01	22428				



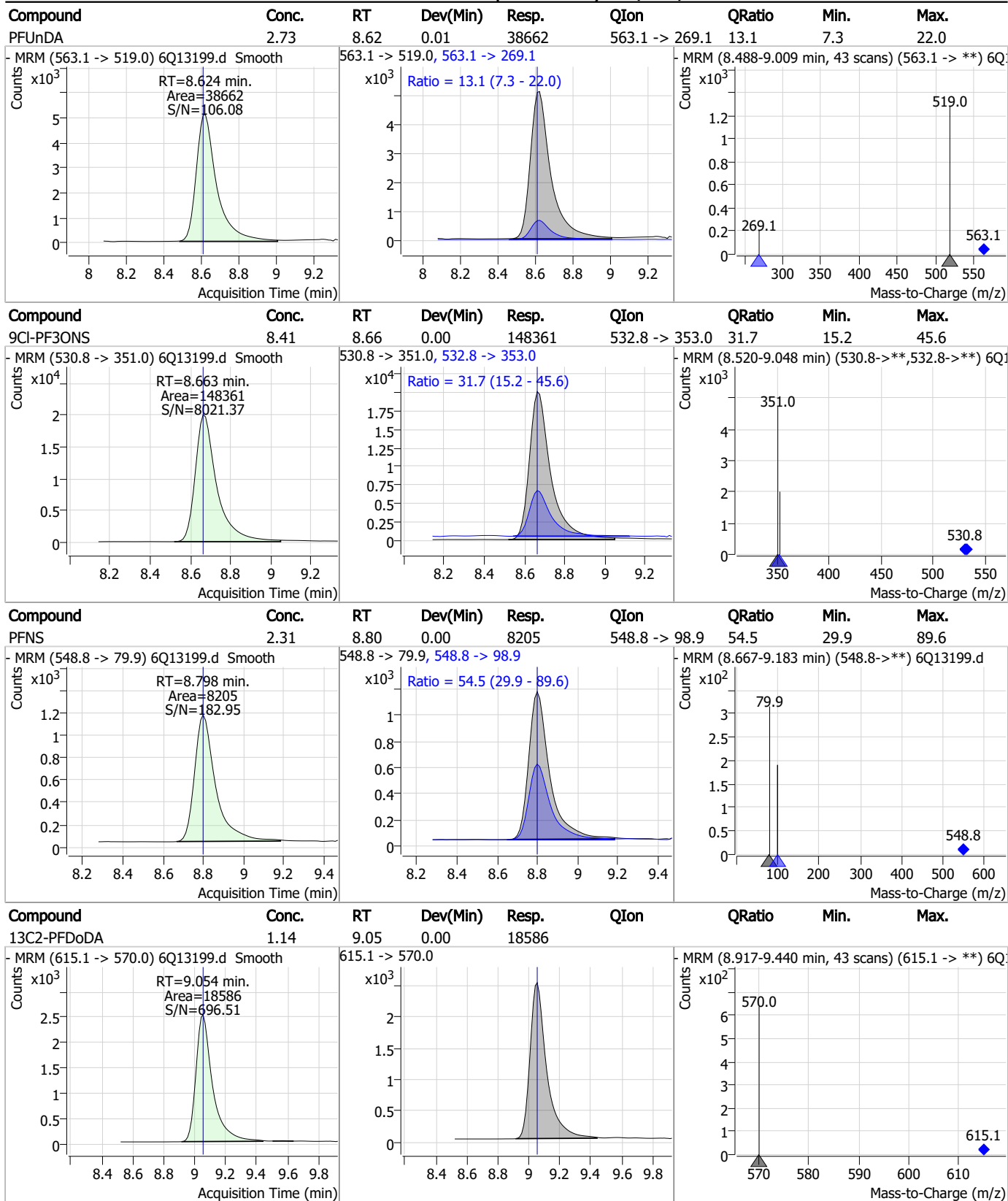
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.35	8.41	0.00	8434	584.2 -> 526.0	52.2	25.6	76.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.28	8.61	0.00	18210				



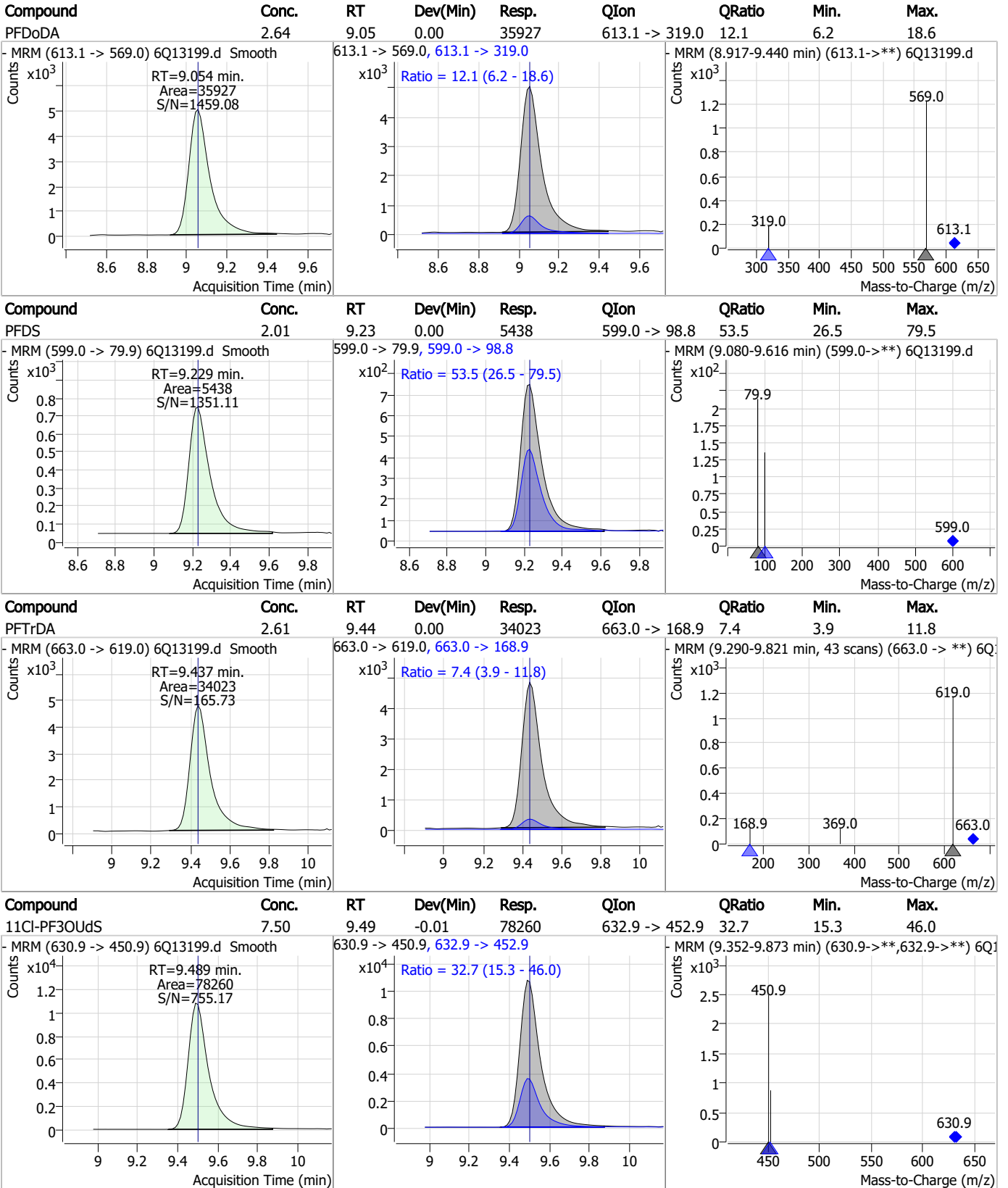
Perfluorinated Compounds by LC/MS/MS



7.4.1
7



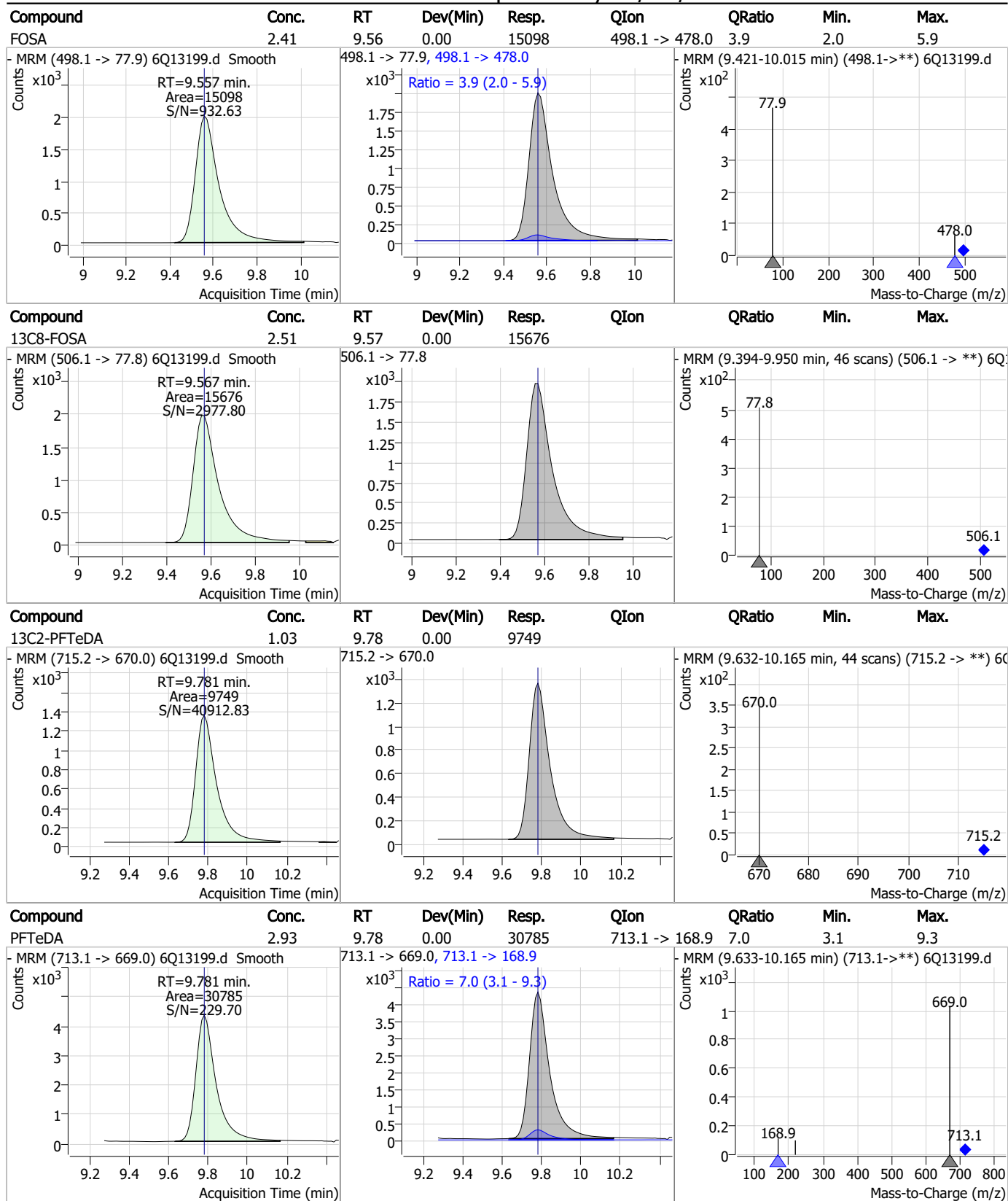
Perfluorinated Compounds by LC/MS/MS



7.4.1

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Perfluorinated Compounds by LC/MS/MS



7.4.1
7

Perfluorinated Compounds by LC/MS/MS

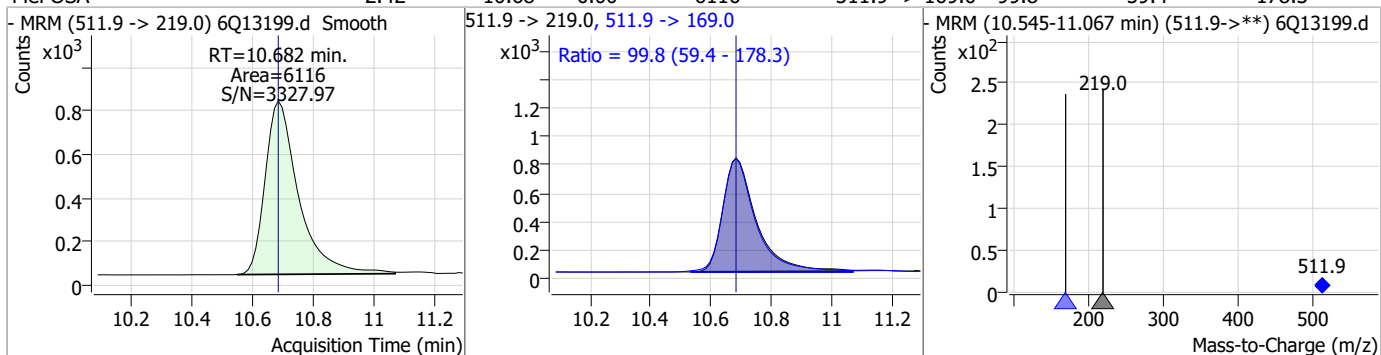
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	1.84	9.92	0.00	2985	699.1 -> 98.8	65.3	33.2	99.7
d7-MeFOSE	18.35	10.59	0.00	19995				
MeFOSE	24.45	10.60	0.00	19499				
d3-MeFOSA	2.17	10.68	0.00	5835				

7.4.1

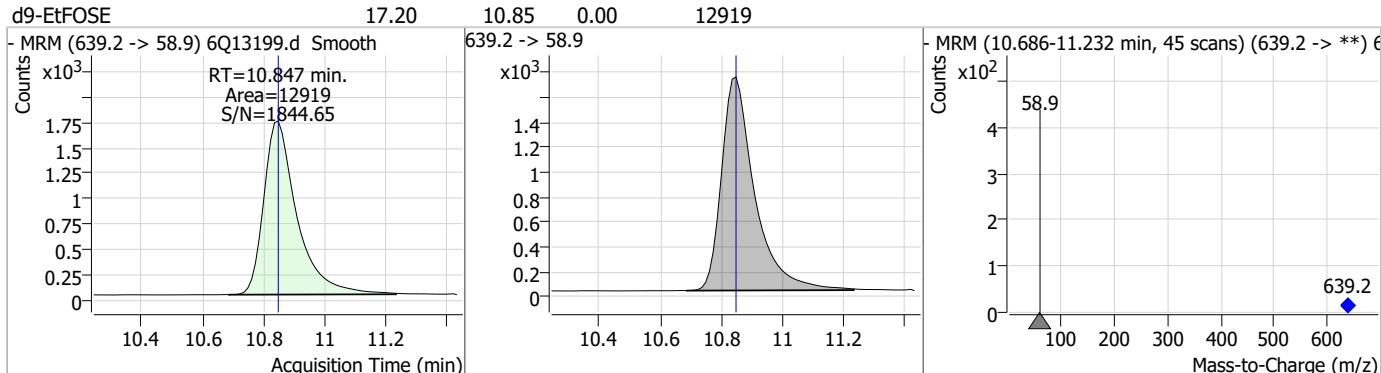
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Perfluorinated Compounds by LC/MS/MS

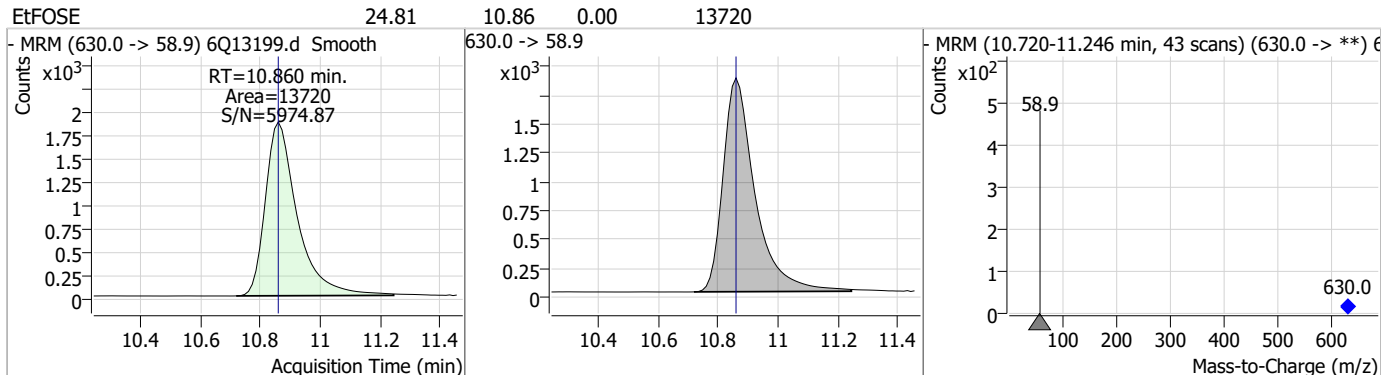
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	2.42	10.68	0.00	6116	511.9 -> 169.0	99.8	59.4	178.3



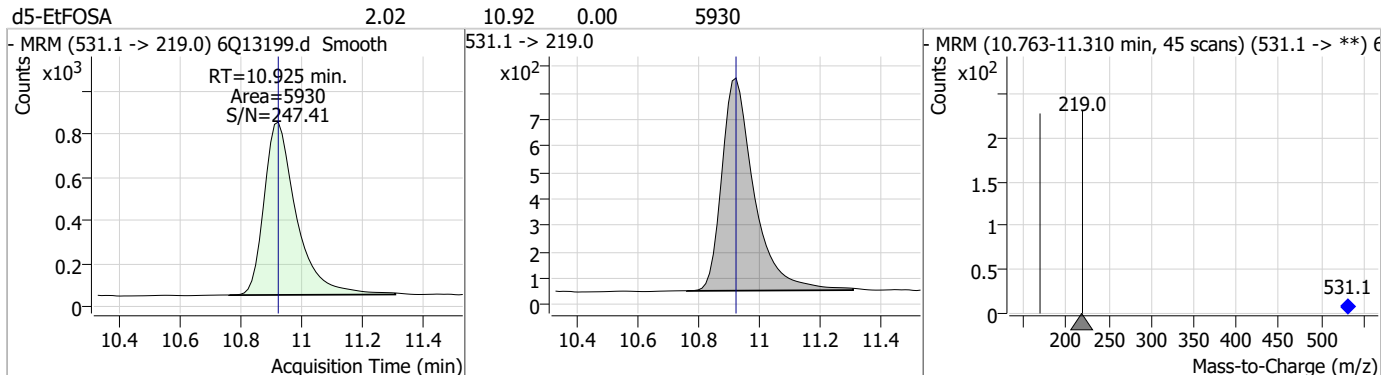
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	17.20	10.85	0.00	12919				



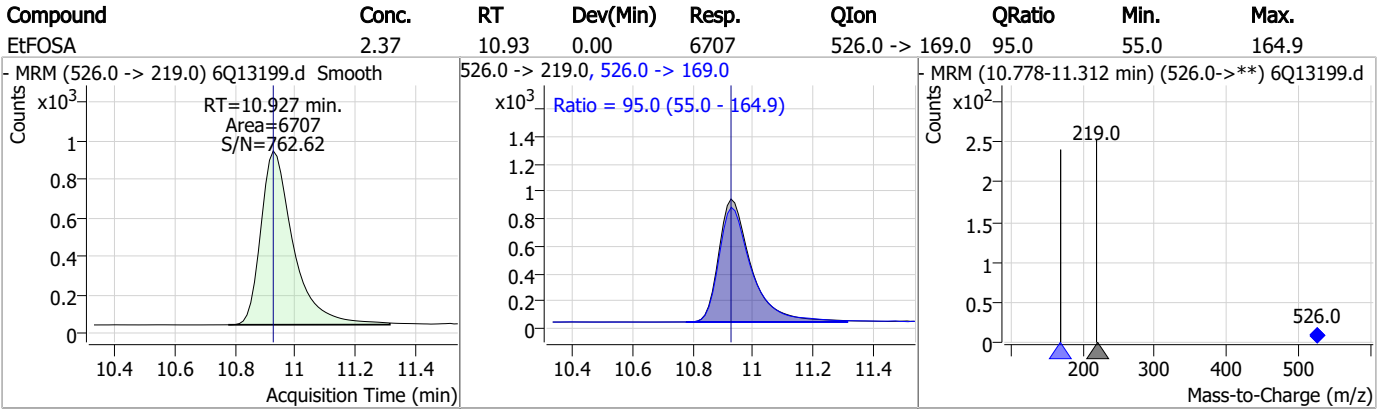
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	24.81	10.86	0.00	13720				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.02	10.92	0.00	5930				



Perfluorinated Compounds by LC/MS/MS



7.4.1

7

Manual Integration Approval Summary

Sample Number: OP95294-MS Method: EPA DRAFT 1633
Lab FileID: 6Q13199.D Analyst approved: 02/08/23 10:42 Martha Valls
Injection Time: 02/07/23 13:22 Supervisor approved: 02/08/23 11:28 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak

7.4.1.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13219.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/8/2023 12:27:09 PM
 Sample Name : op95294-dup
 Vial : P3-D3
 DA Method File : 1633_020223_S6Q196.quantmethod.xml
 Batch Name : s6q202.batch.bin
 Sample Information : OP95294,S6Q202,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.013	216.8 -> 171.9	72034	10.00 µg/L	0.037
M5-PFPeA	4.386	268.3 -> 223.0	39560	5.00 µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	35044	2.50 µg/L	0.012
M4-PFHpA	6.502	367.1 -> 322.0	35326	2.50 µg/L	0.000
M8-PFOA	7.146	421.1 -> 376.0	60722	2.50 µg/L	0.000
M9-PFNA	7.677	472.1 -> 427.0	20761	1.25 µg/L	0.000
M6-PFDA	8.157	519.1 -> 474.1	15351	1.25 µg/L	0.000
M7-PFUnDA	8.612	570.0 -> 525.1	15688	1.25 µg/L	0.000
M2-PFDoDA	9.054	615.1 -> 570.0	16321	1.25 µg/L	0.000
M2-PFTeDA	9.781	715.2 -> 670.0	9017	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	14536	2.50 µg/L	-0.012
M3-PFBS	5.518	302.1 -> 79.9	13213	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	8820	2.50 µg/L	0.000
M8-PFOS	8.333	507.1 -> 79.9	6995	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	1824	5.00 µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	2445	5.00 µg/L	0.000
M2-8:2FTS	7.944	529.1 -> 80.9	2368	5.00 µg/L	0.000
M3-MeFOSAA	8.202	573.2 -> 419.0	24648	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	13765	10.00 µg/L	0.000
M5-EtFOSAA	8.398	589.2 -> 419.0	18756	5.00 µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	18825	25.00 µg/L	0.000
M9-EtFOSE	10.835	639.2 -> 58.9	12320	25.00 µg/L	-0.012
M5-EtFOSA	10.913	531.1 -> 219.0	5111	2.50 µg/L	-0.012
M3-MeFOSA	10.680	515.0 -> 219.0	4693	2.50 µg/L	0.000
13C4-PFOS	8.333	502.8 -> 79.9	8796	2.50 µg/L	0.000
13C3-PFBA	3.004	216.0 -> 172.0	32642	5.00 µg/L	0.025
18O2-PFHxS	7.273	403.0 -> 83.9	6294	2.50 µg/L	0.000
13C4-PFOA	7.147	417.1 -> 372.0	72518	2.50 µg/L	0.000
13C2-PFDA	8.158	515.1 -> 470.1	23423	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	24134	1.25 µg/L	0.000
13C2-PFHxA	5.576	315.1 -> 270.0	32484	2.50 µg/L	0.012

System Monitoring Compounds

13C2-4:2FTS	5.240	329.1 -> 80.9	1824	4.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.1%		
13C2-6:2FTS	6.908	429.1 -> 80.9	2445	4.50 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.1%		
13C2-8:2FTS	7.944	529.1 -> 80.9	2368	4.34 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 86.8%		
13C2-PFDoDA	9.054	615.1 -> 570.0	16321	0.92 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 73.3%		
13C2-PFTeDA	9.781	715.2 -> 670.0	9017	0.88 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 70.1%		
13C3-PFBS	5.518	302.1 -> 79.9	13213	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C3-PFHxS	7.274	402.1 -> 79.9	8820	2.67 µg/L	0.000

7.5.1
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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 = 106.6%	
13C4-PFBA	3.013	216.8 -> 171.9	72034	9.94 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C4-PFHpA	6.502	367.1 -> 322.0	35326	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C5-PFHxA	5.575	318.0 -> 273.0	35044	2.73 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.0%	
13C5-PFPeA	4.386	268.3 -> 223.0	39560	5.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.3%	
13C6-PFDA	8.157	519.1 -> 474.1	15351	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.2%	
13C7-PFUnDA	8.612	570.0 -> 525.1	15688	1.01 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 80.5%	
13C8-FOSA	9.555	506.1 -> 77.8	14536	2.54 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C8-PFOA	7.146	421.1 -> 376.0	60722	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C8-PFOS	8.333	507.1 -> 79.9	6995	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C9-PFNA	7.677	472.1 -> 427.0	20761	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.8%	
d3-MeFOSAA	8.202	573.2 -> 419.0	24648	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	13765	10.37 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.7%	
d3-MeFOSA	10.680	515.0 -> 219.0	4693	1.90 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 76.1%	
d5-EtFOSAA	8.398	589.2 -> 419.0	18756	4.69 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.8%	
d7-MeFOSE	10.589	623.2 -> 58.9	18825	18.85 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 75.4%	
d9-EtFOSE	10.835	639.2 -> 58.9	12320	17.90 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 71.6%	
d5-EtFOSA	10.913	531.1 -> 219.0	5111	1.90 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 76.1%	

7.5.1
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Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	6.908	427.1 -> 407.0	2322	0.65 µg/L	95
		427.1 -> 80.9	392		
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	5.283	298.7 -> 79.9	0	µg/L m	1
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8				
PFHpA	6.503	363.1 -> 319.0	3862	0.18	µg/L	96
		363.1 -> 169.0	462			
PFHpS	-	449.0 -> 79.9	-	N.D.		
		449.0 -> 98.9				
PFHxA	5.578	313.0 -> 269.0	3124	0.23	µg/L	97
		313.0 -> 118.9	150			
PFHxS	-	398.7 -> 79.9	-	N.D.		
		398.7 -> 98.9				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFNS	-	548.8 -> 79.9	-	N.D.		
		548.8 -> 98.9				
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	-	498.9 -> 79.9	-	N.D.		
		498.9 -> 98.8				
PFPeA	4.388	263.0 -> 219.0	3099	0.37	µg/L	100
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.5.1
7

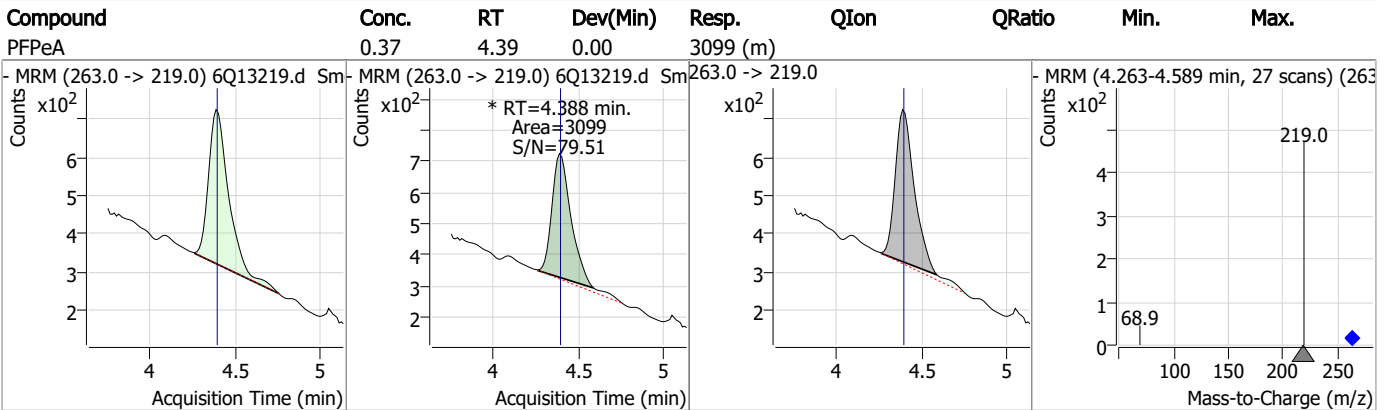
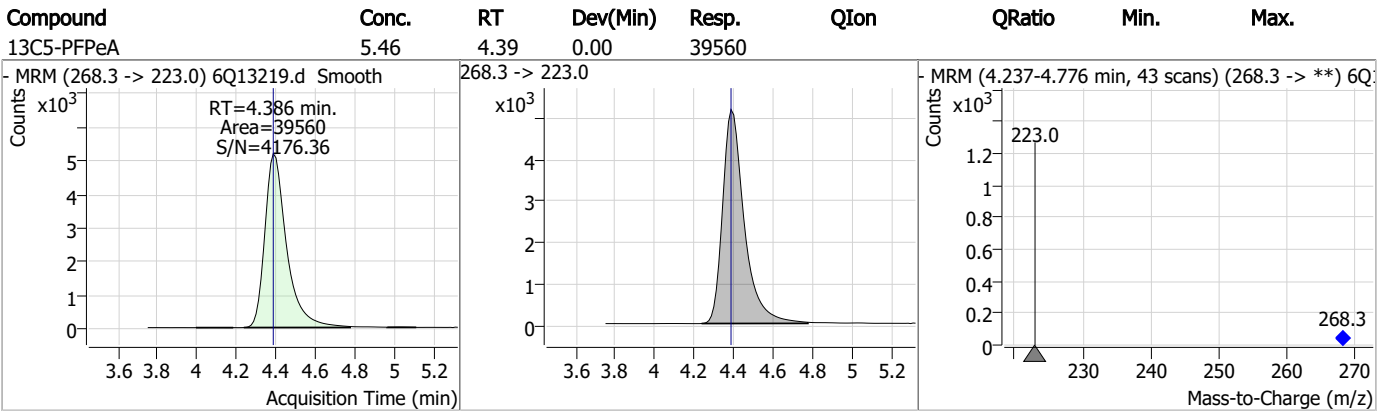
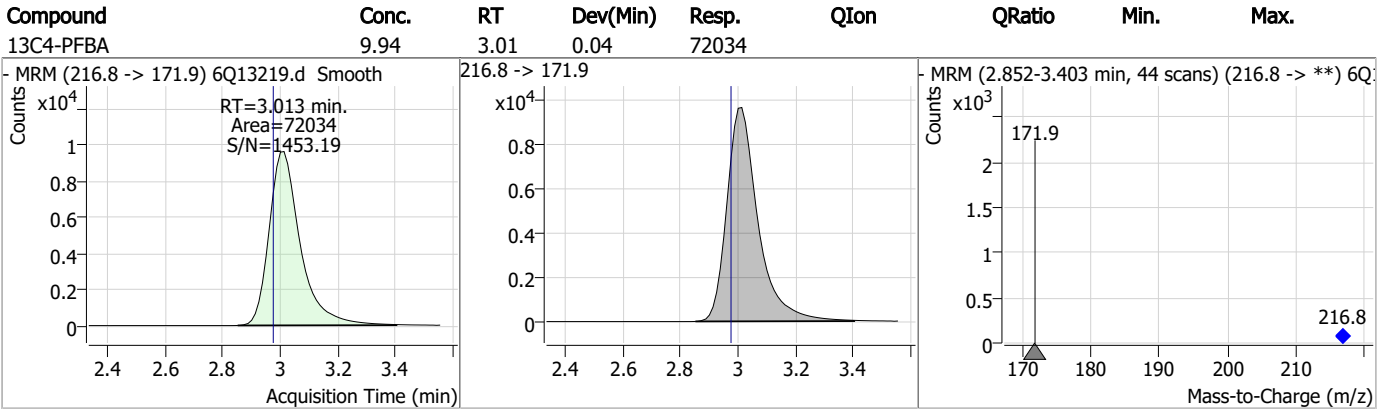
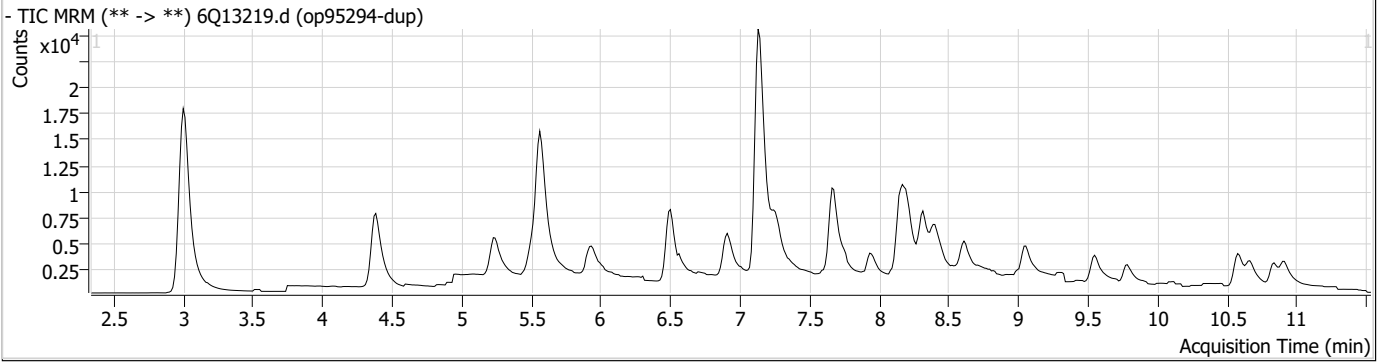
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.5.1

7

Perfluorinated Compounds by LC/MS/MS

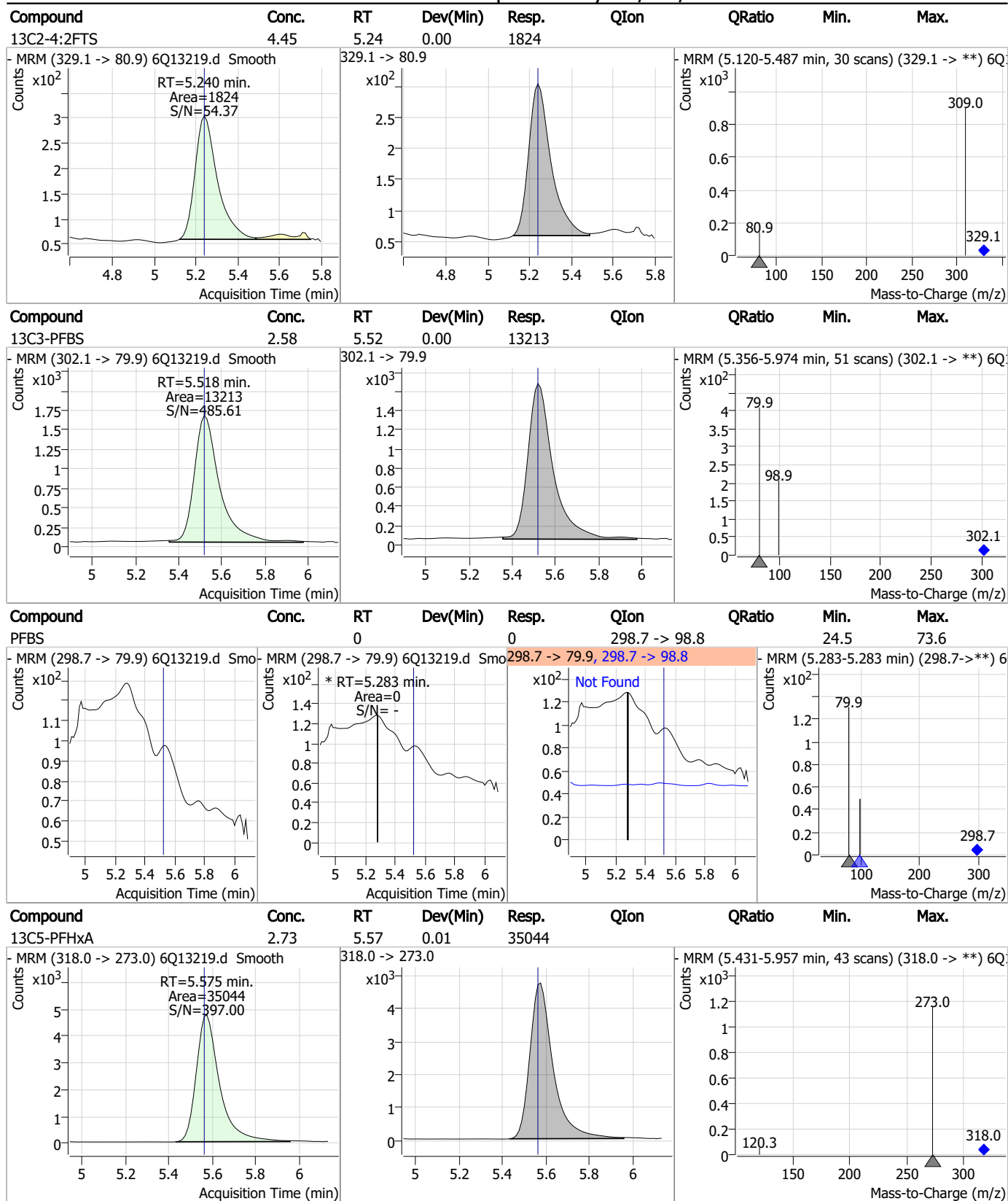


7.5.1

7

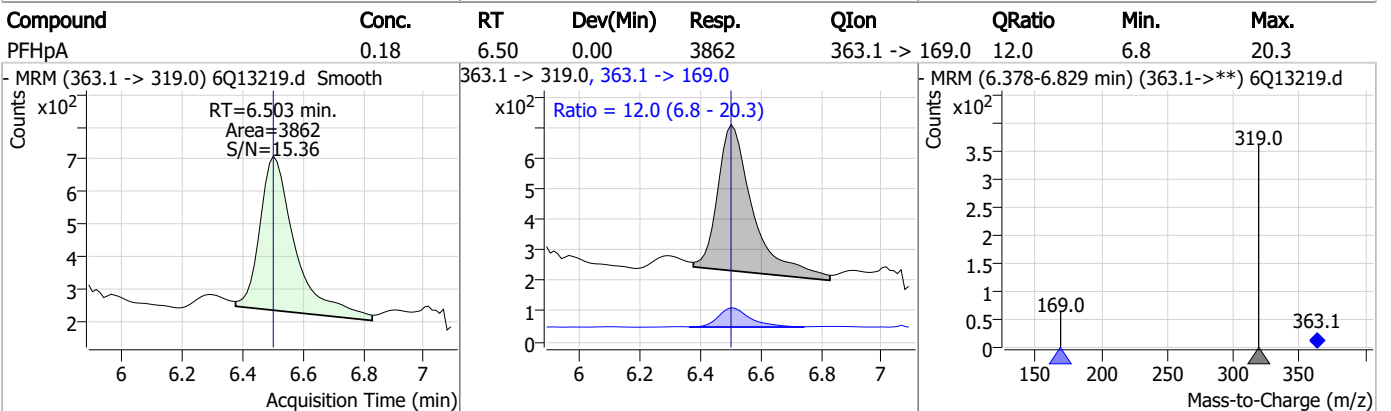
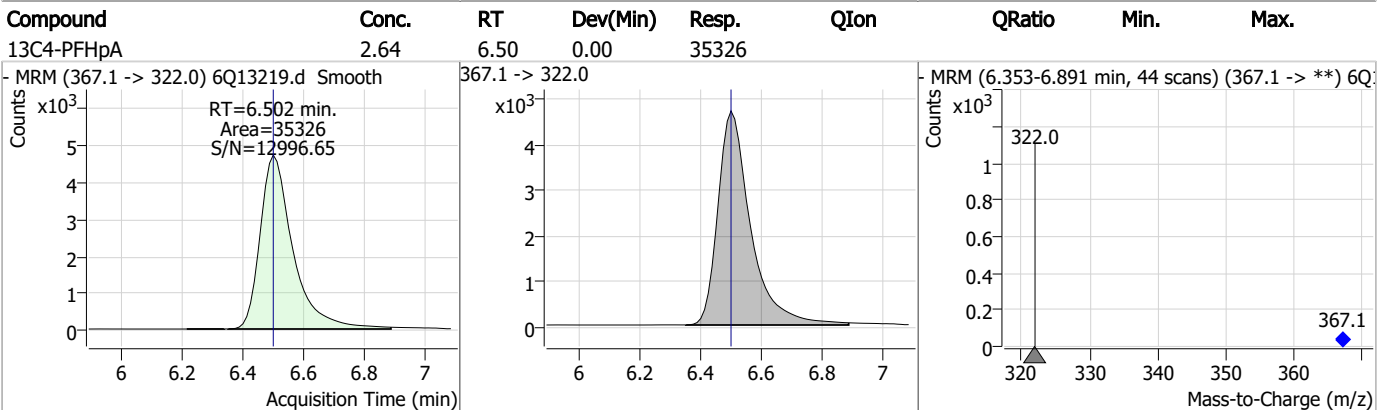
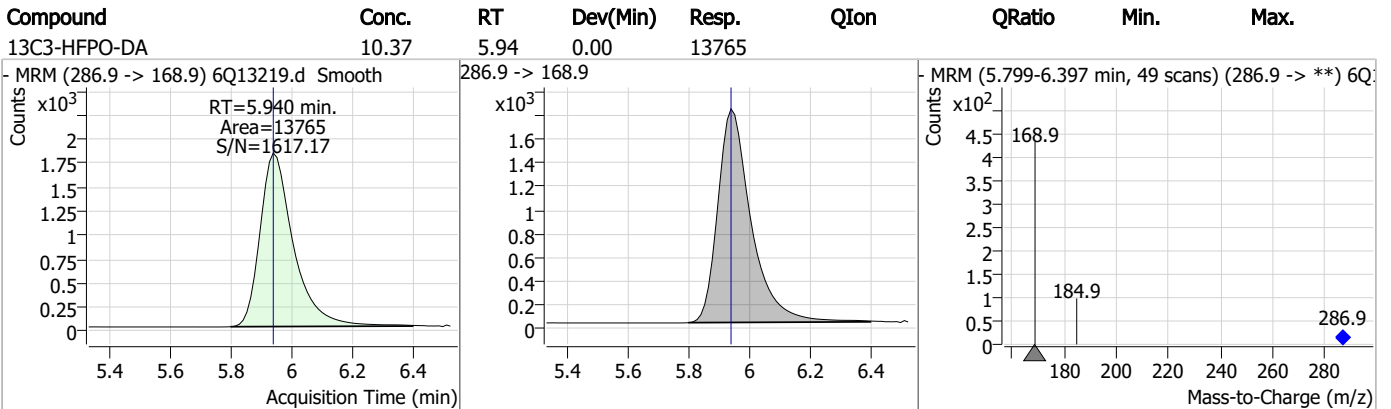
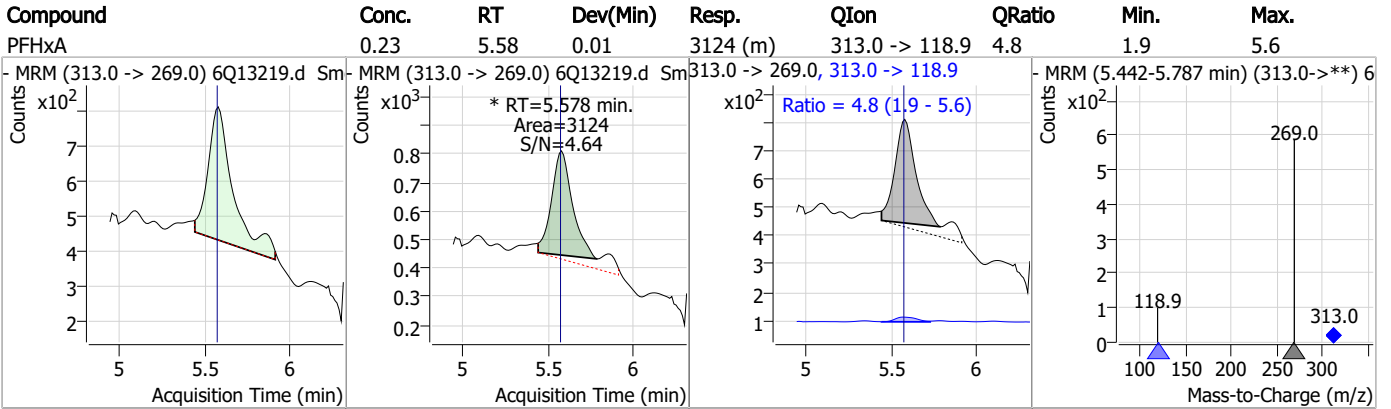


Perfluorinated Compounds by LC/MS/MS



7.5.1
7

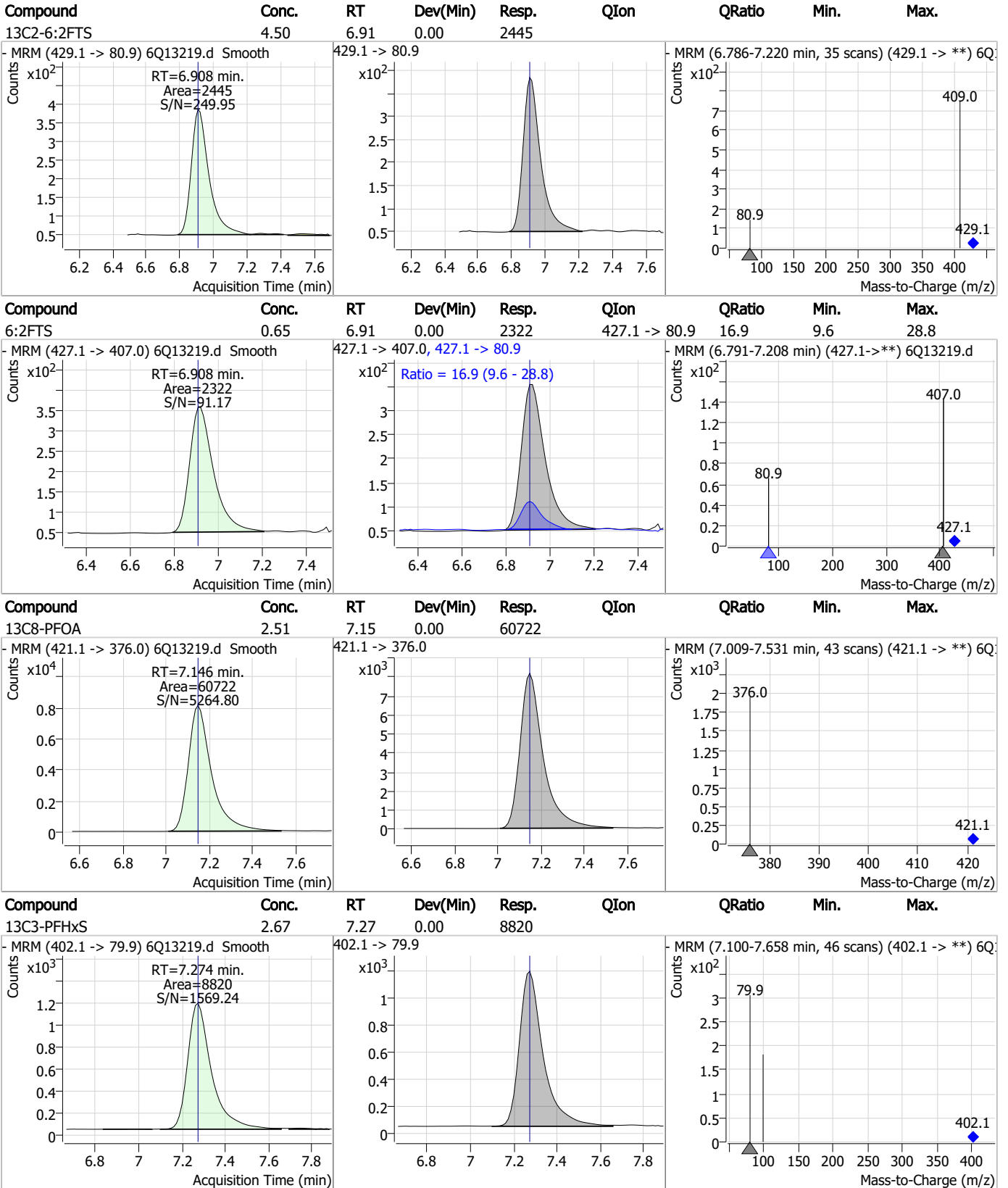
Perfluorinated Compounds by LC/MS/MS



7.5.1

7

Perfluorinated Compounds by LC/MS/MS



7.5.1

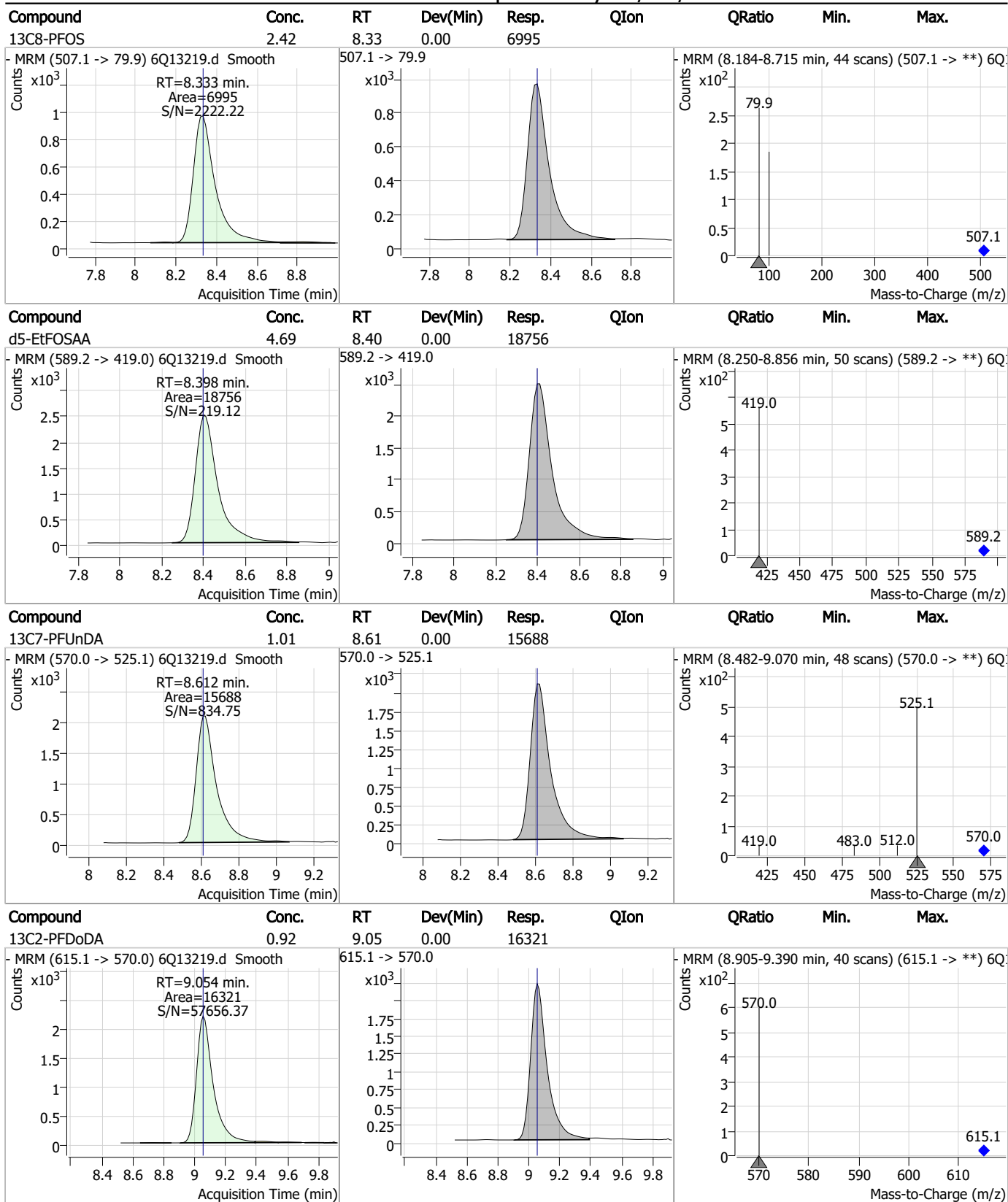
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.22	7.68	0.00	20761				
13C2-8:2FTS	4.34	7.94	0.00	2368				
13C6-PFDA	1.18	8.16	0.00	15351				
d3-MeFOSAA	5.11	8.20	0.00	24648				

7.5.1
7

Perfluorinated Compounds by LC/MS/MS



7.5.1

7

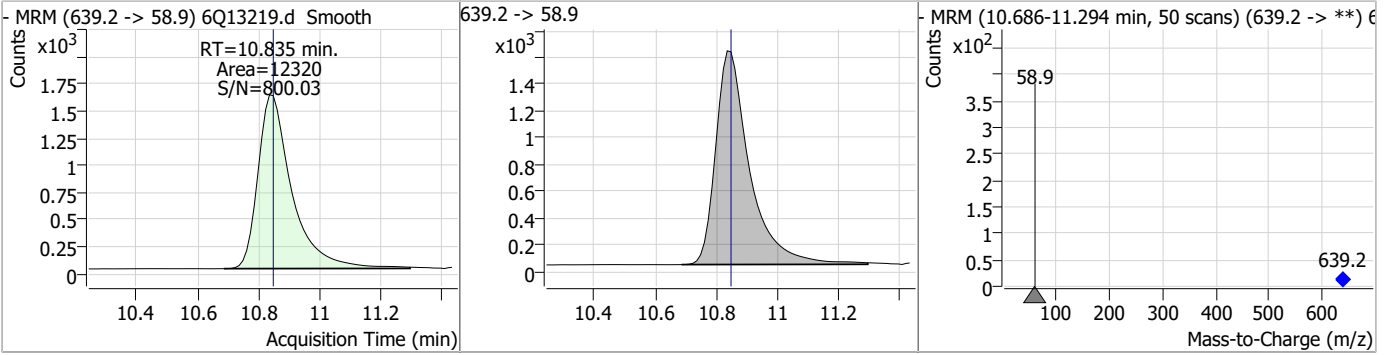
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.54	9.55	-0.01	14536				
- MRM (506.1 -> 77.8) 6Q13219.d Smooth Counts x10 ³ RT=9.555 min. Area=14536 S/N=47860.84 Acquisition Time (min)			506.1 -> 77.8 x10 ³ Acquisition Time (min)			- MRM (9.422-10.012 min, 48 scans) (506.1 -> **) 6Q13219.d Smooth Counts x10 ² 77.8 506.1 Mass-to-Charge (m/z)		
13C2-PFTeDA	0.88	9.78	0.00	9017				
- MRM (715.2 -> 670.0) 6Q13219.d Smooth Counts x10 ³ RT=9.781 min. Area=9017 S/N=4973.00 Acquisition Time (min)			715.2 -> 670.0 x10 ³ Acquisition Time (min)			- MRM (9.632-10.103 min, 39 scans) (715.2 -> **) 6Q13219.d Smooth Counts x10 ² 670.0 715.2 Mass-to-Charge (m/z)		
d7-MeFOSE	18.85	10.59	0.00	18825				
- MRM (623.2 -> 58.9) 6Q13219.d Smooth Counts x10 ³ RT=10.589 min. Area=18825 S/N=492.37 Acquisition Time (min)			623.2 -> 58.9 x10 ³ Acquisition Time (min)			- MRM (10.417-10.973 min, 46 scans) (623.2 -> **) 6Q13219.d Smooth Counts x10 ² 58.9 623.2 Mass-to-Charge (m/z)		
d3-MeFOSA	1.90	10.68	0.00	4693				
- MRM (515.0 -> 219.0) 6Q13219.d Smooth Counts x10 ² RT=10.680 min. Area=4693 S/N=2436.91 Acquisition Time (min)			515.0 -> 219.0 x10 ² Acquisition Time (min)			- MRM (10.534-11.065 min, 43 scans) (515.0 -> **) 6Q13219.d Smooth Counts x10 ² 169.0 515.0 Mass-to-Charge (m/z)		

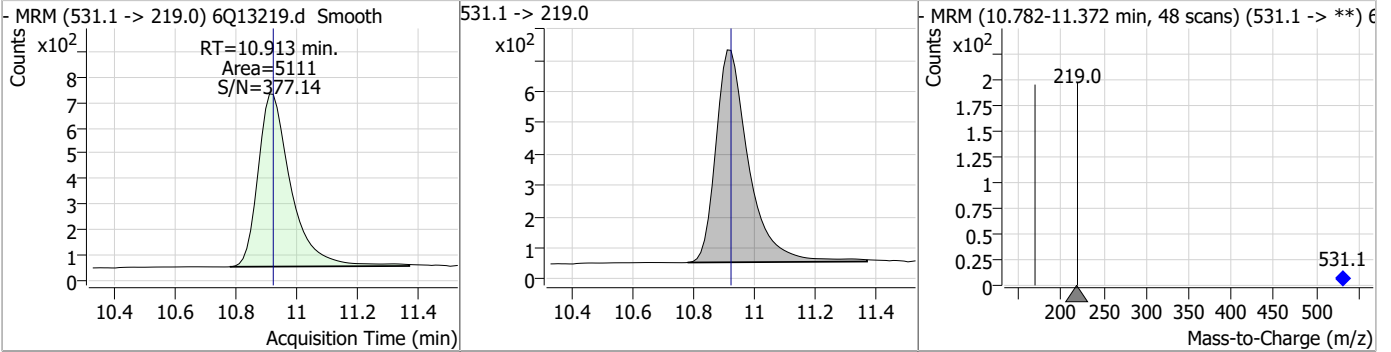
7.5.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	17.90	10.83	-0.01	12320				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	1.90	10.91	-0.01	5111				



7.5.1

7

Manual Integration Approval Summary

Sample Number: OP95294-DUP Method: EPA DRAFT 1633
Lab FileID: 6Q13219.D Analyst approved: 02/08/23 15:18 Martha Valls
Injection Time: 02/08/23 12:27 Supervisor approved: 02/08/23 15:53 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluoropentanoic acid	2706-90-3		4.39	Poorly defined baseline
Perfluorohexanoic acid	307-24-4		5.58	Poorly defined baseline

7.5.1.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
 02/02/23 17:09

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12720.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/1/2023 5:09:16 PM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s6q196 TDCA.batch.bin
 Sample Information : OP94819,S6Q196,500,,,5.0,1,water

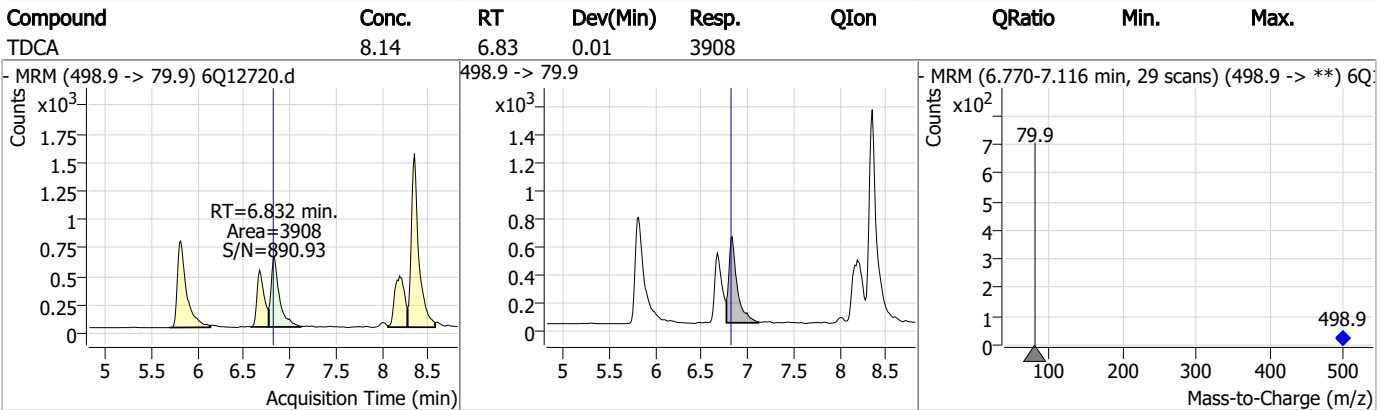
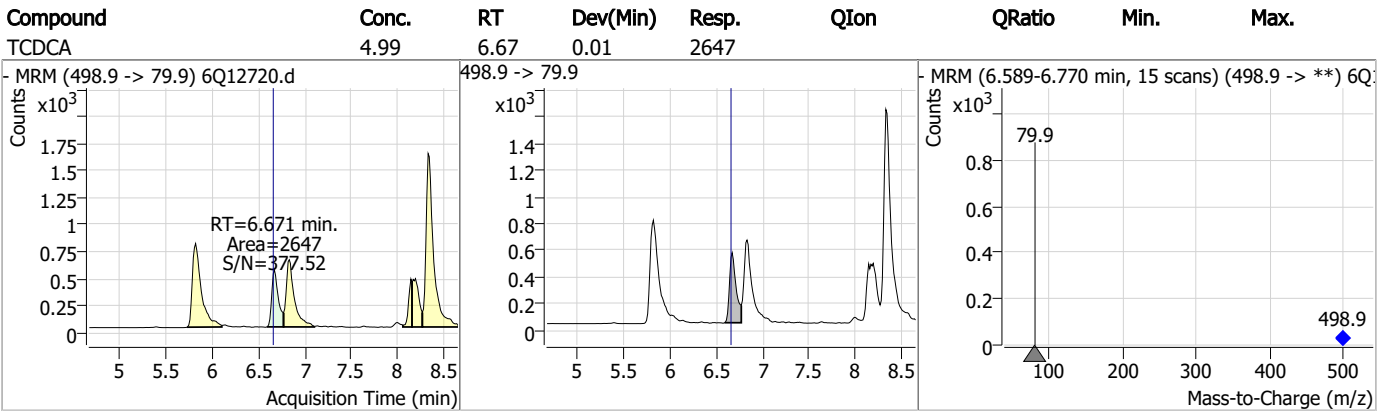
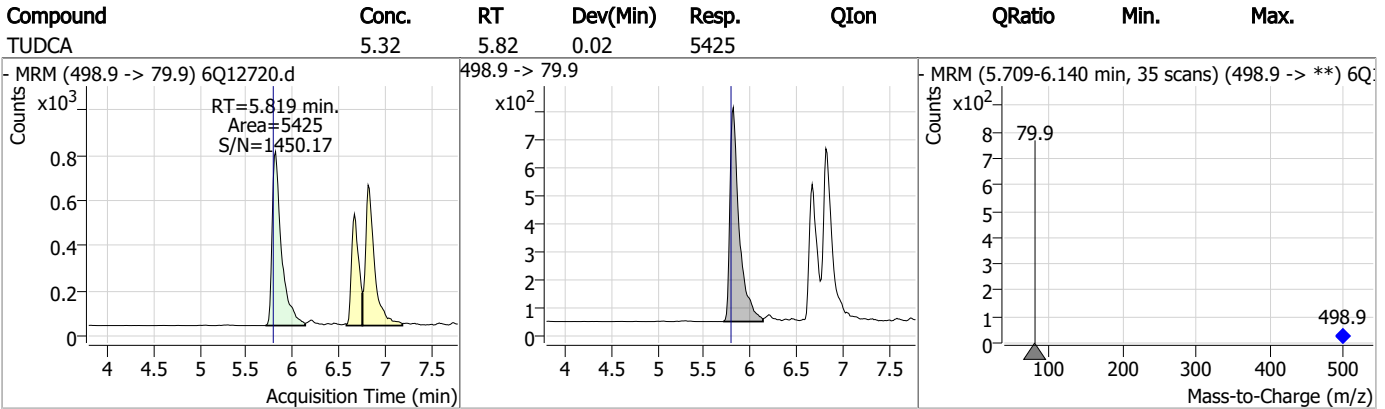
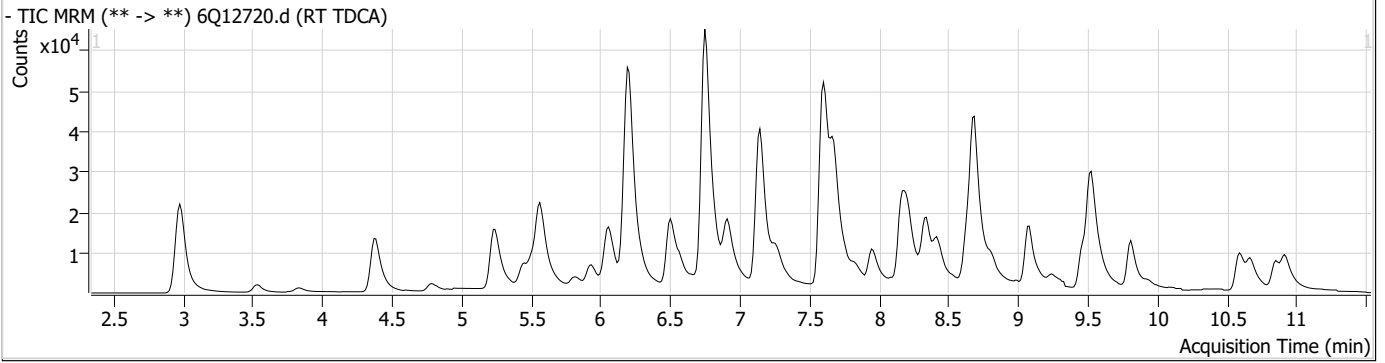
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M8-PFOS	8.345	507.1 -> 79.9	11492	2.50 µg/L	-0.025
13C4-PFOS	8.346	502.8 -> 79.9	13463	2.50 µg/L	-0.012
System Monitoring Compounds					
13C8-PFOS	8.345	507.1 -> 79.9	11492	2.17 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 86.6%		
Target Compounds					
PFOS	8.347	498.9 -> 79.9	11832	3.01 µg/L #m	75
		498.9 -> 98.8	7025		
TCDCa	6.671	498.9 -> 79.9	2647	4.99 ng/ml	100
TDCA	6.832	498.9 -> 79.9	3908	8.14 ng/ml	100
TUDCA	5.819	498.9 -> 79.9	5425	5.32 ng/ml	100

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

7.6.1
7

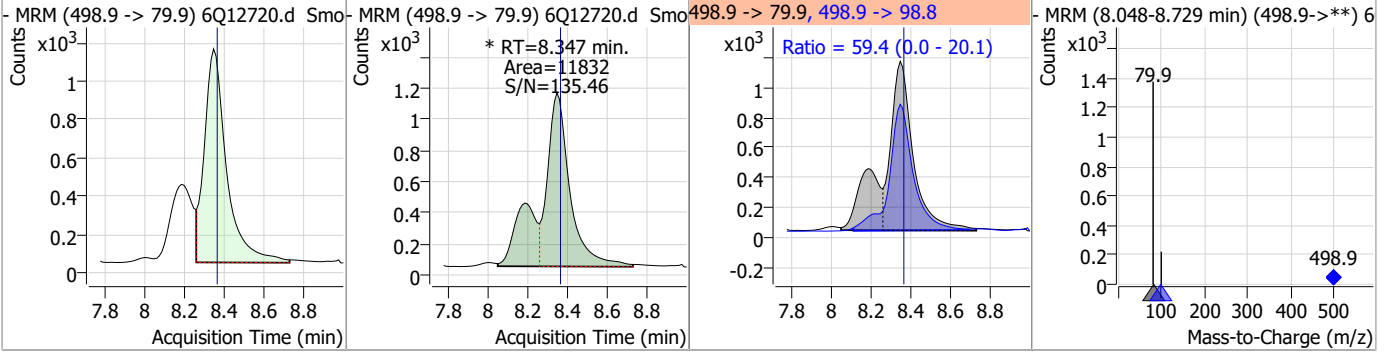


Perfluorinated Compounds by LC/MS/MS

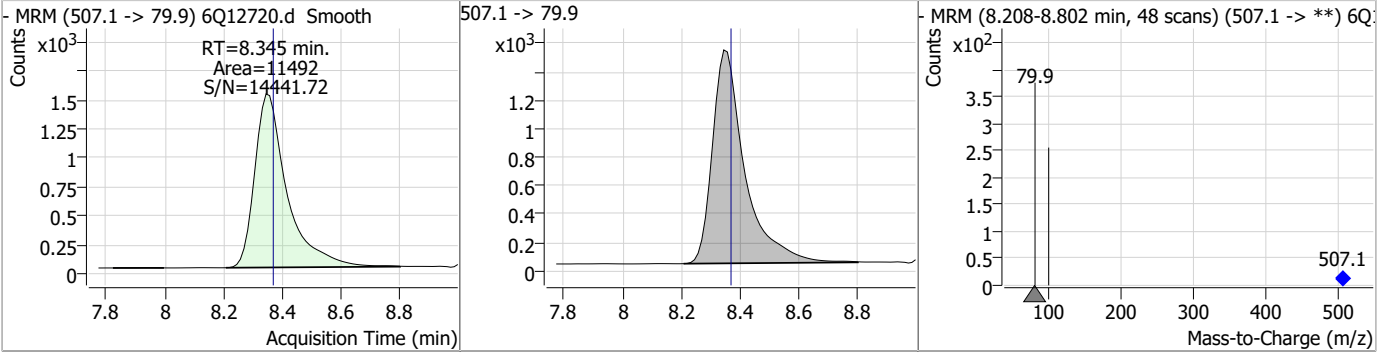


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	3.01	8.35	-0.01	11832 (m)	498.9 -> 98.8	59.4	0.0	20.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.17	8.35	-0.02	11492				



7.6.1

7

Manual Integration Approval Summary

Sample Number: S6Q196-RT Method: EPA DRAFT 1633
Lab FileID: 6Q12720.D Analyst approved: 02/02/23 11:53 Martha Valls
Injection Time: 02/01/23 17:09 Supervisor approved: 02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

7.6.1.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12721.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/1/2023 5:23:17 PM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_020223_S6Q196.quantmethod.xml
 Batch Name : S6Q196.batch.bin
 Sample Information : OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.988	216.8 -> 171.9	73523	10.00 µg/L	0.012
M5-PFPeA	4.386	268.3 -> 223.0	37421	5.00 µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	33092	2.50 µg/L	0.000
M4-PFHpA	6.515	367.1 -> 322.0	34405	2.50 µg/L	0.000
M8-PFOA	7.146	421.1 -> 376.0	57537	2.50 µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	27503	1.25 µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	17096	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	20746	1.25 µg/L	0.000
M2-PFDoDA	9.078	615.1 -> 570.0	23875	1.25 µg/L	0.000
M2-PFTeDA	9.805	715.2 -> 670.0	14702	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	16892	2.50 µg/L	0.000
M3-PFBS	5.530	302.1 -> 79.9	13111	2.50 µg/L	0.012
M3-PFHxS	7.274	402.1 -> 79.9	8310	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8946	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	1992	5.00 µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	2587	5.00 µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	2956	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	27724	5.00 µg/L	0.000
M3-HFPO-DA	5.952	286.9 -> 168.9	14426	10.00 µg/L	0.012
M5-EtFOSAA	8.410	589.2 -> 419.0	22665	5.00 µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	29698	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	20300	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7728	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7283	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	9343	2.50 µg/L	0.000
13C3-PFBA	2.991	216.0 -> 172.0	32816	5.00 µg/L	0.012
18O2-PFHxS	7.273	403.0 -> 83.9	6427	2.50 µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	74405	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	27034	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	32413	1.25 µg/L	-0.012
13C2-PFHxA	5.576	315.1 -> 270.0	31636	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.240	329.1 -> 80.9	1992	4.77 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.3%		
13C2-6:2FTS	6.920	429.1 -> 80.9	2587	4.67 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.3%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2956	5.31 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.2%		
13C2-PFDoDA	9.078	615.1 -> 570.0	23875	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.8%		
13C2-PFTeDA	9.805	715.2 -> 670.0	14702	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C3-PFBS	5.530	302.1 -> 79.9	13111	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C3-PFHxS	7.274	402.1 -> 79.9	8310	2.46 µg/L	0.000

7.6.2
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 = 98.4%	
13C4-PFBA	2.988	216.8 -> 171.9	73523	10.10 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C4-PFHpA	6.515	367.1 -> 322.0	34405	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C5-PFHxA	5.575	318.0 -> 273.0	33092	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.7%	
13C5-PFPeA	4.386	268.3 -> 223.0	37421	5.31 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.2%	
13C6-PFDA	8.170	519.1 -> 474.1	17096	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.9%	
13C7-PFUnDA	8.636	570.0 -> 525.1	20746	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.3%	
13C8-FOSA	9.567	506.1 -> 77.8	16892	2.78 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.0%	
13C8-PFOA	7.146	421.1 -> 376.0	57537	2.32 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.6%	
13C8-PFOS	8.345	507.1 -> 79.9	8946	2.91 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 116.5%	
13C9-PFNA	7.677	472.1 -> 427.0	27503	1.21 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.4%	
d3-MeFOSAA	8.215	573.2 -> 419.0	27724	5.41 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.3%	
13C3-HFPO-DA	5.952	286.9 -> 168.9	14426	11.16 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 111.6%	
d3-MeFOSA	10.680	515.0 -> 219.0	7283	2.78 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.1%	
d5-EtFOSAA	8.410	589.2 -> 419.0	22665	5.33 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.7%	
d7-MeFOSE	10.589	623.2 -> 58.9	29698	27.99 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 112.0%	
d9-EtFOSE	10.847	639.2 -> 58.9	20300	27.76 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 111.1%	
d5-EtFOSA	10.925	531.1 -> 219.0	7728	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.4%	
Target Compounds					QValue
4:2FTS	5.240	327.1 -> 307.0	226996	50.83 µg/L	99
		327.1 -> 80.9	48871		
6:2FTS	6.921	427.1 -> 407.0	200157	52.84 µg/L	100
		427.1 -> 80.9	36784		
8:2FTS	7.958	527.1 -> 507.0	107975	47.03 µg/L	98
		527.1 -> 80.8	25217		
EtFOSAA	8.424	584.2 -> 419.1	48275	13.30 µg/L	91
		584.2 -> 526.0	25773		
FOSA	9.557	498.1 -> 77.9	203438	30.18 µg/L	98
		498.1 -> 478.0	7881		
MeFOSAA	8.216	570.1 -> 419.0	65181	12.83 µg/L	90
		570.1 -> 483.0	12259		
PFBA	2.982	212.8 -> 168.9	85932	52.33 µg/L	100
PFBS	5.531	298.7 -> 79.9	56662	11.25 µg/L	95
		298.7 -> 98.8	26601		
PFDA	8.170	512.9 -> 469.0	273501	14.06 µg/L	96
		512.9 -> 219.0	36332		
PFDoDA	9.079	613.1 -> 569.0	250845	14.34 µg/L	99
		613.1 -> 319.0	29279		
PFDS	9.241	599.0 -> 79.9	33382	11.02 µg/L	93

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.515	599.0 -> 98.8	18515	13.35	µg/L	97
		363.1 -> 319.0	271998			
PFHpS	7.841	363.1 -> 169.0	36800	10.99	µg/L	95
		449.0 -> 79.9	41704			
PFHxA	5.578	449.0 -> 98.9	24706	13.54	µg/L	98
		313.0 -> 269.0	175824			
PFHxS	7.275	313.0 -> 118.9	6240	12.00	µg/L	m
		398.7 -> 79.9	44818			
PFNA	7.677	398.7 -> 98.9	24474	22.68	µg/L	m
		463.0 -> 419.0	420857			
PFNS	8.811	463.0 -> 219.0	88158	12.03	µg/L	96
		548.8 -> 79.9	47824			
PFOA	7.148	548.8 -> 98.9	25757	29.26	µg/L	m
		413.0 -> 369.0	741557			
PFOS	8.347	413.0 -> 169.0	99856	11.26	µg/L	m
		498.9 -> 79.9	46232			
PFPeA	4.388	498.9 -> 98.8	29862	26.43	µg/L	100
		263.0 -> 219.0	208878			
PFPeS	6.581	349.1 -> 79.9	53740	12.37	µg/L	94
		349.1 -> 98.9	29704			
PFTeDA	9.806	713.1 -> 669.0	209152	13.19	µg/L	99
		713.1 -> 168.9	13269			
PFTrDA	9.462	663.0 -> 619.0	236702	14.15	µg/L	99
		663.0 -> 168.9	18159			
PFUnDA	8.637	563.1 -> 519.0	240303	14.87	µg/L	100
		563.1 -> 269.1	32548			
11Cl-PF3OUdS	9.514	630.9 -> 450.9	494947	47.81	µg/L	98
		632.9 -> 452.9	157776			
9Cl-PF3ONS	8.688	530.8 -> 351.0	813794	46.51	µg/L	96
		532.8 -> 353.0	243168			
ADONA	6.766	376.9 -> 250.9	1540645	49.23	µg/L	96
		376.9 -> 84.8	312249			
HFPO-DA	5.953	284.9 -> 168.9	66655	49.40	µg/L	99
		284.9 -> 184.9	8622			
3:3FTCA	3.841	241.0 -> 177.0	24851	64.04	µg/L	97
		241.0 -> 117.0	3376			
5:3FTCA	6.206	341.0 -> 237.1	888542	327.39	µg/L	98
		341.0 -> 217.0	787399			
7:3FTCA	7.605	441.0 -> 316.9	587084	330.95	µg/L	89
		441.0 -> 336.9	1135231			
EtFOSA	10.927	526.0 -> 219.0	118317	32.08	µg/L	86
		526.0 -> 169.0	132251			
EtFOSE	10.860	630.0 -> 58.9	125370	144.30	µg/L	100
		511.9 -> 219.0	100539			
MeFOSA	10.682	511.9 -> 169.0	113613	31.91	µg/L	88
		616.1 -> 58.9	168745			
MeFOSE	10.602	699.1 -> 79.9	21461	142.44	µg/L	100
		699.1 -> 98.8	12686			
PFDoDS	9.945	295.0 -> 201.0	19199	11.84	µg/L	100
		295.0 -> 84.9	10072			
NFDHA	5.457	279.0 -> 85.1	58012	25.02	µg/L	98
		229.0 -> 84.9	54665			
PFMBA	4.800	314.8 -> 134.9	446823	26.11	µg/L	100
		314.8 -> 82.9	10093			
PFMPA	3.541			25.94	µg/L	100
PFEESA	6.071			23.91	µg/L	100

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

7.6.2
7

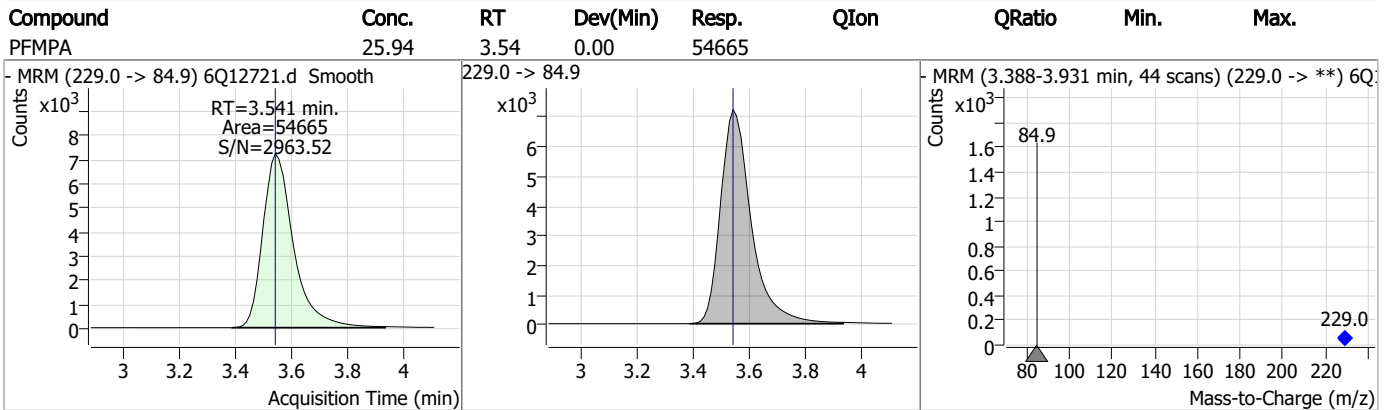
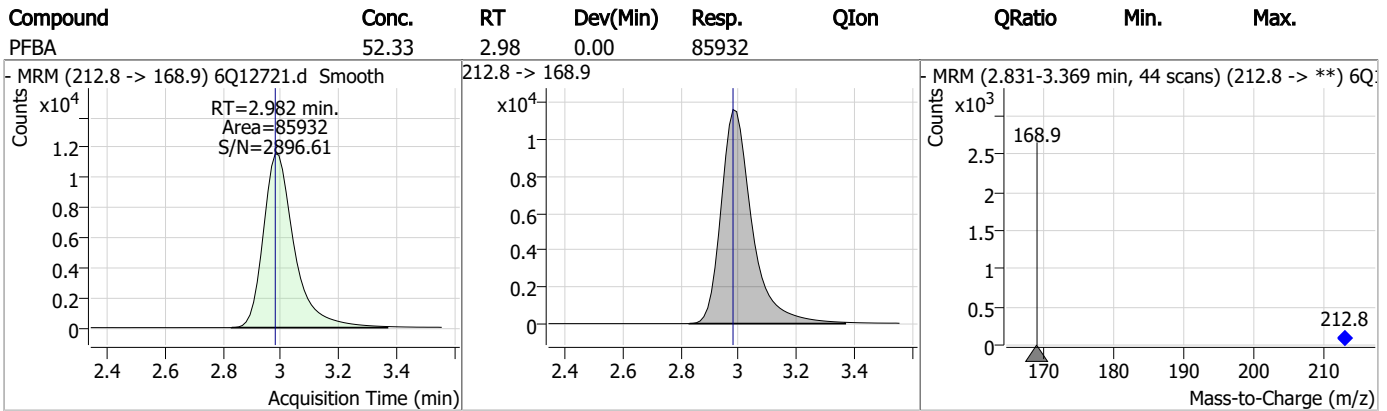
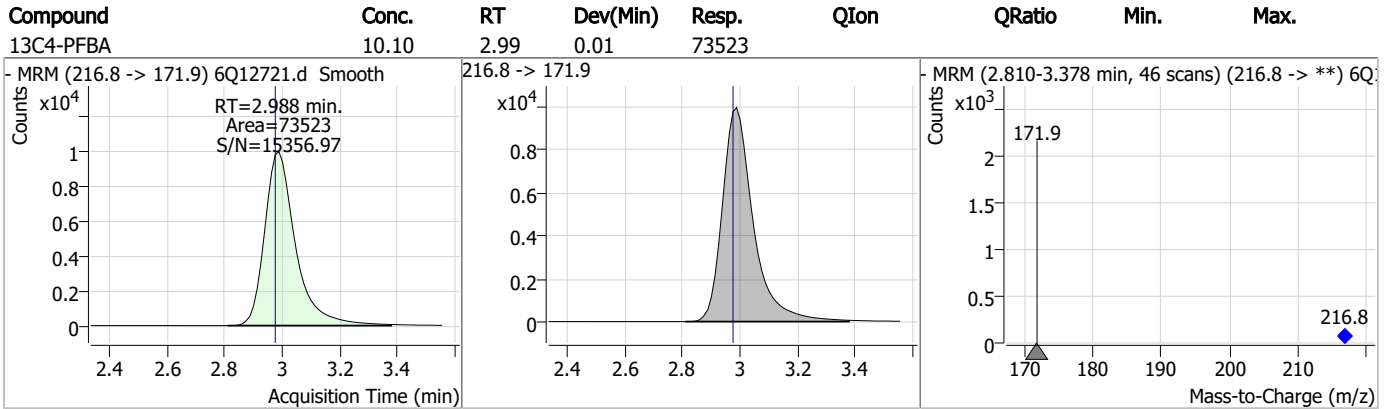
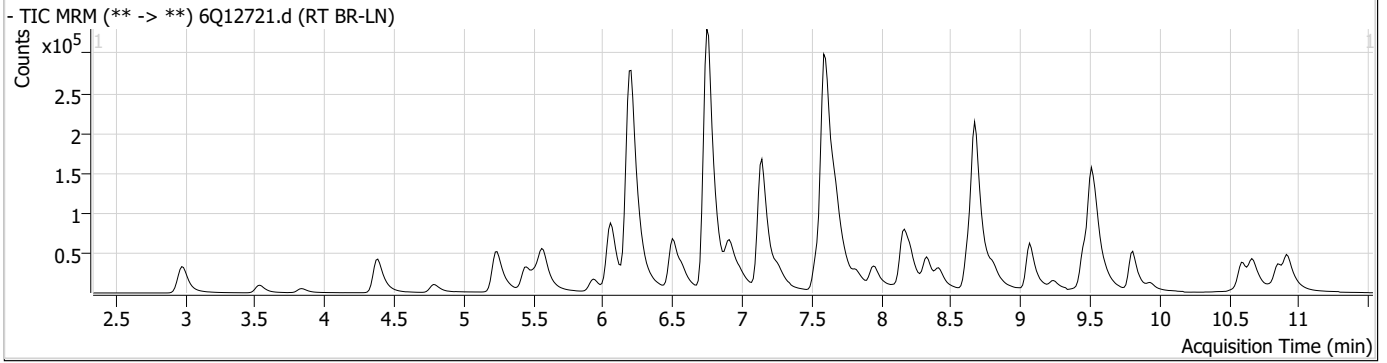
Perfluorinated Compounds by LC/MS/MS

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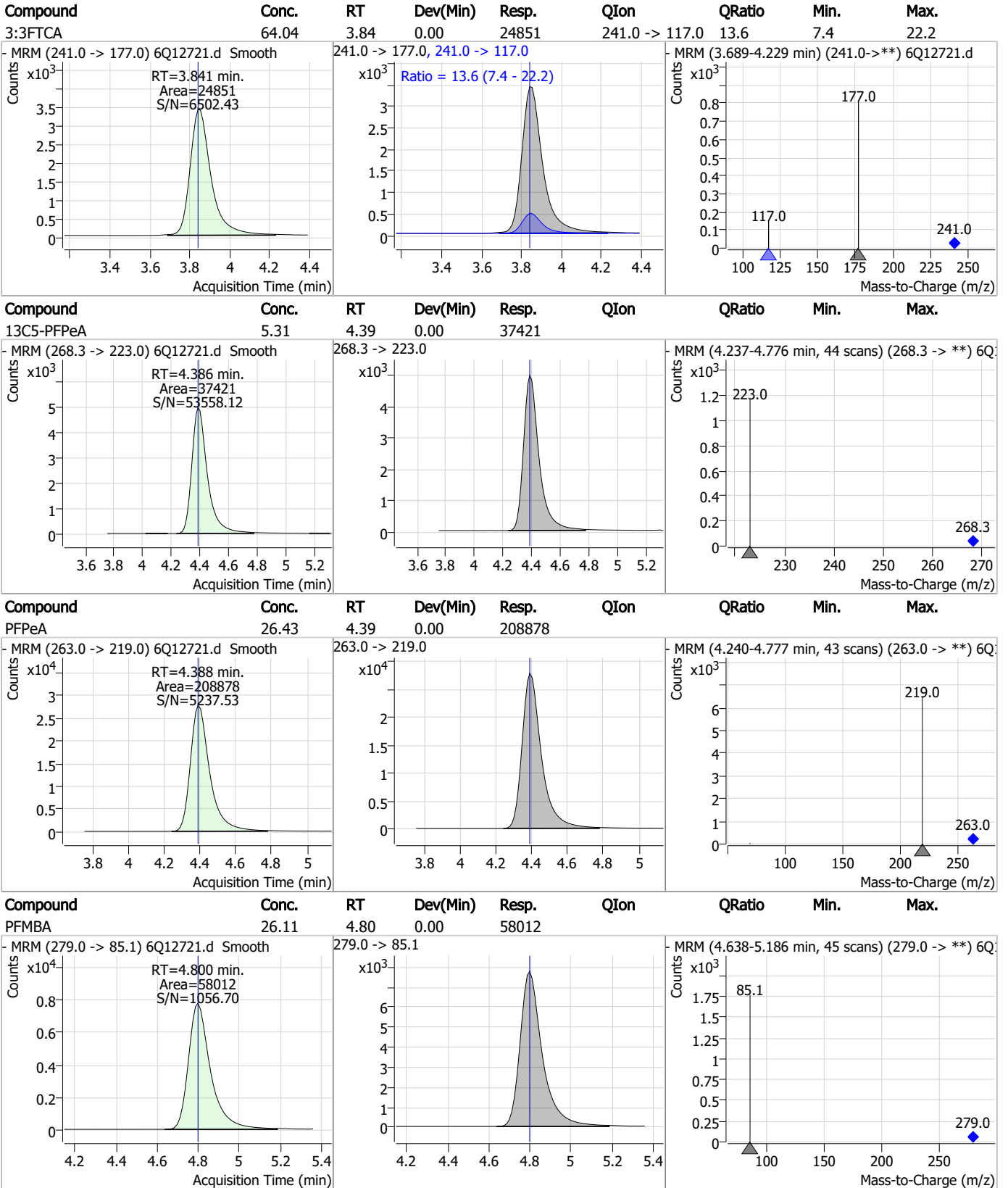
7.6.2

7

Perfluorinated Compounds by LC/MS/MS



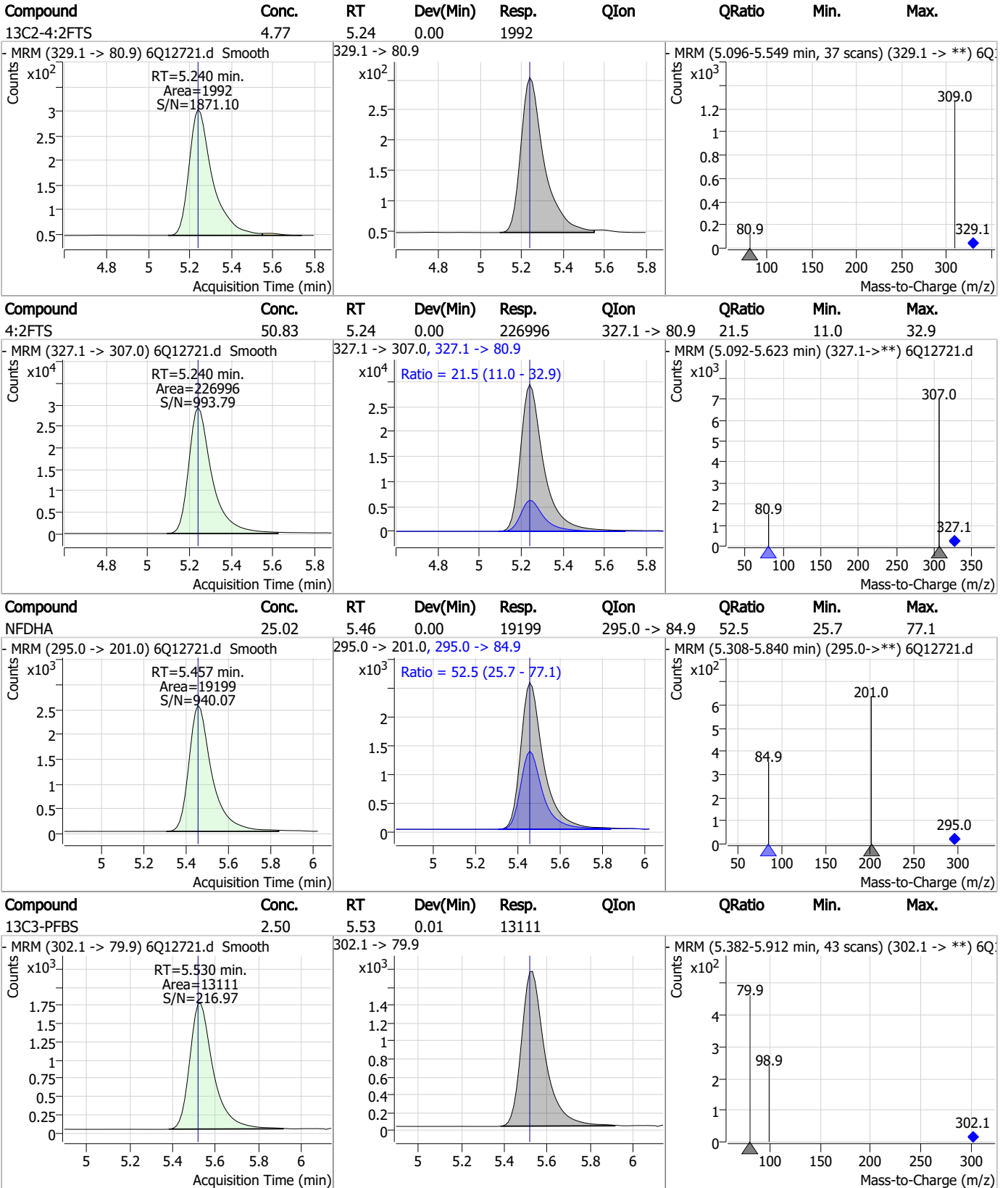
Perfluorinated Compounds by LC/MS/MS



7.6.2

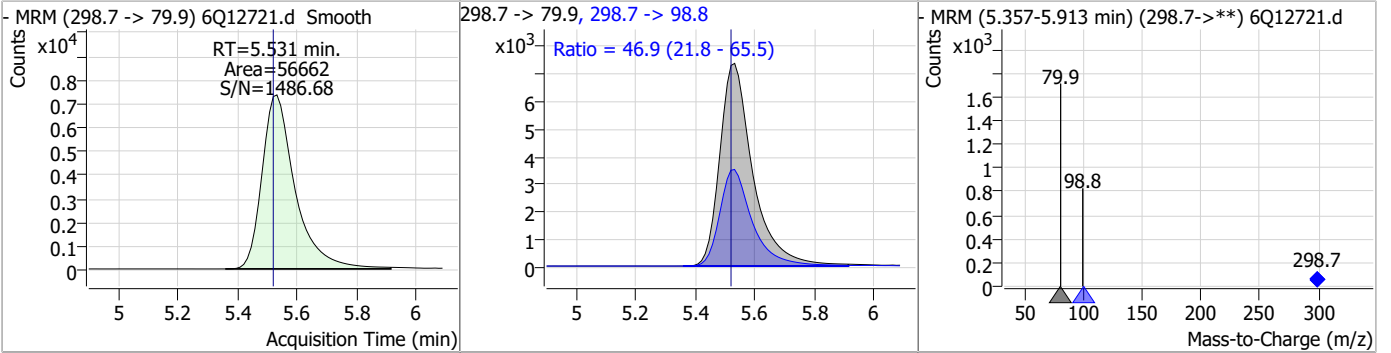
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Perfluorinated Compounds by LC/MS/MS

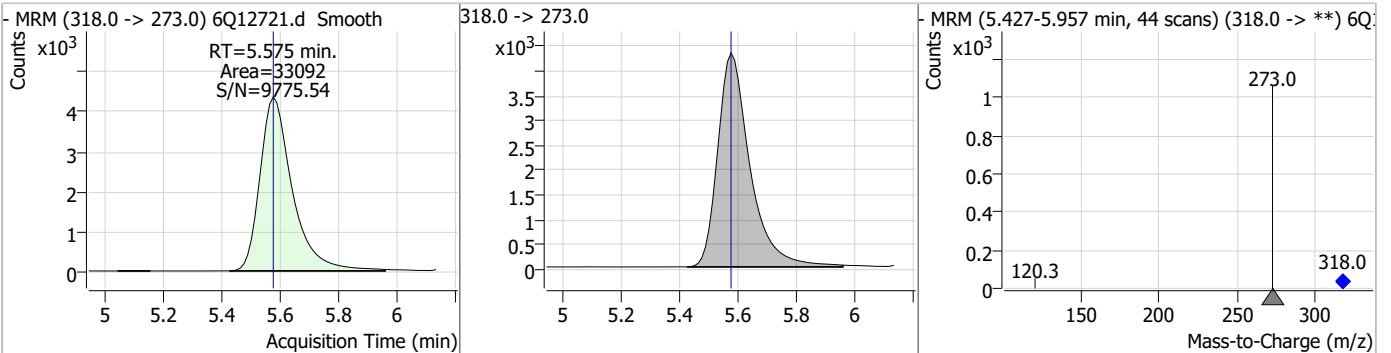


Perfluorinated Compounds by LC/MS/MS

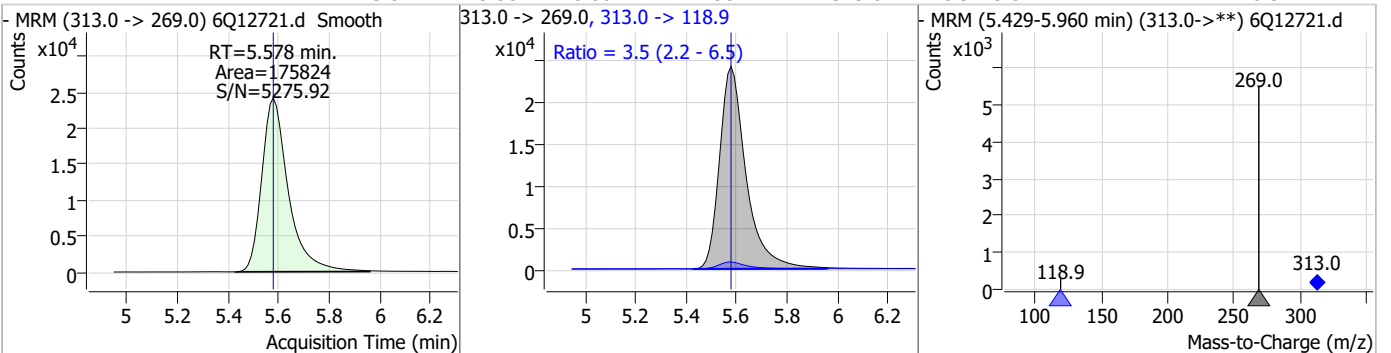
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	11.25	5.53	0.01	56662	298.7 -> 98.8	46.9	21.8	65.5



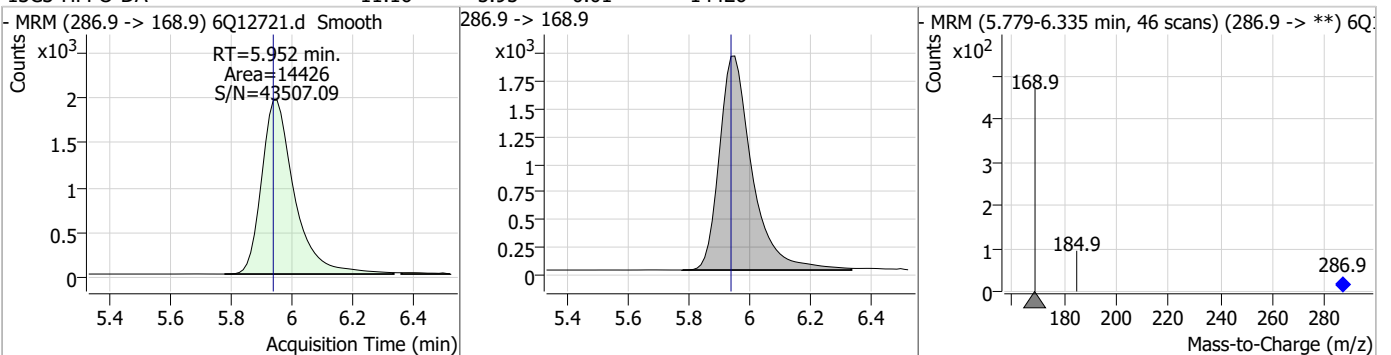
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.64	5.57	0.00	33092				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	13.54	5.58	0.00	175824	313.0 -> 118.9	3.5	2.2	6.5

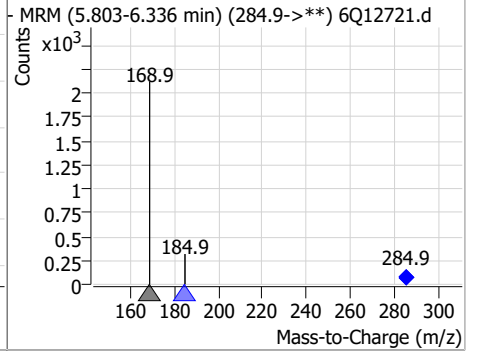
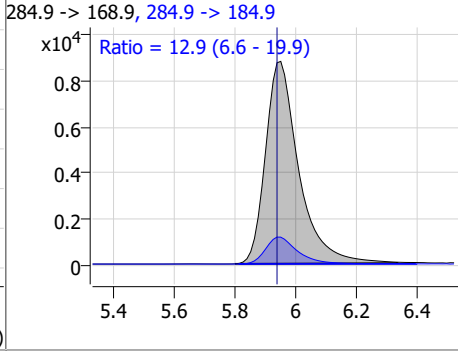
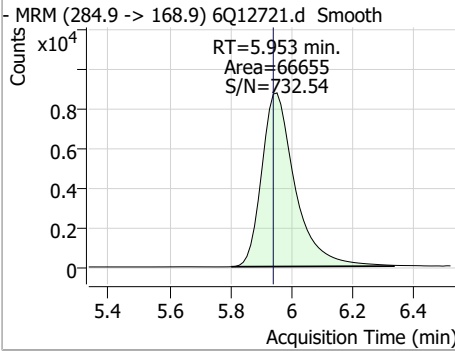


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	11.16	5.95	0.01	14426				

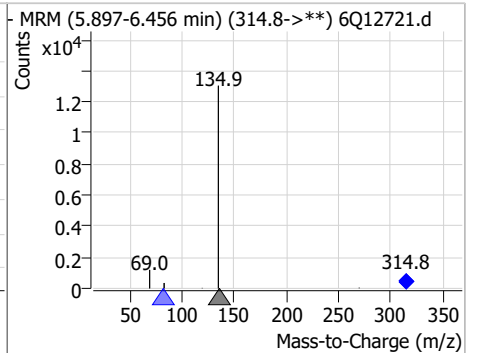
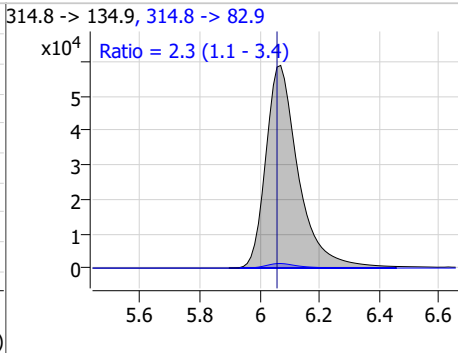
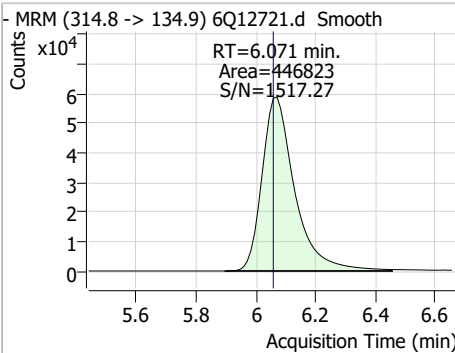


Perfluorinated Compounds by LC/MS/MS

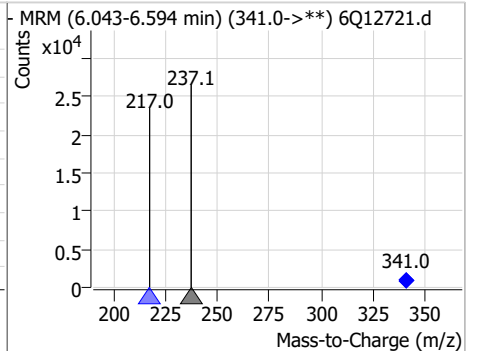
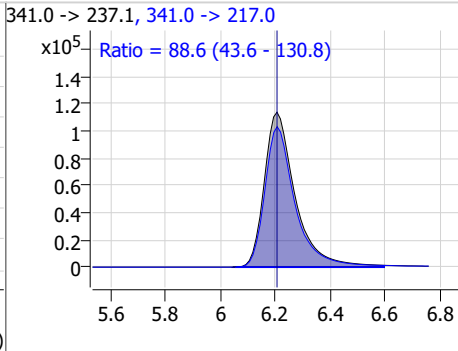
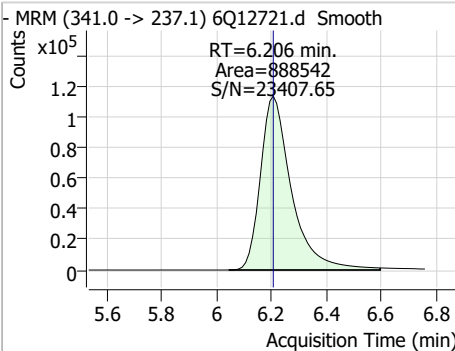
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	49.40	5.95	0.01	66655	284.9 -> 184.9	12.9	6.6	19.9



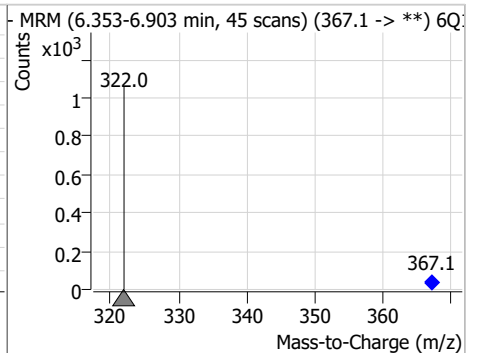
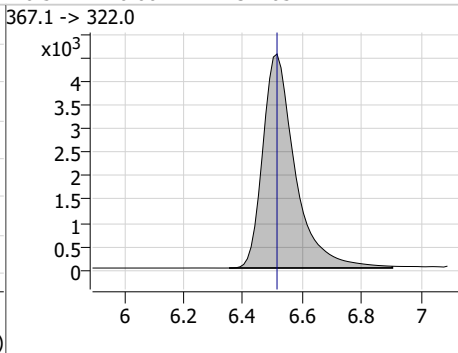
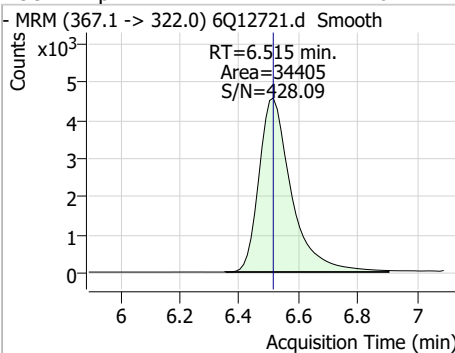
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	23.91	6.07	0.01	446823	314.8 -> 82.9	2.3	1.1	3.4



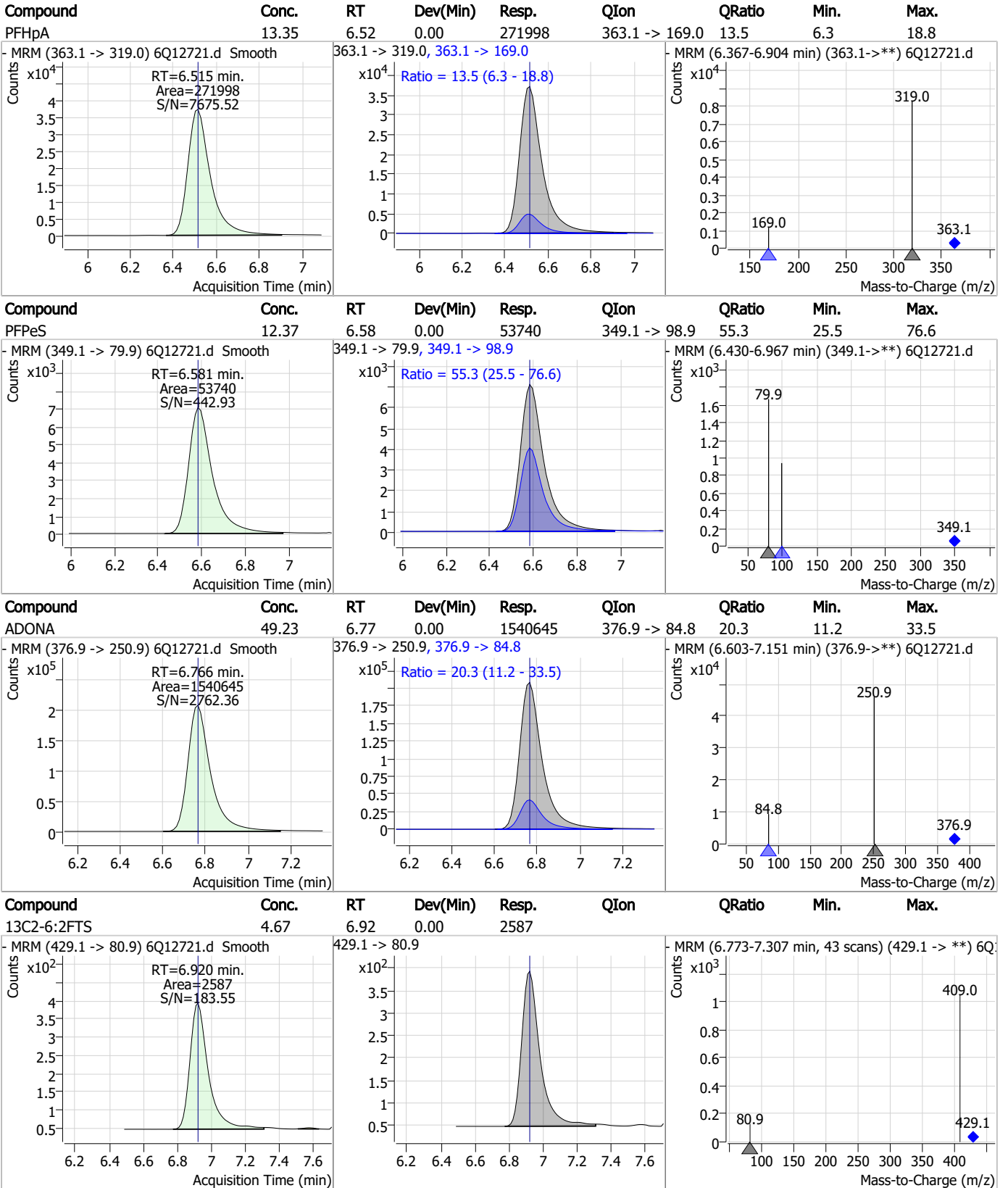
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	327.39	6.21	0.00	888542	341.0 -> 217.0	88.6	43.6	130.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.64	6.51	0.00	34405	367.1 -> 322.0			



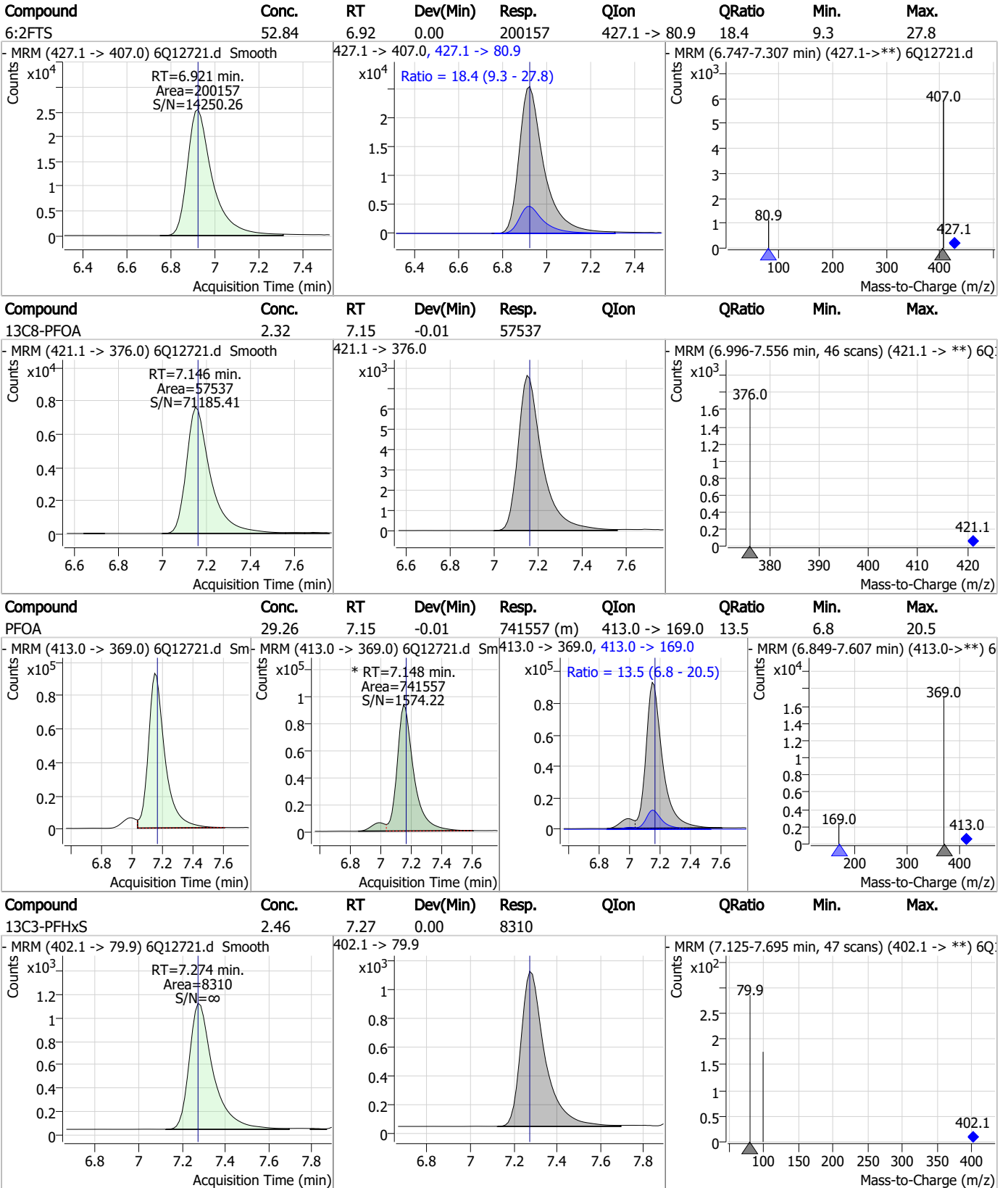
Perfluorinated Compounds by LC/MS/MS



7.6.2

7

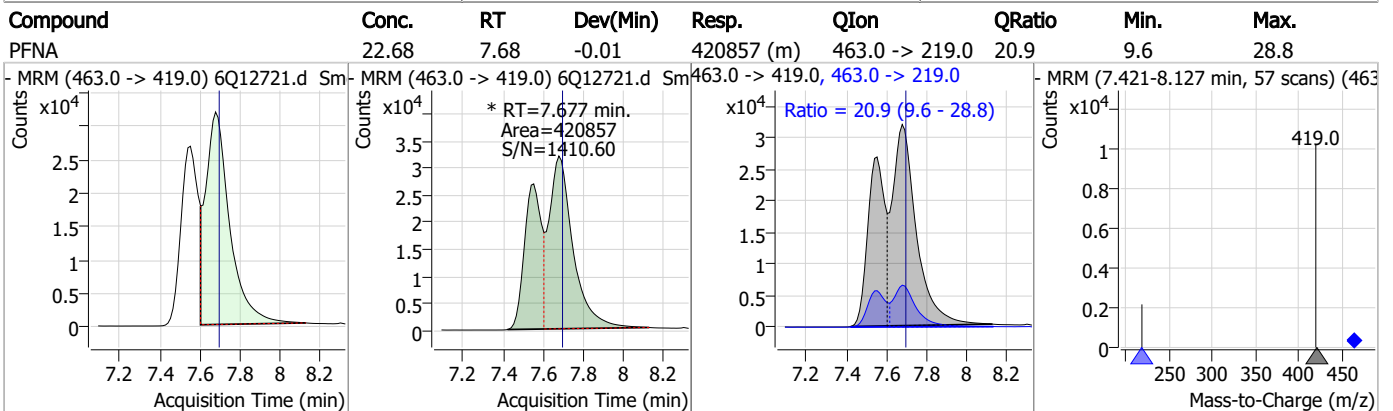
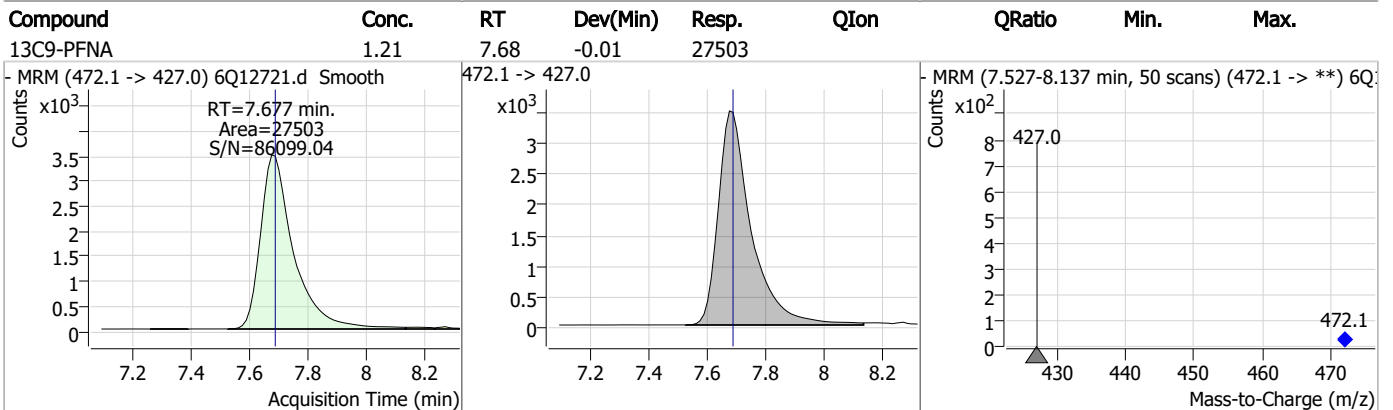
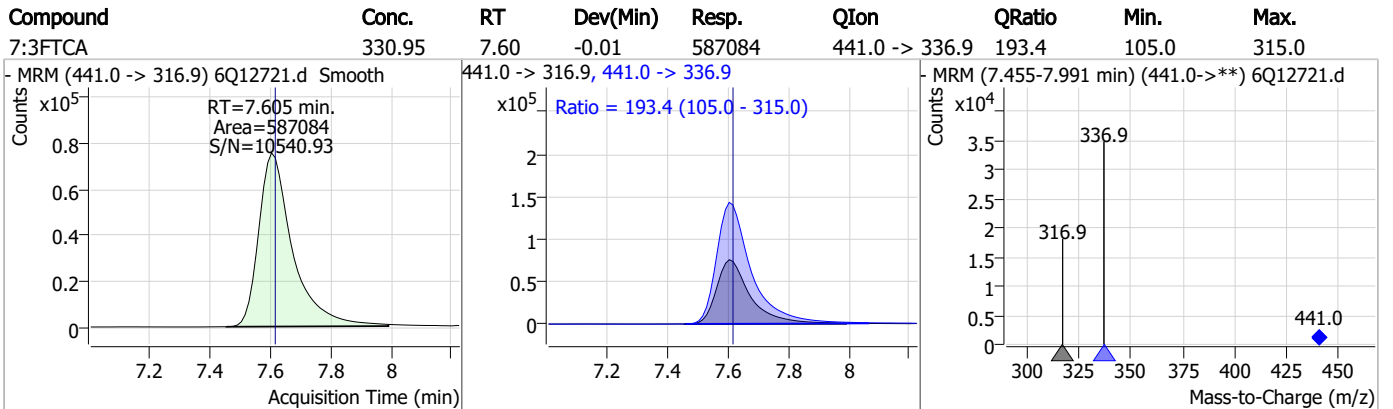
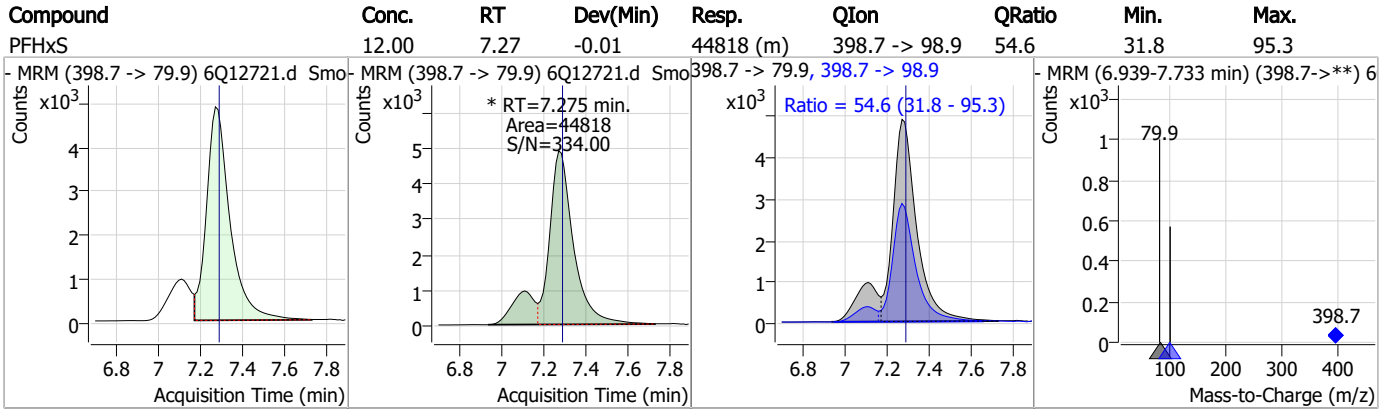
Perfluorinated Compounds by LC/MS/MS



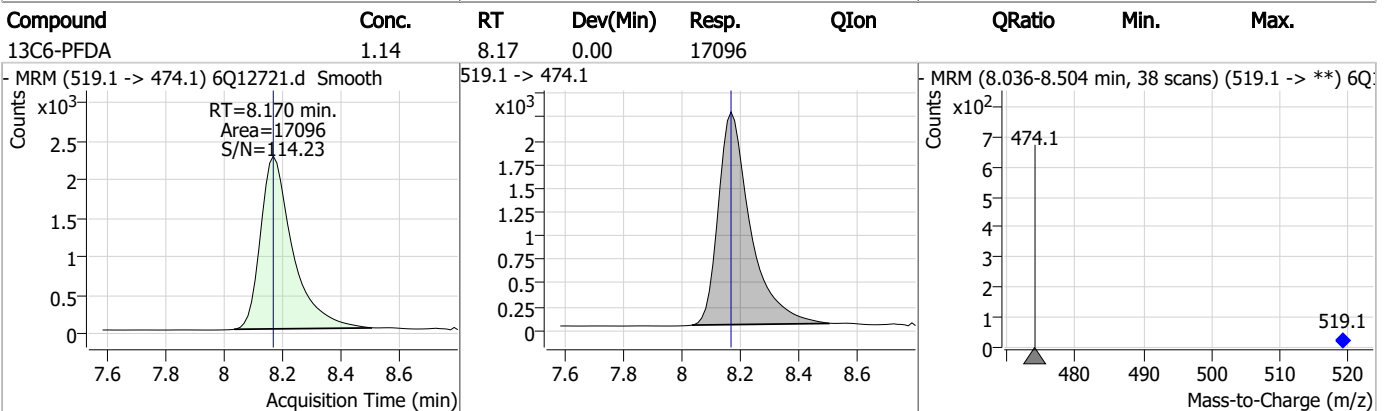
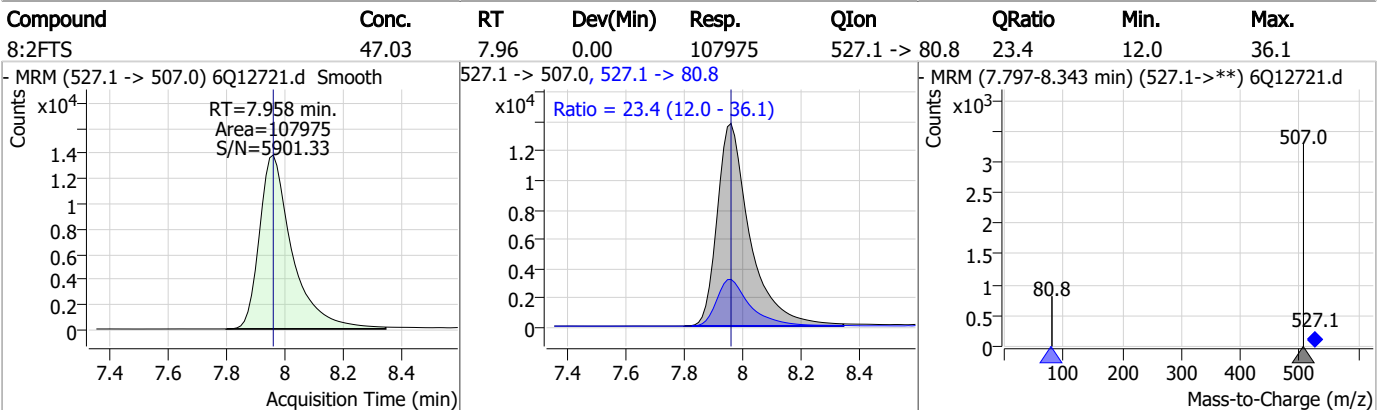
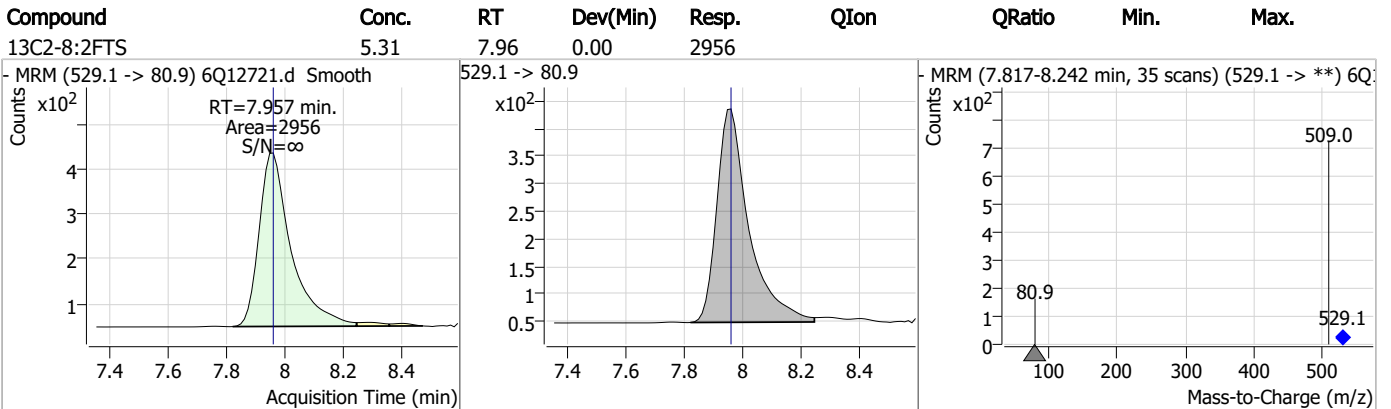
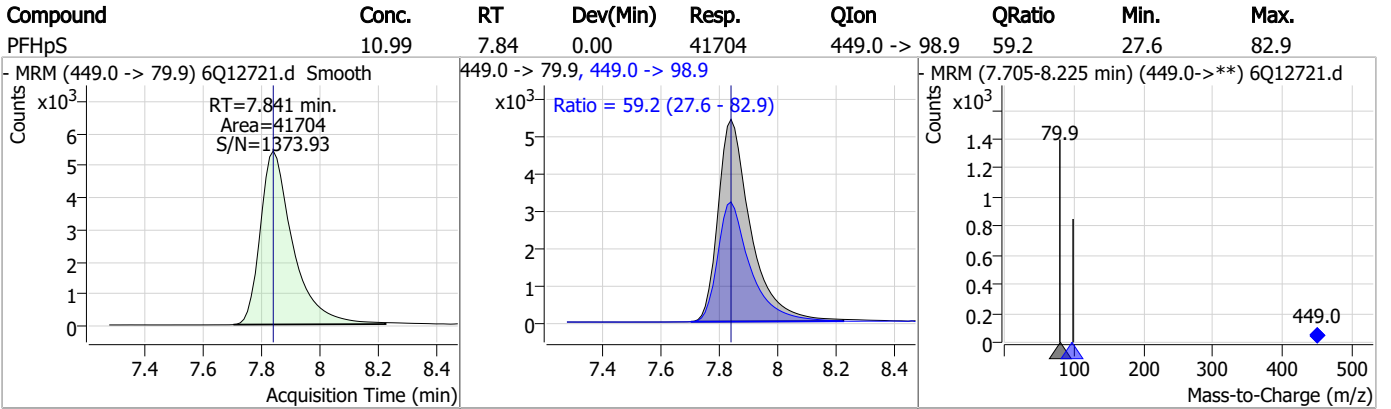
7.6.2

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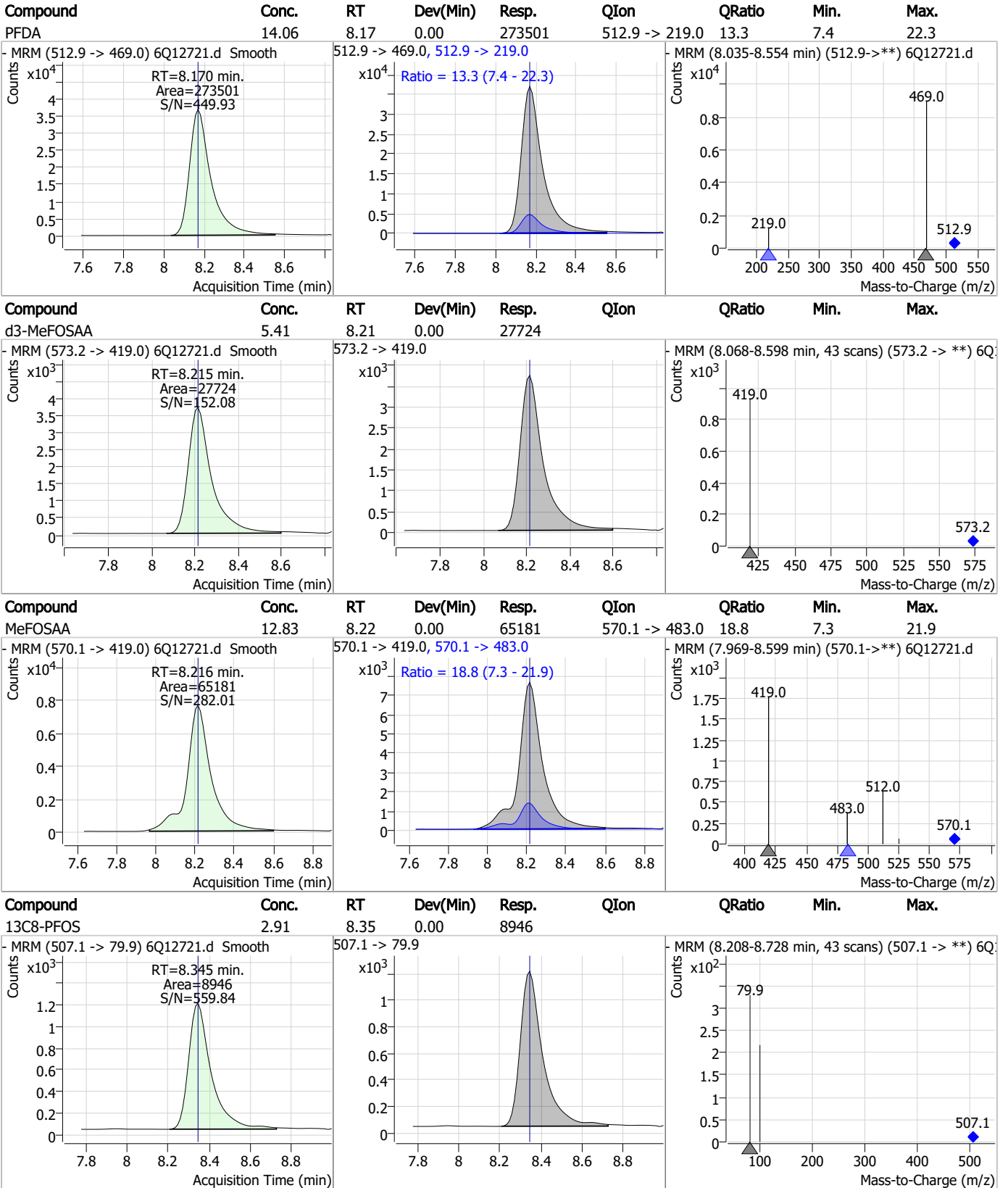
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



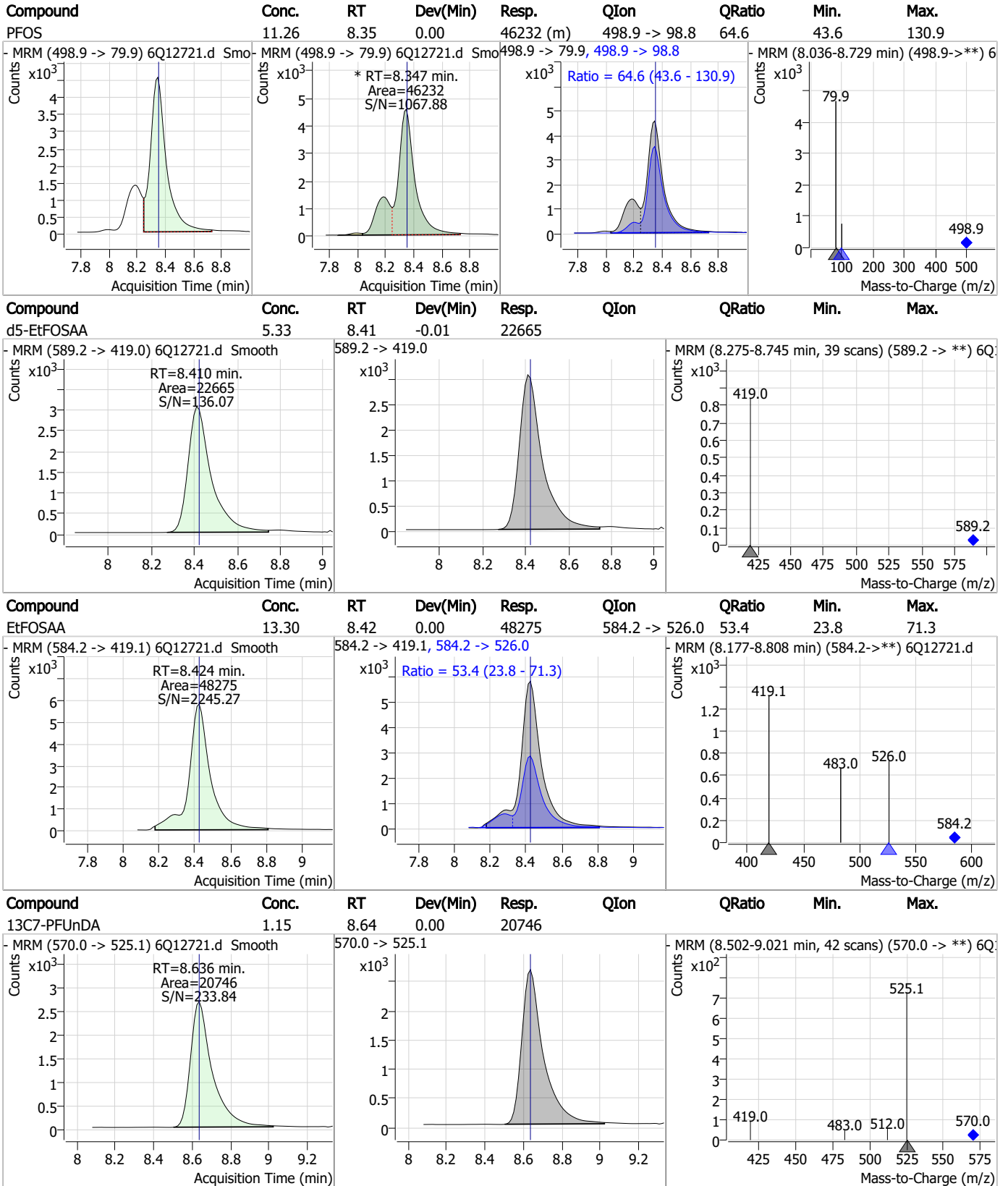
Perfluorinated Compounds by LC/MS/MS



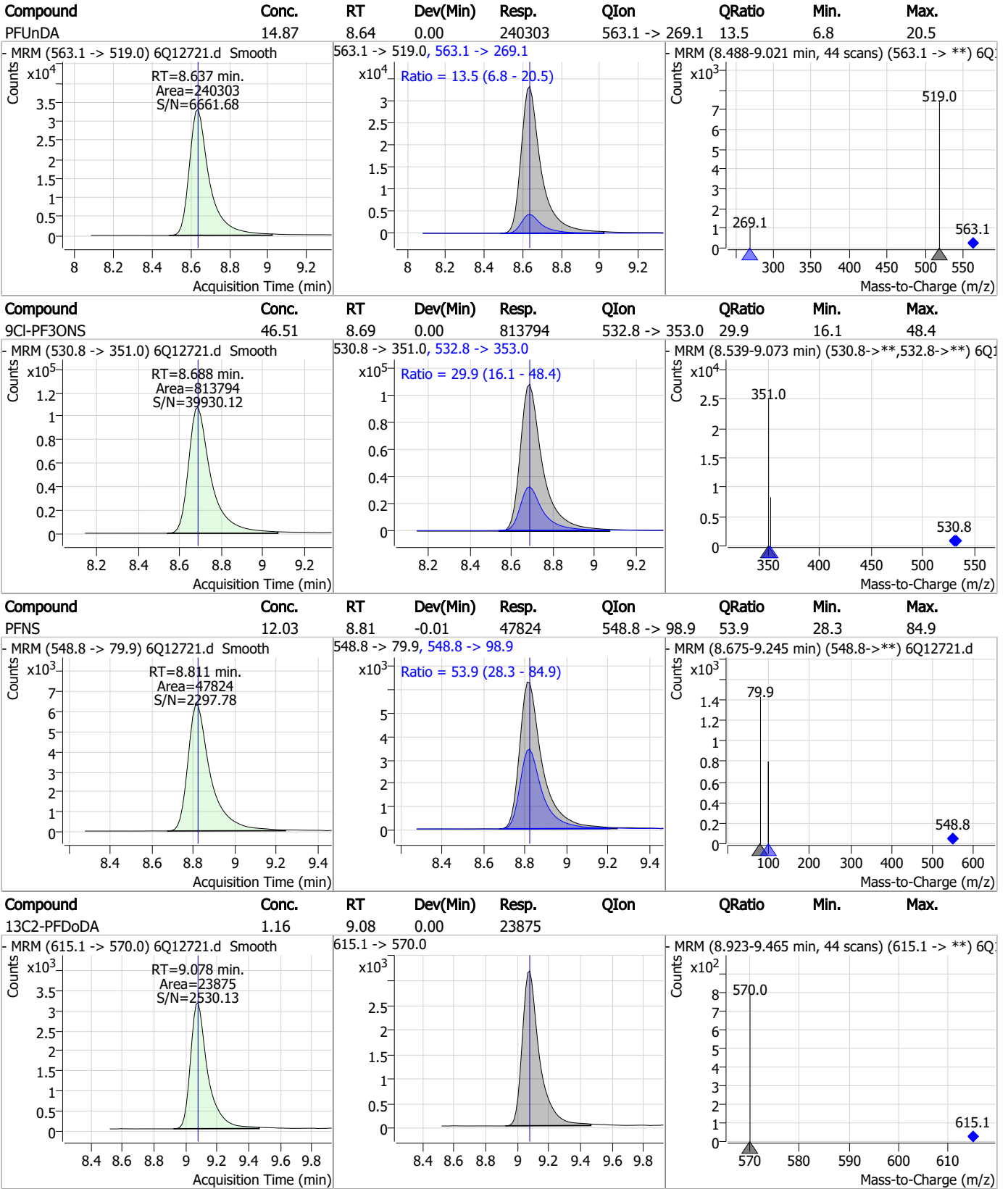
7.6.2

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Perfluorinated Compounds by LC/MS/MS



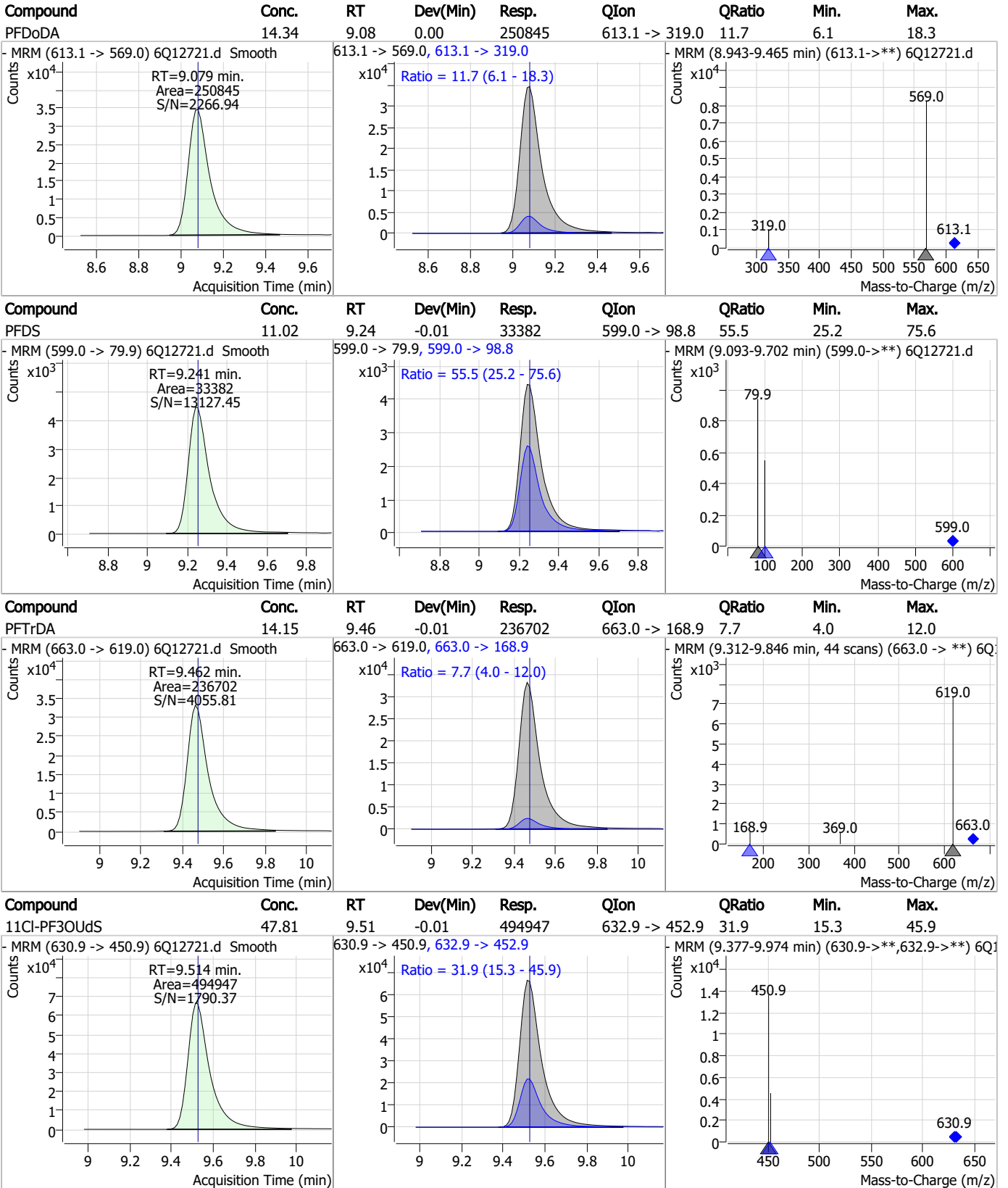
Perfluorinated Compounds by LC/MS/MS



7.6.2

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Perfluorinated Compounds by LC/MS/MS

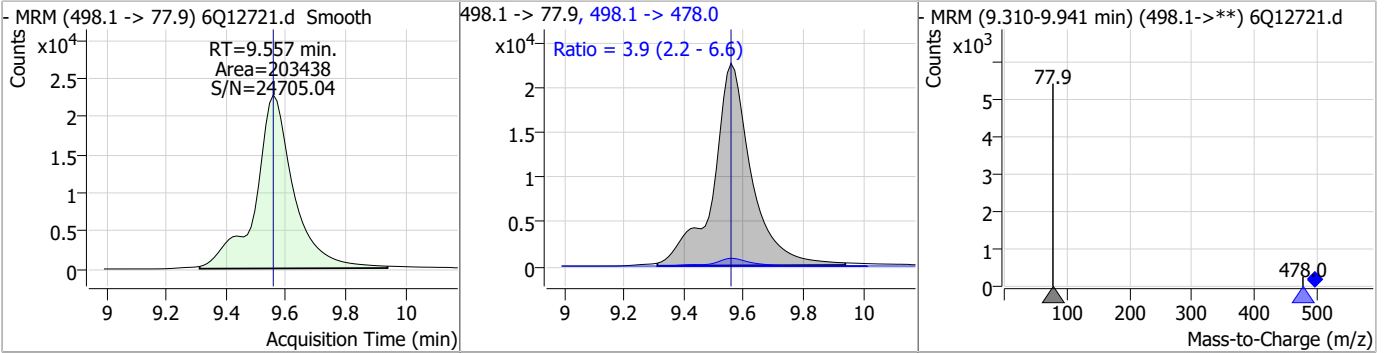


7.6.2

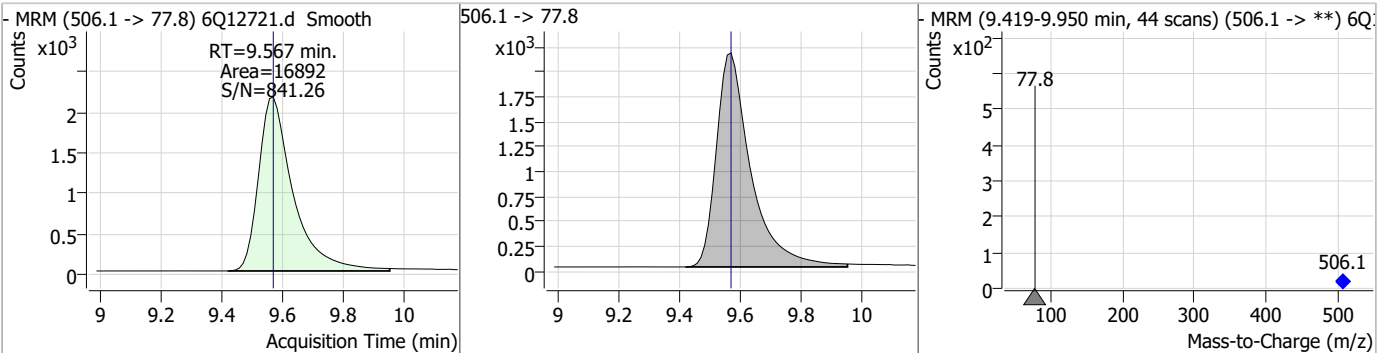
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Perfluorinated Compounds by LC/MS/MS

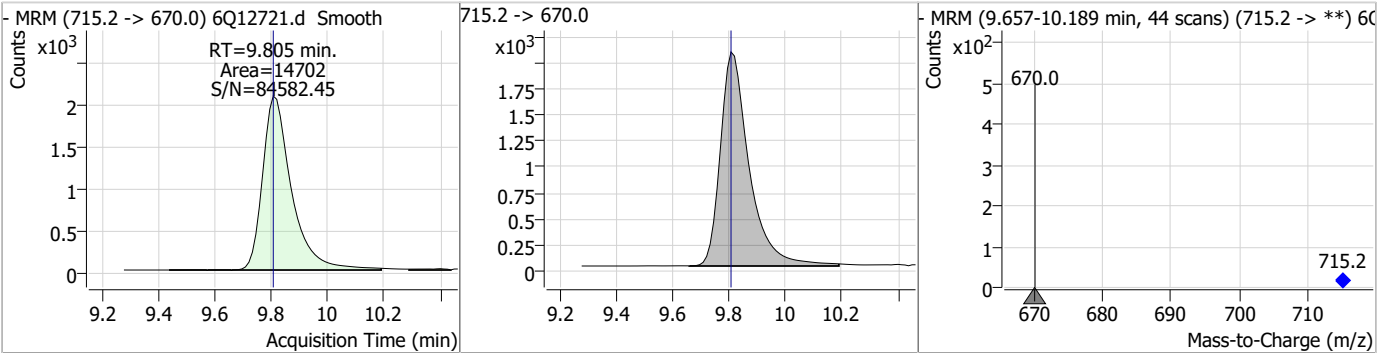
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	30.18	9.56	0.00	203438	498.1 -> 478.0	3.9	2.2	6.6



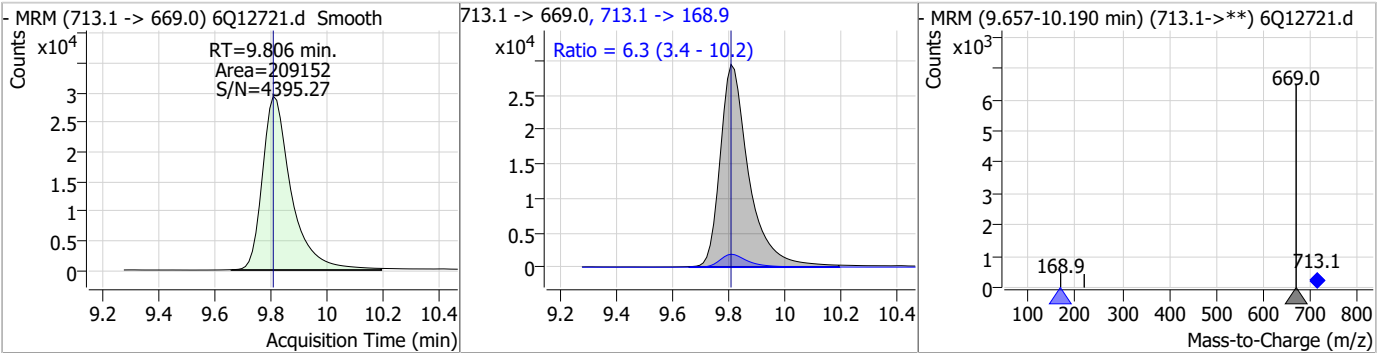
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.78	9.57	0.00	16892				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.24	9.81	0.00	14702				

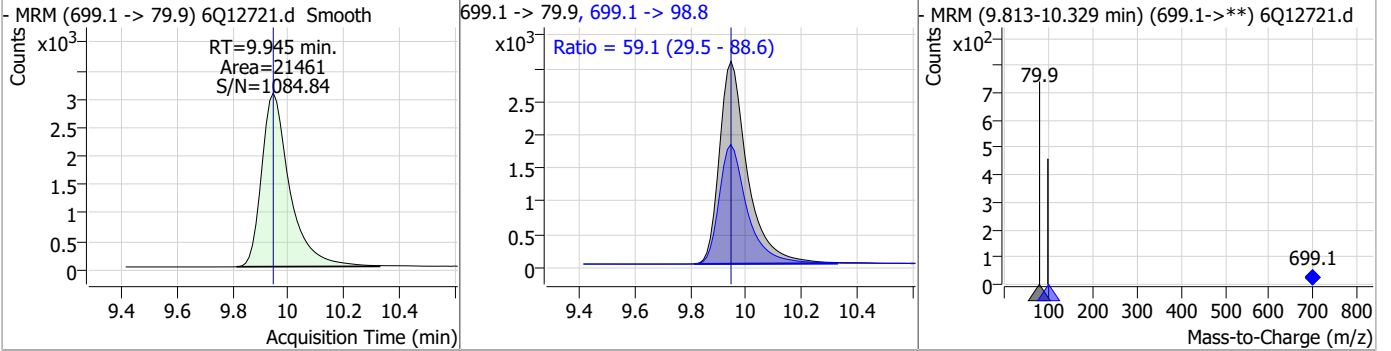


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	13.19	9.81	0.00	209152	713.1 -> 168.9	6.3	3.4	10.2

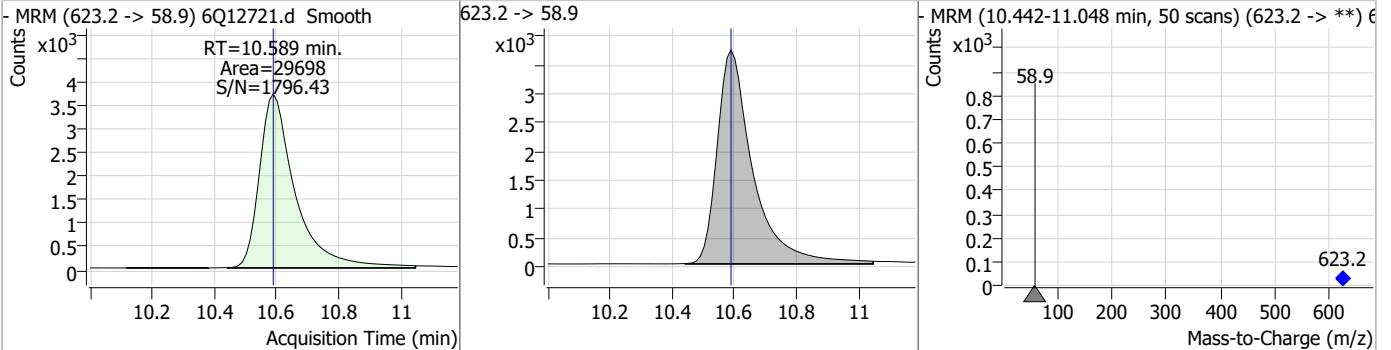


Perfluorinated Compounds by LC/MS/MS

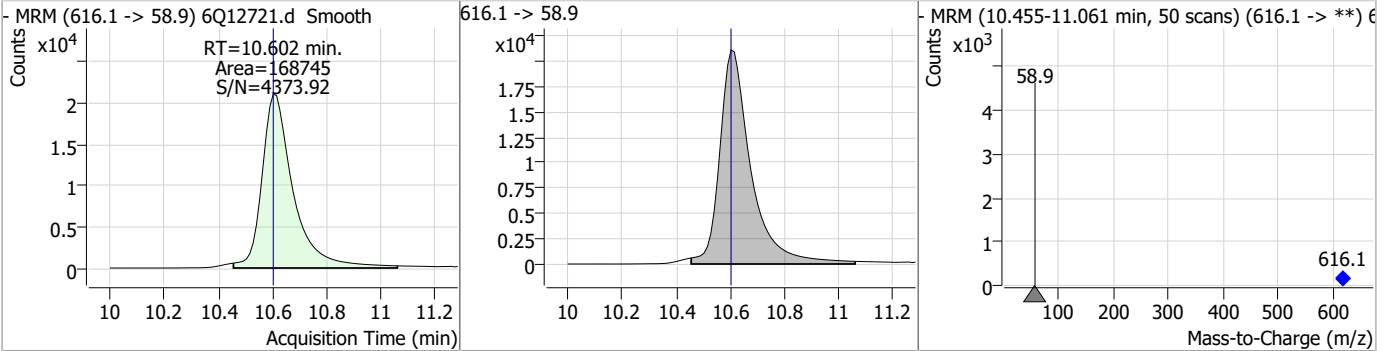
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	11.84	9.95	0.00	21461	699.1 -> 98.8	59.1	29.5	88.6



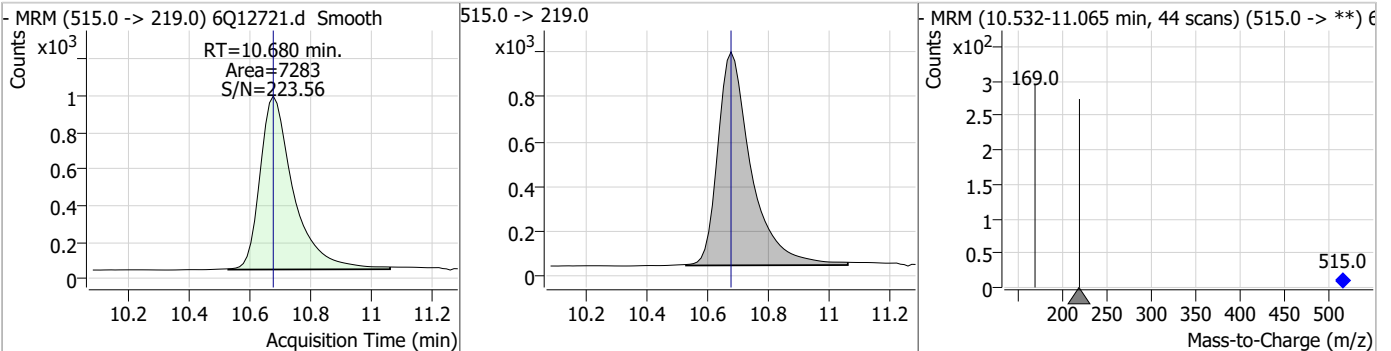
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	27.99	10.59	0.00	29698				



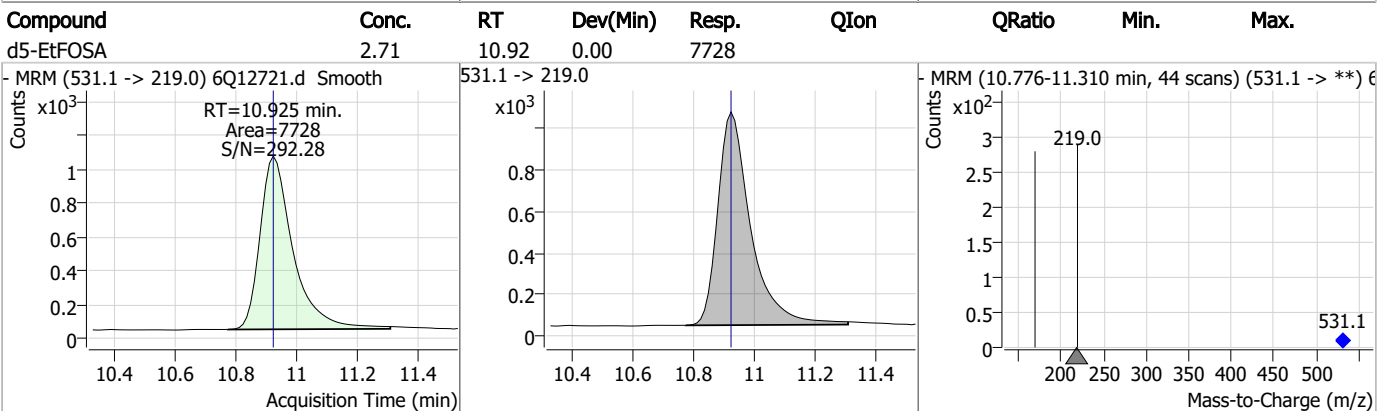
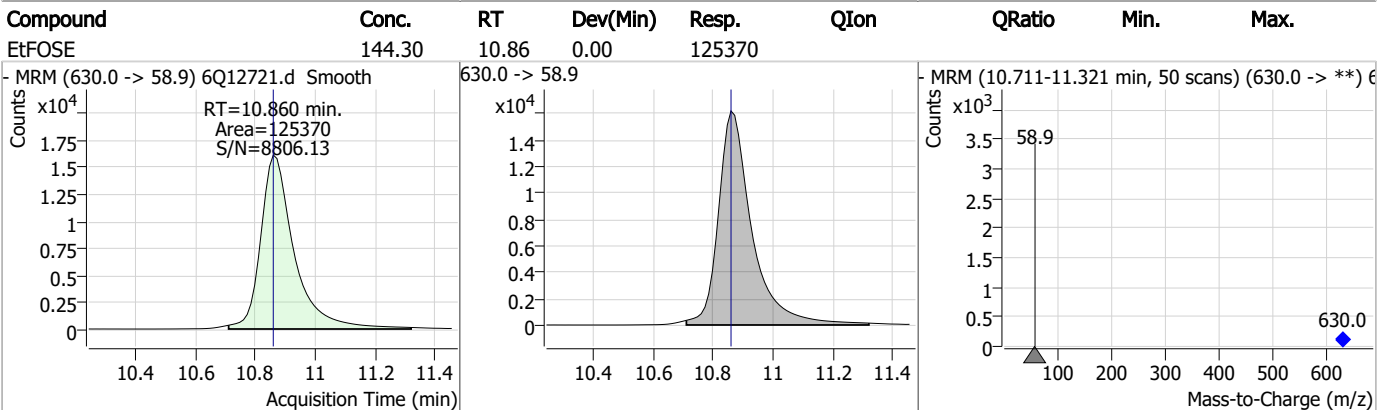
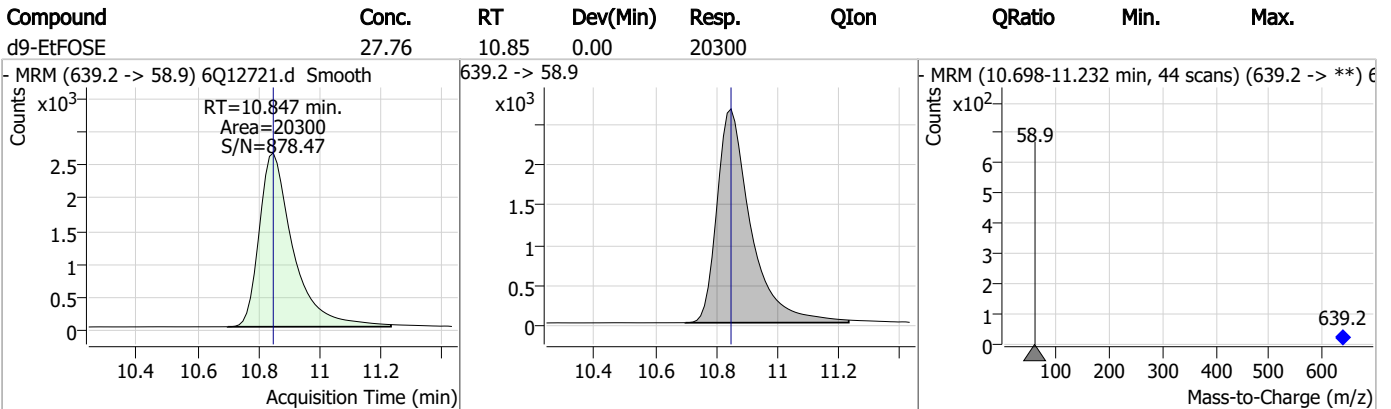
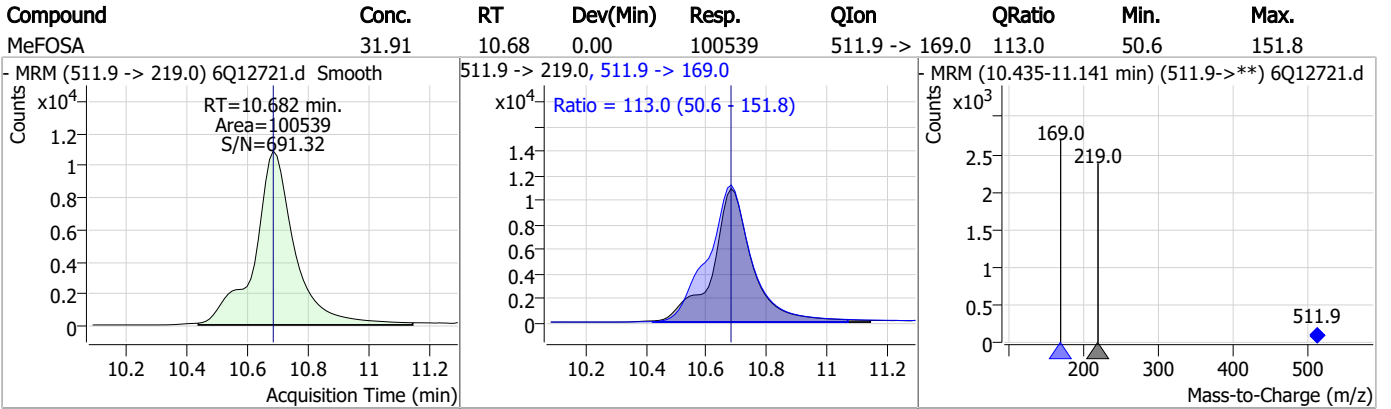
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	142.44	10.60	0.00	168745				



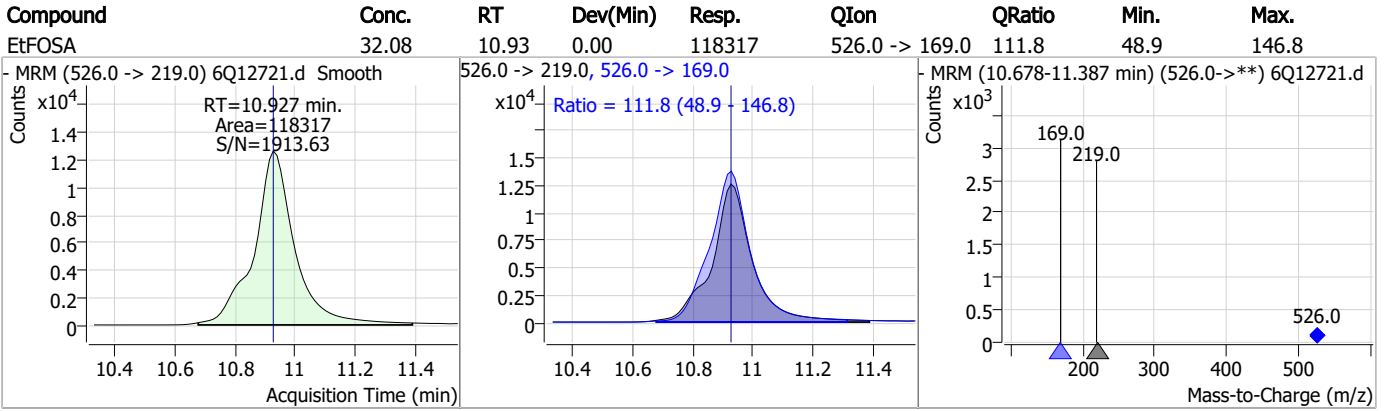
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.78	10.68	0.00	7283				



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.2

7

Manual Integration Approval Summary

Sample Number: S6Q196-RT Method: EPA DRAFT 1633
Lab FileID: 6Q12721.D Analyst approved: 02/02/23 11:53 Martha Valls
Injection Time: 02/01/23 17:23 Supervisor approved: 02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.15	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
Perfluorononanoic acid	375-95-1		7.68	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

7.6.2.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)
 Natasha Gumtie
 02/08/23 11:27

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13184.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/7/2023 9:51:59 AM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s6q202 TDCA.batch.bin
 Sample Information : OP95070,S6Q202,500,,,5.0,1,water

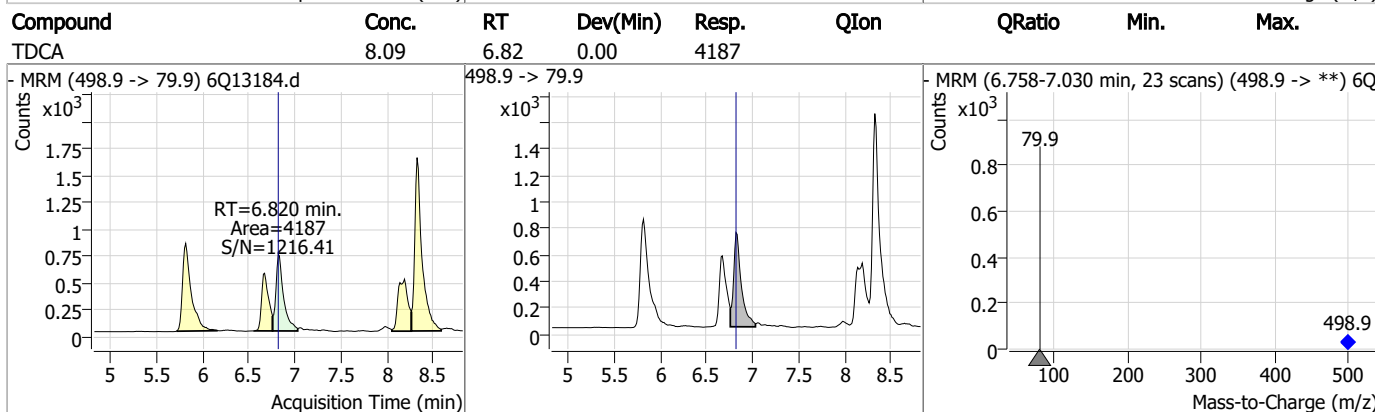
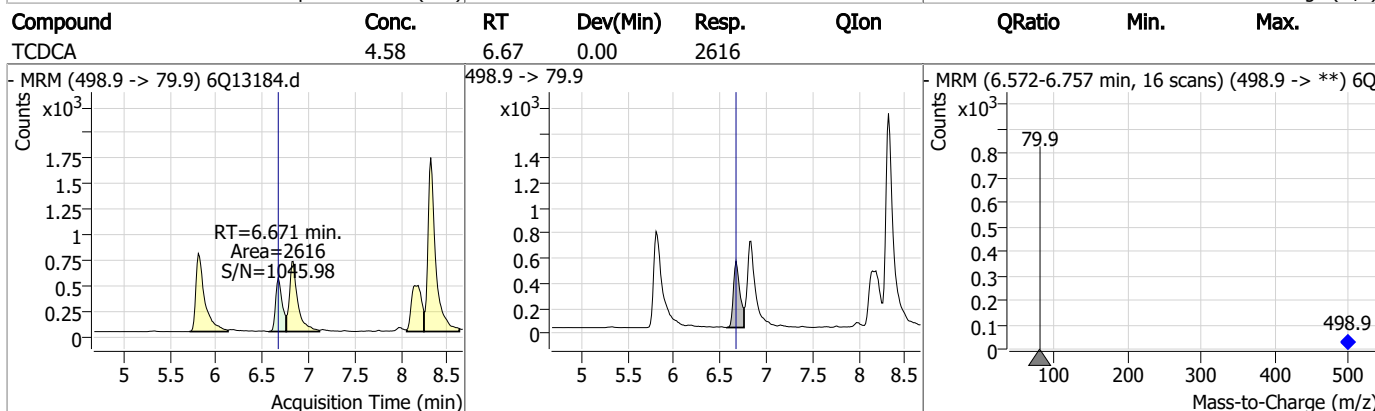
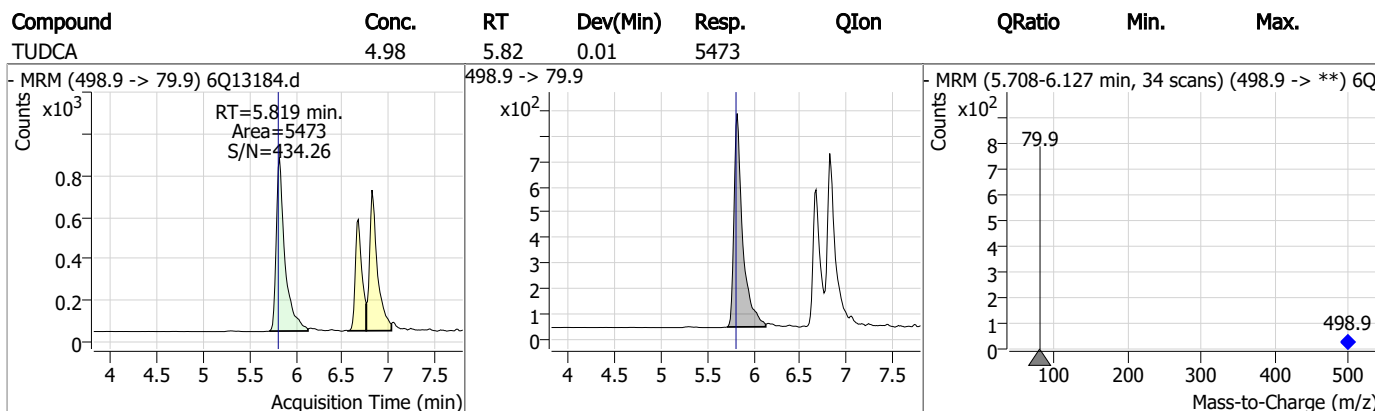
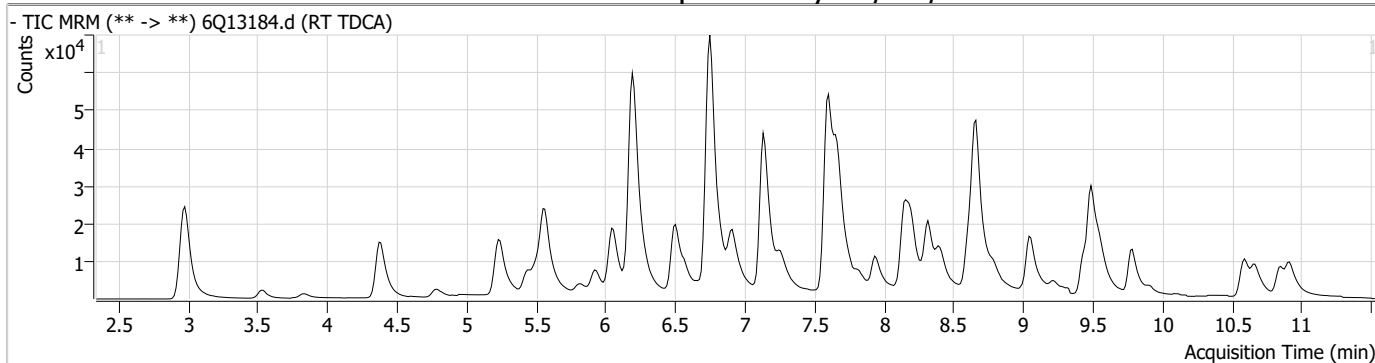
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M8-PFOS	8.333	507.1 -> 79.9	12393	2.50 µg/L	-0.012
13C4-PFOS	8.333	502.8 -> 79.9	15016	2.50 µg/L	0.000
System Monitoring Compounds					
13C8-PFOS	8.333	507.1 -> 79.9	12393	2.09 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 83.7%		
Target Compounds					
PFOS	8.334	498.9 -> 79.9	11616	2.74 µg/L #m	72
		498.9 -> 98.8	7612		
TCDCa	6.671	498.9 -> 79.9	2616	4.58 ng/ml	100
TDCA	6.820	498.9 -> 79.9	4187	8.09 ng/ml	100
TUDCA	5.819	498.9 -> 79.9	5473	4.98 ng/ml	100

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

7.6.3

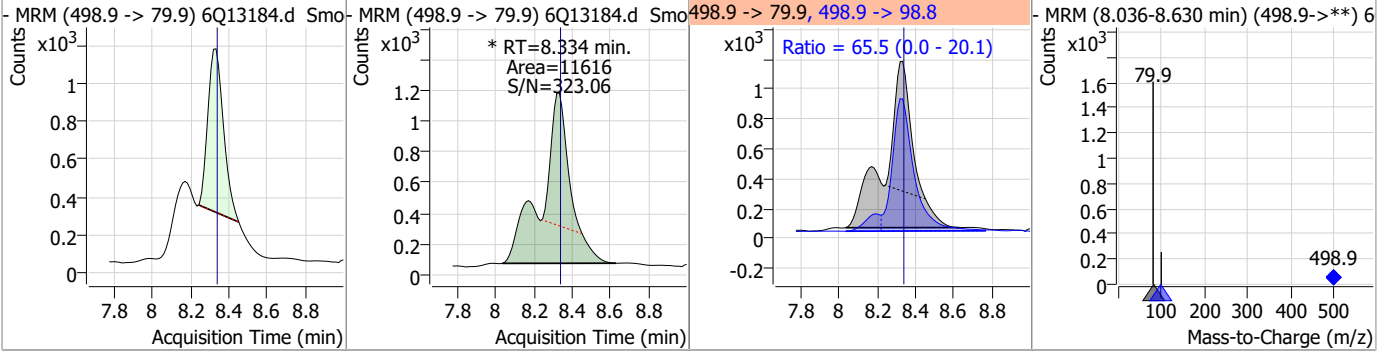
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Perfluorinated Compounds by LC/MS/MS

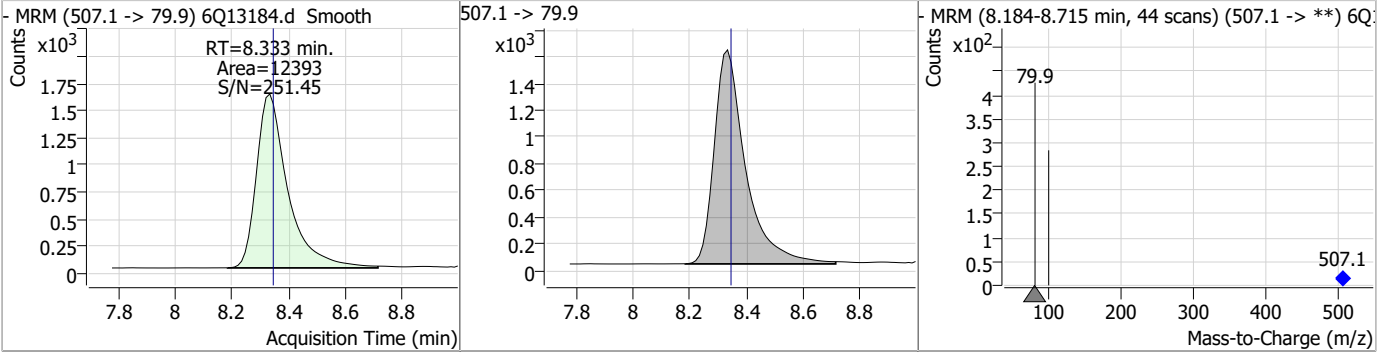


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.74	8.33	0.00	11616 (m)	498.9 -> 98.8	65.5	0.0	20.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.09	8.33	-0.01	12393				



7.6.3

7

Manual Integration Approval Summary

Sample Number: S6Q202-RT Method: EPA DRAFT 1633
Lab FileID: 6Q13184.D Analyst approved: 02/08/23 10:34 Martha Valls
Injection Time: 02/07/23 09:51 Supervisor approved: 02/08/23 11:27 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak

7.6.3.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13185.d
Operator : marthav
Acq. Method : 1633full.m
Acq. Date-Time : 2/7/2023 10:05:59 AM
Sample Name : RT BR-LN
Vial : P1-B4
DA Method File : 1633_020223_S6Q196.quantmethod.xml
Batch Name : s6q202.batch.bin
Sample Information : OP95070,S6Q202,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.975	216.8 -> 171.9	82663	10.00 µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	41000	5.00 µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	38500	2.50 µg/L	0.000
M4-PFHpA	6.502	367.1 -> 322.0	37884	2.50 µg/L	0.000
M8-PFOA	7.146	421.1 -> 376.0	65194	2.50 µg/L	0.000
M9-PFNA	7.677	472.1 -> 427.0	25600	1.25 µg/L	0.000
M6-PFDA	8.157	519.1 -> 474.1	19933	1.25 µg/L	0.000
M7-PFUnDA	8.624	570.0 -> 525.1	22966	1.25 µg/L	0.012
M2-PFDoDA	9.054	615.1 -> 570.0	26132	1.25 µg/L	0.000
M2-PFTeDA	9.781	715.2 -> 670.0	14749	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	17768	2.50 µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	14693	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	9507	2.50 µg/L	0.000
M8-PFOS	8.333	507.1 -> 79.9	9322	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	1956	5.00 µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	2886	5.00 µg/L	0.000
M2-8:2FTS	7.944	529.1 -> 80.9	3084	5.00 µg/L	0.000
M3-MeFOSAA	8.202	573.2 -> 419.0	27614	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	15817	10.00 µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	24881	5.00 µg/L	0.012
M7-MeFOSE	10.589	623.2 -> 58.9	27828	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	18679	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7361	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7276	2.50 µg/L	0.000
13C4-PFOS	8.333	502.8 -> 79.9	10125	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	36894	5.00 µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	7206	2.50 µg/L	0.000
13C4-PFOA	7.147	417.1 -> 372.0	79235	2.50 µg/L	0.000
13C2-PFDA	8.158	515.1 -> 470.1	26020	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	31740	1.25 µg/L	0.000
13C2-PFHxA	5.563	315.1 -> 270.0	35014	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.240	329.1 -> 80.9	1956	4.17 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 83.5%		
13C2-6:2FTS	6.908	429.1 -> 80.9	2886	4.64 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.8%		
13C2-8:2FTS	7.944	529.1 -> 80.9	3084	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.8%		
13C2-PFDoDA	9.054	615.1 -> 570.0	26132	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.6%		
13C2-PFTeDA	9.781	715.2 -> 670.0	14749	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C3-PFBS	5.518	302.1 -> 79.9	14693	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C3-PFHxS	7.274	402.1 -> 79.9	9507	2.51 µg/L	0.000

7.6.4
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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 = 100.4%		
13C4-PFBA	2.975	216.8 -> 171.9	82663	10.10 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C4-PFHpA	6.502	367.1 -> 322.0	37884	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.9%		
13C5-PFHxA	5.563	318.0 -> 273.0	38500	2.78 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.1%		
13C5-PFPeA	4.386	268.3 -> 223.0	41000	5.25 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.1%		
13C6-PFDA	8.157	519.1 -> 474.1	19933	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 110.2%		
13C7-PFUnDA	8.624	570.0 -> 525.1	22966	1.33 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.1%		
13C8-FOSA	9.567	506.1 -> 77.8	17768	2.69 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.8%		
13C8-PFOA	7.146	421.1 -> 376.0	65194	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C8-PFOS	8.333	507.1 -> 79.9	9322	2.80 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 112.0%		
13C9-PFNA	7.677	472.1 -> 427.0	25600	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.7%		
d3-MeFOSAA	8.202	573.2 -> 419.0	27614	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	15817	11.05 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 110.5%		
d3-MeFOSA	10.680	515.0 -> 219.0	7276	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.4%		
d5-EtFOSAA	8.410	589.2 -> 419.0	24881	5.40 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.1%		
d7-MeFOSE	10.589	623.2 -> 58.9	27828	24.21 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 96.8%		
d9-EtFOSE	10.847	639.2 -> 58.9	18679	23.58 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 94.3%		
d5-EtFOSA	10.925	531.1 -> 219.0	7361	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.3%		
Target Compounds					QValue
4:2FTS	5.240	327.1 -> 307.0	226775	51.71 µg/L	99
		327.1 -> 80.9	51422		
6:2FTS	6.908	427.1 -> 407.0	211205	49.98 µg/L	100
		427.1 -> 80.9	40206		
8:2FTS	7.945	527.1 -> 507.0	109415	45.69 µg/L	99
		527.1 -> 80.8	26489		
EtFOSAA	8.411	584.2 -> 419.1	48039	12.05 µg/L	93
		584.2 -> 526.0	27093		
FOSA	9.557	498.1 -> 77.9	213639	30.13 µg/L	100
		498.1 -> 478.0	8366		
MeFOSAA	8.203	570.1 -> 419.0	70287	13.89 µg/L	100
		570.1 -> 483.0	13064		
PFBA	2.982	212.8 -> 168.9	99471	53.88 µg/L	100
PFBS	5.518	298.7 -> 79.9	63687	11.28 µg/L	94
		298.7 -> 98.8	28716		
PFDA	8.158	512.9 -> 469.0	293284	12.93 µg/L	97
		512.9 -> 219.0	43031		
PFDoDA	9.054	613.1 -> 569.0	253798	13.26 µg/L	99
		613.1 -> 319.0	30500		
PFDS	9.229	599.0 -> 79.9	35985	11.40 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	18259			
PFHpA	6.503	363.1 -> 319.0	283505	12.63	µg/L	99
		363.1 -> 169.0	39214			
PFHpS	7.828	449.0 -> 79.9	45494	11.50	µg/L	92
		449.0 -> 98.9	27688			
PFHxA	5.566	313.0 -> 269.0	187526	12.42	µg/L	100
		313.0 -> 118.9	7014			
PFHxS	7.275	398.7 -> 79.9	47786	11.19	µg/L	m 99
		398.7 -> 98.9	26784			
PFNA	7.677	463.0 -> 419.0	456351	26.43	µg/L	m 99
		463.0 -> 219.0	92715			
PFNS	8.798	548.8 -> 79.9	48226	11.64	µg/L	97
		548.8 -> 98.9	27667			
PFOA	7.148	413.0 -> 369.0	829253	28.88	µg/L	m 98
		413.0 -> 169.0	102689			
PFOS	8.334	498.9 -> 79.9	47013	10.99	µg/L	m 93
		498.9 -> 98.8	31513			
PFPeA	4.388	263.0 -> 219.0	229427	26.50	µg/L	100
PFPeS	6.581	349.1 -> 79.9	57154	11.50	µg/L	100
		349.1 -> 98.9	31244			
PFTeDA	9.781	713.1 -> 669.0	216124	13.58	µg/L	100
		713.1 -> 168.9	13541			
PFTrDA	9.437	663.0 -> 619.0	247943	13.54	µg/L	98
		663.0 -> 168.9	17552			
PFUnDA	8.624	563.1 -> 519.0	231869	12.97	µg/L	99
		563.1 -> 269.1	32683			
11CI-PF3OUdS	9.489	630.9 -> 450.9	543893	47.92	µg/L	97
		632.9 -> 452.9	157122			
9CI-PF3ONS	8.663	530.8 -> 351.0	885393	46.15	µg/L	100
		532.8 -> 353.0	267599			
ADONA	6.753	376.9 -> 250.9	1576061	45.93	µg/L	100
		376.9 -> 84.8	329055			
HFPO-DA	5.940	284.9 -> 168.9	78225	52.87	µg/L	99
		284.9 -> 184.9	9014			
3:3FTCA	3.841	241.0 -> 177.0	28333	66.64	µg/L	99
		241.0 -> 117.0	3503			
5:3FTCA	6.206	341.0 -> 237.1	931640	295.05	µg/L	97
		341.0 -> 217.0	798845			
7:3FTCA	7.605	441.0 -> 316.9	566042	274.27	µg/L	95
		441.0 -> 336.9	1182140			
EtFOSA	10.927	526.0 -> 219.0	119340	33.97	µg/L	99
		526.0 -> 169.0	129767			
EtFOSE	10.860	630.0 -> 58.9	124368	155.56	µg/L	100
MeFOSA	10.682	511.9 -> 219.0	102525	32.57	µg/L	96
		511.9 -> 169.0	117661			
MeFOSE	10.602	616.1 -> 58.9	157696	142.05	µg/L	100
PFDoDS	9.920	699.1 -> 79.9	20871	11.05	µg/L	95
		699.1 -> 98.8	13102			
NFDHA	5.445	295.0 -> 201.0	23558	26.39	µg/L	98
		295.0 -> 84.9	11446			
PFMBA	4.787	279.0 -> 85.1	69024	28.35	µg/L	100
PFMPA	3.541	229.0 -> 84.9	62504	27.07	µg/L	100
PFEESA	6.059	314.8 -> 134.9	468132	21.53	µg/L	100
		314.8 -> 82.9	12434			

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

7.6.4
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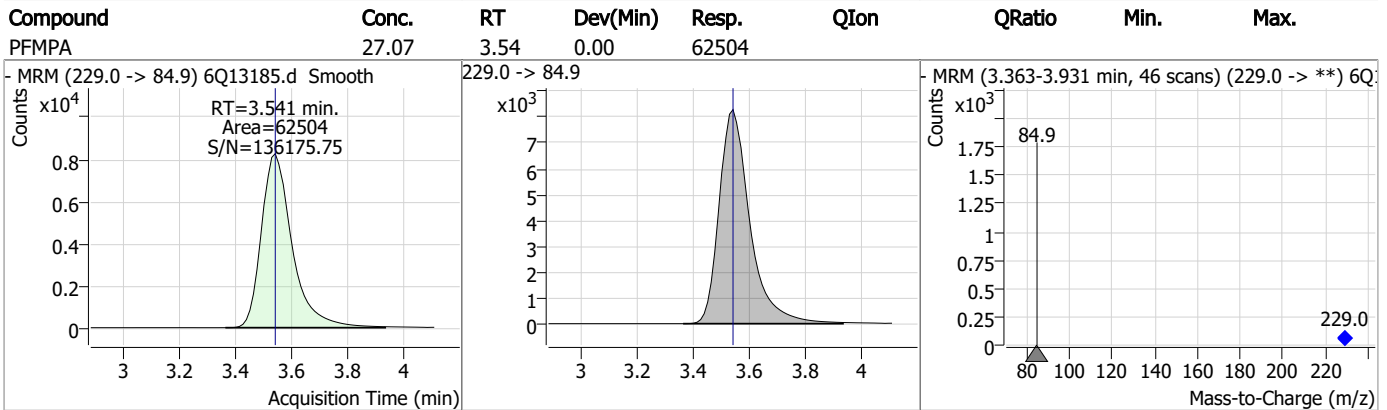
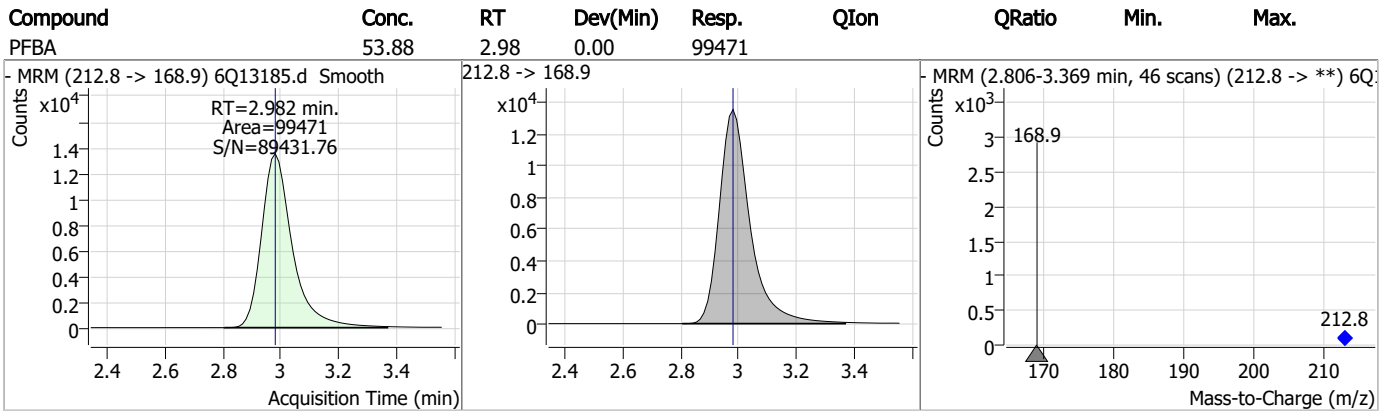
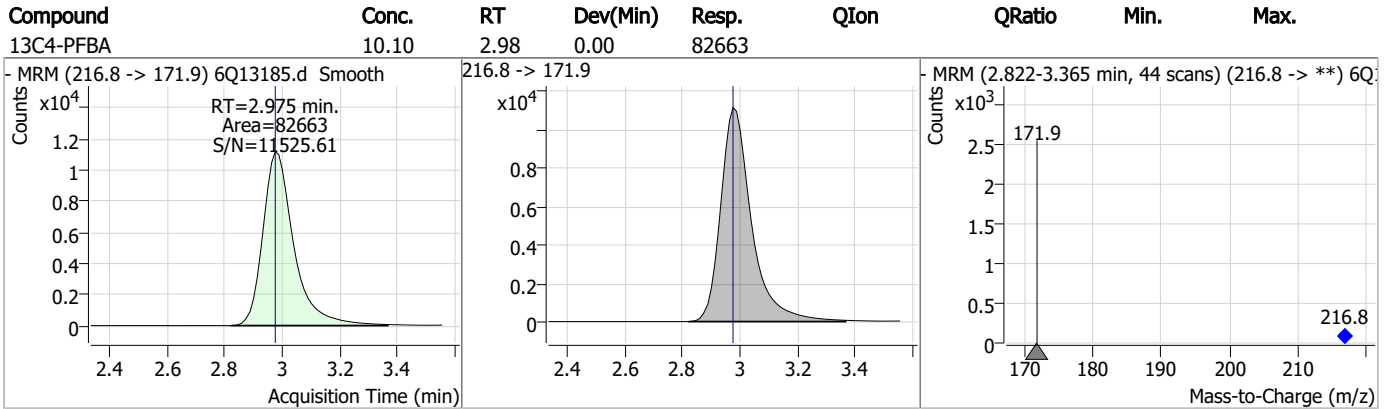
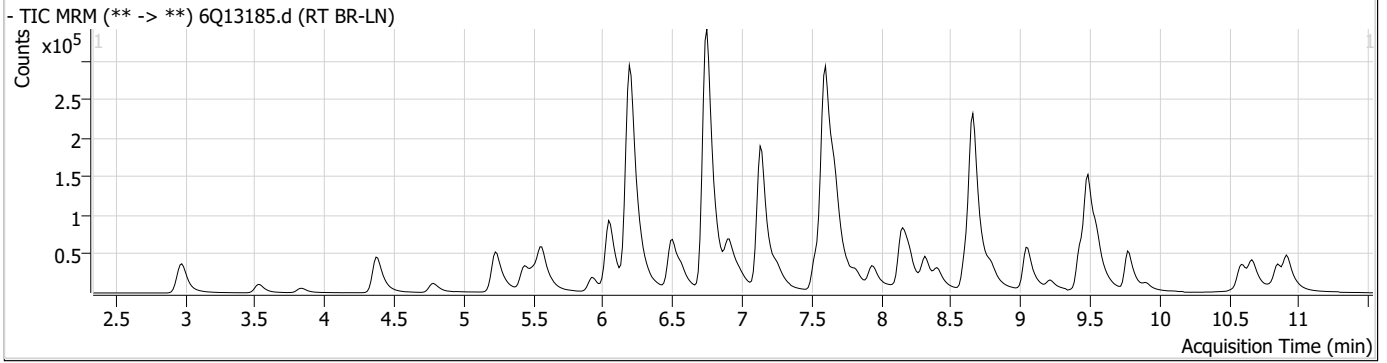
Perfluorinated Compounds by LC/MS/MS

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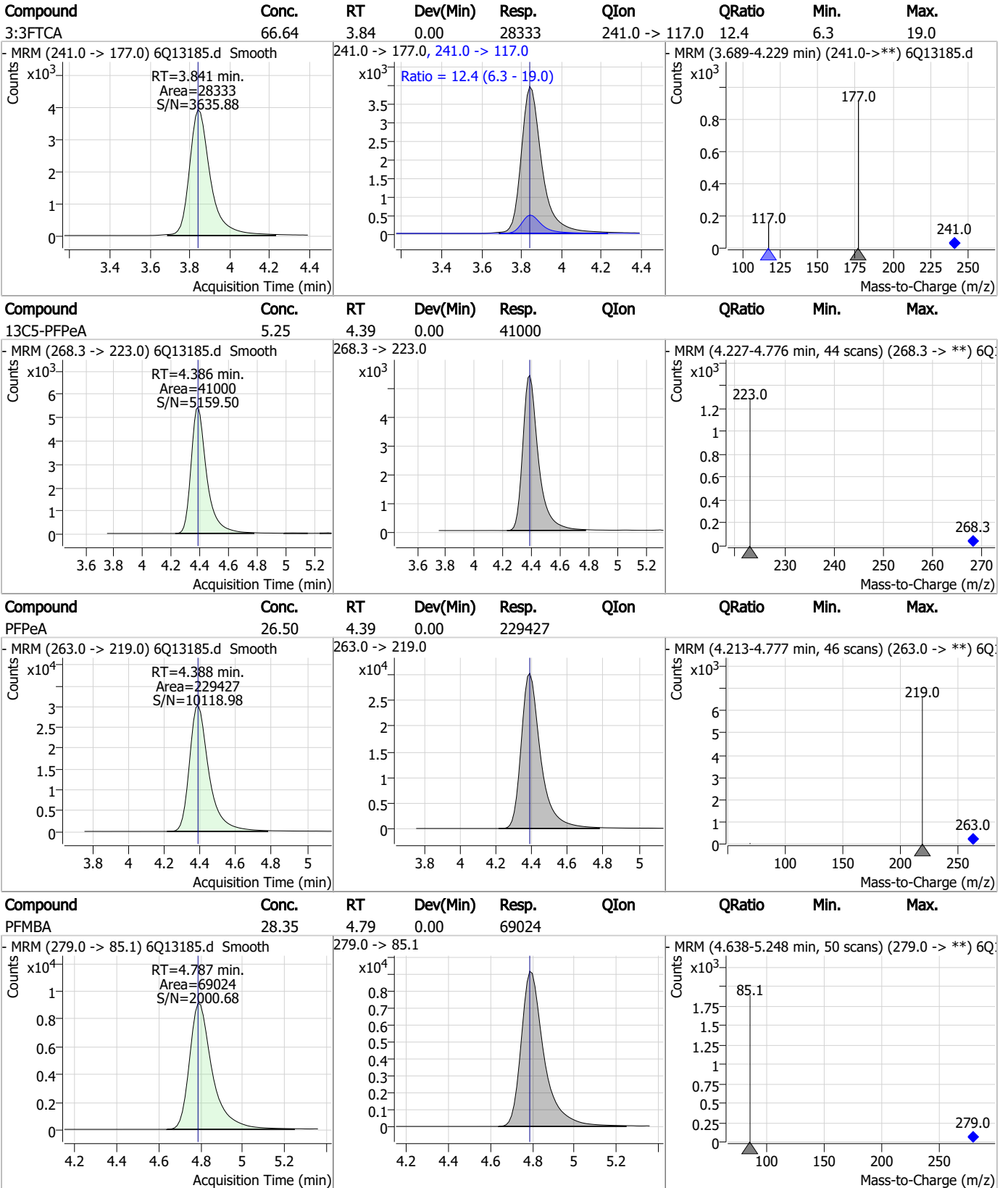
7.6.4

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Perfluorinated Compounds by LC/MS/MS



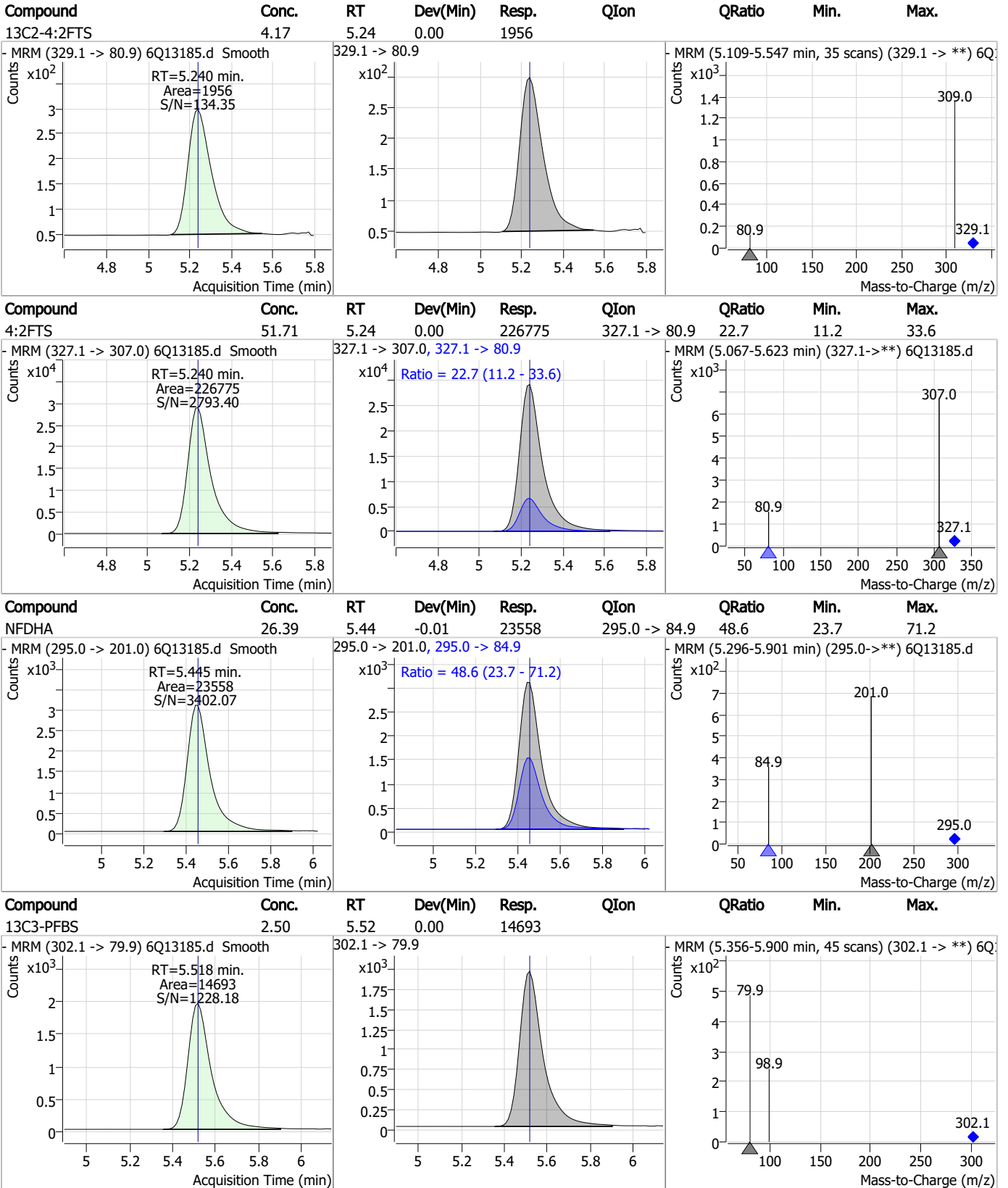
Perfluorinated Compounds by LC/MS/MS



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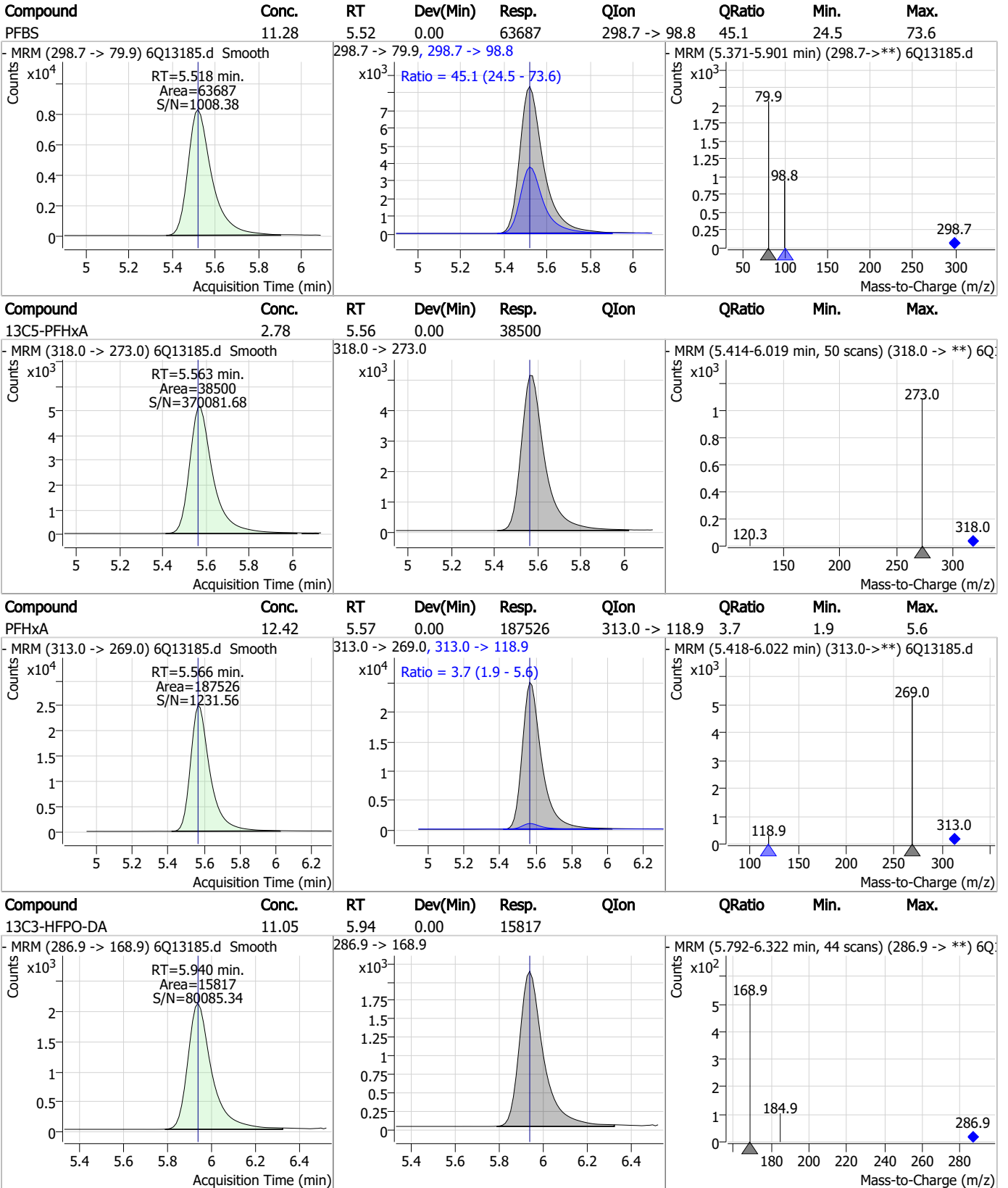
Perfluorinated Compounds by LC/MS/MS



7.6.4

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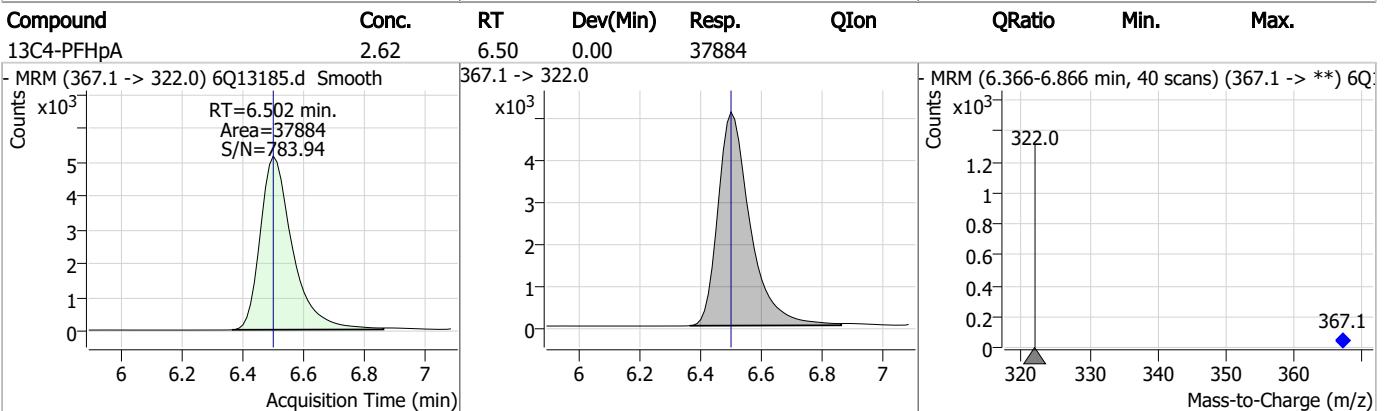
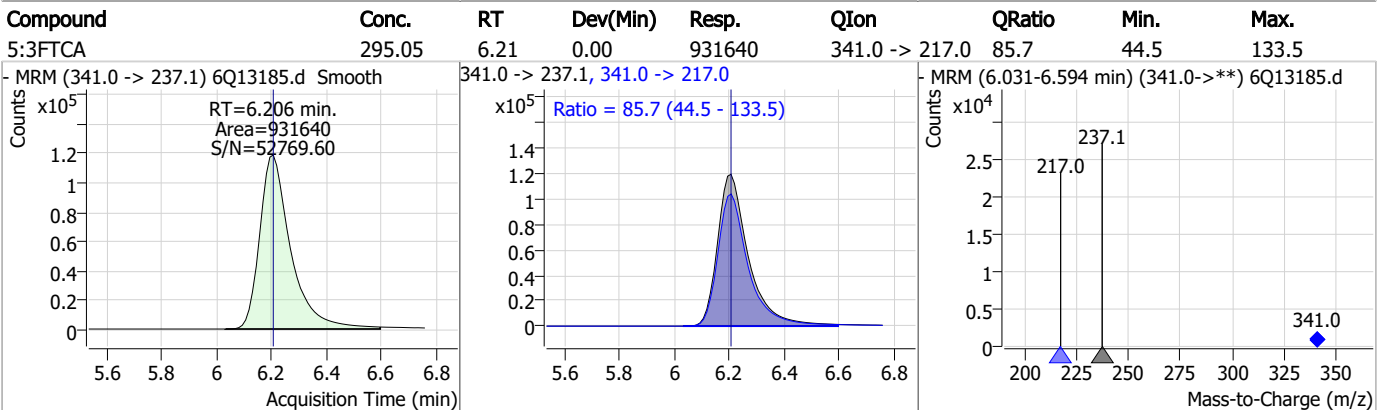
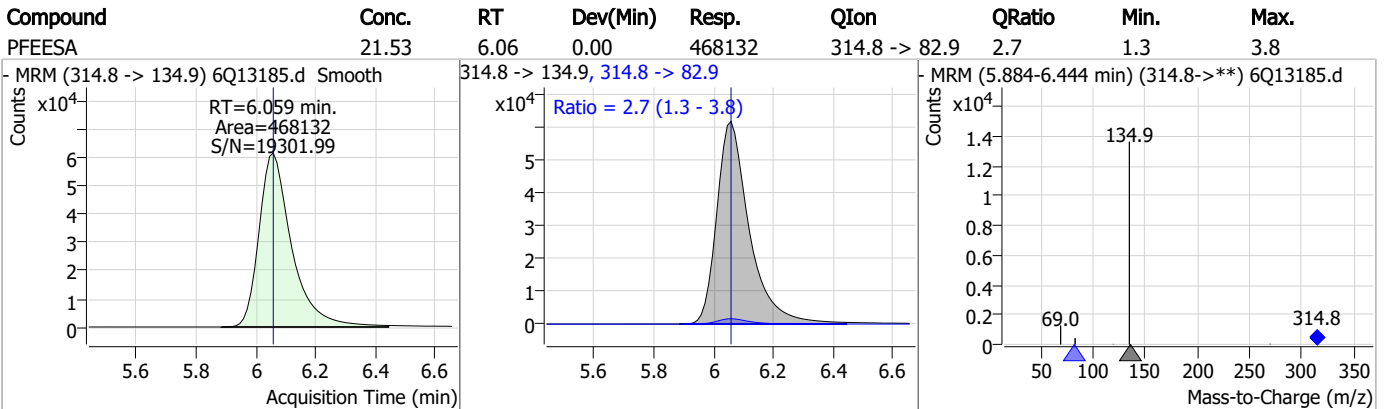
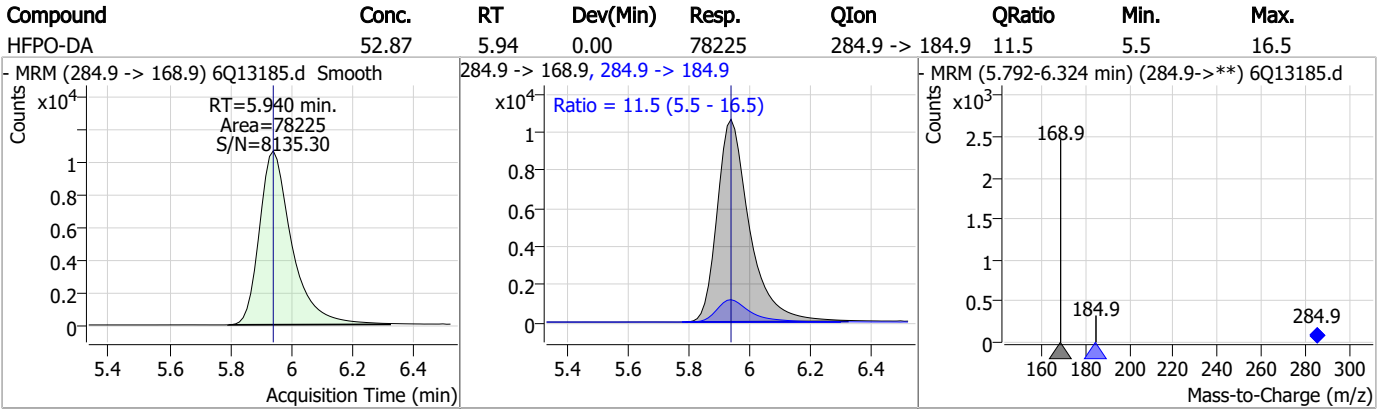
Perfluorinated Compounds by LC/MS/MS



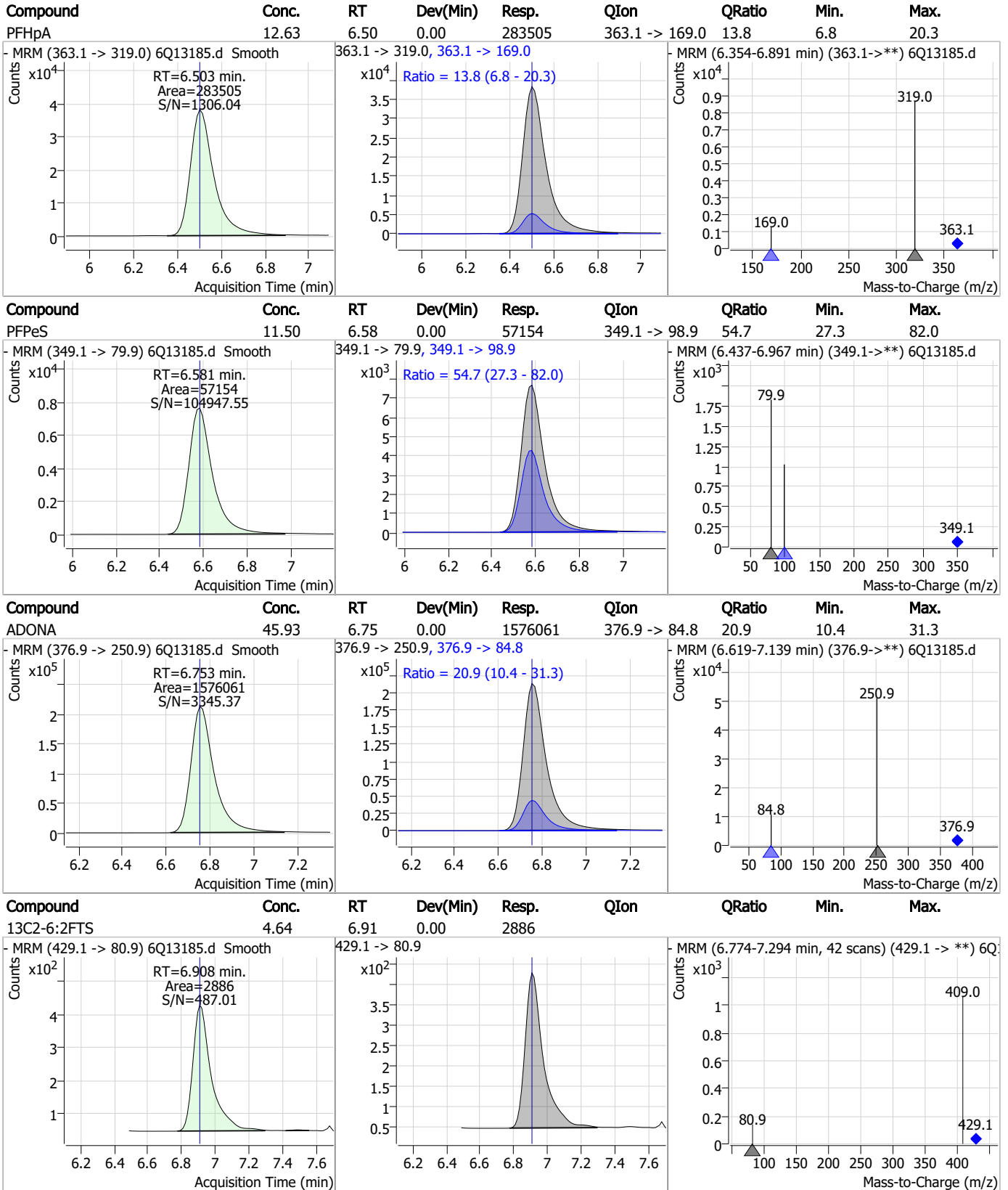
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Perfluorinated Compounds by LC/MS/MS



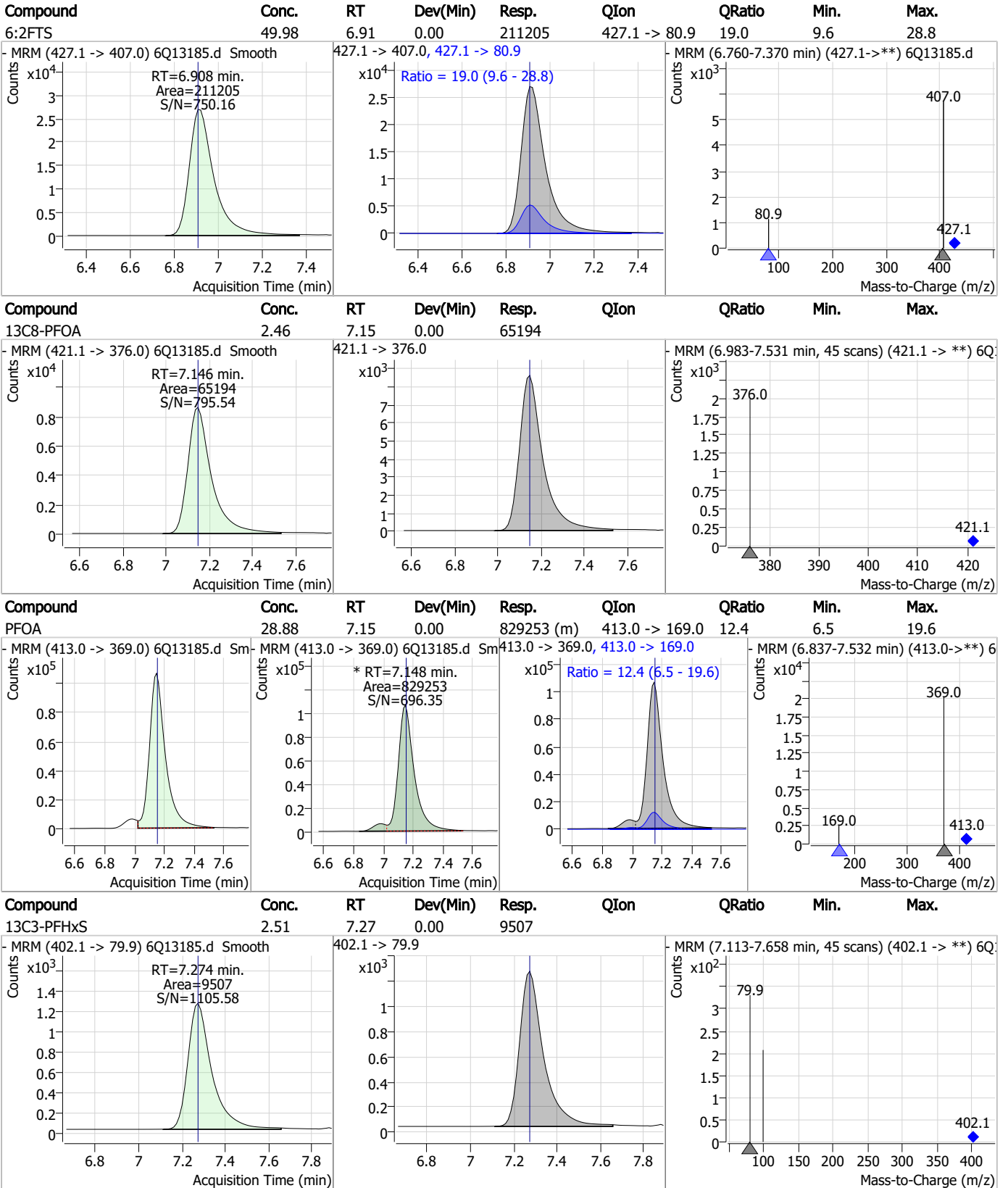
Perfluorinated Compounds by LC/MS/MS



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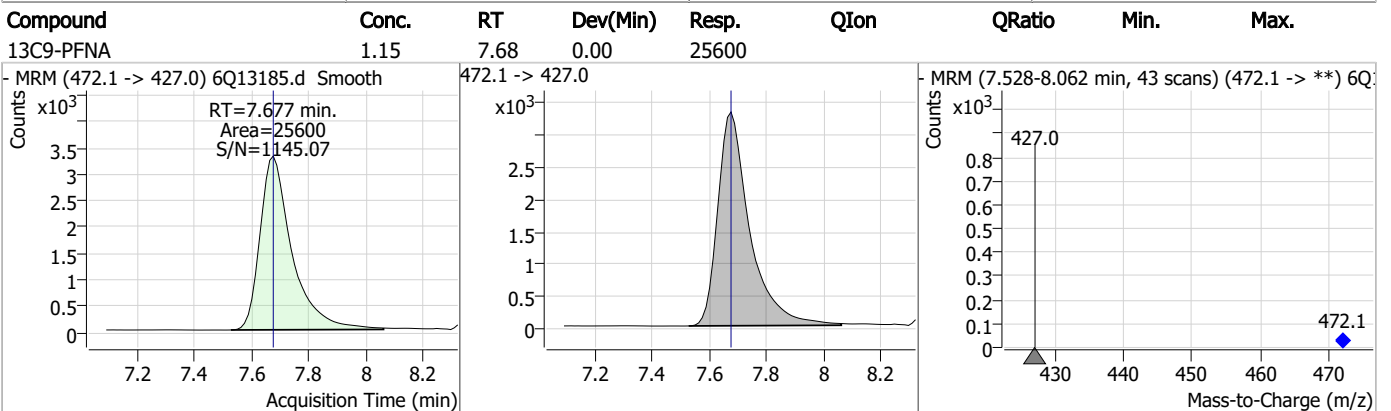
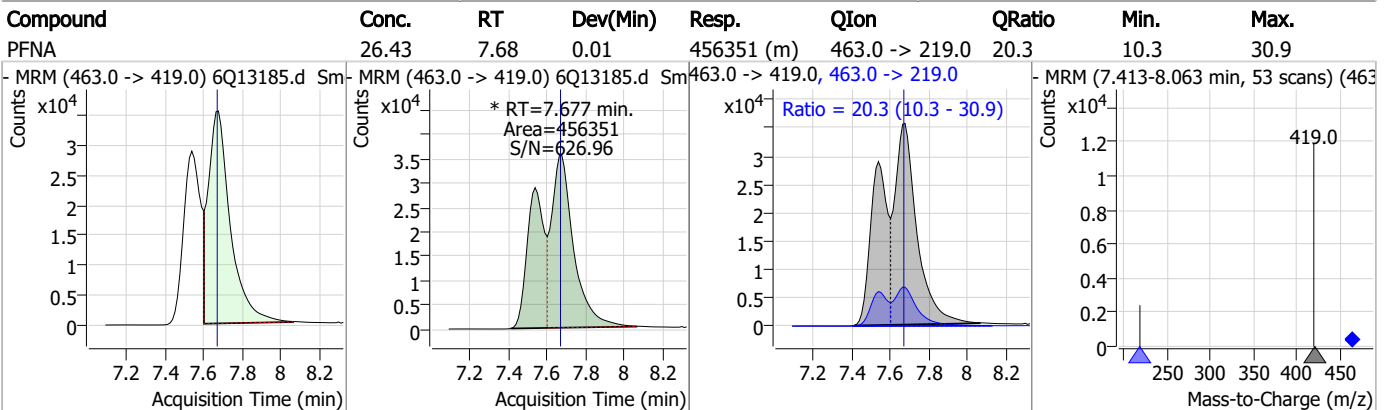
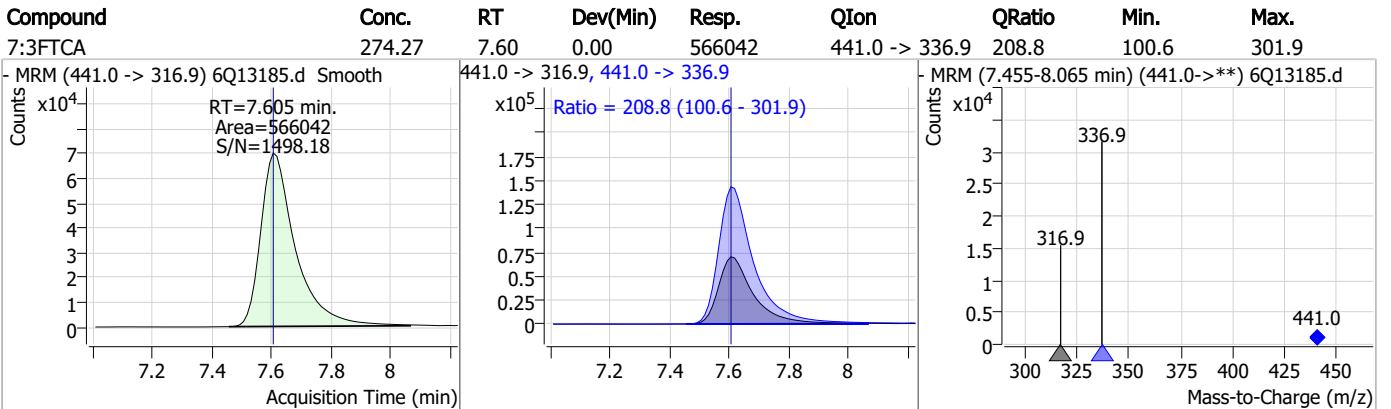
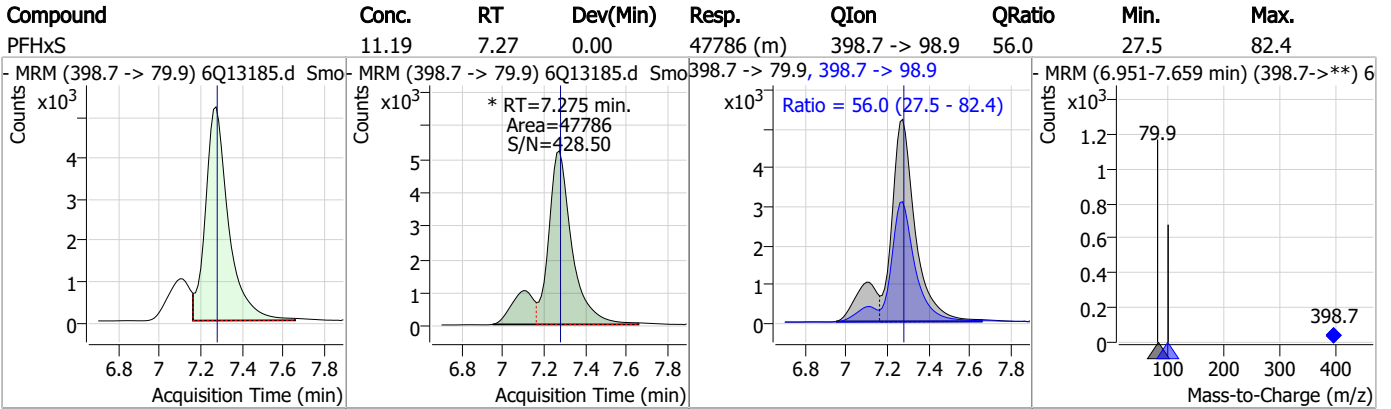
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



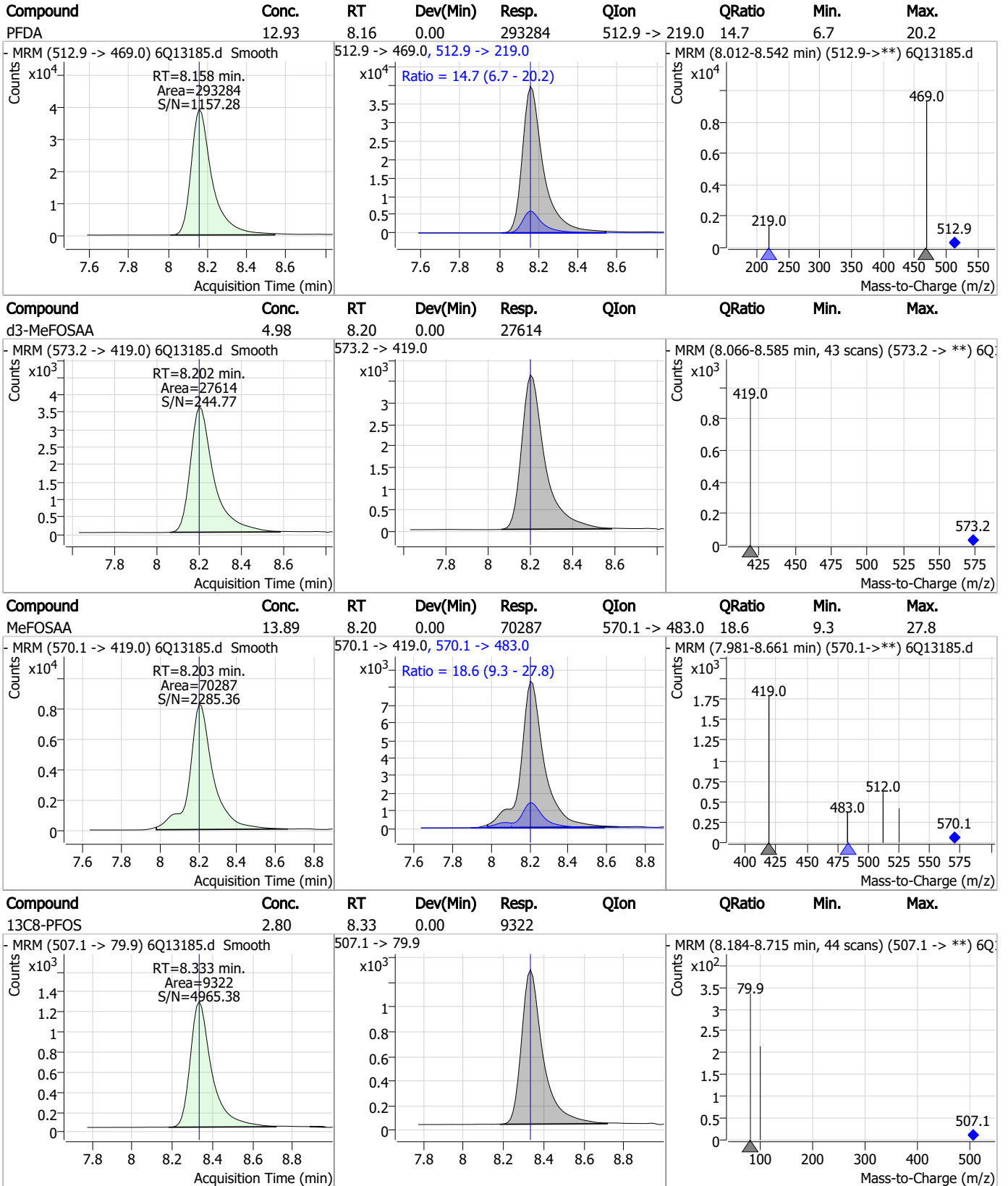
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	11.50	7.83	0.00	45494	449.0 -> 98.9	60.9	27.5	82.4
13C2-8:2FTS	4.94	7.94	0.00	3084	529.1 -> 80.9			
8:2FTS	45.69	7.95	0.00	109415	527.1 -> 80.8	24.2	11.9	35.8
13C6-PFDA	1.38	8.16	0.00	19933	519.1 -> 474.1			

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Perfluorinated Compounds by LC/MS/MS



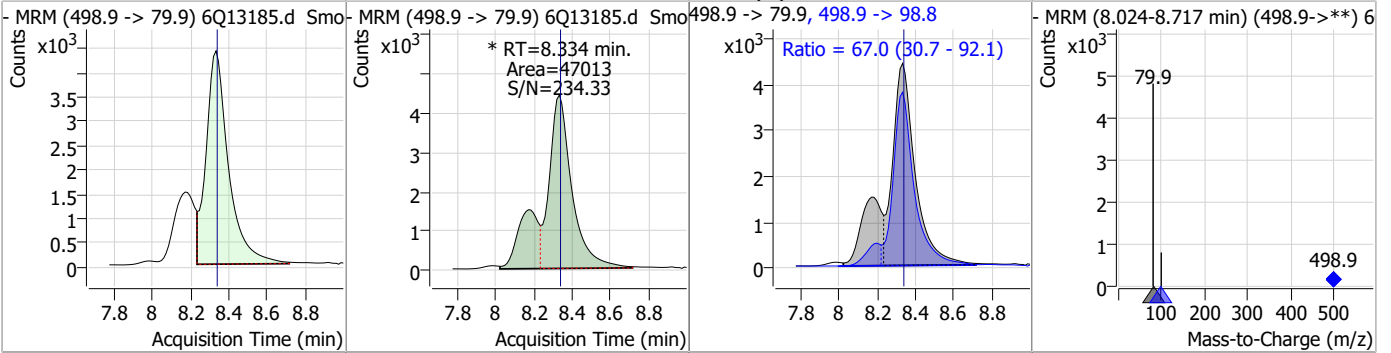
7.6.4

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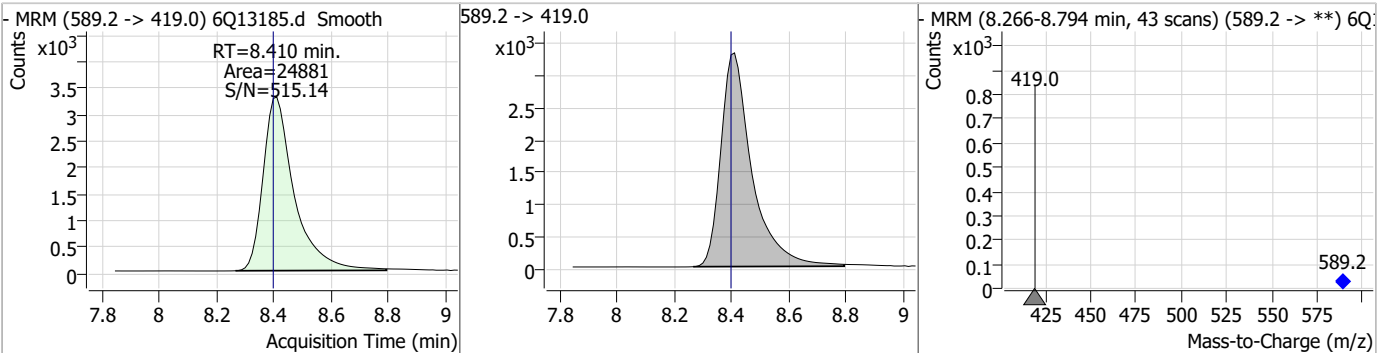


Perfluorinated Compounds by LC/MS/MS

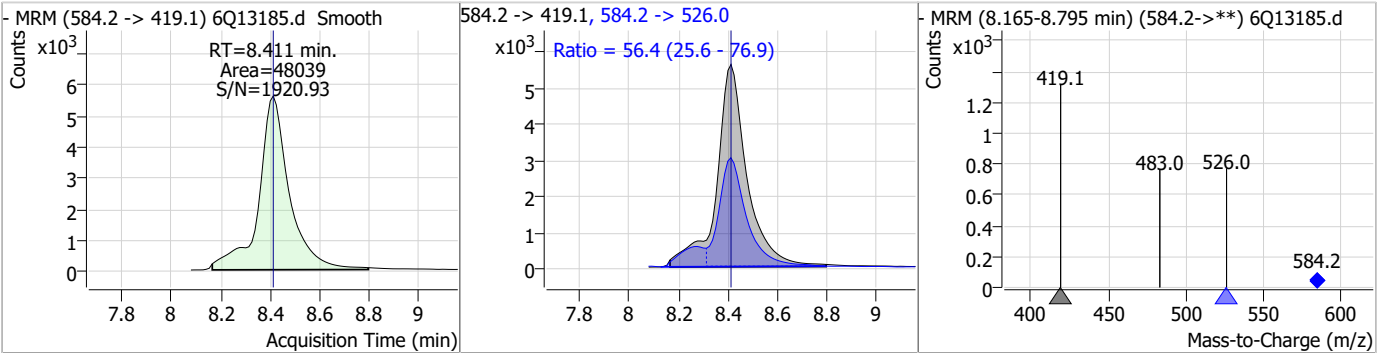
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	10.99	8.33	0.00	47013 (m)	498.9 -> 98.8	67.0	30.7	92.1



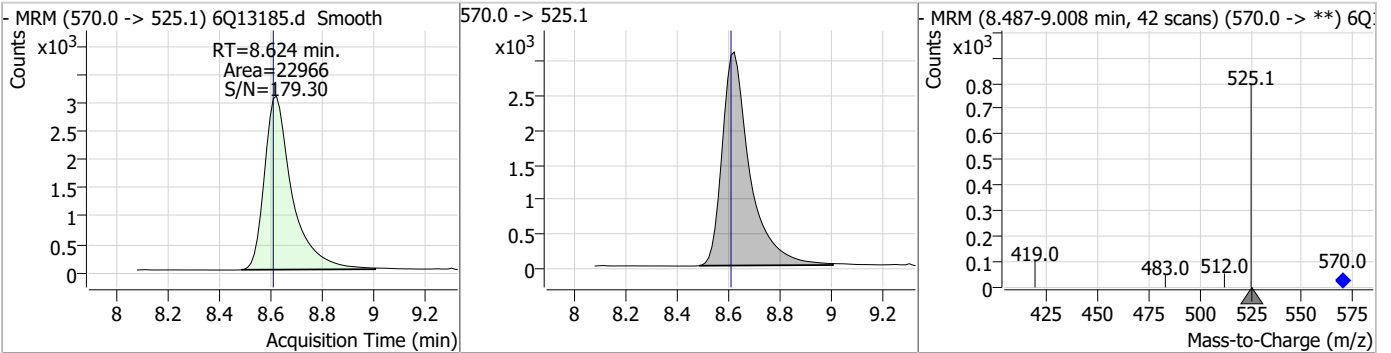
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.40	8.41	0.01	24881				



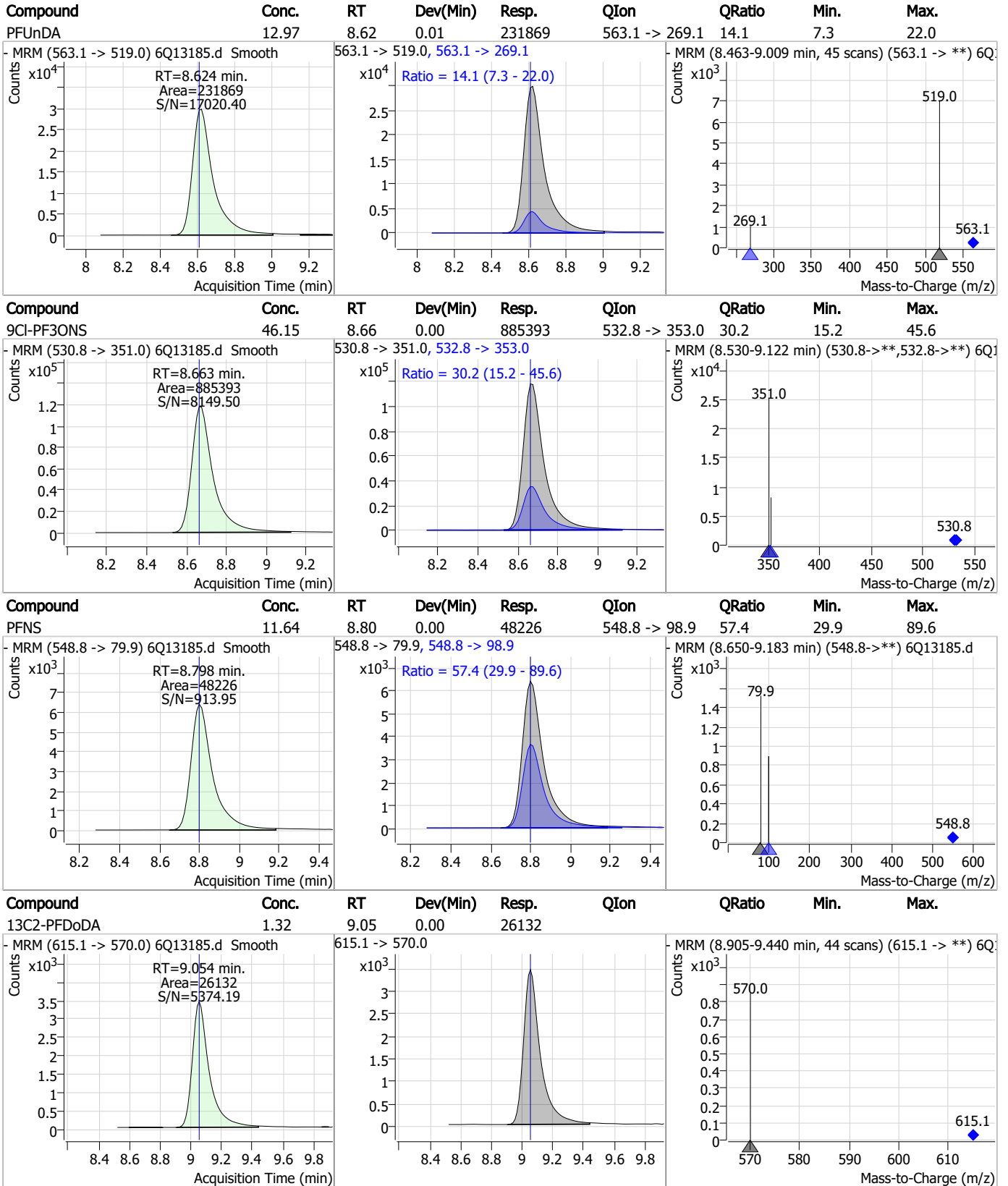
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	12.05	8.41	0.00	48039	584.2 -> 526.0	56.4	25.6	76.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.33	8.62	0.01	22966				



Perfluorinated Compounds by LC/MS/MS

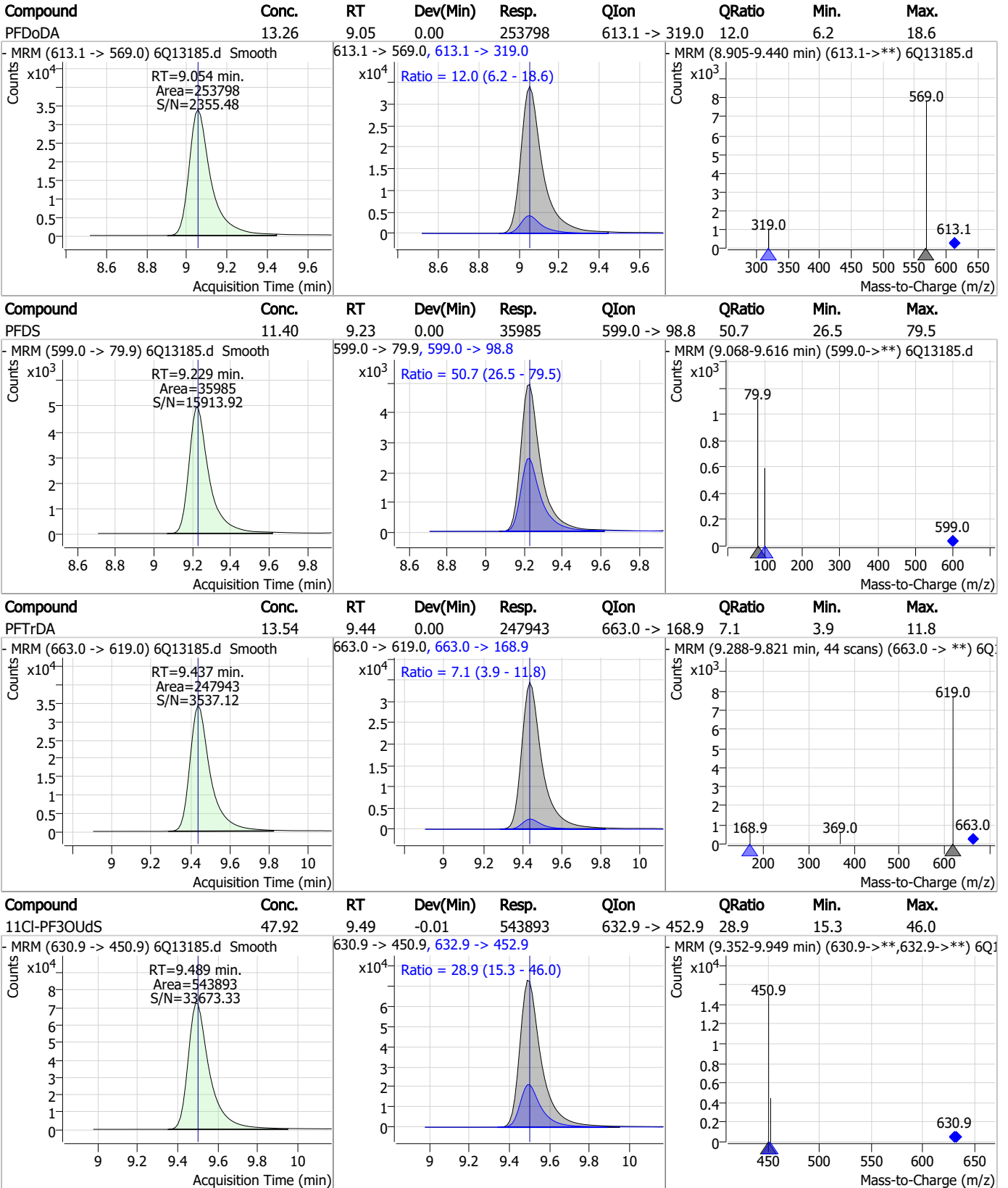


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Perfluorinated Compounds by LC/MS/MS



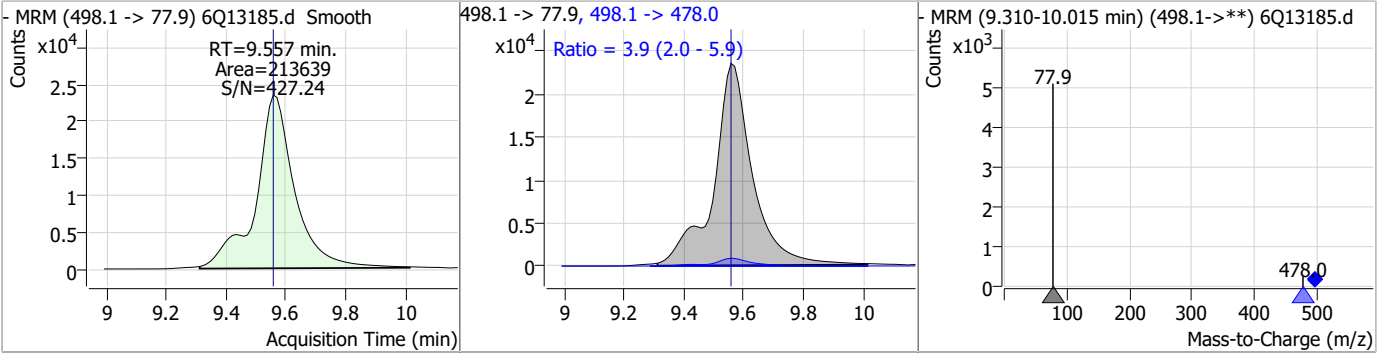
7.6.4

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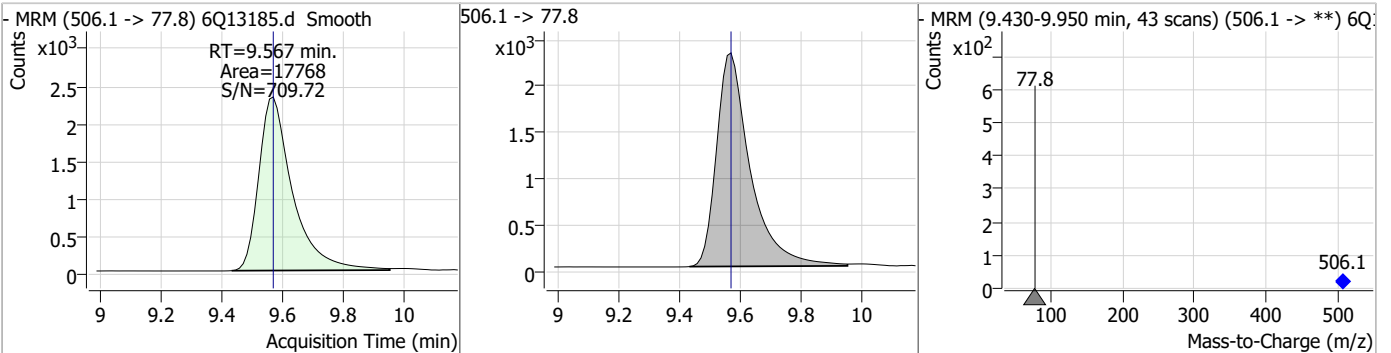


Perfluorinated Compounds by LC/MS/MS

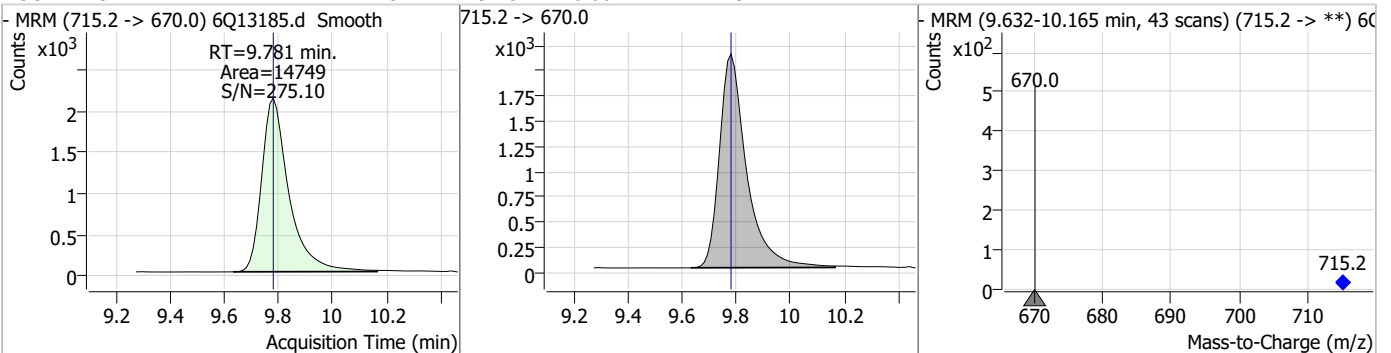
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	30.13	9.56	0.00	213639	498.1 -> 478.0	3.9	2.0	5.9



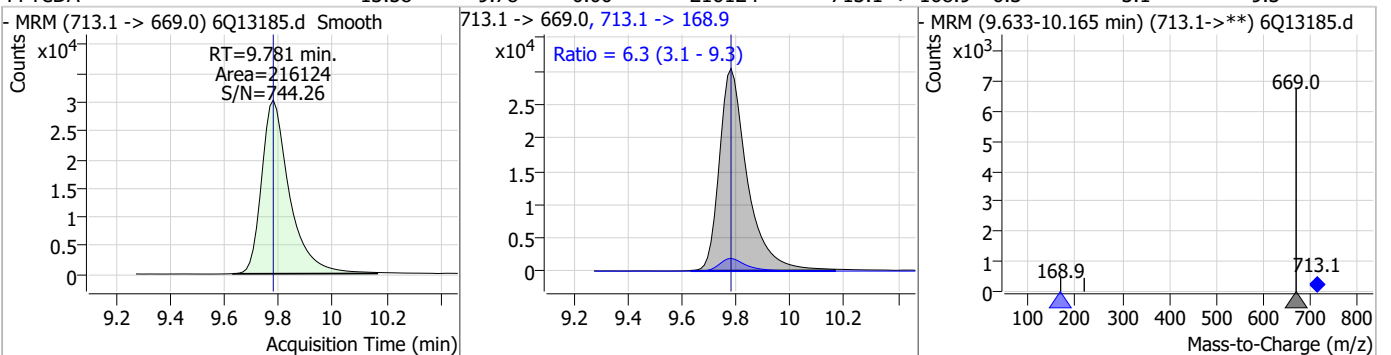
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.69	9.57	0.00	17768				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.29	9.78	0.00	14749				

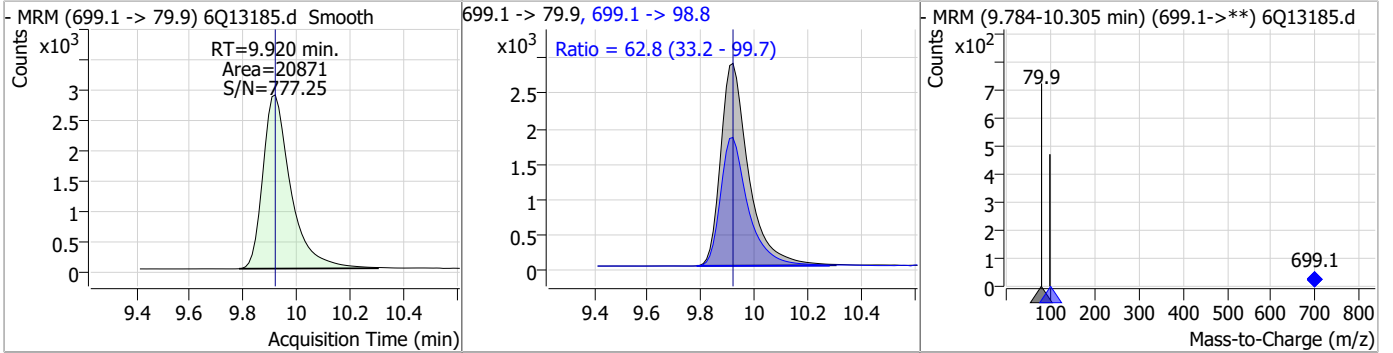


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	13.58	9.78	0.00	216124	713.1 -> 168.9	6.3	3.1	9.3

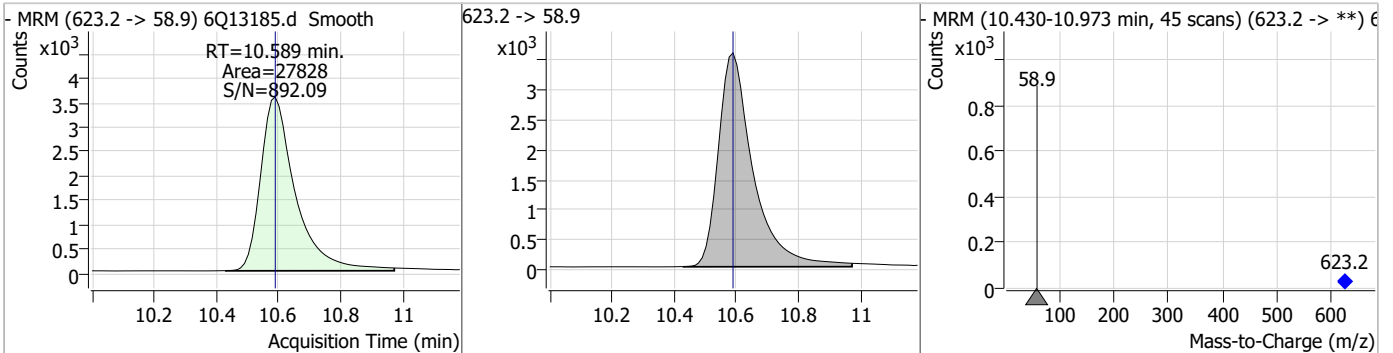


Perfluorinated Compounds by LC/MS/MS

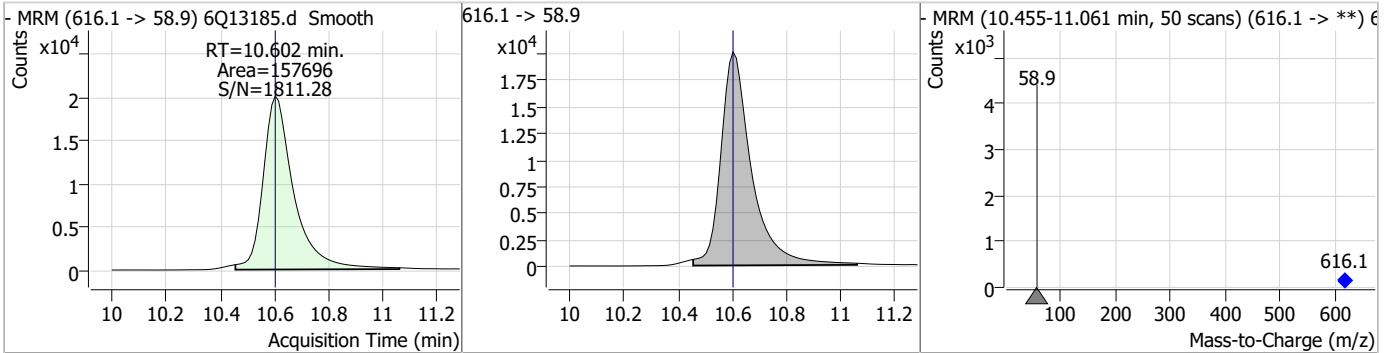
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	11.05	9.92	0.00	20871	699.1 -> 98.8	62.8	33.2	99.7



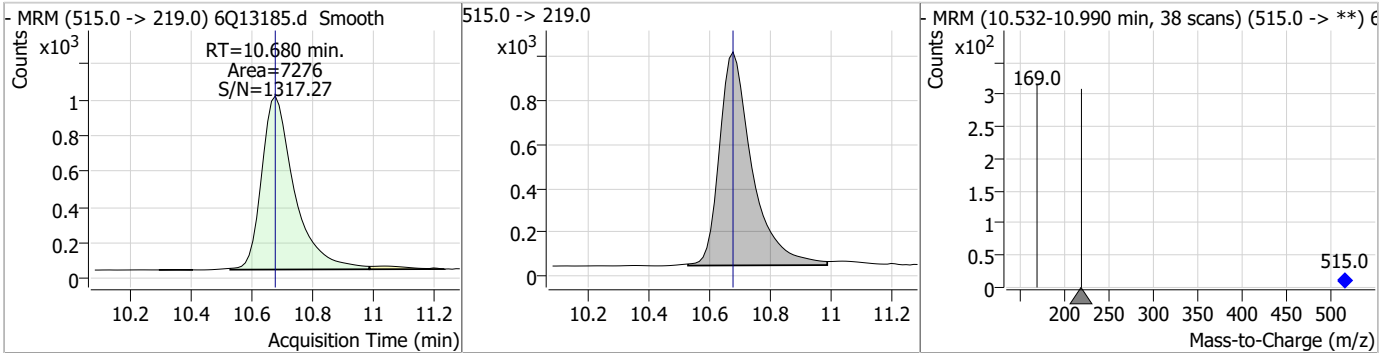
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.21	10.59	0.00	27828				



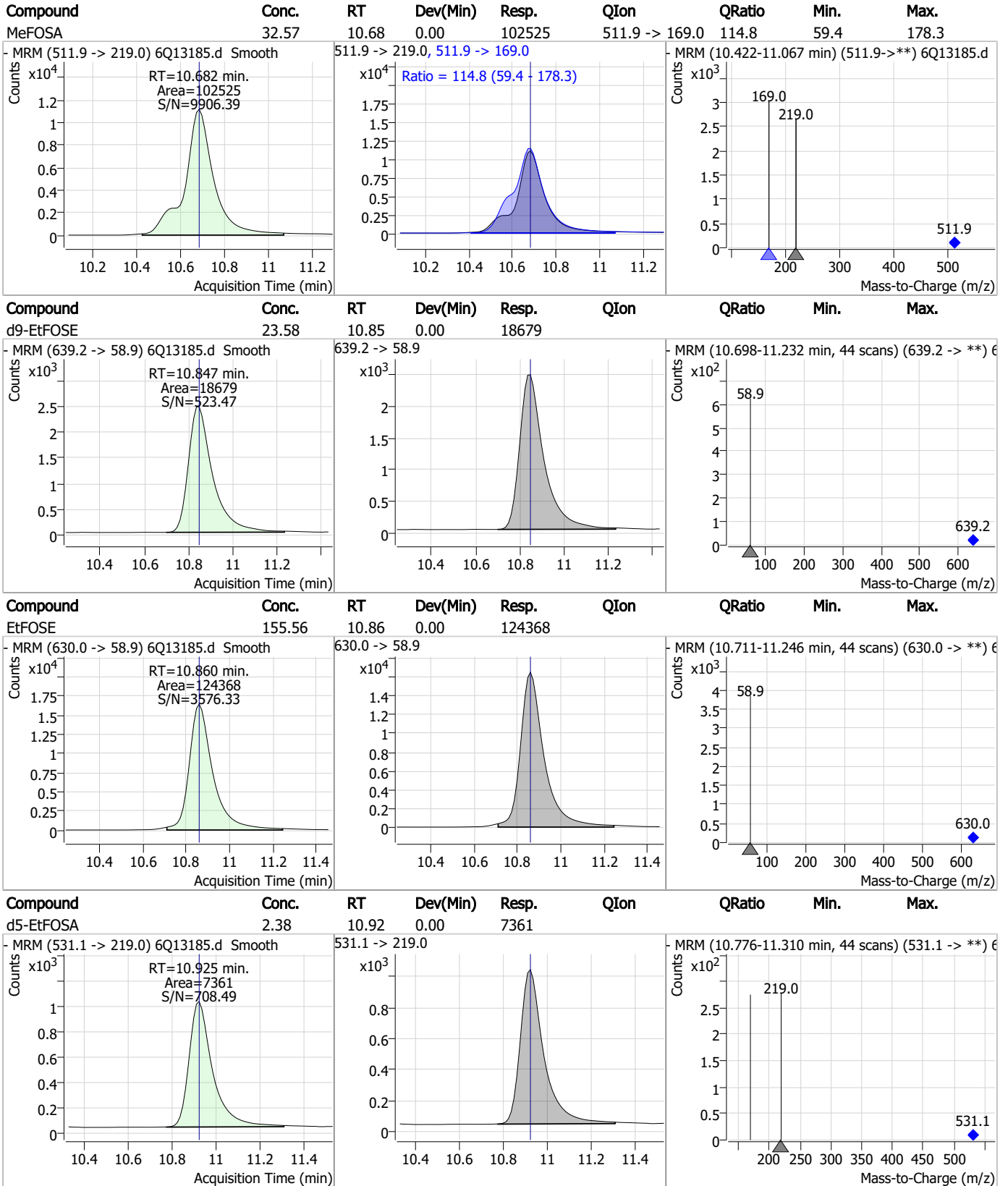
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	142.05	10.60	0.00	157696				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.56	10.68	0.00	7276				



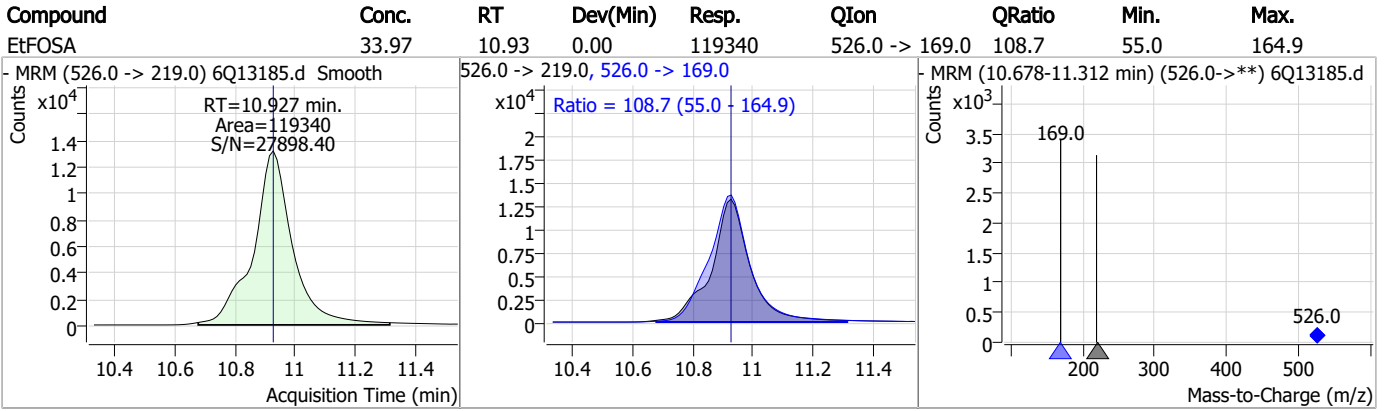
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q202-RT Method: EPA DRAFT 1633
Lab FileID: 6Q13185.D Analyst approved: 02/08/23 10:34 Martha Valls
Injection Time: 02/07/23 10:05 Supervisor approved: 02/08/23 11:27 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.15	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
Perfluorononanoic acid	375-95-1		7.68	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak

7.6.4.1

7

Perfluorinated Compounds by LC/MS/MS

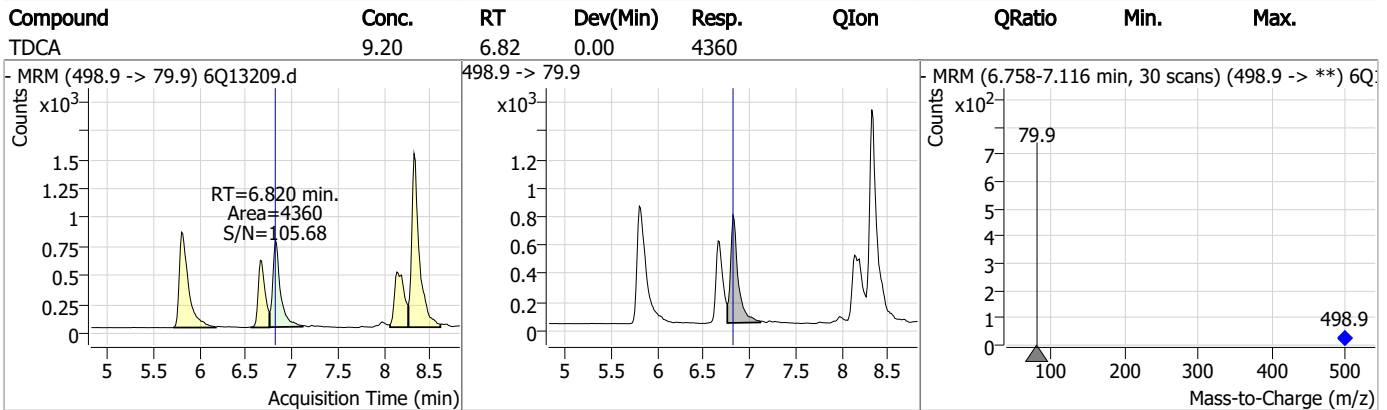
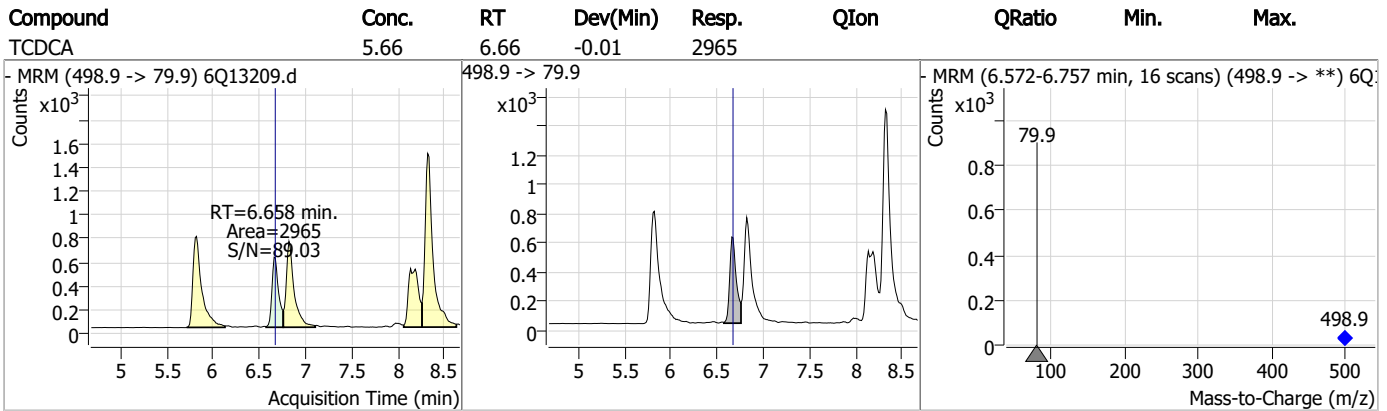
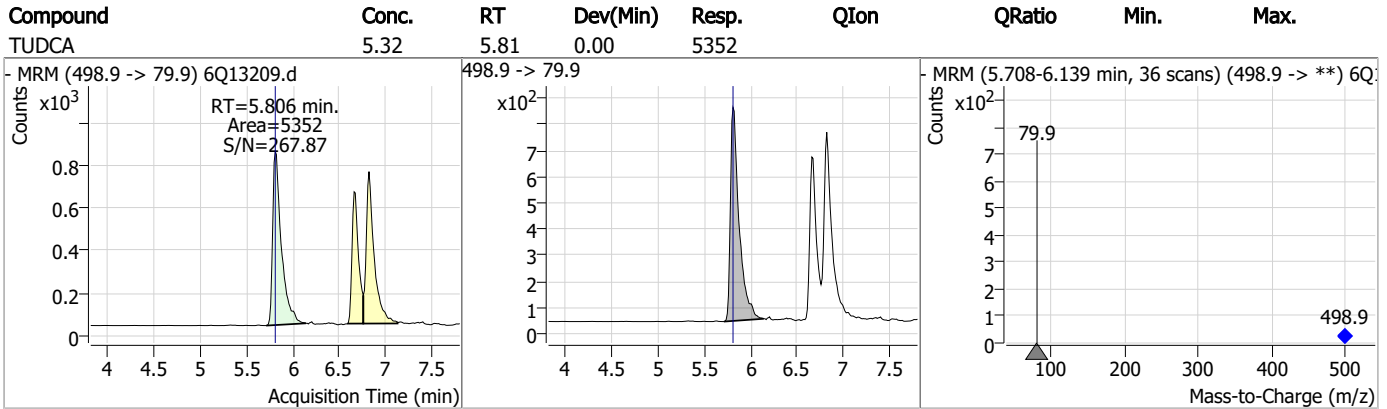
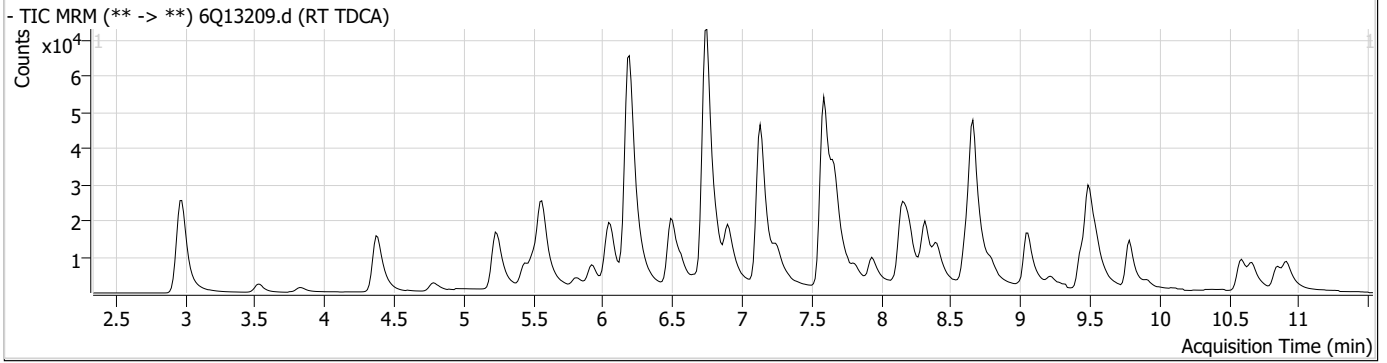
Data File : 6Q13209.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/8/2023 10:05:33 AM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s6q202 TDCA.batch.bin
 Sample Information : OP95070,S6Q202,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M8-PFOS	8.333	507.1 -> 79.9	11346	2.50 µg/L	-0.012
13C4-PFOS	8.333	502.8 -> 79.9	15162	2.50 µg/L	0.000
System Monitoring Compounds					
13C8-PFOS	8.333	507.1 -> 79.9	11346	1.90 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 75.9%		
Target Compounds					
PFOS	8.334	498.9 -> 79.9 498.9 -> 98.8	12442 7421	3.21 µg/L #m	75
TCDCa	6.658	498.9 -> 79.9	2965	5.66 ng/ml	100
TDCA	6.820	498.9 -> 79.9	4360	9.20 ng/ml	100
TUDCA	5.806	498.9 -> 79.9	5352	5.32 ng/ml	100

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

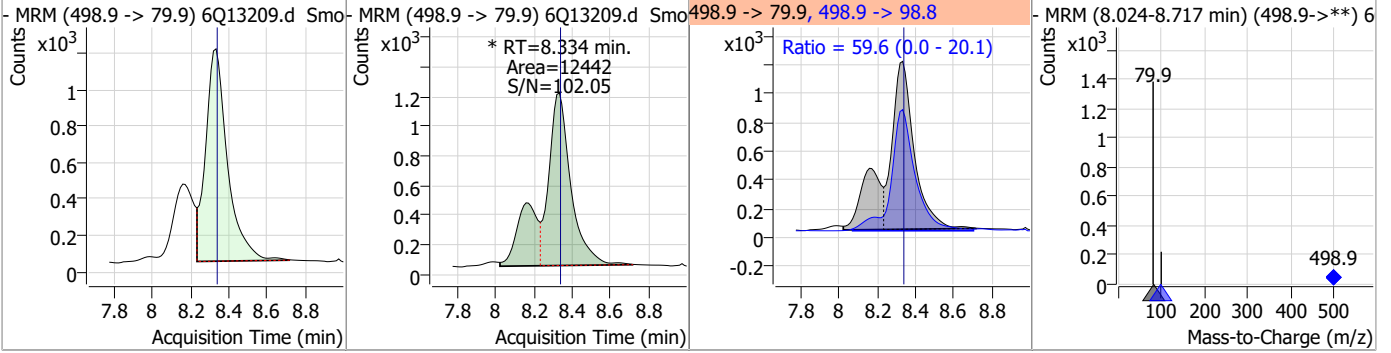
7.6.5
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Perfluorinated Compounds by LC/MS/MS

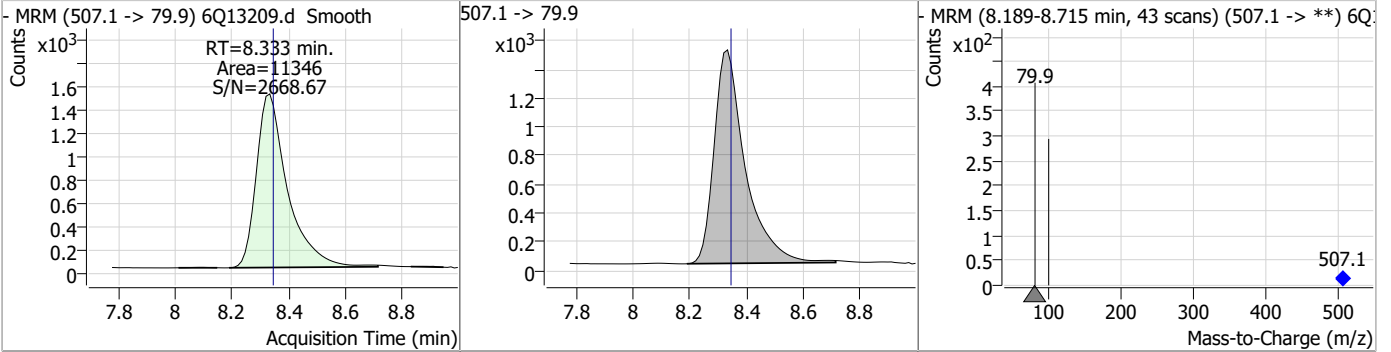


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	3.21	8.33	0.00	12442 (m)	498.9 -> 98.8	59.6	0.0	20.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	1.90	8.33	-0.01	11346				



7.6.5

7

Manual Integration Approval Summary

Sample Number: S6Q202-RT Method: EPA DRAFT 1633
Lab FileID: 6Q13209.D Analyst approved: 02/08/23 15:18 Martha Valls
Injection Time: 02/08/23 10:05 Supervisor approved: 02/08/23 15:53 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak

7.6.5.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13210.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/8/2023 10:19:31 AM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_020223_S6Q196.quantmethod.xml
 Batch Name : s6q202.batch.bin
 Sample Information : OP95070,S6Q202,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.975	216.8 -> 171.9	87664	10.00 µg/L	0.000
M5-PFPeA	4.374	268.3 -> 223.0	44860	5.00 µg/L	-0.012
M5-PFHxA	5.563	318.0 -> 273.0	41213	2.50 µg/L	0.000
M4-PFHpA	6.502	367.1 -> 322.0	39610	2.50 µg/L	0.000
M8-PFOA	7.146	421.1 -> 376.0	69995	2.50 µg/L	0.000
M9-PFNA	7.677	472.1 -> 427.0	25487	1.25 µg/L	0.000
M6-PFDA	8.157	519.1 -> 474.1	19682	1.25 µg/L	0.000
M7-PFUnDA	8.624	570.0 -> 525.1	22178	1.25 µg/L	0.012
M2-PFDoDA	9.054	615.1 -> 570.0	26182	1.25 µg/L	0.000
M2-PFTeDA	9.793	715.2 -> 670.0	16030	1.25 µg/L	0.012
M8-FOSA	9.555	506.1 -> 77.8	18438	2.50 µg/L	-0.012
M3-PFBS	5.518	302.1 -> 79.9	14865	2.50 µg/L	0.000
M3-PFHxS	7.262	402.1 -> 79.9	9489	2.50 µg/L	-0.012
M8-PFOS	8.333	507.1 -> 79.9	9286	2.50 µg/L	0.000
M2-4:2FTS	5.227	329.1 -> 80.9	2371	5.00 µg/L	-0.012
M2-6:2FTS	6.908	429.1 -> 80.9	2652	5.00 µg/L	0.000
M2-8:2FTS	7.944	529.1 -> 80.9	2590	5.00 µg/L	0.000
M3-MeFOSAA	8.202	573.2 -> 419.0	30959	5.00 µg/L	0.000
M3-HFPO-DA	5.927	286.9 -> 168.9	15642	10.00 µg/L	-0.012
M5-EtFOSAA	8.410	589.2 -> 419.0	25671	5.00 µg/L	0.012
M7-MeFOSE	10.589	623.2 -> 58.9	26082	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	17145	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7589	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7534	2.50 µg/L	0.000
13C4-PFOS	8.333	502.8 -> 79.9	10725	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	39518	5.00 µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	7183	2.50 µg/L	0.000
13C4-PFOA	7.147	417.1 -> 372.0	79850	2.50 µg/L	0.000
13C2-PFDA	8.158	515.1 -> 470.1	26656	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	27597	1.25 µg/L	0.000
13C2-PFHxA	5.563	315.1 -> 270.0	37785	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.227	329.1 -> 80.9	2371	5.08 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C2-6:2FTS	6.908	429.1 -> 80.9	2652	4.28 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 85.6%		
13C2-8:2FTS	7.944	529.1 -> 80.9	2590	4.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 83.2%		
13C2-PFDoDA	9.054	615.1 -> 570.0	26182	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.3%		
13C2-PFTeDA	9.793	715.2 -> 670.0	16030	1.37 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 109.5%		
13C3-PFBS	5.518	302.1 -> 79.9	14865	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C3-PFHxS	7.262	402.1 -> 79.9	9489	2.51 µg/L	-0.012

7.6.6
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C4-PFBA	2.975	216.8 -> 171.9	87664	10.00 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFHpA	6.502	367.1 -> 322.0	39610	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C5-PFHxA	5.563	318.0 -> 273.0	41213	2.76 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.3%	
13C5-PFPeA	4.374	268.3 -> 223.0	44860	5.33 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.6%	
13C6-PFDA	8.157	519.1 -> 474.1	19682	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.2%	
13C7-PFUnDA	8.624	570.0 -> 525.1	22178	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C8-FOSA	9.555	506.1 -> 77.8	18438	2.64 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.6%	
13C8-PFOA	7.146	421.1 -> 376.0	69995	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C8-PFOS	8.333	507.1 -> 79.9	9286	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.3%	
13C9-PFNA	7.677	472.1 -> 427.0	25487	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.0%	
d3-MeFOSAA	8.202	573.2 -> 419.0	30959	5.27 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.3%	
13C3-HFPO-DA	5.927	286.9 -> 168.9	15642	10.13 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
d3-MeFOSA	10.680	515.0 -> 219.0	7534	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
d5-EtFOSAA	8.410	589.2 -> 419.0	25671	5.26 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.3%	
d7-MeFOSE	10.589	623.2 -> 58.9	26082	21.42 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 85.7%	
d9-EtFOSE	10.847	639.2 -> 58.9	17145	20.43 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 81.7%	
d5-EtFOSA	10.925	531.1 -> 219.0	7589	2.32 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.7%	
Target Compounds					QValue
4:2FTS	5.228	327.1 -> 307.0	249694	46.96 µg/L	99
		327.1 -> 80.9	54873		
6:2FTS	6.908	427.1 -> 407.0	207659	53.47 µg/L	100
		427.1 -> 80.9	40038		
8:2FTS	7.945	527.1 -> 507.0	108105	53.74 µg/L	98
		527.1 -> 80.8	26601		
EtFOSAA	8.411	584.2 -> 419.1	50795	12.35 µg/L	95
		584.2 -> 526.0	27616		
FOSA	9.557	498.1 -> 77.9	217503	29.56 µg/L	100
		498.1 -> 478.0	8417		
MeFOSAA	8.203	570.1 -> 419.0	69899	12.32 µg/L	98
		570.1 -> 483.0	13564		
PFBA	2.969	212.8 -> 168.9	106036	54.16 µg/L	100
PFBS	5.518	298.7 -> 79.9	65791	11.52 µg/L	95
		298.7 -> 98.8	29801		
PFDA	8.158	512.9 -> 469.0	292023	13.04 µg/L	99
		512.9 -> 219.0	38702		
PFDoDA	9.054	613.1 -> 569.0	242781	12.66 µg/L	99
		613.1 -> 319.0	30902		
PFDS	9.229	599.0 -> 79.9	36162	11.50 µg/L	96

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.503	599.0 -> 98.8	18056	12.88	µg/L	98
		363.1 -> 319.0	302213			
PFHpS	7.828	363.1 -> 169.0	43116	11.10	µg/L	90
		449.0 -> 79.9	43704			
PFHxA	5.566	449.0 -> 98.9	27170	11.91	µg/L	100
		313.0 -> 269.0	192506			
PFHxS	7.263	313.0 -> 118.9	7191	12.10	µg/L	99
		398.7 -> 79.9	51596			
PFNA	7.665	398.7 -> 98.9	28878	25.17	µg/L	98
		463.0 -> 419.0	432669			
PFNS	8.798	463.0 -> 219.0	85675	11.71	µg/L	94
		548.8 -> 79.9	48351			
PFOA	7.148	548.8 -> 98.9	26496	27.44	µg/L	100
		413.0 -> 369.0	845866			
PFOS	8.334	413.0 -> 169.0	110898	11.02	µg/L	96
		498.9 -> 79.9	46952			
PFPeA	4.388	498.9 -> 98.8	30308	25.60	µg/L	100
		263.0 -> 219.0	242470			
PFPeS	6.569	349.1 -> 79.9	60336	12.17	µg/L	100
		349.1 -> 98.9	32808			
PFTeDA	9.781	713.1 -> 669.0	234603	13.57	µg/L	99
		713.1 -> 168.9	15197			
PFTrDA	9.450	663.0 -> 619.0	241500	13.16	µg/L	99
		663.0 -> 168.9	18310			
PFUnDA	8.624	563.1 -> 519.0	228797	13.25	µg/L	99
		563.1 -> 269.1	34489			
11Cl-PF3OUdS	9.502	630.9 -> 450.9	532309	47.42	µg/L	98
		632.9 -> 452.9	156554			
9Cl-PF3ONS	8.676	530.8 -> 351.0	908862	47.90	µg/L	99
		532.8 -> 353.0	271275			
ADONA	6.753	376.9 -> 250.9	1676662	49.41	µg/L	99
		376.9 -> 84.8	362062			
HFPO-DA	5.928	284.9 -> 168.9	75559	51.64	µg/L	96
		284.9 -> 184.9	9546			
3:3FTCA	3.841	241.0 -> 177.0	30822	66.26	µg/L	98
		241.0 -> 117.0	4152			
5:3FTCA	6.193	341.0 -> 237.1	1074247	317.82	µg/L	94
		341.0 -> 217.0	898530			
7:3FTCA	7.605	441.0 -> 316.9	560346	253.64	µg/L	92
		441.0 -> 336.9	1195496			
EtFOSA	10.927	526.0 -> 219.0	115995	32.02	µg/L	100
		526.0 -> 169.0	127150			
EtFOSE	10.860	630.0 -> 58.9	104210	142.01	µg/L	100
		511.9 -> 219.0	101813			
MeFOSA	10.682	511.9 -> 169.0	122294	31.24	µg/L	99
		616.1 -> 58.9	152362			
MeFOSE	10.602	699.1 -> 79.9	20777	146.44	µg/L	100
		699.1 -> 98.8	12564			
PFDoDS	9.920	295.0 -> 201.0	24760	11.04	µg/L	93
		295.0 -> 84.9	11679			
NFDHA	5.445	279.0 -> 85.1	72639	25.91	µg/L	100
		229.0 -> 84.9	66058			
PFMBA	4.787	314.8 -> 134.9	497481	27.27	µg/L	100
		314.8 -> 82.9	12565			
PFMPA	3.528			26.15	µg/L	100
PFEESA	6.046			21.38	µg/L	100

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

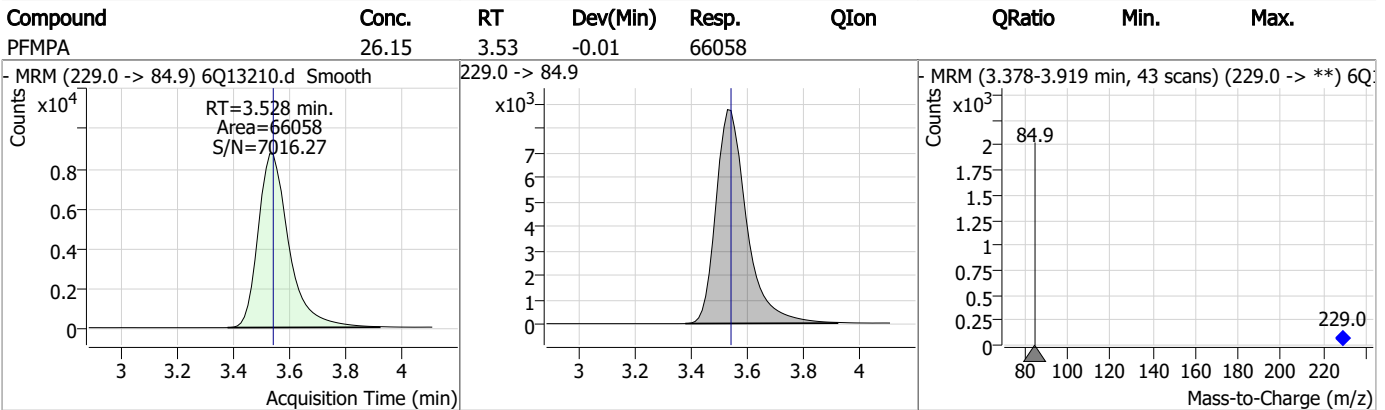
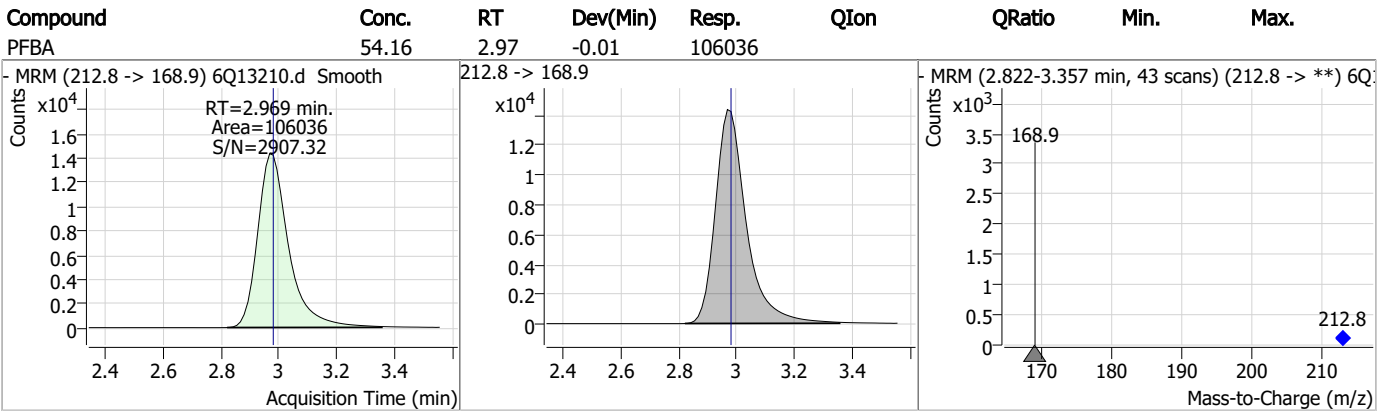
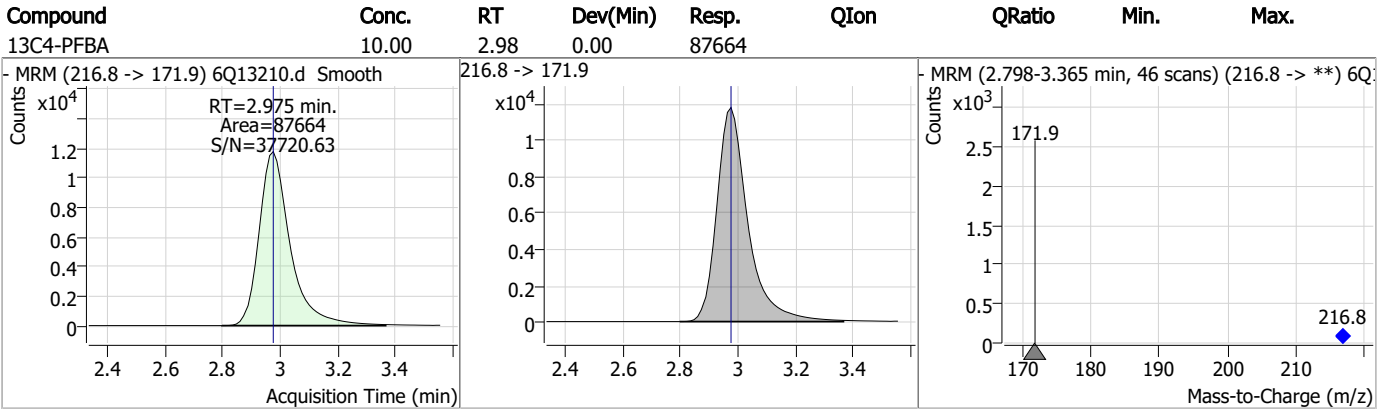
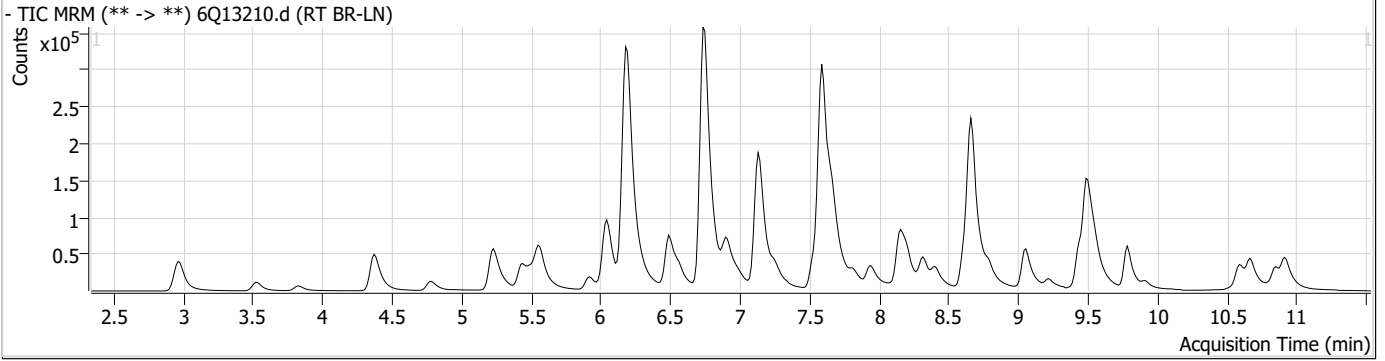
Perfluorinated Compounds by LC/MS/MS

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

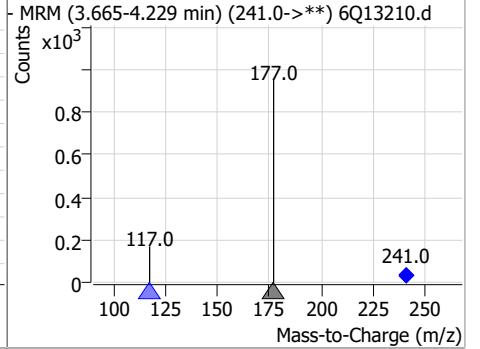
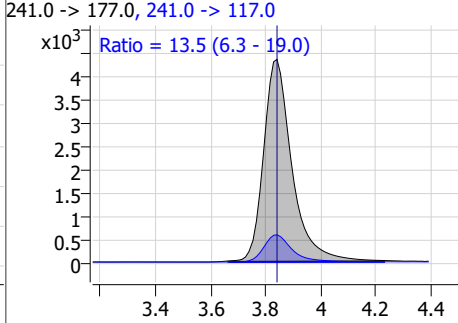
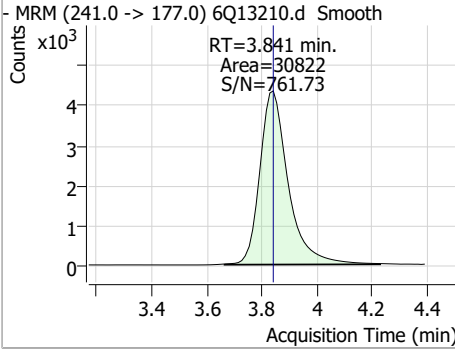
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Perfluorinated Compounds by LC/MS/MS

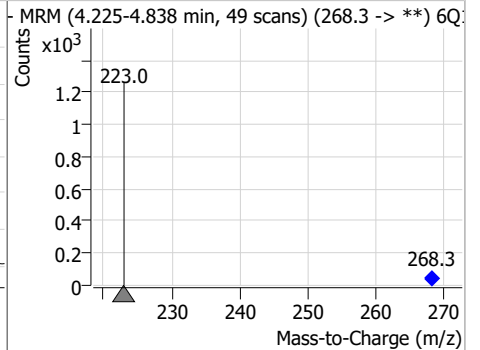
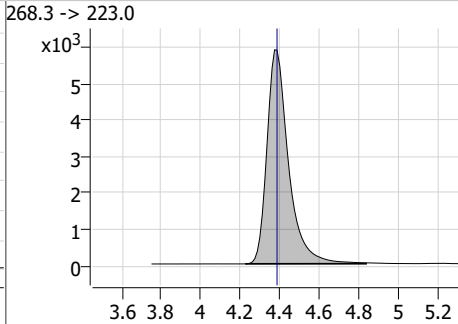
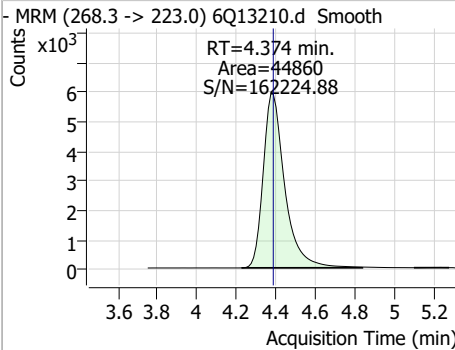


Perfluorinated Compounds by LC/MS/MS

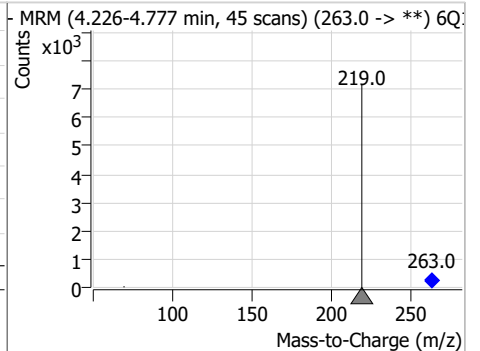
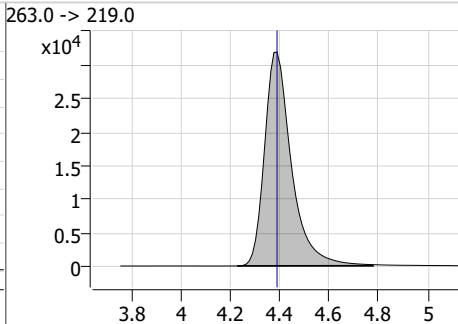
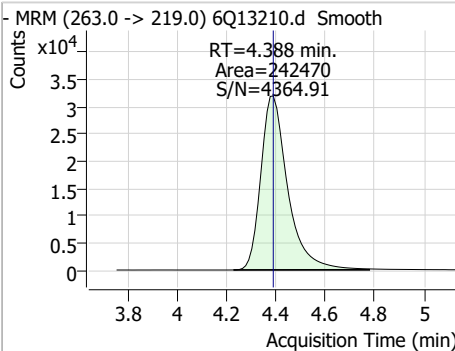
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	66.26	3.84	0.00	30822	241.0 -> 117.0	13.5	6.3	19.0



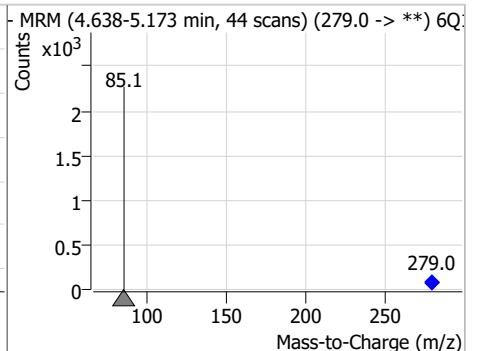
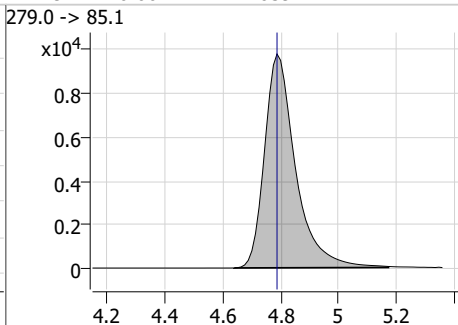
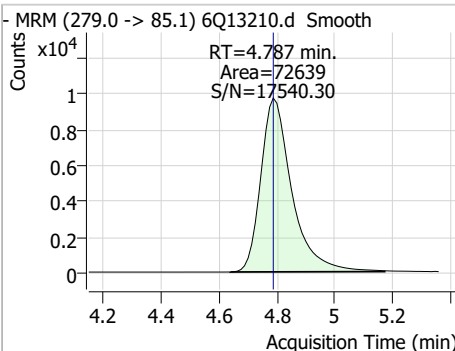
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.33	4.37	-0.01	44860				



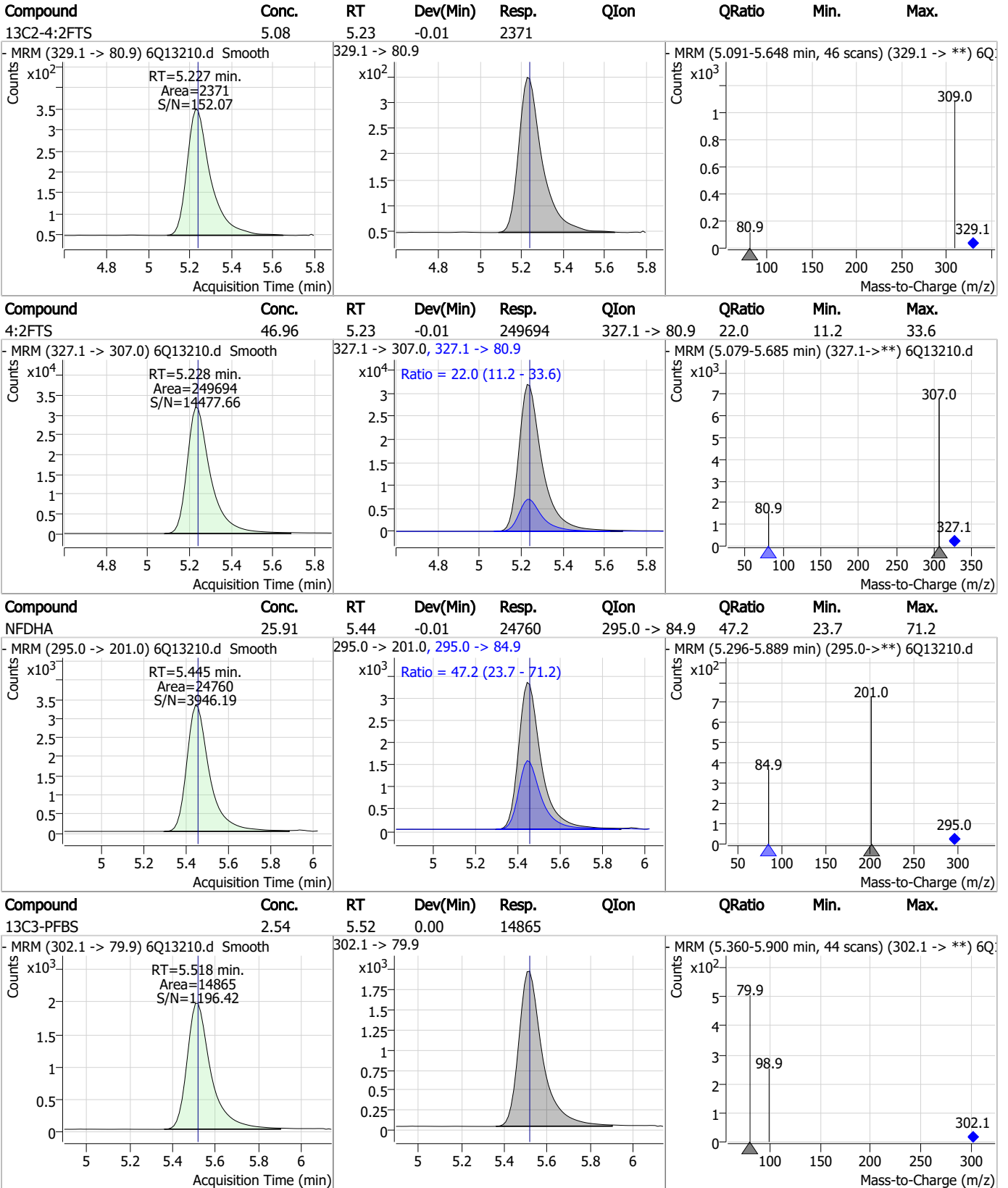
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	25.60	4.39	0.00	242470				



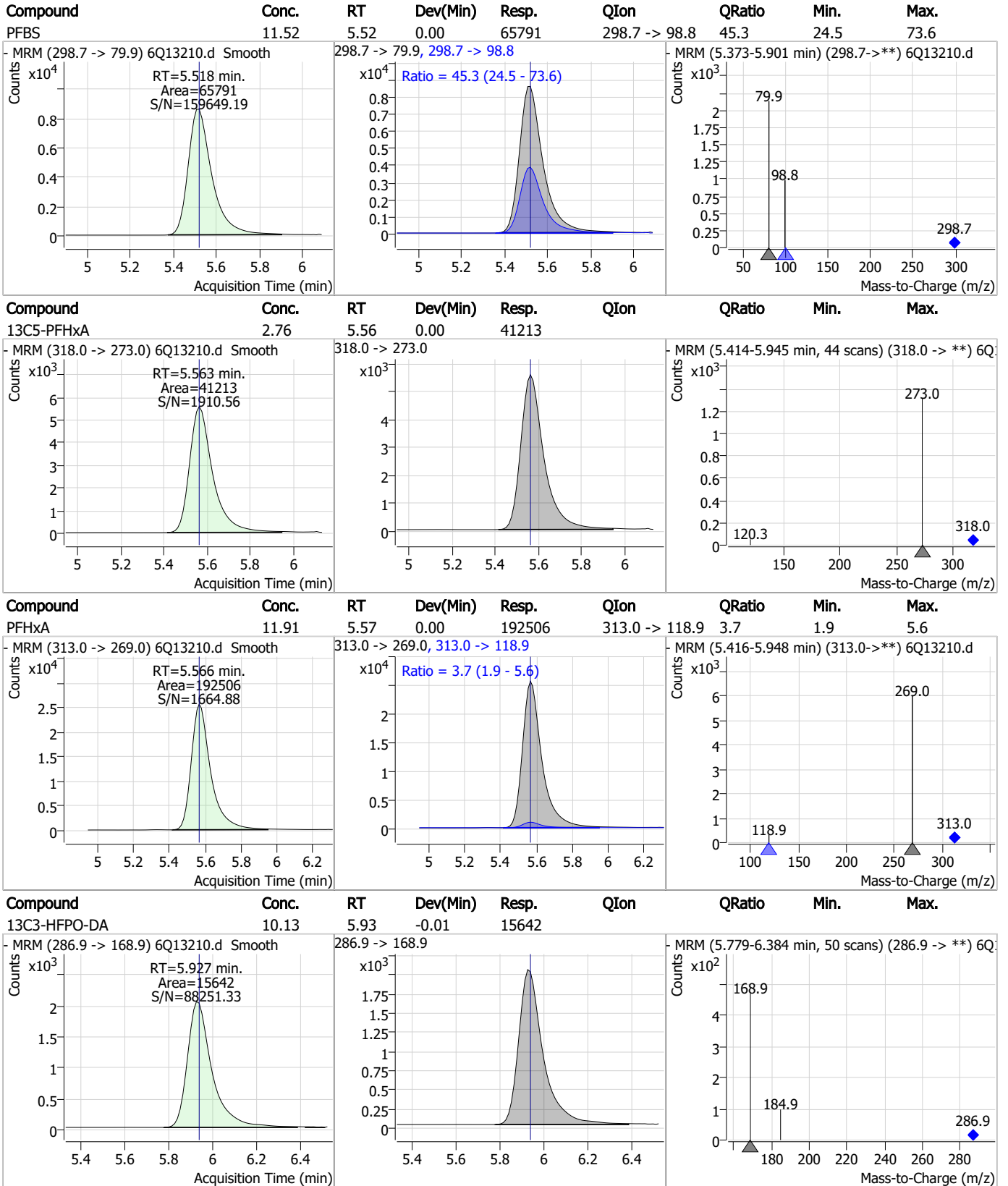
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	27.27	4.79	0.00	72639				



Perfluorinated Compounds by LC/MS/MS



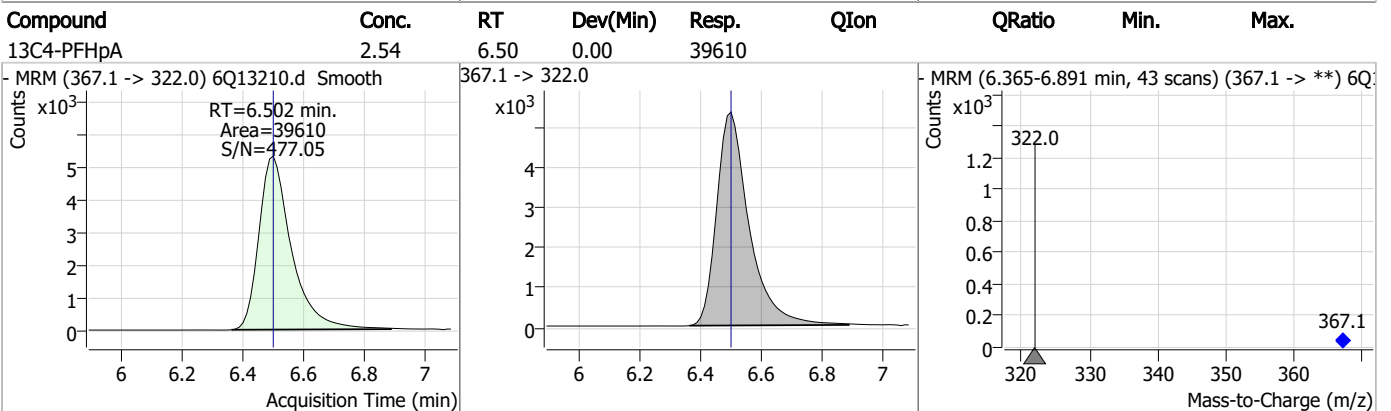
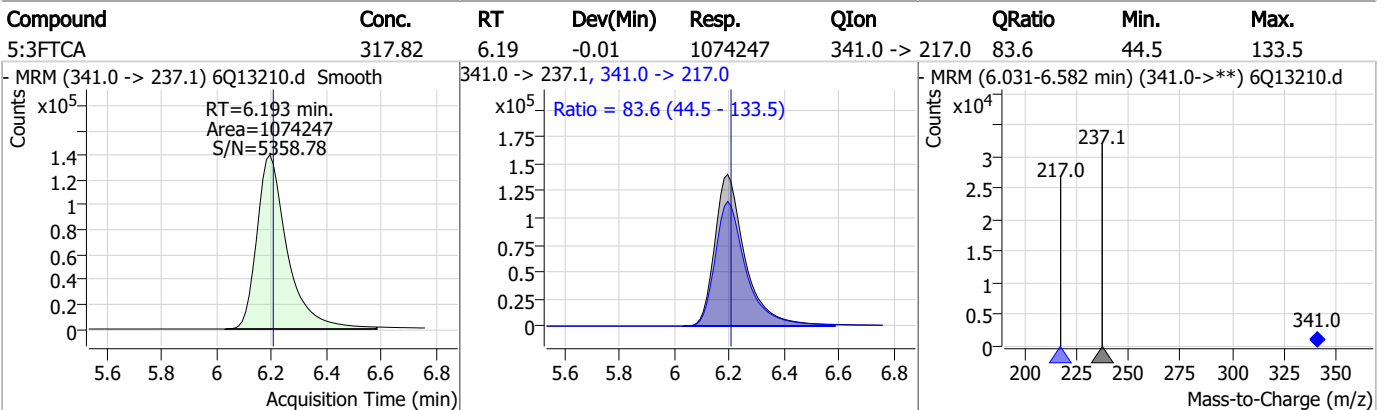
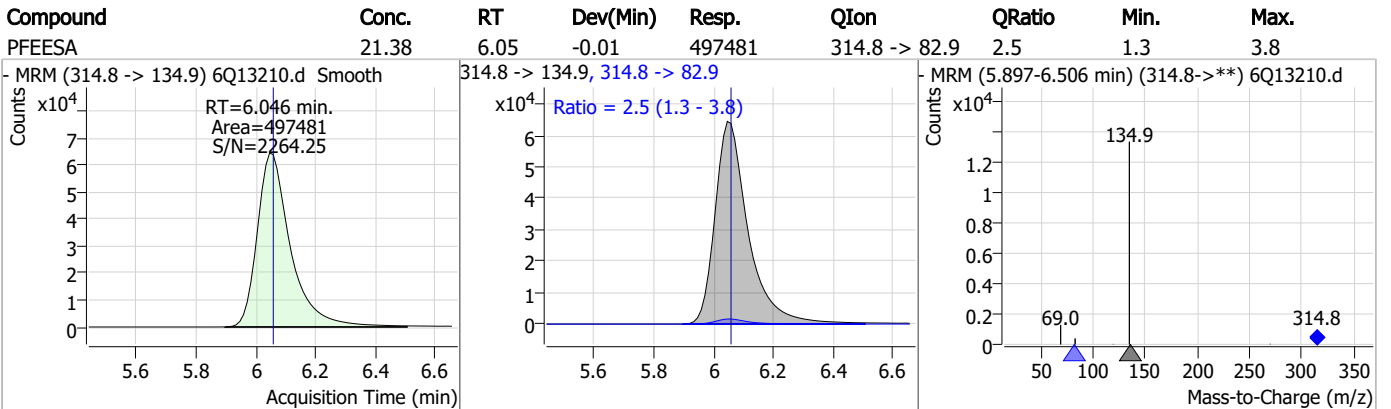
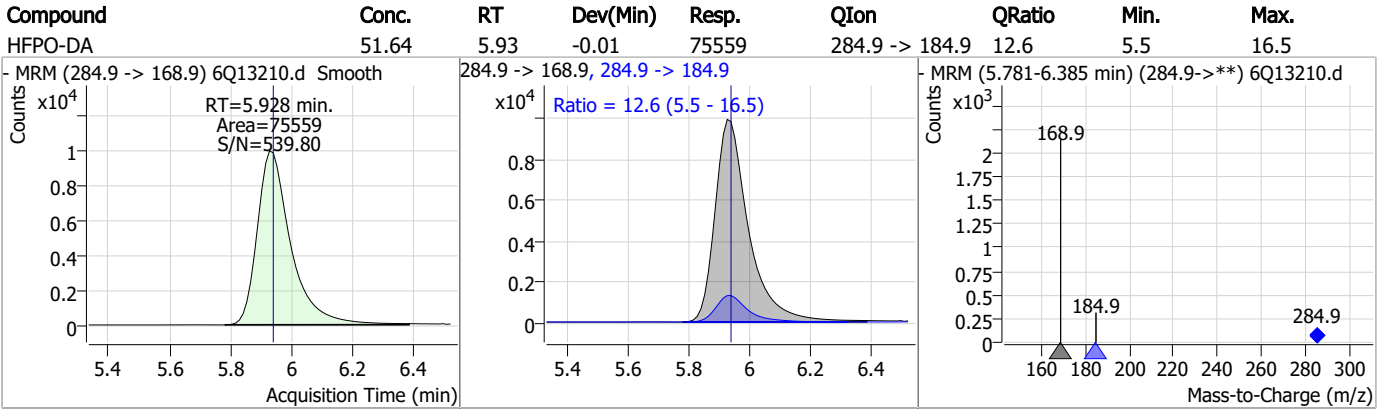
Perfluorinated Compounds by LC/MS/MS



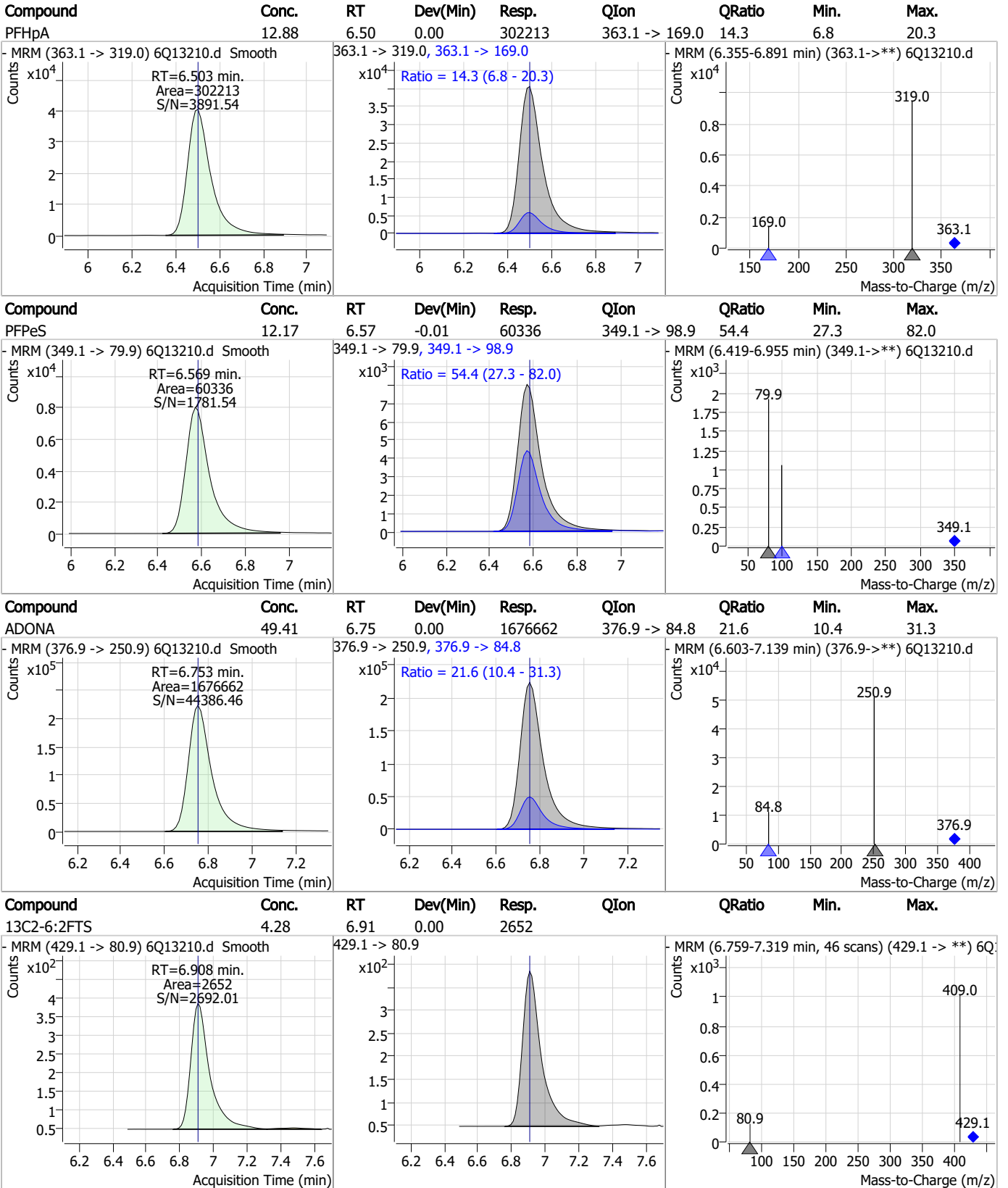
7.6.6

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Perfluorinated Compounds by LC/MS/MS



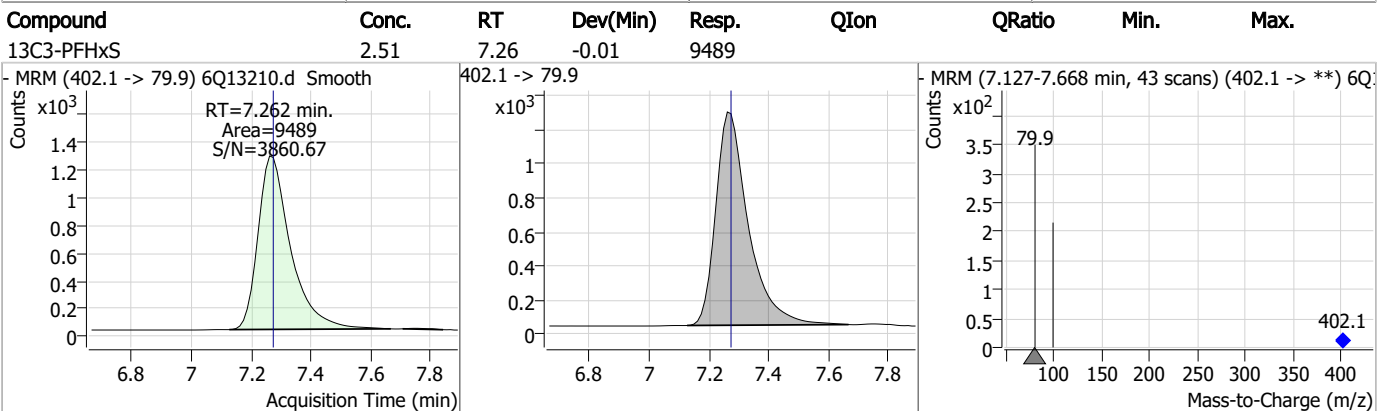
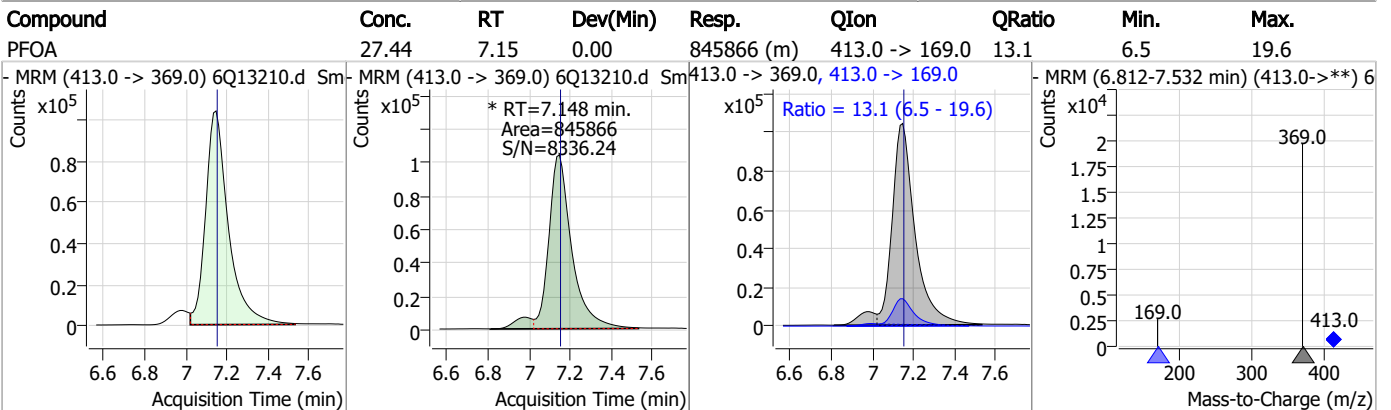
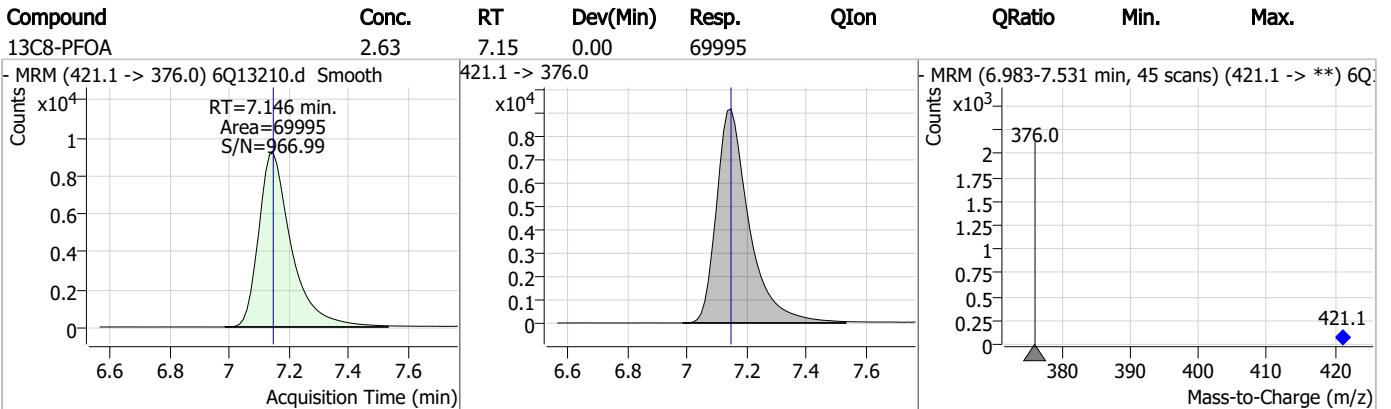
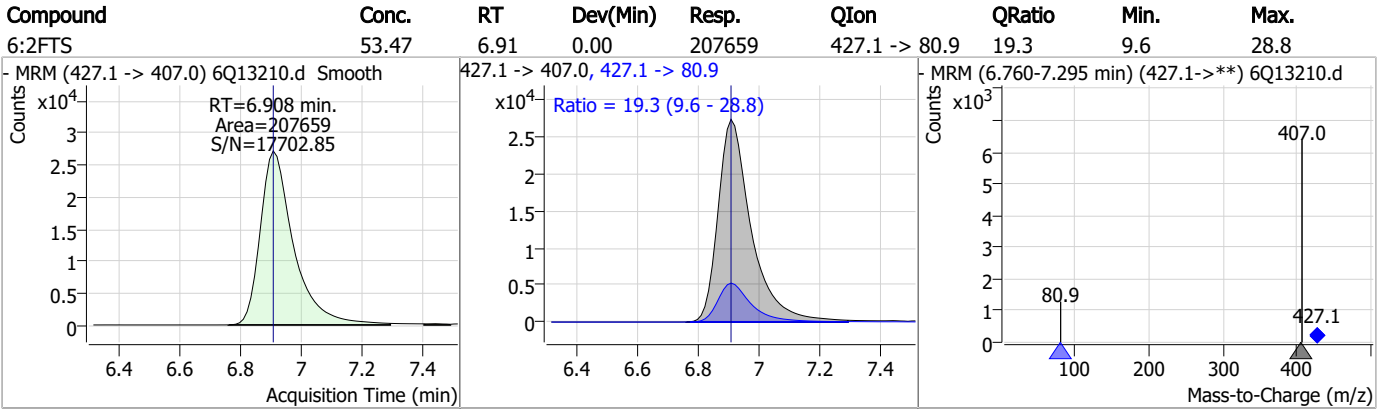
Perfluorinated Compounds by LC/MS/MS



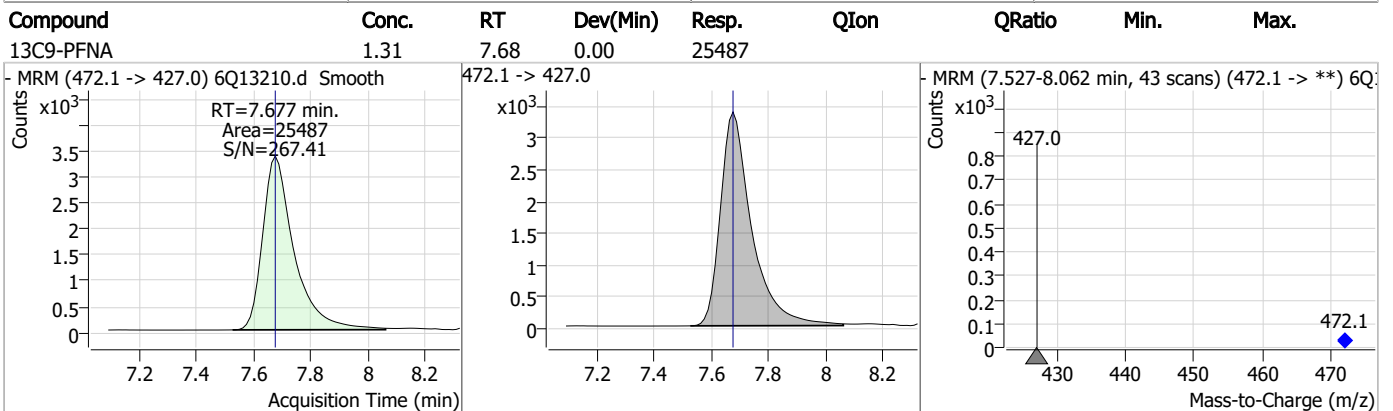
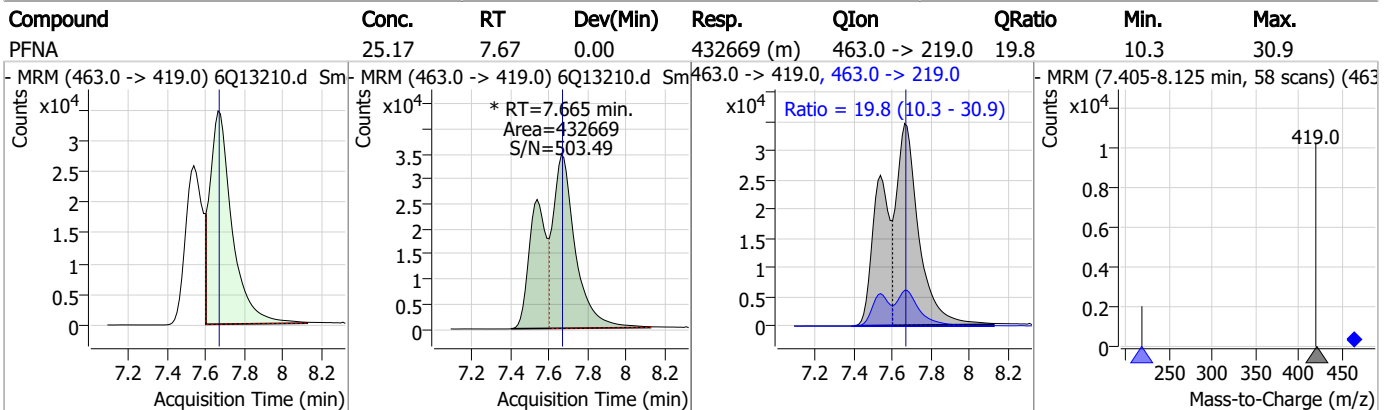
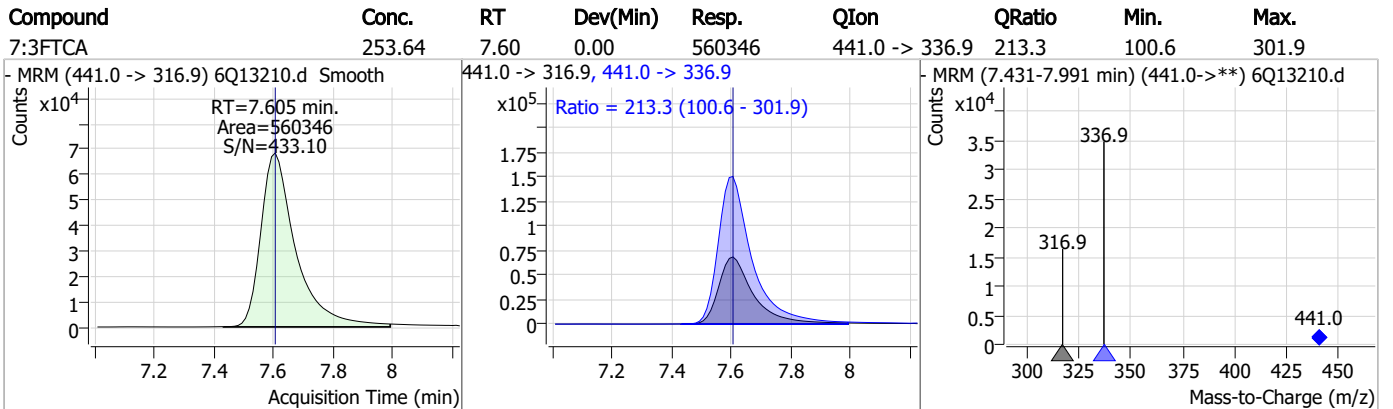
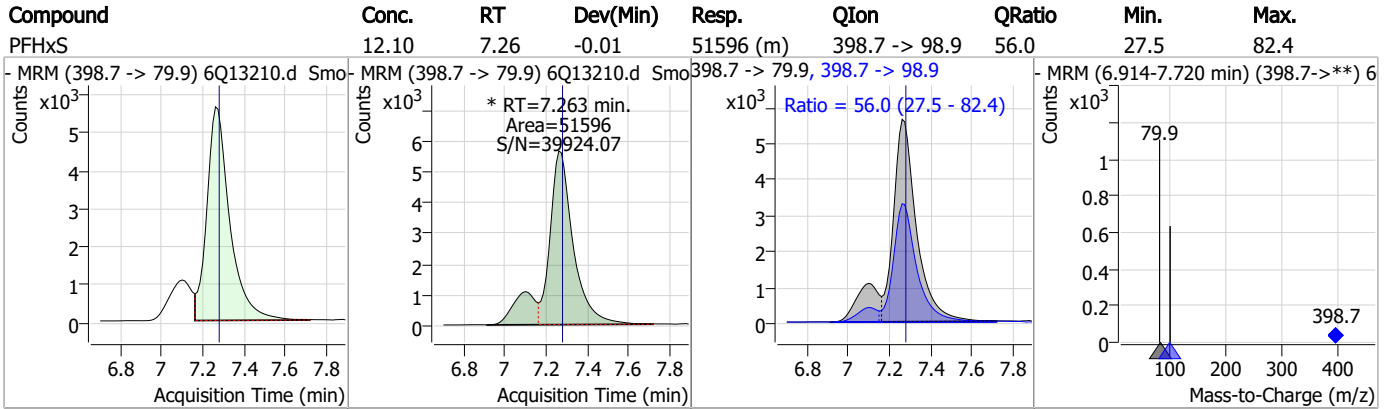
7.6.6

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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



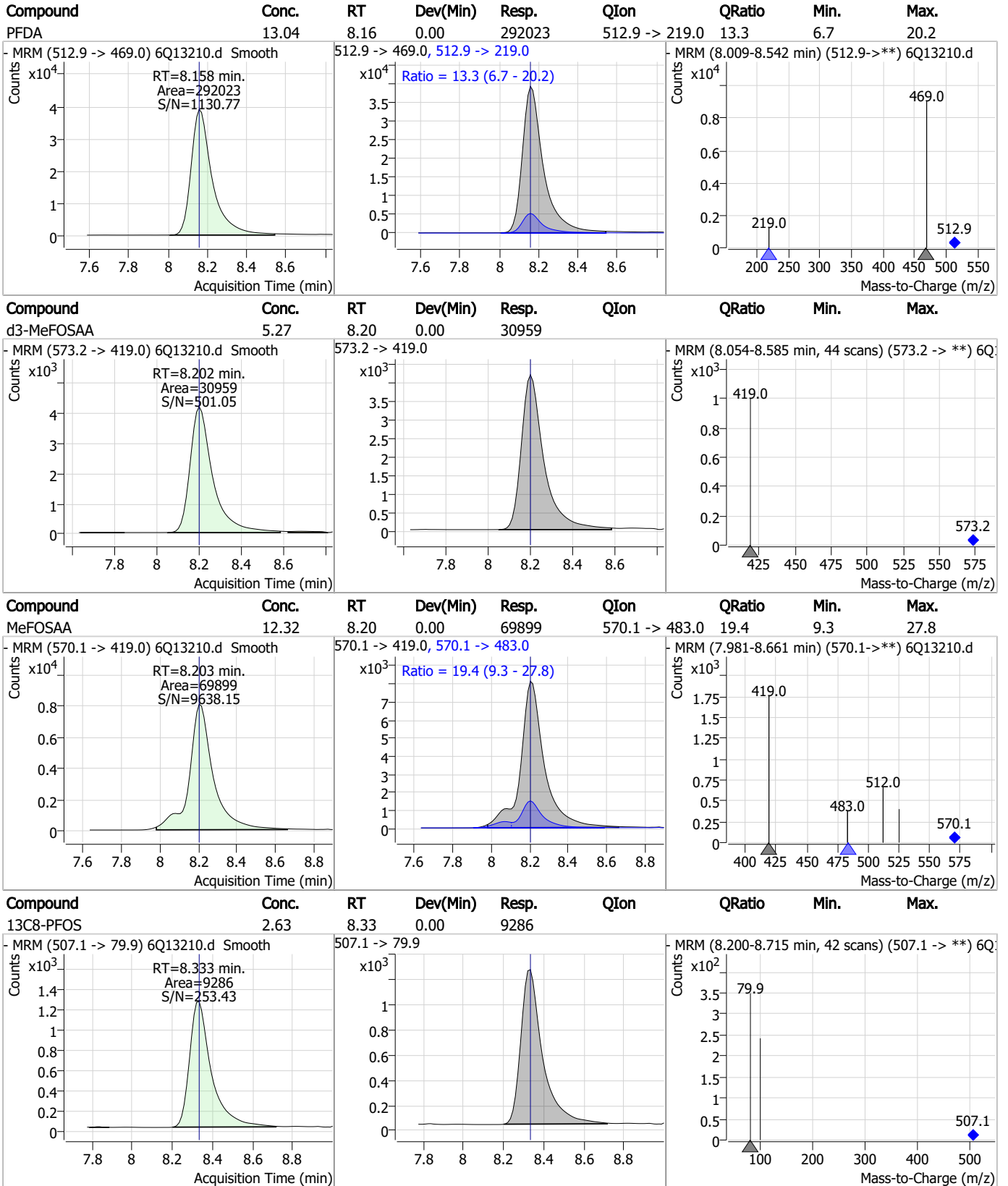
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	11.10	7.83	0.00	43704	449.0 -> 98.9	62.2	27.5	82.4
13C2-8:2FTS	4.16	7.94	0.00	2590	529.1 -> 80.9			
8:2FTS	53.74	7.95	0.00	108105	527.1 -> 80.8	24.6	11.9	35.8
13C6-PFDA	1.33	8.16	0.00	19682	519.1 -> 474.1			

7.6.6

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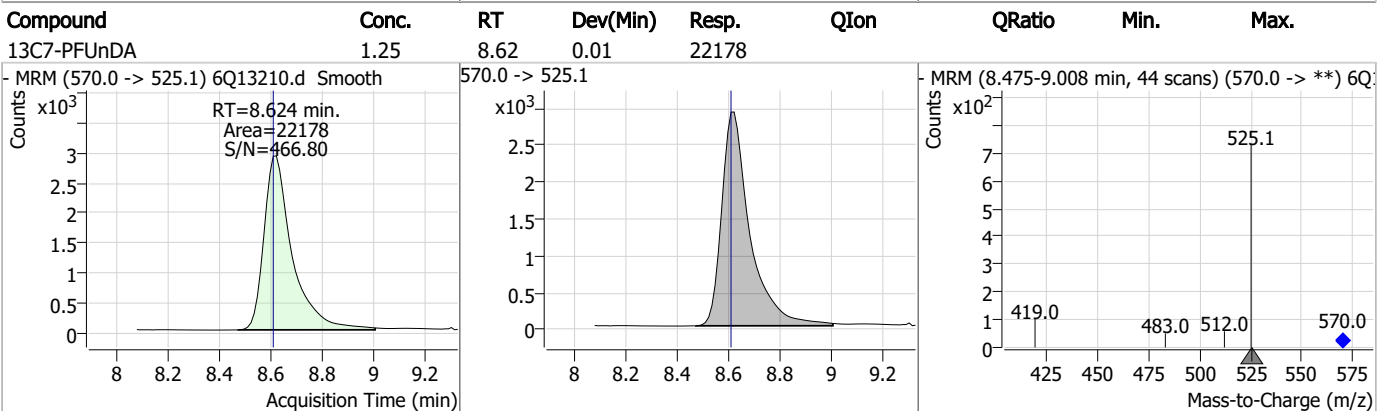
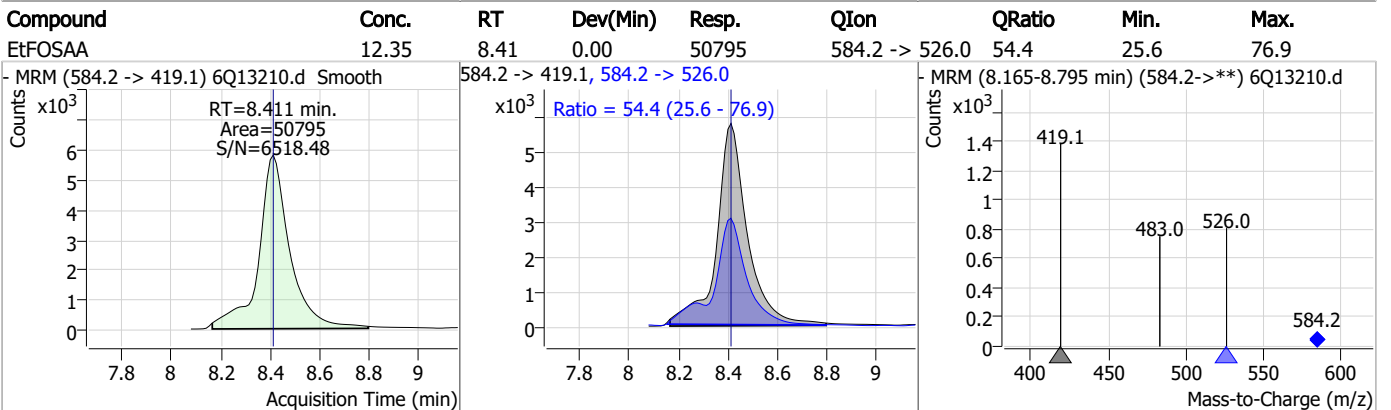
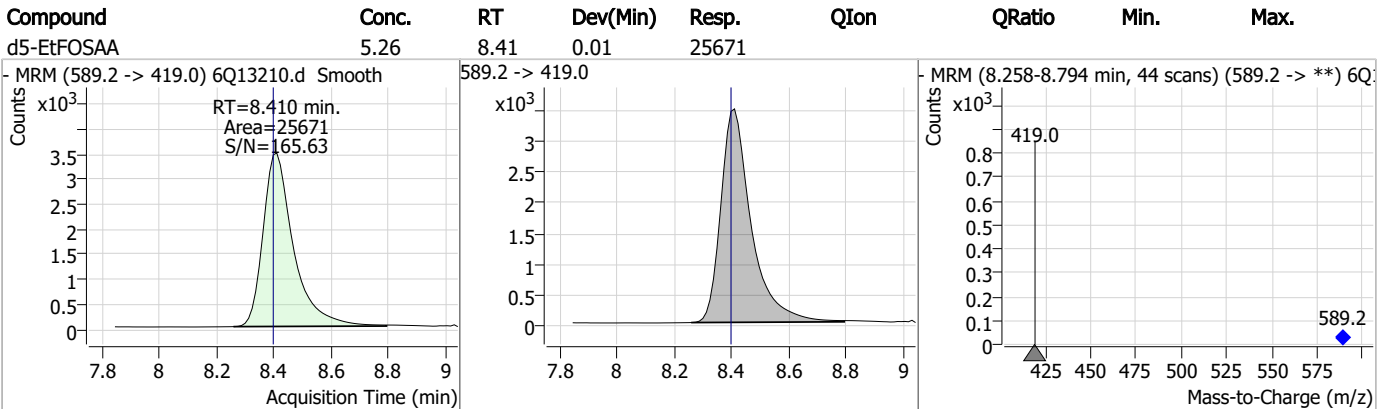
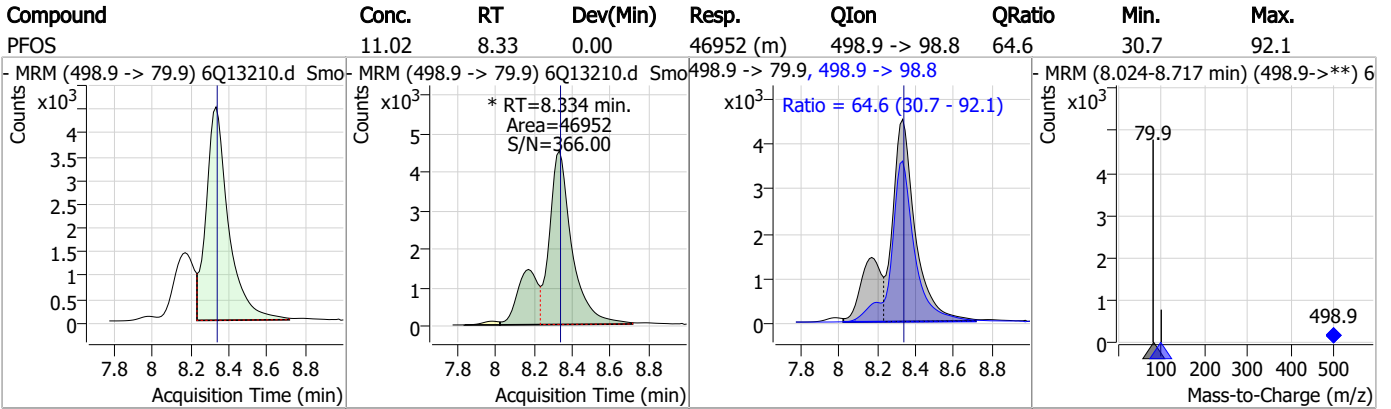
Perfluorinated Compounds by LC/MS/MS



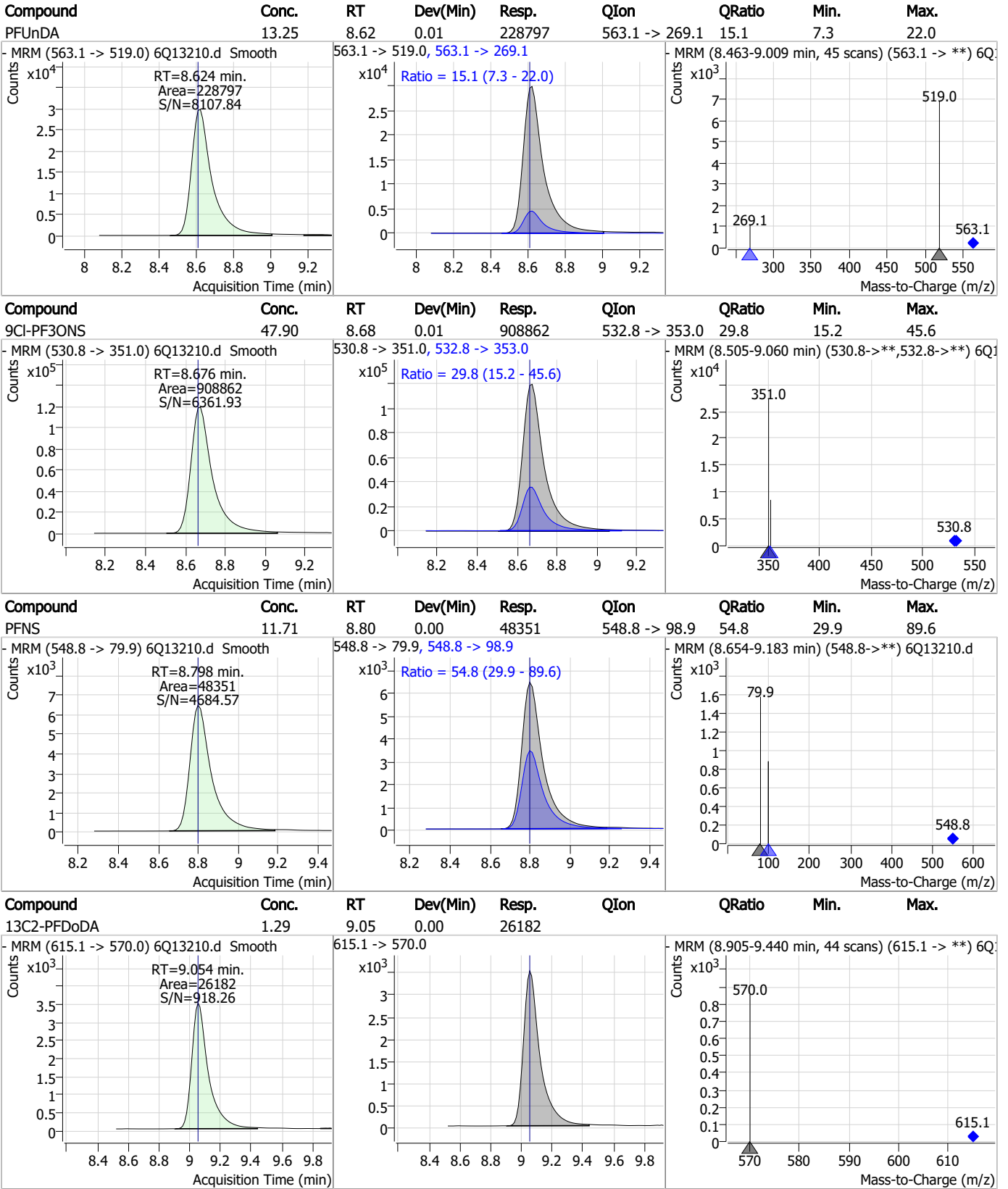
7.6.6

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Perfluorinated Compounds by LC/MS/MS



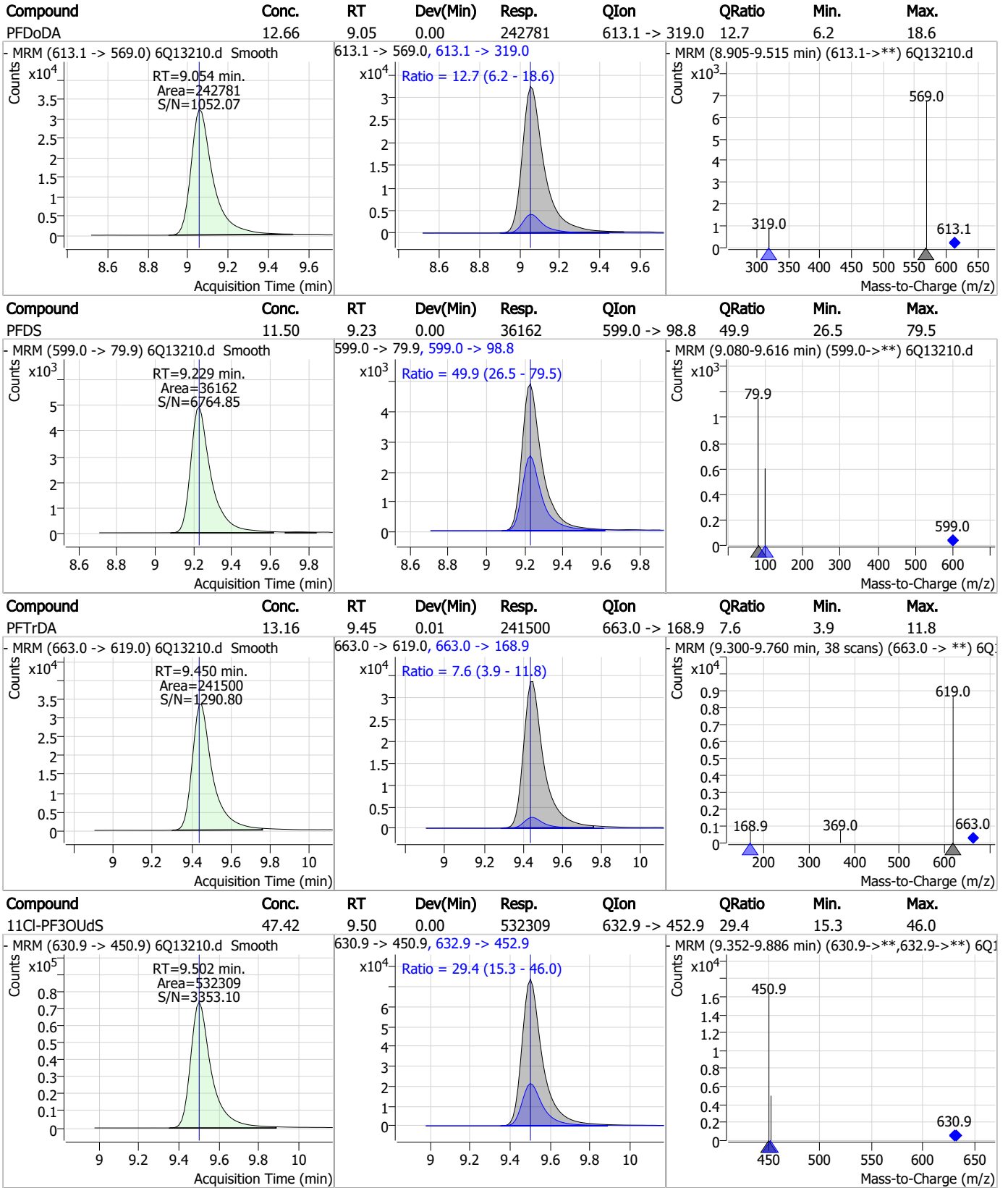
Perfluorinated Compounds by LC/MS/MS



7.6.6

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Perfluorinated Compounds by LC/MS/MS



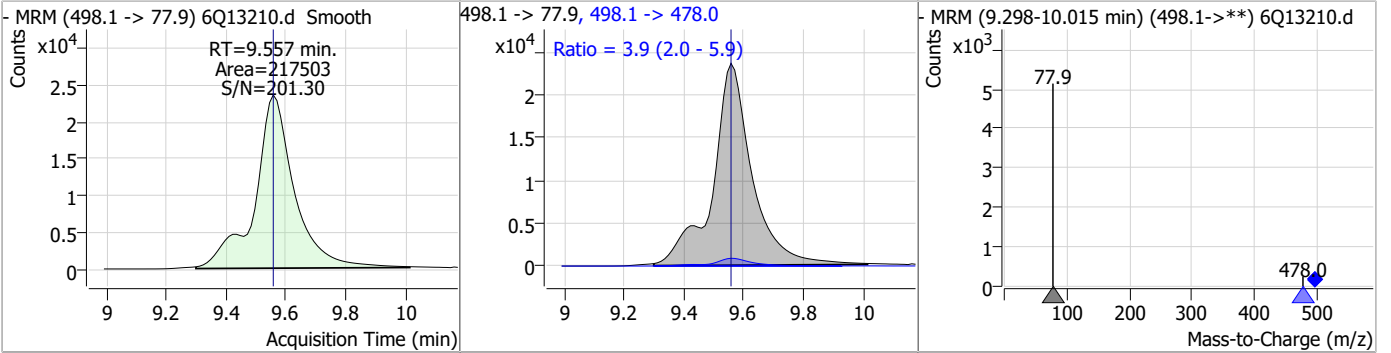
7.6.6

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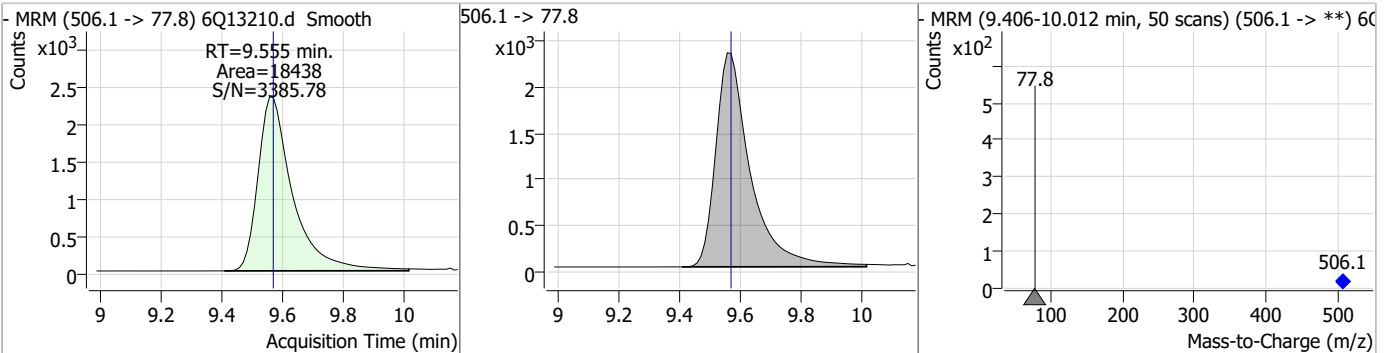


Perfluorinated Compounds by LC/MS/MS

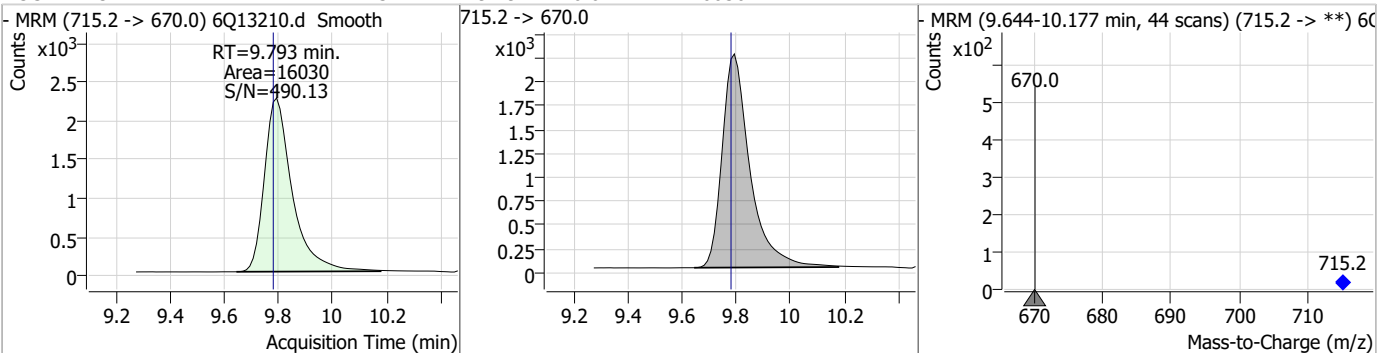
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	29.56	9.56	0.00	217503	498.1 -> 478.0	3.9	2.0	5.9



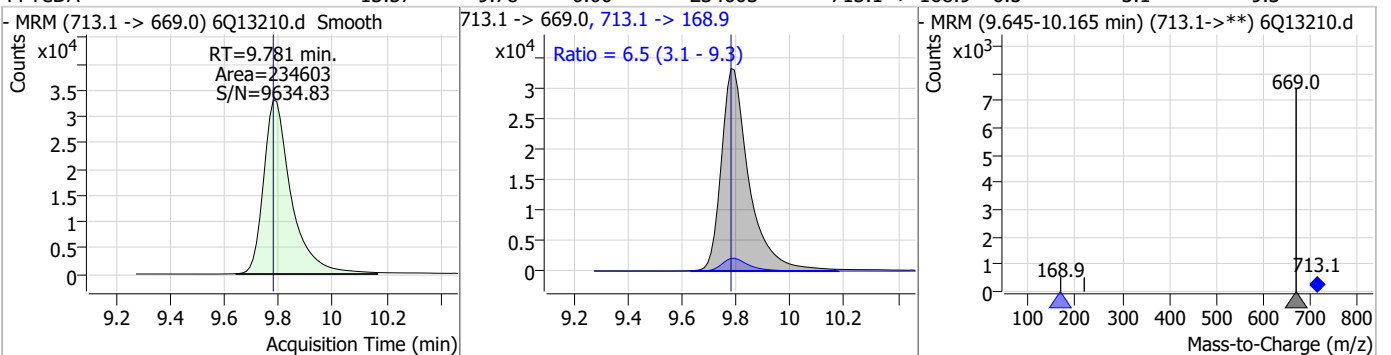
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.64	9.55	-0.01	18438				



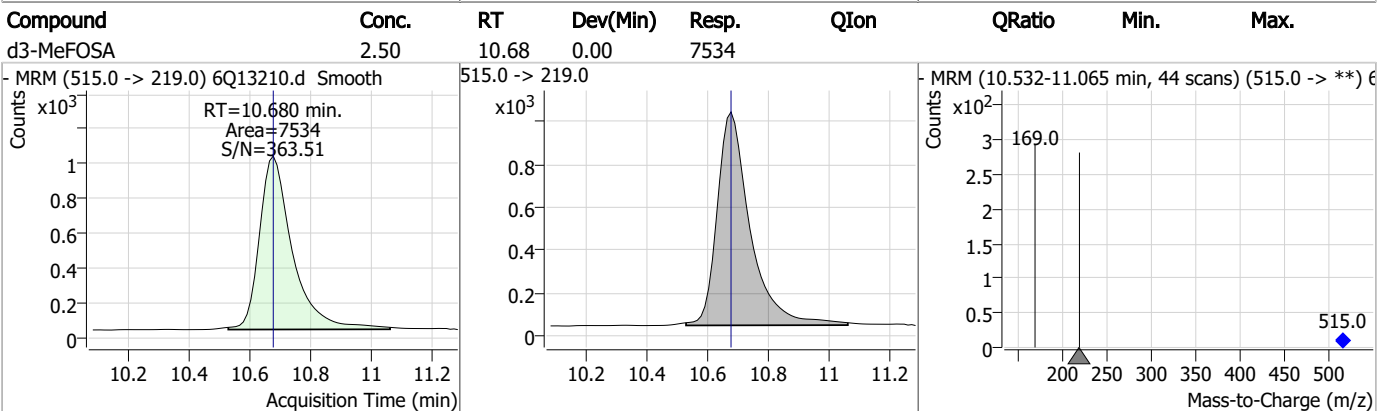
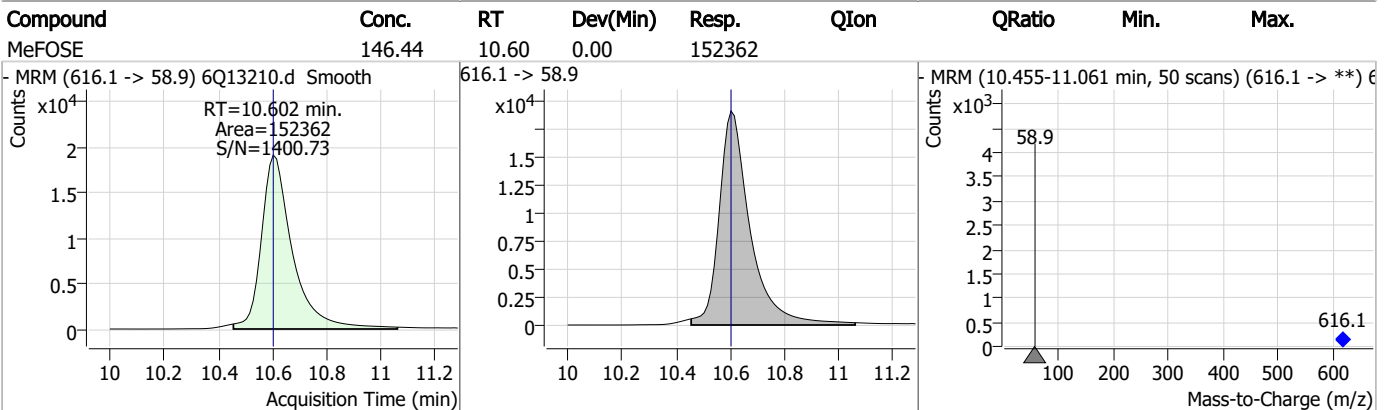
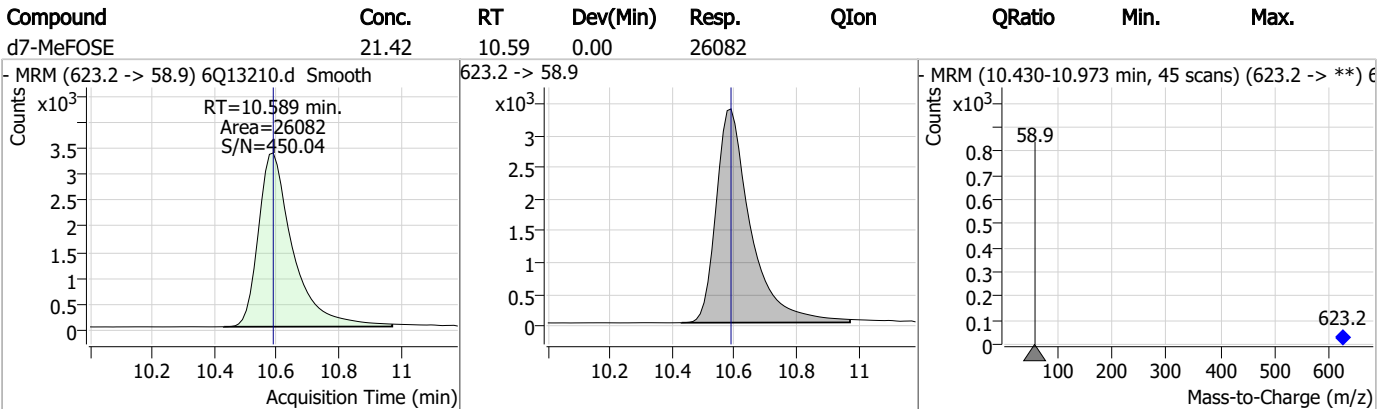
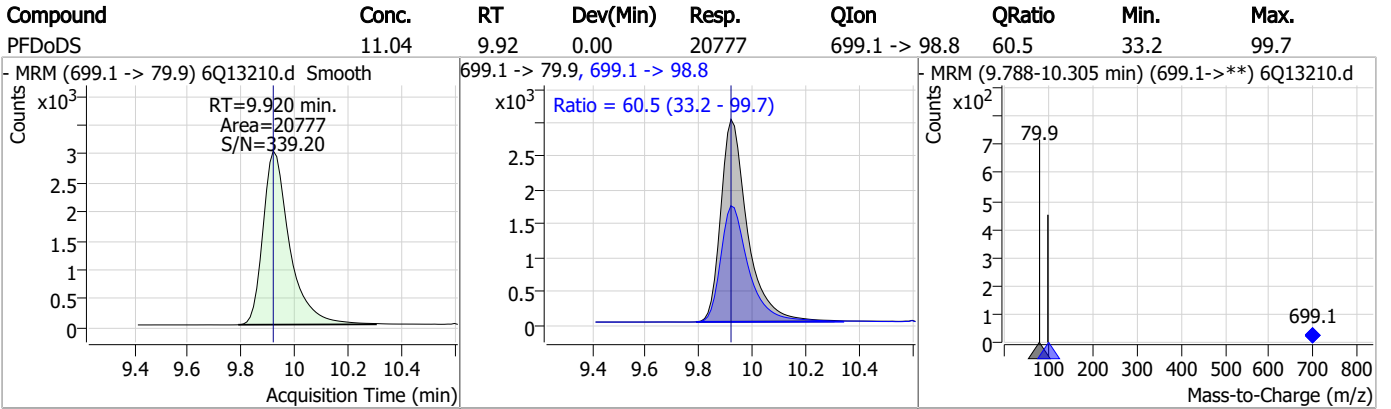
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.37	9.79	0.01	16030				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	13.57	9.78	0.00	234603	713.1 -> 168.9	6.5	3.1	9.3



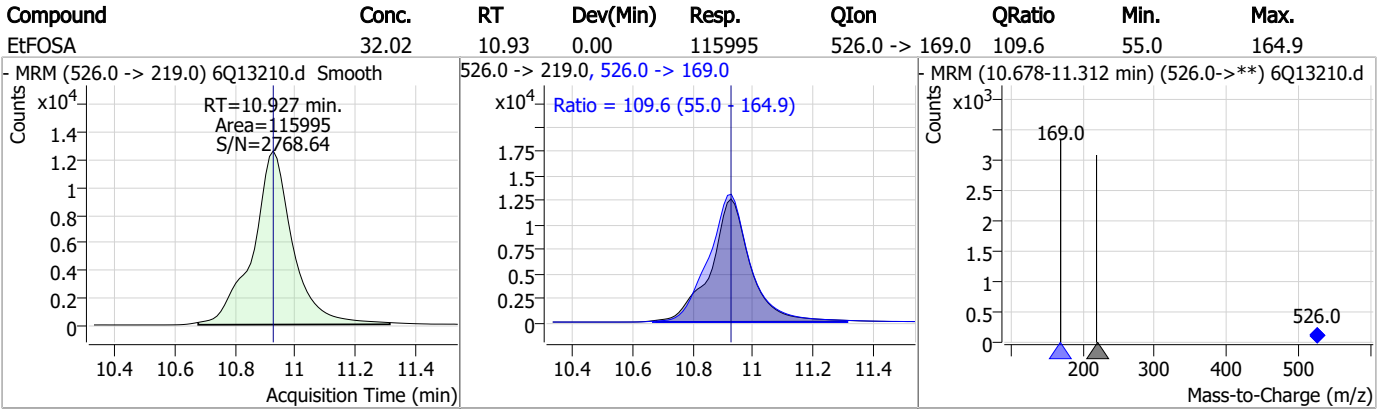
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	31.24	10.68	0.00	101813	511.9 -> 169.0	120.1	59.4	178.3
- MRM (511.9 -> 219.0) 6Q13210.d Smooth			511.9 -> 219.0, 511.9 -> 169.0			- MRM (10.422-11.067 min) (511.9->**) 6Q13210.d		
d9-EtFOSE	20.43	10.85	0.00	17145				
- MRM (639.2 -> 58.9) 6Q13210.d Smooth			639.2 -> 58.9			- MRM (10.686-11.232 min, 45 scans) (639.2 -> **) 6Q13210.d		
EtFOSE	142.01	10.86	0.00	104210				
- MRM (630.0 -> 58.9) 6Q13210.d Smooth			630.0 -> 58.9			- MRM (10.711-11.246 min, 44 scans) (630.0 -> **) 6Q13210.d		
d5-EtFOSA	2.32	10.92	0.00	7589				
- MRM (531.1 -> 219.0) 6Q13210.d Smooth			531.1 -> 219.0			- MRM (10.781-11.310 min, 43 scans) (531.1 -> **) 6Q13210.d		

Perfluorinated Compounds by LC/MS/MS



7.6.6

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Manual Integration Approval Summary

Sample Number: S6Q202-RT Method: EPA DRAFT 1633
Lab FileID: 6Q13210.D Analyst approved: 02/08/23 15:18 Martha Valls
Injection Time: 02/08/23 10:19 Supervisor approved: 02/08/23 15:53 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.15	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.26	Split peak
Perfluorononanoic acid	375-95-1		7.67	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak

7.6.6.1

7

QQQ Check Tune Report



Instrument Name LCMS Q6
MS Model G6495B
MS Instrument Serial SG1752D103
Software_Firmware Version 10.1.67, FW: A.00.08.112
Tune Date & Time 30 January 2023 11:45:11
File Path D:\MassHunter\Tune\QQQ\G6495B\atunes.tune.xml
Ion Source AJS ESI
Ionization Mode AJS ESI
Tuned Resolution All
Vacuum Pressure 1.84E+0 [R] (Torr); 2.93E-5 [H] (Torr)

Source Parameters

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

7.7.1

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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	112.93	-0.06	Pass	0.70	0.78	0.08	Pass	79980
302.00	301.95	-0.05	Pass	0.70	0.74	0.04	Pass	474779
601.98	601.97	-0.01	Pass	0.70	0.70	0.00	Pass	2207267
1033.99	1033.89	-0.10	Pass	0.70	0.76	0.06	Pass	547405
1633.95	1633.90	-0.05	Pass	0.70	0.81	0.11	Pass	312655
2233.91	2233.90	-0.01	Pass	0.70	0.75	0.05	Pass	72207

Analyzer: MS2 Polarity: Negative Width: Unit

m/z	m/z	Delta	Result	FWHM	FWHM	Delta	Result	Abundance
Expected	Measured			Expected	Measured			
69.00	69.05	0.05	Pass	0.70	0.63	-0.07	Pass	60369
112.99	112.95	-0.04	Pass	0.70	0.70	0.00	Pass	85414
302.00	302.00	0.00	Pass	0.70	0.68	-0.02	Pass	338144
601.98	602.01	0.03	Pass	0.70	0.67	-0.03	Pass	1732819
1033.99	1033.92	-0.07	Pass	0.70	0.72	0.02	Pass	776077
1633.95	1633.91	-0.04	Pass	0.70	0.74	0.04	Pass	786552
2233.91	2233.84	-0.07	Pass	0.70	0.78	0.08	Pass	168005

Analyzer: MS1 Polarity: Negative Width: Wide

m/z	m/z	Delta	Result	FWHM	FWHM	Delta	Result	Abundance
Expected	Measured			Expected	Measured			
112.99	112.96	-0.03	Pass	1.20	1.47	0.27	Pass	101053
302.00	301.98	-0.02	Pass	1.20	1.55	0.35	Pass	671153
601.98	601.88	-0.10	Pass	1.20	1.57	0.37	Pass	3115923
1033.99	1033.82	-0.17	Pass	1.20	1.63	0.43	Pass	795986
1633.95	1633.83	-0.12	Pass	1.20	1.38	0.18	Pass	531980
2233.91	2233.81	-0.10	Pass	1.20	1.21	0.01	Pass	137935

Analyzer: MS2 Polarity: Negative Width: Wide

m/z	m/z	Delta	Result	FWHM	FWHM	Delta	Result	Abundance
Expected	Measured			Expected	Measured			
69.00	69.01	0.01	Pass	1.20	1.08	-0.12	Pass	90381
112.99	112.96	-0.03	Pass	1.20	1.22	0.02	Pass	139617
302.00	302.03	0.03	Pass	1.20	1.00	-0.20	Pass	670106
601.98	601.98	0.00	Pass	1.20	1.32	0.12	Pass	3095385
1033.99	1033.98	-0.01	Pass	1.20	1.43	0.23	Pass	1697938
1633.95	1633.88	-0.07	Pass	1.20	1.47	0.27	Pass	1992575
2233.91	2233.85	-0.06	Pass	1.20	1.31	0.11	Pass	578469

Analyzer: MS1 Polarity: Negative Width: Widest

m/z	m/z	Delta	Result	FWHM	FWHM	Delta	Result	Abundance
Expected	Measured			Expected	Measured			
112.99	112.94	-0.05	Pass	2.50	2.73	0.23	Pass	118951
302.00	301.84	-0.16	Pass	2.50	2.87	0.37	Pass	740775
601.98	601.68	-0.30	Pass	2.50	2.86	0.36	Pass	4197725
1033.99	1033.76	-0.23	Pass	2.50	2.66	0.16	Pass	1481977
1633.95	1633.76	-0.19	Pass	2.50	2.67	0.17	Pass	1117275
2233.91	2233.57	-0.34	Pass	2.50	2.45	-0.05	Pass	419484

Analyzer: MS2 Polarity: Negative Width: Widest

m/z	m/z	Delta	Result	FWHM	FWHM	Delta	Result	Abundance
Expected	Measured			Expected	Measured			
69.00	69.02	0.02	Pass	2.50	2.46	-0.04	Pass	110565
112.99	112.98	-0.01	Pass	2.50	2.58	0.08	Pass	177647
302.00	301.98	-0.02	Pass	2.50	2.58	0.08	Pass	789350
601.98	601.95	-0.03	Pass	2.50	2.69	0.19	Pass	4593649
1033.99	1033.91	-0.08	Pass	2.50	2.98	0.48	Pass	3299810
1633.95	1633.97	0.02	Pass	2.50	2.73	0.23	Pass	3398287
2233.91	2233.77	-0.14	Pass	2.50	2.50	0.00	Pass	1335289

7.7.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12723.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/1/2023 5:51:17 PM
 Sample Name : ic196-1
 Vial : P1-A2
 DA Method File : 1633_020223_S6Q196.quantmethod.xml
 Batch Name : S6Q196.batch.bin
 Sample Information : OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.975	216.8 -> 171.9	75677	10.00 µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	39050	5.00 µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	35228	2.50 µg/L	-0.012
M4-PFHpA	6.502	367.1 -> 322.0	35062	2.50 µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	66602	2.50 µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	27605	1.25 µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	18891	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	22795	1.25 µg/L	0.000
M2-PFDoDA	9.078	615.1 -> 570.0	24517	1.25 µg/L	0.000
M2-PFTeDA	9.805	715.2 -> 670.0	14260	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	17010	2.50 µg/L	-0.012
M3-PFBS	5.518	302.1 -> 79.9	13615	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	8417	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8616	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2340	5.00 µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	3069	5.00 µg/L	-0.012
M2-8:2FTS	7.957	529.1 -> 80.9	2912	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	29710	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	14102	10.00 µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	24344	5.00 µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	30414	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	20284	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7884	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7168	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	10948	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	34538	5.00 µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	6617	2.50 µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	76742	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	26145	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	32069	1.25 µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	34127	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.240	329.1 -> 80.9	2340	5.44 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.8%		
13C2-6:2FTS	6.908	429.1 -> 80.9	3069	5.38 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.5%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2912	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C2-PFDoDA	9.078	615.1 -> 570.0	24517	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C2-PFTeDA	9.805	715.2 -> 670.0	14260	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C3-PFBS	5.518	302.1 -> 79.9	13615	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C3-PFHxS	7.274	402.1 -> 79.9	8417	2.42 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 = 96.8%		
13C4-PFBA	2.975	216.8 -> 171.9	75677	9.87 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C4-PFHpA	6.502	367.1 -> 322.0	35062	2.49 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C5-PFHxA	5.563	318.0 -> 273.0	35228	2.61 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C5-PFPeA	4.386	268.3 -> 223.0	39050	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C6-PFDA	8.170	519.1 -> 474.1	18891	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.9%		
13C7-PFUnDA	8.636	570.0 -> 525.1	22795	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.8%		
13C8-FOSA	9.555	506.1 -> 77.8	17010	2.39 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.4%		
13C8-PFOA	7.146	421.1 -> 376.0	66602	2.60 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.0%		
13C8-PFOS	8.345	507.1 -> 79.9	8616	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.8%		
13C9-PFNA	7.677	472.1 -> 427.0	27605	1.22 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.8%		
d3-MeFOSAA	8.215	573.2 -> 419.0	29710	4.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	14102	10.11 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.1%		
d3-MeFOSA	10.680	515.0 -> 219.0	7168	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.3%		
d5-EtFOSAA	8.410	589.2 -> 419.0	24344	4.89 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.8%		
d7-MeFOSE	10.589	623.2 -> 58.9	30414	24.47 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 97.9%		
d9-EtFOSE	10.847	639.2 -> 58.9	20284	23.68 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 94.7%		
d5-EtFOSA	10.925	531.1 -> 219.0	7884	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.4%		
Target Compounds					QValue
4:2FTS	5.240	327.1 -> 307.0	3927	0.75 µg/L	98
		327.1 -> 80.9	826		
6:2FTS	6.908	427.1 -> 407.0	3528	0.78 µg/L	95
		427.1 -> 80.9	742		
8:2FTS	7.945	527.1 -> 507.0	2183	0.97 µg/L	97
		527.1 -> 80.8	495		
EtFOSAA	8.424	584.2 -> 419.1	884	0.23 µg/L	m 93
		584.2 -> 526.0	377		
FOSA	9.557	498.1 -> 77.9	1482	0.22 µg/L	95
		498.1 -> 478.0	39		
MeFOSAA	8.216	570.1 -> 419.0	1150	0.21 µg/L	m 99
		570.1 -> 483.0	171		
PFBA	2.982	212.8 -> 168.9	1378	0.82 µg/L	100
PFBS	5.518	298.7 -> 79.9	980	0.19 µg/L	98
		298.7 -> 98.8	443		
PFDA	8.170	512.9 -> 469.0	4295	0.20 µg/L	99
		512.9 -> 219.0	625		
PFDODA	9.079	613.1 -> 569.0	4264	0.24 µg/L	94
		613.1 -> 319.0	428		
PFDS	9.241	599.0 -> 79.9	685	0.23 µg/L	87

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	283			
PFHpA	6.503	363.1 -> 319.0	4629	0.22	µg/L	97
		363.1 -> 169.0	637			
PFHpS	7.841	449.0 -> 79.9	690	0.19	µg/L	82
		449.0 -> 98.9	473			
PFHxA	5.566	313.0 -> 269.0	3024	0.22	µg/L	98
		313.0 -> 118.9	150			
PFHxS	7.275	398.7 -> 79.9	729	0.19	µg/L	m 88
		398.7 -> 98.9	397			
PFNA	7.677	463.0 -> 419.0	4075	0.22	µg/L	98
		463.0 -> 219.0	741			
PFNS	8.811	548.8 -> 79.9	732	0.19	µg/L	89
		548.8 -> 98.9	476			
PFOA	7.148	413.0 -> 369.0	5822	0.20	µg/L	98
		413.0 -> 169.0	829			
PFOS	8.334	498.9 -> 79.9	760	0.19	µg/L	m 77
		498.9 -> 98.8	503			
PFPeA	4.388	263.0 -> 219.0	3404	0.41	µg/L	100
PFPeS	6.581	349.1 -> 79.9	916	0.21	µg/L	95
		349.1 -> 98.9	500			
PFTeDA	9.806	713.1 -> 669.0	3198	0.21	µg/L	98
		713.1 -> 168.9	238			
PFTrDA	9.462	663.0 -> 619.0	3530	0.21	µg/L	98
		663.0 -> 168.9	303			
PFUnDA	8.637	563.1 -> 519.0	3697	0.21	µg/L	100
		563.1 -> 269.1	501			
11Cl-PF3OUdS	9.514	630.9 -> 450.9	8030	0.79	µg/L	95
		632.9 -> 452.9	2679			
9Cl-PF3ONS	8.688	530.8 -> 351.0	12870	0.75	µg/L	96
		532.8 -> 353.0	3839			
ADONA	6.753	376.9 -> 250.9	25071	0.82	µg/L	97
		376.9 -> 84.8	5287			
HFPO-DA	5.940	284.9 -> 168.9	969	0.73	µg/L	94
		284.9 -> 184.9	106			
3:3FTCA	3.841	241.0 -> 177.0	392	0.97	µg/L	100
		241.0 -> 117.0	58			
5:3FTCA	6.193	341.0 -> 237.1	13499	4.67	µg/L	94
		341.0 -> 217.0	12556			
7:3FTCA	7.605	441.0 -> 316.9	9740	5.16	µg/L	78
		441.0 -> 336.9	17111			
EtFOSA	10.927	526.0 -> 219.0	759	0.20	µg/L	97
		526.0 -> 169.0	718			
EtFOSE	10.860	630.0 -> 58.9	1847	2.13	µg/L	100
MeFOSA	10.682	511.9 -> 219.0	581	0.19	µg/L	81
		511.9 -> 169.0	697			
MeFOSE	10.602	616.1 -> 58.9	2552	2.10	µg/L	100
PFDoDS	9.945	699.1 -> 79.9	371	0.21	µg/L	96
		699.1 -> 98.8	208			
NFDHA	5.445	295.0 -> 201.0	349	0.43	µg/L	98
		295.0 -> 84.9	185			
PFMBA	4.800	279.0 -> 85.1	941	0.41	µg/L	100
PFMPA	3.541	229.0 -> 84.9	905	0.41	µg/L	100
PFEESA	6.059	314.8 -> 134.9	7201	0.36	µg/L	98
		314.8 -> 82.9	125			

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

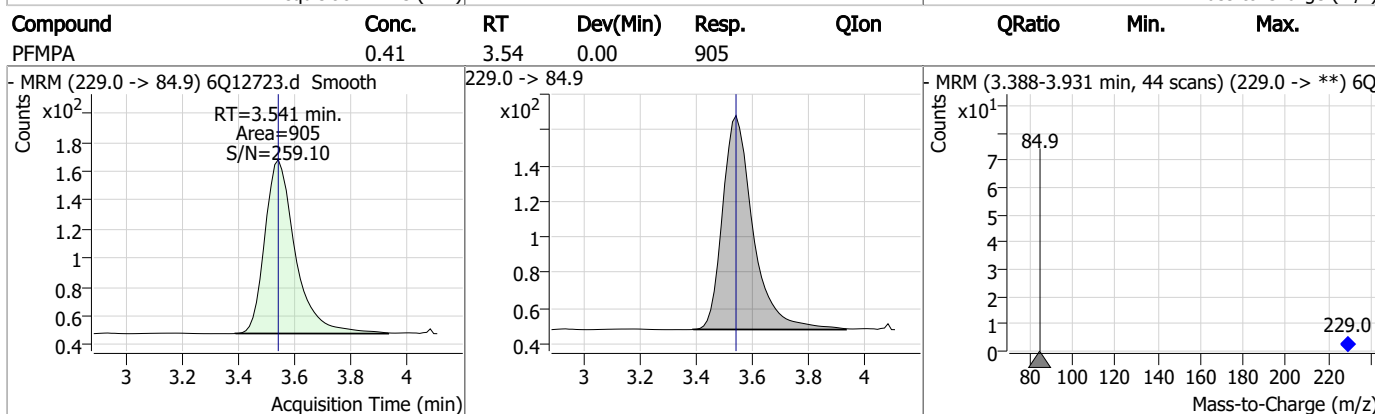
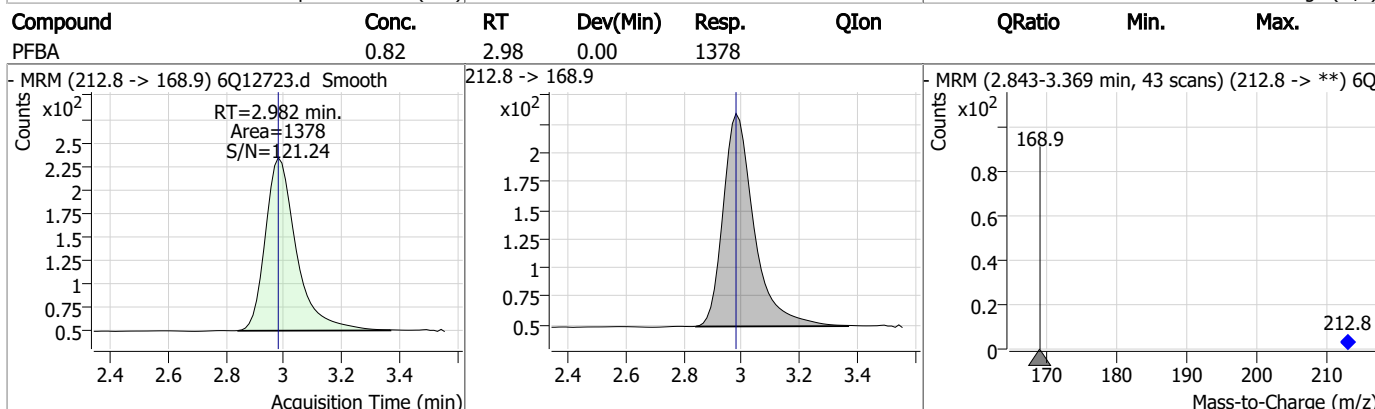
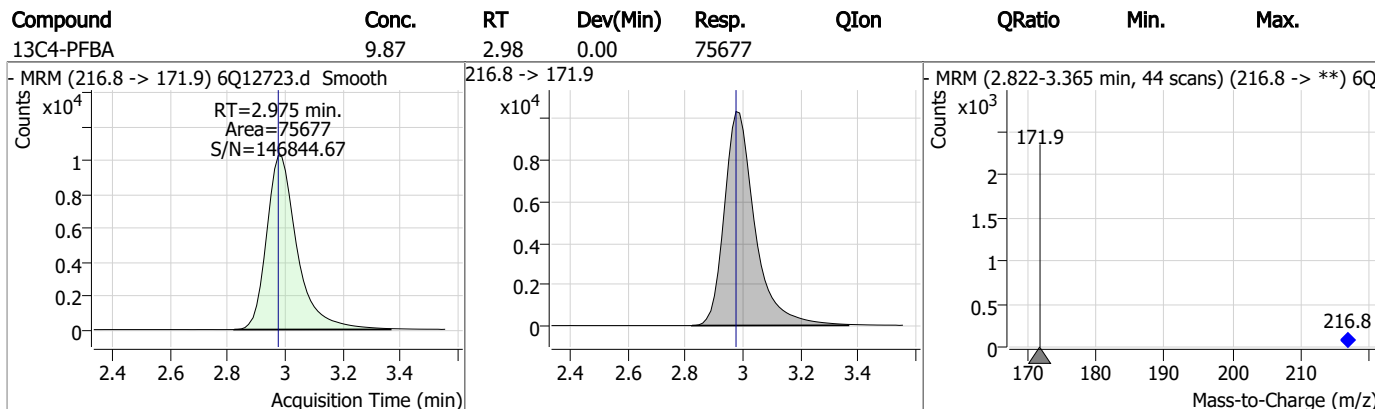
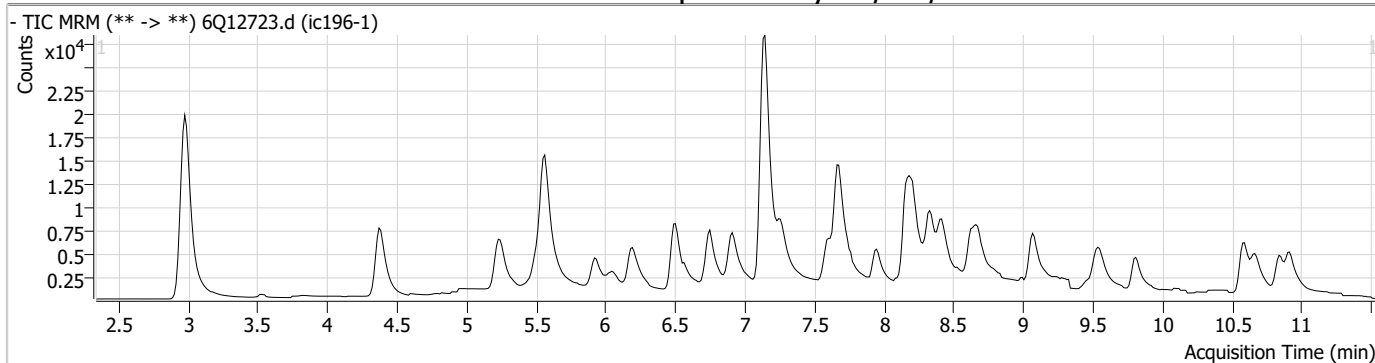
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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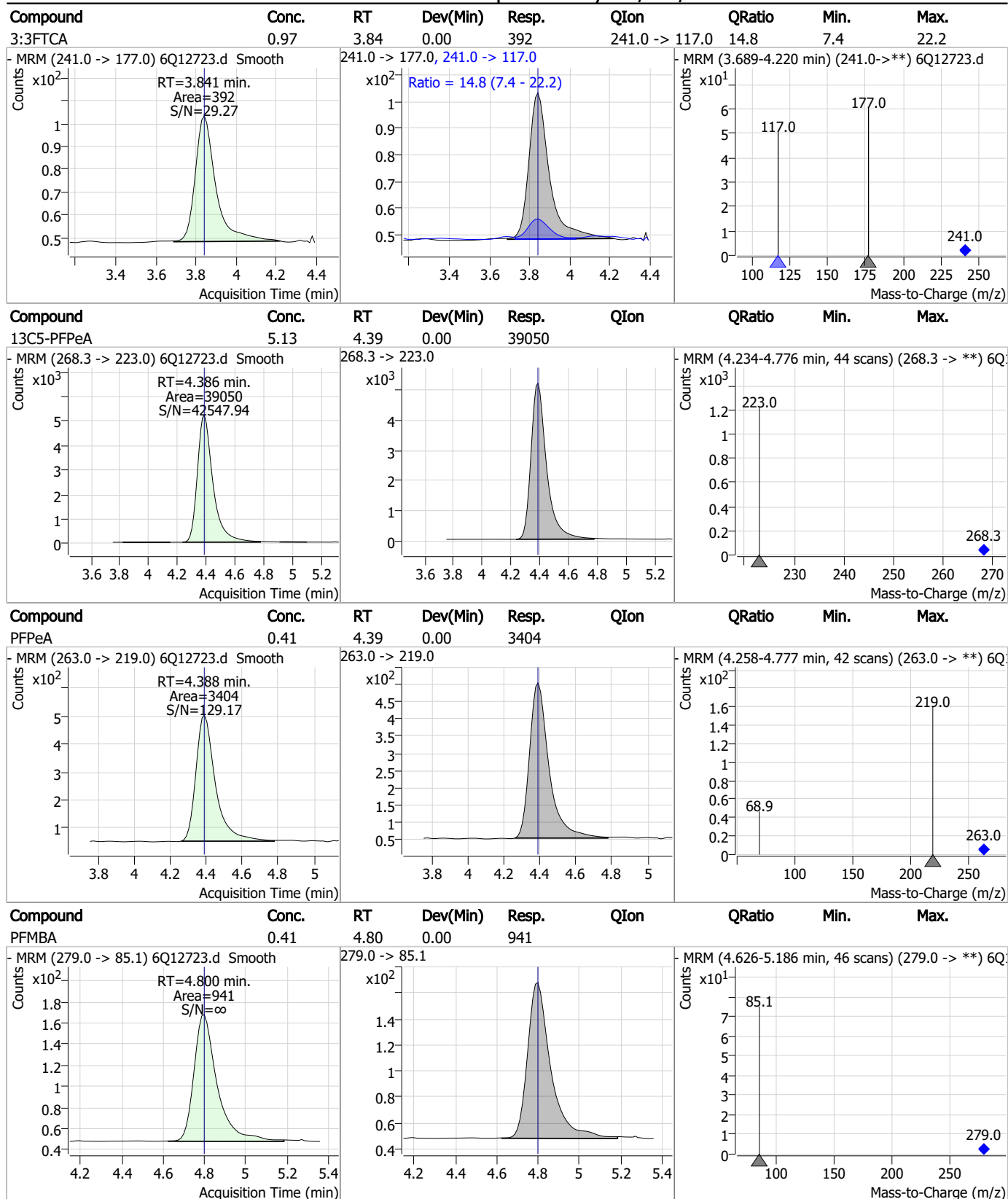
7.7.2
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Perfluorinated Compounds by LC/MS/MS



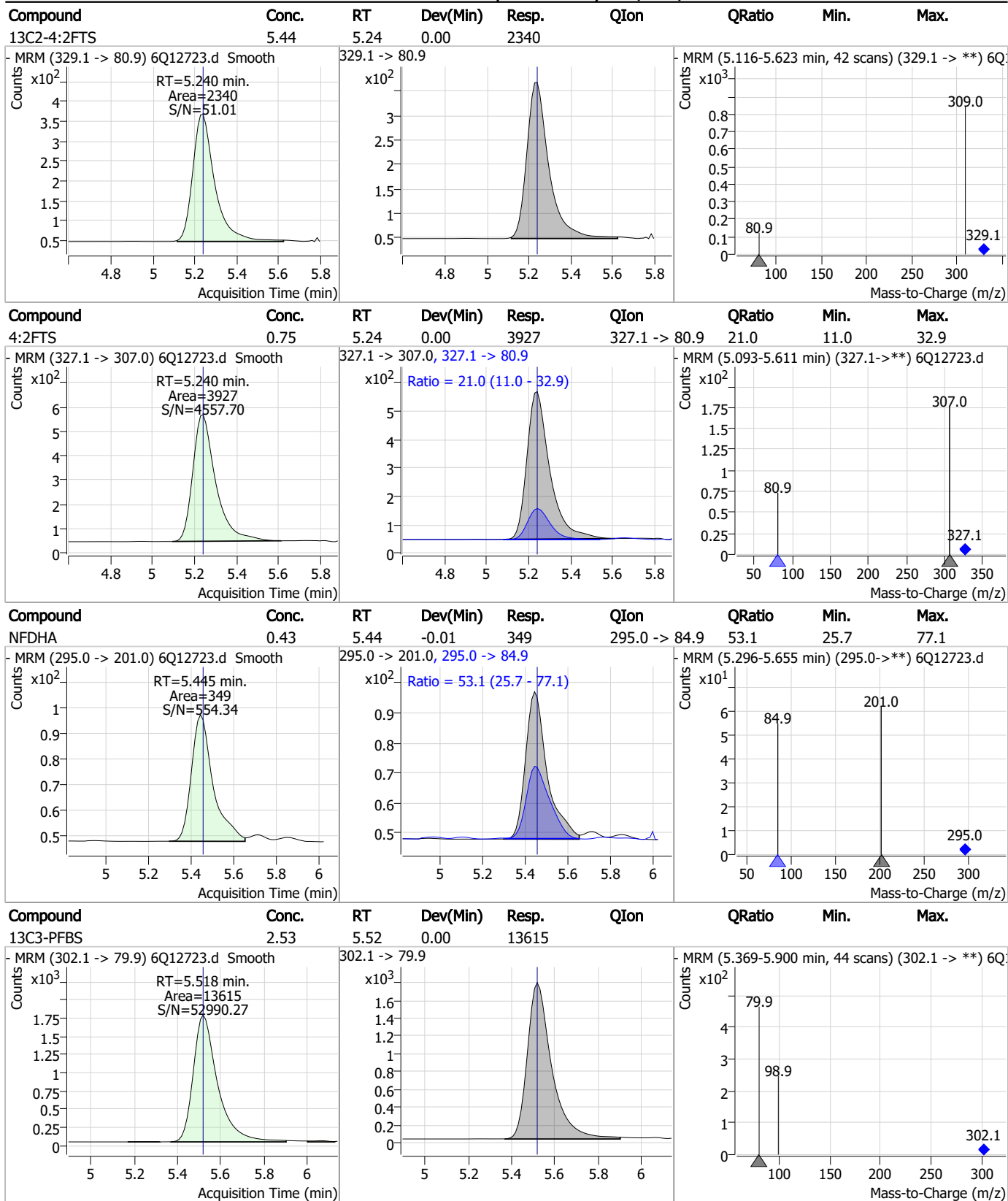
Perfluorinated Compounds by LC/MS/MS



7.7.2
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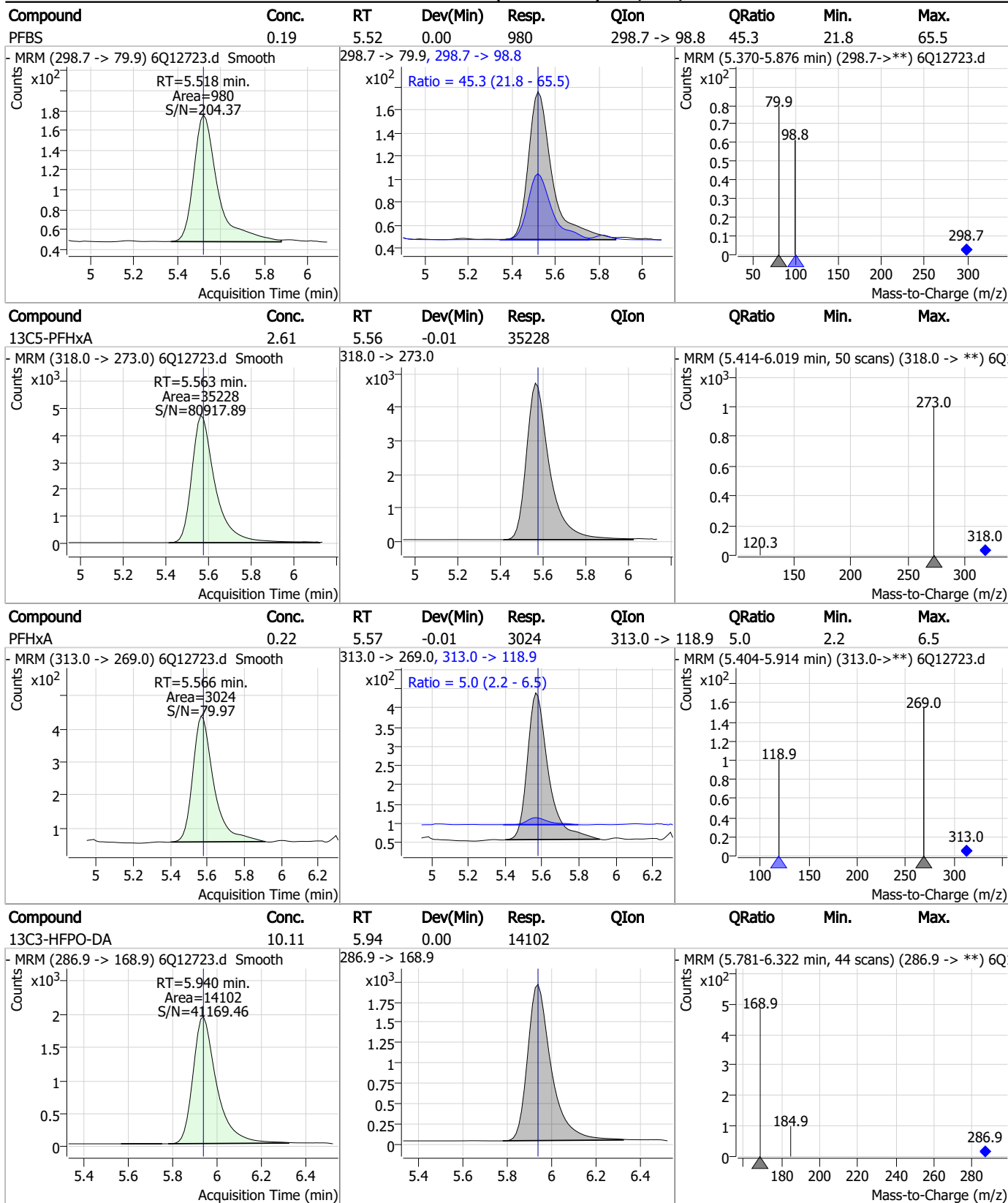


Perfluorinated Compounds by LC/MS/MS



7.7.2
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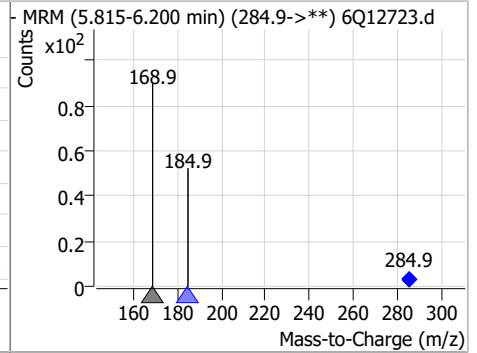
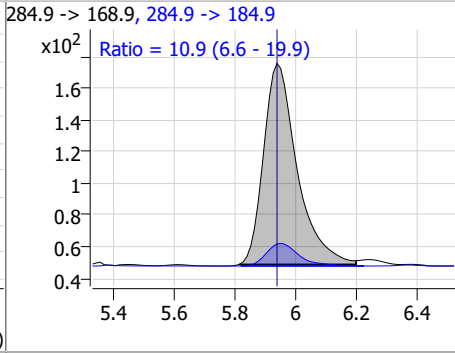
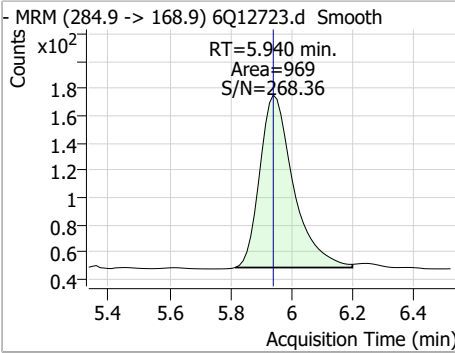
Perfluorinated Compounds by LC/MS/MS



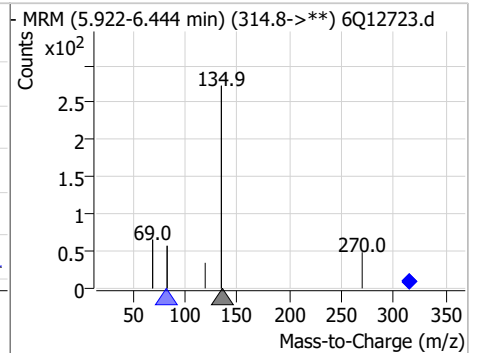
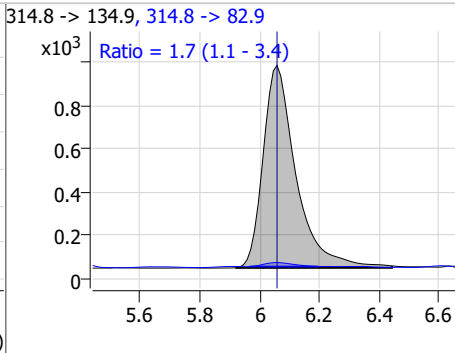
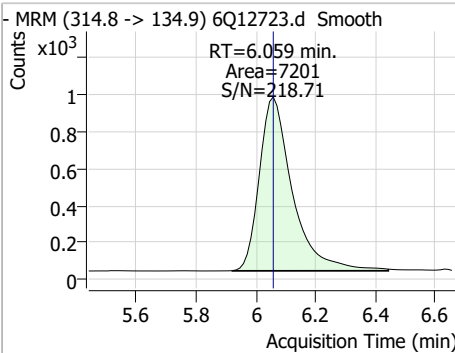
7.7.2
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Perfluorinated Compounds by LC/MS/MS

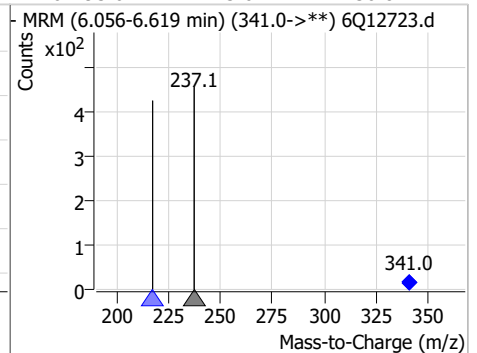
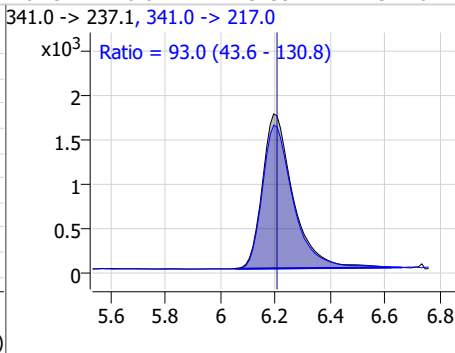
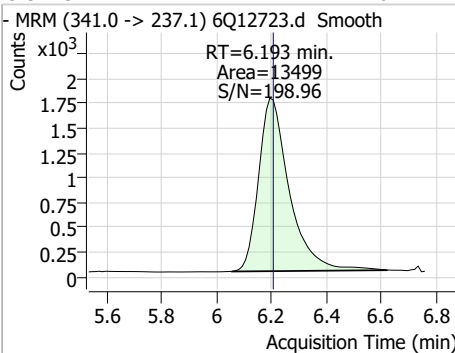
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.73	5.94	0.00	969	284.9 -> 184.9	10.9	6.6	19.9



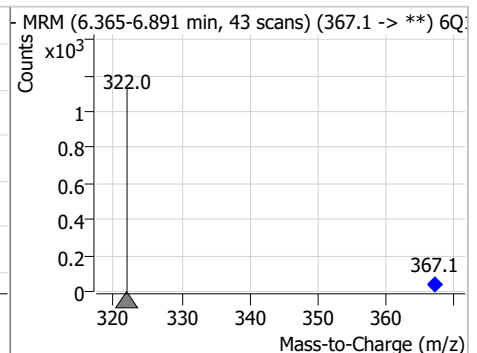
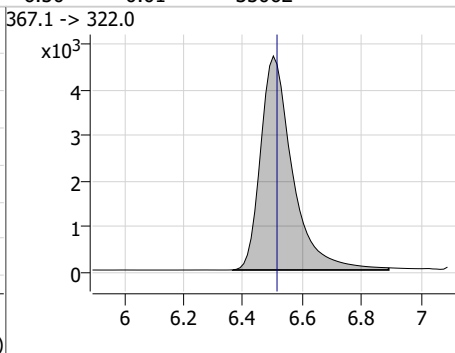
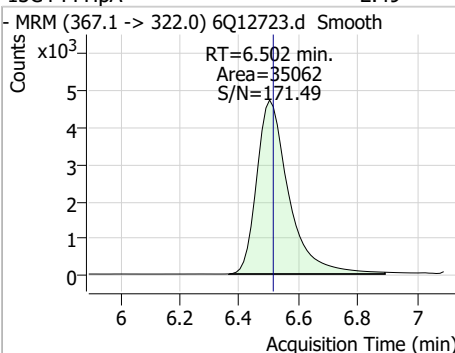
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.36	6.06	0.00	7201	314.8 -> 82.9	1.7	1.1	3.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	4.67	6.19	-0.01	13499	341.0 -> 217.0	93.0	43.6	130.8



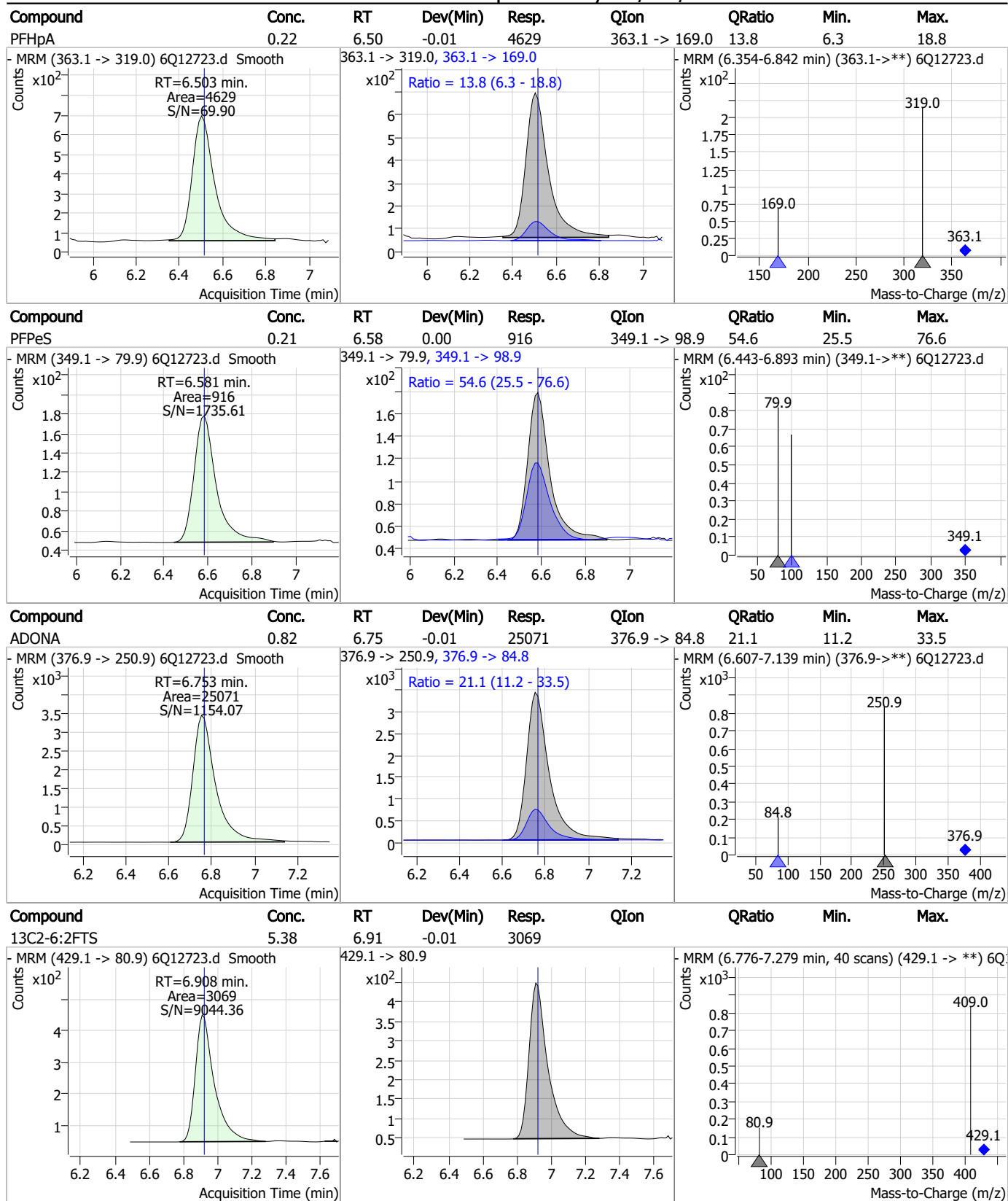
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.49	6.50	-0.01	35062	367.1 -> 322.0			



7.7.2

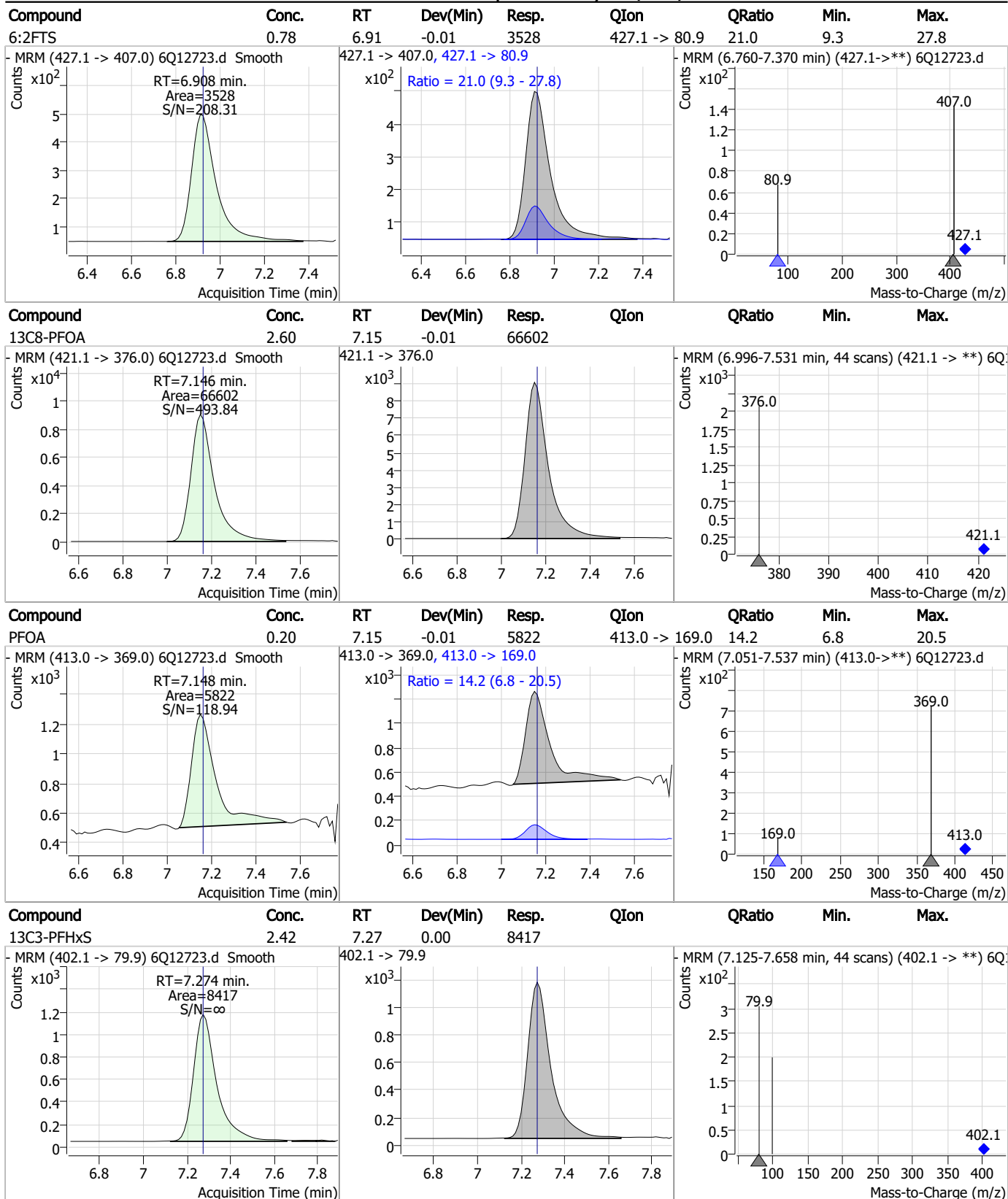
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Perfluorinated Compounds by LC/MS/MS



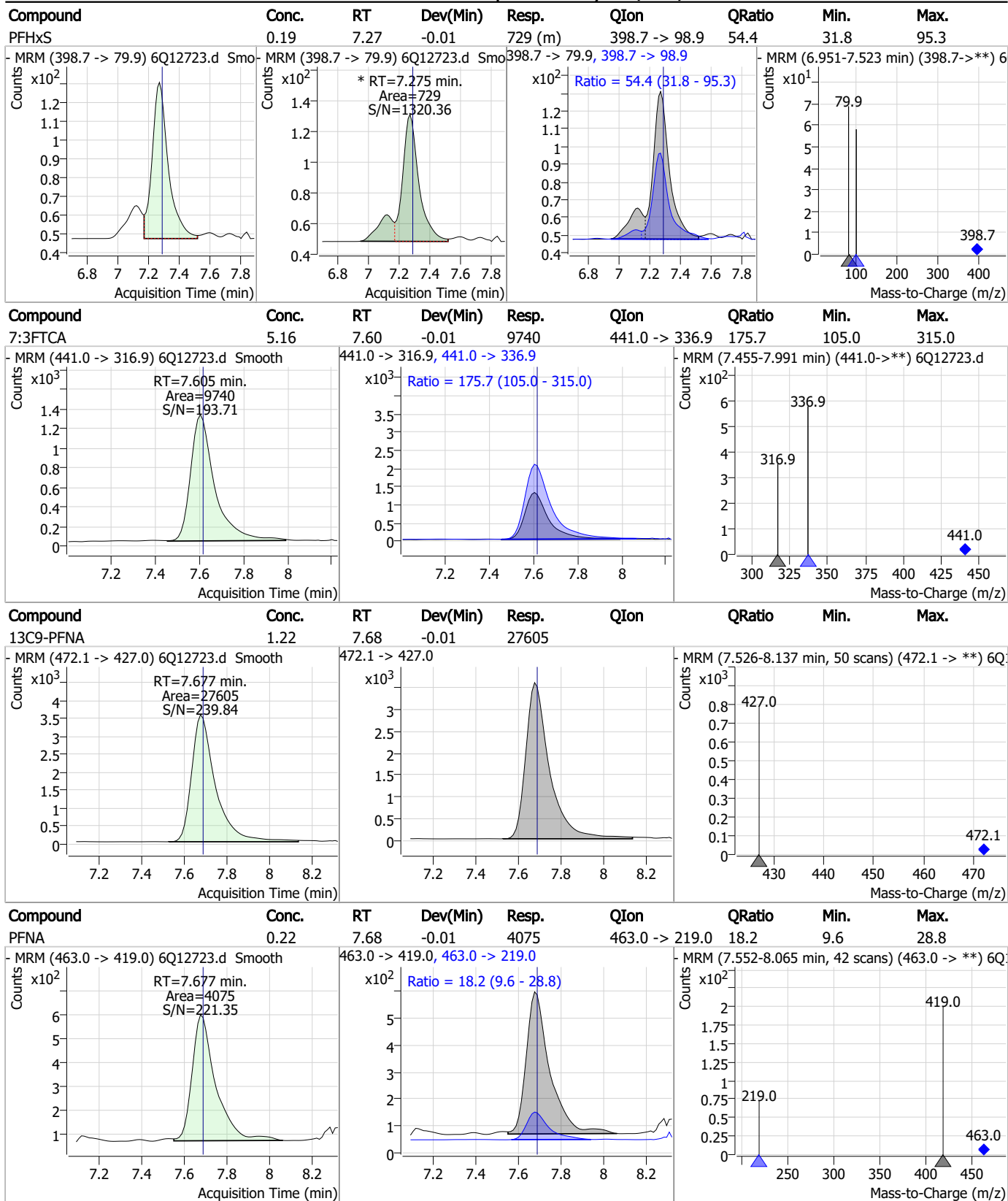
7.7.2
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Perfluorinated Compounds by LC/MS/MS



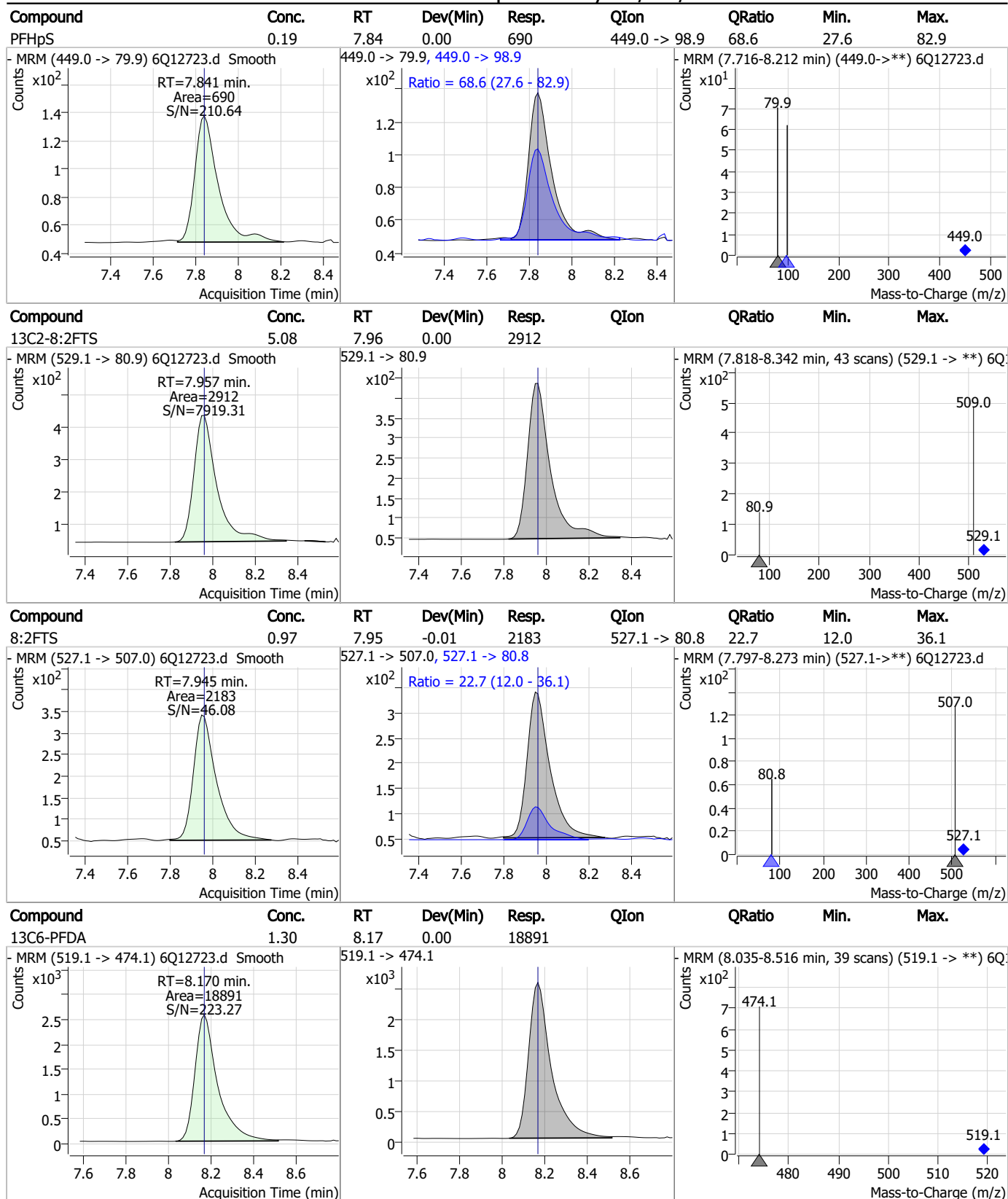
7.7.2
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Perfluorinated Compounds by LC/MS/MS



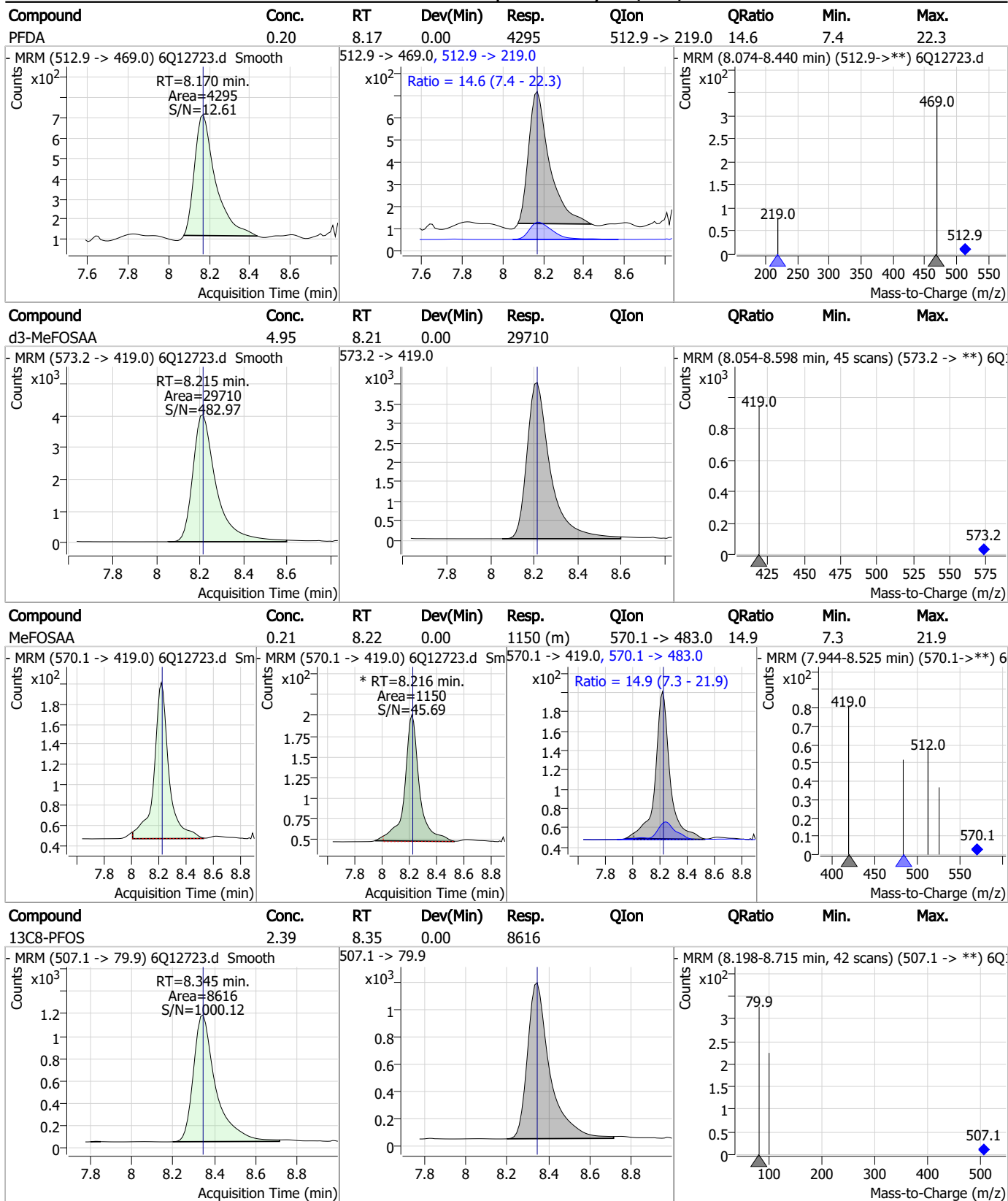
7.7.2
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Perfluorinated Compounds by LC/MS/MS



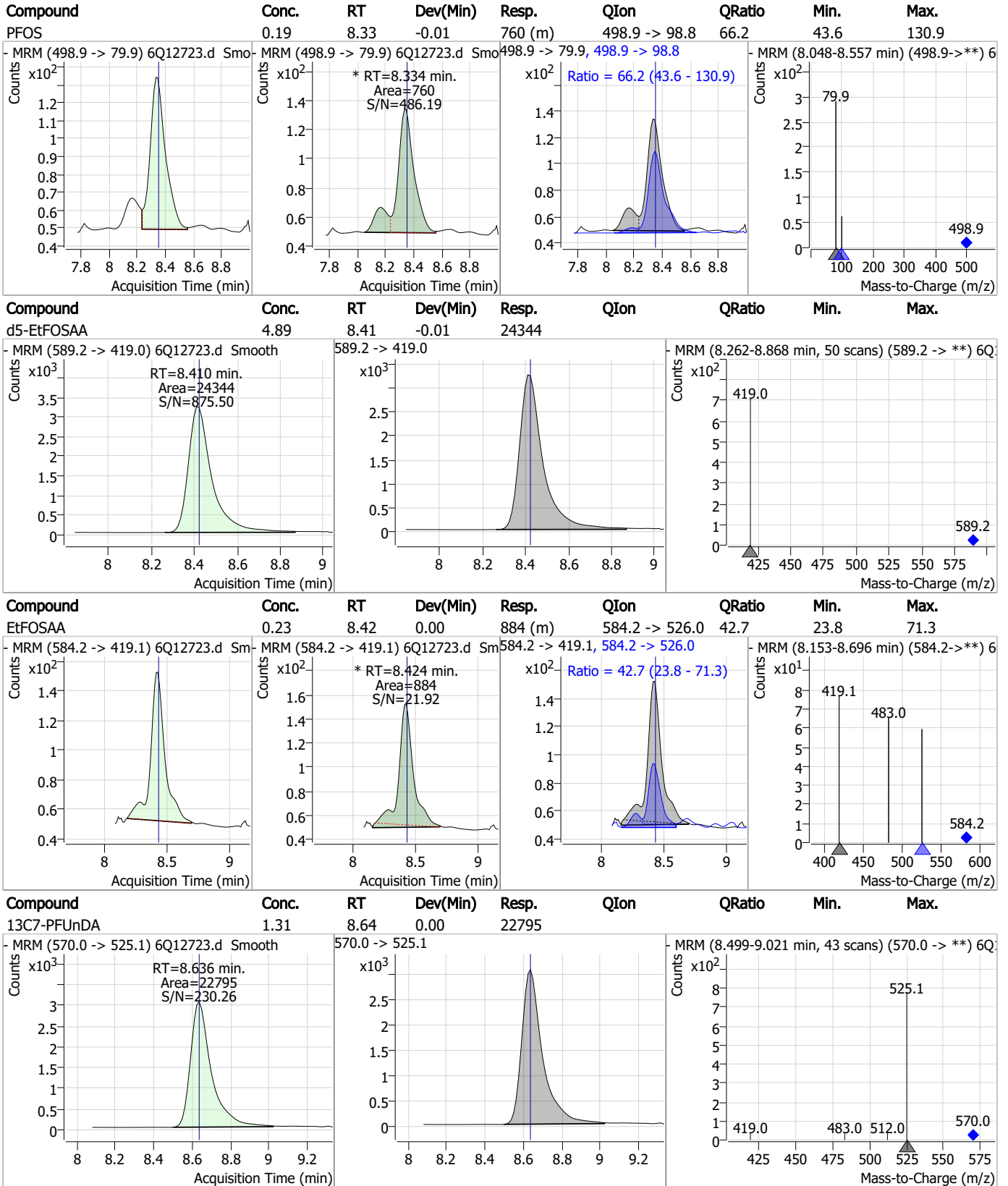
7.7.2
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Perfluorinated Compounds by LC/MS/MS

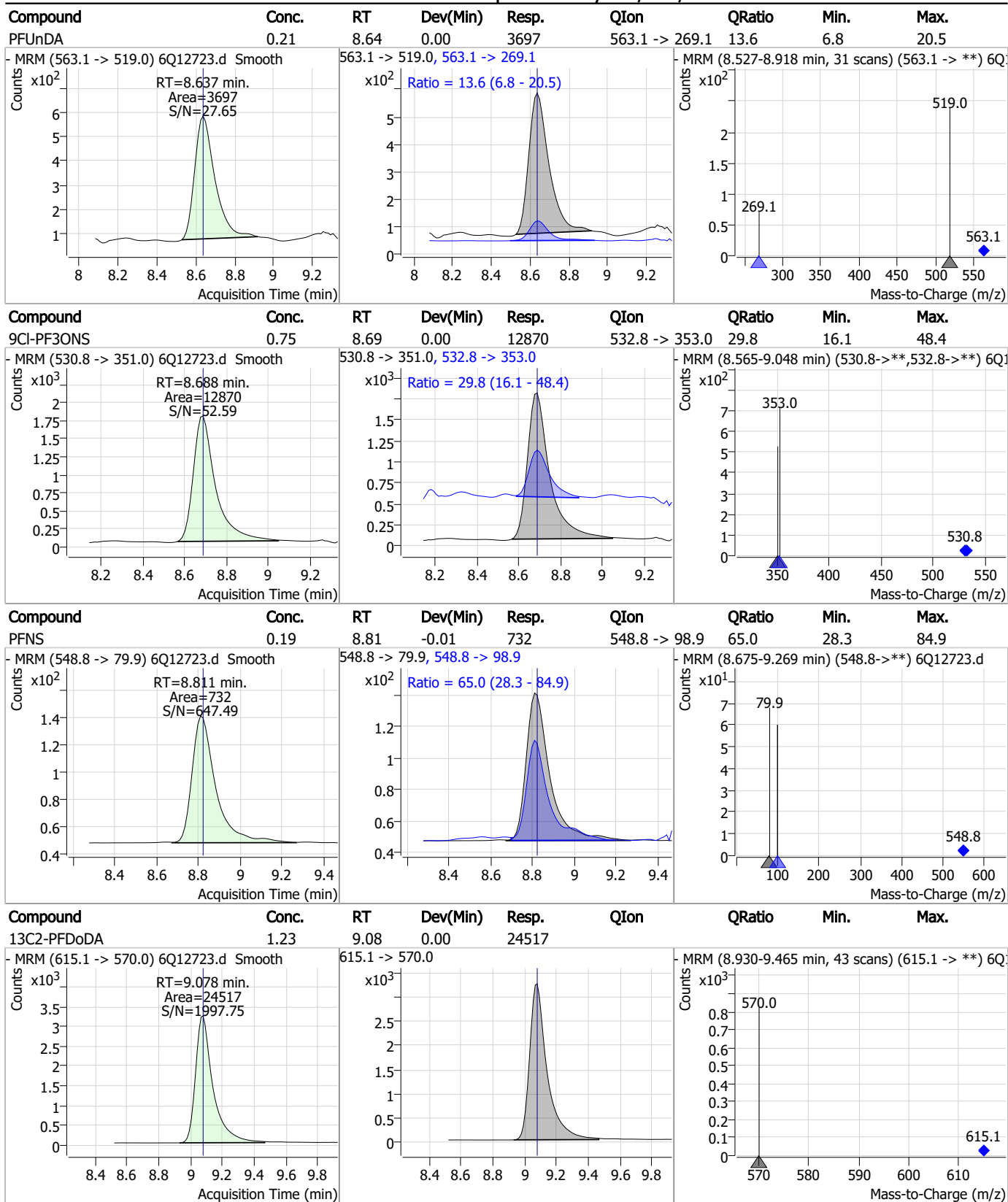


7.7.2
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Perfluorinated Compounds by LC/MS/MS



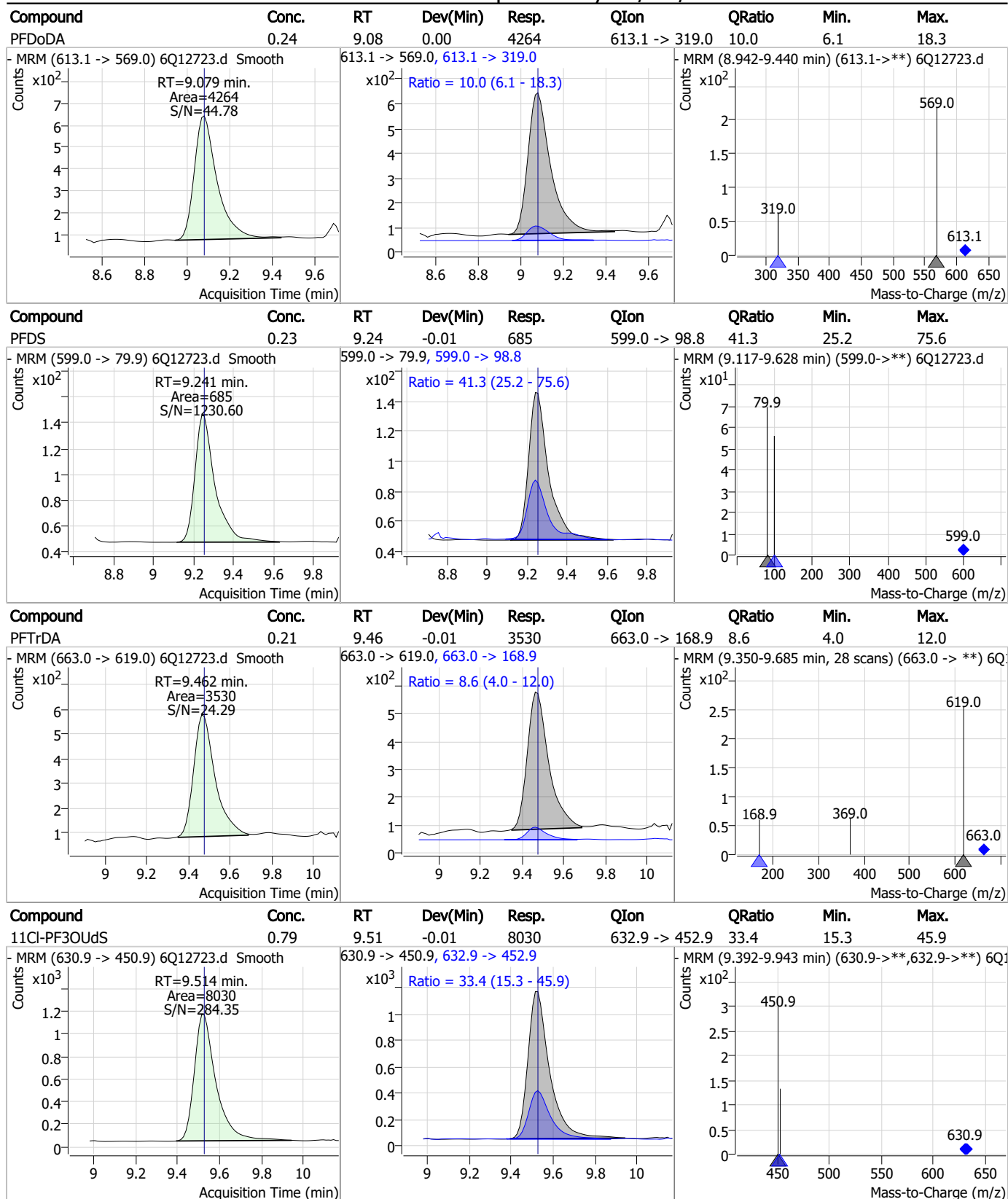
Perfluorinated Compounds by LC/MS/MS



7.7.2

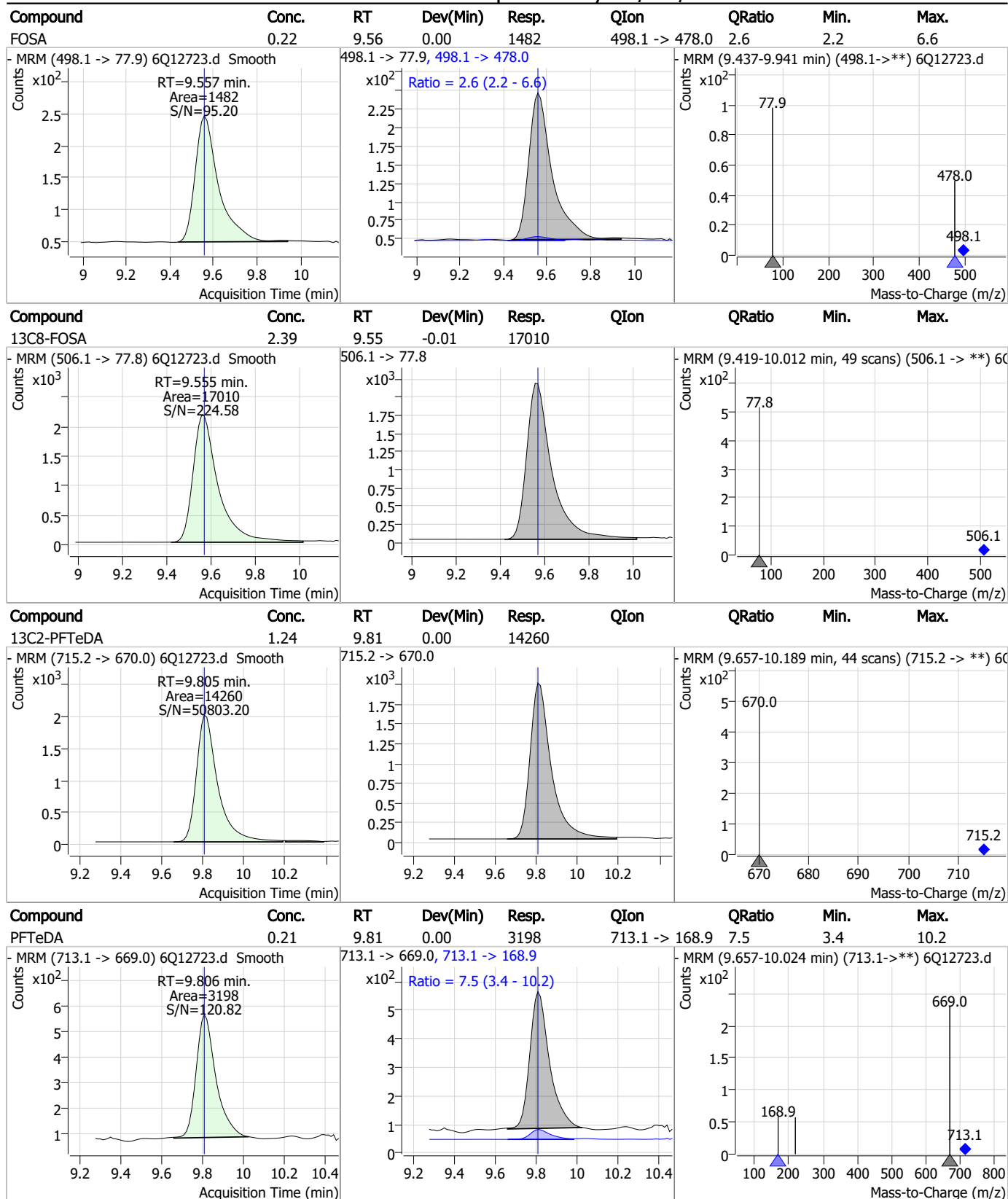
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Perfluorinated Compounds by LC/MS/MS



7.7.2
7

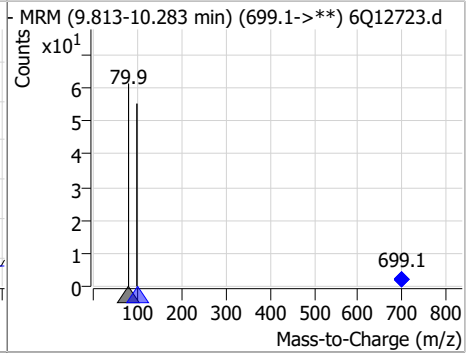
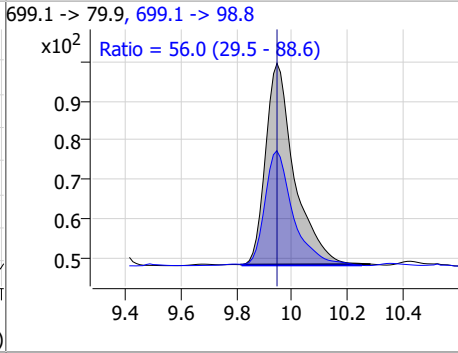
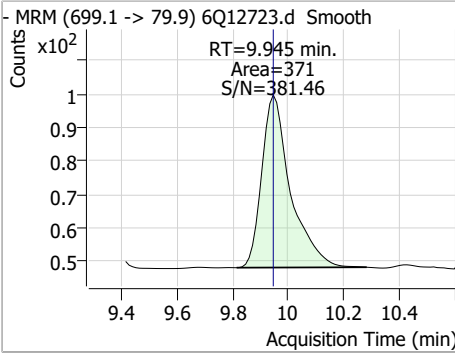
Perfluorinated Compounds by LC/MS/MS



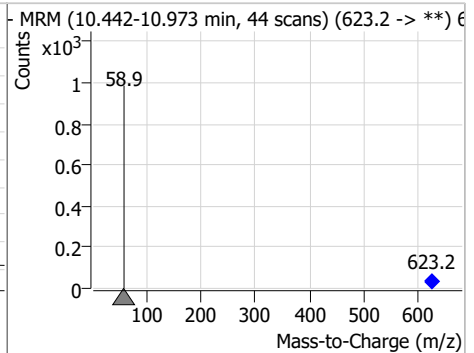
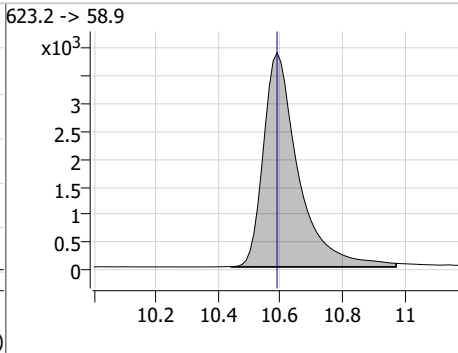
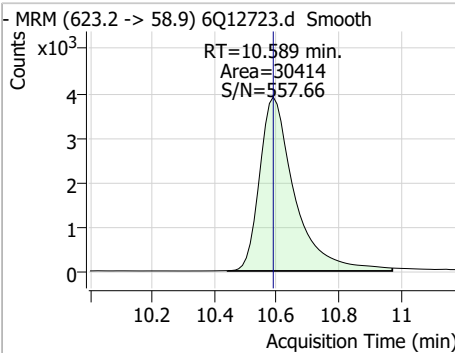
7.7.2
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Perfluorinated Compounds by LC/MS/MS

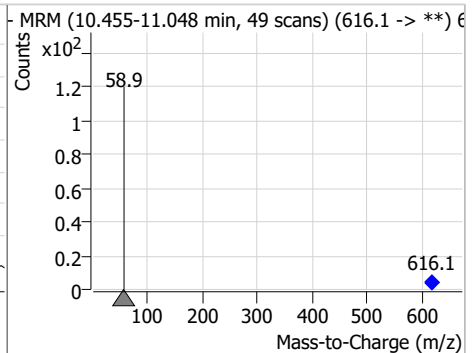
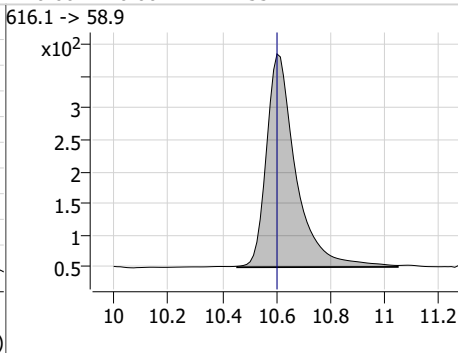
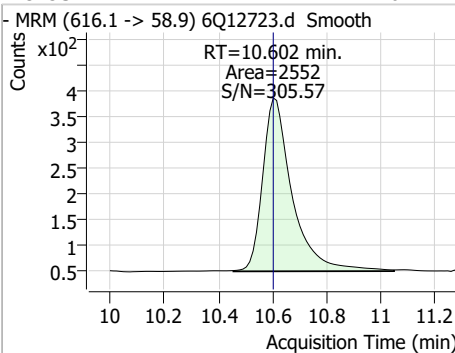
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.21	9.95	0.00	371	699.1 -> 98.8	56.0	29.5	88.6



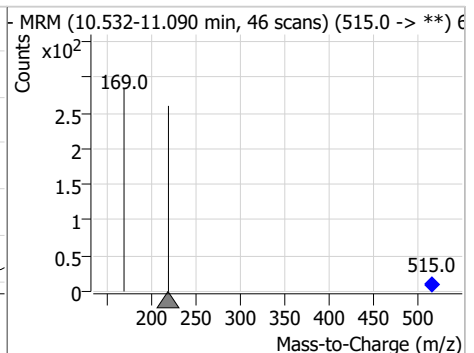
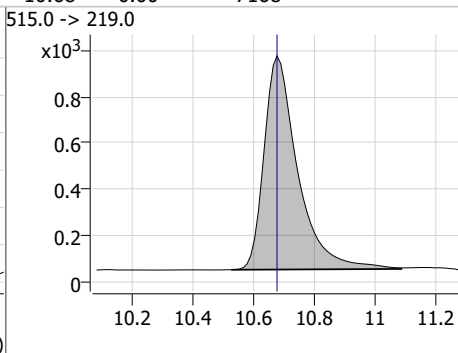
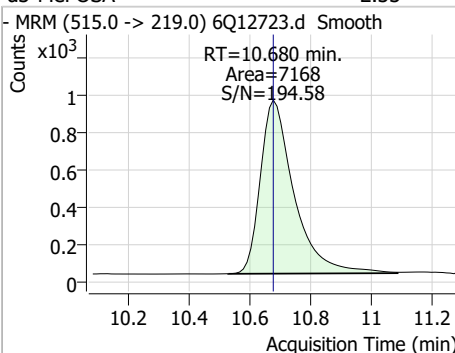
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.47	10.59	0.00	30414	623.2 -> 58.9			



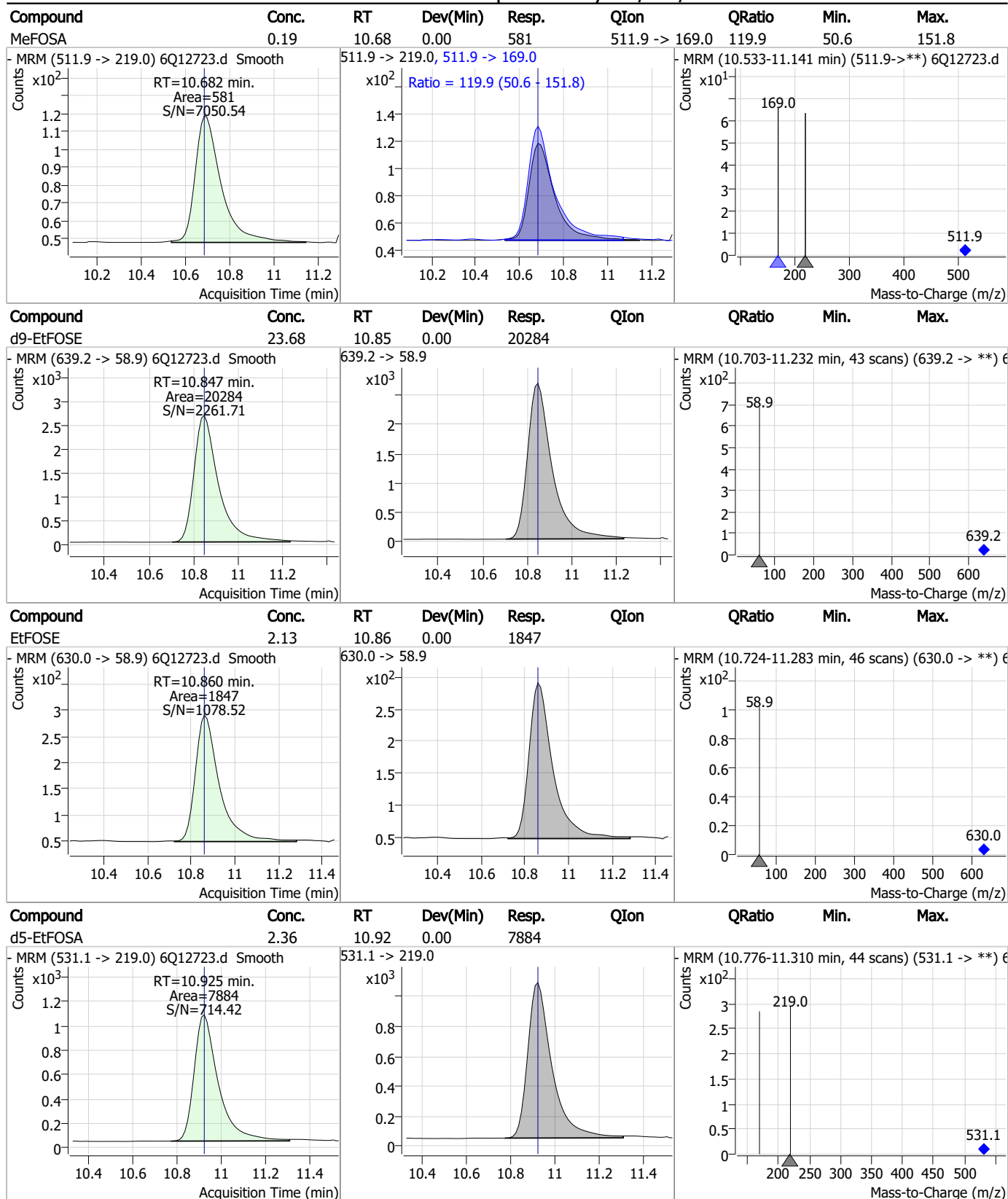
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	2.10	10.60	0.00	2552	616.1 -> 58.9			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.33	10.68	0.00	7168	515.0 -> 169.0			

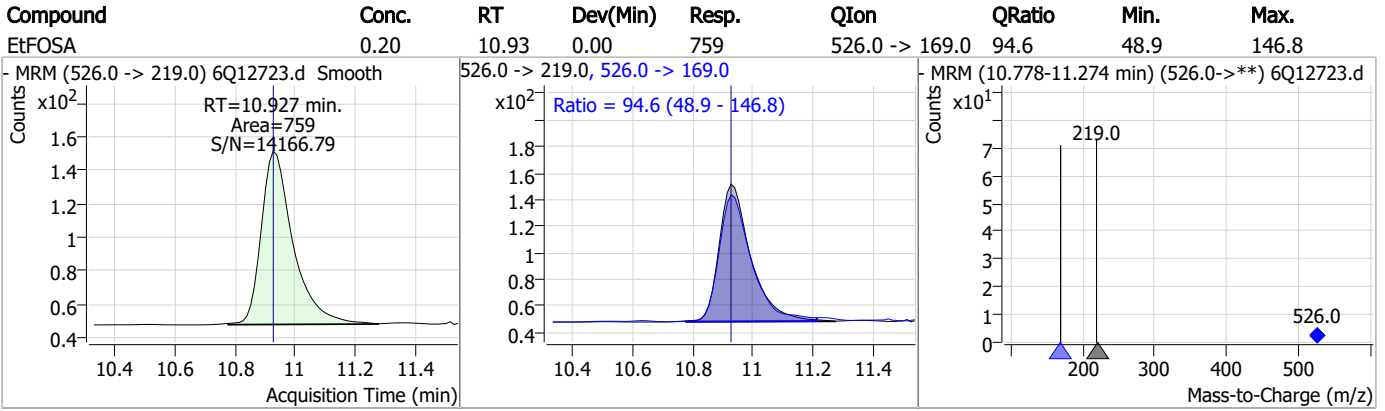


Perfluorinated Compounds by LC/MS/MS



7.7.2
7

Perfluorinated Compounds by LC/MS/MS



7.7.2

7

Manual Integration Approval Summary

Sample Number: S6Q196-IC196 Method: EPA DRAFT 1633
Lab FileID: 6Q12723.D Analyst approved: 02/02/23 11:53 Martha Valls
Injection Time: 02/01/23 17:51 Supervisor approved: 02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
MeFOSAA	2355-31-9		8.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

7.7.2.1
7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
 02/02/23 17:09

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12724.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/1/2023 6:05:15 PM
 Sample Name : ic196-2
 Vial : P1-A3
 DA Method File : 1633_020223_S6Q196.quantmethod.xml
 Batch Name : S6Q196.batch.bin
 Sample Information : OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.975	216.8 -> 171.9	78086	10.00 µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	38504	5.00 µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	34292	2.50 µg/L	-0.012
M4-PFHpA	6.502	367.1 -> 322.0	36977	2.50 µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	66521	2.50 µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	27324	1.25 µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	18971	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	22956	1.25 µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	26106	1.25 µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	14787	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	18196	2.50 µg/L	-0.012
M3-PFBS	5.518	302.1 -> 79.9	14165	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	8560	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	9131	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2443	5.00 µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	3066	5.00 µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	3165	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	30564	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	14884	10.00 µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	23863	5.00 µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	31720	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	21587	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7866	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7013	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	10490	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	35150	5.00 µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	6634	2.50 µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	80205	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	29014	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	33308	1.25 µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	36223	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.240	329.1 -> 80.9	2443	5.66 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.2%		
13C2-6:2FTS	6.920	429.1 -> 80.9	3066	5.36 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.2%		
13C2-8:2FTS	7.957	529.1 -> 80.9	3165	5.51 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.1%		
13C2-PFDoDA	9.066	615.1 -> 570.0	26106	1.18 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.6%		
13C2-PFTeDA	9.805	715.2 -> 670.0	14787	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.8%		
13C3-PFBS	5.518	302.1 -> 79.9	14165	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.9%		
13C3-PFHxS	7.274	402.1 -> 79.9	8560	2.45 µg/L	0.000

7.7.3
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C4-PFBA	2.975	216.8 -> 171.9	78086	10.01 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.502	367.1 -> 322.0	36977	2.47 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C5-PFHxA	5.563	318.0 -> 273.0	34292	2.39 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.7%	
13C5-PFPeA	4.386	268.3 -> 223.0	38504	4.77 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.4%	
13C6-PFDA	8.170	519.1 -> 474.1	18971	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.0%	
13C7-PFUnDA	8.636	570.0 -> 525.1	22956	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C8-FOSA	9.555	506.1 -> 77.8	18196	2.66 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C8-PFOA	7.146	421.1 -> 376.0	66521	2.48 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C8-PFOS	8.345	507.1 -> 79.9	9131	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C9-PFNA	7.677	472.1 -> 427.0	27324	1.17 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.2%	
d3-MeFOSAA	8.215	573.2 -> 419.0	30564	5.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.3%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	14884	10.06 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
d3-MeFOSA	10.680	515.0 -> 219.0	7013	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.3%	
d5-EtFOSAA	8.410	589.2 -> 419.0	23863	5.00 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
d7-MeFOSE	10.589	623.2 -> 58.9	31720	26.63 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 106.5%	
d9-EtFOSE	10.847	639.2 -> 58.9	21587	26.30 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 105.2%	
d5-EtFOSA	10.925	531.1 -> 219.0	7866	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
Target Compounds					QValue
4:2FTS	5.240	327.1 -> 307.0	10547	1.93 µg/L	97
		327.1 -> 80.9	2172		
6:2FTS	6.921	427.1 -> 407.0	8812	1.96 µg/L	96
		427.1 -> 80.9	1792		
8:2FTS	7.958	527.1 -> 507.0	4639	1.89 µg/L	99
		527.1 -> 80.8	1146		
EtFOSAA	8.424	584.2 -> 419.1	1853	0.48 µg/L	m 88
		584.2 -> 526.0	1031		
FOSA	9.557	498.1 -> 77.9	3580	0.49 µg/L	95
		498.1 -> 478.0	97		
MeFOSAA	8.216	570.1 -> 419.0	2538	0.45 µg/L	m 90
		570.1 -> 483.0	480		
PFBA	2.982	212.8 -> 168.9	3414	1.96 µg/L	100
PFBS	5.518	298.7 -> 79.9	2497	0.46 µg/L	99
		298.7 -> 98.8	1071		
PFDA	8.170	512.9 -> 469.0	11002	0.51 µg/L	96
		512.9 -> 219.0	1437		
PFDODA	9.067	613.1 -> 569.0	8860	0.46 µg/L	98
		613.1 -> 319.0	1024		
PFDS	9.241	599.0 -> 79.9	1391	0.45 µg/L	94

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	763			
PFHpA	6.503	363.1 -> 319.0	10870	0.50	µg/L	94
		363.1 -> 169.0	1606			
PFHpS	7.841	449.0 -> 79.9	1684	0.43	µg/L	83
		449.0 -> 98.9	1134			
PFHxA	5.566	313.0 -> 269.0	6725	0.50	µg/L	96
		313.0 -> 118.9	211			
PFHxS	7.275	398.7 -> 79.9	1850	0.48	µg/L	m 94
		398.7 -> 98.9	1096			
PFNA	7.677	463.0 -> 419.0	9636	0.52	µg/L	97
		463.0 -> 219.0	1994			
PFNS	8.811	548.8 -> 79.9	1926	0.47	µg/L	98
		548.8 -> 98.9	1055			
PFOA	7.148	413.0 -> 369.0	15254	0.52	µg/L	96
		413.0 -> 169.0	1827			
PFOS	8.347	498.9 -> 79.9	2082	0.50	µg/L	m 66
		498.9 -> 98.8	1164			
PFPeA	4.388	263.0 -> 219.0	8303	1.02	µg/L	100
PFPeS	6.581	349.1 -> 79.9	2175	0.49	µg/L	98
		349.1 -> 98.9	1074			
PFTeDA	9.806	713.1 -> 669.0	8315	0.52	µg/L	100
		713.1 -> 168.9	554			
PFTrDA	9.462	663.0 -> 619.0	9765	0.53	µg/L	98
		663.0 -> 168.9	722			
PFUnDA	8.637	563.1 -> 519.0	9095	0.51	µg/L	96
		563.1 -> 269.1	1410			
11CI-PF3OUdS	9.514	630.9 -> 450.9	19562	1.83	µg/L	98
		632.9 -> 452.9	6227			
9CI-PF3ONS	8.688	530.8 -> 351.0	32502	1.80	µg/L	98
		532.8 -> 353.0	10930			
ADONA	6.766	376.9 -> 250.9	58756	1.82	µg/L	98
		376.9 -> 84.8	12405			
HFPO-DA	5.940	284.9 -> 168.9	2807	2.02	µg/L	99
		284.9 -> 184.9	386			
3:3FTCA	3.841	241.0 -> 177.0	968	2.43	µg/L	99
		241.0 -> 117.0	141			
5:3FTCA	6.206	341.0 -> 237.1	35953	12.78	µg/L	99
		341.0 -> 217.0	30944			
7:3FTCA	7.605	441.0 -> 316.9	24409	13.28	µg/L	84
		441.0 -> 336.9	45143			
EtFOSA	10.927	526.0 -> 219.0	1917	0.51	µg/L	97
		526.0 -> 169.0	1936			
EtFOSE	10.860	630.0 -> 58.9	4431	4.80	µg/L	100
MeFOSA	10.682	511.9 -> 219.0	1637	0.54	µg/L	99
		511.9 -> 169.0	1674			
MeFOSE	10.602	616.1 -> 58.9	6073	4.80	µg/L	100
PFDoDS	9.945	699.1 -> 79.9	803	0.43	µg/L	86
		699.1 -> 98.8	562			
NFDHA	5.457	295.0 -> 201.0	877	1.10	µg/L	94
		295.0 -> 84.9	412			
PFMBA	4.800	279.0 -> 85.1	2271	0.99	µg/L	100
PFMPA	3.541	229.0 -> 84.9	2190	1.01	µg/L	100
PFEESA	6.059	314.8 -> 134.9	16903	0.87	µg/L	100
		314.8 -> 82.9	401			

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

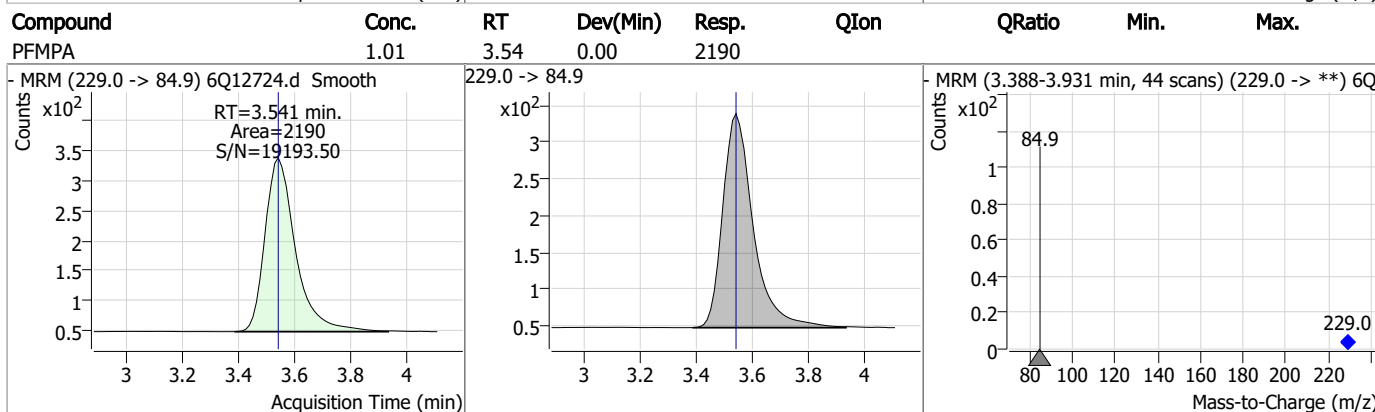
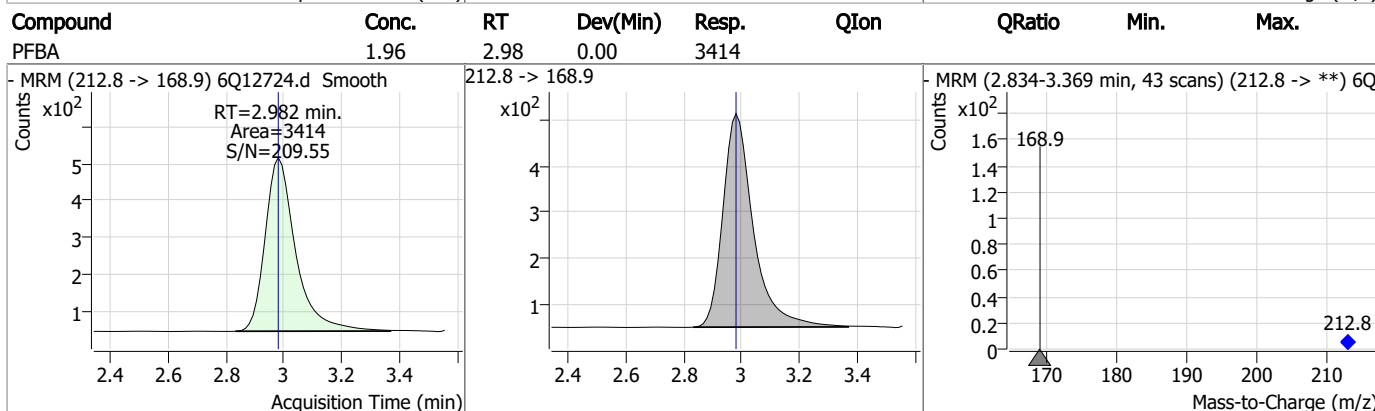
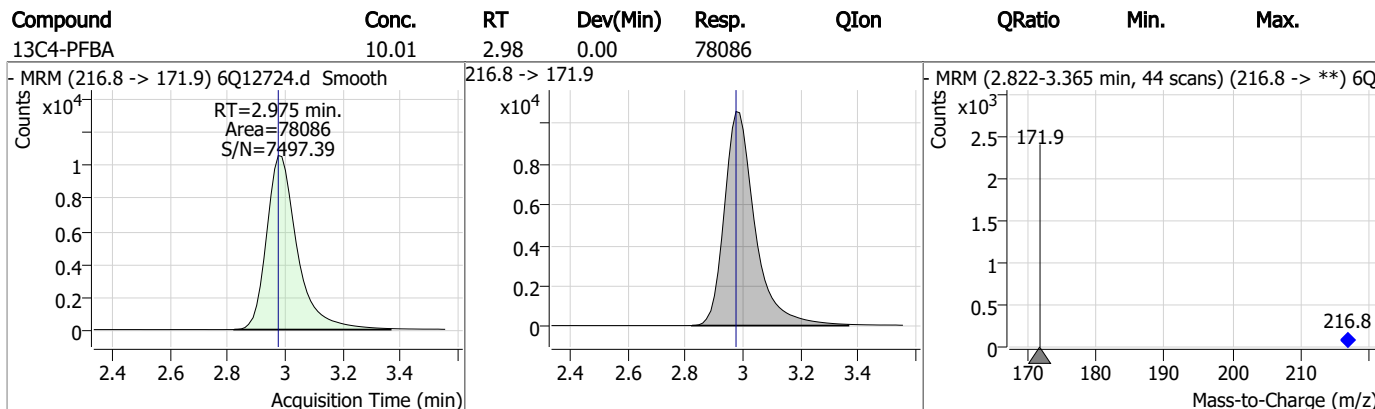
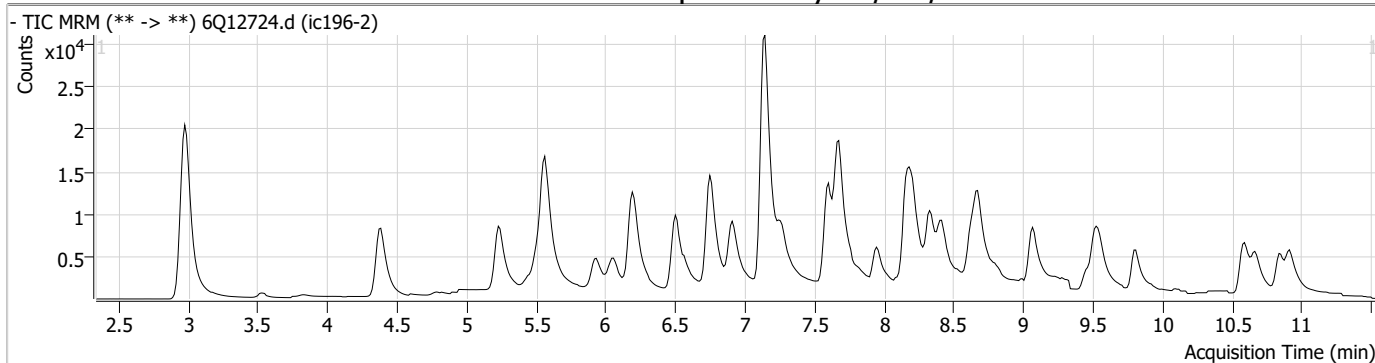
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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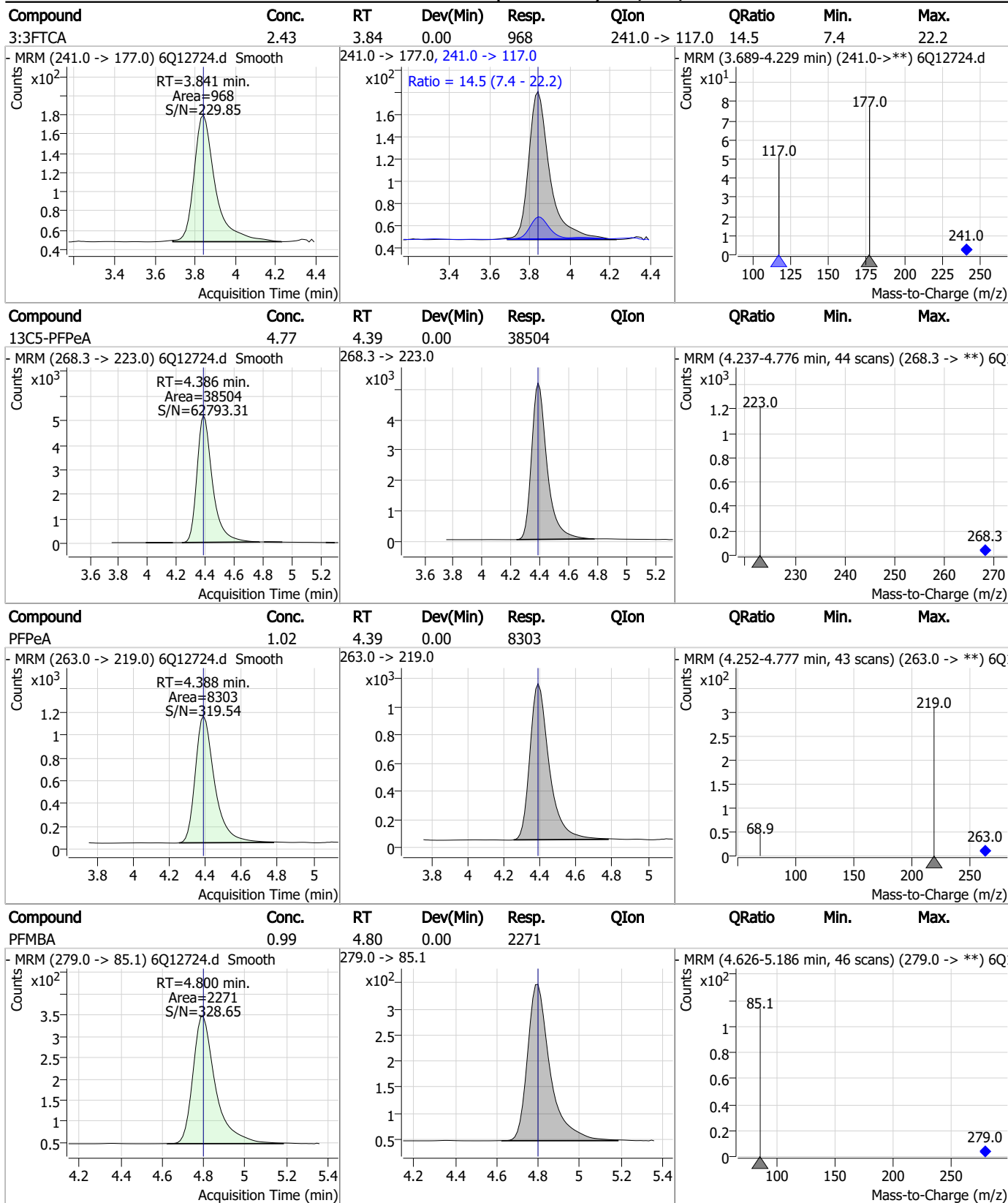
7.7.3

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Perfluorinated Compounds by LC/MS/MS



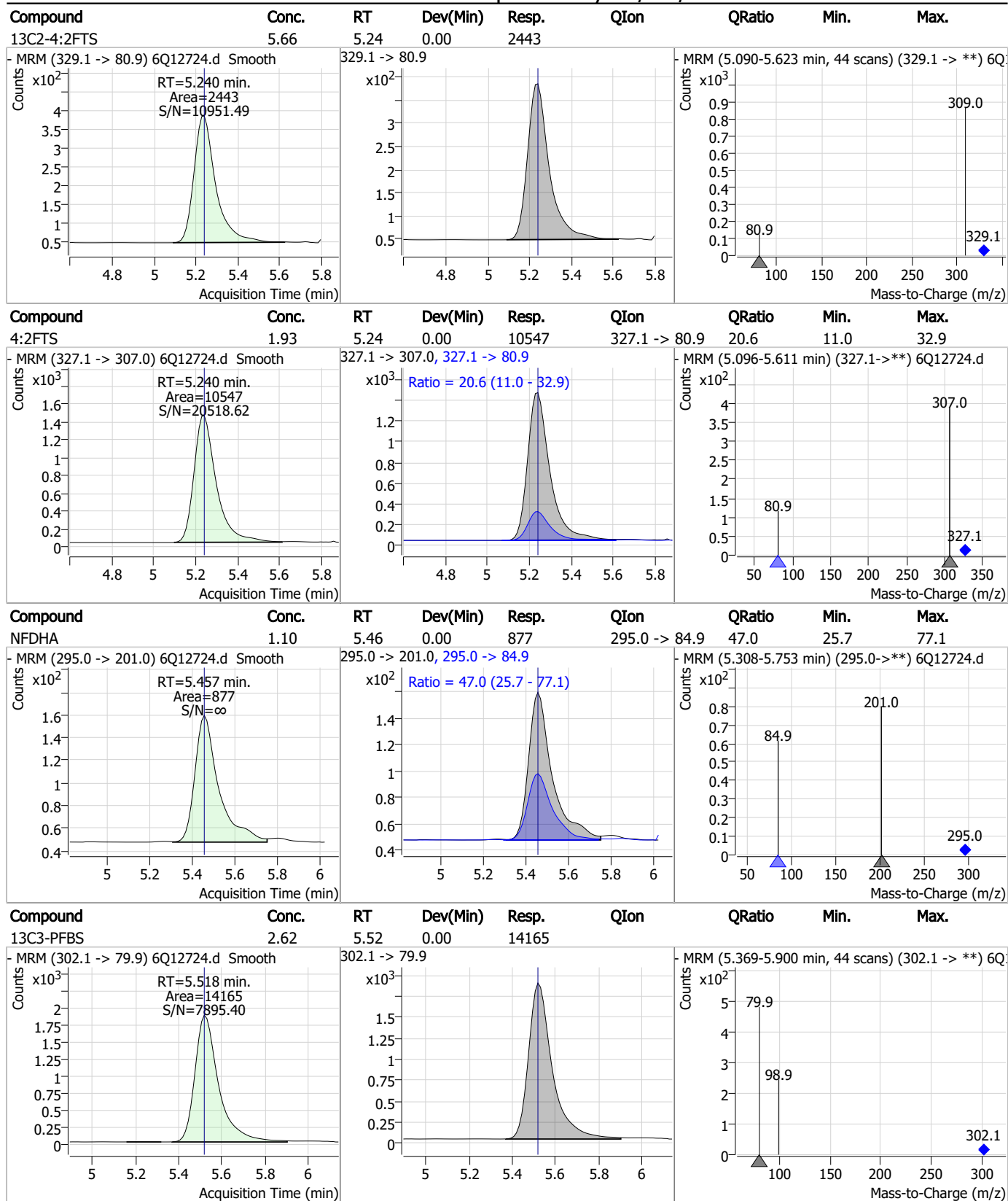
Perfluorinated Compounds by LC/MS/MS



7.7.3

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Perfluorinated Compounds by LC/MS/MS

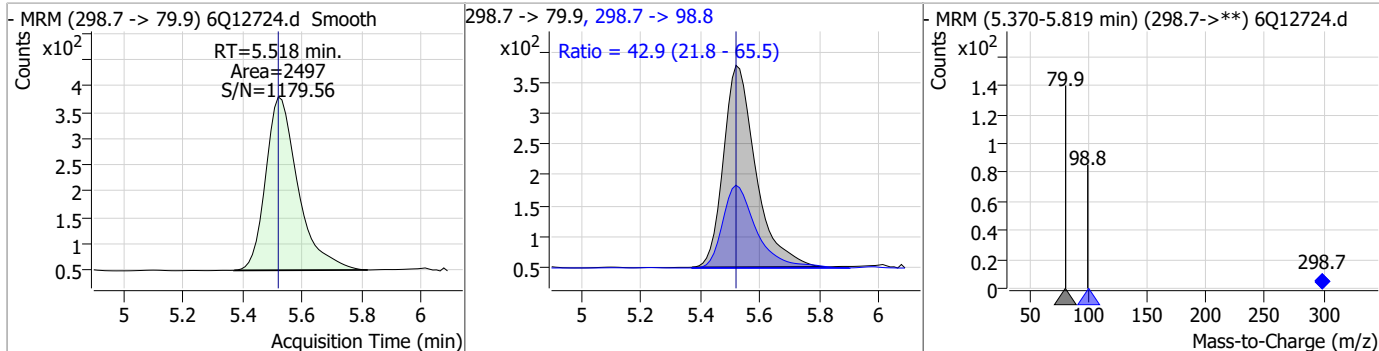


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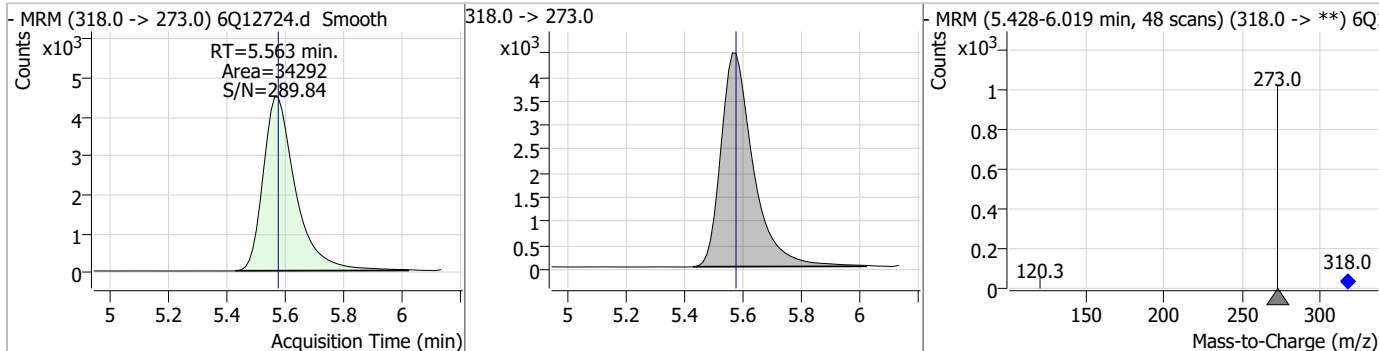
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Perfluorinated Compounds by LC/MS/MS

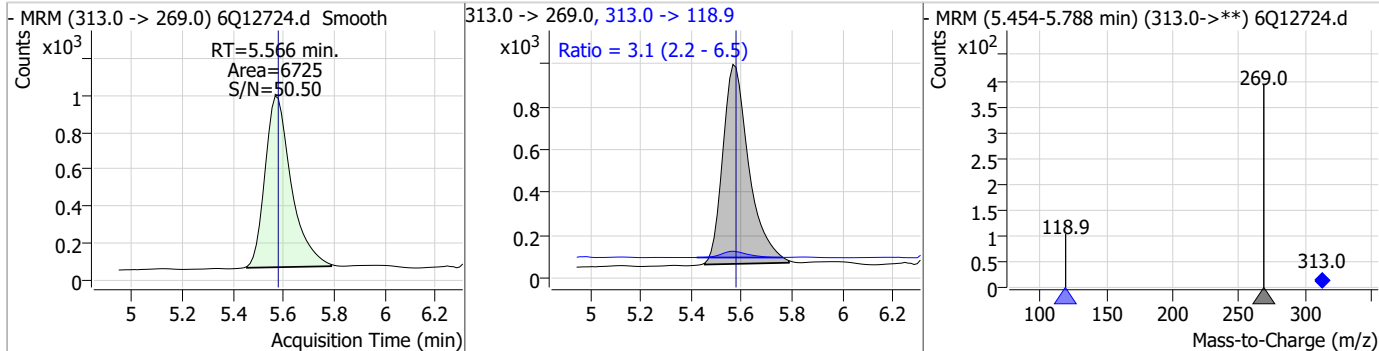
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.46	5.52	0.00	2497	298.7 -> 98.8	42.9	21.8	65.5



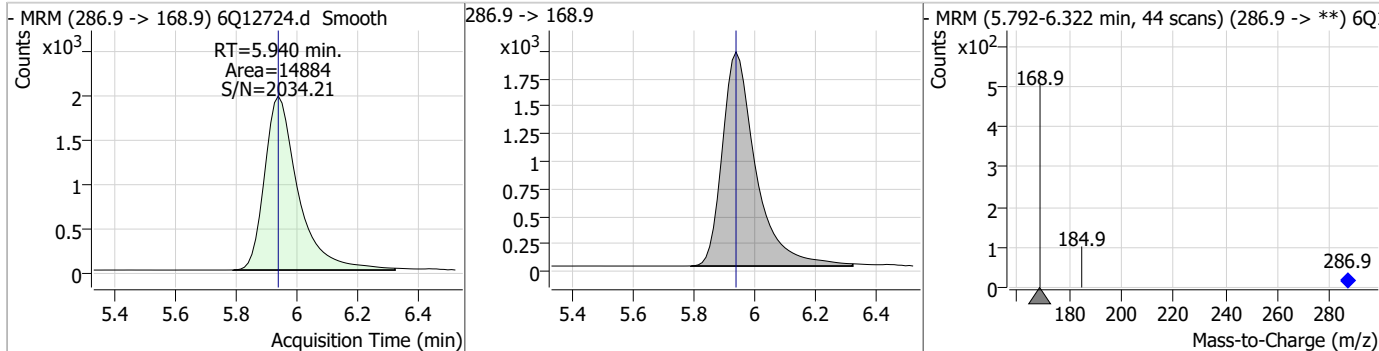
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.39	5.56	-0.01	34292				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.50	5.57	-0.01	6725	313.0 -> 118.9	3.1	2.2	6.5

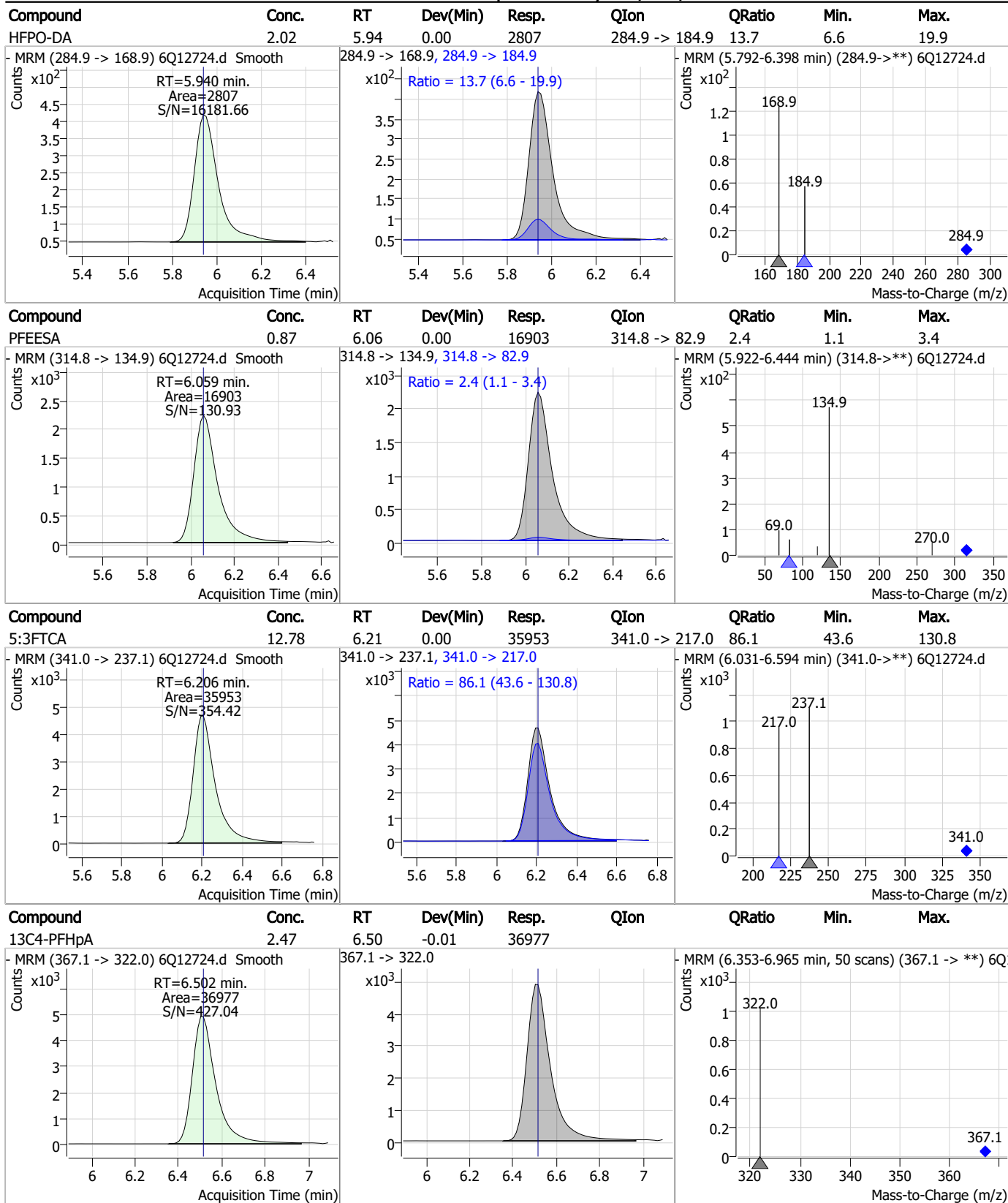


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.06	5.94	0.00	14884				



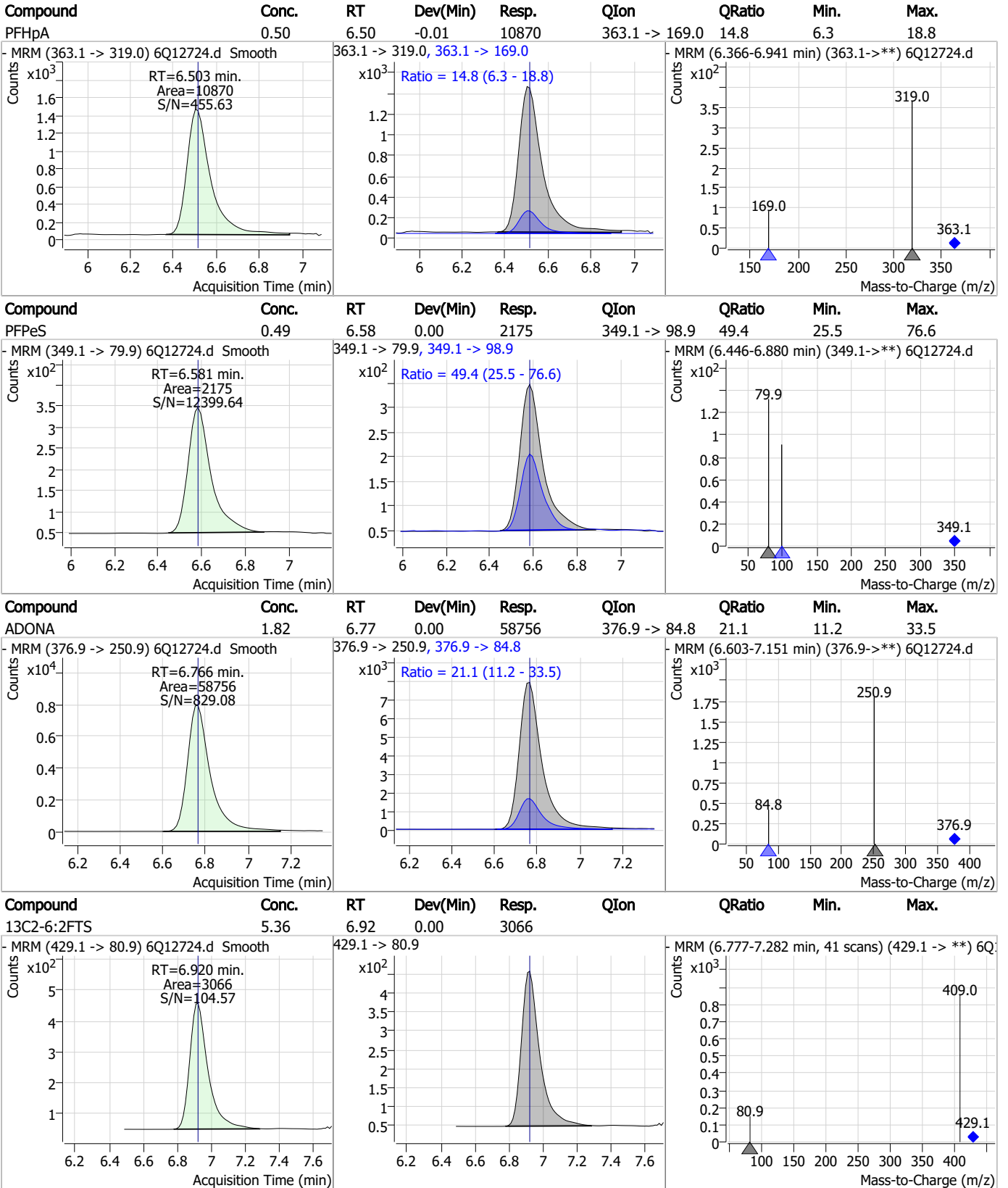
7.7.3
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Perfluorinated Compounds by LC/MS/MS



7.7.3
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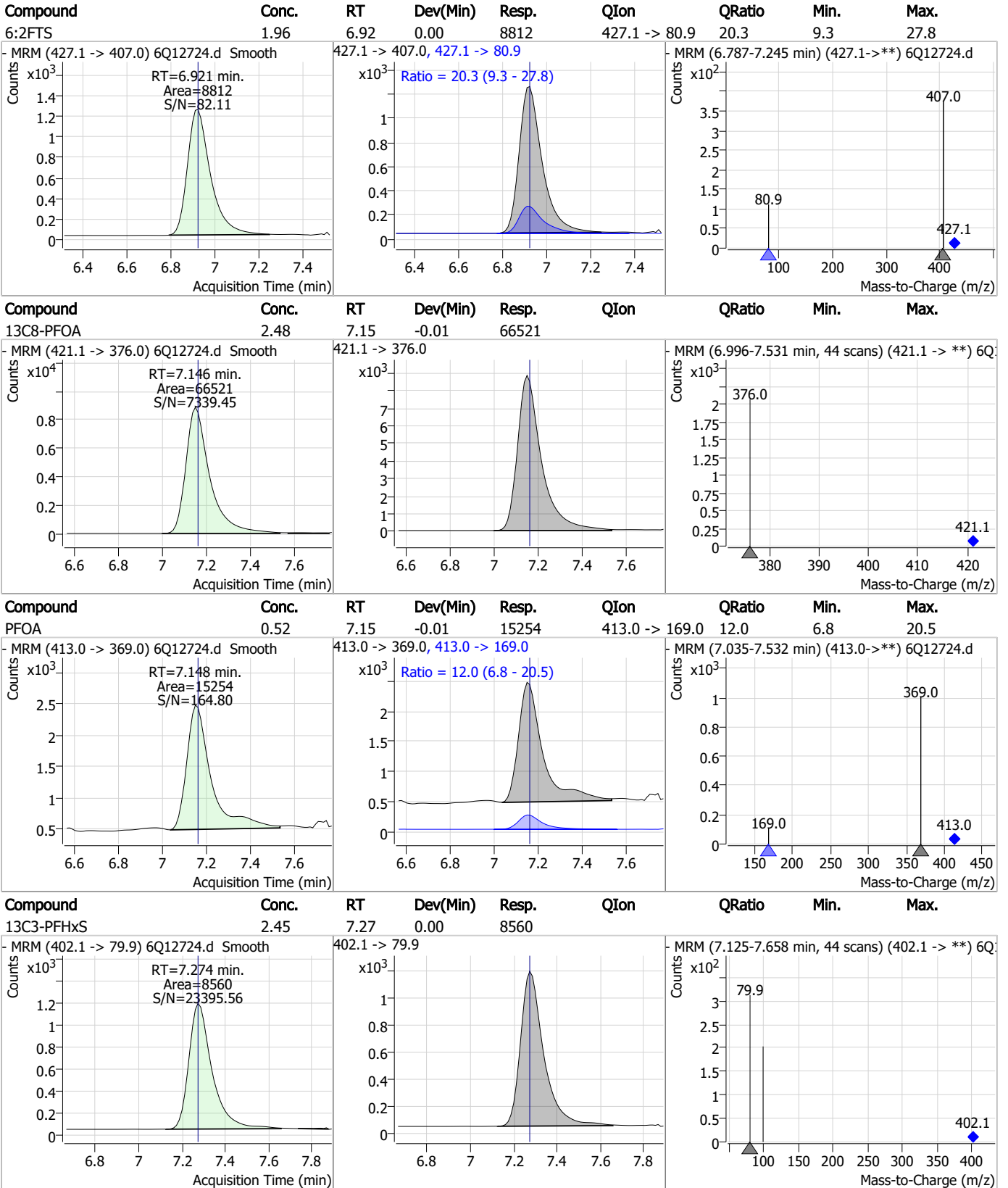
Perfluorinated Compounds by LC/MS/MS



7.7.3

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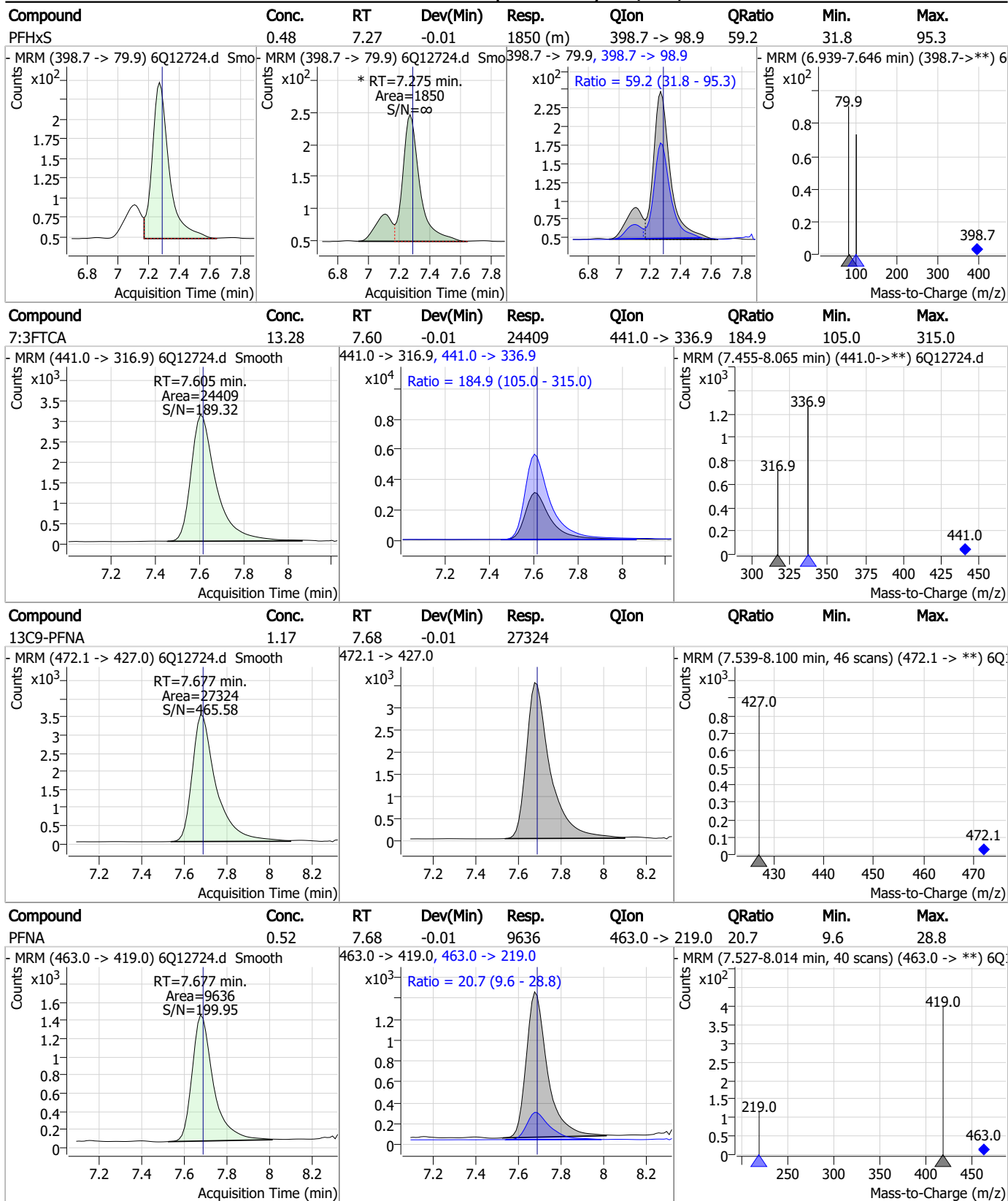
Perfluorinated Compounds by LC/MS/MS



7.7.3

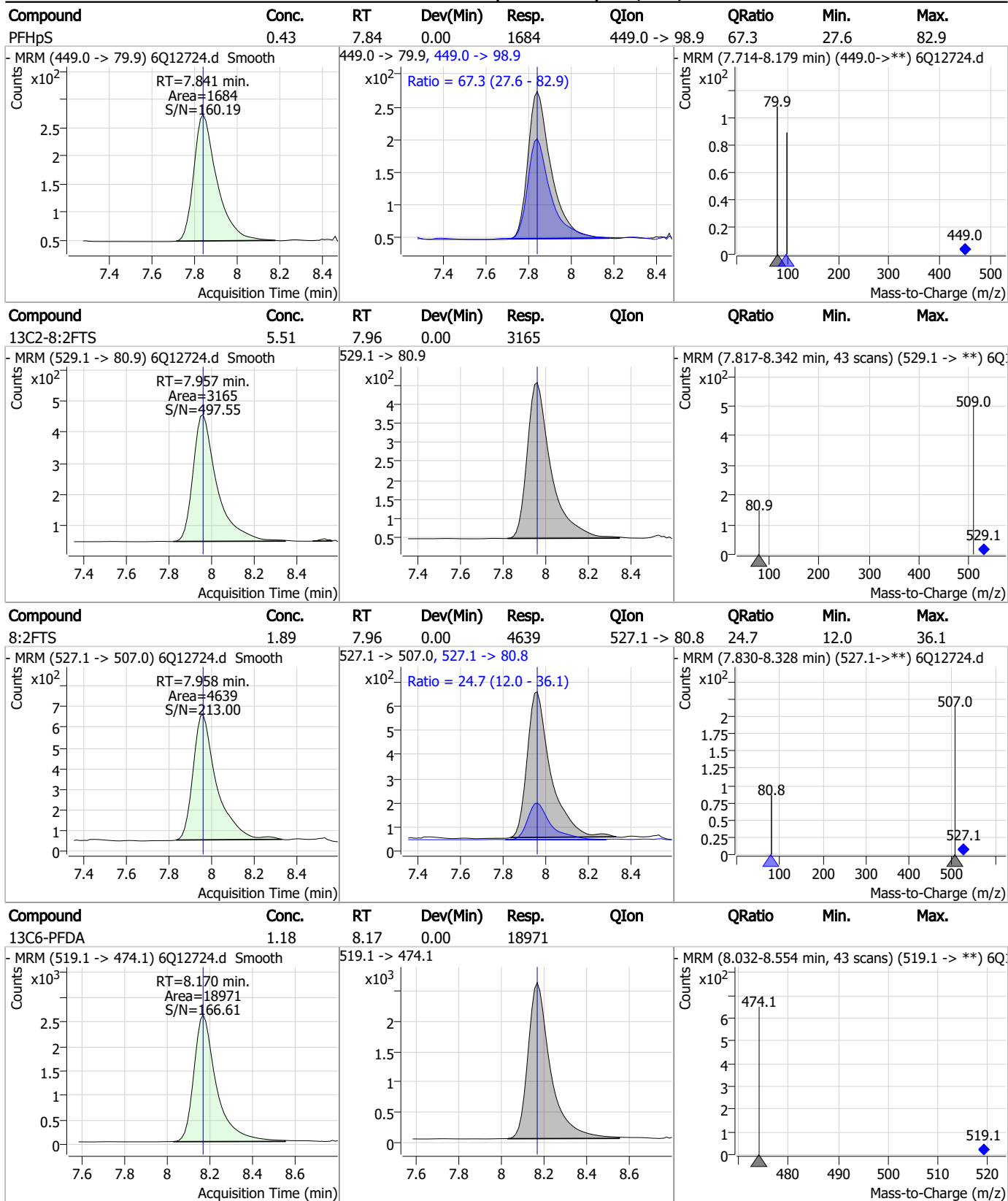
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Perfluorinated Compounds by LC/MS/MS



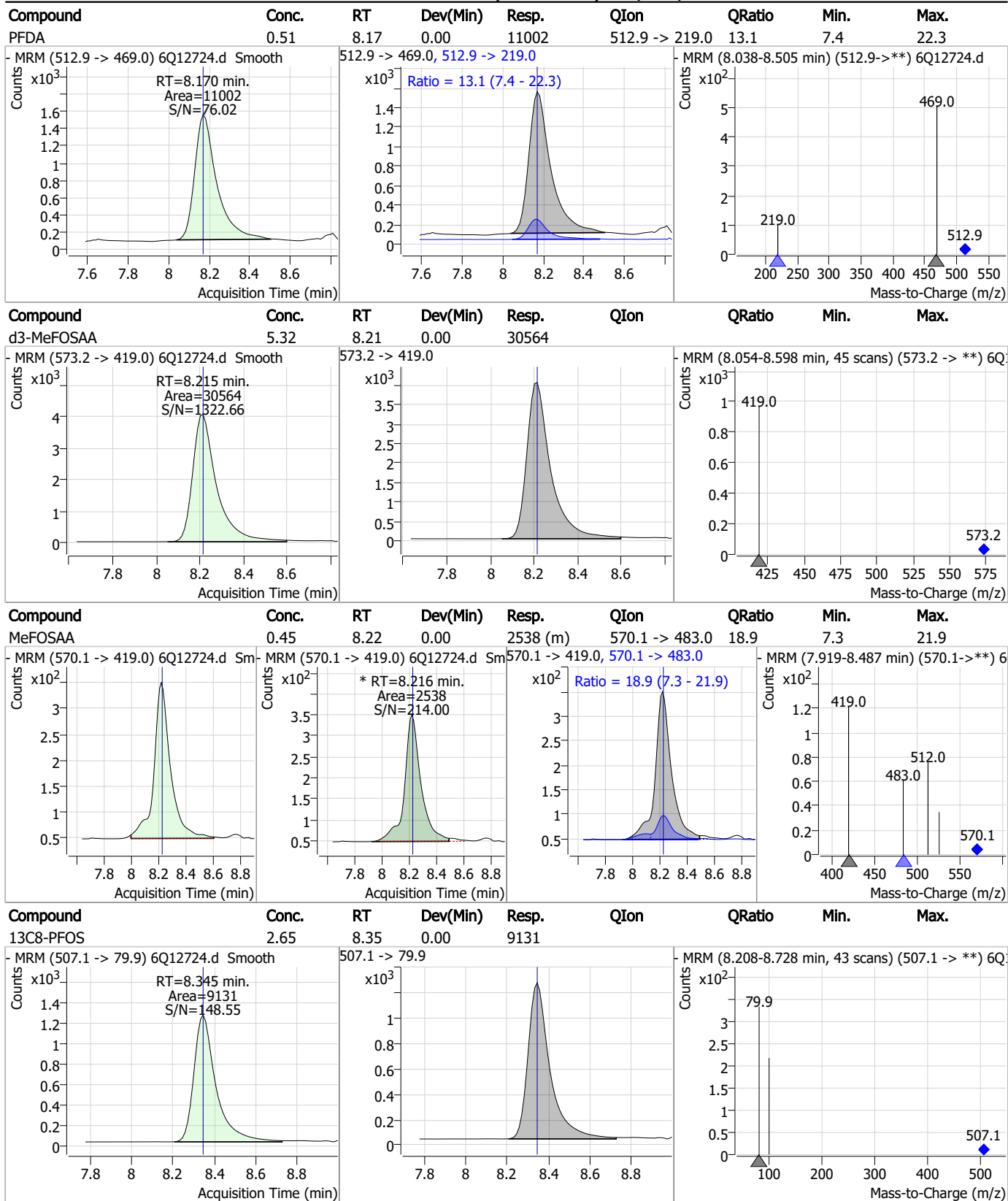
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Perfluorinated Compounds by LC/MS/MS



7.7.3
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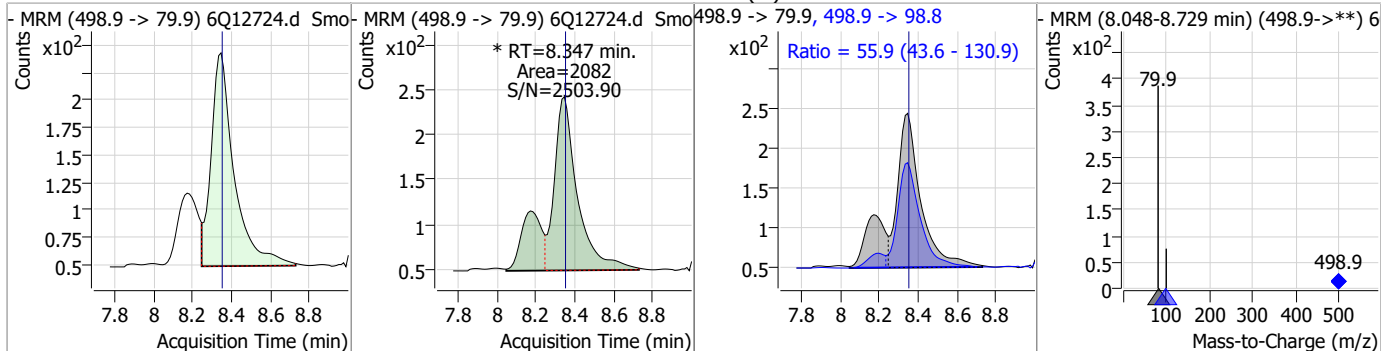
Perfluorinated Compounds by LC/MS/MS



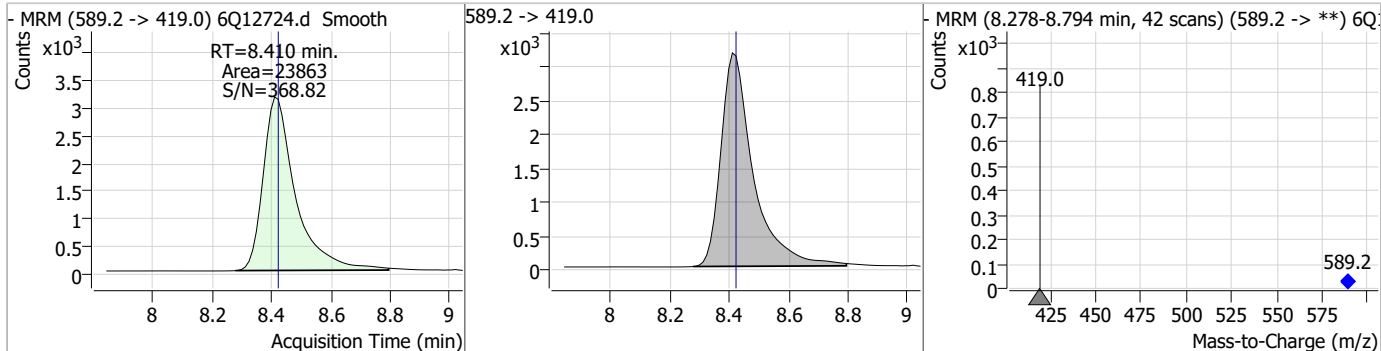
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Perfluorinated Compounds by LC/MS/MS

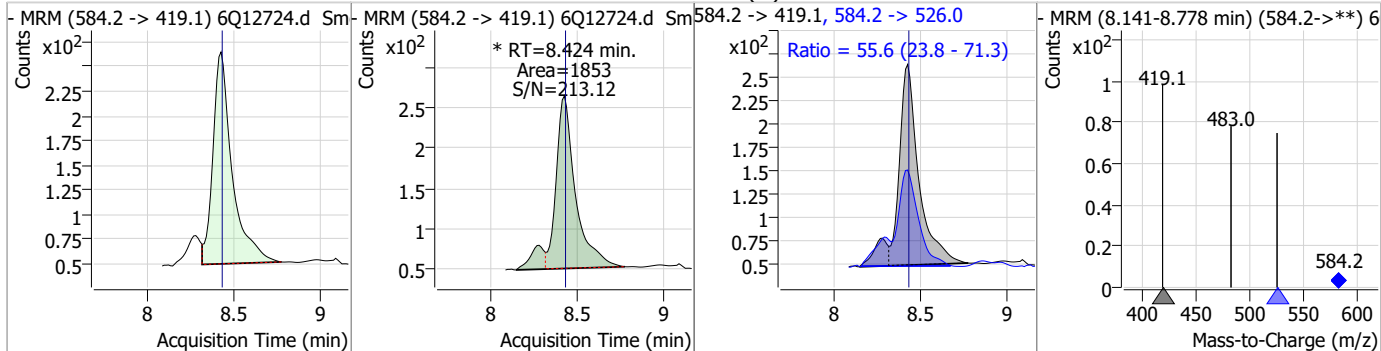
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.50	8.35	0.00	2082 (m)	498.9 -> 98.8	55.9	43.6	130.9



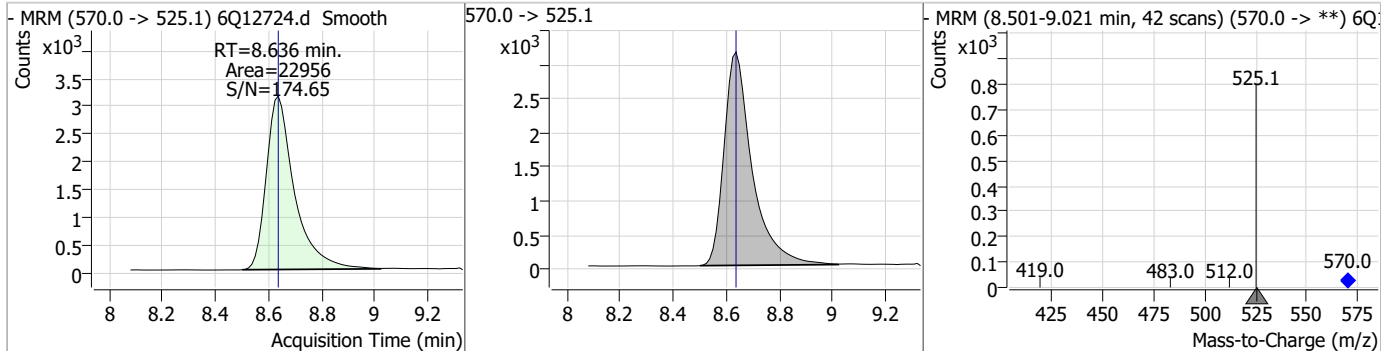
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.00	8.41	-0.01	23863				



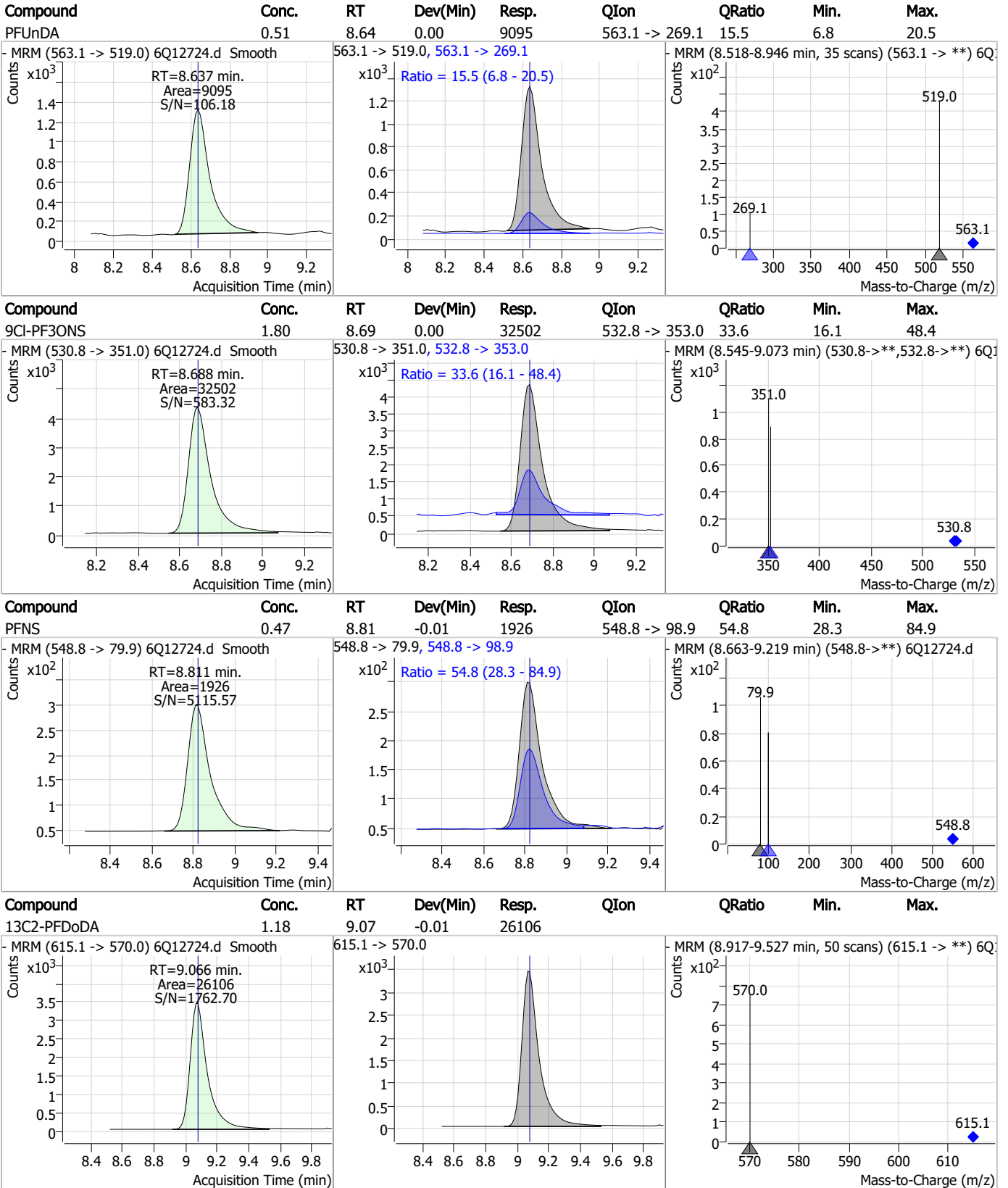
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.48	8.42	0.00	1853 (m)	584.2 -> 526.0	55.6	23.8	71.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.19	8.64	0.00	22956				



Perfluorinated Compounds by LC/MS/MS

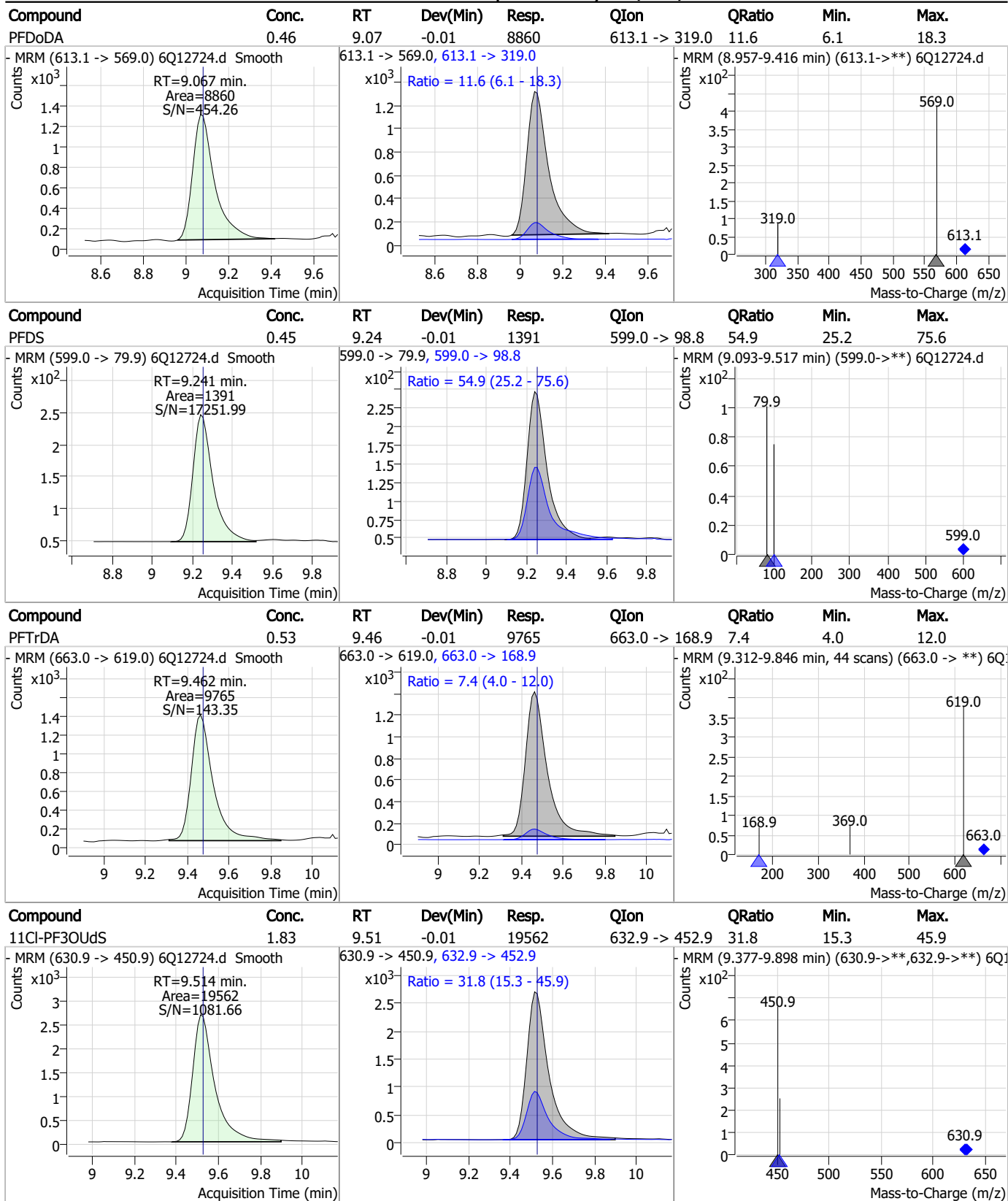


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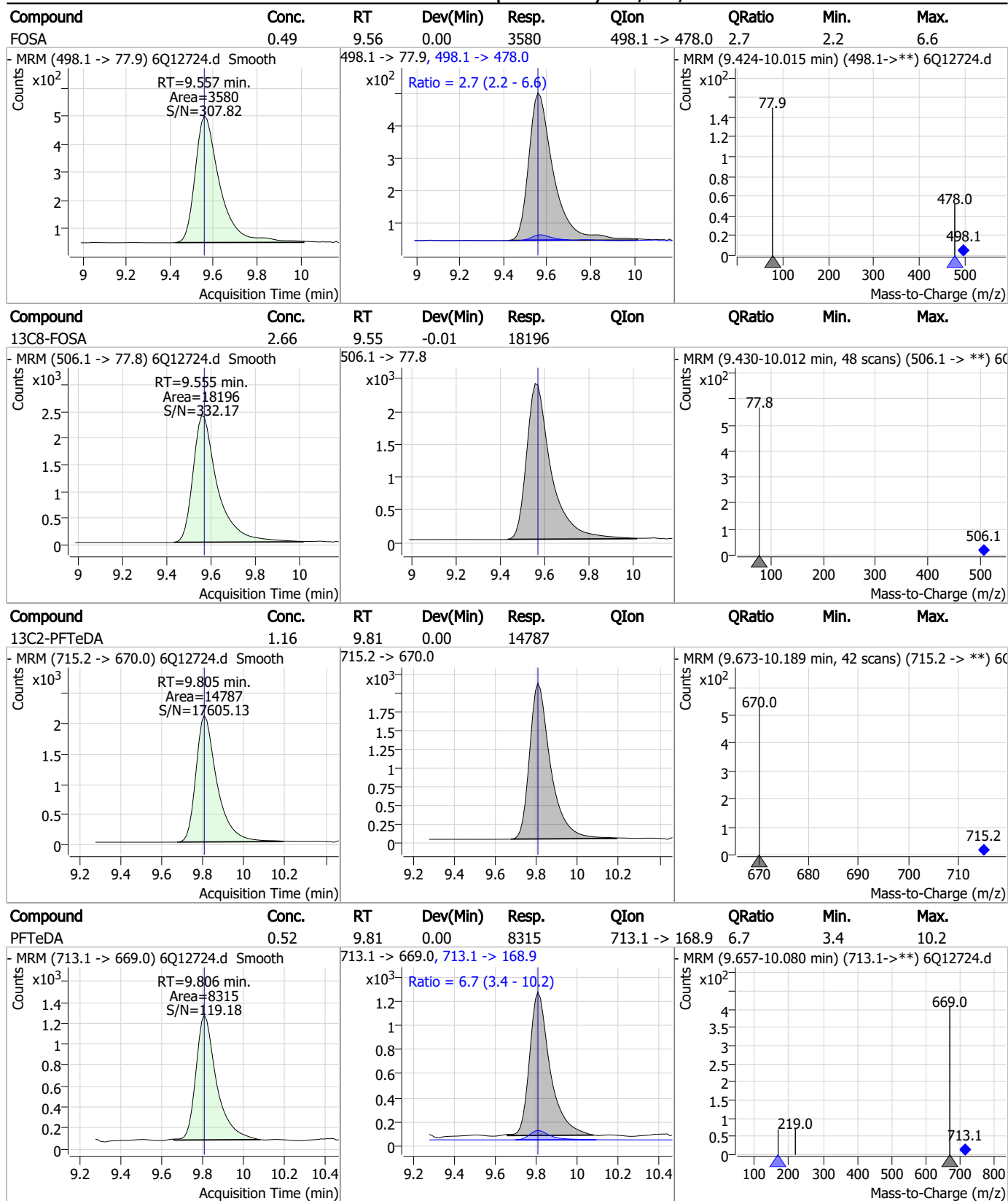


Perfluorinated Compounds by LC/MS/MS



7.7.3
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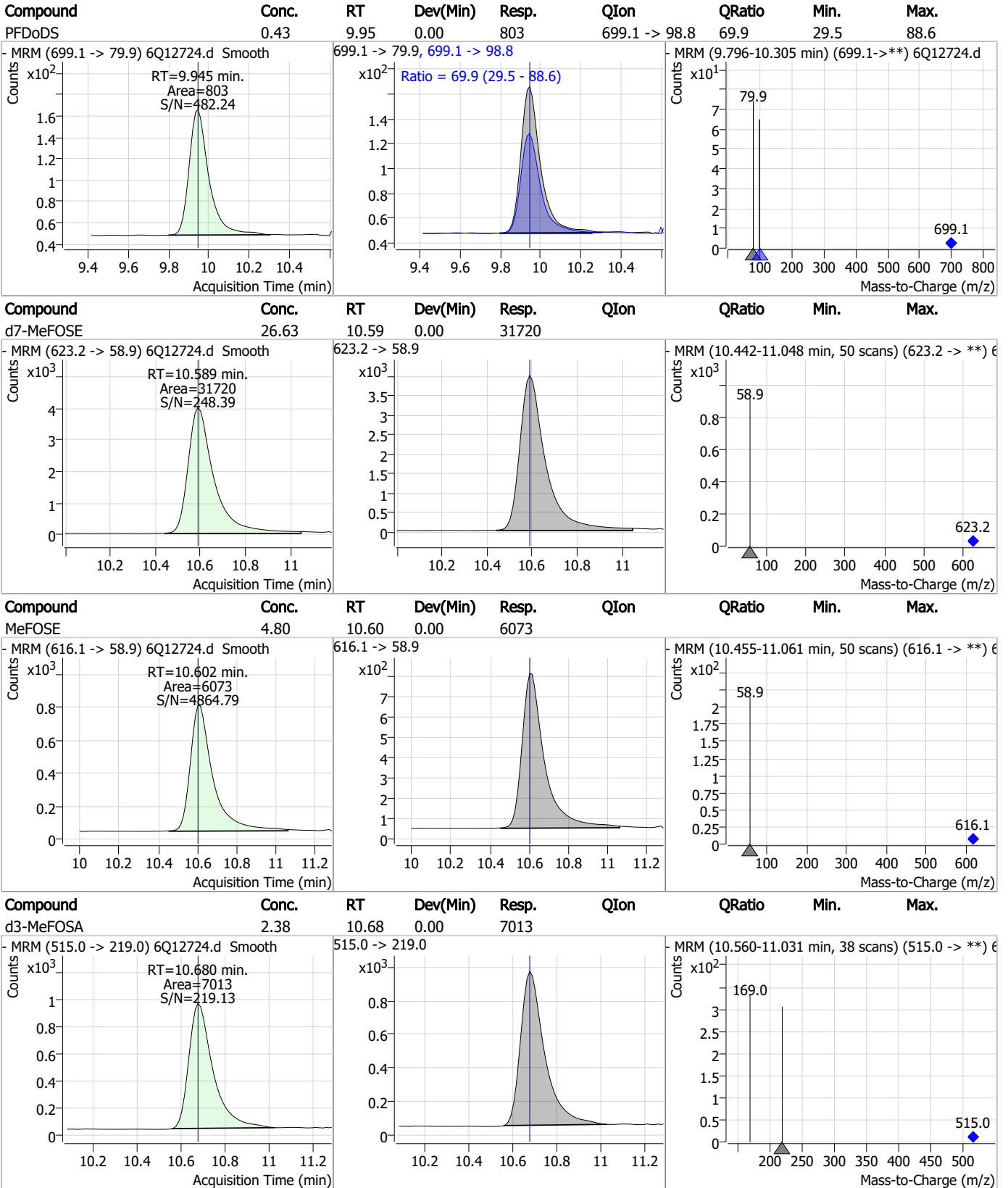
Perfluorinated Compounds by LC/MS/MS



7.7.3
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Perfluorinated Compounds by LC/MS/MS

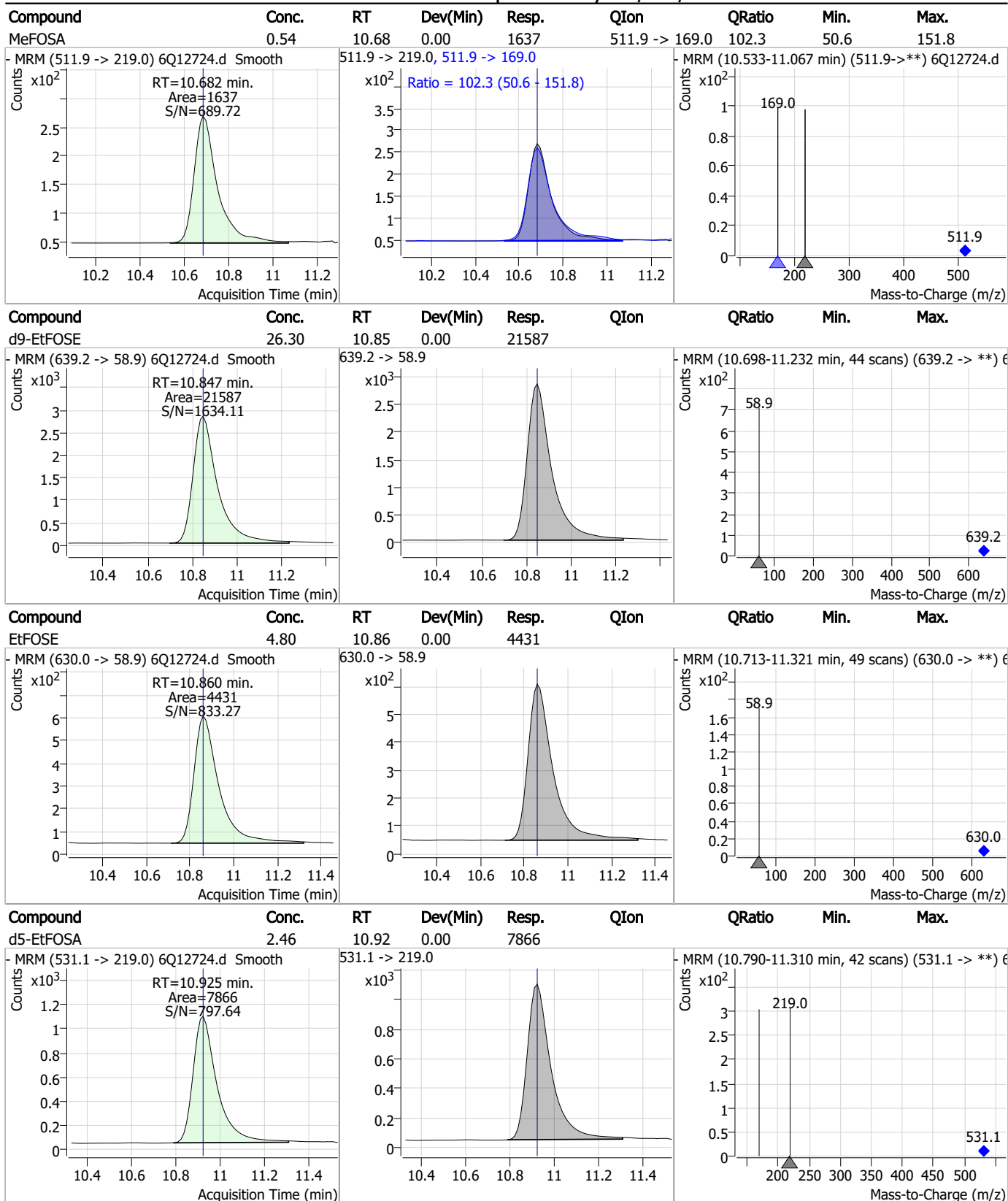


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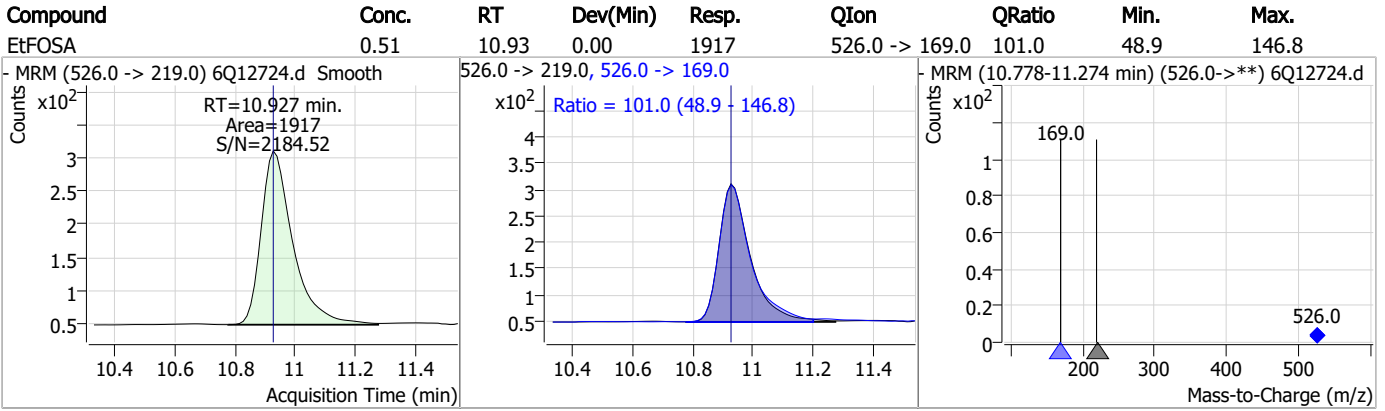


Perfluorinated Compounds by LC/MS/MS



7.7.3
7

Perfluorinated Compounds by LC/MS/MS



7.7.3

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Manual Integration Approval Summary

Sample Number: S6Q196-IC196 Method: EPA DRAFT 1633
Lab FileID: 6Q12724.D Analyst approved: 02/02/23 11:53 Martha Valls
Injection Time: 02/01/23 18:05 Supervisor approved: 02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
MeFOSAA	2355-31-9		8.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

7.7.3.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12725.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/1/2023 6:19:14 PM
 Sample Name : ic196-3
 Vial : P1-A4
 DA Method File : 1633_020223_S6Q196.quantmethod.xml
 Batch Name : S6Q196.batch.bin
 Sample Information : OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.975	216.8 -> 171.9	83559	10.00 µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	42864	5.00 µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	37432	2.50 µg/L	-0.012
M4-PFHpA	6.502	367.1 -> 322.0	39421	2.50 µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	69413	2.50 µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	31229	1.25 µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	20644	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	25039	1.25 µg/L	0.000
M2-PFDoDA	9.078	615.1 -> 570.0	28131	1.25 µg/L	0.000
M2-PFTeDA	9.805	715.2 -> 670.0	15794	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	18922	2.50 µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	15041	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	9290	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8852	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2701	5.00 µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	3398	5.00 µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	3416	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	30910	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	15605	10.00 µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	23303	5.00 µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	33495	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	23099	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	8605	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7700	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	11388	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	37478	5.00 µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	7219	2.50 µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	85517	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	29078	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	32956	1.25 µg/L	-0.012
13C2-PFHxA	5.576	315.1 -> 270.0	36195	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.240	329.1 -> 80.9	2701	5.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.1%		
13C2-6:2FTS	6.920	429.1 -> 80.9	3398	5.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.1%		
13C2-8:2FTS	7.957	529.1 -> 80.9	3416	5.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.2%		
13C2-PFDoDA	9.078	615.1 -> 570.0	28131	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C2-PFTeDA	9.805	715.2 -> 670.0	15794	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C3-PFBS	5.518	302.1 -> 79.9	15041	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.3%		
13C3-PFHxS	7.274	402.1 -> 79.9	9290	2.45 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 = 97.9%		
13C4-PFBA	2.975	216.8 -> 171.9	83559	10.05 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C4-PFHpA	6.502	367.1 -> 322.0	39421	2.64 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.6%		
13C5-PFHxA	5.563	318.0 -> 273.0	37432	2.61 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.5%		
13C5-PFPeA	4.386	268.3 -> 223.0	42864	5.31 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.3%		
13C6-PFDA	8.170	519.1 -> 474.1	20644	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C7-PFUnDA	8.636	570.0 -> 525.1	25039	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.5%		
13C8-FOSA	9.567	506.1 -> 77.8	18922	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C8-PFOA	7.146	421.1 -> 376.0	69413	2.43 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.2%		
13C8-PFOS	8.345	507.1 -> 79.9	8852	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.6%		
13C9-PFNA	7.677	472.1 -> 427.0	31229	1.35 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.7%		
d3-MeFOSAA	8.215	573.2 -> 419.0	30910	4.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	15605	10.55 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 105.5%		
d3-MeFOSA	10.680	515.0 -> 219.0	7700	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.4%		
d5-EtFOSAA	8.410	589.2 -> 419.0	23303	4.50 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.0%		
d7-MeFOSE	10.589	623.2 -> 58.9	33495	25.90 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 103.6%		
d9-EtFOSE	10.847	639.2 -> 58.9	23099	25.92 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 103.7%		
d5-EtFOSA	10.925	531.1 -> 219.0	8605	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.0%		
Target Compounds					QValue
4:2FTS	5.240	327.1 -> 307.0	25354	4.19 µg/L	99
		327.1 -> 80.9	5722		
6:2FTS	6.921	427.1 -> 407.0	21779	4.38 µg/L	95
		427.1 -> 80.9	4518		
8:2FTS	7.958	527.1 -> 507.0	12521	4.72 µg/L	100
		527.1 -> 80.8	3021		
EtFOSAA	8.424	584.2 -> 419.1	4998	1.34 µg/L	m 94
		584.2 -> 526.0	2590		
FOSA	9.557	498.1 -> 77.9	8967	1.19 µg/L	98
		498.1 -> 478.0	344		
MeFOSAA	8.216	570.1 -> 419.0	6523	1.15 µg/L	#m 80
		570.1 -> 483.0	1493		
PFBA	2.982	212.8 -> 168.9	8618	4.62 µg/L	100
PFBS	5.518	298.7 -> 79.9	5820	1.01 µg/L	94
		298.7 -> 98.8	2777		
PFDA	8.170	512.9 -> 469.0	28617	1.22 µg/L	99
		512.9 -> 219.0	4136		
PFDODA	9.079	613.1 -> 569.0	24613	1.19 µg/L	98
		613.1 -> 319.0	2855		
PFDS	9.253	599.0 -> 79.9	3526	1.18 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	1810			
PFHpA	6.515	363.1 -> 319.0	26544	1.14	µg/L	93
		363.1 -> 169.0	4025			
PFHpS	7.841	449.0 -> 79.9	4490	1.20	µg/L	93
		449.0 -> 98.9	2722			
PFHxA	5.578	313.0 -> 269.0	17365	1.18	µg/L	98
		313.0 -> 118.9	629			
PFHxS	7.275	398.7 -> 79.9	4961	1.19	µg/L	m 87
		398.7 -> 98.9	2645			
PFNA	7.677	463.0 -> 419.0	23103	1.10	µg/L	99
		463.0 -> 219.0	4361			
PFNS	8.824	548.8 -> 79.9	4844	1.23	µg/L	96
		548.8 -> 98.9	2900			
PFOA	7.148	413.0 -> 369.0	39836	1.30	µg/L	96
		413.0 -> 169.0	4706			
PFOS	8.347	498.9 -> 79.9	4883	1.20	µg/L	m 71
		498.9 -> 98.8	2939			
PFPeA	4.388	263.0 -> 219.0	20749	2.29	µg/L	100
PFPeS	6.581	349.1 -> 79.9	5740	1.18	µg/L	98
		349.1 -> 98.9	3022			
PFTeDA	9.806	713.1 -> 669.0	21121	1.24	µg/L	100
		713.1 -> 168.9	1459			
PFTrDA	9.462	663.0 -> 619.0	24628	1.25	µg/L	99
		663.0 -> 168.9	2051			
PFUnDA	8.637	563.1 -> 519.0	22690	1.16	µg/L	99
		563.1 -> 269.1	3238			
11CI-PF3OUdS	9.526	630.9 -> 450.9	50683	4.53	µg/L	99
		632.9 -> 452.9	15719			
9CI-PF3ONS	8.688	530.8 -> 351.0	89556	4.73	µg/L	93
		532.8 -> 353.0	25272			
ADONA	6.766	376.9 -> 250.9	147183	4.35	µg/L	100
		376.9 -> 84.8	33121			
HFPO-DA	5.940	284.9 -> 168.9	6847	4.69	µg/L	99
		284.9 -> 184.9	927			
3:3FTCA	3.841	241.0 -> 177.0	2515	5.66	µg/L	98
		241.0 -> 117.0	348			
5:3FTCA	6.206	341.0 -> 237.1	93751	30.54	µg/L	98
		341.0 -> 217.0	79652			
7:3FTCA	7.605	441.0 -> 316.9	57548	28.68	µg/L	96
		441.0 -> 336.9	117369			
EtFOSA	10.927	526.0 -> 219.0	4943	1.20	µg/L	99
		526.0 -> 169.0	4800			
EtFOSE	10.860	630.0 -> 58.9	10828	10.95	µg/L	100
MeFOSA	10.682	511.9 -> 219.0	4230	1.27	µg/L	91
		511.9 -> 169.0	3878			
MeFOSE	10.602	616.1 -> 58.9	14079	10.54	µg/L	100
PFDoDS	9.945	699.1 -> 79.9	2404	1.34	µg/L	98
		699.1 -> 98.8	1389			
NFDHA	5.457	295.0 -> 201.0	1954	2.25	µg/L	97
		295.0 -> 84.9	1043			
PFMBA	4.800	279.0 -> 85.1	5881	2.31	µg/L	100
PFMPA	3.541	229.0 -> 84.9	5607	2.32	µg/L	100
PFEESA	6.059	314.8 -> 134.9	42639	2.02	µg/L	99
		314.8 -> 82.9	1082			

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

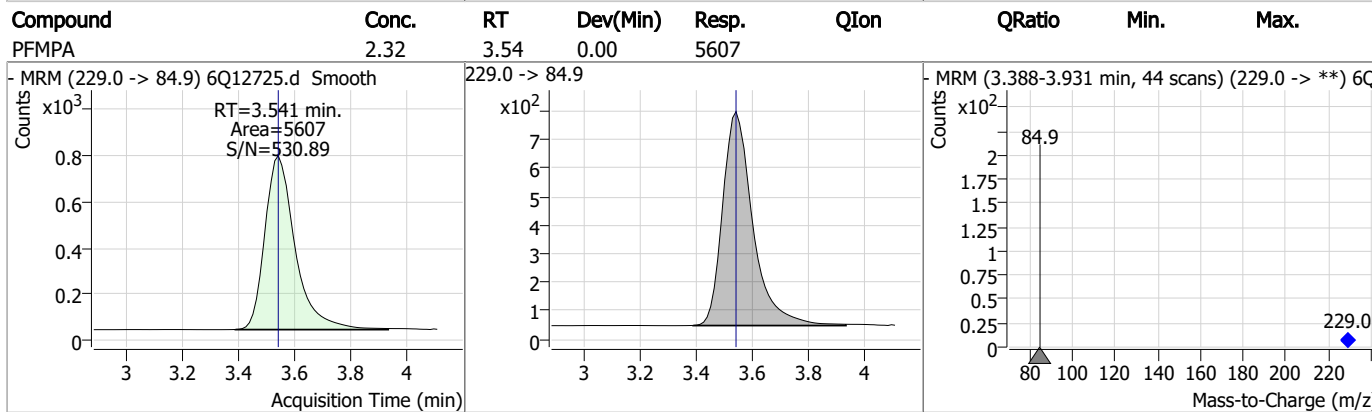
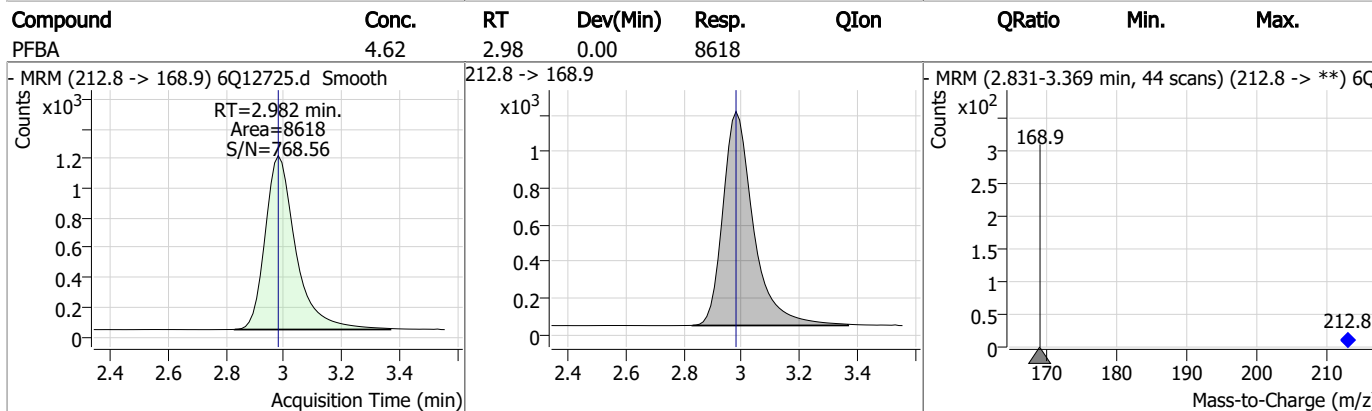
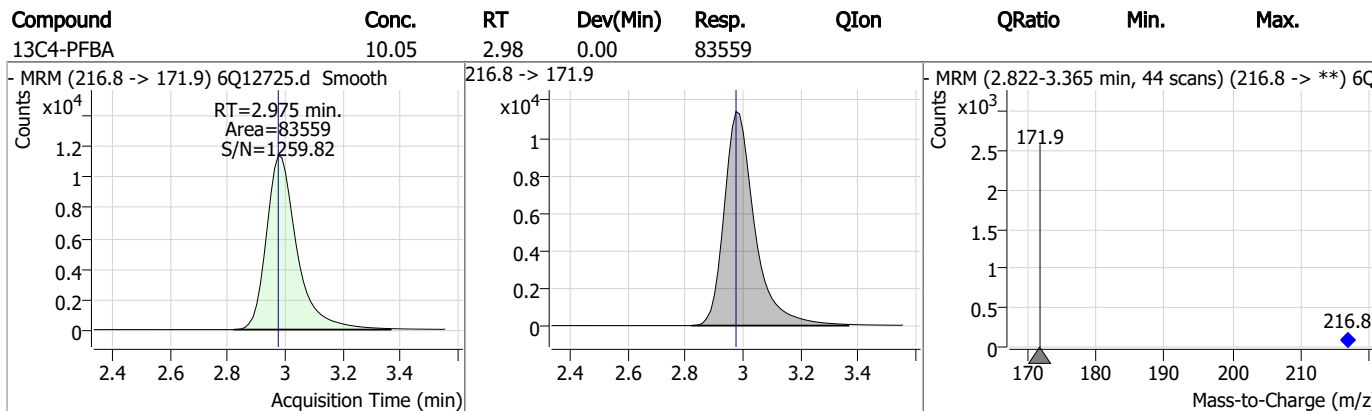
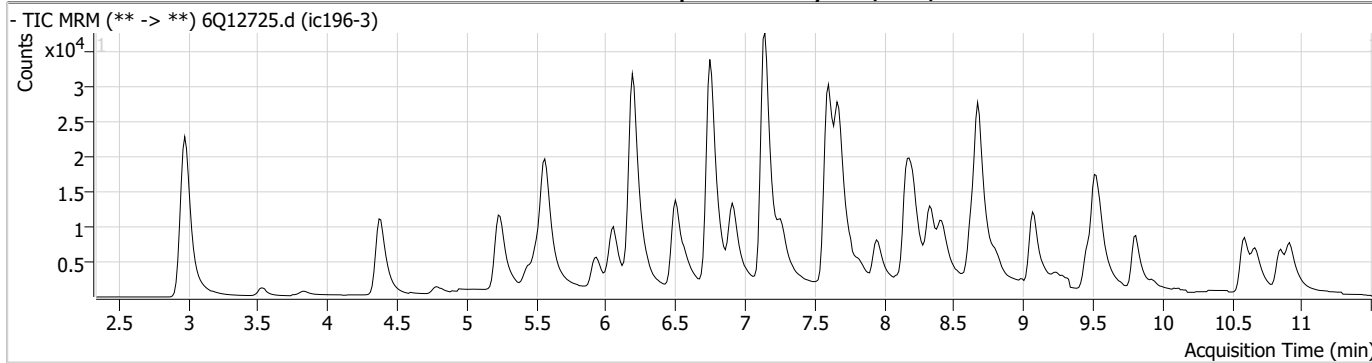
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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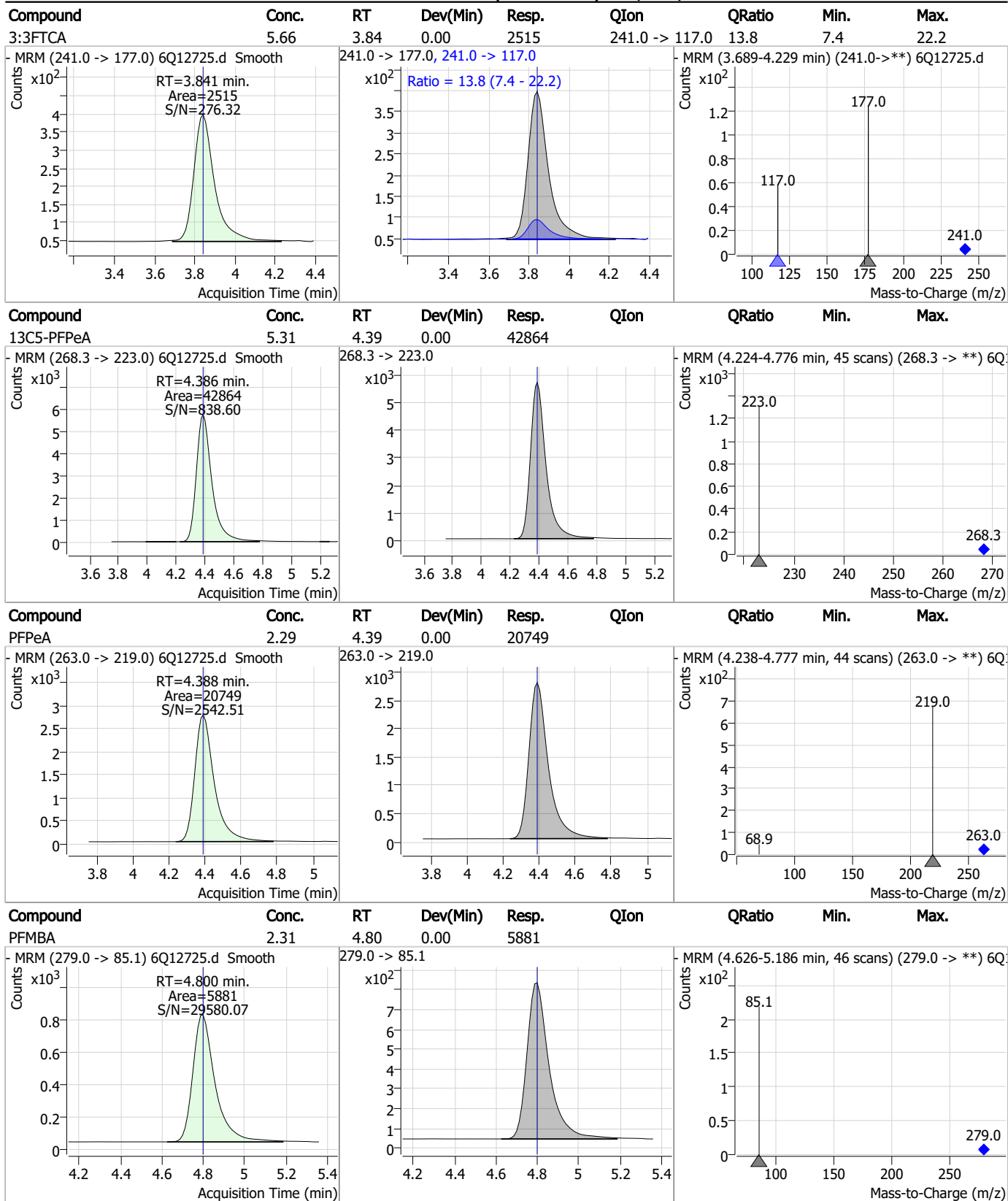
7.7.4

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Perfluorinated Compounds by LC/MS/MS

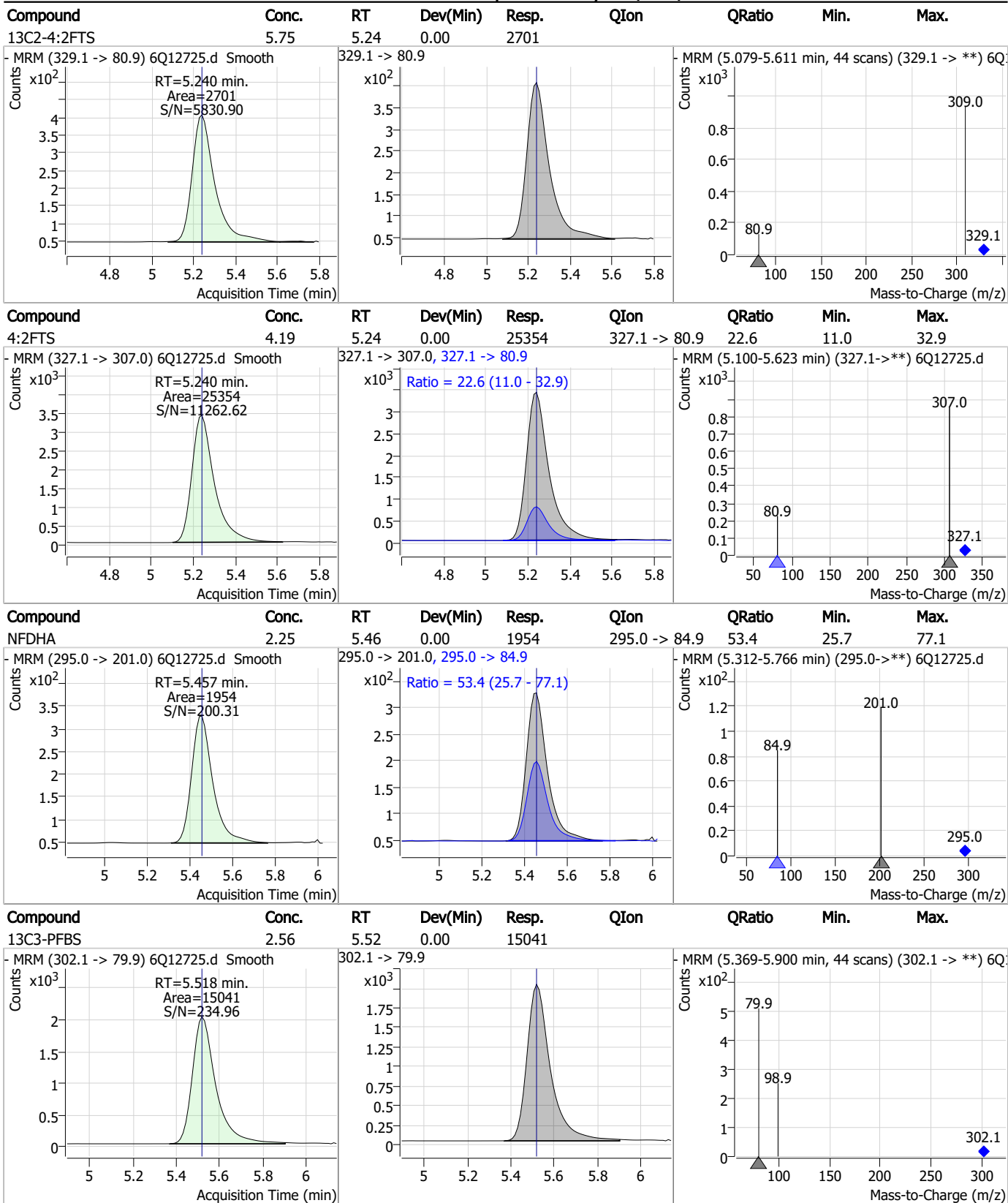


Perfluorinated Compounds by LC/MS/MS



7.7.4
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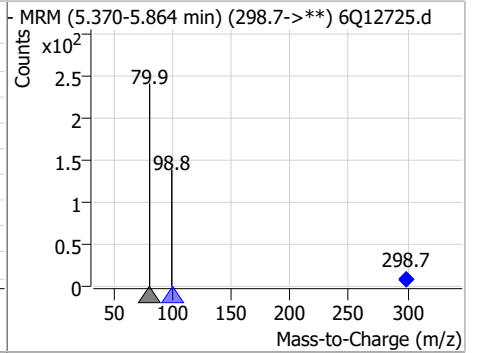
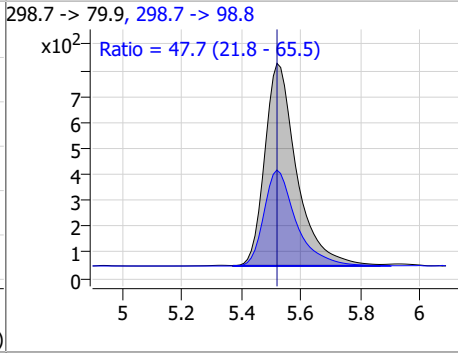
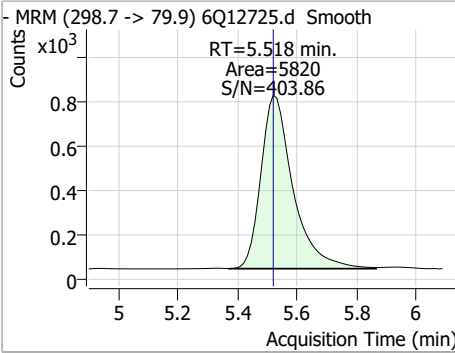
Perfluorinated Compounds by LC/MS/MS



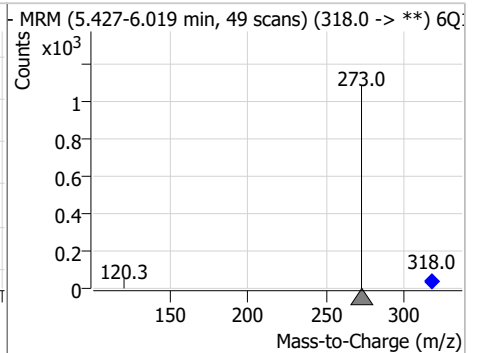
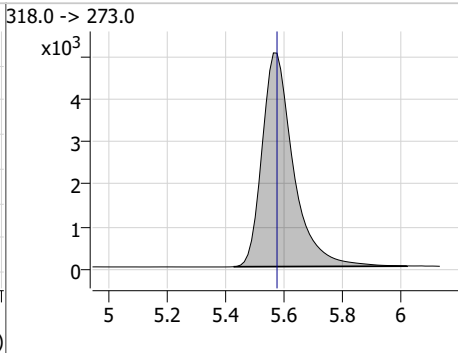
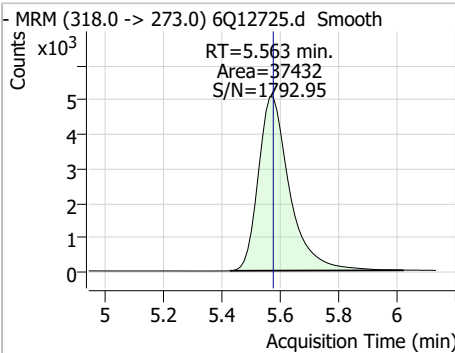
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Perfluorinated Compounds by LC/MS/MS

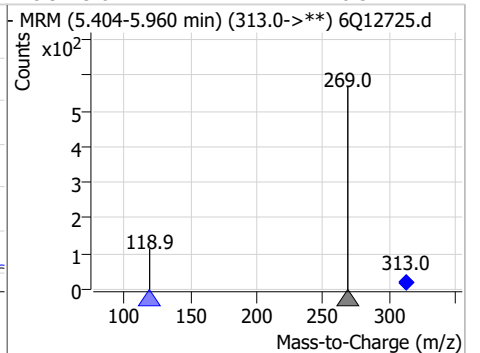
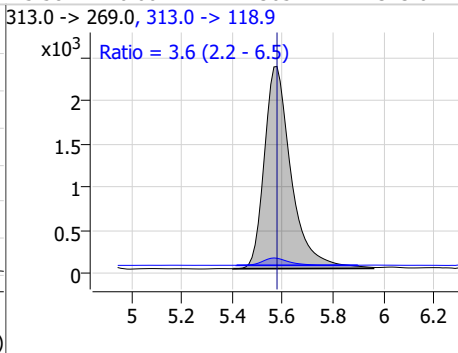
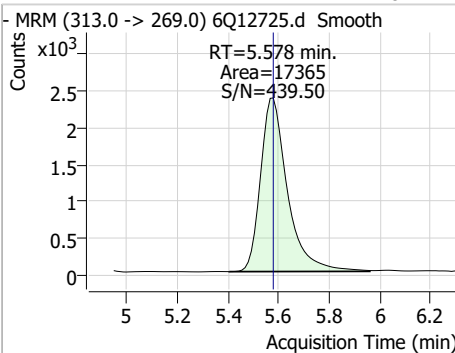
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.01	5.52	0.00	5820	298.7 -> 98.8	47.7	21.8	65.5



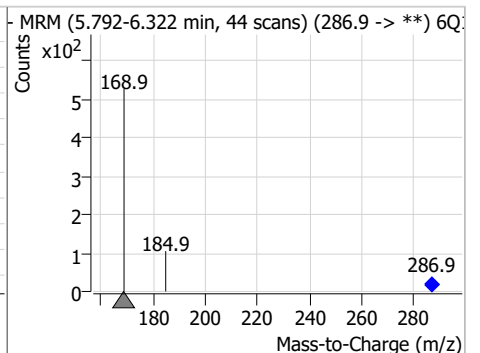
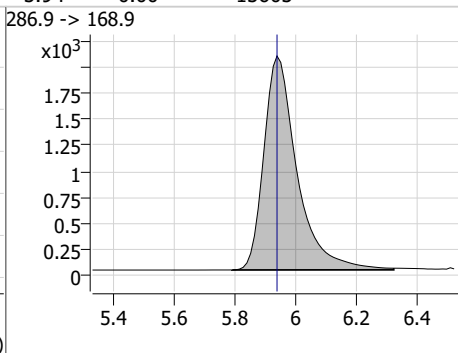
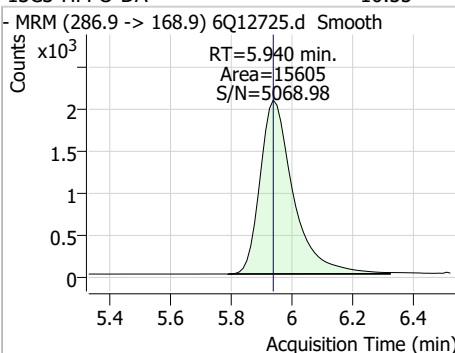
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.61	5.56	-0.01	37432				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.18	5.58	0.00	17365	313.0 -> 118.9	3.6	2.2	6.5



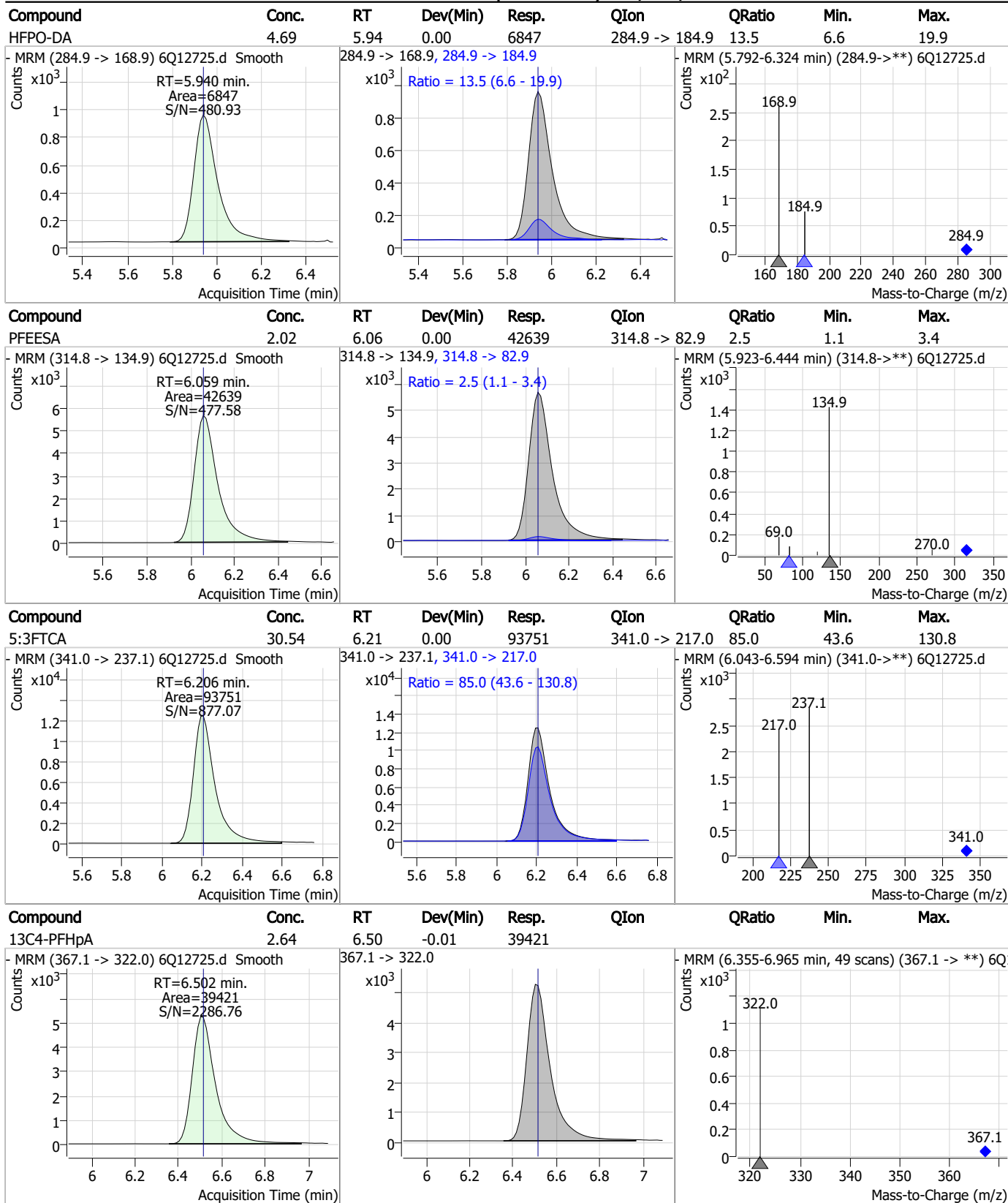
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.55	5.94	0.00	15605				



7.7.4

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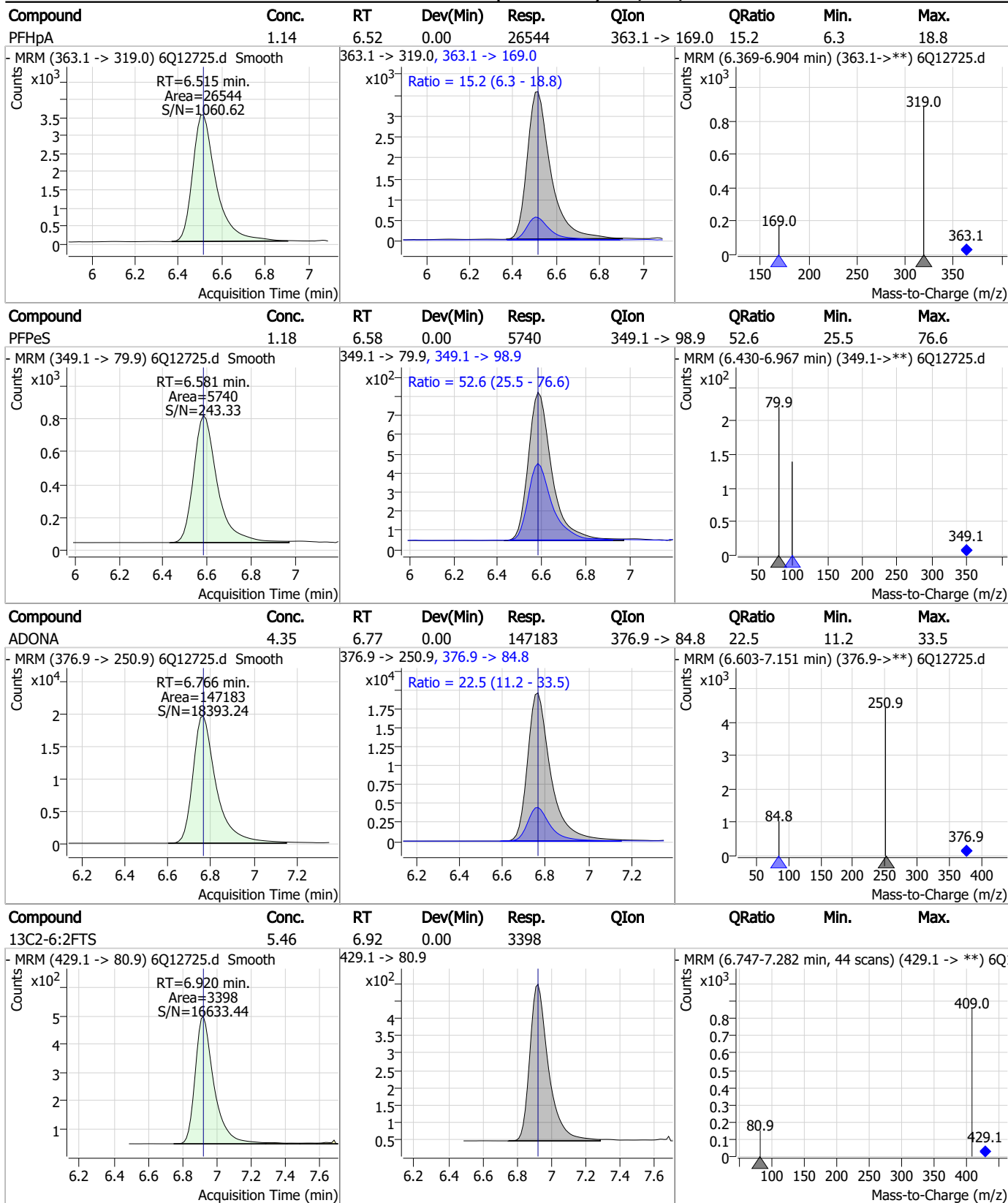
Perfluorinated Compounds by LC/MS/MS



7.7.4

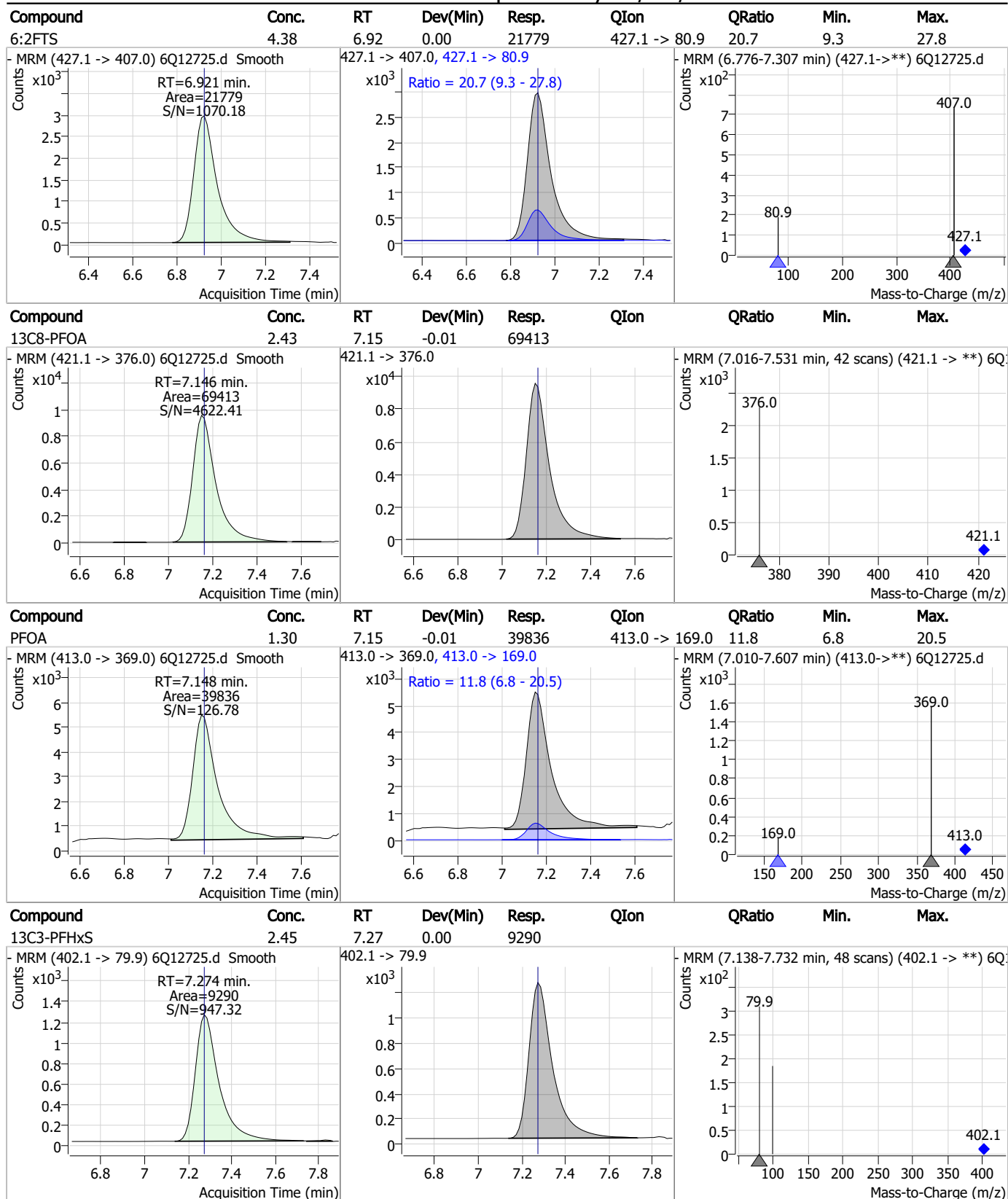
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Perfluorinated Compounds by LC/MS/MS



7.7.4
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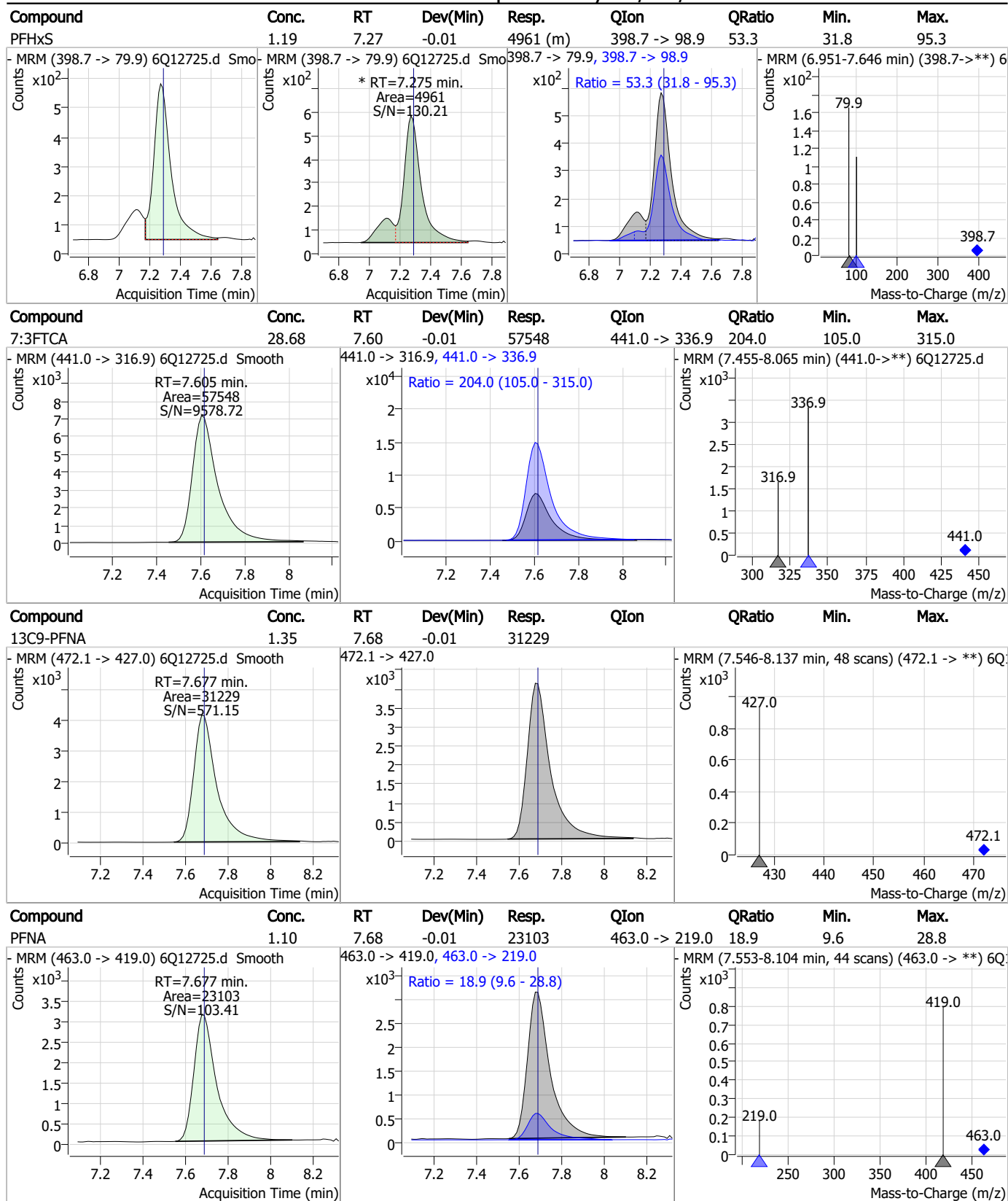
Perfluorinated Compounds by LC/MS/MS



7.7.4

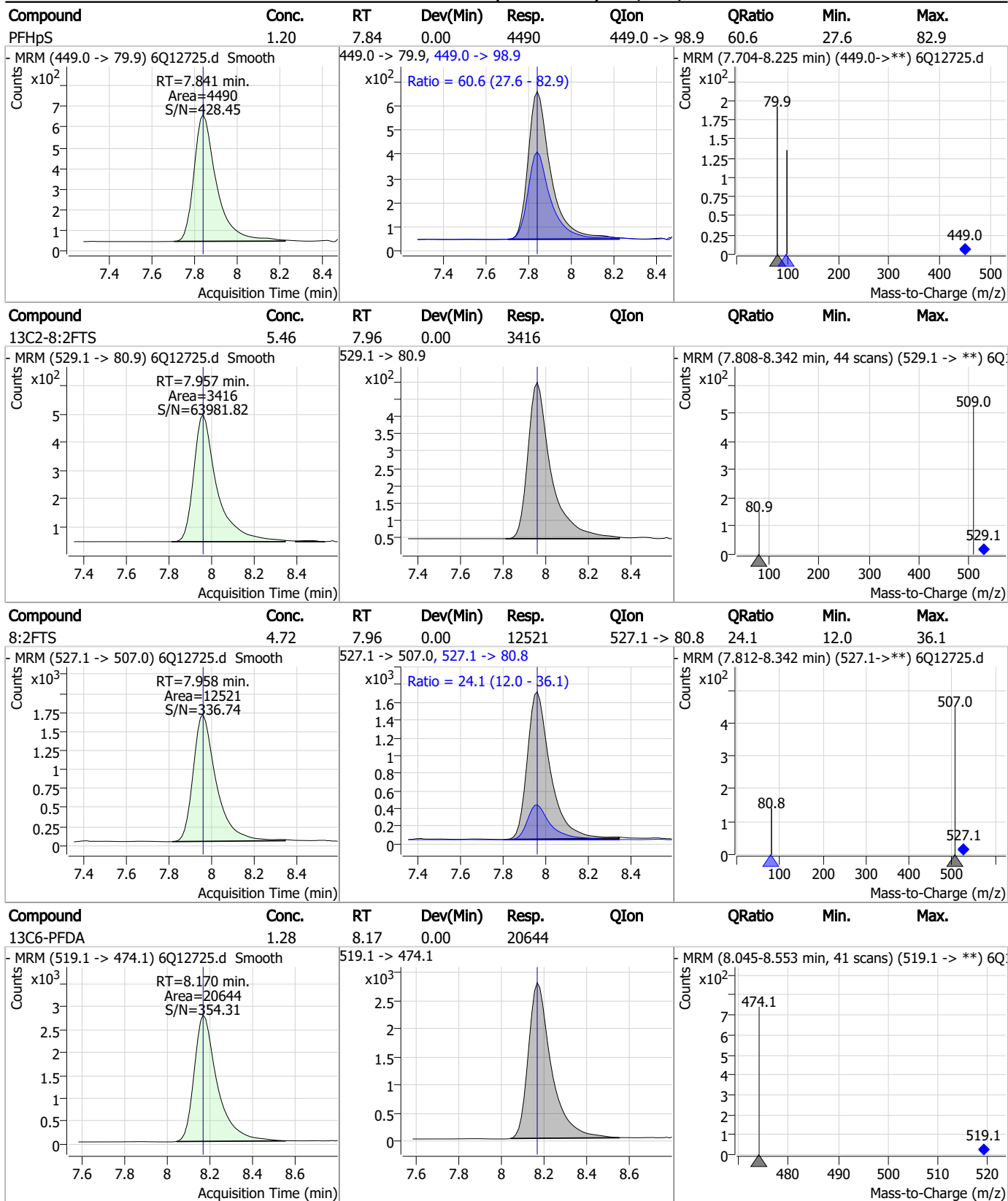
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Perfluorinated Compounds by LC/MS/MS



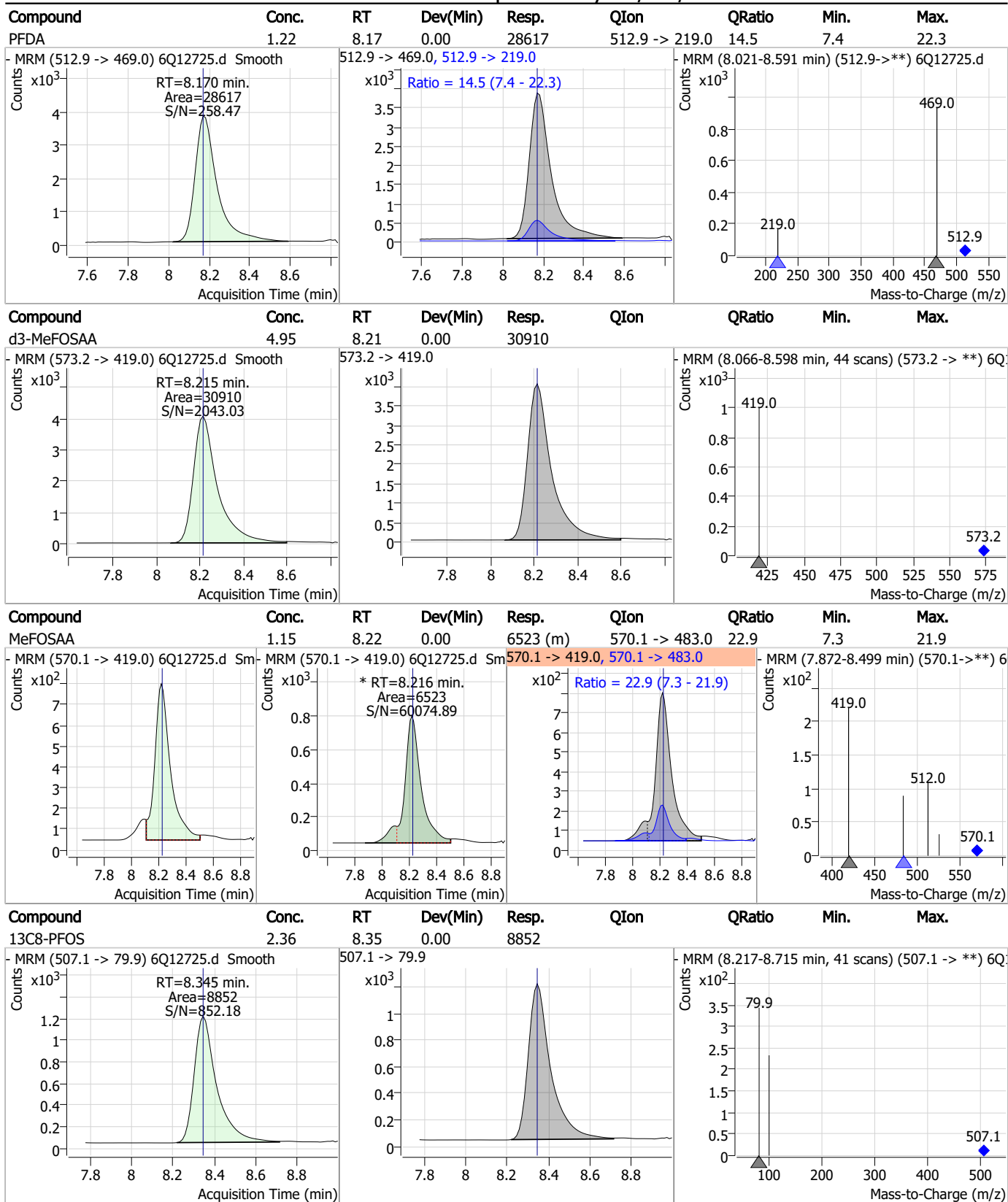
7.7.4
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Perfluorinated Compounds by LC/MS/MS



7.7.4
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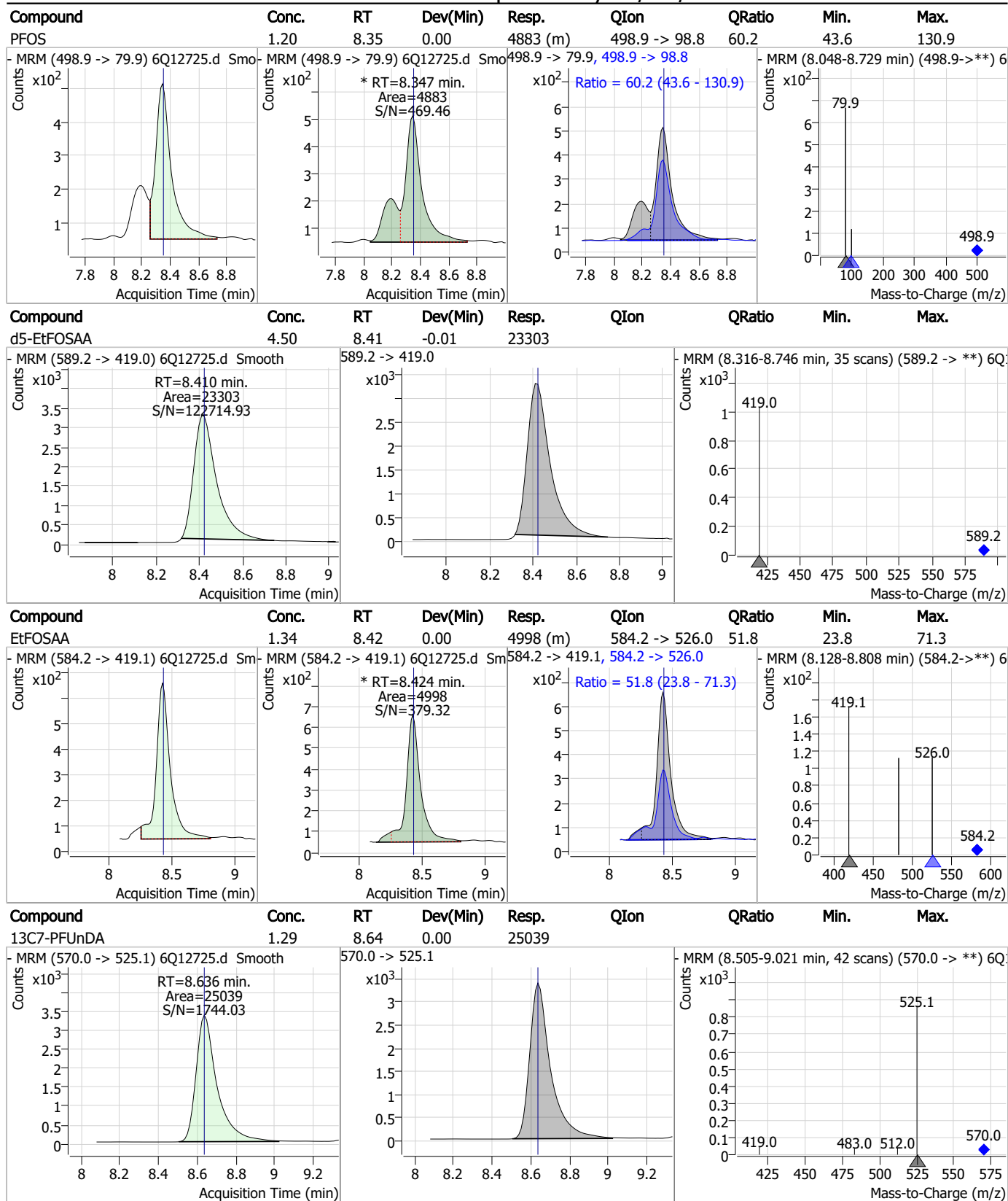
Perfluorinated Compounds by LC/MS/MS



7.7.4

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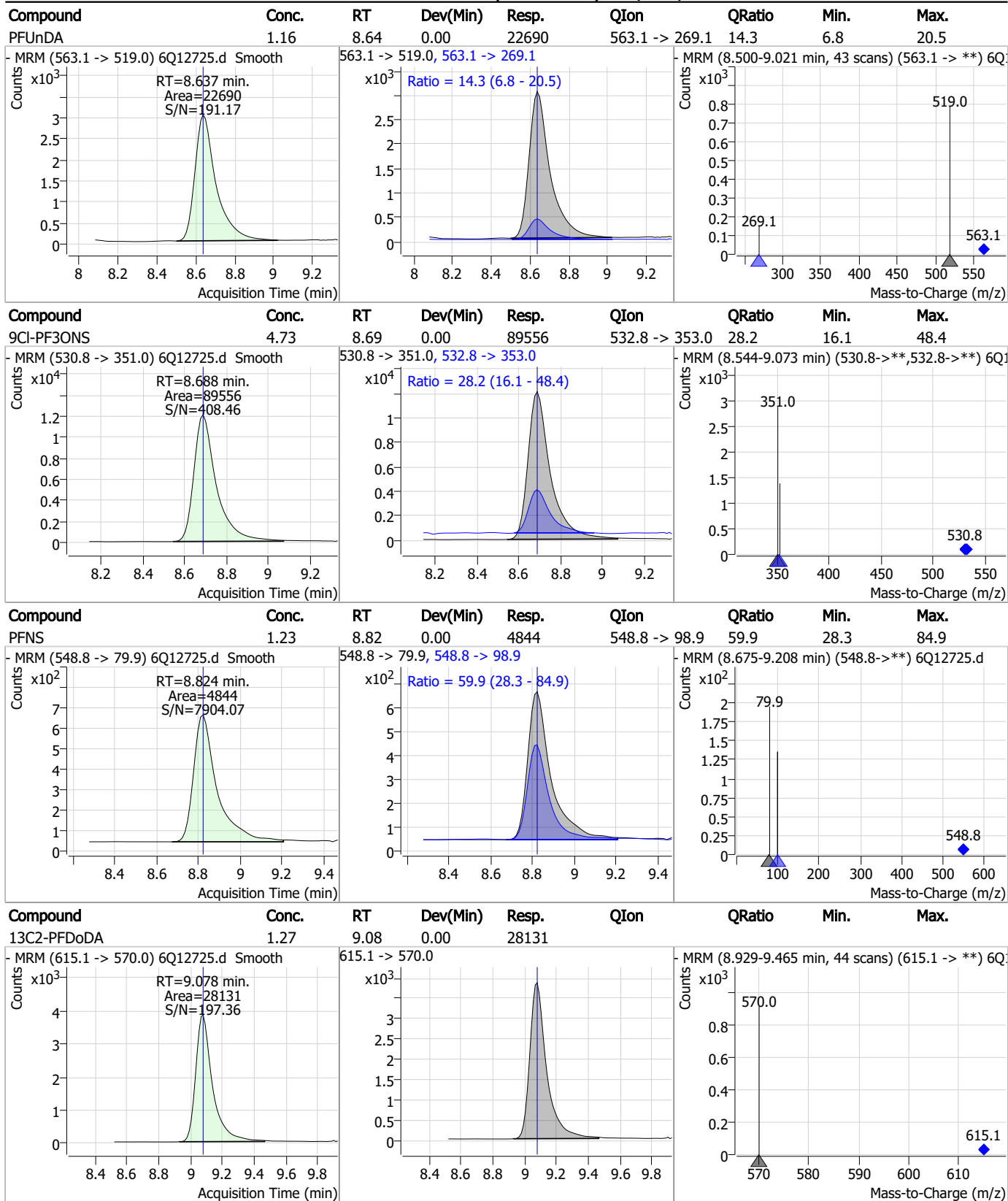
Perfluorinated Compounds by LC/MS/MS



7.7.4
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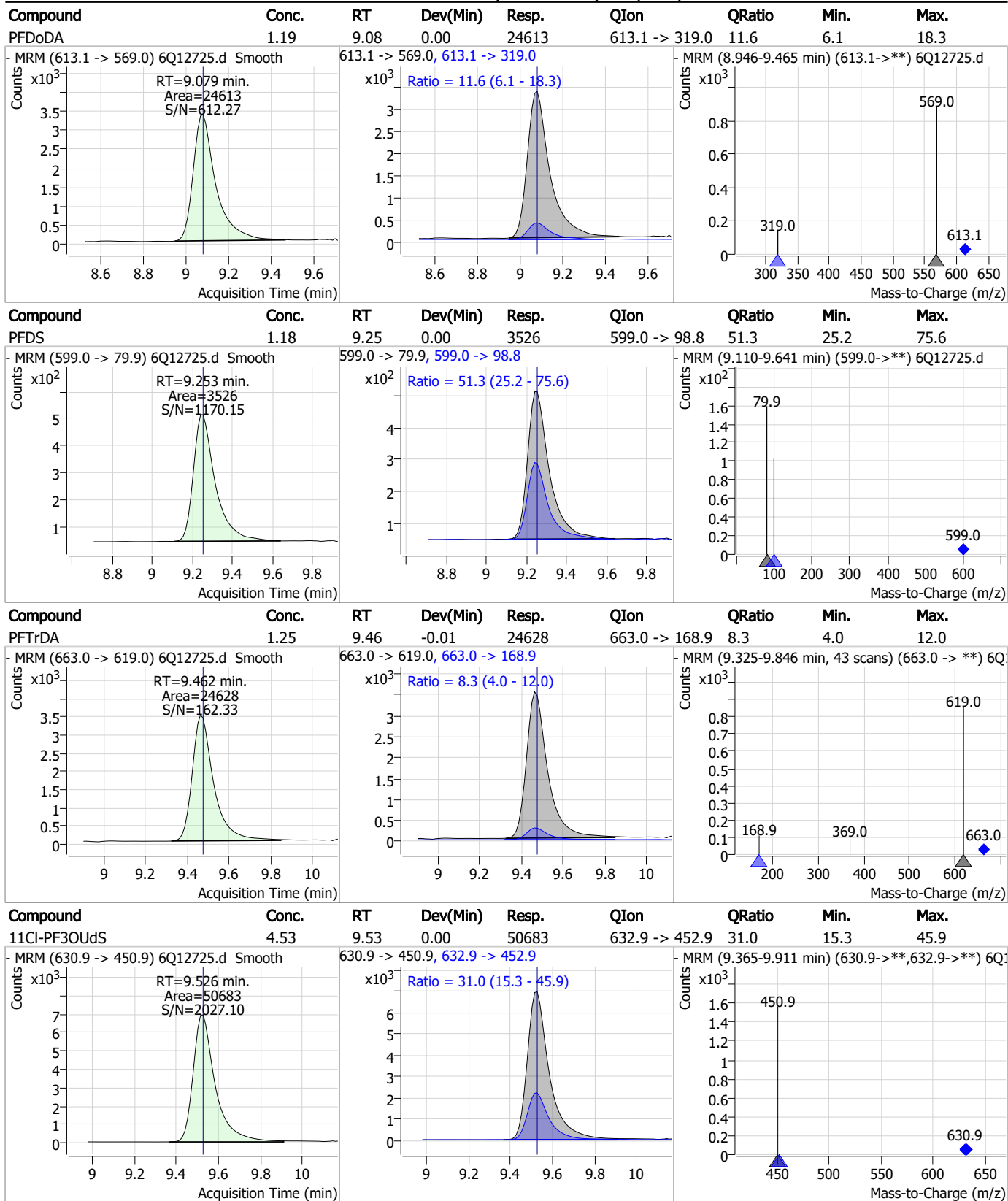
Perfluorinated Compounds by LC/MS/MS



7.7.4

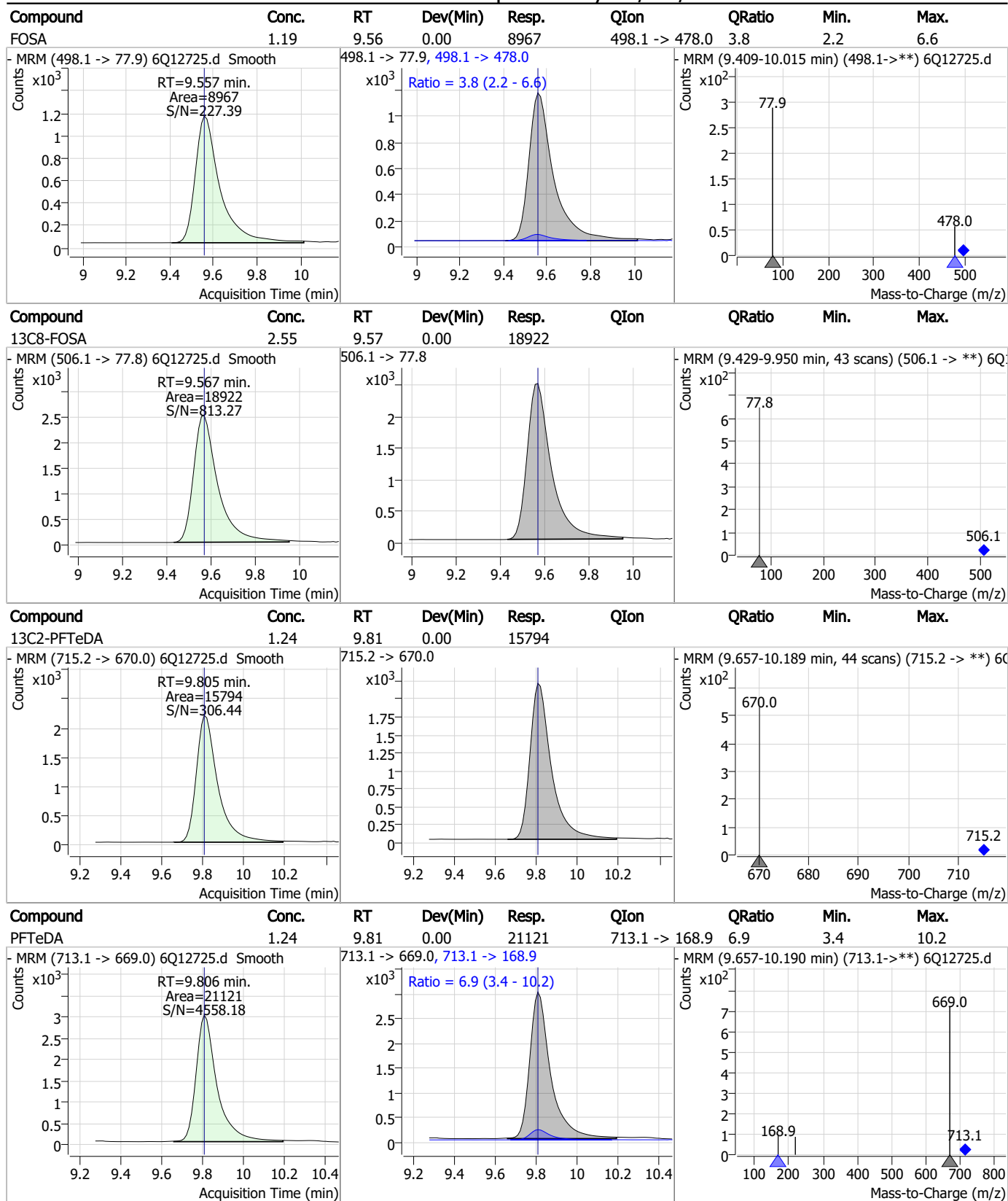
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Perfluorinated Compounds by LC/MS/MS



7.7.4
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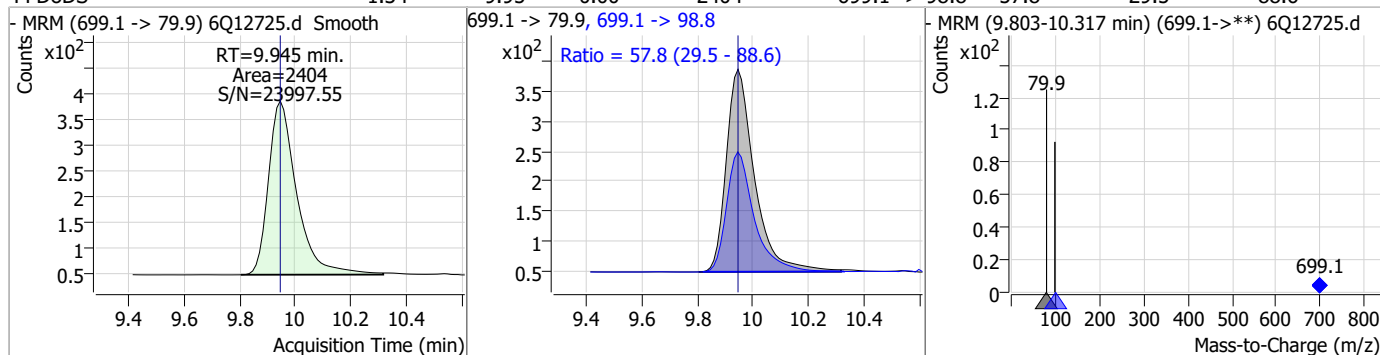
Perfluorinated Compounds by LC/MS/MS



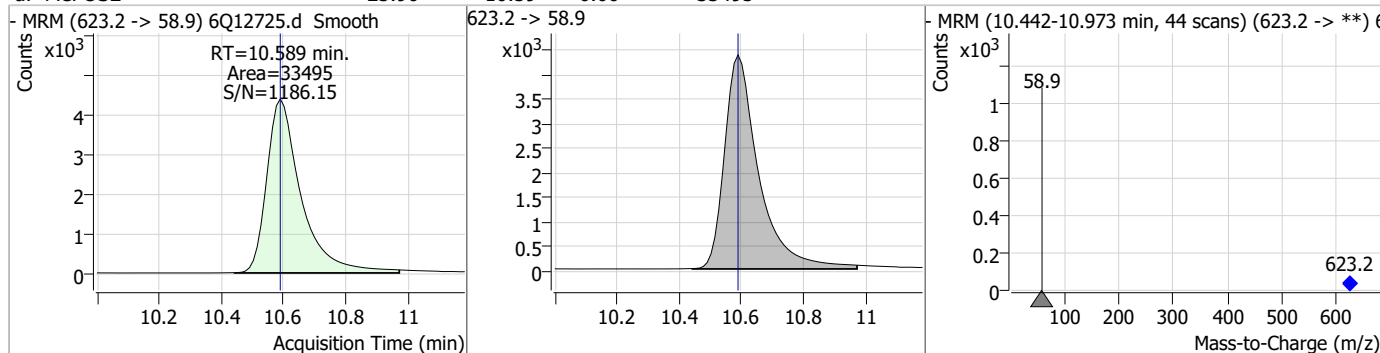
7.7.4
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Perfluorinated Compounds by LC/MS/MS

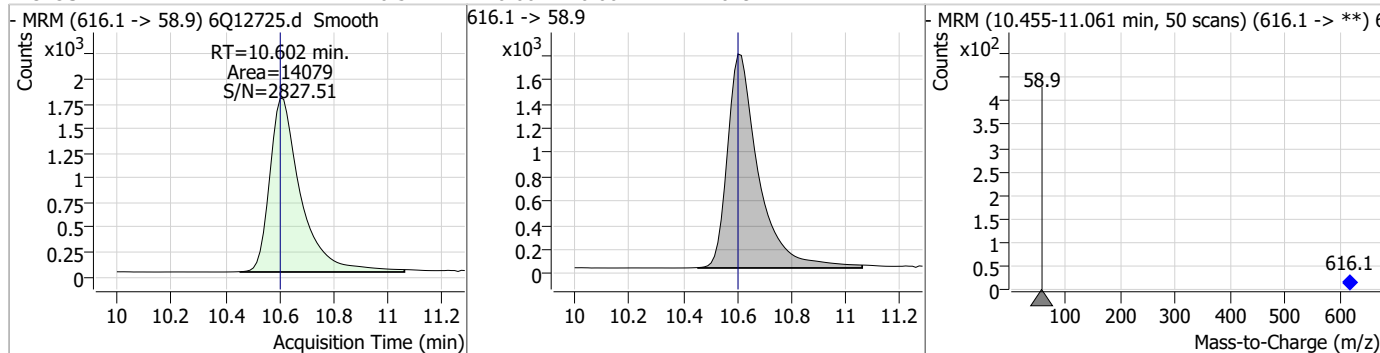
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	1.34	9.95	0.00	2404	699.1 -> 98.8	57.8	29.5	88.6



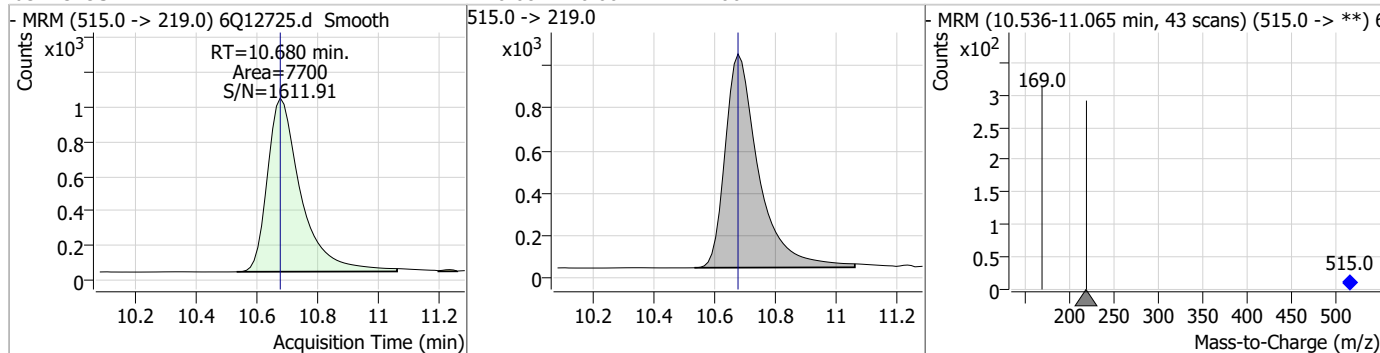
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.90	10.59	0.00	33495				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	10.54	10.60	0.00	14079				

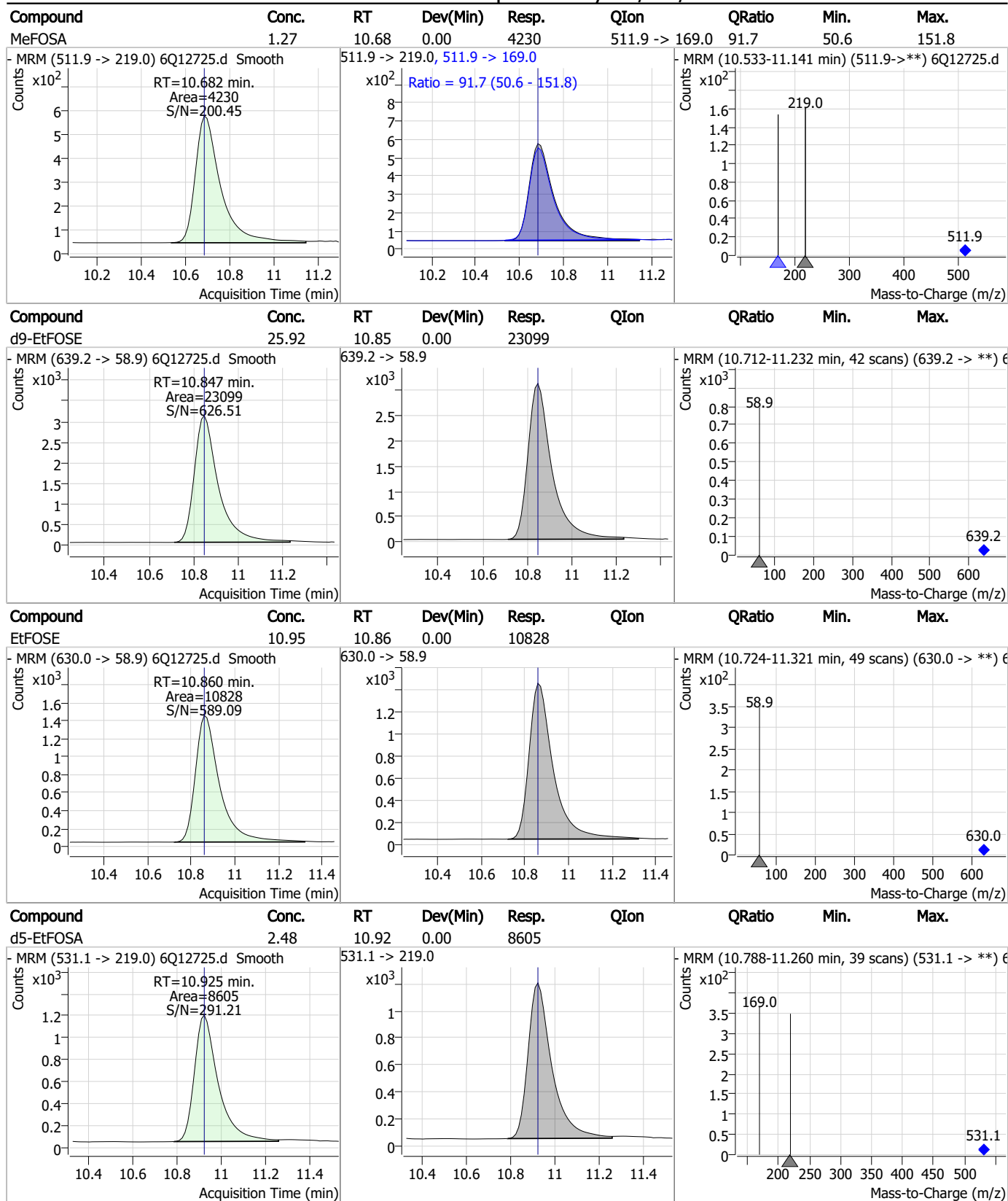


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.41	10.68	0.00	7700				



7.7.4
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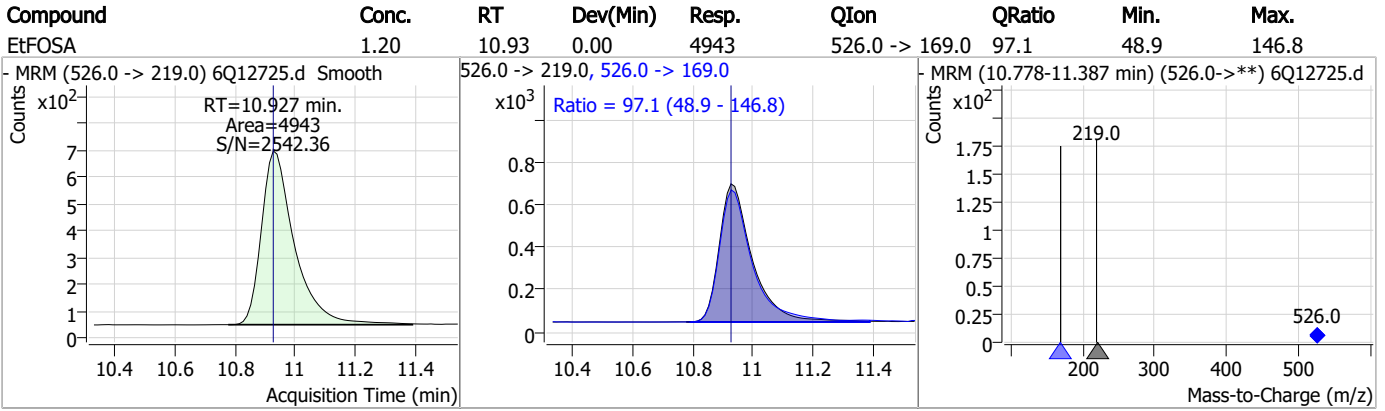
Perfluorinated Compounds by LC/MS/MS



7.7.4

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Perfluorinated Compounds by LC/MS/MS



7.7.4

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Manual Integration Approval Summary

Sample Number: S6Q196-IC196 Method: EPA DRAFT 1633
Lab FileID: 6Q12725.D Analyst approved: 02/02/23 11:53 Martha Valls
Injection Time: 02/01/23 18:19 Supervisor approved: 02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
MeFOSAA	2355-31-9		8.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

7.7.4.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12726.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/1/2023 6:33:16 PM
 Sample Name : icc196-4
 Vial : P1-A5
 DA Method File : 1633_020223_S6Q196.quantmethod.xml
 Batch Name : S6Q196.batch.bin
 Sample Information : OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.975	216.8 -> 171.9	81045	10.00 µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	41552	5.00 µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	35975	2.50 µg/L	0.000
M4-PFHpA	6.515	367.1 -> 322.0	38376	2.50 µg/L	0.000
M8-PFOA	7.159	421.1 -> 376.0	68201	2.50 µg/L	0.000
M9-PFNA	7.689	472.1 -> 427.0	30158	1.25 µg/L	0.000
M6-PFDA	8.170	519.1 -> 474.1	19642	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	24209	1.25 µg/L	0.000
M2-PFDoDA	9.078	615.1 -> 570.0	27325	1.25 µg/L	0.000
M2-PFTeDA	9.805	715.2 -> 670.0	15683	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	18290	2.50 µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	14169	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	9256	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	9316	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2323	5.00 µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	3200	5.00 µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	2863	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	30144	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	15057	10.00 µg/L	0.000
M5-EtFOSAA	8.422	589.2 -> 419.0	23831	5.00 µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	31414	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	21253	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	8213	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7400	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	11023	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	36535	5.00 µg/L	0.000
18O2-PFHxS	7.286	403.0 -> 83.9	7322	2.50 µg/L	0.000
13C4-PFOA	7.159	417.1 -> 372.0	79910	2.50 µg/L	0.000
13C2-PFDA	8.170	515.1 -> 470.1	27723	1.25 µg/L	0.000
13C5-PFNA	7.689	468.0 -> 423.0	32920	1.25 µg/L	0.000
13C2-PFHxA	5.576	315.1 -> 270.0	36044	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.240	329.1 -> 80.9	2323	4.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.6%		
13C2-6:2FTS	6.920	429.1 -> 80.9	3200	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2863	4.51 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.2%		
13C2-PFDoDA	9.078	615.1 -> 570.0	27325	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C2-PFTeDA	9.805	715.2 -> 670.0	15683	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.0%		
13C3-PFBS	5.518	302.1 -> 79.9	14169	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.0%		
13C3-PFHxS	7.274	402.1 -> 79.9	9256	2.40 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 = 96.2%	
13C4-PFBA	2.975	216.8 -> 171.9	81045	10.00 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFHpA	6.515	367.1 -> 322.0	38376	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C5-PFHxA	5.575	318.0 -> 273.0	35975	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C5-PFPeA	4.386	268.3 -> 223.0	41552	5.17 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C6-PFDA	8.170	519.1 -> 474.1	19642	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C7-PFUnDA	8.636	570.0 -> 525.1	24209	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C8-FOSA	9.567	506.1 -> 77.8	18290	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C8-PFOA	7.159	421.1 -> 376.0	68201	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C8-PFOS	8.345	507.1 -> 79.9	9316	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C9-PFNA	7.689	472.1 -> 427.0	30158	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.1%	
d3-MeFOSAA	8.215	573.2 -> 419.0	30144	4.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	15057	10.22 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
d3-MeFOSA	10.680	515.0 -> 219.0	7400	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.7%	
d5-EtFOSAA	8.422	589.2 -> 419.0	23831	4.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.1%	
d7-MeFOSE	10.589	623.2 -> 58.9	31414	25.10 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
d9-EtFOSE	10.847	639.2 -> 58.9	21253	24.64 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.6%	
d5-EtFOSA	10.925	531.1 -> 219.0	8213	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
Target Compounds					QValue
4:2FTS	5.240	327.1 -> 307.0	48473	9.31 µg/L	100
		327.1 -> 80.9	10617		
6:2FTS	6.921	427.1 -> 407.0	43537	9.29 µg/L	100
		427.1 -> 80.9	8078		
8:2FTS	7.958	527.1 -> 507.0	23220	10.44 µg/L	100
		527.1 -> 80.8	5590		
EtFOSAA	8.424	584.2 -> 419.1	9020	2.36 µg/L	m 87
		584.2 -> 526.0	5043		
FOSA	9.557	498.1 -> 77.9	16805	2.30 µg/L	100
		498.1 -> 478.0	740		
MeFOSAA	8.216	570.1 -> 419.0	12562	2.27 µg/L	92
		570.1 -> 483.0	2224		
PFBA	2.982	212.8 -> 168.9	16638	9.19 µg/L	100
PFBS	5.518	298.7 -> 79.9	11743	2.16 µg/L	100
		298.7 -> 98.8	5126		
PFDA	8.170	512.9 -> 469.0	52409	2.34 µg/L	100
		512.9 -> 219.0	7793		
PFDODA	9.079	613.1 -> 569.0	47321	2.36 µg/L	100
		613.1 -> 319.0	5764		
PFDS	9.253	599.0 -> 79.9	6826	2.16 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.515	599.0 -> 98.8	3440	2.31	µg/L	100
		363.1 -> 319.0	52449			
PFHpS	7.841	363.1 -> 169.0	6568	2.24	µg/L	100
		449.0 -> 79.9	8840			
PFHxA	5.578	449.0 -> 98.9	4888	2.22	µg/L	100
		313.0 -> 269.0	31377			
PFHxS	7.287	313.0 -> 118.9	1353	2.08	µg/L	95
		398.7 -> 79.9	8643			
PFNA	7.690	398.7 -> 98.9	5191	2.22	µg/L	100
		463.0 -> 419.0	45119			
PFNS	8.824	463.0 -> 219.0	8671	2.23	µg/L	100
		548.8 -> 79.9	9216			
PFOA	7.160	548.8 -> 98.9	5214	2.22	µg/L	100
		413.0 -> 369.0	66570			
PFOS	8.347	413.0 -> 169.0	9080	2.04	µg/L	79
		498.9 -> 79.9	8731			
PFPeA	4.388	498.9 -> 98.8	5942	4.52	µg/L	100
		263.0 -> 219.0	39627			
PFPeS	6.581	349.1 -> 79.9	10800	2.23	µg/L	100
		349.1 -> 98.9	5518			
PFTeDA	9.806	713.1 -> 669.0	39062	2.31	µg/L	100
		713.1 -> 168.9	2666			
PFTrDA	9.475	663.0 -> 619.0	44162	2.31	µg/L	100
		663.0 -> 168.9	3535			
PFUnDA	8.637	563.1 -> 519.0	44622	2.37	µg/L	100
		563.1 -> 269.1	6092			
11CI-PF3OUdS	9.526	630.9 -> 450.9	93819	8.68	µg/L	100
		632.9 -> 452.9	28684			
9CI-PF3ONS	8.688	530.8 -> 351.0	160664	8.80	µg/L	100
		532.8 -> 353.0	51833			
ADONA	6.766	376.9 -> 250.9	281709	8.62	µg/L	100
		376.9 -> 84.8	62877			
HFPO-DA	5.940	284.9 -> 168.9	12521	8.89	µg/L	100
		284.9 -> 184.9	1659			
3:3FTCA	3.841	241.0 -> 177.0	4887	11.34	µg/L	100
		241.0 -> 117.0	725			
5:3FTCA	6.206	341.0 -> 237.1	176343	59.77	µg/L	100
		341.0 -> 217.0	153804			
7:3FTCA	7.617	441.0 -> 316.9	110415	57.25	µg/L	100
		441.0 -> 336.9	231871			
EtFOSA	10.927	526.0 -> 219.0	9349	2.38	µg/L	100
		526.0 -> 169.0	9150			
EtFOSE	10.860	630.0 -> 58.9	20527	22.57	µg/L	100
		511.9 -> 219.0	7762			
MeFOSA	10.682	511.9 -> 169.0	7856	2.42	µg/L	100
		616.1 -> 58.9	28719			
MeFOSE	10.602	699.1 -> 79.9	4076	22.92	µg/L	100
		699.1 -> 98.8	2408			
PFDoDS	9.945	295.0 -> 201.0	3919	2.16	µg/L	100
		295.0 -> 84.9	2015			
NFDHA	5.457	279.0 -> 85.1	11121	4.70	µg/L	100
		229.0 -> 84.9	10505			
PFMBA	3.541	314.8 -> 134.9	86334	4.49	µg/L	100
		314.8 -> 82.9	1954			
PFEESA	6.059			4.25	µg/L	100

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

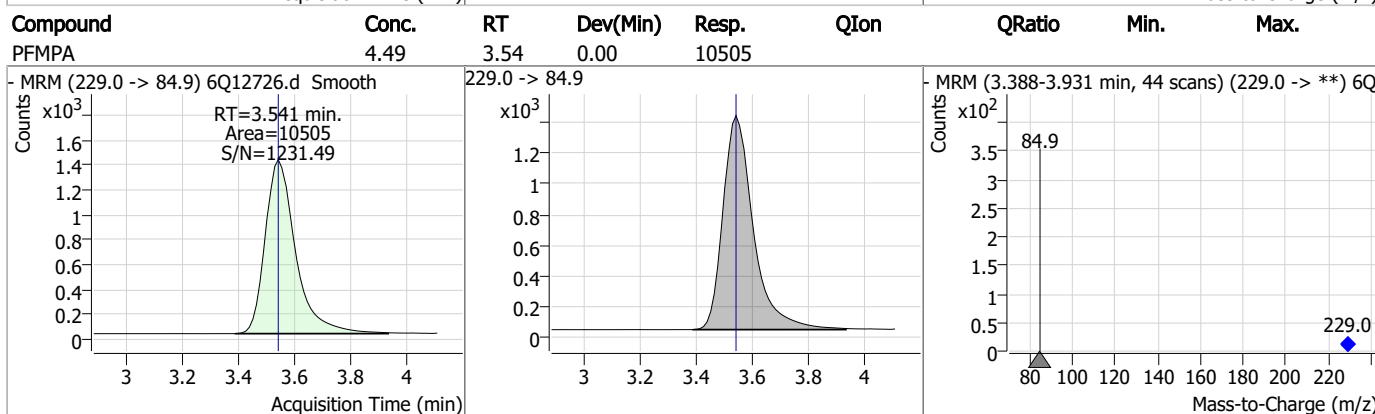
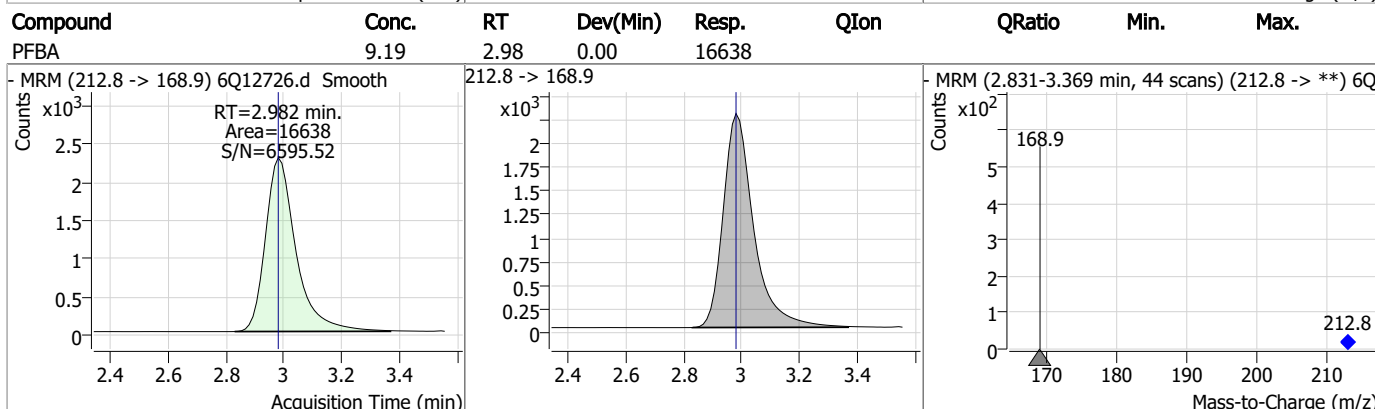
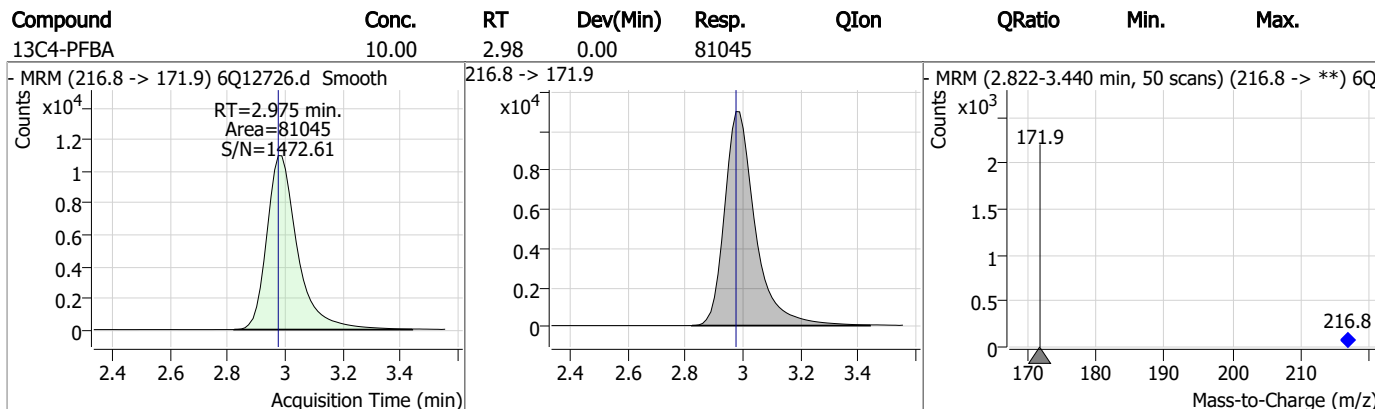
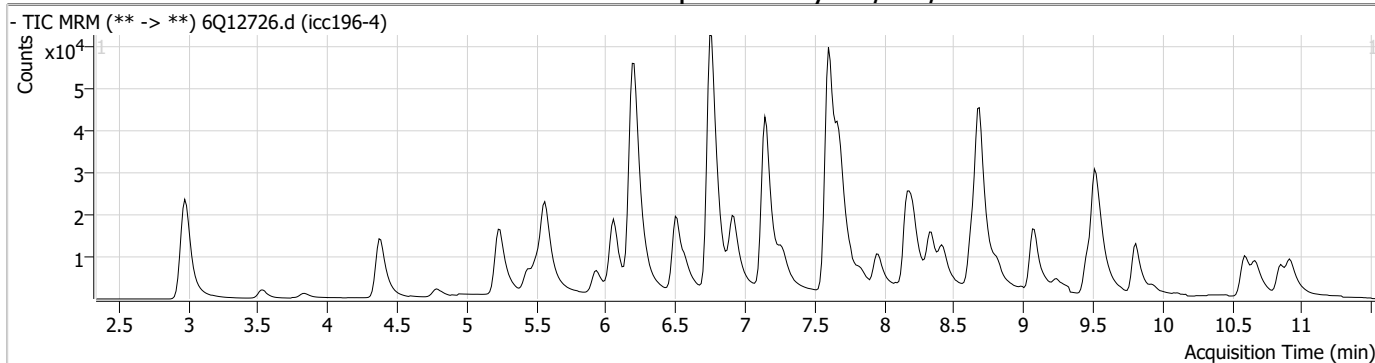
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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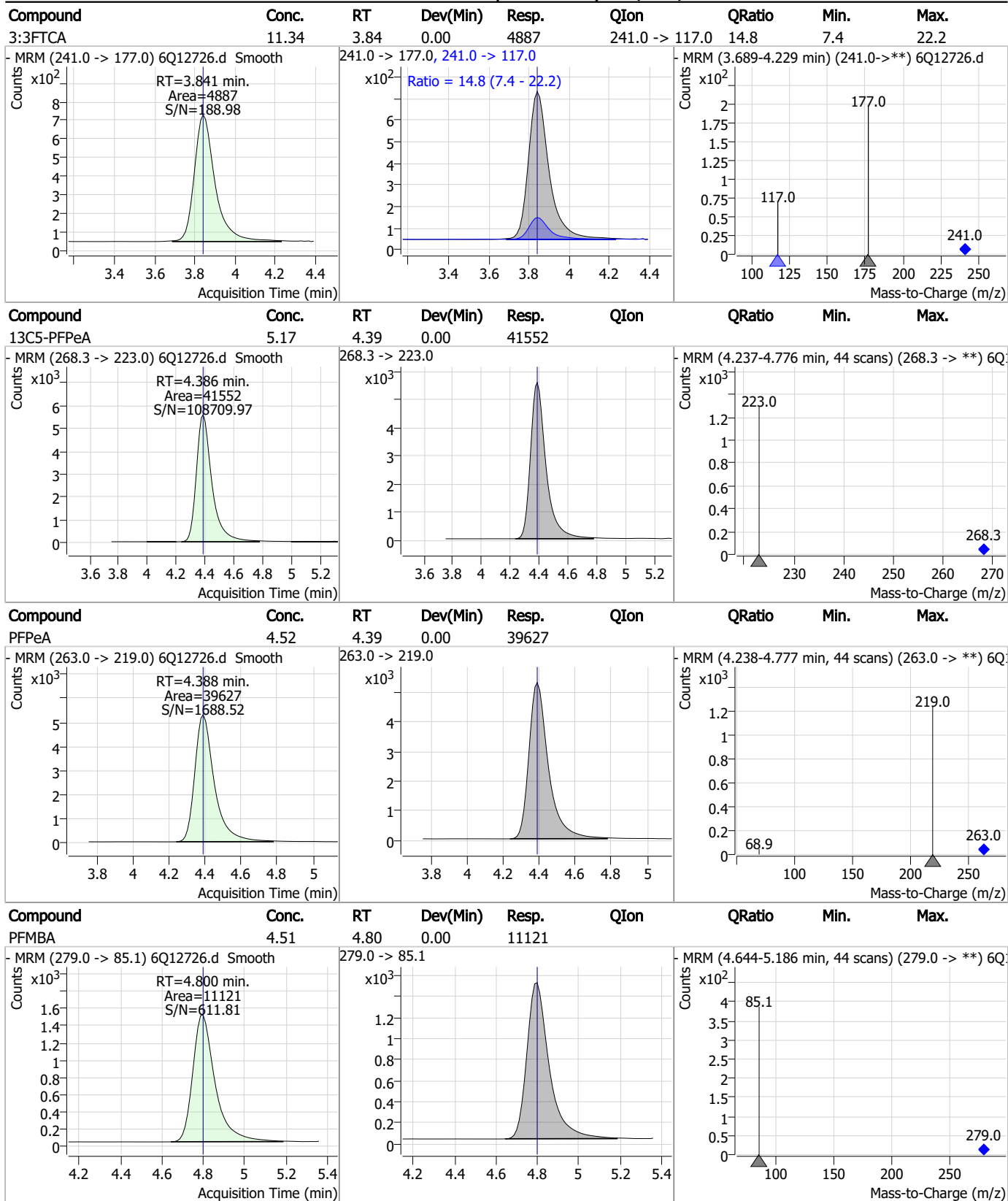
7.7.5
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Perfluorinated Compounds by LC/MS/MS

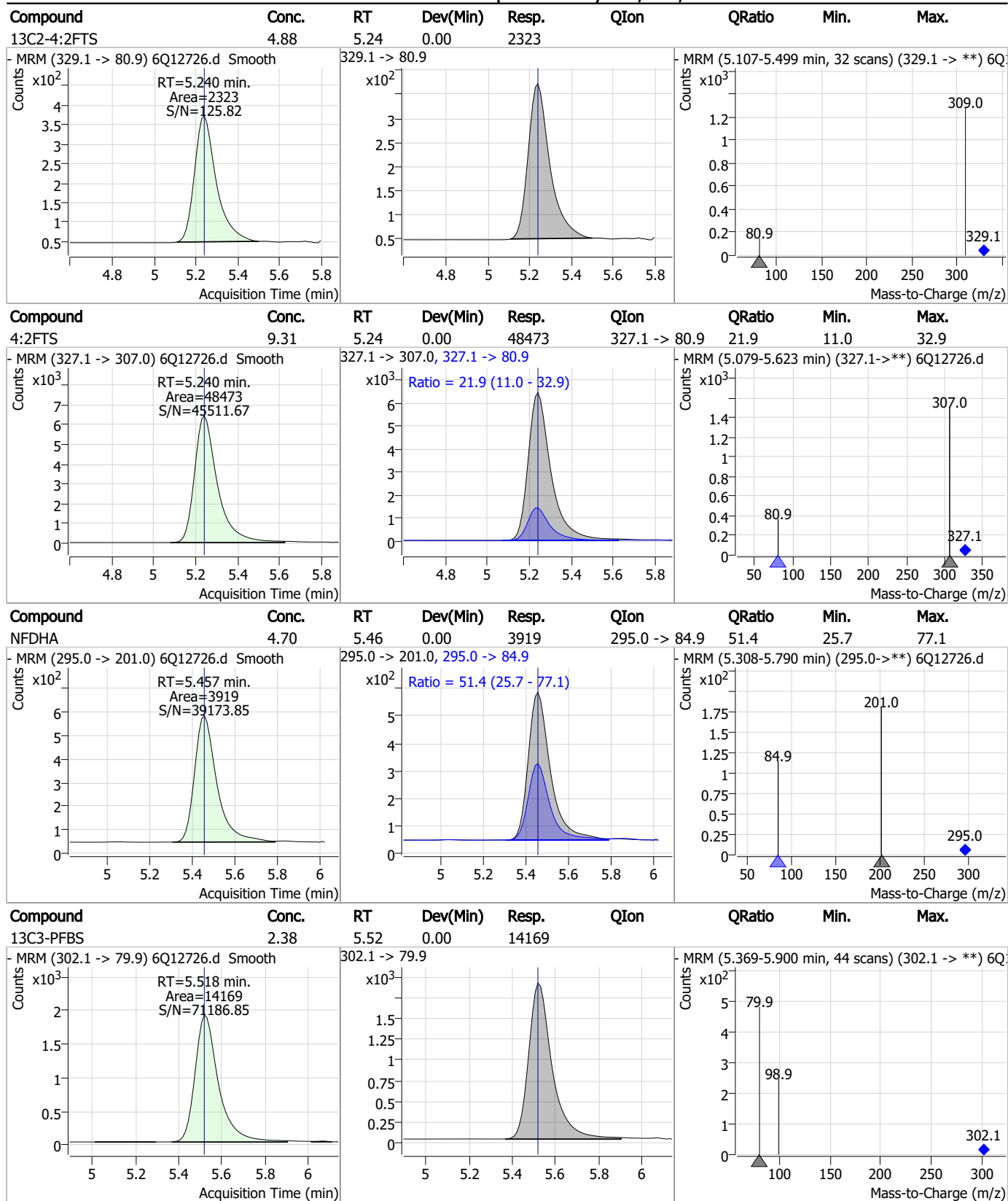


Perfluorinated Compounds by LC/MS/MS



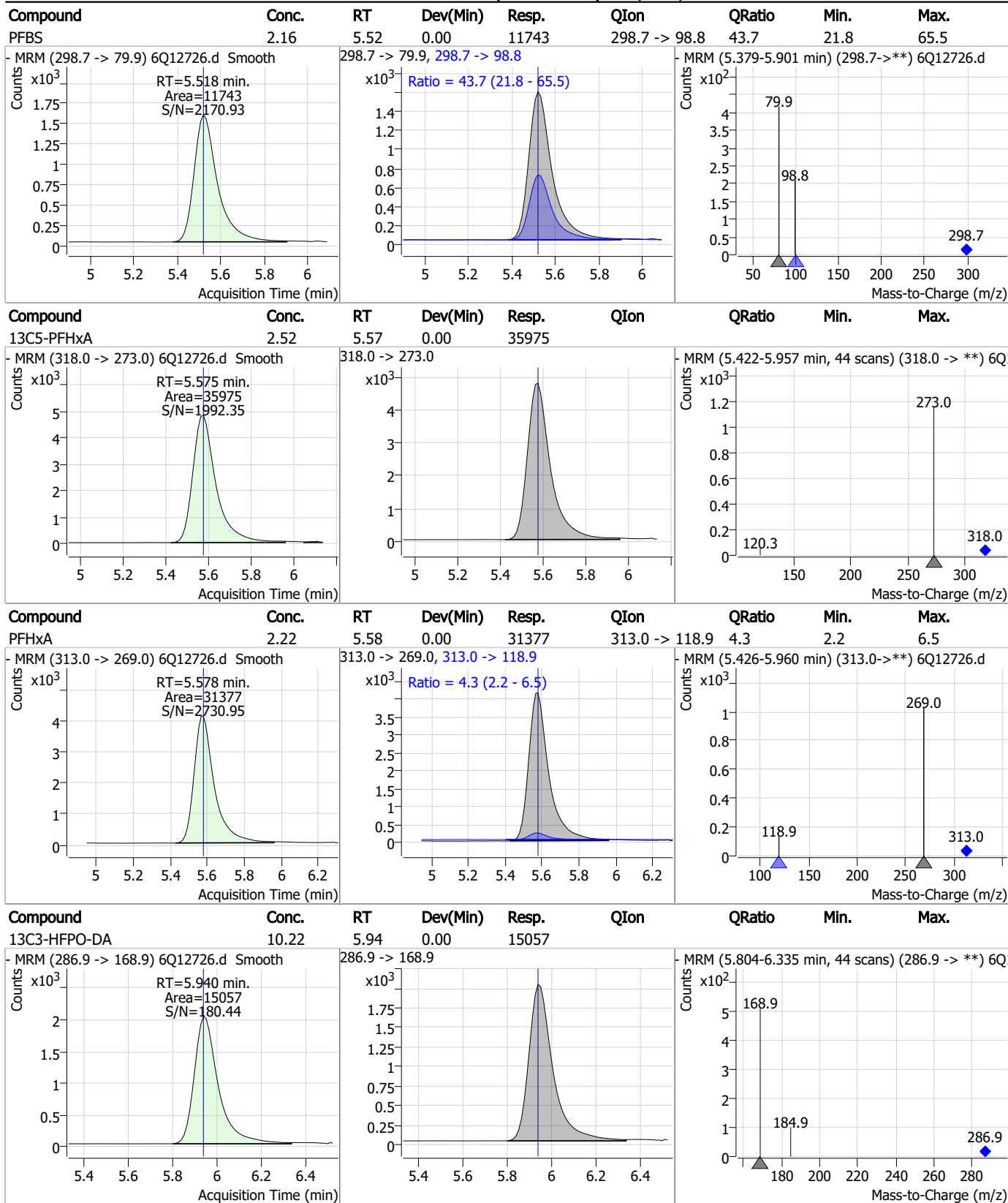
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Perfluorinated Compounds by LC/MS/MS



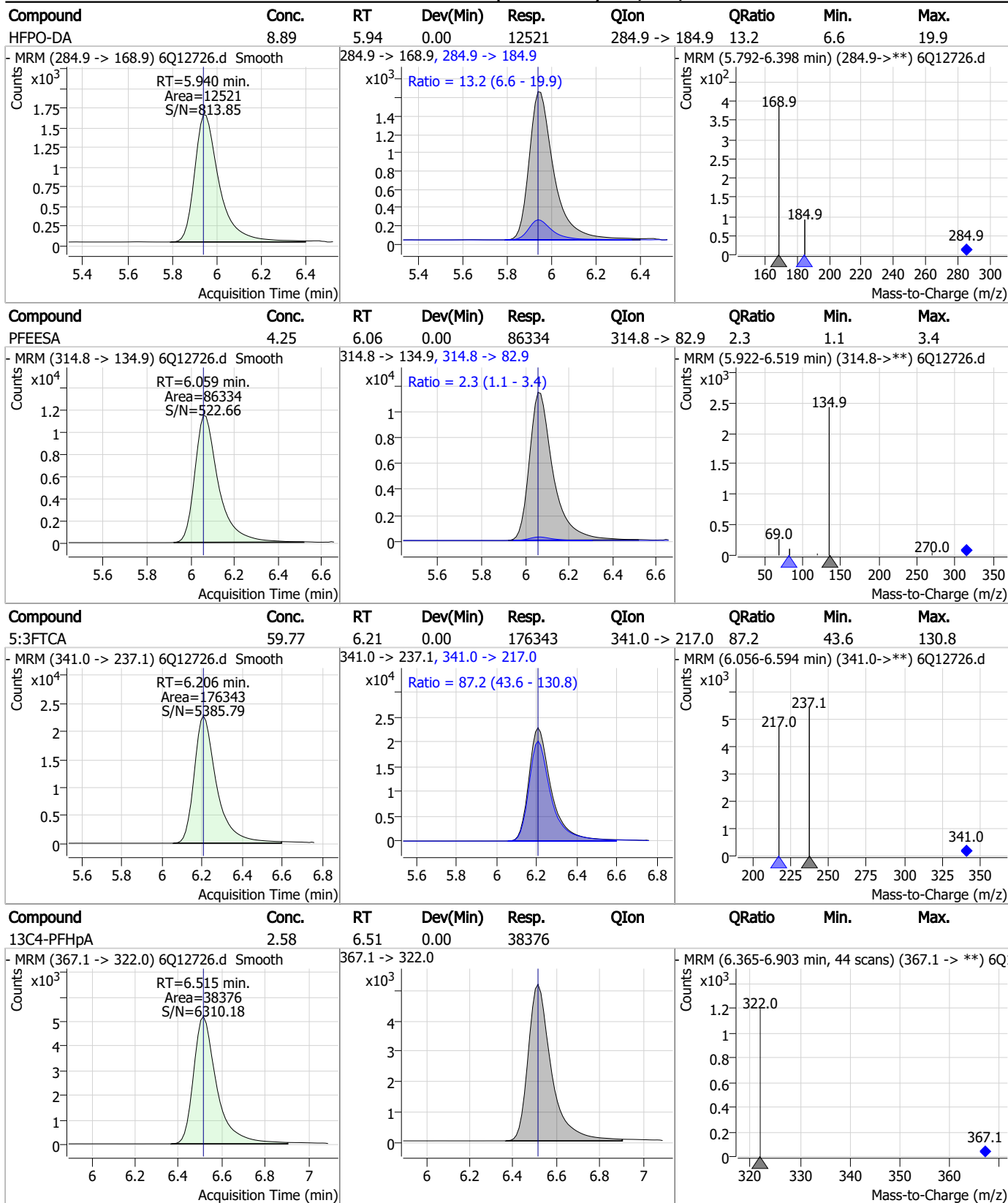
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Perfluorinated Compounds by LC/MS/MS



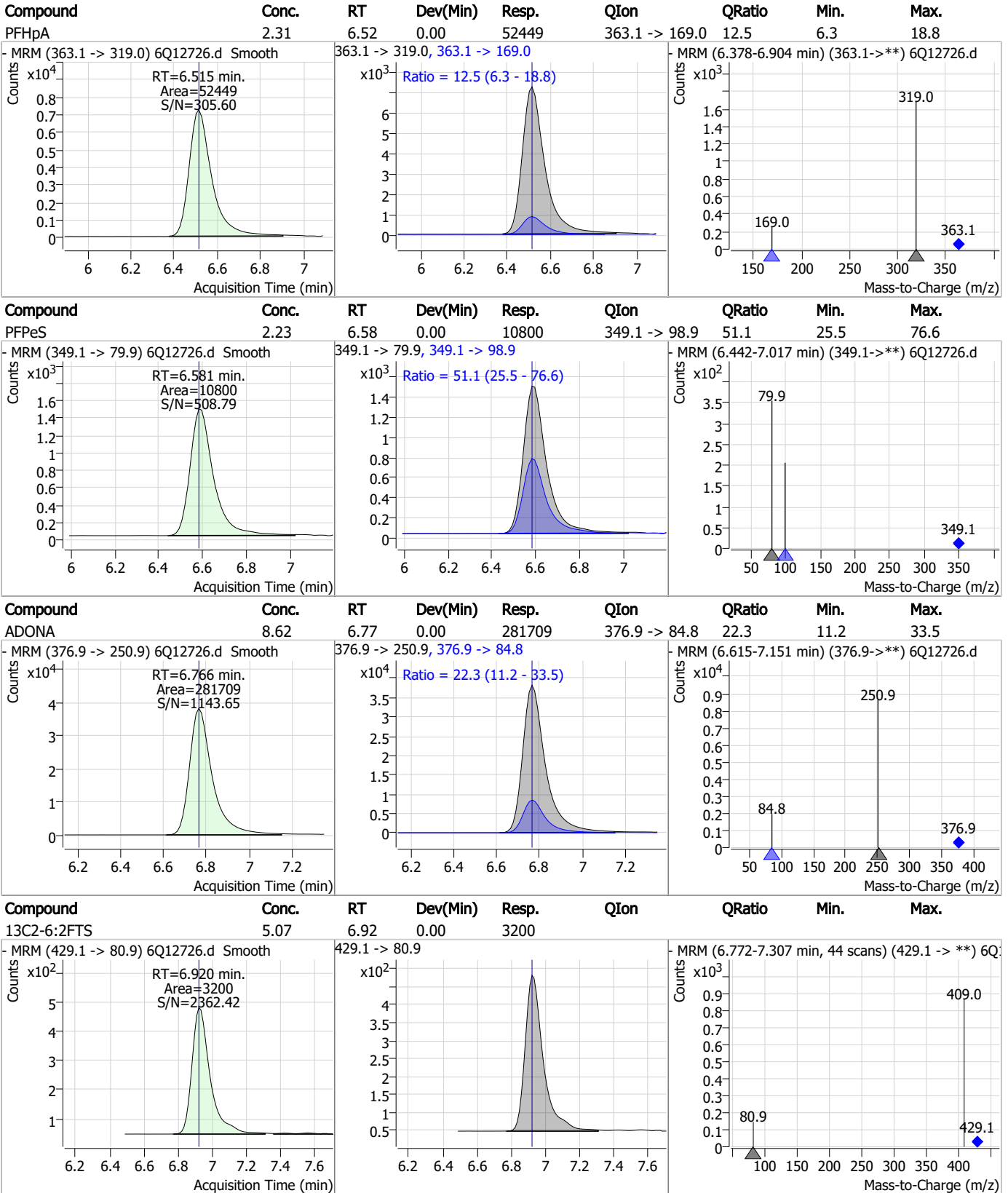
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Perfluorinated Compounds by LC/MS/MS



7.7.5
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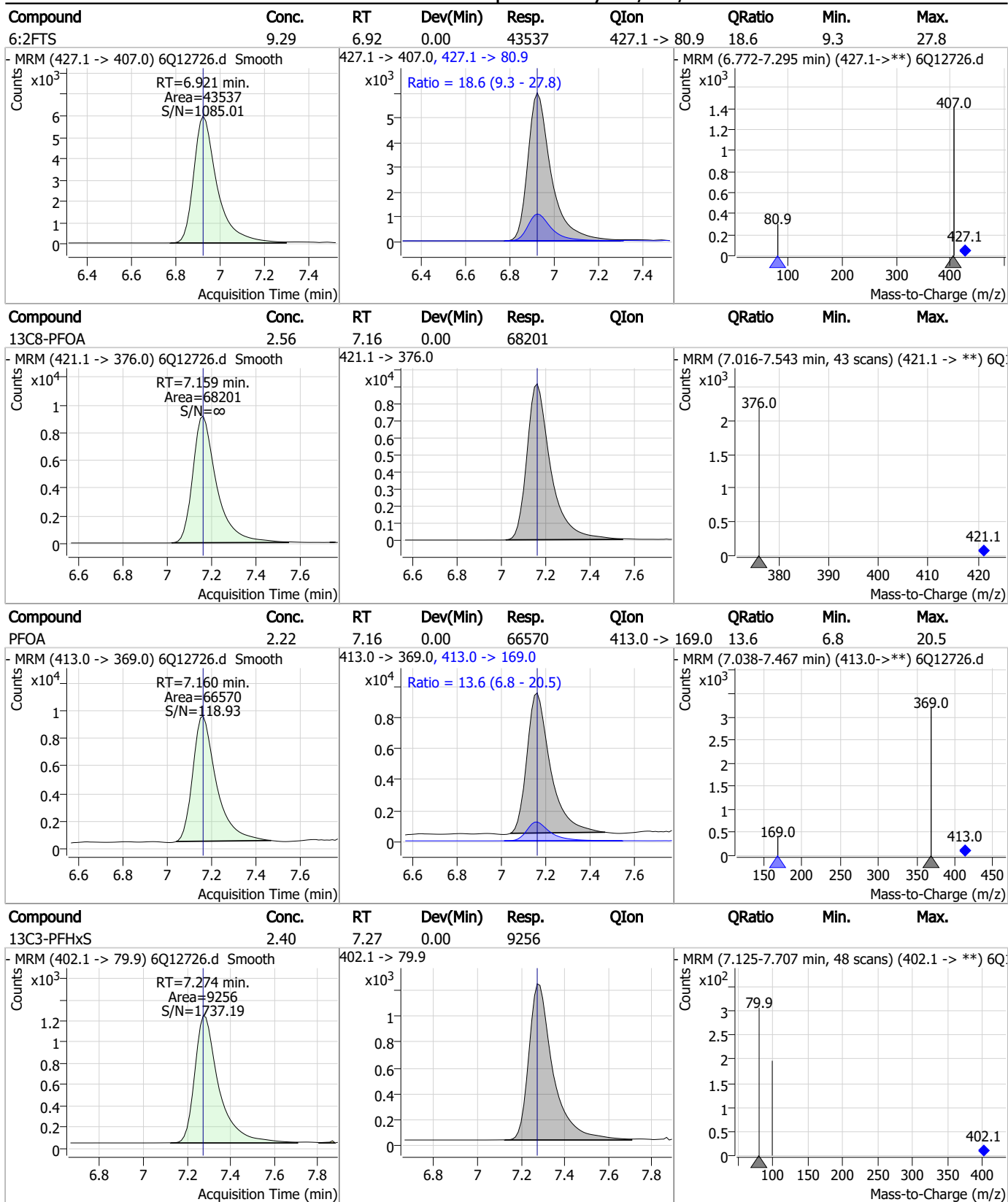
Perfluorinated Compounds by LC/MS/MS



7.7.5

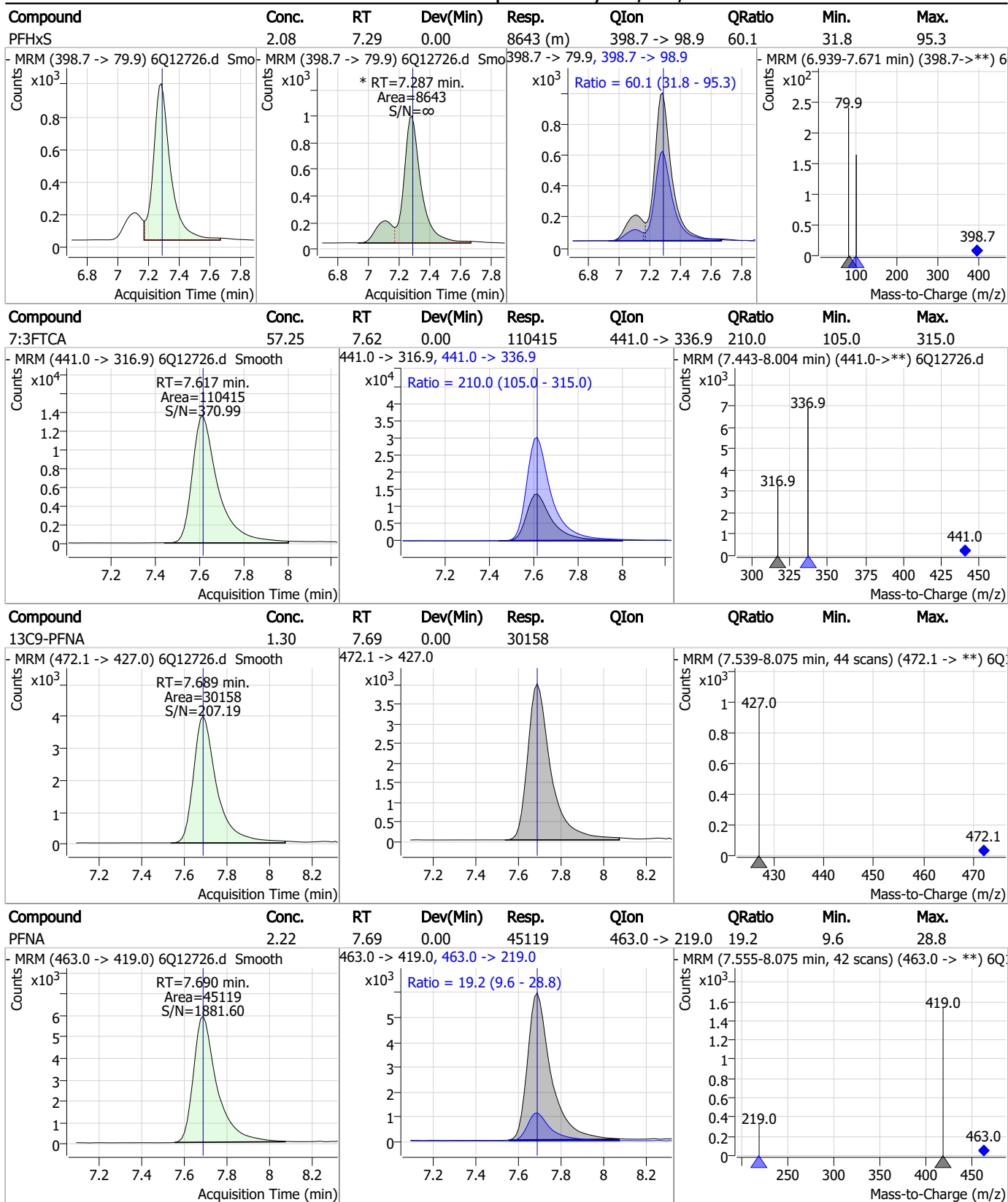
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Perfluorinated Compounds by LC/MS/MS



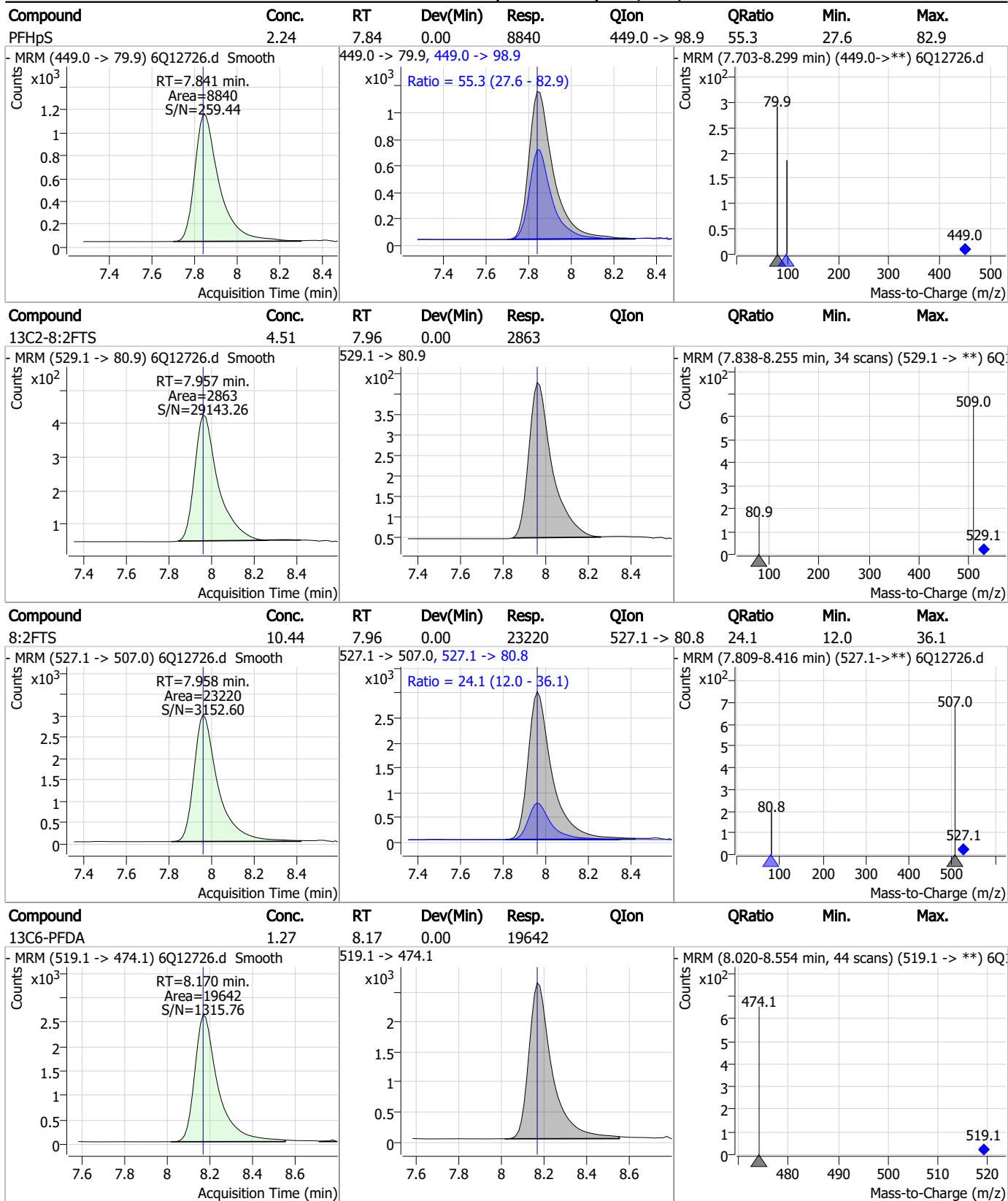
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Perfluorinated Compounds by LC/MS/MS



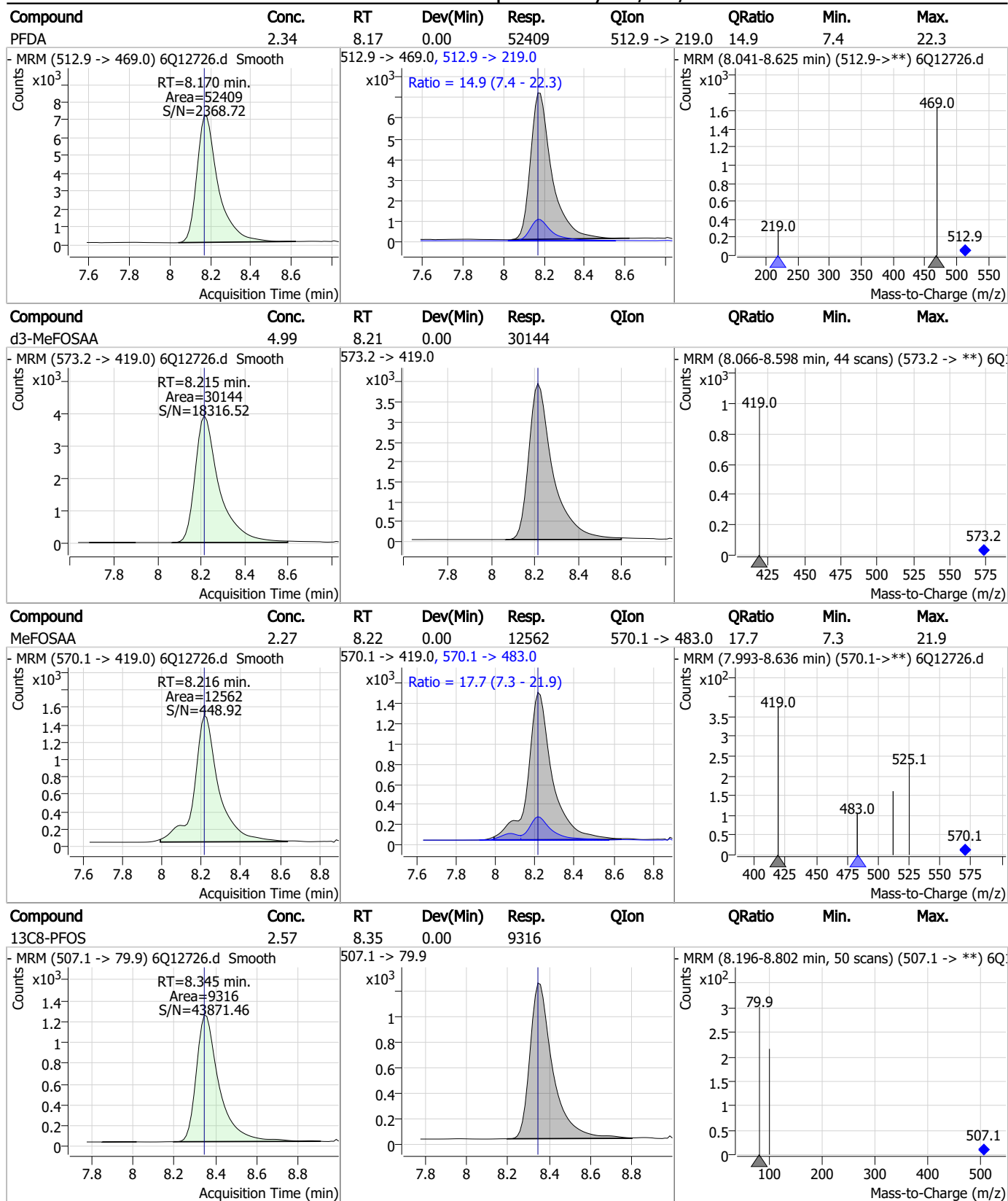
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Perfluorinated Compounds by LC/MS/MS



7.7.5
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Perfluorinated Compounds by LC/MS/MS

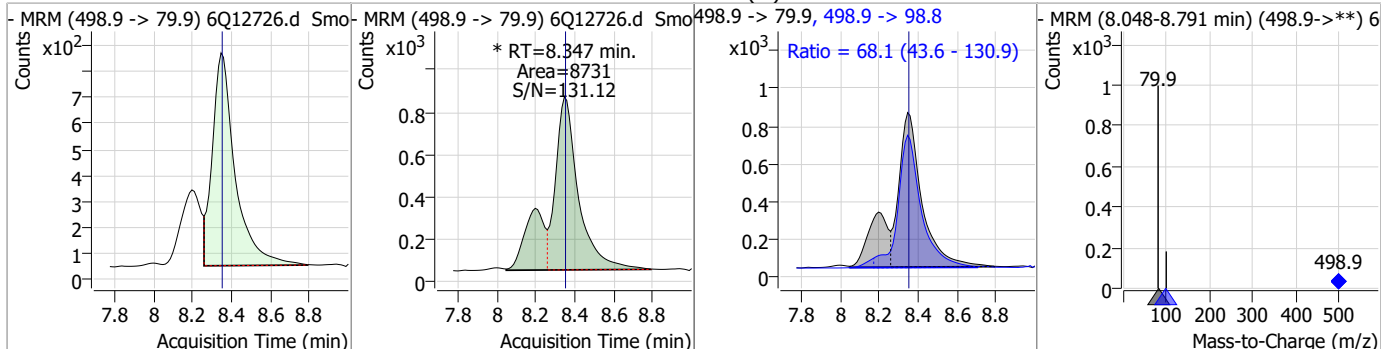


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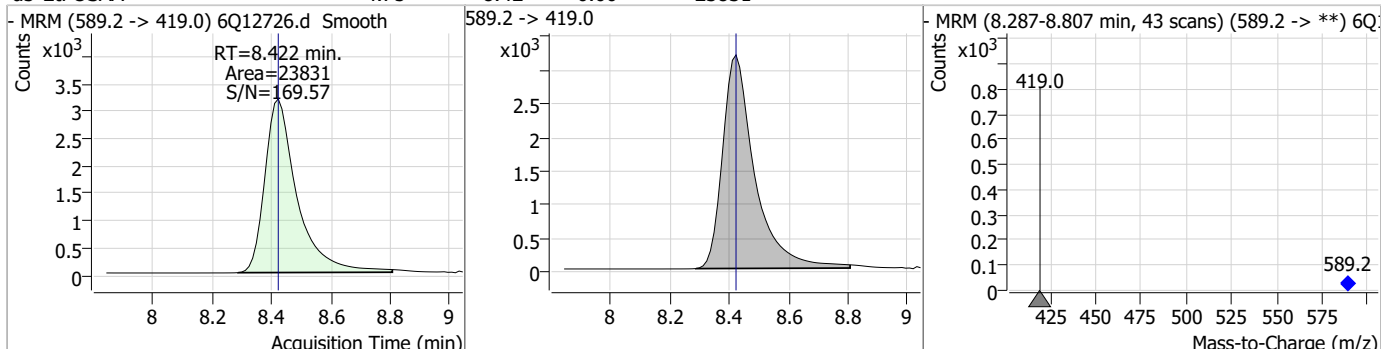
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Perfluorinated Compounds by LC/MS/MS

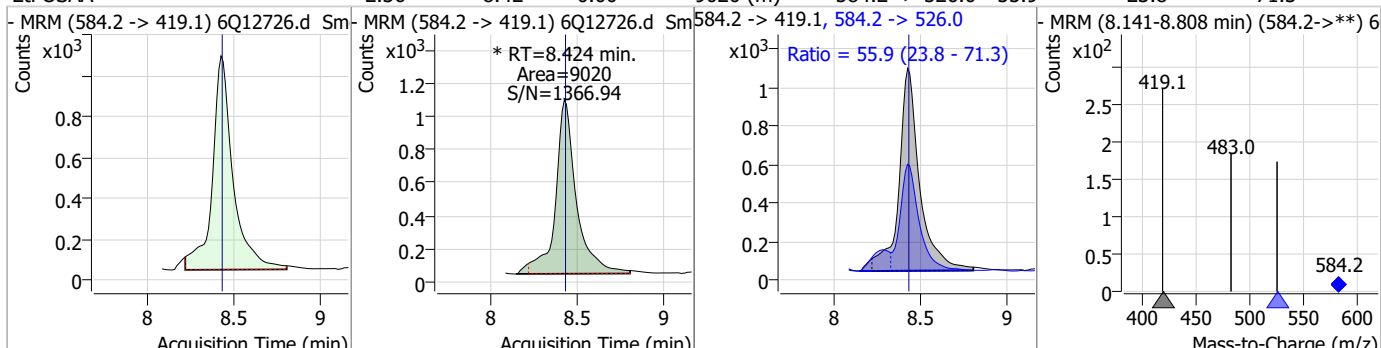
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.04	8.35	0.00	8731 (m)	498.9 -> 98.8	68.1	43.6	130.9



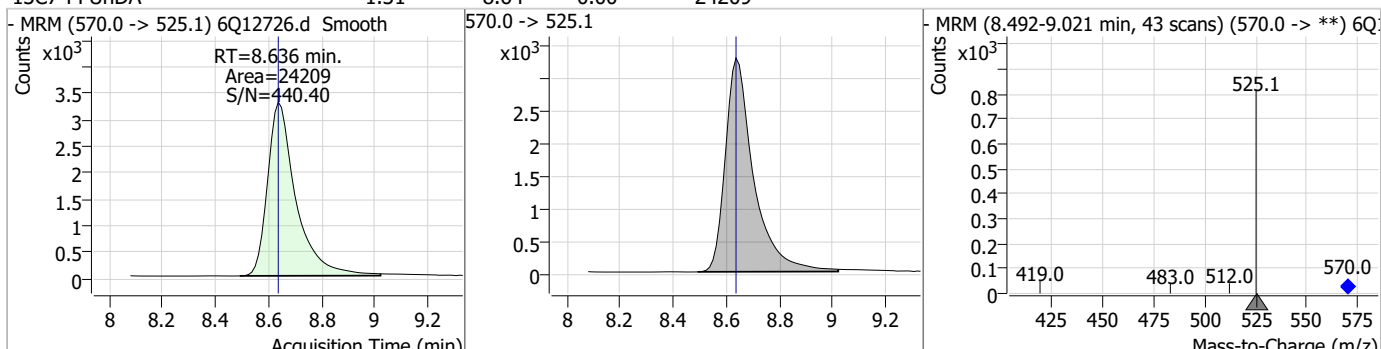
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.75	8.42	0.00	23831				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.36	8.42	0.00	9020 (m)	584.2 -> 526.0	55.9	23.8	71.3

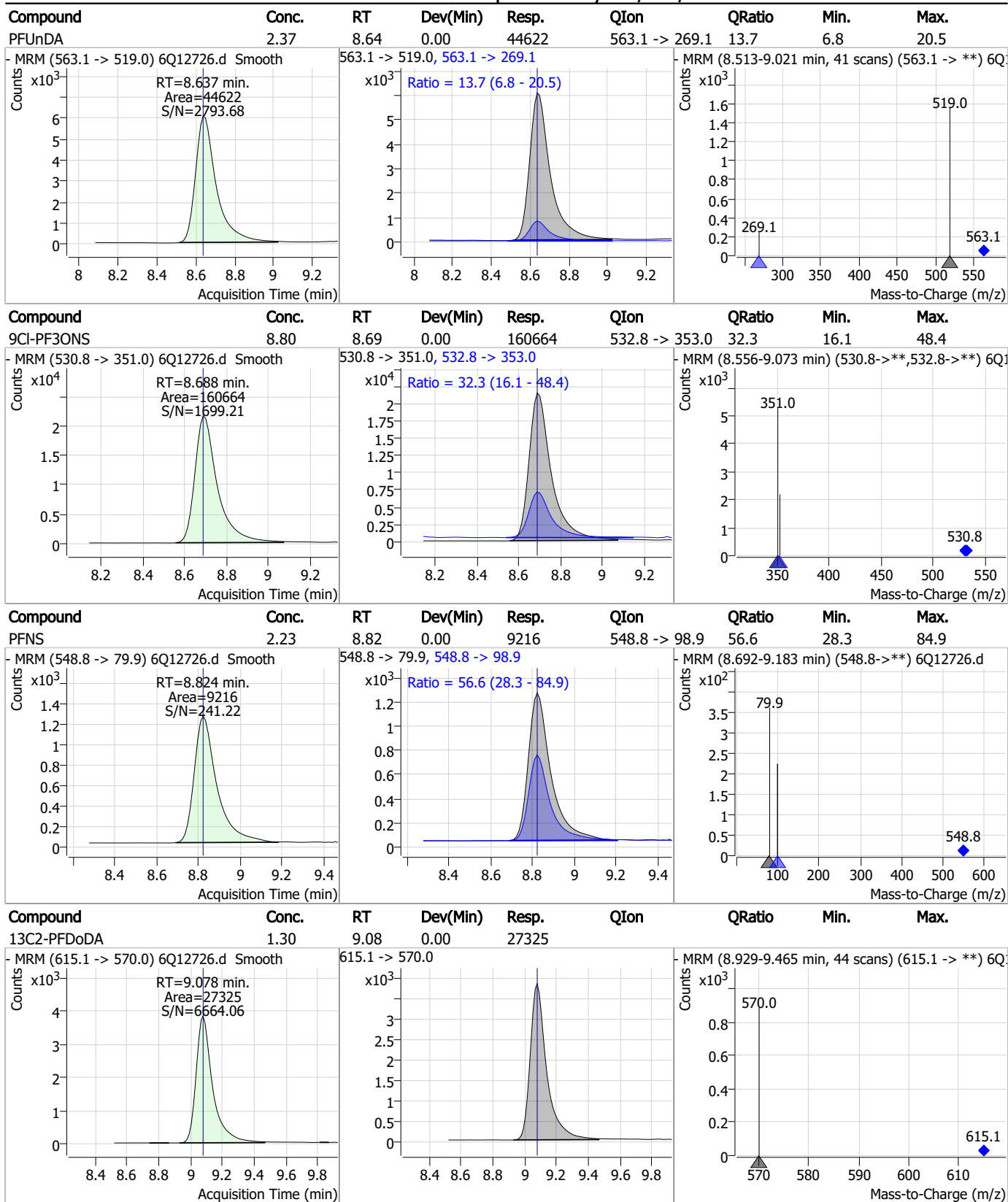


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.31	8.64	0.00	24209				



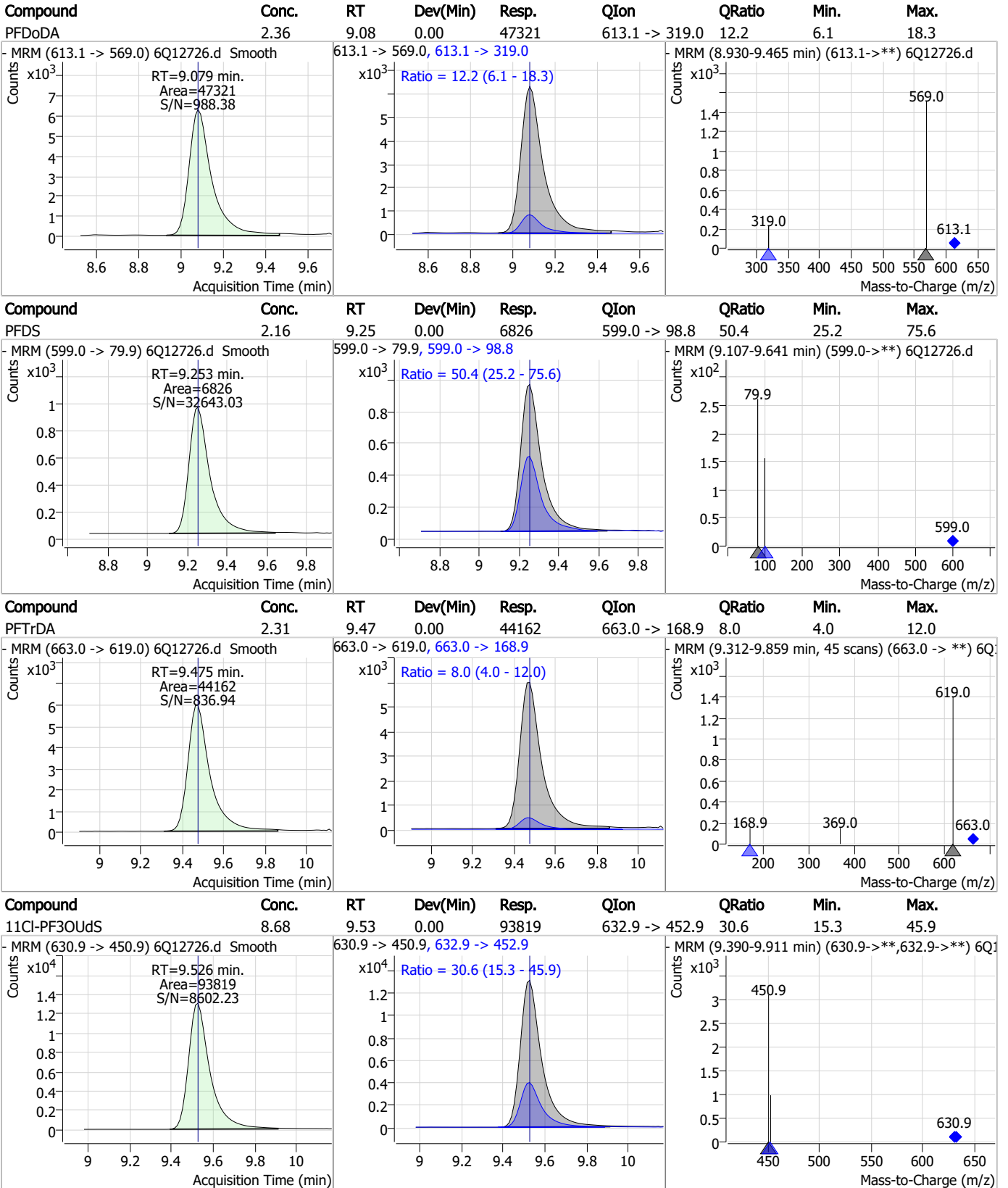
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Perfluorinated Compounds by LC/MS/MS



7.7.5
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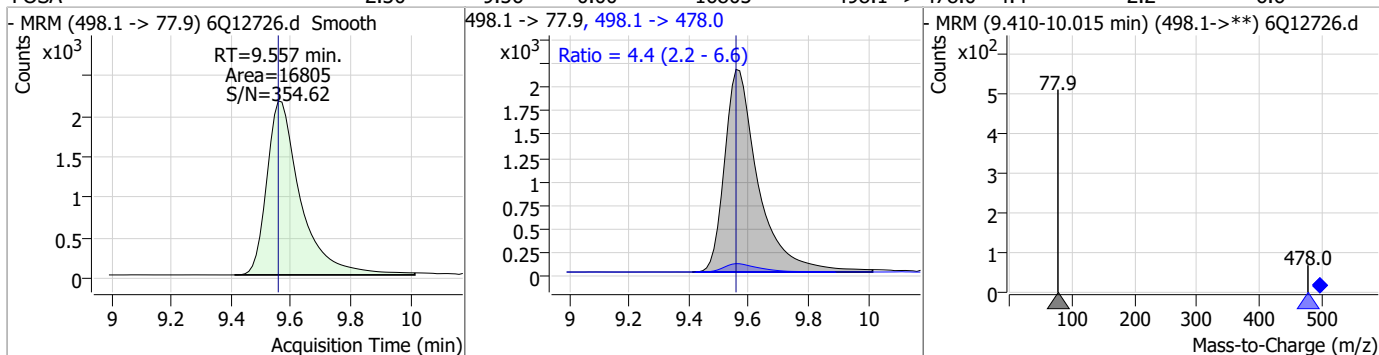
Perfluorinated Compounds by LC/MS/MS



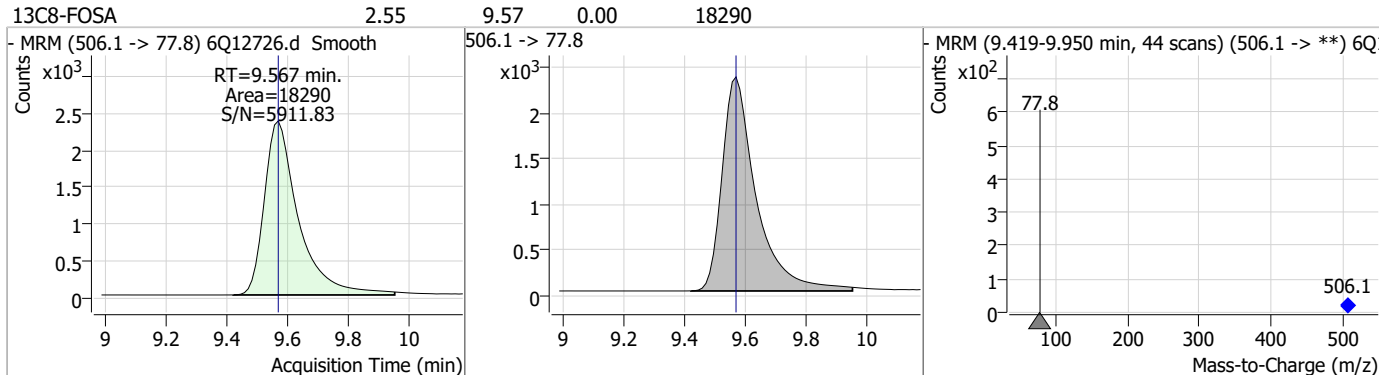
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Perfluorinated Compounds by LC/MS/MS

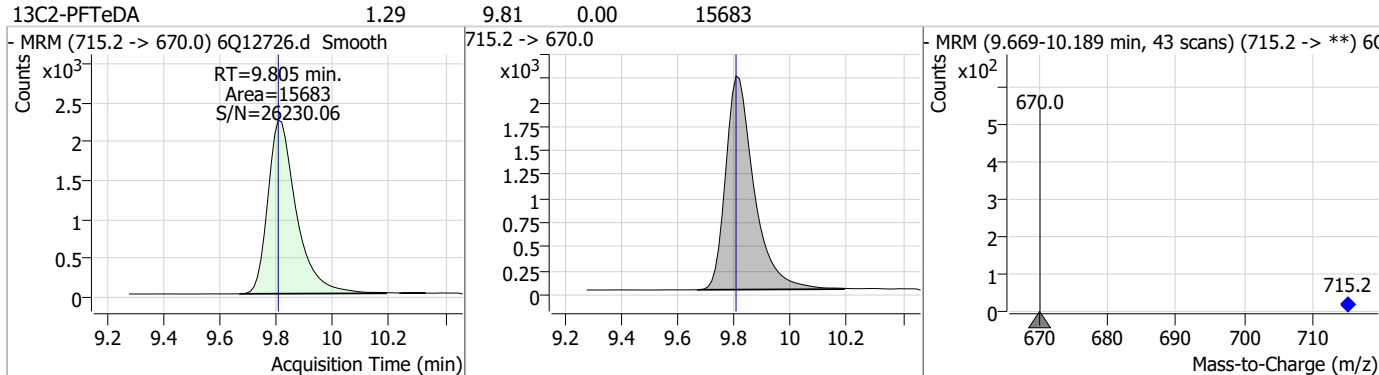
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.30	9.56	0.00	16805	498.1 -> 478.0	4.4	2.2	6.6



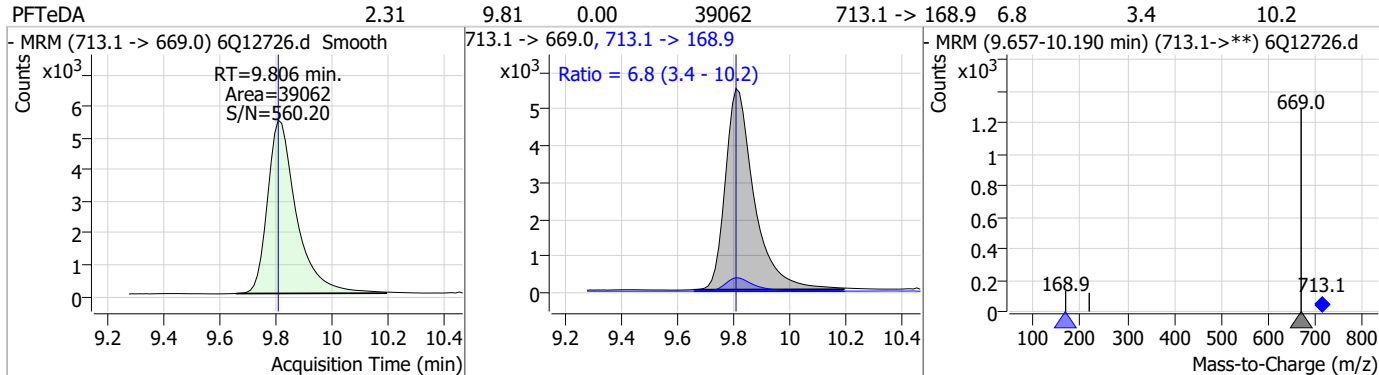
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.55	9.57	0.00	18290				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.29	9.81	0.00	15683				



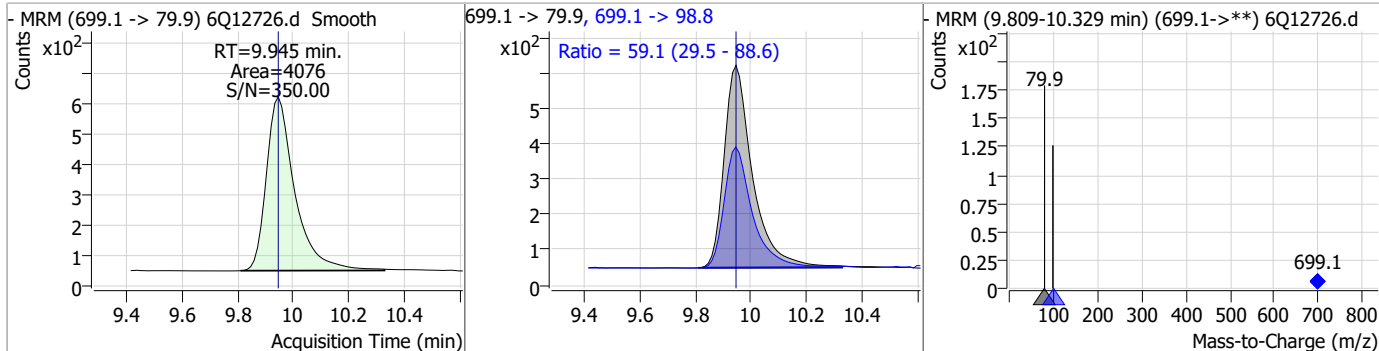
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.31	9.81	0.00	39062	713.1 -> 168.9	6.8	3.4	10.2



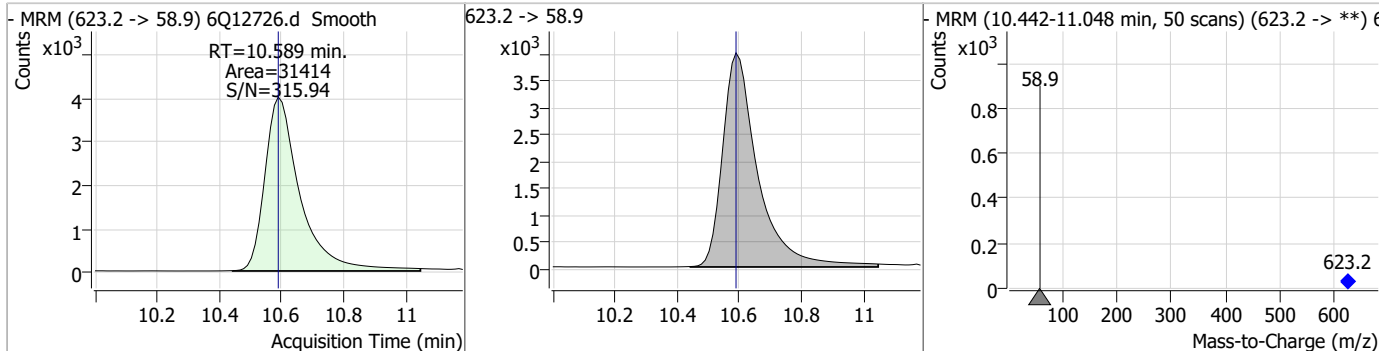
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Perfluorinated Compounds by LC/MS/MS

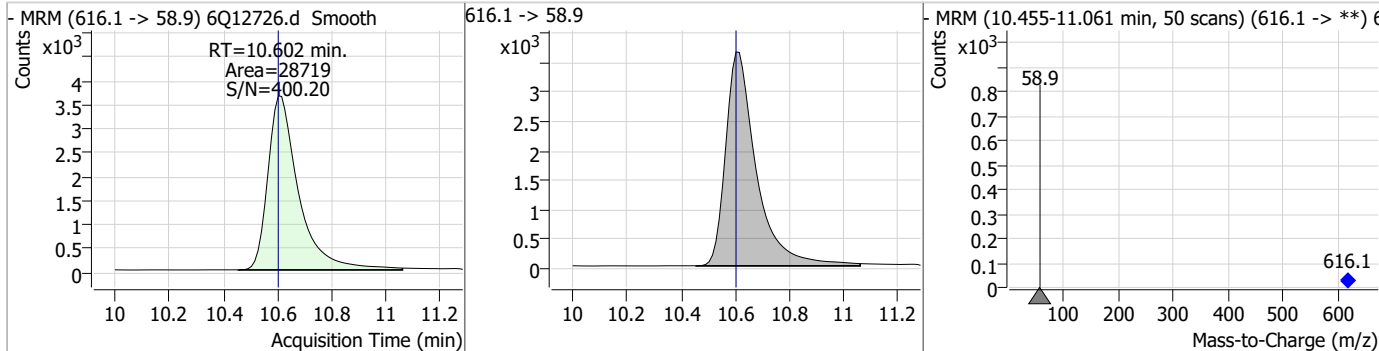
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.16	9.95	0.00	4076	699.1 -> 98.8	59.1	29.5	88.6



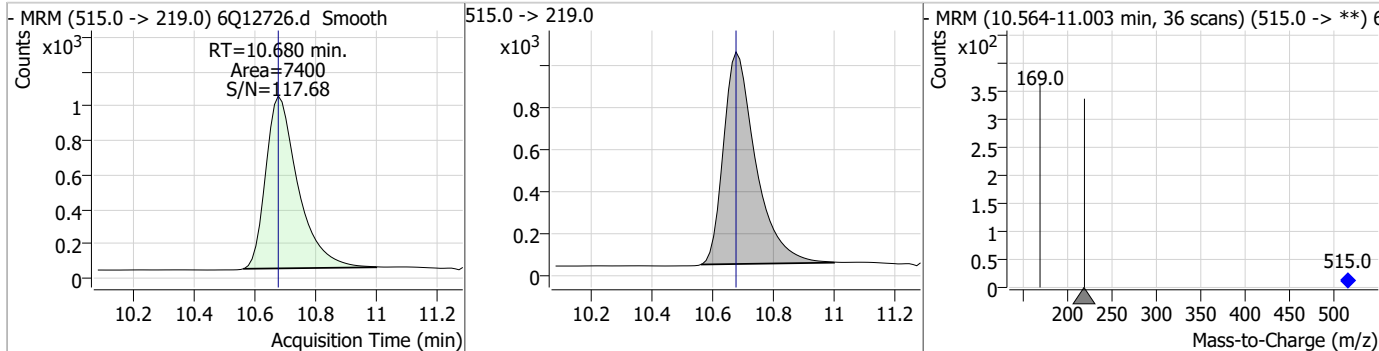
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.10	10.59	0.00	31414				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	22.92	10.60	0.00	28719				

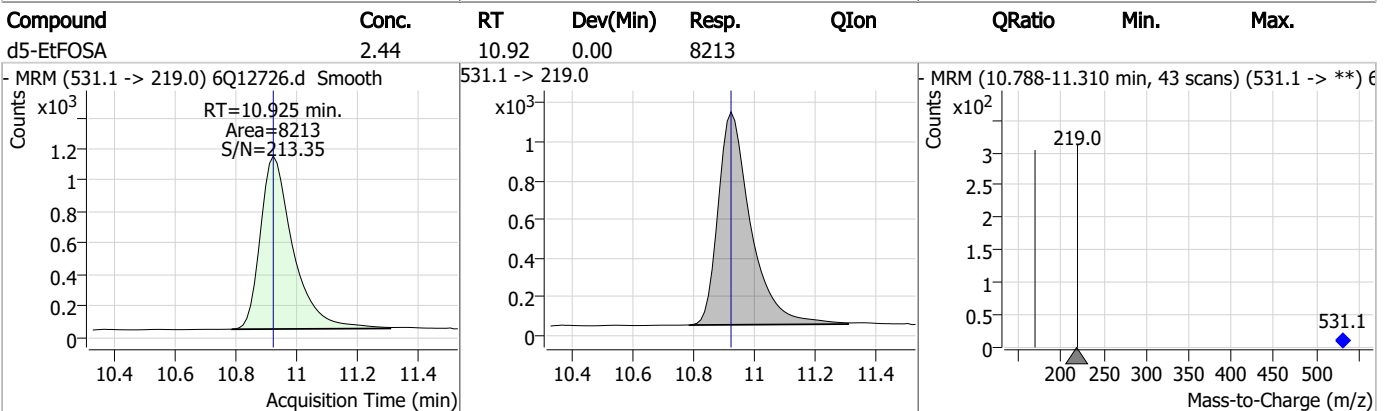
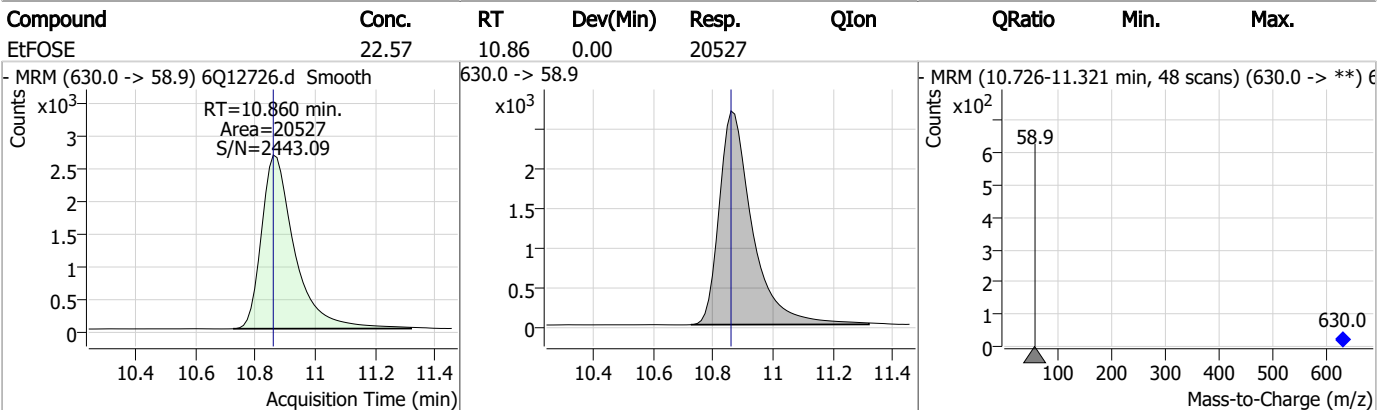
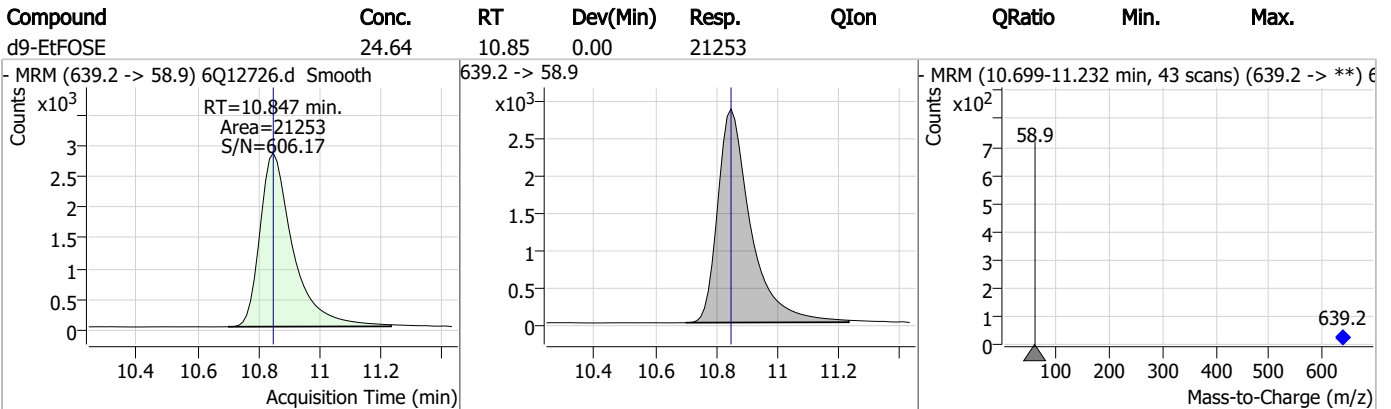
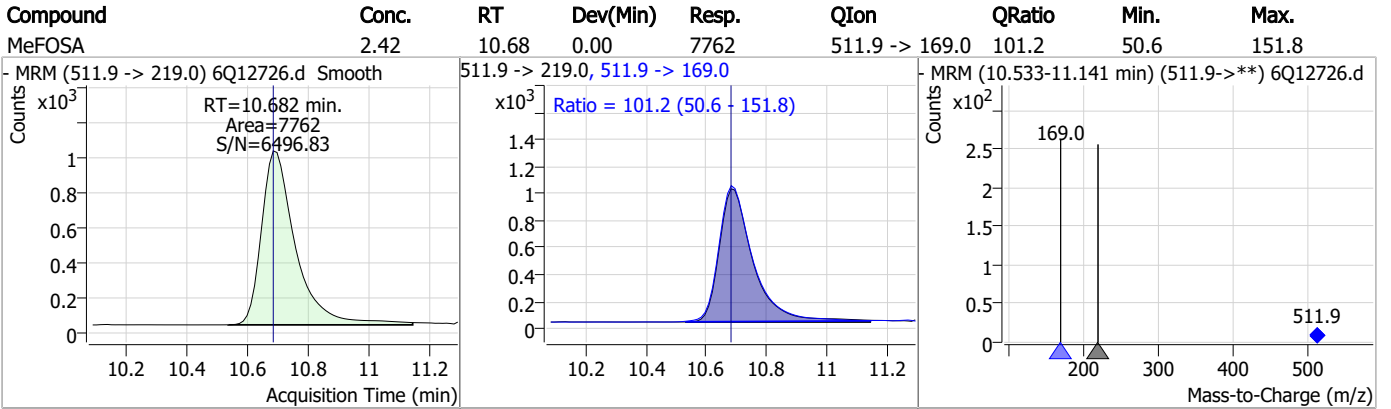


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.39	10.68	0.00	7400				



7.7.5
7

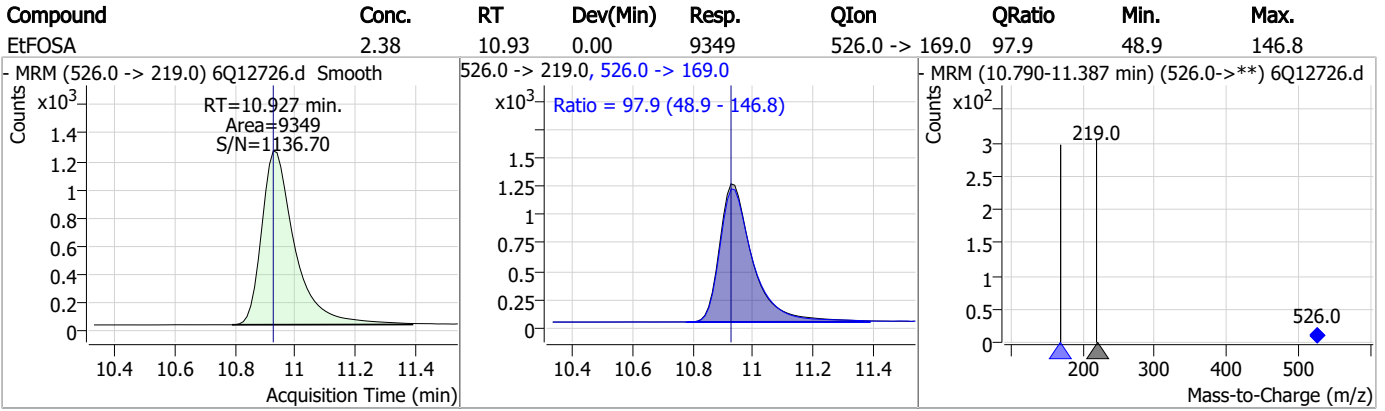
Perfluorinated Compounds by LC/MS/MS



7.7.5

7

Perfluorinated Compounds by LC/MS/MS



7.7.5

7

Manual Integration Approval Summary

Sample Number: S6Q196-ICC196 Method: EPA DRAFT 1633
Lab FileID: 6Q12726.D Analyst approved: 02/02/23 11:53 Martha Valls
Injection Time: 02/01/23 18:33 Supervisor approved: 02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

7.7.5.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12727.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/1/2023 6:47:16 PM
 Sample Name : ic196-5
 Vial : P1-A6
 DA Method File : 1633_020223_S6Q196.quantmethod.xml
 Batch Name : S6Q196.batch.bin
 Sample Information : OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.975	216.8 -> 171.9	78942	10.00 µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	39851	5.00 µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	35890	2.50 µg/L	-0.012
M4-PFHpA	6.502	367.1 -> 322.0	36598	2.50 µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	66375	2.50 µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	27603	1.25 µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	19407	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	23309	1.25 µg/L	0.000
M2-PFDoDA	9.078	615.1 -> 570.0	27350	1.25 µg/L	0.000
M2-PFTeDA	9.805	715.2 -> 670.0	15463	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	17261	2.50 µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	14287	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	9246	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	9116	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2181	5.00 µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	3133	5.00 µg/L	-0.012
M2-8:2FTS	7.957	529.1 -> 80.9	3117	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	29599	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	14480	10.00 µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	26569	5.00 µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	30467	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	21457	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	8119	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7652	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	10334	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	35625	5.00 µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	6977	2.50 µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	79400	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	28578	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	33582	1.25 µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	35943	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.240	329.1 -> 80.9	2181	4.81 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.1%		
13C2-6:2FTS	6.908	429.1 -> 80.9	3133	5.21 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.1%		
13C2-8:2FTS	7.957	529.1 -> 80.9	3117	5.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C2-PFDoDA	9.078	615.1 -> 570.0	27350	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C2-PFTeDA	9.805	715.2 -> 670.0	15463	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C3-PFBS	5.518	302.1 -> 79.9	14287	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C3-PFHxS	7.274	402.1 -> 79.9	9246	2.52 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 = 100.8%		
13C4-PFBA	2.975	216.8 -> 171.9	78942	9.98 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C4-PFHpA	6.502	367.1 -> 322.0	36598	2.47 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C5-PFHxA	5.563	318.0 -> 273.0	35890	2.52 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C5-PFPeA	4.386	268.3 -> 223.0	39851	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C6-PFDA	8.170	519.1 -> 474.1	19407	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C7-PFUnDA	8.636	570.0 -> 525.1	23309	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C8-FOSA	9.567	506.1 -> 77.8	17261	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C8-PFOA	7.146	421.1 -> 376.0	66375	2.50 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C8-PFOS	8.345	507.1 -> 79.9	9116	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.3%		
13C9-PFNA	7.677	472.1 -> 427.0	27603	1.17 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.4%		
d3-MeFOSAA	8.215	573.2 -> 419.0	29599	5.23 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.5%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	14480	9.86 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 98.6%		
d3-MeFOSA	10.680	515.0 -> 219.0	7652	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.6%		
d5-EtFOSAA	8.410	589.2 -> 419.0	26569	5.65 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.1%		
d7-MeFOSE	10.589	623.2 -> 58.9	30467	25.96 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 103.9%		
d9-EtFOSE	10.847	639.2 -> 58.9	21457	26.53 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 106.1%		
d5-EtFOSA	10.925	531.1 -> 219.0	8119	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.9%		
Target Compounds					QValue
4:2FTS	5.240	327.1 -> 307.0	100511	20.55 µg/L	97
		327.1 -> 80.9	20631		
6:2FTS	6.908	427.1 -> 407.0	86930	18.95 µg/L	98
		427.1 -> 80.9	16825		
8:2FTS	7.958	527.1 -> 507.0	37347	15.43 µg/L	90
		527.1 -> 80.8	10895		
EtFOSAA	8.424	584.2 -> 419.1	19150	4.50 µg/L	m 88
		584.2 -> 526.0	10602		
FOSA	9.557	498.1 -> 77.9	33849	4.91 µg/L	100
		498.1 -> 478.0	1503		
MeFOSAA	8.216	570.1 -> 419.0	28560	5.27 µg/L	m 94
		570.1 -> 483.0	4913		
PFBA	2.982	212.8 -> 168.9	35222	19.98 µg/L	100
PFBS	5.518	298.7 -> 79.9	23666	4.31 µg/L	93
		298.7 -> 98.8	11459		
PFDA	8.170	512.9 -> 469.0	110156	4.99 µg/L	99
		512.9 -> 219.0	16678		
PFDoDA	9.079	613.1 -> 569.0	97991	4.89 µg/L	100
		613.1 -> 319.0	12126		
PFDS	9.241	599.0 -> 79.9	14293	4.63 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	7320			
PFHpA	6.503	363.1 -> 319.0	110098	5.08	µg/L	98
		363.1 -> 169.0	14498			
PFHpS	7.841	449.0 -> 79.9	18161	4.70	µg/L	99
		449.0 -> 98.9	9926			
PFHxA	5.566	313.0 -> 269.0	68851	4.89	µg/L	99
		313.0 -> 118.9	2814			
PFHxS	7.275	398.7 -> 79.9	18510	4.46	µg/L	m 90
		398.7 -> 98.9	10266			
PFNA	7.677	463.0 -> 419.0	95950	5.15	µg/L	99
		463.0 -> 219.0	17850			
PFNS	8.824	548.8 -> 79.9	19012	4.69	µg/L	98
		548.8 -> 98.9	11068			
PFOA	7.148	413.0 -> 369.0	147721	5.05	µg/L	97
		413.0 -> 169.0	18543			
PFOS	8.347	498.9 -> 79.9	17743	4.24	µg/L	m 71
		498.9 -> 98.8	10779			
PFPeA	4.388	263.0 -> 219.0	83769	9.95	µg/L	100
PFPeS	6.581	349.1 -> 79.9	21594	4.47	µg/L	95
		349.1 -> 98.9	11768			
PFTeDA	9.806	713.1 -> 669.0	85389	5.12	µg/L	99
		713.1 -> 168.9	5586			
PFTrDA	9.462	663.0 -> 619.0	100172	5.23	µg/L	99
		663.0 -> 168.9	7718			
PFUnDA	8.637	563.1 -> 519.0	89375	4.92	µg/L	96
		563.1 -> 269.1	13860			
11CI-PF3OUdS	9.526	630.9 -> 450.9	203989	19.63	µg/L	100
		632.9 -> 452.9	62820			
9CI-PF3ONS	8.688	530.8 -> 351.0	336601	19.16	µg/L	96
		532.8 -> 353.0	101391			
ADONA	6.753	376.9 -> 250.9	615502	19.59	µg/L	98
		376.9 -> 84.8	131793			
HFPO-DA	5.940	284.9 -> 168.9	29062	21.46	µg/L	97
		284.9 -> 184.9	3537			
3:3FTCA	3.841	241.0 -> 177.0	10332	25.00	µg/L	96
		241.0 -> 117.0	1339			
5:3FTCA	6.193	341.0 -> 237.1	362809	123.26	µg/L	97
		341.0 -> 217.0	325555			
7:3FTCA	7.605	441.0 -> 316.9	237904	123.66	µg/L	92
		441.0 -> 336.9	468899			
EtFOSA	10.927	526.0 -> 219.0	20073	5.18	µg/L	99
		526.0 -> 169.0	19373			
EtFOSE	10.860	630.0 -> 58.9	45861	49.94	µg/L	100
MeFOSA	10.682	511.9 -> 219.0	16774	5.07	µg/L	97
		511.9 -> 169.0	16422			
MeFOSE	10.602	616.1 -> 58.9	62231	51.20	µg/L	100
PFDoDS	9.945	699.1 -> 79.9	8906	4.82	µg/L	99
		699.1 -> 98.8	5317			
NFDHA	5.445	295.0 -> 201.0	7961	9.57	µg/L	96
		295.0 -> 84.9	4300			
PFMBA	4.787	279.0 -> 85.1	24020	10.15	µg/L	100
PFMPA	3.541	229.0 -> 84.9	22203	9.89	µg/L	100
PFEESA	6.059	314.8 -> 134.9	187773	9.27	µg/L	100
		314.8 -> 82.9	4280			

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

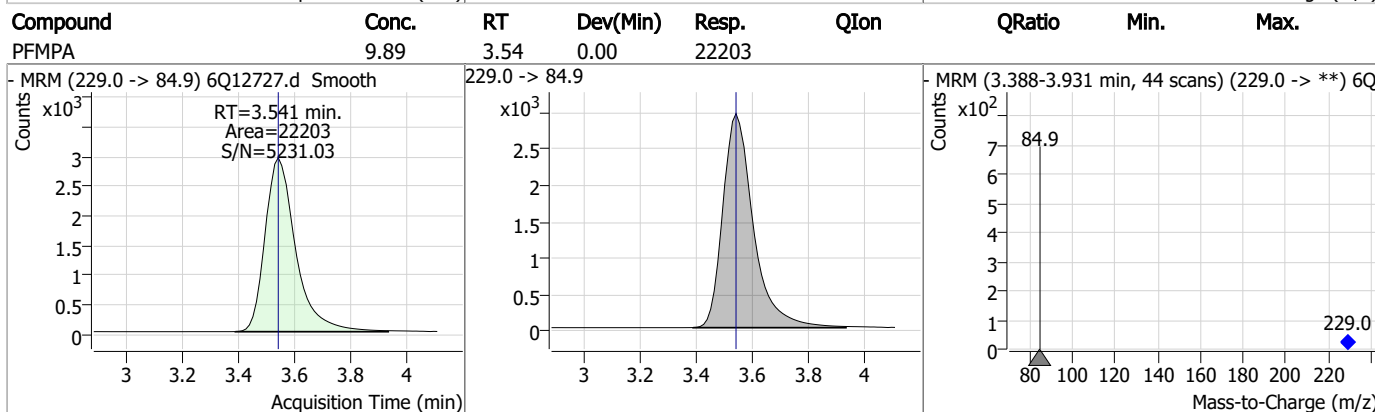
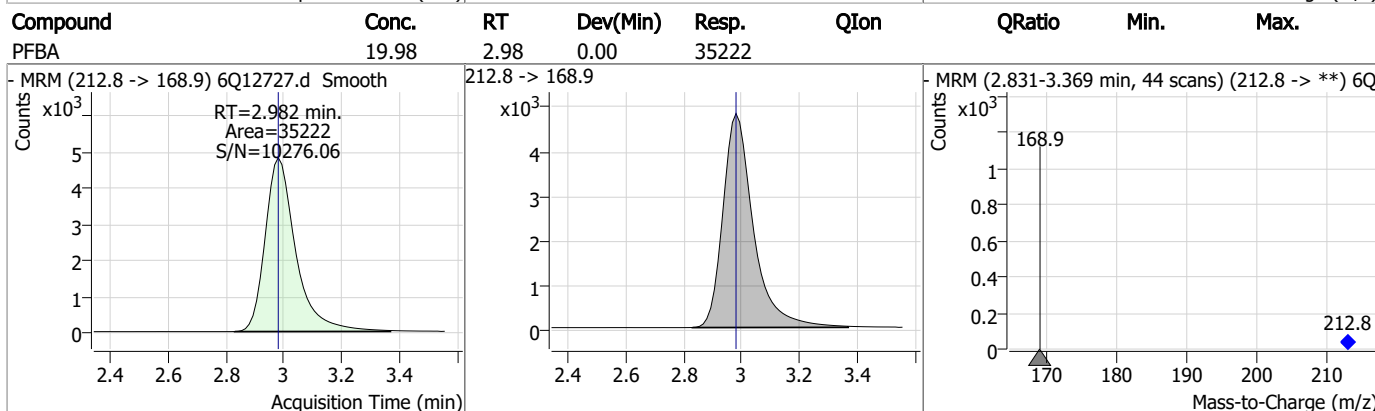
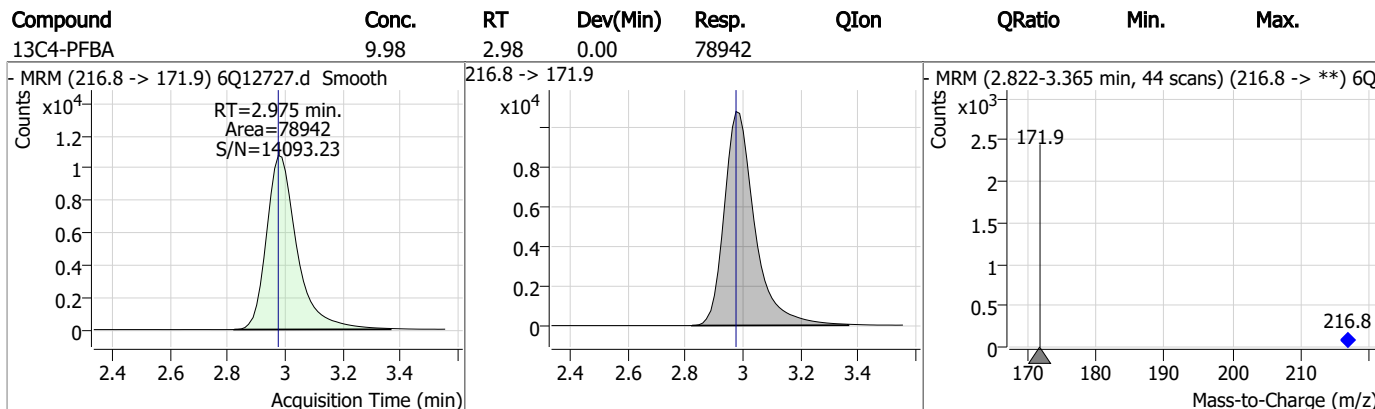
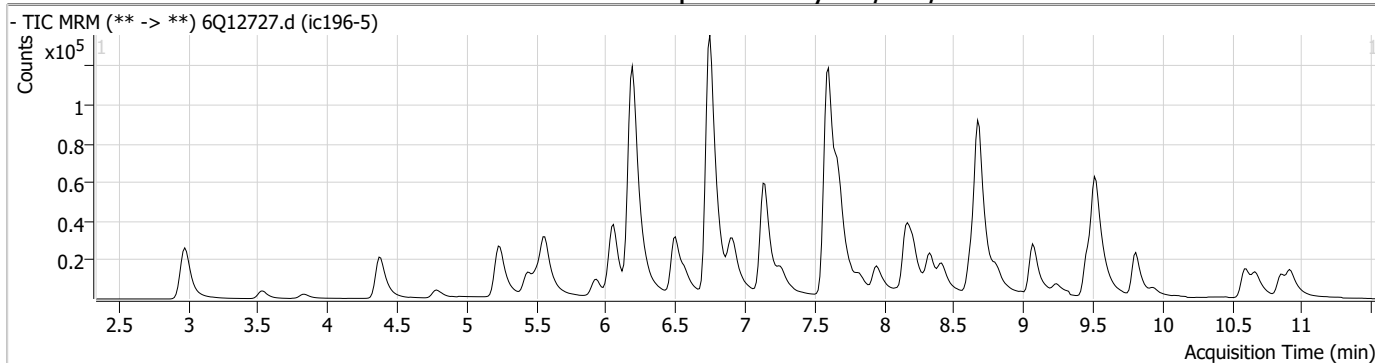
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.6

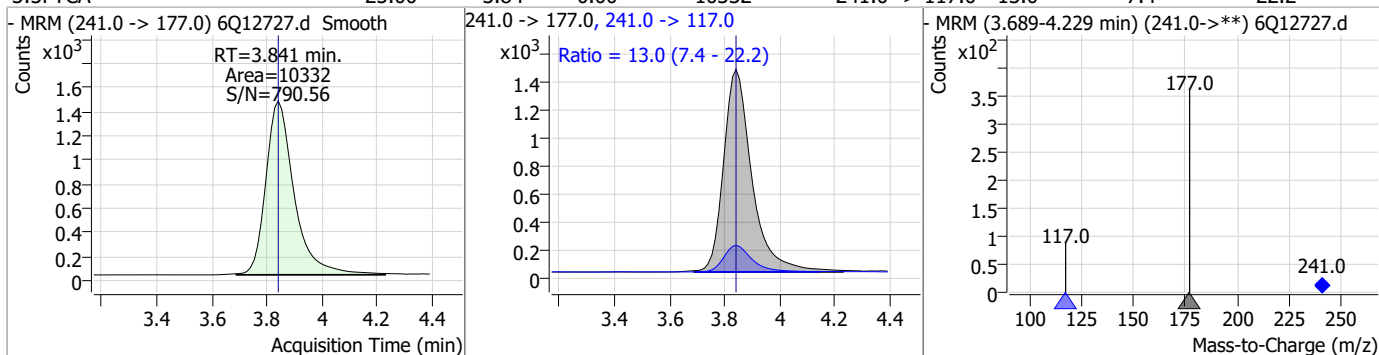
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Perfluorinated Compounds by LC/MS/MS

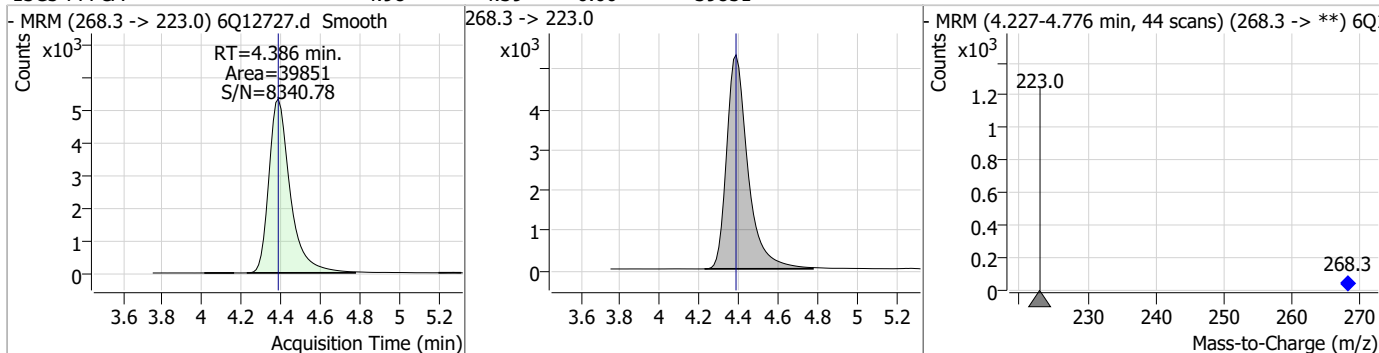


Perfluorinated Compounds by LC/MS/MS

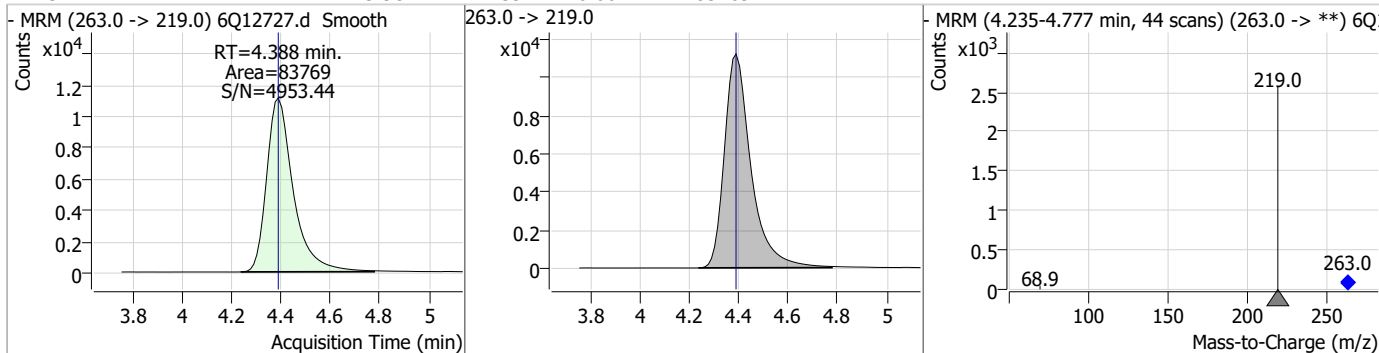
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	25.00	3.84	0.00	10332	241.0 -> 117.0	13.0	7.4	22.2



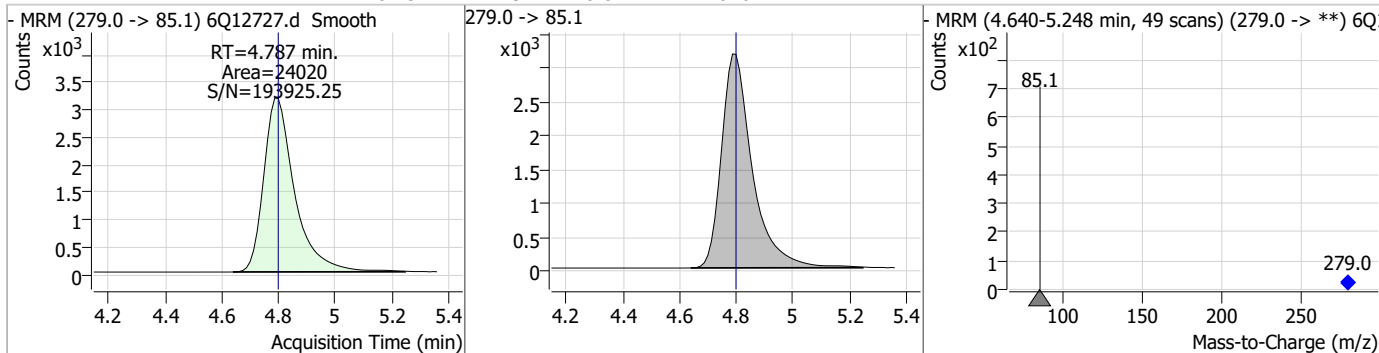
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.98	4.39	0.00	39851				



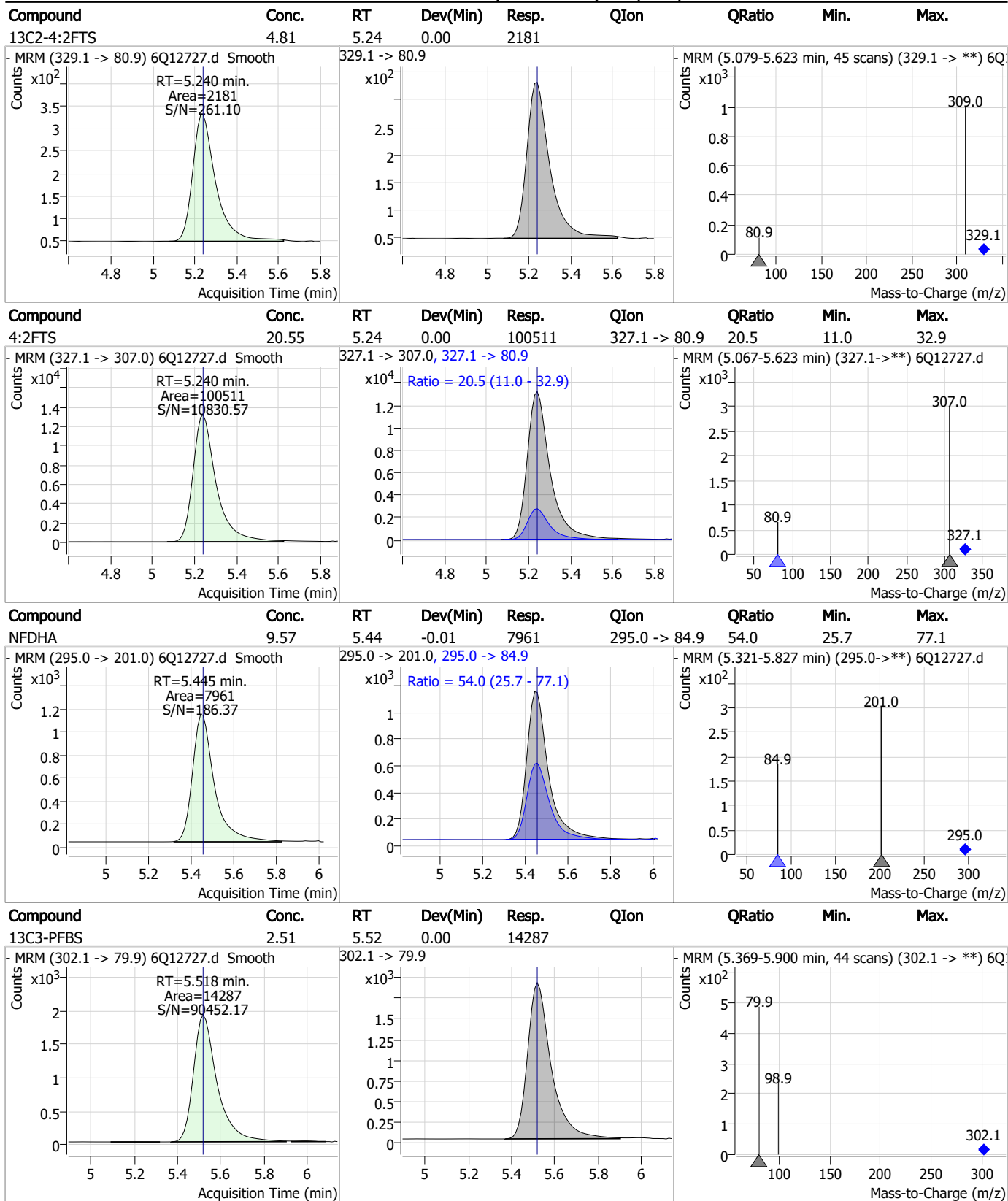
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	9.95	4.39	0.00	83769				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	10.15	4.79	-0.01	24020				

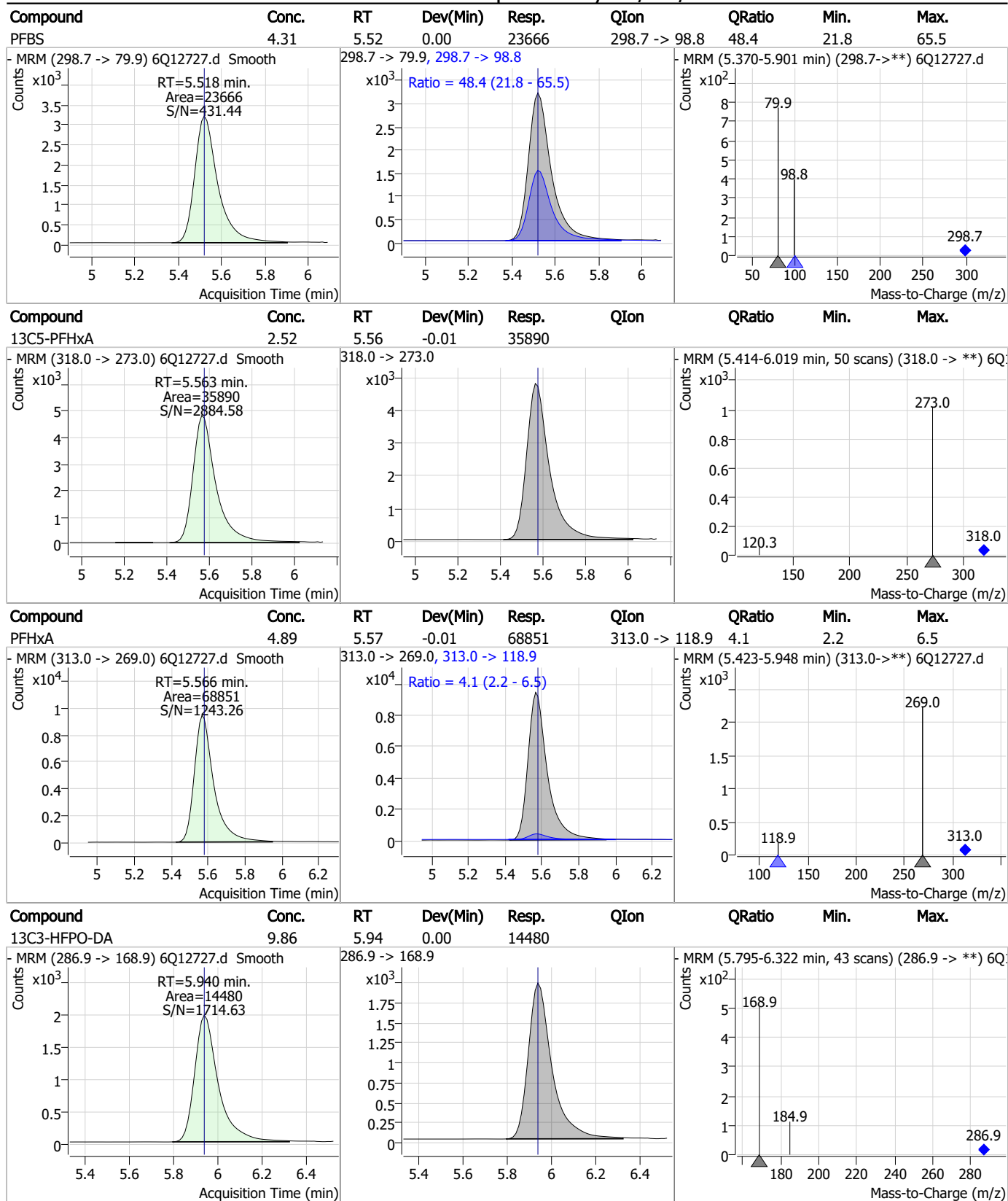


Perfluorinated Compounds by LC/MS/MS



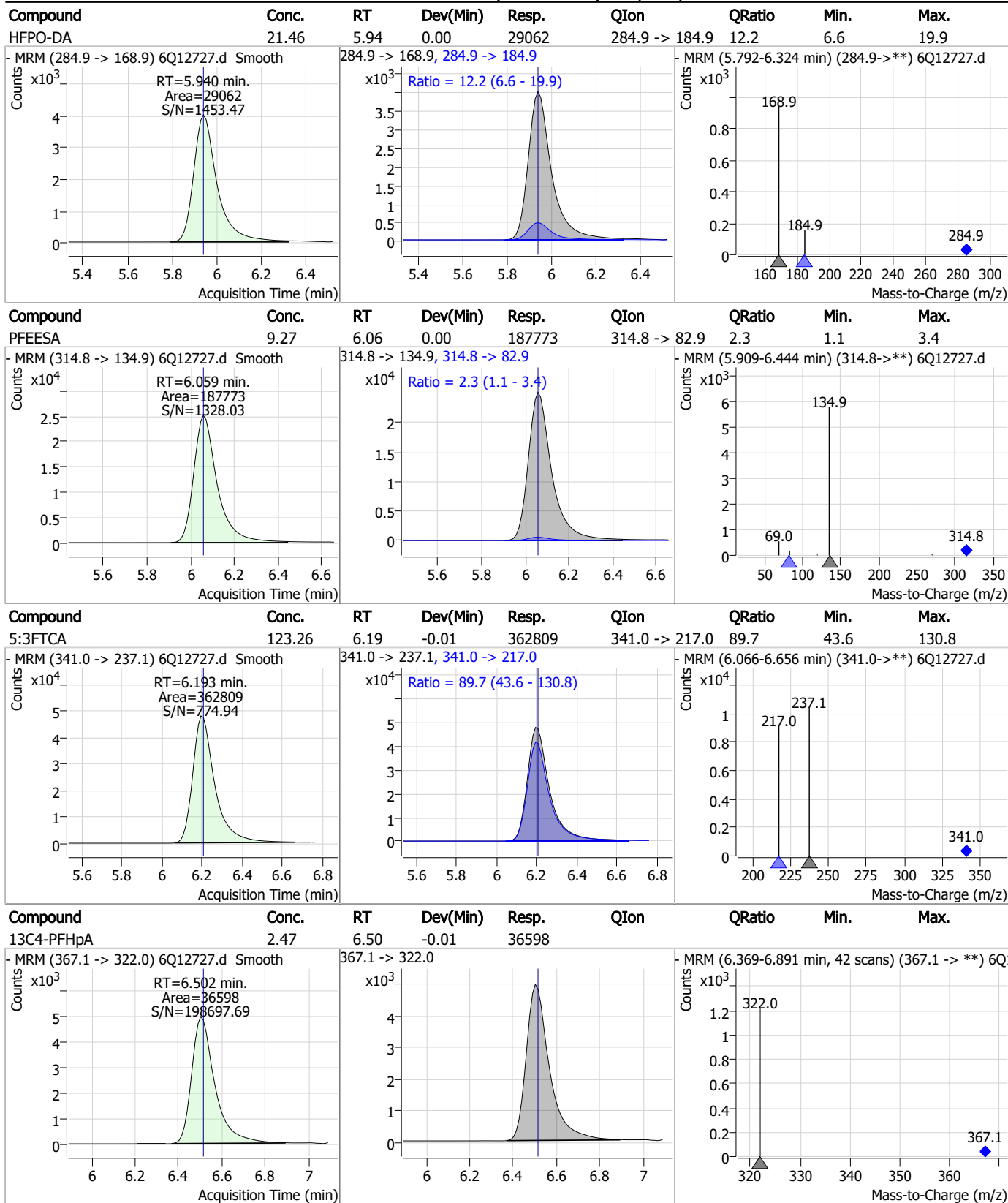
7.7.6
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Perfluorinated Compounds by LC/MS/MS



7.7.6
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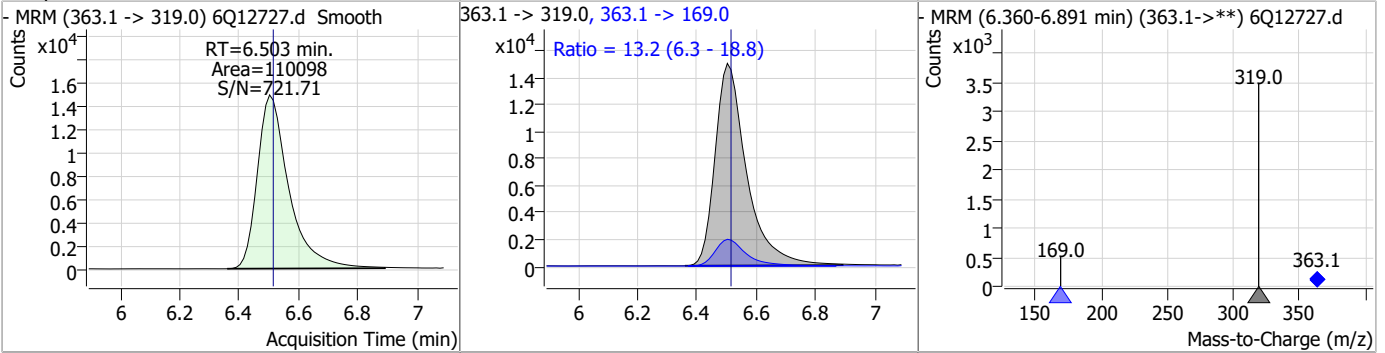
Perfluorinated Compounds by LC/MS/MS



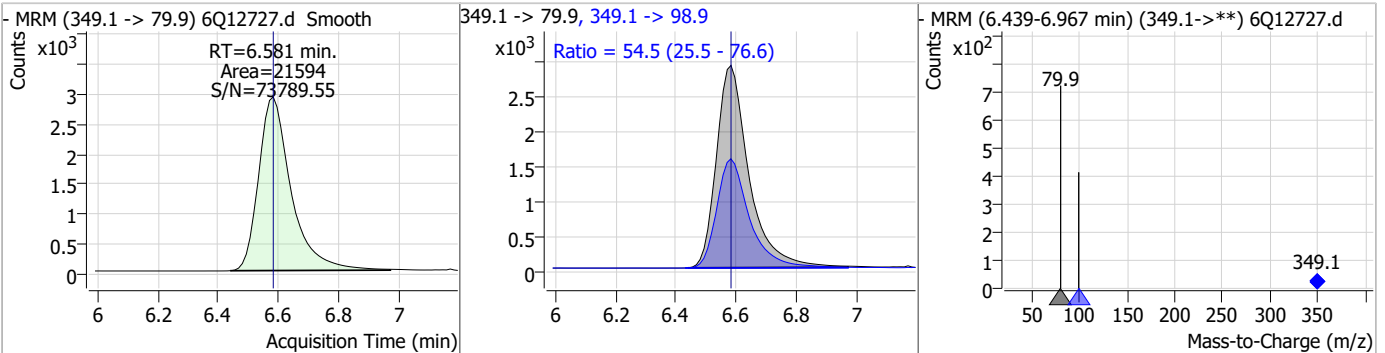
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Perfluorinated Compounds by LC/MS/MS

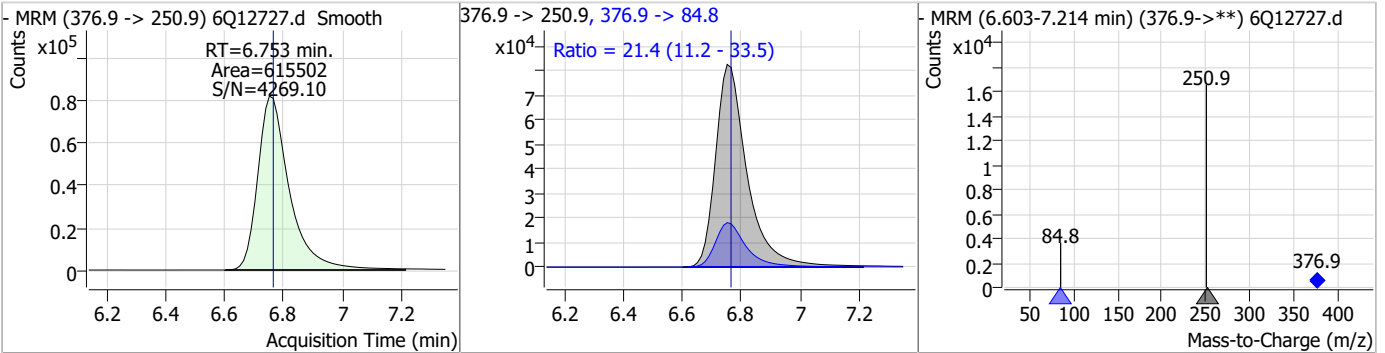
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	5.08	6.50	-0.01	110098	363.1 -> 169.0	13.2	6.3	18.8



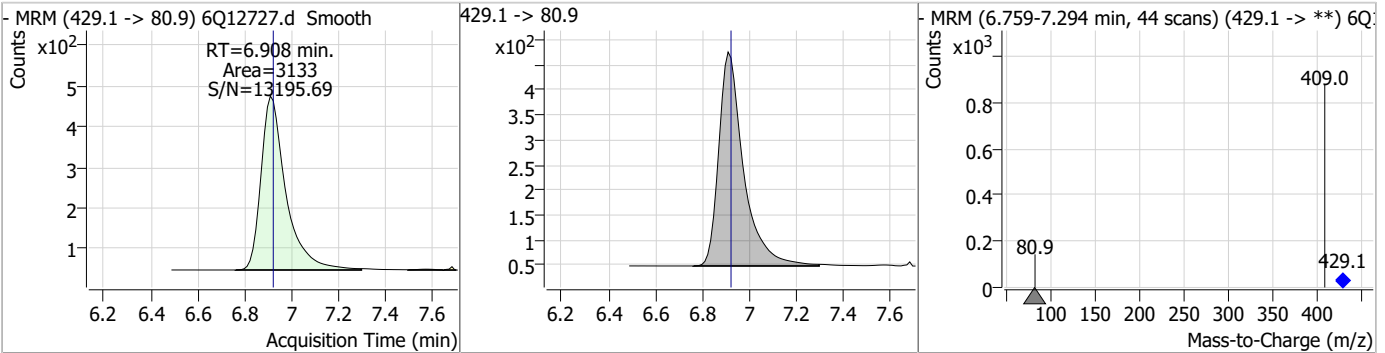
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	4.47	6.58	0.00	21594	349.1 -> 98.9	54.5	25.5	76.6



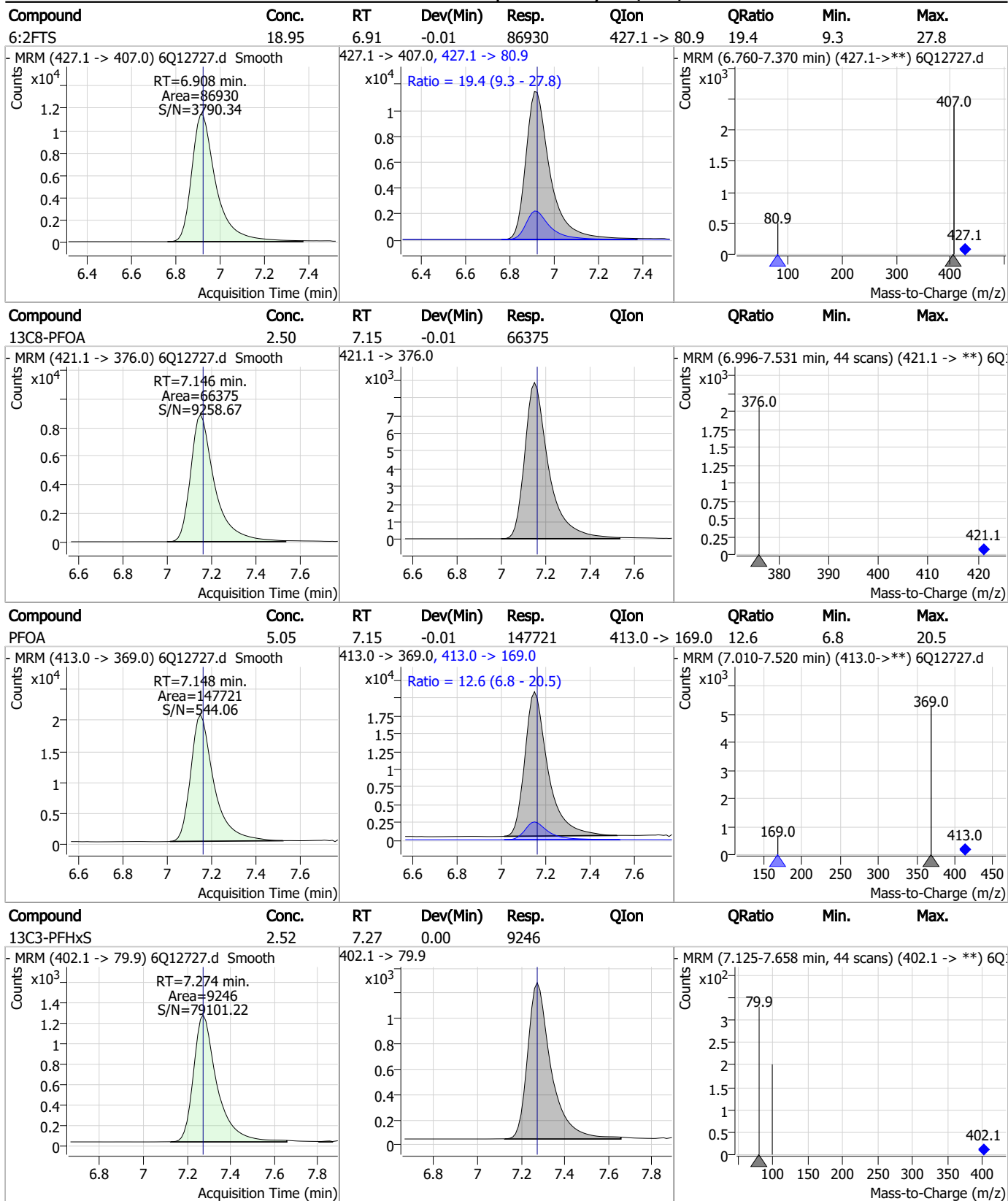
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	19.59	6.75	-0.01	615502	376.9 -> 84.8	21.4	11.2	33.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.21	6.91	-0.01	3133	429.1 -> 80.9			

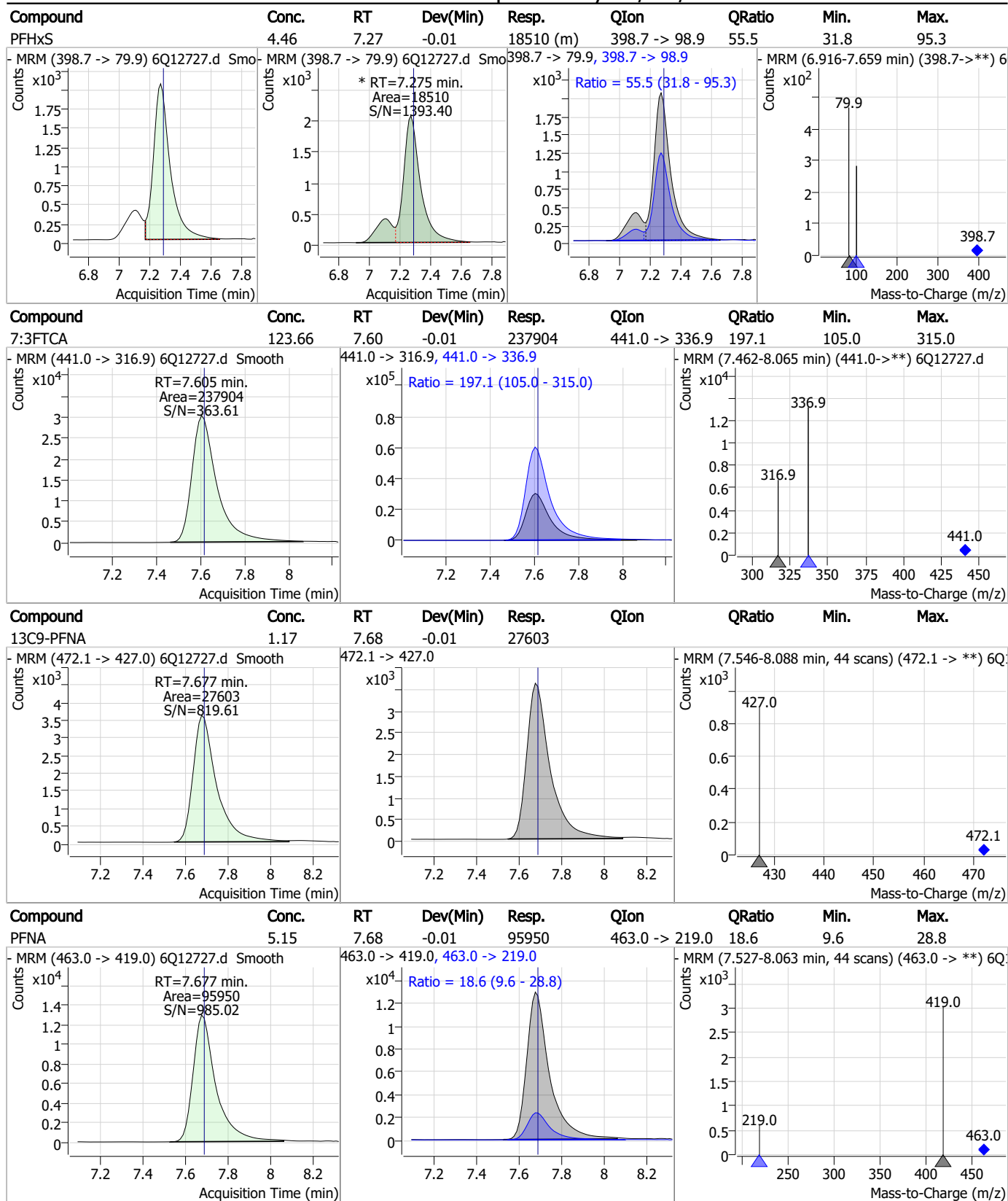


Perfluorinated Compounds by LC/MS/MS



7.7.6
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Perfluorinated Compounds by LC/MS/MS



7.7.6
7

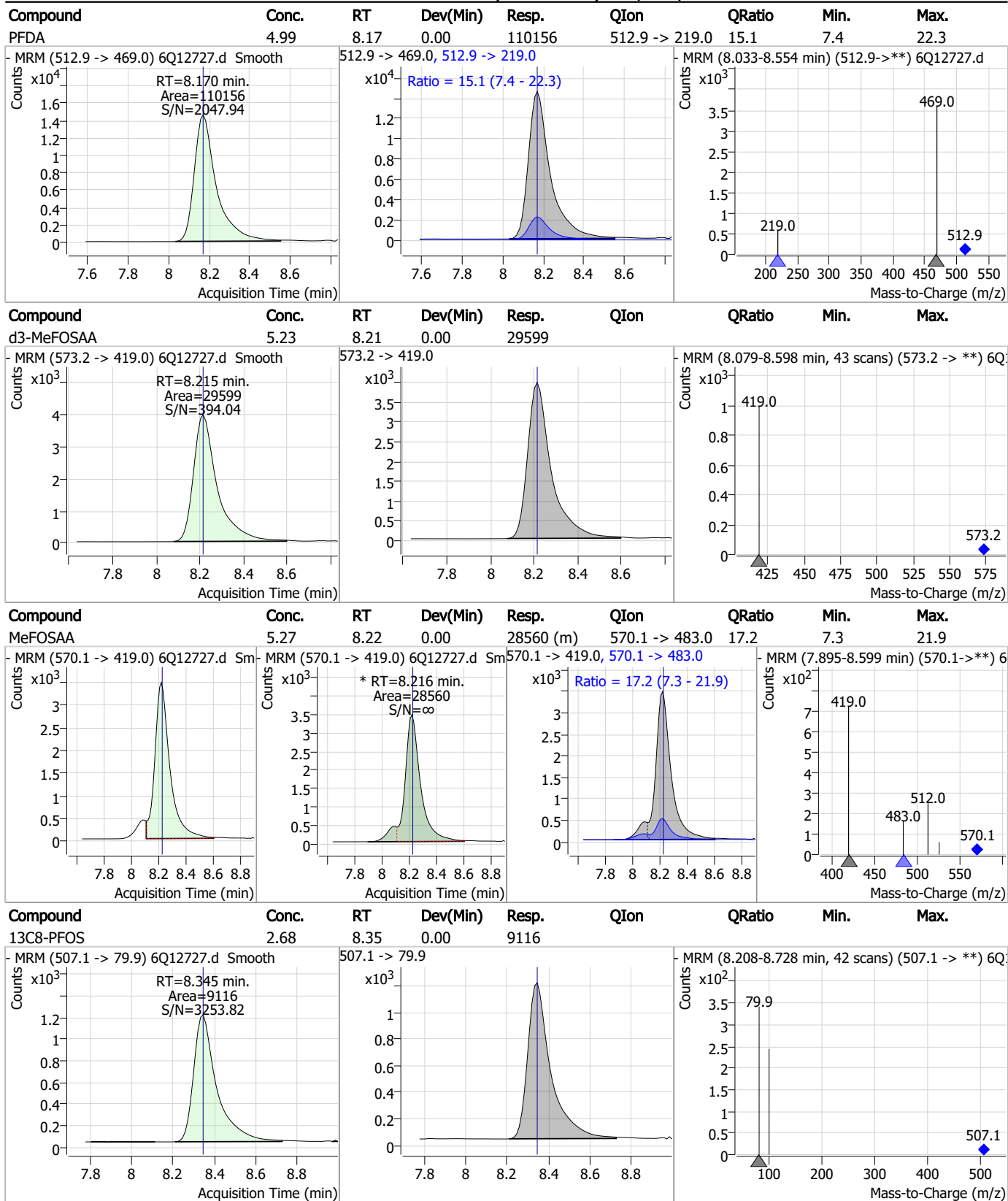
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	4.70	7.84	0.00	18161	449.0 -> 98.9	54.7	27.6	82.9
13C2-8:2FTS	5.16	7.96	0.00	3117	529.1 -> 80.9			
8:2FTS	15.43	7.96	0.00	37347	527.1 -> 80.8	29.2	12.0	36.1
13C6-PFDA	1.22	8.17	0.00	19407	519.1 -> 474.1			

7.7.6

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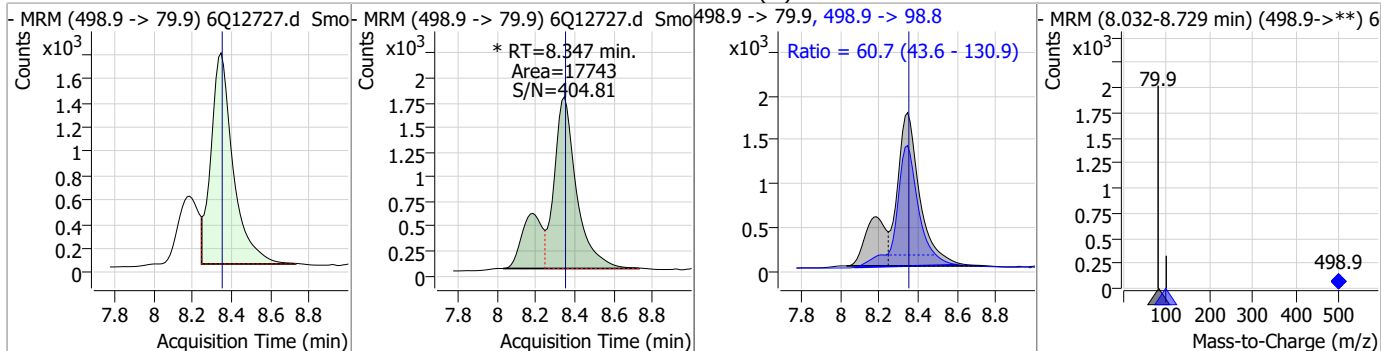
Perfluorinated Compounds by LC/MS/MS



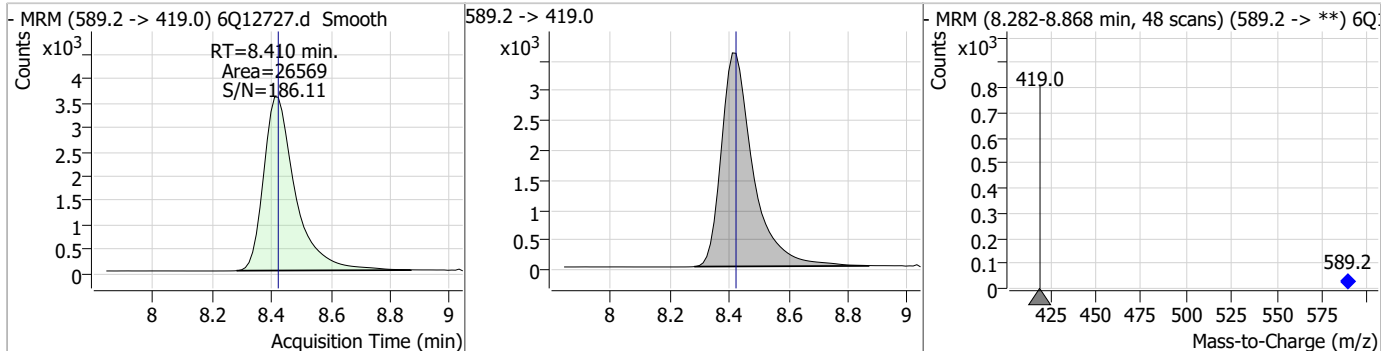
7.7.6
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Perfluorinated Compounds by LC/MS/MS

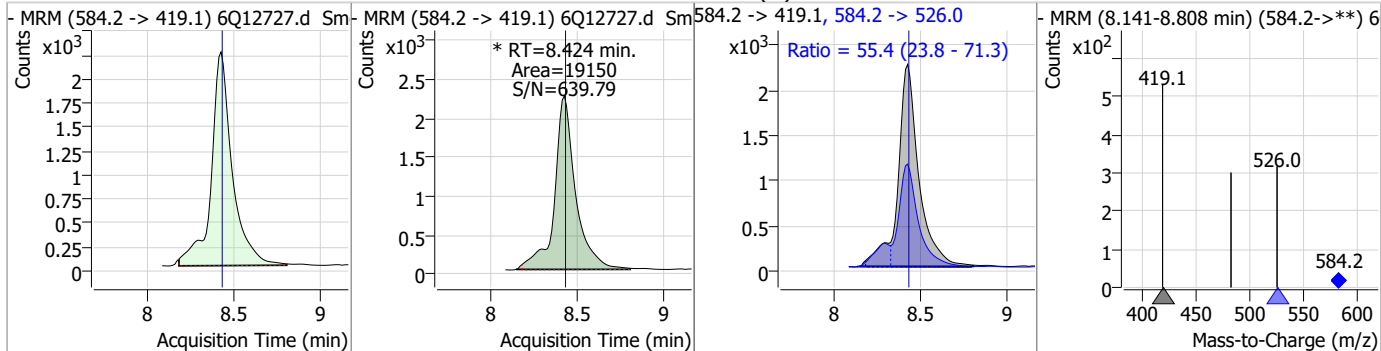
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	4.24	8.35	0.00	17743 (m)	498.9 -> 98.8	60.7	43.6	130.9



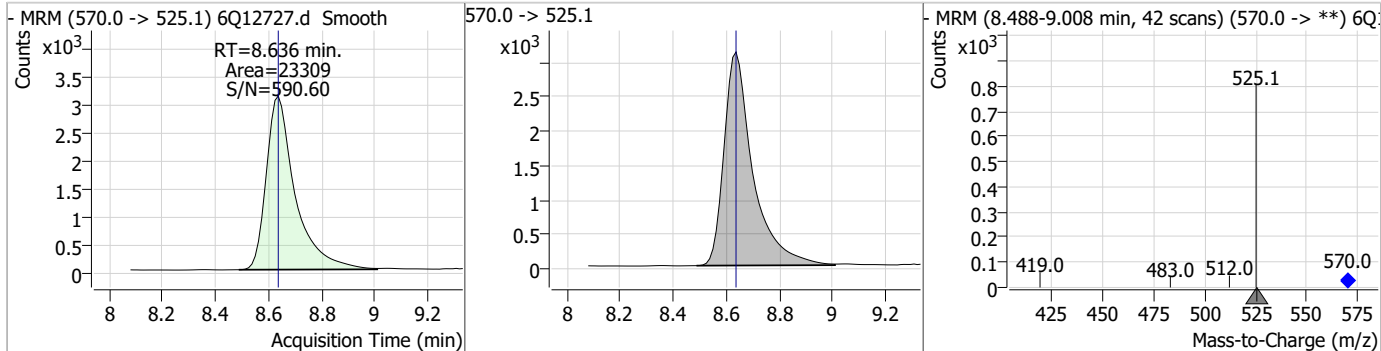
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.65	8.41	-0.01	26569				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	4.50	8.42	0.00	19150 (m)	584.2 -> 526.0	55.4	23.8	71.3

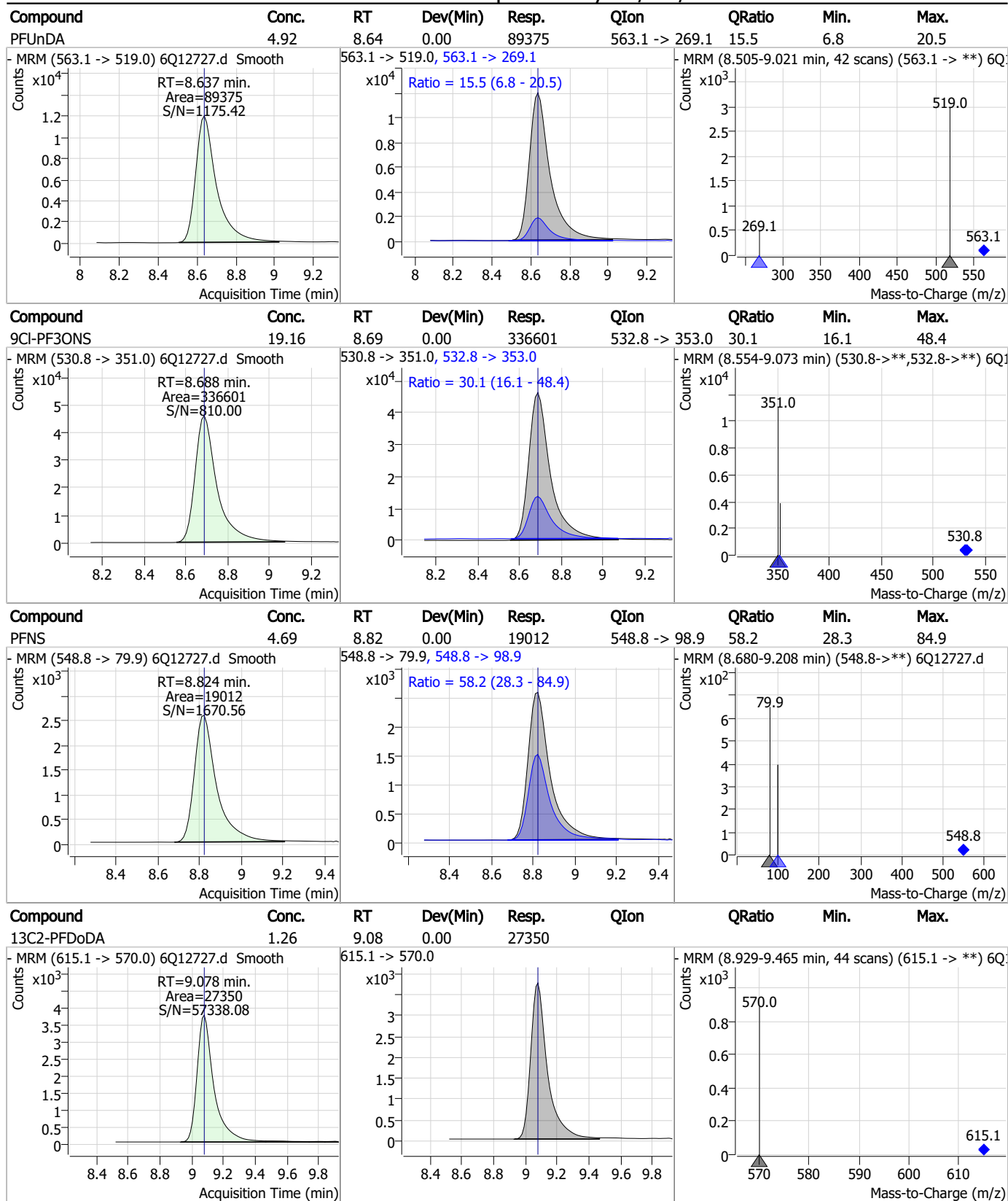


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.23	8.64	0.00	23309				



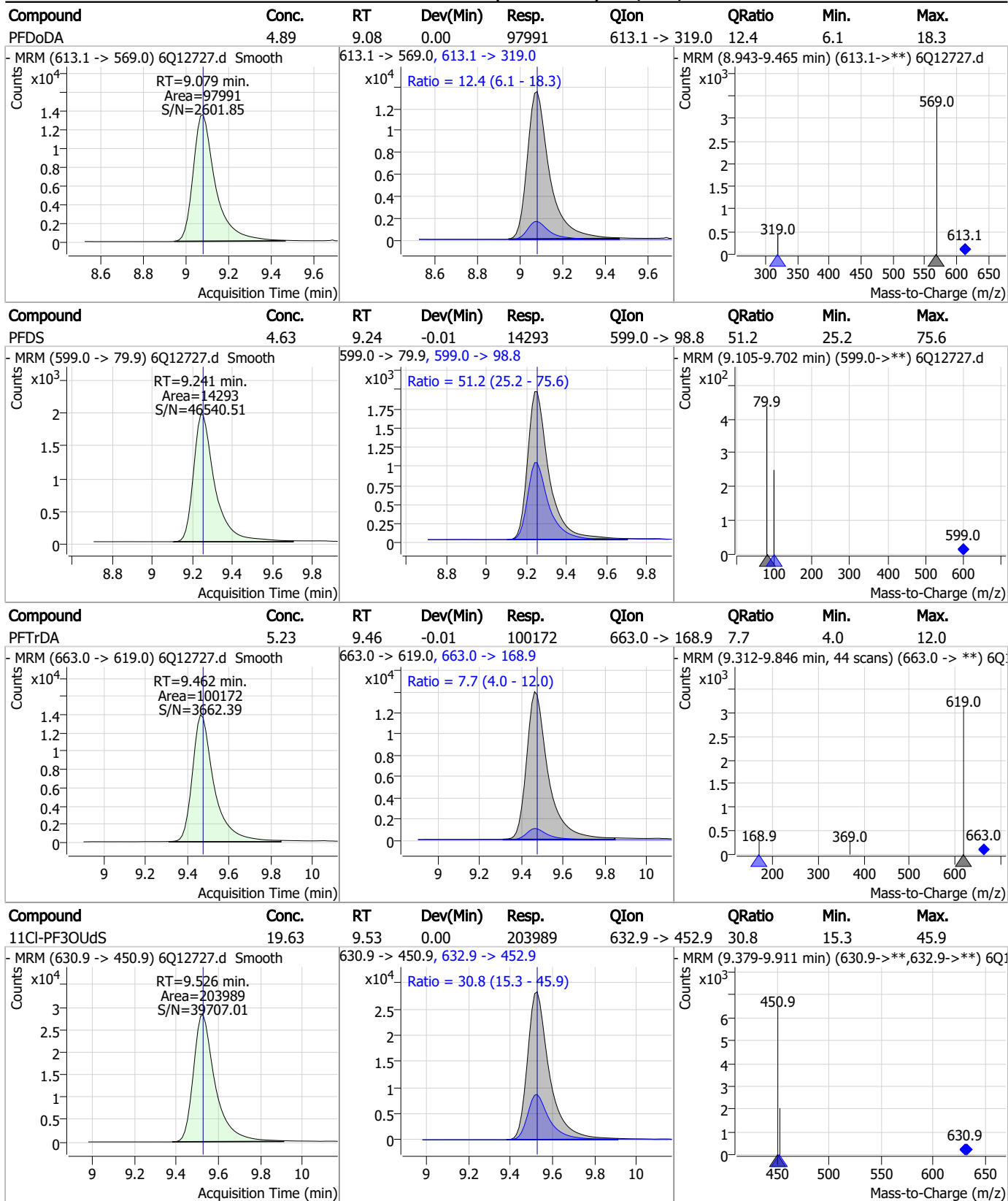
7.7.6
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Perfluorinated Compounds by LC/MS/MS



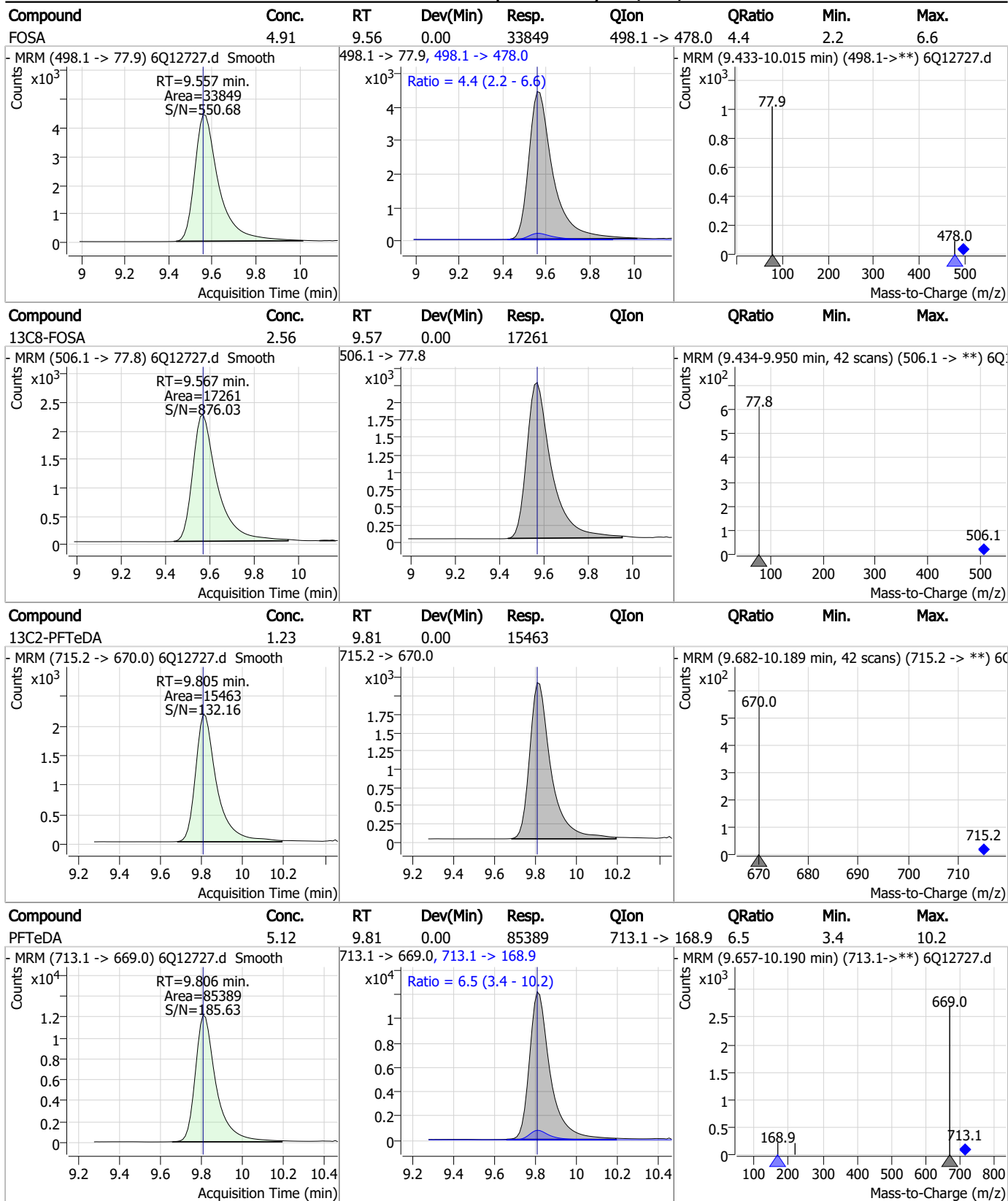
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Perfluorinated Compounds by LC/MS/MS



7.7.6
7

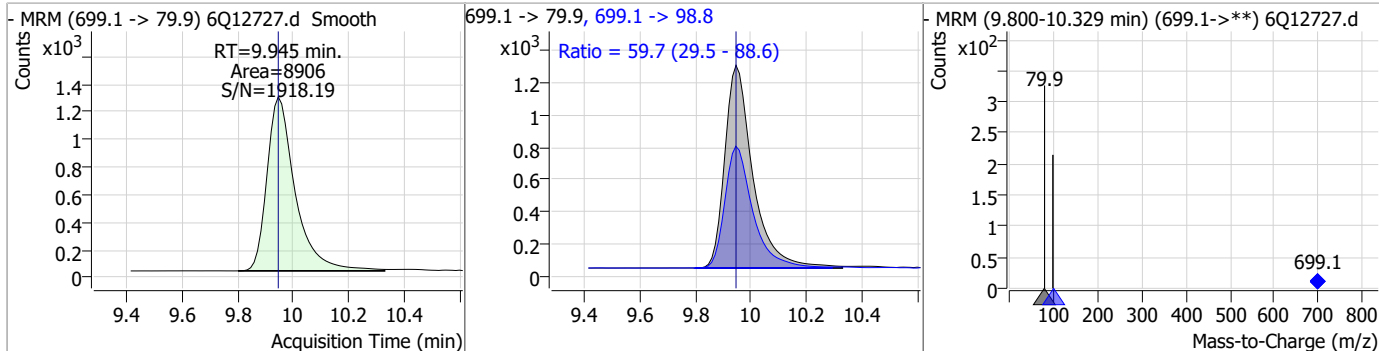
Perfluorinated Compounds by LC/MS/MS



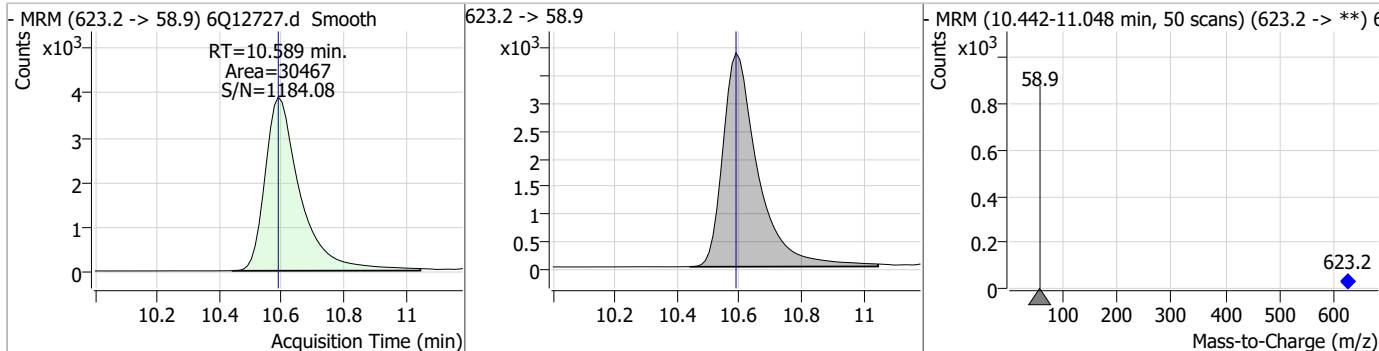
7.7.6
7

Perfluorinated Compounds by LC/MS/MS

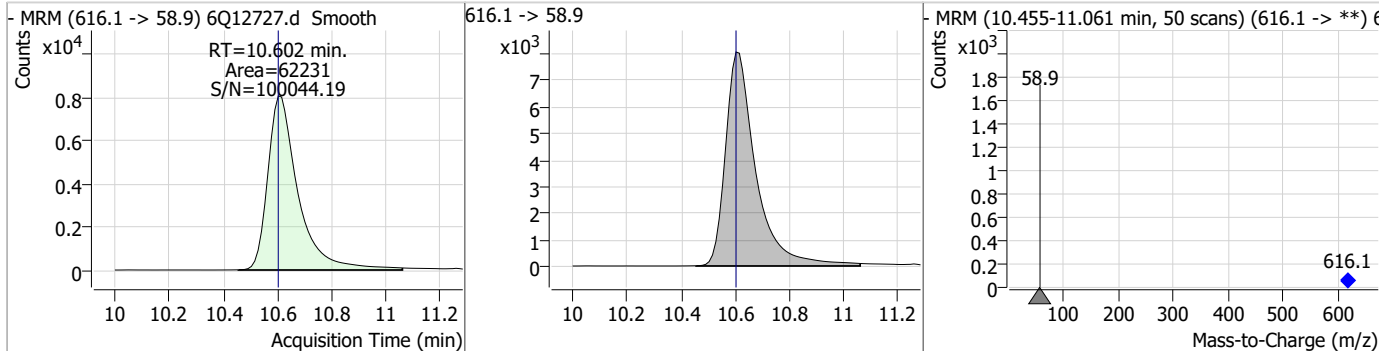
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	4.82	9.95	0.00	8906	699.1 -> 98.8	59.7	29.5	88.6



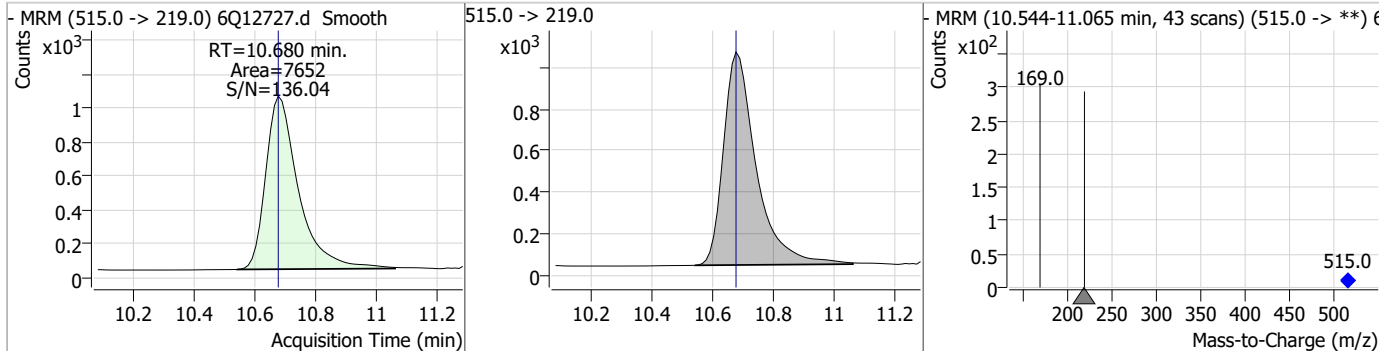
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.96	10.59	0.00	30467				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	51.20	10.60	0.00	62231				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.64	10.68	0.00	7652				



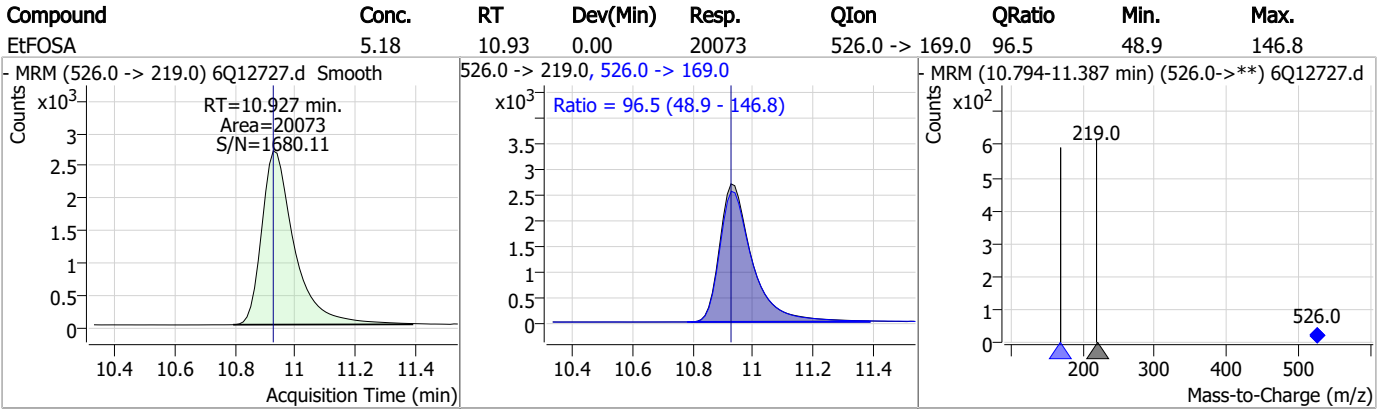
7.7.6
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.07	10.68	0.00	16774	511.9 -> 169.0	97.9	50.6	151.8
d9-EtFOSE	26.53	10.85	0.00	21457	639.2 -> 58.9			
EtFOSE	49.94	10.86	0.00	45861	630.0 -> 58.9			
d5-EtFOSA	2.57	10.92	0.00	8119	531.1 -> 219.0			

7.7.6
7

Perfluorinated Compounds by LC/MS/MS



7.7.6

7

Manual Integration Approval Summary

Sample Number: S6Q196-IC196 Method: EPA DRAFT 1633
Lab FileID: 6Q12727.D Analyst approved: 02/02/23 11:53 Martha Valls
Injection Time: 02/01/23 18:47 Supervisor approved: 02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
MeFOSAA	2355-31-9		8.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

7.7.6.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12728.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/1/2023 7:01:15 PM
 Sample Name : ic196-6
 Vial : P1-A7
 DA Method File : 1633_020223_S6Q196.quantmethod.xml
 Batch Name : S6Q196.batch.bin
 Sample Information : OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.975	216.8 -> 171.9	75807	10.00 µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	38810	5.00 µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	35006	2.50 µg/L	0.000
M4-PFHpA	6.502	367.1 -> 322.0	36652	2.50 µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	66287	2.50 µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	26314	1.25 µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	19004	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	23194	1.25 µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	25687	1.25 µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	14727	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	16380	2.50 µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	13831	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	8829	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8576	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	1975	5.00 µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	2739	5.00 µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	2717	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	28423	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	13689	10.00 µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	24602	5.00 µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	28159	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	21366	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	8432	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7433	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	10428	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	34475	5.00 µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	6603	2.50 µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	77916	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	27088	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	31152	1.25 µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	35839	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.240	329.1 -> 80.9	1975	4.60 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.0%		
13C2-6:2FTS	6.920	429.1 -> 80.9	2739	4.81 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.2%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2717	4.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.0%		
13C2-PFDoDA	9.066	615.1 -> 570.0	25687	1.25 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C2-PFTeDA	9.805	715.2 -> 670.0	14727	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C3-PFBS	5.518	302.1 -> 79.9	13831	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C3-PFHxS	7.274	402.1 -> 79.9	8829	2.54 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 = 101.7%	
13C4-PFBA	2.975	216.8 -> 171.9	75807	9.91 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C4-PFHpA	6.502	367.1 -> 322.0	36652	2.48 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C5-PFHxA	5.575	318.0 -> 273.0	35006	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C5-PFPeA	4.386	268.3 -> 223.0	38810	4.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C6-PFDA	8.170	519.1 -> 474.1	19004	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C7-PFUnDA	8.636	570.0 -> 525.1	23194	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C8-FOSA	9.567	506.1 -> 77.8	16380	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.5%	
13C8-PFOA	7.146	421.1 -> 376.0	66287	2.55 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C8-PFOS	8.345	507.1 -> 79.9	8576	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C9-PFNA	7.677	472.1 -> 427.0	26314	1.20 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.0%	
d3-MeFOSAA	8.215	573.2 -> 419.0	28423	4.97 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	13689	9.35 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.5%	
d3-MeFOSA	10.680	515.0 -> 219.0	7433	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.6%	
d5-EtFOSAA	8.410	589.2 -> 419.0	24602	5.19 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.8%	
d7-MeFOSE	10.589	623.2 -> 58.9	28159	23.78 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.1%	
d9-EtFOSE	10.847	639.2 -> 58.9	21366	26.18 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.7%	
d5-EtFOSA	10.925	531.1 -> 219.0	8432	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.0%	
Target Compounds					QValue
4:2FTS	5.240	327.1 -> 307.0	223593	50.49 µg/L	98
		327.1 -> 80.9	47062		
6:2FTS	6.921	427.1 -> 407.0	197483	49.24 µg/L	99
		427.1 -> 80.9	37643		
8:2FTS	7.958	527.1 -> 507.0	103485	49.04 µg/L	97
		527.1 -> 80.8	26387		
EtFOSAA	8.424	584.2 -> 419.1	47141	11.96 µg/L	m 88
		584.2 -> 526.0	26059		
FOSA	9.557	498.1 -> 77.9	85451	13.07 µg/L	99
		498.1 -> 478.0	3497		
MeFOSAA	8.216	570.1 -> 419.0	65325	12.54 µg/L	92
		570.1 -> 483.0	11712		
PFBA	2.982	212.8 -> 168.9	85941	50.76 µg/L	100
PFBS	5.518	298.7 -> 79.9	56325	10.60 µg/L	95
		298.7 -> 98.8	26284		
PFDA	8.170	512.9 -> 469.0	263882	12.20 µg/L	98
		512.9 -> 219.0	37498		
PFDoDA	9.067	613.1 -> 569.0	241001	12.80 µg/L	98
		613.1 -> 319.0	27351		
PFDS	9.241	599.0 -> 79.9	35414	12.19 µg/L	98

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	17274			
PFHpA	6.503	363.1 -> 319.0	258234	11.89	µg/L	97
		363.1 -> 169.0	35741			
PFHpS	7.841	449.0 -> 79.9	43744	12.02	µg/L	97
		449.0 -> 98.9	25039			
PFHxA	5.578	313.0 -> 269.0	160652	11.70	µg/L	98
		313.0 -> 118.9	6086			
PFHxS	7.275	398.7 -> 79.9	43823	11.05	µg/L	m 93
		398.7 -> 98.9	25487			
PFNA	7.690	463.0 -> 419.0	230960	13.01	µg/L	100
		463.0 -> 219.0	43974			
PFNS	8.811	548.8 -> 79.9	45490	11.93	µg/L	96
		548.8 -> 98.9	27217			
PFOA	7.148	413.0 -> 369.0	347114	11.89	µg/L	99
		413.0 -> 169.0	46243			
PFOS	8.347	498.9 -> 79.9	44577	11.33	µg/L	m 73
		498.9 -> 98.8	27878			
PFPeA	4.388	263.0 -> 219.0	208178	25.40	µg/L	100
PFPeS	6.581	349.1 -> 79.9	53091	11.51	µg/L	92
		349.1 -> 98.9	30041			
PFTeDA	9.806	713.1 -> 669.0	210413	13.24	µg/L	98
		713.1 -> 168.9	12838			
PFTrDA	9.462	663.0 -> 619.0	222761	12.37	µg/L	99
		663.0 -> 168.9	18436			
PFUnDA	8.637	563.1 -> 519.0	209274	11.59	µg/L	98
		563.1 -> 269.1	29973			
11Cl-PF3OUdS	9.514	630.9 -> 450.9	498527	50.75	µg/L	99
		632.9 -> 452.9	148539			
9Cl-PF3ONS	8.688	530.8 -> 351.0	798001	48.06	µg/L	98
		532.8 -> 353.0	268189			
ADONA	6.766	376.9 -> 250.9	1450917	48.86	µg/L	98
		376.9 -> 84.8	312230			
HFPO-DA	5.940	284.9 -> 168.9	69648	54.40	µg/L	96
		284.9 -> 184.9	8211			
3:3FTCA	3.841	241.0 -> 177.0	25737	63.95	µg/L	95
		241.0 -> 117.0	3277			
5:3FTCA	6.206	341.0 -> 237.1	884234	307.99	µg/L	97
		341.0 -> 217.0	798090			
7:3FTCA	7.605	441.0 -> 316.9	568701	303.07	µg/L	96
		441.0 -> 336.9	1158167			
EtFOSA	10.927	526.0 -> 219.0	48290	12.00	µg/L	99
		526.0 -> 169.0	47799			
EtFOSE	10.860	630.0 -> 58.9	112104	122.59	µg/L	100
MeFOSA	10.682	511.9 -> 219.0	41283	12.84	µg/L	98
		511.9 -> 169.0	40866			
MeFOSE	10.602	616.1 -> 58.9	151323	134.71	µg/L	100
PFDoS	9.945	699.1 -> 79.9	20621	11.87	µg/L	94
		699.1 -> 98.8	13042			
NFDHA	5.457	295.0 -> 201.0	19845	24.45	µg/L	99
		295.0 -> 84.9	10297			
PFMBA	4.800	279.0 -> 85.1	56963	24.72	µg/L	100
PFMPA	3.541	229.0 -> 84.9	54695	25.03	µg/L	100
PFEESA	6.059	314.8 -> 134.9	420761	21.29	µg/L	99
		314.8 -> 82.9	10779			

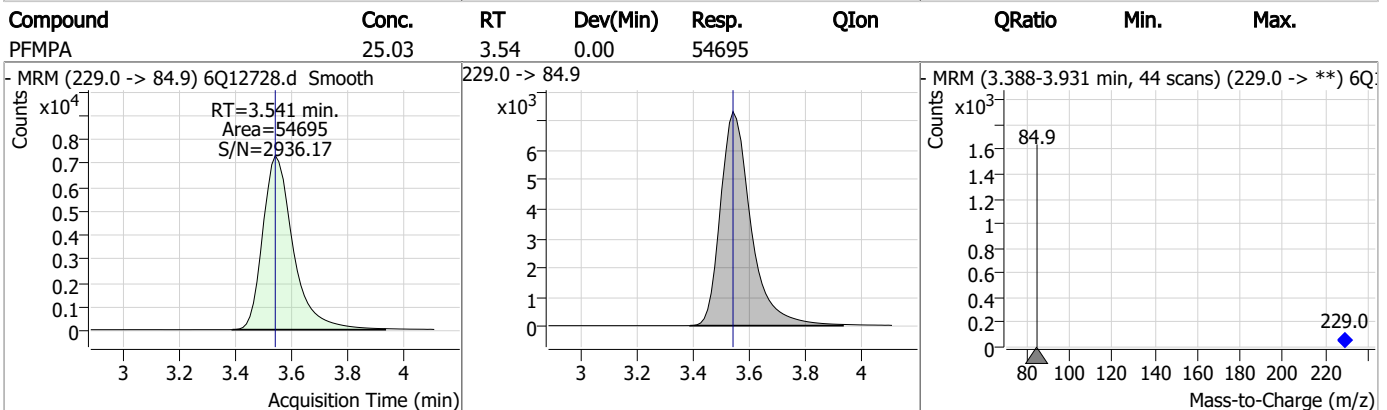
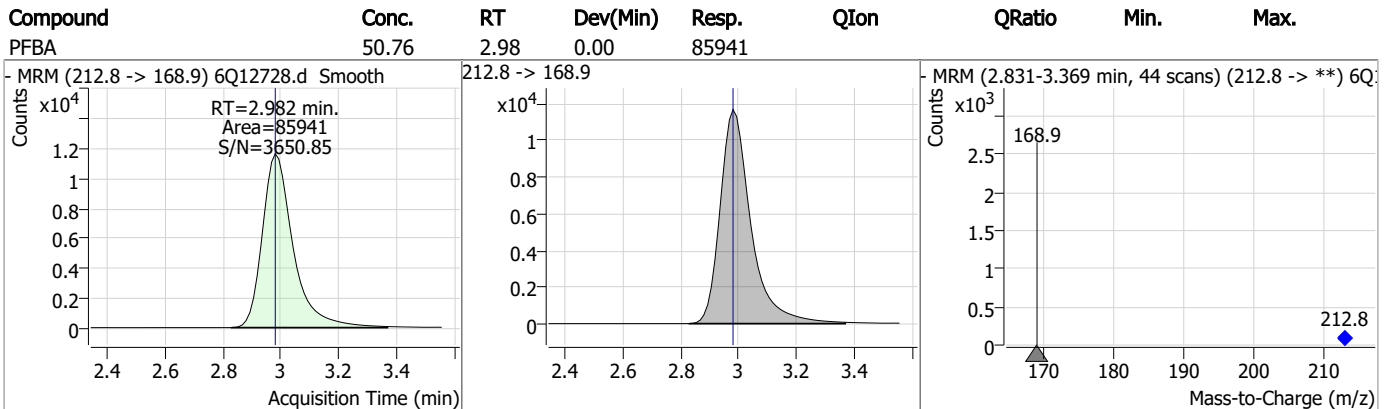
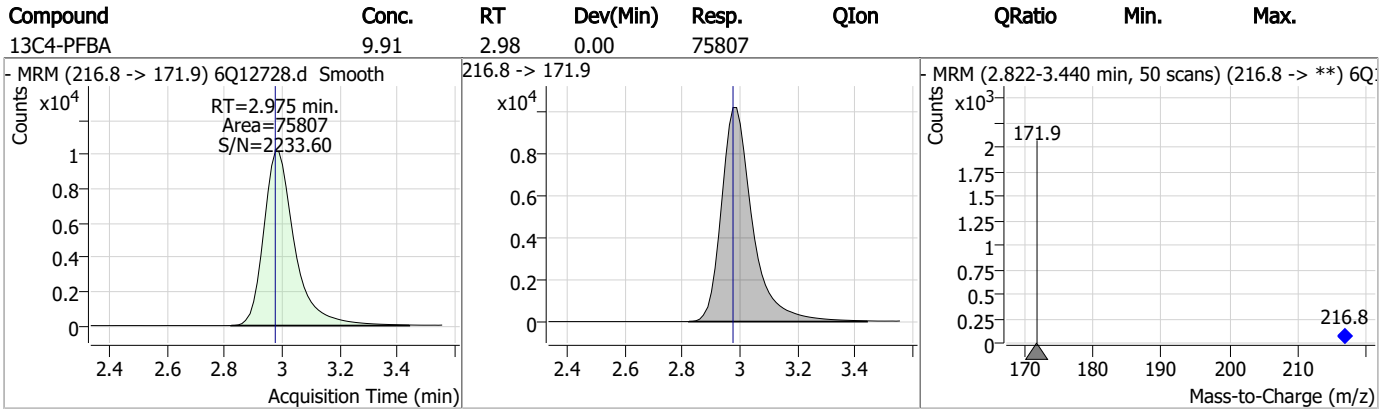
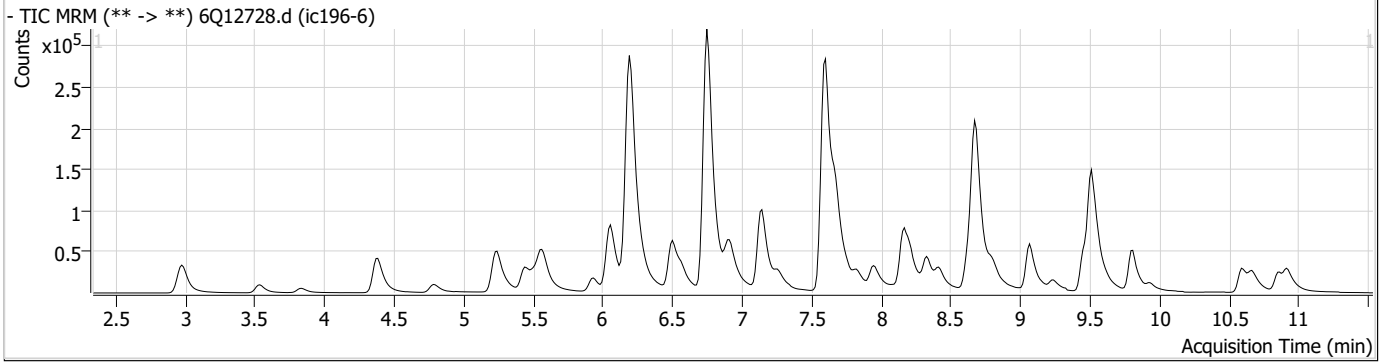
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

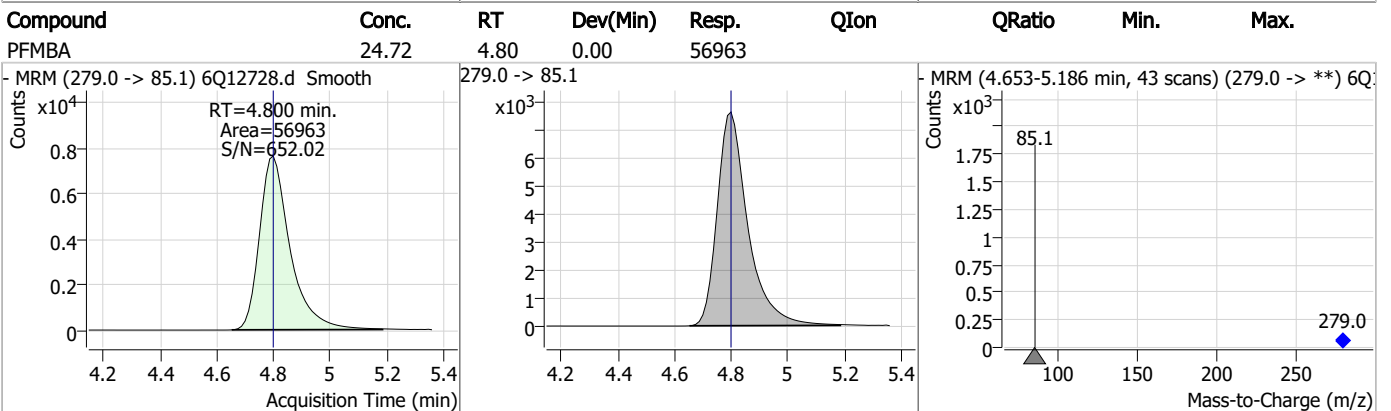
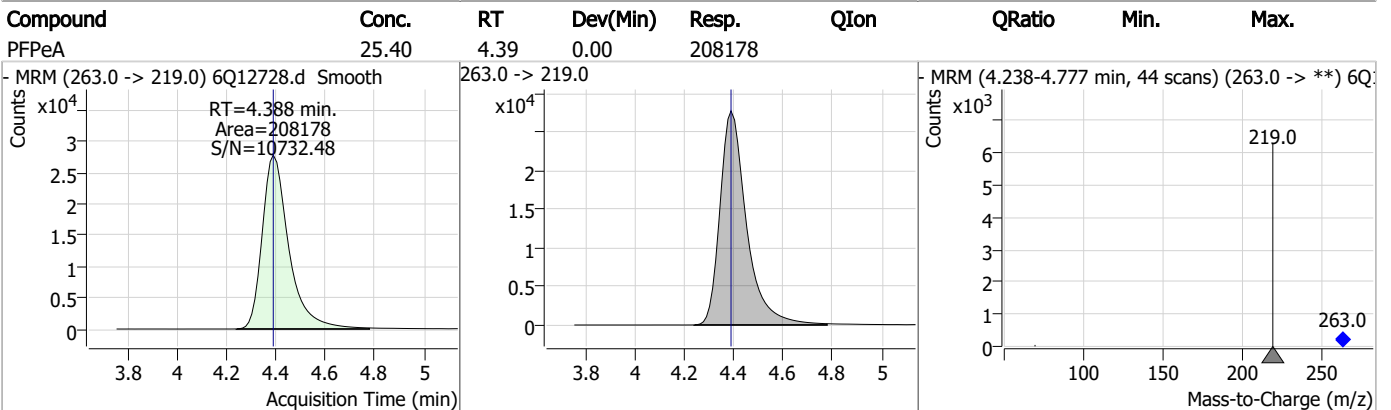
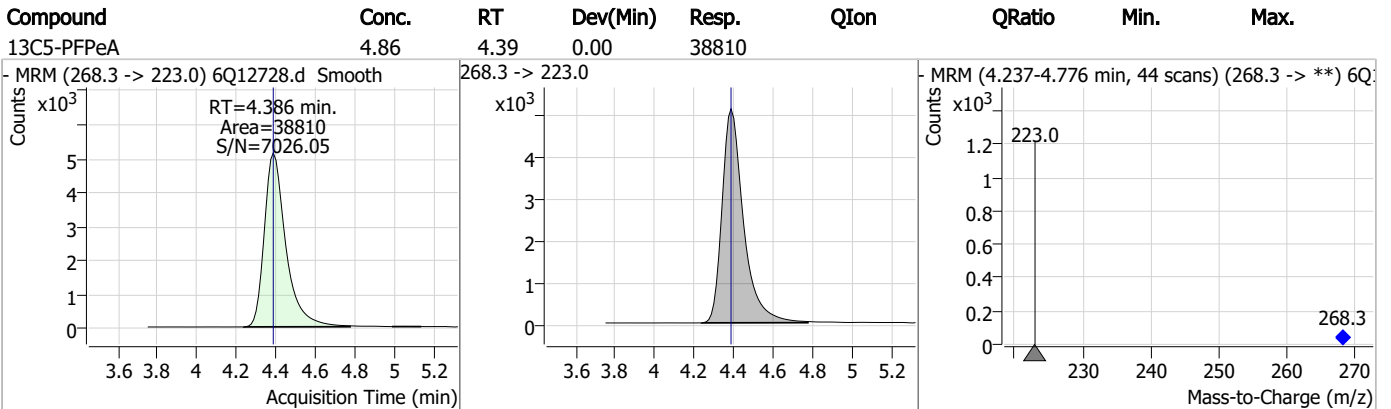
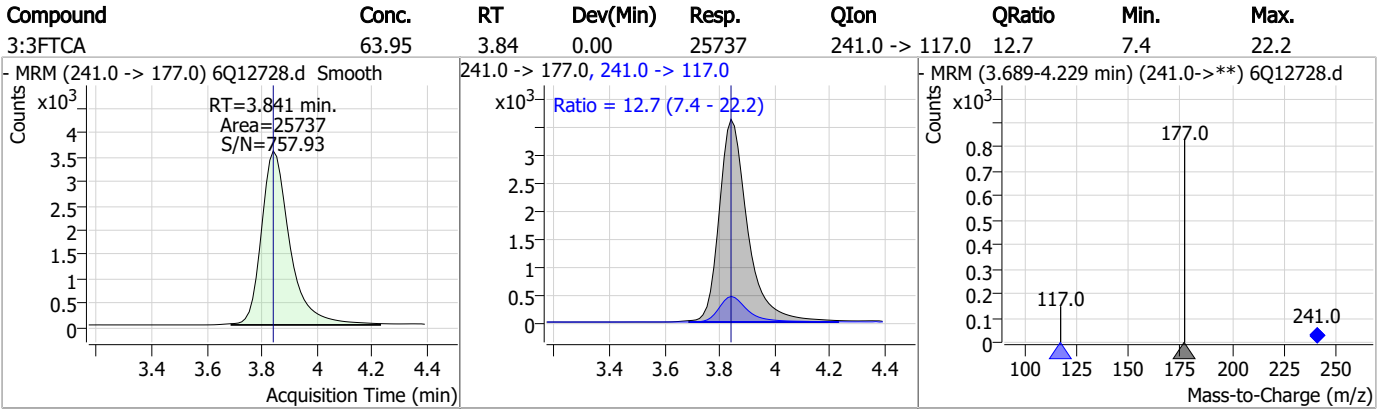
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.7
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Perfluorinated Compounds by LC/MS/MS

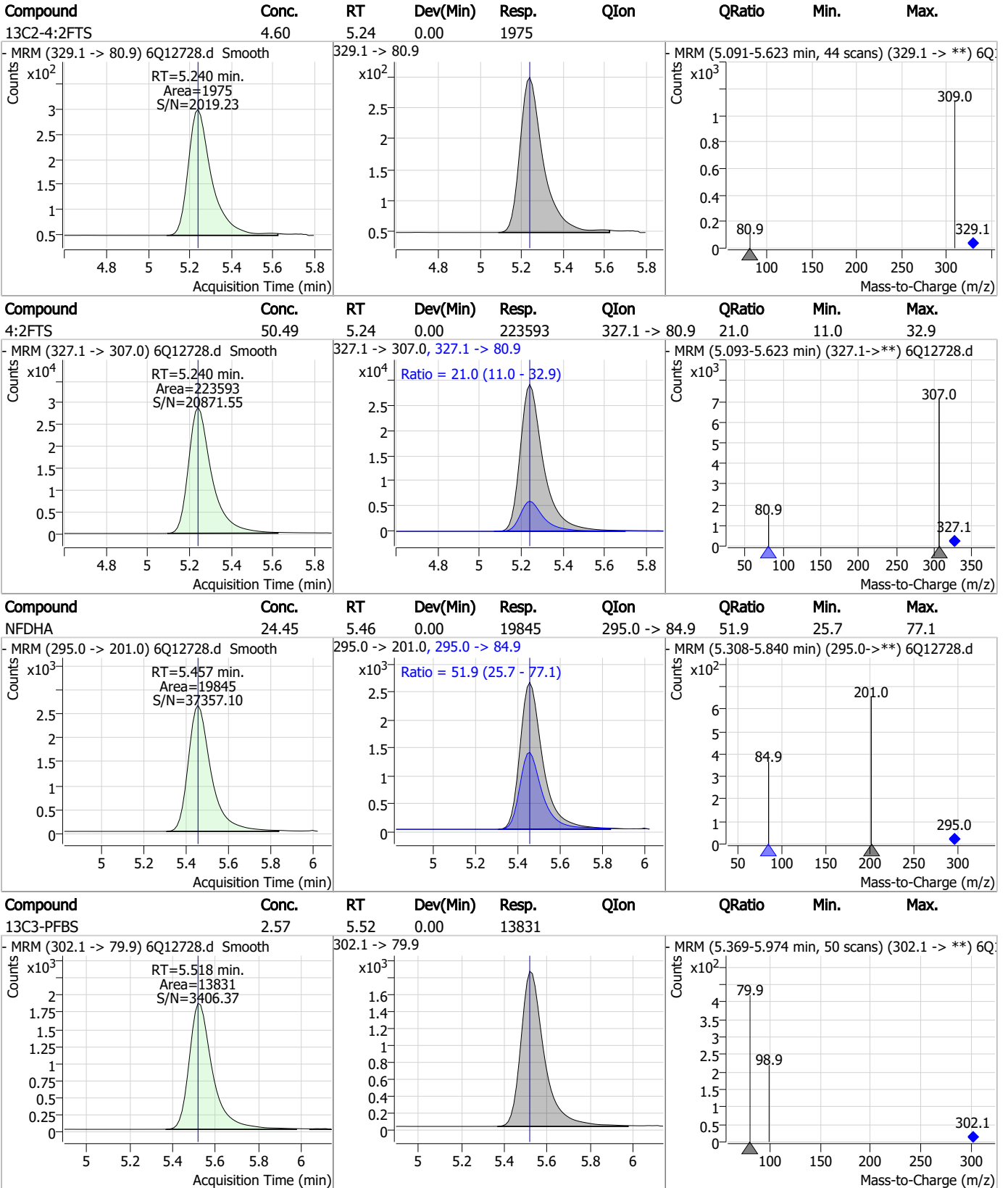


Perfluorinated Compounds by LC/MS/MS



7.7.7
7

Perfluorinated Compounds by LC/MS/MS

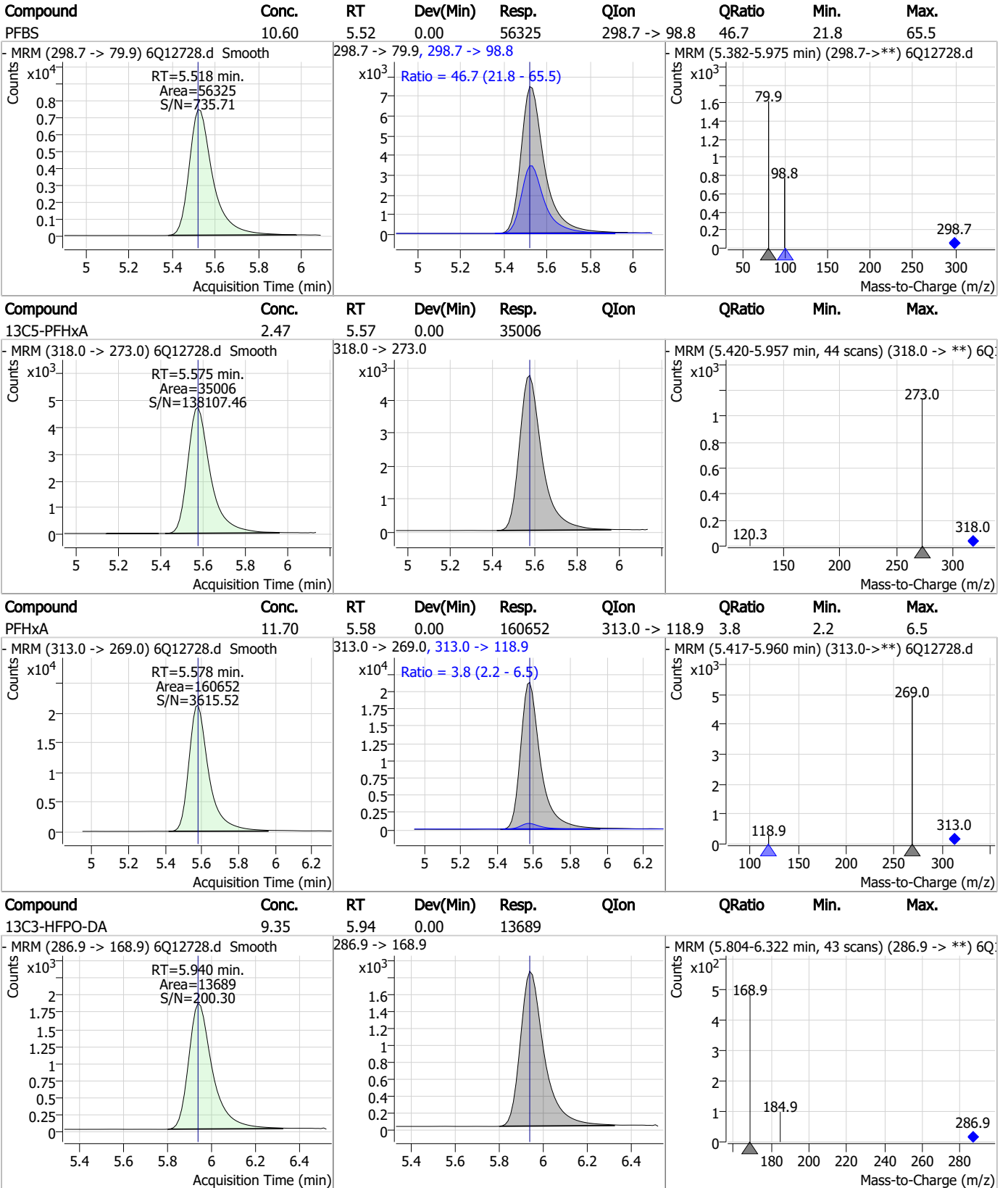


7.7.7

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Perfluorinated Compounds by LC/MS/MS

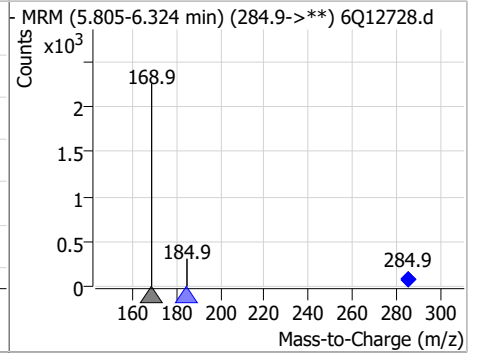
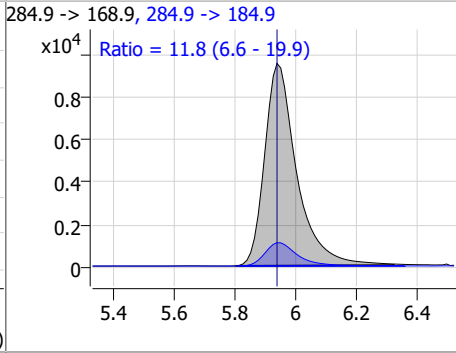
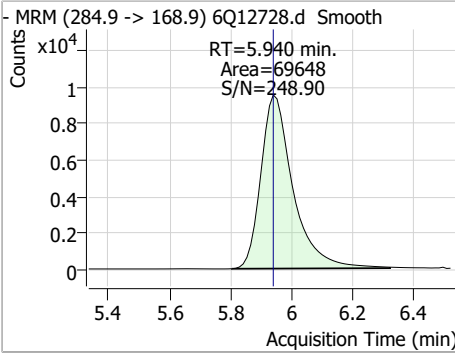


7.7.7

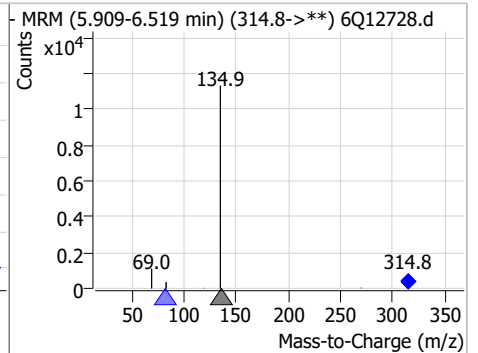
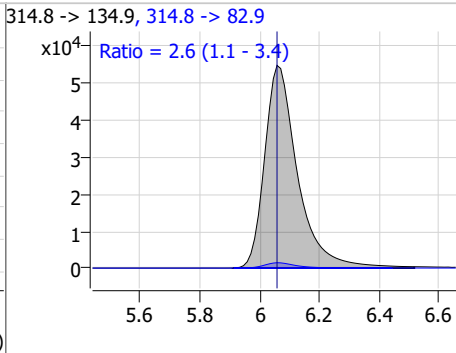
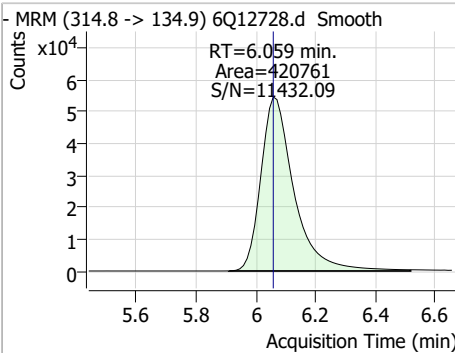
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Perfluorinated Compounds by LC/MS/MS

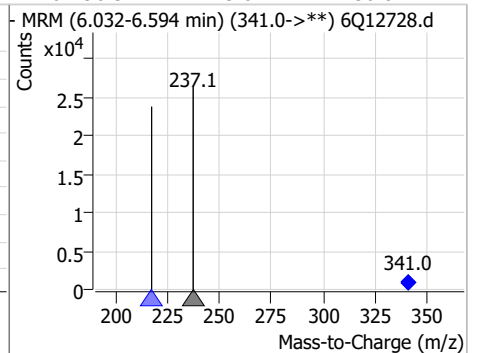
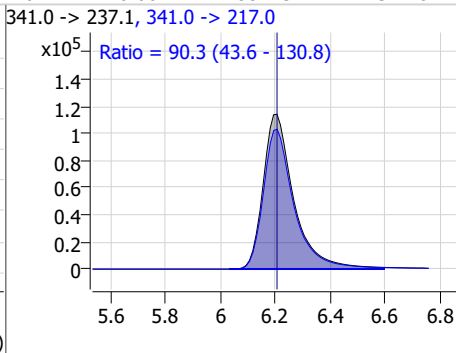
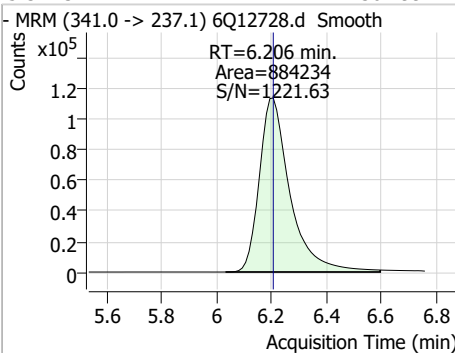
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	54.40	5.94	0.00	69648	284.9 -> 184.9	11.8	6.6	19.9



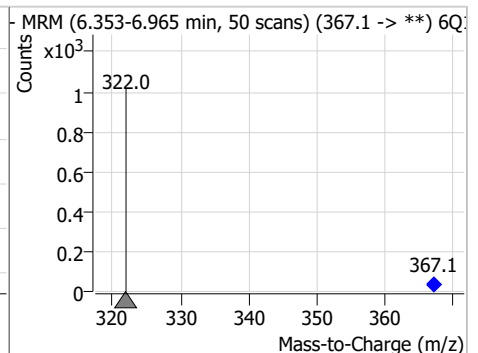
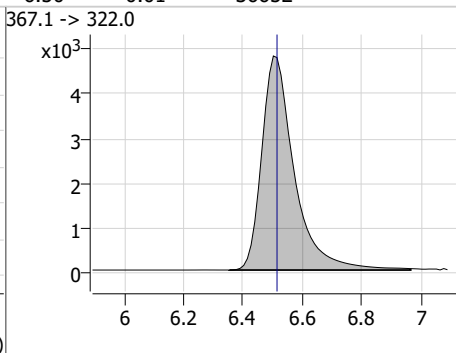
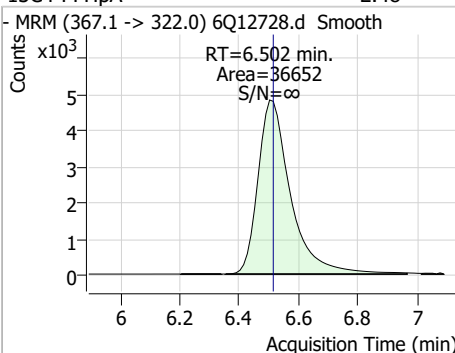
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	21.29	6.06	0.00	420761	314.8 -> 82.9	2.6	1.1	3.4



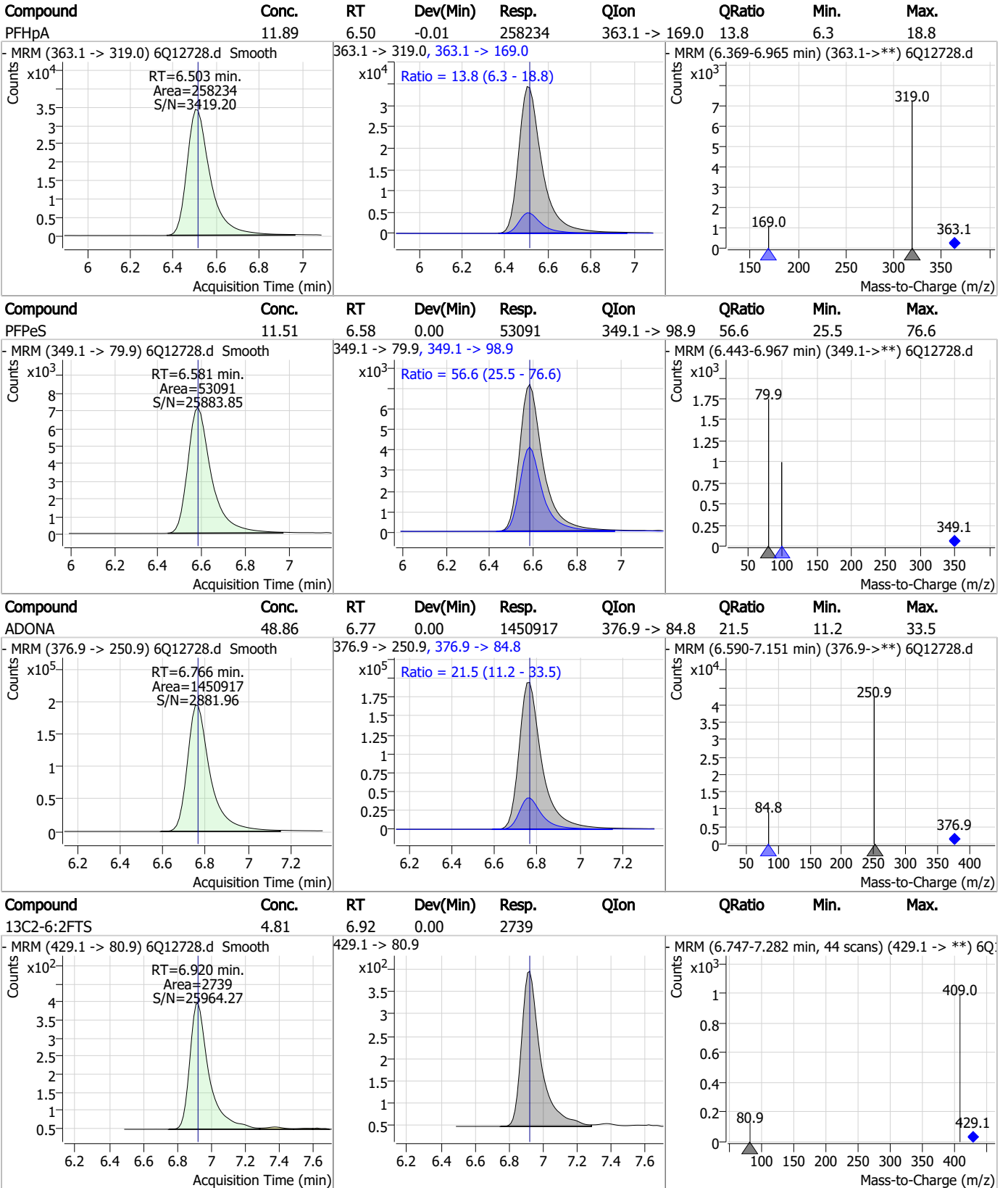
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	307.99	6.21	0.00	884234	341.0 -> 217.0	90.3	43.6	130.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.48	6.50	-0.01	36652				



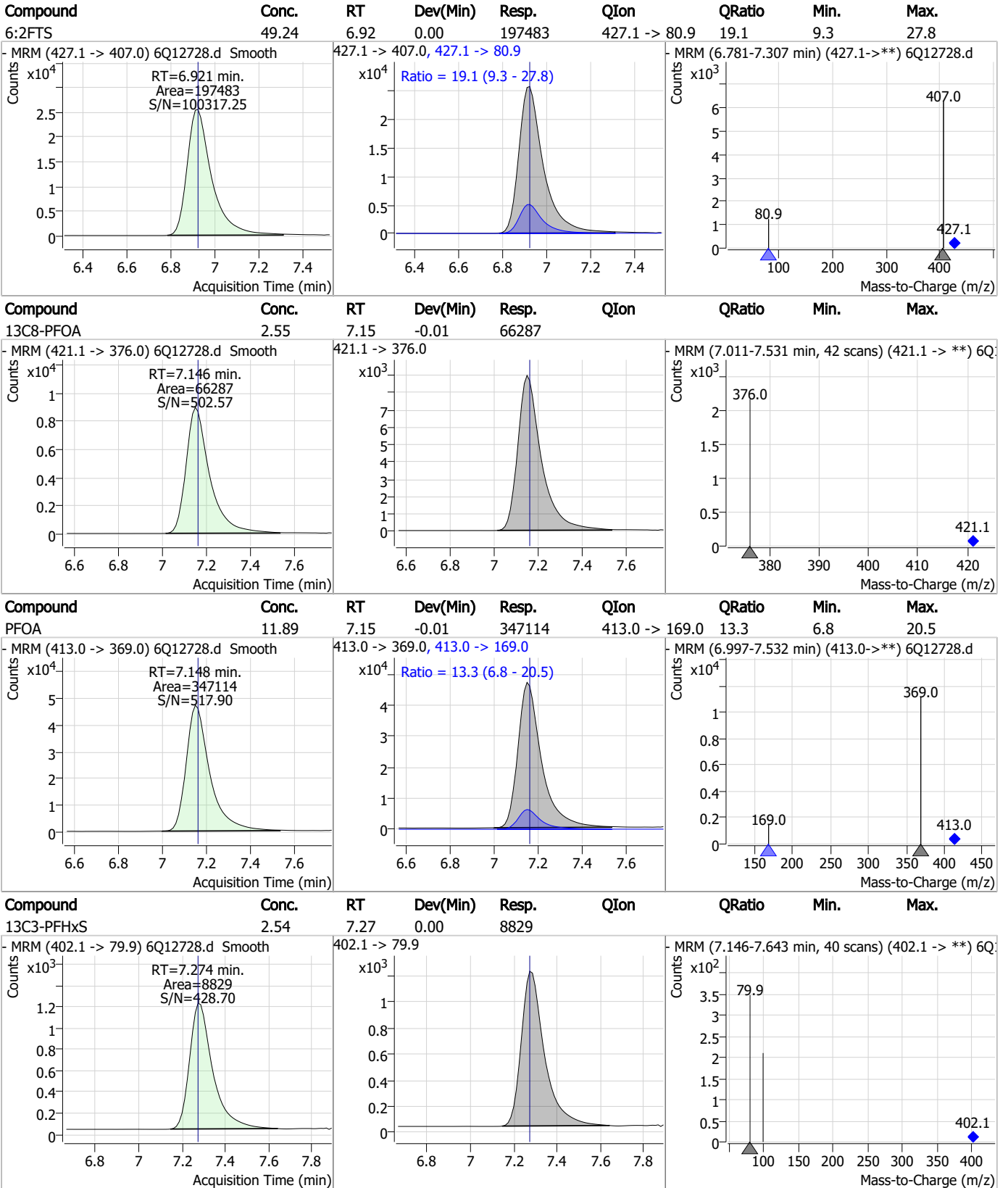
Perfluorinated Compounds by LC/MS/MS



7.7.7
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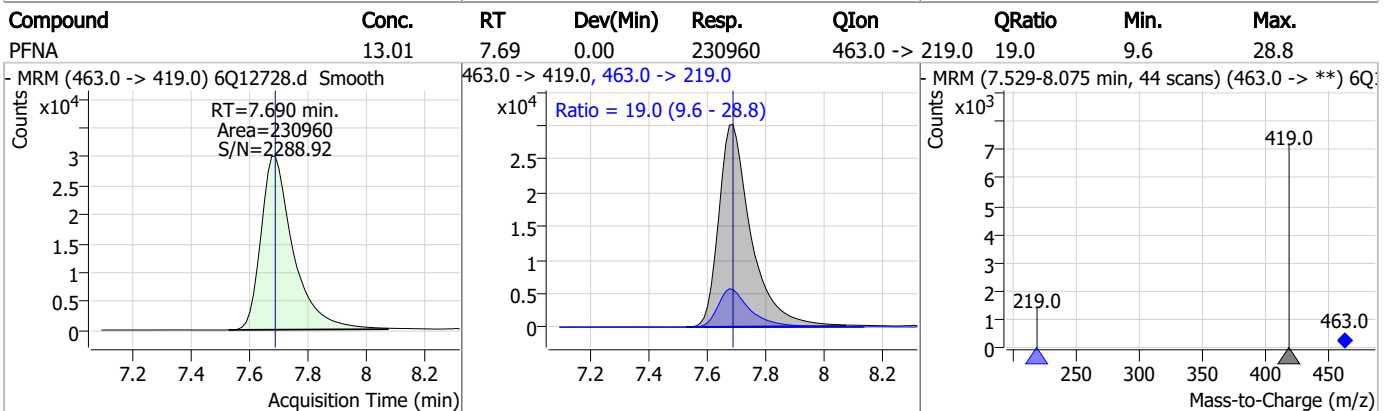
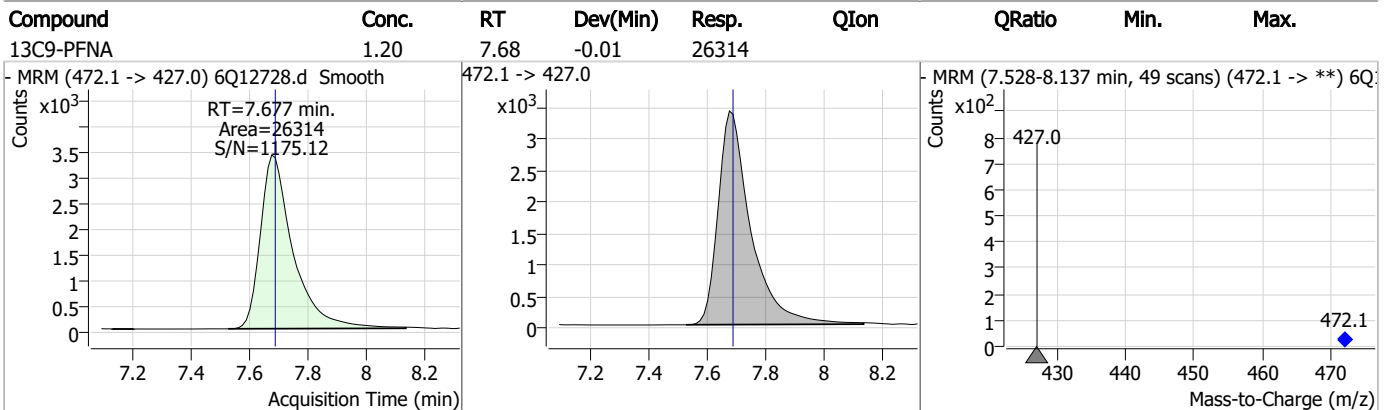
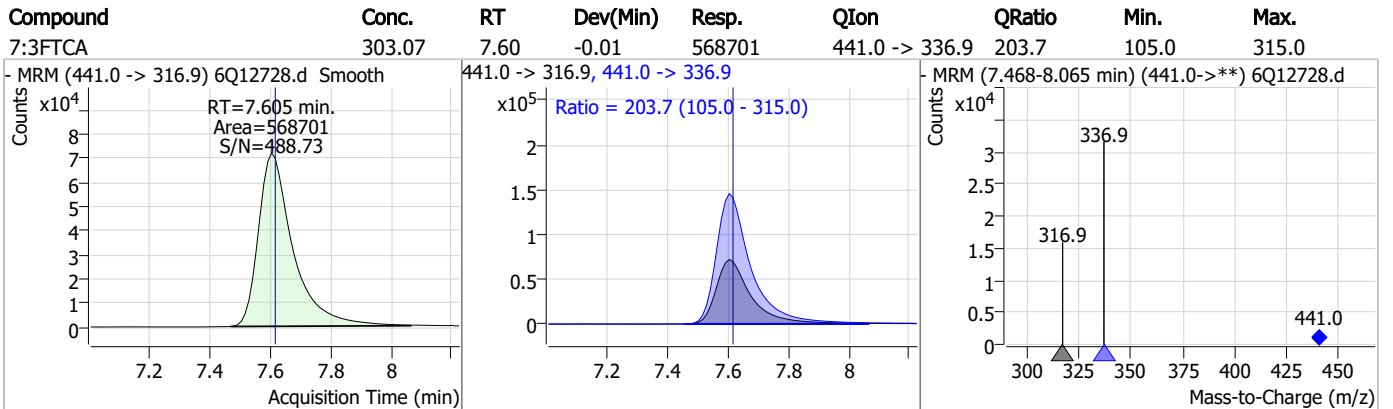
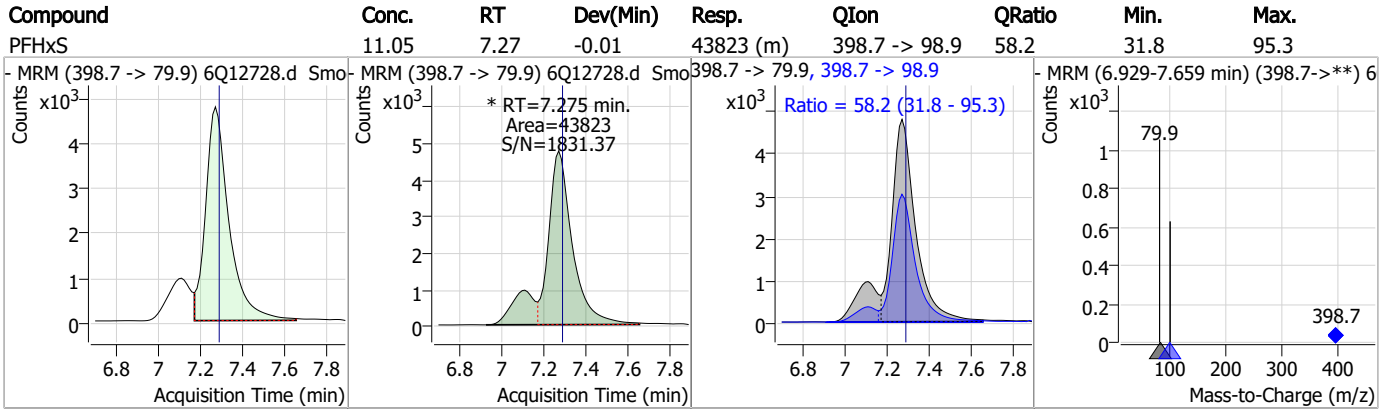
Perfluorinated Compounds by LC/MS/MS



7.7.7

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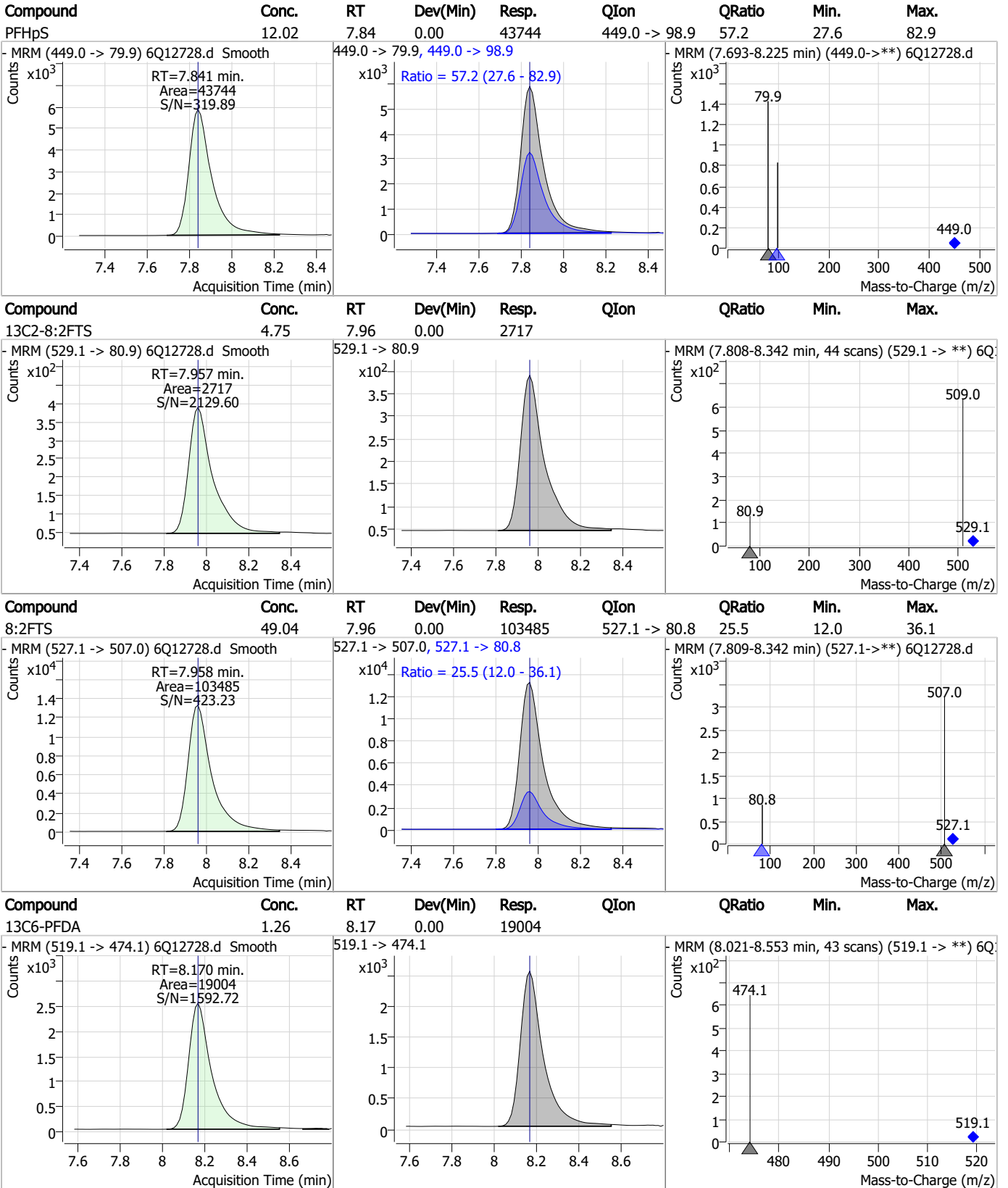
Perfluorinated Compounds by LC/MS/MS



7.7.7



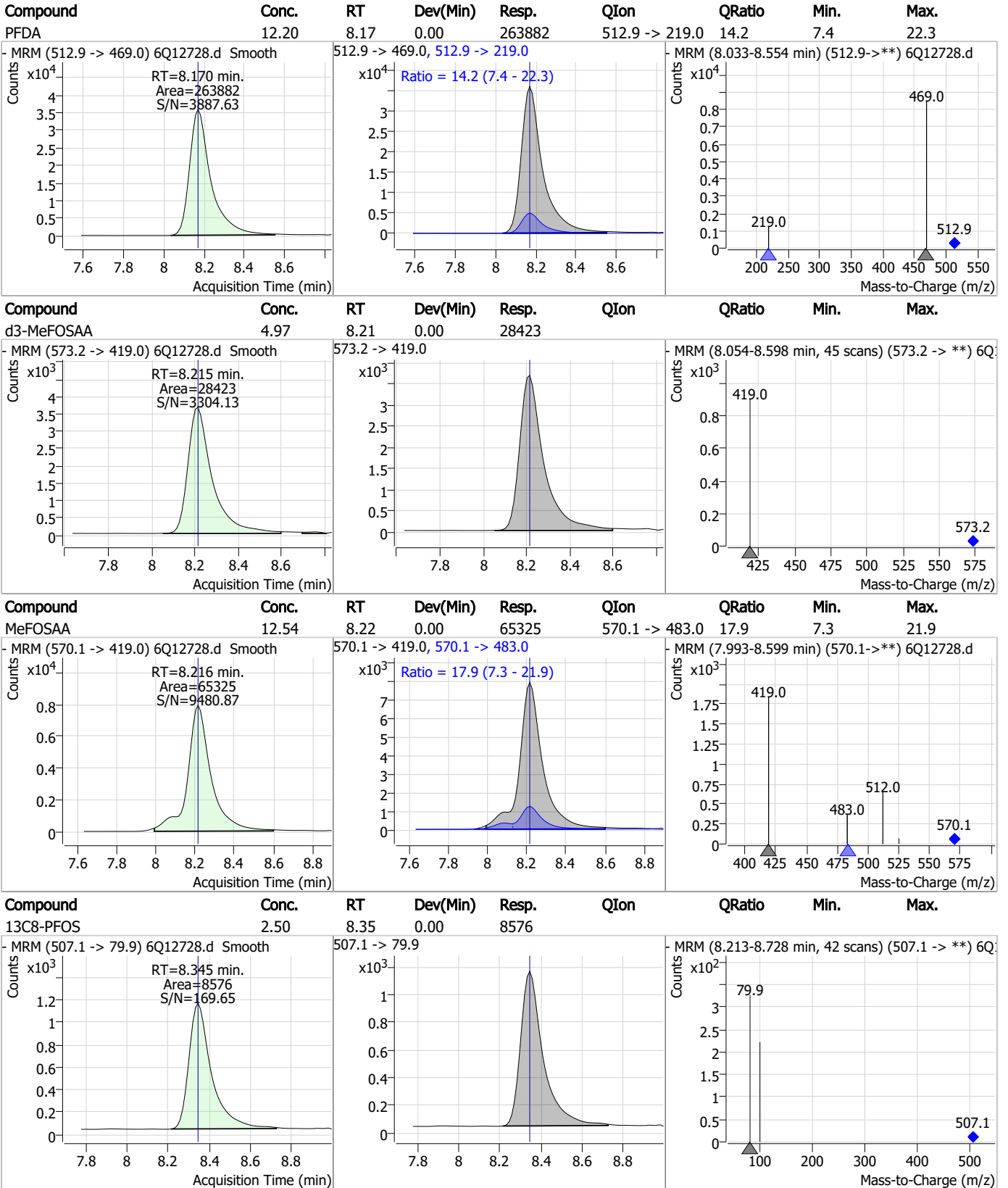
Perfluorinated Compounds by LC/MS/MS



7.7.7

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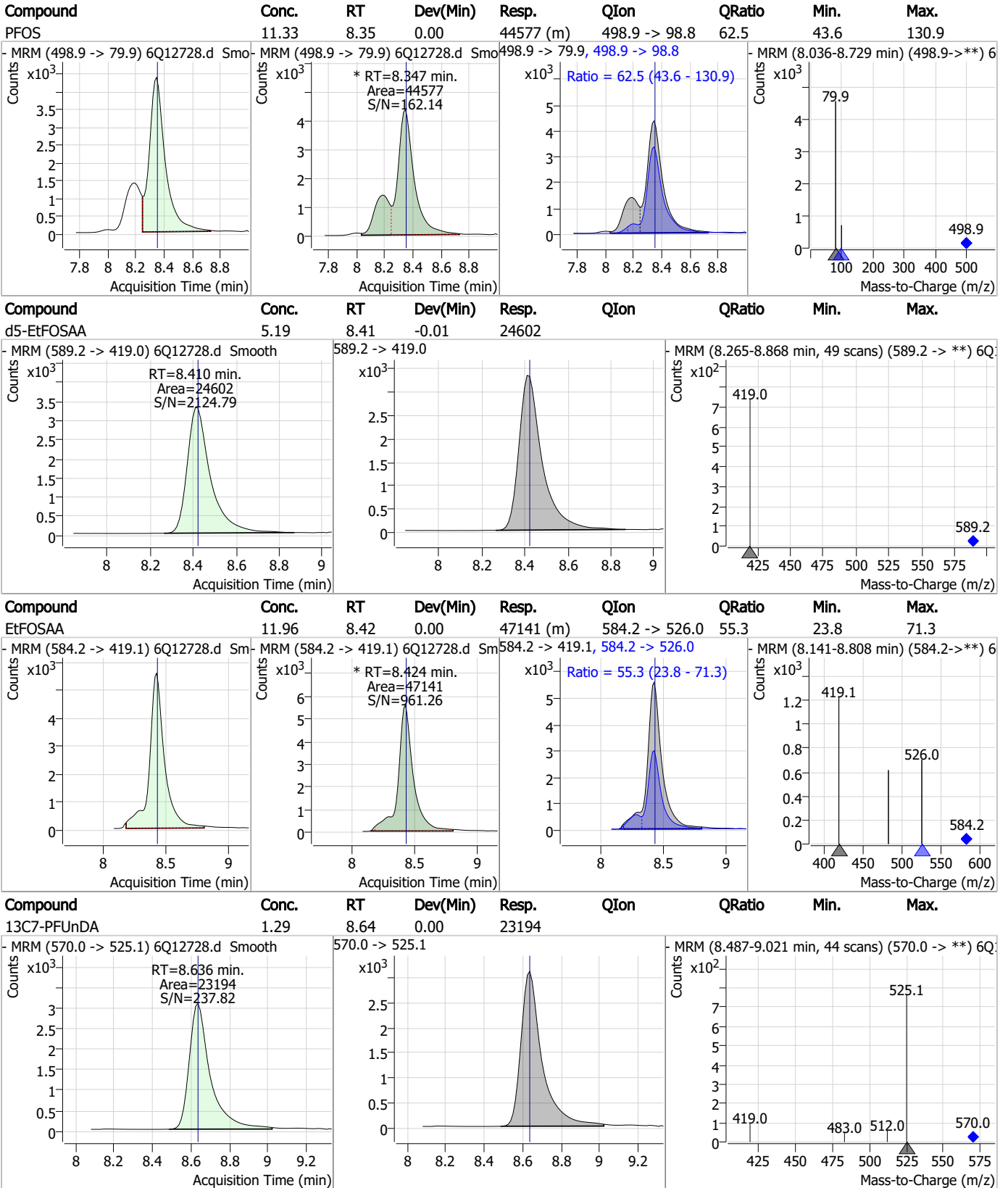
Perfluorinated Compounds by LC/MS/MS



7.7.7

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Perfluorinated Compounds by LC/MS/MS

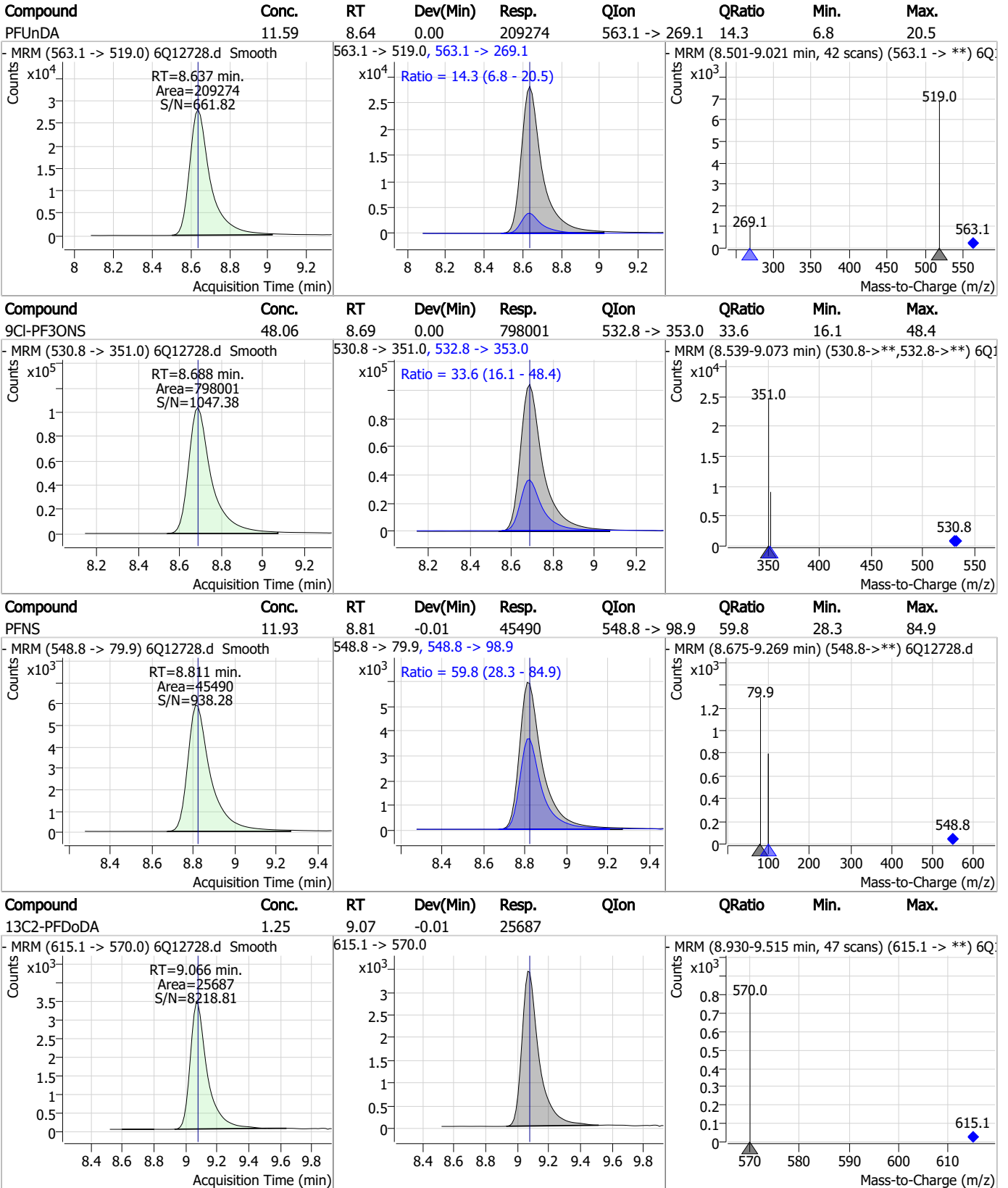


7.7.7

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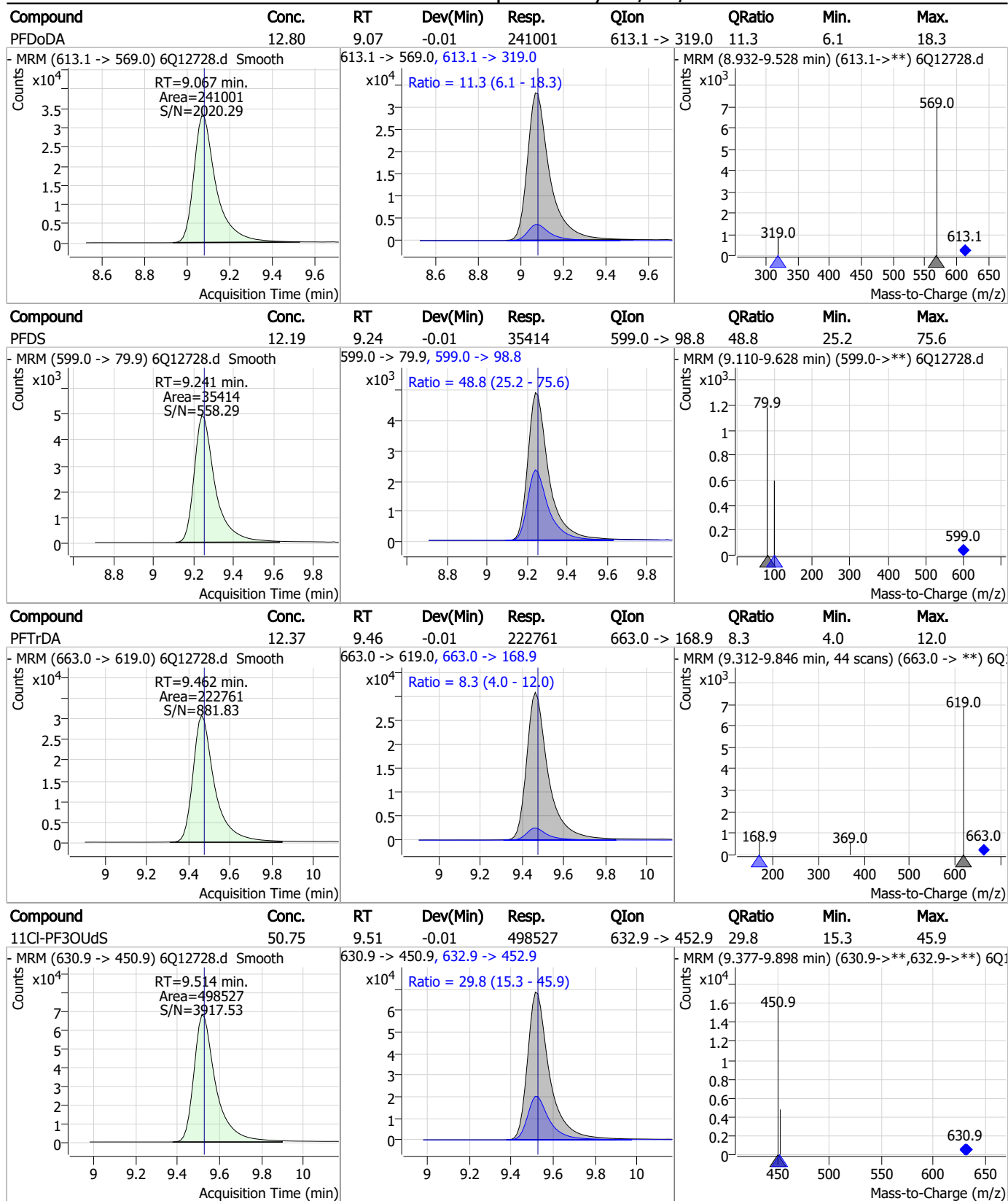
Perfluorinated Compounds by LC/MS/MS



7.7.7

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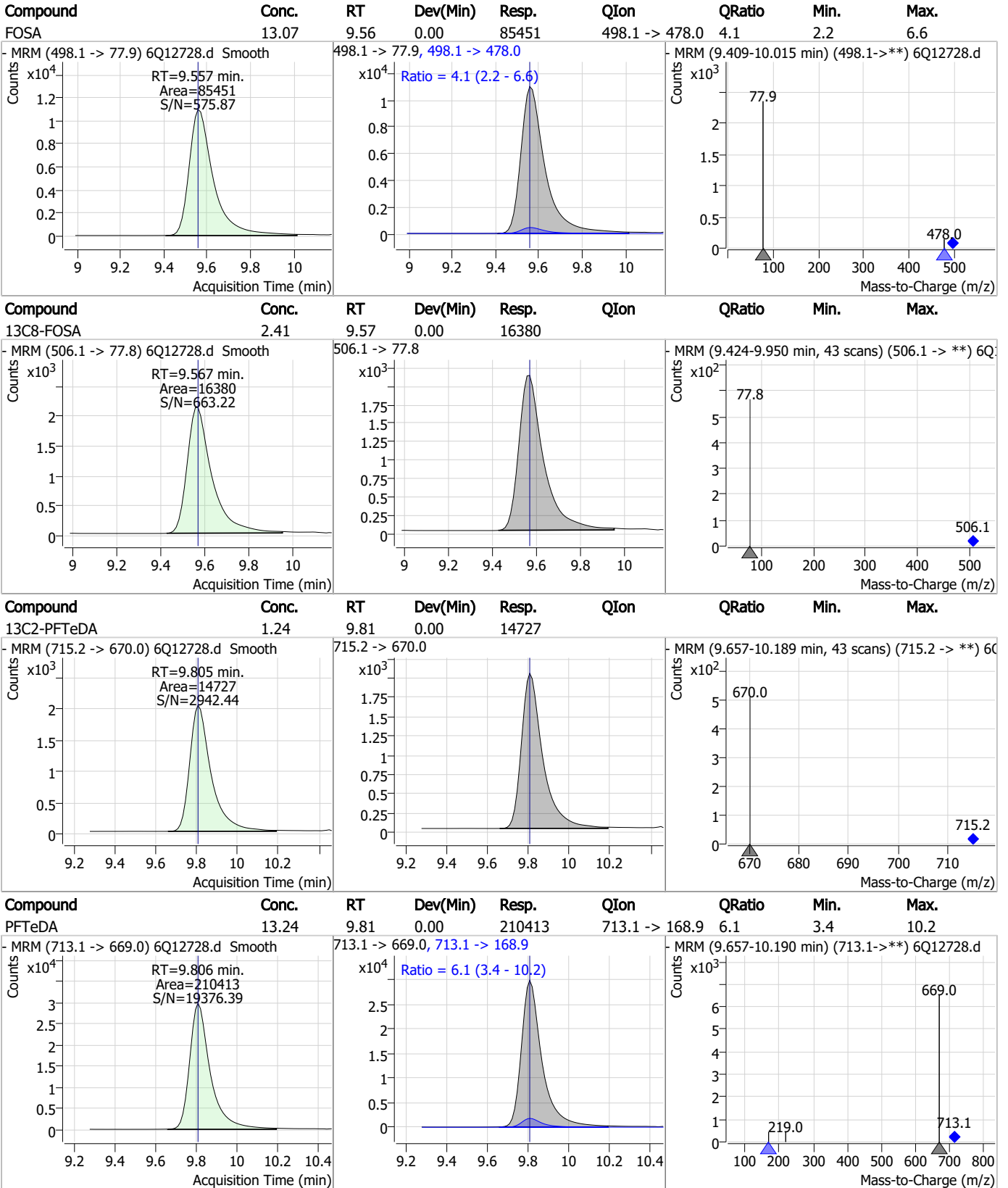
Perfluorinated Compounds by LC/MS/MS



7.7.7
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Perfluorinated Compounds by LC/MS/MS



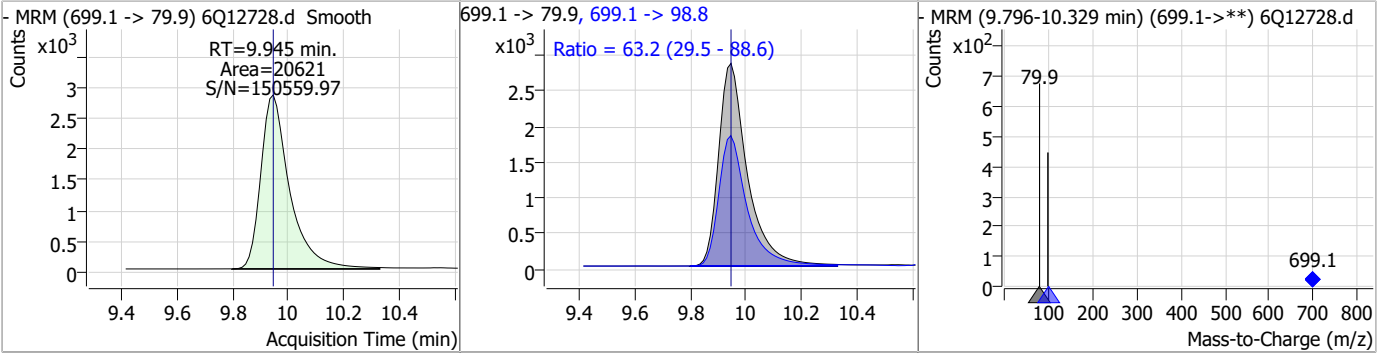
7.7.7

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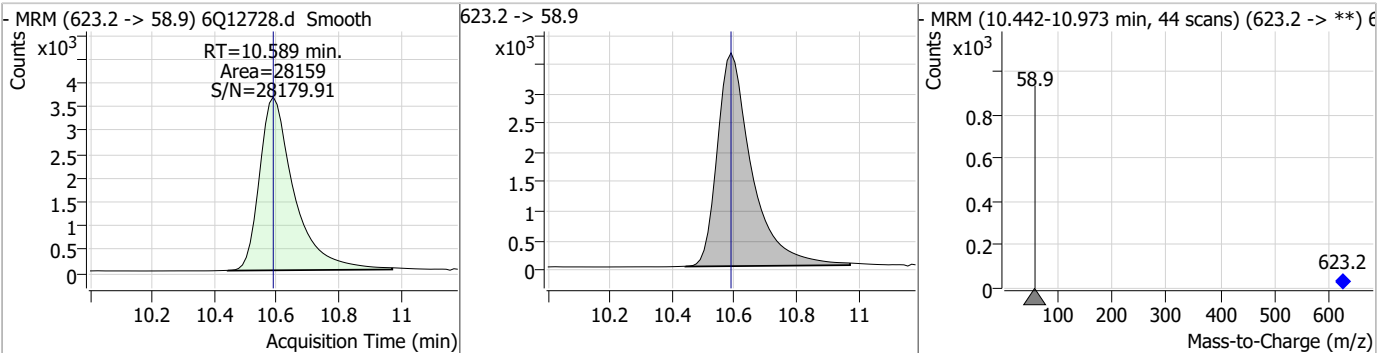


Perfluorinated Compounds by LC/MS/MS

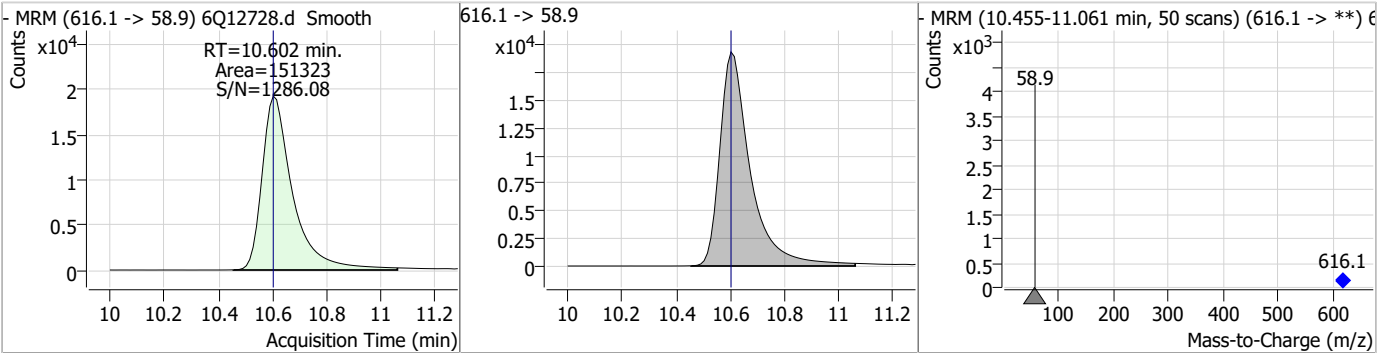
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	11.87	9.95	0.00	20621	699.1 -> 98.8	63.2	29.5	88.6



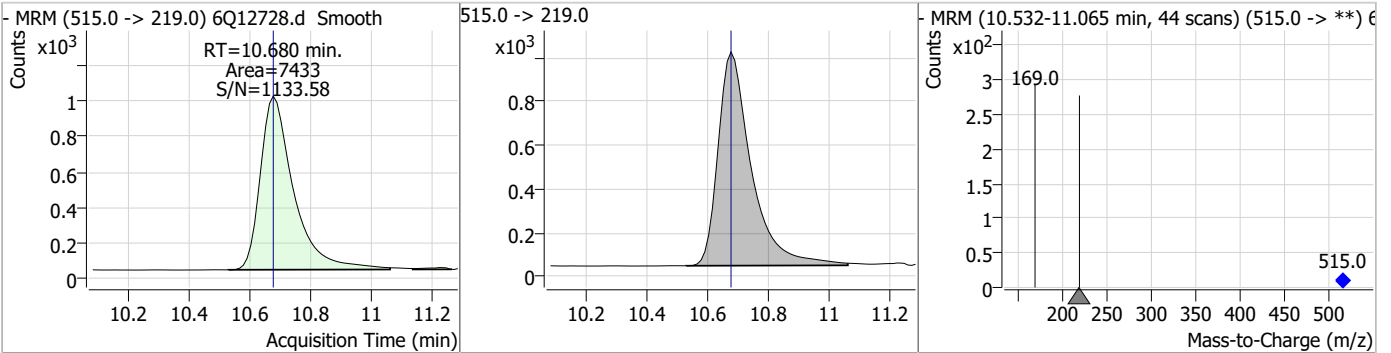
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.78	10.59	0.00	28159				



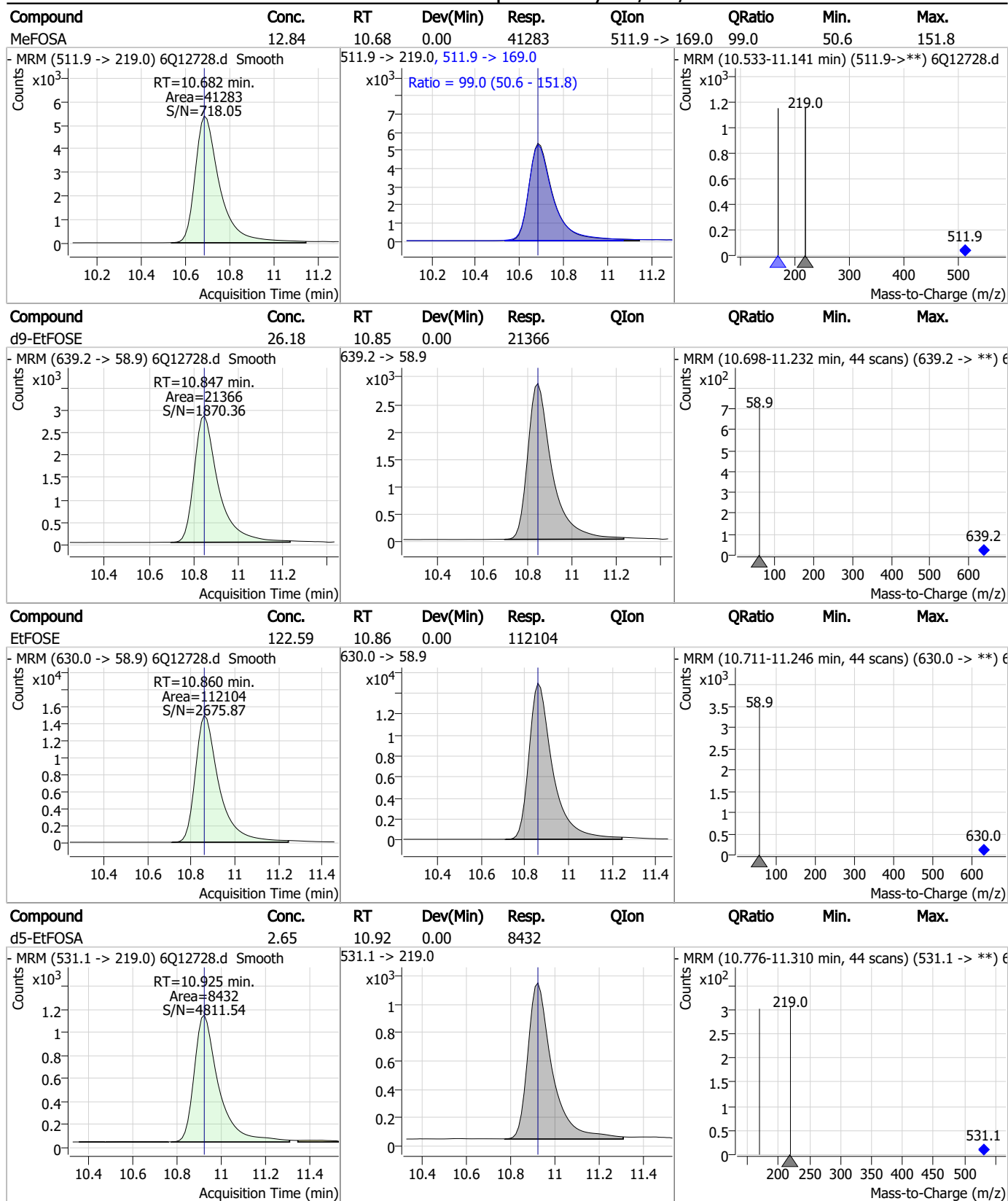
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	134.71	10.60	0.00	151323				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.54	10.68	0.00	7433				

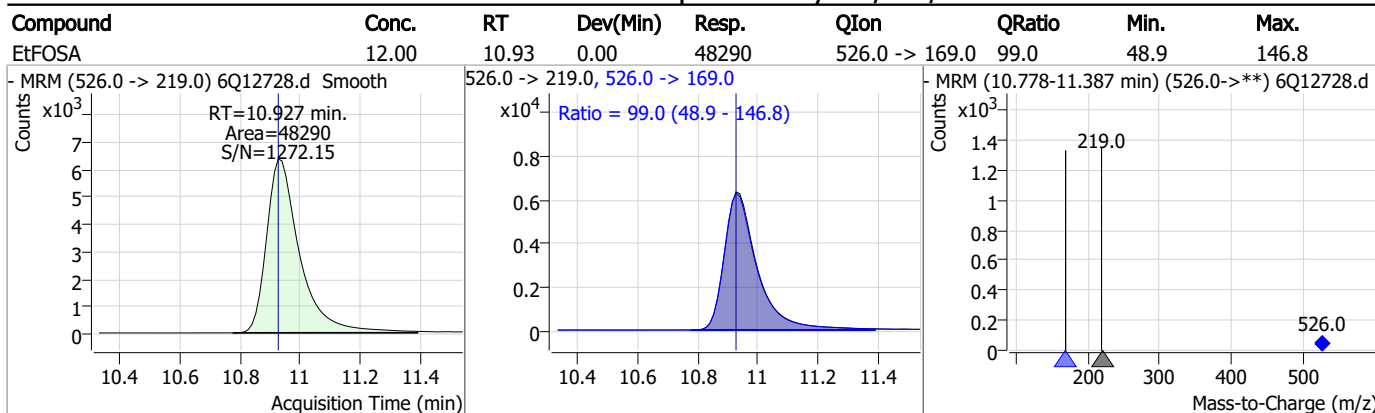


Perfluorinated Compounds by LC/MS/MS



7.7.7
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Perfluorinated Compounds by LC/MS/MS



7.7.7
7

Manual Integration Approval Summary

Sample Number: S6Q196-IC196 Method: EPA DRAFT 1633
Lab FileID: 6Q12728.D Analyst approved: 02/02/23 11:53 Martha Valls
Injection Time: 02/01/23 19:01 Supervisor approved: 02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

7.7.7.1

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Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
 02/02/23 17:09

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12729.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/1/2023 7:15:14 PM
 Sample Name : ic196-7
 Vial : P1-A8
 DA Method File : 1633_020223_S6Q196.quantmethod.xml
 Batch Name : S6Q196.batch.bin
 Sample Information : OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.975	216.8 -> 171.9	73235	10.00 µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	37346	5.00 µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	32289	2.50 µg/L	0.000
M4-PFHpA	6.515	367.1 -> 322.0	33539	2.50 µg/L	0.000
M8-PFOA	7.159	421.1 -> 376.0	61120	2.50 µg/L	0.000
M9-PFNA	7.689	472.1 -> 427.0	26776	1.25 µg/L	0.000
M6-PFDA	8.170	519.1 -> 474.1	18428	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	21391	1.25 µg/L	0.000
M2-PFDoDA	9.078	615.1 -> 570.0	24501	1.25 µg/L	0.000
M2-PFTeDA	9.805	715.2 -> 670.0	14917	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	15956	2.50 µg/L	0.000
M3-PFBS	5.530	302.1 -> 79.9	12956	2.50 µg/L	0.012
M3-PFHxS	7.287	402.1 -> 79.9	9060	2.50 µg/L	0.013
M8-PFOS	8.345	507.1 -> 79.9	7830	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2080	5.00 µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	2594	5.00 µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	2741	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	27498	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	14153	10.00 µg/L	0.000
M5-EtFOSAA	8.422	589.2 -> 419.0	23346	5.00 µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	28427	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	19495	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7890	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7429	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	10225	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	32454	5.00 µg/L	0.000
18O2-PFHxS	7.286	403.0 -> 83.9	6512	2.50 µg/L	0.000
13C4-PFOA	7.159	417.1 -> 372.0	75112	2.50 µg/L	0.000
13C2-PFDA	8.170	515.1 -> 470.1	26461	1.25 µg/L	0.000
13C5-PFNA	7.689	468.0 -> 423.0	30379	1.25 µg/L	0.000
13C2-PFHxA	5.576	315.1 -> 270.0	35267	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.240	329.1 -> 80.9	2080	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C2-6:2FTS	6.920	429.1 -> 80.9	2594	4.62 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.4%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2741	4.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.2%		
13C2-PFDoDA	9.078	615.1 -> 570.0	24501	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.3%		
13C2-PFTeDA	9.805	715.2 -> 670.0	14917	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C3-PFBS	5.530	302.1 -> 79.9	12956	2.44 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C3-PFHxS	7.287	402.1 -> 79.9	9060	2.65 µg/L	0.013

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.9%		
13C4-PFBA	2.975	216.8 -> 171.9	73235	10.17 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C4-PFHpA	6.515	367.1 -> 322.0	33539	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.2%		
13C5-PFHxA	5.575	318.0 -> 273.0	32289	2.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.5%		
13C5-PFPeA	4.386	268.3 -> 223.0	37346	4.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.0%		
13C6-PFDA	8.170	519.1 -> 474.1	18428	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C7-PFUnDA	8.636	570.0 -> 525.1	21391	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.2%		
13C8-FOSA	9.567	506.1 -> 77.8	15956	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.8%		
13C8-PFOA	7.159	421.1 -> 376.0	61120	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C8-PFOS	8.345	507.1 -> 79.9	7830	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.2%		
13C9-PFNA	7.689	472.1 -> 427.0	26776	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.2%		
d3-MeFOSAA	8.215	573.2 -> 419.0	27498	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	14153	9.82 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 98.2%		
d3-MeFOSA	10.680	515.0 -> 219.0	7429	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.6%		
d5-EtFOSAA	8.422	589.2 -> 419.0	23346	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.4%		
d7-MeFOSE	10.589	623.2 -> 58.9	28427	24.49 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 97.9%		
d9-EtFOSE	10.847	639.2 -> 58.9	19495	24.36 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 97.5%		
d5-EtFOSA	10.925	531.1 -> 219.0	7890	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.1%		
Target Compounds					QValue
4:2FTS	5.240	327.1 -> 307.0	414036	88.76 µg/L	100
		327.1 -> 80.9	90108		
6:2FTS	6.921	427.1 -> 407.0	375221	98.78 µg/L	99
		427.1 -> 80.9	68351		
8:2FTS	7.958	527.1 -> 507.0	201602	94.71 µg/L	99
		527.1 -> 80.8	47770		
EtFOSAA	8.424	584.2 -> 419.1	94854	25.37 µg/L	m 85
		584.2 -> 526.0	54297		
FOSA	9.557	498.1 -> 77.9	162616	25.54 µg/L	99
		498.1 -> 478.0	6385		
MeFOSAA	8.216	570.1 -> 419.0	136159	27.02 µg/L	m 97
		570.1 -> 483.0	21831		
PFBA	2.982	212.8 -> 168.9	176121	107.67 µg/L	100
PFBS	5.518	298.7 -> 79.9	113065	22.72 µg/L	92
		298.7 -> 98.8	55270		
PFDA	8.170	512.9 -> 469.0	552940	26.37 µg/L	99
		512.9 -> 219.0	79427		
PFDoDA	9.079	613.1 -> 569.0	456440	25.42 µg/L	98
		613.1 -> 319.0	59635		
PFDS	9.241	599.0 -> 79.9	64943	24.48 µg/L	95

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	34911			
PFHpA	6.515	363.1 -> 319.0	537448	27.05	µg/L	96
		363.1 -> 169.0	75226			
PFHpS	7.841	449.0 -> 79.9	90405	27.22	µg/L	94
		449.0 -> 98.9	54222			
PFHxA	5.578	313.0 -> 269.0	353846	27.93	µg/L	98
		313.0 -> 118.9	12894			
PFHxS	7.275	398.7 -> 79.9	93551	22.98	µg/L	m 86
		398.7 -> 98.9	49093			
PFNA	7.690	463.0 -> 419.0	458485	25.38	µg/L	99
		463.0 -> 219.0	86106			
PFNS	8.824	548.8 -> 79.9	89864	25.82	µg/L	94
		548.8 -> 98.9	54950			
PFOA	7.160	413.0 -> 369.0	710157	26.38	µg/L	99
		413.0 -> 169.0	92927			
PFOS	8.347	498.9 -> 79.9	91208	25.39	µg/L	m 73
		498.9 -> 98.8	57224			
PFPeA	4.388	263.0 -> 219.0	424519	53.83	µg/L	100
PFPeS	6.581	349.1 -> 79.9	108547	22.93	µg/L	95
		349.1 -> 98.9	59612			
PFTeDA	9.806	713.1 -> 669.0	400446	24.88	µg/L	100
		713.1 -> 168.9	27323			
PFTrDA	9.462	663.0 -> 619.0	452988	26.38	µg/L	98
		663.0 -> 168.9	33816			
PFUnDA	8.637	563.1 -> 519.0	469239	28.17	µg/L	99
		563.1 -> 269.1	62287			
11CI-PF3OUdS	9.526	630.9 -> 450.9	984756	96.96	µg/L	100
		632.9 -> 452.9	302828			
9CI-PF3ONS	8.688	530.8 -> 351.0	1676561	97.66	µg/L	99
		532.8 -> 353.0	535345			
ADONA	6.766	376.9 -> 250.9	3019273	98.34	µg/L	97
		376.9 -> 84.8	631130			
HFPO-DA	5.953	284.9 -> 168.9	136874	103.40	µg/L	97
		284.9 -> 184.9	16574			
3:3FTCA	3.841	241.0 -> 177.0	53013	136.88	µg/L	95
		241.0 -> 117.0	6772			
5:3FTCA	6.206	341.0 -> 237.1	1813346	684.76	µg/L	100
		341.0 -> 217.0	1574313			
7:3FTCA	7.617	441.0 -> 316.9	1160781	670.63	µg/L	93
		441.0 -> 336.9	2315978			
EtFOSA	10.927	526.0 -> 219.0	97097	25.79	µg/L	99
		526.0 -> 169.0	93801			
EtFOSE	10.860	630.0 -> 58.9	218801	262.23	µg/L	100
MeFOSA	10.682	511.9 -> 219.0	80524	25.06	µg/L	97
		511.9 -> 169.0	83697			
MeFOSE	10.602	616.1 -> 58.9	298173	262.94	µg/L	100
PFDoDS	9.945	699.1 -> 79.9	42100	26.54	µg/L	99
		699.1 -> 98.8	25247			
NFDHA	5.457	295.0 -> 201.0	39355	52.56	µg/L	97
		295.0 -> 84.9	21064			
PFMBA	4.800	279.0 -> 85.1	120690	54.42	µg/L	100
PFMPA	3.541	229.0 -> 84.9	113193	53.82	µg/L	100
PFEESA	6.071	314.8 -> 134.9	893404	49.00	µg/L	100
		314.8 -> 82.9	21436			

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

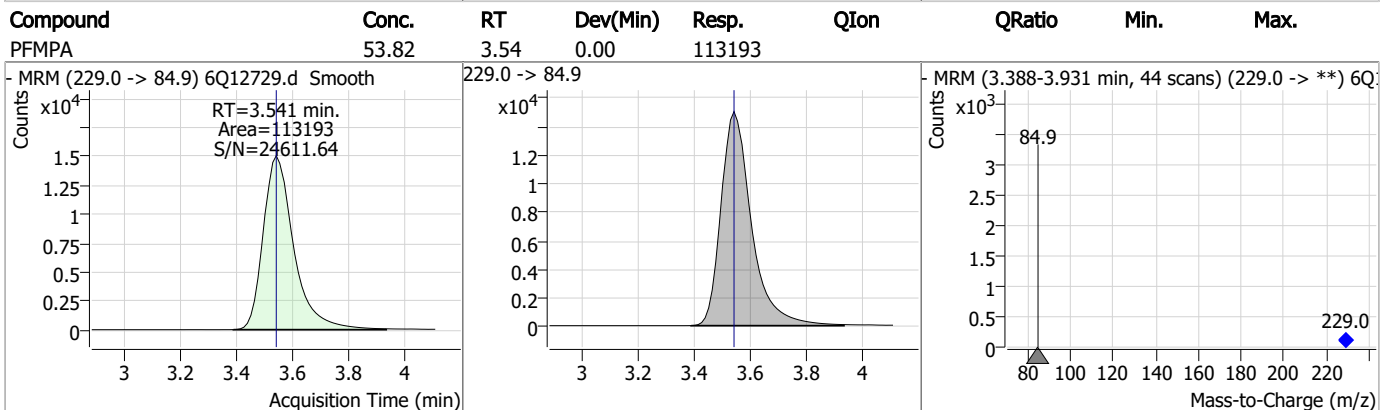
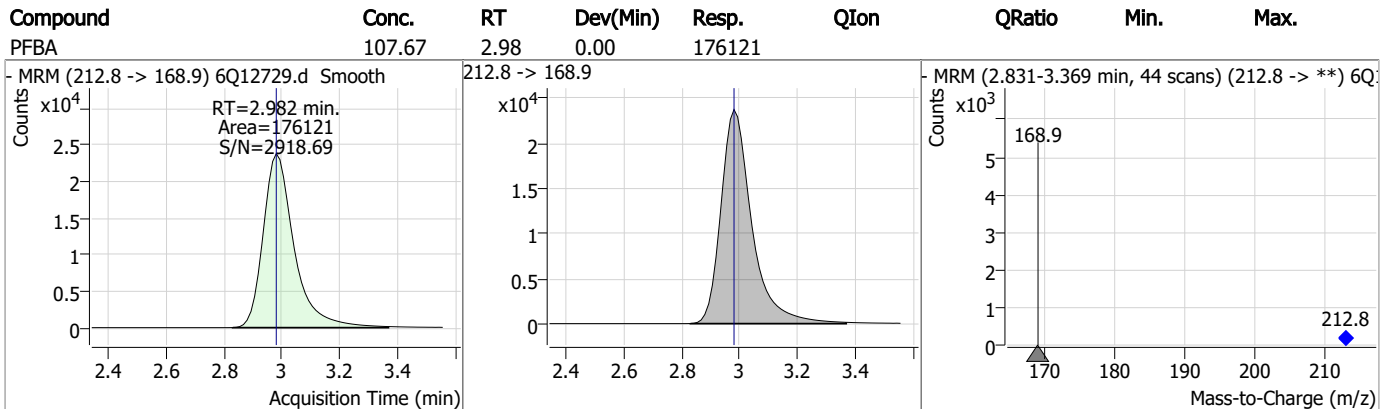
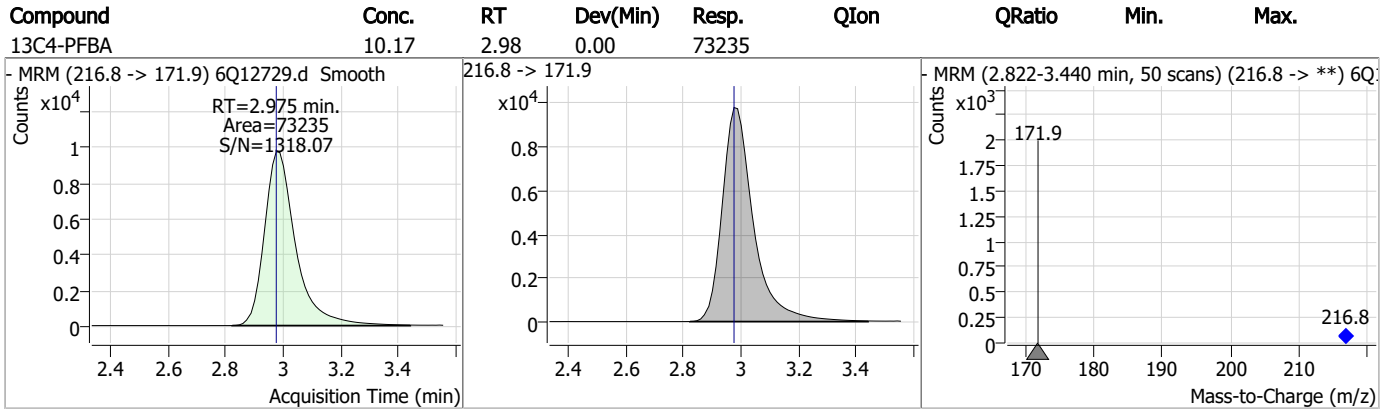
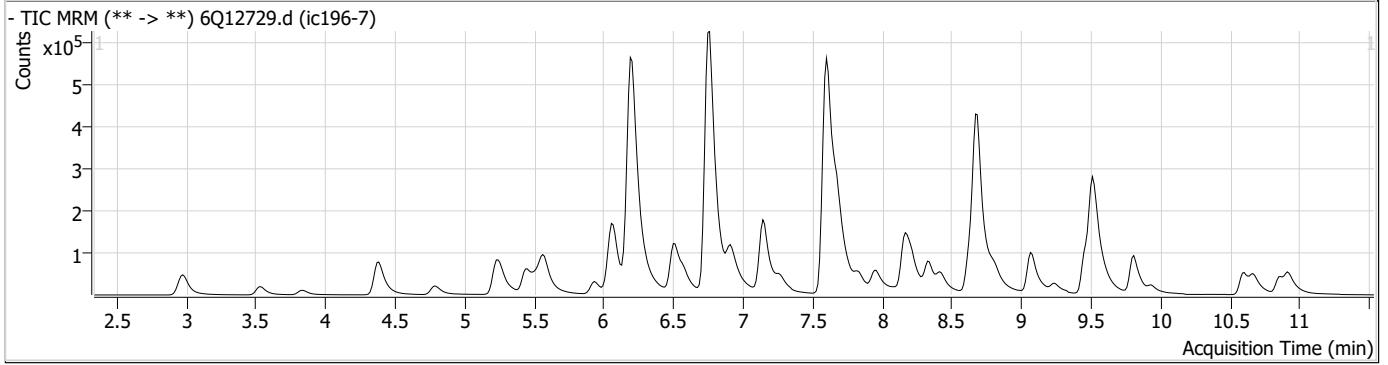
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.8
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Perfluorinated Compounds by LC/MS/MS

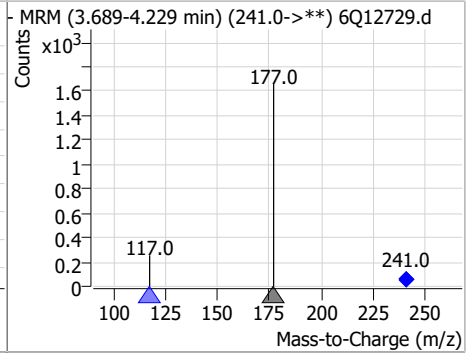
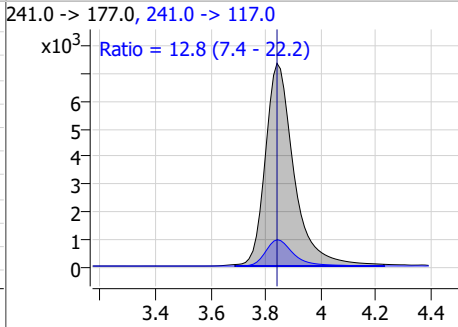
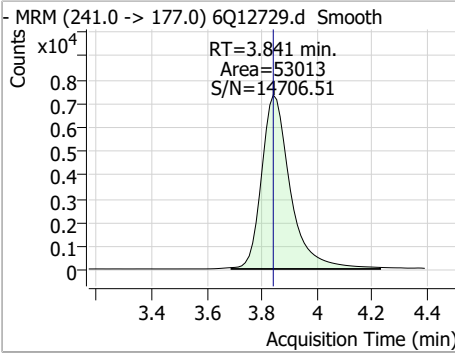


7.7.8

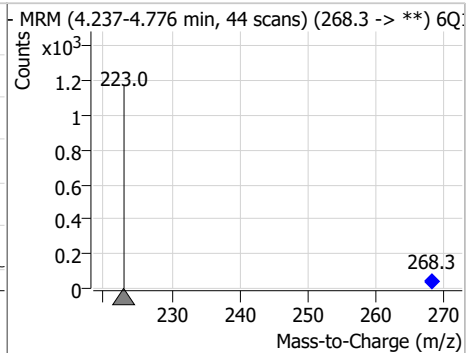
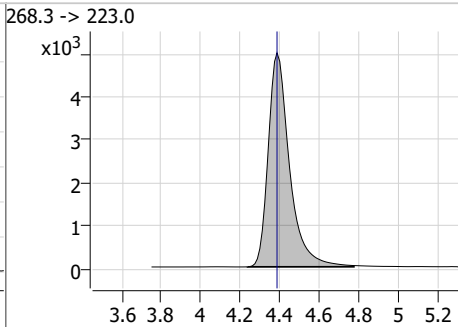
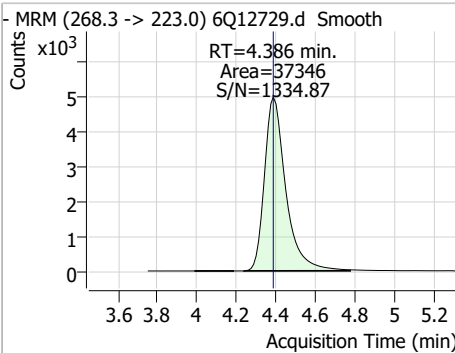
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Perfluorinated Compounds by LC/MS/MS

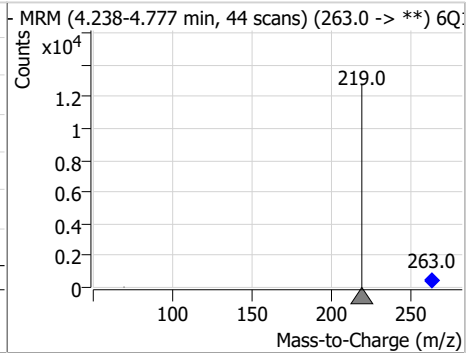
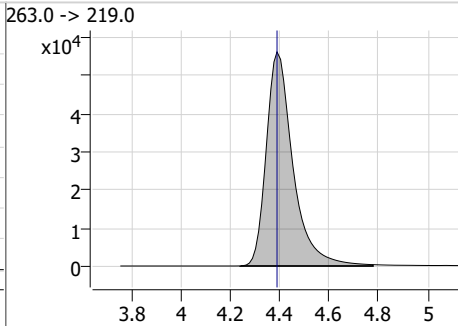
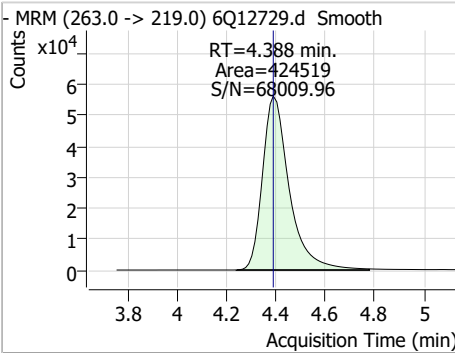
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	136.88	3.84	0.00	53013	241.0 -> 117.0	12.8	7.4	22.2



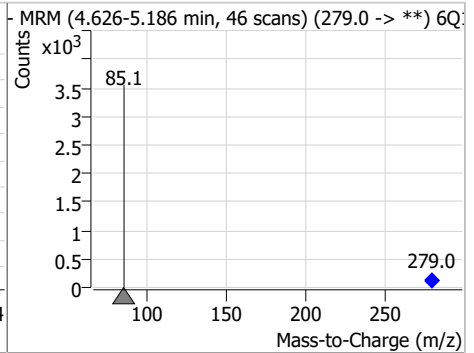
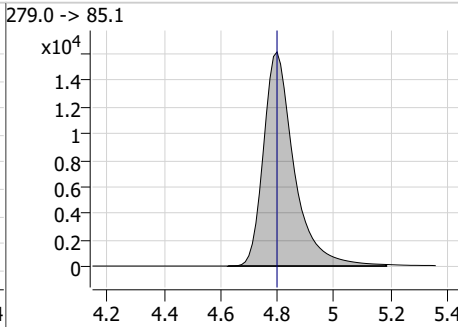
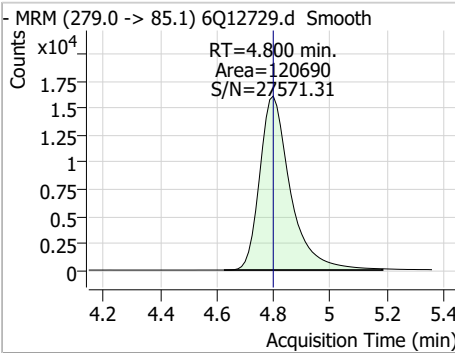
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.75	4.39	0.00	37346				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	53.83	4.39	0.00	424519				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	54.42	4.80	0.00	120690				

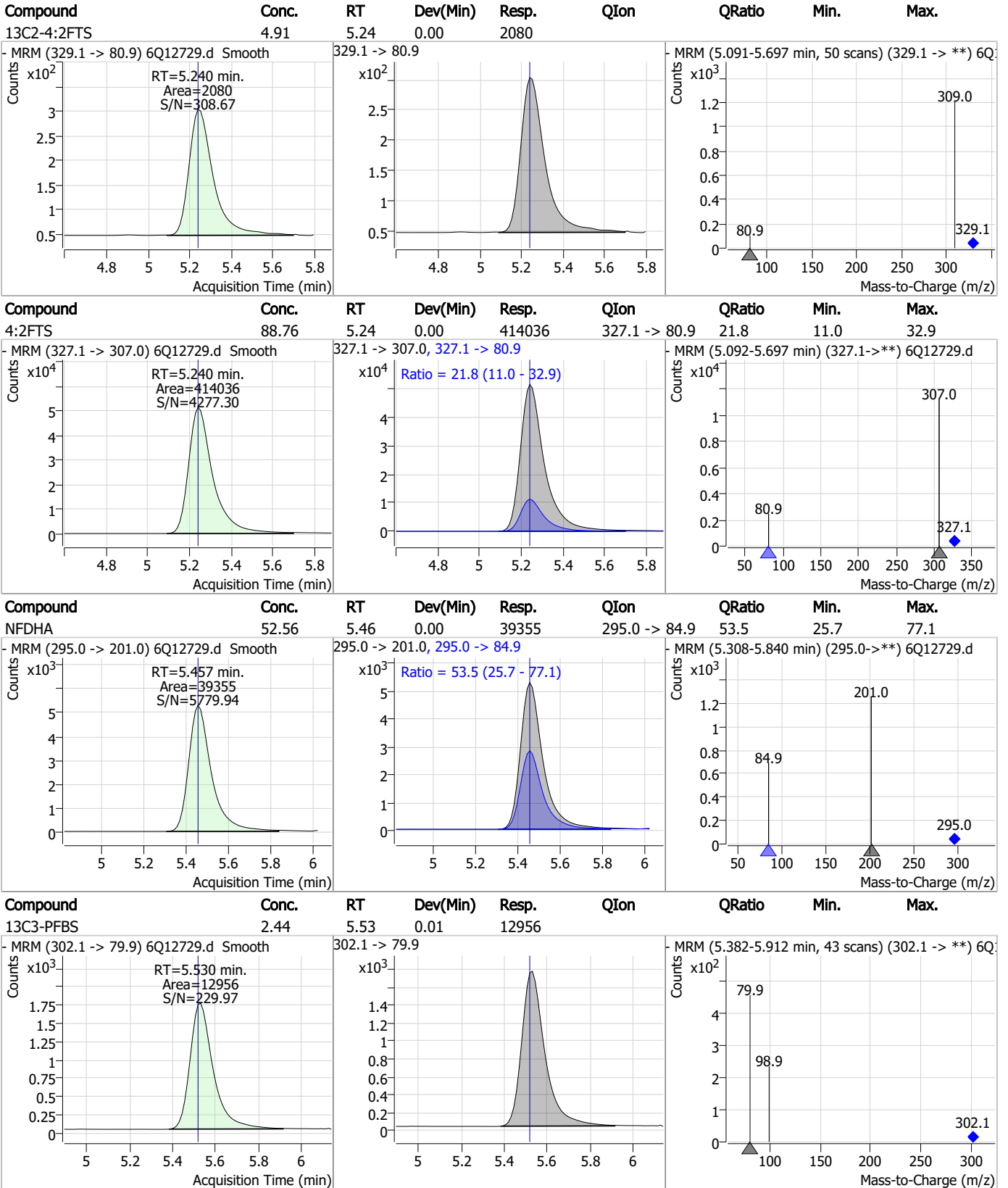


7.7.8

7



Perfluorinated Compounds by LC/MS/MS

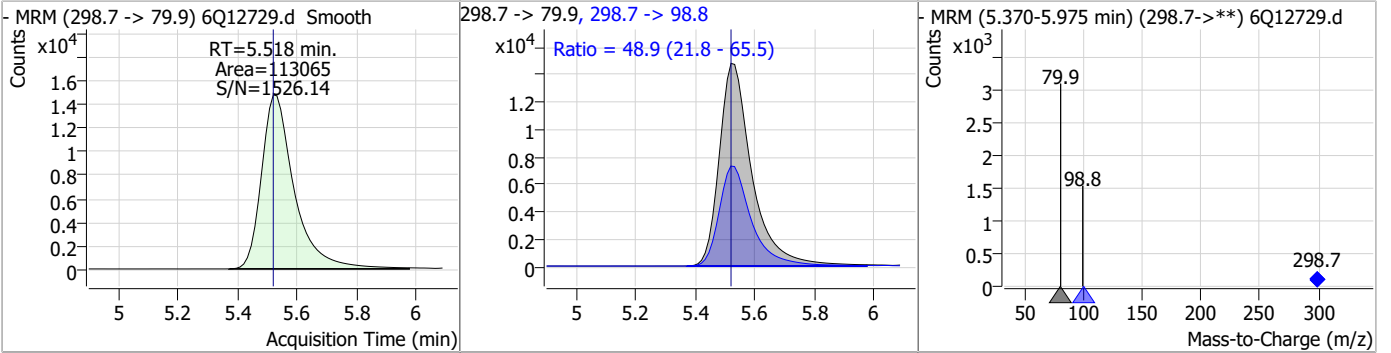


7.7.8

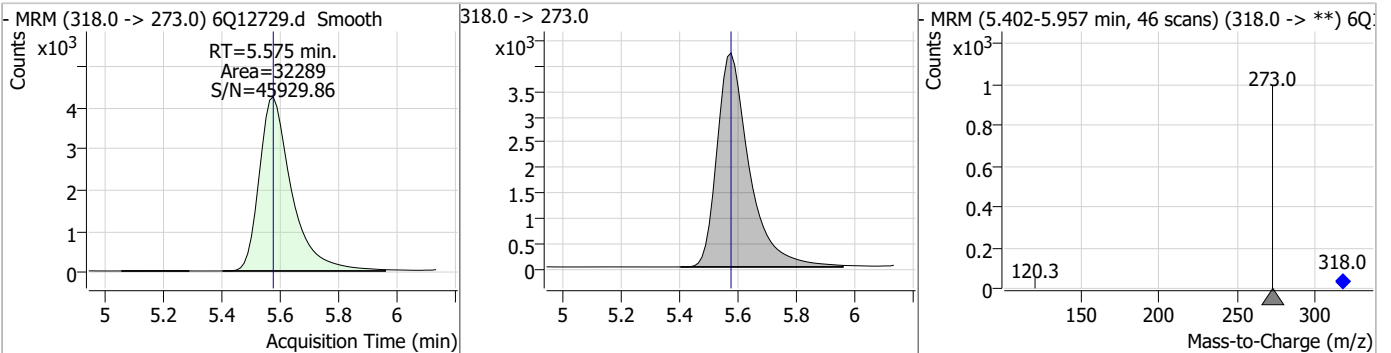
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Perfluorinated Compounds by LC/MS/MS

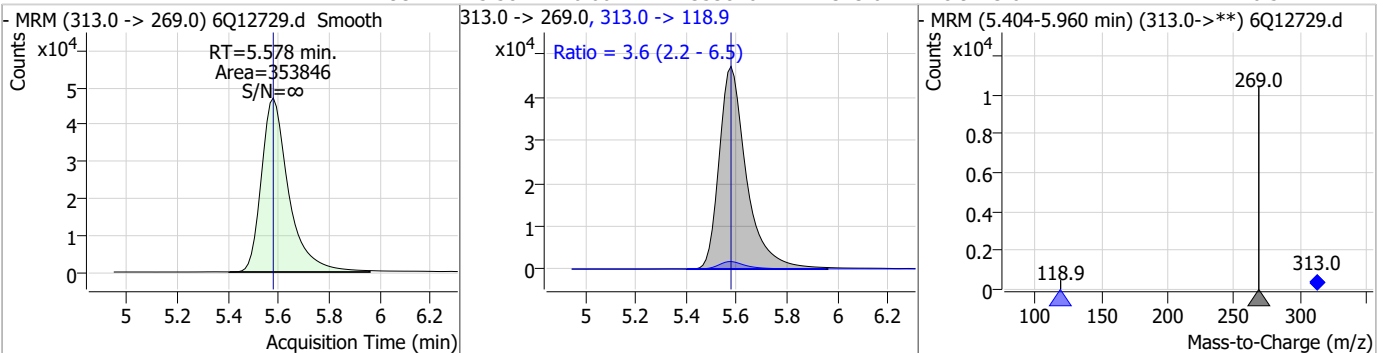
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	22.72	5.52	0.00	113065	298.7 -> 98.8	48.9	21.8	65.5



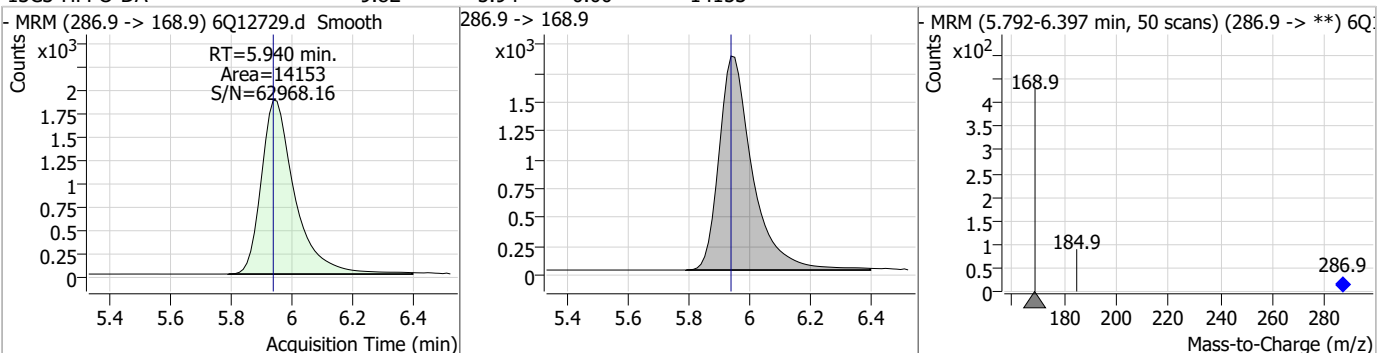
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.31	5.57	0.00	32289				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	27.93	5.58	0.00	353846	313.0 -> 118.9	3.6	2.2	6.5

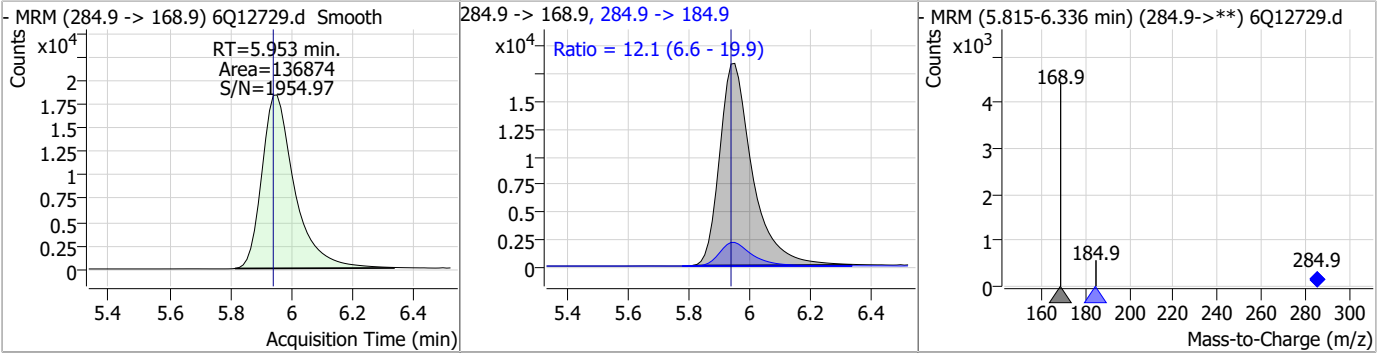


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.82	5.94	0.00	14153				

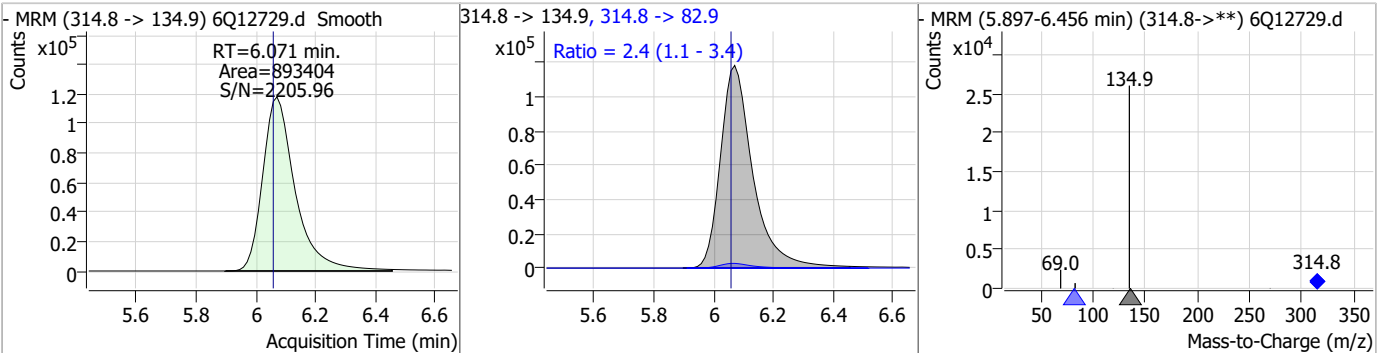


Perfluorinated Compounds by LC/MS/MS

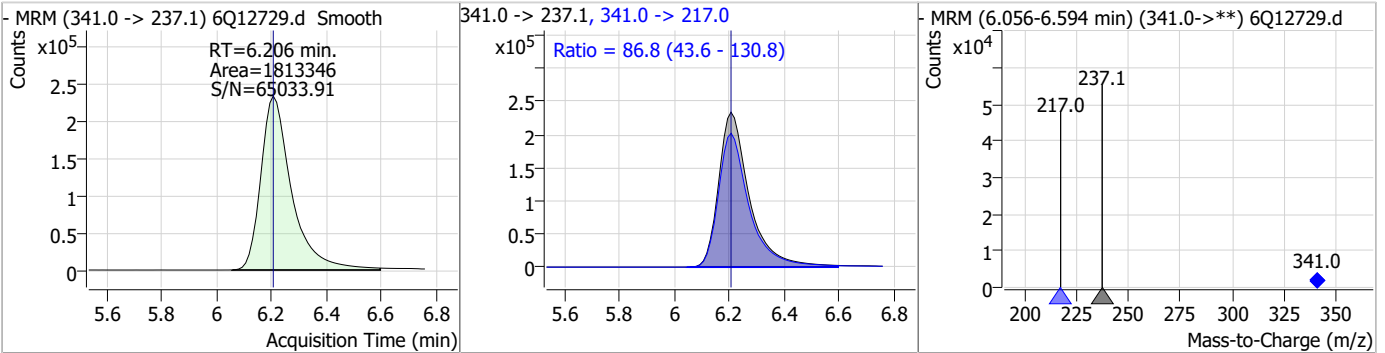
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	103.40	5.95	0.01	136874	284.9 -> 184.9	12.1	6.6	19.9



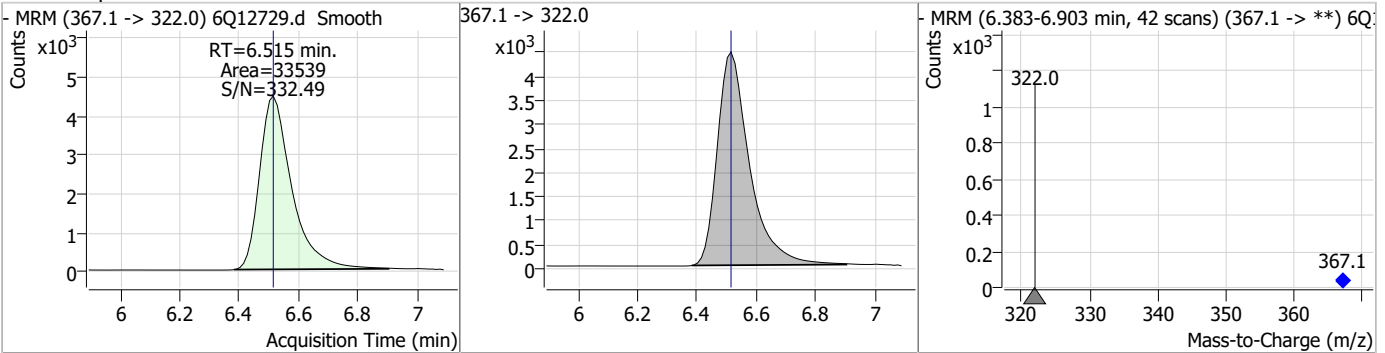
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	49.00	6.07	0.01	893404	314.8 -> 82.9	2.4	1.1	3.4



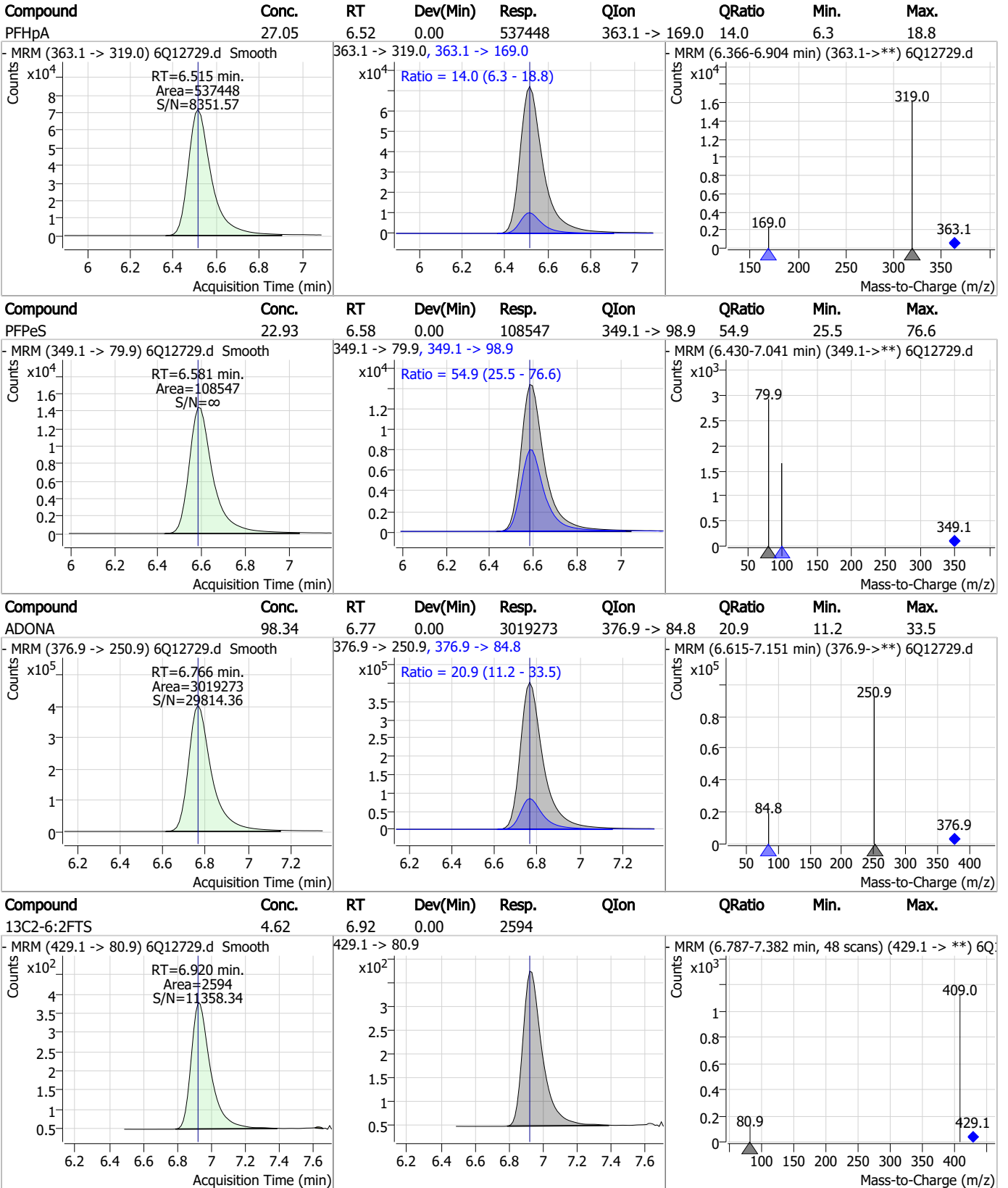
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	684.76	6.21	0.00	1813346	341.0 -> 217.0	86.8	43.6	130.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.30	6.51	0.00	33539	367.1 -> 322.0			



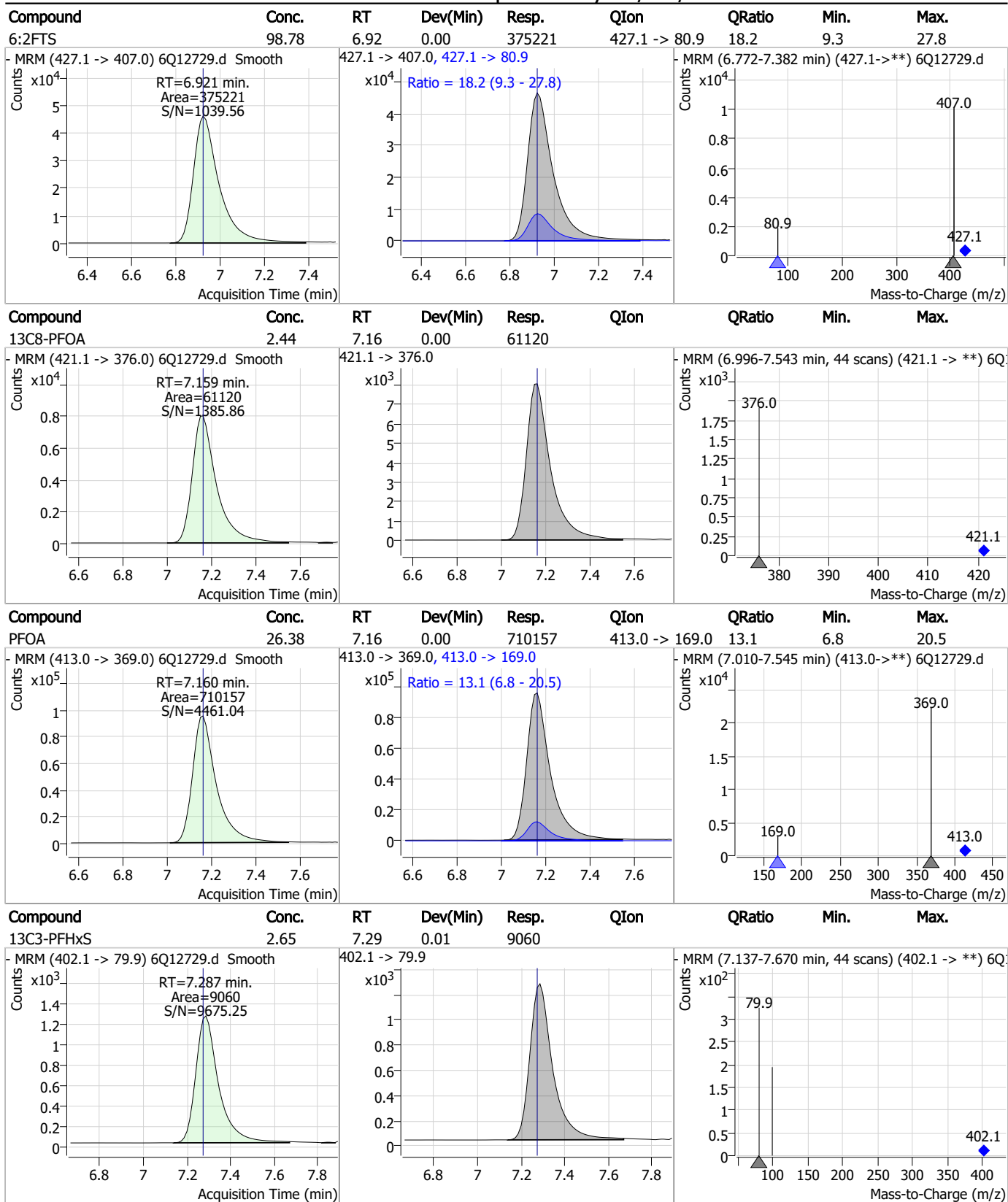
Perfluorinated Compounds by LC/MS/MS



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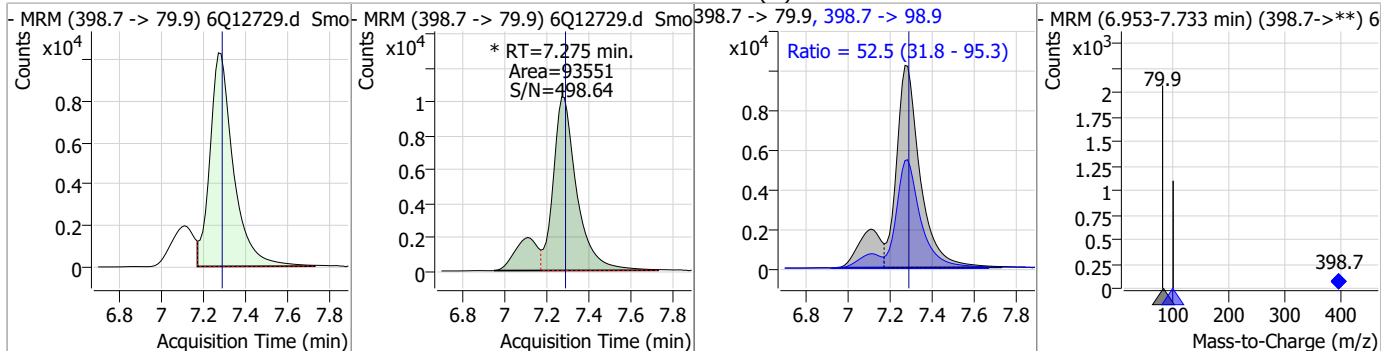
Perfluorinated Compounds by LC/MS/MS



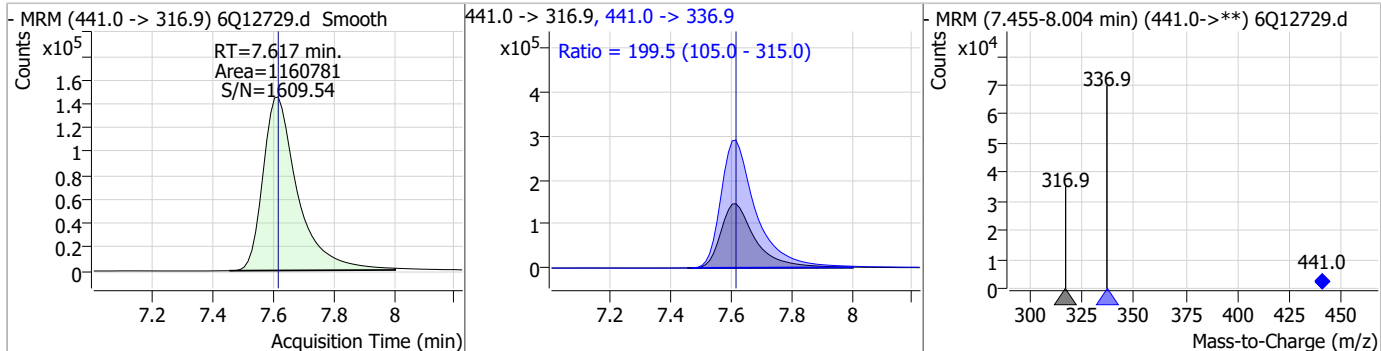
7.7.8
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Perfluorinated Compounds by LC/MS/MS

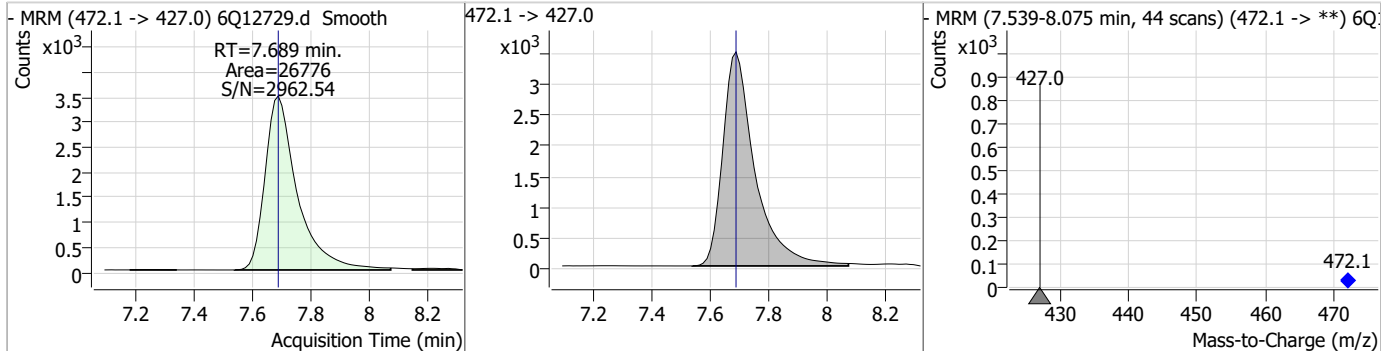
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	22.98	7.27	-0.01	93551 (m)	398.7 -> 98.9	52.5	31.8	95.3



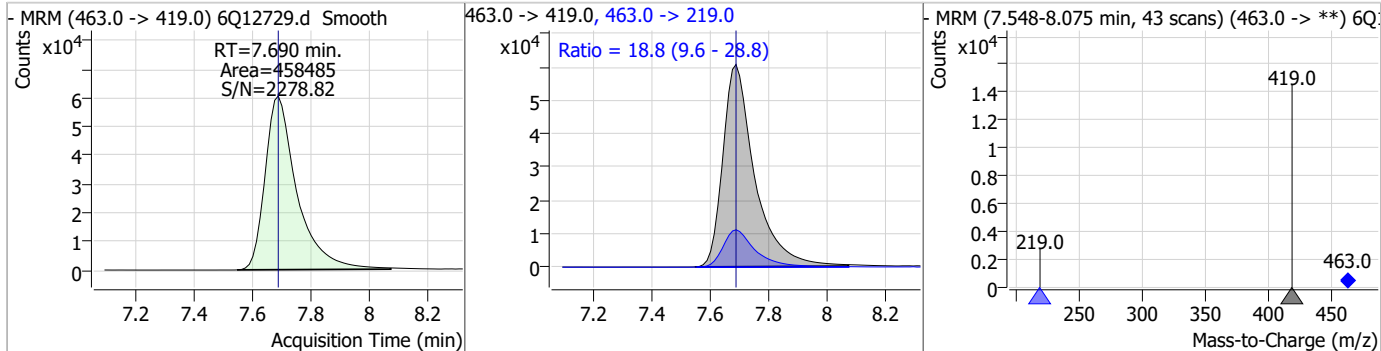
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	670.63	7.62	0.00	1160781	441.0 -> 336.9	199.5	105.0	315.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.25	7.69	0.00	26776	472.1 -> 427.0			

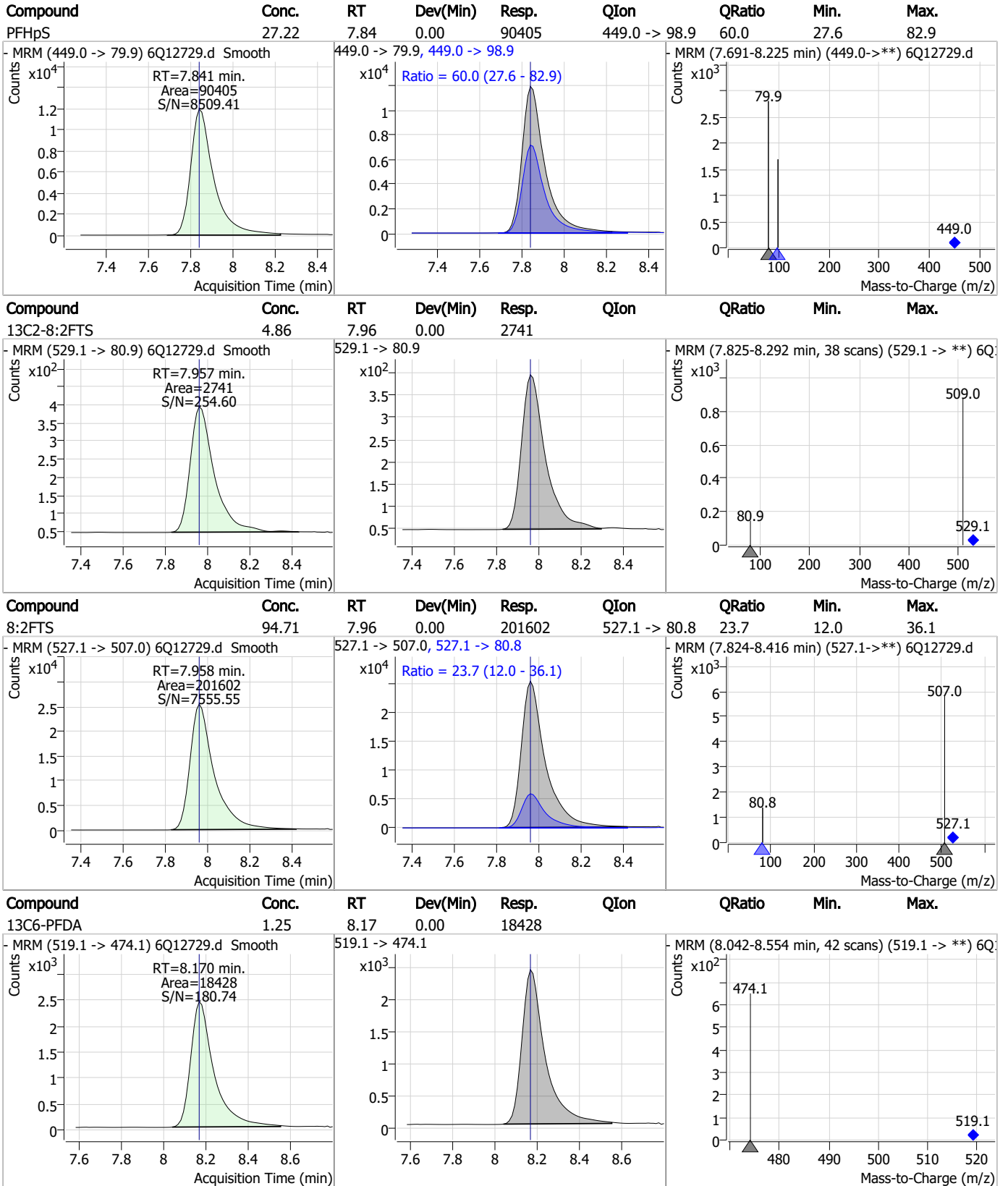


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	25.38	7.69	0.00	458485	463.0 -> 219.0	18.8	9.6	28.8



7.7.8
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Perfluorinated Compounds by LC/MS/MS

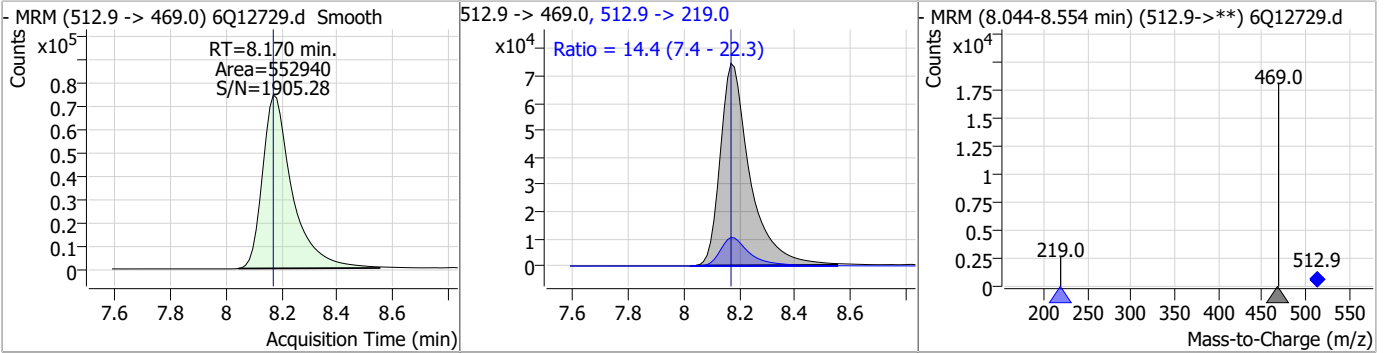


7.7.8

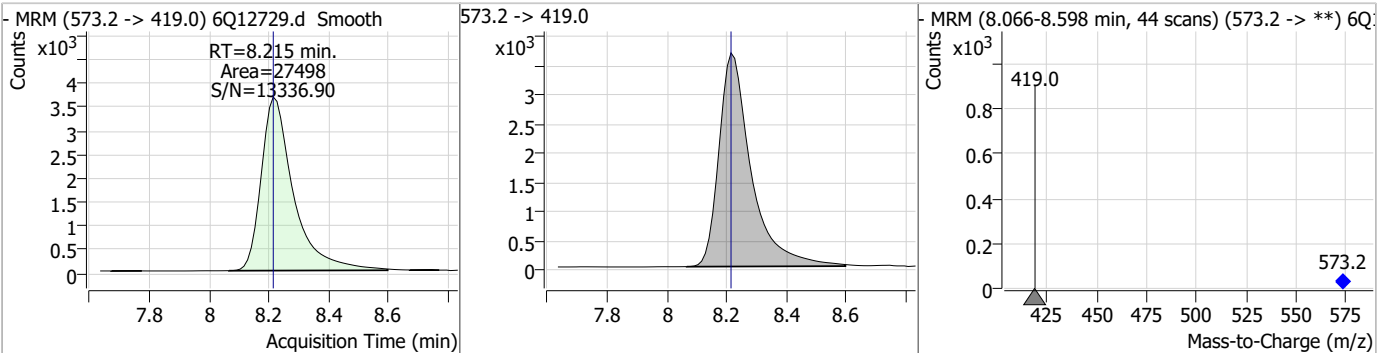
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Perfluorinated Compounds by LC/MS/MS

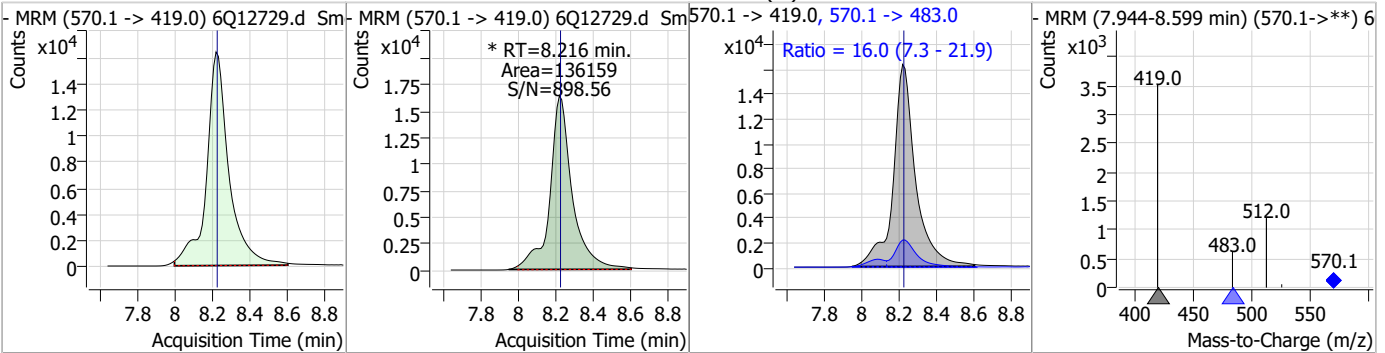
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	26.37	8.17	0.00	552940	512.9 -> 219.0	14.4	7.4	22.3



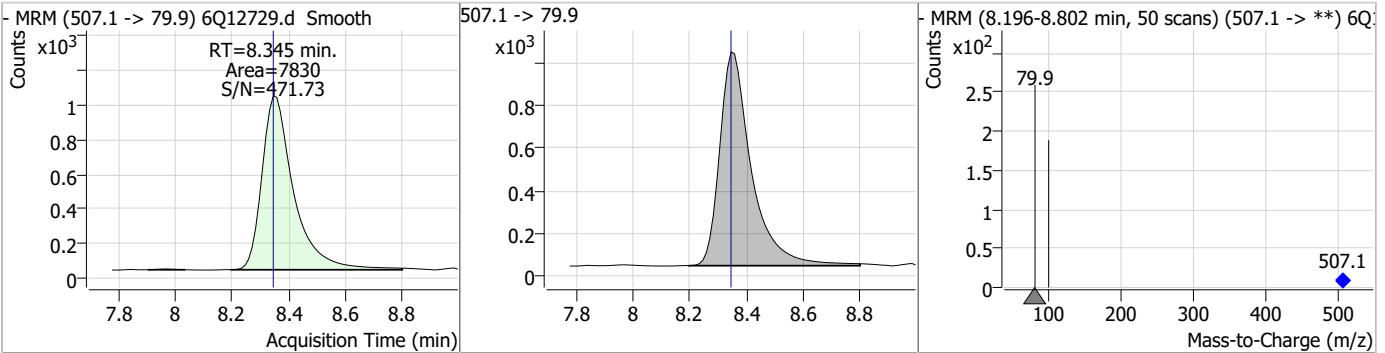
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.91	8.21	0.00	27498				



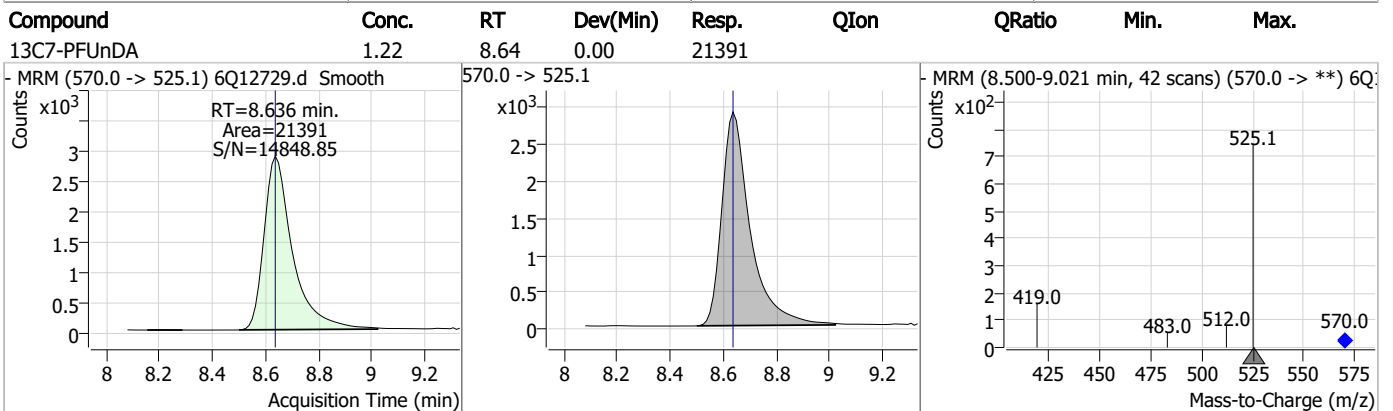
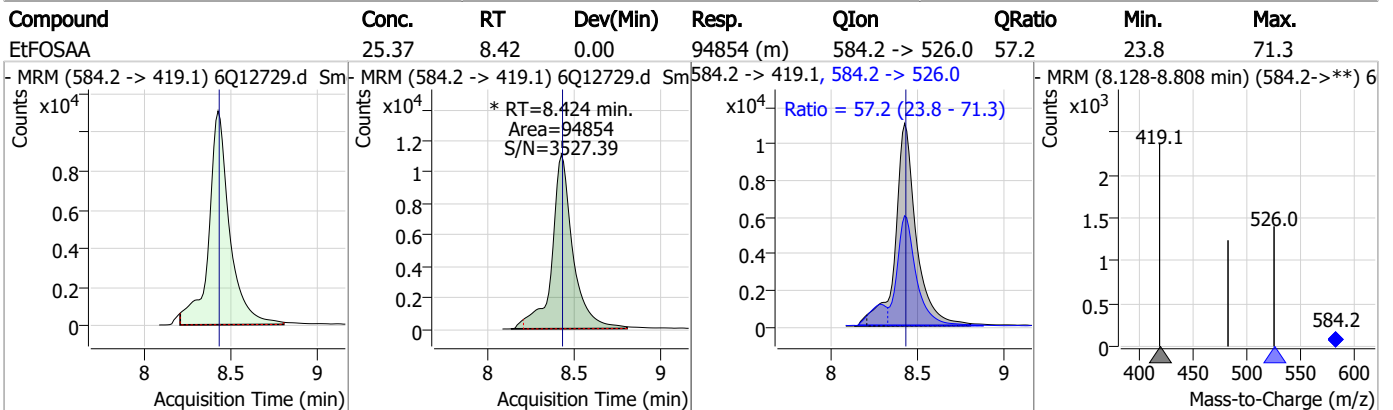
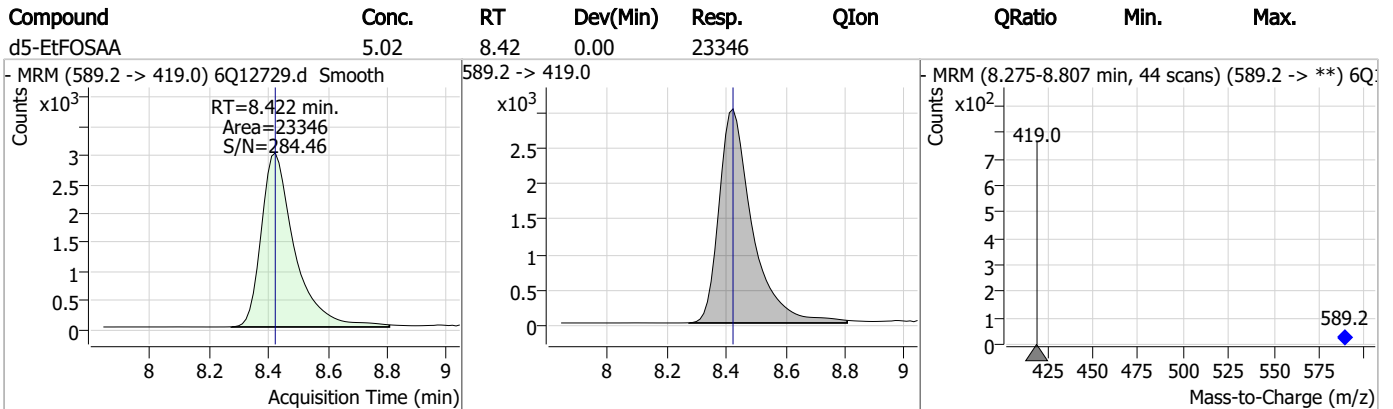
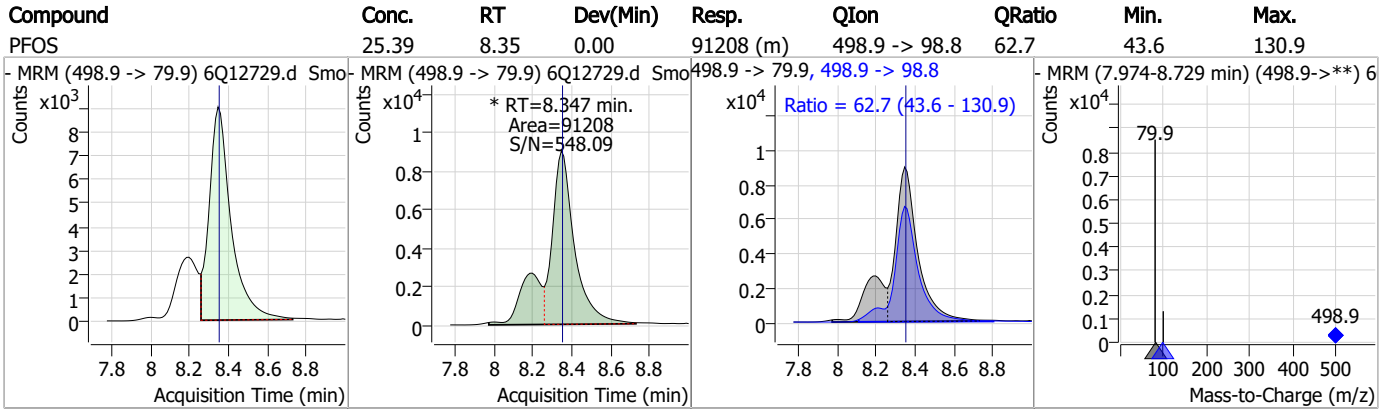
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	27.02	8.22	0.00	136159 (m)	570.1 -> 483.0	16.0	7.3	21.9



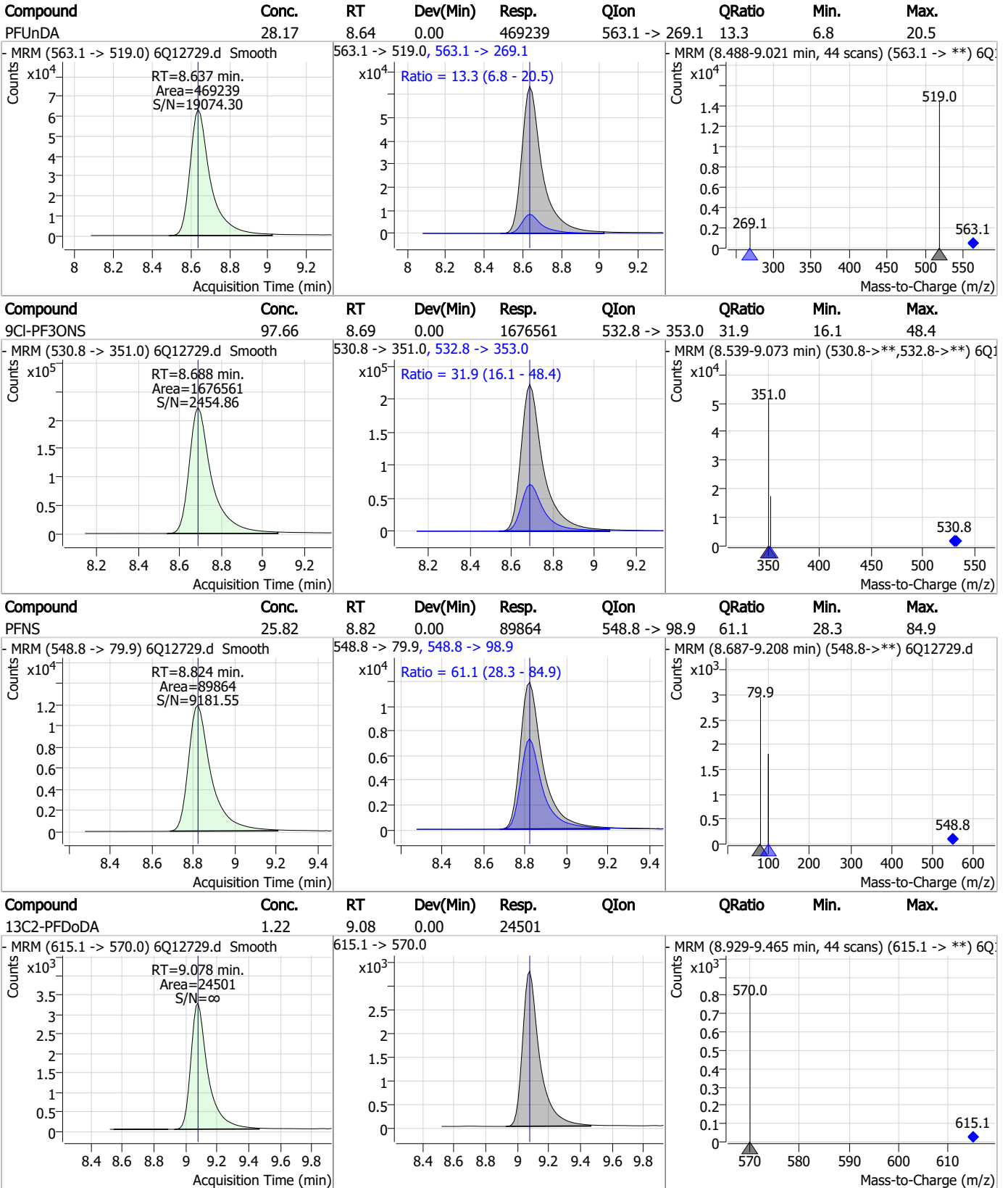
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.33	8.35	0.00	7830				



Perfluorinated Compounds by LC/MS/MS



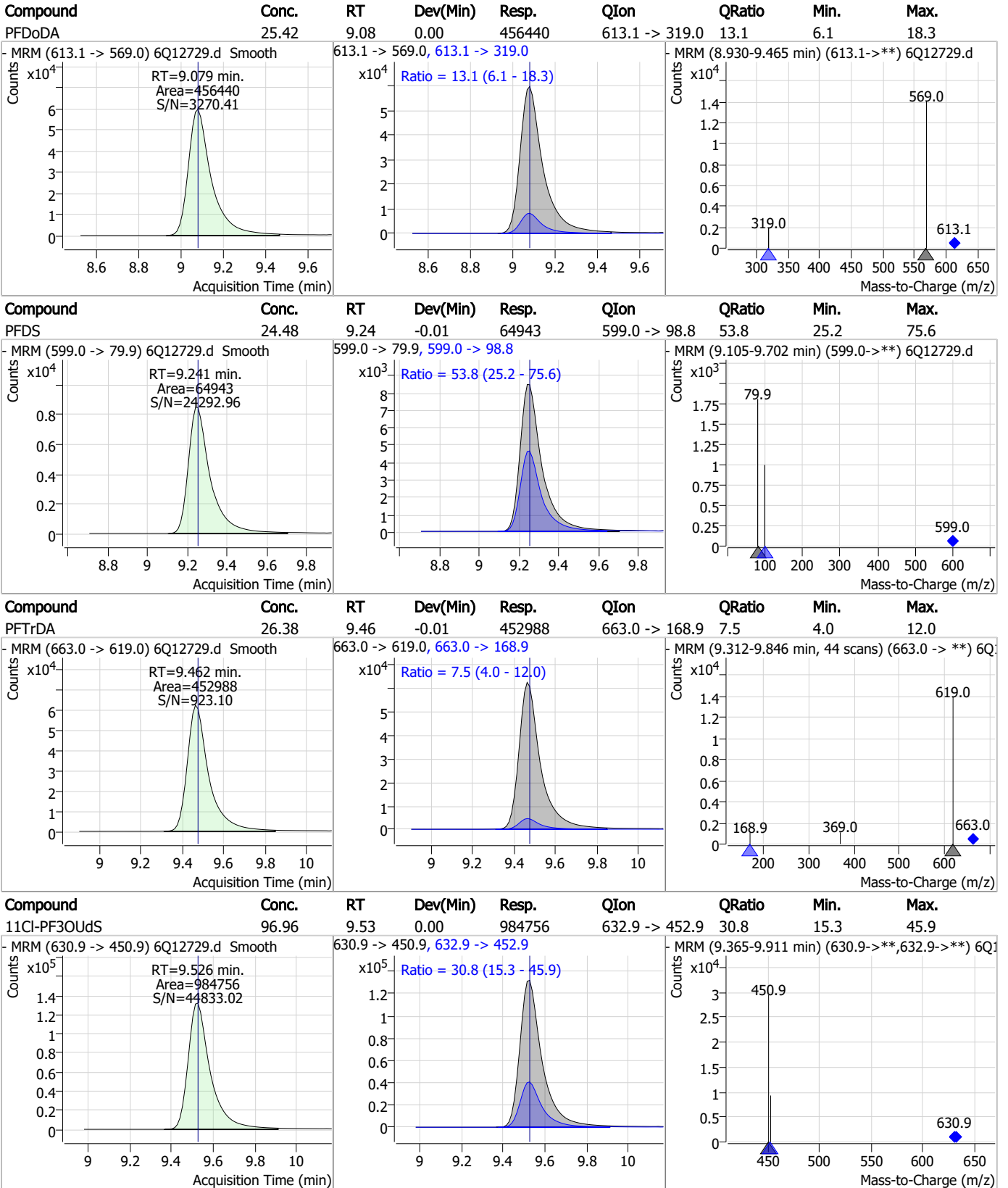
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



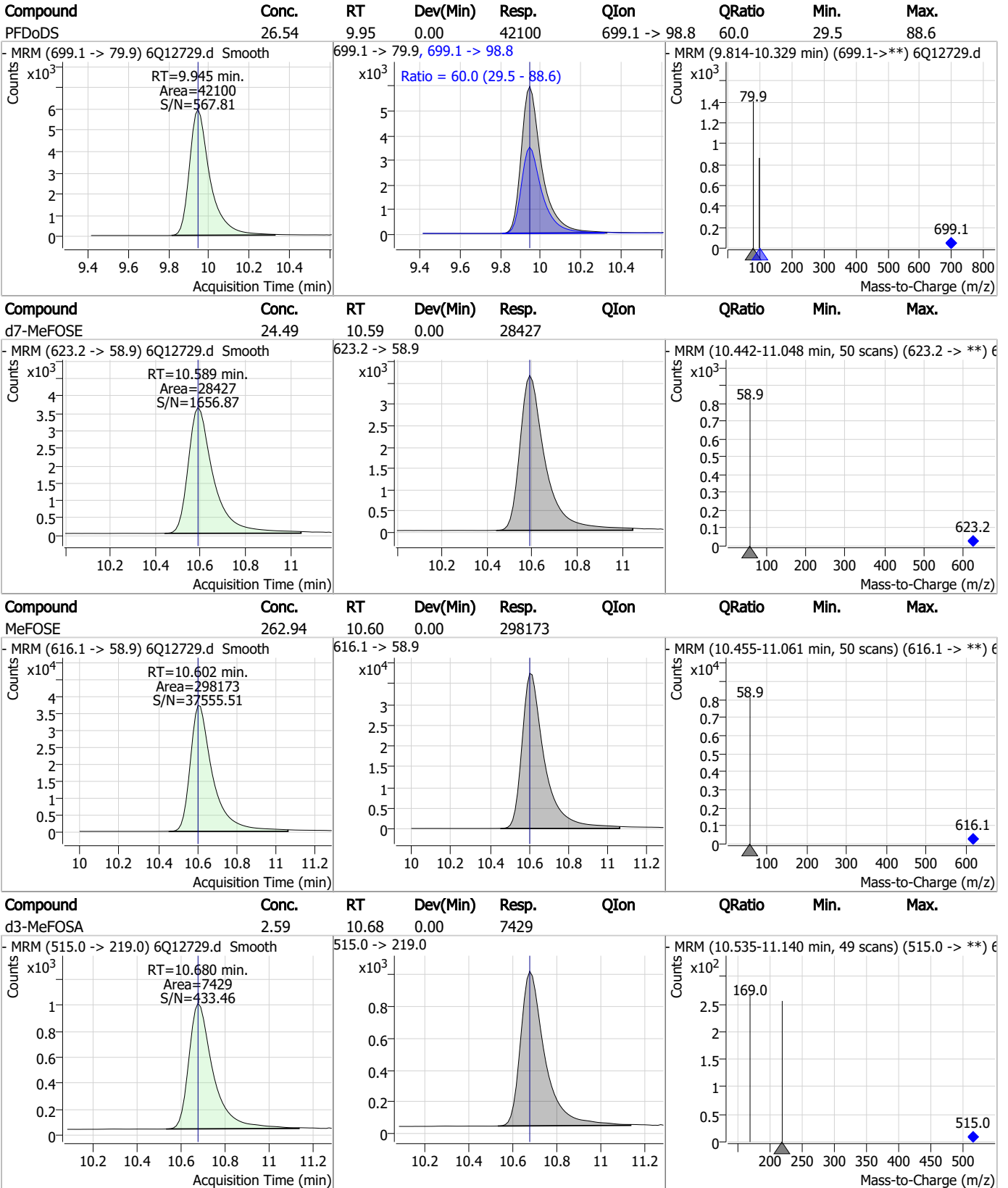
7.7.8
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	25.54	9.56	0.00	162616	498.1 -> 478.0	3.9	2.2	6.6
13C8-FOSA	2.40	9.57	0.00	15956				
13C2-PFTeDA	1.28	9.81	0.00	14917				
PFTeDA	24.88	9.81	0.00	400446	713.1 -> 168.9	6.8	3.4	10.2

7.7.8
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Perfluorinated Compounds by LC/MS/MS

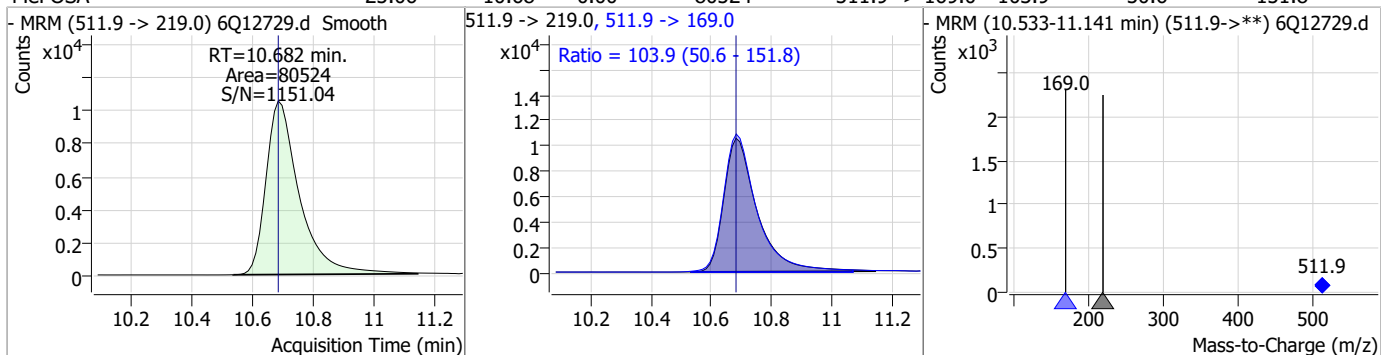


7.7.8

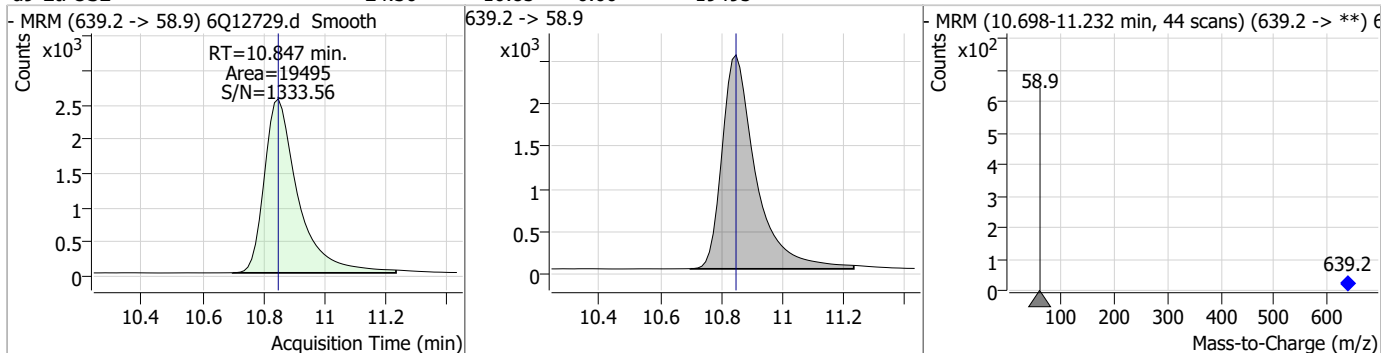
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Perfluorinated Compounds by LC/MS/MS

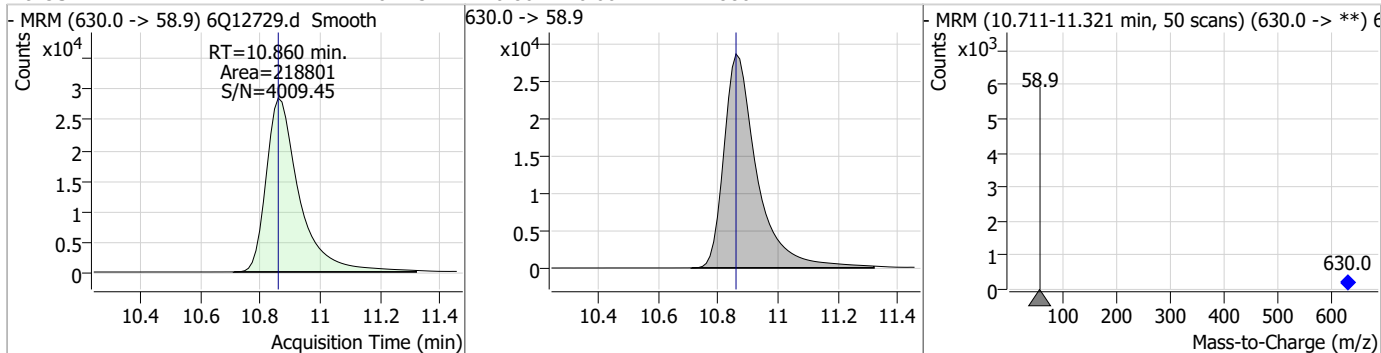
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	25.06	10.68	0.00	80524	511.9 -> 169.0	103.9	50.6	151.8



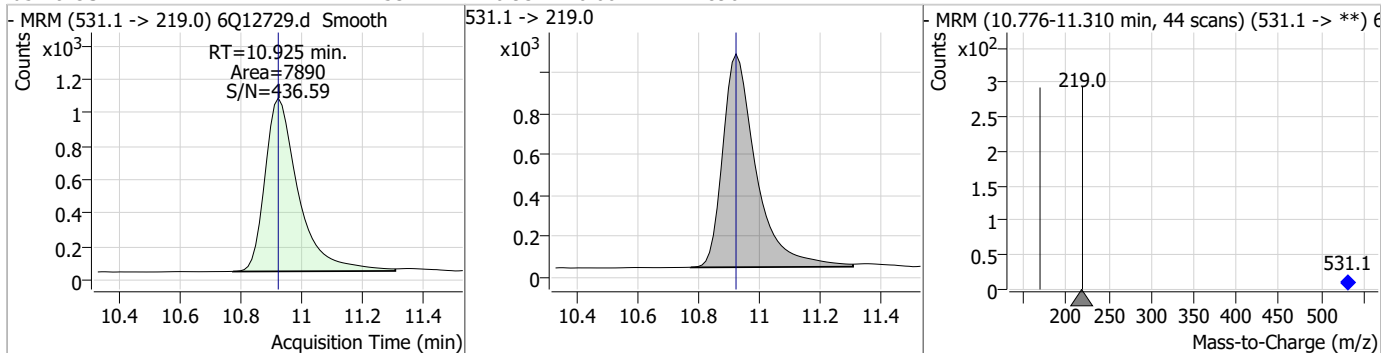
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.36	10.85	0.00	19495				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	262.23	10.86	0.00	218801				

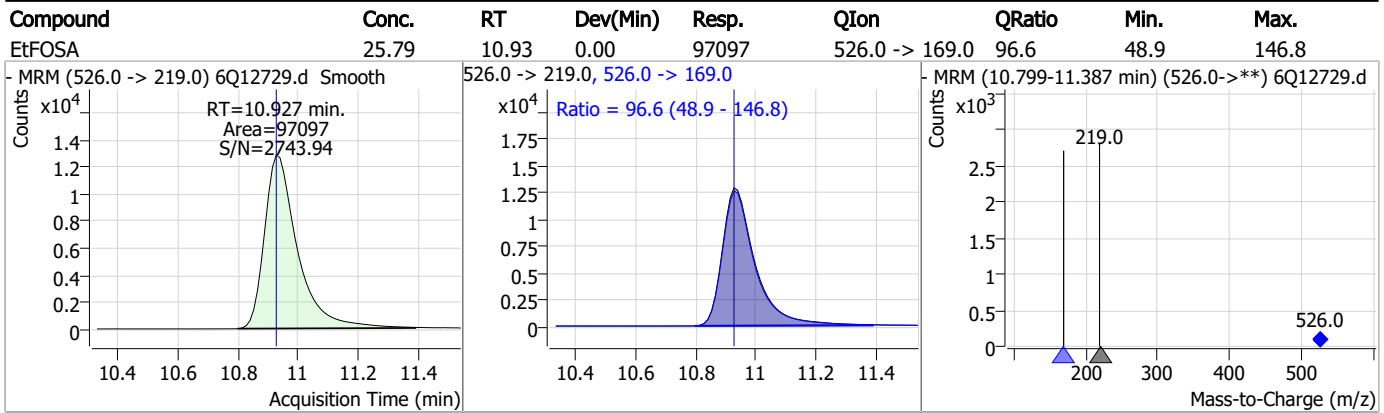


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.53	10.93	0.00	7890				



7.7.8
7

Perfluorinated Compounds by LC/MS/MS



7.7.8
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Manual Integration Approval Summary

Sample Number: S6Q196-IC196 Method: EPA DRAFT 1633
Lab FileID: 6Q12729.D Analyst approved: 02/02/23 11:53 Martha Valls
Injection Time: 02/01/23 19:15 Supervisor approved: 02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
MeFOSAA	2355-31-9		8.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

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7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12730.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/1/2023 7:29:13 PM
 Sample Name : ic196-8
 Vial : P1-A9
 DA Method File : 1633_020223_S6Q196.quantmethod.xml
 Batch Name : S6Q196.batch.bin
 Sample Information : OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.975	216.8 -> 171.9	65796	10.00 µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	35855	5.00 µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	32433	2.50 µg/L	0.000
M4-PFHpA	6.502	367.1 -> 322.0	33973	2.50 µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	58215	2.50 µg/L	-0.012
M9-PFNA	7.689	472.1 -> 427.0	26272	1.25 µg/L	0.000
M6-PFDA	8.170	519.1 -> 474.1	18077	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	20265	1.25 µg/L	0.000
M2-PFDoDA	9.078	615.1 -> 570.0	25822	1.25 µg/L	0.000
M2-PFTeDA	9.805	715.2 -> 670.0	15224	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	16196	2.50 µg/L	0.000
M3-PFBS	5.518	302.1 -> 79.9	12393	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	8575	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8262	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	1635	5.00 µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	2257	5.00 µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	2579	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	25746	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	13136	10.00 µg/L	0.000
M5-EtFOSAA	8.422	589.2 -> 419.0	22746	5.00 µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	26917	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	17548	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7700	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7628	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	10017	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	29600	5.00 µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	6361	2.50 µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	71349	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	26143	1.25 µg/L	0.000
13C5-PFNA	7.689	468.0 -> 423.0	27794	1.25 µg/L	0.000
13C2-PFHxA	5.576	315.1 -> 270.0	32041	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.240	329.1 -> 80.9	1635	3.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 79.0%		
13C2-6:2FTS	6.920	429.1 -> 80.9	2257	4.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 82.3%		
13C2-8:2FTS	7.957	529.1 -> 80.9	2579	4.68 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.6%		
13C2-PFDoDA	9.078	615.1 -> 570.0	25822	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.8%		
13C2-PFTeDA	9.805	715.2 -> 670.0	15224	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C3-PFBS	5.518	302.1 -> 79.9	12393	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.7%		
13C3-PFHxS	7.274	402.1 -> 79.9	8575	2.56 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 = 102.6%	
13C4-PFBA	2.975	216.8 -> 171.9	65796	10.02 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C4-PFHpA	6.502	367.1 -> 322.0	33973	2.57 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C5-PFHxA	5.575	318.0 -> 273.0	32433	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C5-PFPeA	4.386	268.3 -> 223.0	35855	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C6-PFDA	8.170	519.1 -> 474.1	18077	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C7-PFUnDA	8.636	570.0 -> 525.1	20265	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.2%	
13C8-FOSA	9.567	506.1 -> 77.8	16196	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C8-PFOA	7.146	421.1 -> 376.0	58215	2.44 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C8-PFOS	8.345	507.1 -> 79.9	8262	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C9-PFNA	7.689	472.1 -> 427.0	26272	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.4%	
d3-MeFOSAA	8.215	573.2 -> 419.0	25746	4.69 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.8%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	13136	10.03 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
d3-MeFOSA	10.680	515.0 -> 219.0	7628	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.6%	
d5-EtFOSAA	8.422	589.2 -> 419.0	22746	4.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
d7-MeFOSE	10.589	623.2 -> 58.9	26917	23.67 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.7%	
d9-EtFOSE	10.847	639.2 -> 58.9	17548	22.39 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.5%	
d5-EtFOSA	10.925	531.1 -> 219.0	7700	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
Target Compounds					QValue
4:2FTS	5.240	327.1 -> 307.0	832798	227.20 µg/L	100
		327.1 -> 80.9	183196		
6:2FTS	6.921	427.1 -> 407.0	754297	228.22 µg/L	96
		427.1 -> 80.9	127612		
8:2FTS	7.958	527.1 -> 507.0	421545	210.46 µg/L	98
		527.1 -> 80.8	97754		
EtFOSAA	8.424	584.2 -> 419.1	229619	63.03 µg/L	m 97
		584.2 -> 526.0	113897		
FOSA	9.570	498.1 -> 77.9	404801	62.63 µg/L	98
		498.1 -> 478.0	14930		
MeFOSAA	8.216	570.1 -> 419.0	315638	66.90 µg/L	m 95
		570.1 -> 483.0	53221		
PFBA	2.982	212.8 -> 168.9	392659	267.20 µg/L	100
PFBS	5.518	298.7 -> 79.9	283532	59.56 µg/L	98
		298.7 -> 98.8	127290		
PFDA	8.170	512.9 -> 469.0	1338537	65.07 µg/L	96
		512.9 -> 219.0	179133		
PFDoDA	9.079	613.1 -> 569.0	1143341	60.43 µg/L	98
		613.1 -> 319.0	131621		
PFDS	9.253	599.0 -> 79.9	168118	60.07 µg/L	100

7.7.9
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	84809			
PFHpA	6.515	363.1 -> 319.0	1271519	63.19	µg/L	97
		363.1 -> 169.0	176413			
PFHpS	7.841	449.0 -> 79.9	213084	60.80	µg/L	96
		449.0 -> 98.9	123648			
PFHxA	5.566	313.0 -> 269.0	826785	64.98	µg/L	98
		313.0 -> 118.9	30538			
PFHxS	7.275	398.7 -> 79.9	219332	56.93	µg/L	m 92
		398.7 -> 98.9	125836			
PFNA	7.690	463.0 -> 419.0	1117587	63.06	µg/L	99
		463.0 -> 219.0	219745			
PFNS	8.824	548.8 -> 79.9	227034	61.82	µg/L	96
		548.8 -> 98.9	122330			
PFOA	7.148	413.0 -> 369.0	1634197	63.74	µg/L	100
		413.0 -> 169.0	223509			
PFOS	8.347	498.9 -> 79.9	218245	57.58	µg/L	m 74
		498.9 -> 98.8	137136			
PFPeA	4.388	263.0 -> 219.0	982715	129.80	µg/L	100
PFPeS	6.581	349.1 -> 79.9	264310	58.98	µg/L	97
		349.1 -> 98.9	141423			
PFTeDA	9.806	713.1 -> 669.0	949527	57.81	µg/L	99
		713.1 -> 168.9	59929			
PFTrDA	9.462	663.0 -> 619.0	1010146	55.82	µg/L	99
		663.0 -> 168.9	78347			
PFUnDA	8.637	563.1 -> 519.0	1010682	64.05	µg/L	98
		563.1 -> 269.1	146108			
11Cl-PF3OUdS	9.526	630.9 -> 450.9	2150650	228.15	µg/L	97
		632.9 -> 452.9	688124			
9Cl-PF3ONS	8.688	530.8 -> 351.0	3655612	229.41	µg/L	99
		532.8 -> 353.0	1157478			
ADONA	6.766	376.9 -> 250.9	6794261	238.41	µg/L	98
		376.9 -> 84.8	1452759			
HFPO-DA	5.940	284.9 -> 168.9	322984	262.87	µg/L	99
		284.9 -> 184.9	40921			
3:3FTCA	3.841	241.0 -> 177.0	129824	349.15	µg/L	97
		241.0 -> 117.0	17347			
5:3FTCA	6.206	341.0 -> 237.1	4278045	1608.30	µg/L	100
		341.0 -> 217.0	3749834			
7:3FTCA	7.605	441.0 -> 316.9	2791279	1605.47	µg/L	97
		441.0 -> 336.9	5752265			
EtFOSA	10.939	526.0 -> 219.0	235772	64.15	µg/L	99
		526.0 -> 169.0	232213			
EtFOSE	10.860	630.0 -> 58.9	549287	731.33	µg/L	100
MeFOSA	10.682	511.9 -> 219.0	196977	59.69	µg/L	98
		511.9 -> 169.0	194643			
MeFOSE	10.602	616.1 -> 58.9	721504	671.93	µg/L	100
PFDoS	9.945	699.1 -> 79.9	96014	57.36	µg/L	92
		699.1 -> 98.8	62266			
NFDHA	5.457	295.0 -> 201.0	94335	125.43	µg/L	100
		295.0 -> 84.9	48440			
PFMBA	4.787	279.0 -> 85.1	286016	134.33	µg/L	100
PFMPA	3.541	229.0 -> 84.9	269264	133.35	µg/L	100
PFEESA	6.059	314.8 -> 134.9	2122021	115.87	µg/L	100
		314.8 -> 82.9	48044			

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

7.7.9
7

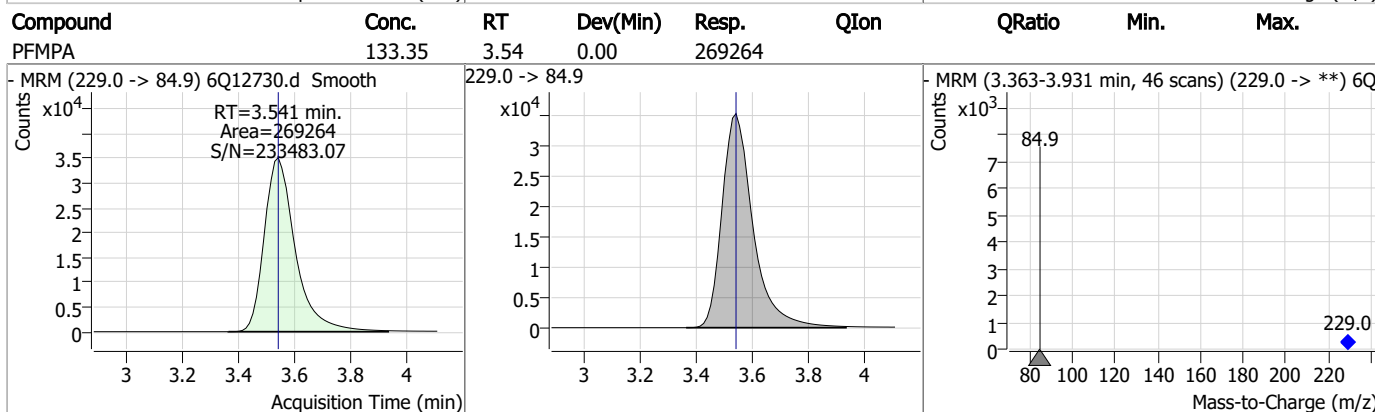
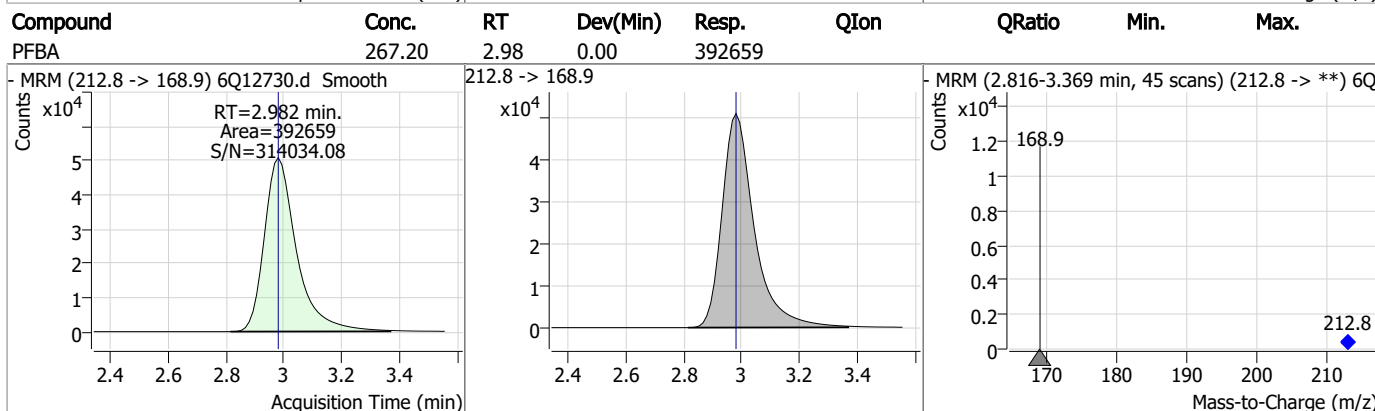
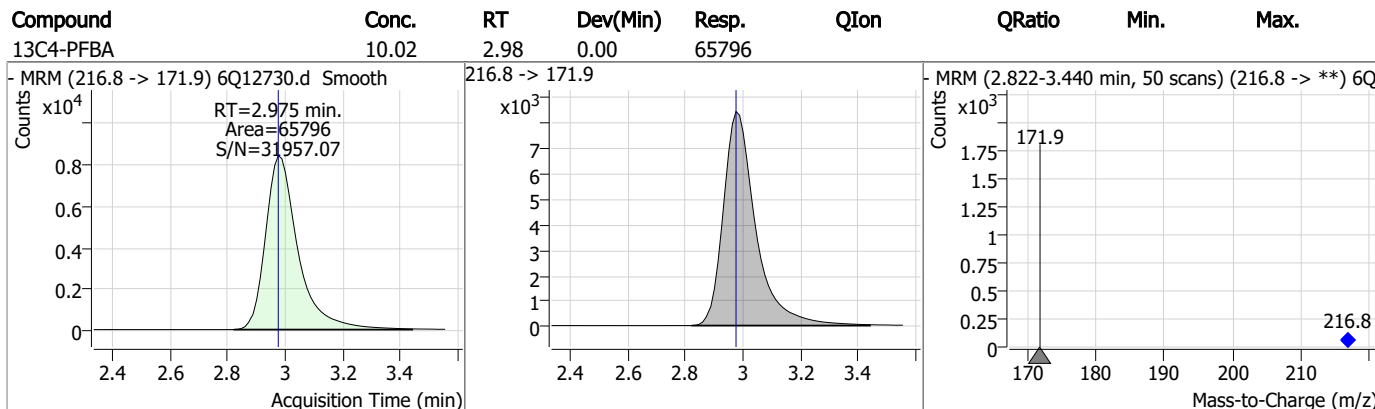
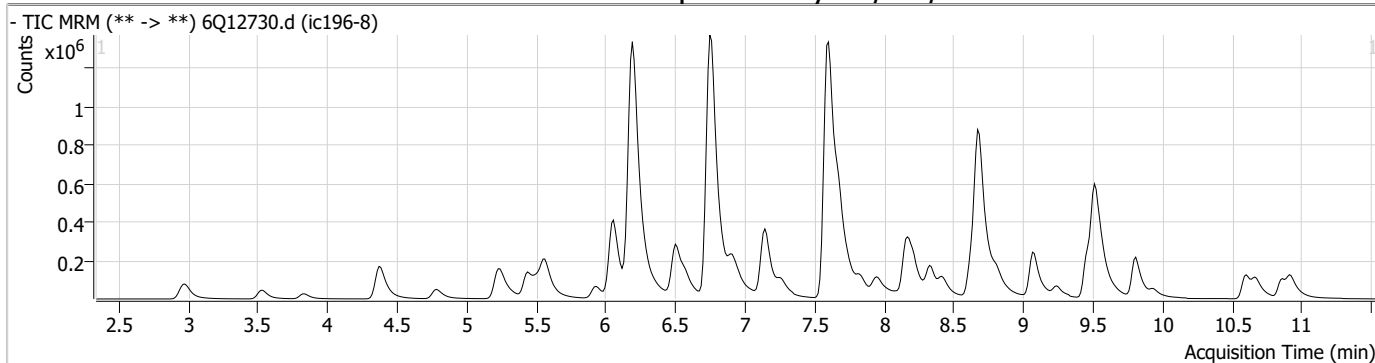
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.9

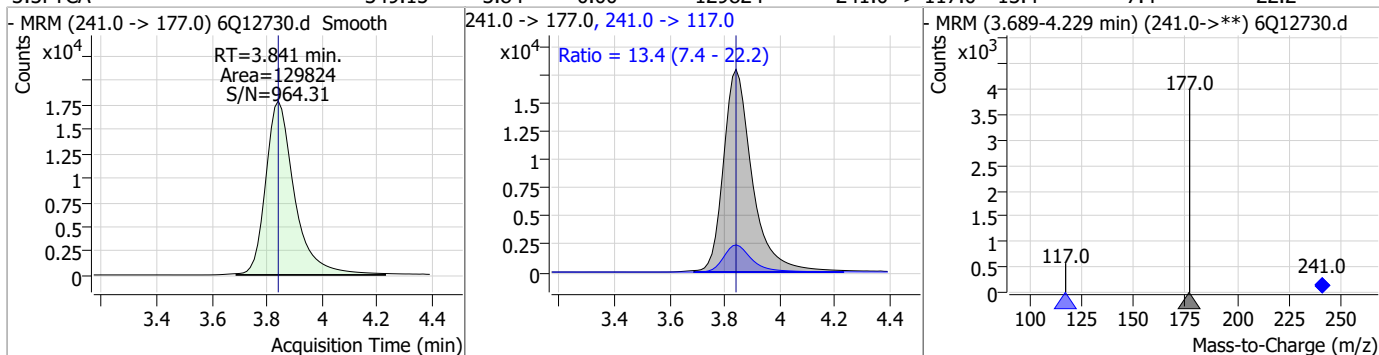
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Perfluorinated Compounds by LC/MS/MS

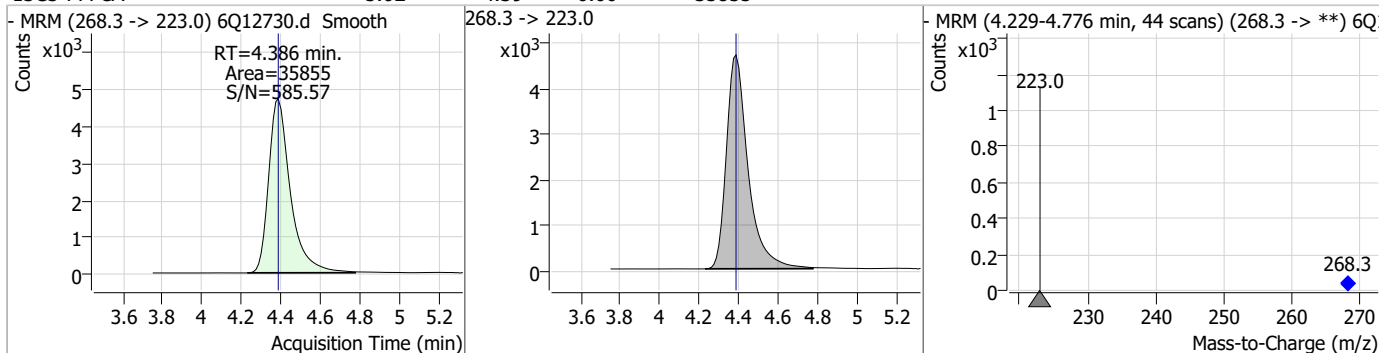


Perfluorinated Compounds by LC/MS/MS

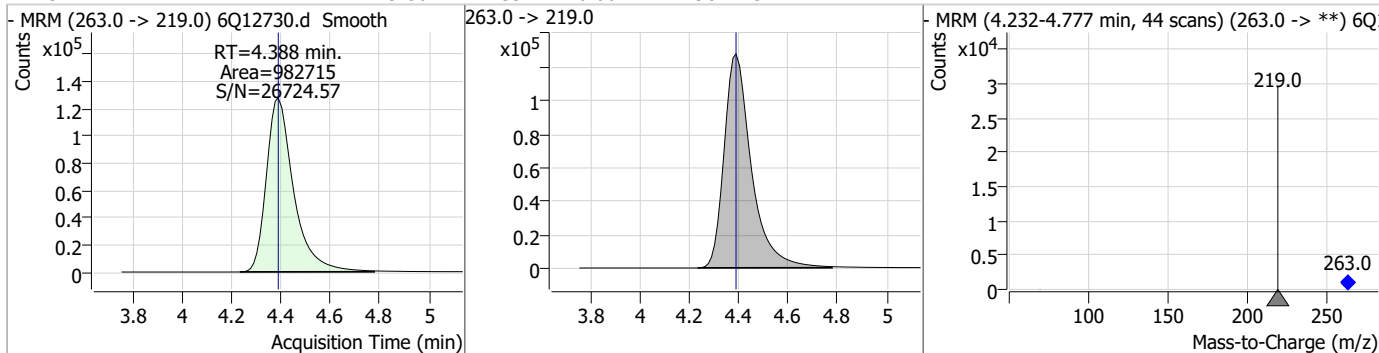
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	349.15	3.84	0.00	129824	241.0 -> 117.0	13.4	7.4	22.2



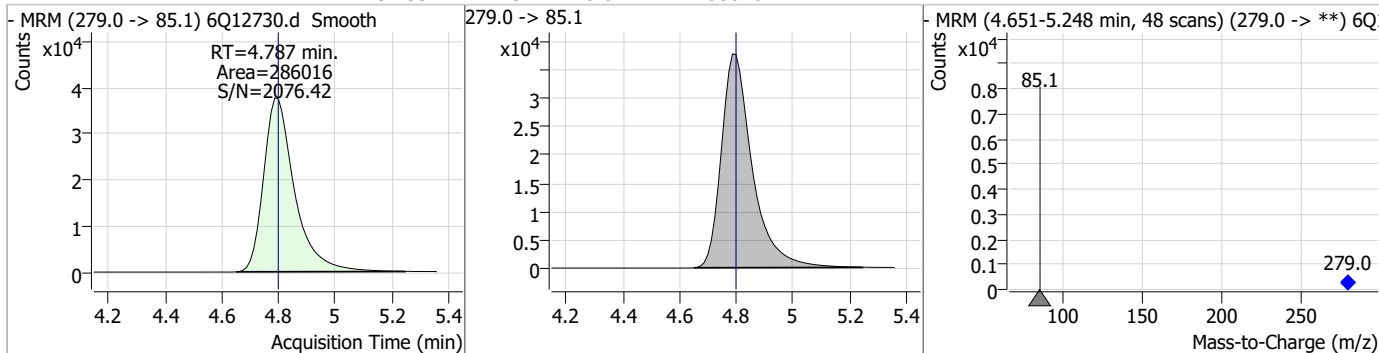
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.02	4.39	0.00	35855				



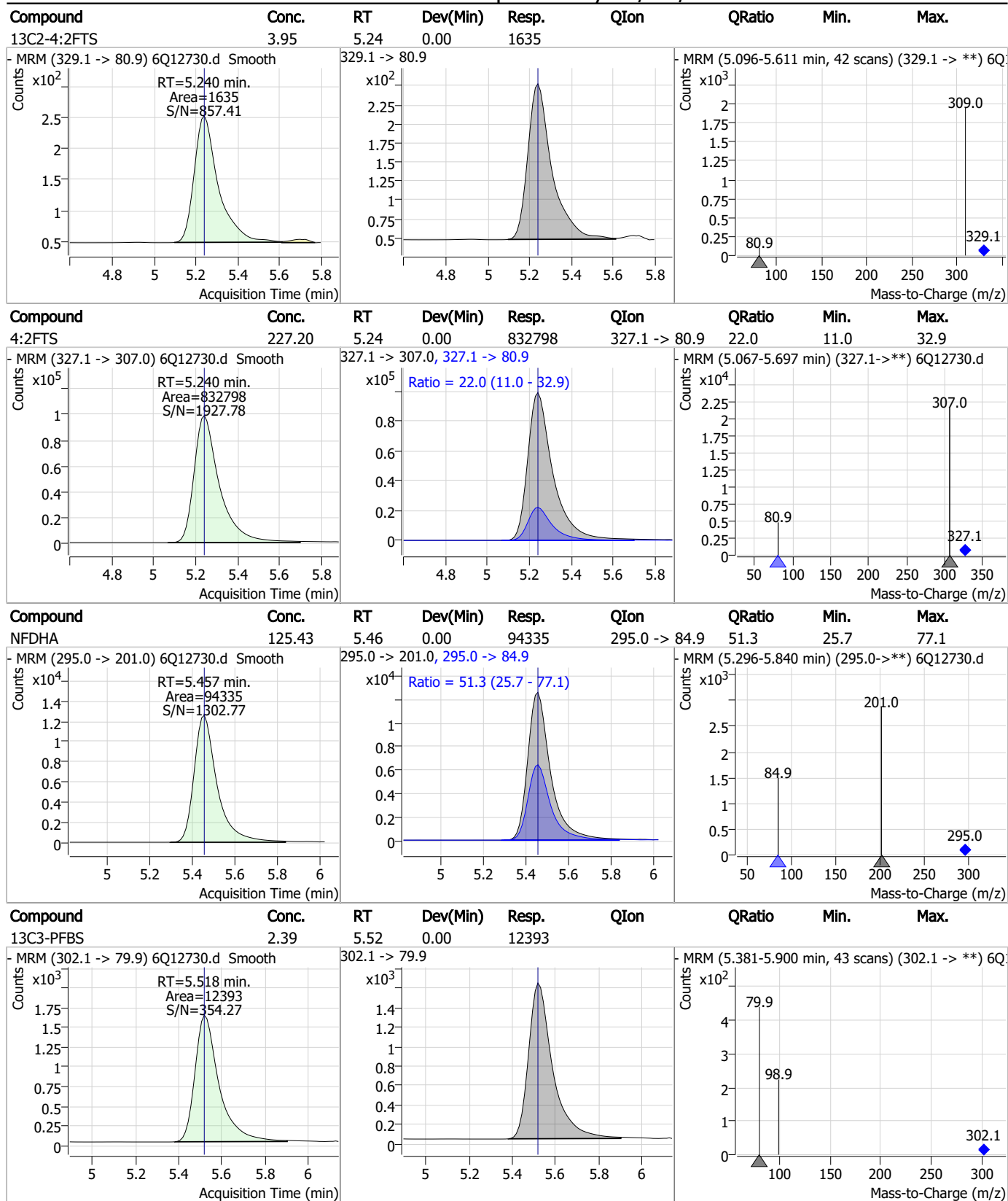
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	129.80	4.39	0.00	982715				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	134.33	4.79	-0.01	286016				



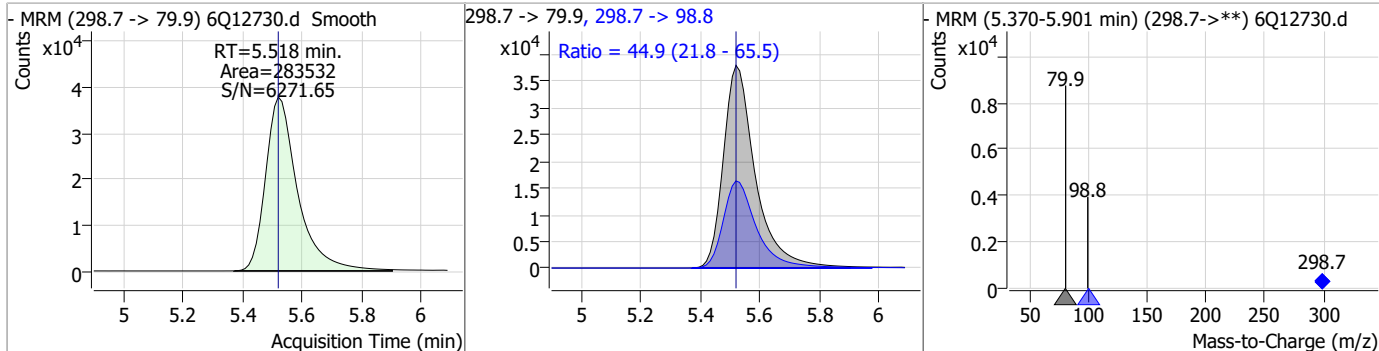
Perfluorinated Compounds by LC/MS/MS



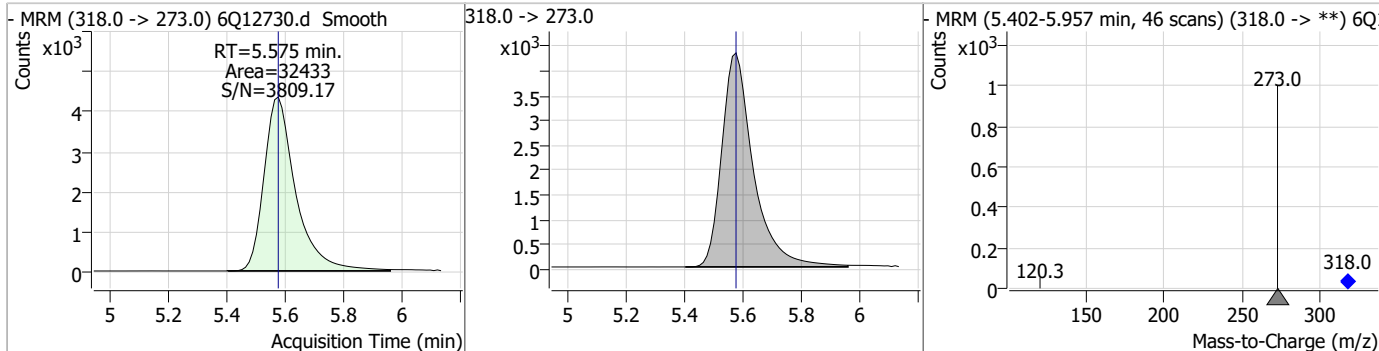
7.7.9
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Perfluorinated Compounds by LC/MS/MS

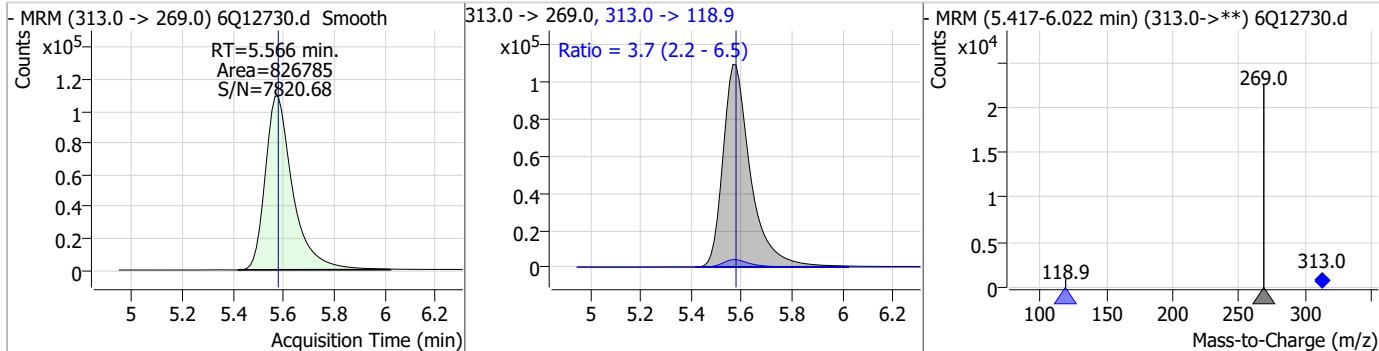
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	59.56	5.52	0.00	283532	298.7 -> 98.8	44.9	21.8	65.5



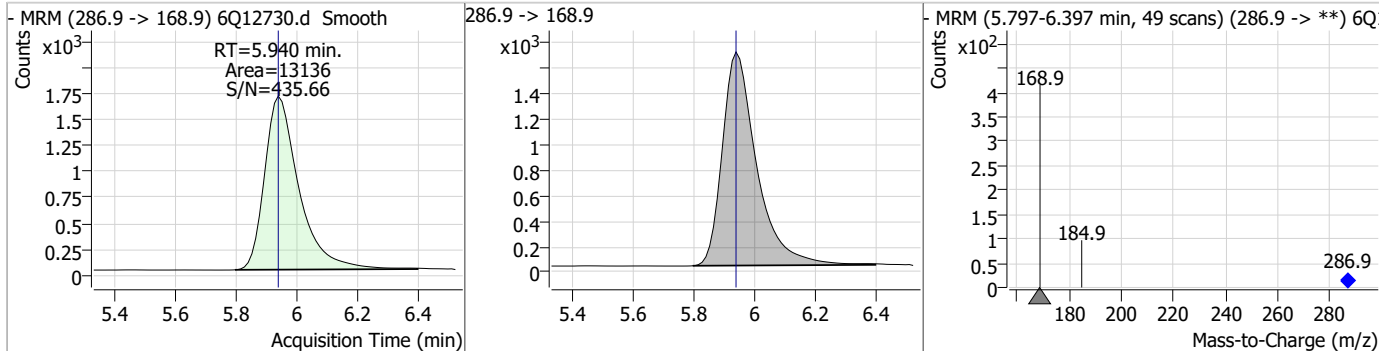
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.56	5.57	0.00	32433				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	64.98	5.57	-0.01	826785	313.0 -> 118.9	3.7	2.2	6.5



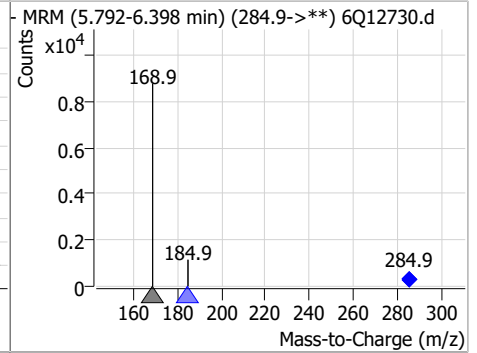
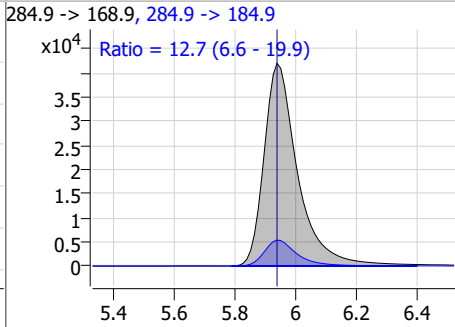
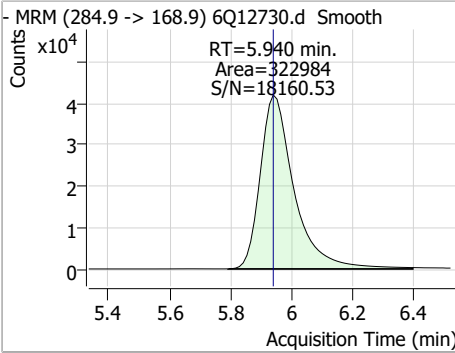
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.03	5.94	0.00	13136				



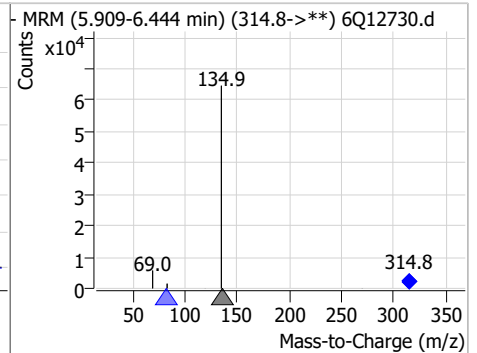
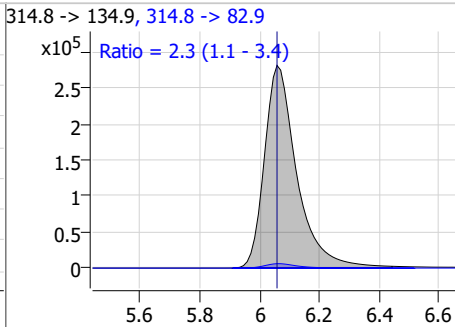
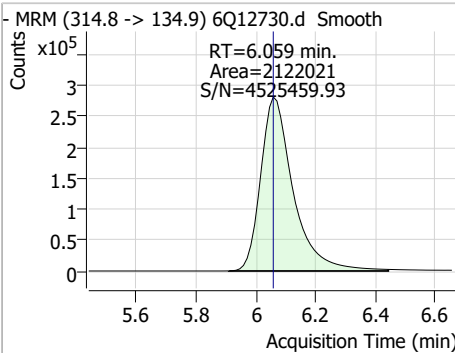
7.7.9
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Perfluorinated Compounds by LC/MS/MS

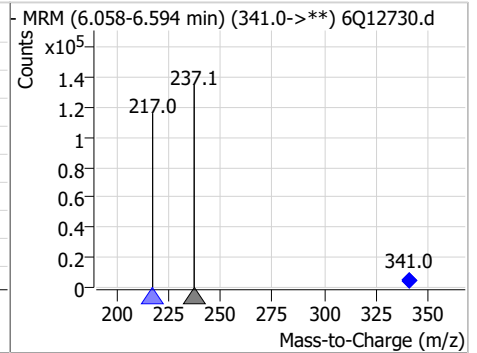
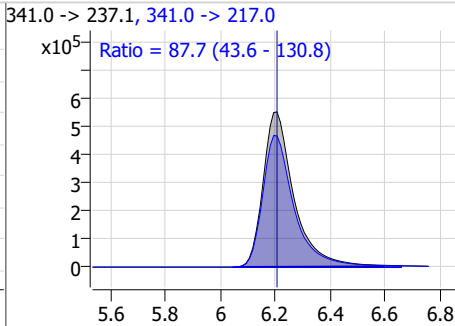
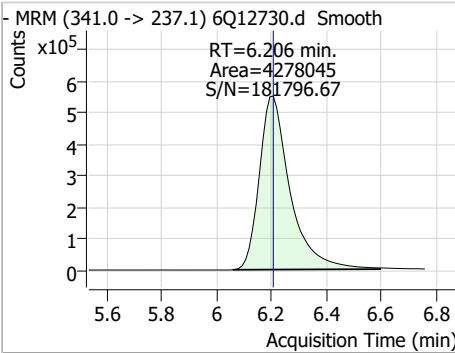
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	262.87	5.94	0.00	322984	284.9 -> 184.9	12.7	6.6	19.9



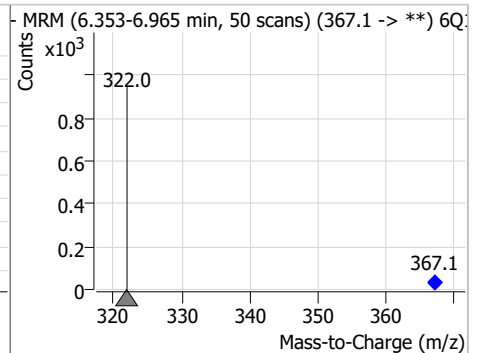
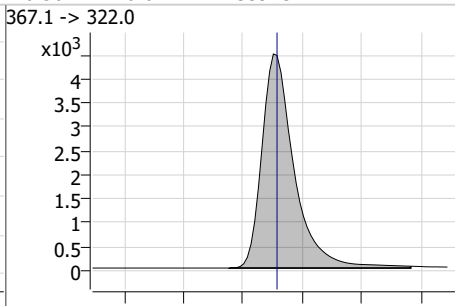
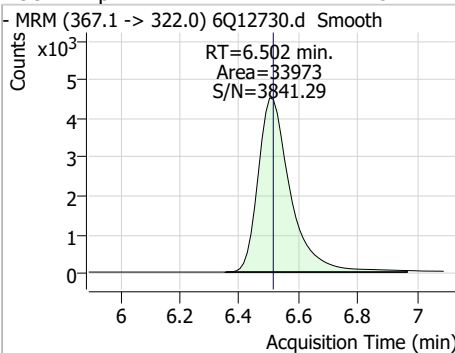
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	115.87	6.06	0.00	2122021	314.8 -> 82.9	2.3	1.1	3.4



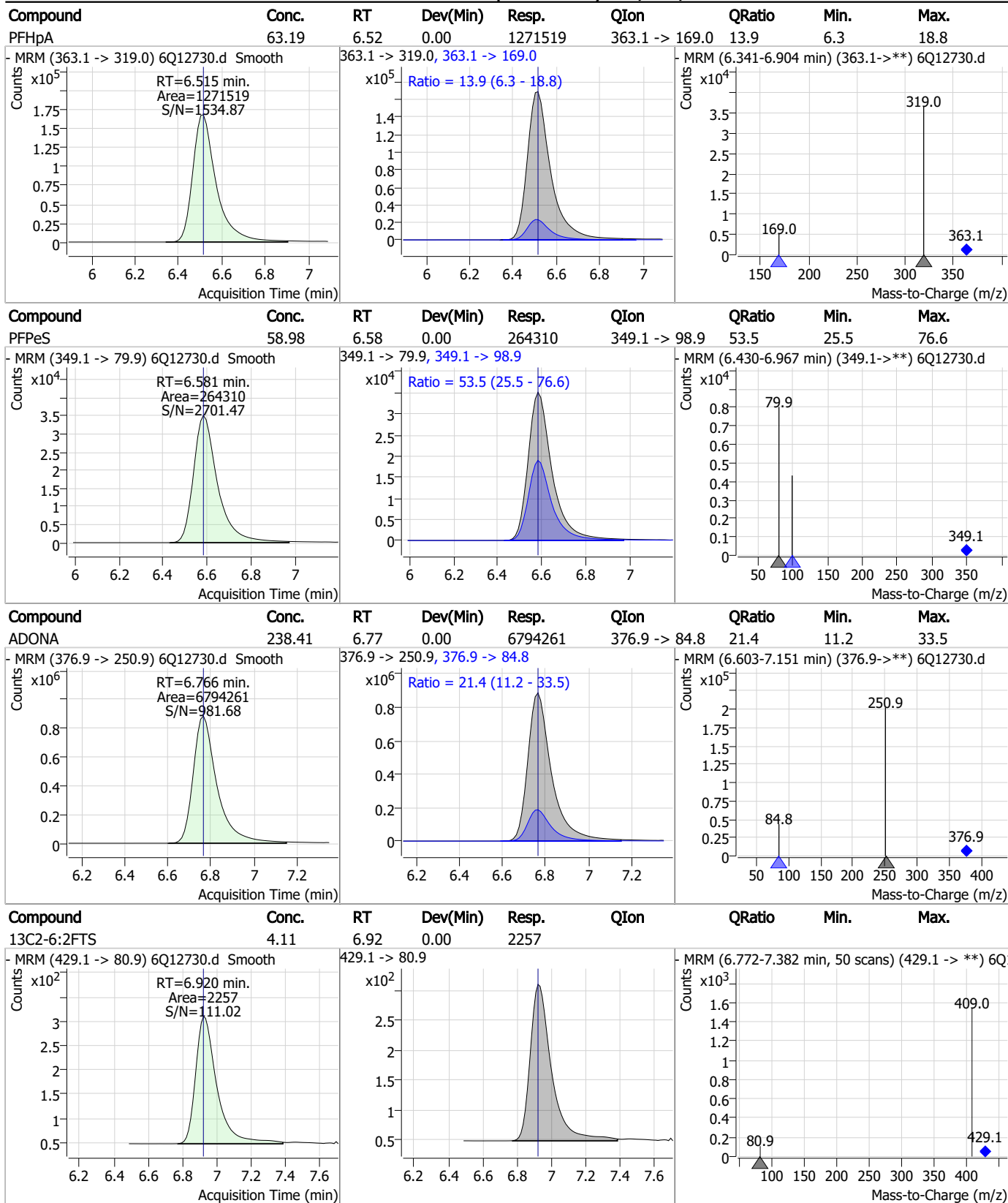
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	1608.30	6.21	0.00	4278045	341.0 -> 217.0	87.7	43.6	130.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.57	6.50	-0.01	33973				

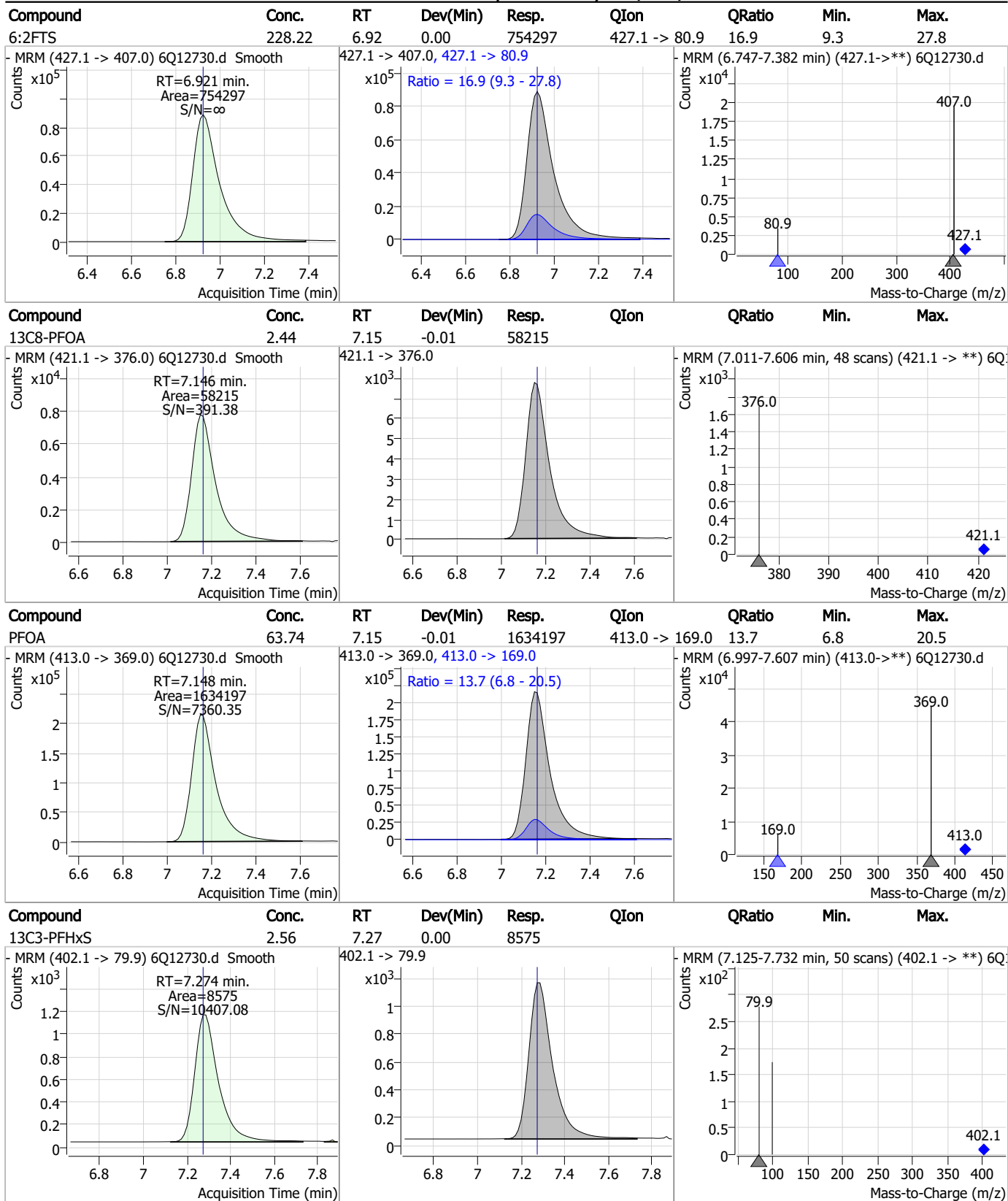


Perfluorinated Compounds by LC/MS/MS



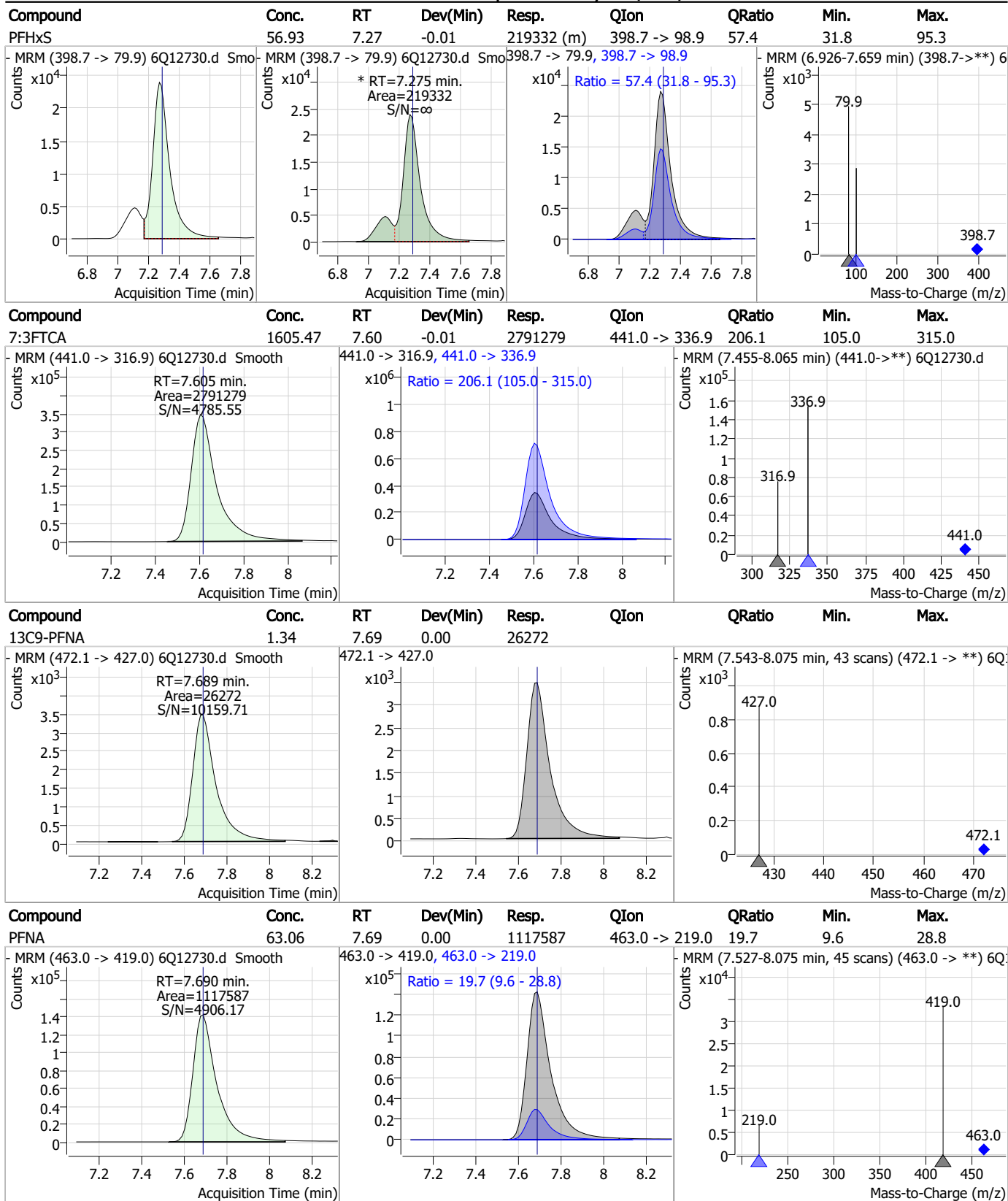
7.7.9
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Perfluorinated Compounds by LC/MS/MS



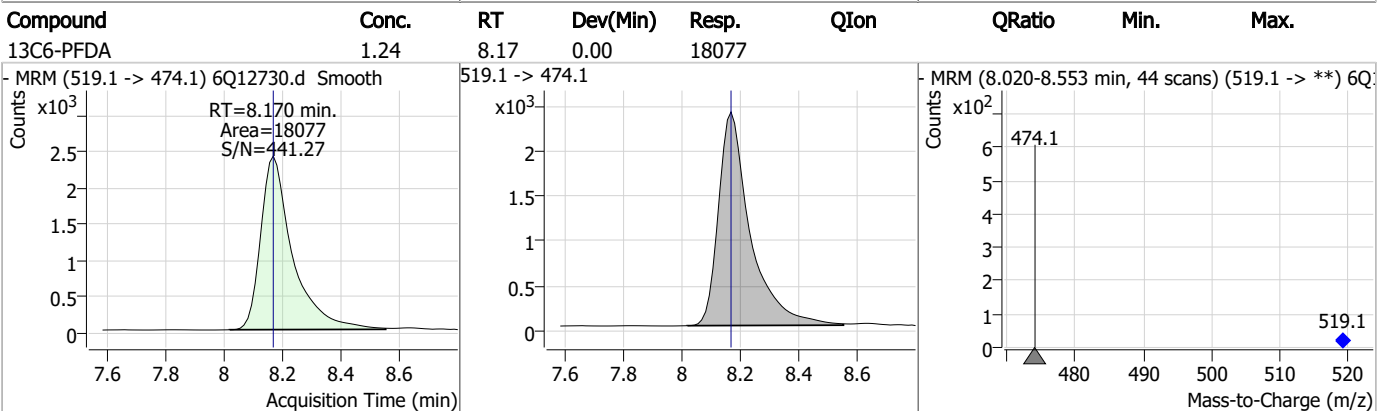
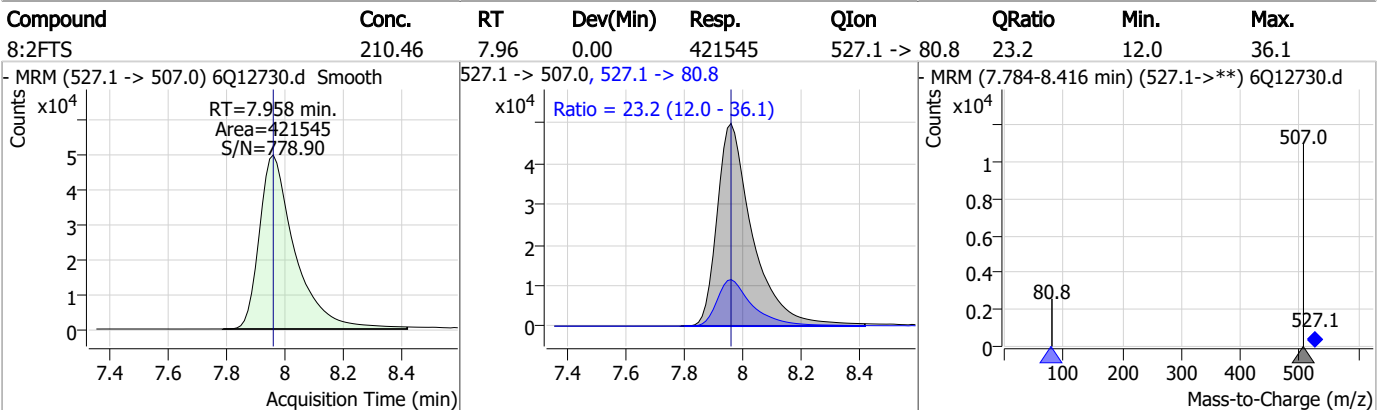
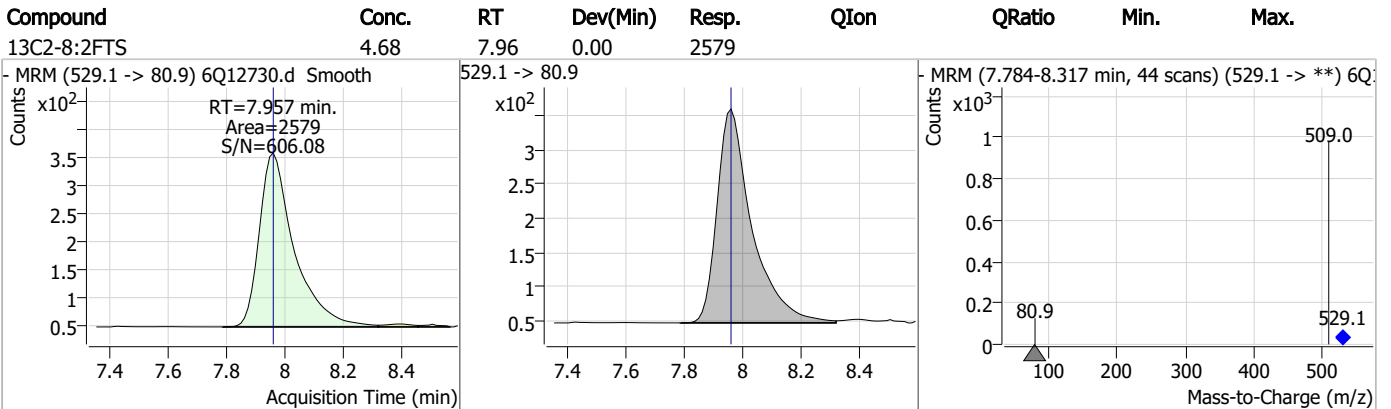
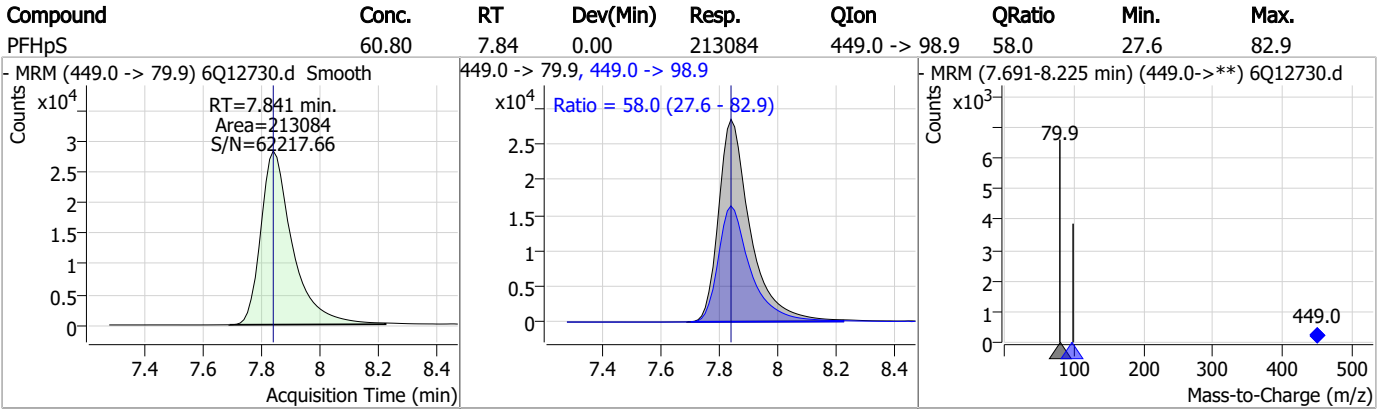
7.7.9
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Perfluorinated Compounds by LC/MS/MS



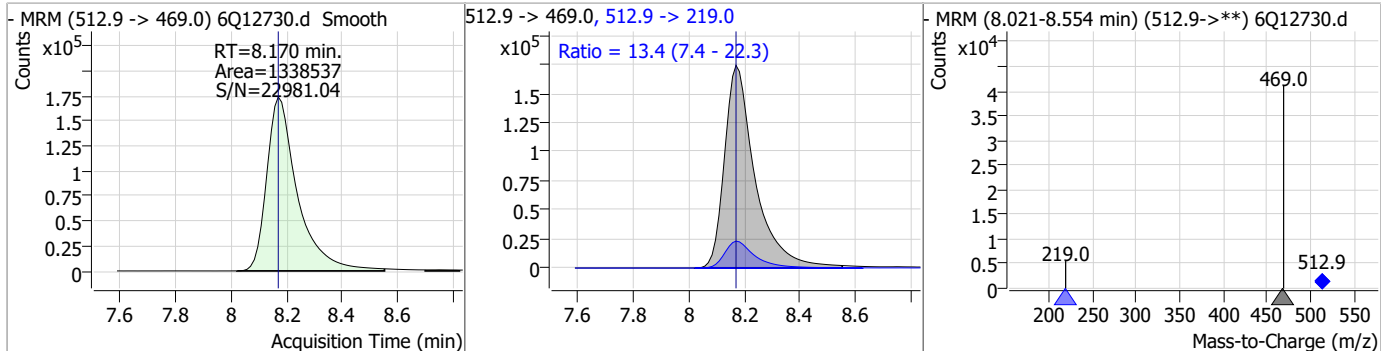
7.7.9
7

Perfluorinated Compounds by LC/MS/MS

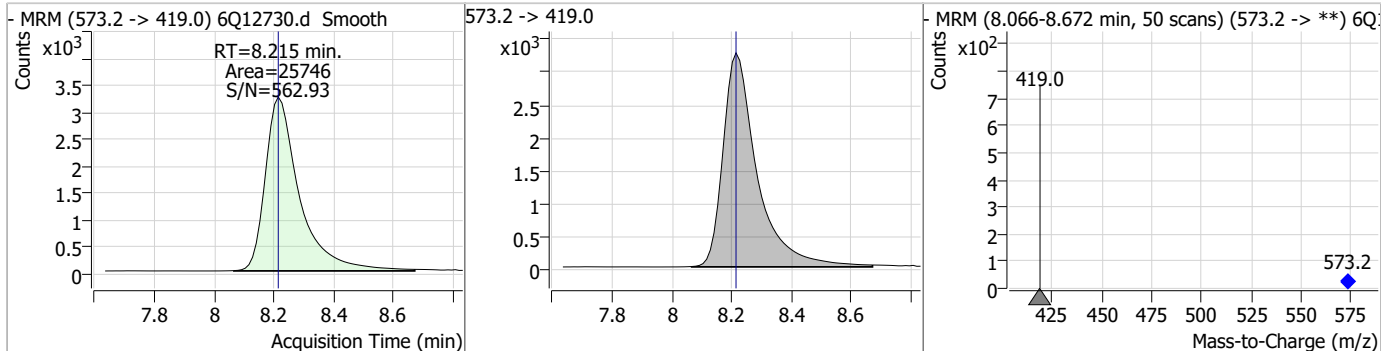


Perfluorinated Compounds by LC/MS/MS

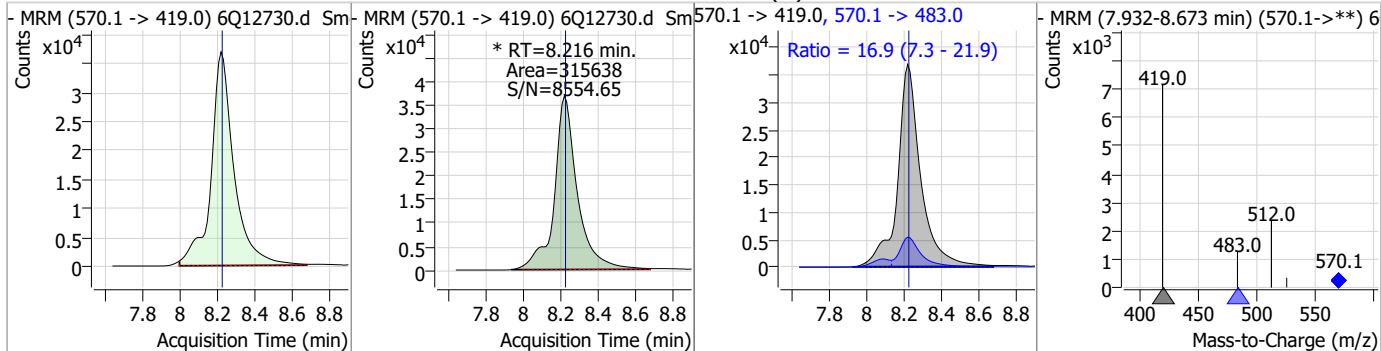
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	65.07	8.17	0.00	1338537	512.9 -> 219.0	13.4	7.4	22.3



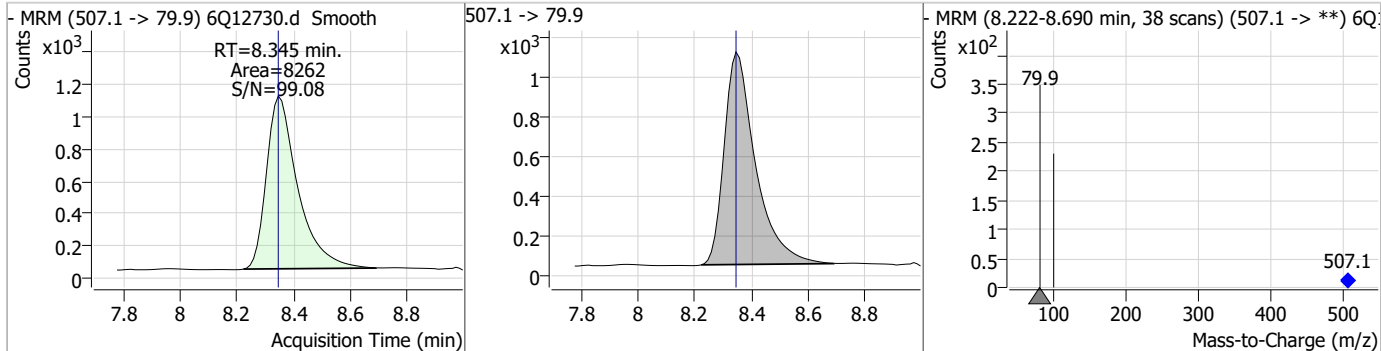
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.69	8.21	0.00	25746				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	66.90	8.22	0.00	315638 (m)	570.1 -> 483.0	16.9	7.3	21.9



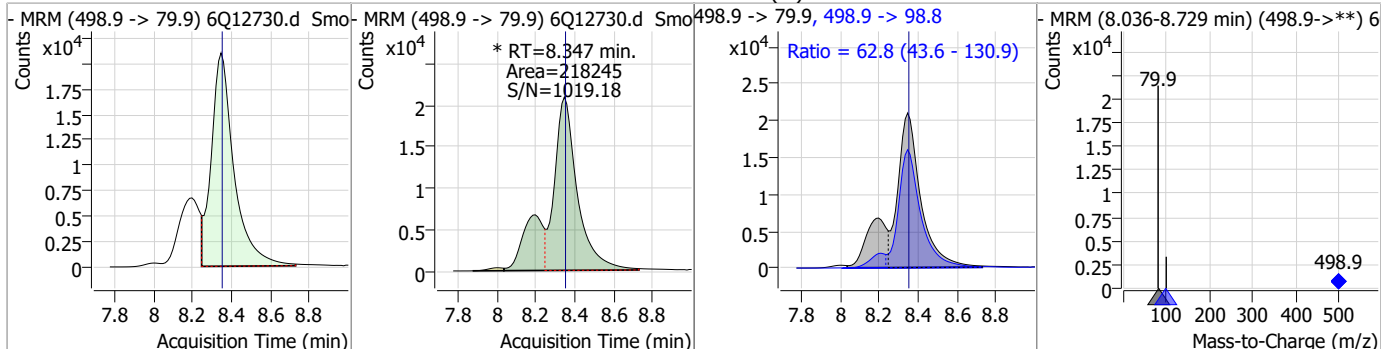
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.51	8.35	0.00	8262				



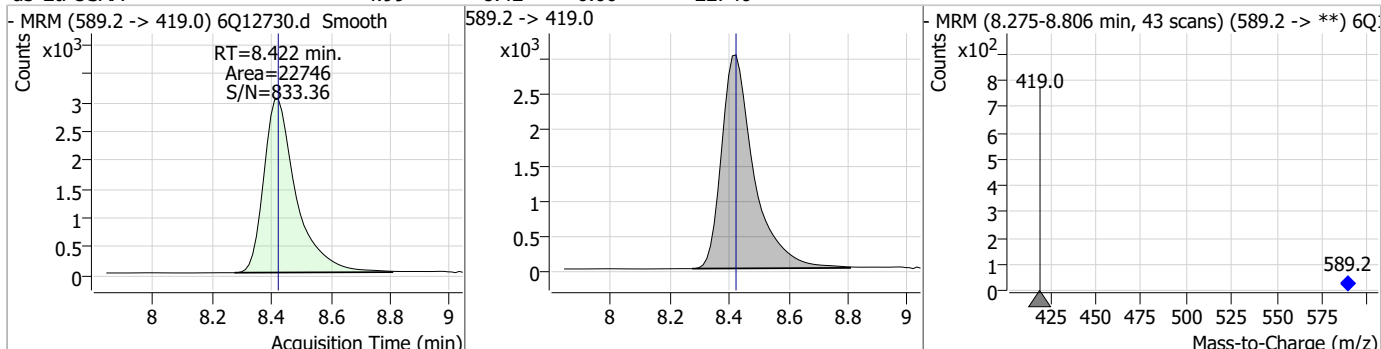
7.7.9
7

Perfluorinated Compounds by LC/MS/MS

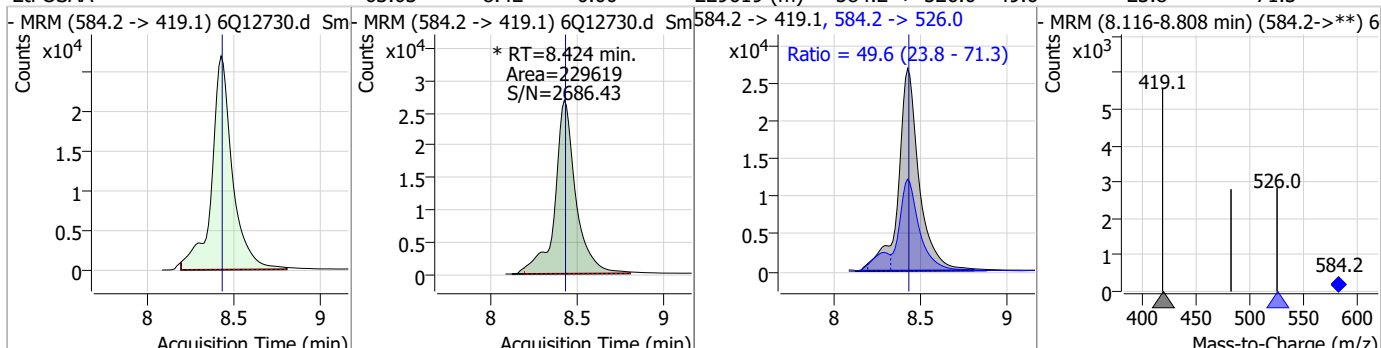
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	57.58	8.35	0.00	218245 (m)	498.9 -> 98.8	62.8	43.6	130.9



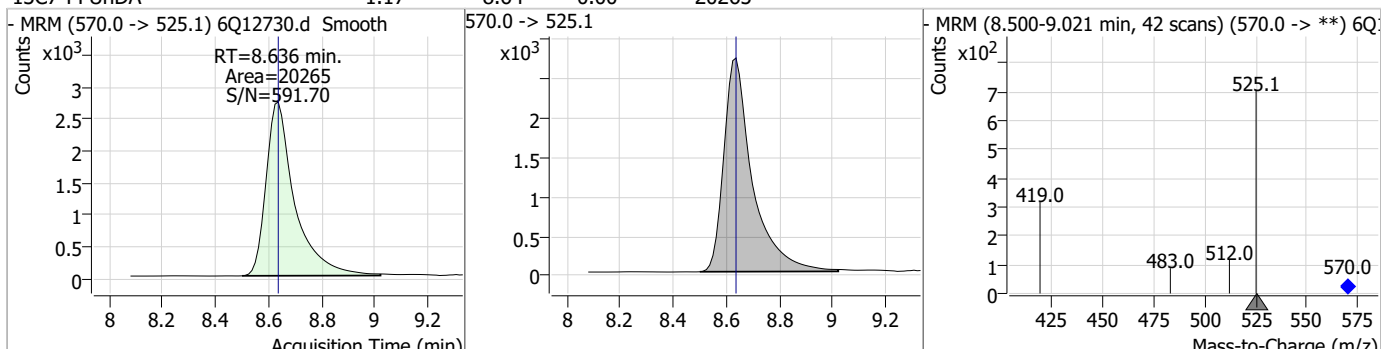
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.99	8.42	0.00	22746				



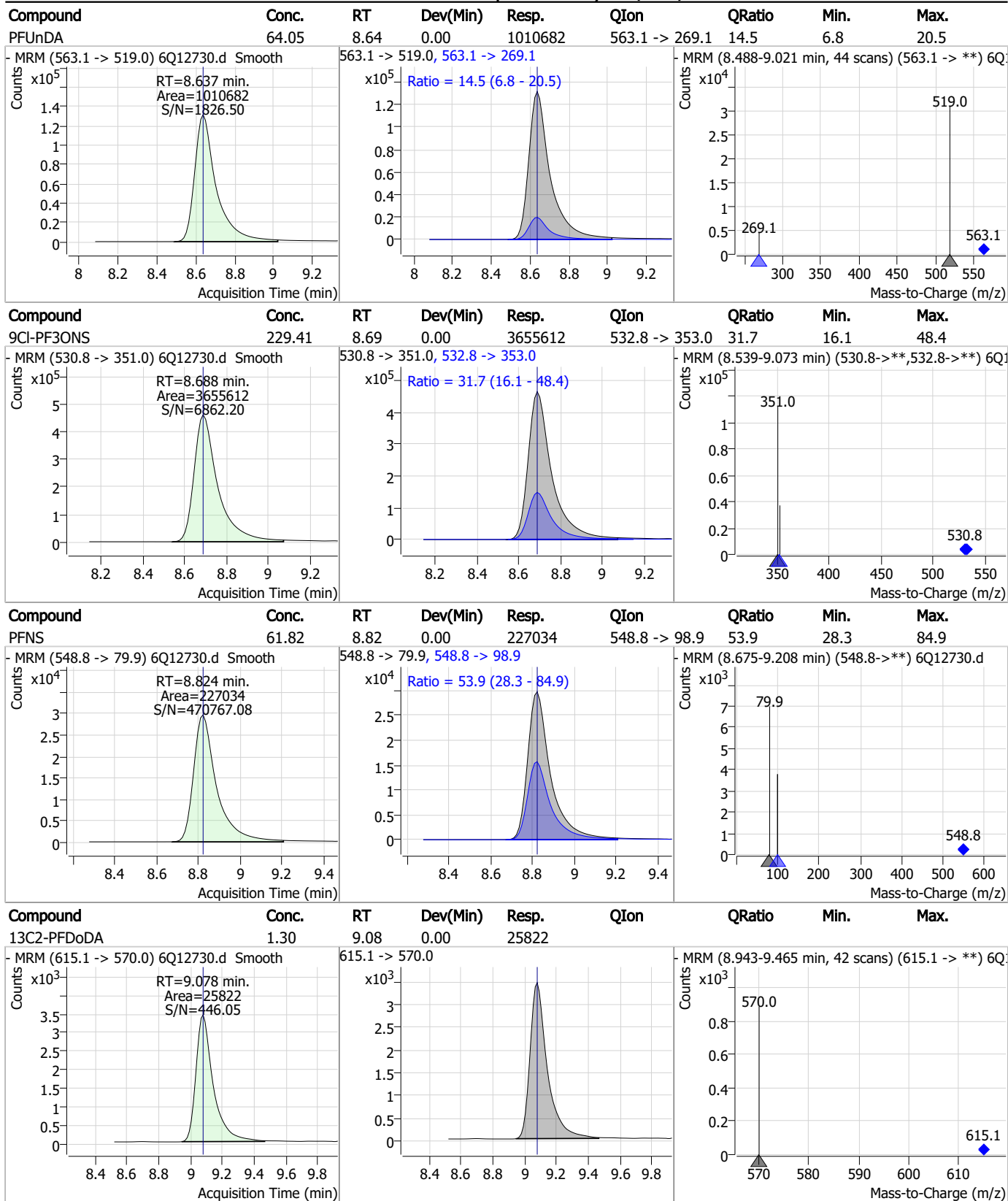
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	63.03	8.42	0.00	229619 (m)	584.2 -> 526.0	49.6	23.8	71.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.17	8.64	0.00	20265				

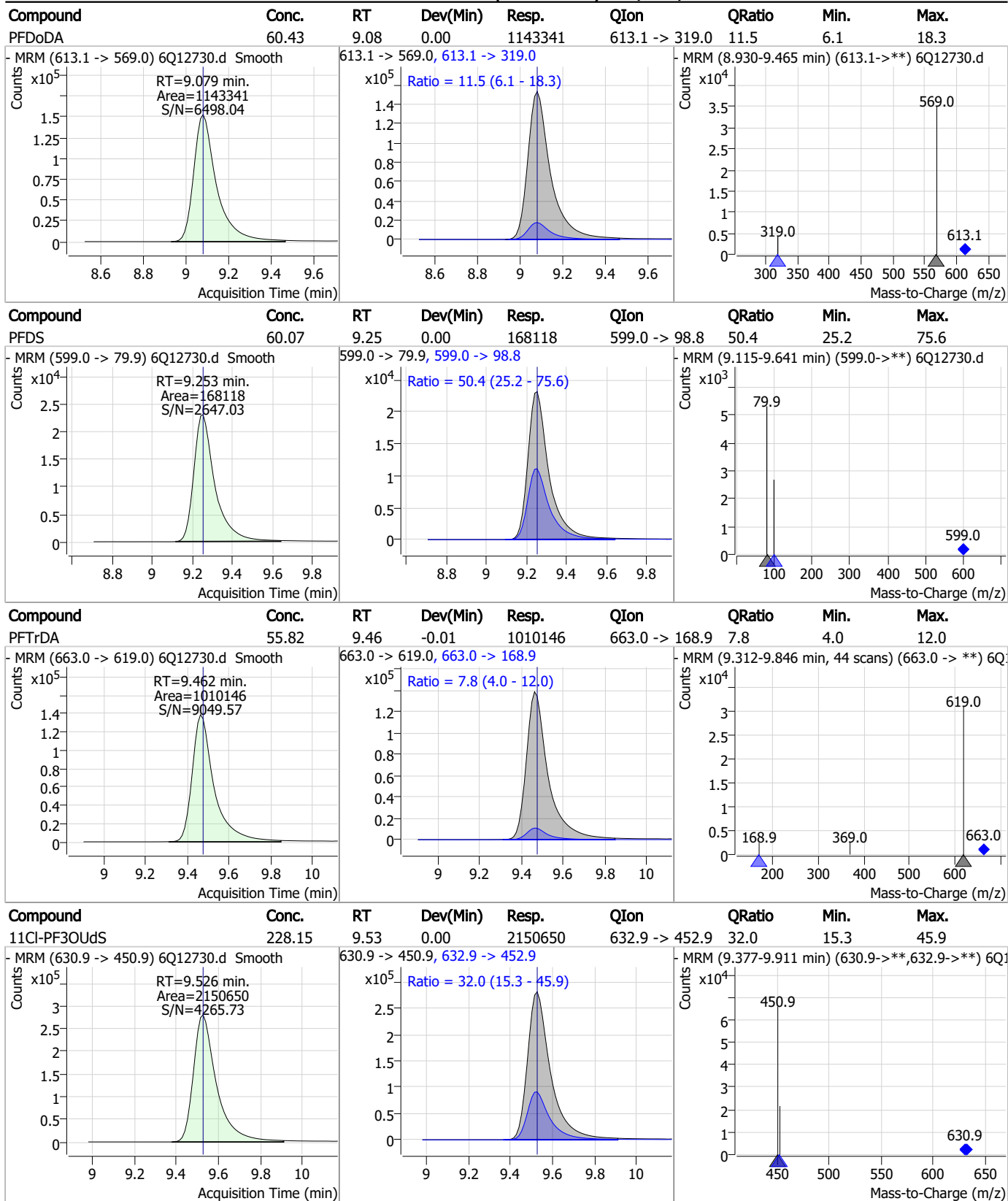


Perfluorinated Compounds by LC/MS/MS



7.7.9
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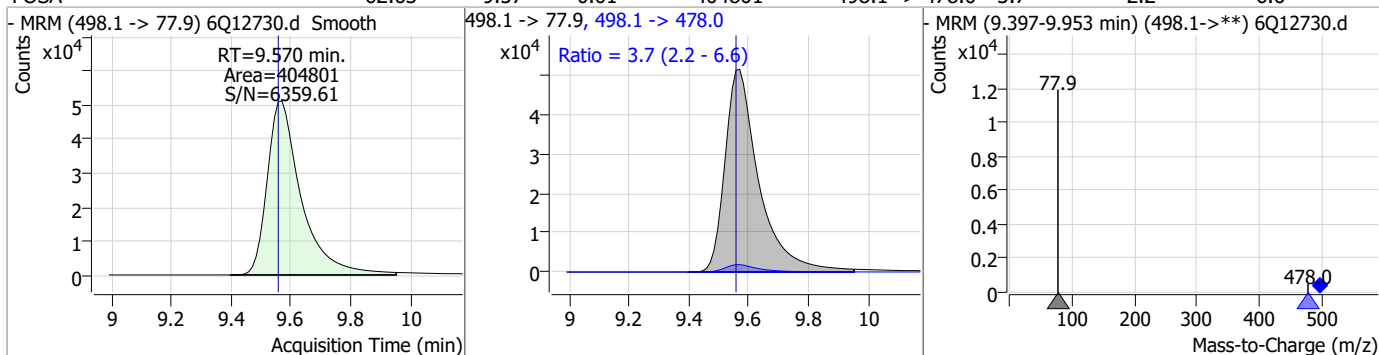
Perfluorinated Compounds by LC/MS/MS



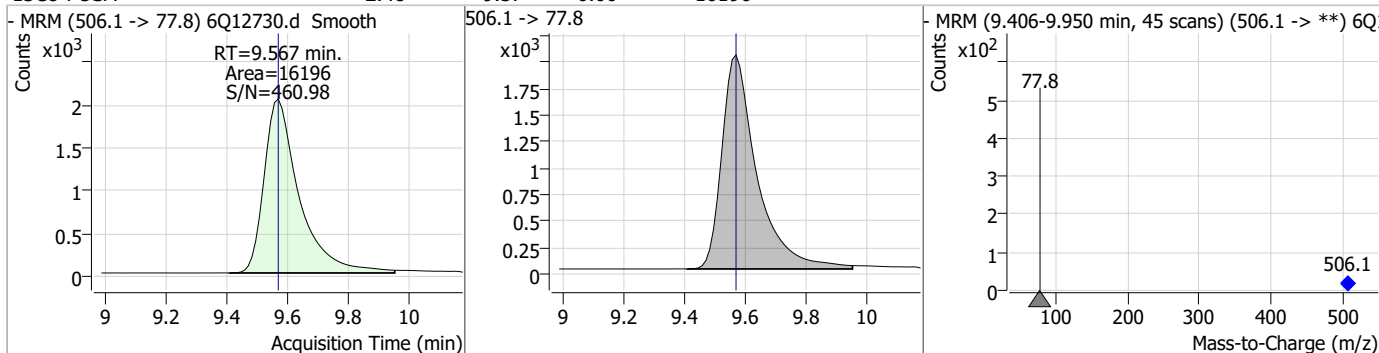
7.7.9
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Perfluorinated Compounds by LC/MS/MS

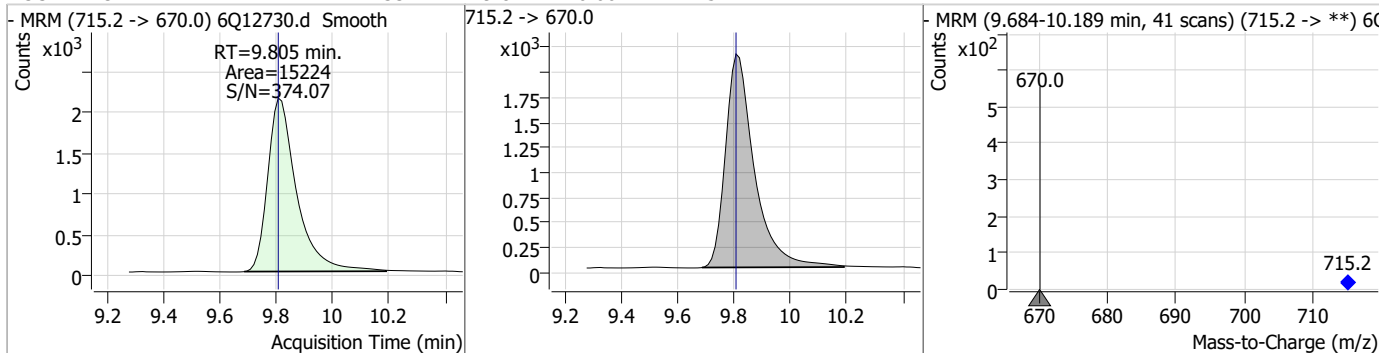
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	62.63	9.57	0.01	404801	498.1 -> 478.0	3.7	2.2	6.6



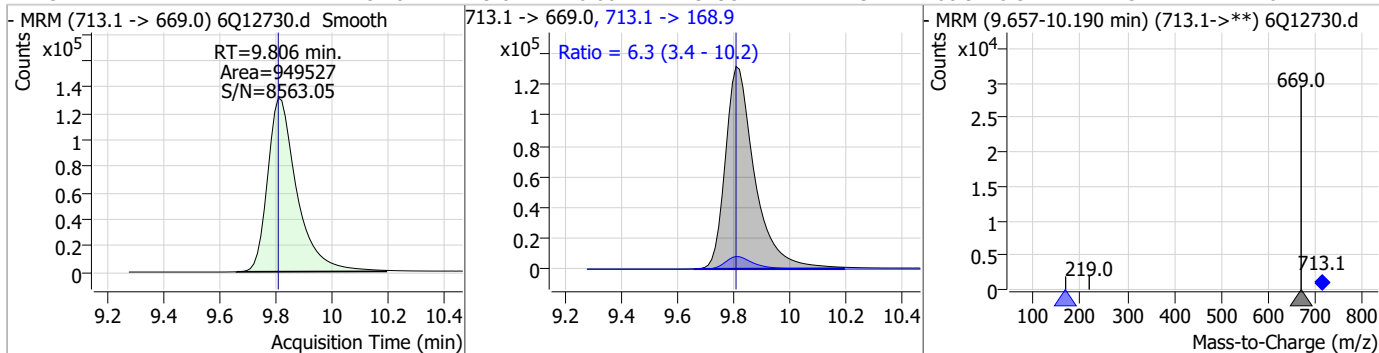
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.48	9.57	0.00	16196				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.33	9.81	0.00	15224				

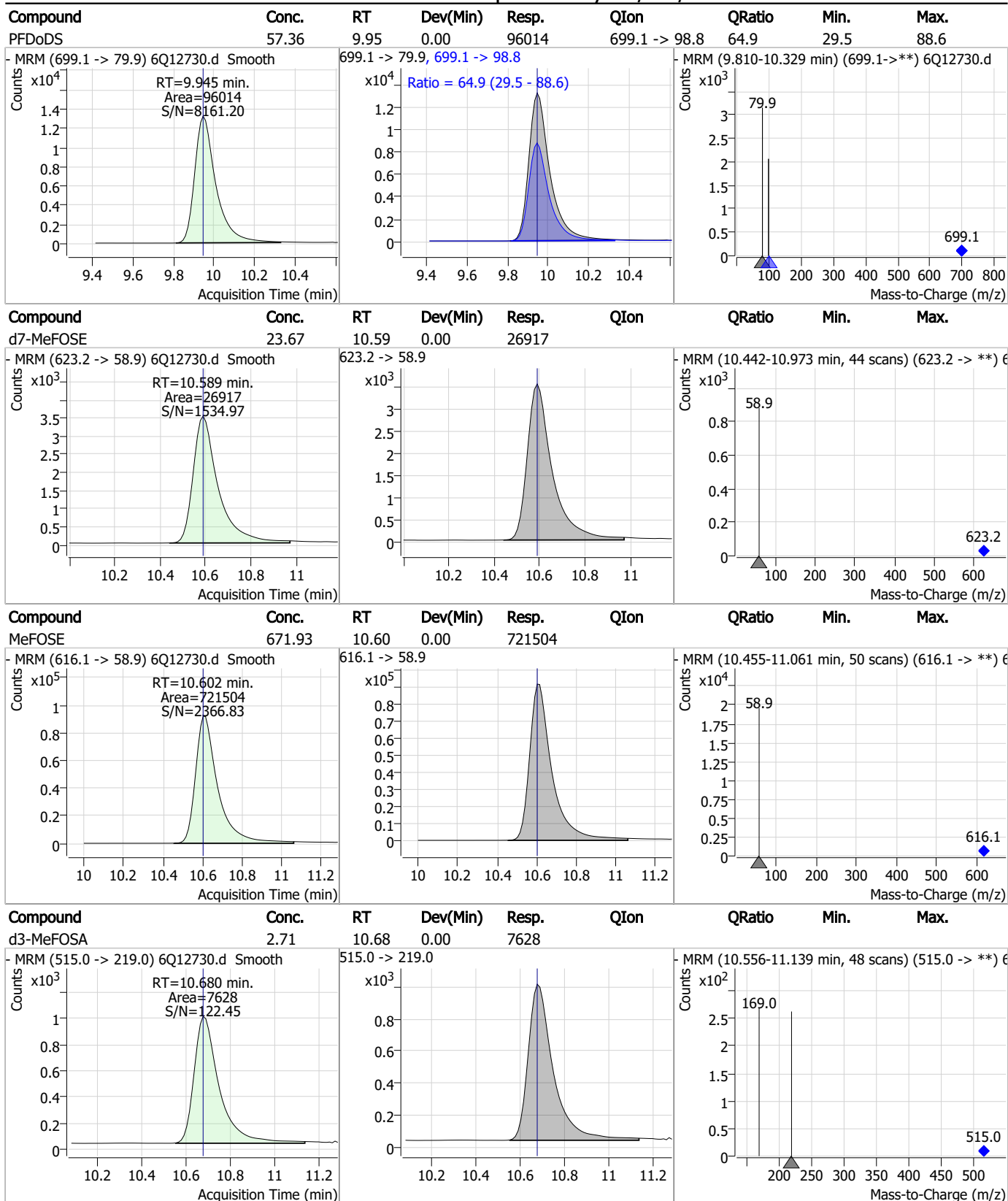


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	57.81	9.81	0.00	949527	713.1 -> 168.9	6.3	3.4	10.2



7.7.9
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Perfluorinated Compounds by LC/MS/MS

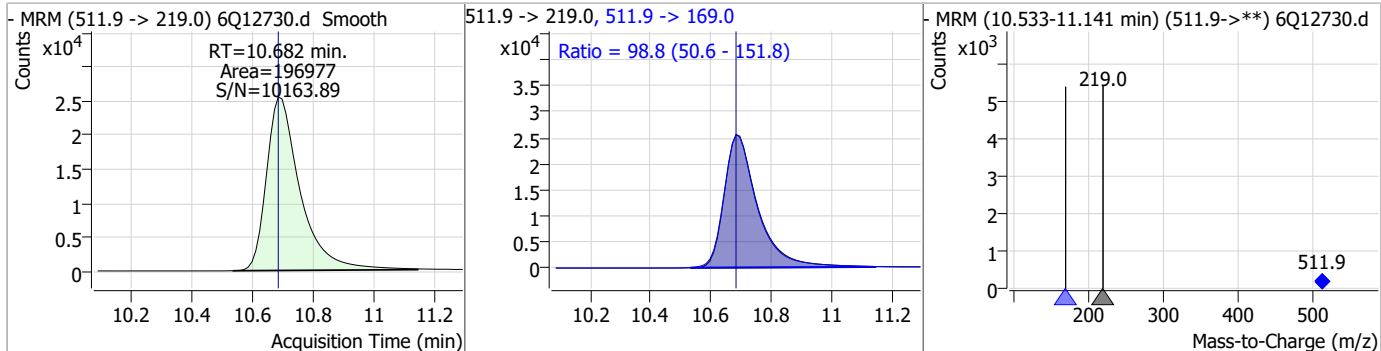


7.7.9
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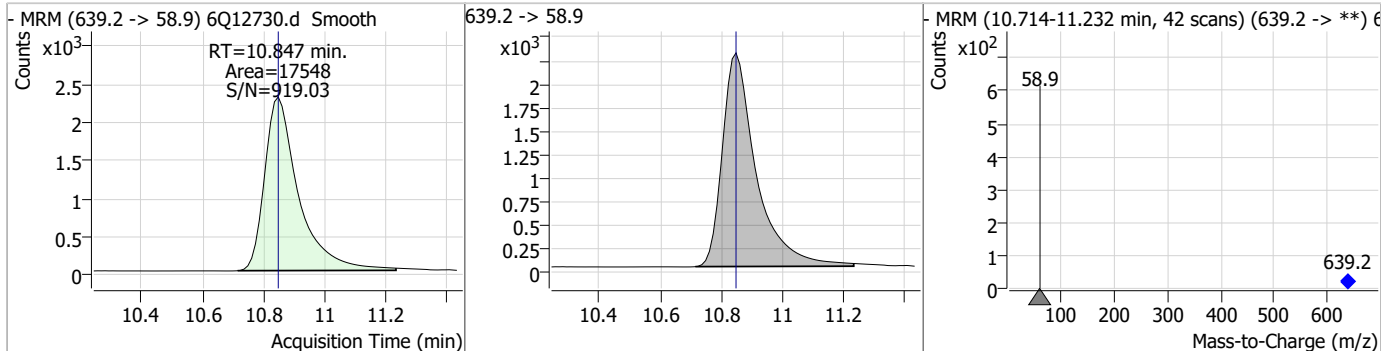


Perfluorinated Compounds by LC/MS/MS

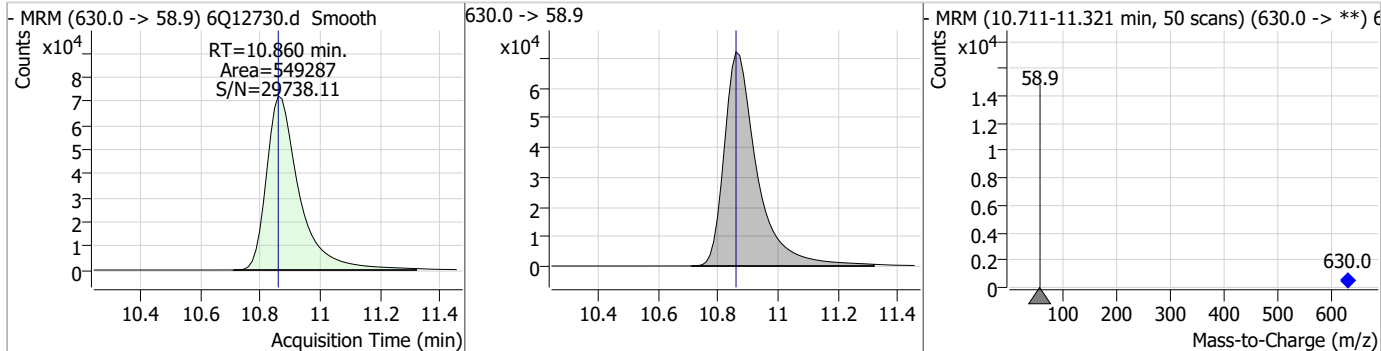
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	59.69	10.68	0.00	196977	511.9 -> 169.0	98.8	50.6	151.8



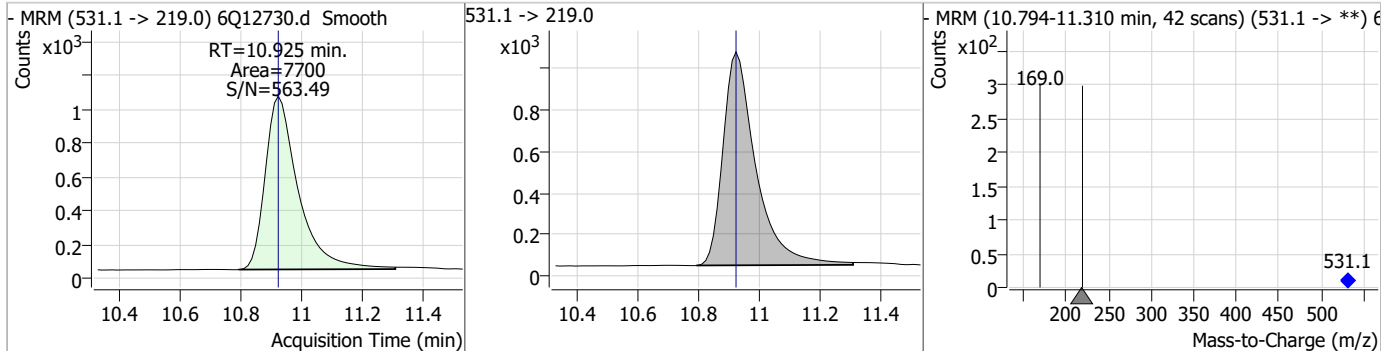
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	22.39	10.85	0.00	17548				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	731.33	10.86	0.00	549287				

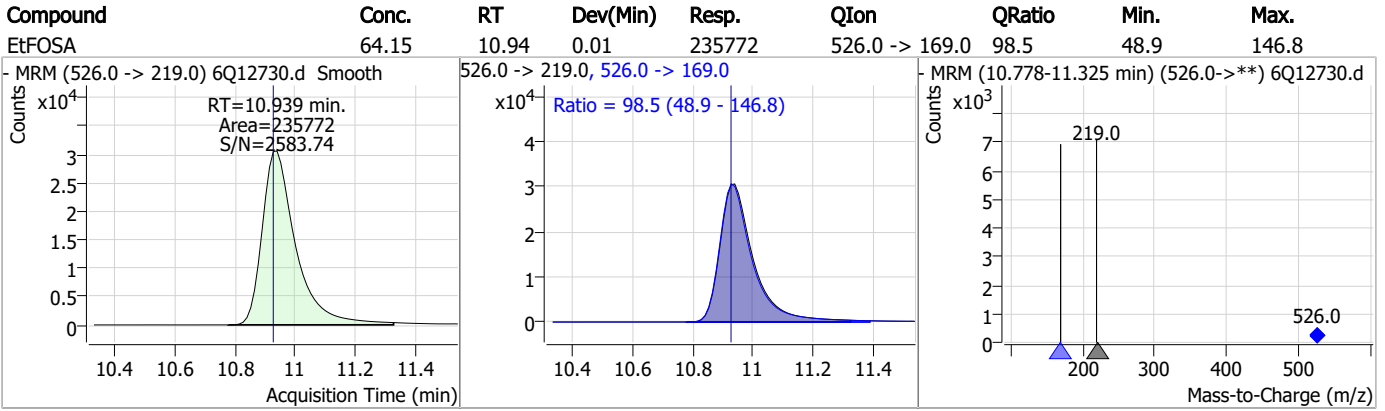


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.52	10.92	0.00	7700				



7.7.9
7

Perfluorinated Compounds by LC/MS/MS



7.7.9

7

Manual Integration Approval Summary

Sample Number: S6Q196-IC196 Method: EPA DRAFT 1633
Lab FileID: 6Q12730.D Analyst approved: 02/02/23 11:53 Martha Valls
Injection Time: 02/01/23 19:29 Supervisor approved: 02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
MeFOSAA	2355-31-9		8.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

7.7.9.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12732.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/1/2023 7:57:14 PM
 Sample Name : icv196-4
 Vial : P1-B1
 DA Method File : 1633_020223_S6Q196.quantmethod.xml
 Batch Name : S6Q196.batch.bin
 Sample Information : OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.975	216.8 -> 171.9	79637	10.00 µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	39774	5.00 µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	36427	2.50 µg/L	0.000
M4-PFHpA	6.502	367.1 -> 322.0	37827	2.50 µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	65553	2.50 µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	30548	1.25 µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	19568	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	24768	1.25 µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	26321	1.25 µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	15807	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	18601	2.50 µg/L	-0.012
M3-PFBS	5.518	302.1 -> 79.9	13944	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	9696	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8327	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2406	5.00 µg/L	0.000
M2-6:2FTS	6.920	429.1 -> 80.9	2933	5.00 µg/L	0.000
M2-8:2FTS	7.957	529.1 -> 80.9	3302	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	29558	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	14689	10.00 µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	25108	5.00 µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	30032	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	22341	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	8200	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7736	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	11794	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	35336	5.00 µg/L	0.000
18O2-PFHxS	7.286	403.0 -> 83.9	7109	2.50 µg/L	0.000
13C4-PFOA	7.147	417.1 -> 372.0	79806	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	28497	1.25 µg/L	0.000
13C5-PFNA	7.689	468.0 -> 423.0	32809	1.25 µg/L	0.000
13C2-PFHxA	5.576	315.1 -> 270.0	35632	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.240	329.1 -> 80.9	2406	5.20 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.1%		
13C2-6:2FTS	6.920	429.1 -> 80.9	2933	4.78 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.7%		
13C2-8:2FTS	7.957	529.1 -> 80.9	3302	5.36 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.2%		
13C2-PFDoDA	9.066	615.1 -> 570.0	26321	1.21 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C2-PFTeDA	9.805	715.2 -> 670.0	15807	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C3-PFBS	5.518	302.1 -> 79.9	13944	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C3-PFHxS	7.274	402.1 -> 79.9	9696	2.59 µg/L	0.000

7.7.10
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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 = 103.8%	
13C4-PFBA	2.975	216.8 -> 171.9	79637	10.15 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C4-PFHpA	6.502	367.1 -> 322.0	37827	2.57 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C5-PFHxA	5.575	318.0 -> 273.0	36427	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C5-PFPeA	4.386	268.3 -> 223.0	39774	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C6-PFDA	8.170	519.1 -> 474.1	19568	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C7-PFUnDA	8.636	570.0 -> 525.1	24768	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C8-FOSA	9.555	506.1 -> 77.8	18601	2.42 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%	
13C8-PFOA	7.146	421.1 -> 376.0	65553	2.46 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C8-PFOS	8.345	507.1 -> 79.9	8327	2.15 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 85.9%	
13C9-PFNA	7.677	472.1 -> 427.0	30548	1.32 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.8%	
d3-MeFOSAA	8.215	573.2 -> 419.0	29558	4.57 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 91.4%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	14689	10.09 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
d3-MeFOSA	10.680	515.0 -> 219.0	7736	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.5%	
d5-EtFOSAA	8.410	589.2 -> 419.0	25108	4.68 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.6%	
d7-MeFOSE	10.589	623.2 -> 58.9	30032	22.43 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.7%	
d9-EtFOSE	10.847	639.2 -> 58.9	22341	24.21 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.8%	
d5-EtFOSA	10.925	531.1 -> 219.0	8200	2.28 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.1%	
Target Compounds					QValue
4:2FTS	5.240	327.1 -> 307.0	50479	9.36 µg/L	99
		327.1 -> 80.9	10798		
6:2FTS	6.921	427.1 -> 407.0	44010	10.25 µg/L	99
		427.1 -> 80.9	8402		
8:2FTS	7.958	527.1 -> 507.0	22980	8.96 µg/L	97
		527.1 -> 80.8	5851		
EtFOSAA	8.424	584.2 -> 419.1	9675	2.41 µg/L	m 89
		584.2 -> 526.0	5322		
FOSA	9.557	498.1 -> 77.9	17943	2.42 µg/L	98
		498.1 -> 478.0	668		
MeFOSAA	8.216	570.1 -> 419.0	13724	2.53 µg/L	88
		570.1 -> 483.0	2670		
PFBA	2.982	212.8 -> 168.9	17507	9.84 µg/L	100
PFBS	5.518	298.7 -> 79.9	11817	2.21 µg/L	95
		298.7 -> 98.8	5567		
PFDA	8.170	512.9 -> 469.0	55527	2.49 µg/L	99
		512.9 -> 219.0	8015		
PFDoDA	9.067	613.1 -> 569.0	48734	2.53 µg/L	98
		613.1 -> 319.0	5563		
PFDS	9.241	599.0 -> 79.9	6938	2.46 µg/L	93

7.7.10
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.515	599.0 -> 98.8	3835	2.31	µg/L	95
		363.1 -> 319.0	51704			
PFHpS	7.841	363.1 -> 169.0	7390	2.54	µg/L	94
		449.0 -> 79.9	8976			
PFHxA	5.578	449.0 -> 98.9	5385	2.40	µg/L	98
		313.0 -> 269.0	34300			
PFHxS	7.275	313.0 -> 118.9	1269	2.06	µg/L	91
		398.7 -> 79.9	8961			
PFNA	7.677	398.7 -> 98.9	5058	2.32	µg/L	100
		463.0 -> 419.0	47751			
PFNS	8.811	463.0 -> 219.0	9195	2.69	µg/L	100
		548.8 -> 79.9	9944			
PFOA	7.148	548.8 -> 98.9	5610	2.38	µg/L	100
		413.0 -> 369.0	68664			
PFOS	8.347	413.0 -> 169.0	9310	2.55	µg/L	67
		498.9 -> 79.9	9727			
PFPeA	4.388	498.9 -> 98.8	5483	5.01	µg/L	100
		263.0 -> 219.0	42065			
PFPeS	6.581	349.1 -> 79.9	11283	2.23	µg/L	97
		349.1 -> 98.9	6039			
PFTeDA	9.806	713.1 -> 669.0	40836	2.39	µg/L	99
		713.1 -> 168.9	2965			
PFTrDA	9.462	663.0 -> 619.0	46631	2.53	µg/L	100
		663.0 -> 168.9	3767			
PFUnDA	8.637	563.1 -> 519.0	47272	2.45	µg/L	99
		563.1 -> 269.1	6635			
11CI-PF3OUdS	9.514	630.9 -> 450.9	97942	9.29	µg/L	95
		632.9 -> 452.9	32489			
9CI-PF3ONS	8.688	530.8 -> 351.0	161780	9.08	µg/L	97
		532.8 -> 353.0	49889			
ADONA	6.766	376.9 -> 250.9	299321	9.39	µg/L	98
		376.9 -> 84.8	64098			
HFPO-DA	5.940	284.9 -> 168.9	13752	10.01	µg/L	97
		284.9 -> 184.9	1662			
3:3FTCA	3.841	241.0 -> 177.0	4965	12.04	µg/L	98
		241.0 -> 117.0	699			
5:3FTCA	6.206	341.0 -> 237.1	179549	60.10	µg/L	97
		341.0 -> 217.0	161221			
7:3FTCA	7.605	441.0 -> 316.9	119235	61.06	µg/L	91
		441.0 -> 336.9	233157			
EtFOSA	10.927	526.0 -> 219.0	10099	2.58	µg/L	95
		526.0 -> 169.0	9437			
EtFOSE	10.860	630.0 -> 58.9	22303	23.32	µg/L	100
		511.9 -> 219.0	8419			
MeFOSA	10.682	511.9 -> 169.0	8333	2.52	µg/L	98
		616.1 -> 58.9	31337			
MeFOSE	10.602	699.1 -> 79.9	4121	26.16	µg/L	100
		699.1 -> 98.8	2701			
PFDoDS	9.945	295.0 -> 201.0	4286	2.44	µg/L	91
		295.0 -> 84.9	2175			
NFDHA	5.457	279.0 -> 85.1	11930	5.07	µg/L	99
		229.0 -> 84.9	11247			
PFMBA	4.800	314.8 -> 134.9	89034	5.02	µg/L	100
		314.8 -> 82.9	2098			
PFMPA	3.541			4.33	µg/L	100
PFEESA	6.059					

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

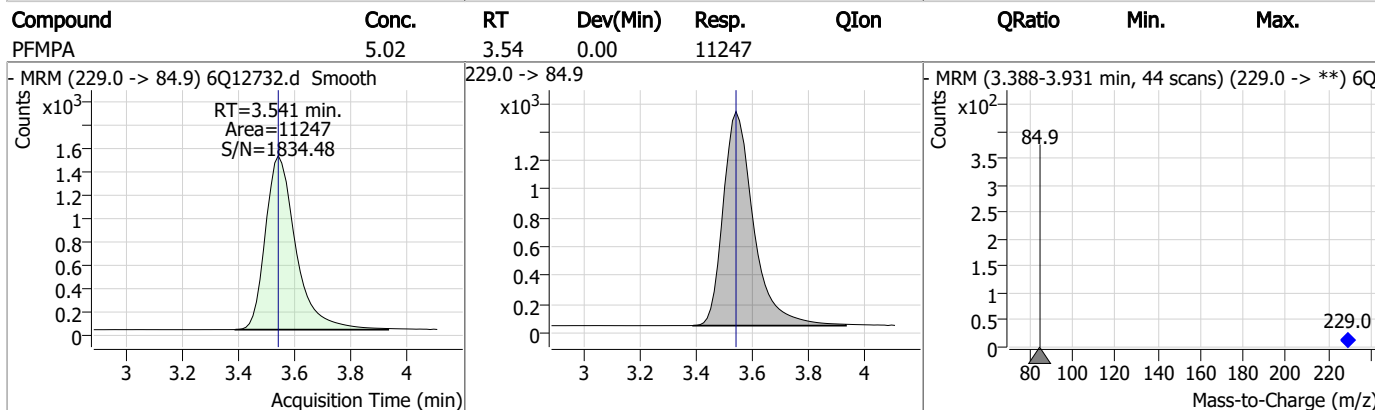
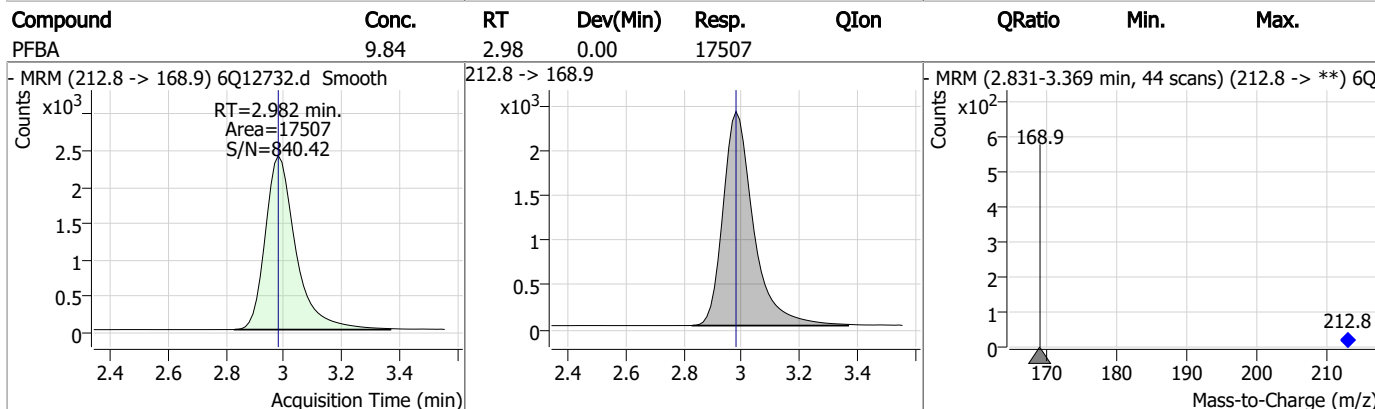
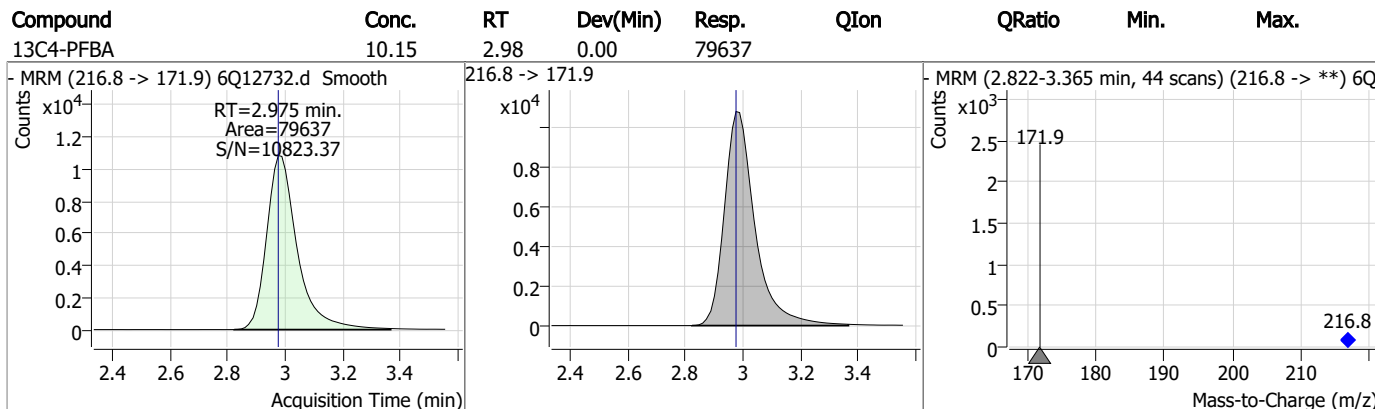
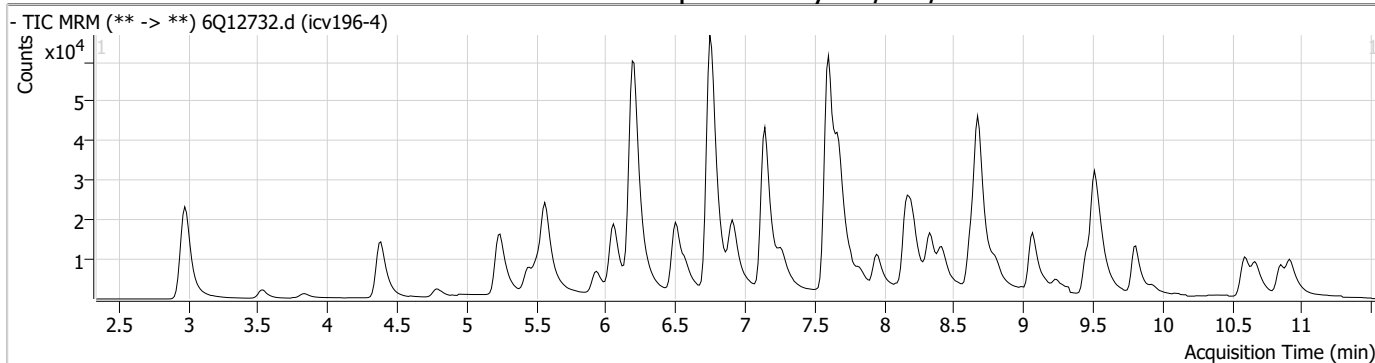
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.10

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Perfluorinated Compounds by LC/MS/MS



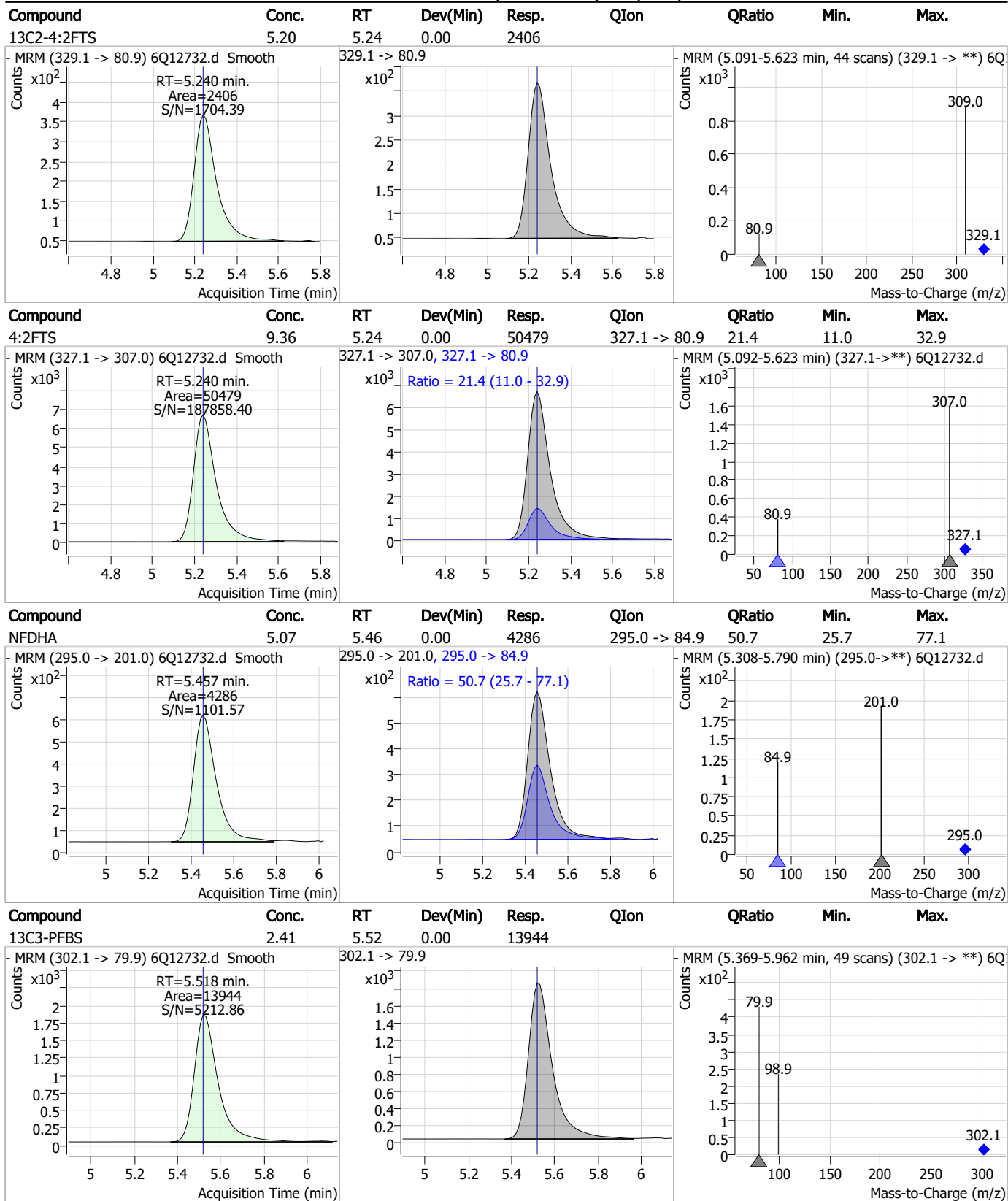
7.7.10
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	12.04	3.84	0.00	4965	241.0 -> 117.0	14.1	7.4	22.2
13C5-PFPeA	5.01	4.39	0.00	39774				
PFPeA	5.01	4.39	0.00	42065				
PFMBA	5.05	4.80	0.00	11930				

7.7.10 7

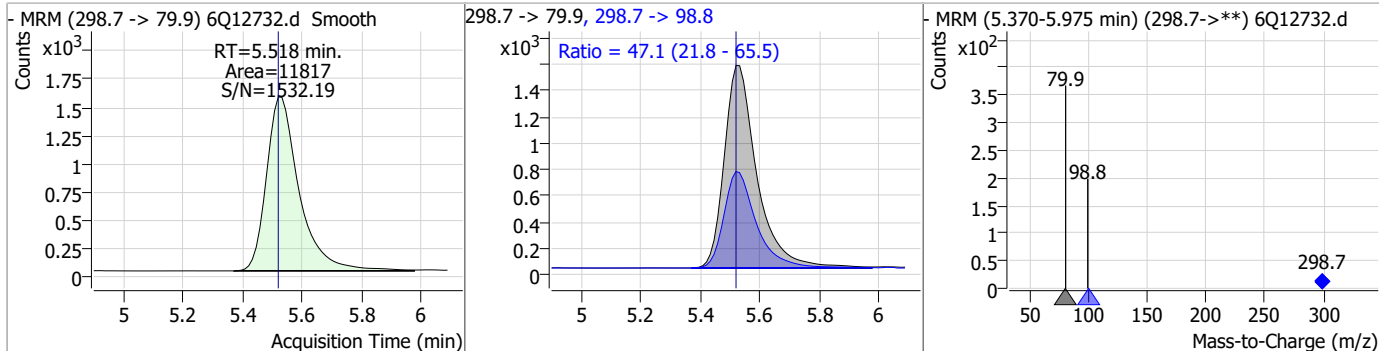
Perfluorinated Compounds by LC/MS/MS



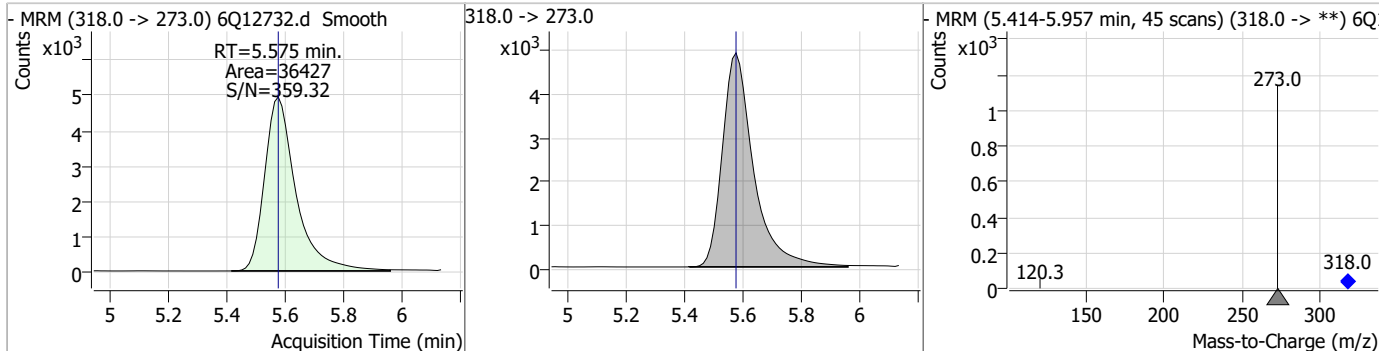
7.7.10 7

Perfluorinated Compounds by LC/MS/MS

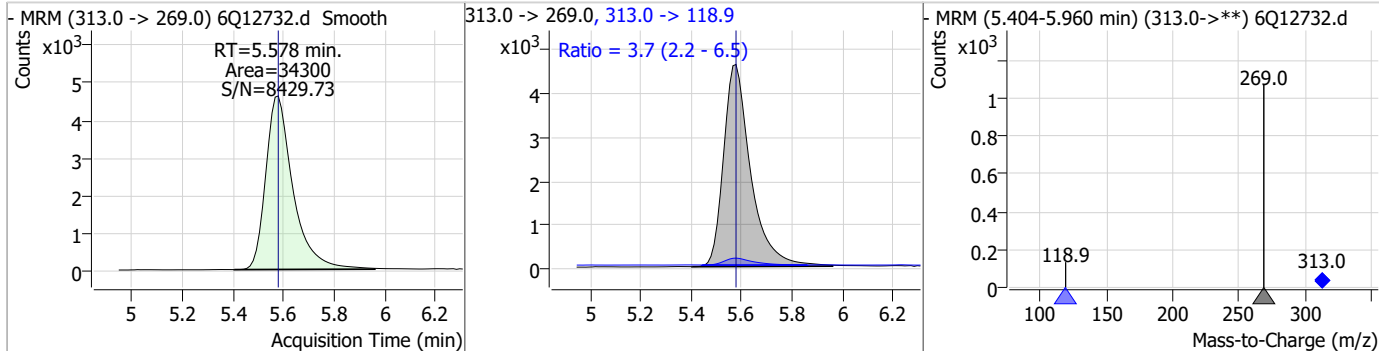
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.21	5.52	0.00	11817	298.7 -> 98.8	47.1	21.8	65.5



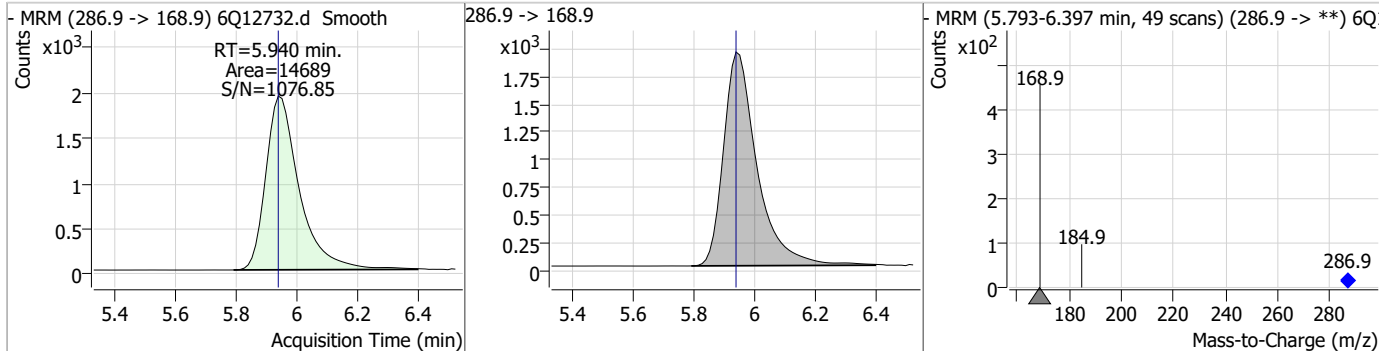
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.58	5.57	0.00	36427				



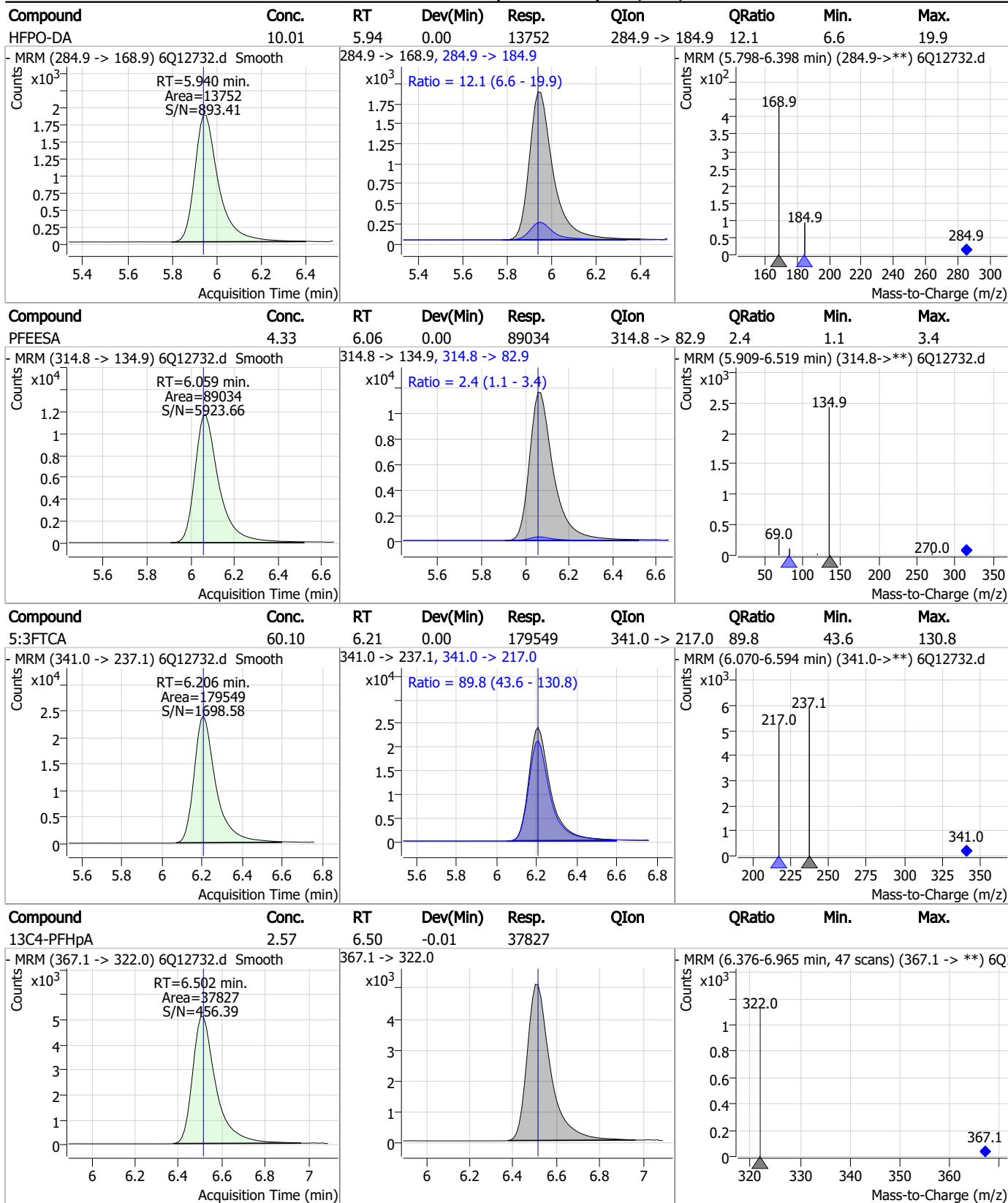
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.40	5.58	0.00	34300	313.0 -> 118.9	3.7	2.2	6.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.09	5.94	0.00	14689				

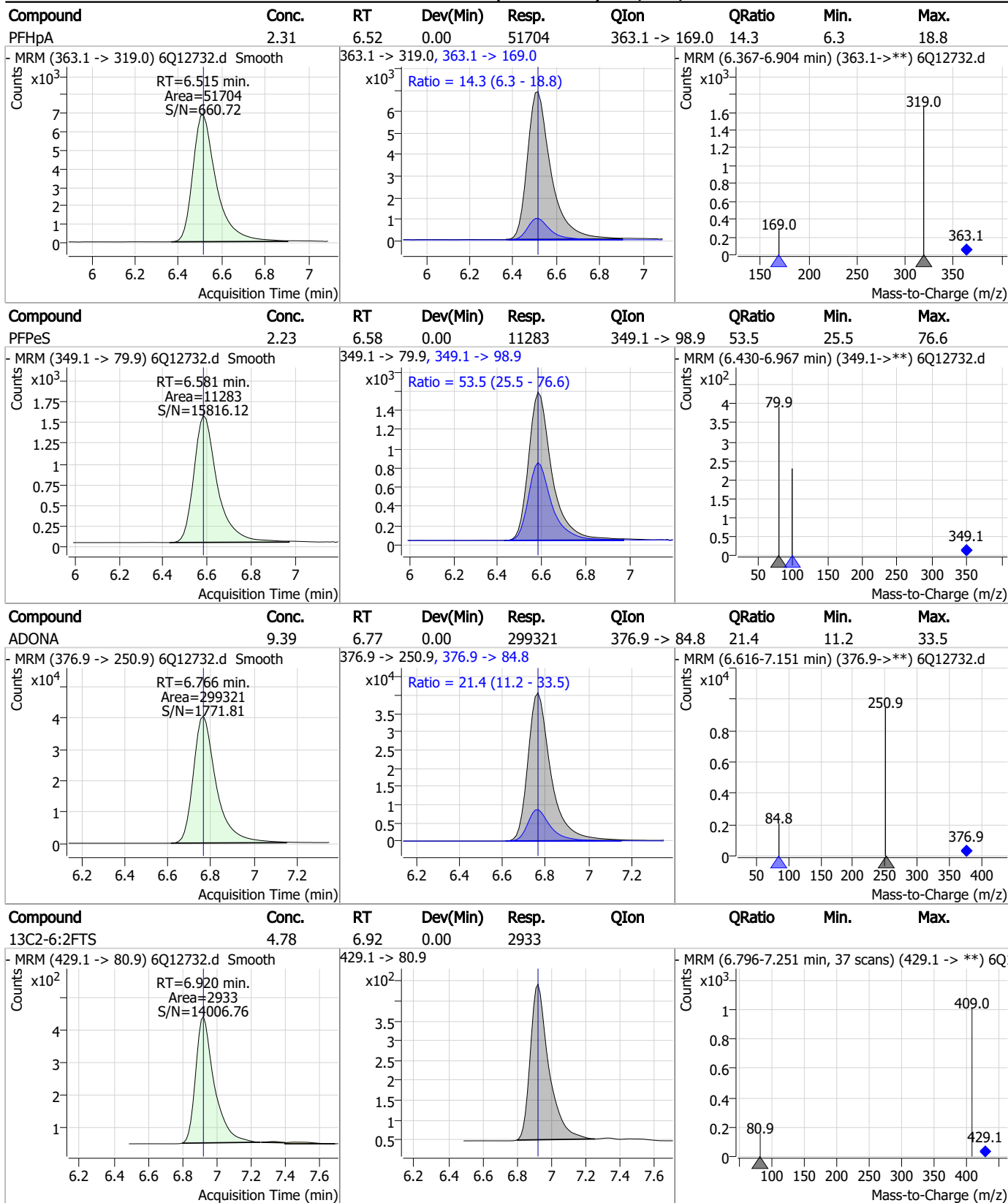


Perfluorinated Compounds by LC/MS/MS



7.7.10 7

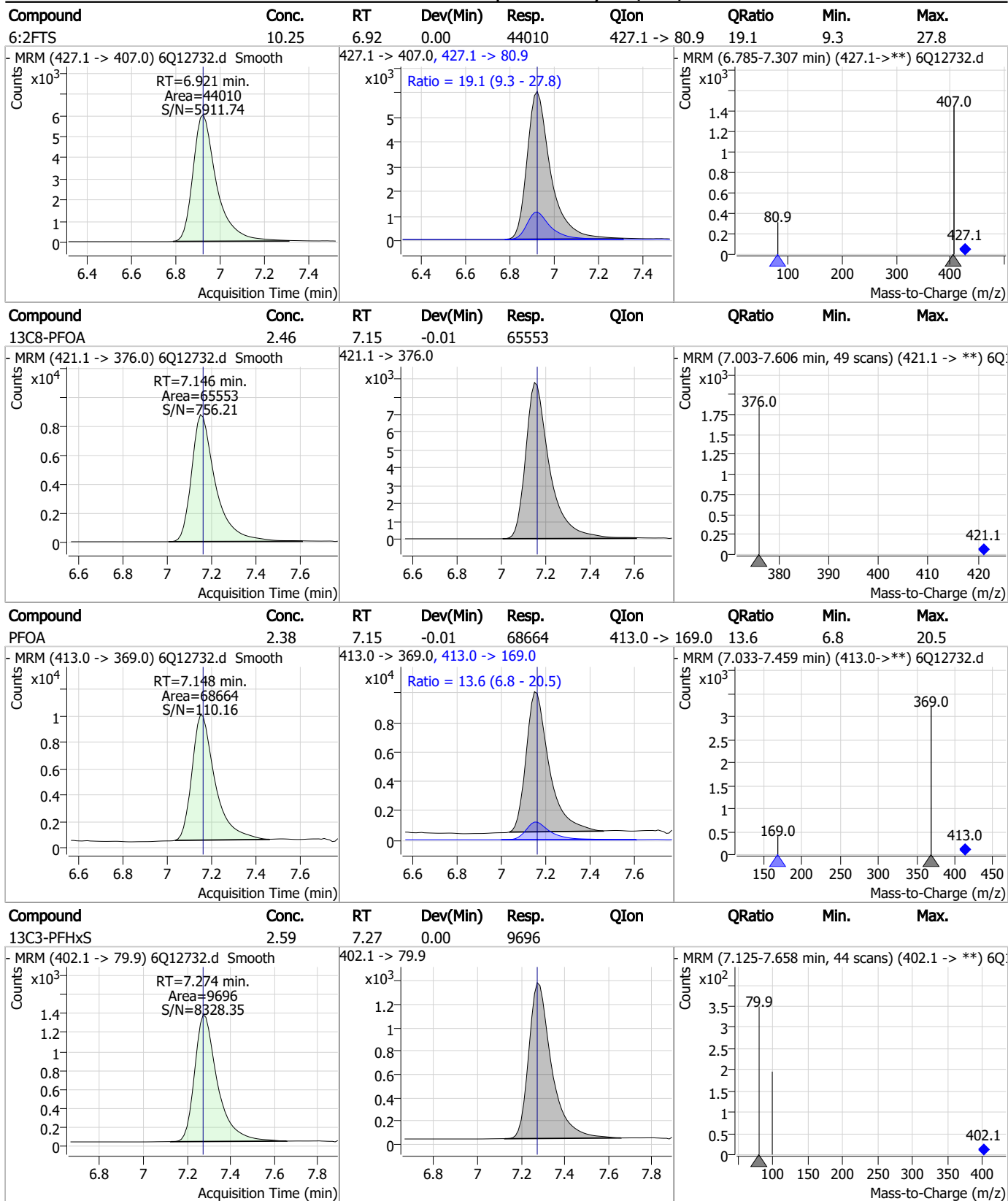
Perfluorinated Compounds by LC/MS/MS



7.7.10 7



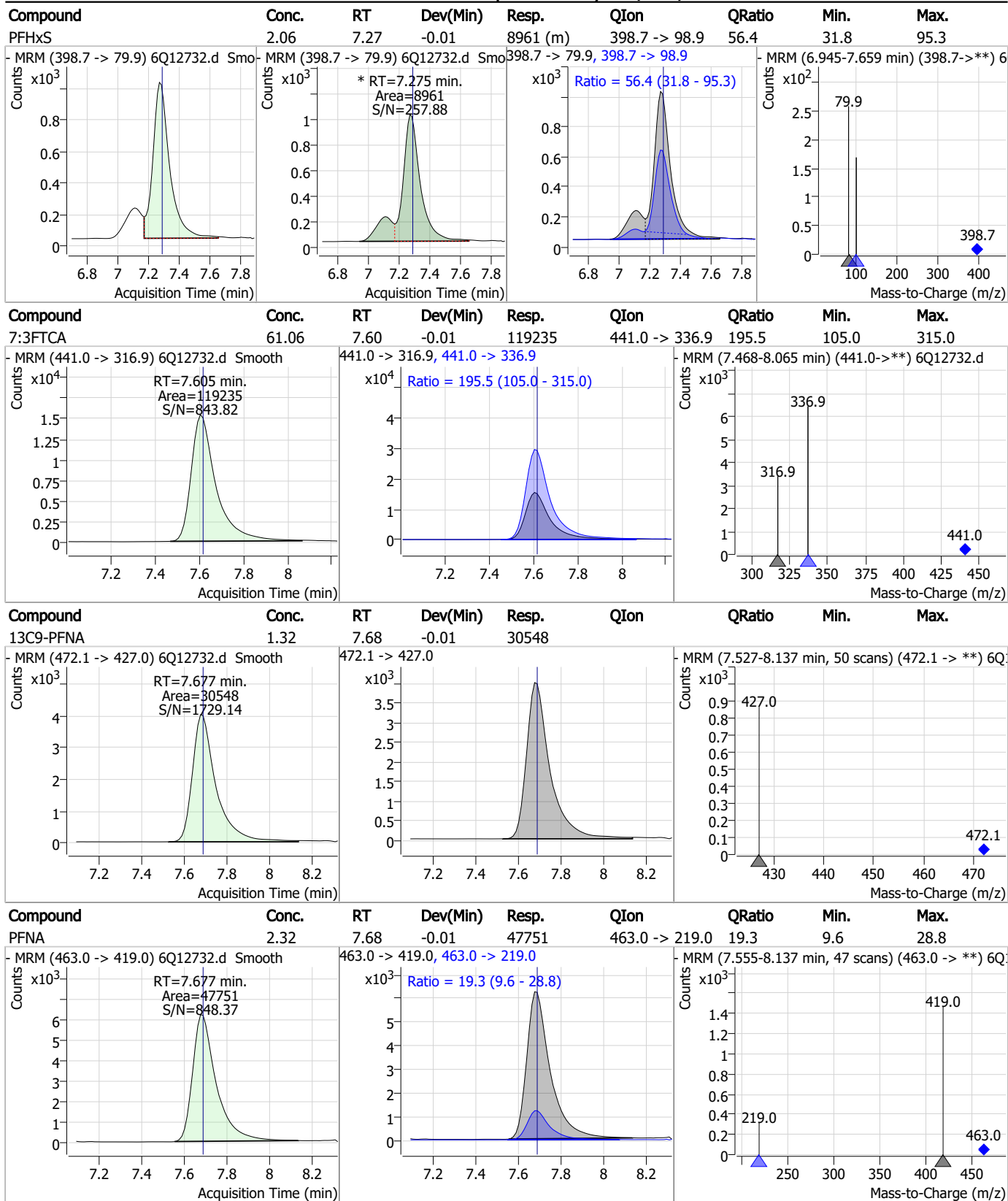
Perfluorinated Compounds by LC/MS/MS



7.7.10 7

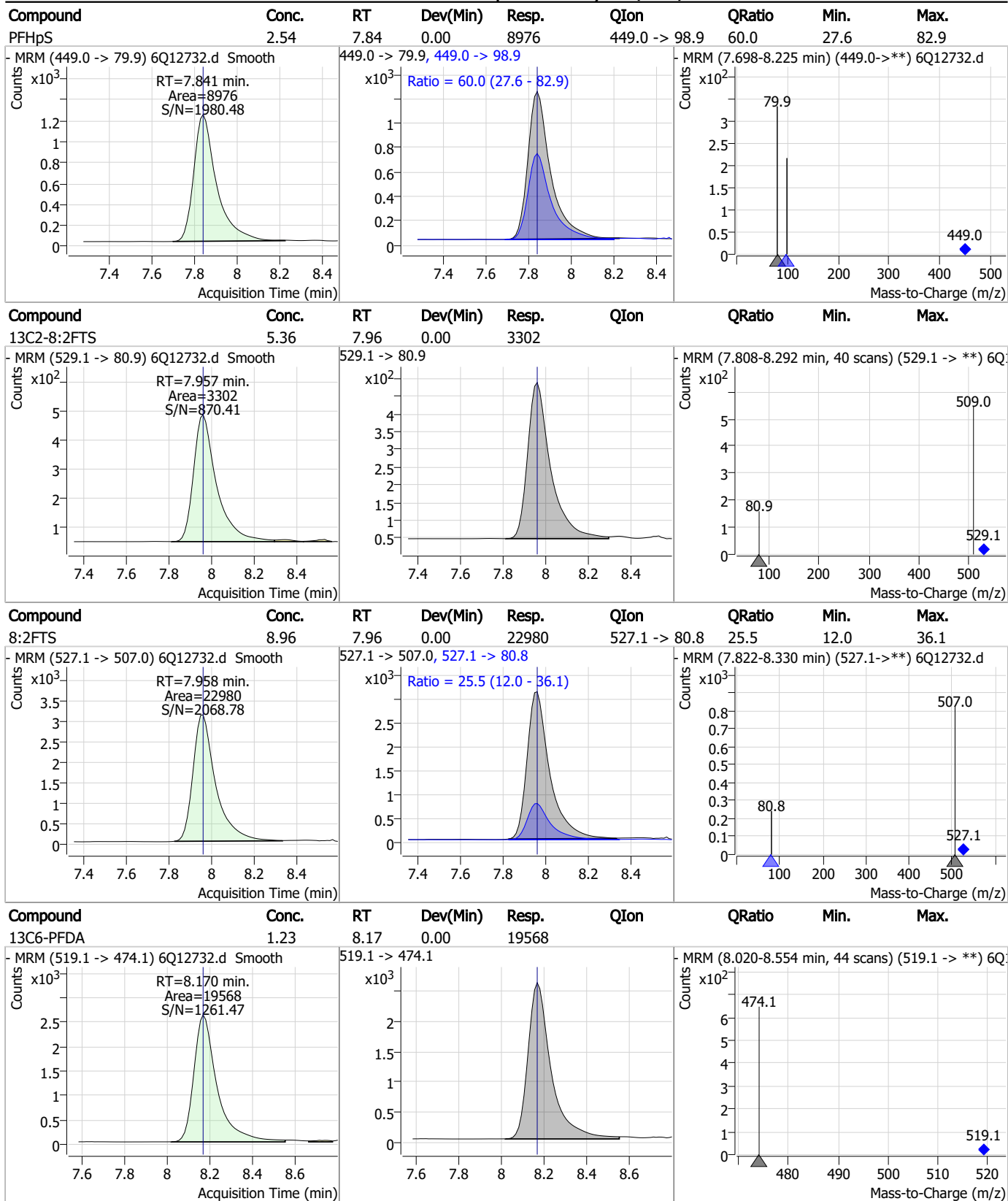


Perfluorinated Compounds by LC/MS/MS



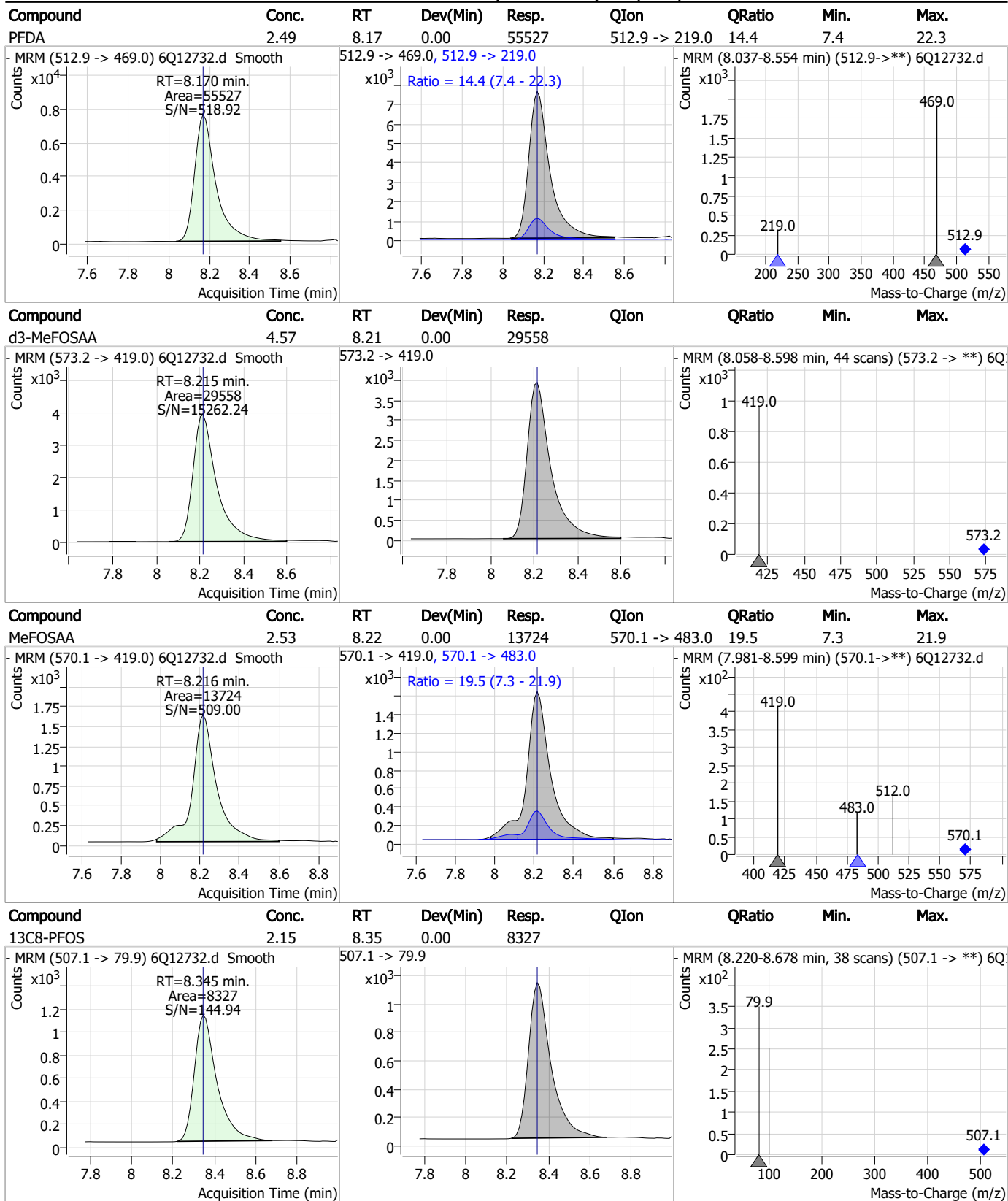
7.7.10
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Perfluorinated Compounds by LC/MS/MS



7.7.10 7

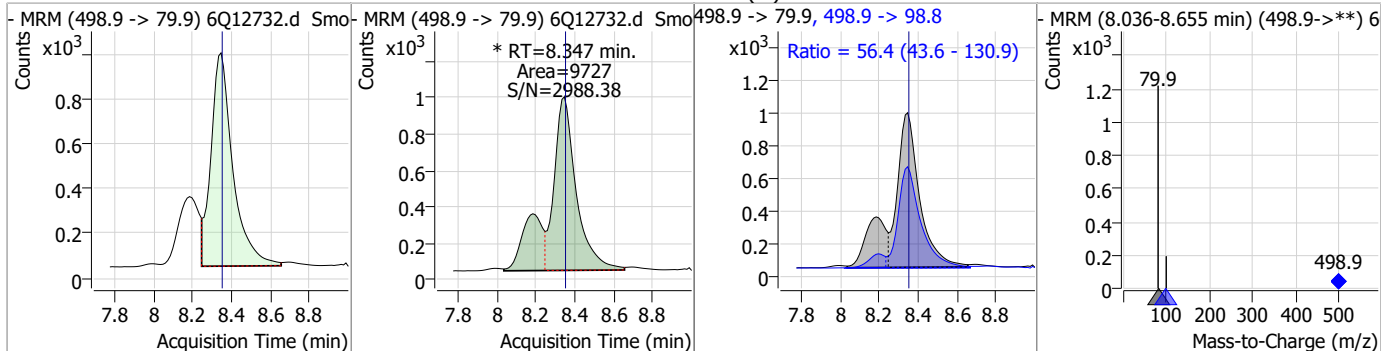
Perfluorinated Compounds by LC/MS/MS



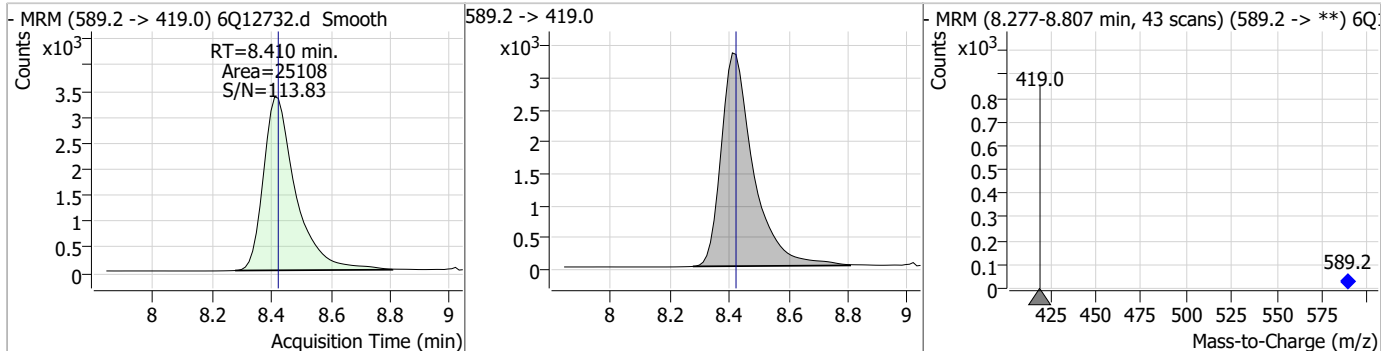
7.7.10 7

Perfluorinated Compounds by LC/MS/MS

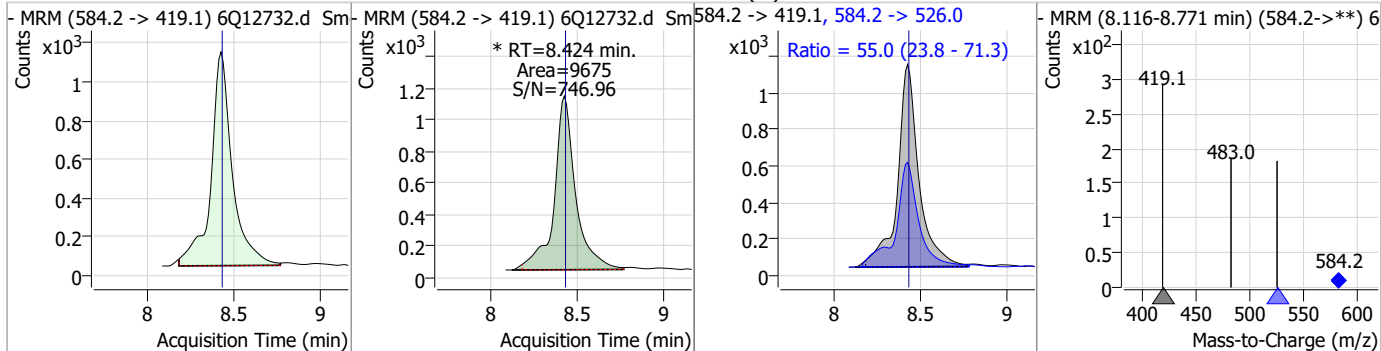
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.55	8.35	0.00	9727 (m)	498.9 -> 98.8	56.4	43.6	130.9



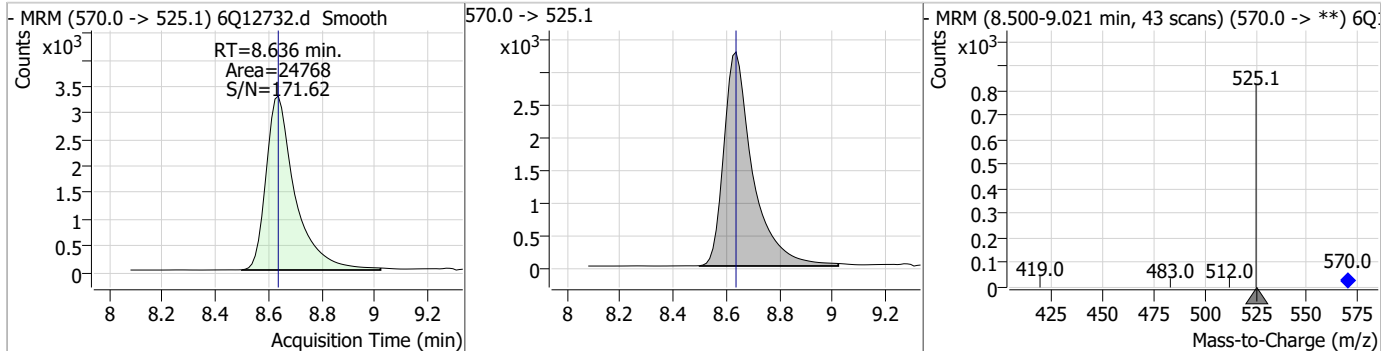
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.68	8.41	-0.01	25108				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.41	8.42	0.00	9675 (m)	584.2 -> 526.0	55.0	23.8	71.3

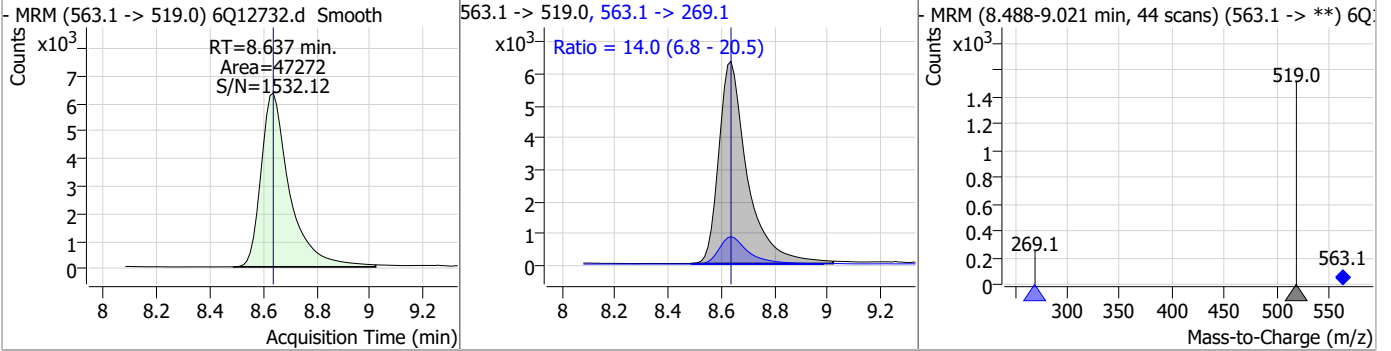


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.31	8.64	0.00	24768				

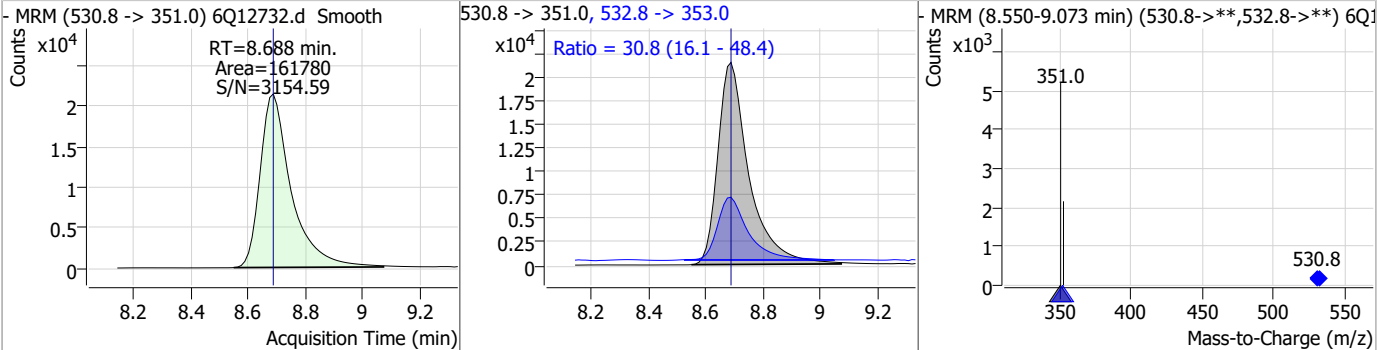


Perfluorinated Compounds by LC/MS/MS

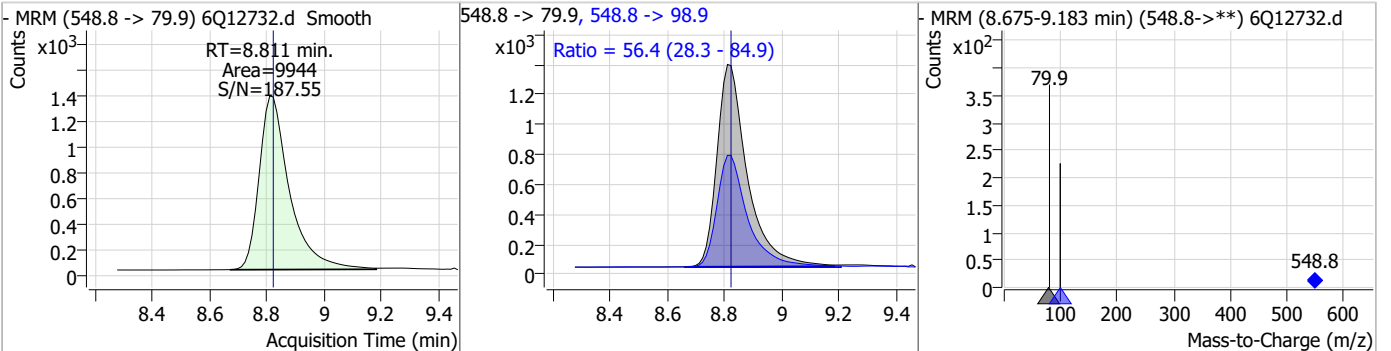
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.45	8.64	0.00	47272	563.1 -> 269.1	14.0	6.8	20.5



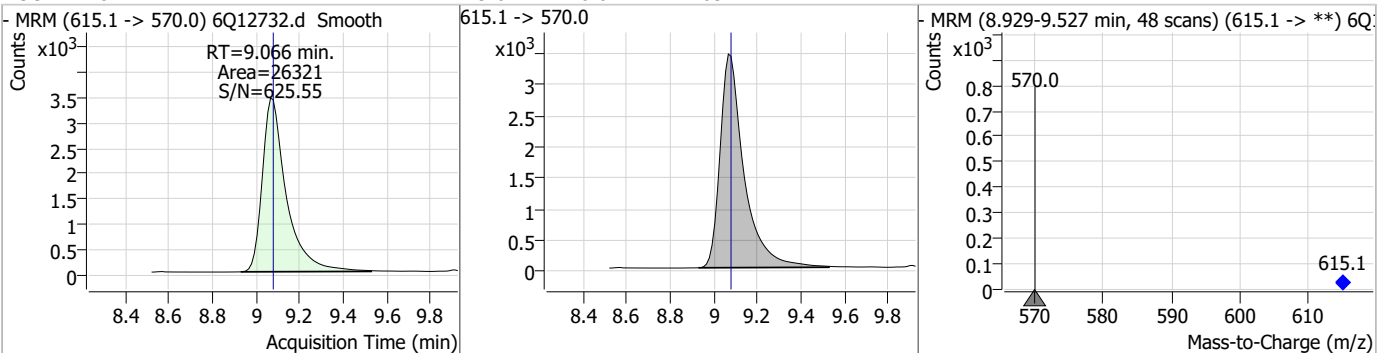
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	9.08	8.69	0.00	161780	532.8 -> 353.0	30.8	16.1	48.4



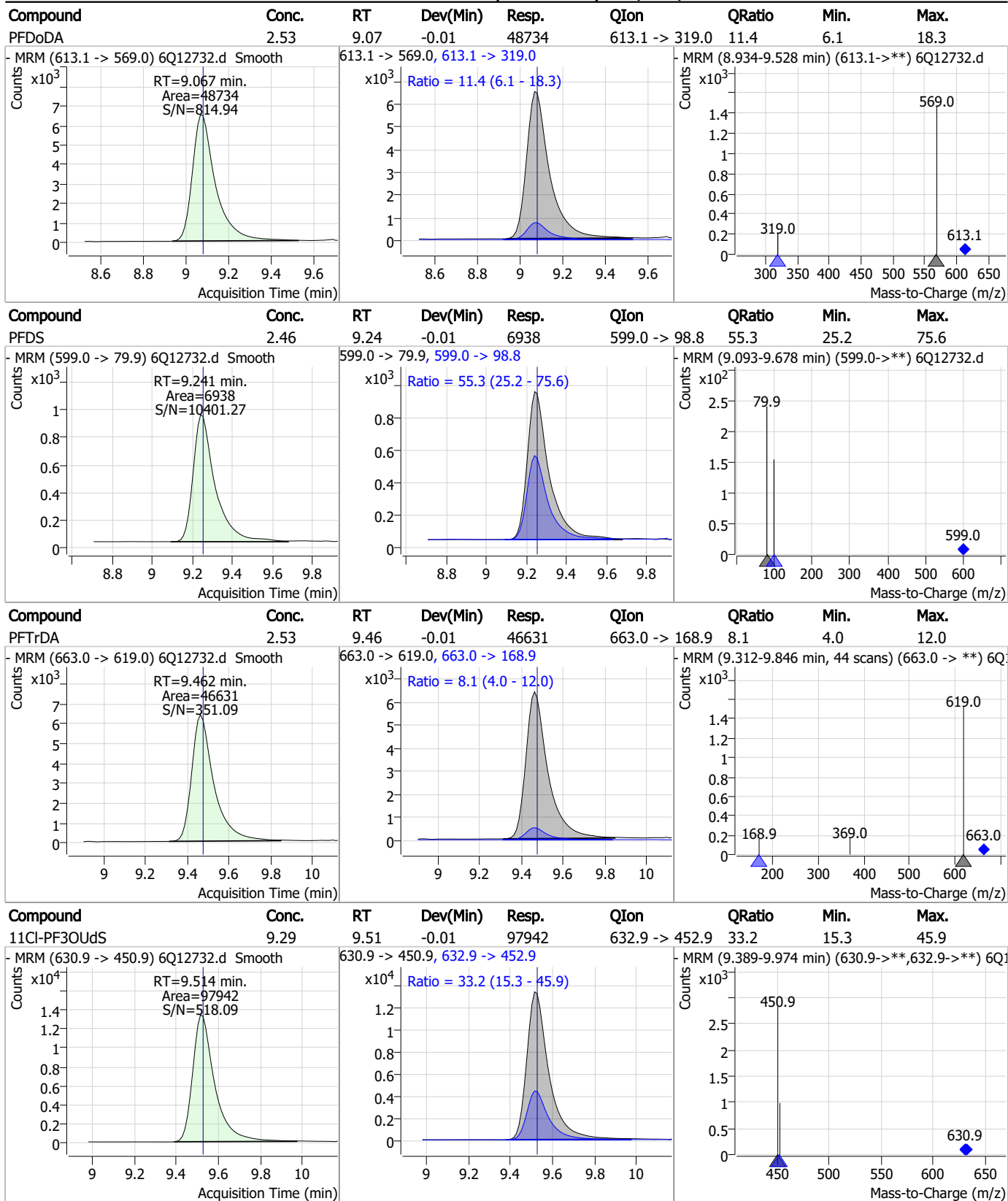
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.69	8.81	-0.01	9944	548.8 -> 98.9	56.4	28.3	84.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.21	9.07	-0.01	26321	615.1 -> 570.0	-	-	-

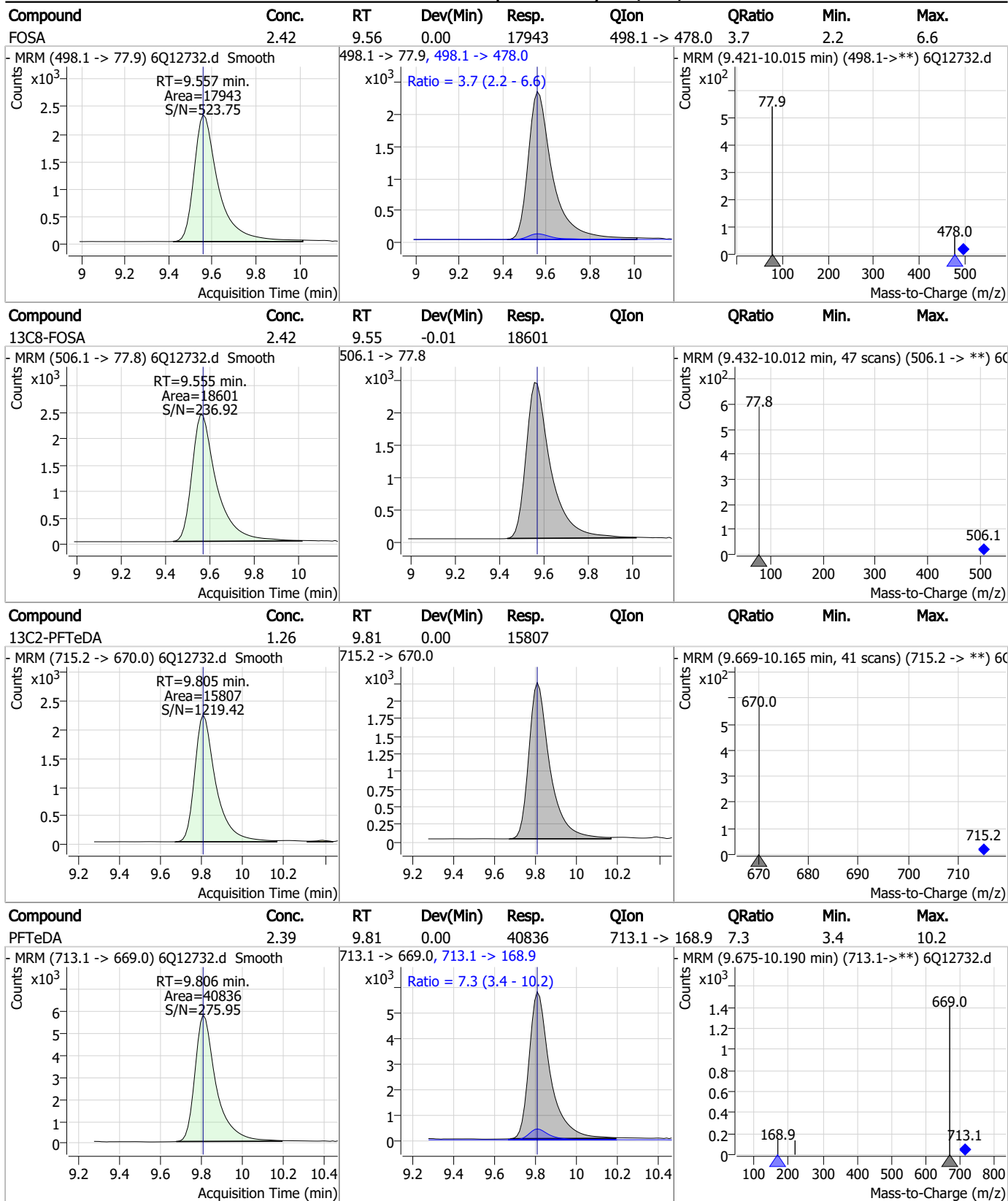


Perfluorinated Compounds by LC/MS/MS



7.7.10 7

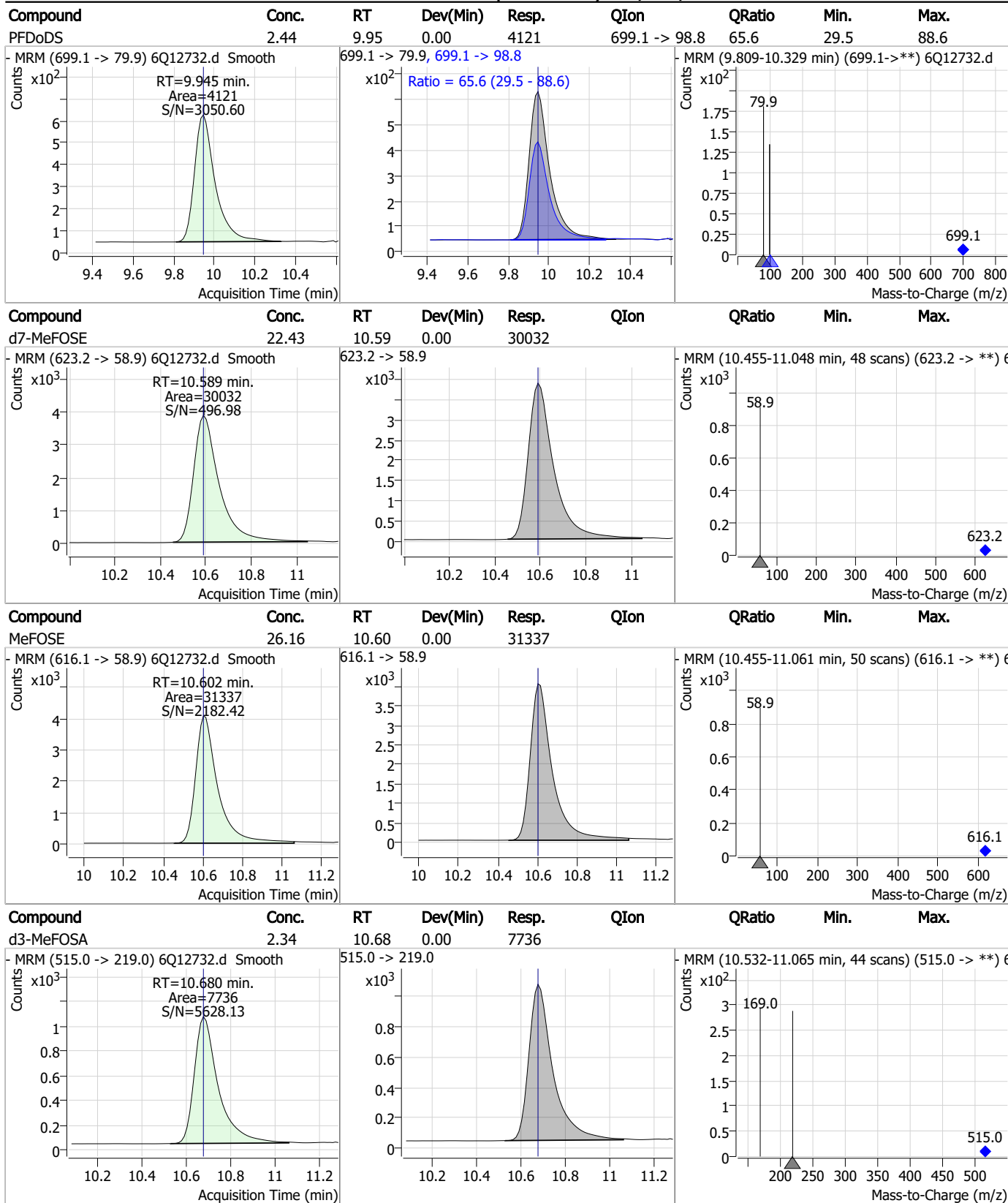
Perfluorinated Compounds by LC/MS/MS



7.7.10
7

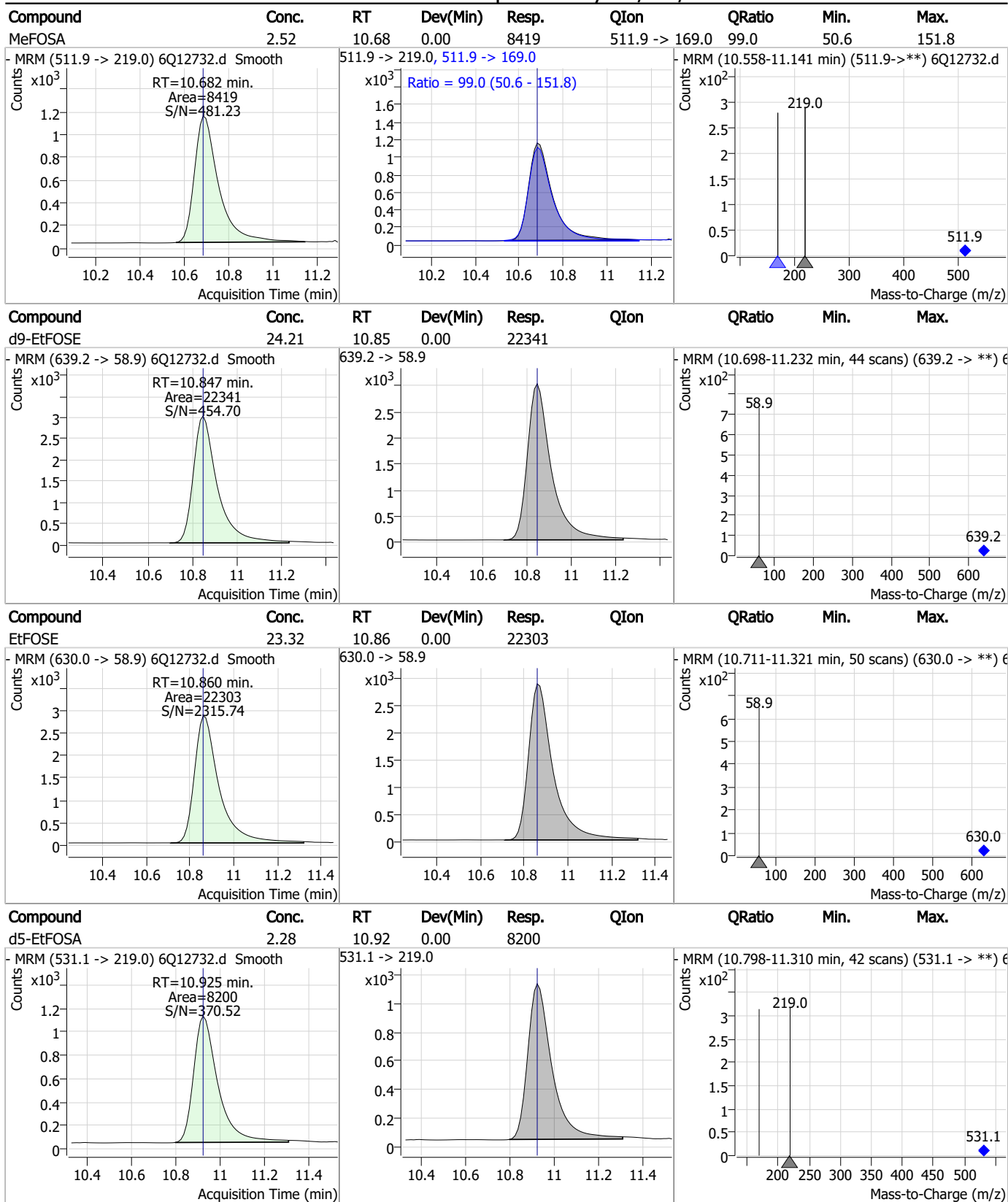


Perfluorinated Compounds by LC/MS/MS



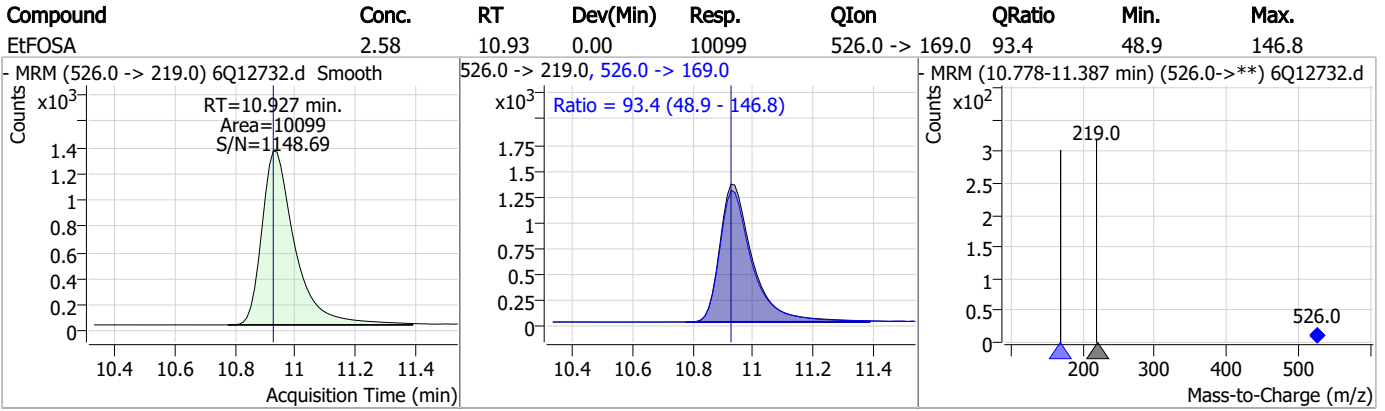
7.7.10 7

Perfluorinated Compounds by LC/MS/MS



7.7.10 7

Perfluorinated Compounds by LC/MS/MS



7.7.10 7



Manual Integration Approval Summary

Sample Number: S6Q196-ICV196 Method: EPA DRAFT 1633
Lab FileID: 6Q12732.D Analyst approved: 02/02/23 11:53 Martha Valls
Injection Time: 02/01/23 19:57 Supervisor approved: 02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

7.7.10.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q12733.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/1/2023 8:11:13 PM
 Sample Name : icv196-4
 Vial : P1-B2
 DA Method File : 1633_020223_S6Q196.quantmethod.xml
 Batch Name : S6Q196.batch.bin
 Sample Information : OP94819,S6Q196,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.988	216.8 -> 171.9	79952	10.00 µg/L	0.012
M5-PFPeA	4.386	268.3 -> 223.0	39491	5.00 µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	34792	2.50 µg/L	0.000
M4-PFHpA	6.502	367.1 -> 322.0	37437	2.50 µg/L	-0.012
M8-PFOA	7.146	421.1 -> 376.0	66233	2.50 µg/L	-0.012
M9-PFNA	7.677	472.1 -> 427.0	29034	1.25 µg/L	-0.012
M6-PFDA	8.170	519.1 -> 474.1	19754	1.25 µg/L	0.000
M7-PFUnDA	8.636	570.0 -> 525.1	22594	1.25 µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	26398	1.25 µg/L	-0.012
M2-PFTeDA	9.805	715.2 -> 670.0	14615	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	17751	2.50 µg/L	-0.012
M3-PFBS	5.518	302.1 -> 79.9	14354	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	9092	2.50 µg/L	0.000
M8-PFOS	8.345	507.1 -> 79.9	8633	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2354	5.00 µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	2893	5.00 µg/L	-0.012
M2-8:2FTS	7.957	529.1 -> 80.9	3080	5.00 µg/L	0.000
M3-MeFOSAA	8.215	573.2 -> 419.0	29368	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	15125	10.00 µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	23579	5.00 µg/L	-0.012
M7-MeFOSE	10.589	623.2 -> 58.9	30073	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	21166	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	8141	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7394	2.50 µg/L	0.000
13C4-PFOS	8.346	502.8 -> 79.9	11067	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	35466	5.00 µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	6473	2.50 µg/L	-0.013
13C4-PFOA	7.147	417.1 -> 372.0	78778	2.50 µg/L	-0.012
13C2-PFDA	8.170	515.1 -> 470.1	27701	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	31251	1.25 µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	34246	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.240	329.1 -> 80.9	2354	5.59 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.9%		
13C2-6:2FTS	6.908	429.1 -> 80.9	2893	5.18 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C2-8:2FTS	7.957	529.1 -> 80.9	3080	5.49 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.8%		
13C2-PFDoDA	9.066	615.1 -> 570.0	26398	1.25 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C2-PFTeDA	9.805	715.2 -> 670.0	14615	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.0%		
13C3-PFBS	5.518	302.1 -> 79.9	14354	2.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.9%		
13C3-PFHxS	7.274	402.1 -> 79.9	9092	2.67 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 = 106.9%		
13C4-PFBA	2.988	216.8 -> 171.9	79952	10.16 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C4-PFHpA	6.502	367.1 -> 322.0	37437	2.65 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C5-PFHxA	5.575	318.0 -> 273.0	34792	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C5-PFPeA	4.386	268.3 -> 223.0	39491	5.17 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.5%		
13C6-PFDA	8.170	519.1 -> 474.1	19754	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C7-PFUnDA	8.636	570.0 -> 525.1	22594	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C8-FOSA	9.555	506.1 -> 77.8	17751	2.46 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C8-PFOA	7.146	421.1 -> 376.0	66233	2.52 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C8-PFOS	8.345	507.1 -> 79.9	8633	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.9%		
13C9-PFNA	7.677	472.1 -> 427.0	29034	1.32 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.6%		
d3-MeFOSAA	8.215	573.2 -> 419.0	29368	4.84 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.8%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	15125	10.81 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 108.1%		
d3-MeFOSA	10.680	515.0 -> 219.0	7394	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.2%		
d5-EtFOSAA	8.410	589.2 -> 419.0	23579	4.68 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.7%		
d7-MeFOSE	10.589	623.2 -> 58.9	30073	23.93 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 95.7%		
d9-EtFOSE	10.847	639.2 -> 58.9	21166	24.44 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 97.8%		
d5-EtFOSA	10.925	531.1 -> 219.0	8141	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.4%		
Target Compounds					QValue
4:2FTS	5.240	327.1 -> 307.0	101970	19.32 µg/L	98
		327.1 -> 80.9	21342		
6:2FTS	6.908	427.1 -> 407.0	87375	20.62 µg/L	99
		427.1 -> 80.9	15878		
8:2FTS	7.958	527.1 -> 507.0	48914	20.45 µg/L	100
		527.1 -> 80.8	11691		
EtFOSAA	8.424	584.2 -> 419.1	75476	19.99 µg/L	m 92
		584.2 -> 526.0	40031		
FOSA	9.557	498.1 -> 77.9	138240	19.51 µg/L	99
		498.1 -> 478.0	5722		
MeFOSAA	8.216	570.1 -> 419.0	101435	18.85 µg/L	94
		570.1 -> 483.0	17390		
PFBA	2.982	212.8 -> 168.9	32215	18.04 µg/L	100
PFBS	5.518	298.7 -> 79.9	103885	18.84 µg/L	96
		298.7 -> 98.8	48007		
PFDA	8.170	512.9 -> 469.0	429530	19.11 µg/L	97
		512.9 -> 219.0	59110		
PFDoDA	9.067	613.1 -> 569.0	337429	17.45 µg/L	97
		613.1 -> 319.0	37730		
PFDS	9.241	599.0 -> 79.9	54229	18.54 µg/L	100

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.503	599.0 -> 98.8	27466	17.61	µg/L	95
		363.1 -> 319.0	390510			
PFHpS	7.841	363.1 -> 169.0	56801	19.53	µg/L	96
		449.0 -> 79.9	71508			
PFHxA	5.566	449.0 -> 98.9	41650	21.24	µg/L	97
		313.0 -> 269.0	289962			
PFHxS	7.275	313.0 -> 118.9	9630	19.56	µg/L	91
		398.7 -> 79.9	79906			
PFNA	7.677	398.7 -> 98.9	45517	19.10	µg/L	99
		463.0 -> 419.0	374102			
PFNS	8.824	463.0 -> 219.0	73687	19.80	µg/L	99
		548.8 -> 79.9	75978			
PFOA	7.148	548.8 -> 98.9	42325	17.92	µg/L	100
		413.0 -> 369.0	522846			
PFOS	8.334	413.0 -> 169.0	71492	16.35	µg/L	68
		498.9 -> 79.9	64767			
PFPeA	4.388	498.9 -> 98.8	37069	20.42	µg/L	100
		263.0 -> 219.0	170278			
PFPeS	6.581	349.1 -> 79.9	95006	20.00	µg/L	98
		349.1 -> 98.9	49612			
PFTeDA	9.806	713.1 -> 669.0	330527	20.96	µg/L	99
		713.1 -> 168.9	21227			
PFTrDA	9.462	663.0 -> 619.0	319271	17.26	µg/L	98
		663.0 -> 168.9	23448			
PFUnDA	8.637	563.1 -> 519.0	322562	18.33	µg/L	98
		563.1 -> 269.1	46295			
11Cl-PF3OUdS	9.514	630.9 -> 450.9	222884	20.53	µg/L	97
		632.9 -> 452.9	64982			
9Cl-PF3ONS	8.688	530.8 -> 351.0	337382	18.39	µg/L	96
		532.8 -> 353.0	101290			
ADONA	6.753	376.9 -> 250.9	652420	19.88	µg/L	97
		376.9 -> 84.8	135036			
HFPO-DA	5.940	284.9 -> 168.9	26601	18.80	µg/L	97
		284.9 -> 184.9	3186			
3:3FTCA	3.841	241.0 -> 177.0	7970	19.46	µg/L	97
		241.0 -> 117.0	1079			
5:3FTCA	6.206	341.0 -> 237.1	57017	19.98	µg/L	99
		341.0 -> 217.0	49158			
7:3FTCA	7.605	441.0 -> 316.9	35397	18.98	µg/L	86
		441.0 -> 336.9	66676			
EtFOSA	10.927	526.0 -> 219.0	74265	19.11	µg/L	98
		526.0 -> 169.0	71604			
EtFOSE	10.860	630.0 -> 58.9	84979	93.80	µg/L	100
		511.9 -> 219.0	64363			
MeFOSA	10.682	511.9 -> 169.0	62497	20.12	µg/L	96
		616.1 -> 58.9	107130			
MeFOSE	10.602	699.1 -> 79.9	31906	89.30	µg/L	100
		699.1 -> 98.8	19499			
PFDoDS	9.945	295.0 -> 201.0	14673	18.24	µg/L	97
		295.0 -> 84.9	8016			
NFDHA	5.457	279.0 -> 85.1	45072	18.19	µg/L	95
		229.0 -> 84.9	42282			
PFMBA	4.800	314.8 -> 134.9	339828	19.01	µg/L	100
		314.8 -> 82.9	8276			
PFMPA	3.541			17.30	µg/L	100
PFEESA	6.059					

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

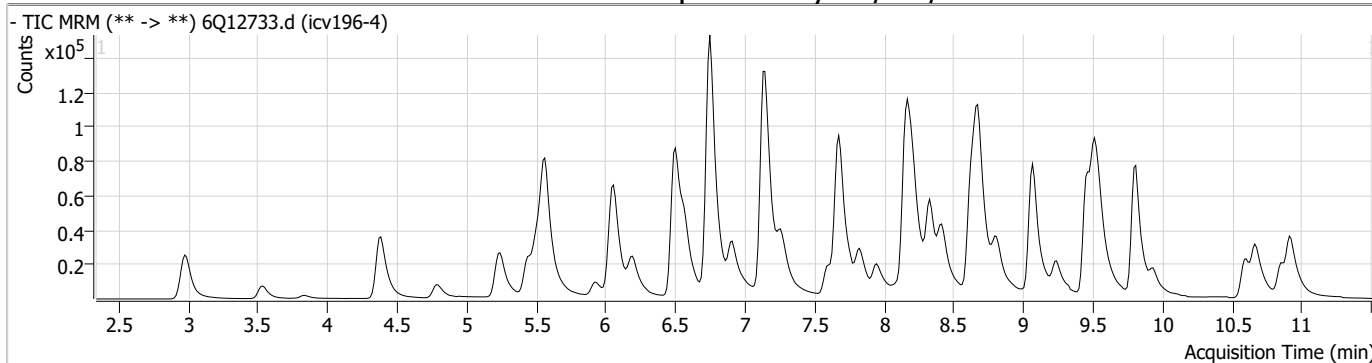
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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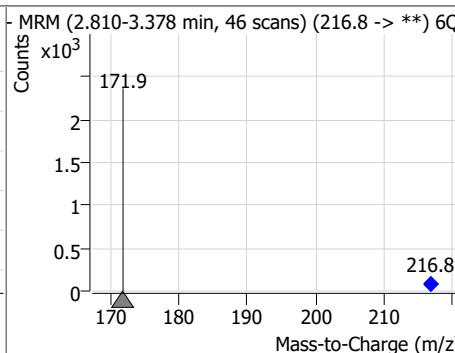
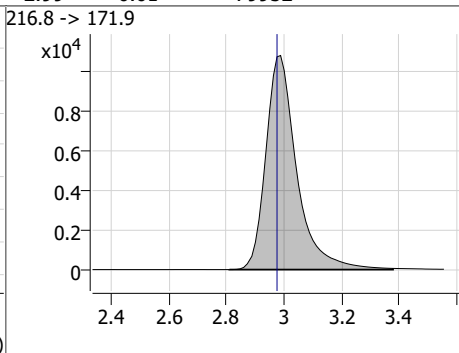
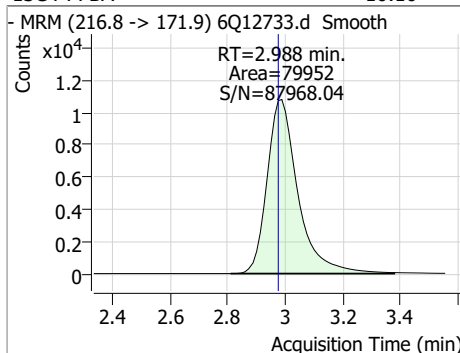
7.7.11

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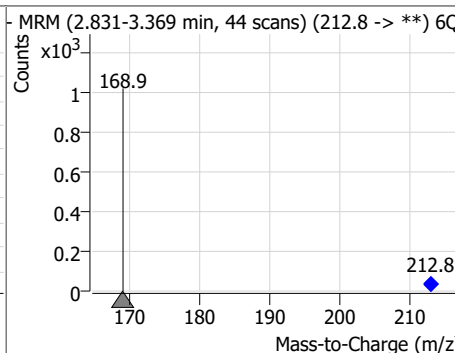
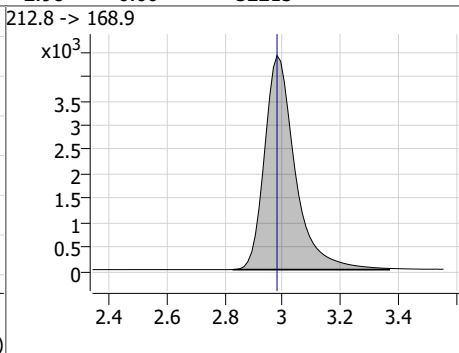
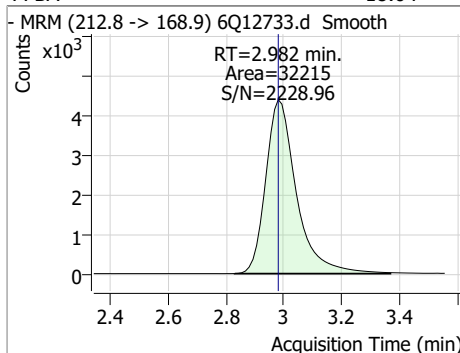
Perfluorinated Compounds by LC/MS/MS



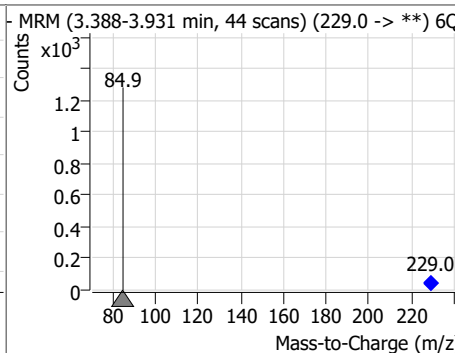
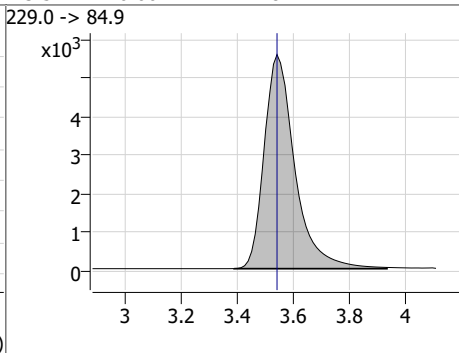
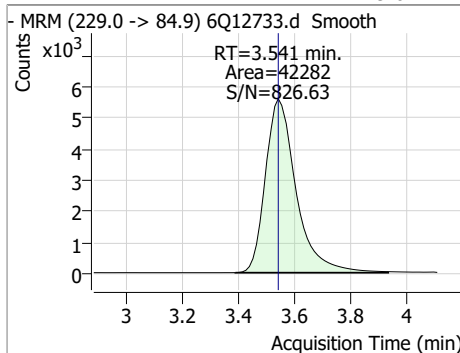
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.16	2.99	0.01	79952				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	18.04	2.98	0.00	32215				



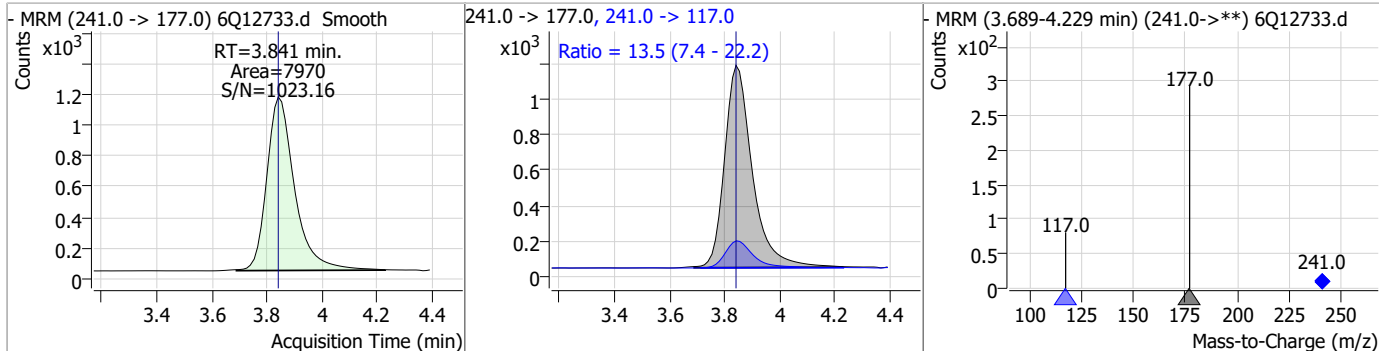
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	19.01	3.54	0.00	42282				



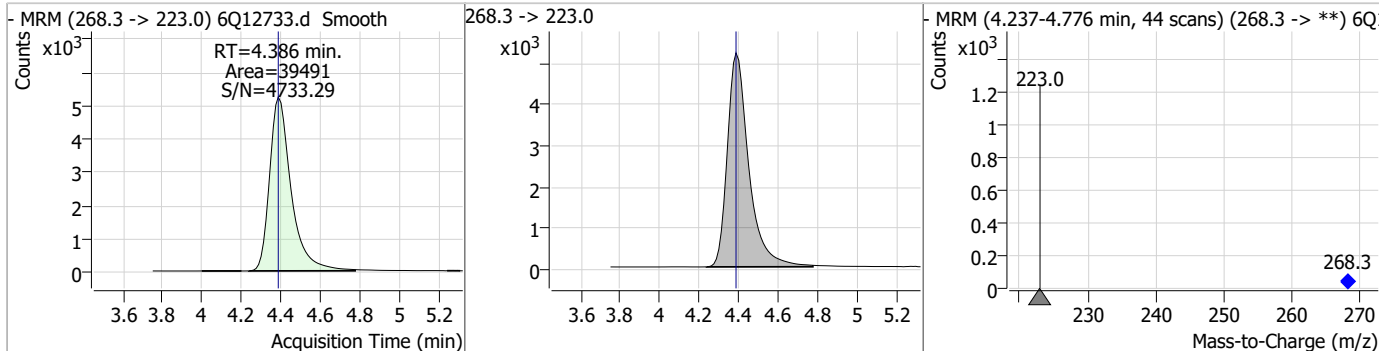
7.7.11
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Perfluorinated Compounds by LC/MS/MS

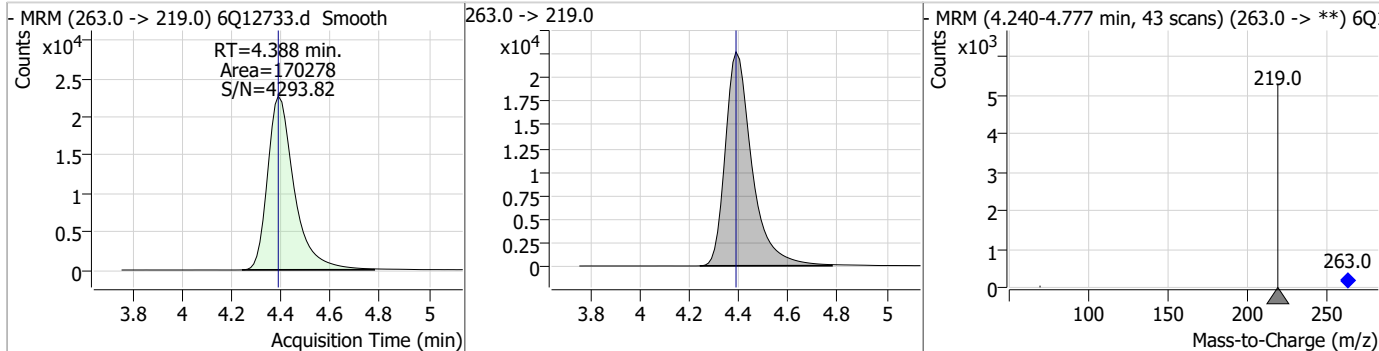
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	19.46	3.84	0.00	7970	241.0 -> 117.0	13.5	7.4	22.2



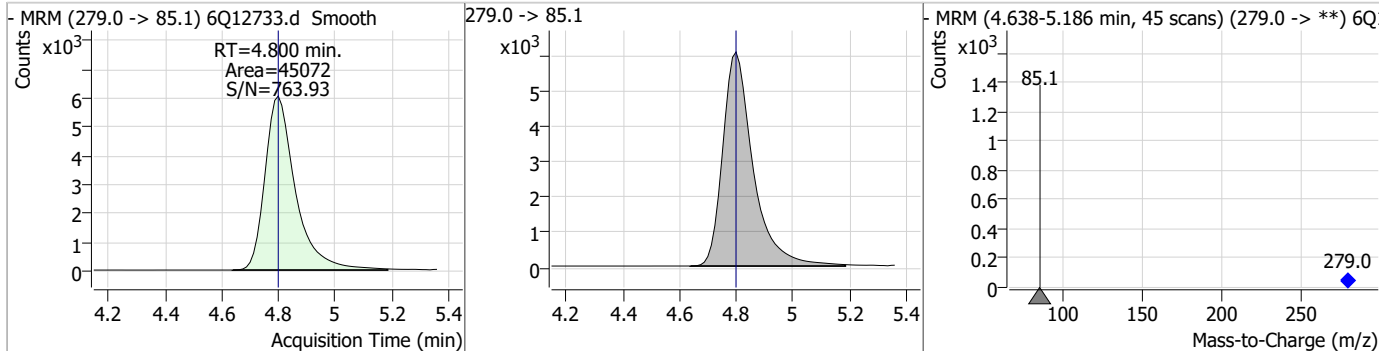
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.17	4.39	0.00	39491				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.42	4.39	0.00	170278				

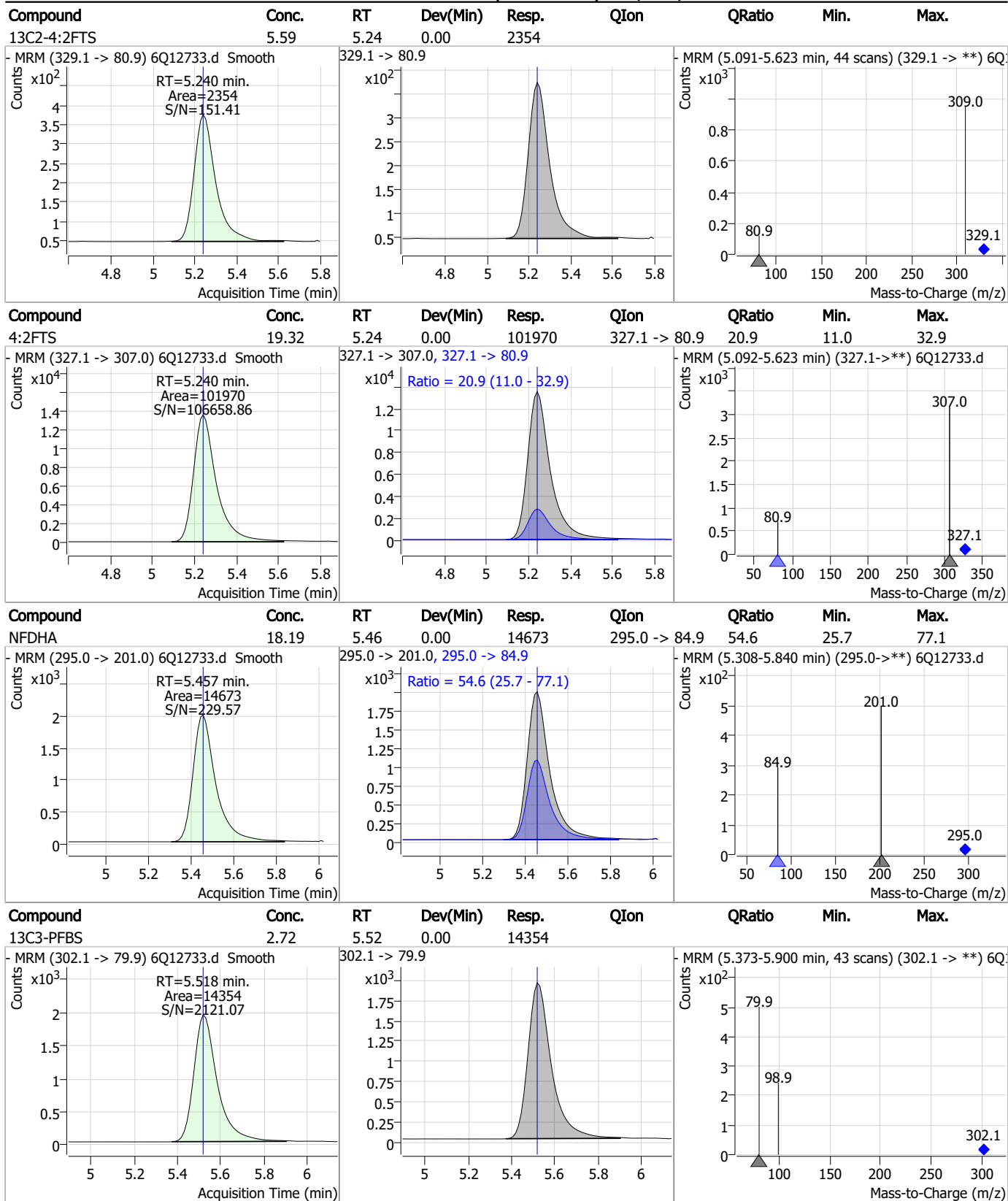


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	19.22	4.80	0.00	45072				



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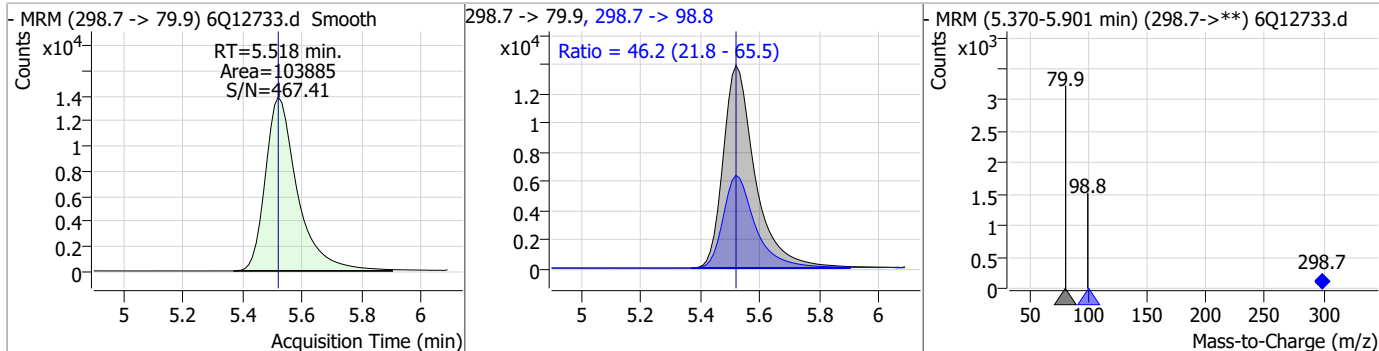
Perfluorinated Compounds by LC/MS/MS



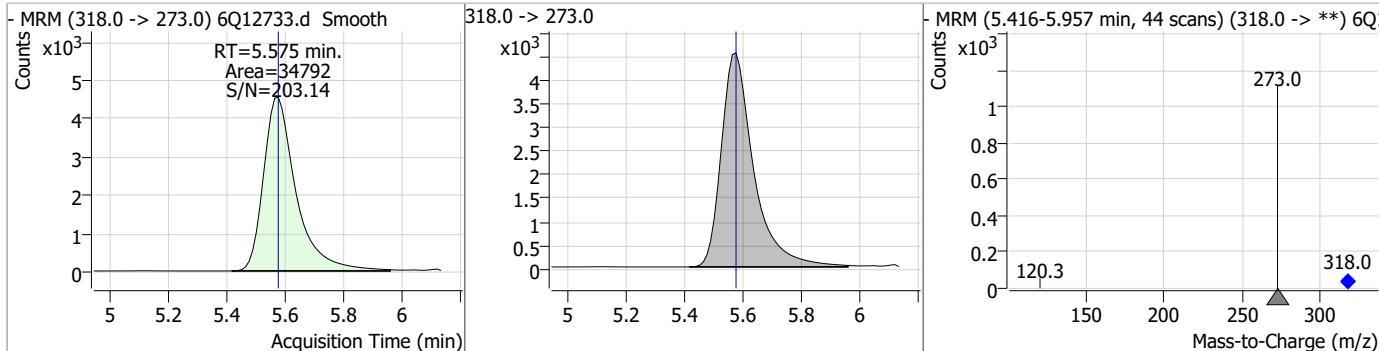
7.7.11
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Perfluorinated Compounds by LC/MS/MS

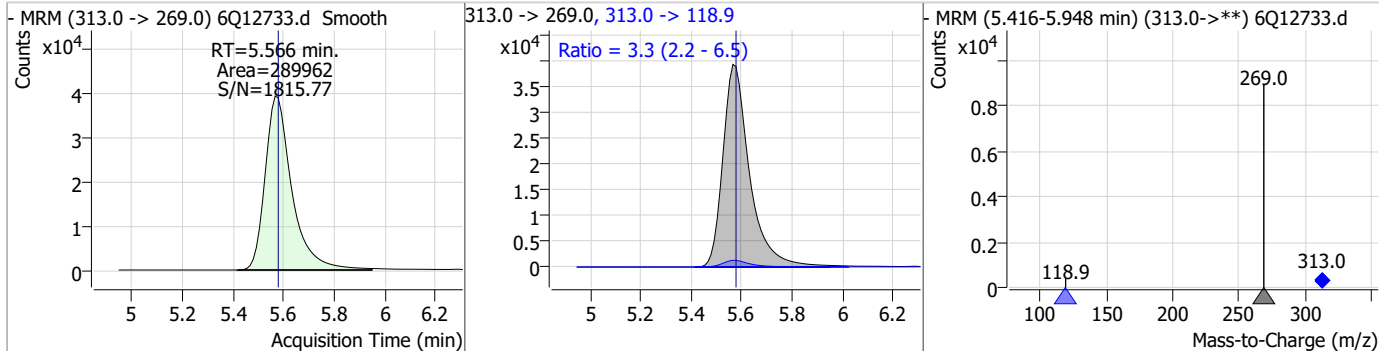
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	18.84	5.52	0.00	103885	298.7 -> 98.8	46.2	21.8	65.5



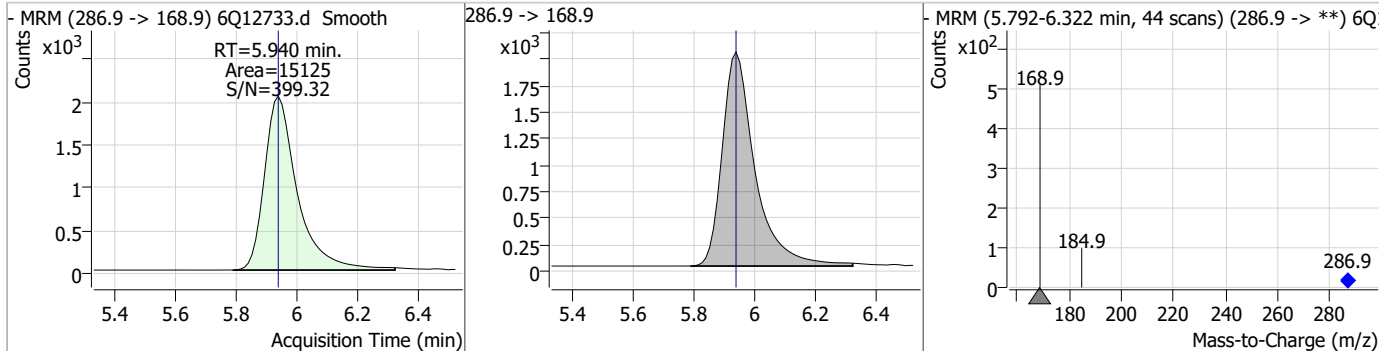
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.57	5.57	0.00	34792				



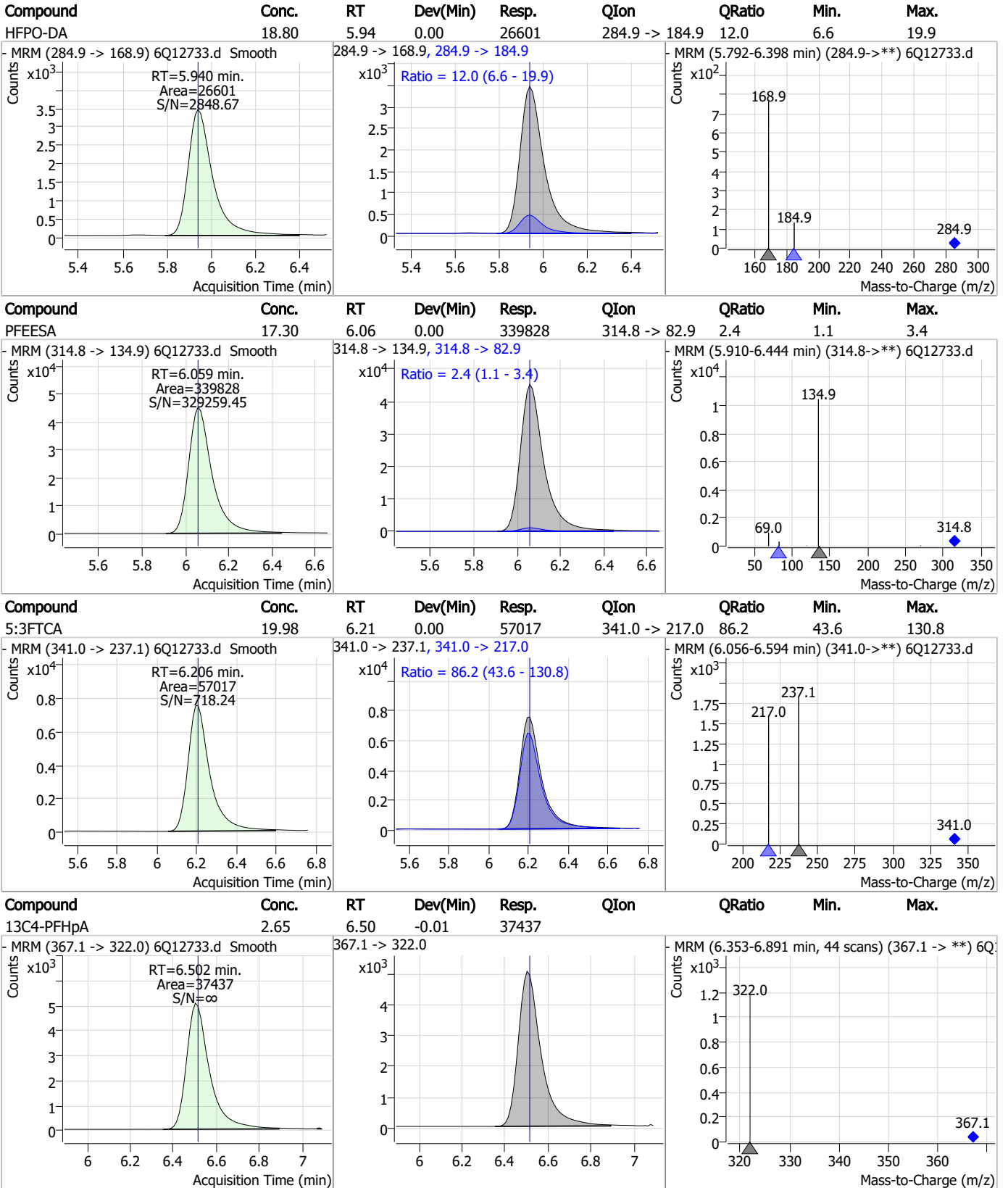
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	21.24	5.57	-0.01	289962	313.0 -> 118.9	3.3	2.2	6.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.81	5.94	0.00	15125				



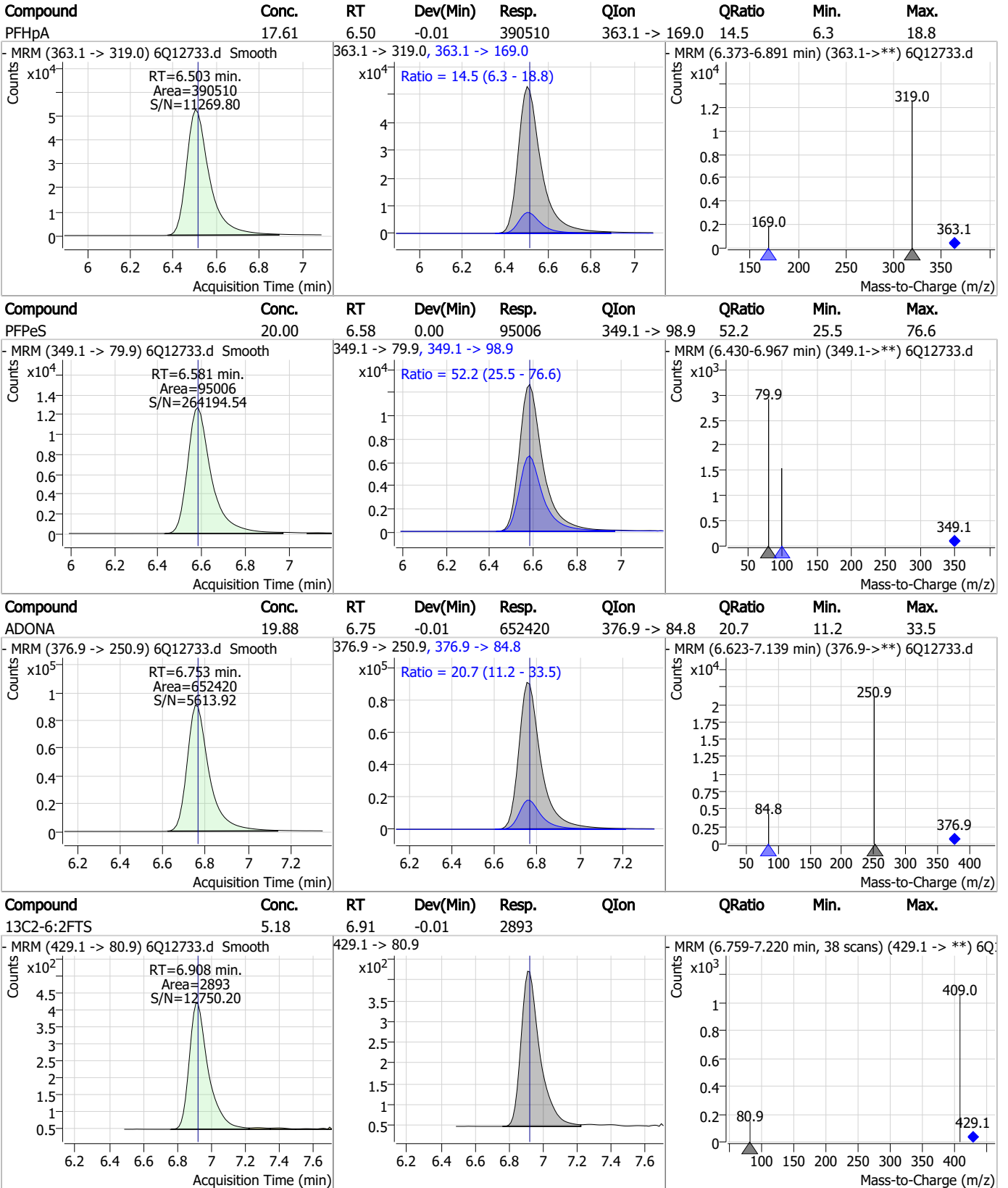
Perfluorinated Compounds by LC/MS/MS



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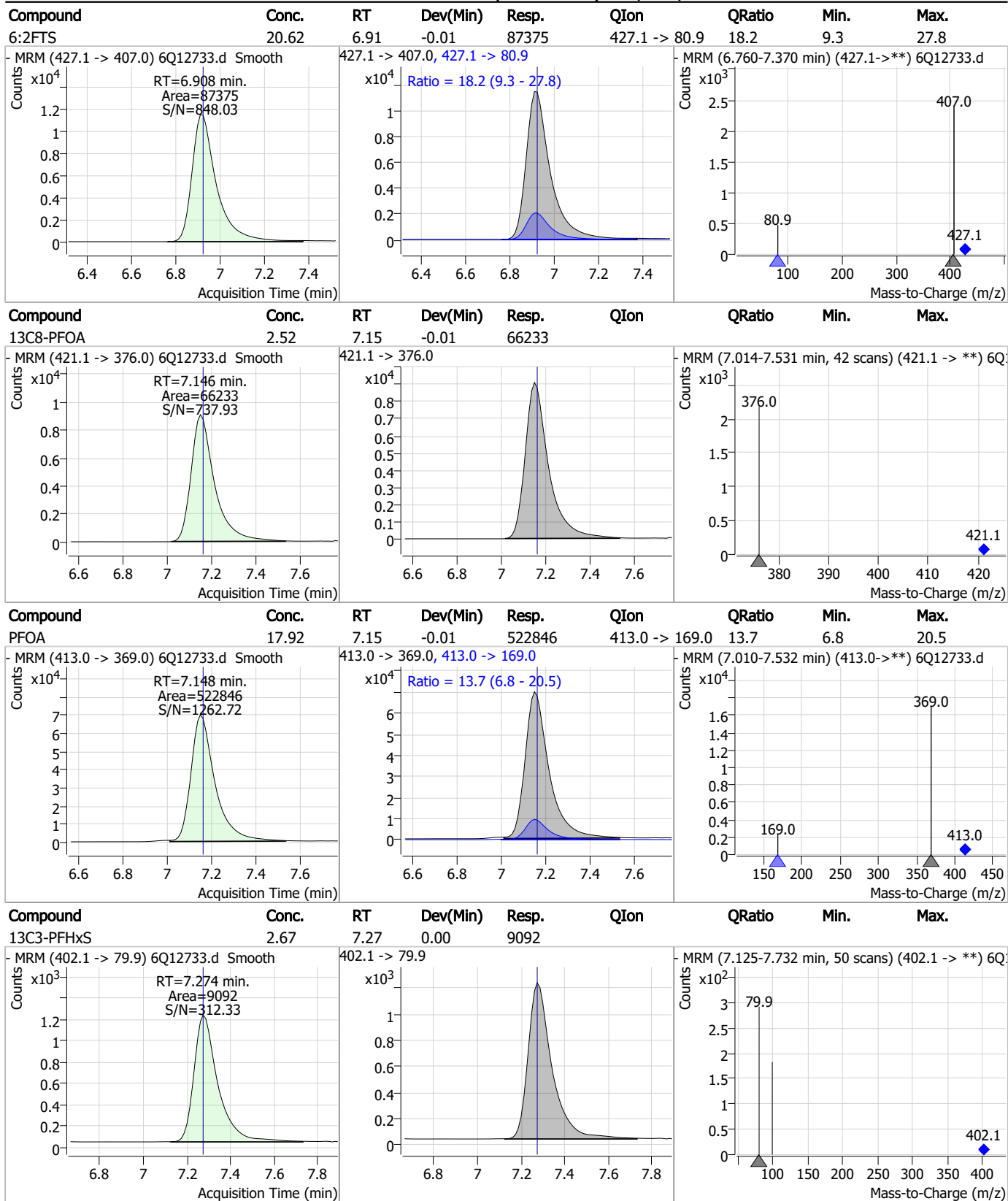
Perfluorinated Compounds by LC/MS/MS



7.7.11

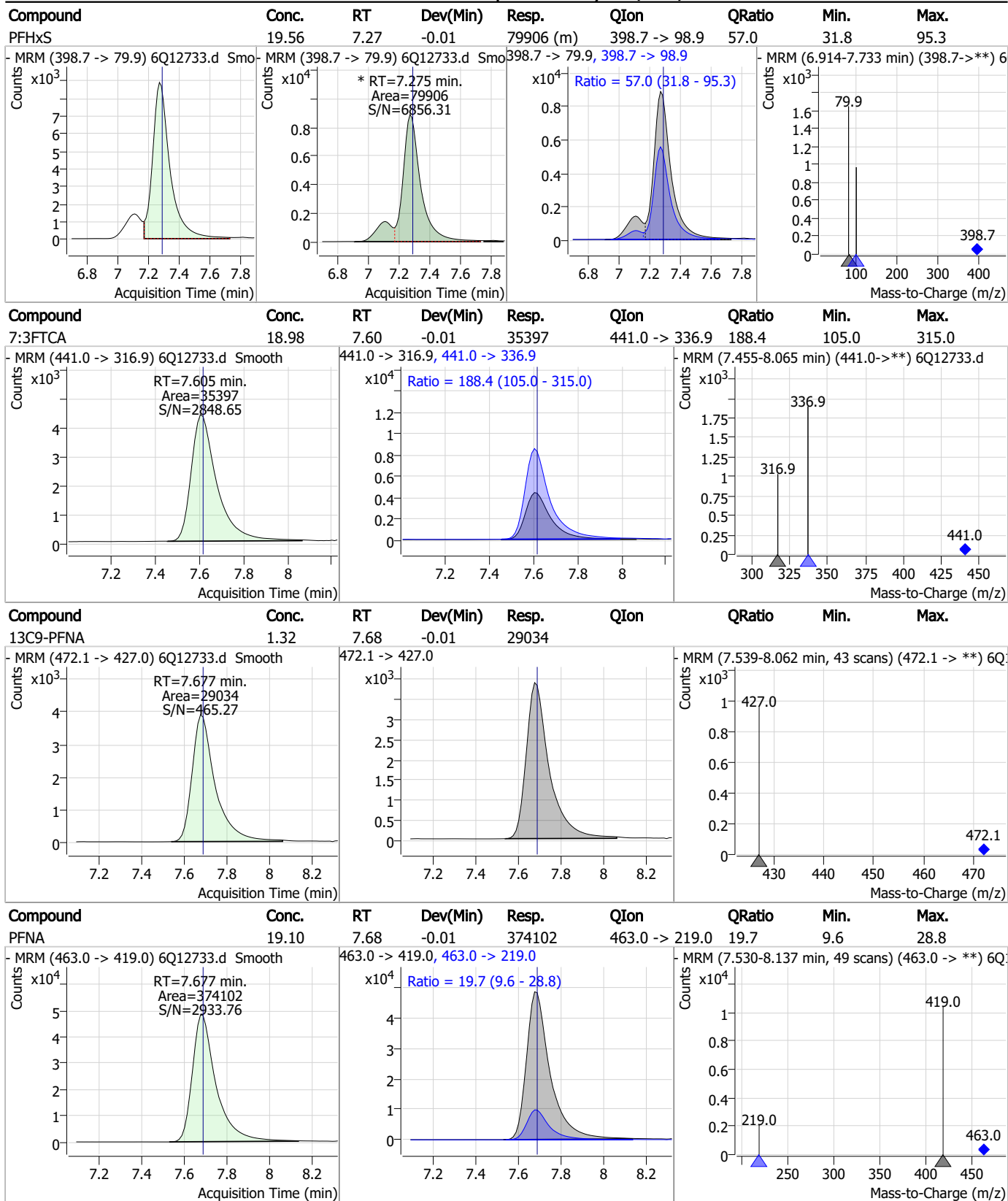


Perfluorinated Compounds by LC/MS/MS



7.7.11

Perfluorinated Compounds by LC/MS/MS



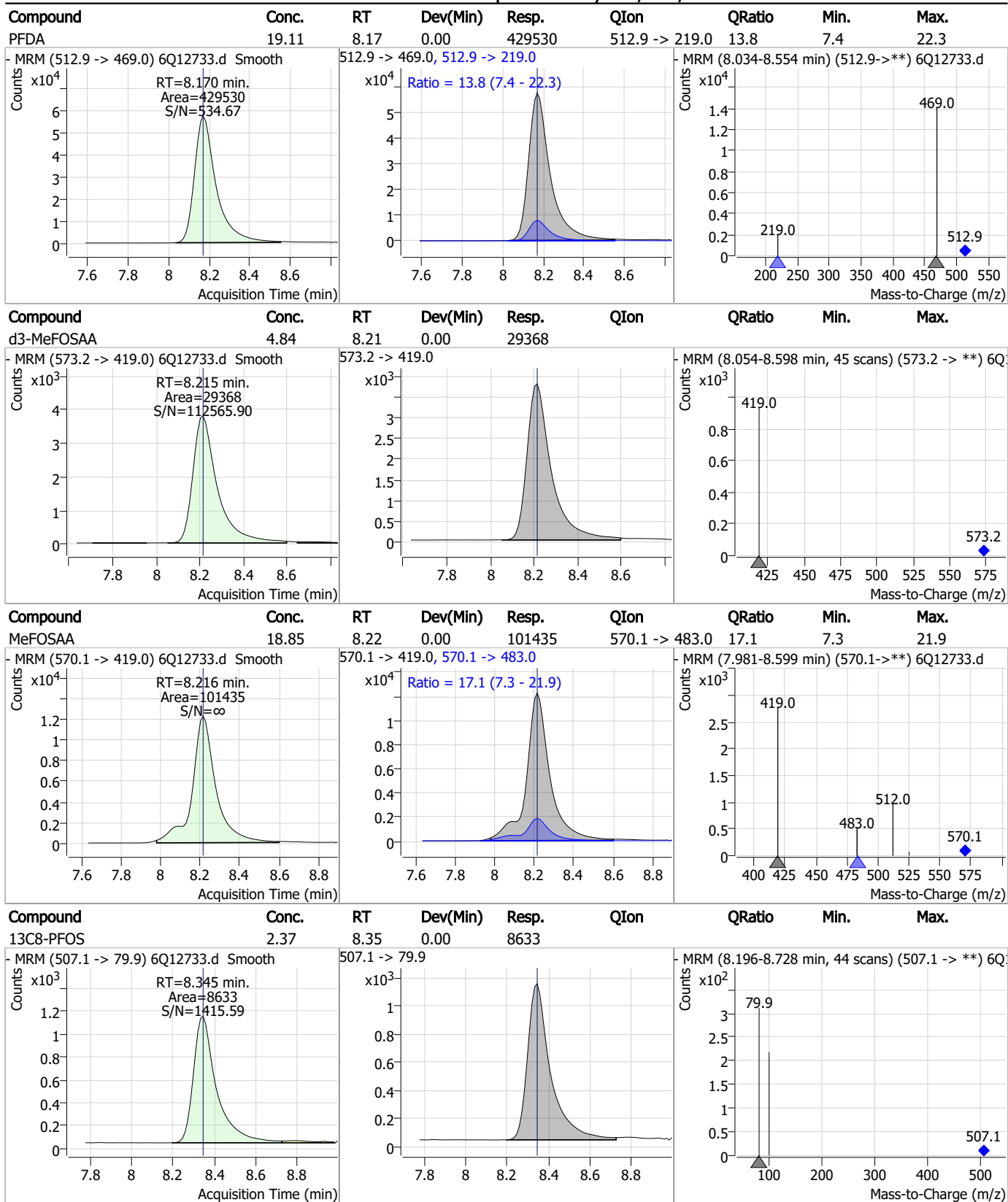
7.7.11
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	19.53	7.84	0.00	71508	449.0 -> 98.9	58.2	27.6	82.9
13C2-8:2FTS	5.49	7.96	0.00	3080	529.1 -> 80.9			
8:2FTS	20.45	7.96	0.00	48914	527.1 -> 80.8	23.9	12.0	36.1
13C6-PFDA	1.28	8.17	0.00	19754	519.1 -> 474.1			

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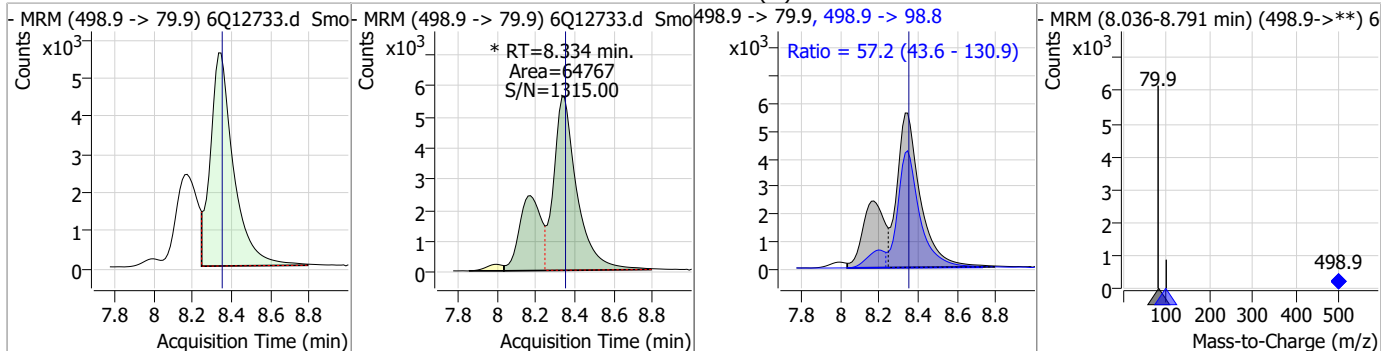
Perfluorinated Compounds by LC/MS/MS



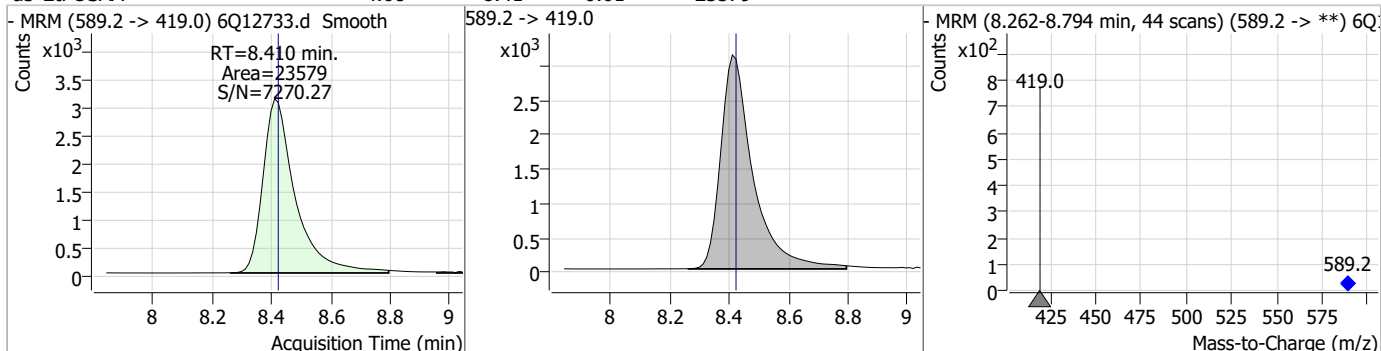
7.7.11
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Perfluorinated Compounds by LC/MS/MS

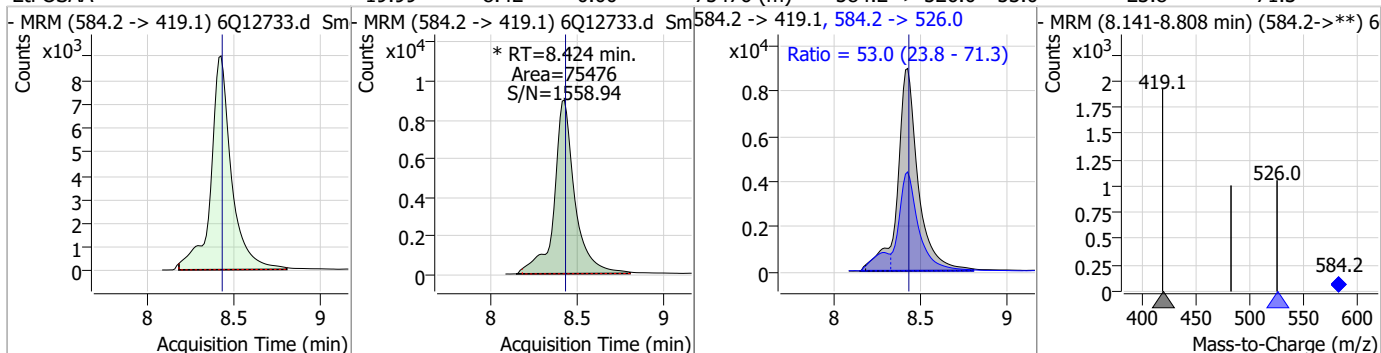
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	16.35	8.33	-0.01	64767 (m)	498.9 -> 98.8	57.2	43.6	130.9



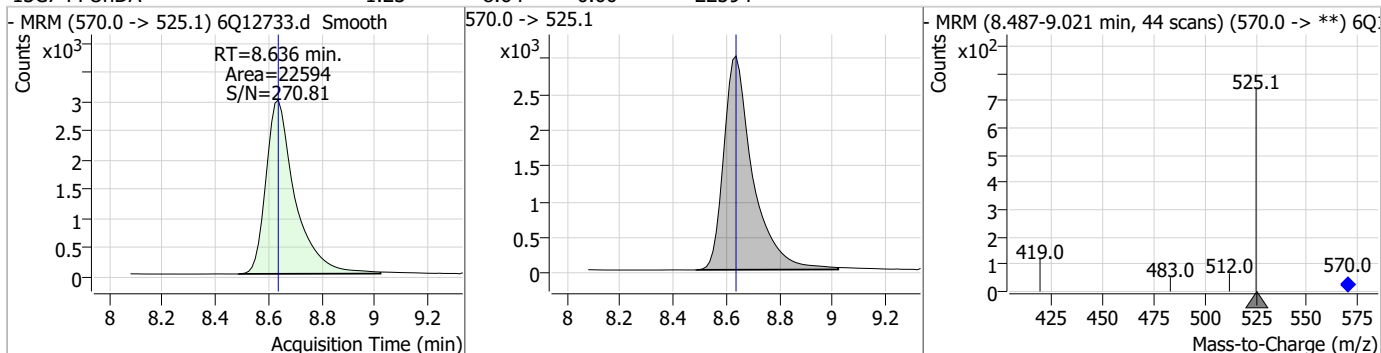
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.68	8.41	-0.01	23579				



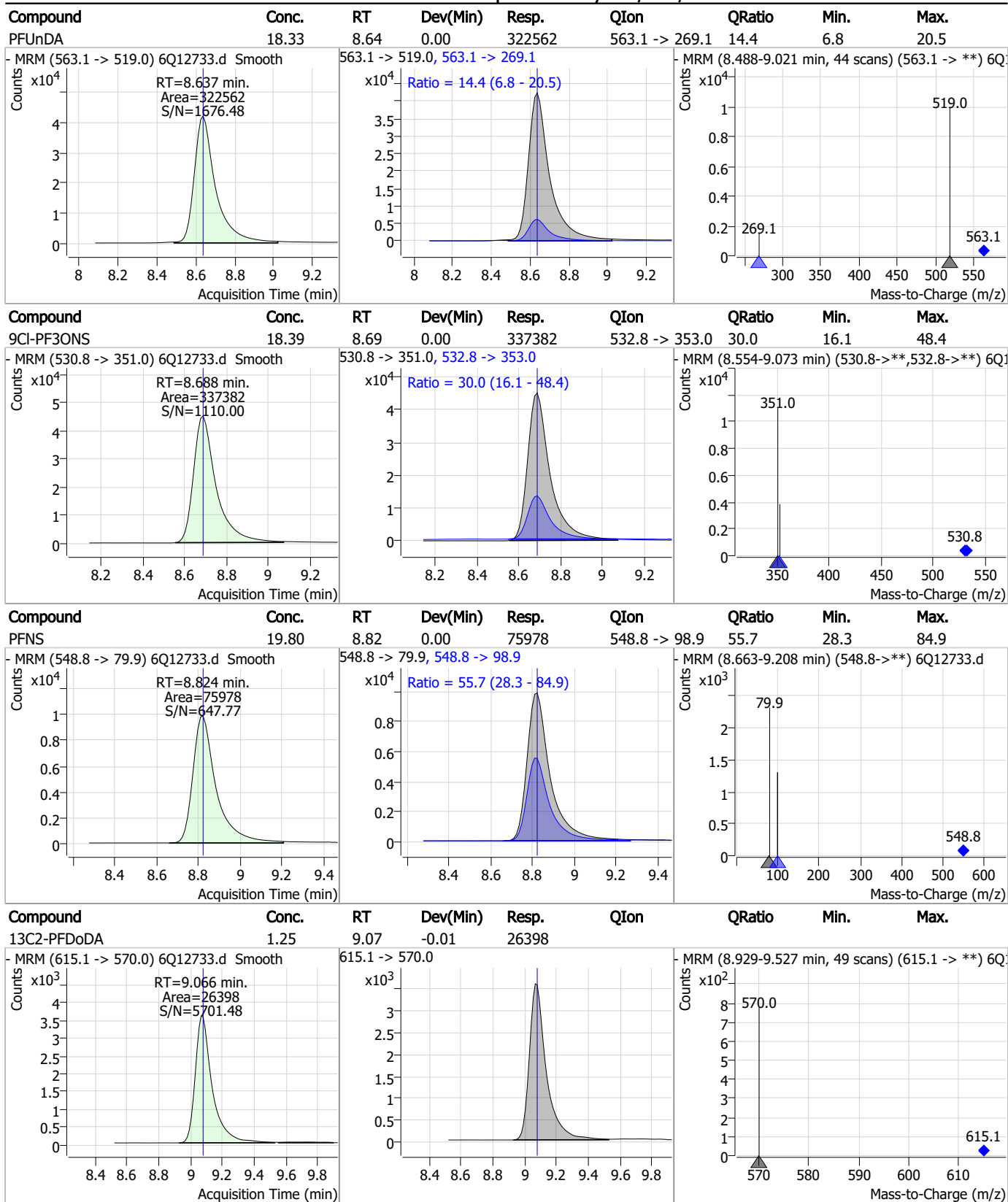
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	19.99	8.42	0.00	75476 (m)	584.2 -> 526.0	53.0	23.8	71.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.23	8.64	0.00	22594				



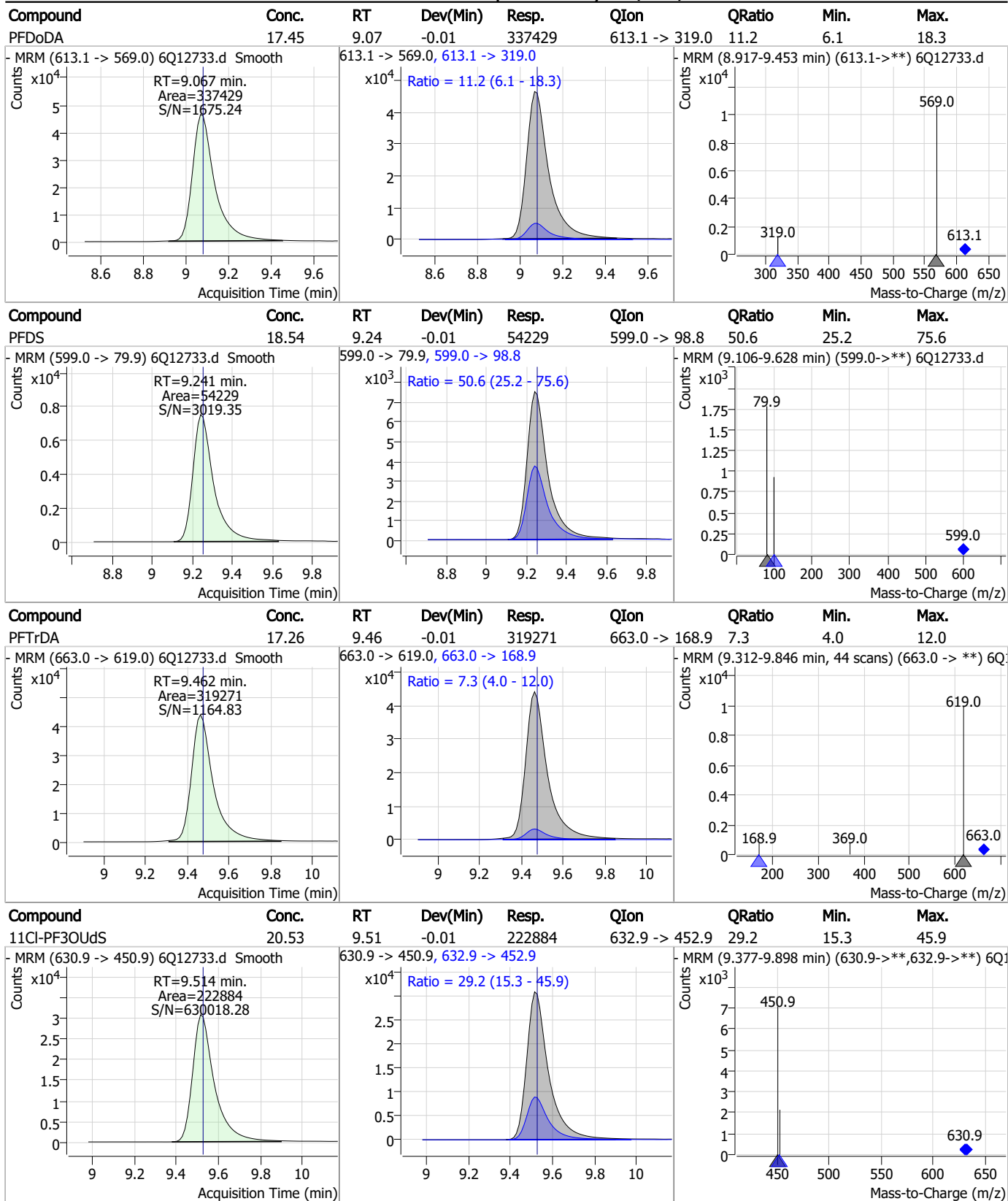
Perfluorinated Compounds by LC/MS/MS



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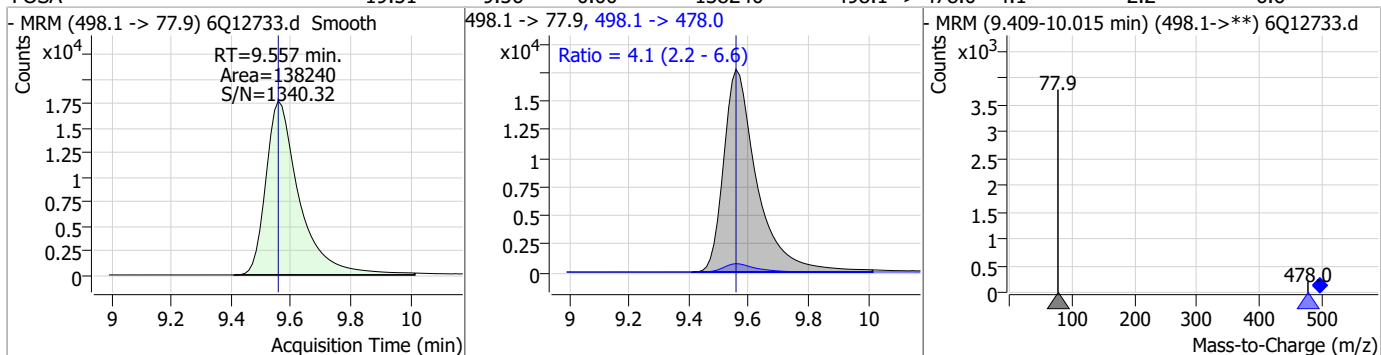
Perfluorinated Compounds by LC/MS/MS



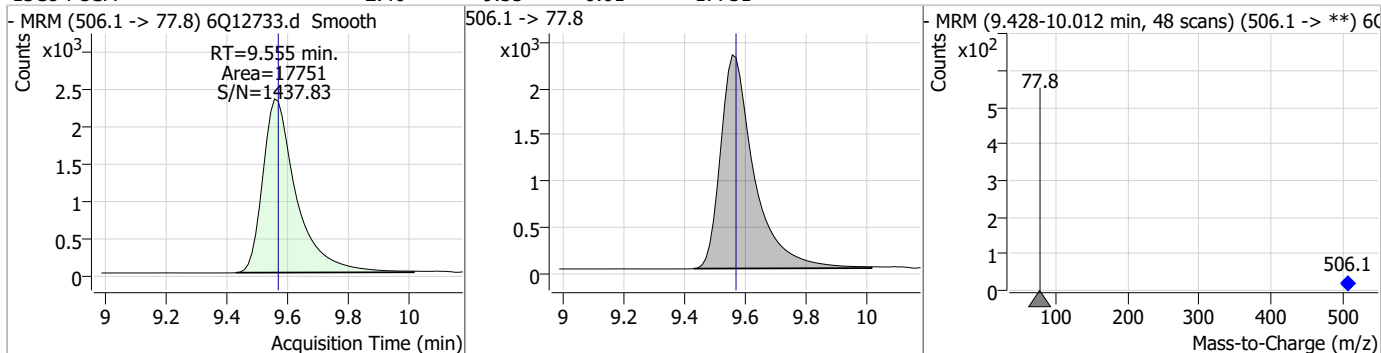
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Perfluorinated Compounds by LC/MS/MS

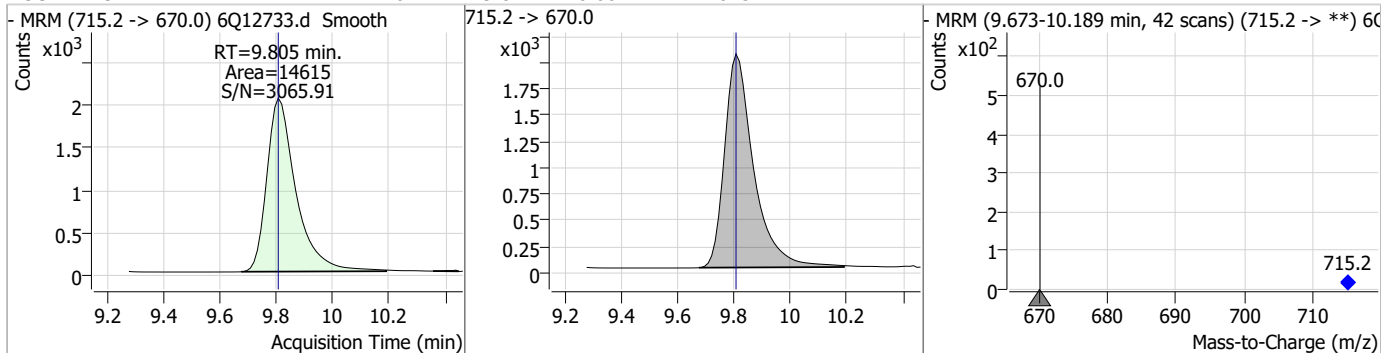
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	19.51	9.56	0.00	138240	498.1 -> 478.0	4.1	2.2	6.6



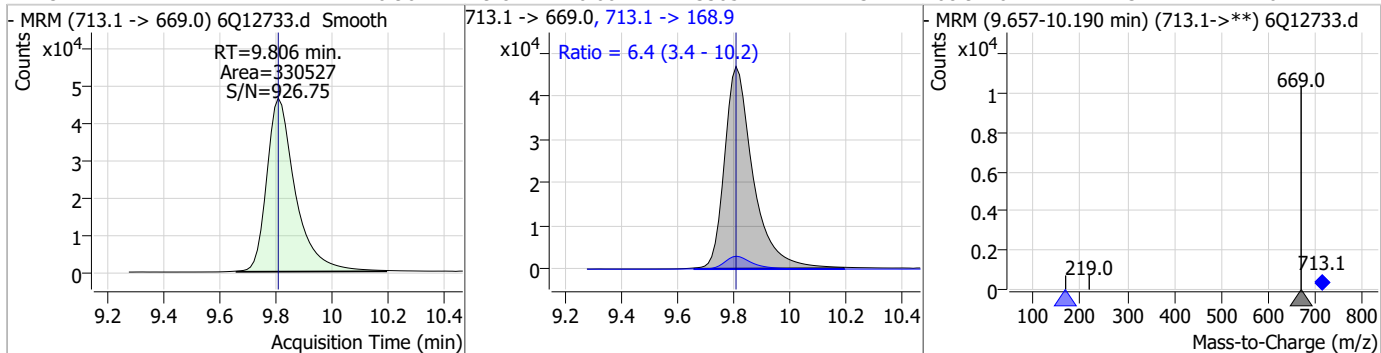
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.46	9.55	-0.01	17751				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.20	9.81	0.00	14615				

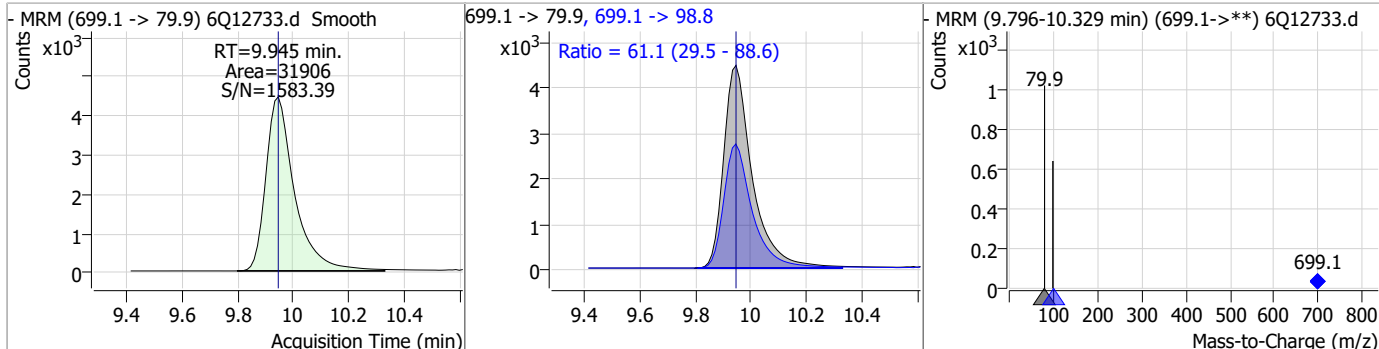


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	20.96	9.81	0.00	330527	713.1 -> 168.9	6.4	3.4	10.2

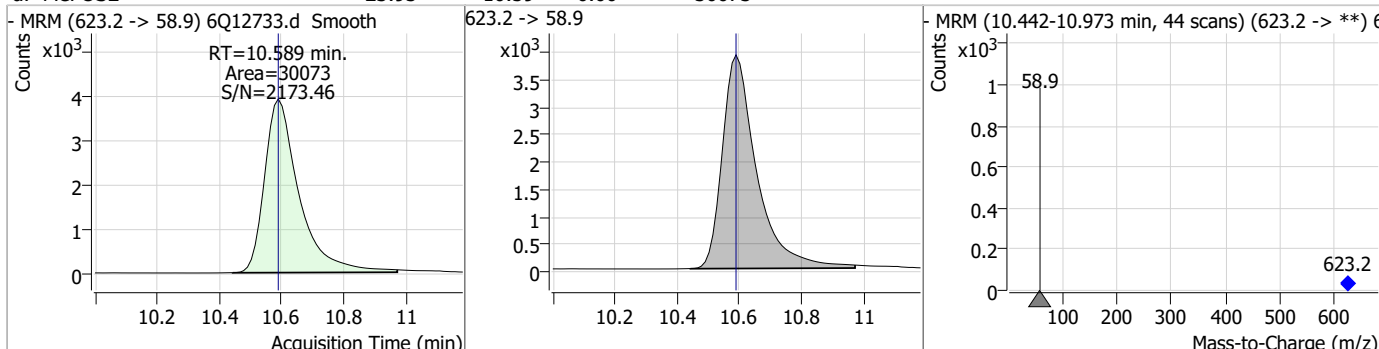


Perfluorinated Compounds by LC/MS/MS

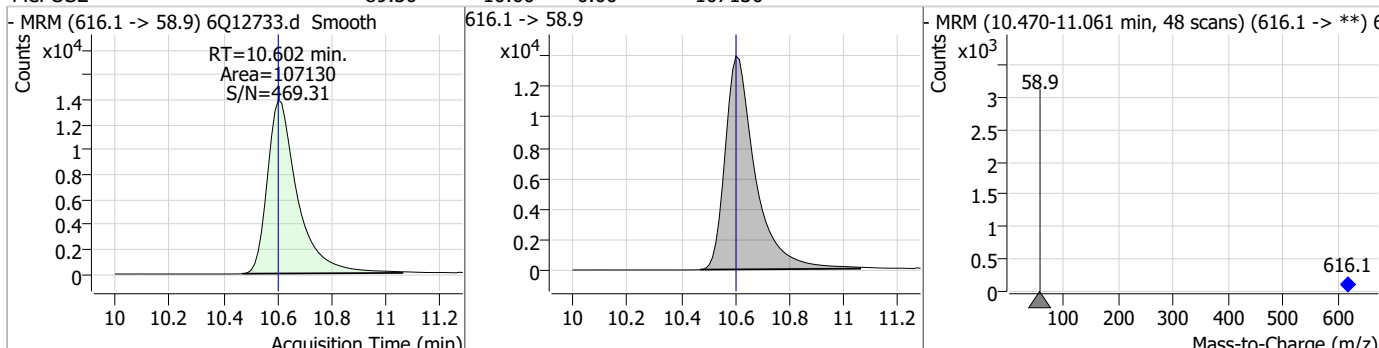
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	18.24	9.95	0.00	31906	699.1 -> 98.8	61.1	29.5	88.6



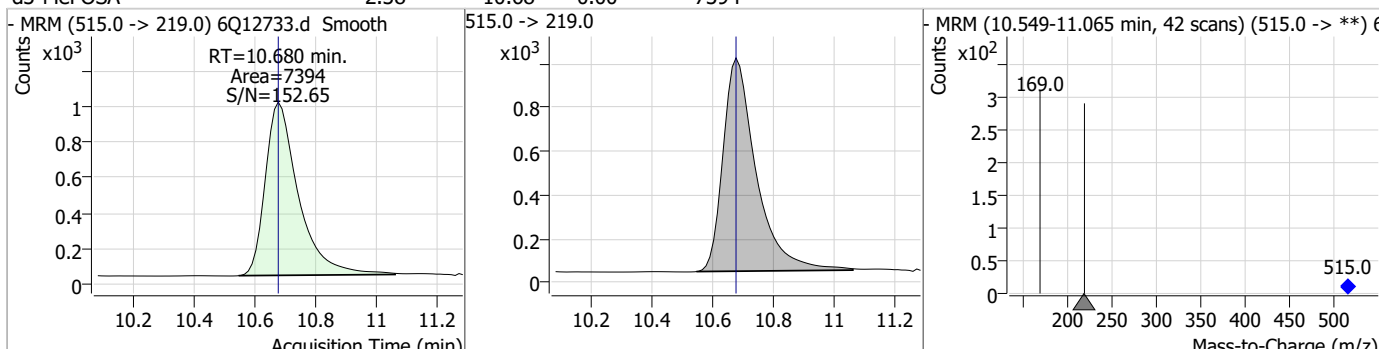
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.93	10.59	0.00	30073				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	89.30	10.60	0.00	107130				

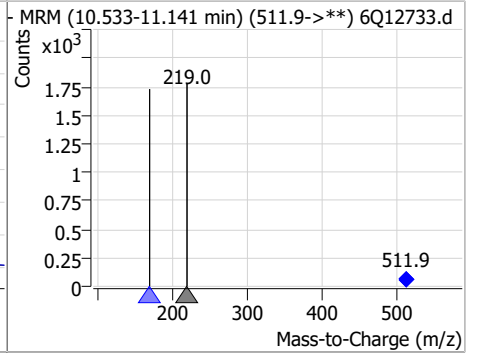
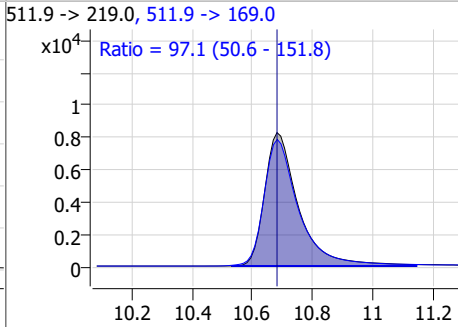
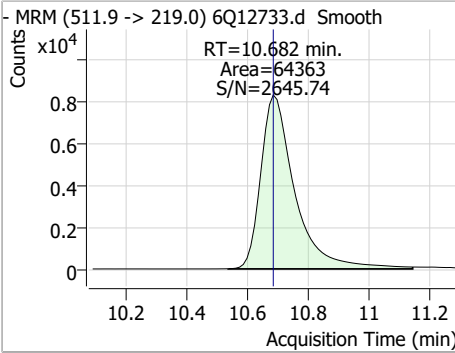


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.38	10.68	0.00	7394				

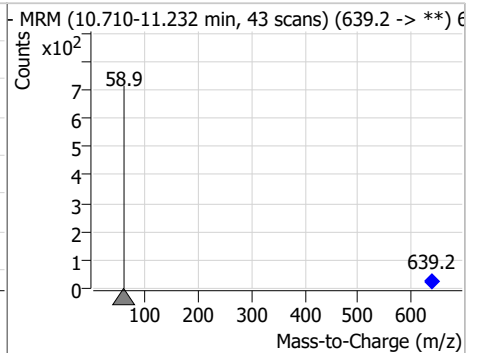
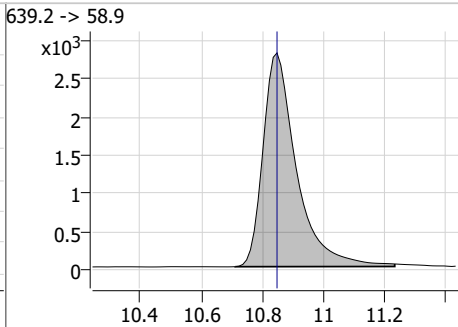
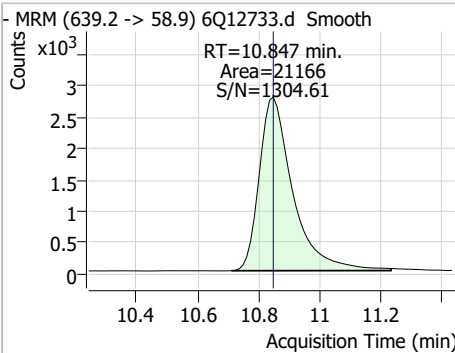


Perfluorinated Compounds by LC/MS/MS

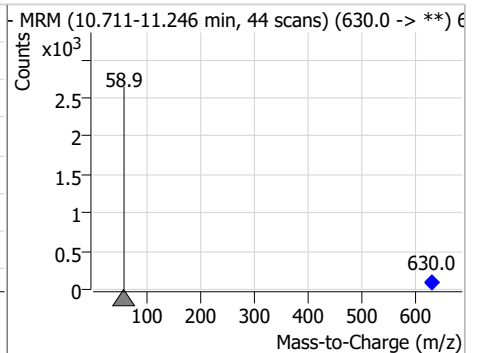
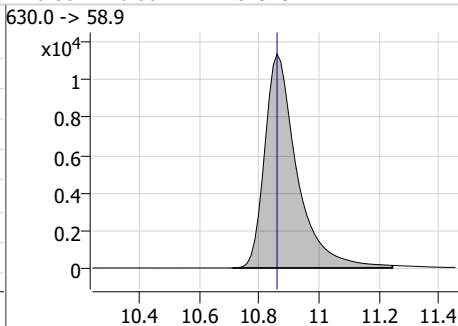
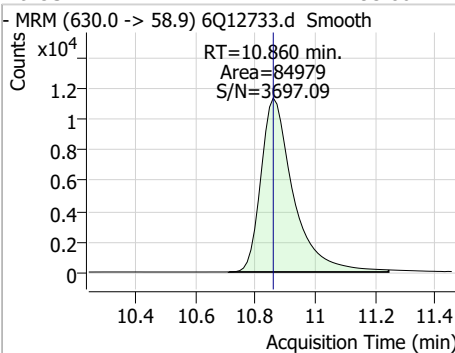
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOFA	20.12	10.68	0.00	64363	511.9 -> 169.0	97.1	50.6	151.8



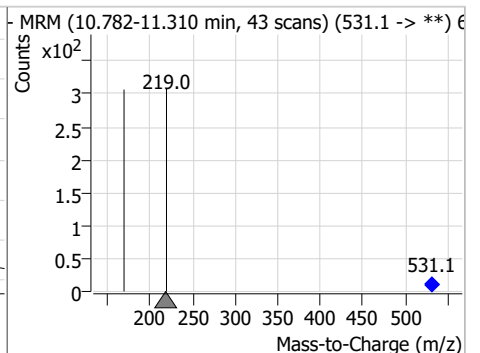
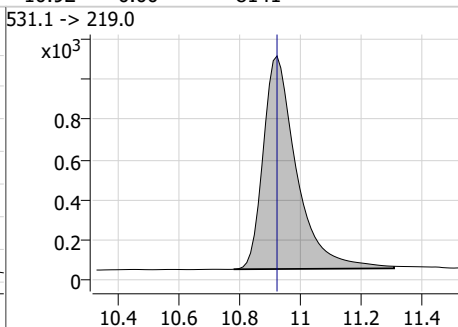
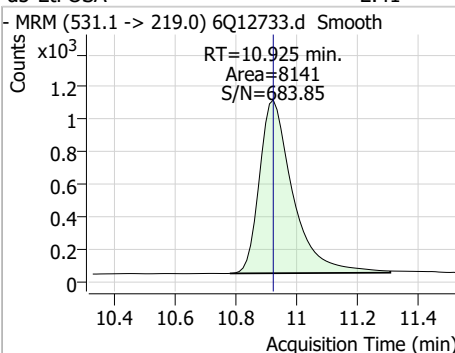
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.44	10.85	0.00	21166				



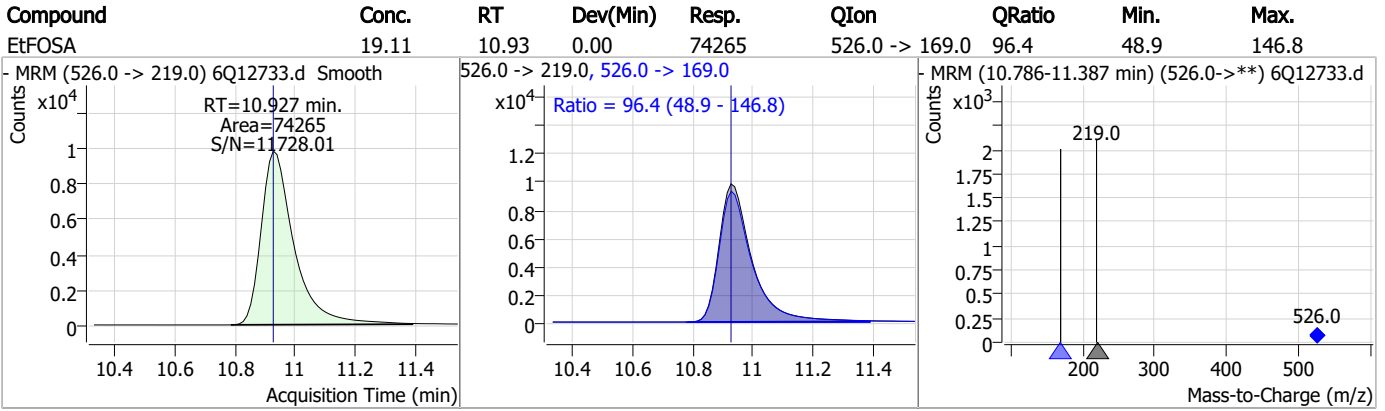
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	93.80	10.86	0.00	84979				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	2.41	10.92	0.00	8141				



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q196-ICV196 Method: EPA DRAFT 1633
Lab FileID: 6Q12733.D Analyst approved: 02/02/23 11:53 Martha Valls
Injection Time: 02/01/23 20:11 Supervisor approved: 02/02/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.42	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13188.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/7/2023 10:48:01 AM
 Sample Name : cc196-4
 Vial : P1-A5
 DA Method File : 1633_020223_S6Q196.quantmethod.xml
 Batch Name : s6q202.batch.bin
 Sample Information : OP95070,S6Q202,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.975	216.8 -> 171.9	92563	10.00 µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	45481	5.00 µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	39957	2.50 µg/L	0.000
M4-PFHpA	6.502	367.1 -> 322.0	40518	2.50 µg/L	0.000
M8-PFOA	7.146	421.1 -> 376.0	73598	2.50 µg/L	0.000
M9-PFNA	7.677	472.1 -> 427.0	27886	1.25 µg/L	0.000
M6-PFDA	8.157	519.1 -> 474.1	19828	1.25 µg/L	0.000
M7-PFUnDA	8.624	570.0 -> 525.1	23835	1.25 µg/L	0.012
M2-PFDoDA	9.054	615.1 -> 570.0	27021	1.25 µg/L	0.000
M2-PFTeDA	9.781	715.2 -> 670.0	15439	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	19948	2.50 µg/L	-0.012
M3-PFBS	5.518	302.1 -> 79.9	15705	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	10061	2.50 µg/L	0.000
M8-PFOS	8.333	507.1 -> 79.9	9307	2.50 µg/L	0.000
M2-4:2FTS	5.227	329.1 -> 80.9	2683	5.00 µg/L	-0.012
M2-6:2FTS	6.908	429.1 -> 80.9	3326	5.00 µg/L	0.000
M2-8:2FTS	7.944	529.1 -> 80.9	2965	5.00 µg/L	0.000
M3-MeFOSAA	8.202	573.2 -> 419.0	31298	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	17456	10.00 µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	26730	5.00 µg/L	0.012
M7-MeFOSE	10.589	623.2 -> 58.9	28664	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	19639	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7763	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7250	2.50 µg/L	0.000
13C4-PFOS	8.334	502.8 -> 79.9	11694	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	40882	5.00 µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	7508	2.50 µg/L	0.000
13C4-PFOA	7.147	417.1 -> 372.0	91011	2.50 µg/L	0.000
13C2-PFDA	8.158	515.1 -> 470.1	26529	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	28482	1.25 µg/L	0.000
13C2-PFHxA	5.563	315.1 -> 270.0	40432	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.227	329.1 -> 80.9	2683	5.49 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.9%		
13C2-6:2FTS	6.908	429.1 -> 80.9	3326	5.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C2-8:2FTS	7.944	529.1 -> 80.9	2965	4.56 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.2%		
13C2-PFDoDA	9.054	615.1 -> 570.0	27021	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.1%		
13C2-PFTeDA	9.781	715.2 -> 670.0	15439	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.9%		
13C3-PFBS	5.518	302.1 -> 79.9	15705	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C3-PFHxS	7.274	402.1 -> 79.9	10061	2.55 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 = 102.0%		
13C4-PFBA	2.975	216.8 -> 171.9	92563	10.20 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C4-PFHpA	6.502	367.1 -> 322.0	40518	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C5-PFHxA	5.563	318.0 -> 273.0	39957	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C5-PFPeA	4.386	268.3 -> 223.0	45481	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C6-PFDA	8.157	519.1 -> 474.1	19828	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.5%		
13C7-PFUnDA	8.624	570.0 -> 525.1	23835	1.35 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.0%		
13C8-FOSA	9.555	506.1 -> 77.8	19948	2.62 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C8-PFOA	7.146	421.1 -> 376.0	73598	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C8-PFOS	8.333	507.1 -> 79.9	9307	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.8%		
13C9-PFNA	7.677	472.1 -> 427.0	27886	1.39 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 111.3%		
d3-MeFOSAA	8.202	573.2 -> 419.0	31298	4.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	17456	10.57 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 105.7%		
d3-MeFOSA	10.680	515.0 -> 219.0	7250	2.21 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 88.4%		
d5-EtFOSAA	8.410	589.2 -> 419.0	26730	5.03 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.5%		
d7-MeFOSE	10.589	623.2 -> 58.9	28664	21.59 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 86.3%		
d9-EtFOSE	10.847	639.2 -> 58.9	19639	21.46 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 85.8%		
d5-EtFOSA	10.925	531.1 -> 219.0	7763	2.17 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 87.0%		
Target Compounds					QValue
4:2FTS	5.240	327.1 -> 307.0	47713	7.93 µg/L	97
		327.1 -> 80.9	11353		
6:2FTS	6.908	427.1 -> 407.0	42756	8.78 µg/L	99
		427.1 -> 80.9	8366		
8:2FTS	7.945	527.1 -> 507.0	22537	9.79 µg/L	95
		527.1 -> 80.8	5921		
EtFOSAA	8.411	584.2 -> 419.1	8975	2.10 µg/L	m 93
		584.2 -> 526.0	5039		
FOSA	9.557	498.1 -> 77.9	17526	2.20 µg/L	98
		498.1 -> 478.0	582		
MeFOSAA	8.203	570.1 -> 419.0	13298	2.32 µg/L	100
		570.1 -> 483.0	2463		
PFBA	2.982	212.8 -> 168.9	18923	9.15 µg/L	100
PFBS	5.518	298.7 -> 79.9	12365	2.05 µg/L	98
		298.7 -> 98.8	6214		
PFDA	8.158	512.9 -> 469.0	54329	2.41 µg/L	99
		512.9 -> 219.0	7529		
PFDODA	9.054	613.1 -> 569.0	45953	2.32 µg/L	99
		613.1 -> 319.0	5505		
PFDS	9.216	599.0 -> 79.9	6301	2.00 µg/L	97

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.503	599.0 -> 98.8	3195	2.35	µg/L	99
		363.1 -> 319.0	56497			
PFHpS	7.828	363.1 -> 169.0	7310	2.30	µg/L	96
		449.0 -> 79.9	9079			
PFHxA	5.566	449.0 -> 98.9	5277	2.32	µg/L	100
		313.0 -> 269.0	36291			
PFHxS	7.275	313.0 -> 118.9	1353	2.15	µg/L	96
		398.7 -> 79.9	9700			
PFNA	7.677	398.7 -> 98.9	5587	2.12	µg/L	99
		463.0 -> 419.0	39816			
PFNS	8.799	463.0 -> 219.0	8013	2.20	µg/L	94
		548.8 -> 79.9	9092			
PFOA	7.148	548.8 -> 98.9	5008	2.31	µg/L	98
		413.0 -> 369.0	74728			
PFOS	8.334	413.0 -> 169.0	9285	2.20	µg/L	98
		498.9 -> 79.9	9413			
PFPeA	4.388	498.9 -> 98.8	5632	4.52	µg/L	100
		263.0 -> 219.0	43425			
PFPeS	6.581	349.1 -> 79.9	11507	2.19	µg/L	99
		349.1 -> 98.9	6194			
PFTeDA	9.781	713.1 -> 669.0	40090	2.41	µg/L	99
		713.1 -> 168.9	2565			
PFTrDA	9.437	663.0 -> 619.0	44821	2.37	µg/L	100
		663.0 -> 168.9	3459			
PFUnDA	8.624	563.1 -> 519.0	42353	2.28	µg/L	99
		563.1 -> 269.1	6363			
11CI-PF3OUdS	9.489	630.9 -> 450.9	97939	7.82	µg/L	100
		632.9 -> 452.9	30202			
9CI-PF3ONS	8.676	530.8 -> 351.0	164438	7.77	µg/L	97
		532.8 -> 353.0	52643			
ADONA	6.753	376.9 -> 250.9	319738	8.44	µg/L	99
		376.9 -> 84.8	65937			
HFPO-DA	5.940	284.9 -> 168.9	14117	8.65	µg/L	97
		284.9 -> 184.9	1724			
3:3FTCA	3.841	241.0 -> 177.0	5254	11.14	µg/L	99
		241.0 -> 117.0	680			
5:3FTCA	6.206	341.0 -> 237.1	186119	56.79	µg/L	98
		341.0 -> 217.0	161565			
7:3FTCA	7.605	441.0 -> 316.9	104855	48.95	µg/L	95
		441.0 -> 336.9	202667			
EtFOSA	10.927	526.0 -> 219.0	7927	2.14	µg/L	94
		526.0 -> 169.0	8216			
EtFOSE	10.860	630.0 -> 58.9	17838	21.22	µg/L	100
		511.9 -> 219.0	7670			
MeFOSA	10.682	511.9 -> 169.0	7384	2.45	µg/L	80
		616.1 -> 58.9	25427			
MeFOSE	10.602	699.1 -> 79.9	3908	22.24	µg/L	100
		699.1 -> 98.8	2436			
PFDoDS	9.907	295.0 -> 201.0	4590	2.07	µg/L	95
		295.0 -> 84.9	2329			
NFDHA	5.457	279.0 -> 85.1	13043	4.95	µg/L	95
		229.0 -> 84.9	11727			
PFMBA	4.787	314.8 -> 134.9	88116	4.83	µg/L	100
PFMPA	3.541	314.8 -> 82.9	2379	4.58	µg/L	100
PFEESA	6.059			3.91	µg/L	99

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



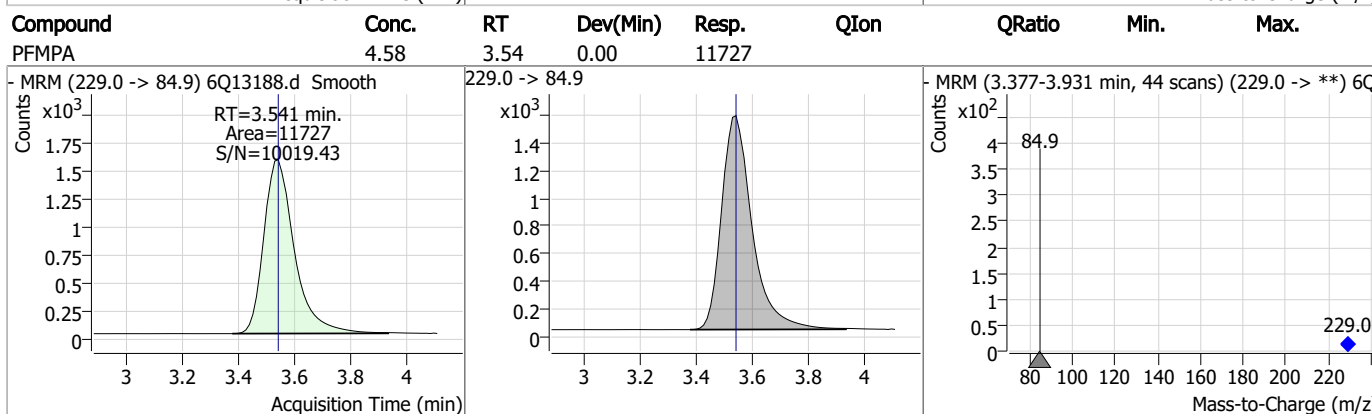
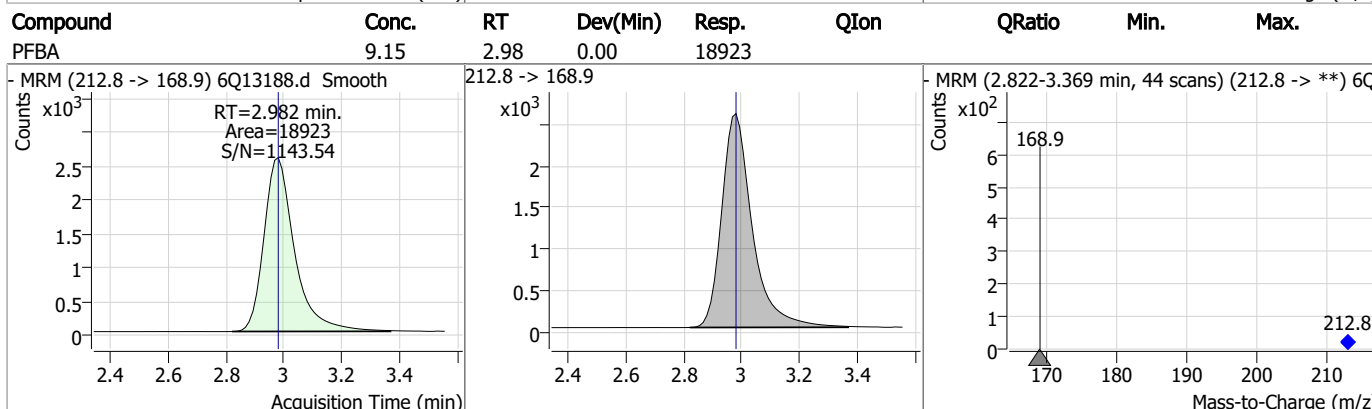
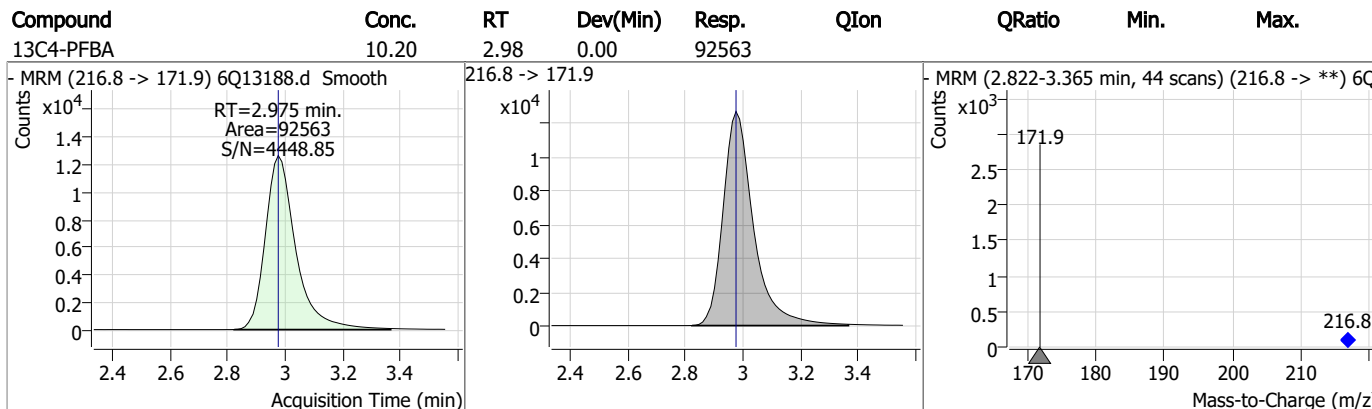
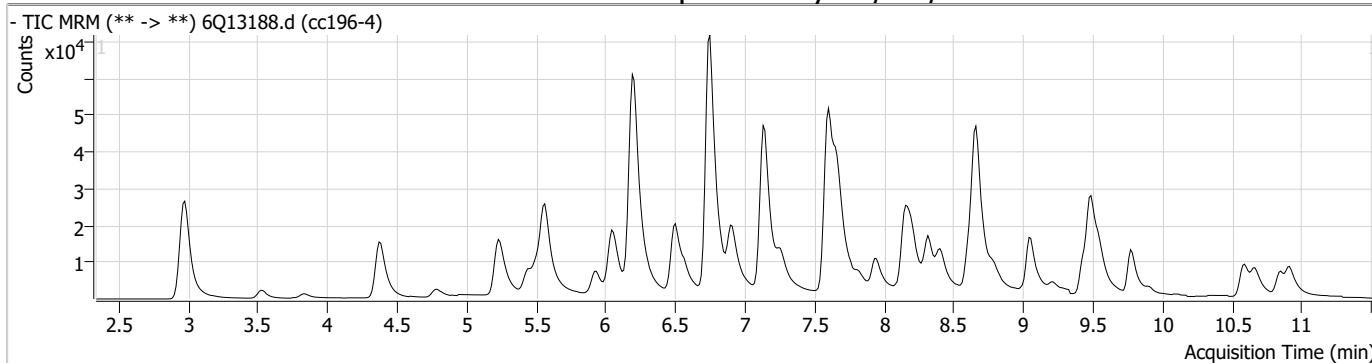
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.12

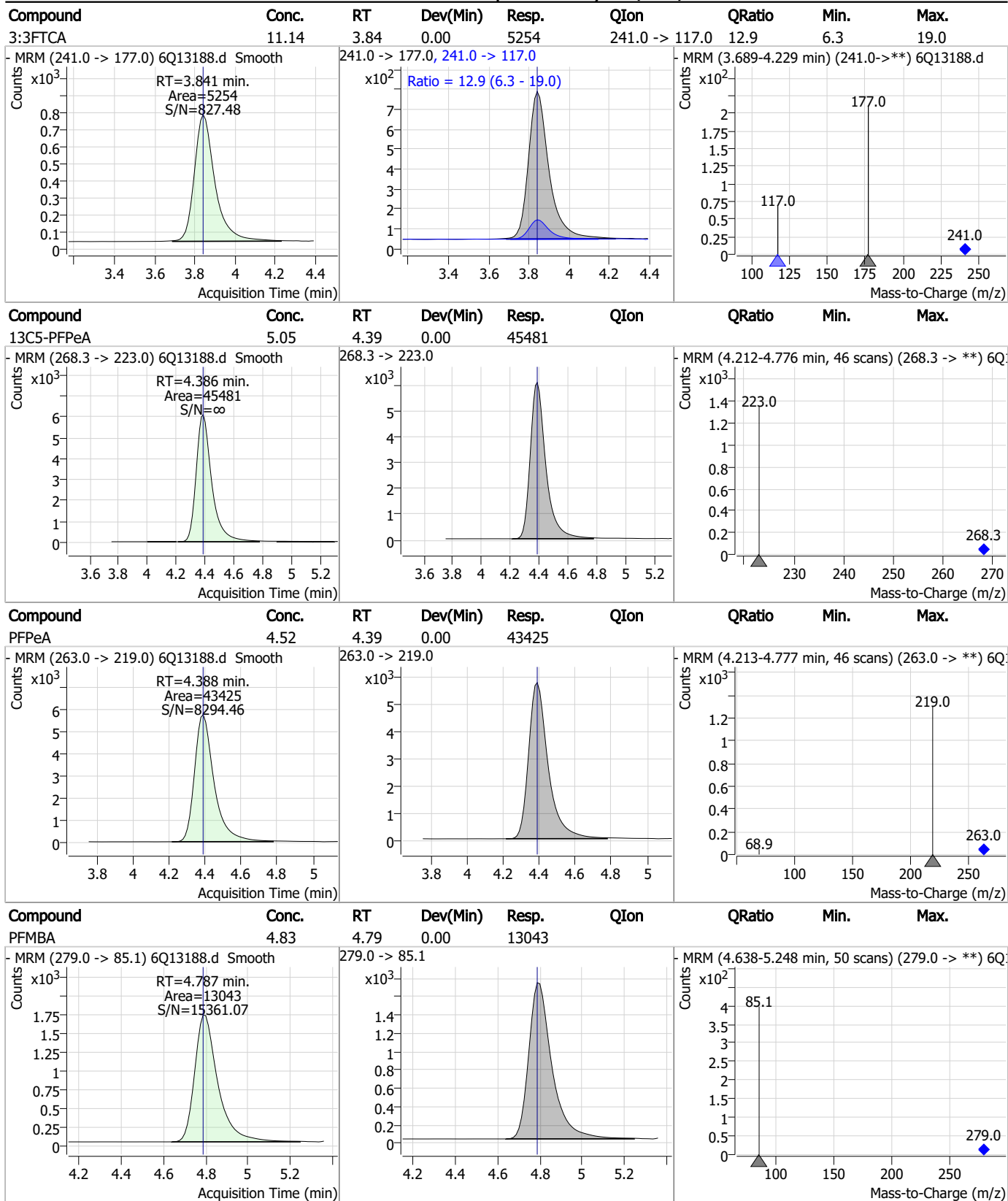
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Perfluorinated Compounds by LC/MS/MS



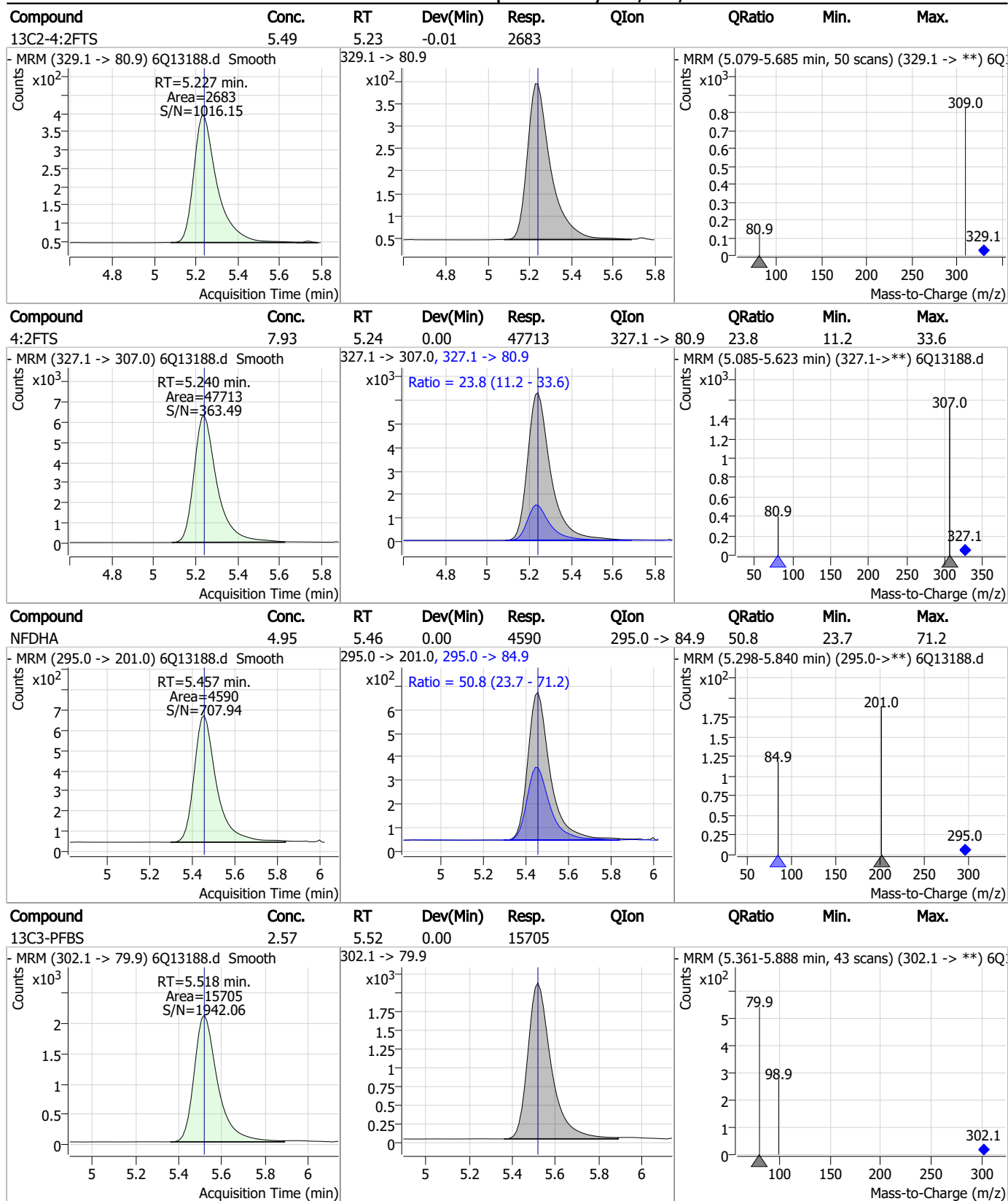
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Perfluorinated Compounds by LC/MS/MS



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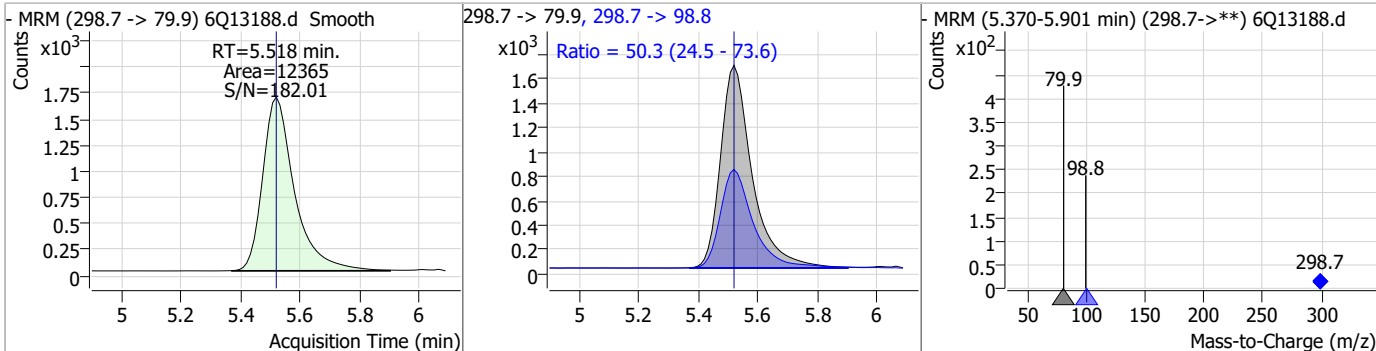
Perfluorinated Compounds by LC/MS/MS



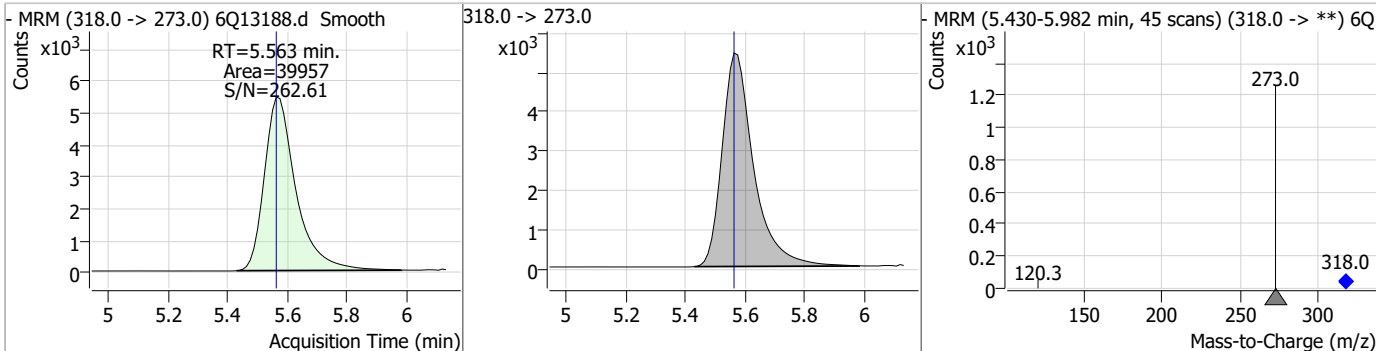
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Perfluorinated Compounds by LC/MS/MS

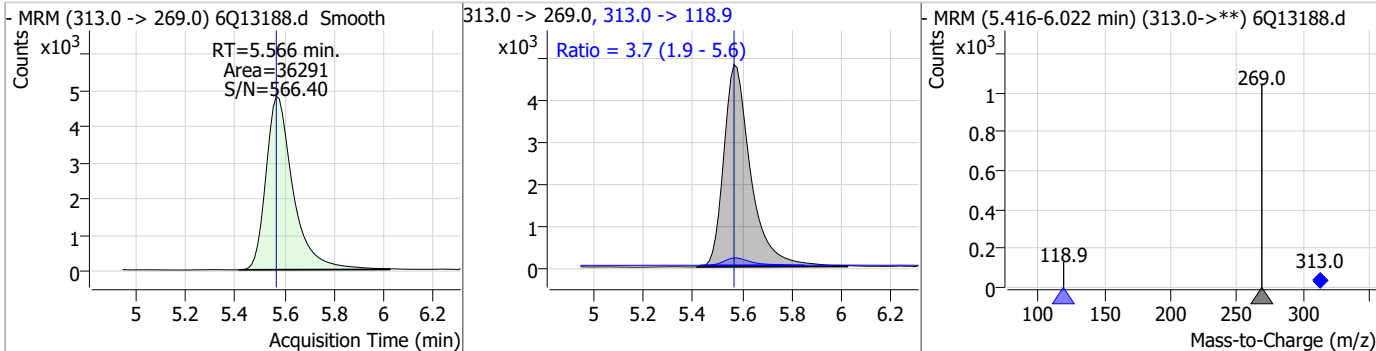
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.05	5.52	0.00	12365	298.7 -> 98.8	50.3	24.5	73.6



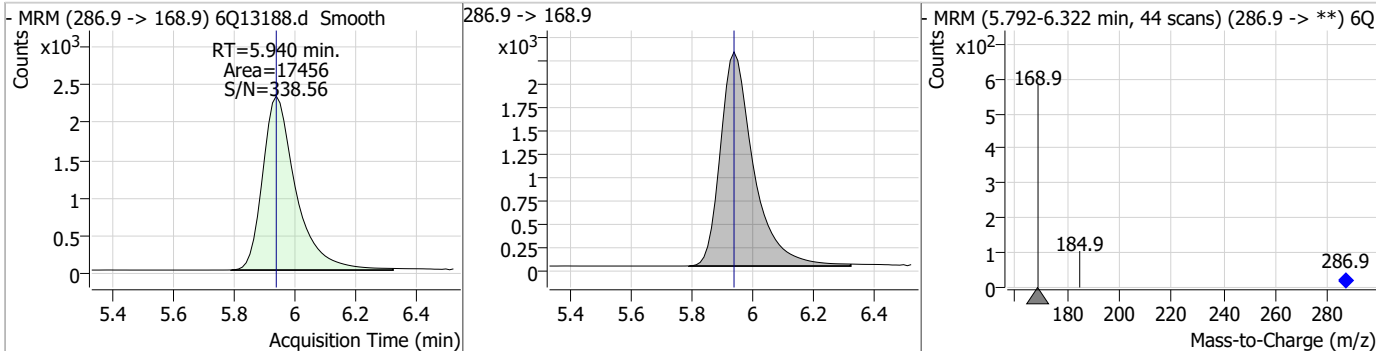
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.50	5.56	0.00	39957	318.0 -> 273.0	3.7	1.9	5.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.32	5.57	0.00	36291	313.0 -> 118.9	3.7	1.9	5.6

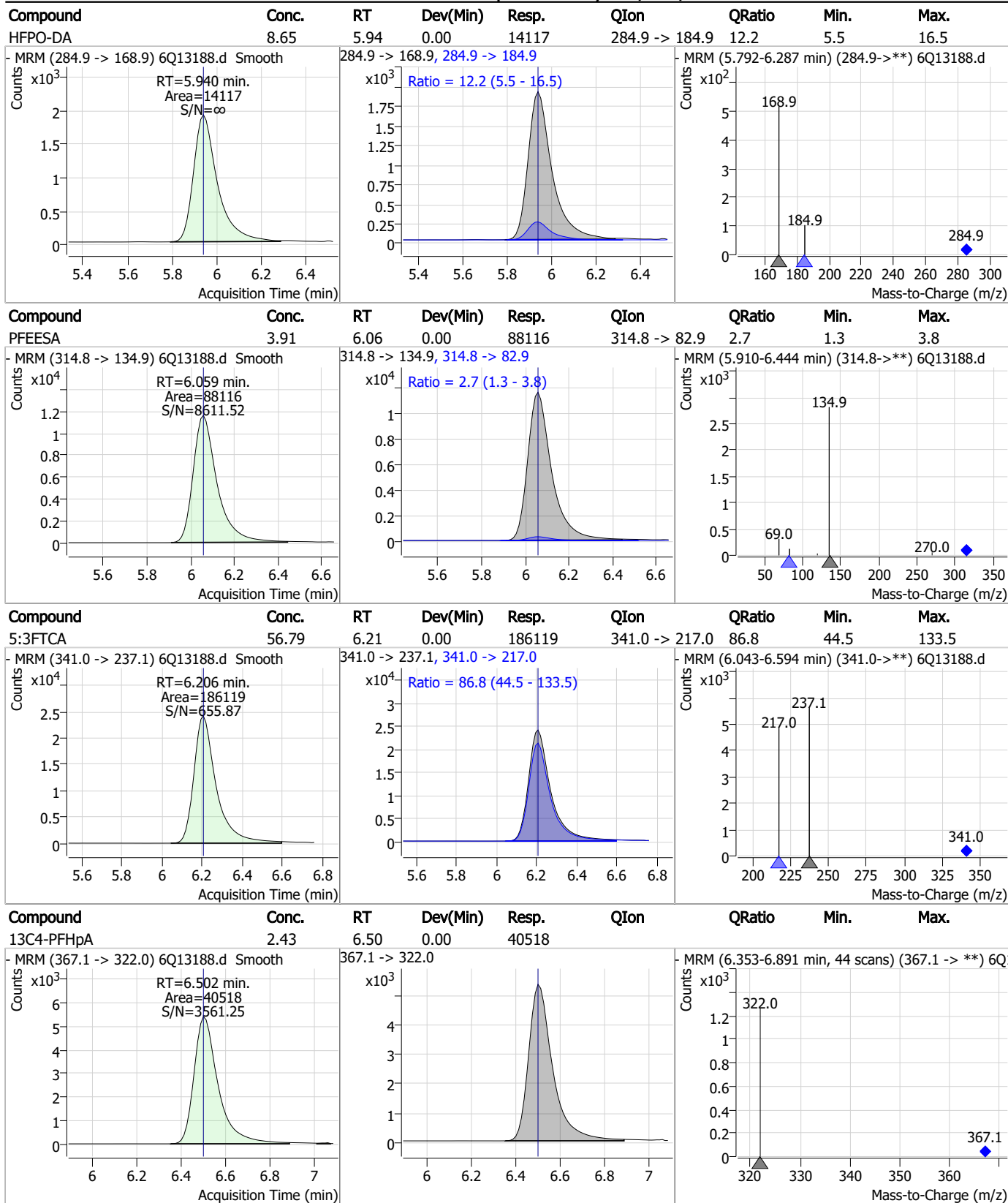


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.57	5.94	0.00	17456	286.9 -> 168.9	3.7	1.9	5.6



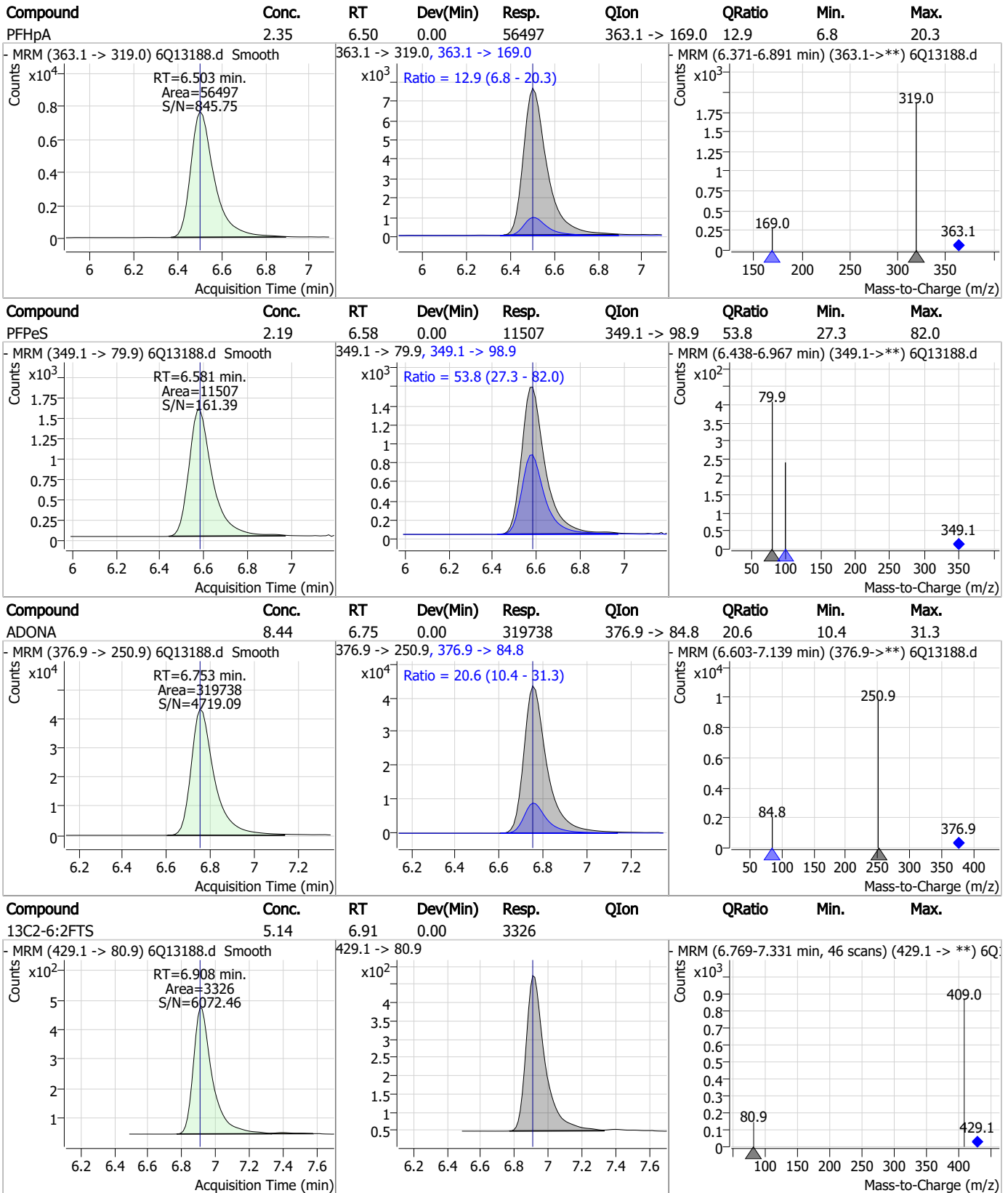
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Perfluorinated Compounds by LC/MS/MS



7.7.12
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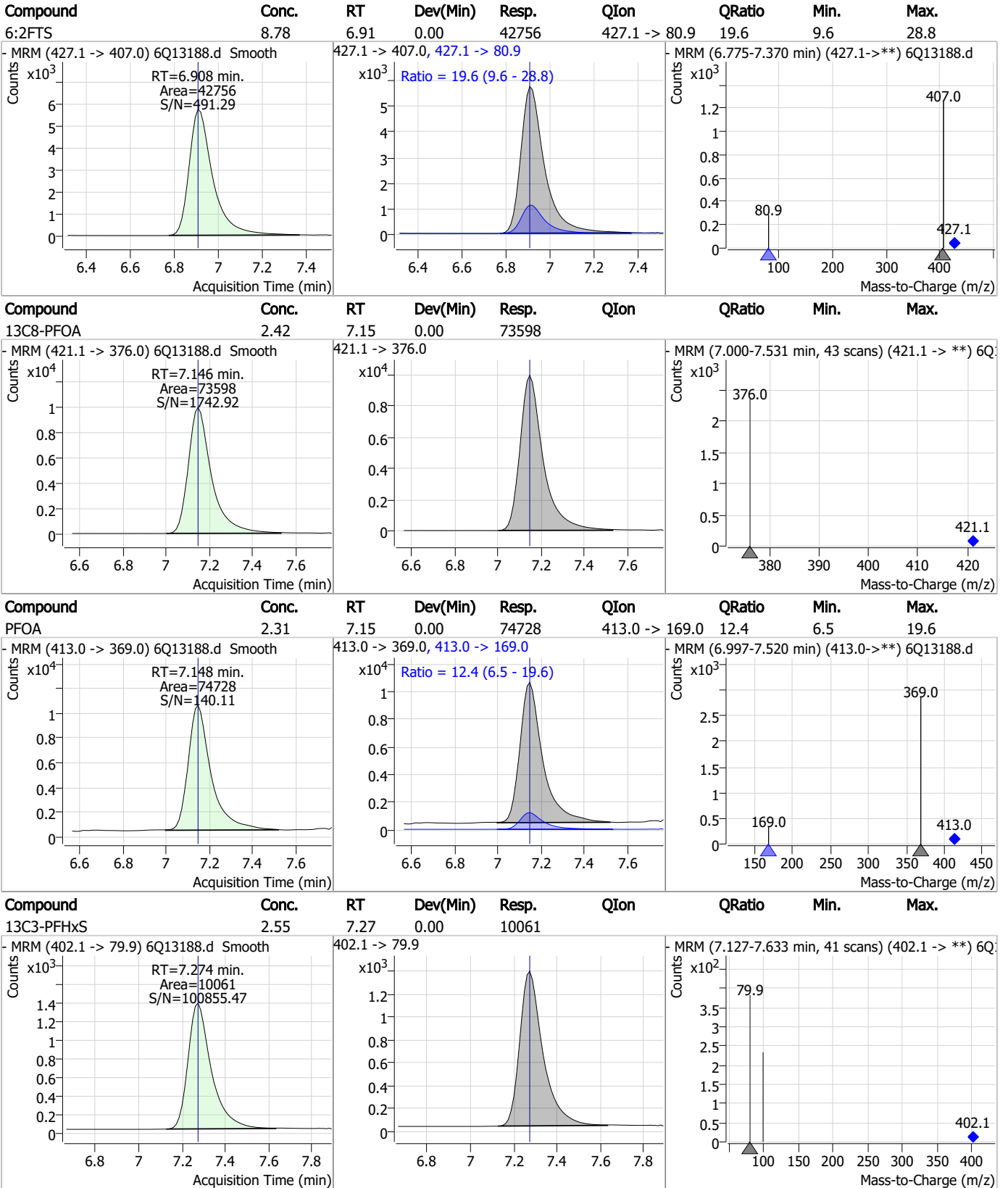
Perfluorinated Compounds by LC/MS/MS



7.7.12 7



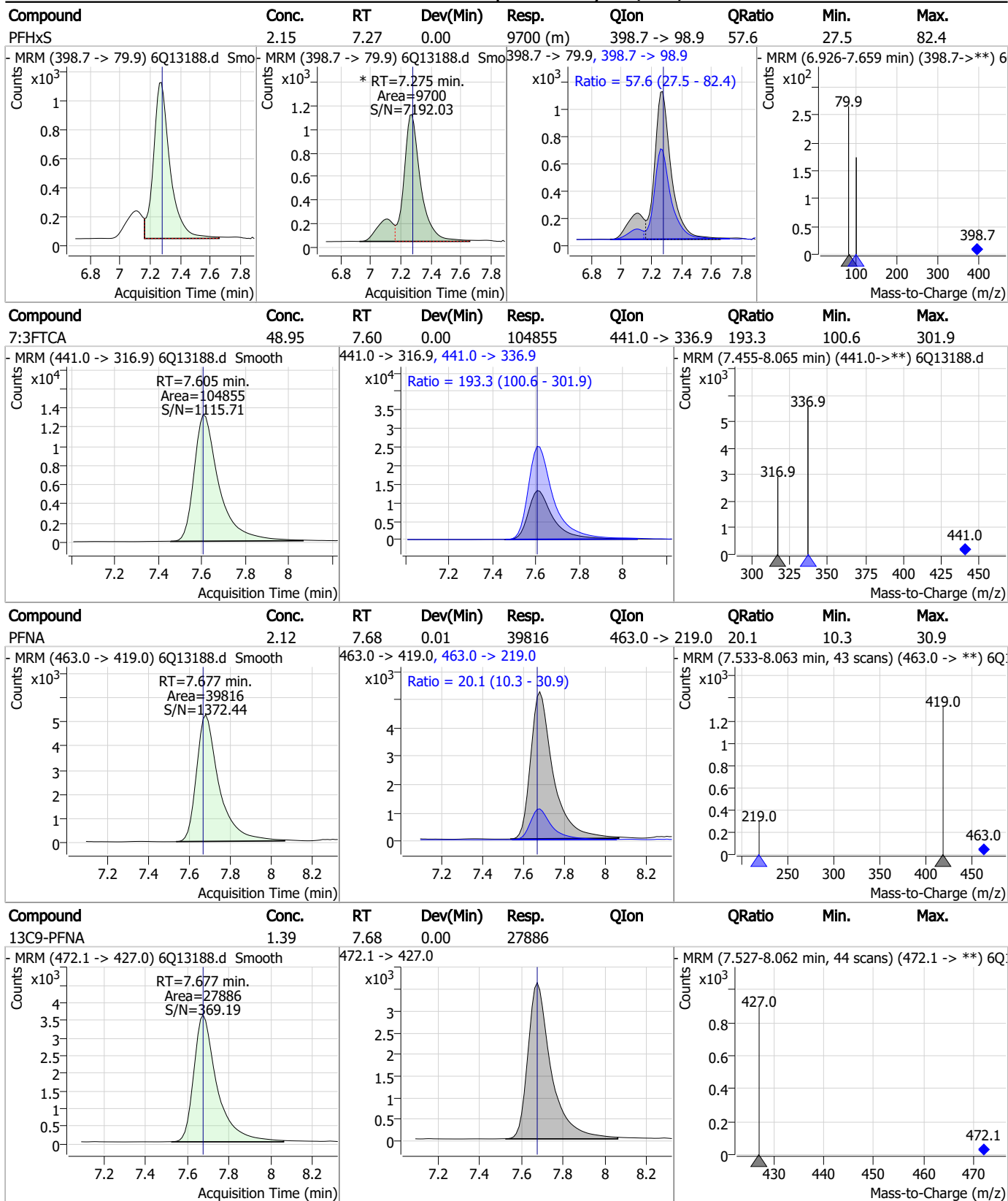
Perfluorinated Compounds by LC/MS/MS



7.7.12 7



Perfluorinated Compounds by LC/MS/MS



7.7.12
7



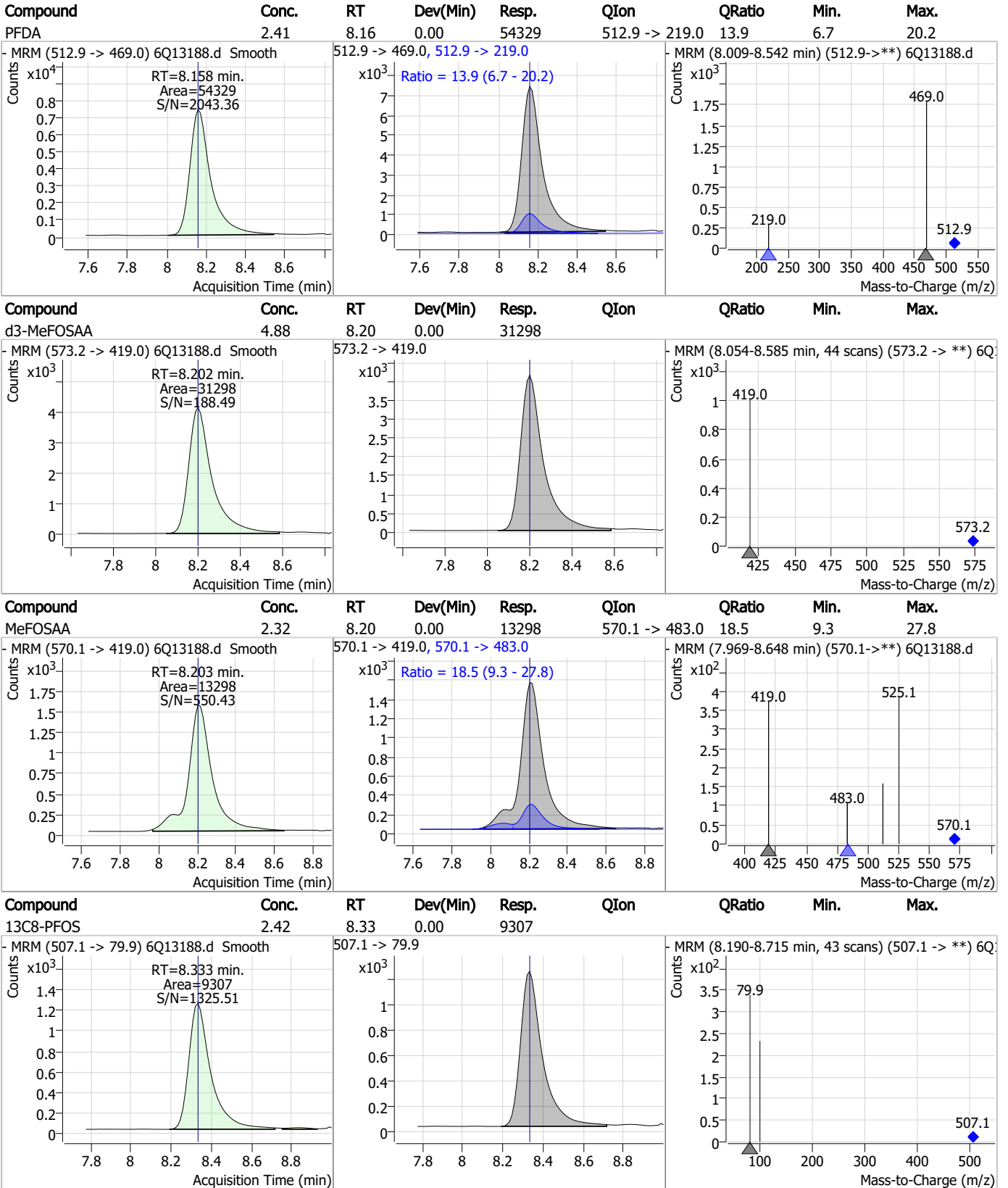
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.30	7.83	0.00	9079	449.0 -> 98.9	58.1	27.5	82.4
13C2-8:2FTS	4.56	7.94	0.00	2965	529.1 -> 80.9	26.3	11.9	35.8
8:2FTS	9.79	7.95	0.00	22537	527.1 -> 80.8	26.3	11.9	35.8
13C6-PFDA	1.34	8.16	0.00	19828	519.1 -> 474.1	26.3	11.9	35.8

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Perfluorinated Compounds by LC/MS/MS

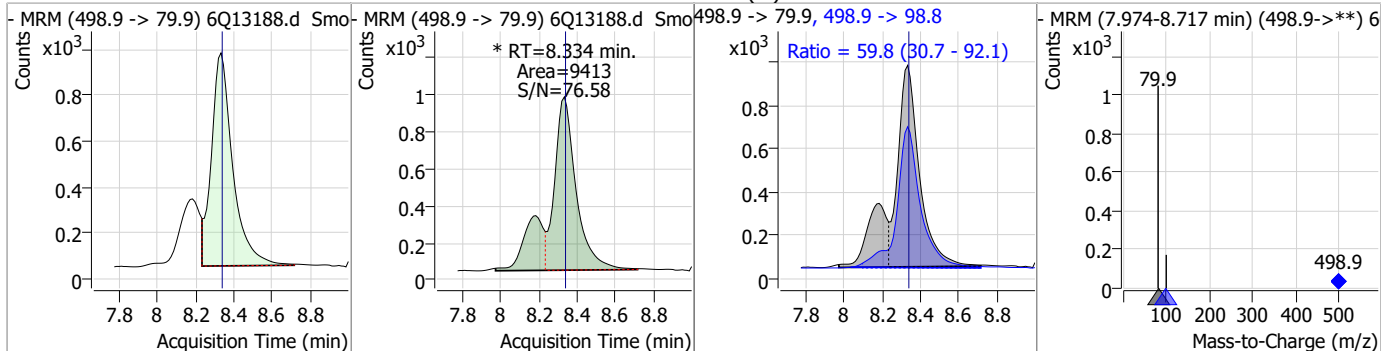


7.7.12
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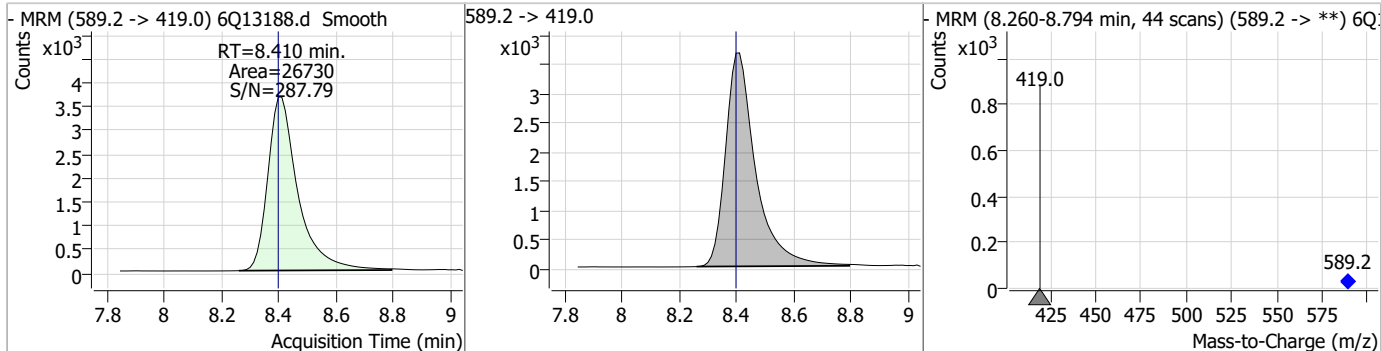


Perfluorinated Compounds by LC/MS/MS

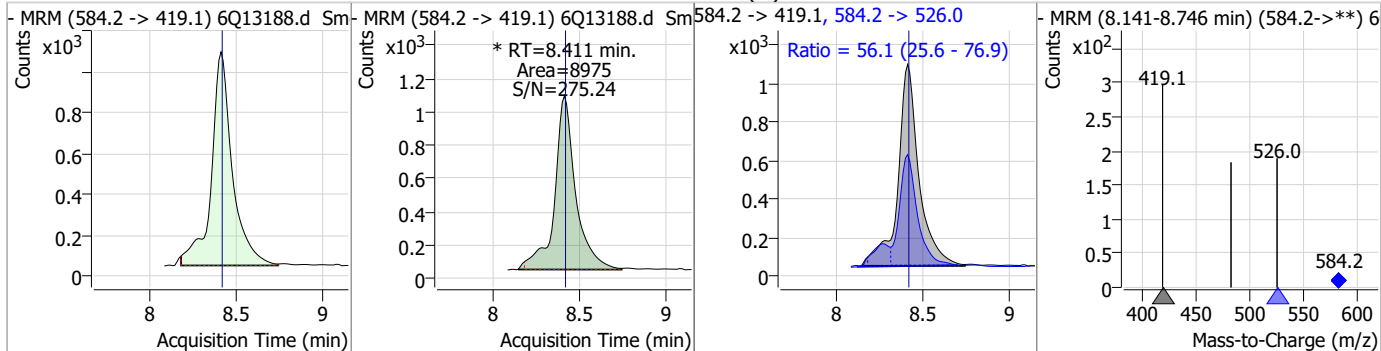
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.20	8.33	0.00	9413 (m)	498.9 -> 98.8	59.8	30.7	92.1



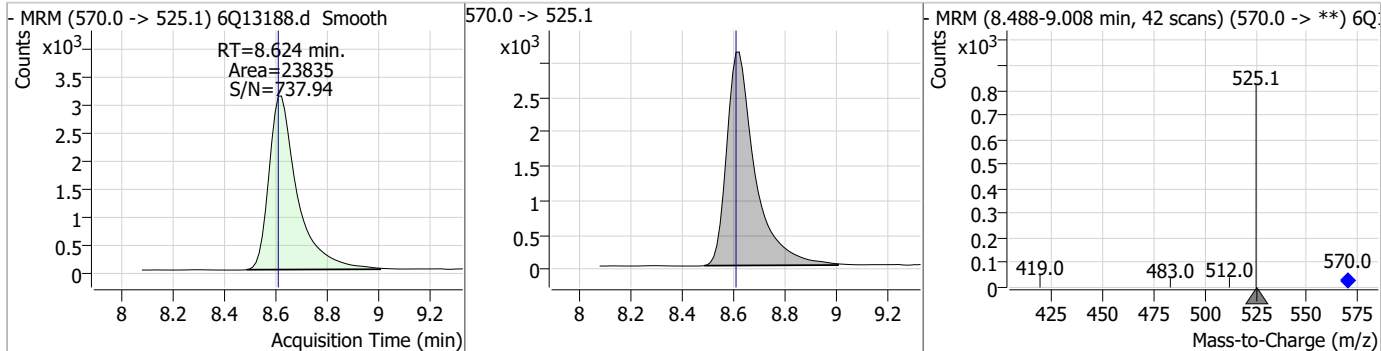
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.03	8.41	0.01	26730				



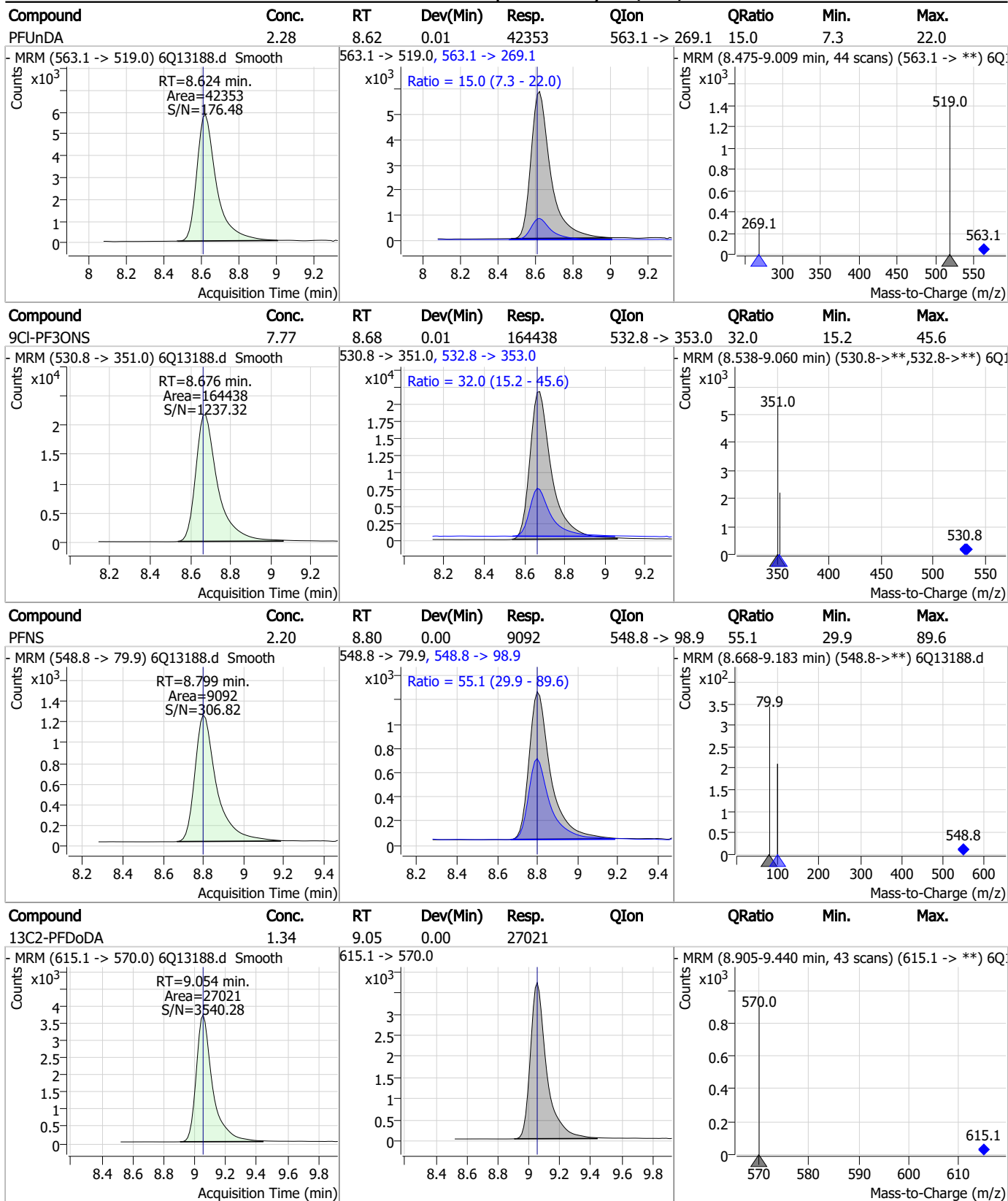
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.10	8.41	0.00	8975 (m)	584.2 -> 526.0	56.1	25.6	76.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.35	8.62	0.01	23835				

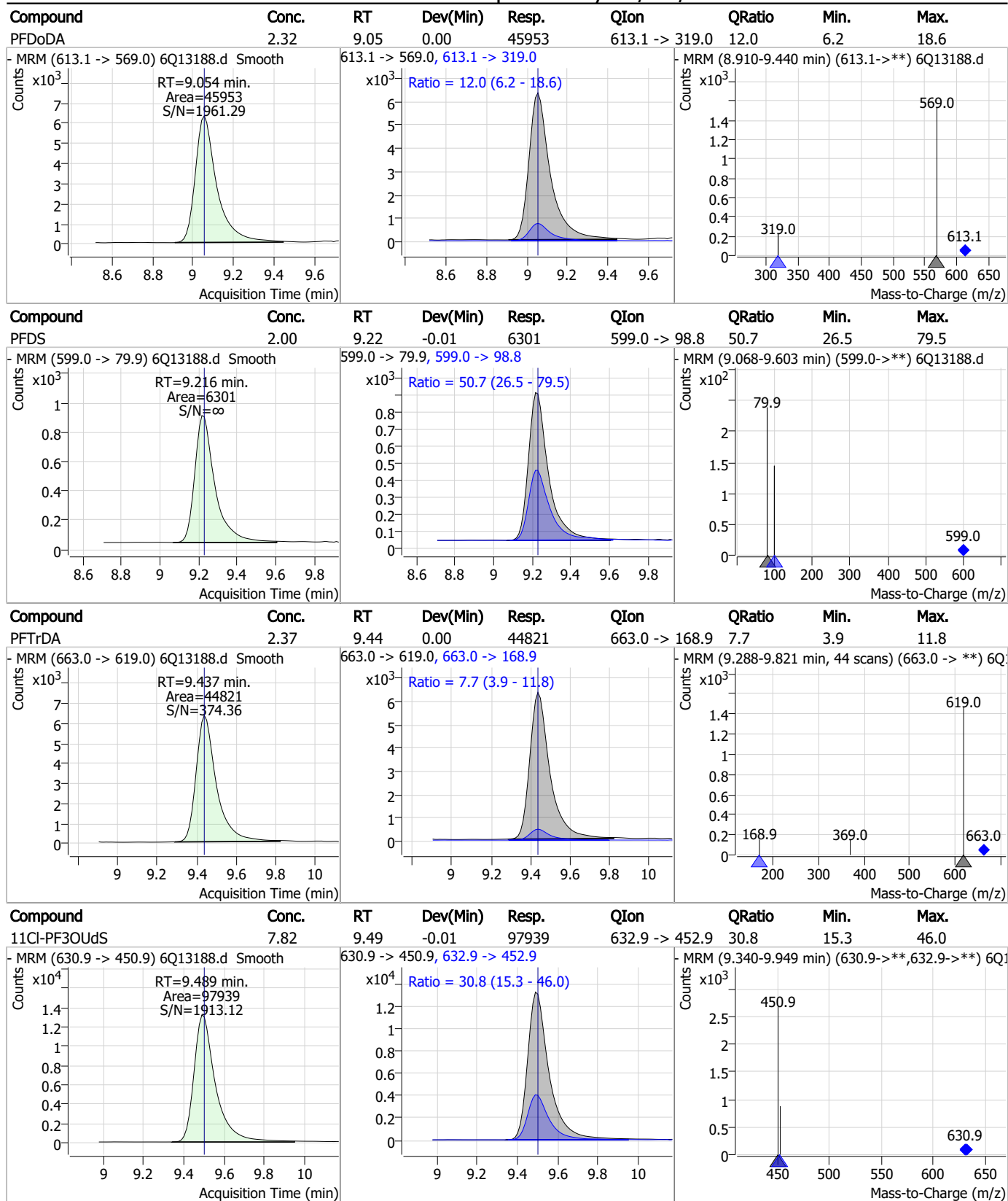


Perfluorinated Compounds by LC/MS/MS



7.7.12

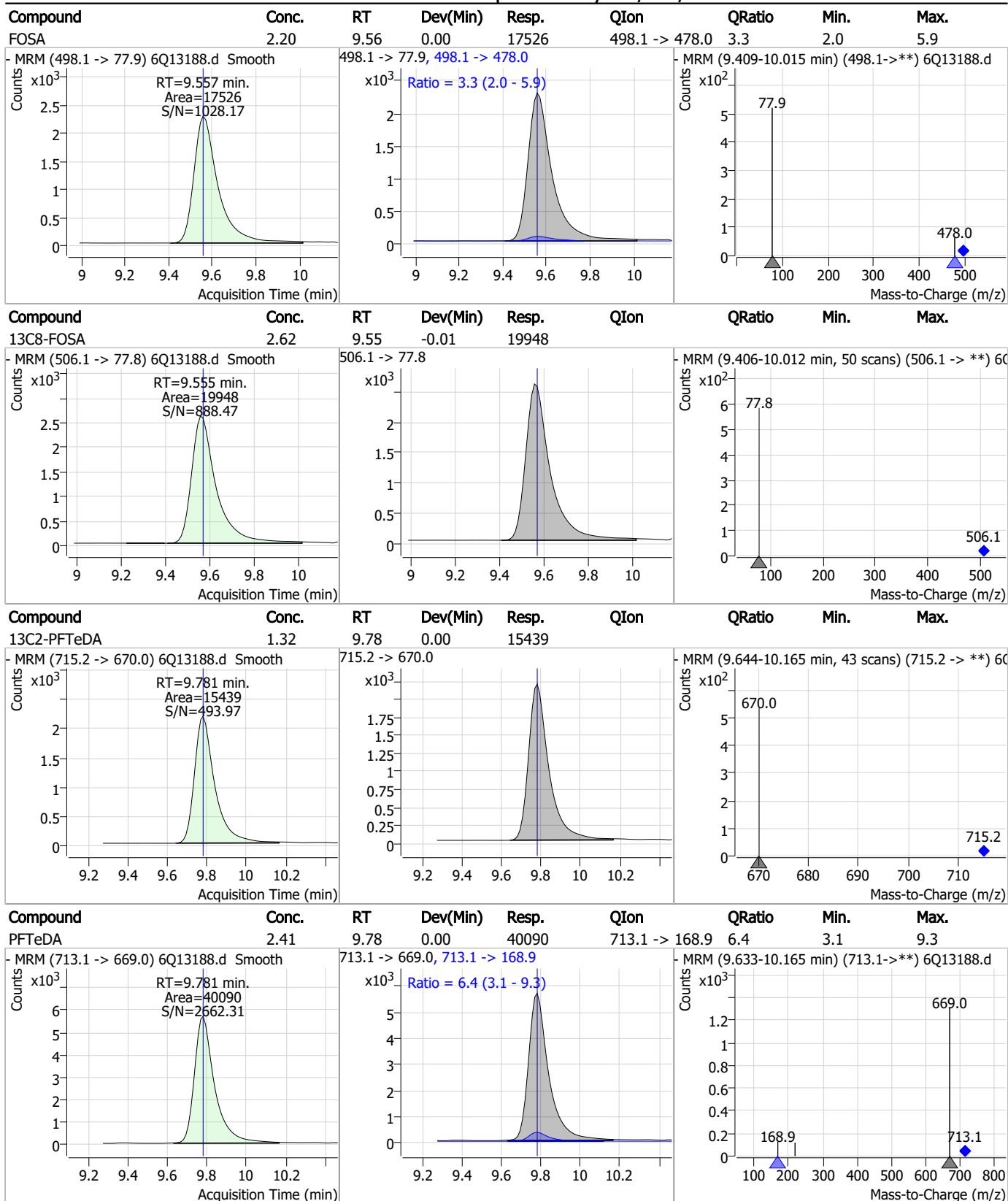
Perfluorinated Compounds by LC/MS/MS



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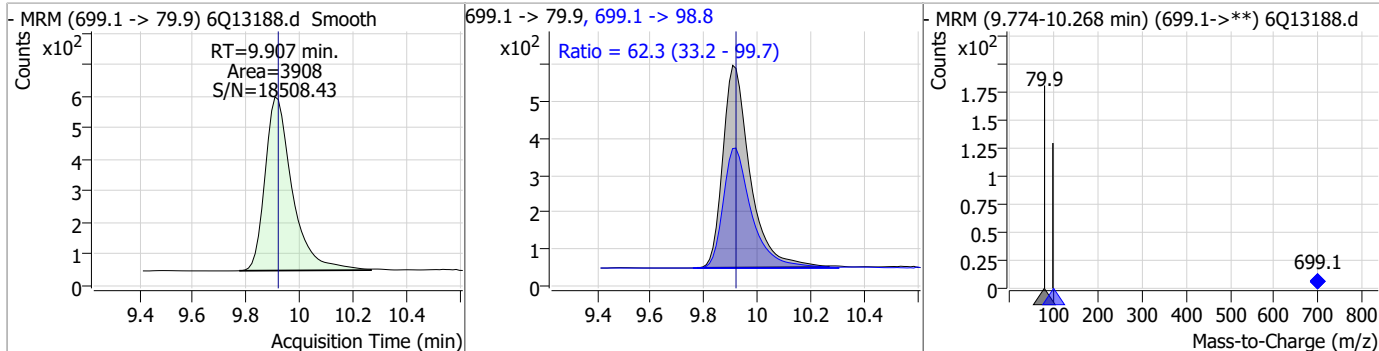
Perfluorinated Compounds by LC/MS/MS



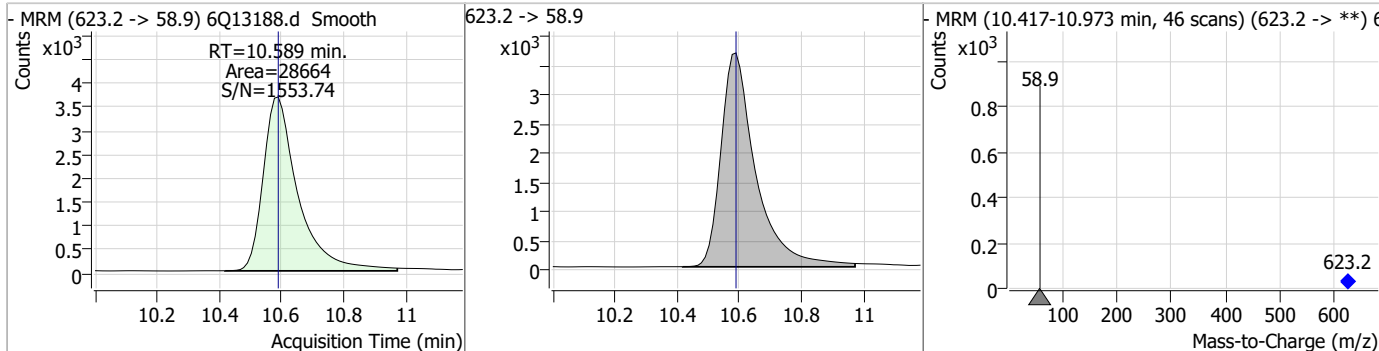
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Perfluorinated Compounds by LC/MS/MS

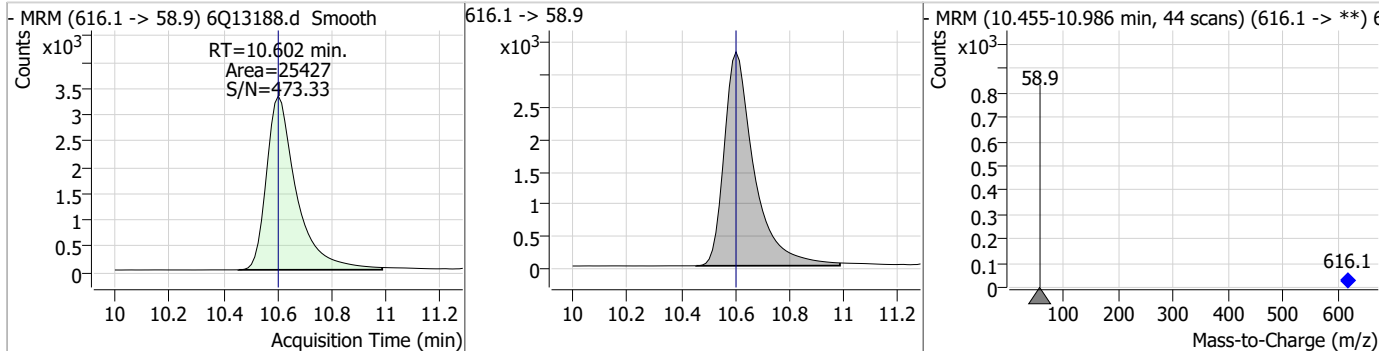
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.07	9.91	-0.01	3908	699.1 -> 98.8	62.3	33.2	99.7



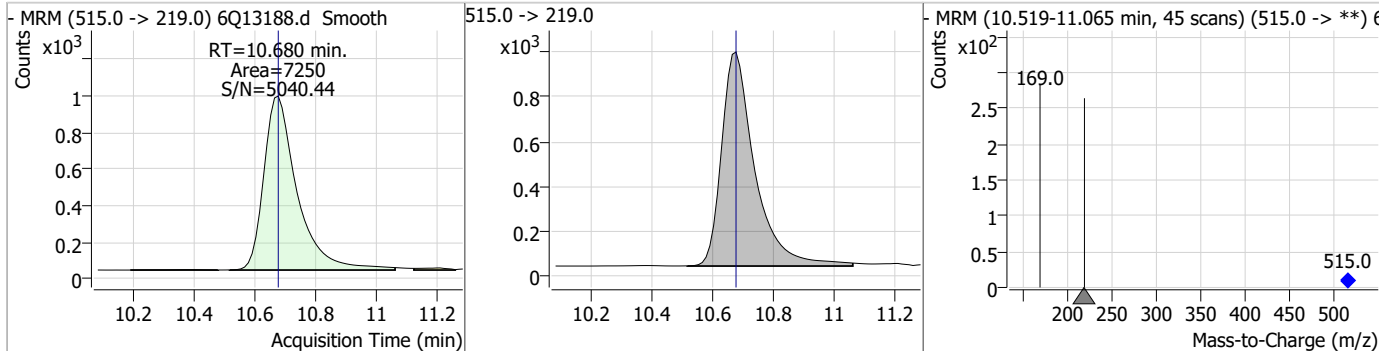
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	21.59	10.59	0.00	28664				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	22.24	10.60	0.00	25427				

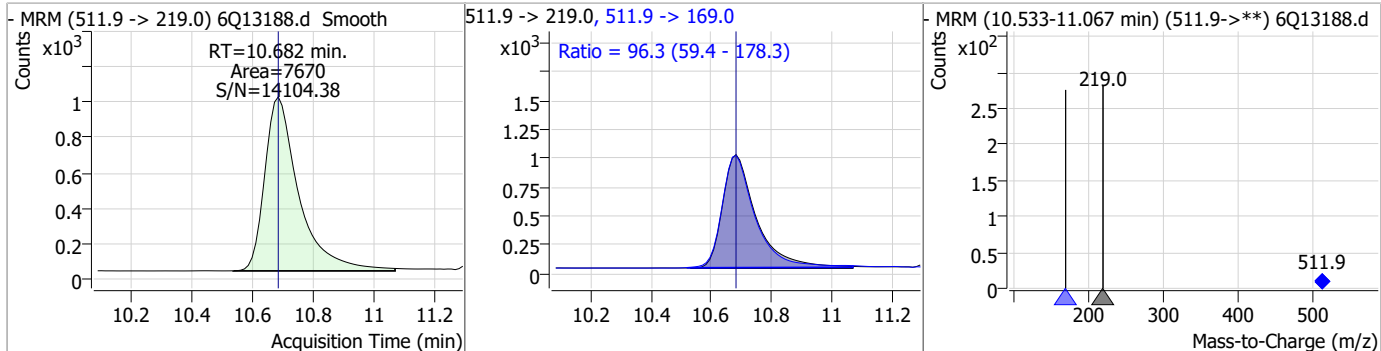


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.21	10.68	0.00	7250				

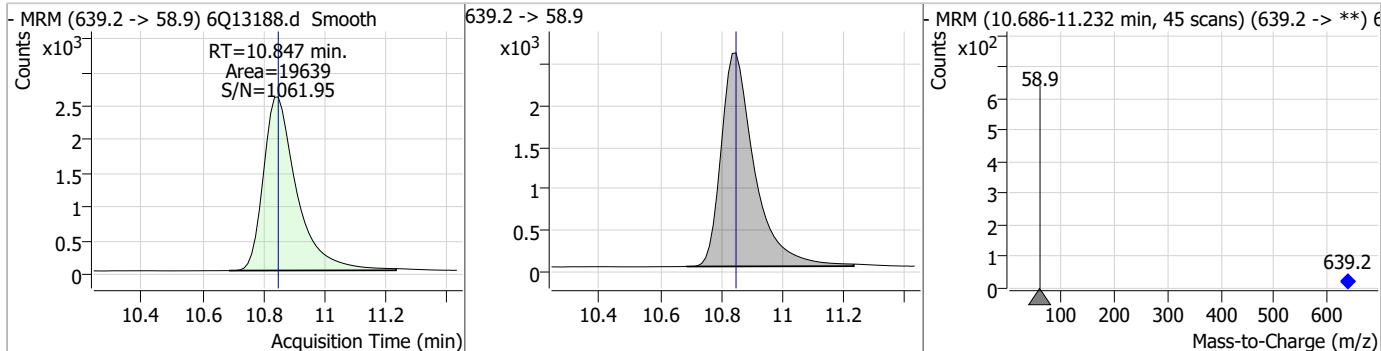


Perfluorinated Compounds by LC/MS/MS

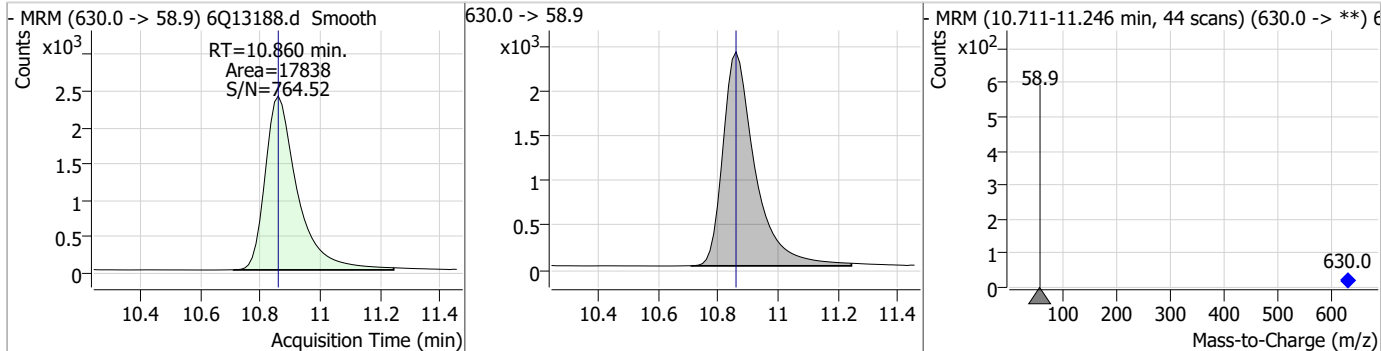
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	2.45	10.68	0.00	7670	511.9 -> 169.0	96.3	59.4	178.3



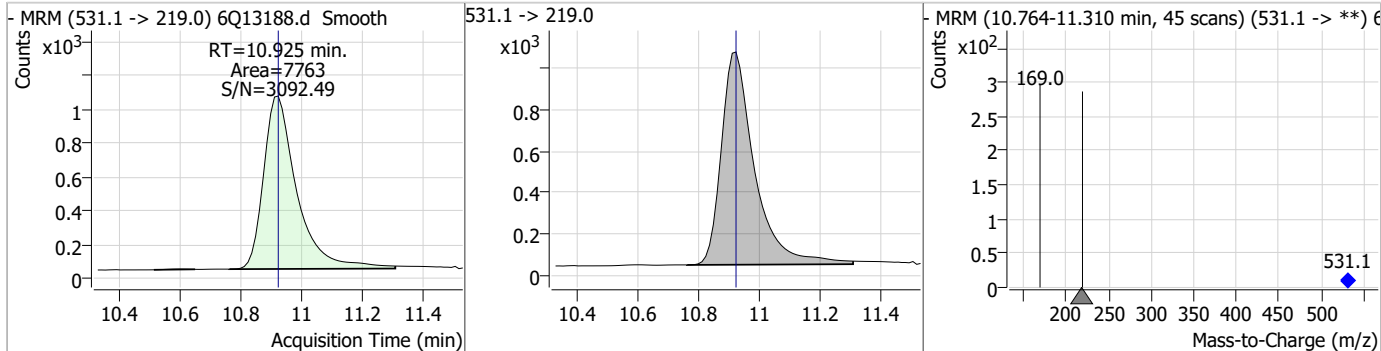
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	21.46	10.85	0.00	19639				



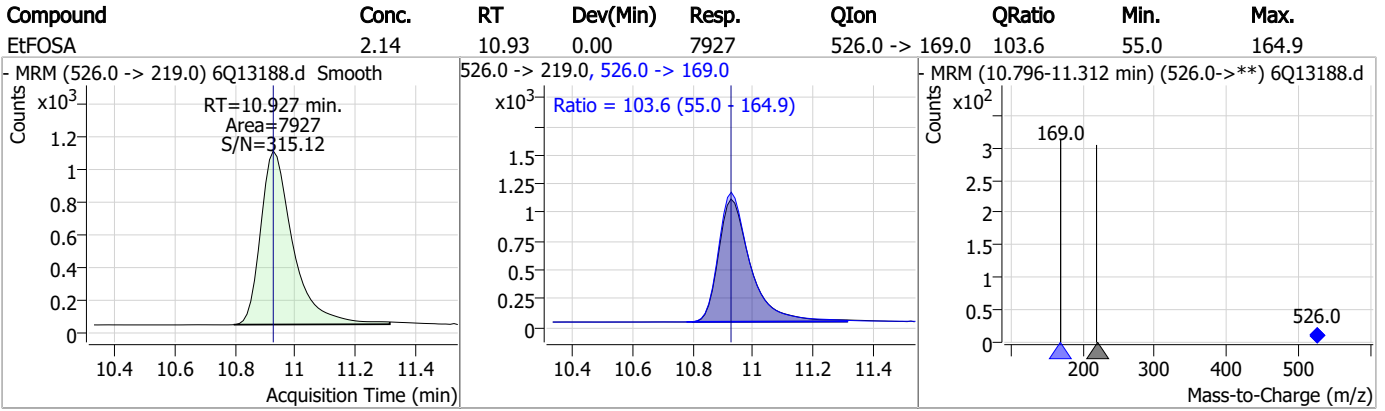
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	21.22	10.86	0.00	17838				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.17	10.92	0.00	7763				



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q202-CC196 Method: EPA DRAFT 1633
Lab FileID: 6Q13188.D Analyst approved: 02/08/23 10:34 Martha Valls
Injection Time: 02/07/23 10:48 Supervisor approved: 02/08/23 11:27 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.41	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13189.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/7/2023 11:02:01 AM
 Sample Name : cc196-1.0LL
 Vial : P1-A2
 DA Method File : 1633_020223_S6Q196.quantmethod.xml
 Batch Name : s6q202.batch.bin
 Sample Information : OP95070,S6Q202,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.975	216.8 -> 171.9	87431	10.00 µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	43780	5.00 µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	39342	2.50 µg/L	0.012
M4-PFHpA	6.502	367.1 -> 322.0	40791	2.50 µg/L	0.000
M8-PFOA	7.146	421.1 -> 376.0	70597	2.50 µg/L	0.000
M9-PFNA	7.677	472.1 -> 427.0	24664	1.25 µg/L	0.000
M6-PFDA	8.157	519.1 -> 474.1	18250	1.25 µg/L	0.000
M7-PFUnDA	8.624	570.0 -> 525.1	23204	1.25 µg/L	0.012
M2-PFDoDA	9.054	615.1 -> 570.0	26816	1.25 µg/L	0.000
M2-PFTeDA	9.781	715.2 -> 670.0	14674	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	17530	2.50 µg/L	-0.012
M3-PFBS	5.518	302.1 -> 79.9	15392	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	9676	2.50 µg/L	0.000
M8-PFOS	8.333	507.1 -> 79.9	8525	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2423	5.00 µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	3256	5.00 µg/L	0.000
M2-8:2FTS	7.944	529.1 -> 80.9	3290	5.00 µg/L	0.000
M3-MeFOSAA	8.202	573.2 -> 419.0	29474	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	15582	10.00 µg/L	0.000
M5-EtFOSAA	8.398	589.2 -> 419.0	24826	5.00 µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	27491	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	18133	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7398	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	6680	2.50 µg/L	0.000
13C4-PFOS	8.333	502.8 -> 79.9	10852	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	39470	5.00 µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	7275	2.50 µg/L	0.000
13C4-PFOA	7.147	417.1 -> 372.0	85957	2.50 µg/L	0.000
13C2-PFDA	8.158	515.1 -> 470.1	27425	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	28532	1.25 µg/L	0.000
13C2-PFHxA	5.576	315.1 -> 270.0	39986	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.240	329.1 -> 80.9	2423	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.4%		
13C2-6:2FTS	6.908	429.1 -> 80.9	3256	5.19 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.7%		
13C2-8:2FTS	7.944	529.1 -> 80.9	3290	5.22 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.4%		
13C2-PFDoDA	9.054	615.1 -> 570.0	26816	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C2-PFTeDA	9.781	715.2 -> 670.0	14674	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.4%		
13C3-PFBS	5.518	302.1 -> 79.9	15392	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.9%		
13C3-PFHxS	7.274	402.1 -> 79.9	9676	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 = 101.2%	
13C4-PFBA	2.975	216.8 -> 171.9	87431	9.98 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C4-PFHpA	6.502	367.1 -> 322.0	40791	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C5-PFHxA	5.575	318.0 -> 273.0	39342	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C5-PFPeA	4.386	268.3 -> 223.0	43780	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C6-PFDA	8.157	519.1 -> 474.1	18250	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.7%	
13C7-PFUnDA	8.624	570.0 -> 525.1	23204	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C8-FOSA	9.555	506.1 -> 77.8	17530	2.48 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C8-PFOA	7.146	421.1 -> 376.0	70597	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C8-PFOS	8.333	507.1 -> 79.9	8525	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.6%	
13C9-PFNA	7.677	472.1 -> 427.0	24664	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.3%	
d3-MeFOSAA	8.202	573.2 -> 419.0	29474	4.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C3-HFPO-DA	5.940	286.9 -> 168.9	15582	9.54 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.4%	
d3-MeFOSA	10.680	515.0 -> 219.0	6680	2.19 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.7%	
d5-EtFOSAA	8.398	589.2 -> 419.0	24826	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
d7-MeFOSE	10.589	623.2 -> 58.9	27491	22.31 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.2%	
d9-EtFOSE	10.847	639.2 -> 58.9	18133	21.35 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 85.4%	
d5-EtFOSA	10.925	531.1 -> 219.0	7398	2.23 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.3%	
Target Compounds					QValue
4:2FTS	5.240	327.1 -> 307.0	4263	0.78 µg/L	98
		327.1 -> 80.9	1000		
6:2FTS	6.908	427.1 -> 407.0	3694	0.77 µg/L	89
		427.1 -> 80.9	891		
8:2FTS	7.945	527.1 -> 507.0	2343	0.92 µg/L	94
		527.1 -> 80.8	484		
EtFOSAA	8.411	584.2 -> 419.1	817	0.21 µg/L	91
		584.2 -> 526.0	365		
FOSA	9.557	498.1 -> 77.9	1494	0.21 µg/L	100
		498.1 -> 478.0	61		
MeFOSAA	8.203	570.1 -> 419.0	1130	0.21 µg/L	97
		570.1 -> 483.0	223		
PFBA	2.982	212.8 -> 168.9	1715	0.88 µg/L	100
PFBS	5.518	298.7 -> 79.9	1098	0.19 µg/L	95
		298.7 -> 98.8	503		
PFDA	8.158	512.9 -> 469.0	5049	0.24 µg/L	92
		512.9 -> 219.0	516		
PFDODA	9.054	613.1 -> 569.0	4187	0.21 µg/L	97
		613.1 -> 319.0	463		
PFDS	9.229	599.0 -> 79.9	687	0.24 µg/L	77

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.503	599.0 -> 98.8	253	0.22	µg/L	97
		363.1 -> 319.0	5220			
PFHpS	7.828	363.1 -> 169.0	645	0.20	µg/L	95
		449.0 -> 79.9	736			
PFHxA	5.566	449.0 -> 98.9	430	0.19	µg/L	100
		313.0 -> 269.0	2892			
PFHxS	7.275	313.0 -> 118.9	105	0.21	µg/L	97
		398.7 -> 79.9	914			
PFNA	7.677	398.7 -> 98.9	520	0.23	µg/L	94
		463.0 -> 419.0	3866			
PFNS	8.798	463.0 -> 219.0	686	0.22	µg/L	95
		548.8 -> 79.9	847			
PFOA	7.148	548.8 -> 98.9	471	0.24	µg/L	96
		413.0 -> 369.0	7342			
PFOS	8.334	413.0 -> 169.0	840	0.21	µg/L	97
		498.9 -> 79.9	814			
PFPeA	4.388	498.9 -> 98.8	482	0.41	µg/L	100
		263.0 -> 219.0	3789			
PFPeS	6.581	349.1 -> 79.9	991	0.20	µg/L	92
		349.1 -> 98.9	595			
PFTeDA	9.781	713.1 -> 669.0	3682	0.23	µg/L	97
		713.1 -> 168.9	270			
PFTrDA	9.437	663.0 -> 619.0	4224	0.22	µg/L	96
		663.0 -> 168.9	270			
PFUnDA	8.624	563.1 -> 519.0	3796	0.21	µg/L	96
		563.1 -> 269.1	486			
11Cl-PF3OUdS	9.489	630.9 -> 450.9	8109	0.73	µg/L	96
		632.9 -> 452.9	2658			
9Cl-PF3ONS	8.676	530.8 -> 351.0	13721	0.73	µg/L	77
		532.8 -> 353.0	5921			
ADONA	6.753	376.9 -> 250.9	26948	0.80	µg/L	100
		376.9 -> 84.8	5579			
HFPO-DA	5.940	284.9 -> 168.9	1134	0.78	µg/L	94
		284.9 -> 184.9	149			
3:3FTCA	3.841	241.0 -> 177.0	455	1.00	µg/L	86
		241.0 -> 117.0	82			
5:3FTCA	6.206	341.0 -> 237.1	16942	5.25	µg/L	91
		341.0 -> 217.0	13700			
7:3FTCA	7.605	441.0 -> 316.9	8870	4.21	µg/L	93
		441.0 -> 336.9	16900			
EtFOSA	10.927	526.0 -> 219.0	783	0.22	µg/L	77
		526.0 -> 169.0	673			
EtFOSE	10.860	630.0 -> 58.9	1583	2.04	µg/L	100
		511.9 -> 219.0	615			
MeFOSA	10.682	511.9 -> 169.0	634	0.21	µg/L	86
		616.1 -> 58.9	2331			
MeFOSE	10.602	699.1 -> 79.9	363	2.13	µg/L	100
		699.1 -> 98.8	257			
PFDoDS	9.920	295.0 -> 201.0	347	0.21	µg/L	95
		295.0 -> 84.9	193			
NFDHA	5.445	279.0 -> 85.1	1087	0.38	µg/L	88
		229.0 -> 84.9	1006			
PFMBA	4.800	314.8 -> 134.9	7894	0.41	µg/L	100
		314.8 -> 82.9	206			
PFMPA	3.541			0.36	µg/L	100
PFEESA	6.059					

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

7.7.13
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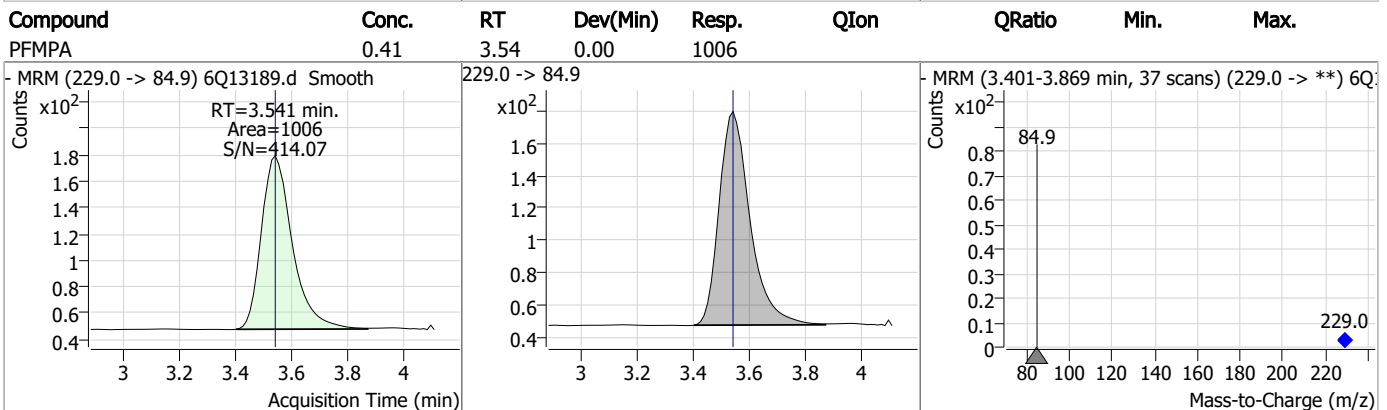
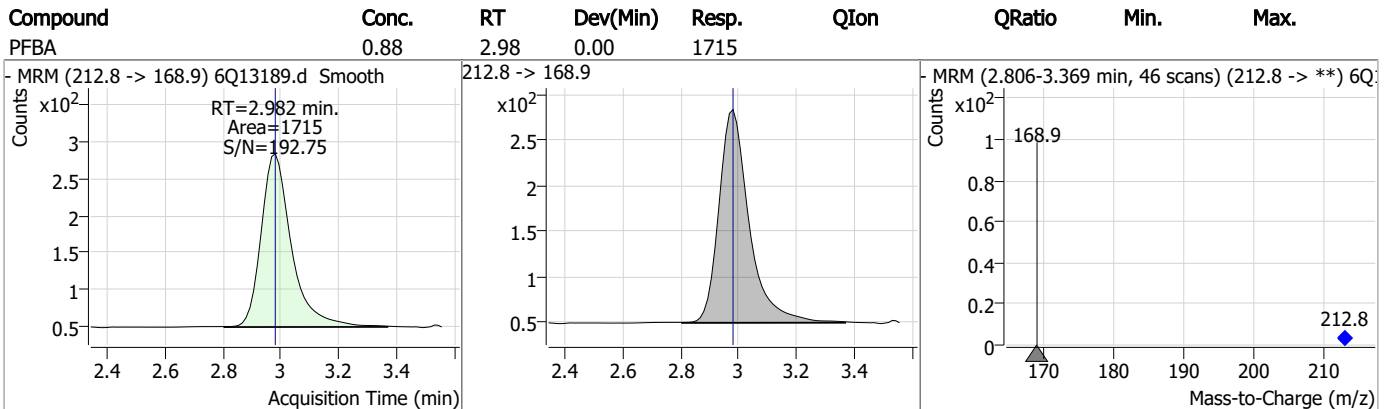
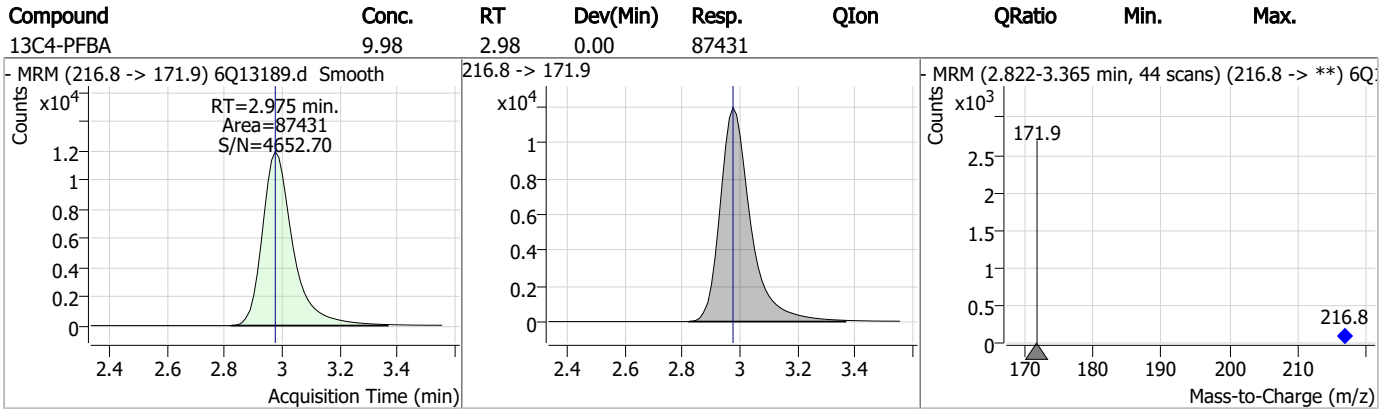
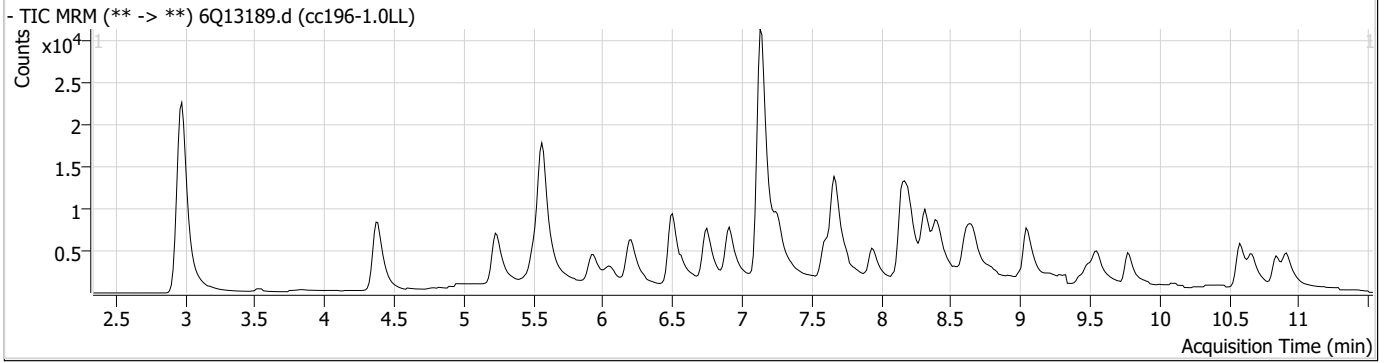
Perfluorinated Compounds by LC/MS/MS

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

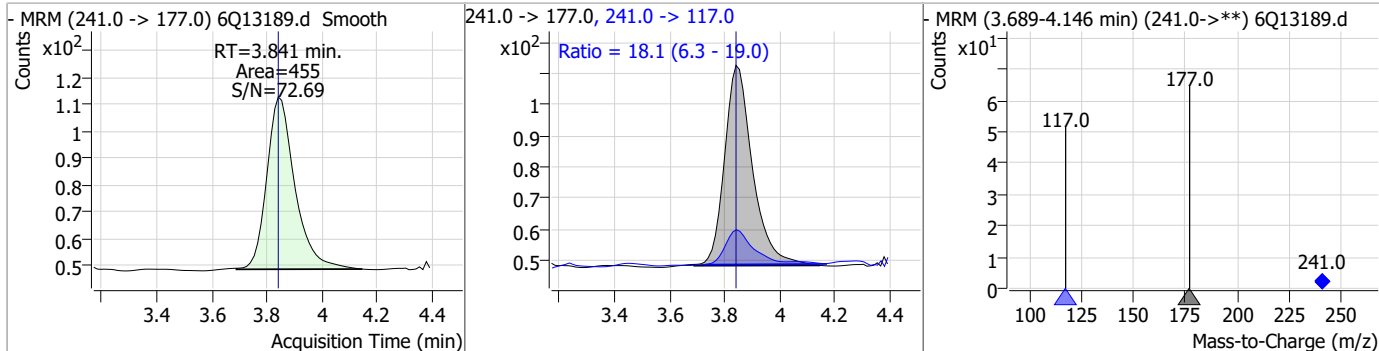


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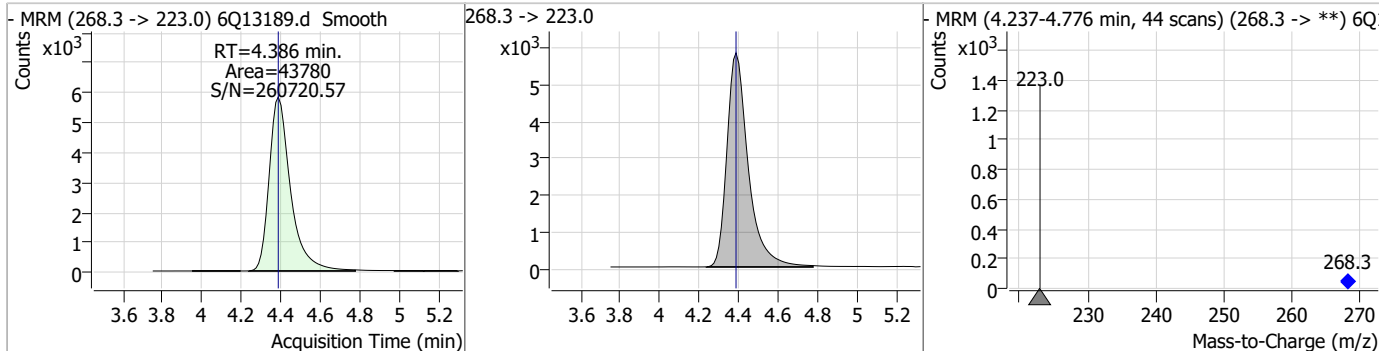


Perfluorinated Compounds by LC/MS/MS

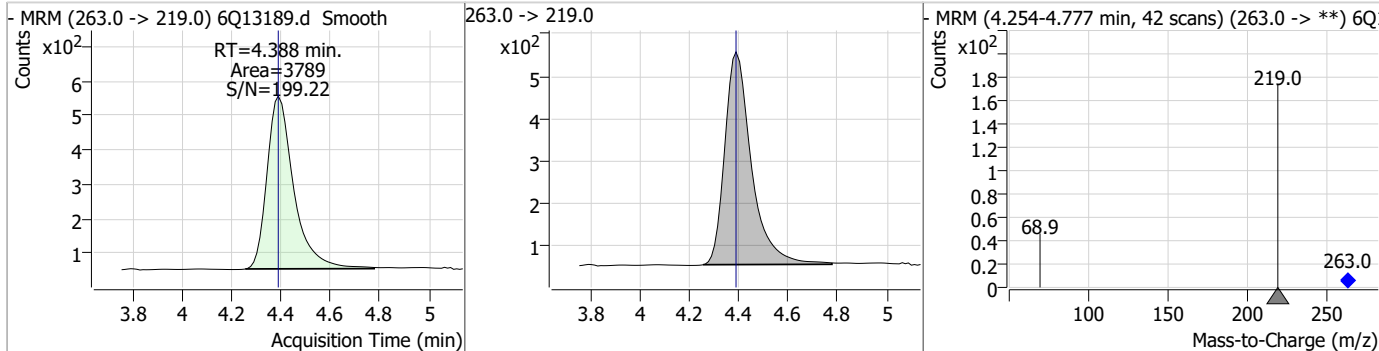
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	1.00	3.84	0.00	455	241.0 -> 117.0	18.1	6.3	19.0



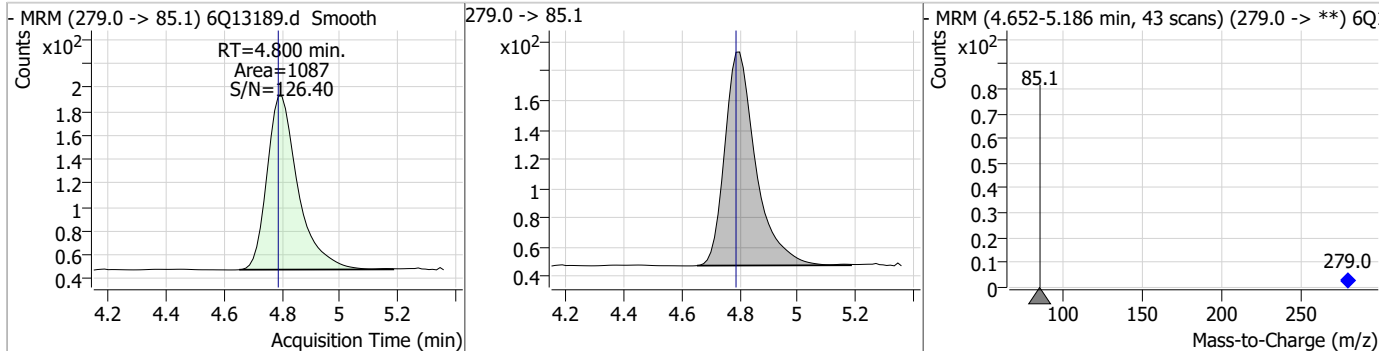
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.91	4.39	0.00	43780				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.41	4.39	0.00	3789				

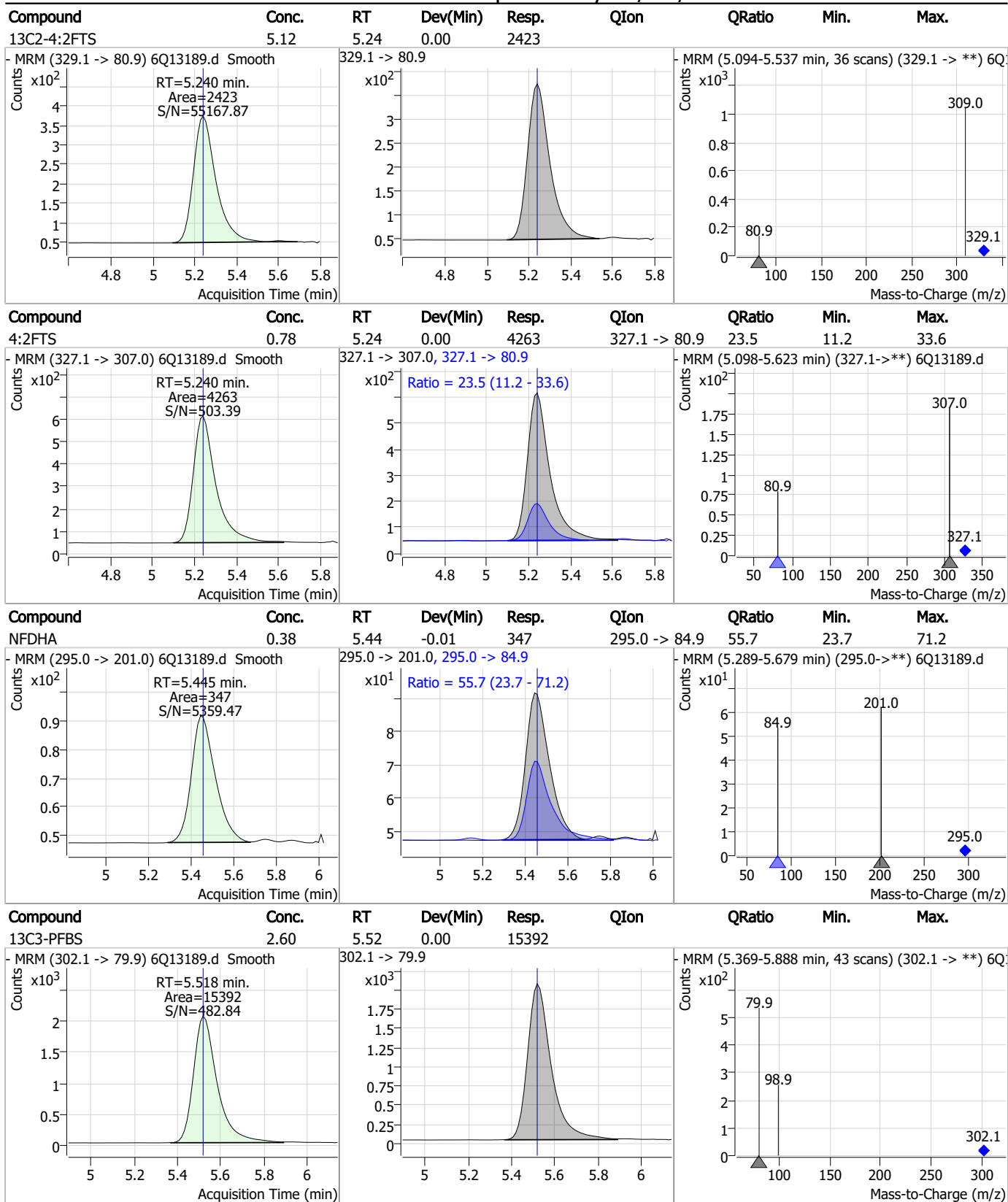


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.42	4.80	0.01	1087				



7.7.13
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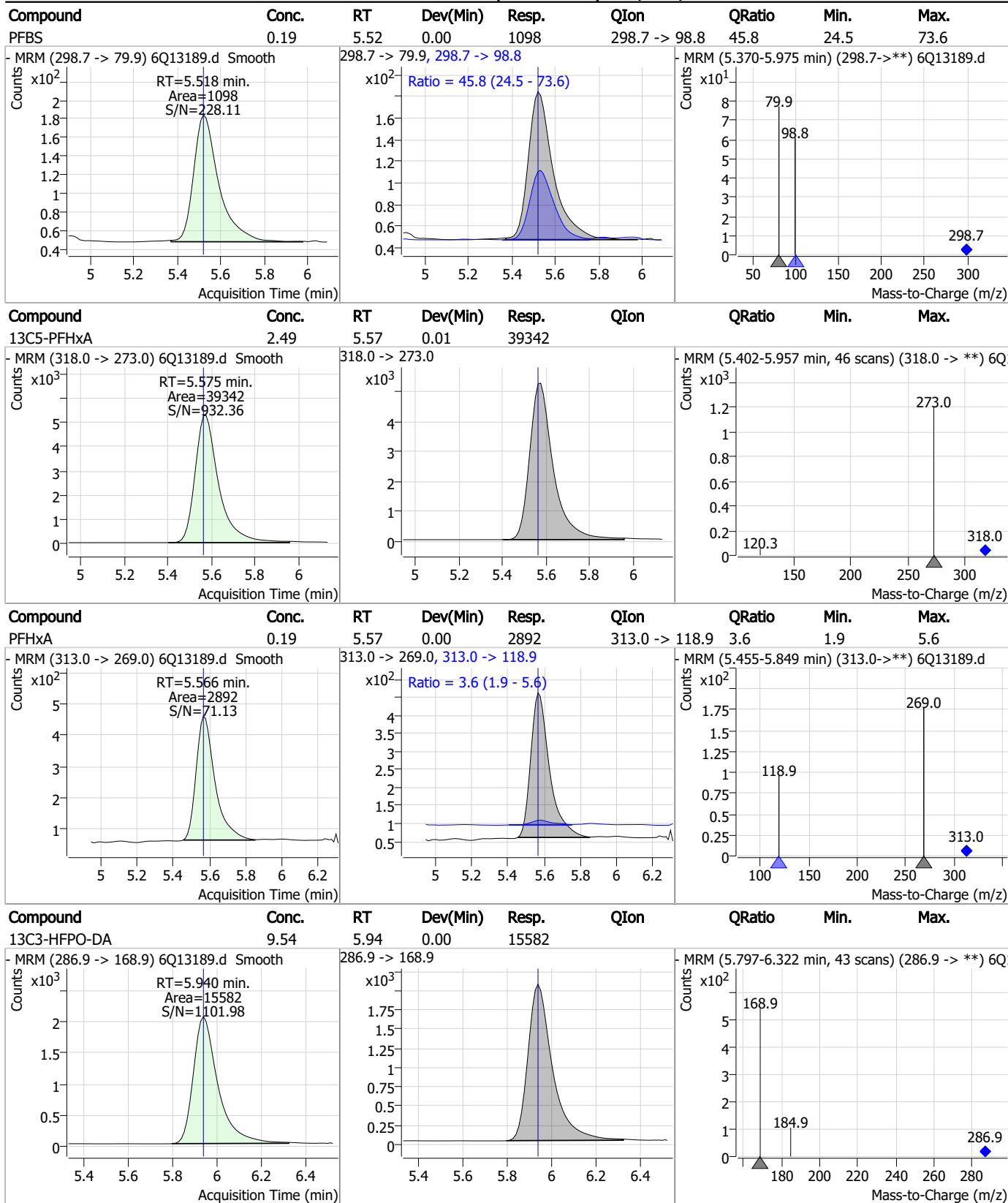
Perfluorinated Compounds by LC/MS/MS



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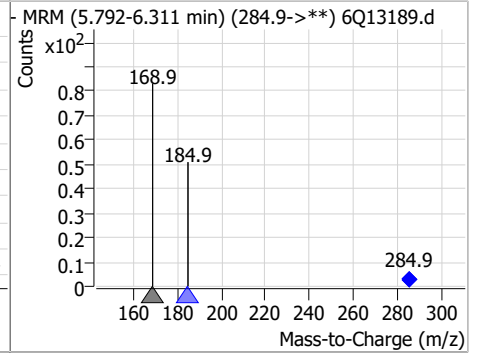
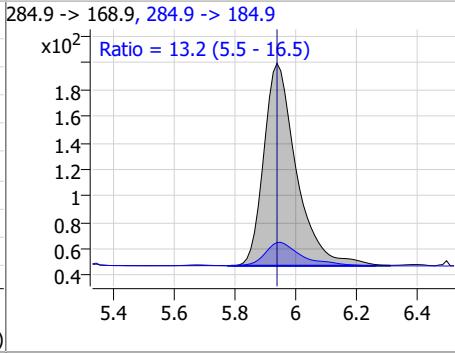
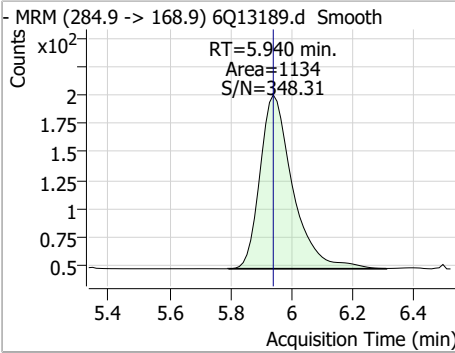
Perfluorinated Compounds by LC/MS/MS



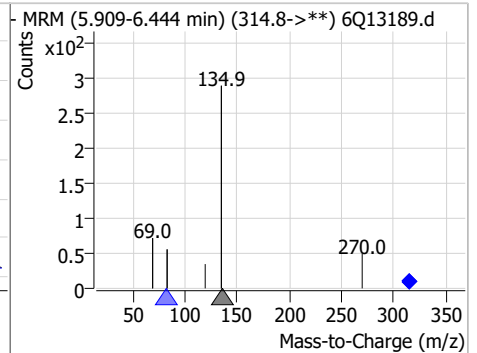
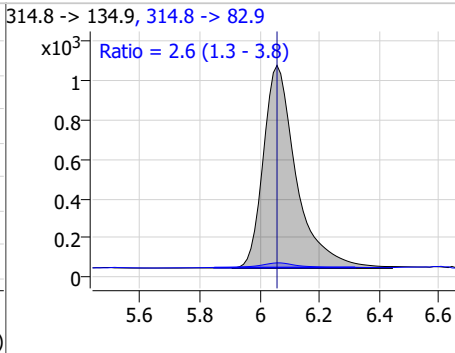
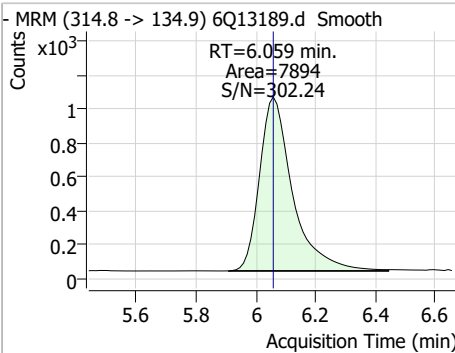
7.7.13
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Perfluorinated Compounds by LC/MS/MS

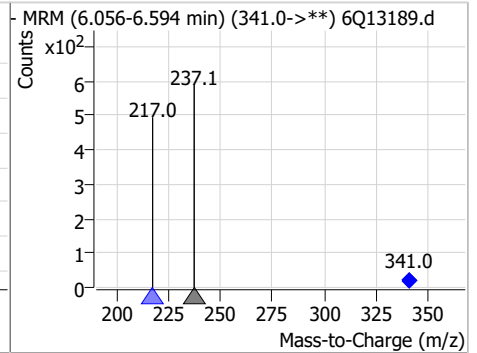
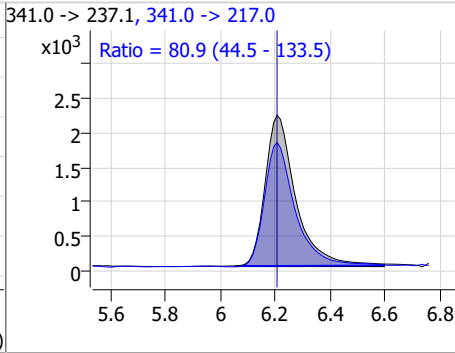
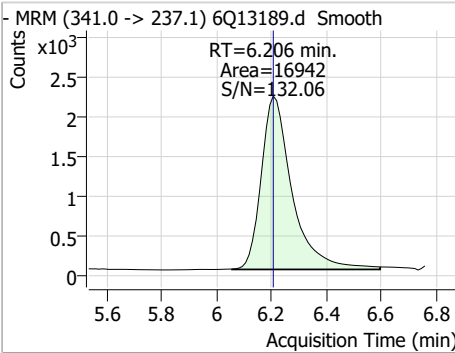
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.78	5.94	0.00	1134	284.9 -> 184.9	13.2	5.5	16.5



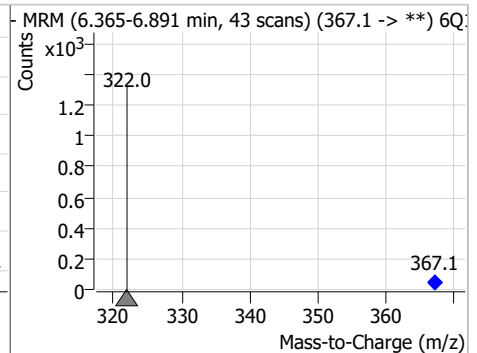
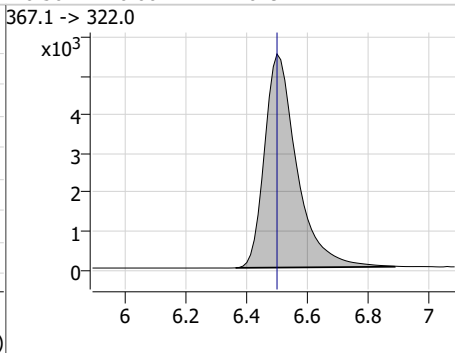
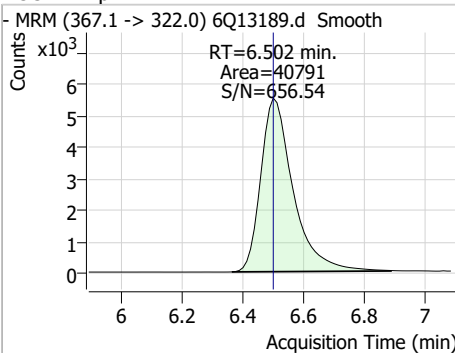
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.36	6.06	0.00	7894	314.8 -> 82.9	2.6	1.3	3.8



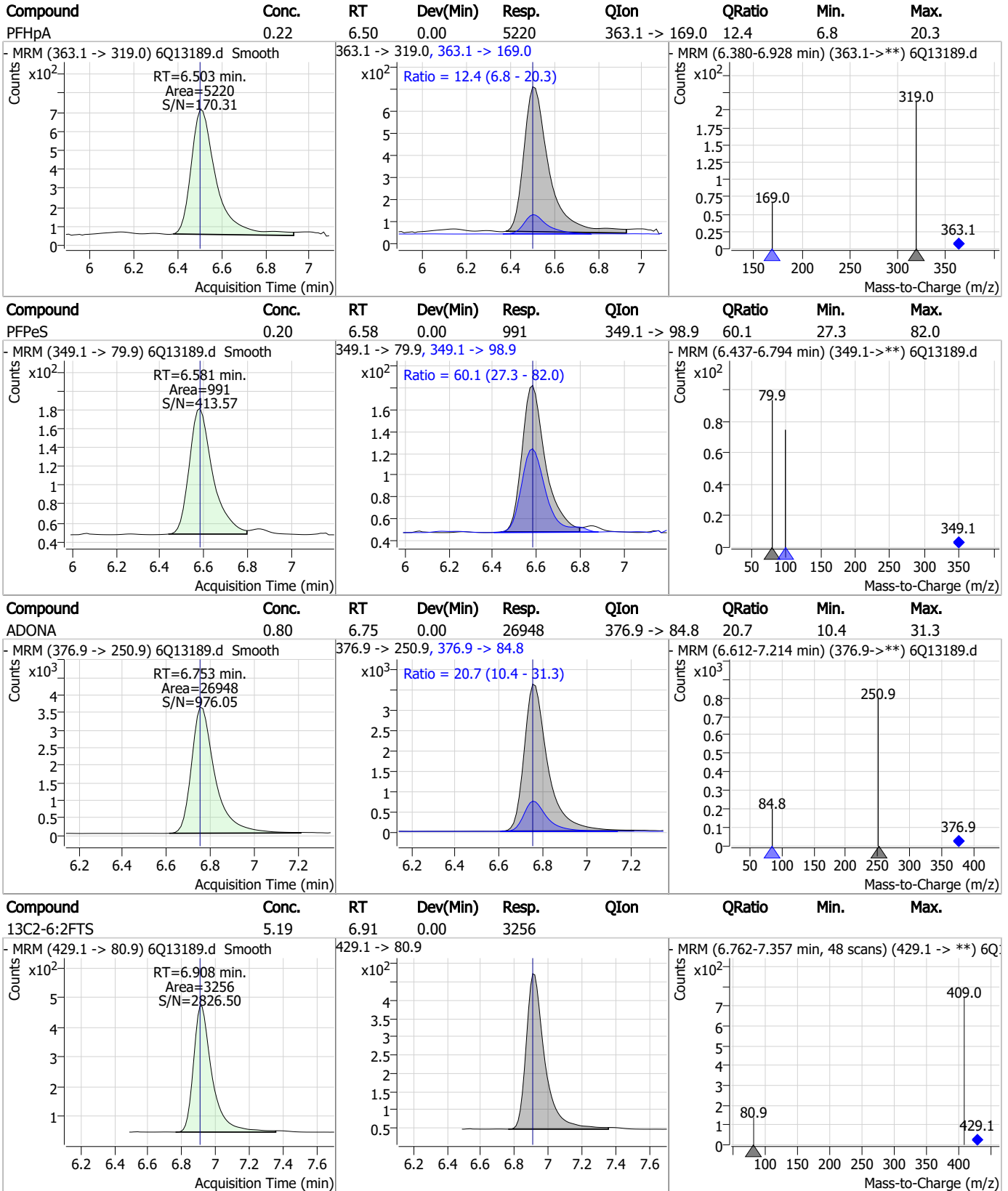
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	5.25	6.21	0.00	16942	341.0 -> 217.0	80.9	44.5	133.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.47	6.50	0.00	40791	367.1 -> 322.0			



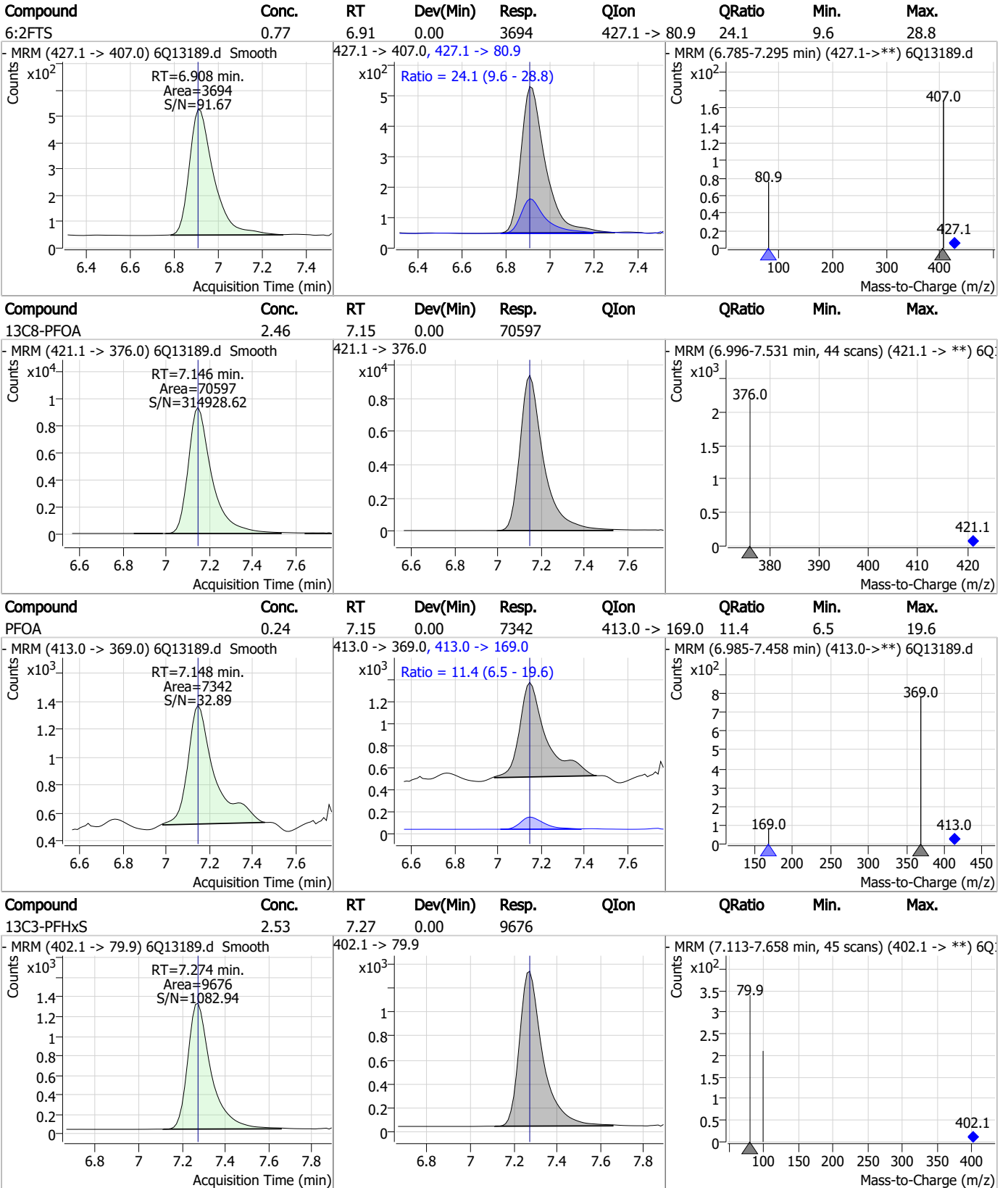
Perfluorinated Compounds by LC/MS/MS



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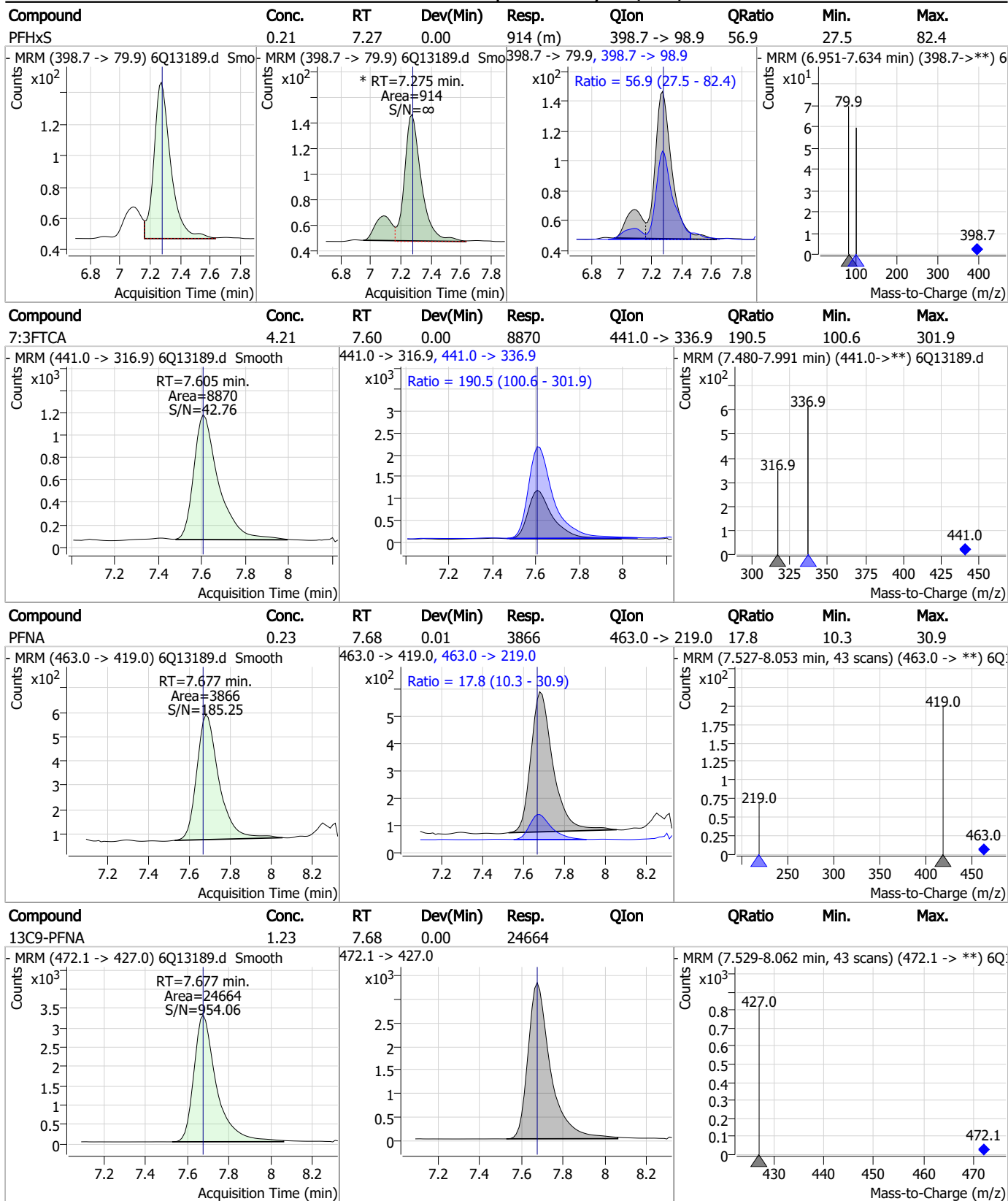
Perfluorinated Compounds by LC/MS/MS



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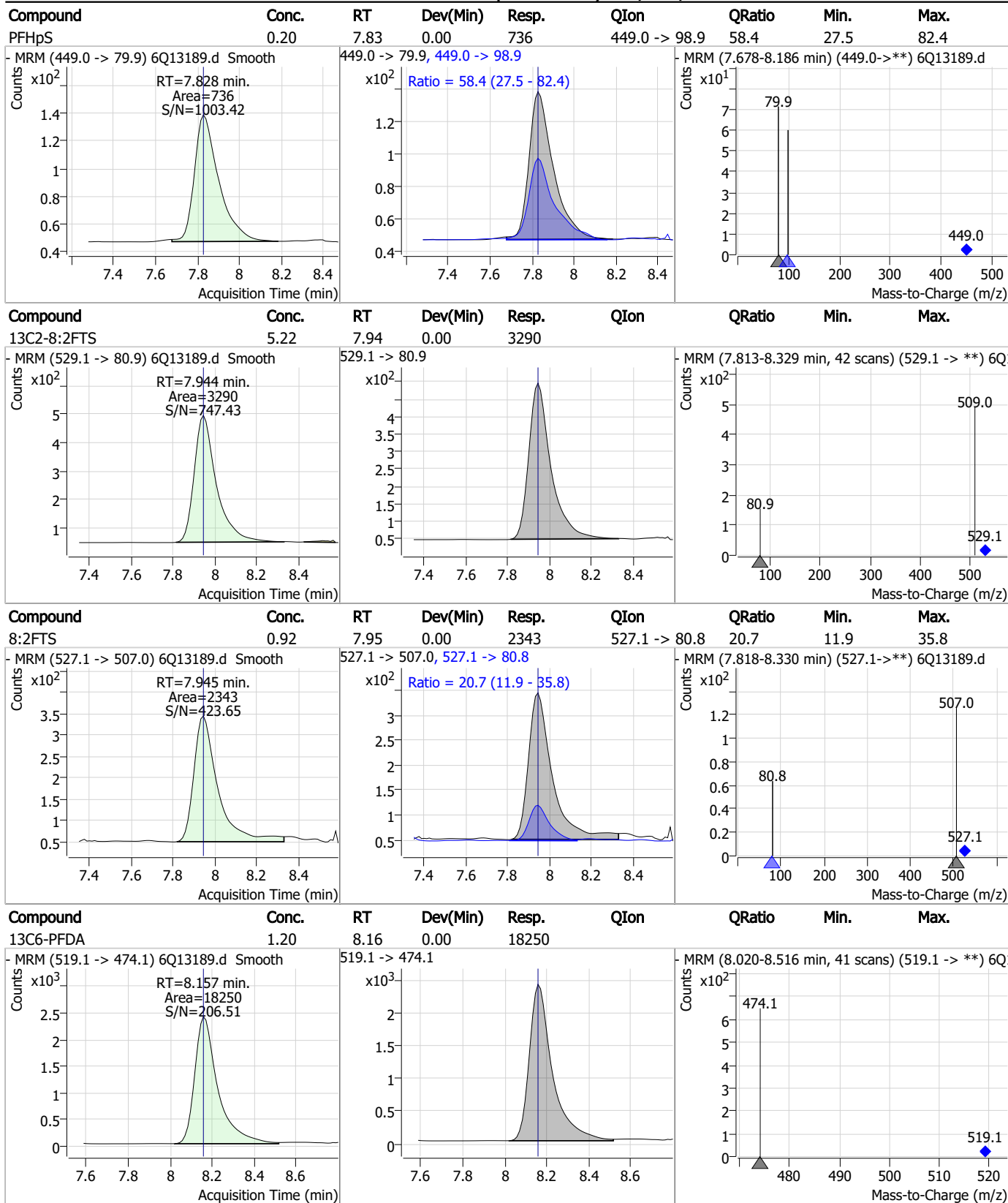


Perfluorinated Compounds by LC/MS/MS



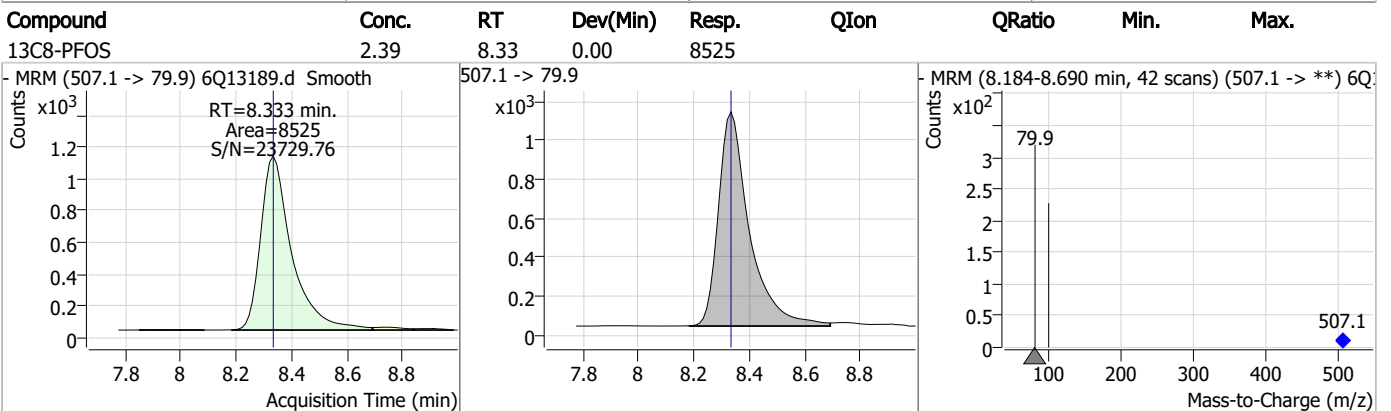
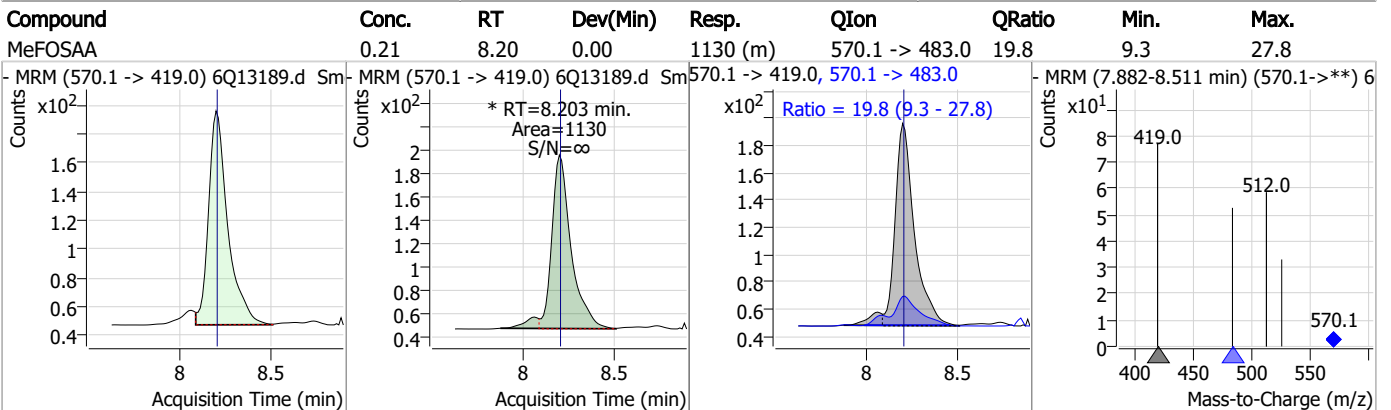
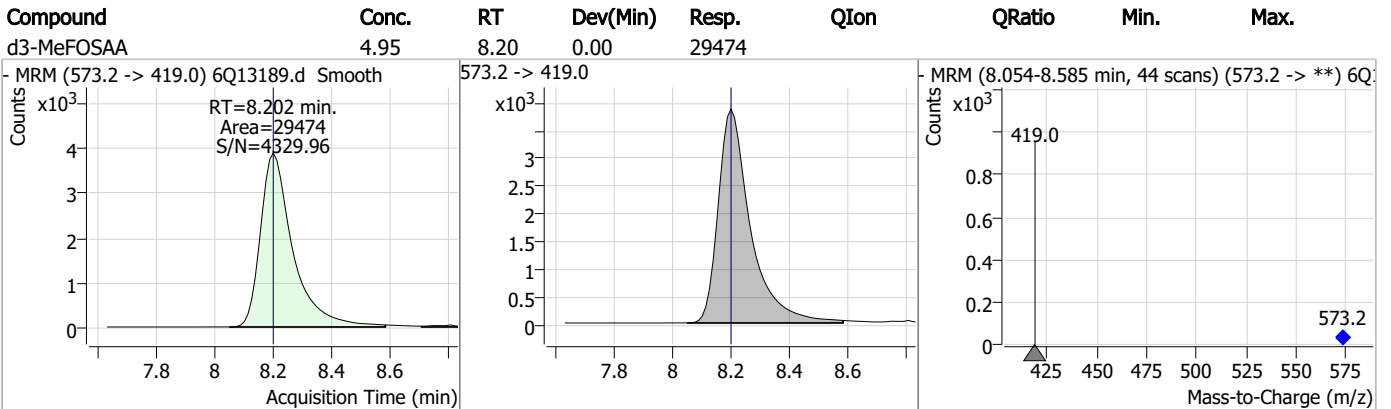
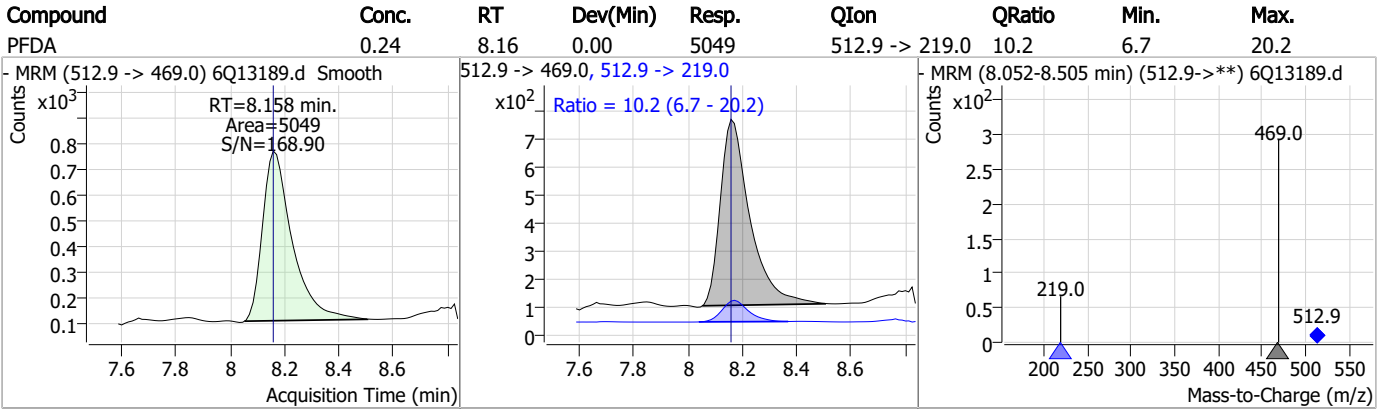
7.7.13
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

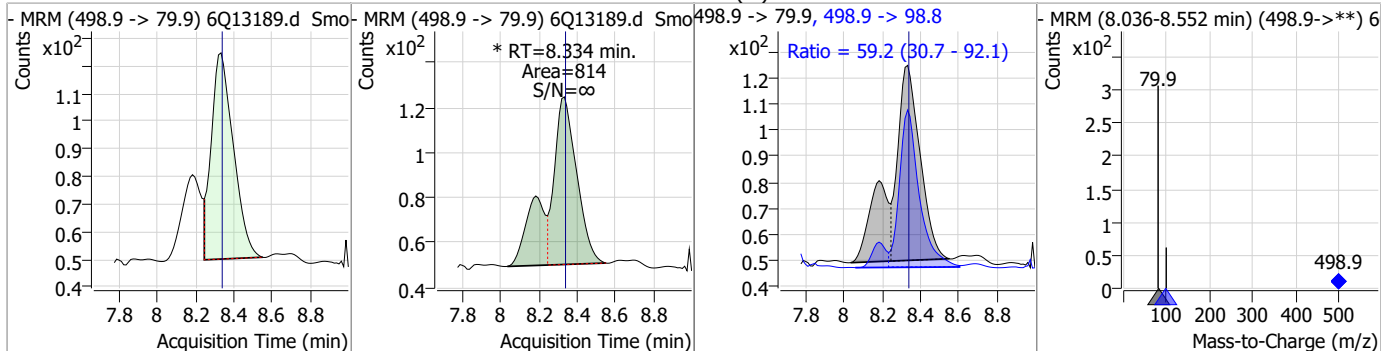


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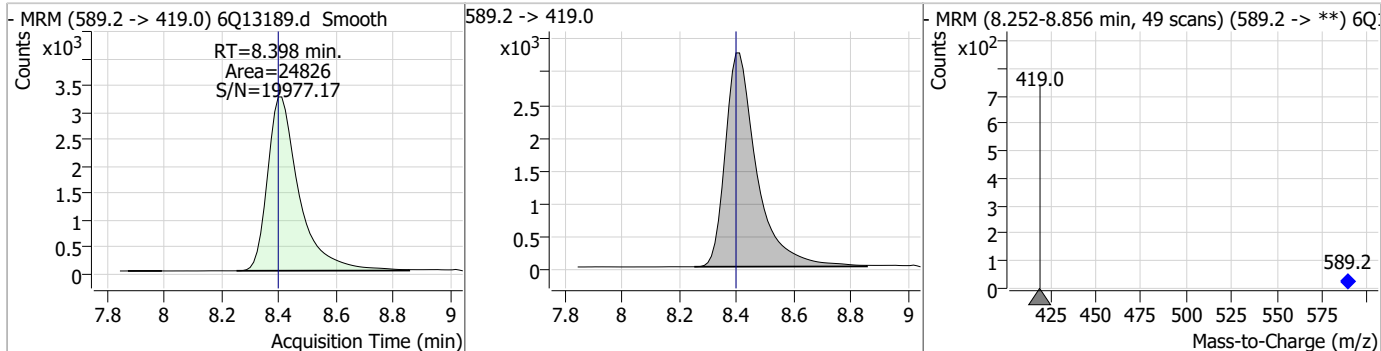


Perfluorinated Compounds by LC/MS/MS

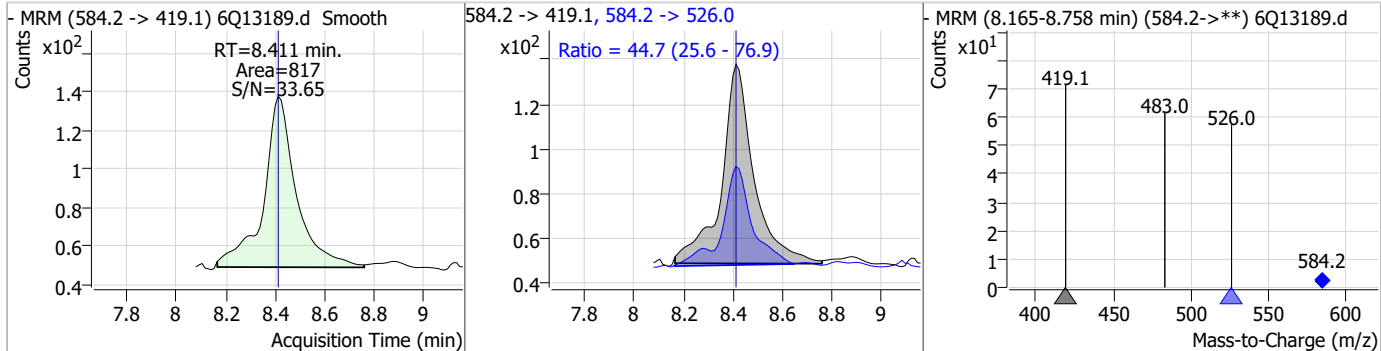
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.21	8.33	0.00	814 (m)	498.9 -> 98.8	59.2	30.7	92.1



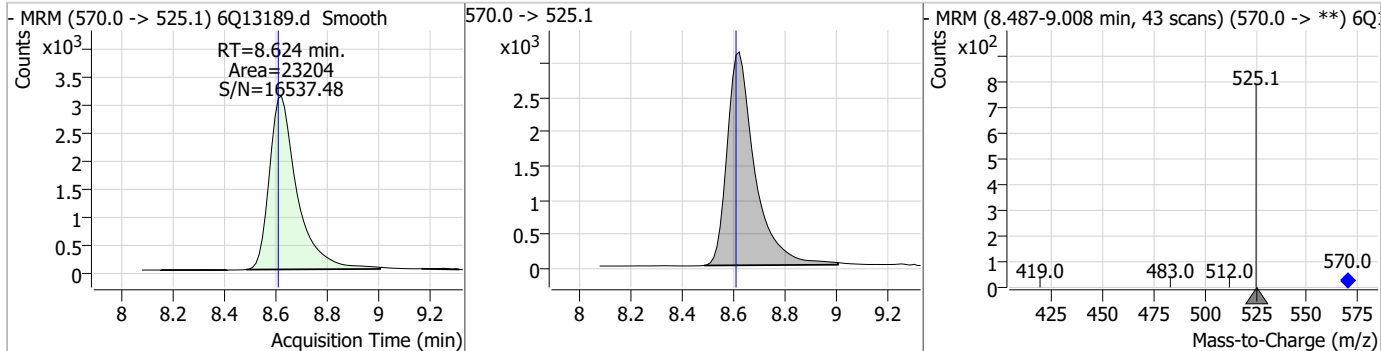
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.03	8.40	0.00	24826				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.21	8.41	0.00	817	584.2 -> 526.0	44.7	25.6	76.9

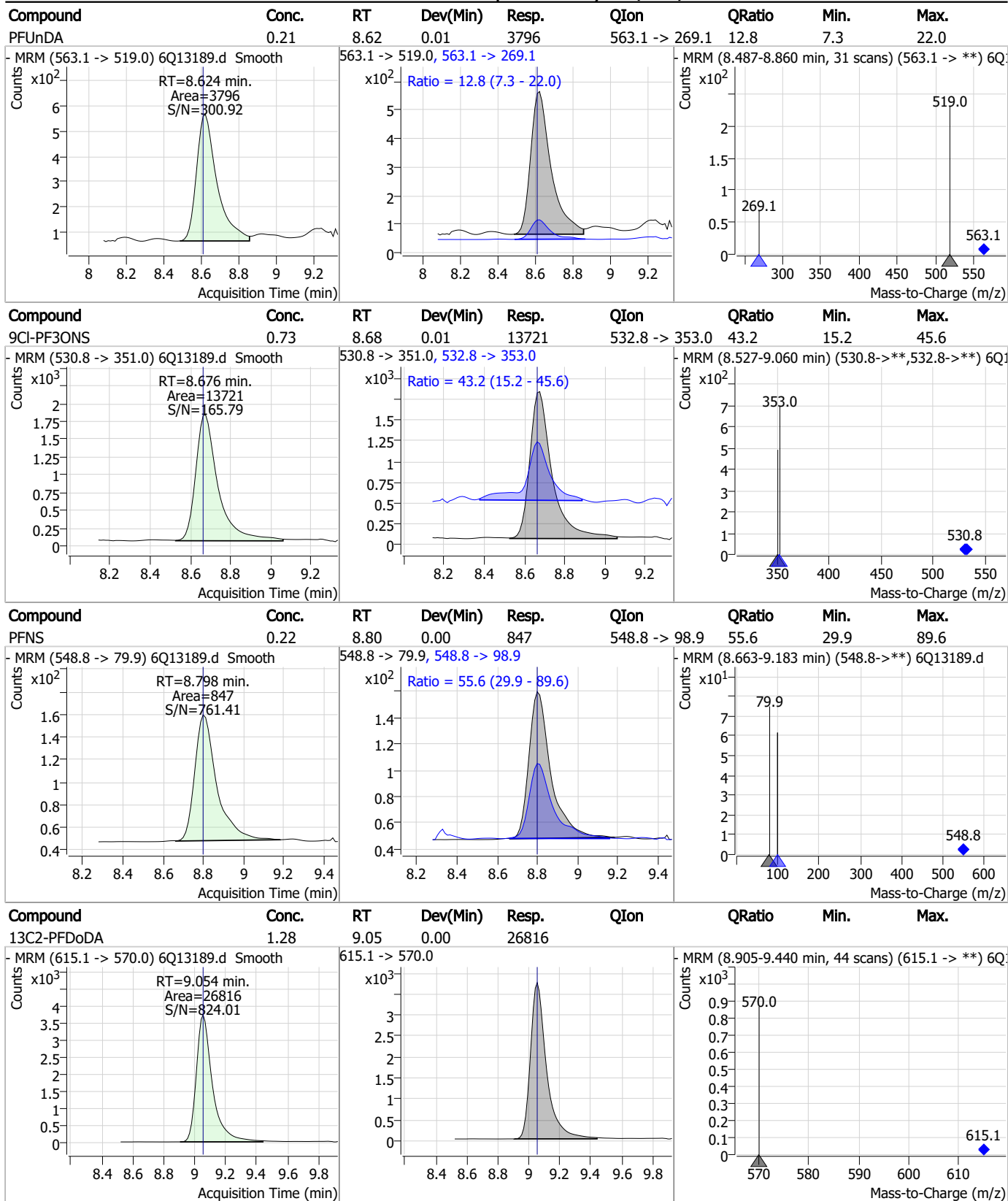


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.27	8.62	0.01	23204				



7.7.13
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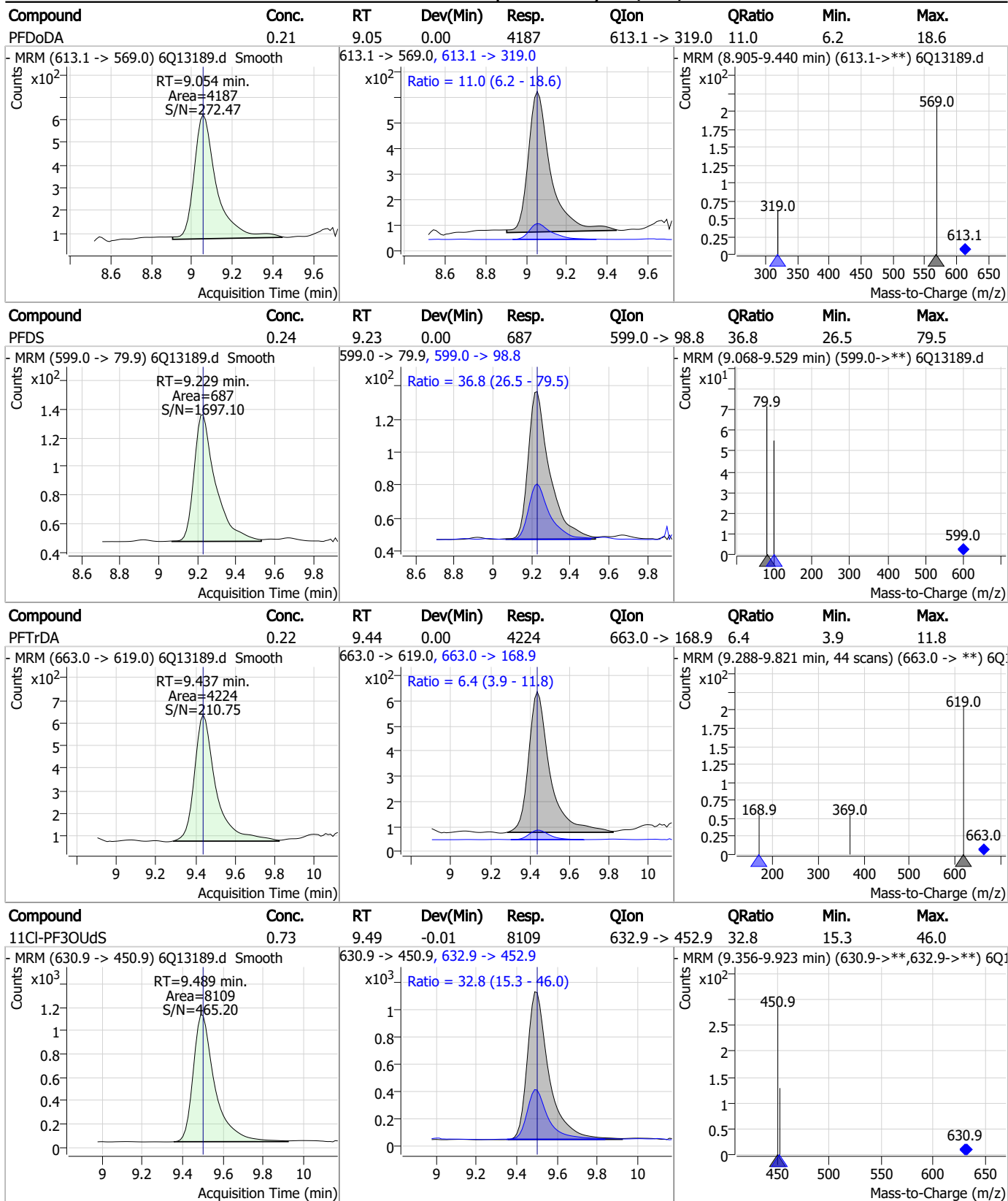
Perfluorinated Compounds by LC/MS/MS



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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	0.21	9.56	0.00	1494	498.1 -> 478.0	4.1	2.0	5.9
13C8-FOSA	2.48	9.55	-0.01	17530	498.1 -> 478.0	4.1	2.0	5.9
13C2-PFTeDA	1.22	9.78	0.00	14674	713.1 -> 669.0	7.3	3.1	9.3
PFTeDA	0.23	9.78	0.00	3682	713.1 -> 669.0	7.3	3.1	9.3

7.7.13
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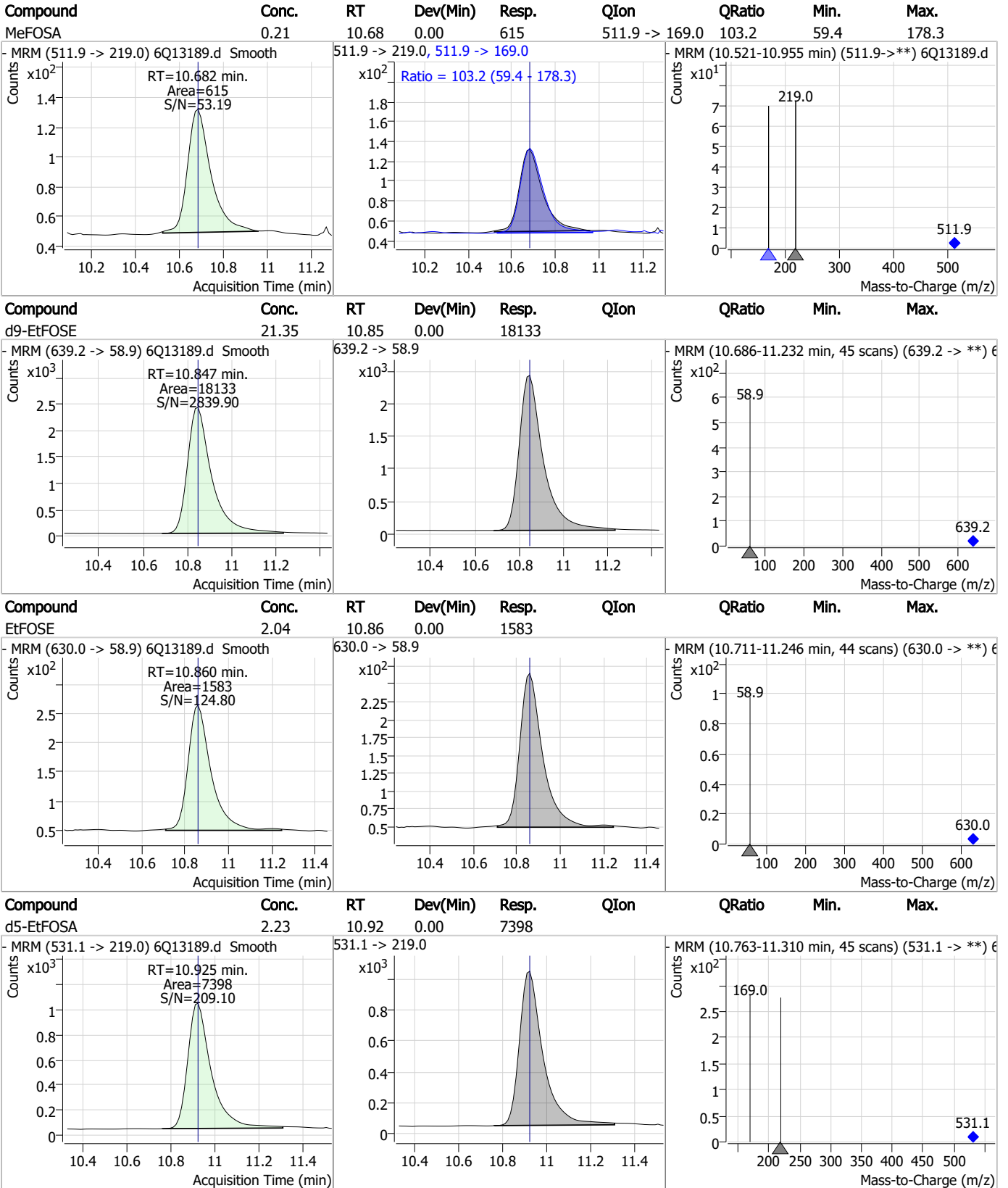
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.21	9.92	0.00	363	699.1 -> 98.8	70.8	33.2	99.7
d7-MeFOSE	22.31	10.59	0.00	27491				
MeFOSE	2.13	10.60	0.00	2331				
d3-MeFOSA	2.19	10.68	0.00	6680				

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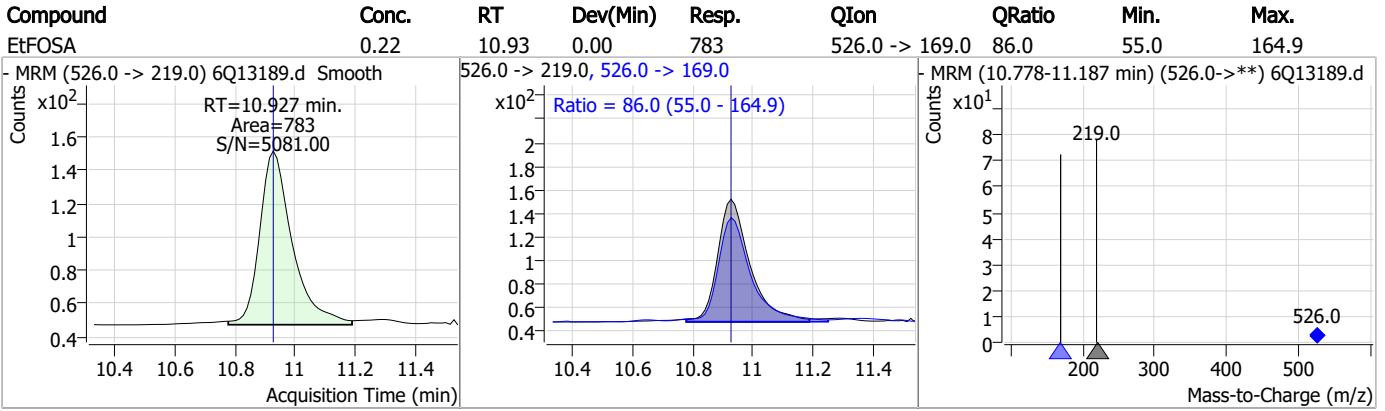
Perfluorinated Compounds by LC/MS/MS



7.7.13 7



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q202-CC196 Method: EPA DRAFT 1633
Lab FileID: 6Q13189.D Analyst approved: 02/08/23 10:34 Martha Valls
Injection Time: 02/07/23 11:02 Supervisor approved: 02/08/23 11:27 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
MeFOSAA	2355-31-9		8.20	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13200.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/7/2023 1:36:35 PM
 Sample Name : cc196-4
 Vial : P1-A5
 DA Method File : 1633_020223_S6Q196.quantmethod.xml
 Batch Name : s6q202.batch.bin
 Sample Information : OP95070,S6Q202,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.975	216.8 -> 171.9	92094	10.00 µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	45732	5.00 µg/L	0.000
M5-PFHxA	5.575	318.0 -> 273.0	41224	2.50 µg/L	0.012
M4-PFHpA	6.502	367.1 -> 322.0	44574	2.50 µg/L	0.000
M8-PFOA	7.146	421.1 -> 376.0	74041	2.50 µg/L	0.000
M9-PFNA	7.677	472.1 -> 427.0	26297	1.25 µg/L	0.000
M6-PFDA	8.157	519.1 -> 474.1	18725	1.25 µg/L	0.000
M7-PFUnDA	8.624	570.0 -> 525.1	24133	1.25 µg/L	0.012
M2-PFDoDA	9.054	615.1 -> 570.0	26209	1.25 µg/L	0.000
M2-PFTeDA	9.781	715.2 -> 670.0	15381	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	19301	2.50 µg/L	-0.012
M3-PFBS	5.518	302.1 -> 79.9	15407	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	9675	2.50 µg/L	0.000
M8-PFOS	8.333	507.1 -> 79.9	8975	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2517	5.00 µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	3306	5.00 µg/L	0.000
M2-8:2FTS	7.944	529.1 -> 80.9	3340	5.00 µg/L	0.000
M3-MeFOSAA	8.202	573.2 -> 419.0	32207	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	16884	10.00 µg/L	0.000
M5-EtFOSAA	8.398	589.2 -> 419.0	28027	5.00 µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	28519	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	19202	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7619	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7306	2.50 µg/L	0.000
13C4-PFOS	8.333	502.8 -> 79.9	11522	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	41242	5.00 µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	7531	2.50 µg/L	0.000
13C4-PFOA	7.147	417.1 -> 372.0	88239	2.50 µg/L	0.000
13C2-PFDA	8.158	515.1 -> 470.1	27559	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	29624	1.25 µg/L	0.000
13C2-PFHxA	5.563	315.1 -> 270.0	41107	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.240	329.1 -> 80.9	2517	5.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C2-6:2FTS	6.908	429.1 -> 80.9	3306	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C2-8:2FTS	7.944	529.1 -> 80.9	3340	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.4%		
13C2-PFDoDA	9.054	615.1 -> 570.0	26209	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C2-PFTeDA	9.781	715.2 -> 670.0	15381	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C3-PFBS	5.518	302.1 -> 79.9	15407	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C3-PFHxS	7.274	402.1 -> 79.9	9675	2.44 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C4-PFBA	2.975	216.8 -> 171.9	92094	10.06 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C4-PFHpA	6.502	367.1 -> 322.0	44574	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.1%		
13C5-PFHxA	5.575	318.0 -> 273.0	41224	2.53 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.4%		
13C5-PFPeA	4.386	268.3 -> 223.0	45732	4.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C6-PFDA	8.157	519.1 -> 474.1	18725	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C7-PFUnDA	8.624	570.0 -> 525.1	24133	1.32 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.3%		
13C8-FOSA	9.555	506.1 -> 77.8	19301	2.57 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C8-PFOA	7.146	421.1 -> 376.0	74041	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C8-PFOS	8.333	507.1 -> 79.9	8975	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.8%		
13C9-PFNA	7.677	472.1 -> 427.0	26297	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.9%		
d3-MeFOSAA	8.202	573.2 -> 419.0	32207	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	16884	10.05 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.5%		
d3-MeFOSA	10.680	515.0 -> 219.0	7306	2.26 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 90.4%		
d5-EtFOSAA	8.398	589.2 -> 419.0	28027	5.35 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.0%		
d7-MeFOSE	10.589	623.2 -> 58.9	28519	21.80 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 87.2%		
d9-EtFOSE	10.847	639.2 -> 58.9	19202	21.30 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 85.2%		
d5-EtFOSA	10.925	531.1 -> 219.0	7619	2.17 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 86.6%		
Target Compounds					QValue
4:2FTS	5.240	327.1 -> 307.0	48033	8.51 µg/L	98
		327.1 -> 80.9	11179		
6:2FTS	6.908	427.1 -> 407.0	42757	8.83 µg/L	98
		427.1 -> 80.9	8532		
8:2FTS	7.945	527.1 -> 507.0	21680	8.36 µg/L	95
		527.1 -> 80.8	5670		
EtFOSAA	8.411	584.2 -> 419.1	9100	2.03 µg/L	94
		584.2 -> 526.0	5035		
FOSA	9.557	498.1 -> 77.9	16566	2.15 µg/L	99
		498.1 -> 478.0	708		
MeFOSAA	8.203	570.1 -> 419.0	13184	2.23 µg/L	97
		570.1 -> 483.0	2642		
PFBA	2.982	212.8 -> 168.9	18940	9.21 µg/L	100
PFBS	5.518	298.7 -> 79.9	12719	2.15 µg/L	93
		298.7 -> 98.8	5623		
PFDA	8.158	512.9 -> 469.0	51154	2.40 µg/L	97
		512.9 -> 219.0	7440		
PFDoDA	9.054	613.1 -> 569.0	45081	2.35 µg/L	100
		613.1 -> 319.0	5660		
PFDS	9.229	599.0 -> 79.9	6201	2.04 µg/L	95

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3503			
PFHpA	6.503	363.1 -> 319.0	54814	2.08	µg/L	97
		363.1 -> 169.0	8093			
PFHpS	7.828	449.0 -> 79.9	8962	2.35	µg/L	98
		449.0 -> 98.9	5073			
PFHxA	5.566	313.0 -> 269.0	36137	2.23	µg/L	99
		313.0 -> 118.9	1446			
PFHxS	7.275	398.7 -> 79.9	9936	2.29	µg/L	m 95
		398.7 -> 98.9	5790			
PFNA	7.677	463.0 -> 419.0	38922	2.19	µg/L	97
		463.0 -> 219.0	7549			
PFNS	8.798	548.8 -> 79.9	9337	2.34	µg/L	87
		548.8 -> 98.9	4693			
PFOA	7.148	413.0 -> 369.0	72824	2.23	µg/L	100
		413.0 -> 169.0	9656			
PFOS	8.334	498.9 -> 79.9	8050	1.96	µg/L	m 87
		498.9 -> 98.8	5762			
PFPeA	4.388	263.0 -> 219.0	43735	4.53	µg/L	100
PFPeS	6.569	349.1 -> 79.9	11433	2.26	µg/L	99
		349.1 -> 98.9	6342			
PFTeDA	9.781	713.1 -> 669.0	41587	2.51	µg/L	100
		713.1 -> 168.9	2604			
PFTrDA	9.437	663.0 -> 619.0	43104	2.35	µg/L	100
		663.0 -> 168.9	3430			
PFUnDA	8.612	563.1 -> 519.0	42393	2.26	µg/L	100
		563.1 -> 269.1	6127			
11CI-PF3OUdS	9.489	630.9 -> 450.9	95384	7.87	µg/L	100
		632.9 -> 452.9	29149			
9CI-PF3ONS	8.663	530.8 -> 351.0	177532	8.67	µg/L	96
		532.8 -> 353.0	49956			
ADONA	6.753	376.9 -> 250.9	311966	8.52	µg/L	96
		376.9 -> 84.8	70367			
HFPO-DA	5.940	284.9 -> 168.9	14338	9.08	µg/L	97
		284.9 -> 184.9	1744			
3:3FTCA	3.841	241.0 -> 177.0	5412	11.41	µg/L	99
		241.0 -> 117.0	712			
5:3FTCA	6.206	341.0 -> 237.1	189514	56.05	µg/L	99
		341.0 -> 217.0	167388			
7:3FTCA	7.605	441.0 -> 316.9	103778	46.96	µg/L	95
		441.0 -> 336.9	200598			
EtFOSA	10.927	526.0 -> 219.0	8035	2.21	µg/L	88
		526.0 -> 169.0	7829			
EtFOSE	10.860	630.0 -> 58.9	17348	21.11	µg/L	100
MeFOSA	10.682	511.9 -> 219.0	7454	2.36	µg/L	80
		511.9 -> 169.0	7188			
MeFOSE	10.602	616.1 -> 58.9	25162	22.12	µg/L	100
PFDoDS	9.920	699.1 -> 79.9	3860	2.12	µg/L	94
		699.1 -> 98.8	2380			
NFDHA	5.457	295.0 -> 201.0	4585	4.80	µg/L	98
		295.0 -> 84.9	2236			
PFMBA	4.800	279.0 -> 85.1	13071	4.81	µg/L	100
PFMPA	3.541	229.0 -> 84.9	11987	4.65	µg/L	100
PFEESA	6.059	314.8 -> 134.9	91120	3.91	µg/L	99
		314.8 -> 82.9	2051			

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



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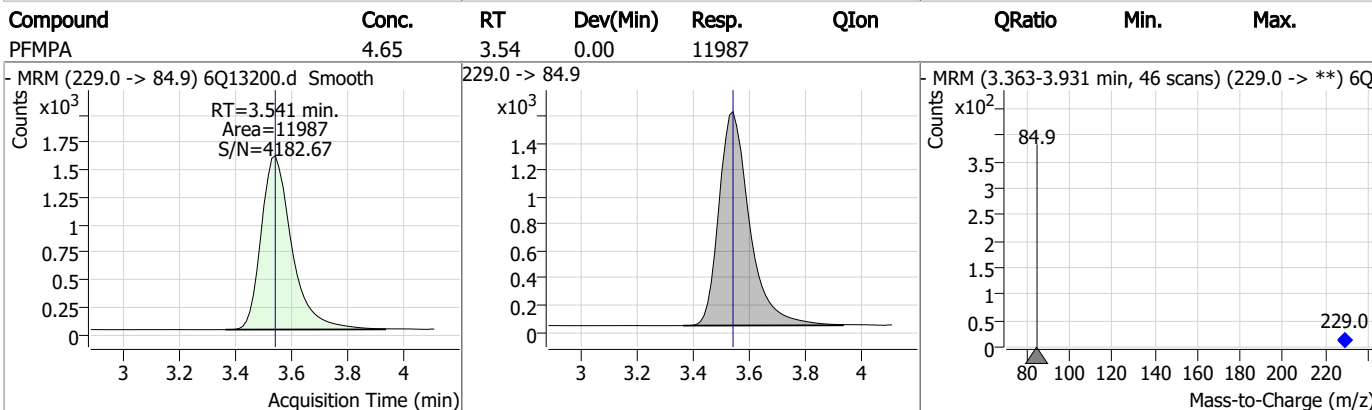
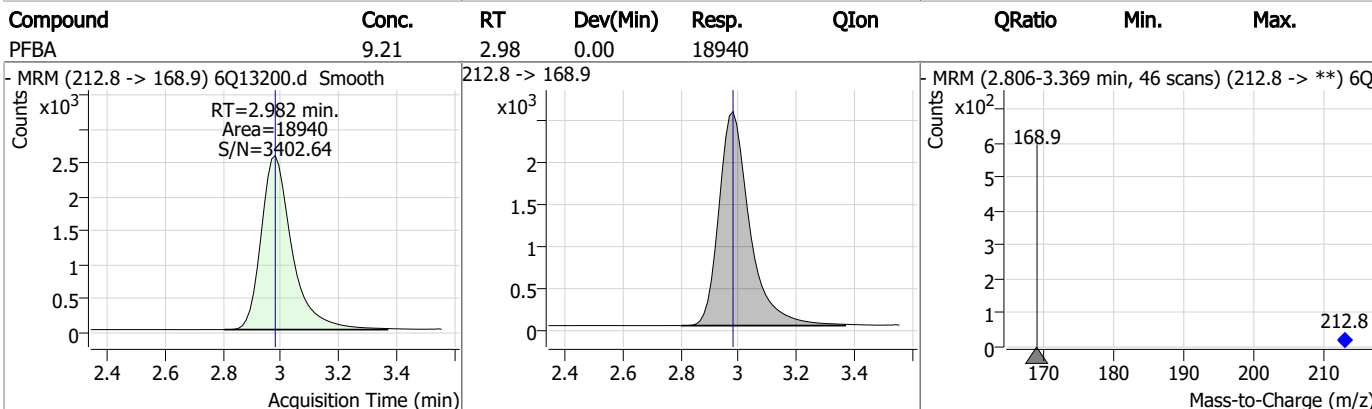
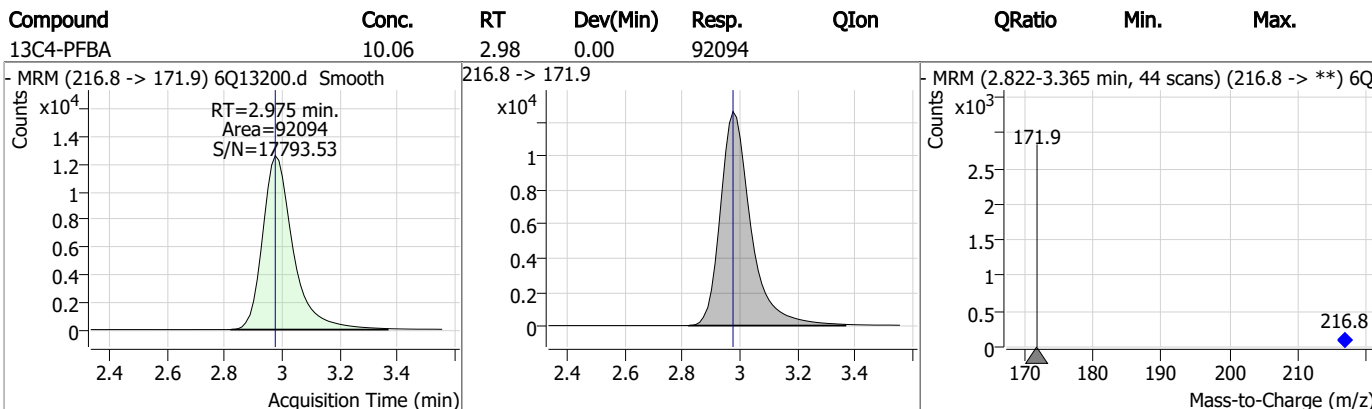
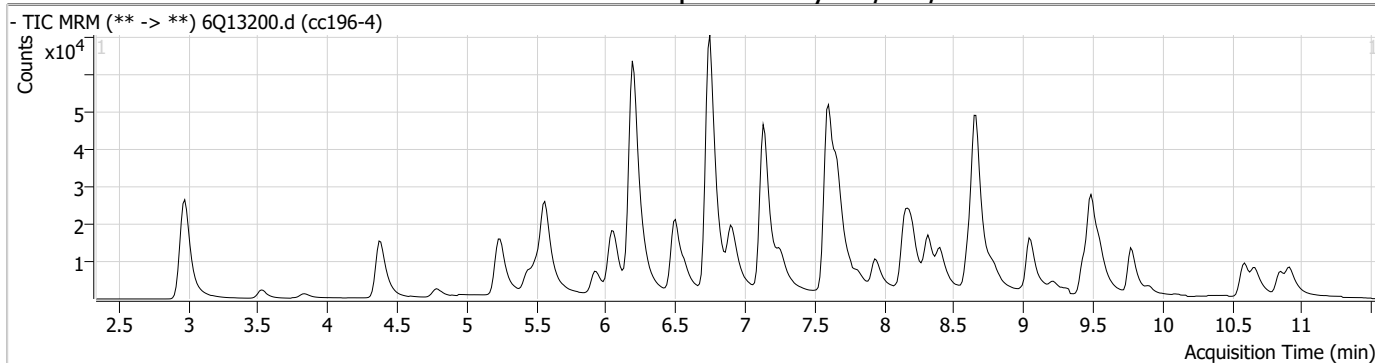
Perfluorinated Compounds by LC/MS/MS

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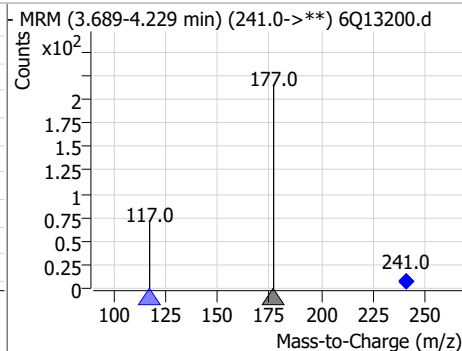
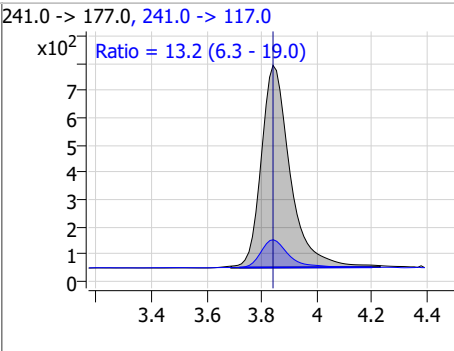
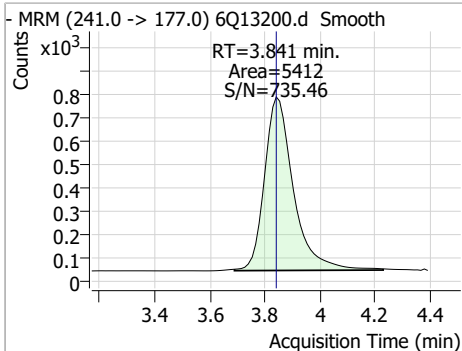
Perfluorinated Compounds by LC/MS/MS



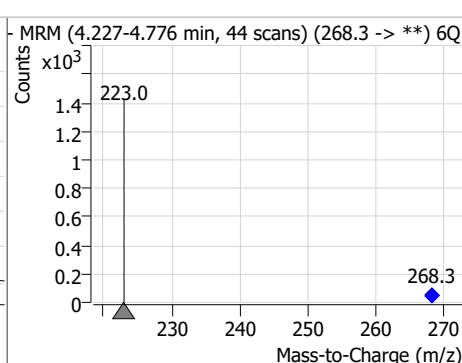
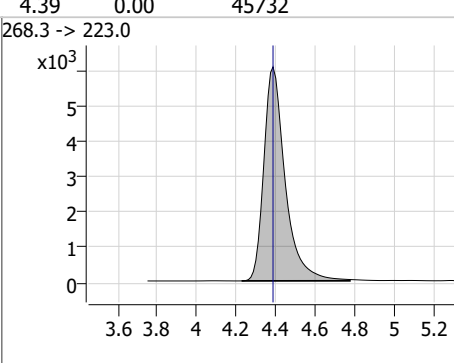
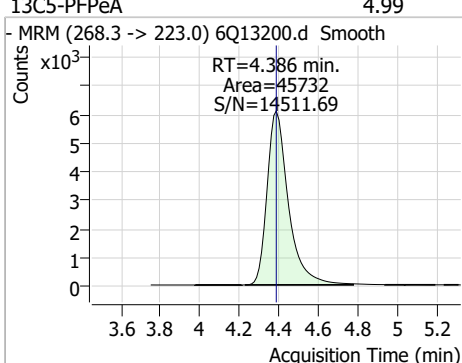
7.7.14
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Perfluorinated Compounds by LC/MS/MS

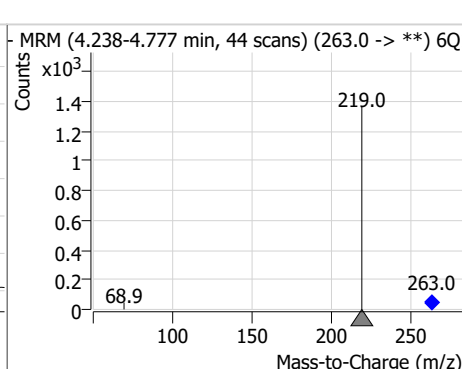
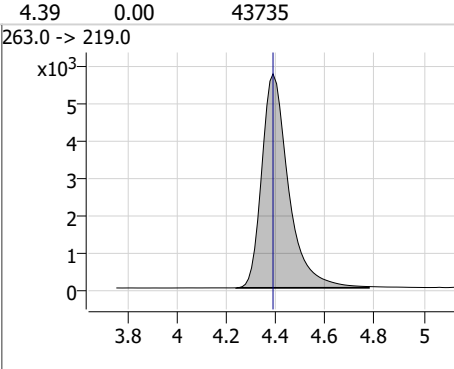
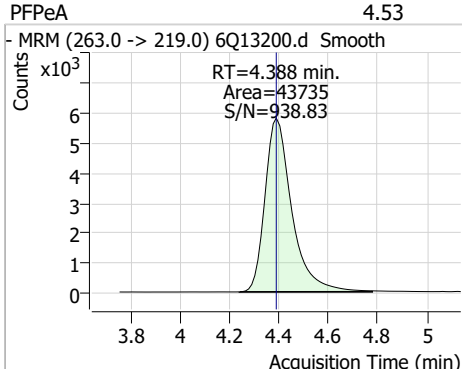
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.41	3.84	0.00	5412	241.0 -> 117.0	13.2	6.3	19.0



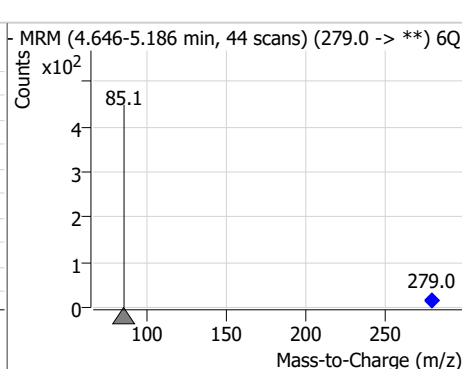
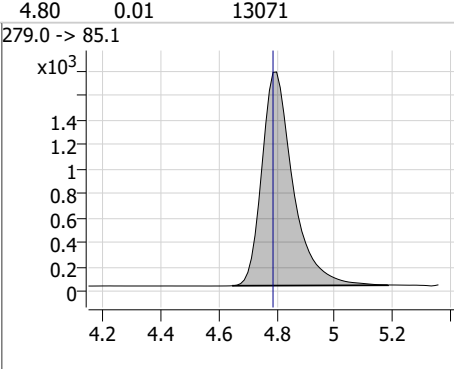
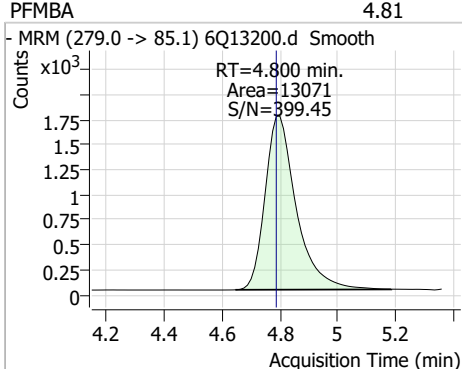
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.99	4.39	0.00	45732				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.53	4.39	0.00	43735				

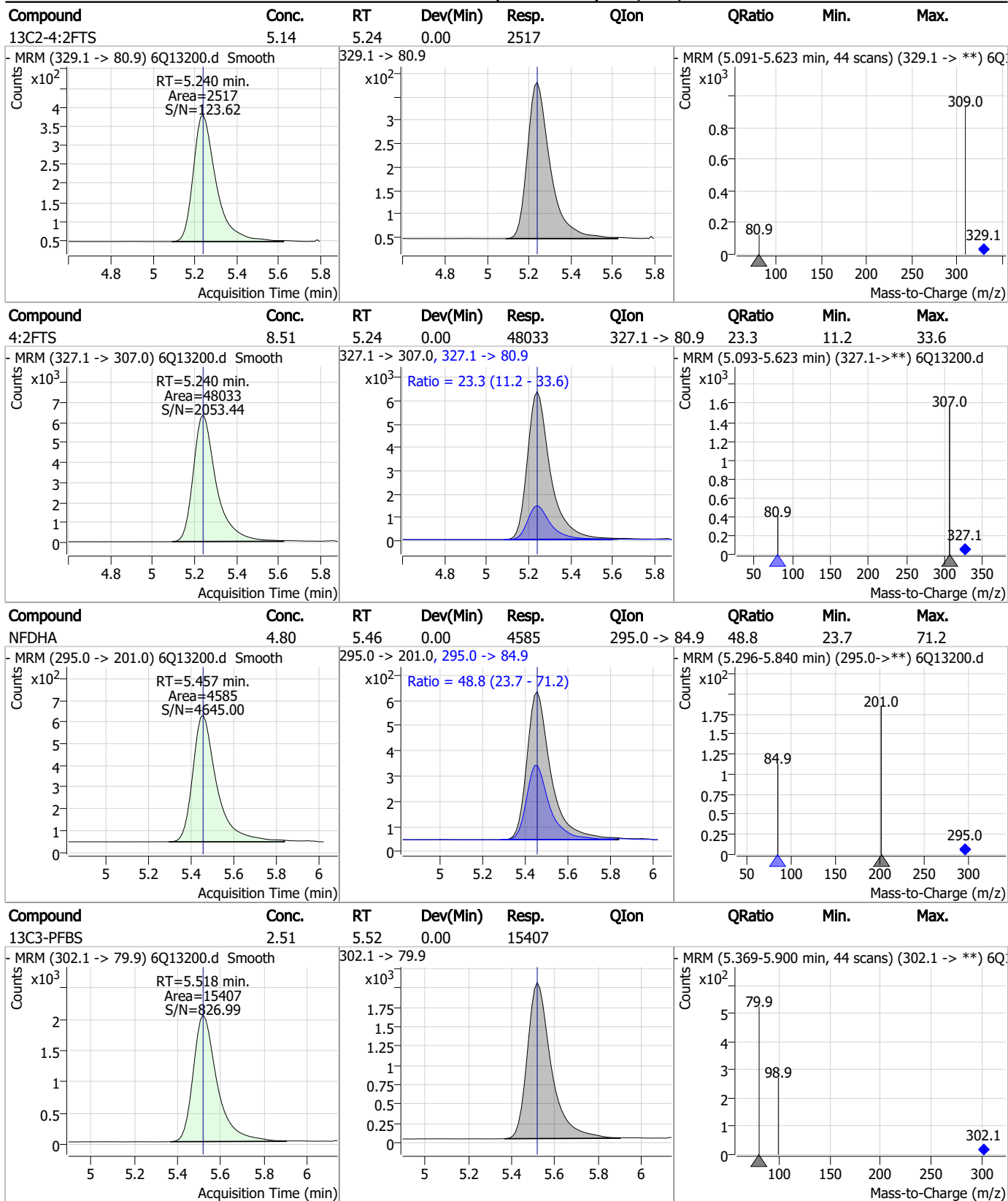


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.81	4.80	0.01	13071				



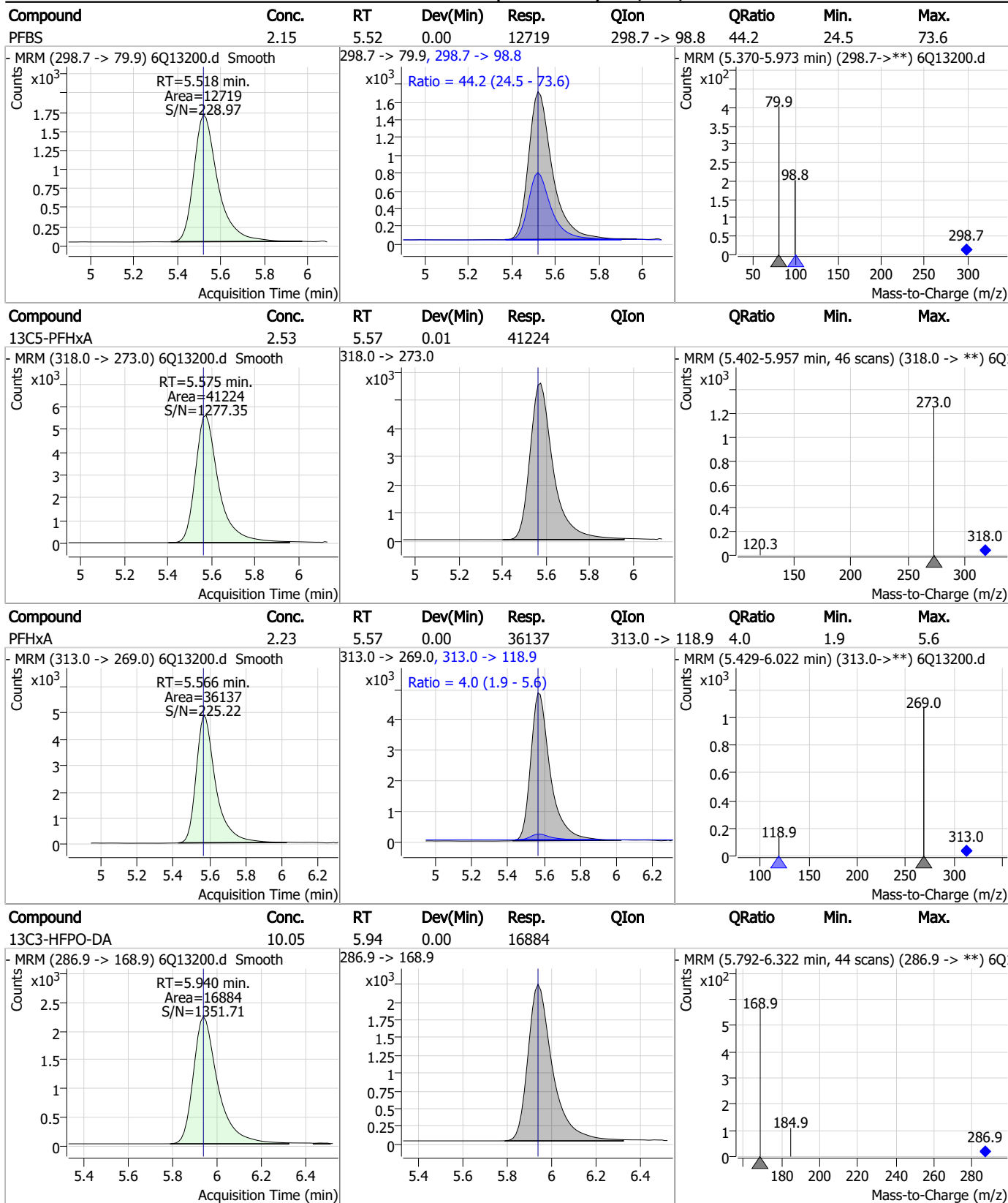
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Perfluorinated Compounds by LC/MS/MS



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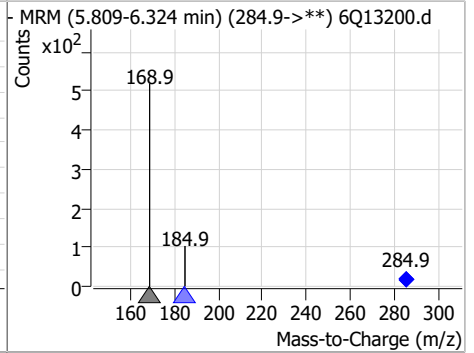
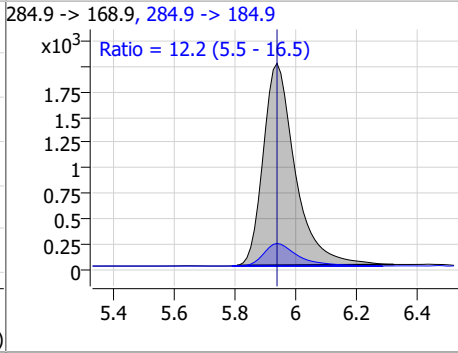
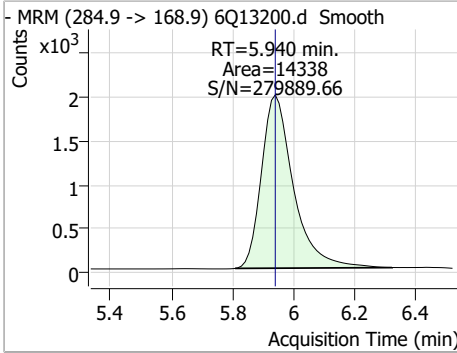
Perfluorinated Compounds by LC/MS/MS



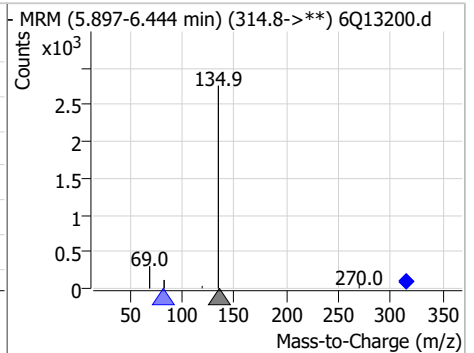
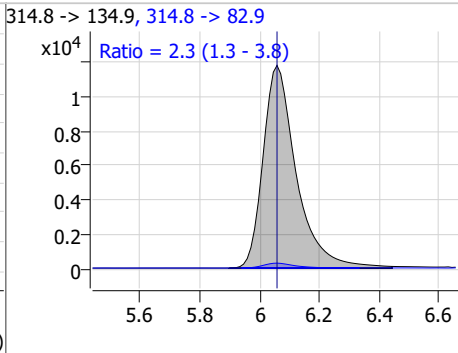
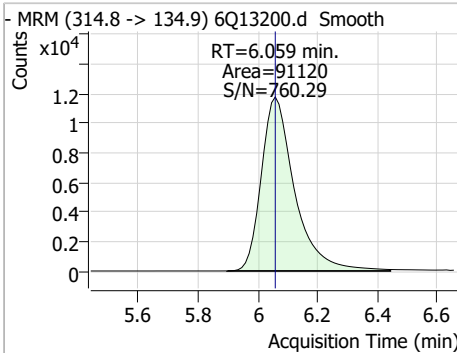
7.7.14
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Perfluorinated Compounds by LC/MS/MS

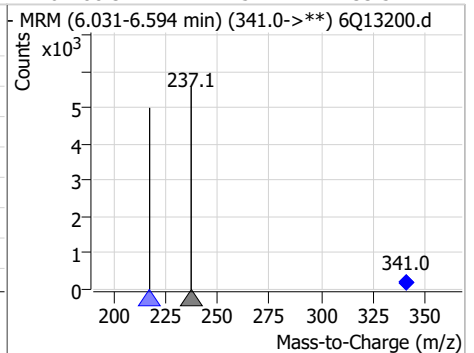
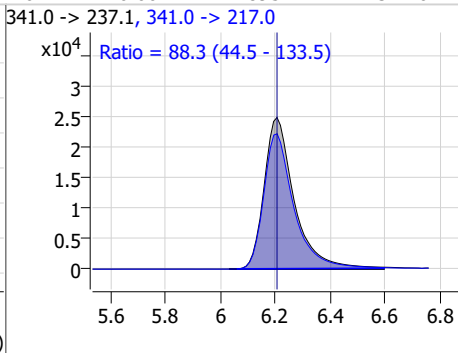
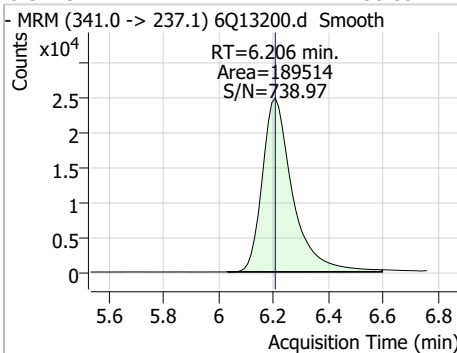
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.08	5.94	0.00	14338	284.9 -> 184.9	12.2	5.5	16.5



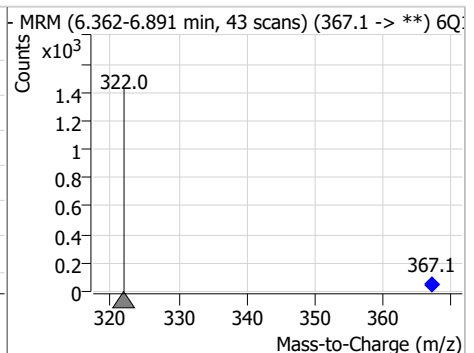
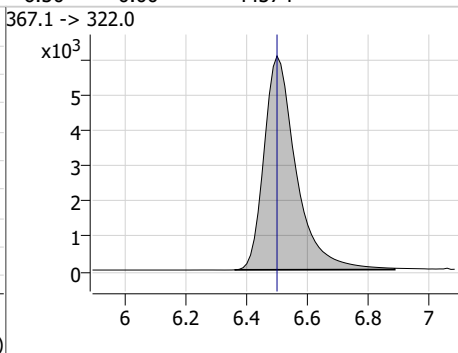
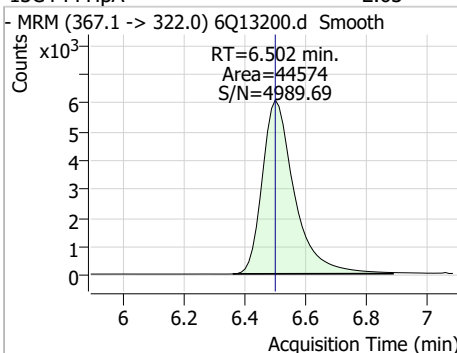
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	3.91	6.06	0.00	91120	314.8 -> 82.9	2.3	1.3	3.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	56.05	6.21	0.00	189514	341.0 -> 217.0	88.3	44.5	133.5



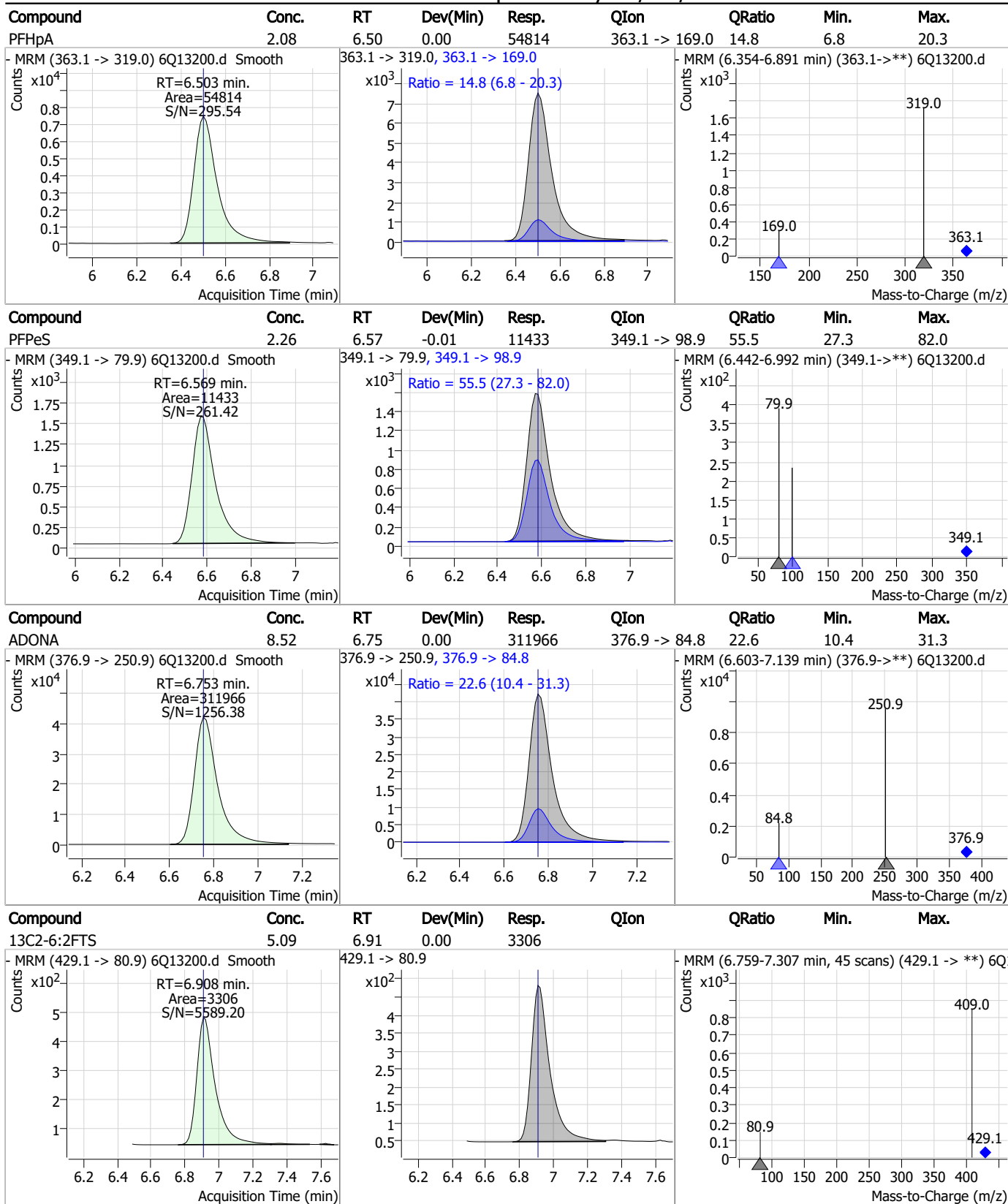
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.63	6.50	0.00	44574	367.1 -> 322.0			



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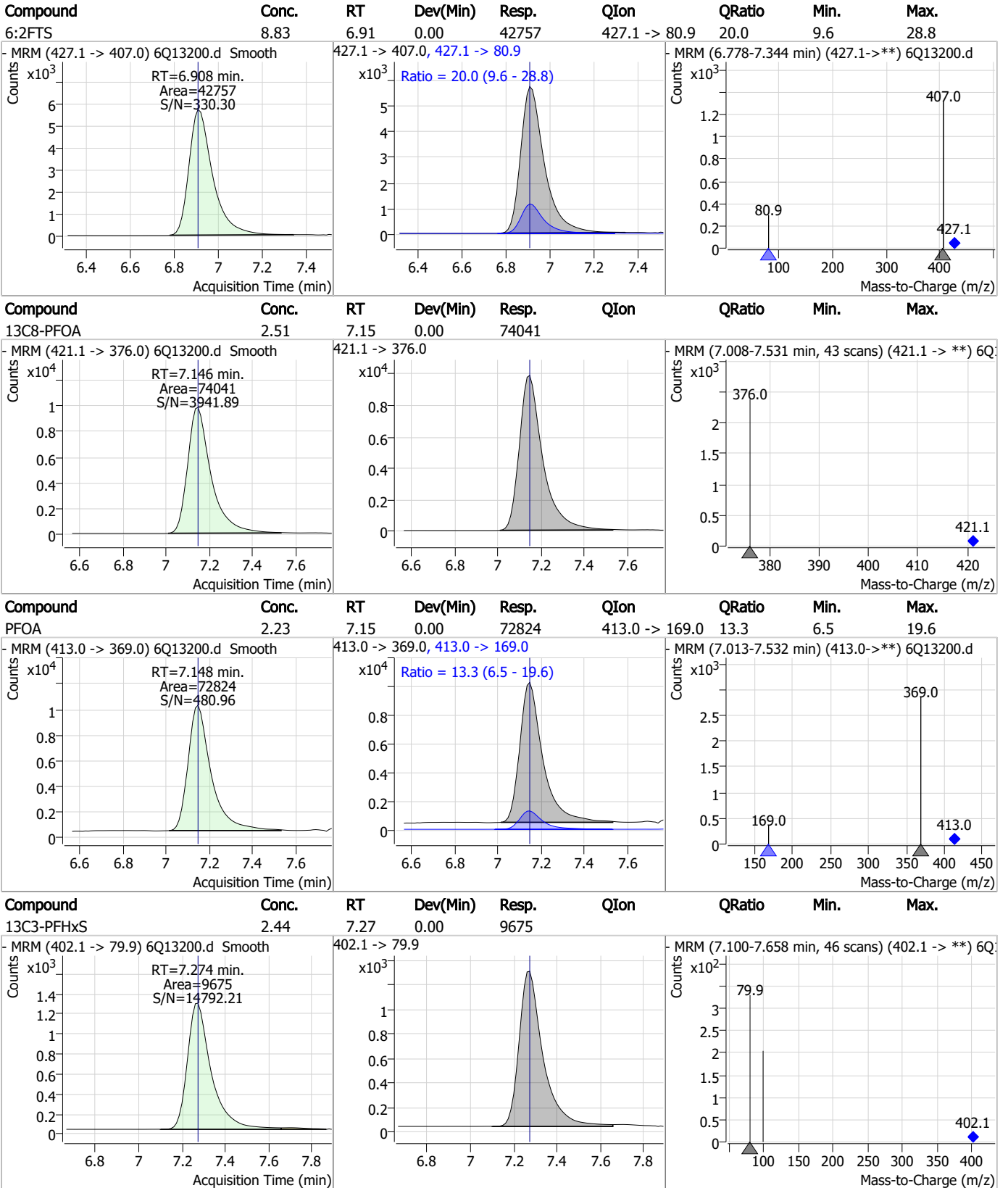
Perfluorinated Compounds by LC/MS/MS



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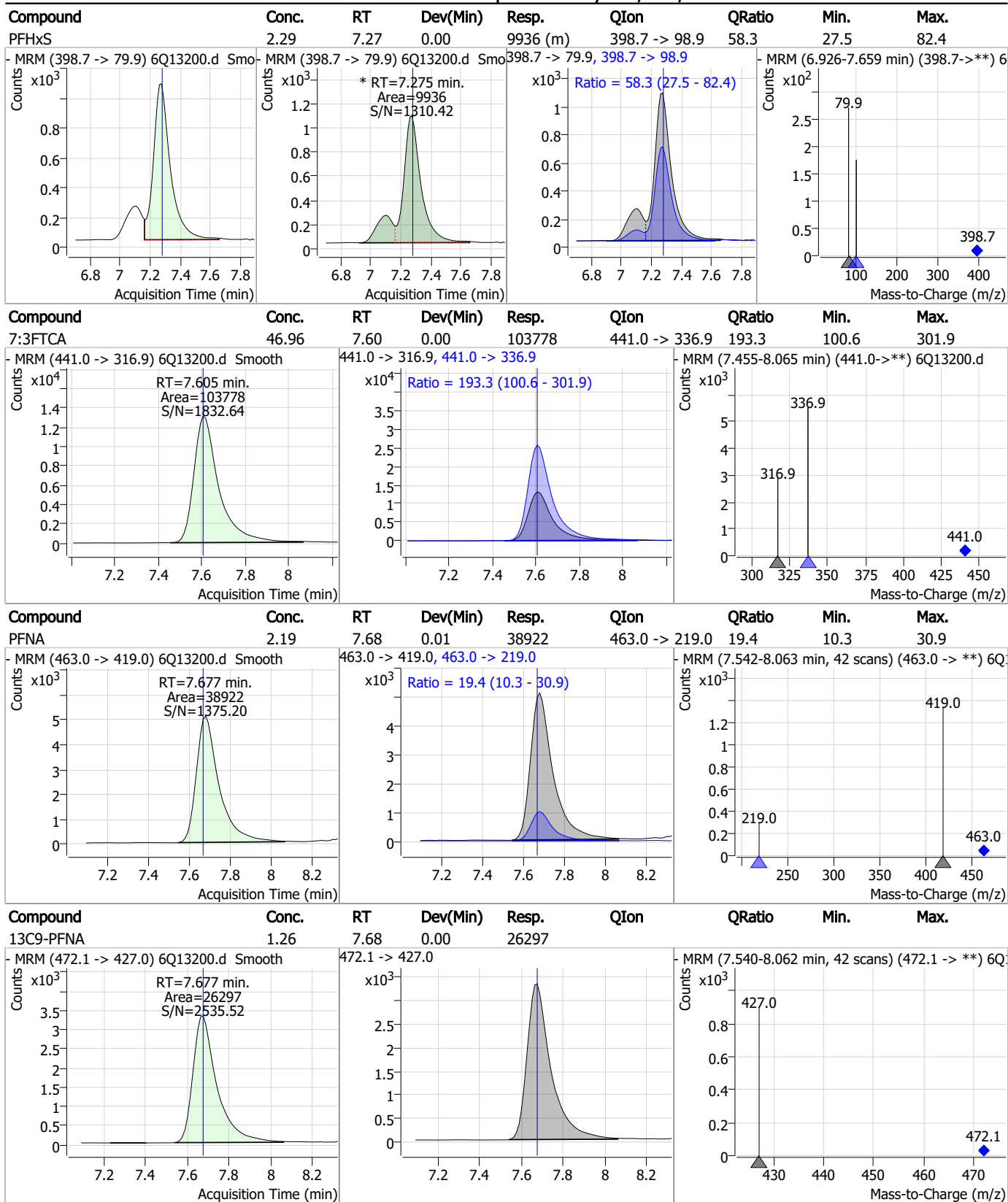
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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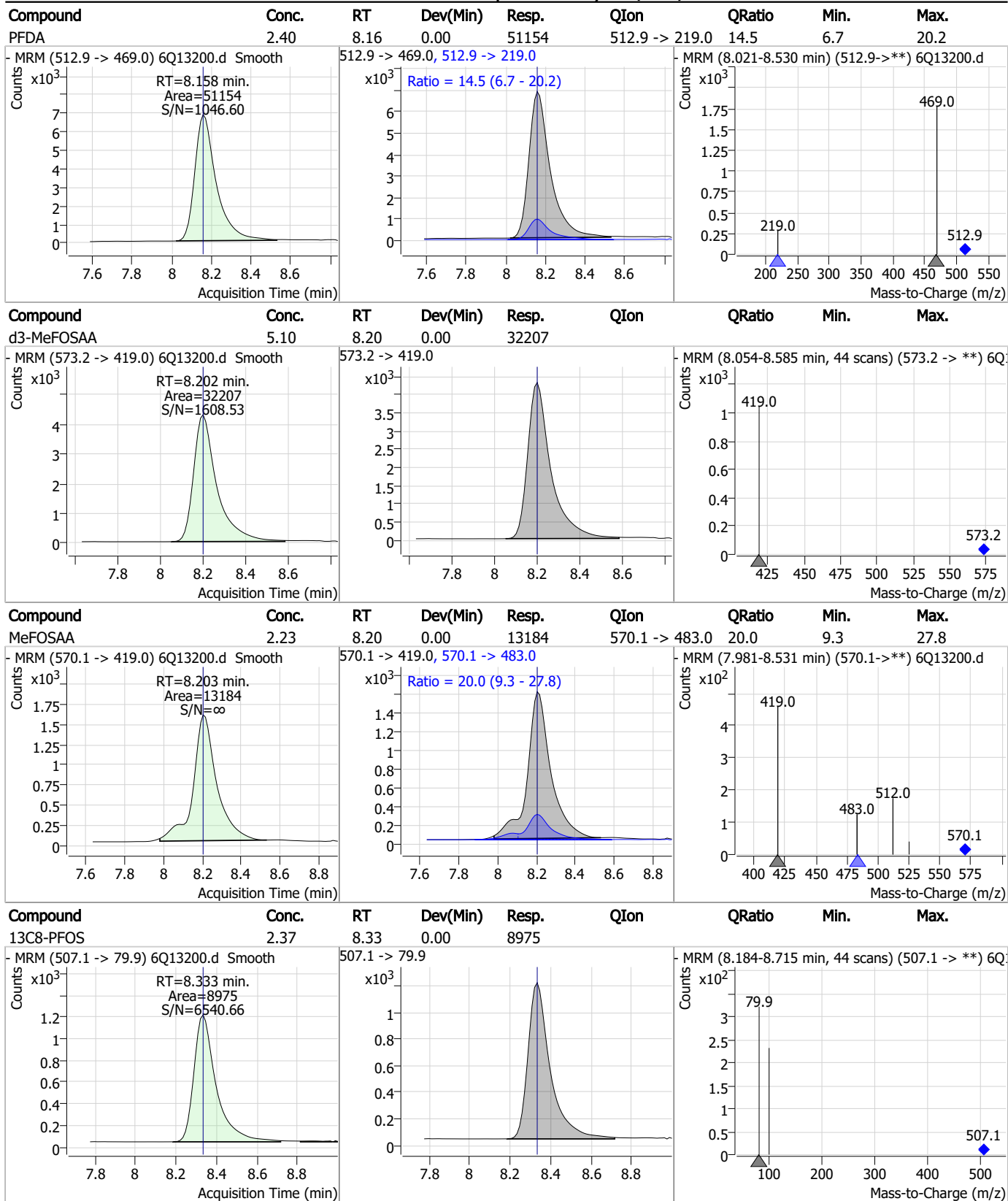
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.35	7.83	0.00	8962	449.0 -> 98.9	56.6	27.5	82.4
13C2-8:2FTS	5.12	7.94	0.00	3340	529.1 -> 80.9			
8:2FTS	8.36	7.95	0.00	21680	527.1 -> 80.8	26.2	11.9	35.8
13C6-PFDA	1.22	8.16	0.00	18725	519.1 -> 474.1			

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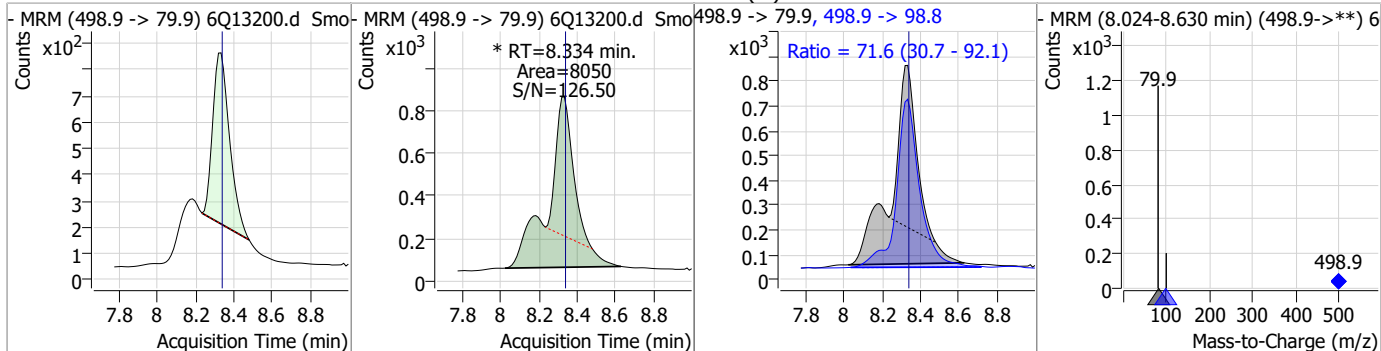
Perfluorinated Compounds by LC/MS/MS



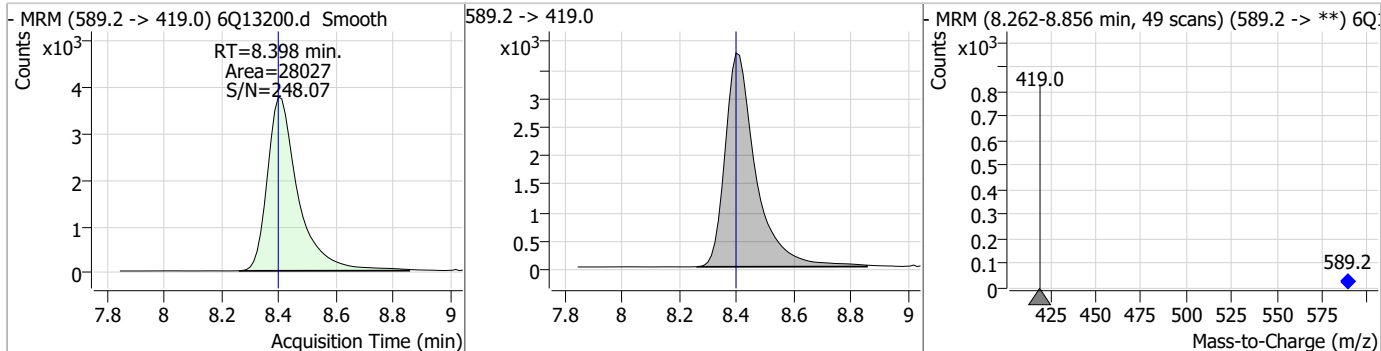
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Perfluorinated Compounds by LC/MS/MS

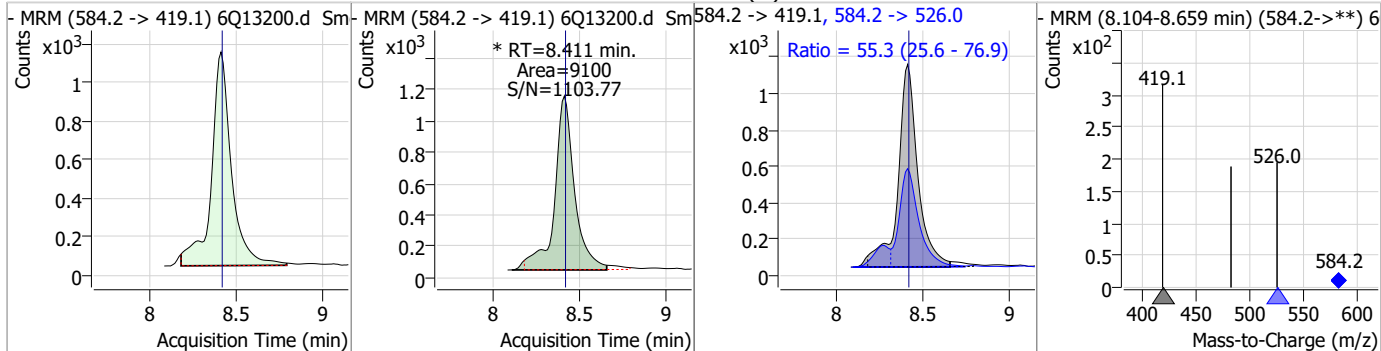
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.96	8.33	0.00	8050 (m)	498.9 -> 98.8	71.6	30.7	92.1



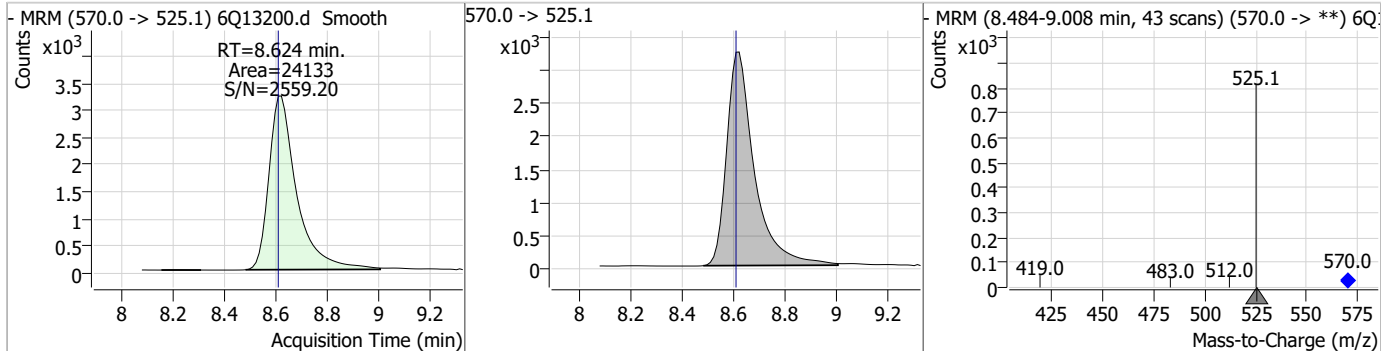
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.35	8.40	0.00	28027				



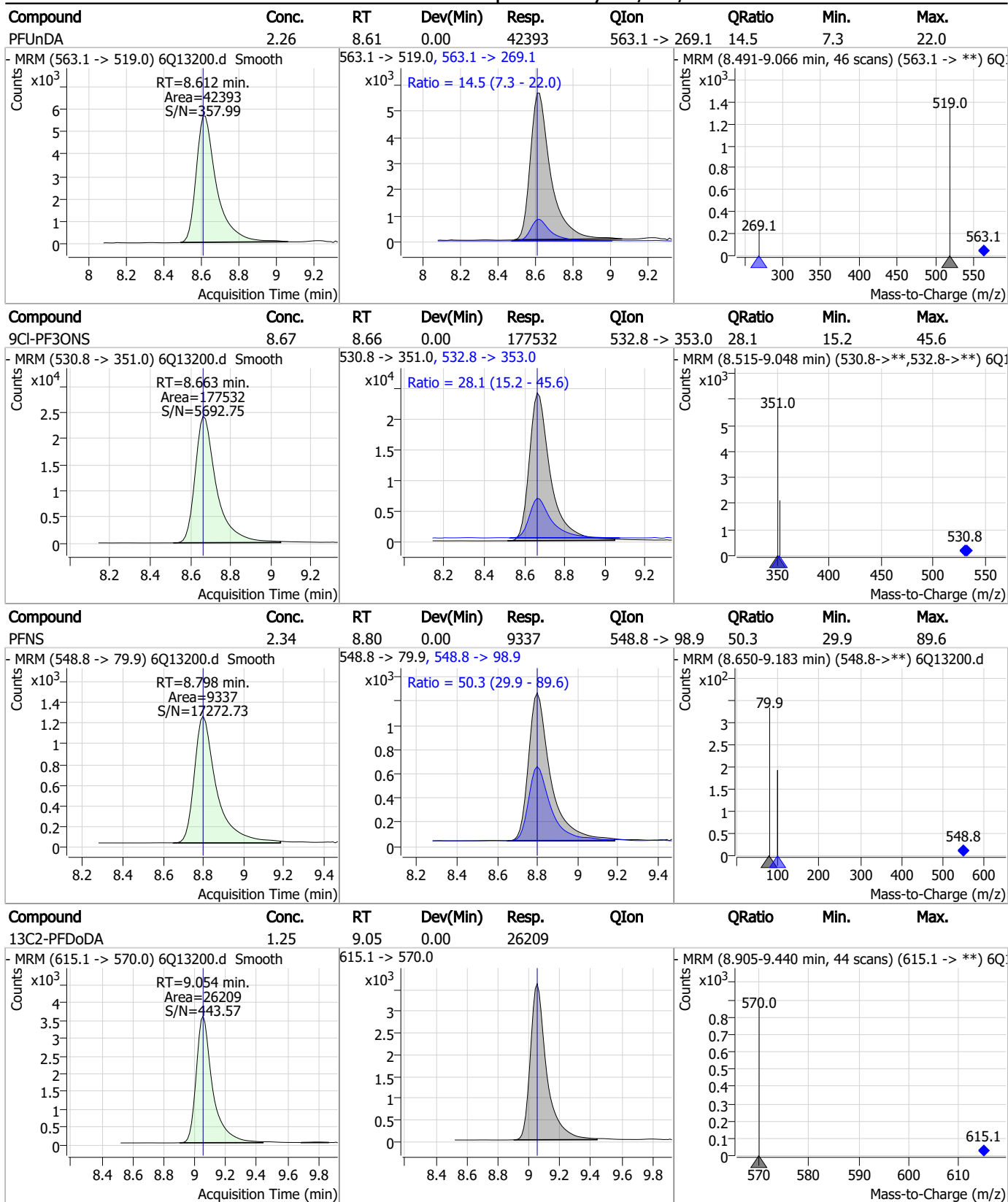
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.03	8.41	0.00	9100 (m)	584.2 -> 526.0	55.3	25.6	76.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.32	8.62	0.01	24133				



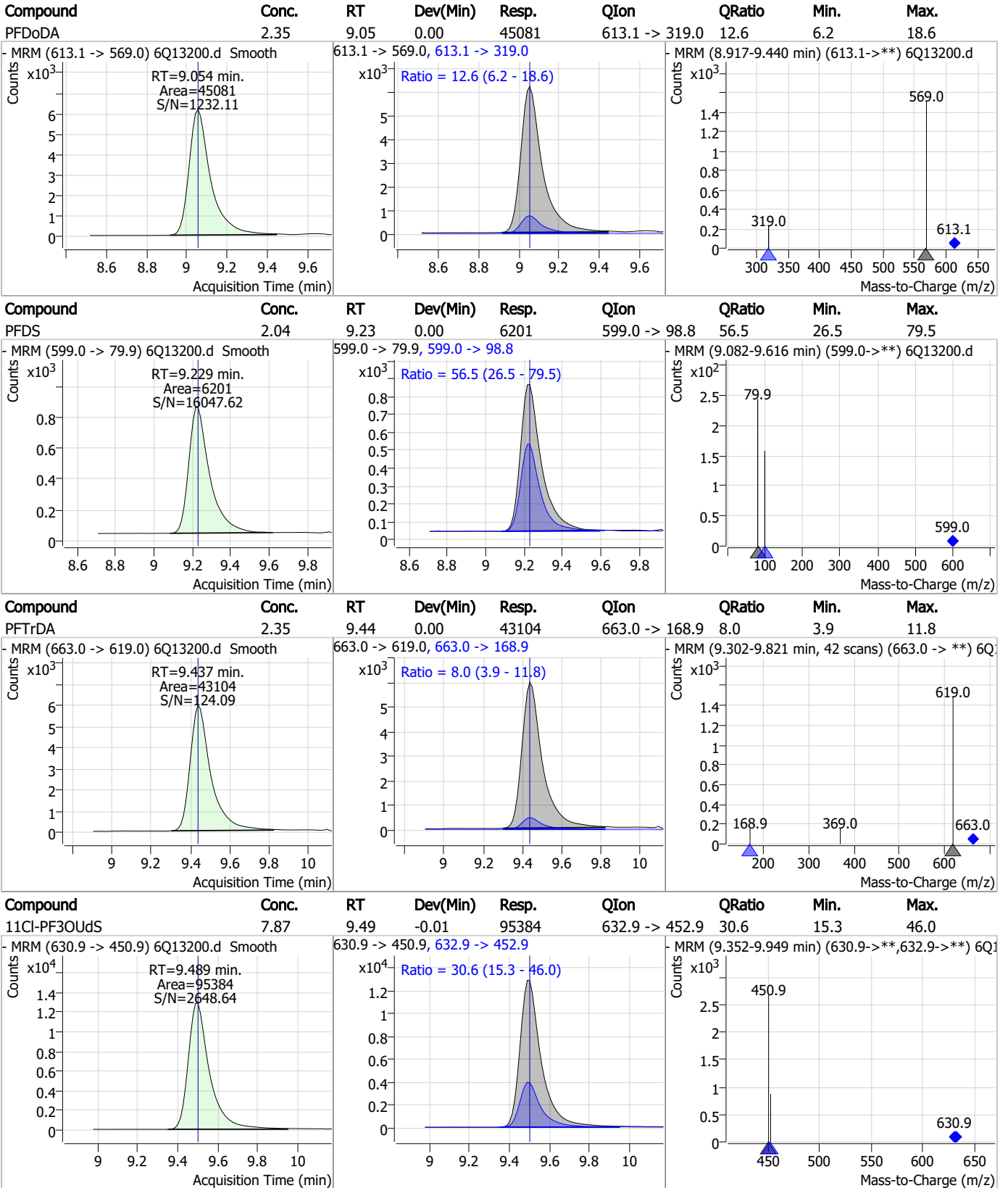
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



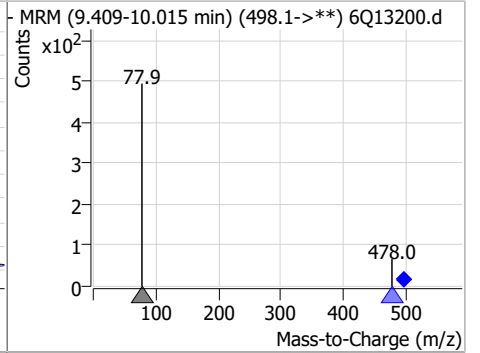
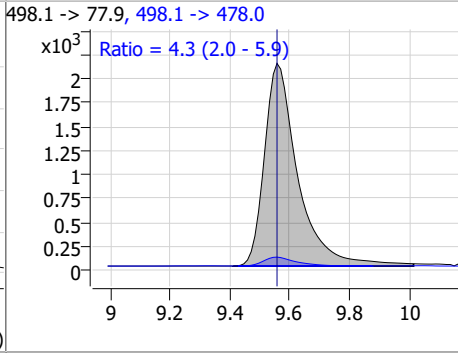
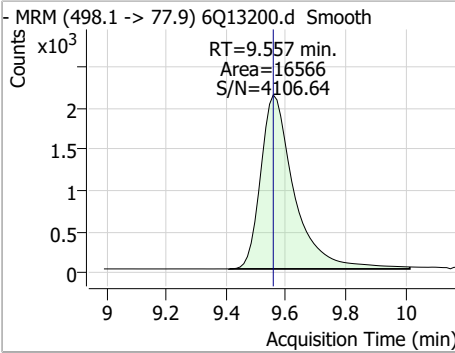
7.7.14

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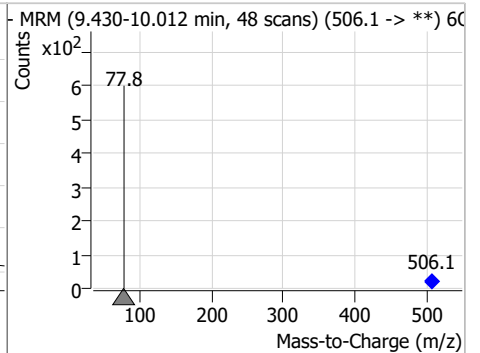
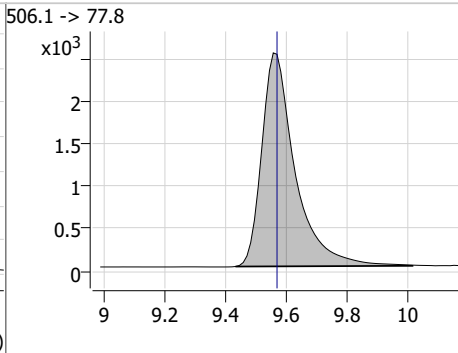
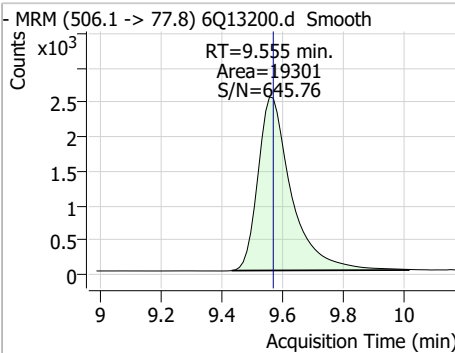


Perfluorinated Compounds by LC/MS/MS

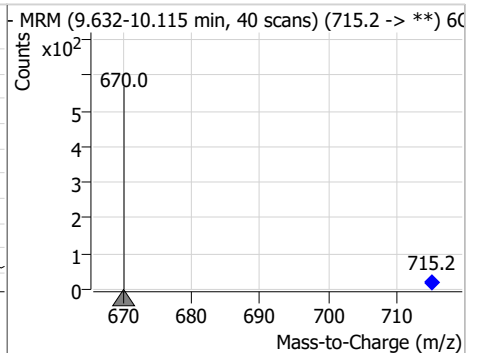
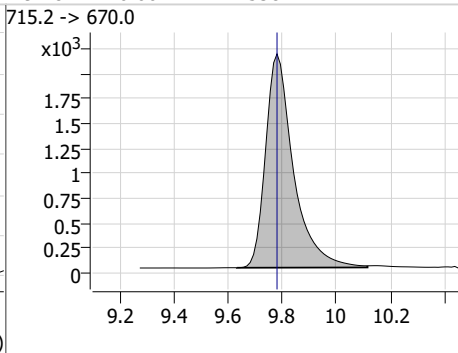
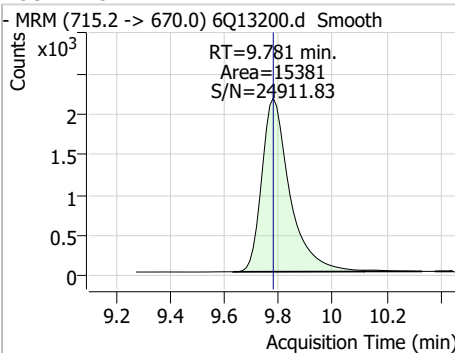
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.15	9.56	0.00	16566	498.1 -> 478.0	4.3	2.0	5.9



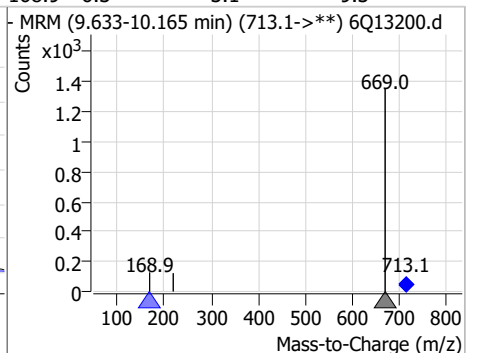
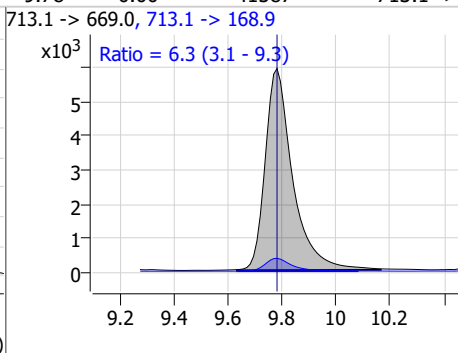
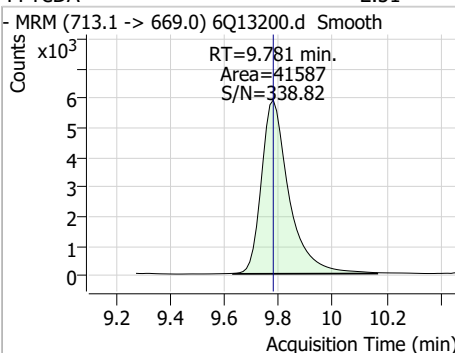
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.57	9.55	-0.01	19301				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.27	9.78	0.00	15381				

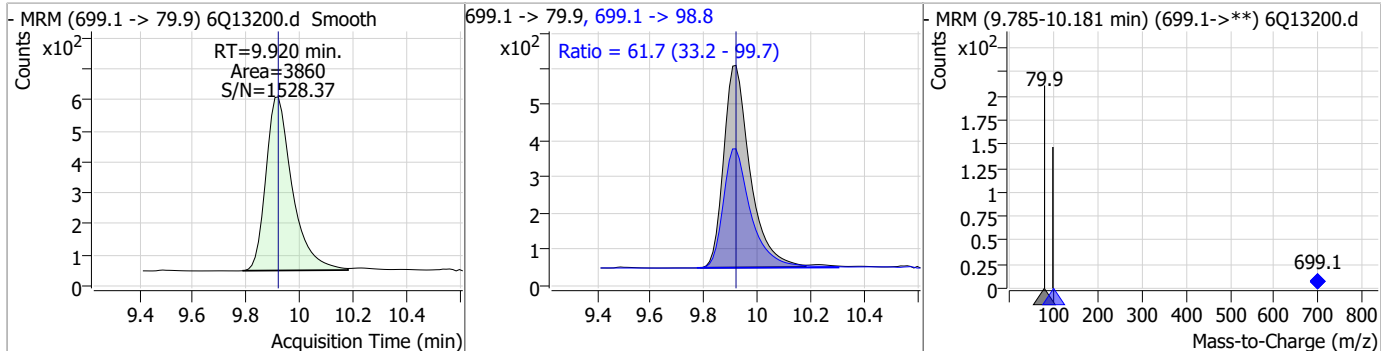


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.51	9.78	0.00	41587	713.1 -> 168.9	6.3	3.1	9.3

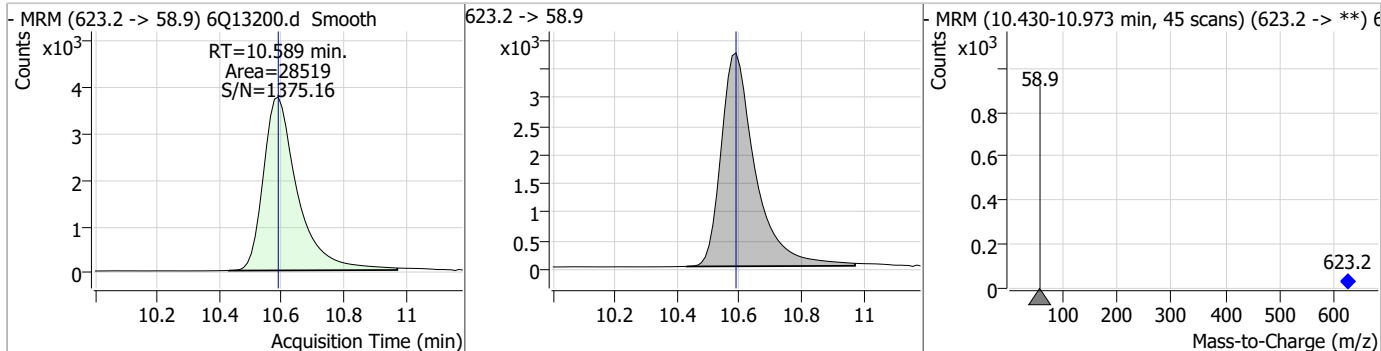


Perfluorinated Compounds by LC/MS/MS

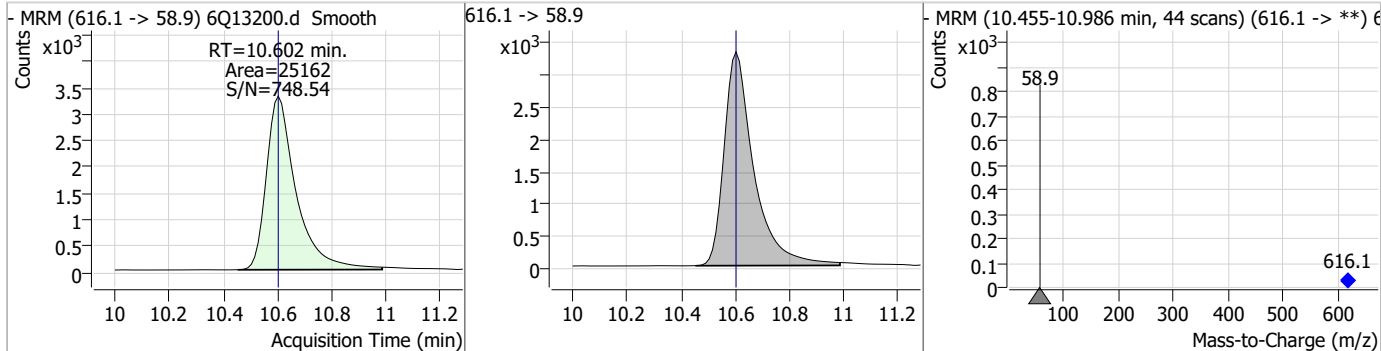
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.12	9.92	0.00	3860	699.1 -> 98.8	61.7	33.2	99.7



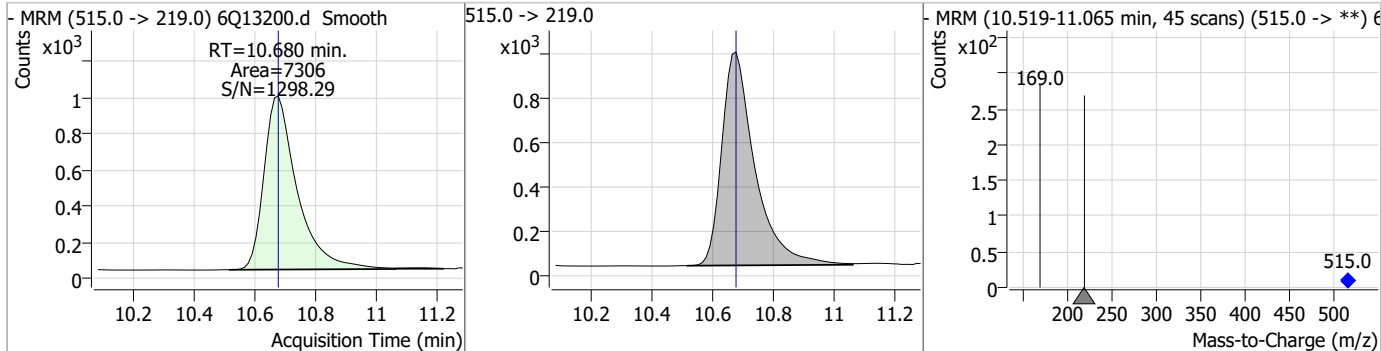
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	21.80	10.59	0.00	28519				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	22.12	10.60	0.00	25162				

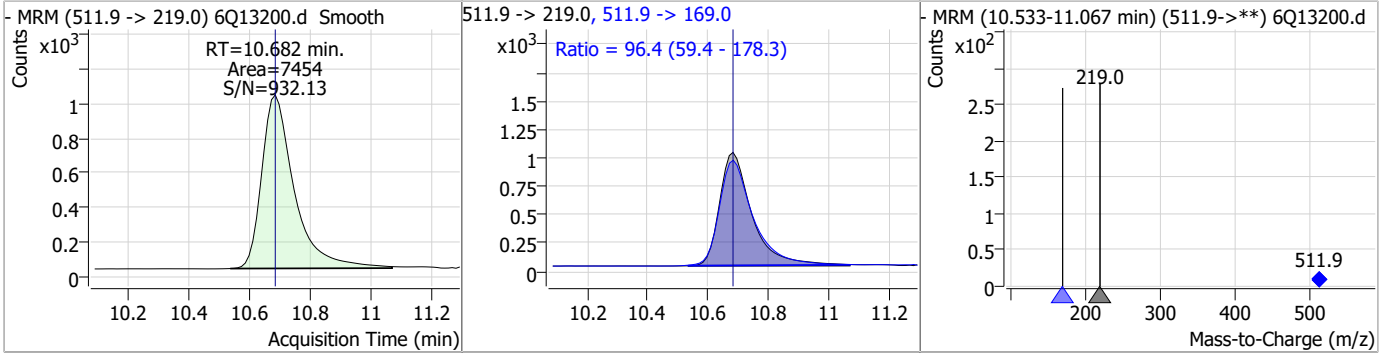


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.26	10.68	0.00	7306				

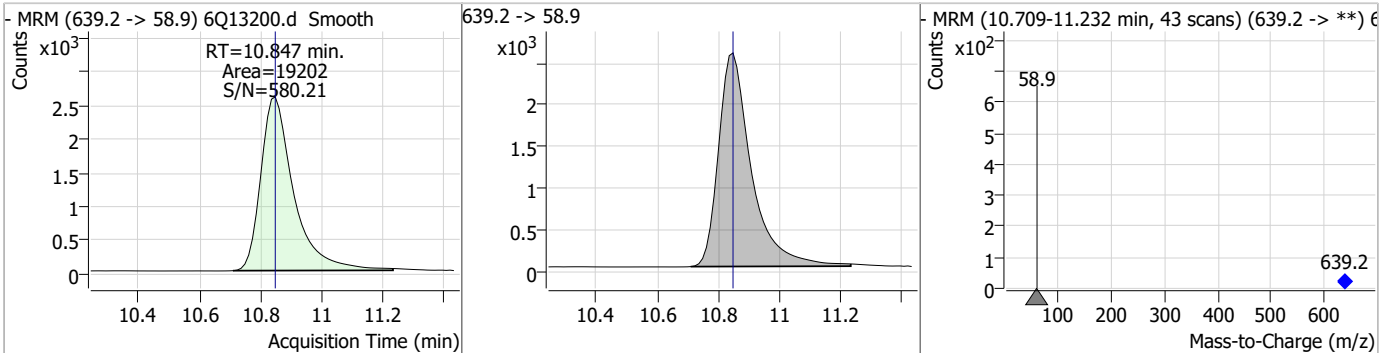


Perfluorinated Compounds by LC/MS/MS

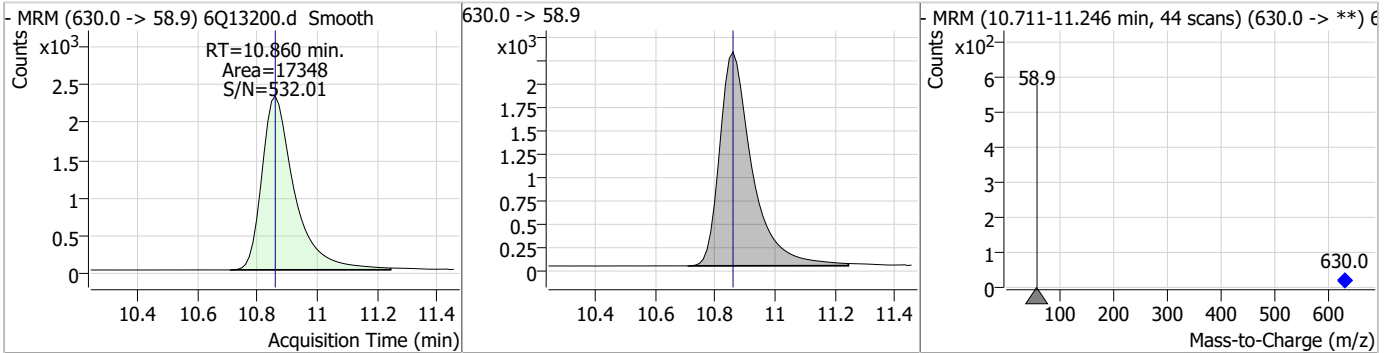
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	2.36	10.68	0.00	7454	511.9 -> 169.0	96.4	59.4	178.3



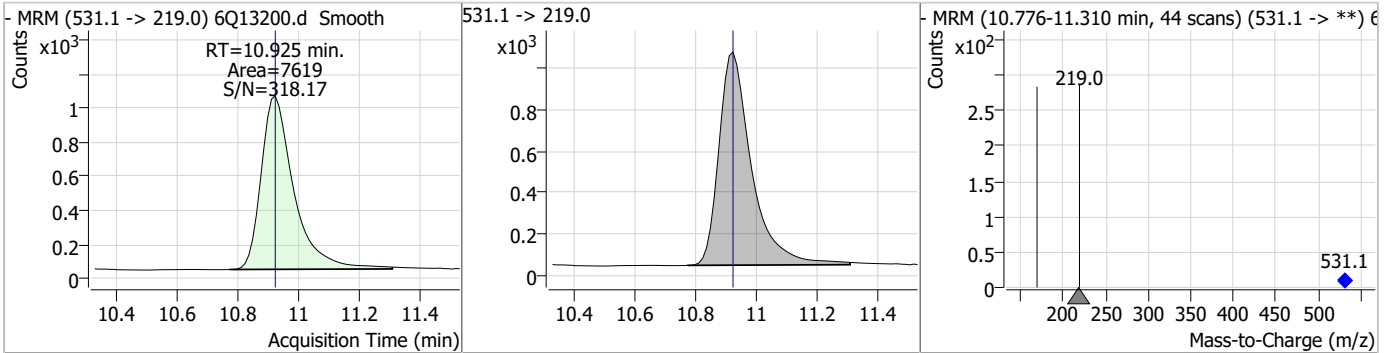
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	21.30	10.85	0.00	19202				



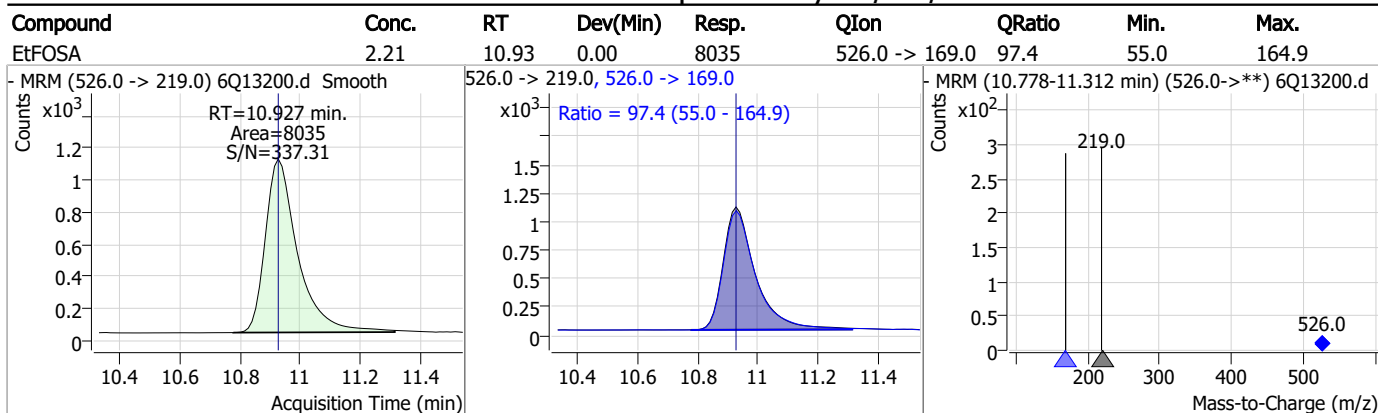
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	21.11	10.86	0.00	17348				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.17	10.92	0.00	7619				



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q202-CC196 Method: EPA DRAFT 1633
Lab FileID: 6Q13200.D Analyst approved: 02/08/23 10:34 Martha Valls
Injection Time: 02/07/23 13:36 Supervisor approved: 02/08/23 11:27 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.41	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13213.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/8/2023 11:03:11 AM
 Sample Name : cc196-4
 Vial : P1-A5
 DA Method File : 1633_020223_S6Q196.quantmethod.xml
 Batch Name : s6q202.batch.bin
 Sample Information : OP95070,S6Q202,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.975	216.8 -> 171.9	99436	10.00 µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	48330	5.00 µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	42645	2.50 µg/L	0.000
M4-PFHpA	6.502	367.1 -> 322.0	45577	2.50 µg/L	0.000
M8-PFOA	7.146	421.1 -> 376.0	76565	2.50 µg/L	0.000
M9-PFNA	7.677	472.1 -> 427.0	27237	1.25 µg/L	0.000
M6-PFDA	8.157	519.1 -> 474.1	20708	1.25 µg/L	0.000
M7-PFUnDA	8.624	570.0 -> 525.1	24894	1.25 µg/L	0.012
M2-PFDoDA	9.054	615.1 -> 570.0	27763	1.25 µg/L	0.000
M2-PFTeDA	9.781	715.2 -> 670.0	16744	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	19955	2.50 µg/L	-0.012
M3-PFBS	5.518	302.1 -> 79.9	15954	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	11022	2.50 µg/L	0.000
M8-PFOS	8.333	507.1 -> 79.9	9414	2.50 µg/L	0.000
M2-4:2FTS	5.240	329.1 -> 80.9	2814	5.00 µg/L	0.000
M2-6:2FTS	6.908	429.1 -> 80.9	3639	5.00 µg/L	0.000
M2-8:2FTS	7.944	529.1 -> 80.9	3192	5.00 µg/L	0.000
M3-MeFOSAA	8.202	573.2 -> 419.0	35637	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	17418	10.00 µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	29838	5.00 µg/L	0.012
M7-MeFOSE	10.589	623.2 -> 58.9	32693	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	21773	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	8572	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7919	2.50 µg/L	0.000
13C4-PFOS	8.333	502.8 -> 79.9	12832	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	44480	5.00 µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	7696	2.50 µg/L	0.000
13C4-PFOA	7.147	417.1 -> 372.0	95969	2.50 µg/L	0.000
13C2-PFDA	8.170	515.1 -> 470.1	27860	1.25 µg/L	0.012
13C5-PFNA	7.677	468.0 -> 423.0	32405	1.25 µg/L	0.000
13C2-PFHxA	5.563	315.1 -> 270.0	43012	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.240	329.1 -> 80.9	2814	5.62 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.4%		
13C2-6:2FTS	6.908	429.1 -> 80.9	3639	5.48 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.6%		
13C2-8:2FTS	7.944	529.1 -> 80.9	3192	4.79 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.7%		
13C2-PFDoDA	9.054	615.1 -> 570.0	27763	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.8%		
13C2-PFTeDA	9.781	715.2 -> 670.0	16744	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 109.4%		
13C3-PFBS	5.518	302.1 -> 79.9	15954	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C3-PFHxS	7.274	402.1 -> 79.9	11022	2.72 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 = 109.0%		
13C4-PFBA	2.975	216.8 -> 171.9	99436	10.07 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C4-PFHpA	6.502	367.1 -> 322.0	45577	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C5-PFHxA	5.563	318.0 -> 273.0	42645	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C5-PFPeA	4.386	268.3 -> 223.0	48330	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C6-PFDA	8.157	519.1 -> 474.1	20708	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.9%		
13C7-PFUnDA	8.624	570.0 -> 525.1	24894	1.34 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.4%		
13C8-FOSA	9.555	506.1 -> 77.8	19955	2.39 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.5%		
13C8-PFOA	7.146	421.1 -> 376.0	76565	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.6%		
13C8-PFOS	8.333	507.1 -> 79.9	9414	2.23 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 89.3%		
13C9-PFNA	7.677	472.1 -> 427.0	27237	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.5%		
d3-MeFOSAA	8.202	573.2 -> 419.0	35637	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	17418	9.91 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.1%		
d3-MeFOSA	10.680	515.0 -> 219.0	7919	2.20 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 88.0%		
d5-EtFOSAA	8.410	589.2 -> 419.0	29838	5.11 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.3%		
d7-MeFOSE	10.589	623.2 -> 58.9	32693	22.44 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 89.8%		
d9-EtFOSE	10.847	639.2 -> 58.9	21773	21.68 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 86.7%		
d5-EtFOSA	10.925	531.1 -> 219.0	8572	2.19 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 87.5%		
Target Compounds					QValue
4:2FTS	5.240	327.1 -> 307.0	54894	8.70 µg/L	99
		327.1 -> 80.9	12001		
6:2FTS	6.908	427.1 -> 407.0	44869	8.42 µg/L	97
		427.1 -> 80.9	9305		
8:2FTS	7.945	527.1 -> 507.0	25075	10.11 µg/L	97
		527.1 -> 80.8	6335		
EtFOSAA	8.411	584.2 -> 419.1	9404	1.97 µg/L	m 89
		584.2 -> 526.0	5531		
FOSA	9.557	498.1 -> 77.9	18258	2.29 µg/L	100
		498.1 -> 478.0	714		
MeFOSAA	8.203	570.1 -> 419.0	14570	2.23 µg/L	98
		570.1 -> 483.0	2820		
PFBA	2.982	212.8 -> 168.9	20578	9.27 µg/L	100
PFBS	5.518	298.7 -> 79.9	12651	2.06 µg/L	98
		298.7 -> 98.8	6022		
PFDA	8.158	512.9 -> 469.0	57263	2.43 µg/L	100
		512.9 -> 219.0	7815		
PFDODA	9.054	613.1 -> 569.0	45670	2.25 µg/L	100
		613.1 -> 319.0	5613		
PFDS	9.229	599.0 -> 79.9	7468	2.34 µg/L	96

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3720			
PFHpA	6.503	363.1 -> 319.0	60909	2.26	µg/L	99
		363.1 -> 169.0	8372			
PFHpS	7.841	449.0 -> 79.9	9219	2.31	µg/L	95
		449.0 -> 98.9	5405			
PFHxA	5.566	313.0 -> 269.0	38870	2.32	µg/L	100
		313.0 -> 118.9	1394			
PFHxS	7.275	398.7 -> 79.9	10024	2.02	µg/L	m 99
		398.7 -> 98.9	5464			
PFNA	7.677	463.0 -> 419.0	42659	2.32	µg/L	94
		463.0 -> 219.0	7654			
PFNS	8.798	548.8 -> 79.9	8944	2.14	µg/L	96
		548.8 -> 98.9	5579			
PFOA	7.148	413.0 -> 369.0	78076	2.32	µg/L	99
		413.0 -> 169.0	9884			
PFOS	8.334	498.9 -> 79.9	9943	2.30	µg/L	m 96
		498.9 -> 98.8	5825			
PFPeA	4.388	263.0 -> 219.0	46425	4.55	µg/L	100
PFPeS	6.569	349.1 -> 79.9	12240	2.12	µg/L	97
		349.1 -> 98.9	6462			
PFTeDA	9.781	713.1 -> 669.0	42901	2.37	µg/L	98
		713.1 -> 168.9	2890			
PFTrDA	9.437	663.0 -> 619.0	46815	2.41	µg/L	100
		663.0 -> 168.9	3662			
PFUnDA	8.624	563.1 -> 519.0	48687	2.51	µg/L	98
		563.1 -> 269.1	6778			
11CI-PF3OUdS	9.502	630.9 -> 450.9	102701	8.22	µg/L	98
		632.9 -> 452.9	30254			
9CI-PF3ONS	8.676	530.8 -> 351.0	172153	8.15	µg/L	98
		532.8 -> 353.0	53765			
ADONA	6.753	376.9 -> 250.9	337481	8.93	µg/L	99
		376.9 -> 84.8	71667			
HFPO-DA	5.940	284.9 -> 168.9	13906	8.54	µg/L	95
		284.9 -> 184.9	1781			
3:3FTCA	3.829	241.0 -> 177.0	6030	12.03	µg/L	99
		241.0 -> 117.0	788			
5:3FTCA	6.193	341.0 -> 237.1	201029	57.48	µg/L	99
		341.0 -> 217.0	177051			
7:3FTCA	7.605	441.0 -> 316.9	114281	49.99	µg/L	99
		441.0 -> 336.9	228551			
EtFOSA	10.927	526.0 -> 219.0	9144	2.24	µg/L	89
		526.0 -> 169.0	8995			
EtFOSE	10.860	630.0 -> 58.9	20815	22.34	µg/L	100
MeFOSA	10.682	511.9 -> 219.0	8312	2.43	µg/L	76
		511.9 -> 169.0	7640			
MeFOSE	10.602	616.1 -> 58.9	28661	21.98	µg/L	100
PFDoDS	9.920	699.1 -> 79.9	4009	2.10	µg/L	93
		699.1 -> 98.8	2446			
NFDHA	5.445	295.0 -> 201.0	5052	5.11	µg/L	96
		295.0 -> 84.9	2264			
PFMBA	4.787	279.0 -> 85.1	14121	4.92	µg/L	100
PFMPA	3.541	229.0 -> 84.9	12870	4.73	µg/L	100
PFEESA	6.046	314.8 -> 134.9	99966	4.15	µg/L	100
		314.8 -> 82.9	2593			

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

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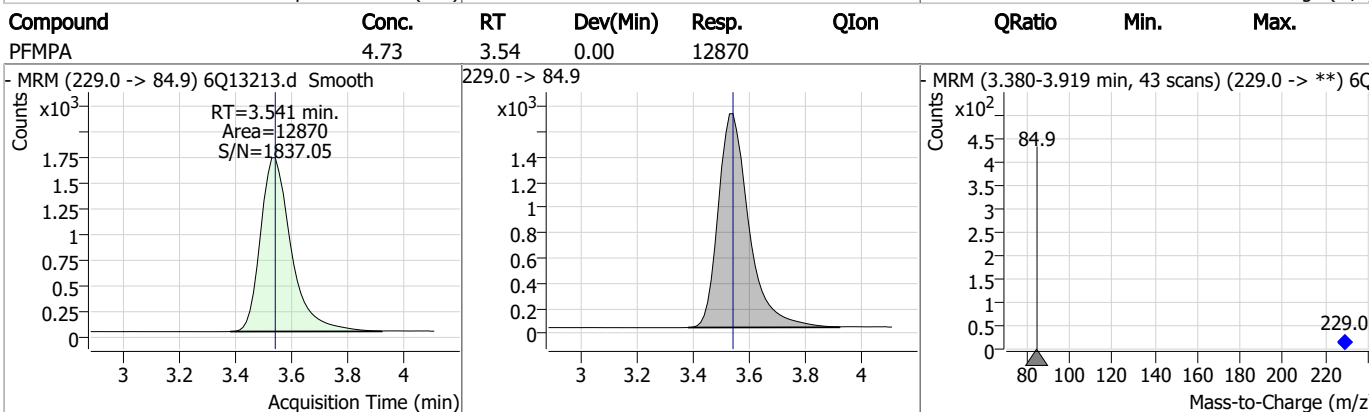
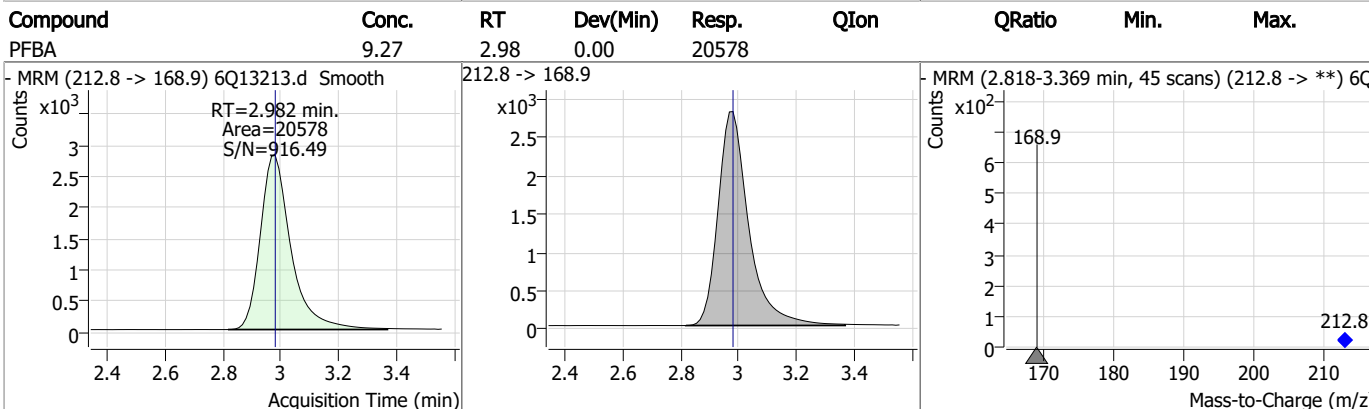
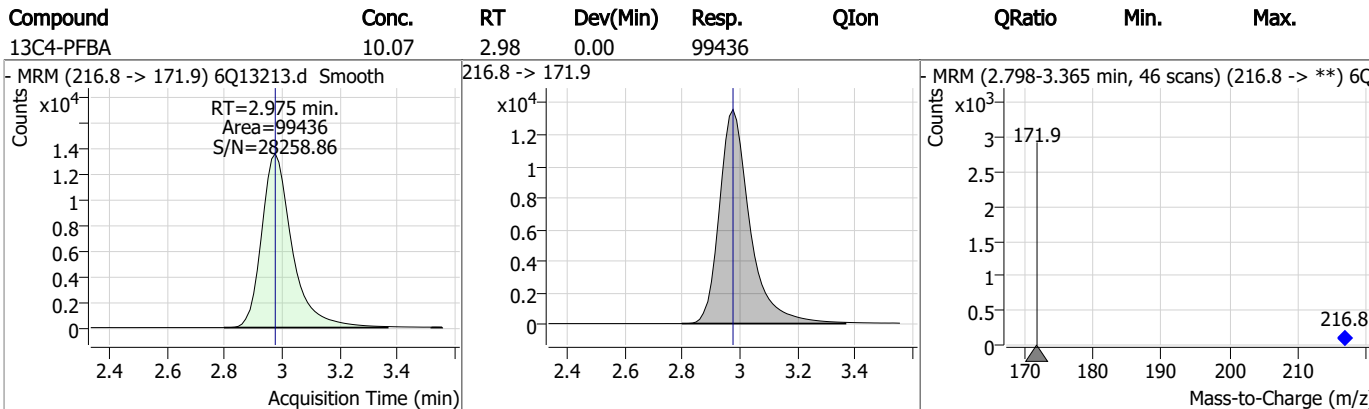
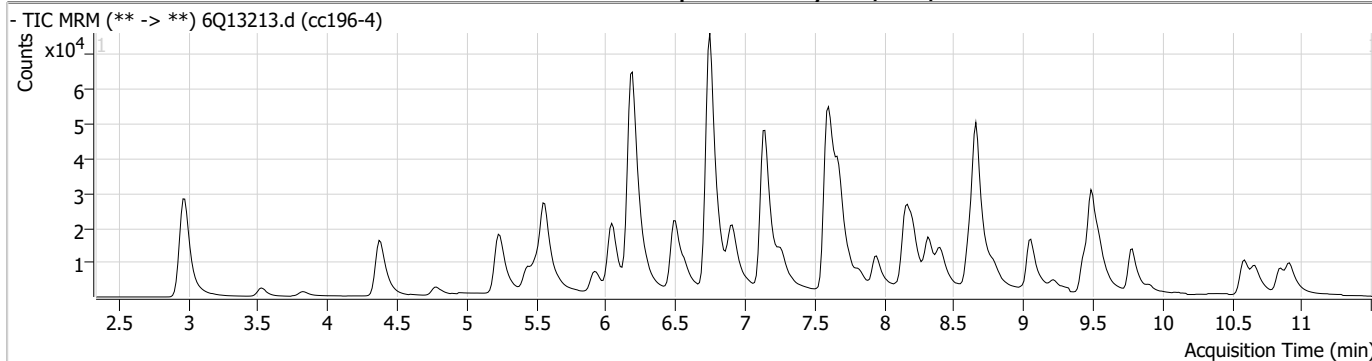
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.15

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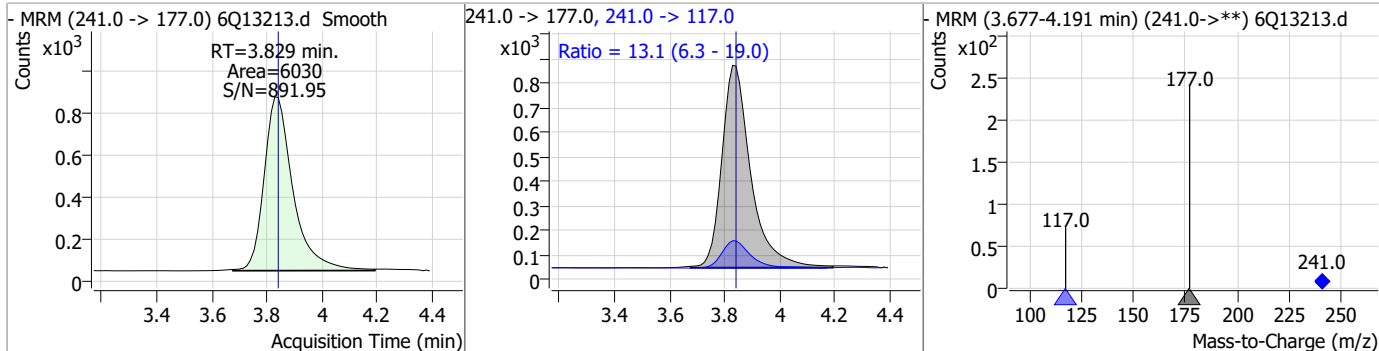
Perfluorinated Compounds by LC/MS/MS



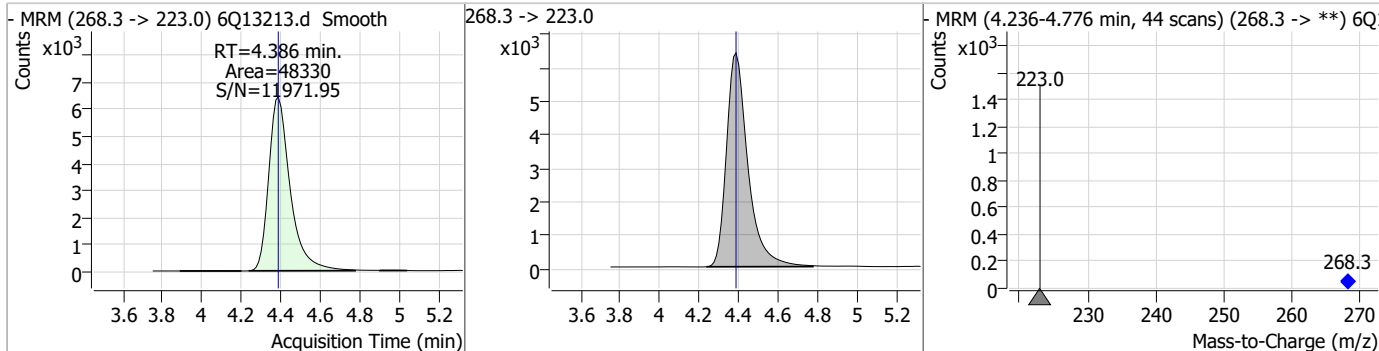
7.7.15
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Perfluorinated Compounds by LC/MS/MS

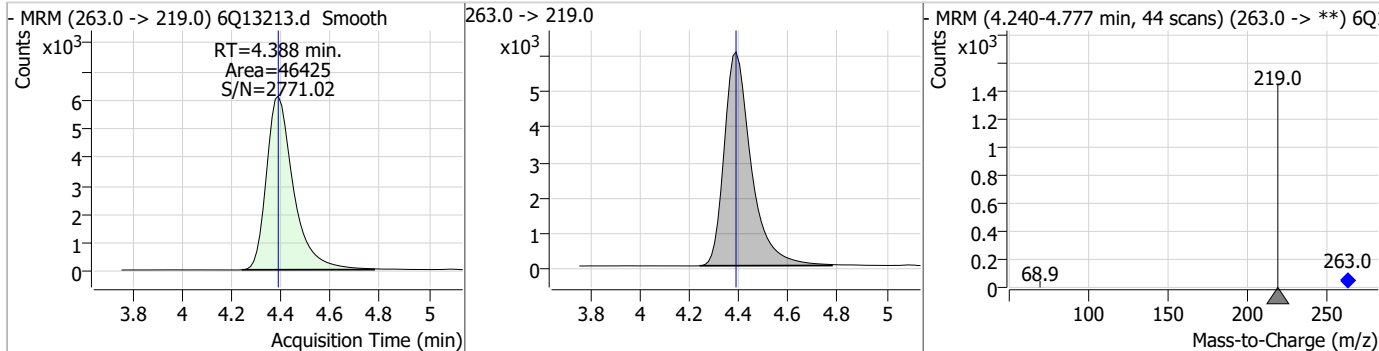
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	12.03	3.83	-0.01	6030	241.0 -> 117.0	13.1	6.3	19.0



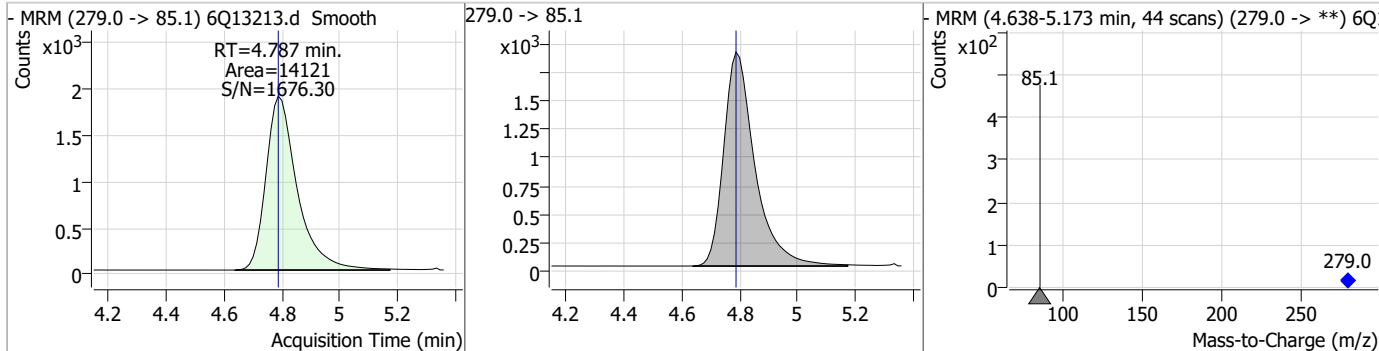
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.04	4.39	0.00	48330				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.55	4.39	0.00	46425				

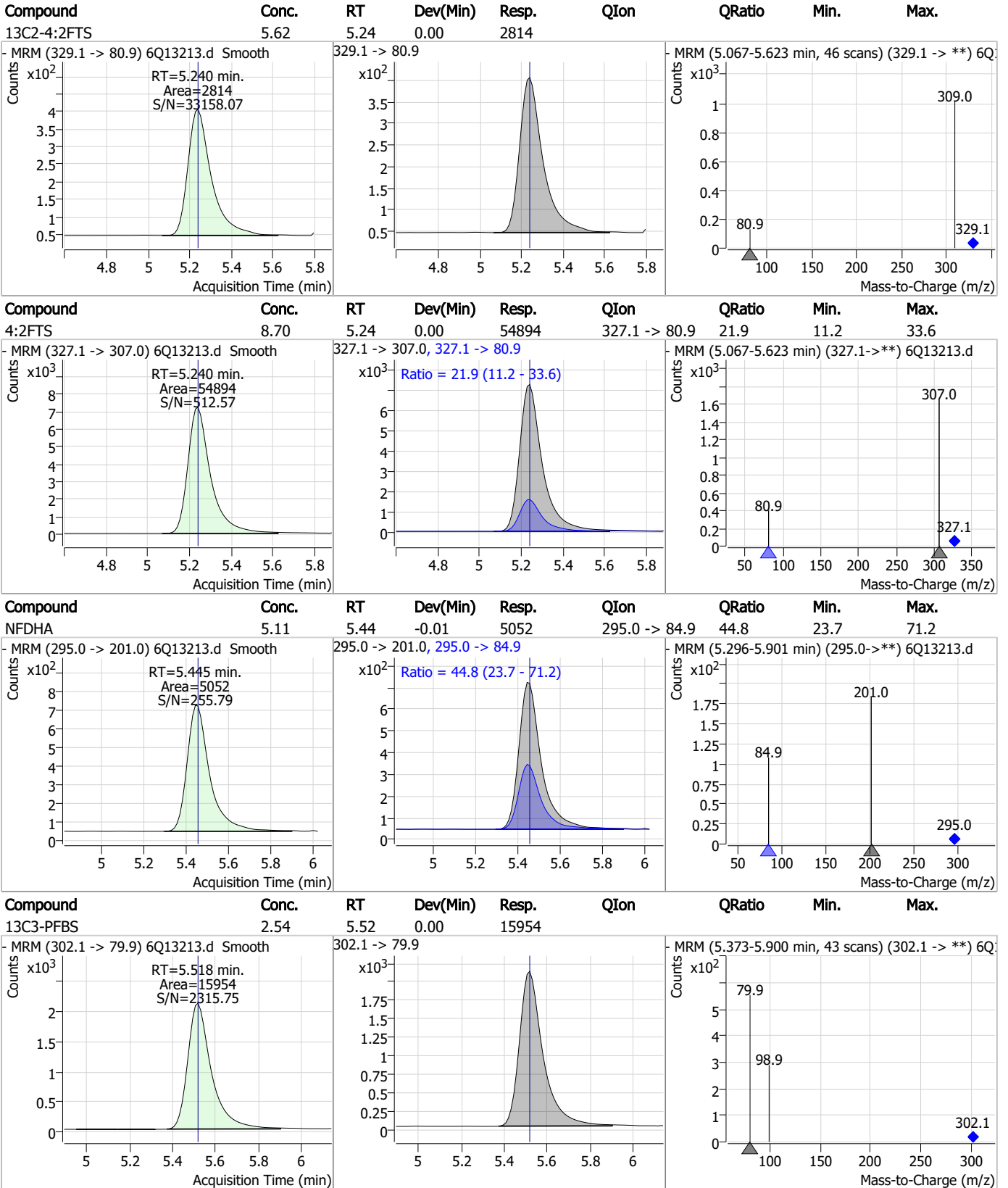


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.92	4.79	0.00	14121				



7.7.15
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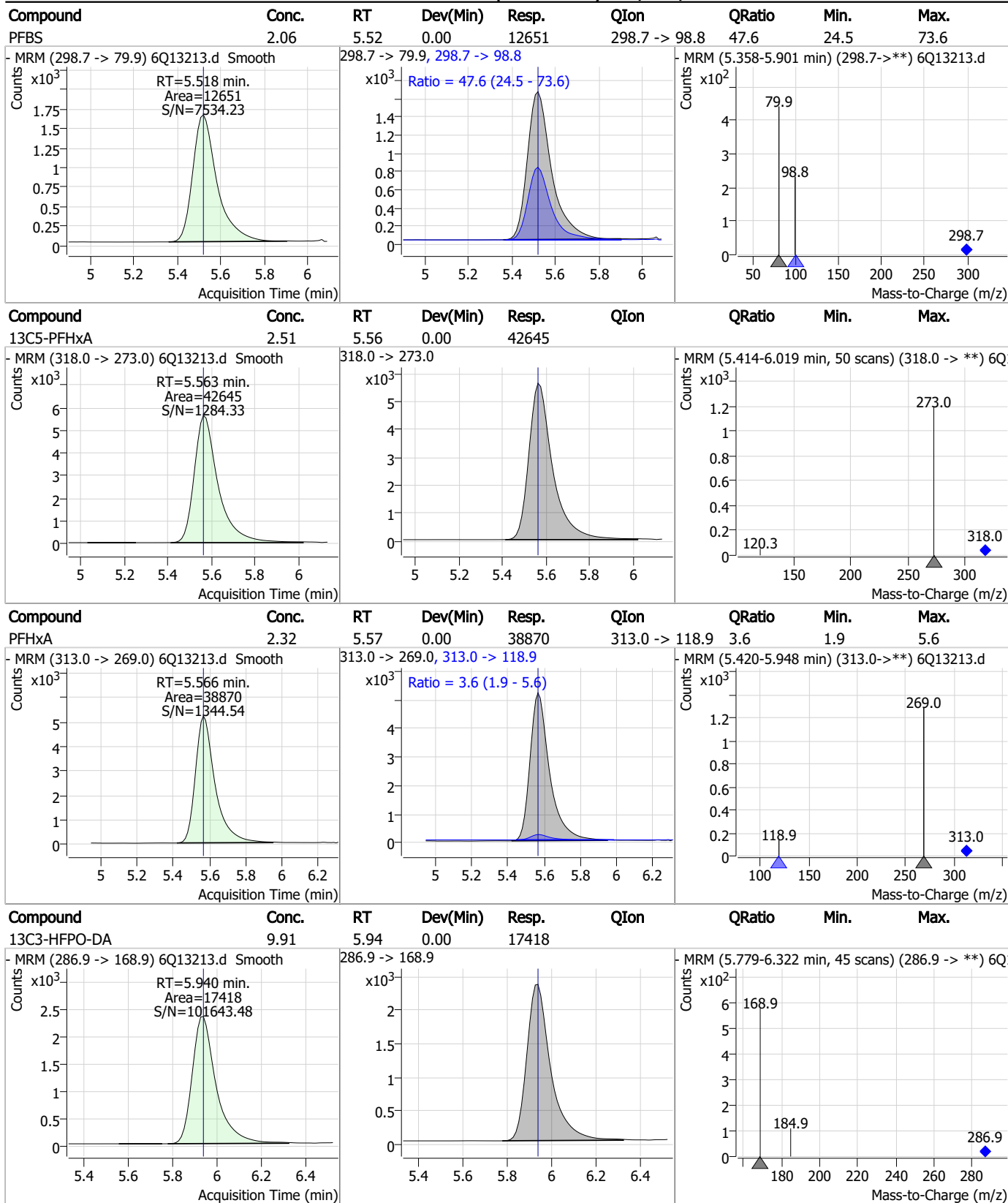
Perfluorinated Compounds by LC/MS/MS



7.7.15 7



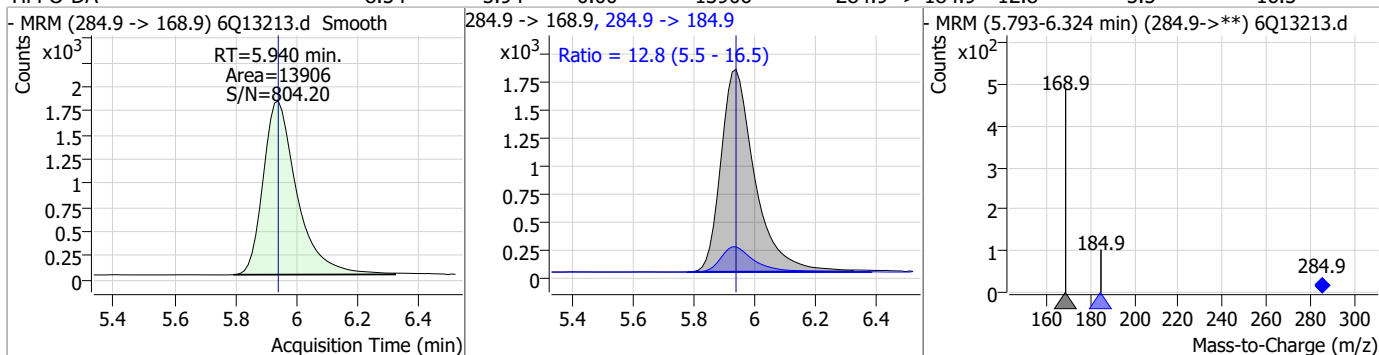
Perfluorinated Compounds by LC/MS/MS



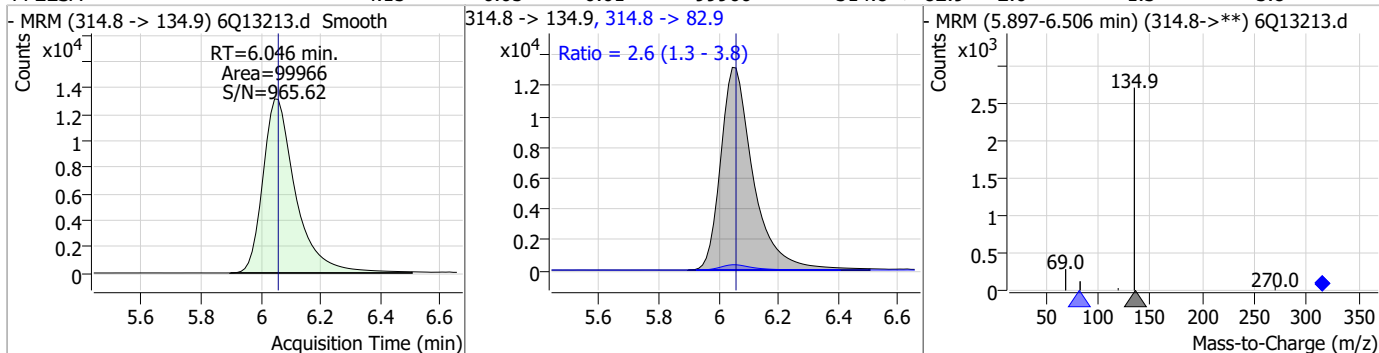
7.7.15
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Perfluorinated Compounds by LC/MS/MS

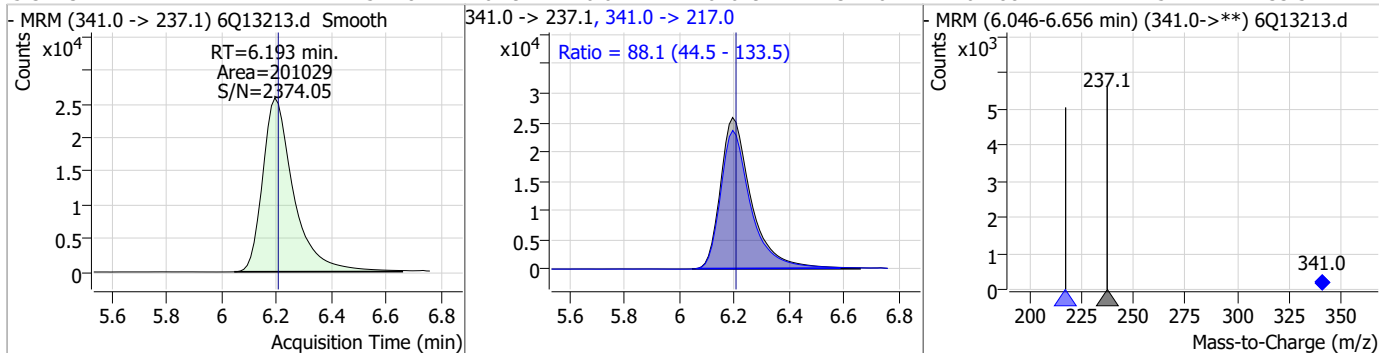
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	8.54	5.94	0.00	13906	284.9 -> 184.9	12.8	5.5	16.5



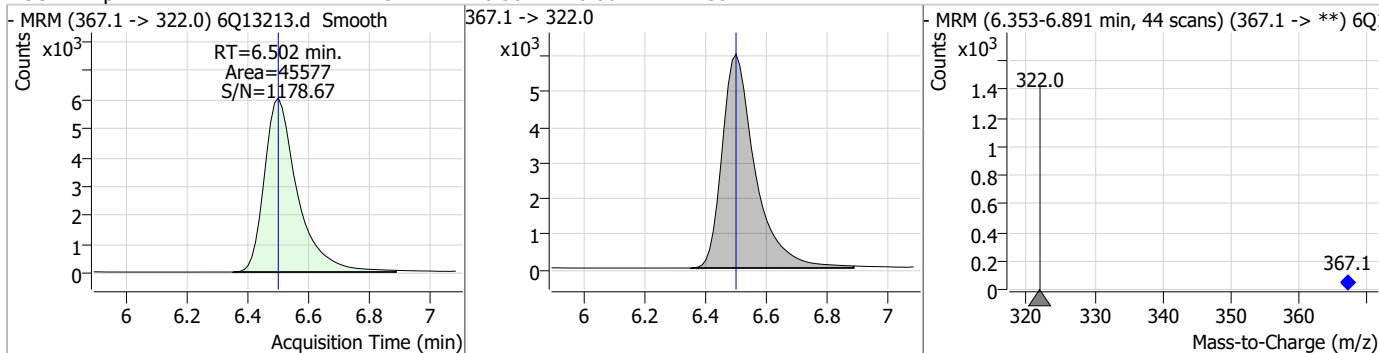
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.15	6.05	-0.01	99966	314.8 -> 82.9	2.6	1.3	3.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	57.48	6.19	-0.01	201029	341.0 -> 217.0	88.1	44.5	133.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.57	6.50	0.00	45577	367.1 -> 322.0			



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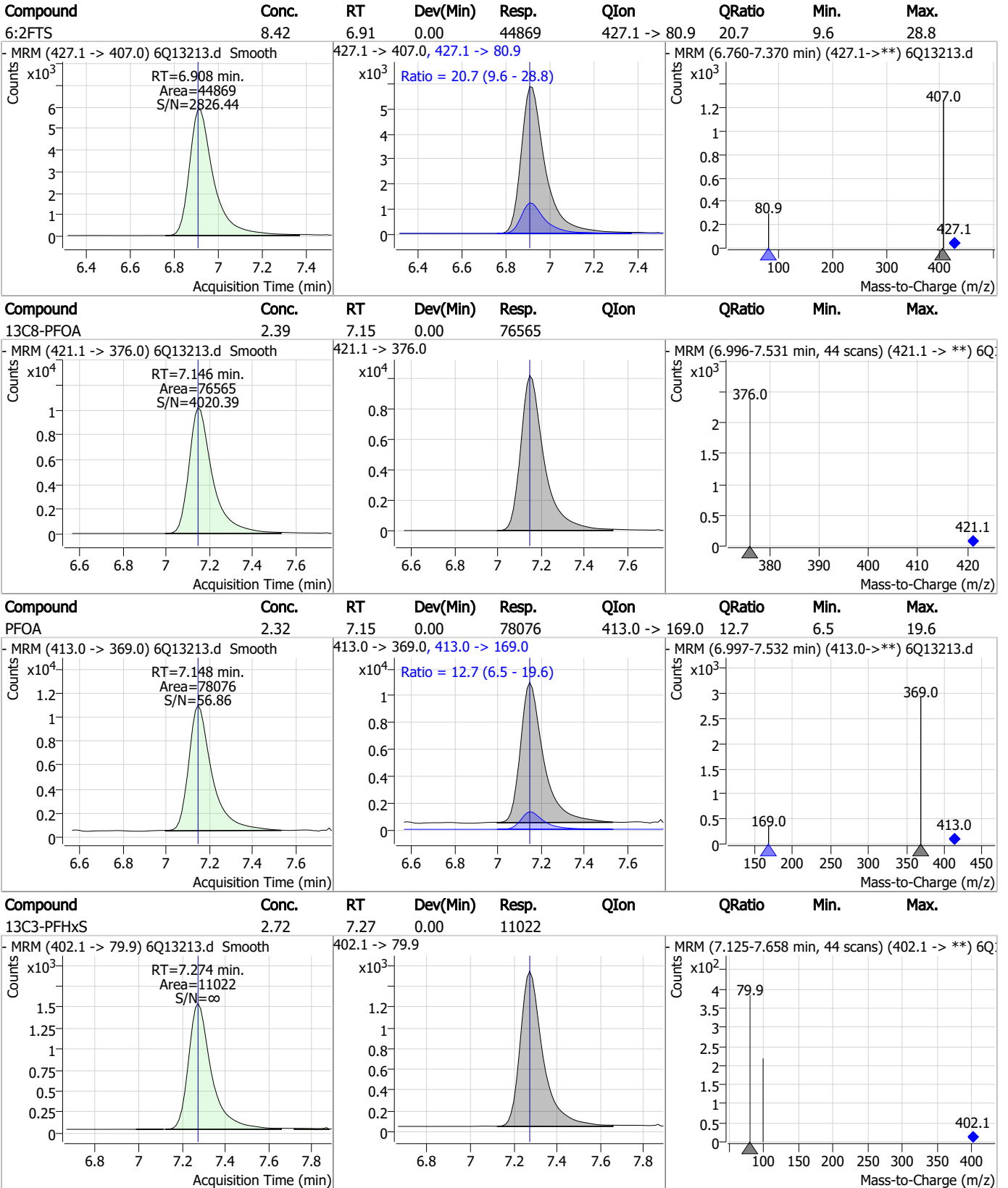
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.26	6.50	0.00	60909	363.1 -> 169.0	13.7	6.8	20.3
PFPeS	2.12	6.57	-0.01	12240	349.1 -> 98.9	52.8	27.3	82.0
ADONA	8.93	6.75	0.00	337481	376.9 -> 84.8	21.2	10.4	31.3
13C2-6:2FTS	5.48	6.91	0.00	3639	429.1 -> 80.9	642	31.3	409.0

7.7.15 7



Perfluorinated Compounds by LC/MS/MS

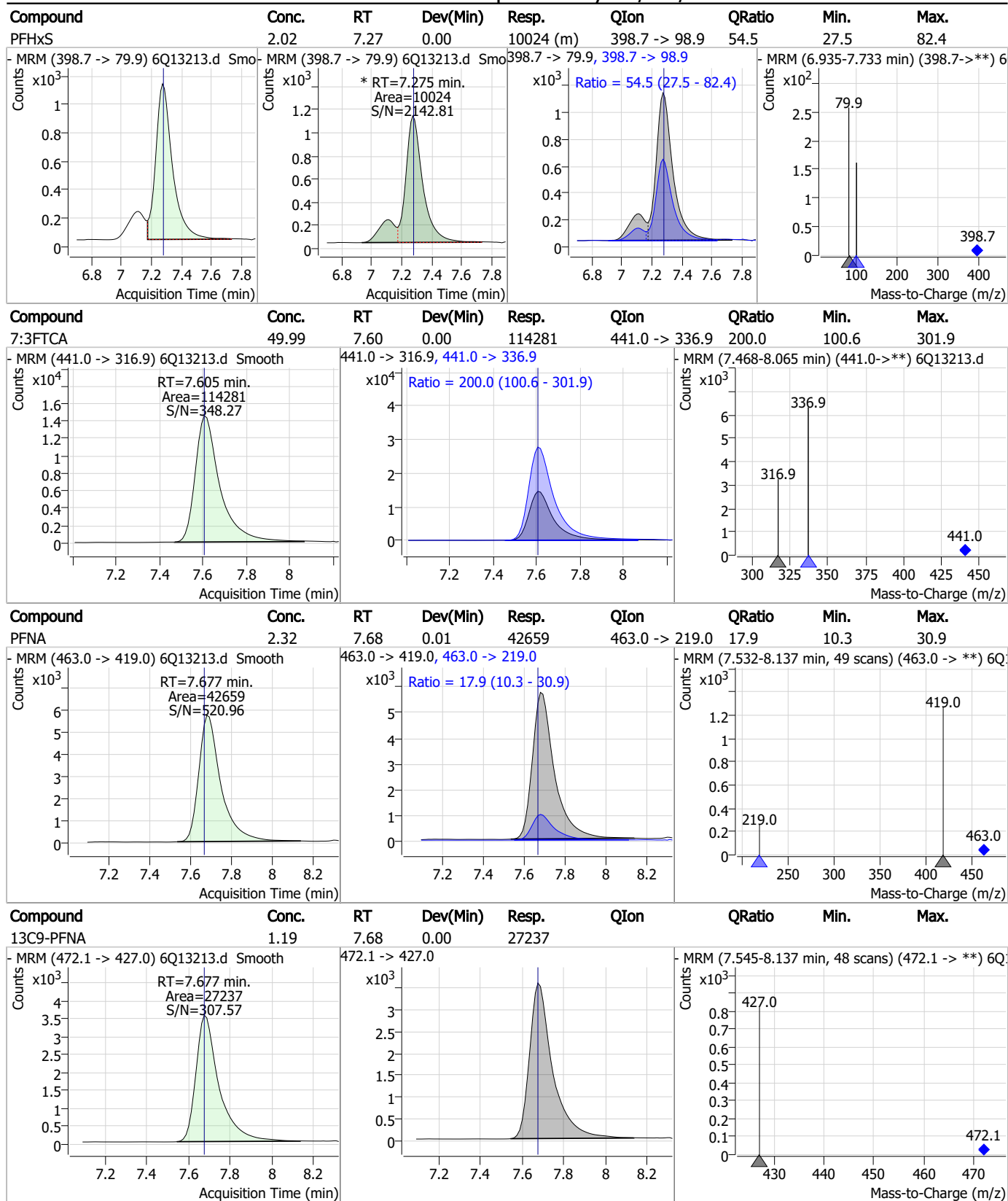


7.7.15

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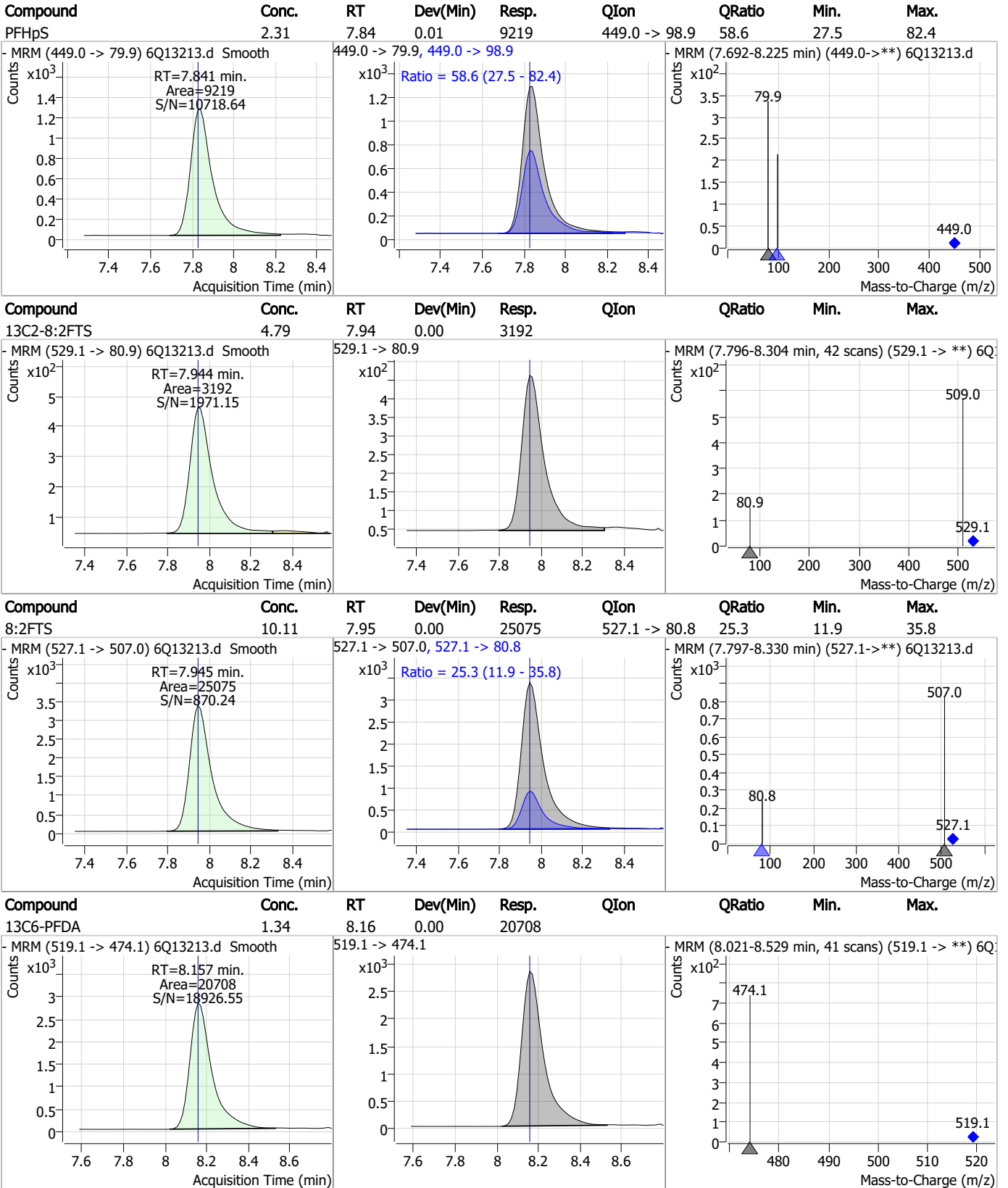


Perfluorinated Compounds by LC/MS/MS



7.7.15
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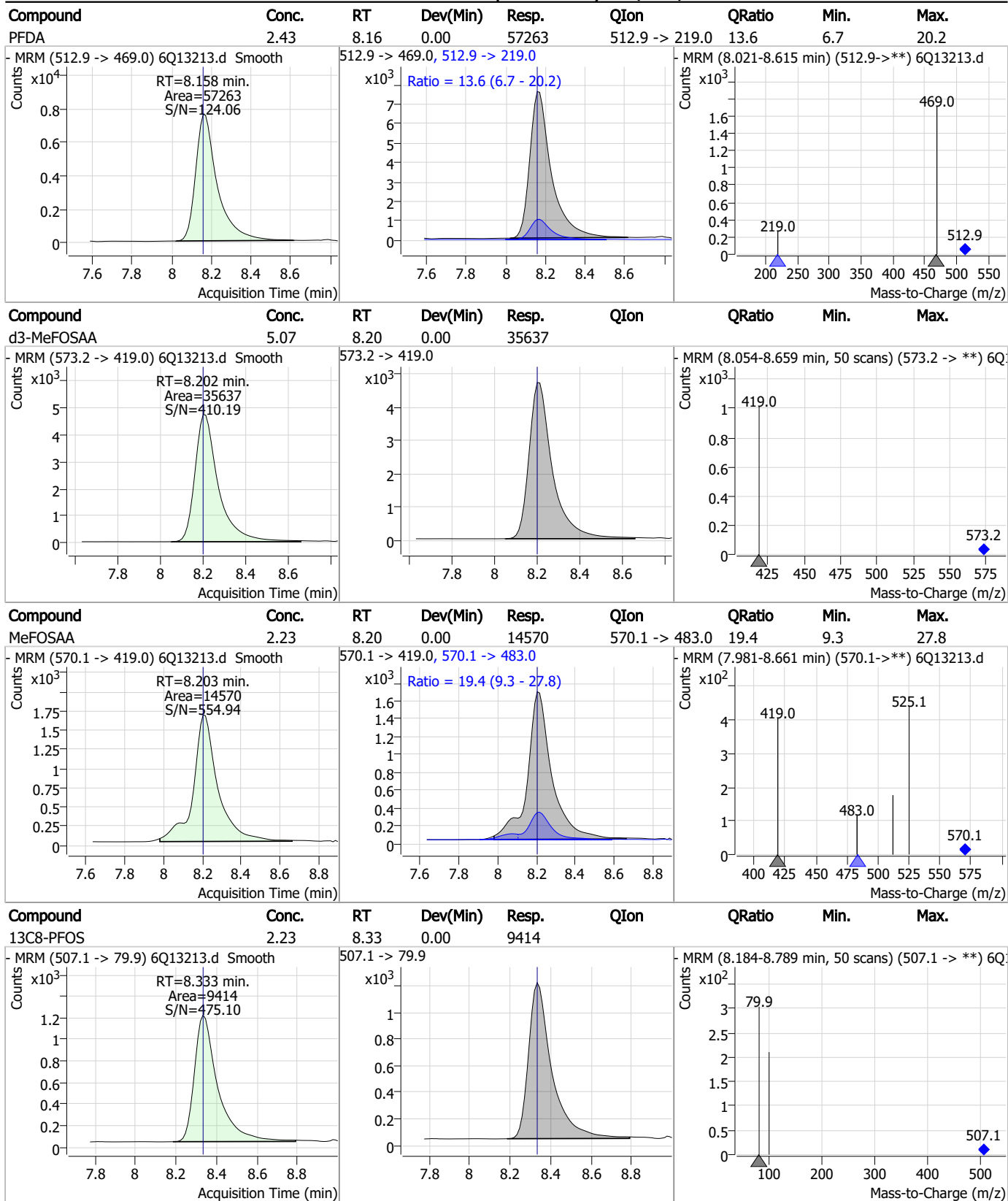
Perfluorinated Compounds by LC/MS/MS



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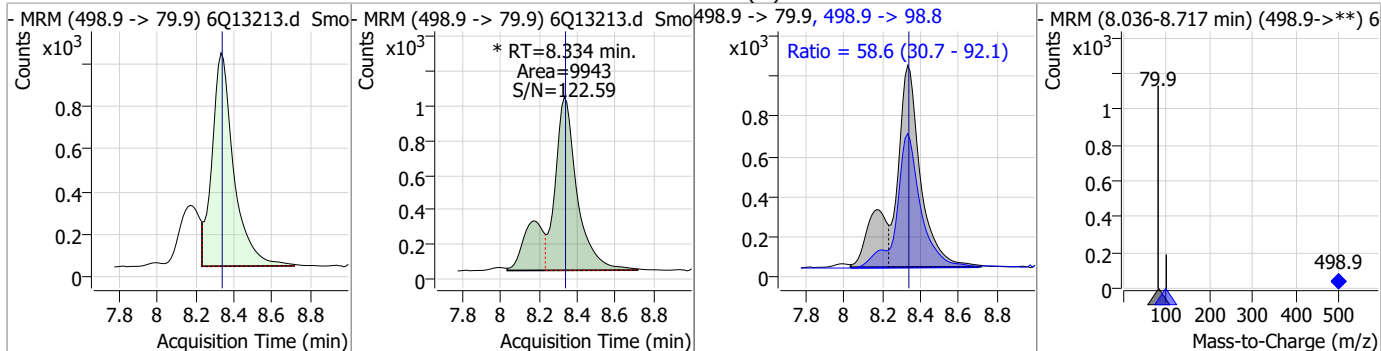
Perfluorinated Compounds by LC/MS/MS



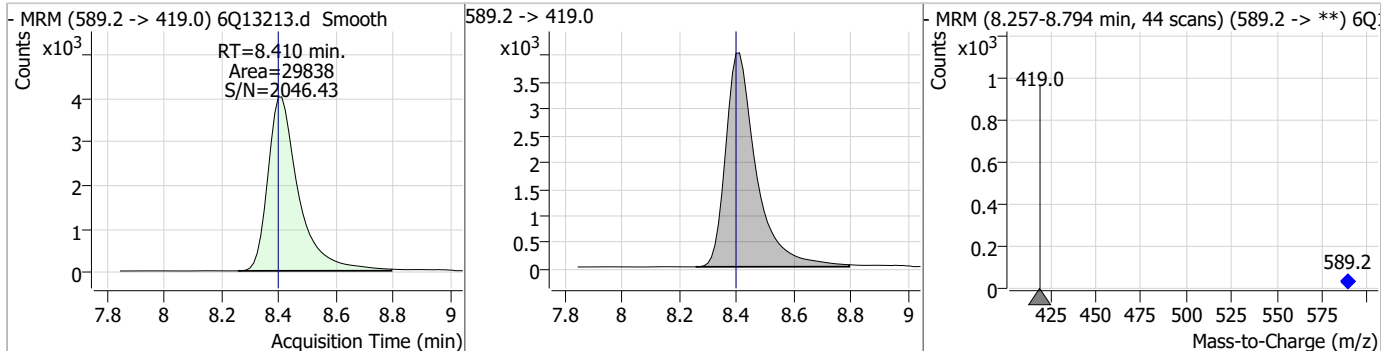
7.7.15
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Perfluorinated Compounds by LC/MS/MS

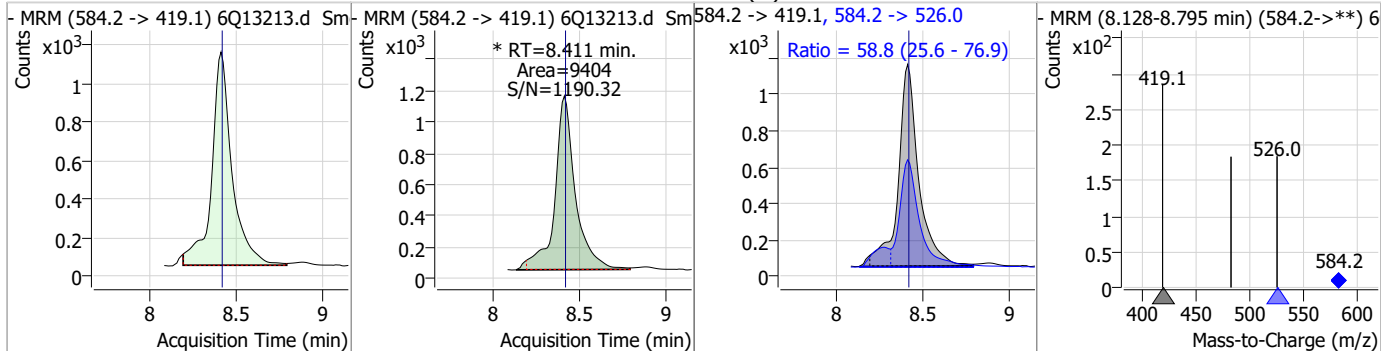
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.30	8.33	0.00	9943 (m)	498.9 -> 98.8	58.6	30.7	92.1



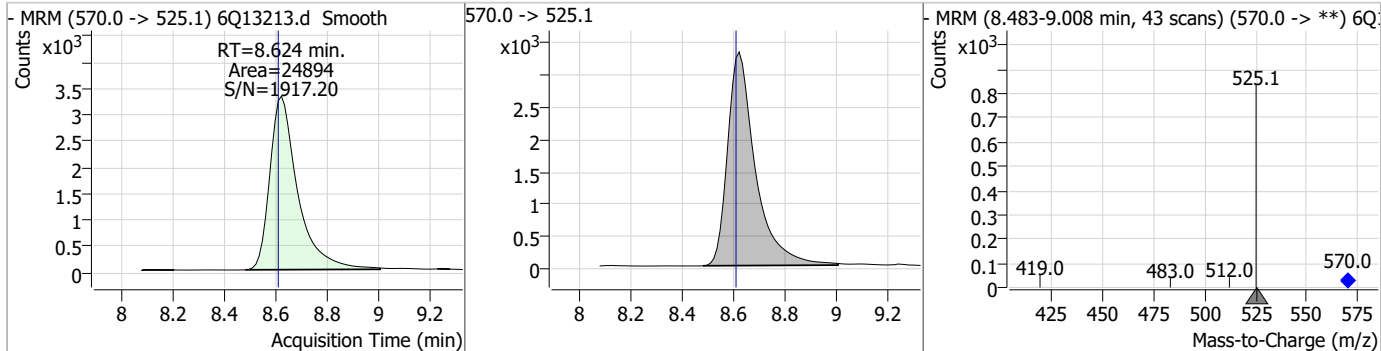
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.11	8.41	0.01	29838				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.97	8.41	0.00	9404 (m)	584.2 -> 526.0	58.8	25.6	76.9



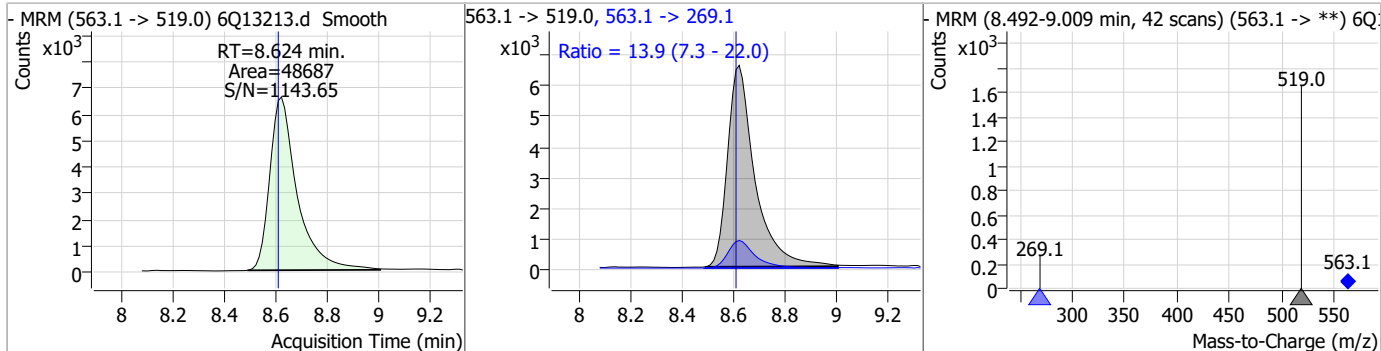
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.34	8.62	0.01	24894				



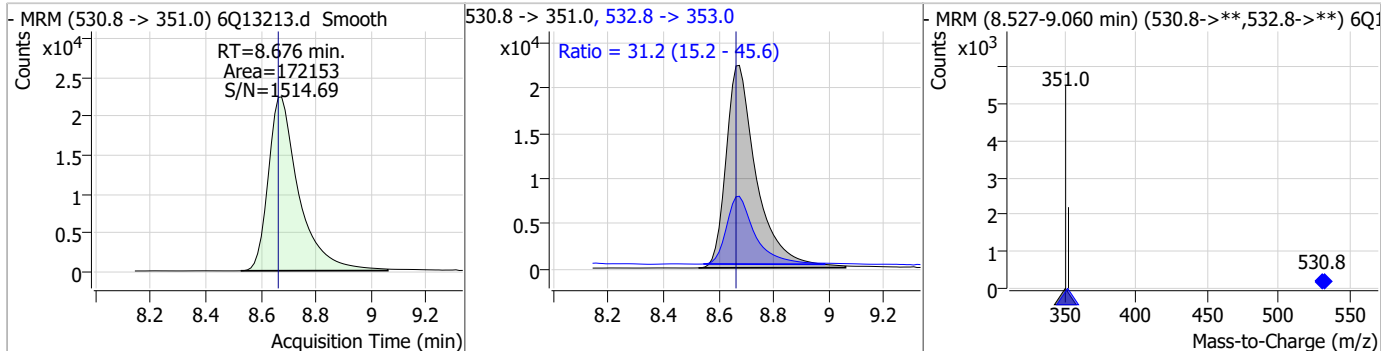
7.7.15
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Perfluorinated Compounds by LC/MS/MS

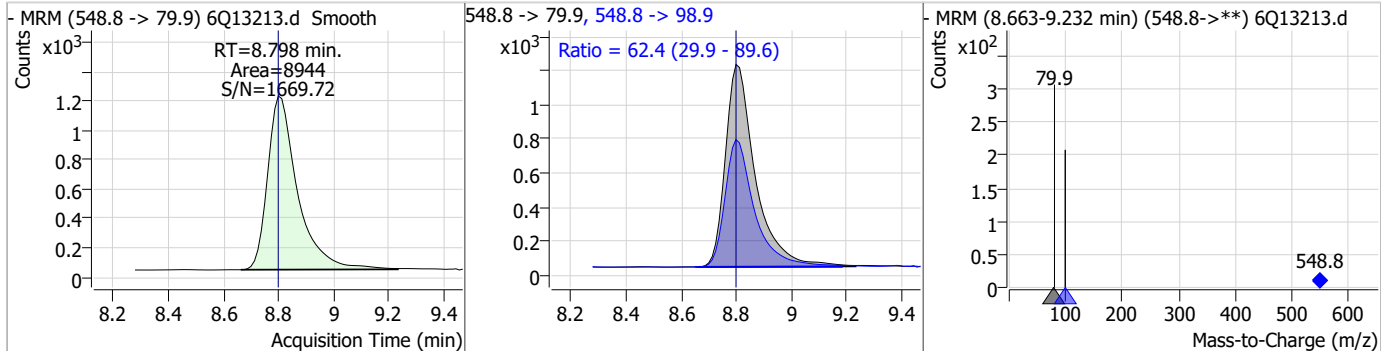
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.51	8.62	0.01	48687	563.1 -> 269.1	13.9	7.3	22.0



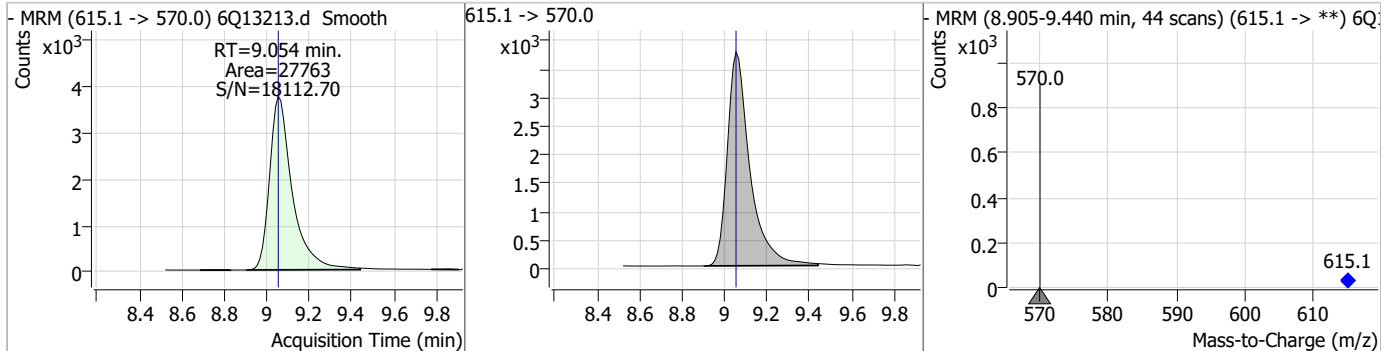
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	8.15	8.68	0.01	172153	532.8 -> 353.0	31.2	15.2	45.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.14	8.80	0.00	8944	548.8 -> 98.9	62.4	29.9	89.6

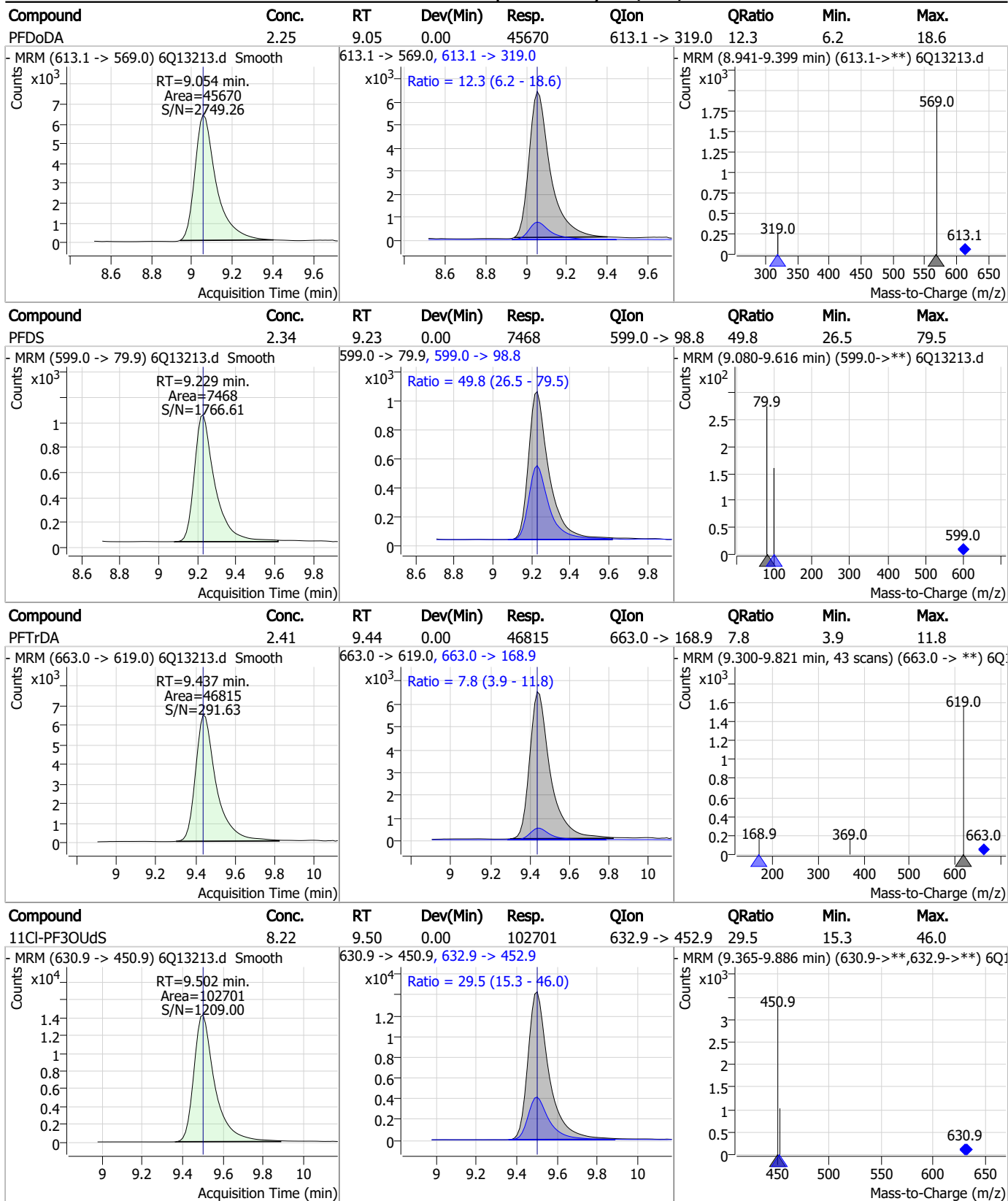


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.31	9.05	0.00	27763	615.1 -> 570.0			



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Perfluorinated Compounds by LC/MS/MS



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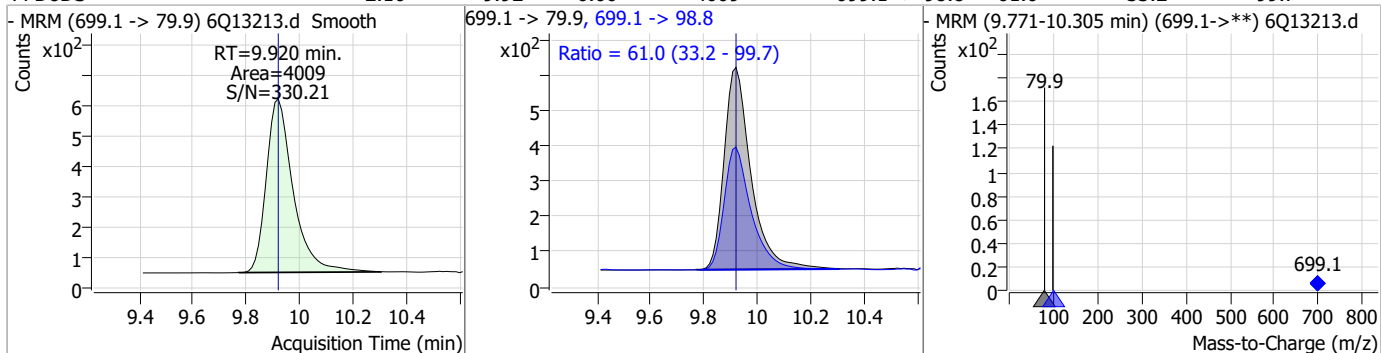
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.29	9.56	0.00	18258	498.1 -> 478.0	3.9	2.0	5.9
13C8-FOSA	2.39	9.55	-0.01	19955	506.1 -> 77.8	6.7	3.1	9.3
13C2-PFTeDA	1.37	9.78	0.00	16744	715.2 -> 670.0	6.7	3.1	9.3
PFTeDA	2.37	9.78	0.00	42901	713.1 -> 168.9	6.7	3.1	9.3

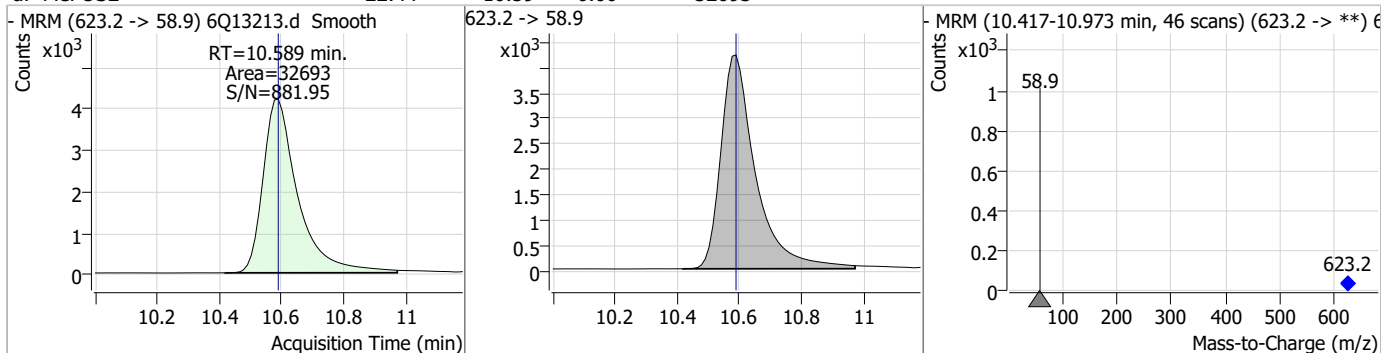
7.7.15
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Perfluorinated Compounds by LC/MS/MS

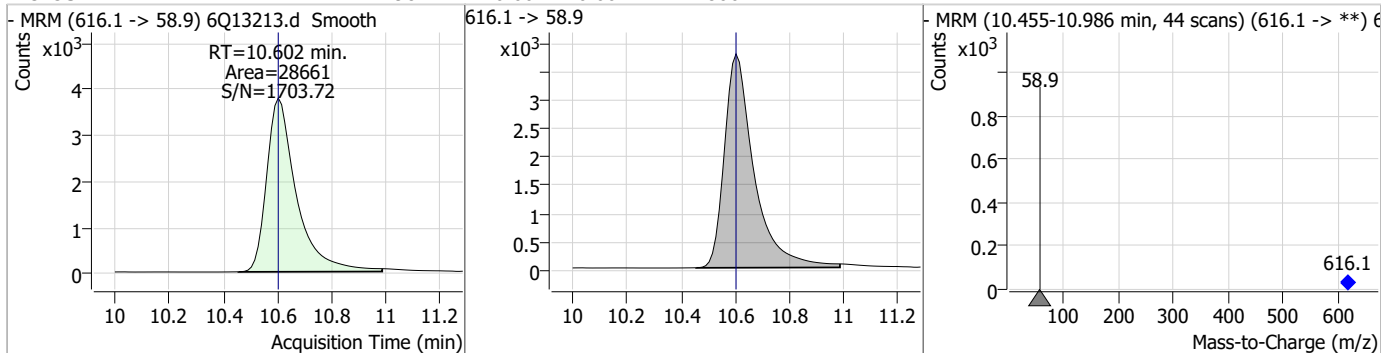
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.10	9.92	0.00	4009	699.1 -> 98.8	61.0	33.2	99.7



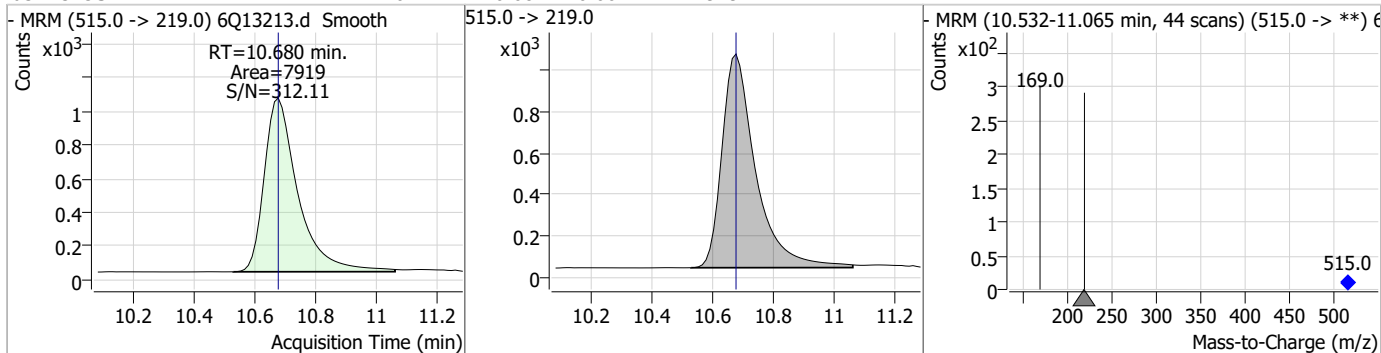
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	22.44	10.59	0.00	32693				



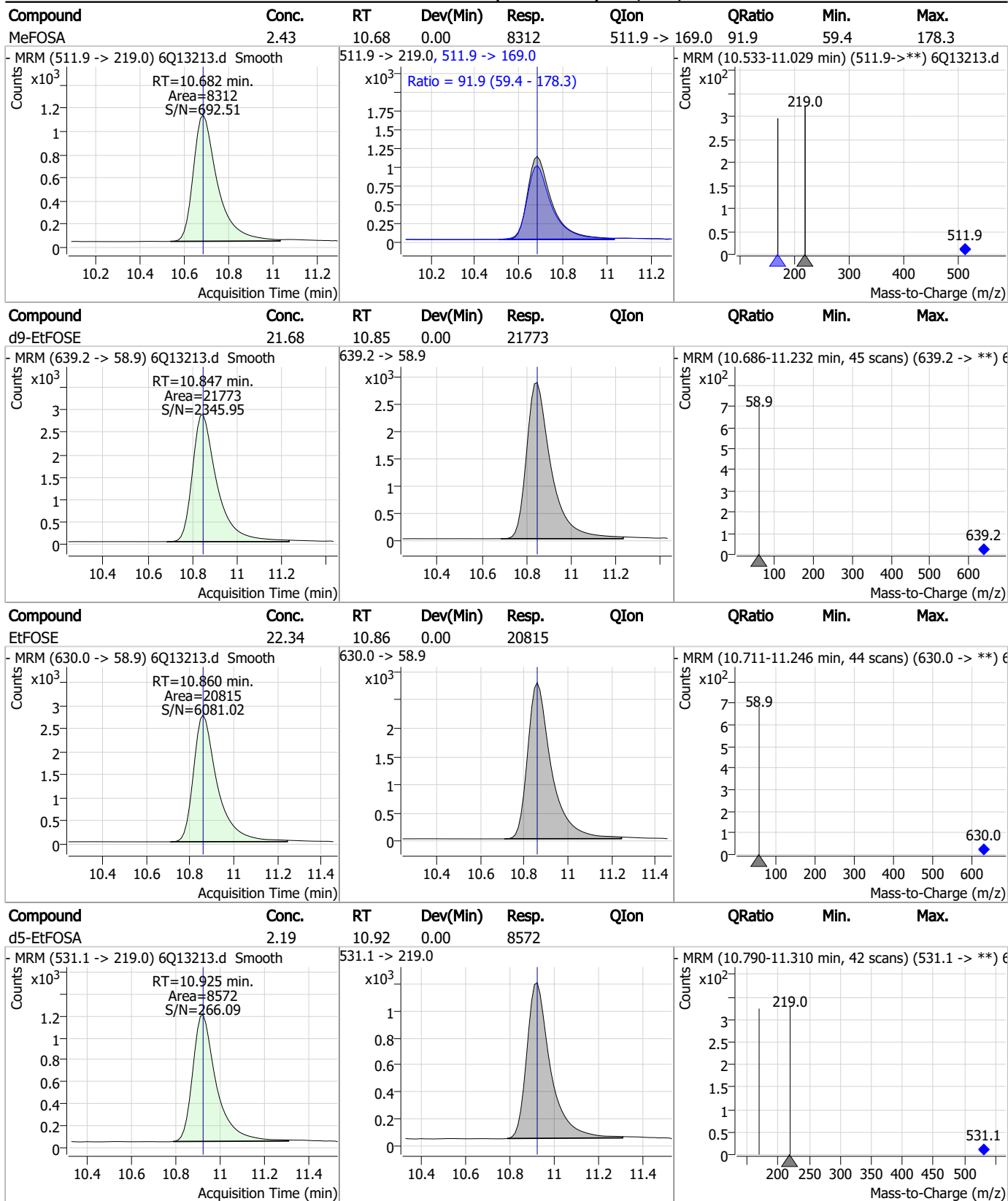
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	21.98	10.60	0.00	28661				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.20	10.68	0.00	7919				



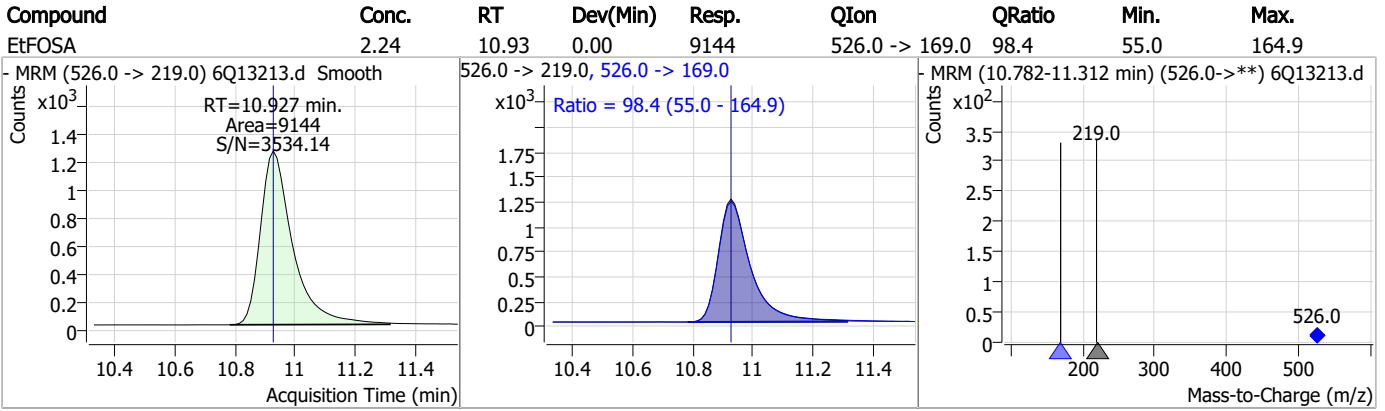
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q202-CC196 Method: EPA DRAFT 1633
Lab FileID: 6Q13213.D Analyst approved: 02/08/23 15:18 Martha Valls
Injection Time: 02/08/23 11:03 Supervisor approved: 02/08/23 15:53 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.41	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13214.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/8/2023 11:17:11 AM
 Sample Name : cc196-1.0LL
 Vial : P1-A2
 DA Method File : 1633_020223_S6Q196.quantmethod.xml
 Batch Name : s6q202.batch.bin
 Sample Information : OP95070,S6Q202,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.975	216.8 -> 171.9	94026	10.00 µg/L	0.000
M5-PFPeA	4.386	268.3 -> 223.0	46335	5.00 µg/L	0.000
M5-PFHxA	5.563	318.0 -> 273.0	41395	2.50 µg/L	0.000
M4-PFHpA	6.502	367.1 -> 322.0	43421	2.50 µg/L	0.000
M8-PFOA	7.146	421.1 -> 376.0	73197	2.50 µg/L	0.000
M9-PFNA	7.677	472.1 -> 427.0	26209	1.25 µg/L	0.000
M6-PFDA	8.157	519.1 -> 474.1	20953	1.25 µg/L	0.000
M7-PFUnDA	8.624	570.0 -> 525.1	24709	1.25 µg/L	0.012
M2-PFDoDA	9.054	615.1 -> 570.0	27339	1.25 µg/L	0.000
M2-PFTeDA	9.781	715.2 -> 670.0	16851	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	18699	2.50 µg/L	-0.012
M3-PFBS	5.518	302.1 -> 79.9	16121	2.50 µg/L	0.000
M3-PFHxS	7.274	402.1 -> 79.9	9854	2.50 µg/L	0.000
M8-PFOS	8.333	507.1 -> 79.9	10024	2.50 µg/L	0.000
M2-4:2FTS	5.227	329.1 -> 80.9	2794	5.00 µg/L	-0.012
M2-6:2FTS	6.908	429.1 -> 80.9	3403	5.00 µg/L	0.000
M2-8:2FTS	7.944	529.1 -> 80.9	3395	5.00 µg/L	0.000
M3-MeFOSAA	8.202	573.2 -> 419.0	32988	5.00 µg/L	0.000
M3-HFPO-DA	5.940	286.9 -> 168.9	16496	10.00 µg/L	0.000
M5-EtFOSAA	8.410	589.2 -> 419.0	26271	5.00 µg/L	0.012
M7-MeFOSE	10.589	623.2 -> 58.9	30069	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	20142	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	8210	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7165	2.50 µg/L	0.000
13C4-PFOS	8.333	502.8 -> 79.9	10800	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	41946	5.00 µg/L	0.000
18O2-PFHxS	7.273	403.0 -> 83.9	7654	2.50 µg/L	0.000
13C4-PFOA	7.147	417.1 -> 372.0	90551	2.50 µg/L	0.000
13C2-PFDA	8.158	515.1 -> 470.1	31044	1.25 µg/L	0.000
13C5-PFNA	7.677	468.0 -> 423.0	28860	1.25 µg/L	0.000
13C2-PFHxA	5.563	315.1 -> 270.0	41601	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.227	329.1 -> 80.9	2794	5.61 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.2%		
13C2-6:2FTS	6.908	429.1 -> 80.9	3403	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C2-8:2FTS	7.944	529.1 -> 80.9	3395	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.4%		
13C2-PFDoDA	9.054	615.1 -> 570.0	27339	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.6%		
13C2-PFTeDA	9.781	715.2 -> 670.0	16851	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.8%		
13C3-PFBS	5.518	302.1 -> 79.9	16121	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.4%		
13C3-PFHxS	7.274	402.1 -> 79.9	9854	2.45 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.9%		
13C4-PFBA	2.975	216.8 -> 171.9	94026	10.10 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C4-PFHpA	6.502	367.1 -> 322.0	43421	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C5-PFHxA	5.563	318.0 -> 273.0	41395	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C5-PFPeA	4.386	268.3 -> 223.0	46335	5.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C6-PFDA	8.157	519.1 -> 474.1	20953	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C7-PFUnDA	8.624	570.0 -> 525.1	24709	1.20 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.7%		
13C8-FOSA	9.555	506.1 -> 77.8	18699	2.66 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.3%		
13C8-PFOA	7.146	421.1 -> 376.0	73197	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.8%		
13C8-PFOS	8.333	507.1 -> 79.9	10024	2.82 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 112.9%		
13C9-PFNA	7.677	472.1 -> 427.0	26209	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.2%		
d3-MeFOSAA	8.202	573.2 -> 419.0	32988	5.57 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.4%		
13C3-HFPO-DA	5.940	286.9 -> 168.9	16496	9.70 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 97.0%		
d3-MeFOSA	10.680	515.0 -> 219.0	7165	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.6%		
d5-EtFOSAA	8.410	589.2 -> 419.0	26271	5.35 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.0%		
d7-MeFOSE	10.589	623.2 -> 58.9	30069	24.52 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 98.1%		
d9-EtFOSE	10.847	639.2 -> 58.9	20142	23.83 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 95.3%		
d5-EtFOSA	10.925	531.1 -> 219.0	8210	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.6%		
Target Compounds					QValue
4:2FTS	5.240	327.1 -> 307.0	5053	0.81 µg/L	96
		327.1 -> 80.9	1037		
6:2FTS	6.908	427.1 -> 407.0	4289	0.86 µg/L	99
		427.1 -> 80.9	807		
8:2FTS	7.945	527.1 -> 507.0	2097	0.80 µg/L	89
		527.1 -> 80.8	614		
EtFOSAA	8.411	584.2 -> 419.1	1021	0.24 µg/L	94
		584.2 -> 526.0	478		
FOSA	9.557	498.1 -> 77.9	1563	0.21 µg/L	96
		498.1 -> 478.0	82		
MeFOSAA	8.216	570.1 -> 419.0	1477	0.24 µg/L	92
		570.1 -> 483.0	222		
PFBA	2.982	212.8 -> 168.9	1759	0.84 µg/L	100
PFBS	5.518	298.7 -> 79.9	1236	0.20 µg/L	96
		298.7 -> 98.8	571		
PFDA	8.158	512.9 -> 469.0	4756	0.20 µg/L	93
		512.9 -> 219.0	784		
PFDODA	9.054	613.1 -> 569.0	4326	0.22 µg/L	97
		613.1 -> 319.0	492		
PFDS	9.229	599.0 -> 79.9	622	0.18 µg/L	90

7.7.16
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.503	599.0 -> 98.8	285	0.19	µg/L	96
		363.1 -> 319.0	5013			
PFHpS	7.828	363.1 -> 169.0	753	0.19	µg/L	80
		449.0 -> 79.9	807			
PFHxA	5.566	449.0 -> 98.9	329	0.19	µg/L	96
		313.0 -> 269.0	3105			
PFHxS	7.275	313.0 -> 118.9	155	0.19	µg/L	m
		398.7 -> 79.9	822			
PFNA	7.677	398.7 -> 98.9	586	0.21	µg/L	97
		463.0 -> 419.0	3792			
PFNS	8.798	463.0 -> 219.0	828	0.19	µg/L	79
		548.8 -> 79.9	861			
PFOA	7.148	548.8 -> 98.9	378	0.20	µg/L	92
		413.0 -> 369.0	6308			
PFOS	8.334	413.0 -> 169.0	1019	0.18	µg/L	m
		498.9 -> 79.9	805			
PFPeA	4.388	498.9 -> 98.8	617	0.43	µg/L	100
		263.0 -> 219.0	4159			
PFPeS	6.569	349.1 -> 79.9	1141	0.22	µg/L	96
		349.1 -> 98.9	586			
PFTeDA	9.781	713.1 -> 669.0	3672	0.20	µg/L	97
		713.1 -> 168.9	265			
PFTrDA	9.450	663.0 -> 619.0	3932	0.21	µg/L	95
		663.0 -> 168.9	379			
PFUnDA	8.624	563.1 -> 519.0	3882	0.20	µg/L	94
		563.1 -> 269.1	655			
11Cl-PF3OUdS	9.502	630.9 -> 450.9	7574	0.64	µg/L	89
		632.9 -> 452.9	2772			
9Cl-PF3ONS	8.676	530.8 -> 351.0	13887	0.69	µg/L	88
		532.8 -> 353.0	5140			
ADONA	6.753	376.9 -> 250.9	27192	0.76	µg/L	96
		376.9 -> 84.8	6136			
HFPO-DA	5.940	284.9 -> 168.9	1330	0.86	µg/L	86
		284.9 -> 184.9	215			
3:3FTCA	3.841	241.0 -> 177.0	530	1.10	µg/L	100
		241.0 -> 117.0	67			
5:3FTCA	6.193	341.0 -> 237.1	17147	5.05	µg/L	94
		341.0 -> 217.0	14246			
7:3FTCA	7.605	441.0 -> 316.9	9617	4.33	µg/L	88
		441.0 -> 336.9	17545			
EtFOSA	10.927	526.0 -> 219.0	812	0.21	µg/L	87
		526.0 -> 169.0	782			
EtFOSE	10.860	630.0 -> 58.9	1785	2.07	µg/L	100
		511.9 -> 219.0	652			
MeFOSA	10.682	511.9 -> 169.0	702	0.21	µg/L	90
		616.1 -> 58.9	2372			
MeFOSE	10.602	699.1 -> 79.9	398	1.98	µg/L	100
		699.1 -> 98.8	220			
PFDoDS	9.920	295.0 -> 201.0	423	0.20	µg/L	86
		295.0 -> 84.9	195			
NFDHA	5.445	279.0 -> 85.1	1223	0.44	µg/L	98
		229.0 -> 84.9	1100			
PFMBA	4.787	314.8 -> 134.9	8187	0.42	µg/L	100
		314.8 -> 82.9	220			
PFMPA	3.528			0.35	µg/L	99
PFEESA	6.059					

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

7.7.16
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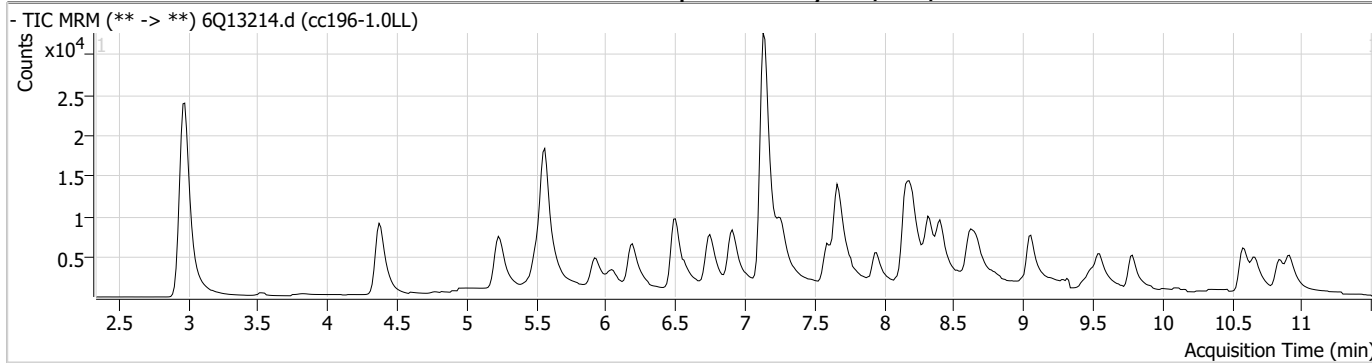
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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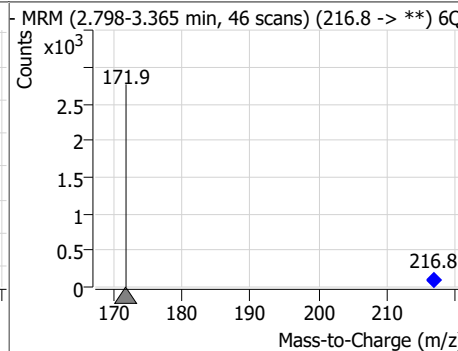
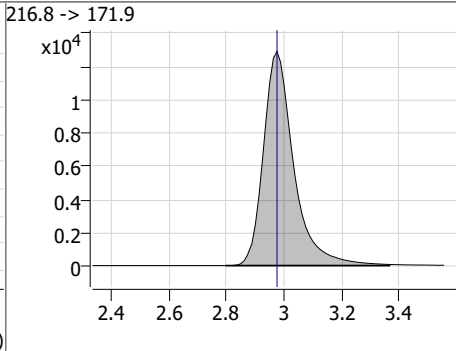
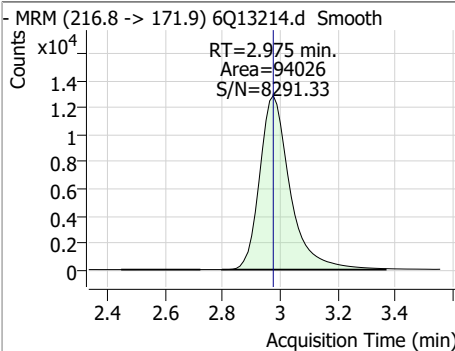
7.7.16

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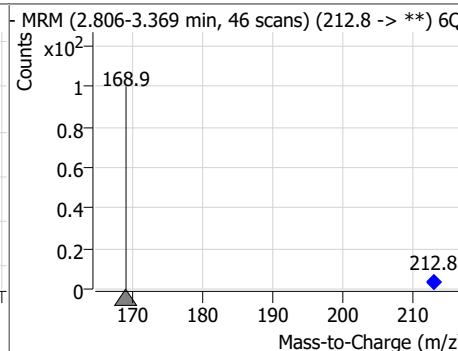
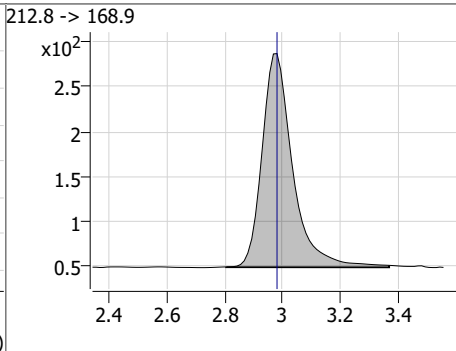
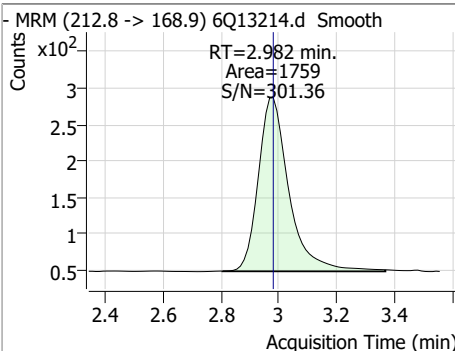
Perfluorinated Compounds by LC/MS/MS



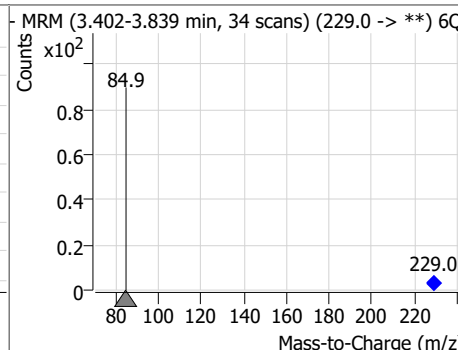
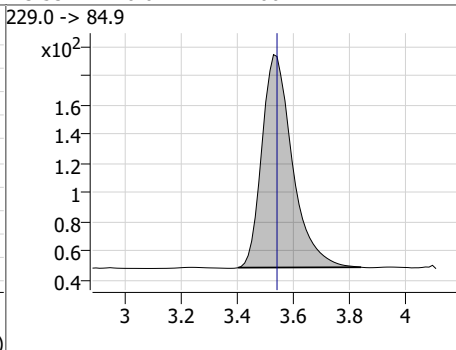
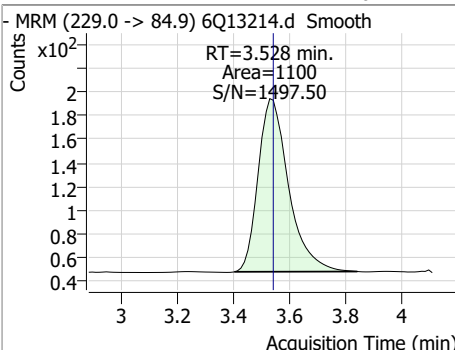
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.10	2.98	0.00	94026				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	0.84	2.98	0.00	1759				



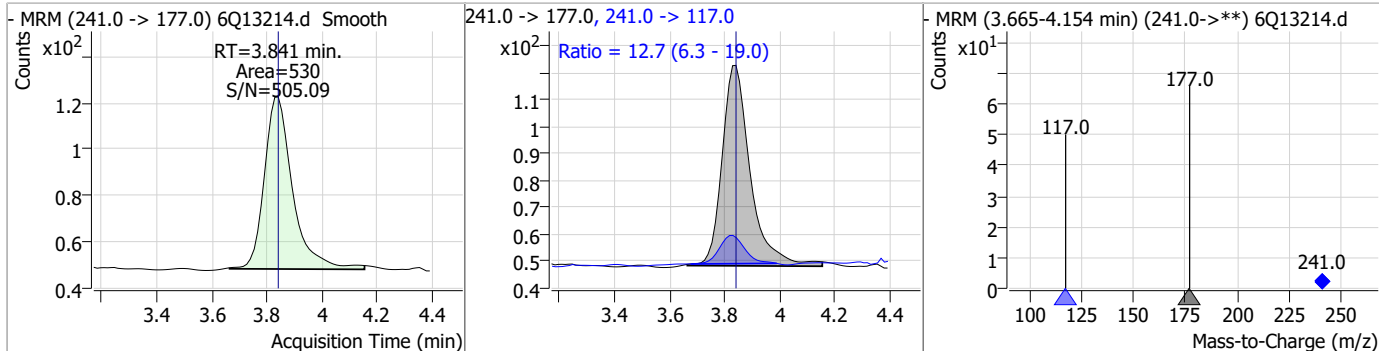
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	0.42	3.53	-0.01	1100				



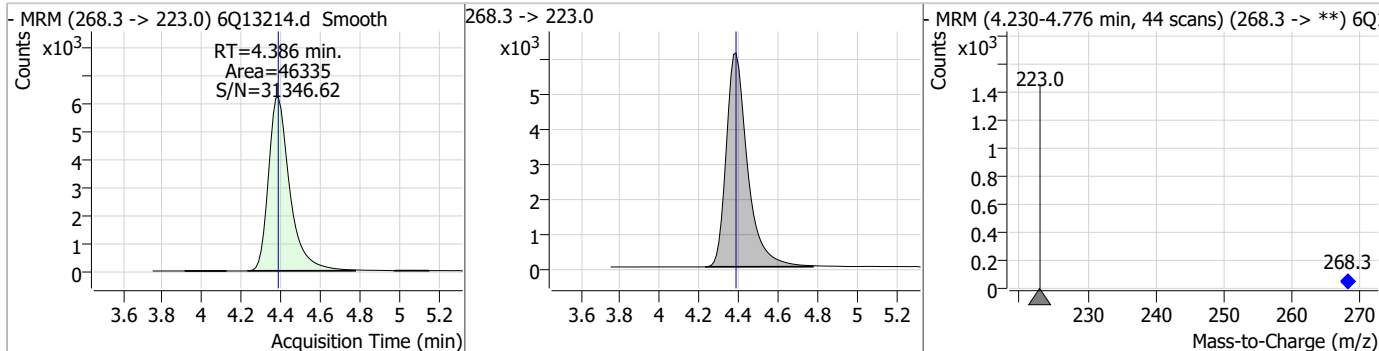
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Perfluorinated Compounds by LC/MS/MS

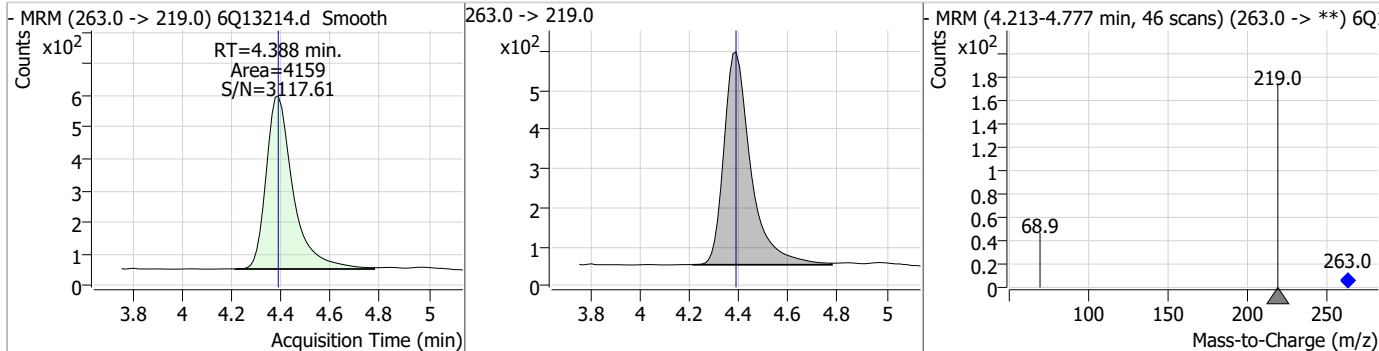
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	1.10	3.84	0.00	530	241.0 -> 117.0	12.7	6.3	19.0



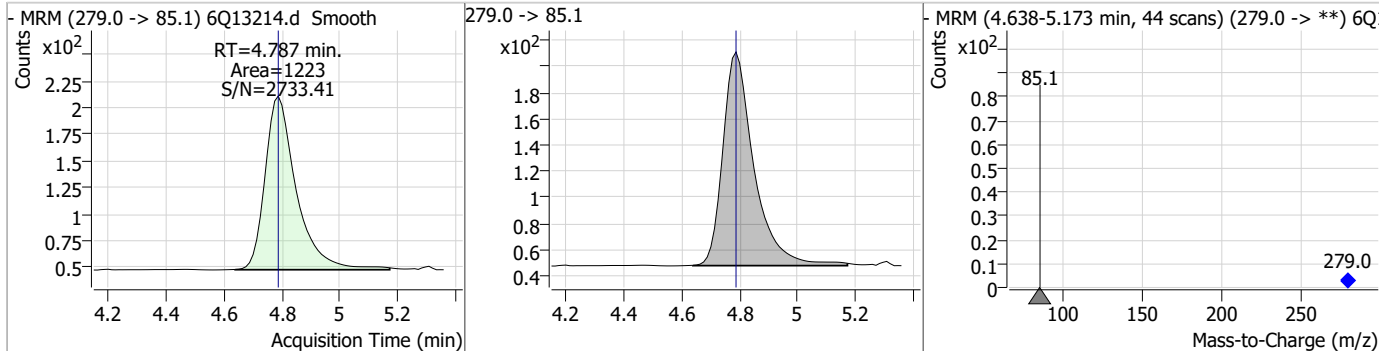
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.00	4.39	0.00	46335				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.43	4.39	0.00	4159				

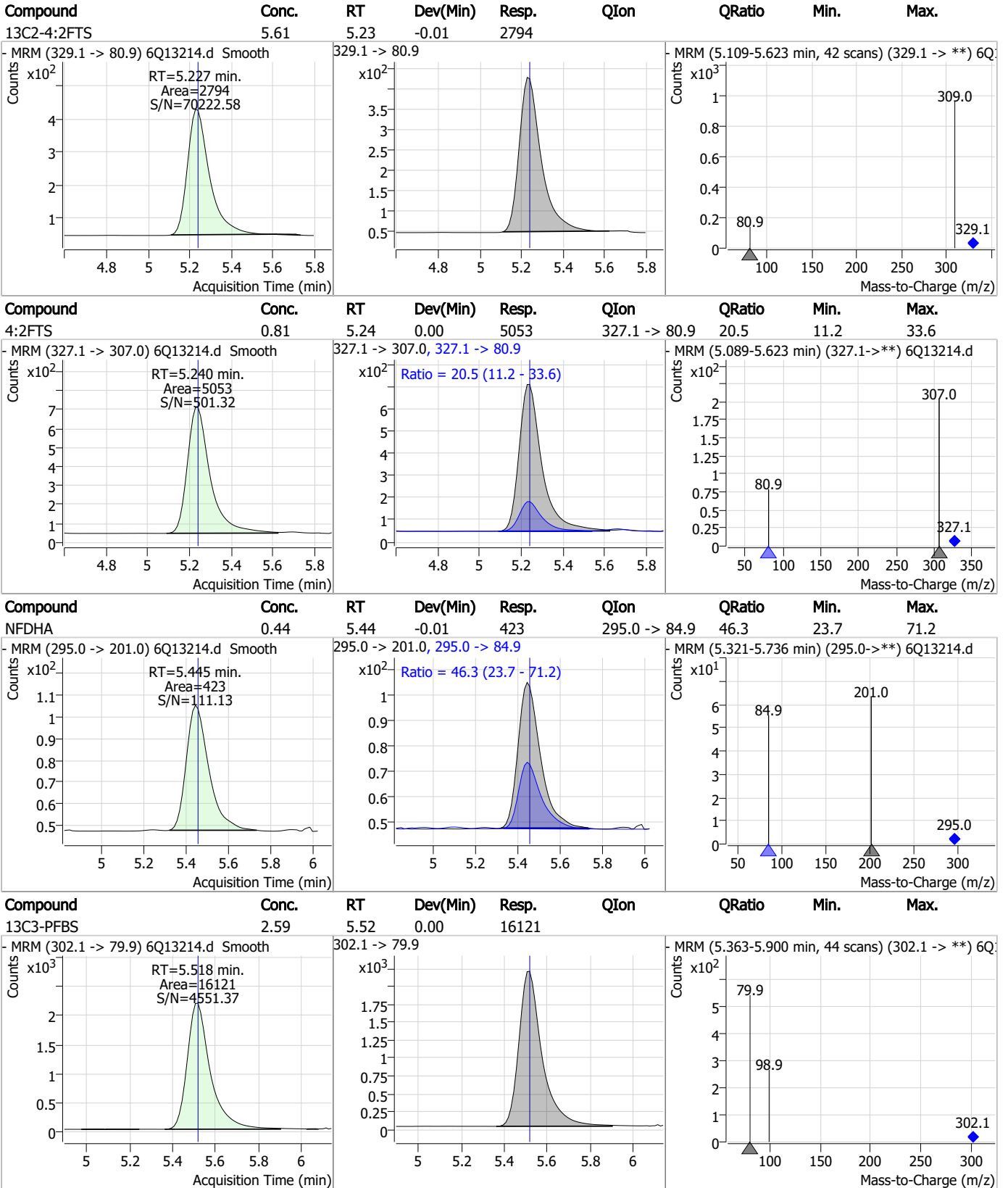


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.44	4.79	0.00	1223				



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Perfluorinated Compounds by LC/MS/MS

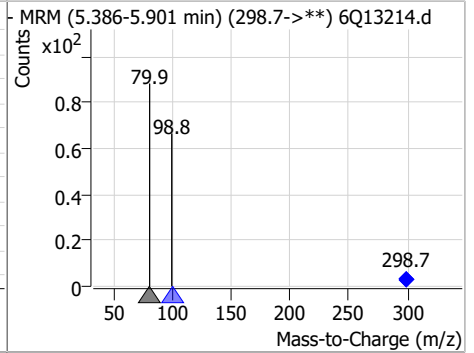
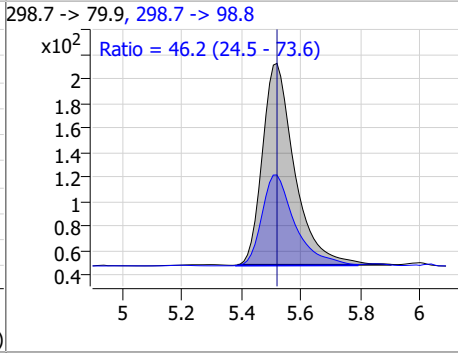
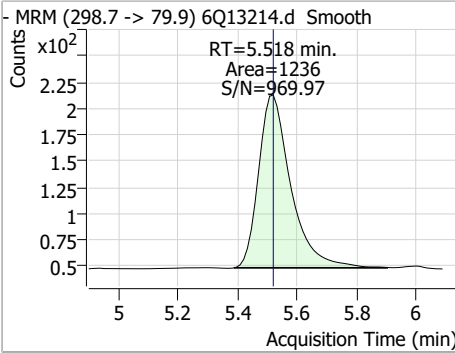


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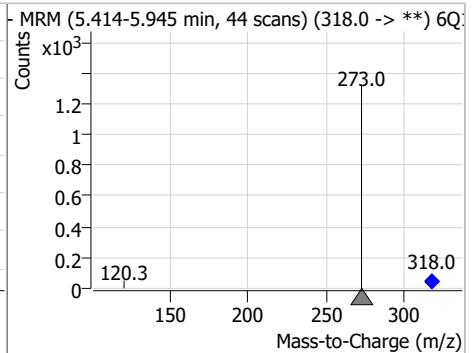
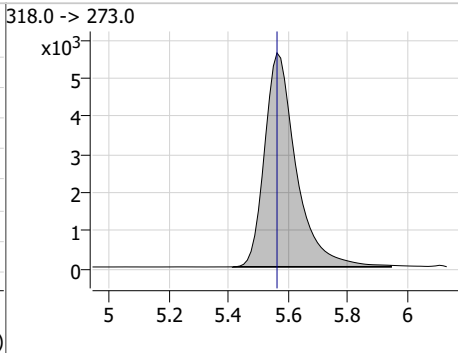
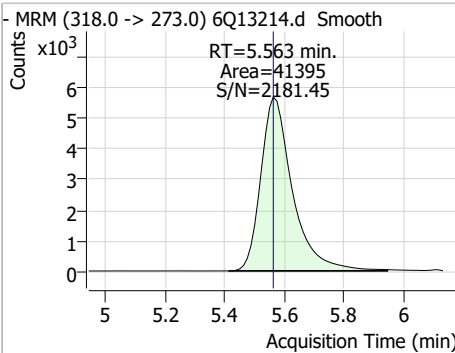


Perfluorinated Compounds by LC/MS/MS

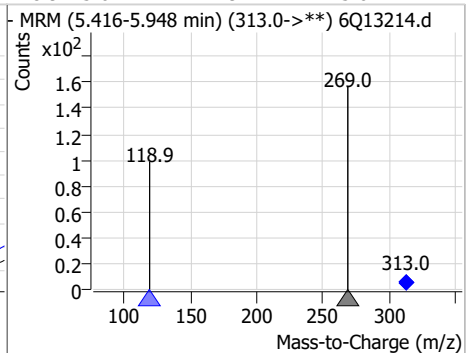
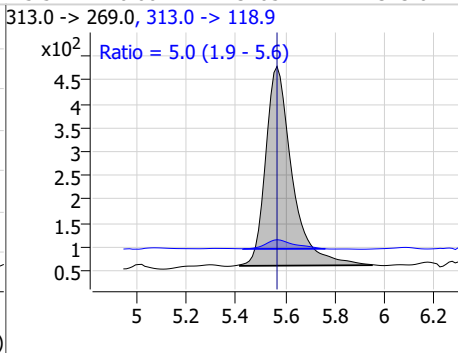
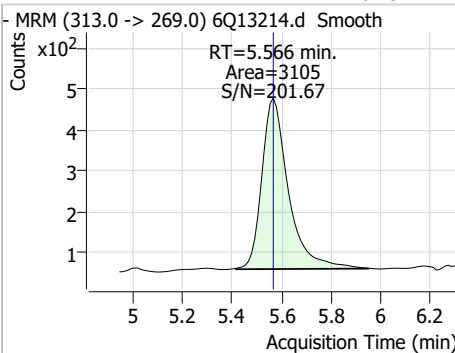
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.20	5.52	0.00	1236	298.7 -> 98.8	46.2	24.5	73.6



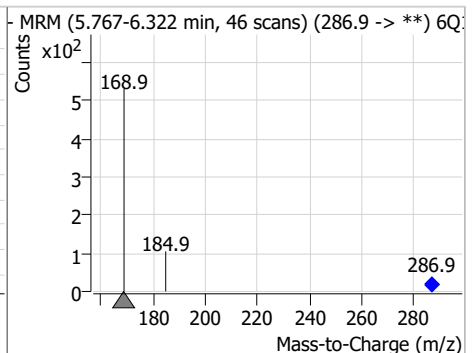
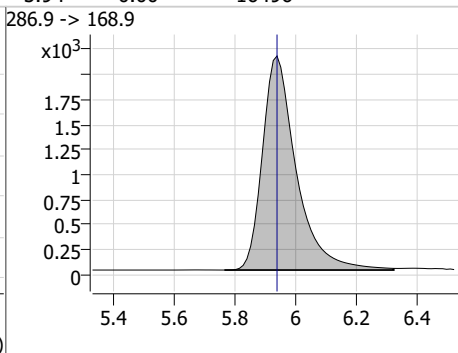
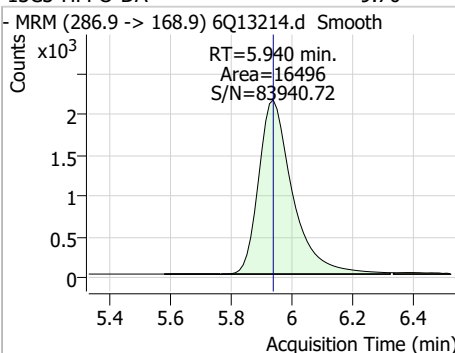
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.51	5.56	0.00	41395	318.0 -> 273.0	5.0	1.9	5.6



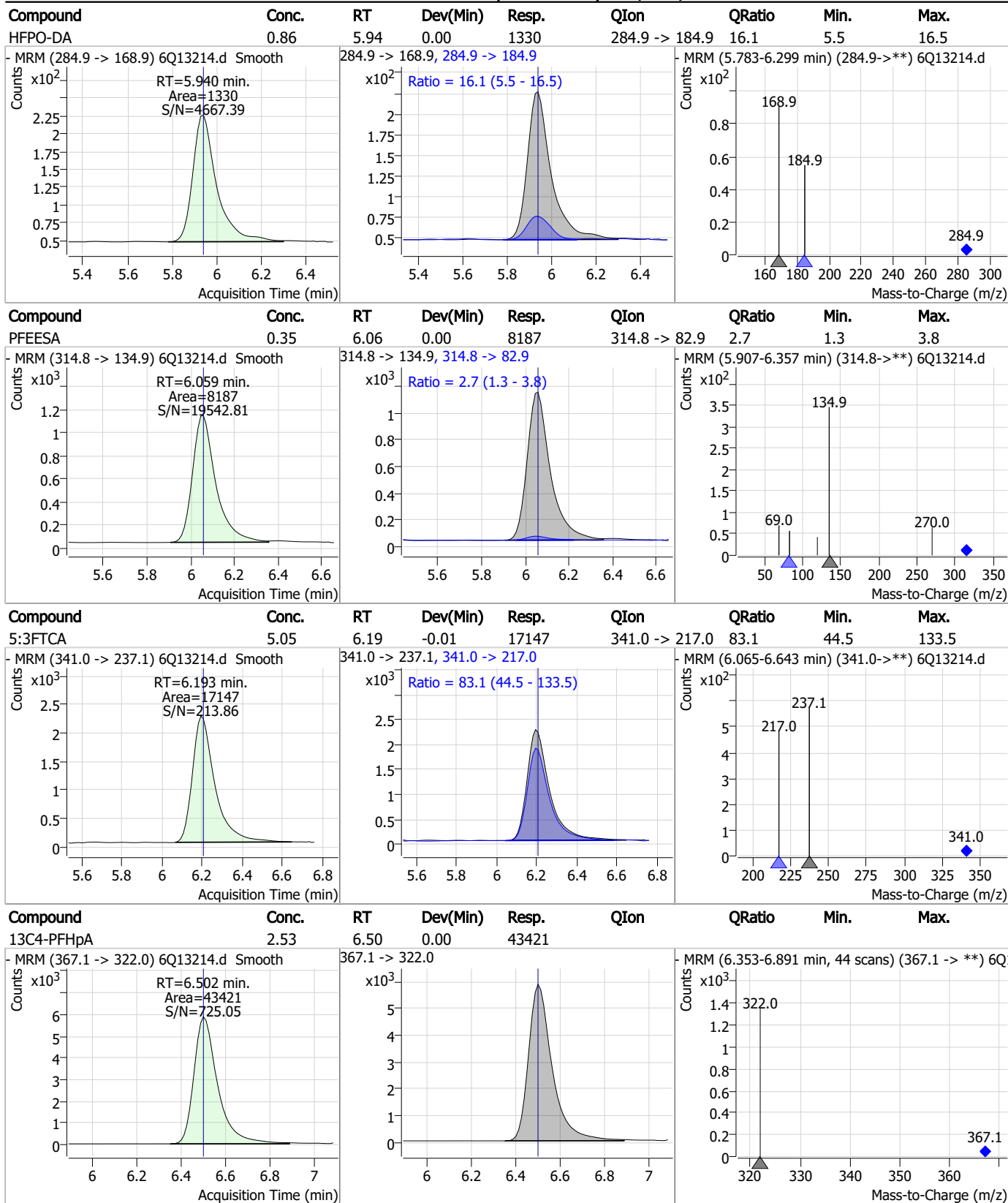
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.19	5.57	0.00	3105	313.0 -> 118.9	5.0	1.9	5.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.70	5.94	0.00	16496	286.9 -> 168.9	5.0	1.9	5.6



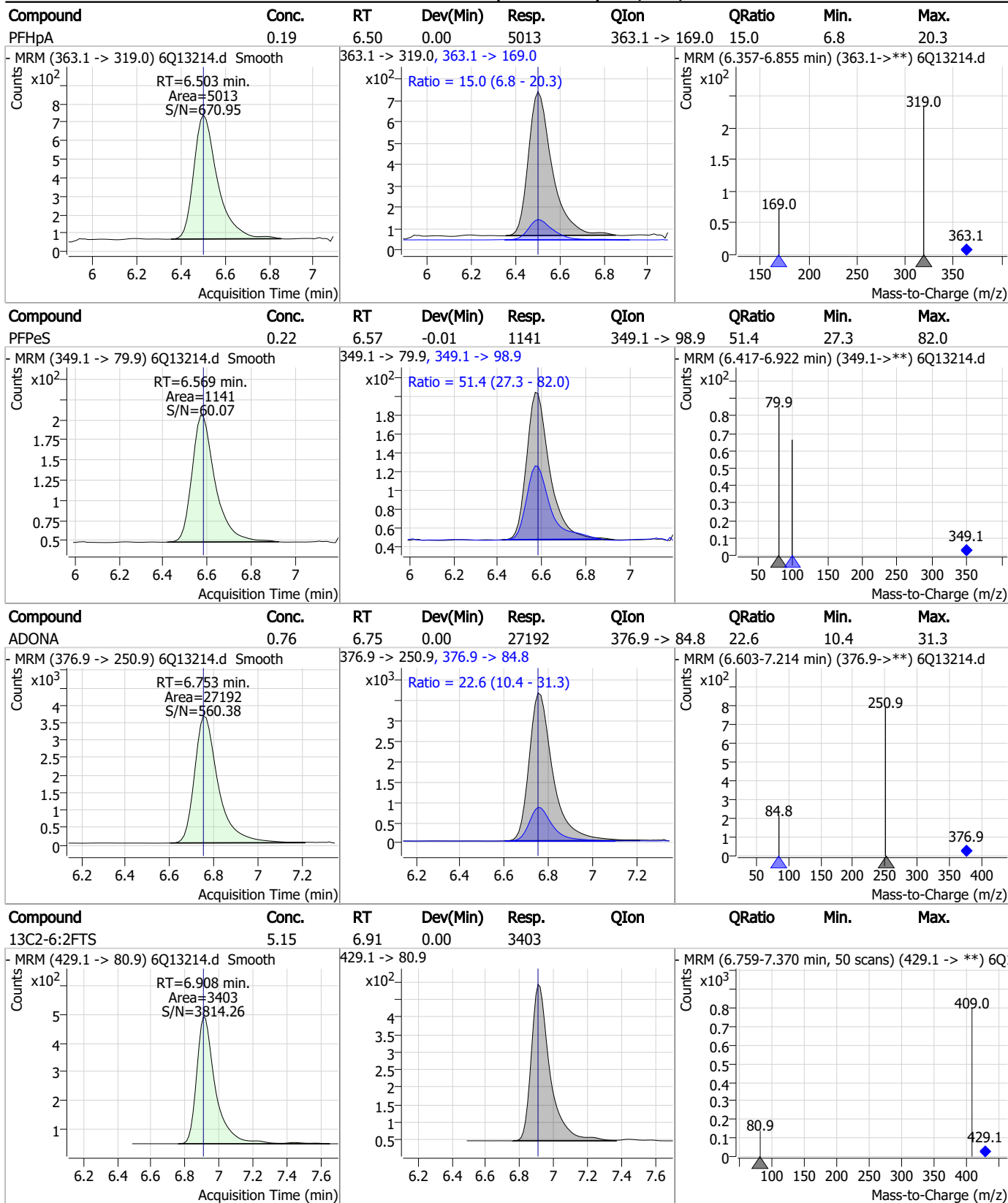
Perfluorinated Compounds by LC/MS/MS



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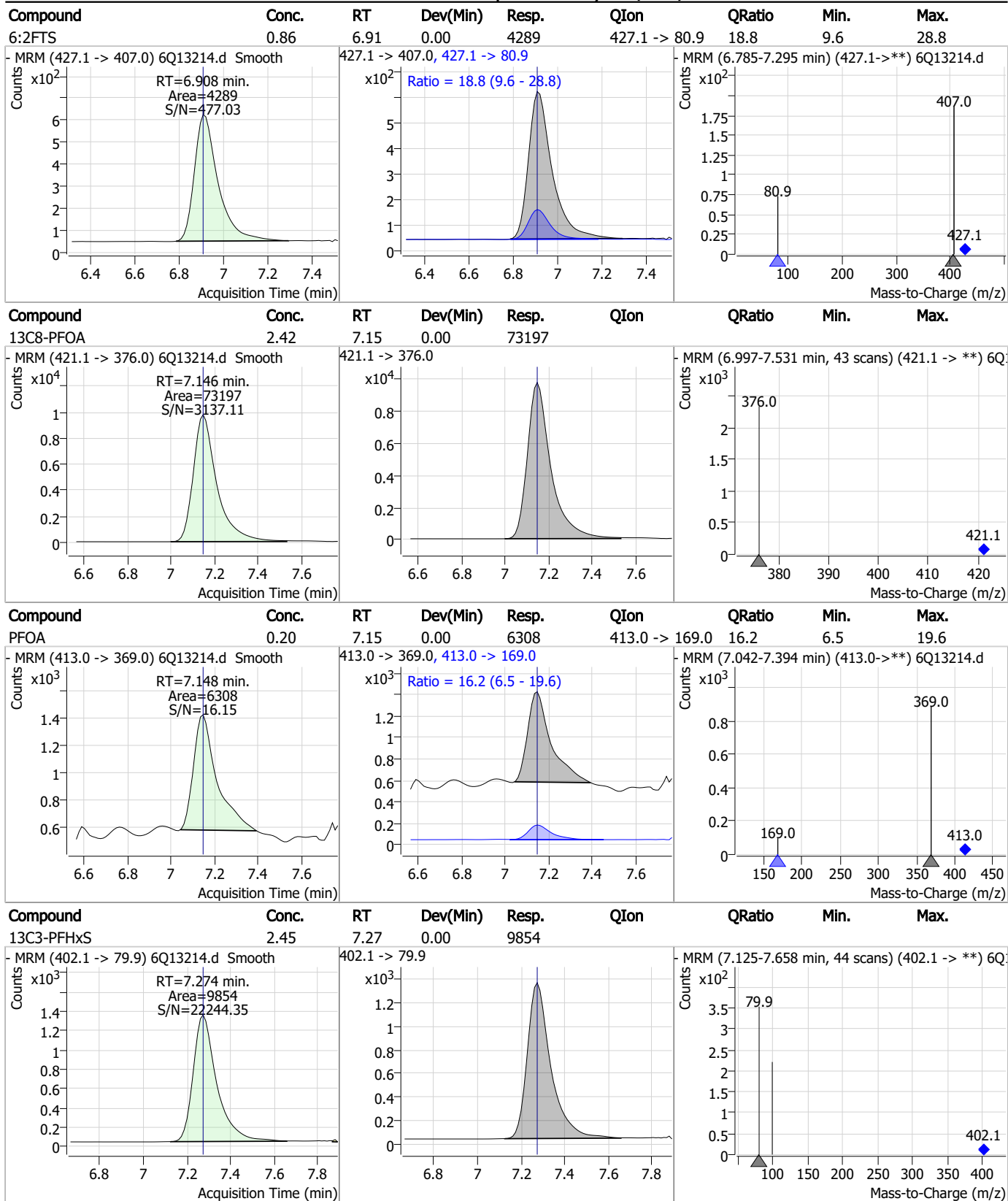


Perfluorinated Compounds by LC/MS/MS



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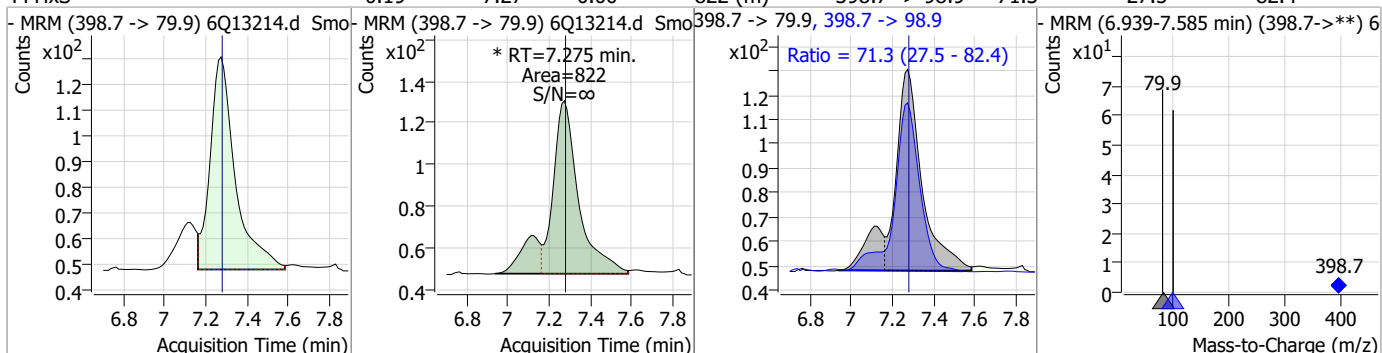
Perfluorinated Compounds by LC/MS/MS



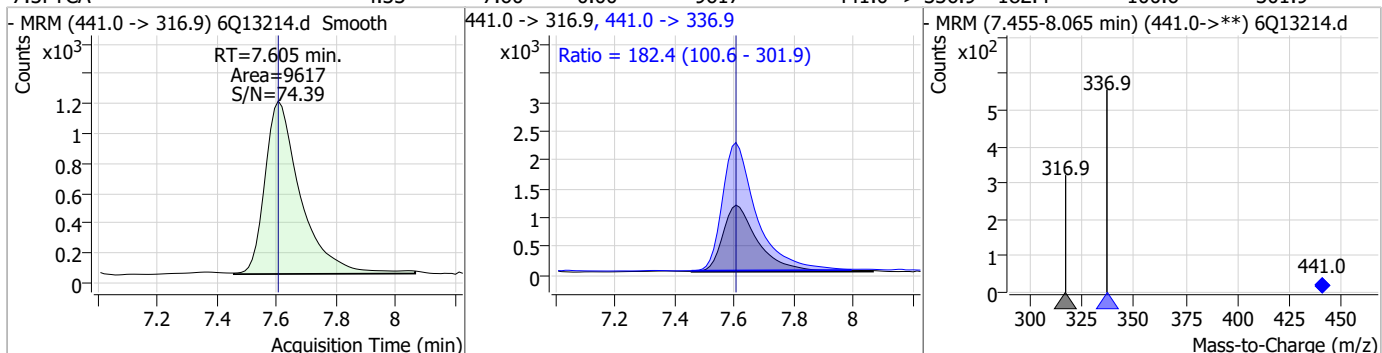
7.7.16
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Perfluorinated Compounds by LC/MS/MS

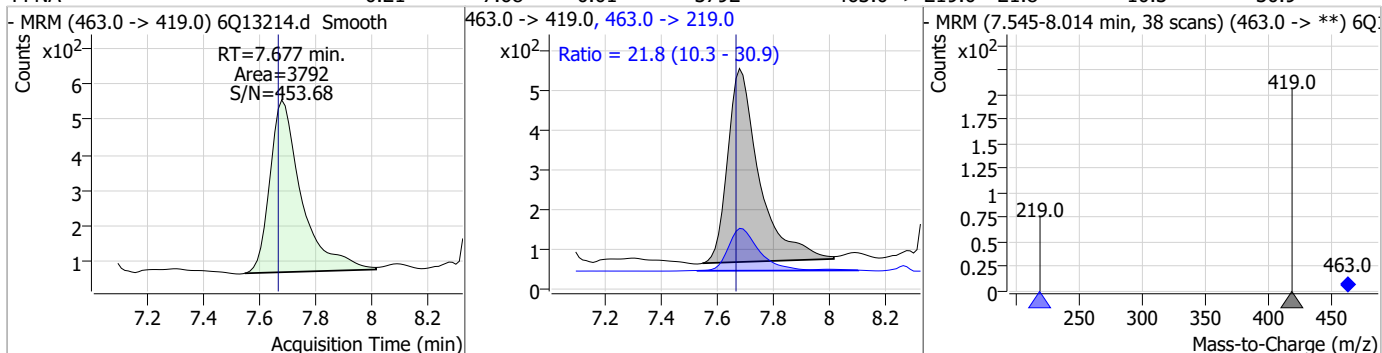
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.19	7.27	0.00	822 (m)	398.7 -> 98.9	71.3	27.5	82.4



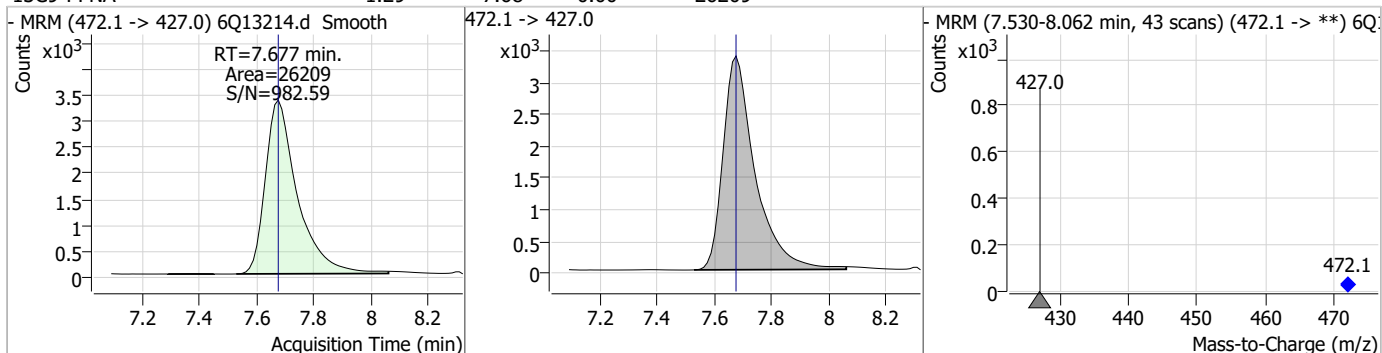
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	4.33	7.60	0.00	9617	441.0 -> 336.9	182.4	100.6	301.9



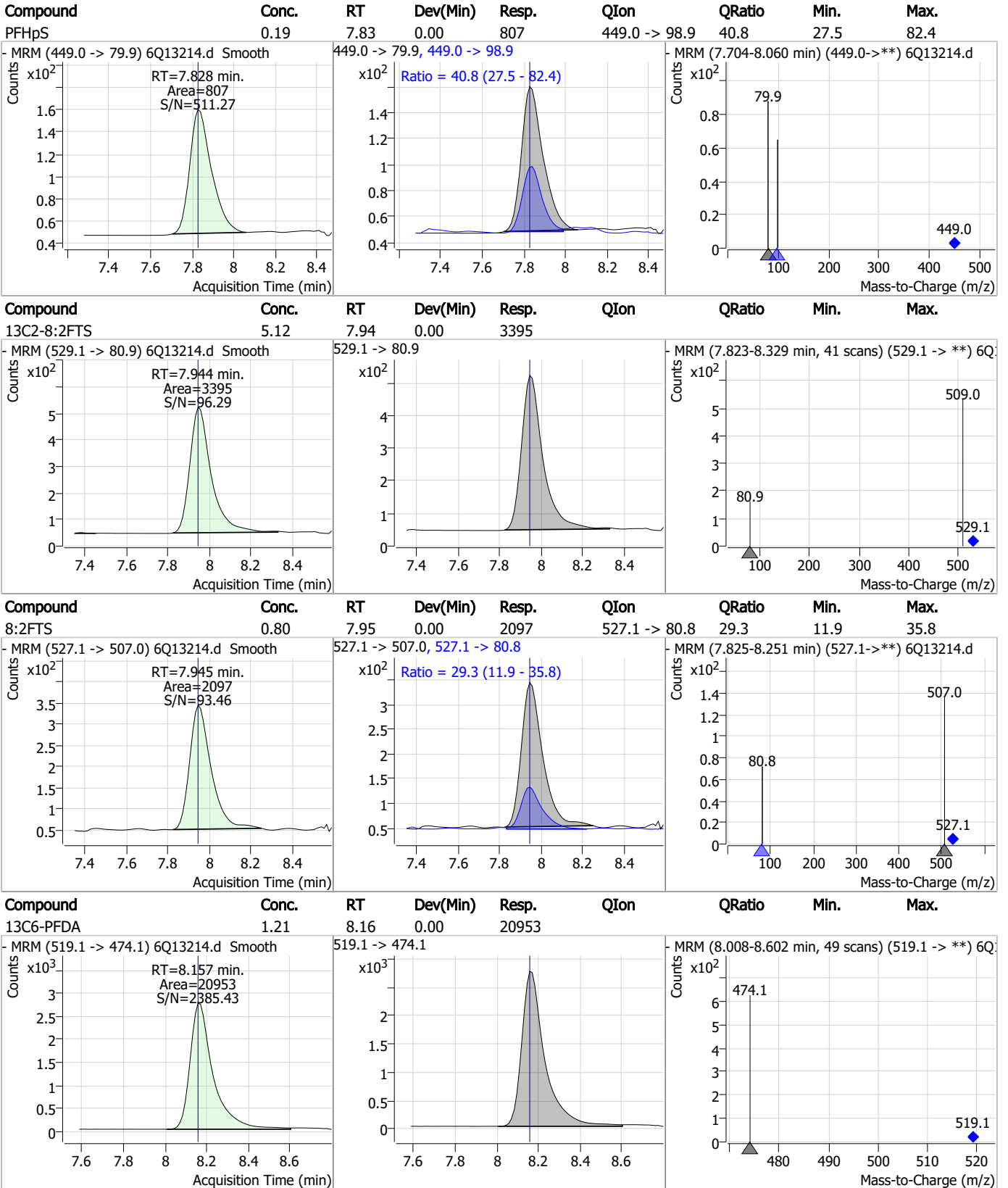
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.21	7.68	0.01	3792	463.0 -> 219.0	21.8	10.3	30.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.29	7.68	0.00	26209	472.1 -> 427.0			



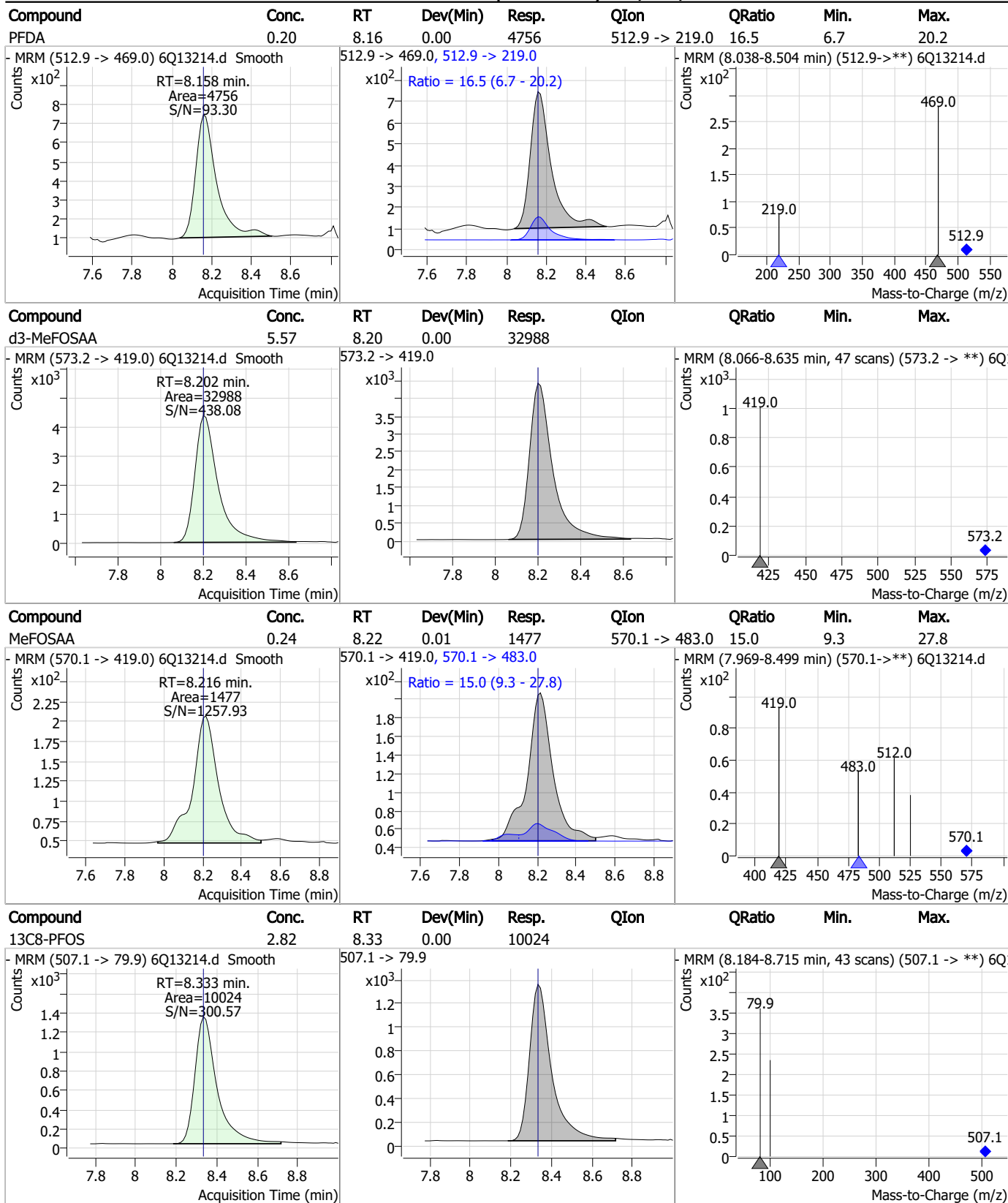
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



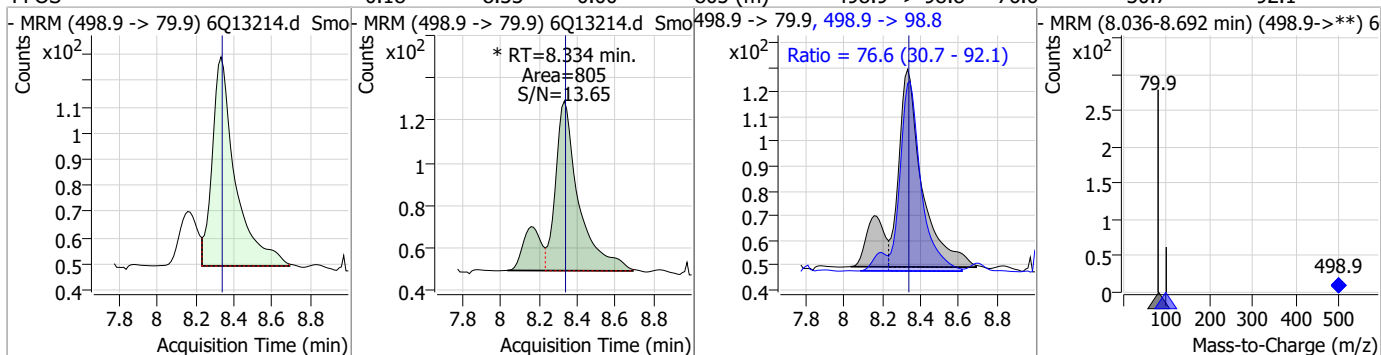
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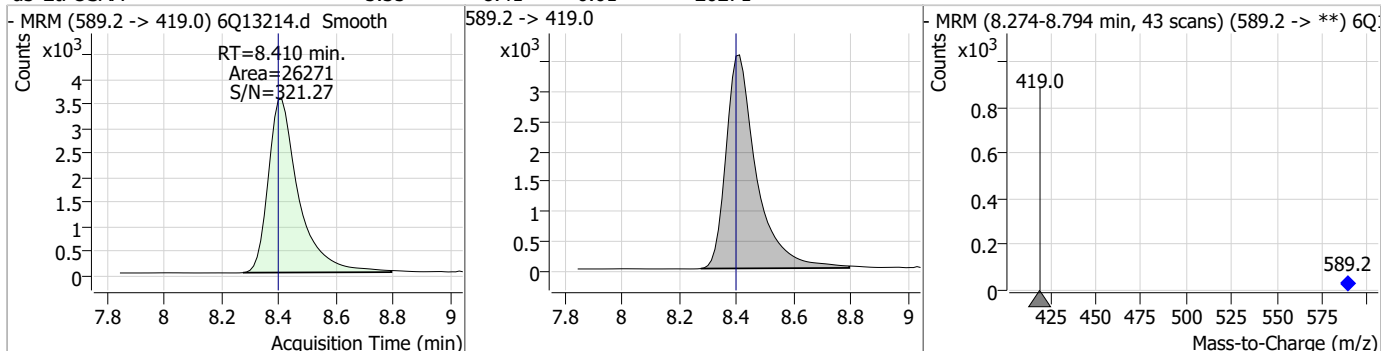


Perfluorinated Compounds by LC/MS/MS

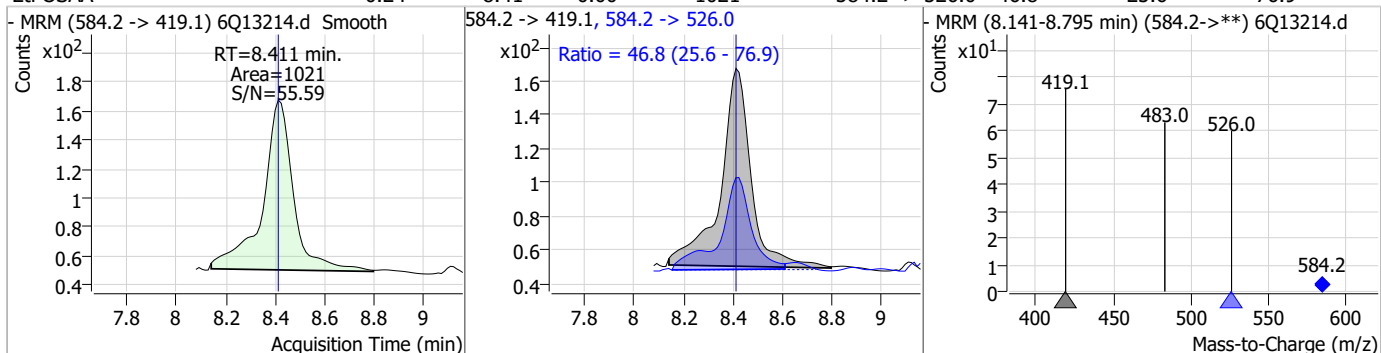
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.18	8.33	0.00	805 (m)	498.9 -> 98.8	76.6	30.7	92.1



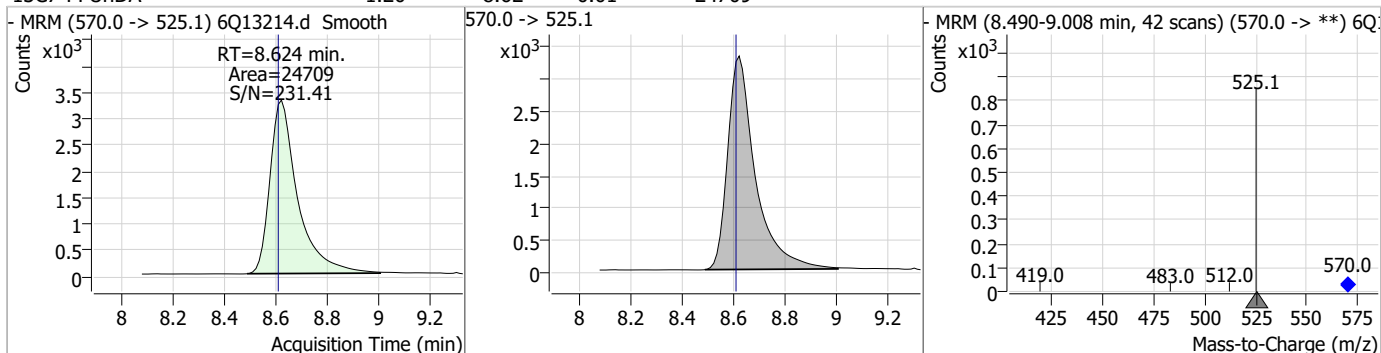
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.35	8.41	0.01	26271				



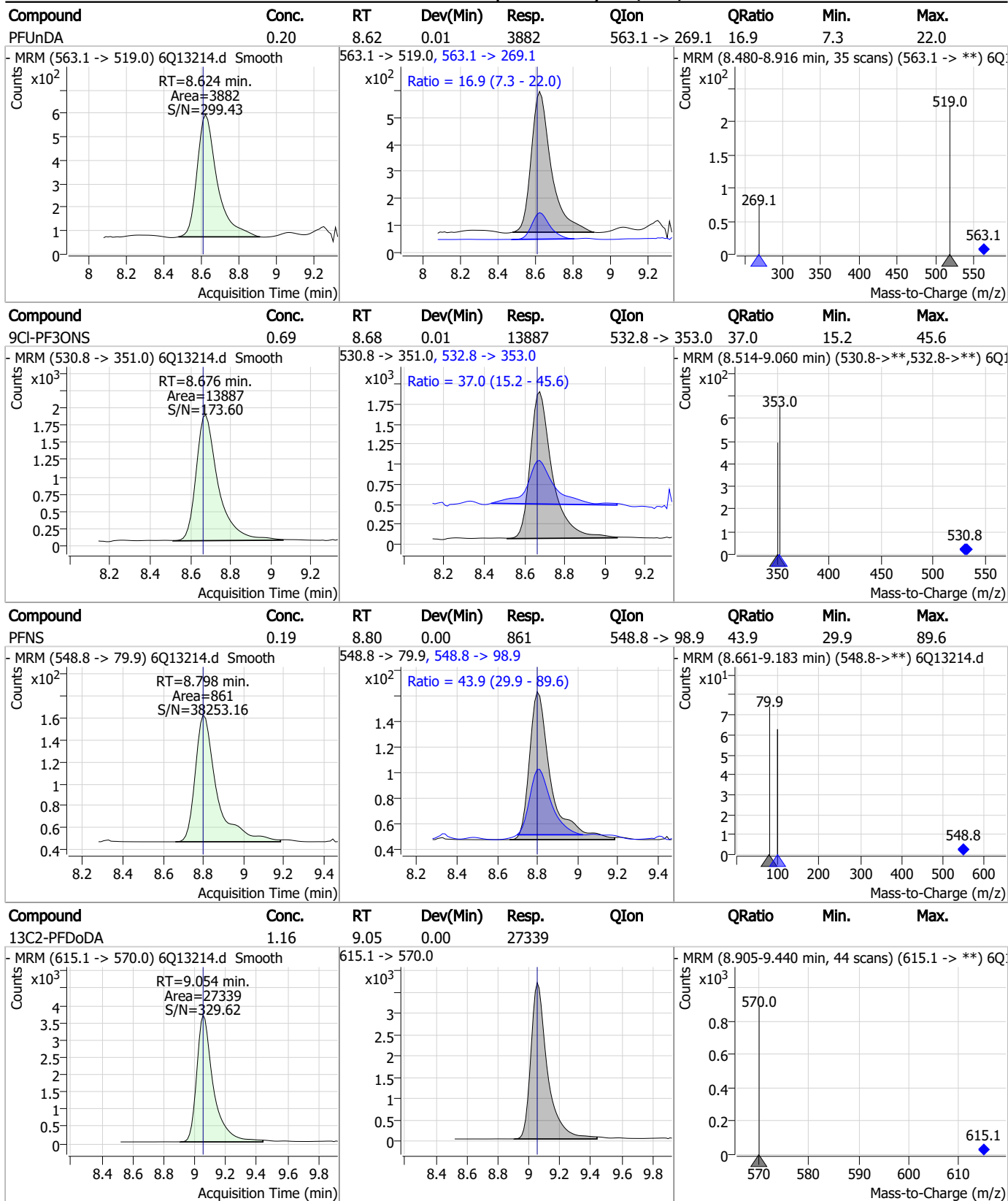
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.24	8.41	0.00	1021	584.2 -> 526.0	46.8	25.6	76.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.20	8.62	0.01	24709				



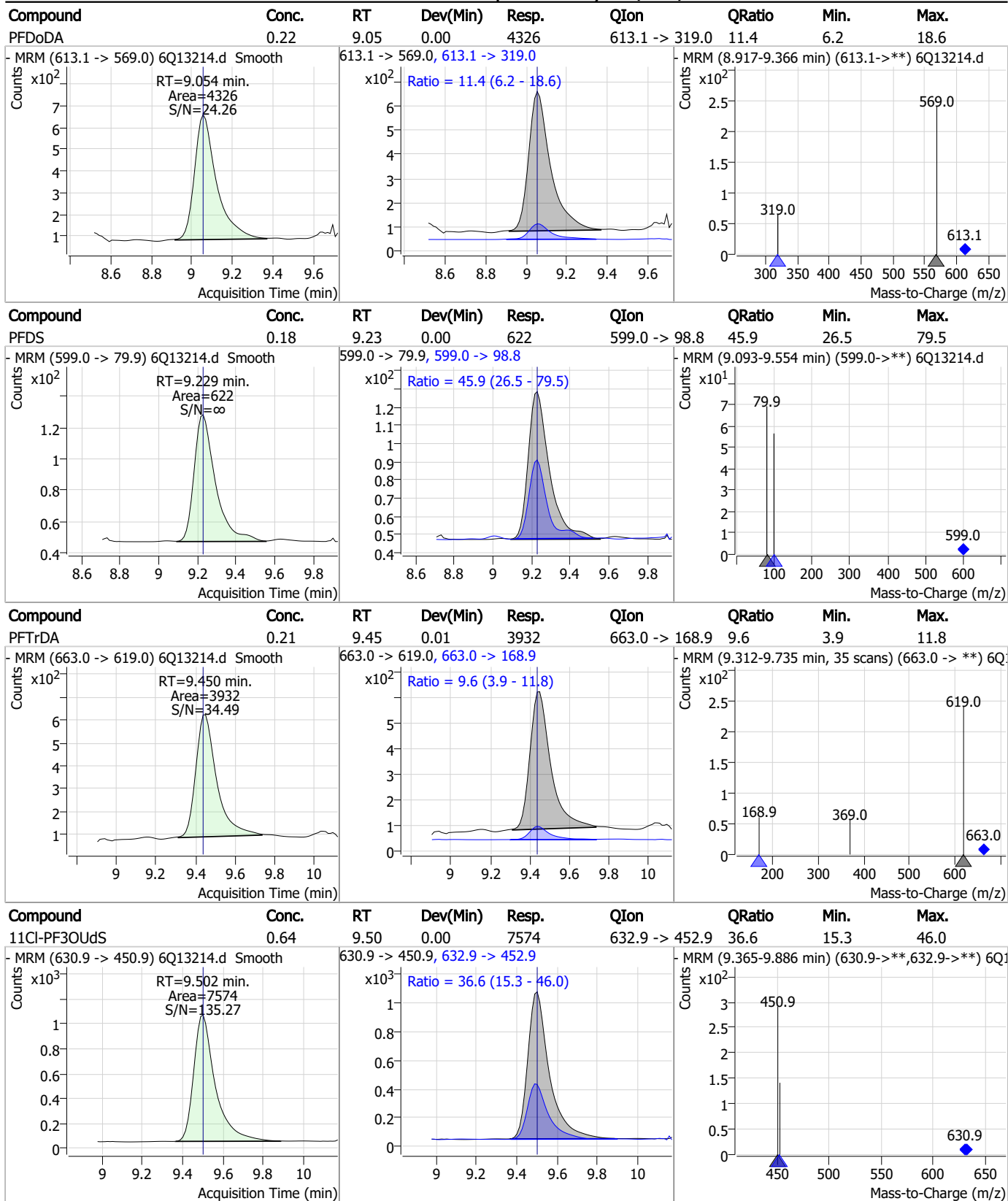
Perfluorinated Compounds by LC/MS/MS



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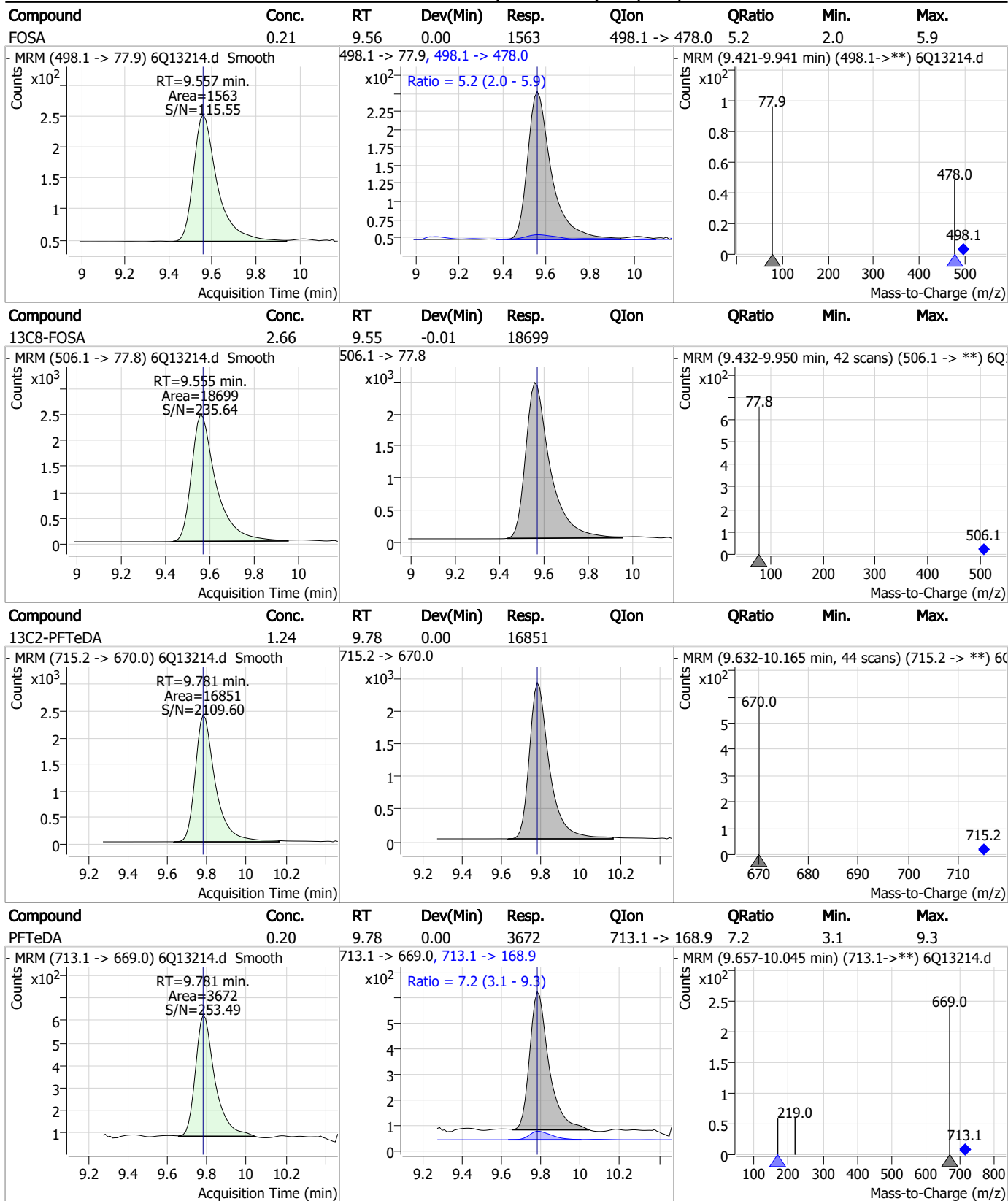


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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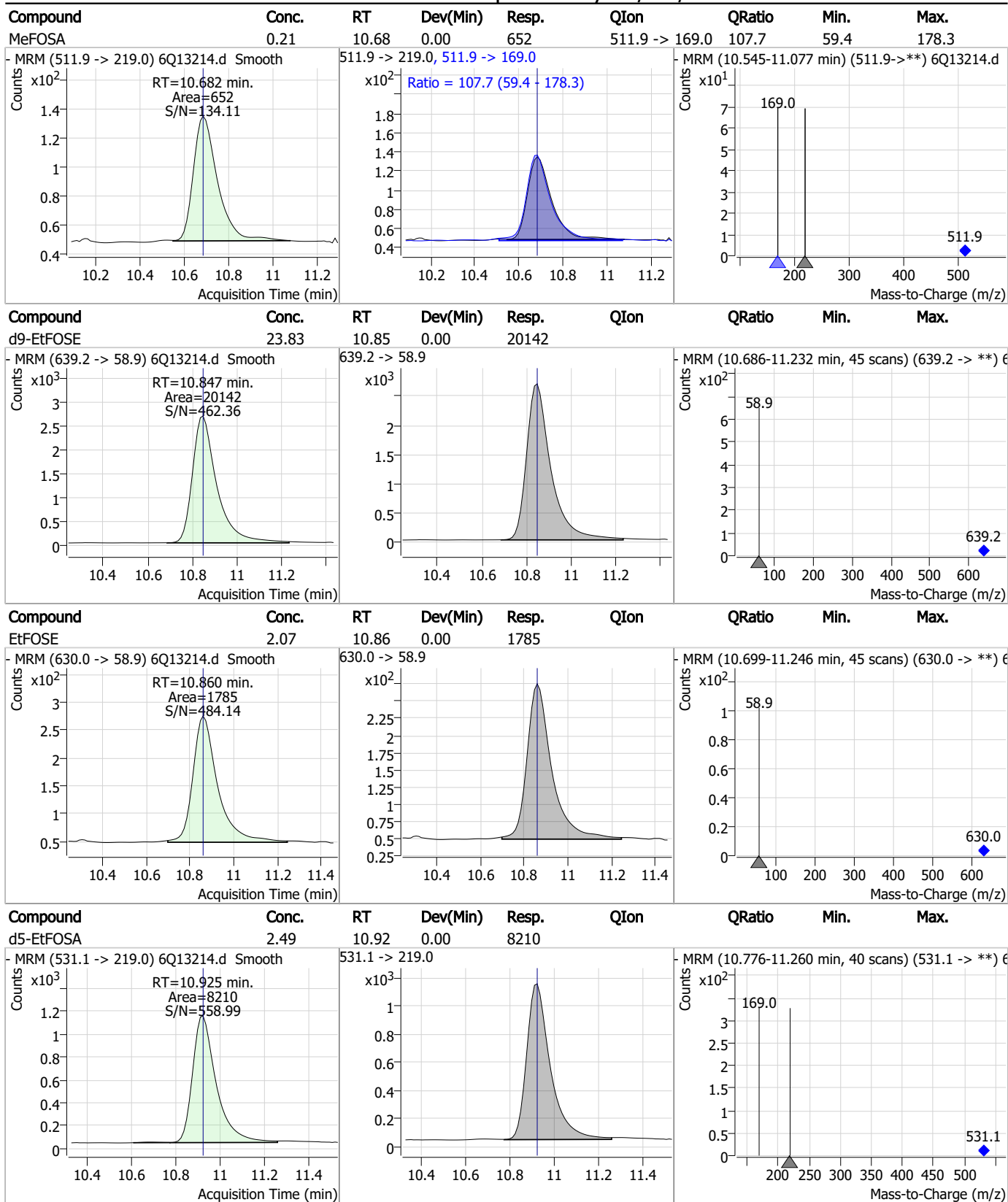
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	0.20	9.92	0.00	398	699.1 -> 98.8	55.2	33.2	99.7
d7-MeFOSE	24.52	10.59	0.00	30069				
MeFOSE	1.98	10.60	0.00	2372				
d3-MeFOSA	2.36	10.68	0.00	7165				

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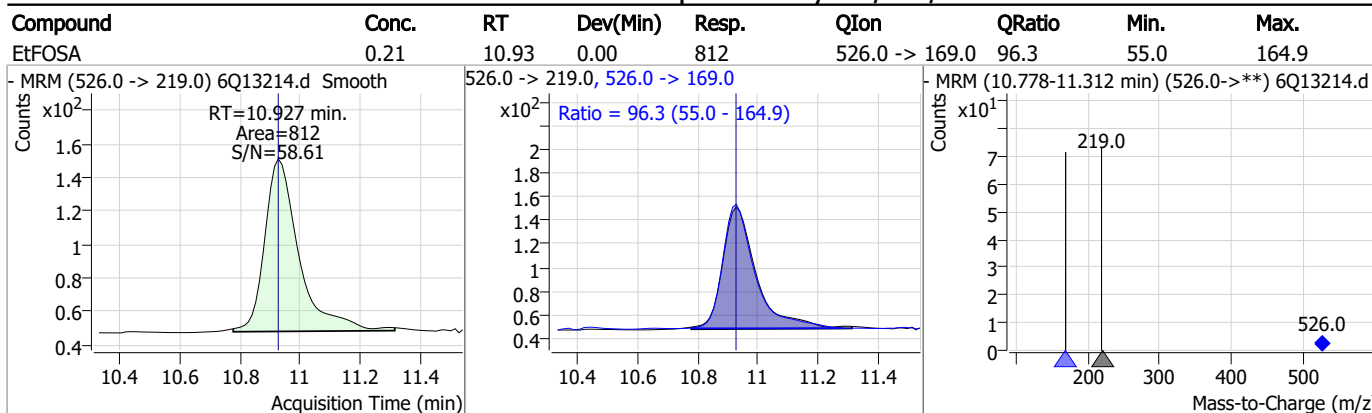
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q202-CC196 Method: EPA DRAFT 1633
Lab FileID: 6Q13214.D Analyst approved: 02/08/23 15:18 Martha Valls
Injection Time: 02/08/23 11:17 Supervisor approved: 02/08/23 15:53 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.28	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak

7.7.16.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13225.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/8/2023 1:51:02 PM
 Sample Name : cc196-4
 Vial : P1-A5
 DA Method File : 1633_020223_S6Q196.quantmethod.xml
 Batch Name : s6q202.batch.bin
 Sample Information : OP95070,S6Q202,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.975	216.8 -> 171.9	99491	10.00 µg/L	0.000
M5-PFPeA	4.374	268.3 -> 223.0	49236	5.00 µg/L	-0.012
M5-PFHxA	5.563	318.0 -> 273.0	45475	2.50 µg/L	0.000
M4-PFHpA	6.490	367.1 -> 322.0	44835	2.50 µg/L	-0.012
M8-PFOA	7.134	421.1 -> 376.0	81481	2.50 µg/L	-0.012
M9-PFNA	7.664	472.1 -> 427.0	28803	1.25 µg/L	-0.012
M6-PFDA	8.157	519.1 -> 474.1	19745	1.25 µg/L	0.000
M7-PFUnDA	8.612	570.0 -> 525.1	27635	1.25 µg/L	0.000
M2-PFDoDA	9.054	615.1 -> 570.0	28031	1.25 µg/L	0.000
M2-PFTeDA	9.781	715.2 -> 670.0	16696	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	20421	2.50 µg/L	-0.012
M3-PFBS	5.518	302.1 -> 79.9	16590	2.50 µg/L	0.000
M3-PFHxS	7.262	402.1 -> 79.9	10854	2.50 µg/L	-0.012
M8-PFOS	8.319	507.1 -> 79.9	9522	2.50 µg/L	-0.013
M2-4:2FTS	5.227	329.1 -> 80.9	2802	5.00 µg/L	-0.012
M2-6:2FTS	6.908	429.1 -> 80.9	3768	5.00 µg/L	0.000
M2-8:2FTS	7.944	529.1 -> 80.9	3375	5.00 µg/L	0.000
M3-MeFOSAA	8.202	573.2 -> 419.0	33653	5.00 µg/L	0.000
M3-HFPO-DA	5.927	286.9 -> 168.9	16725	10.00 µg/L	-0.012
M5-EtFOSAA	8.398	589.2 -> 419.0	31518	5.00 µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	30213	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	20313	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	8240	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	7732	2.50 µg/L	0.000
13C4-PFOS	8.333	502.8 -> 79.9	11285	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	44906	5.00 µg/L	0.000
18O2-PFHxS	7.261	403.0 -> 83.9	7946	2.50 µg/L	-0.012
13C4-PFOA	7.135	417.1 -> 372.0	92110	2.50 µg/L	-0.012
13C2-PFDA	8.158	515.1 -> 470.1	29042	1.25 µg/L	0.000
13C5-PFNA	7.665	468.0 -> 423.0	31240	1.25 µg/L	-0.012
13C2-PFHxA	5.563	315.1 -> 270.0	45168	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.227	329.1 -> 80.9	2802	5.42 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.5%		
13C2-6:2FTS	6.908	429.1 -> 80.9	3768	5.50 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.9%		
13C2-8:2FTS	7.944	529.1 -> 80.9	3375	4.90 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.0%		
13C2-PFDoDA	9.054	615.1 -> 570.0	28031	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C2-PFTeDA	9.781	715.2 -> 670.0	16696	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C3-PFBS	5.518	302.1 -> 79.9	16590	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C3-PFHxS	7.262	402.1 -> 79.9	10854	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 = 103.9%		
13C4-PFBA	2.975	216.8 -> 171.9	99491	9.98 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C4-PFHpA	6.490	367.1 -> 322.0	44835	2.41 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.2%		
13C5-PFHxA	5.563	318.0 -> 273.0	45475	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C5-PFPeA	4.374	268.3 -> 223.0	49236	4.89 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C6-PFDA	8.157	519.1 -> 474.1	19745	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C7-PFUnDA	8.612	570.0 -> 525.1	27635	1.43 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 114.4%		
13C8-FOSA	9.555	506.1 -> 77.8	20421	2.78 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.1%		
13C8-PFOA	7.134	421.1 -> 376.0	81481	2.65 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C8-PFOS	8.319	507.1 -> 79.9	9522	2.57 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C9-PFNA	7.664	472.1 -> 427.0	28803	1.31 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.8%		
d3-MeFOSAA	8.202	573.2 -> 419.0	33653	5.44 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.8%		
13C3-HFPO-DA	5.927	286.9 -> 168.9	16725	9.06 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 90.6%		
d3-MeFOSA	10.680	515.0 -> 219.0	7732	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.7%		
d5-EtFOSAA	8.398	589.2 -> 419.0	31518	6.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 122.8%		
d7-MeFOSE	10.589	623.2 -> 58.9	30213	23.58 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 94.3%		
d9-EtFOSE	10.847	639.2 -> 58.9	20313	23.00 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 92.0%		
d5-EtFOSA	10.925	531.1 -> 219.0	8240	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.7%		
Target Compounds					QValue
4:2FTS	5.228	327.1 -> 307.0	56388	8.97 µg/L	96
		327.1 -> 80.9	11542		
6:2FTS	6.908	427.1 -> 407.0	47877	8.68 µg/L	99
		427.1 -> 80.9	9346		
8:2FTS	7.945	527.1 -> 507.0	26177	9.99 µg/L	100
		527.1 -> 80.8	6213		
EtFOSAA	8.411	584.2 -> 419.1	10552	2.09 µg/L	m 97
		584.2 -> 526.0	5213		
FOSA	9.557	498.1 -> 77.9	17625	2.16 µg/L	99
		498.1 -> 478.0	618		
MeFOSAA	8.203	570.1 -> 419.0	14880	2.41 µg/L	97
		570.1 -> 483.0	2585		
PFBA	2.969	212.8 -> 168.9	20734	9.33 µg/L	100
PFBS	5.506	298.7 -> 79.9	13434	2.11 µg/L	93
		298.7 -> 98.8	5983		
PFDA	8.158	512.9 -> 469.0	59109	2.63 µg/L	97
		512.9 -> 219.0	7321		
PFDODA	9.054	613.1 -> 569.0	48300	2.35 µg/L	100
		613.1 -> 319.0	5997		
PFDS	9.229	599.0 -> 79.9	6783	2.10 µg/L	95

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.490	599.0 -> 98.8	3856	2.22	µg/L	98
		363.1 -> 319.0	58925			
PFHpS	7.828	363.1 -> 169.0	8413	2.20	µg/L	91
		449.0 -> 79.9	8896			
PFHxA	5.566	449.0 -> 98.9	5489	2.13	µg/L	99
		313.0 -> 269.0	37932			
PFHxS	7.263	313.0 -> 118.9	1495	2.00	µg/L	94
		398.7 -> 79.9	9768			
PFNA	7.665	398.7 -> 98.9	5777	2.14	µg/L	98
		463.0 -> 419.0	41643			
PFNS	8.798	463.0 -> 219.0	8271	2.18	µg/L	85
		548.8 -> 79.9	9248			
PFOA	7.135	548.8 -> 98.9	4445	2.13	µg/L	97
		413.0 -> 369.0	76490			
PFOS	8.321	413.0 -> 169.0	11007	2.20	µg/L	97
		498.9 -> 79.9	9612			
PFPeA	4.375	498.9 -> 98.8	6105	4.61	µg/L	100
		263.0 -> 219.0	47945			
PFPeS	6.569	349.1 -> 79.9	12077	2.13	µg/L	99
		349.1 -> 98.9	6532			
PFTeDA	9.781	713.1 -> 669.0	41668	2.31	µg/L	98
		713.1 -> 168.9	2919			
PFTrDA	9.437	663.0 -> 619.0	47166	2.40	µg/L	100
		663.0 -> 168.9	3647			
PFUnDA	8.624	563.1 -> 519.0	44979	2.09	µg/L	99
		563.1 -> 269.1	6348			
11CI-PF3OUdS	9.502	630.9 -> 450.9	103152	8.59	µg/L	100
		632.9 -> 452.9	31603			
9CI-PF3ONS	8.663	530.8 -> 351.0	172600	8.51	µg/L	98
		532.8 -> 353.0	54392			
ADONA	6.753	376.9 -> 250.9	324856	8.95	µg/L	96
		376.9 -> 84.8	73327			
HFPO-DA	5.928	284.9 -> 168.9	14680	9.38	µg/L	98
		284.9 -> 184.9	1748			
3:3FTCA	3.829	241.0 -> 177.0	5947	11.65	µg/L	100
		241.0 -> 117.0	757			
5:3FTCA	6.193	341.0 -> 237.1	205039	54.98	µg/L	94
		341.0 -> 217.0	171388			
7:3FTCA	7.592	441.0 -> 316.9	115173	47.25	µg/L	88
		441.0 -> 336.9	211001			
EtFOSA	10.927	526.0 -> 219.0	8514	2.16	µg/L	89
		526.0 -> 169.0	8380			
EtFOSE	10.860	630.0 -> 58.9	18633	21.43	µg/L	100
		511.9 -> 219.0	7773			
MeFOSA	10.682	511.9 -> 169.0	7326	2.32	µg/L	78
		616.1 -> 58.9	26669			
MeFOSE	10.602	699.1 -> 79.9	4236	22.13	µg/L	100
		699.1 -> 98.8	2617			
PFDoDS	9.920	295.0 -> 201.0	4863	2.20	µg/L	94
		295.0 -> 84.9	2421			
NFDHA	5.445	279.0 -> 85.1	14089	4.61	µg/L	97
		229.0 -> 84.9	13131			
PFMBA	4.787	314.8 -> 134.9	97394	4.82	µg/L	100
		314.8 -> 82.9	2477			
PFMPA	3.528			4.74	µg/L	100
PFEESA	6.046			3.79	µg/L	100

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

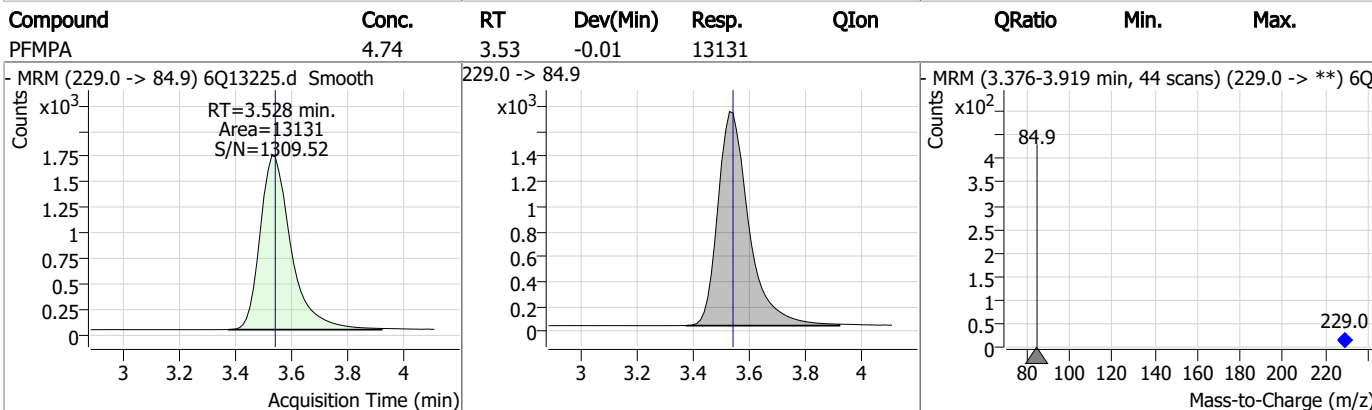
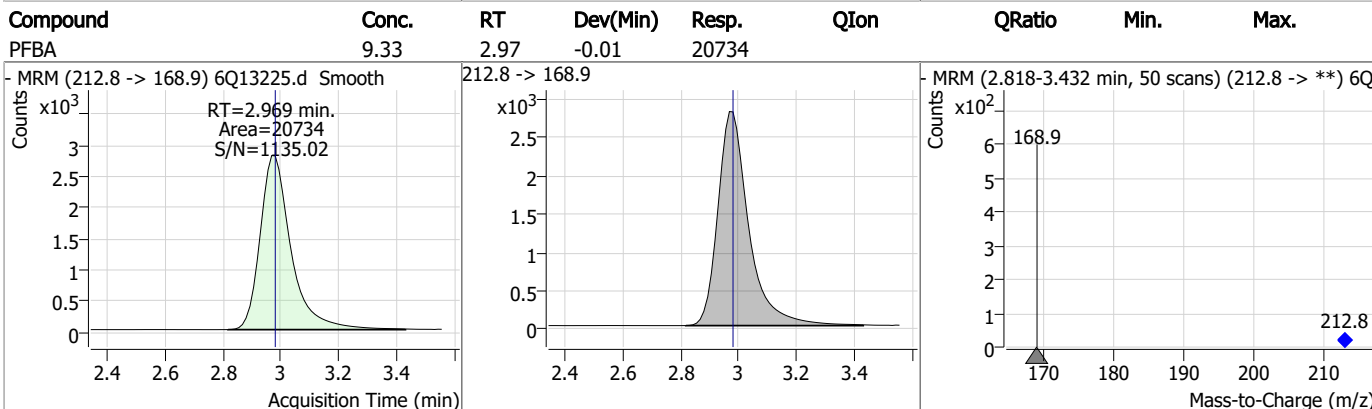
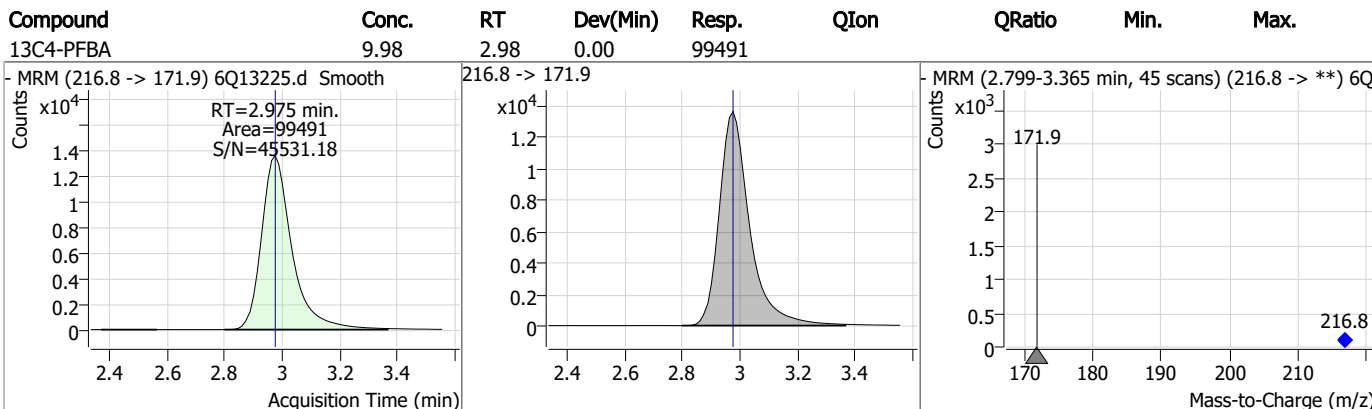
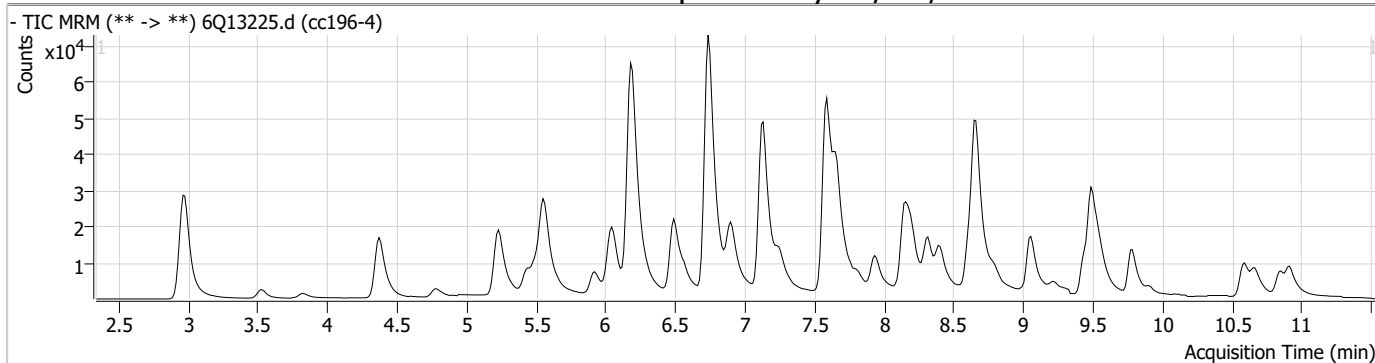
Perfluorinated Compounds by LC/MS/MS

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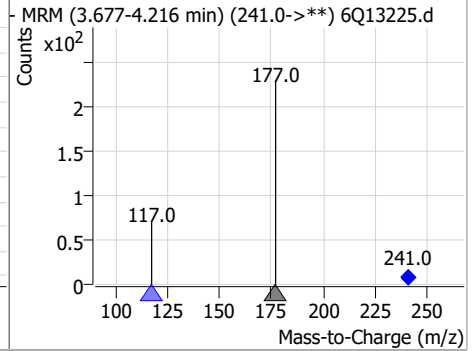
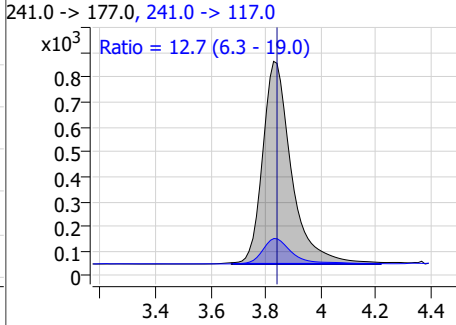
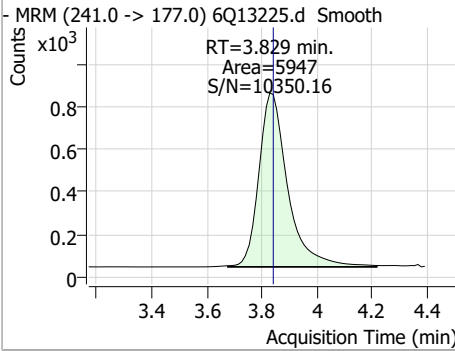
Perfluorinated Compounds by LC/MS/MS



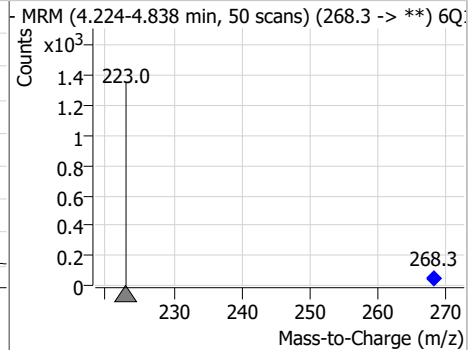
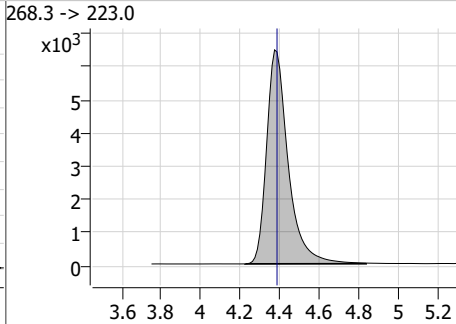
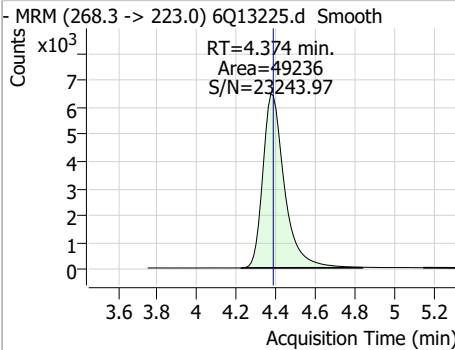
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Perfluorinated Compounds by LC/MS/MS

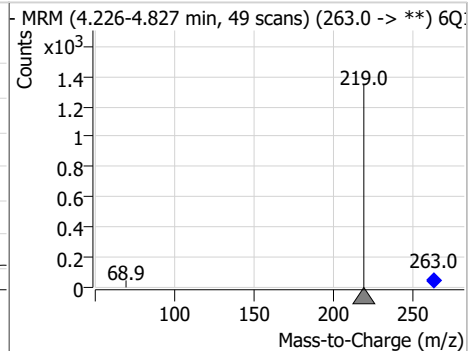
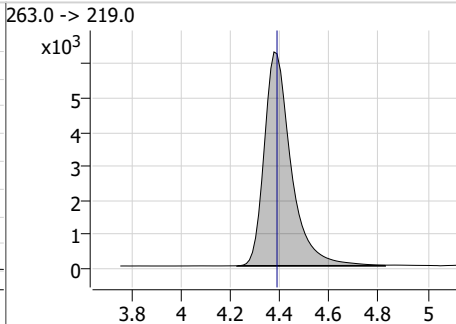
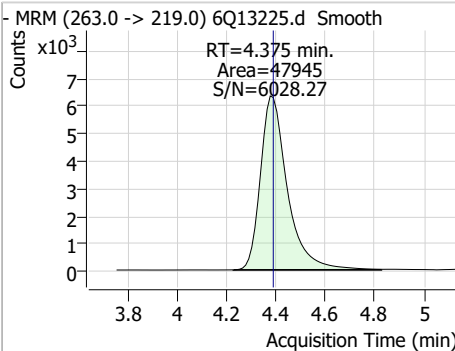
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.65	3.83	-0.01	5947	241.0 -> 117.0	12.7	6.3	19.0



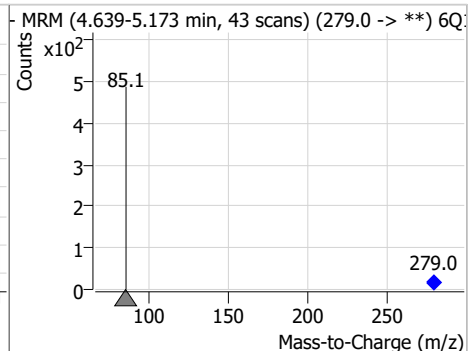
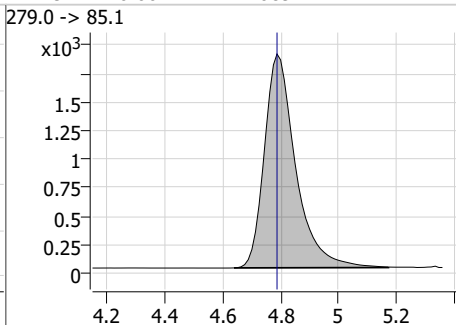
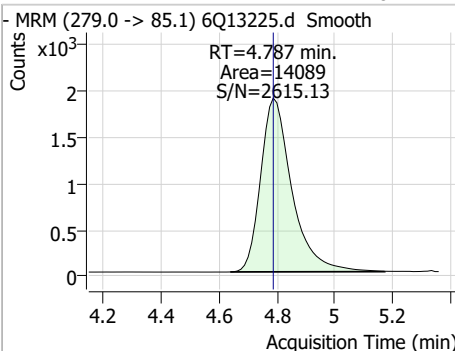
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.89	4.37	-0.01	49236				



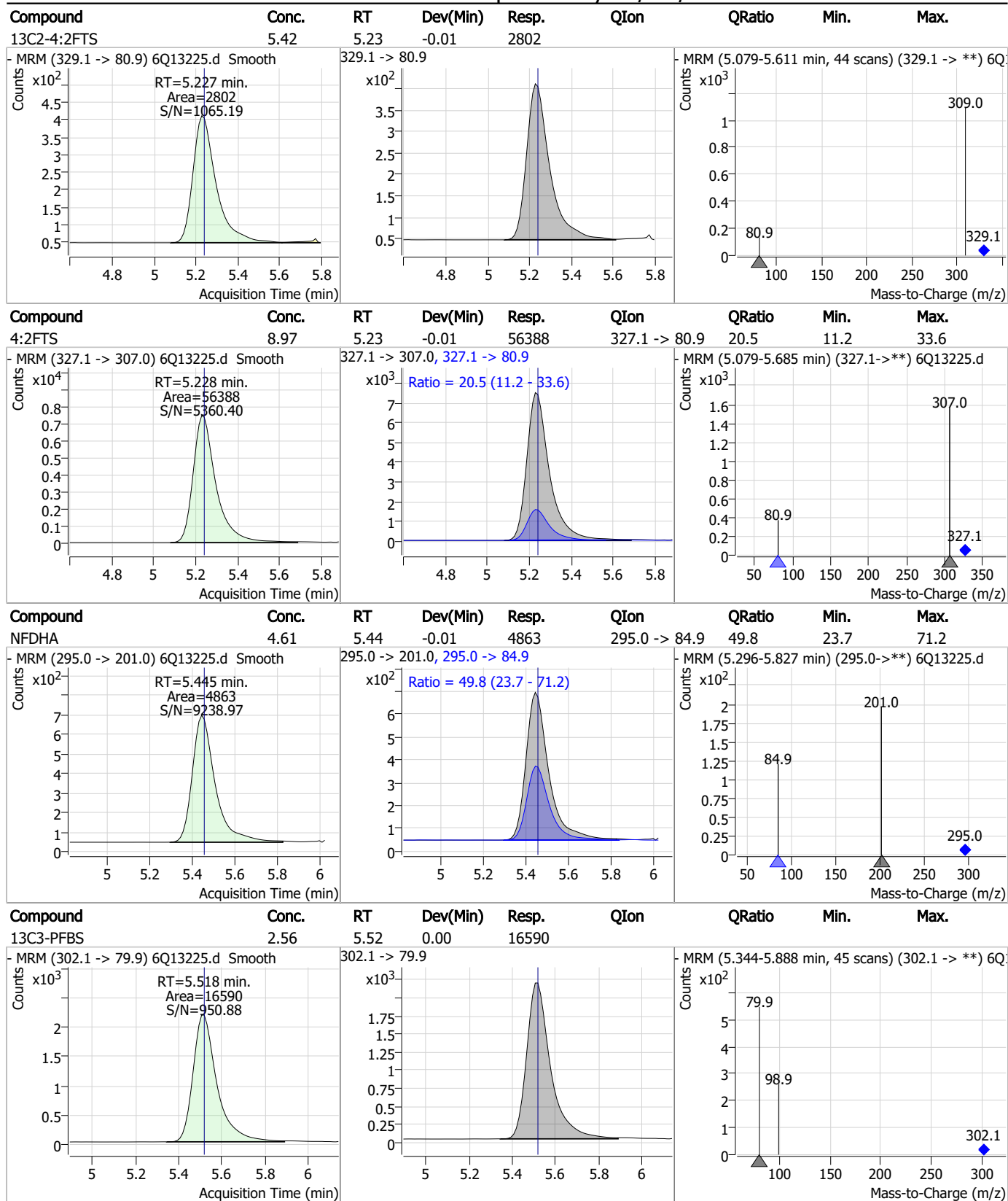
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.61	4.38	-0.01	47945				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.82	4.79	0.00	14089				



Perfluorinated Compounds by LC/MS/MS

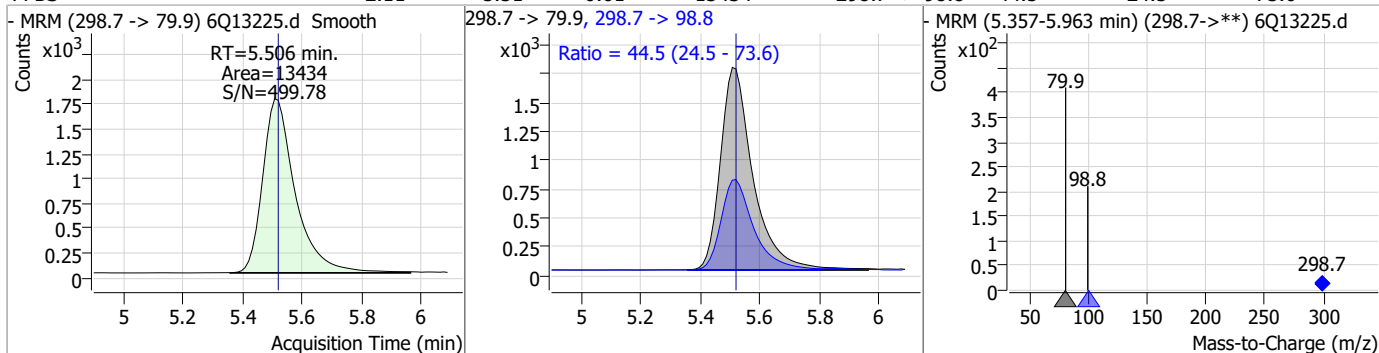


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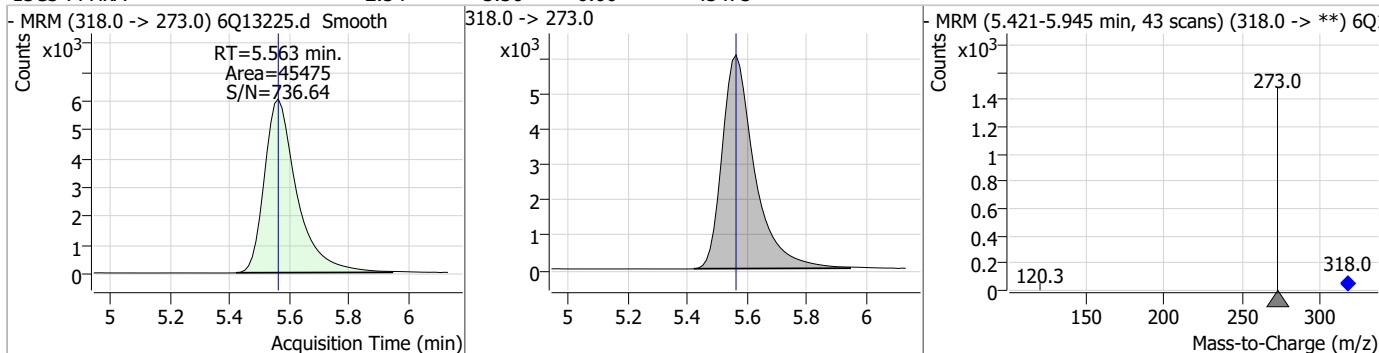


Perfluorinated Compounds by LC/MS/MS

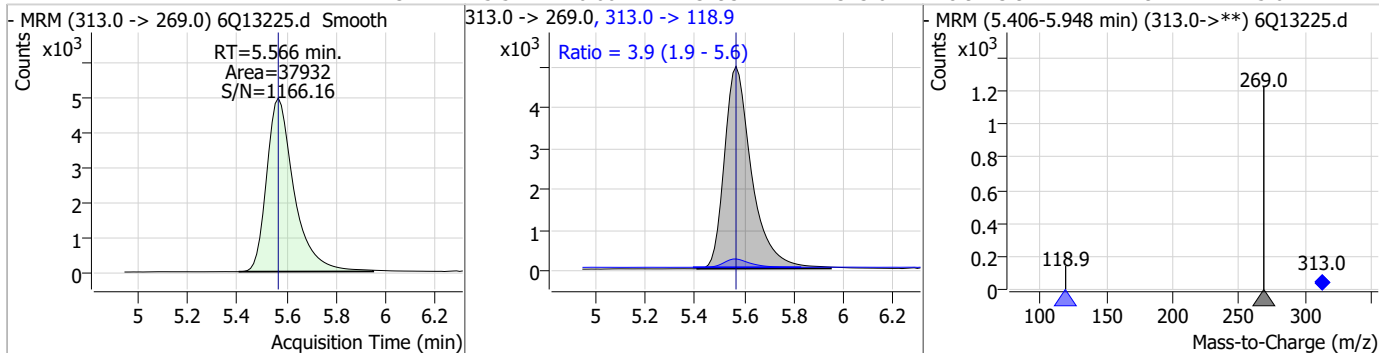
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.11	5.51	-0.01	13434	298.7 -> 98.8	44.5	24.5	73.6



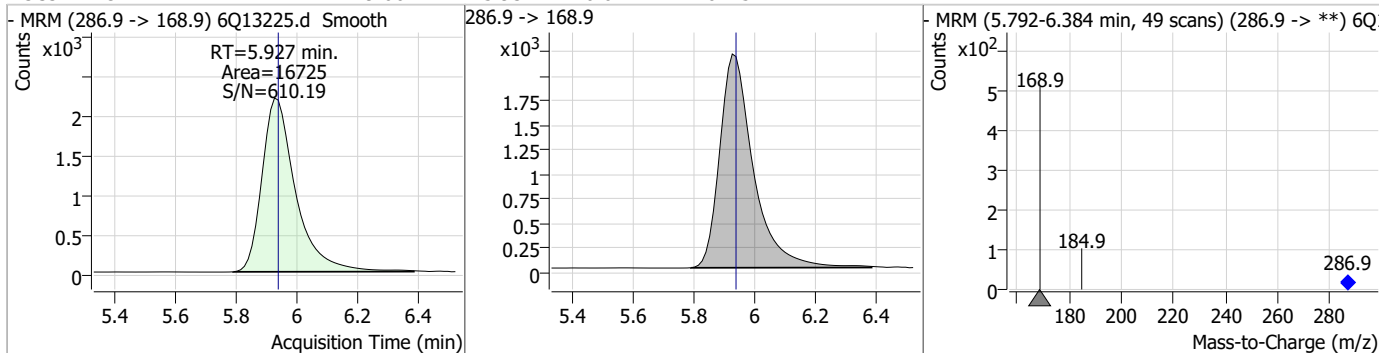
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.54	5.56	0.00	45475				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.13	5.57	0.00	37932	313.0 -> 118.9	3.9	1.9	5.6

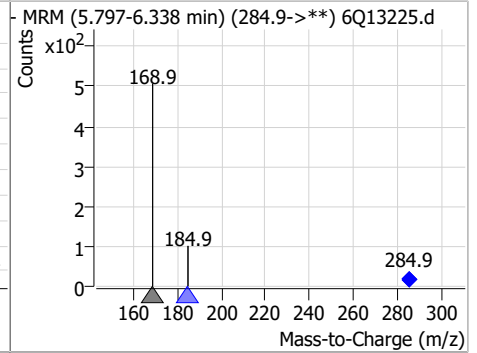
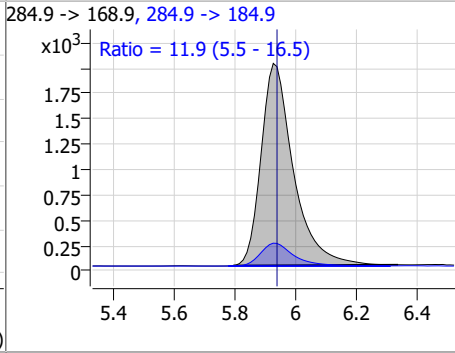
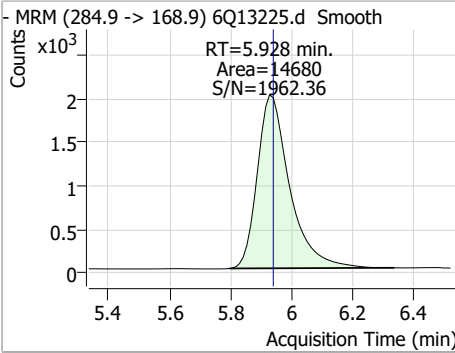


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.06	5.93	-0.01	16725				

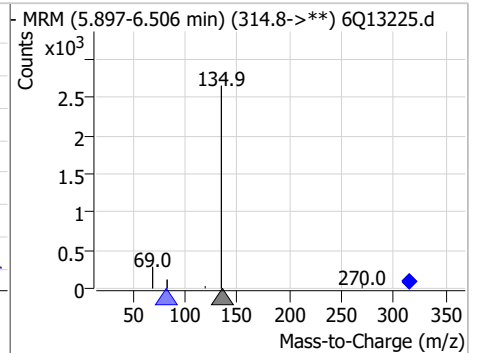
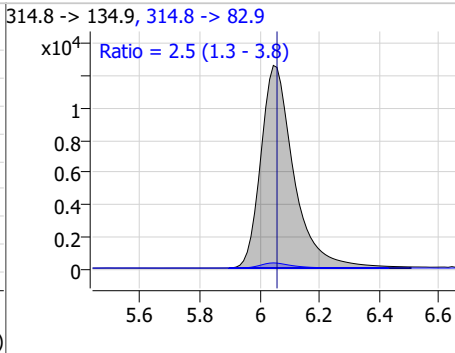
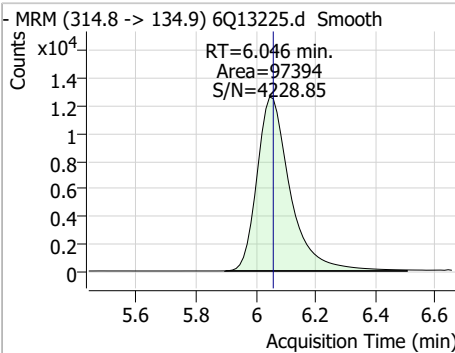


Perfluorinated Compounds by LC/MS/MS

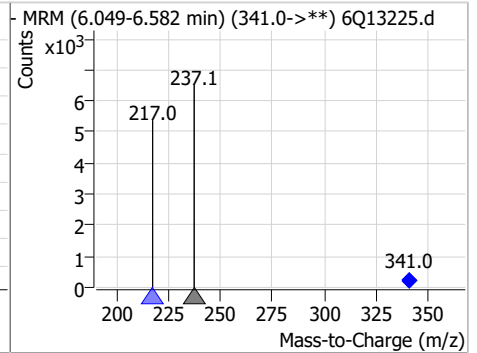
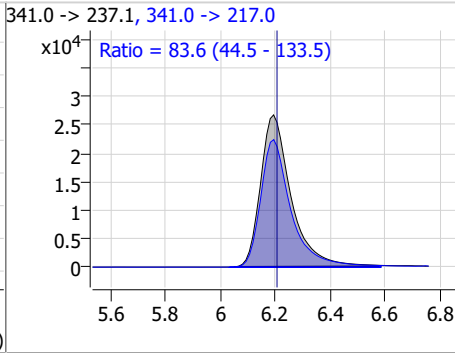
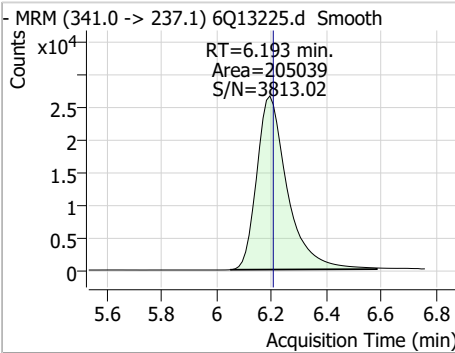
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.38	5.93	-0.01	14680	284.9 -> 184.9	11.9	5.5	16.5



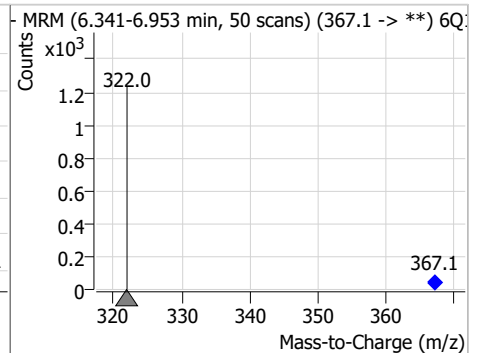
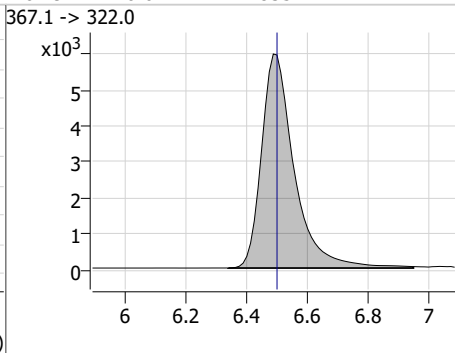
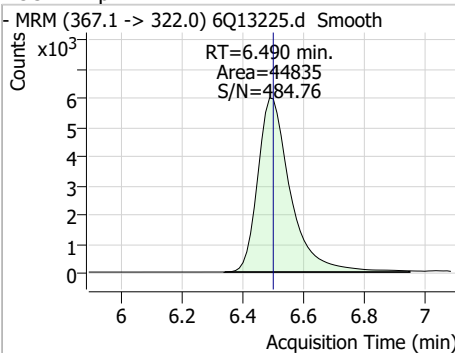
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	3.79	6.05	-0.01	97394	314.8 -> 82.9	2.5	1.3	3.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	54.98	6.19	-0.01	205039	341.0 -> 217.0	83.6	44.5	133.5

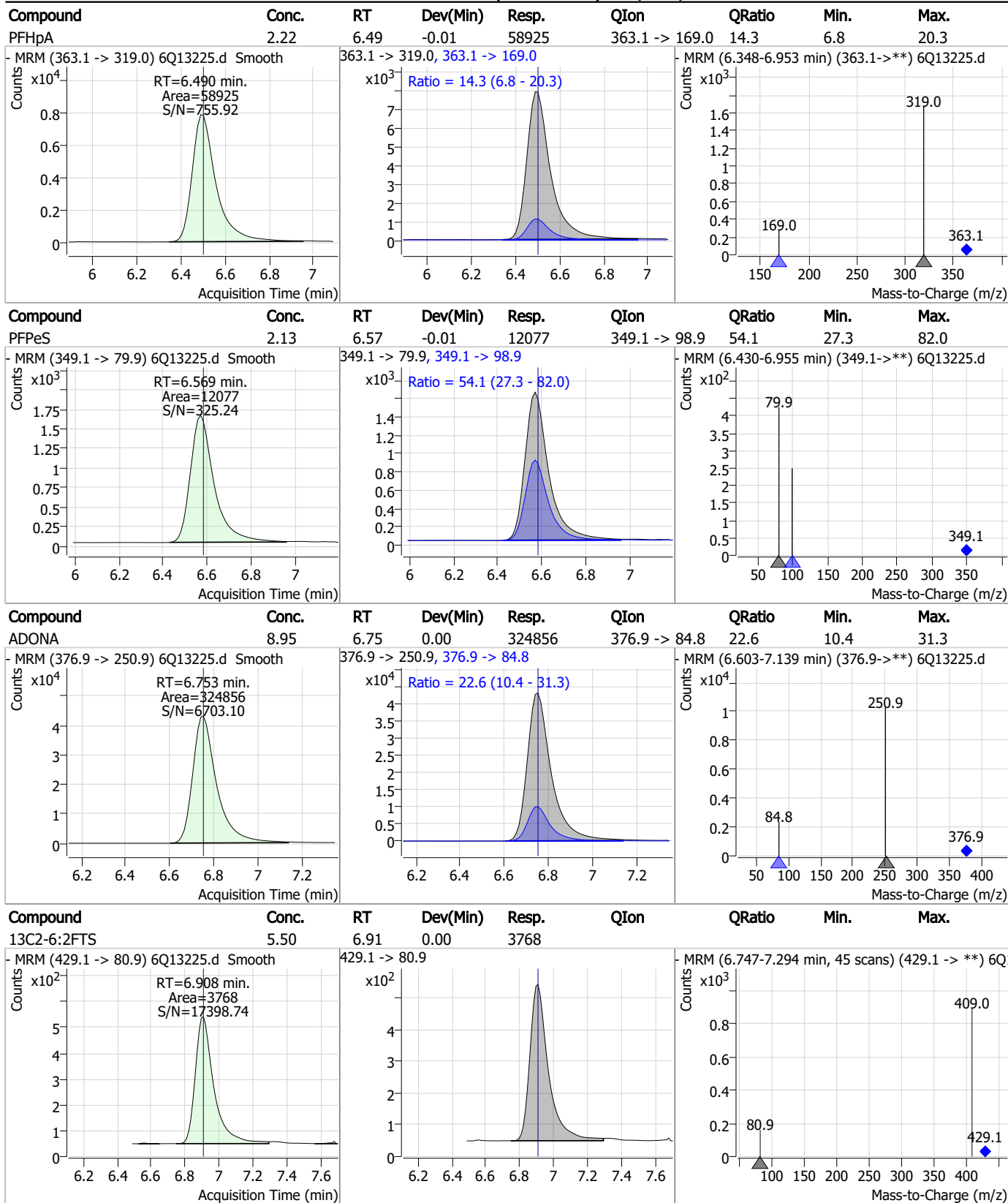


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.41	6.49	-0.01	44835	367.1 -> 322.0			



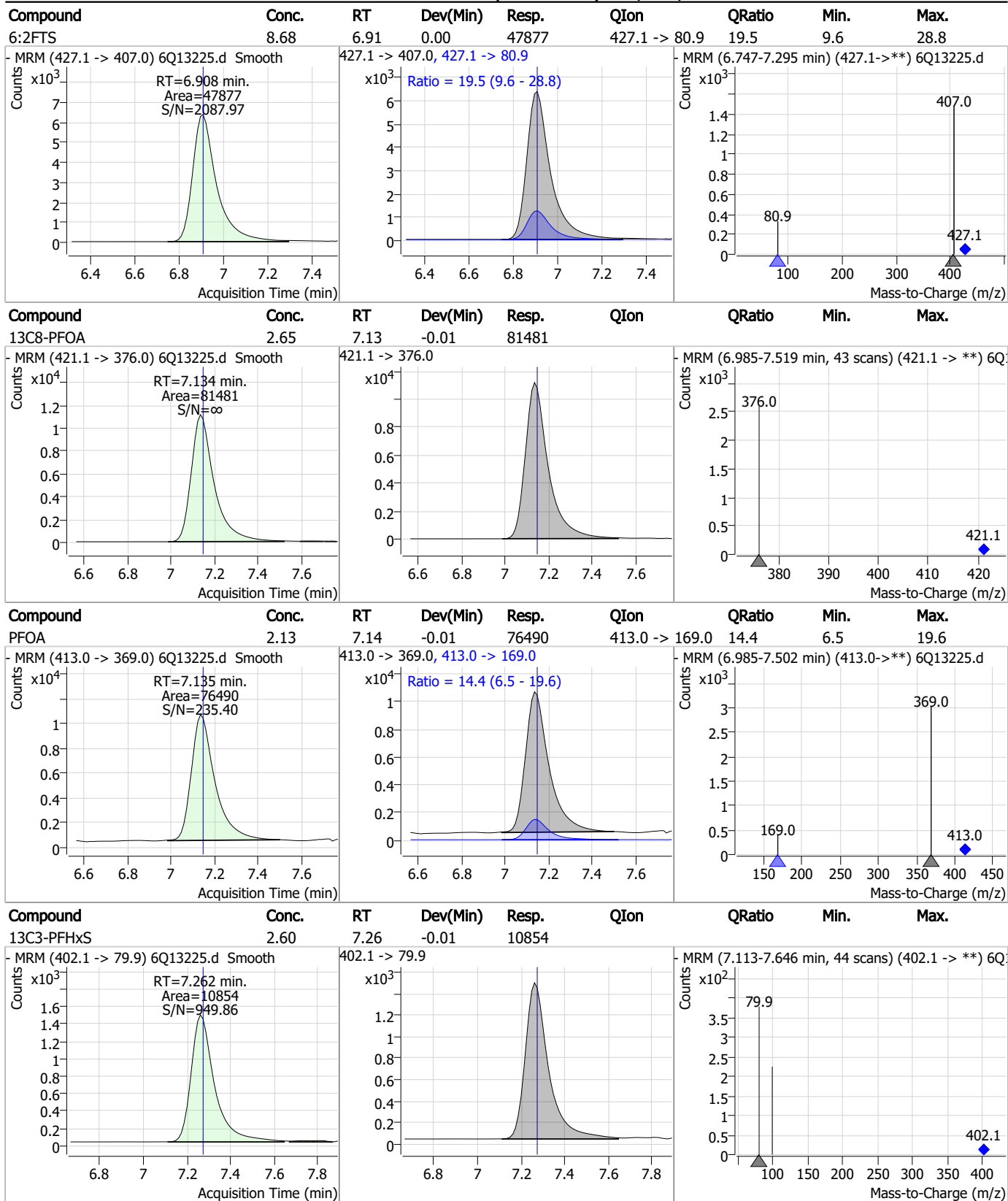
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Perfluorinated Compounds by LC/MS/MS



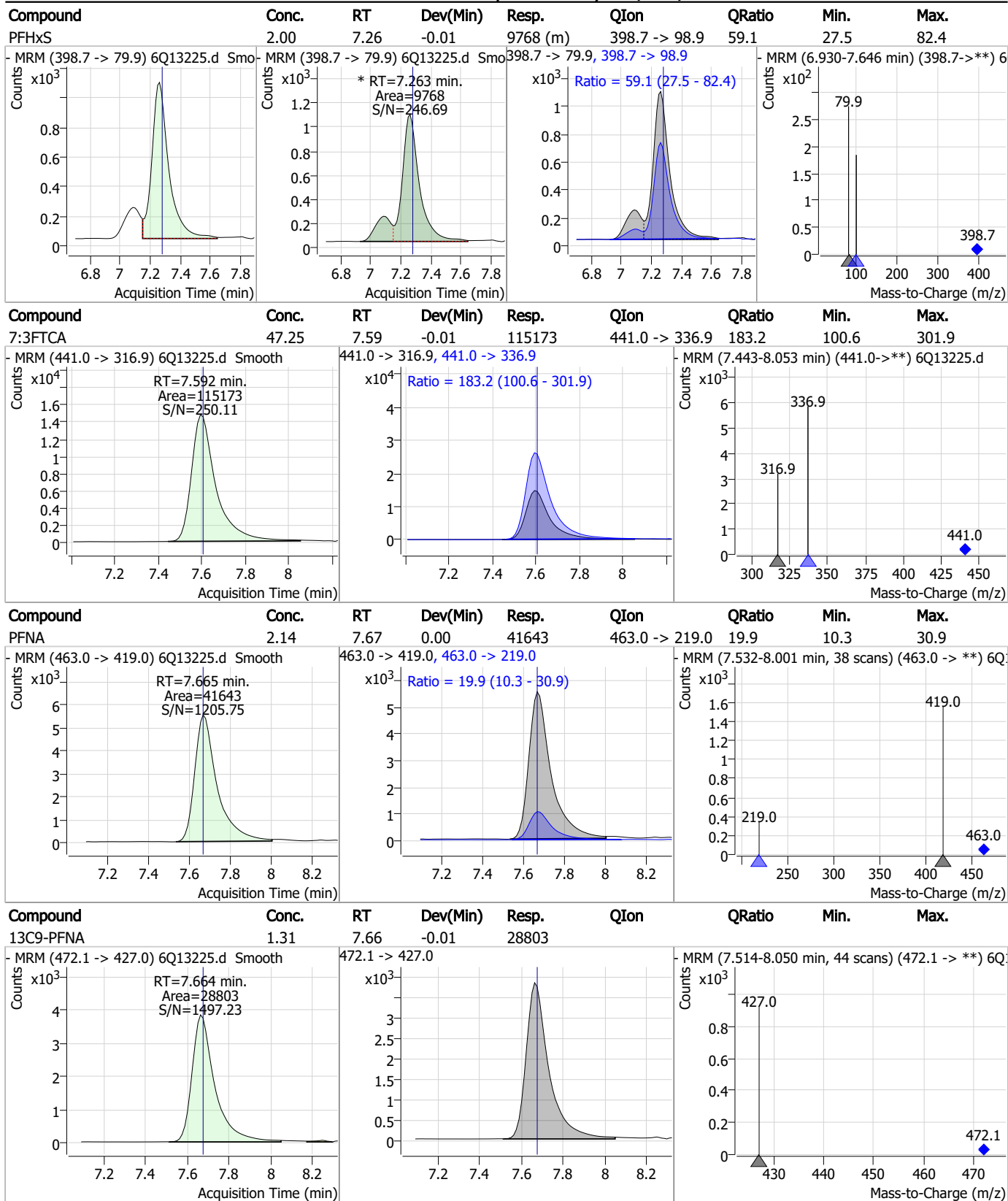
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



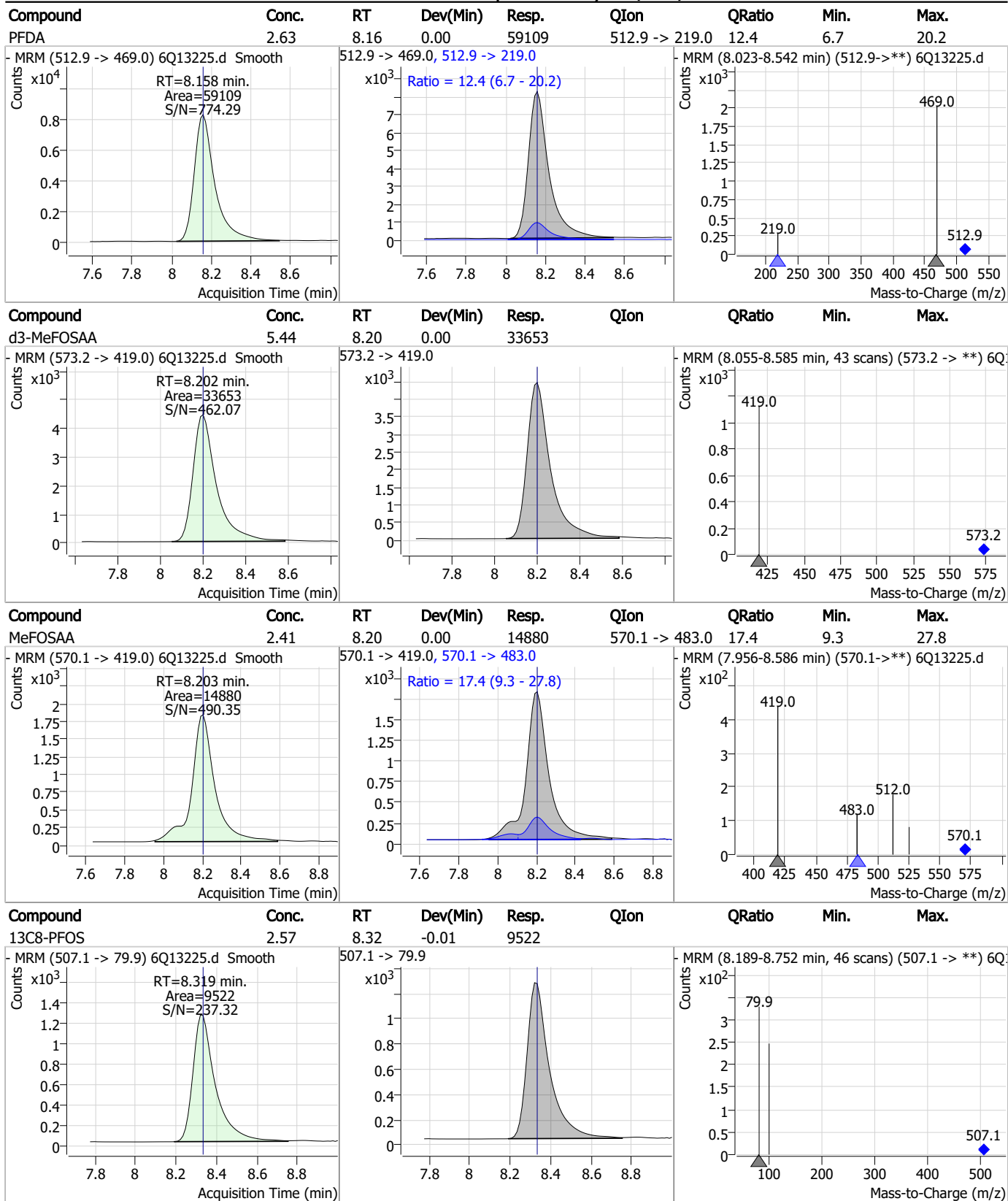
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.20	7.83	0.00	8896	449.0 -> 98.9	61.7	27.5	82.4
13C2-8:2FTS	4.90	7.94	0.00	3375	529.1 -> 80.9	-	-	-
8:2FTS	9.99	7.95	0.00	26177	527.1 -> 80.8	23.7	11.9	35.8
13C6-PFDA	1.22	8.16	0.00	19745	519.1 -> 474.1	-	-	-

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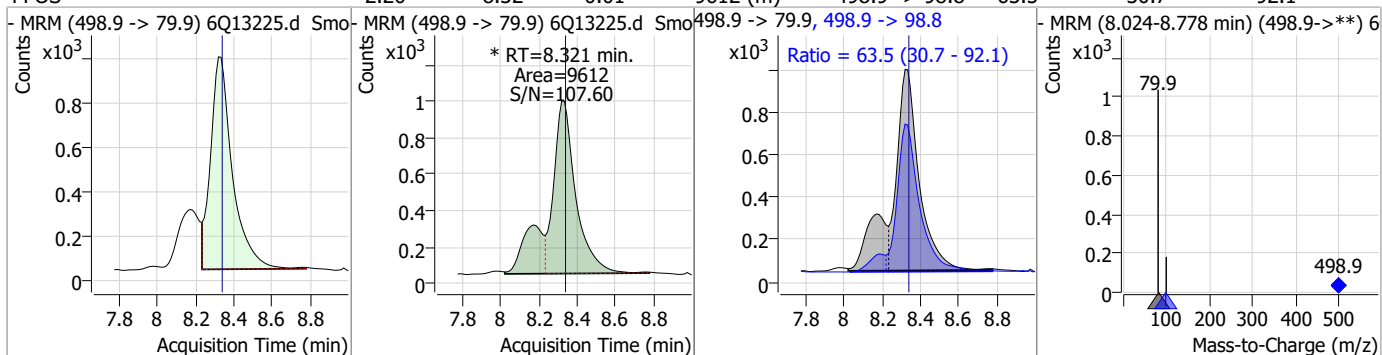
Perfluorinated Compounds by LC/MS/MS



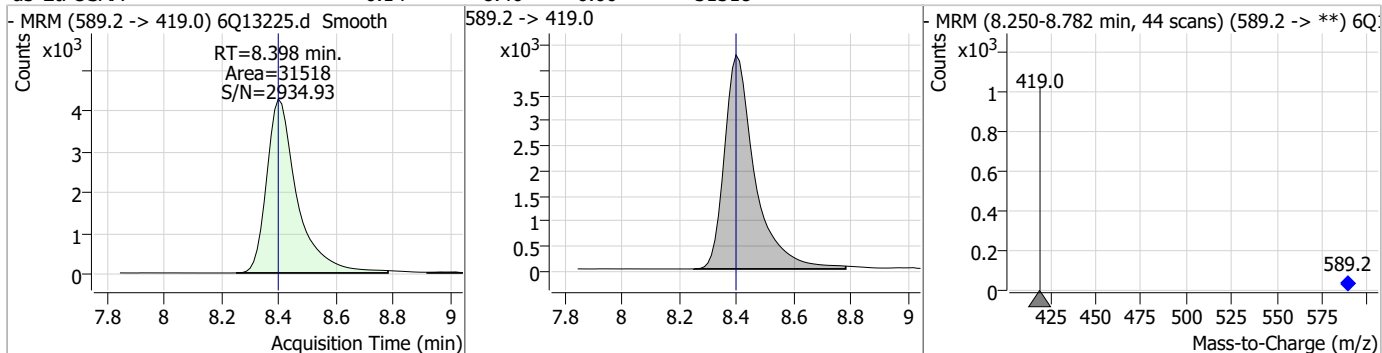
7.7.17

Perfluorinated Compounds by LC/MS/MS

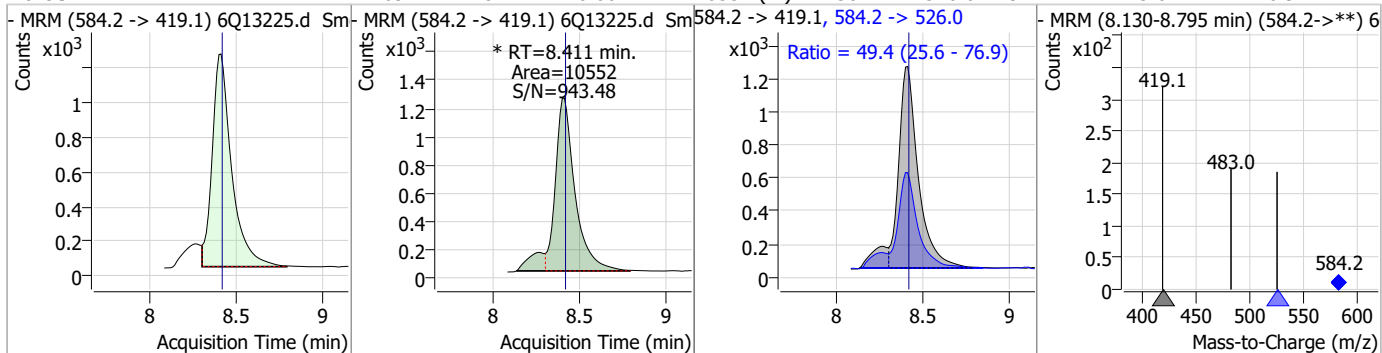
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.20	8.32	-0.01	9612 (m)	498.9 -> 98.8	63.5	30.7	92.1



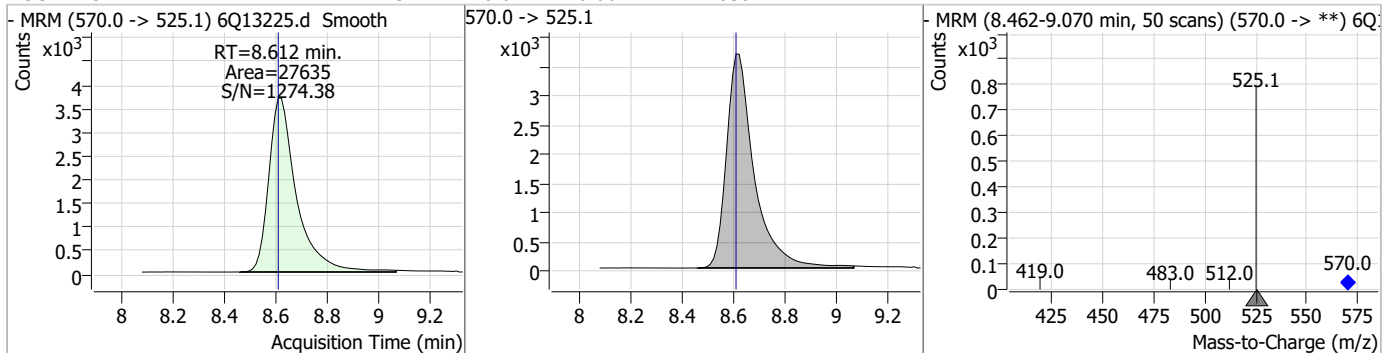
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	6.14	8.40	0.00	31518				



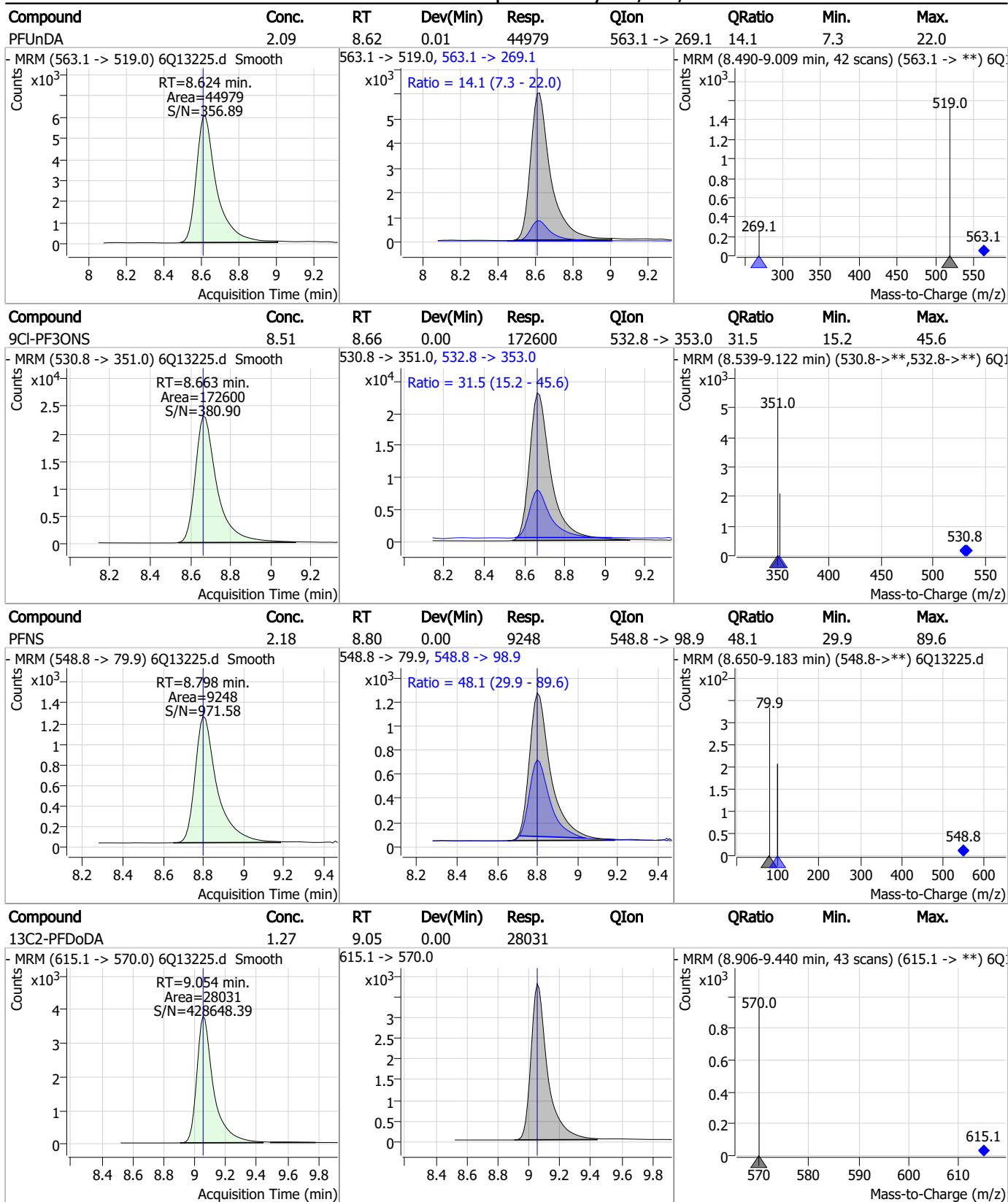
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.09	8.41	0.00	10552 (m)	584.2 -> 526.0	49.4	25.6	76.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.43	8.61	0.00	27635				



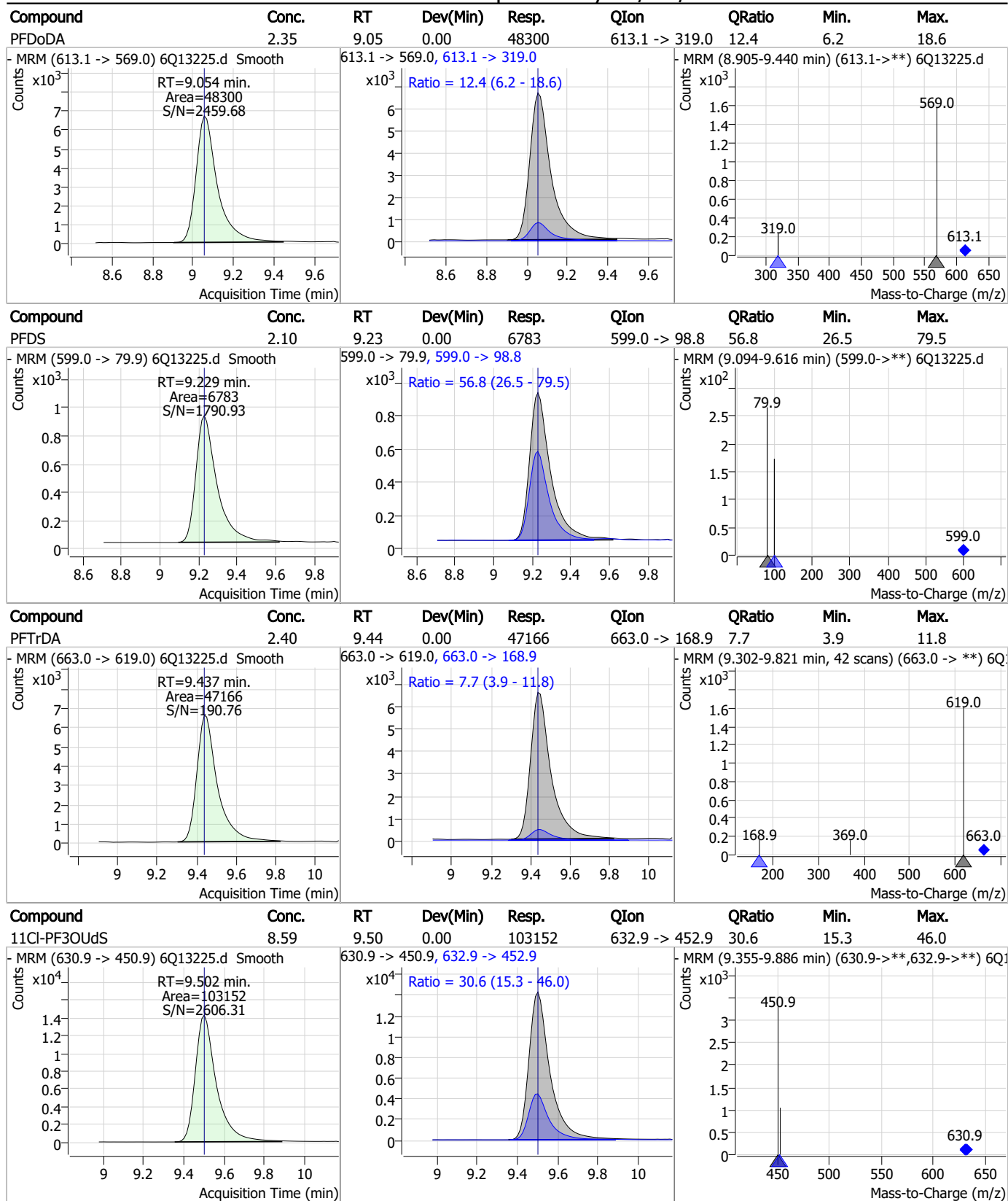
Perfluorinated Compounds by LC/MS/MS



7.7.17



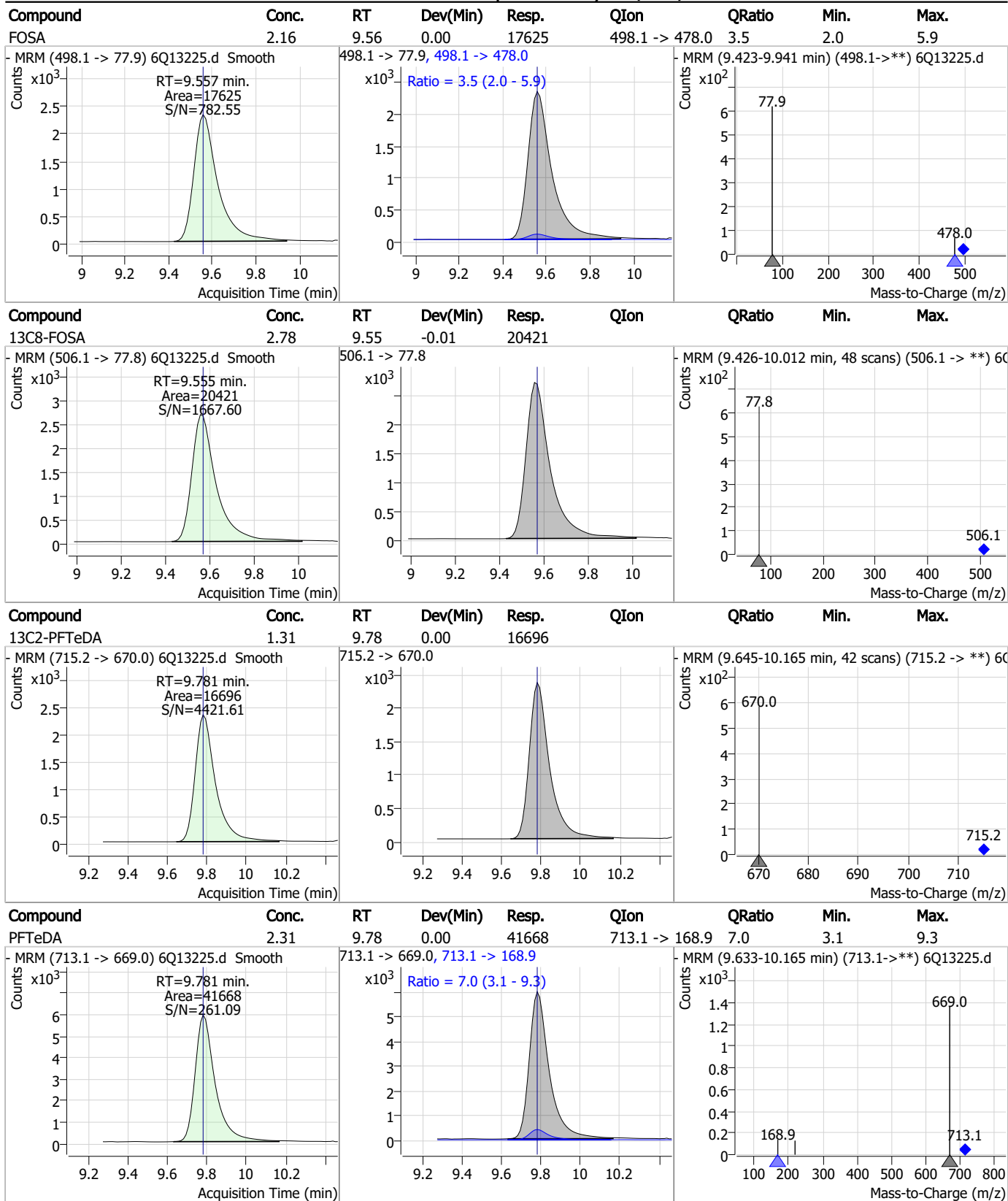
Perfluorinated Compounds by LC/MS/MS



7.7.17

7

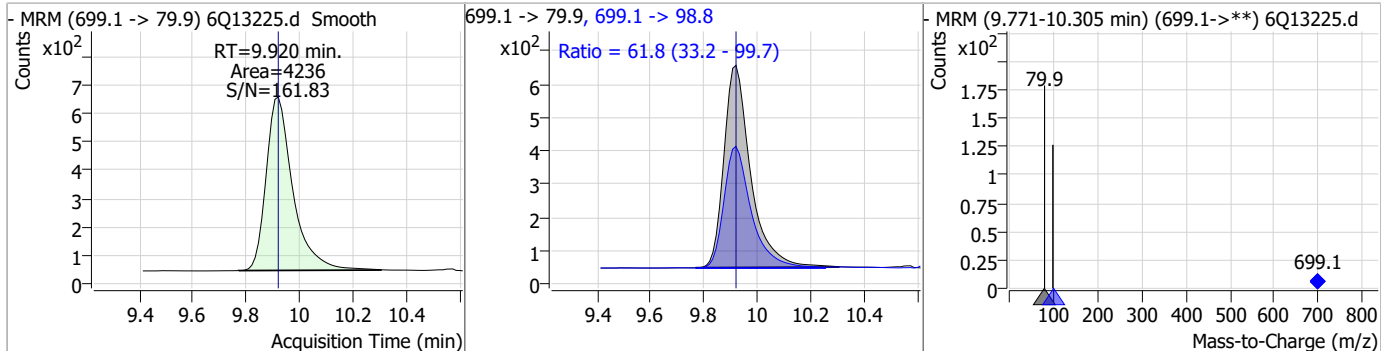
Perfluorinated Compounds by LC/MS/MS



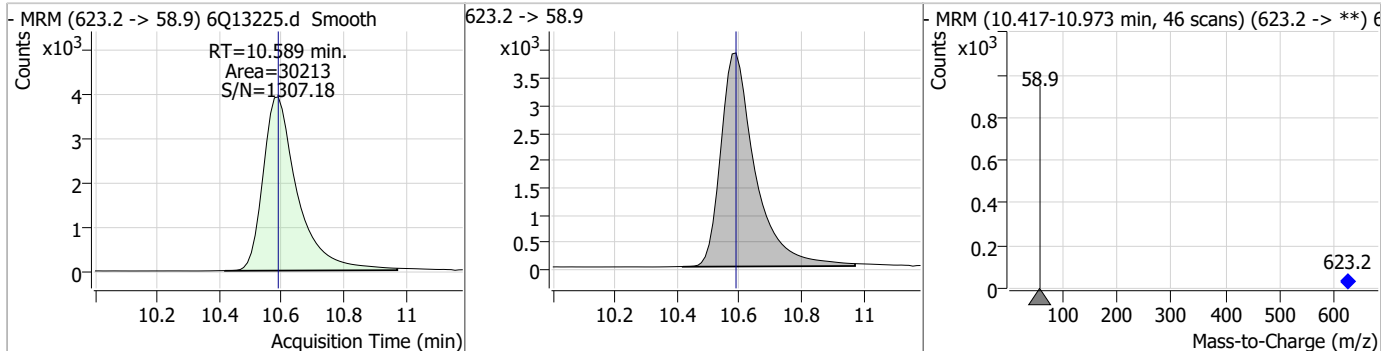
7.7.17

Perfluorinated Compounds by LC/MS/MS

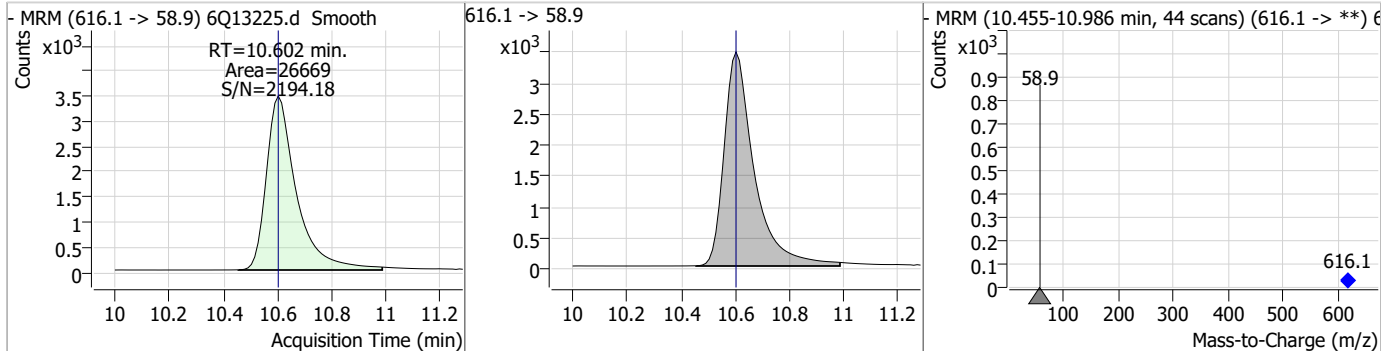
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.20	9.92	0.00	4236	699.1 -> 98.8	61.8	33.2	99.7



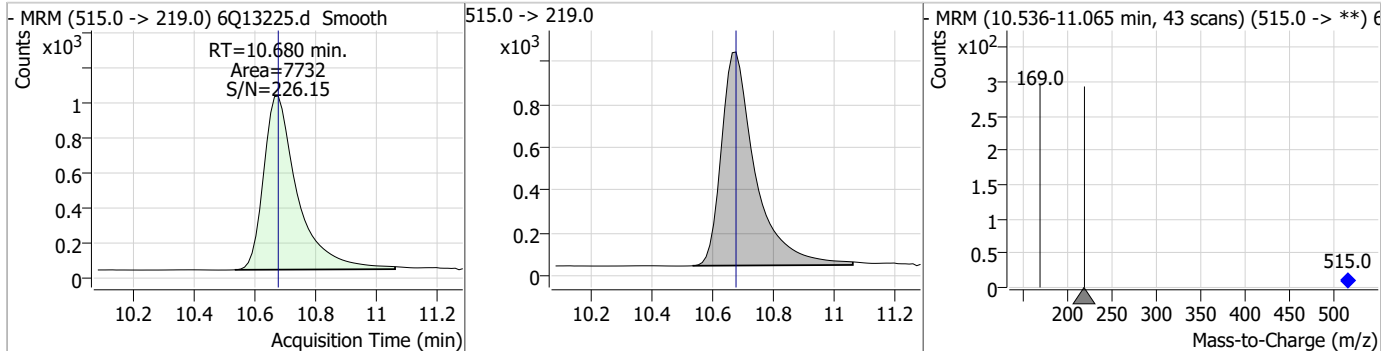
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.58	10.59	0.00	30213				



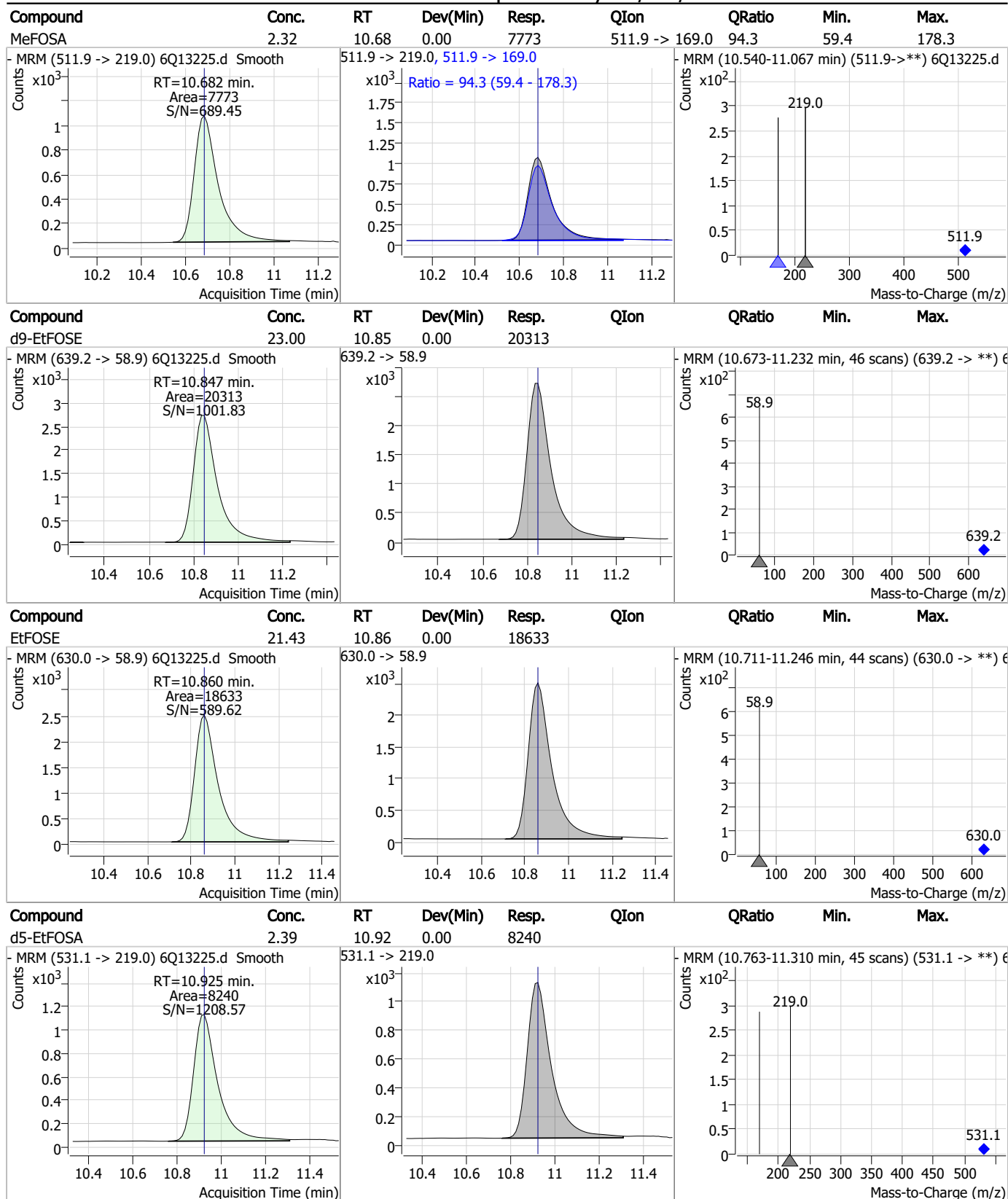
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	22.13	10.60	0.00	26669				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.44	10.68	0.00	7732				



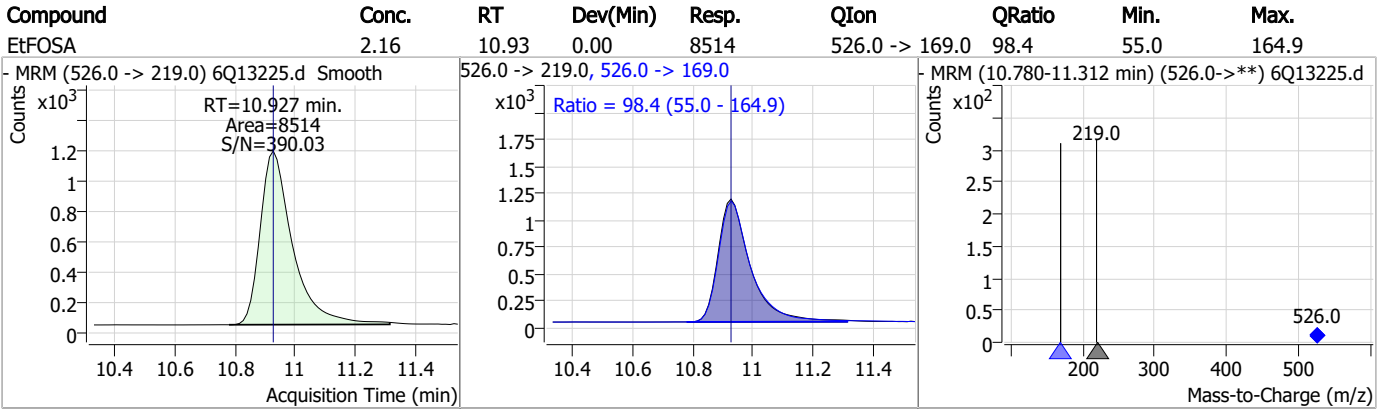
Perfluorinated Compounds by LC/MS/MS



7.7.17



Perfluorinated Compounds by LC/MS/MS



7.7.17
7

Manual Integration Approval Summary

Sample Number: S6Q202-CC196 Method: EPA DRAFT 1633
Lab FileID: 6Q13225.D Analyst approved: 02/08/23 15:18 Martha Valls
Injection Time: 02/08/23 13:51 Supervisor approved: 02/08/23 15:53 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.26	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.32	Split peak
EtFOSAA	2991-50-6		8.41	Split peak

7.7.17.1

7

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DATE:	02/01/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 ul
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_020123_S6Q196
CAL DATE:	02/01/23
ANALYST:	M.Valls
RUN BATCH:	S6Q196

ELUENT A LOT #:	ACN 220213
ELUENT B LOT #:	22457_WISV_CAN_220213_2mM AMAC_11387
IC/CC STD LOT #:	LCMS 2055-C
ICV STD LOT #:	LCMS 2041A/2042
ISTD/ID STD LOT #:	11384/11383

ICV 2: Full list LCMS2042

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	6Q12715.d	P1-D9	CCB	1633full.m	Sample		OP94819,S6Q196,500,,5.0,1,water	✓
2	6Q12716.d	P1-D9	CCB	1633full.m	Sample		OP94819,S6Q196,500,,5.0,1,water	✓
3	6Q12717.d	P1-D9	CCB	1633full.m	Sample		OP94819,S6Q196,500,,5.0,1,water	✓
4	6Q12718.d	P1-D9	CCB	1633full.m	Sample		OP94819,S6Q196,500,,5.0,1,water	✓
5	6Q12719.d	P1-A1	CCB	1633full.m	Sample		OP94819,S6Q196,500,,5.0,1,water	✓
6	6Q12720.d	P1-B3	RT TDCA	1633full.m	Sample		OP94819,S6Q196,500,,5.0,1,water	✓
7	6Q12721.d	P1-B4	RT BR-LN	1633full.m	Sample		OP94819,S6Q196,500,,5.0,1,water	✓
8	6Q12722.d	P1-A1	ic196-0	1633full.m	Sample		OP94819,S6Q196,500,,5.0,1,water	✓
9	6Q12723.d	P1-A2	ic196-1	1633full.m	Calibration	1.6/500	OP94819,S6Q196,500,,5.0,1,water	✓
10	6Q12724.d	P1-A3	ic196-2	1633full.m	Calibration	4/500	OP94819,S6Q196,500,,5.0,1,water	✓
11	6Q12725.d	P1-A4	ic196-3	1633full.m	Calibration	10/500	OP94819,S6Q196,500,,5.0,1,water	✓
12	6Q12726.d	P1-A5	icc196-4	1633full.m	Calibration	20/500	OP94819,S6Q196,500,,5.0,1,water	✓
13	6Q12727.d	P1-A6	ic196-5	1633full.m	Calibration	40/500	OP94819,S6Q196,500,,5.0,1,water	✓
14	6Q12728.d	P1-A7	ic196-6	1633full.m	Calibration	100/500	OP94819,S6Q196,500,,5.0,1,water	✓
15	6Q12729.d	P1-A8	ic196-7	1633full.m	Calibration	200/500	OP94819,S6Q196,500,,5.0,1,water	✓
16	6Q12730.d	P1-A9	ic196-8	1633full.m	Calibration	1x	OP94819,S6Q196,500,,5.0,1,water	✓
17	6Q12731.d	P1-A1	IBLK	1633full.m	Sample		OP94819,S6Q196,500,,5.0,1,water	✓
18	6Q12732.d	P1-B1	icv196-4	1633full.m	QC	20/500	OP94819,S6Q196,500,,5.0,1,water	prep by NG
19	6Q12733.d	P1-B2	icv196-4	1633full.m	QC	100/500	OP94819,S6Q196,500,,5.0,1,water	Full list lot
20	6Q12734.d	P1-A5	cc196-4	1633full.m	QC	20/500	OP94819,S6Q196,500,,5.0,1,water	✓
21	6Q12735.d	P1-A2	cc196-1.0LL	1633full.m	QC	1.6/500	OP94819,S6Q196,500,,5.0,1,water	✓
22	6Q12736.d	P2-B3	op94938-bs	1633full.m	Sample		OP94819,S6Q196,500,,5.0,1,water	✓
23	6Q12737.d	P2-B4	op94938-llbs:3	1633full.m	Sample		OP94819,S6Q196,500,,5.0,1,water	✓
24	6Q12738.d	P2-B5	op94938-mb	1633full.m	Sample		OP94819,S6Q196,500,,5.0,1,water	✓
25	6Q12739.d	P2-C3	FC1643-7	1633full.m	Sample		OP94938,S6Q196,500,,5.0,1,water	✓
26	6Q12740.d	P2-C4	FC1643-8	1633full.m	Sample		OP94938,S6Q196,500,,5.0,1,water	✓
27	6Q12741.d	P2-C5	FC1643-9	1633full.m	Sample		OP94938,S6Q196,500,,5.0,1,water	✓
28	6Q12742.d	P2-C6	FC1643-10	1633full.m	Sample		OP94938,S6Q196,500,,5.0,1,water	✓
29	6Q12743.d	P2-C7	FC1643-11	1633full.m	Sample		OP94938,S6Q196,500,,5.0,1,water	rr1x for J value pfos
30	6Q12744.d	P2-C8	FC1643-12	1633full.m	Sample		OP94938,S6Q196,500,,5.0,1,water	✓
31	6Q12745.d	P2-C9	op94938-ms	1633full.m	Sample		OP94938,S6Q196,500,,5.0,1,water	✓
32	6Q12746.d	P1-A5	cc196-4	1633full.m	QC	20/500	OP95122,S6Q196,500,,5.0,1,water	✓
33	6Q12747.d	P1-A1	iccb	1633full.m	Sample		OP95122,S6Q196,500,,5.0,1,water	✓
34	6Q12748.d	P2-D1	FC1643-13	1633full.m	Sample		OP94938,S6Q196,500,,5.0,1,water	✓
35	6Q12749.d	P2-D2	op94938-dup	1633full.m	Sample		OP94938,S6Q196,500,,5.0,1,water	✓

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LCMS6-6Q ANALYSIS LOG

36	6Q12750.d	P2-D3	FC1643-14	1633full.m	Sample	OP94938,S6Q196,545,,,5.0,1,water	✓
37	6Q12751.d	P2-D4	FC1643-15	1633full.m	Sample	OP94938,S6Q196,565,,,5.0,1,water	✓
38	6Q12752.d	P2-D5	FC1643-16	1633full.m	Sample	OP94938,S6Q196,550,,,5.0,1,water	✓
39	6Q12753.d	P2-D6	FC1643-17	1633full.m	Sample	OP94938,S6Q196,555,,,5.0,1,water	rr2x
40	6Q12754.d	P2-D7	FC1643-18	1633full.m	Sample	OP94938,S6Q196,545,,,5.0,1,water	rr1x co + 2x
41	6Q12755.d	P1-F4	fc1641-14	1633full.m	Sample	OP94914,S6Q196,530,,,5.0,5,water	✓
42	6Q12756.d	P1-F5	fc1641-15	1633full.m	Sample	OP94914,S6Q196,530,,,5.0,5,water	✓
43	6Q12757.d	P1-F6	fc1641-16	1633full.m	Sample	OP94914,S6Q196,550,,,5.0,5,water	✓
44	6Q12758.d	P1-A5	cc196-4	1633full.m	QC	OP95176,S6Q196,500,,,5.0,1,water	✓
45	6Q12759.d	P1-A1	iccb	1633full.m	Sample	OP95176,S6Q196,500,,,5.0,1,water	✓
46	6Q12760.d	P1-F9	FC1904-2	1633full.m	Sample	OP95018,S6Q196,540,,,5.0,10,water	✓
47	6Q12761.d	P3-C1	FC1823-9	1633full.m	Sample	OP95176,S6Q196,66,,,5.0,5,water	✓
48	6Q12762.d	P3-C2	FC1823-11	1633full.m	Sample	OP95176,S6Q196,66,,,5.0,1,water	✓
49	6Q12763.d	P3-C3	FC1823-11	1633full.m	Sample	OP95176,S6Q196,66,,,5.0,10,water	✓
50	6Q12764.d	P3-C4	FC1823-13	1633full.m	Sample	OP95176,S6Q196,66,,,5.0,5,water	✓
51	6Q12765.d	P3-C5	FC1823-6	1633full.m	Sample	OP95176,S6Q196,66,,,5.0,2,water	✓
52	6Q12766.d	P3-C6	FC1641-4	1633full.m	Sample	OP94914,S6Q196,530,,,5.0,1,water	✓
53	6Q12767.d	P3-C7	FC1641-5	1633full.m	Sample	OP94914,S6Q196,520,,,5.0,1,water	✓
54	6Q12768.d	P3-C8	FC1643-5	1633full.m	Sample	OP94938,S6Q196,565,,,5.0,1,water	rr, data file skipped.
55	6Q12769.d	P3-C9	FC1643-5	1633full.m	Sample	OP94938,S6Q196,565,,,5.0,5,water	✓
56	6Q12770.d	P1-A5	cc196-4	1633full.m	QC	OP95176,S6Q196,500,,,5.0,1,water	✓
57	6Q12771.d	P1-A2	cc196-1.0LL	1633full.m	QC	OP95176,S6Q196,500,,,5.0,1,water	✓
58	6Q12772.d	P1-A1	iccb	1633full.m	Sample	OP95176,S6Q196,500,,,5.0,1,water	✓
59	6Q12773.d	P2-D8	op94945-bs	1633full.m	Sample	OP94945,S6Q196,500,,,5.0,1,water	rr samples. No ccv
60	6Q12774.d	P2-D9	op94945-llbs:3	1633full.m	Sample	OP94945,S6Q196,500,,,5.0,1,water	↑
61	6Q12775.d	P2-E1	op94945-mb	1633full.m	Sample	OP94945,S6Q196,500,,,5.0,1,water	↑
62	6Q12776.d	P2-E2	FC1656-1	1633full.m	Sample	OP94945,S6Q196,555,,,5.0,1,water	↑
63	6Q12777.d	P2-E3	FC1656-2	1633full.m	Sample	OP94945,S6Q196,545,,,5.0,1,water	↑
64	6Q12778.d	P2-E4	FC1656-3	1633full.m	Sample	OP94945,S6Q196,565,,,5.0,1,water	↑
65	6Q12779.d	P2-E5	FC1656-4	1633full.m	Sample	OP94945,S6Q196,565,,,5.0,1,water	Vial punture error at 6:30AM
66	6Q12780.d	P2-E6	FC1656-5	1633full.m	Sample	OP94945,S6Q196,565,,,5.0,1,water	RR
67	6Q12781.d	P1-D9	CCB	1633full.m	Sample	OP95176,S6Q196,500,,,5.0,1,water	✓
68	6Q12782.d	P1-D9	CCB	1633full.m	Sample	OP95176,S6Q196,500,,,5.0,1,water	✓
69	6Q12783.d	P1-B3	RT TDCA	1633full.m	Sample	OP94819,S6Q196,500,,,5.0,1,water	✓
70	6Q12784.d	P1-B4	RT BR-LN	1633full.m	Sample	OP94819,S6Q196,500,,,5.0,1,water	✓
71	6Q12785.d	P1-A9	HIGH STD	1633full.m	Calibration	OP94819,S6Q196,500,,,5.0,1,water	✓
72	6Q12786.d	P1-A1	IBLK	1633full.m	Sample	OP94819,S6Q196,500,,,5.0,1,water	✓
73	6Q12787.d	P1-A5	cc196-4	1633full.m	QC	OP94819,S6Q196,500,,,5.0,1,water	✓
74	6Q12788.d	P1-A2	cc196-1.0LL	1633full.m	QC	OP94819,S6Q196,500,,,5.0,1,water	✓
75	6Q12789.d	P2-D8	op94945-bs	1633full.m	Sample	OP94945,S6Q196,500,,,5.0,1,water	✓
76	6Q12790.d	P2-D9	op94945-llbs:3	1633full.m	Sample	OP94945,S6Q196,500,,,5.0,1,water	✓
77	6Q12791.d	P2-E1	op94945-mb	1633full.m	Sample	OP94945,S6Q196,500,,,5.0,1,water	✓
78	6Q12792.d	P2-E2	FC1656-1	1633full.m	Sample	OP94945,S6Q196,555,,,5.0,1,water	✓

LCMS6-6Q ANALYSIS LOG

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79	6Q12793.d	P2-E3	FC1656-2	1633full.m	Sample	OP94945,S6Q196,545,,5.0,1,water	✓
80	6Q12794.d	P2-E4	FC1656-3	1633full.m	Sample	OP94945,S6Q196,565,,5.0,1,water	✓
81	6Q12795.d	P2-E5	FC1656-4	1633full.m	Sample	OP94945,S6Q196,565,,5.0,1,water	✓
82	6Q12796.d	P2-E6	FC1656-5	1633full.m	Sample	OP94945,S6Q196,565,,5.0,1,water	✓
83	6Q12797.d	P2-E7	FC1656-6	1633full.m	Sample	OP94945,S6Q196,565,,5.0,1,water	✓
84	6Q12798.d	P1-A5	cc196-4	1633full.m	QC	OP95176,S6Q196,500,,5.0,1,water	✓
85	6Q12799.d	P1-A1	iccb	1633full.m	Sample	OP95176,S6Q196,500,,5.0,1,water	✓
86	6Q12800.d	P2-E8	FC1656-7	1633full.m	Sample	OP94945,S6Q196,565,,5.0,1,water	✓
87	6Q12801.d	P2-E9	FC1656-8	1633full.m	Sample	OP94945,S6Q196,540,,5.0,1,water	✓
88	6Q12802.d	P2-F1	FC1656-9	1633full.m	Sample	OP94945,S6Q196,565,,5.0,1,water	✓
89	6Q12803.d	P2-F2	FC1656-10	1633full.m	Sample	OP94945,S6Q196,565,,5.0,1,water	✓
90	6Q12804.d	P2-F3	FC1656-11	1633full.m	Sample	OP94945,S6Q196,565,,5.0,1,water	✓
91	6Q12805.d	P2-F4	op94945-ms	1633full.m	Sample	OP94945,S6Q196,560,,5.0,1,water	✓
92	6Q12806.d	P2-F5	op94945-msd	1633full.m	Sample	OP94945,S6Q196,560,,5.0,1,water	✓
93	6Q12807.d	P2-F6	FC1656-12	1633full.m	Sample	OP94945,S6Q196,565,,5.0,1,water	✓
94	6Q12808.d	P2-F7	FC1656-13	1633full.m	Sample	OP94945,S6Q196,555,,5.0,1,water	✓
95	6Q12809.d	P1-A5	Ecc196-4	1633full.m	QC	OP95176,S6Q196,500,,5.0,1,water	✓
96	6Q12810.d	P1-A1	iccb	1633full.m	Sample	OP95176,S6Q196,500,,5.0,1,water	✓

SGS ORLANDO

DATE:	02/07/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 uI
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_020123_S6Q196
CAL DATE:	02/01/23
ANALYST:	M. Valls
RUN BATCH:	S6Q202

ELUENT A LOT #:	ACN 220213
ELUENT B LOT #:	22457 W5% CAN 220213 2ml
IC/CC STD LOT #:	AMAC. 11387
ICV STD LOT #:	LCMS 2055-C
ISTD/ID STD LOT #:	LCMS 2041A/2042
	11384/11383

ICV 2: Full list LCMS2042

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	6Q13182.d	P1-A1	CCB	1633full.m	Sample		OP95070.S6Q202.500,,,5.0,1,water	✓
2	6Q13183.d	P1-A1	CCB	1633full.m	Sample		OP95070.S6Q202.500,,,5.0,1,water	✓
3	6Q13184.d	P1-B3	RT TDCA	1633full.m	Sample		OP95070.S6Q202.500,,,5.0,1,water	✓
4	6Q13185.d	P1-B4	RT BR-LN	1633full.m	Sample		OP95070.S6Q202.500,,,5.0,1,water	✓
5	6Q13186.d	P1-A9	HIGH STD	1633full.m	Sample		OP95070.S6Q202.500,,,5.0,1,water	✓
6	6Q13187.d	P1-A1	IBLK	1633full.m	Sample		OP95070.S6Q202.500,,,5.0,1,water	✓
7	6Q13188.d	P1-A5	cc196-4	1633full.m	QC	20/500	OP95070.S6Q202.500,,,5.0,1,water	✓
8	6Q13189.d	P1-A2	cc196-1.0LL	1633full.m	QC	1.6/500	OP95070.S6Q202.500,,,5.0,1,water	✓
9	6Q13190.d	P3-C1	FC1605-5	1633full.m	Sample		OP94912.S6Q202.565,,,5.0,1,water	cf
10	6Q13191.d	P3-C2	FC1605-6	1633full.m	Sample		OP94912.S6Q202.565,,,5.0,1,water	cf
11	6Q13192.d	P3-C3	FC1605-7	1633full.m	Sample		OP94912.S6Q202.565,,,5.0,1,water	cf
12	6Q13193.d	P3-C4	op95294-bs	1633full.m	Sample		OP95294.S6Q202.500,,,5.0,1,water	✓
13	6Q13194.d	P3-C5	op95294-llbs:3	1633full.m	Sample		OP95294.S6Q202.500,,,5.0,1,water	✓
14	6Q13195.d	P3-C6	op95294-mb	1633full.m	Sample		OP95294.S6Q202.500,,,5.0,1,water	✓
15	6Q13196.d	P3-C7	FC2108-1	1633full.m	Sample		OP95294.S6Q202.60,,,5.0,1,water	✓
16	6Q13197.d	P3-C8	FC2294-1	1633full.m	Sample		OP95294.S6Q202.570,,,5.0,1,water	✓
17	6Q13198.d	P3-C9	FC2294-2	1633full.m	Sample		OP95294.S6Q202.570,,,5.0,1,water	✓
18	6Q13199.d	P3-D1	op95294-ms	1633full.m	Sample		OP95294.S6Q202.560,,,5.0,1,water	✓
19	6Q13200.d	P1-A5	cc196-4	1633full.m	QC	20/500	OP95070.S6Q202.500,,,5.0,1,water	✓
20	6Q13201.d	P1-A1	iCCB	1633full.m	Sample		OP95070.S6Q202.500,,,5.0,1,water	✓
21	6Q13202.d	P3-D2	FC2294-3	1633full.m	Sample		OP95294.S6Q202.540,,,5.0,1,water	rt sample
22	6Q13203.d	P3-D3	op95294-dup	1633full.m	Sample		OP95294.S6Q202.530,,,5.0,1,water	↓
23	6Q13204.d	P3-D4	FC2294-4	1633full.m	Sample		OP95294.S6Q202.560,,,5.0,1,water	↓
24	6Q13205.d	P3-D5	FC2313-1	1633full.m	Sample		OP95294.S6Q202.570,,,5.0,1,water	↓
25	6Q13206.d	P3-D6	FC2332-1	1633full.m	Sample		OP95294.S6Q202.540,,,5.0,1,water	NO after ccv. RR samples above.
26	6Q13207.d	P1-A1	CCB	1633full.m	Sample		OP95070.S6Q202.500,,,5.0,1,water	✓
27	6Q13208.d	P1-A1	CCB	1633full.m	Sample		OP95070.S6Q202.500,,,5.0,1,water	✓
28	6Q13209.d	P1-B3	RT TDCA	1633full.m	Sample		OP95070.S6Q202.500,,,5.0,1,water	✓
29	6Q13210.d	P1-B4	RT BR-LN	1633full.m	Sample		OP95070.S6Q202.500,,,5.0,1,water	✓
30	6Q13211.d	P1-A9	HIGH STD	1633full.m	Sample		OP95070.S6Q202.500,,,5.0,1,water	✓
31	6Q13212.d	P1-A1	IBLK	1633full.m	Sample		OP95070.S6Q202.500,,,5.0,1,water	✓
32	6Q13213.d	P1-A5	cc196-4	1633full.m	QC	20/500	OP95070.S6Q202.500,,,5.0,1,water	✓
33	6Q13214.d	P1-A2	cc196-1.0LL	1633full.m	QC	1.6/500	OP95070.S6Q202.500,,,5.0,1,water	✓
34	6Q13215.d	P3-C4	op95294-bs	1633full.m	Sample		OP95294.S6Q202.500,,,5.0,1,water	✓
35	6Q13216.d	P3-C5	op95294-llbs:3	1633full.m	Sample		OP95294.S6Q202.500,,,5.0,1,water	✓

LCMS6-6Q ANALYSIS LOG

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36	6Q13217.d	P3-C6	op95294-mb	1633full.m	Sample		OP95294.S6Q202.500,,,5.0,1,water	✓
37	6Q13218.d	P3-D2	FC2294-3	1633full.m	Sample		OP95294.S6Q202.540,,,5.0,1,water	✓
38	6Q13219.d	P3-D3	op95294-dup	1633full.m	Sample		OP95294.S6Q202.530,,,5.0,1,water	✓
39	6Q13220.d	P3-D4	FC2294-4	1633full.m	Sample		OP95294.S6Q202.560,,,5.0,1,water	✓
40	6Q13221.d	P3-D5	FC2313-1	1633full.m	Sample		OP95294.S6Q202.570,,,5.0,1,water	✓
41	6Q13222.d	P3-D6	FC2332-1	1633full.m	Sample		OP95294.S6Q202.540,,,5.0,1,water	✓
42	6Q13223.d	P3-D7	FC2332-2	1633full.m	Sample		OP95294.S6Q202.560,,,5.0,1,water	✓
43	6Q13224.d	P3-D8	FC2332-3	1633full.m	Sample		OP95294.S6Q202.550,,,5.0,1,water	✓
44	6Q13225.d	P1-A5	cc196-4	1633full.m	QC	20/500	OP95070.S6Q202.500,,,5.0,1,water	✓
45	6Q13226.d	P1-A1	iCCB	1633full.m	Sample		OP95070.S6Q202.500,,,5.0,1,water	✓
46	6Q13227.d	P4-B8	FC1805-14	1633full.m	Sample		OP95070.S6Q202.580,,,5.0,1,water	✓
47	6Q13228.d	P4-B9	FC1805-15	1633full.m	Sample		OP95070.S6Q202.580,,,5.0,1,water	✓
48	6Q13229.d	P4-C1	FC1805-16	1633full.m	Sample		OP95070.S6Q202.550,,,5.0,1,water	✓
49	6Q13230.d	P4-C2	FC1805-17	1633full.m	Sample		OP95070.S6Q202.550,,,5.0,1,water	✓
50	6Q13231.d	P4-C3	FC1805-18	1633full.m	Sample		OP95070.S6Q202.550,,,5.0,1,water	✓
51	6Q13232.d	P1-C1	FC1751-9	1633full.m	Sample		OP94998.S6Q202.565,,,5.0,1,water	✓
52	6Q13233.d	P1-A5	cc196-4	1633full.m	QC	4	OP95070.S6Q202.500,,,5.0,1,water	✓
53	6Q13234.d	P1-A1	iCCB	1633full.m	Sample		OP95070.S6Q202.500,,,5.0,1,water	✓
54	6Q13235.d	P4-C4	op95255-bs	1633full.m	Sample		OP95255.S6Q202.500,,,5.0,1,water	✓
55	6Q13236.d	P4-C5	op95255-llbs:3	1633full.m	Sample		OP95255.S6Q202.500,,,5.0,1,water	✓
56	6Q13237.d	P4-C6	op95255-mb	1633full.m	Sample		OP95255.S6Q202.500,,,5.0,1,water	✓
57	6Q13238.d	P4-C7	FC1641-5	1633full.m	Sample		OP95255.S6Q202.560,,,5.0,1,water	✓
58	6Q13239.d	P4-C8	FC1823-4	1633full.m	Sample		OP95255.S6Q202.64,,,5.0,1,water	✓
59	6Q13240.d	P4-C9	FC1869-1	1633full.m	Sample		OP95255.S6Q202.540,,,5.0,1,water	✓
60	6Q13241.d	P1-A5	cc196-4	1633full.m	QC	4	OP95070.S6Q202.500,,,5.0,1,water	✓
61	6Q13242.d	P1-A2	cc196-1.0LL	1633full.m	QC	1	OP95070.S6Q202.500,,,5.0,1,water	✓
62	6Q13243.d	P1-A1	iCCB	1633full.m	Sample		OP95070.S6Q202.500,,,5.0,1,water	✓
63	6Q13244.d	P3-D9	op95097-bs	1633full.m	Sample		OP95097.S6Q202.500,,,5.0,1,water	✓
64	6Q13245.d	P3-E1	op95097-llbs:3	1633full.m	Sample		OP95097.S6Q202.500,,,5.0,1,water	✓
65	6Q13246.d	P3-E2	op95097-mb	1633full.m	Sample		OP95097.S6Q202.500,,,5.0,1,water	✓
66	6Q13247.d	P3-E3	FC1822-1	1633full.m	Sample		OP95097.S6Q202.570,,,5.0,1,water	✓
67	6Q13248.d	P3-E4	FC1822-2	1633full.m	Sample		OP95097.S6Q202.570,,,5.0,1,water	✓
68	6Q13249.d	P3-E5	FC1822-3	1633full.m	Sample		OP95097.S6Q202.570,,,5.0,1,water	✓
69	6Q13250.d	P3-E6	FC1822-4	1633full.m	Sample		OP95097.S6Q202.570,,,5.0,1,water	✓
70	6Q13251.d	P3-E7	FC1822-5	1633full.m	Sample		OP95097.S6Q202.560,,,5.0,1,water	✓
71	6Q13252.d	P3-F2	FC1822-7	1633full.m	Sample		OP95097.S6Q202.570,,,5.0,1,water	✓
72	6Q13253.d	P3-F3	FC1822-8	1633full.m	Sample		OP95097.S6Q202.570,,,5.0,1,water	✓
73	6Q13254.d	P1-A5	cc196-4	1633full.m	QC	4	OP95070.S6Q202.500,,,5.0,1,water	✓
74	6Q13255.d	P1-A1	iCCB	1633full.m	Sample		OP95070.S6Q202.500,,,5.0,1,water	✓
75	6Q13256.d	P3-E8	FC1822-6	1633full.m	Sample		OP95097.S6Q202.560,,,5.0,1,water	✓
76	6Q13257.d	P3-E9	op95097-ms	1633full.m	Sample		OP95097.S6Q202.570,,,5.0,1,water	✓
77	6Q13258.d	P3-F1	op95097-msd	1633full.m	Sample		OP95097.S6Q202.560,,,5.0,1,water	✓
78	6Q13259.d	P3-F4	FC1822-9	1633full.m	Sample		OP95097.S6Q202.570,,,5.0,1,water	✓

LCMS6-6Q ANALYSIS LOG

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79	6Q13260.d	P3-F5	FC1822-10	1633full.m	Sample	OP95097.S6Q202.560,,,5.0,1,water
80	6Q13261.d	P3-F6	FC1822-11	1633full.m	Sample	OP95097.S6Q202.550,,,5.0,1,water
81	6Q13262.d	P3-F7	FC1822-12	1633full.m	Sample	OP95097.S6Q202.550,,,5.0,1,water
82	6Q13263.d	P3-F8	FC1822-13	1633full.m	Sample	OP95097.S6Q202.550,,,5.0,1,water
83	6Q13264.d	P3-F9	FC1822-14	1633full.m	Sample	OP95097.S6Q202.550,,,5.0,1,water
84	6Q13265.d	P3-B4	FC1822-15	1633full.m	Sample	OP95097.S6Q202.570,,,5.0,1,water
85	6Q13266.d	P1-A5	cc196-4	1633full.m	QC	OP95070.S6Q202.500,,,5.0,1,water
86	6Q13267.d	P1-A1	iCCB	1633full.m	Sample	OP95070.S6Q202.500,,,5.0,1,water
87	6Q13268.d	P1-A2	cc196-1.0LL	1633full.m	QC	OP95070.S6Q202.500,,,5.0,1,water
88	6Q13269.d	P3-B5	FC1822-16	1633full.m	Sample	OP95097.S6Q202.570,,,5.0,1,water
89	6Q13270.d	P3-B6	FC1822-17	1633full.m	Sample	OP95097.S6Q202.560,,,5.0,1,water
90	6Q13271.d	P3-B7	FC1822-18	1633full.m	Sample	OP95097.S6Q202.570,,,5.0,1,water
91	6Q13272.d	P4-A1	op95123-bs	1633full.m	Sample	OP95123.S6Q202.500,,,5.0,1,water
92	6Q13273.d	P4-A2	op95123-llbs:3	1633full.m	Sample	OP95123.S6Q202.500,,,5.0,1,water
93	6Q13274.d	P4-A3	op95123-mb	1633full.m	Sample	OP95123.S6Q202.500,,,5.0,1,water
94	6Q13275.d	P4-A4	FC1842-1	1633full.m	Sample	OP95123.S6Q202.565,,,5.0,1,water
95	6Q13276.d	P4-A5	FC1842-2	1633full.m	Sample	OP95123.S6Q202.565,,,5.0,1,water
96	6Q13277.d	P4-A6	FC1842-3	1633full.m	Sample	OP95123.S6Q202.565,,,5.0,1,water
97	6Q13278.d	P4-A7	op95123-ms	1633full.m	Sample	OP95123.S6Q202.565,,,5.0,1,water
98	6Q13279.d	P1-A5	cc196-4	1633full.m	QC	OP95070.S6Q202.500,,,5.0,1,water
99	6Q13280.d	P1-A1	iCCB	1633full.m	Sample	OP95070.S6Q202.500,,,5.0,1,water
100	6Q13281.d	P4-A8	FC1842-4	1633full.m	Sample	OP95123.S6Q202.500,,,5.0,1,water
101	6Q13282.d	P4-A9	op95123-dup	1633full.m	Sample	OP95123.S6Q202.500,,,5.0,1,water
102	6Q13283.d	P4-B1	FC1842-5	1633full.m	Sample	OP95123.S6Q202.565,,,5.0,1,water
103	6Q13284.d	P4-B2	FC1842-6	1633full.m	Sample	OP95123.S6Q202.565,,,5.0,1,water
104	6Q13285.d	P4-B3	FC1842-7	1633full.m	Sample	OP95123.S6Q202.565,,,5.0,1,water
105	6Q13286.d	P4-B4	FC1842-8	1633full.m	Sample	OP95123.S6Q202.565,,,5.0,1,water
106	6Q13287.d	P4-B5	FC1842-9	1633full.m	Sample	OP95123.S6Q202.565,,,5.0,1,water
107	6Q13288.d	P4-B6	FC1761-1	1633full.m	Sample	OP95123.S6Q202.500,,,5.0,1,water
108	6Q13289.d	P4-B7	FC1761-2	1633full.m	Sample	OP95123.S6Q202.500,,,5.0,1,water
109	6Q13290.d	P1-A5	Ecc196-4	1633full.m	QC	OP95070.S6Q202.500,,,5.0,1,water
110	6Q13291.d	P1-A1	iCCB	1633full.m	Sample	OP95070.S6Q202.500,,,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	Percent Conc.	Vol. Used	Final Vol	Final Conc.	Parent Int.	Prep Date	Exp. Date	Int.
LCMS 2052	1633 prep mix	Lot: 221999	MnCl ₂	Fisher	---	1/14/23	99.9%	92 mL	100 mL	99.9%	N/A	1/14/23	1/14/23	N/A
↓	↓	Lot: 219481	NH ₄ OH	---	---	9/19/23	100%	5 mL	---	1%	---	---	---	---
↓	↓	Lot: 224863	H ₂ O	---	---	1/7/24	100%	17 mL	---	1%	---	---	---	---
↓	↓	Lot: 224297	Acetic ACID	---	---	6/24	99.7%	10.25 mL	---	1%	---	---	---	---
LCMS 2053	(301KE) Full list std	115688	PF09 Dn 2 nd Add on #2	SGS w/analytical	11/9/23	1/10/24	100%	100 mL	100 mL	100%	100%	1/10/24	1/10/24	100%
↓	↓	LCMS 1987	40 list	---	---	3/2/23	100%	100 mL	100 mL	100%	---	---	---	---
↓	↓	LCMS 1986	40 list Add on #2	---	---	4/8/23	100%	100 mL	100 mL	100%	---	---	---	---
↓	↓	LCMS 2054	50 list Add on #2	---	---	5/24/23	100%	100 mL	100 mL	100%	---	---	---	---
LCMS 2054	F05e std	11336	N-E- F05E	w/analytical	5/2/23	9/19/23	50%	200 mL	200 mL	50%	100%	5/2/23	5/2/23	100%
↓	↓	11338	N-Me F05E	---	5/16/23	5/19/23	50%	200 mL	200 mL	50%	100%	5/16/23	5/16/23	100%
LCMS 2055	1633 Std. 0.1	10855	PFAC MxH	w/analytical	9/14/23	1/14/24	1%	250 mL	100 mL	0.25%	100%	9/14/23	9/14/23	100%
↓	↓	10853	PFAC	---	9/14/23	1/11/24	1%	250 mL	100 mL	0.25%	100%	9/14/23	9/14/23	100%
↓	↓	10853T	MxT	---	9/14/23	1/24/24	1%	250 mL	100 mL	0.25%	100%	9/14/23	9/14/23	100%
↓	↓	11579B	PFAC	---	11/1/23	1/11/24	2 ppm	500 mL	---	2 ppm	---	11/1/23	11/1/23	---
↓	↓	11618A	Mx F	---	11/1/23	1/24/24	2 ppm	500 mL	---	2 ppm	---	11/1/23	11/1/23	---
↓	↓	10854I	PFAC	---	11/1/23	1/24/24	2 ppm	500 mL	---	2 ppm	---	11/1/23	11/1/23	---
↓	↓	10854J	Mx G	---	11/1/23	1/24/24	4.25 ppm	250 mL	---	4.25 ppm	---	11/1/23	11/1/23	---
↓	↓	11492	PFAC	---	9/14/23	1/11/24	4.25 ppm	250 mL	---	4.25 ppm	---	9/14/23	9/14/23	---
↓	↓	11603	Mx J	---	9/14/23	1/24/24	3.12 ppm	250 mL	---	3.12 ppm	---	9/14/23	9/14/23	---

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



Organic Standards Preparation Log

SGS - Orlando Sid #	Name Description	Parent Sid #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluter Lot	Prep Date	*Exp. Date	Initials
LCMS 2041	Spike 1633 Cal std.	108534	PFRC-MXH	Waters	9/11/2012	12/20/13	1-4 ppm	250µL	4mL	62.5 / 250 ppm	1053	1/14/23	7/6/23	ML
		108534	PFRC-MXI		9/14/2012	12/28/13	1-10 ppm	250µL		62.5 / 250 ppm				
		11512B	PFAG-MXF		01/11/25	12/28/23	2 ppm	500µL		250 ppm				
		108544	PFHC-MXG		3/11/25	12/30/23	2 ppm	250µL		250 ppm				
		108545	PFRC-MXJ		7/11/2014	10/12/23	4-20 ppm	312 µL		514 ppm				
LCMS 2042	(Spike) Full list std.	11524	PFRC-MXJ		11/11/2012	11/11/23	1 ppm	400µL	4mL	100 ppm	1053	1/14/23	7/6/23	ML
		LCMS 1457	4011ST	9999										
		LCMS 1980	4011ST											
		LCMS 2012	4011ST											
LCMS 2043	1st 40 (Spike) ADD-IN 300ppm	11533	PFRC-MXJ		11/11/2012	11/11/23	500 ppm	400µL	4mL	100 ppm	1053	1/14/23	7/6/23	ML
		11460	D9-N EtFosE		01/21/21	12/1/23								
		11115	M2-PFR/D6		11/21/28	8/23/29								
		10836	D-N EtFosE		12/20/25	8/23/23								
LCMS 2044	1633 solvent B	11387	PFRC-MXJ		9/11/2012	9/11/23	9750 ppm	200µL	2mL	9750 ppm	1053	1/14/23	7/6/23	ML
		224856	Water											
		220228	Rechni-ml			9/16/24		100 µL						

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

ORLD QAC-0017-6-03 FORM/Name sid prep log xls 030319

Organic Standards Preparation Log

SGS - Orlando Std #	Name Description	Parent Std #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 1987	40 List-Std ADD-010 #1	10726A	10:3 PFS	Wallington Labs	03/01/20	03/01/23	50ppm	80uL	4.0mL	1ppm	05/14/20	10/18/22	03/21/23	NS
		10840	PFS DOS		07/01/20	10/18/23								
		10829	N-HexSA		08/03/20	08/23/23								
		10837	N-HexSA		08/03/20	08/23/23								
		10842	P-FHDA		09/22/20	10/18/23								
		10841	P-FODA		05/01/20	10/18/23								
		10844	3:3FPCA P-FPPA		11/18/20	03/21/23								
		10654	5:3FPCA P-FPPA		11/18/20	08/23/23								
		10653A	7:3FPCA F-HPPA		11/18/20	03/21/23								
		11117	P-FECHS		10/14/20	06/23/23								
		10702B	P-FECSA		05/13/20	10/18/23								
		10703B	P-FNSA		03/21/20	10/18/23								
		10704A	P-FNSA P-FUOPEA		03/21/20	03/21/23								
		10705B	P-FHDA 3:6-P-FHDA		03/21/20	10/18/23								

* 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 1985A & B	List 40 ASD-ON ASD-ON	11333	D7-N-NEOSE	Wellington Labs	01/27/27	10/12/23	50ppm	200 uL	20mL	1/5 ppm	95/MKOH S/H2O	10/18/22	04/18/23	NS
		11339	DA-N-ETROSE		01/27/27	10/12/23		200uL						NS
		11115	MA-PENTON		11/23/28	06/12/23		40uL						NS
		10636	D-N-ETROSA		12/20/25	08/12/23		40uL						NS
LCMS 19816	40 List Std. ADD-ON #2	11224	PSA-1	Wellington Labs	11/10/26	06/12/23	50ppm	80uL	4.0mL	1ppm	95/meth S/H2O	10/18/22	04/18/23	NS
		11225	FHSA-1		12/20/26	06/12/23	50ppm	80uL						NS
		11140	L-PPTS		01/20/26	05/26/23	50ppm	80uL						NS
NS 5/18/22														

* 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 A 2009 &	PFC SPIKE	11483	PROADD (SUNCOMB)	Wellington Labs	08/25/27	11/08/23	1.0ppm	2ml	5ml	400ppb	Q51100H S1:H2O	11/08/22	05/11/23	NS
		10839	N-HE-ROSA-M		08/23/26	09/23/23	50ppm	40ul						NS
		11224	ROSA-1		11/10/26	06/23/23								NS
		11249	FTXSA-1		12/29/26	11/03/23								NS
		11332	PTECHS		03/28/27	10/18/23								NS
LCMS A-B 2010	(SPIKE) 1023 CAL. STD.	10855F	PFAC-MX4	Wellington Labs	09/14/26	11/04/23	1-H ppm	250ul	4ml	425/125/1250 ppb	1033	11/09/22	05/10/23	NS
		10853E	PFAC-MXE		09/14/26	11/04/23	1-H ppm	250ul		125/125 ppb				NS
		10856I	PFAC-MXE		05/10/23	05/10/23	2 ppm	500ul		250ppb				NS
		10854E	PFAC-MXS		03/10/23	11/04/23	2 ppm	250ul		125ppb				NS
		10857D	PFAC-MXS		10/12/23	11/08/23	4-20 ppm	32ul		212/1160 ppb				NS
LCMS 2011	(SPIKE) Full List Std.	11440	PROA-DONLIS		08/10/27	10/24/23	1.0ppm	400ul	4.0ml	100ppb	Q51100H S1:H2O	11/11/22	04/24/23	NS
		1087	NO LIST					400ul		100ppb				NS
		1087	ADDON #1			03/21/23	1.0ppm	400ul		100ppb				NS
		1086	NO LIST					400ul		100ppb				NS
		1086	ADDON #2			04/18/23	1.0ppm	400ul		100ppb				NS
		1086	PFAC-ROSA			05/11/23	50ppm	400ul		500ppb				NS
LCMS 2012	FOSE STD.	11336	N-HE-FOSE	Wellington Labs	05/13/27	09/19/23	50ppm	200ul	2.0ml	5ppm	Q51100H S1:H2O	11/11/22	05/11/23	NS
		11336	N-HE-FOSE		05/13/27	09/19/23	50ppm	200ul		5ppm				NS

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

10853



WELLINGTON
LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PFAC-MXI

**Native Perfluorooctanesulfonamide
and Perfluorooctanesulfonamidoethanol
Solution/Mixture**

PRODUCT CODE: PFAC-MXI
LOT NUMBER: PFACMXI0921
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-MXI is a solution/mixture of two native perfluorooctanesulfonamides (FOSAs) and two native perfluorooctanesulfonamidoethanols (FOSEs). The components and their concentrations are given in Table A.

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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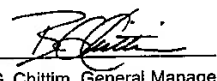
Form#: 13, Issued 2004-11-10
Revision#: 3, Revised 2020-12-23

PFACMXI0921 (1 of 5)
rev0

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Table A: PFAC-MXI; Components and Concentrations (µg/mL; ± 5% in methanol)

Compound	Acronym	Concentration (µg/mL)	Peak Assignment in Figure 1
N-methylperfluoro-1-octanesulfonamide	N-MeFOSA	1.00	B
N-ethylperfluoro-1-octanesulfonamide	N-EtFOSA	1.00	D
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	N-MeFOSE	10.0	A
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	N-EtFOSE	10.0	C

Certified By: 
 B.G. Chittim, General Manager

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

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

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 rev0

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10854



**WELLINGTON
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**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>	PFACMXG1219
<u>SOLVENT(S):</u>	Methanol/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	12/03/2019
<u>LAST TESTED:</u> (mm/dd/yyyy)	05/04/2020
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	05/04/2025
<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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Revision#:9, Revised 2020-12-23

PFACMXG1219 (1 of 5)
rev2

7.9.1

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INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters

x_1, x_2, \dots, x_n on which it depends is:

$$u_c(y(x_1, x_2, \dots, x_n)) = \sqrt{\sum_{i=1}^n u(x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of $\pm 5\%$ (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).




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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-dioxahexanoic 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: 07/30/2021
(mm/dd/yyyy)

10899



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

Native Per- and Poly-fluoroalkyl Substance
Solution/Mixture

PRODUCT CODE: PFAC-MXH
LOT NUMBER: PFACMXH0921
SOLVENT(S): Methanol / Isopropanol (2%) / Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 09/09/2021
LAST TESTED: (mm/dd/yyyy) 09/14/2021
EXPIRY DATE: (mm/dd/yyyy) 09/14/2026
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

PFAC-MXH is a solution/mixture of eleven native linear perfluoroalkylcarboxylic acids (C₄-C₁₄), eight native perfluoroalkanesulfonates (C₄, C₅, C₇, C₉, C₁₀ and C₁₂ linear; C₈ 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 br-NMeFOSAA
- Table C: Isomeric Components and Percent Composition of br-NEtFOSAA
- 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

PFACMXH0921 (1 of 11)
rev0

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INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters

x_1, x_2, \dots, x_n on which it depends is:

$$u_c(y(x_1, x_2, \dots, x_n)) = \sqrt{\sum_{i=1}^n u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of $\pm 5\%$ (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).



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Table A: PFAC-MXH; Components and Concentrations
($\mu\text{g/mL}$, $\pm 5\%$ in methanol / isopropanol (2%) / water (<1%))

Compound	Acronym	Concentration* ($\mu\text{g/mL}$)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-butanoic acid	PFBA	4.00		1
Perfluoro-n-pentanoic acid	PFPeA	2.00		2
Perfluoro-n-hexanoic acid	PFHxA	1.00		5
Perfluoro-n-heptanoic acid	PFHpA	1.00		7
Perfluoro-n-octanoic acid	PFOA	1.00		11
Perfluoro-n-nonanoic acid	PFNA	1.00		14
Perfluoro-n-decanoic acid	PFDA	1.00		18
Perfluoro-n-undecanoic acid	PFUdA	1.00		23
Perfluoro-n-dodecanoic acid	PFDoA	1.00		26
Perfluoro-n-tridecanoic acid	PFTrDA	1.00		27
Perfluoro-n-tetradecanoic acid	PFTeDA	1.00		29
Perfluoro-1-octanesulfonamide	FOSA	1.00		25
N-methylperfluorooctanesulfonamidoacetic acid ^a	N-MeFOSAA: linear isomer	0.760		20
	N-MeFOSAA: Σ branched isomers	0.240		17
N-ethylperfluorooctanesulfonamidoacetic acid ^b	N-EtFOSAA: linear isomer	0.775		22
	N-EtFOSAA: Σ branched isomers	0.225		21
Compound	Acronym	Concentration* ($\mu\text{g/mL}$)		Peak Assignment in Figure 1
Potassium perfluoro-1-butanesulfonate	L-PFBS	1.00	0.887	
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	1.00	0.941	6
Potassium perfluorohexanesulfonate ^c	PFHxSK: linear isomer	0.811	0.741	9
	PFHxSK: Σ branched isomers	0.189	0.173	8
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	1.00	0.953	12
Potassium perfluorooctanesulfonate ^d	PFOSK: linear isomer	0.788	0.732	15
	PFOSK: Σ branched isomers	0.211	0.196	13
Sodium perfluoro-1-nonanesulfonate	L-PFNS	1.00	0.962	19
Sodium perfluoro-1-decanesulfonate	L-PFDS	1.00	0.965	24
Sodium perfluoro-1-dodecanesulfonate	L-PFDoS	1.00	0.970	28
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	4.00	3.75	4
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	4.00	3.80	10
Sodium 1H,1H,2H,2H-perfluorodecanesulfonate	8:2FTS	4.00	3.84	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: 09/23/2021
(mm/dd/yyyy)

rec'd 10/31/22 11492



**WELLINGTON
LABORATORIES**

**CERTIFICATE OF ANALYSIS
DOCUMENTATION**

PFAC-MXJ

**Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture**

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

DESCRIPTION:

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

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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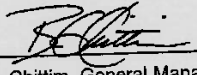
PFACMXJ0921 (1 of 5)
rev1

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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)

11579 A-B
rec'd 12/27/22



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#: 9, Revised 2020-12-23

PFACMXF0122 (1 of 5)
rev0

7.9.1

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

Compound	Acronym	Concentration* (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the acid	
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid	HFPO-DA	2000		A
Sodium dodecafluoro-3H-4,8-dioxanonanoate	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)

11603
rec'd: 01/10/23



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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7.9.1
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Table A: PFAC-MXJ; Components and Concentrations ($\mu\text{g/mL}$; $\pm 5\%$ in methanol)

Compound	Acronym	Concentration ($\mu\text{g/mL}$)
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)

11617 A-B rec'd 01/19/23



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CERTIFICATE OF ANALYSIS
DOCUMENTATION

PFAC-MXF

**Native Replacement PFAS
Solution/Mixture**

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

DESCRIPTION:

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

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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

PFACMXF0122 (1 of 5)
revD

7.9.1

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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-dioxanonanoate	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)

10857



**WELLINGTON
LABORATORIES**

**CERTIFICATE OF ANALYSIS
DOCUMENTATION**

PFAC-MXJ

**Native Fluorotelomer Propanoic 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 fluorotelomer propanoic 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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Revision#:9, Revised 2020-12-23

PFACMXJ0921 (1 of 5)
rev0

7.9.1

7

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) is designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters

x_1, x_2, \dots, x_n on which it depends is:

$$u_c(y(x_1, x_2, \dots, x_n)) = \sqrt{\sum_{i=1}^n u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of $\pm 5\%$ (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).



For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: PFAC-MXJ; Components and Concentrations (µg/mL; ± 5% in methanol)

Compound	Acronym	Concentration (µg/mL)	Peak Assignment in Figure 1
3-Perfluoropropyl propanoic acid	FPrPA	4.00	A
3-Perfluoropentyl propanoic acid	FPePA	20.0	B
3-Perfluoroheptyl propanoic acid	FHpPA	20.0	C

Certified By: 
 B.G. Chittim, General Manager

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

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

PFACMXJ0921 (3 of 5)
 rev0

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rec'd 11/11/22



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF

Native Replacement PFAS Solution/Mixture

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

DESCRIPTION:

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

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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PFACMXF0122 (1 of 5)
rev0

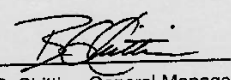
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Table A: PFAC-MXF; Components and Concentrations (ng/mL; ± 5% in Methanol/Water (<1%))

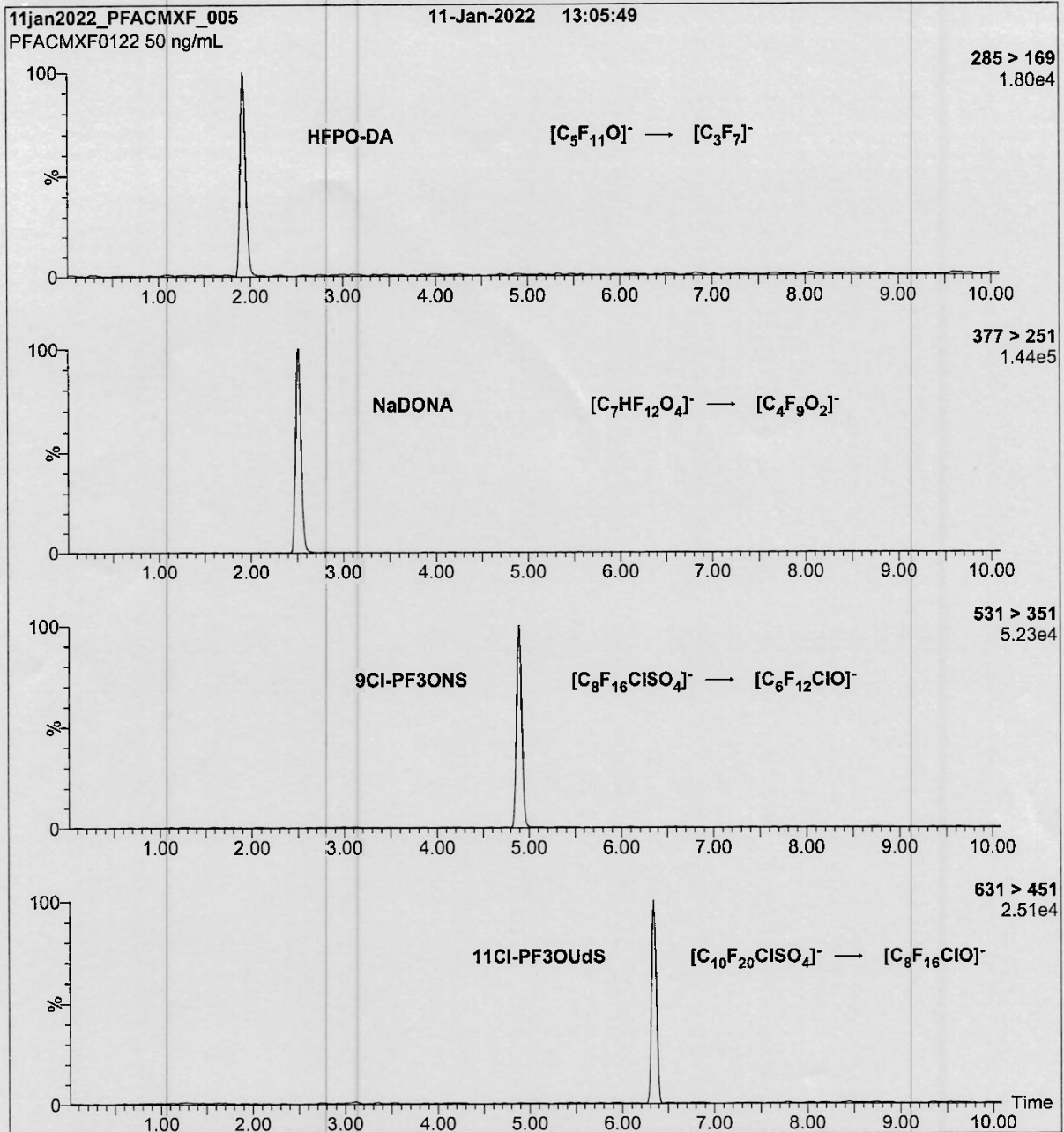
Compound	Acronym	Concentration* (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the acid	
2,3,3,3-Tetrafluoro-2-(1,1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid	HFPO-DA	2000		A
Sodium dodecafluoro-3H-4,8-dioxanonanoate	NaDONA	2000	1890	B
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate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

Figure 2: PFAC-MXF; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: On-column (PFAC-MXF)
Mobile phase: Same as Figure 1
Flow: 300 μ L/min

MS Parameters:

Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 6-60 (variable)

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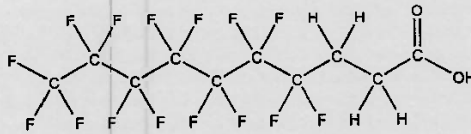
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: FHpPA
COMPOUND: 3-Perfluoroheptyl propanoic acid

LOT NUMBER: FHpPA1020

STRUCTURE:

CAS #: 812-70-4



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

MOLECULAR WEIGHT: 442.12
SOLVENT(S): Methanol

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By: 
B.G. Chittim, General Manager

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

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FHpPA1020 (1 of 4)
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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FPrPA

LOT NUMBER:

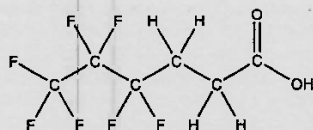
FPrPA1020

COMPOUND:

3-Perfluoropropyl propanoic acid

STRUCTURE:**CAS #:**

356-02-5

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

242.09

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

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/12/2020

EXPIRY DATE: (mm/dd/yyyy)

11/12/2025

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

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Certified By:

B.G. Chittim, General Manager

Date: 11/27/2020

(mm/dd/yyyy)

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FPePA

LOT NUMBER:

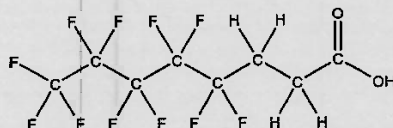
FPePA1120

COMPOUND:

3-Perfluoropentyl propanoic acid

STRUCTURE:**CAS #:**

914637-49-3

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

342.11

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

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/11/2020

EXPIRY DATE: (mm/dd/yyyy)

11/11/2025

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

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Certified By:

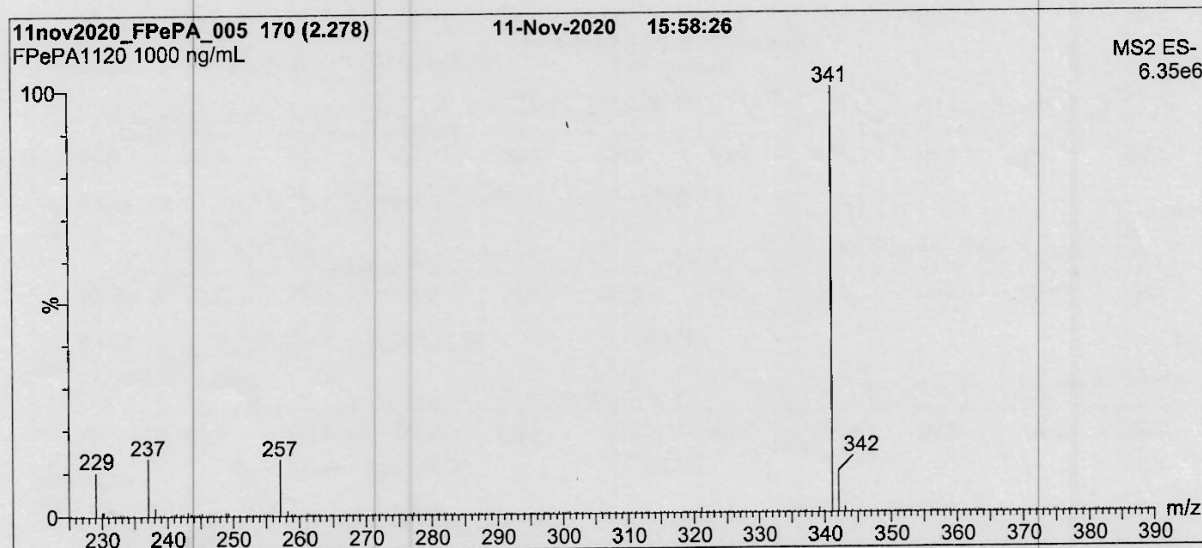
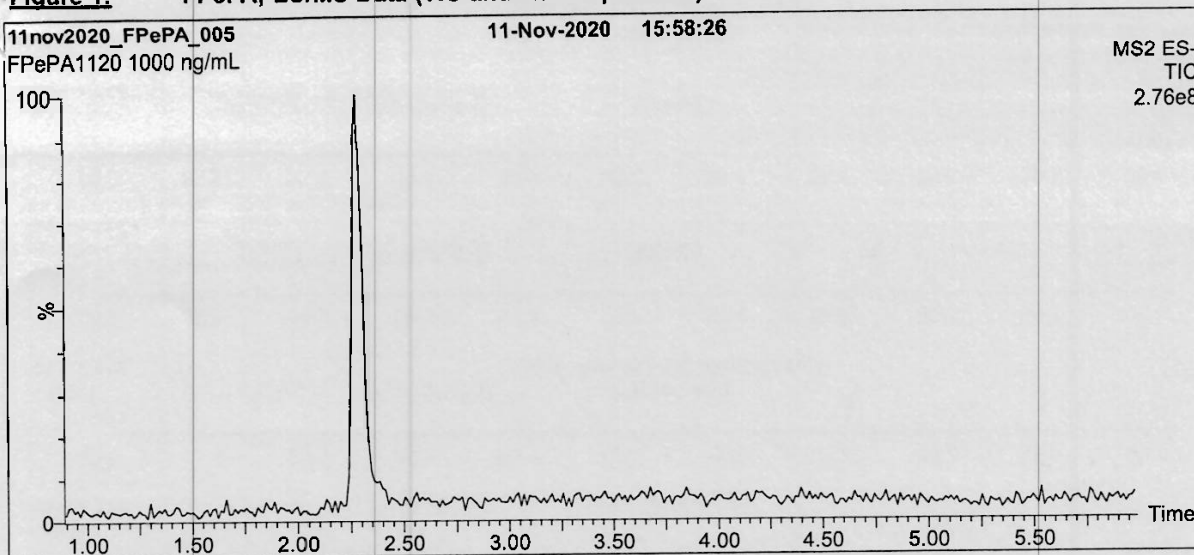
B.G. Chittim, General Manager

Date: 11/27/2020

(mm/dd/yyyy)

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



Conditions for Figure 1:

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

Chromatographic Conditions:

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

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

Flow: 300 μ L/min

MS Parameters:

Experiment: Full Scan (225 - 850 amu)

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

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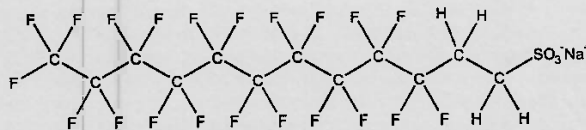


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CERTIFICATE OF ANALYSIS DOCUMENTATION

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

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



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

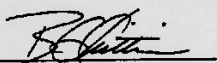
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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

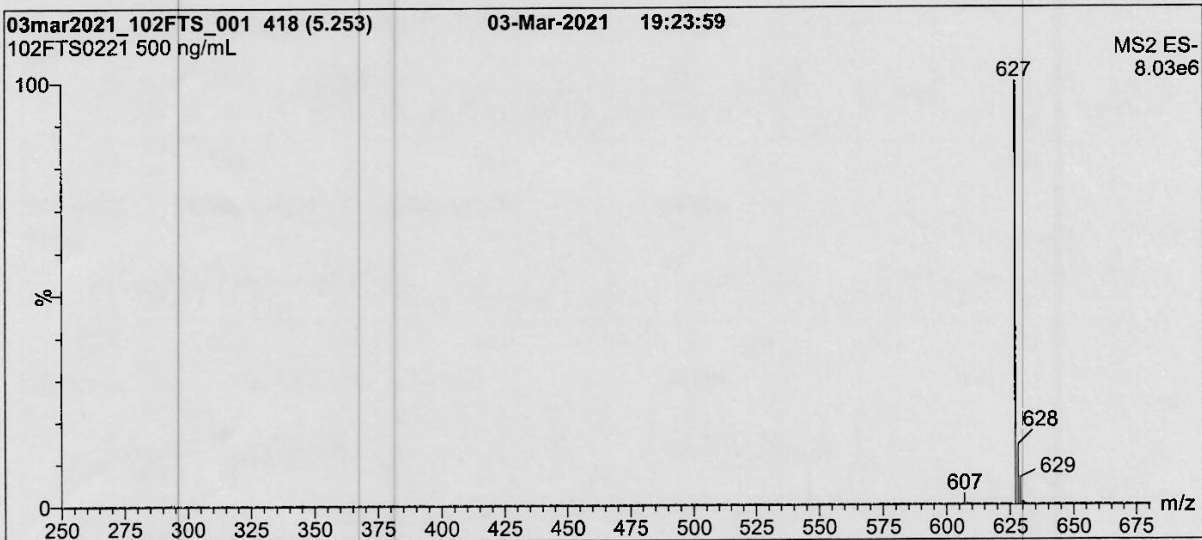
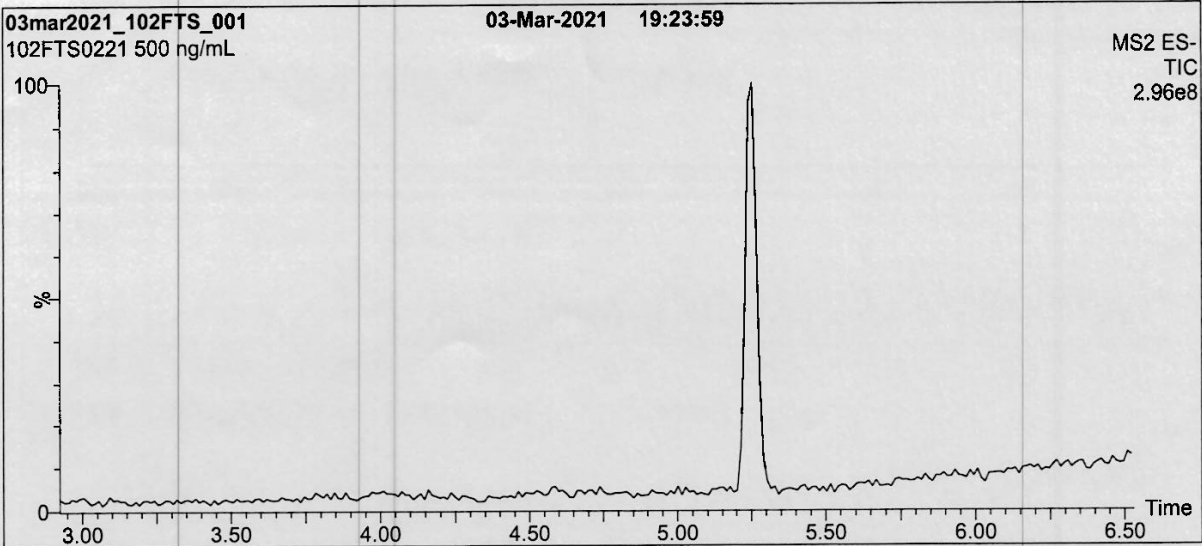
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Form#: 27, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

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



Conditions for Figure 1:

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

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

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

Flow: 300 μ L/min

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

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

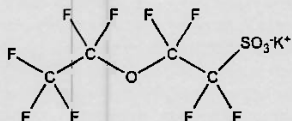
10762 A-B



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFEESA *rec'd 8/20/21 WPH* **LOT NUMBER:** PFEESA0520
COMPOUND: Potassium perfluoro(2-ethoxyethane)sulfonate
STRUCTURE: **CAS #:** 117205-07-9



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

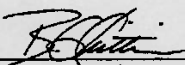
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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

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 Revision#:7, Revised 2020-01-09

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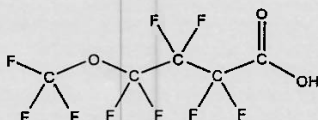
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

COMPOUND: Perfluoro-5-oxahexanoic acid

SYNONYM: Perfluoro-4-methoxybutanoic acid (PFMBA)

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



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

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

CHEMICAL PURITY: >98%

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

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

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

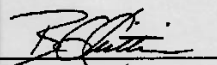
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

B.G. Chittim, General Manager

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

PF5OHxA0320 (1 of 4)
rev1

7.9.1
7

10764A-B



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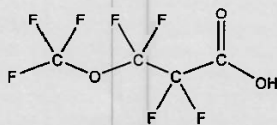
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

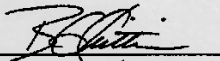
DOCUMENTATION/ DATA ATTACHED:

- 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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Revision#: 8, Revised 2020-09-10

PF4OPeA0320 (1 of 4)
rev1

7.9.1

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10765 A-13



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

3,6-OPFHpA

*rec'd
WPH
8/20/21*

LOT NUMBER:

36OPFHpA0320

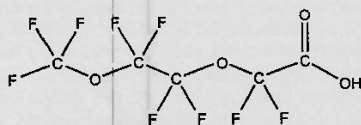
COMPOUND:

Perfluoro-3,6-dioxaheptanoic acid

STRUCTURE:

CAS #:

151772-58-6



MOLECULAR FORMULA:

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.

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Certified By:

B.G. Chittim, General Manager

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

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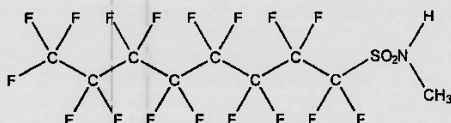
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

LOT NUMBER: NMeFOSA0721M

STRUCTURE:

CAS #: 31506-32-8



rec'd
WPA
10/5/21

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

MOLECULAR WEIGHT: 513.17
SOLVENT(S): Methanol

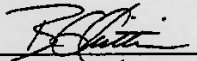
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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

NMeFOSA0721M (1 of 4)
rev0

7.9.1

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-EtFOSA-M

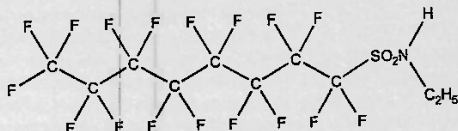
10837

LOT NUMBER: NEtFOSA0821M

COMPOUND:

N-ethylperfluoro-1-octanesulfonamide

STRUCTURE:



MOLECULAR FORMULA:

C₁₀H₉F₁₇NO₂S

MOLECULAR WEIGHT:

527.20

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

08/12/2021

EXPIRY DATE: (mm/dd/yyyy)

08/12/2026

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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


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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:


B.G. Chittim, General Manager

Date: 08/16/2021
(mm/dd/yyyy)

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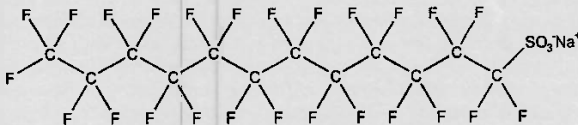
10840

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

LOT NUMBER: LPFDoS0721

STRUCTURE:

CAS #: 1260224-54-1



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

MOLECULAR WEIGHT: 722.14
SOLVENT(S): Methanol


DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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Certified By: 
B.G. Chittim, General Manager

Date: 07/16/2021
(mm/dd/yyyy)

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFODA

10847 NS 01/18/23

LOT NUMBER:

PFODA0821

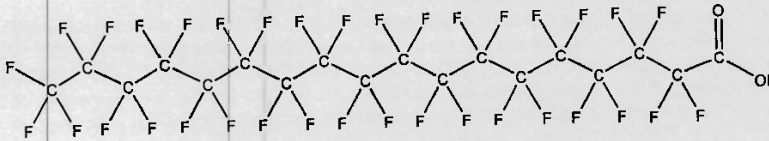
COMPOUND:

Perfluoro-n-octadecanoic acid

STRUCTURE:

CAS #:

16517-11-6



MOLECULAR FORMULA:

C₁₈H₃₅O₂

MOLECULAR WEIGHT:

914.14

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol
Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

09/03/2021

EXPIRY DATE: (mm/dd/yyyy)

09/03/2026

RECOMMENDED STORAGE:

Store ampoule at ambient temperature in a dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- The solubility of this product in methanol is very sensitive to storage conditions and solvent composition. The stated validity period applies to the sealed ampoules stored at ambient temperature.

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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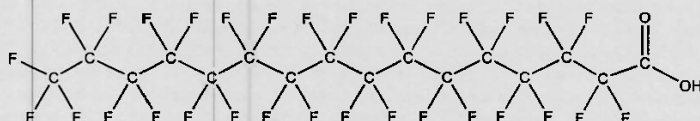
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

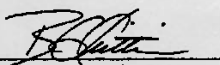
DOCUMENTATION/ DATA ATTACHED:

- 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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
 B.G. Chittim, General Manager **Date:** 05/25/2021
 (mm/dd/yyyy)

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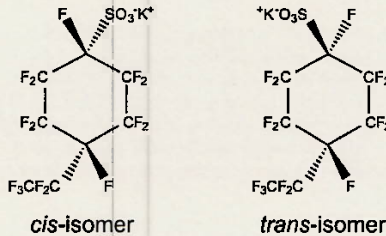


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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFECHS **LOT NUMBER:** PFECHS1021
COMPOUND: Potassium perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)

STRUCTURE: **CAS #:** 335-24-0



MOLECULAR FORMULA: C₈F₁₆SO₃K **MOLECULAR WEIGHT:** 500.22
CONCENTRATION: 50.0 ± 2.5 µg/mL (K salt) **SOLVENT(S):** Methanol
 46.2 ± 2.3 µg/mL (PFECHS acid)
 46.1 ± 2.3 µg/mL (PFECHS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 10/14/2021
EXPIRY DATE: (mm/dd/yyyy) 10/14/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

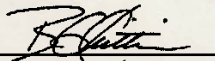
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains a mixture of the *cis/trans* isomers of PFECHS at a ratio of 1:1.27 (*cis:trans*).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 10/15/2021
 B.G. Chittim, General Manager (mm/dd/yyyy)

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

PFECHS1021 (1 of 4)
 rev0

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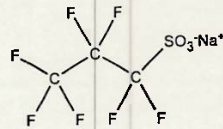
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: L-PFPrS
COMPOUND: Sodium perfluoro-1-propanesulfonate

LOT NUMBER: LPFPrS0721

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: C₃F₇SO₃Na
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)

MOLECULAR WEIGHT: 272.07
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

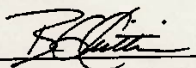
DOCUMENTATION/ DATA ATTACHED:

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

LPFPrS0721 (1 of 4)
rev0

7.9.1

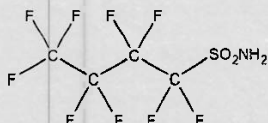
7

11224


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CERTIFICATE OF ANALYSIS
 DOCUMENTATION

PRODUCT CODE: FBSA-I **LOT NUMBER:** FBSA11211
COMPOUND: Perfluoro-1-butananesulfonamide
STRUCTURE: **CAS #:** 30334-69-1



MOLECULAR FORMULA: C₄H₂F₉NO₂S **MOLECULAR WEIGHT:** 299.11
CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Isopropanol
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 11/10/2021
EXPIRY DATE: (mm/dd/yyyy) 11/10/2026
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: 11/10/2021

(mm/dd/yyyy)

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHxSA-I

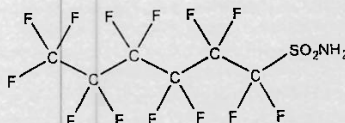
LOT NUMBER: FHxSA12211

COMPOUND:

Perfluoro-1-hexanesulfonamide

CAS #: 41997-13-1

STRUCTURE:



MOLECULAR FORMULA:

C₆H₂F₁₃NO₂S

MOLECULAR WEIGHT: 399.13

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S): Isopropanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

12/29/2021

EXPIRY DATE: (mm/dd/yyyy)

12/29/2026

RECOMMENDED STORAGE: Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

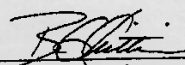
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:


B.G. Chittim, General Manager

Date: 01/10/2022
(mm/dd/yyyy)

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11338



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-MeFOSE-M

LOT NUMBER:

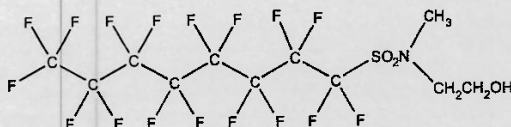
NMeFOSE0522M

COMPOUND:

2-(N-methylperfluoro-1-octanesulfonamido)ethanol

STRUCTURE:**CAS #:**

24448-09-7

**MOLECULAR FORMULA:**C₁₁H₈F₁₇NO₃S**MOLECULAR WEIGHT:**

557.22

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

05/13/2022 (HRGC/LRMS)

05/13/2022 (LC/MS)

EXPIRY DATE: (mm/dd/yyyy)

05/13/2027

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)

Figure 2: LC/MS Data (Full Scan and Mass Spectrum)

Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- In order to see the molecular ion (adduct free), the LC mobile phase should be free of ammonium acetate buffer.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager
Date: 06/14/2022
(mm/dd/yyyy)

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11383 A-J



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CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-ES Mass-Labelled PFAS Extraction Standard Solution/Mixture

PRODUCT CODE:	MPFAC-HIF-ES
LOT NUMBER:	MPFACHIFES0822
SOLVENT(S):	Methanol/Isopropanol (1%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	07/20/2022
LAST TESTED: (mm/dd/yyyy)	08/02/2022
EXPIRY DATE: (mm/dd/yyyy)	08/02/2025
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

MPFAC-HIF-ES is a solution/mixture of ten mass-labelled (¹³C) perfluoroalkylcarboxylic acids (C₄-C₁₂, C₁₄), three mass-labelled (¹³C) perfluoroalkanesulfonates (C₄, C₆, and C₈), three mass-labelled (one ¹³C and two ²H) perfluoro-1-octanesulfonamides, three mass-labelled (¹³C) fluorotelomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (²H) perfluorooctanesulfonamidoacetic acids, two mass-labelled (²H) perfluorooctane-sulfonamidoethanols, and mass-labelled (¹³C) hexafluoropropylene oxide dimer acid (GenX, M3HFPO-DA). The components and their concentrations are given in Table A.

The individual ¹³C-labelled components all have chemical purities >98% and isotopic purities of ≥99%. The individual ²H-labelled components all have chemical purities >98% and isotopic purities of ≥98%.

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

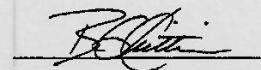
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Table A: MPFAC-HIF-ES; Components and Concentrations
(ng/mL, ± 5% in methanol/isopropanol (1%)/water (<1%))

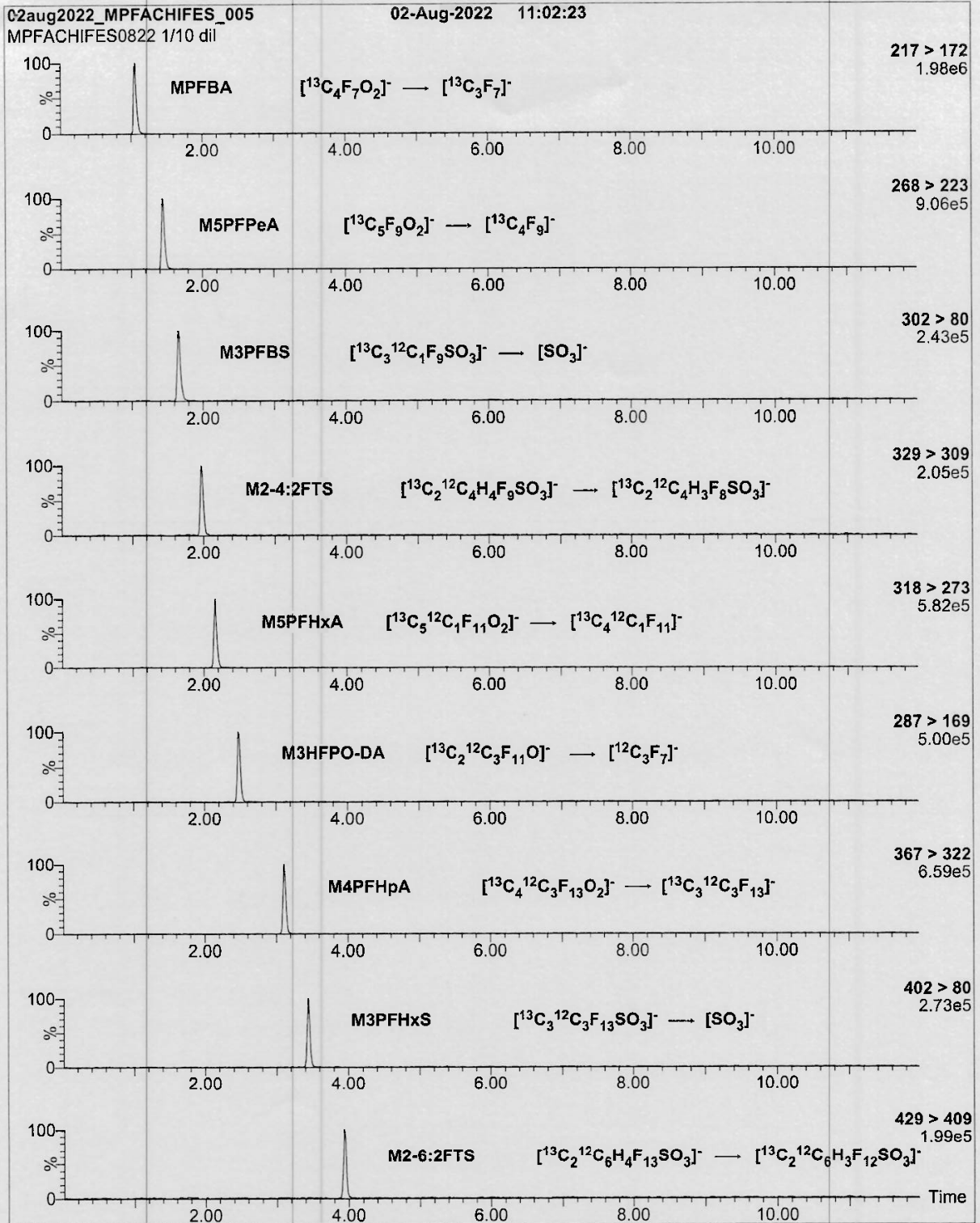
Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-(¹³ C ₄)butanoic acid	MPFBA	2000		1
Perfluoro-n-(¹³ C ₅)pentanoic acid	M5PFPeA	1000		2
Perfluoro-n-(1,2,3,4,6- ¹³ C ₅)hexanoic acid	M5PFHxA	500		5
Perfluoro-n-(1,2,3,4- ¹³ C ₆)heptanoic acid	M4PFHpA	500		7
Perfluoro-n-(¹³ C ₈)octanoic acid	M8PFOA	500		10
Perfluoro-n-(¹³ C ₉)nonanoic acid	M9PFNA	250		11
Perfluoro-n-(1,2,3,4,5,6- ¹³ C ₁₀)decanoic acid	M6PFDA	250		14
Perfluoro-n-(1,2,3,4,5,6,7- ¹³ C ₁₁)undecanoic acid	M7PFUdA	250		17
Perfluoro-n-(1,2- ¹³ C ₁₂)dodecanoic acid	MPFDoA	250		19
Perfluoro-n-(1,2- ¹³ C ₁₄)tetradecanoic acid	M2PFTeDA	250		23
Perfluoro-1-(¹³ C ₈)octanesulfonamide	M8FOSA	500		18
N-methyl-d ₃ -perfluoro-1-octanesulfonamide	d-N-MeFOSA	500		21
N-ethyl-d ₅ -perfluoro-1-octanesulfonamide	d-N-EtFOSA	500		24
N-methyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000		15
N-ethyl-d ₅ -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000		16
2-(N-methyl-d ₃ -perfluoro-1-octanesulfonamido)ethan-d ₃ -ol	d7-N-MeFOSE	5000		20
2-(N-ethyl-d ₅ -perfluoro-1-octanesulfonamido)ethan-d ₅ -ol	d9-N-EtFOSE	5000		22
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)(¹³ C ₃)propanoic acid	M3HFPO-DA	2000		6
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Sodium perfluoro-1-(2,3,4- ¹³ C ₃)butanesulfonate	M3PFBS	500	466	3
Sodium perfluoro-1-(1,2,3- ¹³ C ₃)hexanesulfonate	M3PFHxS	500	474	8
Sodium perfluoro-1-(¹³ C ₈)octanesulfonate	M8PFOS	500	479	12
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)hexanesulfonate	M2-4:2FTS	1000	938	4
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)octanesulfonate	M2-6:2FTS	1000	951	9
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)decanesulfonate	M2-8:2FTS	1000	960	13

* Concentrations have been rounded to three significant figures.

Certified By: 
B.G. Chittim, General Manager

Date: 08/02/2022
(mm/dd/yyyy)

Figure 2: MPFAC-HIF-ES; LC/MS/MS Data (Selected MRM Transitions)



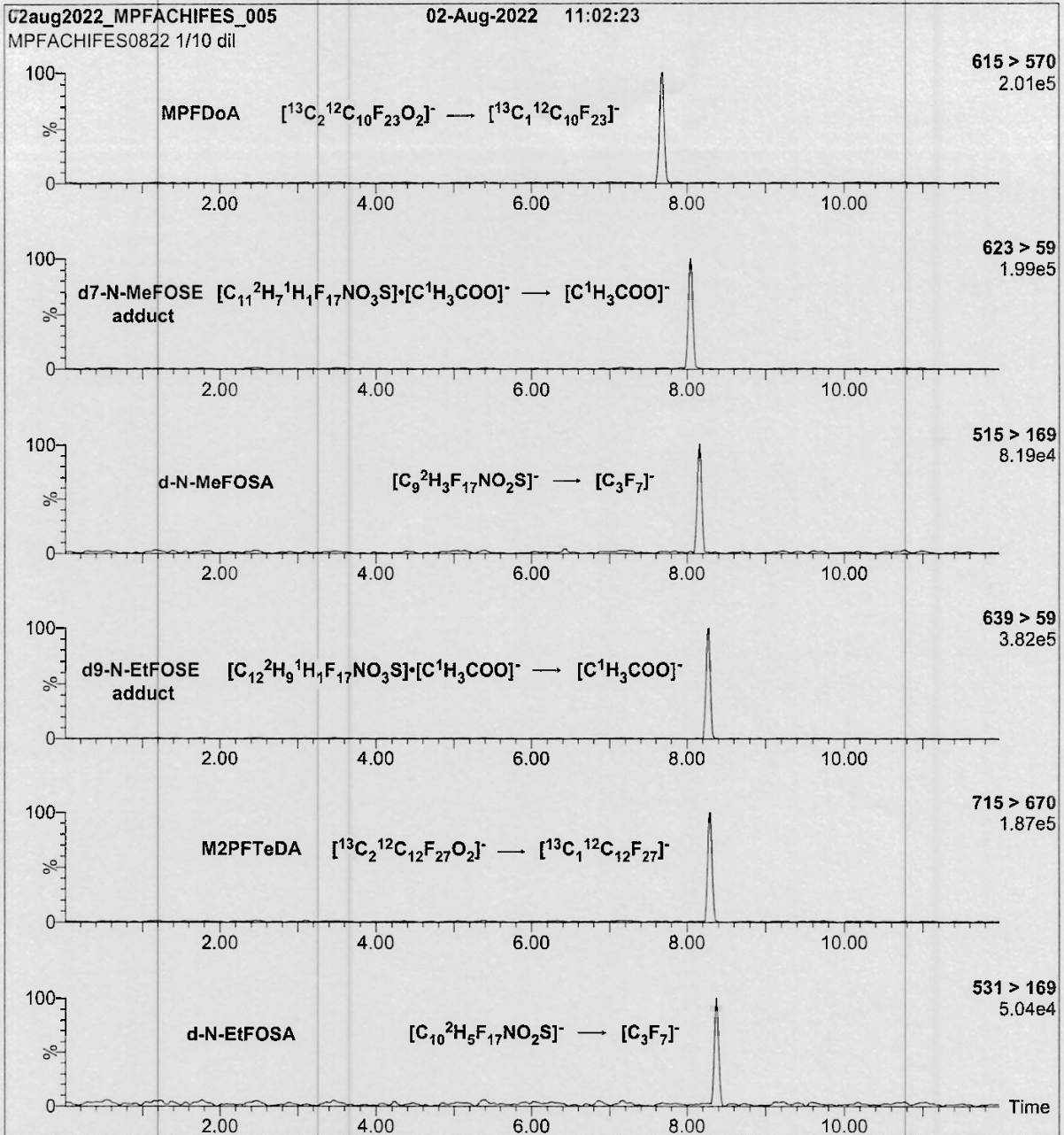
Form# 13, Issued 2004-11-10
 Revision#:9, Revised 2020-12-23

MPFACHIFES0822 (5 of 7)
 rev0

7.9.1

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Figure 2: MPFAC-HIF-ES; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: On-column (MPFAC-HIF-ES)
 Mobile phase: Same as Figure 1
 Flow: 300 $\mu\text{L}/\text{min}$

MS Parameters:

Collision Gas (mbar) = 3.24e-3
 Collision Energy (eV) = 4-64 (variable)

11384 A-J



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-IS

**Mass-Labelled Perfluoroalkyl Substance
Injection Standard Solution/Mixture**

<u>PRODUCT CODE:</u>	MPFAC-HIF-IS
<u>LOT NUMBER:</u>	MPFACHIFIS0921
<u>SOLVENT(S):</u>	Methanol/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/07/2021
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/07/2021
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	09/07/2026
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

MPFAC-HIF-IS is a solution/mixture of five mass-labelled (¹³C) perfluoroalkylcarboxylic acids (C₄, C₆, C₈-C₁₀) and two mass-labelled (¹⁸O and ¹³C) perfluoroalkanesulfonates (C₈ and C₉). The components and their concentrations are given in Table A.

The individual mass-labelled perfluoroalkylcarboxylic acids and mass-labelled perfluoroalkanesulfonates all have chemical purities of >98% and isotopic purities of ≥99% per ¹³C or >94% per ¹⁸O.

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

**Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com**

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

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rev1

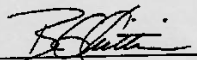
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Table A: MPFAC-HIF-IS; Components and Concentrations (ng/mL, ± 5% in methanol/water (<1%))

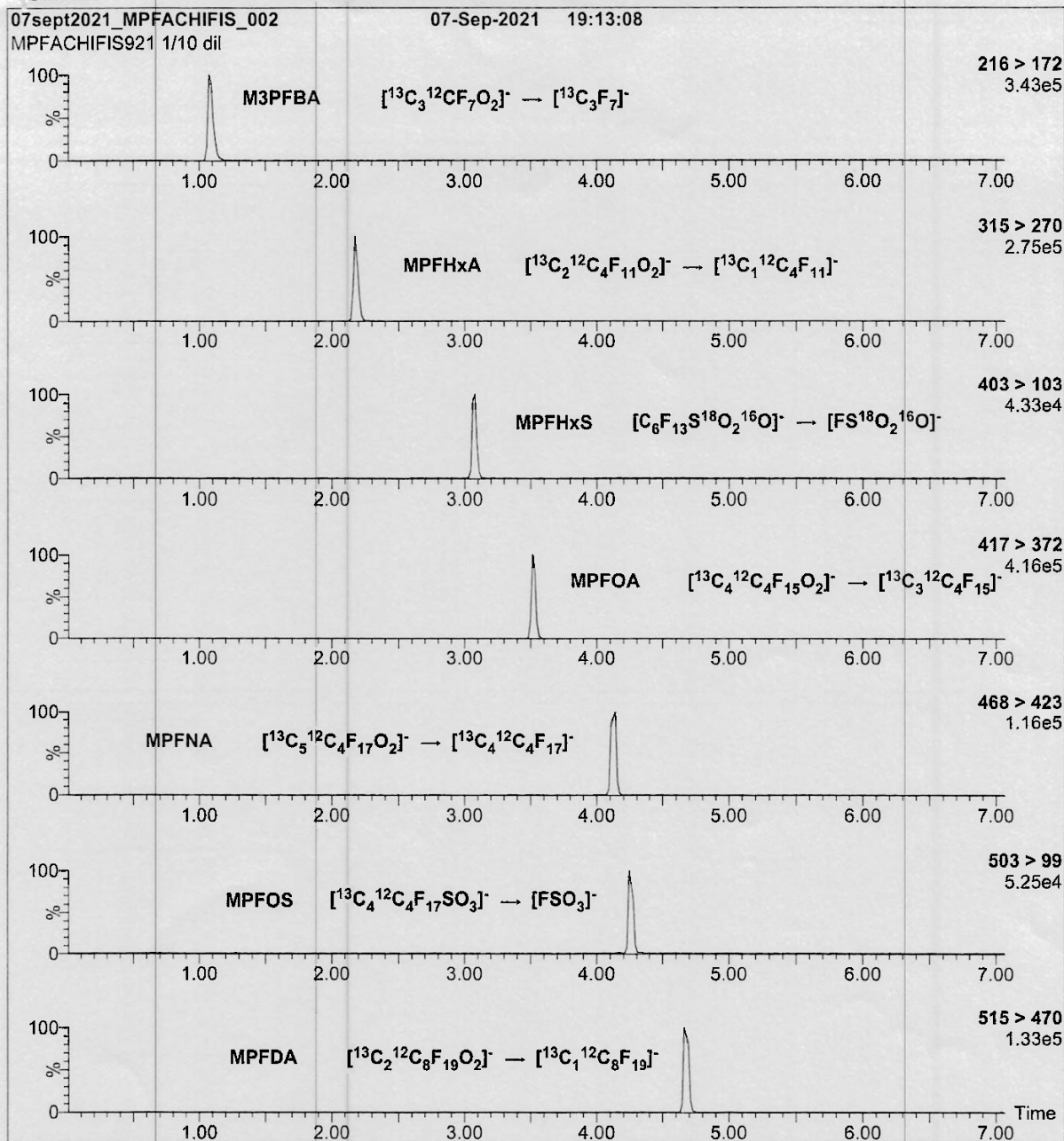
Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-(2,3,4- ¹³ C ₃)butanoic acid	M3PFBA	1000		1
Perfluoro-n-(1,2- ¹³ C ₂)hexanoic acid	MPFHxA	500		2
Perfluoro-n-(1,2,3,4- ¹³ C ₄)octanoic acid	MPFOA	500		4
Perfluoro-n-(1,2,3,4,5- ¹³ C ₅)nonanoic acid	MPFNA	250		5
Perfluoro-n-(1,2- ¹³ C ₂)decanoic acid	MPFDA	250		7
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Sodium perfluoro-1-hexane(¹⁸ O ₂)sulfonate	MPFHxS	500	474	3
Sodium perfluoro-1-(1,2,3,4- ¹³ C ₄)octanesulfonate	MPFOS	500	479	6

* Concentrations have been rounded to three significant figures.

Certified By: 
 B.G. Chittim, General Manager

Date: 10/13/2021
(mm/dd/yyyy)

Figure 2: MPFAC-HIF-IS; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: On-column (MPFAC-HIF-IS)

Mobile phase: Same as Figure 1

Flow: 300 $\mu\text{L}/\text{min}$

MS Parameters:

Collision Gas (mbar) = 3.18e-3

Collision Energy (eV) = 4-64 (variable)

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 02/03/23 09:00
(mm/dd/yyyy 24:00)

Method: EPA 1633 Draft (QSM)

Date/Time: 2/7/23 9:40
Finished (mm/dd/yyyy 24:00)

Balance ID: _____

Batch#: OP95294 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 95294 MB		500	7	N/A	25				
OP 95294 BS		500	↓	↓		200	5	A4	
OP 95294 LLBS		500	7	N/A		80			
FC2108-1Re	1	60	8	4					
FC2294-1	2	570	7	N/A					
	2	570							
	3	540							
	4	560							
FC2313-1	2	570							
FC2332-1	2	540							
	2	560	↓	↓	↓		↓	↓	
	3	550	7	N/A	25		5	A4	
OPFC2294-2MS	3	560	7	N/A	25	200	5	A4	
OP MSD									
OPFC2294-3DUP	3	530	7	N/A	25		5	A4	

Comments:

EIS (SURR) ID: 11630A-C Conc: 250-5000 ng/ml Exp. Date: 01/31/24 Inj. By: GH Ver. By: AG
 SPIKE.1 ID: LCMS 2055C Conc: VARIED Exp. Date: 07/24/23 Inj. By: GH Ver. By: AG
 SPIKE.2 ID: _____ Conc: _____ Exp. Date: _____ Inj. By: _____ Ver. By: _____
 NIS (ISTD) ID: 11615-D-E Conc: 250-1000 ng/ml Exp. Date: 1/26/24 Inj. By: RW Ver. By: NG

TurboVap Temp (Therm ID): _____ N-Evap Temp (Therm ID): _____
 Observed Temp °C: _____ Corr. Temp °C: _____ Observed Temp °C: _____ Corr. Temp °C: _____

Methanol Lot # 223231 1% NH4OH MeOH PF259 SPE Lot # S22-000891
 Water Lot# OP95009 0.3M Formic Acid PF256 Syringe filter Lot # _____
 Acetic Acid# 194003 3% NH4OH Sol _____ pH paper Lot# 215322
 0.1M Formic PF254 5% Formic Acid PF203 Carbon Lot# 160898

Relinquished By: [Signature]
 Accepted By: RW

Date: 02/03/23
 Date: 2/7/23

7.10.1
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