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## Technical Report for

**AECOM, INC.**

**N6274223F0104 RH Fire Suppression System**

**60697810**

**SGS Job Number: FC3853**

**Sampling Date: 03/30/23**



### Report to:

**AECOM, Inc**  
**7595 Technology Way**  
**Denver, CO 80237**  
**katie.abbott@aecom.com; mark.kromis@aecom.com;**  
**watson.tanji@aecom.com; kristin.rutherford@aecom.com**  
**ATTN: Katie Abbott**

**Total number of pages in report: 584**



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),  
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Test results relate only to samples analyzed.

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## Sample Summary

AECOM, INC.

Job No: FC3853

N6274223F0104 RH Fire Suppression System  
Project No: 60697810

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FC3853-1	03/30/23	11:15	EMMU03/31/23	AQ	Ground Water	AF-RHMW02-WGN01LF-2303W4
FC3853-2	03/30/23	13:25	EMMU03/31/23	AQ	Ground Water	AF-RHMW03-WGN01LF-2303W4

## SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** AECOM, INC.

**Job No:** FC3853

**Site:** N6274223F0104 RH Fire Suppression System

**Report Date:** 4/5/2023 6:14:45 PM

On 03/31/2023, 2 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS North America Inc - Orlando. at a maximum corrected temperature of 2.9 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC3853 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:** OP96209

Sample(s) FC3853-1MS, FC3853-2DUP were used as the QC samples indicated.

Matrix Spike Recovery(s) for Perfluoropentanoic acid are outside control limits. Probable cause is due to matrix interference.

RPD(s) for Duplicate for Perfluorohexanoic acid, Perfluorooctanoic acid, Perfluoropentanoic acid are outside control limits for sample OP96209-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:

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



# Summary of Hits

**Job Number:** FC3853  
**Account:** AECOM, INC.  
**Project:** N6274223F0104 RH Fire Suppression System  
**Collected:** 03/30/23



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
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**FC3853-1      AF-RHMW02-WGN01LF-2303W4**

Perfluorohexanoic acid	1.3 J	4.4	0.88	ng/l	EPA DRAFT 1633
6:2 Fluorotelomer sulfonate	6.1 J	18	7.1	ng/l	EPA DRAFT 1633

**FC3853-2      AF-RHMW03-WGN01LF-2303W4**

Perfluoropentanoic acid	2.6 J	9.3	1.9	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	1.2 J	4.7	0.93	ng/l	EPA DRAFT 1633
Perfluoroheptanoic acid	1.1 J	4.7	0.93	ng/l	EPA DRAFT 1633
6:2 Fluorotelomer sulfonate	10.4 J	19	7.5	ng/l	EPA DRAFT 1633

**Sample Results**

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**Report of Analysis**

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SGS North America Inc.

## Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW02-WGN01LF-2303W4		
Lab Sample ID:	FC3853-1	Date Sampled:	03/30/23
Matrix:	AQ - Ground Water	Date Received:	03/31/23
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	6Q16028.D	1	04/04/23 19:23	MV	04/03/23 13:30	OP96209	S6Q239
Run #2							

Run #	Initial Volume	Final Volume
Run #1	565 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
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	0.83	ng/l	
307-24-4	Perfluorohexanoic acid	1.3	4.4	0.88	0.44	ng/l	J
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	
<b>PERFLUOROALKYL SULFONIC ACIDS</b>							
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	0.99	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	4.4	1.8	0.62	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	0.48	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	0.57	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.5 U	4.4	3.5	1.0	ng/l	
<b>FLUOROTELOMER SULFONIC ACIDS</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	7.1 U	18	7.1	2.9	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	6.1	18	7.1	3.1	ng/l	J
39108-34-4	8:2 Fluorotelomer sulfonate	7.1 U	18	7.1	3.6	ng/l	
<b>PERFLUOROOCCTANE SULFONAMIDES</b>							
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-RHMW02-WGN01LF-2303W4		
Lab Sample ID:	FC3853-1	Date Sampled:	03/30/23
Matrix:	AQ - Ground Water	Date Received:	03/31/23
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	3.9	ng/l	
1691-99-2	EtFOSE	18 U	44	18	6.6	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	0.69	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
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13C4-PFBA	70%			20-150%
13C5-PFPeA	71%			20-150%
13C5-PFHxA	83%			20-150%
13C4-PFHpA	89%			20-150%
13C8-PFOA	88%			20-150%
13C9-PFNA	78%			20-150%
13C6-PFDA	90%			20-150%
13C7-PFUnDA	87%			20-150%
13C2-PFDoDA	78%			20-150%
13C2-PFTeDA	64%			20-150%
13C3-PFBS	81%			20-150%
13C3-PFHxS	77%			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-RHMW02-WGN01LF-2303W4		Date Sampled:	03/30/23
Lab Sample ID:	FC3853-1		Date Received:	03/31/23
Matrix:	AQ - Ground Water		Percent Solids:	n/a
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	92%		20-150%
	13C8-FOSA	82%		20-150%
	d3-MeFOSA	75%		20-150%
	d5-EtFOSA	68%		20-150%
	d3-MeFOSAA	91%		20-150%
	d5-EtFOSAA	89%		20-150%
	d7-MeFOSE	68%		20-150%
	d9-EtFOSE	74%		20-150%
	13C2-4:2FTS	81%		20-150%
	13C2-6:2FTS	74%		20-150%
	13C2-8:2FTS	68%		20-150%
	13C3-HFPO-DA	67%		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

SGS North America Inc.

## Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW03-WGN01LF-2303W4		
Lab Sample ID:	FC3853-2	Date Sampled:	03/30/23
Matrix:	AQ - Ground Water	Date Received:	03/31/23
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	6Q16030.D	1	04/04/23 19:51	MV	04/03/23 13:30	OP96209	S6Q239
Run #2							

Run #	Initial Volume	Final Volume
Run #1	535 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	3.7 U	19	3.7	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	2.6	9.3	1.9	0.88	ng/l	J
307-24-4	Perfluorohexanoic acid	1.2	4.7	0.93	0.47	ng/l	J
375-85-9	Perfluoroheptanoic acid	1.1	4.7	0.93	0.47	ng/l	J
335-67-1	Perfluorooctanoic acid	0.93 U	4.7	0.93	0.47	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	4.7	1.9	0.57	ng/l	
335-76-2	Perfluorodecanoic acid	0.93 U	4.7	0.93	0.47	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	4.7	1.9	0.56	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	4.7	1.9	0.56	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	4.7	1.9	0.79	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.93 U	4.7	0.93	0.47	ng/l	
<b>PERFLUOROALKYL SULFONIC ACIDS</b>							
375-73-5	Perfluorobutanesulfonic acid	0.93 U	4.7	0.93	0.47	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.7 U	4.7	3.7	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	4.7	1.9	0.65	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.93 U	4.7	0.93	0.47	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	4.7	1.9	0.50	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	4.7	1.9	0.53	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	4.7	1.9	0.60	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.7 U	4.7	3.7	1.1	ng/l	
<b>FLUOROTELOMER SULFONIC ACIDS</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.0	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	10.4	19	7.5	3.2	ng/l	J
39108-34-4	8:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.8	ng/l	
<b>PERFLUOROOCCTANE SULFONAMIDES</b>							
754-91-6	PFOSA	1.9 U	4.7	1.9	0.63	ng/l	
31506-32-8	MeFOSA	1.9 U	4.7	1.9	0.93	ng/l	
4151-50-2	EtFOSA	1.9 U	4.7	1.9	0.93	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

# Report of Analysis

Client Sample ID:	AF-RHMW03-WGN01LF-2303W4		
Lab Sample ID:	FC3853-2	Date Sampled:	03/30/23
Matrix:	AQ - Ground Water	Date Received:	03/31/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

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

2355-31-9	MeFOSAA	3.7 U	4.7	3.7	0.93	ng/l	
2991-50-6	EtFOSAA	3.7 U	4.7	3.7	1.2	ng/l	

**PERFLUOROOCCTANE SULFONAMIDO ETHANOLS**

24448-09-7	MeFOSE	9.3 U	47	9.3	4.1	ng/l	
1691-99-2	EtFOSE	19 U	47	19	6.9	ng/l	

**PER and POLYFLUOROETHER CARBOXYLIC ACIDS**

13252-13-6	HFPO-DA (GenX)	3.7 U	19	3.7	0.93	ng/l	
919005-14-4	ADONA	3.7 U	19	3.7	1.7	ng/l	
377-73-1	PFMPA	1.9 U	9.3	1.9	0.93	ng/l	
863090-89-5	PFMBA	3.7 U	9.3	3.7	1.1	ng/l	
151772-58-6	NFDHA	3.7 U	9.3	3.7	1.1	ng/l	

**PER and POLYFLUOROETHER SULFONIC ACIDS**

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.7 U	19	3.7	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.7 U	19	3.7	1.6	ng/l	
113507-82-7	PFEESA	1.9 U	9.3	1.9	0.73	ng/l	

**FLUOROTELOMER CARBOXYLIC ACIDS**

356-02-5	3:3 Fluorotelomer carboxylate	9.3 U	23	9.3	4.2	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	120	19	8.2	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	120	19	7.3	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	92%		20-150%
	13C5-PFPeA	95%		20-150%
	13C5-PFHxA	99%		20-150%
	13C4-PFHpA	100%		20-150%
	13C8-PFOA	100%		20-150%
	13C9-PFNA	97%		20-150%
	13C6-PFDA	100%		20-150%
	13C7-PFUnDA	100%		20-150%
	13C2-PFDoDA	89%		20-150%
	13C2-PFTeDA	76%		20-150%
	13C3-PFBS	96%		20-150%
	13C3-PFHxS	92%		20-150%

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 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

4.2  
4

## Report of Analysis

<b>Client Sample ID:</b>	AF-RHMW03-WGN01LF-2303W4		<b>Date Sampled:</b>	03/30/23
<b>Lab Sample ID:</b>	FC3853-2		<b>Date Received:</b>	03/31/23
<b>Matrix:</b>	AQ - Ground Water		<b>Percent Solids:</b>	n/a
<b>Method:</b>	EPA DRAFT 1633 EPA 1633 DRAFT			
<b>Project:</b>	N6274223F0104 RH Fire Suppression System			

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	98%		20-150%
	13C8-FOSA	88%		20-150%
	d3-MeFOSA	84%		20-150%
	d5-EtFOSA	78%		20-150%
	d3-MeFOSAA	113%		20-150%
	d5-EtFOSAA	109%		20-150%
	d7-MeFOSE	77%		20-150%
	d9-EtFOSE	84%		20-150%
	13C2-4:2FTS	85%		20-150%
	13C2-6:2FTS	82%		20-150%
	13C2-8:2FTS	89%		20-150%
	13C3-HFPO-DA	87%		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**

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**Includes the following where applicable:**

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



SGS North America Inc - Orlando  
Chain of Custody

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

FC 3853

COC #: 2303W4AFSG01

SGS - ORLANDO JOB #:

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; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">PFAS EPA Draft 1633</div> <div style="text-align: center;"> <p><i>RSL</i> 3/30/23</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 # 60697810																
Project Manager: Watson Tanji Email: watson.tanji@aecom.com		Fax #																
Sampler(s) Name(s) (Printed) Sampler 1: <i>Max Wilson</i> Sampler 2: <i>Eli Martin</i>		Client Purchase Order #																
SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION			CONTAINER INFORMATION										LAB USE ONLY			
		DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	PHONE	HCl	NaOH	HNO3	H2SO4	HNO3+ZnAC	DI WATER		MESH		
(	AF-RHMW02-WGN01LF-2303W4	3/30/23	1115	<i>Om,ru</i>	GW	3		X										
										<i>RSL</i> 3/30/23		INITIAL ASSESSMENT <i>[Signature]</i> LABEL VERIFICATION <i>[Signature]</i>						
Turnaround Time ( Business days)				Data Deliverable Information				Comments / Remarks										
10 Day (Business) _____ 7 Day _____ <input type="checkbox"/> 5 Day _____ 3 Day RUSH _____ 2 Day RUSH _____ 1 Day RUSH _____ Other _____		Approved By: / Date: _____		<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S				EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW United AWB 016-27706475										
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>Andy Young / AECOM</i>		3/30/23 1500		2 <i>[Signature]</i>		3/20/23 1540		3 <i>[Signature]</i>		4 <i>[Signature] SGS</i>		5 <i>[Signature]</i>						
Relinquished by/Affiliation		Date Time:		Received By/Affiliation		Date Time:		Relinquished By/Affiliation		Date Time:		Received By/Affiliation						
5		6		6		7		7		8		8						
Lab Use Only : Cooler Temperature (s) Celsius (corrected): <i>3.0 (RSL)</i>																		

PFAS\_COCs\_ALL.xls Rev 031318

FC3853: Chain of Custody

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## SGS Sample Receipt Summary

Job Number: FC3853

Client: AECOM

Project: : N6274223F0104 RH Fire Suppression System

Date / Time Received: 3/31/2023 4:00:00 PM

Delivery Method: United Cargo/Airspace

Airbill #'s: United Cargo AWB #: 016-27706475

Therm ID: IR 1;

Therm CF: -0.1;

# of Coolers: 1

Cooler Temps (Raw Measured) °C: Cooler 1: (3.0);

Cooler Temps (Corrected) °C: Cooler 1: (2.9);

**Cooler Information**

Y or N

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

**Sample Information**

Y or N N/A

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

**Trip Blank Information**

Y or N N/A

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

W or S N/A

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

**Misc. Information**

Number of Encores: 25-Gram \_\_\_\_\_ 5-Gram \_\_\_\_\_

Number of 5035 Field Kits: \_\_\_\_\_

Number of Lab Filtered Metals: \_\_\_\_\_

Test Strip Lot #s: pH 0-3 \_\_\_\_\_ 230320 \_\_\_\_\_

pH 10-12 \_\_\_\_\_ 25BDH07 \_\_\_\_\_

Other: (Specify) pH 1.0 - 12.0 \_\_\_\_\_ 222221 \_\_\_\_\_

Residual Chlorine Test Strip Lot #: \_\_\_\_\_

Comments

SM001  
Rev. Date 05/24/17

Technician: TORYW

Date: 3/31/2023 4:00:00 PM

Reviewer: CD

Date: 4/3/2023

FC3853: Chain of Custody

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# QC Evaluation: DOD QSM5.x Limits

**Job Number:** FC3853  
**Account:** AECOM, INC.  
**Project:** N6274223F0104 RH Fire Suppression System  
**Collected:** 03/30/23

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.

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\* Sample used for QC is not from job FC3853

5.2  
5

## MS Semi-volatiles

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## QC Data Summaries

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### Includes the following where applicable:

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

**Instrument Blank**

Job Number: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q239-IBLK	6Q16014.D	1	04/04/23	MV	n/a	n/a	S6Q239

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3853-1, FC3853-2

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

# Instrument Blank

Job Number: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q239-IBLK	6Q16014.D	1	04/04/23	MV	n/a	n/a	S6Q239

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3853-1, FC3853-2

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

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	100% 20-150%
	13C5-PFPeA	100% 20-150%
	13C5-PFHxA	104% 20-150%
	13C4-PFHpA	103% 20-150%
	13C8-PFOA	105% 20-150%
	13C9-PFNA	107% 20-150%
	13C6-PFDA	99% 20-150%
	13C7-PFUnDA	102% 20-150%
	13C2-PFDoDA	93% 20-150%
	13C2-PFTeDA	94% 20-150%
	13C3-PFBS	105% 20-150%
	13C3-PFHxS	104% 20-150%
	13C8-PFOS	98% 20-150%
	13C8-FOSA	102% 20-150%
	d3-MeFOSA	97% 20-150%
	d5-EtFOSA	98% 20-150%
	d3-MeFOSAA	105% 20-150%
	d5-EtFOSAA	97% 20-150%
	d7-MeFOSE	107% 20-150%
	d9-EtFOSE	102% 20-150%
	13C2-4:2FTS	117% 20-150%
	13C2-6:2FTS	112% 20-150%
	13C2-8:2FTS	104% 20-150%
	13C3-HFPO-DA	96% 20-150%



## Continuing Calibration Blank

Job Number: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q239-ICCB	6Q16024.D	1	04/04/23	MV	n/a	n/a	S6Q239

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3853-1, FC3853-2

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

# Continuing Calibration Blank

Job Number: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q239-ICCB	6Q16024.D	1	04/04/23	MV	n/a	n/a	S6Q239

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3853-1, FC3853-2

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

CAS No.	ID Standard Recoveries	Limits	
	13C4-PFBA	100%	20-150%
	13C5-PFPeA	102%	20-150%
	13C5-PFHxA	104%	20-150%
	13C4-PFHpA	102%	20-150%
	13C8-PFOA	92%	20-150%
	13C9-PFNA	93%	20-150%
	13C6-PFDA	102%	20-150%
	13C7-PFUnDA	103%	20-150%
	13C2-PFDoDA	98%	20-150%
	13C2-PFTeDA	100%	20-150%
	13C3-PFBS	104%	20-150%
	13C3-PFHxS	99%	20-150%
	13C8-PFOS	94%	20-150%
	13C8-FOSA	99%	20-150%
	d3-MeFOSA	96%	20-150%
	d5-EtFOSA	90%	20-150%
	d3-MeFOSAA	100%	20-150%
	d5-EtFOSAA	103%	20-150%
	d7-MeFOSE	94%	20-150%
	d9-EtFOSE	96%	20-150%
	13C2-4:2FTS	107%	20-150%
	13C2-6:2FTS	111%	20-150%
	13C2-8:2FTS	111%	20-150%
	13C3-HFPO-DA	99%	20-150%

## Method Blank Summary

Job Number: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96209-MB	6Q16027.D	1	04/04/23	MV	04/03/23	OP96209	S6Q239

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3853-1, FC3853-2

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: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96209-MB	6Q16027.D	1	04/04/23	MV	04/03/23	OP96209	S6Q239

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3853-1, FC3853-2

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	108% 20-150%
	13C5-PFPeA	107% 20-150%
	13C5-PFHxA	109% 20-150%
	13C4-PFHpA	110% 20-150%
	13C8-PFOA	108% 20-150%
	13C9-PFNA	106% 20-150%
	13C6-PFDA	98% 20-150%
	13C7-PFUnDA	109% 20-150%
	13C2-PFDoDA	89% 20-150%
	13C2-PFTeDA	94% 20-150%
	13C3-PFBS	112% 20-150%
	13C3-PFHxS	107% 20-150%
	13C8-PFOS	99% 20-150%
	13C8-FOSA	95% 20-150%
	d3-MeFOSA	89% 20-150%
	d5-EtFOSA	93% 20-150%
	d3-MeFOSAA	106% 20-150%
	d5-EtFOSAA	110% 20-150%
	d7-MeFOSE	91% 20-150%
	d9-EtFOSE	99% 20-150%
	13C2-4:2FTS	117% 20-150%
	13C2-6:2FTS	127% 20-150%
	13C2-8:2FTS	117% 20-150%
	13C3-HFPO-DA	102% 20-150%

**Blank Spike Summary**

Job Number: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96209-LLBS	6Q16026.D	1	04/04/23	MV	04/03/23	OP96209	S6Q239

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3853-1, FC3853-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.04	0.0388	97	40-150
2706-90-3	Perfluoropentanoic acid	0.02	0.0195	98	40-150
307-24-4	Perfluorohexanoic acid	0.01	0.0115	115	40-150
375-85-9	Perfluoroheptanoic acid	0.01	0.0102	102	40-150
335-67-1	Perfluorooctanoic acid	0.01	0.0101	101	40-150
375-95-1	Perfluorononanoic acid	0.01	0.0083	83	40-150
335-76-2	Perfluorodecanoic acid	0.01	0.0095	95	40-150
2058-94-8	Perfluoroundecanoic acid	0.01	0.0085	85	40-150
307-55-1	Perfluorododecanoic acid	0.01	0.0106	106	40-150
72629-94-8	Perfluorotridecanoic acid	0.01	0.0102	102	40-150
376-06-7	Perfluorotetradecanoic acid	0.01	0.0096	96	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00887	0.0087	98	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00941	0.0093	99	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00914	0.0088	96	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00953	0.0097	102	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00928	0.0096	103	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00962	0.0094	98	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00965	0.0106	110	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0097	0.0093	96	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0375	0.0352	94	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.038	0.0380	100	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0384	0.0357	93	40-150
754-91-6	PFOSA	0.01	0.0099	99	40-150
31506-32-8	MeFOSA	0.01	0.0103	103	40-150
4151-50-2	EtFOSA	0.01	0.0096	96	40-150
2355-31-9	MeFOSAA	0.01	0.0101	101	40-150
2991-50-6	EtFOSAA	0.01	0.0098	98	40-150
24448-09-7	MeFOSE	0.1	0.105	105	40-150
1691-99-2	EtFOSE	0.1	0.0916	92	40-150
13252-13-6	HFPO-DA (GenX)	0.04	0.0407	102	40-150
919005-14-4	ADONA	0.0378	0.0376	99	40-150
377-73-1	PFMPA	0.02	0.0197	99	40-150
863090-89-5	PFMBA	0.02	0.0197	99	40-150
151772-58-6	NFDHA	0.02	0.0207	104	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0374	0.0364	97	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0378	0.0370	98	40-150

\* = Outside of Control Limits.

# Blank Spike Summary

Job Number: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96209-LLBS	6Q16026.D	1	04/04/23	MV	04/03/23	OP96209	S6Q239

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3853-1, FC3853-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0178	0.0191	107	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.05	0.0456	91	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.25	0.240	96	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.25	0.256	102	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	108%	20-150%
	13C5-PFPeA	109%	20-150%
	13C5-PFHxA	106%	20-150%
	13C4-PFHpA	110%	20-150%
	13C8-PFOA	108%	20-150%
	13C9-PFNA	112%	20-150%
	13C6-PFDA	121%	20-150%
	13C7-PFUnDA	126%	20-150%
	13C2-PFDoDA	106%	20-150%
	13C2-PFTeDA	105%	20-150%
	13C3-PFBS	103%	20-150%
	13C3-PFHxS	103%	20-150%
	13C8-PFOS	100%	20-150%
	13C8-FOSA	90%	20-150%
	d3-MeFOSA	82%	20-150%
	d5-EtFOSA	87%	20-150%
	d3-MeFOSAA	104%	20-150%
	d5-EtFOSAA	108%	20-150%
	d7-MeFOSE	78%	20-150%
	d9-EtFOSE	89%	20-150%
	13C2-4:2FTS	120%	20-150%
	13C2-6:2FTS	120%	20-150%
	13C2-8:2FTS	124%	20-150%
	13C3-HFPO-DA	108%	20-150%

\* = Outside of Control Limits.

**Blank Spike Summary**

Job Number: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96209-BS	6Q16025.D	1	04/04/23	MV	04/03/23	OP96209	S6Q239

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3853-1, FC3853-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.0939	94	40-150
2706-90-3	Perfluoropentanoic acid	0.05	0.0479	96	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0226	90	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0255	102	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0231	92	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0251	100	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0233	93	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0243	97	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0247	99	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0250	100	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0246	98	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0218	98	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0213	91	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0211	92	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0217	91	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0230	99	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0228	95	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0225	93	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0211	87	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0938	0.0881	94	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.0962	101	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.103	107	40-150
754-91-6	PFOSA	0.025	0.0241	96	40-150
31506-32-8	MeFOSA	0.025	0.0233	93	40-150
4151-50-2	EtFOSA	0.025	0.0254	102	40-150
2355-31-9	MeFOSAA	0.025	0.0245	98	40-150
2991-50-6	EtFOSAA	0.025	0.0235	94	40-150
24448-09-7	MeFOSE	0.25	0.237	95	40-150
1691-99-2	EtFOSE	0.25	0.248	99	40-150
13252-13-6	HFPO-DA (GenX)	0.1	0.0965	97	40-150
919005-14-4	ADONA	0.0945	0.0974	103	40-150
377-73-1	PFMPA	0.05	0.0391	78	40-150
863090-89-5	PFMBA	0.05	0.0483	97	40-150
151772-58-6	NFDHA	0.05	0.0488	98	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0935	0.0913	98	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0945	0.0914	97	40-150

\* = Outside of Control Limits.

# Blank Spike Summary

Job Number: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96209-BS	6Q16025.D	1	04/04/23	MV	04/03/23	OP96209	S6Q239

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3853-1, FC3853-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0420	94	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.0936	75	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.625	0.545	87	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.558	89	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	55%	20-150%
	13C5-PFPeA	115%	20-150%
	13C5-PFHxA	120%	20-150%
	13C4-PFHpA	113%	20-150%
	13C8-PFOA	121%	20-150%
	13C9-PFNA	109%	20-150%
	13C6-PFDA	121%	20-150%
	13C7-PFUnDA	114%	20-150%
	13C2-PFDoDA	111%	20-150%
	13C2-PFTeDA	106%	20-150%
	13C3-PFBS	107%	20-150%
	13C3-PFHxS	108%	20-150%
	13C8-PFOS	108%	20-150%
	13C8-FOSA	97%	20-150%
	d3-MeFOSA	95%	20-150%
	d5-EtFOSA	88%	20-150%
	d3-MeFOSAA	110%	20-150%
	d5-EtFOSAA	106%	20-150%
	d7-MeFOSE	83%	20-150%
	d9-EtFOSE	86%	20-150%
	13C2-4:2FTS	122%	20-150%
	13C2-6:2FTS	123%	20-150%
	13C2-8:2FTS	108%	20-150%
	13C3-HFPO-DA	111%	20-150%

\* = Outside of Control Limits.



## Matrix Spike Summary

Job Number: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96209-MS	6Q16029.D	1	04/04/23	MV	04/03/23	OP96209	S6Q239
FC3853-1	6Q16028.D	1	04/04/23	MV	04/03/23	OP96209	S6Q239

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3853-1, FC3853-2

CAS No.	Compound	FC3853-1 ug/l	Spike Q	MS ug/l	MS %	Limits
375-22-4	Perfluorobutanoic acid	0.018 U		0.0885	0.122	138
2706-90-3	Perfluoropentanoic acid	0.0088 U		0.0442	0.0862	195*
307-24-4	Perfluorohexanoic acid	0.0013 J		0.0221	0.0247	106
375-85-9	Perfluoroheptanoic acid	0.0044 U		0.0221	0.0240	108
335-67-1	Perfluorooctanoic acid	0.0044 U		0.0221	0.0231	104
375-95-1	Perfluorononanoic acid	0.0044 U		0.0221	0.0189	85
335-76-2	Perfluorodecanoic acid	0.0044 U		0.0221	0.0233	105
2058-94-8	Perfluoroundecanoic acid	0.0044 U		0.0221	0.0235	106
307-55-1	Perfluorododecanoic acid	0.0044 U		0.0221	0.0250	113
72629-94-8	Perfluorotridecanoic acid	0.0044 U		0.0221	0.0236	107
376-06-7	Perfluorotetradecanoic acid	0.0044 U		0.0221	0.0222	100
375-73-5	Perfluorobutanesulfonic acid	0.0044 U		0.0196	0.0196	100
2706-91-4	Perfluoropentanesulfonic acid	0.0044 U		0.0208	0.0212	102
355-46-4	Perfluorohexanesulfonic acid	0.0044 U		0.0202	0.0206	102
375-92-8	Perfluoroheptanesulfonic acid	0.0044 U		0.0211	0.0242	115
1763-23-1	Perfluorooctanesulfonic acid	0.0044 U		0.0205	0.0230	112
68259-12-1	Perfluorononanesulfonic acid	0.0044 U		0.0213	0.0215	101
335-77-3	Perfluorodecanesulfonic acid	0.0044 U		0.0213	0.0200	94
79780-39-5	Perfluorododecanesulfonic aci	0.0044 U		0.0215	0.0158	74
757124-72-44:2	Fluorotelomer sulfonate	0.018 U		0.083	0.0958	115
27619-97-2	6:2 Fluorotelomer sulfonate	0.0061 J		0.0841	0.0862	95
39108-34-4	8:2 Fluorotelomer sulfonate	0.018 U		0.085	0.0942	111
754-91-6	PFOSA	0.0044 U		0.0221	0.0221	100
31506-32-8	MeFOSA	0.0044 U		0.0221	0.0234	106
4151-50-2	EtFOSA	0.0044 U		0.0221	0.0262	118
2355-31-9	MeFOSAA	0.0044 U		0.0221	0.0223	101
2991-50-6	EtFOSAA	0.0044 U		0.0221	0.0255	115
24448-09-7	MeFOSE	0.044 U		0.221	0.230	104
1691-99-2	EtFOSE	0.044 U		0.221	0.230	104
13252-13-6	HFPO-DA (GenX)	0.018 U		0.0885	0.0934	106
919005-14-4	ADONA	0.018 U		0.0836	0.108	129
377-73-1	PFMPA	0.0088 U		0.0442	0.0373	84
863090-89-5	PFMBA	0.0088 U		0.0442	0.0516	117
151772-58-6	NFDHA	0.0088 U		0.0442	0.0415	94
756426-58-19	Cl-PF3ONS (F-53B Major)	0.018 U		0.0827	0.103	124
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.018 U		0.0836	0.0945	113

\* = Outside of Control Limits.

# Matrix Spike Summary

Job Number: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96209-MS	6Q16029.D	1	04/04/23	MV	04/03/23	OP96209	S6Q239
FC3853-1	6Q16028.D	1	04/04/23	MV	04/03/23	OP96209	S6Q239

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3853-1, FC3853-2

CAS No.	Compound	FC3853-1 ug/l	Spike Q	MS ug/l	MS %	Limits
113507-82-7	PFEESA	0.0088 U	0.0394	0.0406	103	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.022 U	0.111	0.107	97	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.11 U	0.553	0.658	119	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.11 U	0.553	0.688	124	40-150

CAS No.	ID Standard Recoveries	MS	FC3853-1	Limits
	13C4-PFBA	78%	70%	20-150%
	13C5-PFPeA	90%	71%	20-150%
	13C5-PFHxA	101%	83%	20-150%
	13C4-PFHpA	106%	89%	20-150%
	13C8-PFOA	95%	88%	20-150%
	13C9-PFNA	105%	78%	20-150%
	13C6-PFDA	101%	90%	20-150%
	13C7-PFUnDA	95%	87%	20-150%
	13C2-PFDoDA	82%	78%	20-150%
	13C2-PFTeDA	72%	64%	20-150%
	13C3-PFBS	98%	81%	20-150%
	13C3-PFHxS	98%	77%	20-150%
	13C8-PFOS	93%	92%	20-150%
	13C8-FOSA	88%	82%	20-150%
	d3-MeFOSA	77%	75%	20-150%
	d5-EtFOSA	69%	68%	20-150%
	d3-MeFOSAA	105%	91%	20-150%
	d5-EtFOSAA	96%	89%	20-150%
	d7-MeFOSE	71%	68%	20-150%
	d9-EtFOSE	75%	74%	20-150%
	13C2-4:2FTS	96%	81%	20-150%
	13C2-6:2FTS	106%	74%	20-150%
	13C2-8:2FTS	80%	68%	20-150%
	13C3-HFPO-DA	85%	67%	20-150%

\* = Outside of Control Limits.

## Duplicate Summary

Job Number: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96209-DUP	6Q16031.D	1	04/04/23	MV	04/03/23	OP96209	S6Q239
FC3853-2	6Q16030.D	1	04/04/23	MV	04/03/23	OP96209	S6Q239

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3853-1, FC3853-2

CAS No.	Compound	FC3853-2 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	0.0026 J		0.0017 J		42*	30
307-24-4	Perfluorohexanoic acid	0.0012 J		ND		200*	30
375-85-9	Perfluoroheptanoic acid	0.0011 J		0.0010 J		10	30
335-67-1	Perfluorooctanoic acid	0.0047 U		0.00065 J		200*	30
375-95-1	Perfluorononanoic acid	0.0047 U		ND		nc	30
335-76-2	Perfluorodecanoic acid	0.0047 U		ND		nc	30
2058-94-8	Perfluoroundecanoic acid	0.0047 U		ND		nc	30
307-55-1	Perfluorododecanoic acid	0.0047 U		ND		nc	30
72629-94-8	Perfluorotridecanoic acid	0.0047 U		ND		nc	30
376-06-7	Perfluorotetradecanoic acid	0.0047 U		ND		nc	30
375-73-5	Perfluorobutanesulfonic acid	0.0047 U		ND		nc	30
2706-91-4	Perfluoropentanesulfonic acid	0.0047 U		ND		nc	30
355-46-4	Perfluorohexanesulfonic acid	0.0047 U		ND		nc	30
375-92-8	Perfluoroheptanesulfonic acid	0.0047 U		ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	0.0047 U		ND		nc	30
68259-12-1	Perfluorononanesulfonic acid	0.0047 U		ND		nc	30
335-77-3	Perfluorodecanesulfonic acid	0.0047 U		ND		nc	30
79780-39-5	Perfluorododecanesulfonic aci	0.0047 U		ND		nc	30
757124-72-44:2	Fluorotelomer sulfonate	0.019 U		ND		nc	30
27619-97-2	6:2 Fluorotelomer sulfonate	0.0104 J		0.0096 J		8	30
39108-34-4	8:2 Fluorotelomer sulfonate	0.019 U		ND		nc	30
754-91-6	PFOSA	0.0047 U		ND		nc	30
31506-32-8	MeFOSA	0.0047 U		ND		nc	30
4151-50-2	EtFOSA	0.0047 U		ND		nc	30
2355-31-9	MeFOSAA	0.0047 U		ND		nc	30
2991-50-6	EtFOSAA	0.0047 U		ND		nc	30
24448-09-7	MeFOSE	0.047 U		ND		nc	30
1691-99-2	EtFOSE	0.047 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: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96209-DUP	6Q16031.D	1	04/04/23	MV	04/03/23	OP96209	S6Q239
FC3853-2	6Q16030.D	1	04/04/23	MV	04/03/23	OP96209	S6Q239

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3853-1, FC3853-2

CAS No.	Compound	FC3853-2 ug/l	DUP Q	ug/l	Q	RPD	Limits
113507-82-7PFEESA		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	FC3853-2	Limits
	13C4-PFBA	92%	92%	20-150%
	13C5-PFPeA	101%	95%	20-150%
	13C5-PFHxA	102%	99%	20-150%
	13C4-PFHpA	105%	100%	20-150%
	13C8-PFOA	99%	100%	20-150%
	13C9-PFNA	104%	97%	20-150%
	13C6-PFDA	103%	100%	20-150%
	13C7-PFUnDA	94%	100%	20-150%
	13C2-PFDoDA	83%	89%	20-150%
	13C2-PFTeDA	70%	76%	20-150%
	13C3-PFBS	99%	96%	20-150%
	13C3-PFHxS	95%	92%	20-150%
	13C8-PFOS	85%	98%	20-150%
	13C8-FOSA	82%	88%	20-150%
	d3-MeFOSA	68%	84%	20-150%
	d5-EtFOSA	66%	78%	20-150%
	d3-MeFOSAA	96%	113%	20-150%
	d5-EtFOSAA	100%	109%	20-150%
	d7-MeFOSE	64%	77%	20-150%
	d9-EtFOSE	67%	84%	20-150%
	13C2-4:2FTS	88%	85%	20-150%
	13C2-6:2FTS	101%	82%	20-150%
	13C2-8:2FTS	91%	89%	20-150%
	13C3-HFPO-DA	94%	87%	20-150%

\* = Outside of Control Limits.

# Injection Standard Area Summary

Job Number: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q239-CC239	Injection Date:	04/04/23
Lab File ID:	6Q16023.D	Injection Time:	18:13
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 <sup>b</sup>	37121	2.90	33738	5.53	68034	7.11	18199	7.64	19568	8.12
Check Std <sup>c</sup>	36545	2.90	32561	5.53	69796	7.12	18574	7.64	20569	8.12
Upper Limit <sup>d</sup>	74242	3.30	67476	5.93	136068	7.52	36398	8.04	39136	8.52
Lower Limit <sup>e</sup>	11136	2.50	10121	5.13	20410	6.72	5460	7.24	5870	7.72

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	DF <sup>a</sup>
S6Q239-ICCB	35976	2.90	31798	5.53	67729	7.11	18394	7.64	18775	8.12	1
OP96209-BS	31877	2.94	26527	5.53	54061	7.12	15047	7.64	15191	8.12	1
OP96209-LLBS	32428	2.94	27250	5.53	56865	7.12	15467	7.64	15220	8.12	1
OP96209-MB	33613	2.94	28815	5.53	58440	7.12	15890	7.64	17341	8.12	1
FC3853-1	30099	2.94	35311	5.53	73125	7.12	19779	7.64	20476	8.12	1
OP96209-MS	25097	2.94	28269	5.52	64969	7.11	15871	7.64	17615	8.12	1
FC3853-2	32911	2.94	30280	5.53	61852	7.12	17453	7.64	17518	8.12	1
OP96209-DUP	32600	2.94	28497	5.53	60899	7.12	15557	7.64	17418	8.12	1
ZZZZZZ	36030	2.94	29866	5.53	65544	7.12	17480	7.64	17993	8.12	1
ZZZZZZ	35662	2.94	29985	5.53	63522	7.12	16066	7.64	17293	8.12	1

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

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

6.5.1  
6

# Injection Standard Area Summary

Job Number: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q239-CC239	Injection Date:	04/04/23
Lab File ID:	6Q16023.D	Injection Time:	18:13
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal <sup>b</sup>	6097	7.23	8885	8.29
Check Std <sup>c</sup>	6500	7.24	9568	8.29
Upper Limit <sup>d</sup>	12194	7.64	17770	8.69
Lower Limit <sup>e</sup>	1829	6.84	2666	7.89

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF <sup>a</sup>
S6Q239-ICCB	5872	7.23	8924	8.29	1
OP96209-BS	5153	7.24	7573	8.29	1
OP96209-LLBS	5198	7.24	7752	8.29	1
OP96209-MB	5226	7.24	7781	8.29	1
FC3853-1	6687	7.24	8970	8.29	1
OP96209-MS	5311	7.24	7827	8.29	1
FC3853-2	5775	7.24	7632	8.29	1
OP96209-DUP	5354	7.24	8595	8.29	1
ZZZZZZ	6146	7.24	7774	8.29	1
ZZZZZZ	6072	7.24	8218	8.29	1

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

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

6.5.1  
6

## TDCA Retention Time Check

Job Number: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

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

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

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S6Q239-IC239	6Q16005.D	04/04/23	13:38	00:28	Mass Calibration Verification
S6Q239-IC239	6Q16006.D	04/04/23	14:15	01:05	Initial cal 1
S6Q239-IC239	6Q16007.D	04/04/23	14:29	01:19	Initial cal 2
S6Q239-IC239	6Q16008.D	04/04/23	14:43	01:33	Initial cal 3
S6Q239-ICC239	6Q16009.D	04/04/23	14:57	01:47	Initial cal 4
S6Q239-IC239	6Q16010.D	04/04/23	15:11	02:01	Initial cal 5
S6Q239-IC239	6Q16011.D	04/04/23	15:25	02:15	Initial cal 6
S6Q239-IC239	6Q16012.D	04/04/23	15:39	02:29	Initial cal 7
S6Q239-IC239	6Q16013.D	04/04/23	15:53	02:43	Initial cal 8
S6Q239-IBLK	6Q16014.D	04/04/23	16:07	02:57	Instrument Blank
S6Q239-IBLK	6Q16014.D	04/04/23	16:07	02:57	Instrument Blank
S6Q239-ICV239	6Q16015.D	04/04/23	16:21	03:11	Initial cal verification 4
S6Q239-ICV239	6Q16016.D	04/04/23	16:35	03:25	Initial cal verification 20
S6Q239-CC239	6Q16017.D	04/04/23	16:49	03:39	Continuing cal 4
S6Q239-CC239	6Q16018.D	04/04/23	17:03	03:53	Continuing cal 1.0LL
OP96208-BS	6Q16019.D	04/04/23	17:17	04:07	Blank Spike
OP96208-LLBS	6Q16020.D	04/04/23	17:31	04:21	Blank Spike
OP96208-MB	6Q16021.D	04/04/23	17:45	04:35	Method Blank
ZZZZZZ	6Q16022.D	04/04/23	17:59	04:49	(unrelated sample)
S6Q239-CC239	6Q16023.D	04/04/23	18:13	05:03	Continuing cal 4
S6Q239-ICCB	6Q16024.D	04/04/23	18:27	05:17	Continuing Calibration Blank
OP96209-BS	6Q16025.D	04/04/23	18:41	05:31	Blank Spike
OP96209-LLBS	6Q16026.D	04/04/23	18:55	05:45	Blank Spike
OP96209-MB	6Q16027.D	04/04/23	19:09	05:59	Method Blank
FC3853-1	6Q16028.D	04/04/23	19:23	06:13	AF-RHMW02-WGN01LF-2303W4
OP96209-MS	6Q16029.D	04/04/23	19:37	06:27	Matrix Spike
FC3853-2	6Q16030.D	04/04/23	19:51	06:41	AF-RHMW03-WGN01LF-2303W4
OP96209-DUP	6Q16031.D	04/04/23	20:05	06:55	Duplicate
ZZZZZZ	6Q16032.D	04/04/23	20:19	07:09	(unrelated sample)
ZZZZZZ	6Q16033.D	04/04/23	20:33	07:23	(unrelated sample)
S6Q239-CC239	6Q16034.D	04/04/23	20:47	07:37	Continuing cal 4
S6Q239-ICCB	6Q16035.D	04/04/23	21:01	07:51	Continuing Calibration Blank
OP96190-BS	6Q16036.D	04/04/23	21:15	08:05	Blank Spike
OP96190-LLBS	6Q16037.D	04/04/23	21:29	08:19	Blank Spike



# TDCA Retention Time Check

Job Number: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
OP96190-MB	6Q16038.D	04/04/23	21:43	08:33	Method Blank
ZZZZZZ	6Q16039.D	04/04/23	21:57	08:47	(unrelated sample)
ZZZZZZ	6Q16040.D	04/04/23	22:11	09:01	(unrelated sample)
ZZZZZZ	6Q16041.D	04/04/23	22:25	09:15	(unrelated sample)
JD62588-4	6Q16043.D	04/04/23	22:53	09:43	(used for QC only; not part of job FC3853)
OP96190-MS	6Q16044.D	04/04/23	23:07	09:57	Matrix Spike
ZZZZZZ	6Q16045.D	04/04/23	23:21	10:11	(unrelated sample)
S6Q239-CC239	6Q16046.D	04/04/23	23:35	10:25	Continuing cal 4
S6Q239-ICCB	6Q16047.D	04/04/23	23:49	10:39	Continuing Calibration Blank
ZZZZZZ	6Q16048.D	04/05/23	00:03	10:53	(unrelated sample)
ZZZZZZ	6Q16049.D	04/05/23	00:17	11:07	(unrelated sample)
ZZZZZZ	6Q16050.D	04/05/23	00:31	11:21	(unrelated sample)
ZZZZZZ	6Q16051.D	04/05/23	00:45	11:35	(unrelated sample)
ZZZZZZ	6Q16052.D	04/05/23	00:59	11:49	(unrelated sample)
ZZZZZZ	6Q16053.D	04/05/23	01:13	12:03	(unrelated sample)
ZZZZZZ	6Q16054.D	04/05/23	01:27	12:17	(unrelated sample)
ZZZZZZ	6Q16055.D	04/05/23	01:41	12:31	(unrelated sample)
ZZZZZZ	6Q16056.D	04/05/23	01:55	12:45	(unrelated sample)
ZZZZZZ	6Q16057.D	04/05/23	02:08	12:58	(unrelated sample)
S6Q239-CC239	6Q16058.D	04/05/23	02:22	13:12	Continuing cal 4
S6Q239-CC239	6Q16059.D	04/05/23	02:36	13:26	Continuing cal 1.0LL
S6Q239-ICCB	6Q16060.D	04/05/23	02:50	13:40	Continuing Calibration Blank
JD62588-12A	6Q16061.D	04/05/23	03:04	13:54	(used for QC only; not part of job FC3853)
OP96190-DUP	6Q16062.D	04/05/23	03:18	14:08	Duplicate
ZZZZZZ	6Q16063.D	04/05/23	03:32	14:22	(unrelated sample)
OP96192-BS	6Q16064.D	04/05/23	03:46	14:36	Blank Spike
OP96192-LLBS	6Q16065.D	04/05/23	04:00	14:50	Blank Spike
OP96192-MB	6Q16066.D	04/05/23	04:14	15:04	Method Blank
ZZZZZZ	6Q16067.D	04/05/23	04:28	15:18	(unrelated sample)
ZZZZZZ	6Q16068.D	04/05/23	04:42	15:32	(unrelated sample)
ZZZZZZ	6Q16069.D	04/05/23	04:56	15:46	(unrelated sample)
ZZZZZZ	6Q16070.D	04/05/23	05:10	16:00	(unrelated sample)
S6Q239-CC239	6Q16071.D	04/05/23	05:24	16:14	Continuing cal 4
S6Q239-ICCB	6Q16072.D	04/05/23	05:38	16:28	Continuing Calibration Blank
ZZZZZZ	6Q16073.D	04/05/23	05:52	16:42	(unrelated sample)
OP96192-MS	6Q16074.D	04/05/23	06:06	16:56	Matrix Spike
OP96192-MSD	6Q16075.D	04/05/23	06:20	17:10	Matrix Spike Duplicate
ZZZZZZ	6Q16076.D	04/05/23	06:34	17:24	(unrelated sample)
ZZZZZZ	6Q16077.D	04/05/23	06:48	17:38	(unrelated sample)
ZZZZZZ	6Q16078.D	04/05/23	07:02	17:52	(unrelated sample)
ZZZZZZ	6Q16079.D	04/05/23	07:16	18:06	(unrelated sample)
ZZZZZZ	6Q16080.D	04/05/23	07:30	18:20	(unrelated sample)
ZZZZZZ	6Q16081.D	04/05/23	07:44	18:34	(unrelated sample)
ZZZZZZ	6Q16082.D	04/05/23	07:58	18:48	(unrelated sample)

6.6.1

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# TDCA Retention Time Check

Job Number: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S6Q239-CC239	6Q16083.D	04/05/23	08:12	19:02	Continuing cal 4
S6Q239-ICCB	6Q16084.D	04/05/23	08:26	19:16	Continuing Calibration Blank
ZZZZZZ	6Q16085.D	04/05/23	08:40	19:30	(unrelated sample)
ZZZZZZ	6Q16086.D	04/05/23	08:54	19:44	(unrelated sample)
ZZZZZZ	6Q16087.D	04/05/23	09:08	19:58	(unrelated sample)
ZZZZZZ	6Q16088.D	04/05/23	09:22	20:12	(unrelated sample)
ZZZZZZ	6Q16089.D	04/05/23	09:36	20:26	(unrelated sample)
ZZZZZZ	6Q16090.D	04/05/23	09:50	20:40	(unrelated sample)
ZZZZZZ	6Q16091.D	04/05/23	10:04	20:54	(unrelated sample)
S6Q239-CC239	6Q16092.D	04/05/23	10:18	21:08	Continuing cal 4
S6Q239-ICCB	6Q16093.D	04/05/23	10:32	21:22	Continuing Calibration Blank
ZZZZZZ	6Q16095.D	04/05/23	11:38	22:28	(unrelated sample)
ZZZZZZ	6Q16096.D	04/05/23	11:52	22:42	(unrelated sample)
ZZZZZZ	6Q16097.D	04/05/23	12:06	22:56	(unrelated sample)
ZZZZZZ	6Q16098.D	04/05/23	12:19	23:09	(unrelated sample)
ZZZZZZ	6Q16099.D	04/05/23	12:33	23:23	(unrelated sample)
S6Q239-ECC239	6Q16100.D	04/05/23	12:47	23:37	Ending cal 4
S6Q239-ICCB	6Q16101.D	04/05/23	13:01	23:51	Continuing Calibration Blank

6.6.1

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# Ion Ratio Summary

Job Number: FC3853  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q239	Method: EPA DRAFT 1633
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Lab Sample ID	Lab File ID	Ion Ratios			
		PFPeA	PFHxA	PFHpA	6:2FTS
S6Q239-ICC239	6Q16009.D	0	4	13.9	21.8
FC3853-1	6Q16028.D		3.8		28.2
FC3853-2	6Q16030.D	0	4.6	13.1	19.4

6.7.1

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# Isotope Dilution Standard Recovery Summary

Job Number: FC3853  
 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
FC3853-1	6Q16028.D	70	71	83	89	88	78	90	87
FC3853-2	6Q16030.D	92	95	99	100	100	97	100	100
OP96209-BS	6Q16025.D	55	115	120	113	121	109	121	114
OP96209-DUP	6Q16031.D	92	101	102	105	99	104	103	94
OP96209-LLBS	6Q16026.D	108	109	106	110	108	112	121	126
OP96209-MB	6Q16027.D	108	107	109	110	108	106	98	109
OP96209-MS	6Q16029.D	78	90	101	106	95	105	101	95

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%

6.8.1  
6

# Isotope Dilution Standard Recovery Summary

Job Number: FC3853  
 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
FC3853-1	6Q16028.D	78	64	81	77	92	82	75	68
FC3853-2	6Q16030.D	89	76	96	92	98	88	84	78
OP96209-BS	6Q16025.D	111	106	107	108	108	97	95	88
OP96209-DUP	6Q16031.D	83	70	99	95	85	82	68	66
OP96209-LLBS	6Q16026.D	106	105	103	103	100	90	82	87
OP96209-MB	6Q16027.D	89	94	112	107	99	95	89	93
OP96209-MS	6Q16029.D	82	72	98	98	93	88	77	69

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

6.8.1

6

# Isotope Dilution Standard Recovery Summary

Job Number: FC3853  
 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
FC3853-1	6Q16028.D	91	89	68	74	81	74	68	67
FC3853-2	6Q16030.D	113	109	77	84	85	82	89	87
OP96209-BS	6Q16025.D	110	106	83	86	122	123	108	111
OP96209-DUP	6Q16031.D	96	100	64	67	88	101	91	94
OP96209-LLBS	6Q16026.D	104	108	78	89	120	120	124	108
OP96209-MB	6Q16027.D	106	110	91	99	117	127	117	102
OP96209-MS	6Q16029.D	105	96	71	75	96	106	80	85

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

6.8.1

6



# Initial Calibration Summary

Job Number: FC3853  
 Account: AECOM AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

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

## Initial Calibration Report

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

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# Initial Calibration Summary

Job Number: FC3853  
 Account: AECOM AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

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

## Initial Calibration Report

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

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



# Initial Calibration Summary

Job Number: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

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

## Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	%RSE
S 13C4-PBBA	Linear	$y = 1.169040 * x$	
S 13C5-PFPeA	Linear	$y = 0.583071 * x$	
S 13C2-4:2FTS	Linear	$y = 0.168171 * x$	
S 13C3-PFBS	Linear	$y = 2.223329 * x$	
S 13C5-PFHxA	Linear	$y = 1.034575 * x$	
S 13C3-HFPO-DA	Linear	$y = 0.109021 * x$	
S 13C4-PFHpA	Linear	$y = 1.012136 * x$	
S 13C2-6:2FTS	Linear	$y = 0.206356 * x$	
S 13C8-PFOA	Linear	$y = 0.835070 * x$	
S 13C3-PFHxS	Linear	$y = 1.431243 * x$	
S 13C9-PFNA	Linear	$y = 0.924723 * x$	
S 13C2-8:2FTS	Linear	$y = 0.198861 * x$	
S 13C6-PEDA	Linear	$y = 0.735836 * x$	
S d3-MeFOSAA	Linear	$y = 1.209514 * x$	
S 13C8-PFOS	Linear	$y = 0.814810 * x$	
S d5-EFOSAA	Linear	$y = 1.047425 * x$	
S 13C7-PFUInDA	Linear	$y = 0.854541 * x$	
S 13C2-PFDODA	Linear	$y = 0.987977 * x$	
S 13C8-FOSA	Linear	$y = 1.860513 * x$	
S 13C2-PFTeDA	Linear	$y = 0.592660 * x$	
S d7-MeFOSE	Linear	$y = 0.254426 * x$	
S d3-MeFOSA	Linear	$y = 0.670458 * x$	
S d9-EFOSE	Linear	$y = 0.169114 * x$	
S d5-EFOSA	Linear	$y = 0.722657 * x$	

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

**Initial Calibration Verification**

Job Number: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

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

## Continuing Calibration Report

Batch: D:\MassHunter\Data\040423\_1633\_S6Q239\s6q239.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16006.d  
 2:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16007.d  
 3:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16008.d  
 4:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16009.d  
 5:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16010.d  
 6:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16011.d  
 7:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16012.d  
 8:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16013.d

Data File: 6Q16015  
 Type : QC  
 Level : 4

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

# Initial Calibration Verification

Job Number: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

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

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

CC Criteria: +/- 30%

**Initial Calibration Verification**

Job Number: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

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

## Continuing Calibration Report

Batch: D:\MassHunter\Data\040423\_1633\_S6Q239\s6q239.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16006.d  
 2:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16007.d  
 3:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16008.d  
 4:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16009.d  
 5:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16010.d  
 6:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16011.d  
 7:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16012.d  
 8:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16013.d

Data File: 6Q16016  
 Type : QC  
 Level : 20

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

# Initial Calibration Verification

Job Number: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

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

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

CC Criteria: +/- 30%

**Continuing Calibration Summary**

Job Number: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q239-CC239  
 Lab FileID: 6Q16017.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\040423\_1633\_S6Q239\s6q239.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16006.d  
 2:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16007.d  
 3:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16008.d  
 4:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16009.d  
 5:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16010.d  
 6:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16011.d  
 7:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16012.d  
 8:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16013.d

Data File: 6Q16017  
 Type : QC  
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.877	-2.5	97.5
13C2-6:2FTS	5.000	5.196	3.9	103.9
13C2-8:2FTS	5.000	5.157	3.1	103.1
13C2-PFDoDA	1.250	1.248	-0.2	99.8
13C2-PFTeDA	1.250	1.185	-5.2	94.8
13C3-PFBS	2.500	2.375	-5.0	95.0
13C3-PFHxS	2.500	2.328	-6.9	93.1
13C4-PFBA	10.000	9.901	-1.0	99.0
13C4-PFHpA	2.500	2.577	3.1	103.1
13C5-PFHxA	2.500	2.499	0.0	100.0
13C5-PFPeA	5.000	5.097	1.9	101.9
13C6-PFDA	1.250	1.283	2.6	102.6
13C7-PFUnDA	1.250	1.220	-2.4	97.6
13C8-FOSA	2.500	2.270	-9.2	90.8
13C8-PFOA	2.500	2.483	-0.7	99.3
13C8-PFOS	2.500	2.522	0.9	100.9
13C9-PFNA	1.250	1.251	0.1	100.1
4:2FTS	9.375	9.513	1.5	101.5
6:2FTS	9.500	8.935	-5.9	94.1
8:2FTS	9.600	8.799	-8.3	91.7
d3-MeFOSAA	5.000	4.595	-8.1	91.9
EtFOSAA	2.500	2.383	-4.7	95.3
FOSA	2.500	2.292	-8.3	91.7
MeFOSAA	2.500	2.311	-7.6	92.4
PFBA	10.000	8.880	-11.2	88.8
PFBS	2.218	2.062	-7.0	93.0
PFDA	2.500	2.143	-14.3	85.7
PFDoDA	2.500	2.164	-13.4	86.6
PFDS	2.413	1.862	-22.8	77.2
PFHpA	2.500	2.302	-7.9	92.1
PFHpS	2.383	2.015	-15.4	84.6
PFHxA	2.500	2.248	-10.1	89.9
PFHxS	2.285	2.217	-3.0	97.0
PFNA	2.500	2.075	-17.0	83.0
PFNS	2.405	2.083	-13.4	86.6
PFOA	2.500	2.201	-11.9	88.1
PFOS	2.320	1.966	-15.3	84.7

# Continuing Calibration Summary

Job Number: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q239-CC239  
 Lab FileID: 6Q16017.D

PFPeA	5.000	4.476	-10.5	89.5
PFPeS	2.353	2.183	-7.2	92.8
PFTeDA	2.500	2.400	-4.0	96.0
PFTTrDA	2.500	2.372	-5.1	94.9
PFUnDA	2.500	2.372	-5.1	94.9
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	9.450	9.075	-4.0	96.0
13C3-HFPO-DA	10.000	9.900	-1.0	99.0
9C1-PF3ONS	9.350	8.560	-8.4	91.6
ADONA	9.450	8.878	-6.1	93.9
HFPO-DA	10.000	9.044	-9.6	90.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	10.693	-14.3	85.7
5:3FTCA	62.400	55.208	-11.5	88.5
7:3FTCA	62.400	58.441	-6.3	93.7
d3-MeFOSA	2.500	2.379	-4.9	95.1
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.320	-7.2	92.8
EtFOSE	25.000	21.535	-13.9	86.1
MeFOSA	2.500	2.348	-6.1	93.9
MeFOSE	25.000	21.749	-13.0	87.0
PFDoDS	2.425	2.071	-14.6	85.4
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.755	-4.9	95.1
d7-MeFOSE	25.000	23.088	-7.6	92.4
d9-EtFOSE	25.000	23.203	-7.2	92.8
d5-EtFOSA	2.500	2.346	-6.2	93.8
NFDHA	5.000	4.458	-10.8	89.2
PFMBA	5.000	4.301	-14.0	86.0
PFMPA	5.000	4.473	-10.5	89.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	3.945	-11.4	88.6

CC Criteria: +/- 30%

**Continuing Calibration Summary**

Job Number: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q239-CC239  
 Lab FileID: 6Q16018.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\040423\_1633\_S6Q239\s6q239.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16006.d  
 2:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16007.d  
 3:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16008.d  
 4:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16009.d  
 5:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16010.d  
 6:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16011.d  
 7:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16012.d  
 8:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16013.d

Data File: 6Q16018  
 Type : QC  
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.255	5.1	105.1
13C2-6:2FTS	5.000	5.374	7.5	107.5
13C2-8:2FTS	5.000	5.162	3.2	103.2
13C2-PFDoDA	1.250	1.212	-3.1	96.9
13C2-PFTeDA	1.250	1.280	2.4	102.4
13C3-PFBS	2.500	2.417	-3.3	96.7
13C3-PFHxS	2.500	2.402	-3.9	96.1
13C4-PFBA	10.000	9.909	-0.9	99.1
13C4-PFHpA	2.500	2.615	4.6	104.6
13C5-PFHxA	2.500	2.664	6.5	106.5
13C5-PFPeA	5.000	5.306	6.1	106.1
13C6-PFDA	1.250	1.319	5.6	105.6
13C7-PFUnDA	1.250	1.292	3.4	103.4
13C8-FOSA	2.500	2.453	-1.9	98.1
13C8-PFOA	2.500	2.345	-6.2	93.8
13C8-PFOS	2.500	2.577	3.1	103.1
13C9-PFNA	1.250	1.210	-3.2	96.8
4:2FTS	0.750	0.758	1.0	101.0
6:2FTS	0.760	0.784	3.1	103.1
8:2FTS	0.768	0.836	8.9	108.9
d3-MeFOSAA	5.000	5.005	0.1	100.1
EtFOSAA	0.200	0.193	-3.5	96.5
FOSA	0.200	0.216	8.0	108.0
MeFOSAA	0.200	0.200	-0.2	99.8
PFBA	0.800	0.764	-4.5	95.5
PFBS	0.177	0.164	-7.3	92.7
PFDA	0.200	0.183	-8.6	91.4
PFDoDA	0.200	0.253	26.5	126.5
PFDS	0.193	0.200	3.7	103.7
PFHpA	0.200	0.217	8.5	108.5
PFHpS	0.191	0.197	3.1	103.1
PFHxA	0.200	0.194	-3.1	96.9
PFHxS	0.183	0.214	17.1	117.1
PFNA	0.200	0.185	-7.5	92.5
PFNS	0.192	0.225	17.4	117.4
PFOA	0.200	0.232	16.2	116.2
PFOS	0.186	0.193	4.0	104.0



# Continuing Calibration Summary

Job Number: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q239-CC239  
 Lab FileID: 6Q16018.D

PFPeA	0.400	0.401	0.2	100.2
PFPeS	0.188	0.184	-2.3	97.7
PFTeDA	0.200	0.230	14.8	114.8
PFTTrDA	0.200	0.240	20.1	120.1
PFUnDA	0.200	0.189	-5.4	94.6
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	0.756	0.752	-0.6	99.4
13C3-HFPO-DA	10.000	10.572	5.7	105.7
9C1-PF3ONS	0.748	0.777	3.9	103.9
ADONA	0.756	0.775	2.5	102.5
HFPO-DA	0.800	0.760	-5.0	95.0
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	0.949	-4.9	95.1
5:3FTCA	4.992	5.202	4.2	104.2
7:3FTCA	4.992	6.272	25.6	125.6
d3-MeFOSA	2.500	2.369	-5.3	94.7
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.200	0.226	12.8	112.8
EtFOSE	2.000	2.139	7.0	107.0
MeFOSA	0.200	0.241	20.6	120.6
MeFOSE	2.000	2.091	4.6	104.6
PFDoDS	0.194	0.226	16.6	116.6
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.042	0.8	100.8
d7-MeFOSE	25.000	24.457	-2.2	97.8
d9-EtFOSE	25.000	23.735	-5.1	94.9
d5-EtFOSA	2.500	2.300	-8.0	92.0
NFDHA	0.400	0.491	22.8	122.8
PFMBA	0.400	0.384	-4.0	96.0
PFMPA	0.400	0.390	-2.6	97.4
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	0.356	0.368	3.3	103.3

CC Criteria: +/- 30%

**Continuing Calibration Summary**

Job Number: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q239-CC239  
 Lab FileID: 6Q16023.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\040423\_1633\_S6Q239\s6q239.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16006.d  
 2:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16007.d  
 3:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16008.d  
 4:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16009.d  
 5:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16010.d  
 6:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16011.d  
 7:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16012.d  
 8:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16013.d

Data File: 6Q16023  
 Type : QC  
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.975	-0.5	99.5
13C2-6:2FTS	5.000	5.262	5.2	105.2
13C2-8:2FTS	5.000	4.821	-3.6	96.4
13C2-PFDoDA	1.250	1.154	-7.7	92.3
13C2-PFTeDA	1.250	1.153	-7.8	92.2
13C3-PFBS	2.500	2.251	-9.9	90.1
13C3-PFHxS	2.500	2.353	-5.9	94.1
13C4-PFBA	10.000	10.098	1.0	101.0
13C4-PFHpA	2.500	2.525	1.0	101.0
13C5-PFHxA	2.500	2.656	6.2	106.2
13C5-PFPeA	5.000	5.184	3.7	103.7
13C6-PFDA	1.250	1.187	-5.0	95.0
13C7-PFUnDA	1.250	1.184	-5.2	94.8
13C8-FOSA	2.500	2.261	-9.6	90.4
13C8-PFOA	2.500	2.465	-1.4	98.6
13C8-PFOS	2.500	2.446	-2.2	97.8
13C9-PFNA	1.250	1.157	-7.4	92.6
4:2FTS	9.375	8.944	-4.6	95.4
6:2FTS	9.500	8.253	-13.1	86.9
8:2FTS	9.600	10.024	4.4	104.4
d3-MeFOSAA	5.000	5.132	2.6	102.6
EtFOSAA	2.500	2.278	-8.9	91.1
FOSA	2.500	2.313	-7.5	92.5
MeFOSAA	2.500	2.062	-17.5	82.5
PFBA	10.000	8.971	-10.3	89.7
PFBS	2.218	2.071	-6.6	93.4
PFDA	2.500	2.273	-9.1	90.9
PFDoDA	2.500	2.210	-11.6	88.4
PFDS	2.413	2.163	-10.4	89.6
PFHpA	2.500	2.365	-5.4	94.6
PFHpS	2.383	2.000	-16.1	83.9
PFHxA	2.500	2.257	-9.7	90.3
PFHxS	2.285	2.031	-11.1	88.9
PFNA	2.500	2.350	-6.0	94.0
PFNS	2.405	2.091	-13.1	86.9
PFOA	2.500	2.157	-13.7	86.3
PFOS	2.320	1.894	-18.4	81.6

# Continuing Calibration Summary

Job Number: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q239-CC239  
 Lab FileID: 6Q16023.D

PFPeA	5.000	4.482	-10.4	89.6
PFPeS	2.353	2.107	-10.4	89.6
PFTeDA	2.500	2.220	-11.2	88.8
PFTrDA	2.500	2.323	-7.1	92.9
PFUnDA	2.500	2.389	-4.4	95.6
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--		
11Cl-PF3OUdS	9.450	9.190	-2.8	97.2
13C3-HFPO-DA	10.000	9.752	-2.5	97.5
9C1-PF3ONS	9.350	9.257	-1.0	99.0
ADONA	9.450	8.958	-5.2	94.8
HFPO-DA	10.000	9.666	-3.3	96.7
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	10.894	-12.7	87.3
5:3FTCA	62.400	53.215	-14.7	85.3
7:3FTCA	62.400	54.059	-13.4	86.6
d3-MeFOSA	2.500	2.208	-11.7	88.3
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.347	-6.1	93.9
EtFOSE	25.000	23.236	-7.1	92.9
MeFOSA	2.500	2.384	-4.6	95.4
MeFOSE	25.000	22.177	-11.3	88.7
PFDoDS	2.425	2.002	-17.5	82.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.876	-2.5	97.5
d7-MeFOSE	25.000	22.607	-9.6	90.4
d9-EtFOSE	25.000	21.899	-12.4	87.6
d5-EtFOSA	2.500	2.219	-11.2	88.8
NFDHA	5.000	4.366	-12.7	87.3
PFMBA	5.000	4.382	-12.4	87.6
PFMPA	5.000	4.422	-11.6	88.4
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	3.938	-11.5	88.5

CC Criteria: +/- 30%

**Continuing Calibration Summary**

Job Number: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q239-CC239  
 Lab FileID: 6Q16034.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\040423\_1633\_S6Q239\s6q239.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16006.d  
 2:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16007.d  
 3:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16008.d  
 4:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16009.d  
 5:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16010.d  
 6:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16011.d  
 7:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16012.d  
 8:D:\MassHunter\Data\040423\_1633\_S6Q239\6Q16013.d

Data File: 6Q16034  
 Type : QC  
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.838	-3.2	96.8
13C2-6:2FTS	5.000	5.405	8.1	108.1
13C2-8:2FTS	5.000	4.866	-2.7	97.3
13C2-PFDoDA	1.250	1.190	-4.8	95.2
13C2-PFTeDA	1.250	1.125	-10.0	90.0
13C3-PFBS	2.500	2.371	-5.2	94.8
13C3-PFHxS	2.500	2.259	-9.6	90.4
13C4-PFBA	10.000	9.951	-0.5	99.5
13C4-PFHpA	2.500	2.528	1.1	101.1
13C5-PFHxA	2.500	2.430	-2.8	97.2
13C5-PFPeA	5.000	4.859	-2.8	97.2
13C6-PFDA	1.250	1.286	2.9	102.9
13C7-PFUnDA	1.250	1.274	1.9	101.9
13C8-FOSA	2.500	2.503	0.1	100.1
13C8-PFOA	2.500	2.385	-4.6	95.4
13C8-PFOS	2.500	2.637	5.5	105.5
13C9-PFNA	1.250	1.210	-3.2	96.8
4:2FTS	9.375	9.702	3.5	103.5
6:2FTS	9.500	7.990	-15.9	84.1
8:2FTS	9.600	9.636	0.4	100.4
d3-MeFOSAA	5.000	5.298	6.0	106.0
EtFOSAA	2.500	2.416	-3.4	96.6
FOSA	2.500	2.099	-16.0	84.0
MeFOSAA	2.500	2.337	-6.5	93.5
PFBA	10.000	9.083	-9.2	90.8
PFBS	2.218	1.971	-11.1	88.9
PFDA	2.500	2.242	-10.3	89.7
PFDoDA	2.500	2.359	-5.6	94.4
PFDS	2.413	2.163	-10.3	89.7
PFHpA	2.500	2.316	-7.3	92.7
PFHpS	2.383	1.922	-19.3	80.7
PFHxA	2.500	2.235	-10.6	89.4
PFHxS	2.285	2.186	-4.3	95.7
PFNA	2.500	2.285	-8.6	91.4
PFNS	2.405	2.106	-12.4	87.6
PFOA	2.500	2.280	-8.8	91.2
PFOS	2.320	1.905	-17.9	82.1

# Continuing Calibration Summary

Job Number: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q239-CC239  
 Lab FileID: 6Q16034.D

PFPeA	5.000	4.548	-9.0	91.0
PFPeS	2.353	2.196	-6.7	93.3
PFTeDA	2.500	2.505	0.2	100.2
PFTTrDA	2.500	2.400	-4.0	96.0
PFUnDA	2.500	2.202	-11.9	88.1
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	9.450	8.693	-8.0	92.0
13C3-HFPO-DA	10.000	9.647	-3.5	96.5
9C1-PF3ONS	9.350	8.835	-5.5	94.5
ADONA	9.450	8.761	-7.3	92.7
HFPO-DA	10.000	8.883	-11.2	88.8
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	10.949	-12.3	87.7
5:3FTCA	62.400	56.156	-10.0	90.0
7:3FTCA	62.400	58.616	-6.1	93.9
d3-MeFOSA	2.500	2.417	-3.3	96.7
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.315	-7.4	92.6
EtFOSE	25.000	23.326	-6.7	93.3
MeFOSA	2.500	2.294	-8.2	91.8
MeFOSE	25.000	22.006	-12.0	88.0
PFDoDS	2.425	2.048	-15.5	84.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.049	1.0	101.0
d7-MeFOSE	25.000	24.421	-2.3	97.7
d9-EtFOSE	25.000	23.016	-7.9	92.1
d5-EtFOSA	2.500	2.431	-2.7	97.3
NFDHA	5.000	4.574	-8.5	91.5
PFMBA	5.000	4.443	-11.1	88.9
PFMPA	5.000	4.460	-10.8	89.2
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.027	-9.5	90.5

CC Criteria: +/- 30%

## Run Sequence Report

Job Number: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q239	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q		
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S6Q239-RT	6Q16003.D	04/04/23 13:10	n/a	Retention Time Marker
S6Q239-RT	6Q16004.D	04/04/23 13:24	n/a	Retention Time Marker
S6Q239-IC239	6Q16005.D	04/04/23 13:38	n/a	Mass Calibration Verification
S6Q239-IC239	6Q16006.D	04/04/23 14:15	n/a	Initial cal 1
S6Q239-IC239	6Q16007.D	04/04/23 14:29	n/a	Initial cal 2
S6Q239-IC239	6Q16008.D	04/04/23 14:43	n/a	Initial cal 3
S6Q239-ICC239	6Q16009.D	04/04/23 14:57	n/a	Initial cal 4
S6Q239-IC239	6Q16010.D	04/04/23 15:11	n/a	Initial cal 5
S6Q239-IC239	6Q16011.D	04/04/23 15:25	n/a	Initial cal 6
S6Q239-IC239	6Q16012.D	04/04/23 15:39	n/a	Initial cal 7
S6Q239-IC239	6Q16013.D	04/04/23 15:53	n/a	Initial cal 8
S6Q239-IBLK	6Q16014.D	04/04/23 16:07	n/a	Instrument Blank
S6Q239-IBLK	6Q16014.D	04/04/23 16:07	n/a	Instrument Blank
S6Q239-ICV239	6Q16015.D	04/04/23 16:21	n/a	Initial cal verification 4
S6Q239-ICV239	6Q16016.D	04/04/23 16:35	n/a	Initial cal verification 20
S6Q239-CC239	6Q16017.D	04/04/23 16:49	n/a	Continuing cal 4
S6Q239-CC239	6Q16018.D	04/04/23 17:03	n/a	Continuing cal 1.0LL
OP96208-BS	6Q16019.D	04/04/23 17:17	OP96208	Blank Spike
OP96208-LLBS	6Q16020.D	04/04/23 17:31	OP96208	Blank Spike
OP96208-MB	6Q16021.D	04/04/23 17:45	OP96208	Method Blank
ZZZZZZ	6Q16022.D	04/04/23 17:59	OP96208	(unrelated sample)
S6Q239-CC239	6Q16023.D	04/04/23 18:13	n/a	Continuing cal 4
S6Q239-ICCB	6Q16024.D	04/04/23 18:27	n/a	Continuing Calibration Blank
OP96209-BS	6Q16025.D	04/04/23 18:41	OP96209	Blank Spike
OP96209-LLBS	6Q16026.D	04/04/23 18:55	OP96209	Blank Spike
OP96209-MB	6Q16027.D	04/04/23 19:09	OP96209	Method Blank
FC3853-1	6Q16028.D	04/04/23 19:23	OP96209	AF-RHMW02-WGN01LF-2303W4
OP96209-MS	6Q16029.D	04/04/23 19:37	OP96209	Matrix Spike
FC3853-2	6Q16030.D	04/04/23 19:51	OP96209	AF-RHMW03-WGN01LF-2303W4
OP96209-DUP	6Q16031.D	04/04/23 20:05	OP96209	Duplicate
ZZZZZZ	6Q16032.D	04/04/23 20:19	OP96209	(unrelated sample)
ZZZZZZ	6Q16033.D	04/04/23 20:33	OP96209	(unrelated sample)
S6Q239-CC239	6Q16034.D	04/04/23 20:47	n/a	Continuing cal 4
S6Q239-ICCB	6Q16035.D	04/04/23 21:01	n/a	Continuing Calibration Blank
OP96190-BS	6Q16036.D	04/04/23 21:15	OP96190	Blank Spike
OP96190-LLBS	6Q16037.D	04/04/23 21:29	OP96190	Blank Spike
OP96190-MB	6Q16038.D	04/04/23 21:43	OP96190	Method Blank
ZZZZZZ	6Q16039.D	04/04/23 21:57	OP96190	(unrelated sample)
ZZZZZZ	6Q16040.D	04/04/23 22:11	OP96190	(unrelated sample)
ZZZZZZ	6Q16041.D	04/04/23 22:25	OP96190	(unrelated sample)
JD62588-4	6Q16043.D	04/04/23 22:53	OP96190	(used for QC only; not part of job FC3853)
OP96190-MS	6Q16044.D	04/04/23 23:07	OP96190	Matrix Spike
ZZZZZZ	6Q16045.D	04/04/23 23:21	OP96190	(unrelated sample)
S6Q239-CC239	6Q16046.D	04/04/23 23:35	n/a	Continuing cal 4
S6Q239-ICCB	6Q16047.D	04/04/23 23:49	n/a	Continuing Calibration Blank
ZZZZZZ	6Q16048.D	04/05/23 00:03	OP96190	(unrelated sample)

# Run Sequence Report

Job Number: FC3853  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q239	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
ZZZZZZ	6Q16049.D	04/05/23 00:17	OP96190	(unrelated sample)
ZZZZZZ	6Q16050.D	04/05/23 00:31	OP96190	(unrelated sample)
ZZZZZZ	6Q16051.D	04/05/23 00:45	OP96190	(unrelated sample)
ZZZZZZ	6Q16052.D	04/05/23 00:59	OP96190	(unrelated sample)
ZZZZZZ	6Q16053.D	04/05/23 01:13	OP96190	(unrelated sample)
ZZZZZZ	6Q16054.D	04/05/23 01:27	OP96190	(unrelated sample)
ZZZZZZ	6Q16055.D	04/05/23 01:41	OP96190	(unrelated sample)
ZZZZZZ	6Q16056.D	04/05/23 01:55	OP96190	(unrelated sample)
ZZZZZZ	6Q16057.D	04/05/23 02:08	OP96190	(unrelated sample)
S6Q239-CC239	6Q16058.D	04/05/23 02:22	n/a	Continuing cal 4
S6Q239-CC239	6Q16059.D	04/05/23 02:36	n/a	Continuing cal 1.0LL
S6Q239-ICCB	6Q16060.D	04/05/23 02:50	n/a	Continuing Calibration Blank
JD62588-12A	6Q16061.D	04/05/23 03:04	OP96190	(used for QC only; not part of job FC3853)
OP96190-DUP	6Q16062.D	04/05/23 03:18	OP96190	Duplicate
ZZZZZZ	6Q16063.D	04/05/23 03:32	OP96190	(unrelated sample)
OP96192-BS	6Q16064.D	04/05/23 03:46	OP96192	Blank Spike
OP96192-LLBS	6Q16065.D	04/05/23 04:00	OP96192	Blank Spike
OP96192-MB	6Q16066.D	04/05/23 04:14	OP96192	Method Blank
ZZZZZZ	6Q16067.D	04/05/23 04:28	OP96192	(unrelated sample)
ZZZZZZ	6Q16068.D	04/05/23 04:42	OP96192	(unrelated sample)
ZZZZZZ	6Q16069.D	04/05/23 04:56	OP96192	(unrelated sample)
ZZZZZZ	6Q16070.D	04/05/23 05:10	OP96192	(unrelated sample)
S6Q239-CC239	6Q16071.D	04/05/23 05:24	n/a	Continuing cal 4
S6Q239-ICCB	6Q16072.D	04/05/23 05:38	n/a	Continuing Calibration Blank
ZZZZZZ	6Q16073.D	04/05/23 05:52	OP96192	(unrelated sample)
OP96192-MS	6Q16074.D	04/05/23 06:06	OP96192	Matrix Spike
OP96192-MSD	6Q16075.D	04/05/23 06:20	OP96192	Matrix Spike Duplicate
ZZZZZZ	6Q16076.D	04/05/23 06:34	OP96192	(unrelated sample)
ZZZZZZ	6Q16077.D	04/05/23 06:48	OP96192	(unrelated sample)
ZZZZZZ	6Q16078.D	04/05/23 07:02	OP96192	(unrelated sample)
ZZZZZZ	6Q16079.D	04/05/23 07:16	OP96192	(unrelated sample)
ZZZZZZ	6Q16080.D	04/05/23 07:30	OP96192	(unrelated sample)
ZZZZZZ	6Q16081.D	04/05/23 07:44	OP96192	(unrelated sample)
ZZZZZZ	6Q16082.D	04/05/23 07:58	OP96192	(unrelated sample)
S6Q239-CC239	6Q16083.D	04/05/23 08:12	n/a	Continuing cal 4
S6Q239-ICCB	6Q16084.D	04/05/23 08:26	n/a	Continuing Calibration Blank
ZZZZZZ	6Q16085.D	04/05/23 08:40	OP96192	(unrelated sample)
ZZZZZZ	6Q16086.D	04/05/23 08:54	OP96192	(unrelated sample)
ZZZZZZ	6Q16087.D	04/05/23 09:08	OP96192	(unrelated sample)
ZZZZZZ	6Q16088.D	04/05/23 09:22	OP96192	(unrelated sample)
ZZZZZZ	6Q16089.D	04/05/23 09:36	OP96192	(unrelated sample)
ZZZZZZ	6Q16090.D	04/05/23 09:50	OP96192	(unrelated sample)
ZZZZZZ	6Q16091.D	04/05/23 10:04	OP96192	(unrelated sample)
S6Q239-CC239	6Q16092.D	04/05/23 10:18	n/a	Continuing cal 4
S6Q239-ICCB	6Q16093.D	04/05/23 10:32	n/a	Continuing Calibration Blank
ZZZZZZ	6Q16095.D	04/05/23 11:38	OP96190	(unrelated sample)

6.10.1

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# Run Sequence Report

Job Number: FC3853  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q239	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
ZZZZZZ	6Q16096.D	04/05/23 11:52	OP96208	(unrelated sample)
ZZZZZZ	6Q16097.D	04/05/23 12:06	OP96190	(unrelated sample)
ZZZZZZ	6Q16098.D	04/05/23 12:19	OP96190	(unrelated sample)
ZZZZZZ	6Q16099.D	04/05/23 12:33	OP96190	(unrelated sample)
S6Q239-ECC239	6Q16100.D	04/05/23 12:47	n/a	Ending cal 4
S6Q239-ICCB	6Q16101.D	04/05/23 13:01	n/a	Continuing Calibration Blank

6.10.1

6



**MS Semi-volatiles**

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**Raw Data**

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16028.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 4/4/2023 7:23:26 PM  
 Sample Name : FC3853-1  
 Vial : P2-C8  
 DA Method File : 1633\_040423\_S6Q239.quantmethod.xml  
 Batch Name : s6q239.batch.bin  
 Sample Information : OP96209,S6Q239,565,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.938	216.8 -> 171.9	49028	10.00 µg/L	0.041
M5-PFPeA	4.322	268.3 -> 223.0	29418	5.00 µg/L	0.000
M5-PFHxA	5.528	318.0 -> 273.0	30380	2.50 µg/L	0.000
M4-PFHpA	6.468	367.1 -> 322.0	31832	2.50 µg/L	0.000
M8-PFOA	7.125	421.1 -> 376.0	53937	2.50 µg/L	0.013
M9-PFNA	7.655	472.1 -> 427.0	14296	1.25 µg/L	0.012
M6-PFDA	8.122	519.1 -> 474.1	13635	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	15193	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	15838	1.25 µg/L	0.012
M2-PFTeDA	9.721	715.2 -> 670.0	7725	1.25 µg/L	0.000
M8-FOSA	9.631	506.1 -> 77.8	13612	2.50 µg/L	0.012
M3-PFBS	5.459	302.1 -> 79.9	12024	2.50 µg/L	0.000
M3-PFHxS	7.240	402.1 -> 79.9	7363	2.50 µg/L	0.012
M8-PFOS	8.284	507.1 -> 79.9	6708	2.50 µg/L	0.000
M2-4:2FTS	5.191	329.1 -> 80.9	1831	5.00 µg/L	0.000
M2-6:2FTS	6.898	429.1 -> 80.9	2035	5.00 µg/L	0.012
M2-8:2FTS	7.911	529.1 -> 80.9	1821	5.00 µg/L	0.000
M3-MeFOSAA	8.180	573.2 -> 419.0	19815	5.00 µg/L	0.012
M3-HFPO-DA	5.893	286.9 -> 168.9	10338	10.00 µg/L	0.000
M5-EtFOSAA	8.375	589.2 -> 419.0	16669	5.00 µg/L	0.000
M7-MeFOSE	10.653	623.2 -> 58.9	15619	25.00 µg/L	0.000
M9-EtFOSE	10.888	639.2 -> 58.9	11198	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	4399	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	4489	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	8970	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	30099	5.00 µg/L	0.040
18O2-PFHxS	7.239	403.0 -> 83.9	6687	2.50 µg/L	0.012
13C4-PFOA	7.125	417.1 -> 372.0	73125	2.50 µg/L	0.013
13C2-PFDA	8.123	515.1 -> 470.1	20476	1.25 µg/L	0.000
13C5-PFNA	7.643	468.0 -> 423.0	19779	1.25 µg/L	0.000
13C2-PFHxA	5.529	315.1 -> 270.0	35311	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.191	329.1 -> 80.9	1831	4.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 81.4%		
13C2-6:2FTS	6.898	429.1 -> 80.9	2035	3.69 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 73.8%		
13C2-8:2FTS	7.911	529.1 -> 80.9	1821	3.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 68.5%		
13C2-PFDoDA	9.006	615.1 -> 570.0	15838	0.98 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 78.3%		
13C2-PFTeDA	9.721	715.2 -> 670.0	7725	0.80 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 63.7%		
13C3-PFBS	5.459	302.1 -> 79.9	12024	2.02 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 80.9%		
13C3-PFHxS	7.240	402.1 -> 79.9	7363	1.92 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 = 76.9%		
13C4-PFBA	2.938	216.8 -> 171.9	49028	6.97	µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 69.7%		
13C4-PFHpA	6.468	367.1 -> 322.0	31832	2.23	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.1%		
13C5-PFHxA	5.528	318.0 -> 273.0	30380	2.08	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 83.2%		
13C5-PFPeA	4.322	268.3 -> 223.0	29418	3.57	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 71.4%		
13C6-PFDA	8.122	519.1 -> 474.1	13635	1.13	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.5%		
13C7-PFUnDA	8.576	570.0 -> 525.1	15193	1.09	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 86.8%		
13C8-FOSA	9.631	506.1 -> 77.8	13612	2.04	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 81.6%		
13C8-PFOA	7.125	421.1 -> 376.0	53937	2.21	µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.3%		
13C8-PFOS	8.284	507.1 -> 79.9	6708	2.29	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.8%		
13C9-PFNA	7.655	472.1 -> 427.0	14296	0.98	µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 78.2%		
d3-MeFOSAA	8.180	573.2 -> 419.0	19815	4.57	µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 91.3%		
13C3-HFPO-DA	5.893	286.9 -> 168.9	10338	6.71	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 67.1%		
d3-MeFOSA	10.733	515.0 -> 219.0	4489	1.87	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 74.6%		
d5-EtFOSAA	8.375	589.2 -> 419.0	16669	4.44	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 88.7%		
d7-MeFOSE	10.653	623.2 -> 58.9	15619	17.11	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 68.4%		
d9-EtFOSE	10.888	639.2 -> 58.9	11198	18.45	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 73.8%		
d5-EtFOSA	10.965	531.1 -> 219.0	4399	1.70	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 67.9%		

Target Compounds	RT	Transition	Response	Conc.	Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.		
		327.1 -> 80.9				
6:2FTS	6.899	427.1 -> 407.0	1877	0.69	µg/L	87
		427.1 -> 80.9	529			
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	3.156	212.8 -> 168.9	0	µg/L	m	1
PFBS	5.299	298.7 -> 79.9	0	µg/L	m	1
		298.7 -> 98.8	0			
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	5.519	449.0 -> 98.9	1636	0.15	µg/L	99
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	63	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	7.113	548.8 -> 98.9	0		µg/L	m
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	0	N.D.		
		498.9 -> 79.9				
PFPeA	4.476	498.9 -> 98.8	0		µg/L	m
		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	3.721	241.0 -> 177.0	0		µg/L	m
		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



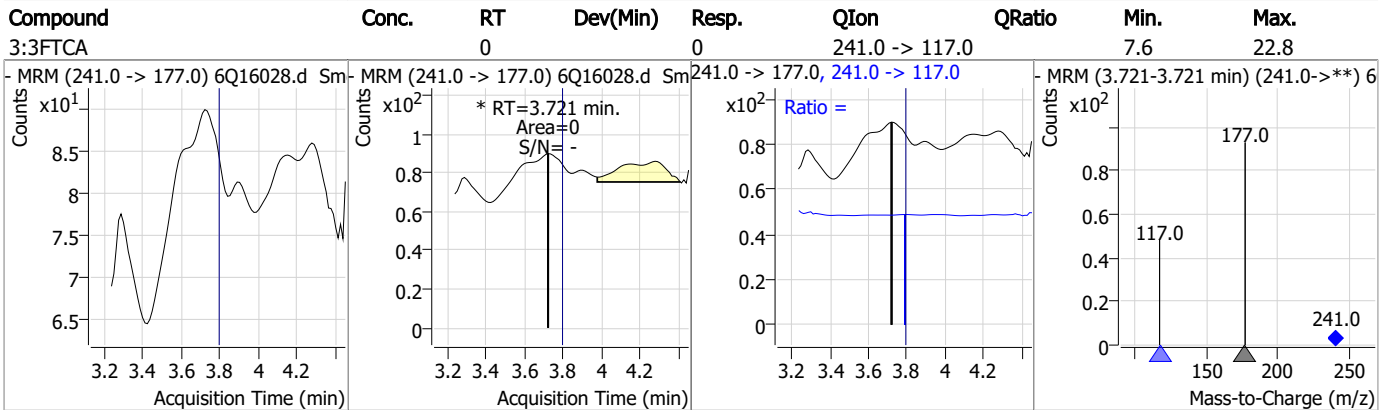
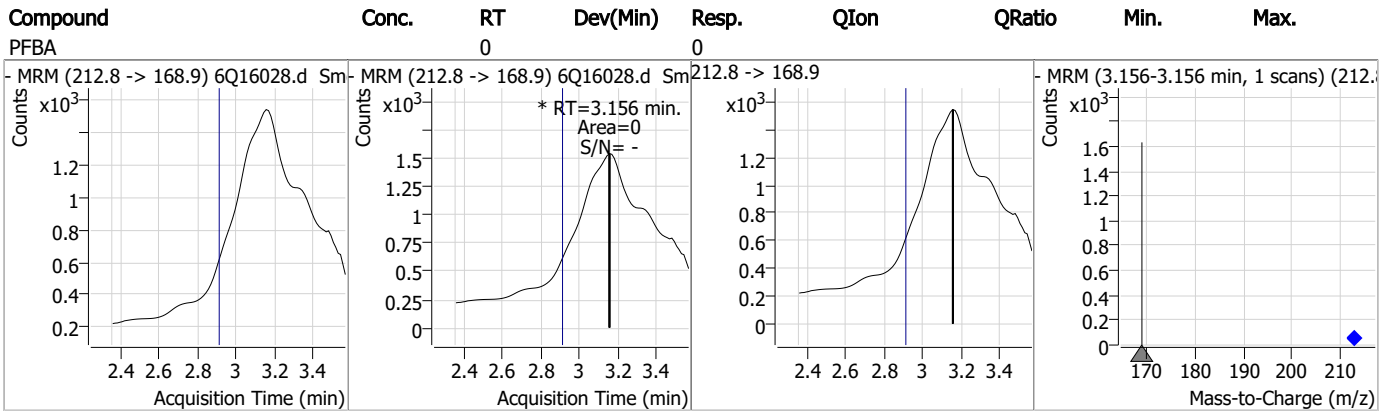
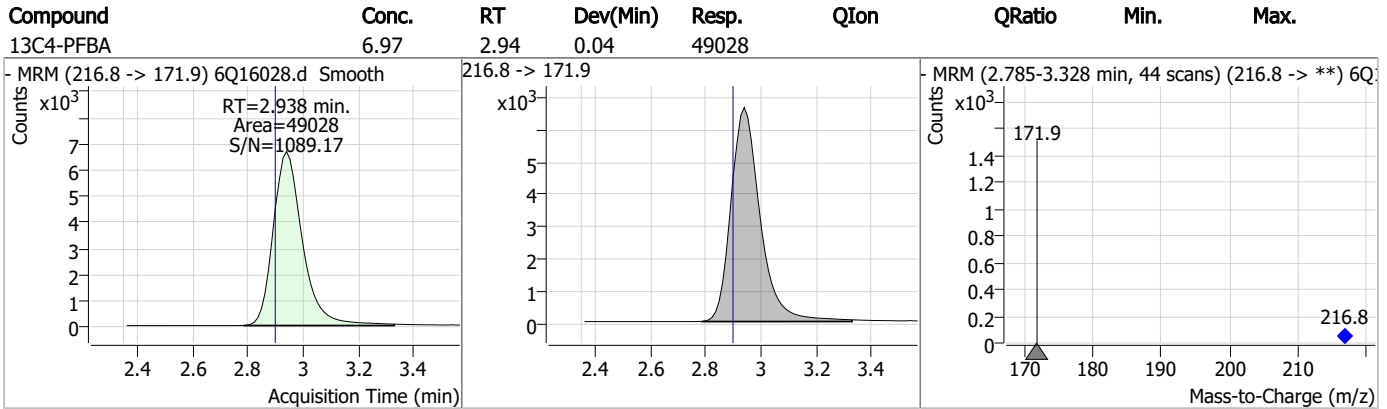
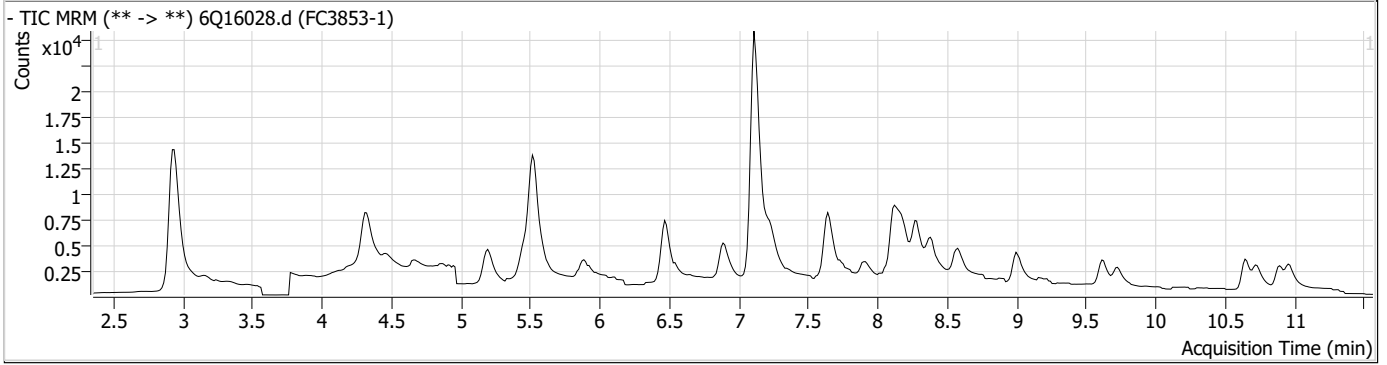
### Perfluorinated Compounds by LC/MS/MS

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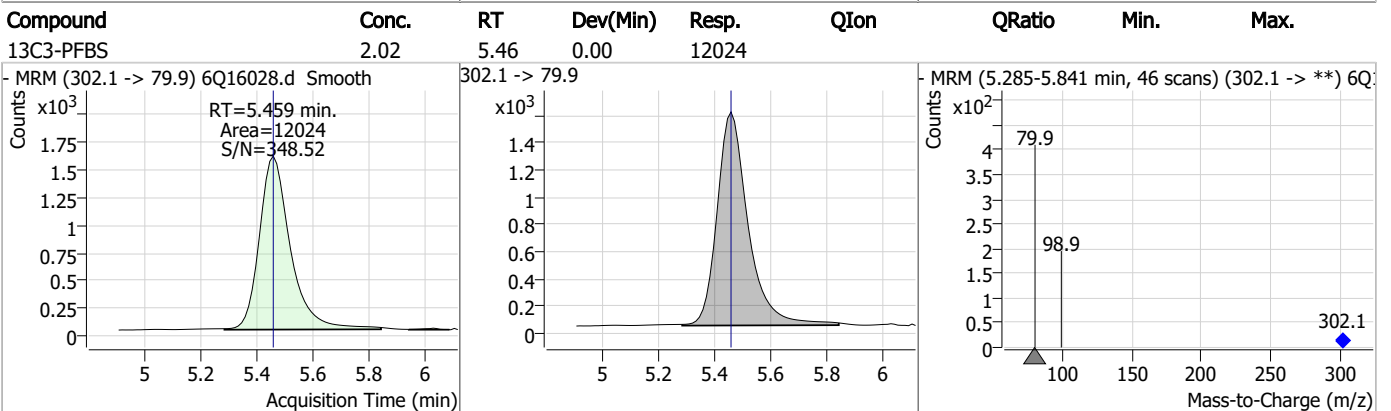
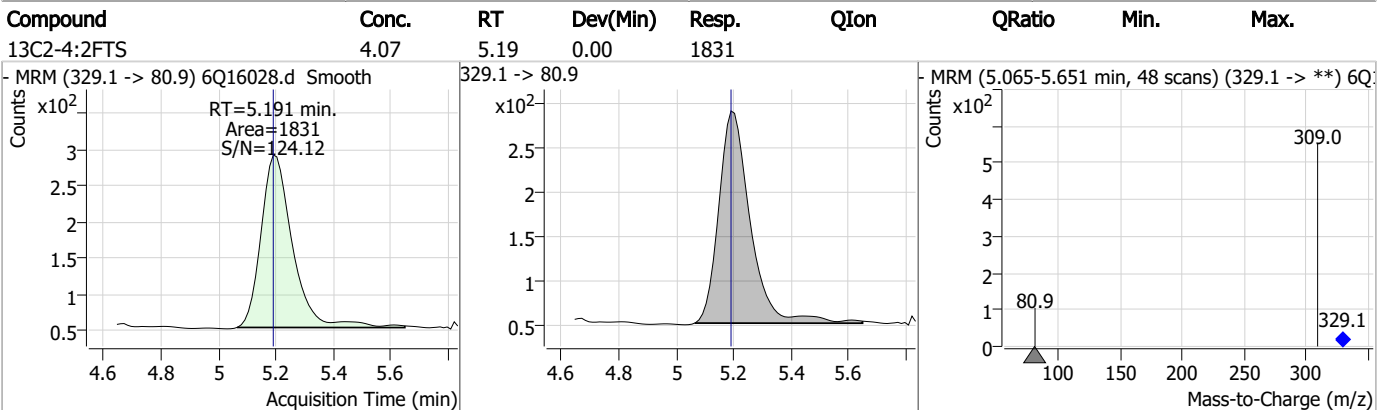
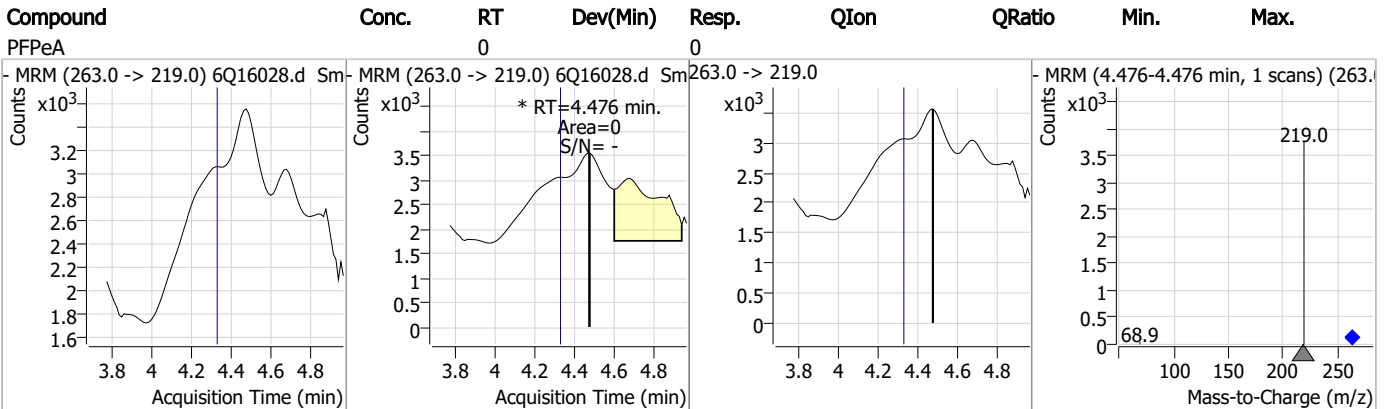
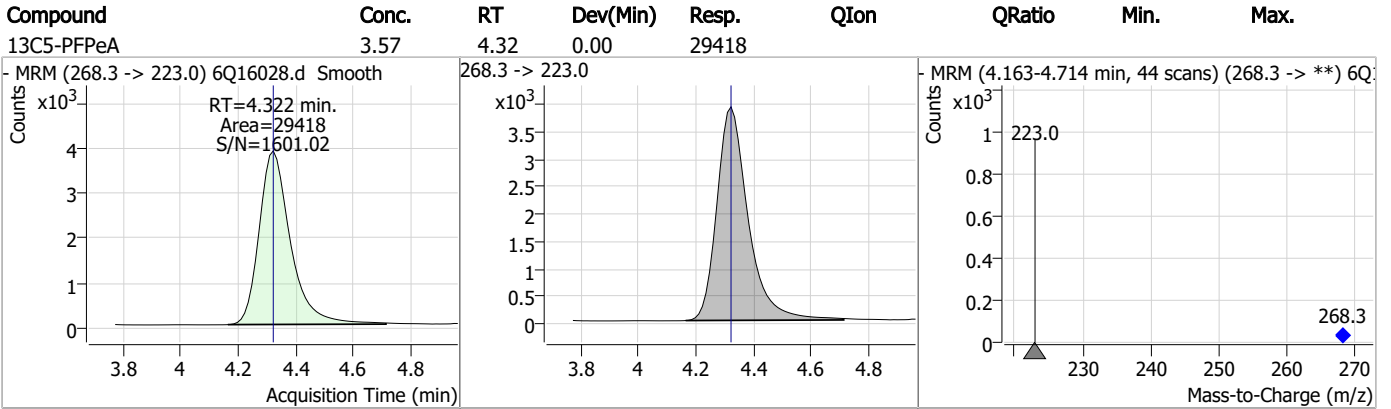
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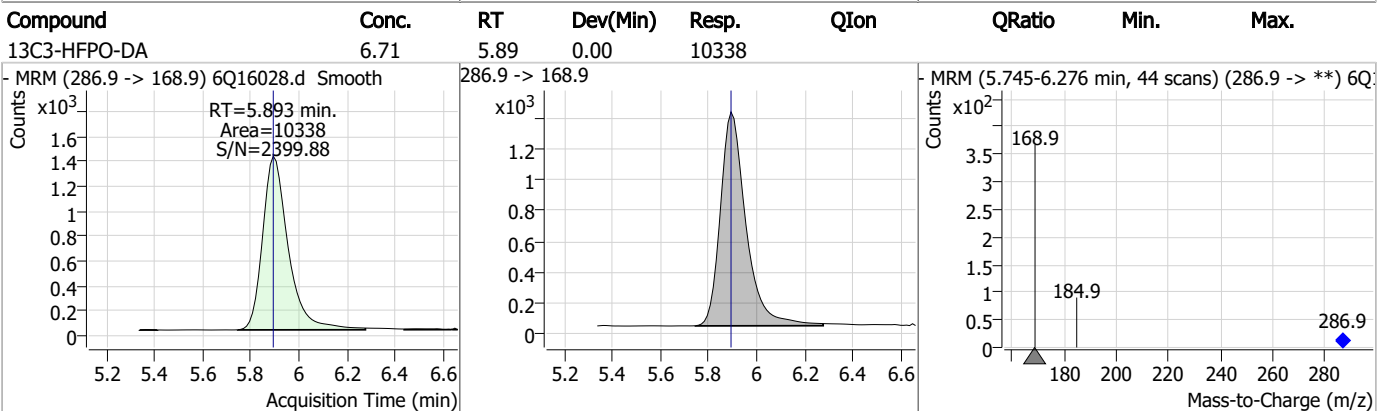
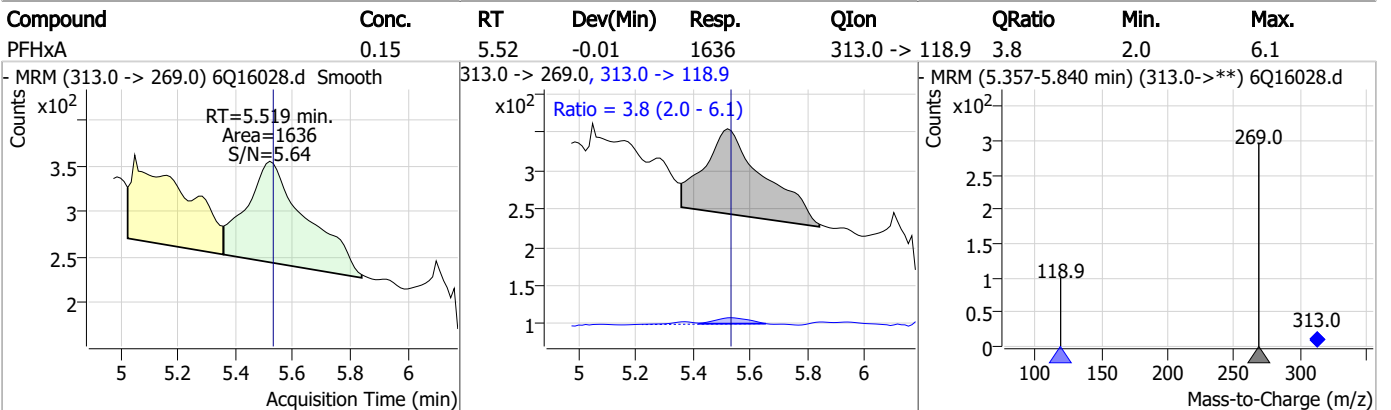
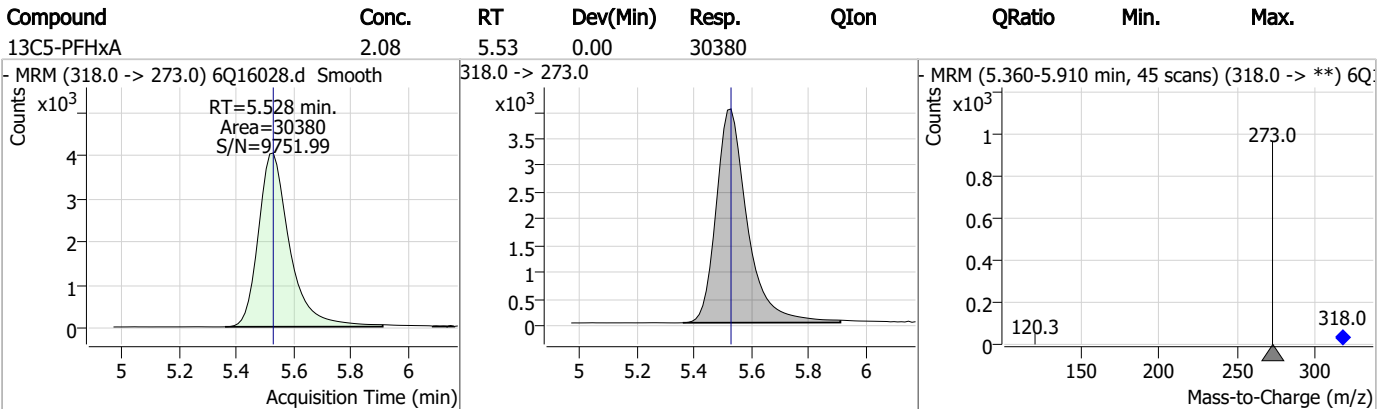
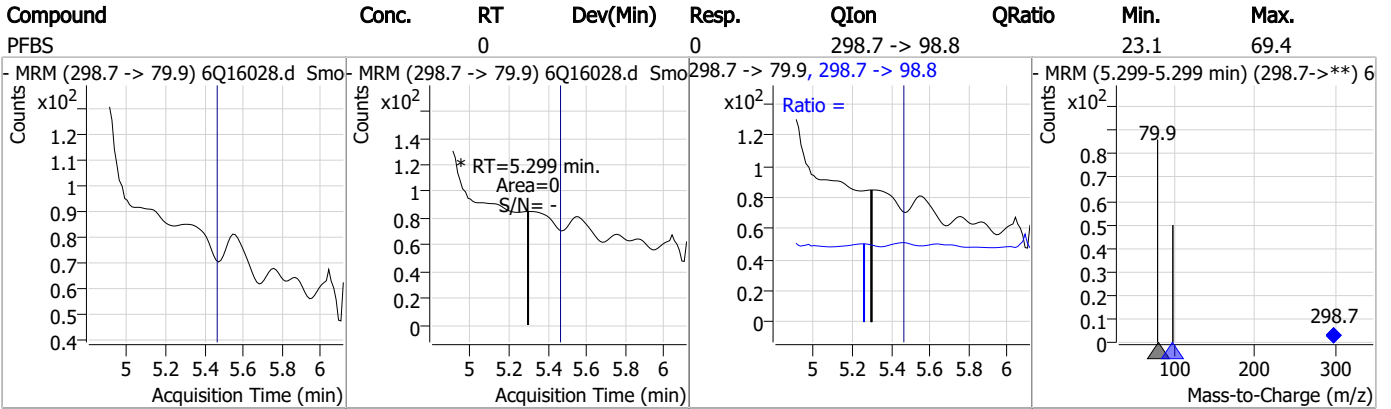
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

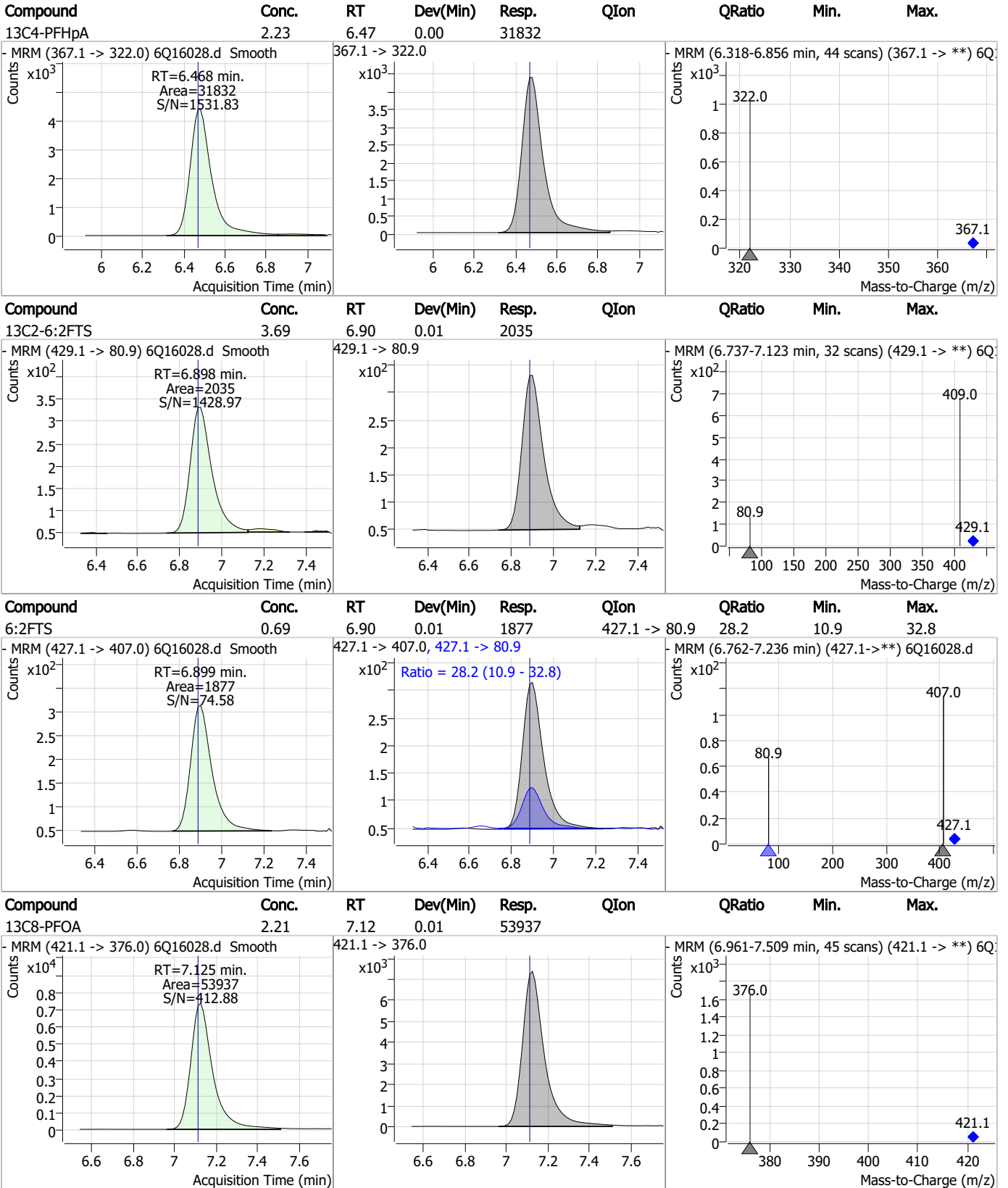


### Perfluorinated Compounds by LC/MS/MS



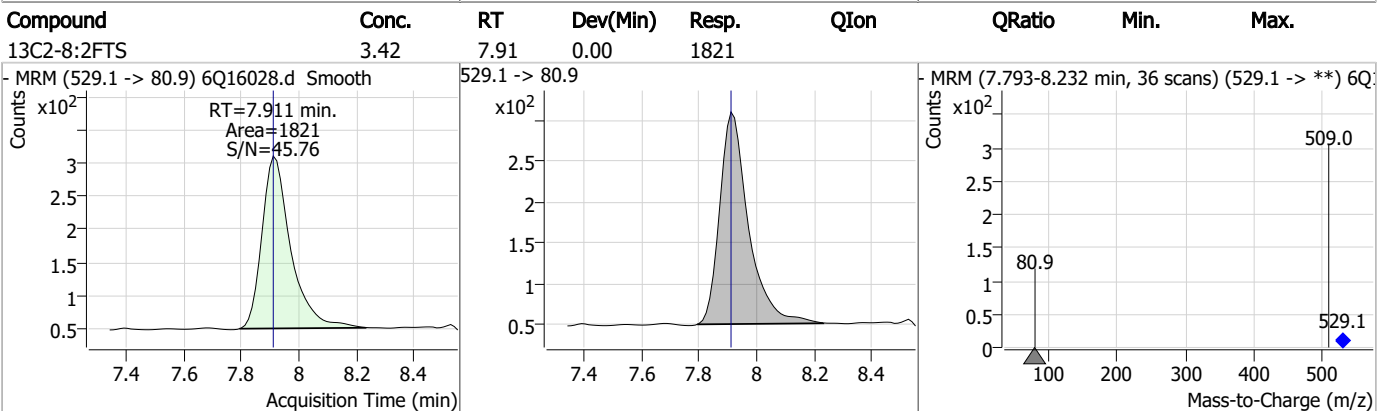
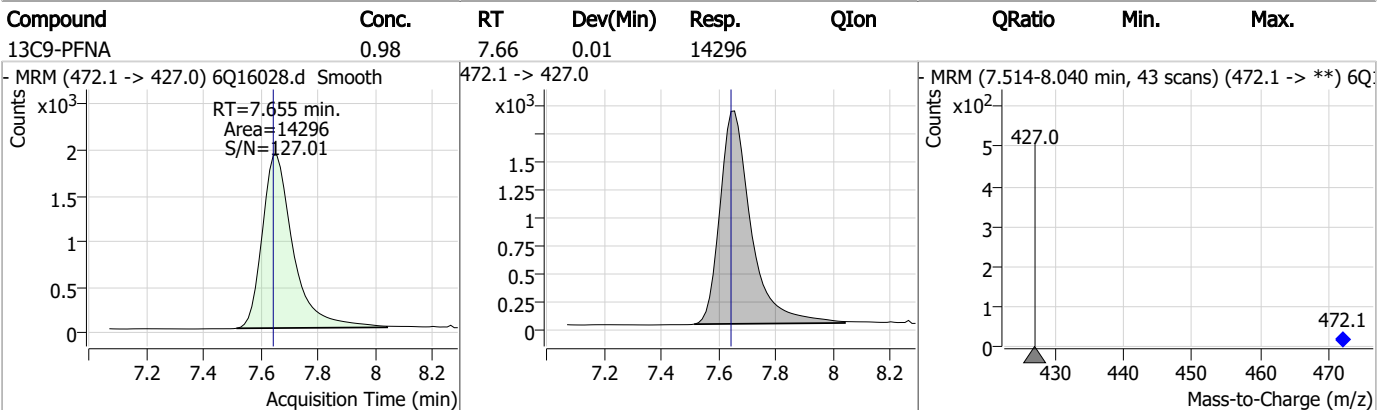
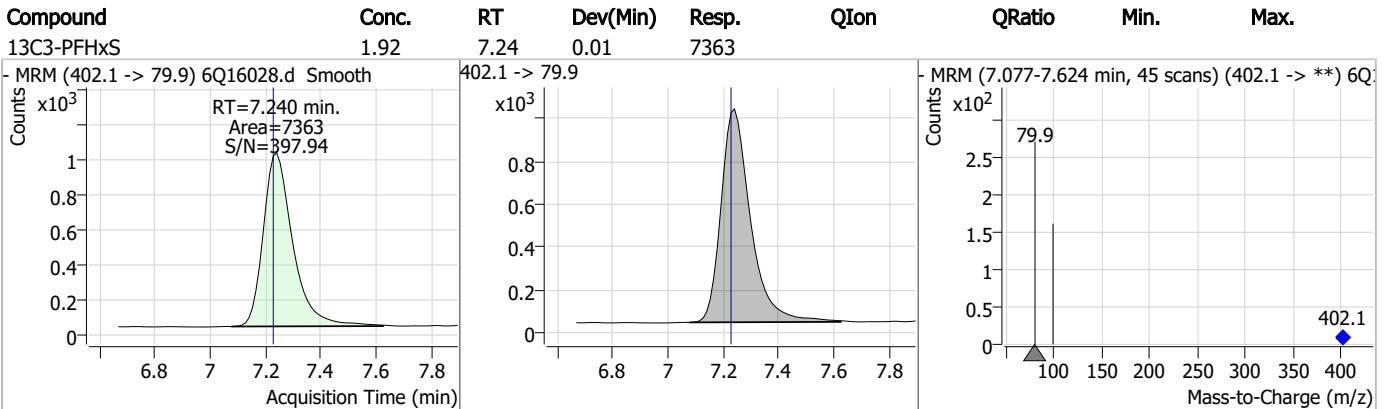
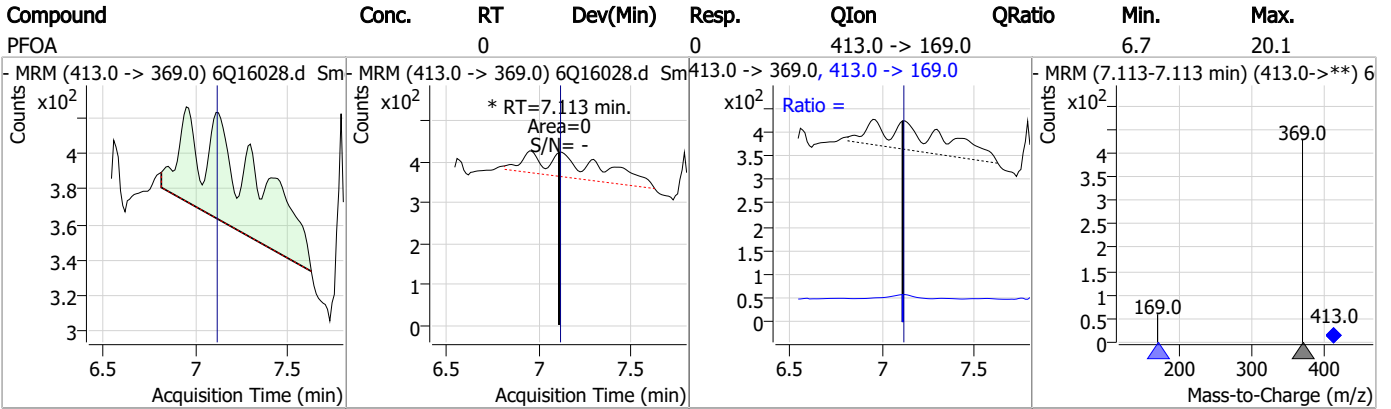


### Perfluorinated Compounds by LC/MS/MS



7.1.1  
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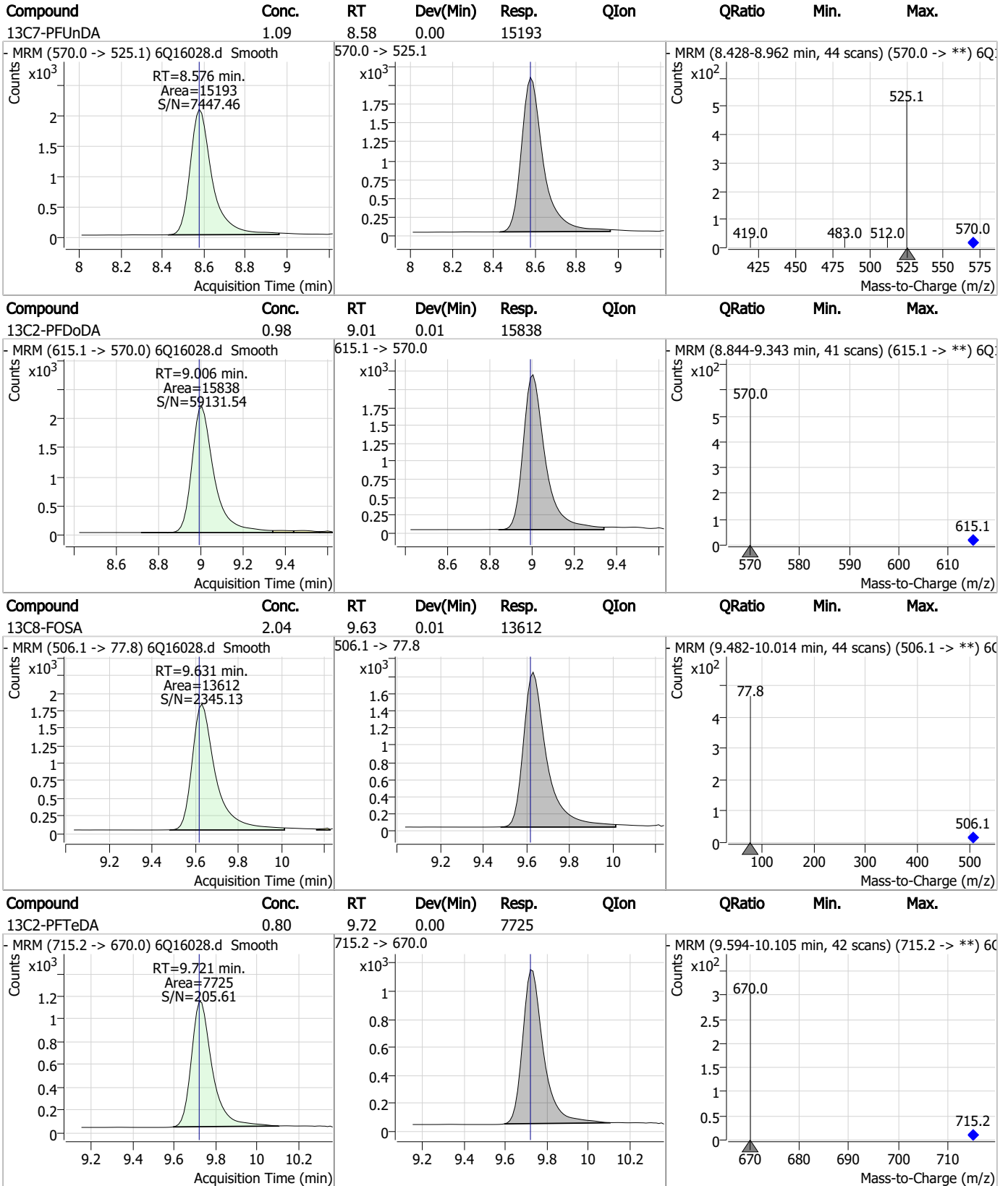
### Perfluorinated Compounds by LC/MS/MS



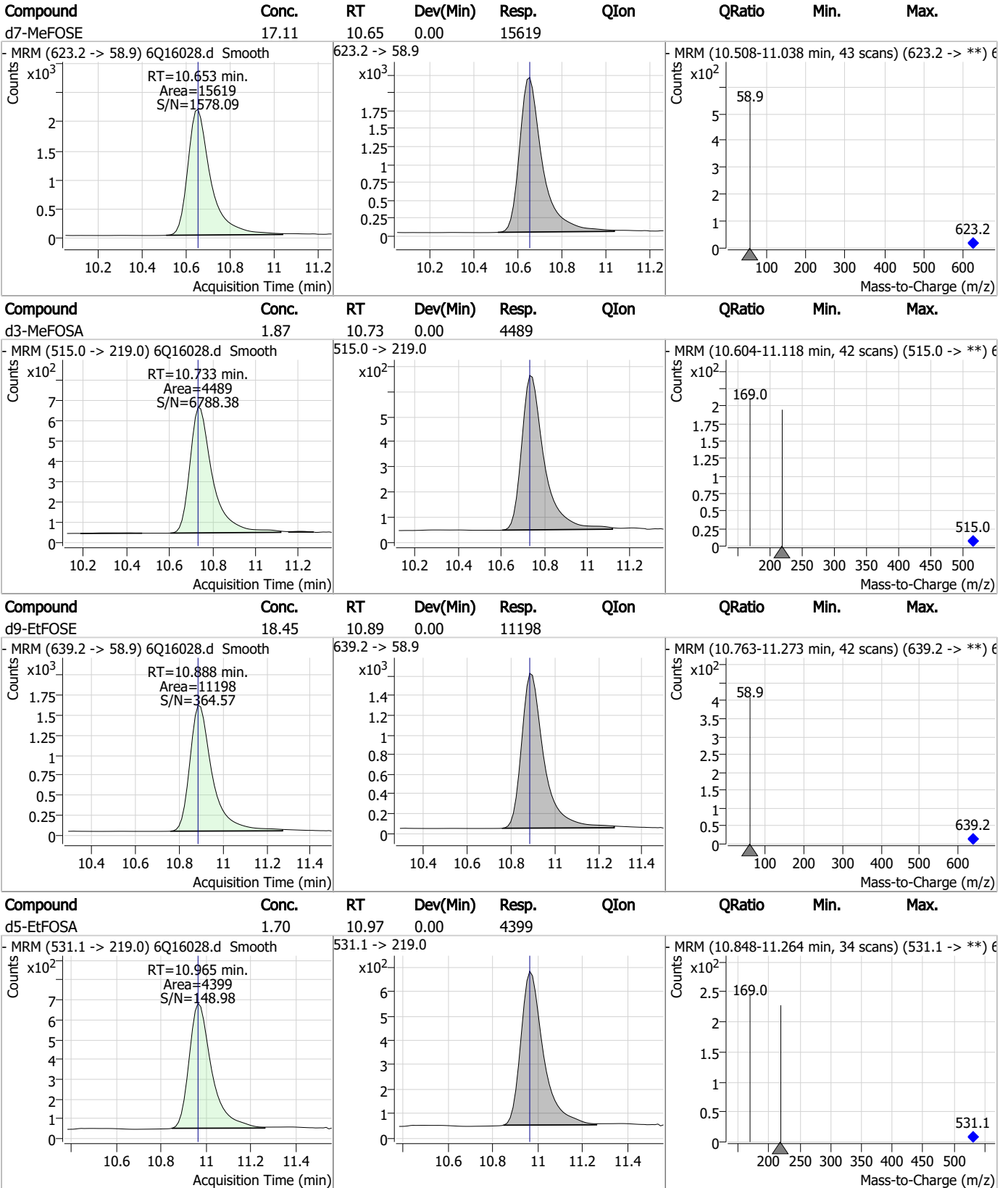
### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.13	8.12	0.00	13635				
d3-MeFOSAA	4.57	8.18	0.01	19815				
13C8-PFOS	2.29	8.28	0.00	6708				
d5-EtFOSAA	4.44	8.38	0.00	16669				

### Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16030.d  
Operator : marthav  
Acq. Method : 1633full.m  
Acq. Date-Time : 4/4/2023 7:51:23 PM  
Sample Name : FC3853-2  
Vial : P2-D1  
DA Method File : 1633\_040423\_S6Q239.quantmethod.xml  
Batch Name : s6q239.batch.bin  
Sample Information : OP96209,S6Q239,535,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.938	216.8 -> 171.9	70978	10.00 µg/L	0.041
M5-PFPeA	4.334	268.3 -> 223.0	33450	5.00 µg/L	0.012
M5-PFHxA	5.528	318.0 -> 273.0	30918	2.50 µg/L	0.000
M4-PFHpA	6.481	367.1 -> 322.0	30557	2.50 µg/L	0.012
M8-PFOA	7.125	421.1 -> 376.0	51567	2.50 µg/L	0.013
M9-PFNA	7.643	472.1 -> 427.0	15714	1.25 µg/L	0.000
M6-PFDA	8.122	519.1 -> 474.1	12948	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	14940	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	15466	1.25 µg/L	0.012
M2-PFTeDA	9.721	715.2 -> 670.0	7877	1.25 µg/L	0.000
M8-FOSA	9.631	506.1 -> 77.8	12540	2.50 µg/L	0.012
M3-PFBS	5.459	302.1 -> 79.9	12367	2.50 µg/L	0.000
M3-PFHxS	7.240	402.1 -> 79.9	7625	2.50 µg/L	0.012
M8-PFOS	8.284	507.1 -> 79.9	6086	2.50 µg/L	0.000
M2-4:2FTS	5.204	329.1 -> 80.9	1642	5.00 µg/L	0.012
M2-6:2FTS	6.898	429.1 -> 80.9	1954	5.00 µg/L	0.012
M2-8:2FTS	7.923	529.1 -> 80.9	2054	5.00 µg/L	0.012
M3-MeFOSAA	8.180	573.2 -> 419.0	20874	5.00 µg/L	0.012
M3-HFPO-DA	5.905	286.9 -> 168.9	11548	10.00 µg/L	0.012
M5-EtFOSAA	8.375	589.2 -> 419.0	17471	5.00 µg/L	0.000
M7-MeFOSE	10.653	623.2 -> 58.9	14901	25.00 µg/L	0.000
M9-EtFOSE	10.888	639.2 -> 58.9	10898	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	4329	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	4304	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	7632	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	32911	5.00 µg/L	0.040
18O2-PFHxS	7.239	403.0 -> 83.9	5775	2.50 µg/L	0.012
13C4-PFOA	7.125	417.1 -> 372.0	61852	2.50 µg/L	0.013
13C2-PFDA	8.123	515.1 -> 470.1	17518	1.25 µg/L	0.000
13C5-PFNA	7.643	468.0 -> 423.0	17453	1.25 µg/L	0.000
13C2-PFHxA	5.529	315.1 -> 270.0	30280	2.50 µg/L	0.000

#### System Monitoring Compounds

13C2-4:2FTS	5.204	329.1 -> 80.9	1642	4.23 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 84.5%		
13C2-6:2FTS	6.898	429.1 -> 80.9	1954	4.10 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 82.0%		
13C2-8:2FTS	7.923	529.1 -> 80.9	2054	4.47 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.4%		
13C2-PFDoDA	9.006	615.1 -> 570.0	15466	1.12 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.4%		
13C2-PFTeDA	9.721	715.2 -> 670.0	7877	0.95 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 75.9%		
13C3-PFBS	5.459	302.1 -> 79.9	12367	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C3-PFHxS	7.240	402.1 -> 79.9	7625	2.31 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 = 92.3%		
13C4-PFBA	2.938	216.8 -> 171.9	70978	9.22 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 92.2%		
13C4-PFHpA	6.481	367.1 -> 322.0	30557	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C5-PFHxA	5.528	318.0 -> 273.0	30918	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C5-PFPeA	4.334	268.3 -> 223.0	33450	4.74 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.7%		
13C6-PFDA	8.122	519.1 -> 474.1	12948	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C7-PFUnDA	8.576	570.0 -> 525.1	14940	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C8-FOSA	9.631	506.1 -> 77.8	12540	2.21 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 88.3%		
13C8-PFOA	7.125	421.1 -> 376.0	51567	2.50 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C8-PFOS	8.284	507.1 -> 79.9	6086	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.9%		
13C9-PFNA	7.643	472.1 -> 427.0	15714	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.4%		
d3-MeFOSAA	8.180	573.2 -> 419.0	20874	5.65 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.1%		
13C3-HFPO-DA	5.905	286.9 -> 168.9	11548	8.75 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 87.5%		
d3-MeFOSA	10.733	515.0 -> 219.0	4304	2.10 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 84.1%		
d5-EtFOSAA	8.375	589.2 -> 419.0	17471	5.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.3%		
d7-MeFOSE	10.653	623.2 -> 58.9	14901	19.19 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 76.7%		
d9-EtFOSE	10.888	639.2 -> 58.9	10898	21.11 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 84.4%		
d5-EtFOSA	10.965	531.1 -> 219.0	4329	1.96 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 78.5%		

Target Compounds

Compound	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	6.899	427.1 -> 407.0	2915	1.11 µg/L	95
		427.1 -> 80.9	567		
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	5.262	298.7 -> 79.9	0	µg/L m	1
		298.7 -> 98.8	0		
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	6.481	599.0 -> 98.8				
		363.1 -> 319.0	2000	0.12 µg/L	m	98
PFHpS	-	363.1 -> 169.0	262			
		449.0 -> 79.9	-	N.D.		
PFHxA	5.531	449.0 -> 98.9				
		313.0 -> 269.0	1417	0.12 µg/L		98
PFHxS	-	313.0 -> 118.9	65			
		398.7 -> 79.9	-	N.D.		
PFNA	8.090	398.7 -> 98.9				
		463.0 -> 419.0	0	µg/L	m	1
PFNS	-	463.0 -> 219.0	0			
		548.8 -> 79.9	-	N.D.		
PFOA	7.126	548.8 -> 98.9				
		413.0 -> 369.0	688	0.03 µg/L	m	89
PFOS	-	413.0 -> 169.0	124			
		498.9 -> 79.9	-	N.D.		
PFPeA	4.336	498.9 -> 98.8				
		263.0 -> 219.0	1961	0.28 µg/L		100
PFPeS	6.446	349.1 -> 79.9	0	µg/L	m	1
		349.1 -> 98.9	0			
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	-	N.D.		
MeFOSA	-	511.9 -> 169.0				
		616.1 -> 58.9	-	N.D.		
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9	-	N.D.		
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

7.12  
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# = Qualifier out of range, m = manually integrated, + = Area summed





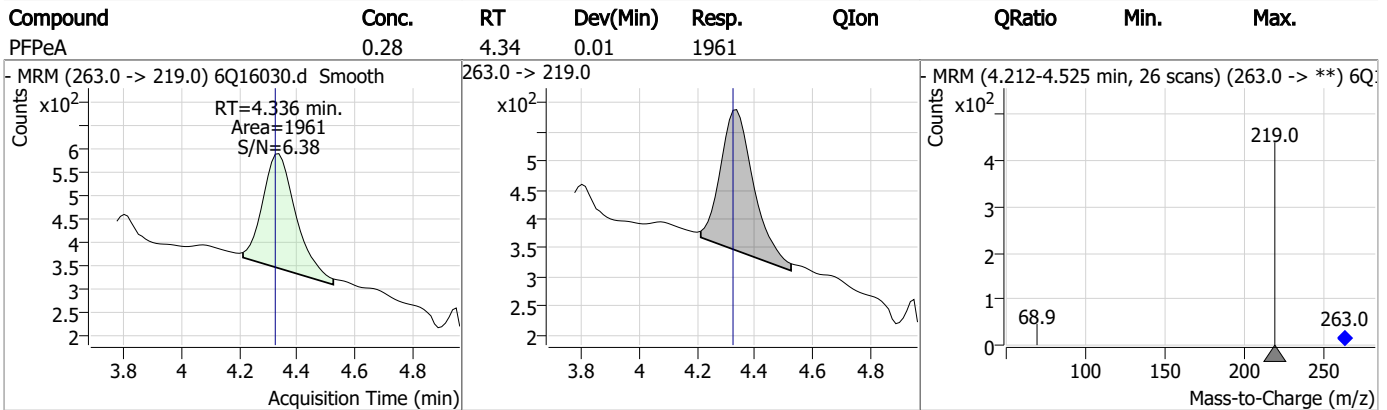
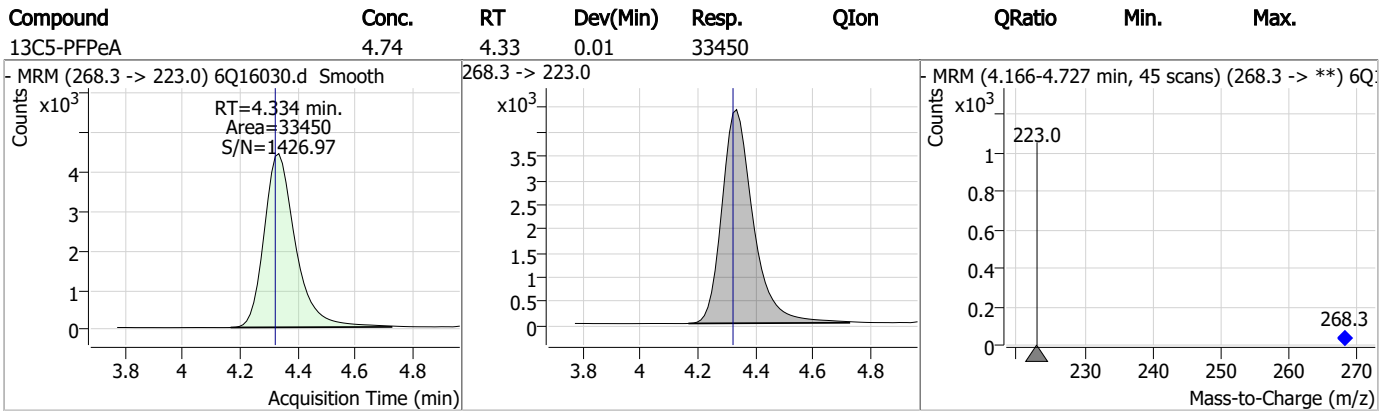
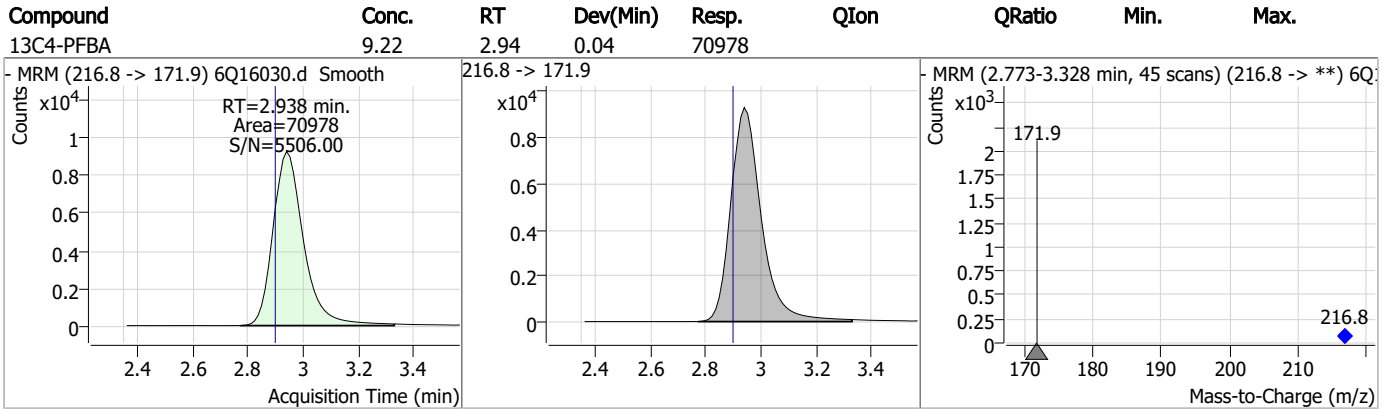
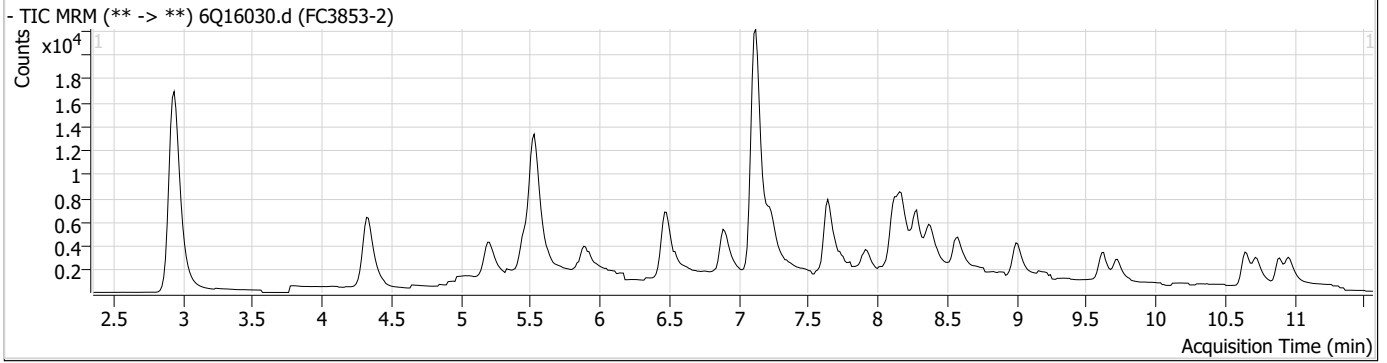
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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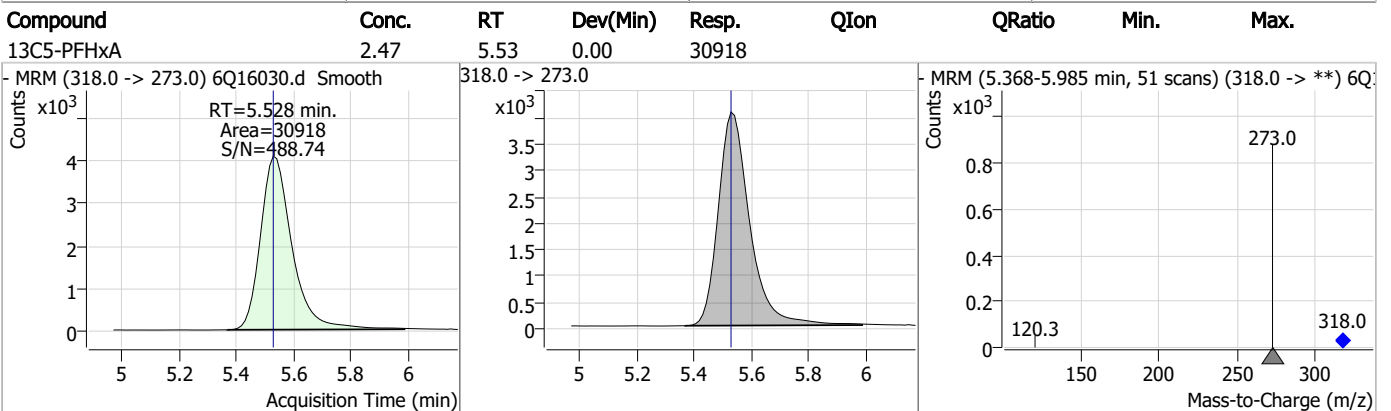
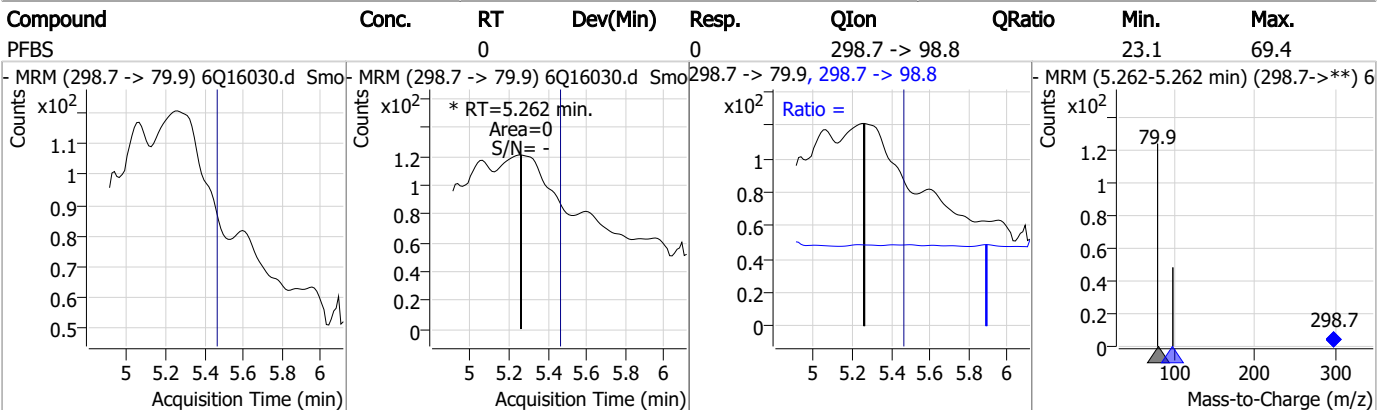
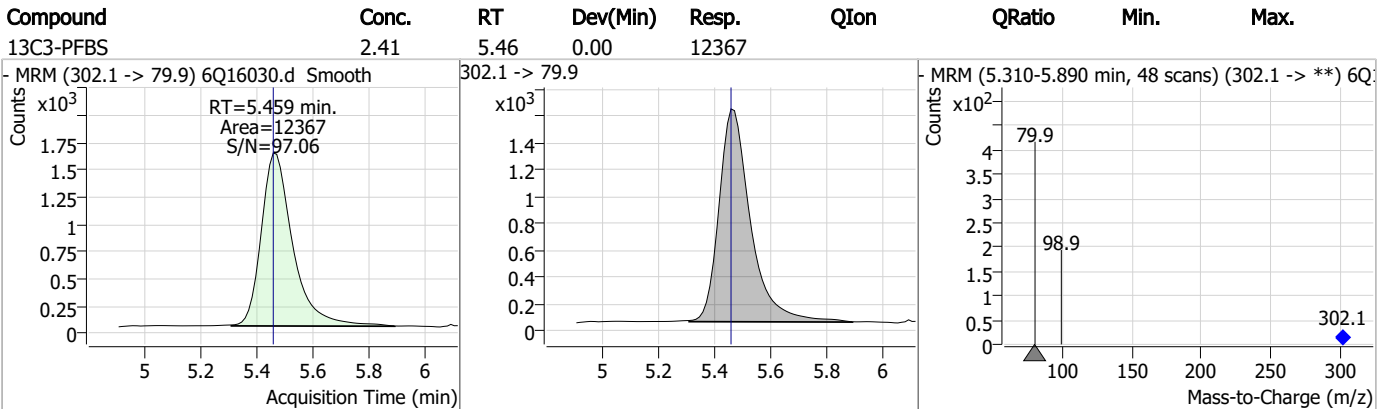
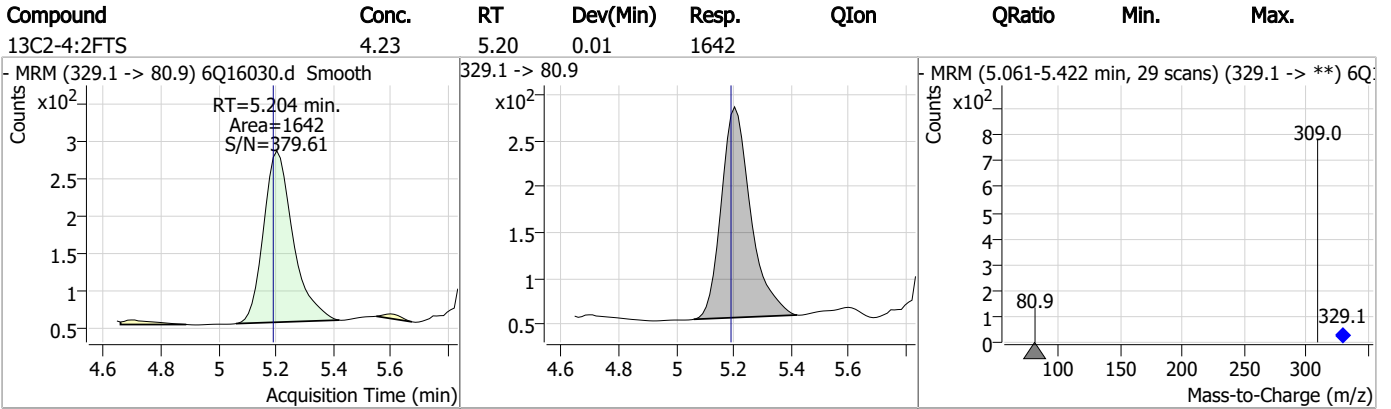
7.1.2

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### Perfluorinated Compounds by LC/MS/MS

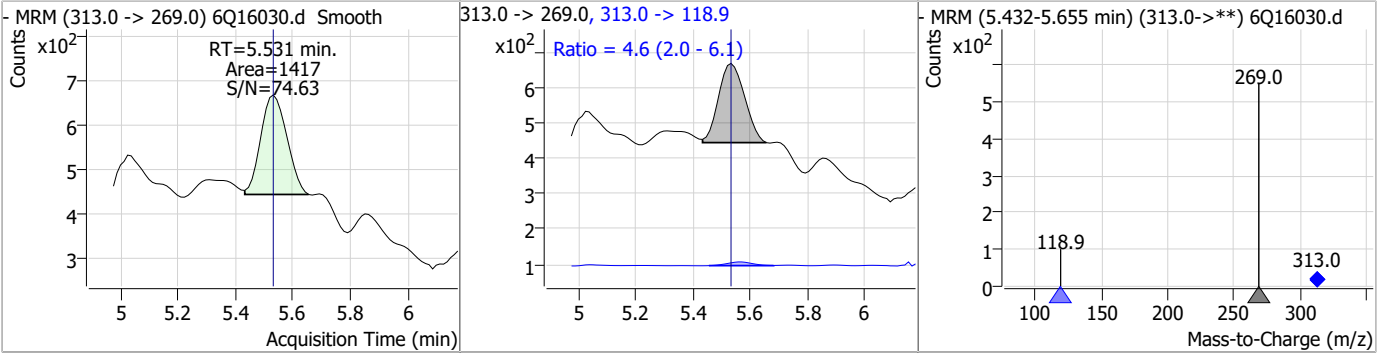


### Perfluorinated Compounds by LC/MS/MS

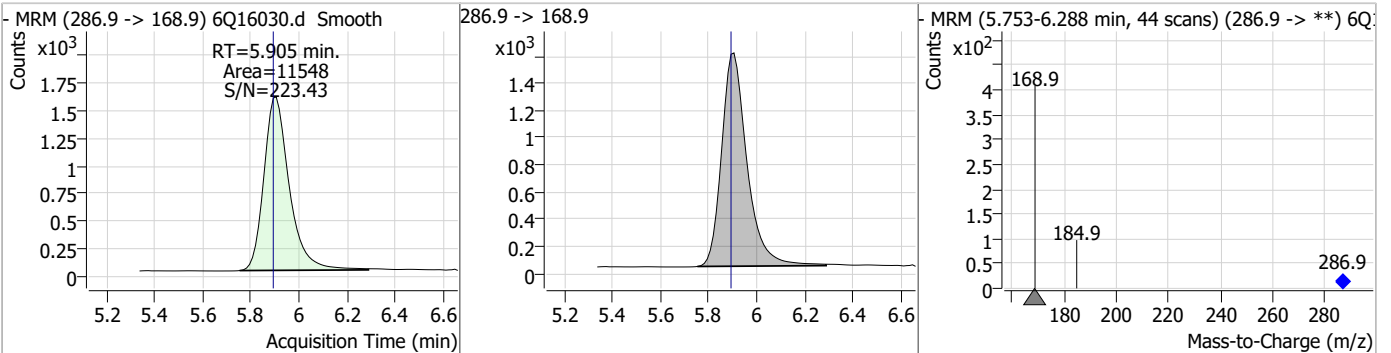


### Perfluorinated Compounds by LC/MS/MS

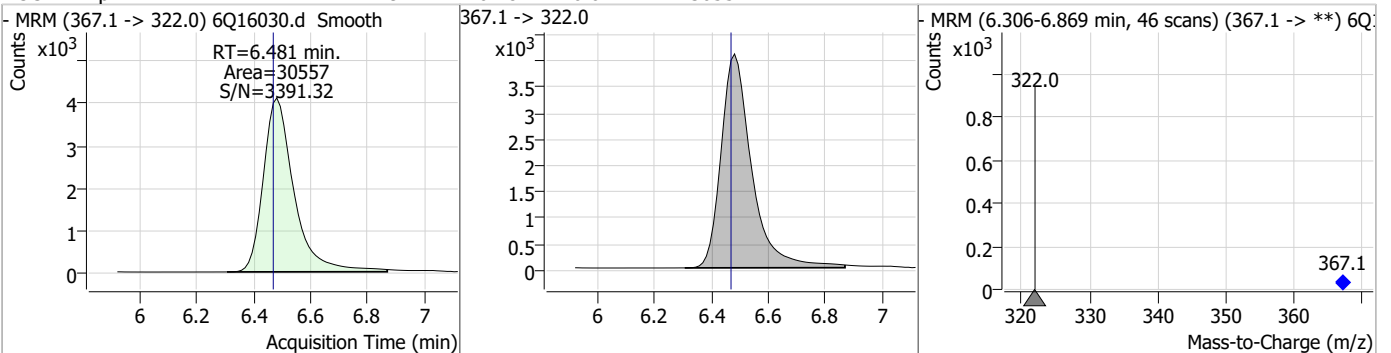
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.12	5.53	0.00	1417	313.0 -> 118.9	4.6	2.0	6.1



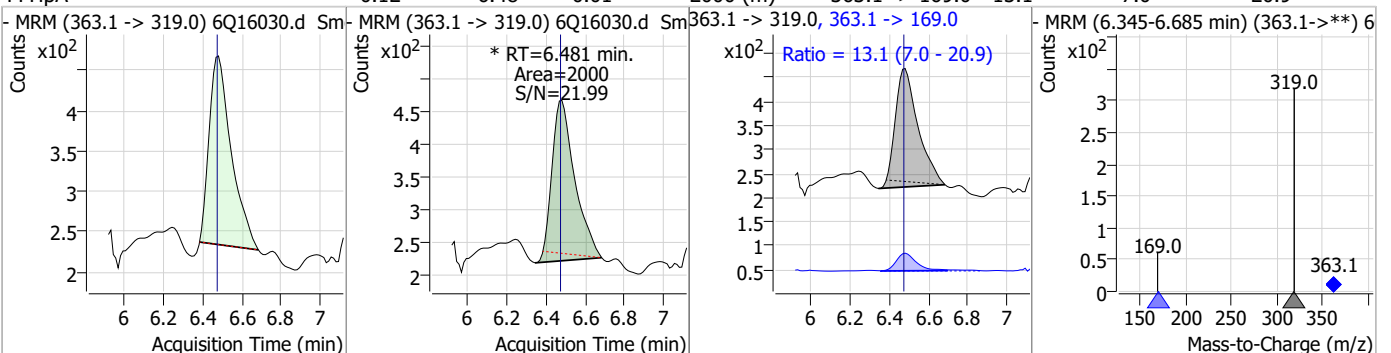
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.75	5.91	0.01	11548				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.49	6.48	0.01	30557				

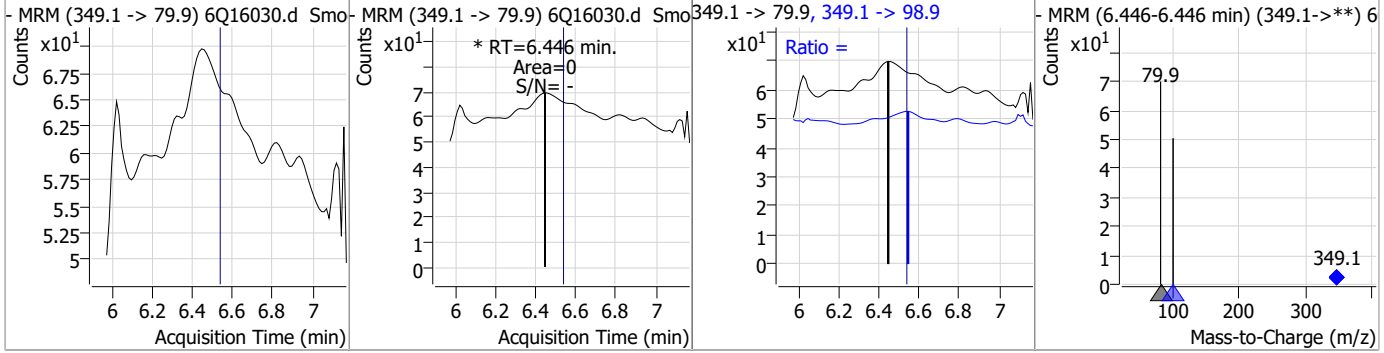


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.12	6.48	0.01	2000 (m)	363.1 -> 169.0	13.1	7.0	20.9

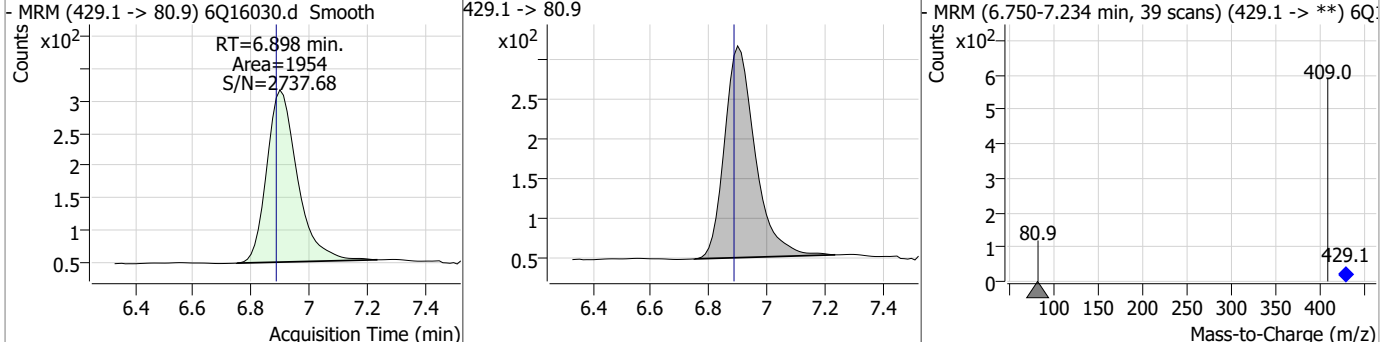


### Perfluorinated Compounds by LC/MS/MS

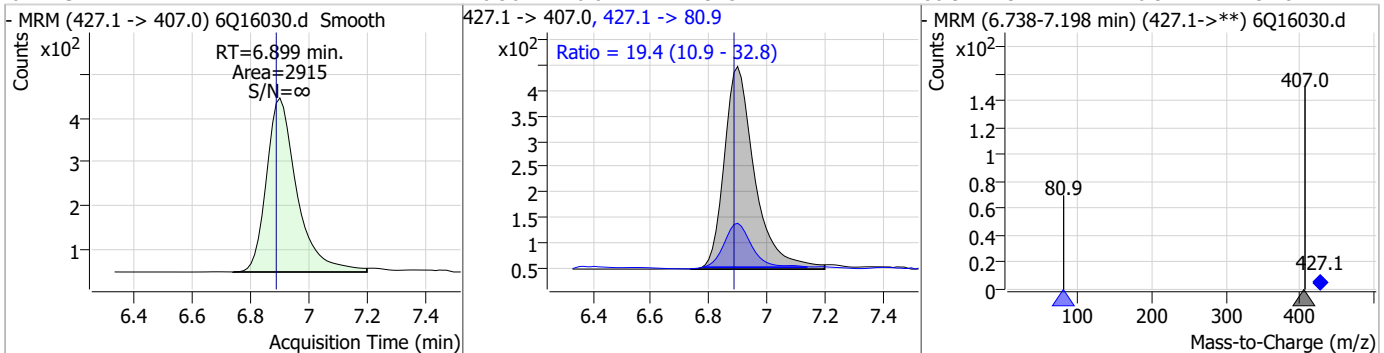
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0	0		0	349.1 -> 98.9		25.8	77.5



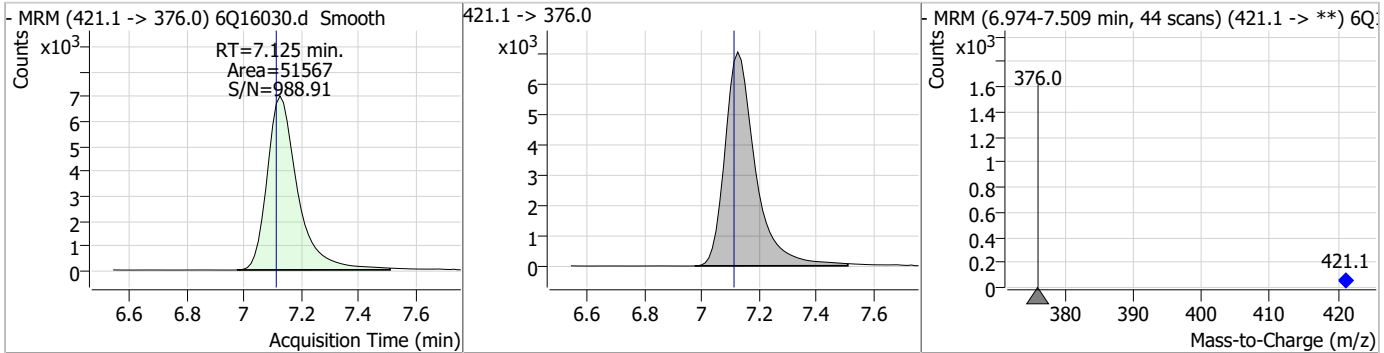
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	4.10	6.90	0.01	1954				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	1.11	6.90	0.01	2915	427.1 -> 80.9	19.4	10.9	32.8

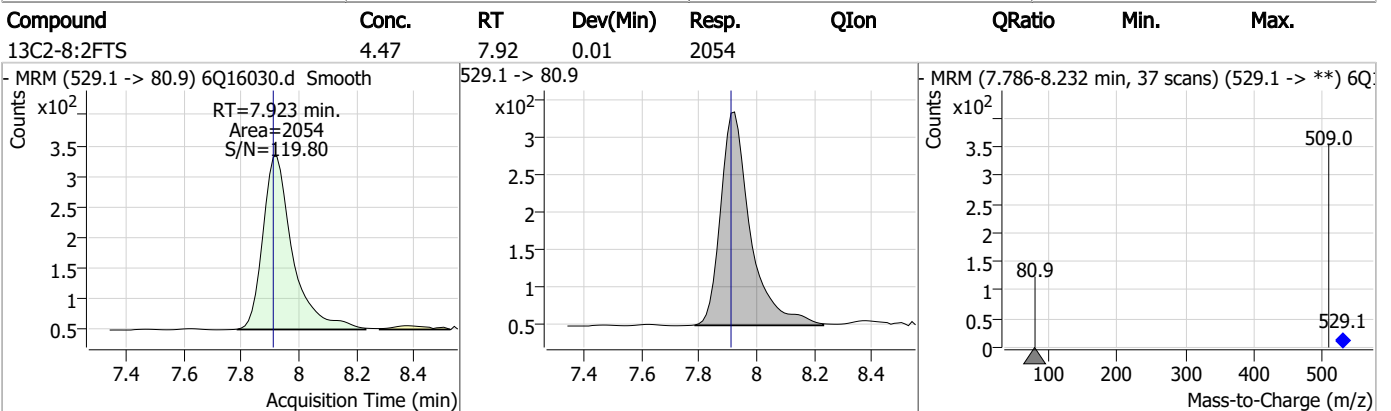
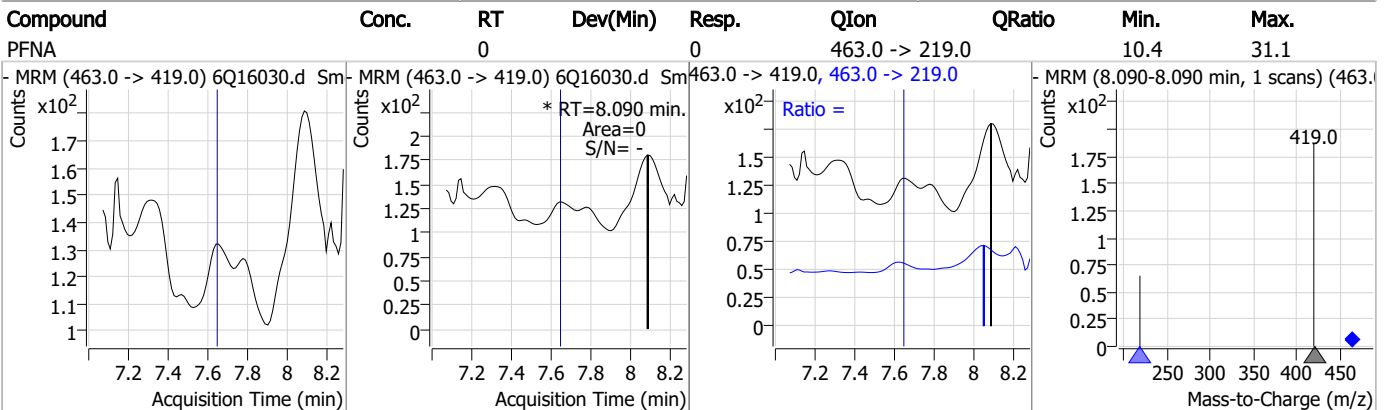
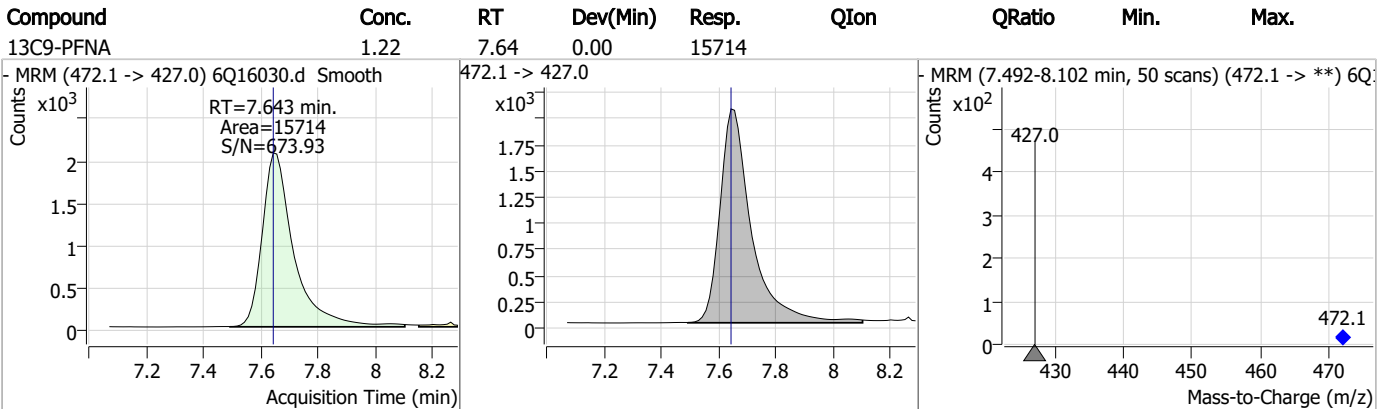
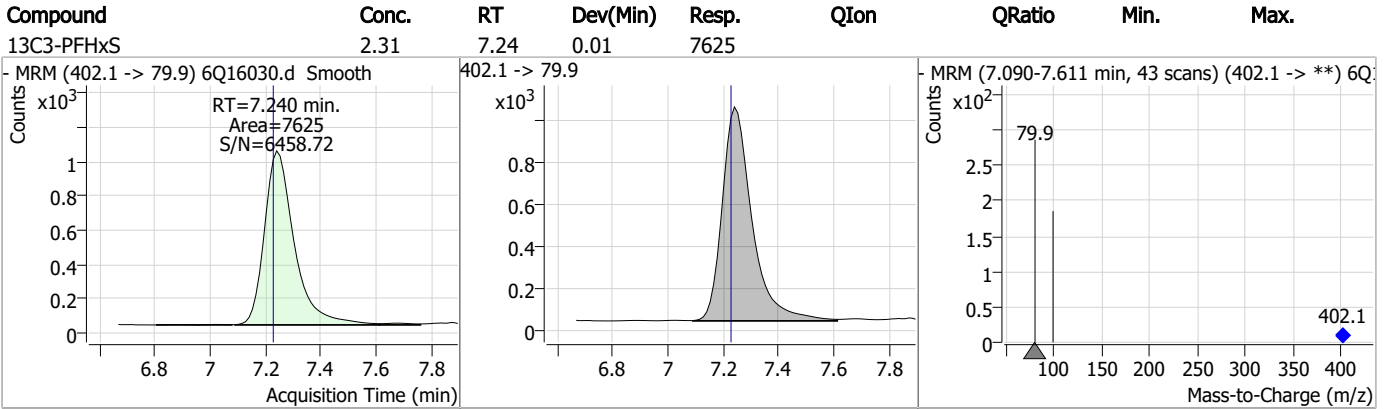


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.50	7.12	0.01	51567				



7.12  
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### Perfluorinated Compounds by LC/MS/MS



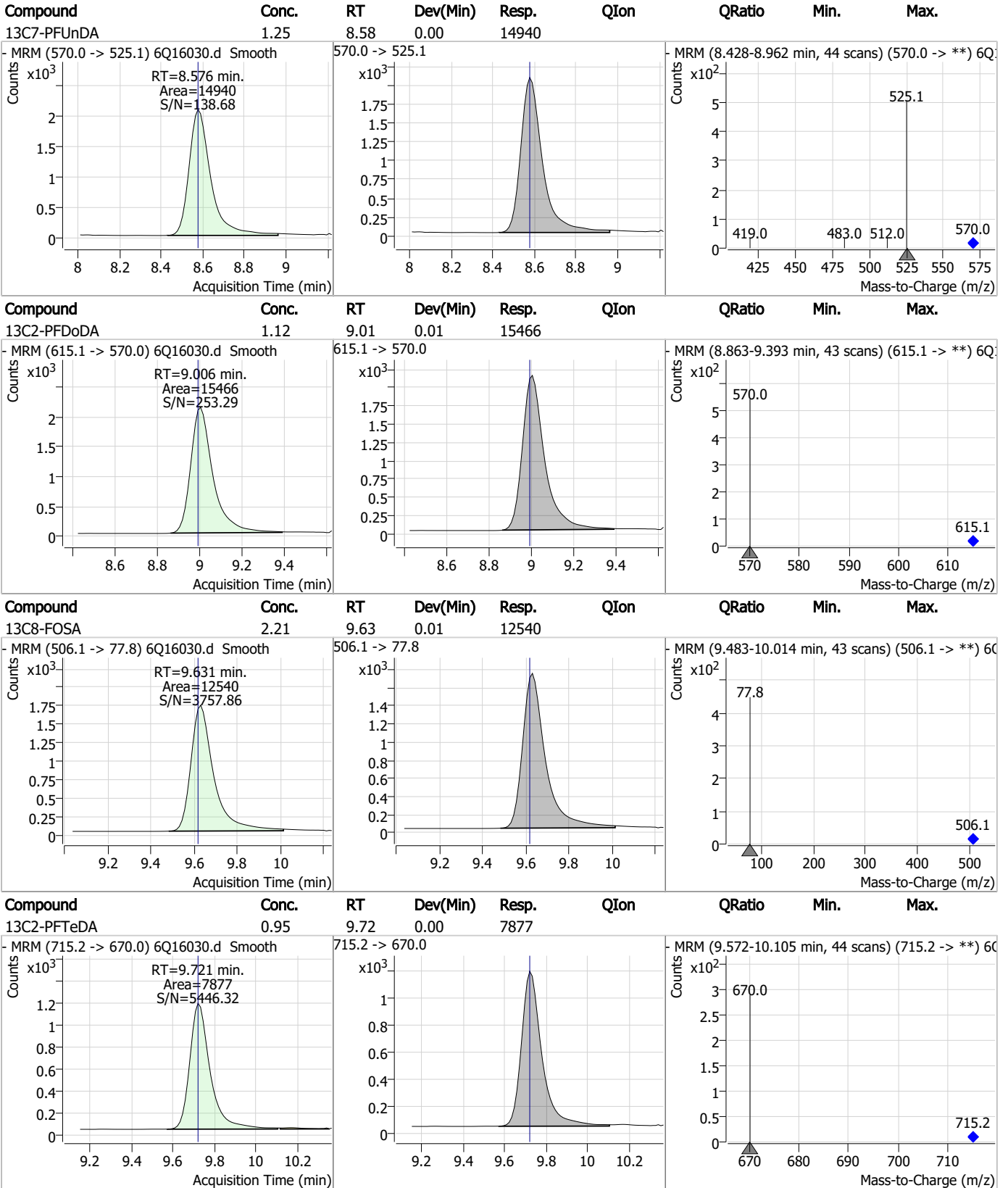
### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.26	8.12	0.00	12948				
d3-MeFOSAA	5.65	8.18	0.01	20874				
13C8-PFOS	2.45	8.28	0.00	6086				
d5-EtFOSAA	5.46	8.38	0.00	17471				

7.1.2

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Perfluorinated Compounds by LC/MS/MS

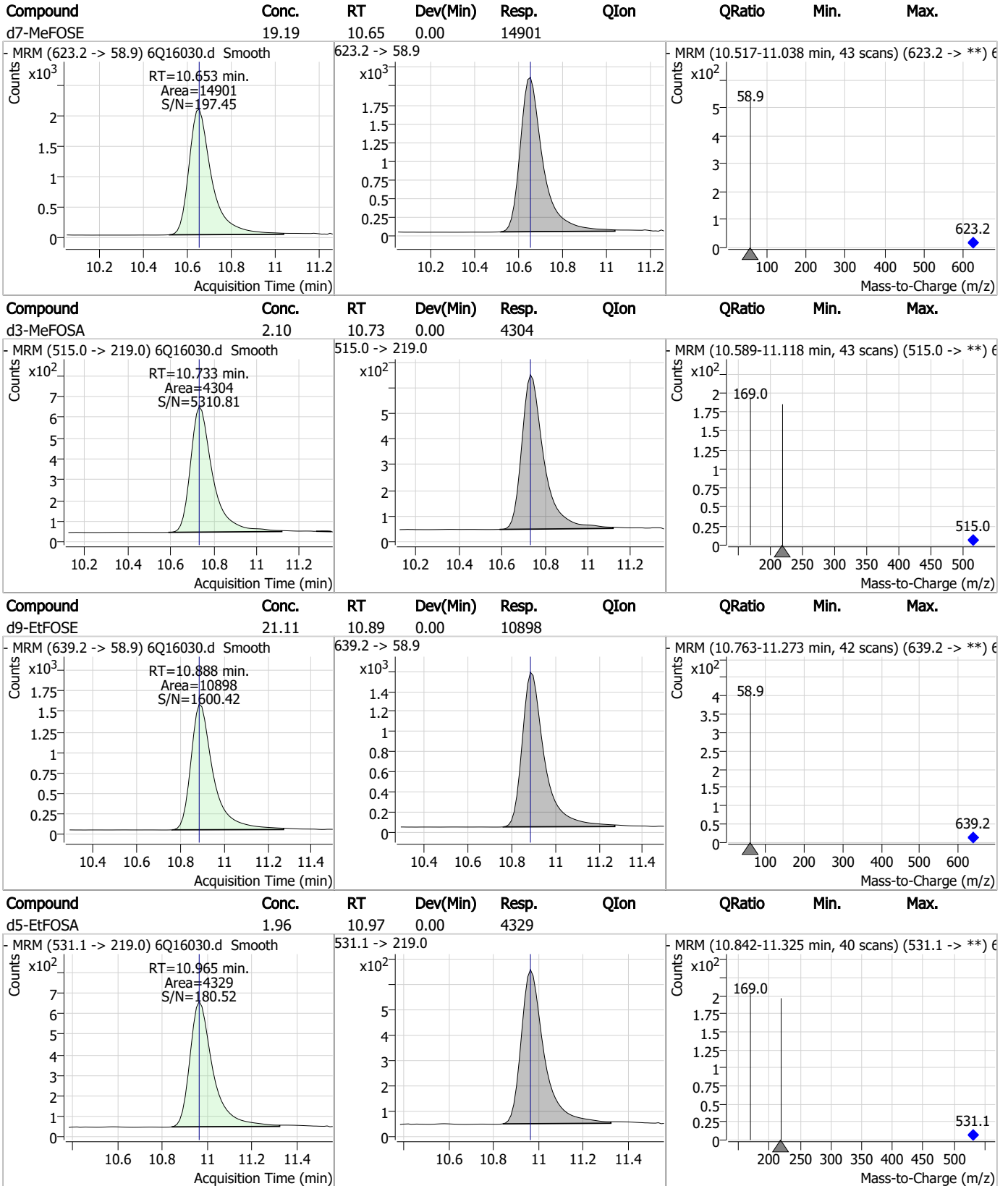


7.1.2

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Perfluorinated Compounds by LC/MS/MS



# Manual Integration Approval Summary

Sample Number: FC3853-2                      Method: EPA DRAFT 1633  
Lab FileID: 6Q16030.D                      Analyst approved: 04/05/23 11:32 Martha Valls  
Injection Time: 04/04/23 19:51                      Supervisor approved: 04/05/23 17:28 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluoroheptanoic acid	375-85-9		6.48	Split peak
Perfluorooctanoic acid	335-67-1		7.13	Split peak

7.1.2.1

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## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16014.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 4/4/2023 4:07:41 PM  
 Sample Name : IBLK  
 Vial : P1-A1  
 DA Method File : 1633\_040423\_S6Q239.quantmethod.xml  
 Batch Name : s6q239.batch.bin  
 Sample Information : OP96085,S6Q239,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.897	216.8 -> 171.9	85292	10.00 µg/L	0.000
M5-PFPeA	4.322	268.3 -> 223.0	38124	5.00 µg/L	0.000
M5-PFHxA	5.528	318.0 -> 273.0	35043	2.50 µg/L	0.000
M4-PFHpA	6.468	367.1 -> 322.0	34043	2.50 µg/L	0.000
M8-PFOA	7.112	421.1 -> 376.0	56994	2.50 µg/L	0.000
M9-PFNA	7.643	472.1 -> 427.0	16843	1.25 µg/L	0.000
M6-PFDA	8.122	519.1 -> 474.1	14012	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	16808	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	17815	1.25 µg/L	0.012
M2-PFTeDA	9.721	715.2 -> 670.0	10786	1.25 µg/L	0.000
M8-FOSA	9.631	506.1 -> 77.8	15961	2.50 µg/L	0.012
M3-PFBS	5.459	302.1 -> 79.9	13516	2.50 µg/L	0.000
M3-PFHxS	7.228	402.1 -> 79.9	8591	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	6744	2.50 µg/L	0.000
M2-4:2FTS	5.191	329.1 -> 80.9	2287	5.00 µg/L	0.000
M2-6:2FTS	6.886	429.1 -> 80.9	2684	5.00 µg/L	0.000
M2-8:2FTS	7.911	529.1 -> 80.9	2403	5.00 µg/L	0.000
M3-MeFOSAA	8.167	573.2 -> 419.0	21287	5.00 µg/L	0.000
M3-HFPO-DA	5.893	286.9 -> 168.9	13618	10.00 µg/L	0.000
M5-EtFOSAA	8.375	589.2 -> 419.0	17111	5.00 µg/L	0.000
M7-MeFOSE	10.653	623.2 -> 58.9	22828	25.00 µg/L	0.000
M9-EtFOSE	10.888	639.2 -> 58.9	14490	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	5979	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	5490	2.50 µg/L	0.000
13C4-PFOS	8.273	502.8 -> 79.9	8415	2.50 µg/L	-0.012
13C3-PFBA	2.902	216.0 -> 172.0	36358	5.00 µg/L	0.000
18O2-PFHxS	7.227	403.0 -> 83.9	5794	2.50 µg/L	0.000
13C4-PFOA	7.112	417.1 -> 372.0	65076	2.50 µg/L	0.000
13C2-PFDA	8.123	515.1 -> 470.1	19317	1.25 µg/L	0.000
13C5-PFNA	7.643	468.0 -> 423.0	17036	1.25 µg/L	0.000
13C2-PFHxA	5.529	315.1 -> 270.0	32668	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.191	329.1 -> 80.9	2287	5.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.4%		
13C2-6:2FTS	6.886	429.1 -> 80.9	2684	5.61 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.2%		
13C2-8:2FTS	7.911	529.1 -> 80.9	2403	5.21 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C2-PFDoDA	9.006	615.1 -> 570.0	17815	1.17 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.3%		
13C2-PFTeDA	9.721	715.2 -> 670.0	10786	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.2%		
13C3-PFBS	5.459	302.1 -> 79.9	13516	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.9%		
13C3-PFHxS	7.228	402.1 -> 79.9	8591	2.59 µg/L	0.000

7.2.1  
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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 = 103.6%	
13C4-PFBA	2.897	216.8 -> 171.9	85292	10.03 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C4-PFHpA	6.468	367.1 -> 322.0	34043	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C5-PFHxA	5.528	318.0 -> 273.0	35043	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C5-PFPeA	4.322	268.3 -> 223.0	38124	5.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C6-PFDA	8.122	519.1 -> 474.1	14012	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C7-PFUnDA	8.576	570.0 -> 525.1	16808	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C8-FOSA	9.631	506.1 -> 77.8	15961	2.55 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C8-PFOA	7.112	421.1 -> 376.0	56994	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.9%	
13C8-PFOS	8.284	507.1 -> 79.9	6744	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C9-PFNA	7.643	472.1 -> 427.0	16843	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.9%	
d3-MeFOSAA	8.167	573.2 -> 419.0	21287	5.23 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C3-HFPO-DA	5.893	286.9 -> 168.9	13618	9.56 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.6%	
d3-MeFOSA	10.733	515.0 -> 219.0	5490	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.3%	
d5-EtFOSAA	8.375	589.2 -> 419.0	17111	4.85 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.1%	
d7-MeFOSE	10.653	623.2 -> 58.9	22828	26.66 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 106.6%	
d9-EtFOSE	10.888	639.2 -> 58.9	14490	25.45 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.8%	
d5-EtFOSA	10.965	531.1 -> 219.0	5979	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
<b>Target Compounds</b>					<b>QValue</b>
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	8.364	584.2 -> 419.1 584.2 -> 526.0	124 76	0.05 µg/L	77
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

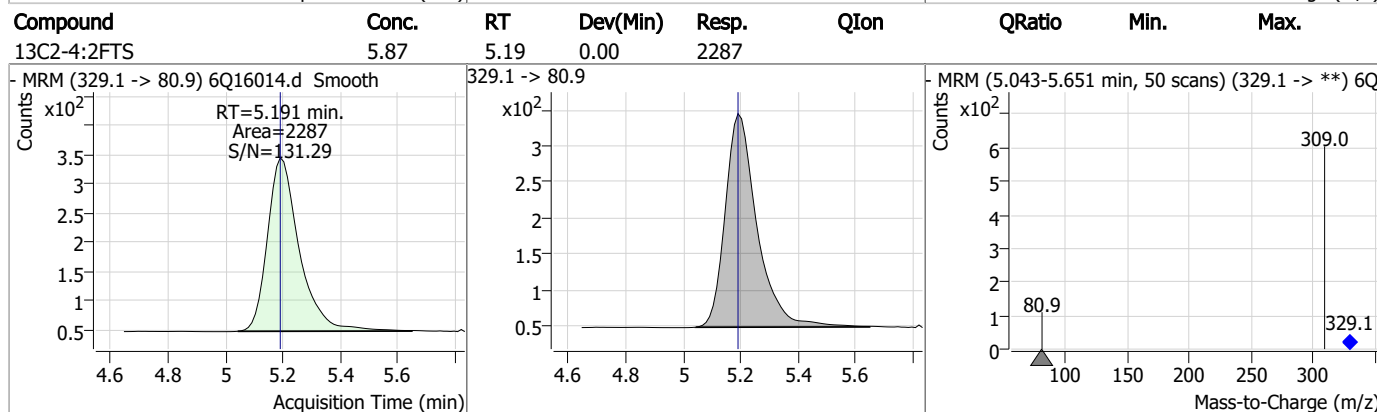
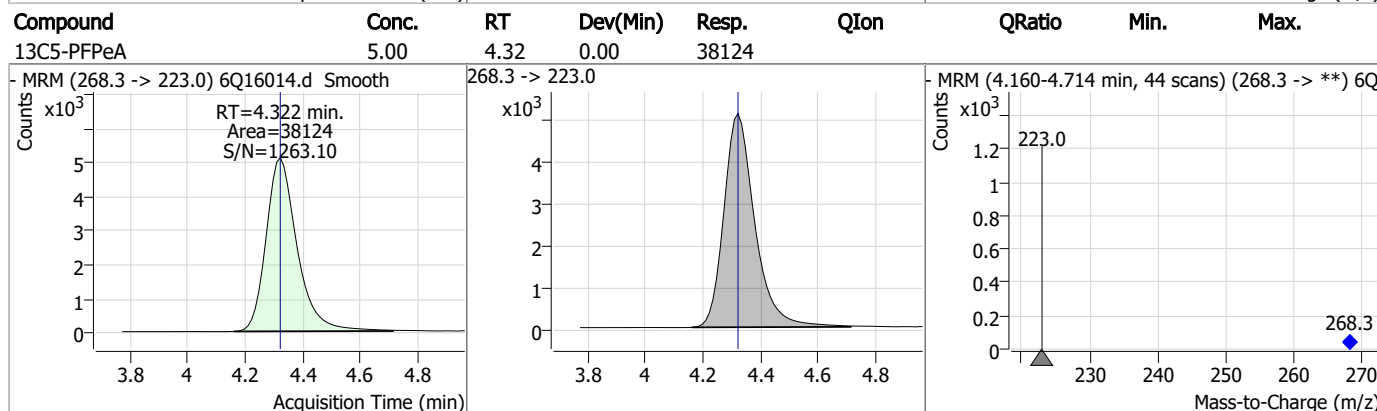
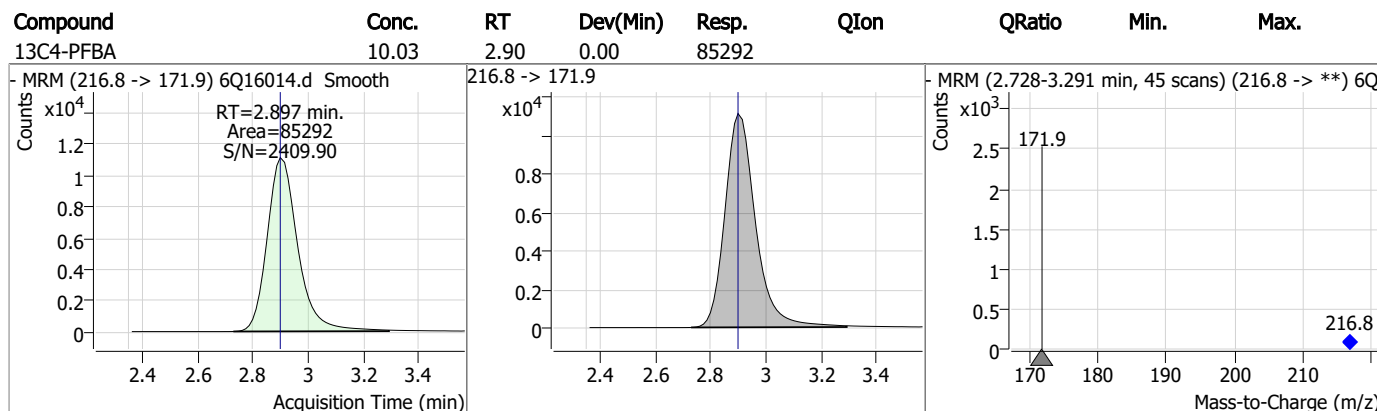
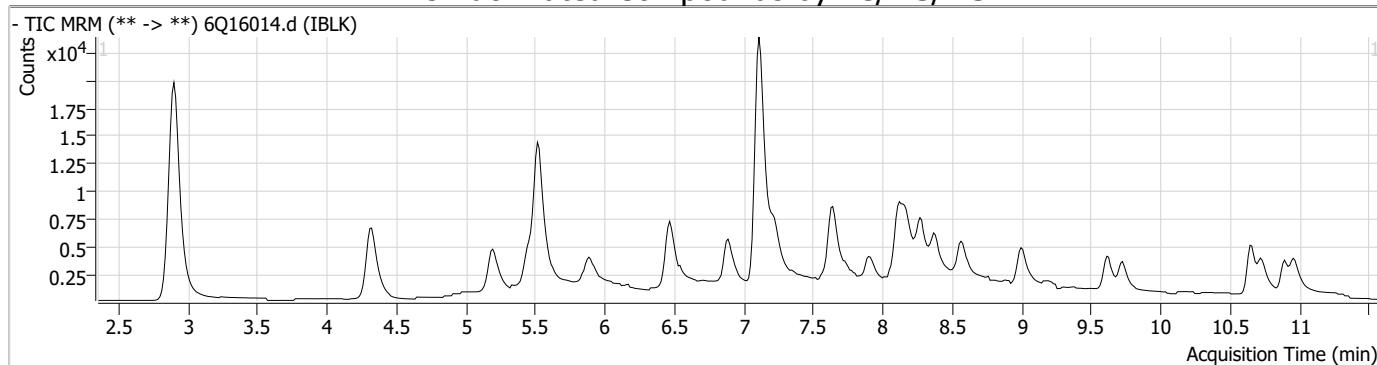
### Perfluorinated Compounds by LC/MS/MS

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

7

### Perfluorinated Compounds by LC/MS/MS



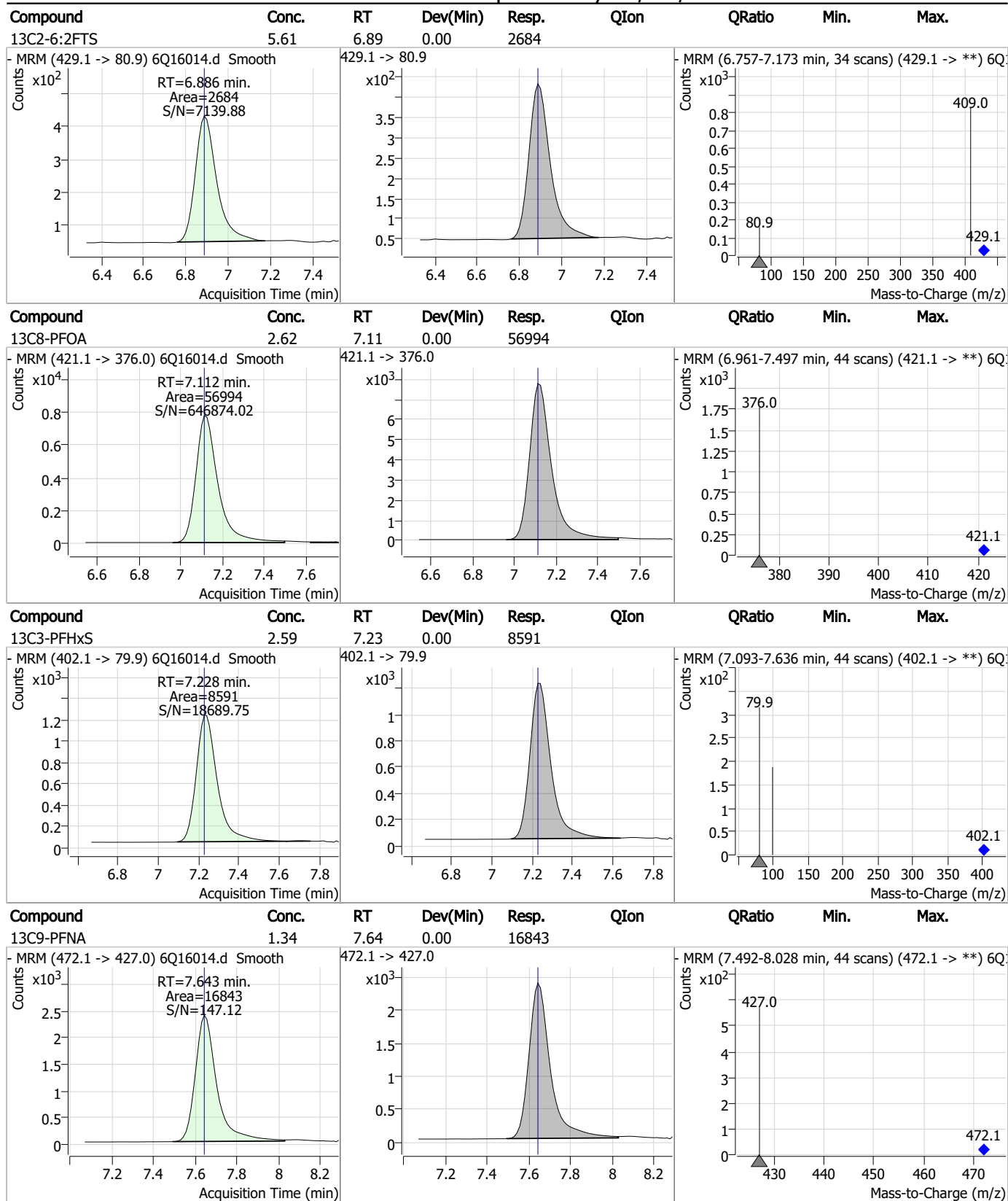
### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.62	5.46	0.00	13516				
13C5-PFHxA	2.59	5.53	0.00	35043				
13C3-HFPO-DA	9.56	5.89	0.00	13618				
13C4-PFHpA	2.57	6.47	0.00	34043				

7.2.1  
7

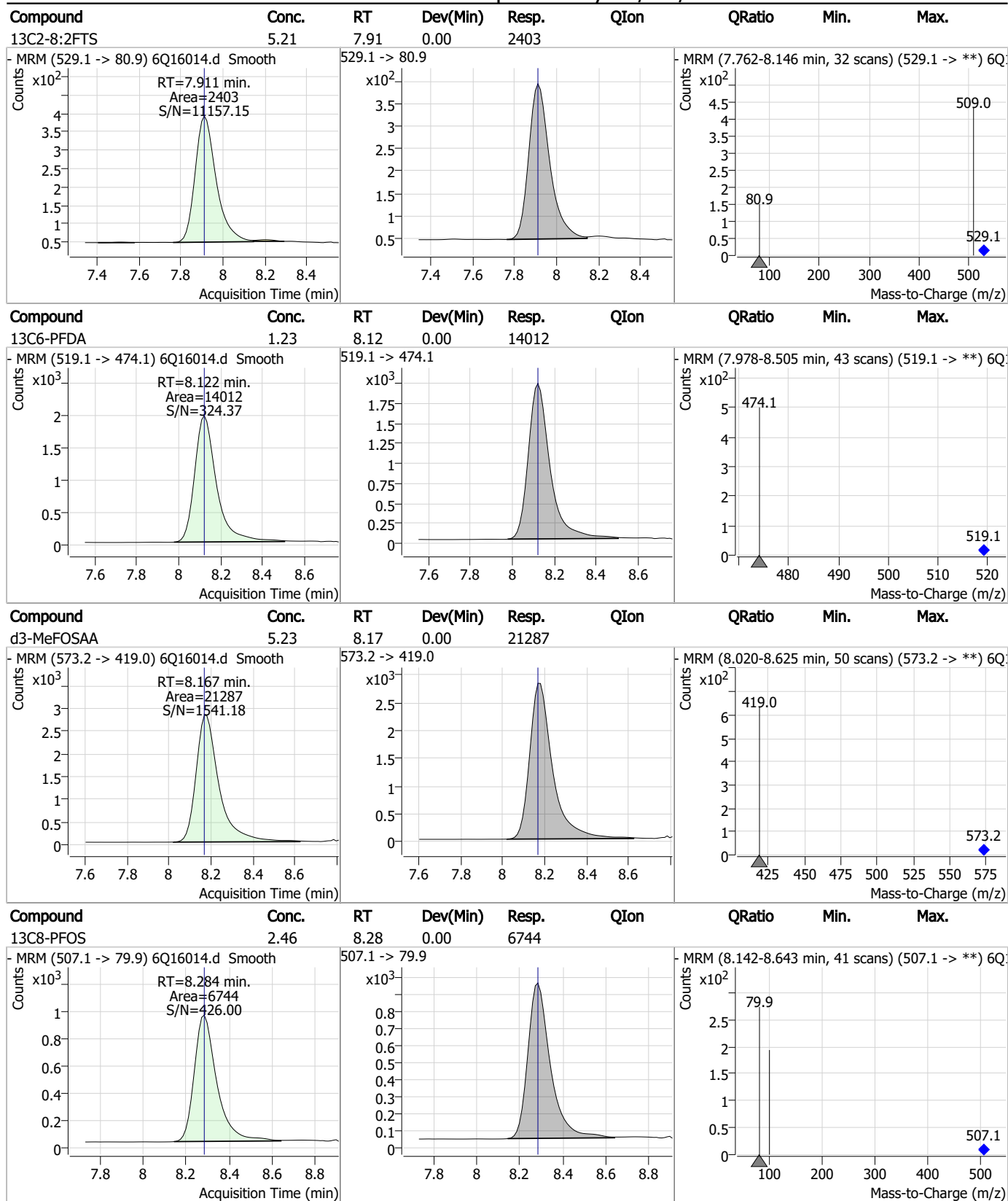


### Perfluorinated Compounds by LC/MS/MS



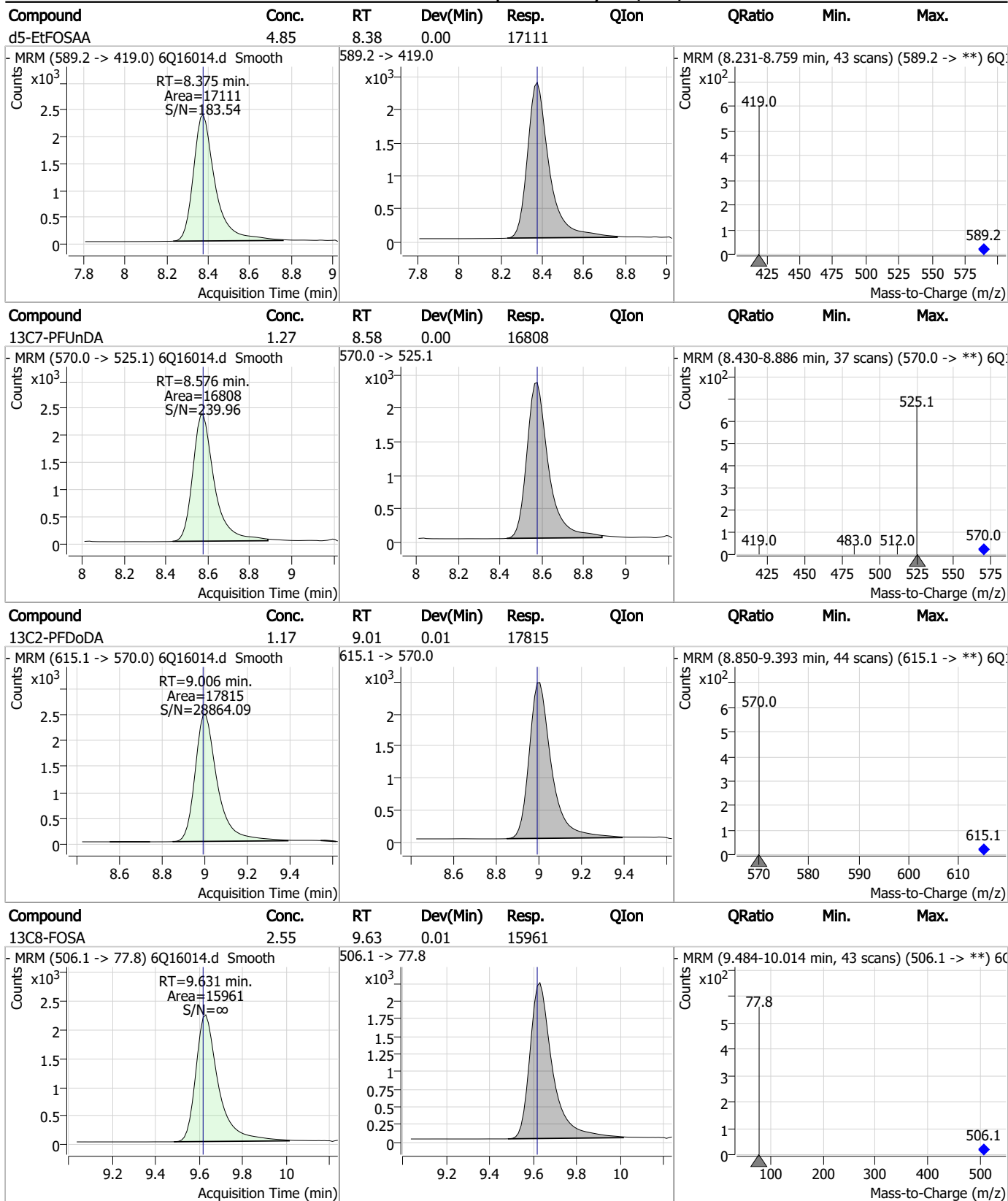
7.2.1  
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### Perfluorinated Compounds by LC/MS/MS



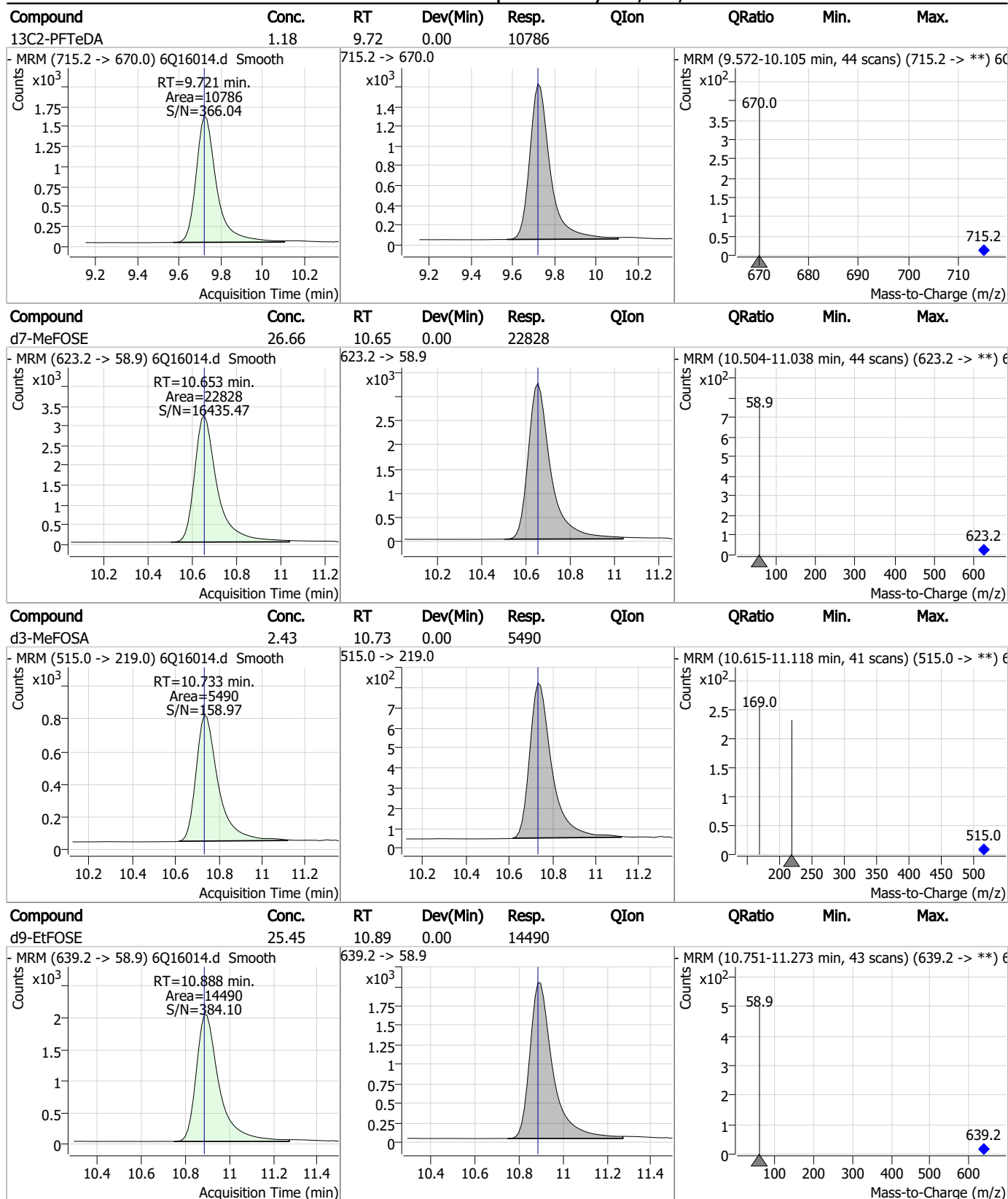
7.2.1  
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### Perfluorinated Compounds by LC/MS/MS



7.2.1  
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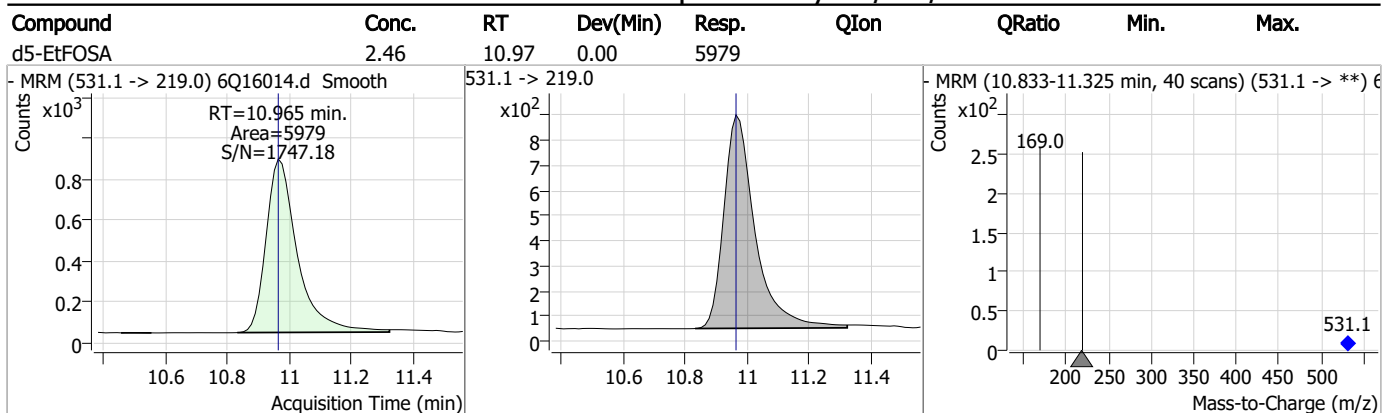
### Perfluorinated Compounds by LC/MS/MS



7.2.1

7

### Perfluorinated Compounds by LC/MS/MS



7.2.1  
7

### Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16024.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 4/4/2023 6:27:31 PM  
 Sample Name : iccb  
 Vial : P1-A1  
 DA Method File : 1633\_040423\_S6Q239.quantmethod.xml  
 Batch Name : s6q239.batch.bin  
 Sample Information : OP96085,S6Q239,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.897	216.8 -> 171.9	84140	10.00 µg/L	0.000
M5-PFPeA	4.322	268.3 -> 223.0	37673	5.00 µg/L	0.000
M5-PFHxA	5.528	318.0 -> 273.0	34113	2.50 µg/L	0.000
M4-PFHpA	6.468	367.1 -> 322.0	32839	2.50 µg/L	0.000
M8-PFOA	7.112	421.1 -> 376.0	51965	2.50 µg/L	0.000
M9-PFNA	7.643	472.1 -> 427.0	15825	1.25 µg/L	0.000
M6-PFDA	8.122	519.1 -> 474.1	14079	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	16479	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	18190	1.25 µg/L	0.012
M2-PFTeDA	9.721	715.2 -> 670.0	11126	1.25 µg/L	0.000
M8-FOSA	9.631	506.1 -> 77.8	16362	2.50 µg/L	0.012
M3-PFBS	5.459	302.1 -> 79.9	13629	2.50 µg/L	0.000
M3-PFHxS	7.228	402.1 -> 79.9	8294	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	6818	2.50 µg/L	0.000
M2-4:2FTS	5.191	329.1 -> 80.9	2122	5.00 µg/L	0.000
M2-6:2FTS	6.886	429.1 -> 80.9	2683	5.00 µg/L	0.000
M2-8:2FTS	7.911	529.1 -> 80.9	2584	5.00 µg/L	0.000
M3-MeFOSAA	8.167	573.2 -> 419.0	21657	5.00 µg/L	0.000
M3-HFPO-DA	5.893	286.9 -> 168.9	13793	10.00 µg/L	0.000
M5-EtFOSAA	8.375	589.2 -> 419.0	19321	5.00 µg/L	0.000
M7-MeFOSE	10.653	623.2 -> 58.9	21453	25.00 µg/L	0.000
M9-EtFOSE	10.888	639.2 -> 58.9	14420	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	5820	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	5727	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	8924	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	35976	5.00 µg/L	0.000
18O2-PFHxS	7.227	403.0 -> 83.9	5872	2.50 µg/L	0.000
13C4-PFOA	7.112	417.1 -> 372.0	67729	2.50 µg/L	0.000
13C2-PFDA	8.123	515.1 -> 470.1	18775	1.25 µg/L	0.000
13C5-PFNA	7.643	468.0 -> 423.0	18394	1.25 µg/L	0.000
13C2-PFHxA	5.529	315.1 -> 270.0	31798	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.191	329.1 -> 80.9	2122	5.37 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.4%		
13C2-6:2FTS	6.886	429.1 -> 80.9	2683	5.54 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.7%		
13C2-8:2FTS	7.911	529.1 -> 80.9	2584	5.53 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.6%		
13C2-PFDoDA	9.006	615.1 -> 570.0	18190	1.23 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C2-PFTeDA	9.721	715.2 -> 670.0	11126	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C3-PFBS	5.459	302.1 -> 79.9	13629	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.4%		
13C3-PFHxS	7.228	402.1 -> 79.9	8294	2.47 µg/L	0.000

7.2.2  
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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C4-PFBA	2.897	216.8 -> 171.9	84140	10.00 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFHpA	6.468	367.1 -> 322.0	32839	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C5-PFHxA	5.528	318.0 -> 273.0	34113	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C5-PFPeA	4.322	268.3 -> 223.0	37673	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C6-PFDA	8.122	519.1 -> 474.1	14079	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C7-PFUnDA	8.576	570.0 -> 525.1	16479	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C8-FOSA	9.631	506.1 -> 77.8	16362	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C8-PFOA	7.112	421.1 -> 376.0	51965	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.9%	
13C8-PFOS	8.284	507.1 -> 79.9	6818	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.8%	
13C9-PFNA	7.643	472.1 -> 427.0	15825	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.0%	
d3-MeFOSAA	8.167	573.2 -> 419.0	21657	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C3-HFPO-DA	5.893	286.9 -> 168.9	13793	9.95 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
d3-MeFOSA	10.733	515.0 -> 219.0	5727	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.7%	
d5-EtFOSAA	8.375	589.2 -> 419.0	19321	5.17 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
d7-MeFOSE	10.653	623.2 -> 58.9	21453	23.62 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.5%	
d9-EtFOSE	10.888	639.2 -> 58.9	14420	23.89 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.5%	
d5-EtFOSA	10.965	531.1 -> 219.0	5820	2.26 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.2%	

**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.	

7.22  
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## 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



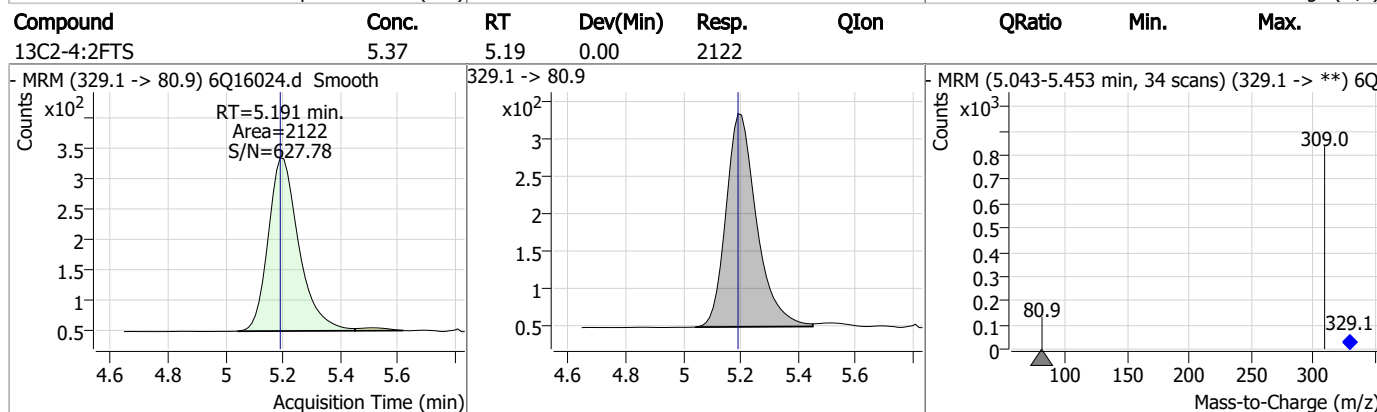
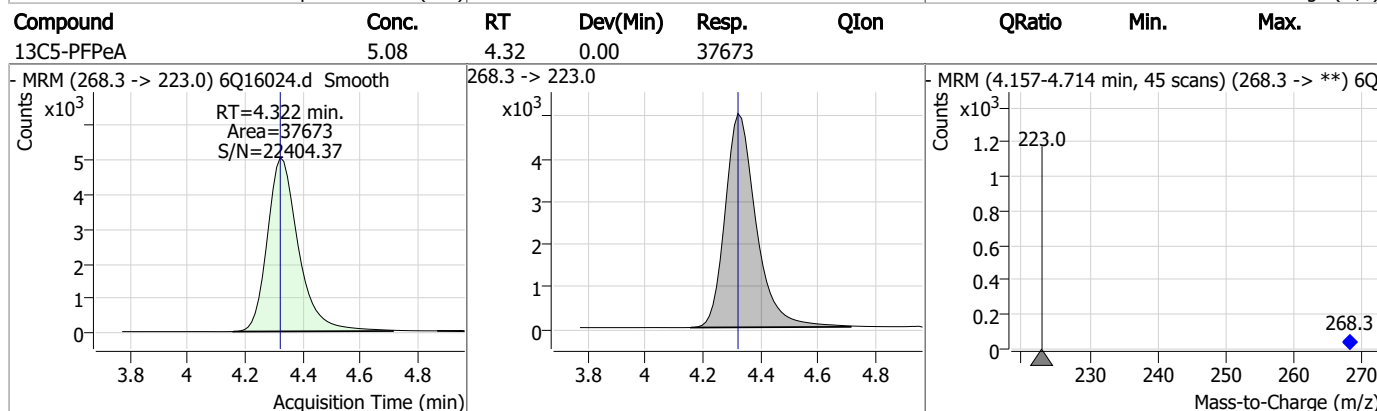
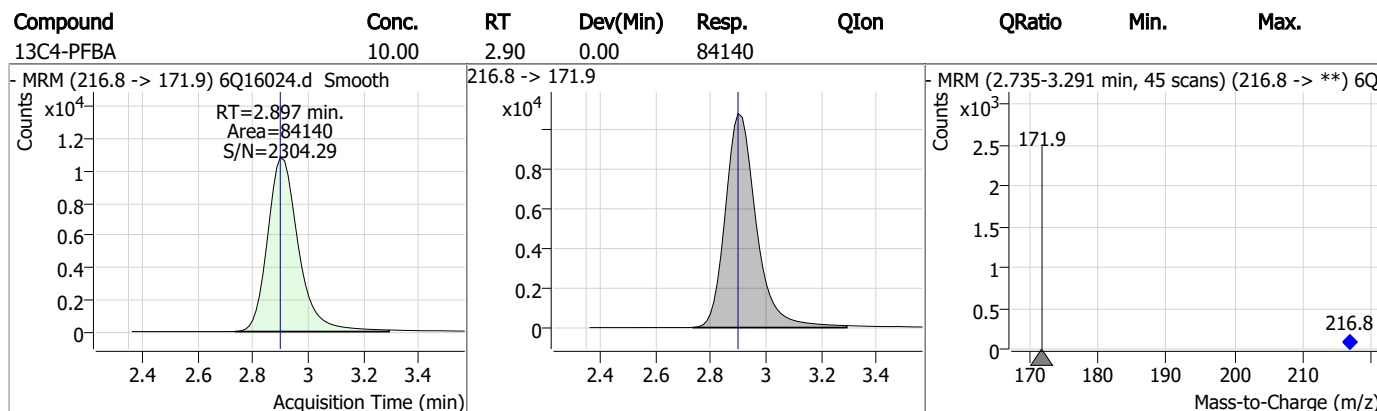
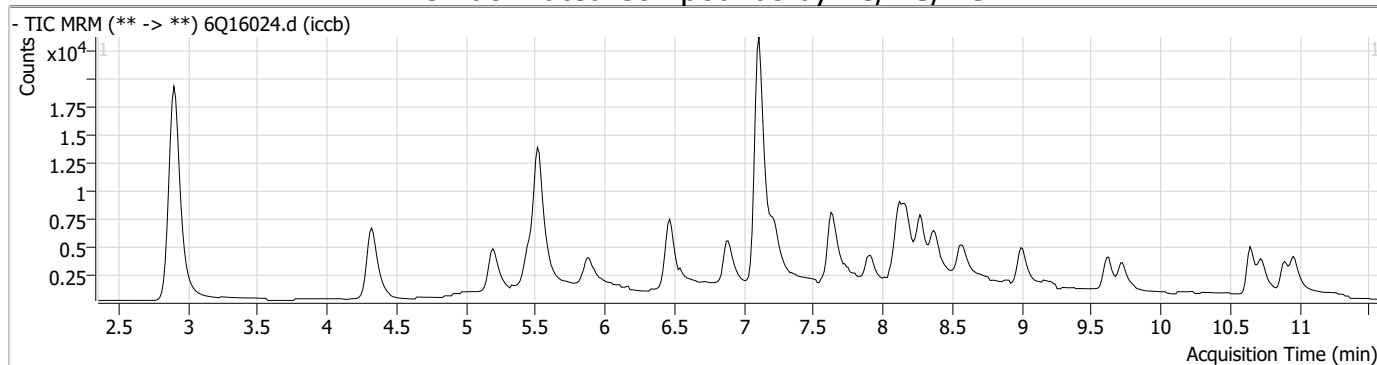
### Perfluorinated Compounds by LC/MS/MS

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

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### Perfluorinated Compounds by LC/MS/MS



7.2.2  
7

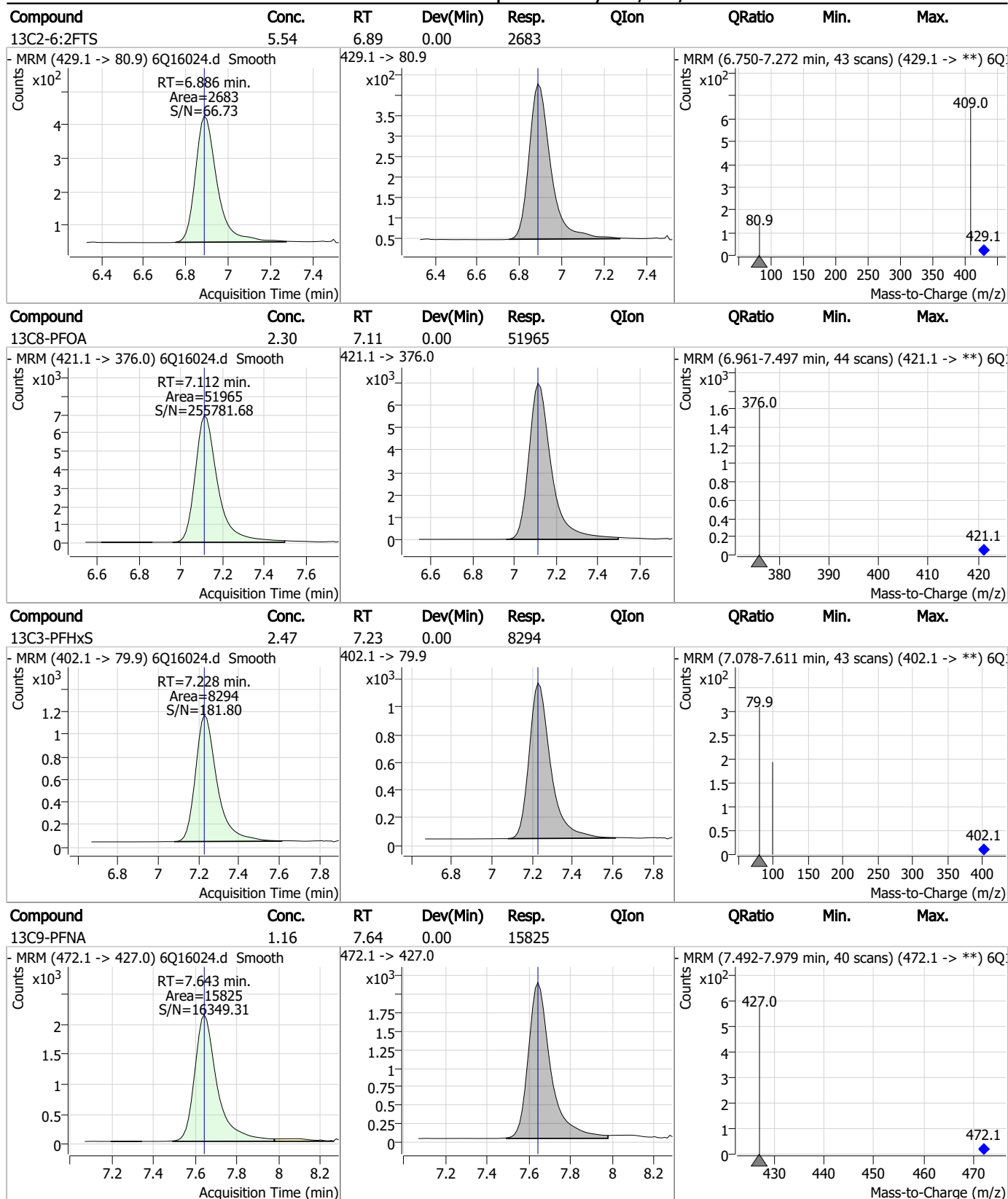
### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.61	5.46	0.00	13629				
13C5-PFHxA	2.59	5.53	0.00	34113				
13C3-HFPO-DA	9.95	5.89	0.00	13793				
13C4-PFHpA	2.55	6.47	0.00	32839				

7.2.2  
7

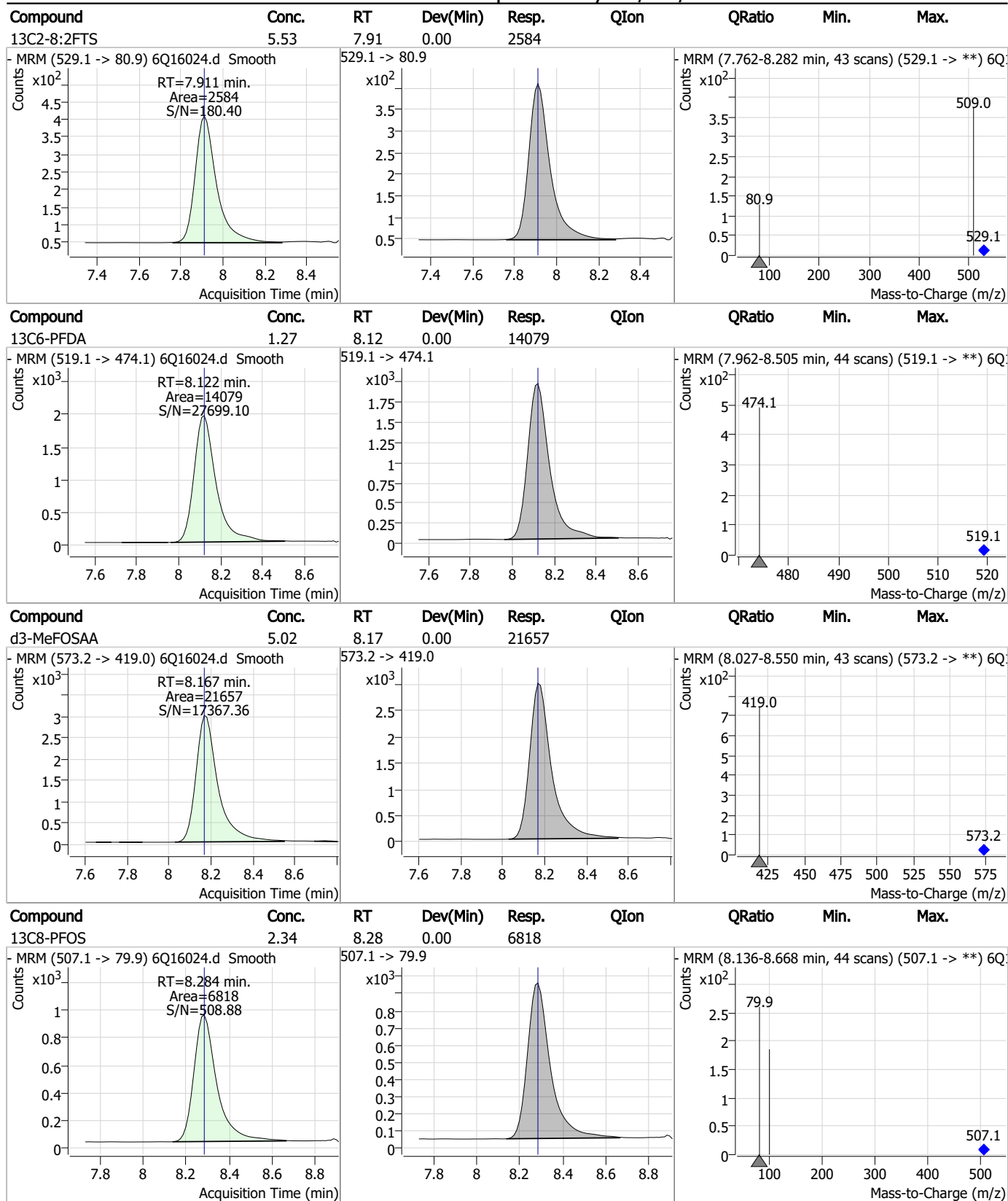


### Perfluorinated Compounds by LC/MS/MS



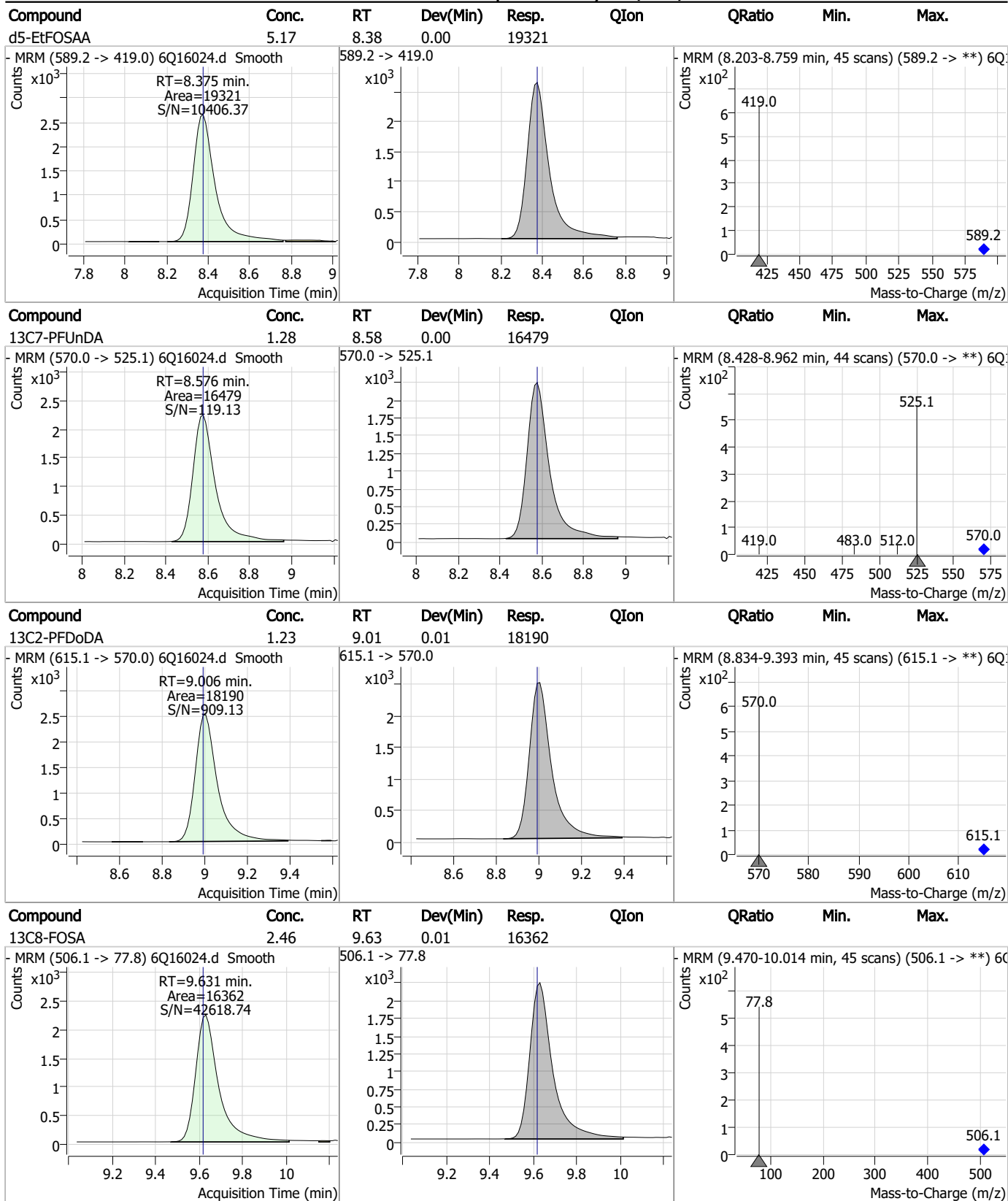
7.2.2  
7

### Perfluorinated Compounds by LC/MS/MS



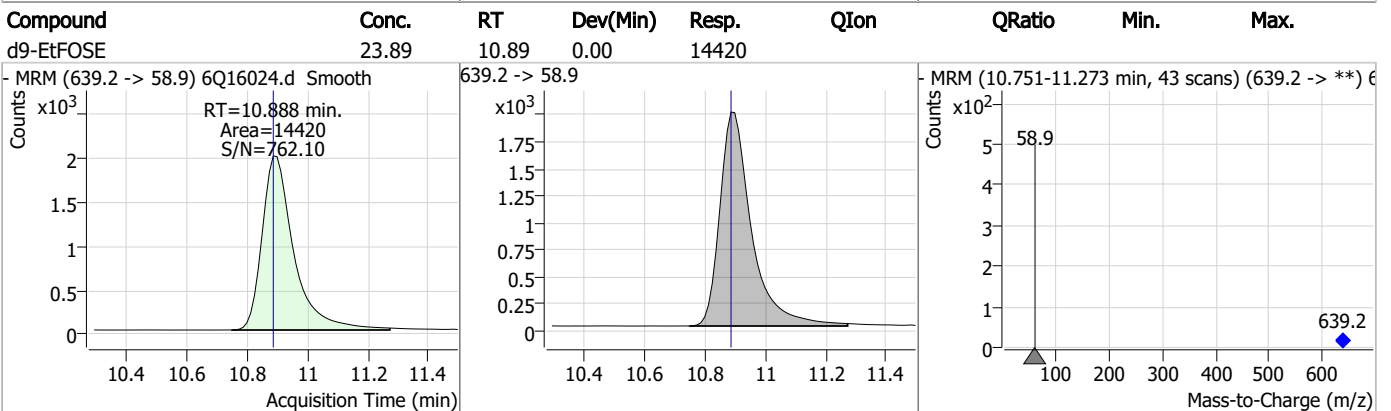
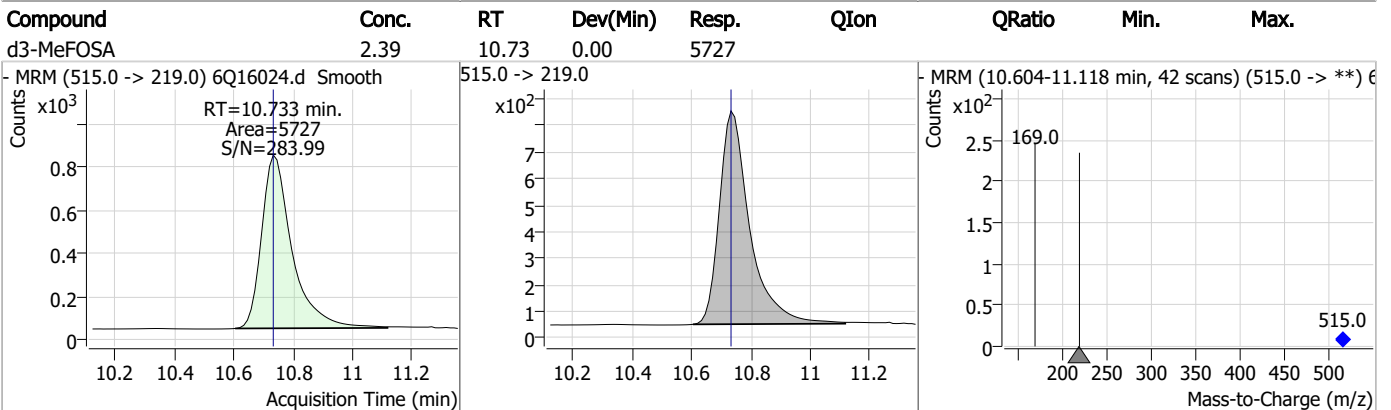
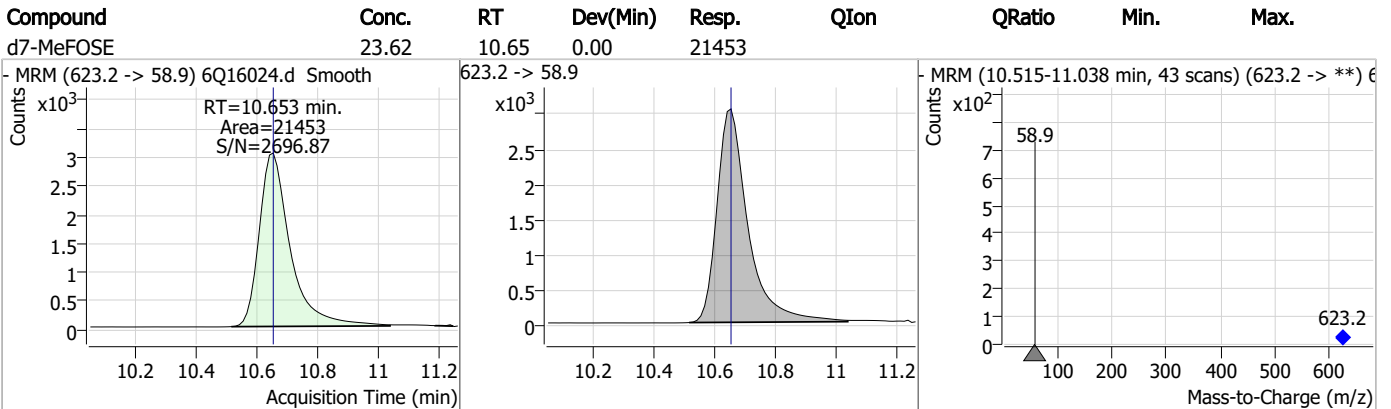
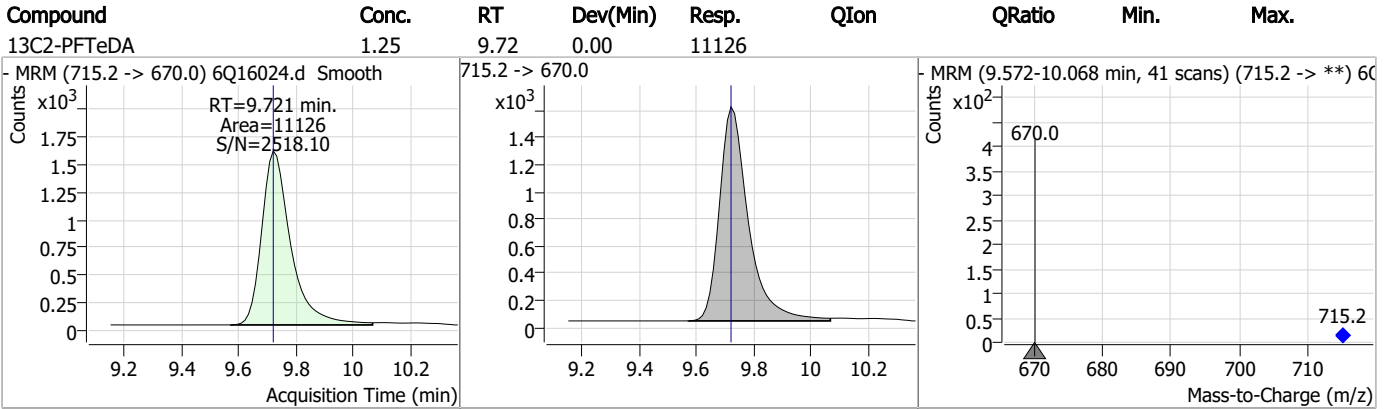
7.2.2  
7

### Perfluorinated Compounds by LC/MS/MS

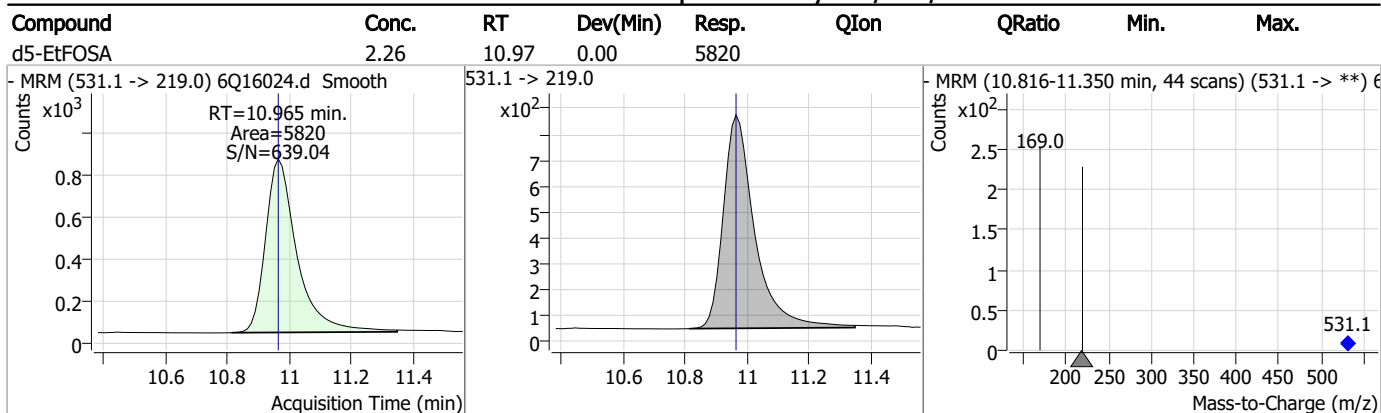


7.22  
7

### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



7.22  
7



## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16027.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 4/4/2023 7:09:27 PM  
 Sample Name : op96209-mb  
 Vial : P2-C7  
 DA Method File : 1633\_040423\_S6Q239.quantmethod.xml  
 Batch Name : s6q239.batch.bin  
 Sample Information : OP96209,S6Q239,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.938	216.8 -> 171.9	85131	10.00 µg/L	0.041
M5-PFPeA	4.334	268.3 -> 223.0	36030	5.00 µg/L	0.012
M5-PFHxA	5.528	318.0 -> 273.0	32464	2.50 µg/L	0.000
M4-PFHpA	6.481	367.1 -> 322.0	32223	2.50 µg/L	0.012
M8-PFOA	7.125	421.1 -> 376.0	52544	2.50 µg/L	0.013
M9-PFNA	7.643	472.1 -> 427.0	15557	1.25 µg/L	0.000
M6-PFDA	8.122	519.1 -> 474.1	12549	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	16124	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	15313	1.25 µg/L	0.012
M2-PFTeDA	9.721	715.2 -> 670.0	9657	1.25 µg/L	0.000
M8-FOSA	9.631	506.1 -> 77.8	13810	2.50 µg/L	0.012
M3-PFBS	5.471	302.1 -> 79.9	12988	2.50 µg/L	0.012
M3-PFHxS	7.240	402.1 -> 79.9	8028	2.50 µg/L	0.012
M8-PFOS	8.284	507.1 -> 79.9	6246	2.50 µg/L	0.000
M2-4:2FTS	5.204	329.1 -> 80.9	2049	5.00 µg/L	0.012
M2-6:2FTS	6.898	429.1 -> 80.9	2746	5.00 µg/L	0.012
M2-8:2FTS	7.911	529.1 -> 80.9	2442	5.00 µg/L	0.000
M3-MeFOSAA	8.180	573.2 -> 419.0	20005	5.00 µg/L	0.012
M3-HFPO-DA	5.893	286.9 -> 168.9	12813	10.00 µg/L	0.000
M5-EtFOSAA	8.375	589.2 -> 419.0	17953	5.00 µg/L	0.000
M7-MeFOSE	10.641	623.2 -> 58.9	18069	25.00 µg/L	-0.012
M9-EtFOSE	10.888	639.2 -> 58.9	13090	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	5241	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	4655	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	7781	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	33613	5.00 µg/L	0.040
18O2-PFHxS	7.239	403.0 -> 83.9	5226	2.50 µg/L	0.012
13C4-PFOA	7.125	417.1 -> 372.0	58440	2.50 µg/L	0.013
13C2-PFDA	8.123	515.1 -> 470.1	17341	1.25 µg/L	0.000
13C5-PFNA	7.643	468.0 -> 423.0	15890	1.25 µg/L	0.000
13C2-PFHxA	5.529	315.1 -> 270.0	28815	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.204	329.1 -> 80.9	2049	5.83 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.6%		
13C2-6:2FTS	6.898	429.1 -> 80.9	2746	6.37 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 127.3%		
13C2-8:2FTS	7.911	529.1 -> 80.9	2442	5.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.5%		
13C2-PFDoDA	9.006	615.1 -> 570.0	15313	1.12 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.4%		
13C2-PFTeDA	9.721	715.2 -> 670.0	9657	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.0%		
13C3-PFBS	5.471	302.1 -> 79.9	12988	2.79 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.8%		
13C3-PFHxS	7.240	402.1 -> 79.9	8028	2.68 µg/L	0.012

7.2.3  
7

### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.3%	
13C4-PFBA	2.938	216.8 -> 171.9	85131	10.83 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.3%	
13C4-PFHpA	6.481	367.1 -> 322.0	32223	2.76 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.5%	
13C5-PFHxA	5.528	318.0 -> 273.0	32464	2.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.9%	
13C5-PFPeA	4.334	268.3 -> 223.0	36030	5.36 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.2%	
13C6-PFDA	8.122	519.1 -> 474.1	12549	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C7-PFUnDA	8.576	570.0 -> 525.1	16124	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.8%	
13C8-FOSA	9.631	506.1 -> 77.8	13810	2.38 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.4%	
13C8-PFOA	7.125	421.1 -> 376.0	52544	2.69 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.7%	
13C8-PFOS	8.284	507.1 -> 79.9	6246	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C9-PFNA	7.643	472.1 -> 427.0	15557	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.9%	
d3-MeFOSAA	8.180	573.2 -> 419.0	20005	5.31 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.3%	
13C3-HFPO-DA	5.893	286.9 -> 168.9	12813	10.20 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
d3-MeFOSA	10.733	515.0 -> 219.0	4655	2.23 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.2%	
d5-EtFOSAA	8.375	589.2 -> 419.0	17953	5.51 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.1%	
d7-MeFOSE	10.641	623.2 -> 58.9	18069	22.82 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 91.3%	
d9-EtFOSE	10.888	639.2 -> 58.9	13090	24.87 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
d5-EtFOSA	10.965	531.1 -> 219.0	5241	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.2%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

7.2.3  
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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

7.2.3  
7

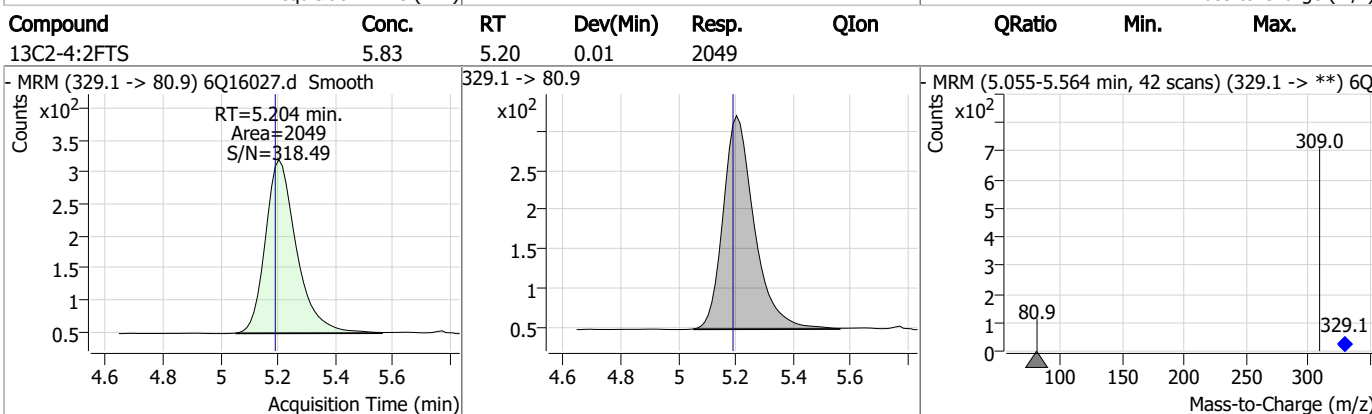
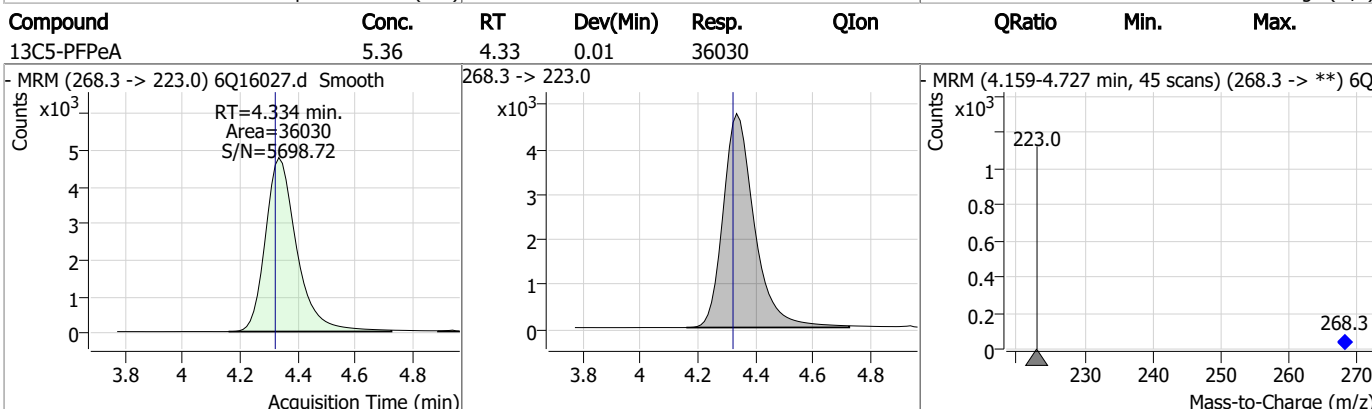
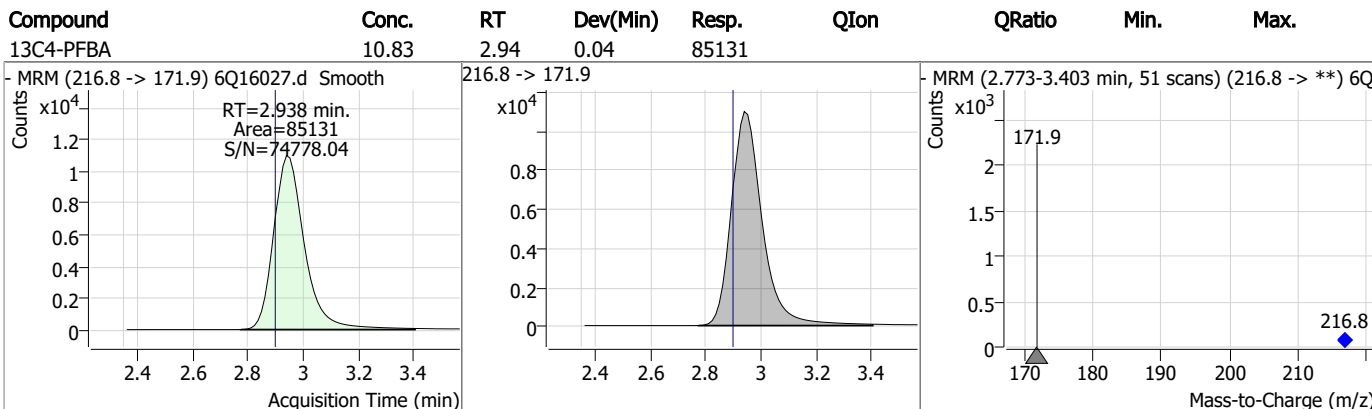
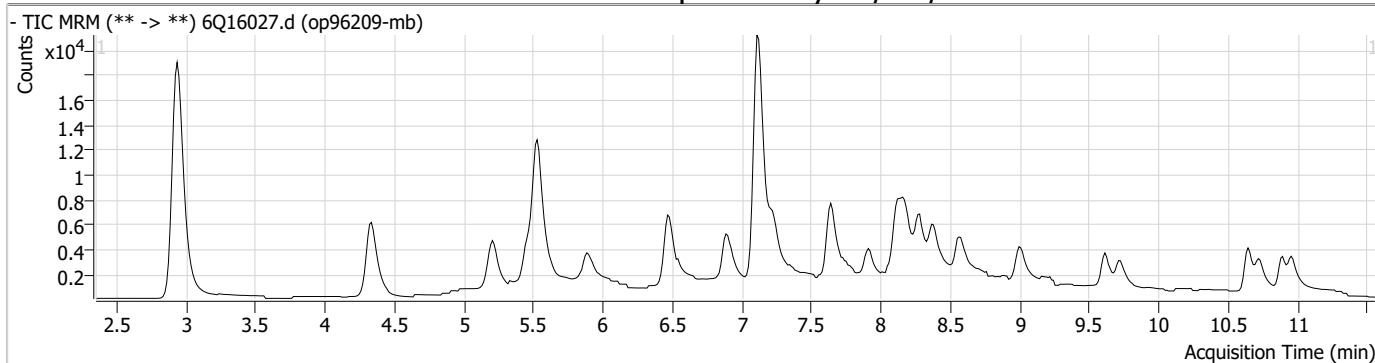
### Perfluorinated Compounds by LC/MS/MS

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

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### Perfluorinated Compounds by LC/MS/MS



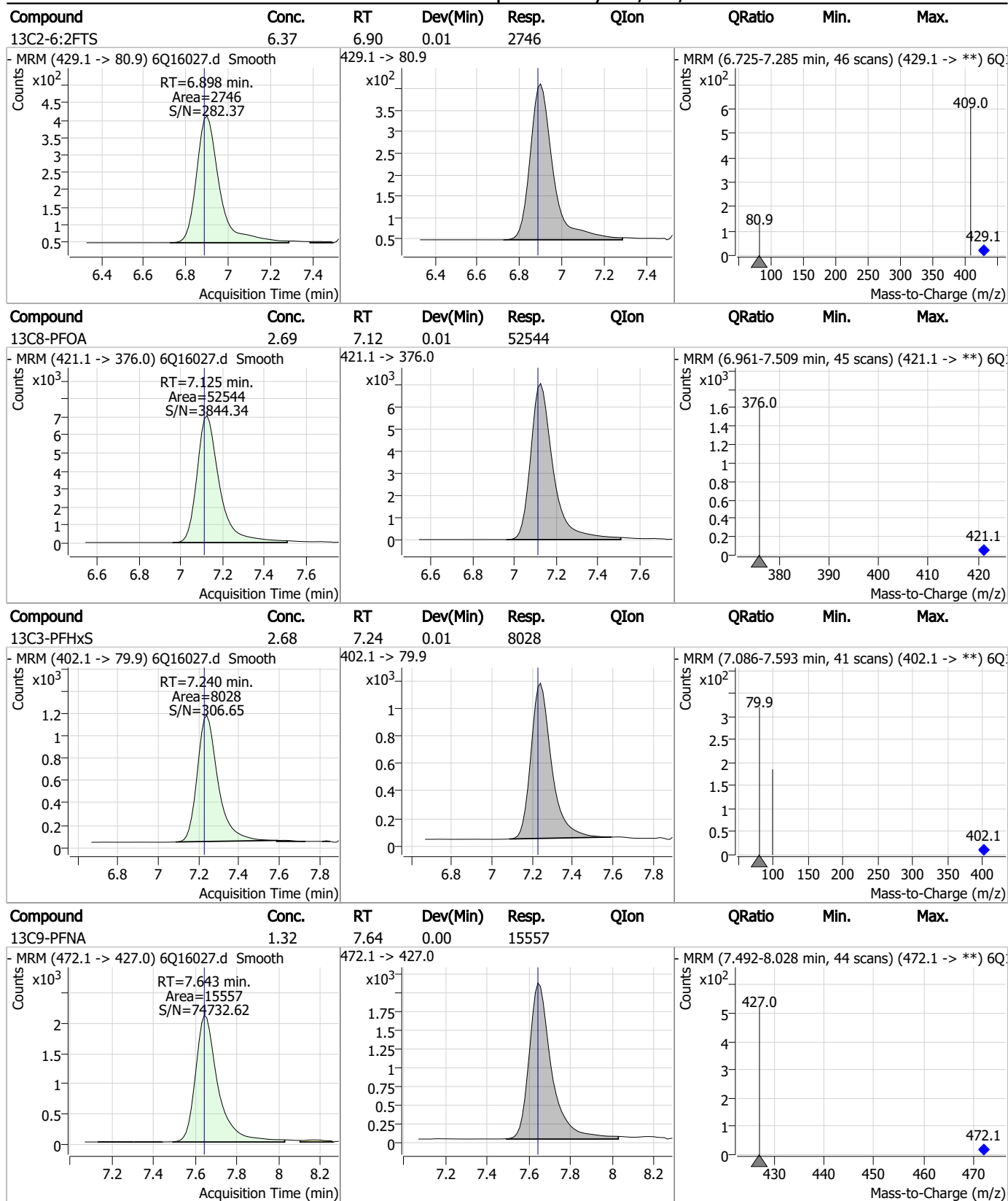
7.2.3  
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### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.79	5.47	0.01	12988				
13C5-PFHxA	2.72	5.53	0.00	32464				
13C3-HFPO-DA	10.20	5.89	0.00	12813				
13C4-PFHpA	2.76	6.48	0.01	32223				

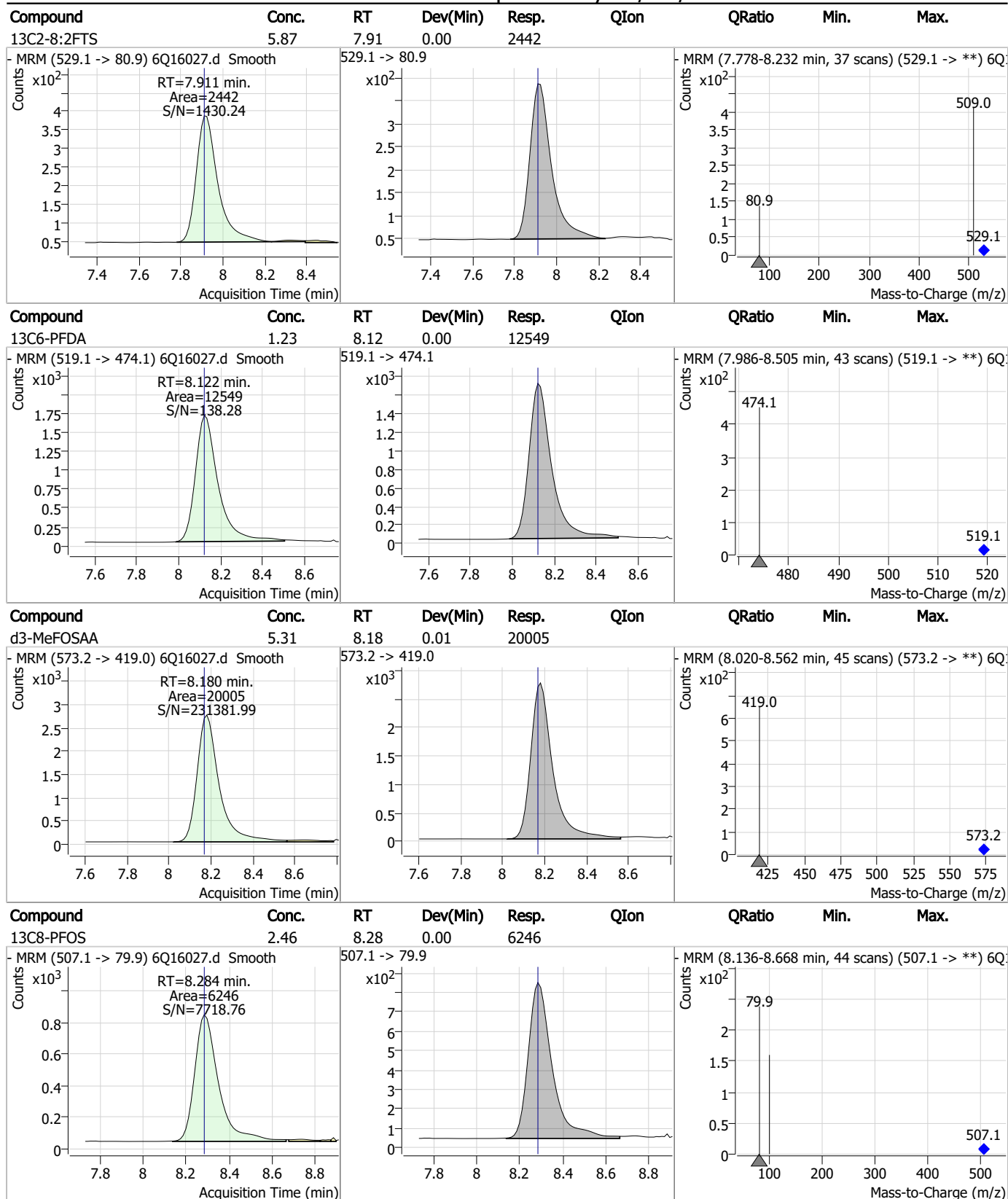
7.2.3  
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### Perfluorinated Compounds by LC/MS/MS



7.2.3  
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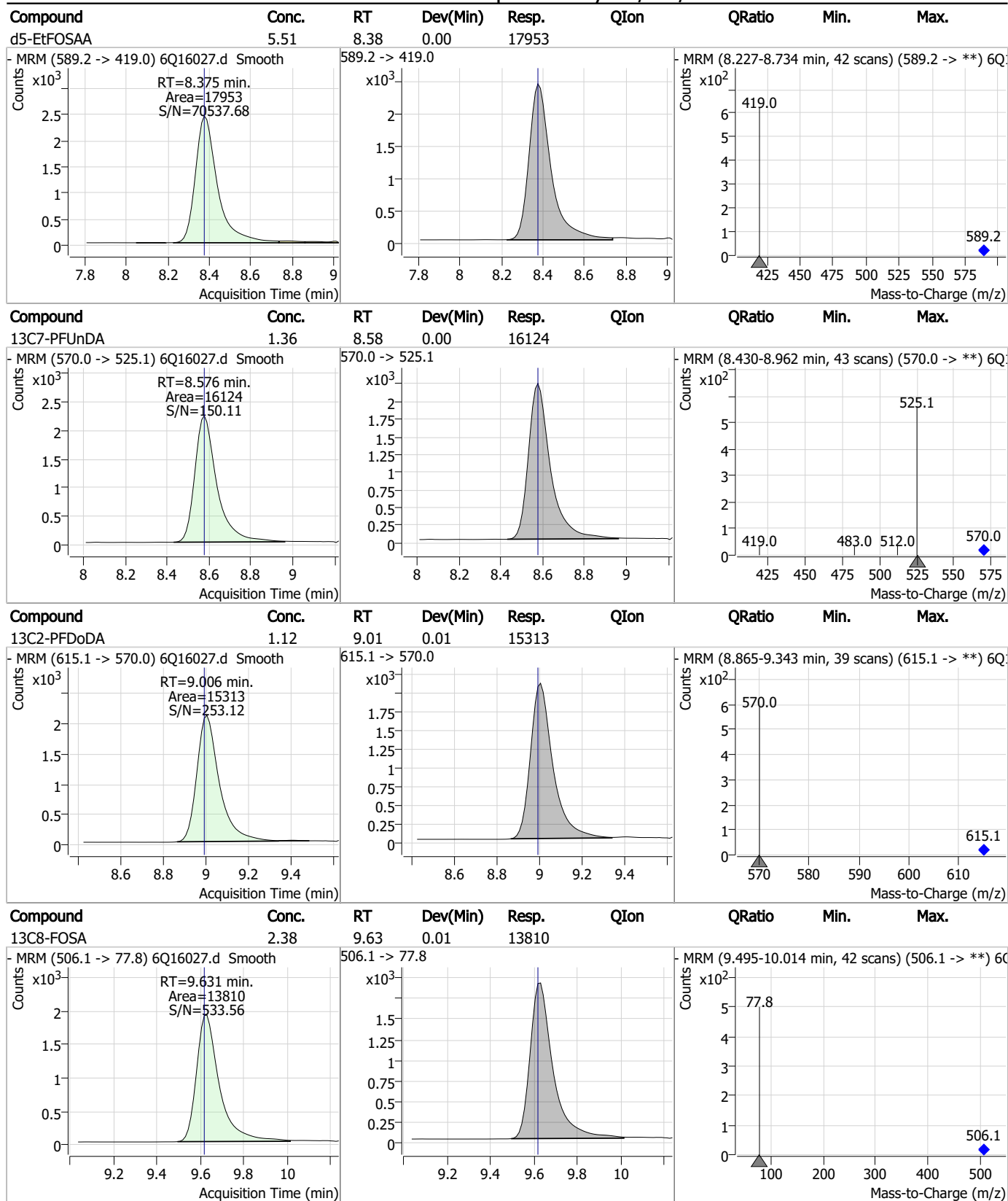
### Perfluorinated Compounds by LC/MS/MS



7.2.3  
7

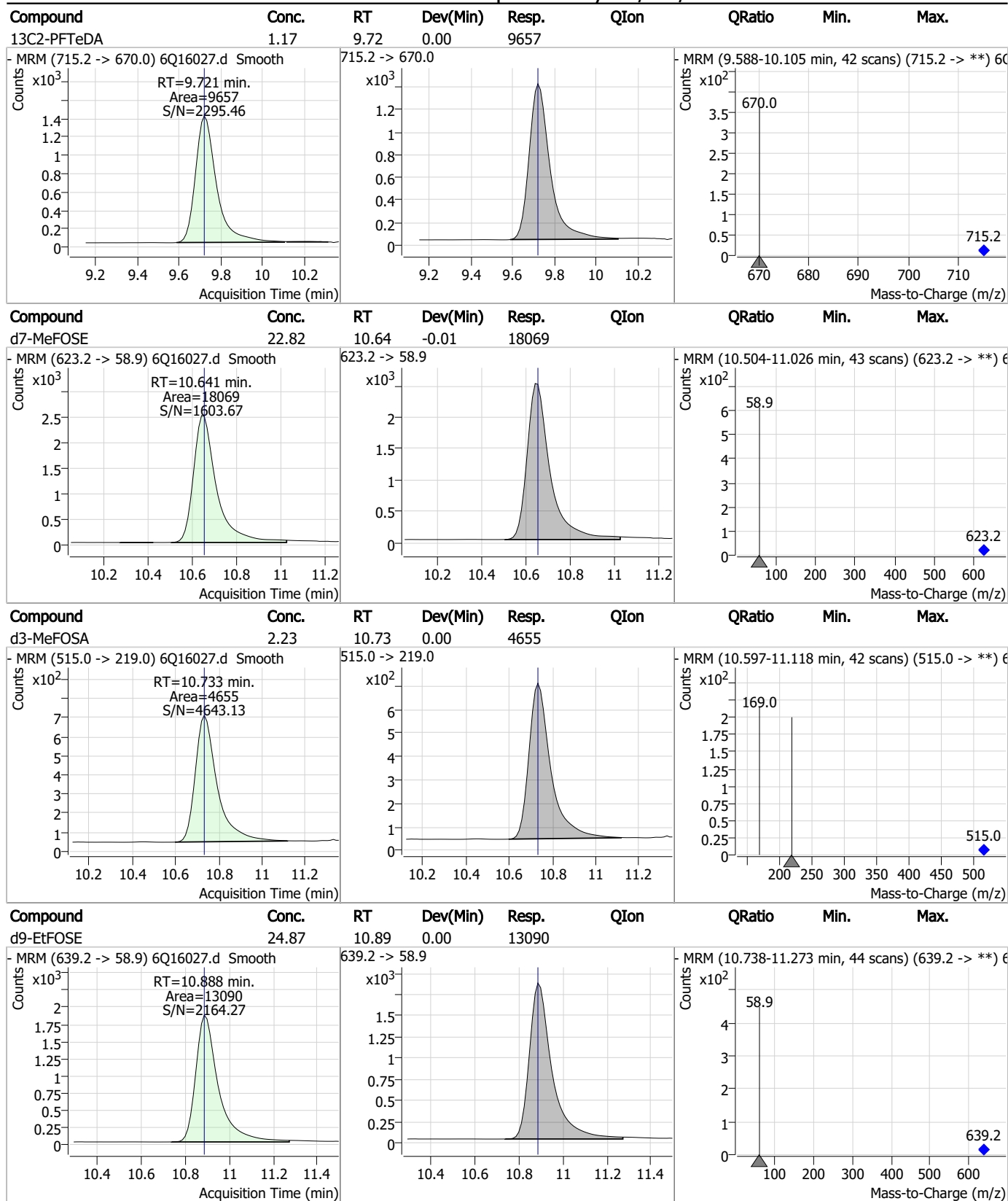


### Perfluorinated Compounds by LC/MS/MS



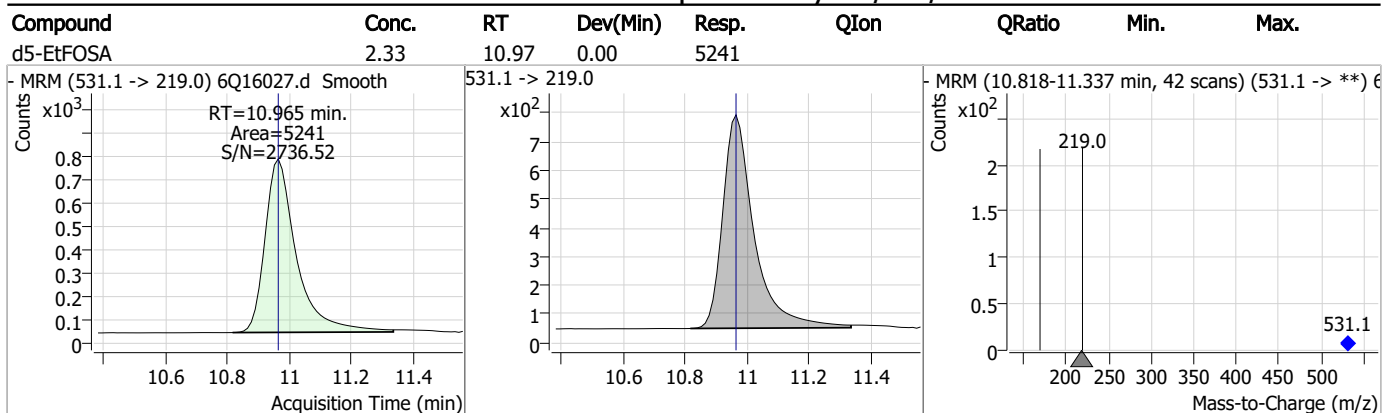
7.2.3  
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### Perfluorinated Compounds by LC/MS/MS



7.2.3  
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### Perfluorinated Compounds by LC/MS/MS



7.2.3  
7

### Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16025.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 4/4/2023 6:41:30 PM  
 Sample Name : op96209-bs  
 Vial : P2-C5  
 DA Method File : 1633\_040423\_S6Q239.quantmethod.xml  
 Batch Name : s6q239.batch.bin  
 Sample Information : OP96209,S6Q239,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.938	216.8 -> 171.9	41266	10.00 µg/L	0.041
M5-PFPeA	4.334	268.3 -> 223.0	35688	5.00 µg/L	0.012
M5-PFHxA	5.528	318.0 -> 273.0	32870	2.50 µg/L	0.000
M4-PFHpA	6.481	367.1 -> 322.0	30233	2.50 µg/L	0.012
M8-PFOA	7.125	421.1 -> 376.0	54516	2.50 µg/L	0.013
M9-PFNA	7.643	472.1 -> 427.0	15199	1.25 µg/L	0.000
M6-PFDA	8.122	519.1 -> 474.1	13489	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	14842	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	16602	1.25 µg/L	0.012
M2-PFTeDA	9.721	715.2 -> 670.0	9516	1.25 µg/L	0.000
M8-FOSA	9.631	506.1 -> 77.8	13667	2.50 µg/L	0.012
M3-PFBS	5.471	302.1 -> 79.9	12277	2.50 µg/L	0.012
M3-PFHxS	7.240	402.1 -> 79.9	7951	2.50 µg/L	0.012
M8-PFOS	8.284	507.1 -> 79.9	6647	2.50 µg/L	0.000
M2-4:2FTS	5.204	329.1 -> 80.9	2110	5.00 µg/L	0.012
M2-6:2FTS	6.898	429.1 -> 80.9	2613	5.00 µg/L	0.012
M2-8:2FTS	7.923	529.1 -> 80.9	2213	5.00 µg/L	0.012
M3-MeFOSAA	8.180	573.2 -> 419.0	20093	5.00 µg/L	0.012
M3-HFPO-DA	5.893	286.9 -> 168.9	12832	10.00 µg/L	0.000
M5-EtFOSAA	8.375	589.2 -> 419.0	16776	5.00 µg/L	0.000
M7-MeFOSE	10.653	623.2 -> 58.9	16045	25.00 µg/L	0.000
M9-EtFOSE	10.888	639.2 -> 58.9	11023	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	4802	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	4815	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	7573	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	31877	5.00 µg/L	0.040
18O2-PFHxS	7.239	403.0 -> 83.9	5153	2.50 µg/L	0.012
13C4-PFOA	7.125	417.1 -> 372.0	54061	2.50 µg/L	0.013
13C2-PFDA	8.123	515.1 -> 470.1	15191	1.25 µg/L	0.000
13C5-PFNA	7.643	468.0 -> 423.0	15047	1.25 µg/L	0.000
13C2-PFHxA	5.529	315.1 -> 270.0	26527	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.204	329.1 -> 80.9	2110	6.09 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.7%		
13C2-6:2FTS	6.898	429.1 -> 80.9	2613	6.14 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 122.9%		
13C2-8:2FTS	7.923	529.1 -> 80.9	2213	5.40 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.0%		
13C2-PFDoDA	9.006	615.1 -> 570.0	16602	1.38 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 110.6%		
13C2-PFTeDA	9.721	715.2 -> 670.0	9516	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.7%		
13C3-PFBS	5.471	302.1 -> 79.9	12277	2.68 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.2%		
13C3-PFHxS	7.240	402.1 -> 79.9	7951	2.70 µg/L	0.012

7.3.1  
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 = 107.8%	
13C4-PFBA	2.938	216.8 -> 171.9	41266	5.54 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 55.4%	
13C4-PFHpA	6.481	367.1 -> 322.0	30233	2.82 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.6%	
13C5-PFHxA	5.528	318.0 -> 273.0	32870	2.99 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 119.8%	
13C5-PFPeA	4.334	268.3 -> 223.0	35688	5.77 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 115.4%	
13C6-PFDA	8.122	519.1 -> 474.1	13489	1.51 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 120.7%	
13C7-PFUnDA	8.576	570.0 -> 525.1	14842	1.43 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 114.3%	
13C8-FOSA	9.631	506.1 -> 77.8	13667	2.43 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C8-PFOA	7.125	421.1 -> 376.0	54516	3.02 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 120.8%	
13C8-PFOS	8.284	507.1 -> 79.9	6647	2.69 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.7%	
13C9-PFNA	7.643	472.1 -> 427.0	15199	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.2%	
d3-MeFOSAA	8.180	573.2 -> 419.0	20093	5.48 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.7%	
13C3-HFPO-DA	5.893	286.9 -> 168.9	12832	11.09 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 110.9%	
d3-MeFOSA	10.733	515.0 -> 219.0	4815	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.8%	
d5-EtFOSAA	8.375	589.2 -> 419.0	16776	5.29 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.8%	
d7-MeFOSE	10.653	623.2 -> 58.9	16045	20.82 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 83.3%	
d9-EtFOSE	10.888	639.2 -> 58.9	11023	21.52 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 86.1%	
d5-EtFOSA	10.965	531.1 -> 219.0	4802	2.19 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.8%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.204	327.1 -> 307.0	36430	8.81 µg/L	97
		327.1 -> 80.9	9150		
6:2FTS	6.899	427.1 -> 407.0	33657	9.62 µg/L	95
		427.1 -> 80.9	6519		
8:2FTS	7.924	527.1 -> 507.0	16217	10.33 µg/L	99
		527.1 -> 80.8	4079		
EtFOSAA	8.389	584.2 -> 419.1	6036	2.35 µg/L	84
		584.2 -> 526.0	3399		
FOSA	9.634	498.1 -> 77.9	12184	2.41 µg/L	99
		498.1 -> 478.0	370		
MeFOSAA	8.181	570.1 -> 419.0	9245	2.45 µg/L	94
		570.1 -> 483.0	1510		
PFBA	2.944	212.8 -> 168.9	9791	9.39 µg/L	100
PFBS	5.472	298.7 -> 79.9	10476	2.18 µg/L	98
		298.7 -> 98.8	4971		
PFDA	8.123	512.9 -> 469.0	36671	2.33 µg/L	98
		512.9 -> 219.0	5438		
PFDODA	9.007	613.1 -> 569.0	30533	2.47 µg/L	99
		613.1 -> 319.0	3947		
PFDS	9.170	599.0 -> 79.9	4477	2.25 µg/L	99

7.3.1  
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.481	599.0 -> 98.8	2348	2.55	µg/L	100
		363.1 -> 319.0	43312			
PFHpS	7.794	363.1 -> 169.0	6074	2.17	µg/L	92
		449.0 -> 79.9	6164			
PFHxA	5.531	449.0 -> 98.9	3342	2.26	µg/L	100
		313.0 -> 269.0	27389			
PFHxS	7.241	313.0 -> 118.9	1128	2.11	µg/L	94
		398.7 -> 79.9	7377			
PFNA	7.643	398.7 -> 98.9	3972	2.51	µg/L	96
		463.0 -> 419.0	24890			
PFNS	8.751	463.0 -> 219.0	4680	2.28	µg/L	100
		548.8 -> 79.9	6435			
PFOA	7.126	548.8 -> 98.9	3730	2.31	µg/L	98
		413.0 -> 369.0	57088			
PFOS	8.286	413.0 -> 169.0	8052	2.30	µg/L	86
		498.9 -> 79.9	6722			
PFPeA	4.336	498.9 -> 98.8	4295	4.79	µg/L	100
		263.0 -> 219.0	36096			
PFPeS	6.533	349.1 -> 79.9	8953	2.13	µg/L	93
		349.1 -> 98.9	5043			
PFTeDA	9.722	713.1 -> 669.0	24743	2.46	µg/L	100
		713.1 -> 168.9	1565			
PFTrDA	9.390	663.0 -> 619.0	29146	2.50	µg/L	99
		663.0 -> 168.9	2278			
PFUnDA	8.577	563.1 -> 519.0	28845	2.43	µg/L	96
		563.1 -> 269.1	4240			
11Cl-PF3OUdS	9.442	630.9 -> 450.9	63034	9.14	µg/L	97
		632.9 -> 452.9	18266			
9Cl-PF3ONS	8.616	530.8 -> 351.0	120301	9.13	µg/L	96
		532.8 -> 353.0	37010			
ADONA	6.731	376.9 -> 250.9	253226	9.74	µg/L	99
		376.9 -> 84.8	57521			
HFPO-DA	5.906	284.9 -> 168.9	11193	9.65	µg/L	98
		284.9 -> 184.9	1479			
3:3FTCA	3.827	241.0 -> 177.0	3910	9.36	µg/L	99
		241.0 -> 117.0	609			
5:3FTCA	6.198	341.0 -> 237.1	146226	54.52	µg/L	96
		341.0 -> 217.0	132573			
7:3FTCA	7.621	441.0 -> 316.9	75742	55.79	µg/L	96
		441.0 -> 336.9	152874			
EtFOSA	10.967	526.0 -> 219.0	5263	2.54	µg/L	99
		526.0 -> 169.0	5161			
EtFOSE	10.913	630.0 -> 58.9	10705	24.76	µg/L	100
		511.9 -> 219.0	4718			
MeFOSA	10.734	511.9 -> 169.0	4973	2.33	µg/L	100
		616.1 -> 58.9	14338			
MeFOSE	10.666	699.1 -> 79.9	2437	23.71	µg/L	100
		699.1 -> 98.8	1514			
PFDoDS	9.848	295.0 -> 201.0	3836	2.11	µg/L	99
		295.0 -> 84.9	1612			
NFDHA	5.410	279.0 -> 85.1	12045	4.88	µg/L	97
		229.0 -> 84.9	8899			
PFMBA	4.750	314.8 -> 134.9	72149	4.20	µg/L	100
		314.8 -> 82.9	1771			

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

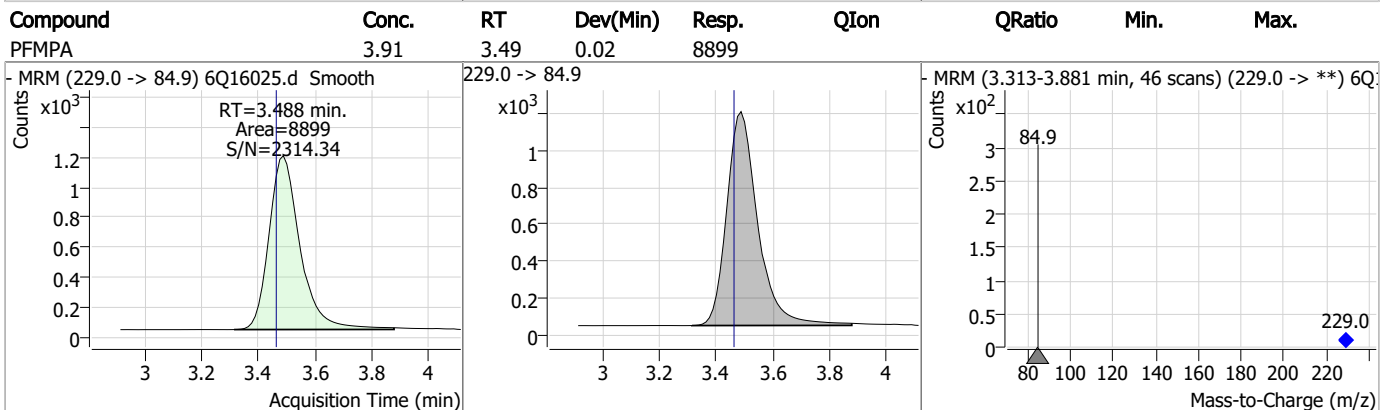
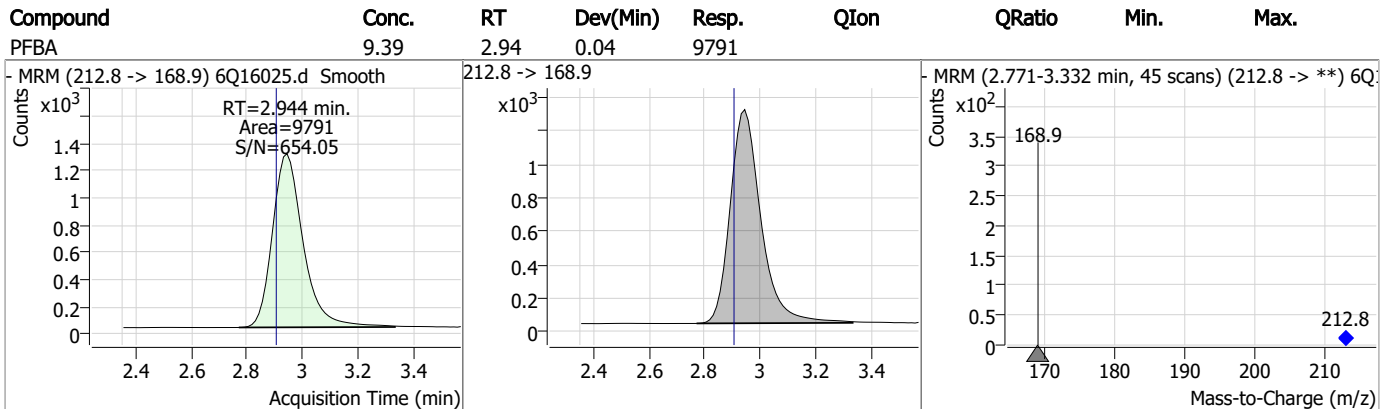
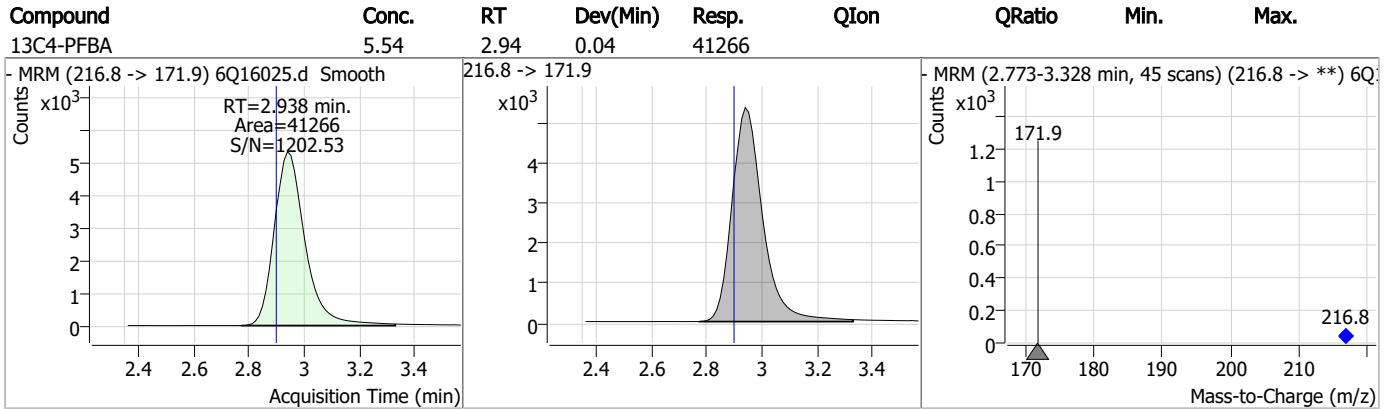
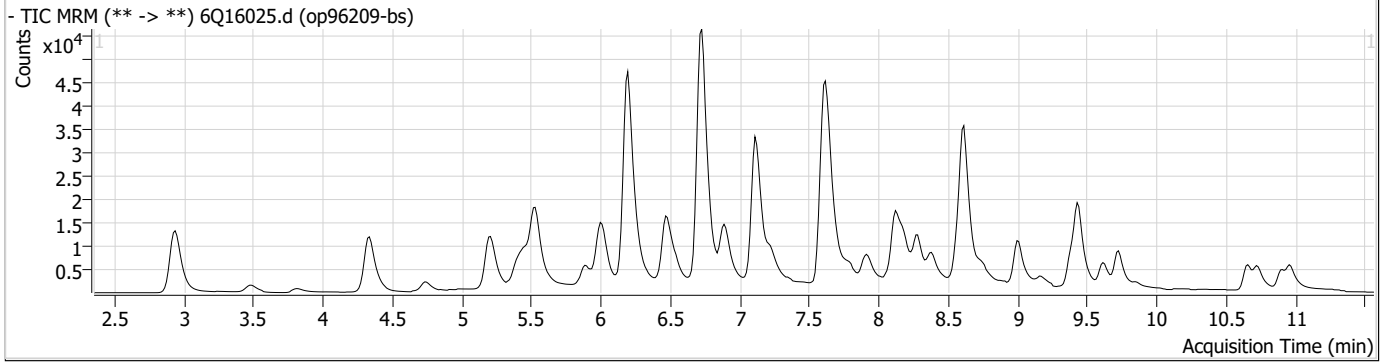
### Perfluorinated Compounds by LC/MS/MS

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

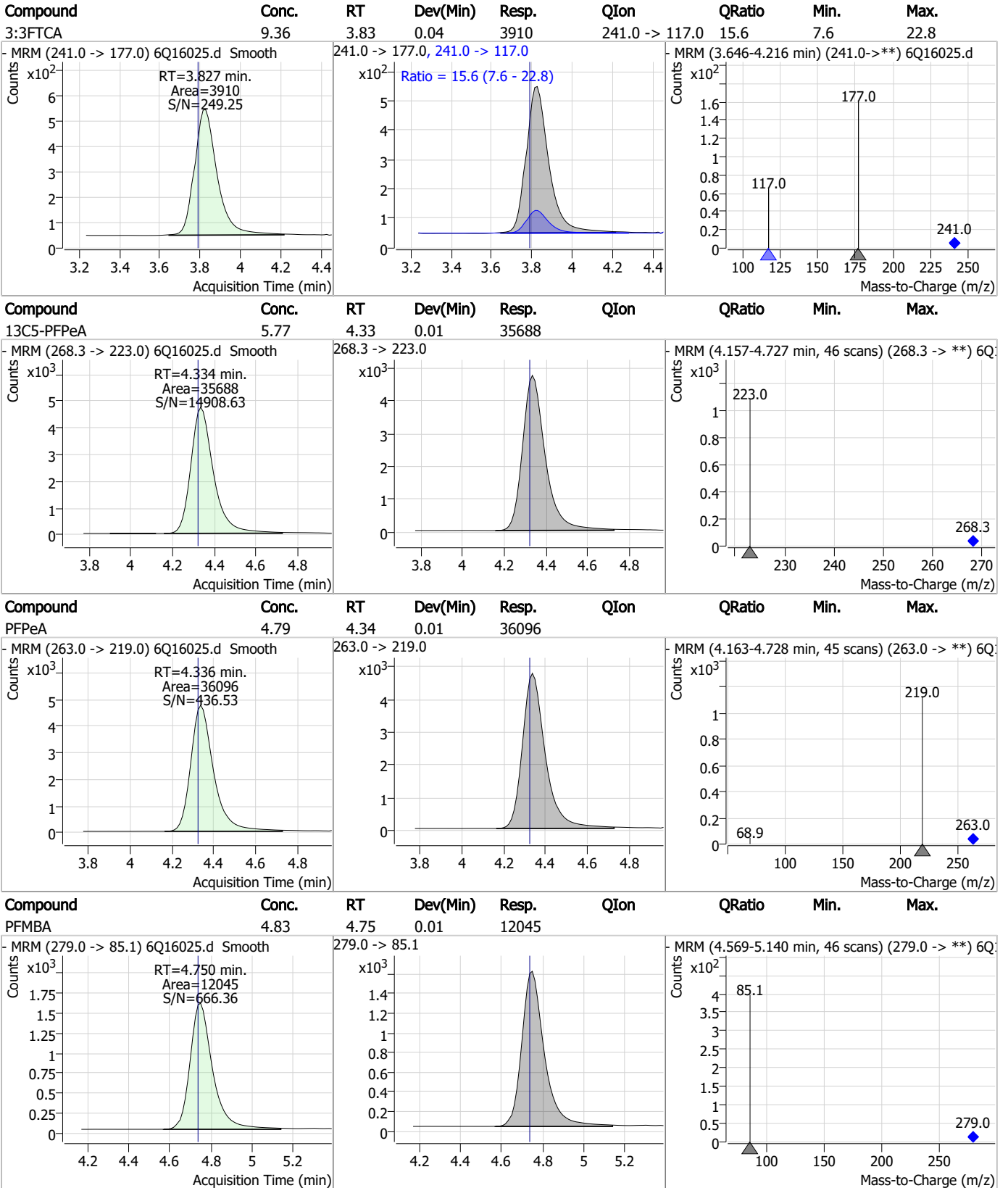
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### Perfluorinated Compounds by LC/MS/MS





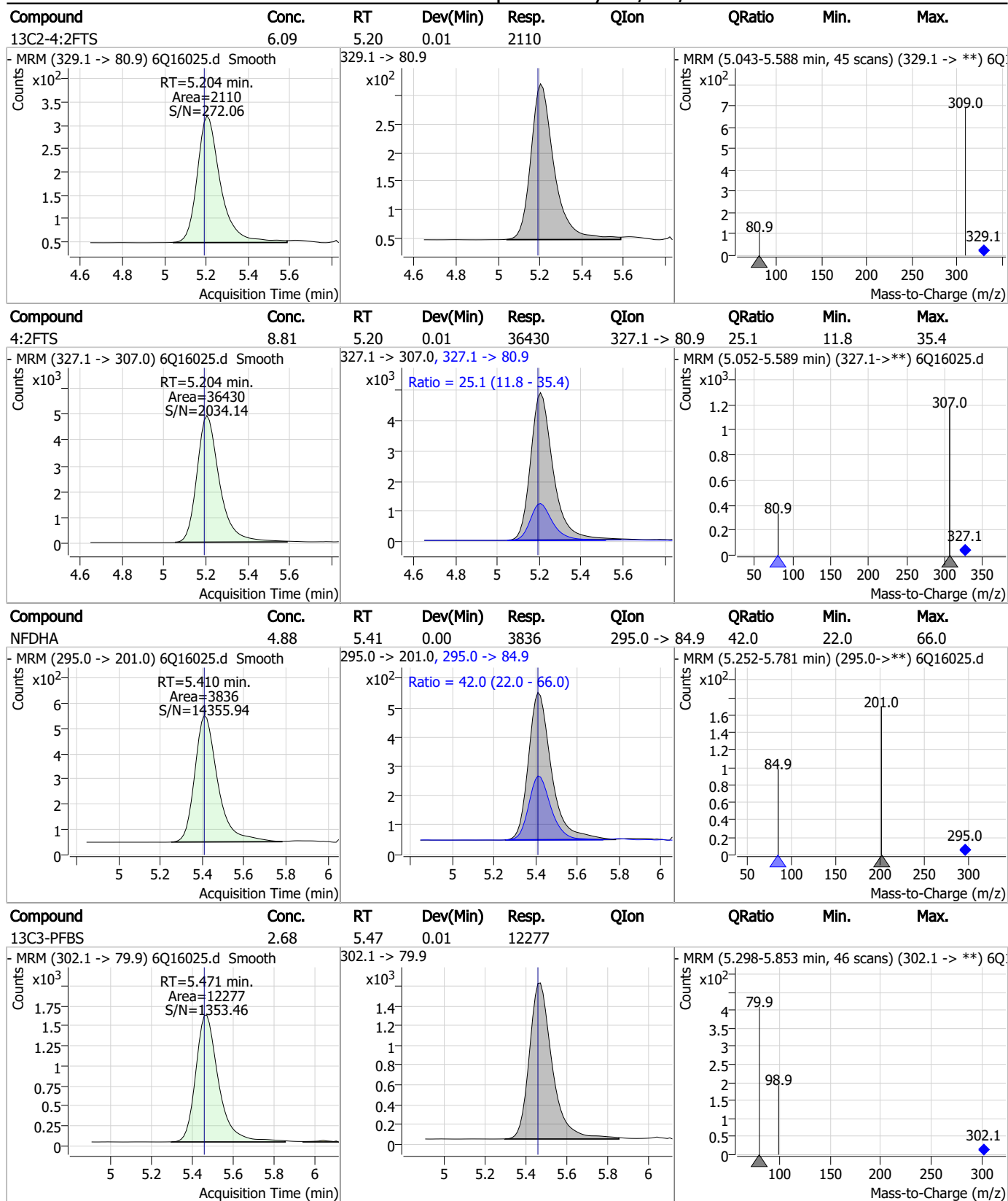
### Perfluorinated Compounds by LC/MS/MS



7.3.1

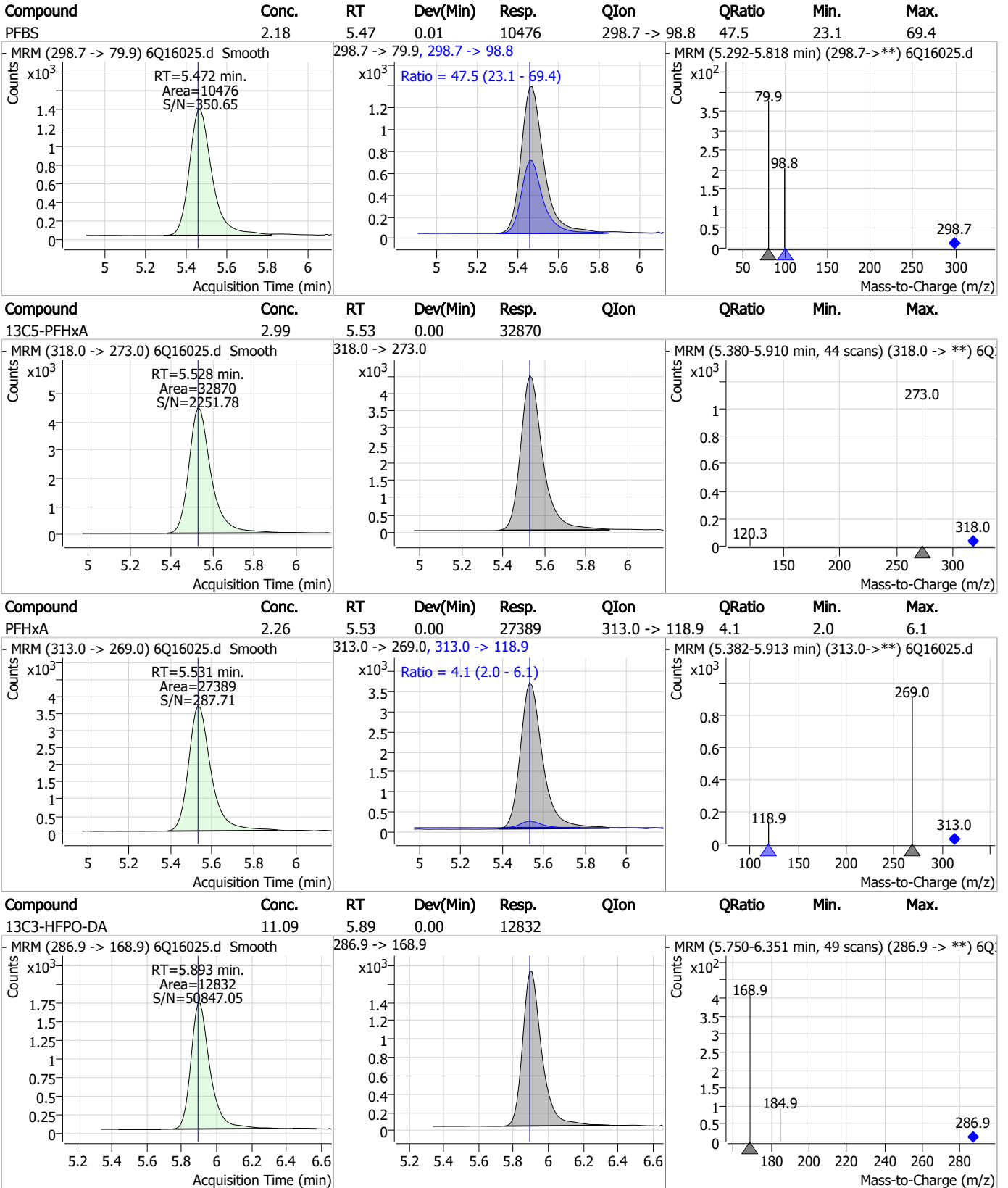
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### Perfluorinated Compounds by LC/MS/MS



7.3.1  
7

### Perfluorinated Compounds by LC/MS/MS

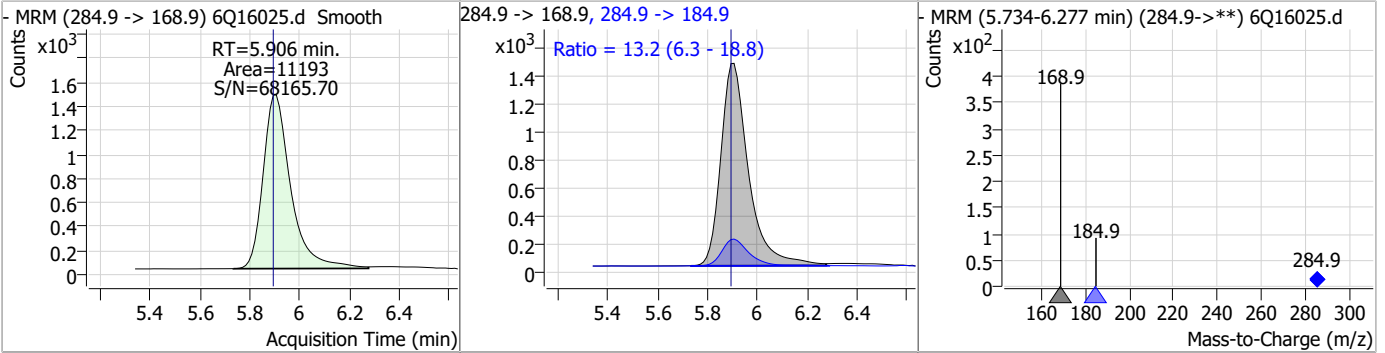


7.3.1

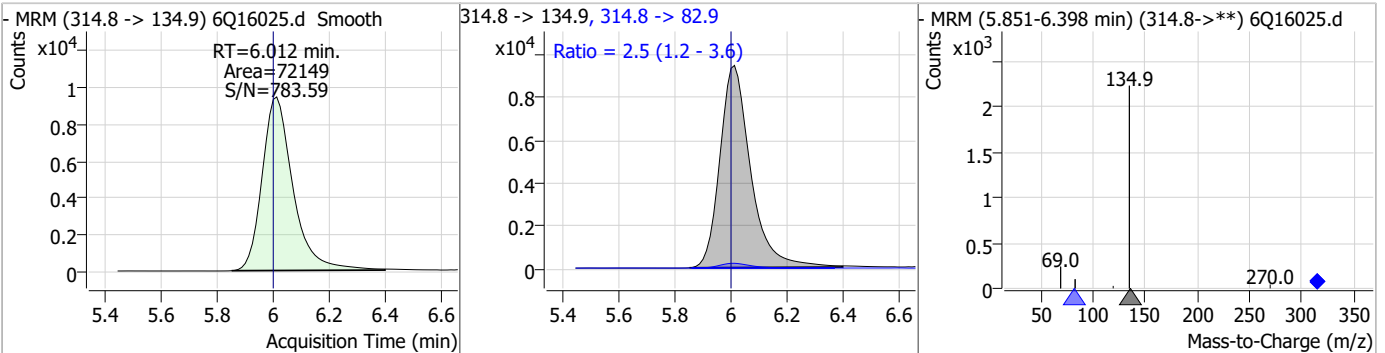
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### Perfluorinated Compounds by LC/MS/MS

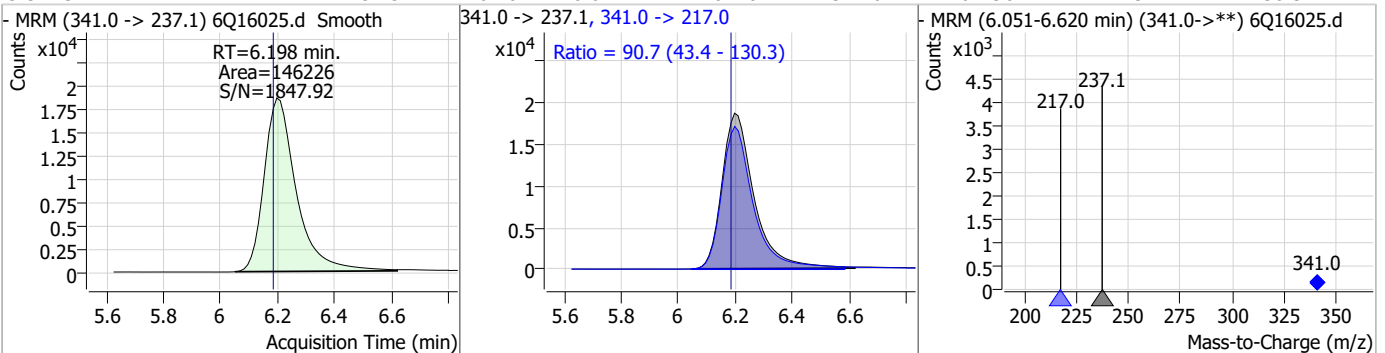
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.65	5.91	0.01	11193	284.9 -> 184.9	13.2	6.3	18.8



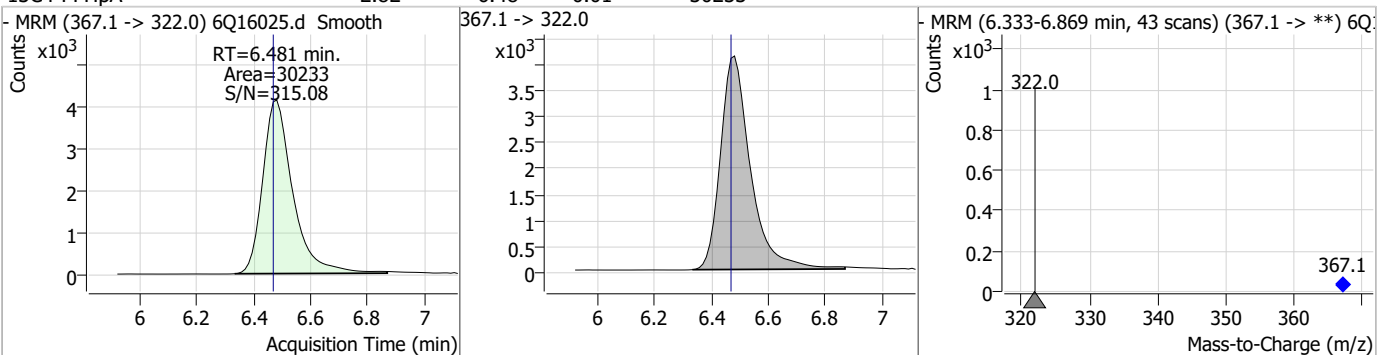
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.20	6.01	0.01	72149	314.8 -> 82.9	2.5	1.2	3.6



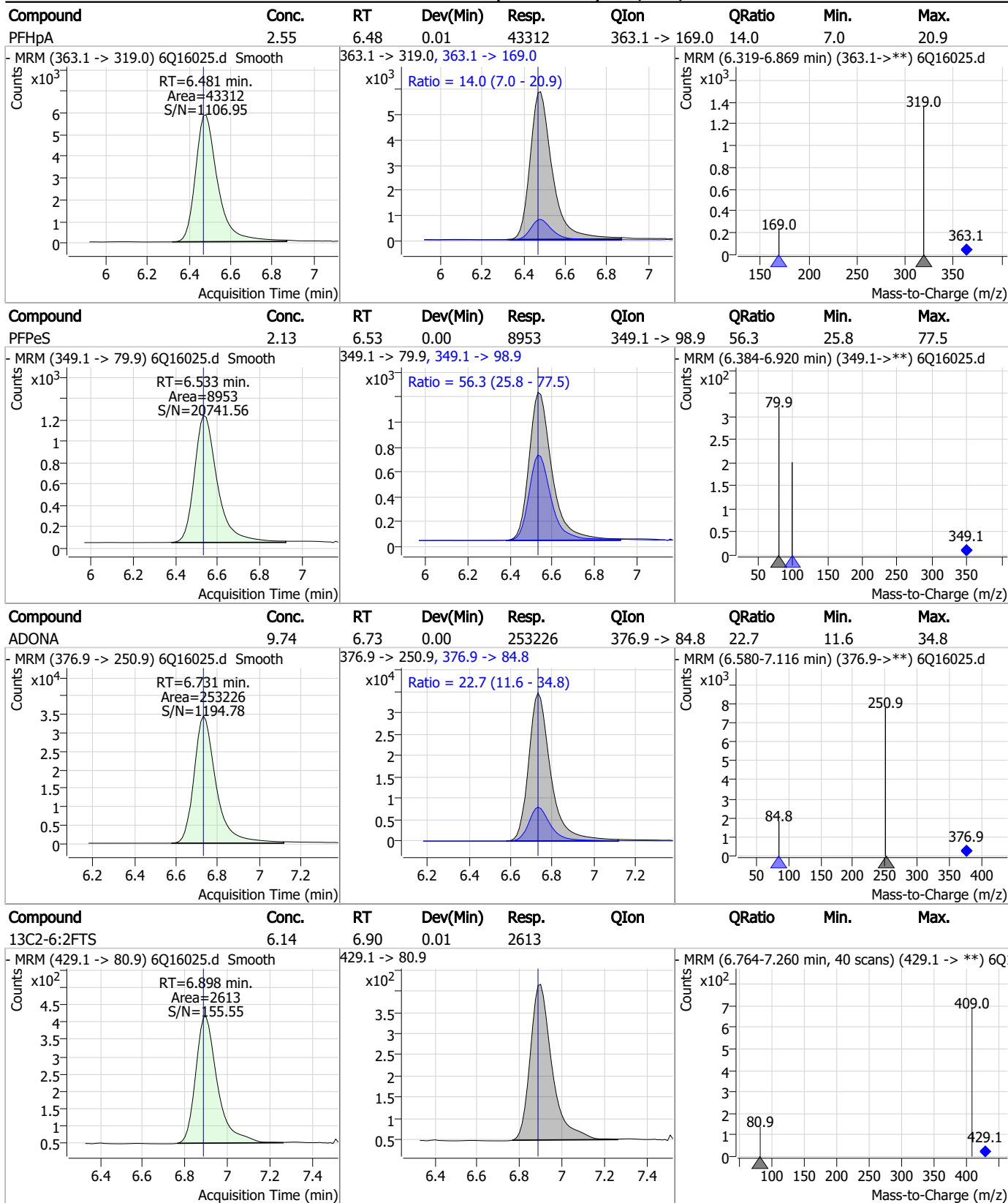
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	54.52	6.20	0.01	146226	341.0 -> 217.0	90.7	43.4	130.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.82	6.48	0.01	30233	367.1 -> 322.0			

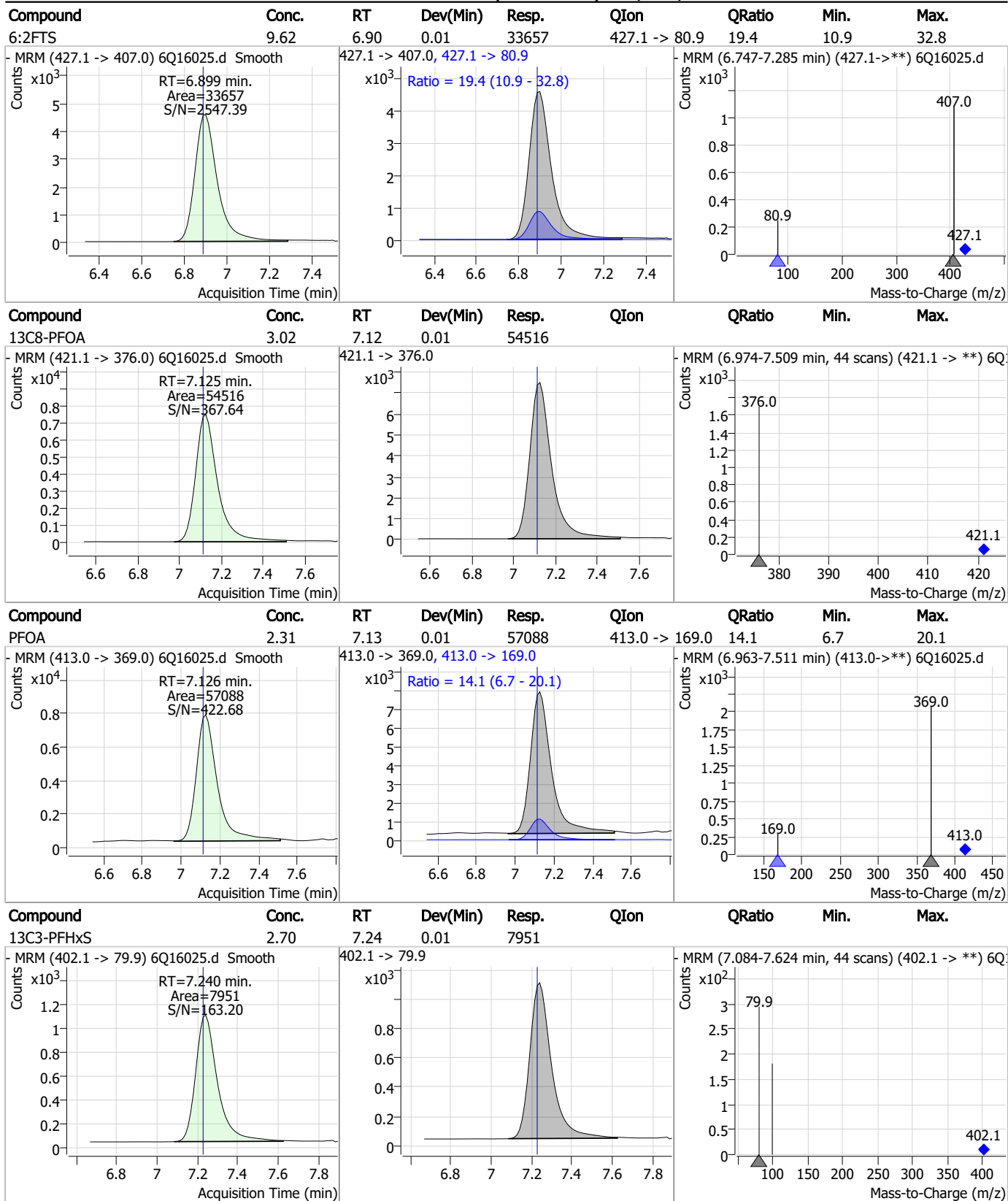


### Perfluorinated Compounds by LC/MS/MS



7.3.1  
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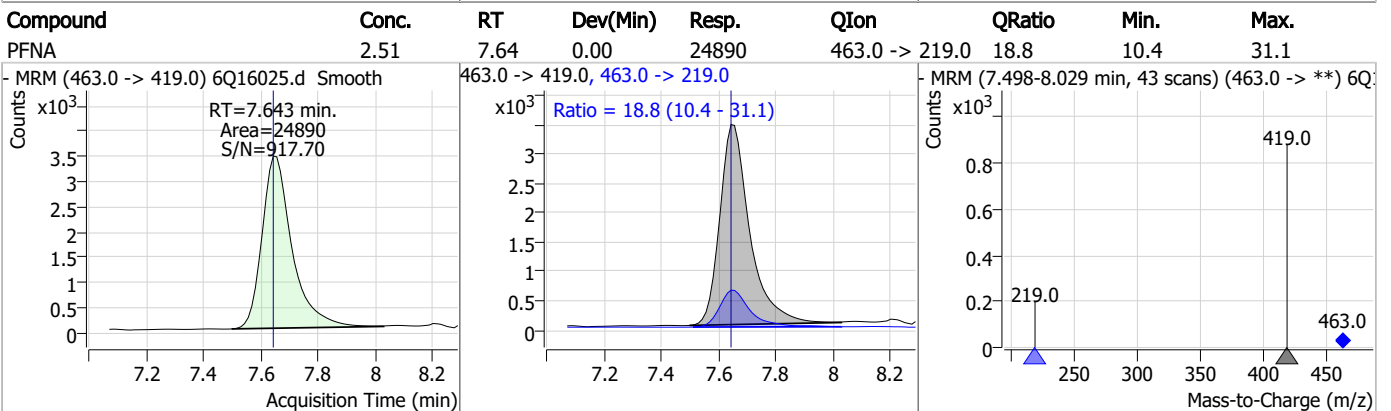
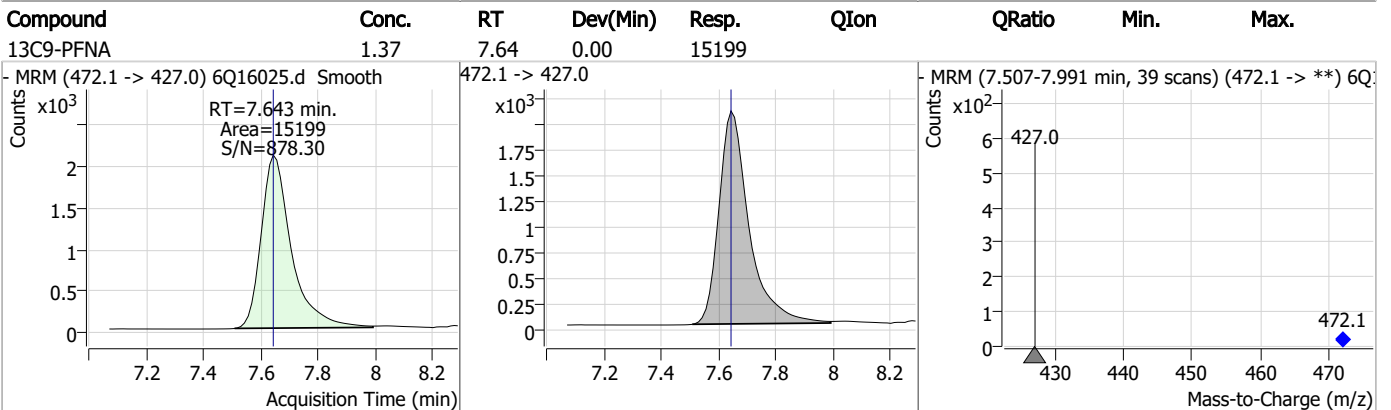
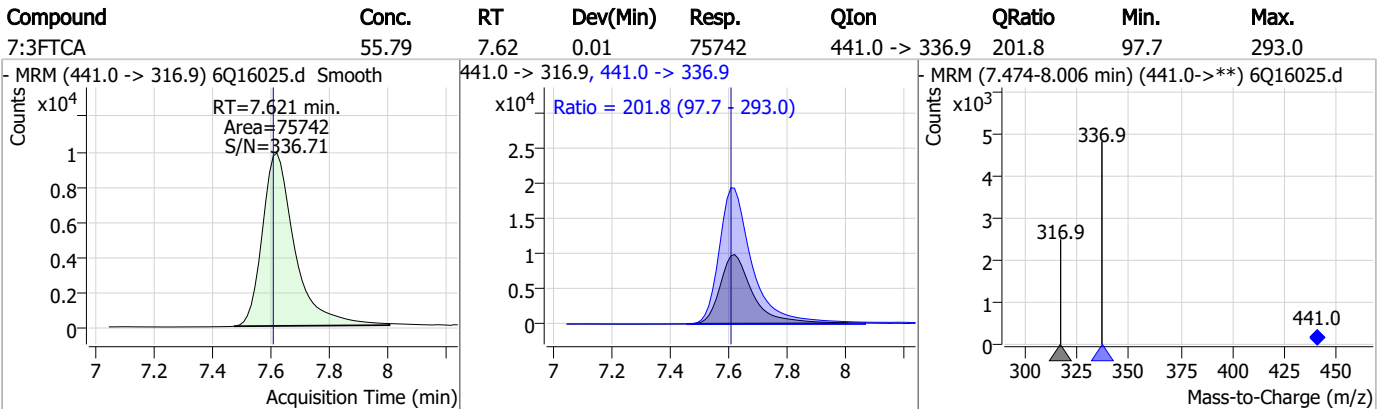
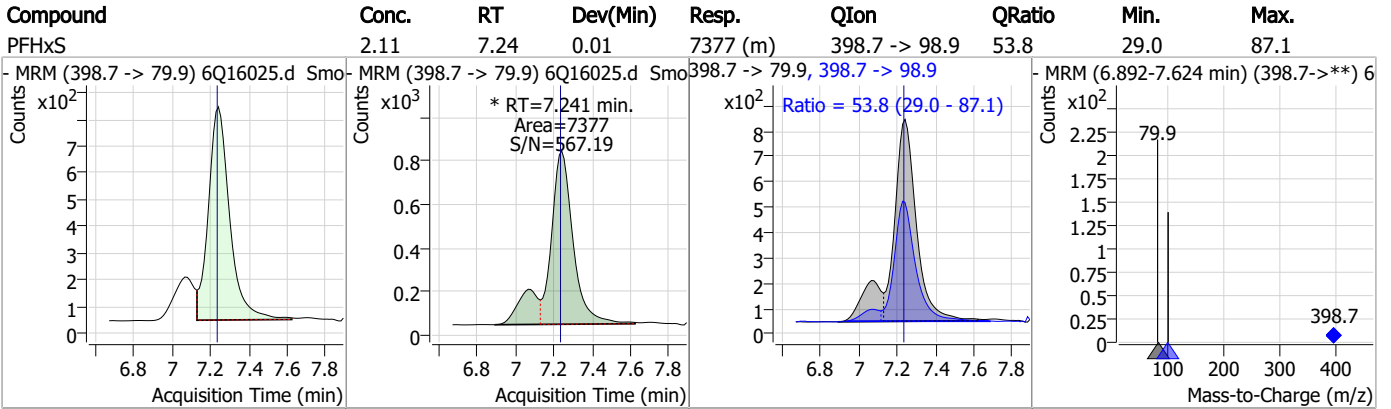
### Perfluorinated Compounds by LC/MS/MS



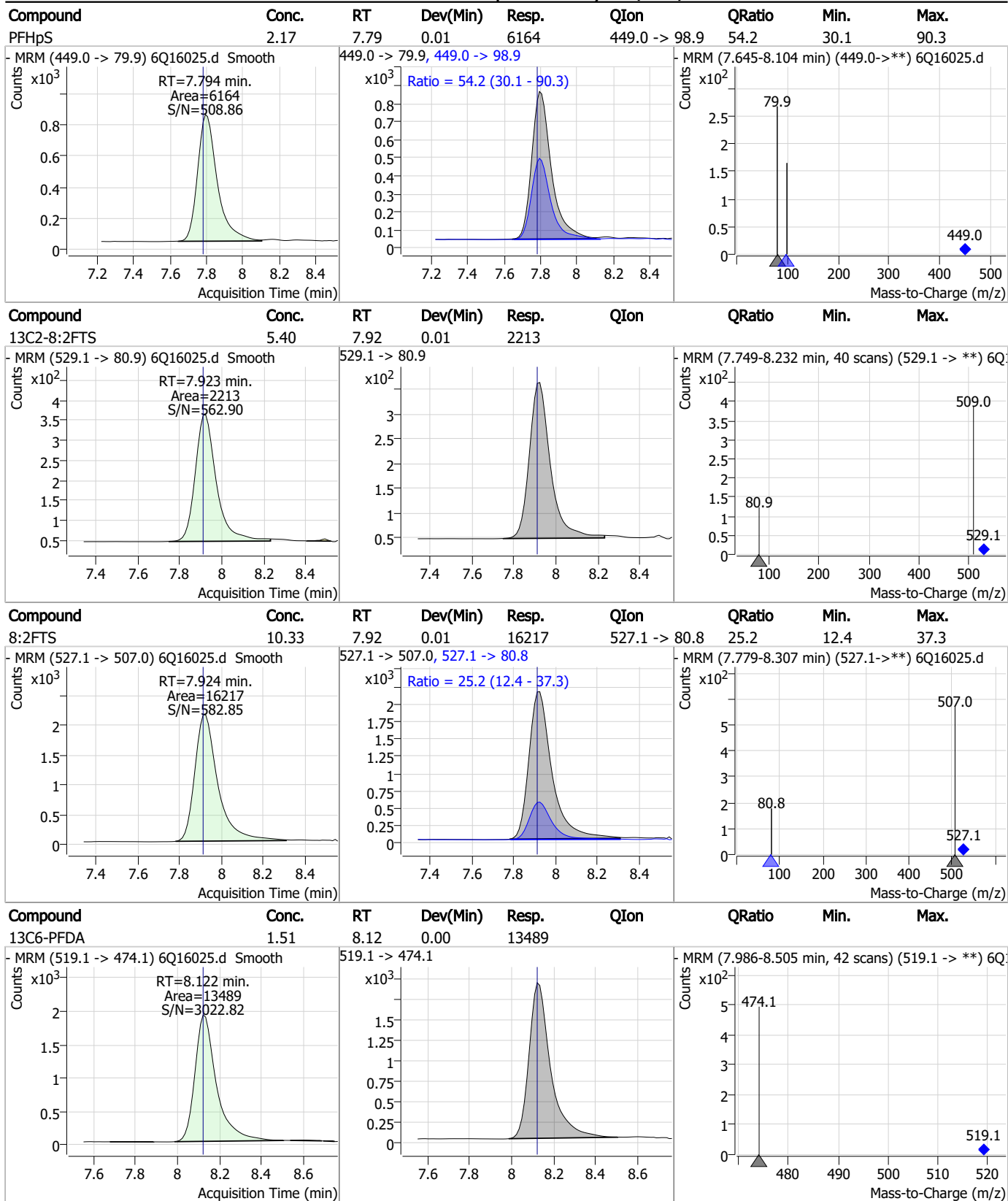
7.3.1

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### Perfluorinated Compounds by LC/MS/MS



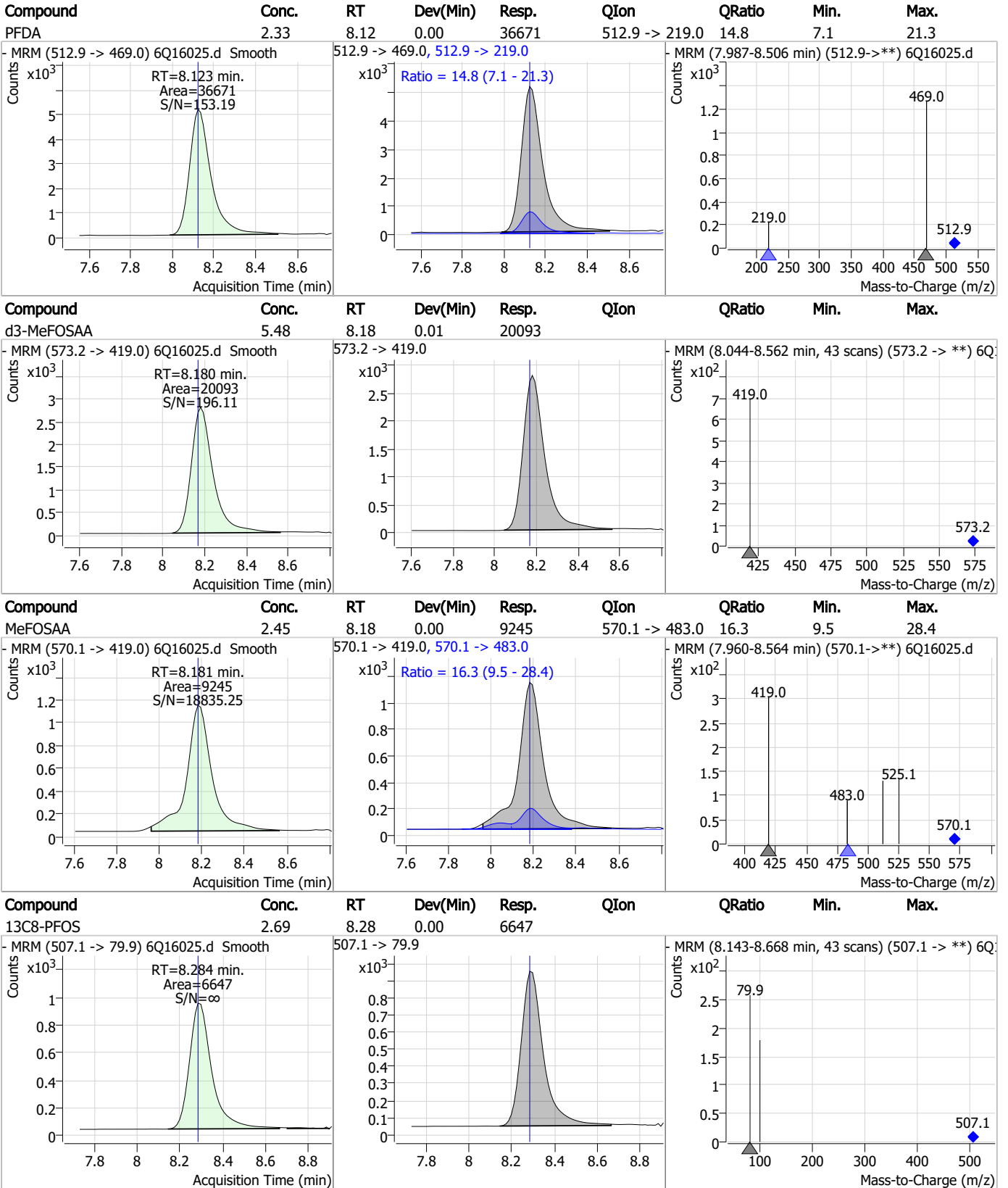
### Perfluorinated Compounds by LC/MS/MS



7.3.1  
7



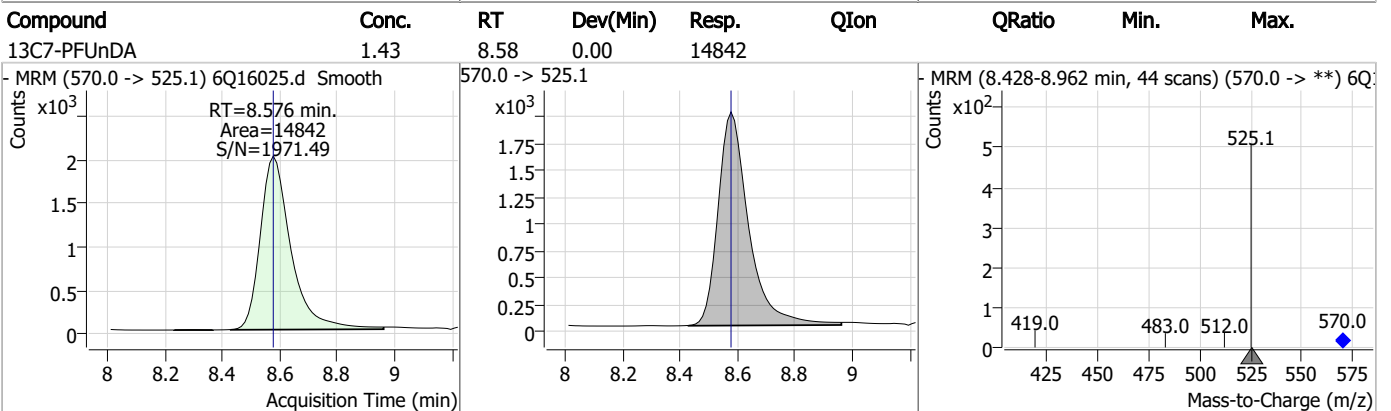
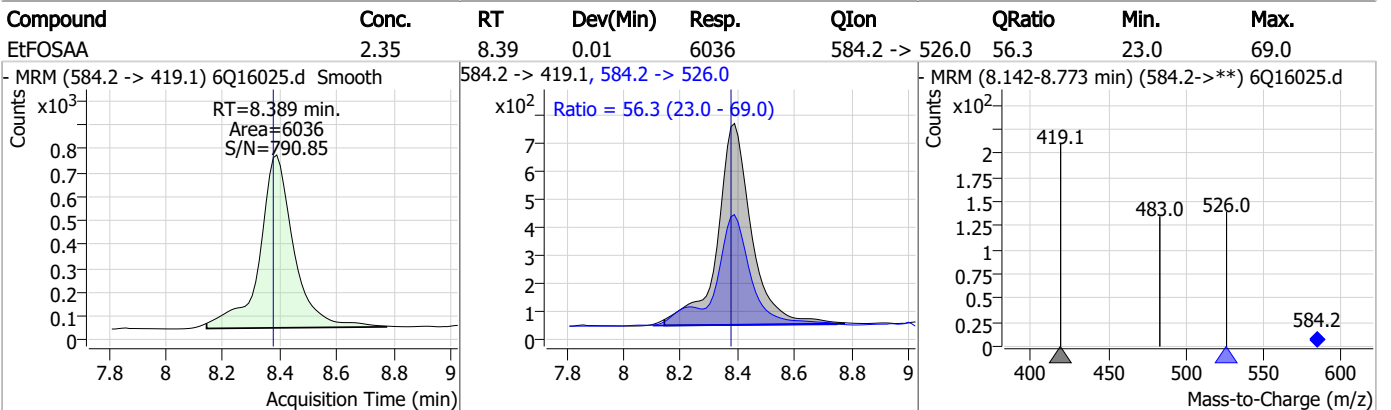
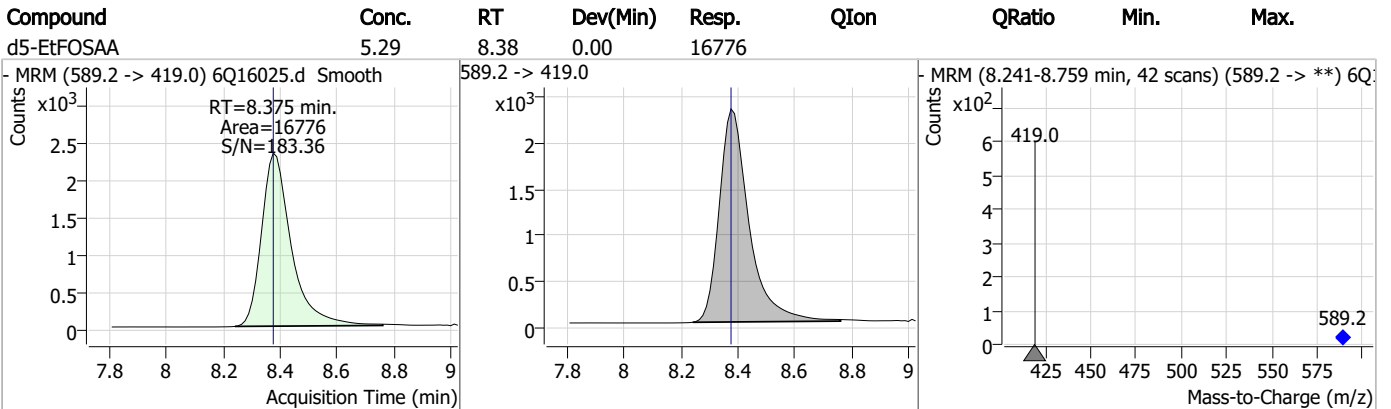
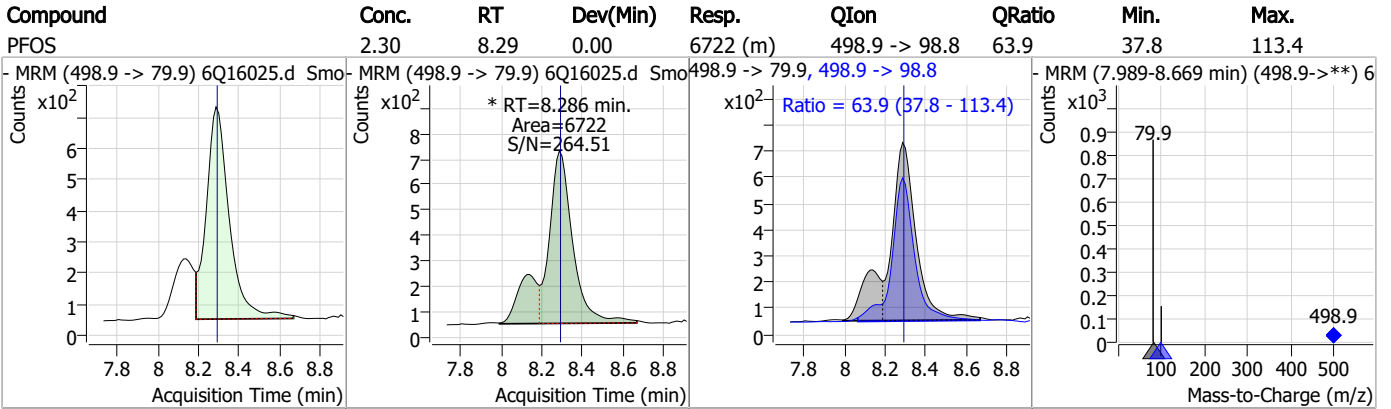
### Perfluorinated Compounds by LC/MS/MS



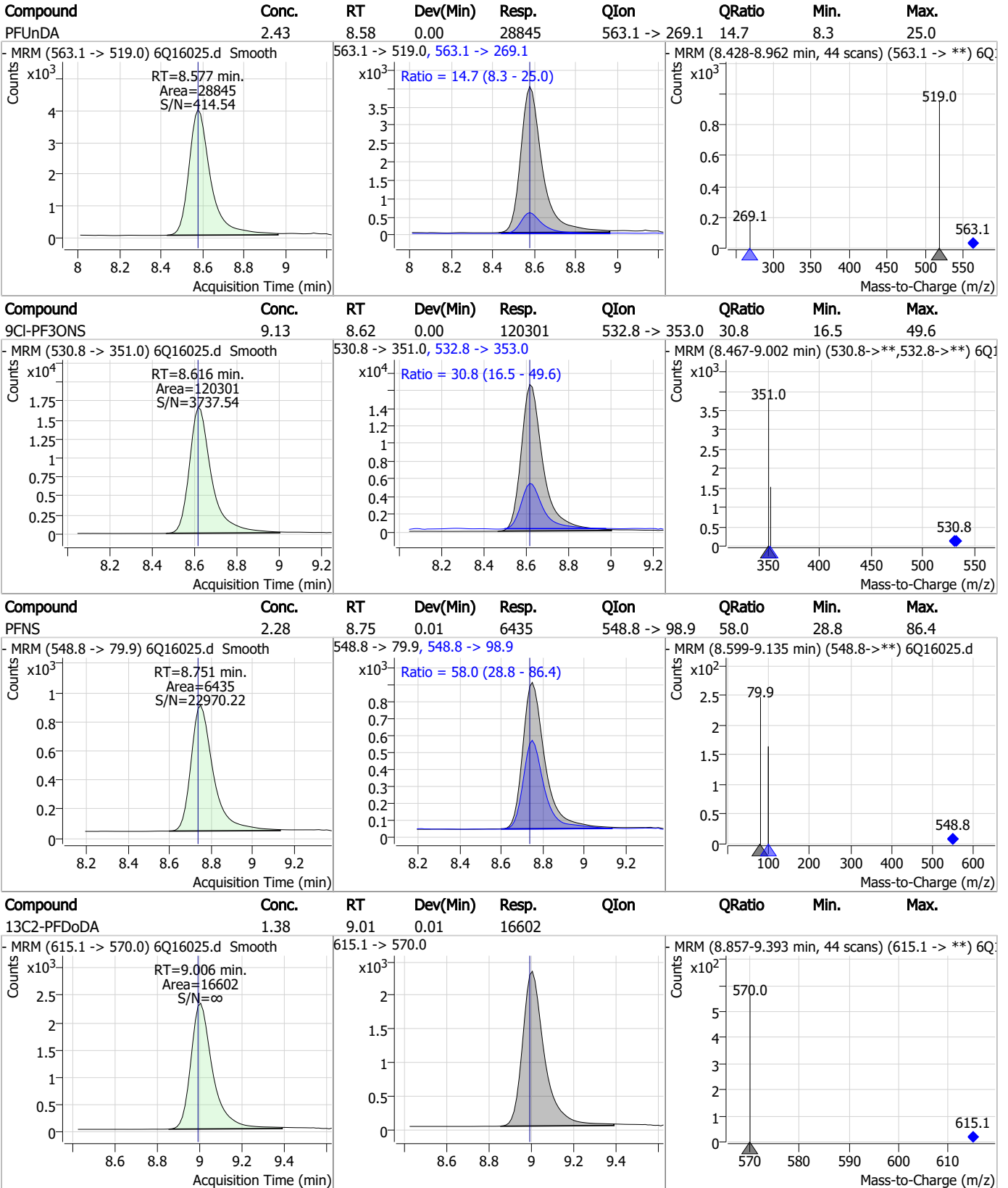
7.3.1

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### Perfluorinated Compounds by LC/MS/MS



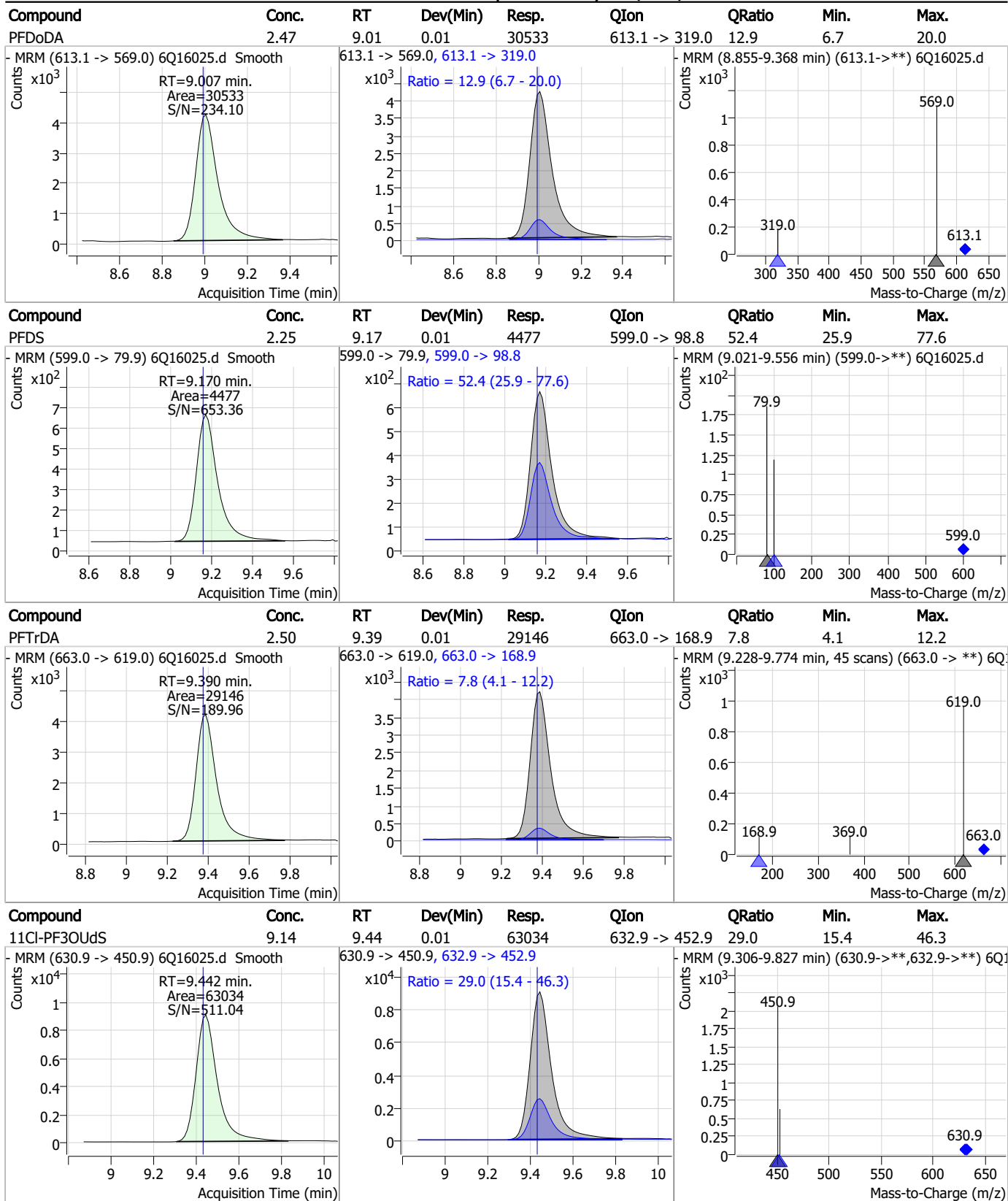
### Perfluorinated Compounds by LC/MS/MS



7.3.1

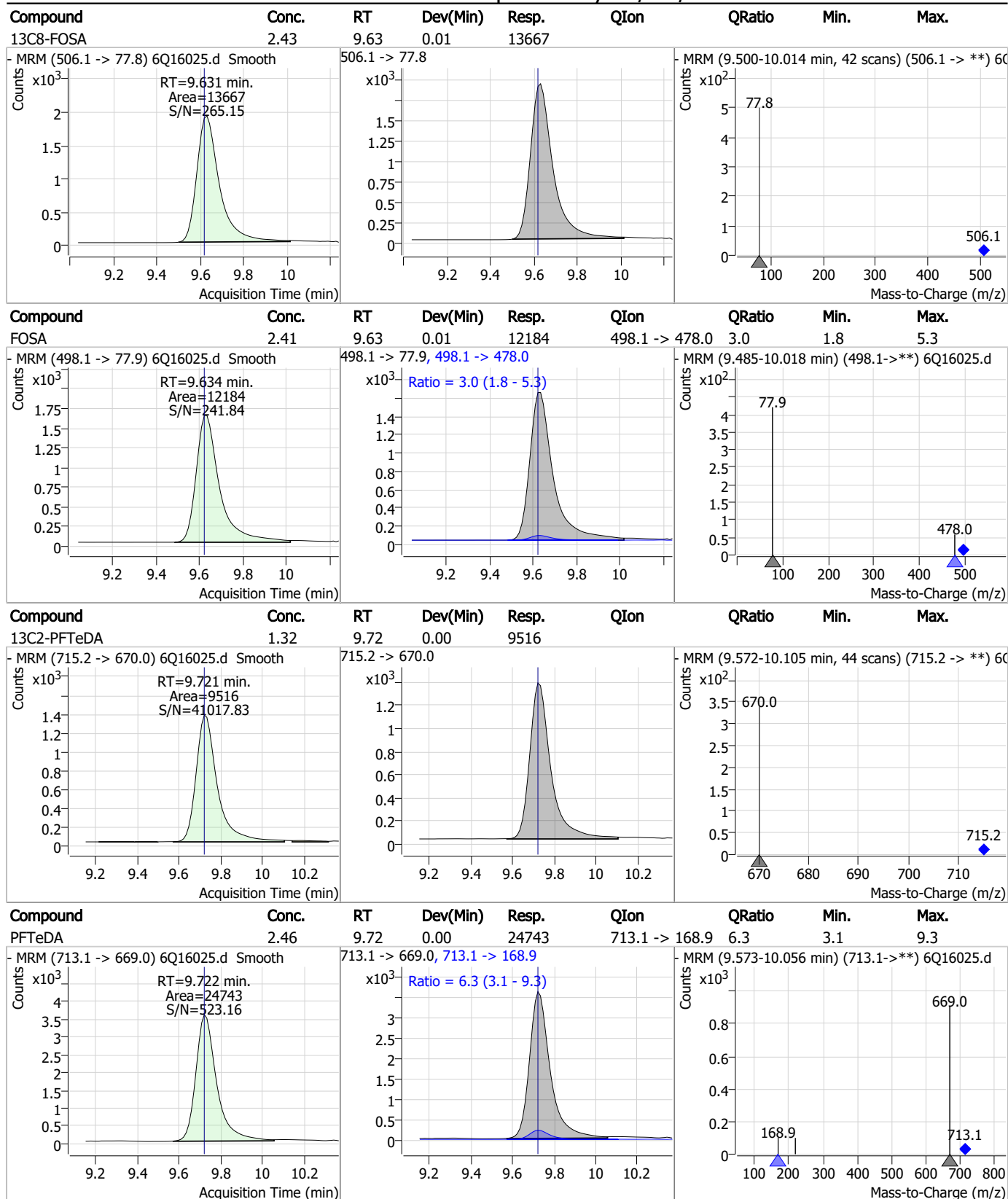
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### Perfluorinated Compounds by LC/MS/MS



7.3.1  
7

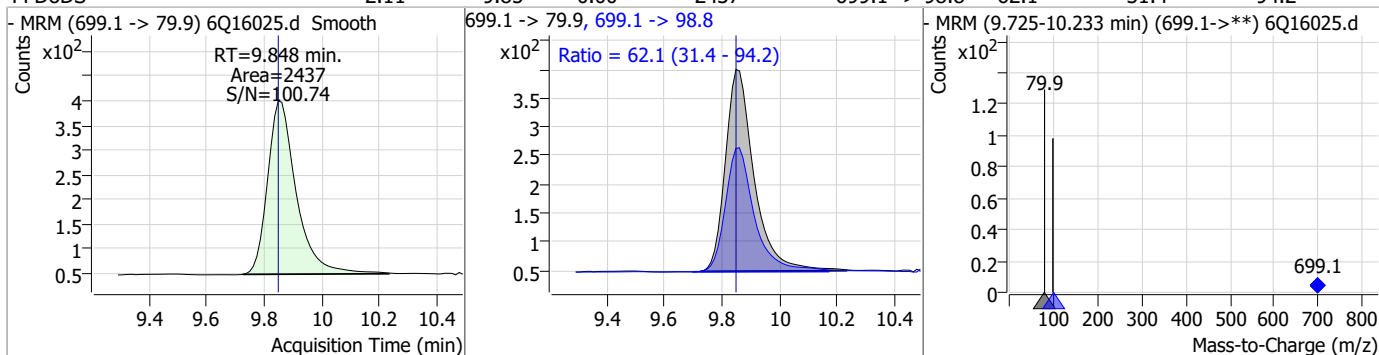
### Perfluorinated Compounds by LC/MS/MS



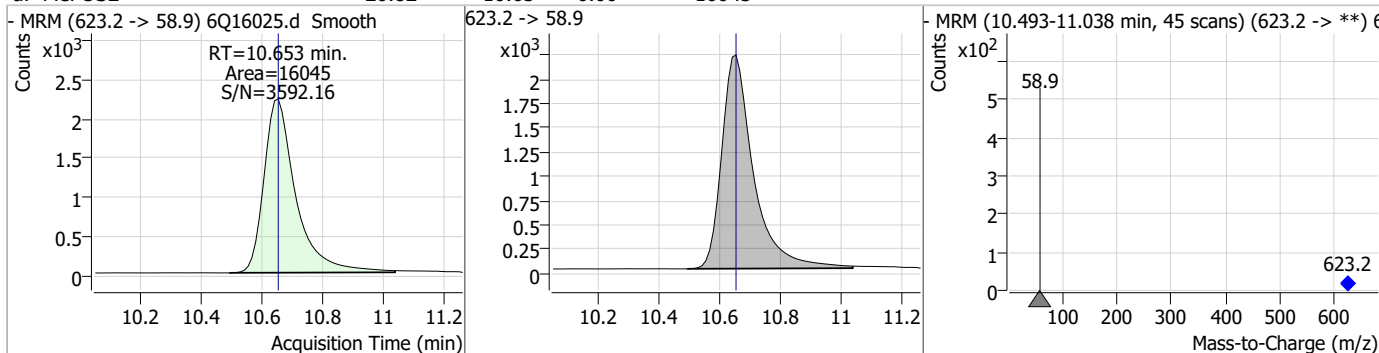
7.3.1  
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### Perfluorinated Compounds by LC/MS/MS

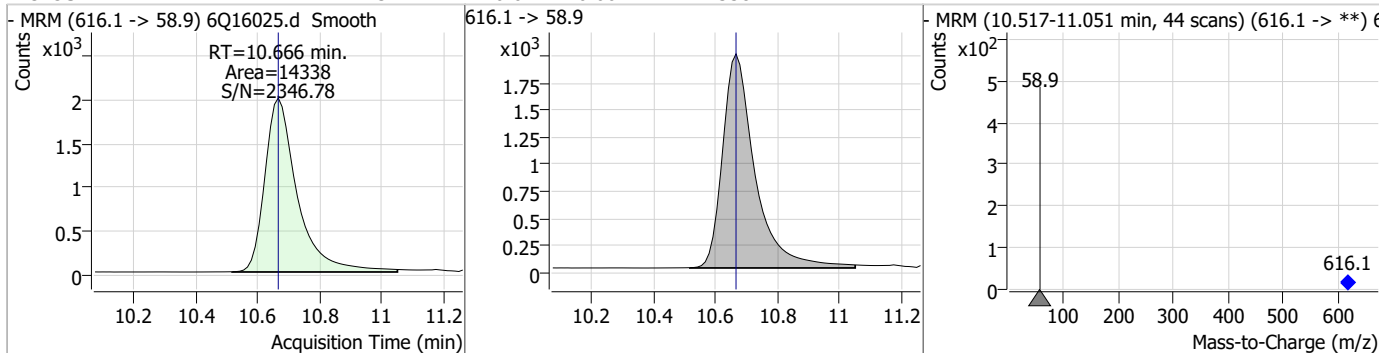
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD <sub>o</sub> DS	2.11	9.85	0.00	2437	699.1 -> 98.8	62.1	31.4	94.2



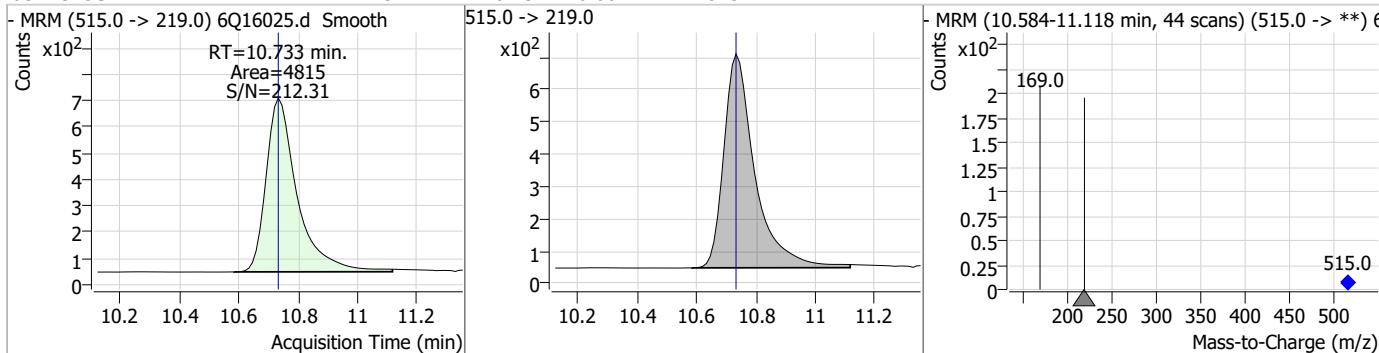
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	20.82	10.65	0.00	16045				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	23.71	10.67	0.00	14338				

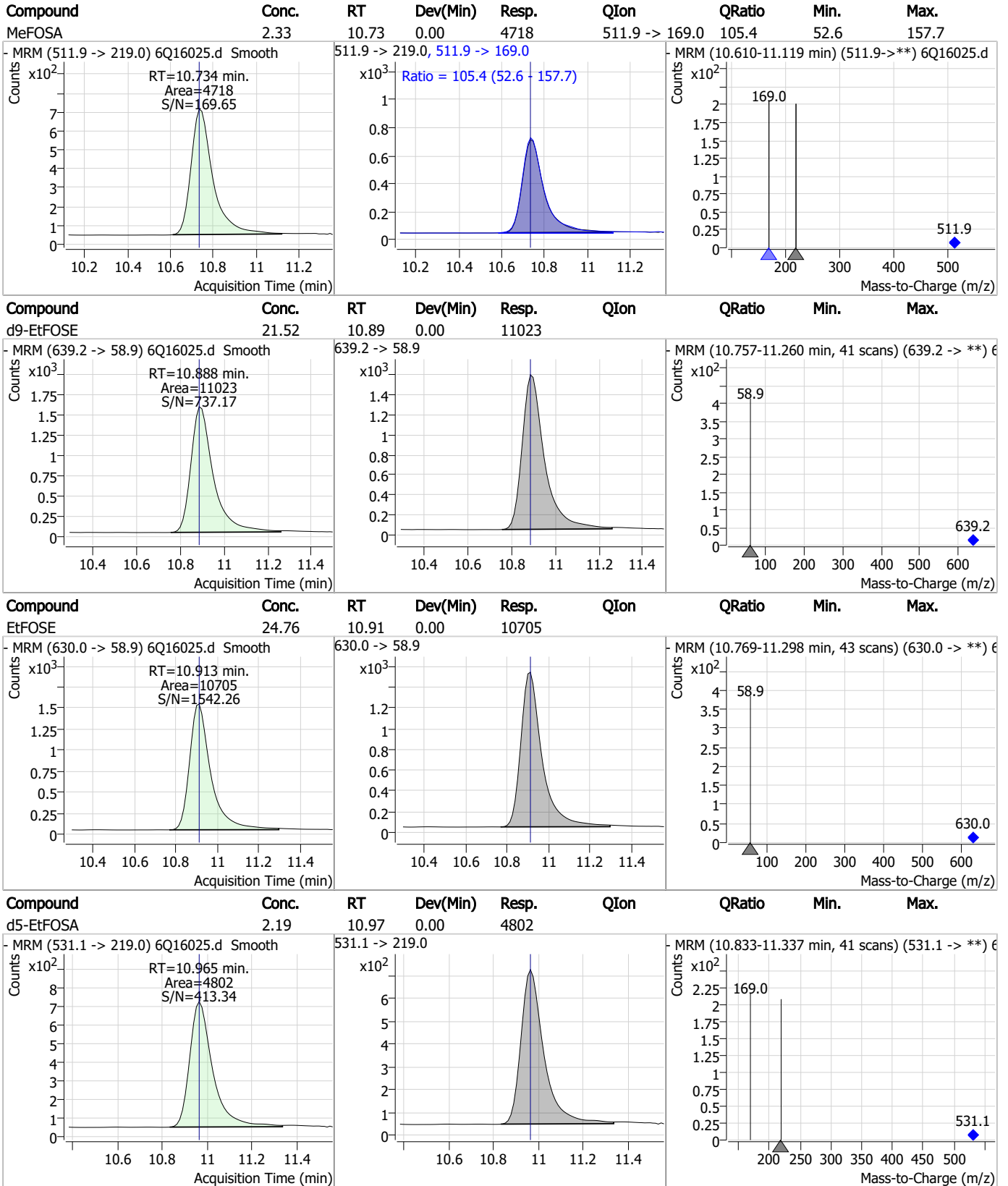


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.37	10.73	0.00	4815				



7.3.1  
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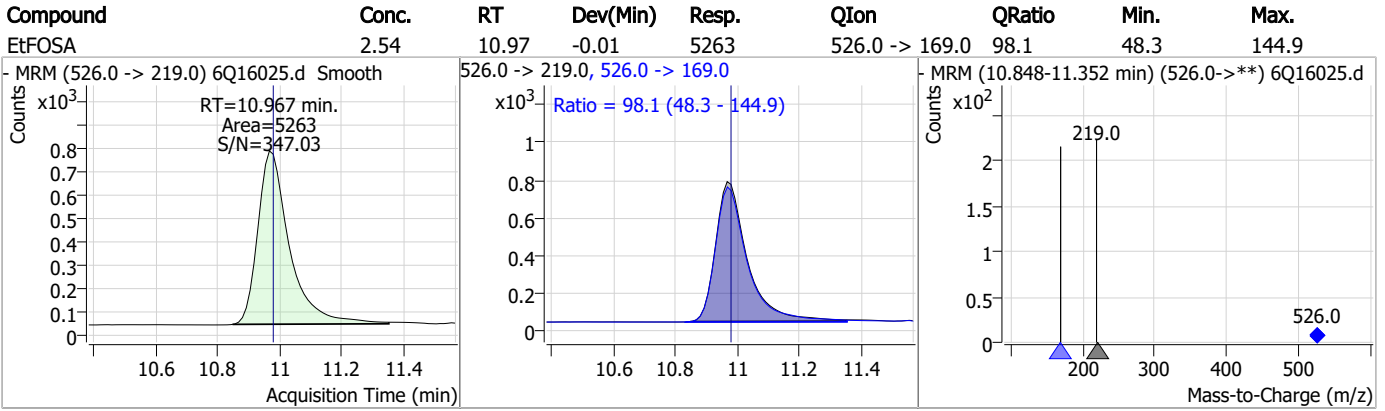
### Perfluorinated Compounds by LC/MS/MS



7.3.1

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### Perfluorinated Compounds by LC/MS/MS



7.3.1

7



# Manual Integration Approval Summary

Sample Number: OP96209-BS                      Method: EPA DRAFT 1633  
Lab FileID: 6Q16025.D                      Analyst approved: 04/05/23 11:17 Martha Valls  
Injection Time: 04/04/23 18:41                      Supervisor approved: 04/05/23 17:28 Natasha Gumtie

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

7.3.1.1

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### Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16026.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 4/4/2023 6:55:28 PM  
 Sample Name : op96209-llbs:3  
 Vial : P2-C6  
 DA Method File : 1633\_040423\_S6Q239.quantmethod.xml  
 Batch Name : s6q239.batch.bin  
 Sample Information : OP96209,S6Q239,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.938	216.8 -> 171.9	81955	10.00 µg/L	0.041
M5-PFPeA	4.334	268.3 -> 223.0	34772	5.00 µg/L	0.012
M5-PFHxA	5.528	318.0 -> 273.0	29762	2.50 µg/L	0.000
M4-PFHpA	6.481	367.1 -> 322.0	30310	2.50 µg/L	0.012
M8-PFOA	7.125	421.1 -> 376.0	51128	2.50 µg/L	0.013
M9-PFNA	7.643	472.1 -> 427.0	16060	1.25 µg/L	0.000
M6-PFDA	8.122	519.1 -> 474.1	13497	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	16418	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	15940	1.25 µg/L	0.012
M2-PFTeDA	9.721	715.2 -> 670.0	9509	1.25 µg/L	0.000
M8-FOSA	9.631	506.1 -> 77.8	12916	2.50 µg/L	0.012
M3-PFBS	5.471	302.1 -> 79.9	11919	2.50 µg/L	0.012
M3-PFHxS	7.240	402.1 -> 79.9	7680	2.50 µg/L	0.012
M8-PFOS	8.284	507.1 -> 79.9	6332	2.50 µg/L	0.000
M2-4:2FTS	5.204	329.1 -> 80.9	2104	5.00 µg/L	0.012
M2-6:2FTS	6.898	429.1 -> 80.9	2583	5.00 µg/L	0.012
M2-8:2FTS	7.911	529.1 -> 80.9	2573	5.00 µg/L	0.000
M3-MeFOSAA	8.180	573.2 -> 419.0	19513	5.00 µg/L	0.012
M3-HFPO-DA	5.905	286.9 -> 168.9	12828	10.00 µg/L	0.012
M5-EtFOSAA	8.375	589.2 -> 419.0	17552	5.00 µg/L	0.000
M7-MeFOSE	10.653	623.2 -> 58.9	15330	25.00 µg/L	0.000
M9-EtFOSE	10.888	639.2 -> 58.9	11689	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	4876	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	4248	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	7752	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	32428	5.00 µg/L	0.040
18O2-PFHxS	7.239	403.0 -> 83.9	5198	2.50 µg/L	0.012
13C4-PFOA	7.125	417.1 -> 372.0	56865	2.50 µg/L	0.013
13C2-PFDA	8.123	515.1 -> 470.1	15220	1.25 µg/L	0.000
13C5-PFNA	7.643	468.0 -> 423.0	15467	1.25 µg/L	0.000
13C2-PFHxA	5.529	315.1 -> 270.0	27250	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.204	329.1 -> 80.9	2104	6.02 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.4%		
13C2-6:2FTS	6.898	429.1 -> 80.9	2583	6.02 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.4%		
13C2-8:2FTS	7.911	529.1 -> 80.9	2573	6.22 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 124.5%		
13C2-PFDoDA	9.006	615.1 -> 570.0	15940	1.33 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C2-PFTeDA	9.721	715.2 -> 670.0	9509	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.4%		
13C3-PFBS	5.471	302.1 -> 79.9	11919	2.58 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C3-PFHxS	7.240	402.1 -> 79.9	7680	2.58 µg/L	0.012

7.32  
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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C4-PFBA	2.938	216.8 -> 171.9	81955	10.81 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.1%	
13C4-PFHpA	6.481	367.1 -> 322.0	30310	2.75 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.9%	
13C5-PFHxA	5.528	318.0 -> 273.0	29762	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.6%	
13C5-PFPeA	4.334	268.3 -> 223.0	34772	5.47 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.4%	
13C6-PFDA	8.122	519.1 -> 474.1	13497	1.51 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 120.5%	
13C7-PFUnDA	8.576	570.0 -> 525.1	16418	1.58 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 126.2%	
13C8-FOSA	9.631	506.1 -> 77.8	12916	2.24 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.6%	
13C8-PFOA	7.125	421.1 -> 376.0	51128	2.69 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.7%	
13C8-PFOS	8.284	507.1 -> 79.9	6332	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C9-PFNA	7.643	472.1 -> 427.0	16060	1.40 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 112.3%	
d3-MeFOSAA	8.180	573.2 -> 419.0	19513	5.20 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.1%	
13C3-HFPO-DA	5.905	286.9 -> 168.9	12828	10.80 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.0%	
d3-MeFOSA	10.733	515.0 -> 219.0	4248	2.04 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 81.7%	
d5-EtFOSAA	8.375	589.2 -> 419.0	17552	5.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.1%	
d7-MeFOSE	10.653	623.2 -> 58.9	15330	19.43 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 77.7%	
d9-EtFOSE	10.888	639.2 -> 58.9	11689	22.29 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.2%	
d5-EtFOSA	10.965	531.1 -> 219.0	4876	2.18 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.0%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.204	327.1 -> 307.0	14516	3.52 µg/L	98
		327.1 -> 80.9	3546		
6:2FTS	6.899	427.1 -> 407.0	13144	3.80 µg/L	99
		427.1 -> 80.9	2793		
8:2FTS	7.911	527.1 -> 507.0	6524	3.57 µg/L	94
		527.1 -> 80.8	1808		
EtFOSAA	8.389	584.2 -> 419.1	2624	0.97 µg/L	88
		584.2 -> 526.0	1415		
FOSA	9.634	498.1 -> 77.9	4719	0.99 µg/L	99
		498.1 -> 478.0	149		
MeFOSAA	8.181	570.1 -> 419.0	3677	1.01 µg/L	91
		570.1 -> 483.0	540		
PFBA	2.944	212.8 -> 168.9	8045	3.88 µg/L	100
PFBS	5.460	298.7 -> 79.9	4073	0.87 µg/L	99
		298.7 -> 98.8	1904		
PFDA	8.123	512.9 -> 469.0	14896	0.95 µg/L	98
		512.9 -> 219.0	2217		
PFDODA	9.007	613.1 -> 569.0	12543	1.06 µg/L	95
		613.1 -> 319.0	1402		
PFDS	9.170	599.0 -> 79.9	2006	1.06 µg/L	96

7.3.2  
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	1093			
PFHpA	6.481	363.1 -> 319.0	17318	1.02	µg/L	99
		363.1 -> 169.0	2365			
PFHpS	7.794	449.0 -> 79.9	2630	0.97	µg/L	92
		449.0 -> 98.9	1740			
PFHxA	5.531	313.0 -> 269.0	12683	1.15	µg/L	98
		313.0 -> 118.9	436			
PFHxS	7.241	398.7 -> 79.9	2970	0.88	µg/L	m 98
		398.7 -> 98.9	1773			
PFNA	7.643	463.0 -> 419.0	8690	0.83	µg/L	98
		463.0 -> 219.0	1889			
PFNS	8.751	548.8 -> 79.9	2537	0.94	µg/L	97
		548.8 -> 98.9	1400			
PFOA	7.126	413.0 -> 369.0	23418	1.01	µg/L	100
		413.0 -> 169.0	3149			
PFOS	8.286	498.9 -> 79.9	2676	0.96	µg/L	m 86
		498.9 -> 98.8	1710			
PFPeA	4.336	263.0 -> 219.0	14321	1.95	µg/L	100
PFPeS	6.533	349.1 -> 79.9	3786	0.93	µg/L	98
		349.1 -> 98.9	2023			
PFTeDA	9.722	713.1 -> 669.0	9636	0.96	µg/L	96
		713.1 -> 168.9	725			
PFTrDA	9.390	663.0 -> 619.0	11473	1.02	µg/L	99
		663.0 -> 168.9	895			
PFUnDA	8.577	563.1 -> 519.0	11133	0.85	µg/L	96
		563.1 -> 269.1	1660			
11Cl-PF3OUdS	9.442	630.9 -> 450.9	25500	3.70	µg/L	98
		632.9 -> 452.9	7545			
9Cl-PF3ONS	8.616	530.8 -> 351.0	47918	3.64	µg/L	99
		532.8 -> 353.0	16121			
ADONA	6.731	376.9 -> 250.9	97753	3.76	µg/L	100
		376.9 -> 84.8	22475			
HFPO-DA	5.906	284.9 -> 168.9	4715	4.07	µg/L	97
		284.9 -> 184.9	525			
3:3FTCA	3.827	241.0 -> 177.0	1857	4.56	µg/L	96
		241.0 -> 117.0	249			
5:3FTCA	6.198	341.0 -> 237.1	58174	23.96	µg/L	98
		341.0 -> 217.0	51591			
7:3FTCA	7.621	441.0 -> 316.9	31481	25.61	µg/L	89
		441.0 -> 336.9	56089			
EtFOSA	10.967	526.0 -> 219.0	2020	0.96	µg/L	95
		526.0 -> 169.0	2049			
EtFOSE	10.913	630.0 -> 58.9	4201	9.16	µg/L	100
MeFOSA	10.734	511.9 -> 219.0	1844	1.03	µg/L	98
		511.9 -> 169.0	1898			
MeFOSE	10.666	616.1 -> 58.9	6084	10.53	µg/L	100
PFDoDS	9.861	699.1 -> 79.9	1027	0.93	µg/L	93
		699.1 -> 98.8	589			
NFDHA	5.410	295.0 -> 201.0	1471	2.06	µg/L	97
		295.0 -> 84.9	616			
PFMBA	4.750	279.0 -> 85.1	4784	1.97	µg/L	100
PFMPA	3.488	229.0 -> 84.9	4359	1.97	µg/L	100
PFEESA	6.012	314.8 -> 134.9	29740	1.91	µg/L	99
		314.8 -> 82.9	784			

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

7.3.2  
7

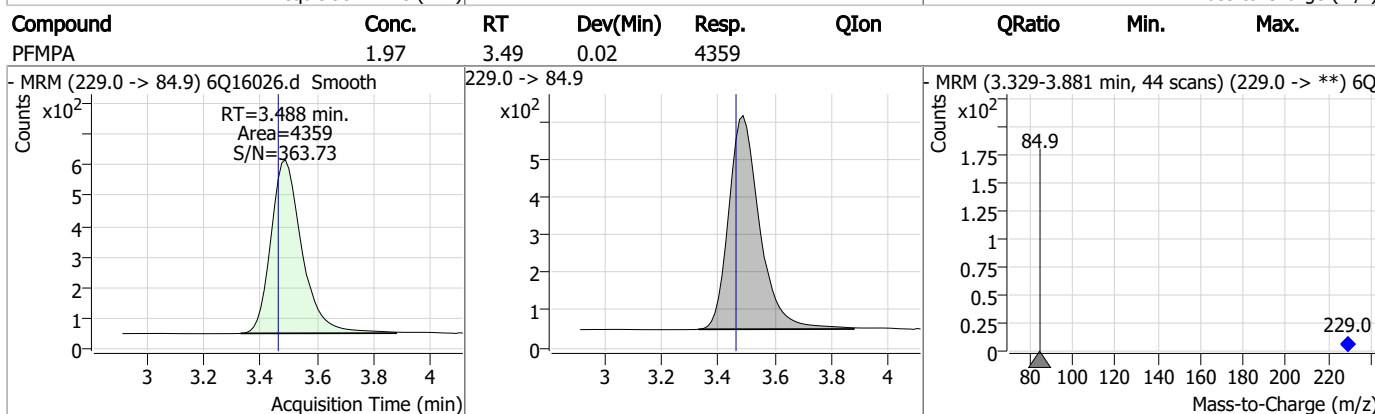
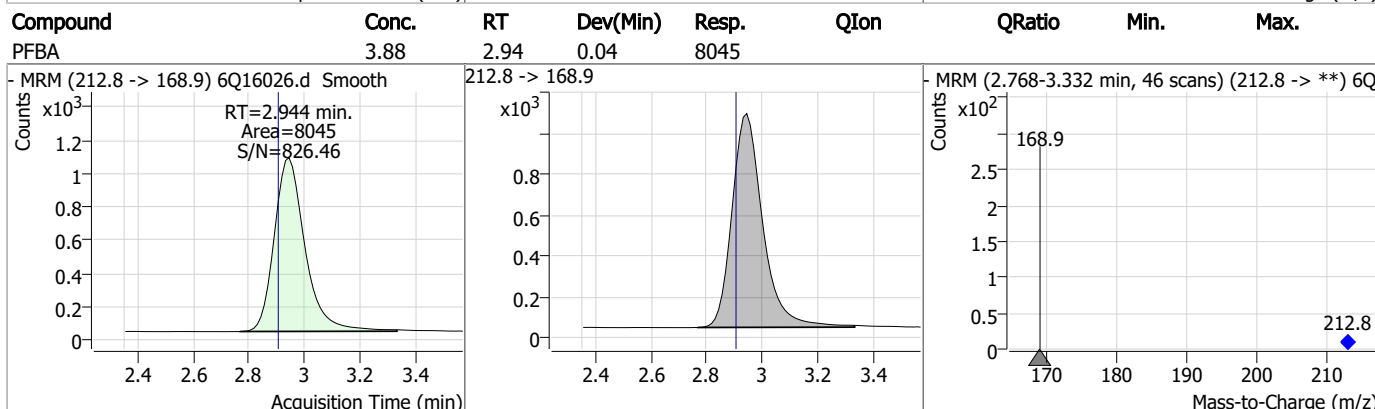
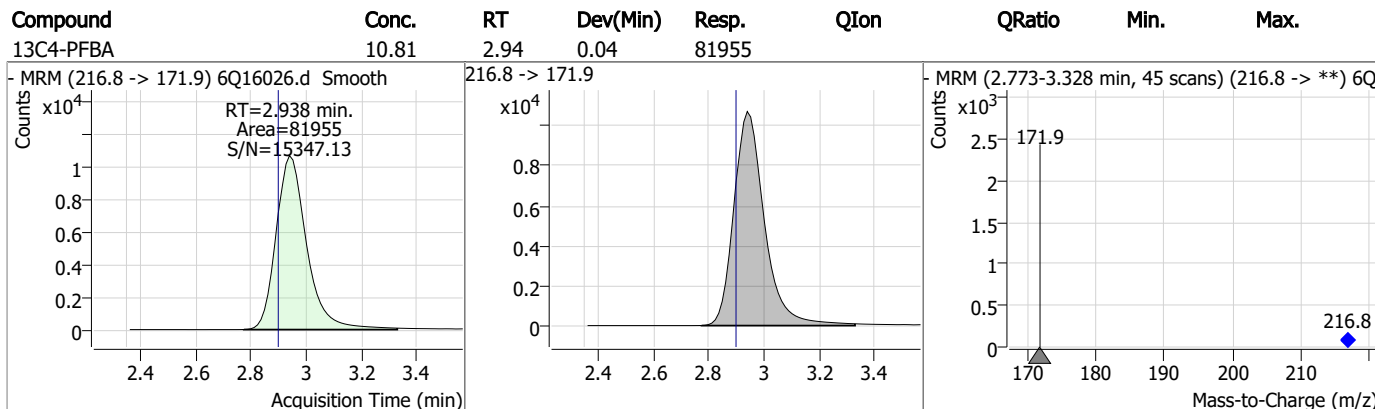
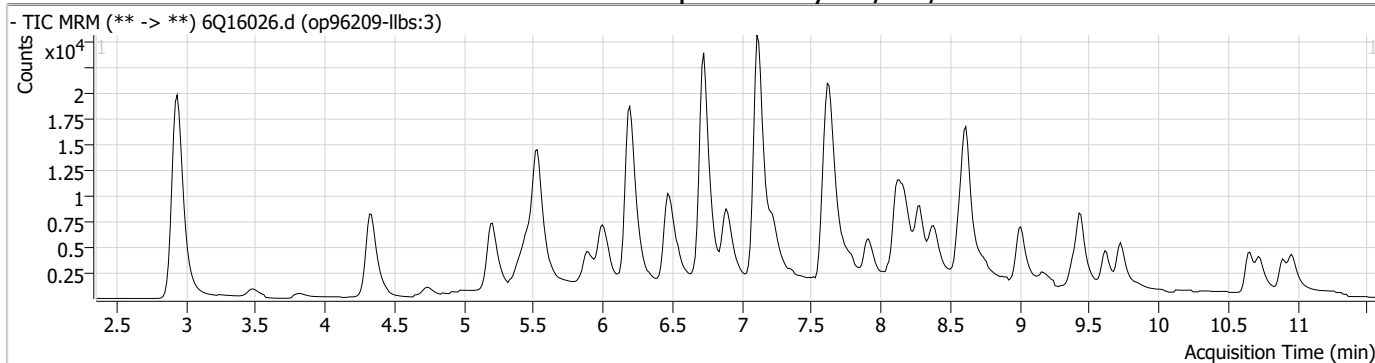
### Perfluorinated Compounds by LC/MS/MS

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

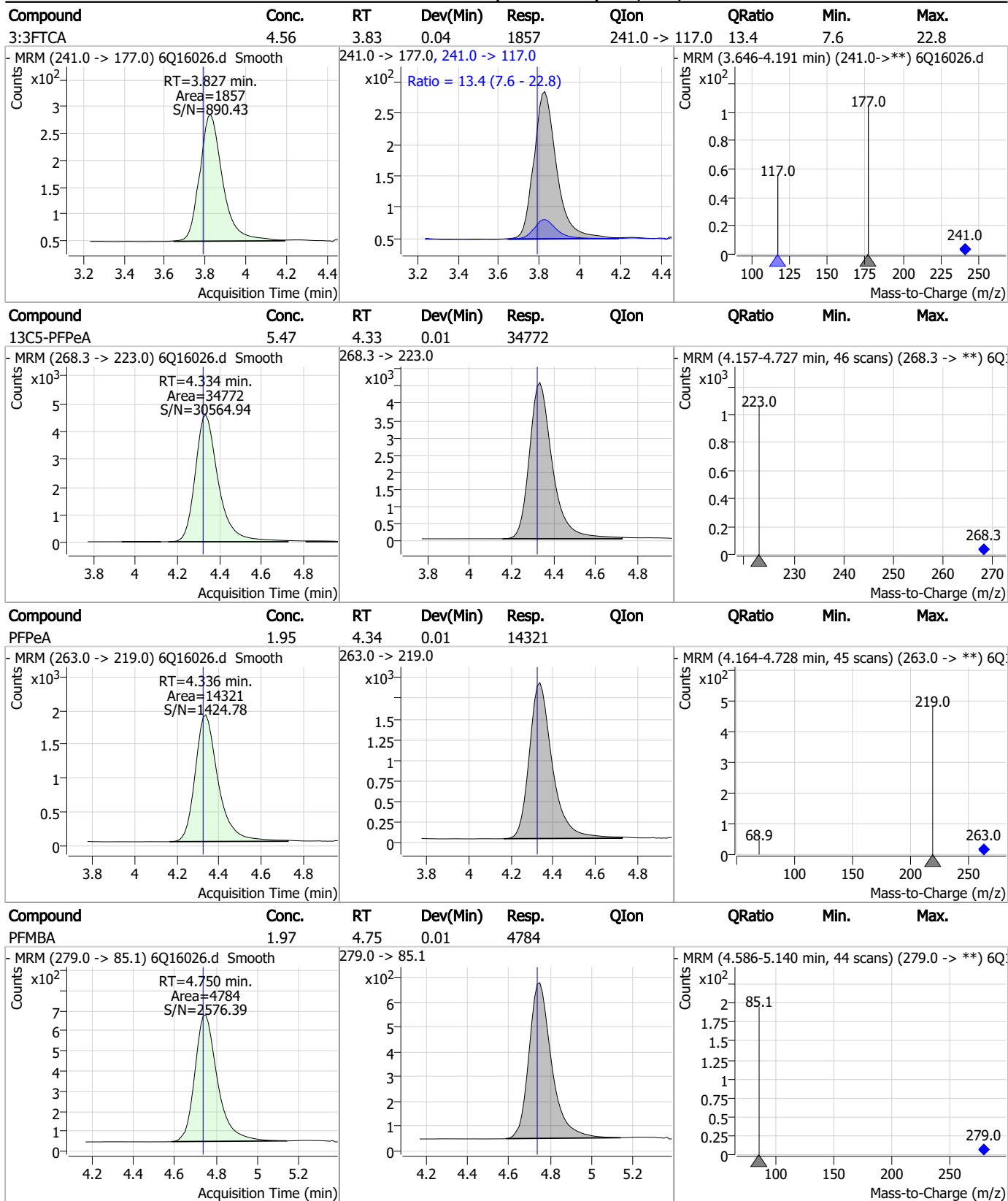
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### Perfluorinated Compounds by LC/MS/MS



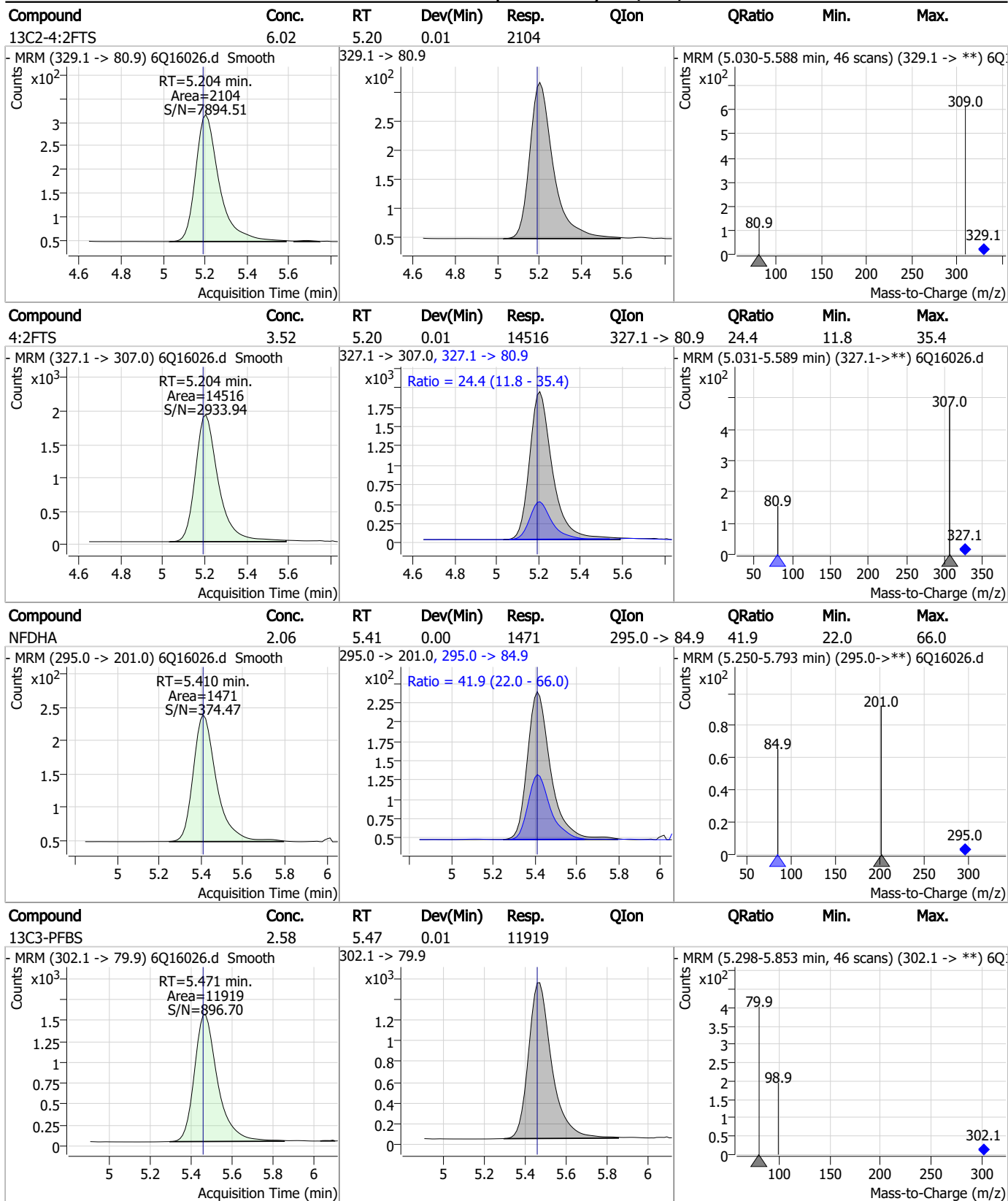
7.3.2  
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### Perfluorinated Compounds by LC/MS/MS



7.3.2  
7

### Perfluorinated Compounds by LC/MS/MS

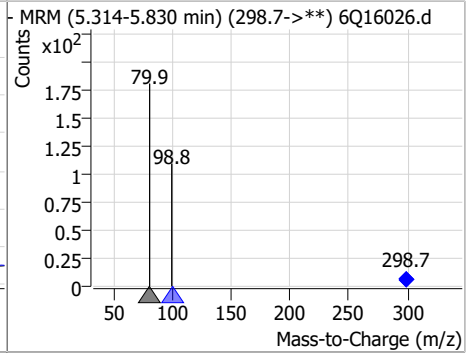
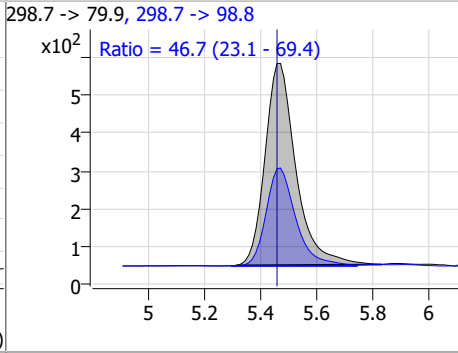
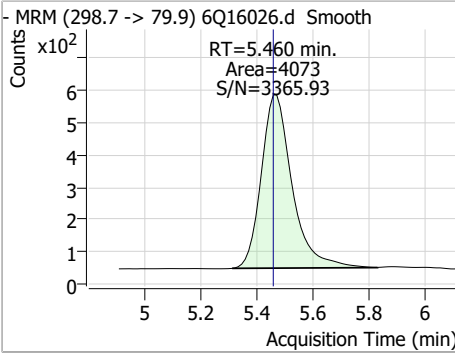


7.3.2  
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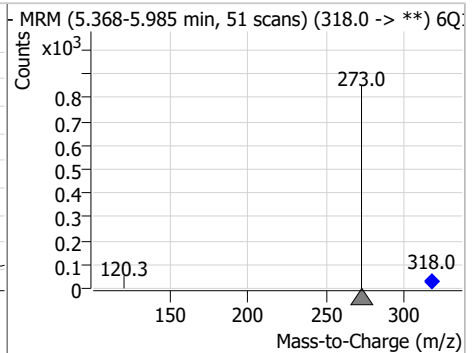
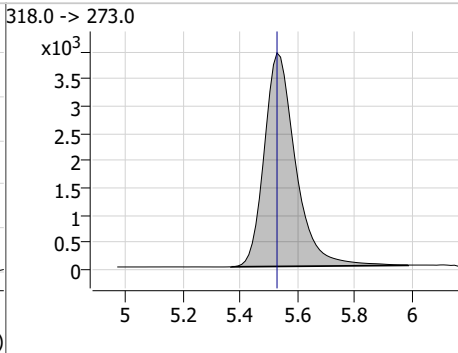
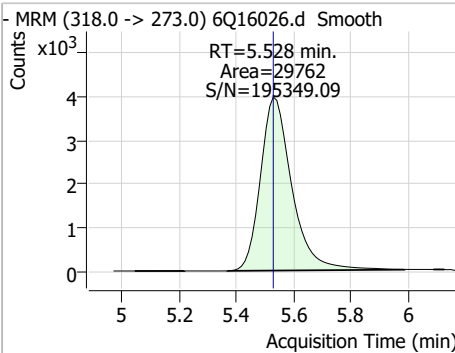


### Perfluorinated Compounds by LC/MS/MS

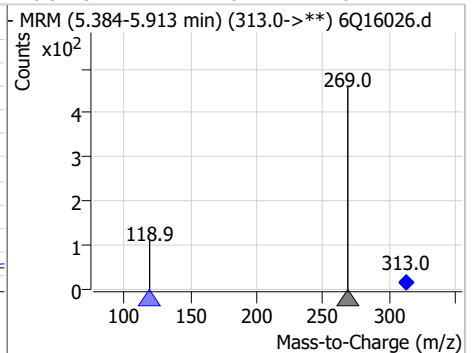
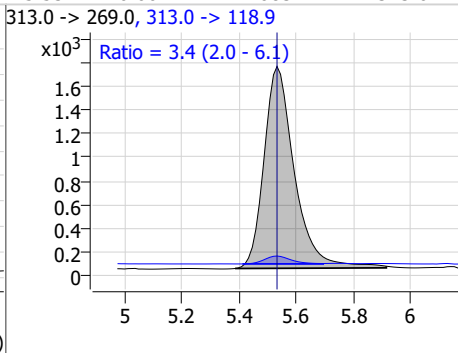
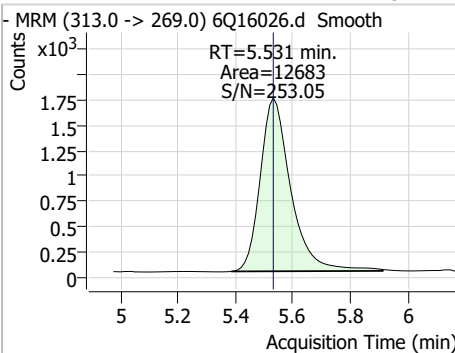
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.87	5.46	0.00	4073	298.7 -> 98.8	46.7	23.1	69.4



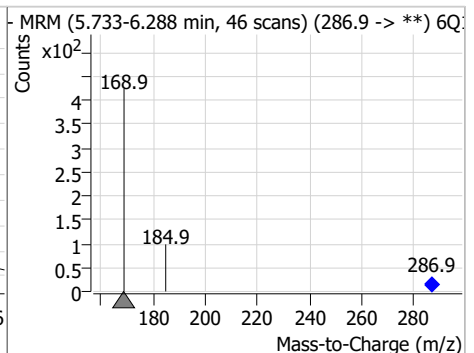
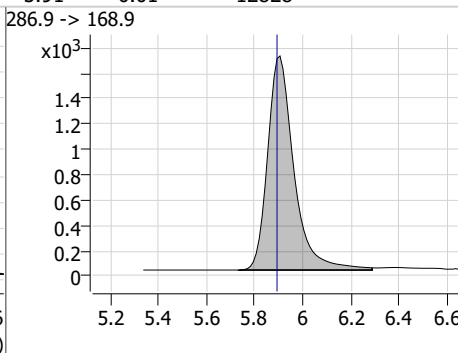
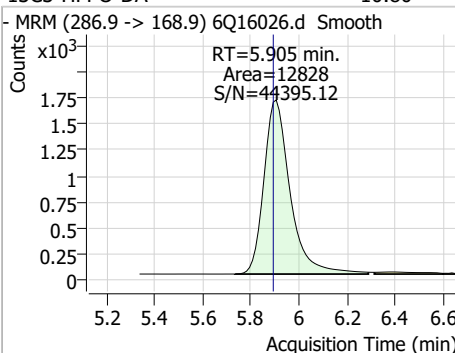
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.64	5.53	0.00	29762	318.0 -> 273.0			



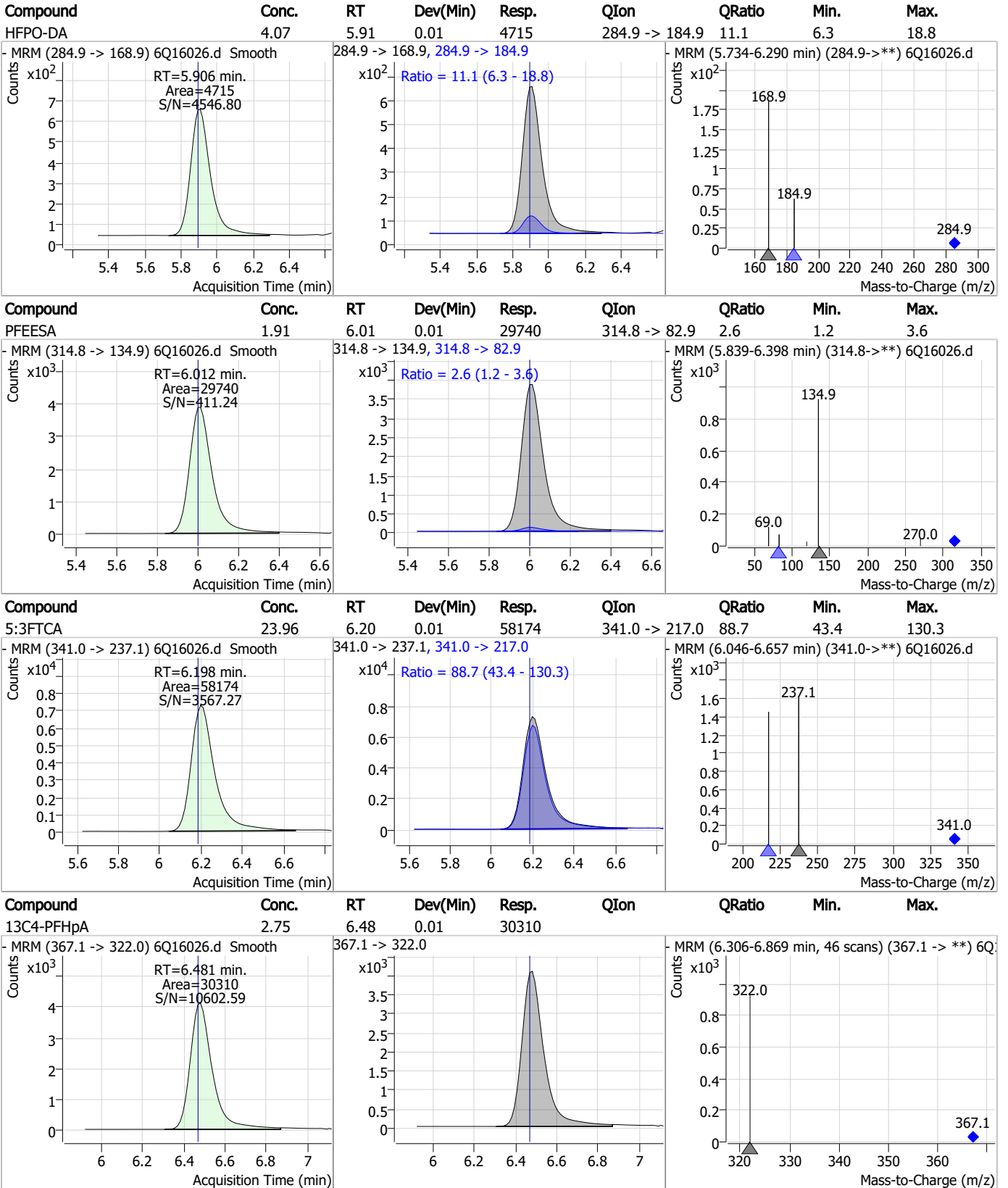
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.15	5.53	0.00	12683	313.0 -> 118.9	3.4	2.0	6.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.80	5.91	0.01	12828	286.9 -> 168.9			



### Perfluorinated Compounds by LC/MS/MS



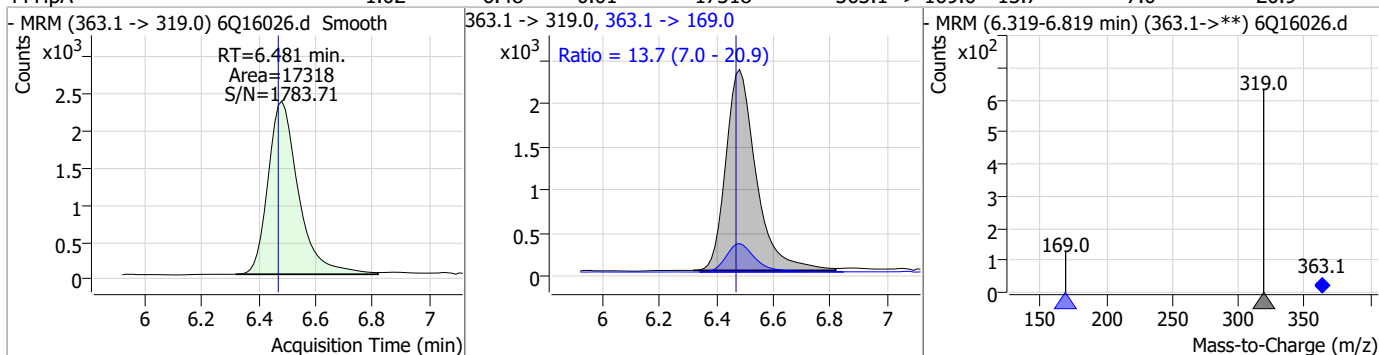
7.3.2

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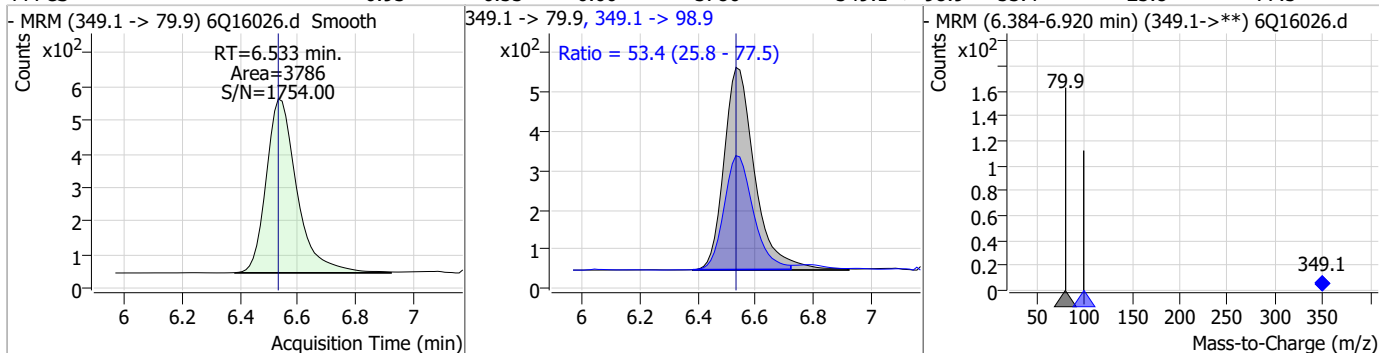


### Perfluorinated Compounds by LC/MS/MS

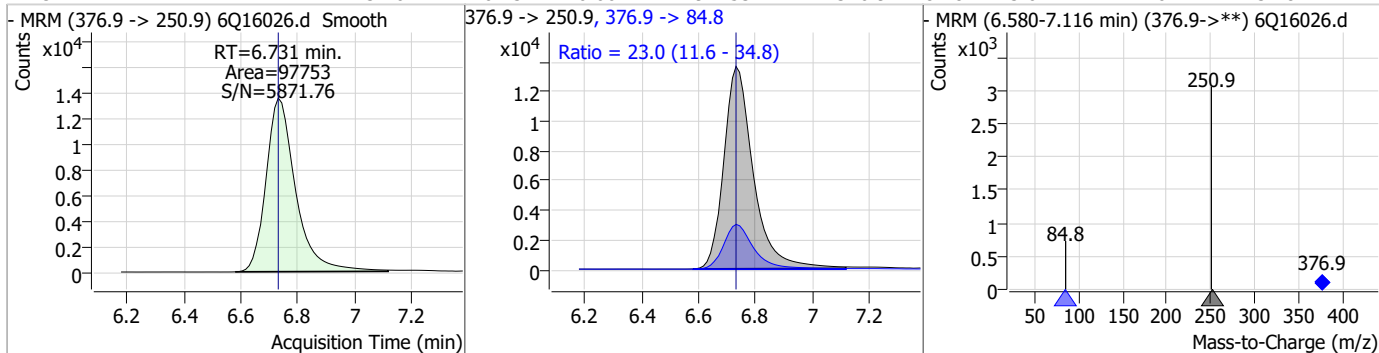
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.02	6.48	0.01	17318	363.1 -> 169.0	13.7	7.0	20.9



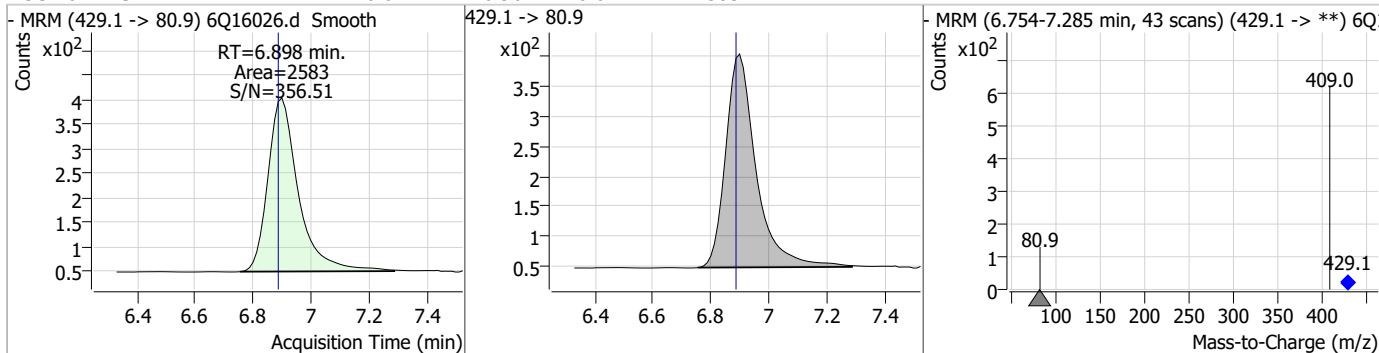
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.93	6.53	0.00	3786	349.1 -> 98.9	53.4	25.8	77.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	3.76	6.73	0.00	97753	376.9 -> 84.8	23.0	11.6	34.8

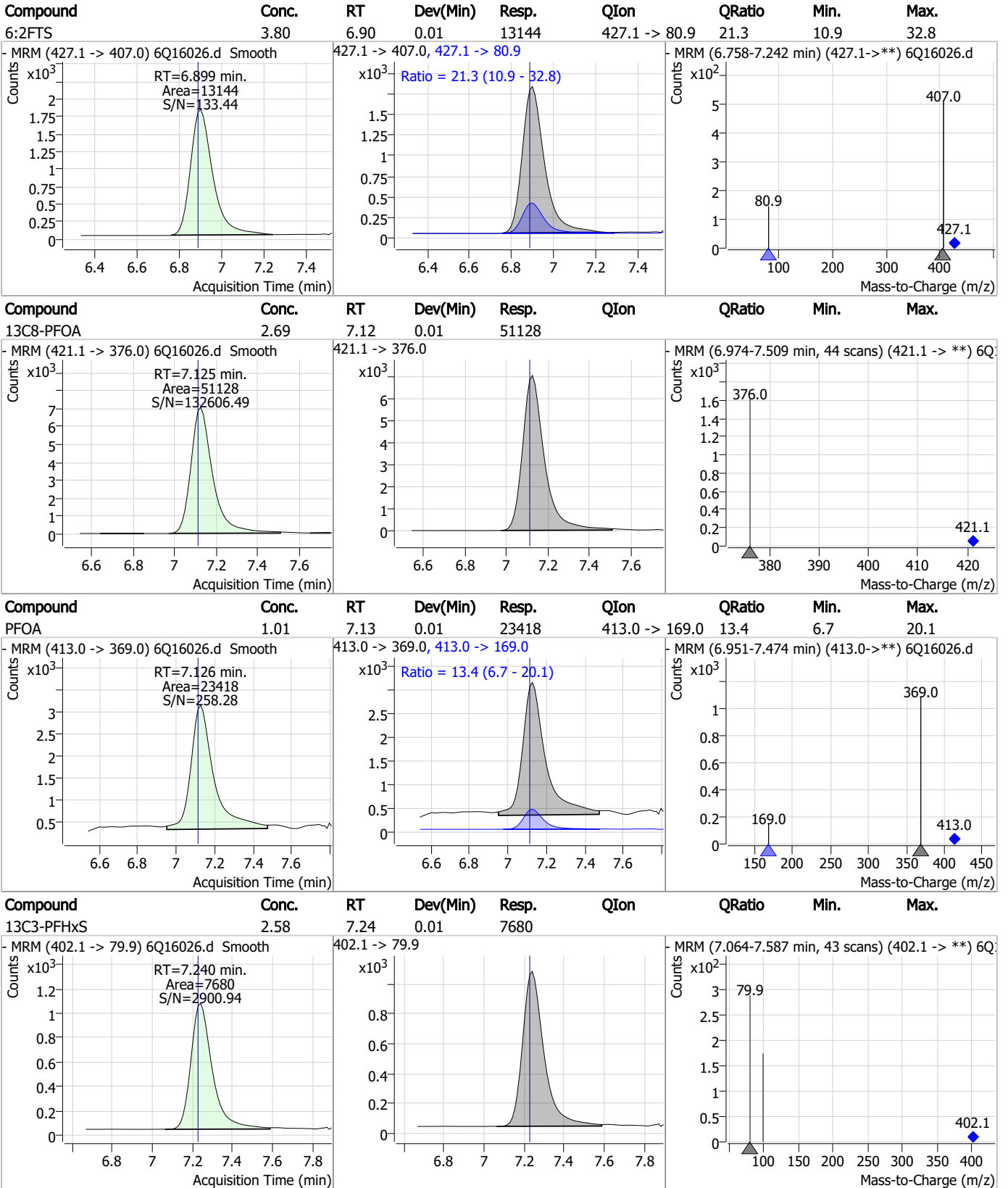


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6-2FTS	6.02	6.90	0.01	2583	429.1 -> 80.9			



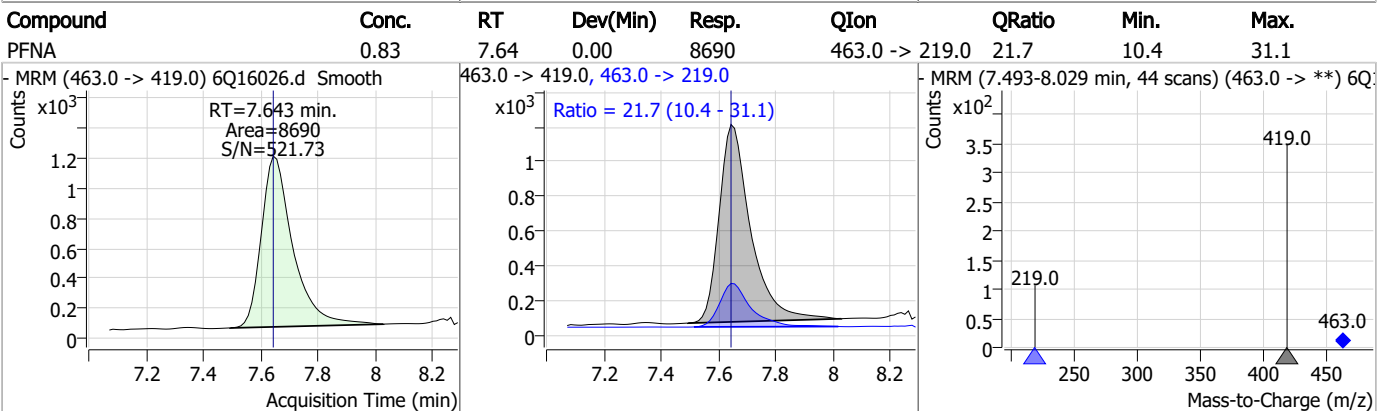
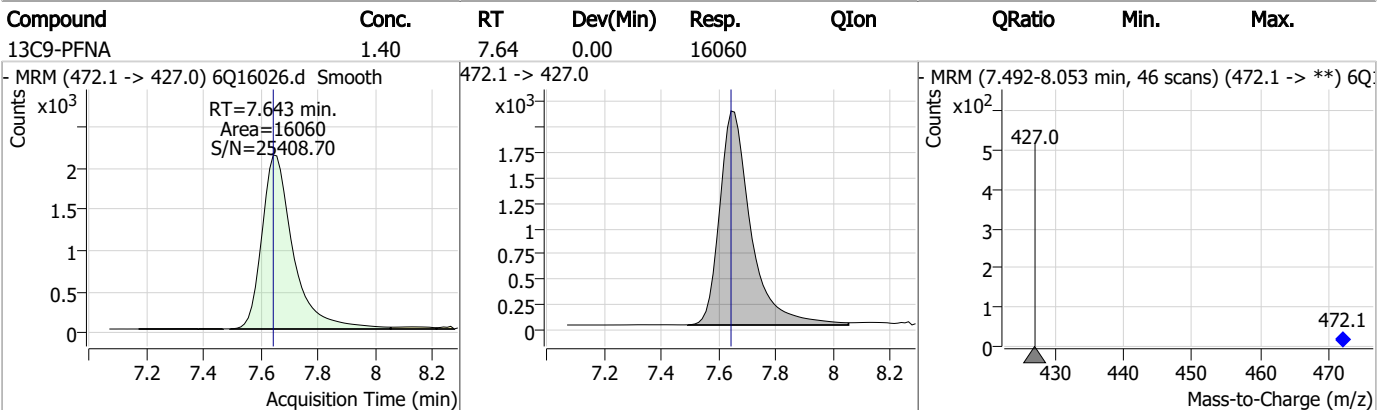
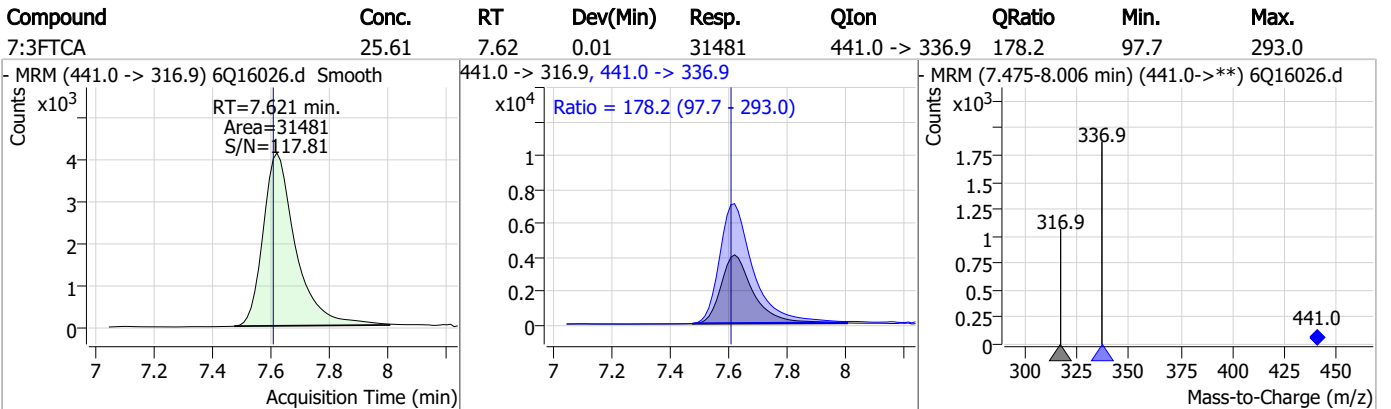
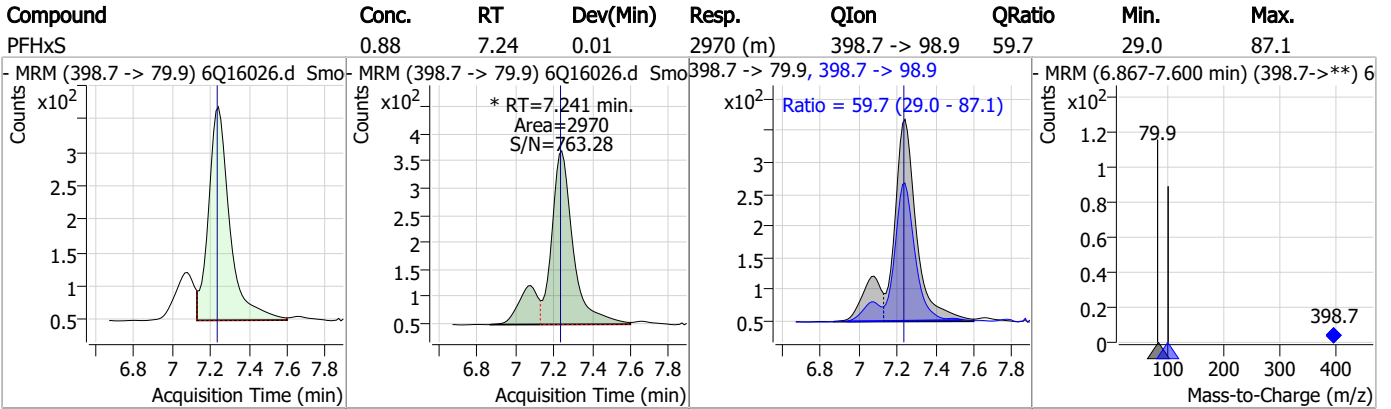
7.3.2  
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Perfluorinated Compounds by LC/MS/MS

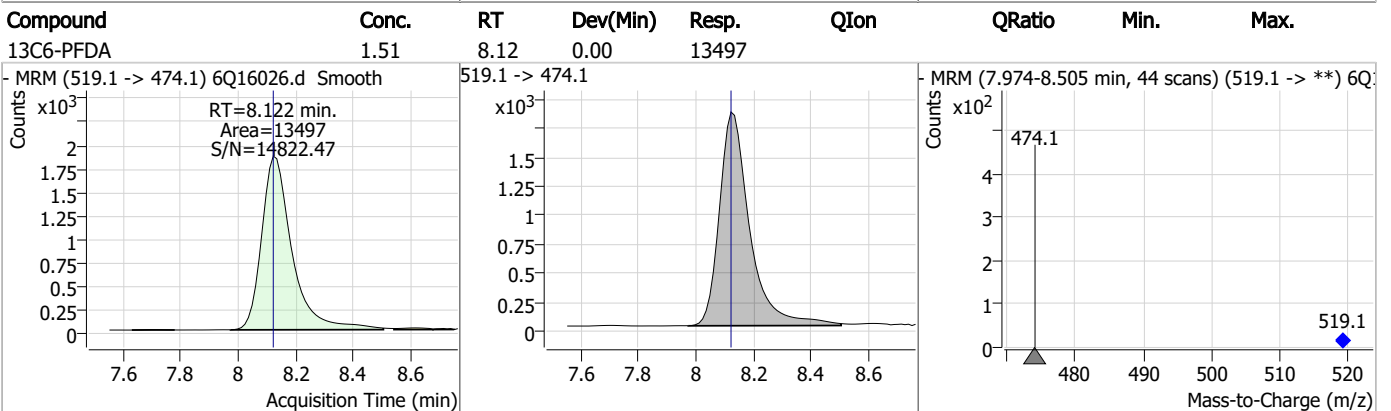
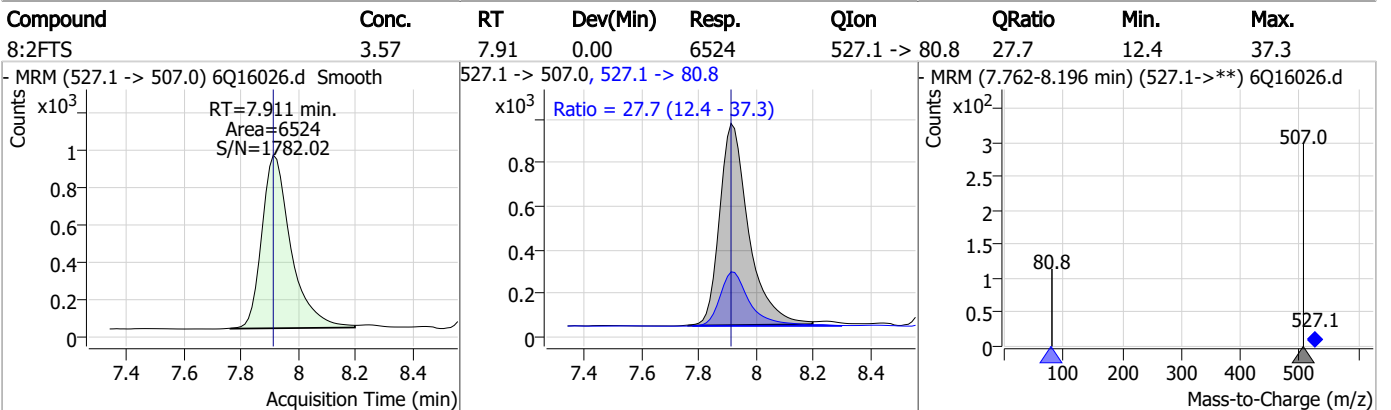
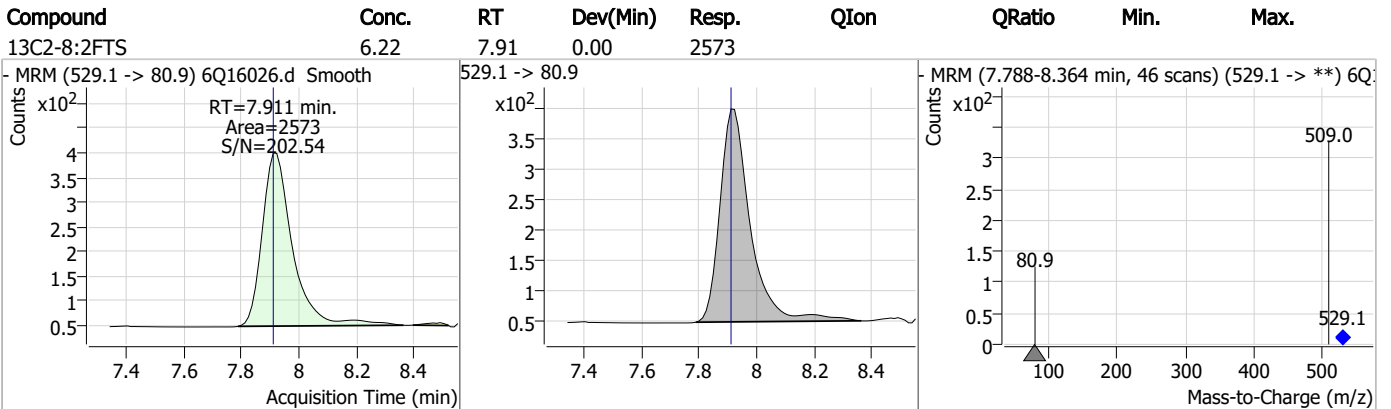
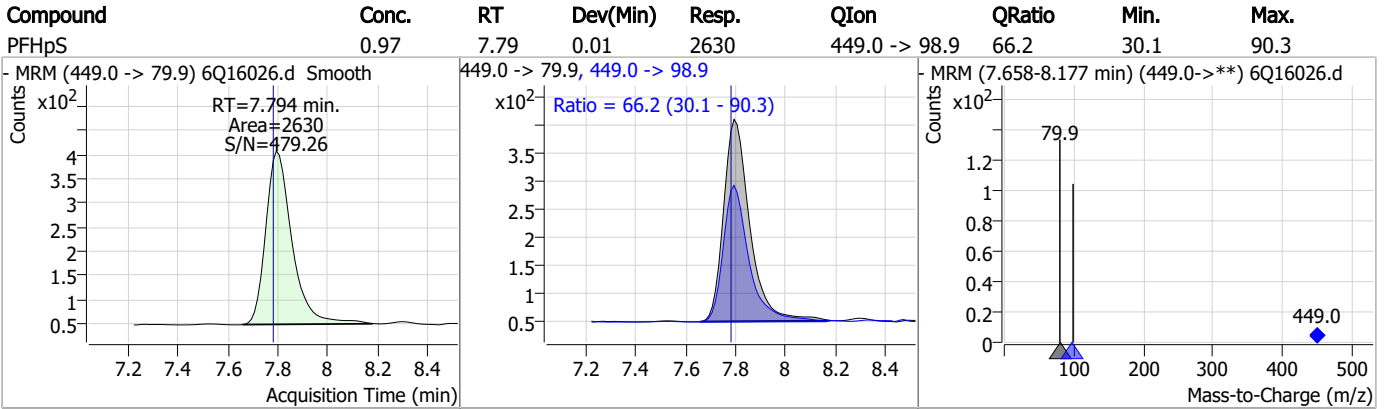


7.3.2  
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### Perfluorinated Compounds by LC/MS/MS

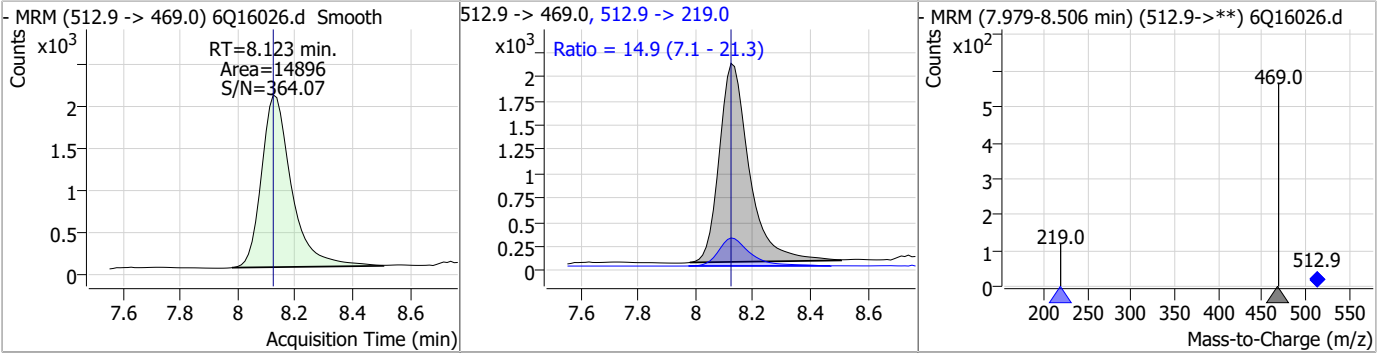


### Perfluorinated Compounds by LC/MS/MS

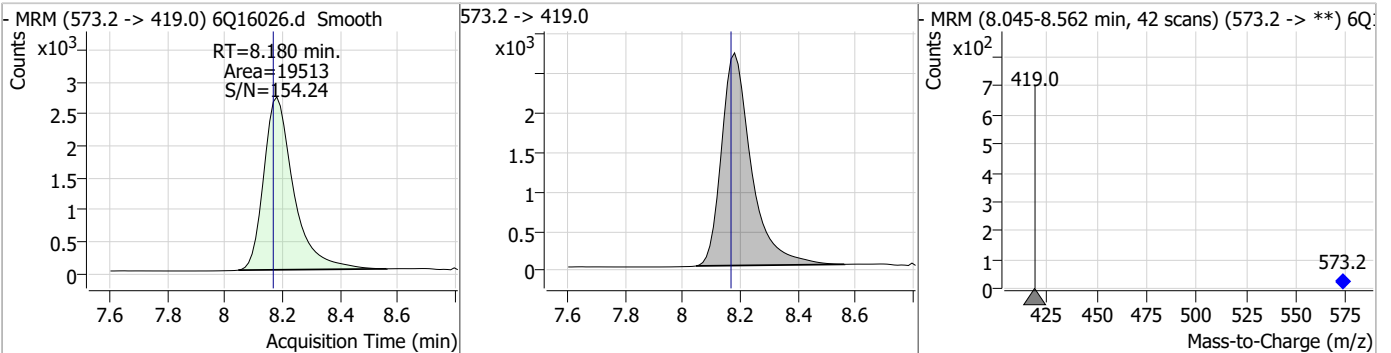


### Perfluorinated Compounds by LC/MS/MS

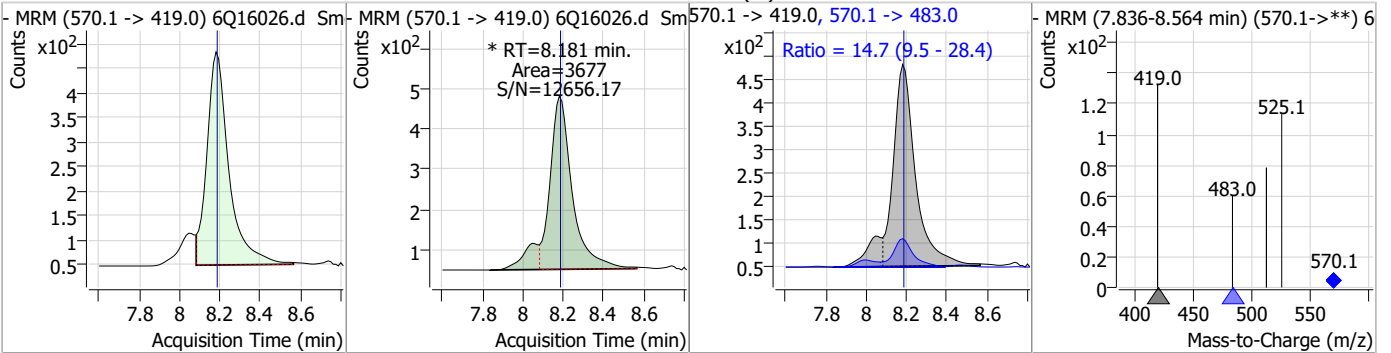
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.95	8.12	0.00	14896	512.9 -> 219.0	14.9	7.1	21.3



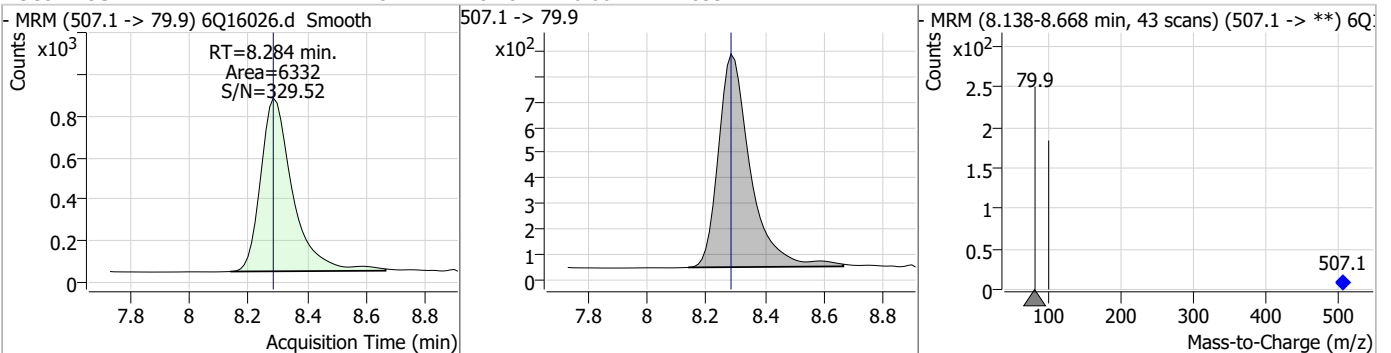
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.20	8.18	0.01	19513				



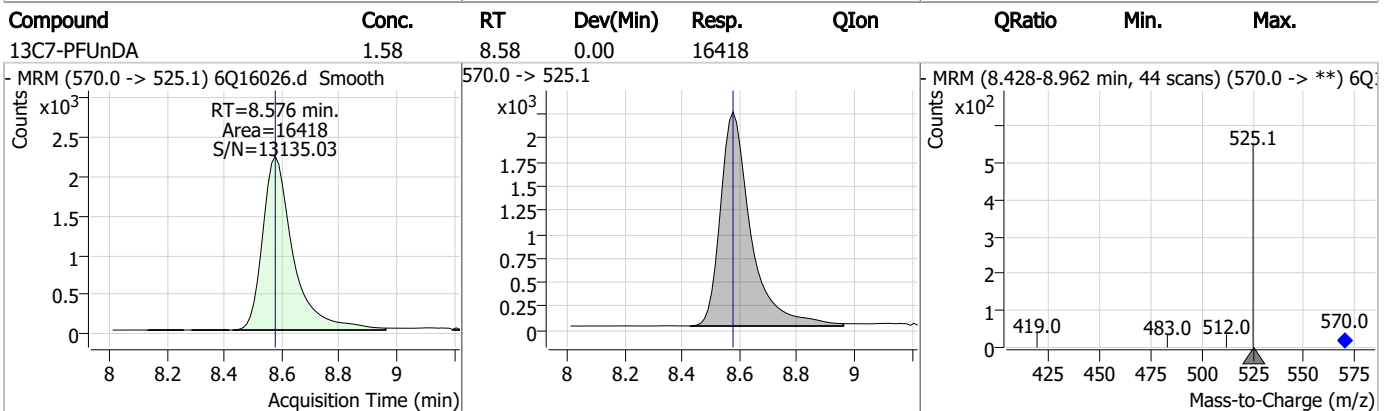
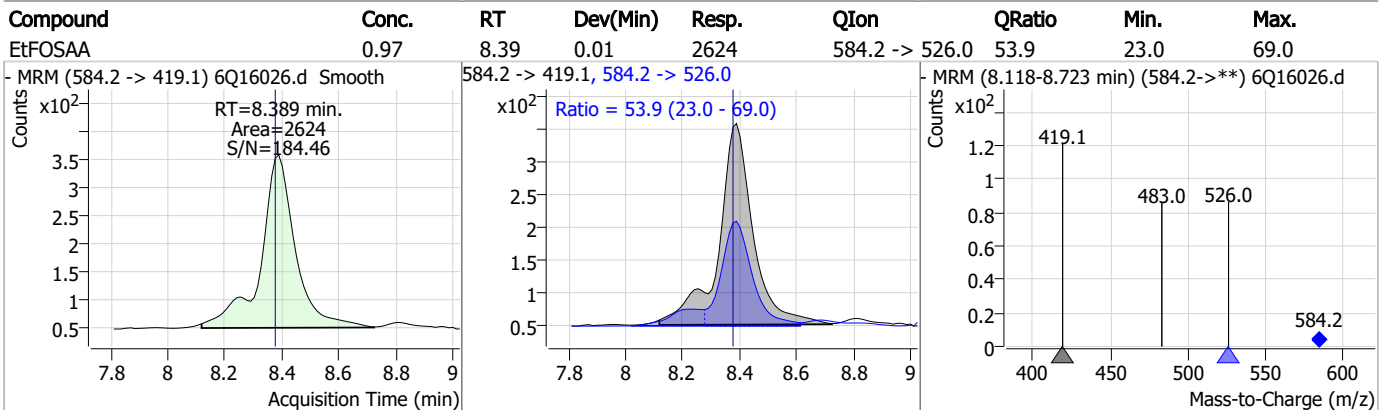
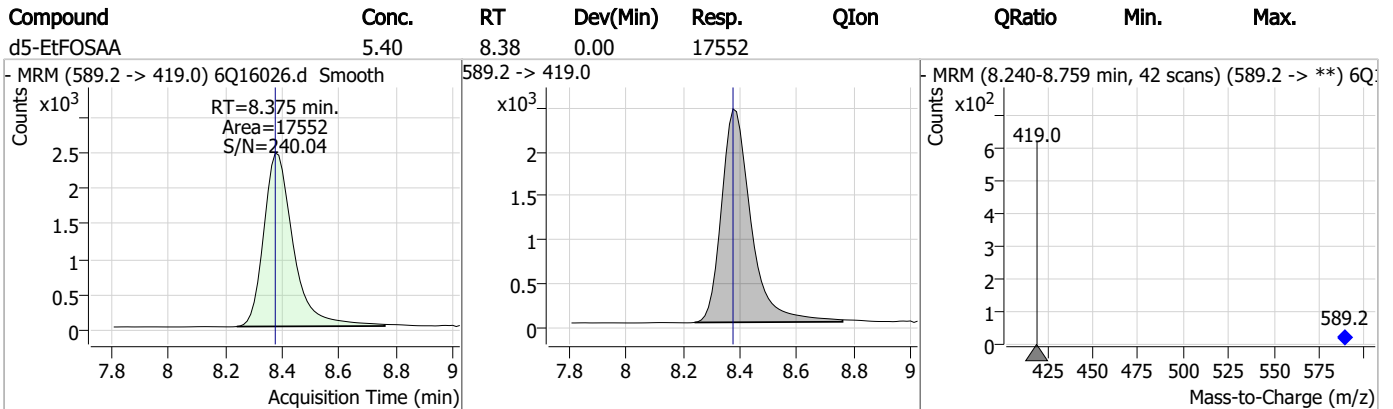
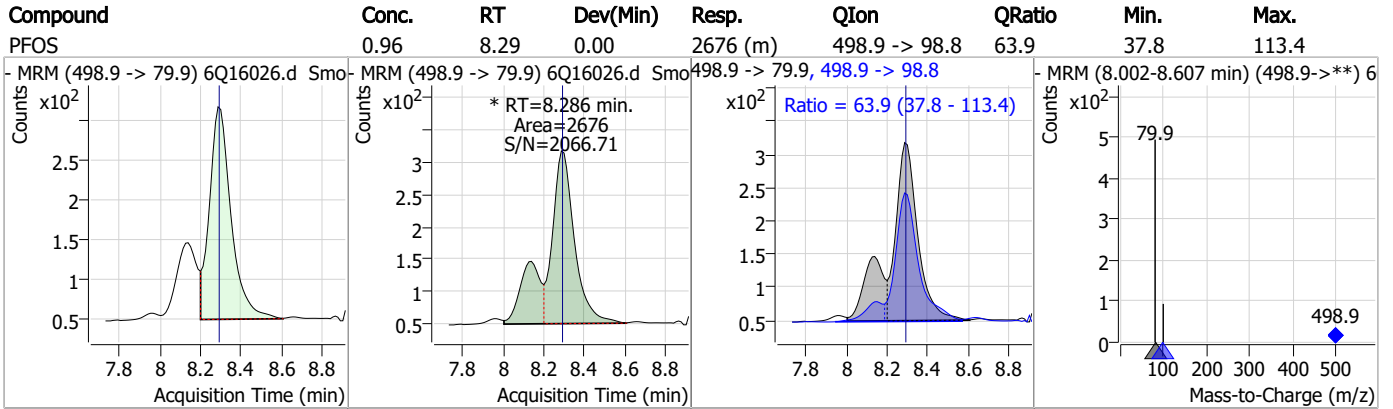
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	1.01	8.18	0.00	3677 (m)	570.1 -> 483.0	14.7	9.5	28.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.51	8.28	0.00	6332				

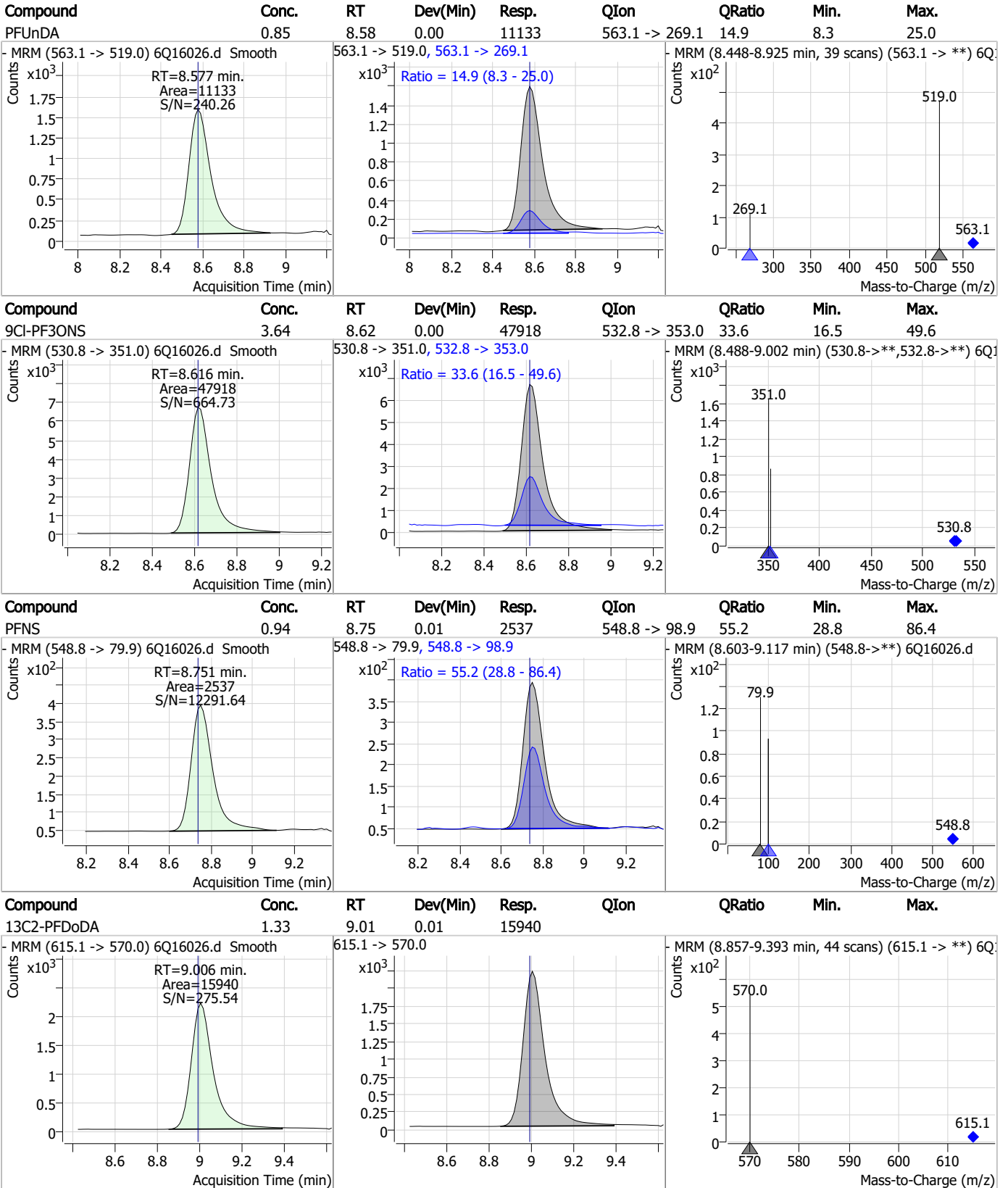


### Perfluorinated Compounds by LC/MS/MS





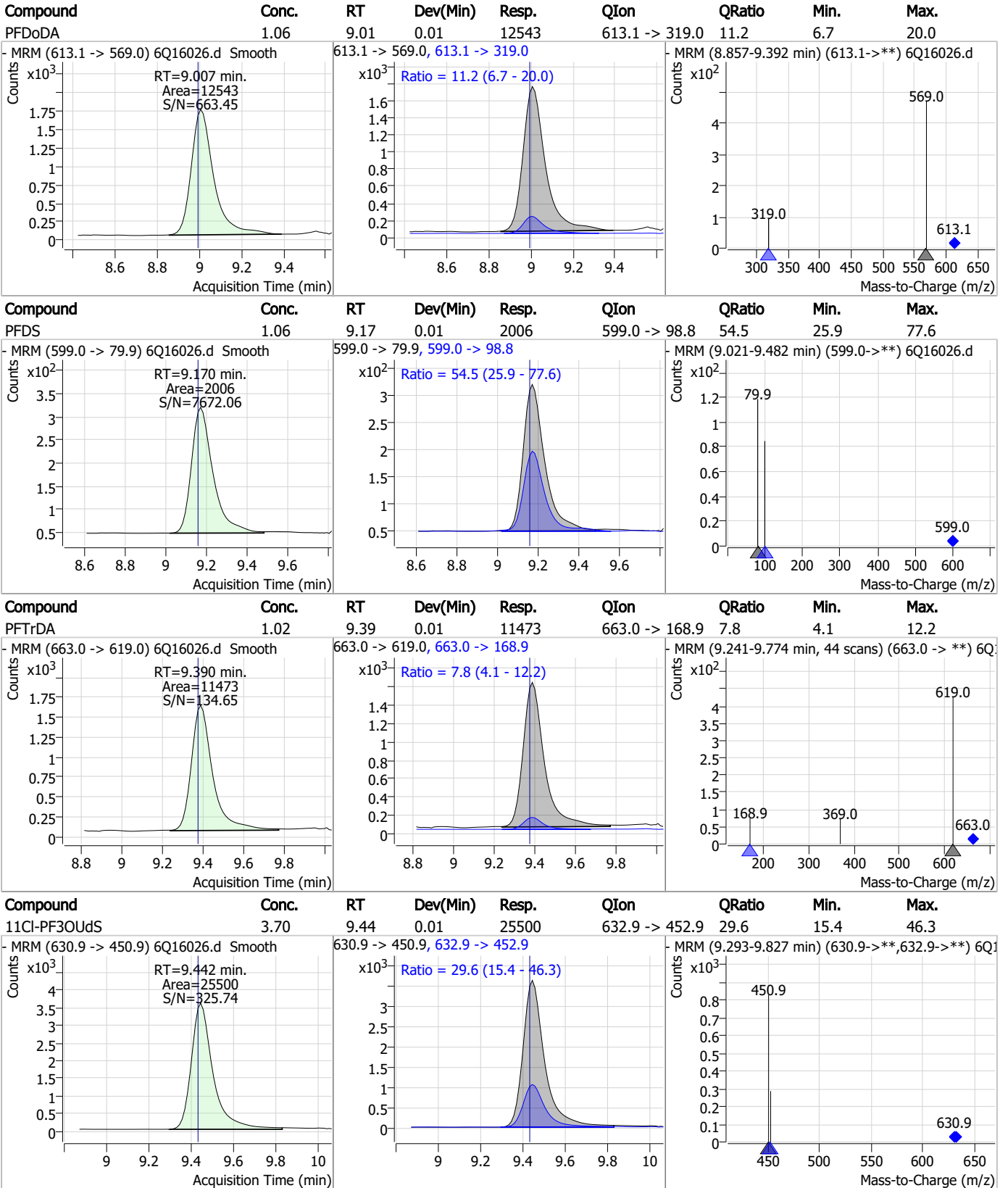
### Perfluorinated Compounds by LC/MS/MS



7.3.2

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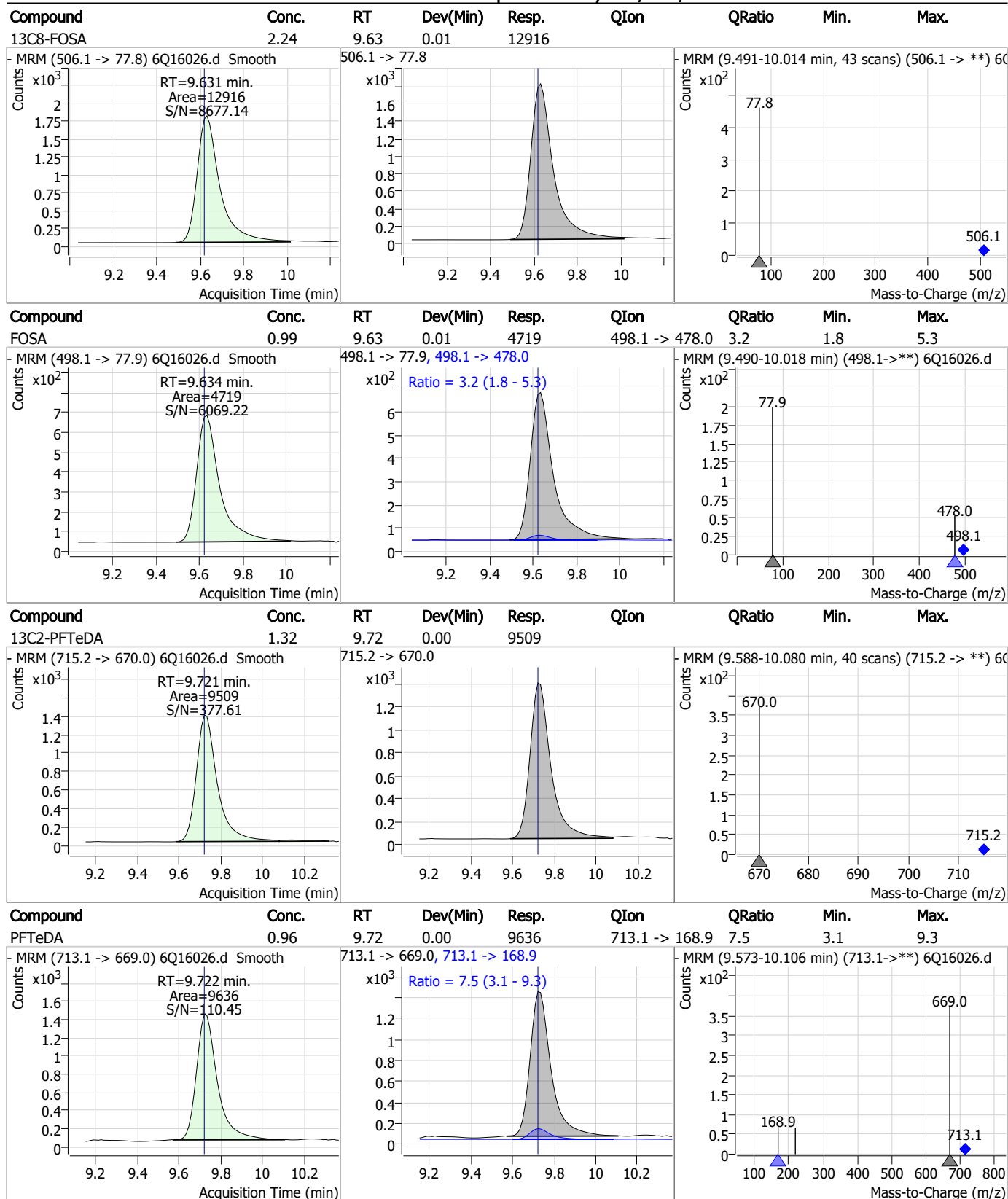
### Perfluorinated Compounds by LC/MS/MS



7.3.2  
7



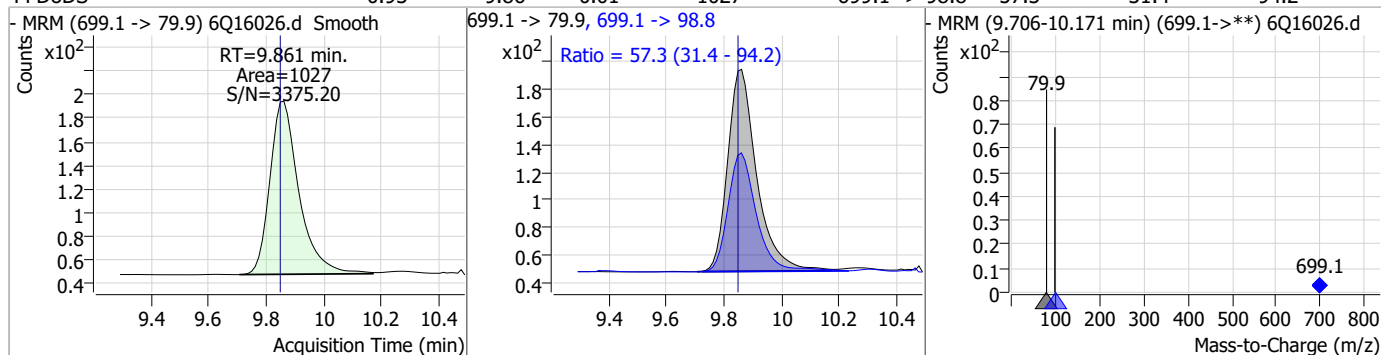
### Perfluorinated Compounds by LC/MS/MS



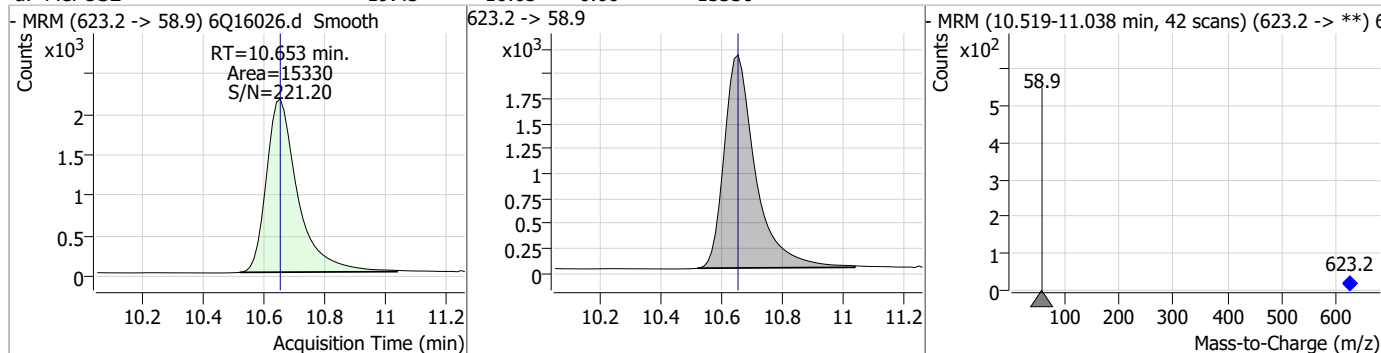
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### Perfluorinated Compounds by LC/MS/MS

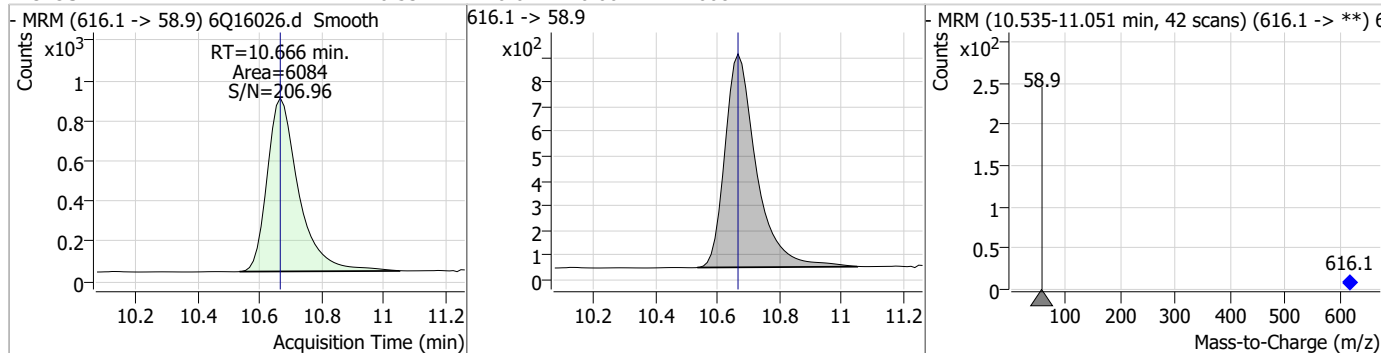
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.93	9.86	0.01	1027	699.1 -> 98.8	57.3	31.4	94.2



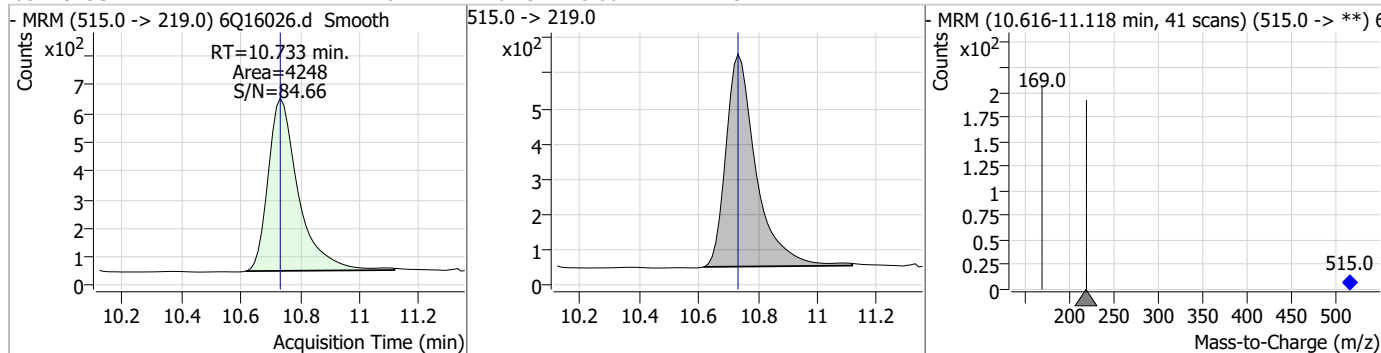
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.43	10.65	0.00	15330				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	10.53	10.67	0.00	6084				

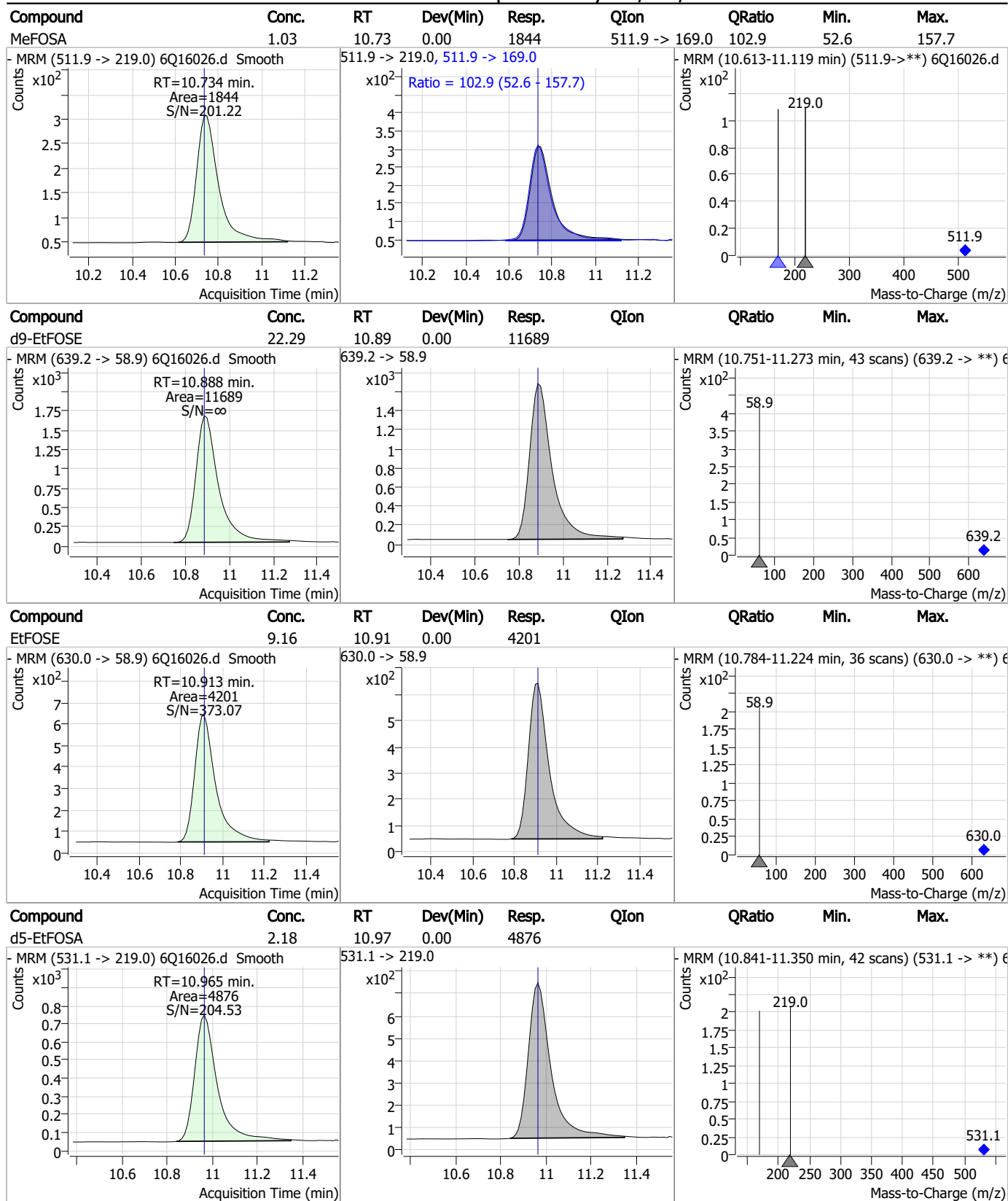


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.04	10.73	0.00	4248				



7.3.2  
7

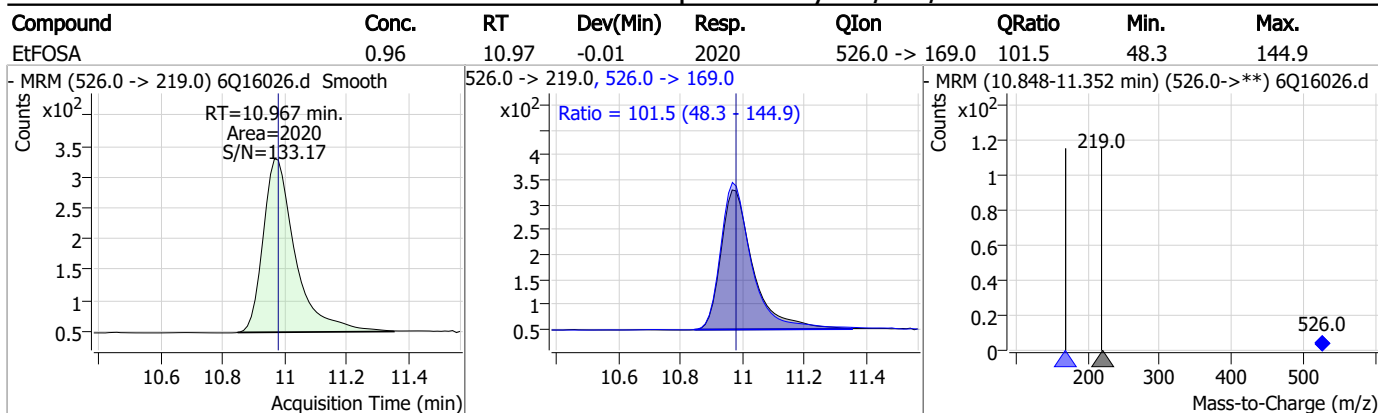
### Perfluorinated Compounds by LC/MS/MS



7.3.2  
7



### Perfluorinated Compounds by LC/MS/MS



7.3.2  
7

# Manual Integration Approval Summary

Sample Number: OP96209-LLBS      Method: EPA DRAFT 1633  
Lab FileID: 6Q16026.D      Analyst approved: 04/05/23 11:17 Martha Valls  
Injection Time: 04/04/23 18:55      Supervisor approved: 04/05/23 17:28 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
MeFOSAA	2355-31-9		8.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.29	Split peak

7.3.2.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16029.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 4/4/2023 7:37:24 PM  
 Sample Name : op96209-ms  
 Vial : P2-C9  
 DA Method File : 1633\_040423\_S6Q239.quantmethod.xml  
 Batch Name : s6q239.batch.bin  
 Sample Information : OP96209,S6Q239,565,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.938	216.8 -> 171.9	45808	10.00 µg/L	0.041
M5-PFPeA	4.309	268.3 -> 223.0	29511	5.00 µg/L	-0.012
M5-PFHxA	5.516	318.0 -> 273.0	29567	2.50 µg/L	-0.012
M4-PFHpA	6.468	367.1 -> 322.0	30456	2.50 µg/L	0.000
M8-PFOA	7.112	421.1 -> 376.0	51282	2.50 µg/L	0.000
M9-PFNA	7.643	472.1 -> 427.0	15347	1.25 µg/L	0.000
M6-PFDA	8.122	519.1 -> 474.1	13154	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	14311	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	14234	1.25 µg/L	0.012
M2-PFTeDA	9.721	715.2 -> 670.0	7506	1.25 µg/L	0.000
M8-FOSA	9.631	506.1 -> 77.8	12884	2.50 µg/L	0.012
M3-PFBS	5.446	302.1 -> 79.9	11537	2.50 µg/L	-0.012
M3-PFHxS	7.228	402.1 -> 79.9	7448	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	5925	2.50 µg/L	0.000
M2-4:2FTS	5.191	329.1 -> 80.9	1723	5.00 µg/L	0.000
M2-6:2FTS	6.886	429.1 -> 80.9	2325	5.00 µg/L	0.000
M2-8:2FTS	7.911	529.1 -> 80.9	1696	5.00 µg/L	0.000
M3-MeFOSAA	8.180	573.2 -> 419.0	19787	5.00 µg/L	0.012
M3-HFPO-DA	5.893	286.9 -> 168.9	10474	10.00 µg/L	0.000
M5-EtFOSAA	8.375	589.2 -> 419.0	15699	5.00 µg/L	0.000
M7-MeFOSE	10.653	623.2 -> 58.9	14084	25.00 µg/L	0.000
M9-EtFOSE	10.888	639.2 -> 58.9	9982	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	3906	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	4043	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	7827	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	25097	5.00 µg/L	0.040
18O2-PFHxS	7.239	403.0 -> 83.9	5311	2.50 µg/L	0.012
13C4-PFOA	7.112	417.1 -> 372.0	64969	2.50 µg/L	0.000
13C2-PFDA	8.123	515.1 -> 470.1	17615	1.25 µg/L	0.000
13C5-PFNA	7.643	468.0 -> 423.0	15871	1.25 µg/L	0.000
13C2-PFHxA	5.516	315.1 -> 270.0	28269	2.50 µg/L	-0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.191	329.1 -> 80.9	1723	4.82 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.5%		
13C2-6:2FTS	6.886	429.1 -> 80.9	2325	5.30 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.1%		
13C2-8:2FTS	7.911	529.1 -> 80.9	1696	4.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 80.3%		
13C2-PFDoDA	9.006	615.1 -> 570.0	14234	1.02 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 81.8%		
13C2-PFTeDA	9.721	715.2 -> 670.0	7506	0.90 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 71.9%		
13C3-PFBS	5.446	302.1 -> 79.9	11537	2.44 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C3-PFHxS	7.228	402.1 -> 79.9	7448	2.45 µg/L	0.000

7.4.1  
7



### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C4-PFBA	2.938	216.8 -> 171.9	45808	7.81 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 78.1%	
13C4-PFHpA	6.468	367.1 -> 322.0	30456	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.4%	
13C5-PFHxA	5.516	318.0 -> 273.0	29567	2.53 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C5-PFPeA	4.309	268.3 -> 223.0	29511	4.48 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 89.5%	
13C6-PFDA	8.122	519.1 -> 474.1	13154	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C7-PFUnDA	8.576	570.0 -> 525.1	14311	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C8-FOSA	9.631	506.1 -> 77.8	12884	2.21 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.5%	
13C8-PFOA	7.112	421.1 -> 376.0	51282	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.5%	
13C8-PFOS	8.284	507.1 -> 79.9	5925	2.32 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.9%	
13C9-PFNA	7.643	472.1 -> 427.0	15347	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.6%	
d3-MeFOSAA	8.180	573.2 -> 419.0	19787	5.23 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C3-HFPO-DA	5.893	286.9 -> 168.9	10474	8.50 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 85.0%	
d3-MeFOSA	10.733	515.0 -> 219.0	4043	1.93 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 77.0%	
d5-EtFOSAA	8.375	589.2 -> 419.0	15699	4.79 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.7%	
d7-MeFOSE	10.653	623.2 -> 58.9	14084	17.68 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 70.7%	
d9-EtFOSE	10.888	639.2 -> 58.9	9982	18.85 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 75.4%	
d5-EtFOSA	10.965	531.1 -> 219.0	3906	1.73 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 69.1%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.192	327.1 -> 307.0	36528	10.82 µg/L	99
		327.1 -> 80.9	8787		
6:2FTS	6.886	427.1 -> 407.0	30323	9.74 µg/L	96
		427.1 -> 80.9	6008		
8:2FTS	7.911	527.1 -> 507.0	12805	10.64 µg/L	98
		527.1 -> 80.8	3295		
EtFOSAA	8.376	584.2 -> 419.1	6940	2.88 µg/L	m 91
		584.2 -> 526.0	3592		
FOSA	9.634	498.1 -> 77.9	11873	2.49 µg/L	100
		498.1 -> 478.0	407		
MeFOSAA	8.181	570.1 -> 419.0	9330	2.52 µg/L	95
		570.1 -> 483.0	1537		
PFBA	2.944	212.8 -> 168.9	16024	13.84 µg/L	100
PFBS	5.460	298.7 -> 79.9	10005	2.21 µg/L	99
		298.7 -> 98.8	4691		
PFDA	8.123	512.9 -> 469.0	40241	2.63 µg/L	97
		512.9 -> 219.0	5152		
PFDODA	9.007	613.1 -> 569.0	29982	2.83 µg/L	99
		613.1 -> 319.0	3832		
PFDS	9.170	599.0 -> 79.9	4006	2.26 µg/L	99

7.4.1  
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.469	599.0 -> 98.8	2052	2.72	µg/L	100
		363.1 -> 319.0	46508			
PFHpS	7.794	363.1 -> 169.0	6511	2.73	µg/L	85
		449.0 -> 79.9	6927			
PFHxA	5.519	449.0 -> 98.9	3396	2.79	µg/L	100
		313.0 -> 269.0	30423			
PFHxS	7.228	313.0 -> 118.9	1178	2.32	µg/L	94
		398.7 -> 79.9	7609			
PFNA	7.643	398.7 -> 98.9	4746	2.13	µg/L	96
		463.0 -> 419.0	21325			
PFNS	8.751	463.0 -> 219.0	4817	2.43	µg/L	100
		548.8 -> 79.9	6112			
PFOA	7.113	548.8 -> 98.9	3529	2.61	µg/L	98
		413.0 -> 369.0	60659			
PFOS	8.286	413.0 -> 169.0	8588	2.60	µg/L	86
		498.9 -> 79.9	6780			
PFPeA	4.311	498.9 -> 98.8	4326	9.74	µg/L	100
		263.0 -> 219.0	60634			
PFPeS	6.533	349.1 -> 79.9	9459	2.40	µg/L	99
		349.1 -> 98.9	4851			
PFTeDA	9.722	713.1 -> 669.0	19916	2.51	µg/L	98
		713.1 -> 168.9	1350			
PFTrDA	9.390	663.0 -> 619.0	26724	2.67	µg/L	97
		663.0 -> 168.9	1851			
PFUnDA	8.577	563.1 -> 519.0	30454	2.66	µg/L	92
		563.1 -> 269.1	3969			
11CI-PF3OUdS	9.442	630.9 -> 450.9	60099	10.67	µg/L	99
		632.9 -> 452.9	18080			
9CI-PF3ONS	8.616	530.8 -> 351.0	124541	11.58	µg/L	95
		532.8 -> 353.0	37816			
ADONA	6.731	376.9 -> 250.9	258942	12.20	µg/L	99
		376.9 -> 84.8	58736			
HFPO-DA	5.894	284.9 -> 168.9	9995	10.56	µg/L	96
		284.9 -> 184.9	1079			
3:3FTCA	3.815	241.0 -> 177.0	4187	12.12	µg/L	99
		241.0 -> 117.0	613			
5:3FTCA	6.198	341.0 -> 237.1	179244	74.30	µg/L	97
		341.0 -> 217.0	161366			
7:3FTCA	7.608	441.0 -> 316.9	95007	77.79	µg/L	86
		441.0 -> 336.9	166303			
EtFOSA	10.967	526.0 -> 219.0	4986	2.96	µg/L	100
		526.0 -> 169.0	4835			
EtFOSE	10.913	630.0 -> 58.9	10155	25.94	µg/L	100
		511.9 -> 219.0	4492			
MeFOSA	10.734	511.9 -> 169.0	4421	2.64	µg/L	93
		616.1 -> 58.9	13821			
MeFOSE	10.666	699.1 -> 79.9	1833	26.04	µg/L	100
		699.1 -> 98.8	1233			
PFDoDS	9.861	295.0 -> 201.0	3317	1.78	µg/L	94
		295.0 -> 84.9	1395			
NFDHA	5.398	279.0 -> 85.1	12032	4.69	µg/L	97
		229.0 -> 84.9	7933			
PFMBA	4.725	314.8 -> 134.9	70903	5.83	µg/L	100
		314.8 -> 82.9	1990			
PFMPA	3.476			4.21	µg/L	100
PFEESA	5.999			4.59	µg/L	99

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

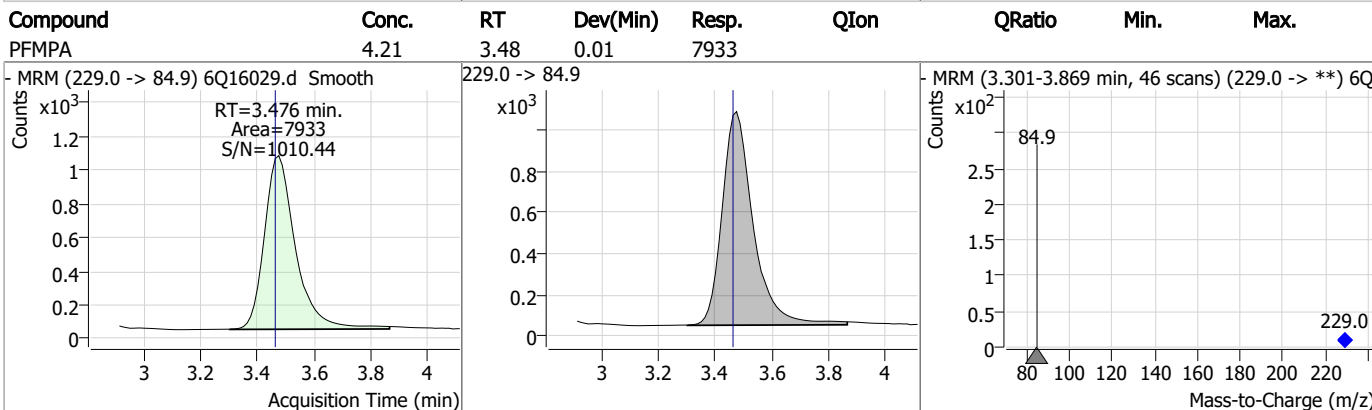
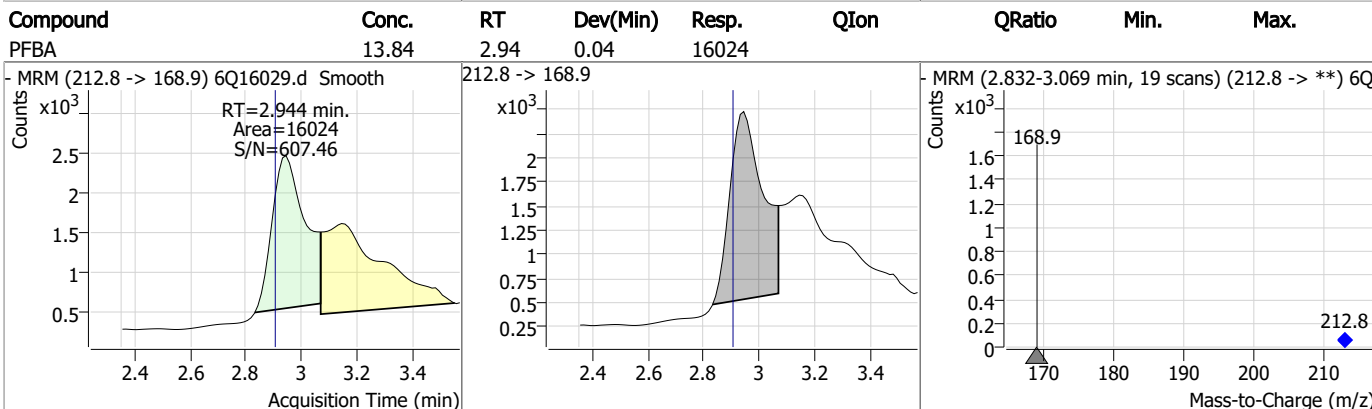
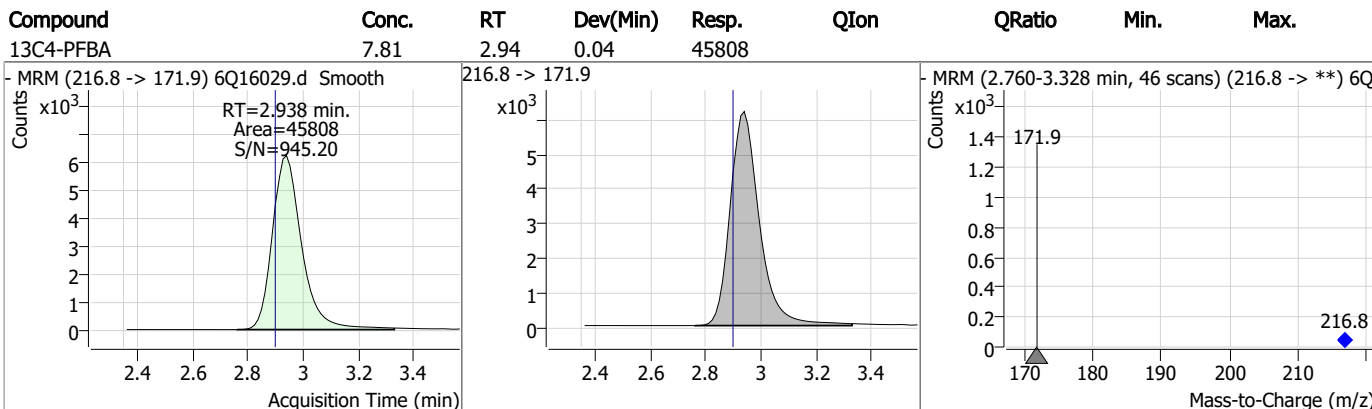
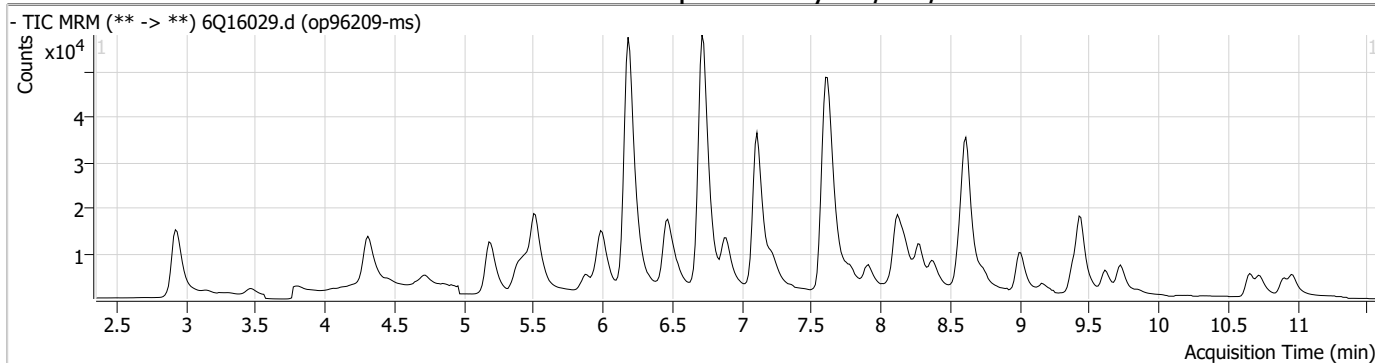
### Perfluorinated Compounds by LC/MS/MS

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

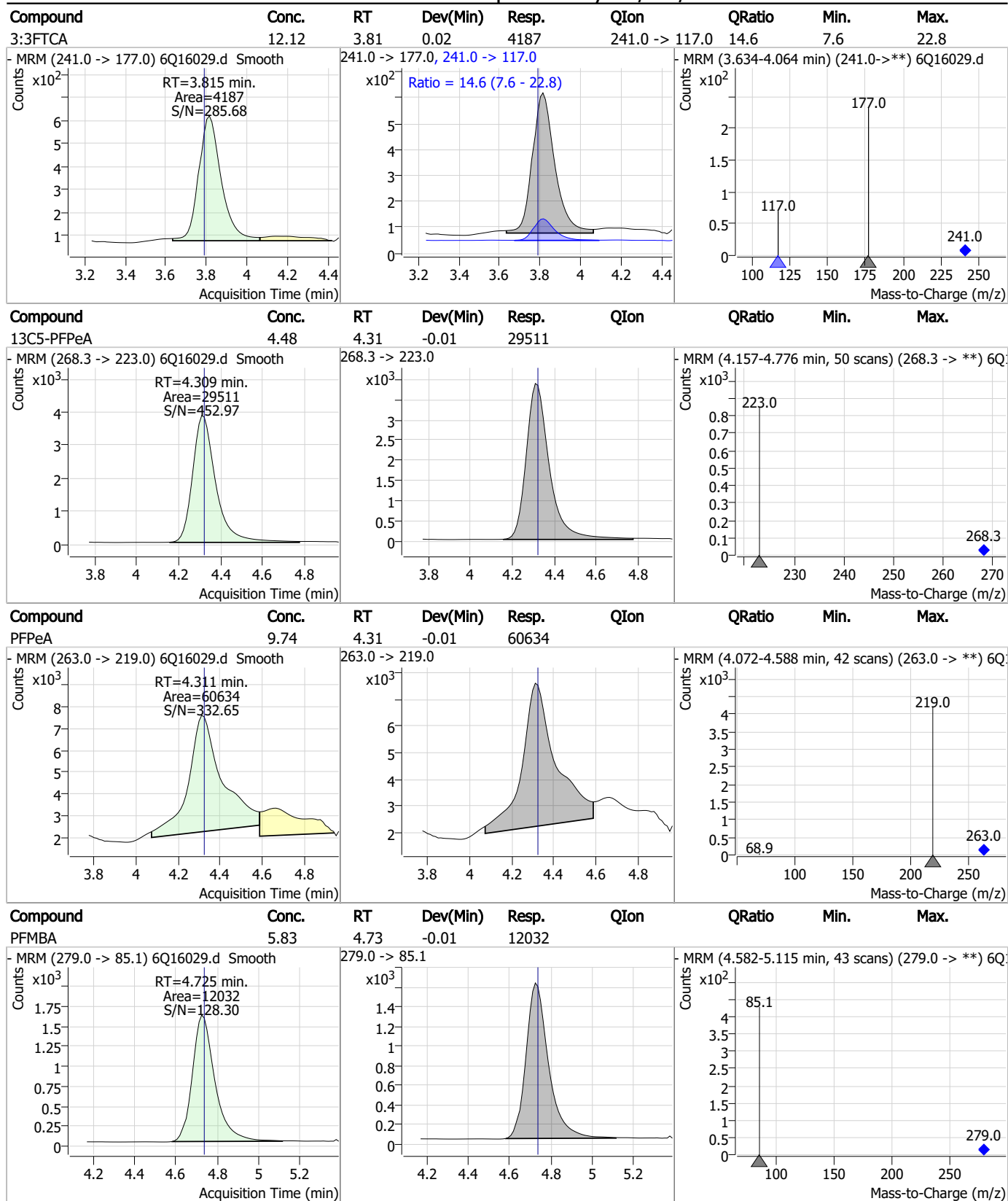
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### Perfluorinated Compounds by LC/MS/MS



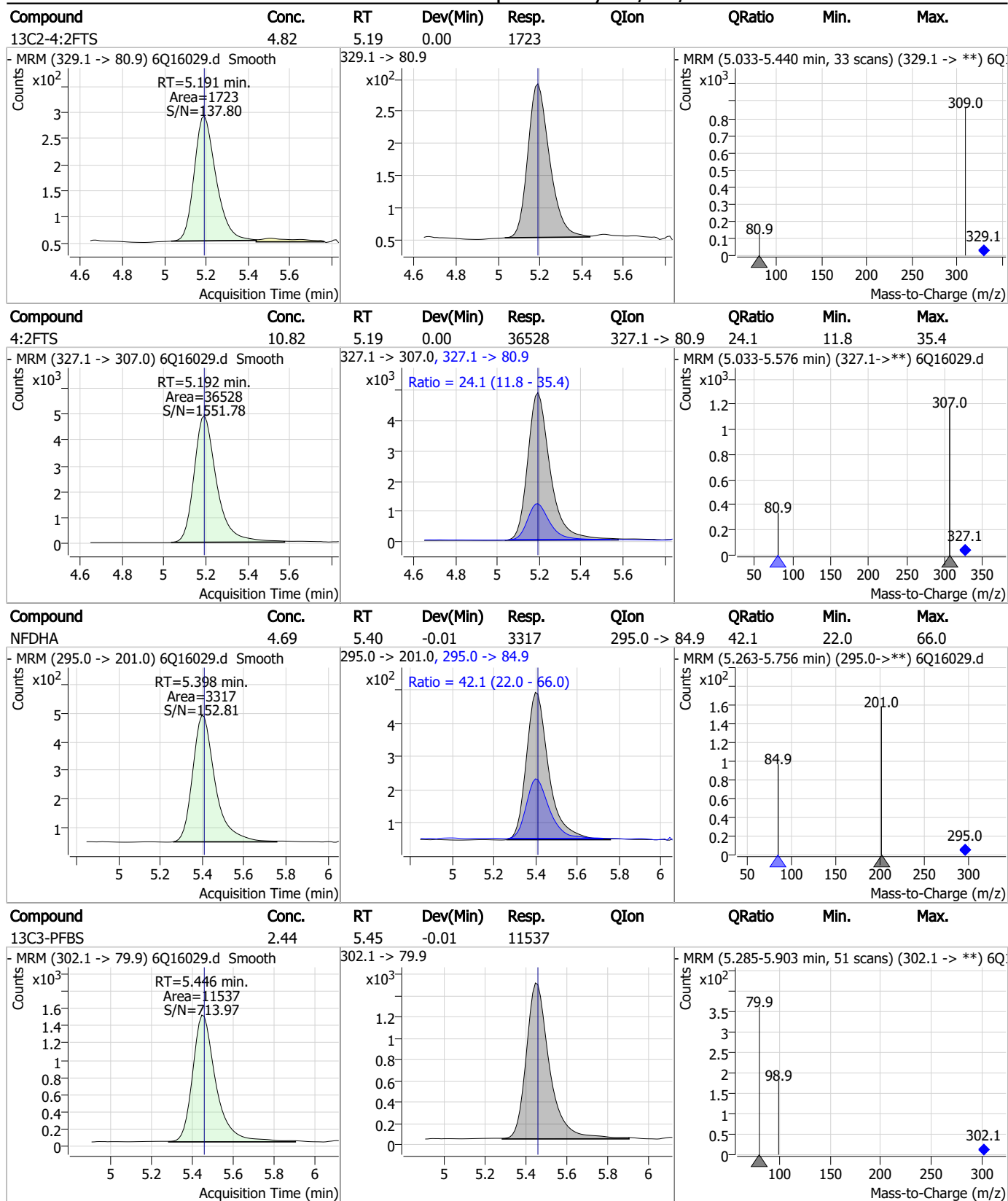
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### Perfluorinated Compounds by LC/MS/MS



7.4.1  
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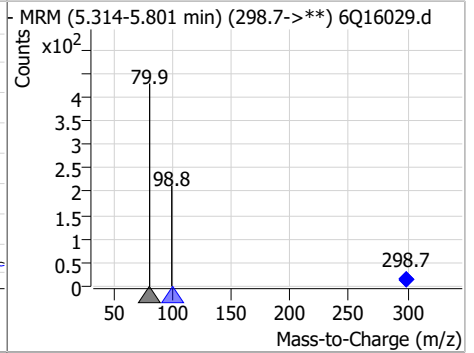
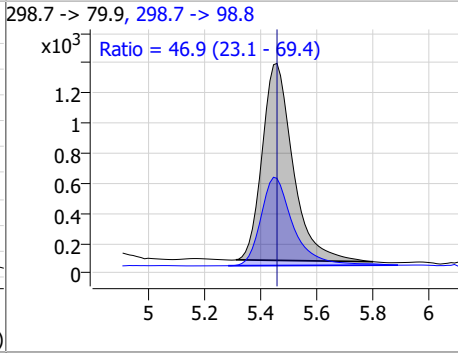
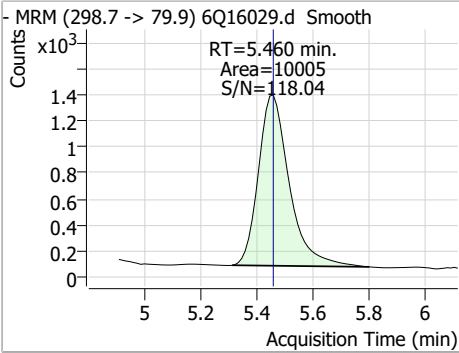
### Perfluorinated Compounds by LC/MS/MS



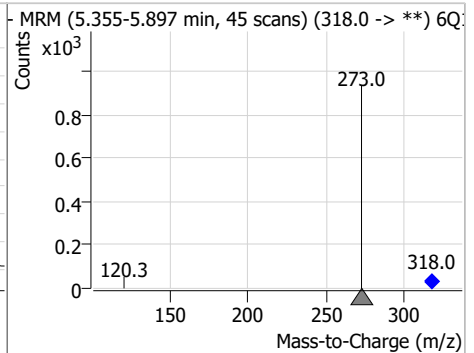
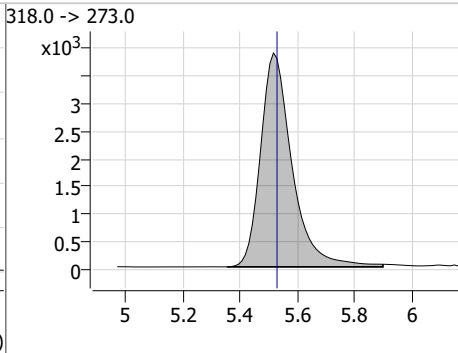
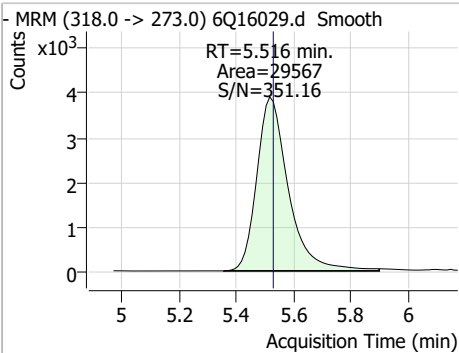
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Perfluorinated Compounds by LC/MS/MS

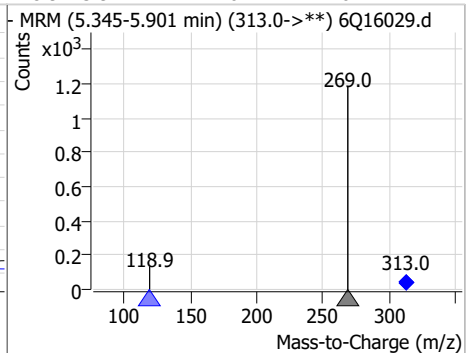
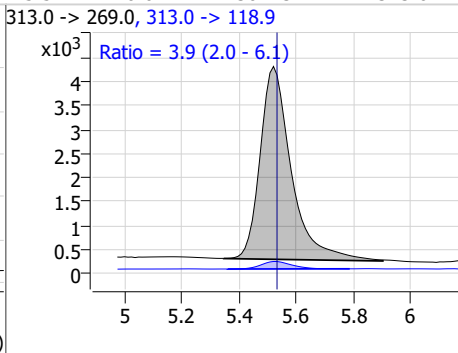
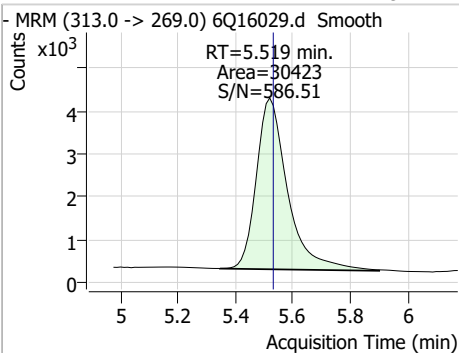
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.21	5.46	0.00	10005	298.7 -> 98.8	46.9	23.1	69.4



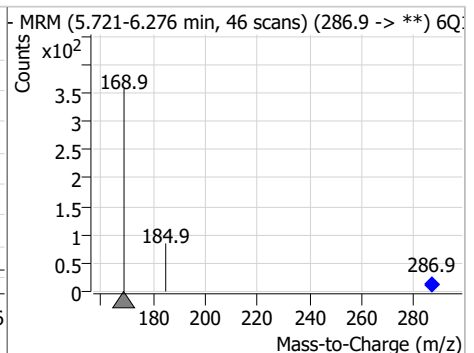
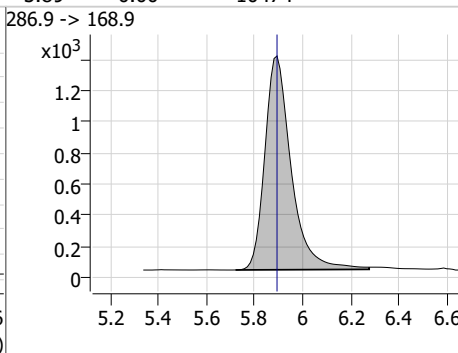
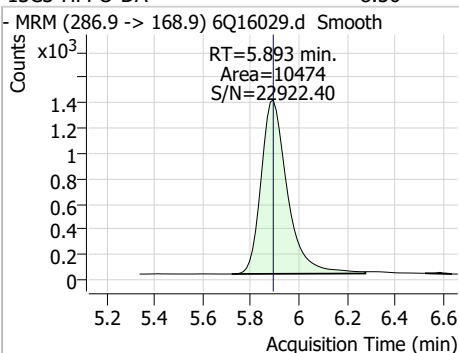
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.53	5.52	-0.01	29567	318.0 -> 273.0	3.9	2.0	6.1



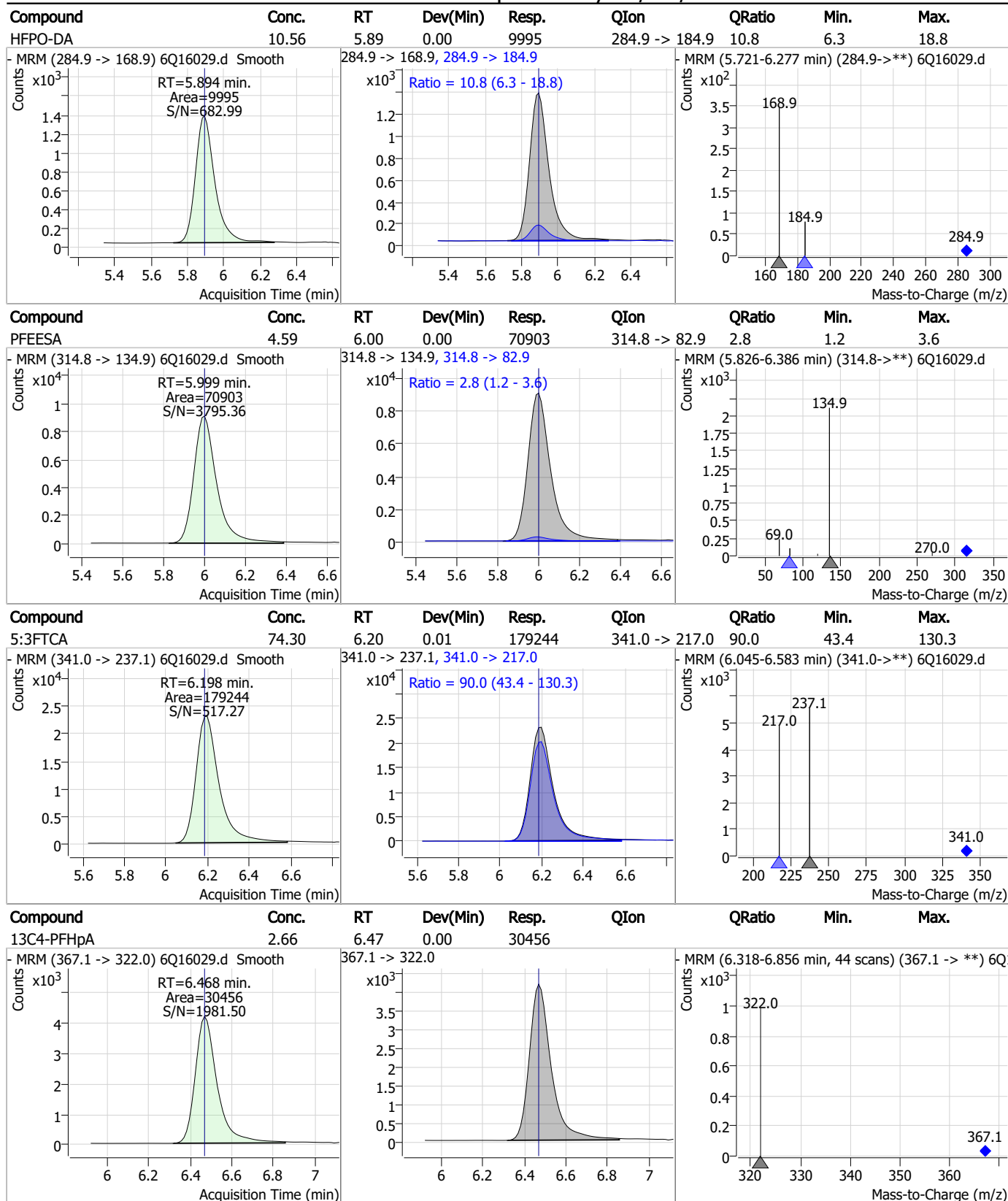
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.79	5.52	-0.01	30423	313.0 -> 118.9	3.9	2.0	6.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.50	5.89	0.00	10474	286.9 -> 168.9	3.9	2.0	6.1



### Perfluorinated Compounds by LC/MS/MS

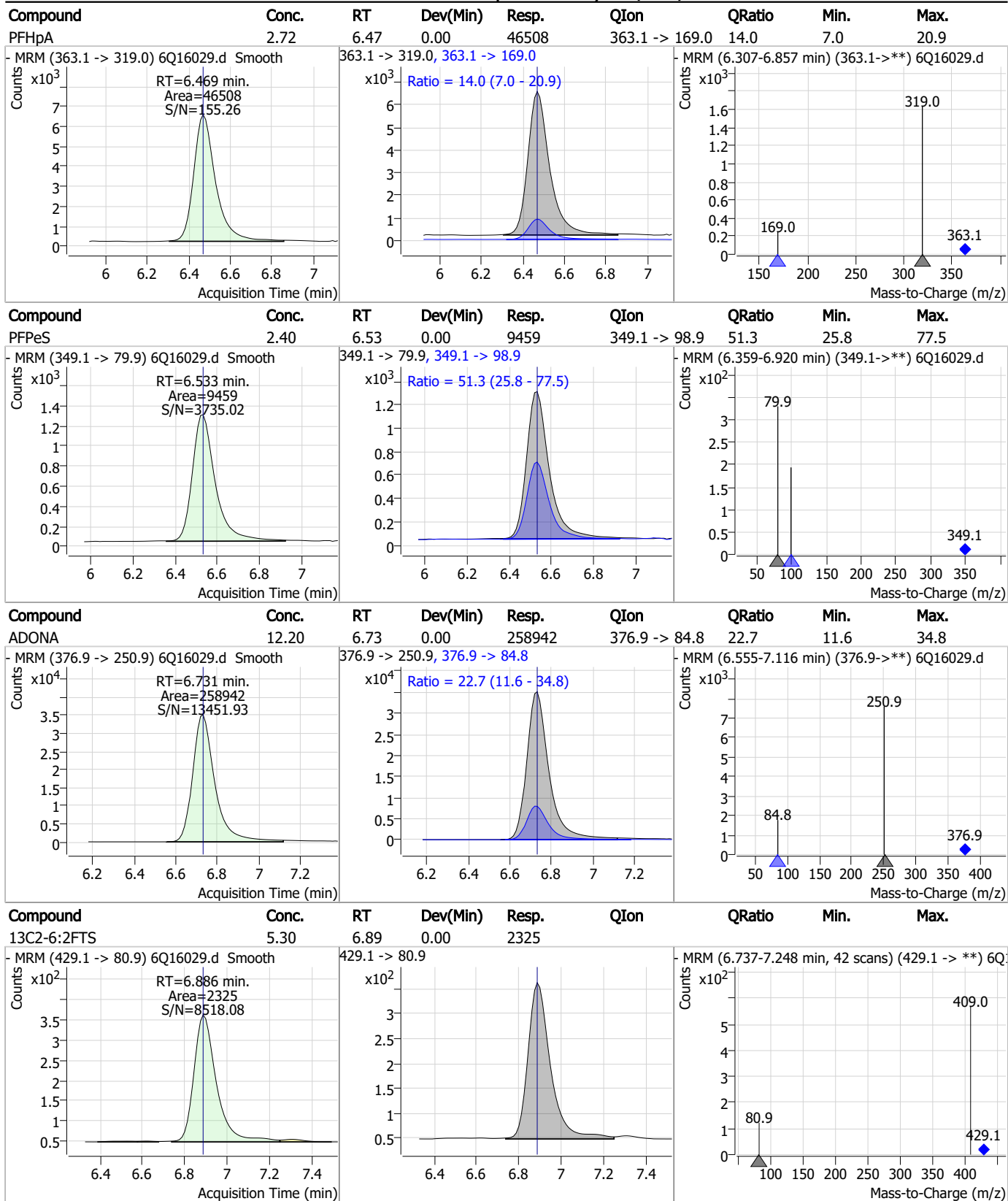


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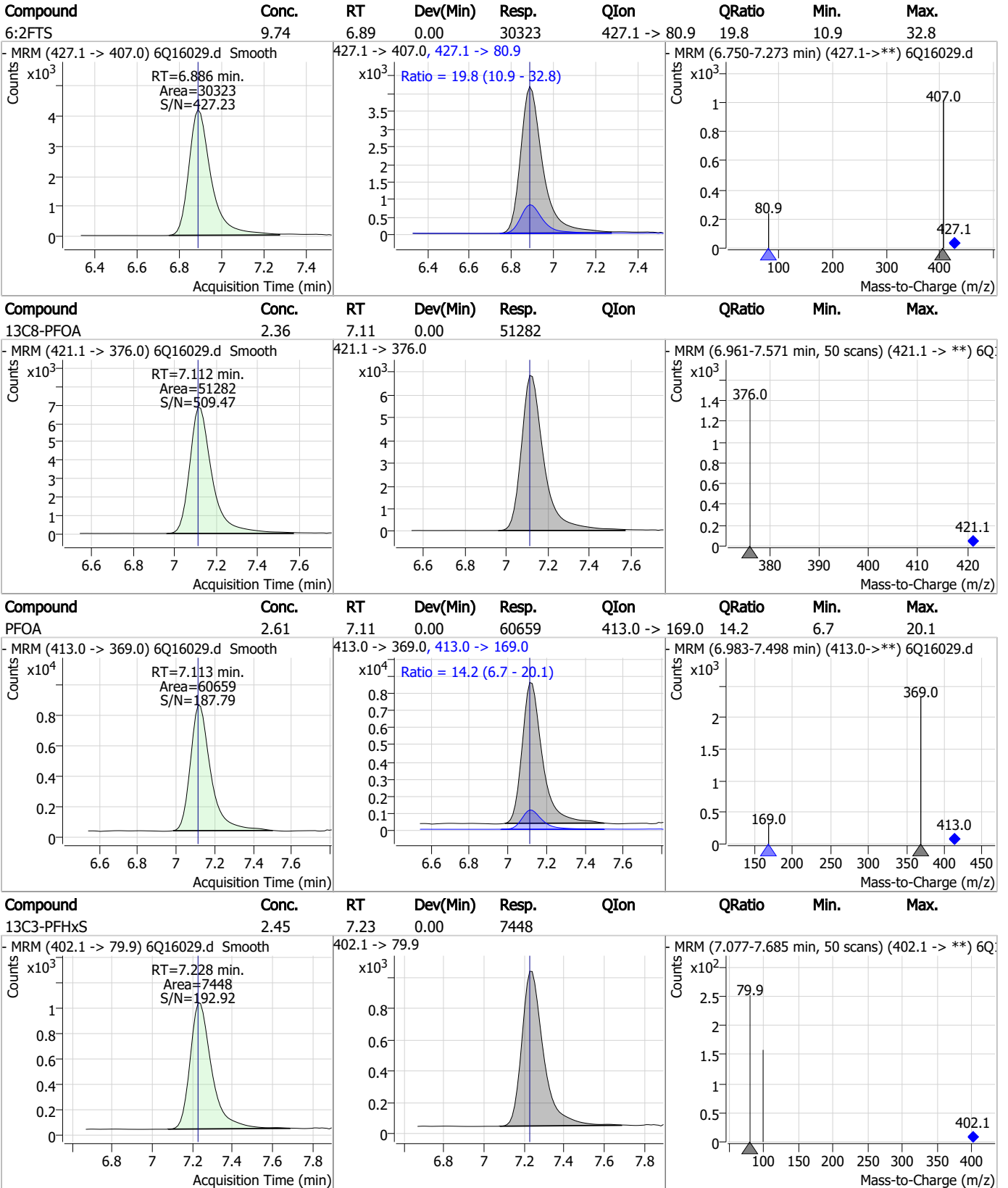
### Perfluorinated Compounds by LC/MS/MS



7.4.1  
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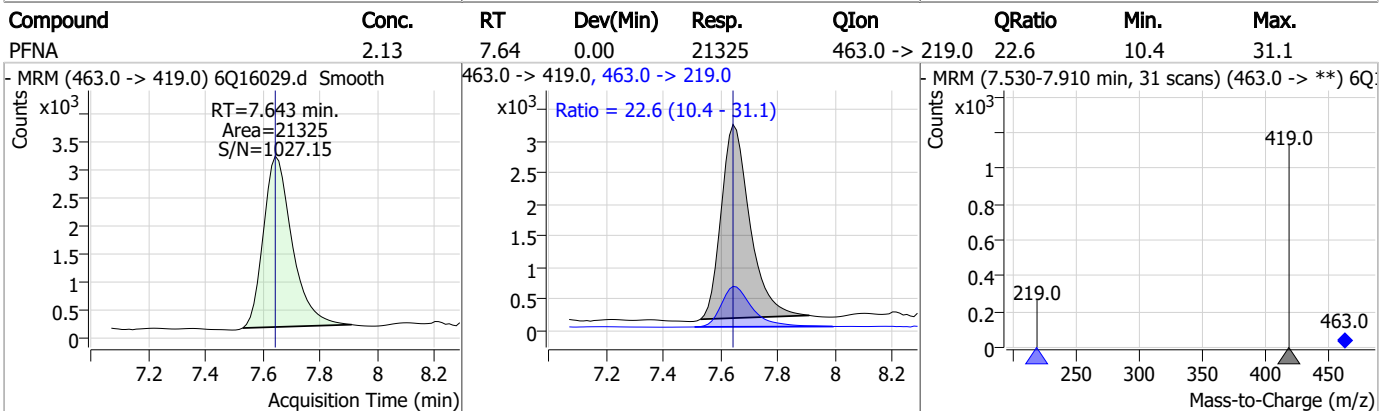
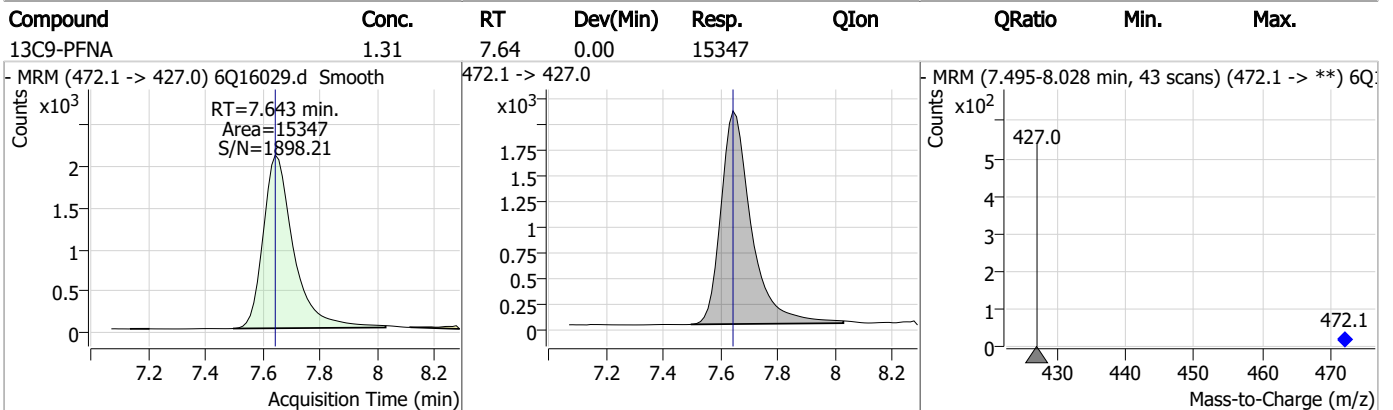
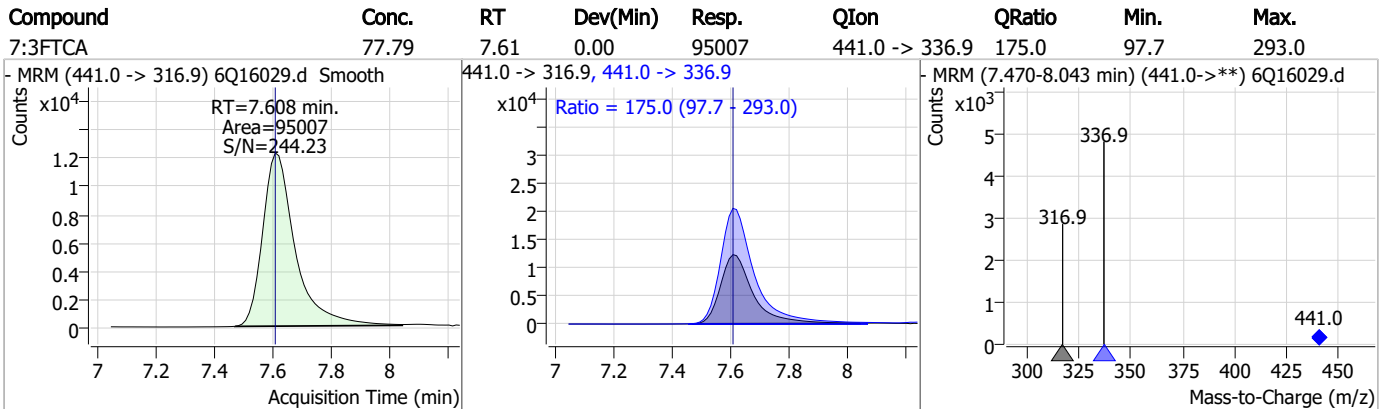
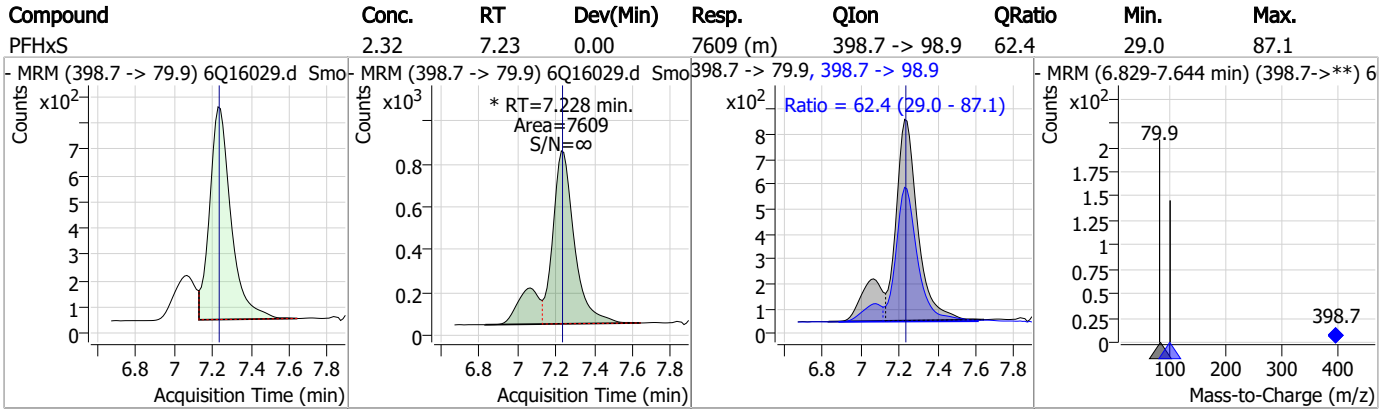
### Perfluorinated Compounds by LC/MS/MS



7.4.1

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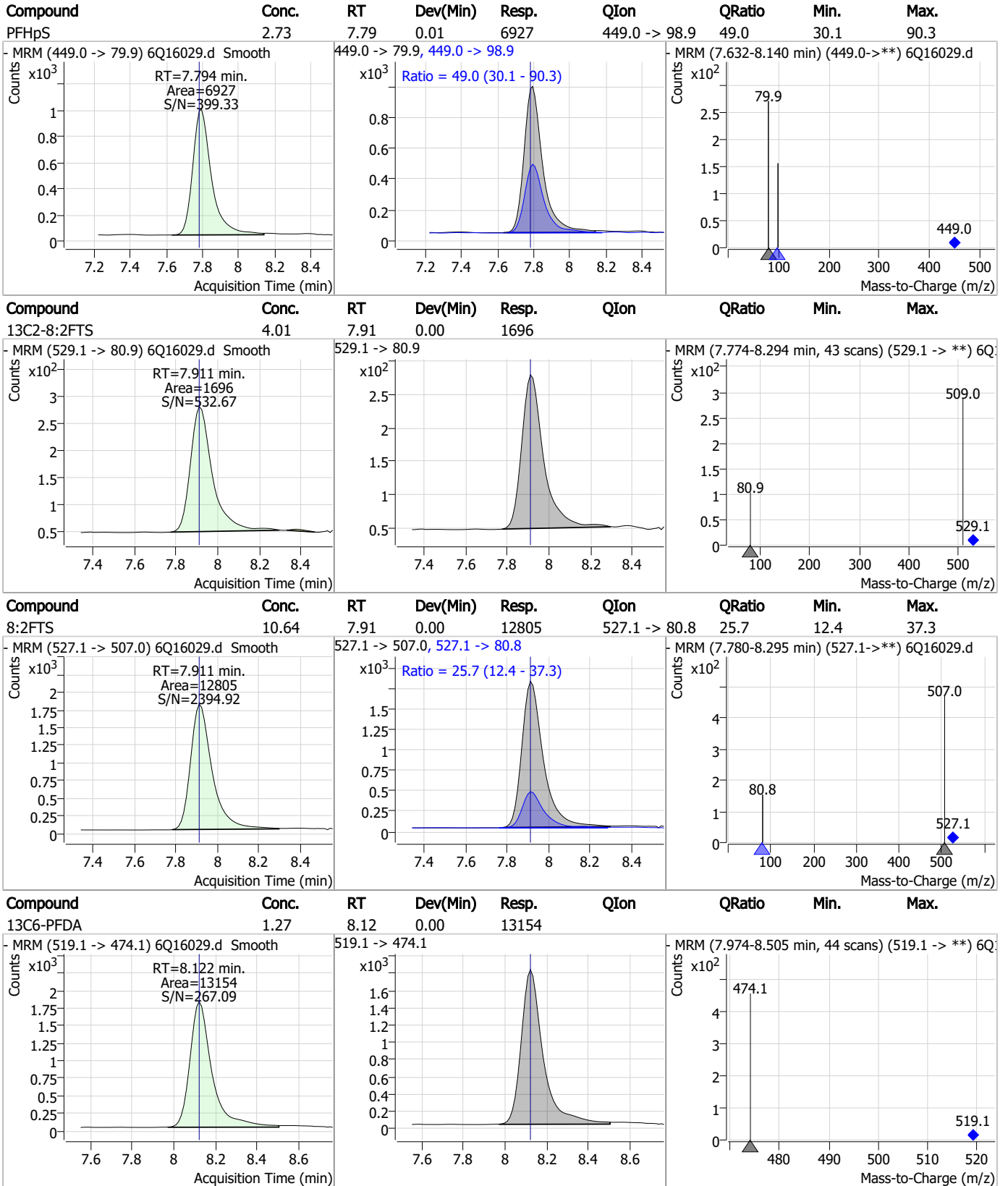
### Perfluorinated Compounds by LC/MS/MS



7.4.1

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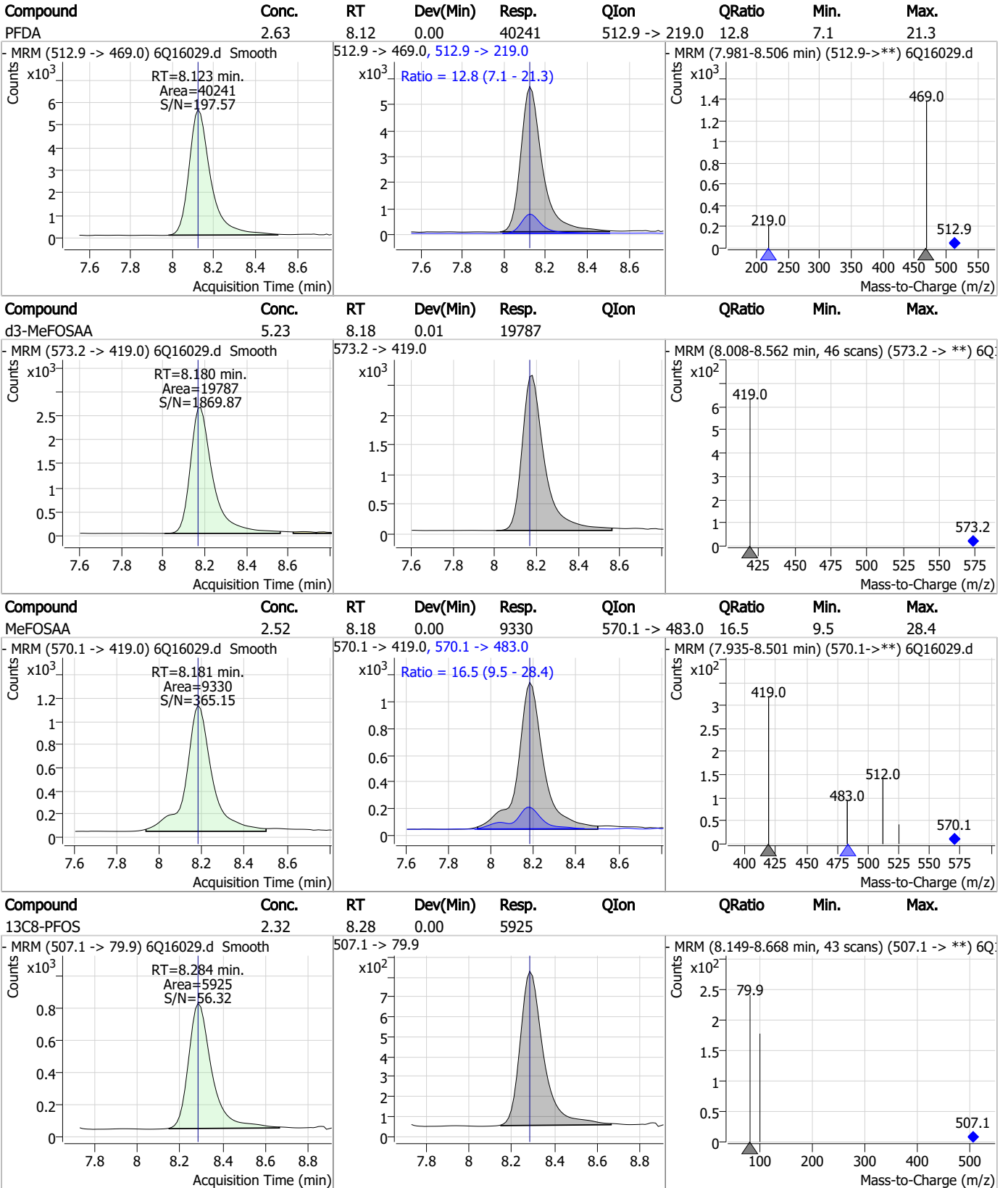
### Perfluorinated Compounds by LC/MS/MS



7.4.1

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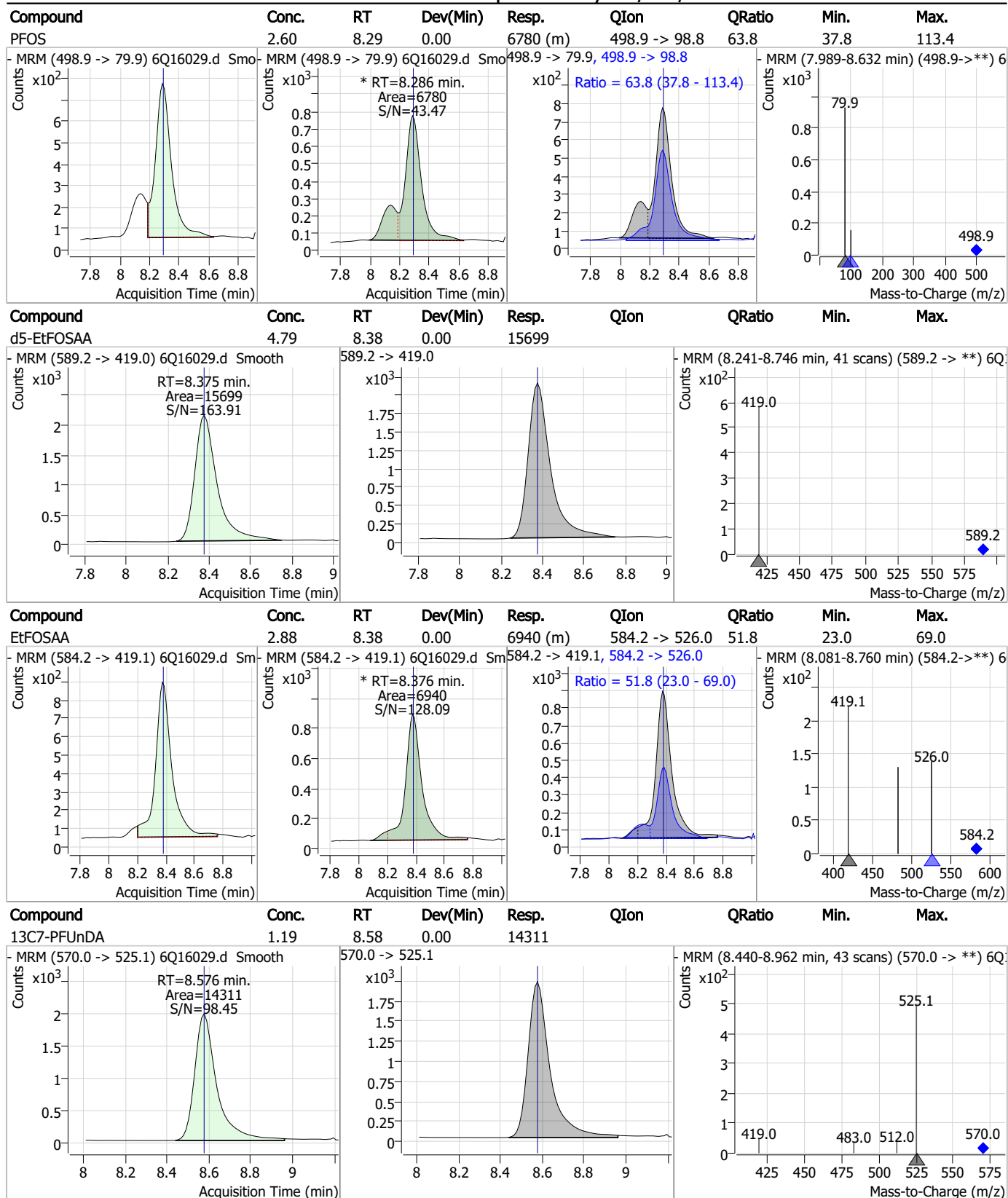
### Perfluorinated Compounds by LC/MS/MS



7.4.1

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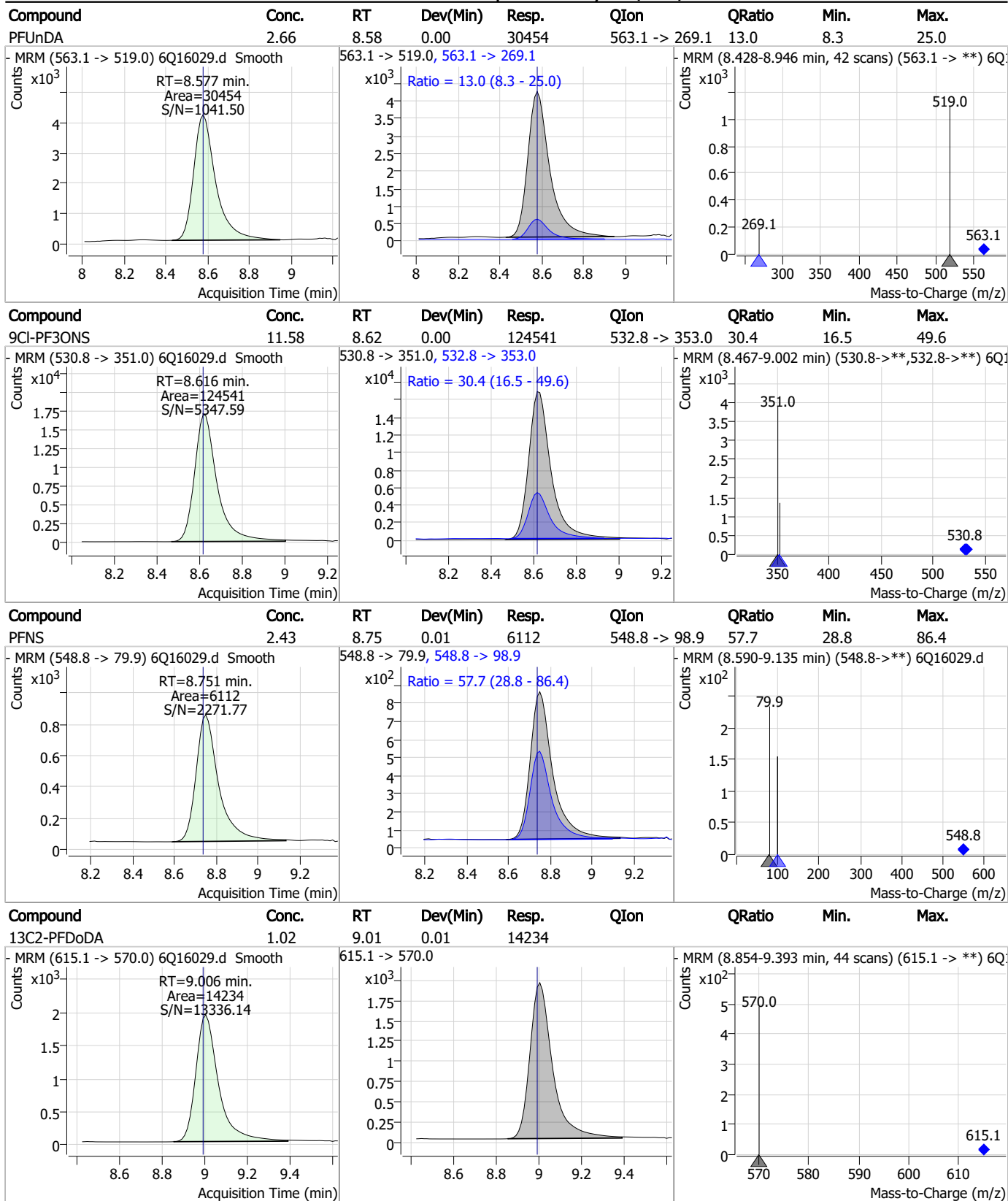
### Perfluorinated Compounds by LC/MS/MS



7.4.1  
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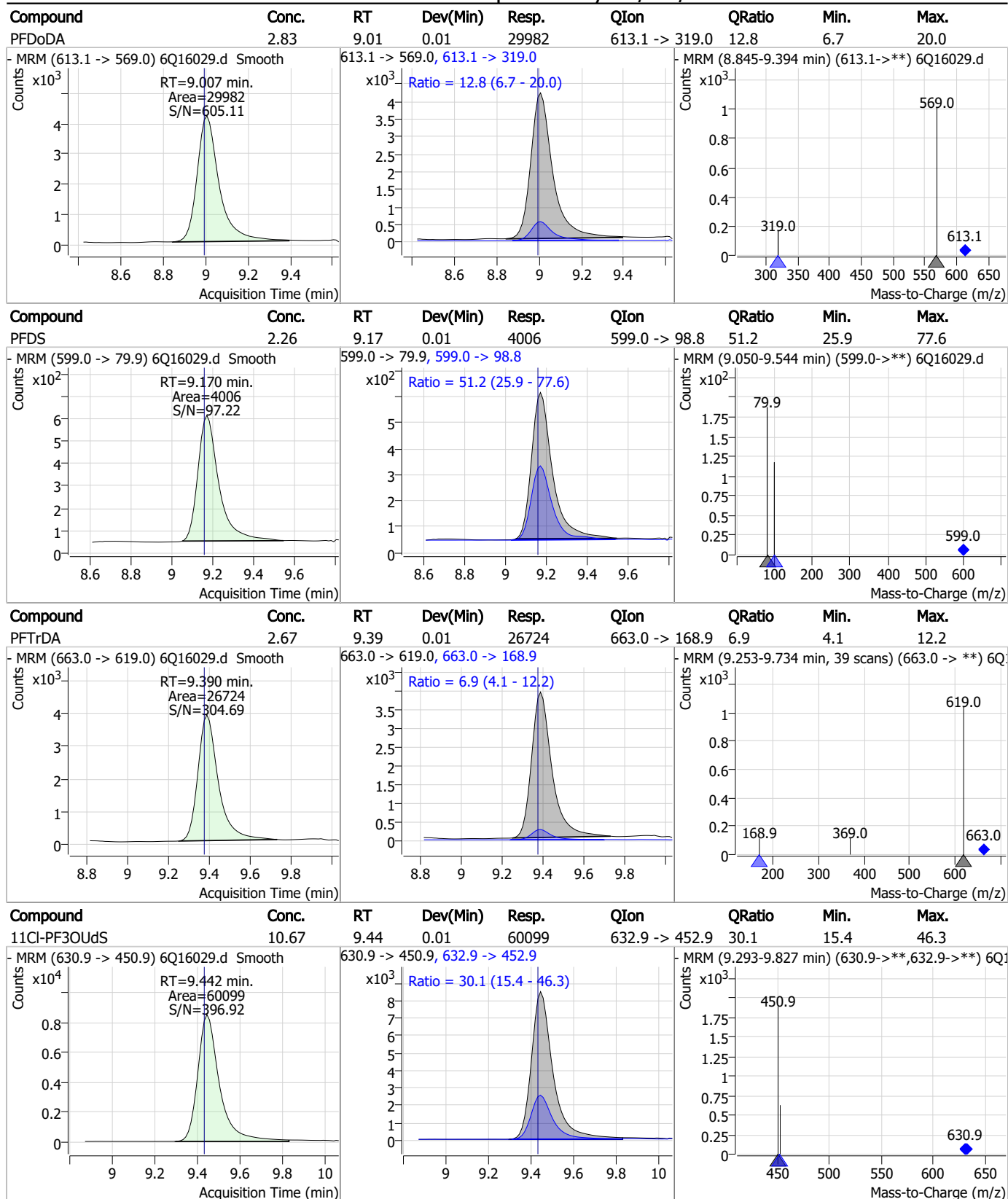


### Perfluorinated Compounds by LC/MS/MS



7.4.1  
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### Perfluorinated Compounds by LC/MS/MS

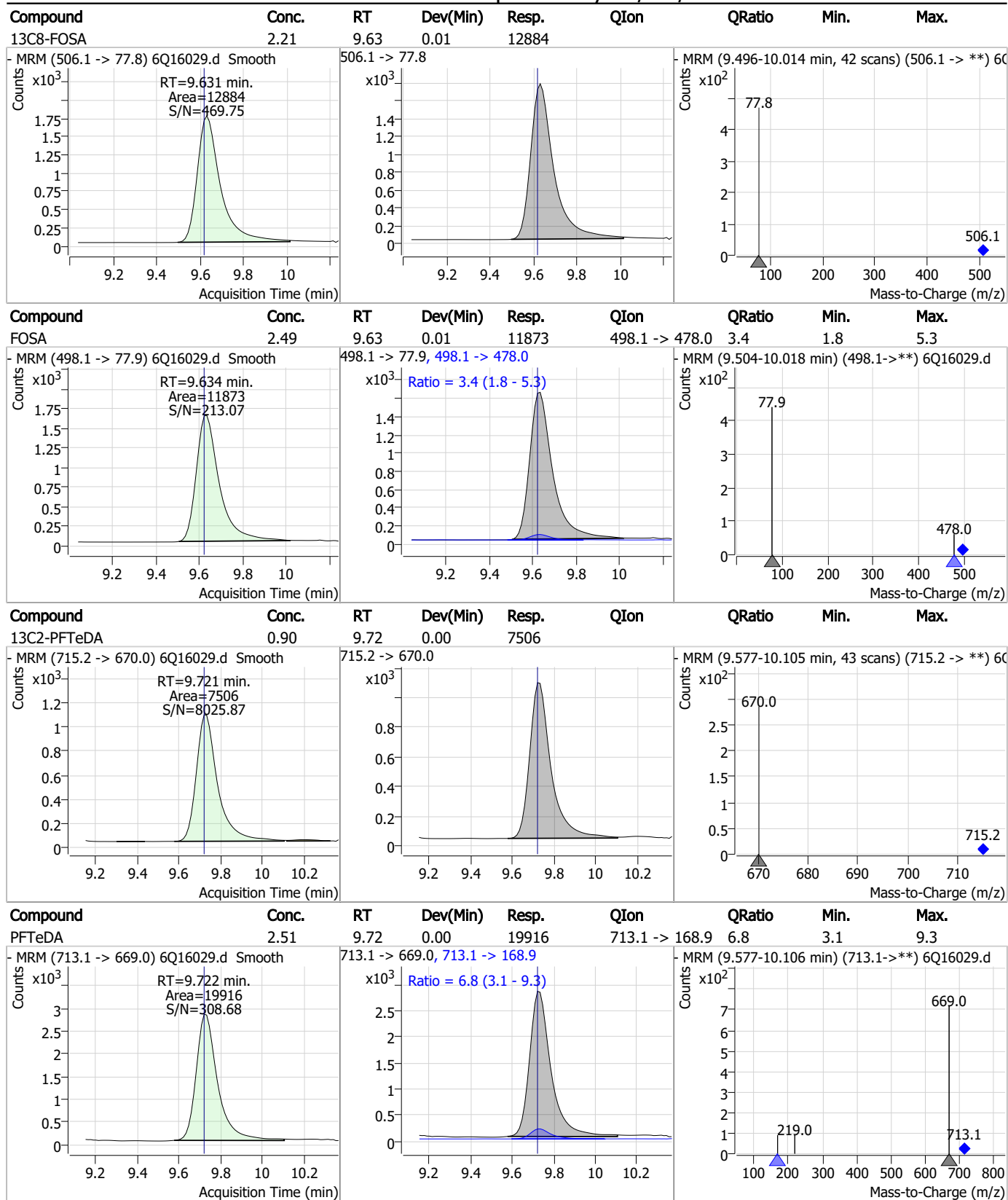


7.4.1

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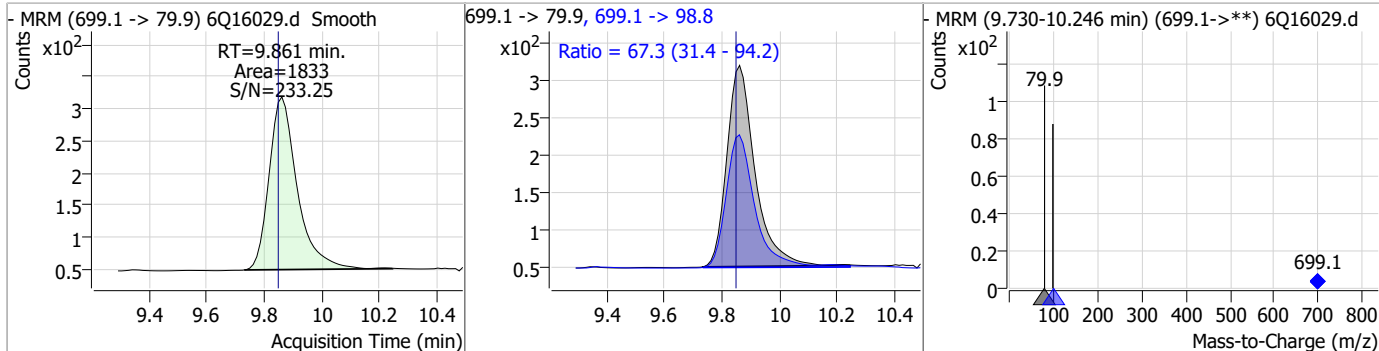
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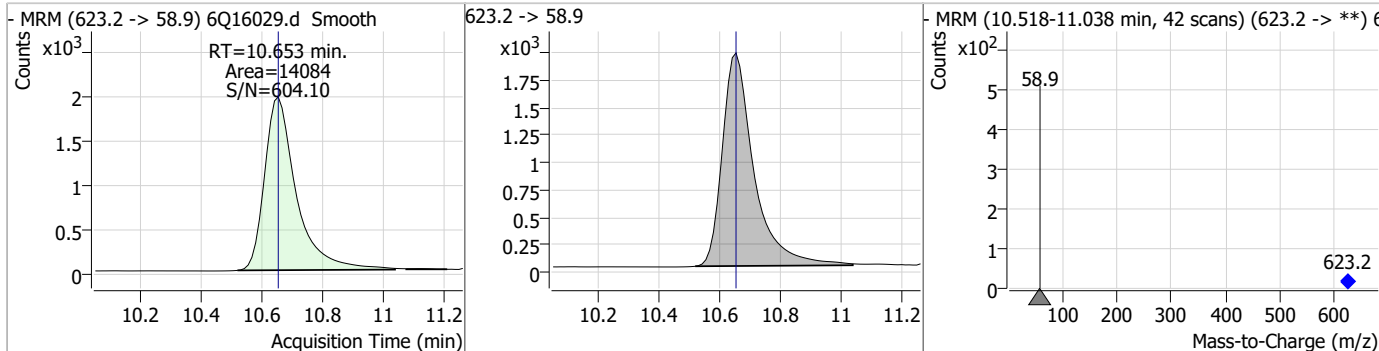
7.4.1  
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### Perfluorinated Compounds by LC/MS/MS

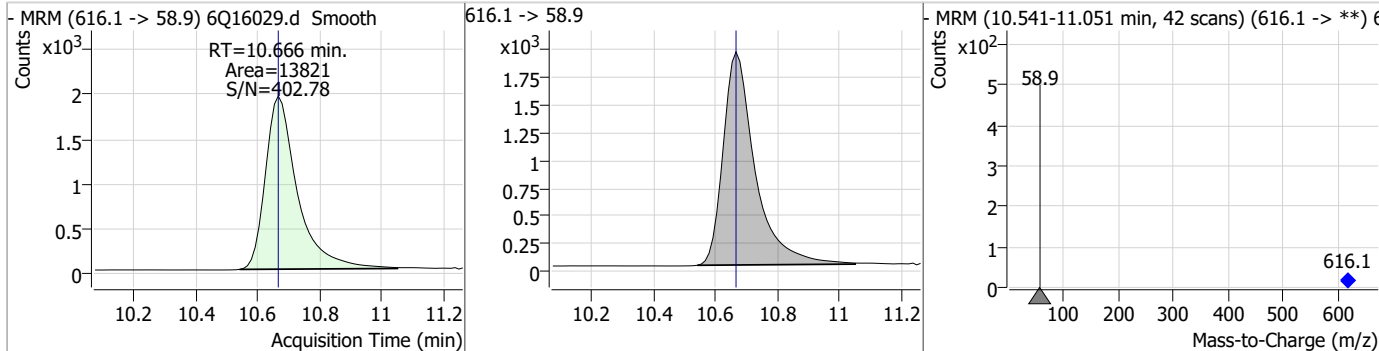
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	1.78	9.86	0.01	1833	699.1 -> 98.8	67.3	31.4	94.2



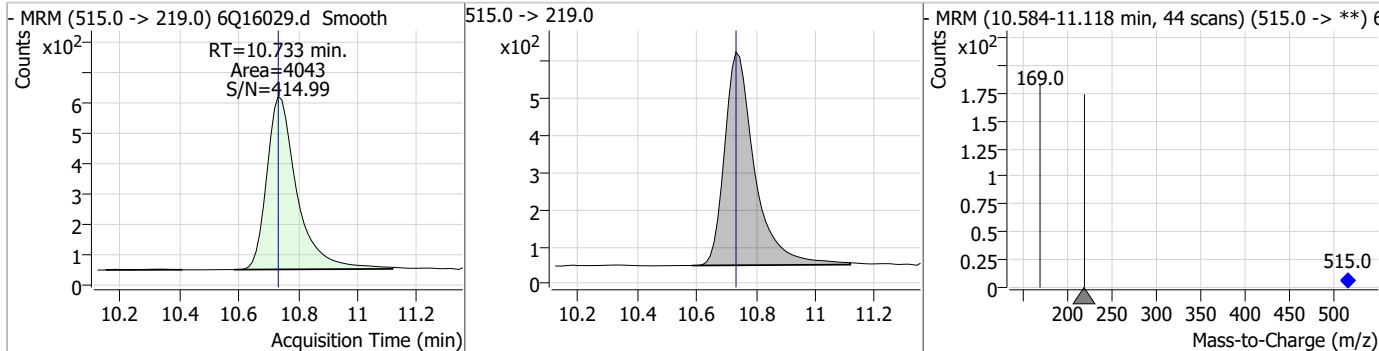
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	17.68	10.65	0.00	14084				



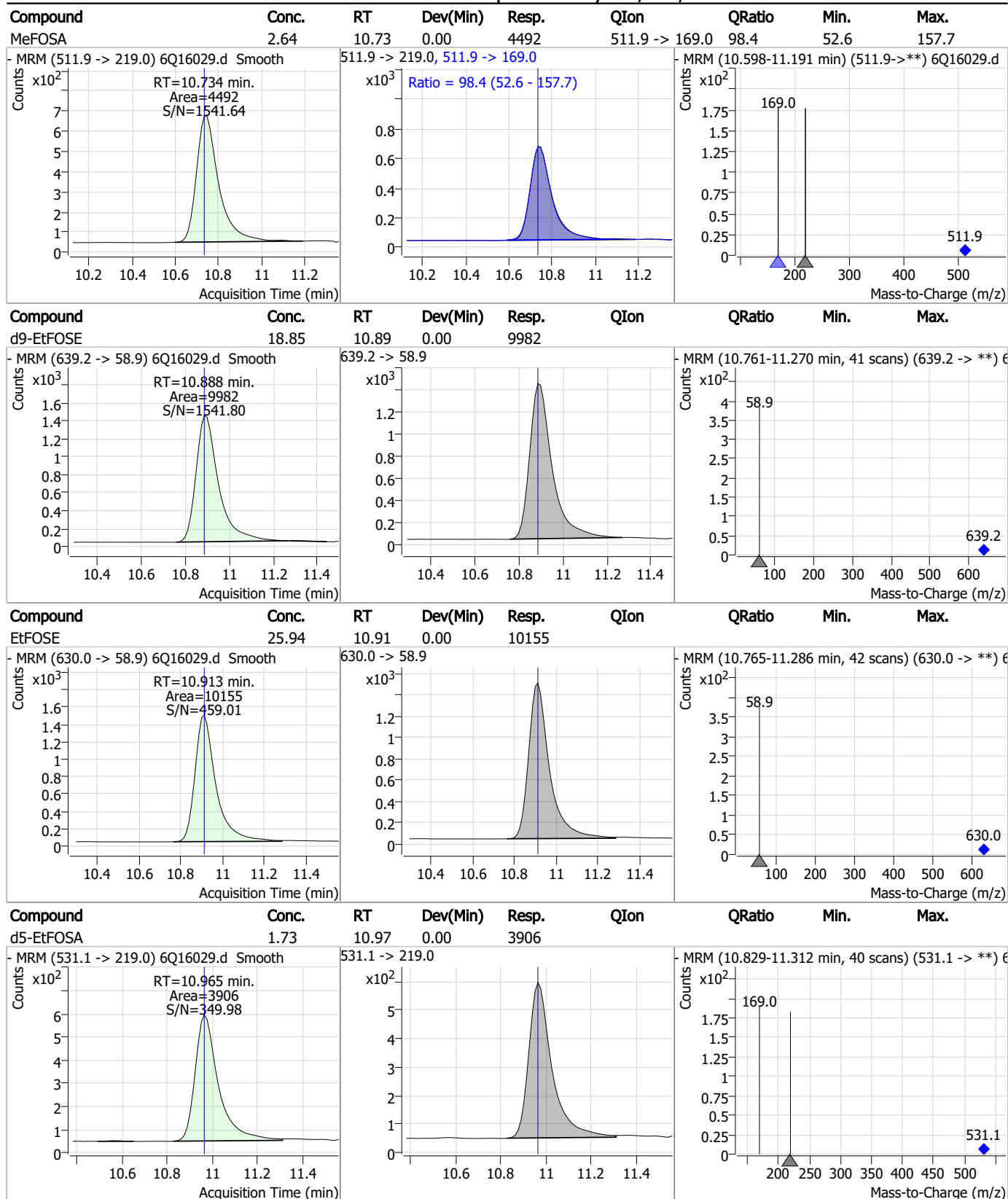
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	26.04	10.67	0.00	13821				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	1.93	10.73	0.00	4043				

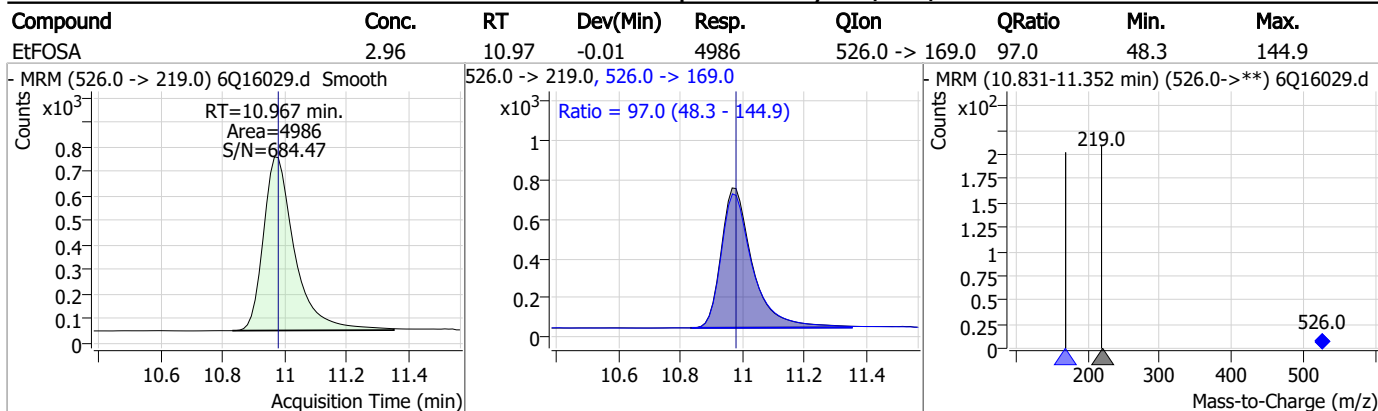


### Perfluorinated Compounds by LC/MS/MS



7.4.1  
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### Perfluorinated Compounds by LC/MS/MS



7.4.1

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# Manual Integration Approval Summary

Sample Number: OP96209-MS                      Method: EPA DRAFT 1633  
Lab FileID: 6Q16029.D                      Analyst approved: 04/05/23 11:32 Martha Valls  
Injection Time: 04/04/23 19:37                      Supervisor approved: 04/05/23 17:28 Natasha Gumtie

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

7.4.1.1  
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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16031.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 4/4/2023 8:05:23 PM  
 Sample Name : op96209-dup  
 Vial : P2-D2  
 DA Method File : 1633\_040423\_S6Q239.quantmethod.xml  
 Batch Name : s6q239.batch.bin  
 Sample Information : OP96209,S6Q239,535,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.938	216.8 -> 171.9	70454	10.00 µg/L	0.041
M5-PFPeA	4.334	268.3 -> 223.0	33666	5.00 µg/L	0.012
M5-PFHxA	5.528	318.0 -> 273.0	30205	2.50 µg/L	0.000
M4-PFHpA	6.481	367.1 -> 322.0	30194	2.50 µg/L	0.012
M8-PFOA	7.125	421.1 -> 376.0	50169	2.50 µg/L	0.013
M9-PFNA	7.643	472.1 -> 427.0	14937	1.25 µg/L	0.000
M6-PFDA	8.122	519.1 -> 474.1	13230	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	14010	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	14198	1.25 µg/L	0.012
M2-PFTeDA	9.721	715.2 -> 670.0	7235	1.25 µg/L	0.000
M8-FOSA	9.631	506.1 -> 77.8	13068	2.50 µg/L	0.012
M3-PFBS	5.459	302.1 -> 79.9	11737	2.50 µg/L	0.000
M3-PFHxS	7.240	402.1 -> 79.9	7271	2.50 µg/L	0.012
M8-PFOS	8.284	507.1 -> 79.9	5964	2.50 µg/L	0.000
M2-4:2FTS	5.204	329.1 -> 80.9	1577	5.00 µg/L	0.012
M2-6:2FTS	6.886	429.1 -> 80.9	2239	5.00 µg/L	0.000
M2-8:2FTS	7.911	529.1 -> 80.9	1929	5.00 µg/L	0.000
M3-MeFOSAA	8.180	573.2 -> 419.0	19973	5.00 µg/L	0.012
M3-HFPO-DA	5.905	286.9 -> 168.9	11680	10.00 µg/L	0.012
M5-EtFOSAA	8.375	589.2 -> 419.0	18001	5.00 µg/L	0.000
M7-MeFOSE	10.653	623.2 -> 58.9	14094	25.00 µg/L	0.000
M9-EtFOSE	10.900	639.2 -> 58.9	9787	25.00 µg/L	0.012
M5-EtFOSA	10.965	531.1 -> 219.0	4113	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	3920	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	8595	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	32600	5.00 µg/L	0.040
18O2-PFHxS	7.239	403.0 -> 83.9	5354	2.50 µg/L	0.012
13C4-PFOA	7.125	417.1 -> 372.0	60899	2.50 µg/L	0.013
13C2-PFDA	8.123	515.1 -> 470.1	17418	1.25 µg/L	0.000
13C5-PFNA	7.643	468.0 -> 423.0	15557	1.25 µg/L	0.000
13C2-PFHxA	5.529	315.1 -> 270.0	28497	2.50 µg/L	0.000

**System Monitoring Compounds**

13C2-4:2FTS	5.204	329.1 -> 80.9	1577	4.38 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 87.5%		
13C2-6:2FTS	6.886	429.1 -> 80.9	2239	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C2-8:2FTS	7.911	529.1 -> 80.9	1929	4.53 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.6%		
13C2-PFDoDA	9.006	615.1 -> 570.0	14198	1.03 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 82.5%		
13C2-PFTeDA	9.721	715.2 -> 670.0	7235	0.88 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 70.1%		
13C3-PFBS	5.459	302.1 -> 79.9	11737	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C3-PFHxS	7.240	402.1 -> 79.9	7271	2.37 µg/L	0.012

7.5.1  
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 = 94.9%		
13C4-PFBA	2.938	216.8 -> 171.9	70454	9.24 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 92.4%		
13C4-PFHpA	6.481	367.1 -> 322.0	30194	2.62 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C5-PFHxA	5.528	318.0 -> 273.0	30205	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.4%		
13C5-PFPeA	4.334	268.3 -> 223.0	33666	5.07 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C6-PFDA	8.122	519.1 -> 474.1	13230	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C7-PFUnDA	8.576	570.0 -> 525.1	14010	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.1%		
13C8-FOSA	9.631	506.1 -> 77.8	13068	2.04 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 81.7%		
13C8-PFOA	7.125	421.1 -> 376.0	50169	2.47 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C8-PFOS	8.284	507.1 -> 79.9	5964	2.13 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 85.2%		
13C9-PFNA	7.643	472.1 -> 427.0	14937	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.8%		
d3-MeFOSAA	8.180	573.2 -> 419.0	19973	4.80 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.1%		
13C3-HFPO-DA	5.905	286.9 -> 168.9	11680	9.40 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 94.0%		
d3-MeFOSA	10.733	515.0 -> 219.0	3920	1.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 68.0%		
d5-EtFOSAA	8.375	589.2 -> 419.0	18001	5.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.0%		
d7-MeFOSE	10.653	623.2 -> 58.9	14094	16.11 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 64.5%		
d9-EtFOSE	10.900	639.2 -> 58.9	9787	16.83 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 67.3%		
d5-EtFOSA	10.965	531.1 -> 219.0	4113	1.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 66.2%		
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.	
6:2FTS	6.899	427.1 -> 407.0 427.1 -> 80.9	3067 737	1.02 µg/L	95
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	5.262	298.7 -> 79.9 298.7 -> 98.8	0 0	µg/L m	1
PFDA	-	512.9 -> 469.0 512.9 -> 219.0	-	N.D.	
PFDODA	8.933	613.1 -> 569.0 613.1 -> 319.0	0 0	µg/L m	1
PFDS	-	599.0 -> 79.9	-	N.D.	

7.5.1  
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.481	599.0 -> 98.8				
		363.1 -> 319.0	1845	0.11	µg/L	99
PFHpS	-	363.1 -> 169.0	264			
		449.0 -> 79.9	-	N.D.		
PFHxA	-	449.0 -> 98.9				
		313.0 -> 269.0	-	N.D.		
PFHxS	-	313.0 -> 118.9				
		398.7 -> 79.9	-	N.D.		
PFNA	8.201	398.7 -> 98.9				
		463.0 -> 419.0	0		µg/L	m
PFNS	-	463.0 -> 219.0	0			1
		548.8 -> 79.9	-	N.D.		
PFOA	7.126	548.8 -> 98.9				
		413.0 -> 369.0	1575	0.07	µg/L	#m
PFOS	-	413.0 -> 169.0	103			83
		498.9 -> 79.9	-	N.D.		
PFPeA	4.324	498.9 -> 98.8				
		263.0 -> 219.0	1294	0.18	µg/L	100
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0	-	N.D.		
MeFOSA	-	511.9 -> 169.0				
		616.1 -> 58.9	-	N.D.		
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9	-	N.D.		
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				
PFMPA	-					
PFEESA	-					

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

7.5.1  
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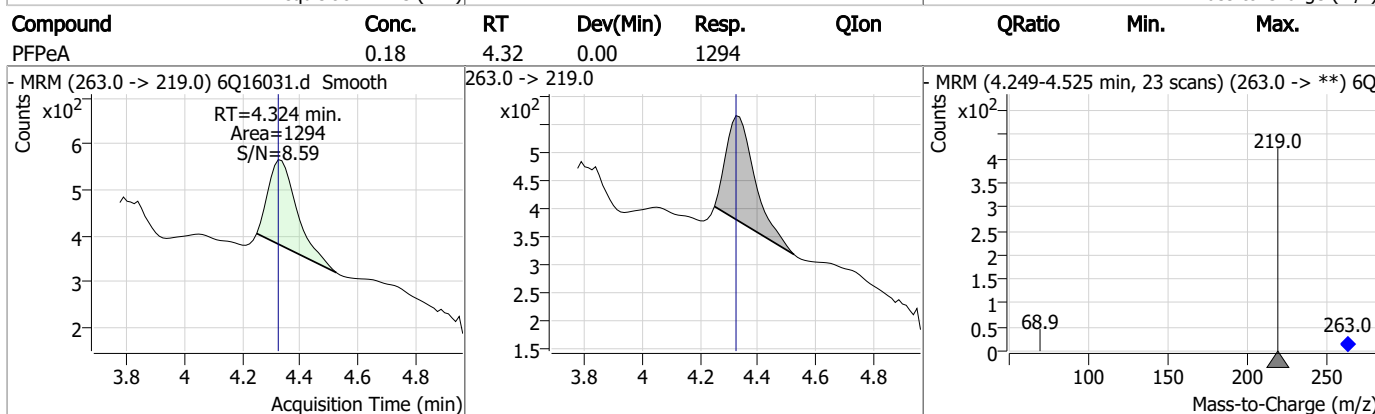
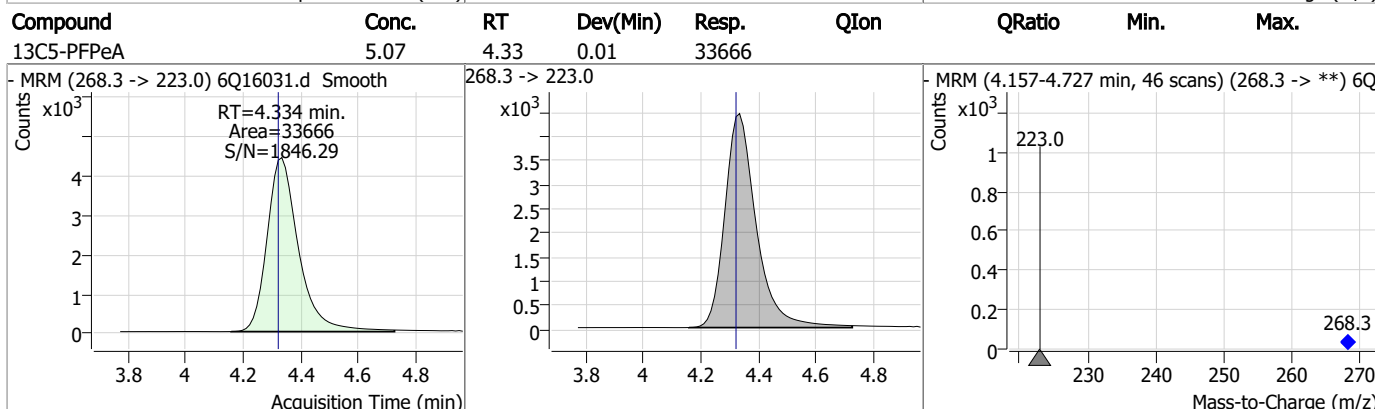
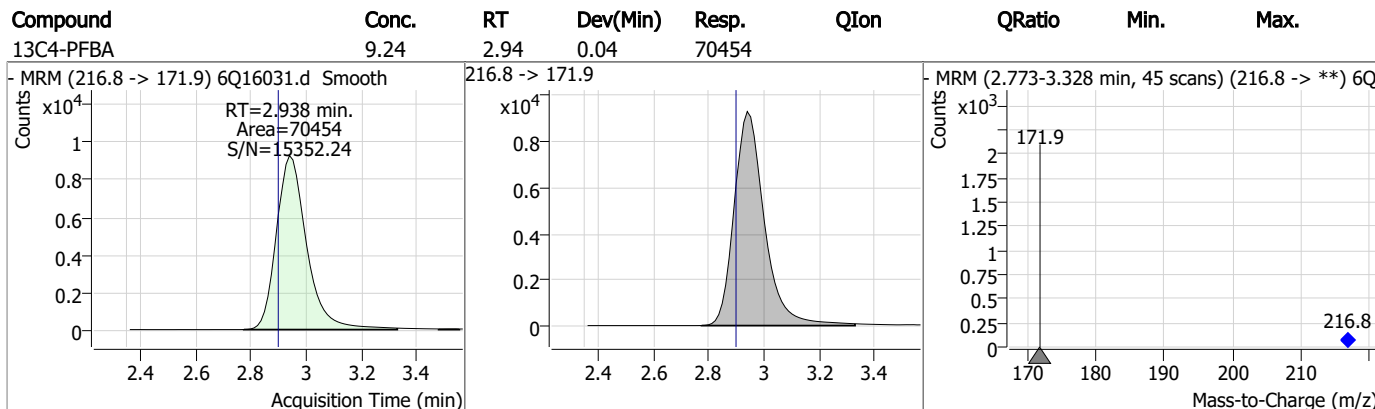
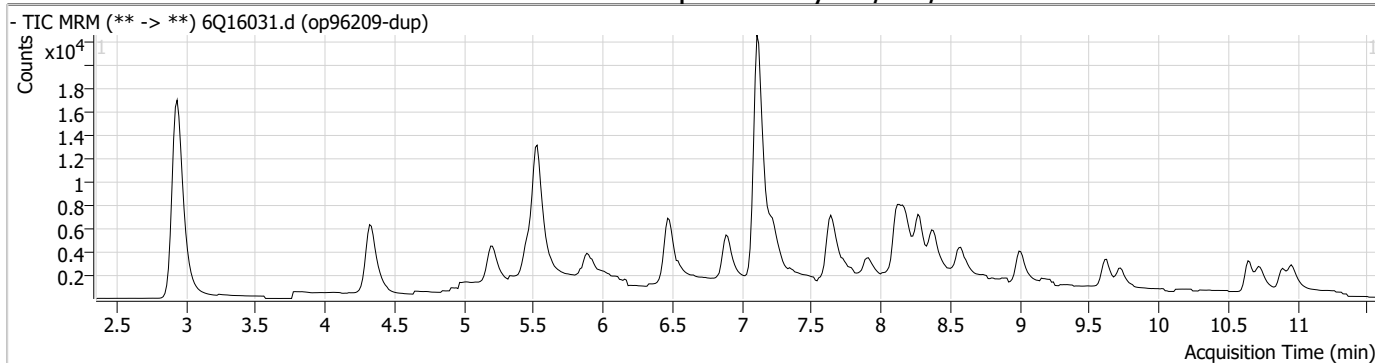
### Perfluorinated Compounds by LC/MS/MS

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

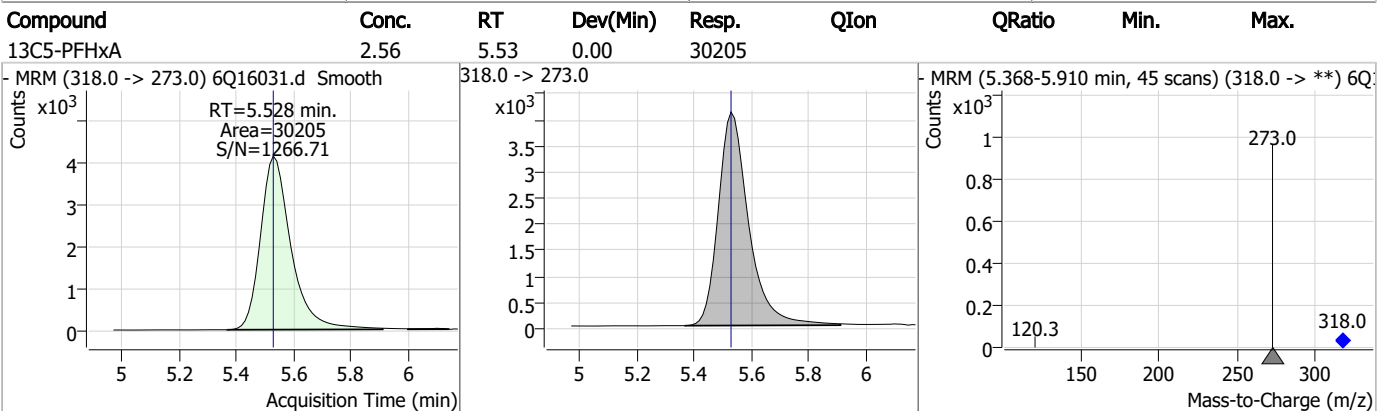
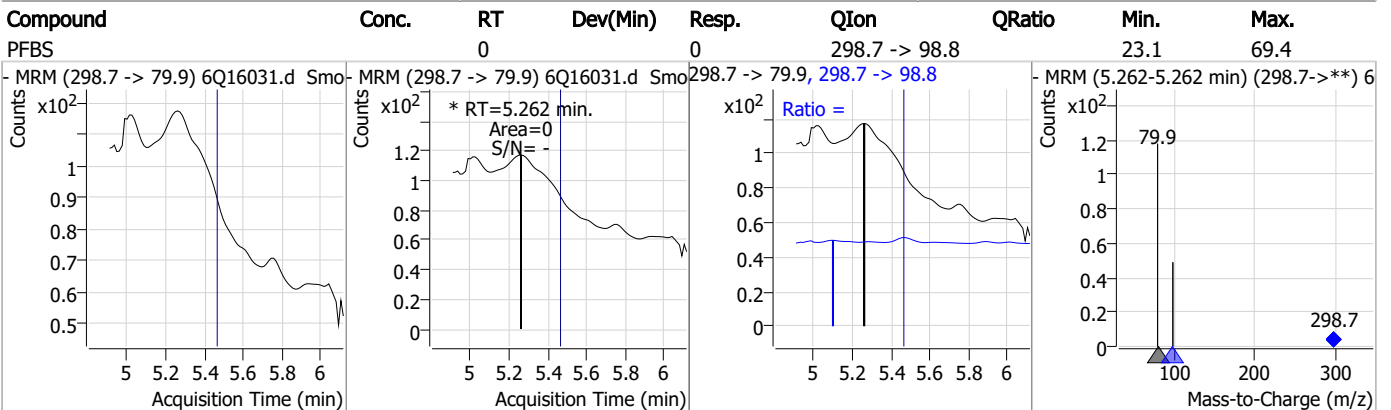
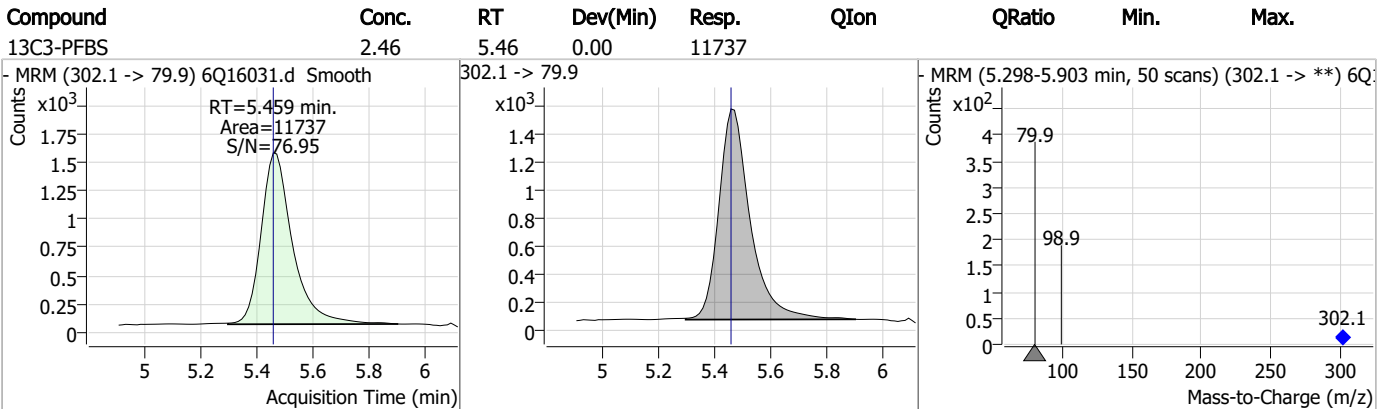
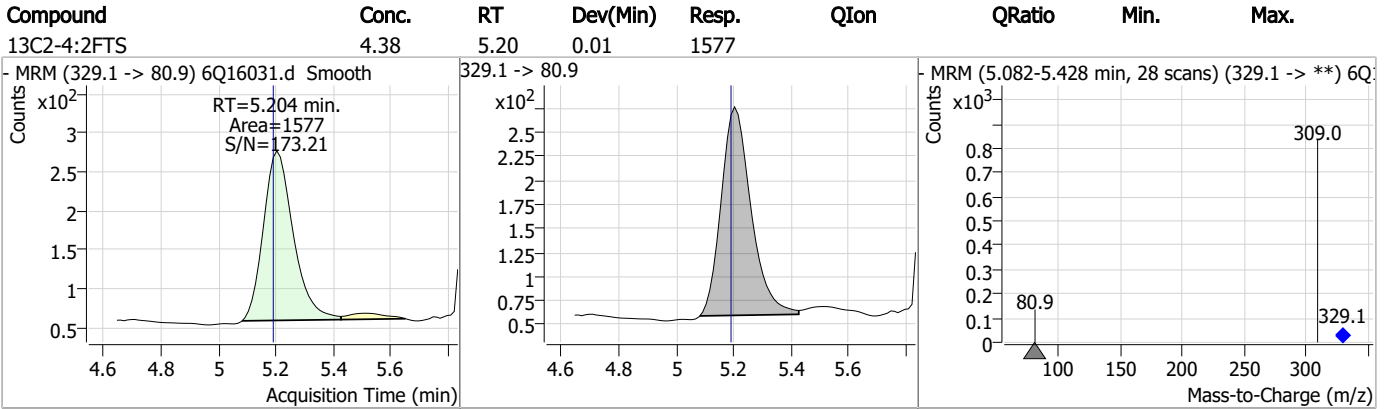
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### Perfluorinated Compounds by LC/MS/MS

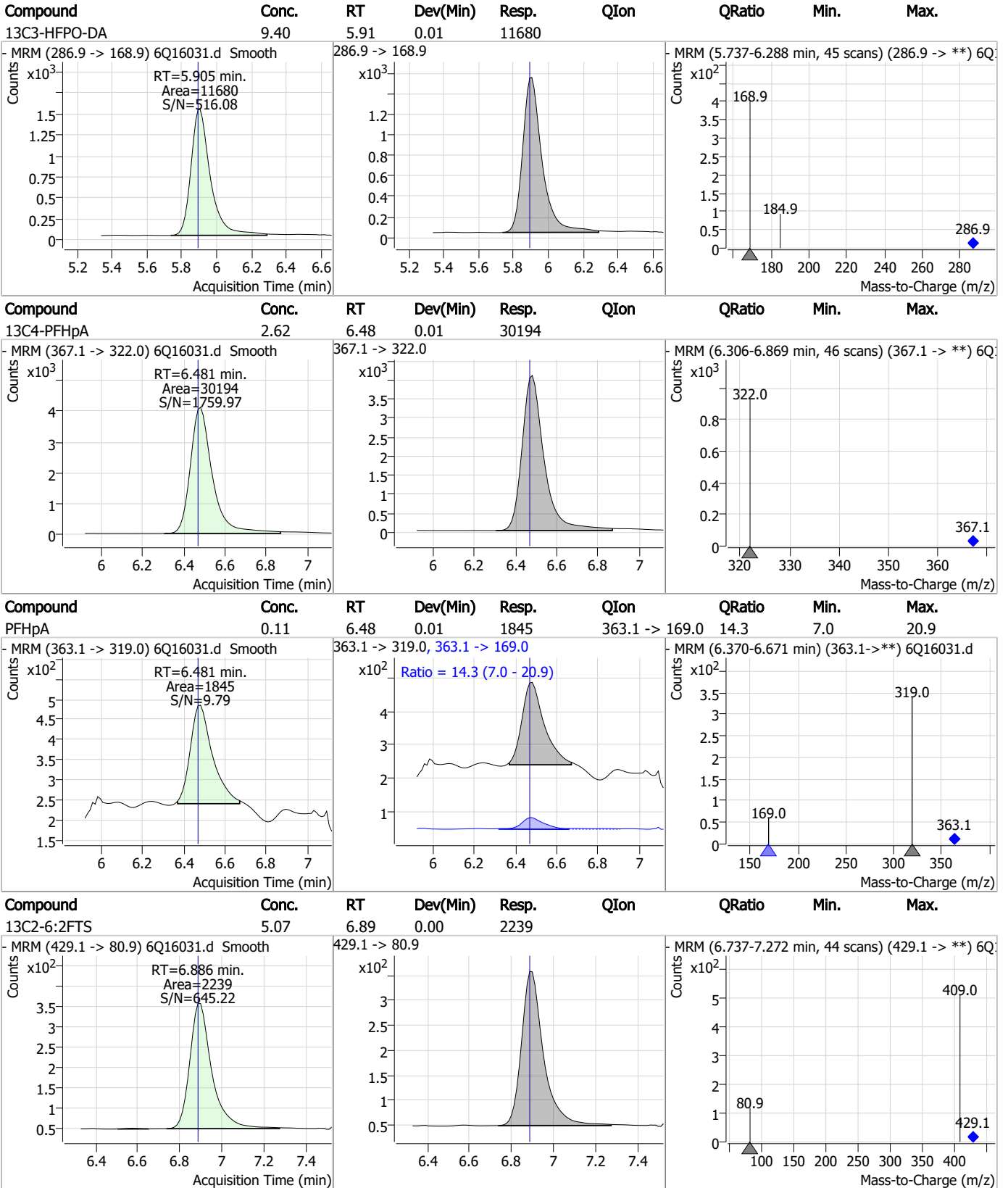


7.5.1  
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### Perfluorinated Compounds by LC/MS/MS



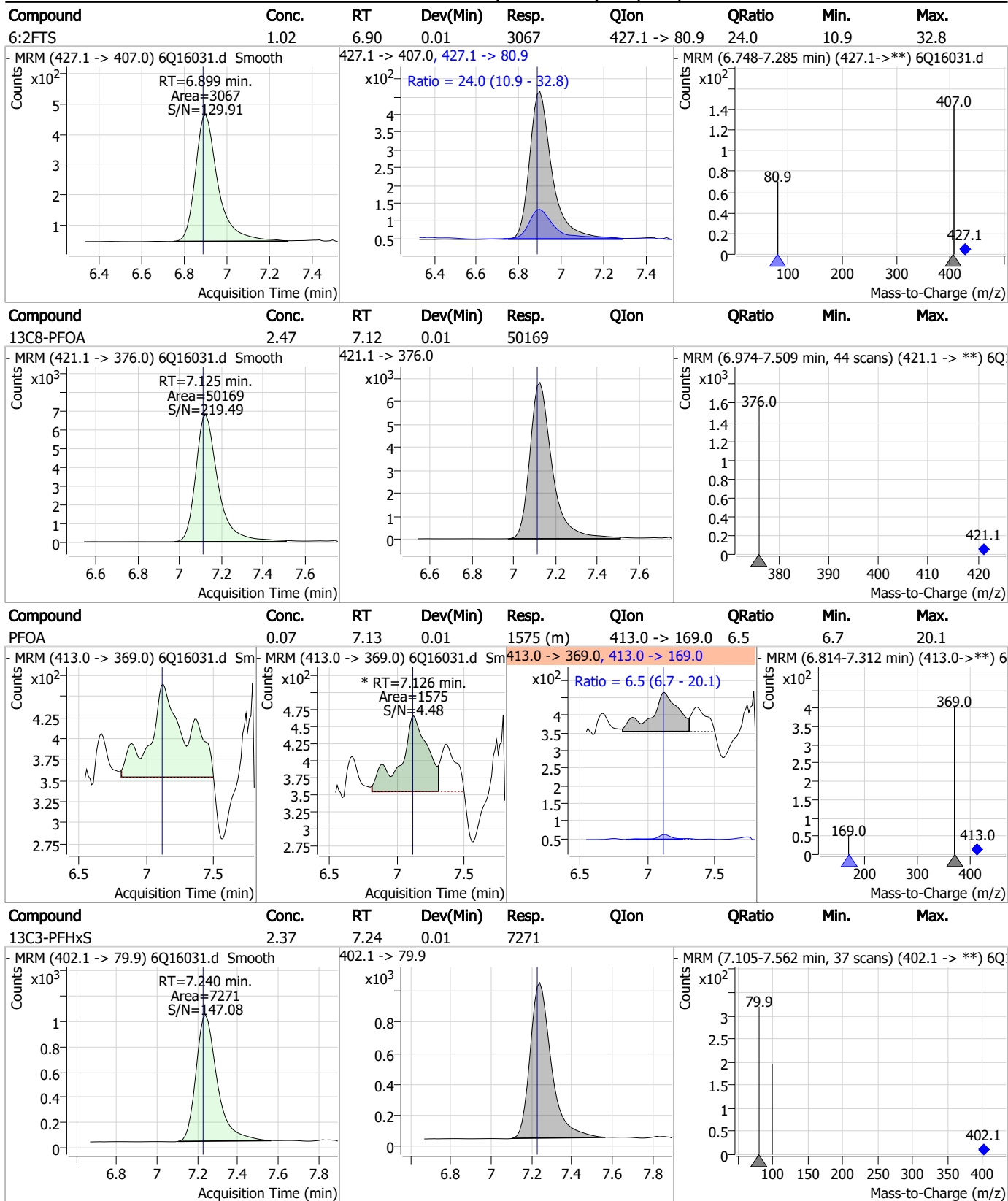
### Perfluorinated Compounds by LC/MS/MS



7.5.1

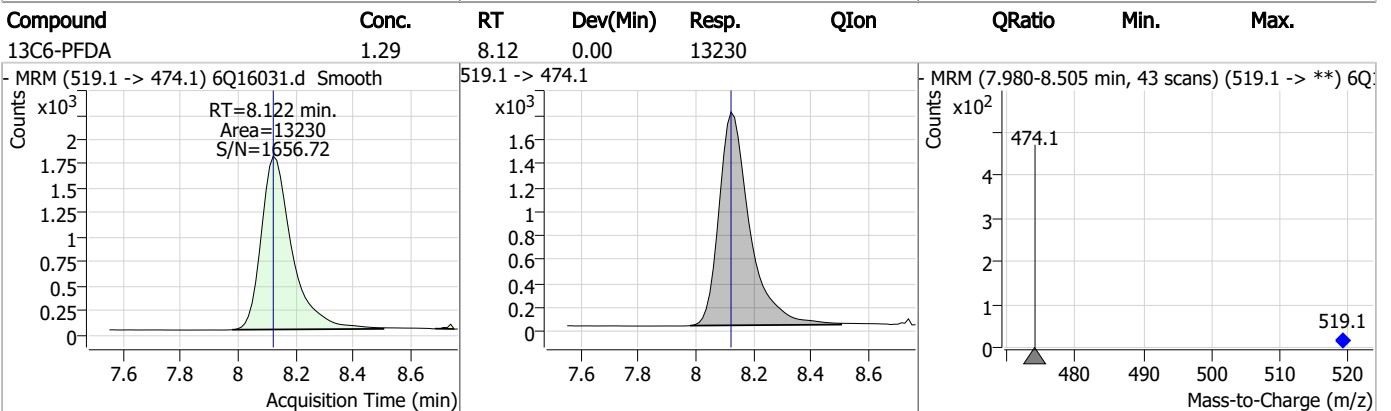
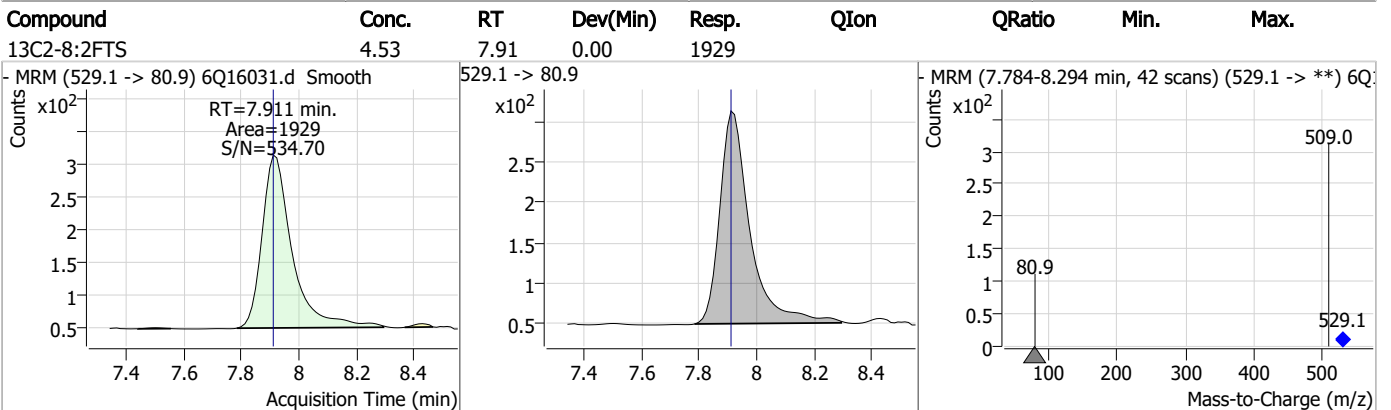
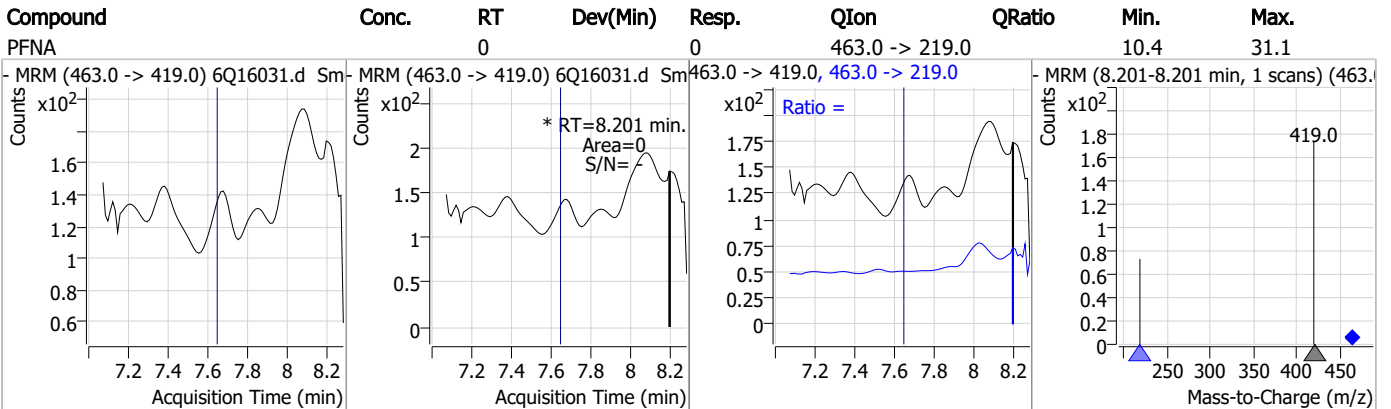
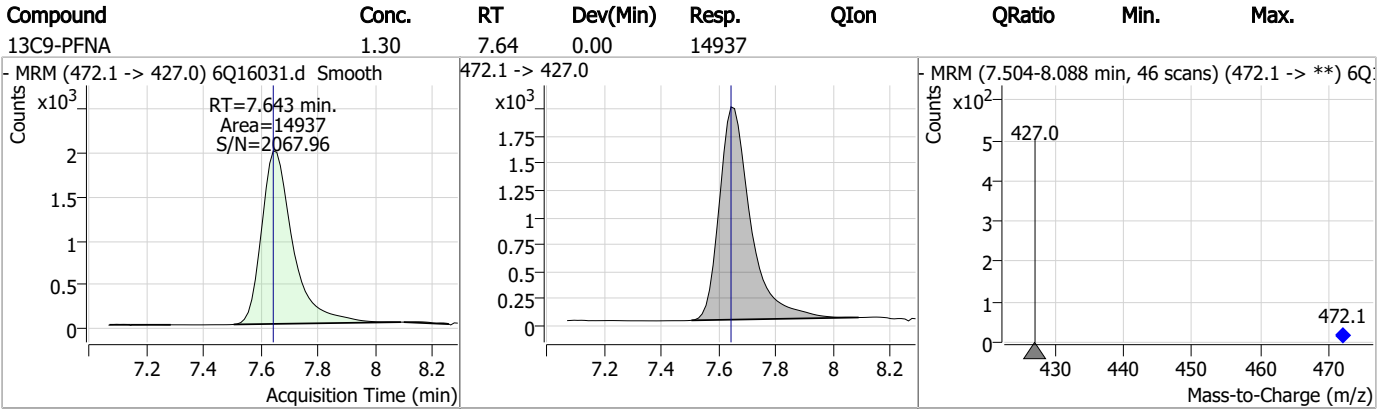
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### Perfluorinated Compounds by LC/MS/MS

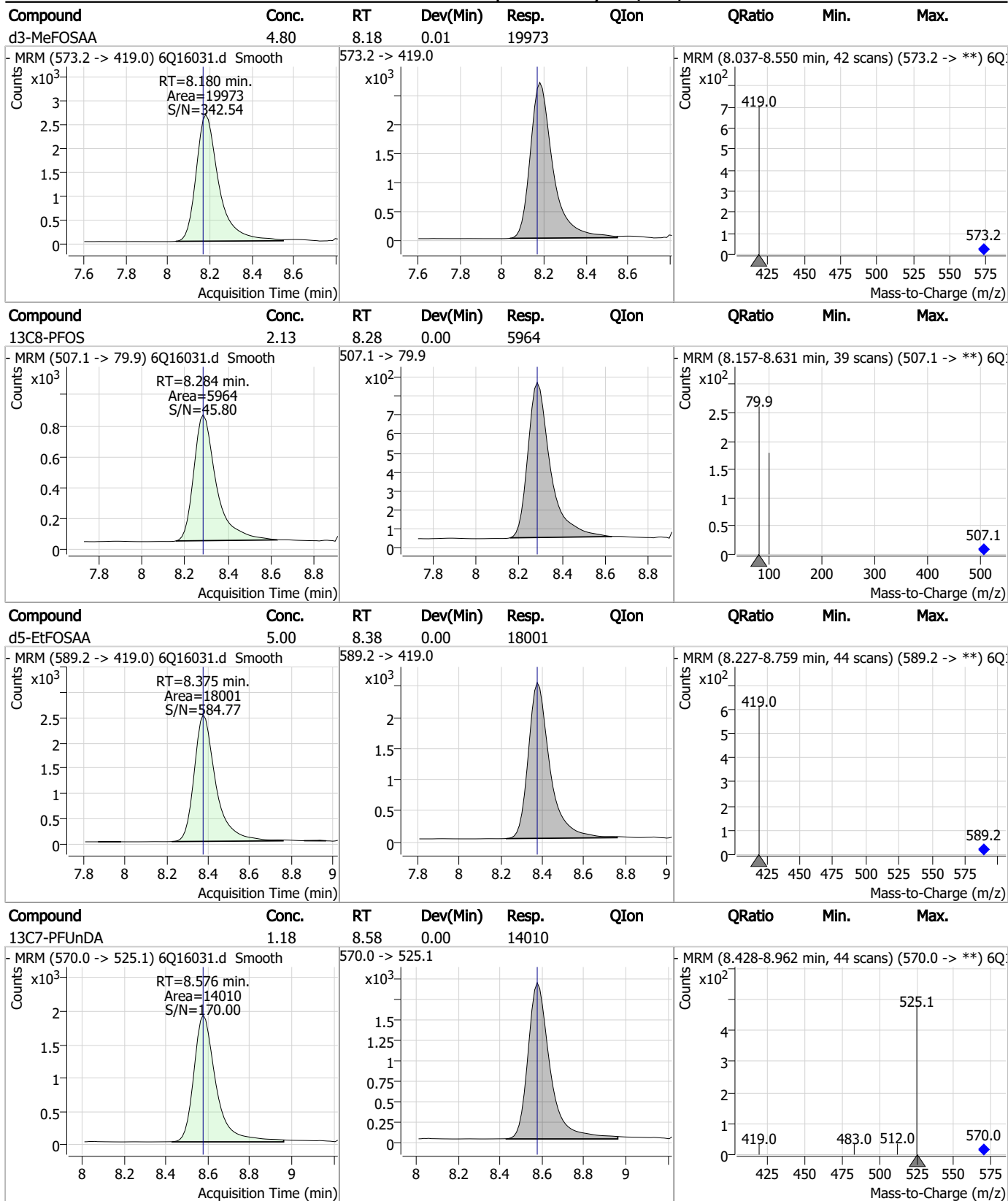


7.5.1  
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### Perfluorinated Compounds by LC/MS/MS

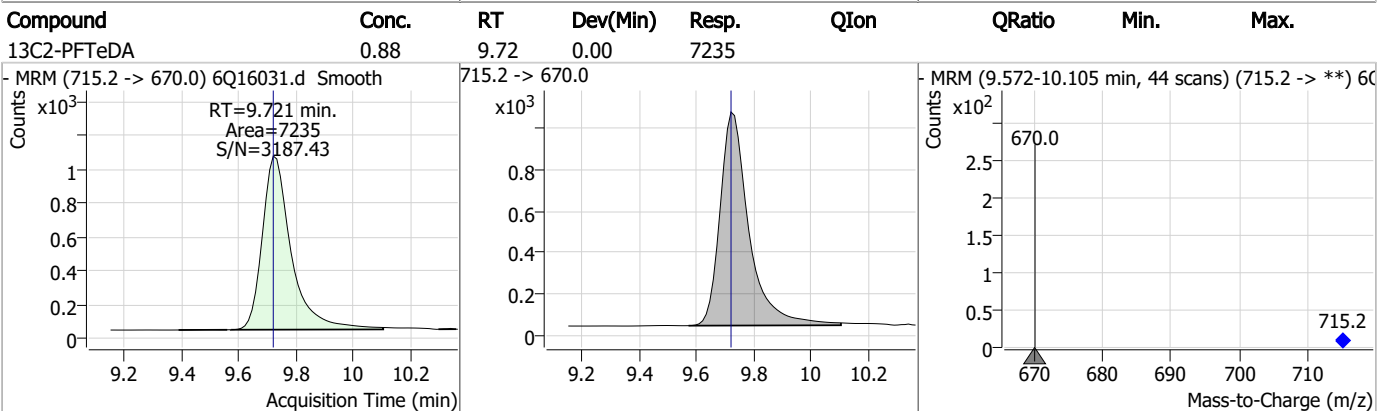
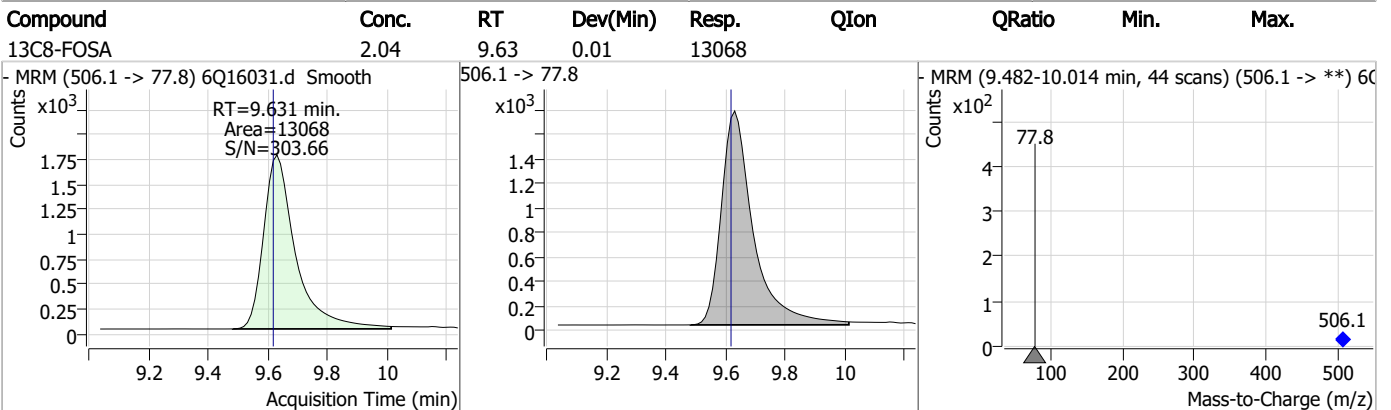
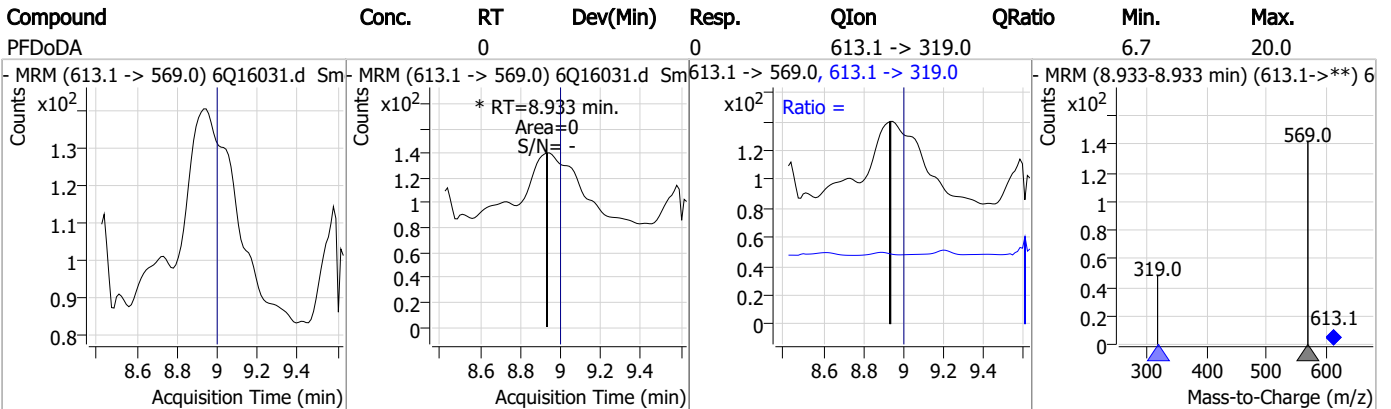
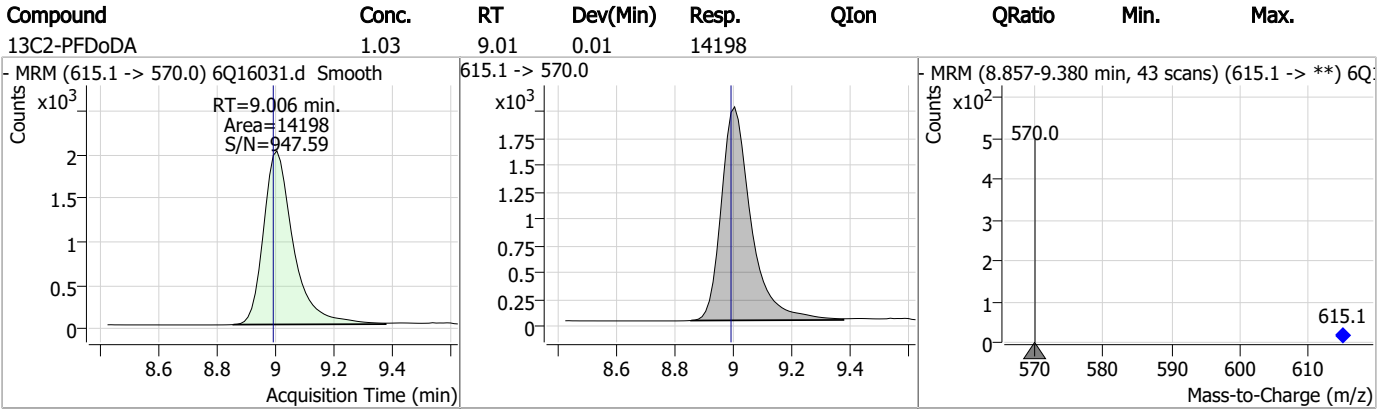


### Perfluorinated Compounds by LC/MS/MS



7.5.1  
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### Perfluorinated Compounds by LC/MS/MS

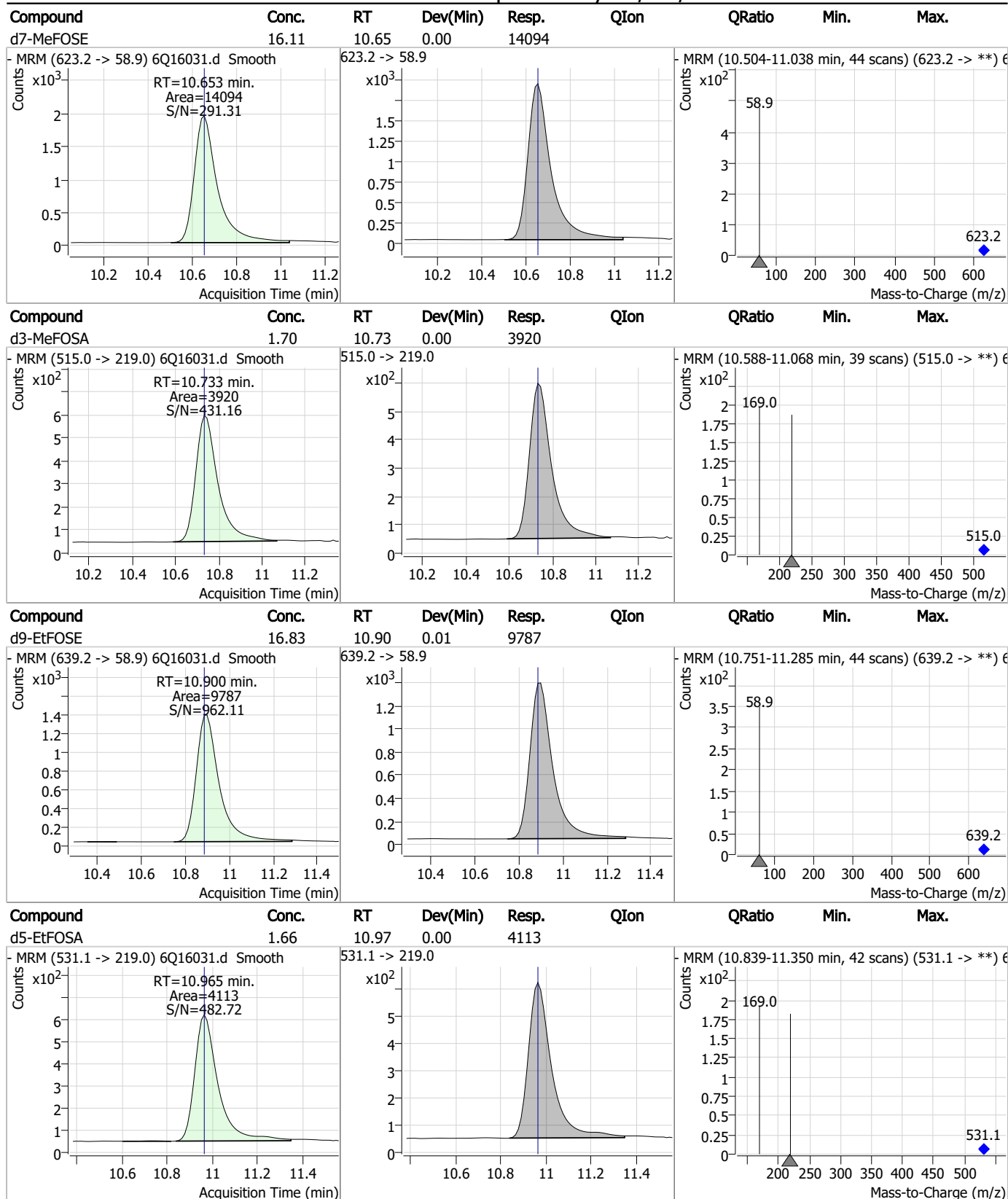


7.5.1

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### Perfluorinated Compounds by LC/MS/MS



7.5.1

7

# Manual Integration Approval Summary

Sample Number: OP96209-DUP      Method: EPA DRAFT 1633  
Lab FileID: 6Q16031.D      Analyst approved: 04/05/23 11:32 Martha Valls  
Injection Time: 04/04/23 20:05      Supervisor approved: 04/05/23 17:28 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.13	Split peak

7.5.1.1

7

Perfluorinated Compounds by LC/MS/MS

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

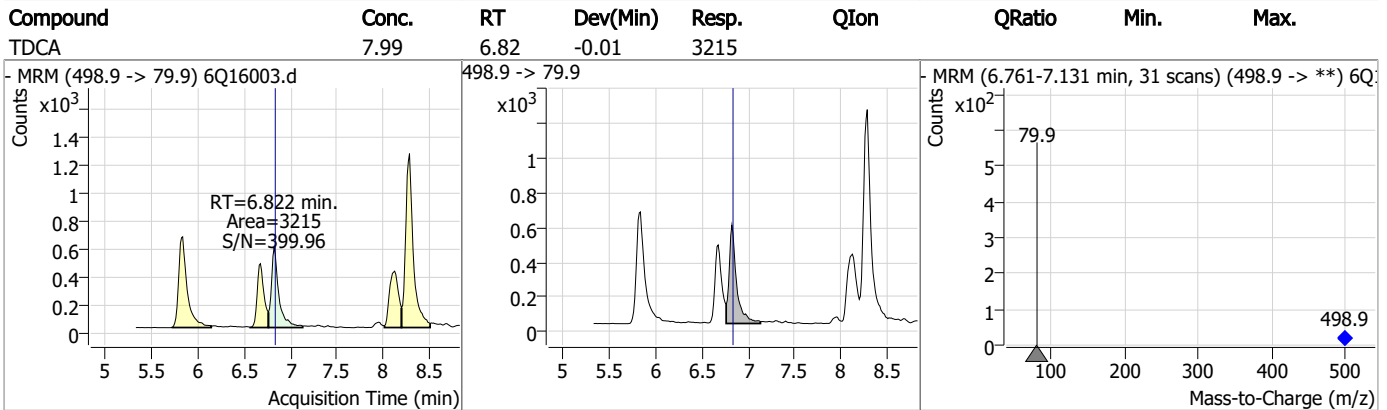
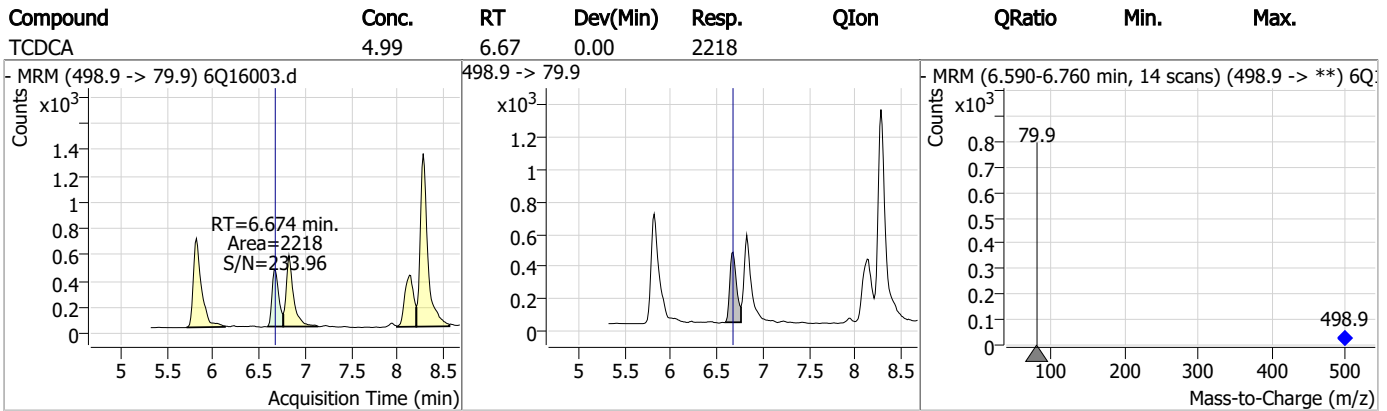
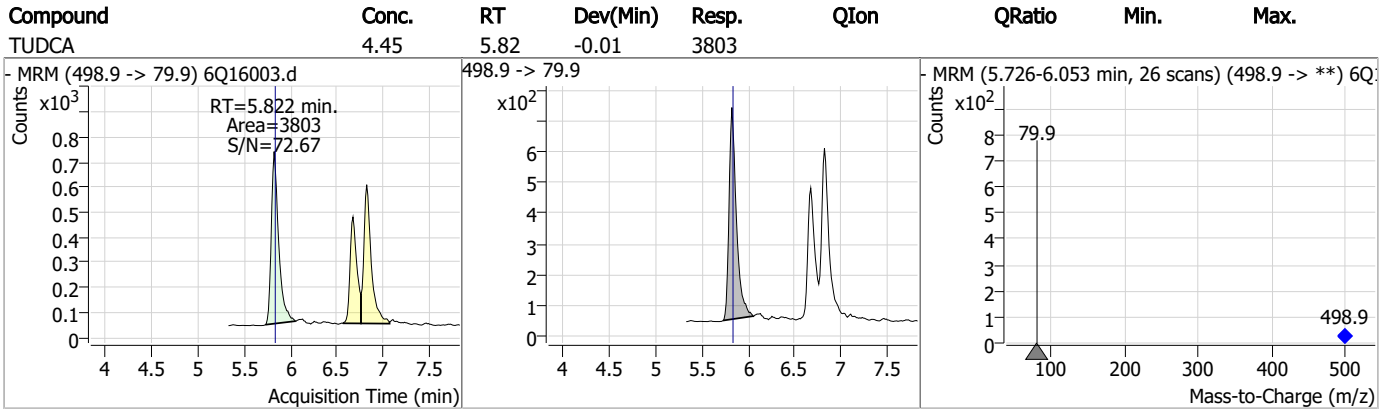
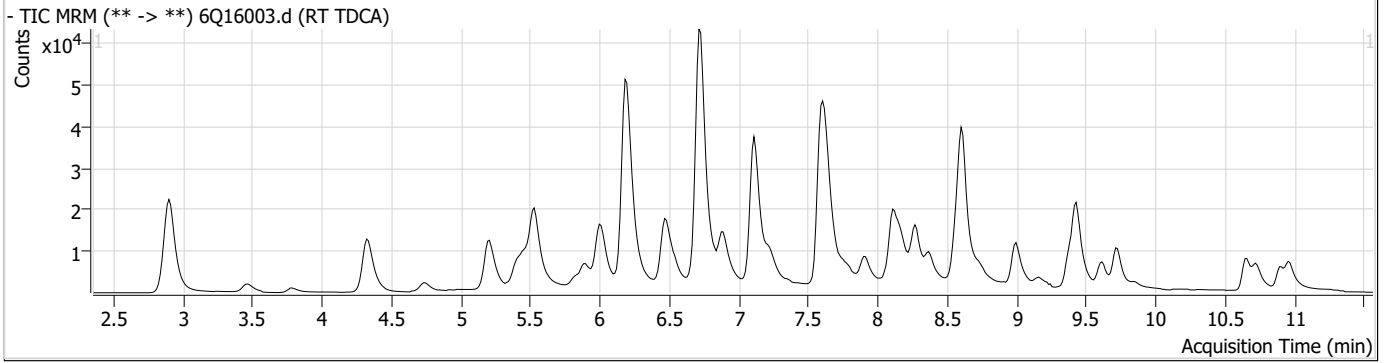
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
<b>Internal Standards</b>							
M8-PFOS	8.284	507.1 -> 79.9	9629	2.50	µg/L	-0.013	
13C4-PFOS	8.273	502.8 -> 79.9	12339	2.50	µg/L	-0.026	
<b>System Monitoring Compounds</b>							
13C8-PFOS	8.284	507.1 -> 79.9	9629	1.98	µg/L	-0.013	
Spiked Amount: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

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

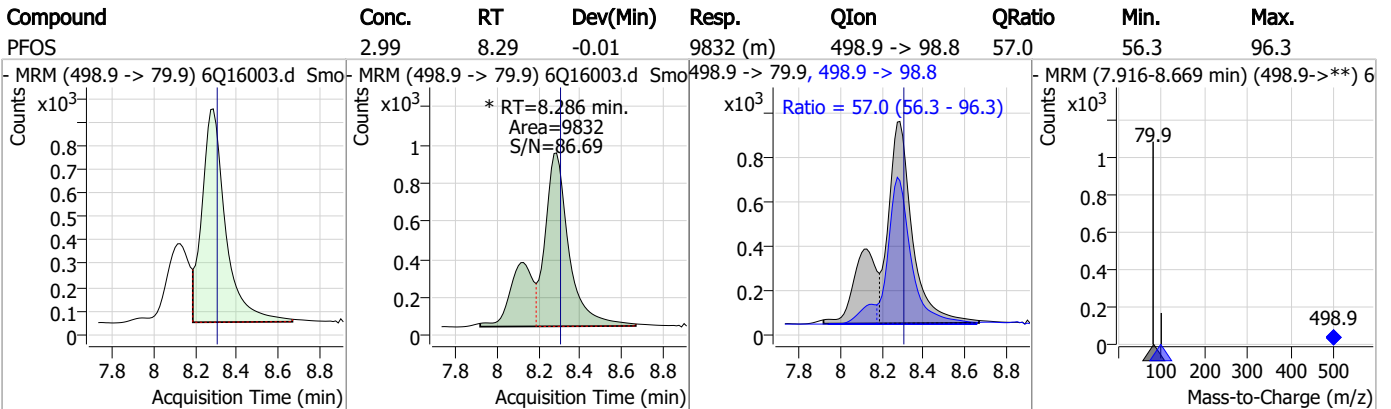
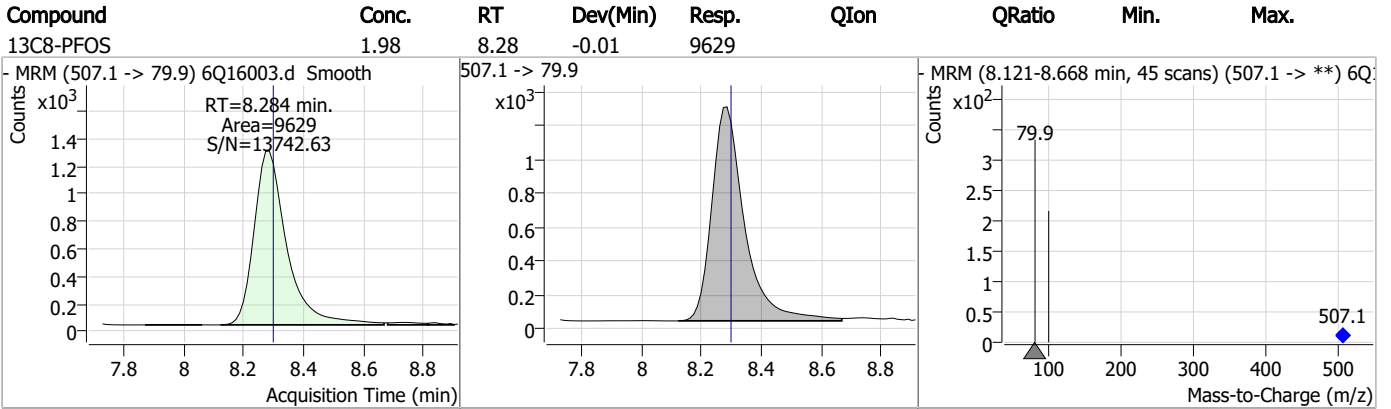
7.6.1

7

### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



7.6.1

7



# Manual Integration Approval Summary

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

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

7.6.1.1

7

## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16004.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 4/4/2023 1:24:05 PM  
 Sample Name : RT BR-LN  
 Vial : P1-B4  
 DA Method File : 1633\_040423\_S6Q239.quantmethod.xml  
 Batch Name : s6q239.batch.bin  
 Sample Information : OP96085,S6Q239,500,,,5.0,1,water

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

7.6.2  
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## Perfluorinated Compounds by LC/MS/MS

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



## Perfluorinated Compounds by LC/MS/MS

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

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

7.6.2  
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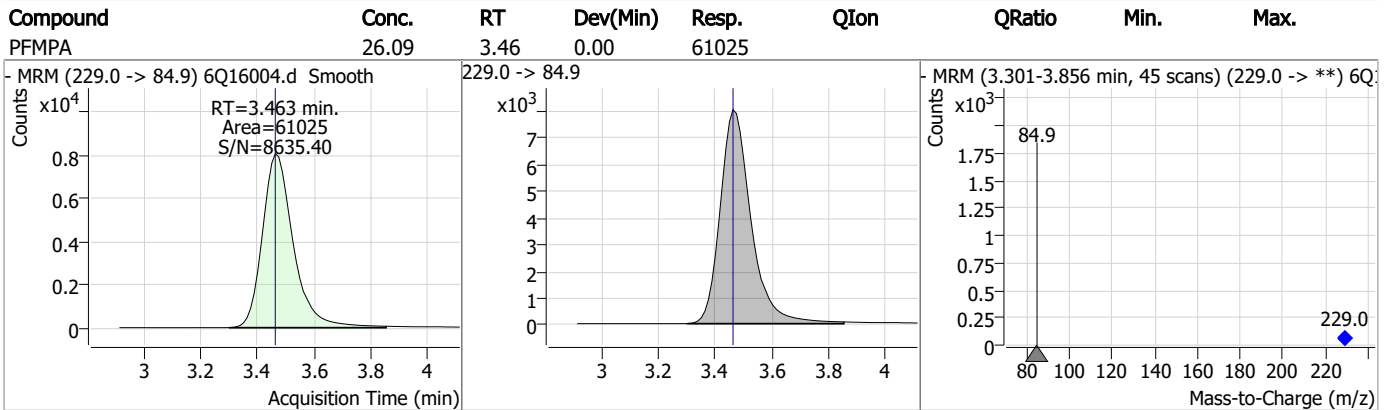
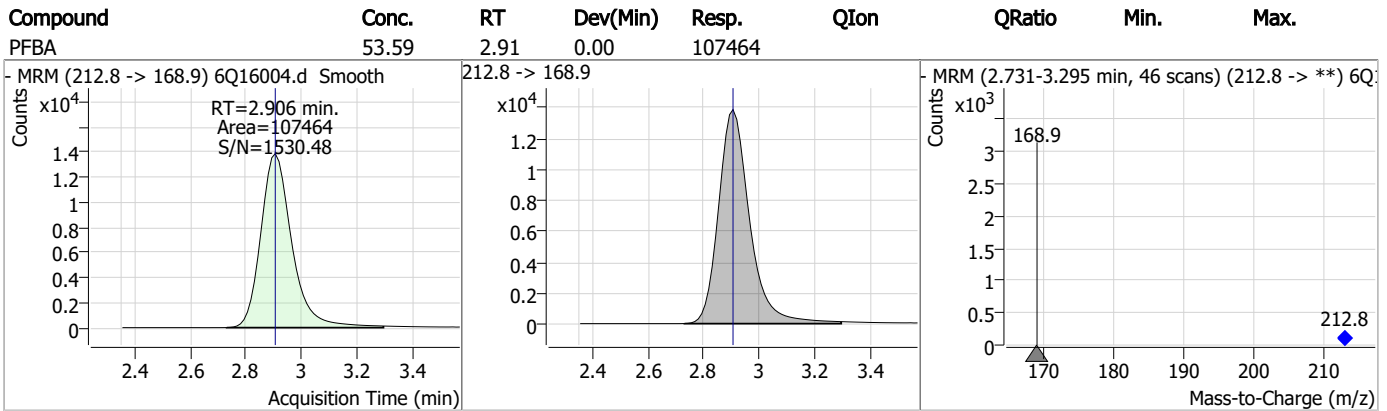
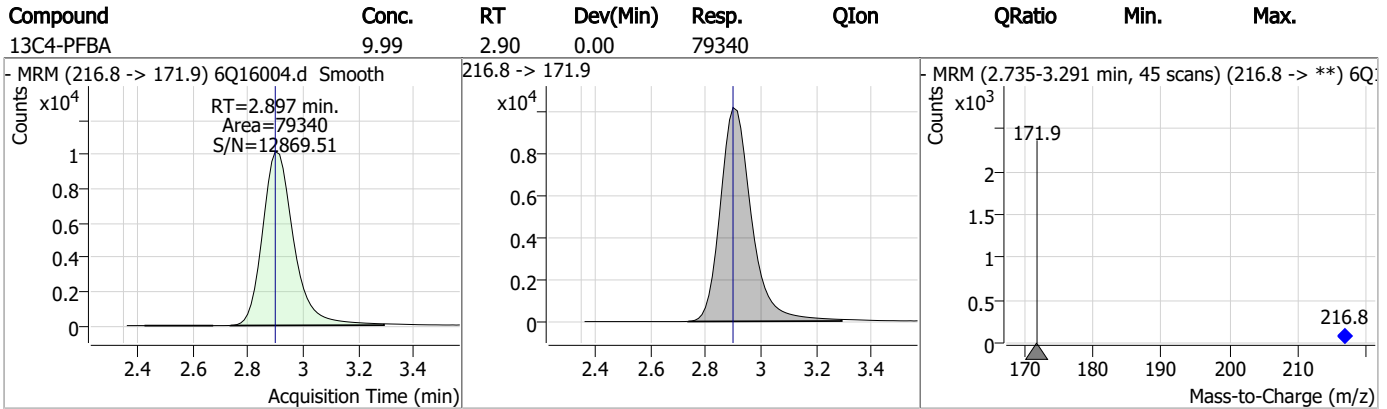
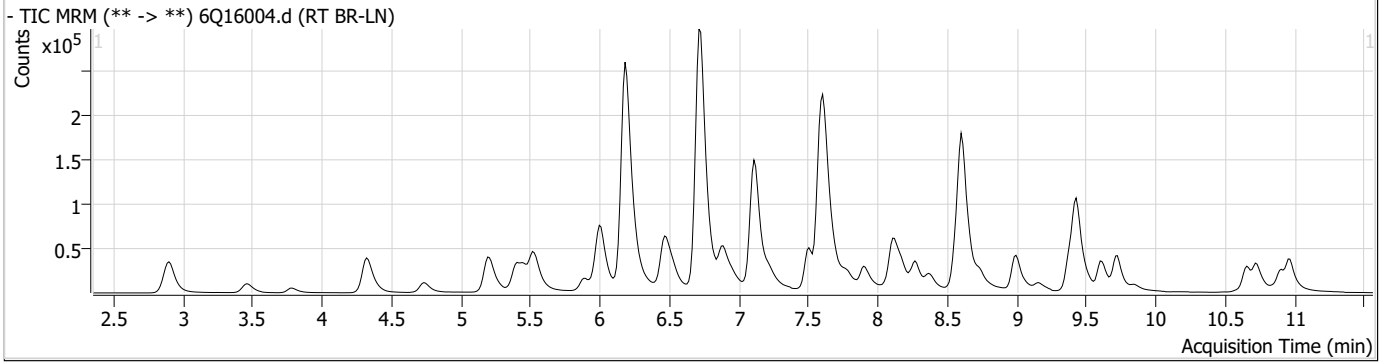
# Perfluorinated Compounds by LC/MS/MS

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

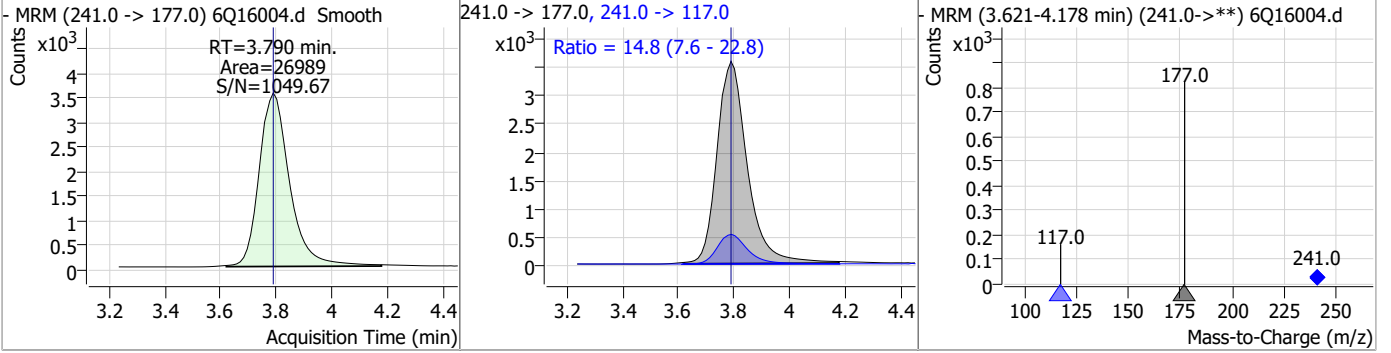
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# Perfluorinated Compounds by LC/MS/MS

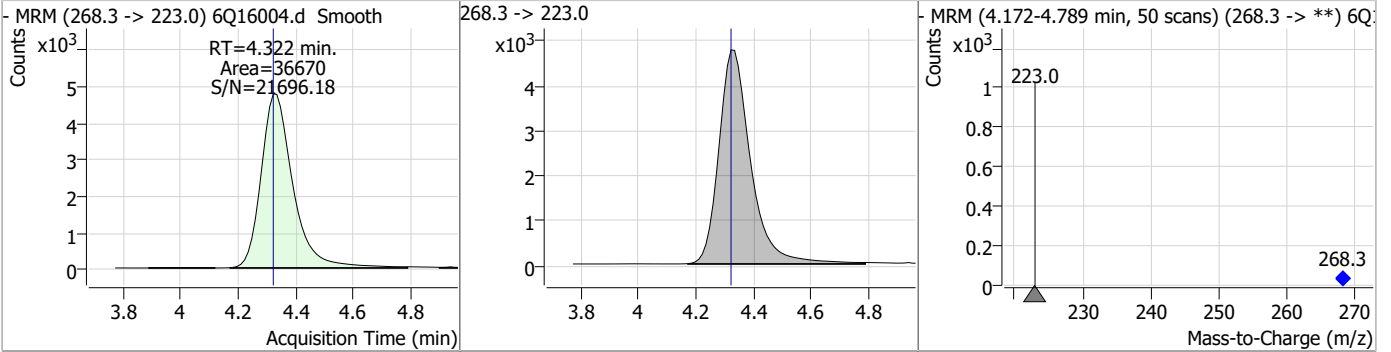


# Perfluorinated Compounds by LC/MS/MS

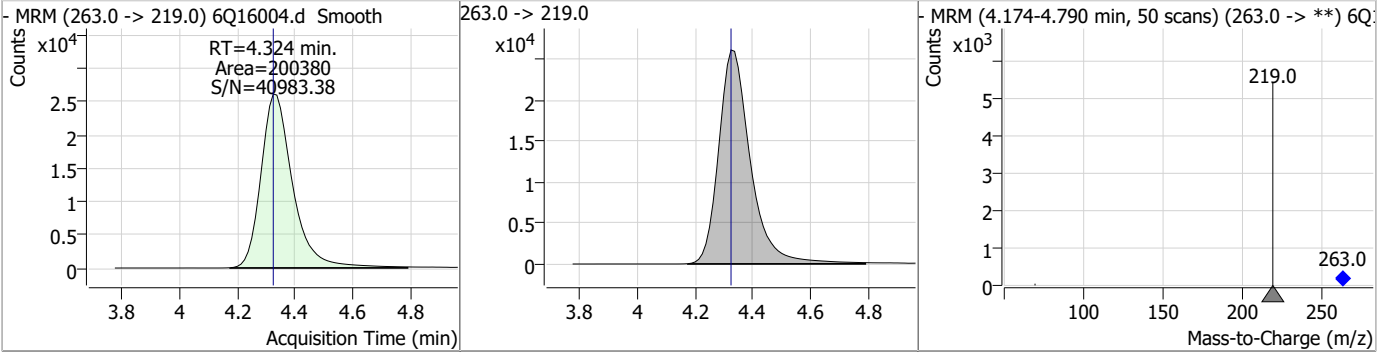
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	62.87	3.79	0.00	26989	241.0 -> 117.0	14.8	7.6	22.8



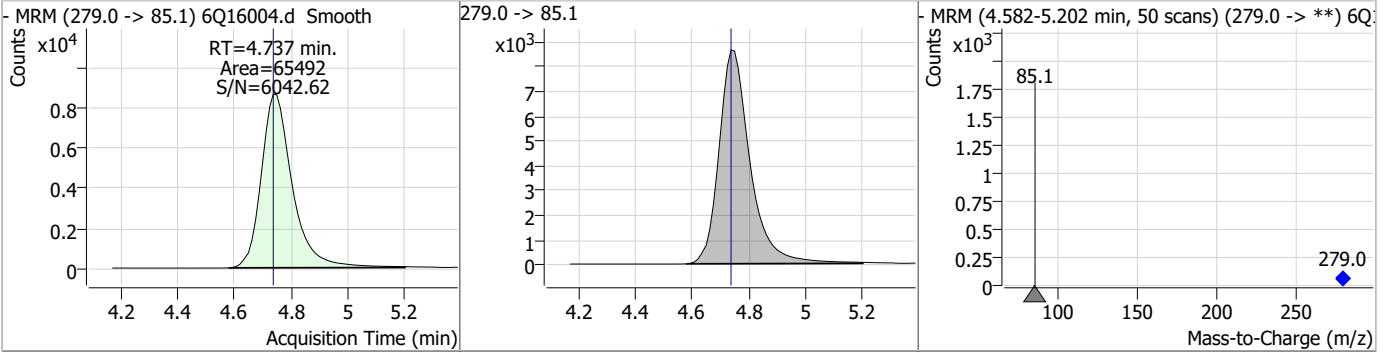
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.09	4.32	0.00	36670				



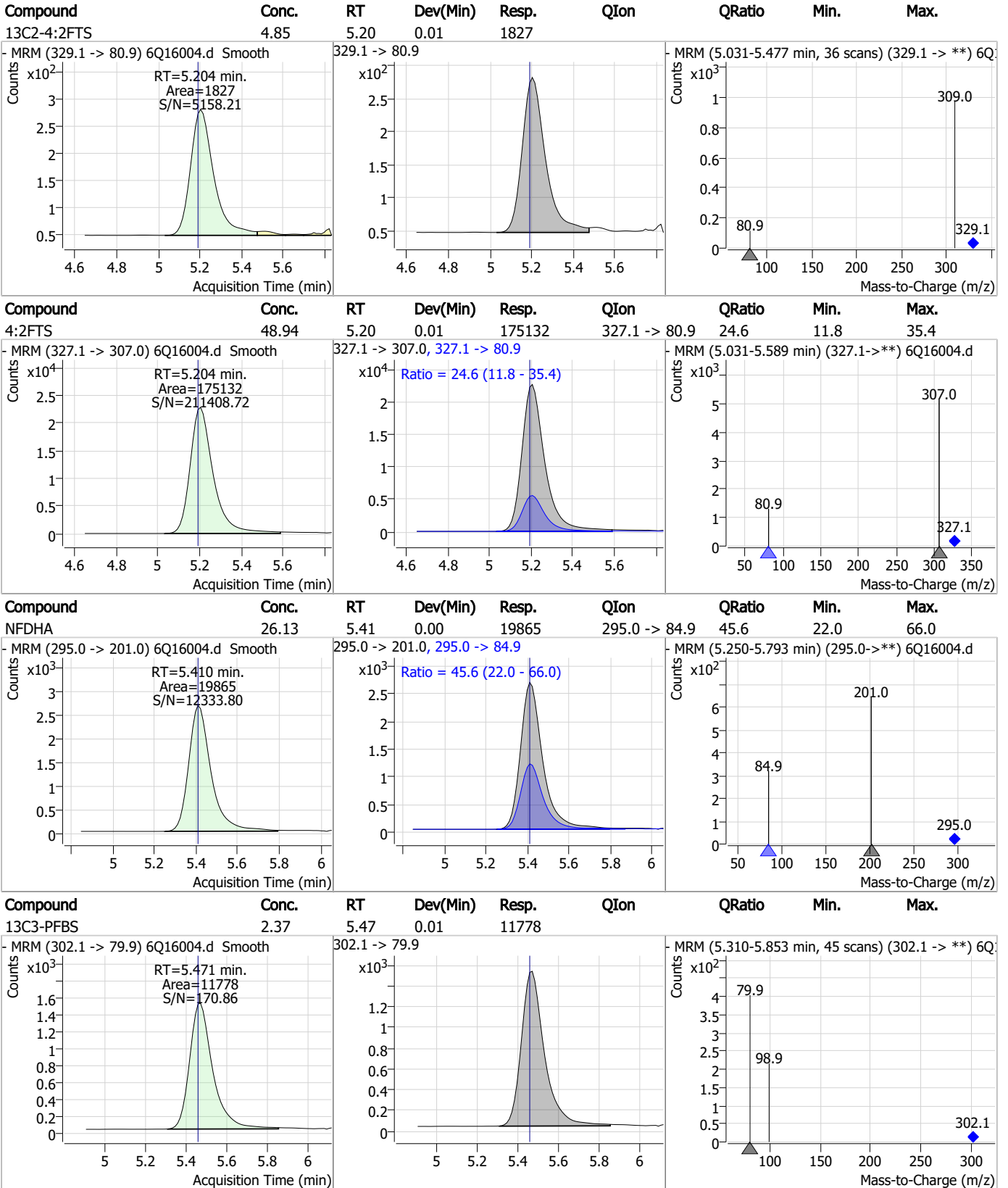
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	25.90	4.32	0.00	200380				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	25.55	4.74	0.00	65492				



# Perfluorinated Compounds by LC/MS/MS



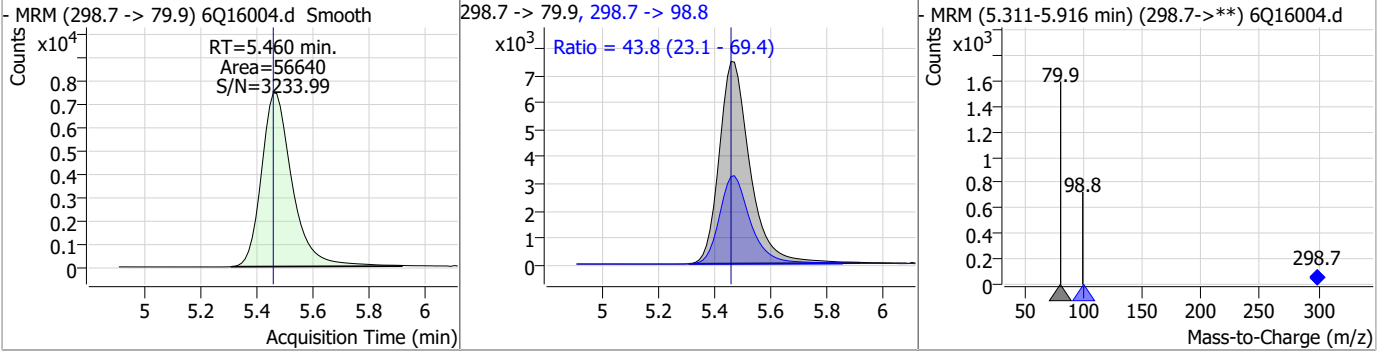
7.6.2

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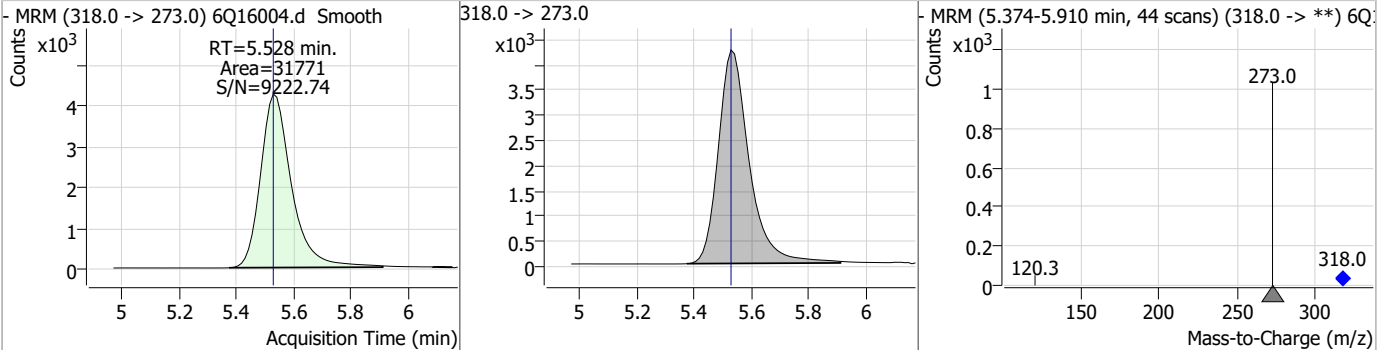


# Perfluorinated Compounds by LC/MS/MS

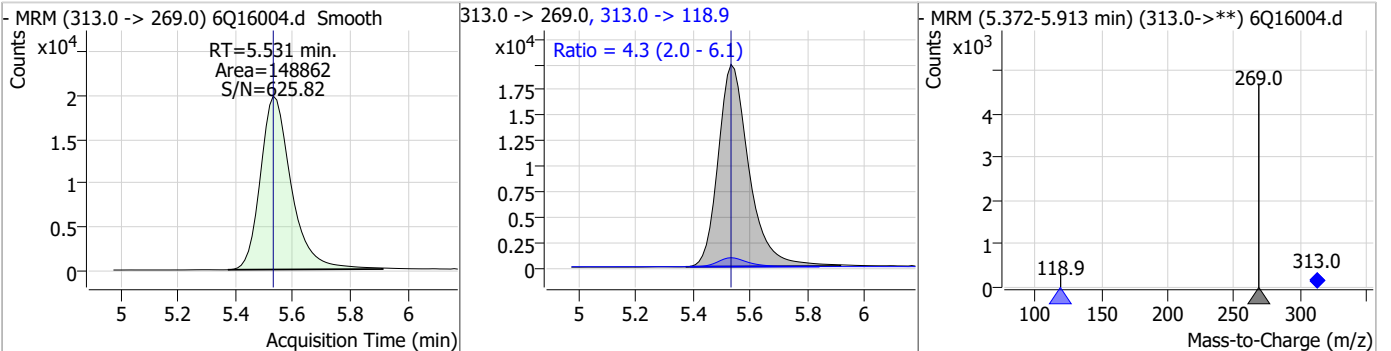
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	12.26	5.46	0.00	56640	298.7 -> 98.8	43.8	23.1	69.4



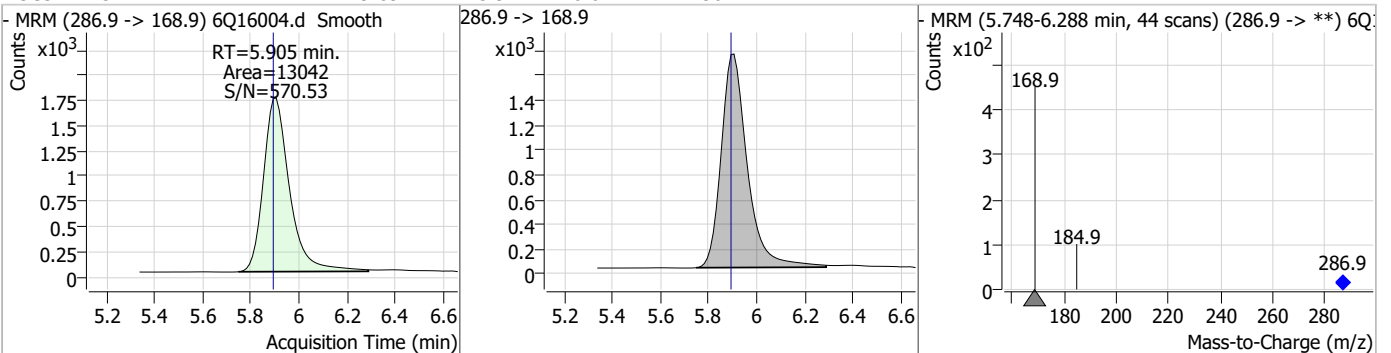
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.49	5.53	0.00	31771	318.0 -> 273.0	4.3	2.0	6.1



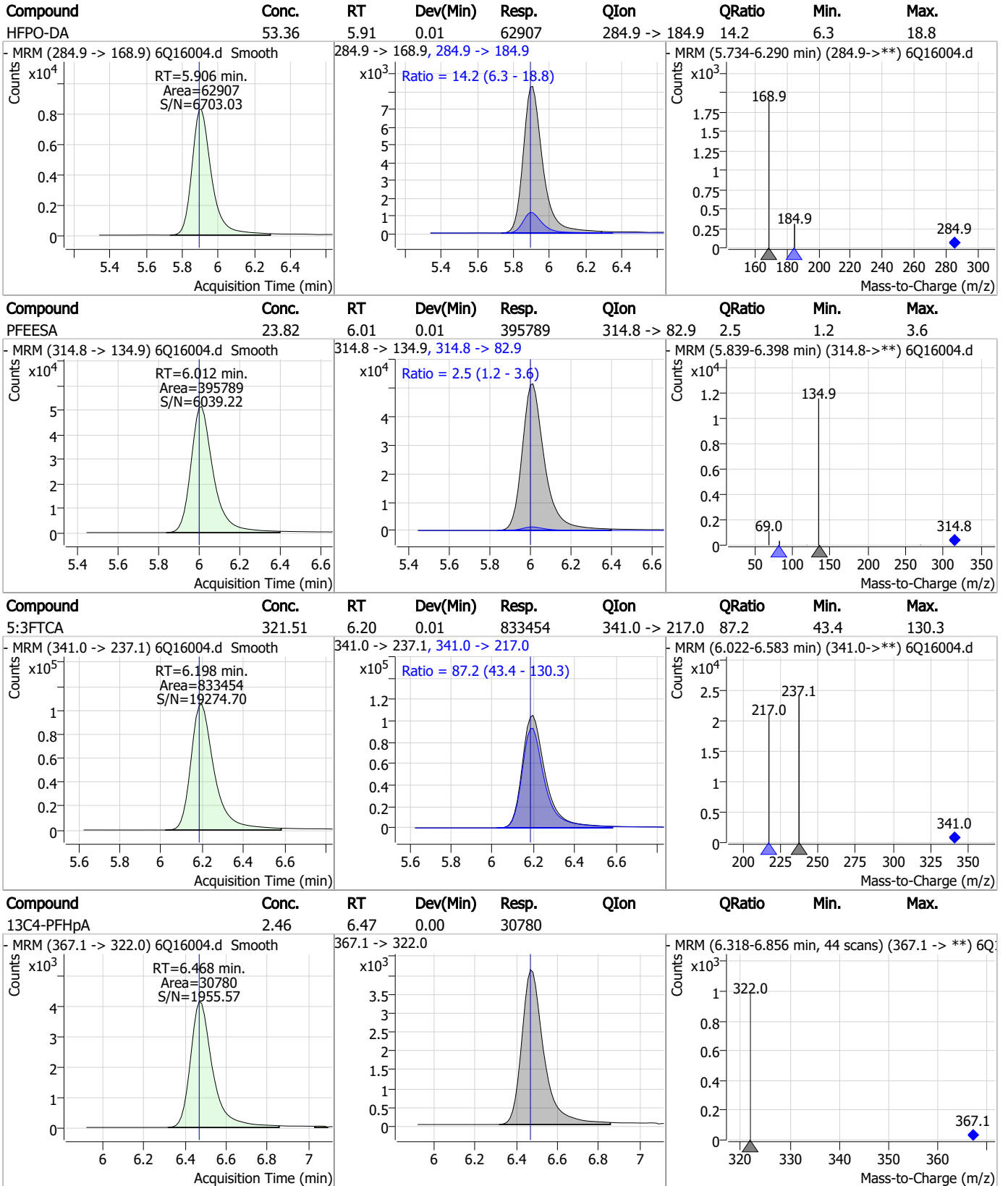
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	12.69	5.53	0.00	148862	313.0 -> 118.9	4.3	2.0	6.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.69	5.91	0.01	13042	286.9 -> 168.9	4.3	2.0	6.1



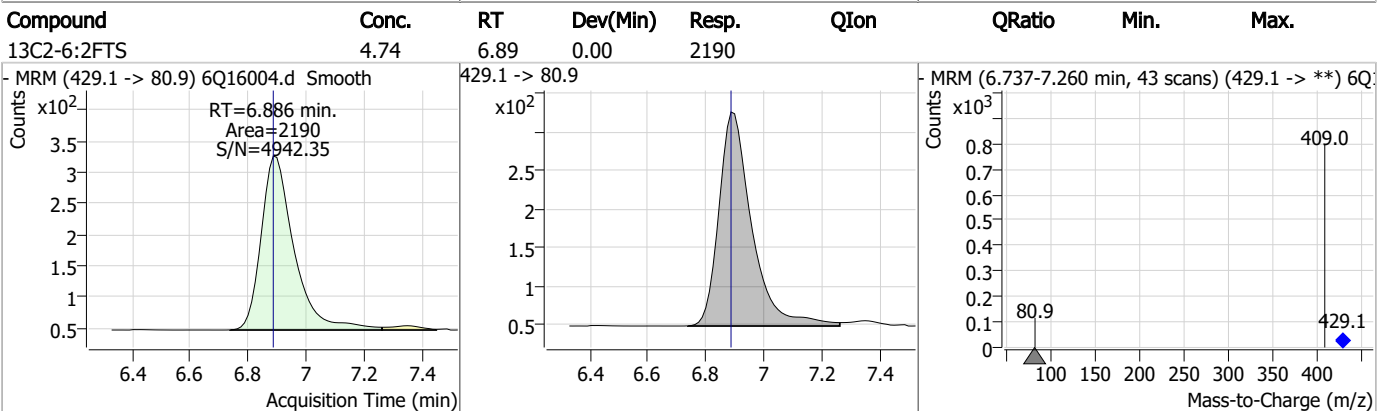
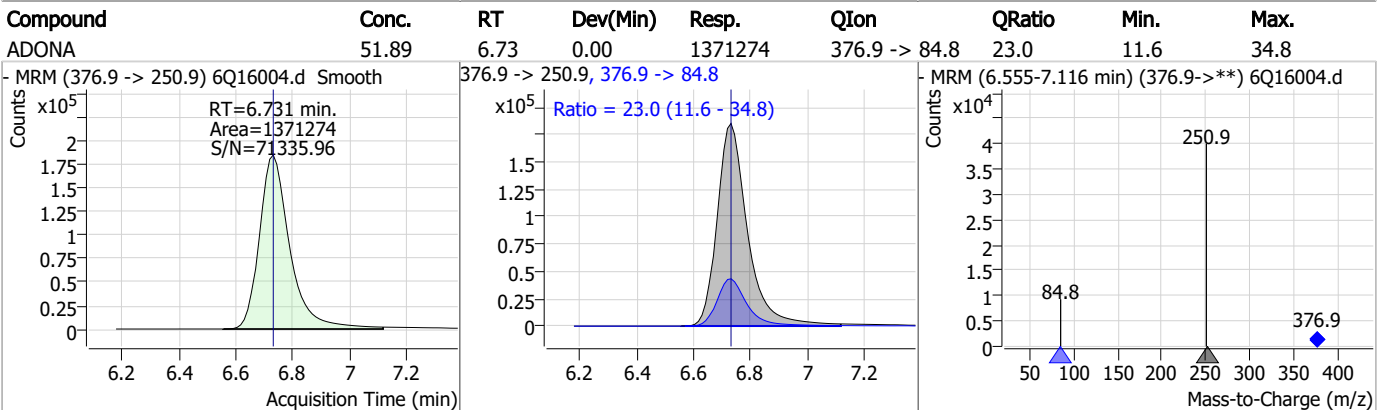
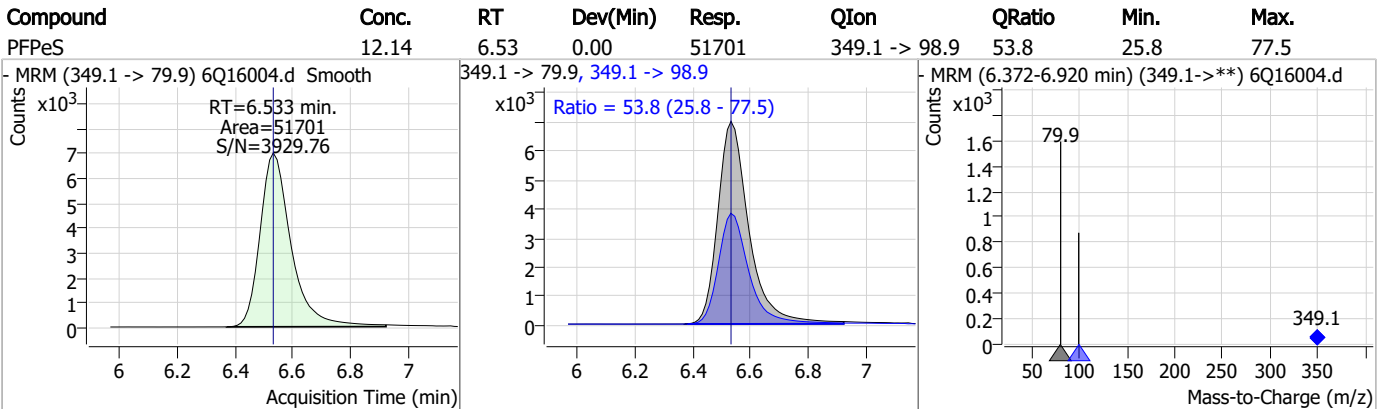
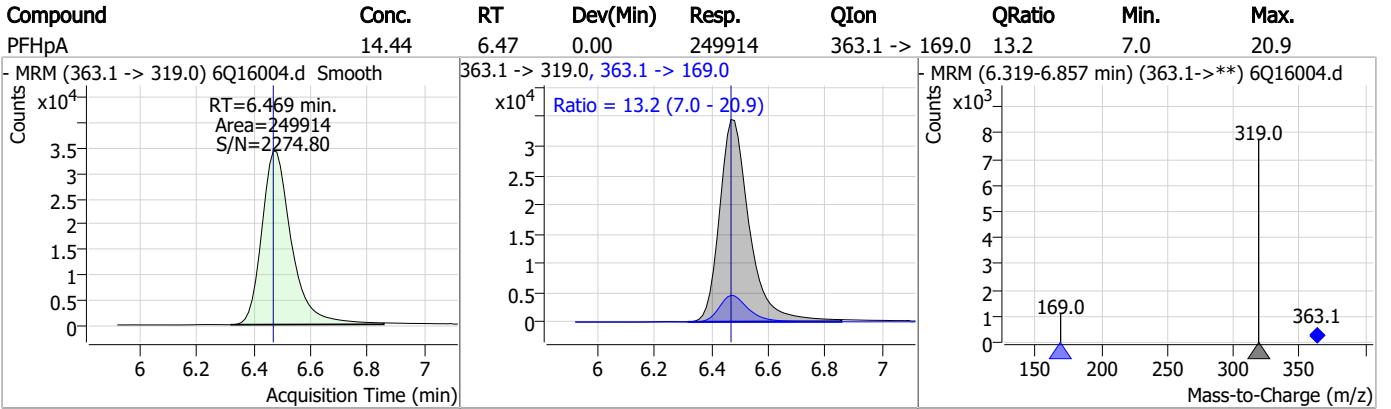
# Perfluorinated Compounds by LC/MS/MS



7.6.2

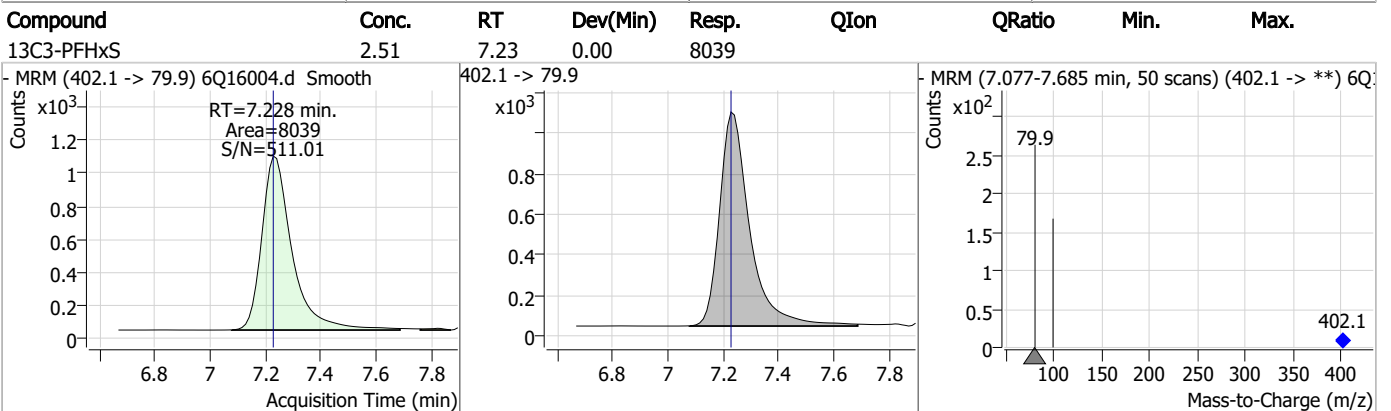
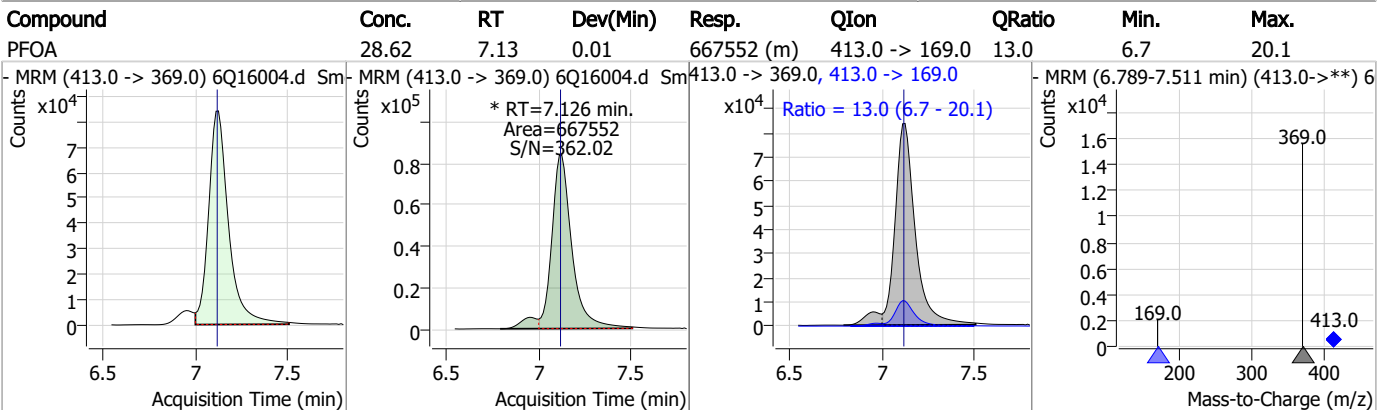
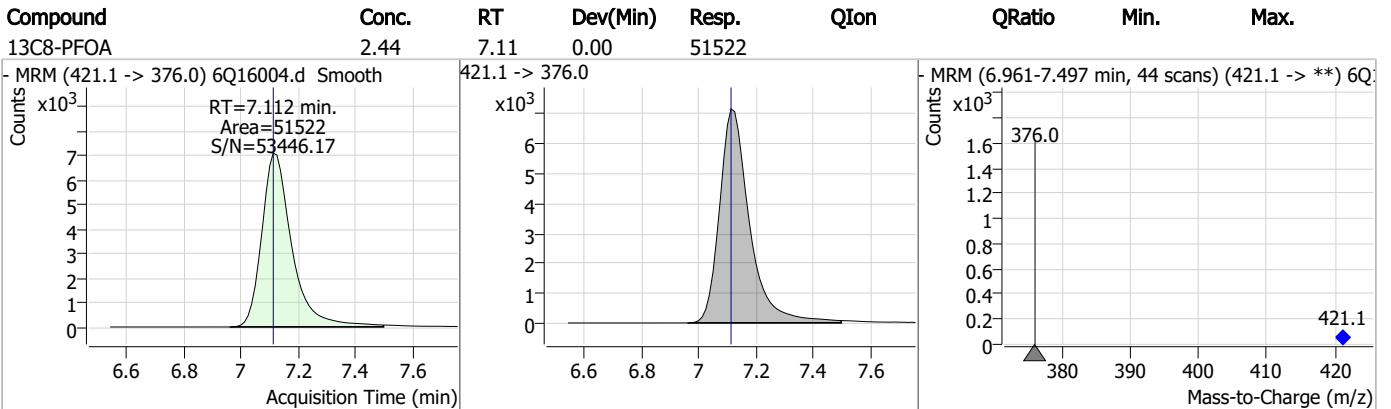
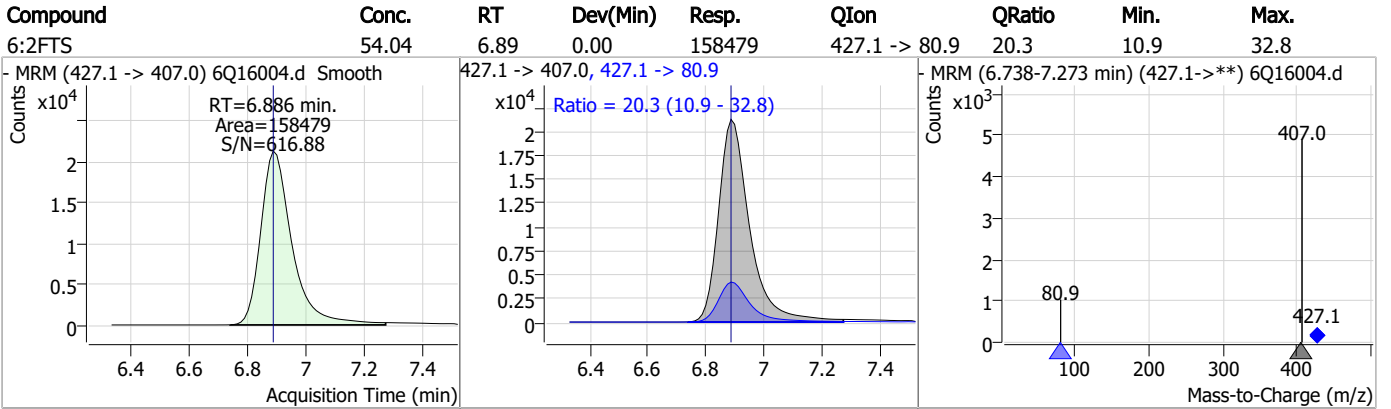
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# Perfluorinated Compounds by LC/MS/MS



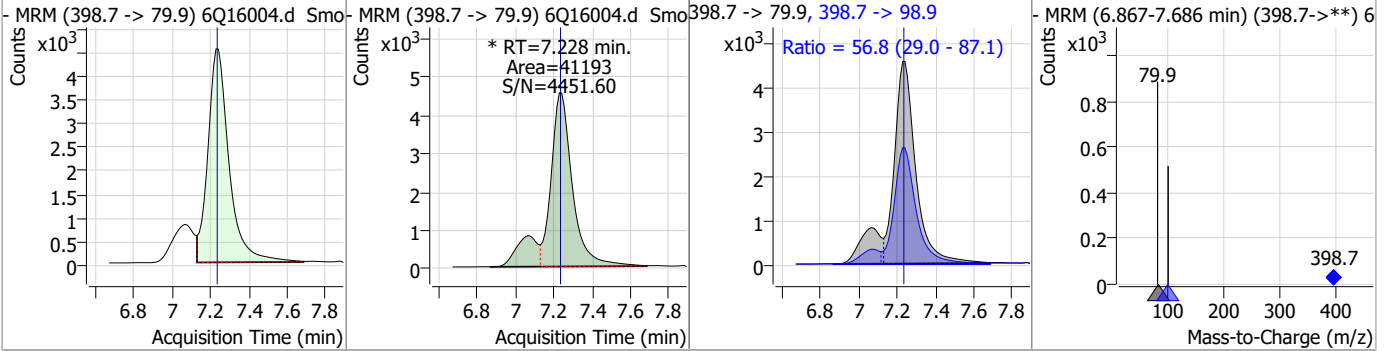


# Perfluorinated Compounds by LC/MS/MS

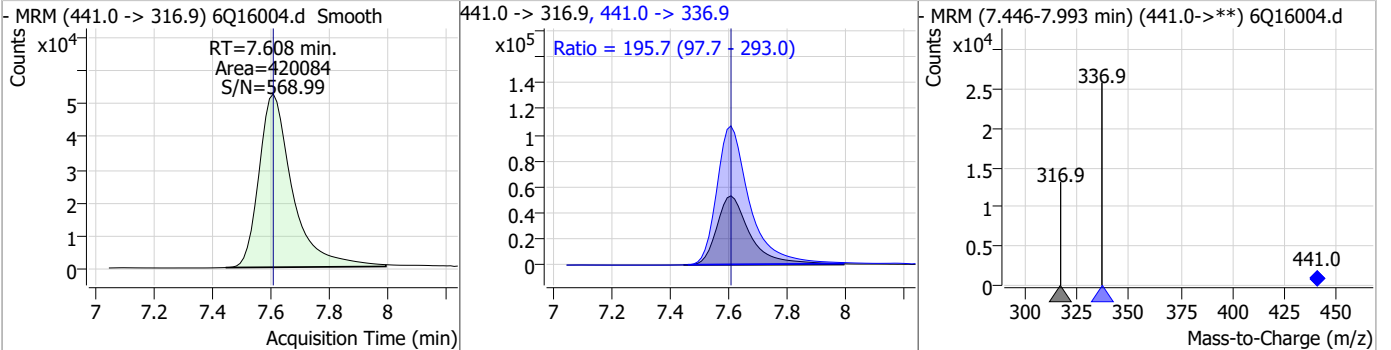


# Perfluorinated Compounds by LC/MS/MS

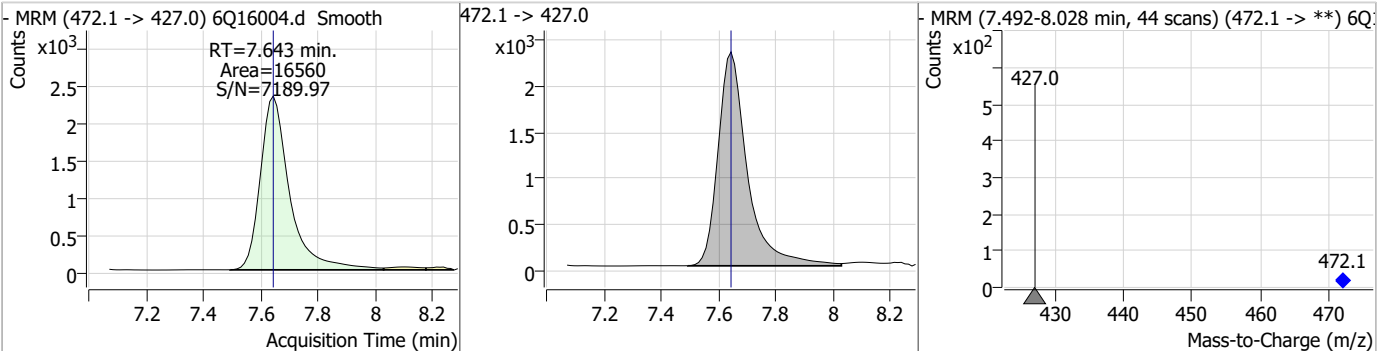
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	11.65	7.23	0.00	41193 (m)	398.7 -> 98.9	56.8	29.0	87.1



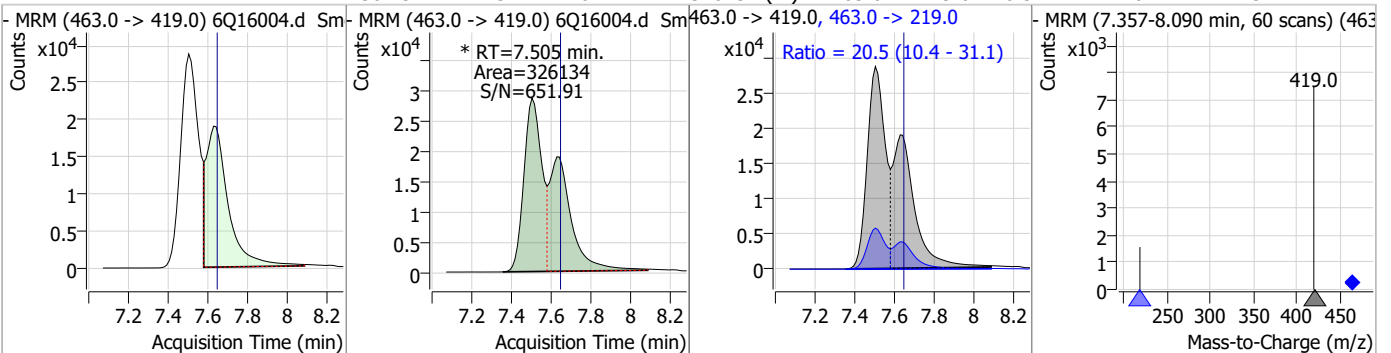
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	320.12	7.61	0.00	420084	441.0 -> 336.9	195.7	97.7	293.0



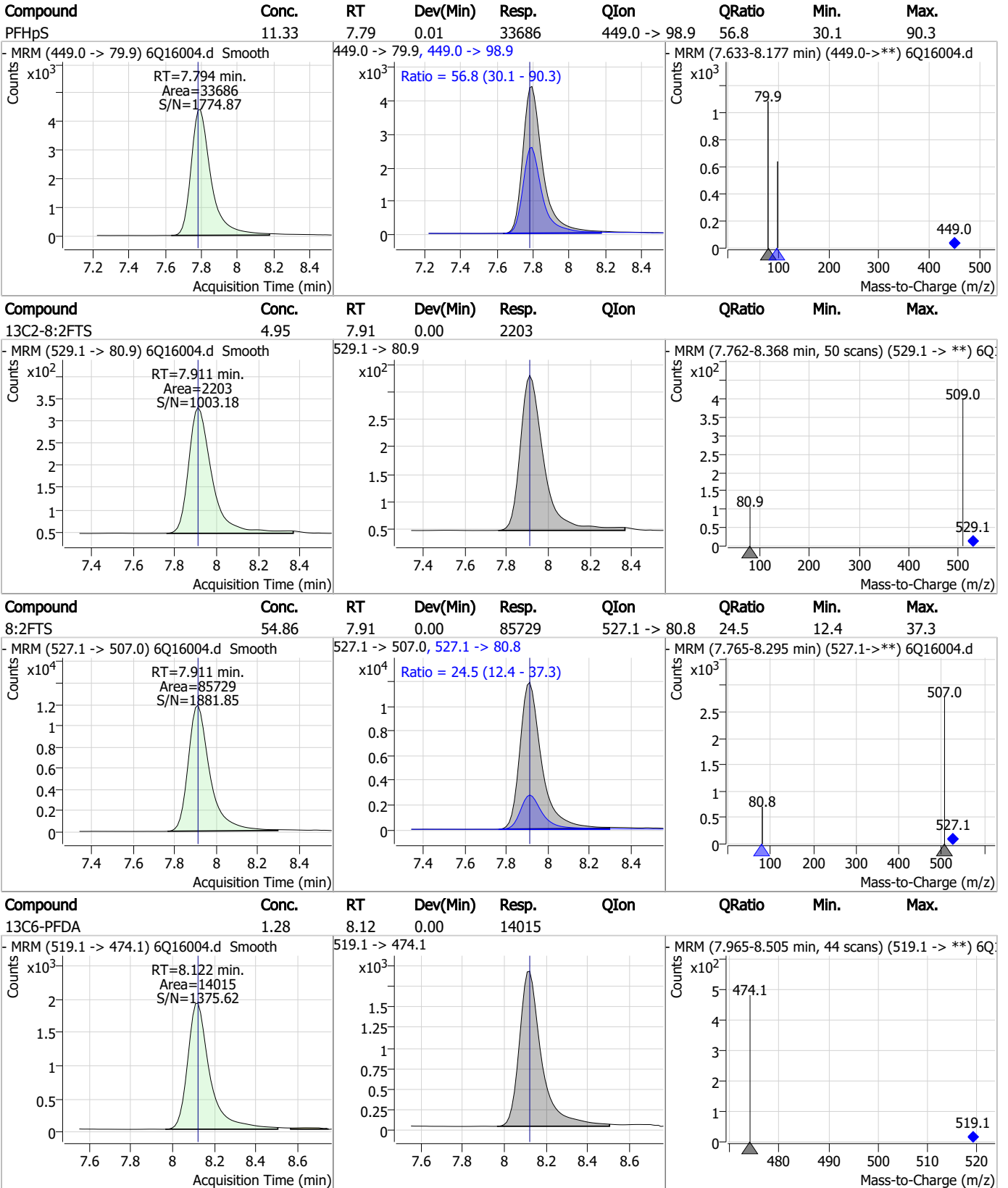
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.39	7.64	0.00	16560				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	30.23	7.51	-0.14	326134 (m)	463.0 -> 219.0	20.5	10.4	31.1



# Perfluorinated Compounds by LC/MS/MS

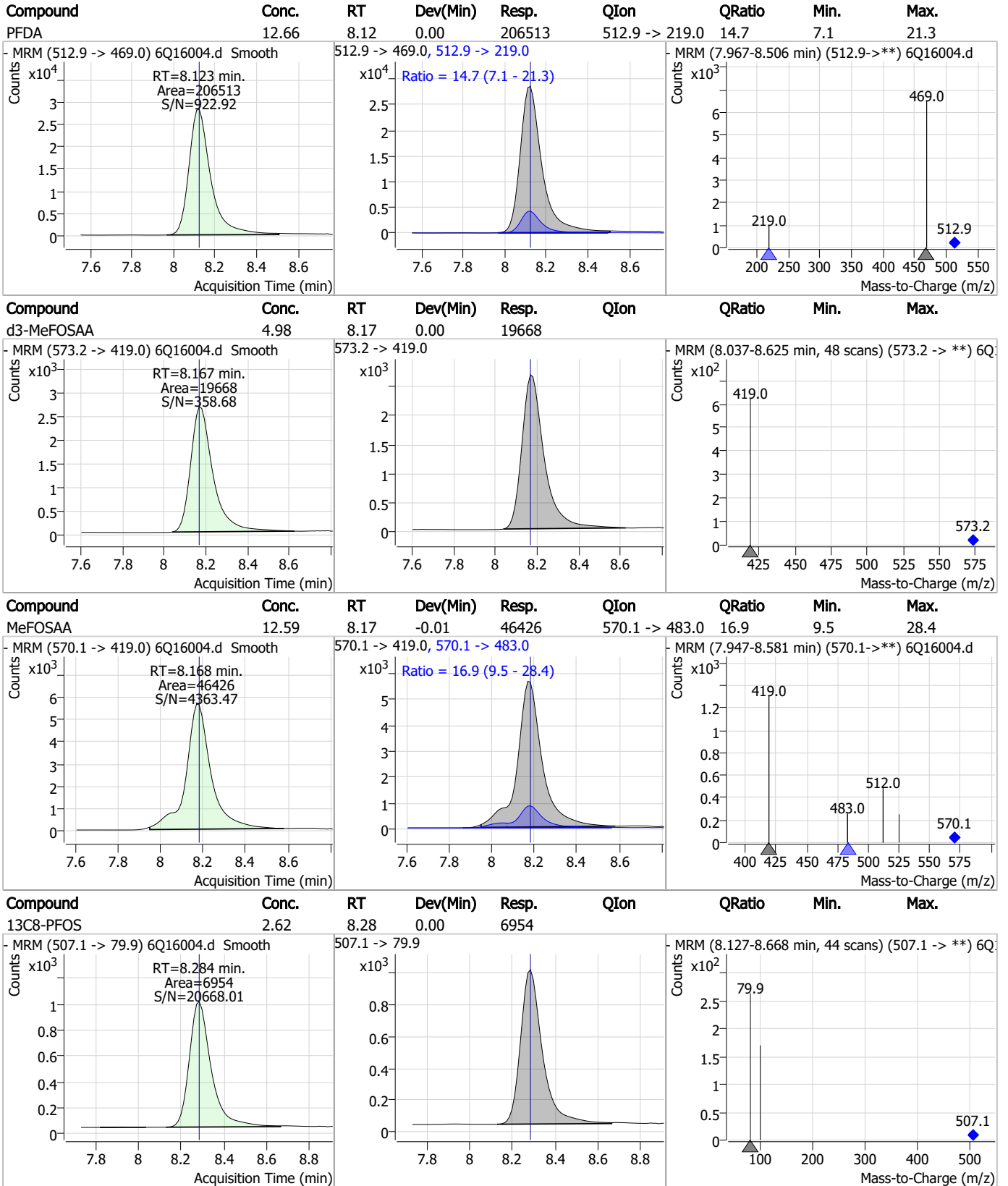


7.6.2

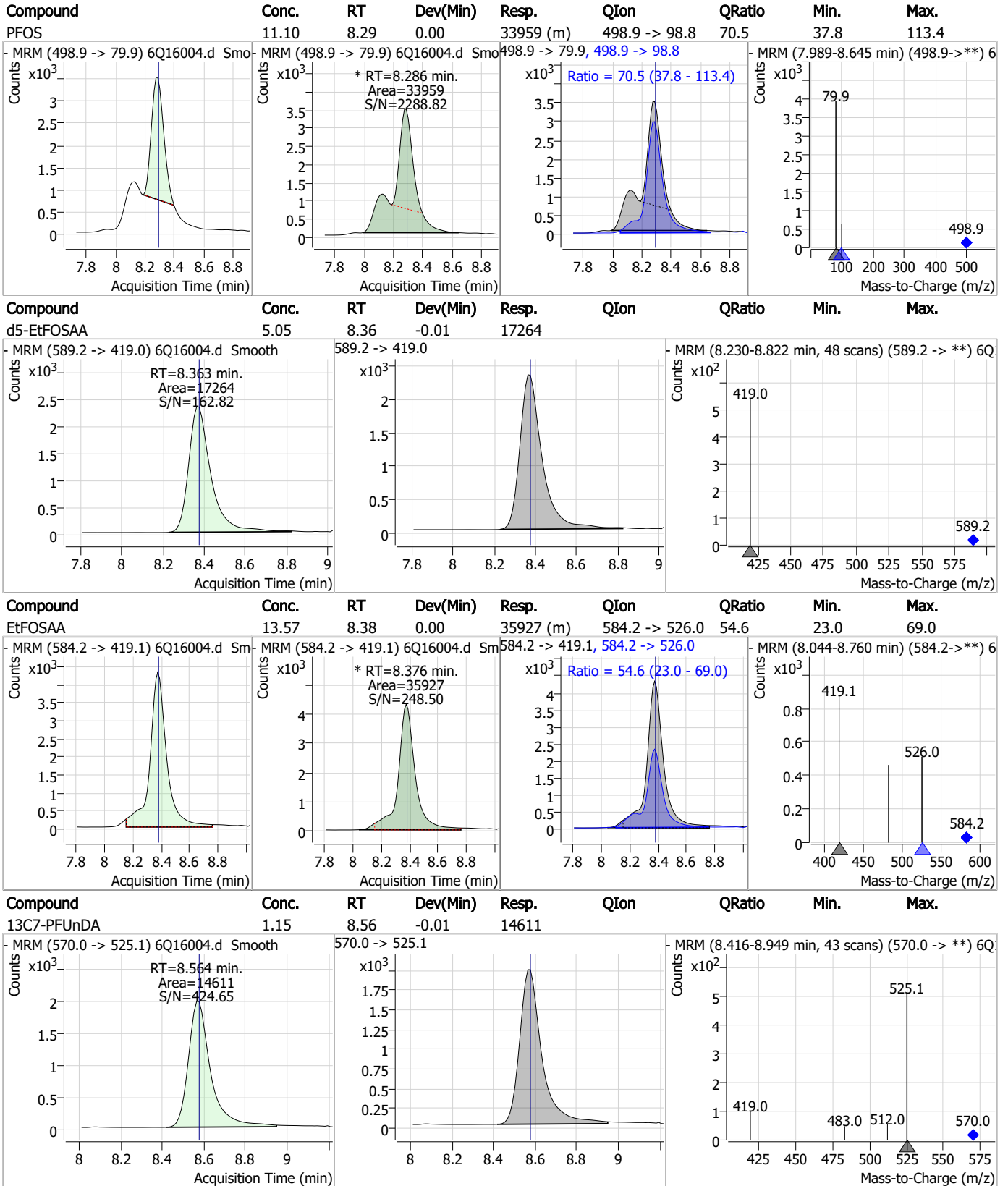
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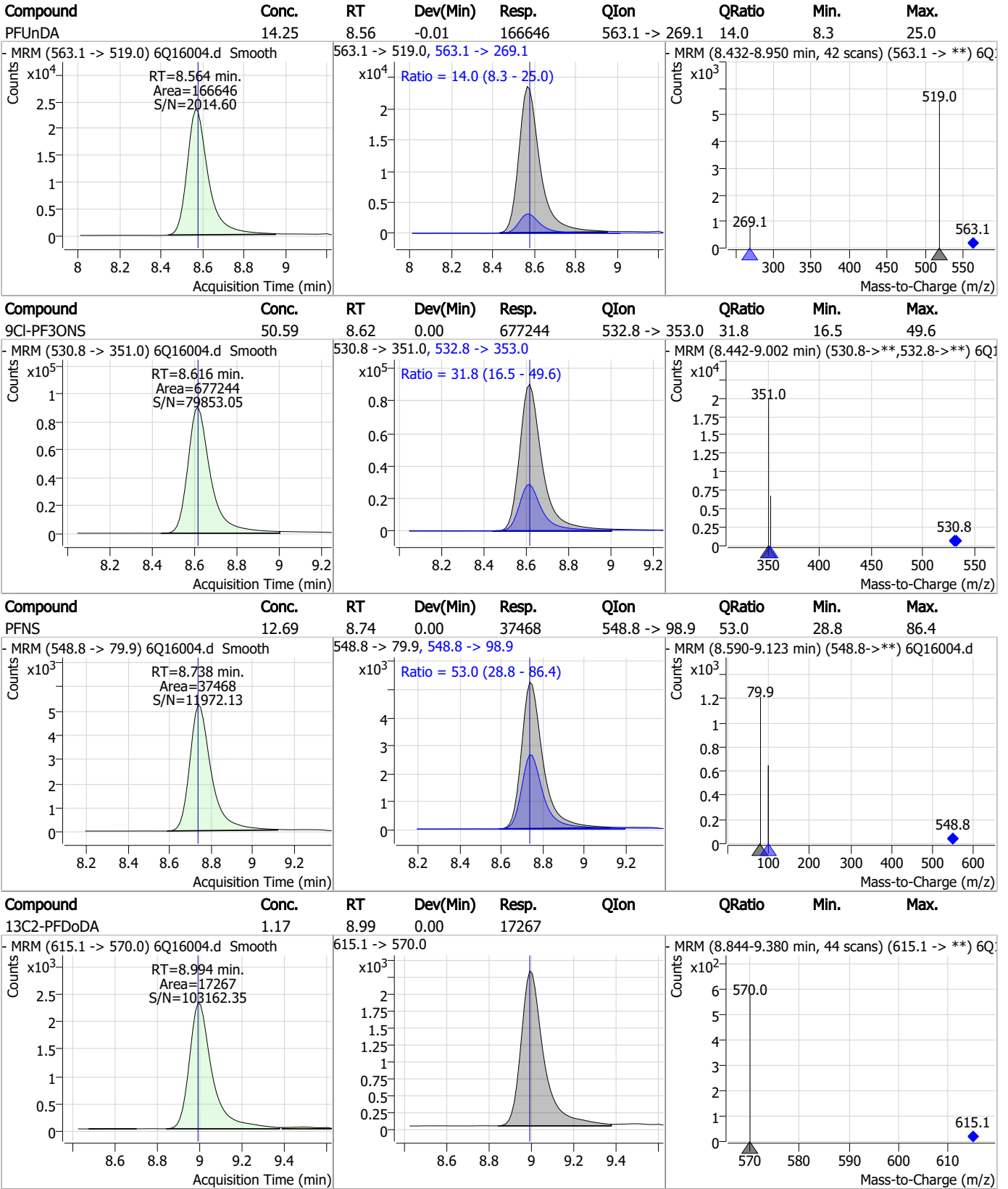
# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS

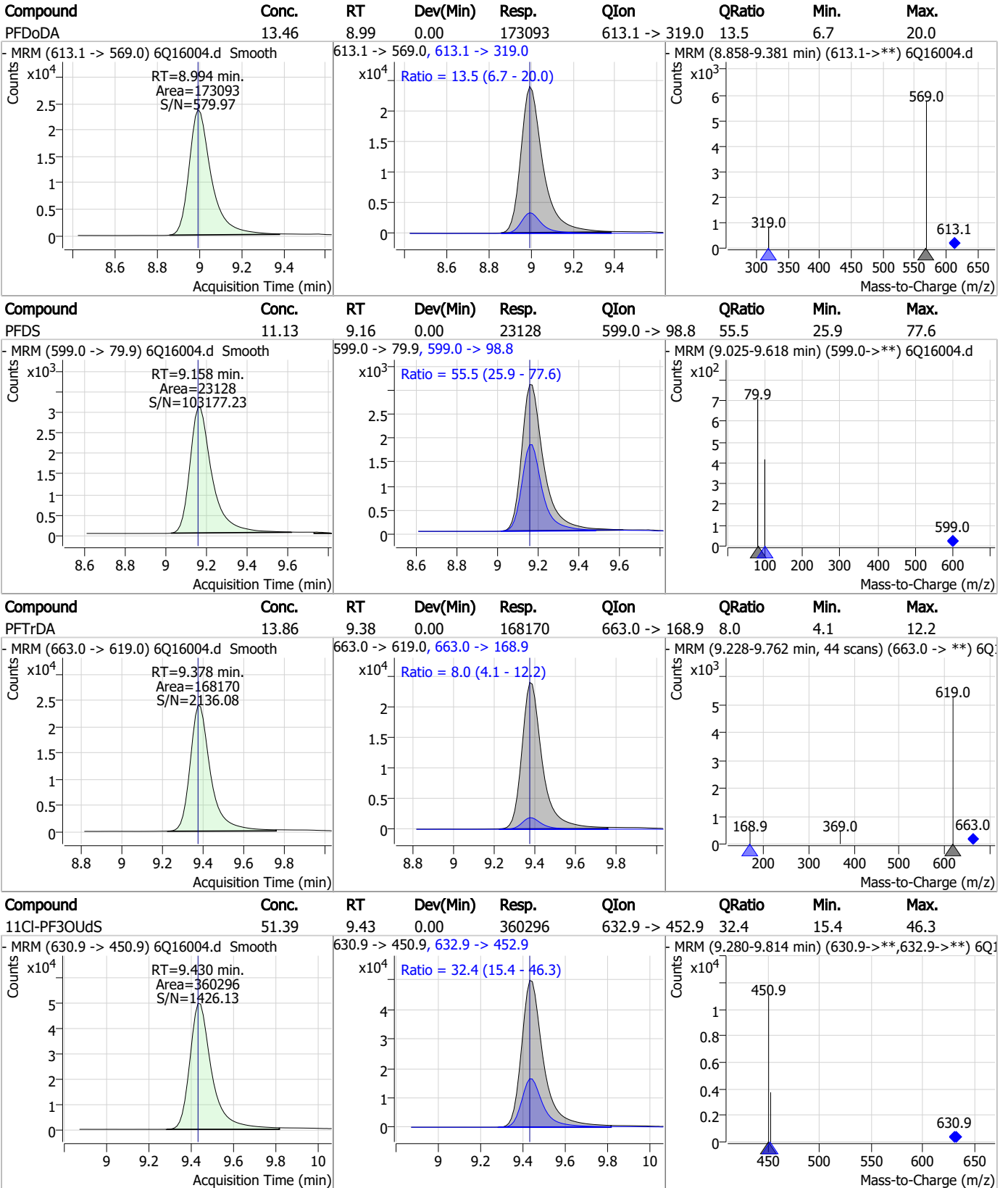


7.6.2

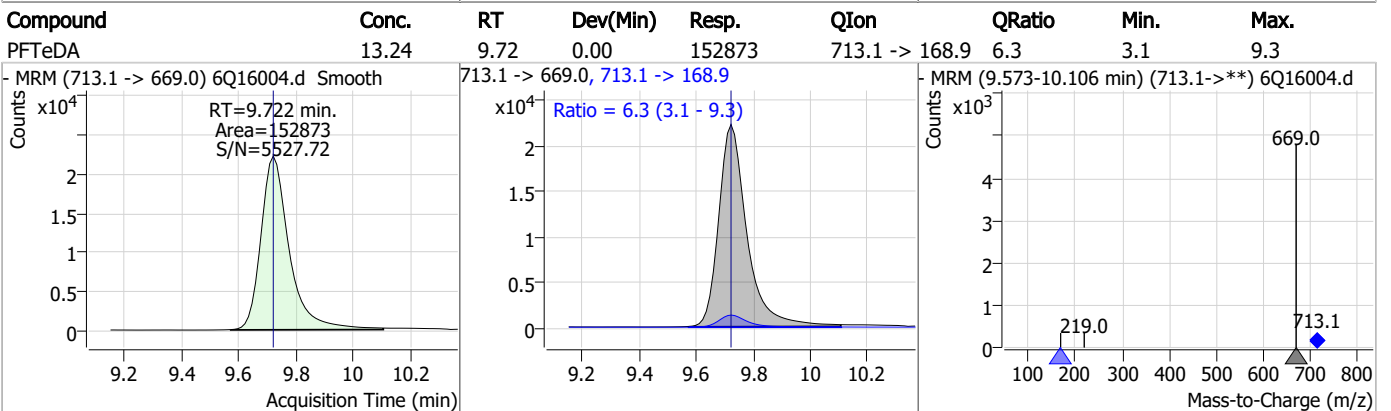
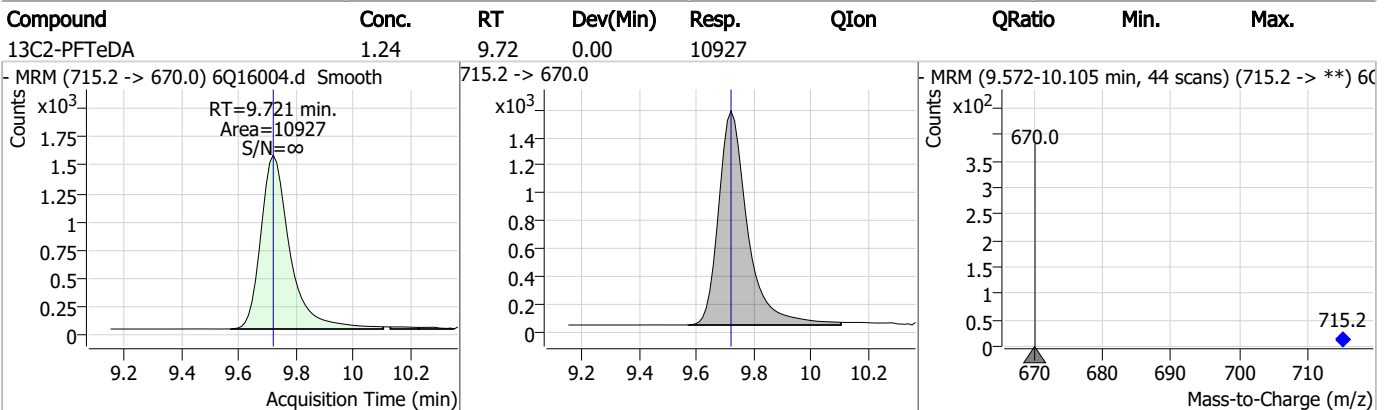
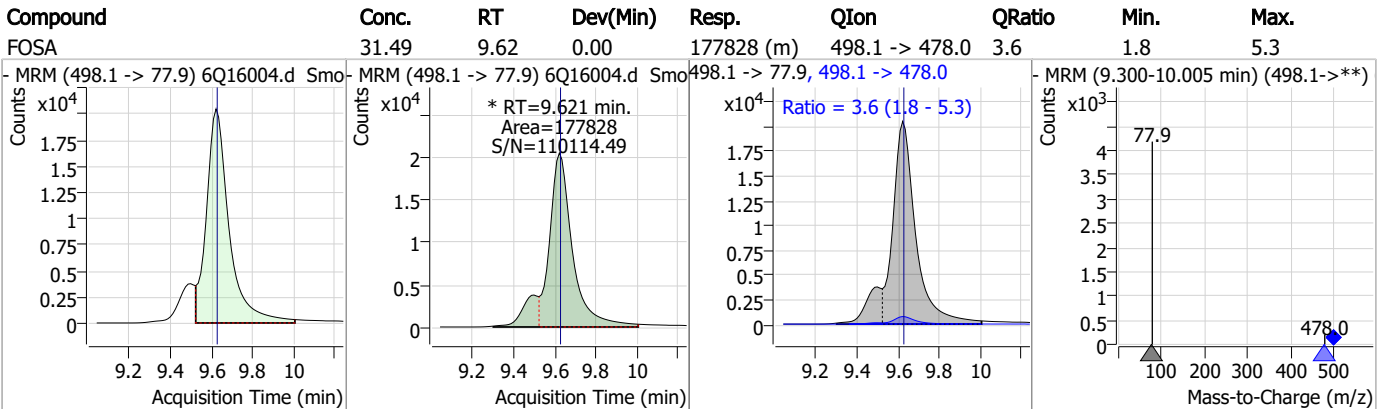
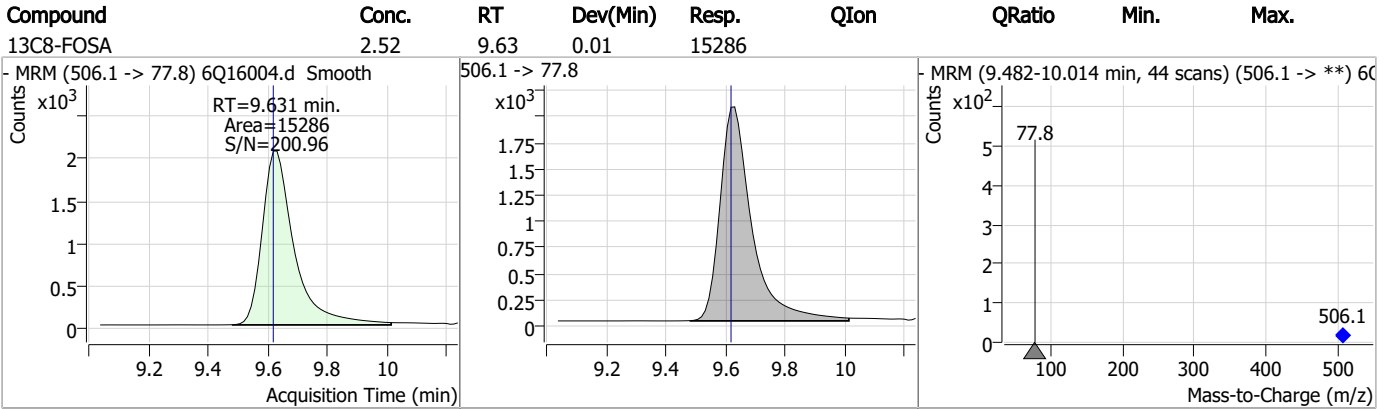
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# Perfluorinated Compounds by LC/MS/MS

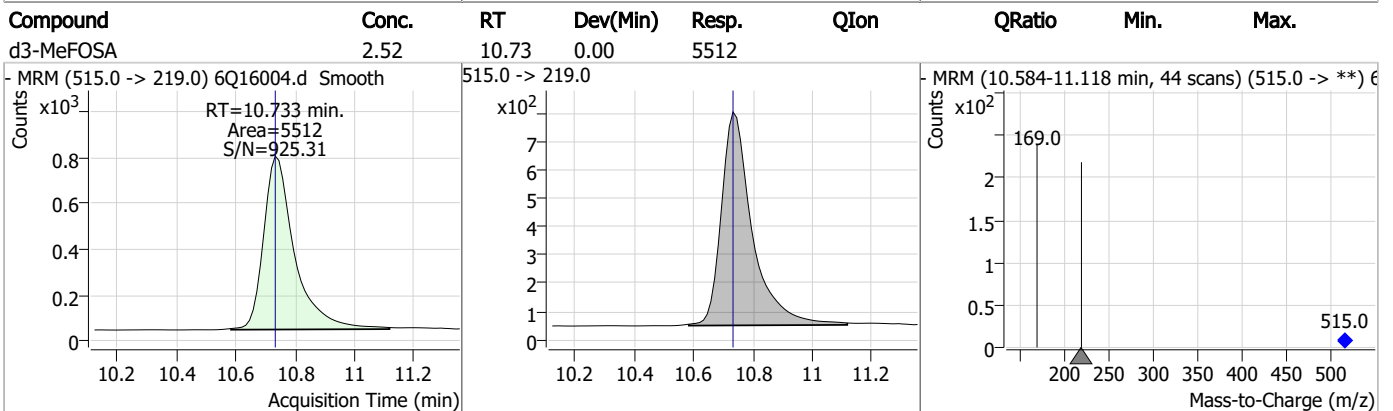
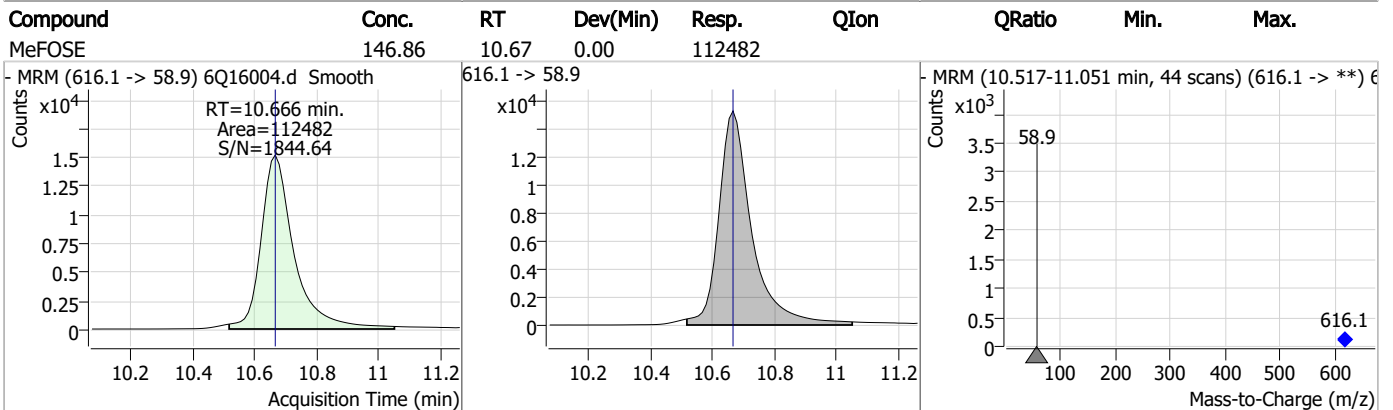
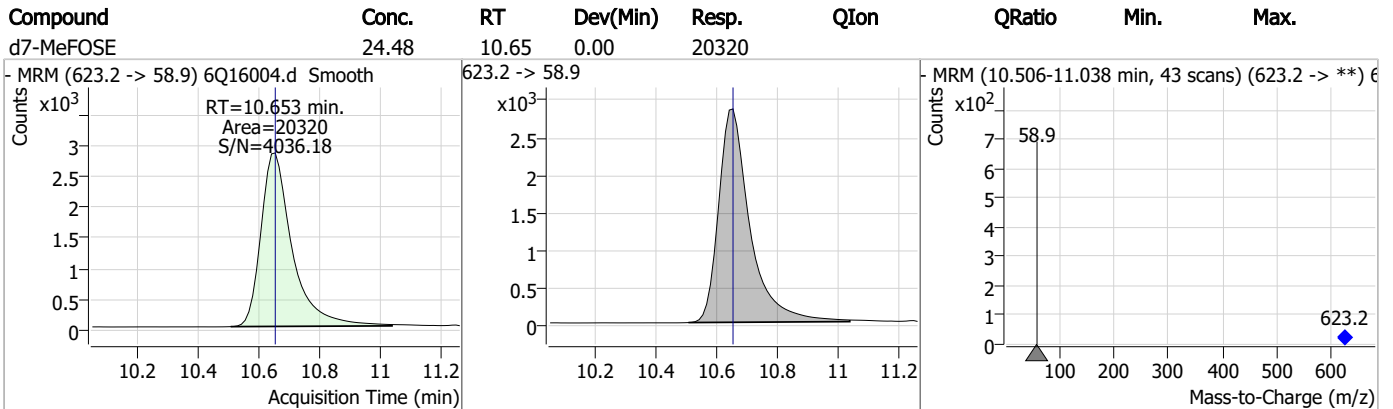
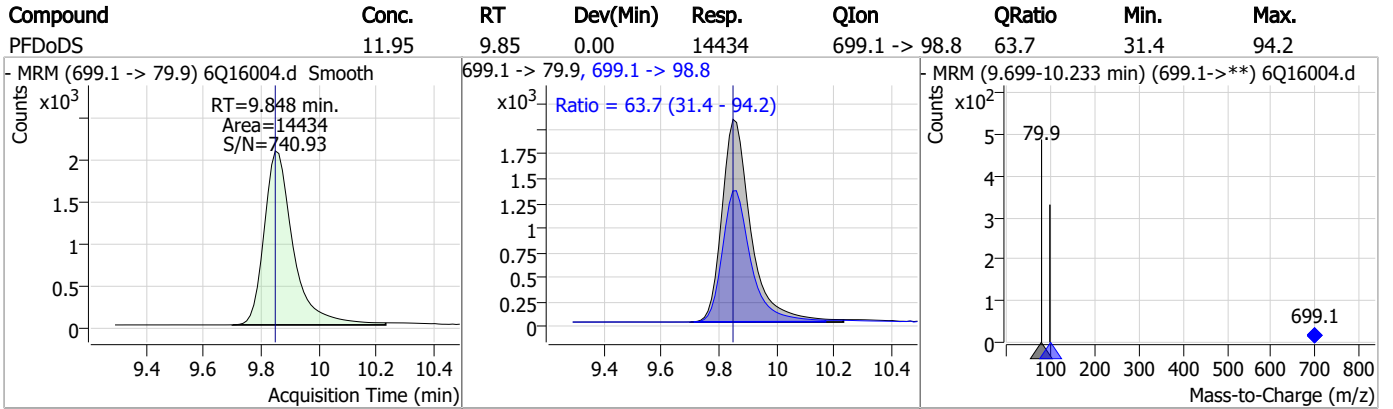


# Perfluorinated Compounds by LC/MS/MS



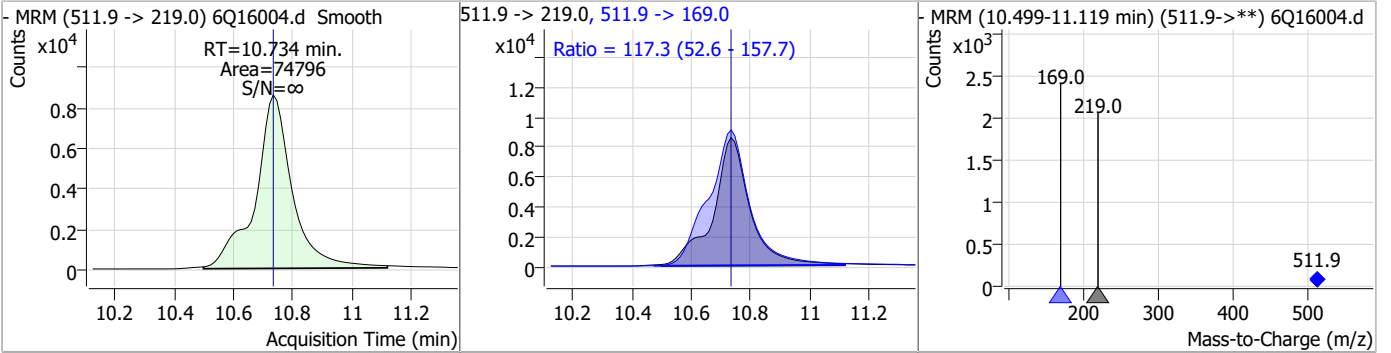


# Perfluorinated Compounds by LC/MS/MS

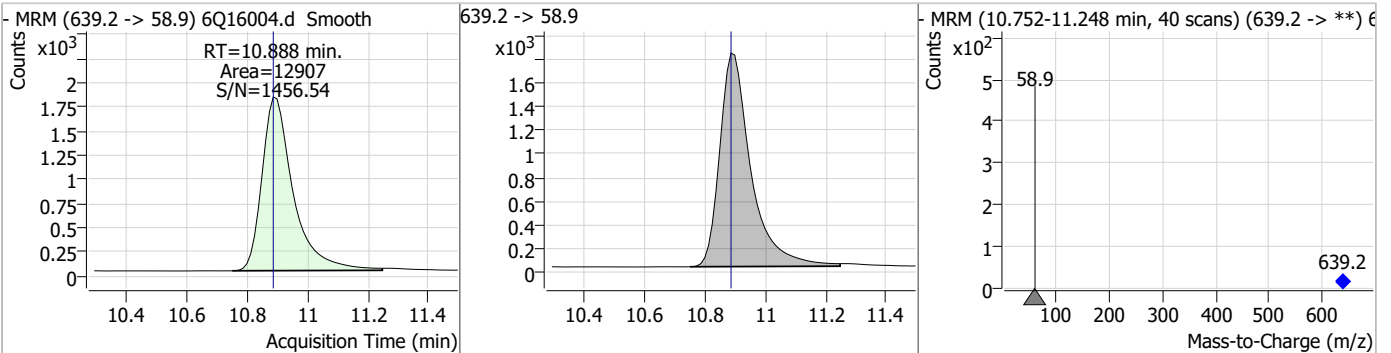


# Perfluorinated Compounds by LC/MS/MS

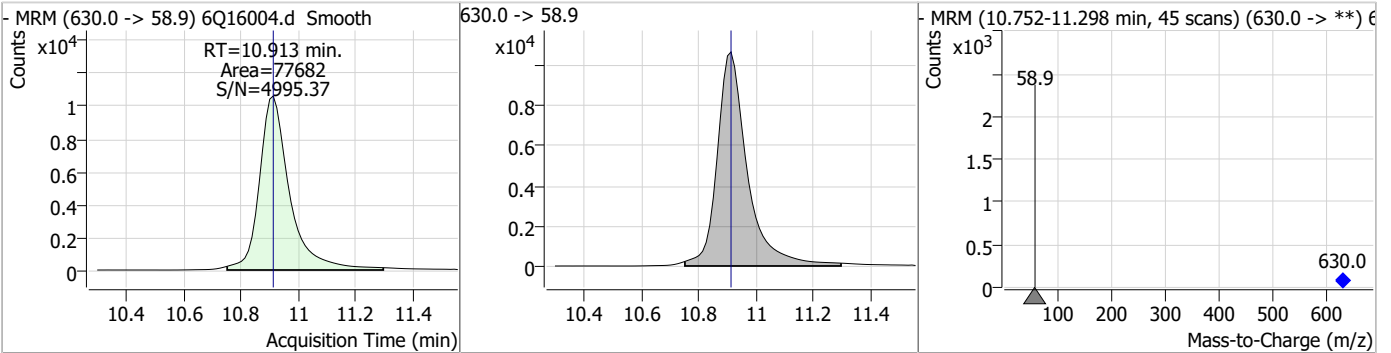
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	32.26	10.73	0.00	74796	511.9 -> 169.0	117.3	52.6	157.7



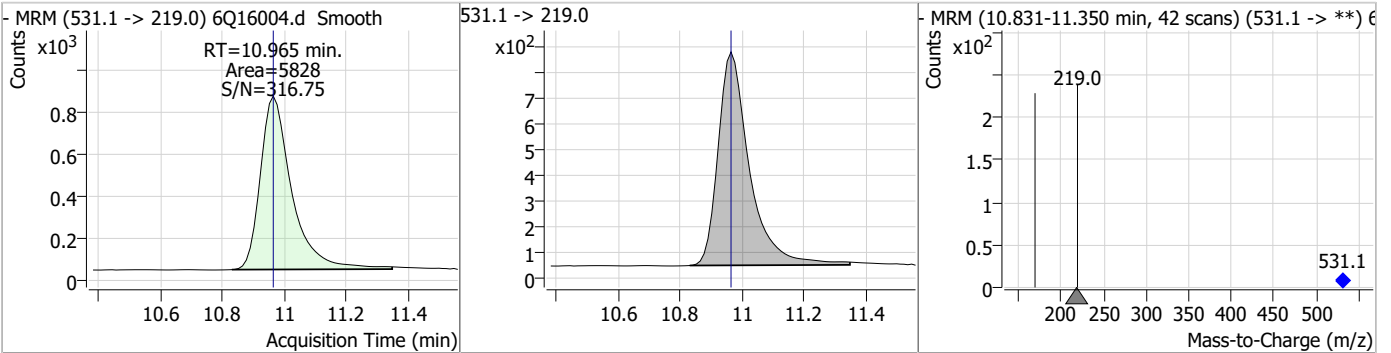
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.39	10.89	0.00	12907	639.2 -> 58.9			



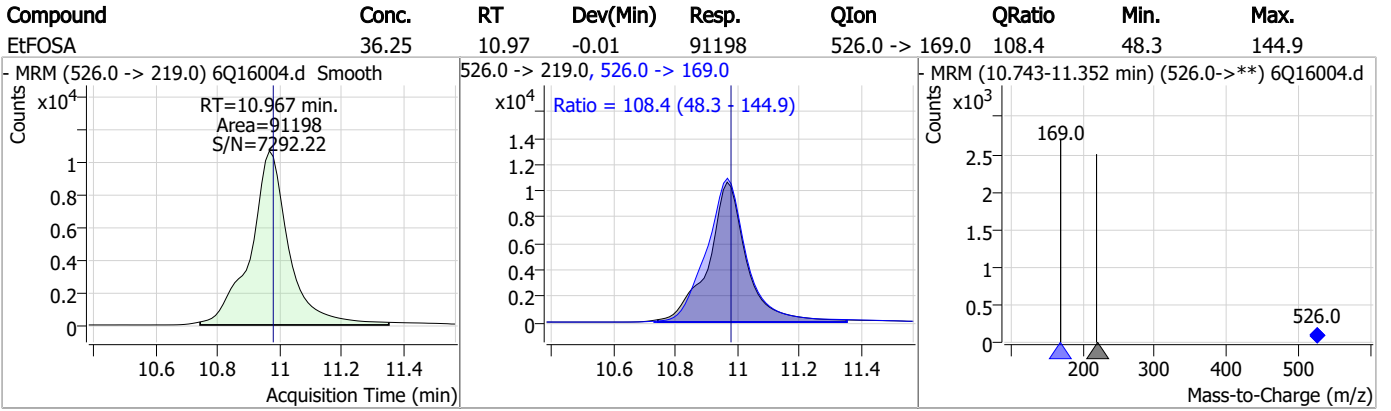
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	153.47	10.91	0.00	77682	630.0 -> 58.9			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.47	10.97	0.00	5828	531.1 -> 219.0			



# Perfluorinated Compounds by LC/MS/MS



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# Manual Integration Approval Summary

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

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

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## QQQ Check Tune Report



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

**Source Parameters**

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

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### QQQ Check Tune Report



#### Negative Results

**Analyzer: MS1 Polarity: Negative Width: Unit**

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

**Analyzer: MS2 Polarity: Negative Width: Unit**

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

**Analyzer: MS1 Polarity: Negative Width: Wide**

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

**Analyzer: MS2 Polarity: Negative Width: Wide**

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

**Analyzer: MS1 Polarity: Negative Width: Widest**

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

**Analyzer: MS2 Polarity: Negative Width: Widest**

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

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16006.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 4/4/2023 2:15:43 PM  
 Sample Name : ic239-1  
 Vial : P1-A2  
 DA Method File : 1633\_040423\_S6Q239.quantmethod.xml  
 Batch Name : s6q239.batch.bin  
 Sample Information : OP96085,S6Q239,500,,,,5.0,1,water

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

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



## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	217			
PFHpA	6.469	363.1 -> 319.0	3707	0.21	µg/L	95
		363.1 -> 169.0	589			
PFHpS	7.781	449.0 -> 79.9	595	0.20	µg/L	97
		449.0 -> 98.9	345			
PFHxA	5.531	313.0 -> 269.0	2602	0.20	µg/L	95
		313.0 -> 118.9	147			
PFHxS	7.228	398.7 -> 79.9	699	0.19	µg/L	m 94
		398.7 -> 98.9	376			
PFNA	7.631	463.0 -> 419.0	1690	0.21	µg/L	95
		463.0 -> 219.0	307			
PFNS	8.738	548.8 -> 79.9	535	0.18	µg/L	92
		548.8 -> 98.9	341			
PFOA	7.113	413.0 -> 369.0	4905	0.21	µg/L	m 93
		413.0 -> 169.0	787			
PFOS	8.273	498.9 -> 79.9	544	0.18	µg/L	m 97
		498.9 -> 98.8	398			
PFPeA	4.349	263.0 -> 219.0	3248	0.42	µg/L	100
PFPeS	6.533	349.1 -> 79.9	867	0.20	µg/L	100
		349.1 -> 98.9	451			
PFTeDA	9.722	713.1 -> 669.0	2358	0.21	µg/L	99
		713.1 -> 168.9	156			
PFTrDA	9.378	663.0 -> 619.0	2657	0.21	µg/L	100
		663.0 -> 168.9	220			
PFUnDA	8.564	563.1 -> 519.0	2582	0.21	µg/L	96
		563.1 -> 269.1	388			
11CI-PF3OUdS	9.430	630.9 -> 450.9	5741	0.78	µg/L	97
		632.9 -> 452.9	1665			
9CI-PF3ONS	8.603	530.8 -> 351.0	10091	0.72	µg/L	94
		532.8 -> 353.0	3702			
ADONA	6.719	376.9 -> 250.9	20337	0.73	µg/L	96
		376.9 -> 84.8	5110			
HFPO-DA	5.906	284.9 -> 168.9	904	0.73	µg/L	87
		284.9 -> 184.9	159			
3:3FTCA	3.827	241.0 -> 177.0	443	1.03	µg/L	96
		241.0 -> 117.0	60			
5:3FTCA	6.198	341.0 -> 237.1	15627	5.57	µg/L	93
		341.0 -> 217.0	12630			
7:3FTCA	7.608	441.0 -> 316.9	6869	4.83	µg/L	88
		441.0 -> 336.9	12184			
EtFOSA	10.979	526.0 -> 219.0	490	0.19	µg/L	66
		526.0 -> 169.0	639			
EtFOSE	10.901	630.0 -> 58.9	1189	2.05	µg/L	100
MeFOSA	10.734	511.9 -> 219.0	449	0.21	µg/L	92
		511.9 -> 169.0	508			
MeFOSE	10.666	616.1 -> 58.9	1819	2.20	µg/L	100
PFDoDS	9.848	699.1 -> 79.9	241	0.20	µg/L	99
		699.1 -> 98.8	150			
NFDHA	5.410	295.0 -> 201.0	354	0.43	µg/L	90
		295.0 -> 84.9	178			
PFMBA	4.750	279.0 -> 85.1	1084	0.42	µg/L	100
PFMPA	3.488	229.0 -> 84.9	881	0.37	µg/L	100
PFEESA	6.012	314.8 -> 134.9	6405	0.36	µg/L	98
		314.8 -> 82.9	192			

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

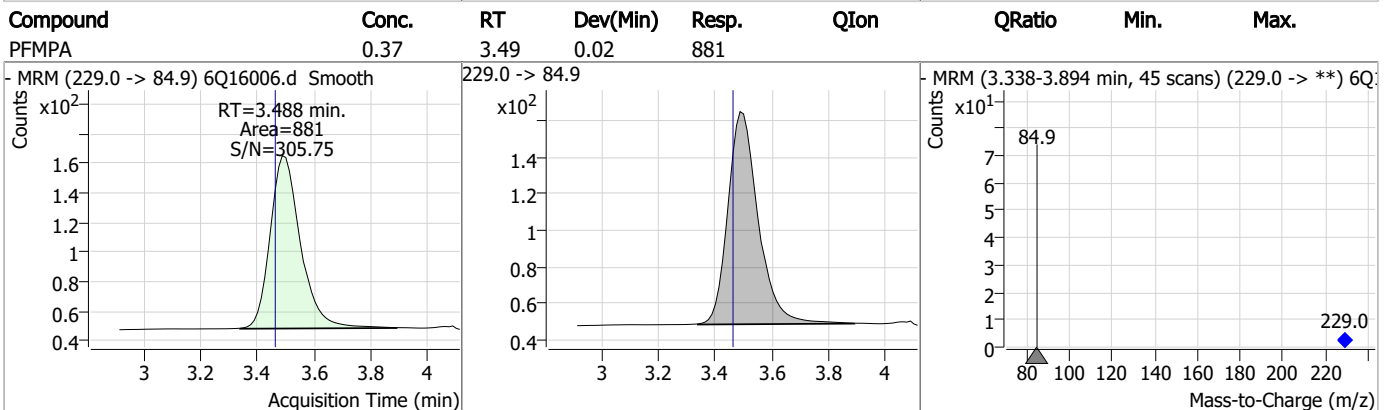
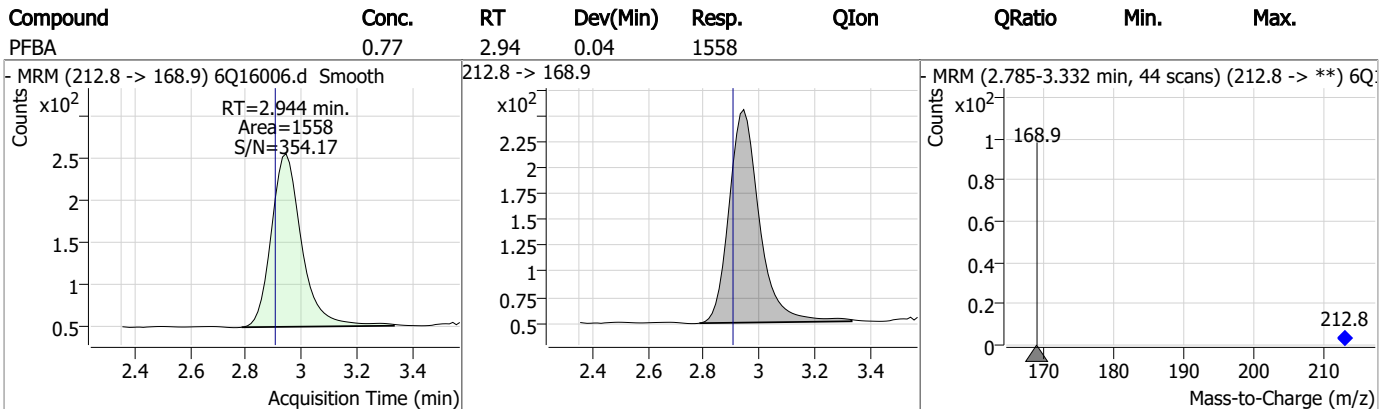
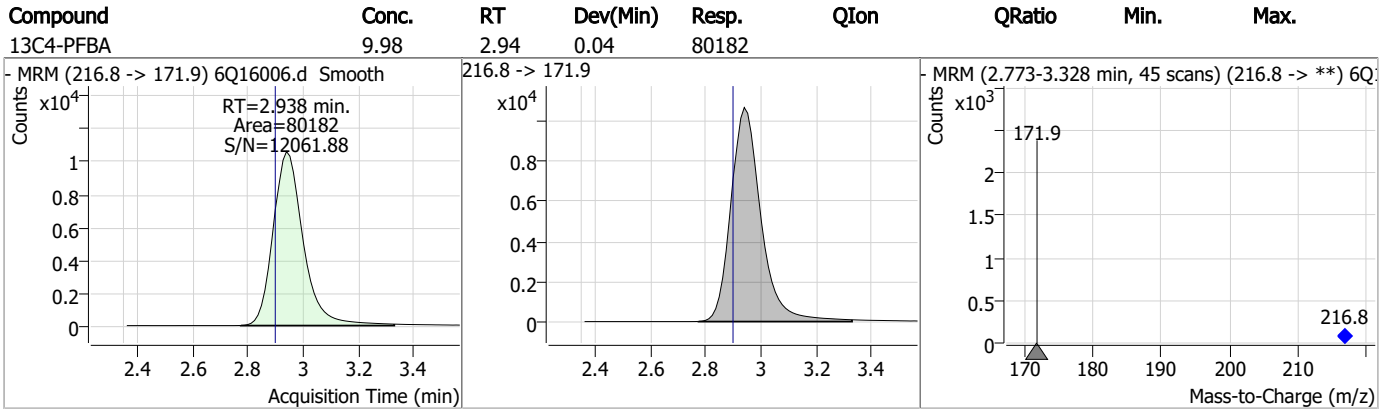
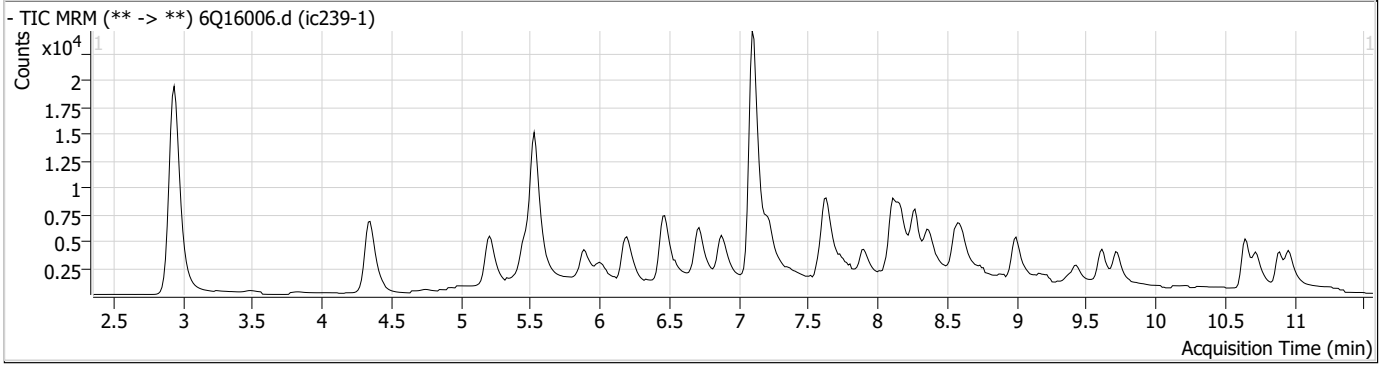
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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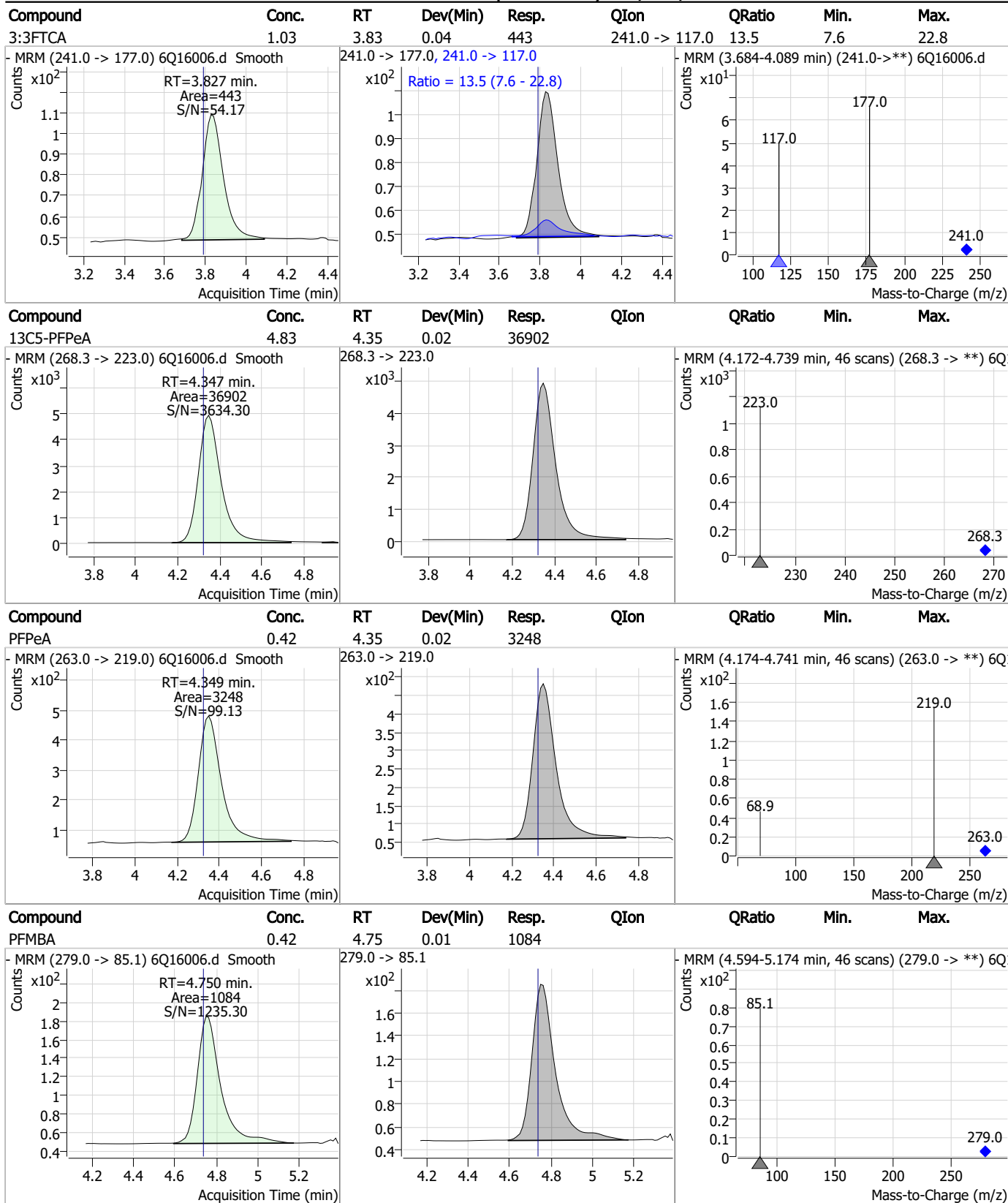
7.7.2  
7



### Perfluorinated Compounds by LC/MS/MS



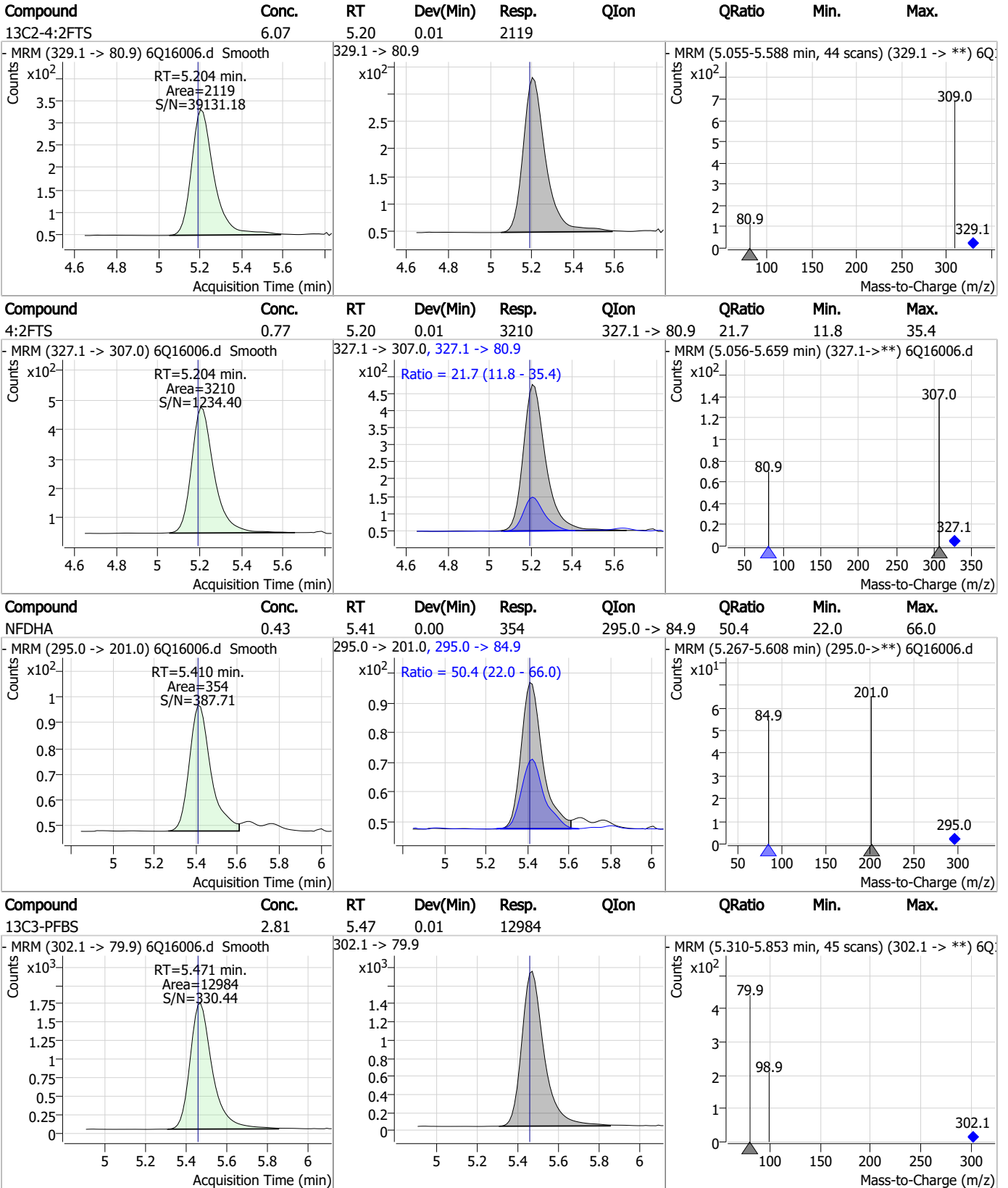
### Perfluorinated Compounds by LC/MS/MS



7.7.2  
7



### Perfluorinated Compounds by LC/MS/MS



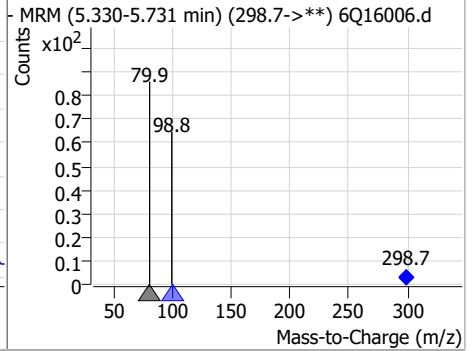
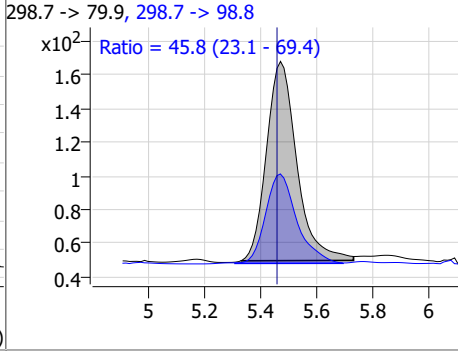
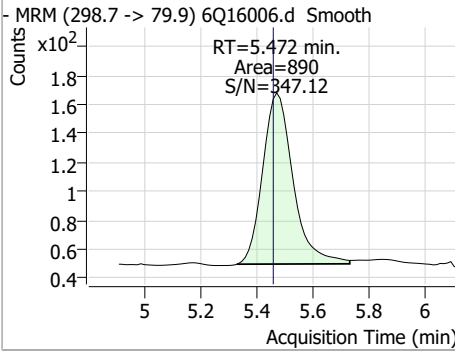
7.7.2

7

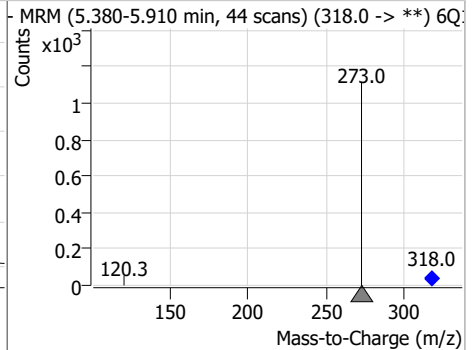
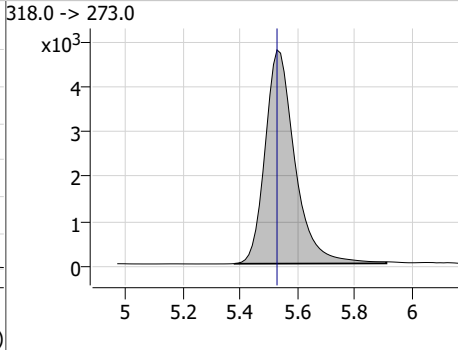
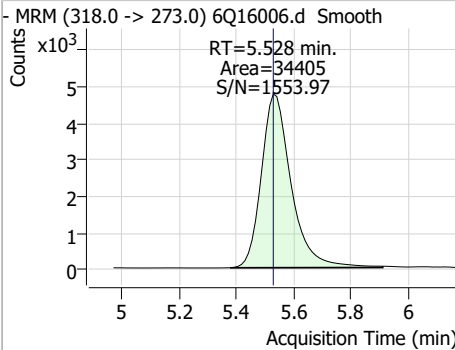


### Perfluorinated Compounds by LC/MS/MS

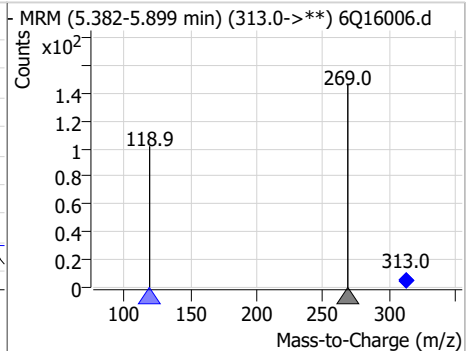
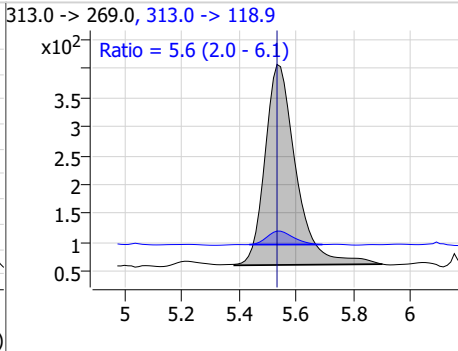
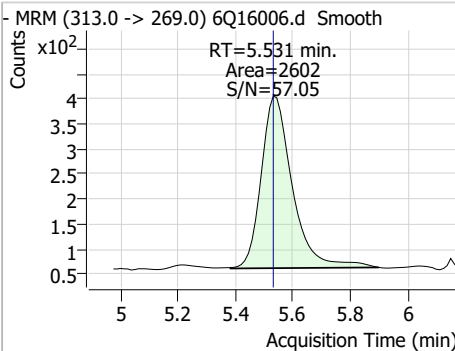
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.17	5.47	0.01	890	298.7 -> 98.8	45.8	23.1	69.4



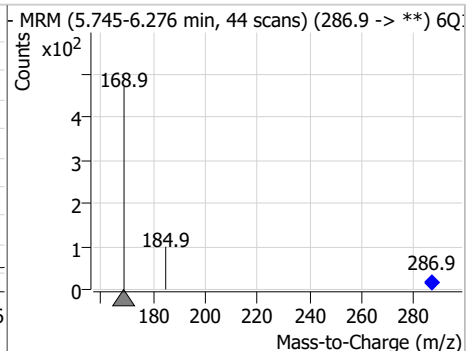
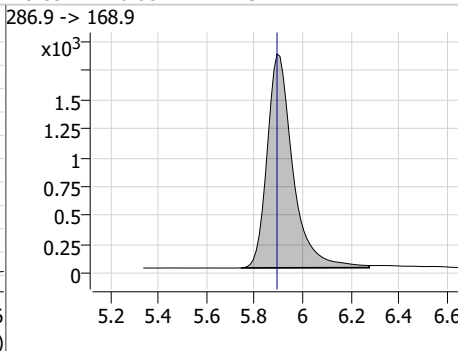
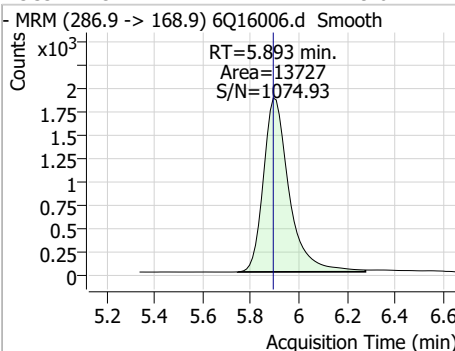
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.54	5.53	0.00	34405				



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

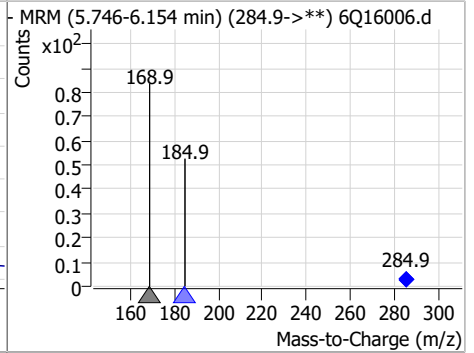
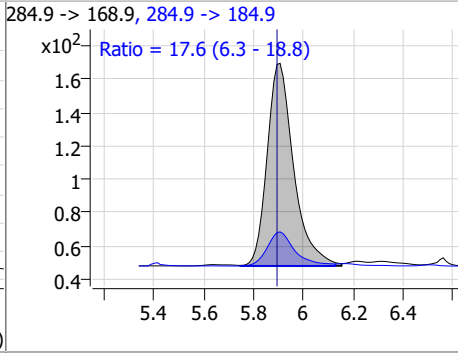
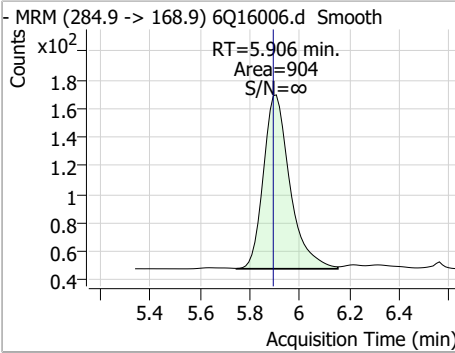


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.61	5.89	0.00	13727				

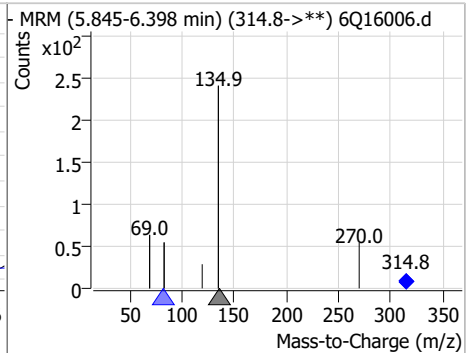
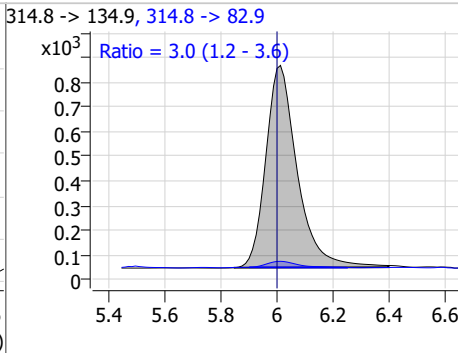
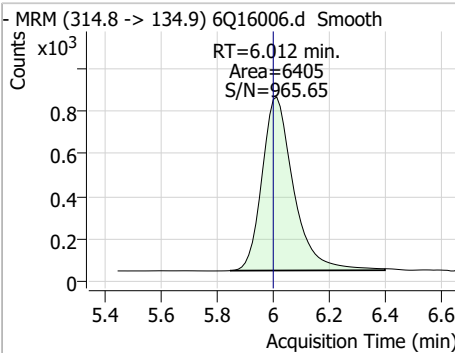


### Perfluorinated Compounds by LC/MS/MS

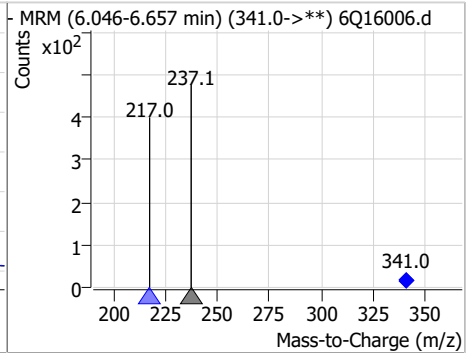
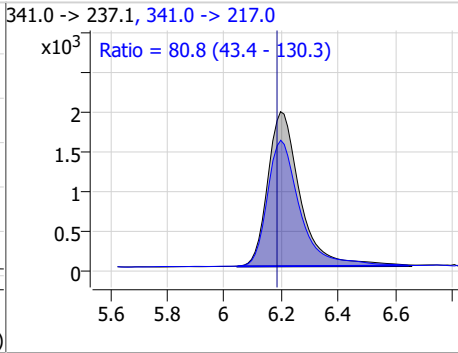
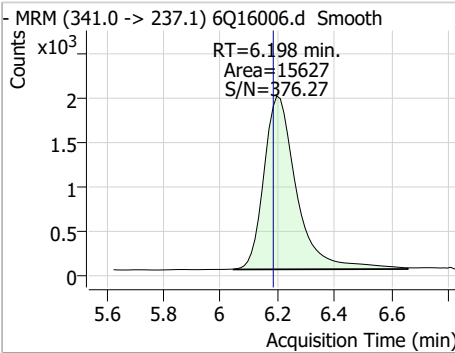
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.73	5.91	0.01	904	284.9 -> 184.9	17.6	6.3	18.8



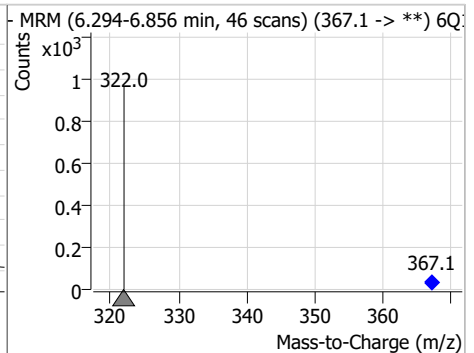
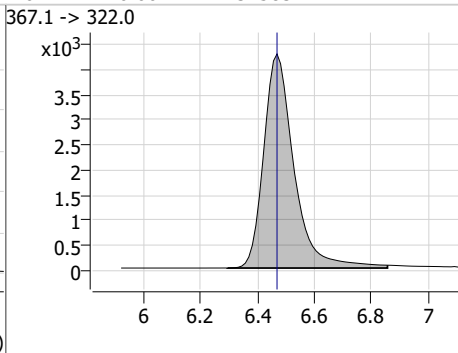
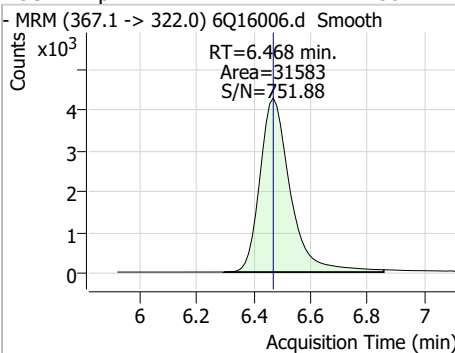
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.36	6.01	0.01	6405	314.8 -> 82.9	3.0	1.2	3.6



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



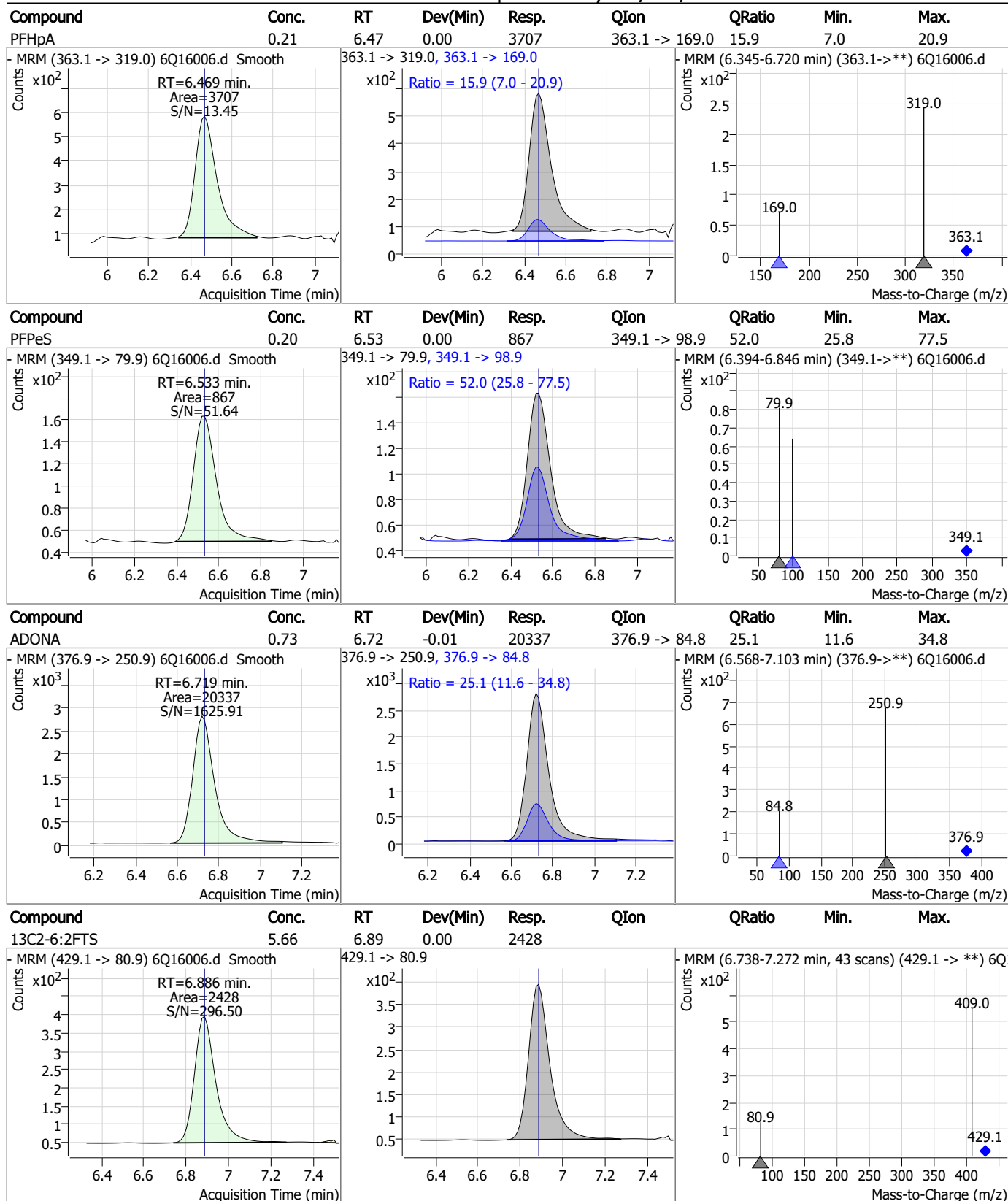
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.38	6.47	0.00	31583				



7.7.2

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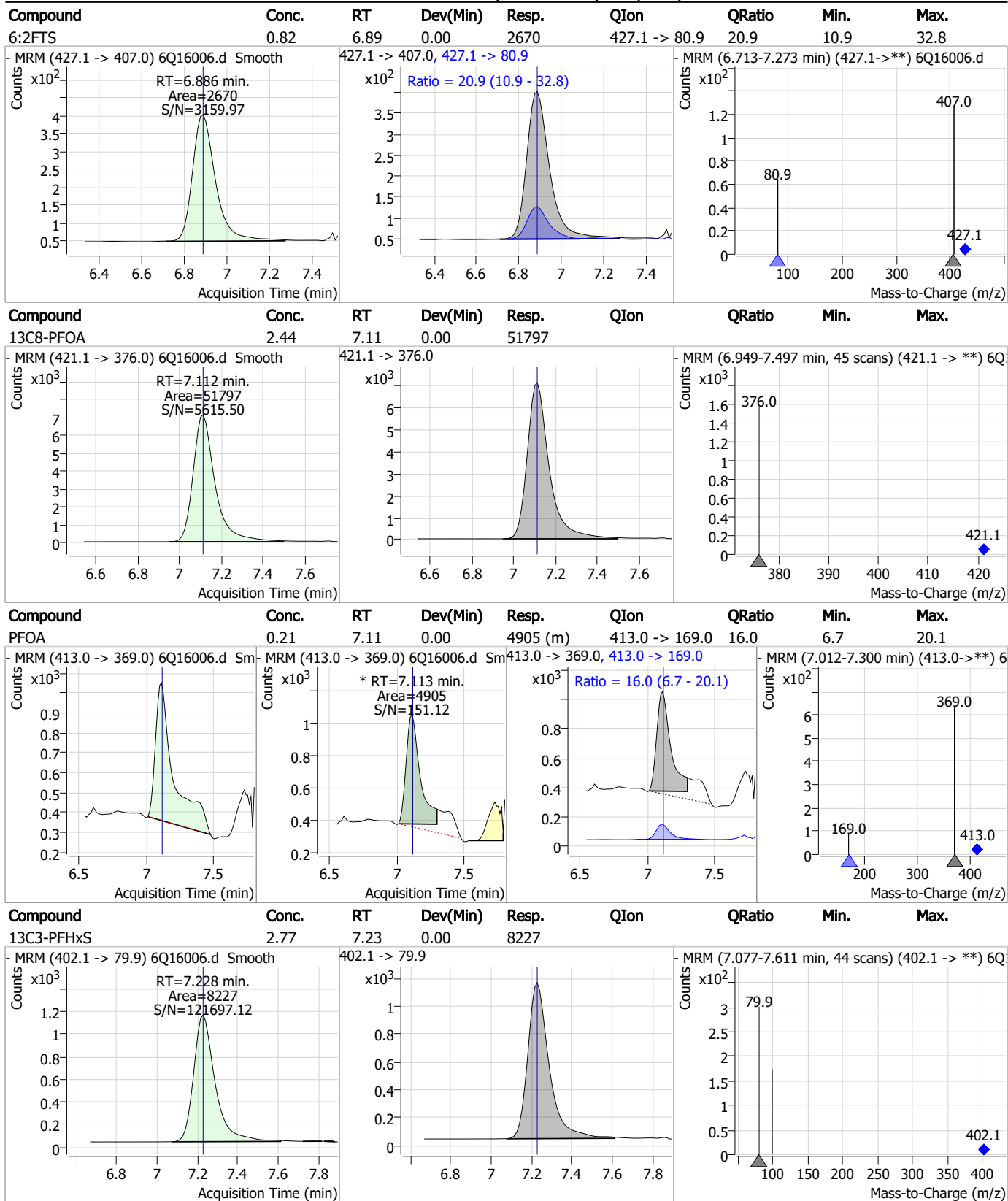
### Perfluorinated Compounds by LC/MS/MS



7.7.2  
7



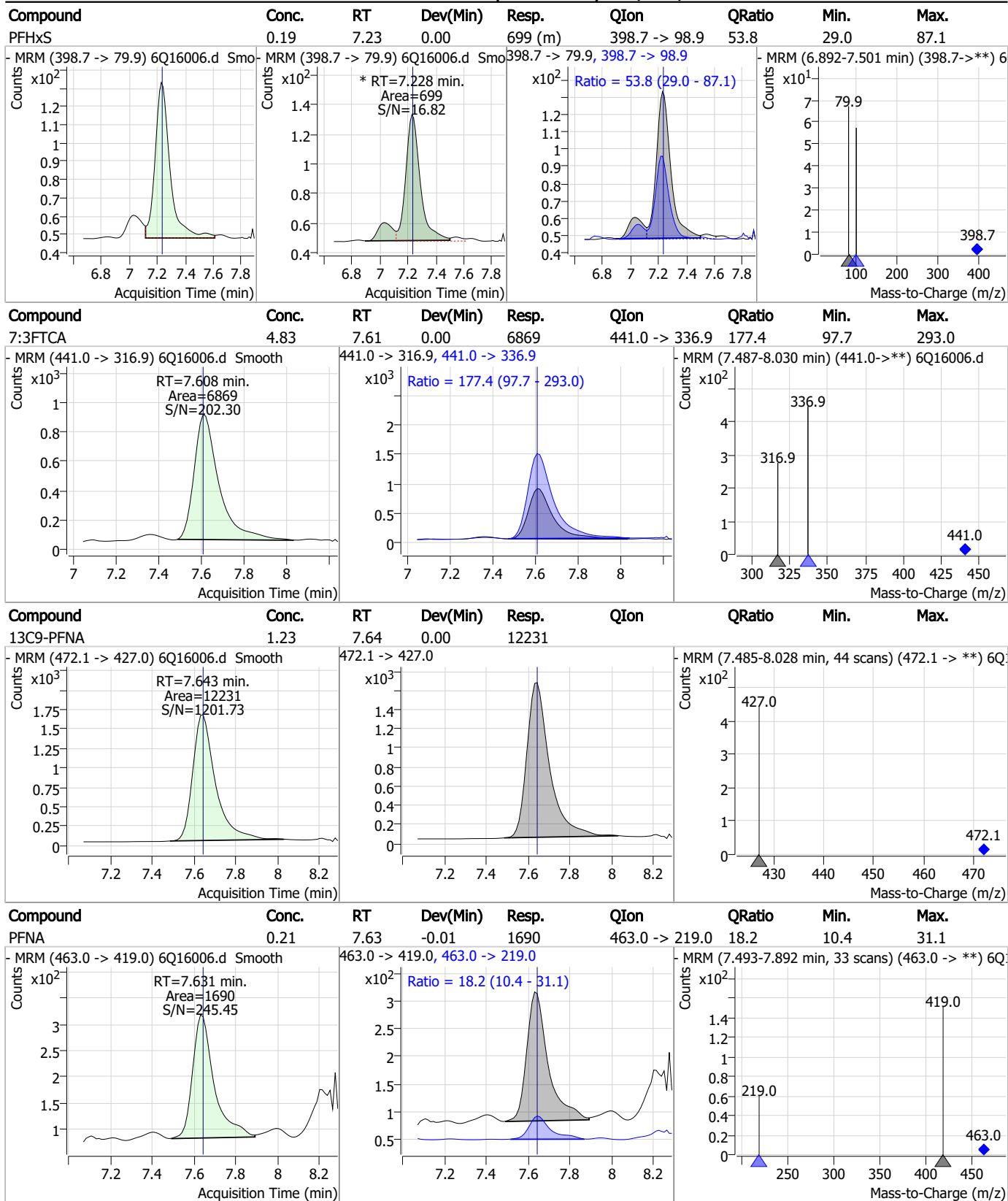
### Perfluorinated Compounds by LC/MS/MS



7.7.2  
7

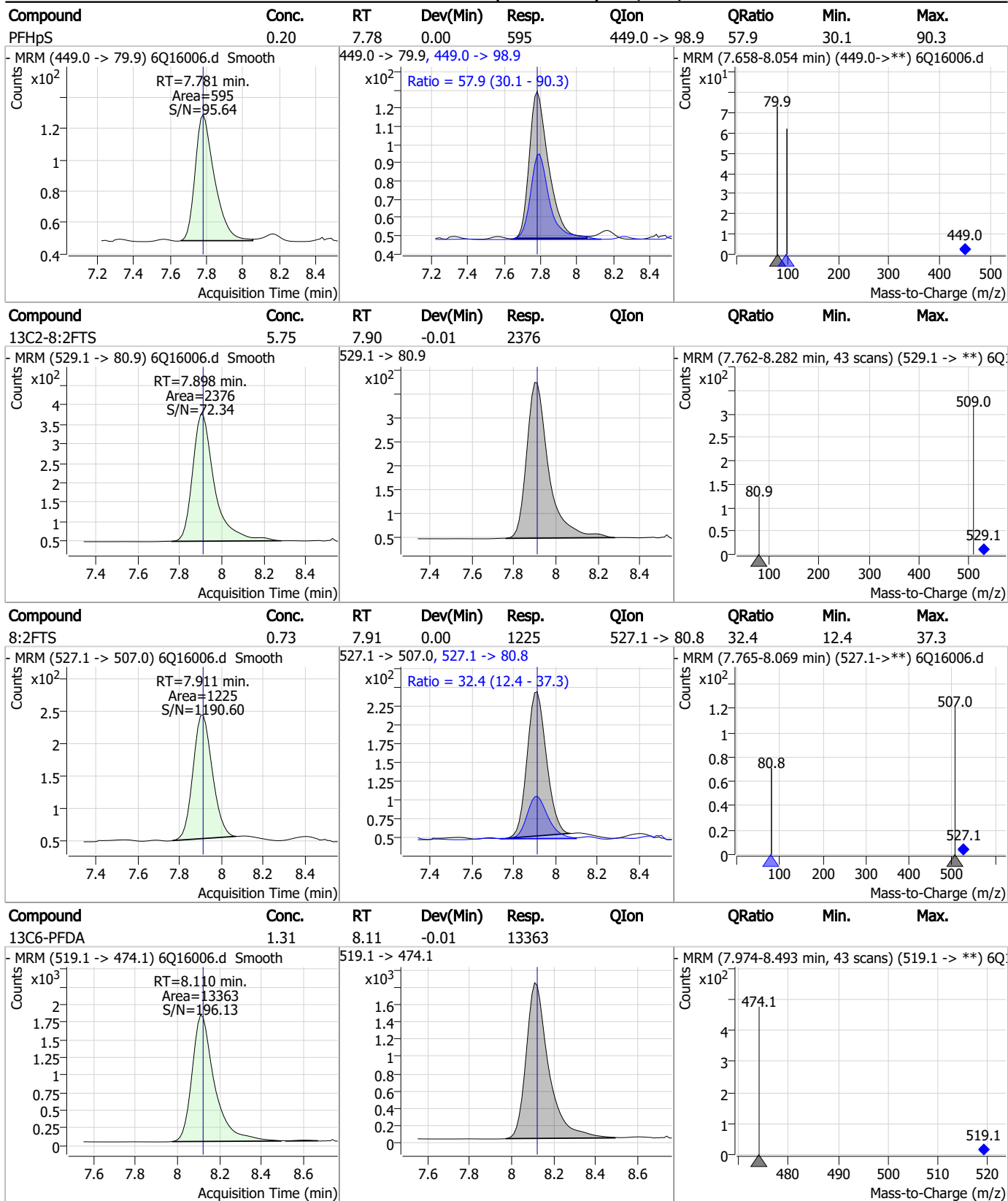


### Perfluorinated Compounds by LC/MS/MS



7.7.2  
7

### Perfluorinated Compounds by LC/MS/MS

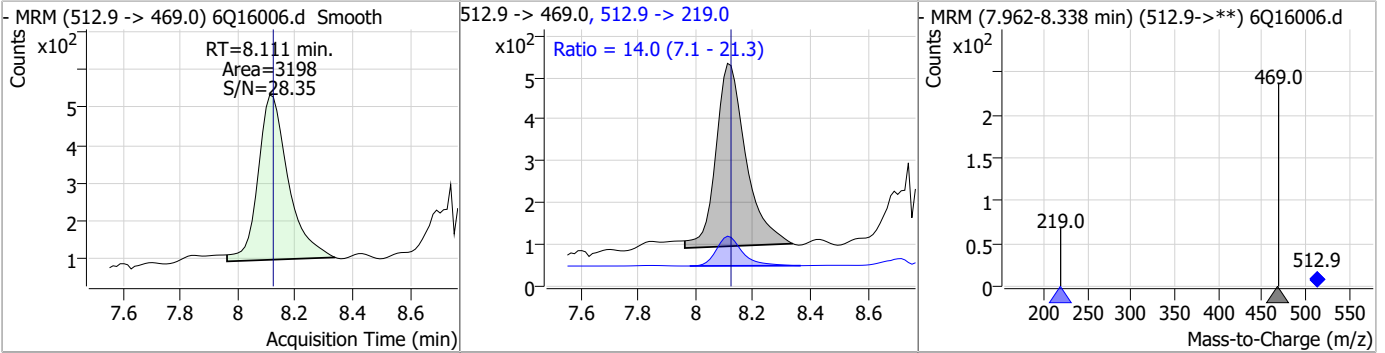


7.7.2  
7

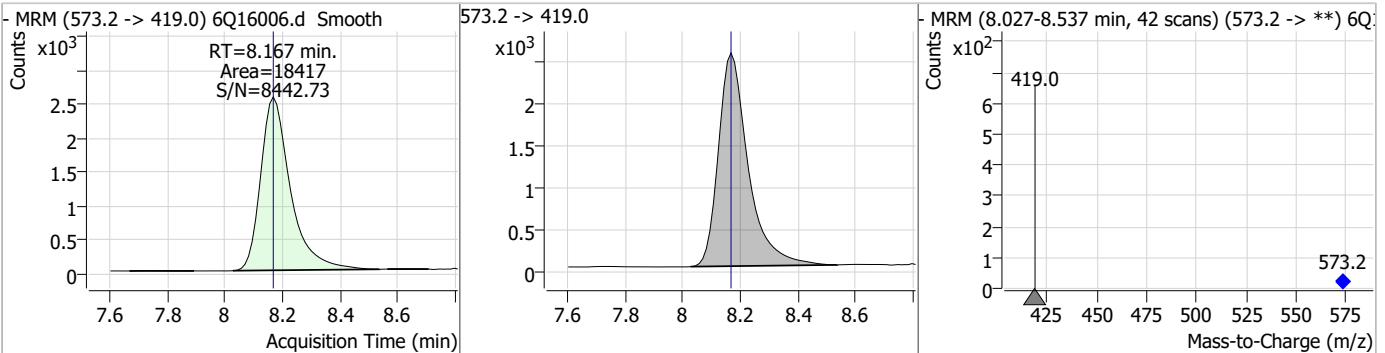


### Perfluorinated Compounds by LC/MS/MS

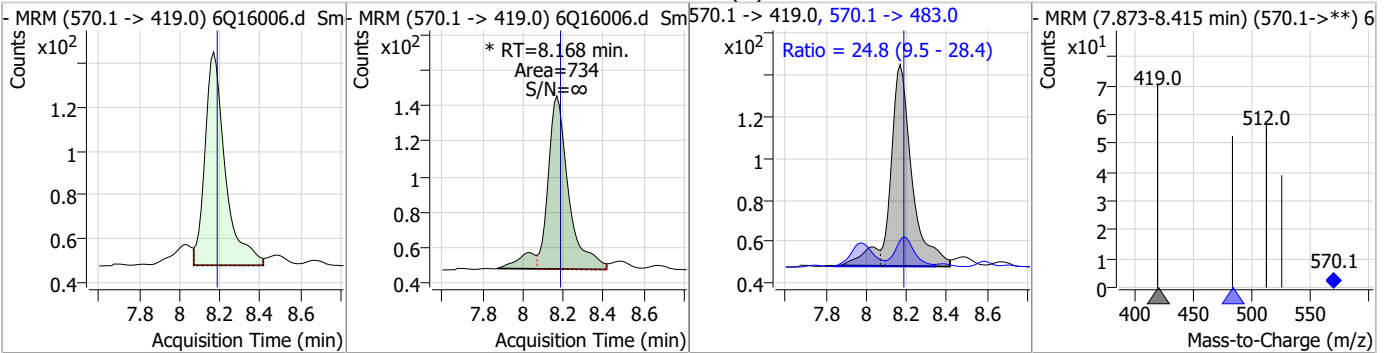
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.21	8.11	-0.01	3198	512.9 -> 219.0	14.0	7.1	21.3



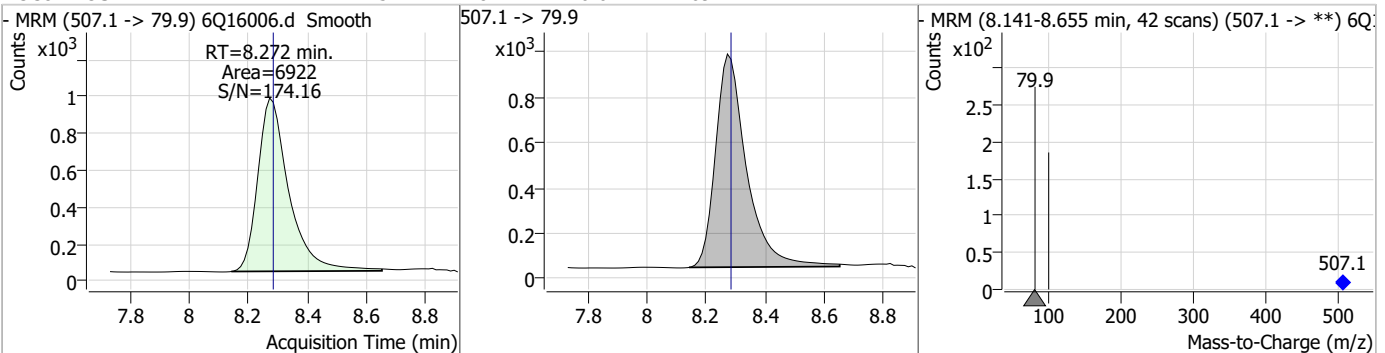
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.54	8.17	0.00	18417				



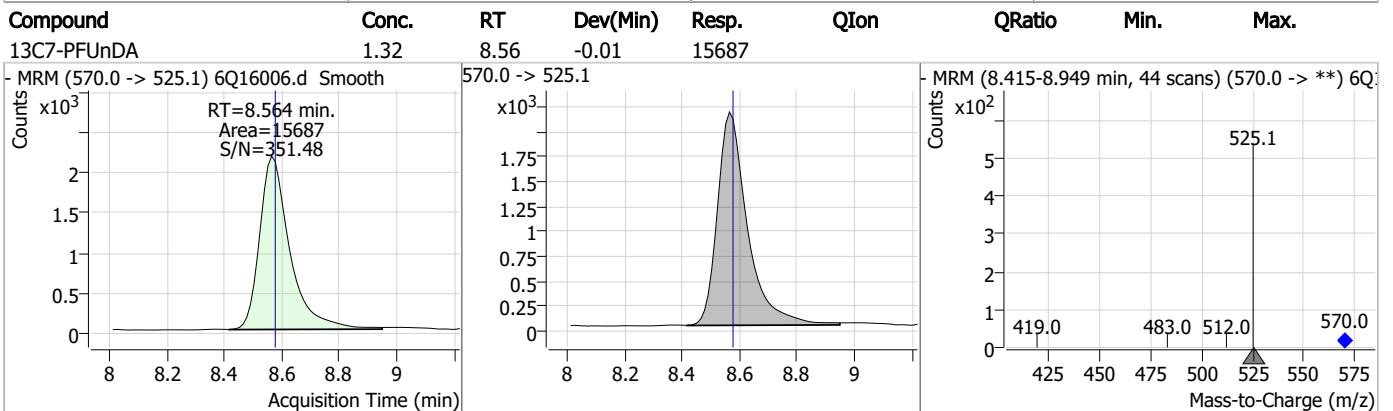
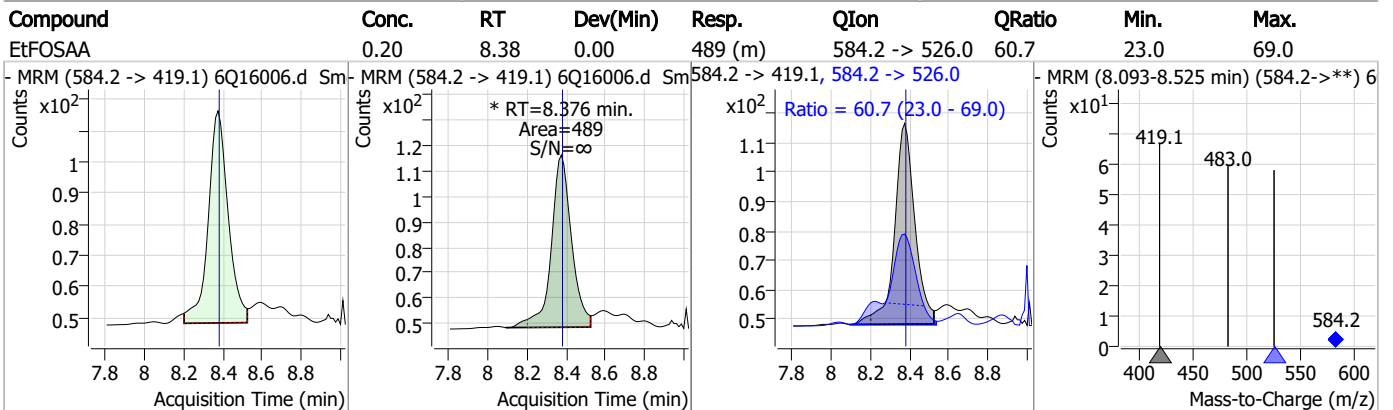
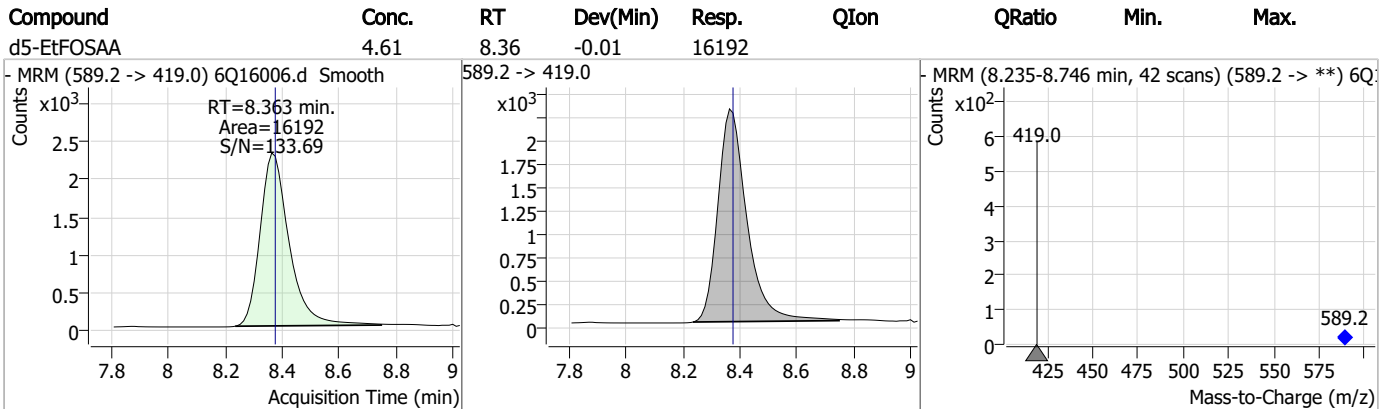
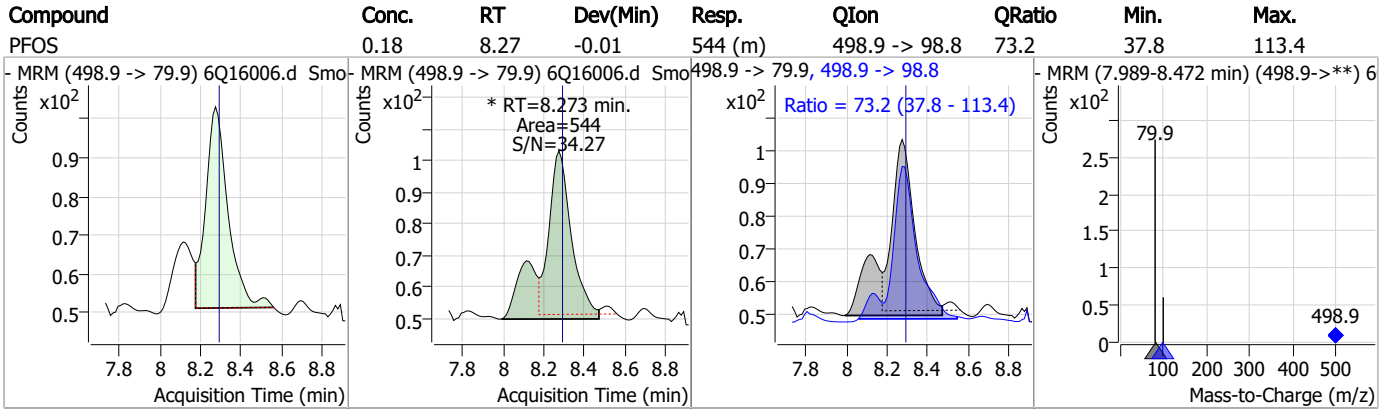
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.21	8.17	-0.01	734 (m)	570.1 -> 483.0	24.8	9.5	28.4



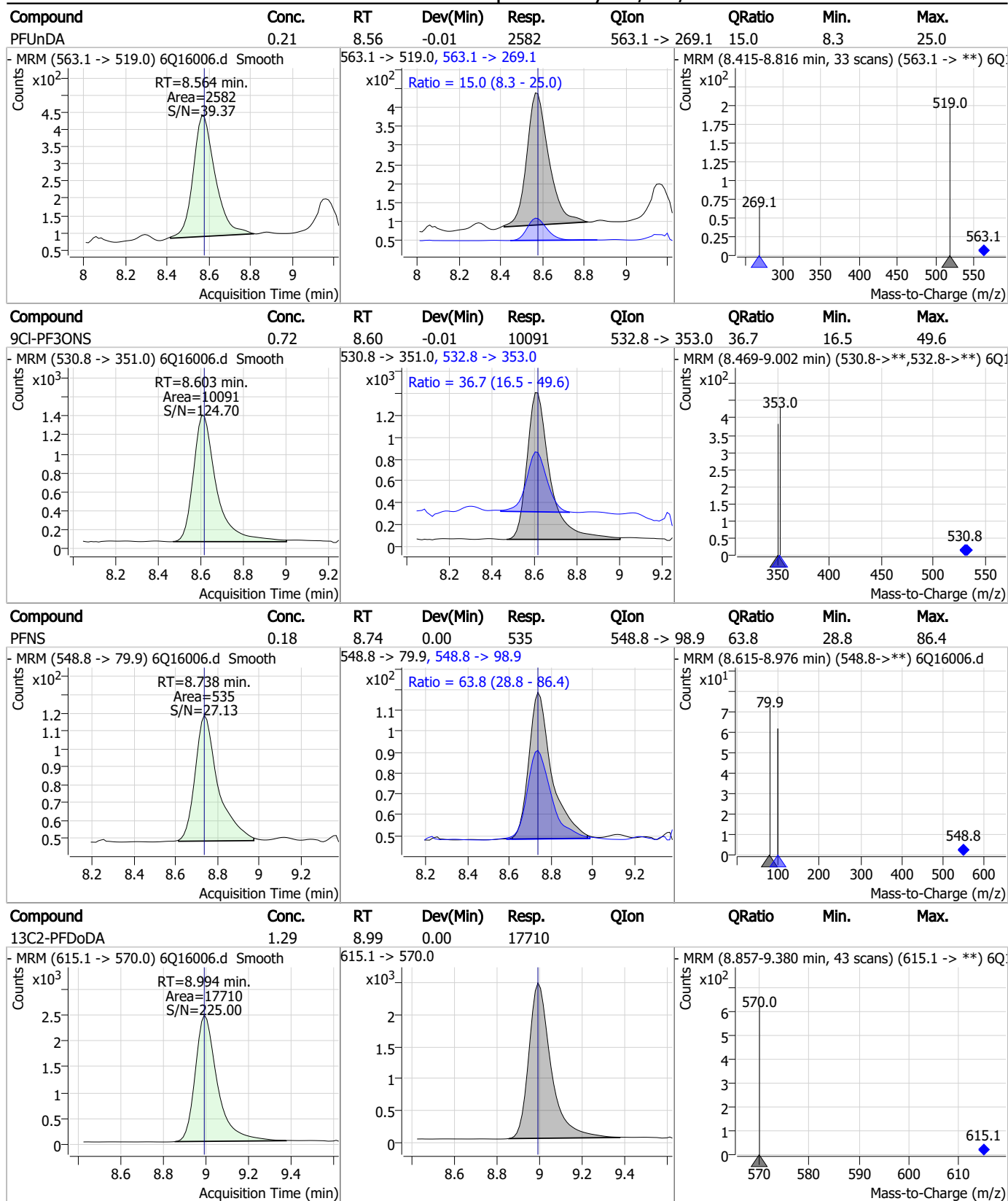
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.54	8.27	-0.01	6922				



### Perfluorinated Compounds by LC/MS/MS

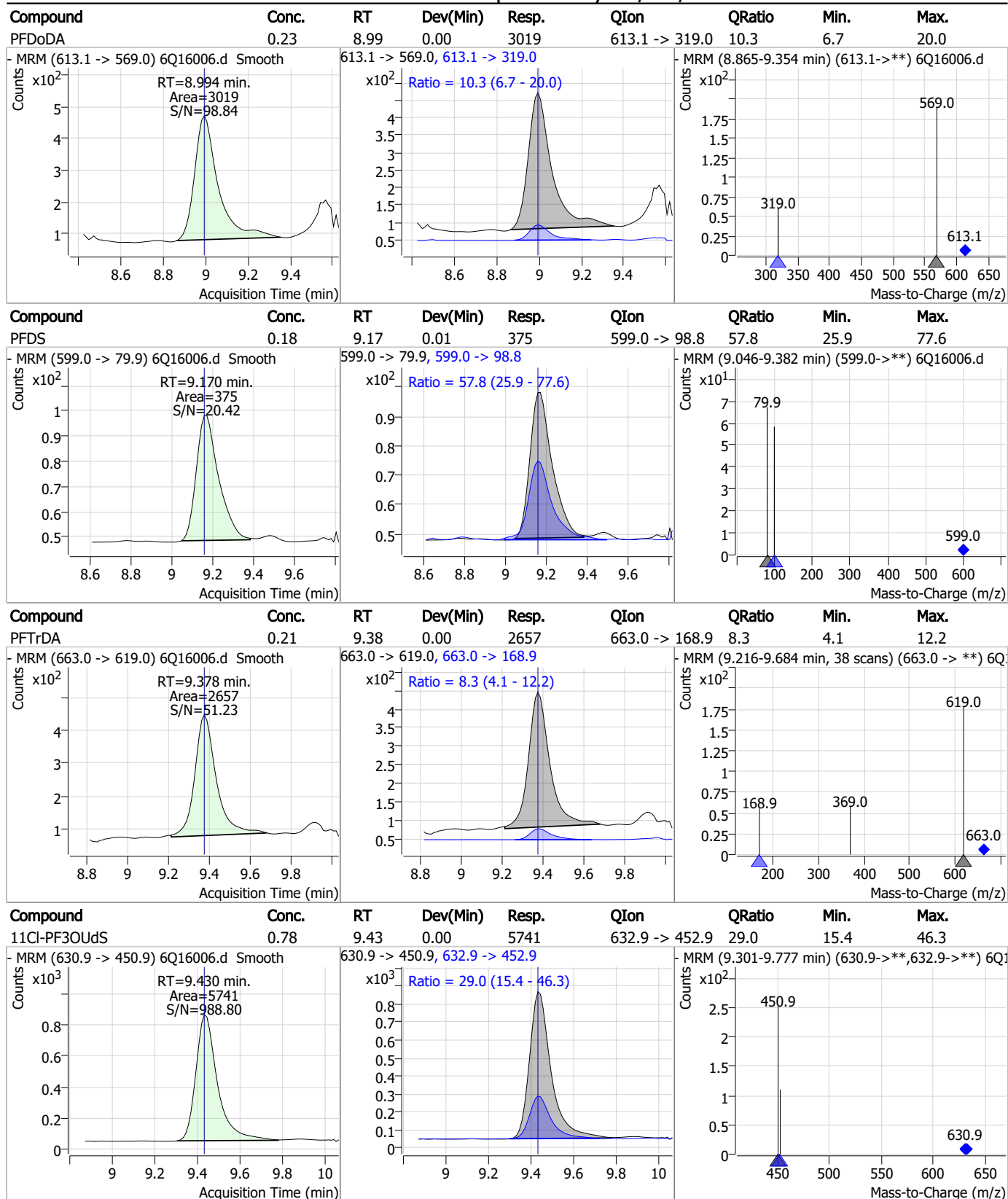


### Perfluorinated Compounds by LC/MS/MS



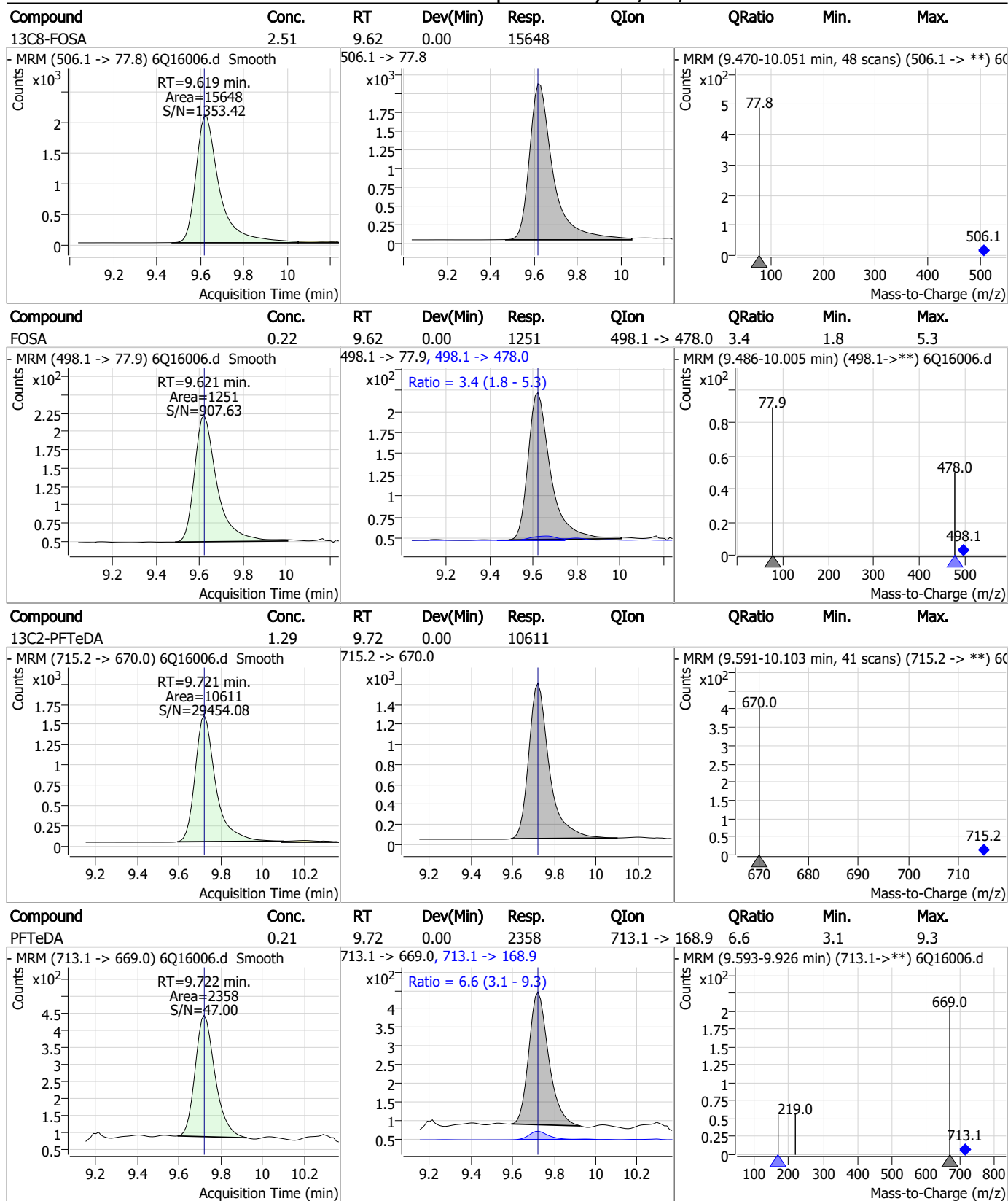
7.7.2  
7

### Perfluorinated Compounds by LC/MS/MS



7.7.2  
7

### Perfluorinated Compounds by LC/MS/MS

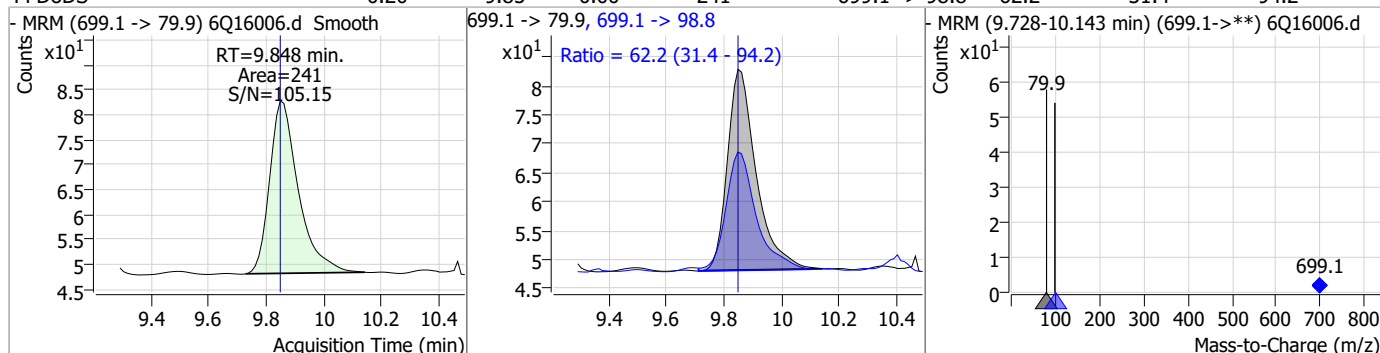


7.7.2  
7

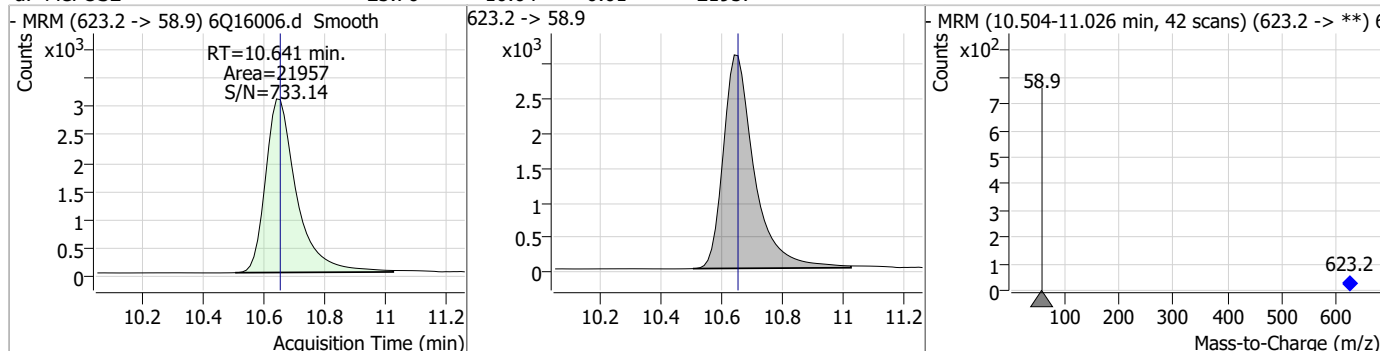


### Perfluorinated Compounds by LC/MS/MS

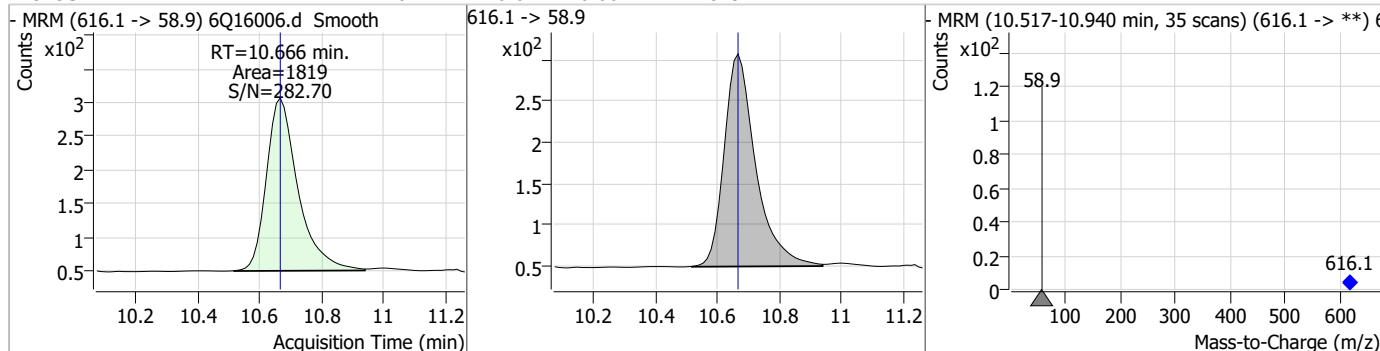
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD <sub>o</sub> DS	0.20	9.85	0.00	241	699.1 -> 98.8	62.2	31.4	94.2



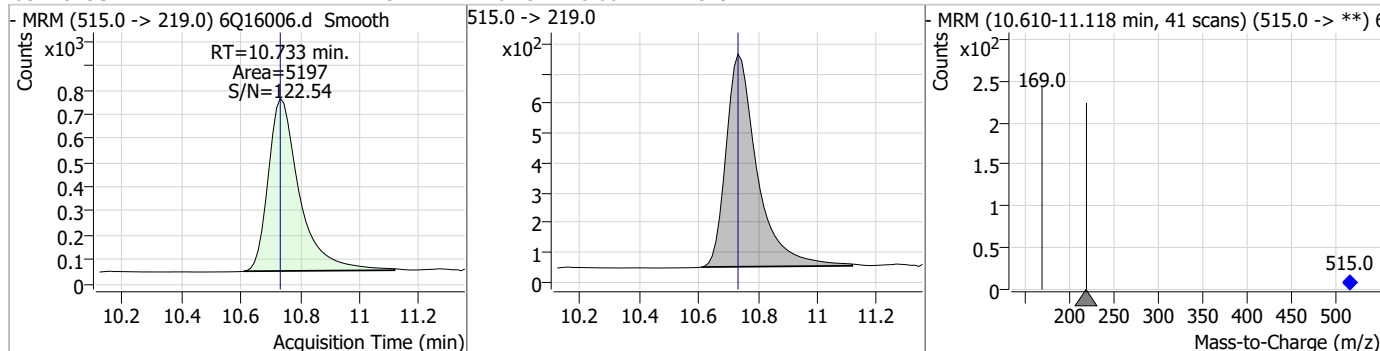
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.76	10.64	-0.01	21957				



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

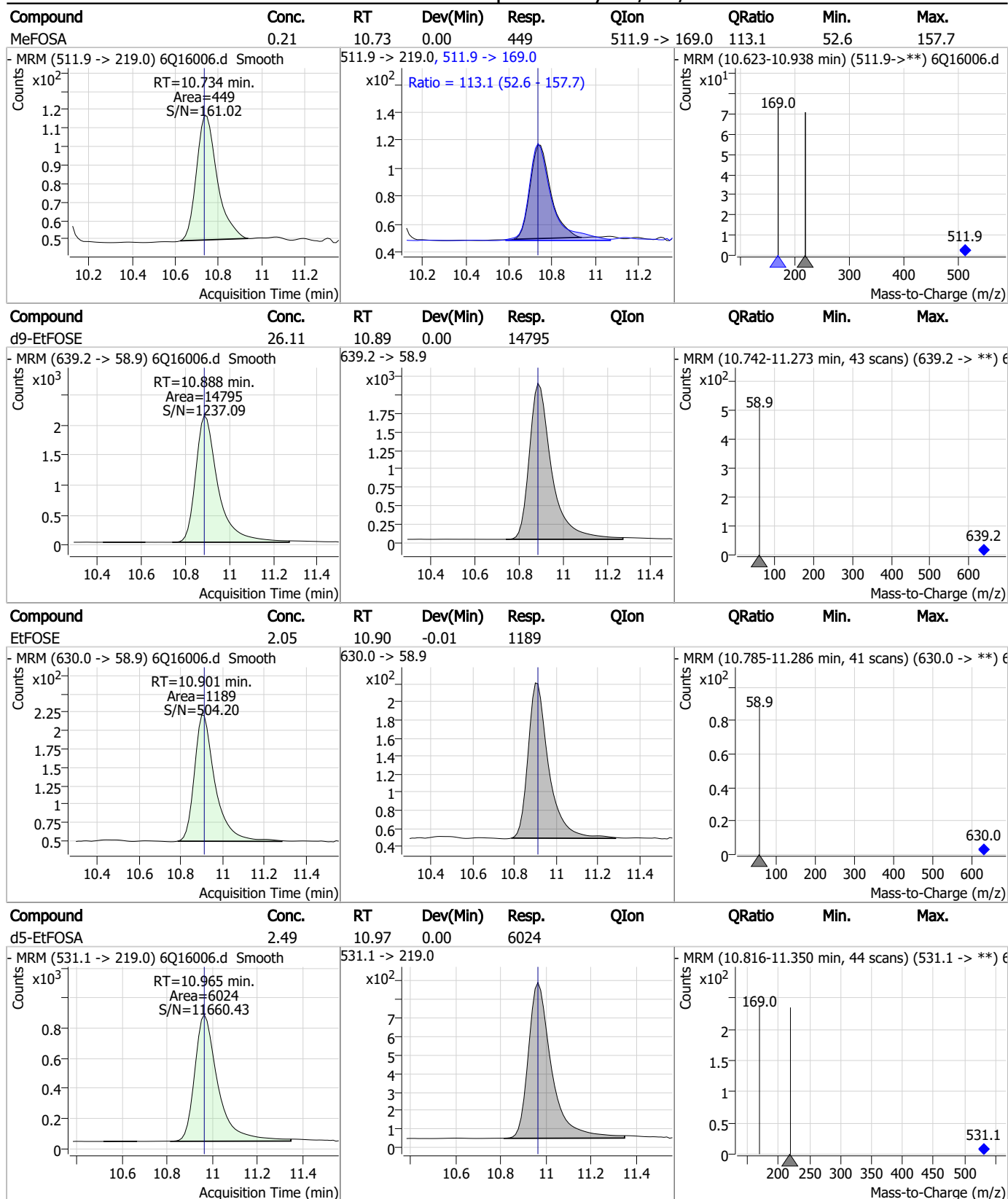


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.31	10.73	0.00	5197				



7.7.2  
7

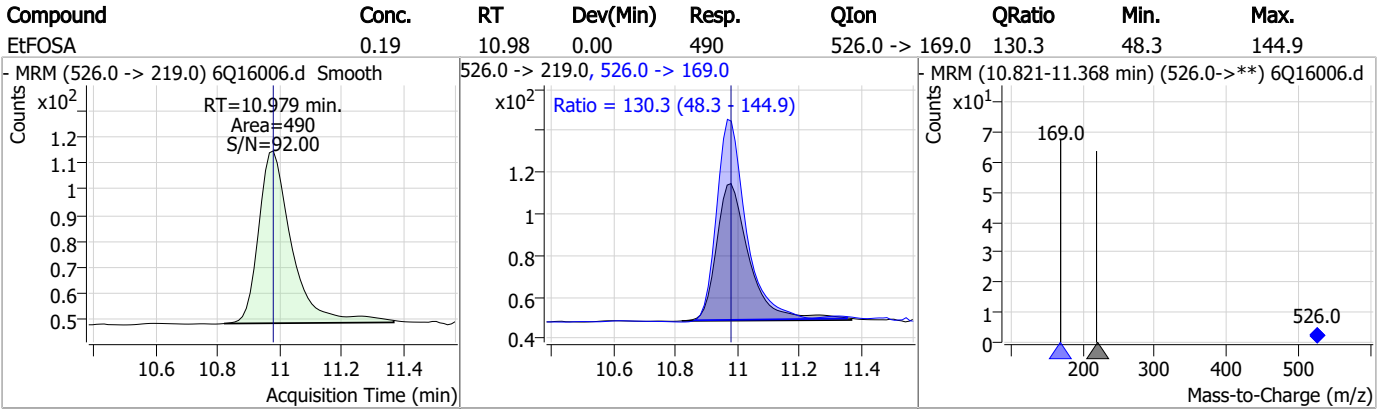
### Perfluorinated Compounds by LC/MS/MS



7.7.2  
7



Perfluorinated Compounds by LC/MS/MS



7.7.2

7

# Manual Integration Approval Summary

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

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

7.7.2.1  
7

## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16007.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 4/4/2023 2:29:41 PM  
 Sample Name : ic239-2  
 Vial : P1-A3  
 DA Method File : 1633\_040423\_S6Q239.quantmethod.xml  
 Batch Name : s6q239.batch.bin  
 Sample Information : OP96085,S6Q239,500,,,5.0,1,water

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

## Perfluorinated Compounds by LC/MS/MS

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

## Perfluorinated Compounds by LC/MS/MS

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

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

### Perfluorinated Compounds by LC/MS/MS

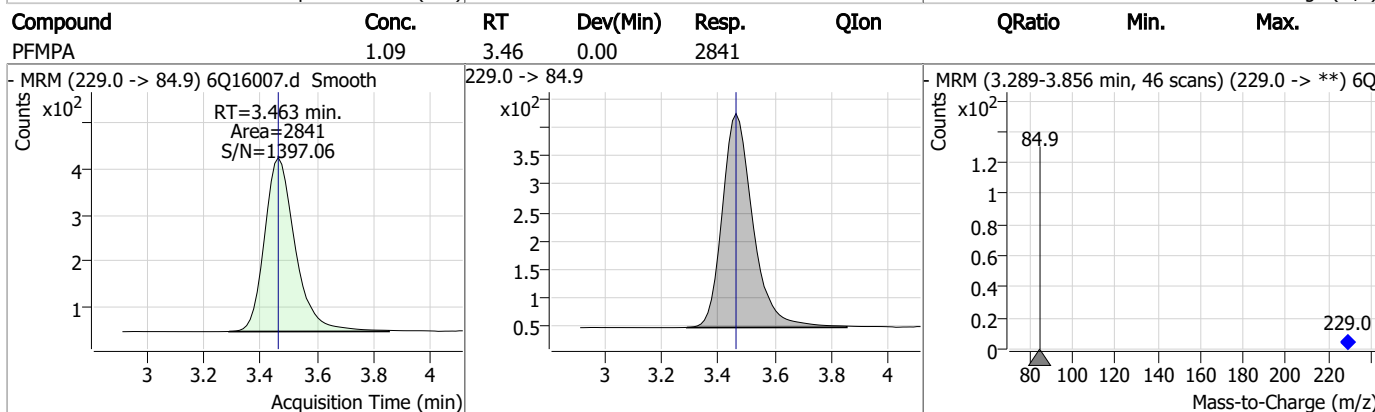
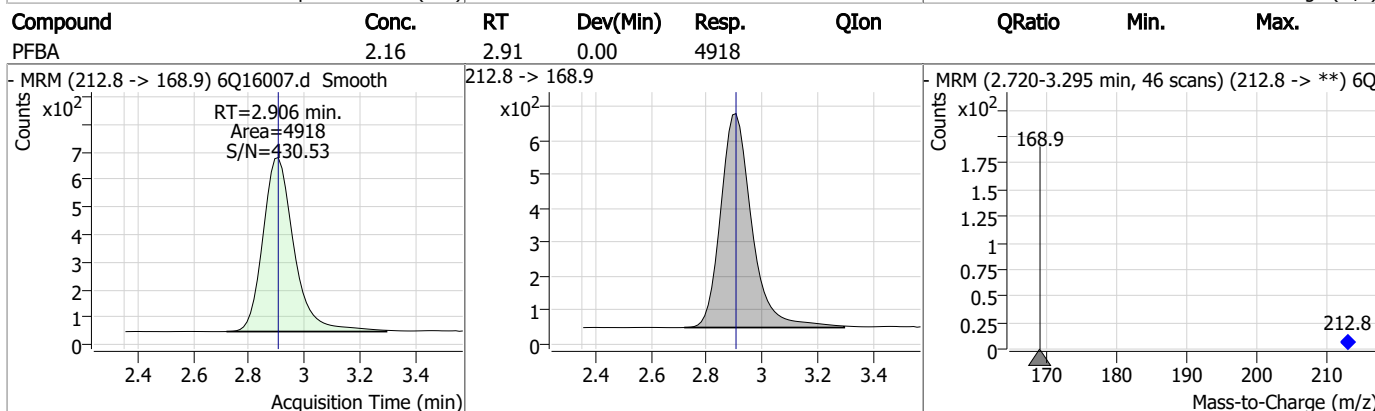
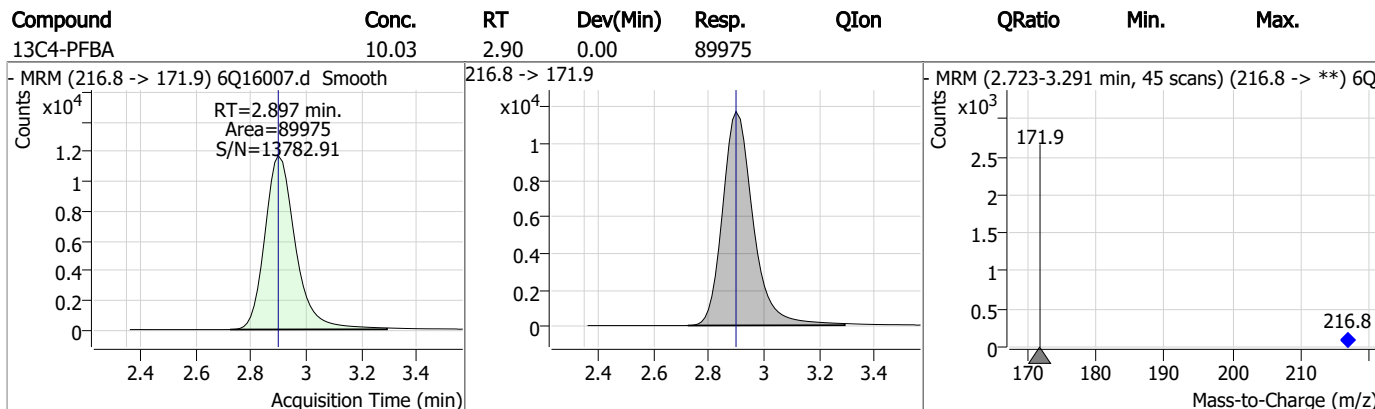
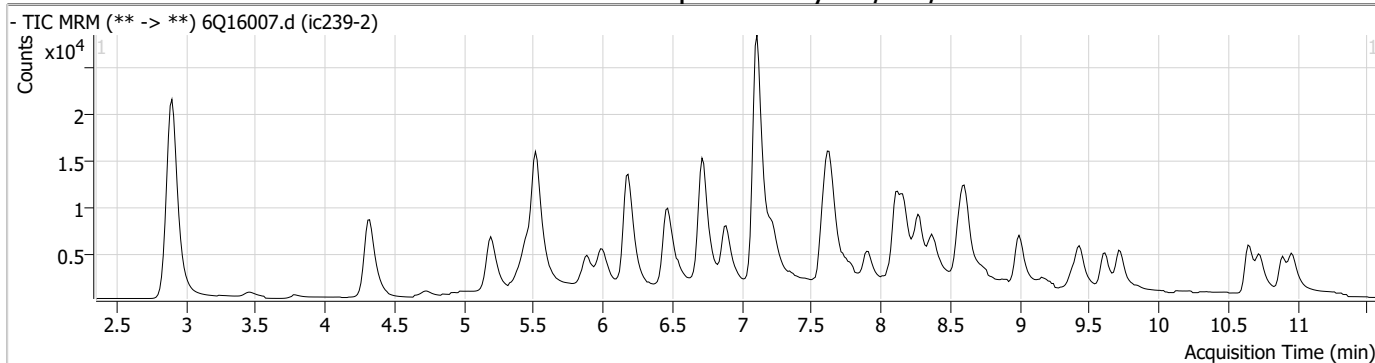
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.3

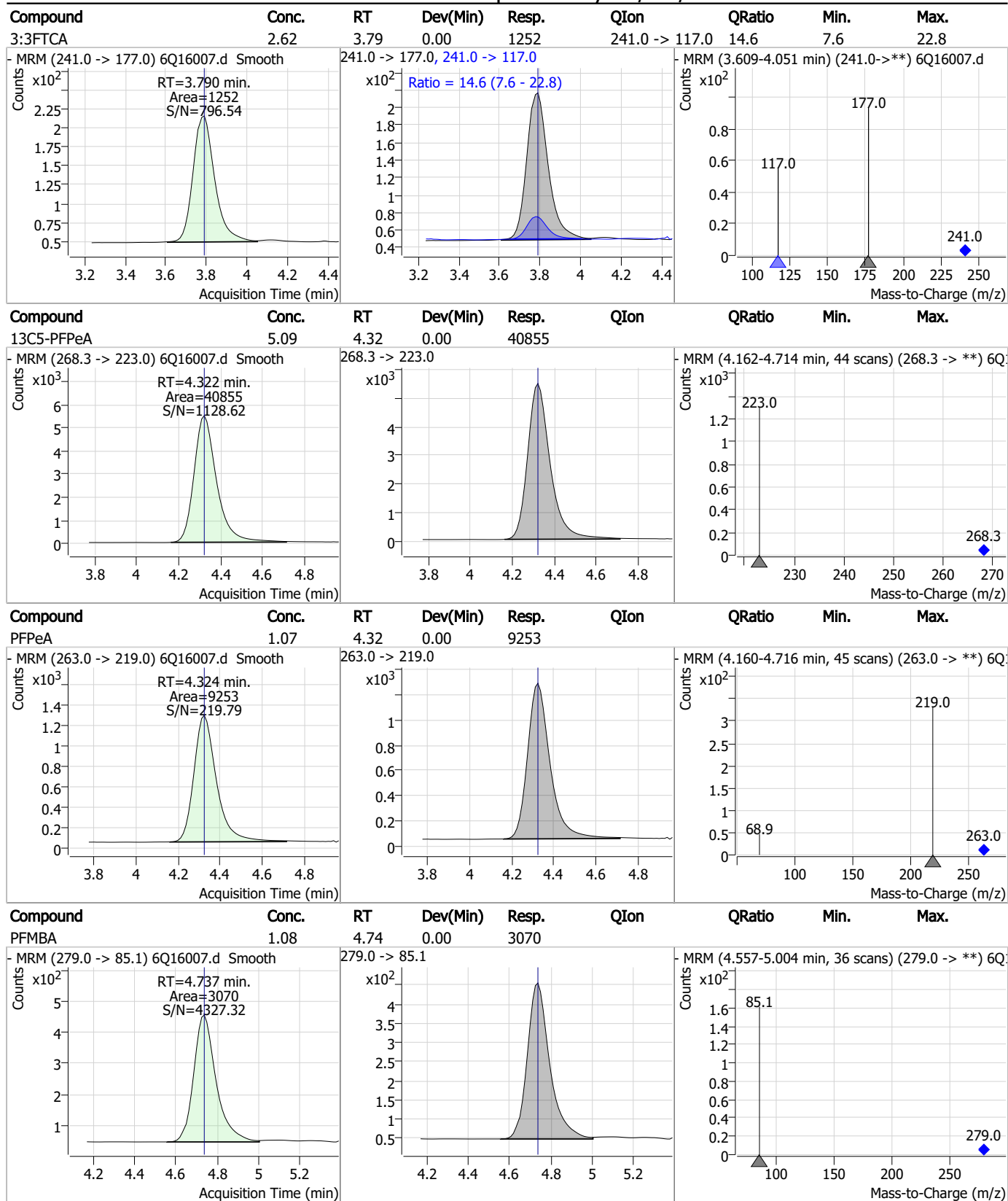
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### Perfluorinated Compounds by LC/MS/MS



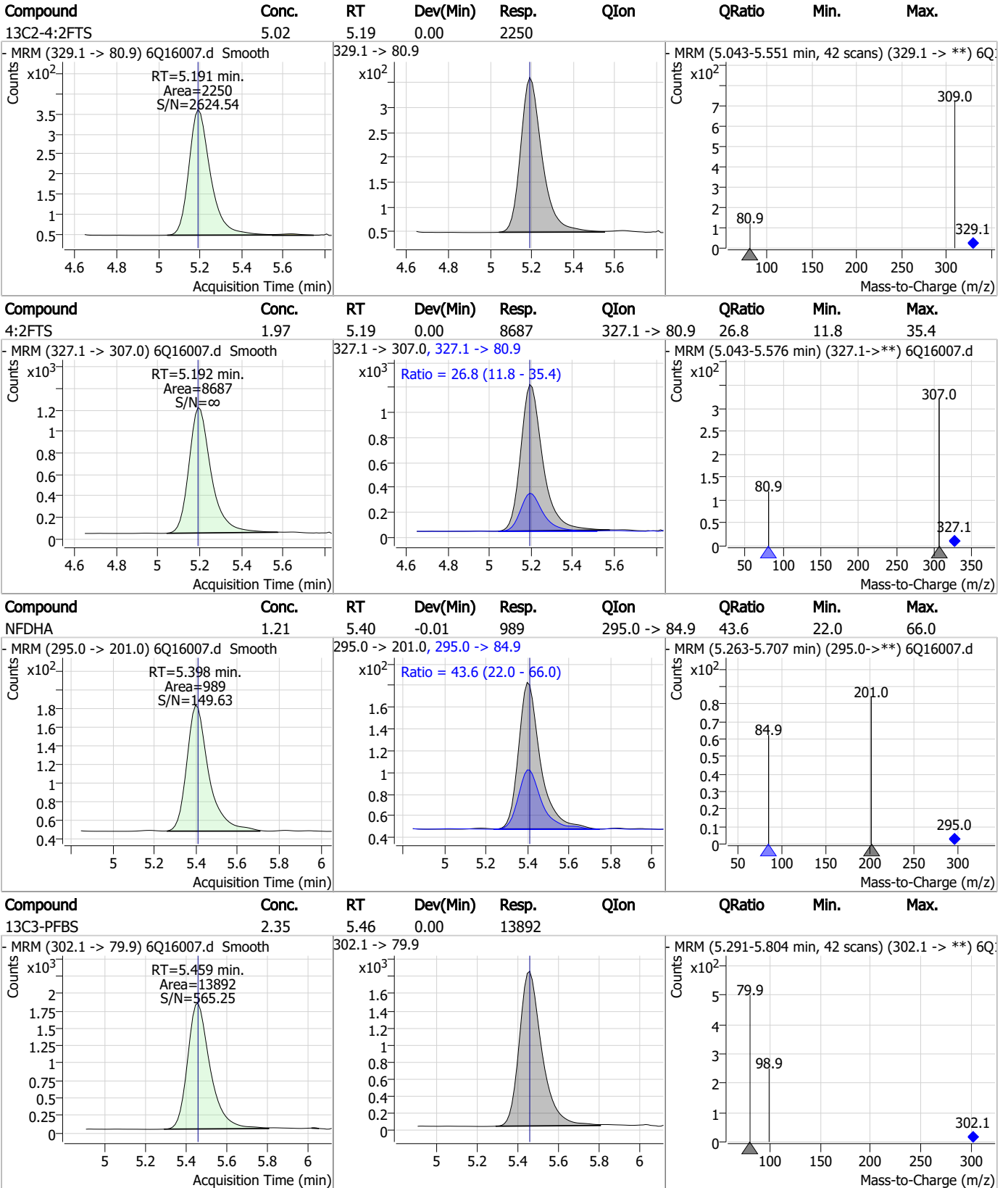
### Perfluorinated Compounds by LC/MS/MS



7.7.3

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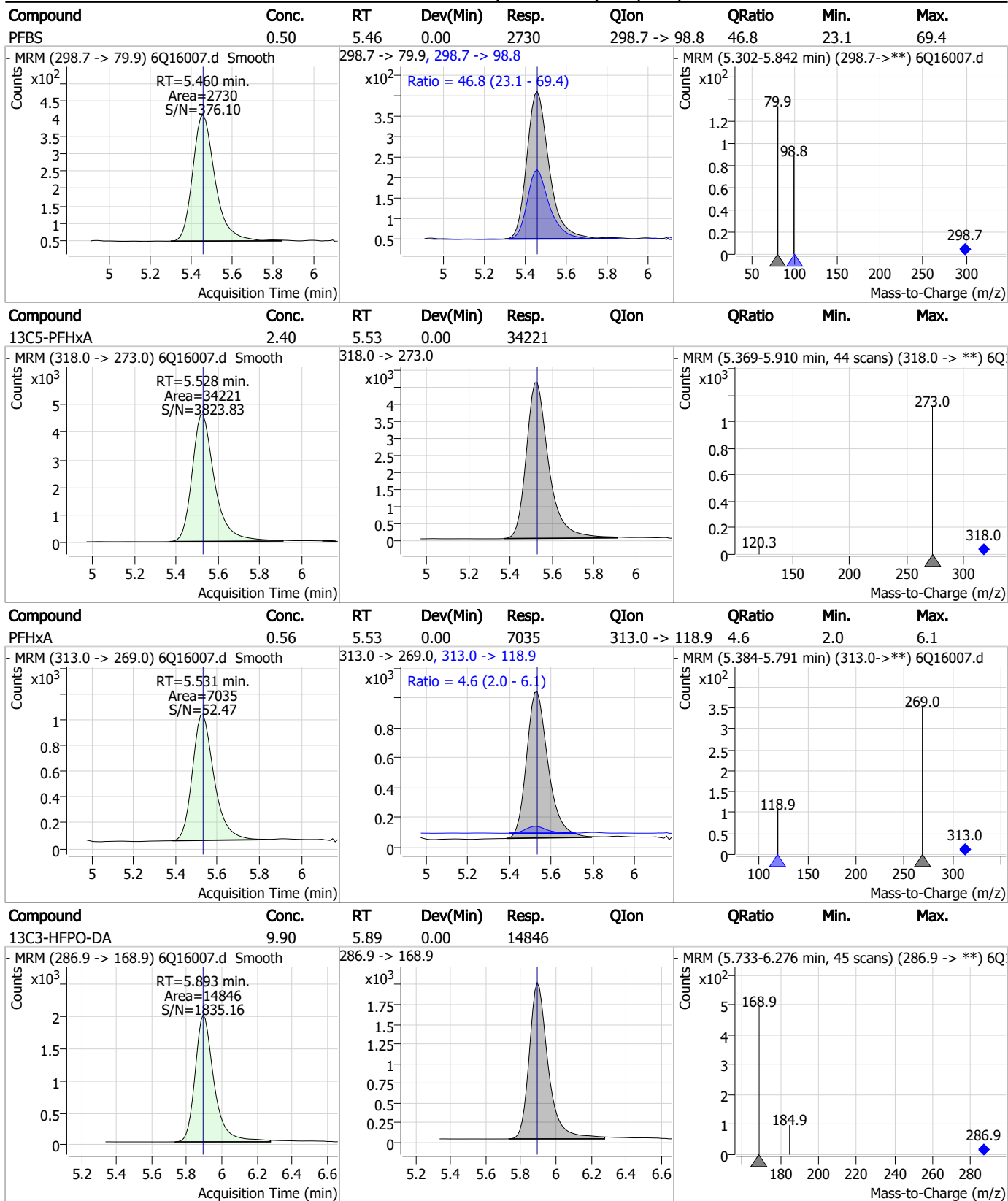
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7.7.3

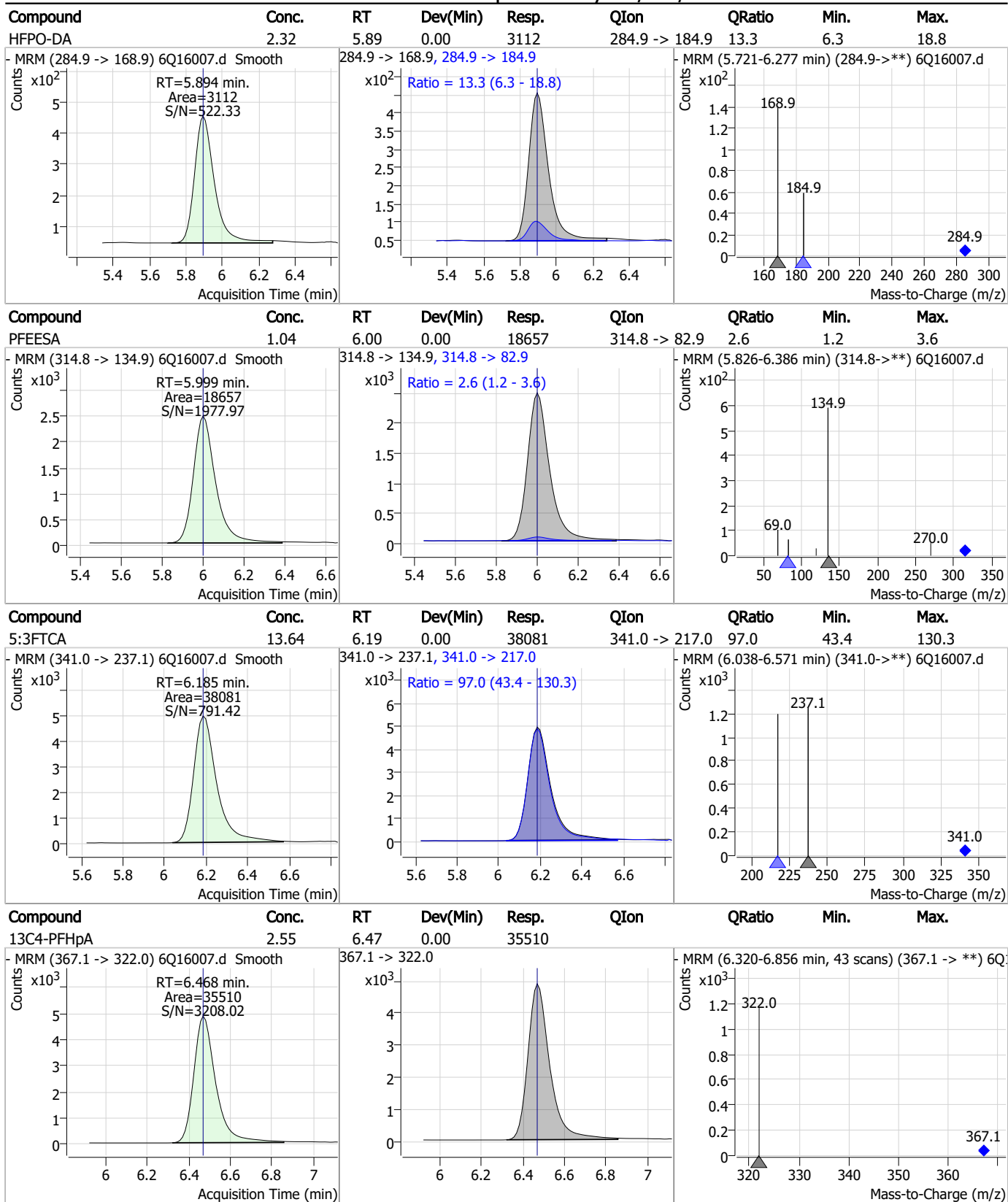
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### Perfluorinated Compounds by LC/MS/MS



7.7.3  
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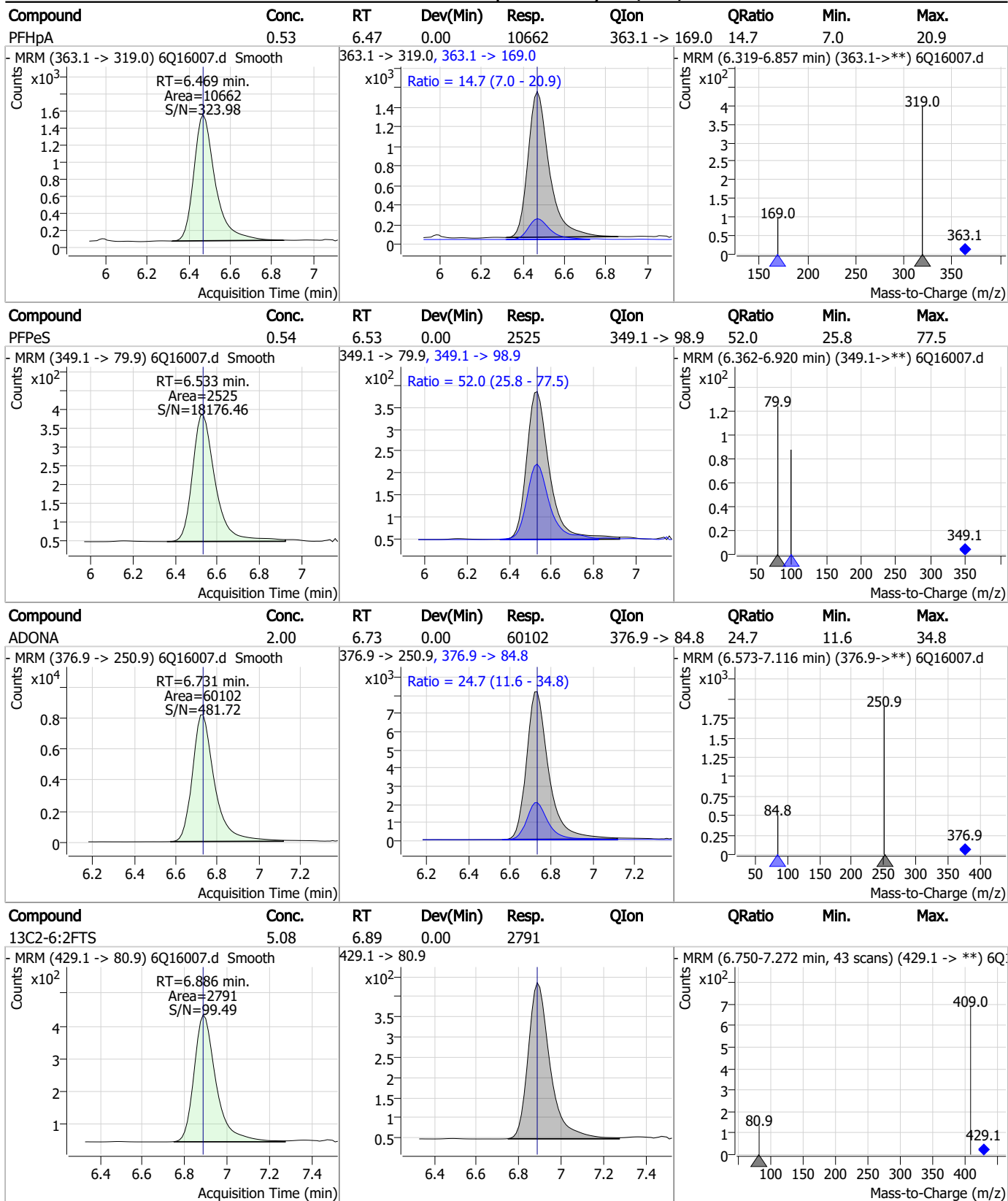
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7.7.3

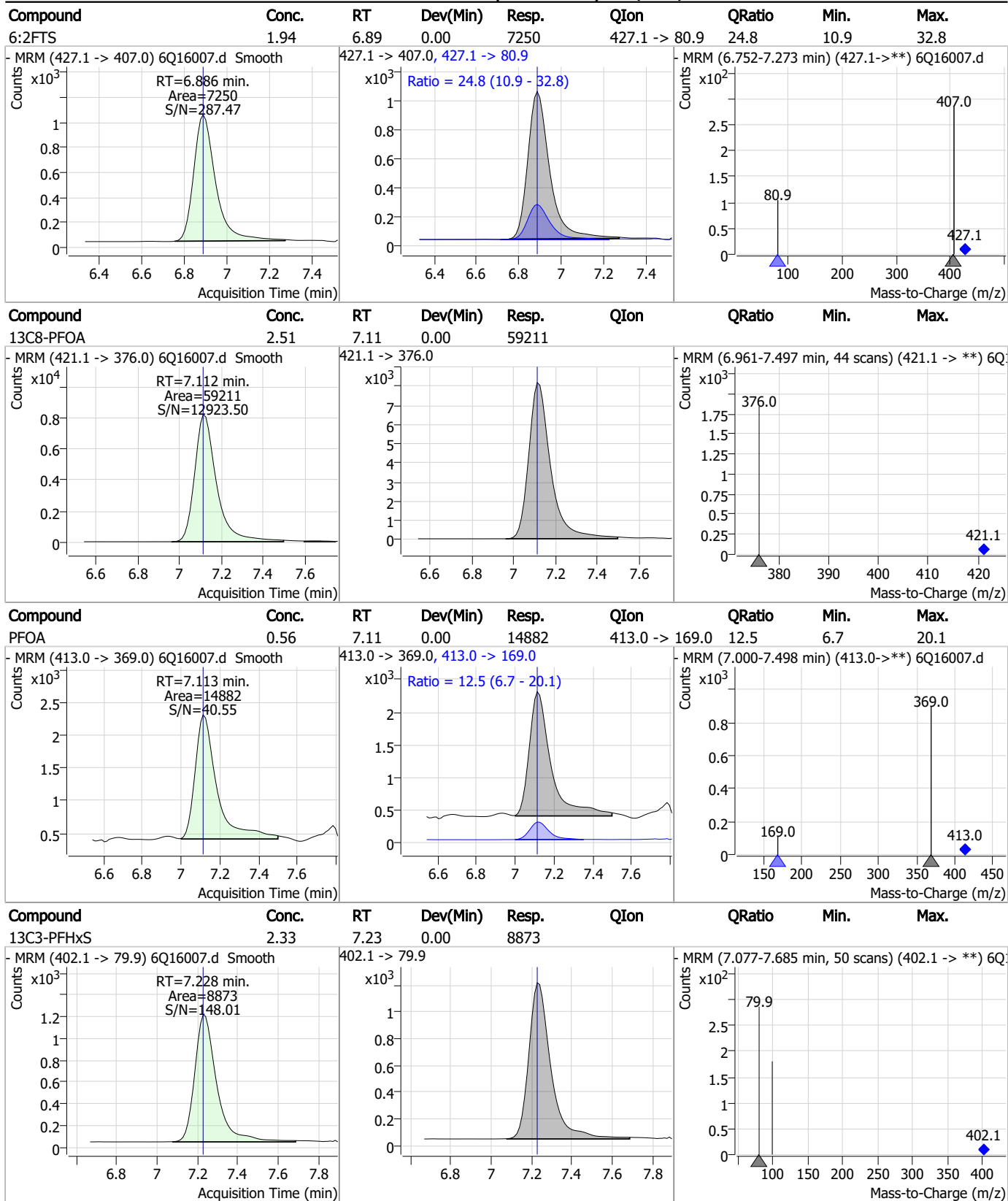
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### Perfluorinated Compounds by LC/MS/MS



7.7.3  
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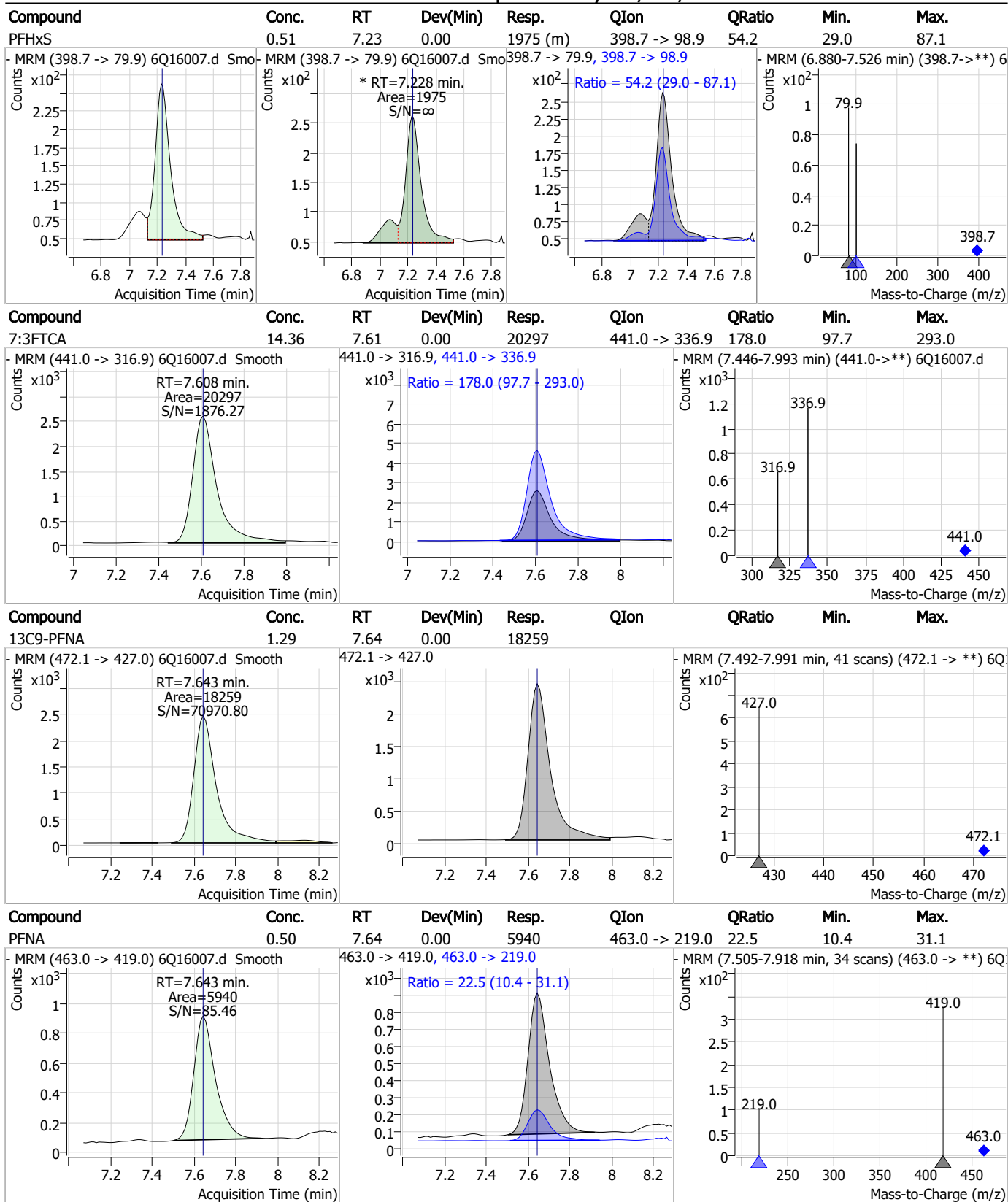
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7.7.3

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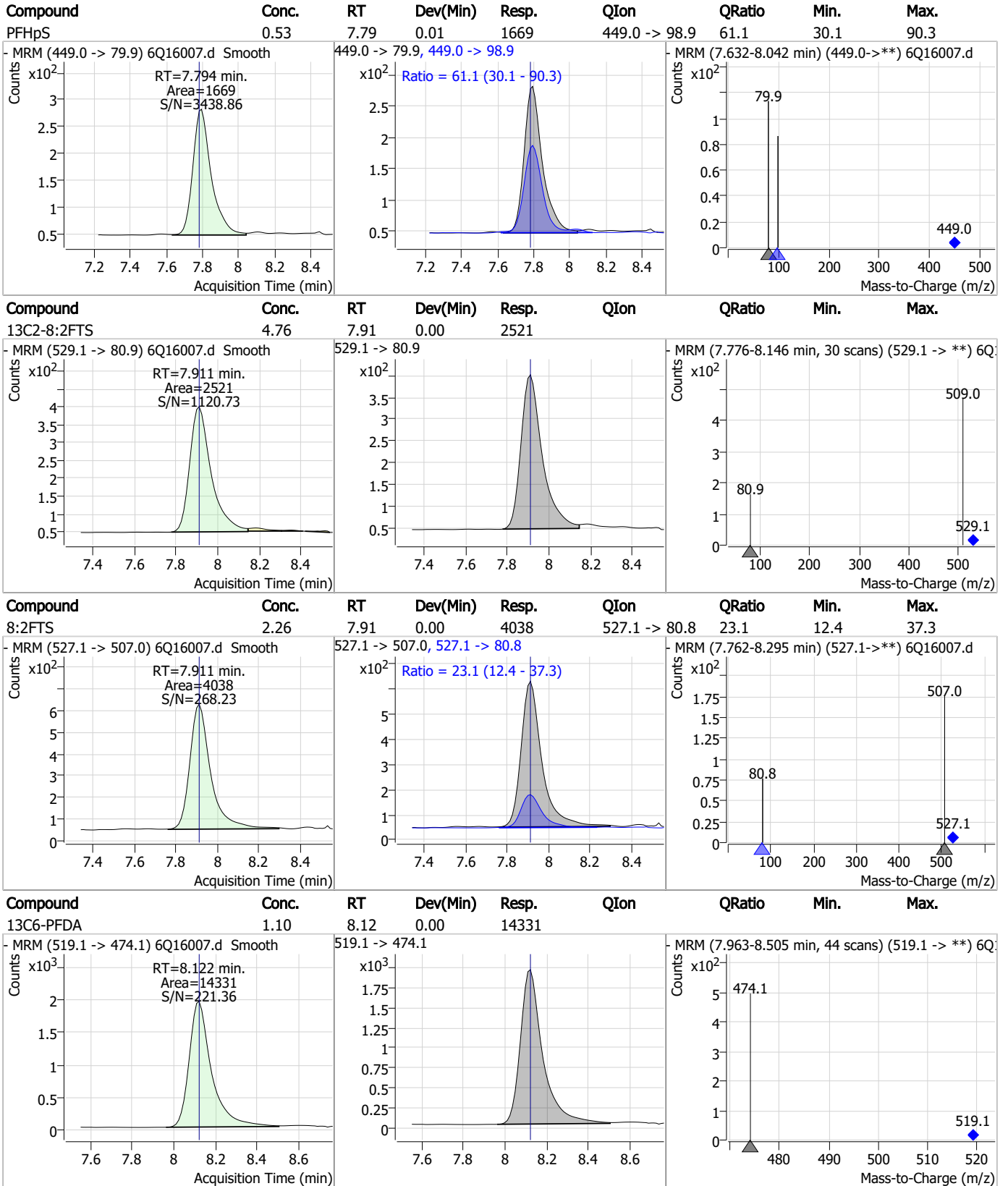
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7.7.3  
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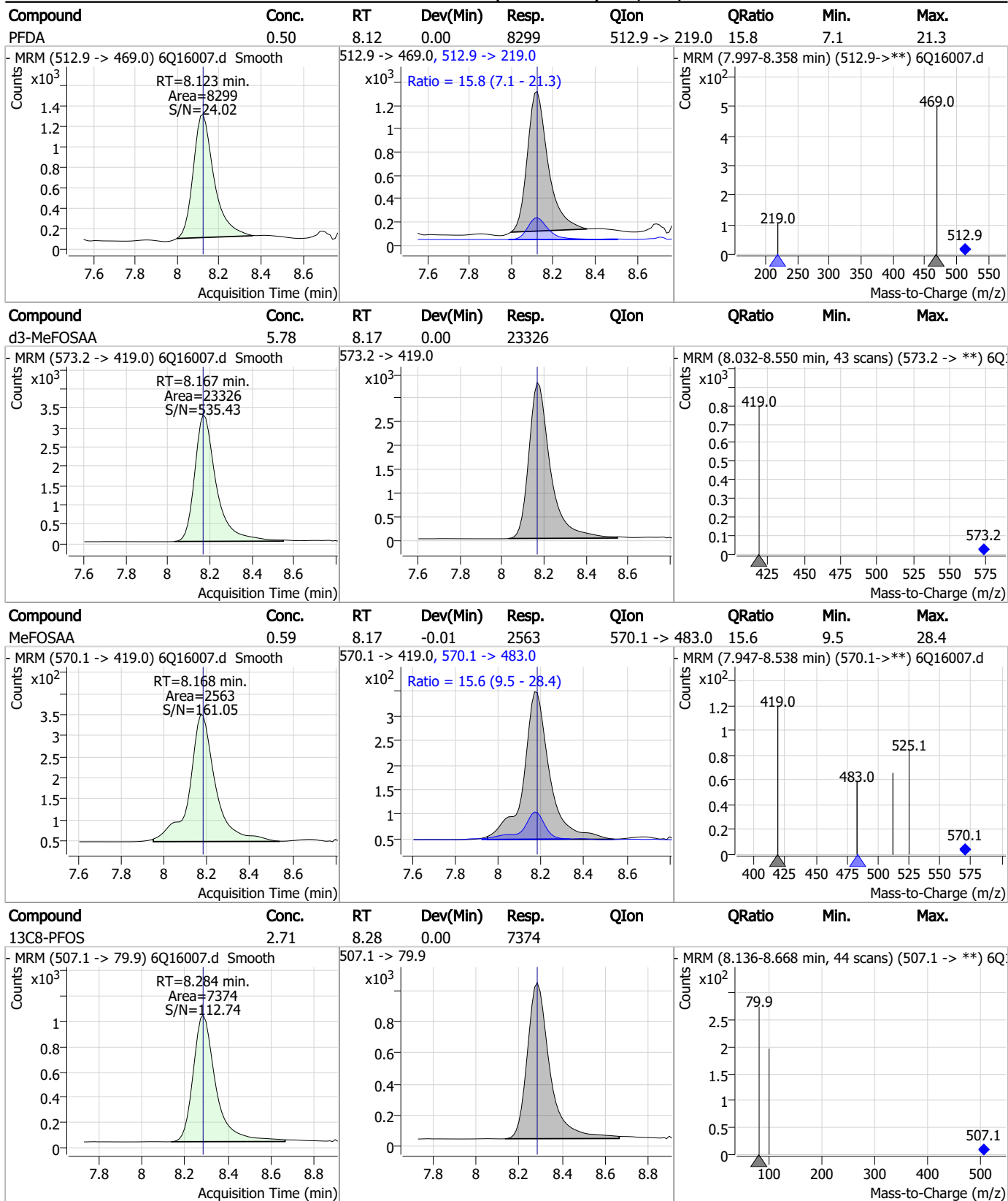
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7.7.3

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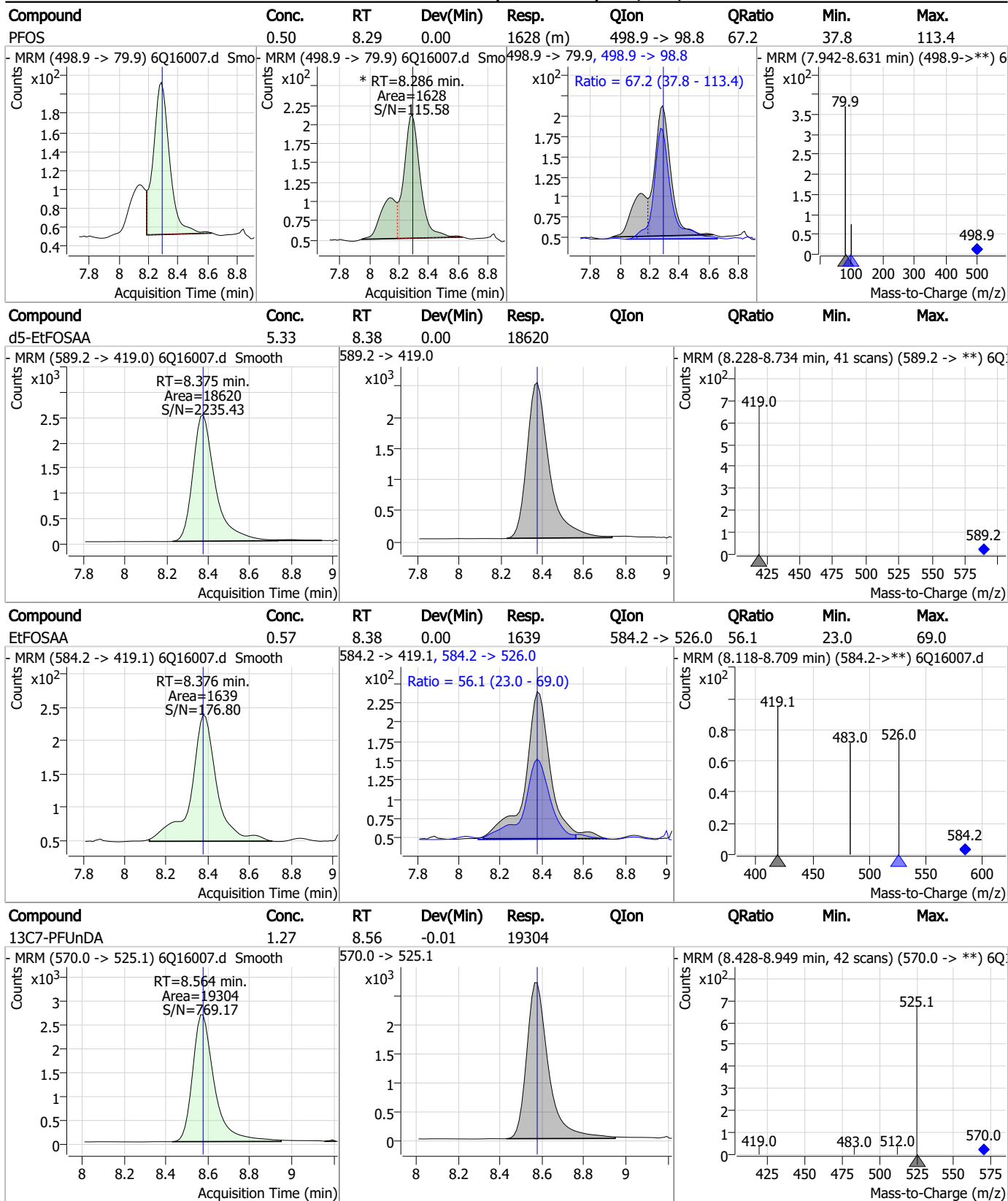
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7.7.3

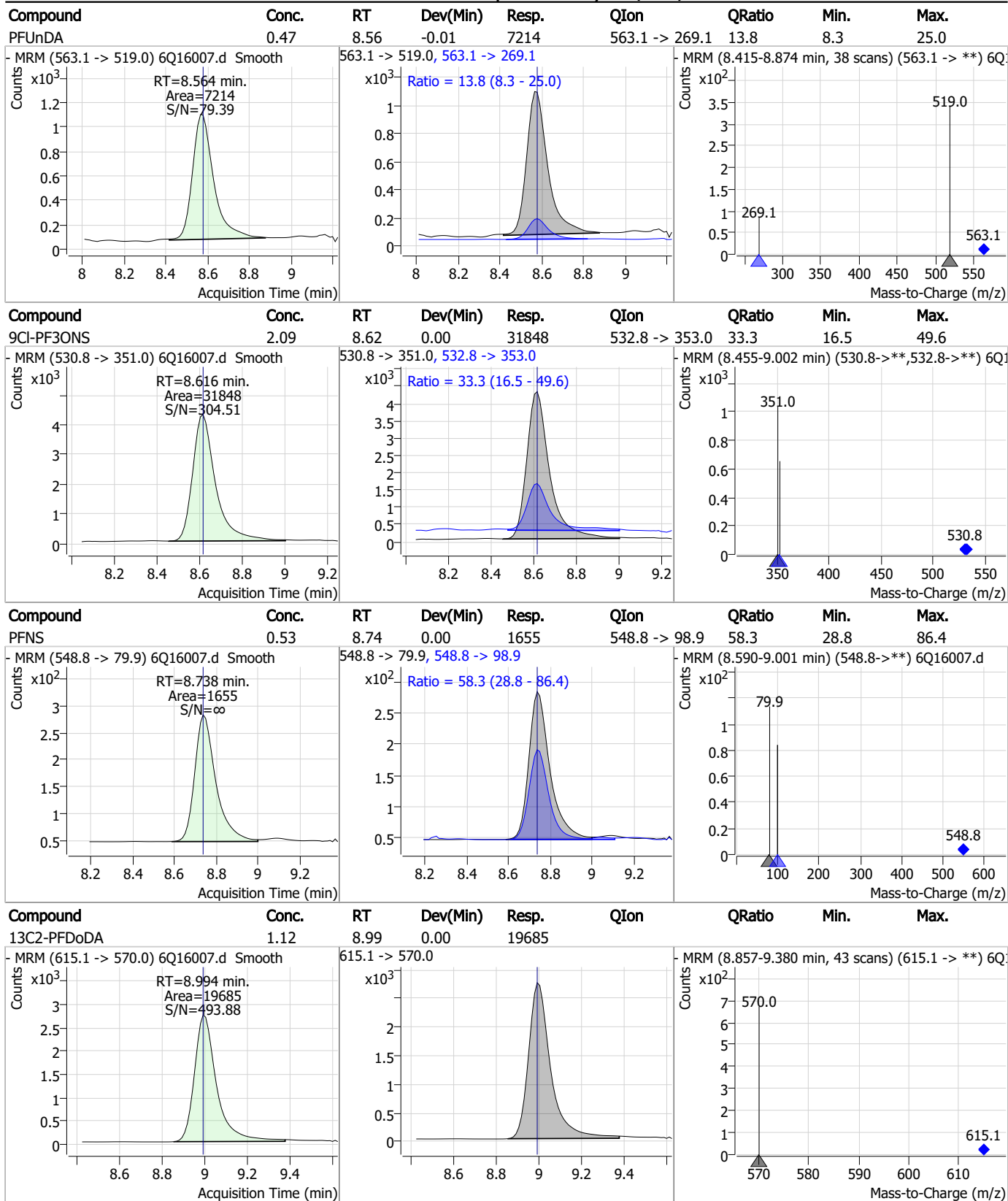
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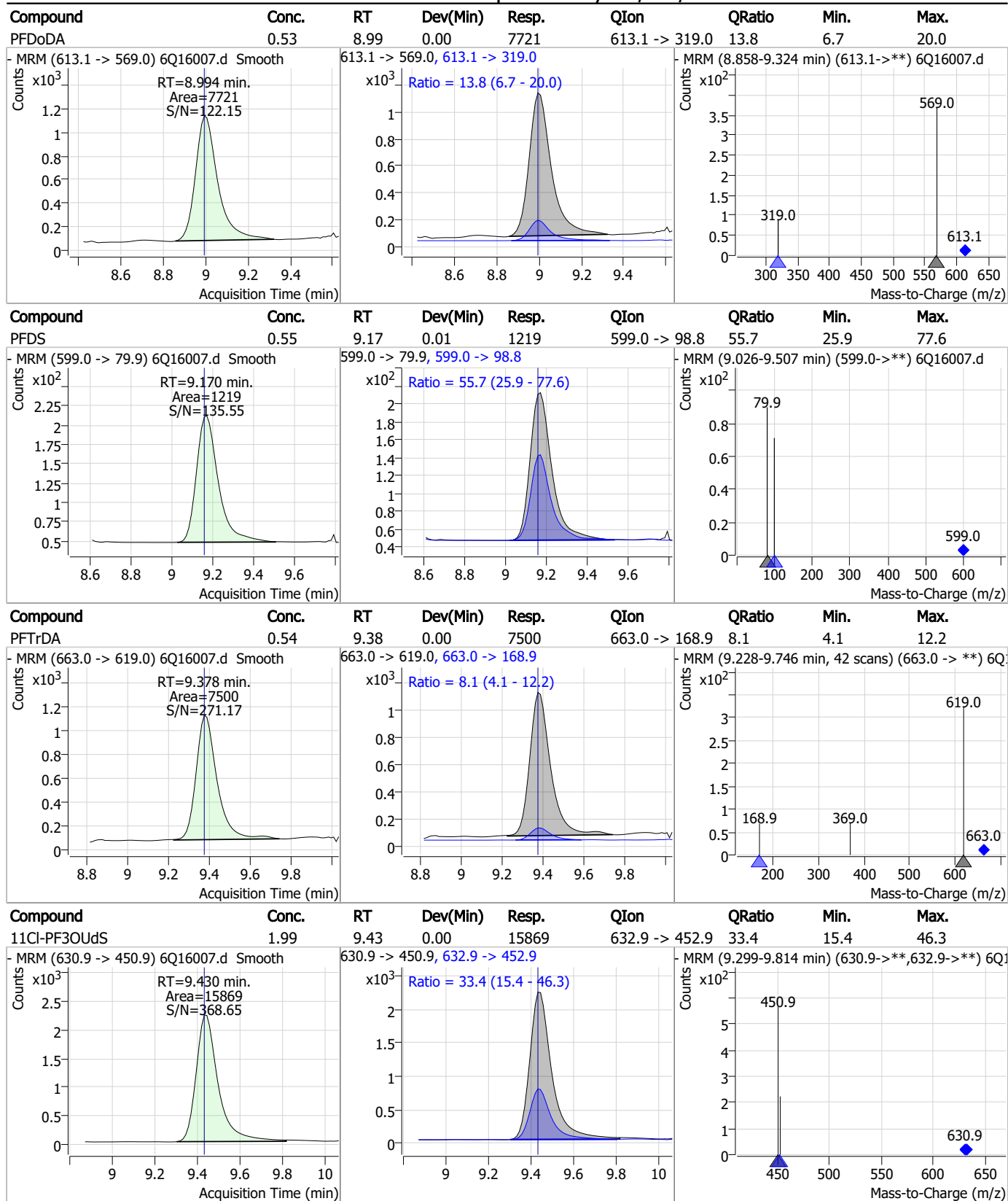
7.7.3  
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### Perfluorinated Compounds by LC/MS/MS



7.7.3  
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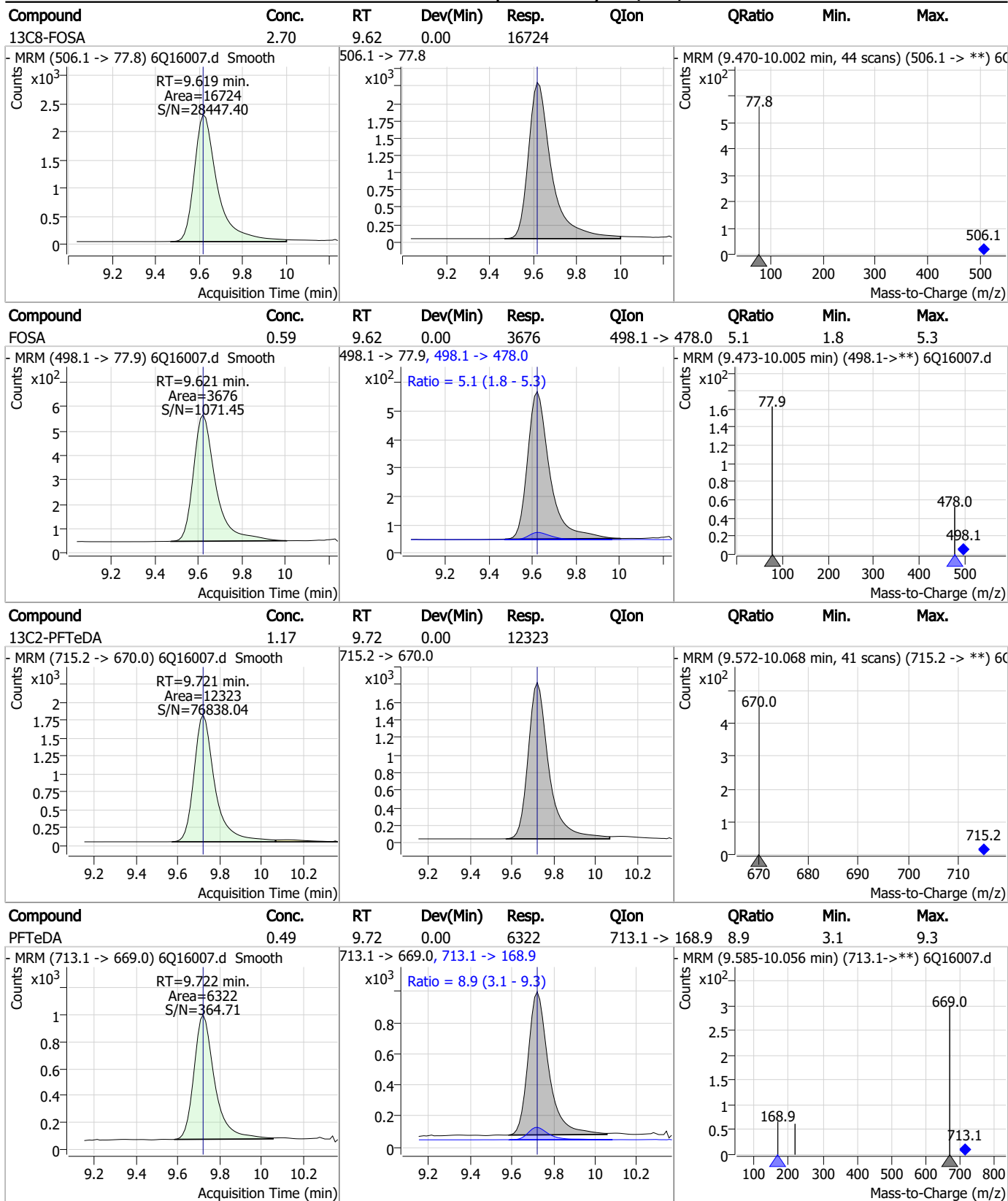
### Perfluorinated Compounds by LC/MS/MS



7.7.3

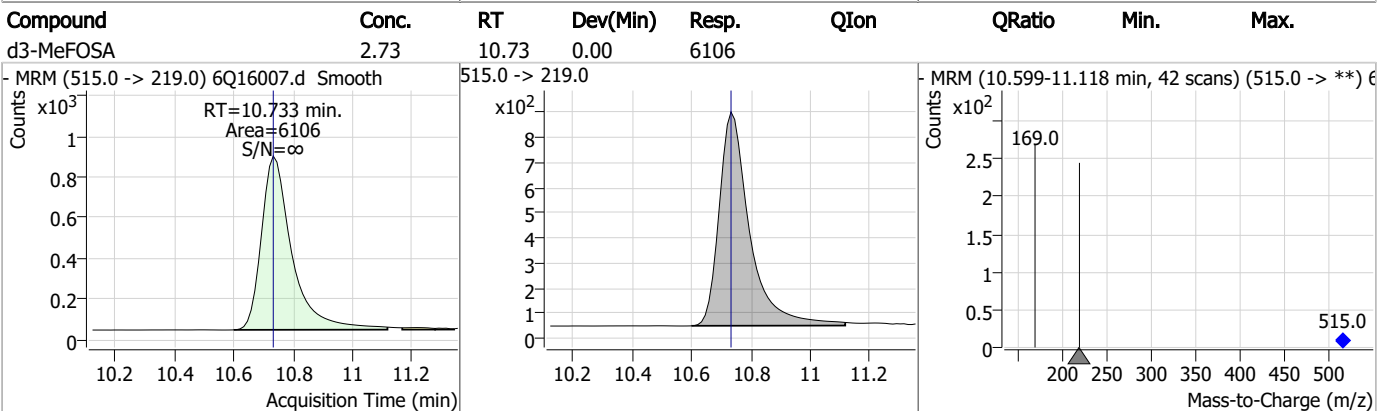
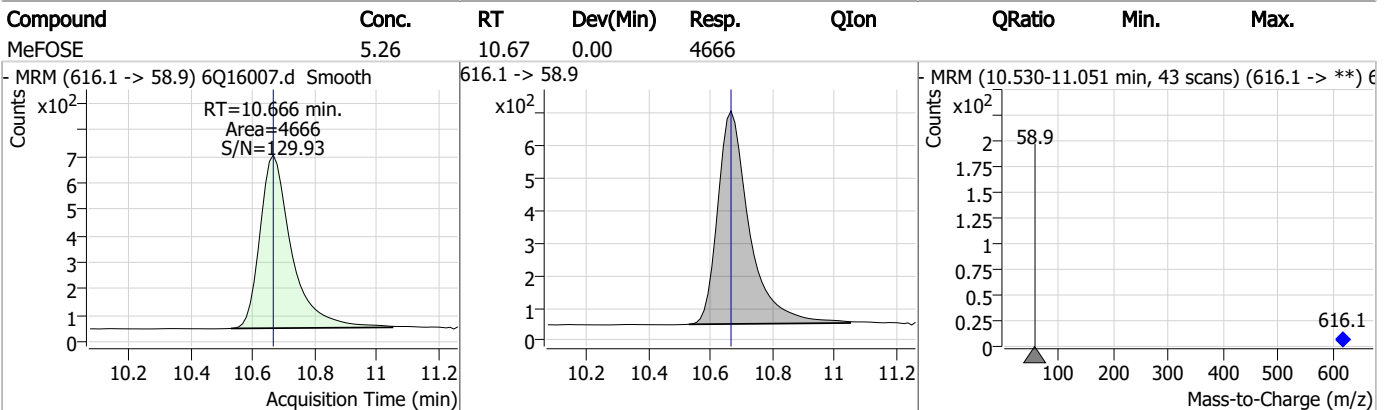
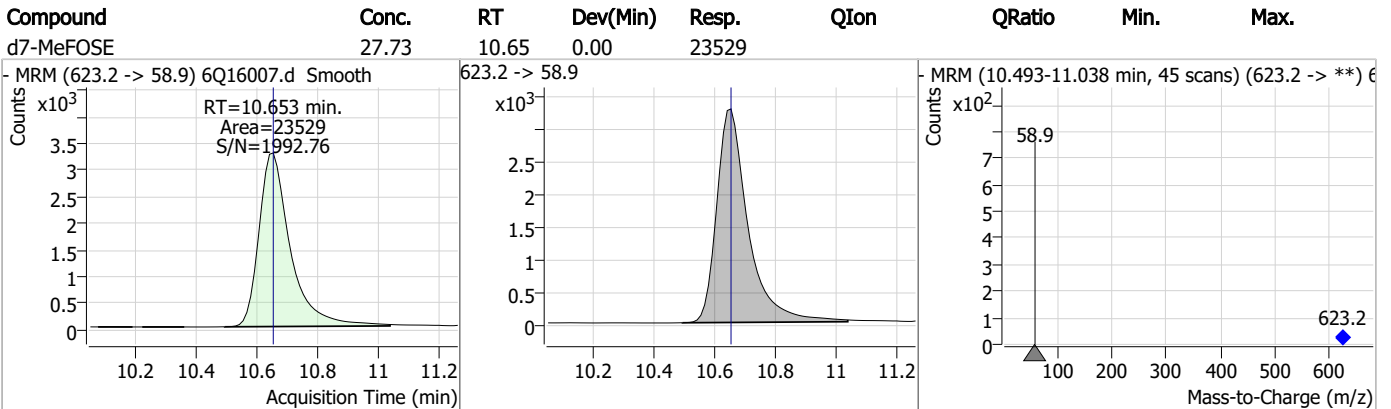
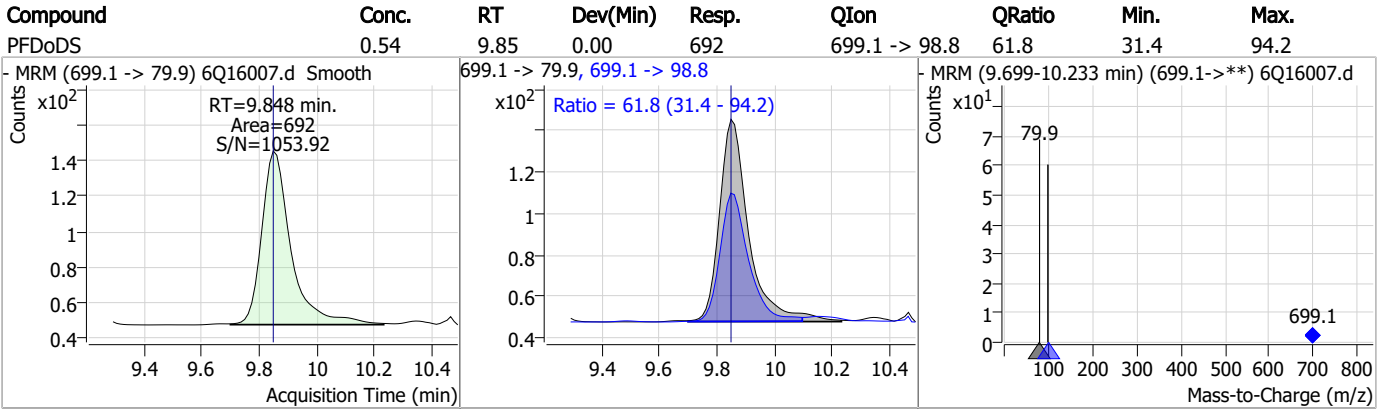
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### Perfluorinated Compounds by LC/MS/MS



7.7.3  
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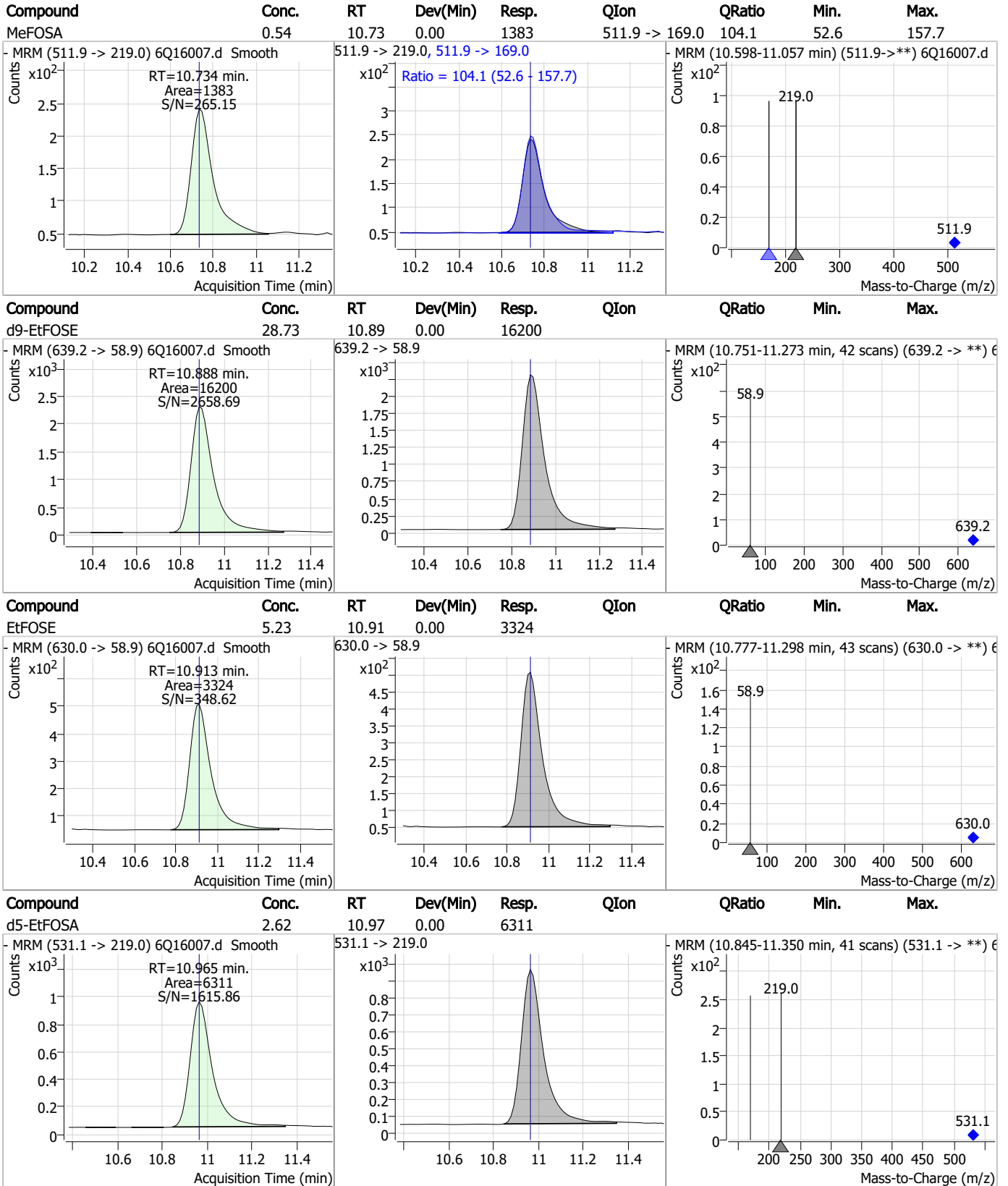
### Perfluorinated Compounds by LC/MS/MS



7.7.3

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### Perfluorinated Compounds by LC/MS/MS

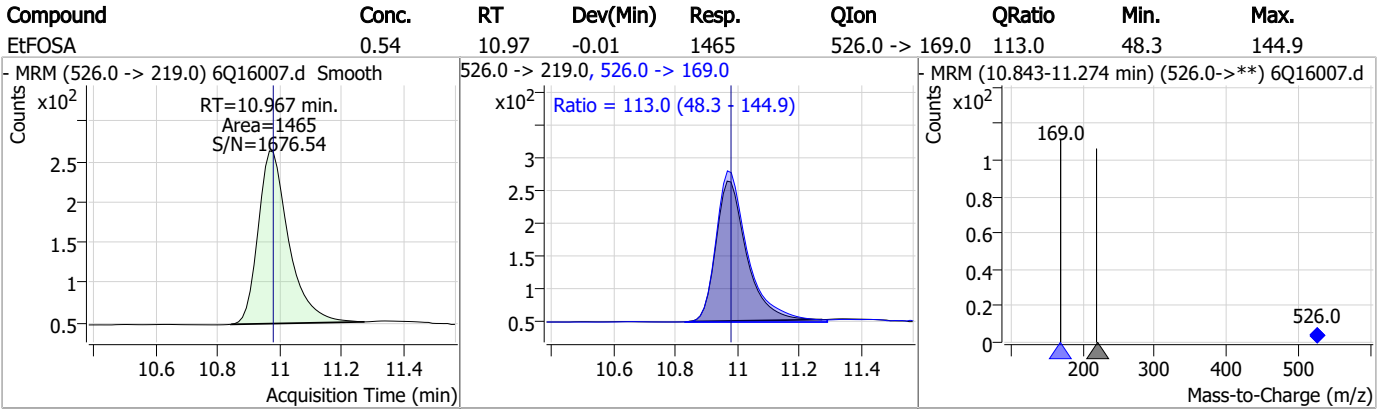


7.7.3

7



Perfluorinated Compounds by LC/MS/MS



7.7.3

7

# Manual Integration Approval Summary

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

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

7.7.3.1

7

## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16008.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 4/4/2023 2:43:40 PM  
 Sample Name : ic239-3  
 Vial : P1-A4  
 DA Method File : 1633\_040423\_S6Q239.quantmethod.xml  
 Batch Name : s6q239.batch.bin  
 Sample Information : OP96085,S6Q239,500,,,5.0,1,water

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

## Perfluorinated Compounds by LC/MS/MS

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

## Perfluorinated Compounds by LC/MS/MS

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

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

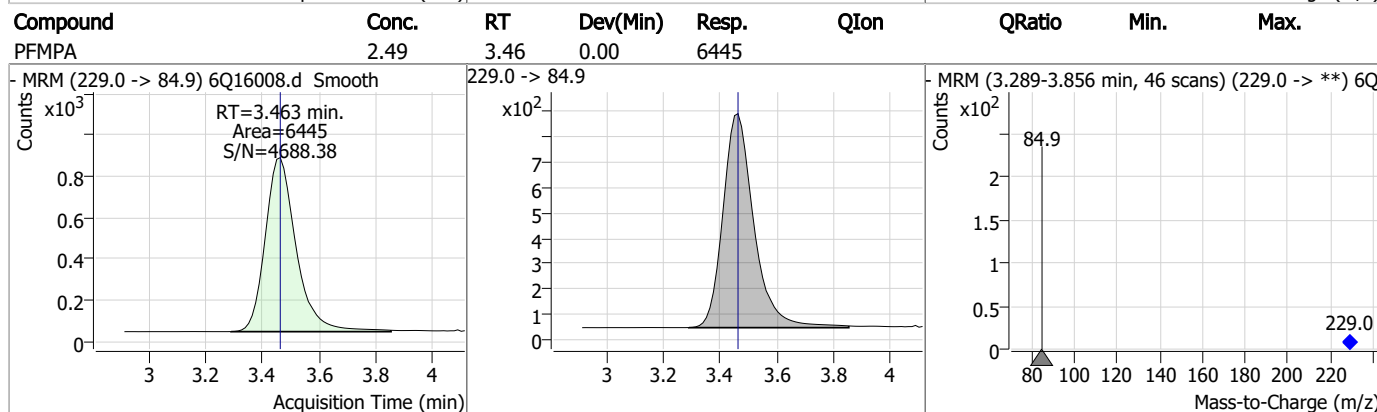
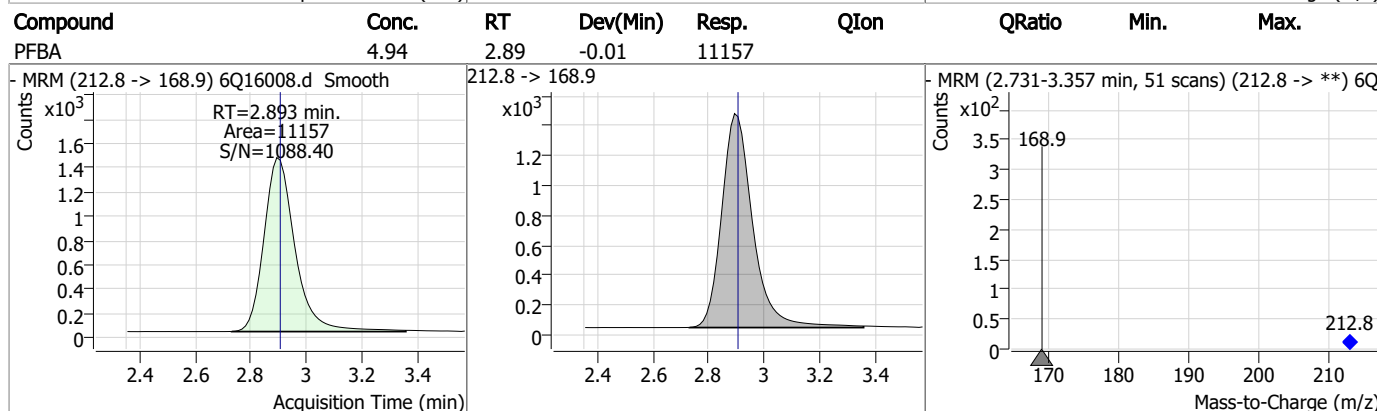
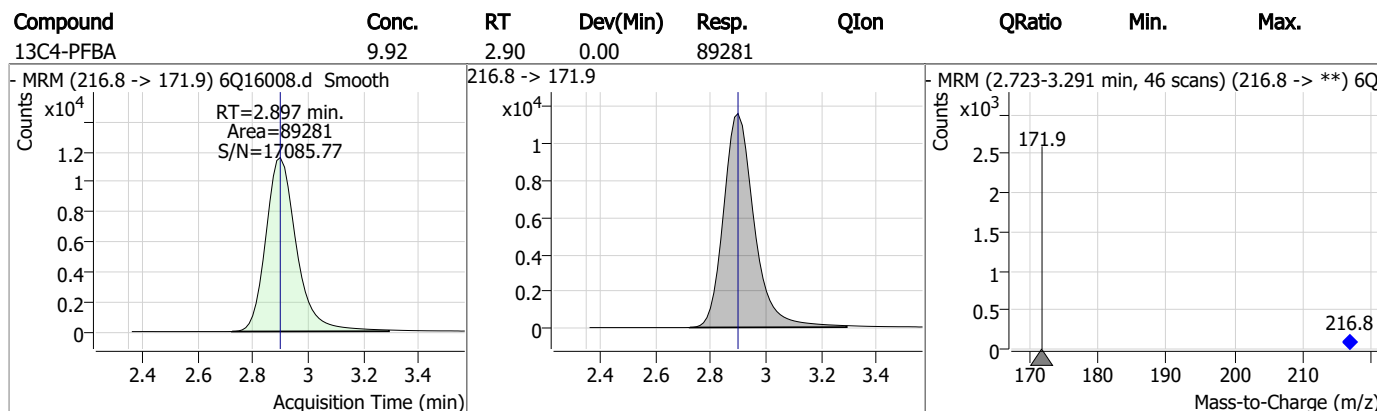
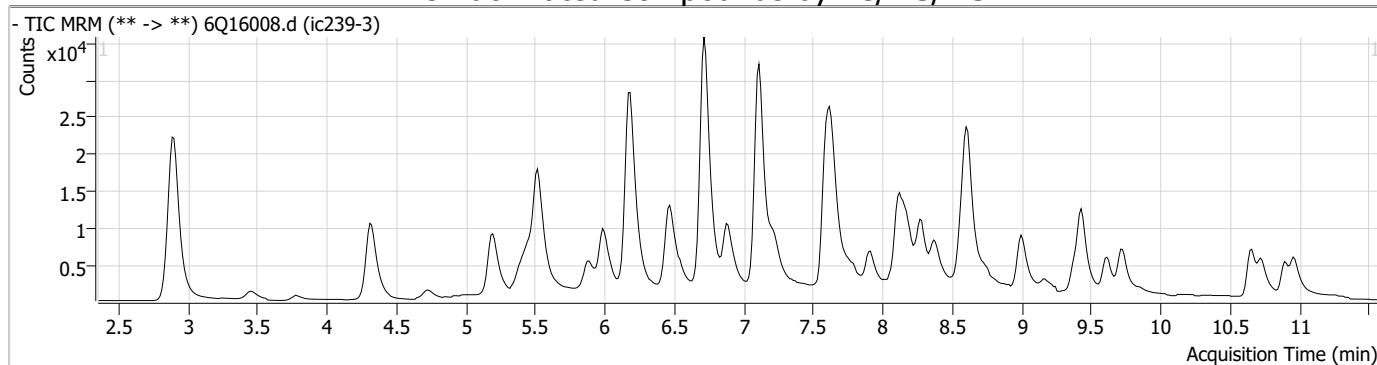
### Perfluorinated Compounds by LC/MS/MS

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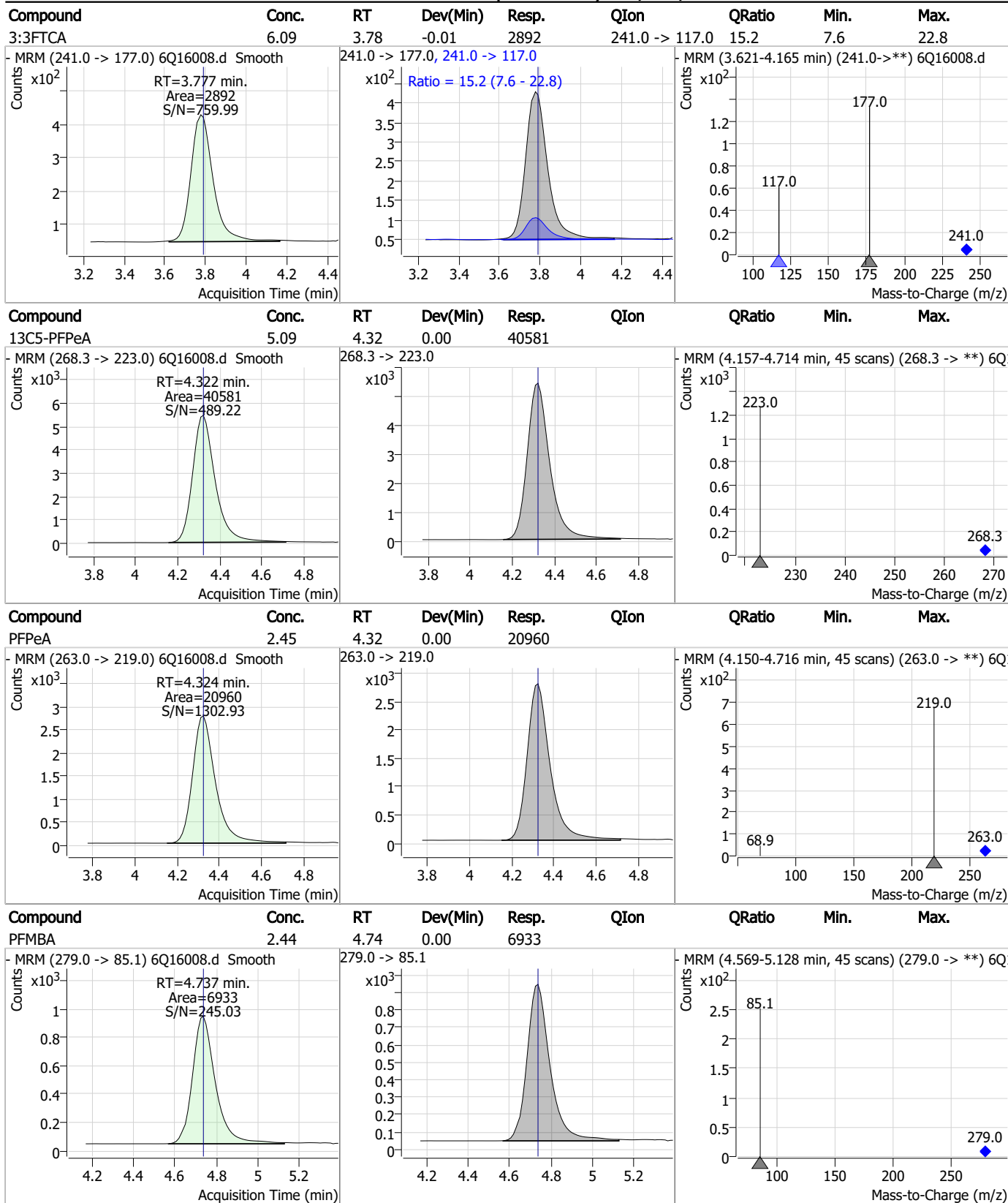
7.7.4

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### Perfluorinated Compounds by LC/MS/MS



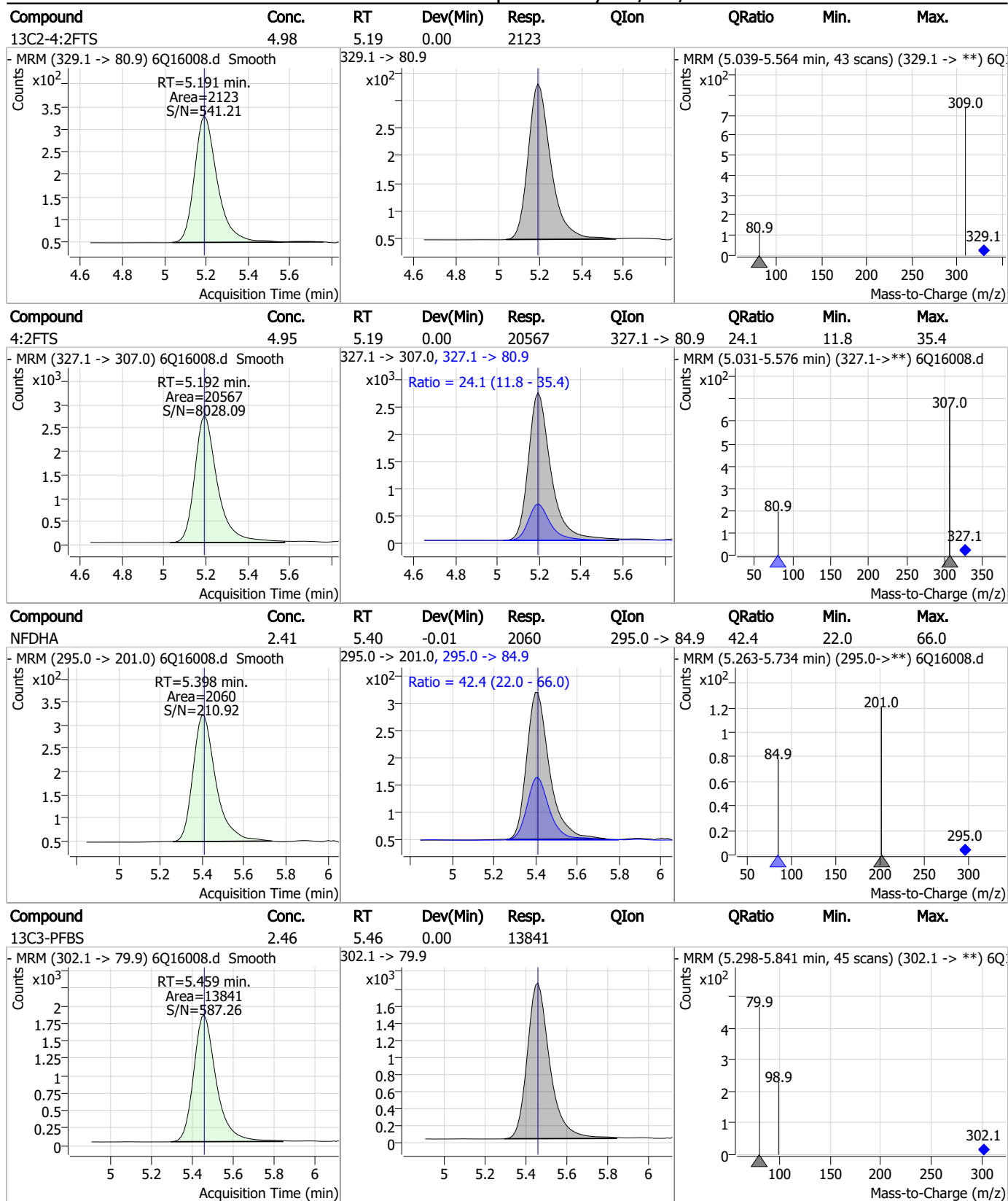
### Perfluorinated Compounds by LC/MS/MS



7.7.4  
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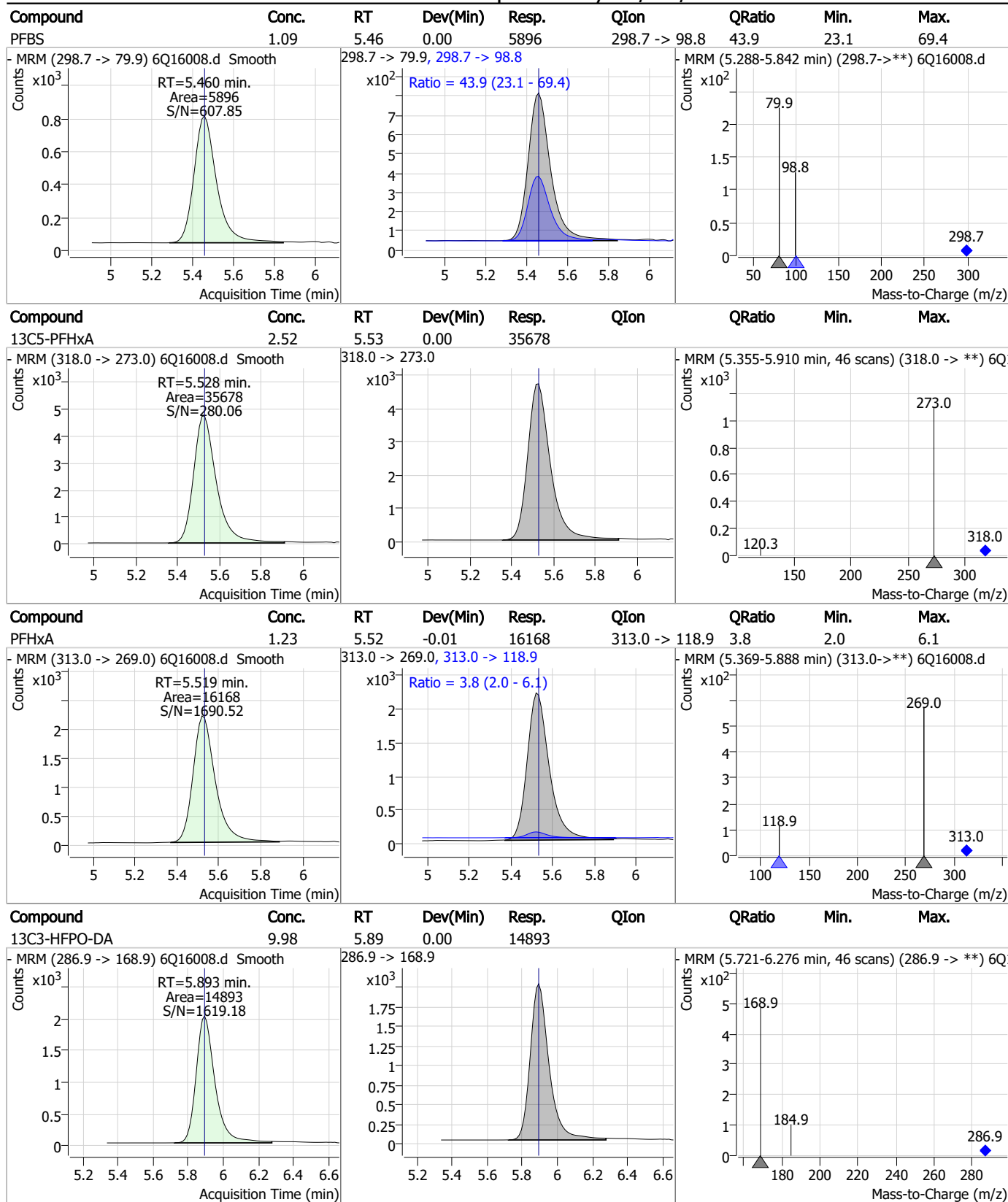
### Perfluorinated Compounds by LC/MS/MS



7.7.4

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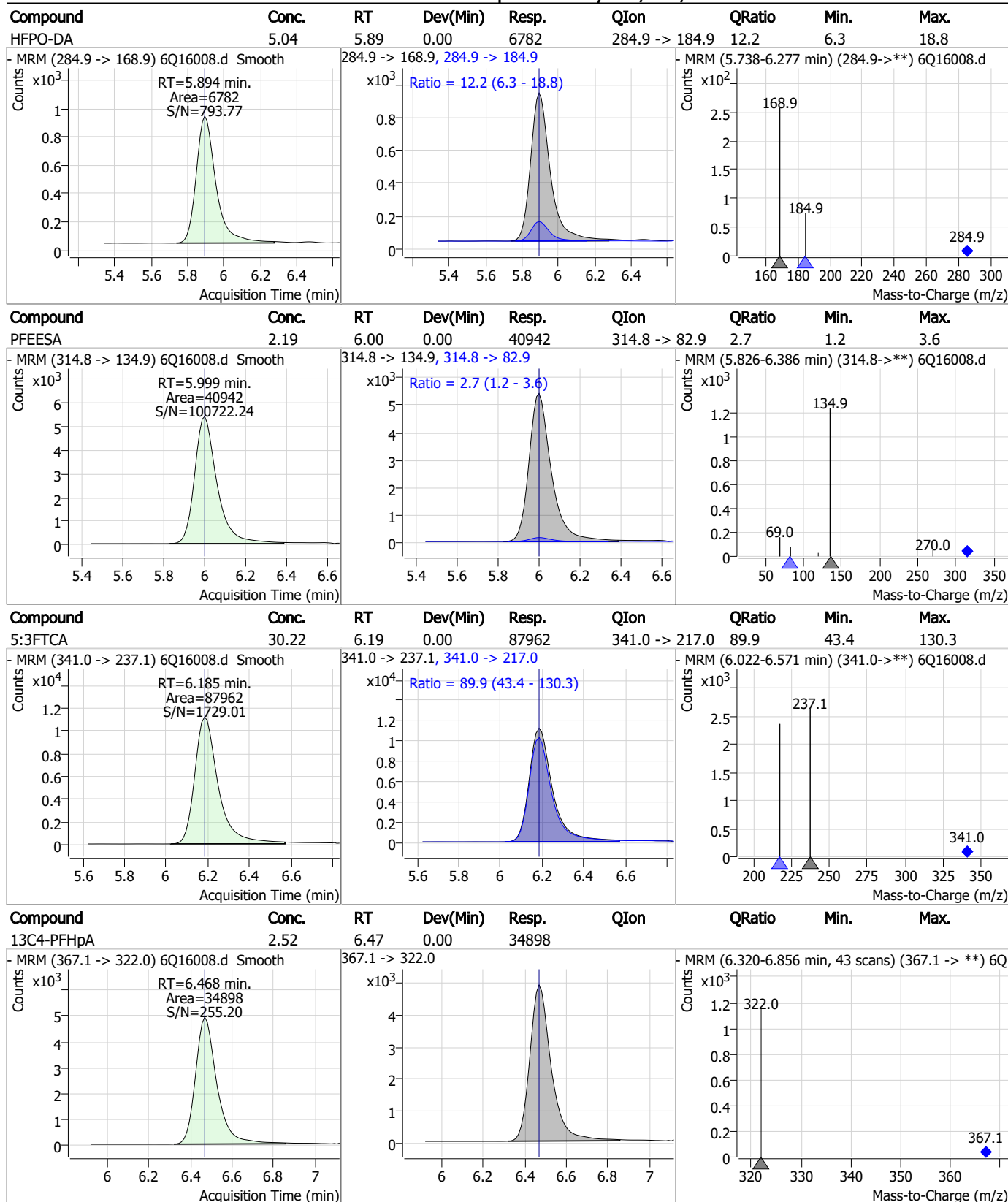
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7.7.4

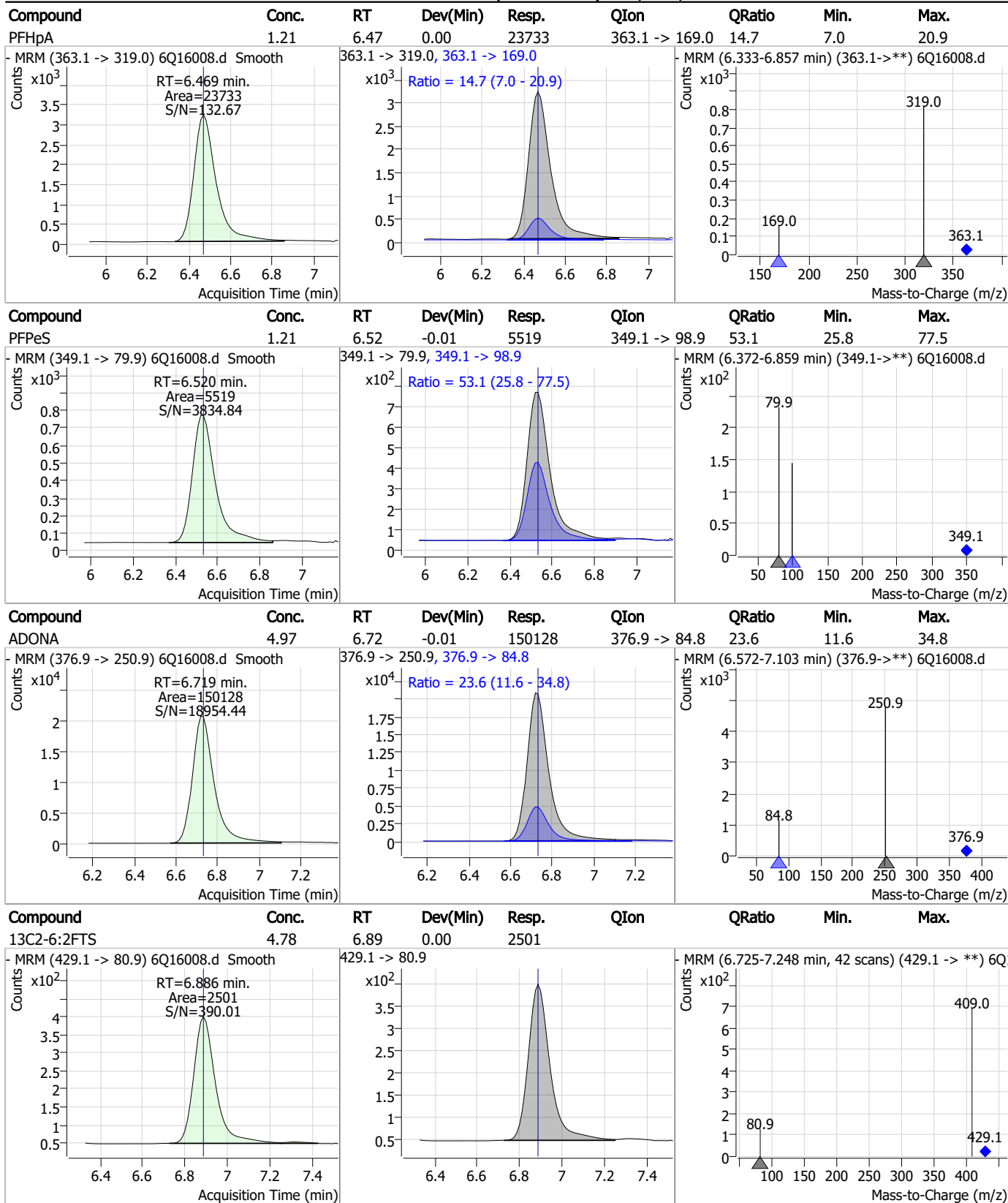
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### Perfluorinated Compounds by LC/MS/MS



7.7.4  
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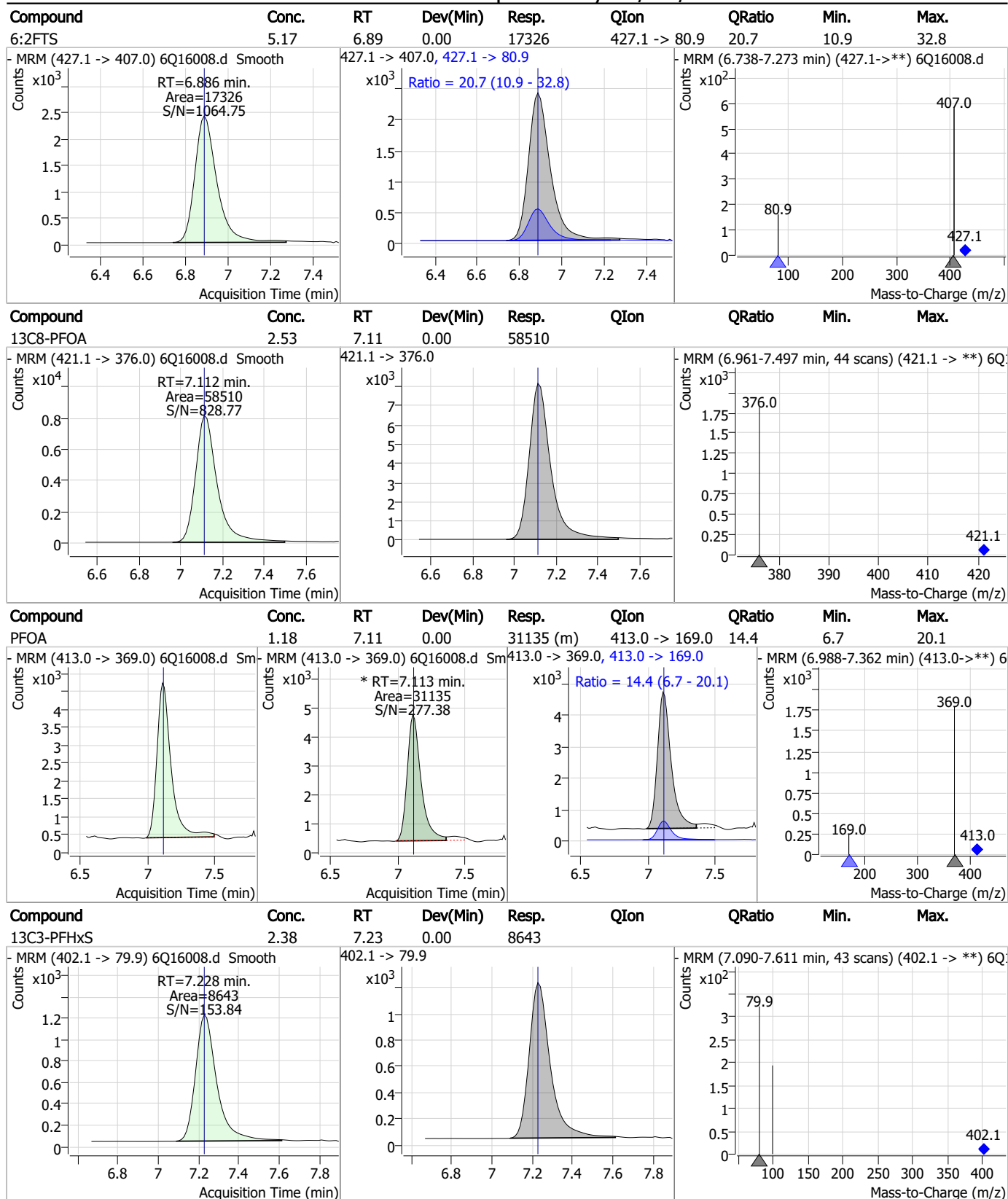
### Perfluorinated Compounds by LC/MS/MS



7.7.4

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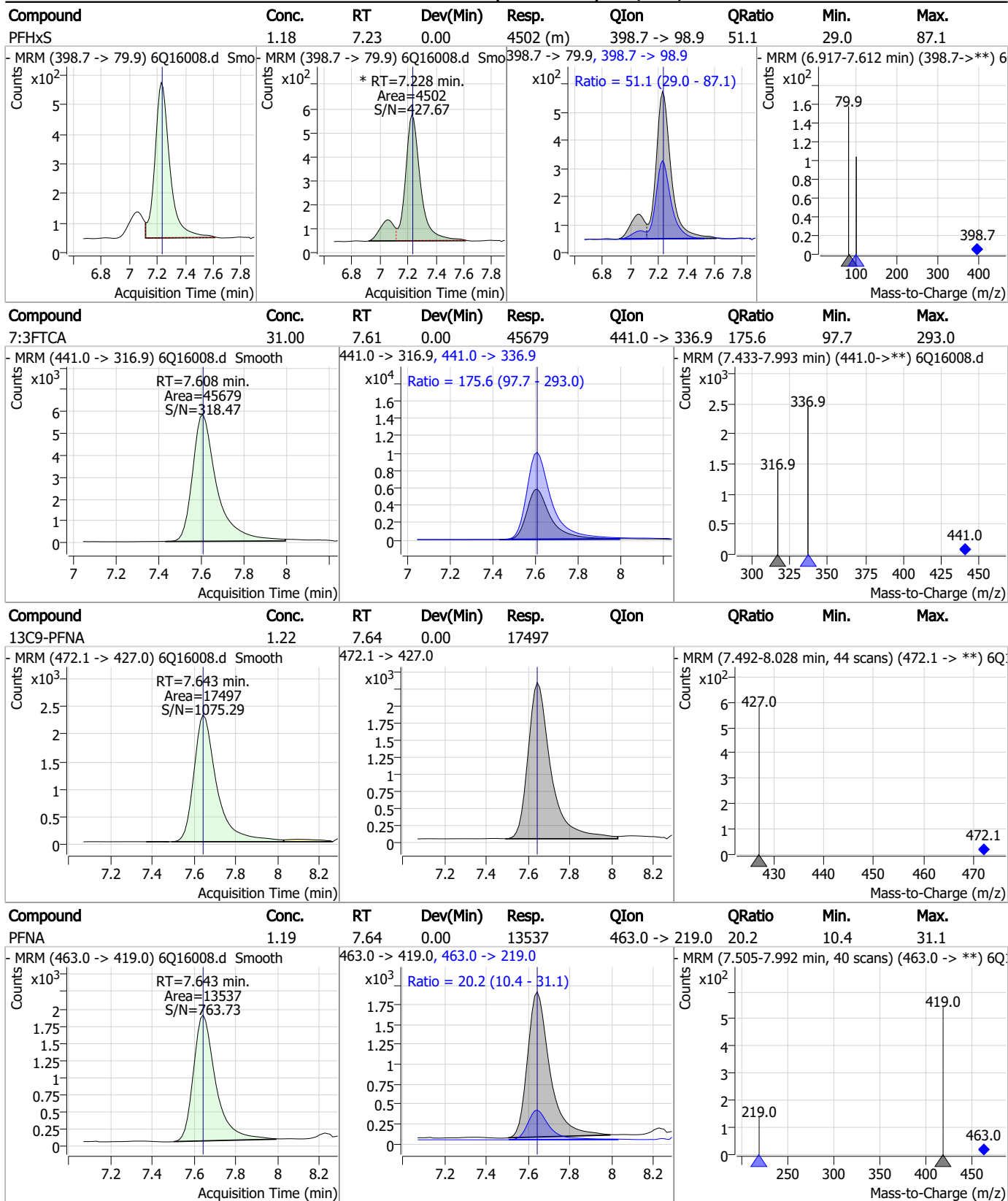
### Perfluorinated Compounds by LC/MS/MS



7.7.4

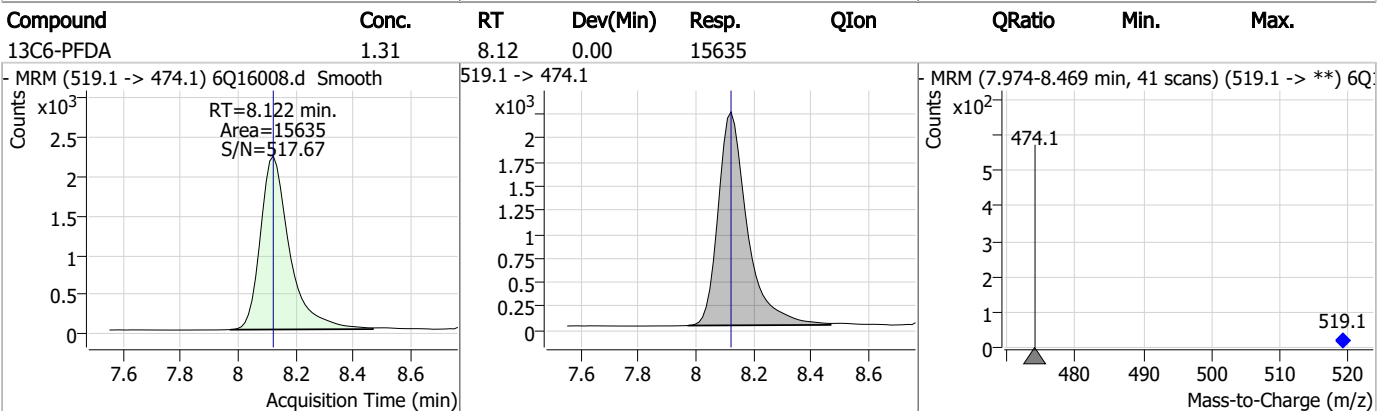
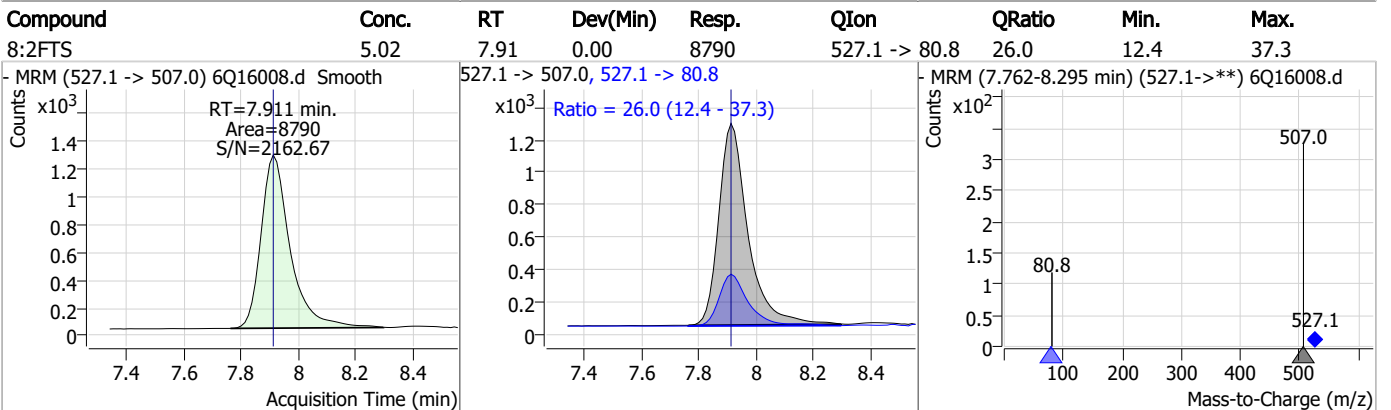
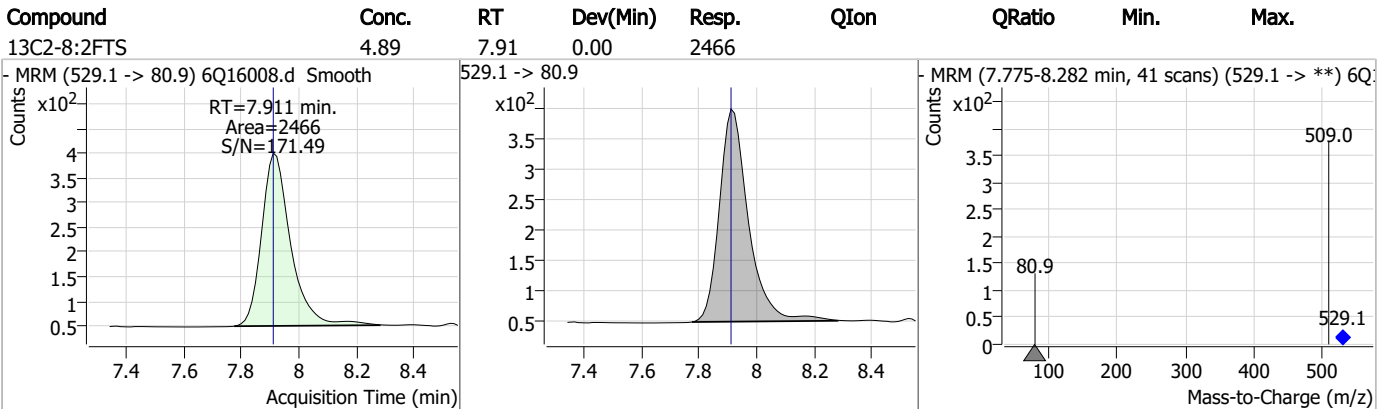
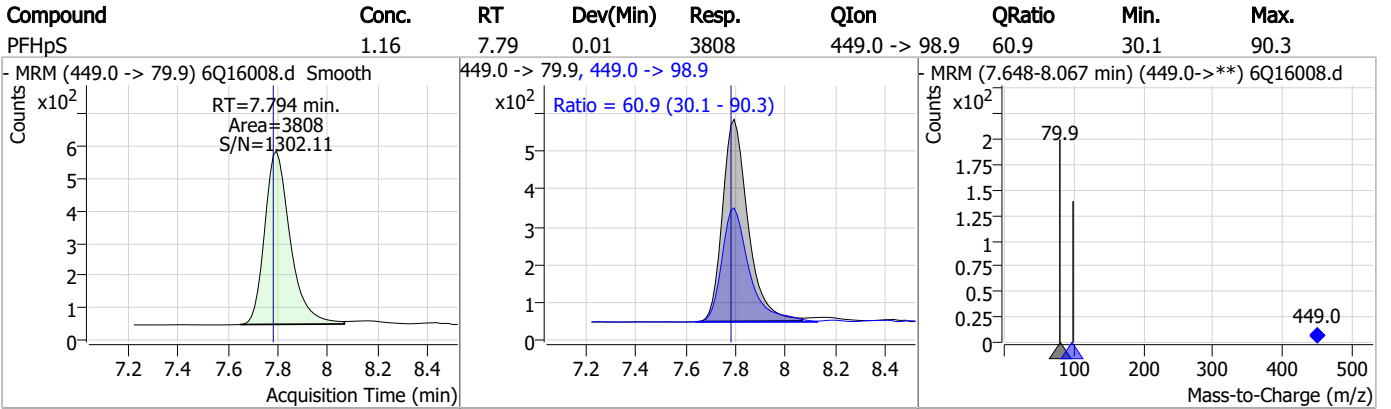
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### Perfluorinated Compounds by LC/MS/MS



7.7.4  
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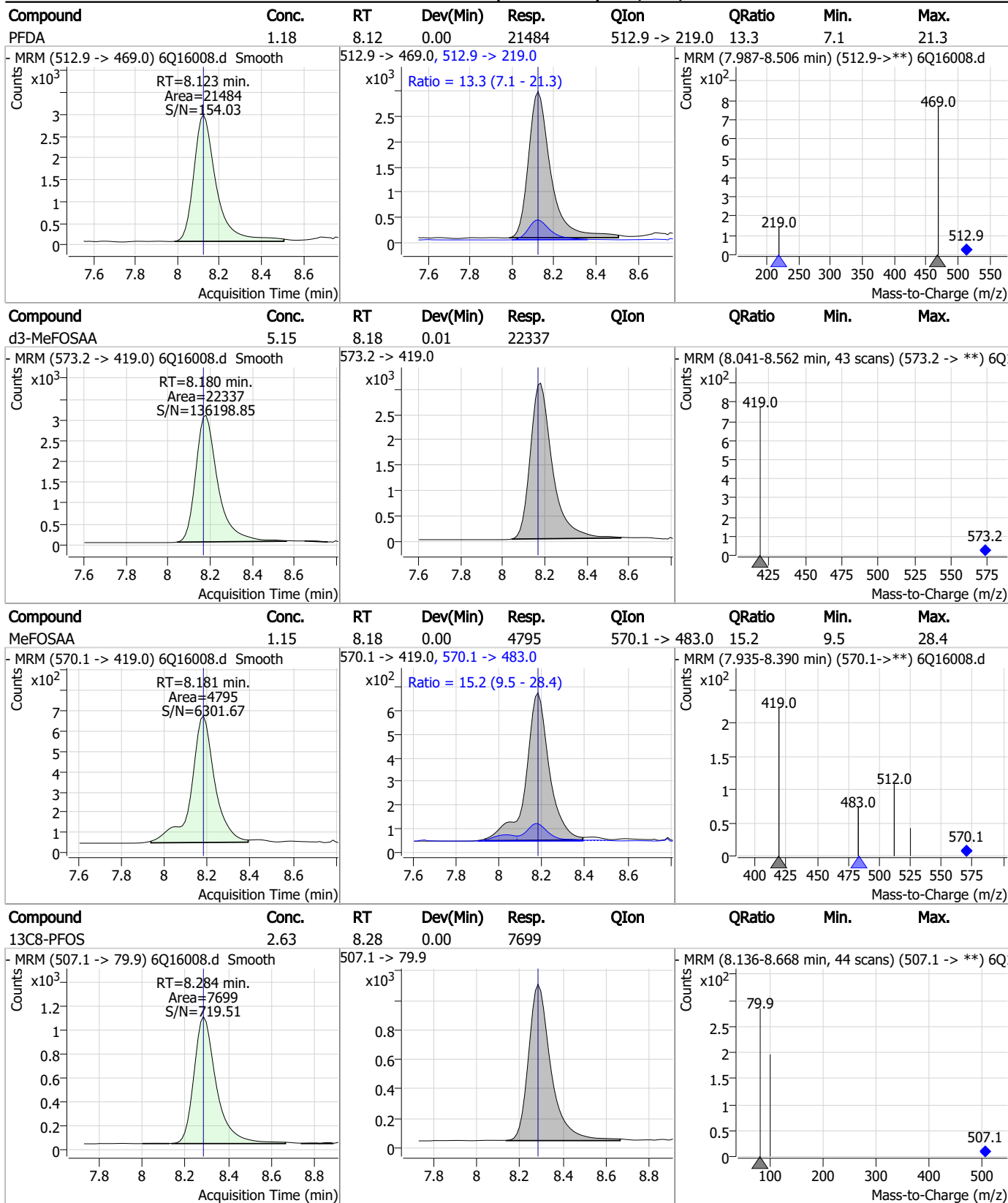
### Perfluorinated Compounds by LC/MS/MS



7.7.4

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### Perfluorinated Compounds by LC/MS/MS



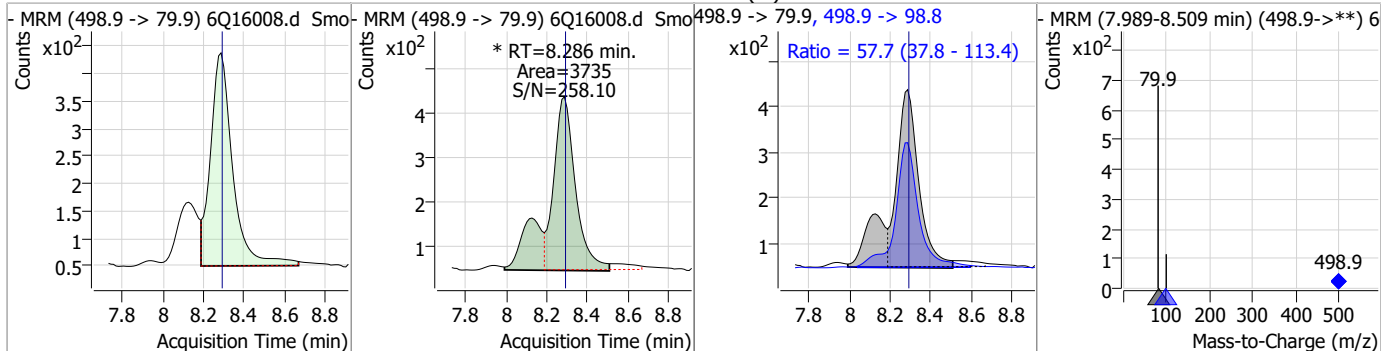
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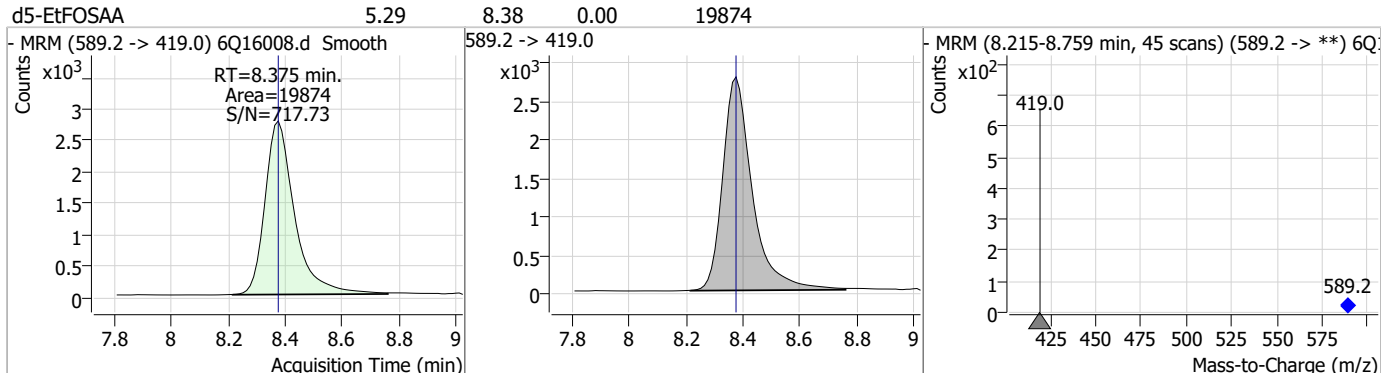


### Perfluorinated Compounds by LC/MS/MS

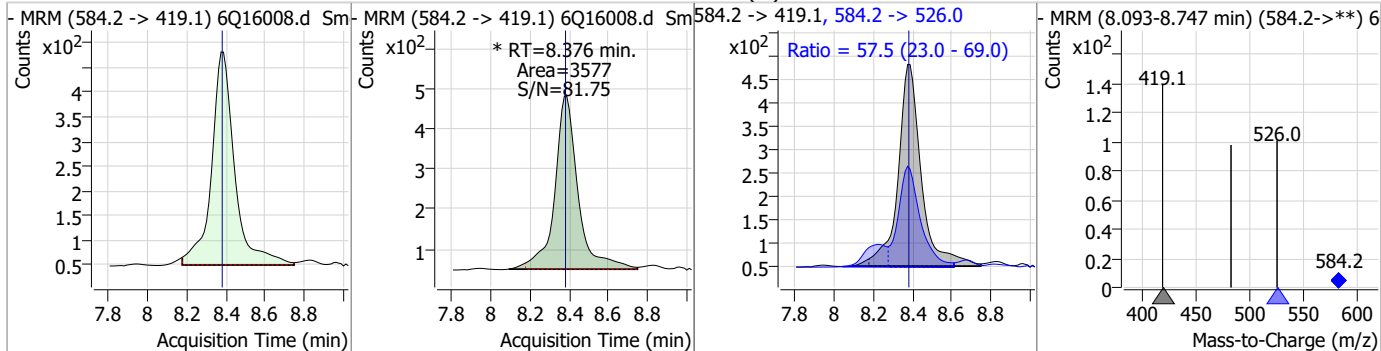
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.10	8.29	0.00	3735 (m)	498.9 -> 98.8	57.7	37.8	113.4



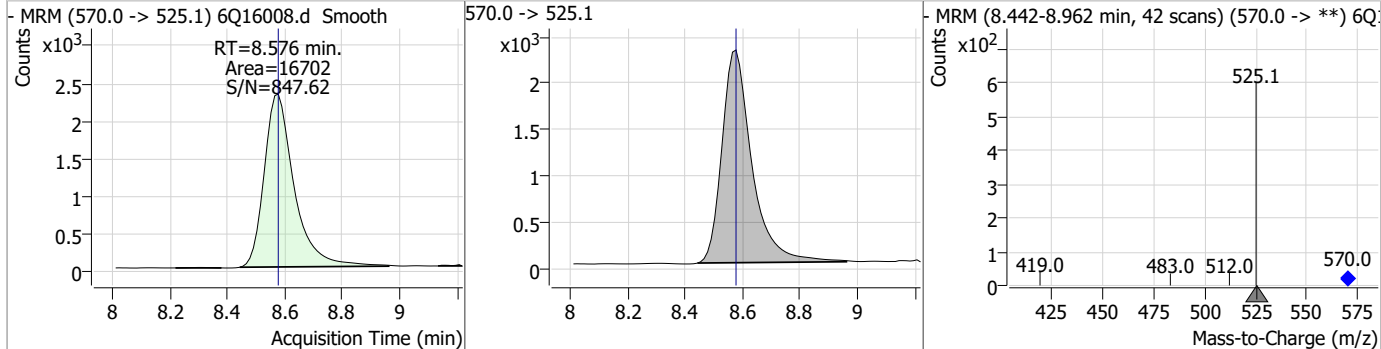
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.29	8.38	0.00	19874				



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

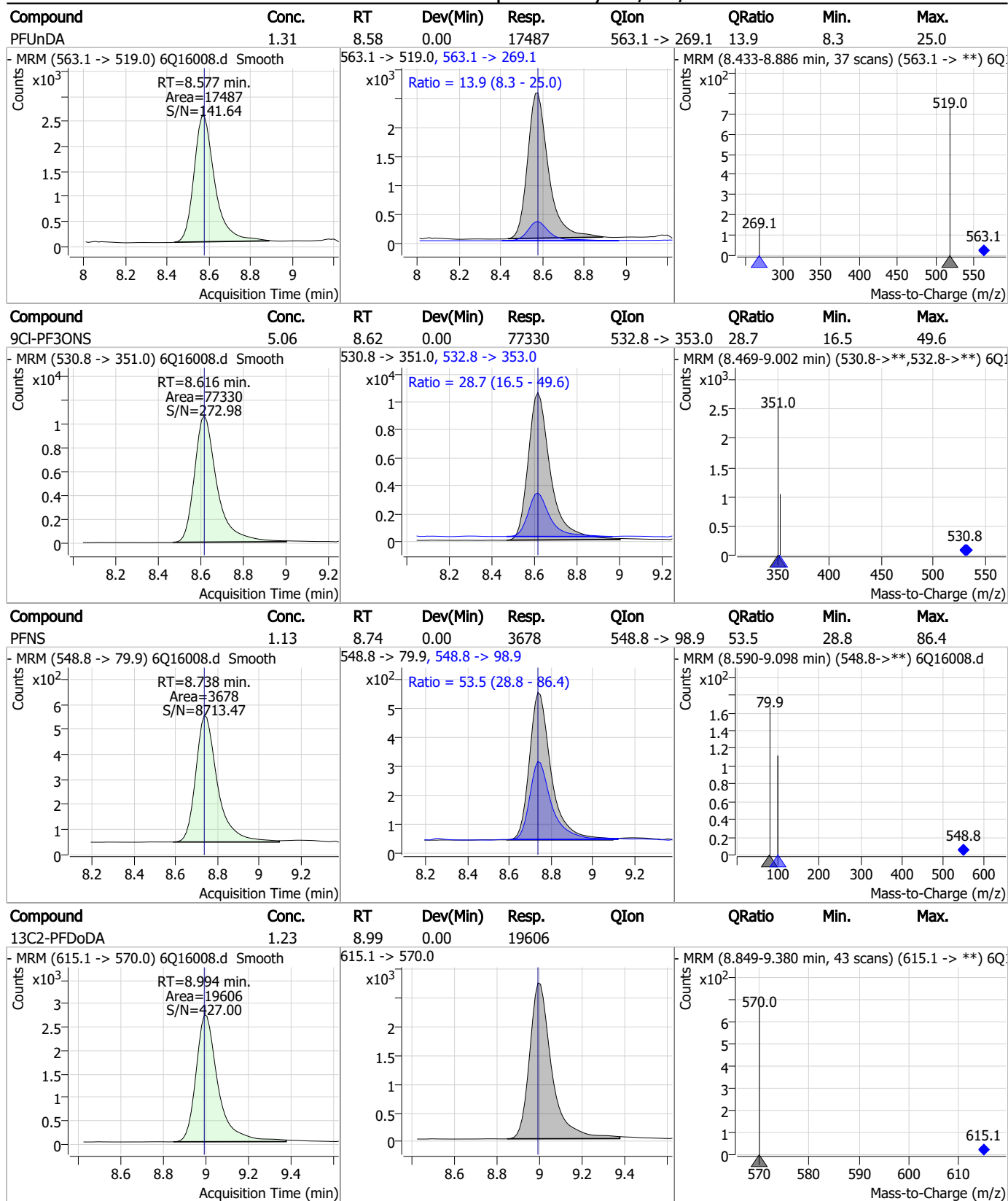


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.21	8.58	0.00	16702				



7.7.4  
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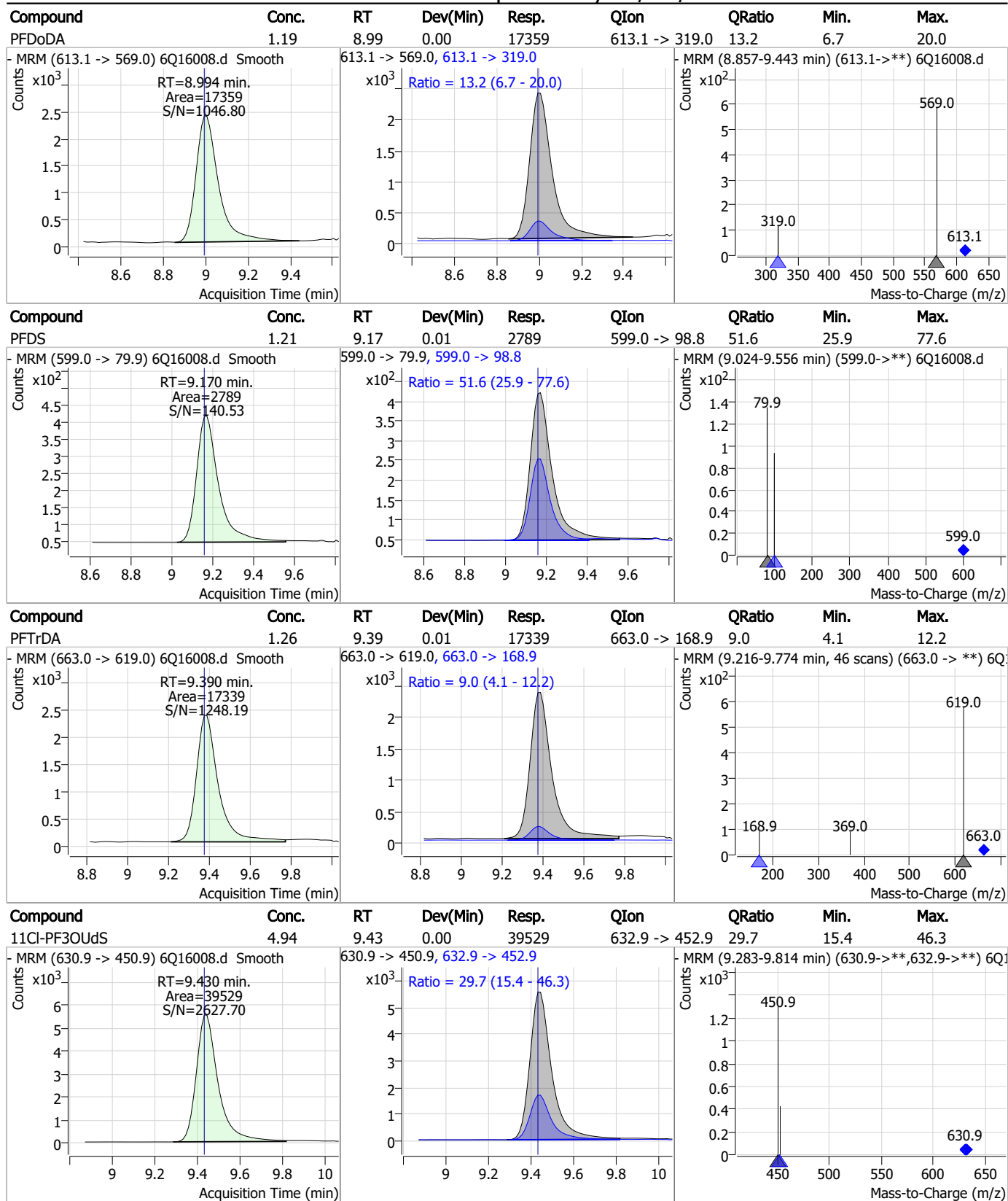
### Perfluorinated Compounds by LC/MS/MS



7.7.4

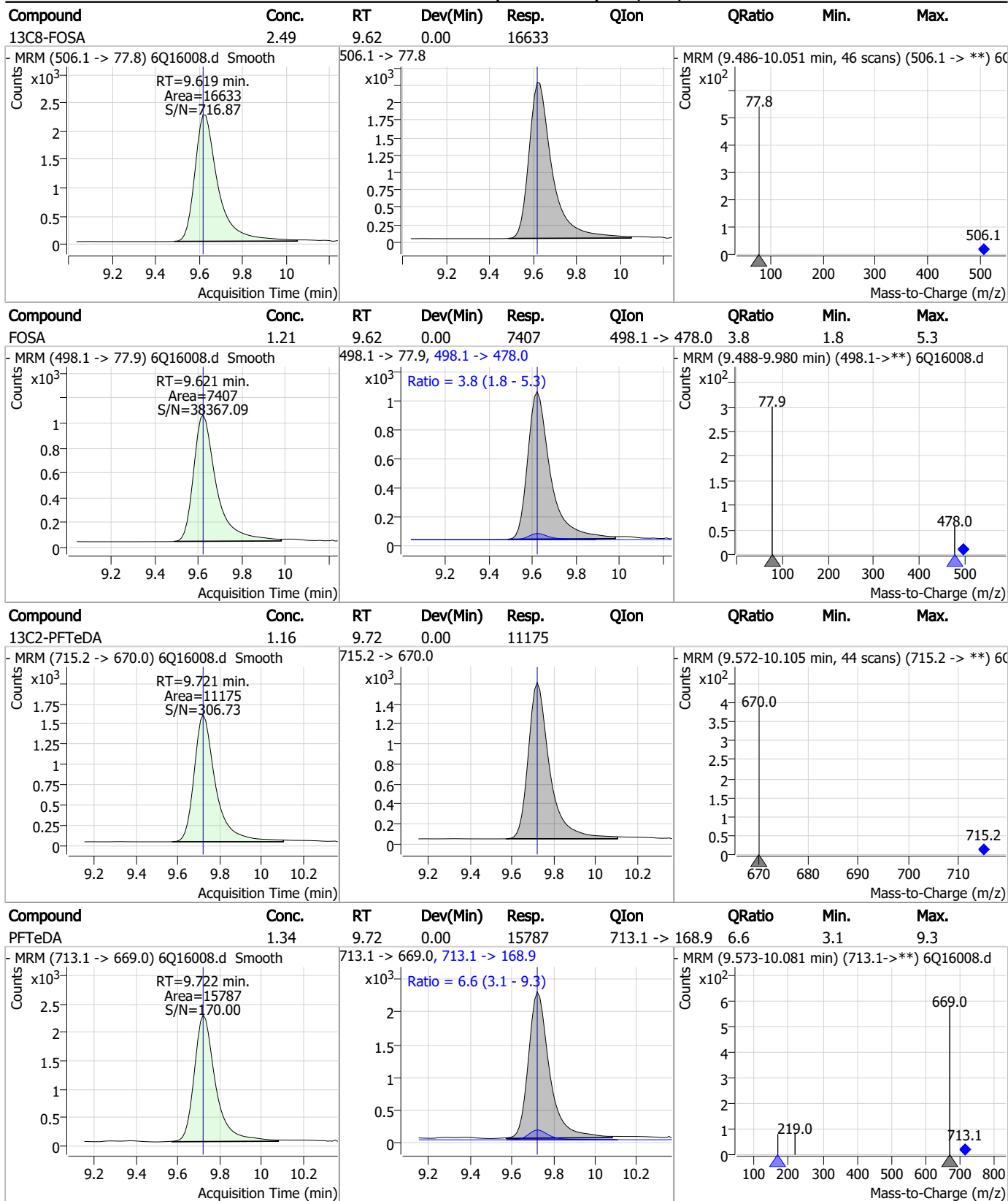
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### Perfluorinated Compounds by LC/MS/MS



7.7.4  
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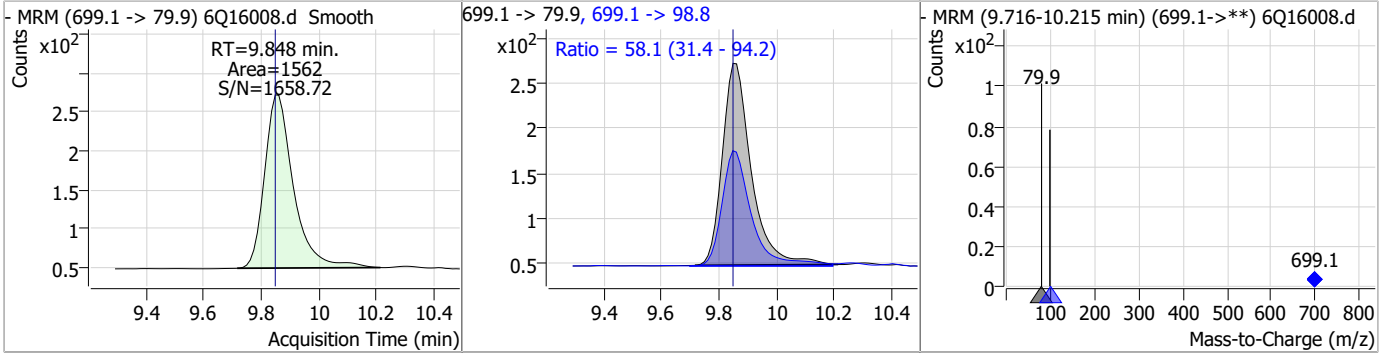
### Perfluorinated Compounds by LC/MS/MS



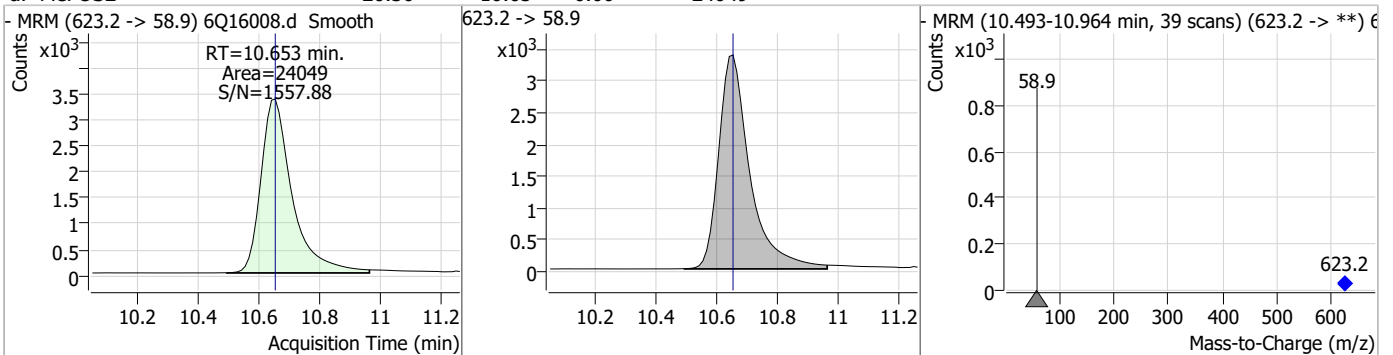
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### Perfluorinated Compounds by LC/MS/MS

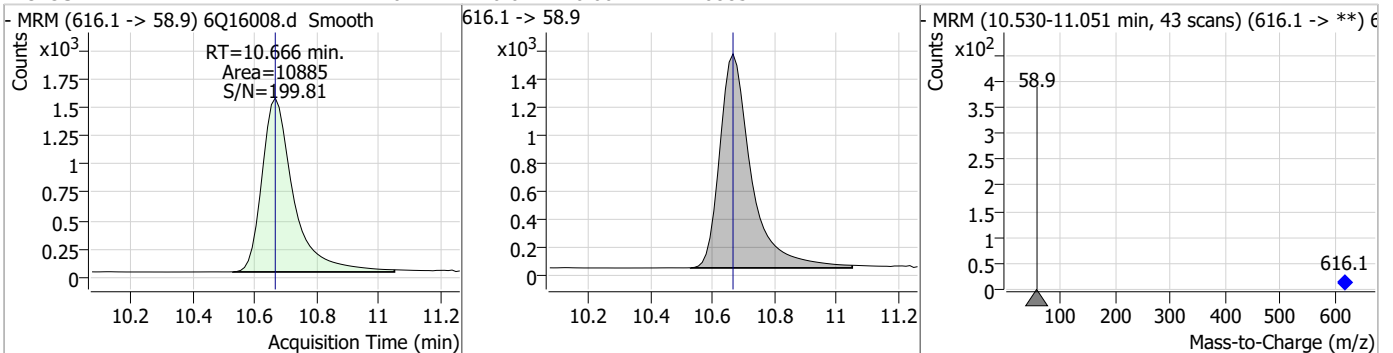
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	1.17	9.85	0.00	1562	699.1 -> 98.8	58.1	31.4	94.2



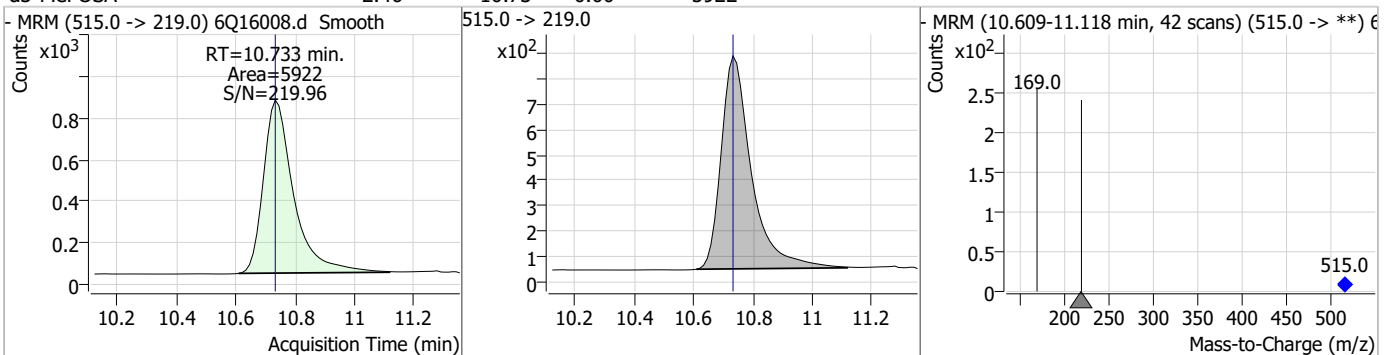
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.36	10.65	0.00	24049				



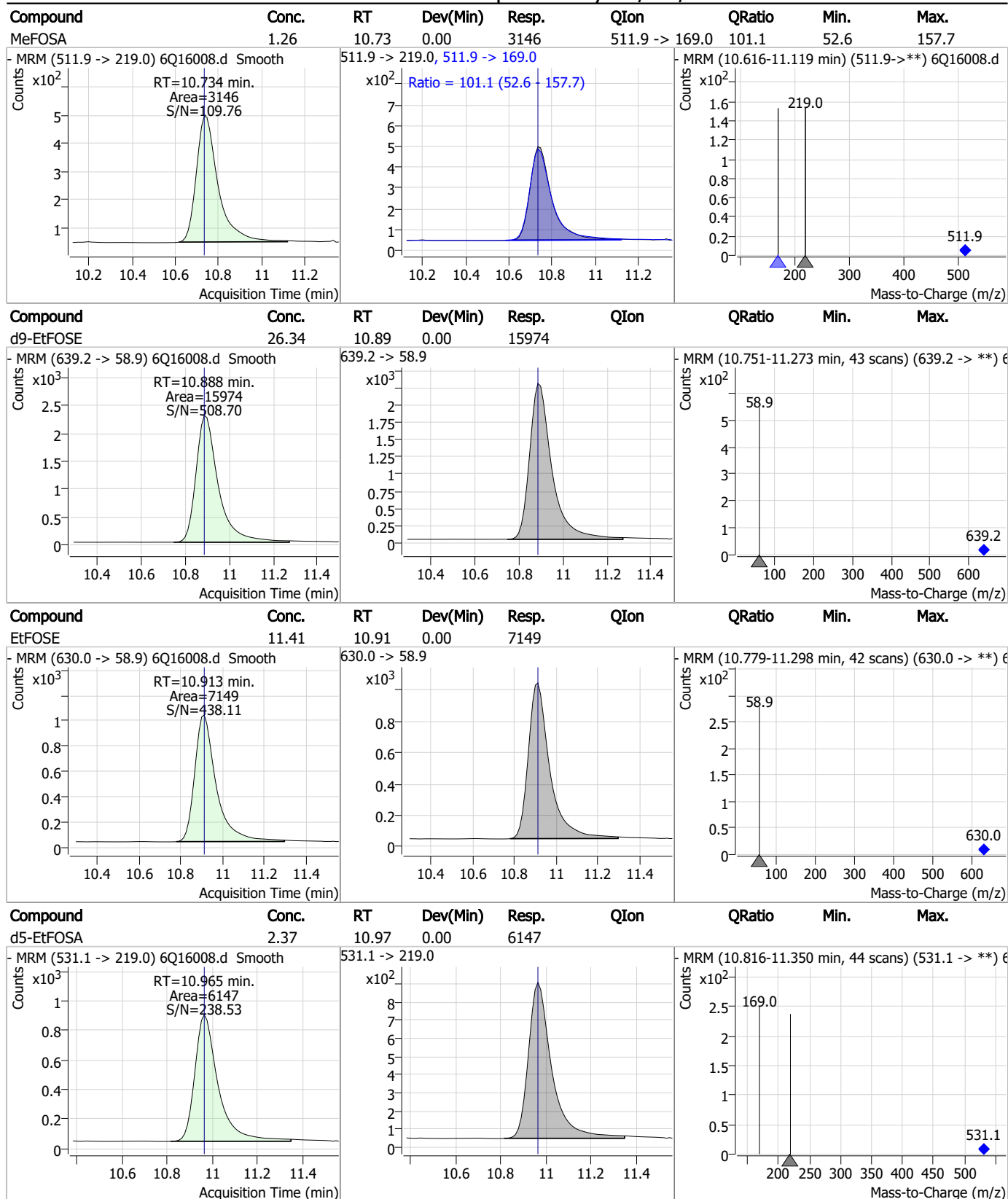
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.01	10.67	0.00	10885				



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

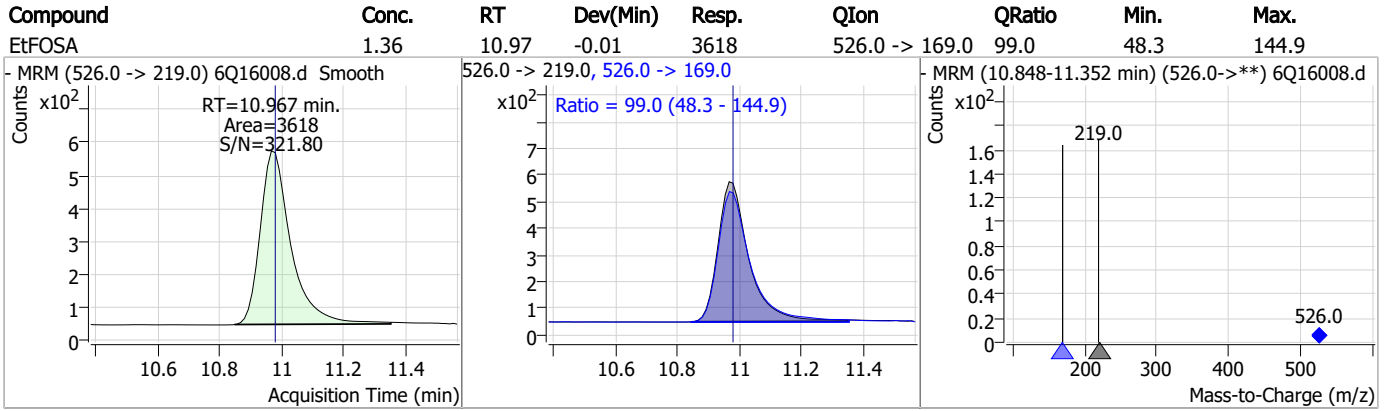


### Perfluorinated Compounds by LC/MS/MS



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

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

7.7.4.1

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## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16009.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 4/4/2023 2:57:40 PM  
 Sample Name : icc239-4  
 Vial : P1-A5  
 DA Method File : 1633\_040423\_S6Q239.quantmethod.xml  
 Batch Name : s6q239.batch.bin  
 Sample Information : OP96085,S6Q239,500,,,5.0,1,water

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

## Perfluorinated Compounds by LC/MS/MS

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

## Perfluorinated Compounds by LC/MS/MS

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

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

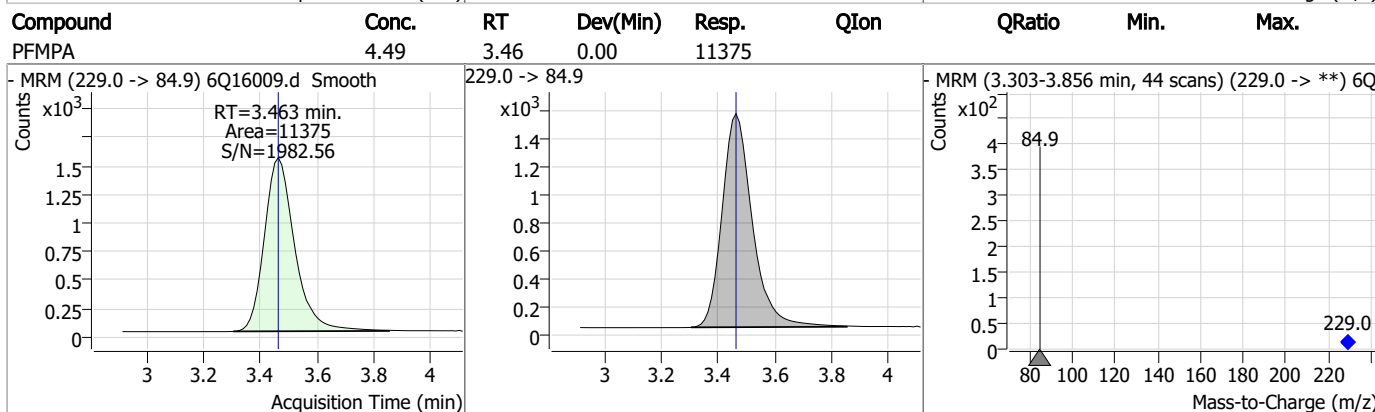
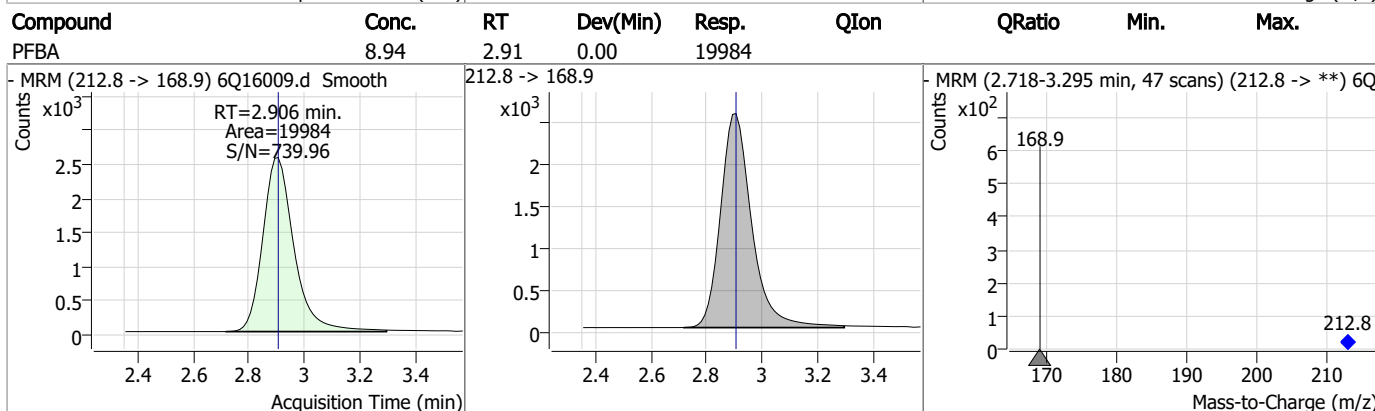
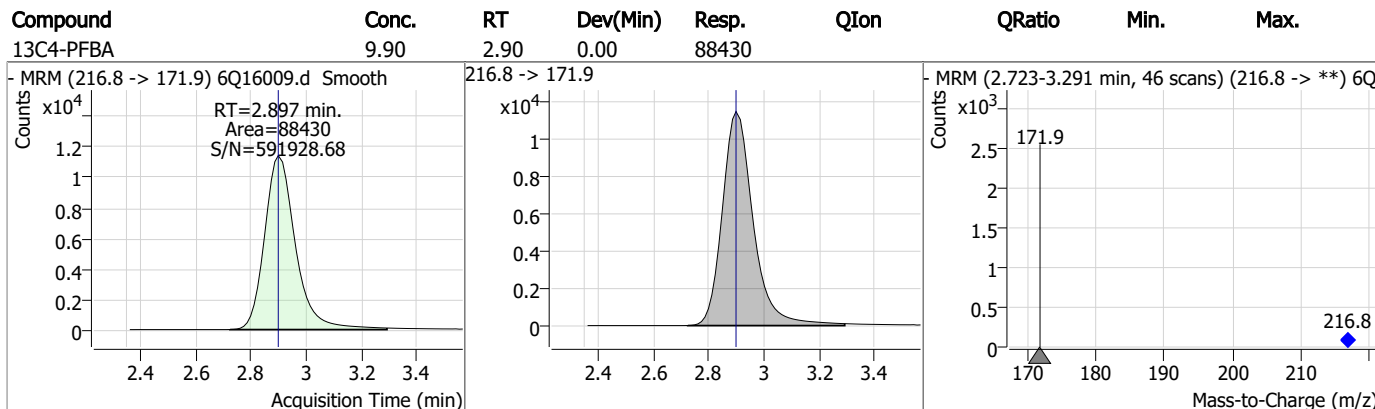
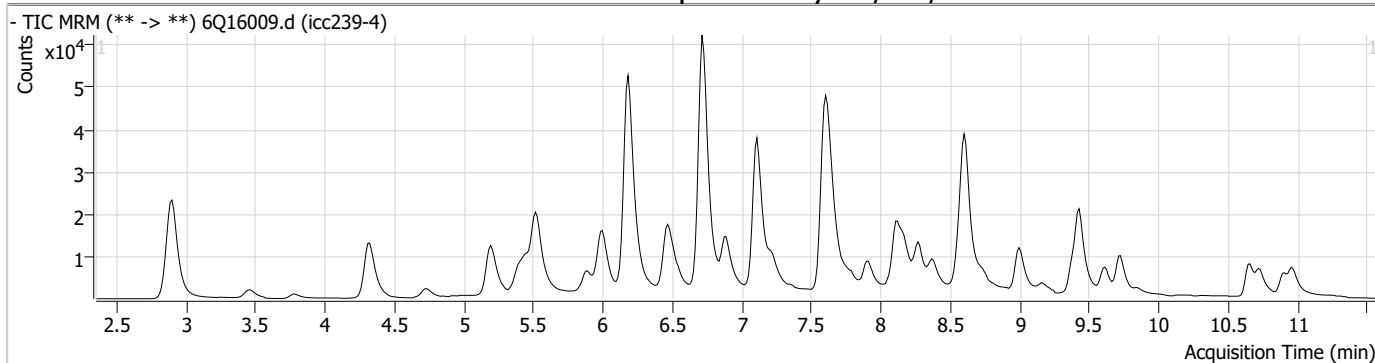
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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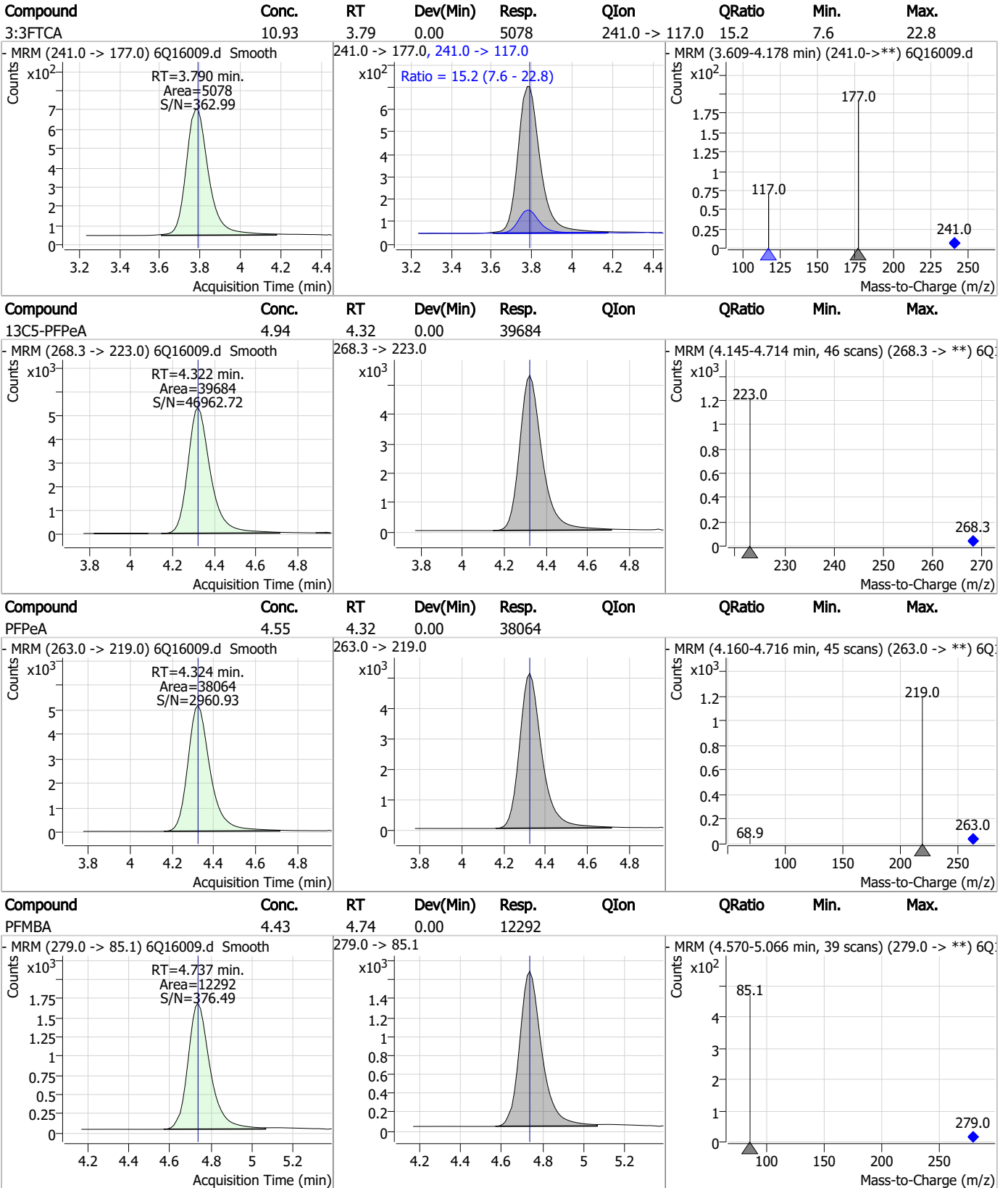
7.7.5  
7



### Perfluorinated Compounds by LC/MS/MS



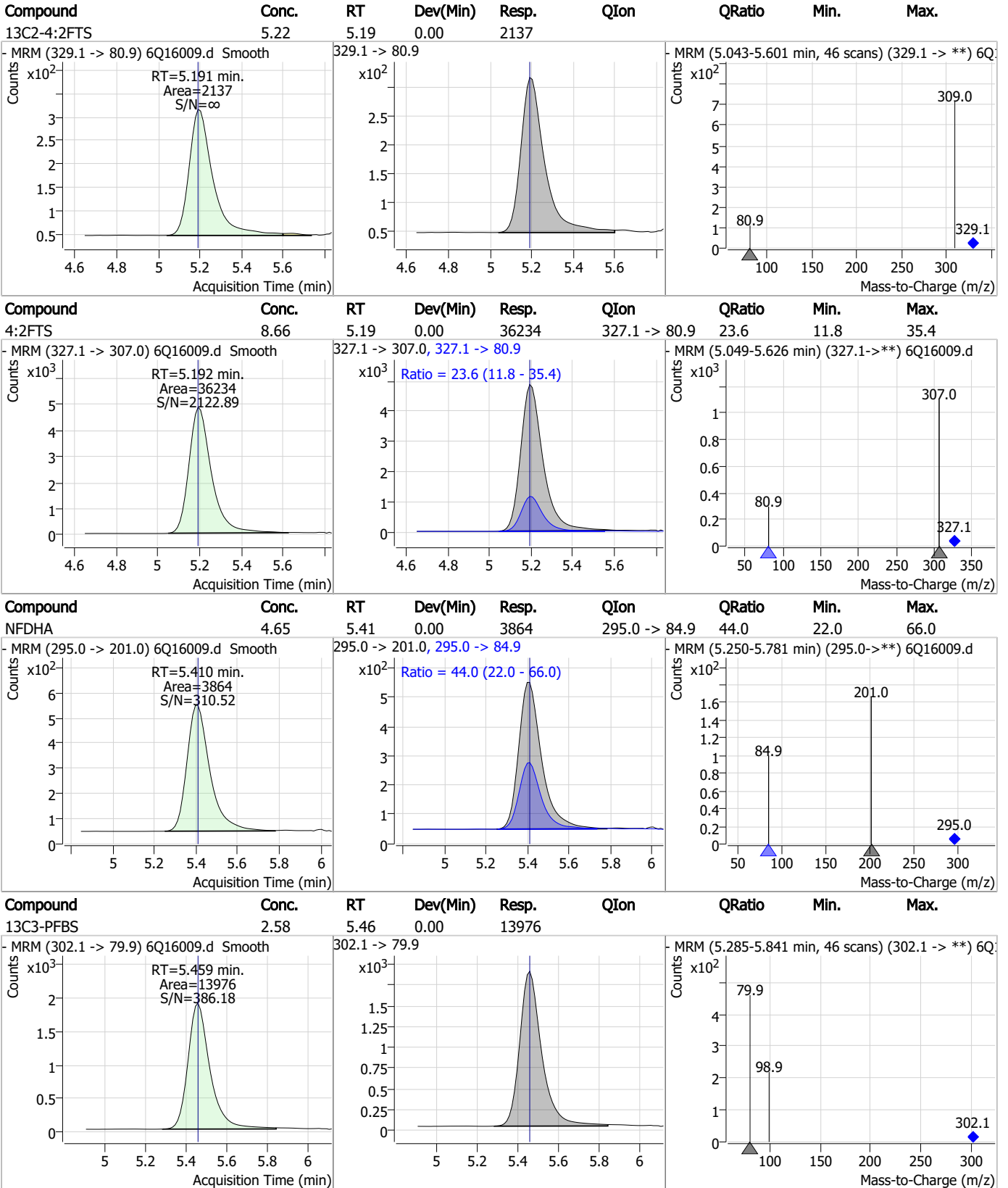
### Perfluorinated Compounds by LC/MS/MS



7.7.5

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### Perfluorinated Compounds by LC/MS/MS

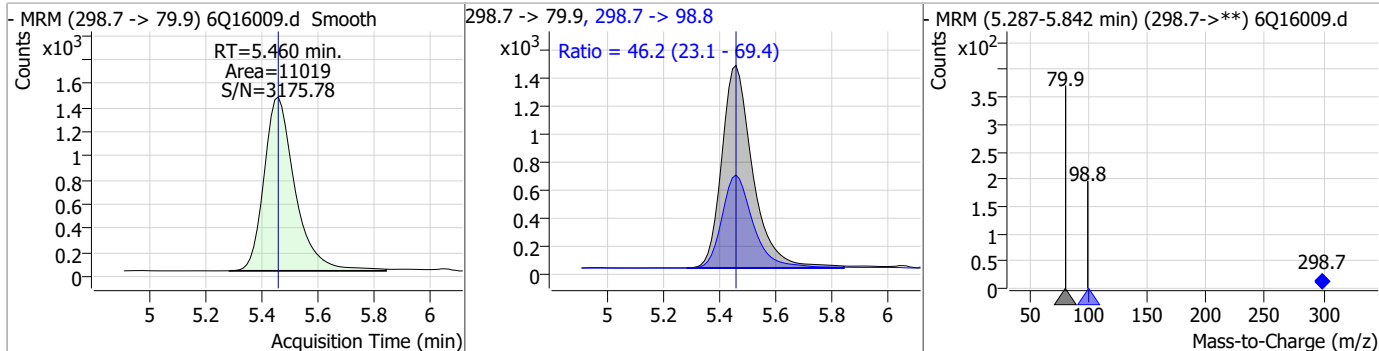


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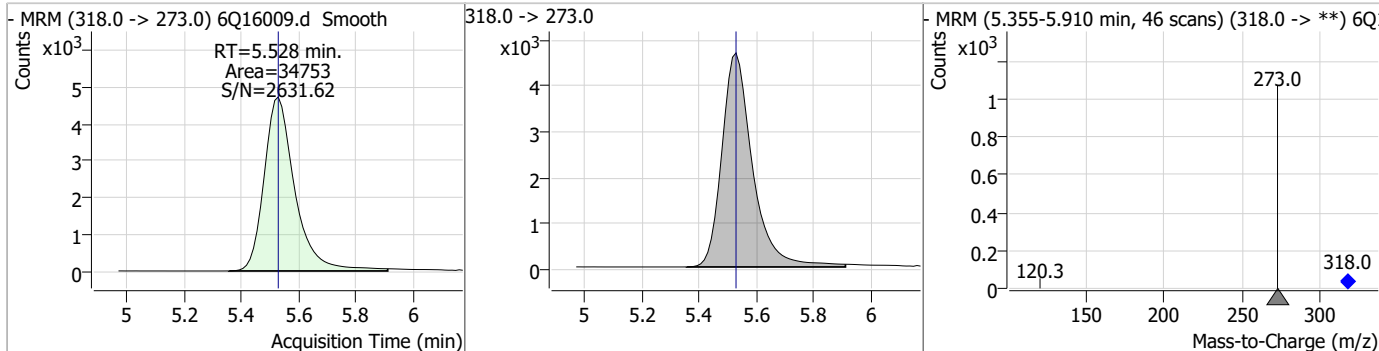
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### Perfluorinated Compounds by LC/MS/MS

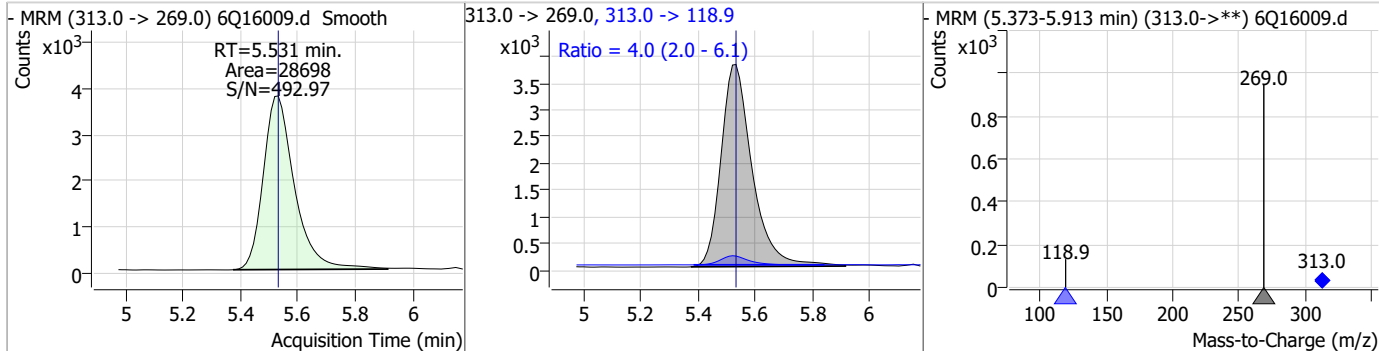
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.01	5.46	0.00	11019	298.7 -> 98.8	46.2	23.1	69.4



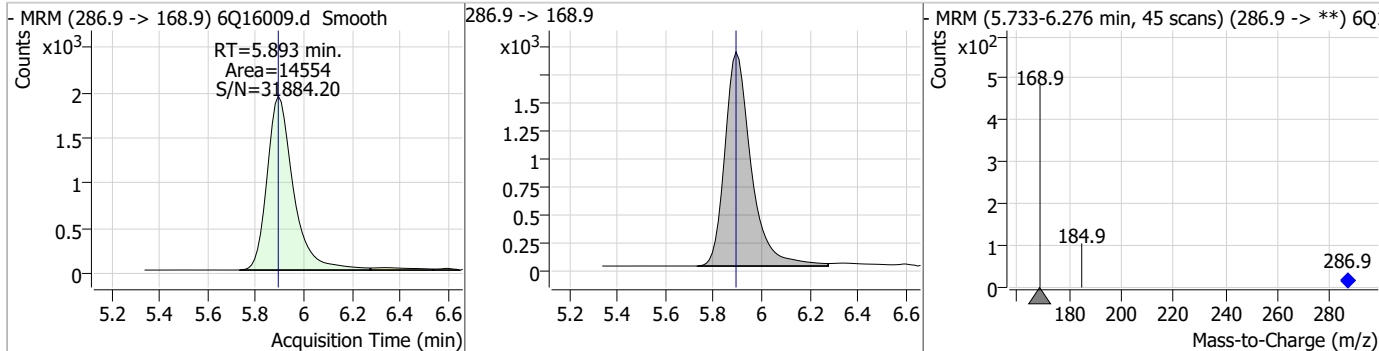
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.44	5.53	0.00	34753				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.24	5.53	0.00	28698	313.0 -> 118.9	4.0	2.0	6.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.69	5.89	0.00	14554				

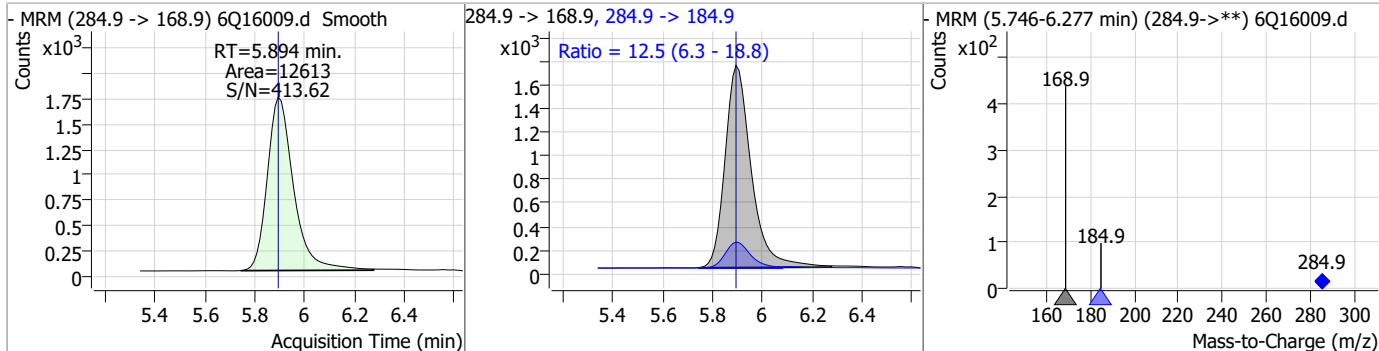


7.7.5  
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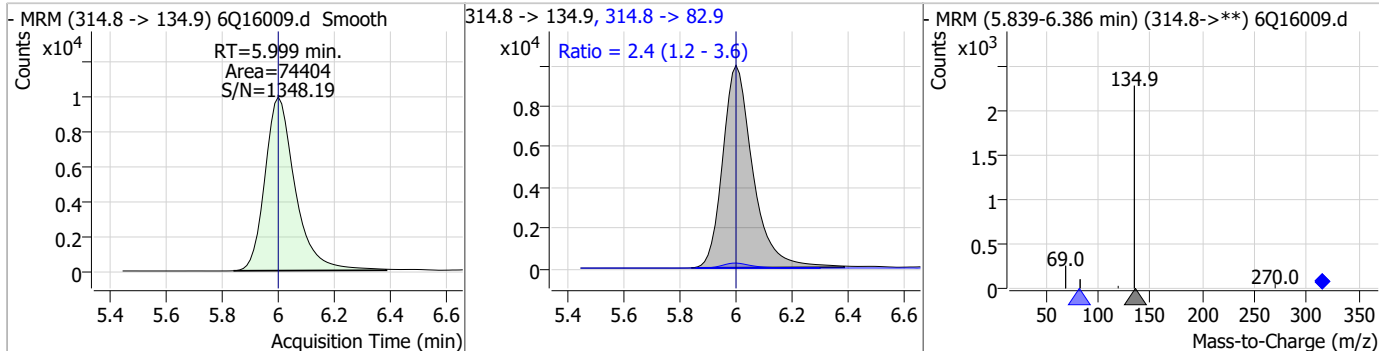


### Perfluorinated Compounds by LC/MS/MS

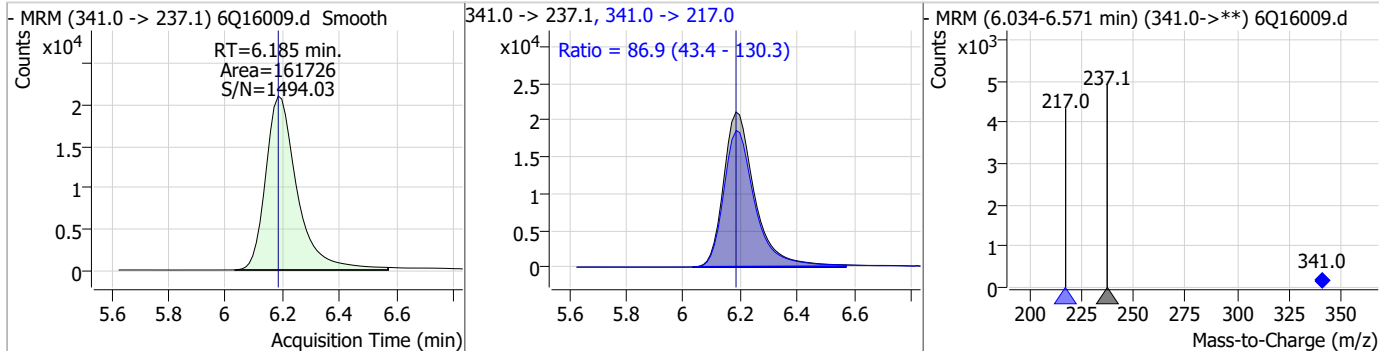
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.59	5.89	0.00	12613	284.9 -> 184.9	12.5	6.3	18.8



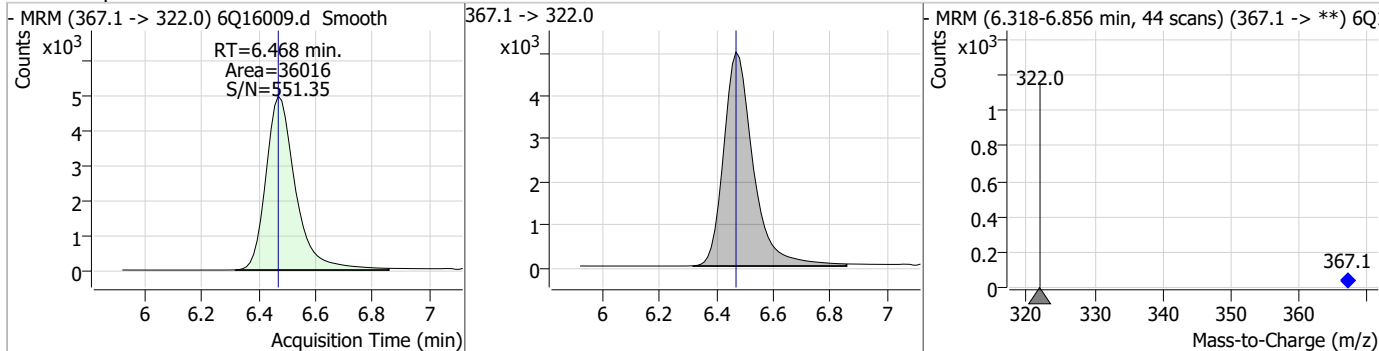
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.09	6.00	0.00	74404	314.8 -> 82.9	2.4	1.2	3.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	57.03	6.19	0.00	161726	341.0 -> 217.0	86.9	43.4	130.3



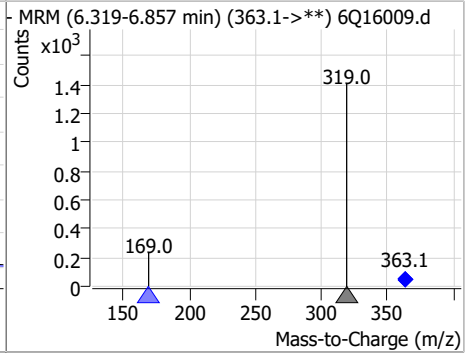
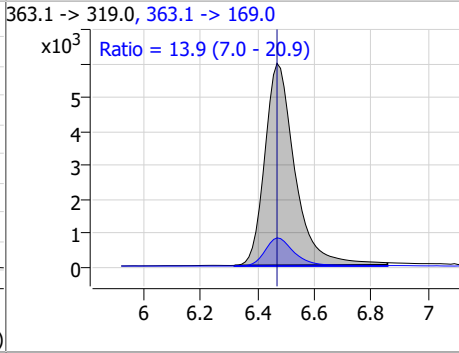
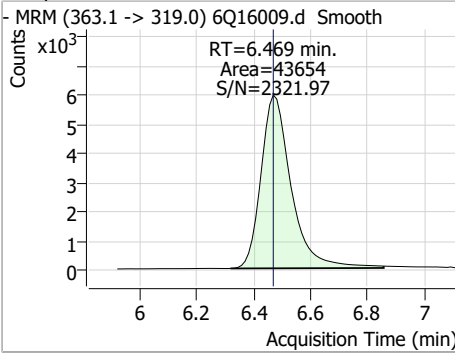
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.58	6.47	0.00	36016	367.1 -> 322.0			



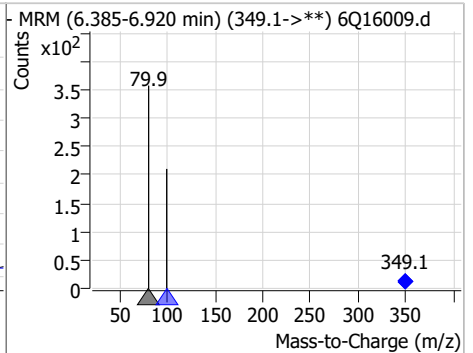
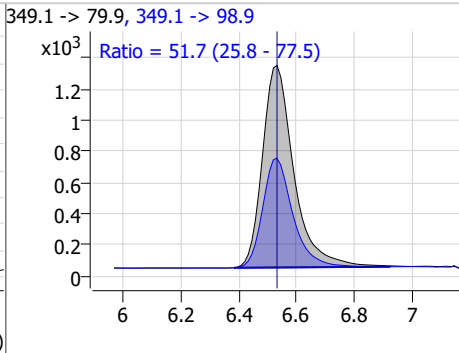
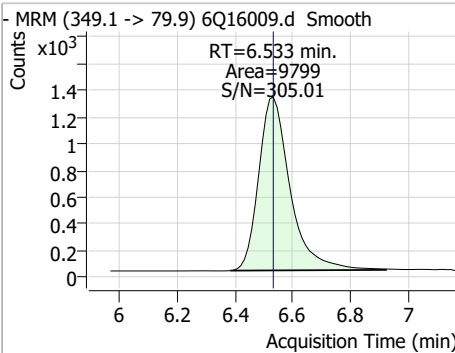
7.7.5  
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### Perfluorinated Compounds by LC/MS/MS

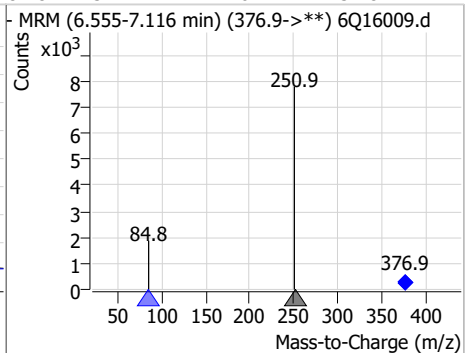
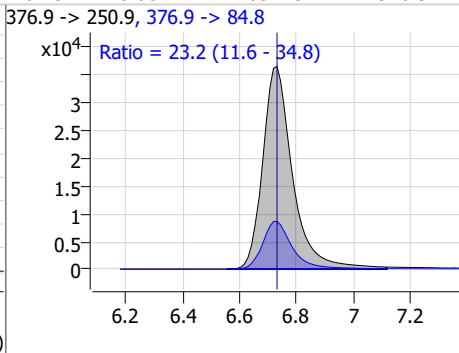
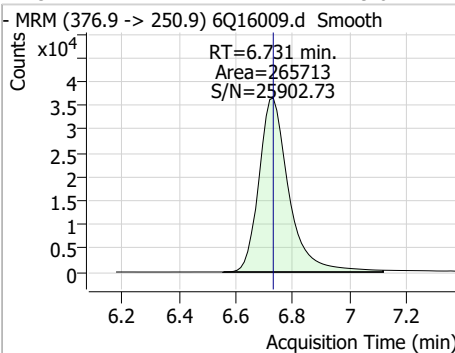
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.16	6.47	0.00	43654	363.1 -> 169.0	13.9	7.0	20.9



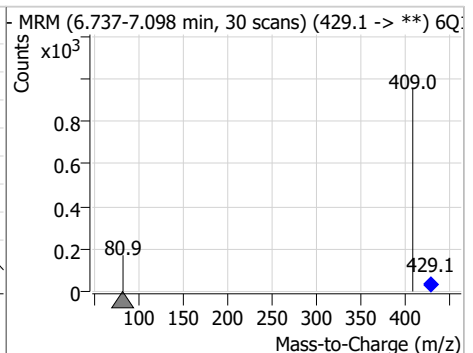
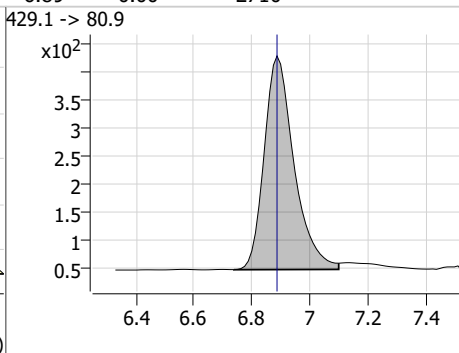
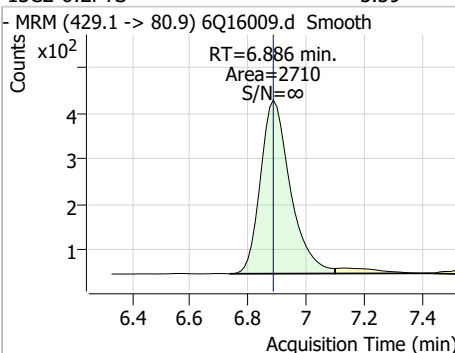
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.15	6.53	0.00	9799	349.1 -> 98.9	51.7	25.8	77.5



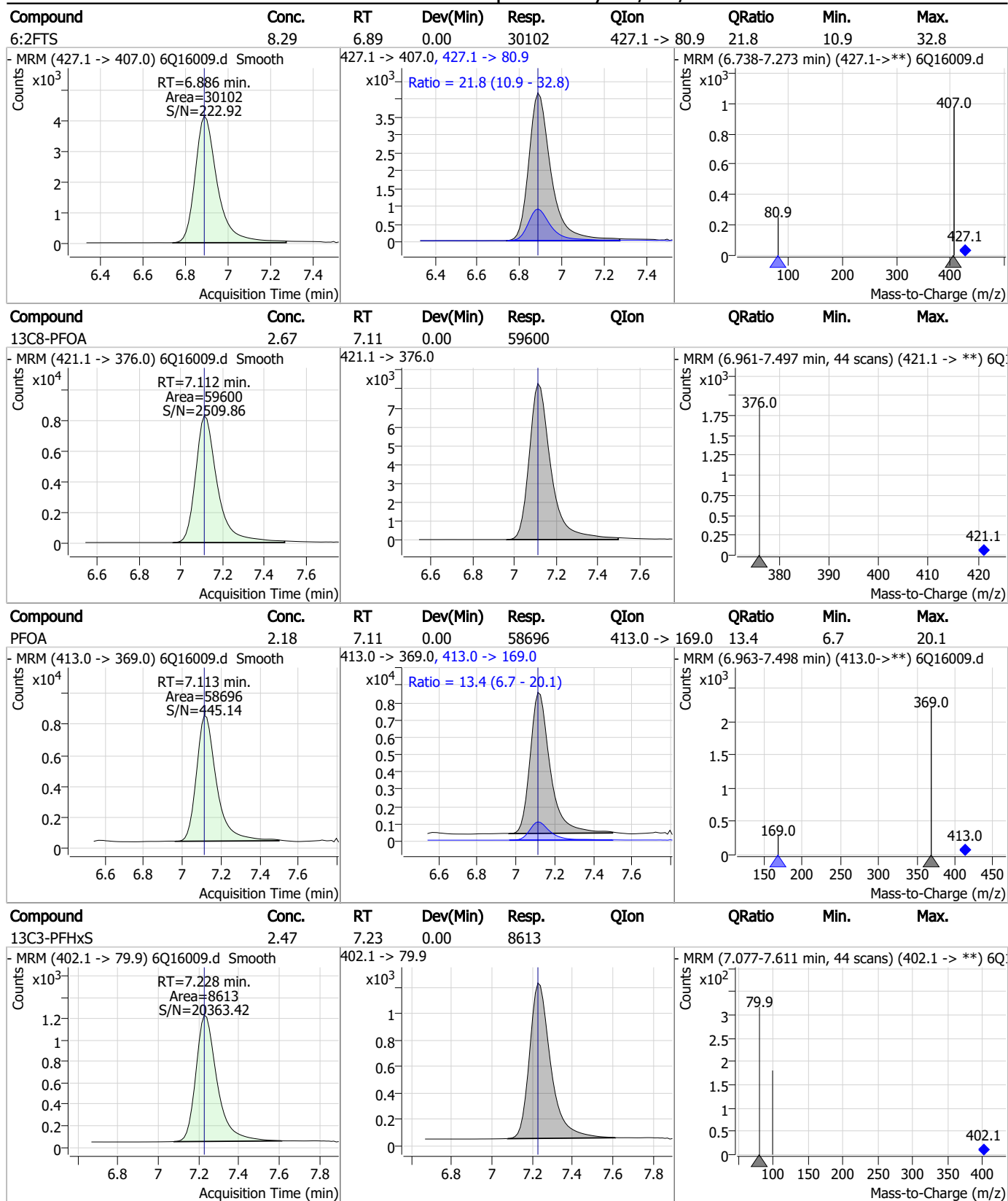
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	9.01	6.73	0.00	265713	376.9 -> 84.8	23.2	11.6	34.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.39	6.89	0.00	2710	429.1 -> 80.9			

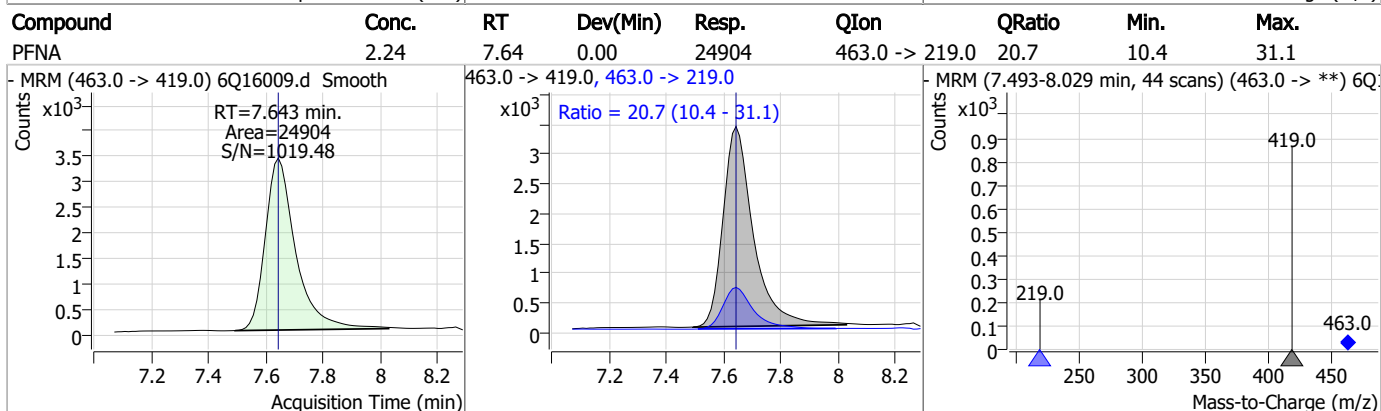
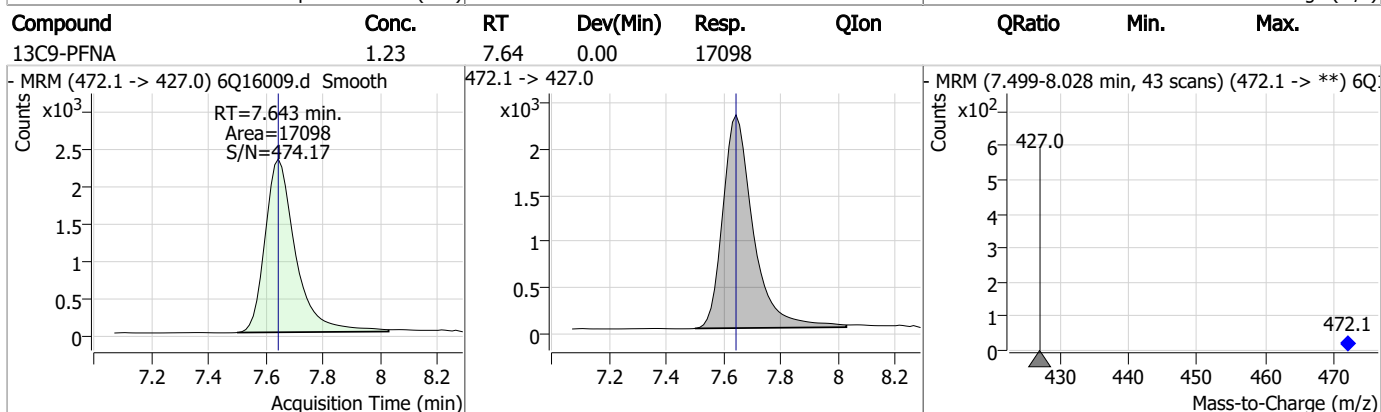
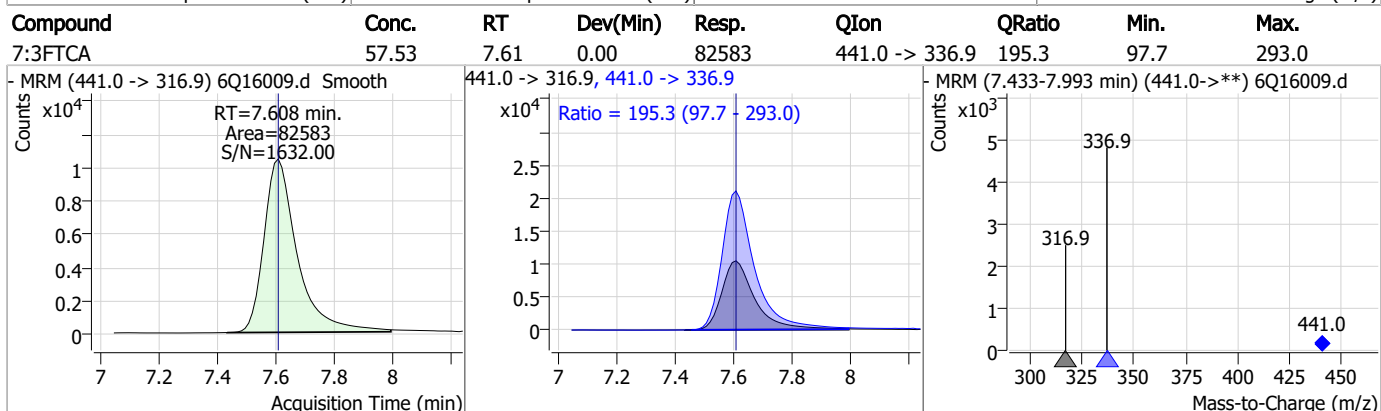
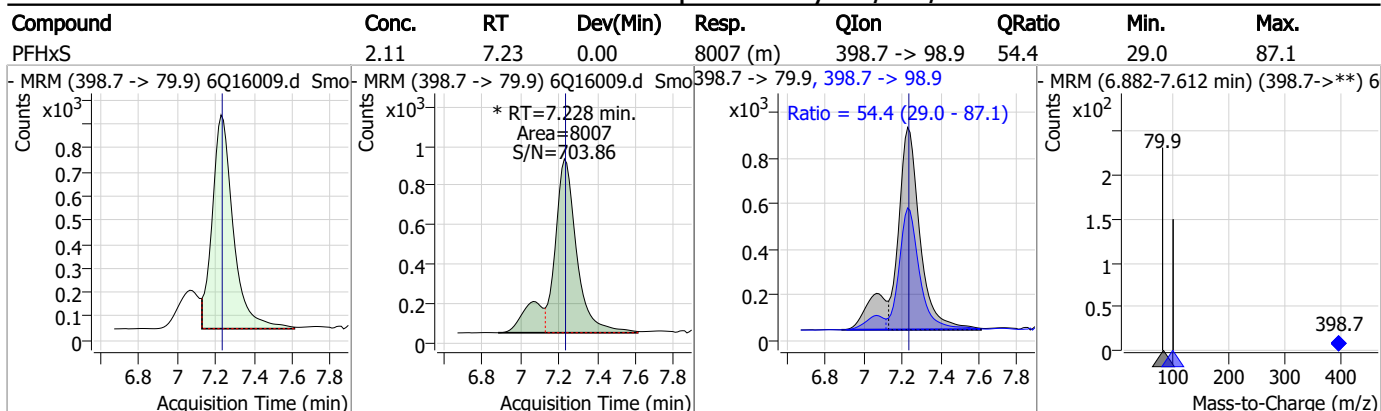


### Perfluorinated Compounds by LC/MS/MS



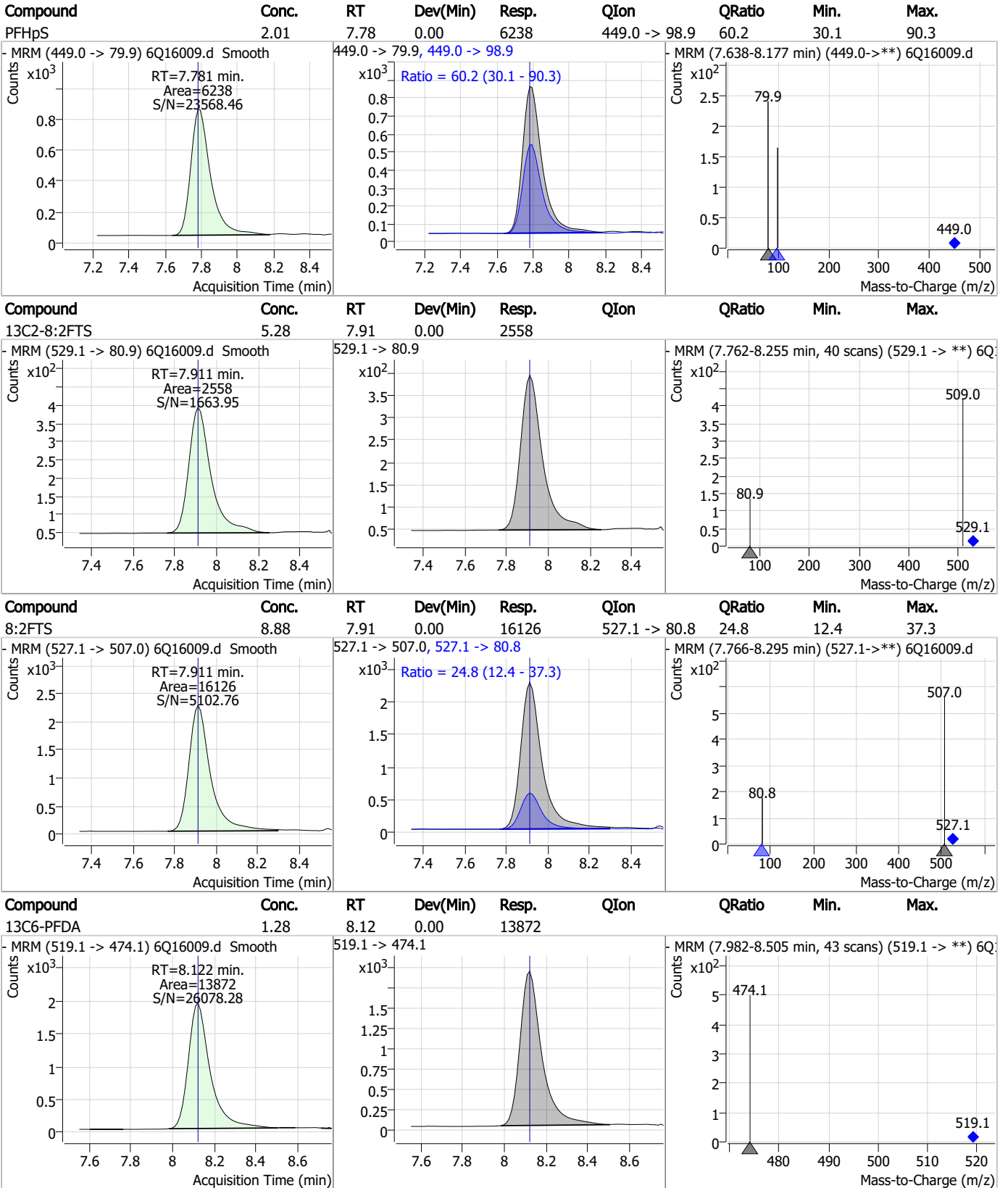
7.7.5  
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### Perfluorinated Compounds by LC/MS/MS



7.7.5  
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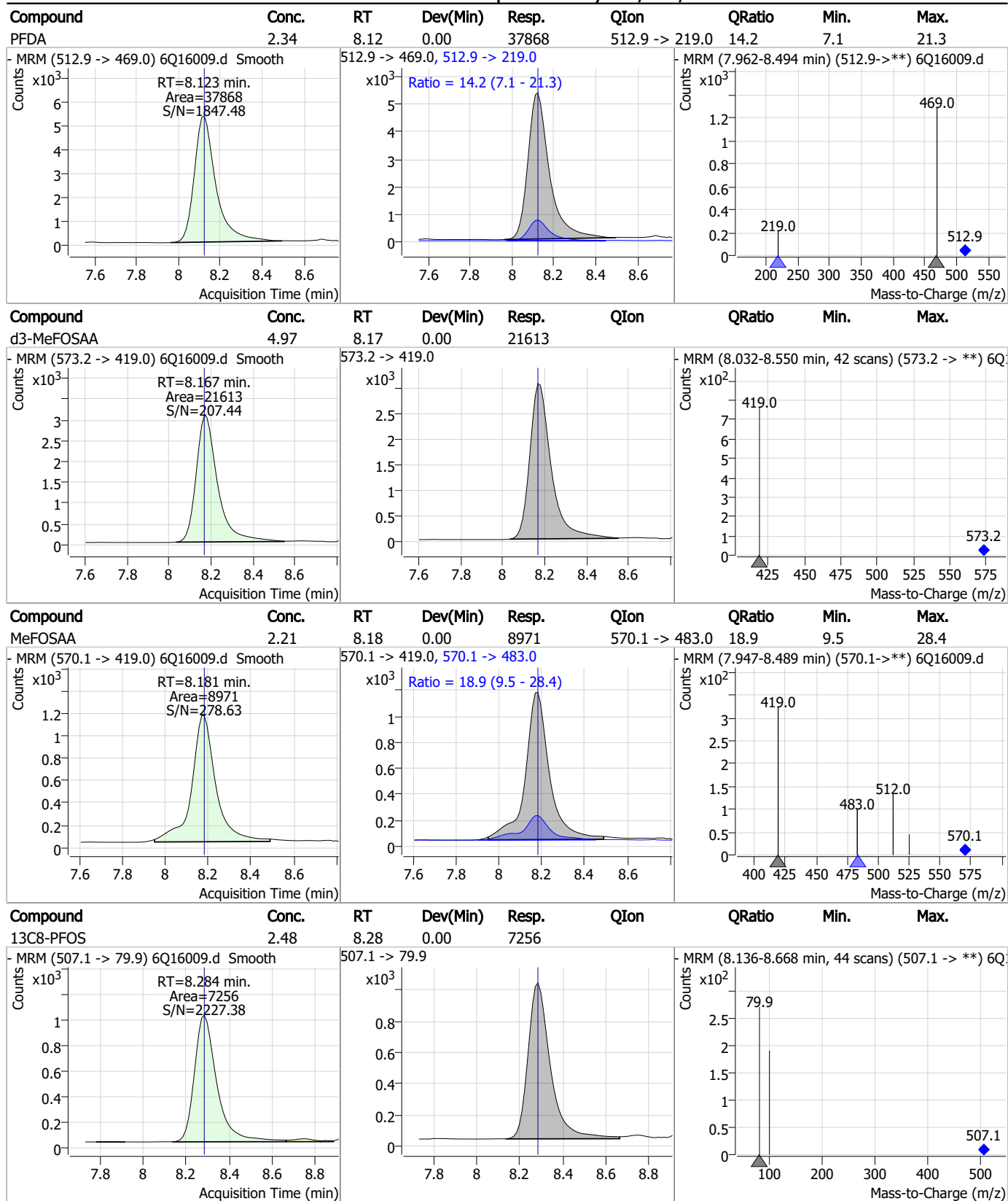
### Perfluorinated Compounds by LC/MS/MS



7.7.5

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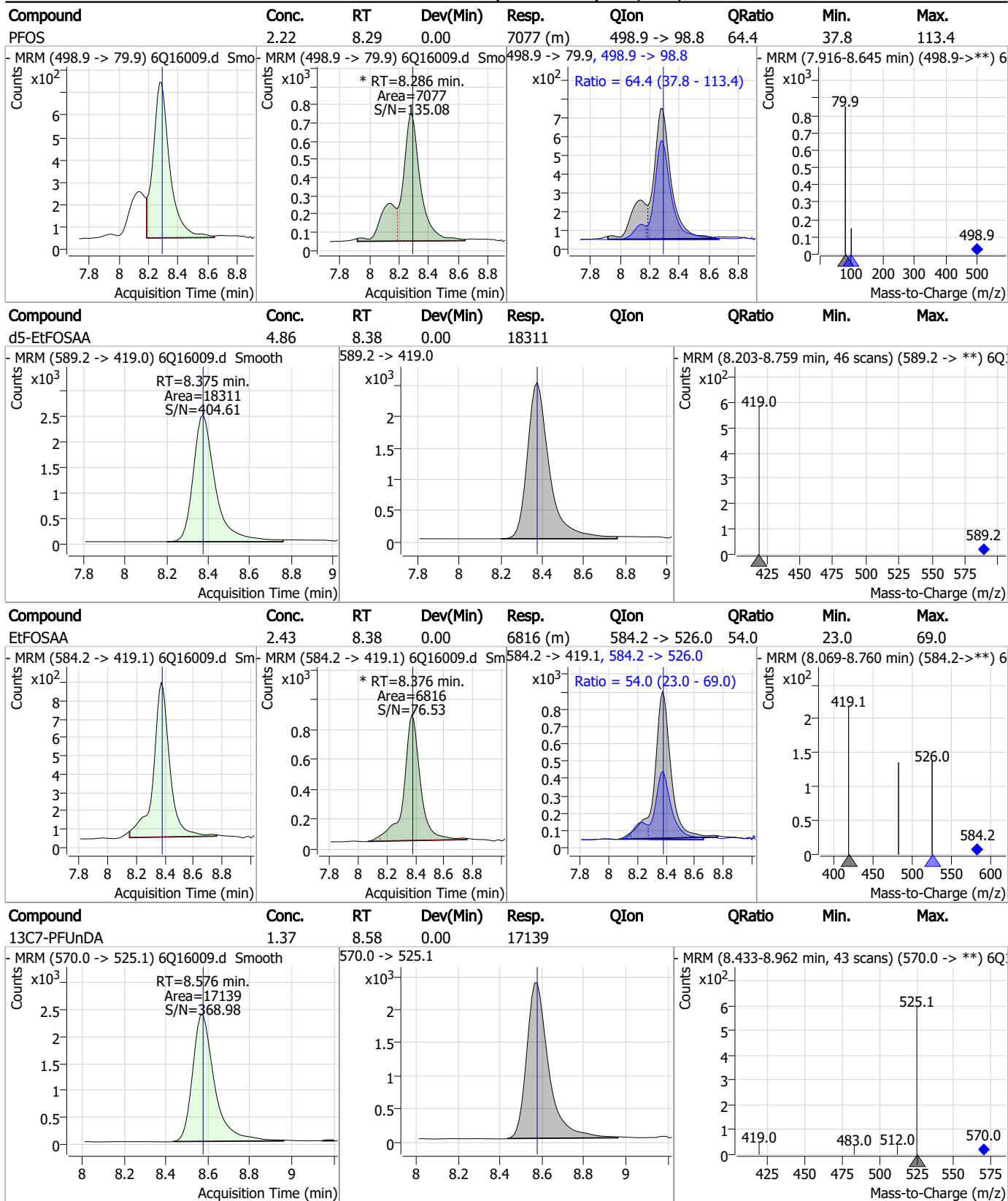
### Perfluorinated Compounds by LC/MS/MS



7.7.5

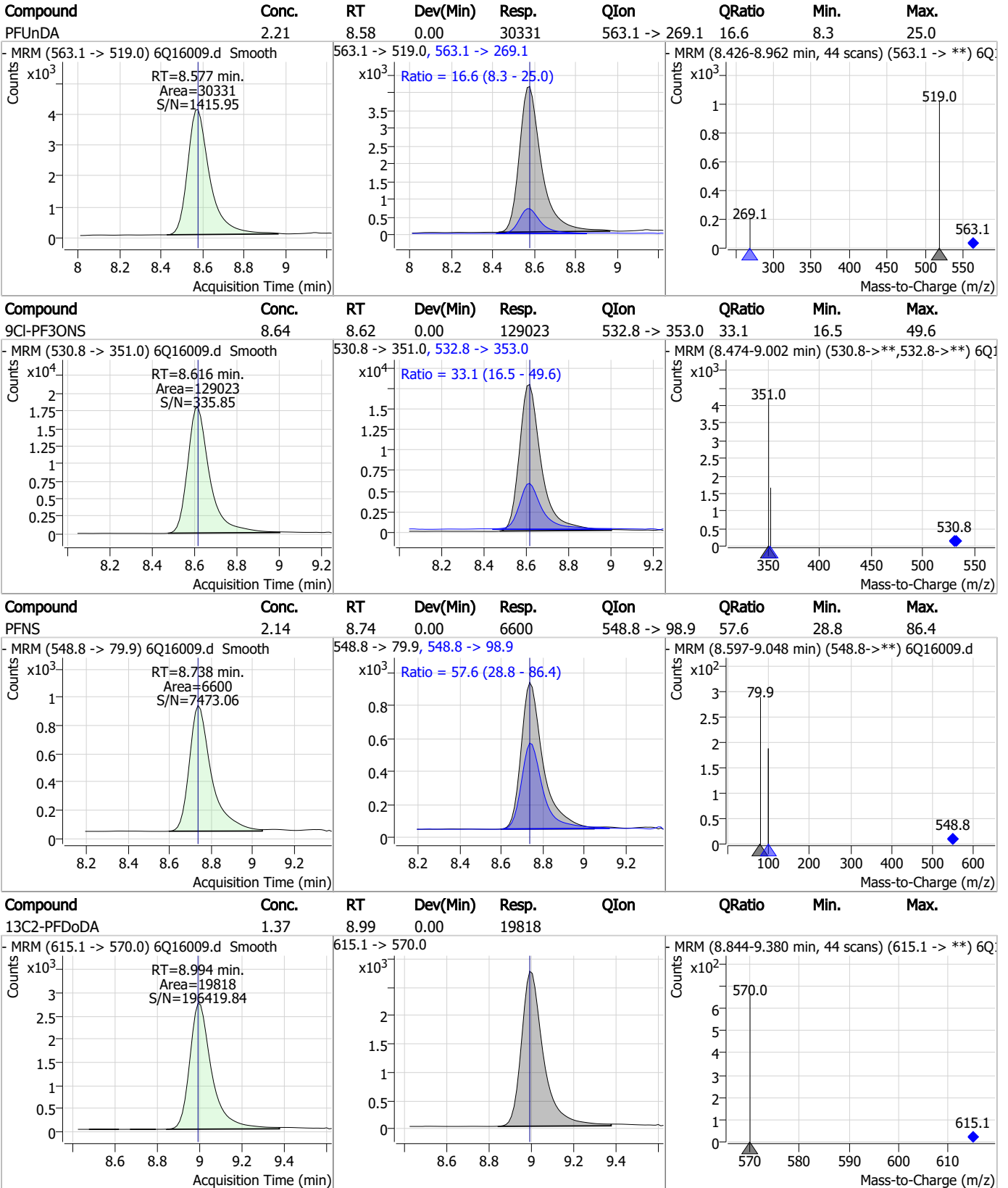
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### Perfluorinated Compounds by LC/MS/MS



7.7.5  
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### Perfluorinated Compounds by LC/MS/MS



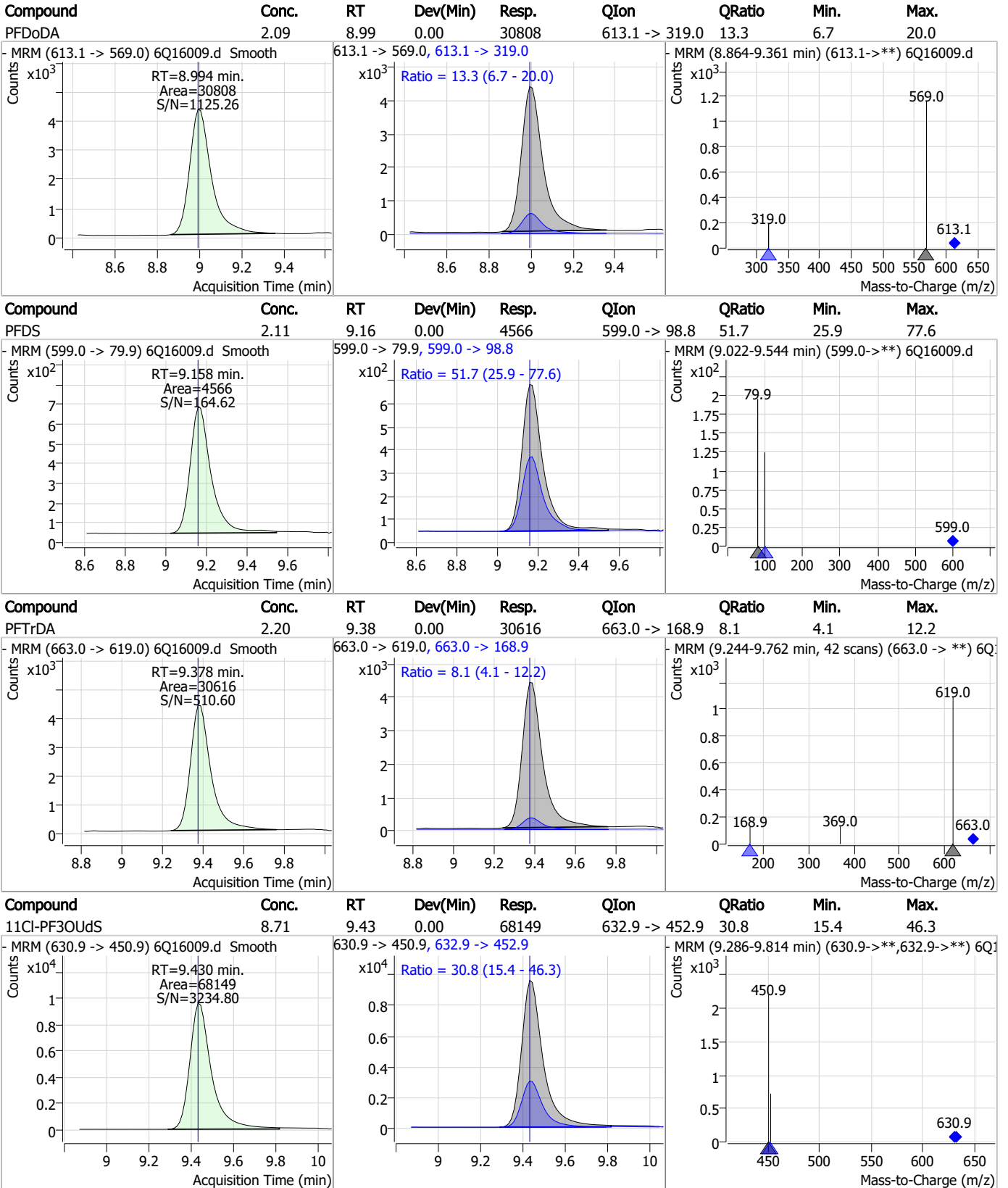
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### Perfluorinated Compounds by LC/MS/MS

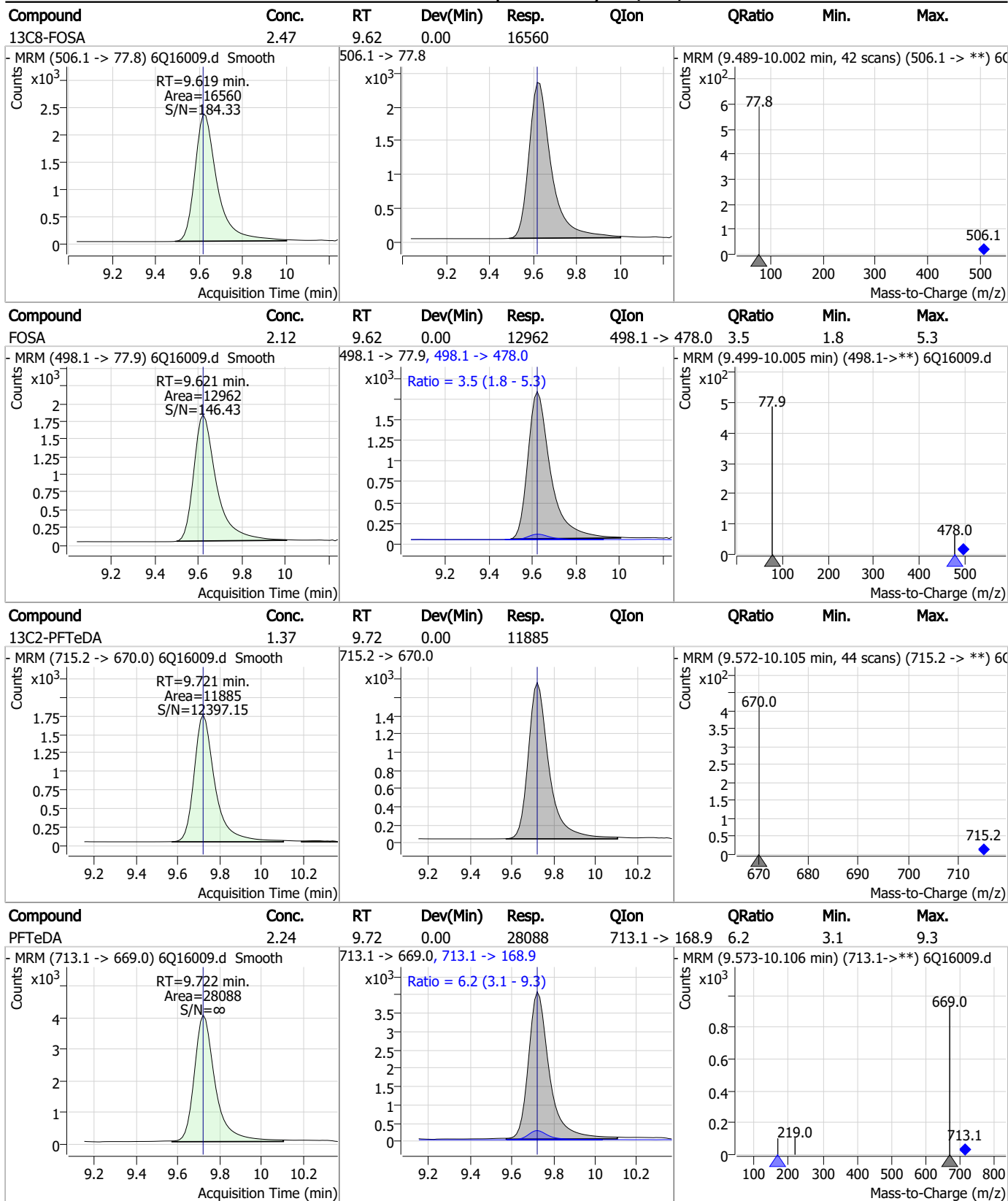


7.7.5

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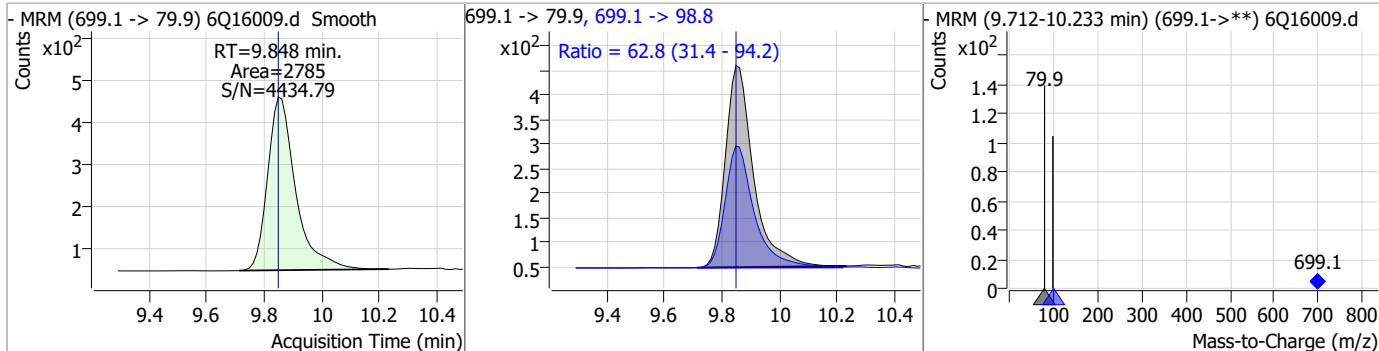
### Perfluorinated Compounds by LC/MS/MS



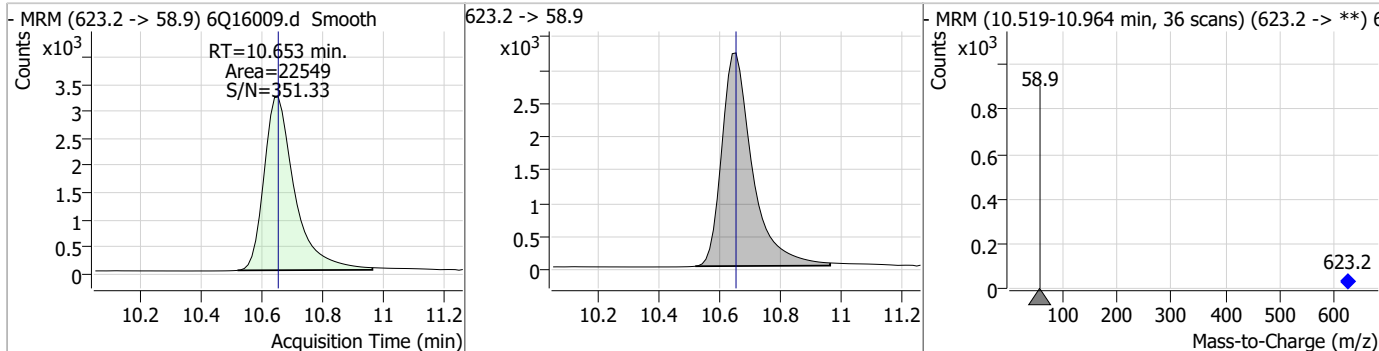
7.7.5  
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### Perfluorinated Compounds by LC/MS/MS

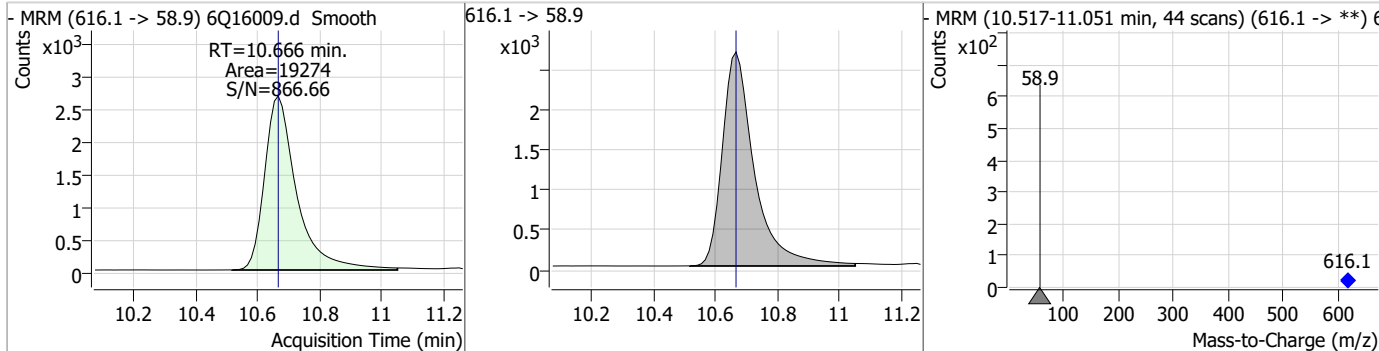
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.21	9.85	0.00	2785	699.1 -> 98.8	62.8	31.4	94.2



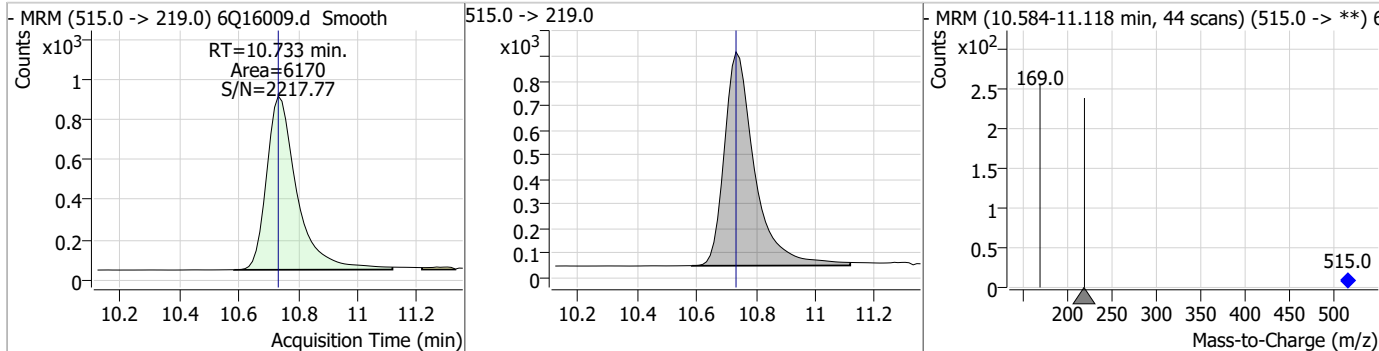
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.64	10.65	0.00	22549				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	22.68	10.67	0.00	19274				

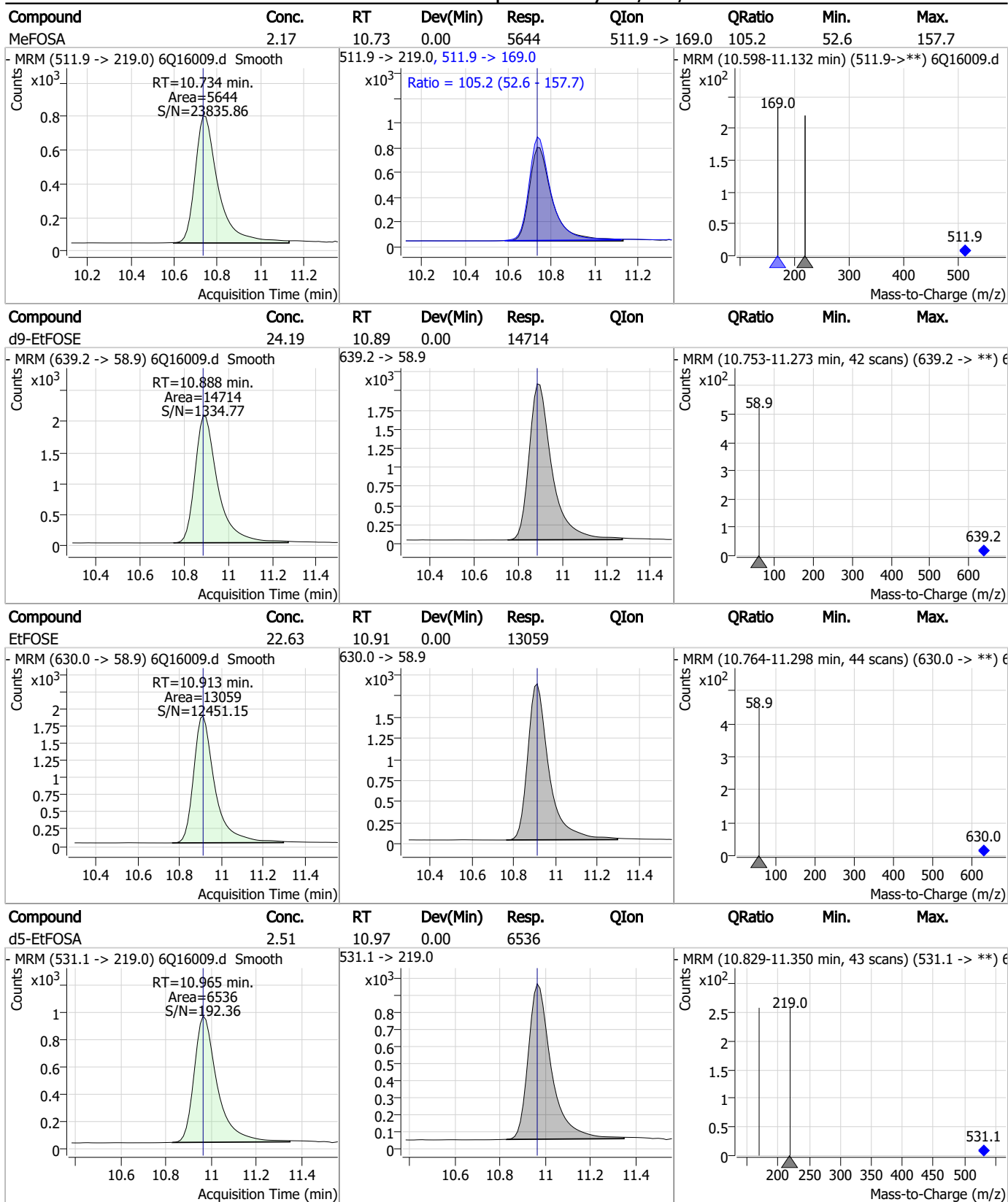


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.56	10.73	0.00	6170				



7.7.5  
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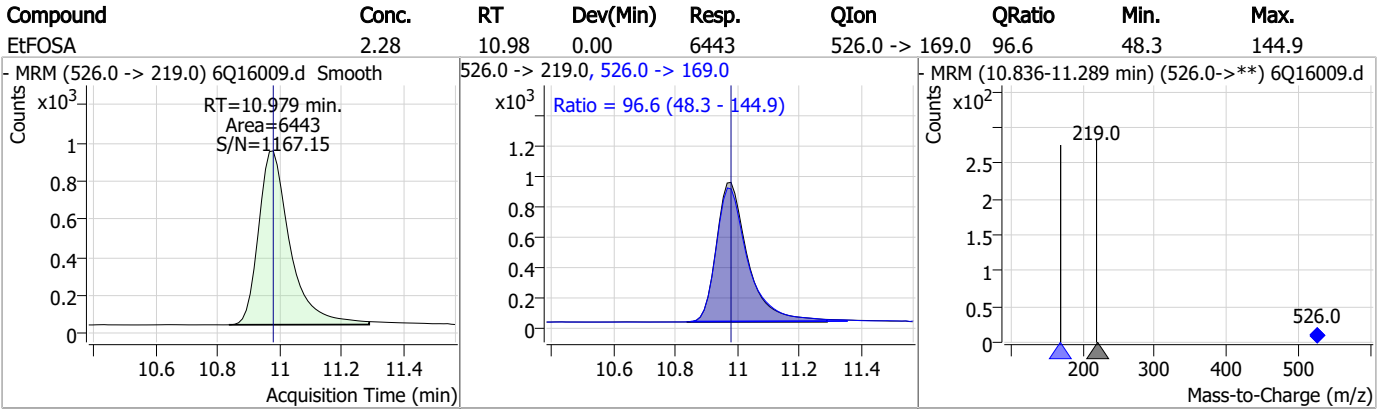
### Perfluorinated Compounds by LC/MS/MS



7.7.5

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Perfluorinated Compounds by LC/MS/MS



7.7.5

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# Manual Integration Approval Summary

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

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

7.7.5.1

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Manual Integrations  
**APPROVED**  
 (compounds with "m" flag)

Natasha Gumtje  
 04/05/23 17:23

### Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16010.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 4/4/2023 3:11:39 PM  
 Sample Name : ic239-5  
 Vial : P1-A6  
 DA Method File : 1633\_040423\_S6Q239.quantmethod.xml  
 Batch Name : s6q239.batch.bin  
 Sample Information : OP96085,S6Q239,500,,,5.0,1,water

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

7.7.6  
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## Perfluorinated Compounds by LC/MS/MS

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



## Perfluorinated Compounds by LC/MS/MS

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

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

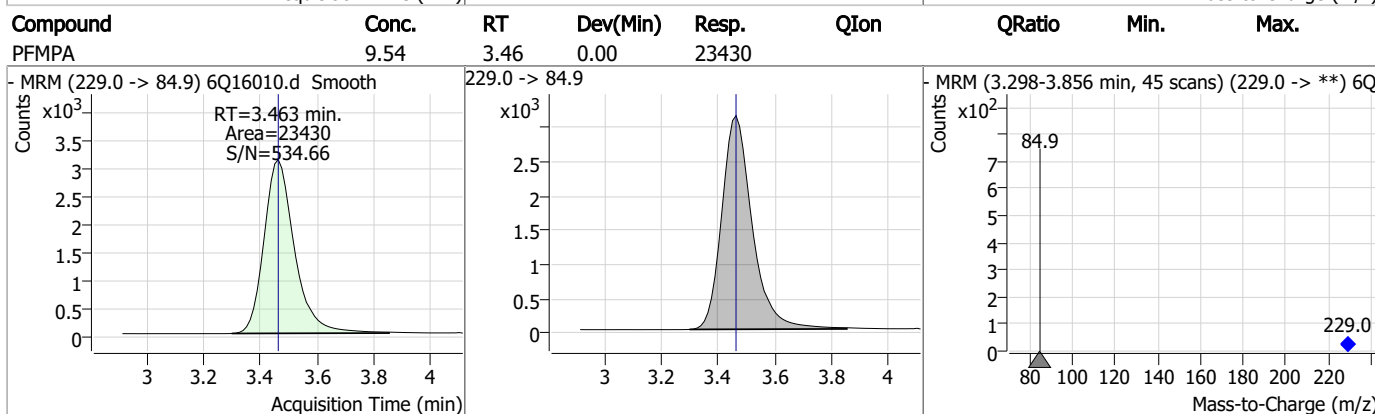
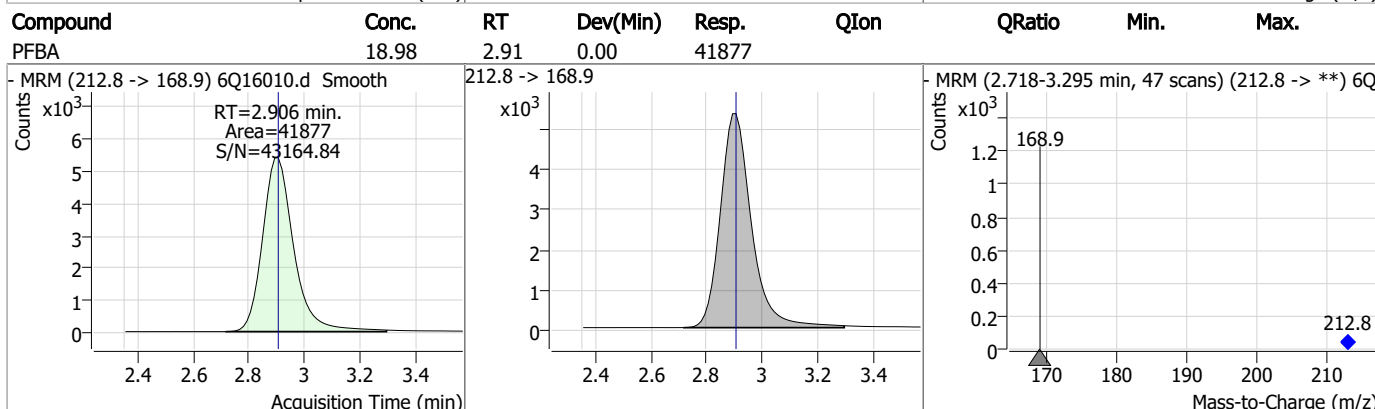
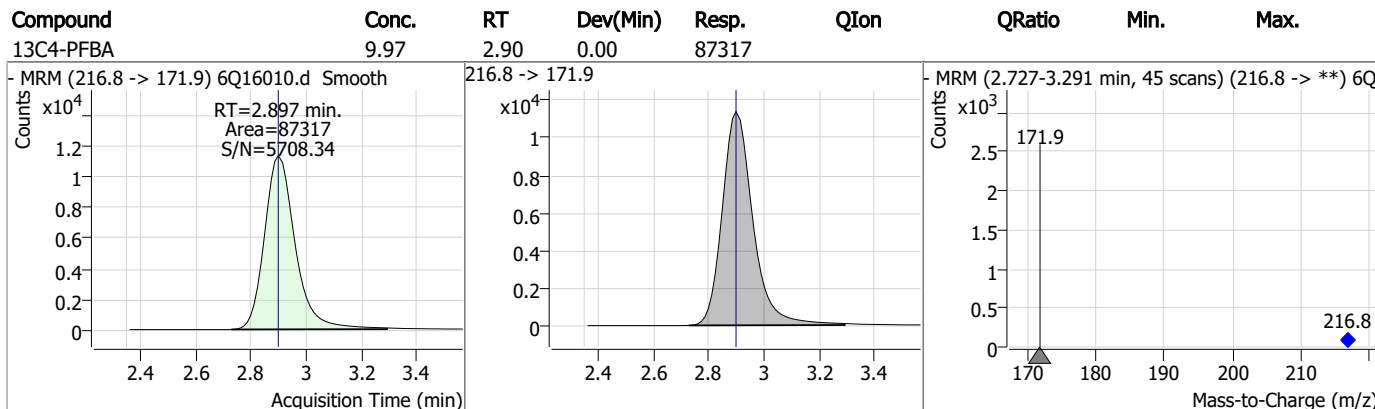
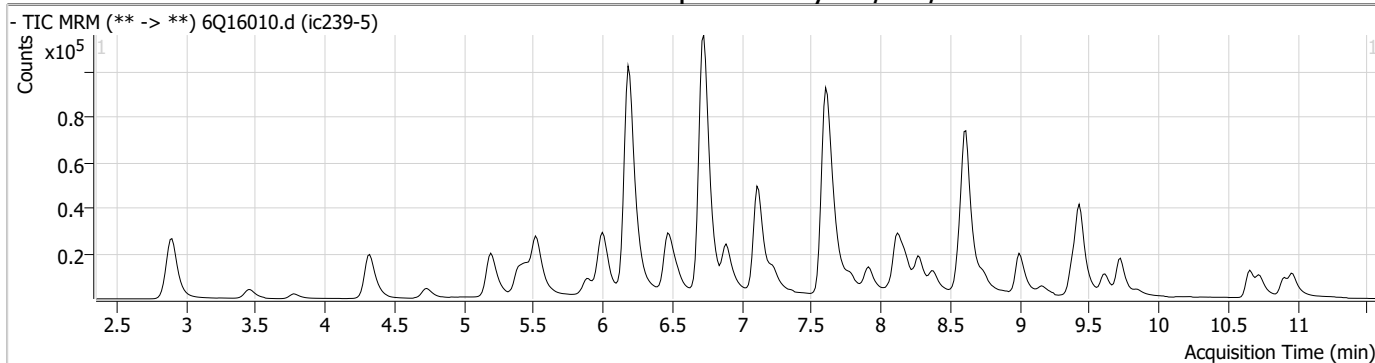
### Perfluorinated Compounds by LC/MS/MS

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

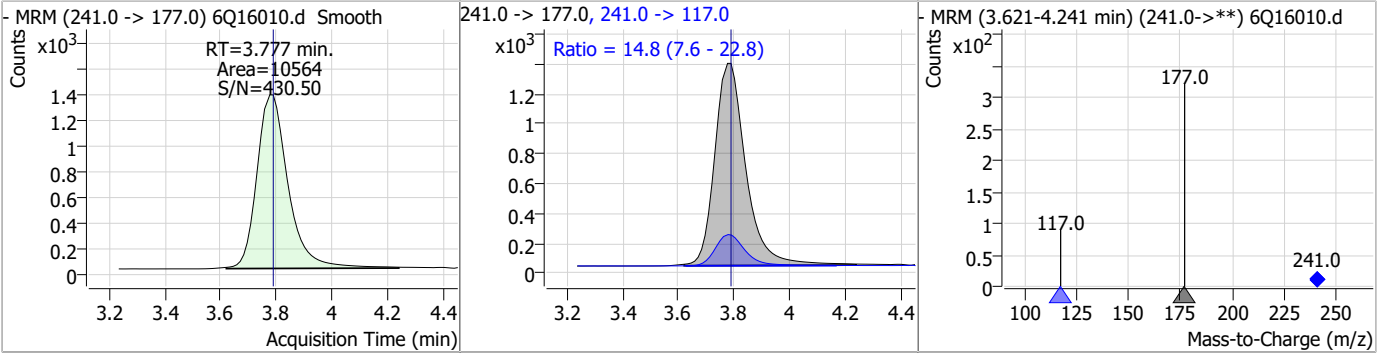
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### Perfluorinated Compounds by LC/MS/MS

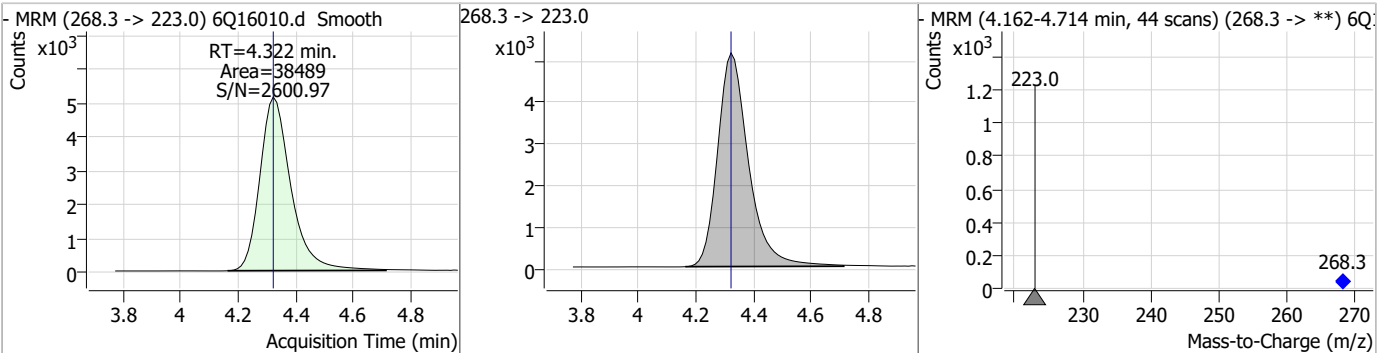


### Perfluorinated Compounds by LC/MS/MS

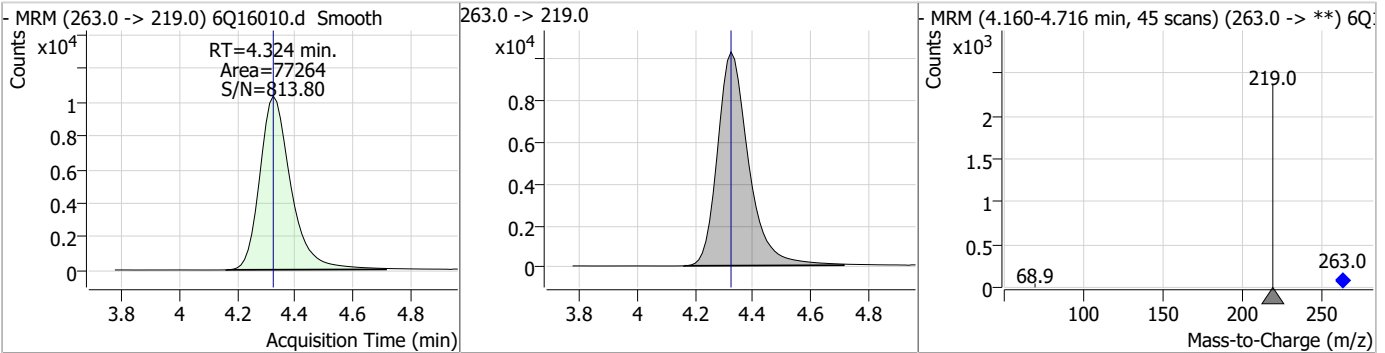
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	23.44	3.78	-0.01	10564	241.0 -> 117.0	14.8	7.6	22.8



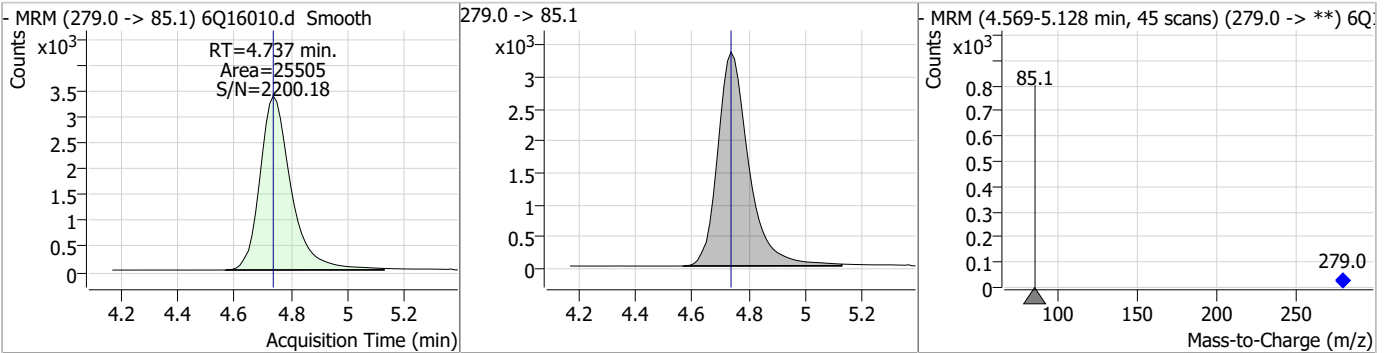
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.07	4.32	0.00	38489				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	9.52	4.32	0.00	77264				



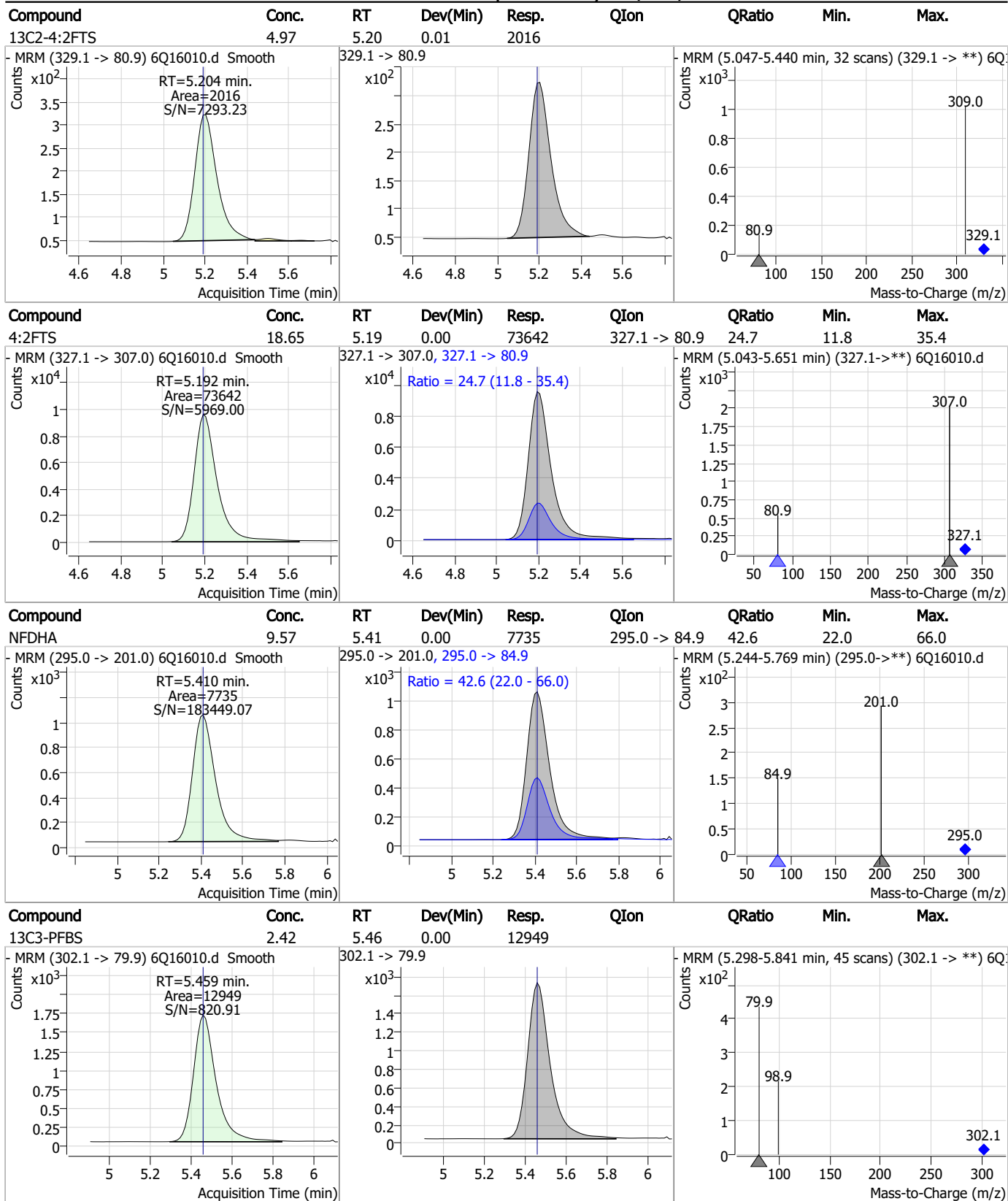
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	9.48	4.74	0.00	25505				



7.7.6

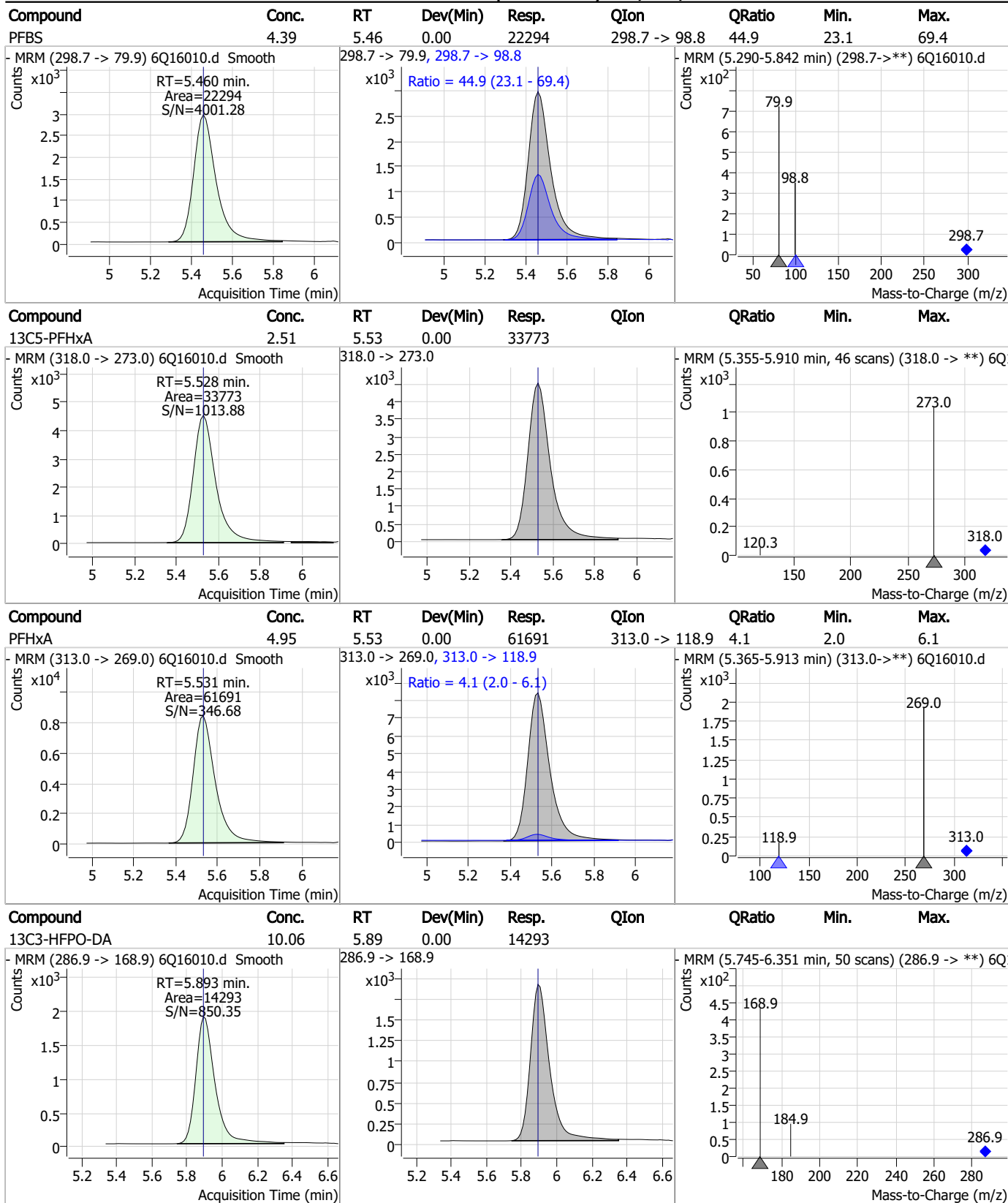
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### Perfluorinated Compounds by LC/MS/MS



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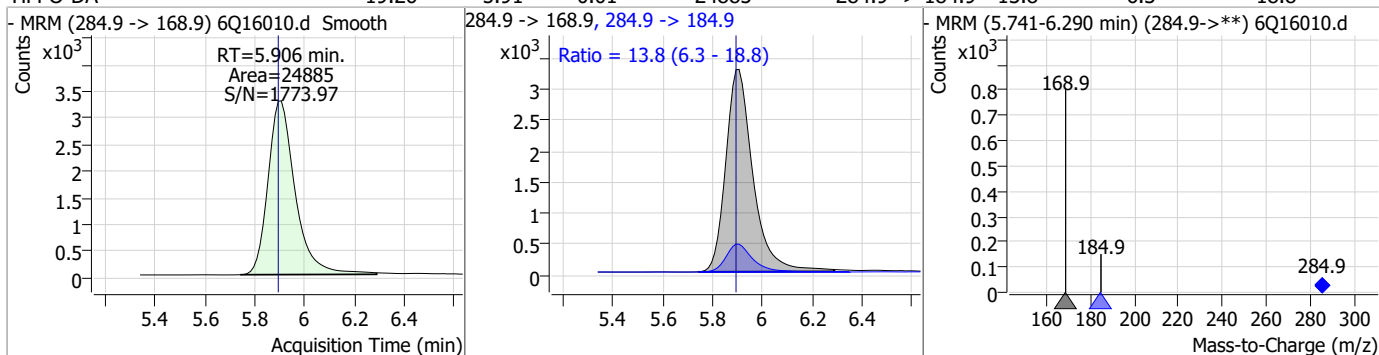
### Perfluorinated Compounds by LC/MS/MS



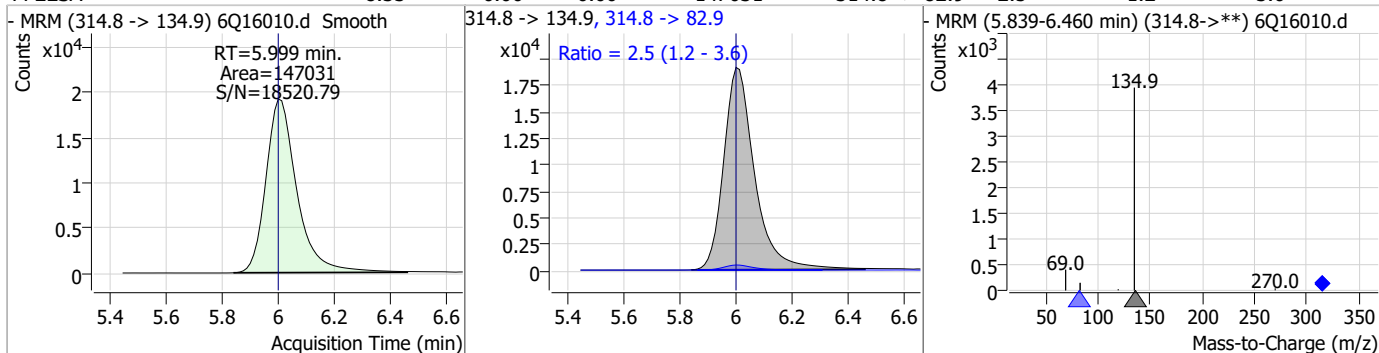
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### Perfluorinated Compounds by LC/MS/MS

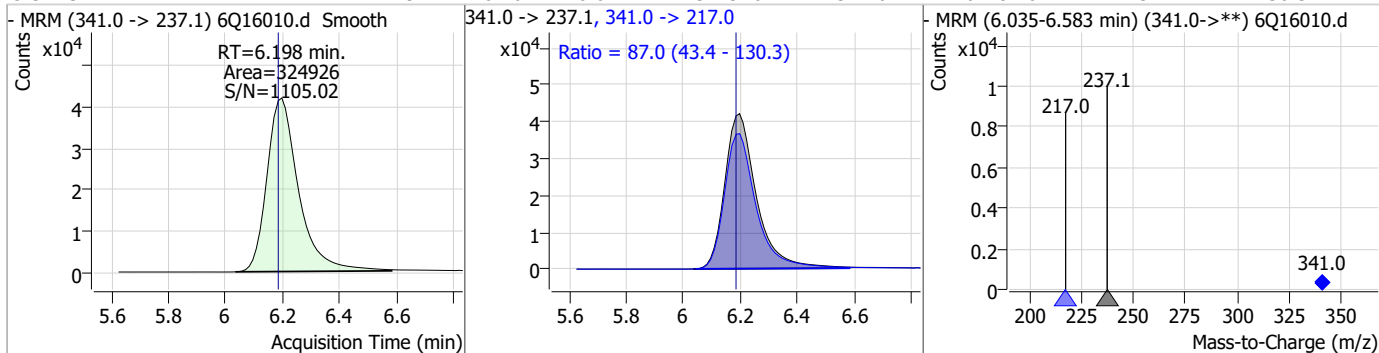
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.26	5.91	0.01	24885	284.9 -> 184.9	13.8	6.3	18.8



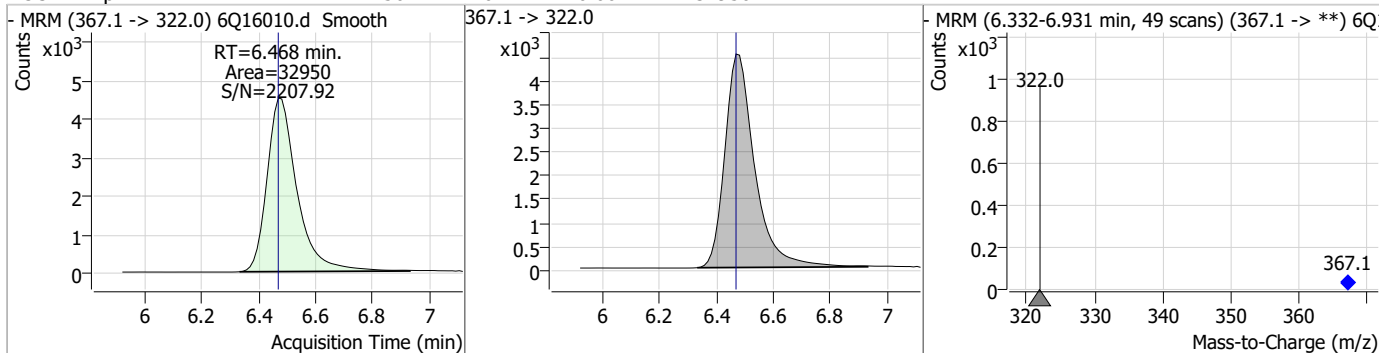
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	8.33	6.00	0.00	147031	314.8 -> 82.9	2.5	1.2	3.6



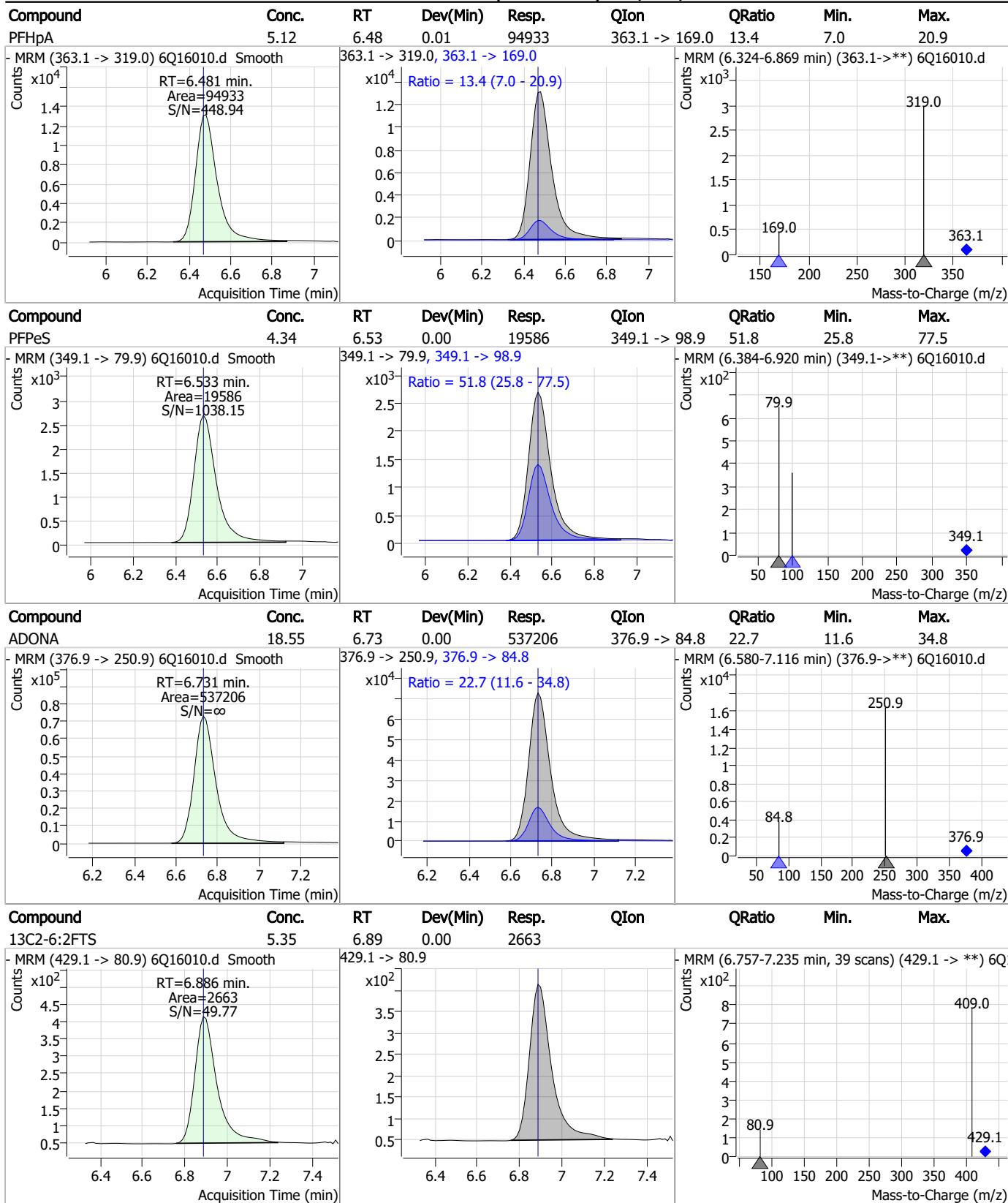
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	117.91	6.20	0.01	324926	341.0 -> 217.0	87.0	43.4	130.3



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



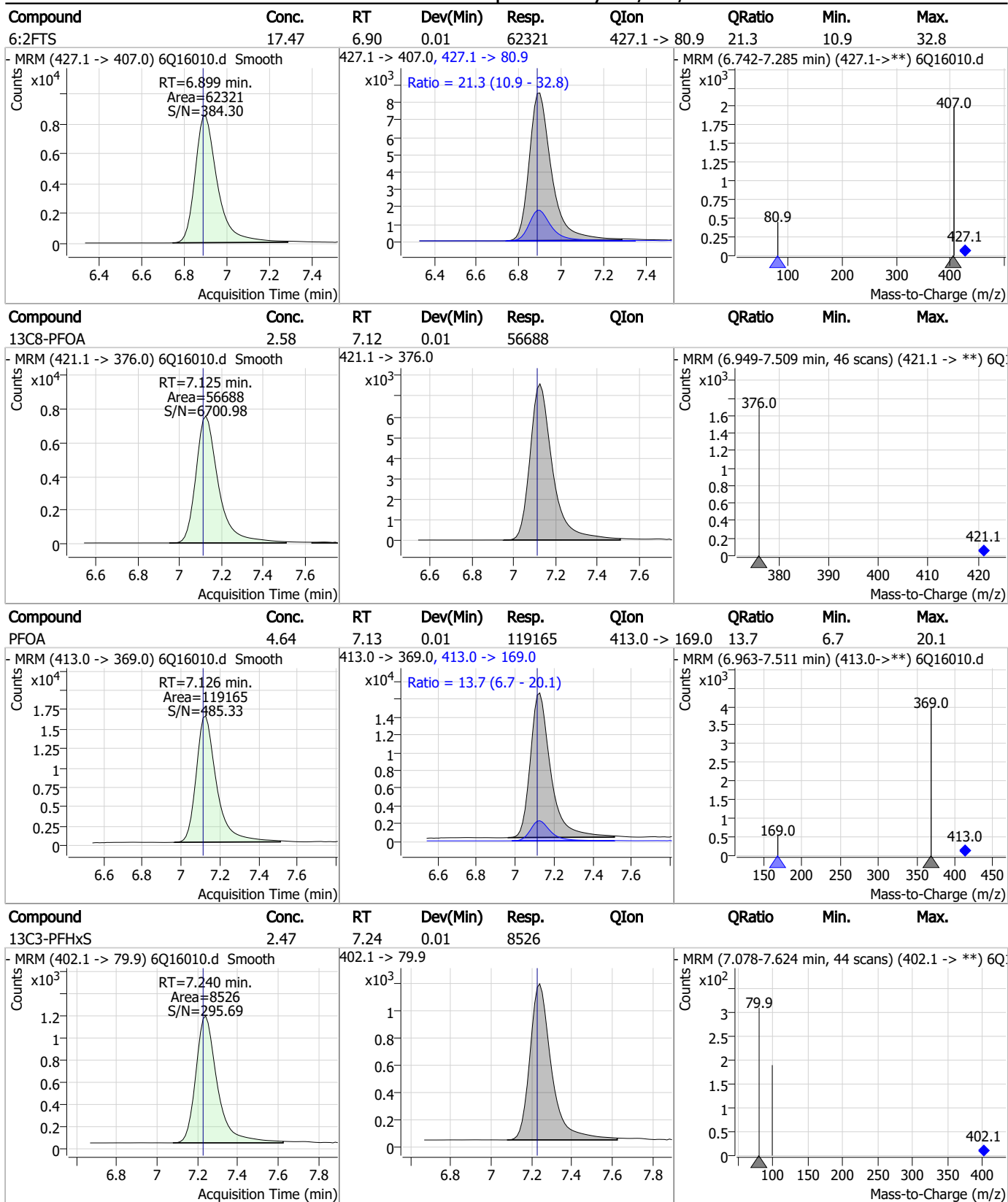
### Perfluorinated Compounds by LC/MS/MS



7.7.6  
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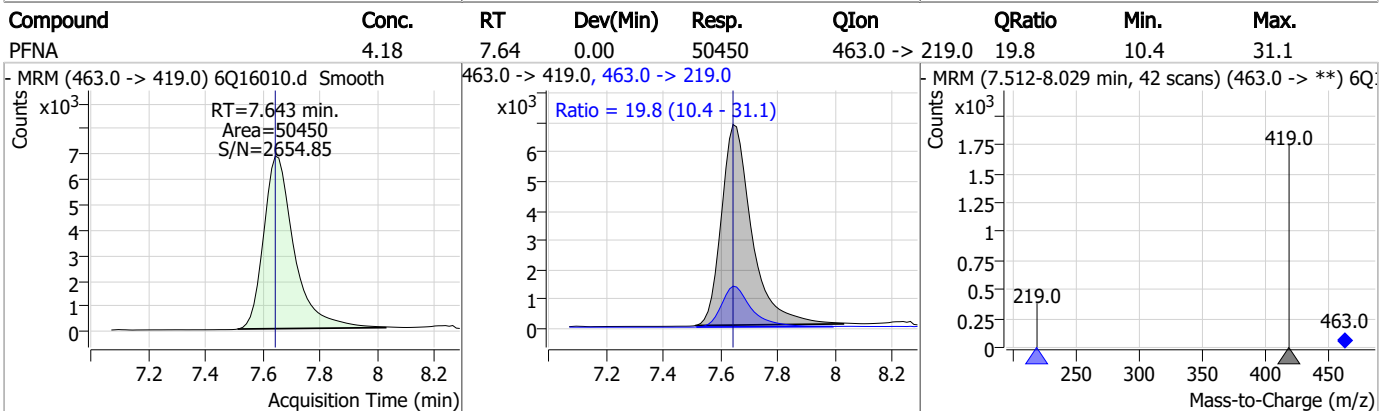
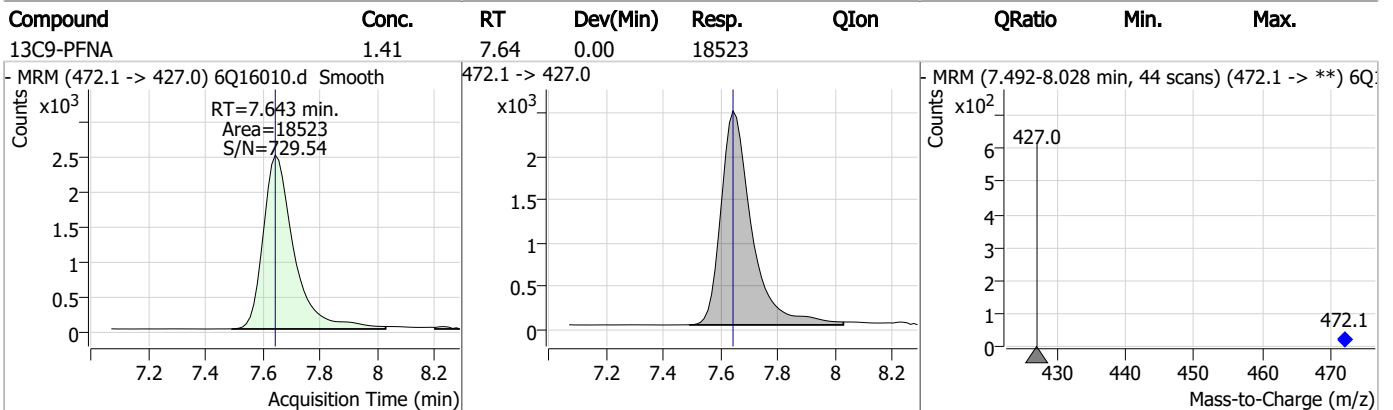
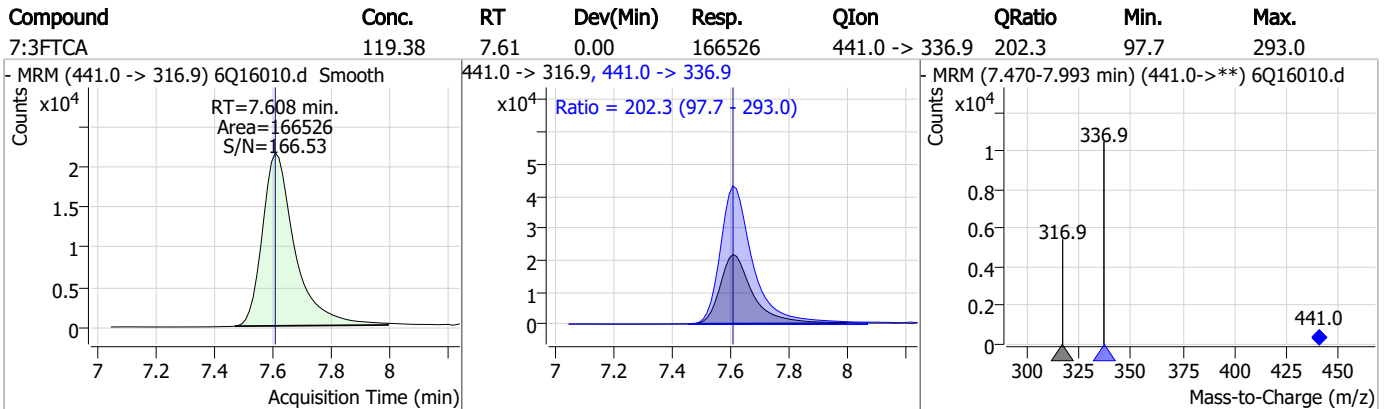
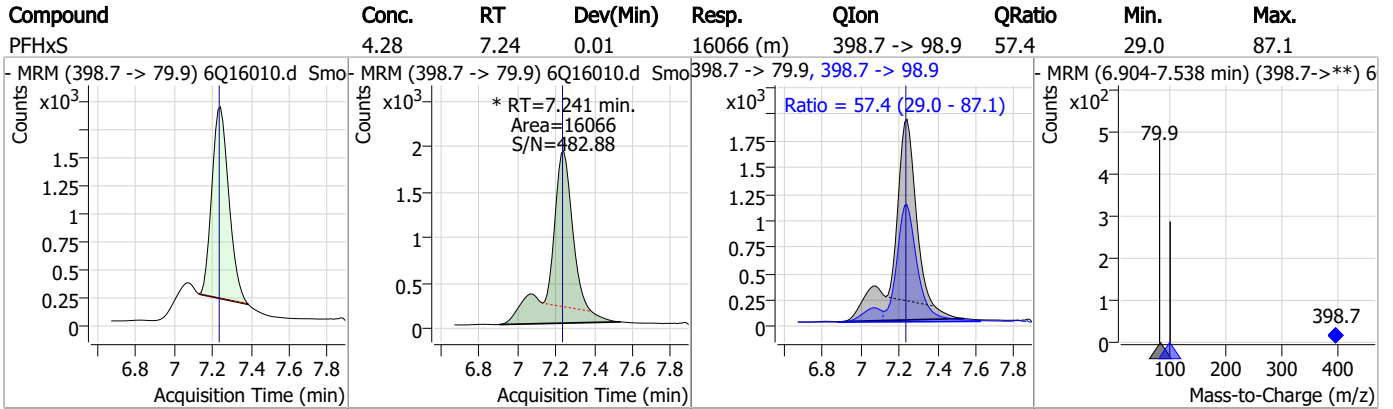
### Perfluorinated Compounds by LC/MS/MS



7.7.6

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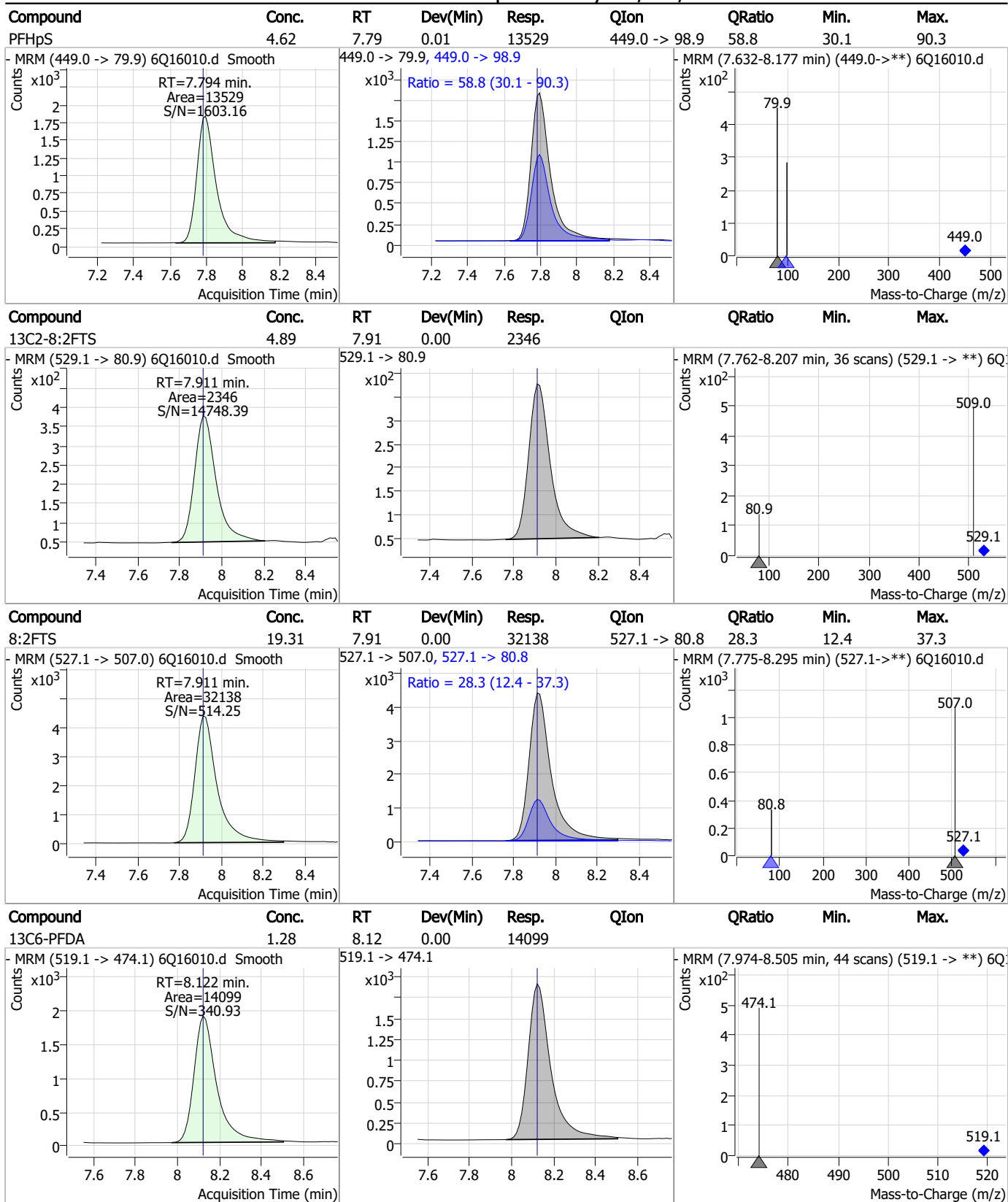
### Perfluorinated Compounds by LC/MS/MS



7.7.6

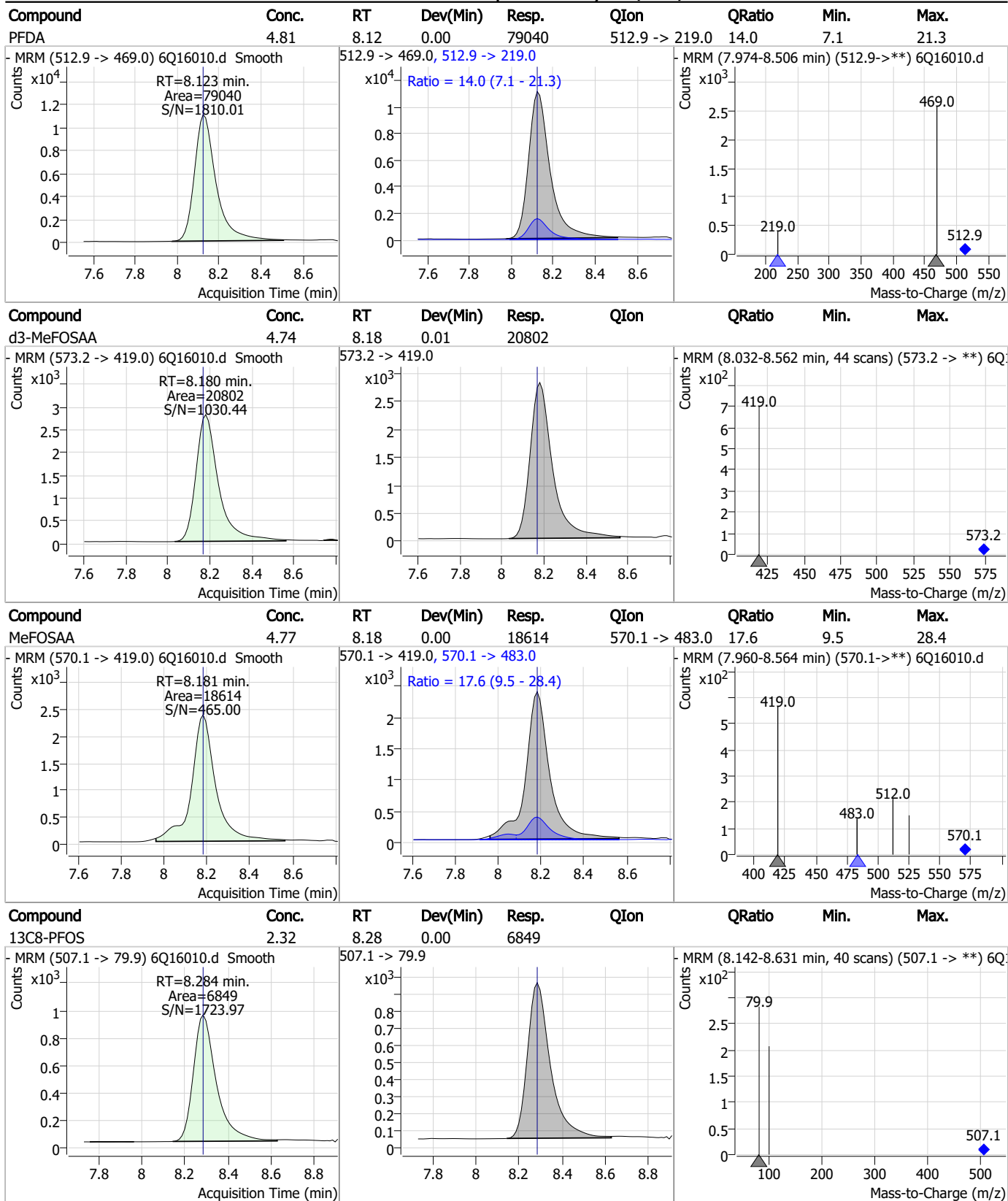
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### Perfluorinated Compounds by LC/MS/MS



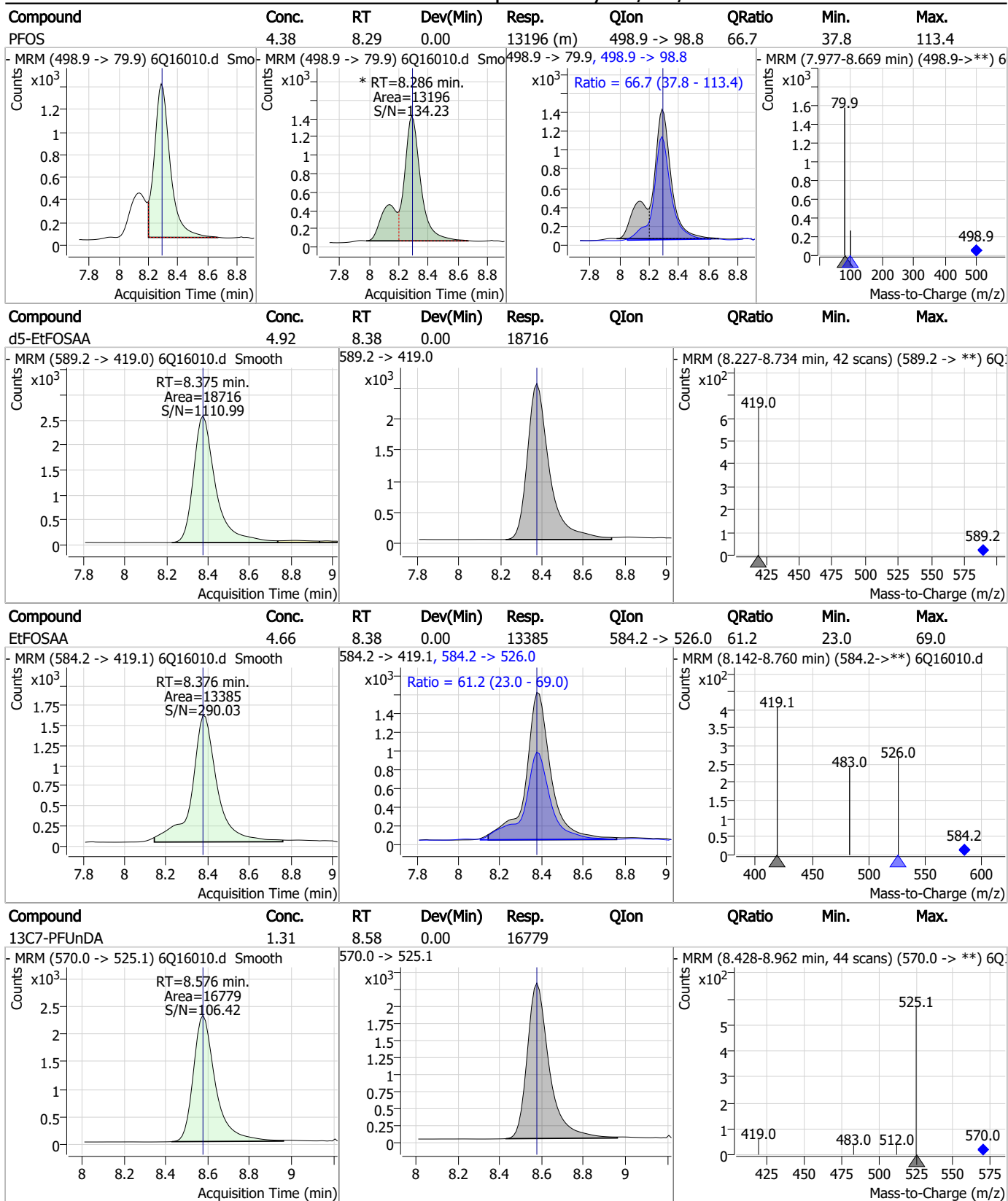
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### Perfluorinated Compounds by LC/MS/MS



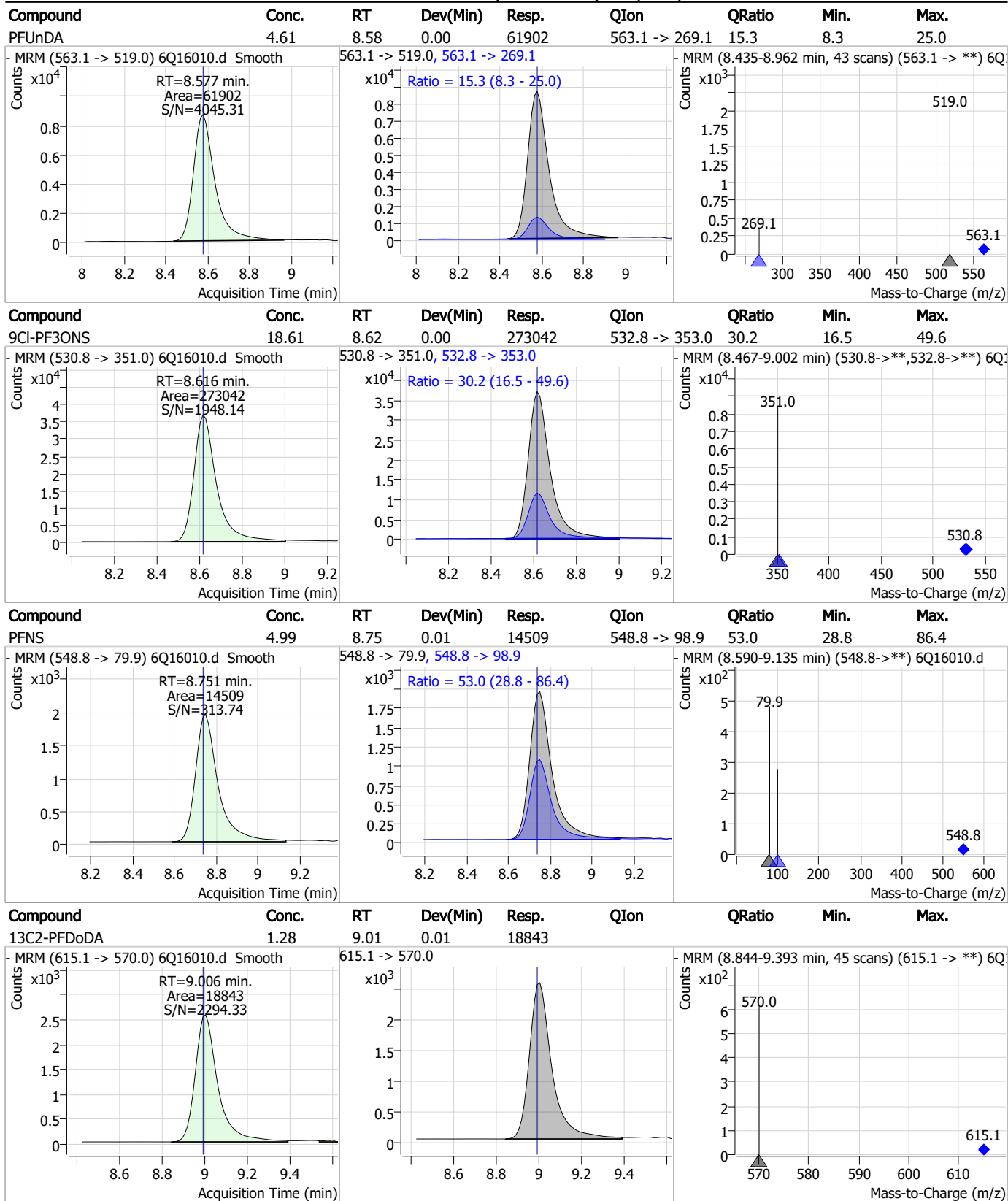
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### Perfluorinated Compounds by LC/MS/MS



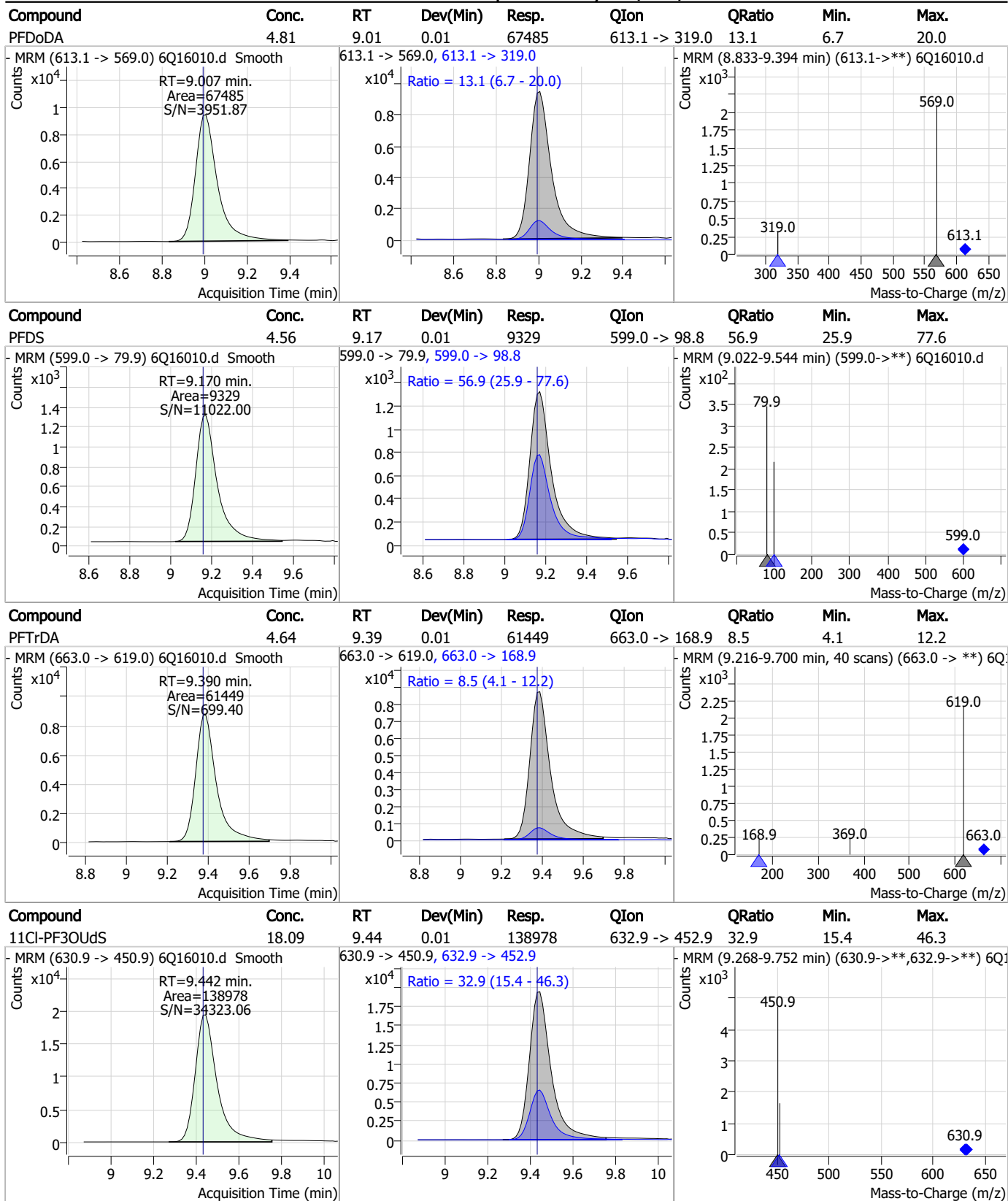
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### Perfluorinated Compounds by LC/MS/MS



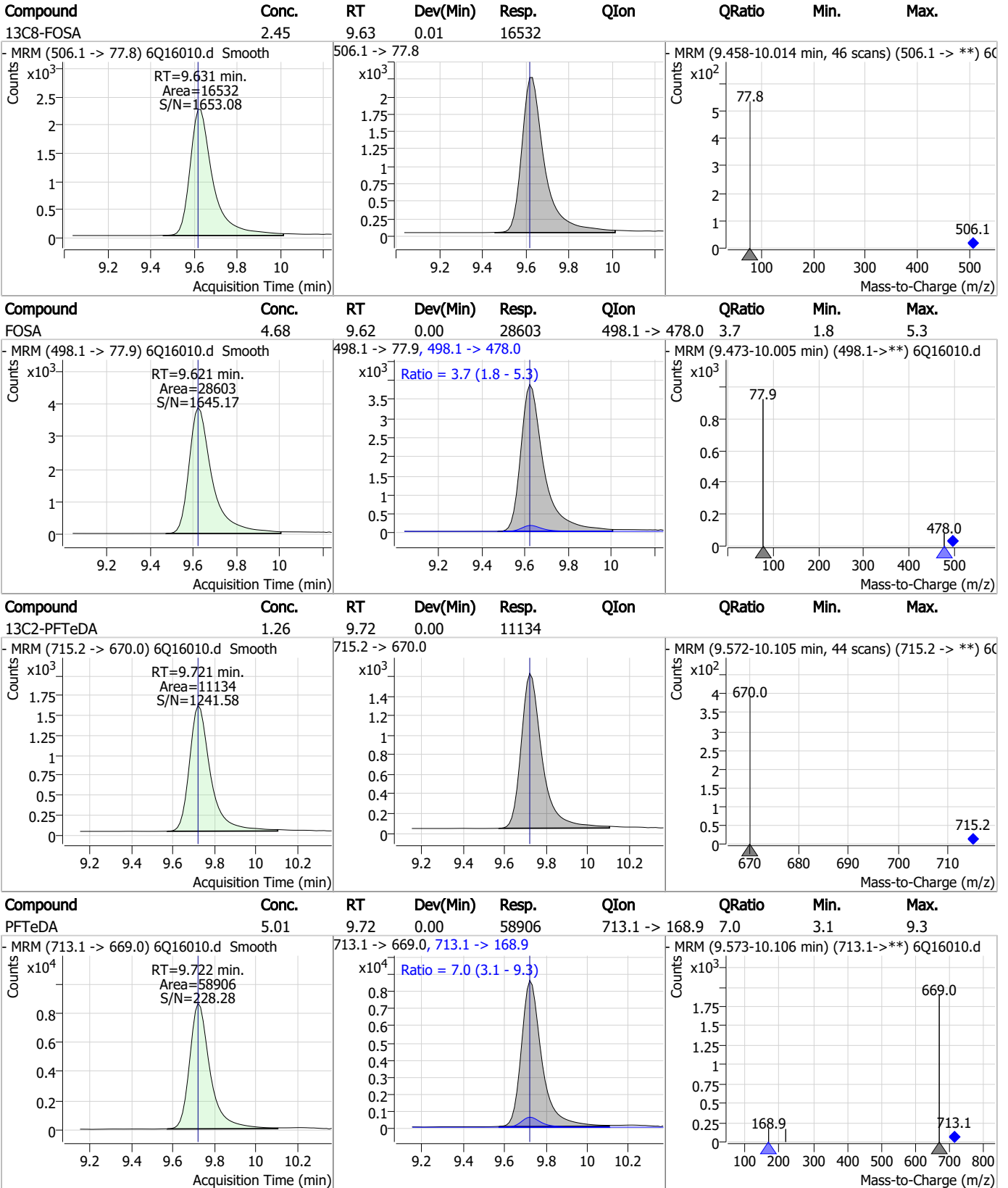
7.7.6  
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### Perfluorinated Compounds by LC/MS/MS



7.7.6  
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### Perfluorinated Compounds by LC/MS/MS

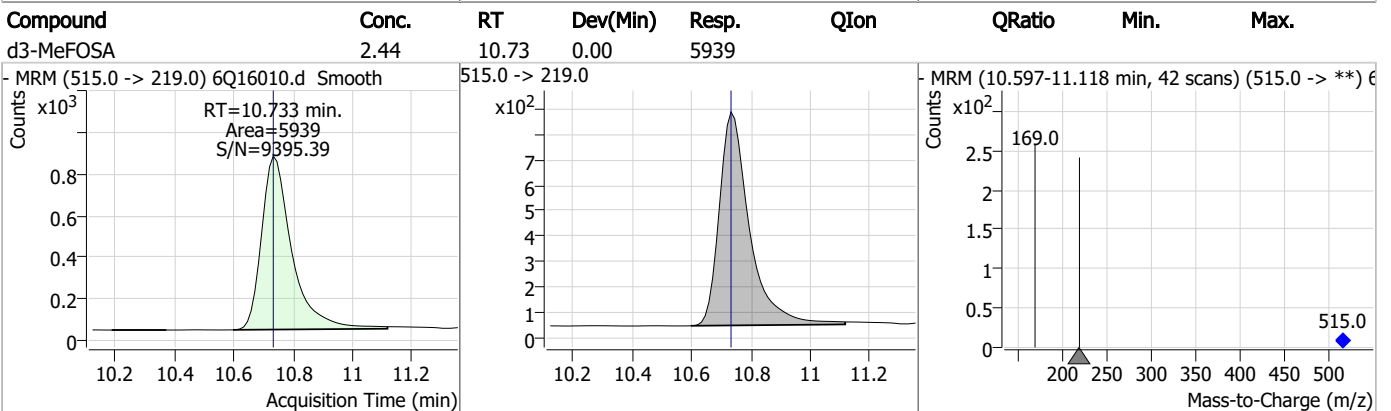
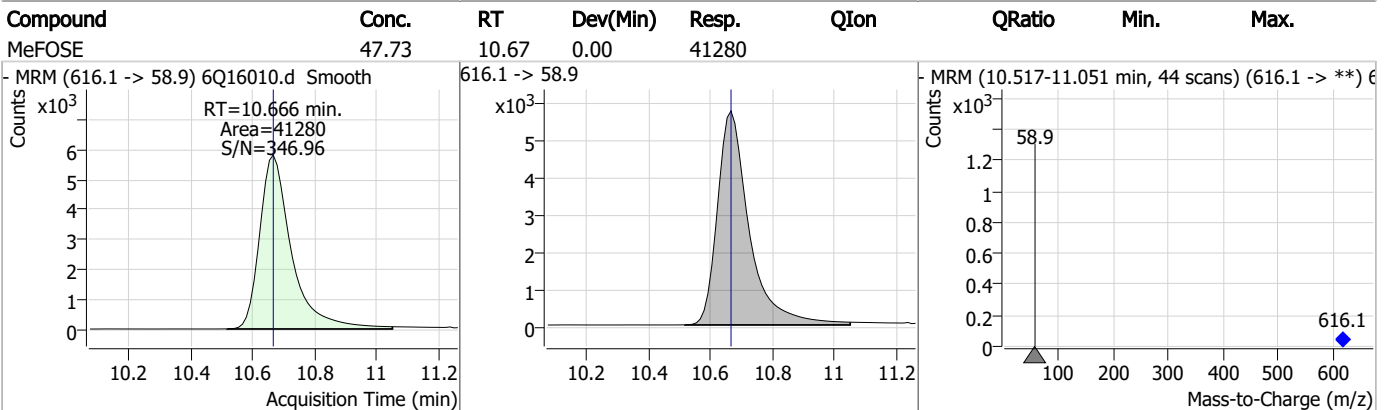
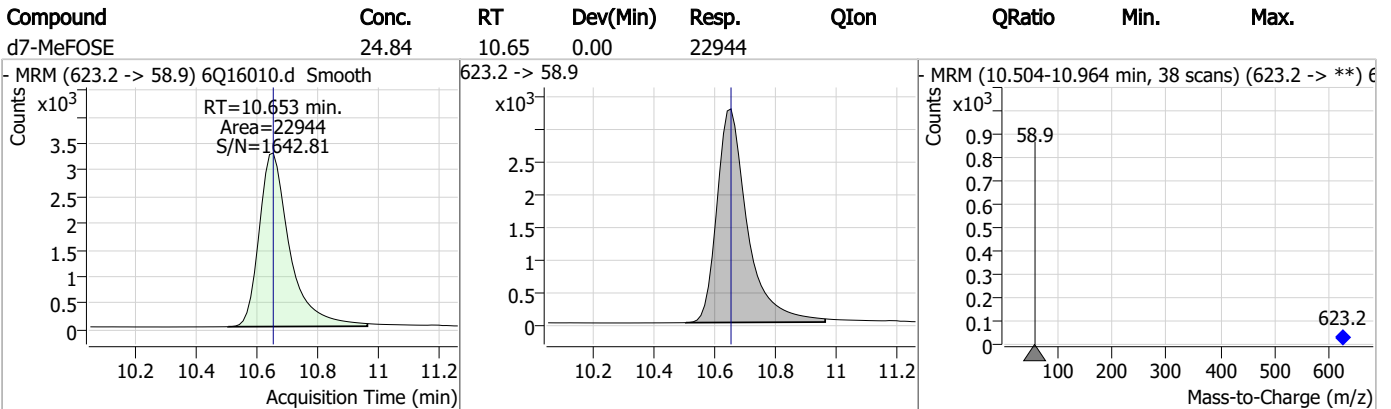
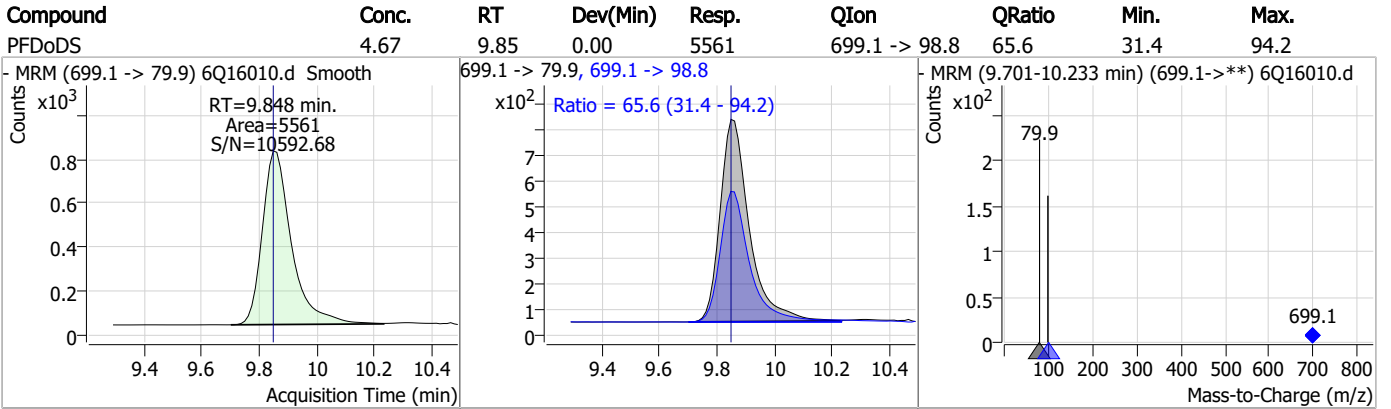


7.7.6

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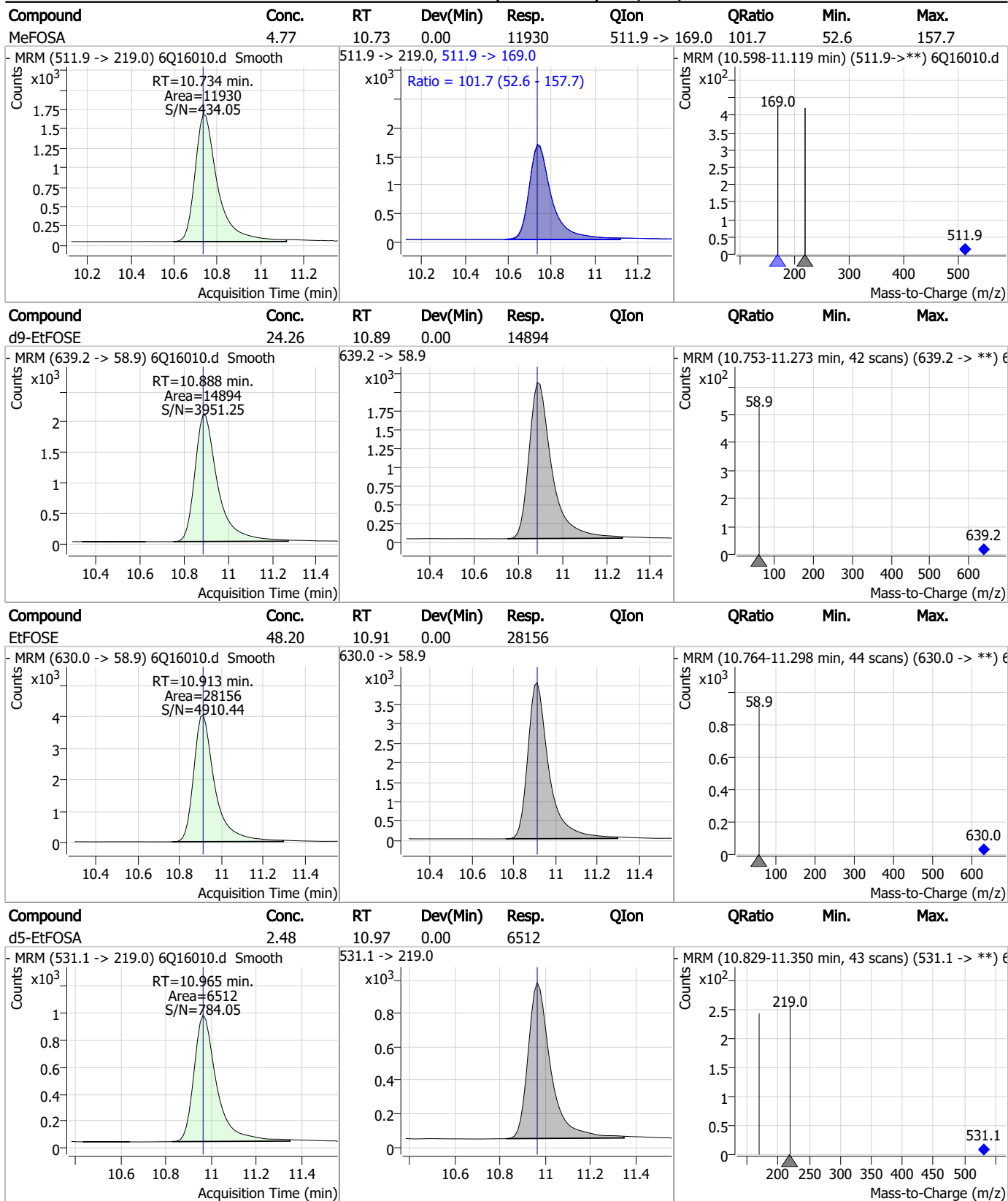
### Perfluorinated Compounds by LC/MS/MS



7.7.6

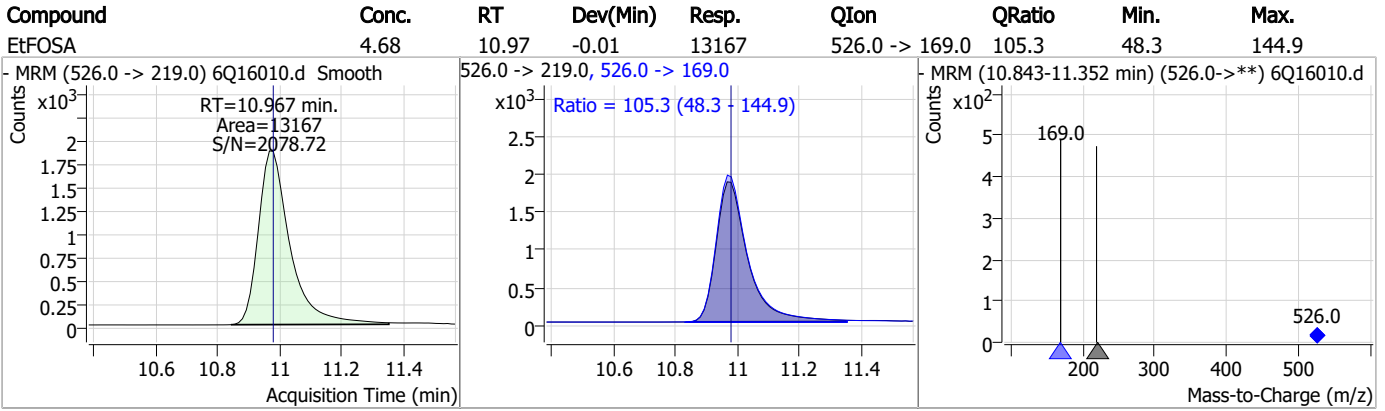
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### Perfluorinated Compounds by LC/MS/MS



7.7.6  
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Perfluorinated Compounds by LC/MS/MS



7.7.6

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# Manual Integration Approval Summary

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

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

7.7.6.1

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## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16011.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 4/4/2023 3:25:38 PM  
 Sample Name : ic239-6  
 Vial : P1-A7  
 DA Method File : 1633\_040423\_S6Q239.quantmethod.xml  
 Batch Name : s6q239.batch.bin  
 Sample Information : OP96085,S6Q239,500,,,5.0,1,water

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

## Perfluorinated Compounds by LC/MS/MS

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

## Perfluorinated Compounds by LC/MS/MS

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

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

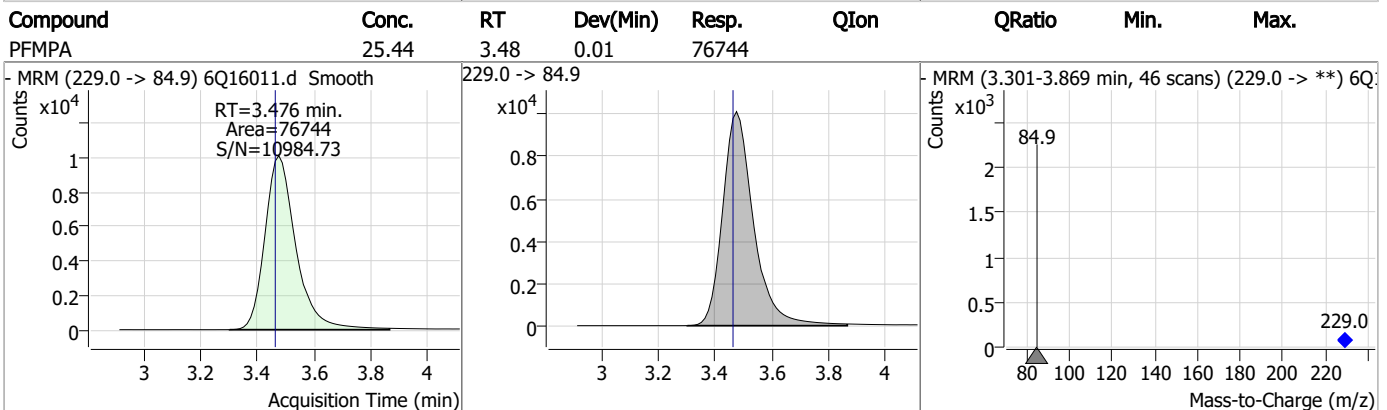
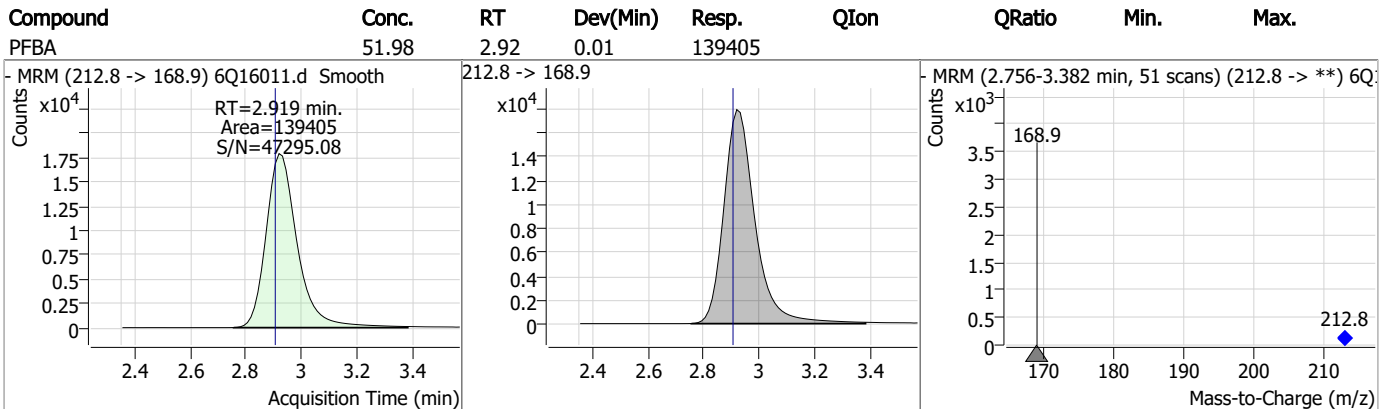
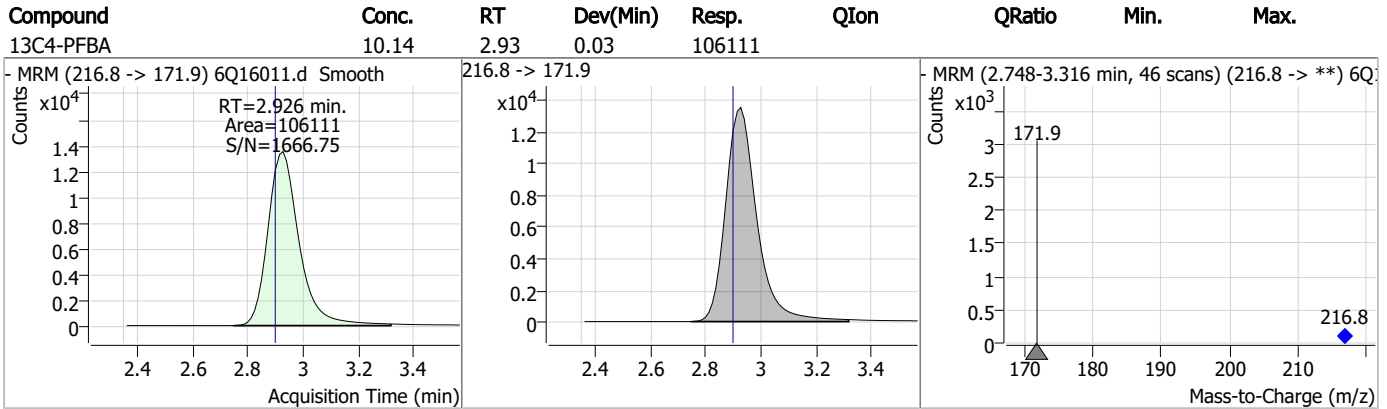
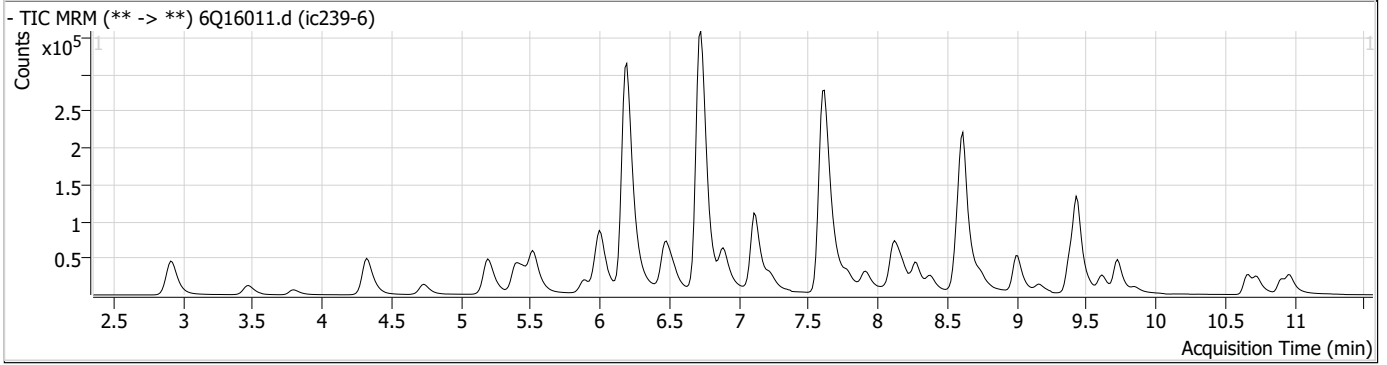
### Perfluorinated Compounds by LC/MS/MS

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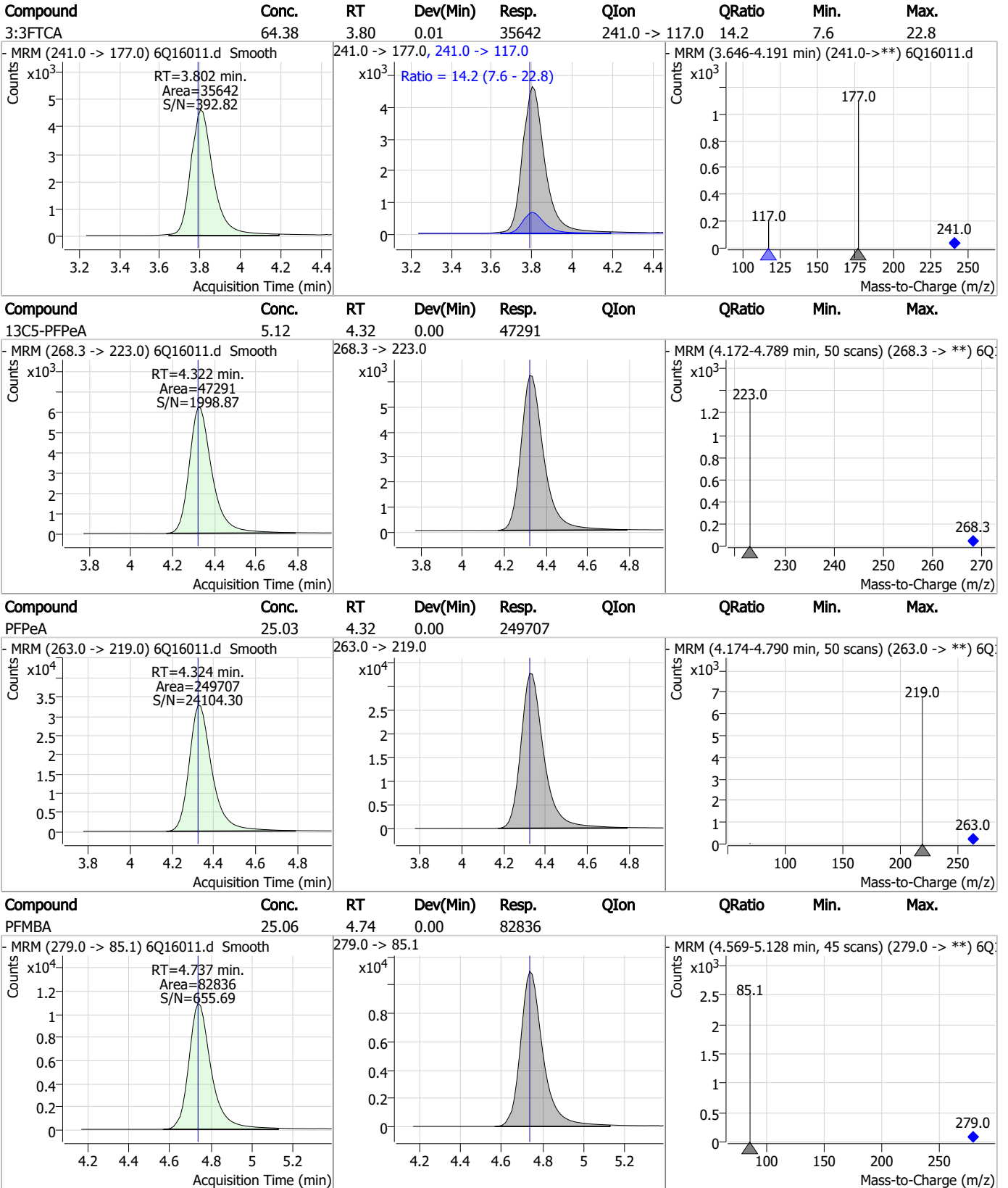
7.7.7  
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### Perfluorinated Compounds by LC/MS/MS



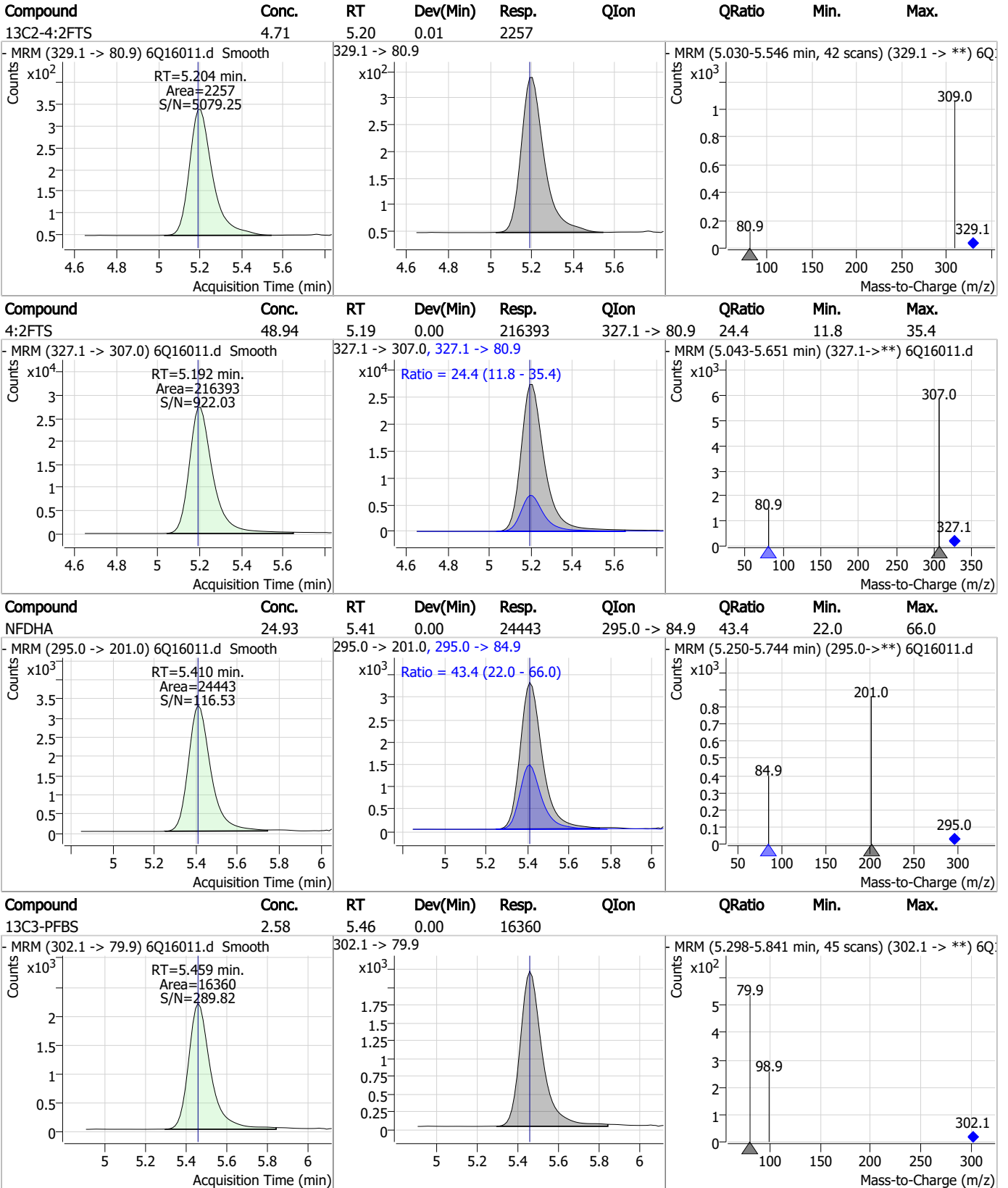
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

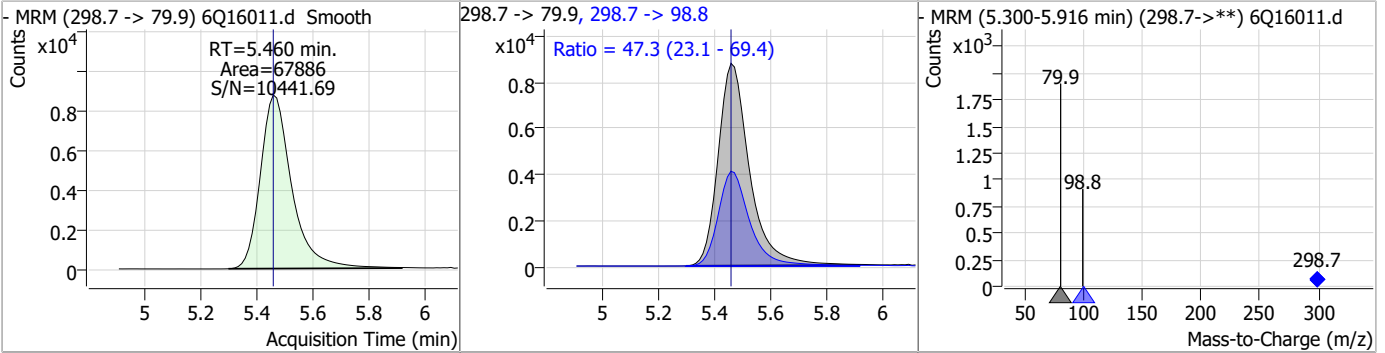


7.7.7

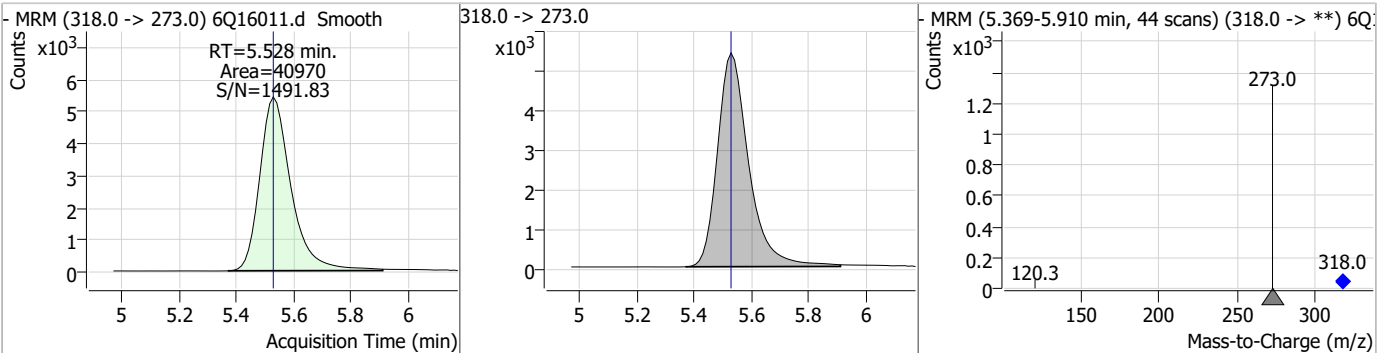
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### Perfluorinated Compounds by LC/MS/MS

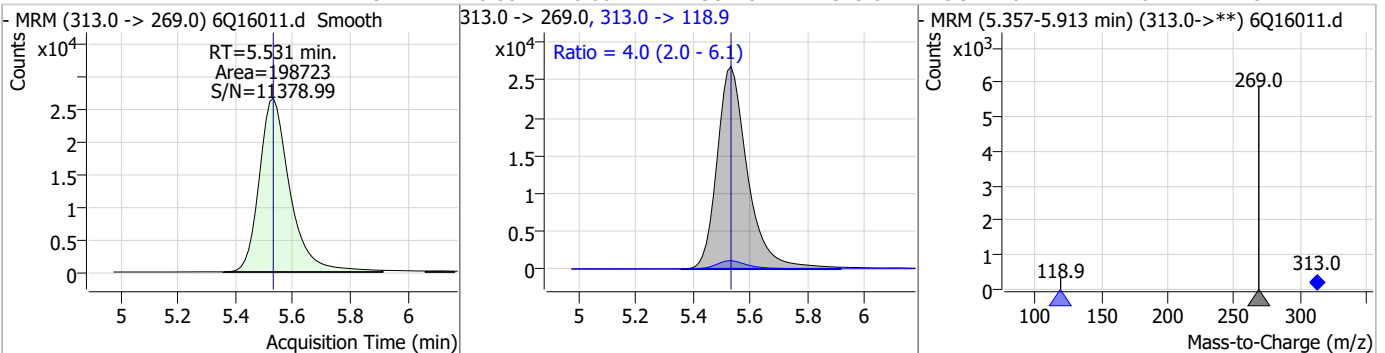
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	10.58	5.46	0.00	67886	298.7 -> 98.8	47.3	23.1	69.4



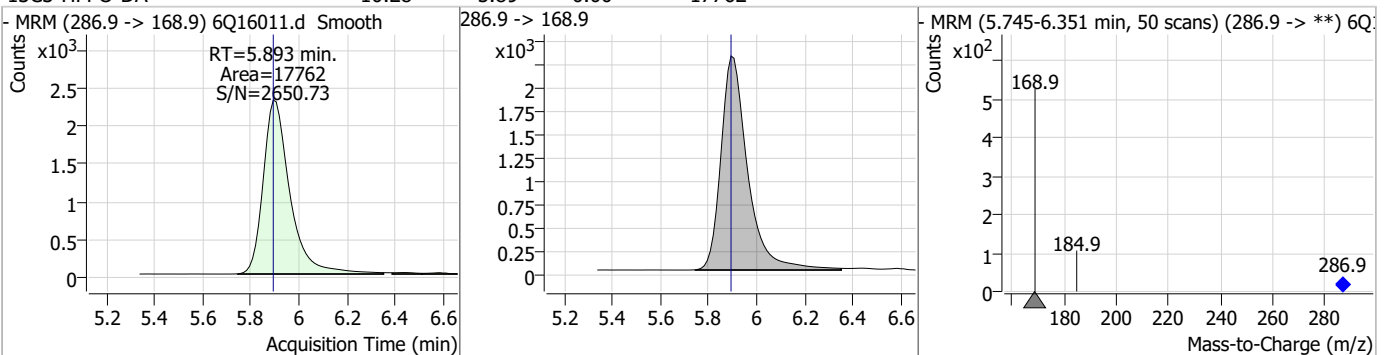
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.50	5.53	0.00	40970				



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

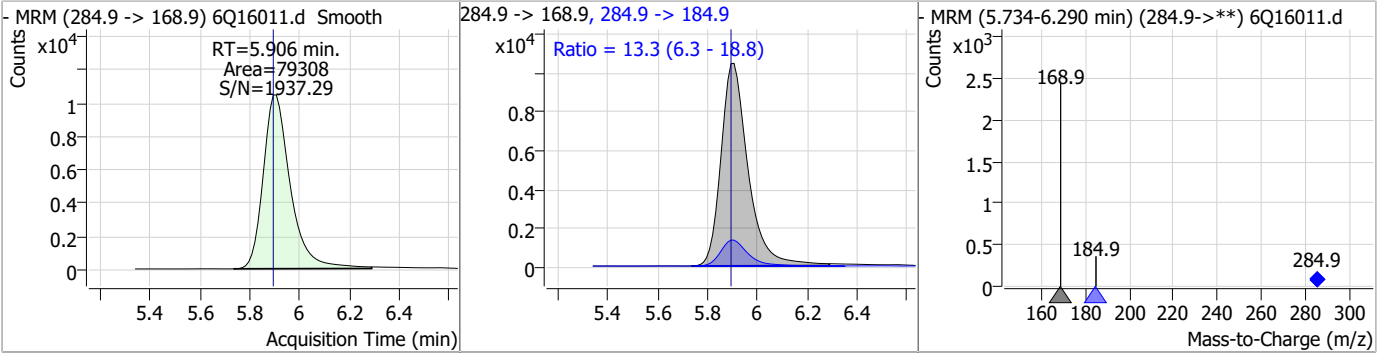


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.28	5.89	0.00	17762				

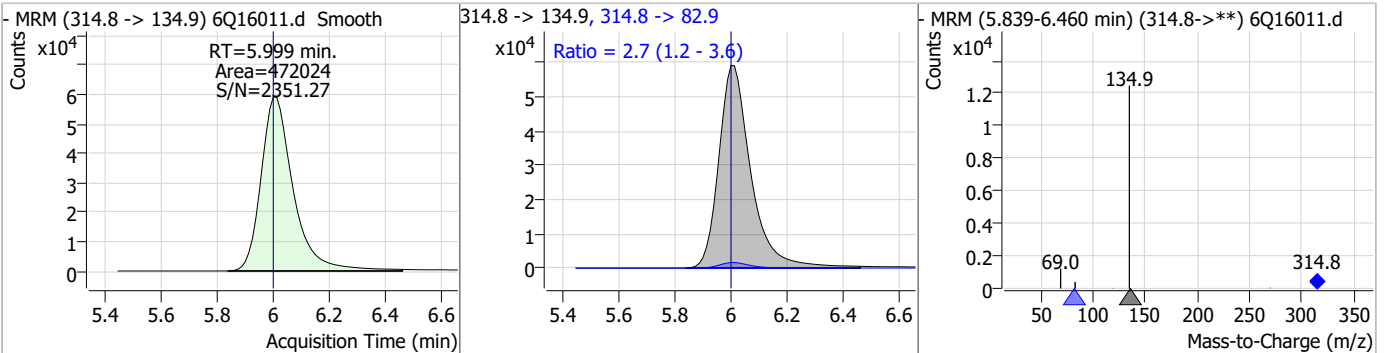


### Perfluorinated Compounds by LC/MS/MS

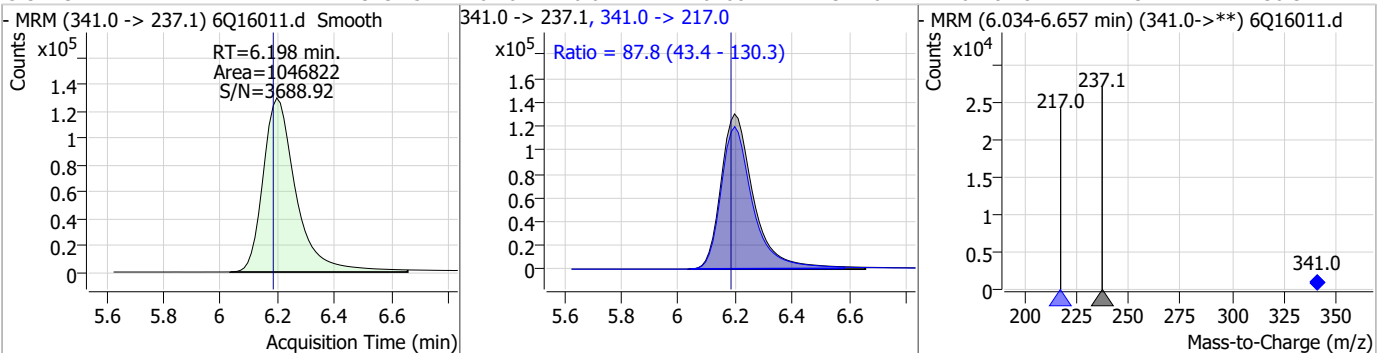
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	49.39	5.91	0.01	79308	284.9 -> 184.9	13.3	6.3	18.8



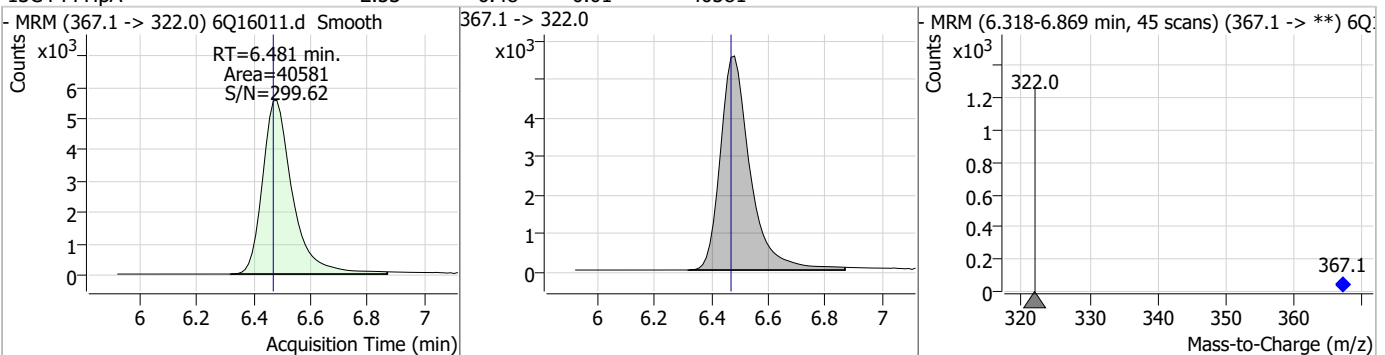
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	22.03	6.00	0.00	472024	314.8 -> 82.9	2.7	1.2	3.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	313.15	6.20	0.01	1046822	341.0 -> 217.0	87.8	43.4	130.3

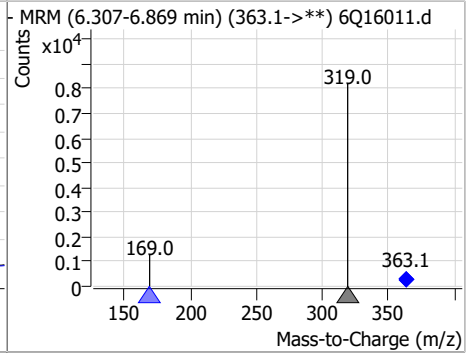
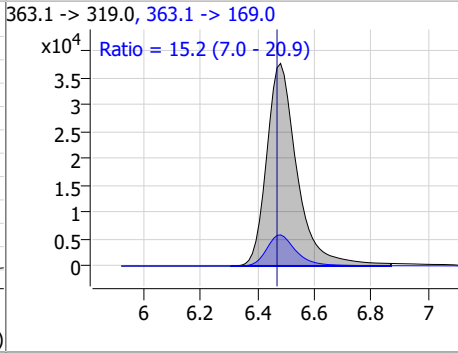
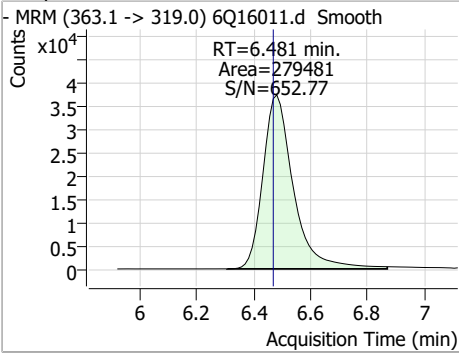


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.53	6.48	0.01	40581	367.1 -> 322.0			

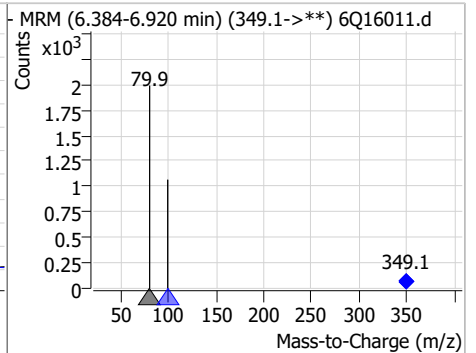
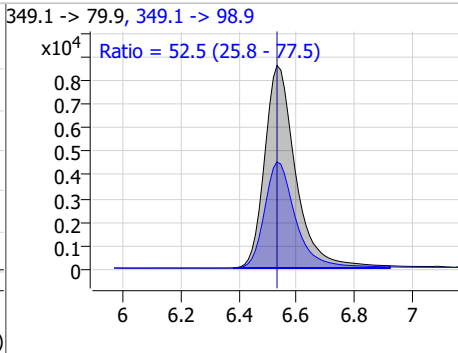
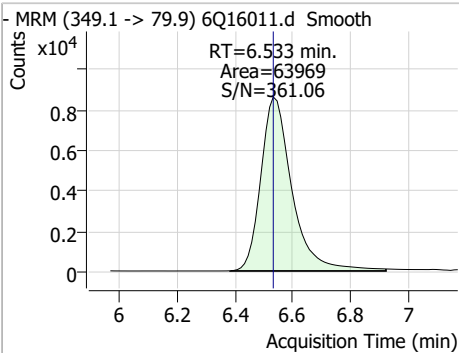


### Perfluorinated Compounds by LC/MS/MS

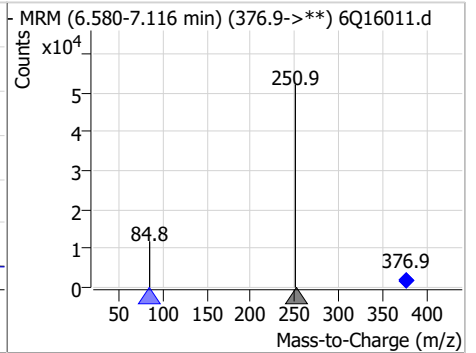
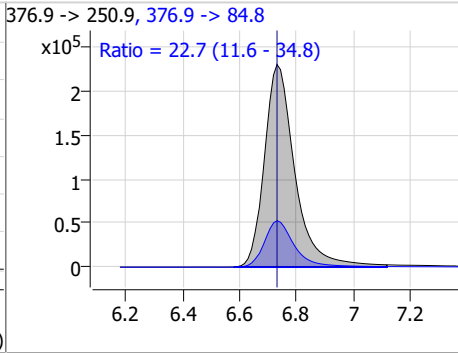
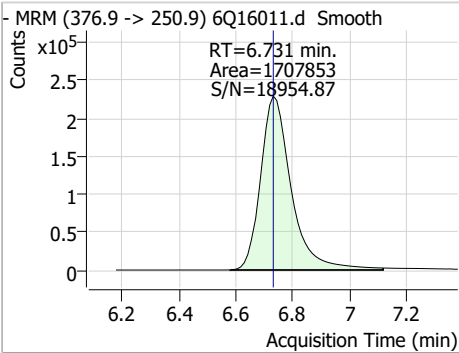
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	12.25	6.48	0.01	279481	363.1 -> 169.0	15.2	7.0	20.9



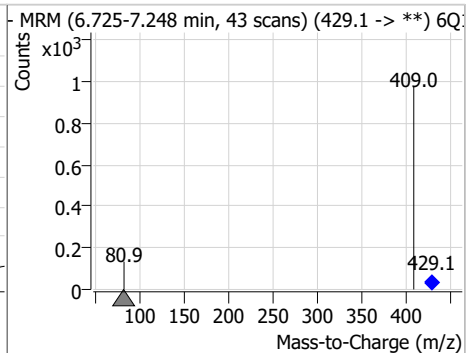
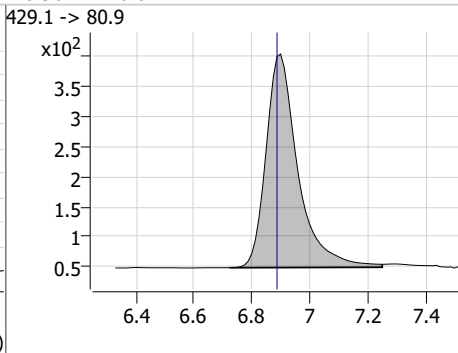
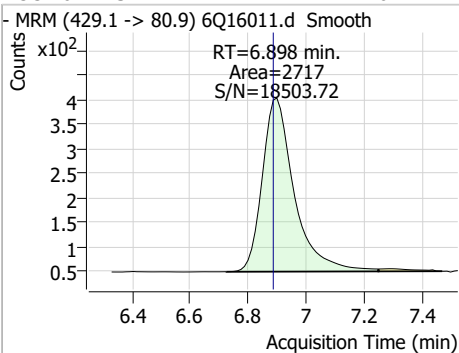
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	11.76	6.53	0.00	63969	349.1 -> 98.9	52.5	25.8	77.5



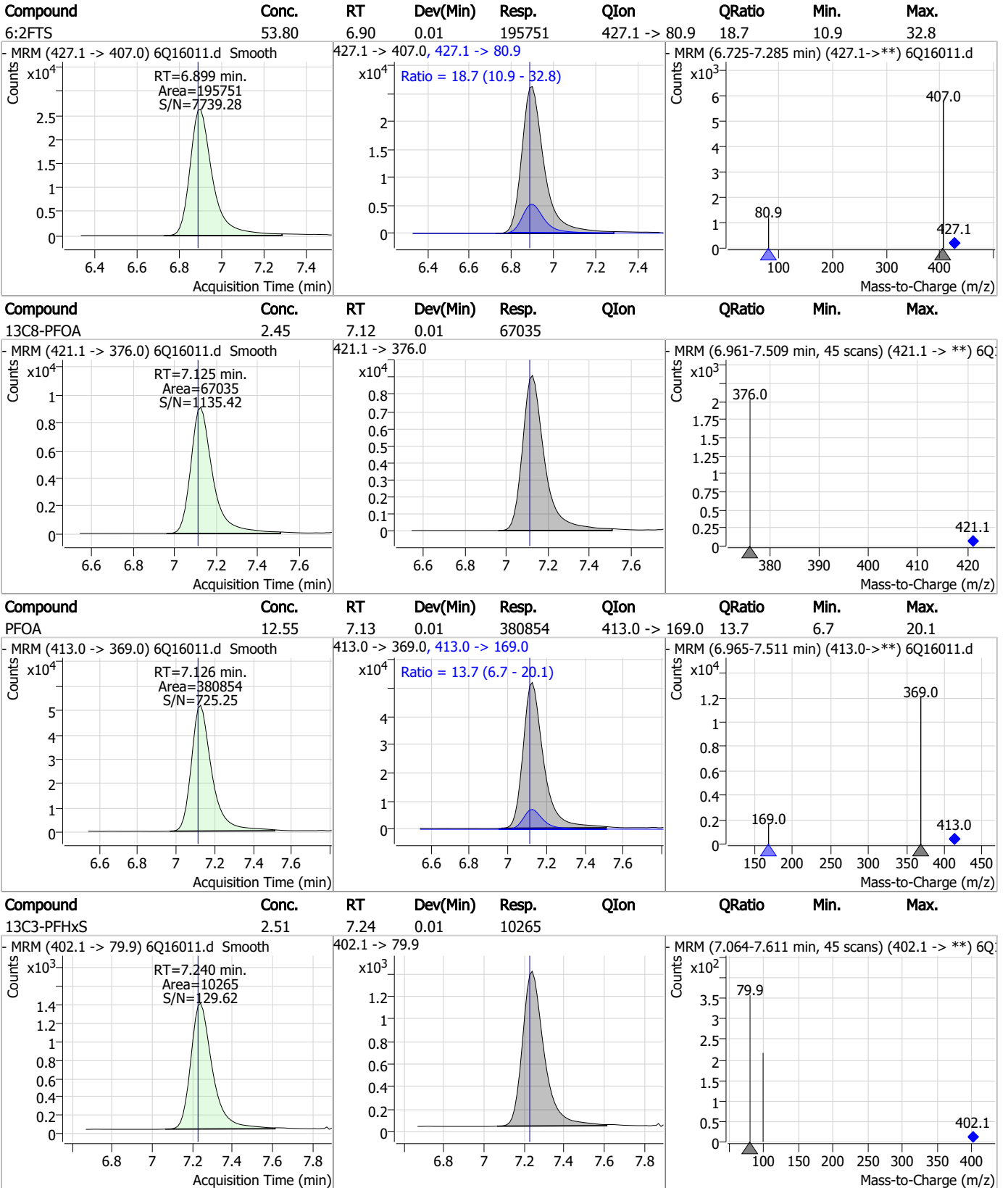
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	47.46	6.73	0.00	1707853	376.9 -> 84.8	22.7	11.6	34.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	4.62	6.90	0.01	2717	429.1 -> 80.9			

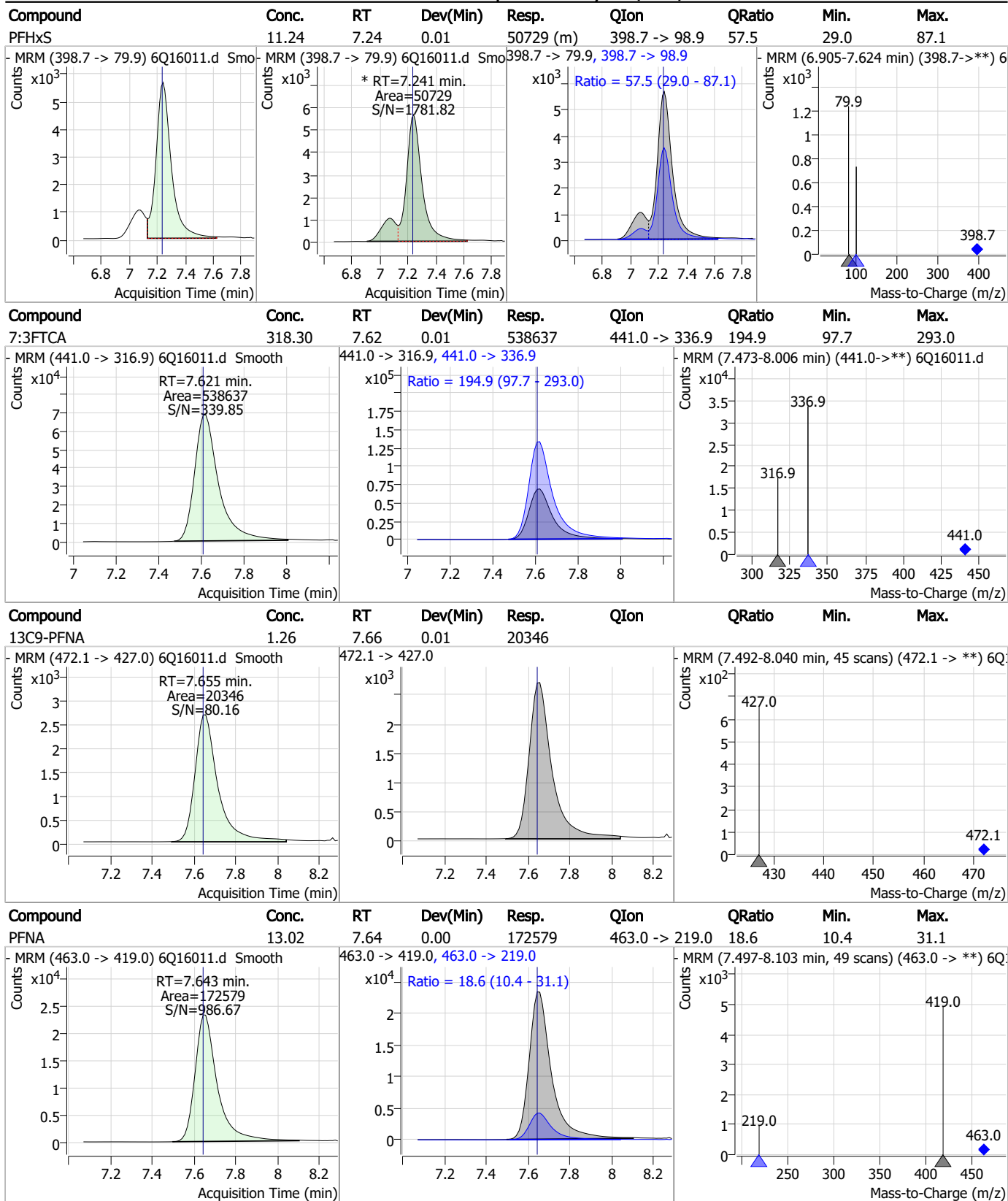


### Perfluorinated Compounds by LC/MS/MS



7.7.7  
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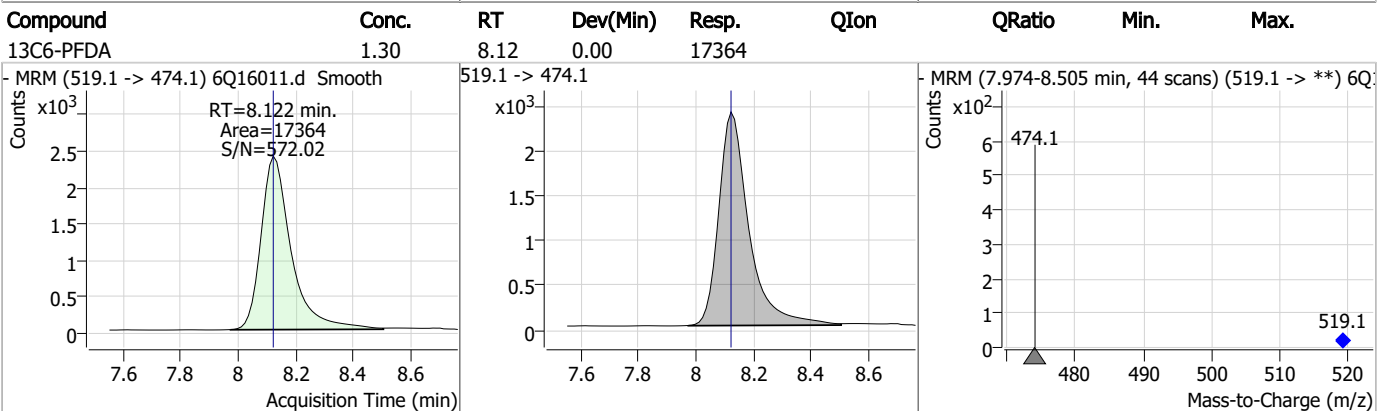
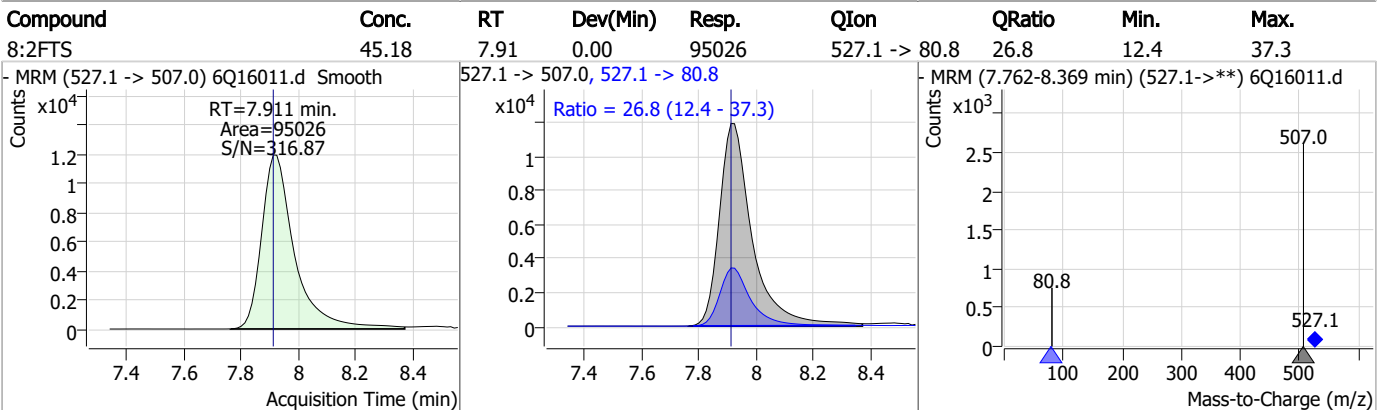
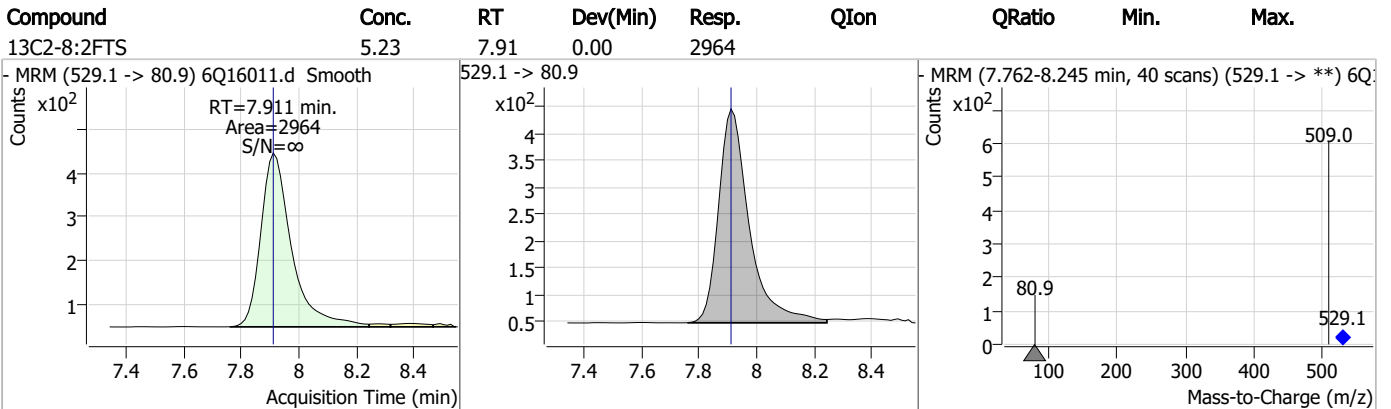
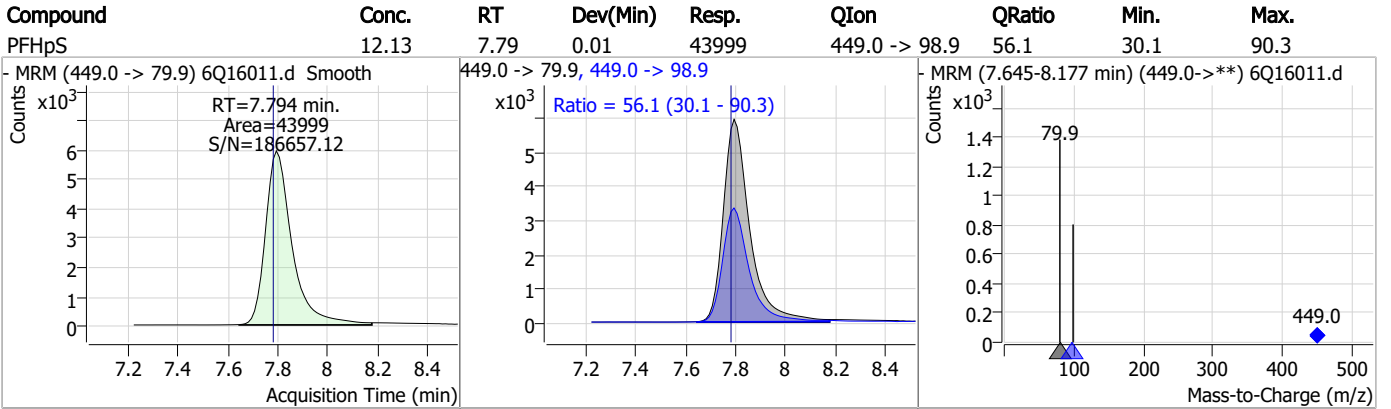
### Perfluorinated Compounds by LC/MS/MS



7.7.7



### Perfluorinated Compounds by LC/MS/MS

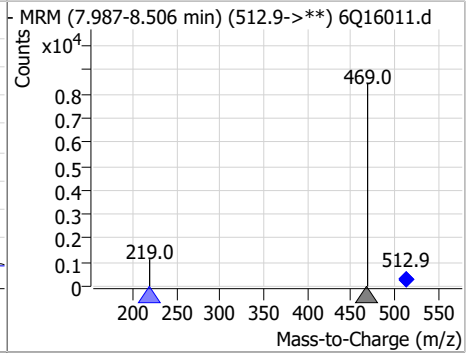
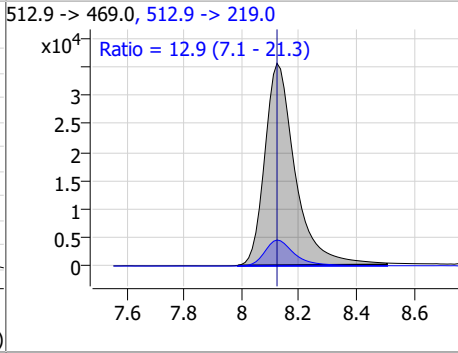
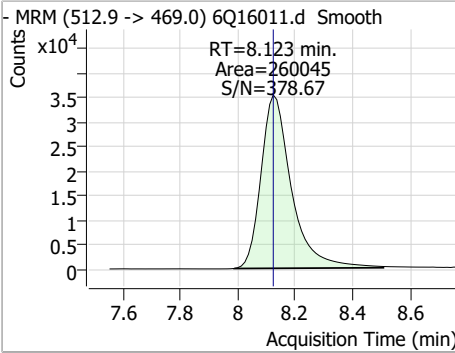


7.7.7

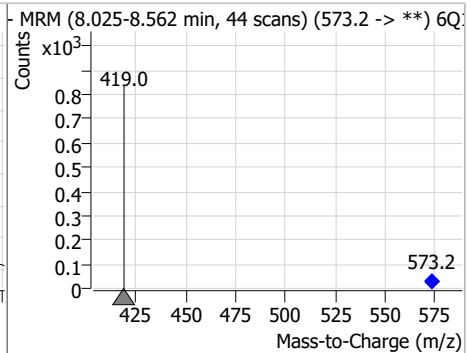
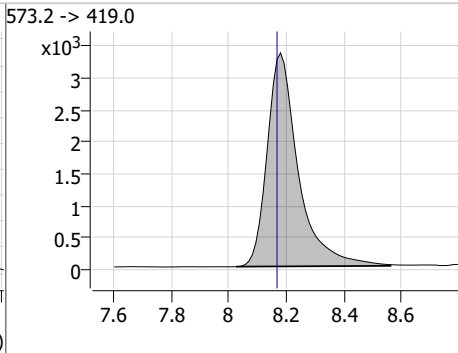
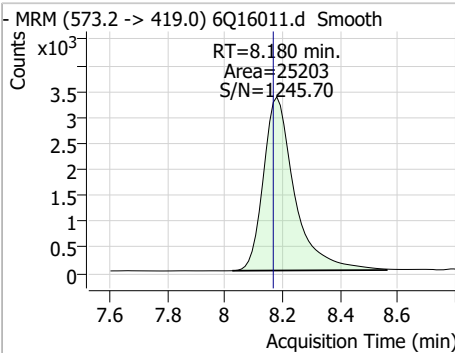
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### Perfluorinated Compounds by LC/MS/MS

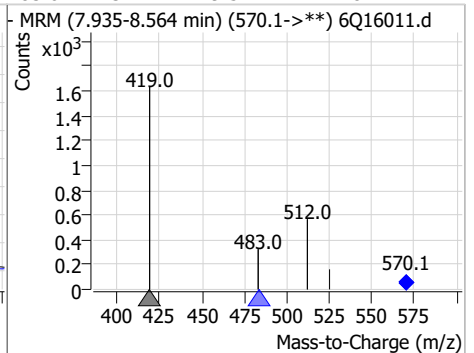
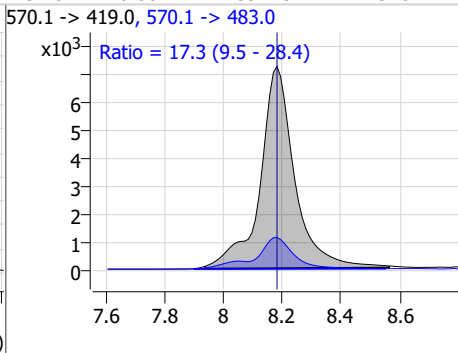
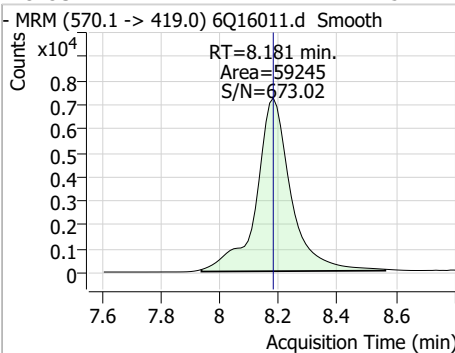
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	12.86	8.12	0.00	260045	512.9 -> 219.0	12.9	7.1	21.3



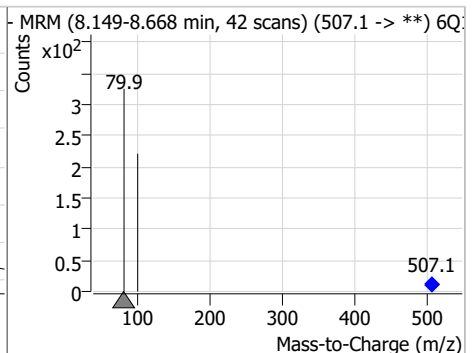
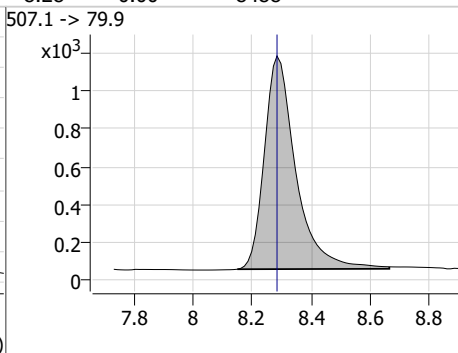
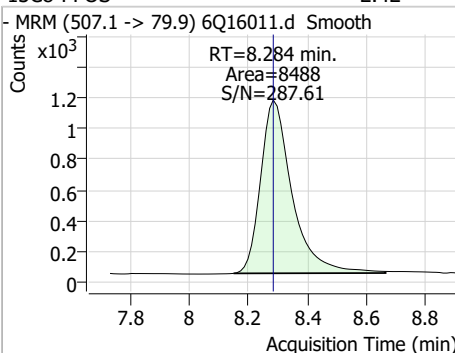
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.85	8.18	0.01	25203				



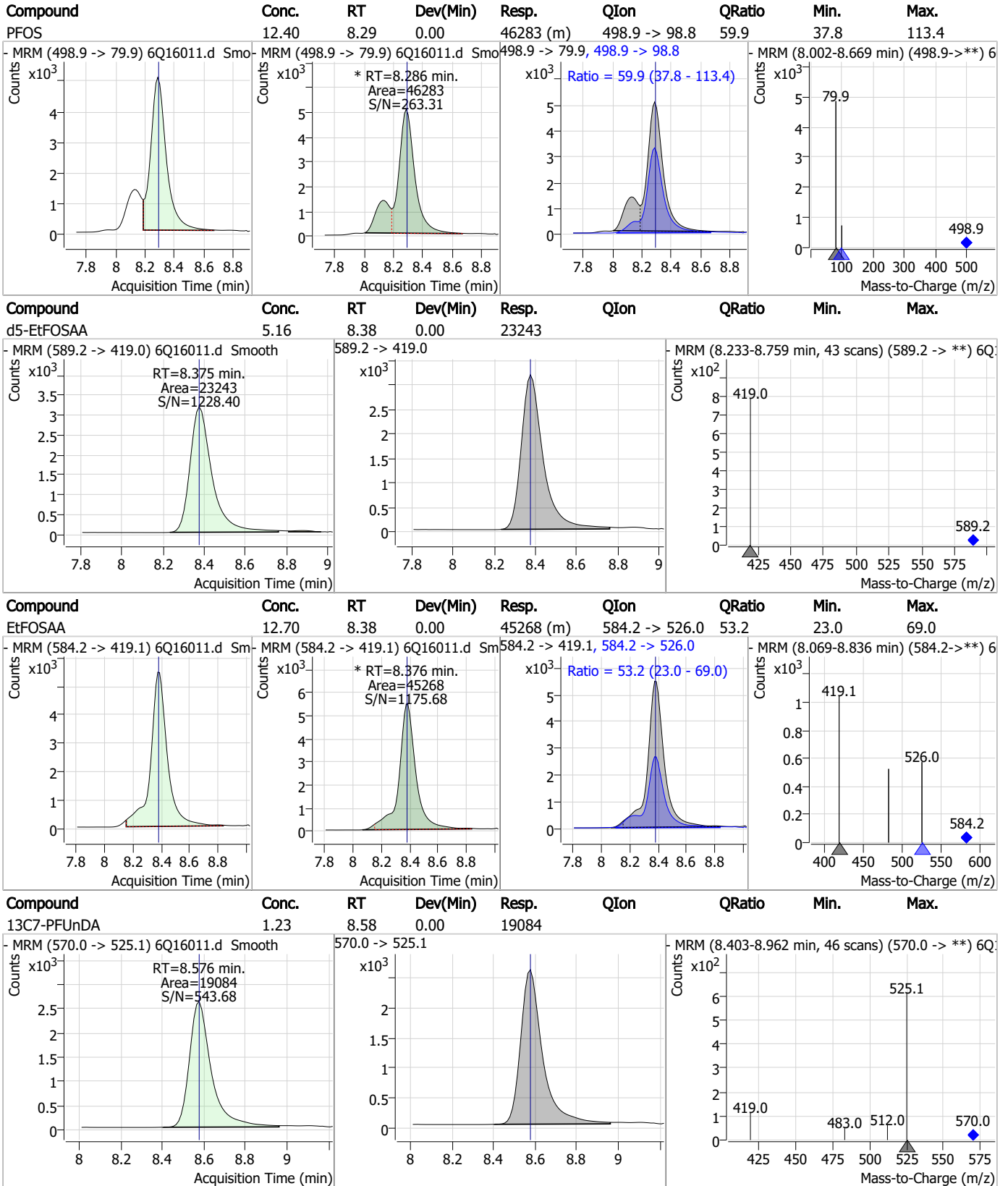
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	12.54	8.18	0.00	59245	570.1 -> 483.0	17.3	9.5	28.4



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



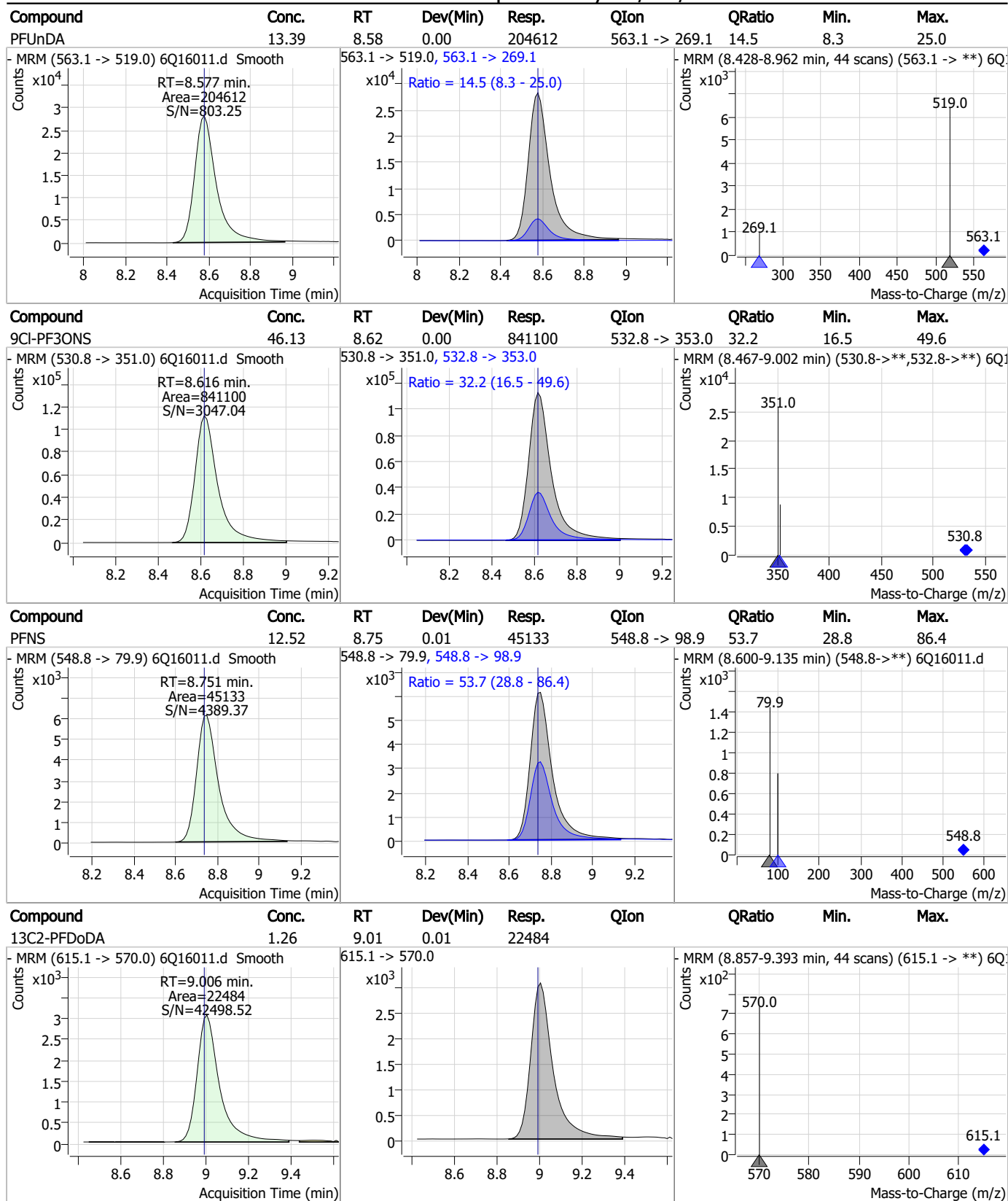
### Perfluorinated Compounds by LC/MS/MS



7.7.7

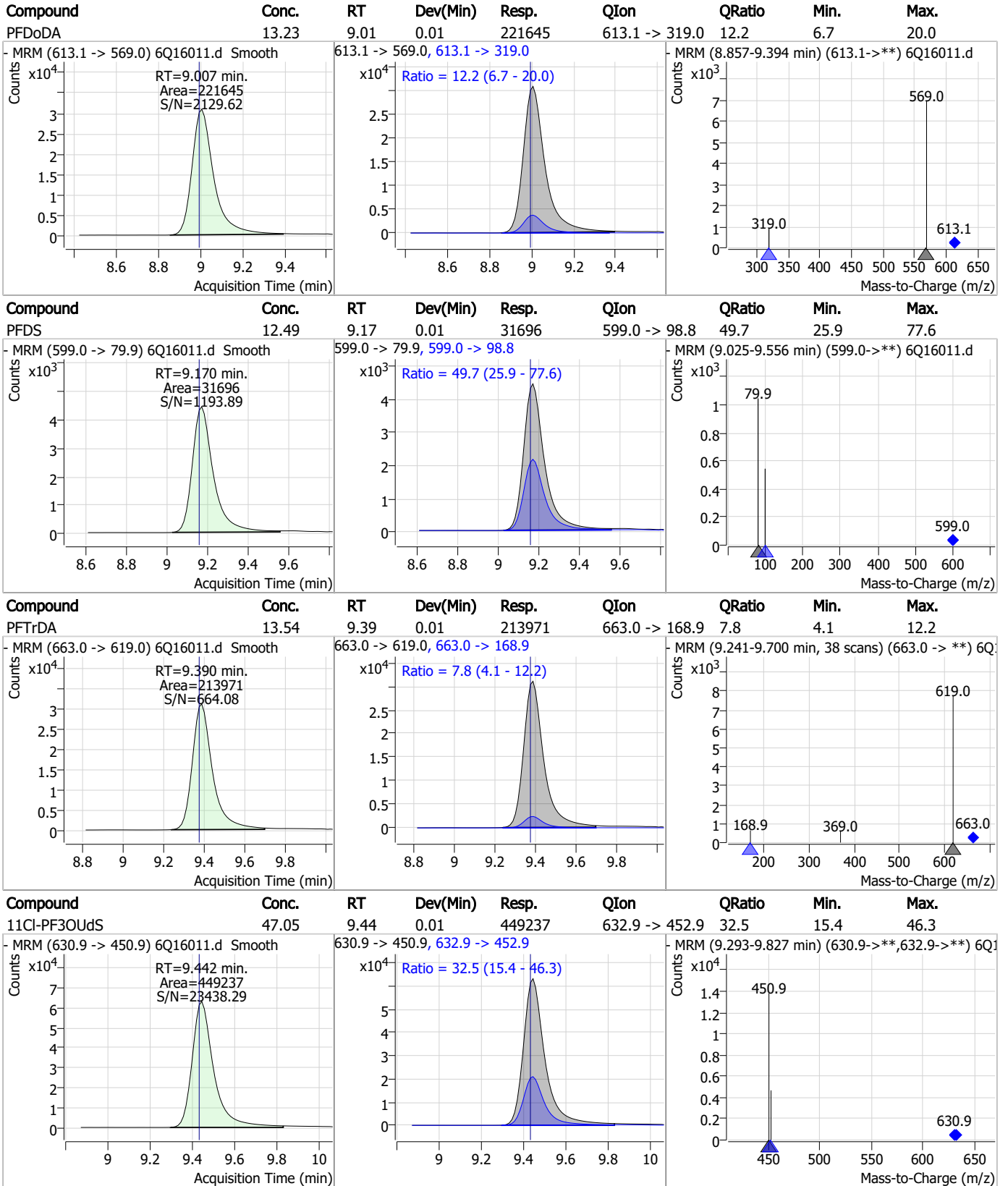
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### Perfluorinated Compounds by LC/MS/MS



7.7.7  
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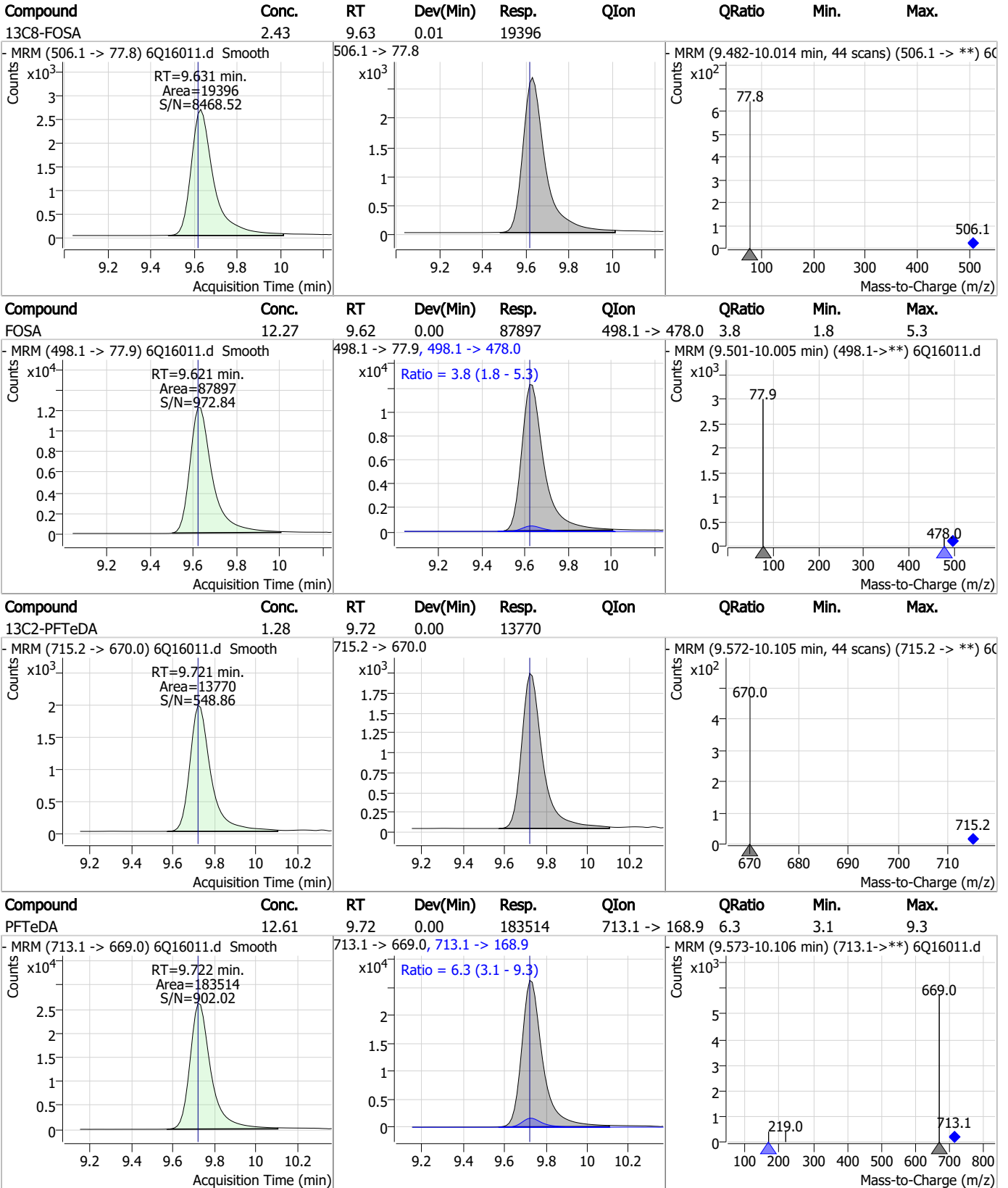
### Perfluorinated Compounds by LC/MS/MS



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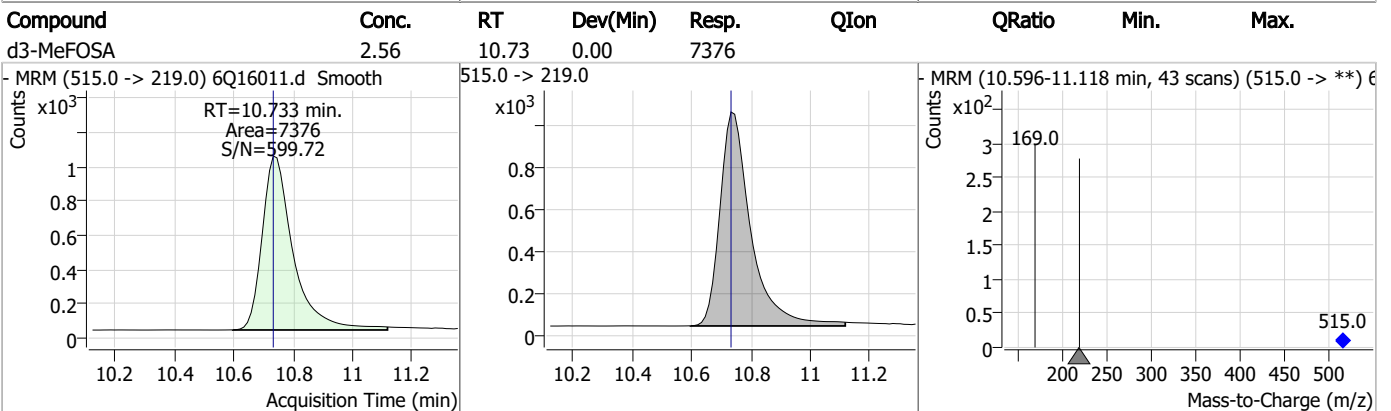
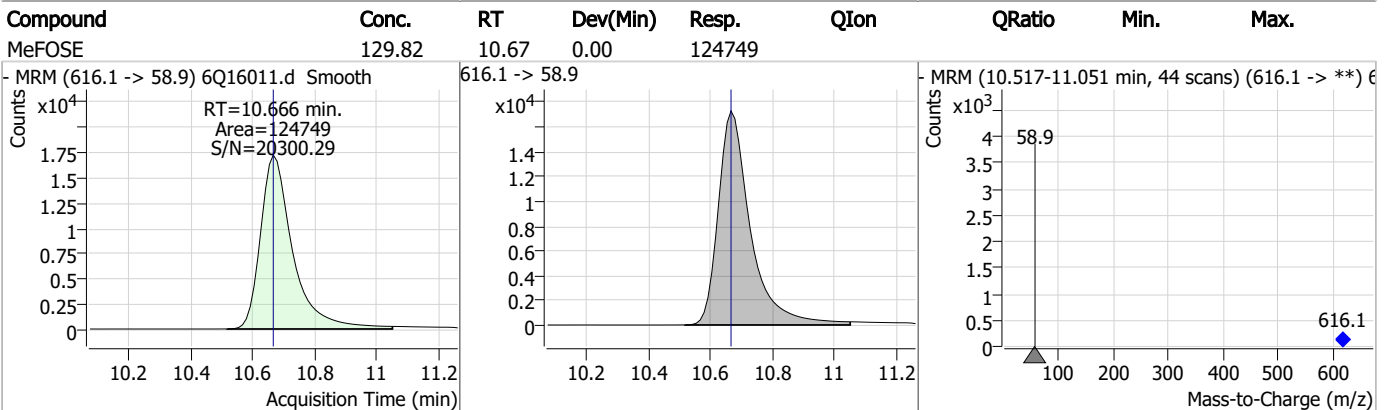
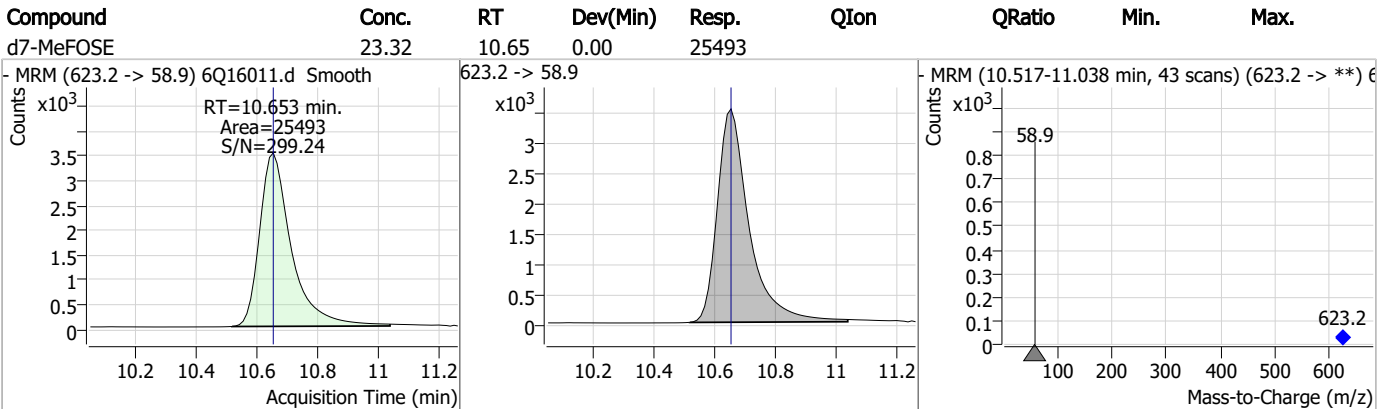
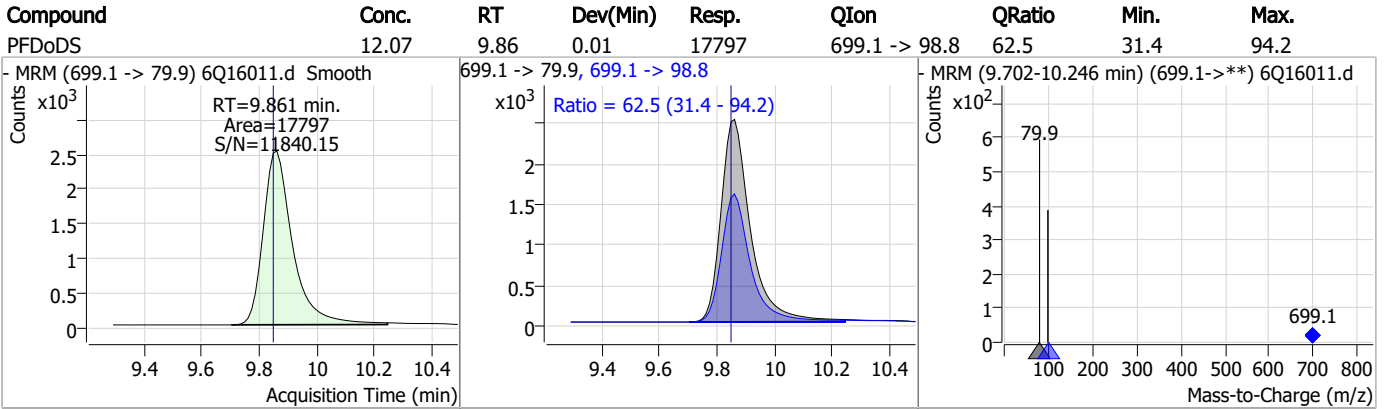
### Perfluorinated Compounds by LC/MS/MS



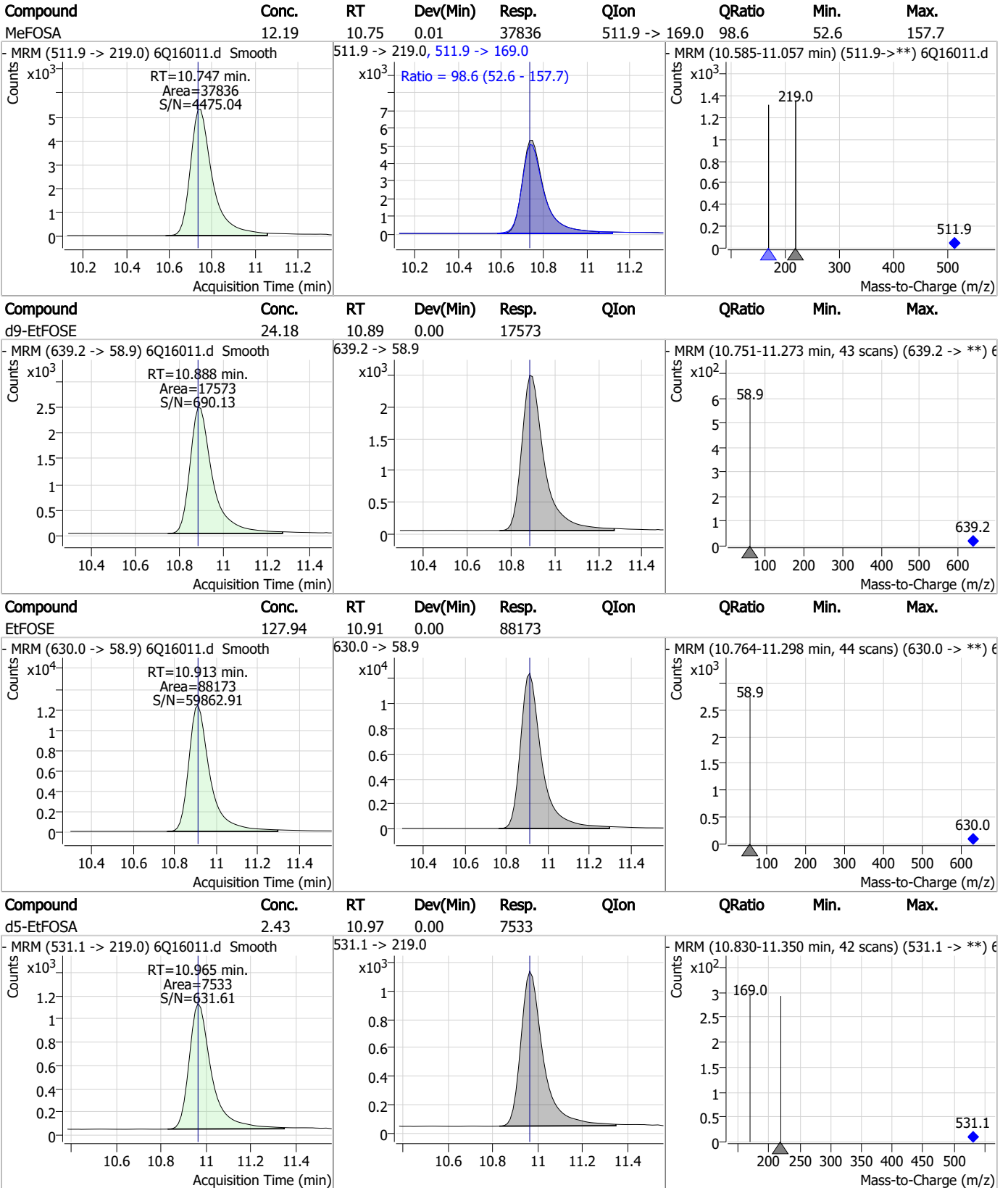
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### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



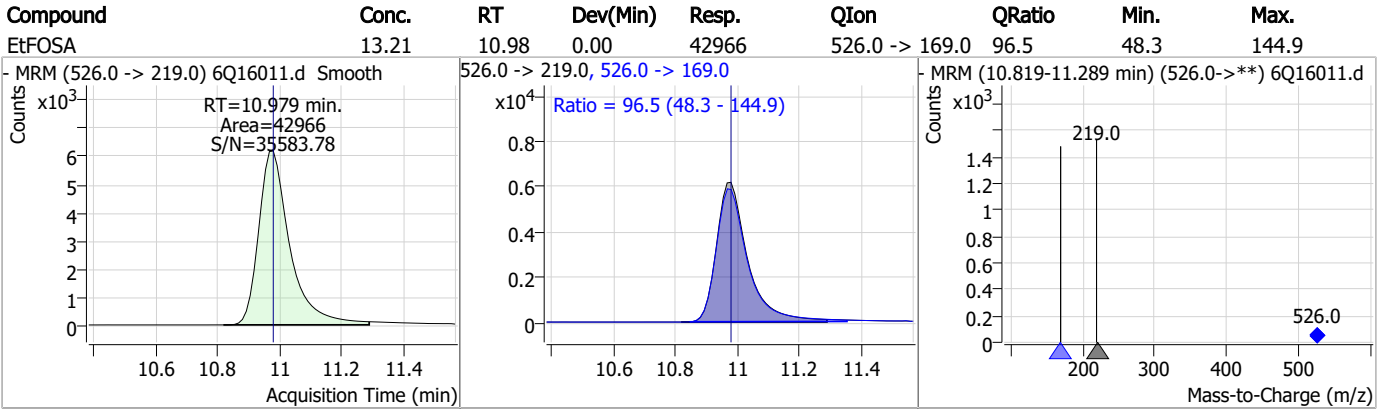
7.7.7

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Perfluorinated Compounds by LC/MS/MS



7.7.7

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# Manual Integration Approval Summary

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

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

7.7.7.1

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Manual Integrations  
**APPROVED**  
 (compounds with "m" flag)

Natasha Gumtie  
 04/05/23 17:23

### Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16012.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 4/4/2023 3:39:38 PM  
 Sample Name : ic239-7  
 Vial : P1-A8  
 DA Method File : 1633\_040423\_S6Q239.quantmethod.xml  
 Batch Name : s6q239.batch.bin  
 Sample Information : OP96085,S6Q239,500,,,5.0,1,water

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

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## Perfluorinated Compounds by LC/MS/MS

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

## Perfluorinated Compounds by LC/MS/MS

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

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

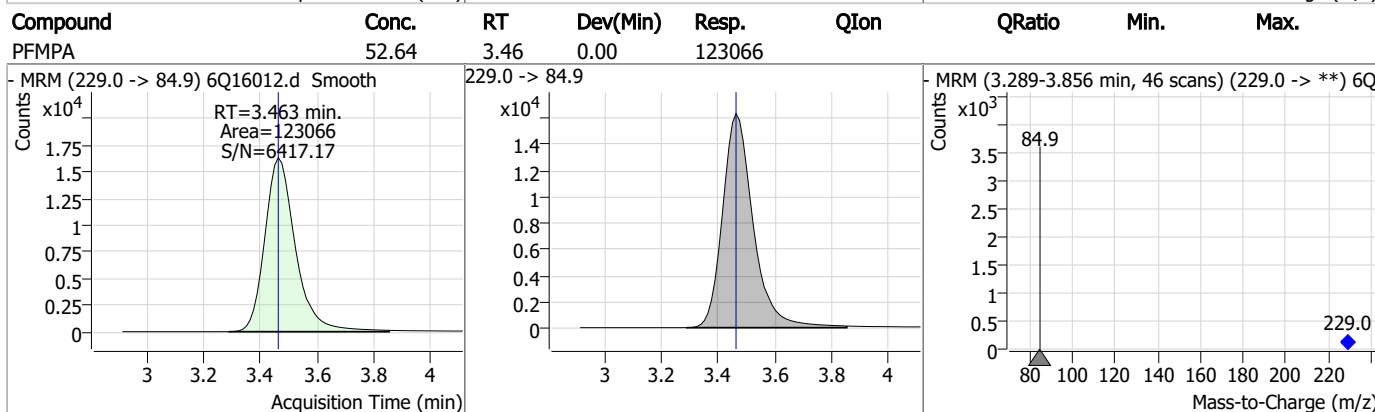
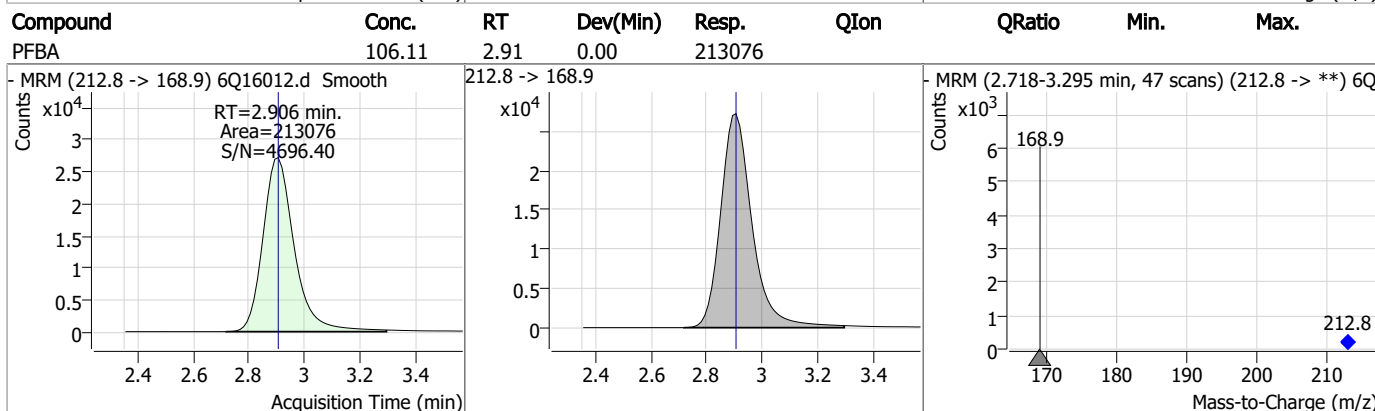
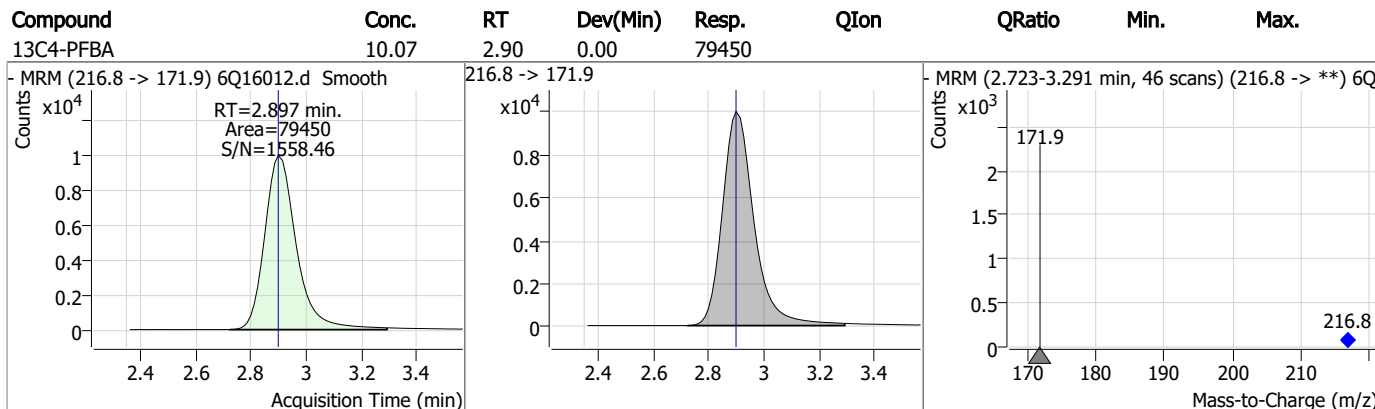
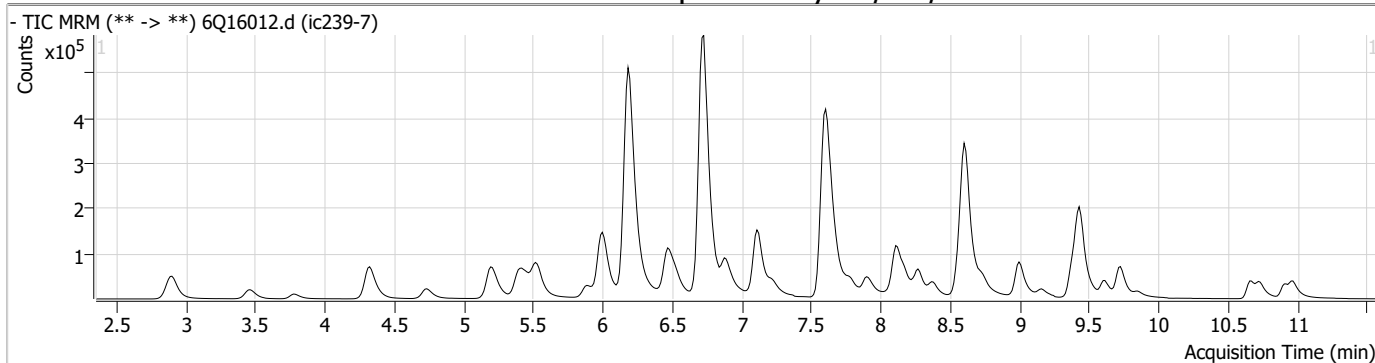
### Perfluorinated Compounds by LC/MS/MS

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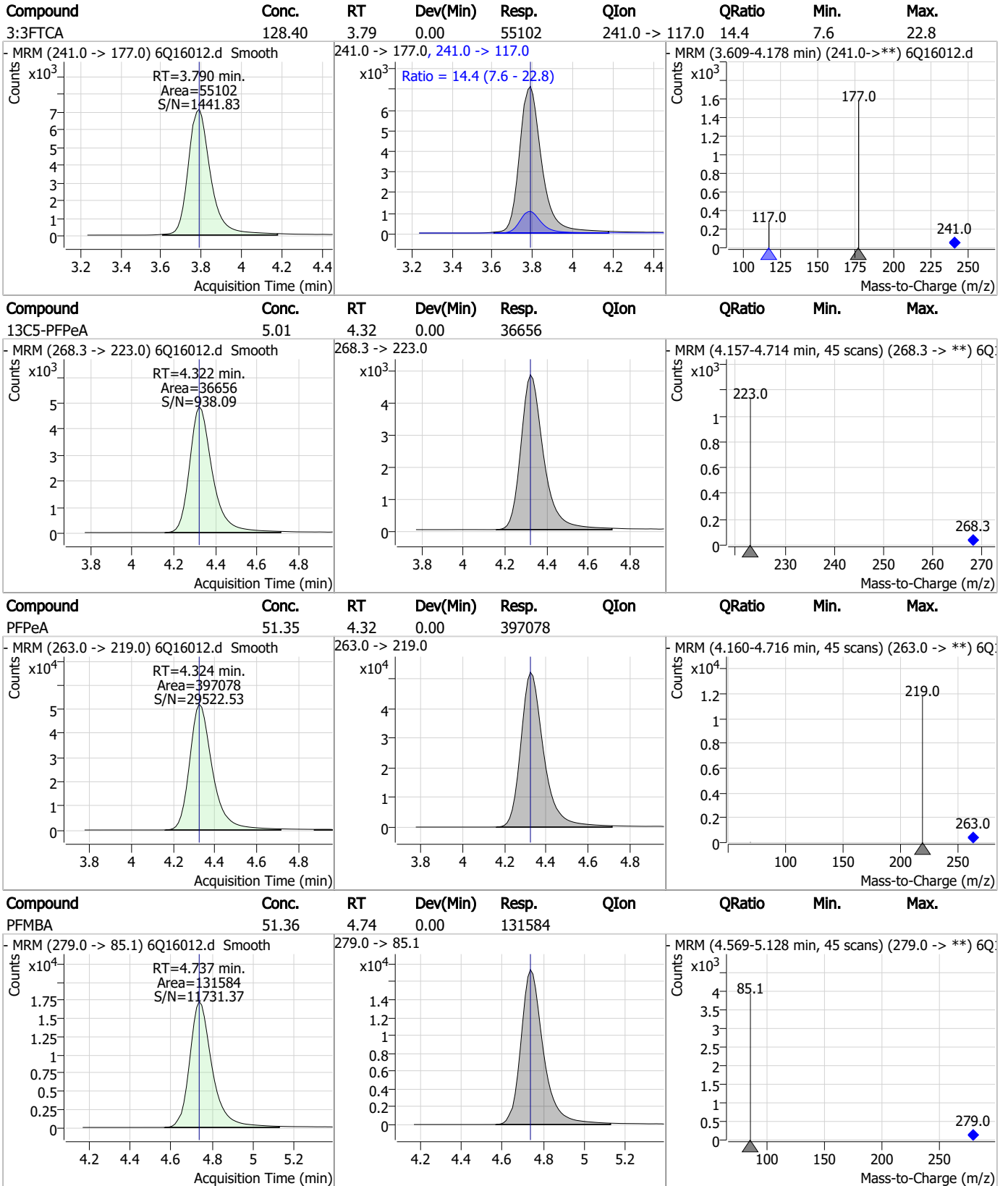
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### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

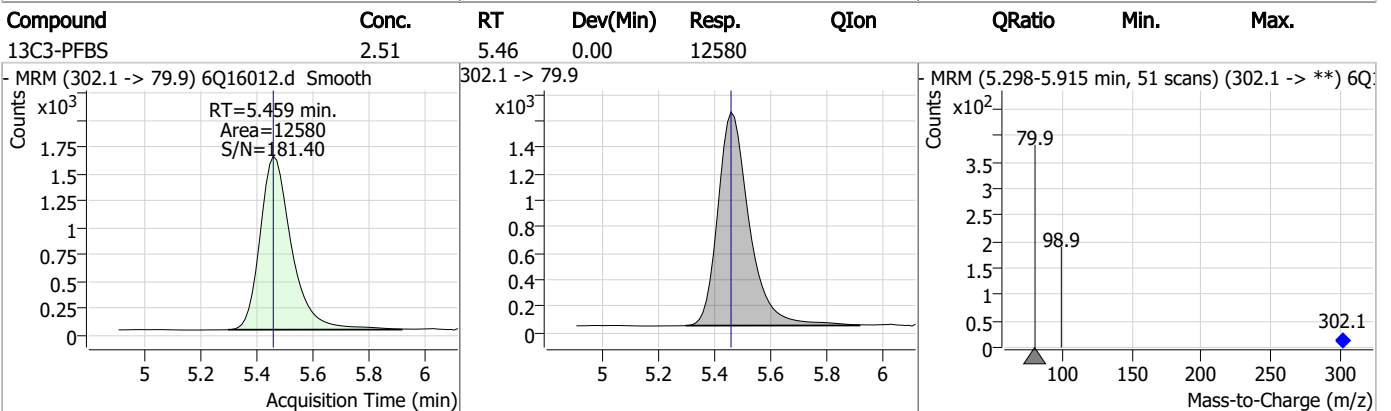
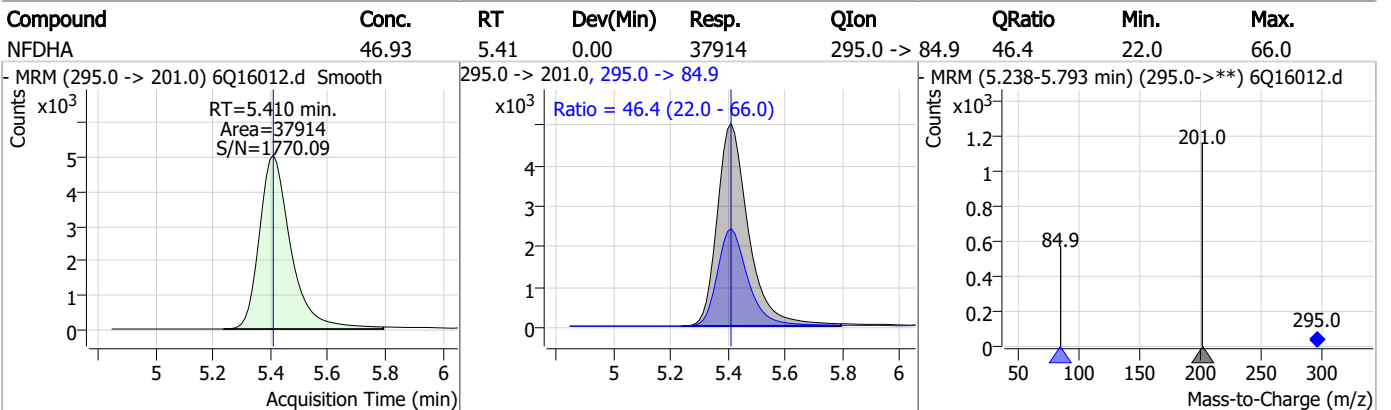
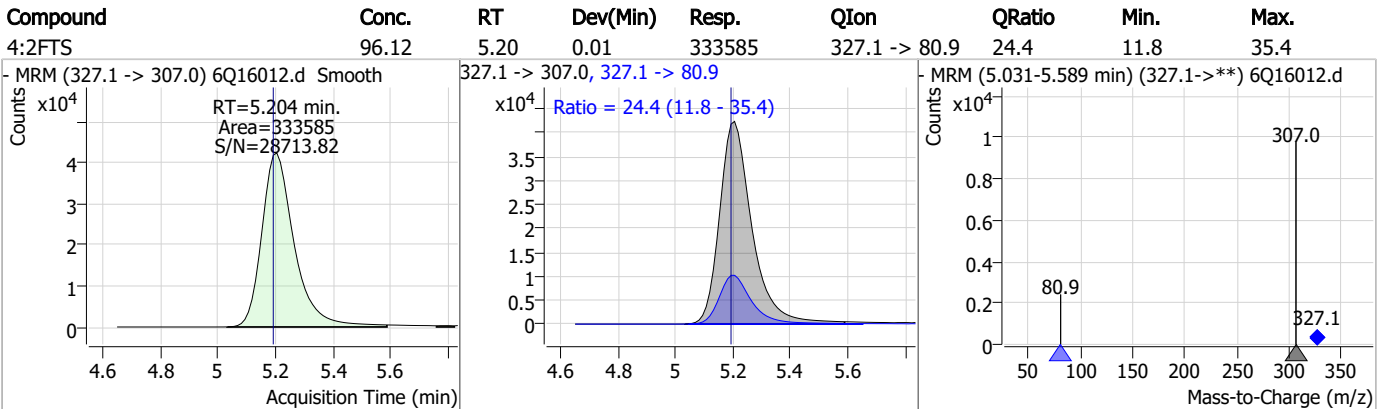
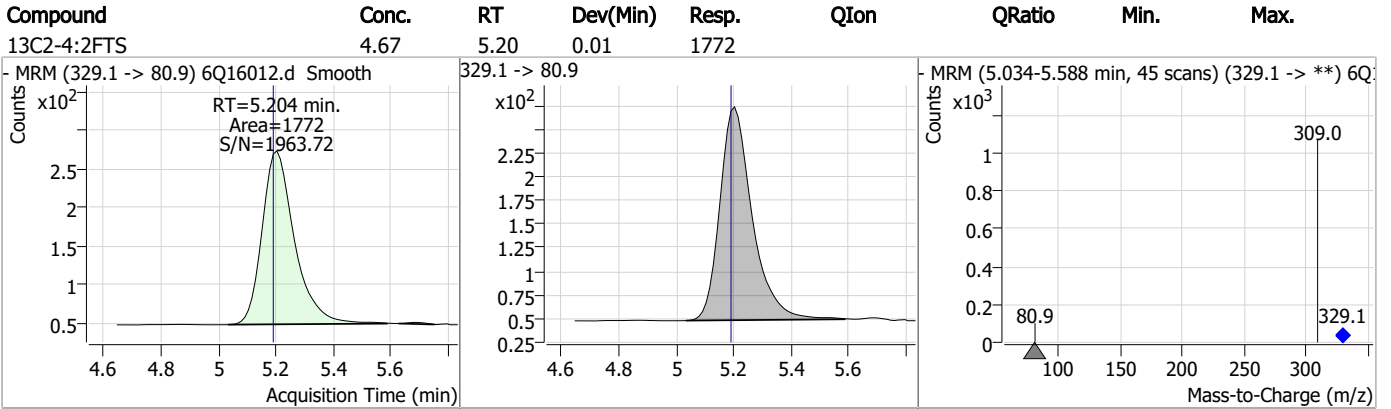


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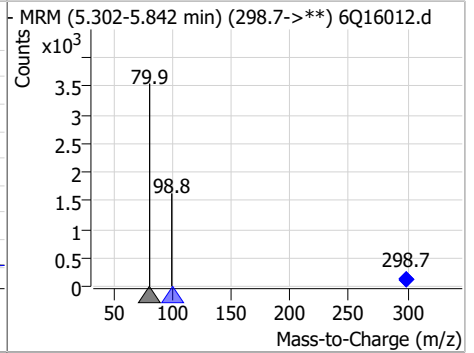
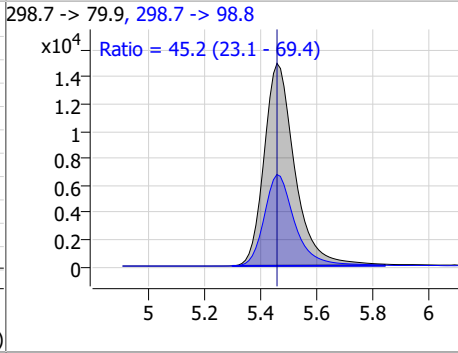
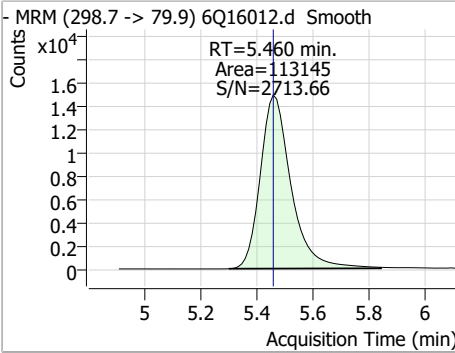


### Perfluorinated Compounds by LC/MS/MS

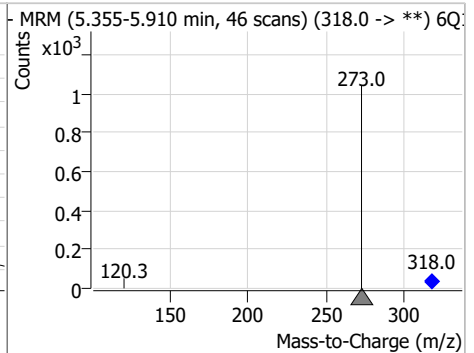
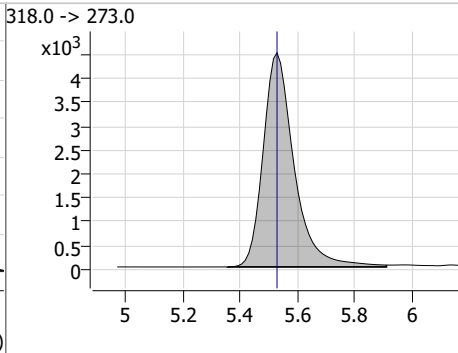
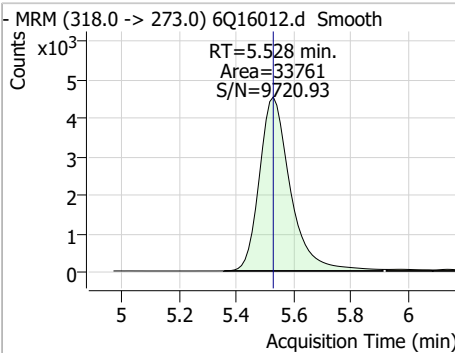


### Perfluorinated Compounds by LC/MS/MS

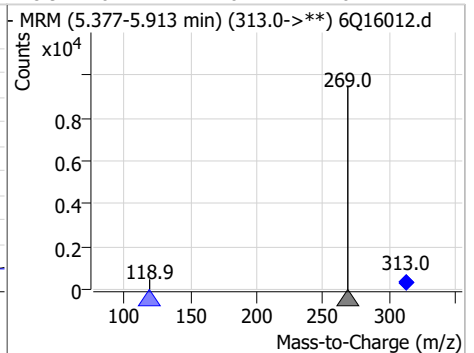
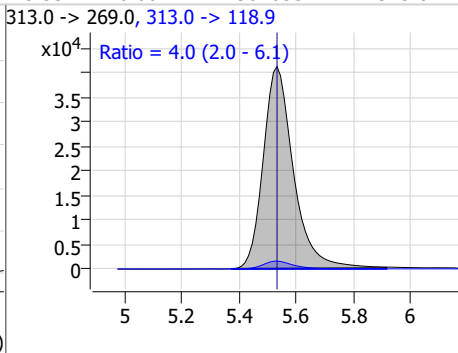
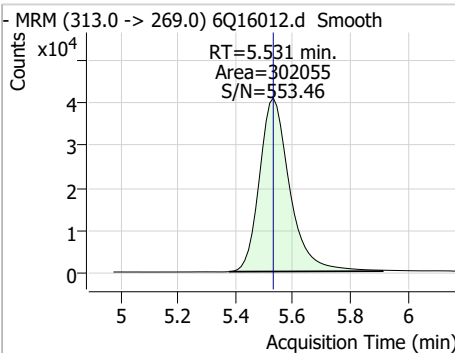
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	22.93	5.46	0.00	113145	298.7 -> 98.8	45.2	23.1	69.4



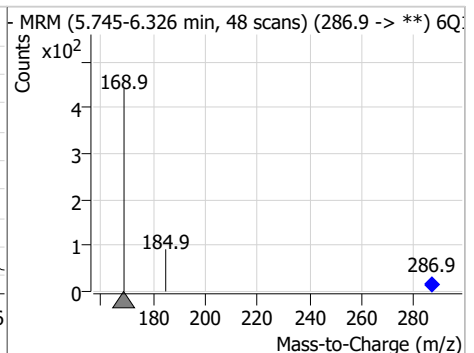
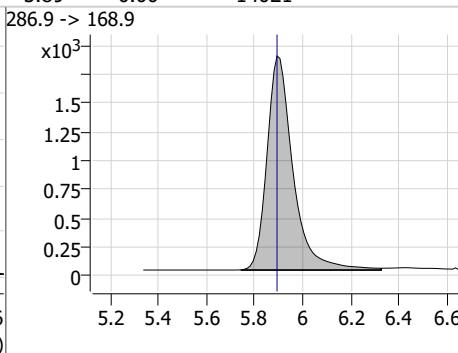
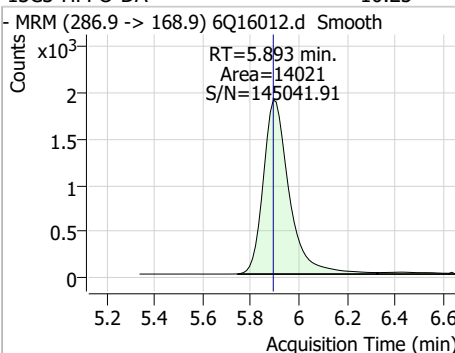
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.60	5.53	0.00	33761				



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

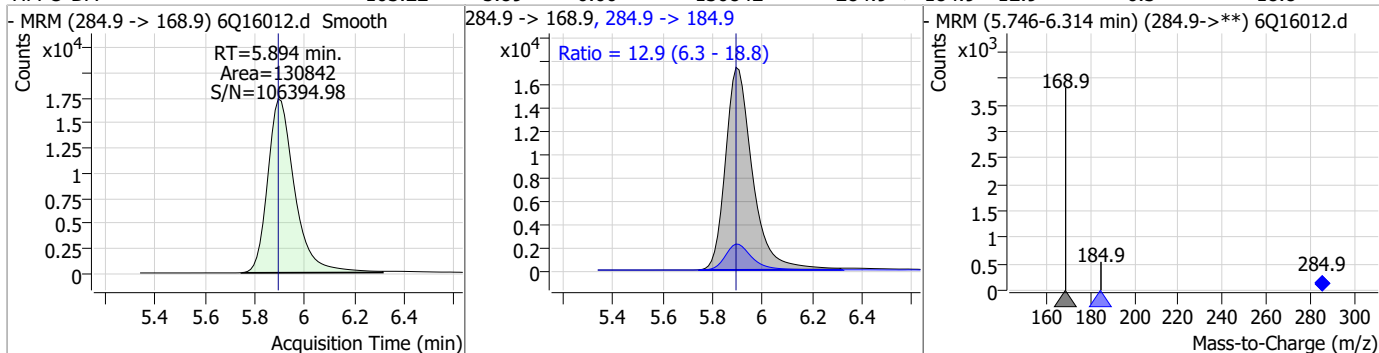


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.25	5.89	0.00	14021				

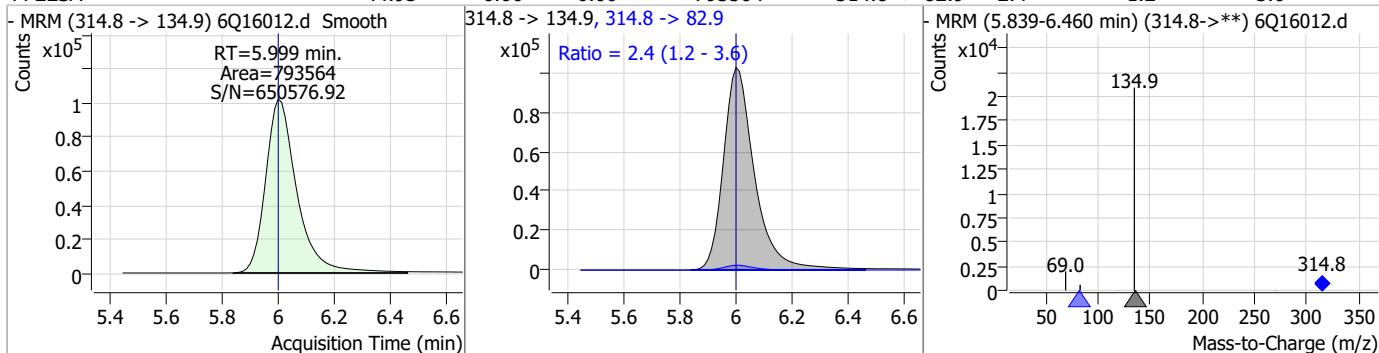


### Perfluorinated Compounds by LC/MS/MS

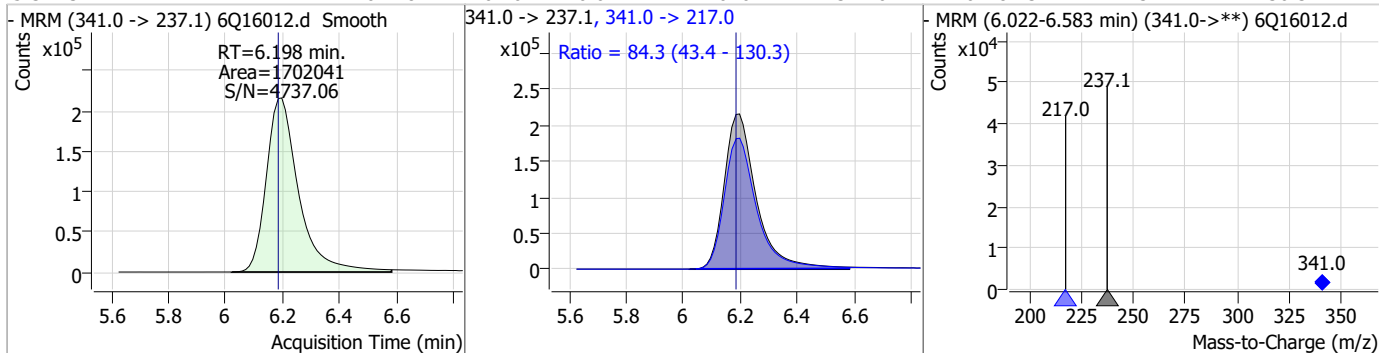
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	103.22	5.89	0.00	130842	284.9 -> 184.9	12.9	6.3	18.8



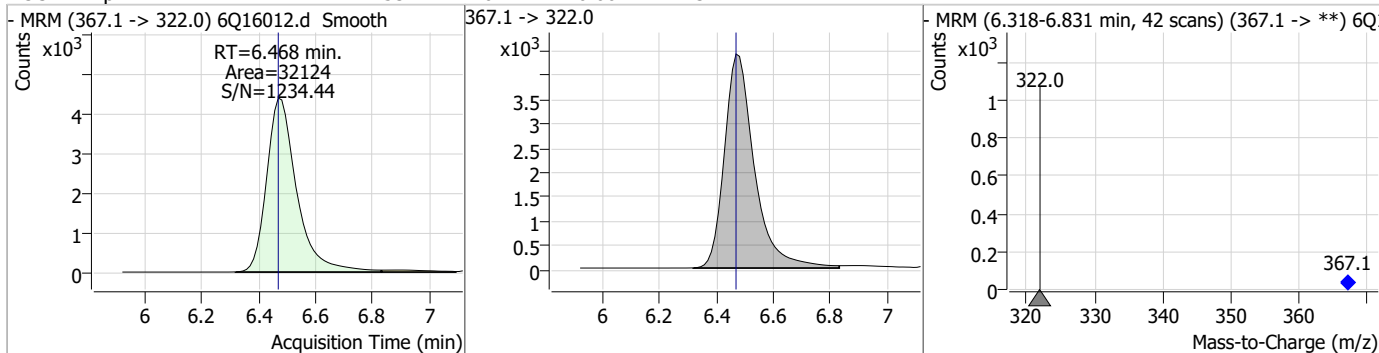
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	44.95	6.00	0.00	793564	314.8 -> 82.9	2.4	1.2	3.6



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

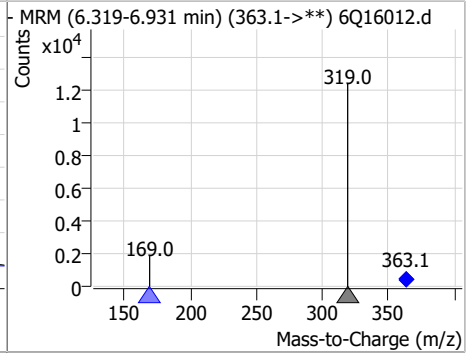
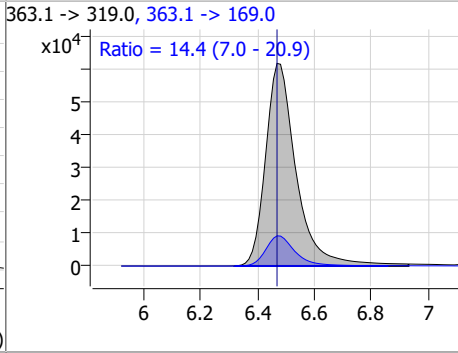
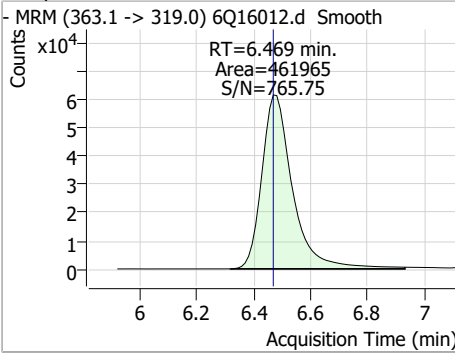


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.53	6.47	0.00	32124	367.1 -> 322.0			

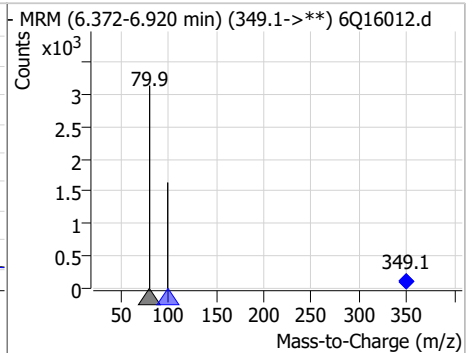
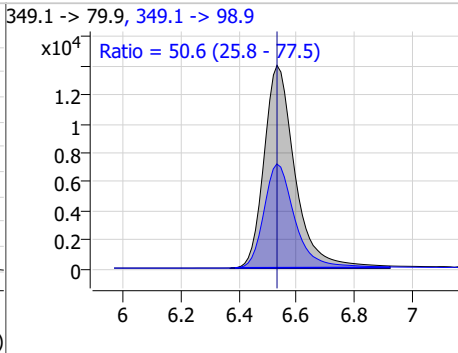
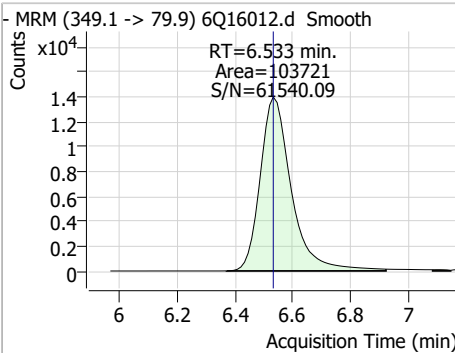


### Perfluorinated Compounds by LC/MS/MS

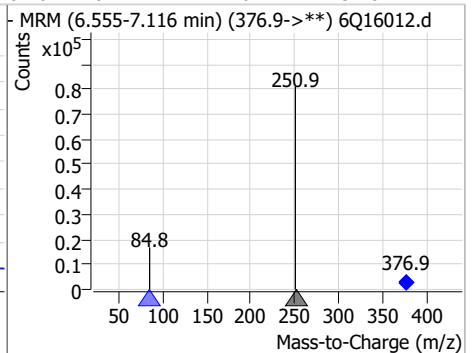
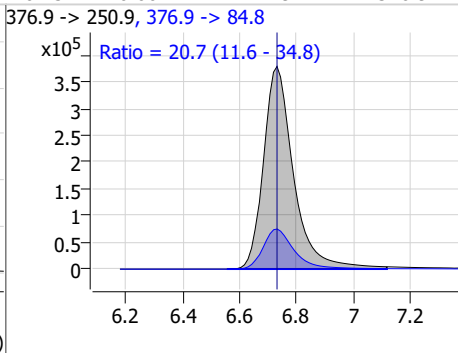
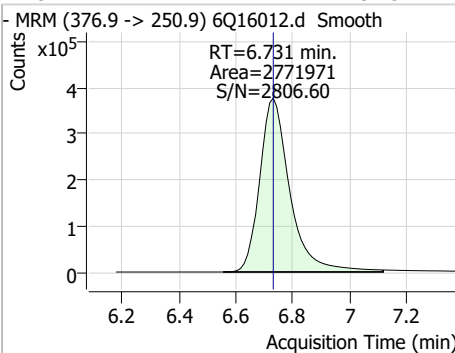
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	25.57	6.47	0.00	461965	363.1 -> 169.0	14.4	7.0	20.9



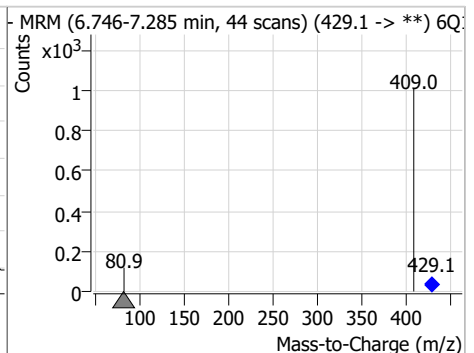
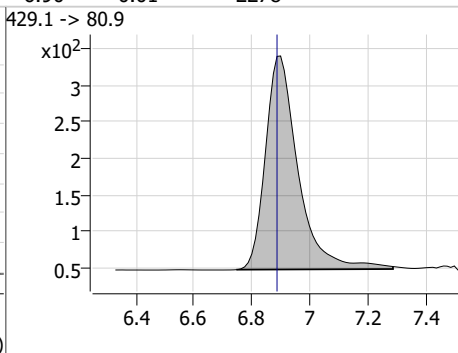
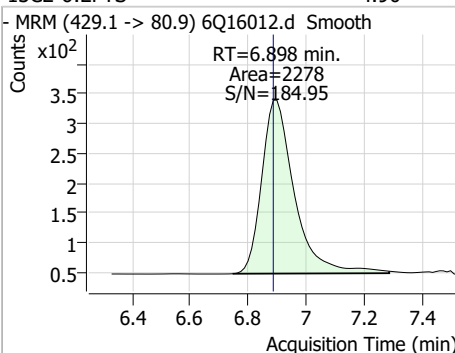
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	23.25	6.53	0.00	103721	349.1 -> 98.9	50.6	25.8	77.5



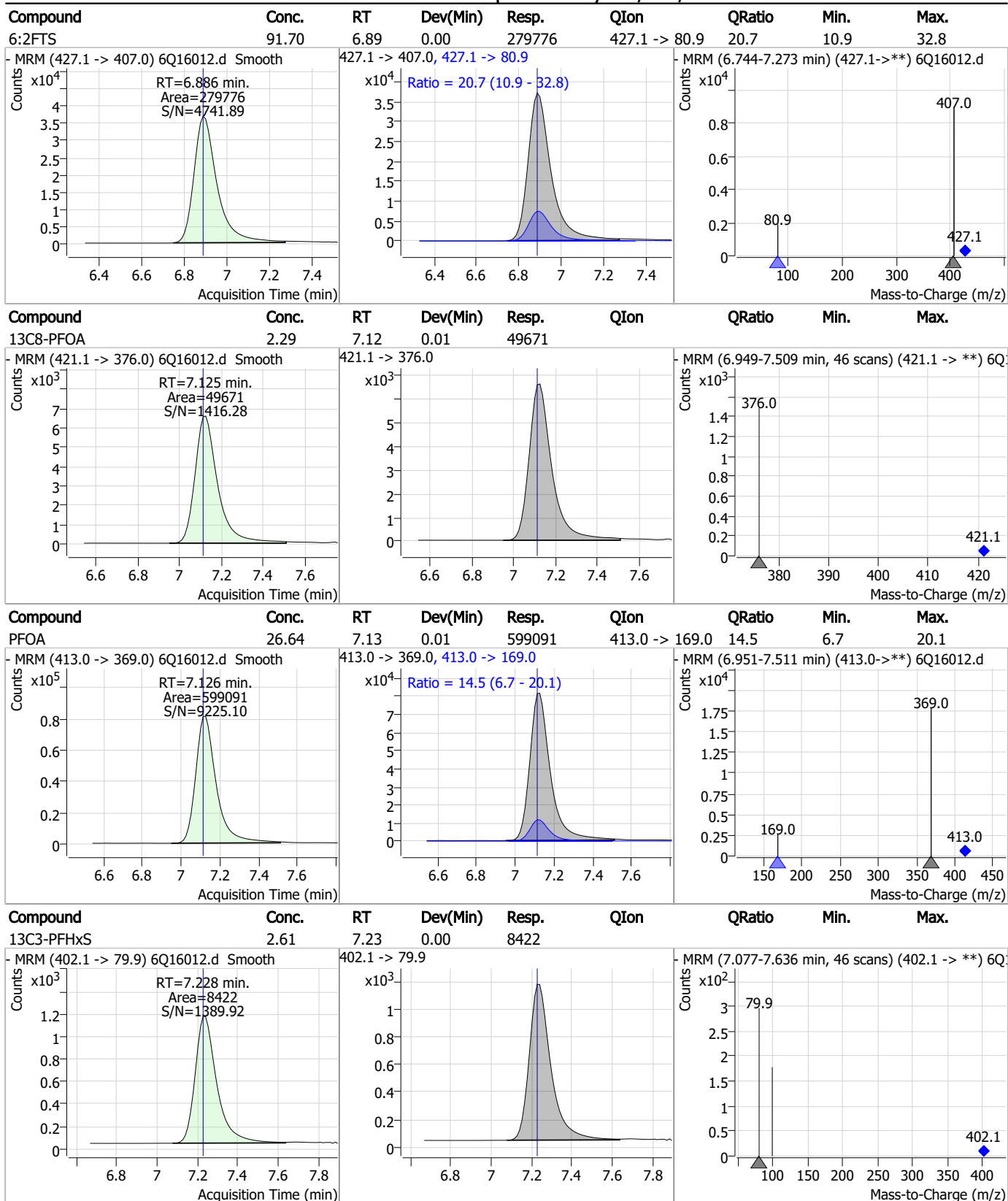
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	97.57	6.73	0.00	2771971	376.9 -> 84.8	20.7	11.6	34.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	4.90	6.90	0.01	2278	429.1 -> 80.9			

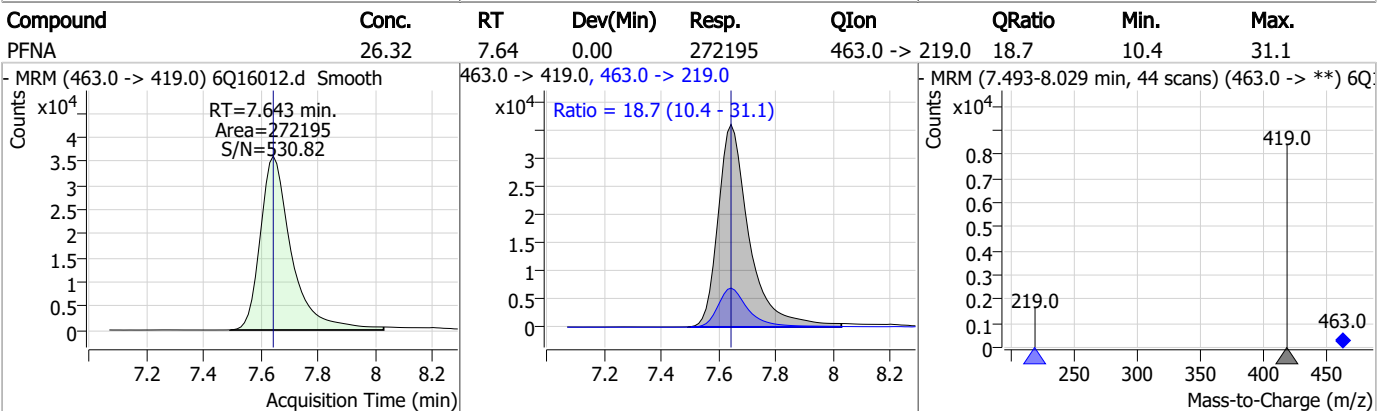
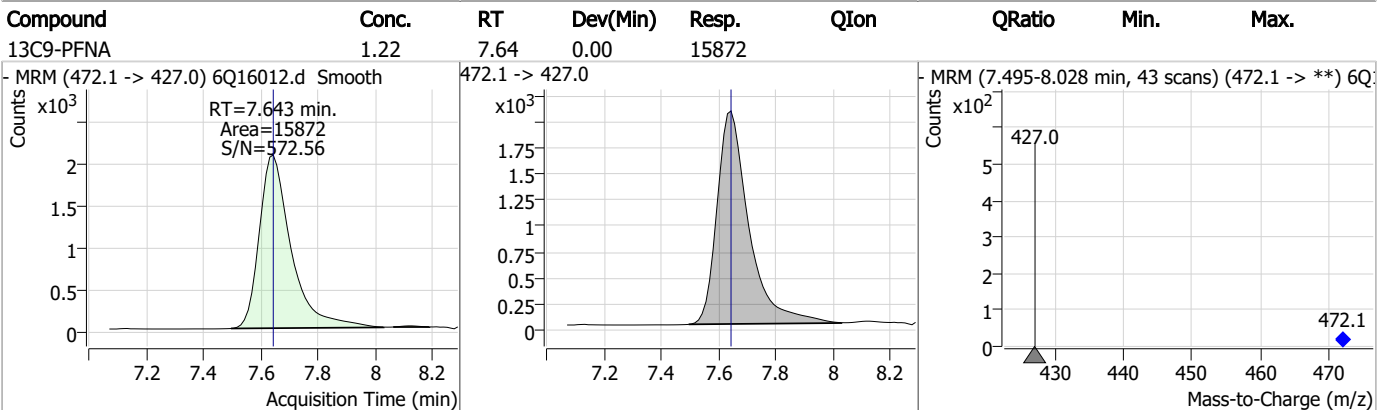
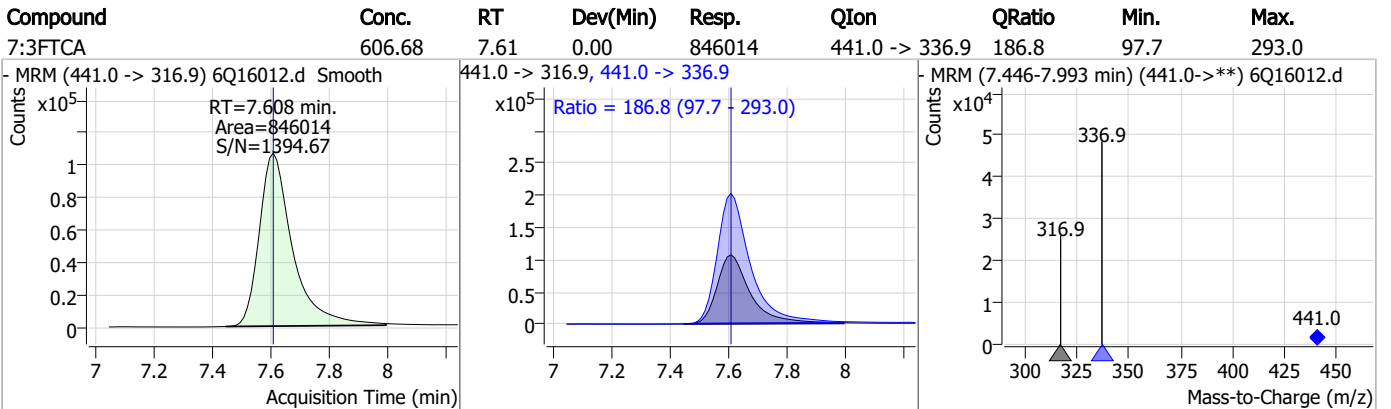
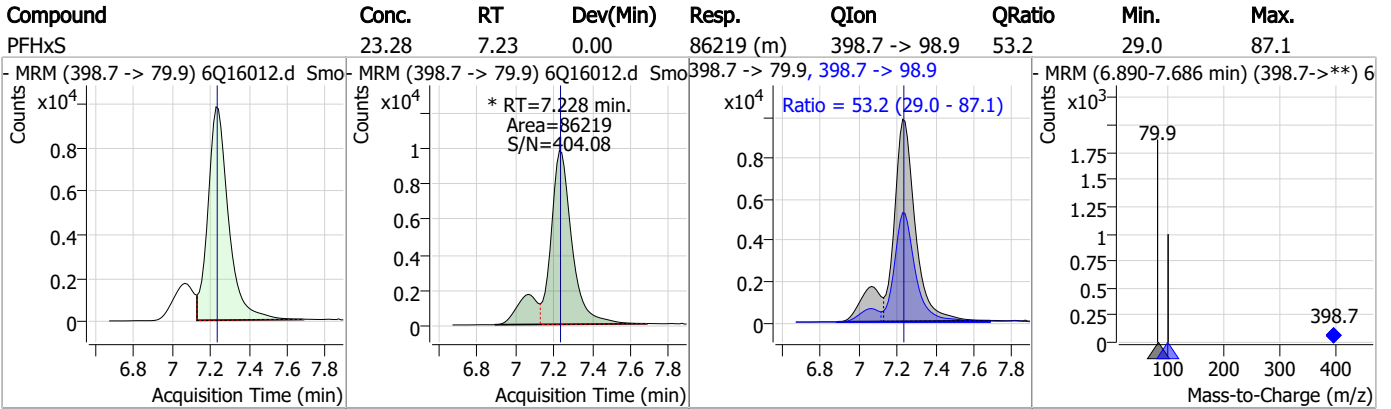


### Perfluorinated Compounds by LC/MS/MS

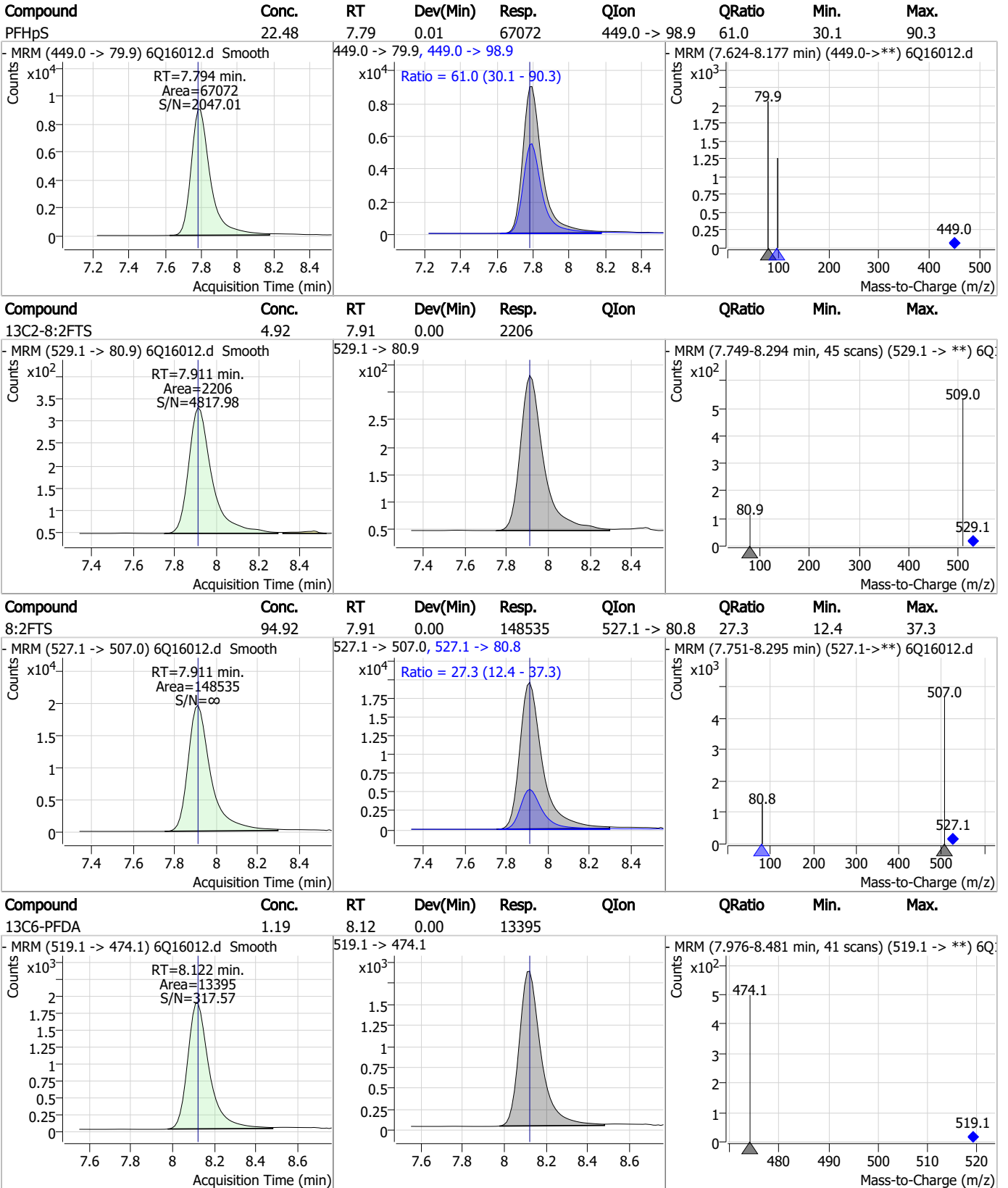


7.7.8  
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### Perfluorinated Compounds by LC/MS/MS



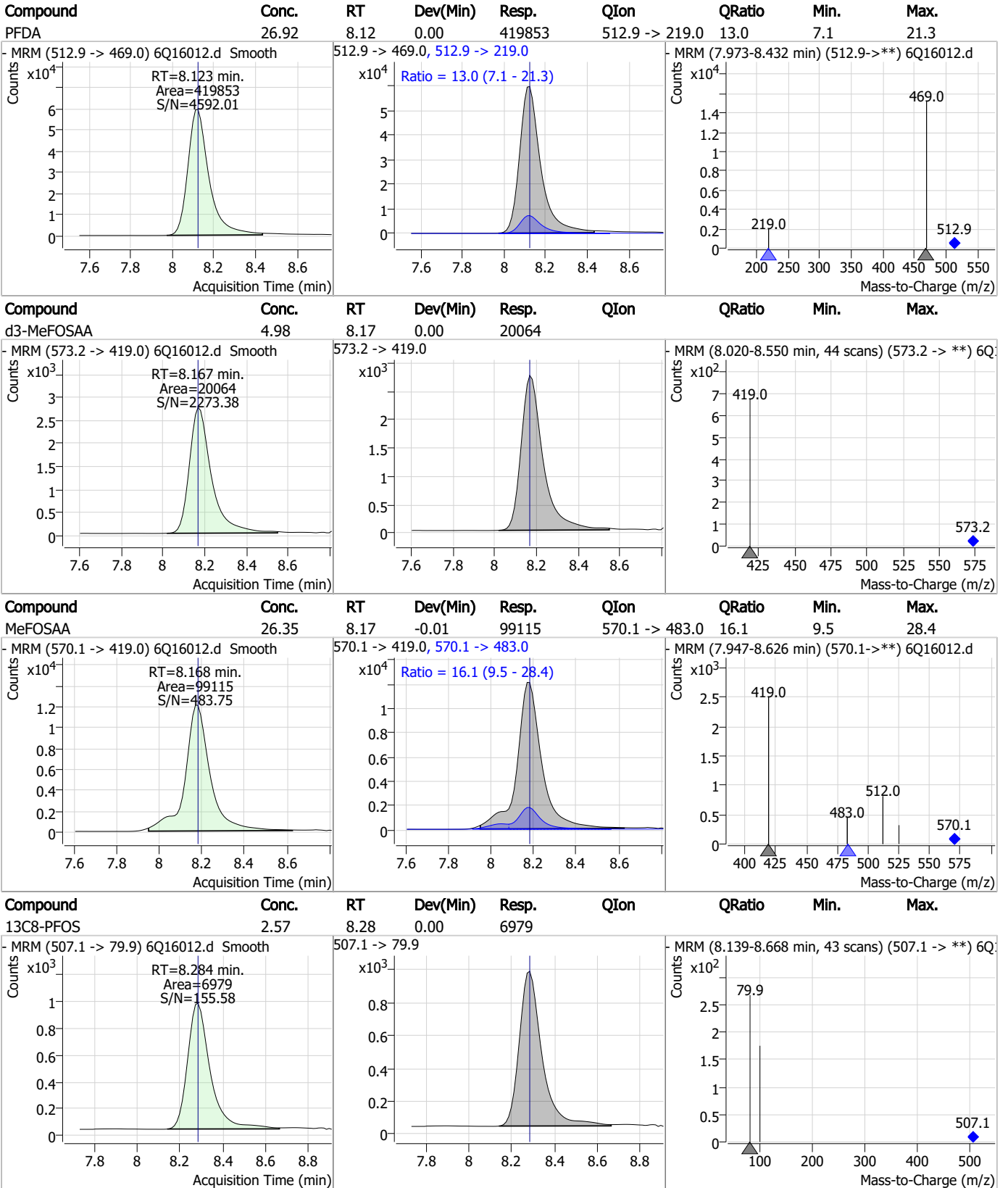
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

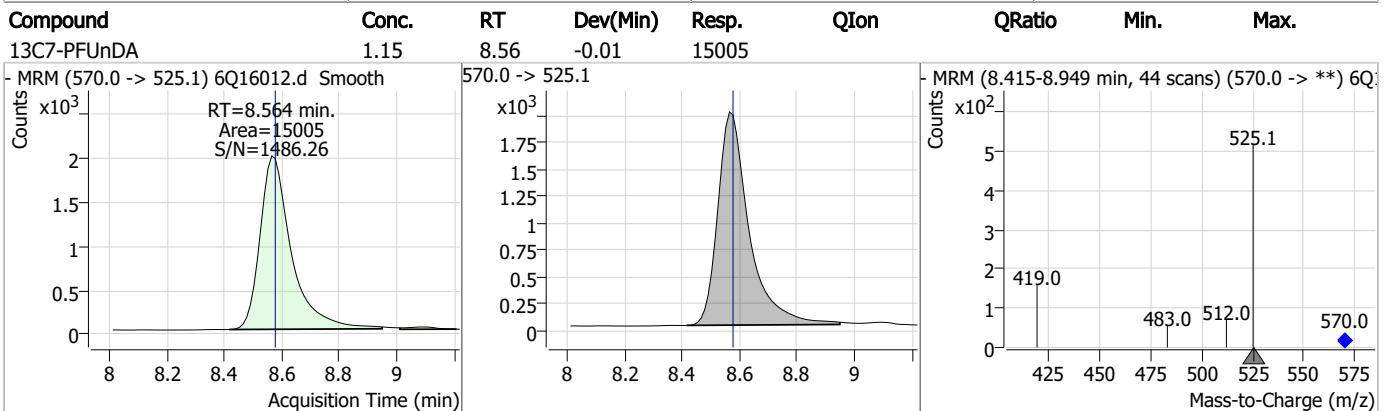
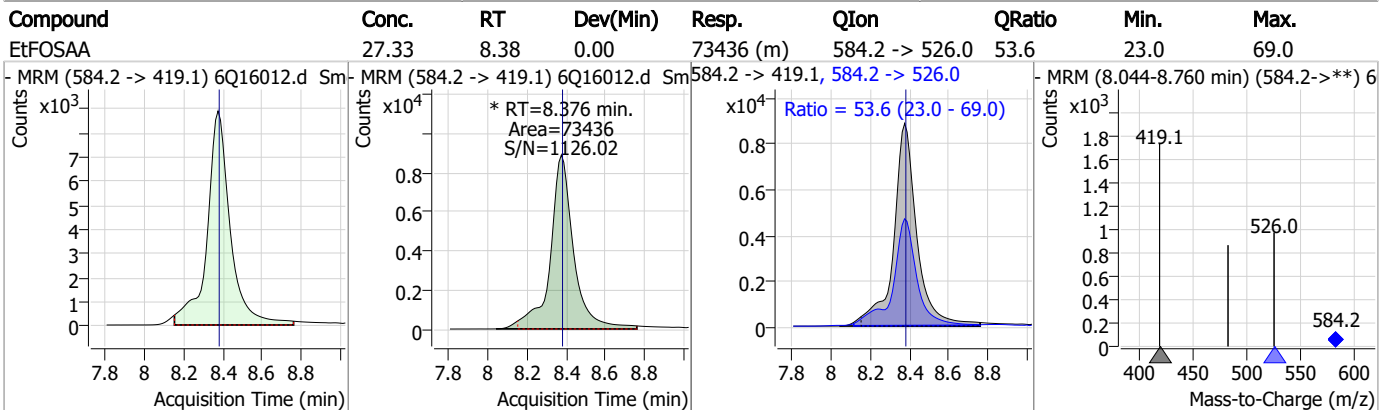
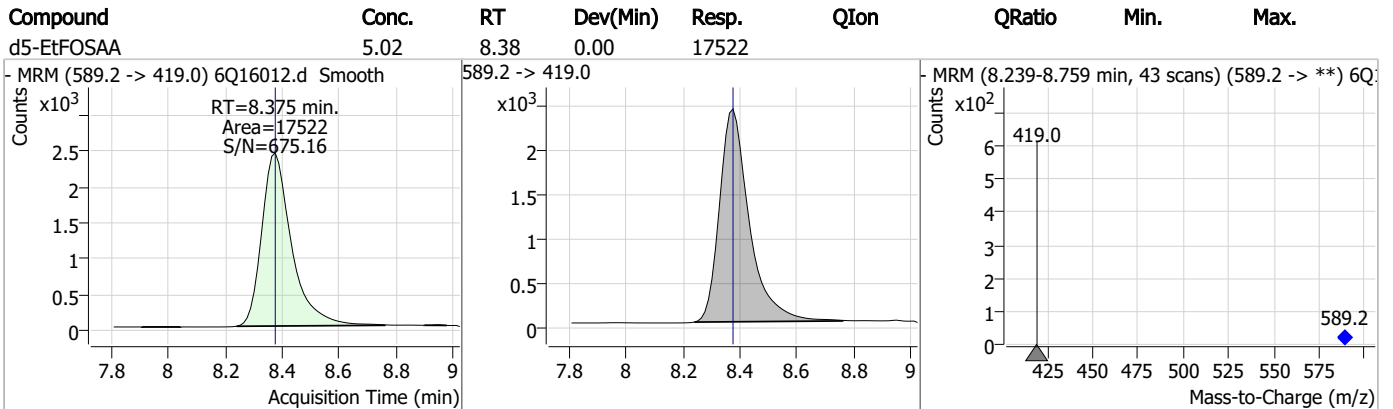
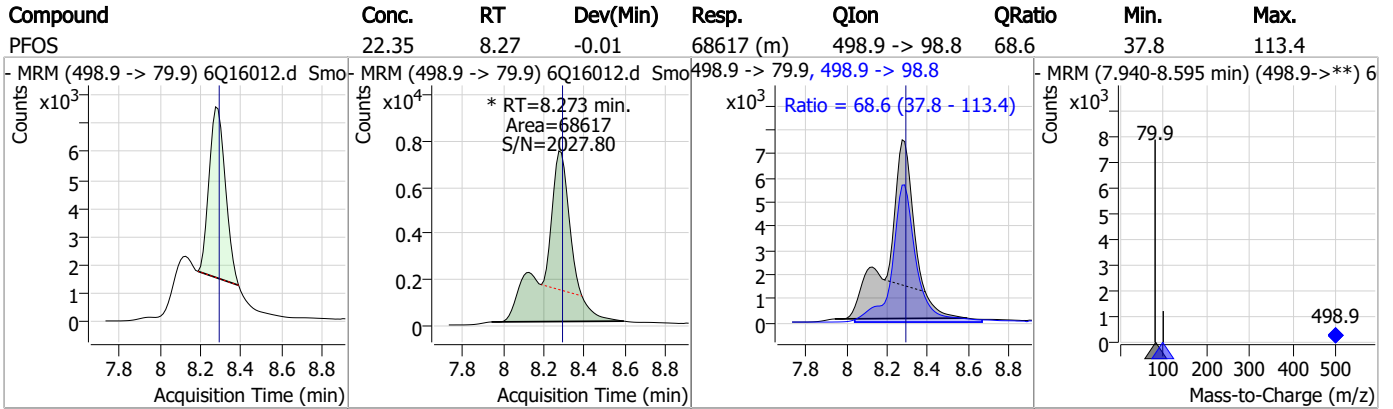


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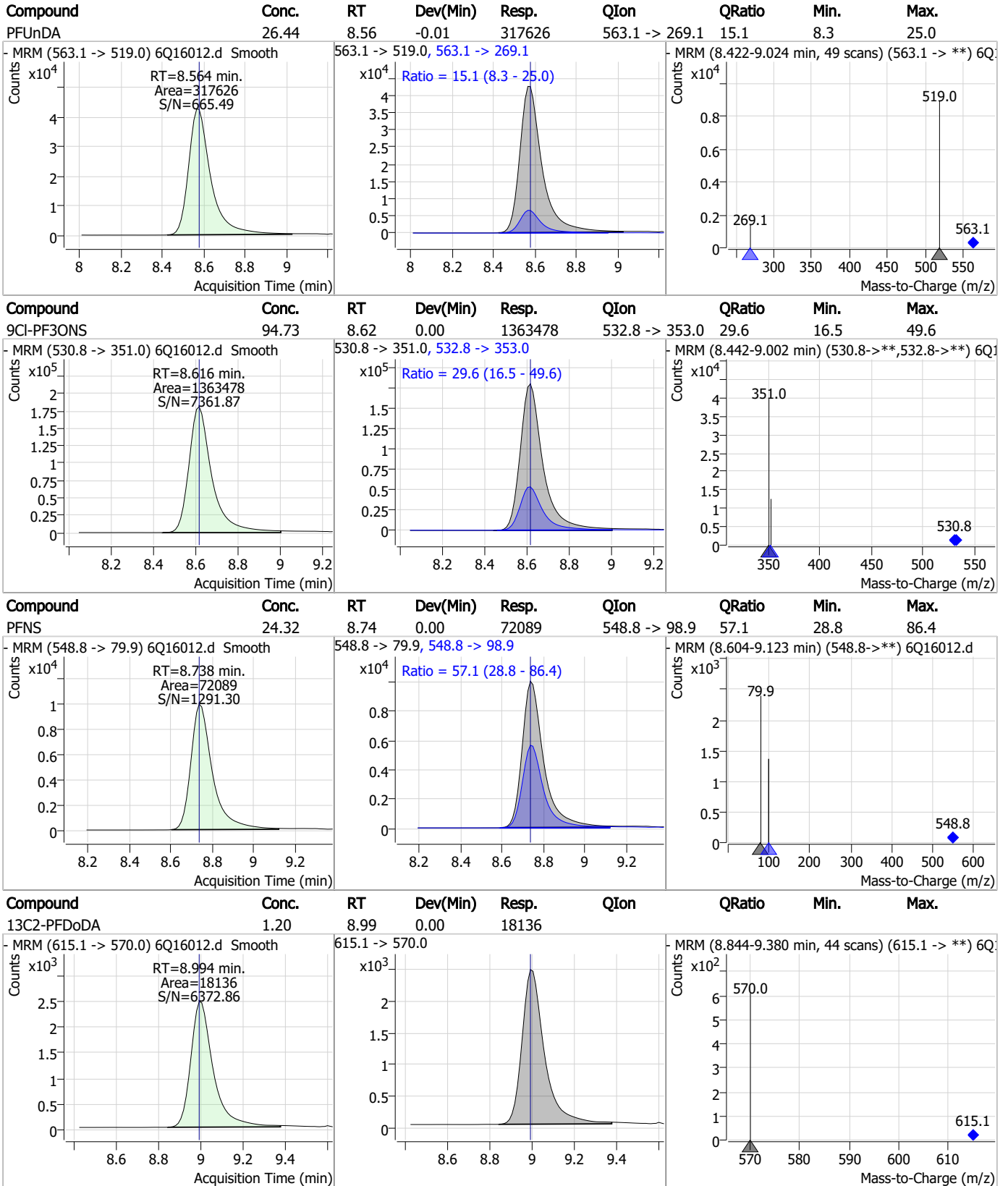
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### Perfluorinated Compounds by LC/MS/MS



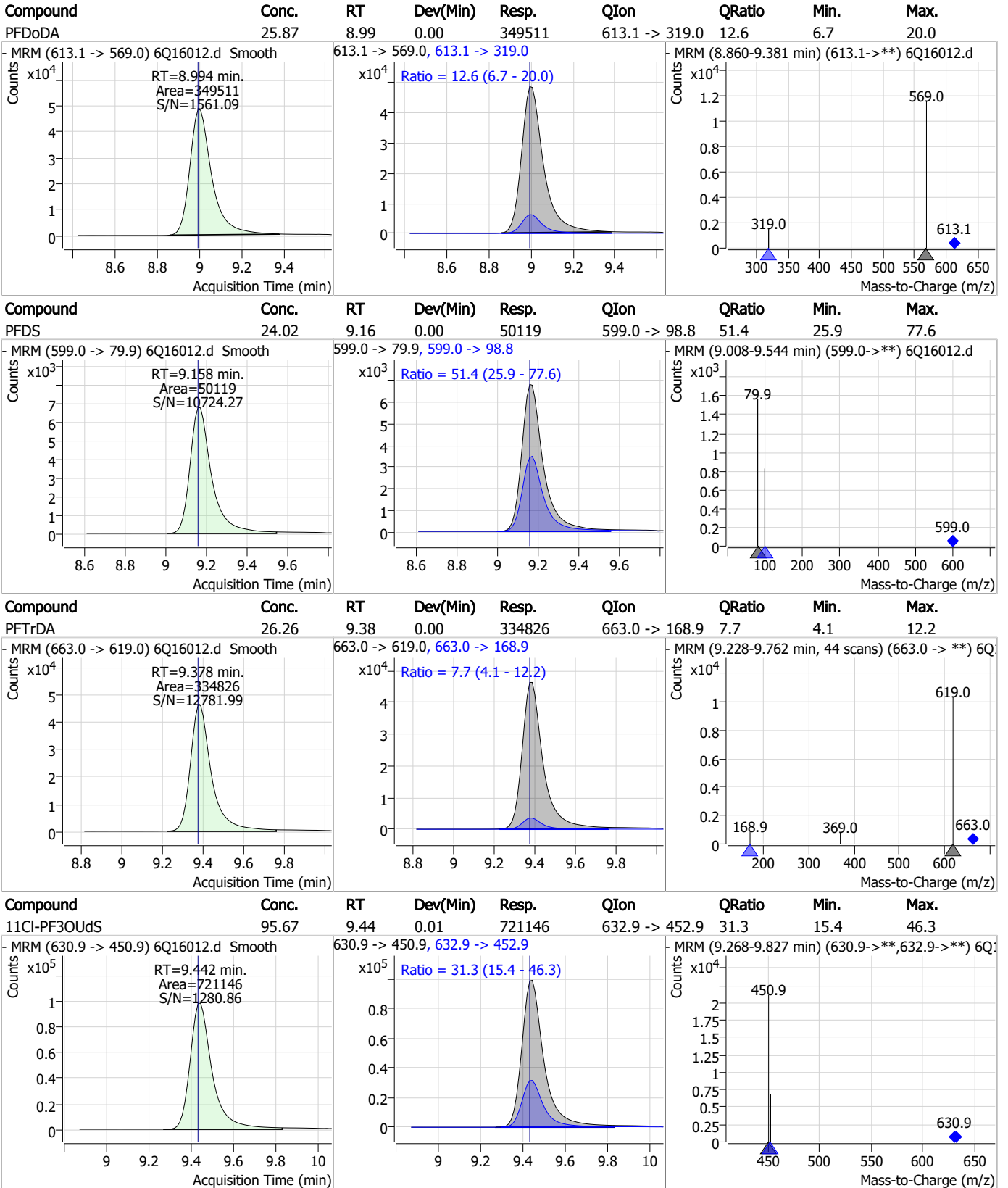
### Perfluorinated Compounds by LC/MS/MS



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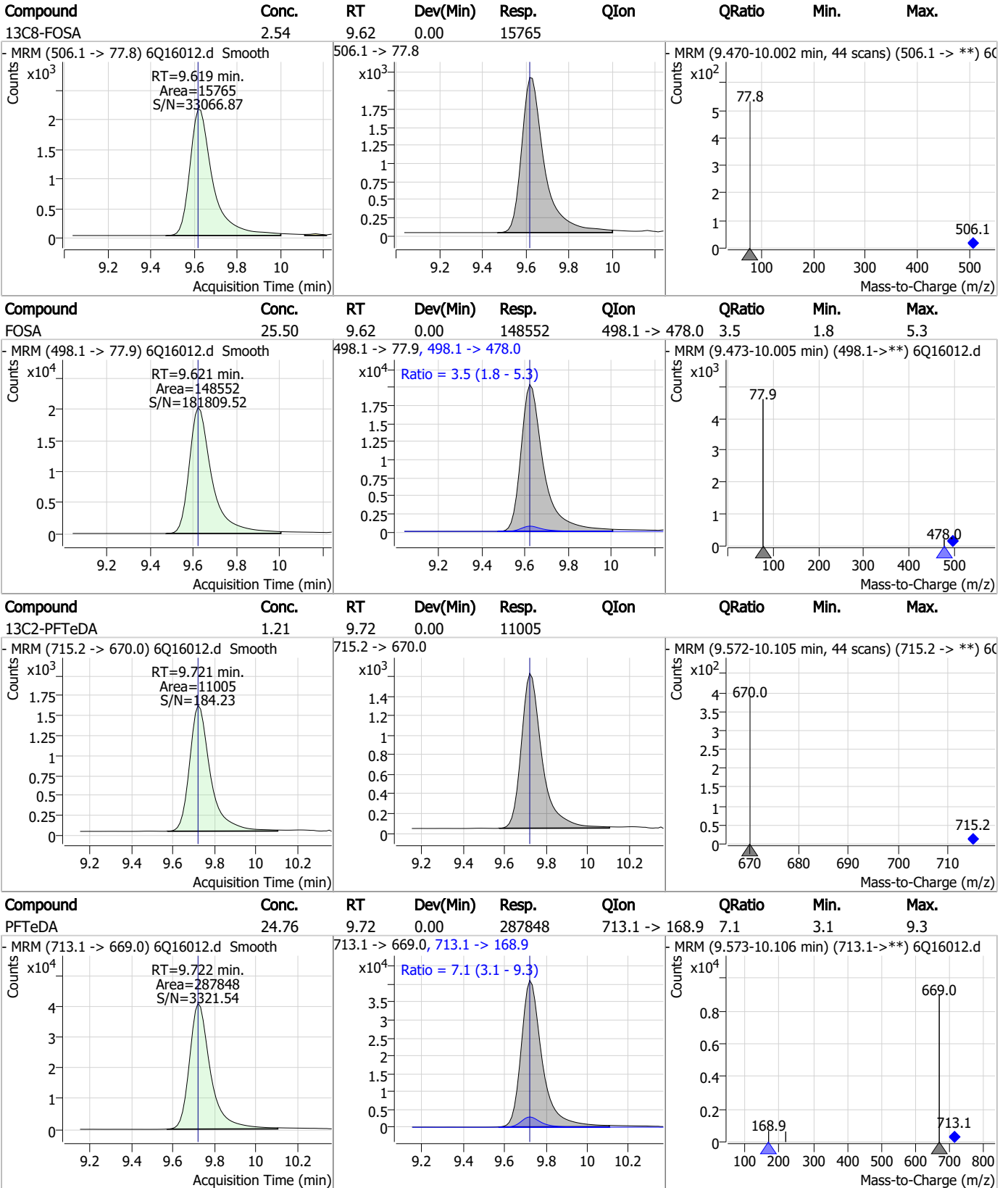
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

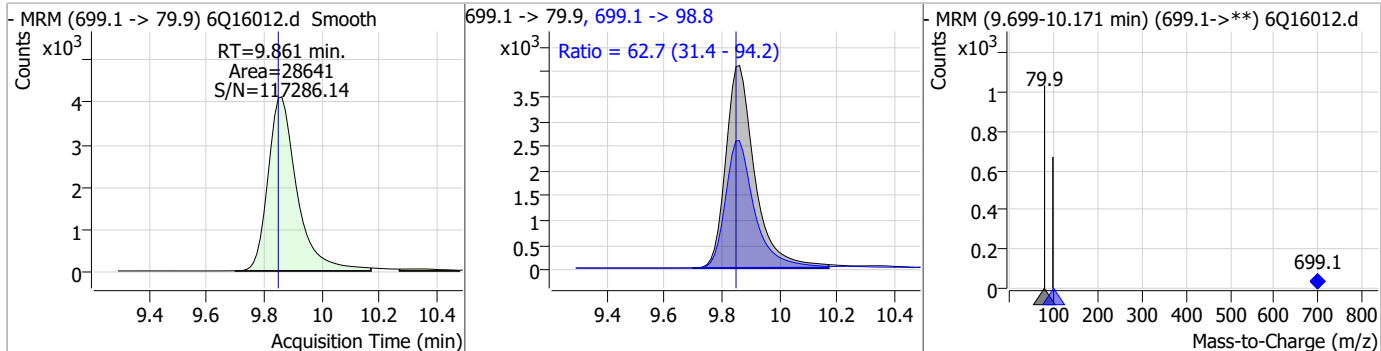


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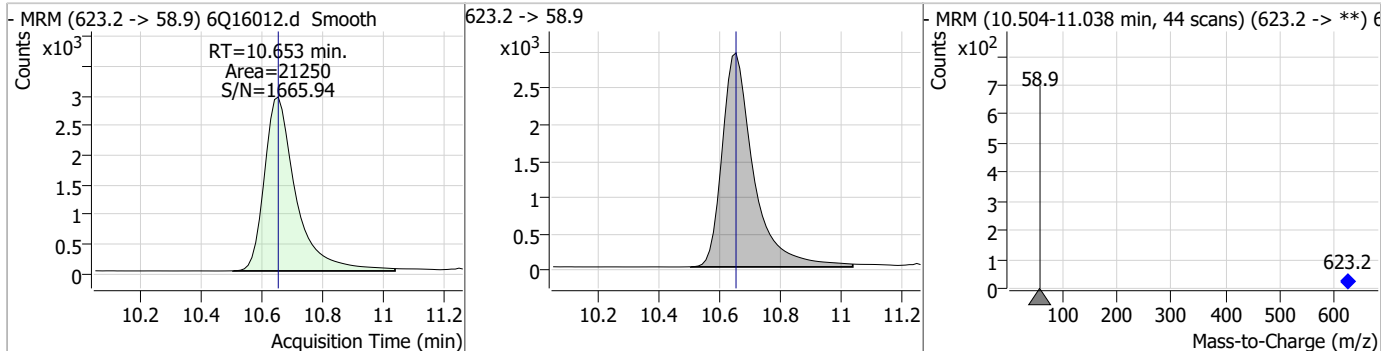
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### Perfluorinated Compounds by LC/MS/MS

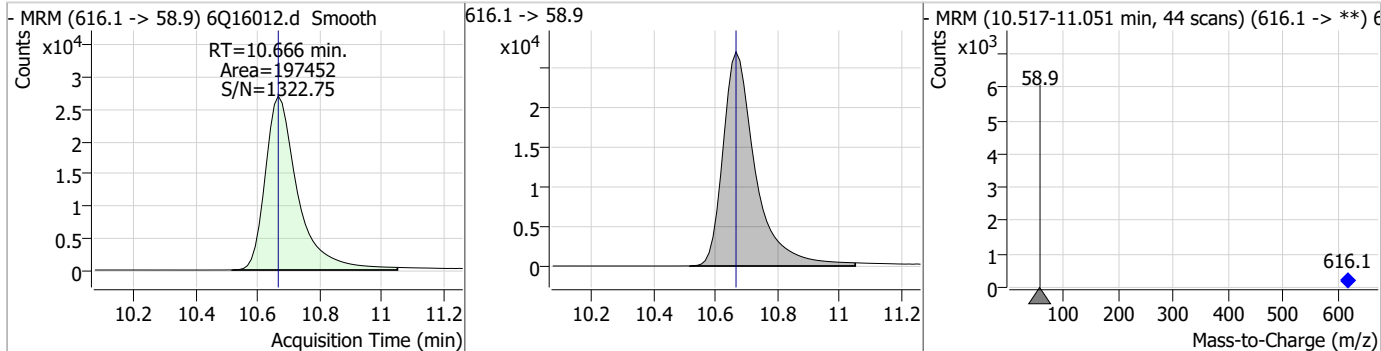
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD <sub>o</sub> DS	23.63	9.86	0.01	28641	699.1 -> 98.8	62.7	31.4	94.2



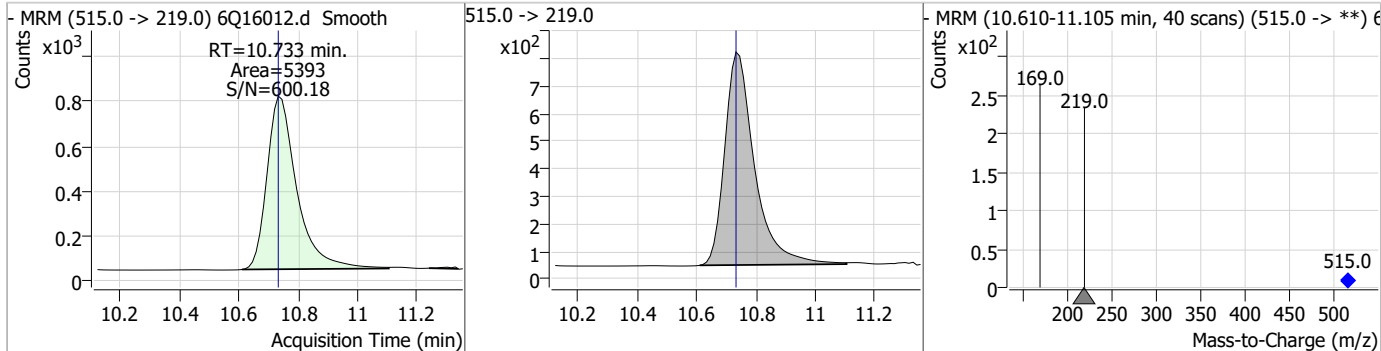
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.07	10.65	0.00	21250				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	246.51	10.67	0.00	197452				

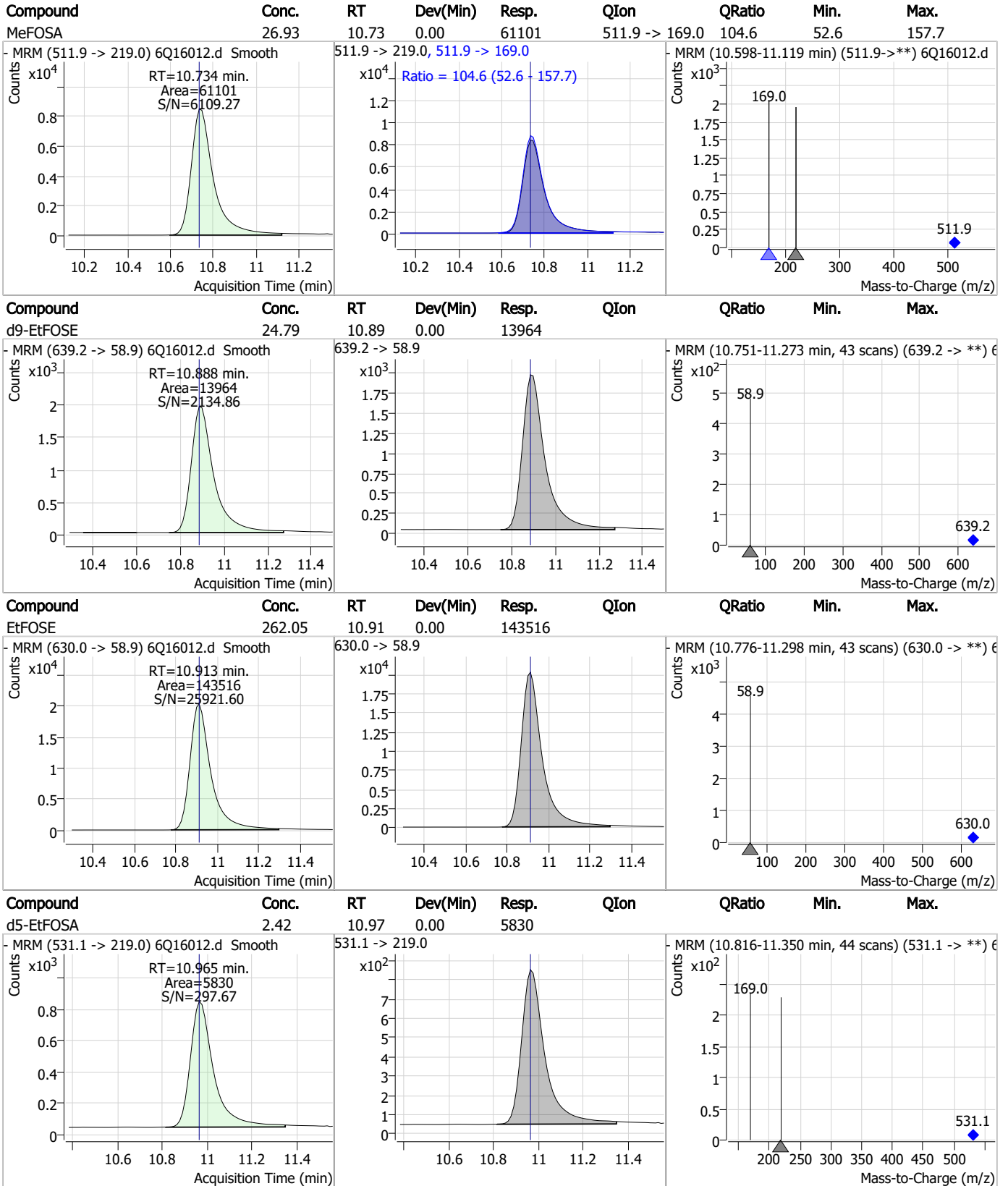


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.41	10.73	0.00	5393				



7.7.8  
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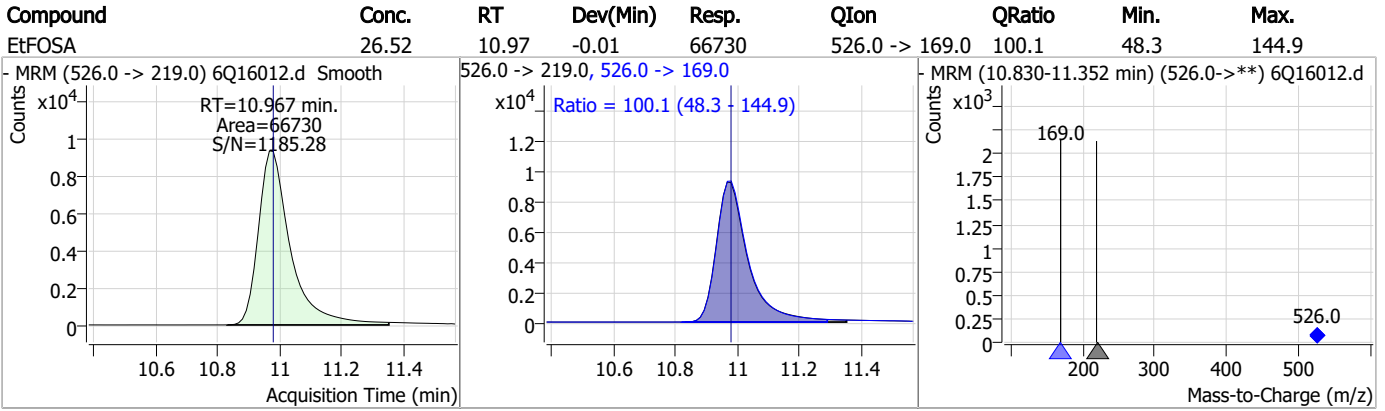
### Perfluorinated Compounds by LC/MS/MS



7.7.8

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Perfluorinated Compounds by LC/MS/MS



7.7.8

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# Manual Integration Approval Summary

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

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

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16013.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 4/4/2023 3:53:41 PM  
 Sample Name : ic239-8  
 Vial : P1-A9  
 DA Method File : 1633\_040423\_S6Q239.quantmethod.xml  
 Batch Name : s6q239.batch.bin  
 Sample Information : OP96085,S6Q239,500,,,5.0,1,water

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

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### Perfluorinated Compounds by LC/MS/MS

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

7.7.9  
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Perfluorinated Compounds by LC/MS/MS

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

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

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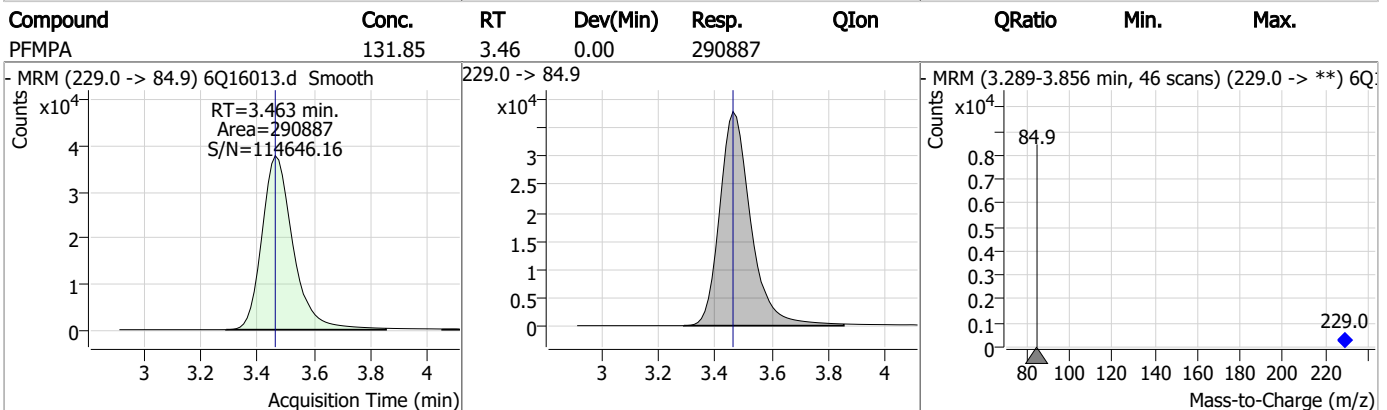
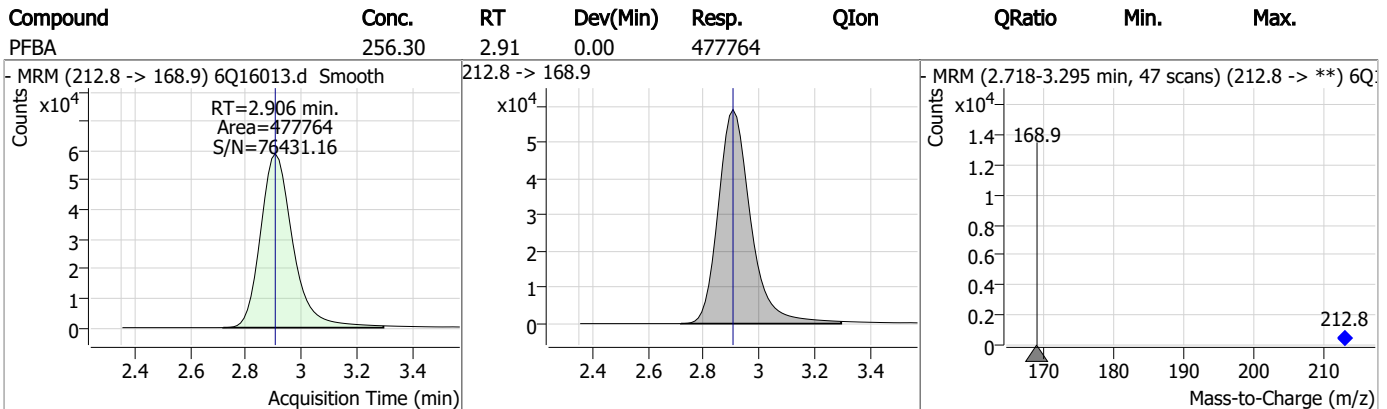
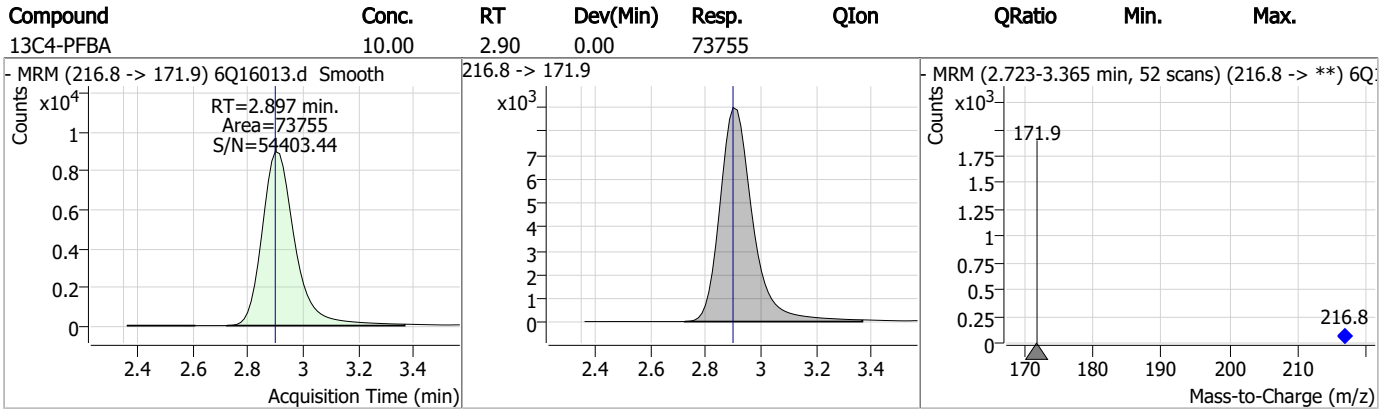
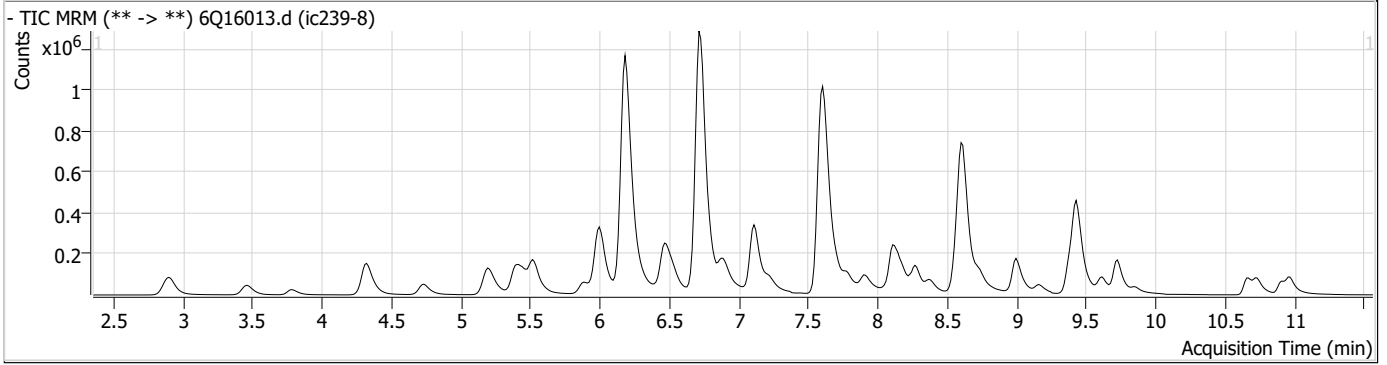
### Perfluorinated Compounds by LC/MS/MS

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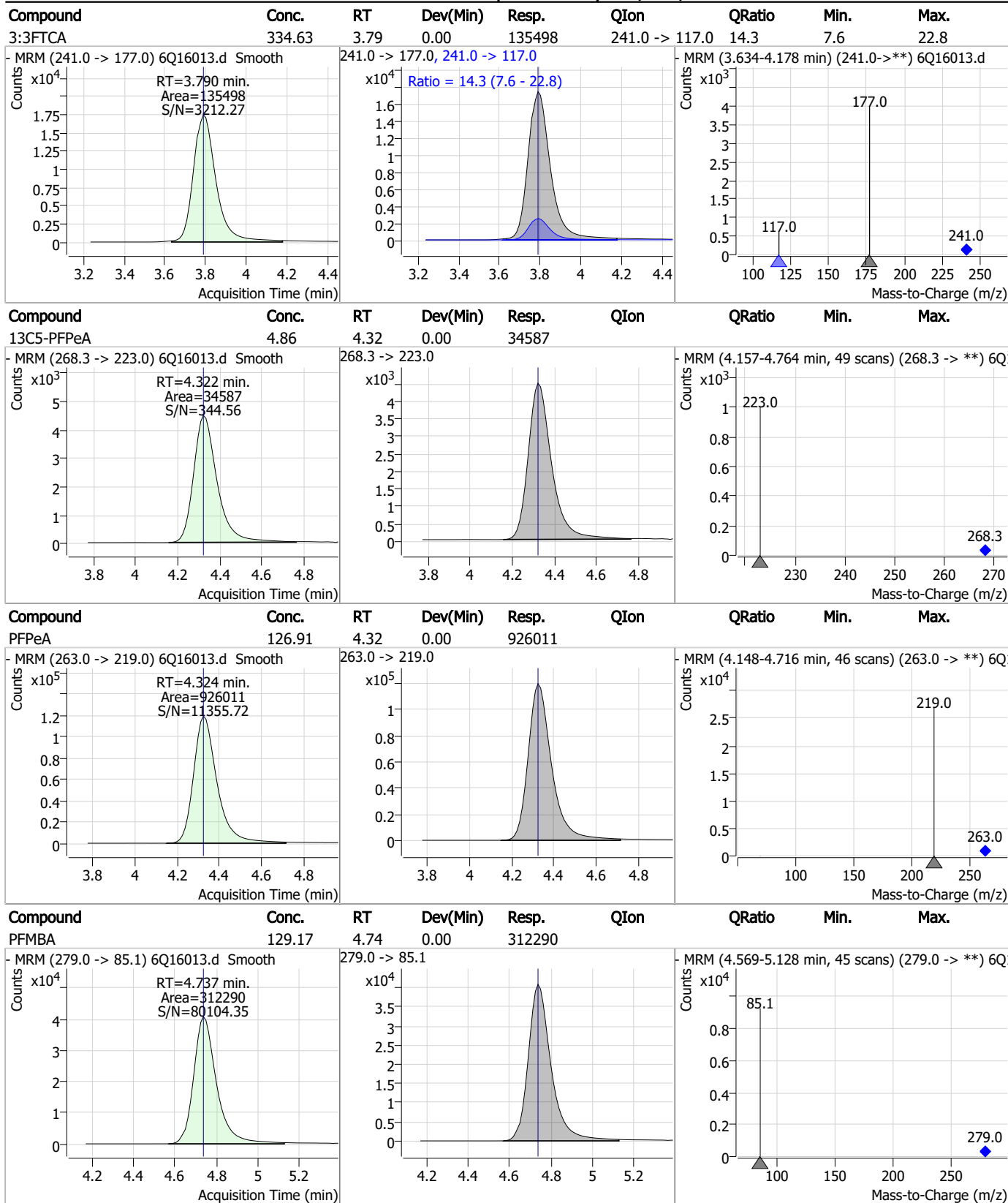
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### Perfluorinated Compounds by LC/MS/MS

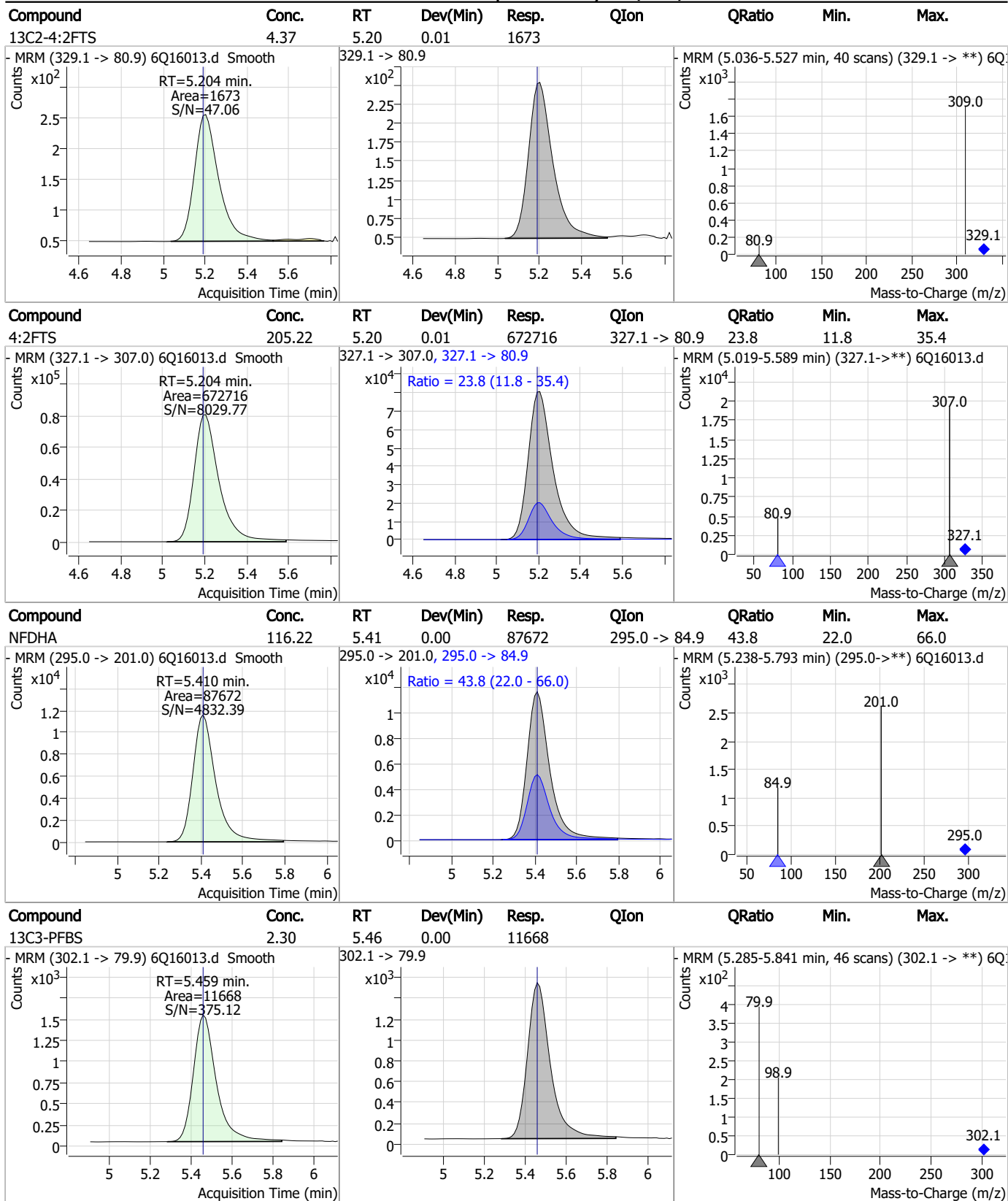


### Perfluorinated Compounds by LC/MS/MS



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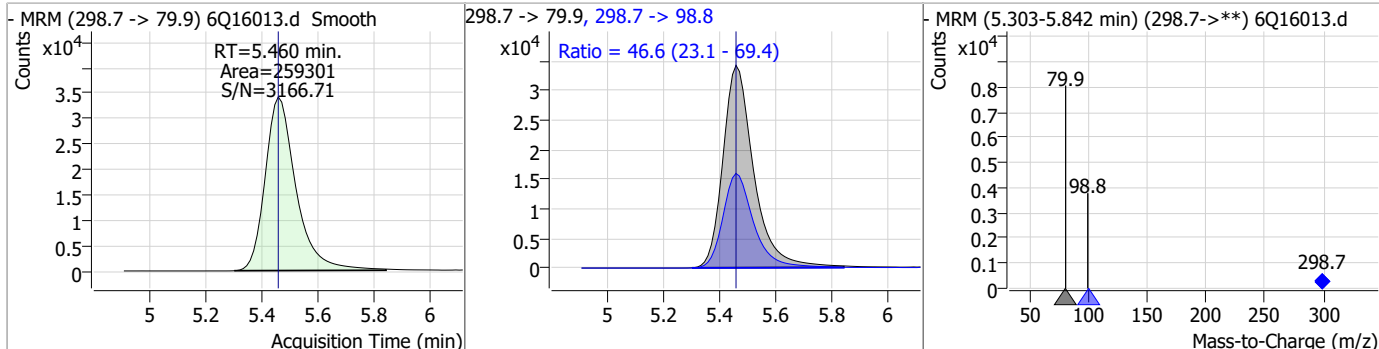
### Perfluorinated Compounds by LC/MS/MS



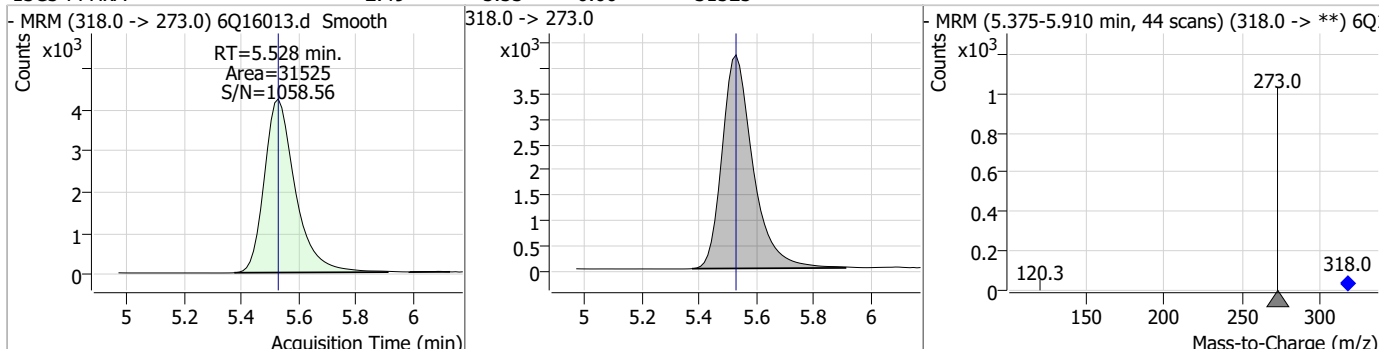
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### Perfluorinated Compounds by LC/MS/MS

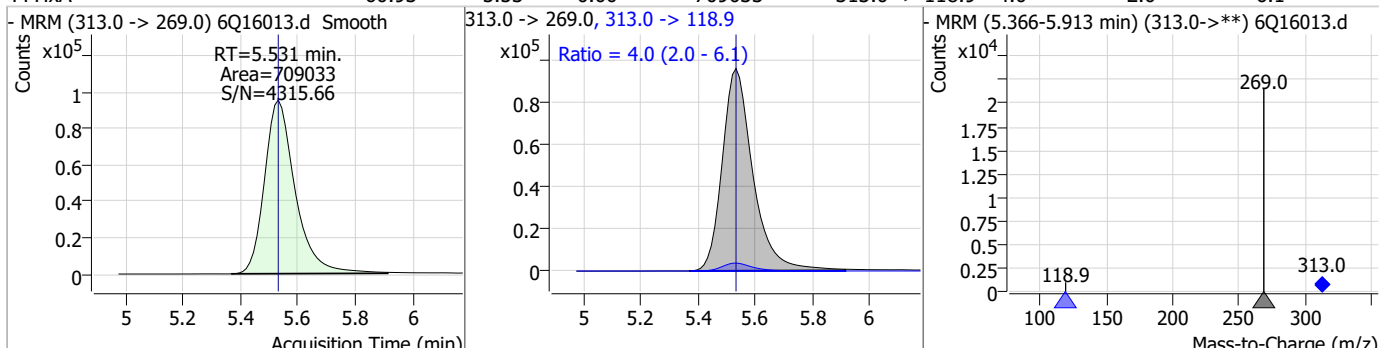
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	56.65	5.46	0.00	259301	298.7 -> 98.8	46.6	23.1	69.4



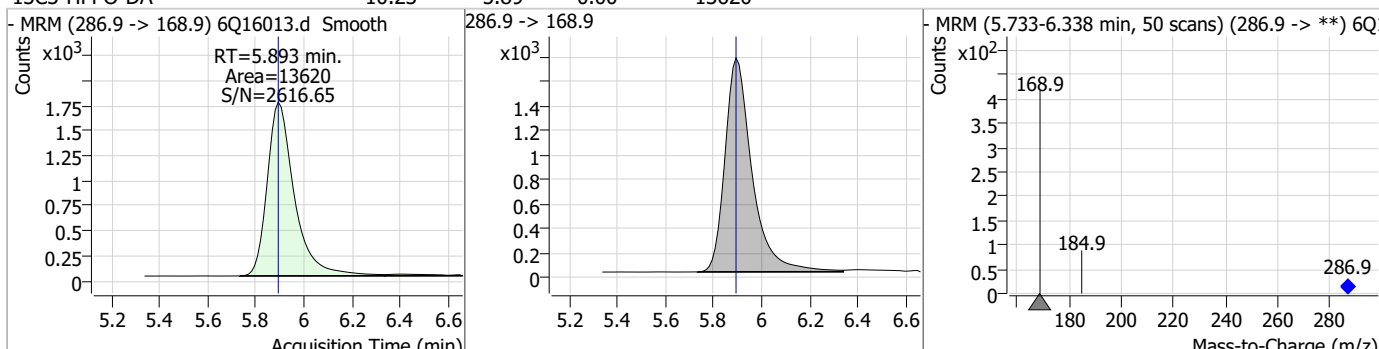
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.49	5.53	0.00	31525				



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



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

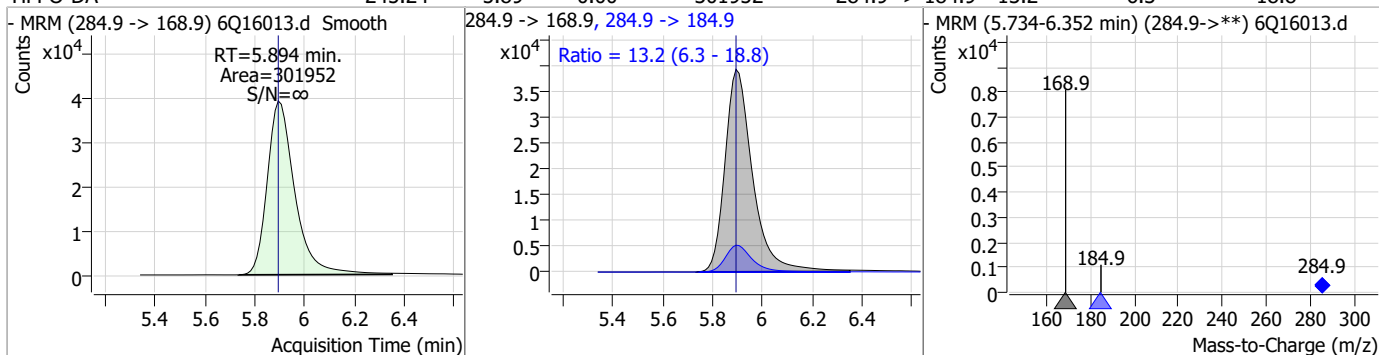


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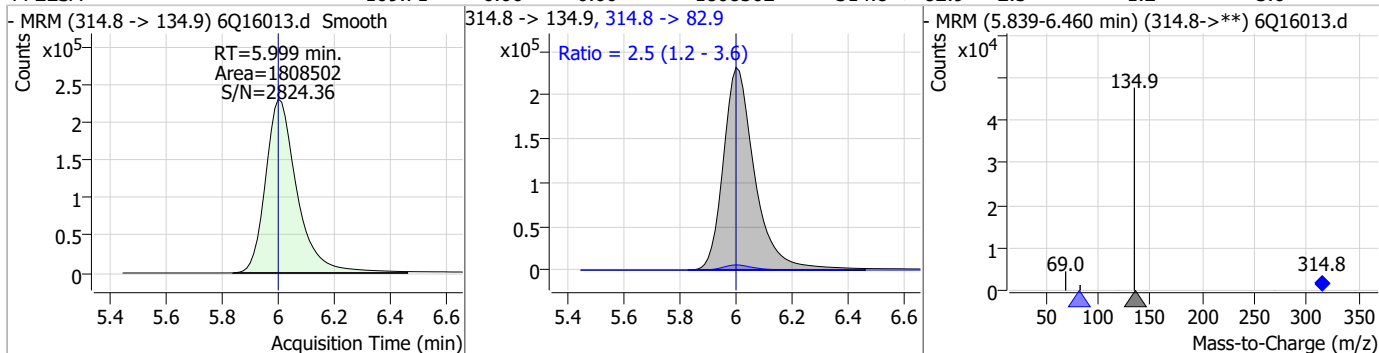


### Perfluorinated Compounds by LC/MS/MS

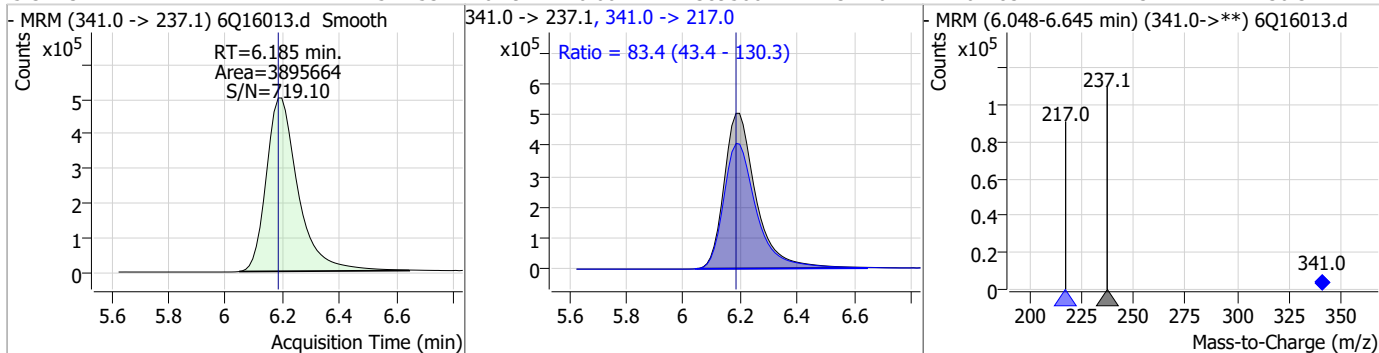
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	245.24	5.89	0.00	301952	284.9 -> 184.9	13.2	6.3	18.8



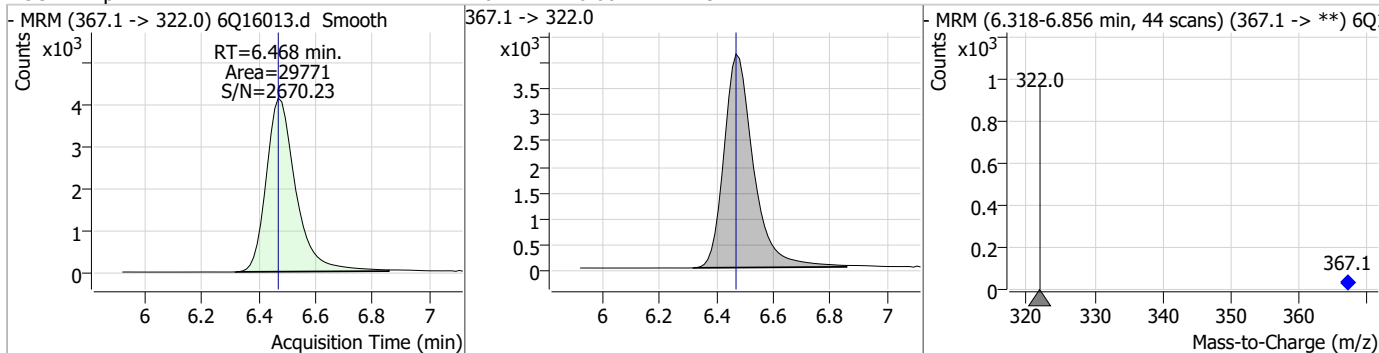
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	109.71	6.00	0.00	1808502	314.8 -> 82.9	2.5	1.2	3.6



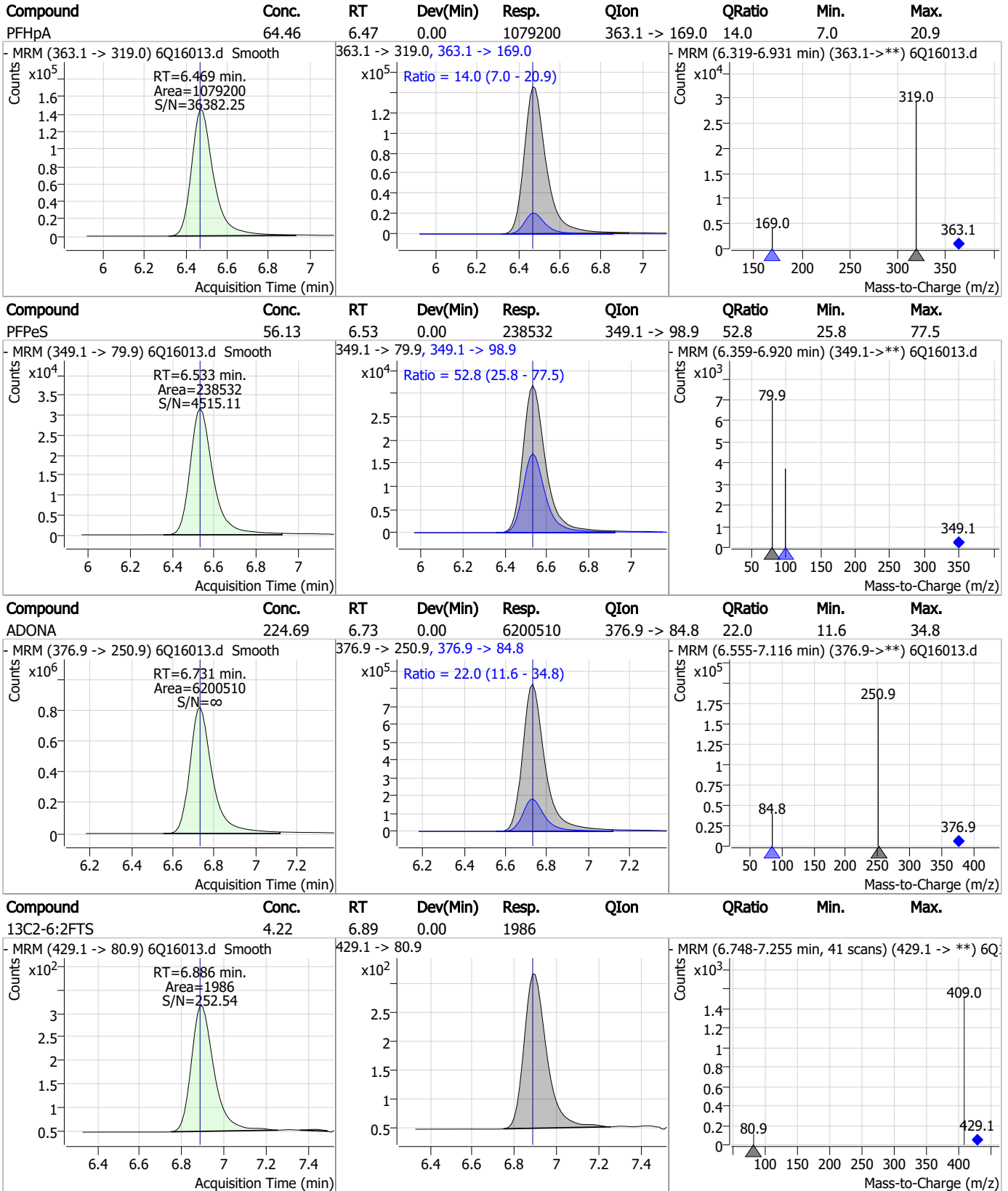
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	1514.53	6.19	0.00	3895664	341.0 -> 217.0	83.4	43.4	130.3



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



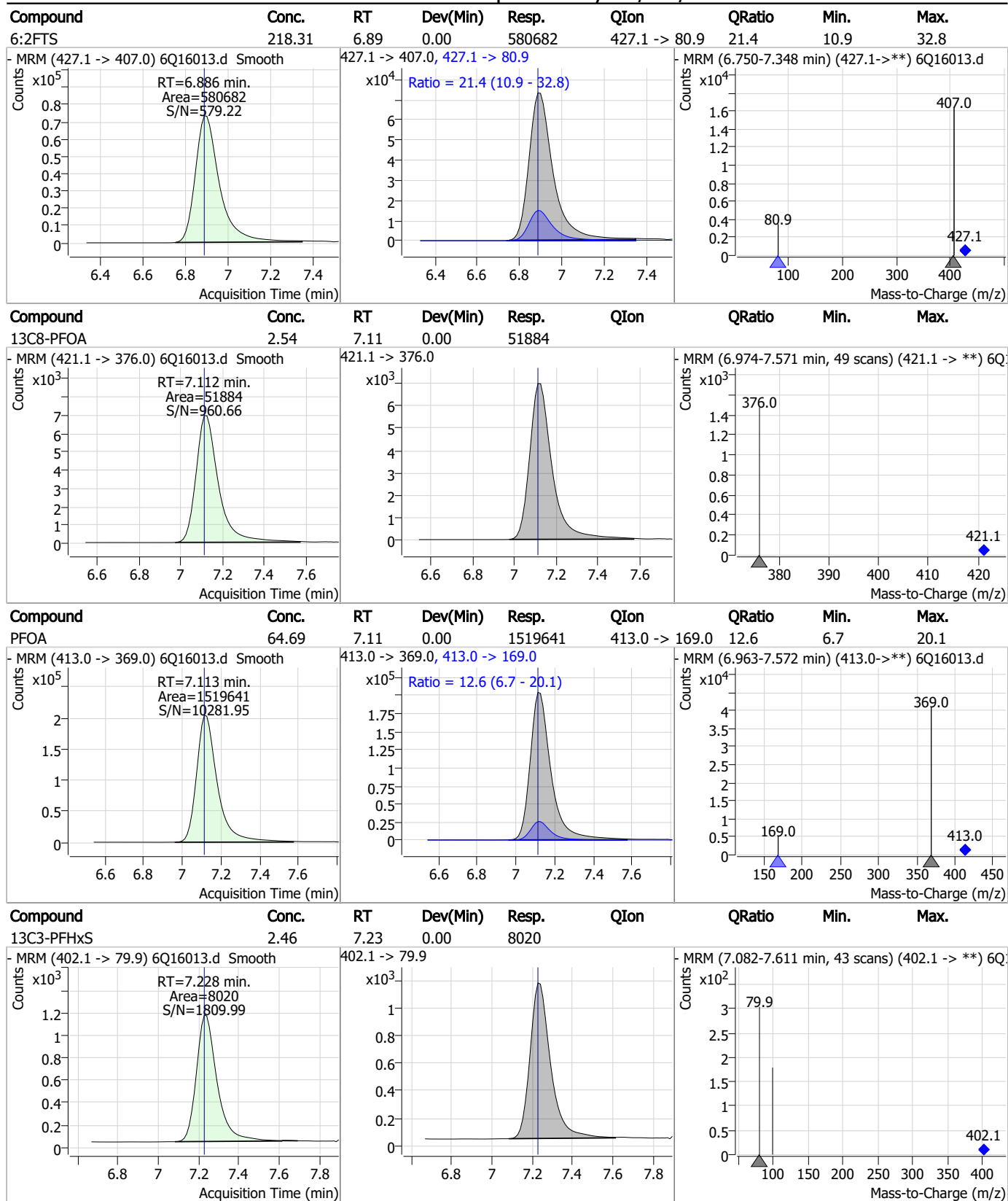
### Perfluorinated Compounds by LC/MS/MS



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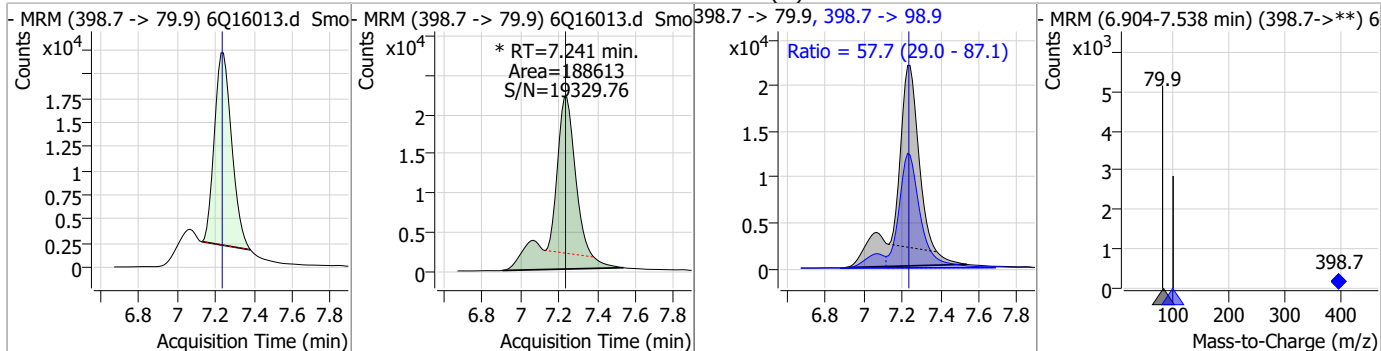
### Perfluorinated Compounds by LC/MS/MS



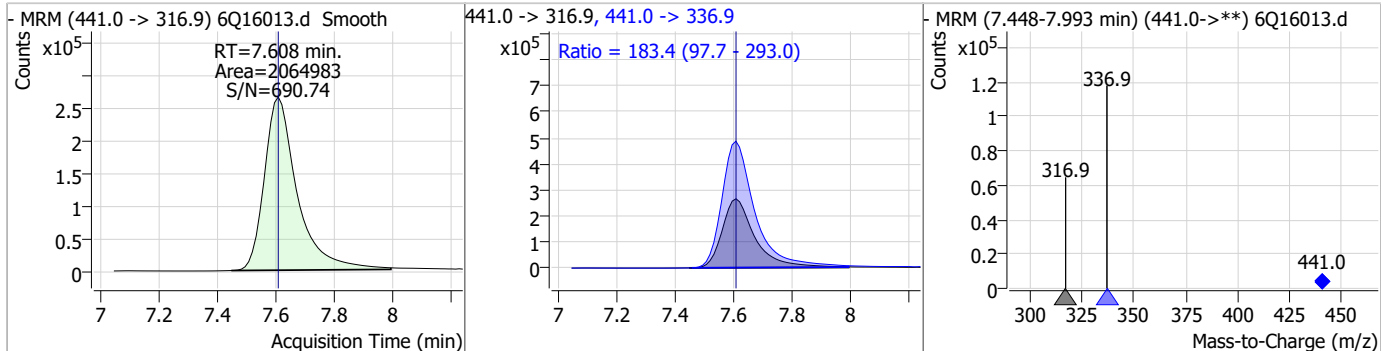
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### Perfluorinated Compounds by LC/MS/MS

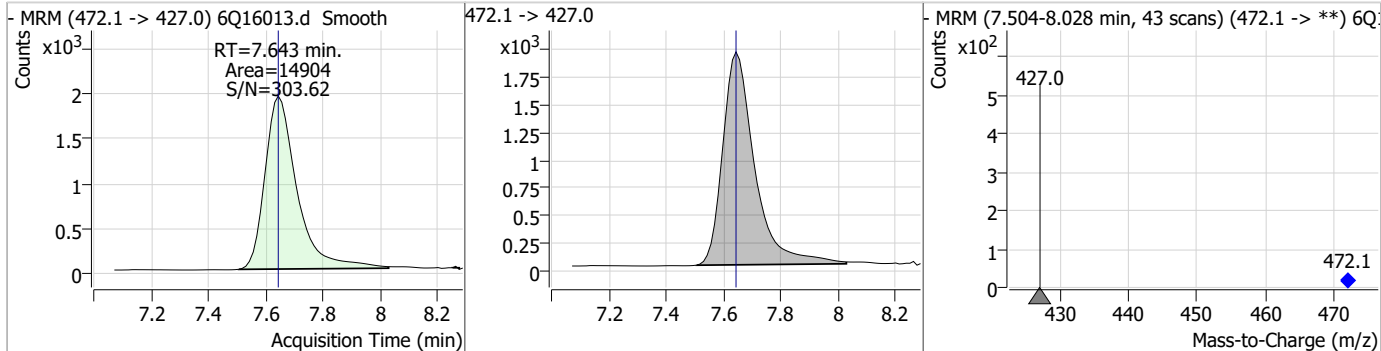
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	53.47	7.24	0.01	188613 (m)	398.7 -> 98.9	57.7	29.0	87.1



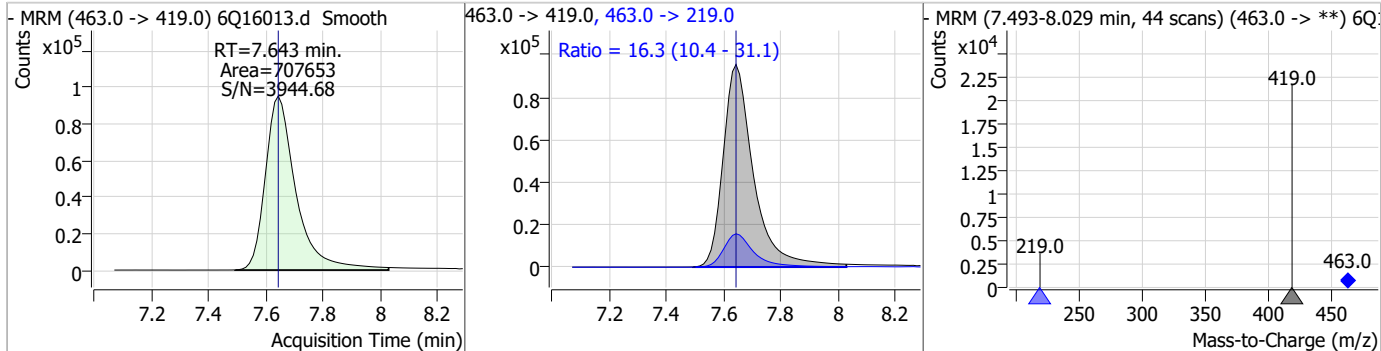
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	1585.89	7.61	0.00	2064983	441.0 -> 336.9	183.4	97.7	293.0



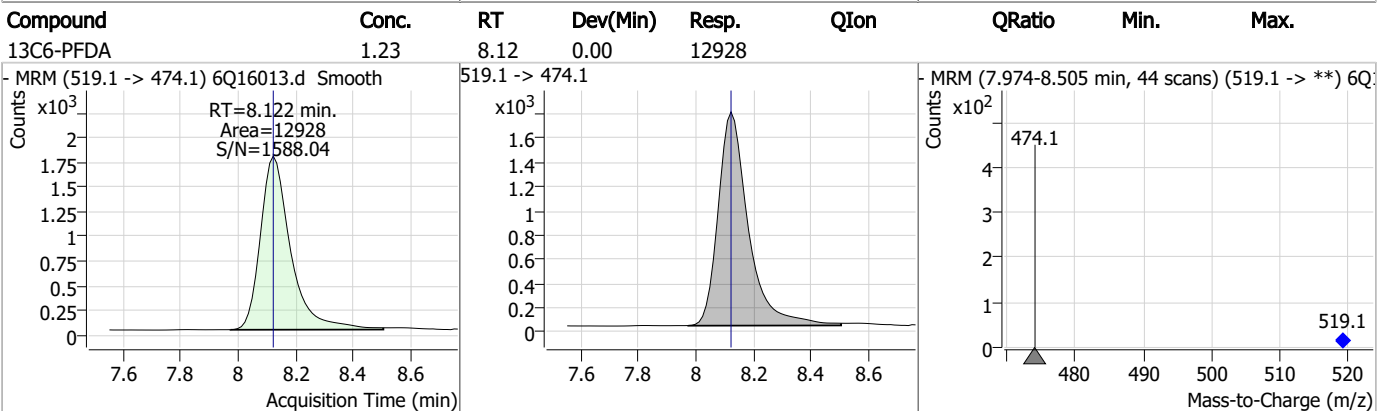
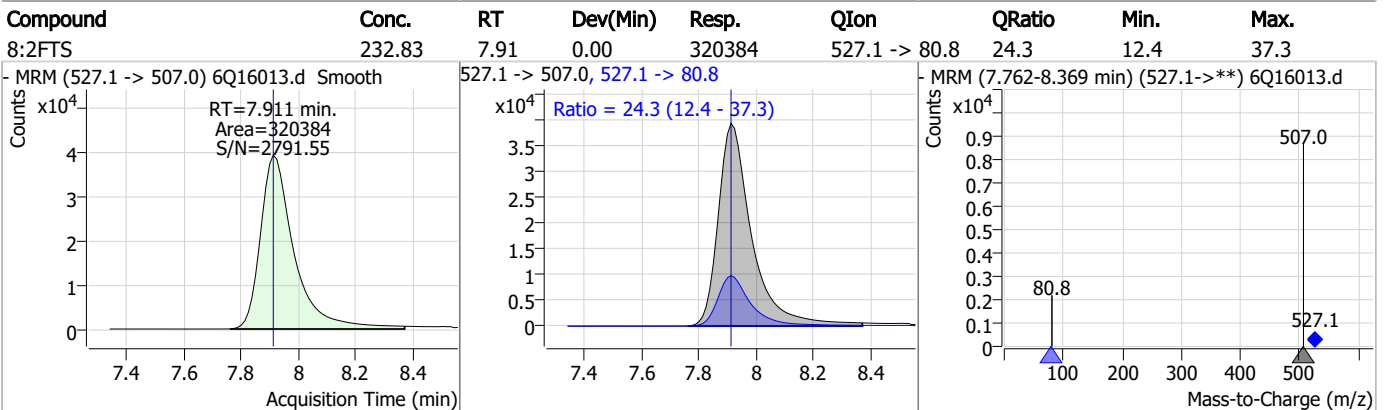
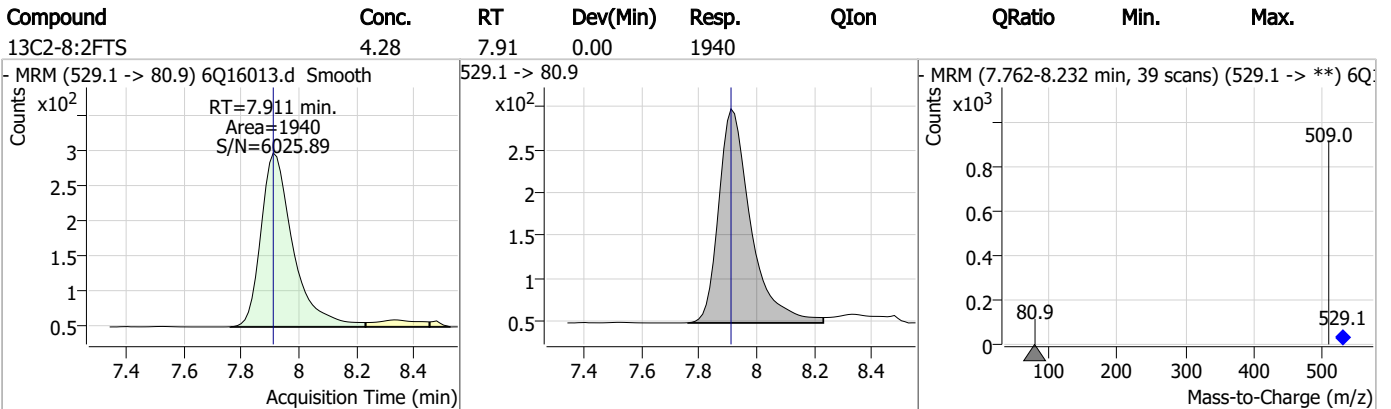
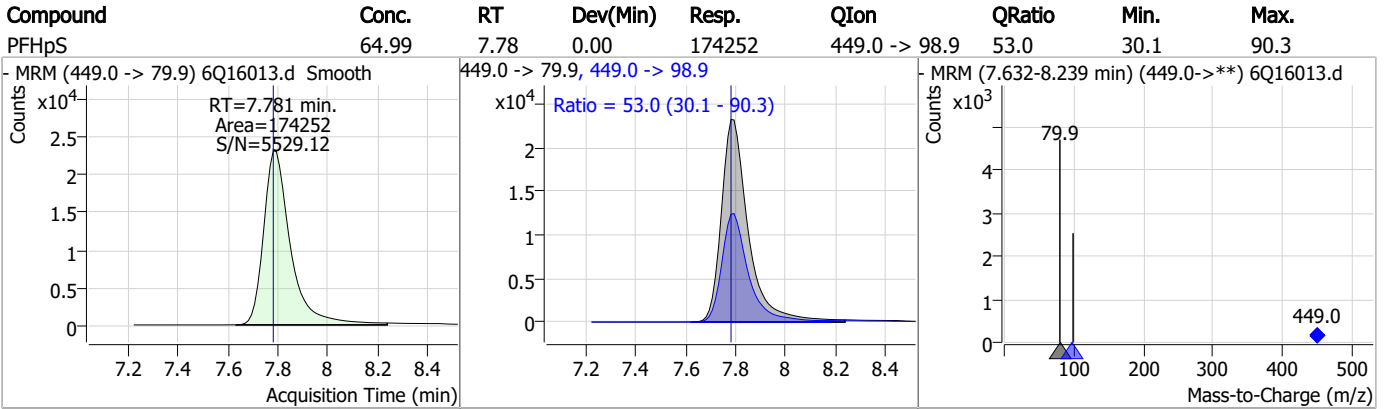
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.15	7.64	0.00	14904				



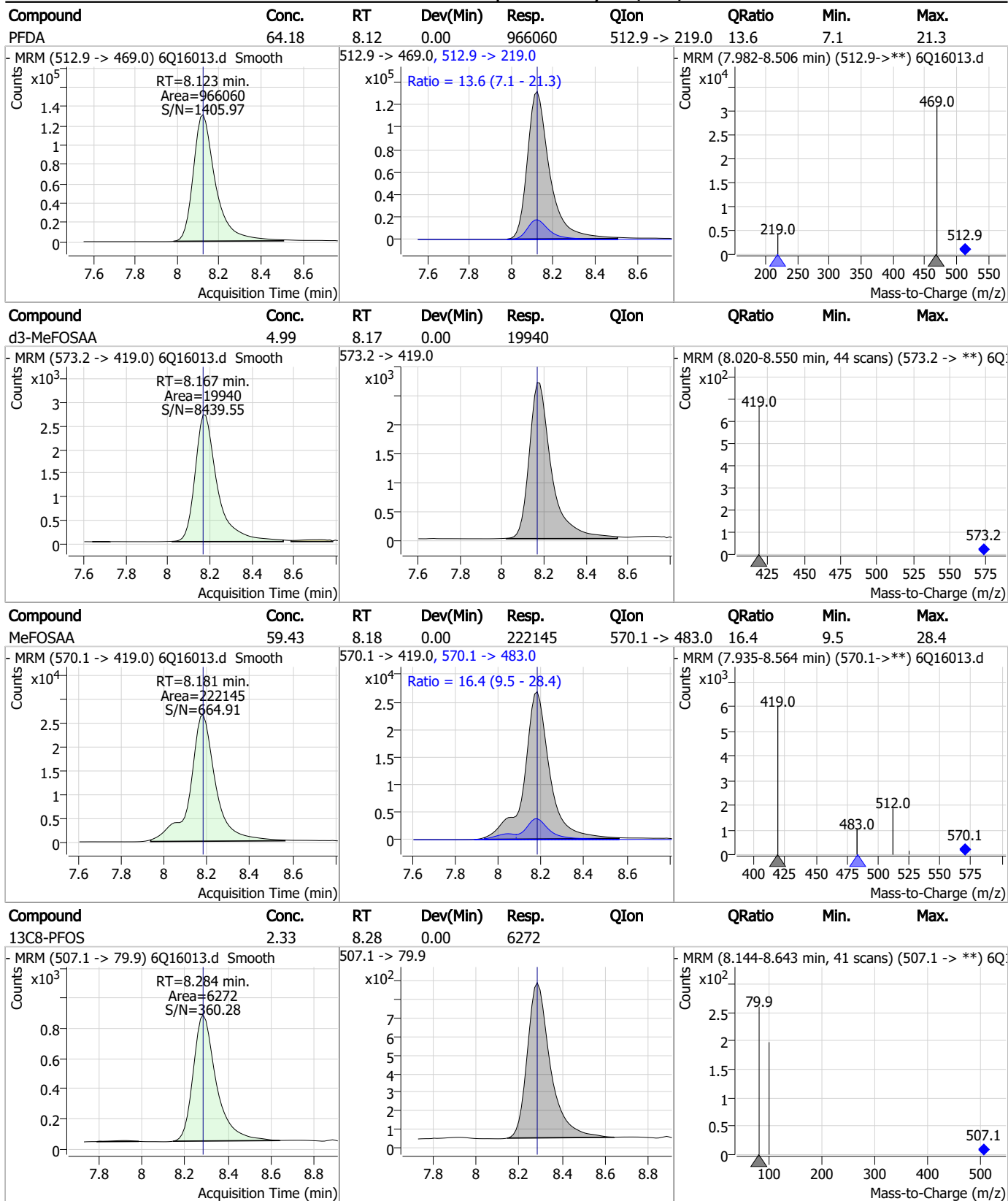
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	72.88	7.64	0.00	707653	463.0 -> 219.0	16.3	10.4	31.1



### Perfluorinated Compounds by LC/MS/MS



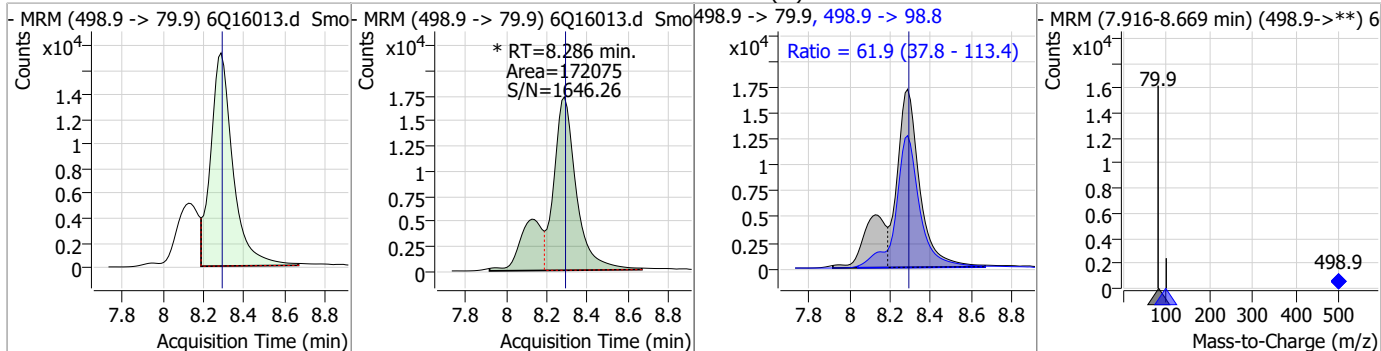
### Perfluorinated Compounds by LC/MS/MS



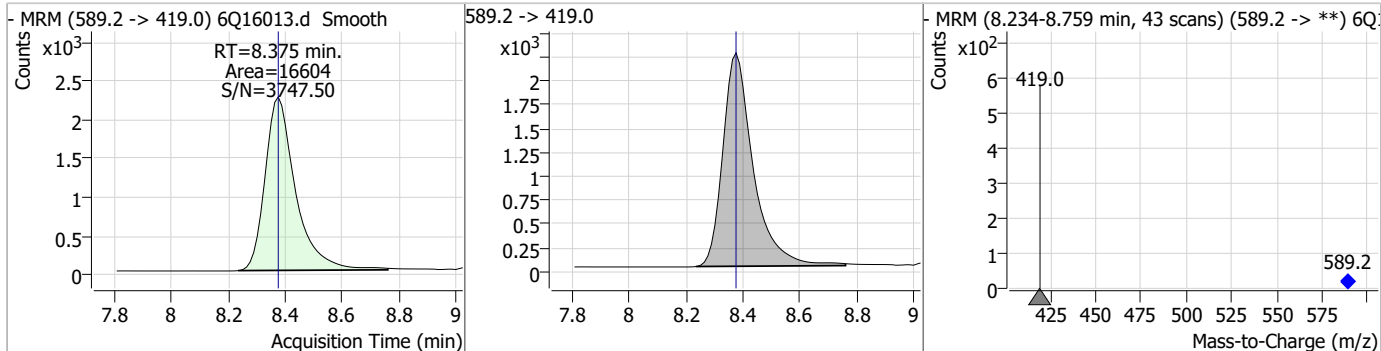
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### Perfluorinated Compounds by LC/MS/MS

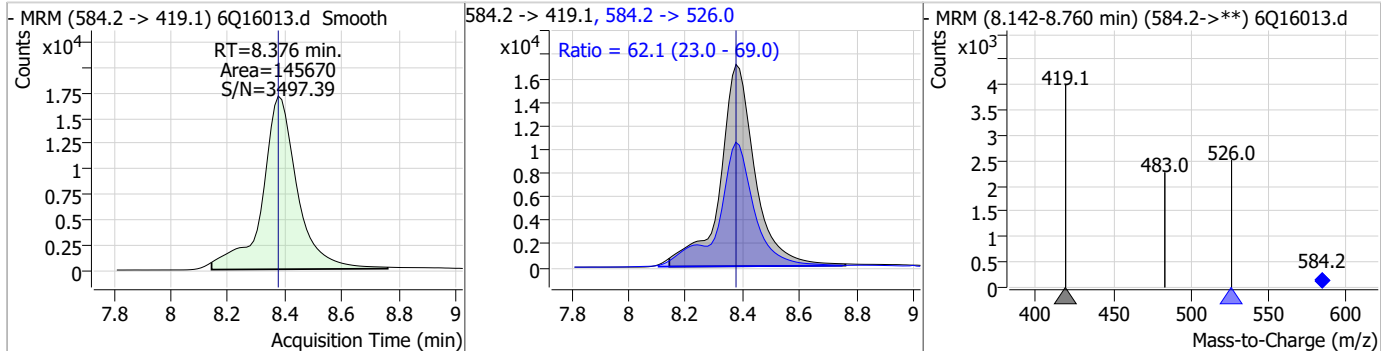
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	62.37	8.29	0.00	172075 (m)	498.9 -> 98.8	61.9	37.8	113.4



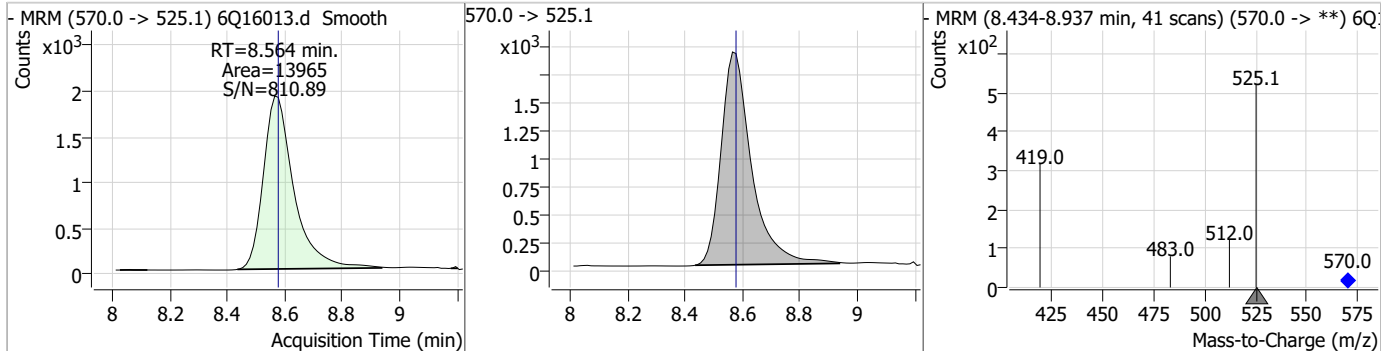
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.80	8.38	0.00	16604				



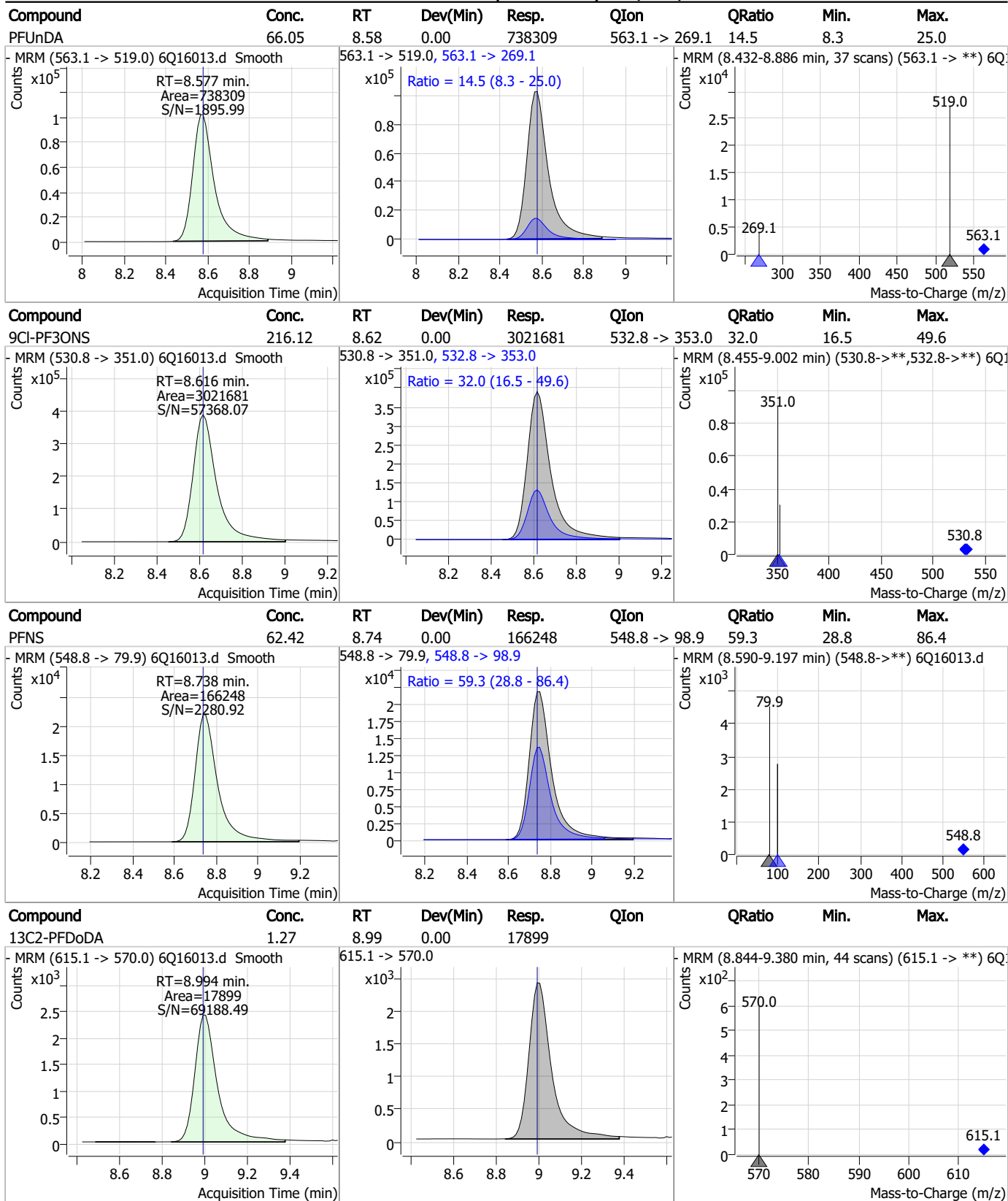
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	57.22	8.38	0.00	145670	584.2 -> 526.0	62.1	23.0	69.0



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



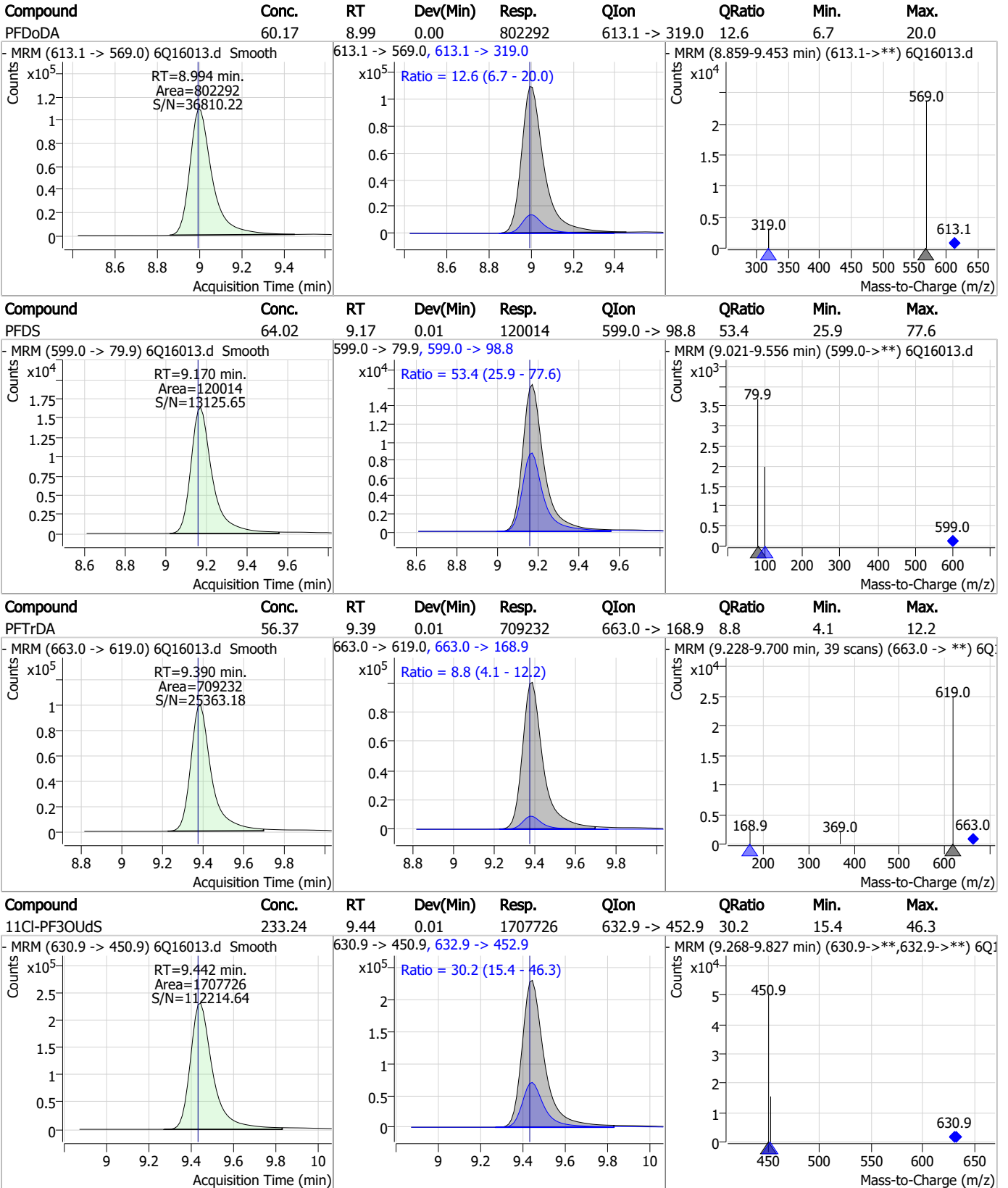
### Perfluorinated Compounds by LC/MS/MS



7.7.9  
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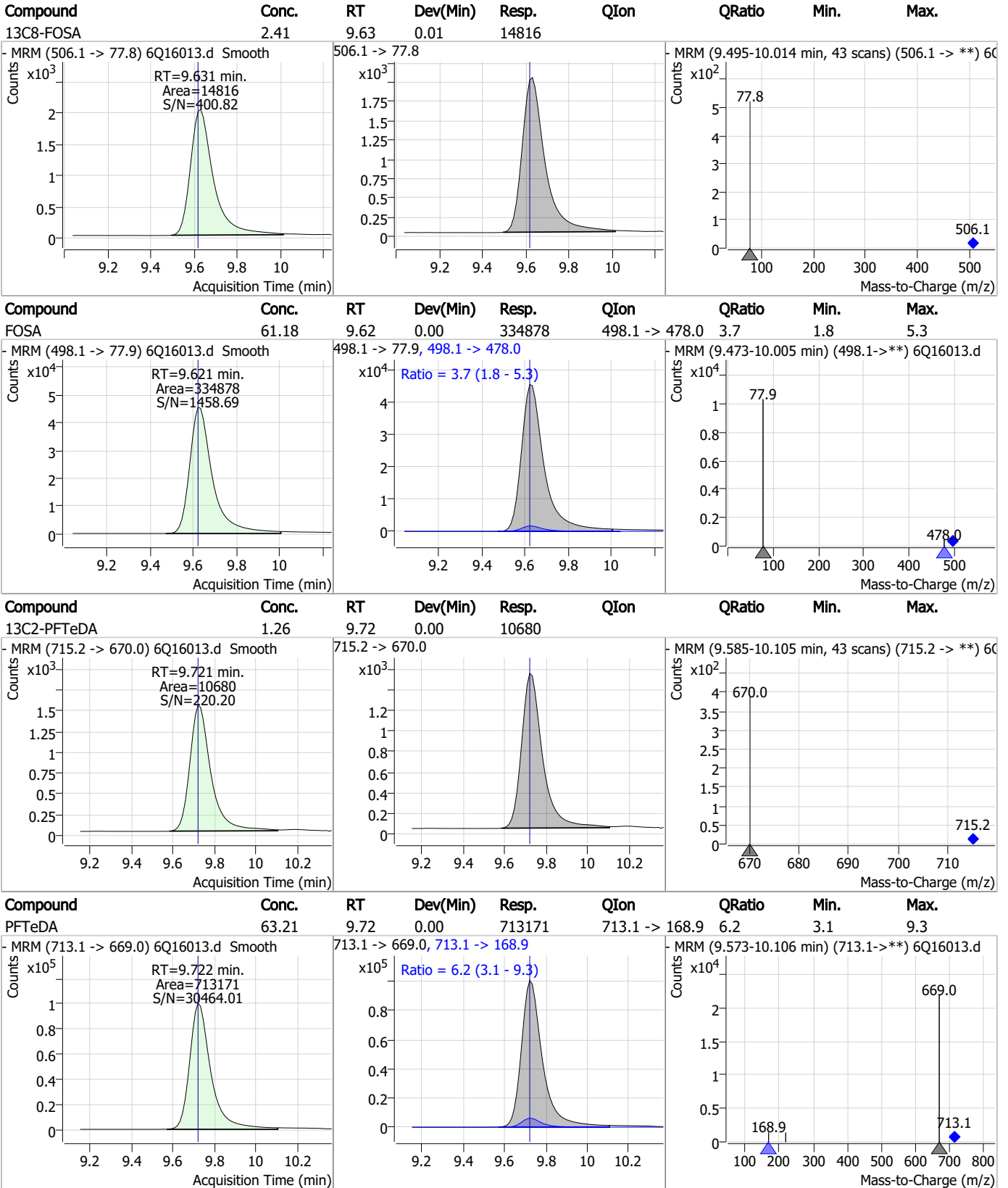
### Perfluorinated Compounds by LC/MS/MS



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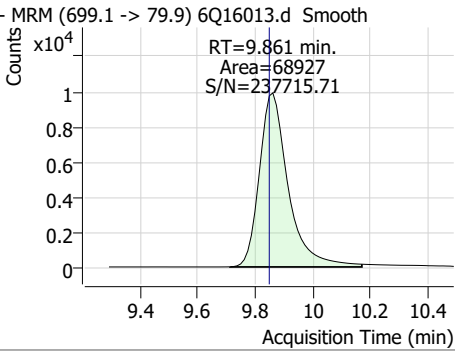
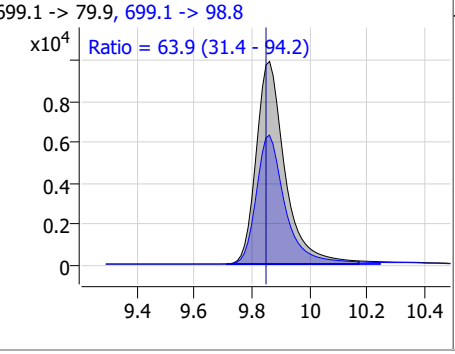
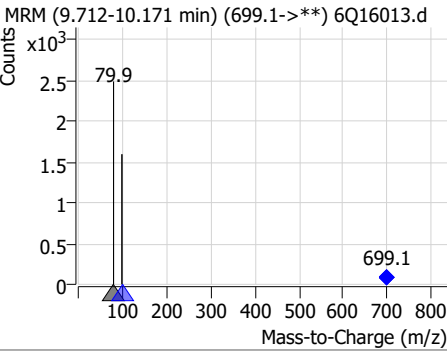
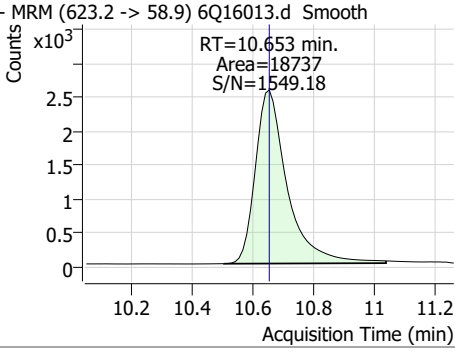
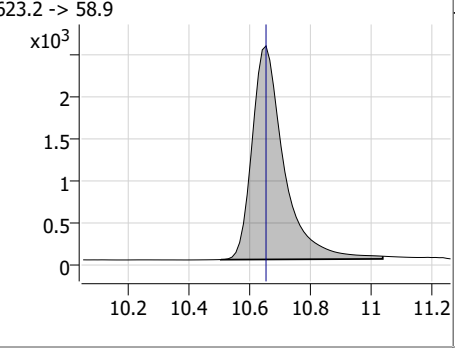
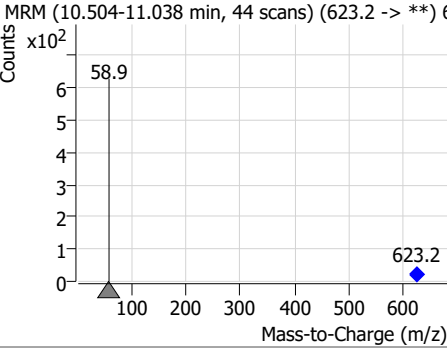
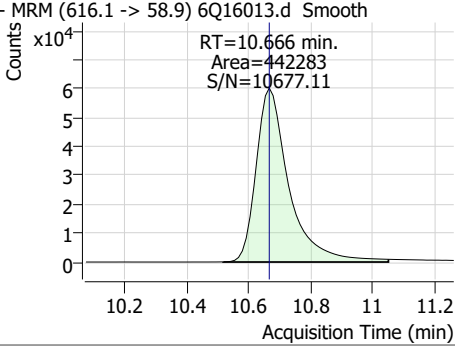
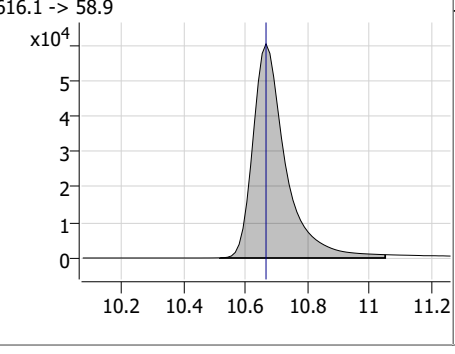
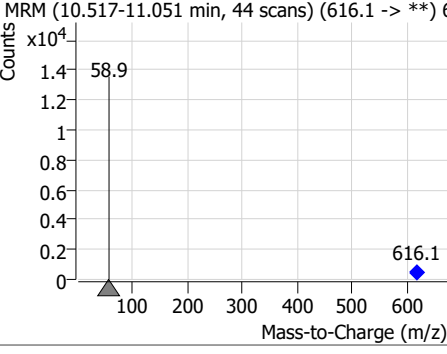
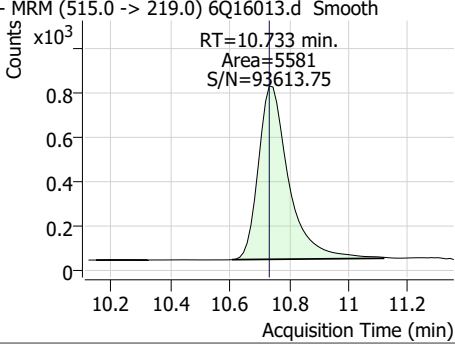
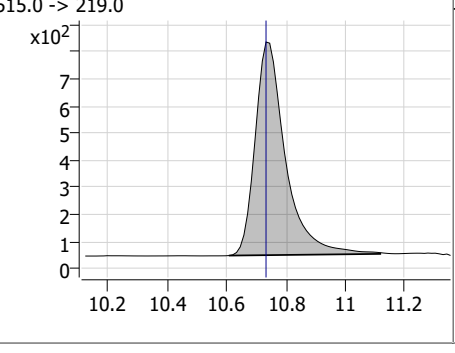
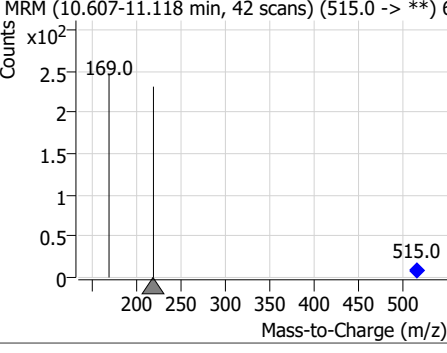
### Perfluorinated Compounds by LC/MS/MS



7.7.9

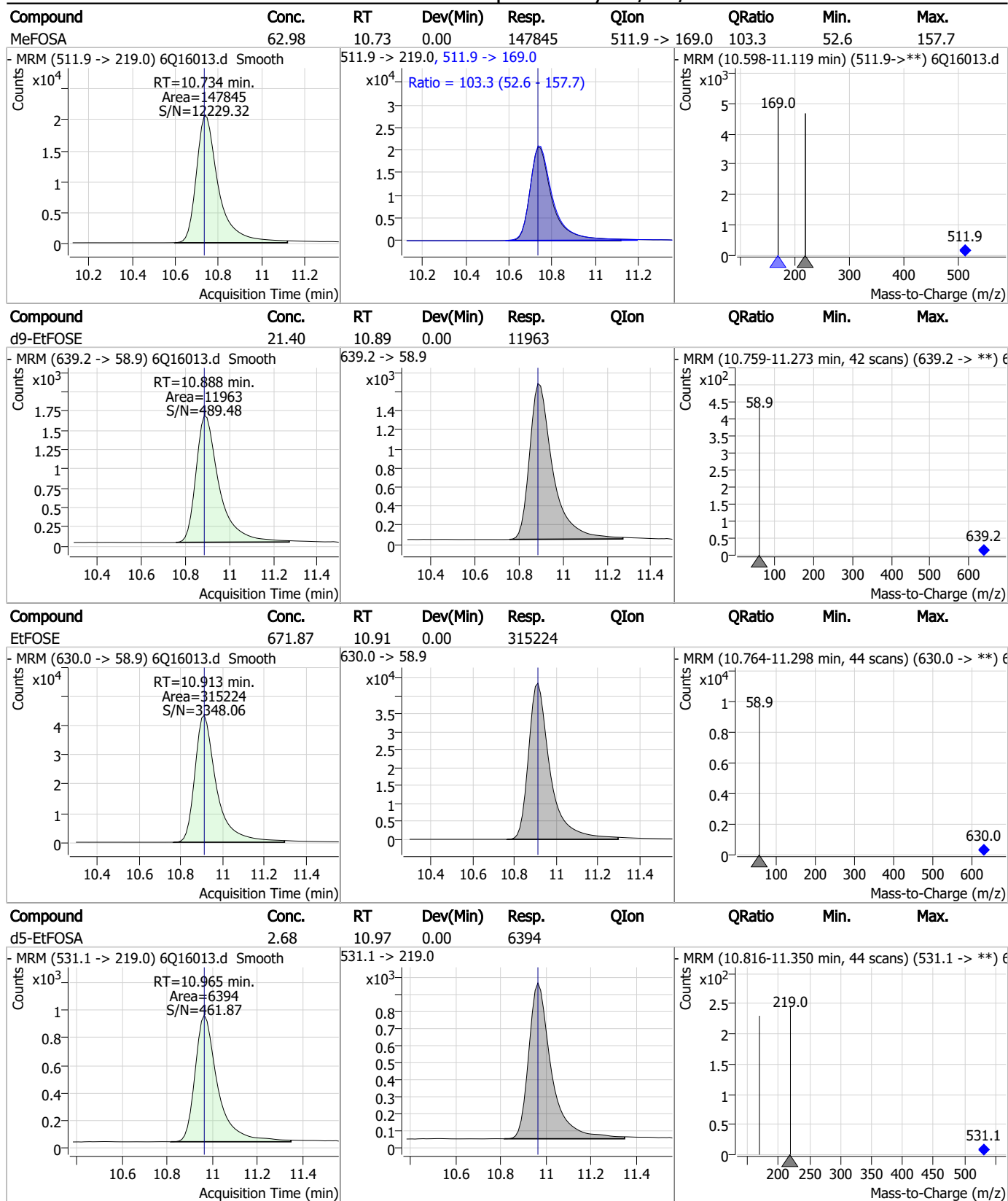
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### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	63.28	9.86	0.01	68927	699.1 -> 98.8	63.9	31.4	94.2
- MRM (699.1 -> 79.9) 6Q16013.d Smooth			699.1 -> 79.9, 699.1 -> 98.8			- MRM (9.712-10.171 min) (699.1->**) 6Q16013.d		
								
d7-MeFOSE	22.28	10.65	0.00	18737				
- MRM (623.2 -> 58.9) 6Q16013.d Smooth			623.2 -> 58.9			- MRM (10.504-11.038 min, 44 scans) (623.2 -> **) 6Q16013.d		
								
MeFOSE	626.22	10.67	0.00	442283				
- MRM (616.1 -> 58.9) 6Q16013.d Smooth			616.1 -> 58.9			- MRM (10.517-11.051 min, 44 scans) (616.1 -> **) 6Q16013.d		
								
d3-MeFOSA	2.52	10.73	0.00	5581				
- MRM (515.0 -> 219.0) 6Q16013.d Smooth			515.0 -> 219.0			- MRM (10.607-11.118 min, 42 scans) (515.0 -> **) 6Q16013.d		
								

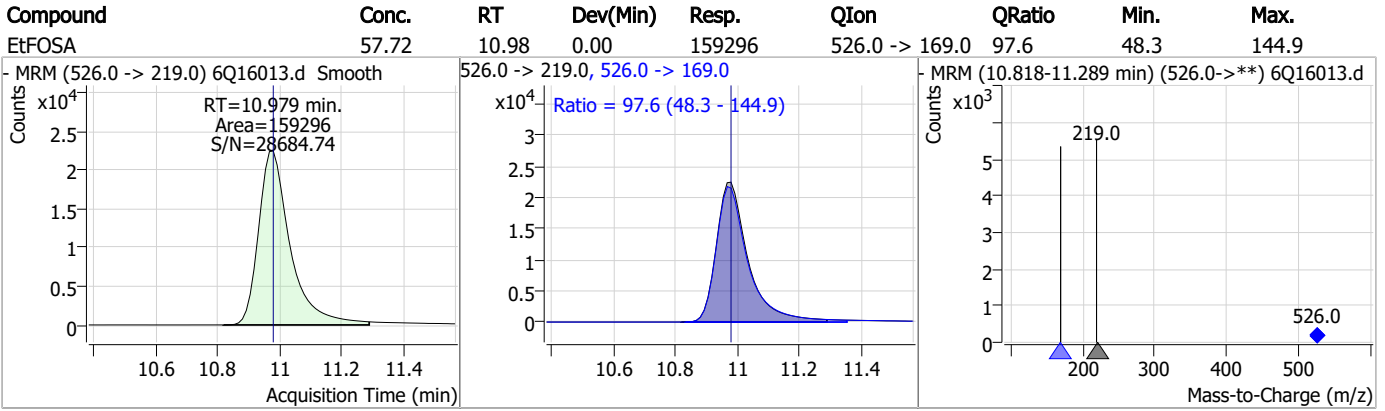
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### Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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# Manual Integration Approval Summary

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

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

7.7.9.1

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### Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16015.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 4/4/2023 4:21:39 PM  
 Sample Name : icv239-4  
 Vial : P1-B1  
 DA Method File : 1633\_040423\_S6Q239.quantmethod.xml  
 Batch Name : s6q239.batch.bin  
 Sample Information : OP96085,S6Q239,500,,,5.0,1,water

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

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Perfluorinated Compounds by LC/MS/MS

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

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Perfluorinated Compounds by LC/MS/MS

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

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

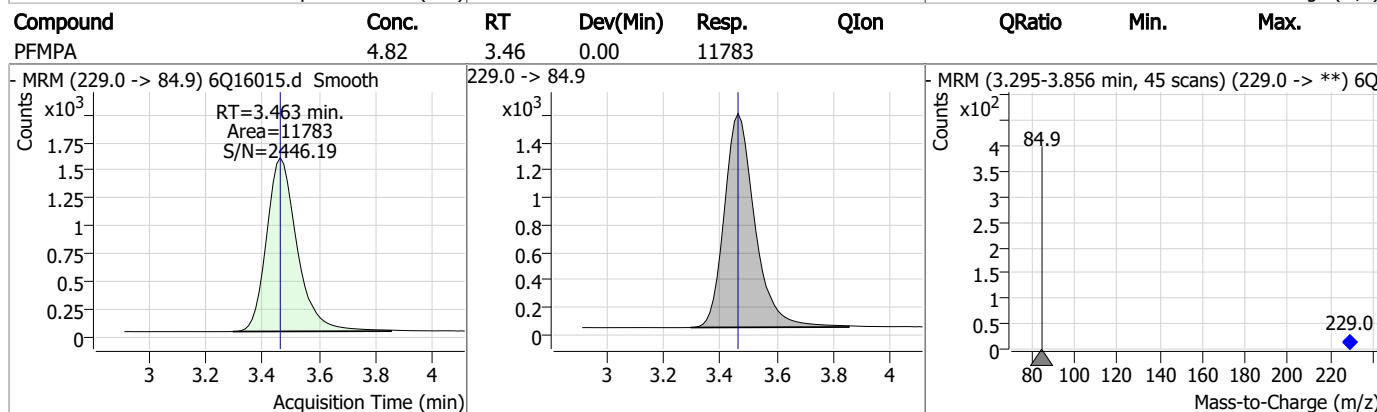
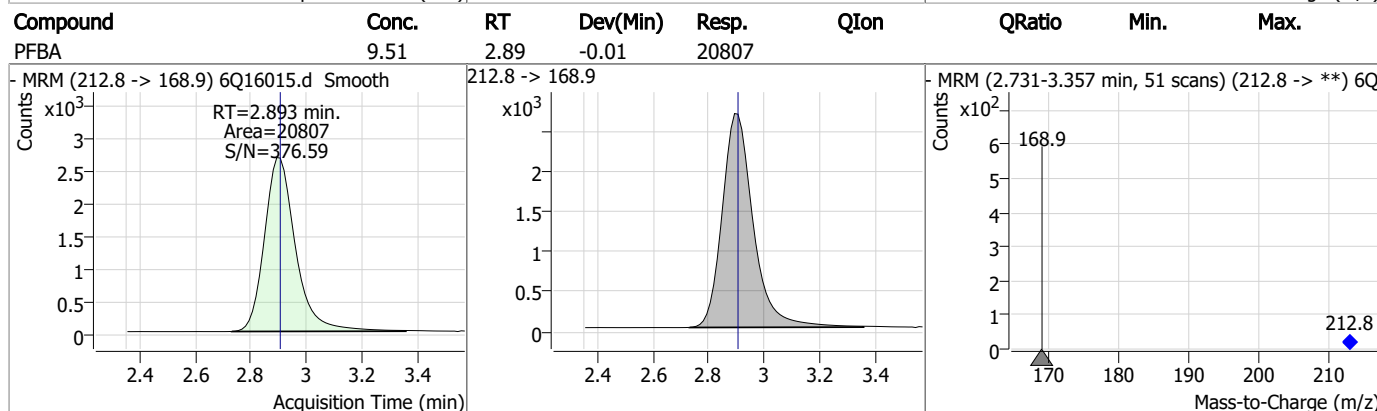
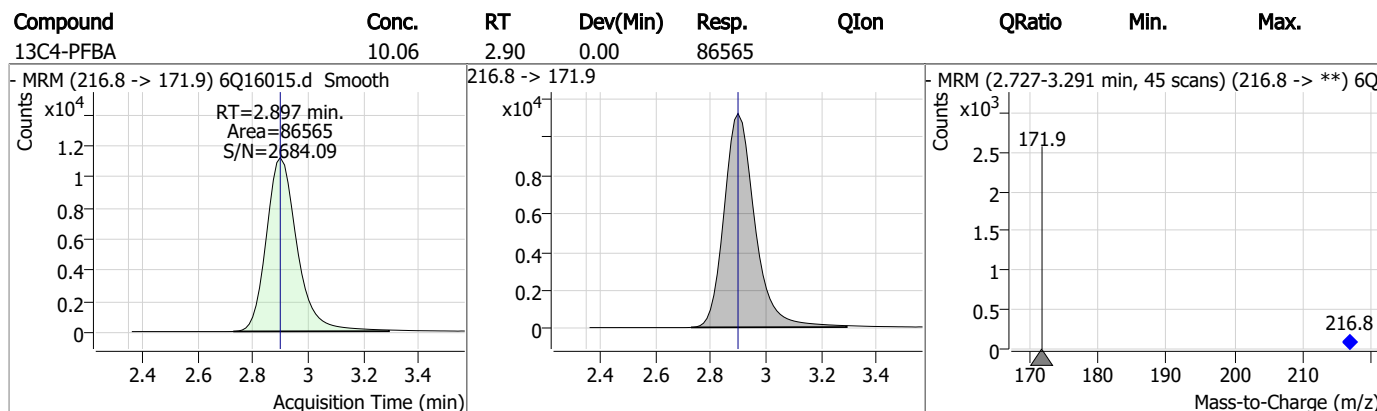
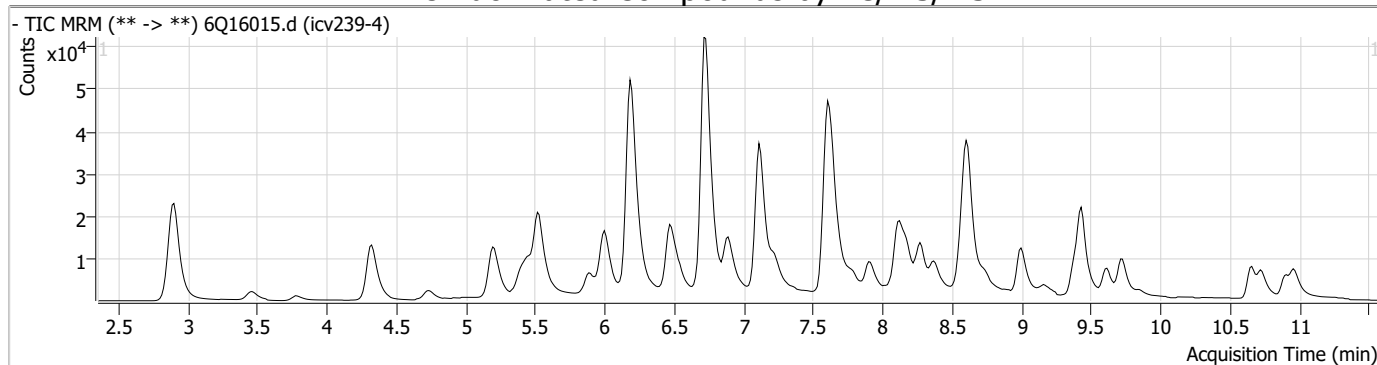
### Perfluorinated Compounds by LC/MS/MS

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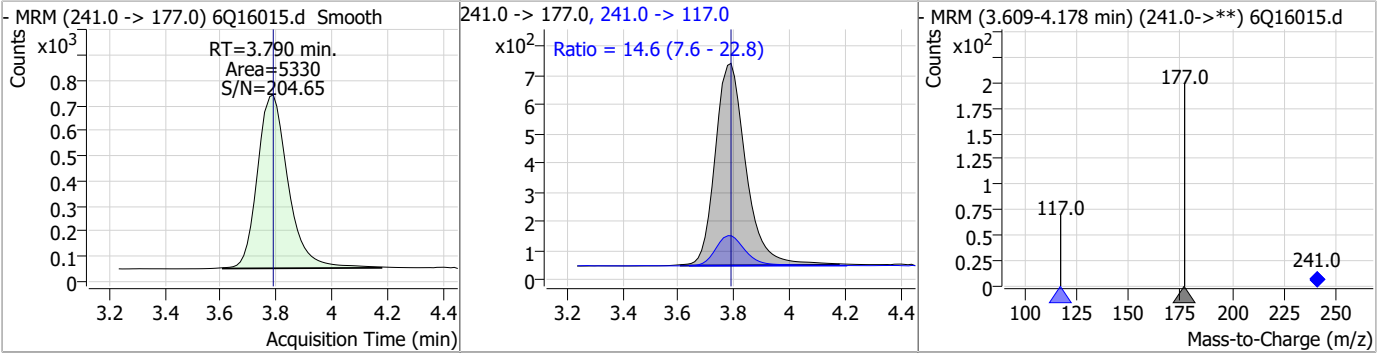
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### Perfluorinated Compounds by LC/MS/MS

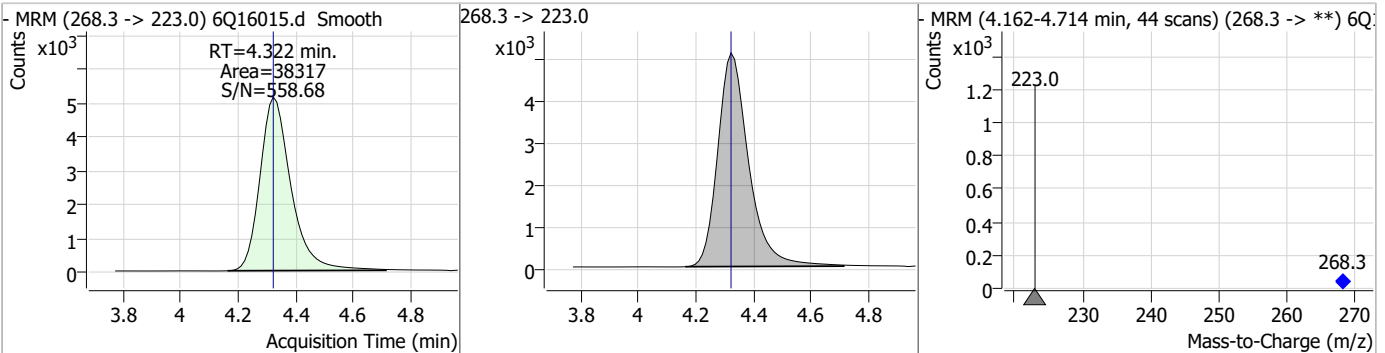


### Perfluorinated Compounds by LC/MS/MS

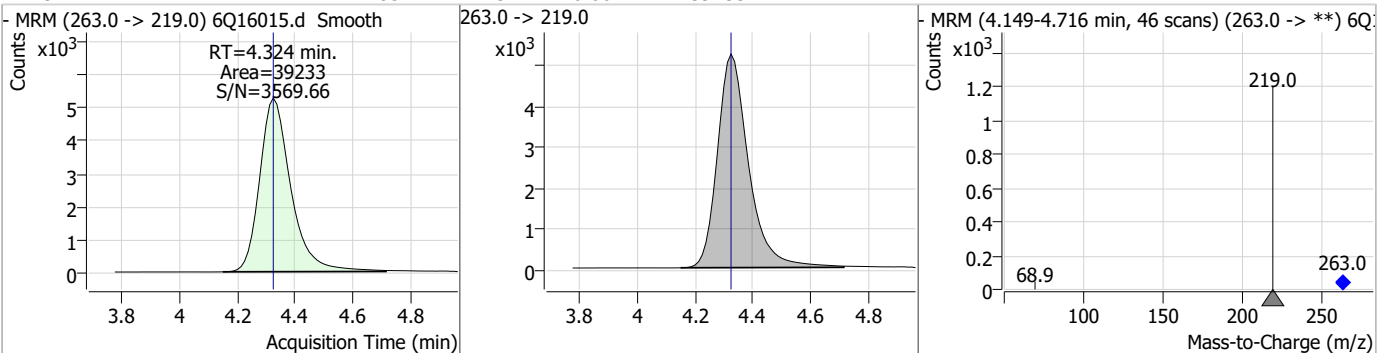
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.88	3.79	0.00	5330	241.0 -> 117.0	14.6	7.6	22.8



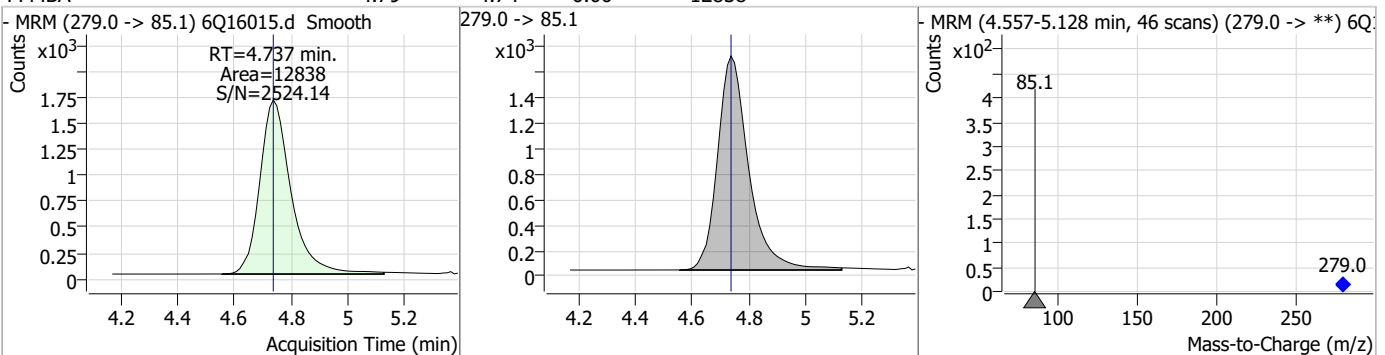
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.93	4.32	0.00	38317				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.85	4.32	0.00	39233				

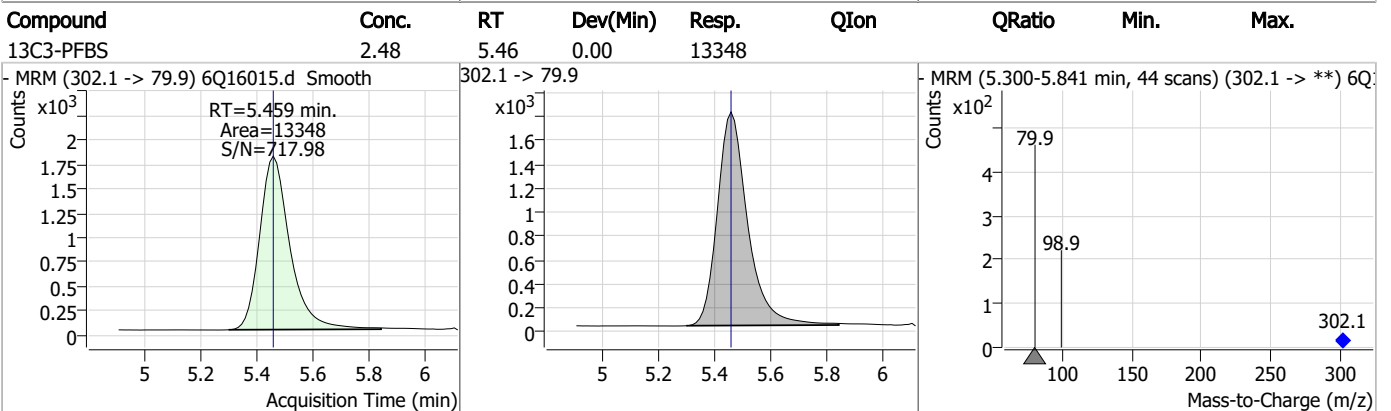
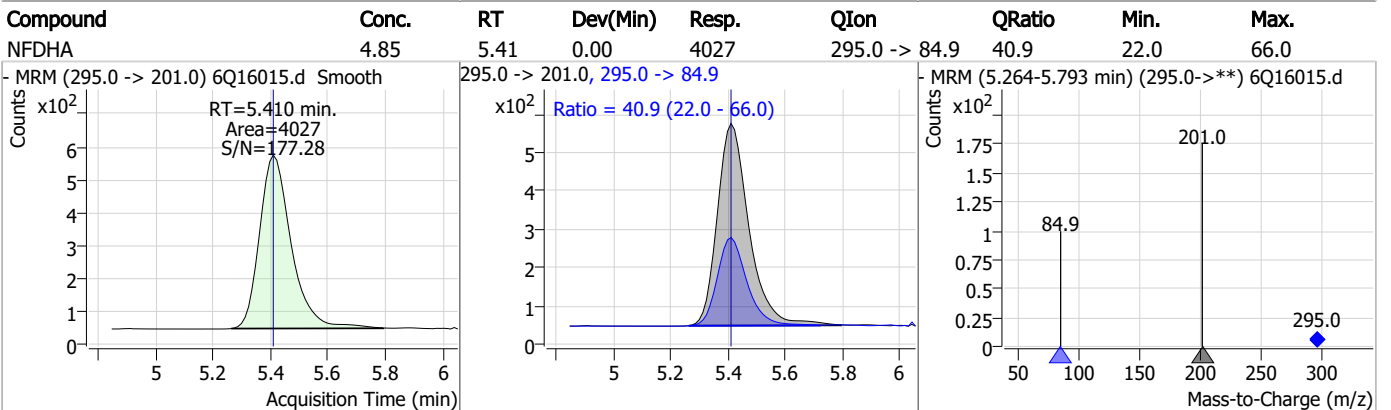
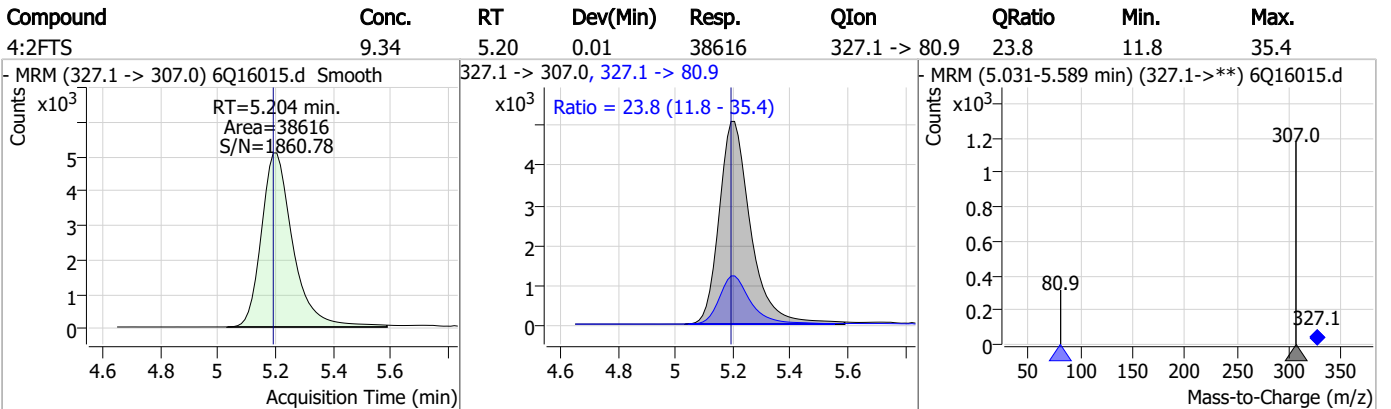
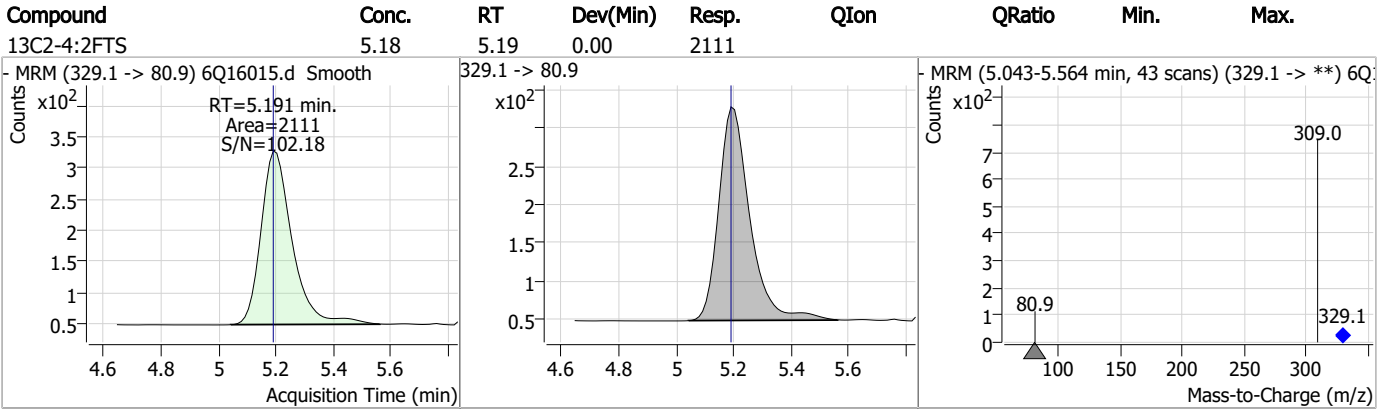


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.79	4.74	0.00	12838				



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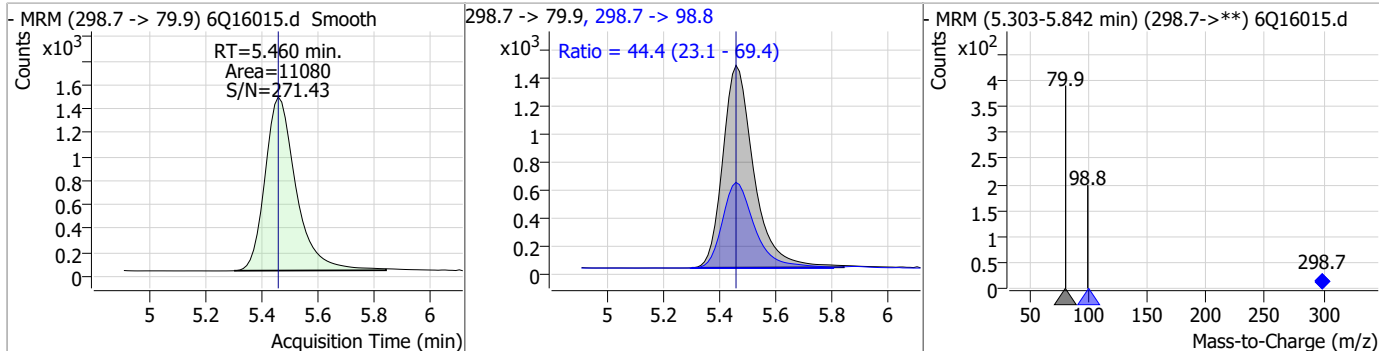
### Perfluorinated Compounds by LC/MS/MS



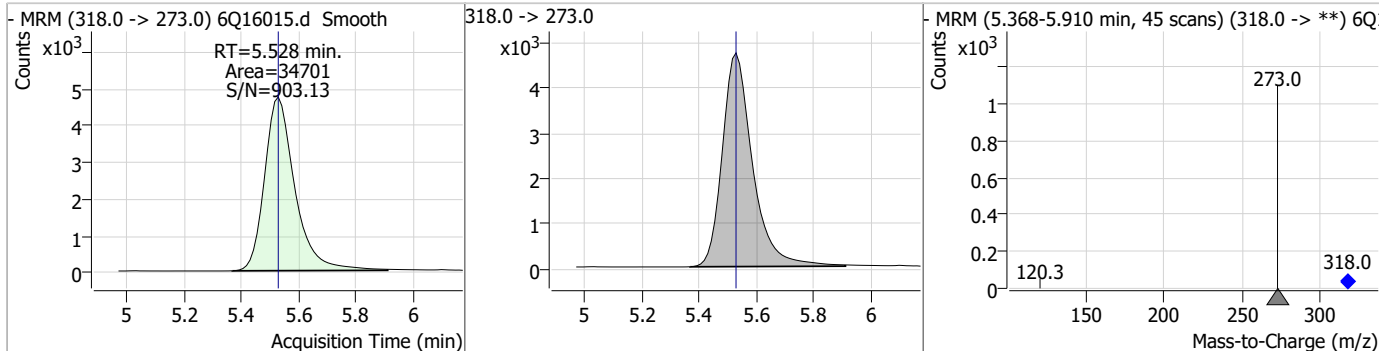
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### Perfluorinated Compounds by LC/MS/MS

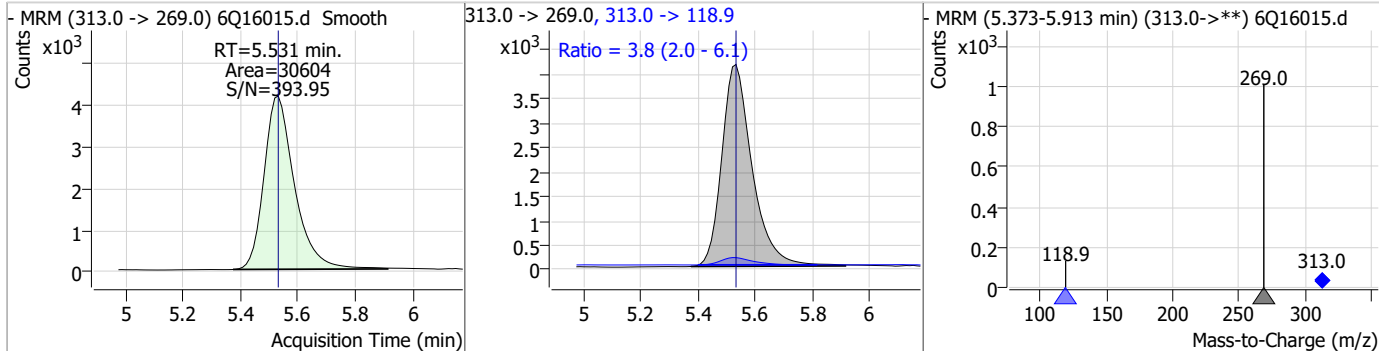
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.12	5.46	0.00	11080	298.7 -> 98.8	44.4	23.1	69.4



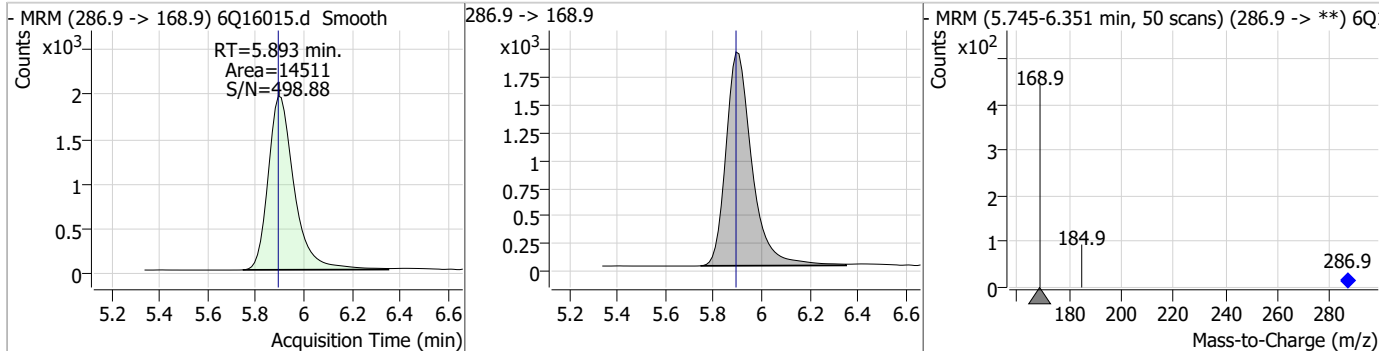
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.52	5.53	0.00	34701				



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

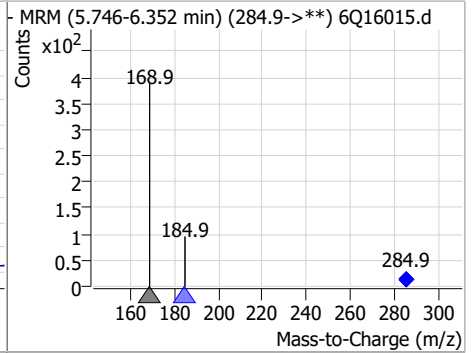
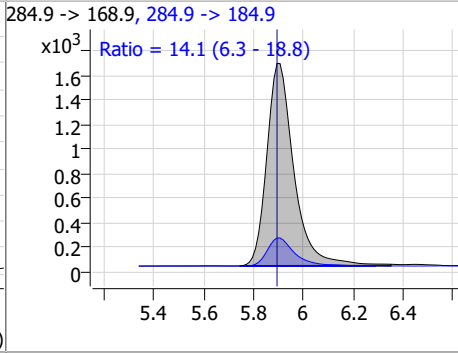
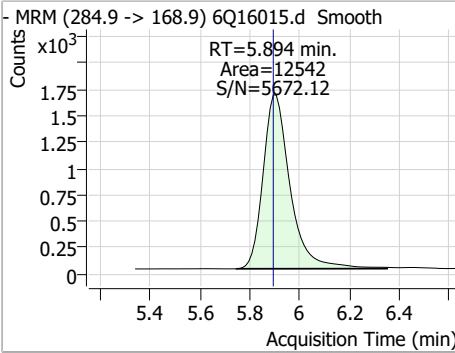


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.99	5.89	0.00	14511				

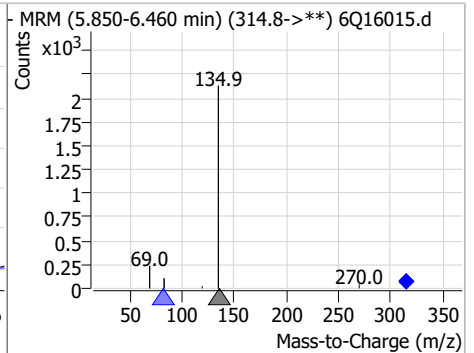
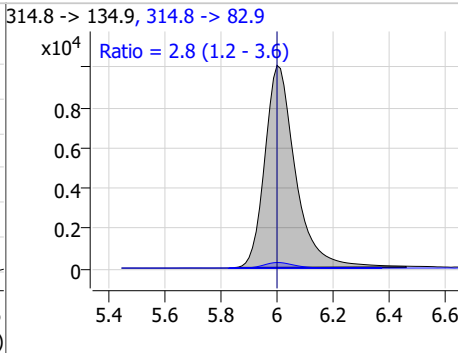
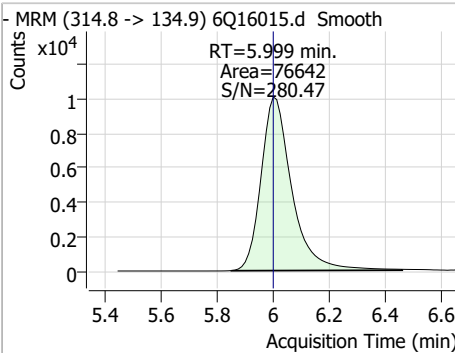


### Perfluorinated Compounds by LC/MS/MS

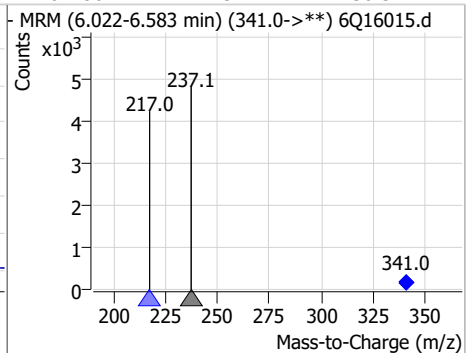
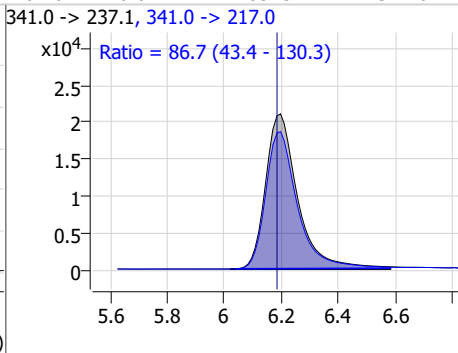
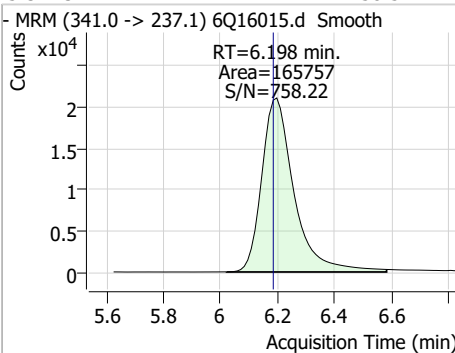
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.56	5.89	0.00	12542	284.9 -> 184.9	14.1	6.3	18.8



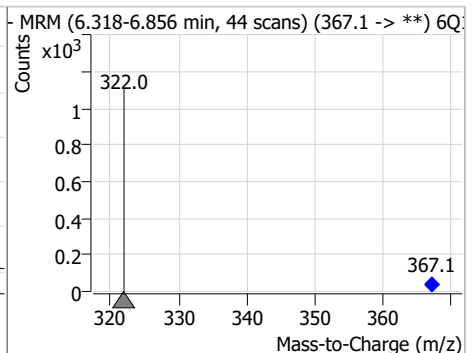
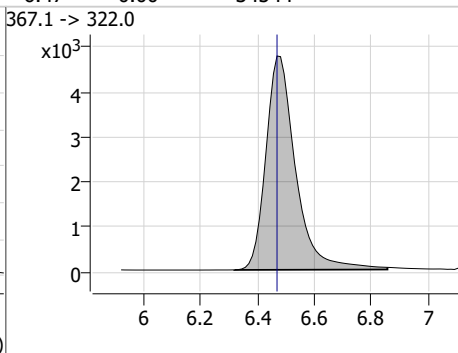
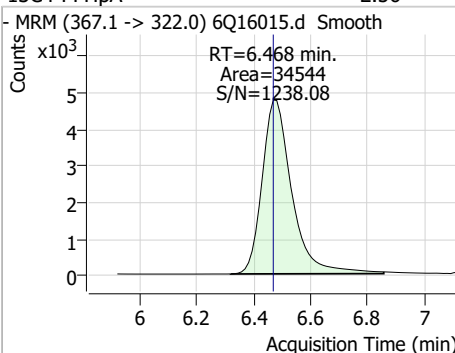
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.22	6.00	0.00	76642	314.8 -> 82.9	2.8	1.2	3.6



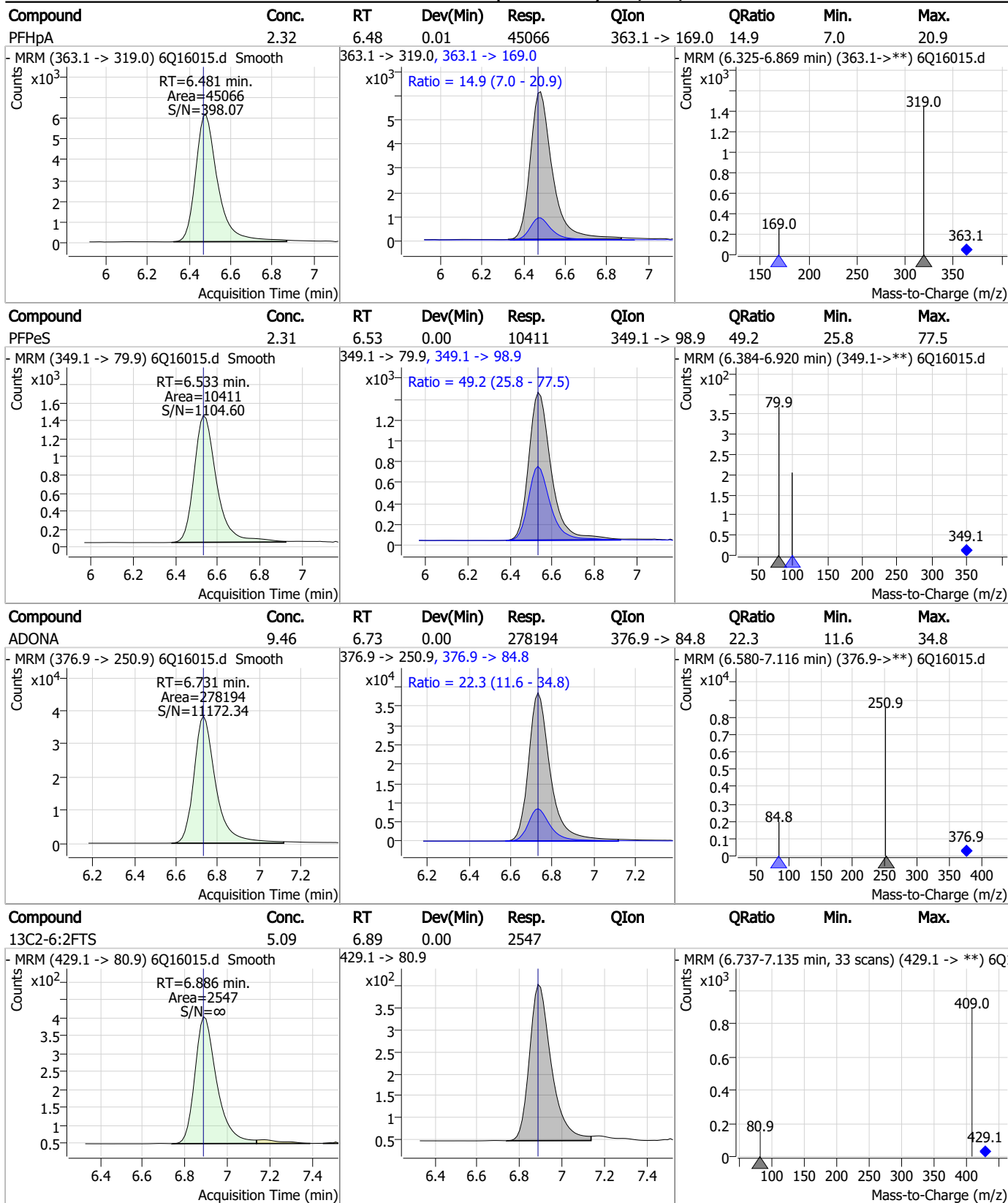
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	58.54	6.20	0.01	165757	341.0 -> 217.0	86.7	43.4	130.3



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



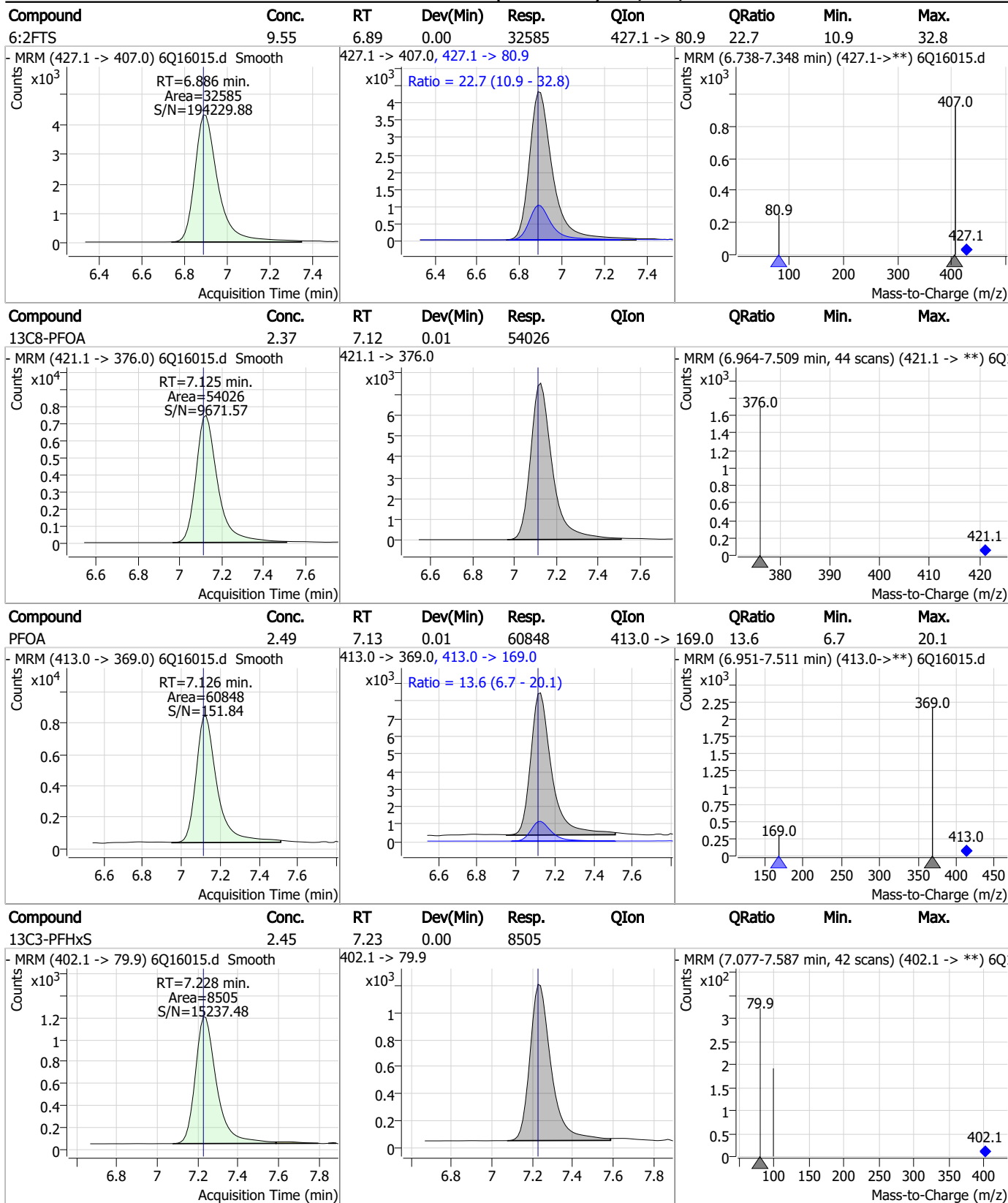
### Perfluorinated Compounds by LC/MS/MS



7.7.10 7

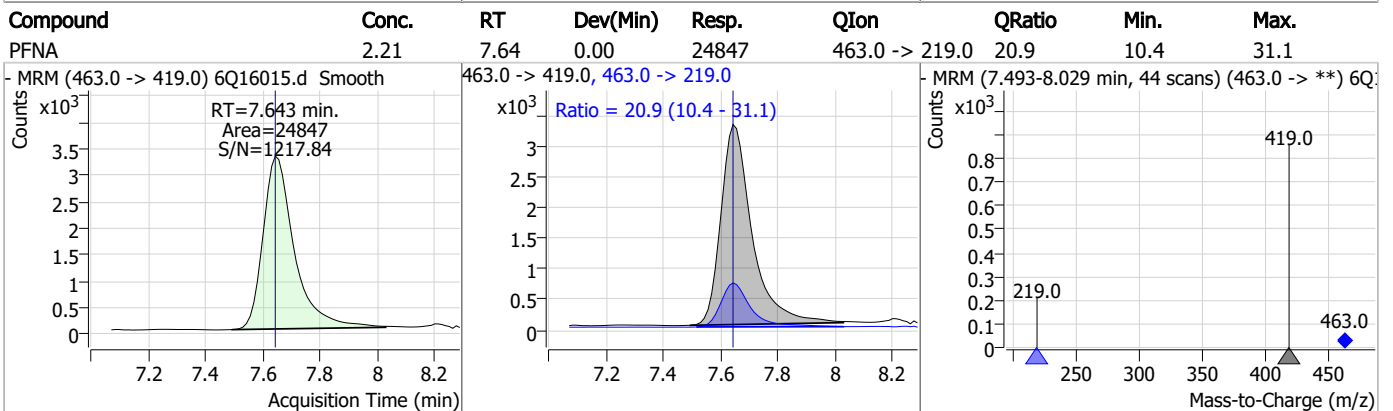
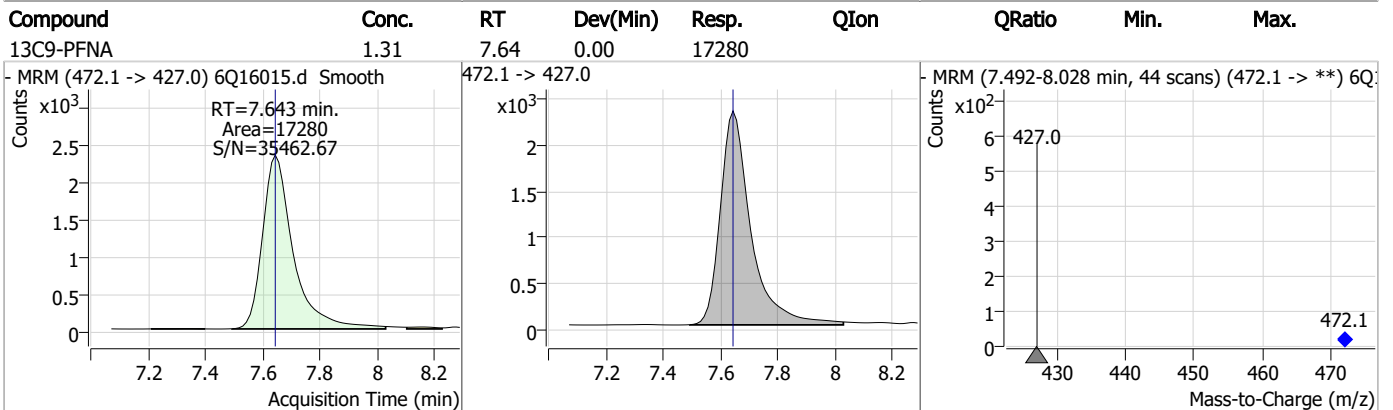
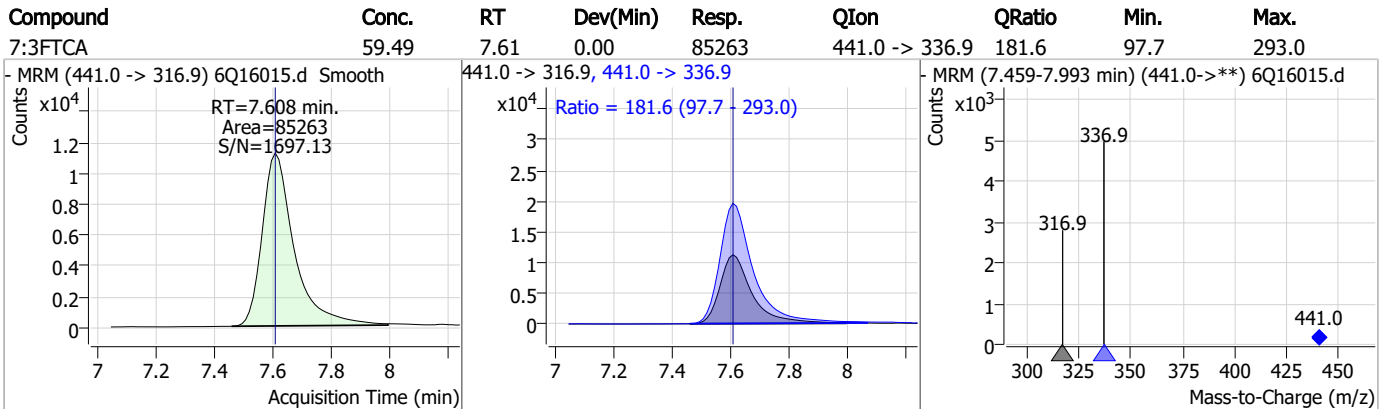
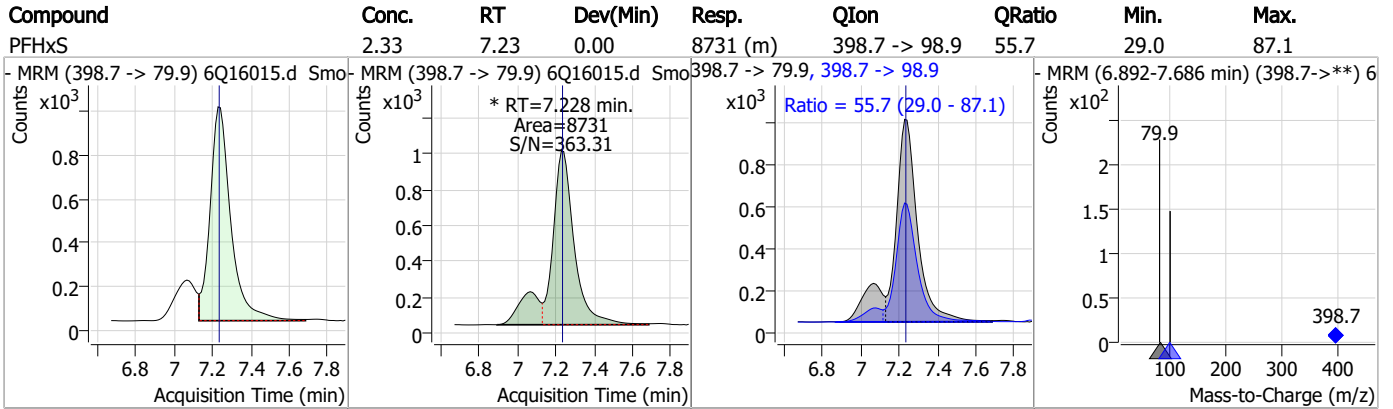


### Perfluorinated Compounds by LC/MS/MS



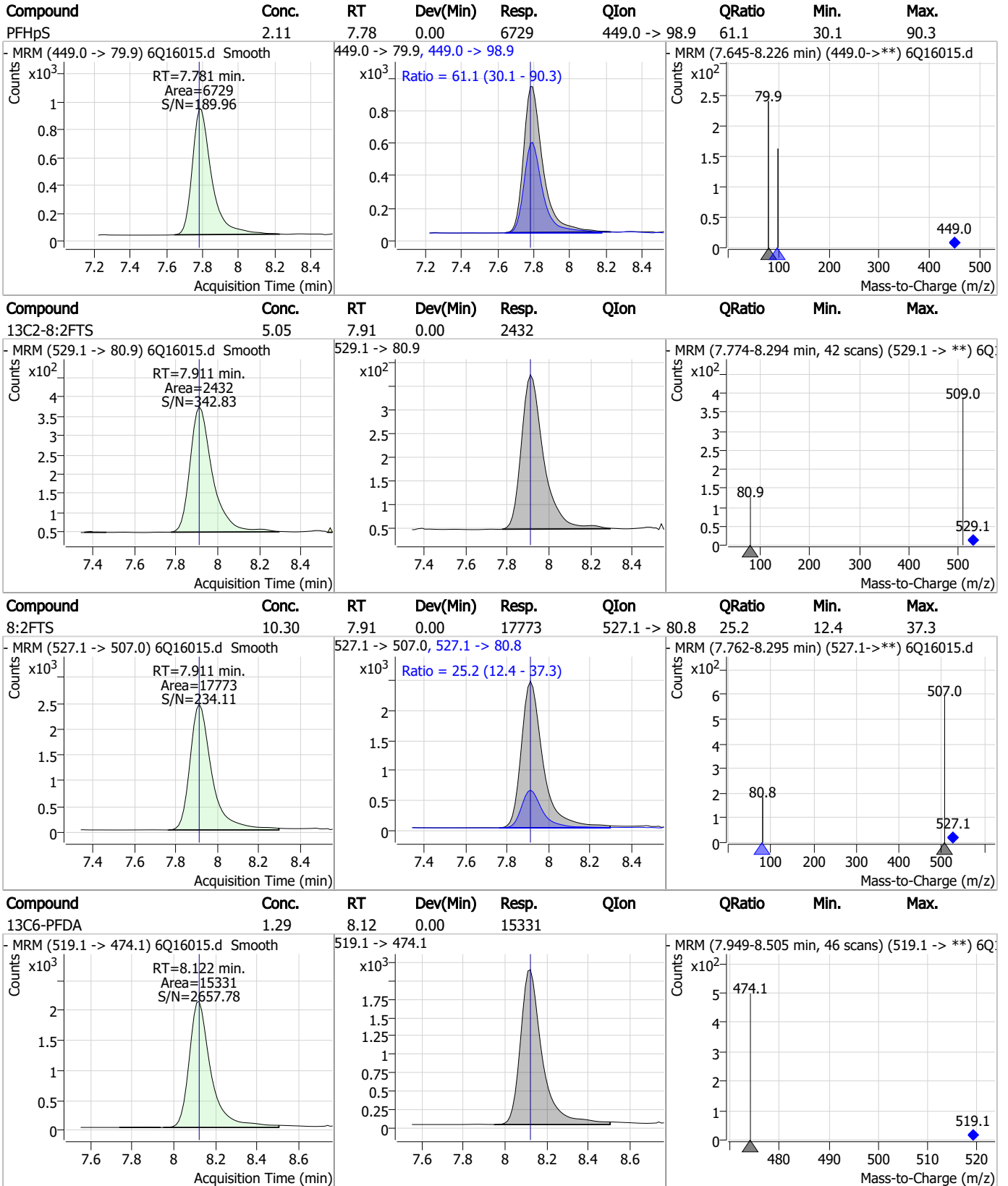
7.7.10 7

### Perfluorinated Compounds by LC/MS/MS



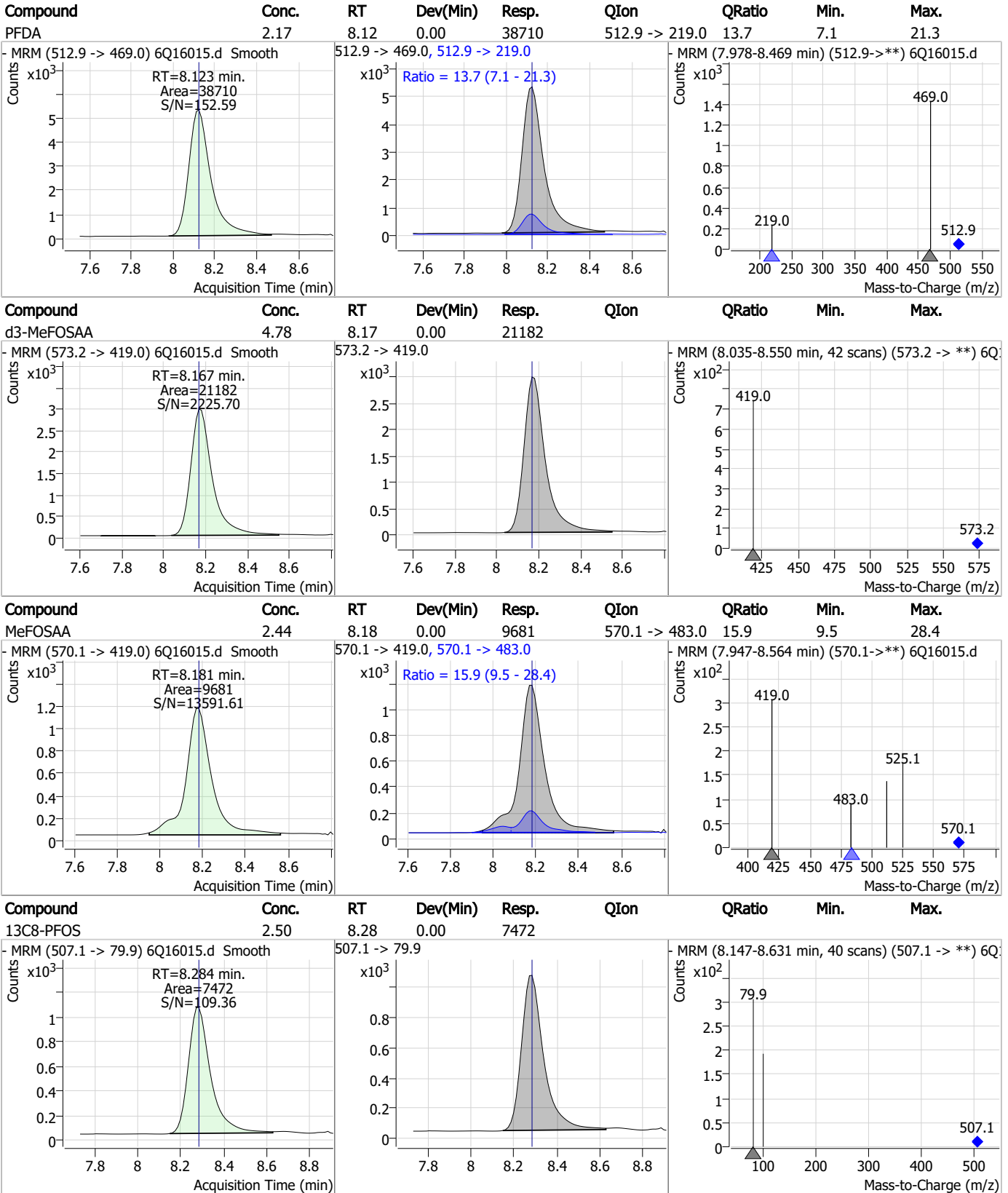
7.7.10 7

### Perfluorinated Compounds by LC/MS/MS



7.7.10 7

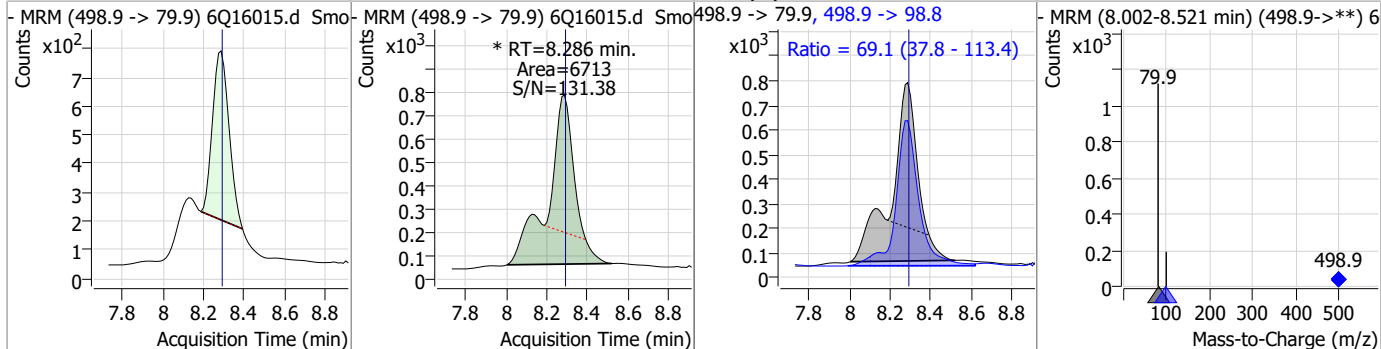
### Perfluorinated Compounds by LC/MS/MS



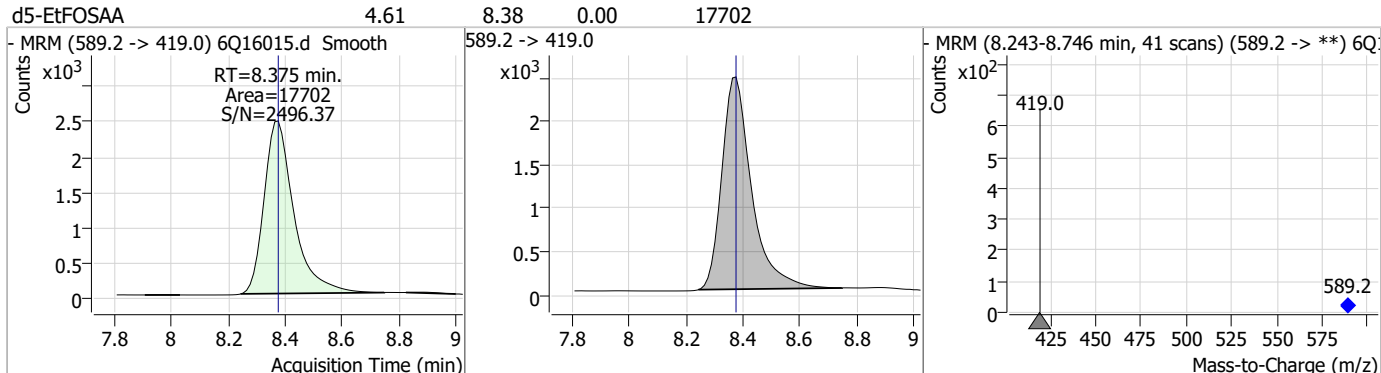
7.7.10 7

### Perfluorinated Compounds by LC/MS/MS

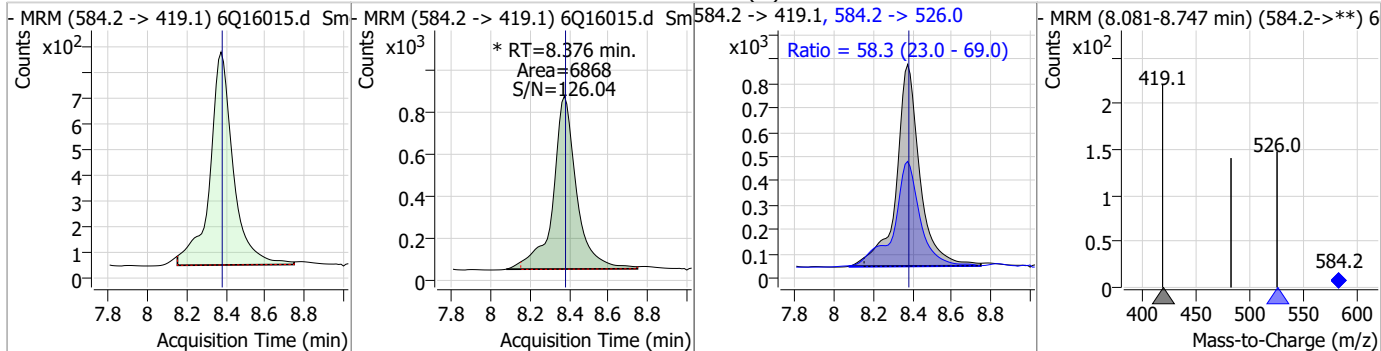
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.04	8.29	0.00	6713 (m)	498.9 -> 98.8	69.1	37.8	113.4



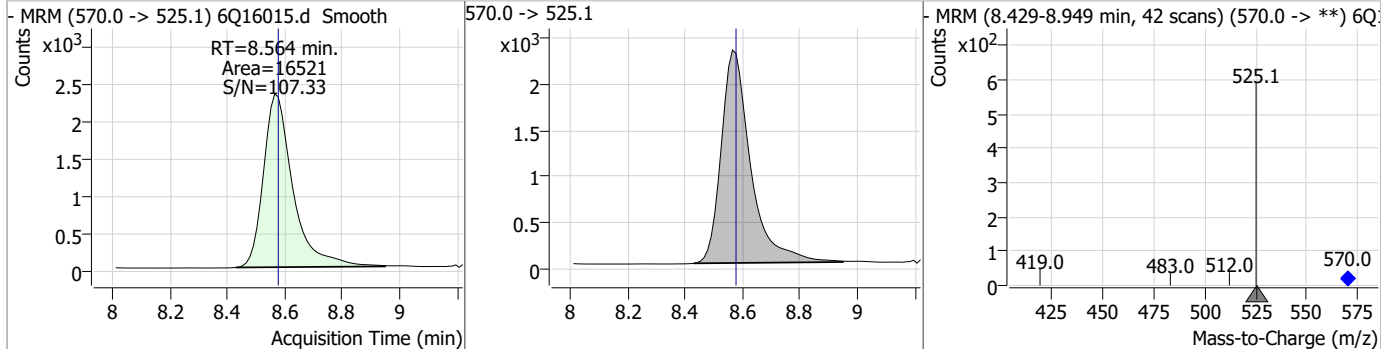
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.61	8.38	0.00	17702				



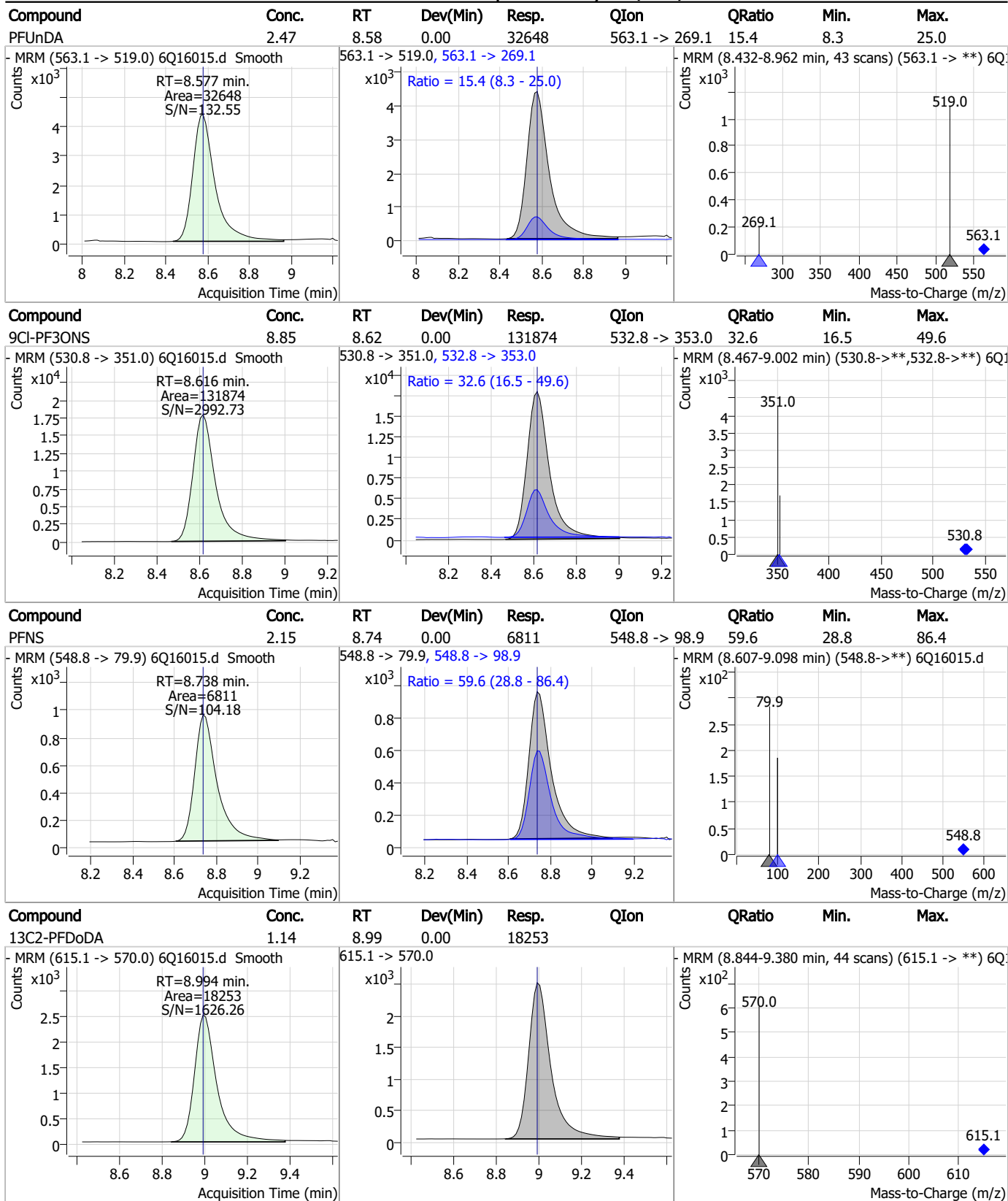
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.53	8.38	0.00	6868 (m)	584.2 -> 526.0	58.3	23.0	69.0



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

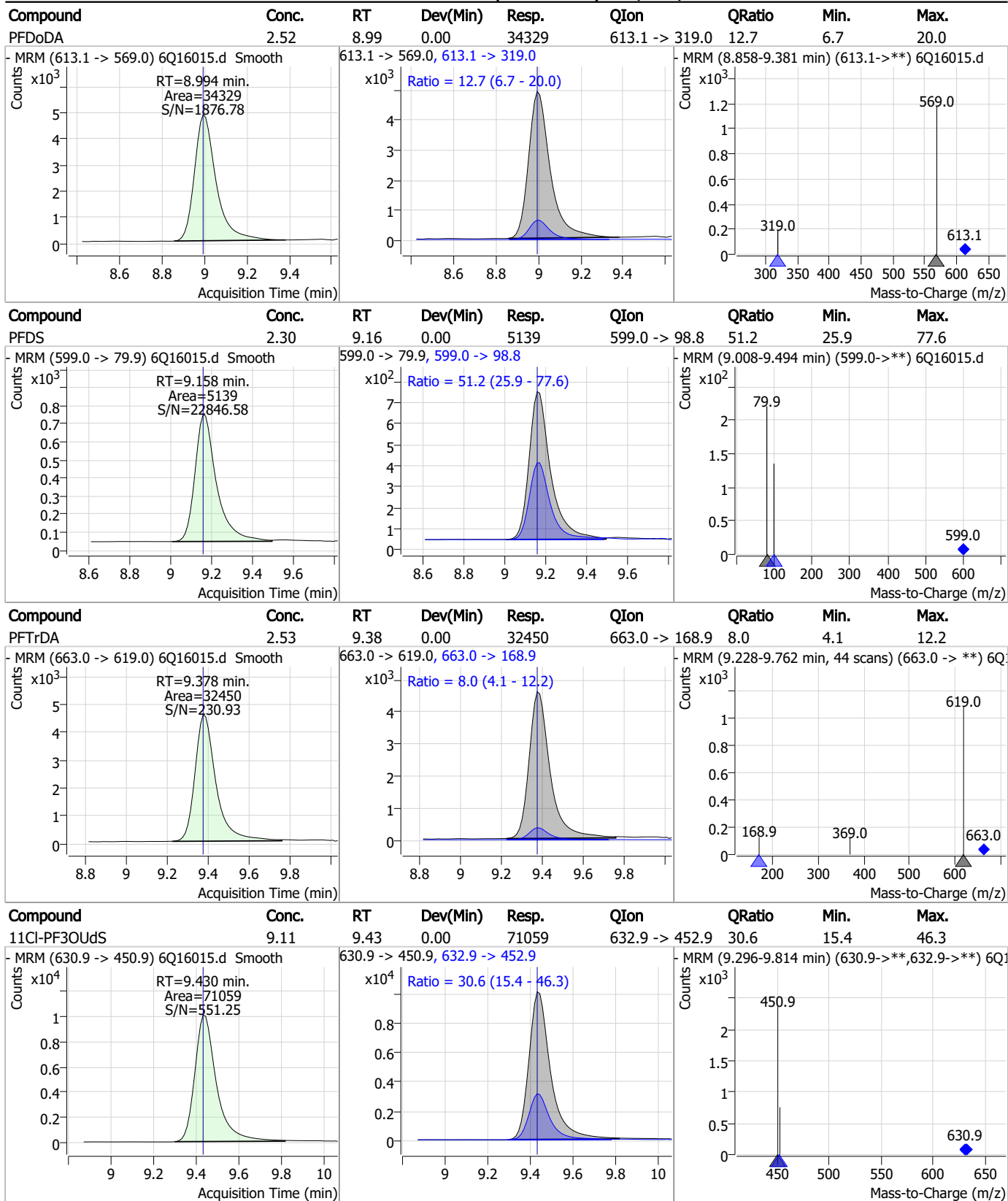


### Perfluorinated Compounds by LC/MS/MS



7.7.10 7

### Perfluorinated Compounds by LC/MS/MS



7.7.10 7

### Perfluorinated Compounds by LC/MS/MS

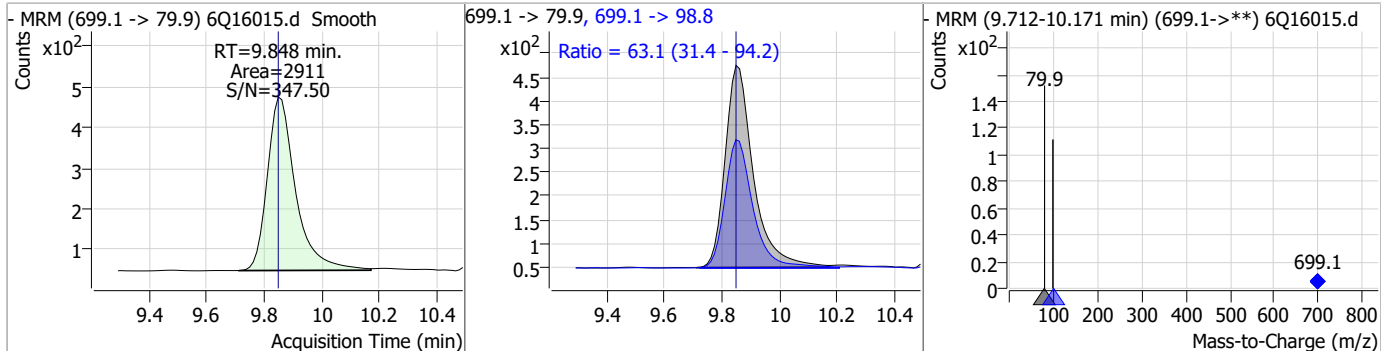
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.36	9.62	0.00	16082				
FOSA	2.59	9.62	0.00	15378	498.1 -> 478.0	3.4	1.8	5.3
13C2-PFTeDA	1.06	9.72	0.00	10175				
PFTeDA	2.66	9.72	0.00	28588	713.1 -> 168.9	7.3	3.1	9.3

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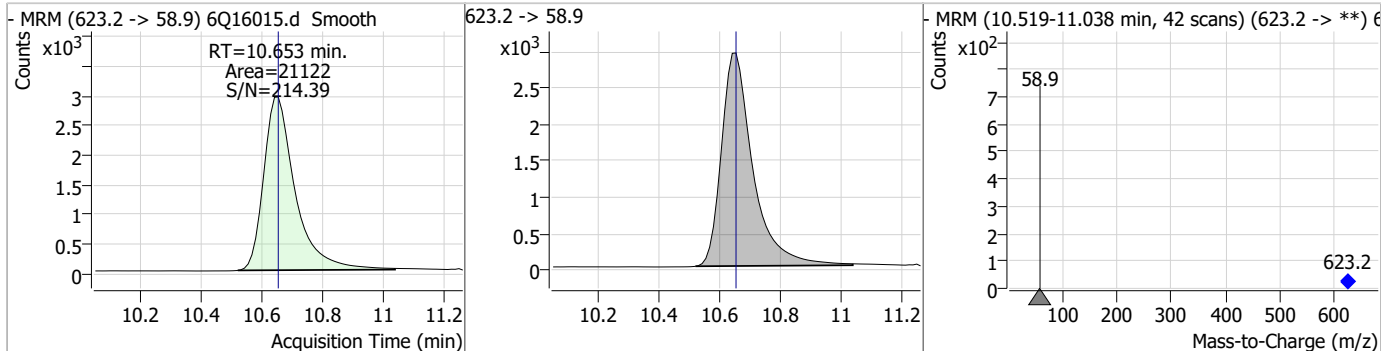


### Perfluorinated Compounds by LC/MS/MS

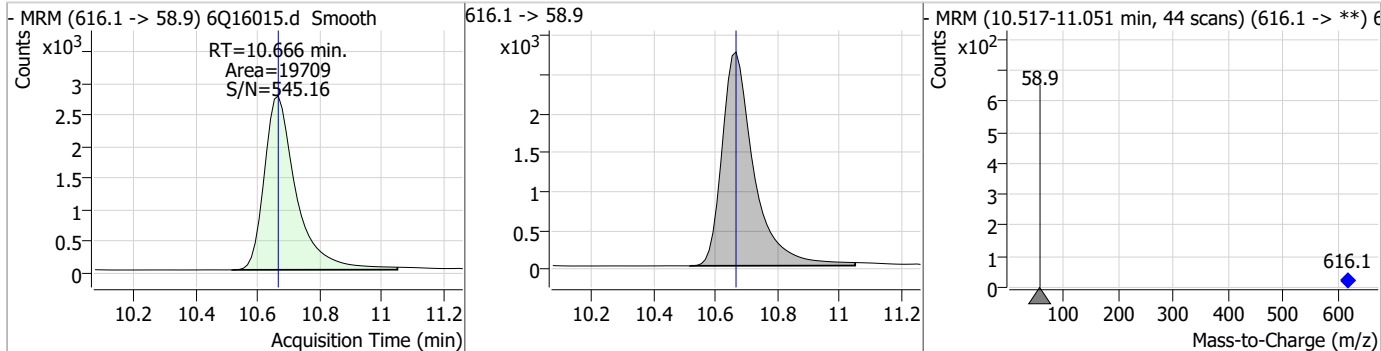
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.24	9.85	0.00	2911	699.1 -> 98.8	63.1	31.4	94.2



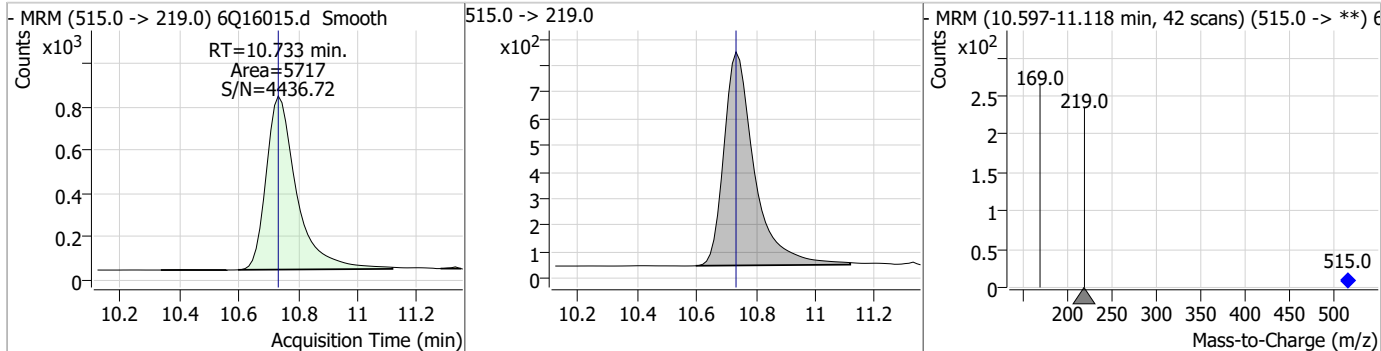
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	22.66	10.65	0.00	21122				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	24.76	10.67	0.00	19709				



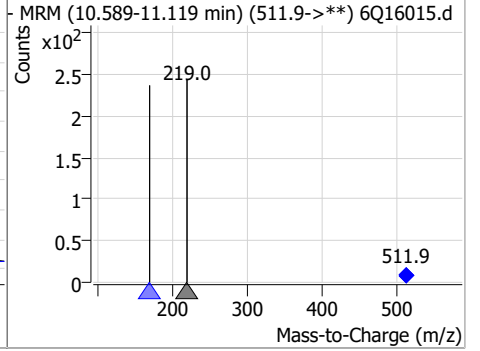
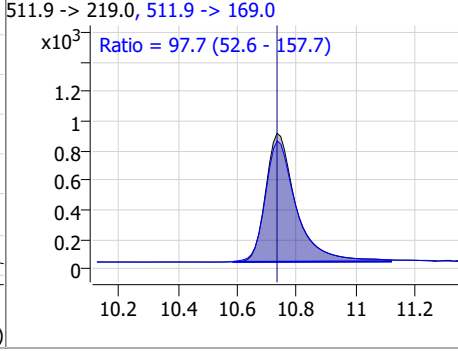
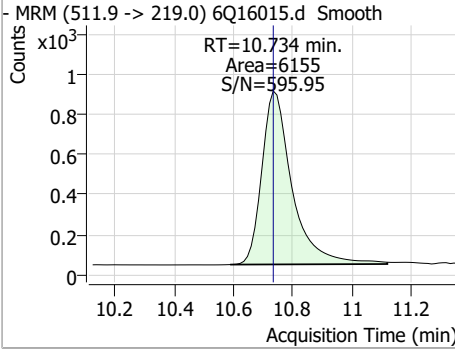
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.33	10.73	0.00	5717				



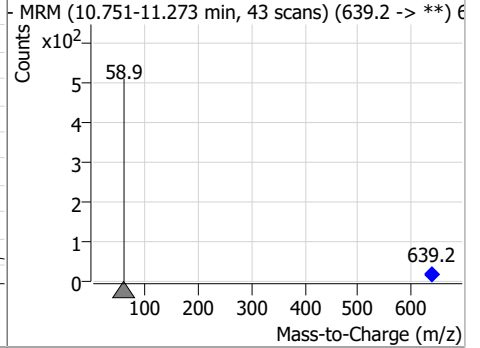
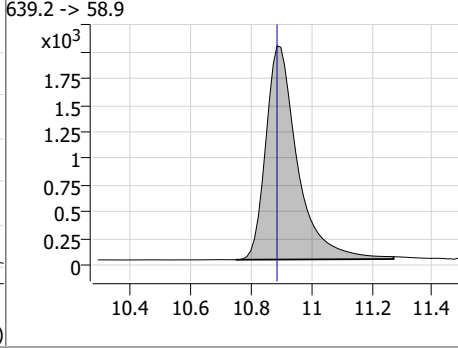
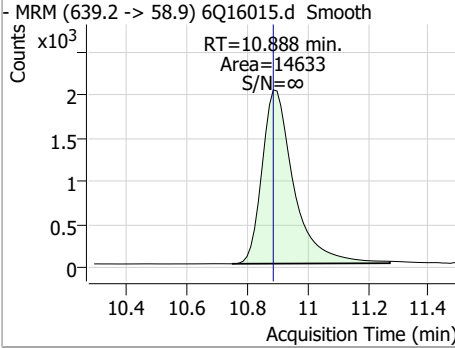
7.7.10  
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### Perfluorinated Compounds by LC/MS/MS

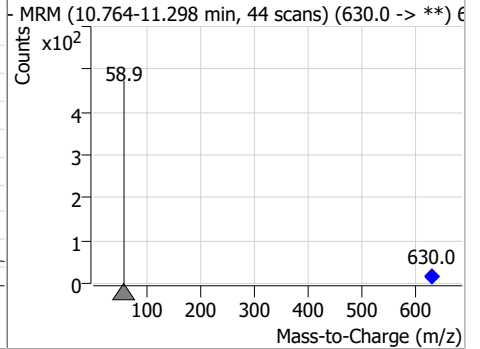
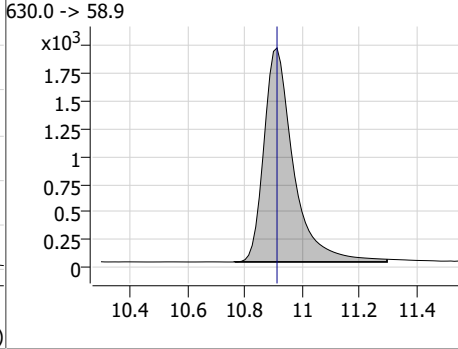
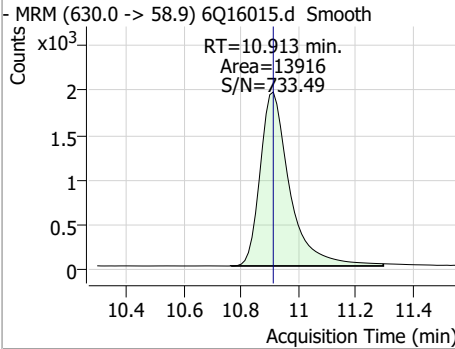
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOFA	2.56	10.73	0.00	6155	511.9 -> 169.0	97.7	52.6	157.7



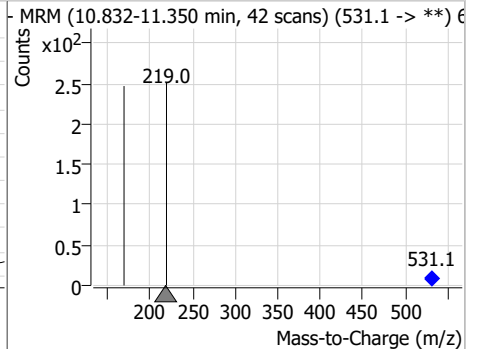
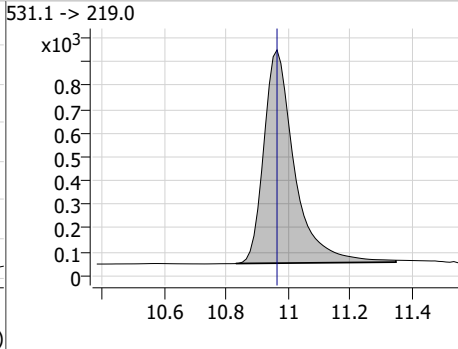
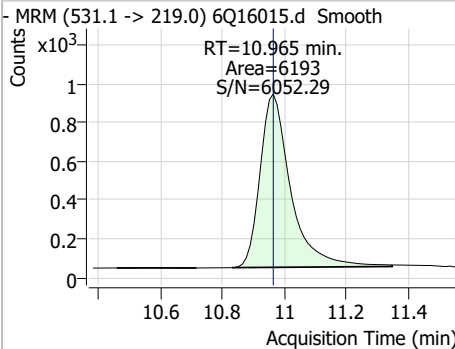
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.62	10.89	0.00	14633	639.2 -> 58.9			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	24.25	10.91	0.00	13916	630.0 -> 58.9			



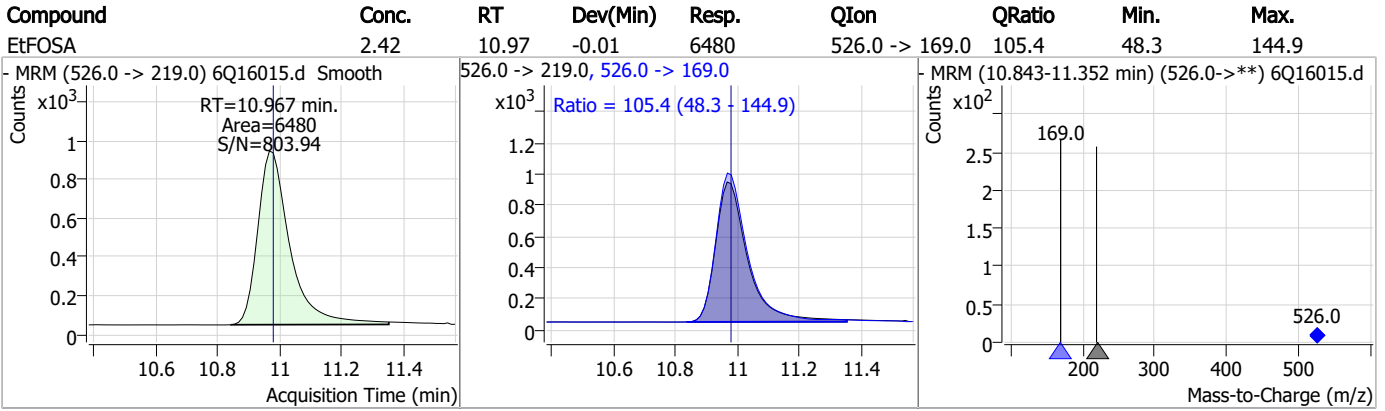
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	2.34	10.97	0.00	6193	531.1 -> 219.0			



7.7.10 7



### Perfluorinated Compounds by LC/MS/MS



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# Manual Integration Approval Summary

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

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

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### Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16016.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 4/4/2023 4:35:38 PM  
 Sample Name : icv239-20  
 Vial : P1-B2  
 DA Method File : 1633\_040423\_S6Q239.quantmethod.xml  
 Batch Name : s6q239.batch.bin  
 Sample Information : OP96085,S6Q239,500,,,5.0,1,water

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

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Perfluorinated Compounds by LC/MS/MS

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

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Perfluorinated Compounds by LC/MS/MS

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

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

### Perfluorinated Compounds by LC/MS/MS

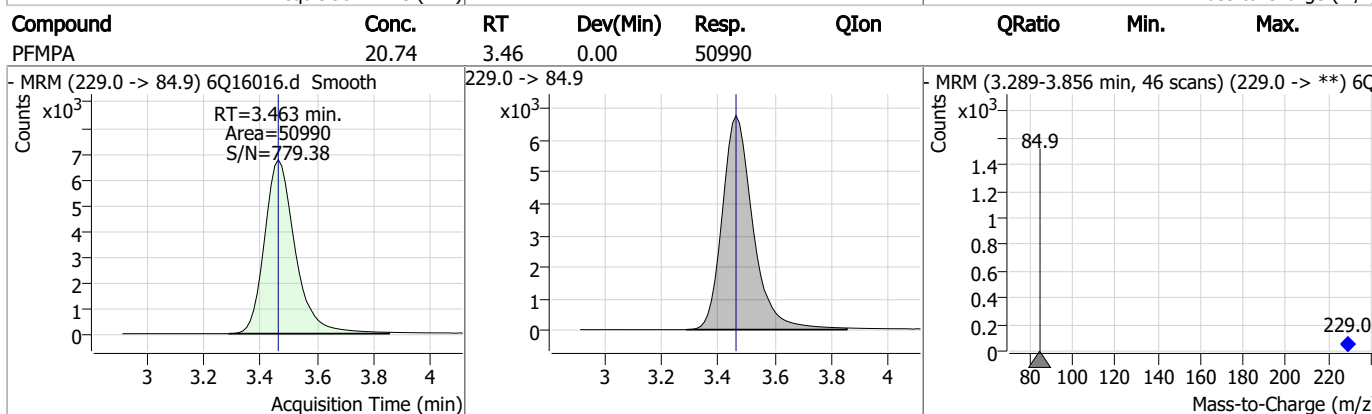
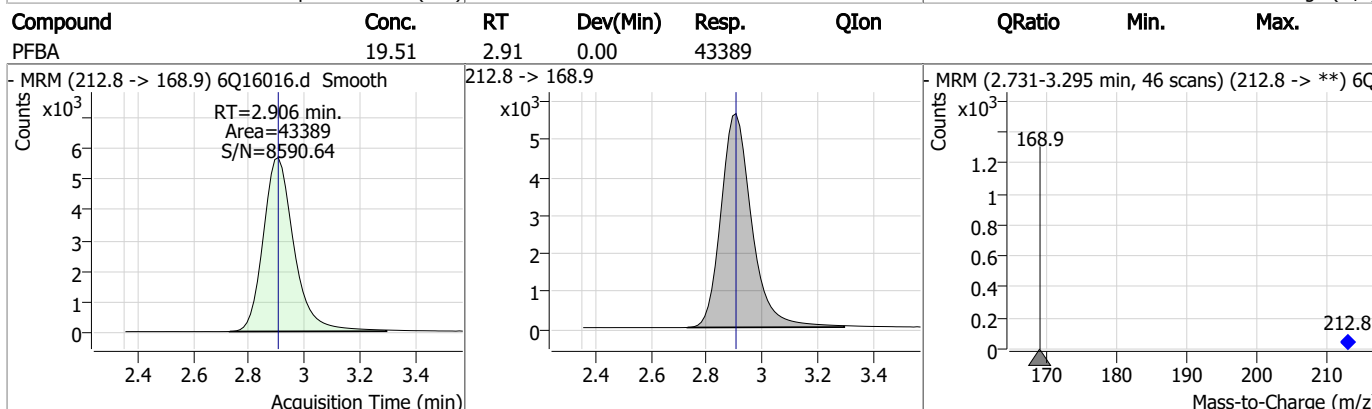
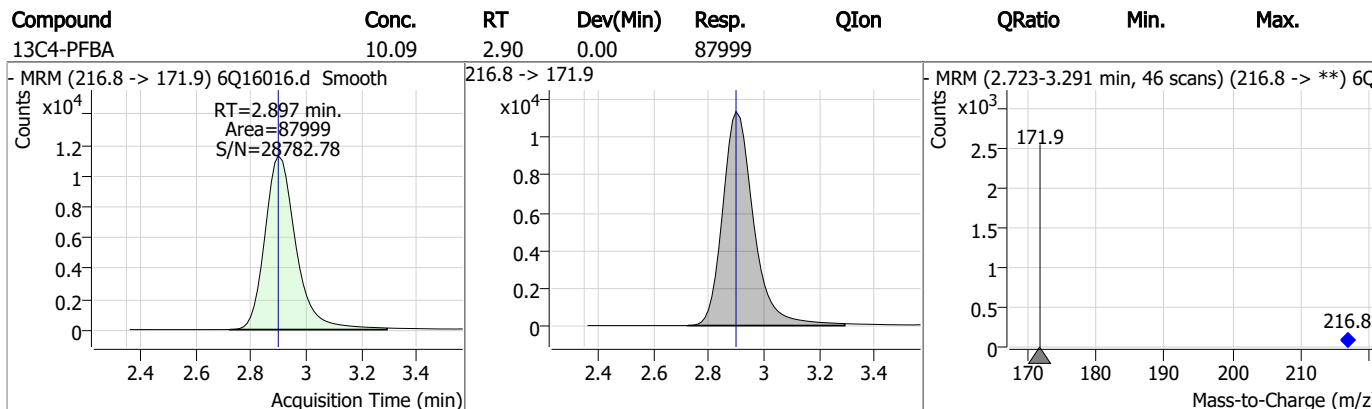
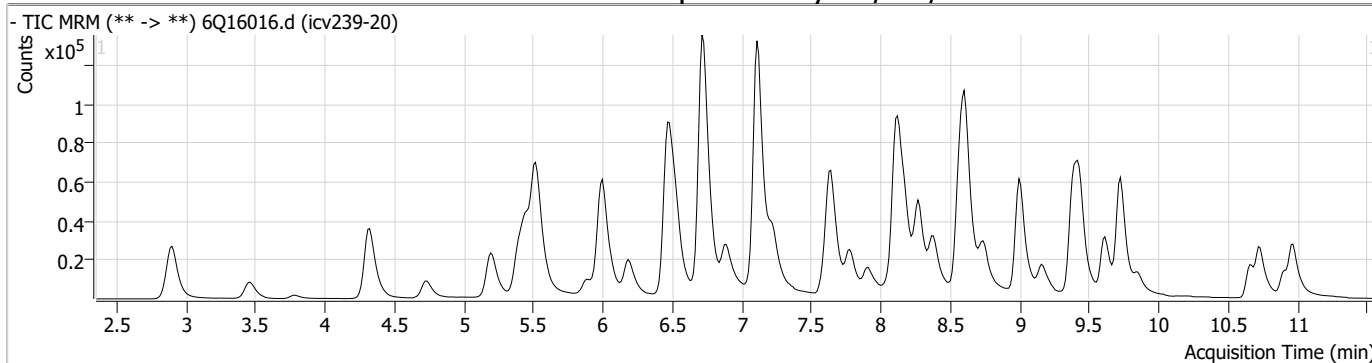
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7:7:11

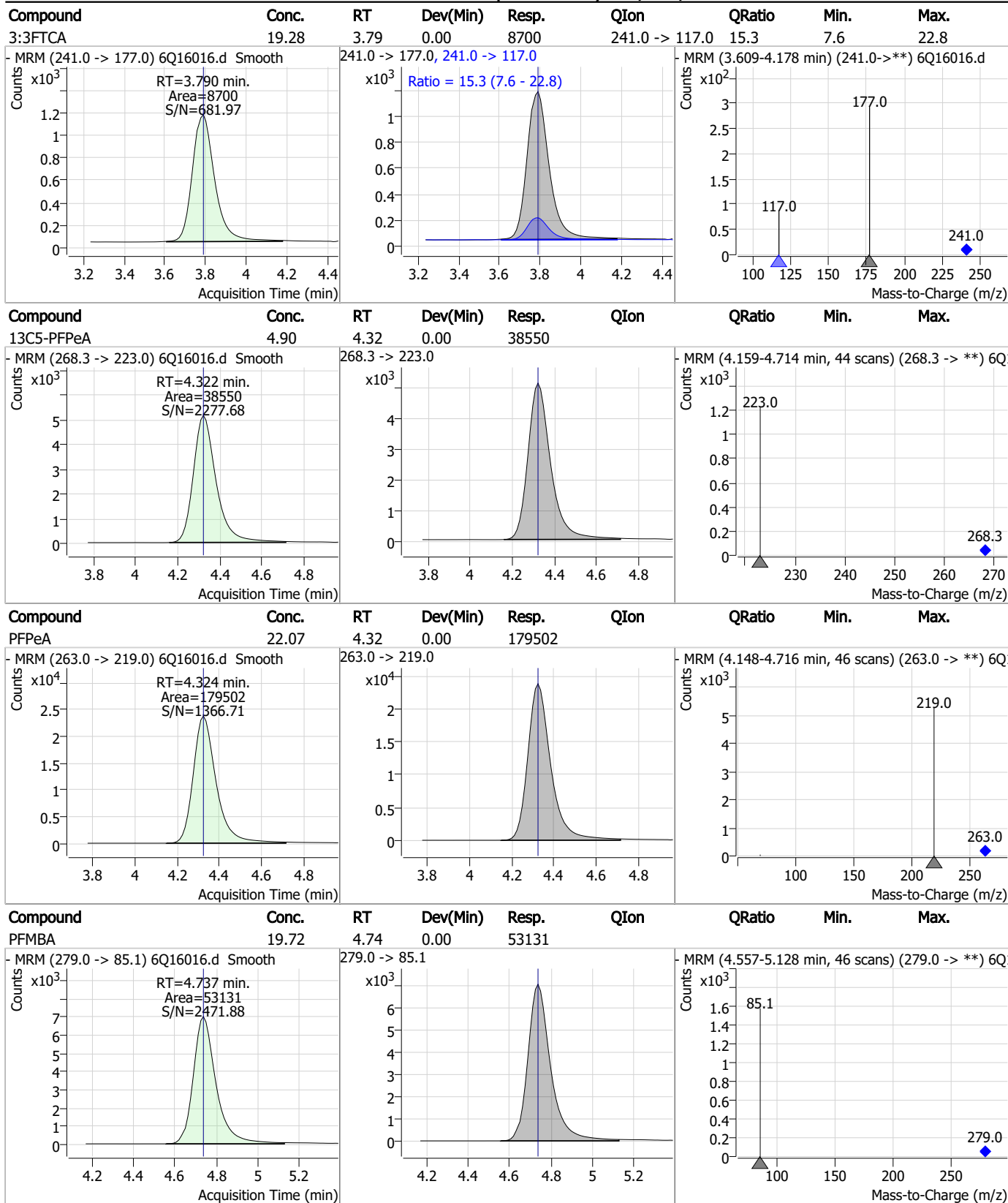
7



### Perfluorinated Compounds by LC/MS/MS



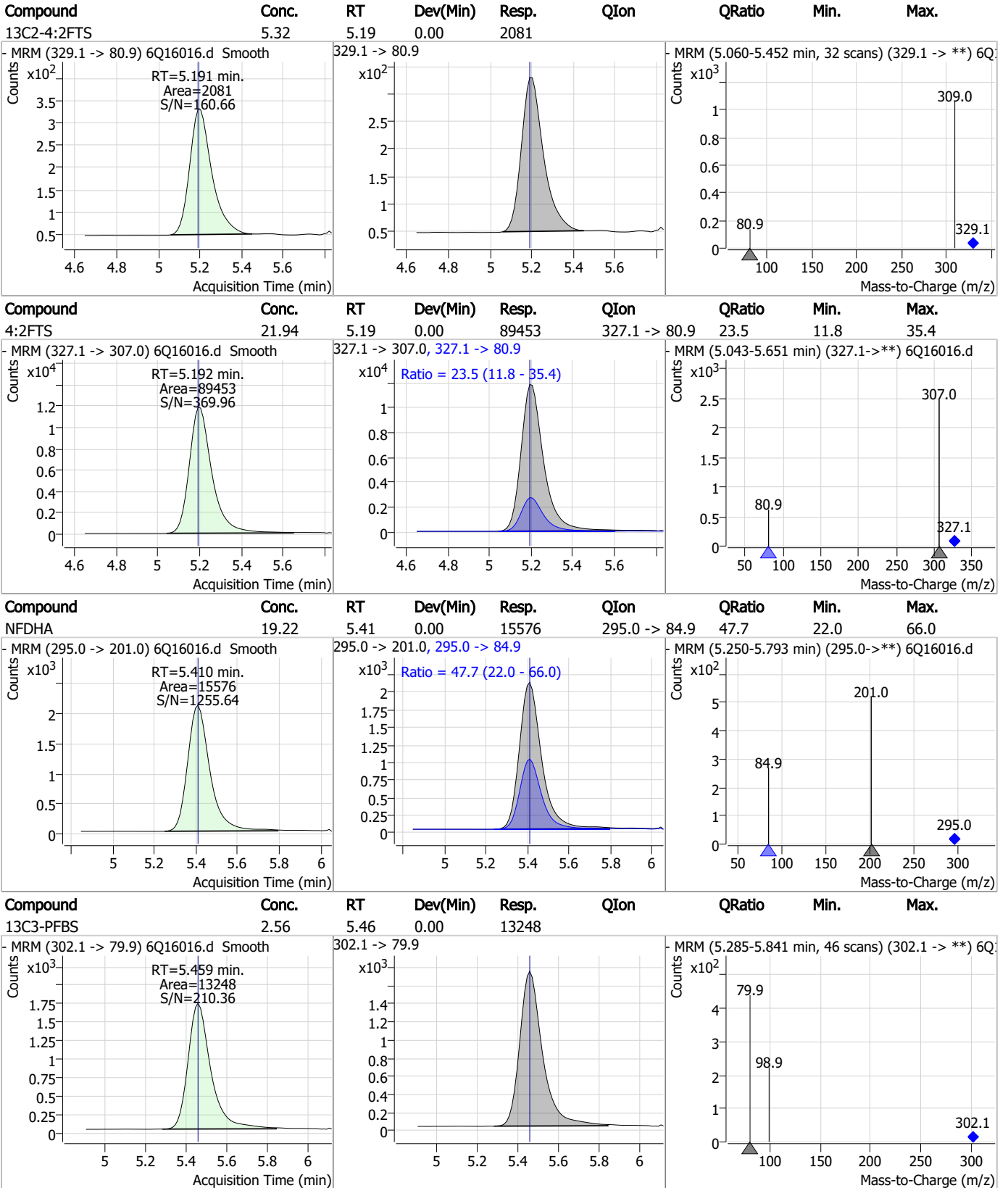
### Perfluorinated Compounds by LC/MS/MS



7.7.11

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### Perfluorinated Compounds by LC/MS/MS

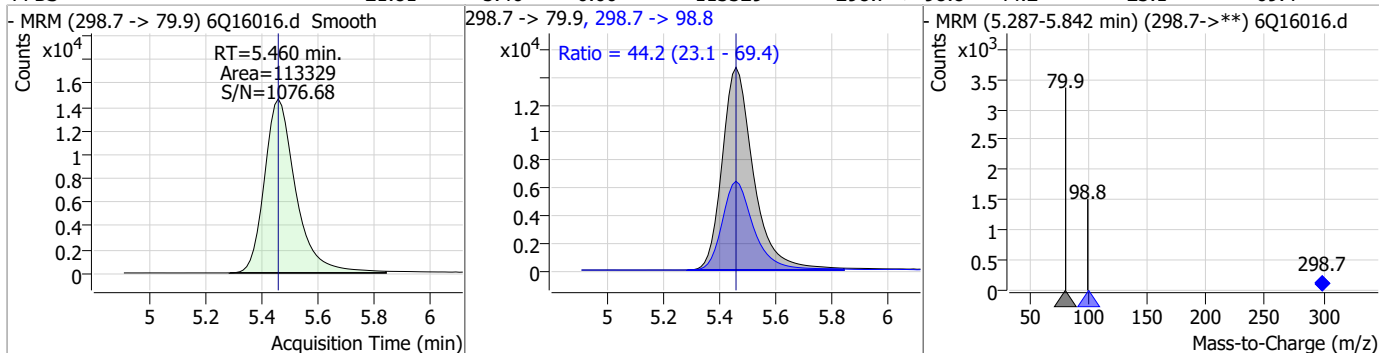


7.7.11

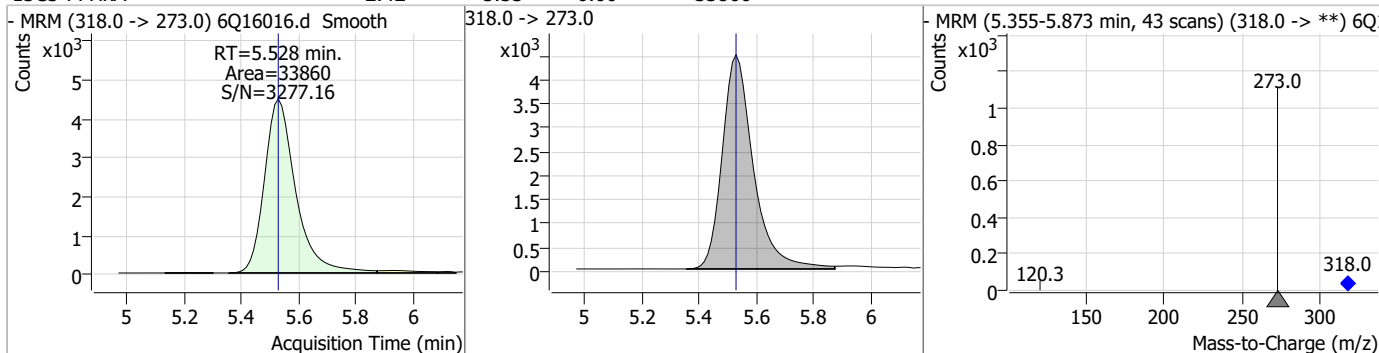
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### Perfluorinated Compounds by LC/MS/MS

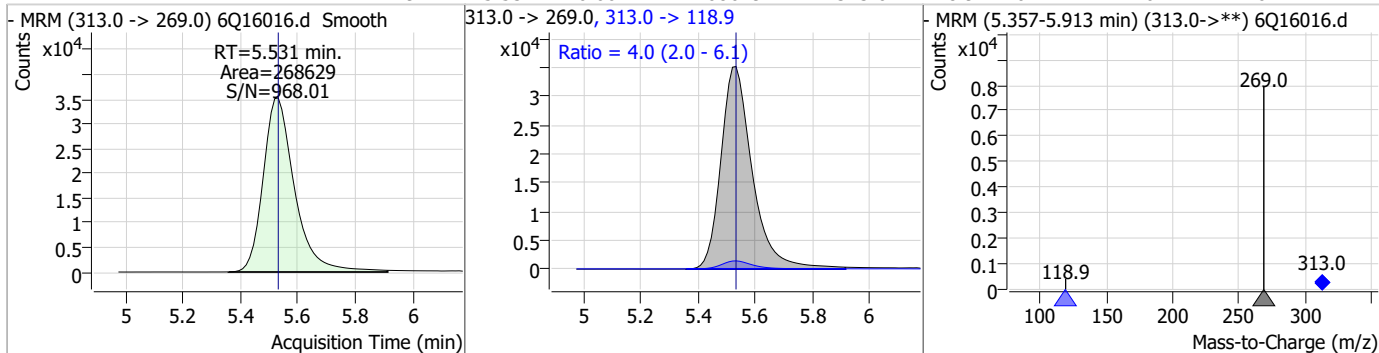
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	21.81	5.46	0.00	113329	298.7 -> 98.8	44.2	23.1	69.4



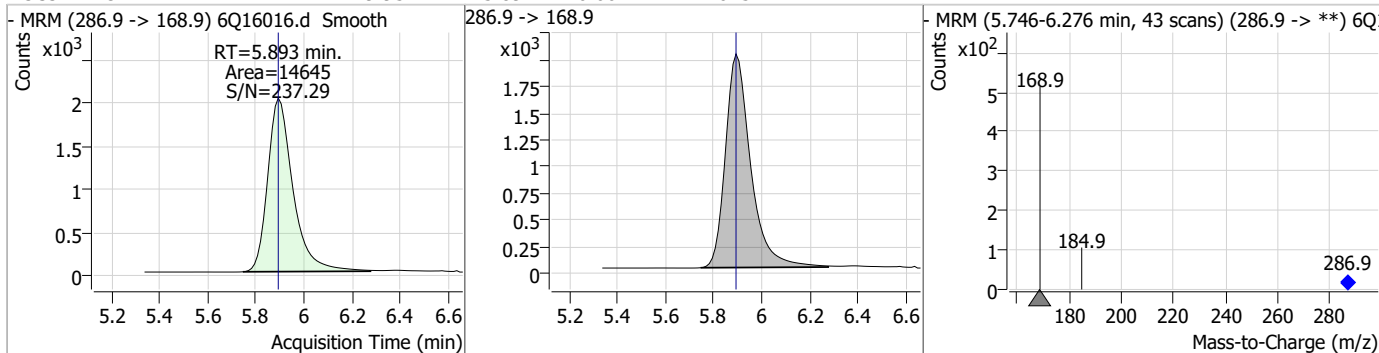
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.42	5.53	0.00	33860				



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

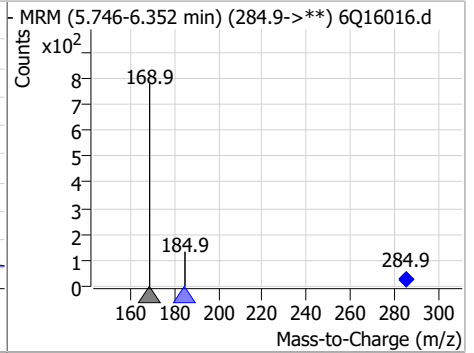
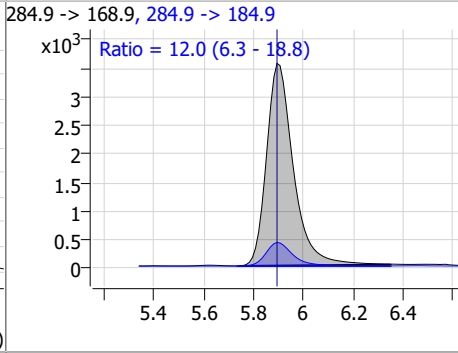
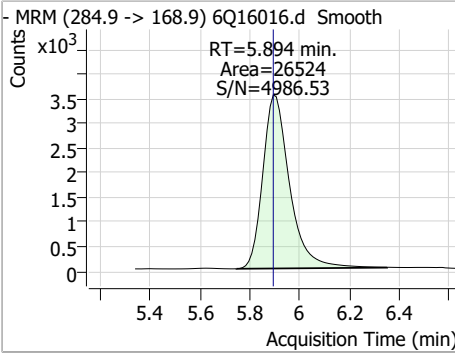


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.95	5.89	0.00	14645				

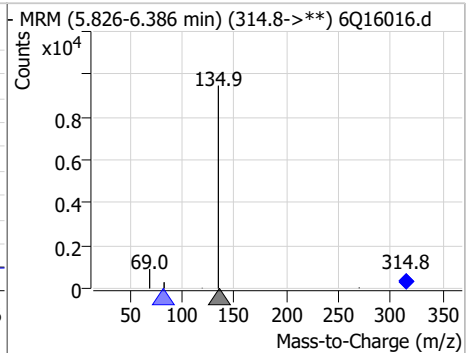
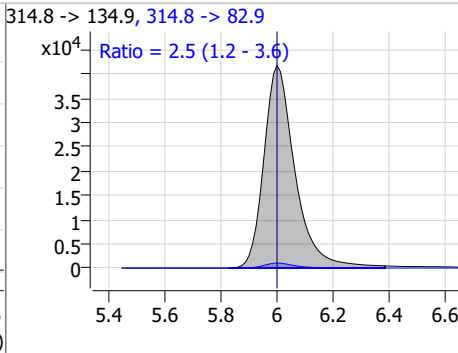
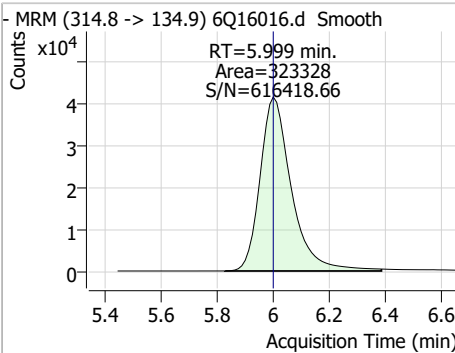


### Perfluorinated Compounds by LC/MS/MS

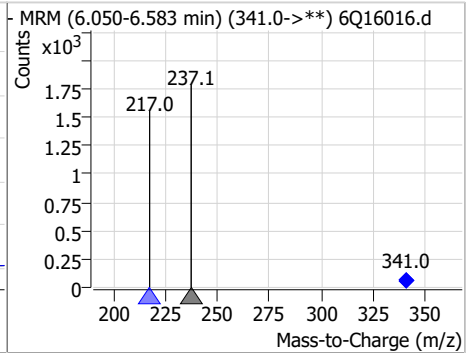
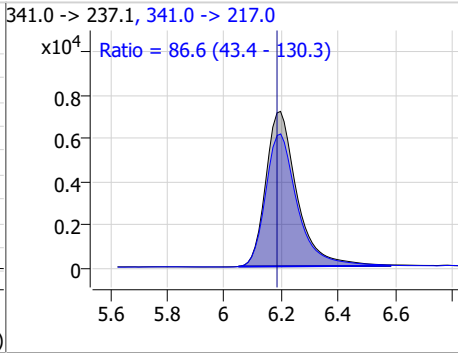
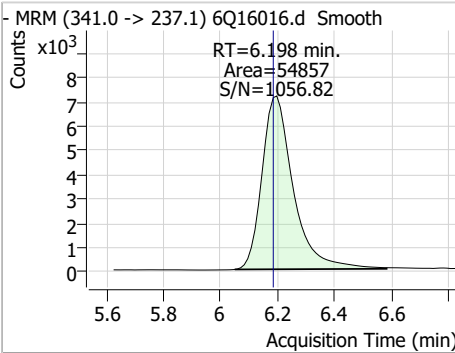
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	20.03	5.89	0.00	26524	284.9 -> 184.9	12.0	6.3	18.8



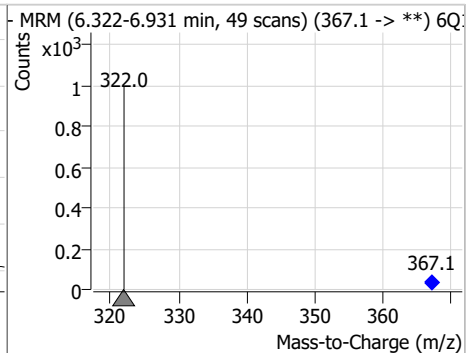
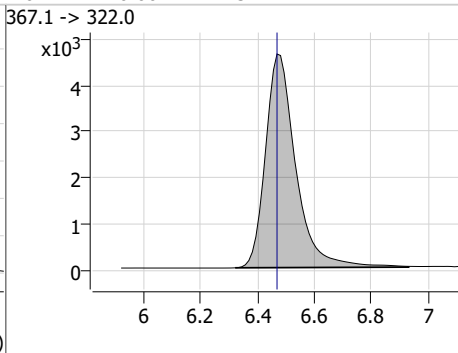
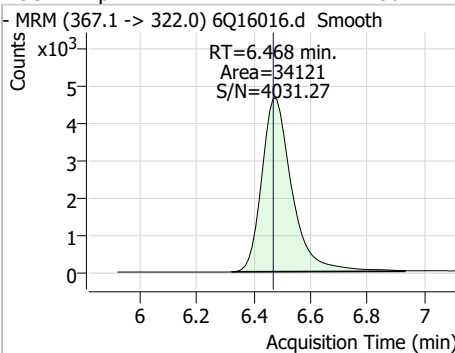
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	18.26	6.00	0.00	323328	314.8 -> 82.9	2.5	1.2	3.6



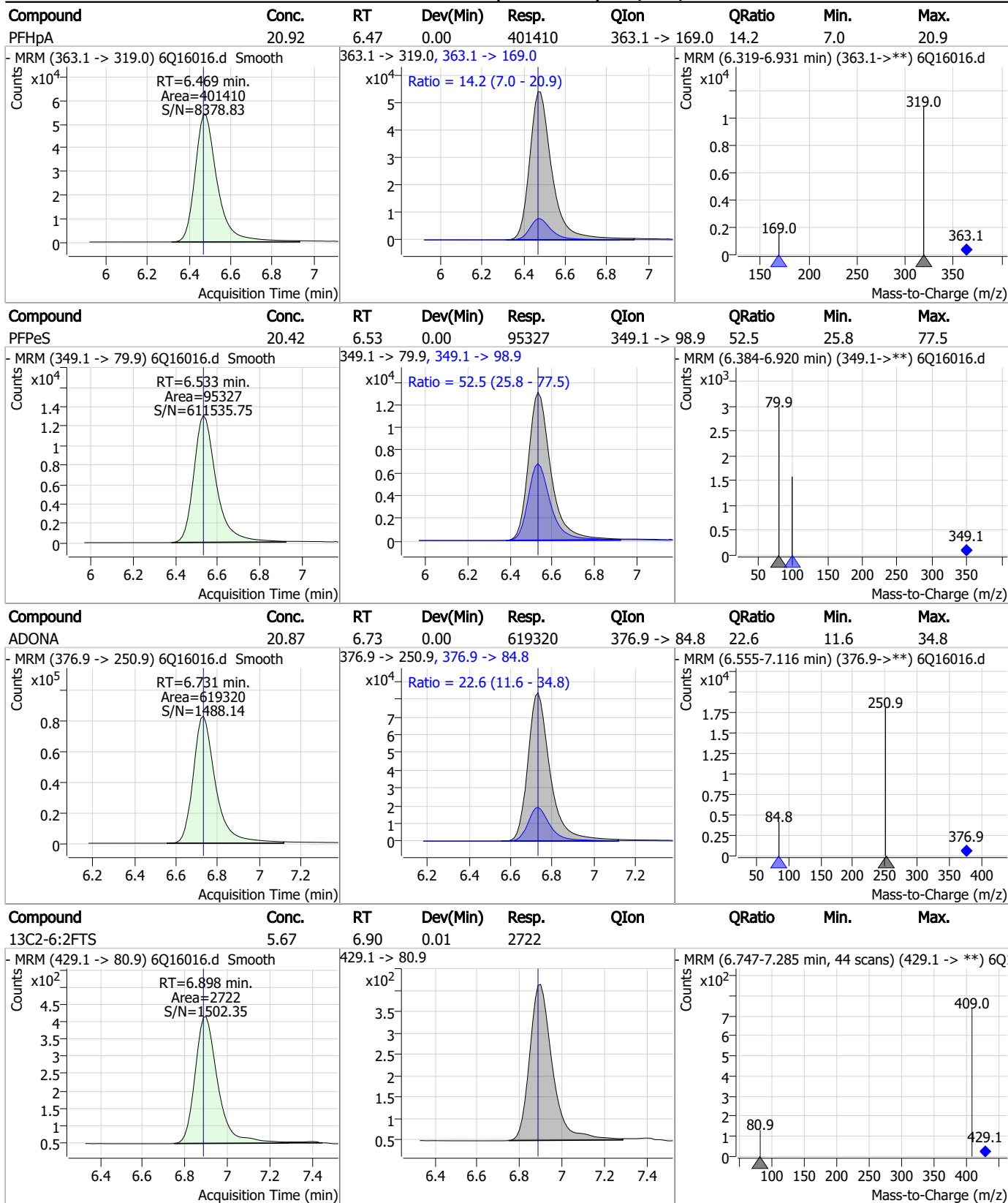
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	19.86	6.20	0.01	54857	341.0 -> 217.0	86.6	43.4	130.3



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



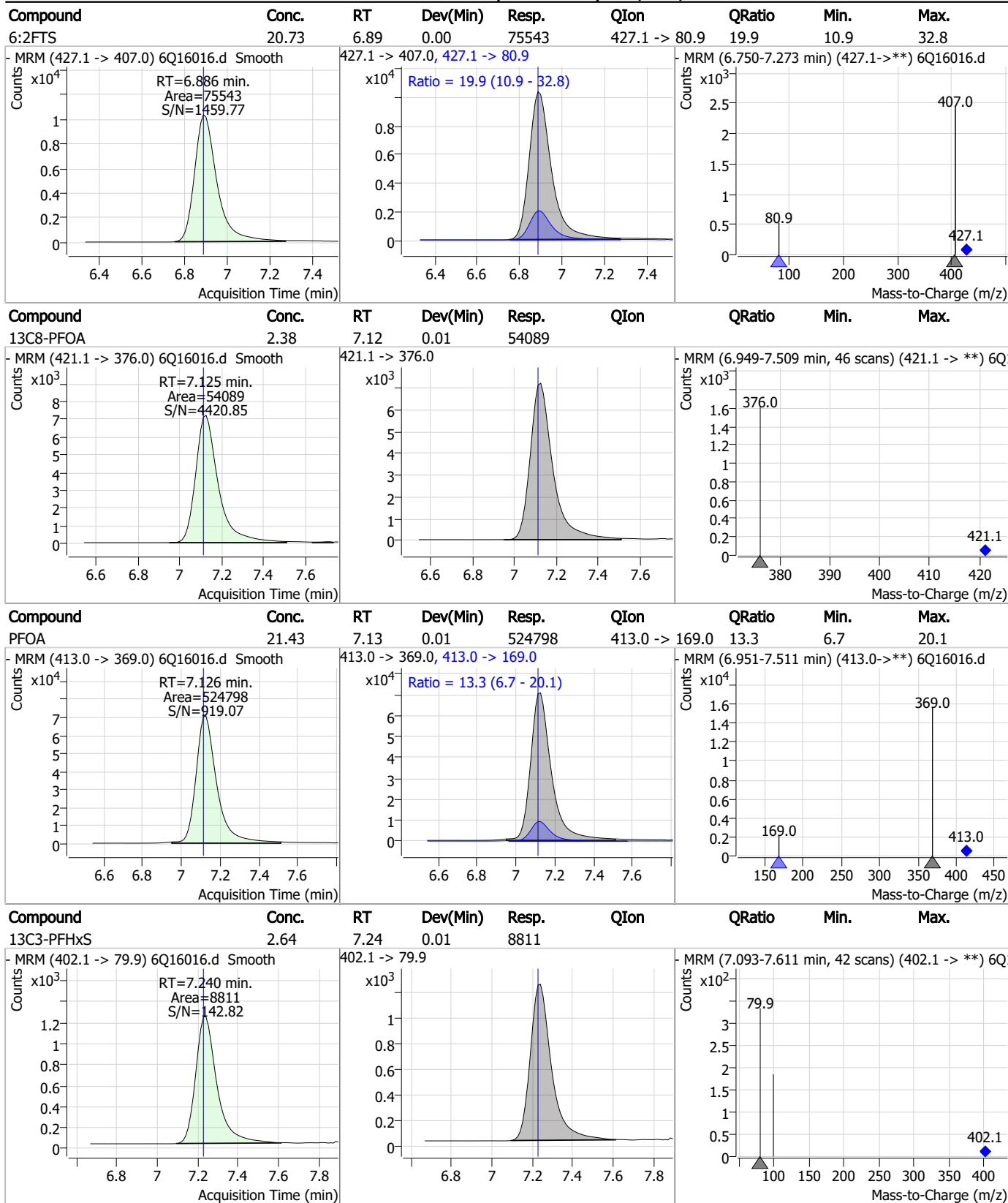
### Perfluorinated Compounds by LC/MS/MS



7.7.11  
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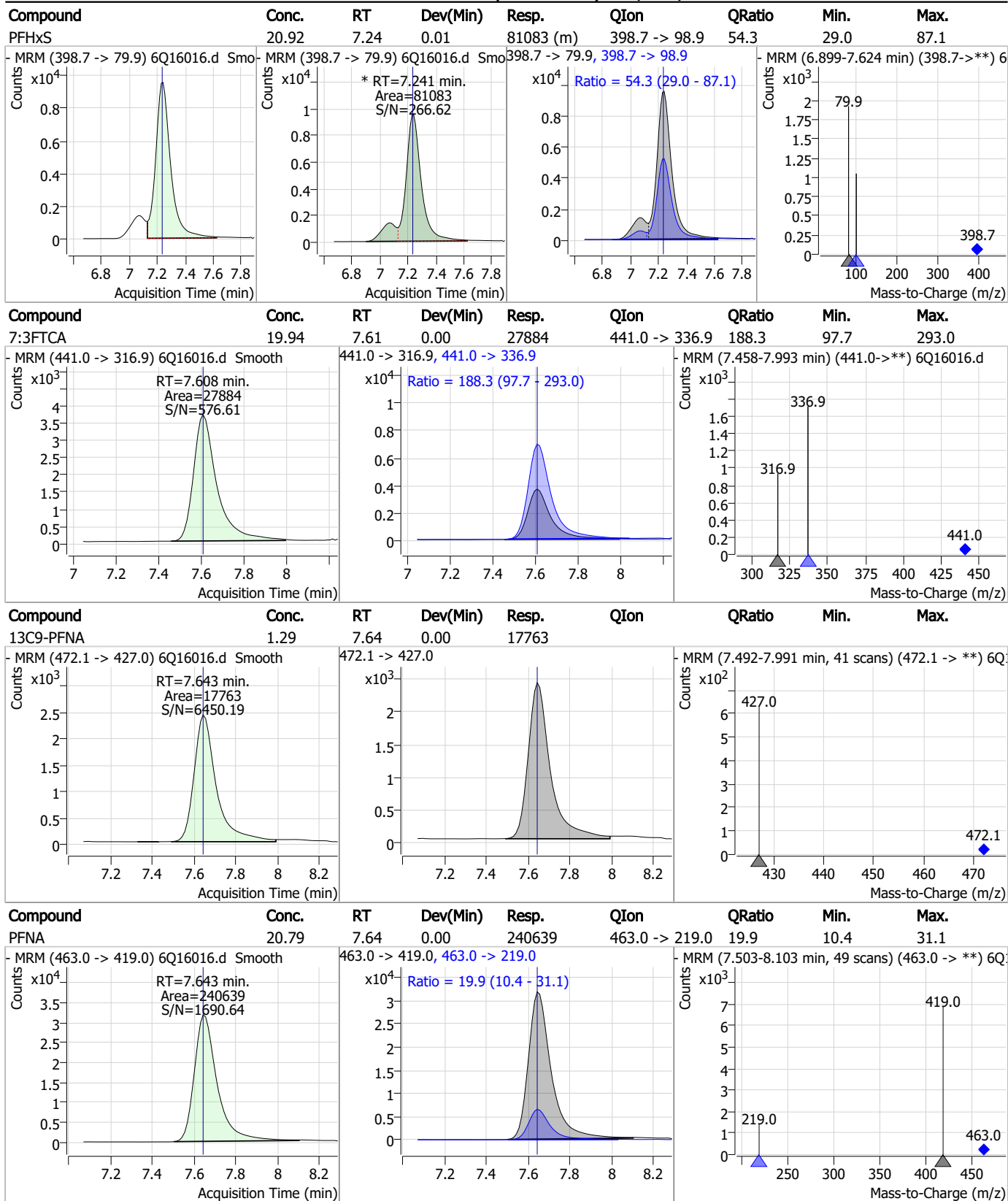


### Perfluorinated Compounds by LC/MS/MS



7.7.11

### Perfluorinated Compounds by LC/MS/MS

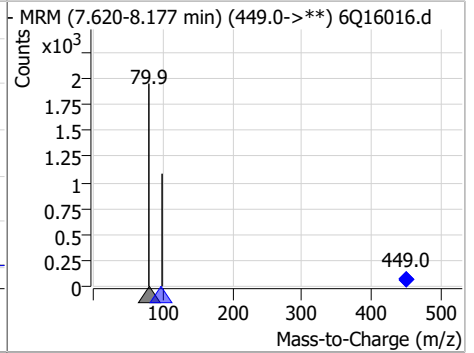
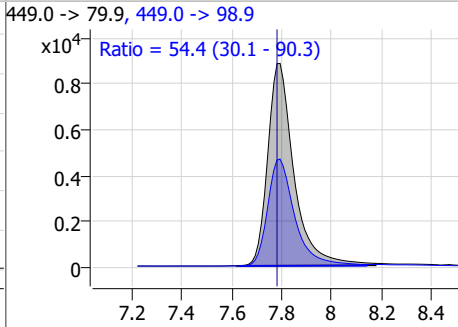
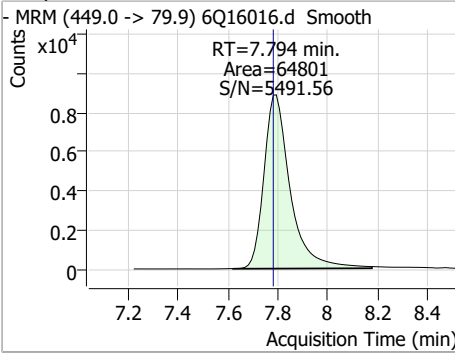


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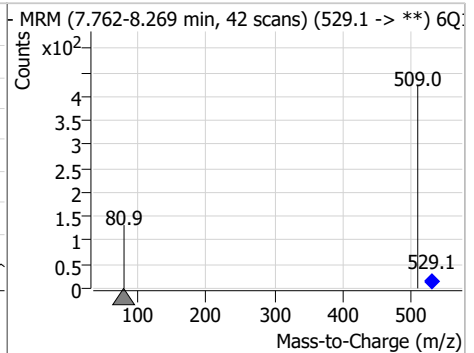
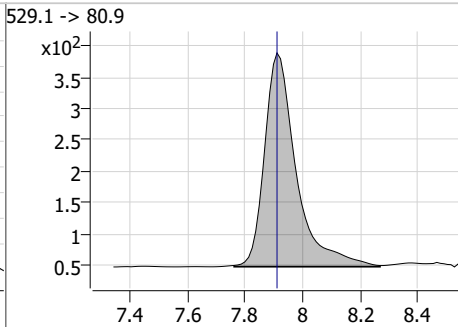
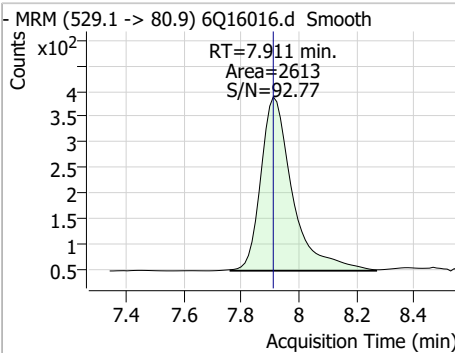


### Perfluorinated Compounds by LC/MS/MS

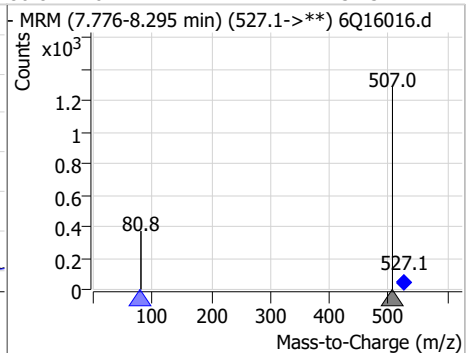
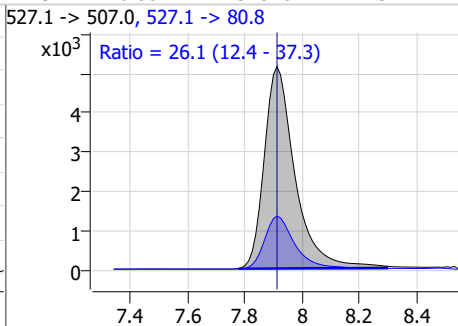
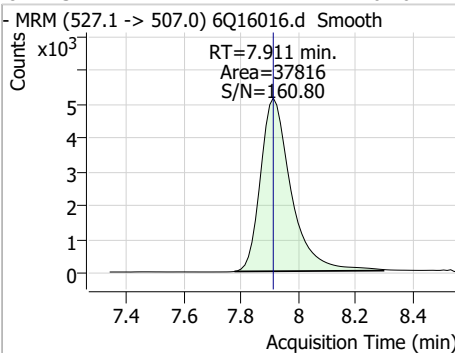
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	18.88	7.79	0.01	64801	449.0 -> 98.9	54.4	30.1	90.3



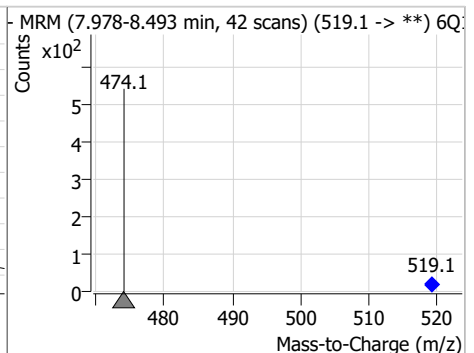
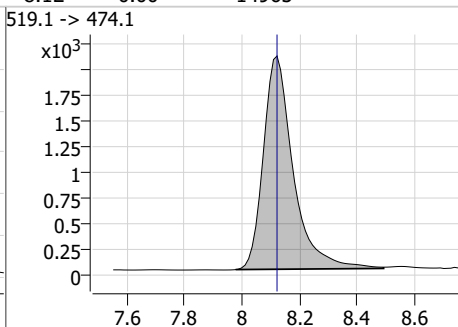
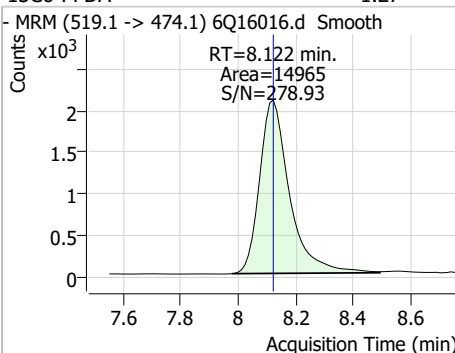
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.65	7.91	0.00	2613	529.1 -> 80.9	26.1	12.4	37.3



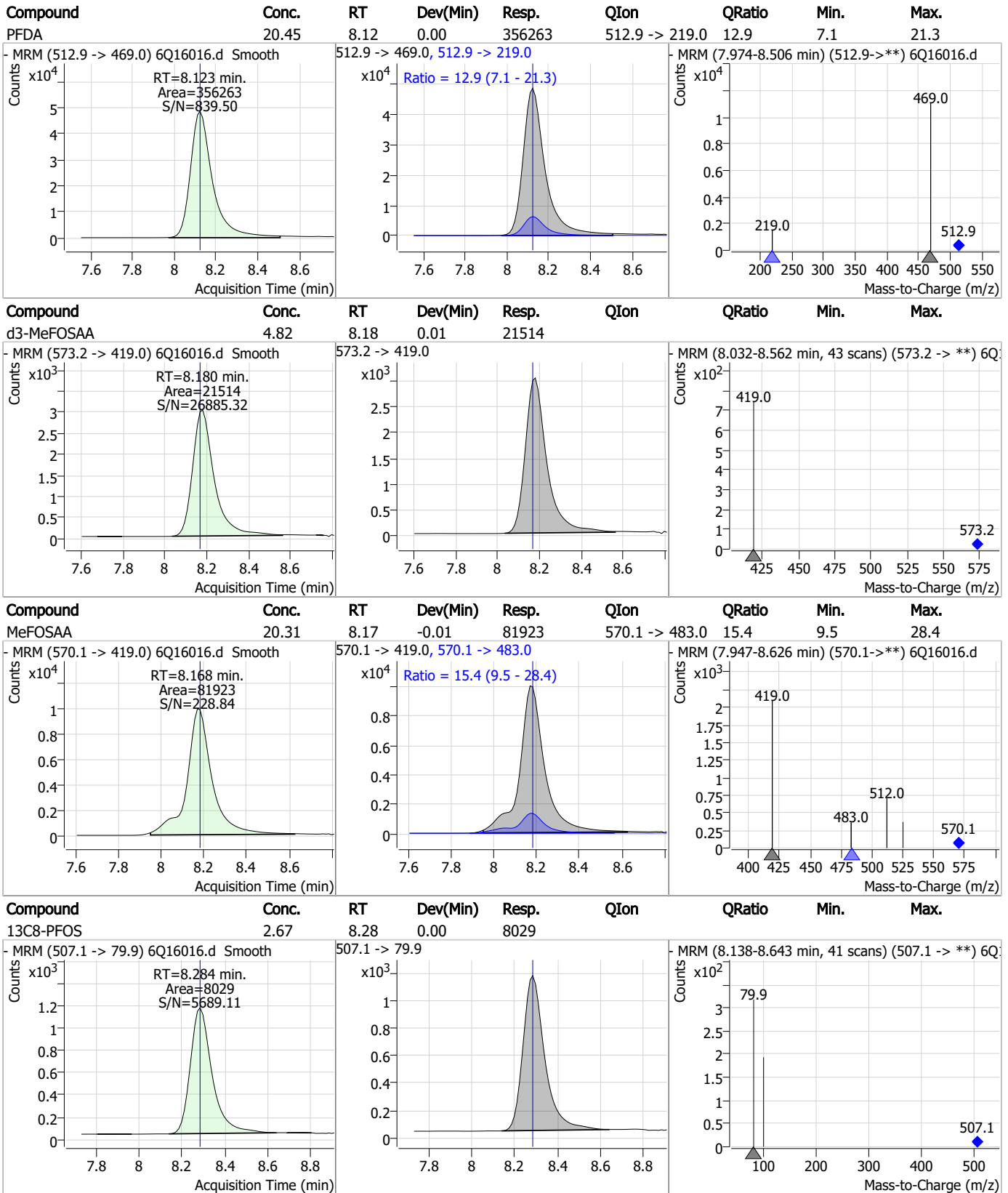
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	20.40	7.91	0.00	37816	527.1 -> 80.8	26.1	12.4	37.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.27	8.12	0.00	14965	519.1 -> 474.1	26.1	12.4	37.3



### Perfluorinated Compounds by LC/MS/MS

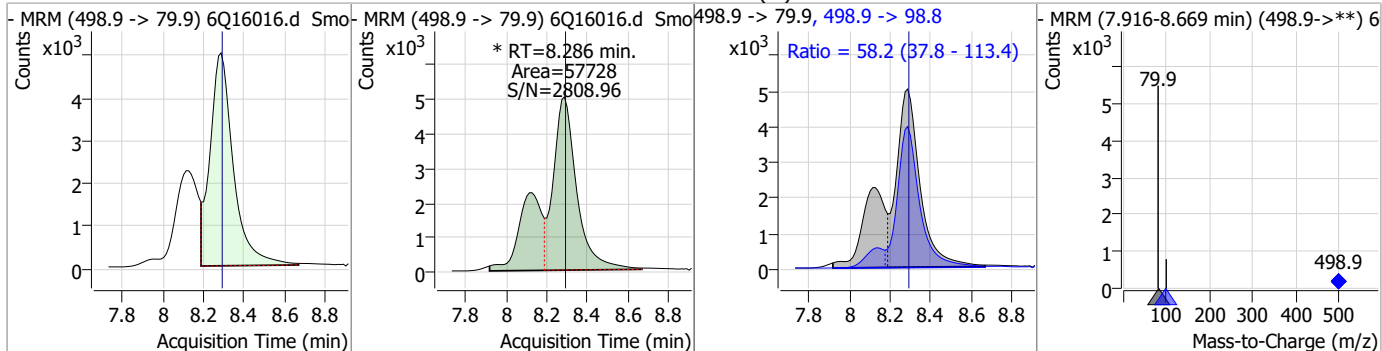


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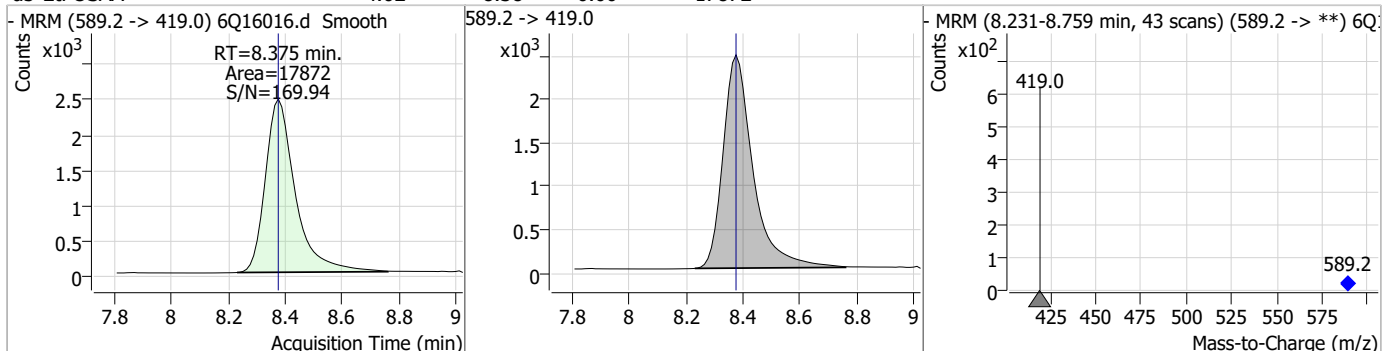
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### Perfluorinated Compounds by LC/MS/MS

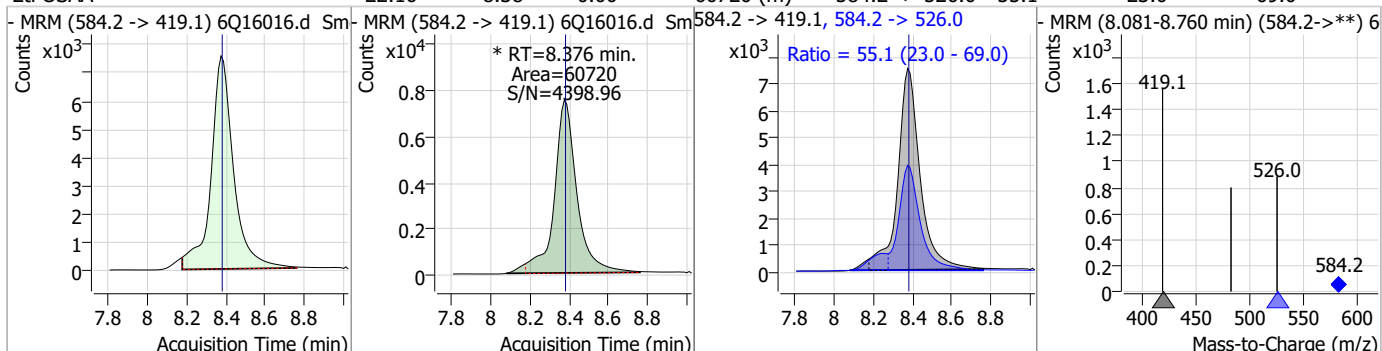
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	16.35	8.29	0.00	57728 (m)	498.9 -> 98.8	58.2	37.8	113.4



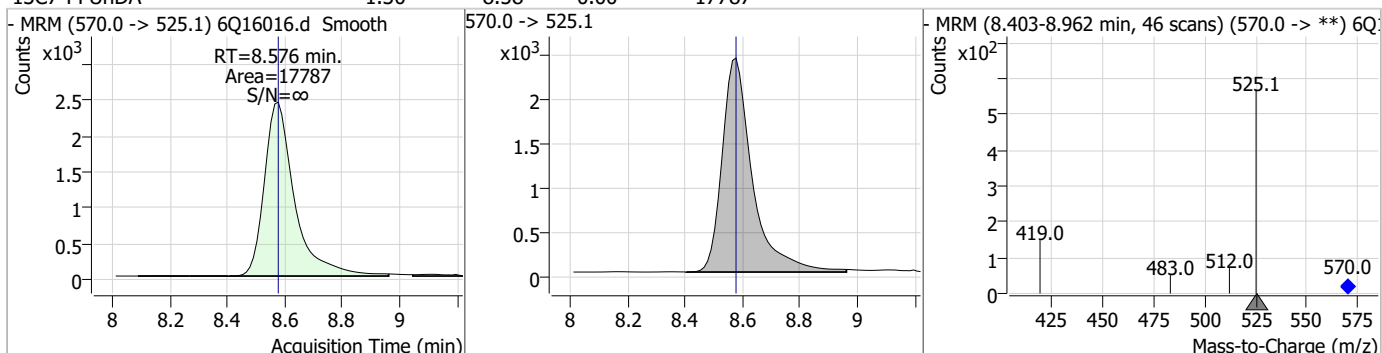
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.62	8.38	0.00	17872				



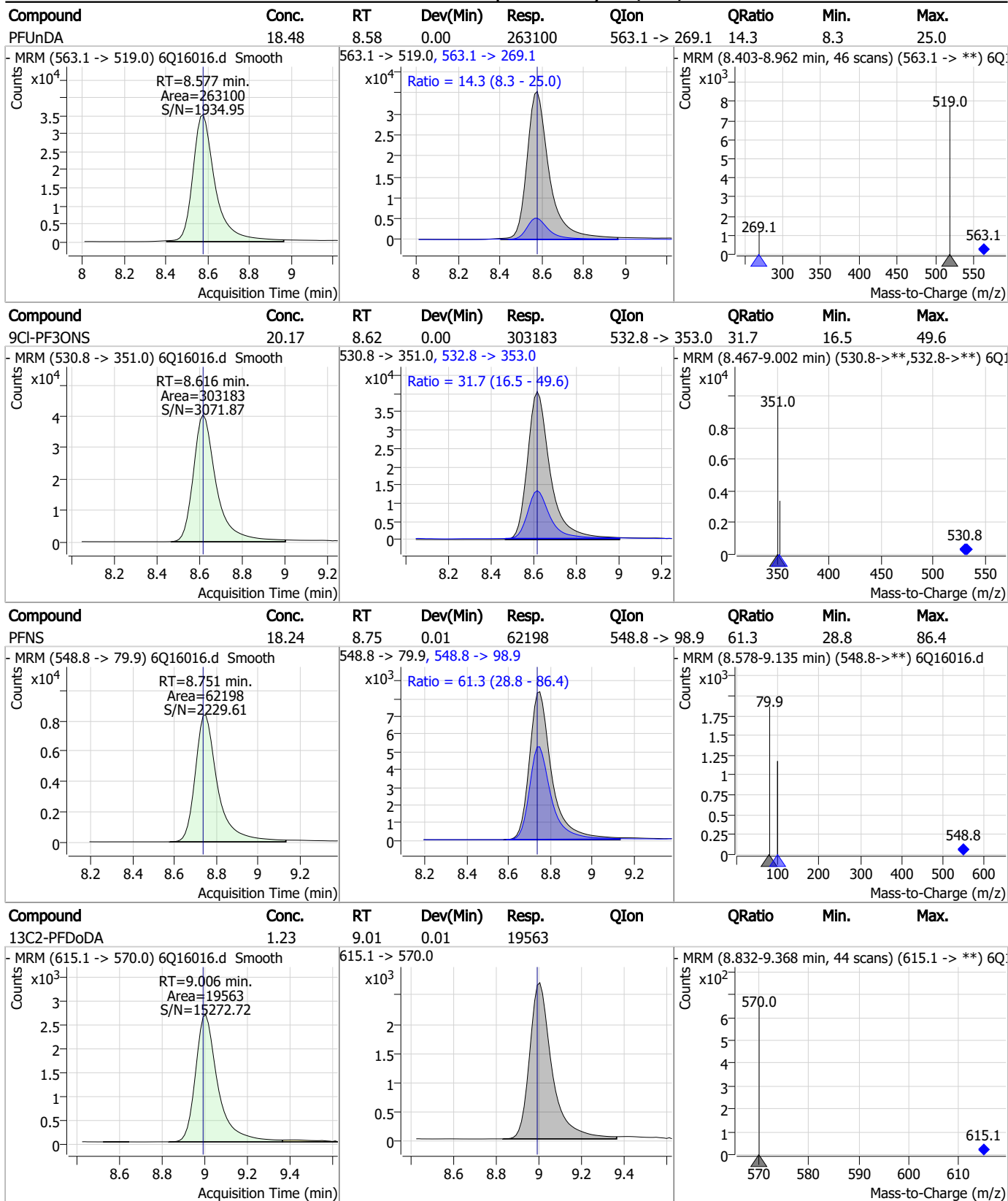
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	22.16	8.38	0.00	60720 (m)	584.2 -> 526.0	55.1	23.0	69.0



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

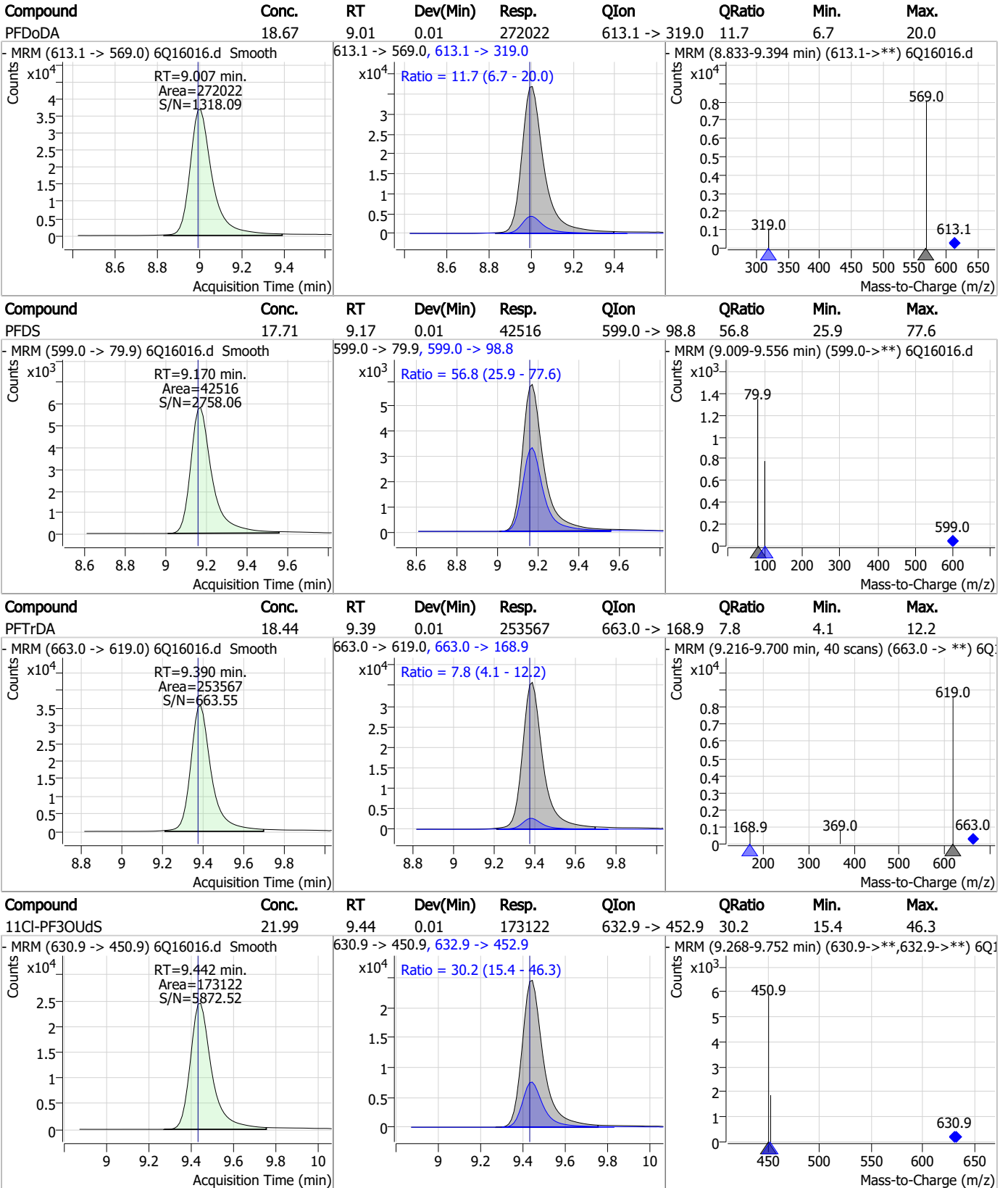


### Perfluorinated Compounds by LC/MS/MS



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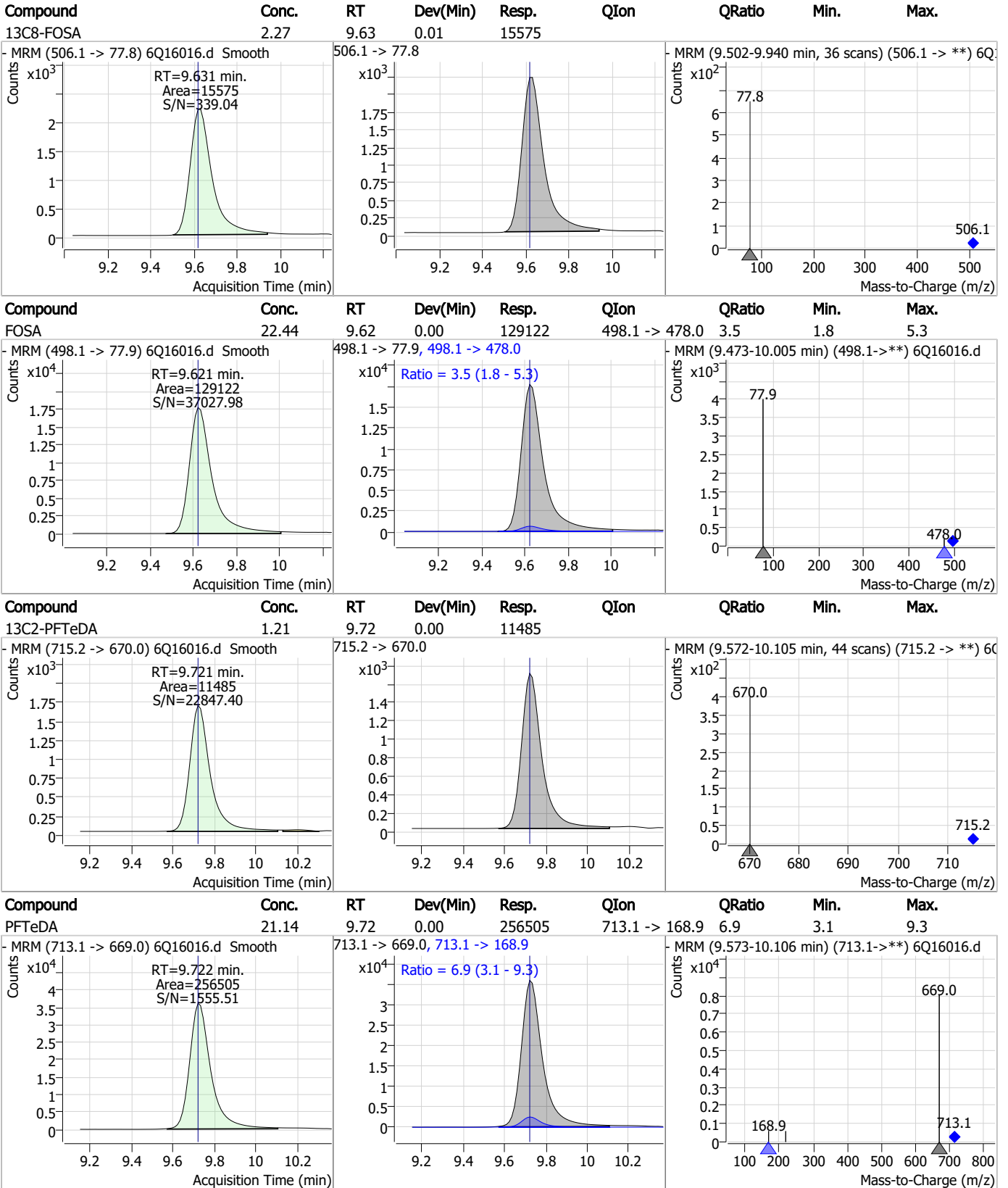
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

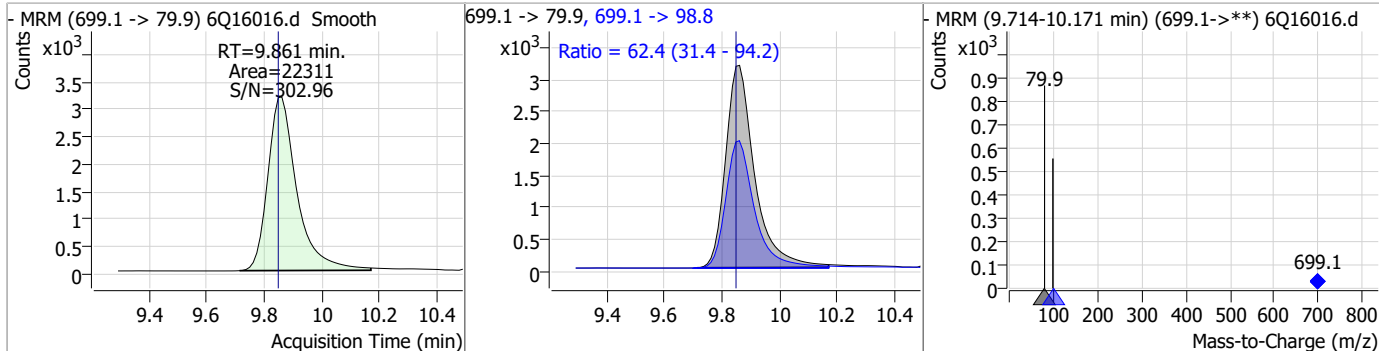


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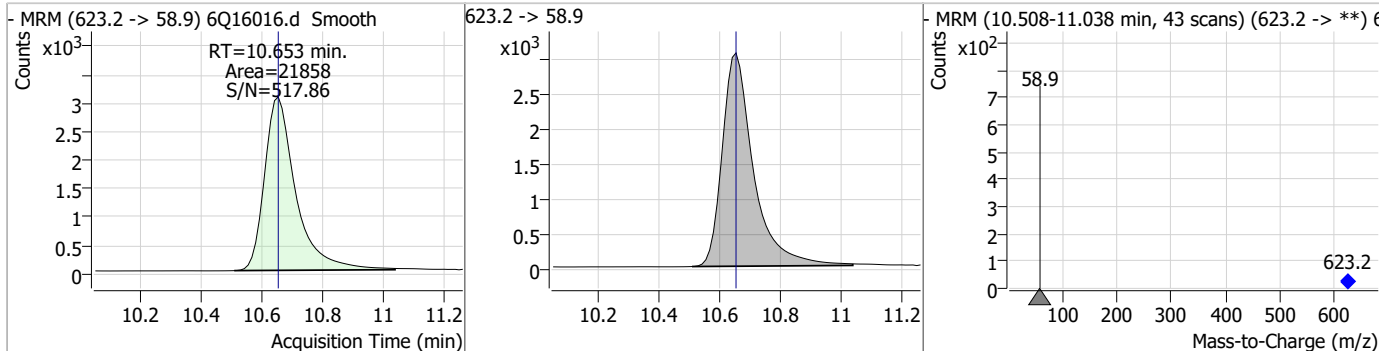
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### Perfluorinated Compounds by LC/MS/MS

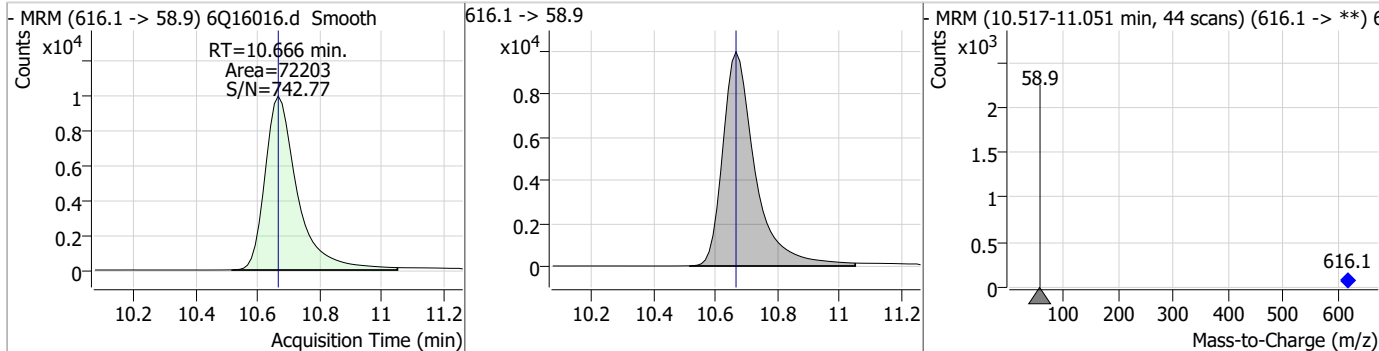
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	16.00	9.86	0.01	22311	699.1 -> 98.8	62.4	31.4	94.2



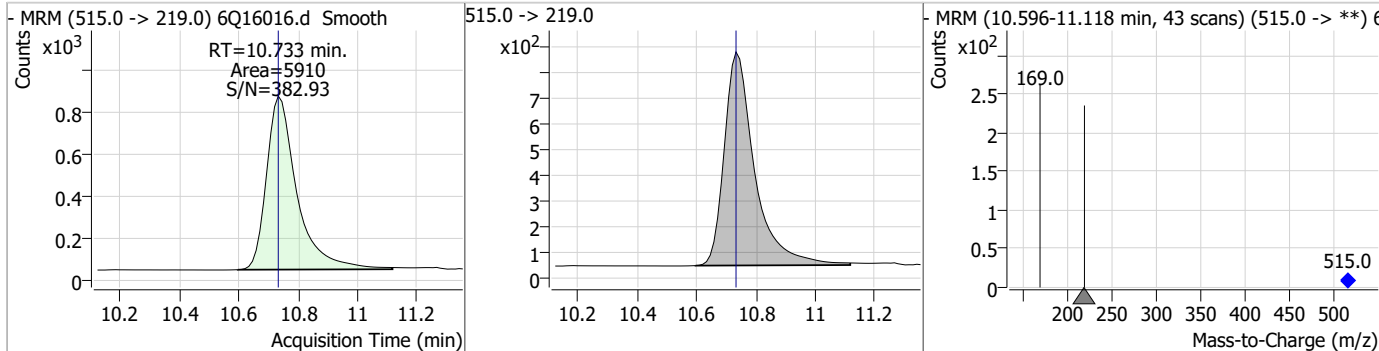
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.28	10.65	0.00	21858				



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

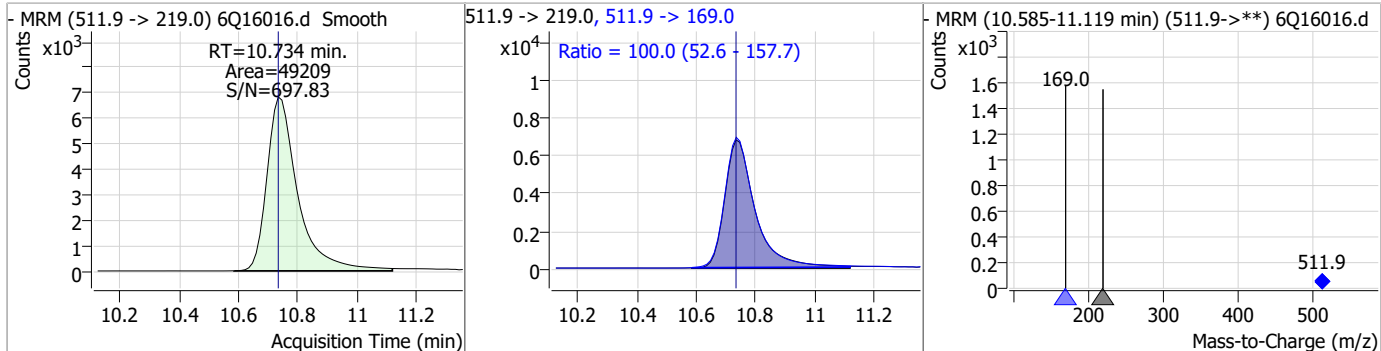


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.39	10.73	0.00	5910				

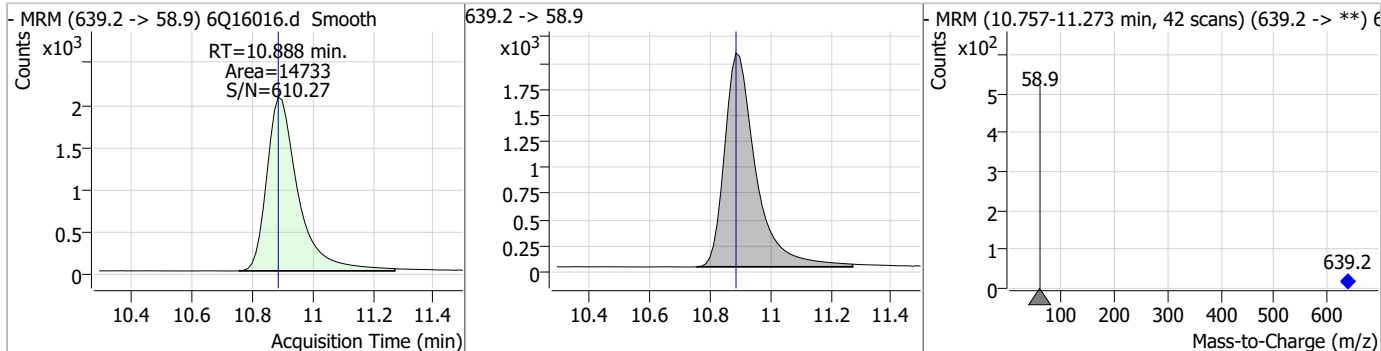


### Perfluorinated Compounds by LC/MS/MS

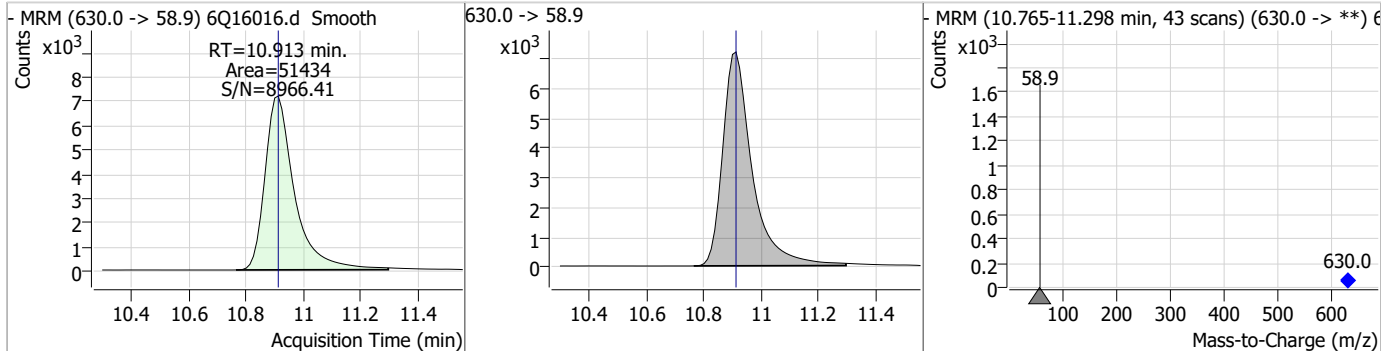
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOFA	19.79	10.73	0.00	49209	511.9 -> 169.0	100.0	52.6	157.7



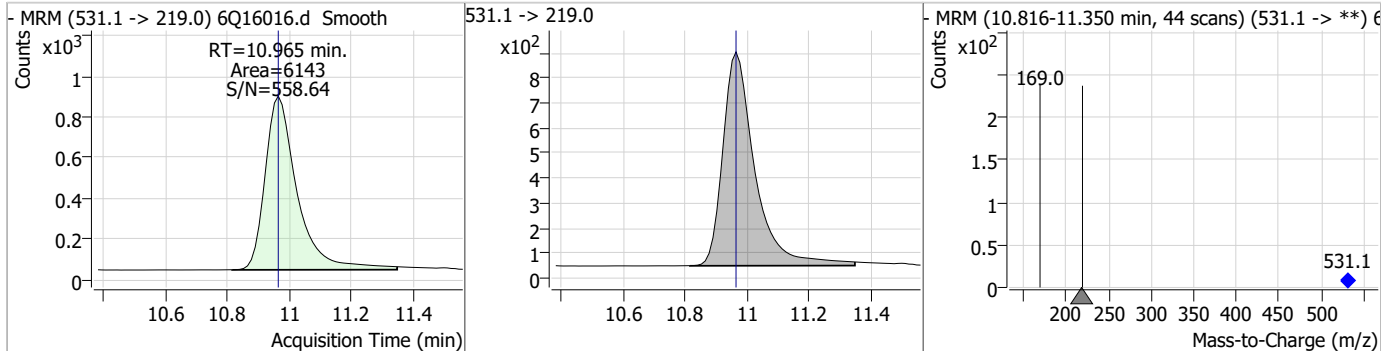
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.61	10.89	0.00	14733				



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

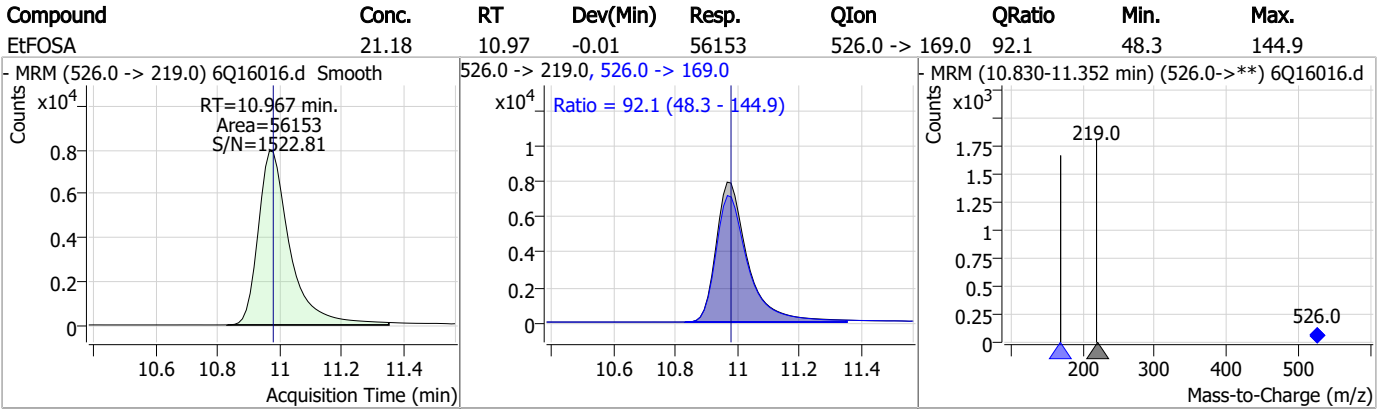


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	2.30	10.97	0.00	6143				





### Perfluorinated Compounds by LC/MS/MS



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# Manual Integration Approval Summary

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

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

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16017.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 4/4/2023 4:49:36 PM  
 Sample Name : cc239-4  
 Vial : P1-A5  
 DA Method File : 1633\_040423\_S6Q239.quantmethod.xml  
 Batch Name : s6q239.batch.bin  
 Sample Information : OP96085,S6Q239,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.897	216.8 -> 171.9	86523	10.00 µg/L	0.000
M5-PFPeA	4.322	268.3 -> 223.0	39435	5.00 µg/L	0.000
M5-PFHxA	5.528	318.0 -> 273.0	34307	2.50 µg/L	0.000
M4-PFHpA	6.468	367.1 -> 322.0	34609	2.50 µg/L	0.000
M8-PFOA	7.112	421.1 -> 376.0	57633	2.50 µg/L	0.000
M9-PFNA	7.643	472.1 -> 427.0	16849	1.25 µg/L	0.000
M6-PFDA	8.122	519.1 -> 474.1	14826	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	16374	1.25 µg/L	0.000
M2-PFDoDA	8.994	615.1 -> 570.0	19363	1.25 µg/L	0.000
M2-PFTeDA	9.721	715.2 -> 670.0	11028	1.25 µg/L	0.000
M8-FOSA	9.619	506.1 -> 77.8	16039	2.50 µg/L	0.000
M3-PFBS	5.459	302.1 -> 79.9	13310	2.50 µg/L	0.000
M3-PFHxS	7.228	402.1 -> 79.9	8399	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	7806	2.50 µg/L	0.000
M2-4:2FTS	5.191	329.1 -> 80.9	2068	5.00 µg/L	0.000
M2-6:2FTS	6.886	429.1 -> 80.9	2703	5.00 µg/L	0.000
M2-8:2FTS	7.911	529.1 -> 80.9	2585	5.00 µg/L	0.000
M3-MeFOSAA	8.180	573.2 -> 419.0	21112	5.00 µg/L	0.012
M3-HFPO-DA	5.893	286.9 -> 168.9	14322	10.00 µg/L	0.000
M5-EtFOSAA	8.375	589.2 -> 419.0	18919	5.00 µg/L	0.000
M7-MeFOSE	10.653	623.2 -> 58.9	22312	25.00 µg/L	0.000
M9-EtFOSE	10.888	639.2 -> 58.9	14905	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	6439	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	6058	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	9496	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	37375	5.00 µg/L	0.000
18O2-PFHxS	7.227	403.0 -> 83.9	6303	2.50 µg/L	0.000
13C4-PFOA	7.112	417.1 -> 372.0	69493	2.50 µg/L	0.000
13C2-PFDA	8.123	515.1 -> 470.1	19630	1.25 µg/L	0.000
13C5-PFNA	7.643	468.0 -> 423.0	18204	1.25 µg/L	0.000
13C2-PFHxA	5.516	315.1 -> 270.0	33175	2.50 µg/L	-0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.191	329.1 -> 80.9	2068	4.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C2-6:2FTS	6.886	429.1 -> 80.9	2703	5.20 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.9%		
13C2-8:2FTS	7.911	529.1 -> 80.9	2585	5.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C2-PFDoDA	8.994	615.1 -> 570.0	19363	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C2-PFTeDA	9.721	715.2 -> 670.0	11028	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.8%		
13C3-PFBS	5.459	302.1 -> 79.9	13310	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.0%		
13C3-PFHxS	7.228	402.1 -> 79.9	8399	2.33 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 = 93.1%		
13C4-PFBA	2.897	216.8 -> 171.9	86523	9.90 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C4-PFHpA	6.468	367.1 -> 322.0	34609	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C5-PFHxA	5.528	318.0 -> 273.0	34307	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C5-PFPeA	4.322	268.3 -> 223.0	39435	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C6-PFDA	8.122	519.1 -> 474.1	14826	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C7-PFUnDA	8.576	570.0 -> 525.1	16374	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.6%		
13C8-FOSA	9.619	506.1 -> 77.8	16039	2.27 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 90.8%		
13C8-PFOA	7.112	421.1 -> 376.0	57633	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C8-PFOS	8.284	507.1 -> 79.9	7806	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C9-PFNA	7.643	472.1 -> 427.0	16849	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.1%		
d3-MeFOSAA	8.180	573.2 -> 419.0	21112	4.60 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.9%		
13C3-HFPO-DA	5.893	286.9 -> 168.9	14322	9.90 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.0%		
d3-MeFOSA	10.733	515.0 -> 219.0	6058	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.1%		
d5-EtFOSAA	8.375	589.2 -> 419.0	18919	4.76 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.1%		
d7-MeFOSE	10.653	623.2 -> 58.9	22312	23.09 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 92.4%		
d9-EtFOSE	10.888	639.2 -> 58.9	14905	23.20 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 92.8%		
d5-EtFOSA	10.965	531.1 -> 219.0	6439	2.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.8%		
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.192	327.1 -> 307.0	38531	9.51 µg/L	100
		327.1 -> 80.9	9021		
6:2FTS	6.886	427.1 -> 407.0	32347	8.94 µg/L	98
		427.1 -> 80.9	6726		
8:2FTS	7.911	527.1 -> 507.0	16140	8.80 µg/L	98
		527.1 -> 80.8	4177		
EtFOSAA	8.376	584.2 -> 419.1	6912	2.38 µg/L	m 93
		584.2 -> 526.0	3521		
FOSA	9.621	498.1 -> 77.9	13583	2.29 µg/L	100
		498.1 -> 478.0	491		
MeFOSAA	8.168	570.1 -> 419.0	9147	2.31 µg/L	m 98
		570.1 -> 483.0	1667		
PFBA	2.893	212.8 -> 168.9	19419	8.88 µg/L	100
PFBS	5.460	298.7 -> 79.9	10767	2.06 µg/L	96
		298.7 -> 98.8	4692		
PFDA	8.123	512.9 -> 469.0	36994	2.14 µg/L	100
		512.9 -> 219.0	5256		
PFDoDA	8.994	613.1 -> 569.0	31221	2.16 µg/L	99
		613.1 -> 319.0	4024		
PFDS	9.158	599.0 -> 79.9	4345	1.86 µg/L	95

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.469	599.0 -> 98.8	2410	2.30	µg/L	99
		363.1 -> 319.0	44803			
PFHpS	7.794	363.1 -> 169.0	6386	2.02	µg/L	97
		449.0 -> 79.9	6724			
PFHxA	5.519	449.0 -> 98.9	3892	2.25	µg/L	100
		313.0 -> 269.0	28472			
PFHxS	7.228	313.0 -> 118.9	1163	2.22	µg/L	95
		398.7 -> 79.9	8191			
PFNA	7.643	398.7 -> 98.9	4425	2.07	µg/L	99
		463.0 -> 419.0	22773			
PFNS	8.738	463.0 -> 219.0	4813	2.08	µg/L	97
		548.8 -> 79.9	6906			
PFOA	7.113	548.8 -> 98.9	3832	2.20	µg/L	99
		413.0 -> 369.0	57439			
PFOS	8.286	413.0 -> 169.0	7856	1.97	µg/L	87
		498.9 -> 79.9	6749			
PFPeA	4.324	498.9 -> 98.8	4354	4.48	µg/L	100
		263.0 -> 219.0	37237			
PFPeS	6.533	349.1 -> 79.9	9712	2.18	µg/L	98
		349.1 -> 98.9	4892			
PFTeDA	9.722	713.1 -> 669.0	27958	2.40	µg/L	98
		713.1 -> 168.9	1883			
PFTrDA	9.378	663.0 -> 619.0	32291	2.37	µg/L	99
		663.0 -> 168.9	2479			
PFUnDA	8.577	563.1 -> 519.0	31087	2.37	µg/L	97
		563.1 -> 269.1	4734			
11CI-PF3OUdS	9.430	630.9 -> 450.9	69867	9.07	µg/L	97
		632.9 -> 452.9	20233			
9CI-PF3ONS	8.616	530.8 -> 351.0	125849	8.56	µg/L	99
		532.8 -> 353.0	42308			
ADONA	6.731	376.9 -> 250.9	257620	8.88	µg/L	97
		376.9 -> 84.8	63676			
HFPO-DA	5.894	284.9 -> 168.9	11710	9.04	µg/L	99
		284.9 -> 184.9	1413			
3:3FTCA	3.777	241.0 -> 177.0	4937	10.69	µg/L	100
		241.0 -> 117.0	756			
5:3FTCA	6.185	341.0 -> 237.1	154539	55.21	µg/L	97
		341.0 -> 217.0	139187			
7:3FTCA	7.608	441.0 -> 316.9	82812	58.44	µg/L	95
		441.0 -> 336.9	155240			
EtFOSA	10.979	526.0 -> 219.0	6448	2.32	µg/L	97
		526.0 -> 169.0	6035			
EtFOSE	10.913	630.0 -> 58.9	12588	21.53	µg/L	100
		511.9 -> 219.0	5983			
MeFOSA	10.734	511.9 -> 169.0	5818	2.35	µg/L	92
		616.1 -> 58.9	18292			
MeFOSE	10.666	699.1 -> 79.9	2808	21.75	µg/L	100
		699.1 -> 98.8	1608			
PFDoDS	9.848	295.0 -> 201.0	3660	2.07	µg/L	93
		295.0 -> 84.9	1607			
NFDHA	5.398	279.0 -> 85.1	11856	4.46	µg/L	100
		229.0 -> 84.9	11251			
PFMBA	4.737	314.8 -> 134.9	70767	4.30	µg/L	100
		314.8 -> 82.9	1870			
PFMPA	3.463			4.47	µg/L	100
PFEESA	5.999			3.94	µg/L	99

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



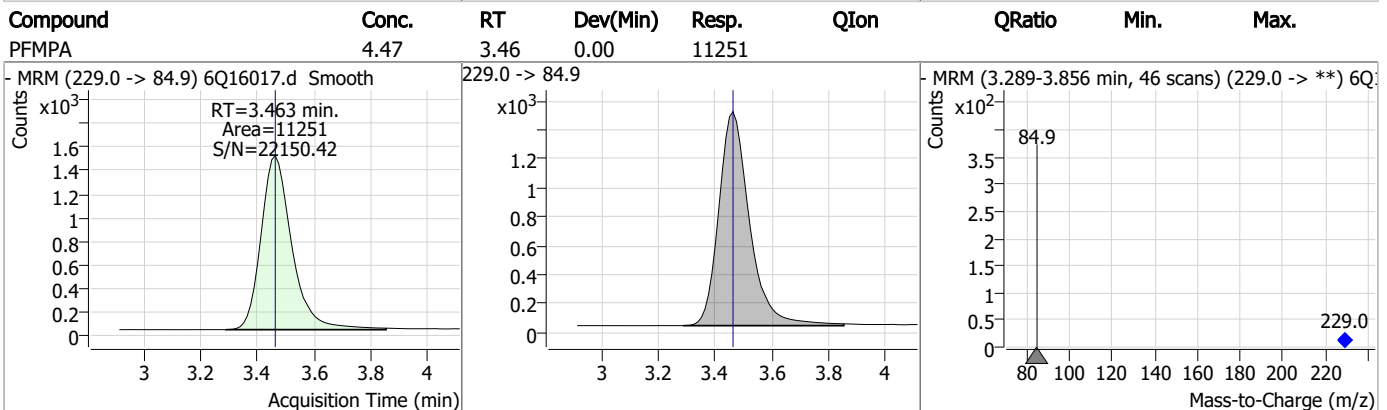
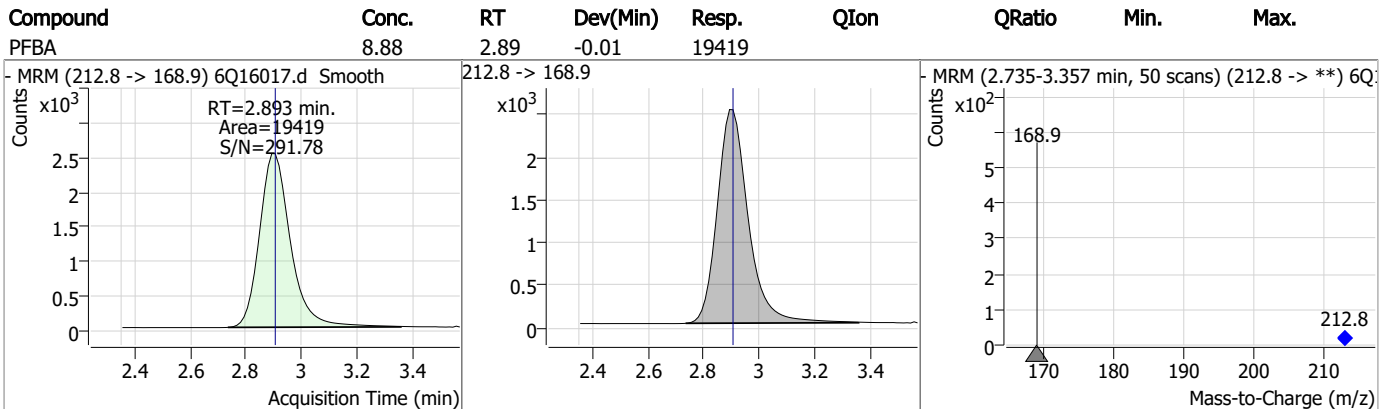
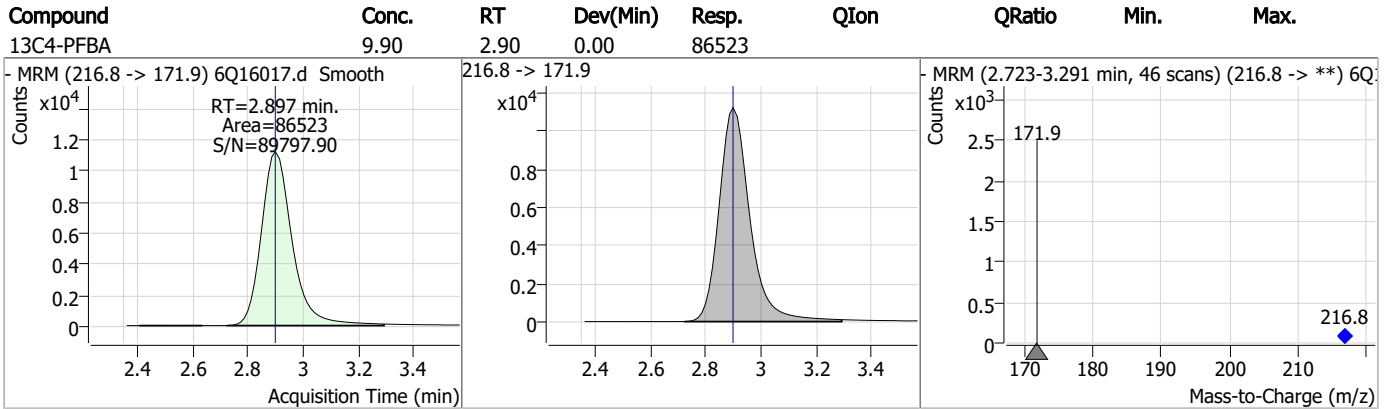
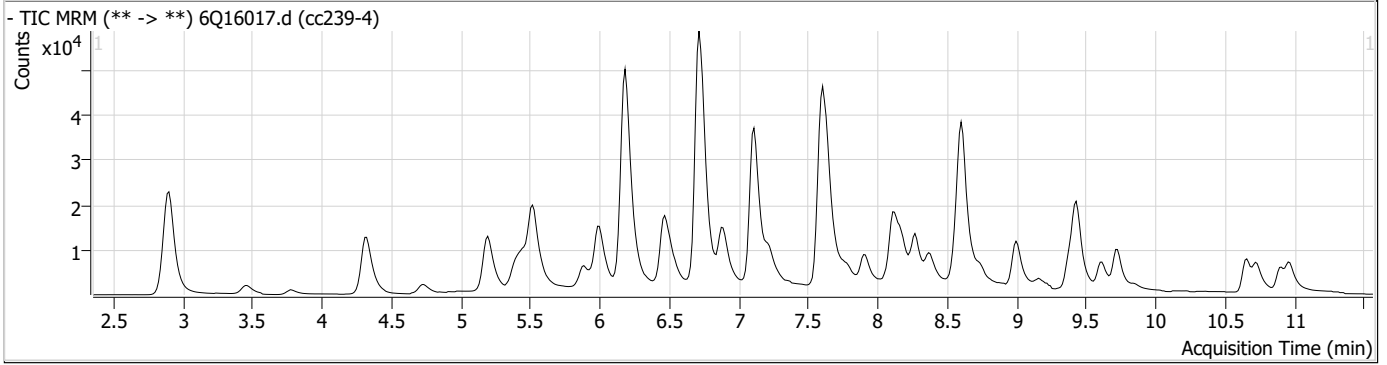
### Perfluorinated Compounds by LC/MS/MS

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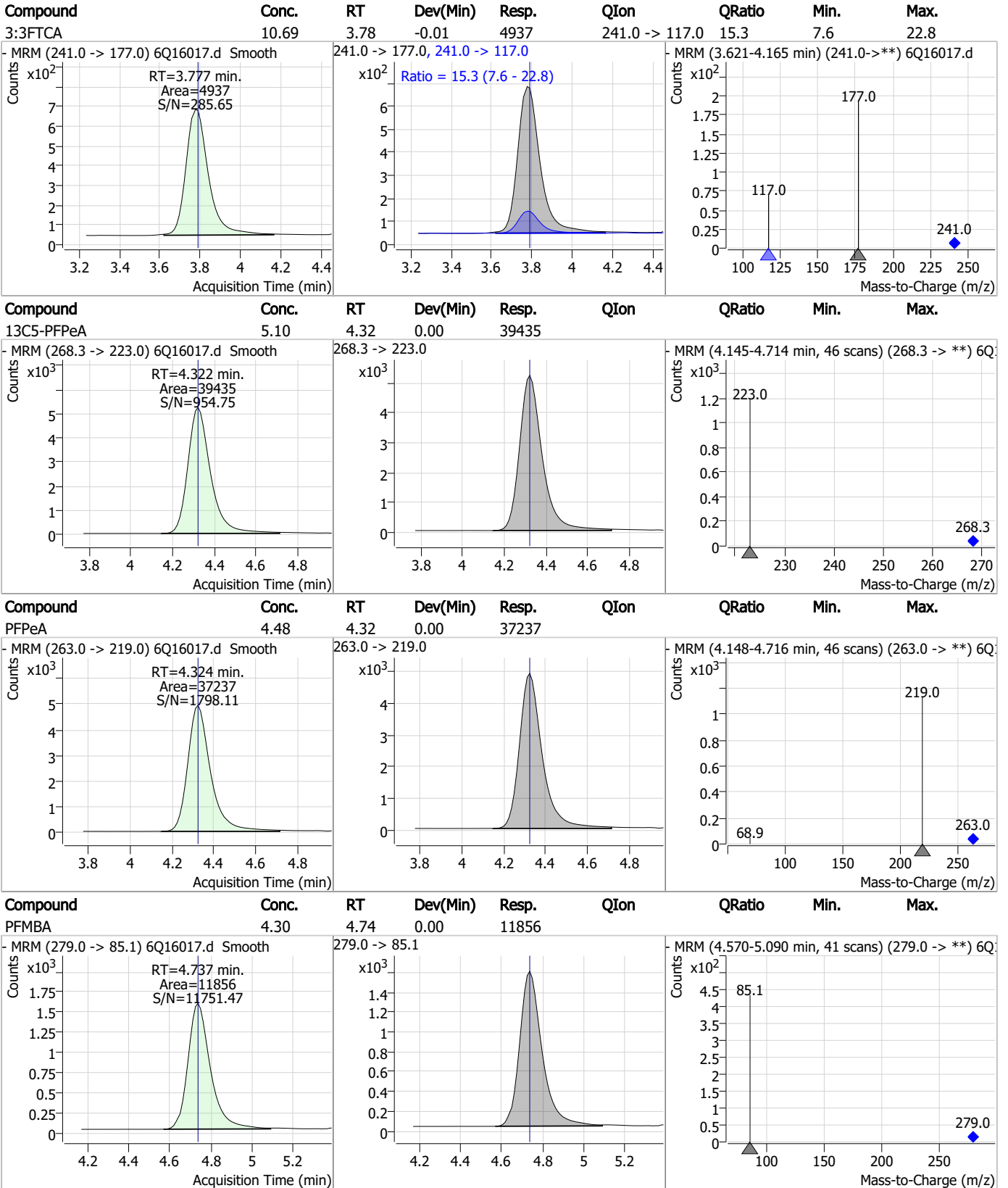
7.7.12

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### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

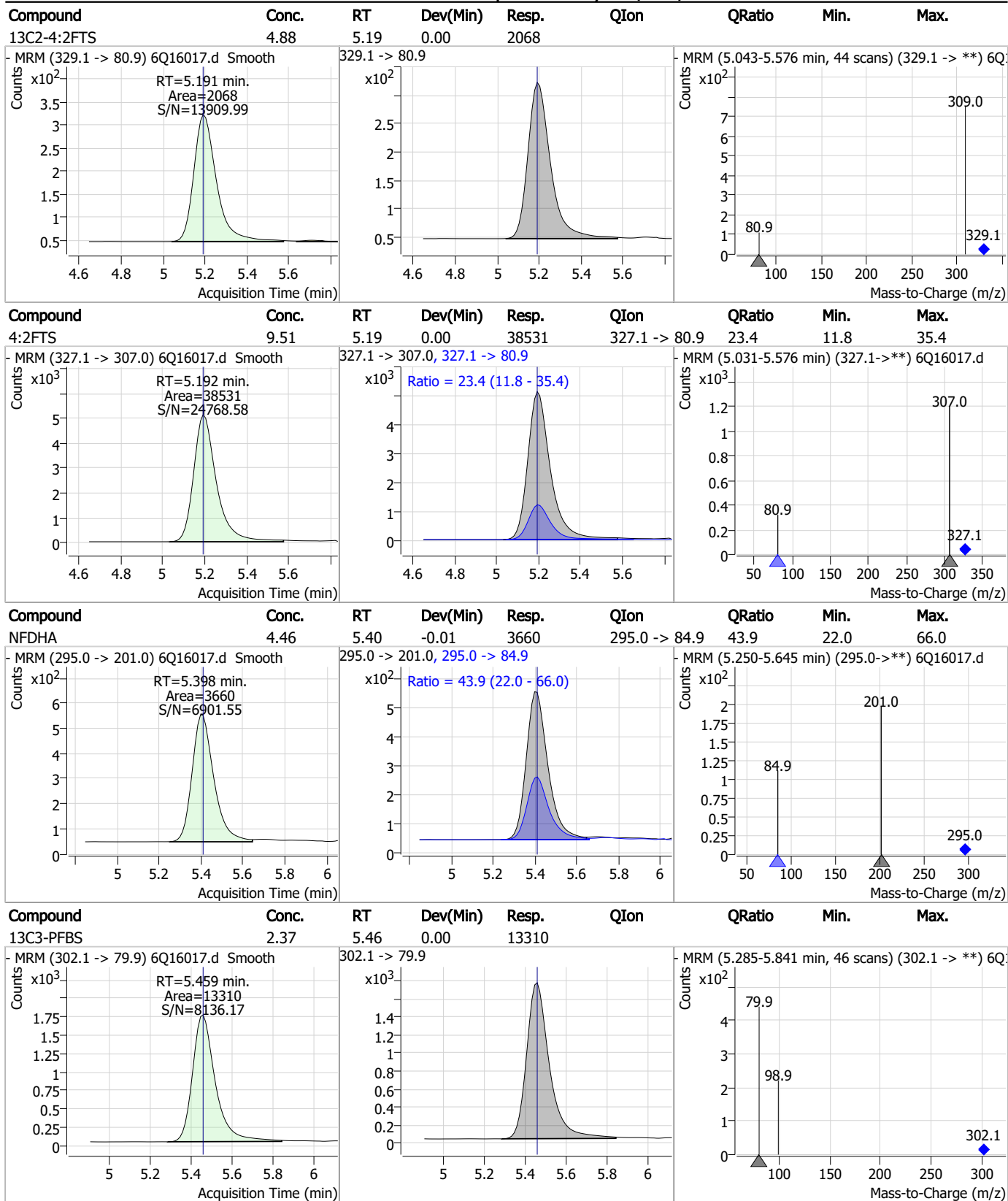


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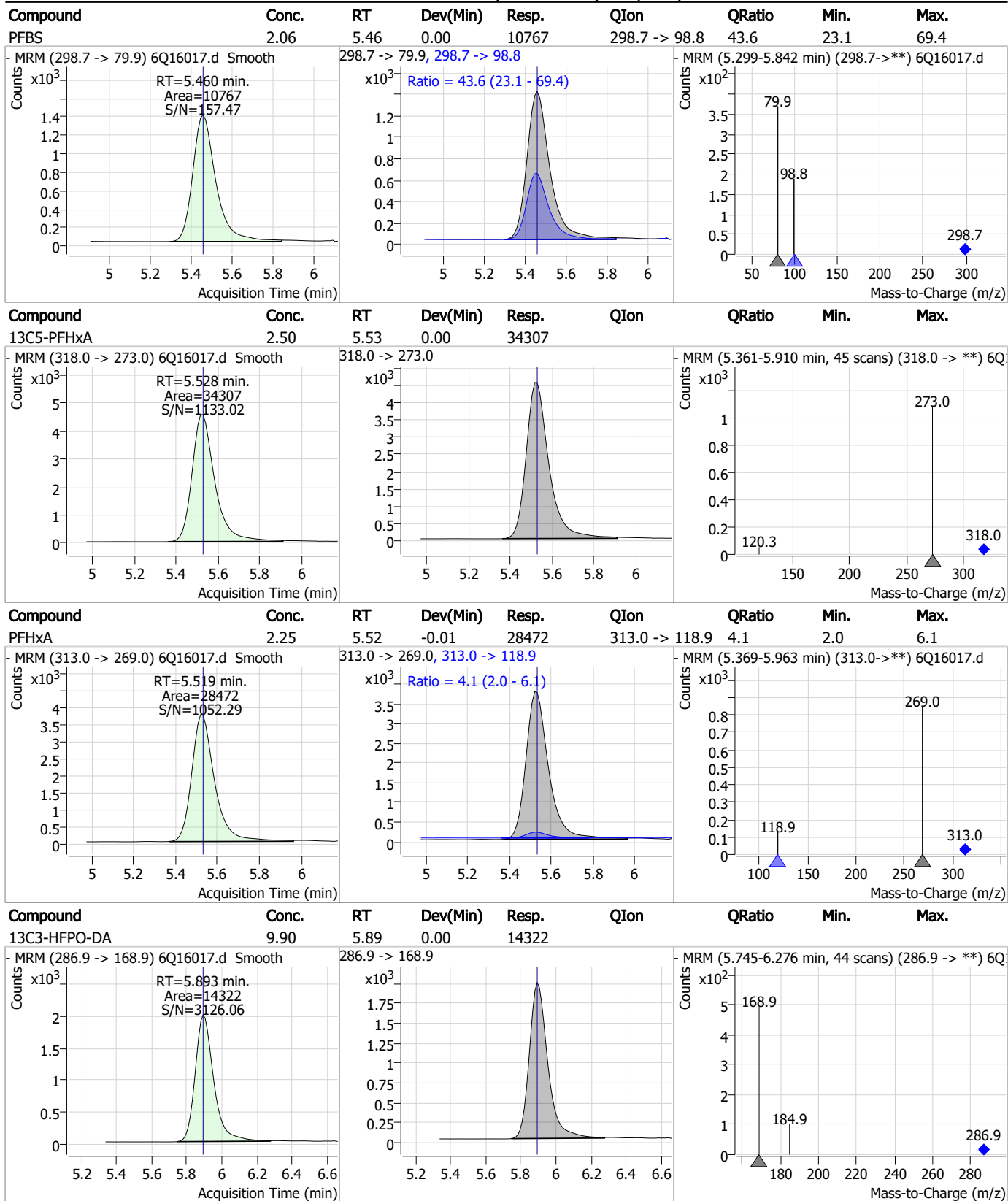


### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

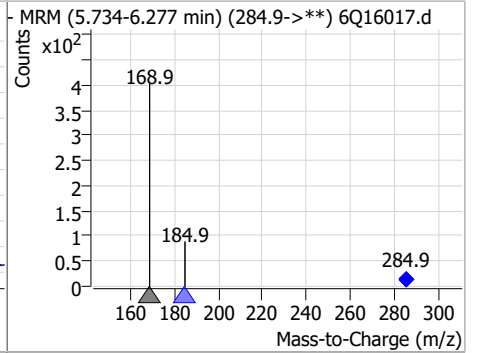
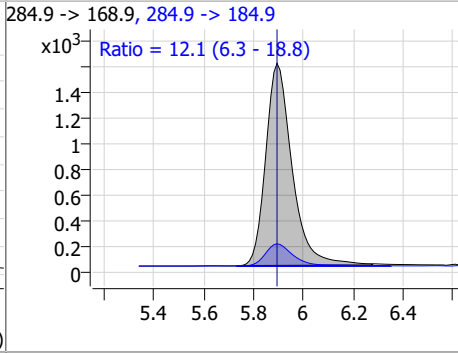
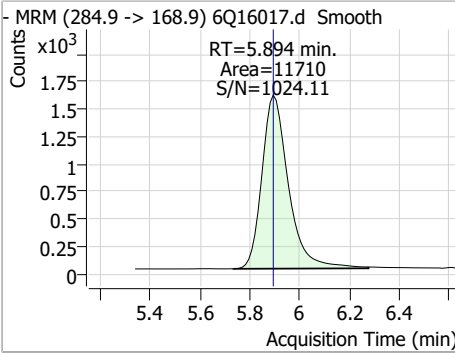


7.7.12  
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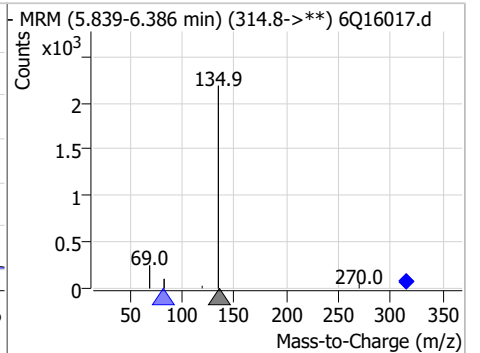
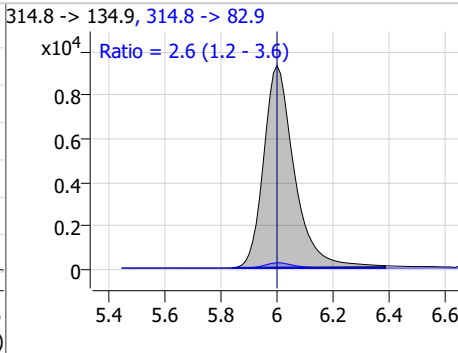
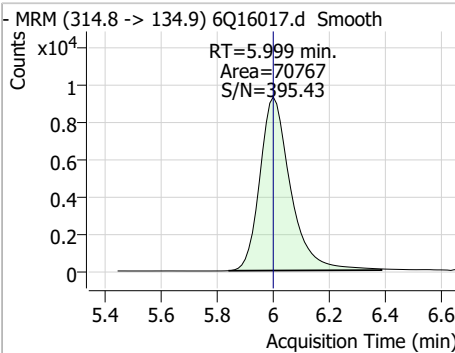


### Perfluorinated Compounds by LC/MS/MS

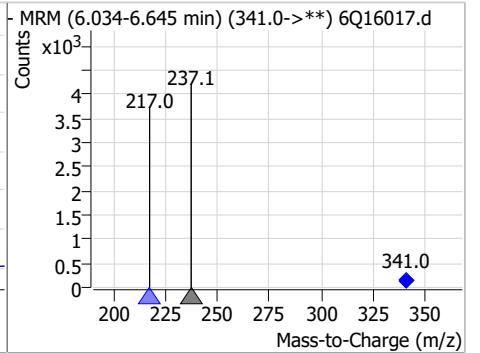
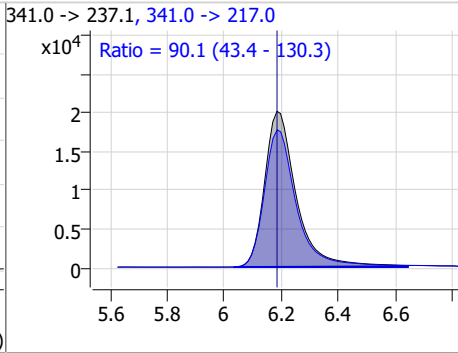
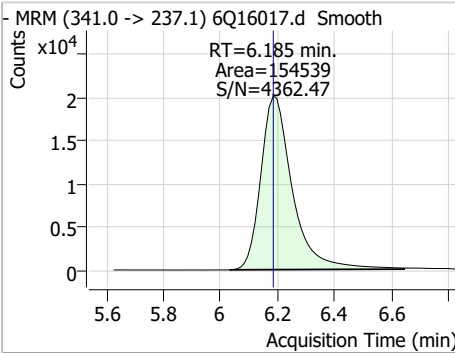
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.04	5.89	0.00	11710	284.9 -> 184.9	12.1	6.3	18.8



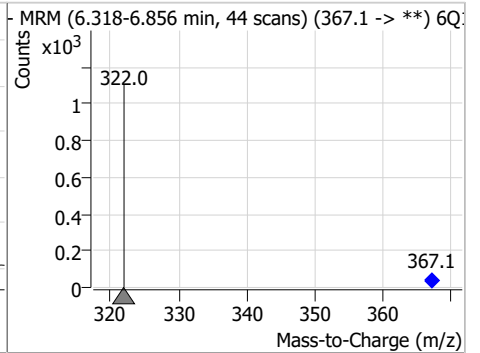
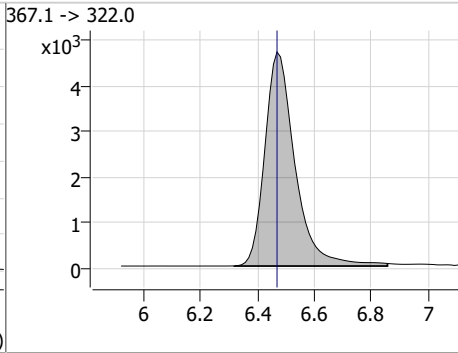
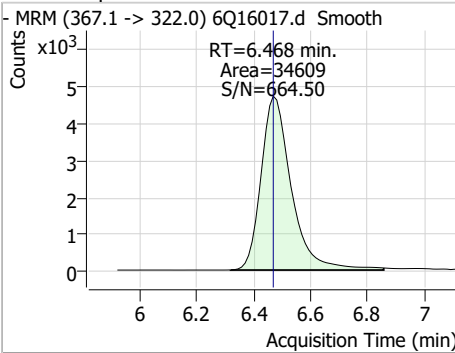
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	3.94	6.00	0.00	70767	314.8 -> 82.9	2.6	1.2	3.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	55.21	6.19	0.00	154539	341.0 -> 217.0	90.1	43.4	130.3

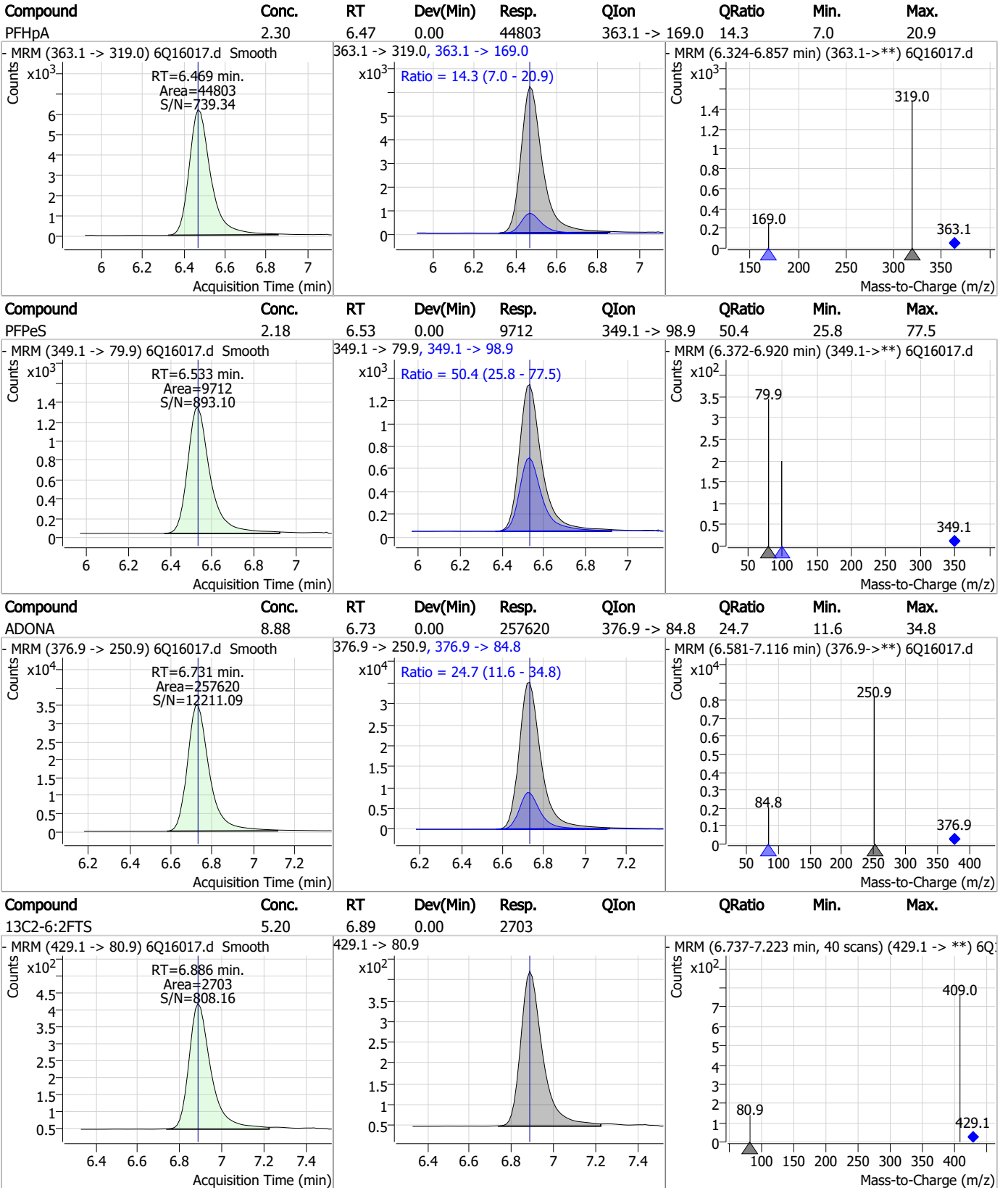


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.58	6.47	0.00	34609	367.1 -> 322.0			



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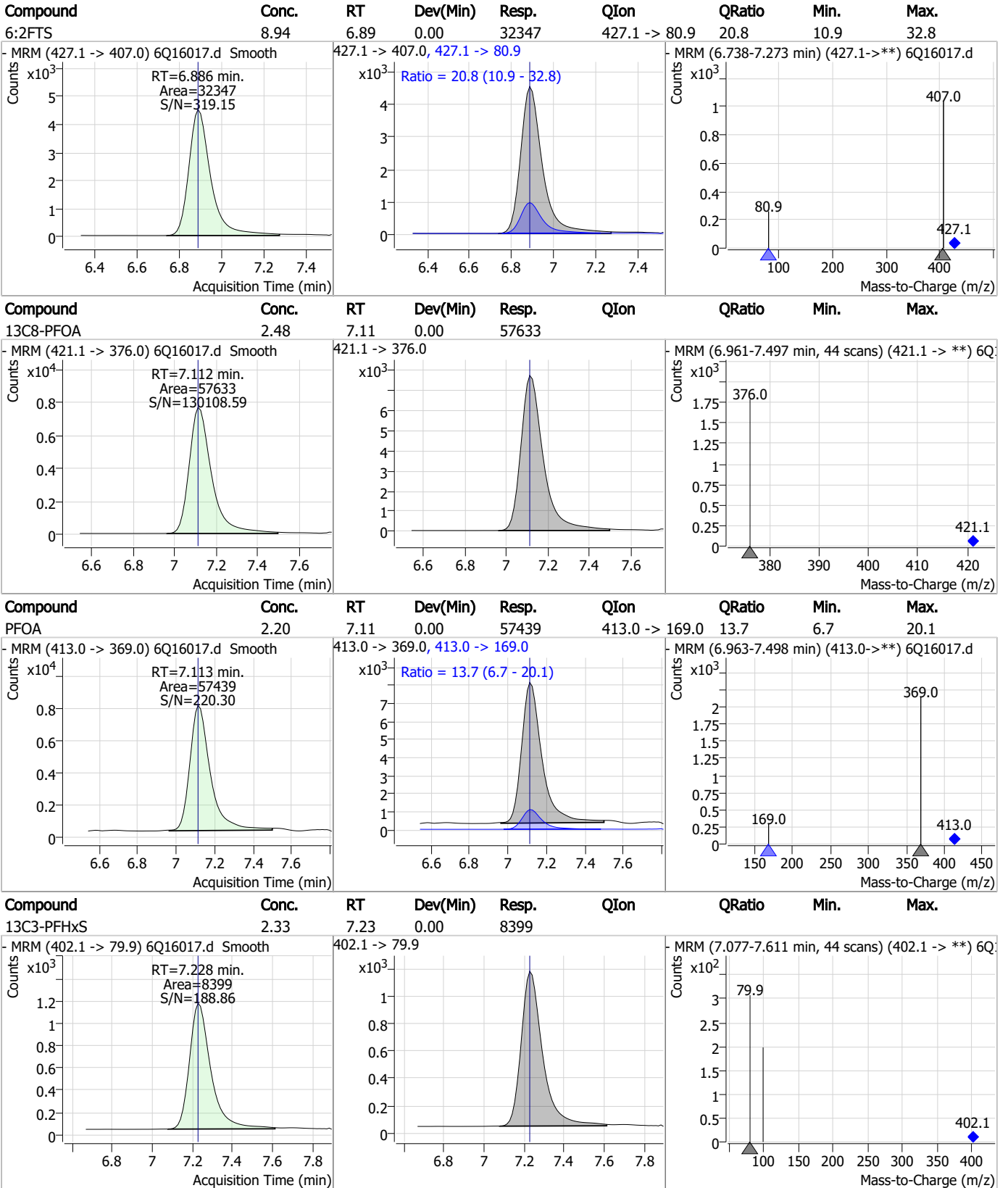
### Perfluorinated Compounds by LC/MS/MS



7.7.12  
7



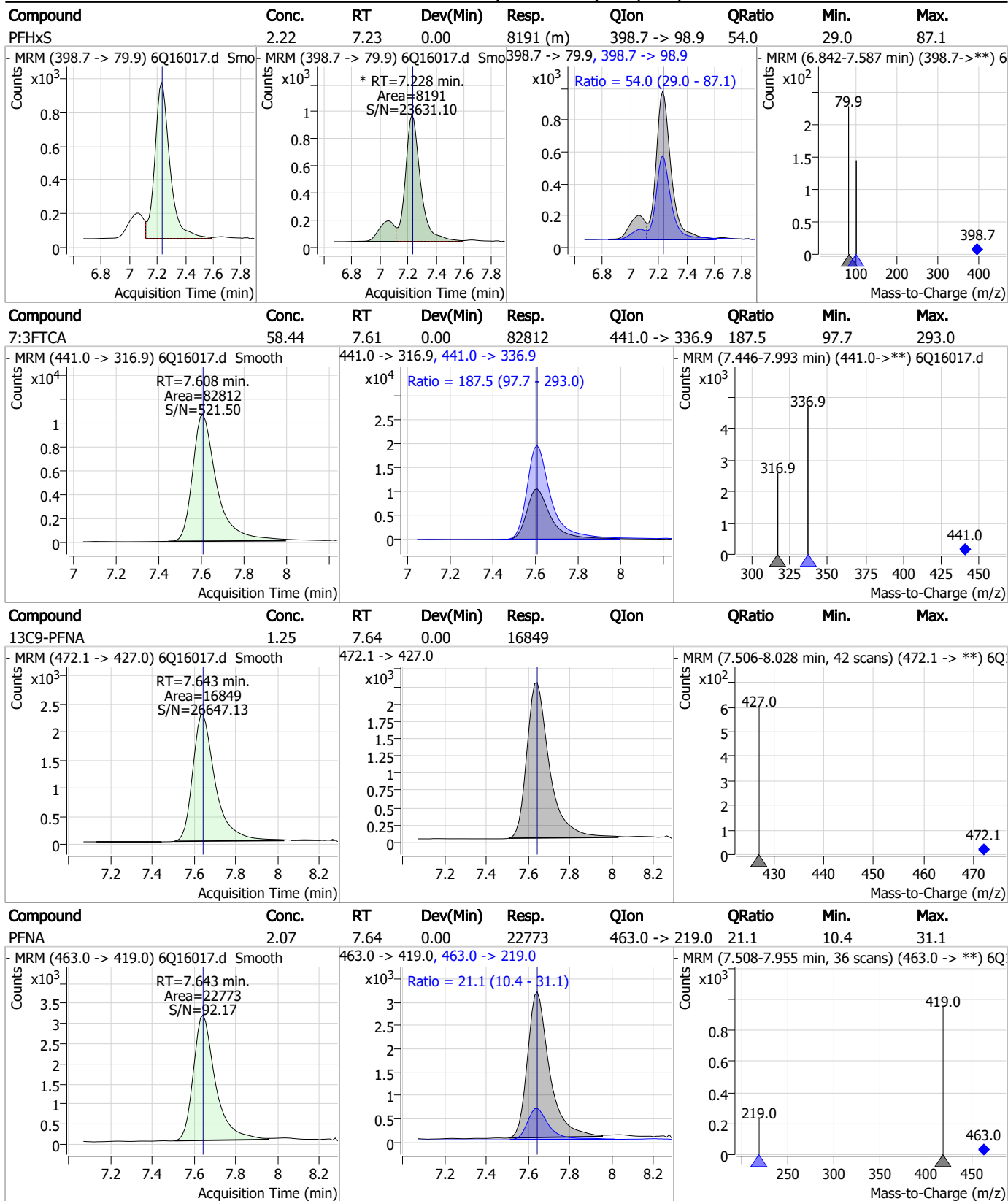
### Perfluorinated Compounds by LC/MS/MS



7.7.12 7

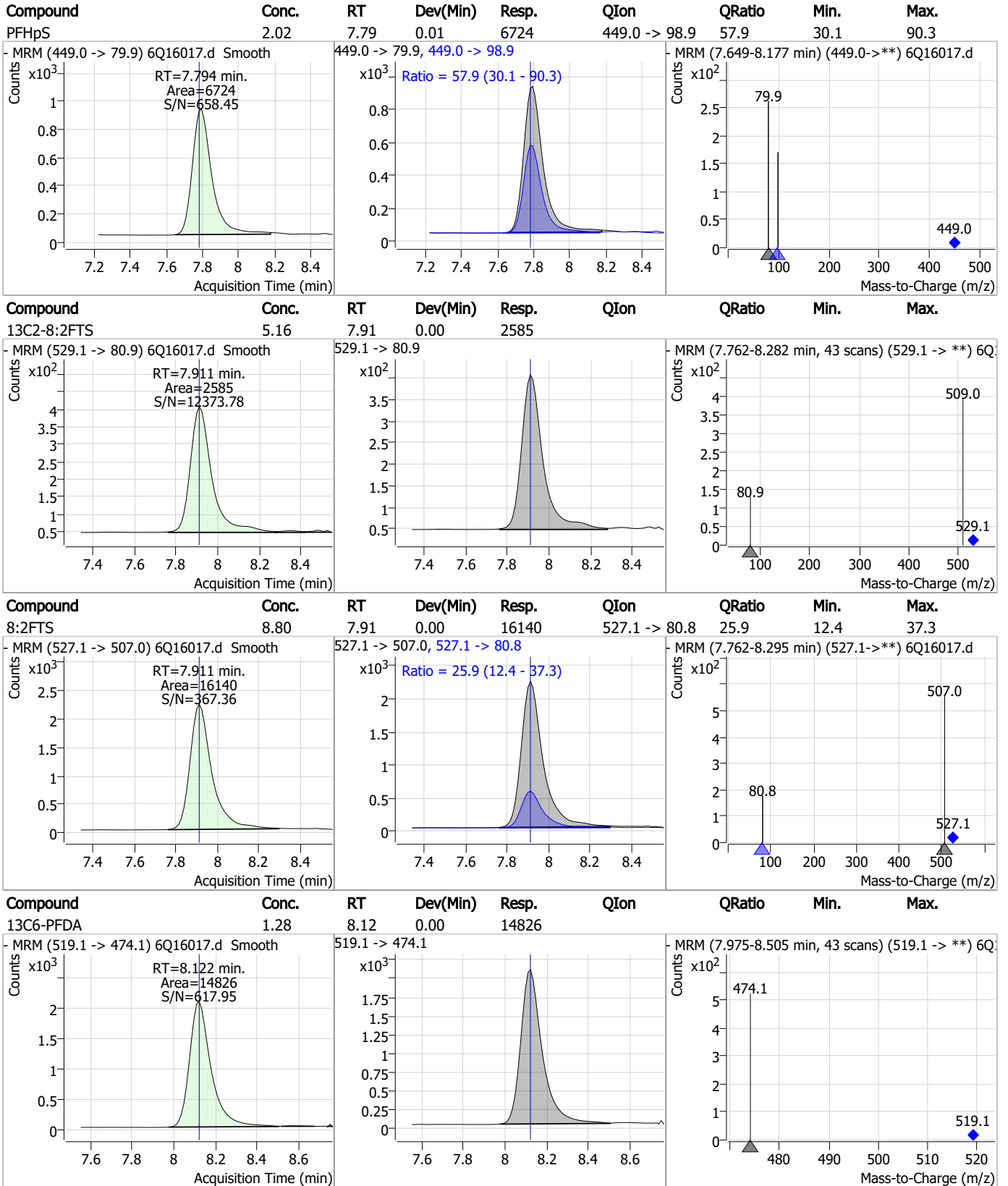


### Perfluorinated Compounds by LC/MS/MS



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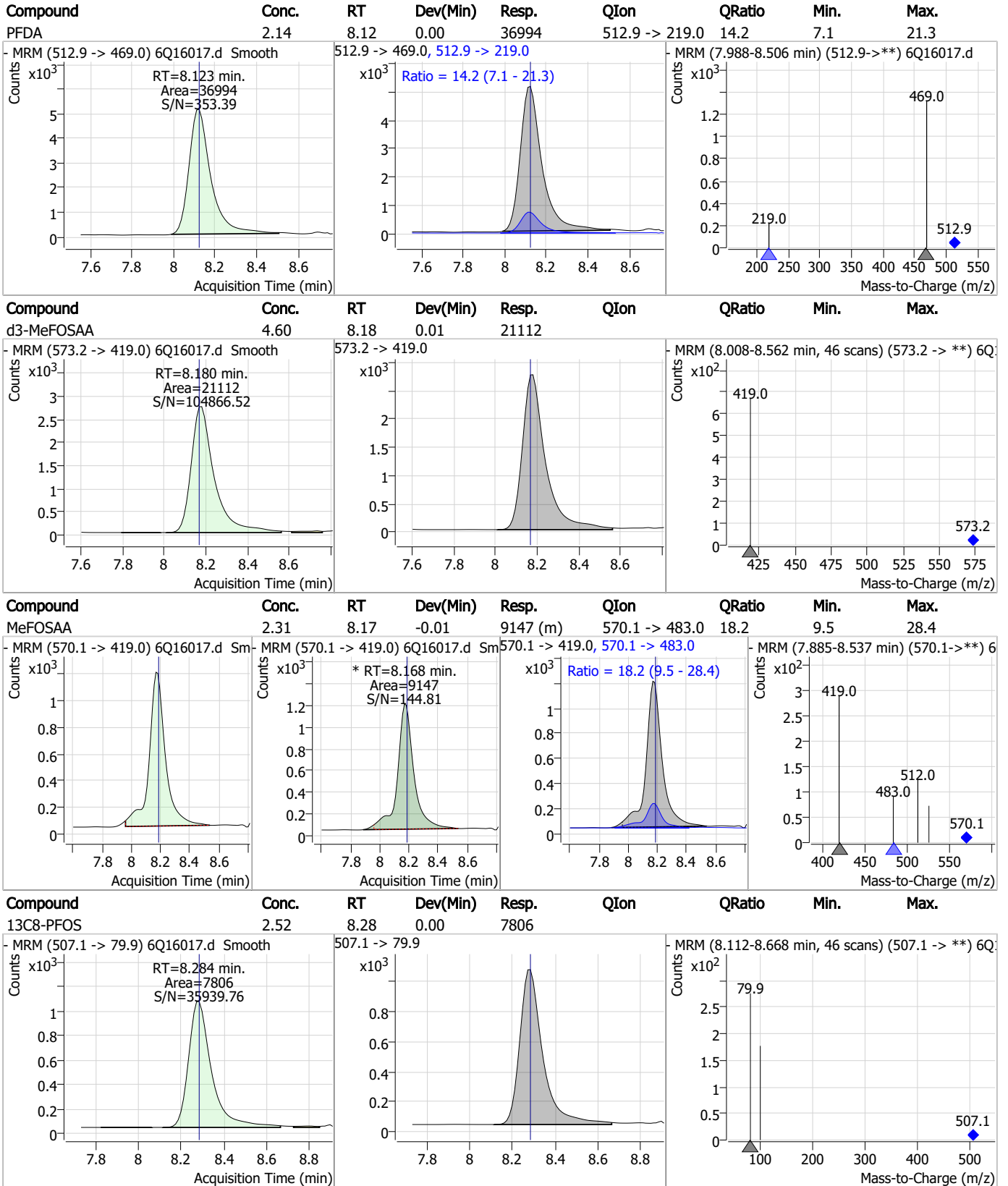
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS



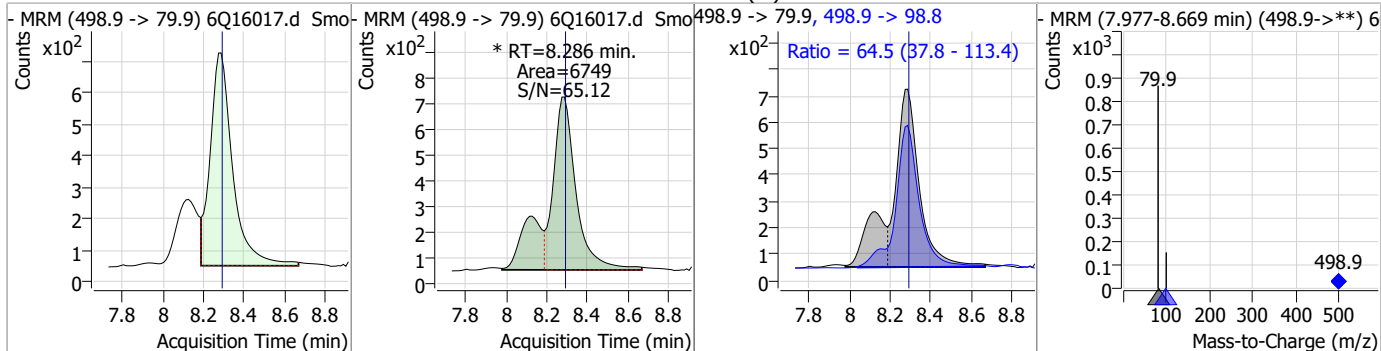
7.7.12 7



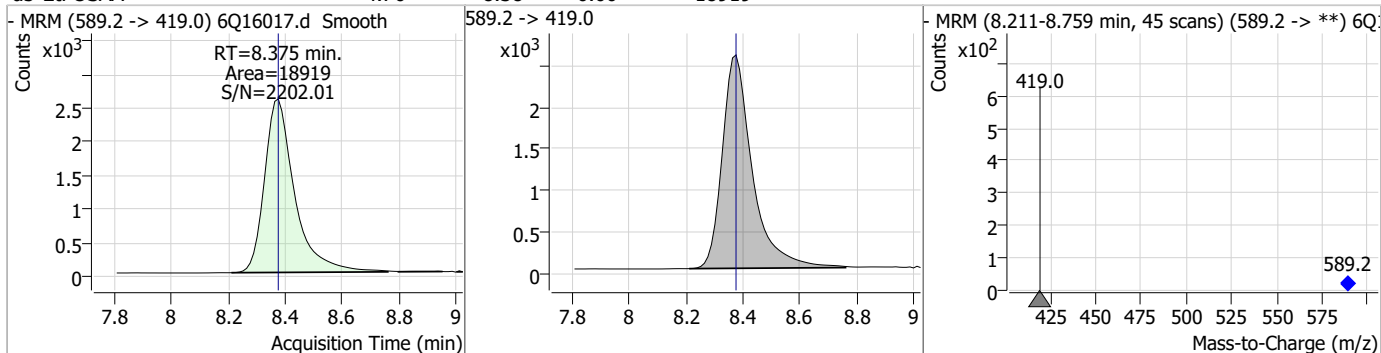


### Perfluorinated Compounds by LC/MS/MS

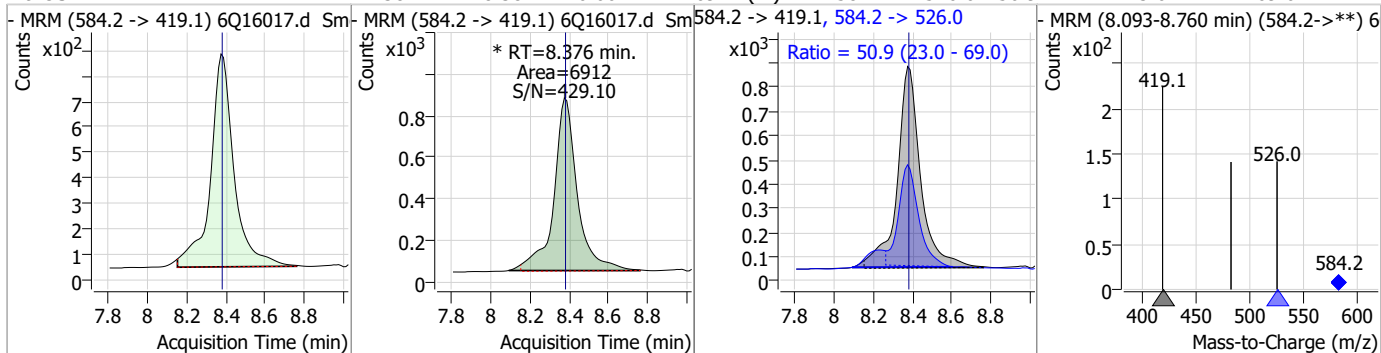
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.97	8.29	0.00	6749 (m)	498.9 -> 98.8	64.5	37.8	113.4



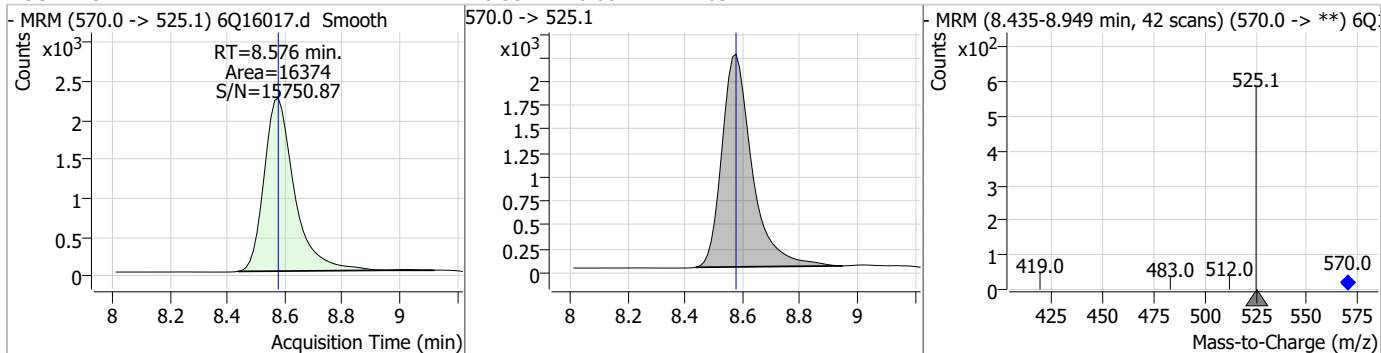
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.76	8.38	0.00	18919				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.38	8.38	0.00	6912 (m)	584.2 -> 526.0	50.9	23.0	69.0

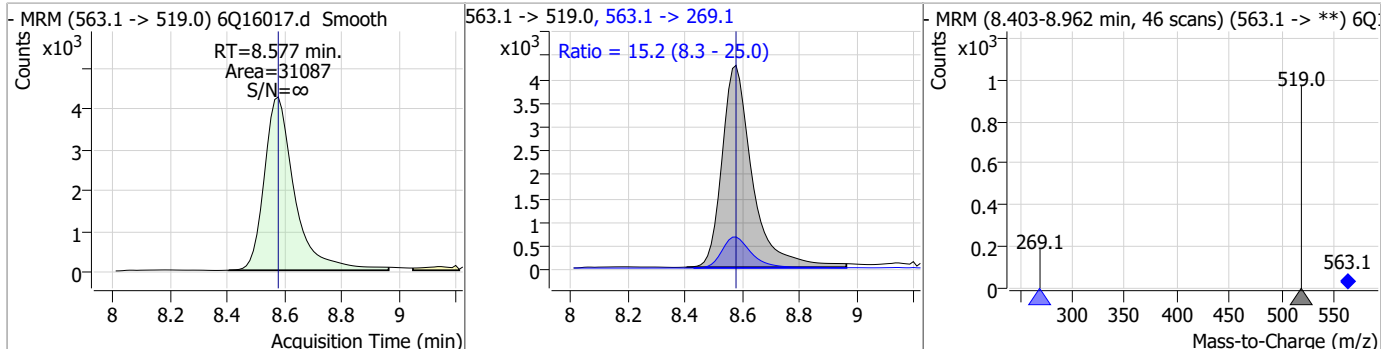


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.22	8.58	0.00	16374				

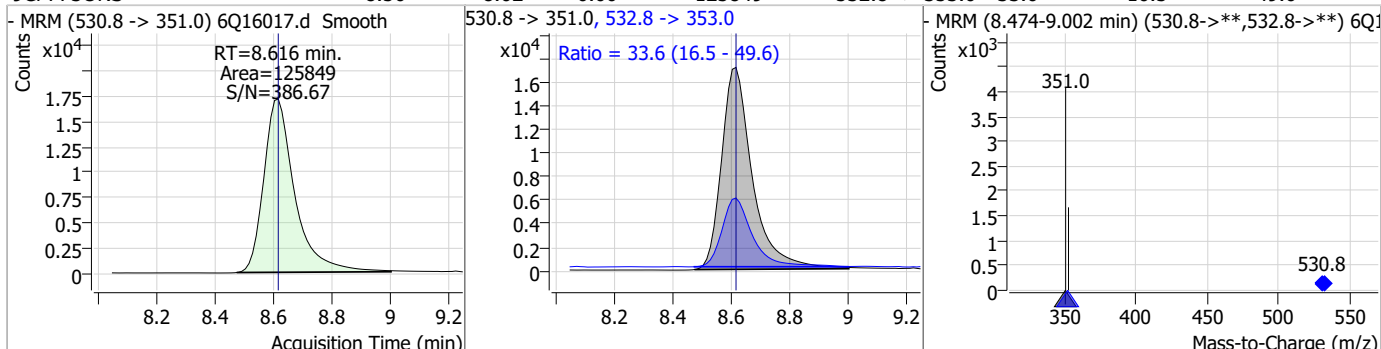


### Perfluorinated Compounds by LC/MS/MS

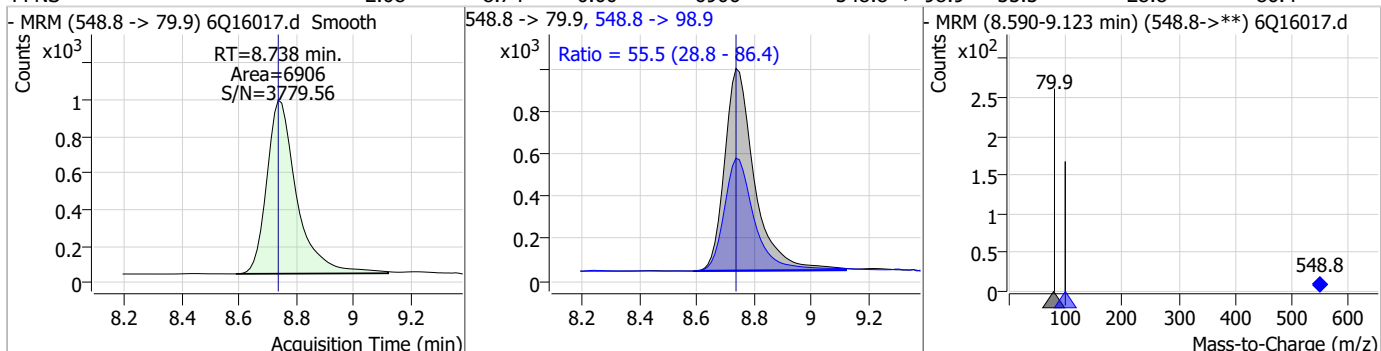
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.37	8.58	0.00	31087	563.1 -> 269.1	15.2	8.3	25.0



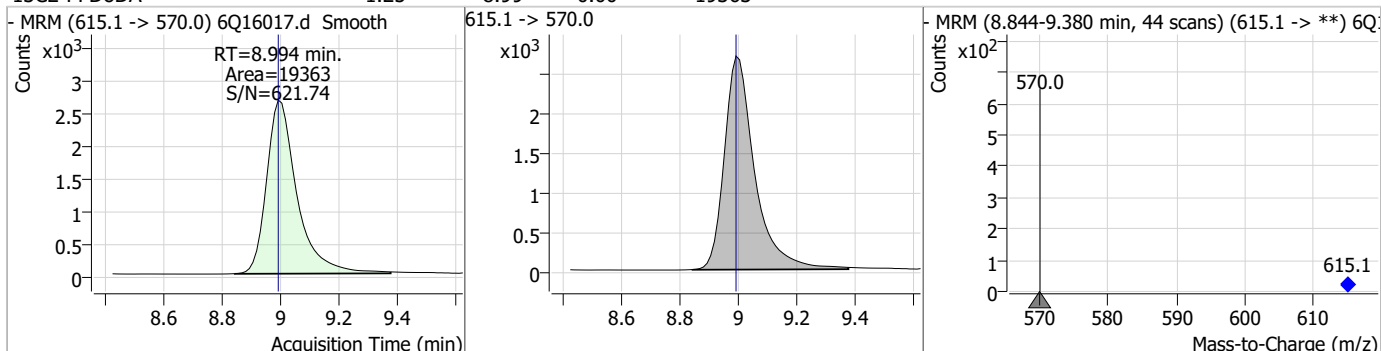
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	8.56	8.62	0.00	125849	532.8 -> 353.0	33.6	16.5	49.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.08	8.74	0.00	6906	548.8 -> 98.9	55.5	28.8	86.4

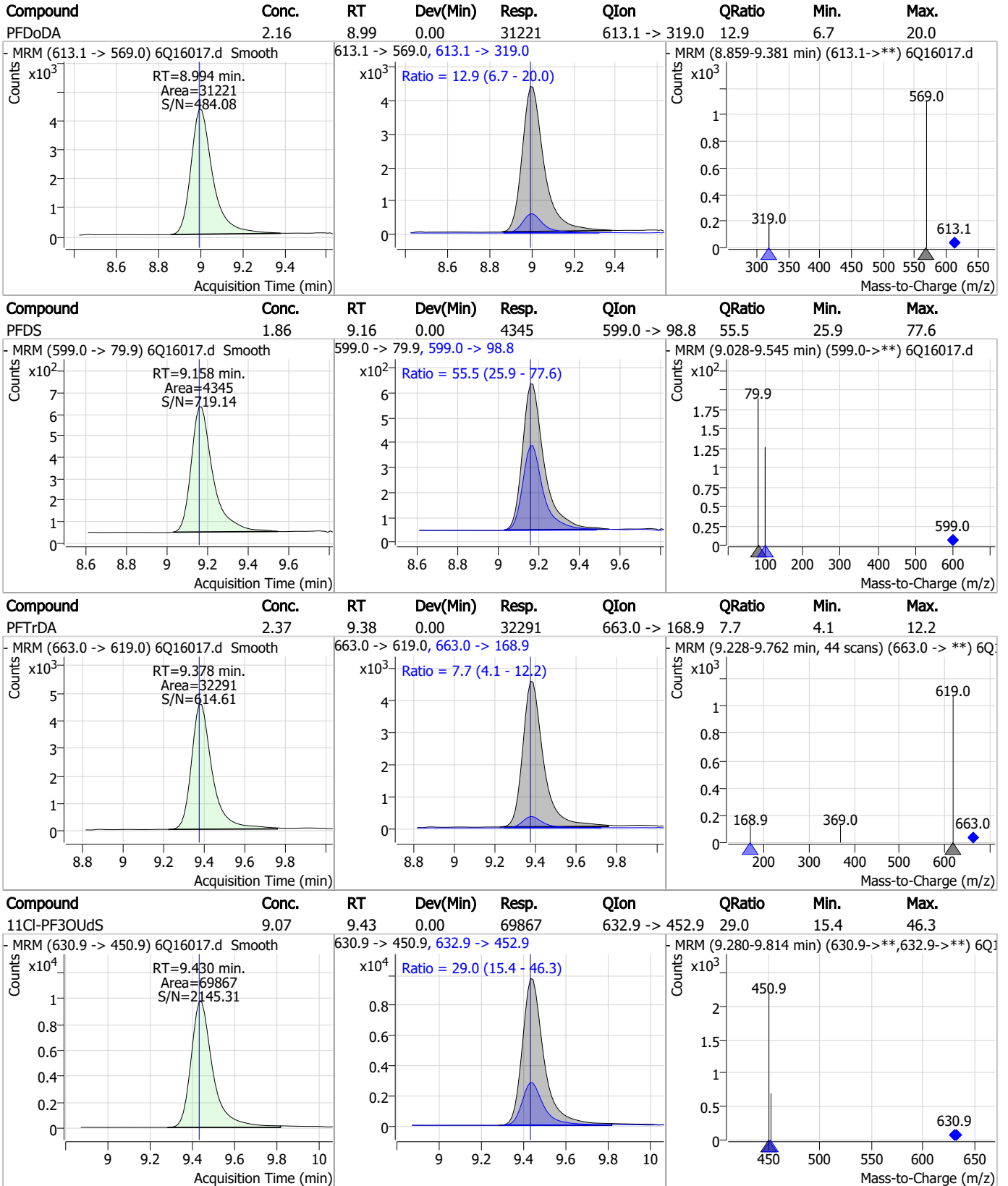


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.25	8.99	0.00	19363	615.1 -> 570.0			



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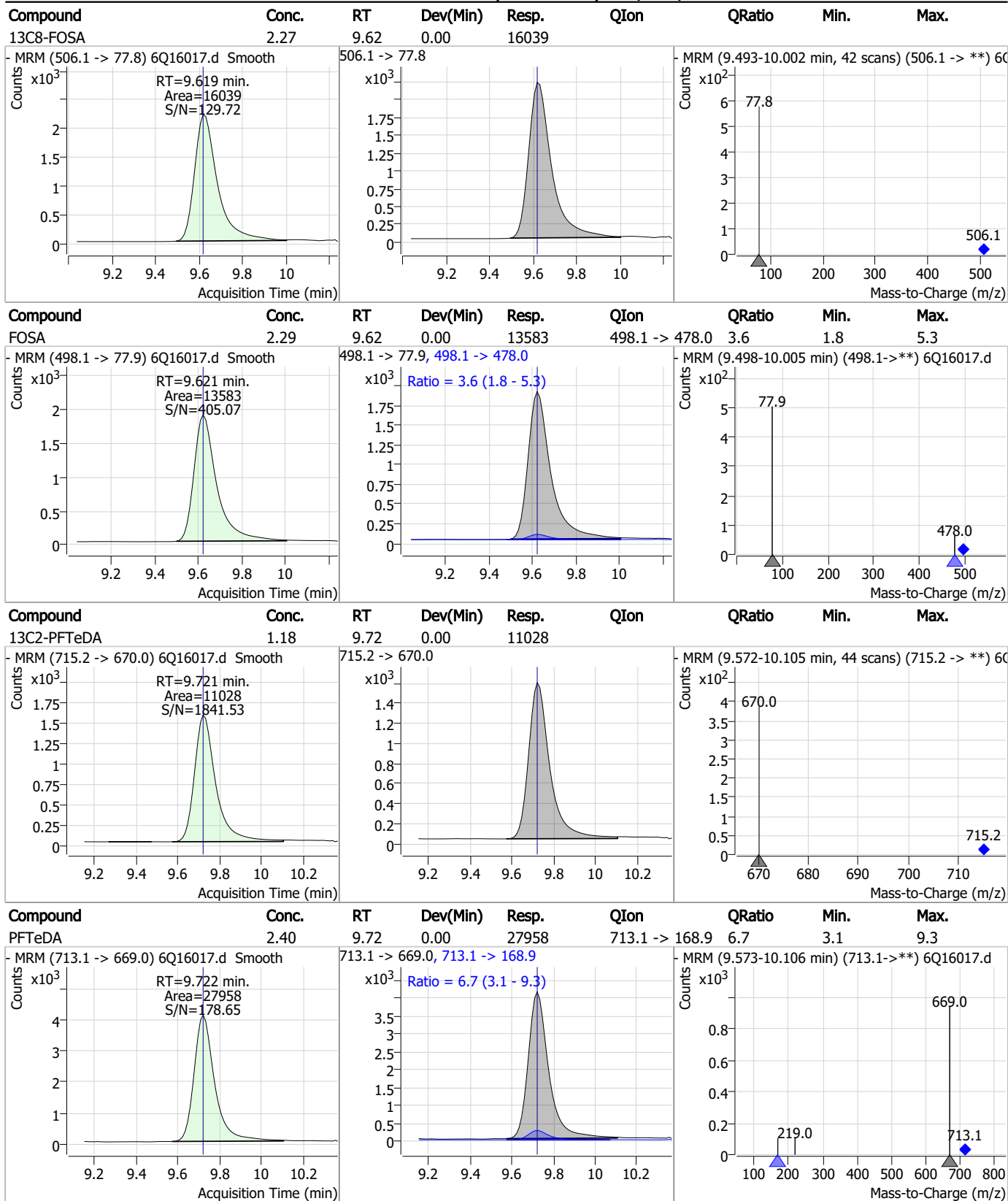
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS



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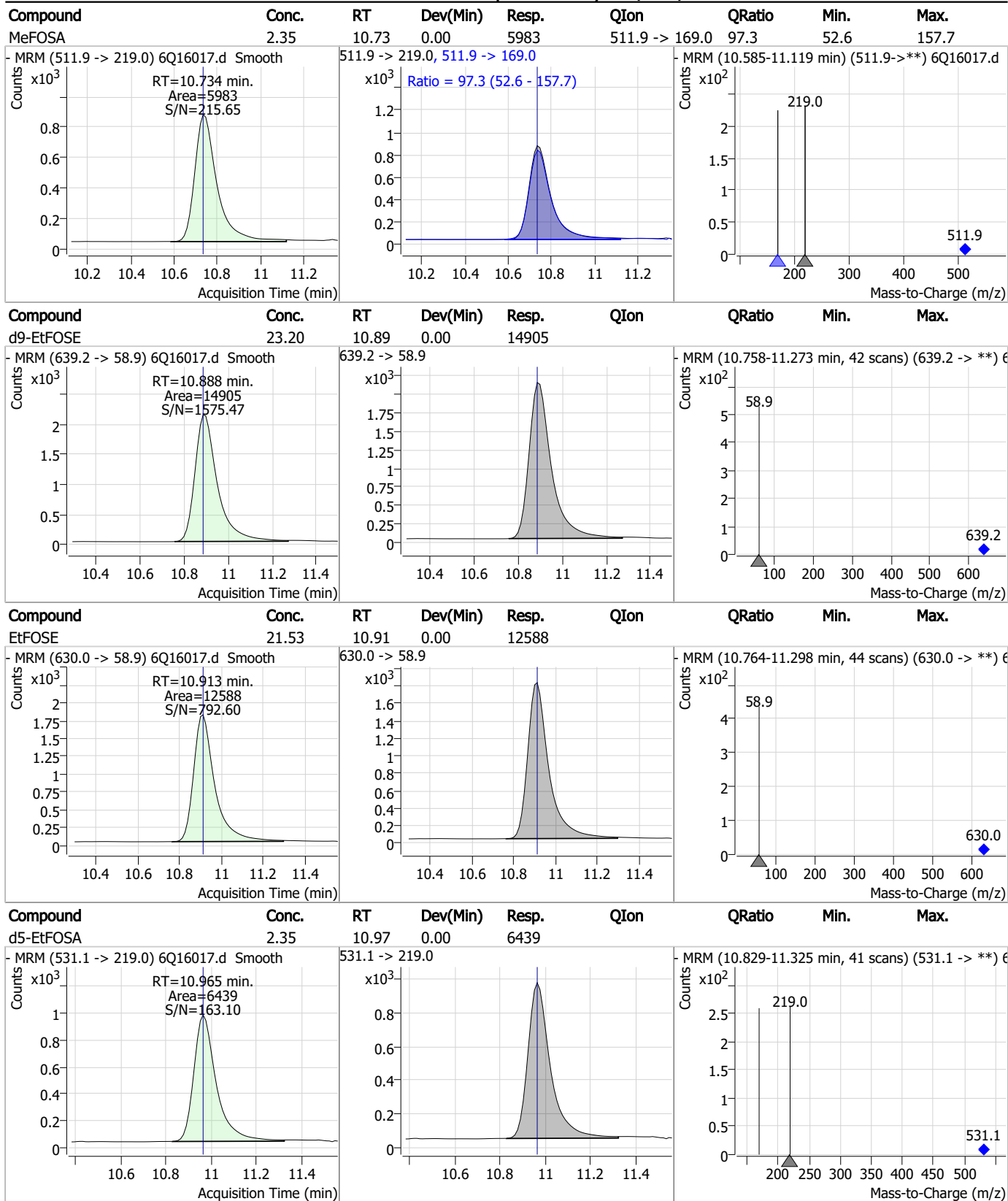


### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.07	9.85	0.00	2808	699.1 -> 98.8	57.3	31.4	94.2
d7-MeFOSE	23.09	10.65	0.00	22312				
MeFOSE	21.75	10.67	0.00	18292				
d3-MeFOSA	2.38	10.73	0.00	6058				

7.7.12  
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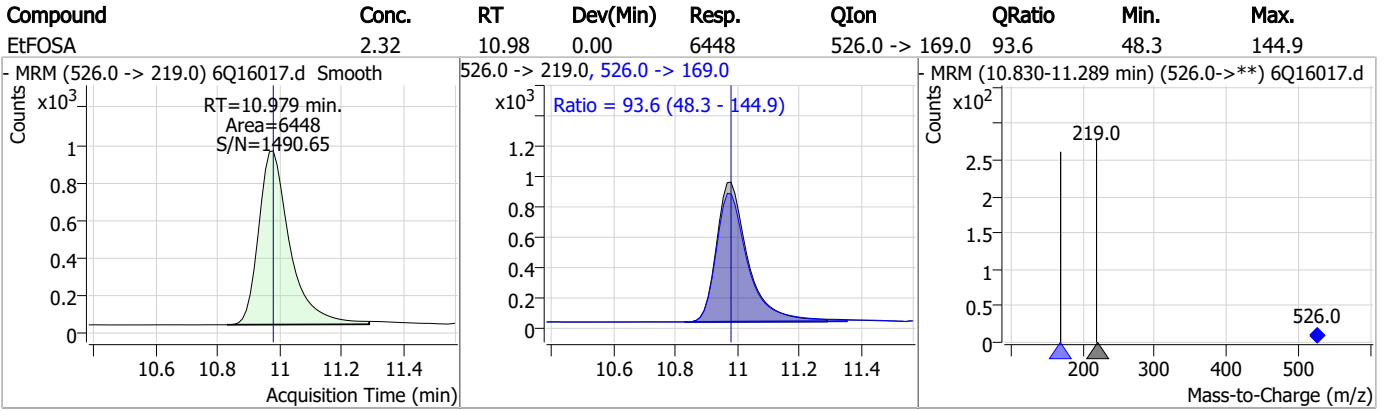
### Perfluorinated Compounds by LC/MS/MS



7.7.12  
7



### Perfluorinated Compounds by LC/MS/MS



7.7.12

7

# Manual Integration Approval Summary

Sample Number: S6Q239-CC239      Method: EPA DRAFT 1633  
Lab FileID: 6Q16017.D      Analyst approved: 04/05/23 11:17 Martha Valls  
Injection Time: 04/04/23 16:49      Supervisor approved: 04/05/23 17:23 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
MeFOSAA	2355-31-9		8.17	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.29	Split peak
EtFOSAA	2991-50-6		8.38	Split peak

7.7.12.1  
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### Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16018.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 4/4/2023 5:03:36 PM  
 Sample Name : cc239-1.0LL  
 Vial : P1-A2  
 DA Method File : 1633\_040423\_S6Q239.quantmethod.xml  
 Batch Name : s6q239.batch.bin  
 Sample Information : OP96085,S6Q239,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.897	216.8 -> 171.9	79244	10.00 µg/L	0.000
M5-PFPeA	4.322	268.3 -> 223.0	36087	5.00 µg/L	0.000
M5-PFHxA	5.528	318.0 -> 273.0	32144	2.50 µg/L	0.000
M4-PFHpA	6.468	367.1 -> 322.0	30873	2.50 µg/L	0.000
M8-PFOA	7.125	421.1 -> 376.0	50525	2.50 µg/L	0.013
M9-PFNA	7.643	472.1 -> 427.0	16000	1.25 µg/L	0.000
M6-PFDA	8.122	519.1 -> 474.1	13890	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	15796	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	17128	1.25 µg/L	0.012
M2-PFTeDA	9.721	715.2 -> 670.0	10857	1.25 µg/L	0.000
M8-FOSA	9.631	506.1 -> 77.8	15157	2.50 µg/L	0.012
M3-PFBS	5.459	302.1 -> 79.9	12535	2.50 µg/L	0.000
M3-PFHxS	7.240	402.1 -> 79.9	8020	2.50 µg/L	0.012
M8-PFOS	8.284	507.1 -> 79.9	6974	2.50 µg/L	0.000
M2-4:2FTS	5.191	329.1 -> 80.9	2062	5.00 µg/L	0.000
M2-6:2FTS	6.886	429.1 -> 80.9	2587	5.00 µg/L	0.000
M2-8:2FTS	7.923	529.1 -> 80.9	2395	5.00 µg/L	0.012
M3-MeFOSAA	8.180	573.2 -> 419.0	20103	5.00 µg/L	0.012
M3-HFPO-DA	5.893	286.9 -> 168.9	13444	10.00 µg/L	0.000
M5-EtFOSAA	8.375	589.2 -> 419.0	17539	5.00 µg/L	0.000
M7-MeFOSE	10.653	623.2 -> 58.9	20664	25.00 µg/L	0.000
M9-EtFOSE	10.888	639.2 -> 58.9	13330	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	5519	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	5274	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	8302	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	34204	5.00 µg/L	0.000
18O2-PFHxS	7.239	403.0 -> 83.9	5832	2.50 µg/L	0.012
13C4-PFOA	7.125	417.1 -> 372.0	64497	2.50 µg/L	0.013
13C2-PFDA	8.123	515.1 -> 470.1	17883	1.25 µg/L	0.000
13C5-PFNA	7.655	468.0 -> 423.0	17881	1.25 µg/L	0.012
13C2-PFHxA	5.529	315.1 -> 270.0	29160	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.191	329.1 -> 80.9	2062	5.25 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.1%		
13C2-6:2FTS	6.886	429.1 -> 80.9	2587	5.37 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.5%		
13C2-8:2FTS	7.923	529.1 -> 80.9	2395	5.16 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C2-PFDoDA	9.006	615.1 -> 570.0	17128	1.21 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C2-PFTeDA	9.721	715.2 -> 670.0	10857	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.4%		
13C3-PFBS	5.459	302.1 -> 79.9	12535	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C3-PFHxS	7.240	402.1 -> 79.9	8020	2.40 µg/L	0.012

7.7.13  
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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.1%		
13C4-PFBA	2.897	216.8 -> 171.9	79244	9.91 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C4-PFHpA	6.468	367.1 -> 322.0	30873	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.6%		
13C5-PFHxA	5.528	318.0 -> 273.0	32144	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.5%		
13C5-PFPeA	4.322	268.3 -> 223.0	36087	5.31 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.1%		
13C6-PFDA	8.122	519.1 -> 474.1	13890	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.6%		
13C7-PFUnDA	8.576	570.0 -> 525.1	15796	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.4%		
13C8-FOSA	9.631	506.1 -> 77.8	15157	2.45 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C8-PFOA	7.125	421.1 -> 376.0	50525	2.35 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.8%		
13C8-PFOS	8.284	507.1 -> 79.9	6974	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C9-PFNA	7.643	472.1 -> 427.0	16000	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.8%		
d3-MeFOSAA	8.180	573.2 -> 419.0	20103	5.00 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C3-HFPO-DA	5.893	286.9 -> 168.9	13444	10.57 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 105.7%		
d3-MeFOSA	10.733	515.0 -> 219.0	5274	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.7%		
d5-EtFOSAA	8.375	589.2 -> 419.0	17539	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.8%		
d7-MeFOSE	10.653	623.2 -> 58.9	20664	24.46 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 97.8%		
d9-EtFOSE	10.888	639.2 -> 58.9	13330	23.73 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 94.9%		
d5-EtFOSA	10.965	531.1 -> 219.0	5519	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.0%		
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.192	327.1 -> 307.0	3059	0.76 µg/L	95
		327.1 -> 80.9	797		
6:2FTS	6.886	427.1 -> 407.0	2716	0.78 µg/L	100
		427.1 -> 80.9	595		
8:2FTS	7.924	527.1 -> 507.0	1421	0.84 µg/L	99
		527.1 -> 80.8	343		
EtFOSAA	8.389	584.2 -> 419.1	519	0.19 µg/L	m 71
		584.2 -> 526.0	337		
FOSA	9.621	498.1 -> 77.9	1210	0.22 µg/L	96
		498.1 -> 478.0	60		
MeFOSAA	8.181	570.1 -> 419.0	752	0.20 µg/L	86
		570.1 -> 483.0	96		
PFBA	2.906	212.8 -> 168.9	1530	0.76 µg/L	100
PFBS	5.460	298.7 -> 79.9	806	0.16 µg/L	97
		298.7 -> 98.8	387		
PFDA	8.123	512.9 -> 469.0	2956	0.18 µg/L	98
		512.9 -> 219.0	442		
PFDODA	9.007	613.1 -> 569.0	3229	0.25 µg/L	93
		613.1 -> 319.0	344		
PFDS	9.170	599.0 -> 79.9	417	0.20 µg/L	94

7.7.13  
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.481	599.0 -> 98.8	233	0.22	µg/L	100
		363.1 -> 319.0	3768			
PFHpS	7.794	363.1 -> 169.0	527	0.20	µg/L	89
		449.0 -> 79.9	587			
PFHxA	5.519	449.0 -> 98.9	306	0.19	µg/L	97
		313.0 -> 269.0	2299			
PFHxS	7.241	313.0 -> 118.9	73	0.21	µg/L	m
		398.7 -> 79.9	756			
PFNA	7.643	398.7 -> 98.9	421	0.18	µg/L	99
		463.0 -> 419.0	1928			
PFNS	8.738	463.0 -> 219.0	393	0.23	µg/L	89
		548.8 -> 79.9	668			
PFOA	7.113	548.8 -> 98.9	332	0.23	µg/L	m
		413.0 -> 369.0	5317			
PFOS	8.286	413.0 -> 169.0	684	0.19	µg/L	m
		498.9 -> 79.9	593			
PFPeA	4.324	498.9 -> 98.8	348	0.40	µg/L	100
		263.0 -> 219.0	3052			
PFPeS	6.533	349.1 -> 79.9	781	0.18	µg/L	97
		349.1 -> 98.9	387			
PFTeDA	9.722	713.1 -> 669.0	2633	0.23	µg/L	98
		713.1 -> 168.9	183			
PFTrDA	9.390	663.0 -> 619.0	2893	0.24	µg/L	96
		663.0 -> 168.9	272			
PFUnDA	8.577	563.1 -> 519.0	2392	0.19	µg/L	95
		563.1 -> 269.1	342			
11Cl-PF3OUdS	9.442	630.9 -> 450.9	5433	0.75	µg/L	99
		632.9 -> 452.9	1697			
9Cl-PF3ONS	8.616	530.8 -> 351.0	10721	0.78	µg/L	91
		532.8 -> 353.0	2996			
ADONA	6.731	376.9 -> 250.9	21100	0.77	µg/L	98
		376.9 -> 84.8	4741			
HFPO-DA	5.894	284.9 -> 168.9	924	0.76	µg/L	93
		284.9 -> 184.9	142			
3:3FTCA	3.790	241.0 -> 177.0	401	0.95	µg/L	99
		241.0 -> 117.0	60			
5:3FTCA	6.185	341.0 -> 237.1	13644	5.20	µg/L	93
		341.0 -> 217.0	12734			
7:3FTCA	7.608	441.0 -> 316.9	8327	6.27	µg/L	90
		441.0 -> 336.9	15065			
EtFOSA	10.967	526.0 -> 219.0	537	0.23	µg/L	77
		526.0 -> 169.0	642			
EtFOSE	10.913	630.0 -> 58.9	1118	2.14	µg/L	100
		511.9 -> 219.0	535			
MeFOSA	10.734	511.9 -> 169.0	504	0.24	µg/L	89
		616.1 -> 58.9	1629			
MeFOSE	10.666	699.1 -> 79.9	274	2.09	µg/L	100
		699.1 -> 98.8	120			
PFDoDS	9.848	295.0 -> 201.0	378	0.23	µg/L	76
		295.0 -> 84.9	123			
NFDHA	5.410	279.0 -> 85.1	969	0.49	µg/L	m
		229.0 -> 84.9	897			
PFMBA	4.737	314.8 -> 134.9	6180	0.37	µg/L	98
PFMPA	3.463	314.8 -> 82.9	199			
PFEESA	5.999					

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

7.7.13  
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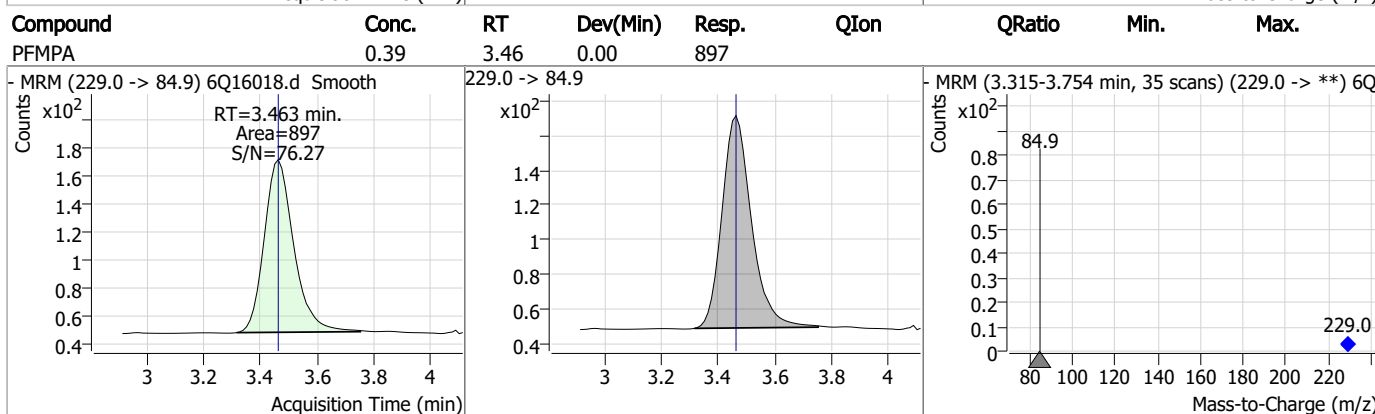
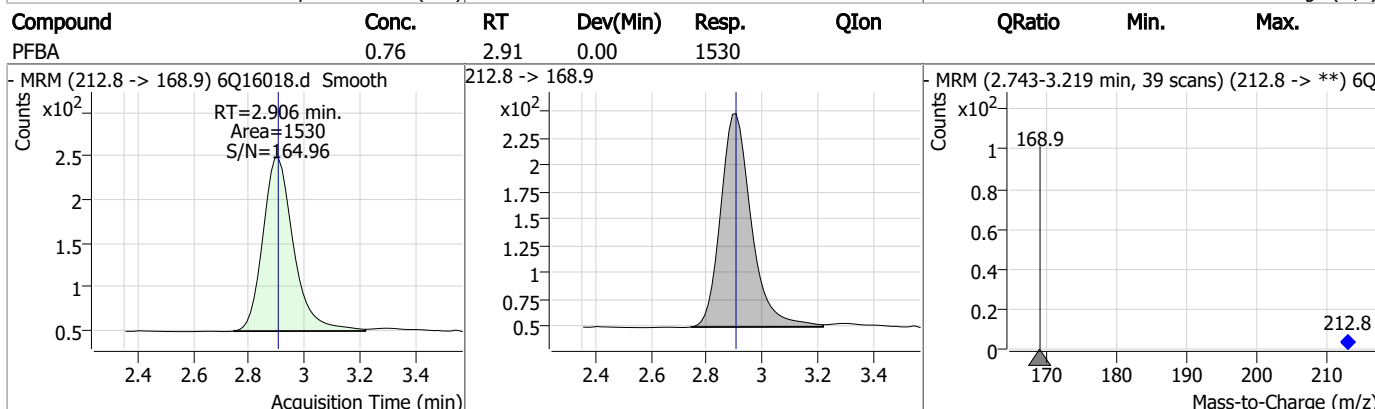
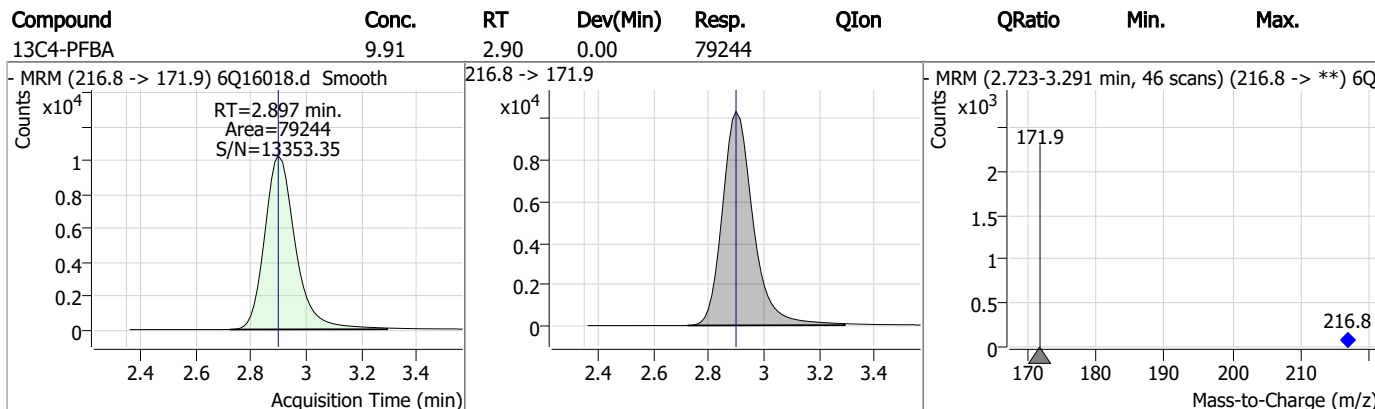
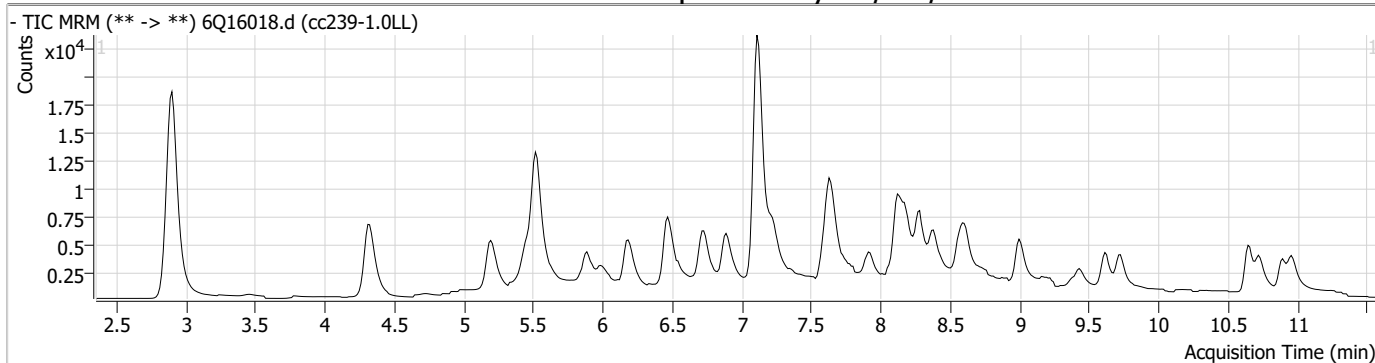
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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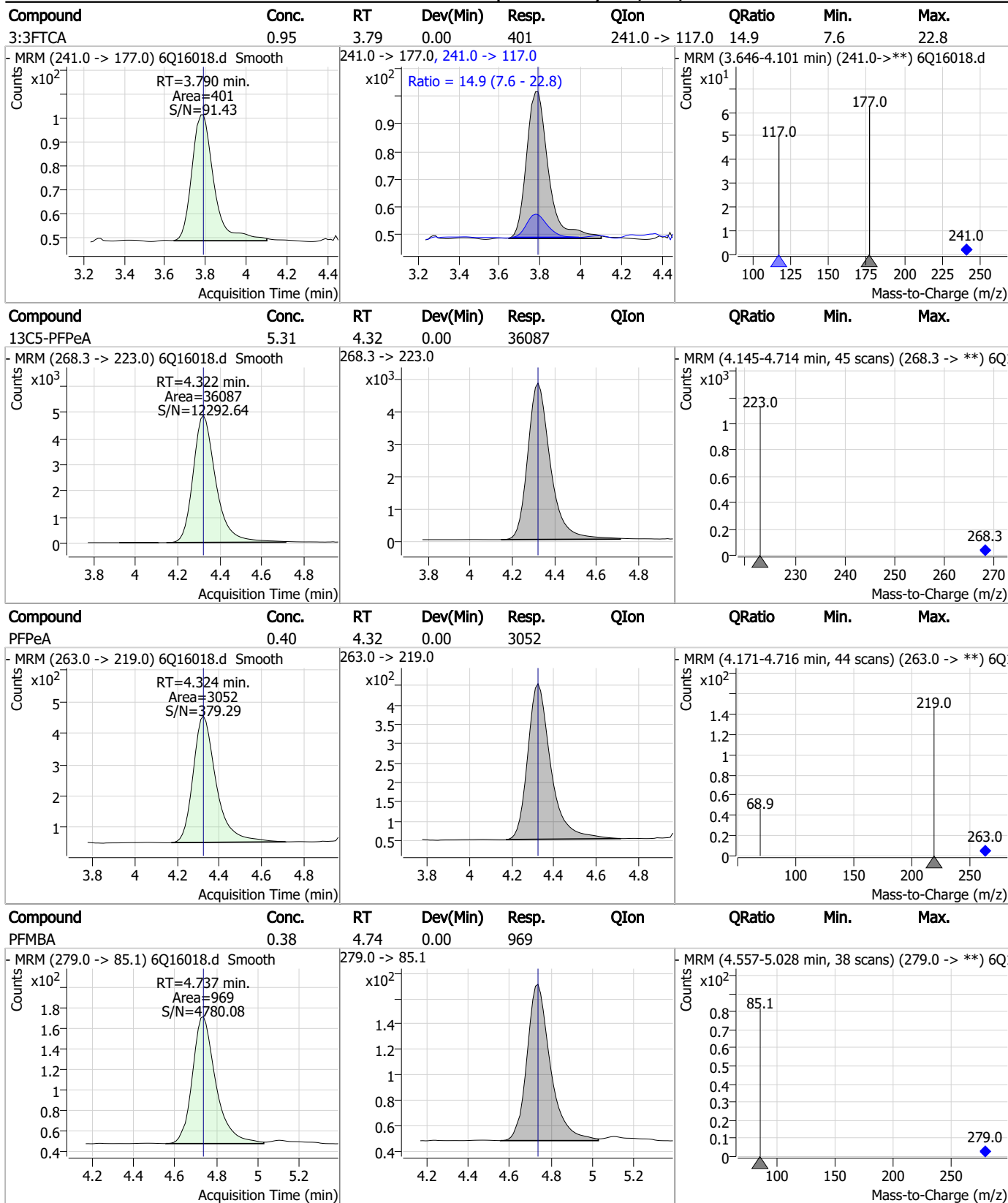
7.7.13

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### Perfluorinated Compounds by LC/MS/MS



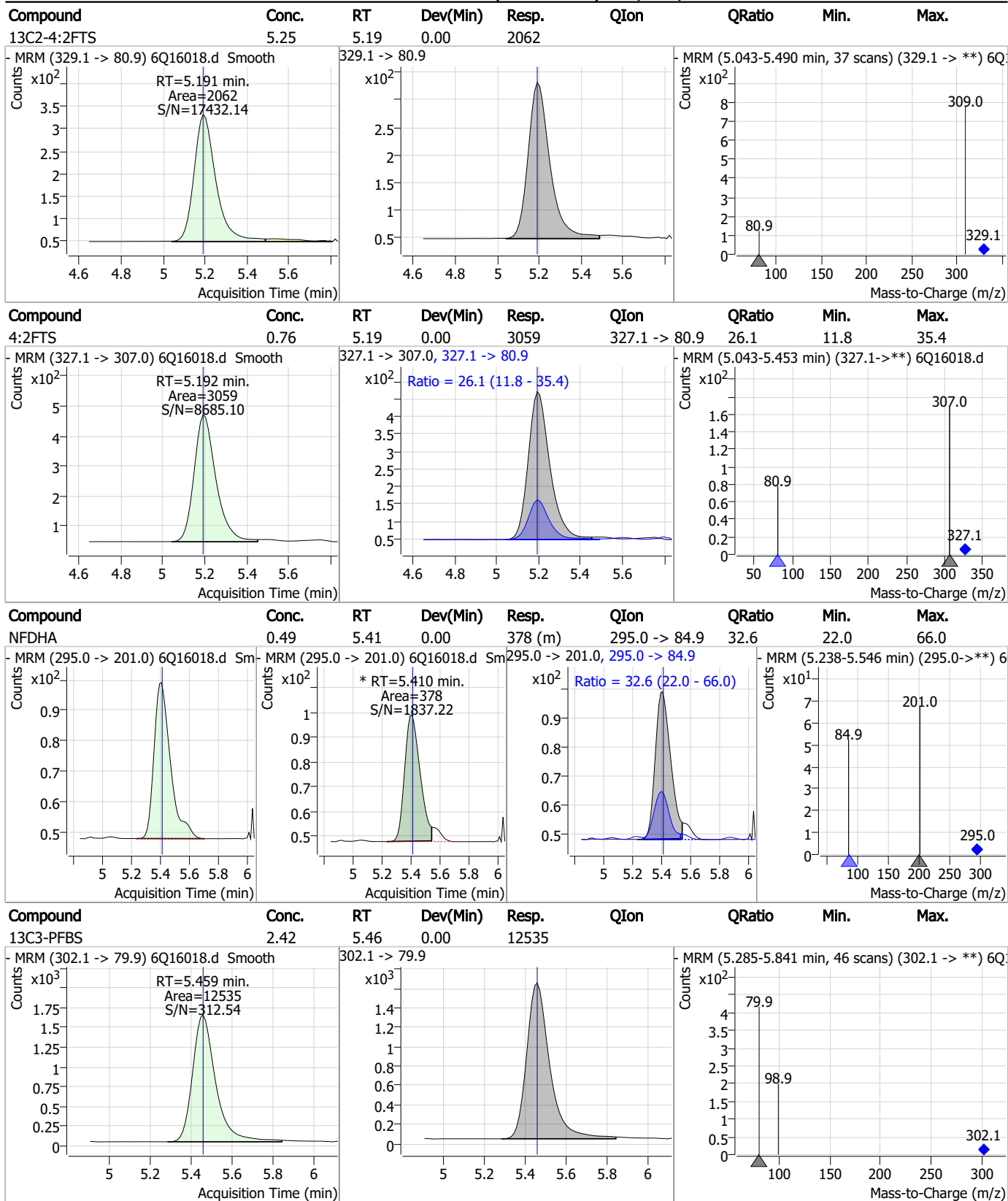
### Perfluorinated Compounds by LC/MS/MS



7.7.13

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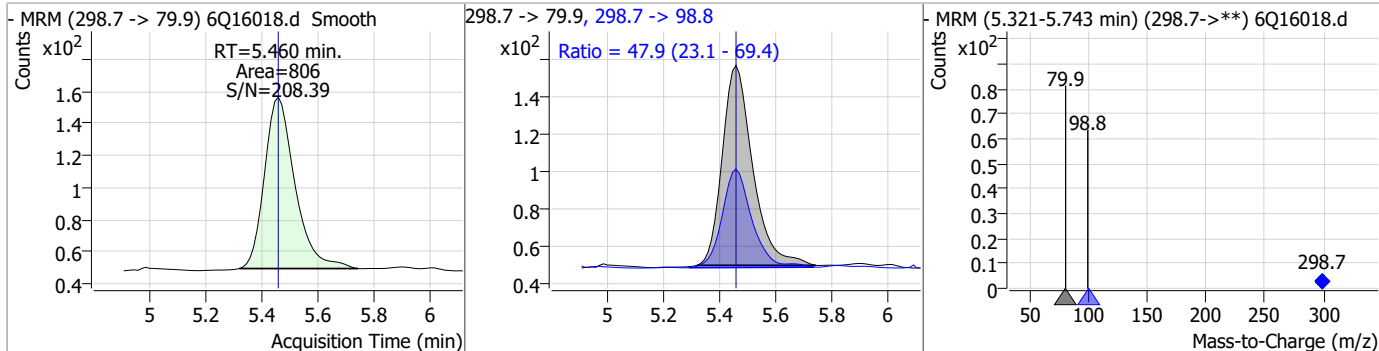
### Perfluorinated Compounds by LC/MS/MS



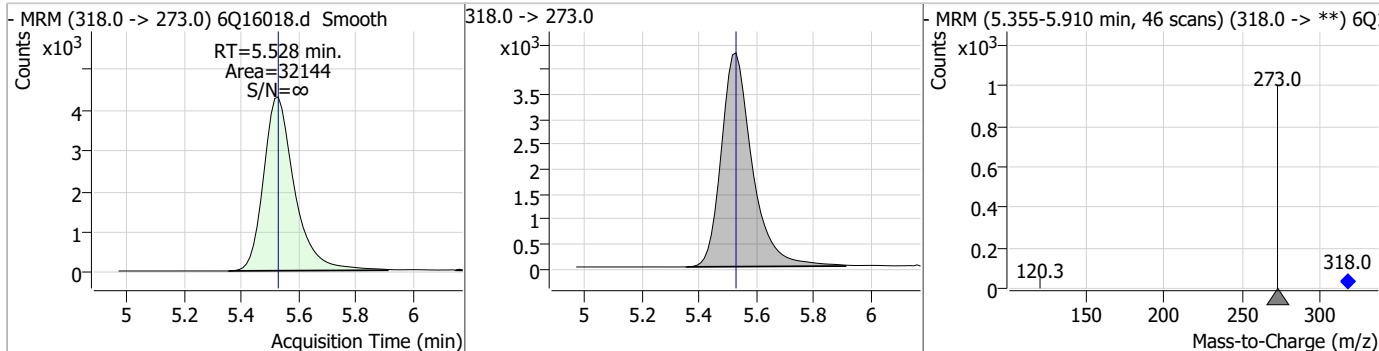
7.7.13  
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### Perfluorinated Compounds by LC/MS/MS

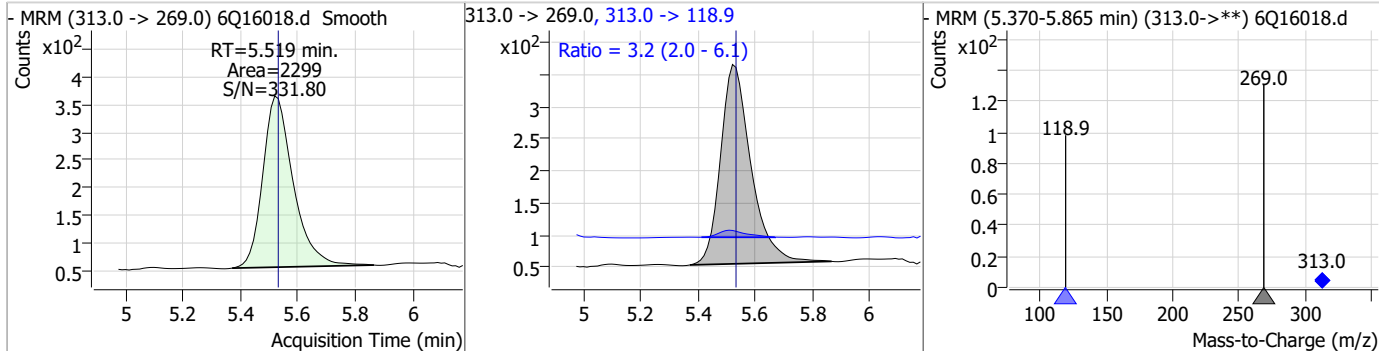
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.16	5.46	0.00	806	298.7 -> 98.8	47.9	23.1	69.4



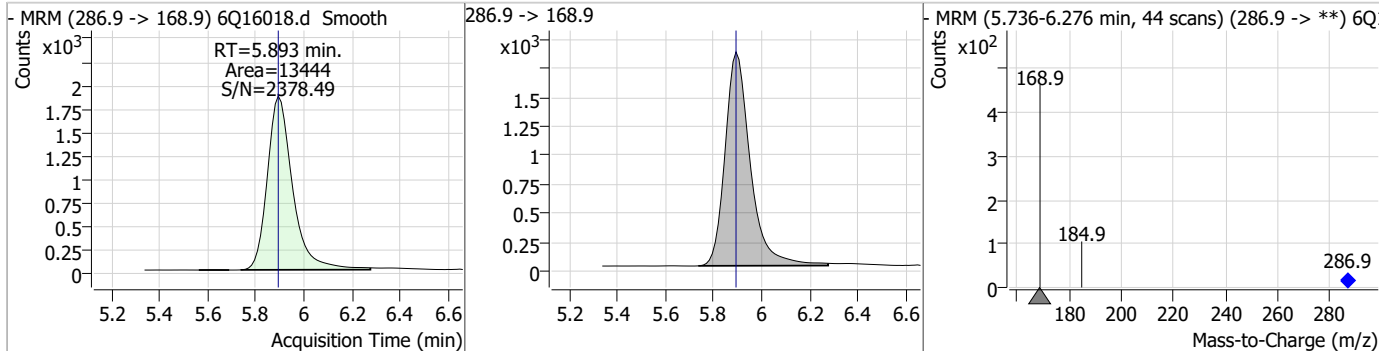
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.66	5.53	0.00	32144				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.19	5.52	-0.01	2299	313.0 -> 118.9	3.2	2.0	6.1



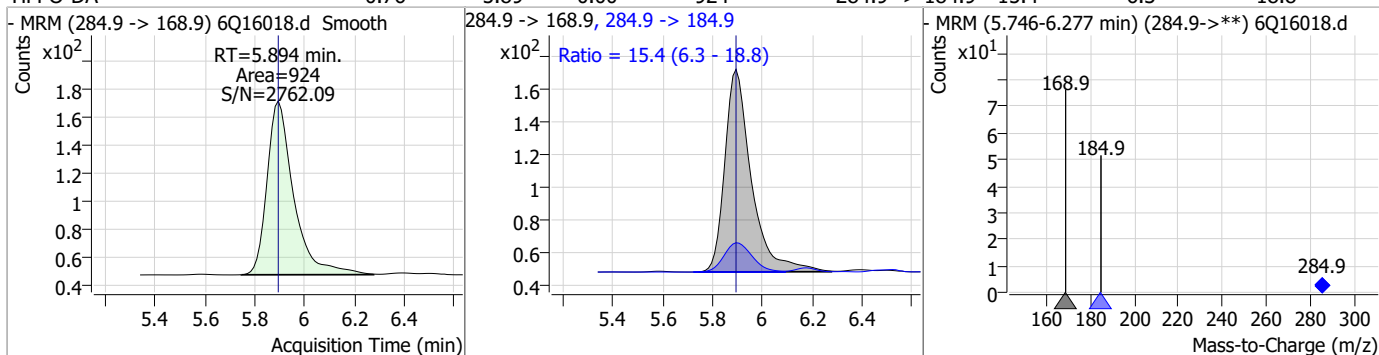
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.57	5.89	0.00	13444				



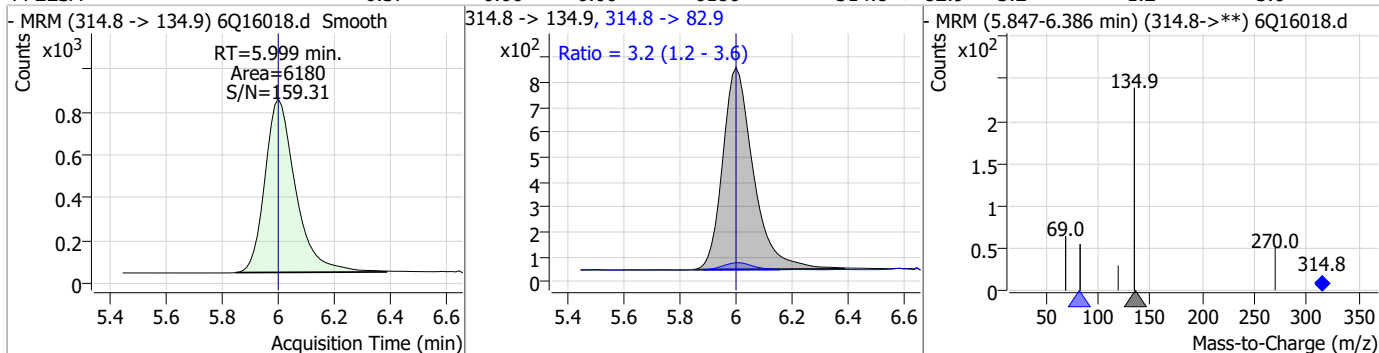


### Perfluorinated Compounds by LC/MS/MS

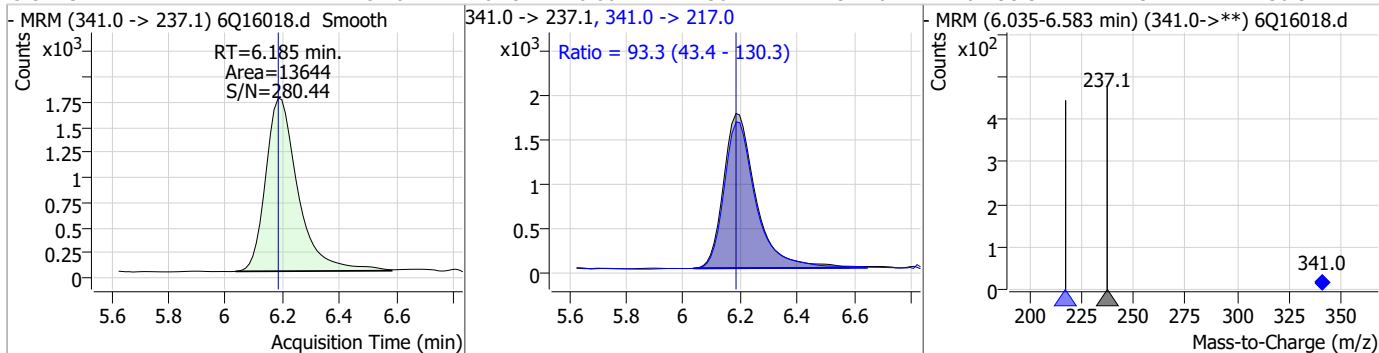
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.76	5.89	0.00	924	284.9 -> 184.9	15.4	6.3	18.8



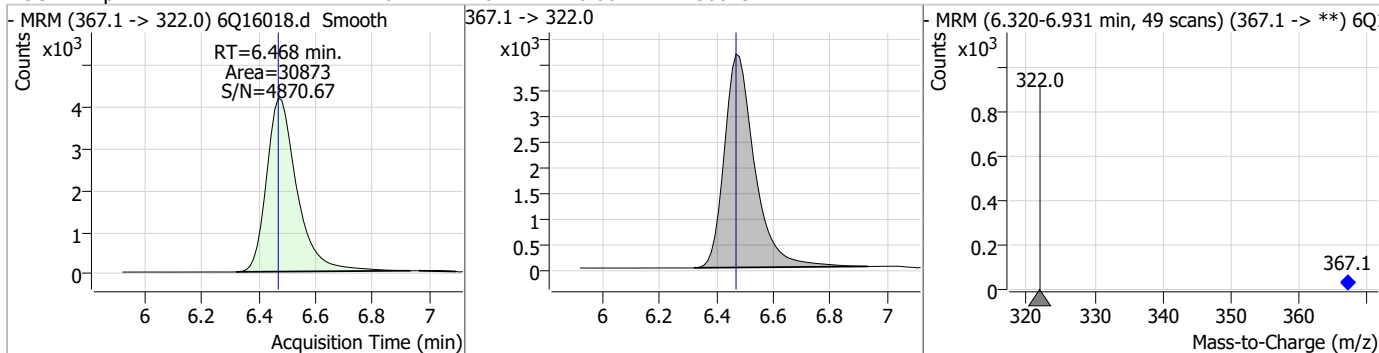
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.37	6.00	0.00	6180	314.8 -> 82.9	3.2	1.2	3.6



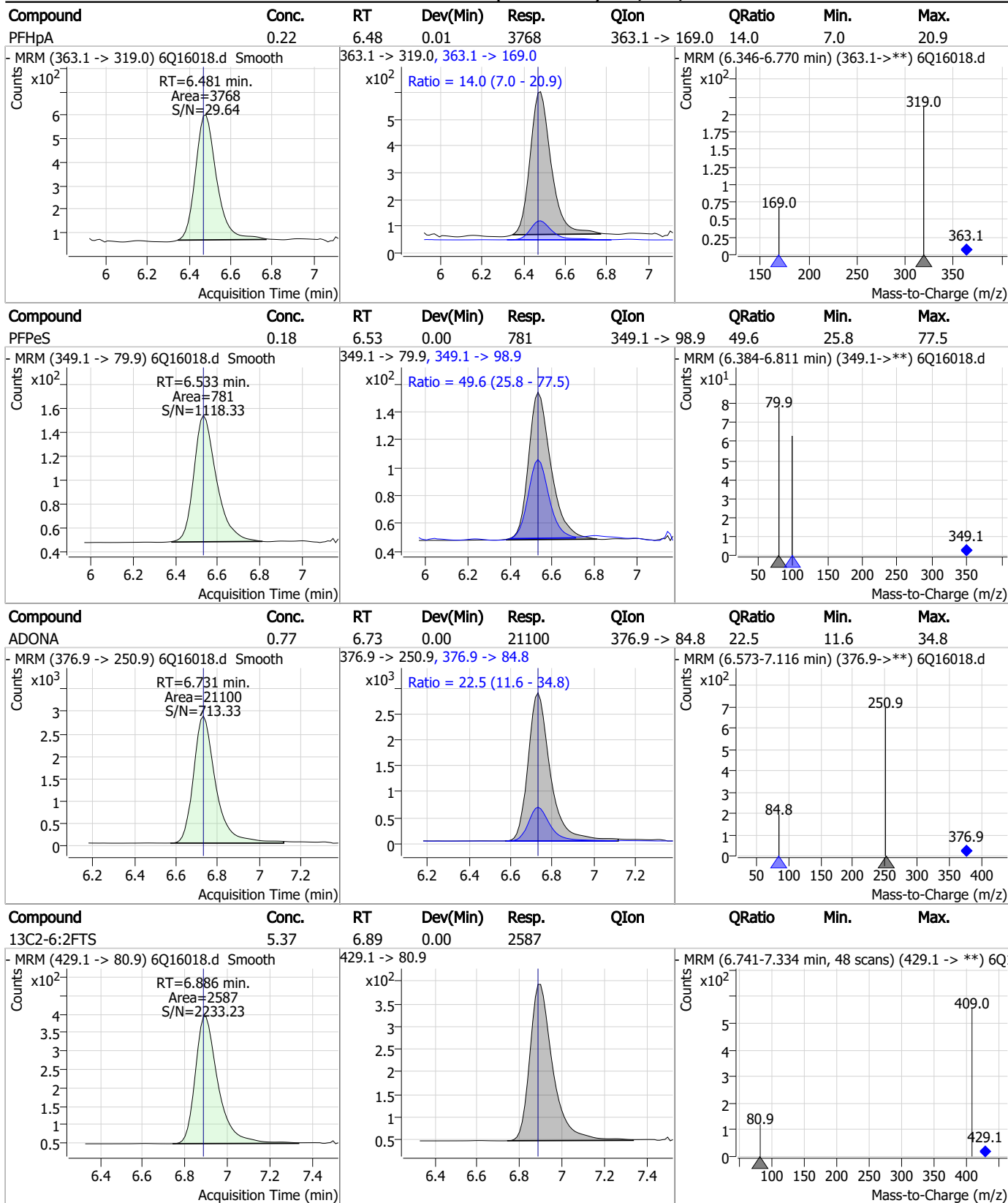
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	5.20	6.19	0.00	13644	341.0 -> 217.0	93.3	43.4	130.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.62	6.47	0.00	30873				



### Perfluorinated Compounds by LC/MS/MS

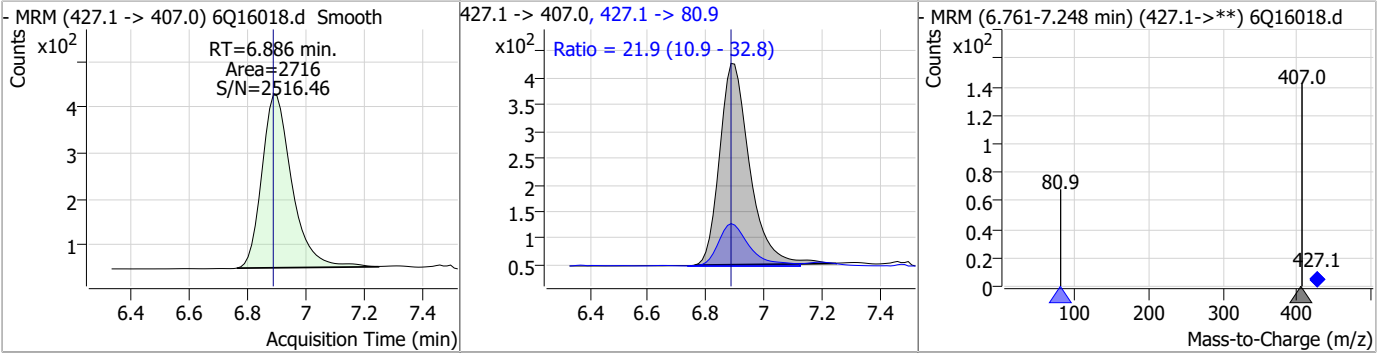


7.7.13  
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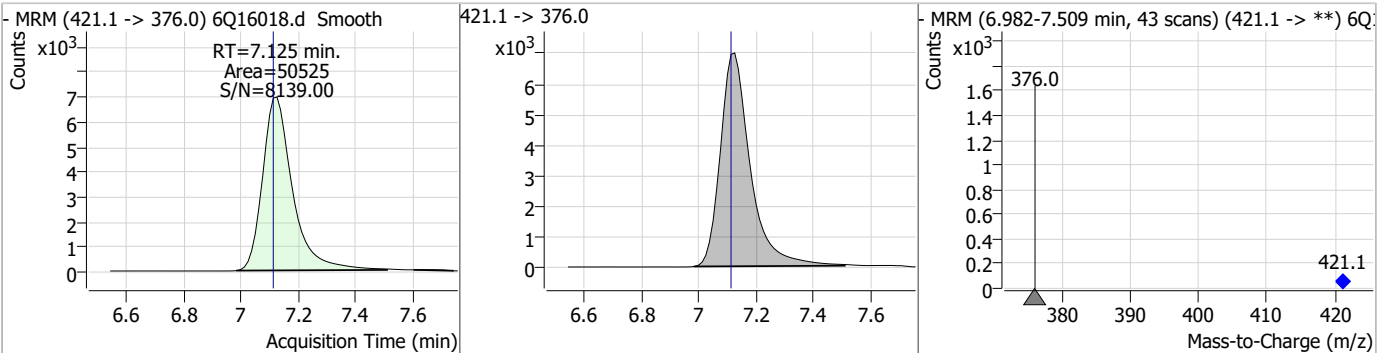


### Perfluorinated Compounds by LC/MS/MS

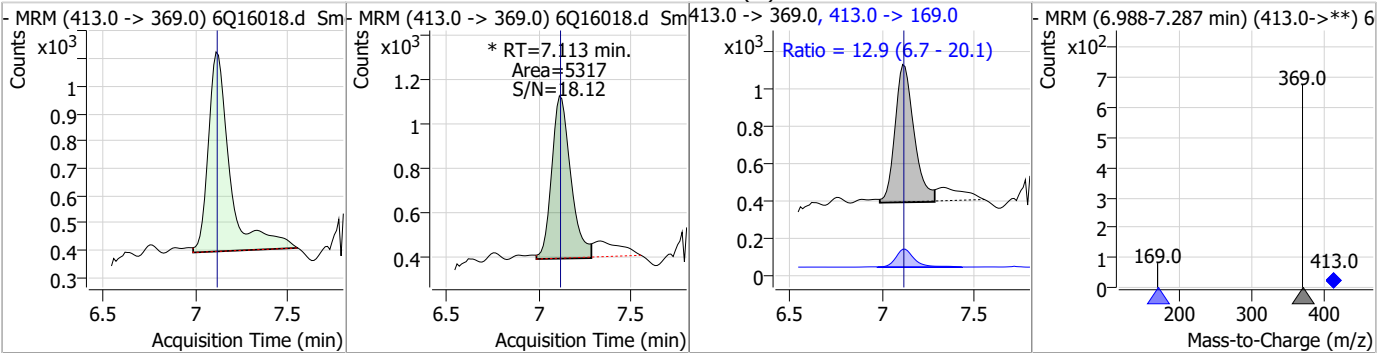
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.78	6.89	0.00	2716	427.1 -> 80.9	21.9	10.9	32.8



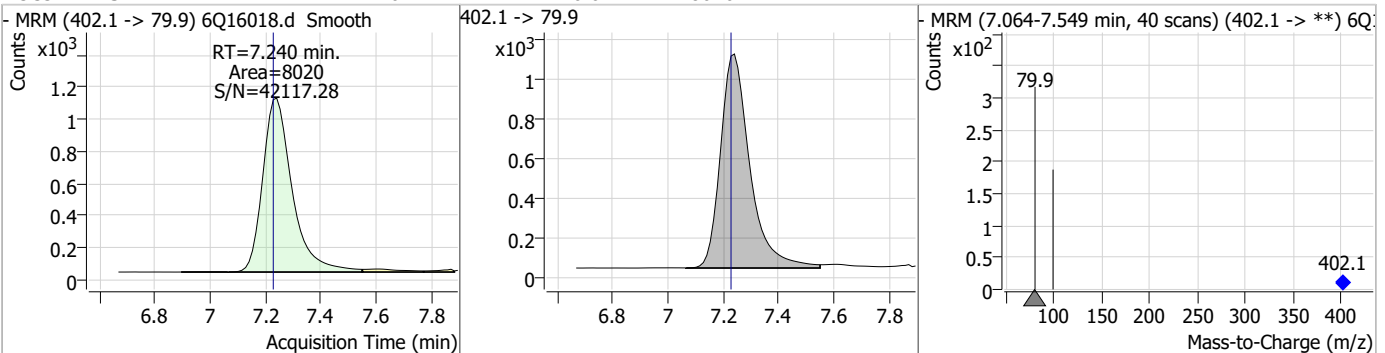
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.35	7.12	0.01	50525				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.23	7.11	0.00	5317 (m)	413.0 -> 169.0	12.9	6.7	20.1



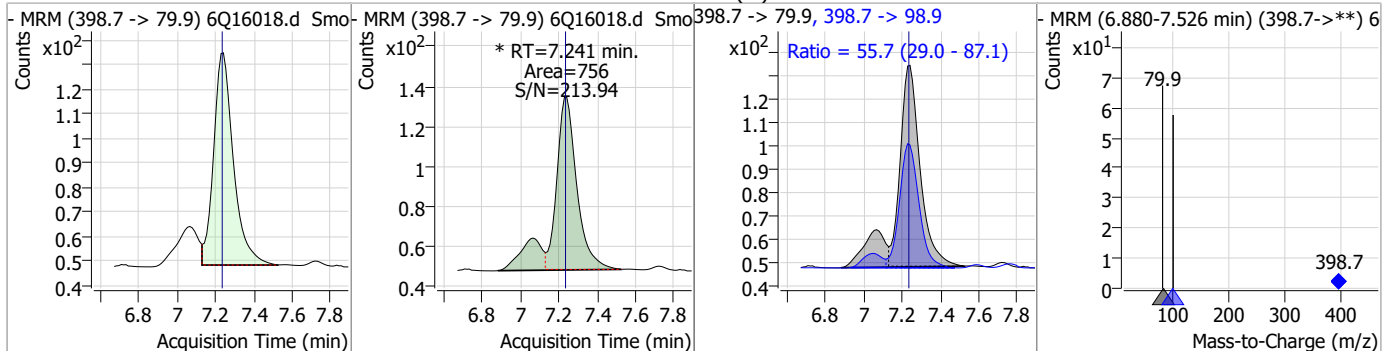
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.40	7.24	0.01	8020				



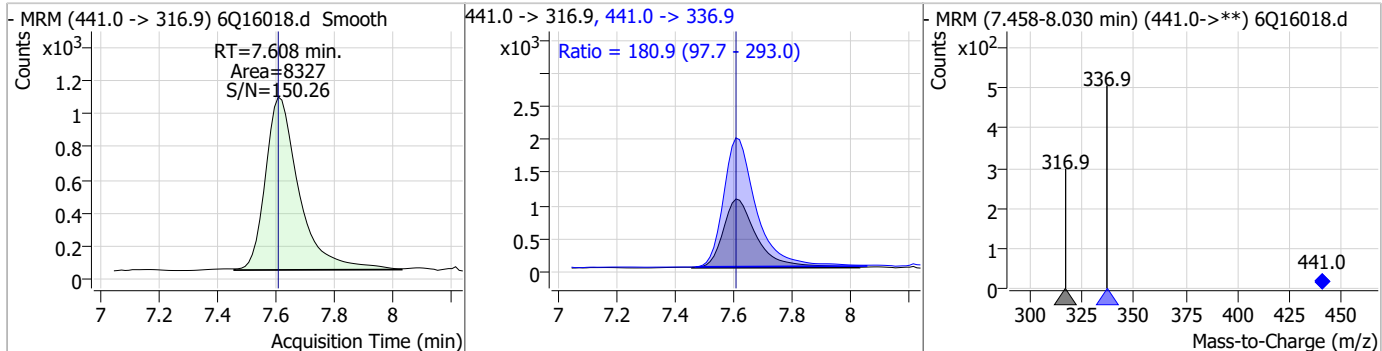
7.7.13  
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### Perfluorinated Compounds by LC/MS/MS

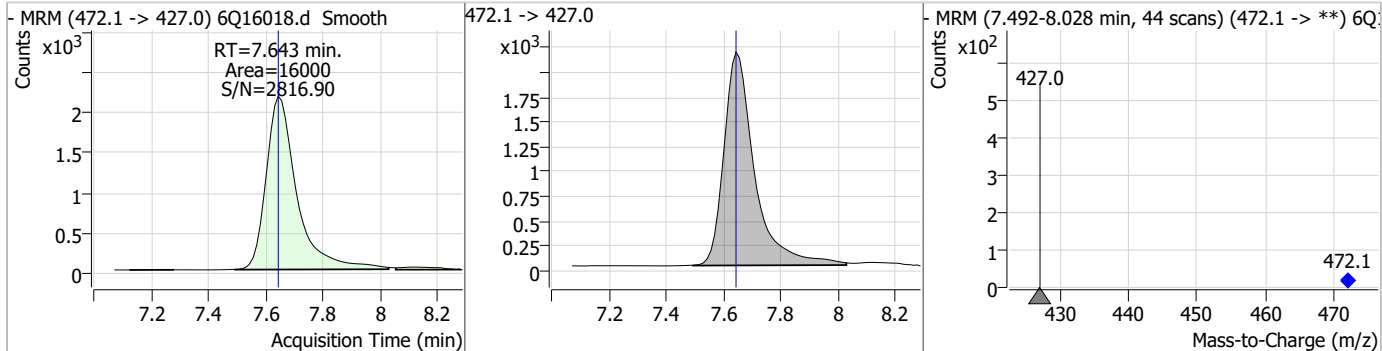
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.21	7.24	0.01	756 (m)	398.7 -> 98.9	55.7	29.0	87.1



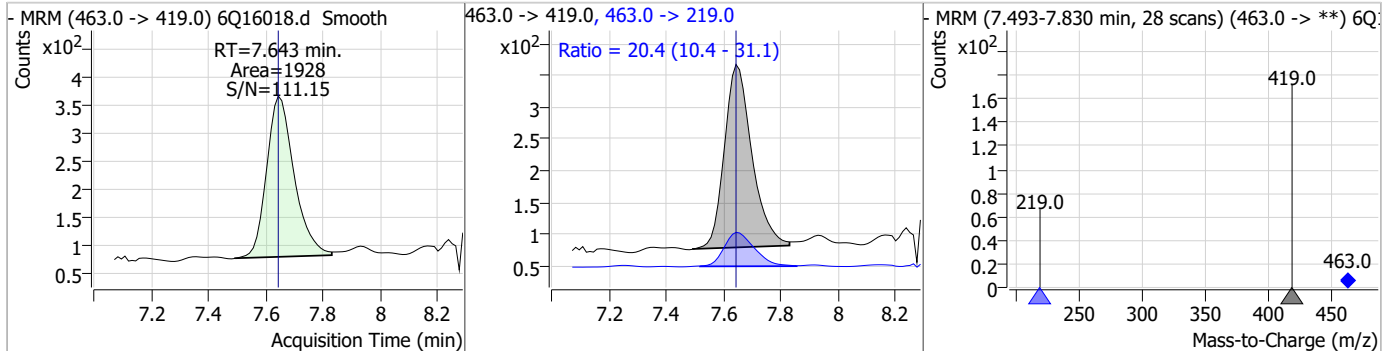
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	6.27	7.61	0.00	8327	441.0 -> 336.9	180.9	97.7	293.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.21	7.64	0.00	16000				

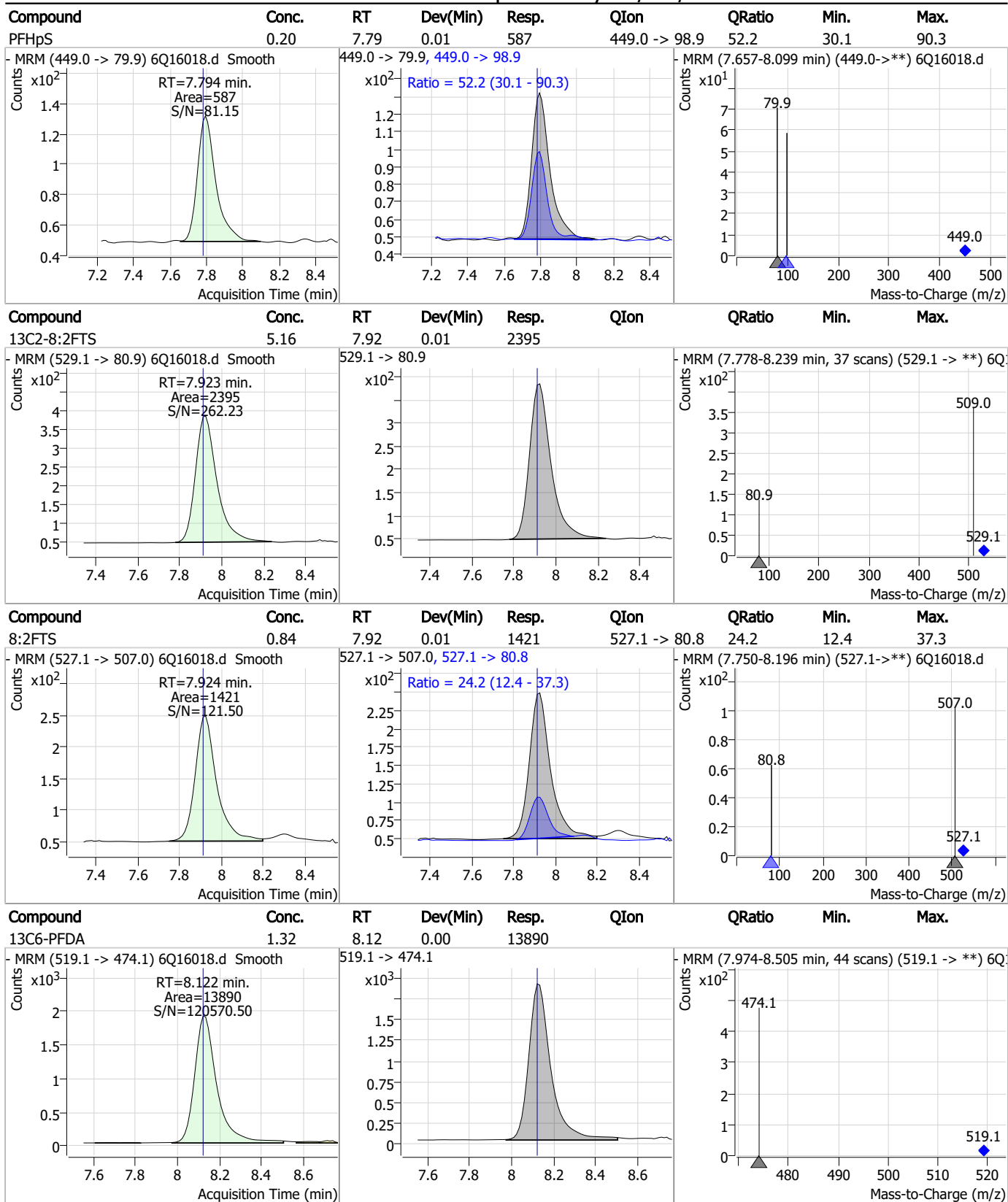


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.18	7.64	0.00	1928	463.0 -> 219.0	20.4	10.4	31.1



7.7.13  
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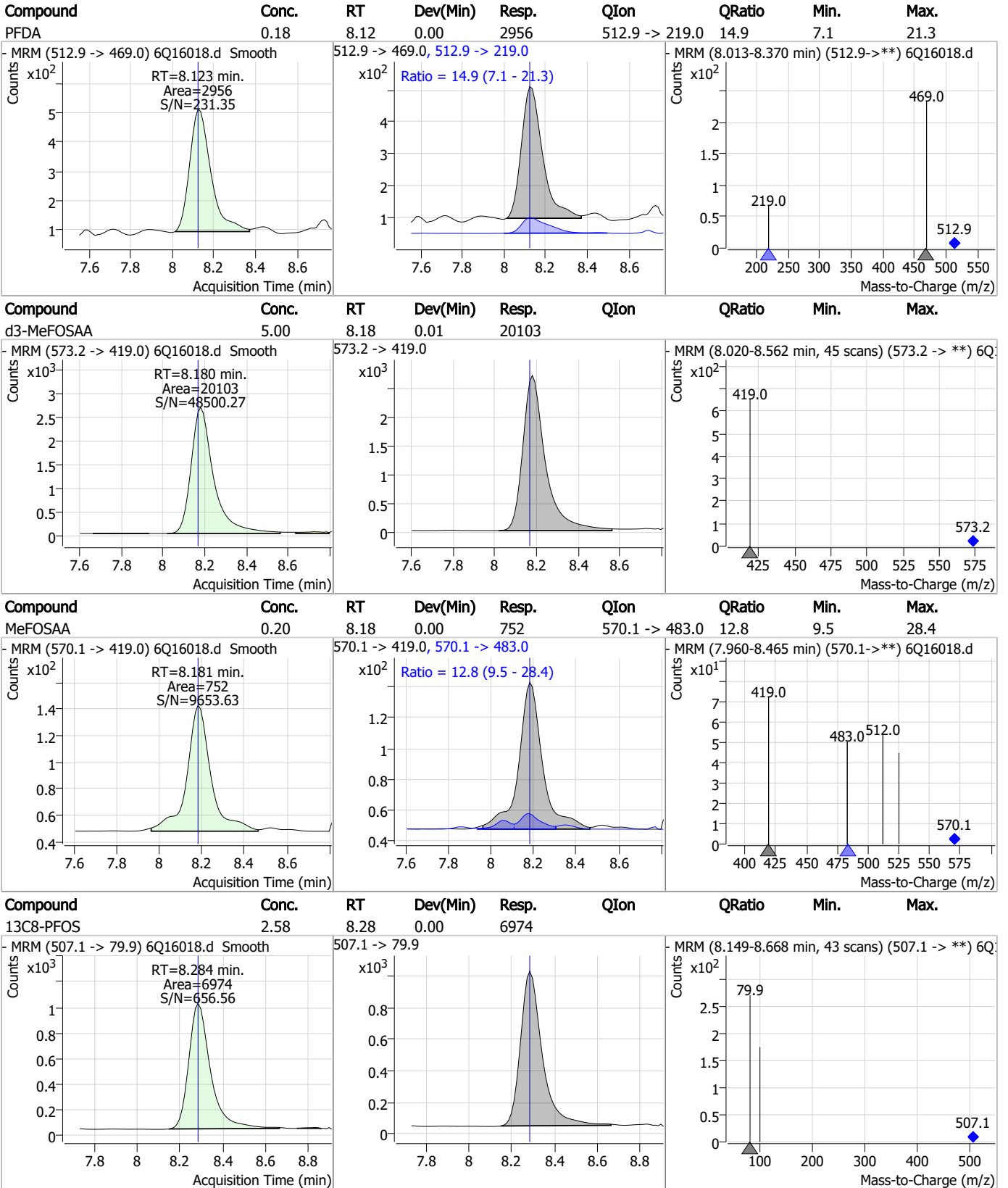
### Perfluorinated Compounds by LC/MS/MS



7.7.13

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### Perfluorinated Compounds by LC/MS/MS

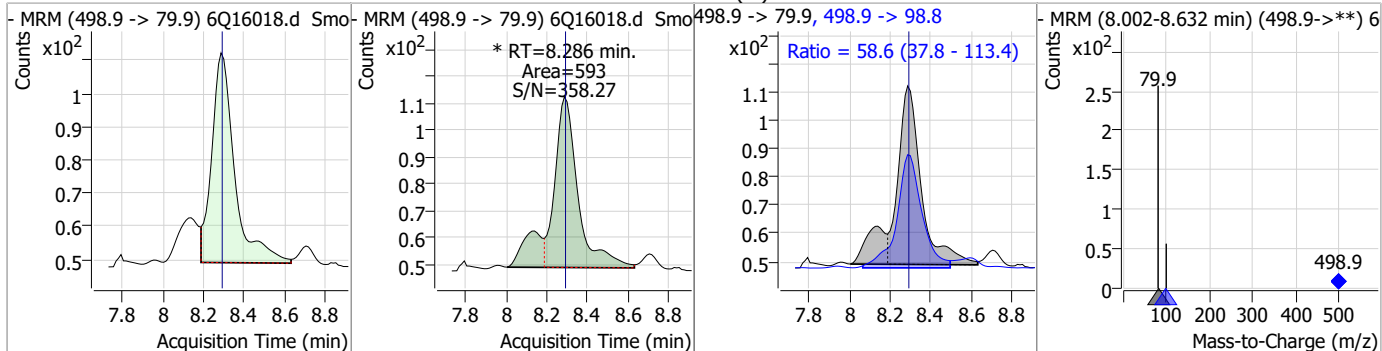


7.7.13  
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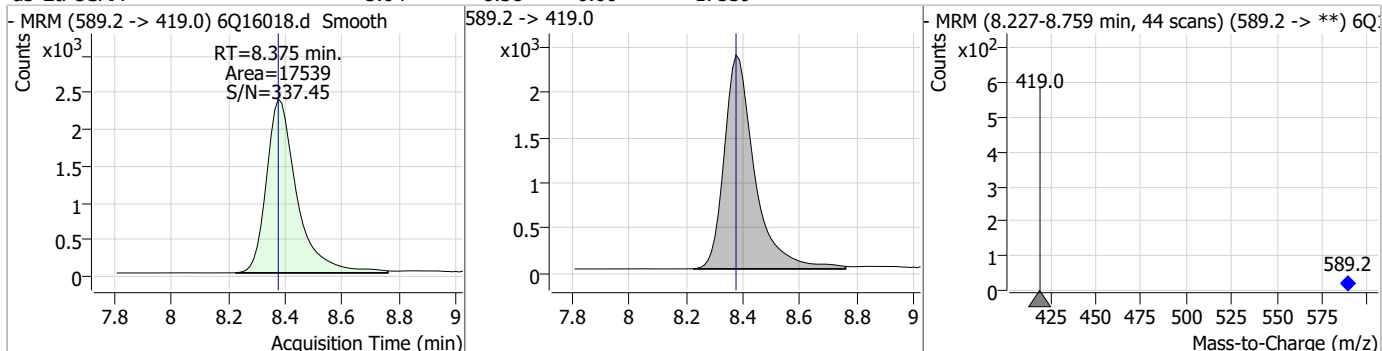


### Perfluorinated Compounds by LC/MS/MS

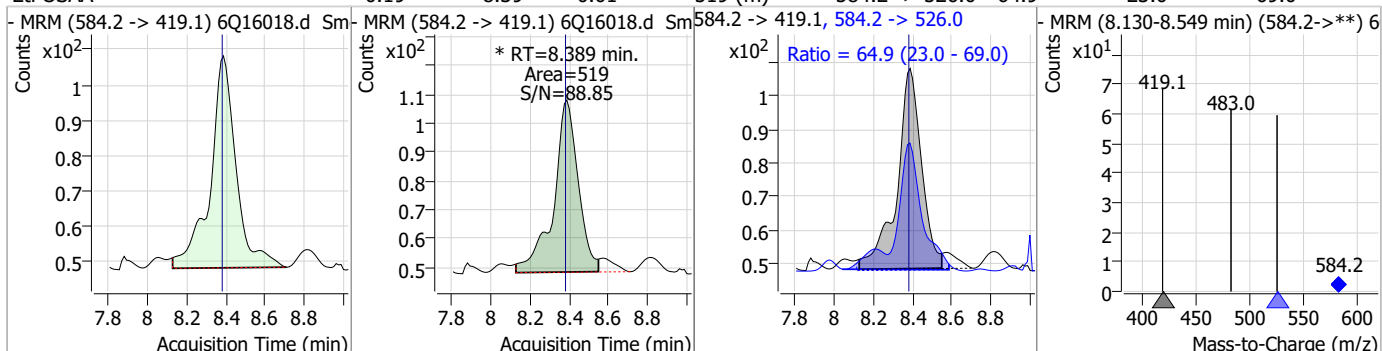
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.19	8.29	0.00	593 (m)	498.9 -> 98.8	58.6	37.8	113.4



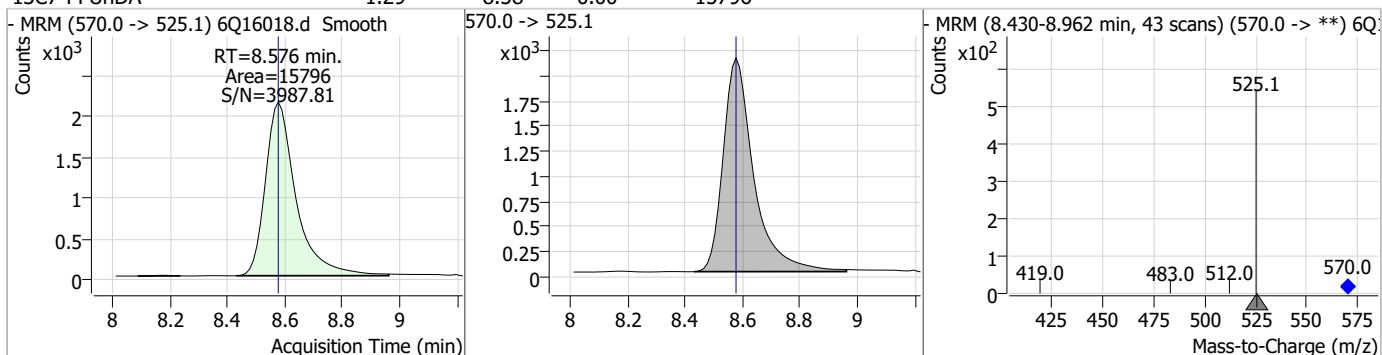
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.04	8.38	0.00	17539				



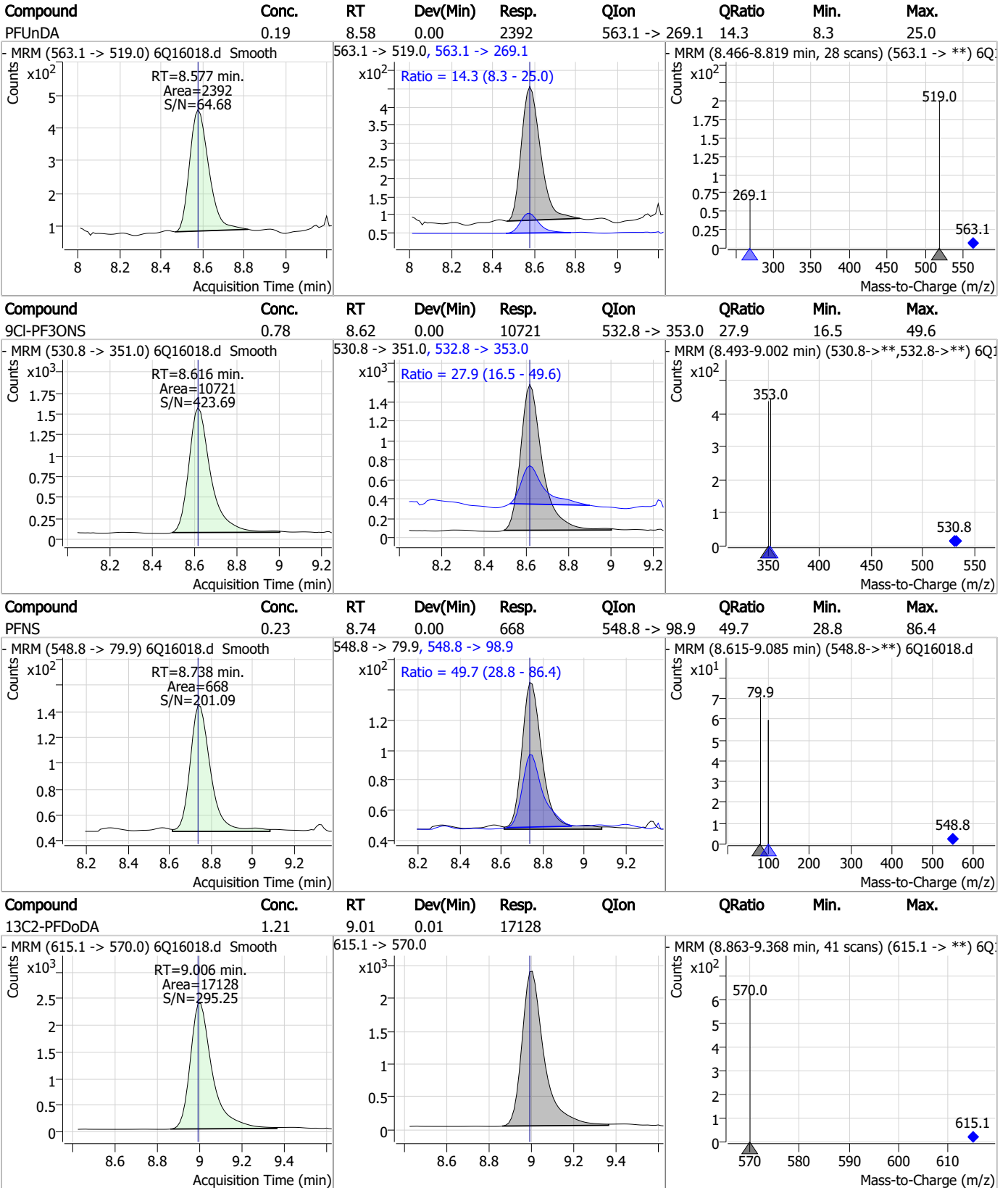
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.19	8.39	0.01	519 (m)	584.2 -> 526.0	64.9	23.0	69.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.29	8.58	0.00	15796				



### Perfluorinated Compounds by LC/MS/MS

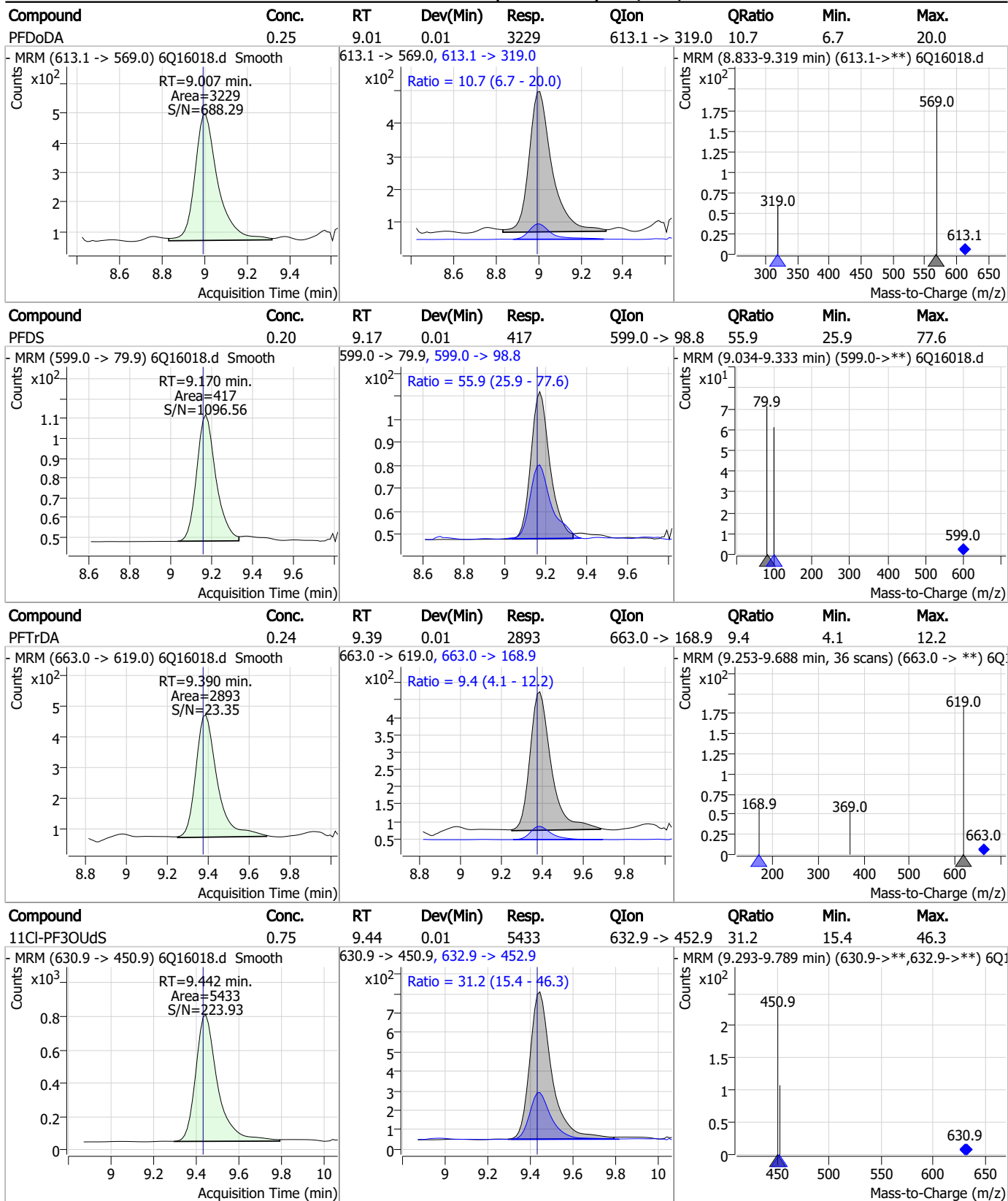


7.7.13

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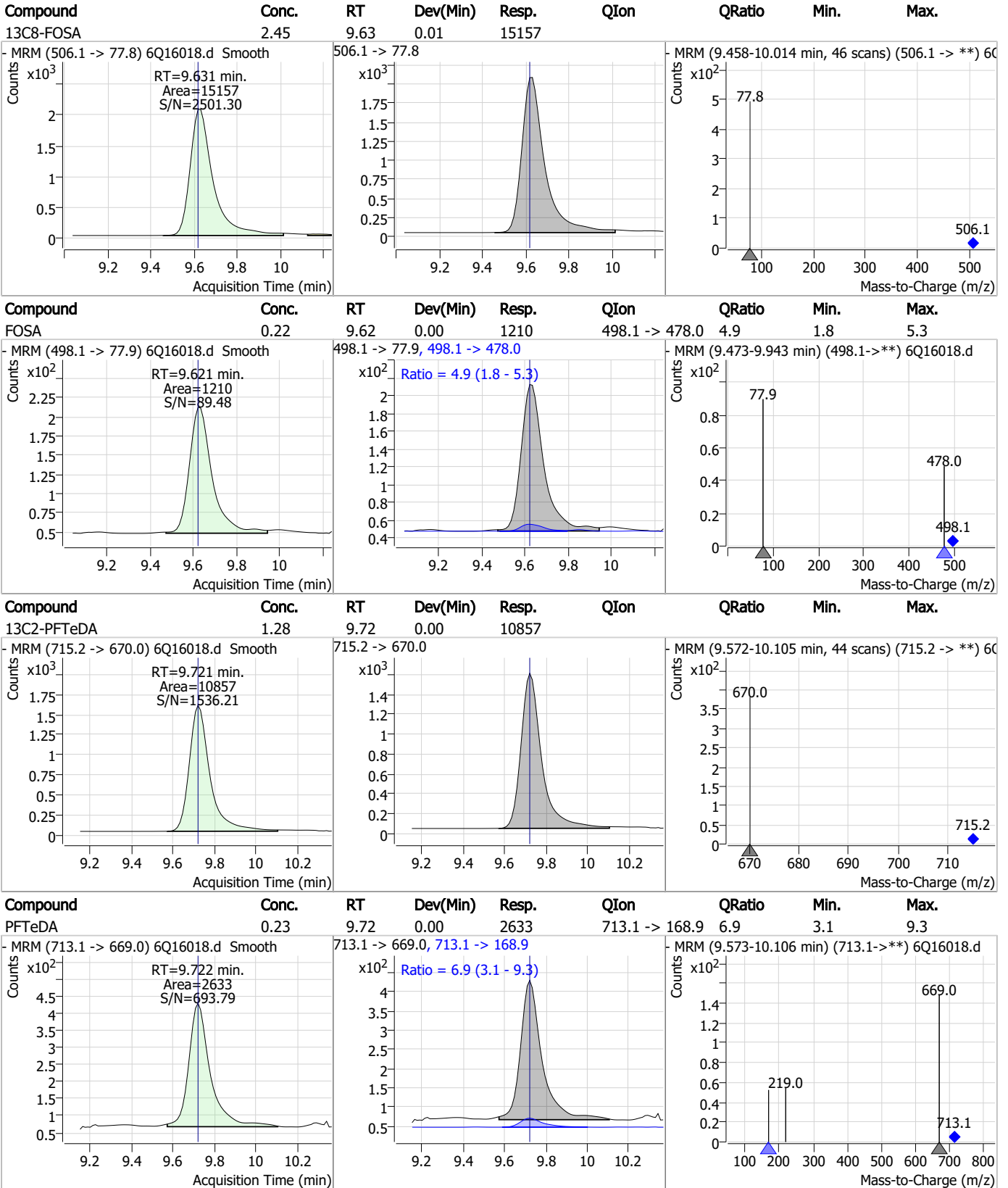


### Perfluorinated Compounds by LC/MS/MS



7.7.13  
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### Perfluorinated Compounds by LC/MS/MS

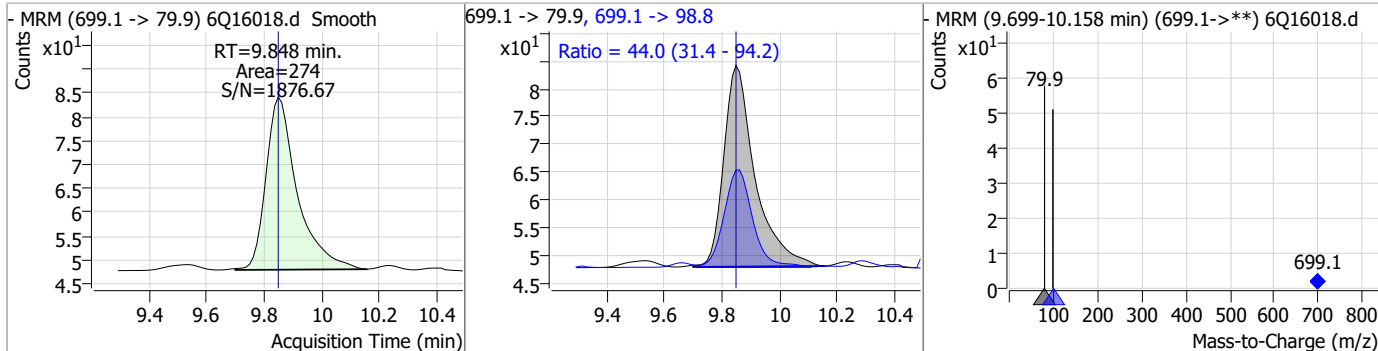


7.7.13 7

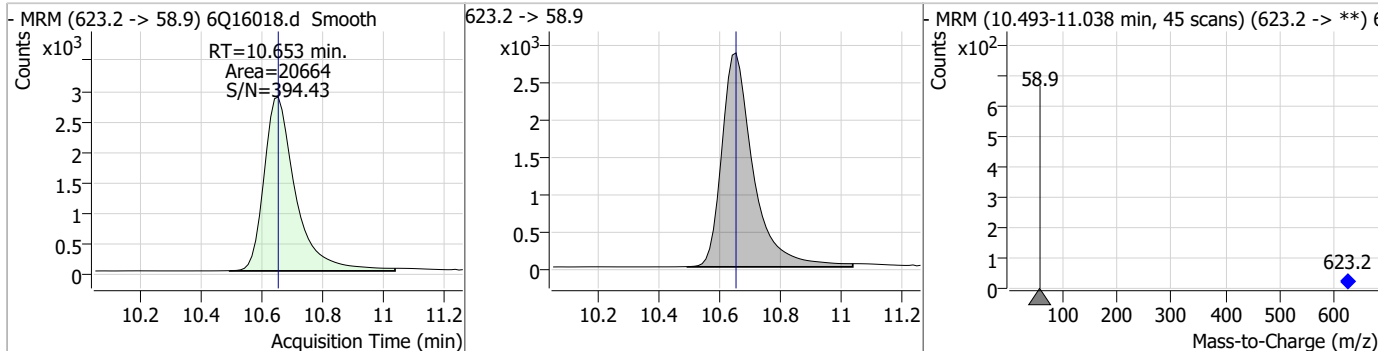


### Perfluorinated Compounds by LC/MS/MS

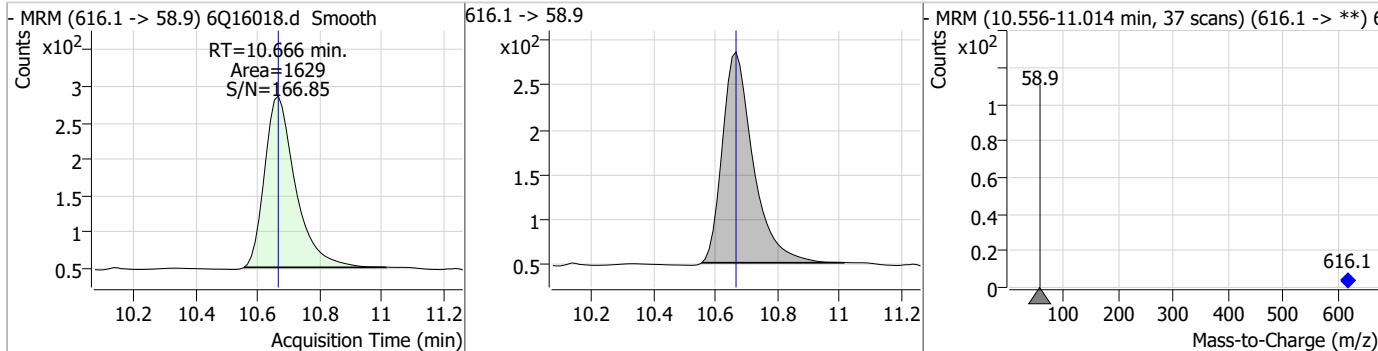
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD <sub>o</sub> DS	0.23	9.85	0.00	274	699.1 -> 98.8	44.0	31.4	94.2



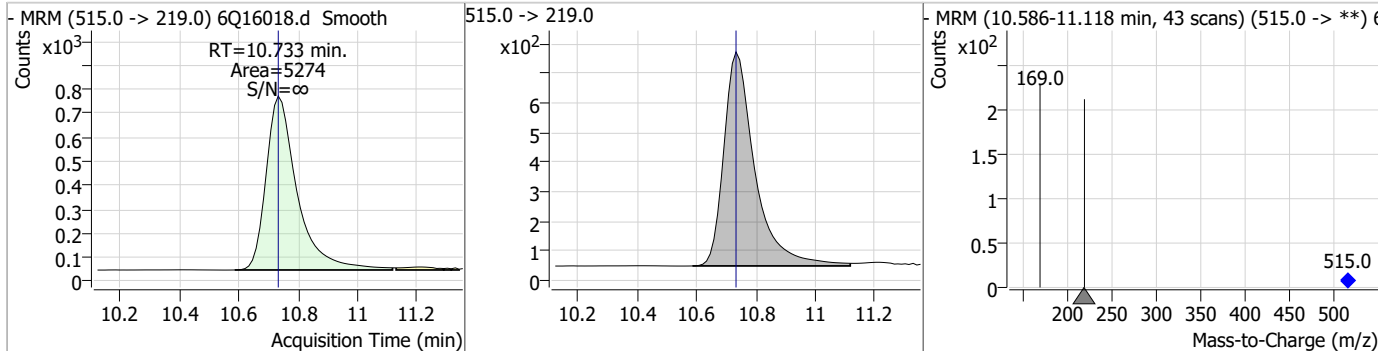
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.46	10.65	0.00	20664				



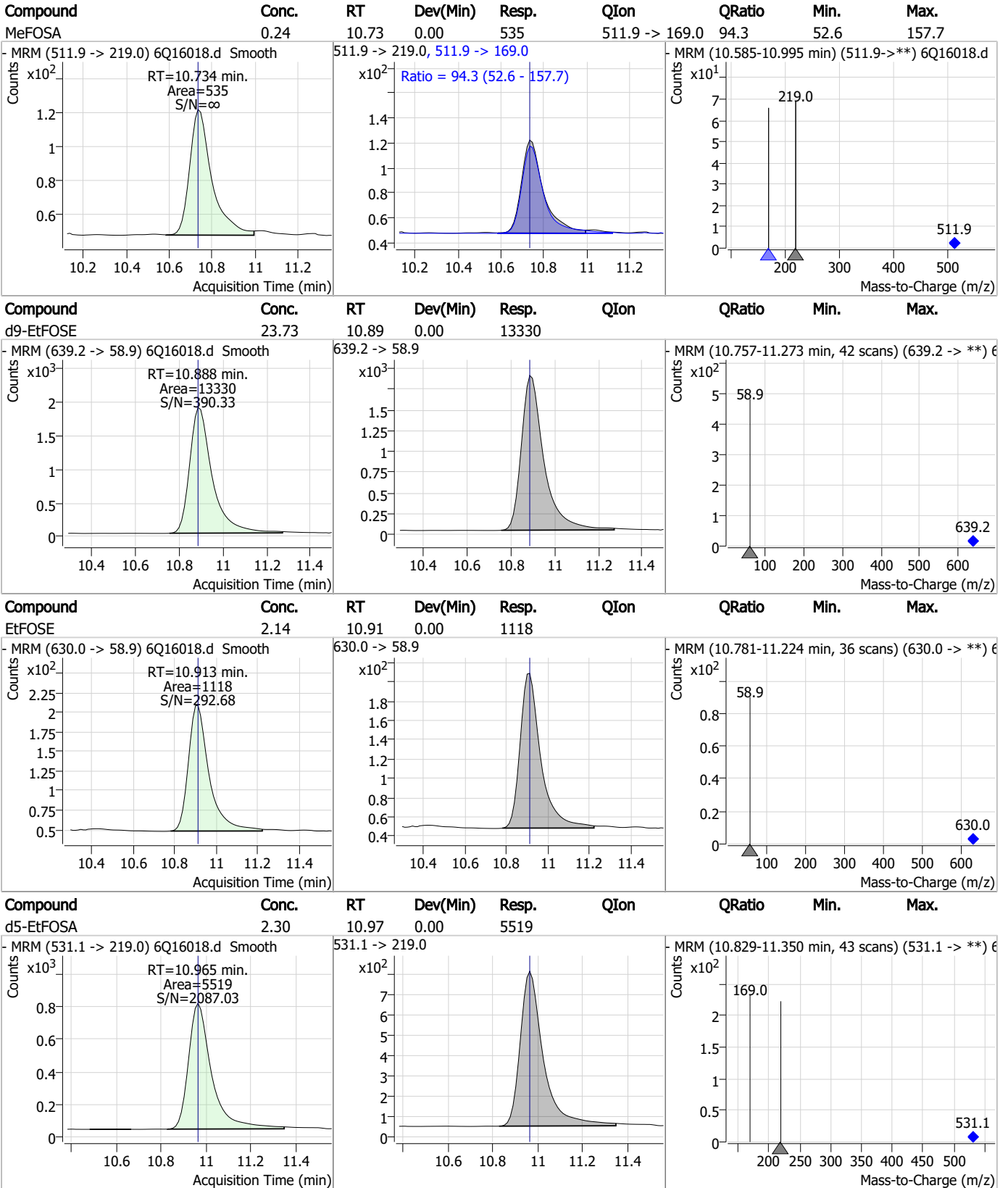
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	2.09	10.67	0.00	1629				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.37	10.73	0.00	5274				



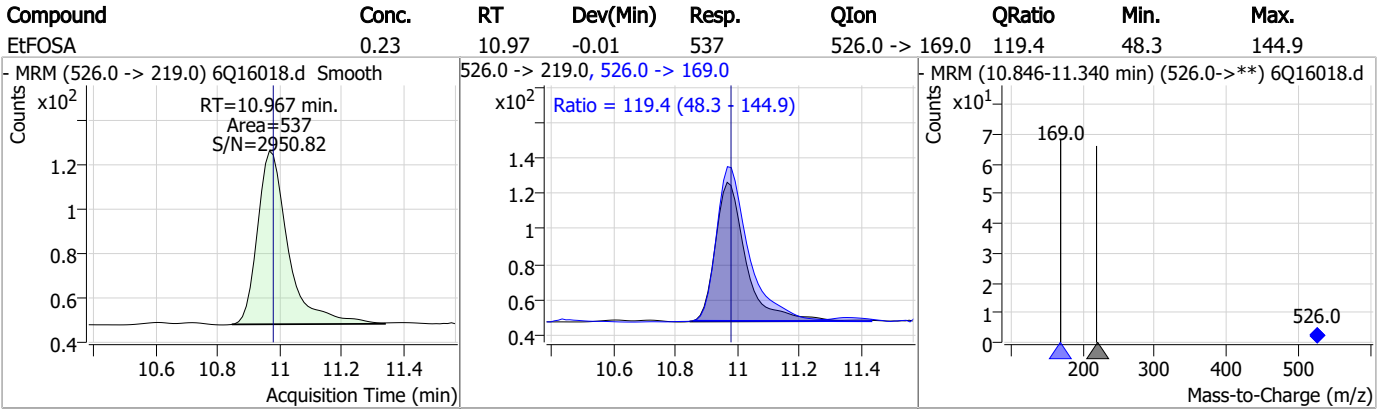
### Perfluorinated Compounds by LC/MS/MS



7.7.13  
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### Perfluorinated Compounds by LC/MS/MS



7.7.13  
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# Manual Integration Approval Summary

Sample Number: S6Q239-CC239      Method: EPA DRAFT 1633  
Lab FileID: 6Q16018.D      Analyst approved: 04/05/23 11:17 Martha Valls  
Injection Time: 04/04/23 17:03      Supervisor approved: 04/05/23 17:23 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
NFDHA	151772-58-6		5.41	Split peak
Perfluorooctanoic acid	335-67-1		7.11	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.29	Split peak
EtFOSAA	2991-50-6		8.39	Split peak

7.7.13.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16023.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 4/4/2023 6:13:31 PM  
 Sample Name : cc239-4  
 Vial : P1-A5  
 DA Method File : 1633\_040423\_S6Q239.quantmethod.xml  
 Batch Name : s6q239.batch.bin  
 Sample Information : OP96085,S6Q239,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.897	216.8 -> 171.9	86282	10.00 µg/L	0.000
M5-PFPeA	4.322	268.3 -> 223.0	39366	5.00 µg/L	0.000
M5-PFHxA	5.528	318.0 -> 273.0	35788	2.50 µg/L	0.000
M4-PFHpA	6.481	367.1 -> 322.0	33292	2.50 µg/L	0.012
M8-PFOA	7.125	421.1 -> 376.0	57468	2.50 µg/L	0.013
M9-PFNA	7.643	472.1 -> 427.0	15902	1.25 µg/L	0.000
M6-PFDA	8.122	519.1 -> 474.1	14373	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	16655	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	18755	1.25 µg/L	0.012
M2-PFTeDA	9.721	715.2 -> 670.0	11245	1.25 µg/L	0.000
M8-FOSA	9.631	506.1 -> 77.8	16098	2.50 µg/L	0.012
M3-PFBS	5.459	302.1 -> 79.9	13015	2.50 µg/L	0.000
M3-PFHxS	7.240	402.1 -> 79.9	8756	2.50 µg/L	0.012
M8-PFOS	8.284	507.1 -> 79.9	7628	2.50 µg/L	0.000
M2-4:2FTS	5.204	329.1 -> 80.9	2175	5.00 µg/L	0.012
M2-6:2FTS	6.898	429.1 -> 80.9	2823	5.00 µg/L	0.012
M2-8:2FTS	7.911	529.1 -> 80.9	2493	5.00 µg/L	0.000
M3-MeFOSAA	8.180	573.2 -> 419.0	23757	5.00 µg/L	0.012
M3-HFPO-DA	5.905	286.9 -> 168.9	13847	10.00 µg/L	0.012
M5-EtFOSAA	8.375	589.2 -> 419.0	19545	5.00 µg/L	0.000
M7-MeFOSE	10.653	623.2 -> 58.9	22014	25.00 µg/L	0.000
M9-EtFOSE	10.888	639.2 -> 58.9	14174	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	6137	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	5666	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	9568	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	36545	5.00 µg/L	0.000
18O2-PFHxS	7.239	403.0 -> 83.9	6500	2.50 µg/L	0.012
13C4-PFOA	7.125	417.1 -> 372.0	69796	2.50 µg/L	0.013
13C2-PFDA	8.123	515.1 -> 470.1	20569	1.25 µg/L	0.000
13C5-PFNA	7.643	468.0 -> 423.0	18574	1.25 µg/L	0.000
13C2-PFHxA	5.529	315.1 -> 270.0	32561	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.204	329.1 -> 80.9	2175	4.97 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C2-6:2FTS	6.898	429.1 -> 80.9	2823	5.26 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.2%		
13C2-8:2FTS	7.911	529.1 -> 80.9	2493	4.82 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.4%		
13C2-PFDoDA	9.006	615.1 -> 570.0	18755	1.15 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.3%		
13C2-PFTeDA	9.721	715.2 -> 670.0	11245	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.2%		
13C3-PFBS	5.459	302.1 -> 79.9	13015	2.25 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 90.1%		
13C3-PFHxS	7.240	402.1 -> 79.9	8756	2.35 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 = 94.1%		
13C4-PFBA	2.897	216.8 -> 171.9	86282	10.10 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C4-PFHpA	6.481	367.1 -> 322.0	33292	2.53 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C5-PFHxA	5.528	318.0 -> 273.0	35788	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.2%		
13C5-PFPeA	4.322	268.3 -> 223.0	39366	5.18 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.7%		
13C6-PFDA	8.122	519.1 -> 474.1	14373	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.0%		
13C7-PFUnDA	8.576	570.0 -> 525.1	16655	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.8%		
13C8-FOSA	9.631	506.1 -> 77.8	16098	2.68 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 90.4%		
13C8-PFOA	7.125	421.1 -> 376.0	57468	2.46 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C8-PFOS	8.284	507.1 -> 79.9	7628	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C9-PFNA	7.643	472.1 -> 427.0	15902	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.6%		
d3-MeFOSAA	8.180	573.2 -> 419.0	23757	5.13 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C3-HFPO-DA	5.905	286.9 -> 168.9	13847	9.75 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 97.5%		
d3-MeFOSA	10.733	515.0 -> 219.0	5666	2.21 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 88.3%		
d5-EtFOSAA	8.375	589.2 -> 419.0	19545	4.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.5%		
d7-MeFOSE	10.653	623.2 -> 58.9	22014	22.61 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 90.4%		
d9-EtFOSE	10.888	639.2 -> 58.9	14174	21.90 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 87.6%		
d5-EtFOSA	10.965	531.1 -> 219.0	6137	2.22 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 88.8%		
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.204	327.1 -> 307.0	38110	8.94 µg/L	99
		327.1 -> 80.9	9173		
6:2FTS	6.899	427.1 -> 407.0	31204	8.25 µg/L	99
		427.1 -> 80.9	6930		
8:2FTS	7.911	527.1 -> 507.0	17728	10.02 µg/L	95
		527.1 -> 80.8	3930		
EtFOSAA	8.376	584.2 -> 419.1	6827	2.28 µg/L	m 84
		584.2 -> 526.0	3860		
FOSA	9.621	498.1 -> 77.9	13755	2.31 µg/L	100
		498.1 -> 478.0	492		
MeFOSAA	8.181	570.1 -> 419.0	9183	2.06 µg/L	m 96
		570.1 -> 483.0	1551		
PFBA	2.906	212.8 -> 168.9	19562	8.97 µg/L	100
PFBS	5.460	298.7 -> 79.9	10574	2.07 µg/L	98
		298.7 -> 98.8	5049		
PFDA	8.123	512.9 -> 469.0	38045	2.27 µg/L	100
		512.9 -> 219.0	5348		
PFDODA	9.007	613.1 -> 569.0	30873	2.21 µg/L	99
		613.1 -> 319.0	4031		
PFDS	9.170	599.0 -> 79.9	4932	2.16 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	2427			
PFHpA	6.481	363.1 -> 319.0	44281	2.37	µg/L	99
		363.1 -> 169.0	6315			
PFHpS	7.794	449.0 -> 79.9	6523	2.00	µg/L	98
		449.0 -> 98.9	3815			
PFHxA	5.531	313.0 -> 269.0	29823	2.26	µg/L	100
		313.0 -> 118.9	1149			
PFHxS	7.241	398.7 -> 79.9	7822	2.03	µg/L	m 94
		398.7 -> 98.9	4167			
PFNA	7.656	463.0 -> 419.0	24348	2.35	µg/L	98
		463.0 -> 219.0	4820			
PFNS	8.751	548.8 -> 79.9	6773	2.09	µg/L	100
		548.8 -> 98.9	3902			
PFOA	7.126	413.0 -> 369.0	56126	2.16	µg/L	96
		413.0 -> 169.0	8400			
PFOS	8.286	498.9 -> 79.9	6354	1.89	µg/L	m 83
		498.9 -> 98.8	3883			
PFPeA	4.324	263.0 -> 219.0	37223	4.48	µg/L	100
PFPeS	6.533	349.1 -> 79.9	9777	2.11	µg/L	97
		349.1 -> 98.9	4819			
PFTeDA	9.722	713.1 -> 669.0	26369	2.22	µg/L	99
		713.1 -> 168.9	1742			
PFTrDA	9.390	663.0 -> 619.0	30631	2.32	µg/L	100
		663.0 -> 168.9	2491			
PFUnDA	8.577	563.1 -> 519.0	31849	2.39	µg/L	93
		563.1 -> 269.1	4292			
11CI-PF3OUdS	9.442	630.9 -> 450.9	68409	9.19	µg/L	100
		632.9 -> 452.9	21205			
9CI-PF3ONS	8.616	530.8 -> 351.0	131588	9.26	µg/L	94
		532.8 -> 353.0	38970			
ADONA	6.731	376.9 -> 250.9	251318	8.96	µg/L	99
		376.9 -> 84.8	59625			
HFPO-DA	5.894	284.9 -> 168.9	12099	9.67	µg/L	98
		284.9 -> 184.9	1614			
3:3FTCA	3.790	241.0 -> 177.0	5020	10.89	µg/L	99
		241.0 -> 117.0	743			
5:3FTCA	6.198	341.0 -> 237.1	155391	53.21	µg/L	96
		341.0 -> 217.0	141096			
7:3FTCA	7.608	441.0 -> 316.9	79911	54.06	µg/L	97
		441.0 -> 336.9	152494			
EtFOSA	10.967	526.0 -> 219.0	6217	2.35	µg/L	97
		526.0 -> 169.0	6193			
EtFOSE	10.913	630.0 -> 58.9	12917	23.24	µg/L	100
MeFOSA	10.734	511.9 -> 219.0	5682	2.38	µg/L	99
		511.9 -> 169.0	5942			
MeFOSE	10.666	616.1 -> 58.9	18402	22.18	µg/L	100
PFDoDS	9.861	699.1 -> 79.9	2652	2.00	µg/L	95
		699.1 -> 98.8	1773			
NFDHA	5.410	295.0 -> 201.0	3739	4.37	µg/L	98
		295.0 -> 84.9	1600			
PFMBA	4.737	279.0 -> 85.1	12056	4.38	µg/L	100
PFMPA	3.463	229.0 -> 84.9	11103	4.42	µg/L	100
PFEESA	5.999	314.8 -> 134.9	73692	3.94	µg/L	99
		314.8 -> 82.9	1971			

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



7.7.14  
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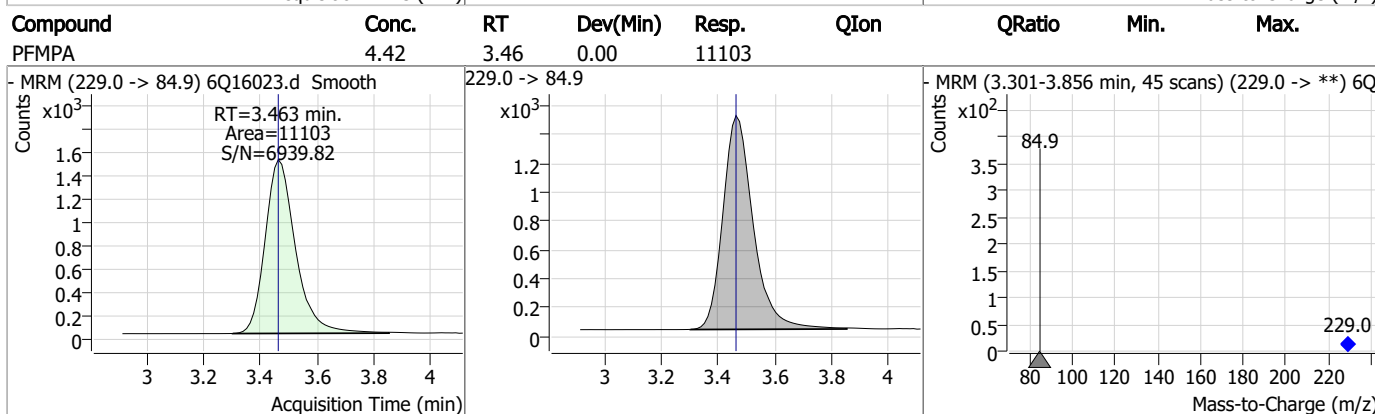
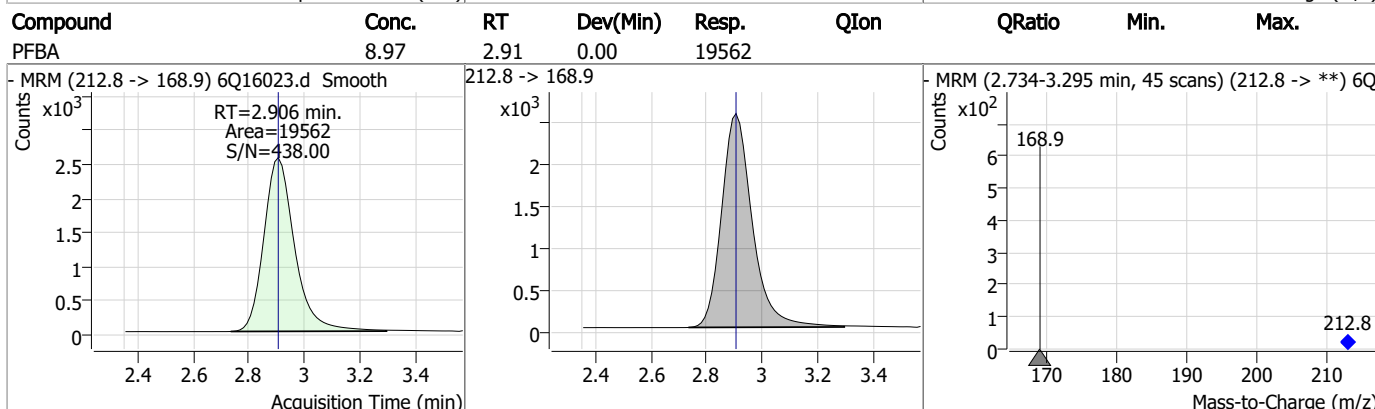
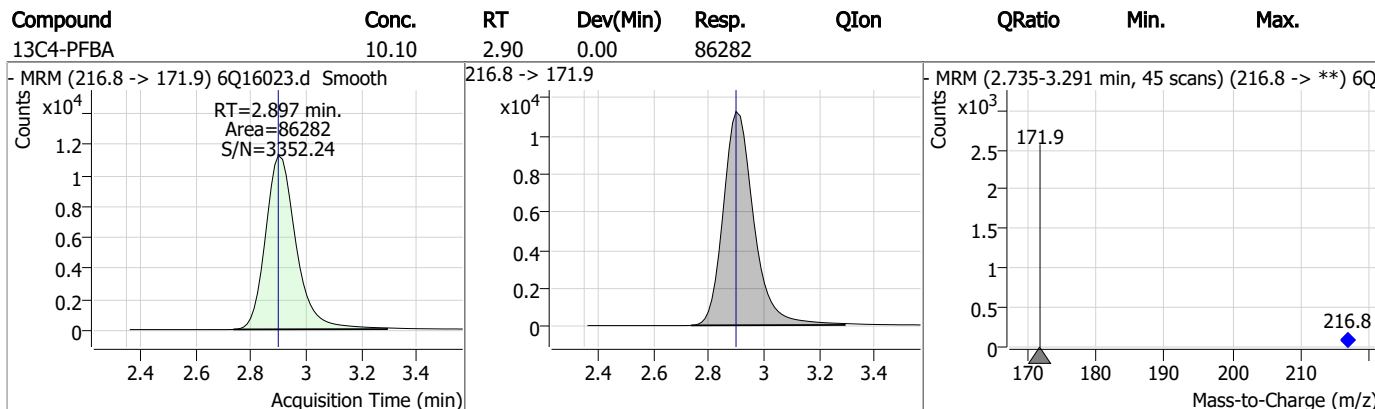
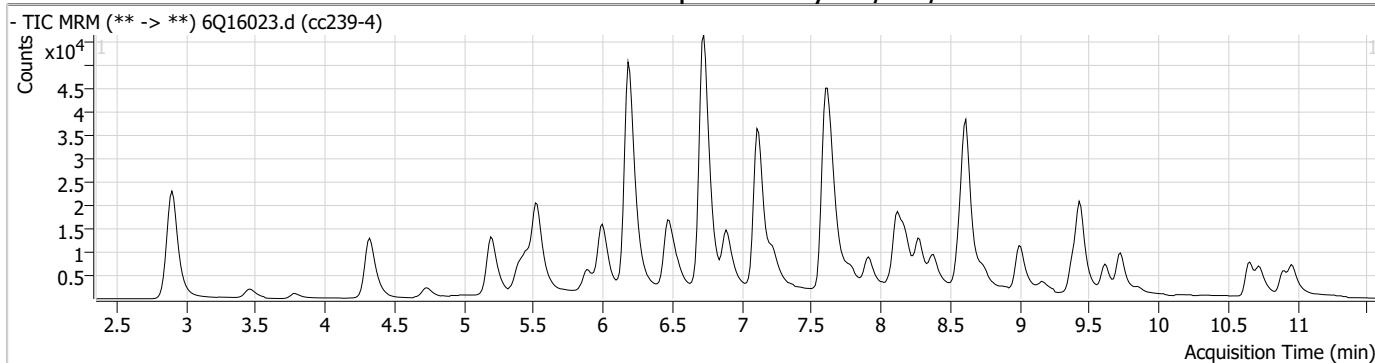
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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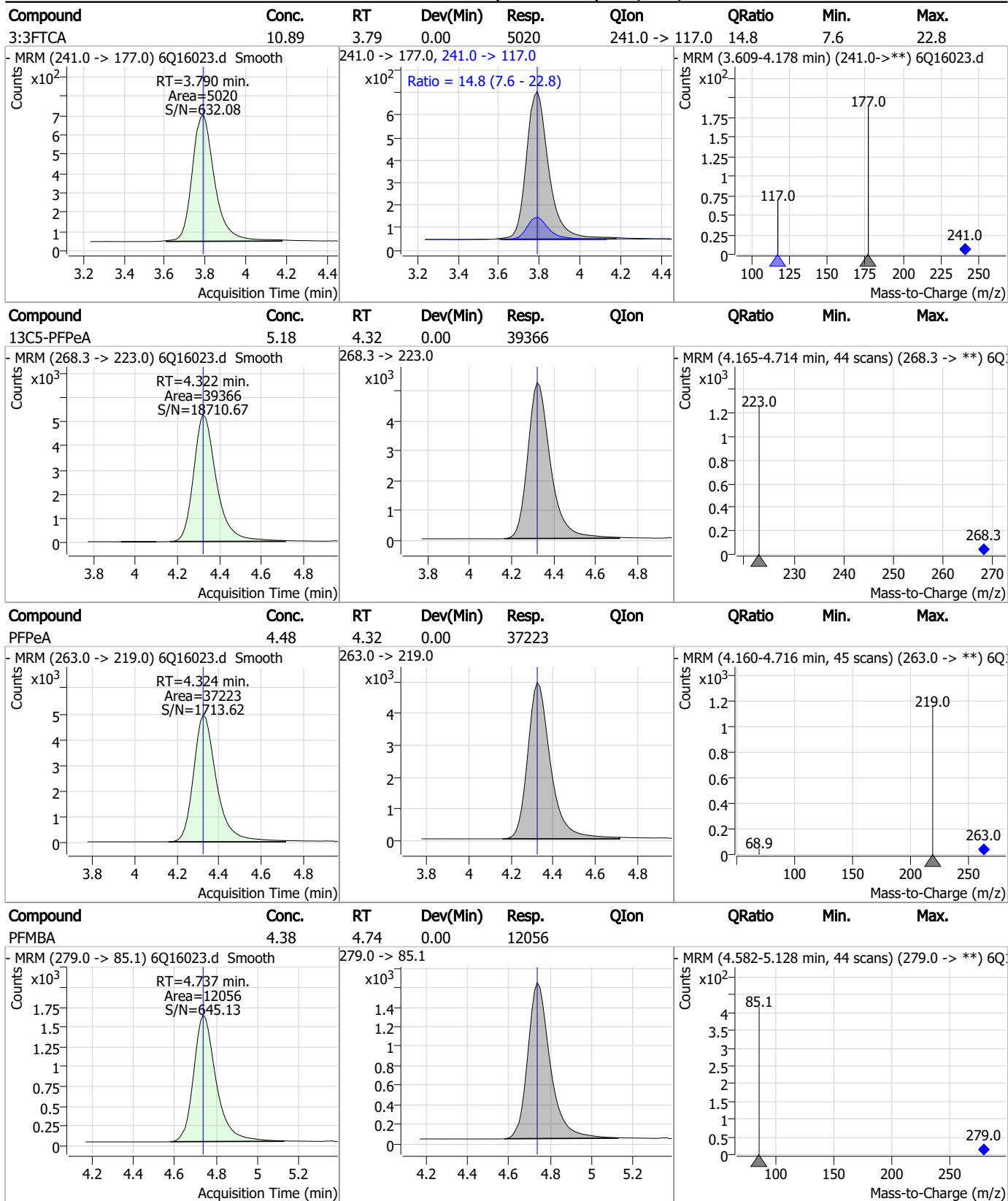
7.7.14

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### Perfluorinated Compounds by LC/MS/MS



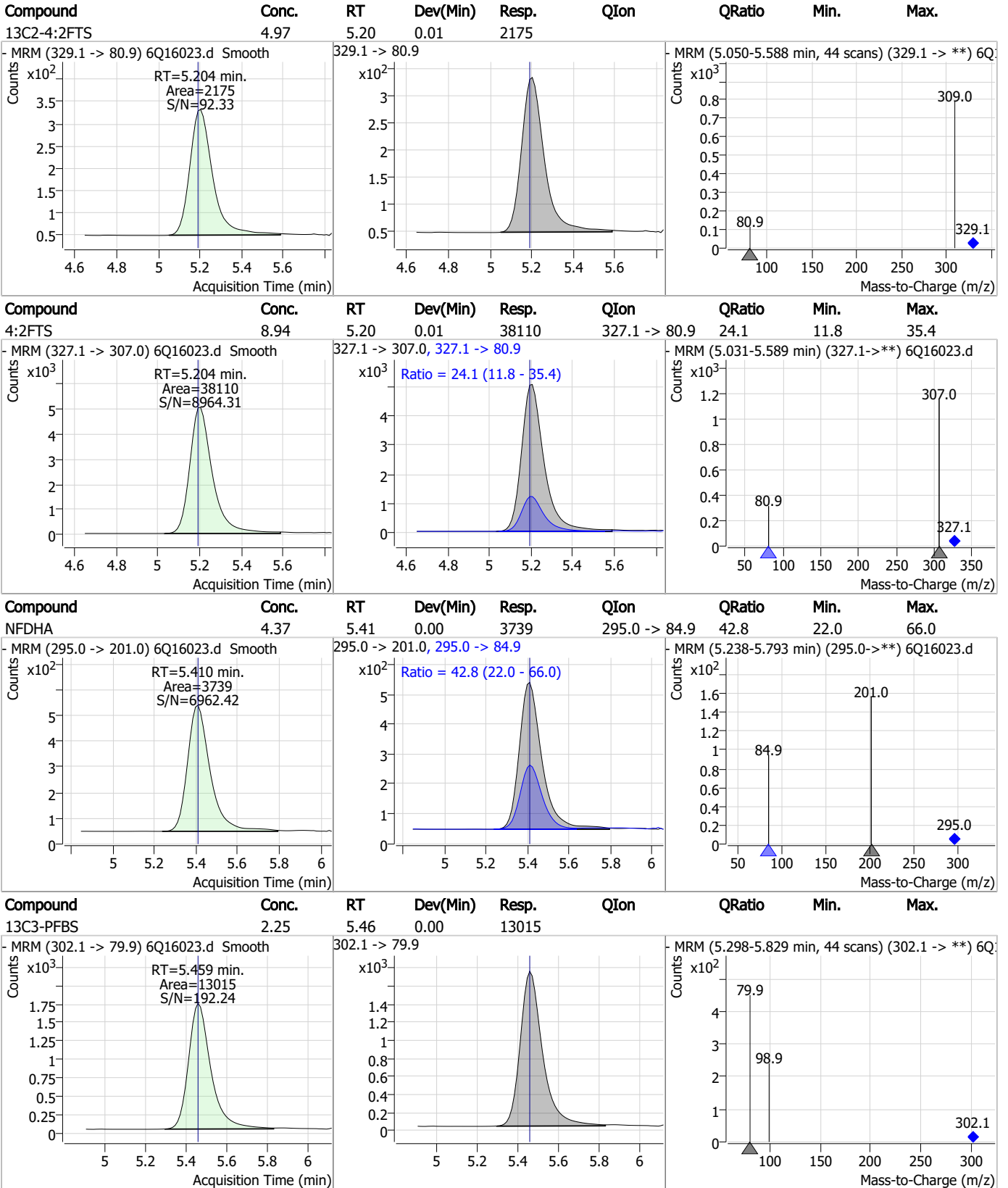
### Perfluorinated Compounds by LC/MS/MS



7.7.14

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### Perfluorinated Compounds by LC/MS/MS

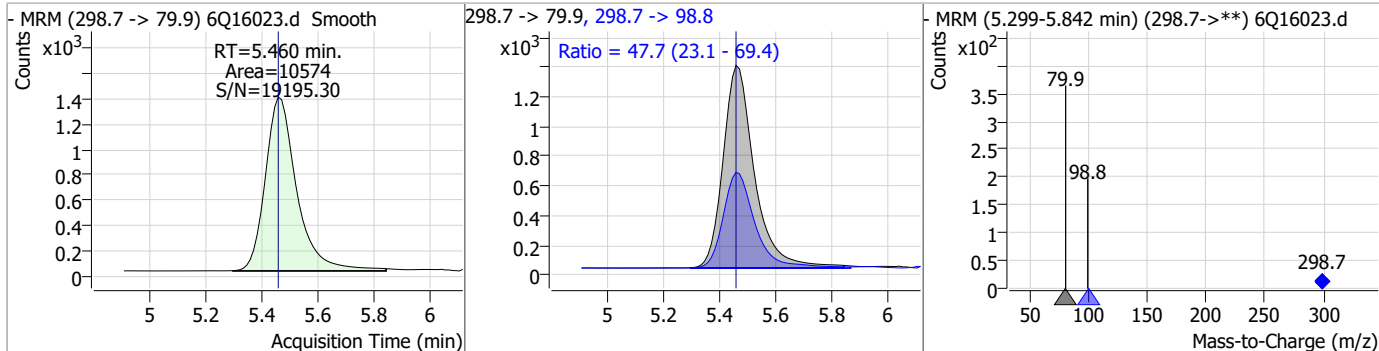


7.7.14

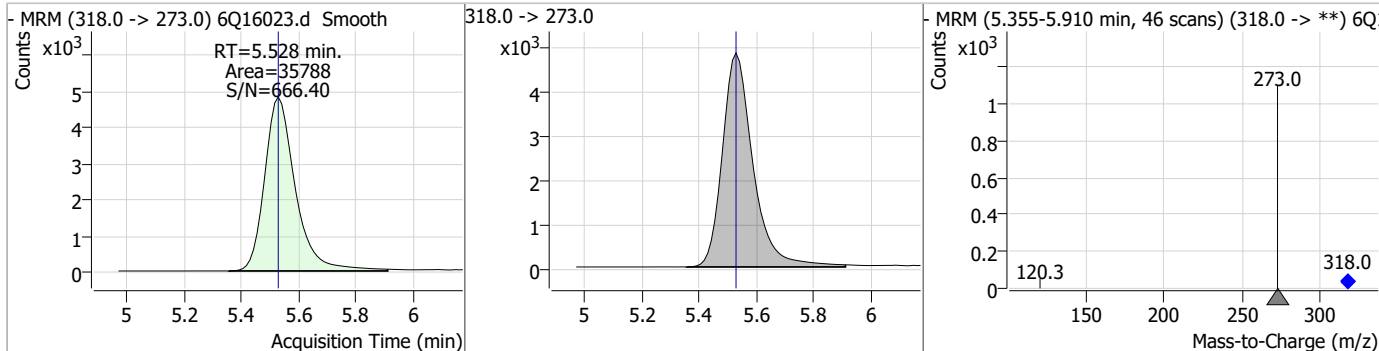
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### Perfluorinated Compounds by LC/MS/MS

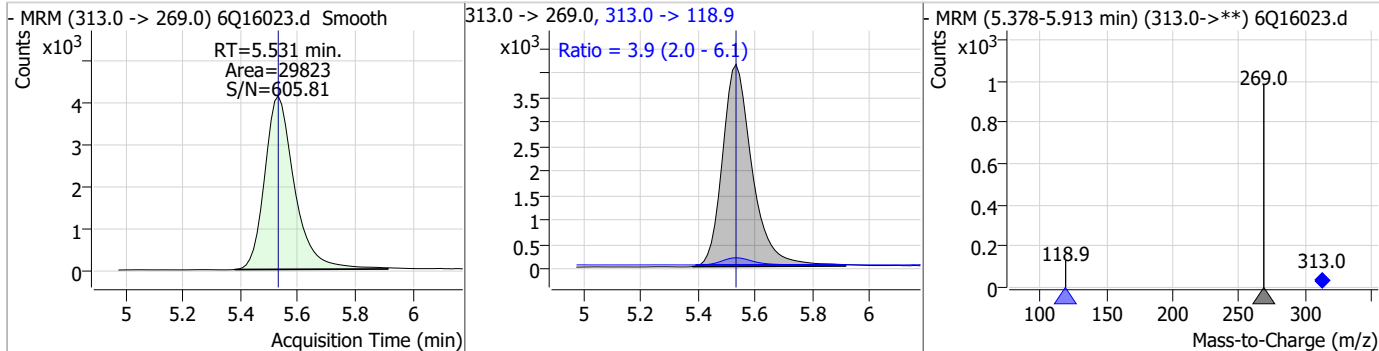
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.07	5.46	0.00	10574	298.7 -> 98.8	47.7	23.1	69.4



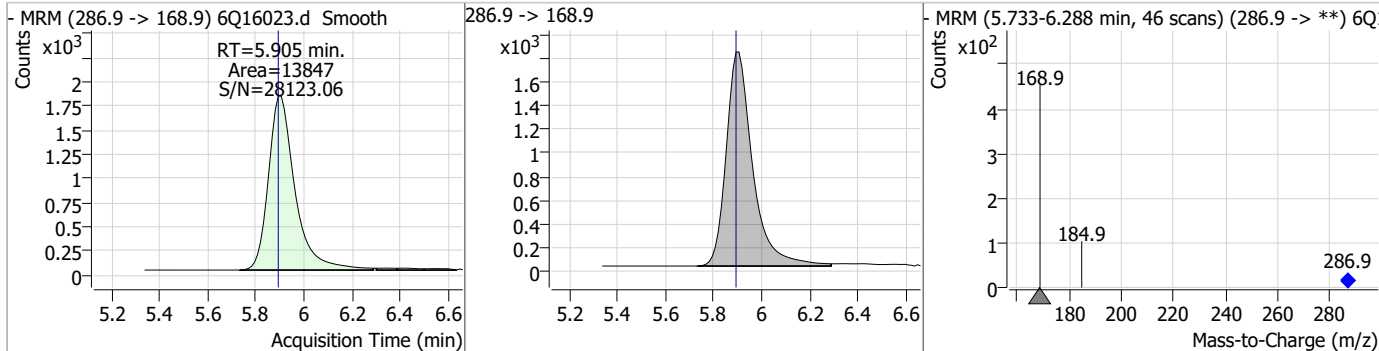
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.66	5.53	0.00	35788				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.26	5.53	0.00	29823	313.0 -> 118.9	3.9	2.0	6.1



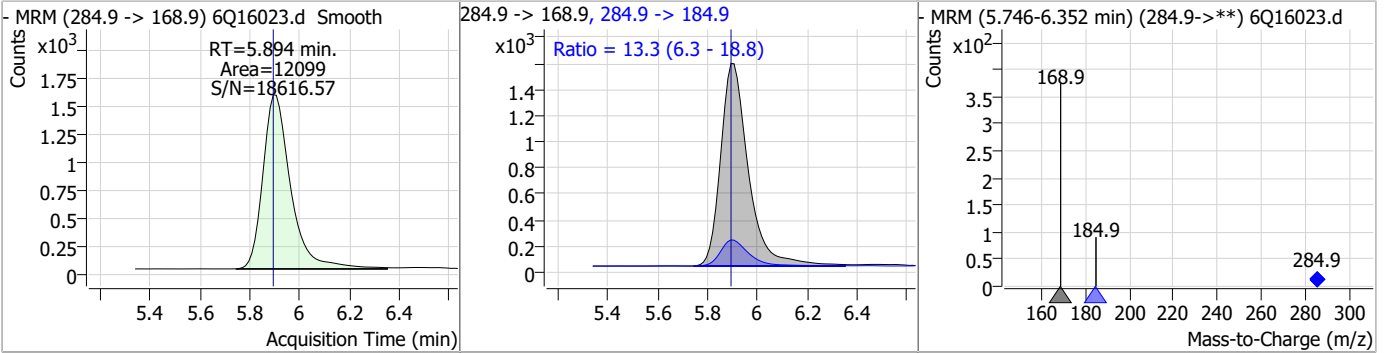
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.75	5.91	0.01	13847				



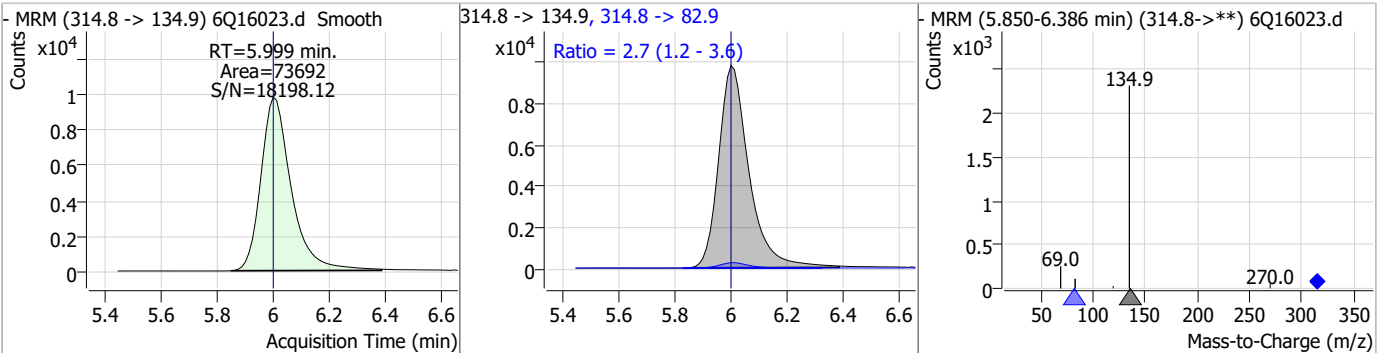
7.7.14  
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### Perfluorinated Compounds by LC/MS/MS

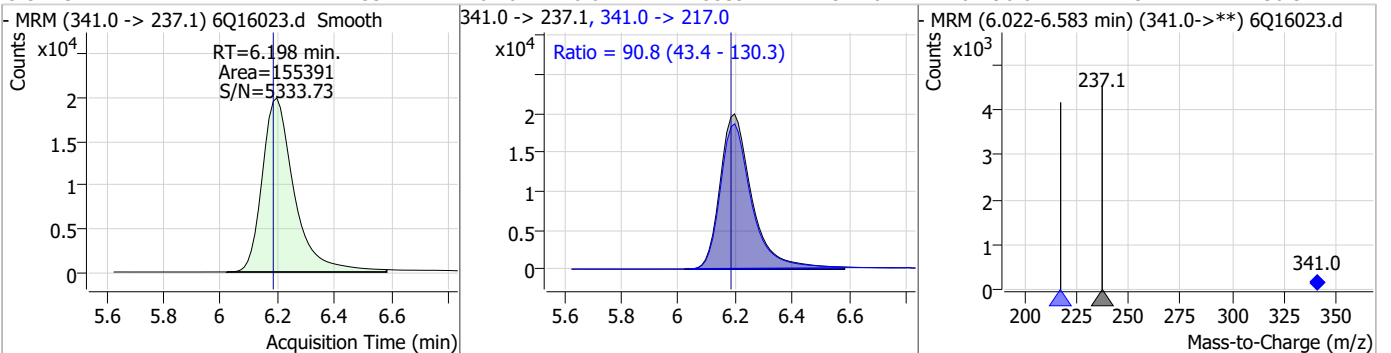
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.67	5.89	0.00	12099	284.9 -> 184.9	13.3	6.3	18.8



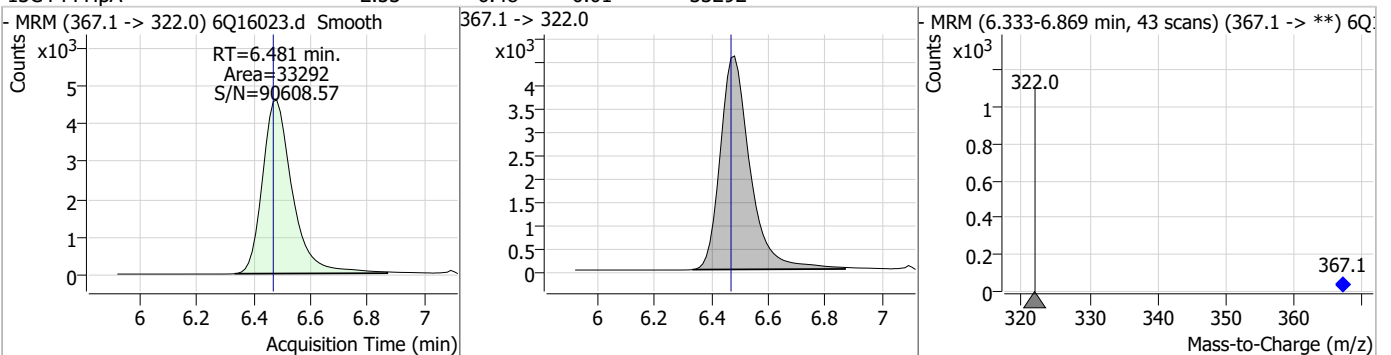
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	3.94	6.00	0.00	73692	314.8 -> 82.9	2.7	1.2	3.6



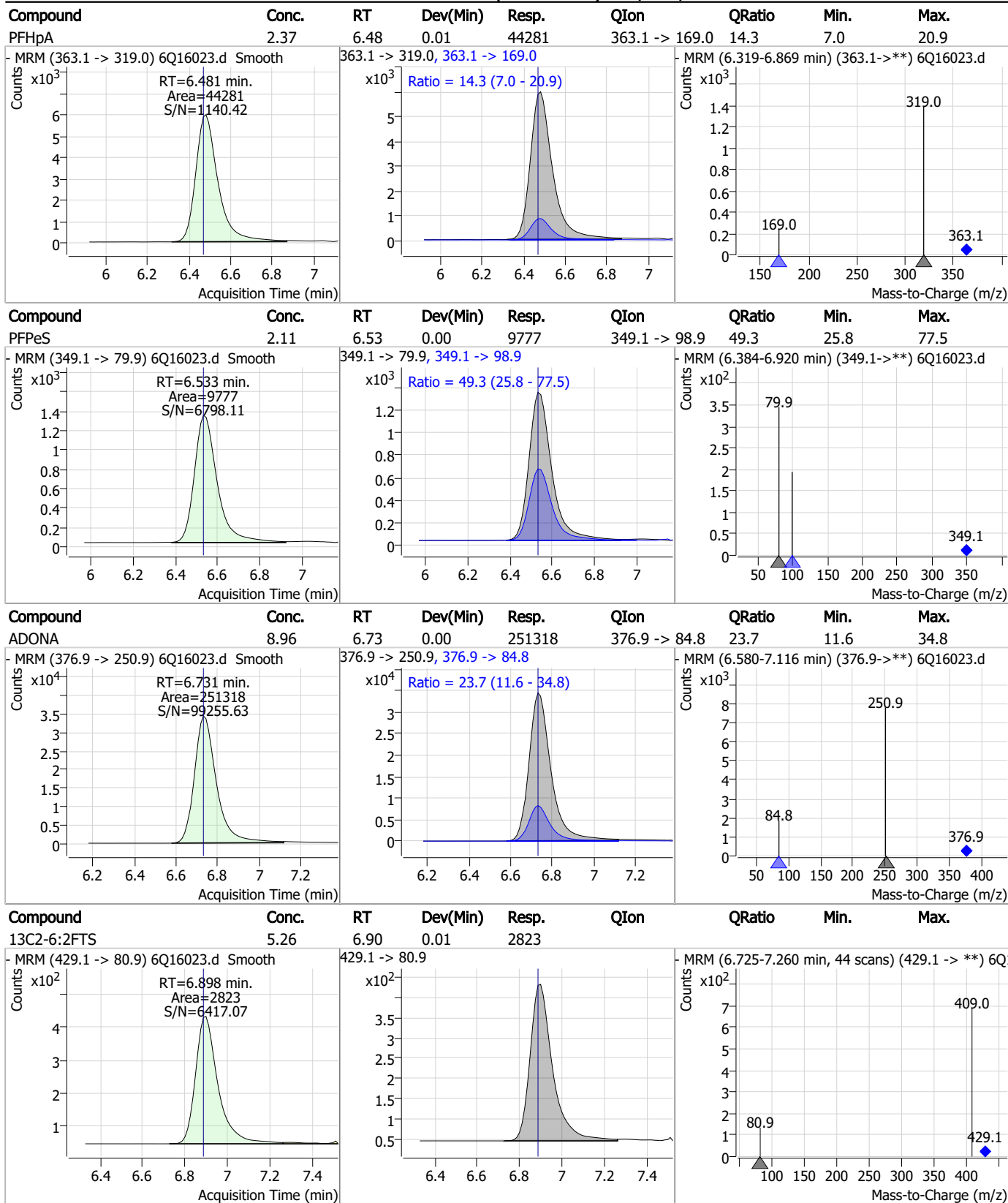
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	53.21	6.20	0.01	155391	341.0 -> 217.0	90.8	43.4	130.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.53	6.48	0.01	33292	367.1 -> 322.0	-	-	-



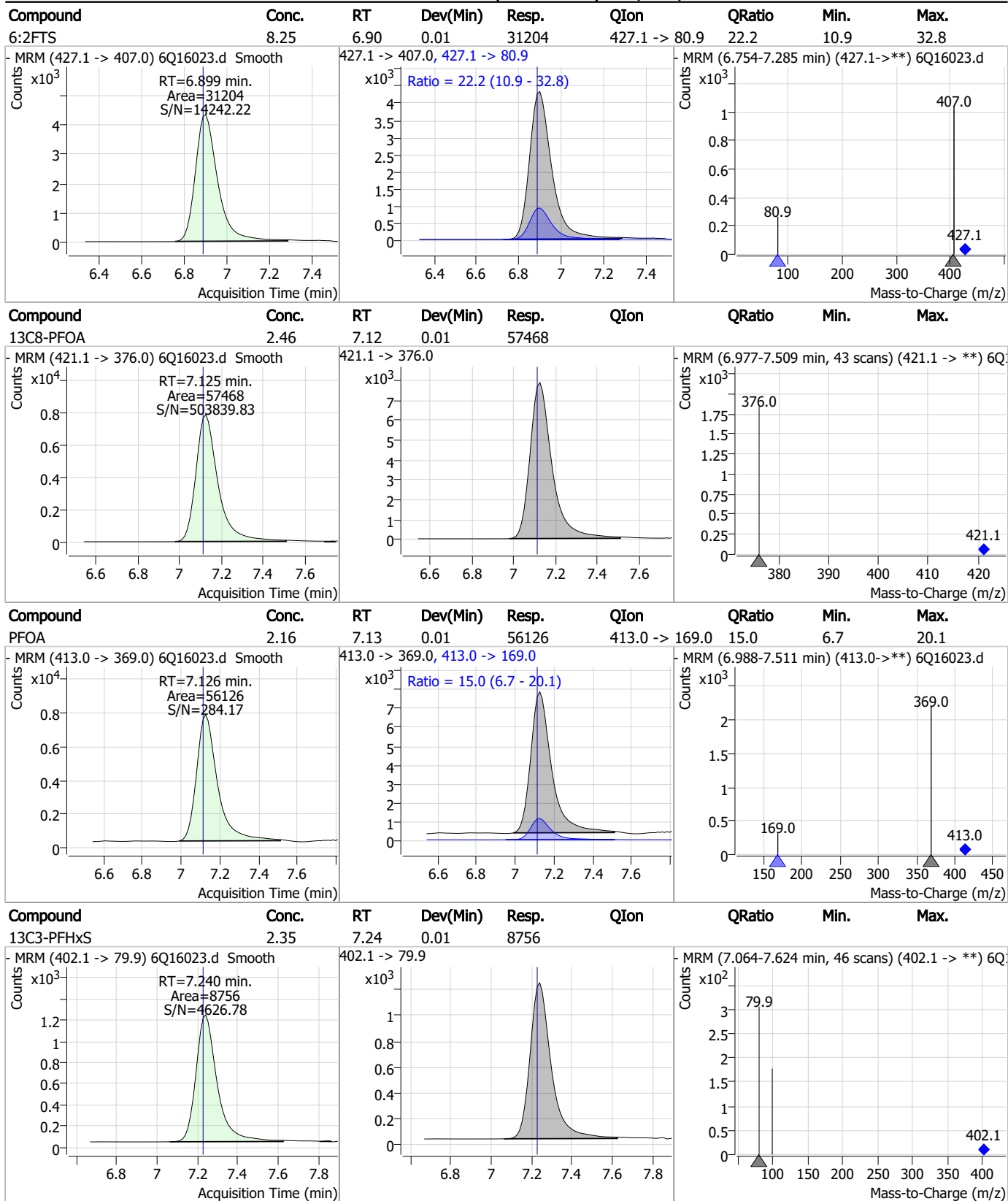
### Perfluorinated Compounds by LC/MS/MS



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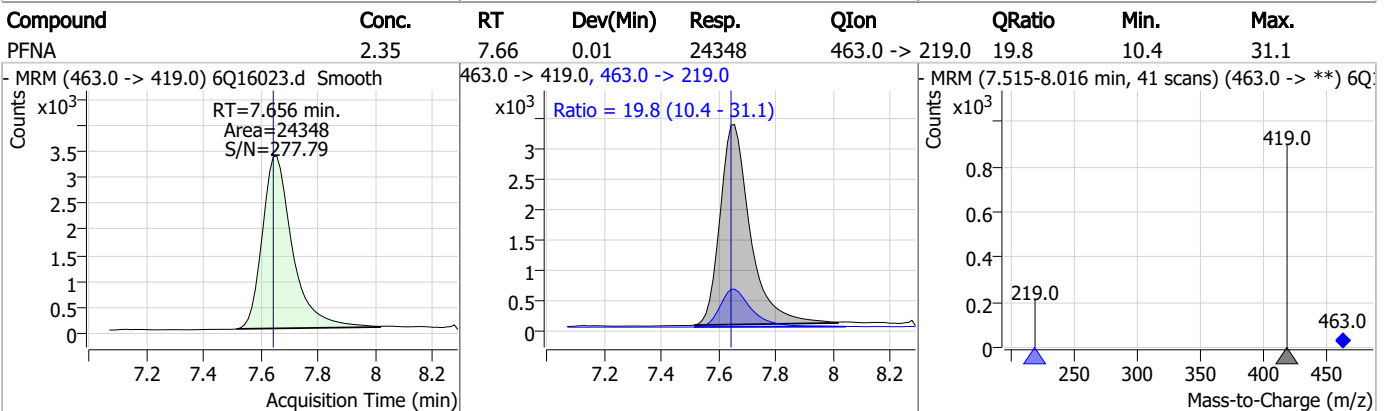
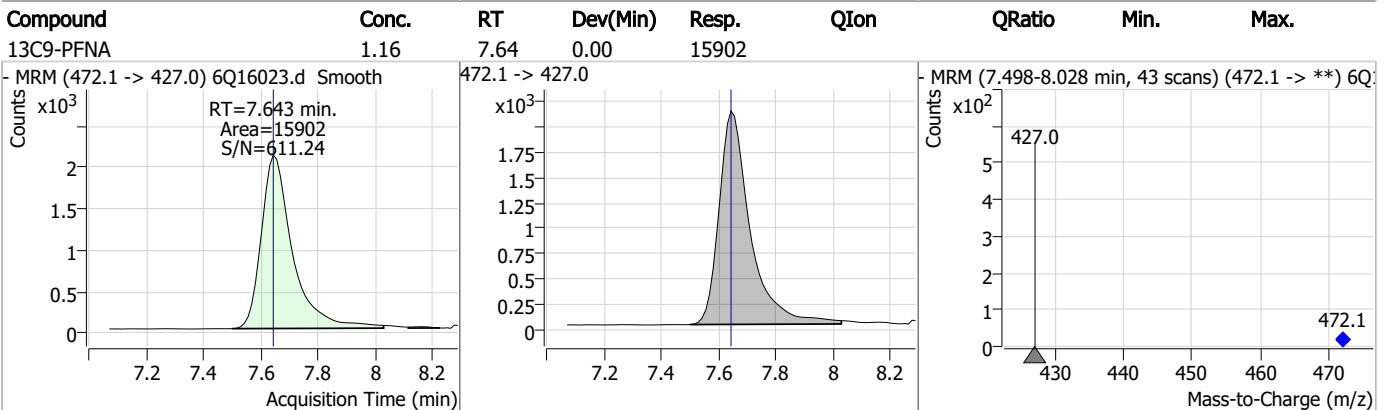
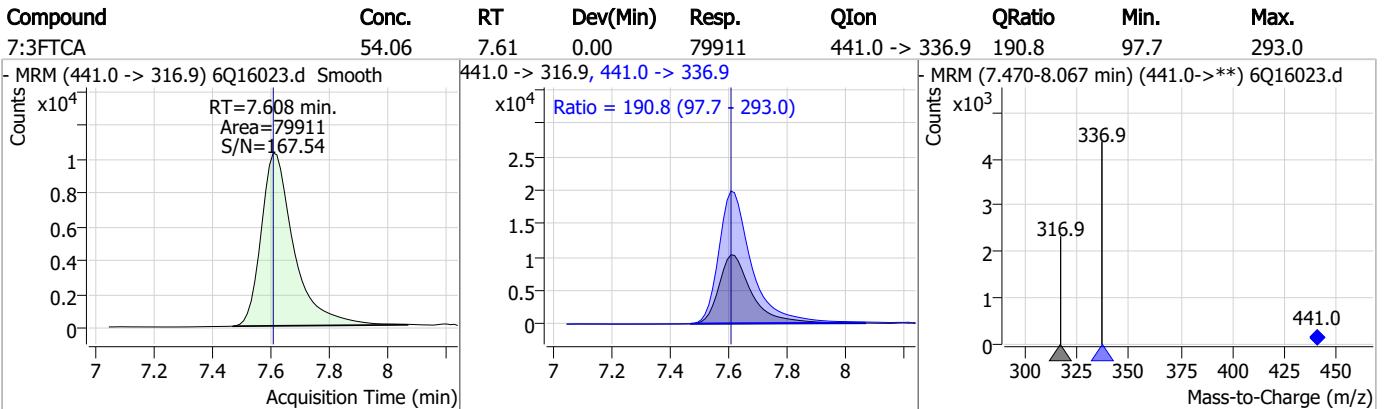
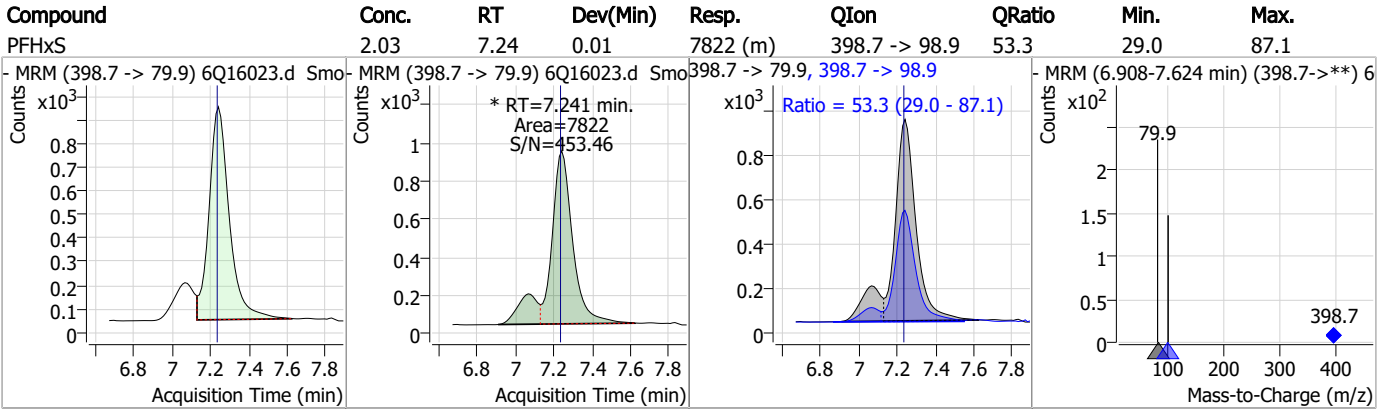
### Perfluorinated Compounds by LC/MS/MS



7.7.14

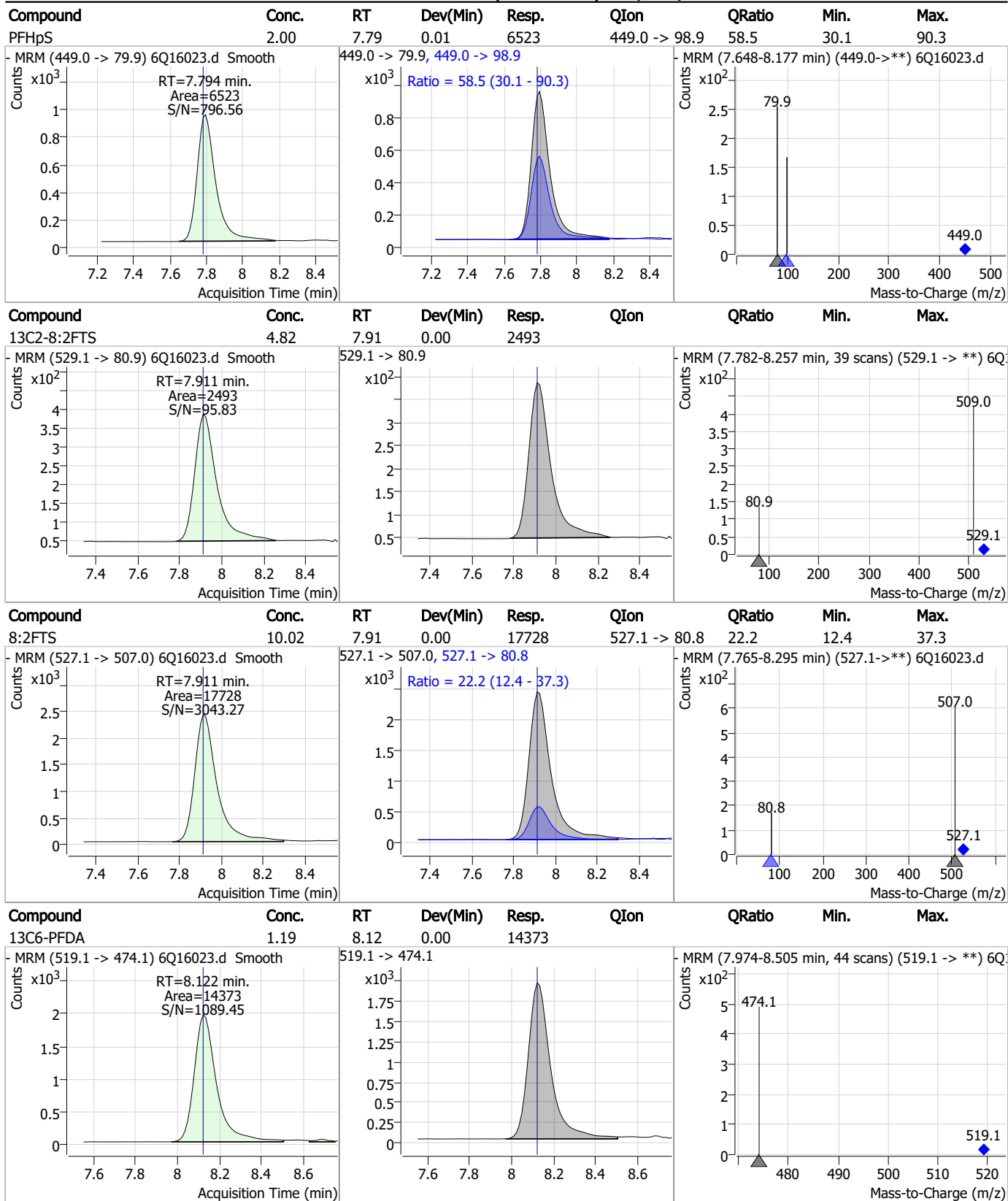


### Perfluorinated Compounds by LC/MS/MS



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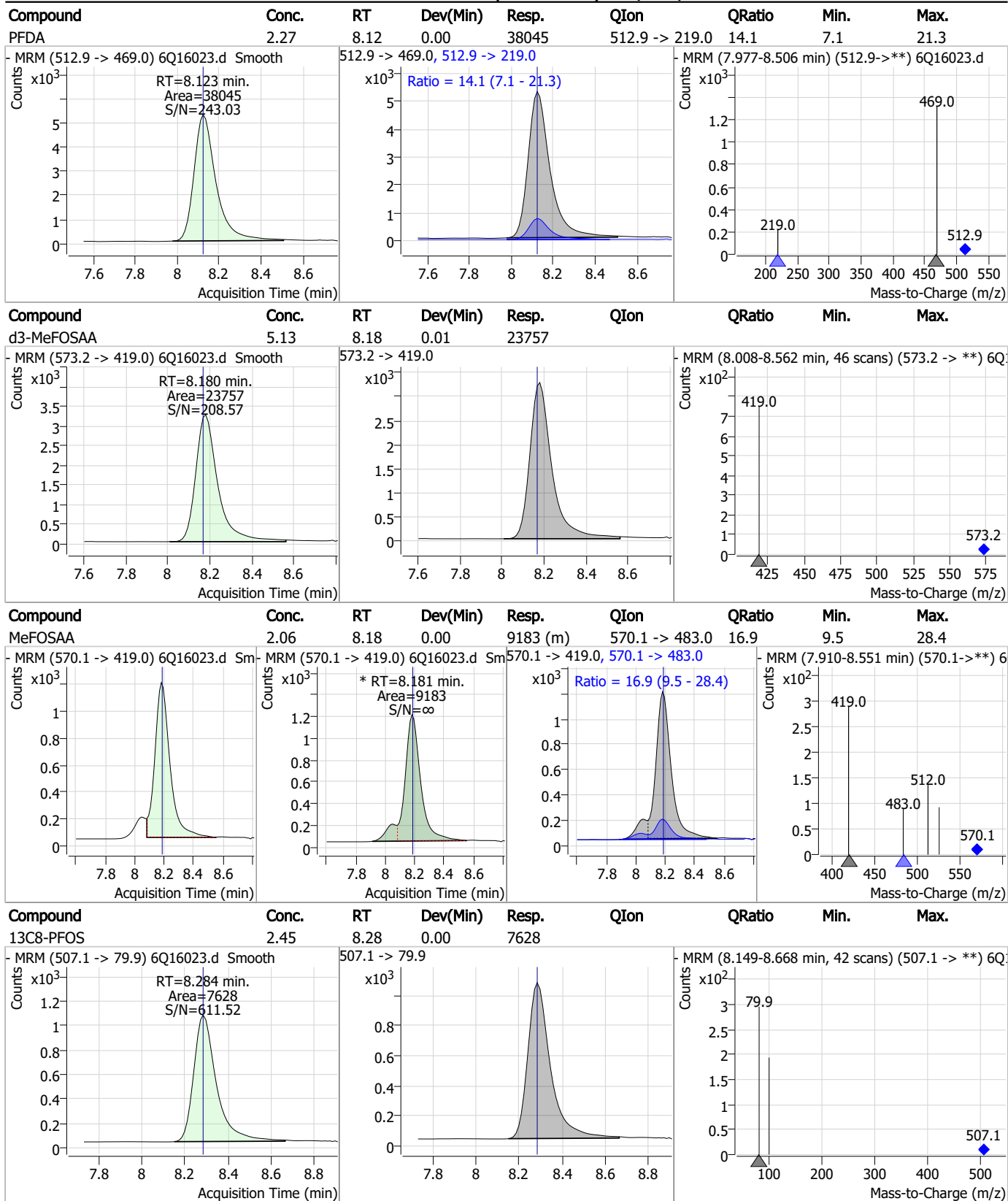
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

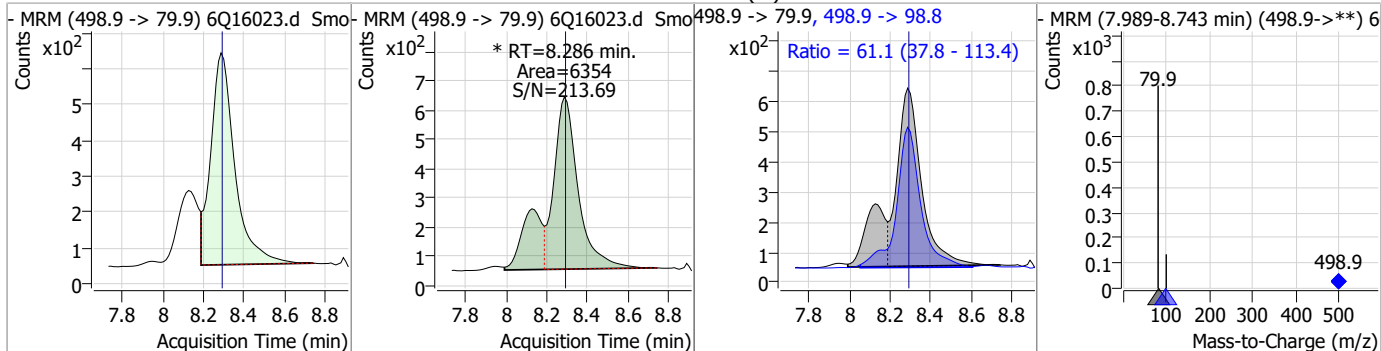


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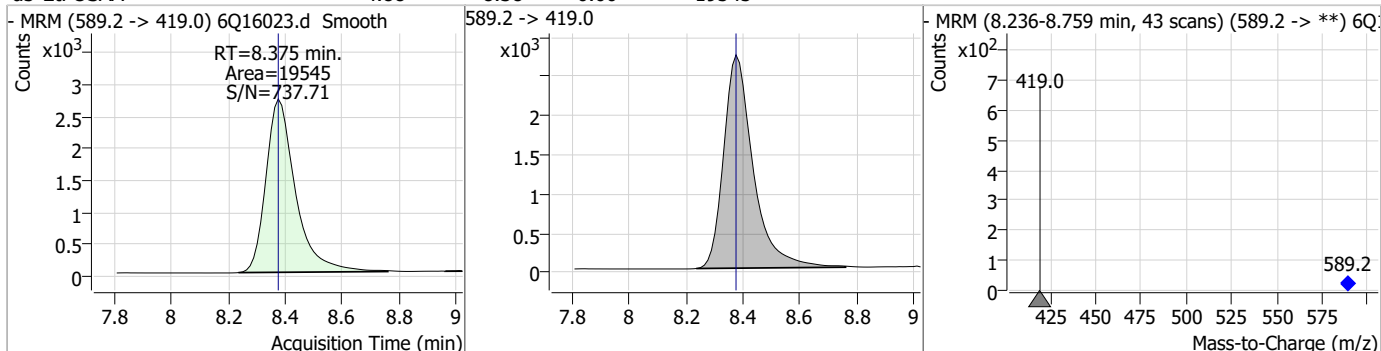
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### Perfluorinated Compounds by LC/MS/MS

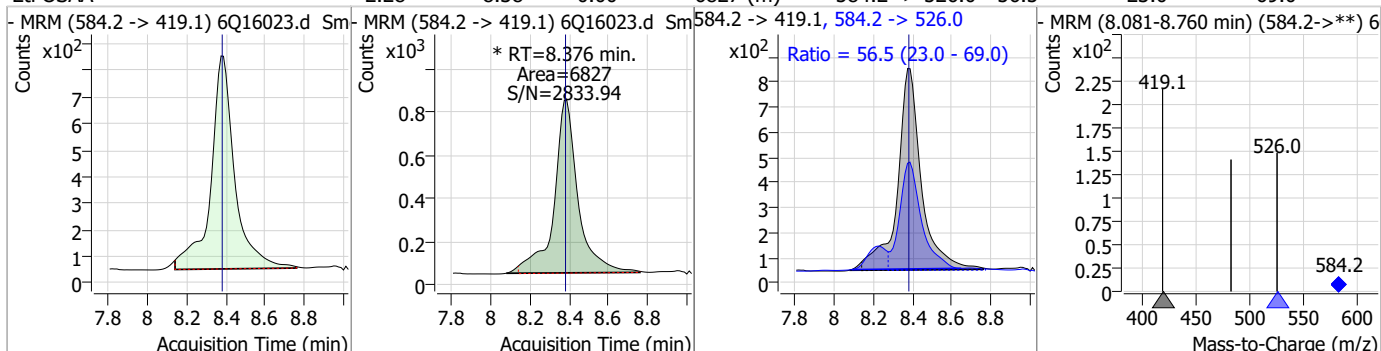
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.89	8.29	0.00	6354 (m)	498.9 -> 98.8	61.1	37.8	113.4



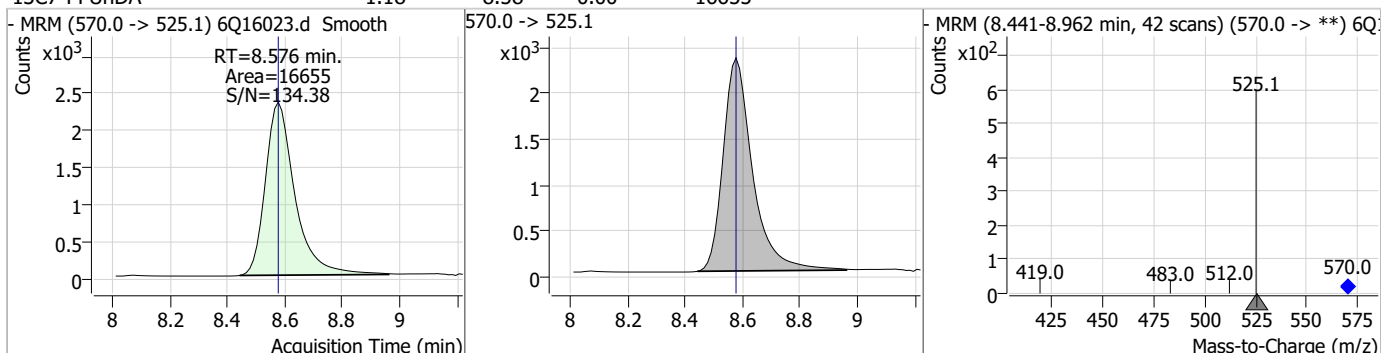
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.88	8.38	0.00	19545				



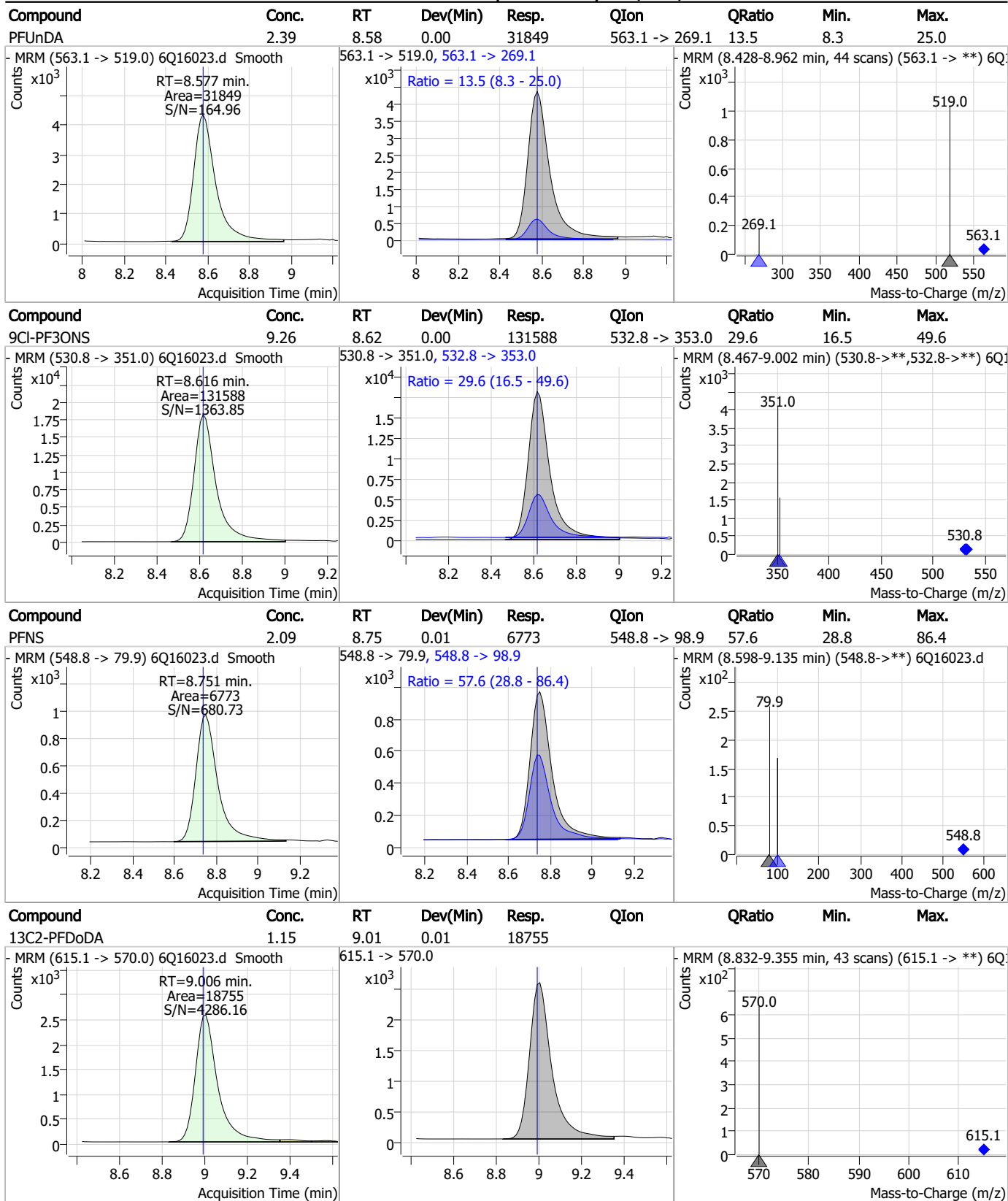
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.28	8.38	0.00	6827 (m)	584.2 -> 526.0	56.5	23.0	69.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.18	8.58	0.00	16655				

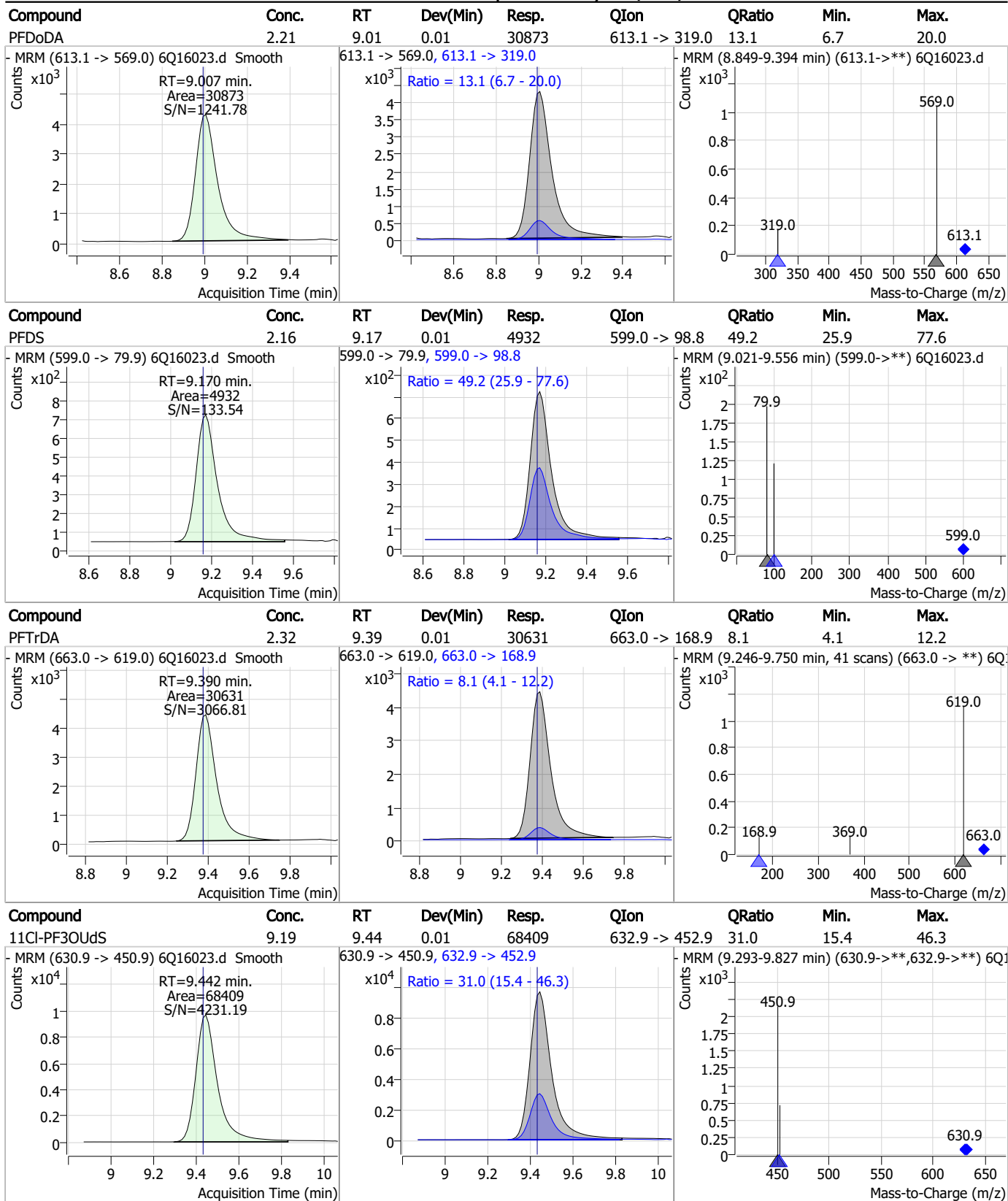


### Perfluorinated Compounds by LC/MS/MS



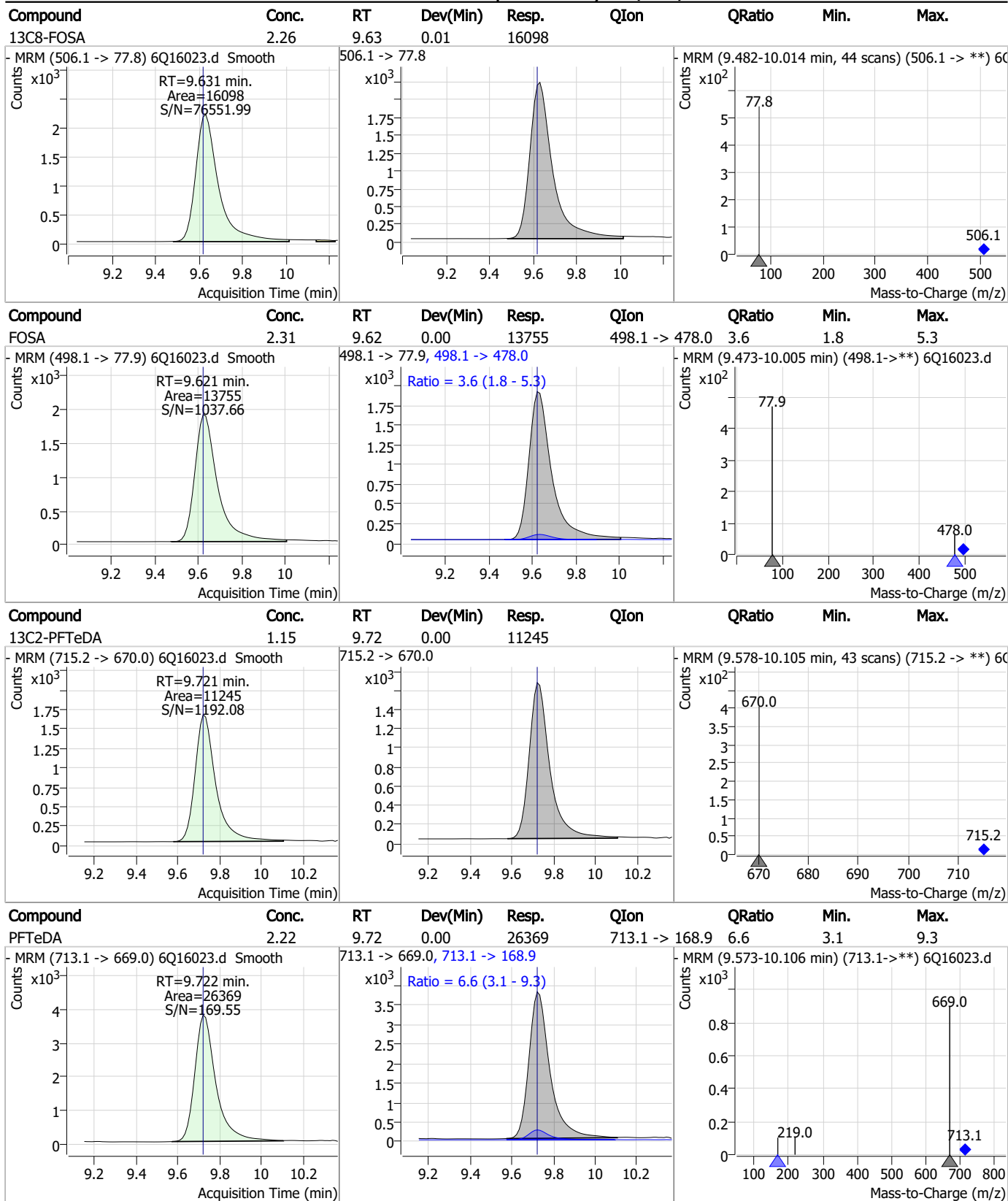
7.7.14  
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### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS



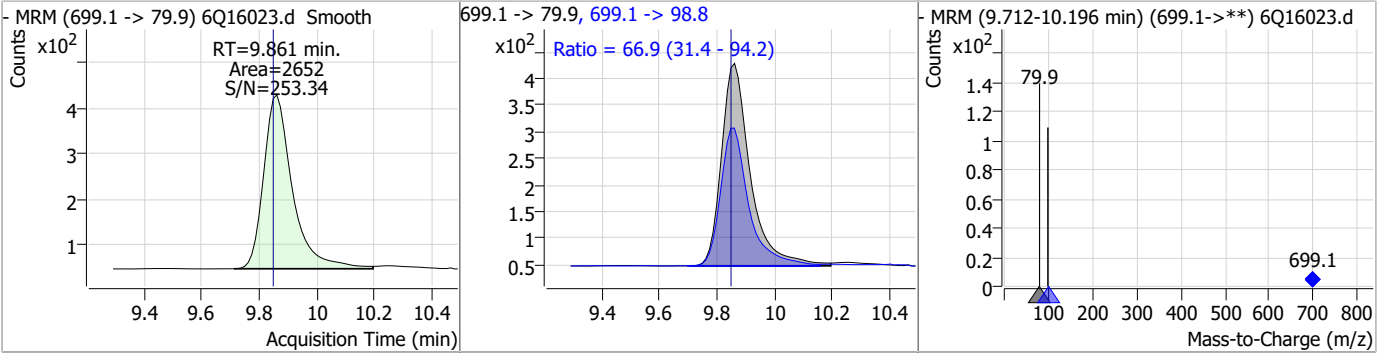
7.7.14



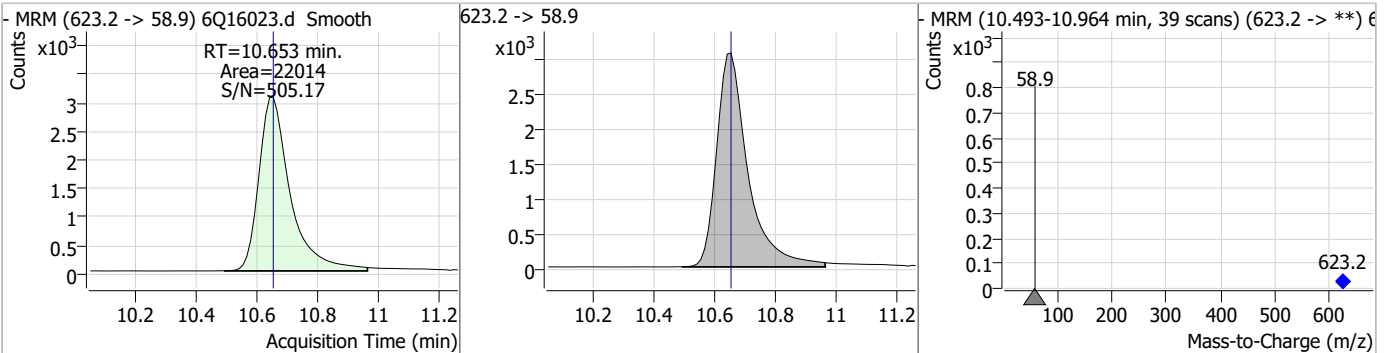


### Perfluorinated Compounds by LC/MS/MS

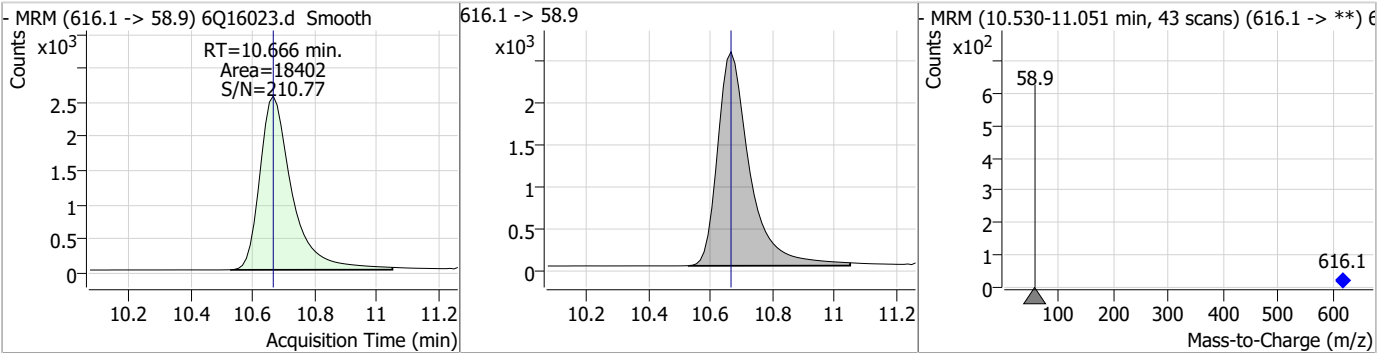
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.00	9.86	0.01	2652	699.1 -> 98.8	66.9	31.4	94.2



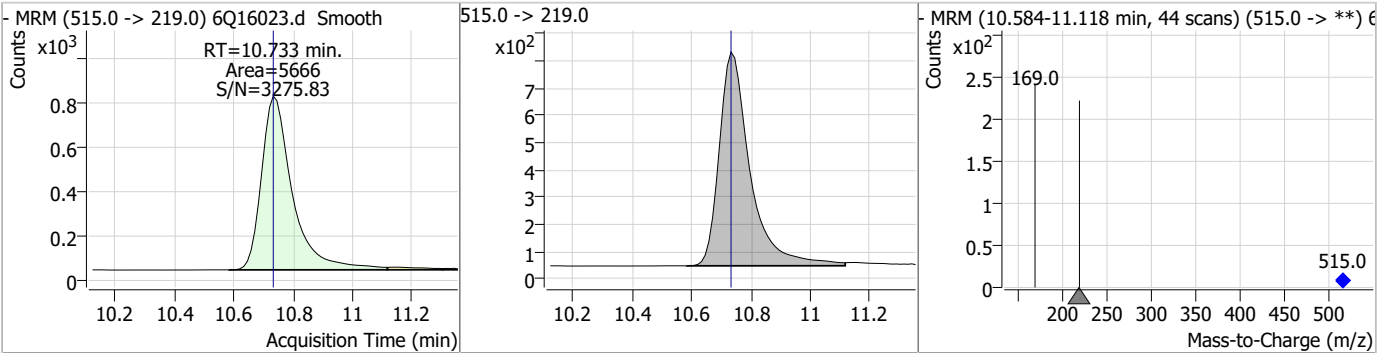
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	22.61	10.65	0.00	22014				



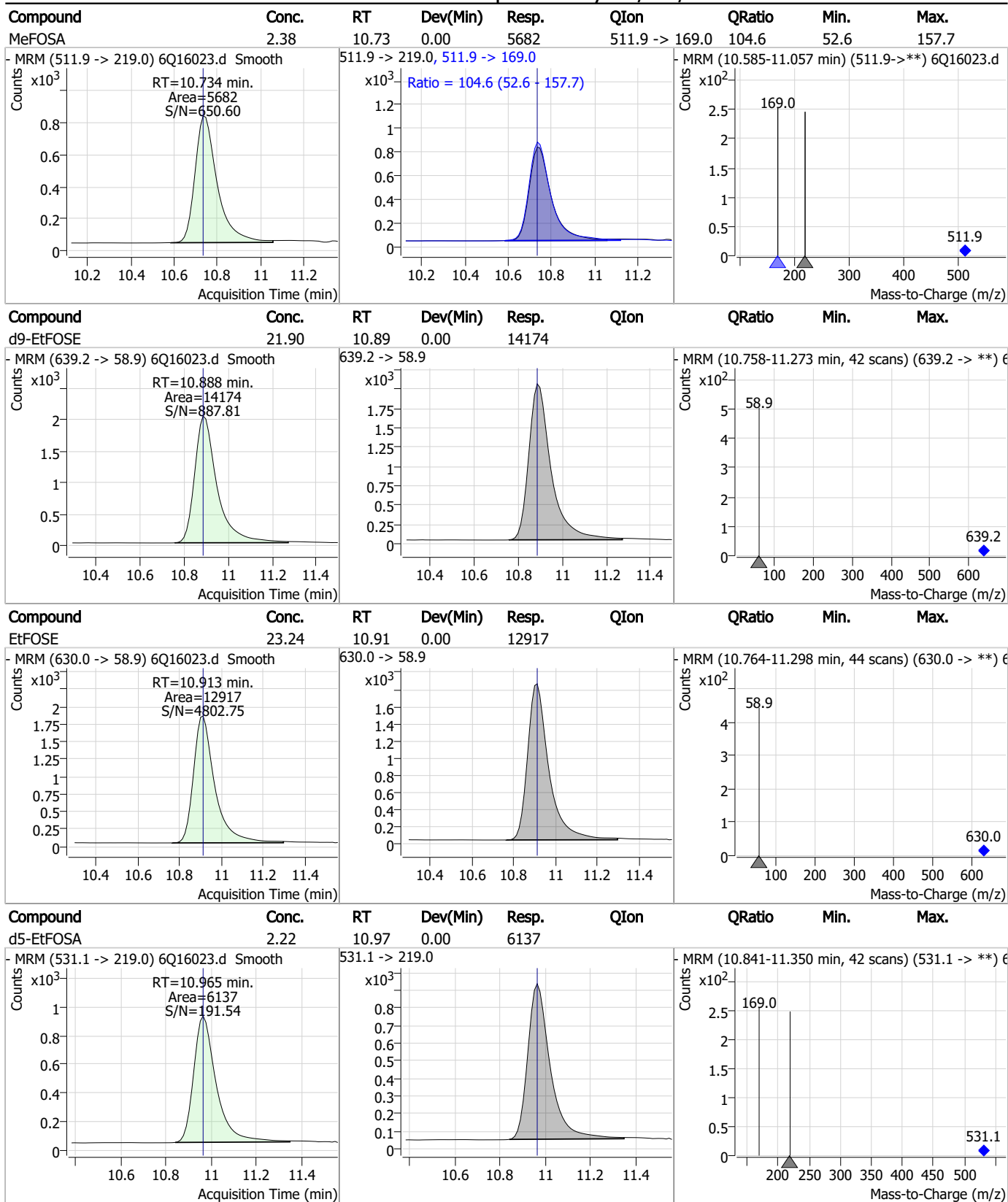
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	22.18	10.67	0.00	18402				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.21	10.73	0.00	5666				



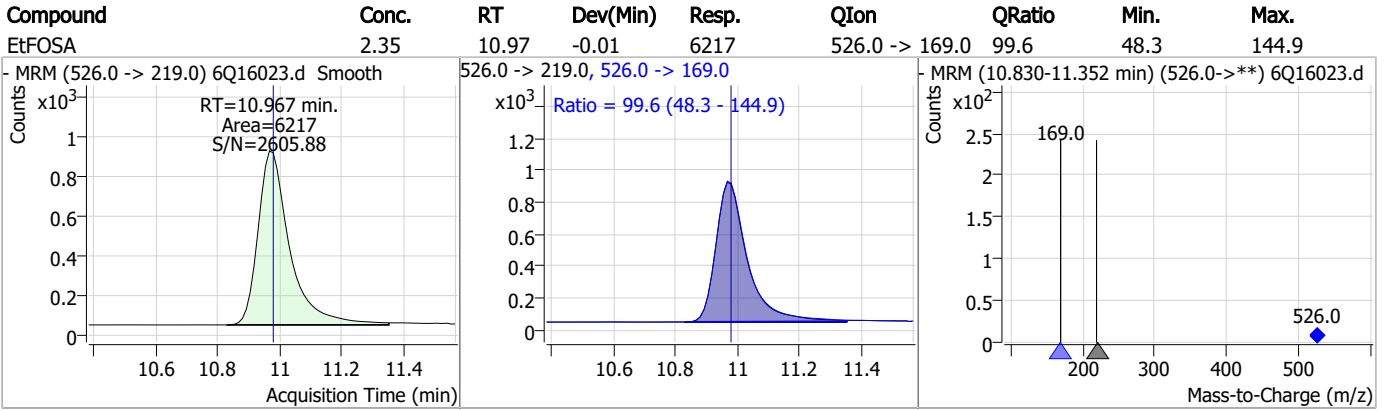
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS



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# Manual Integration Approval Summary

Sample Number: S6Q239-CC239      Method: EPA DRAFT 1633  
Lab FileID: 6Q16023.D      Analyst approved: 04/05/23 11:17 Martha Valls  
Injection Time: 04/04/23 18:13      Supervisor approved: 04/05/23 17:23 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
MeFOSAA	2355-31-9		8.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.29	Split peak
EtFOSAA	2991-50-6		8.38	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q16034.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 4/4/2023 8:47:22 PM  
 Sample Name : cc239-4  
 Vial : P1-A5  
 DA Method File : 1633\_040423\_S6Q239.quantmethod.xml  
 Batch Name : s6q239.batch.bin  
 Sample Information : OP96085,S6Q239,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.897	216.8 -> 171.9	86580	10.00 µg/L	0.000
M5-PFPeA	4.322	268.3 -> 223.0	39170	5.00 µg/L	0.000
M5-PFHxA	5.528	318.0 -> 273.0	34751	2.50 µg/L	0.000
M4-PFHpA	6.468	367.1 -> 322.0	35377	2.50 µg/L	0.000
M8-PFOA	7.125	421.1 -> 376.0	55755	2.50 µg/L	0.013
M9-PFNA	7.643	472.1 -> 427.0	16885	1.25 µg/L	0.000
M6-PFDA	8.122	519.1 -> 474.1	14991	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	17240	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	18627	1.25 µg/L	0.012
M2-PFTeDA	9.721	715.2 -> 670.0	10564	1.25 µg/L	0.000
M8-FOSA	9.619	506.1 -> 77.8	16243	2.50 µg/L	0.000
M3-PFBS	5.459	302.1 -> 79.9	13457	2.50 µg/L	0.000
M3-PFHxS	7.240	402.1 -> 79.9	8253	2.50 µg/L	0.012
M8-PFOS	8.284	507.1 -> 79.9	7495	2.50 µg/L	0.000
M2-4:2FTS	5.191	329.1 -> 80.9	2077	5.00 µg/L	0.000
M2-6:2FTS	6.898	429.1 -> 80.9	2847	5.00 µg/L	0.012
M2-8:2FTS	7.911	529.1 -> 80.9	2470	5.00 µg/L	0.000
M3-MeFOSAA	8.180	573.2 -> 419.0	22349	5.00 µg/L	0.012
M3-HFPO-DA	5.905	286.9 -> 168.9	14540	10.00 µg/L	0.012
M5-EtFOSAA	8.375	589.2 -> 419.0	18442	5.00 µg/L	0.000
M7-MeFOSE	10.653	623.2 -> 58.9	21669	25.00 µg/L	0.000
M9-EtFOSE	10.888	639.2 -> 58.9	13575	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	6128	2.50 µg/L	0.000
M3-MeFOSA	10.733	515.0 -> 219.0	5652	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	8719	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	37213	5.00 µg/L	0.000
18O2-PFHxS	7.239	403.0 -> 83.9	6381	2.50 µg/L	0.012
13C4-PFOA	7.125	417.1 -> 372.0	69987	2.50 µg/L	0.013
13C2-PFDA	8.123	515.1 -> 470.1	19799	1.25 µg/L	0.000
13C5-PFNA	7.643	468.0 -> 423.0	18862	1.25 µg/L	0.000
13C2-PFHxA	5.529	315.1 -> 270.0	34563	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.191	329.1 -> 80.9	2077	4.84 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.8%		
13C2-6:2FTS	6.898	429.1 -> 80.9	2847	5.40 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.1%		
13C2-8:2FTS	7.911	529.1 -> 80.9	2470	4.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.3%		
13C2-PFDoDA	9.006	615.1 -> 570.0	18627	1.19 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.2%		
13C2-PFTeDA	9.721	715.2 -> 670.0	10564	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.0%		
13C3-PFBS	5.459	302.1 -> 79.9	13457	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.8%		
13C3-PFHxS	7.240	402.1 -> 79.9	8253	2.26 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 = 90.4%		
13C4-PFBA	2.897	216.8 -> 171.9	86580	9.95 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C4-PFHpA	6.468	367.1 -> 322.0	35377	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.1%		
13C5-PFHxA	5.528	318.0 -> 273.0	34751	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.2%		
13C5-PFPeA	4.322	268.3 -> 223.0	39170	4.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.2%		
13C6-PFDA	8.122	519.1 -> 474.1	14991	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C7-PFUnDA	8.576	570.0 -> 525.1	17240	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C8-FOSA	9.619	506.1 -> 77.8	16243	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C8-PFOA	7.125	421.1 -> 376.0	55755	2.38 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.4%		
13C8-PFOS	8.284	507.1 -> 79.9	7495	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.5%		
13C9-PFNA	7.643	472.1 -> 427.0	16885	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.8%		
d3-MeFOSAA	8.180	573.2 -> 419.0	22349	5.30 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C3-HFPO-DA	5.905	286.9 -> 168.9	14540	9.65 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 96.5%		
d3-MeFOSA	10.733	515.0 -> 219.0	5652	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.7%		
d5-EtFOSAA	8.375	589.2 -> 419.0	18442	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.0%		
d7-MeFOSE	10.653	623.2 -> 58.9	21669	24.42 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 97.7%		
d9-EtFOSE	10.888	639.2 -> 58.9	13575	23.02 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 92.1%		
d5-EtFOSA	10.965	531.1 -> 219.0	6128	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.3%		
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.204	327.1 -> 307.0	39469	9.70 µg/L	98
		327.1 -> 80.9	9020		
6:2FTS	6.899	427.1 -> 407.0	30464	7.99 µg/L	98
		427.1 -> 80.9	7003		
8:2FTS	7.911	527.1 -> 507.0	16886	9.64 µg/L	98
		527.1 -> 80.8	4343		
EtFOSAA	8.376	584.2 -> 419.1	6831	2.42 µg/L	m 85
		584.2 -> 526.0	3832		
FOSA	9.621	498.1 -> 77.9	12597	2.10 µg/L	100
		498.1 -> 478.0	457		
MeFOSAA	8.181	570.1 -> 419.0	9792	2.34 µg/L	m 91
		570.1 -> 483.0	1460		
PFBA	2.906	212.8 -> 168.9	19875	9.08 µg/L	100
PFBS	5.460	298.7 -> 79.9	10407	1.97 µg/L	99
		298.7 -> 98.8	4875		
PFDA	8.123	512.9 -> 469.0	39134	2.24 µg/L	97
		512.9 -> 219.0	5056		
PFDoDA	9.007	613.1 -> 569.0	32733	2.36 µg/L	98
		613.1 -> 319.0	4074		
PFDS	9.170	599.0 -> 79.9	4846	2.16 µg/L	99

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.481	599.0 -> 98.8	2469	2.32	µg/L	100
		363.1 -> 319.0	46079			
PFHpS	7.794	363.1 -> 169.0	6357	1.92	µg/L	98
		449.0 -> 79.9	6159			
PFHxA	5.531	449.0 -> 98.9	3778	2.24	µg/L	98
		313.0 -> 269.0	28676			
PFHxS	7.241	313.0 -> 118.9	1325	2.19	µg/L	100
		398.7 -> 79.9	7934			
PFNA	7.643	398.7 -> 98.9	4614	2.29	µg/L	99
		463.0 -> 419.0	25139			
PFNS	8.751	463.0 -> 219.0	5127	2.11	µg/L	96
		548.8 -> 79.9	6703			
PFOA	7.126	548.8 -> 98.9	3641	2.28	µg/L	99
		413.0 -> 369.0	57543			
PFOS	8.286	413.0 -> 169.0	7412	1.91	µg/L	95
		498.9 -> 79.9	6281			
PFPeA	4.324	498.9 -> 98.8	4471	4.55	µg/L	100
		263.0 -> 219.0	37584			
PFPeS	6.533	349.1 -> 79.9	9604	2.20	µg/L	99
		349.1 -> 98.9	5029			
PFTeDA	9.722	713.1 -> 669.0	27954	2.50	µg/L	100
		713.1 -> 168.9	1734			
PFTrDA	9.390	663.0 -> 619.0	31431	2.40	µg/L	98
		663.0 -> 168.9	2765			
PFUnDA	8.577	563.1 -> 519.0	30389	2.20	µg/L	95
		563.1 -> 269.1	4341			
11CI-PF3OUdS	9.442	630.9 -> 450.9	67952	8.69	µg/L	100
		632.9 -> 452.9	20837			
9CI-PF3ONS	8.616	530.8 -> 351.0	131869	8.83	µg/L	97
		532.8 -> 353.0	41202			
ADONA	6.731	376.9 -> 250.9	258098	8.76	µg/L	99
		376.9 -> 84.8	58803			
HFPO-DA	5.894	284.9 -> 168.9	11676	8.88	µg/L	95
		284.9 -> 184.9	1670			
3:3FTCA	3.790	241.0 -> 177.0	5021	10.95	µg/L	97
		241.0 -> 117.0	707			
5:3FTCA	6.198	341.0 -> 237.1	159229	56.16	µg/L	99
		341.0 -> 217.0	139115			
7:3FTCA	7.608	441.0 -> 316.9	84137	58.62	µg/L	93
		441.0 -> 336.9	156150			
EtFOSA	10.967	526.0 -> 219.0	6123	2.31	µg/L	92
		526.0 -> 169.0	6403			
EtFOSE	10.913	630.0 -> 58.9	12418	23.33	µg/L	100
		511.9 -> 219.0	5455			
MeFOSA	10.734	511.9 -> 169.0	5738	2.29	µg/L	100
		616.1 -> 58.9	17974			
MeFOSE	10.666	699.1 -> 79.9	2666	22.01	µg/L	100
		699.1 -> 98.8	1567			
PFDoDS	9.848	295.0 -> 201.0	3804	2.05	µg/L	95
		295.0 -> 84.9	1819			
NFDHA	5.410	279.0 -> 85.1	12165	4.57	µg/L	94
		229.0 -> 84.9	11142			
PFMBA	4.737	314.8 -> 134.9	73181	4.44	µg/L	100
		314.8 -> 82.9	1777			
PFMPA	3.463			4.46	µg/L	100
PFEESA	5.999			4.03	µg/L	100

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



7.7.15  
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### Perfluorinated Compounds by LC/MS/MS

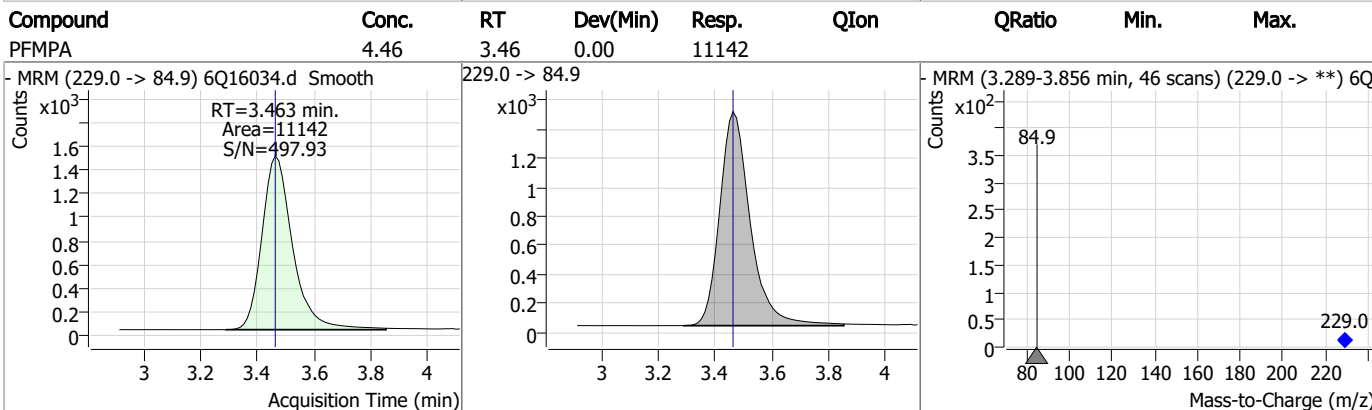
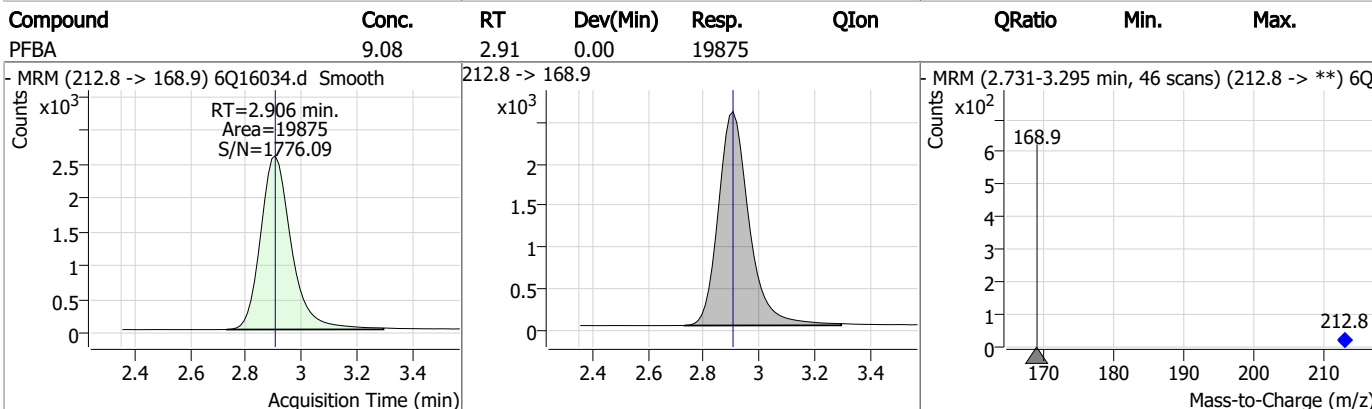
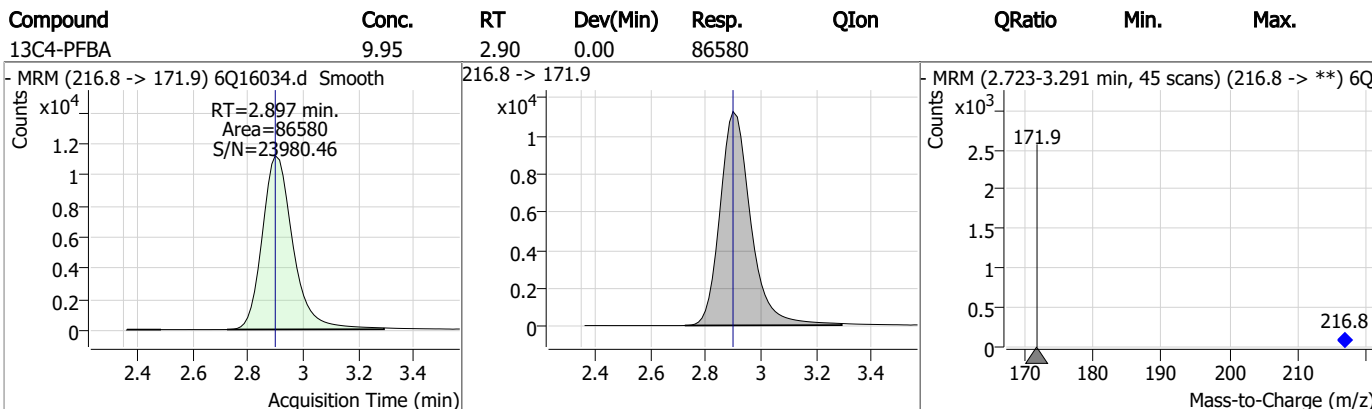
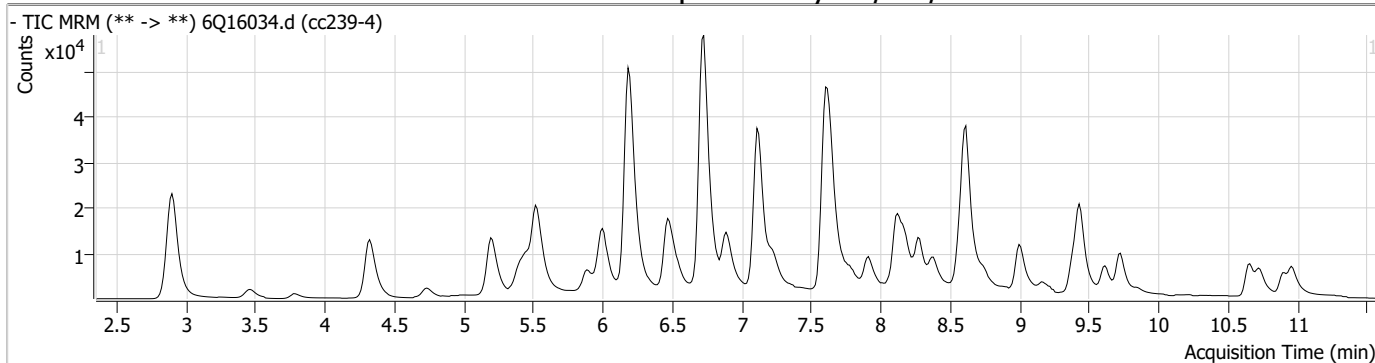
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.15

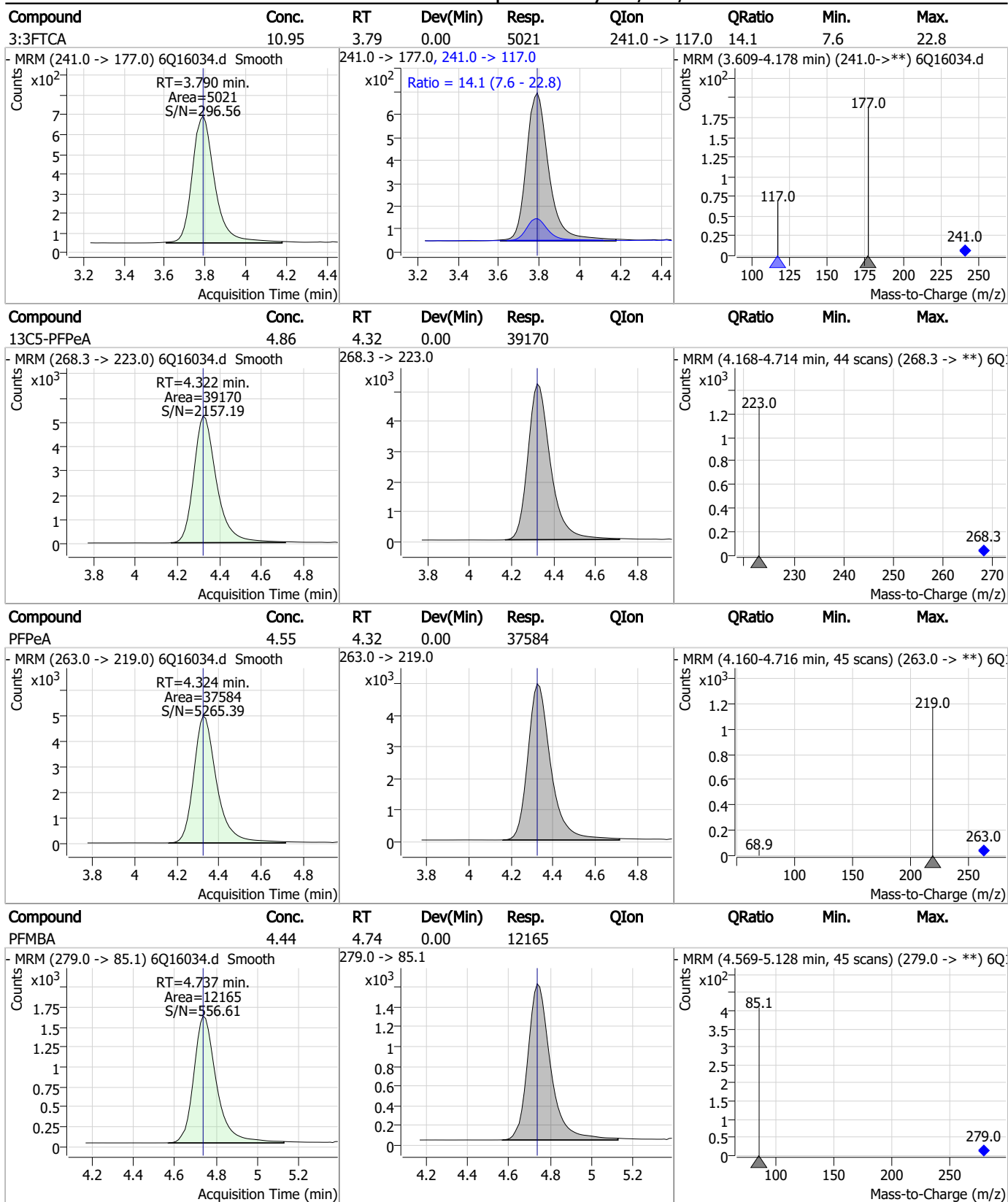
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### Perfluorinated Compounds by LC/MS/MS



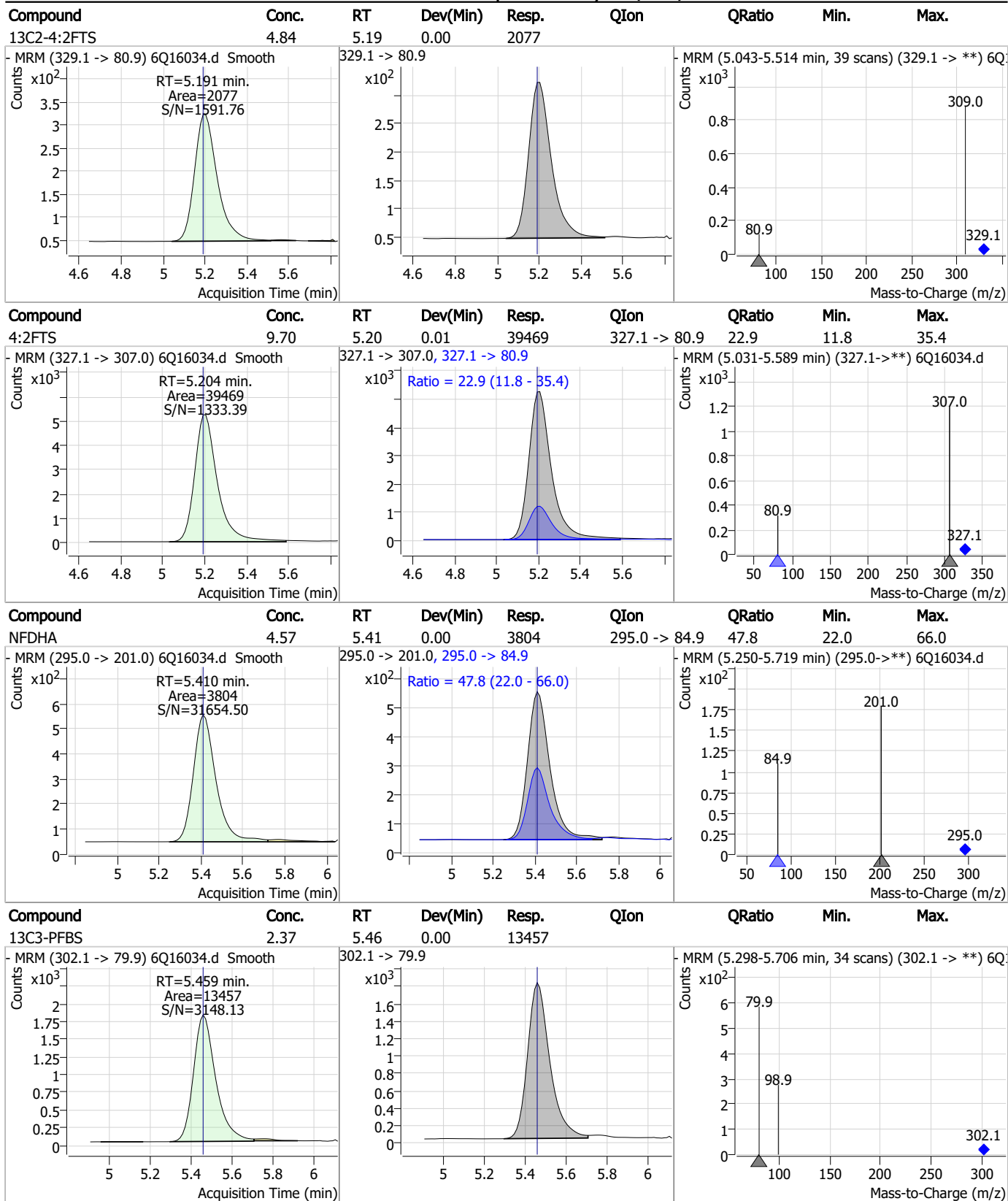
### Perfluorinated Compounds by LC/MS/MS



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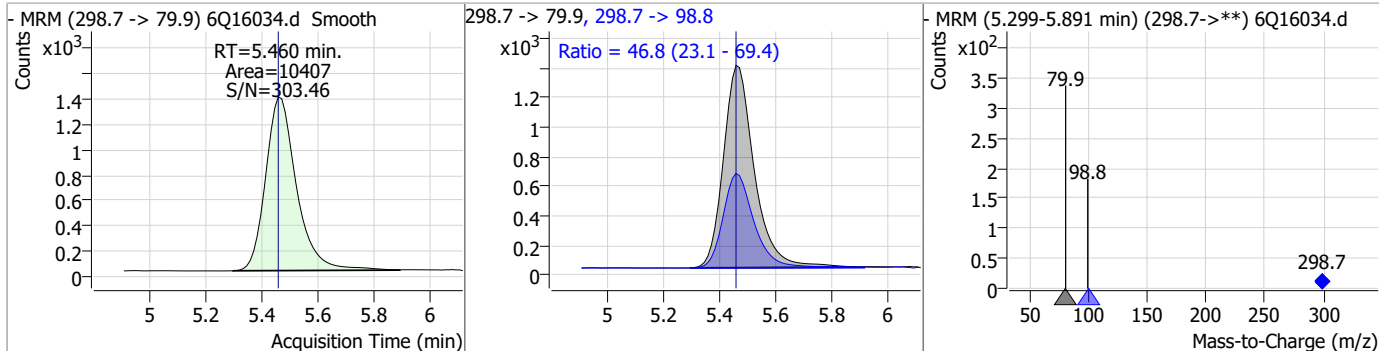
### Perfluorinated Compounds by LC/MS/MS



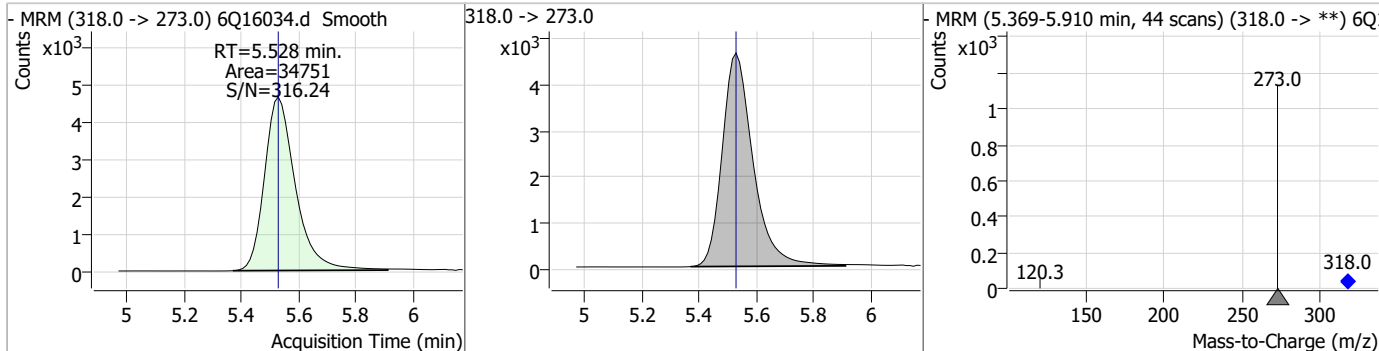
7.7.15  
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### Perfluorinated Compounds by LC/MS/MS

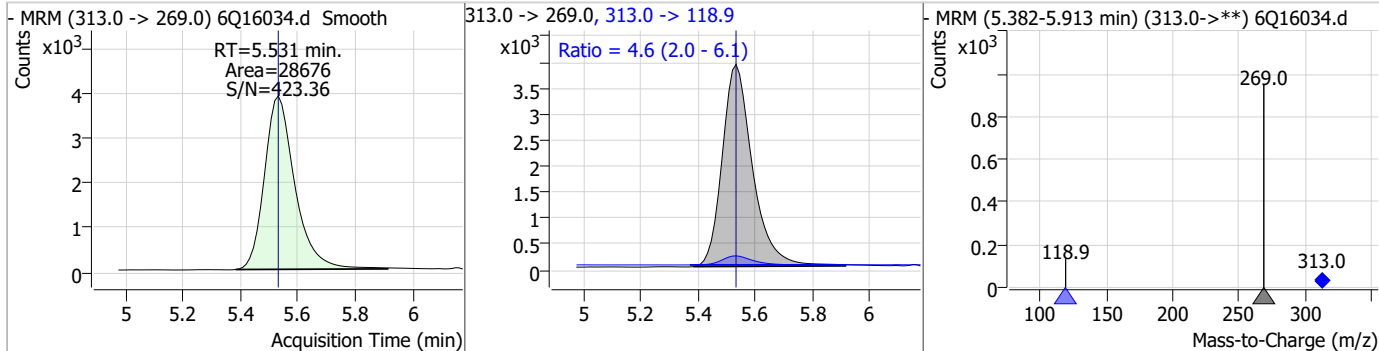
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.97	5.46	0.00	10407	298.7 -> 98.8	46.8	23.1	69.4



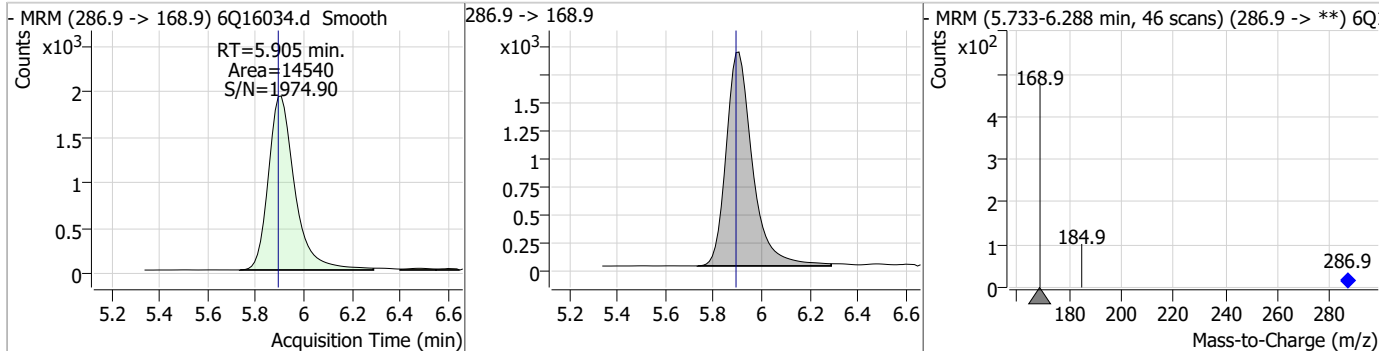
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.43	5.53	0.00	34751				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.24	5.53	0.00	28676	313.0 -> 118.9	4.6	2.0	6.1



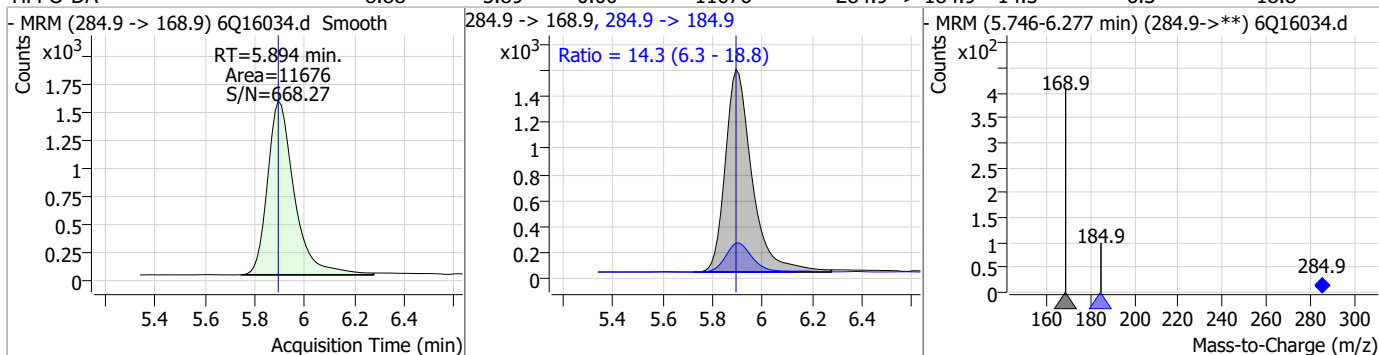
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.65	5.91	0.01	14540				



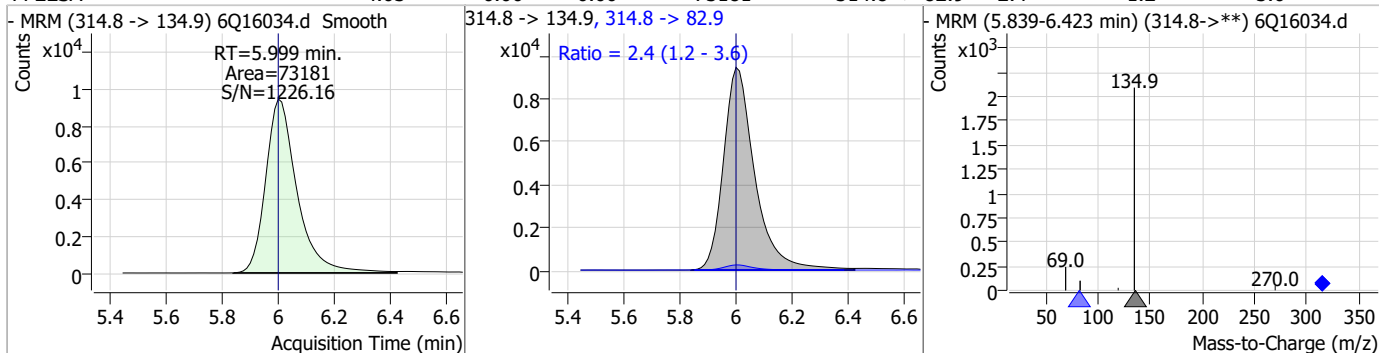
7.7.15  
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### Perfluorinated Compounds by LC/MS/MS

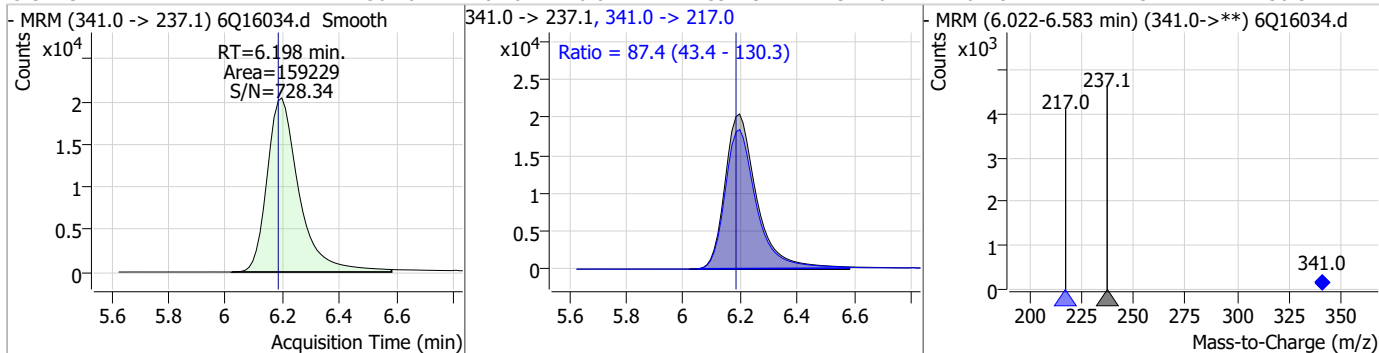
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	8.88	5.89	0.00	11676	284.9 -> 184.9	14.3	6.3	18.8



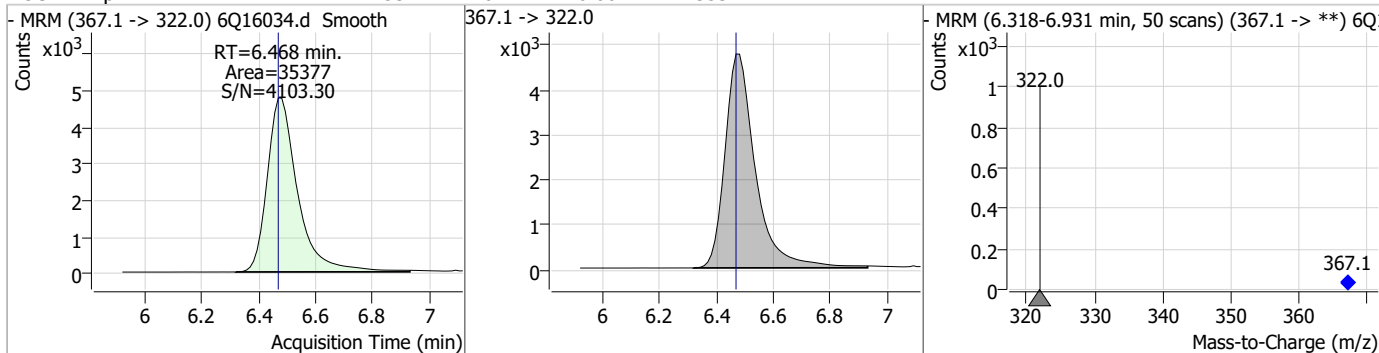
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.03	6.00	0.00	73181	314.8 -> 82.9	2.4	1.2	3.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	56.16	6.20	0.01	159229	341.0 -> 217.0	87.4	43.4	130.3

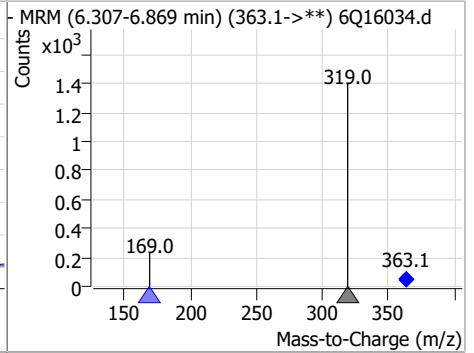
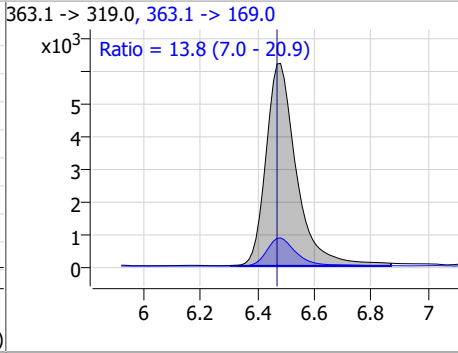
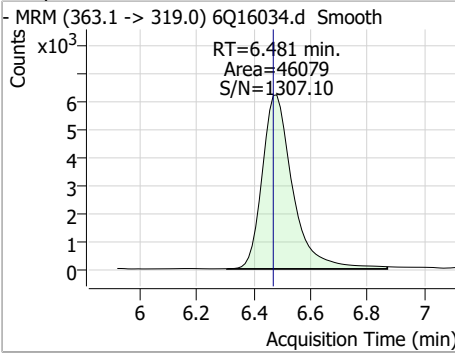


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.53	6.47	0.00	35377	367.1 -> 322.0			

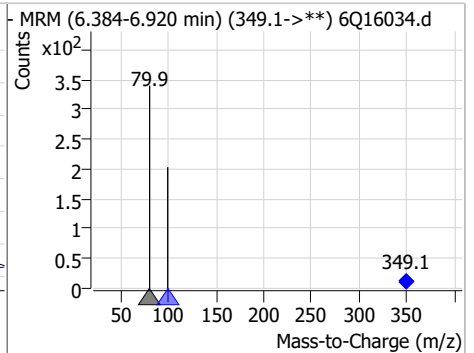
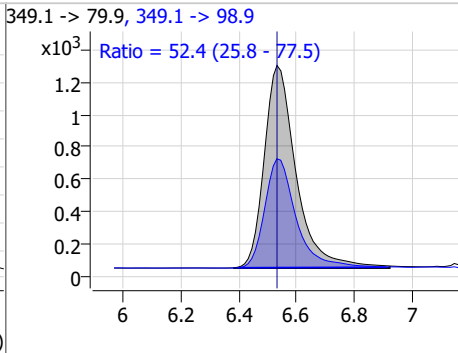
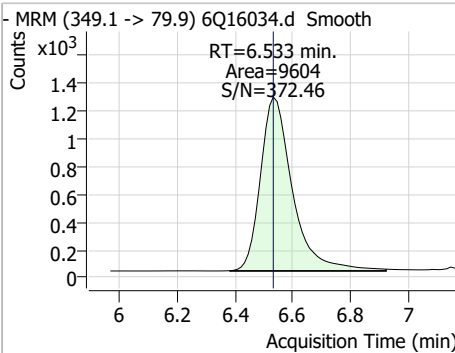


### Perfluorinated Compounds by LC/MS/MS

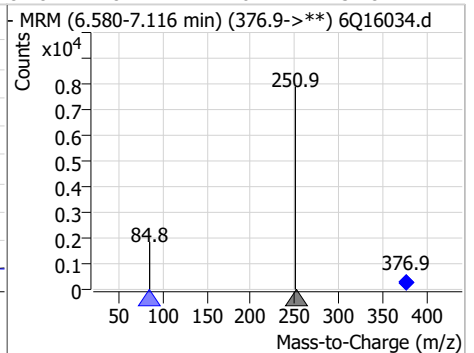
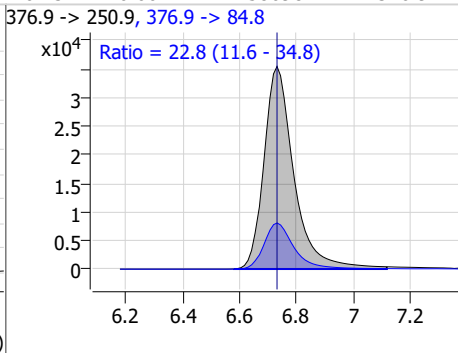
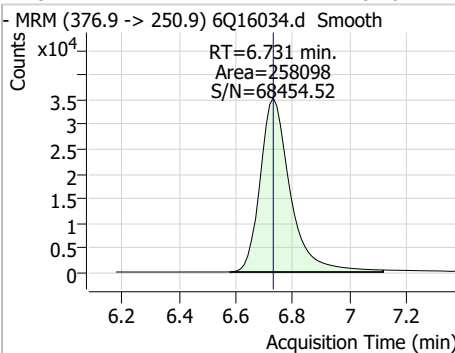
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.32	6.48	0.01	46079	363.1 -> 169.0	13.8	7.0	20.9



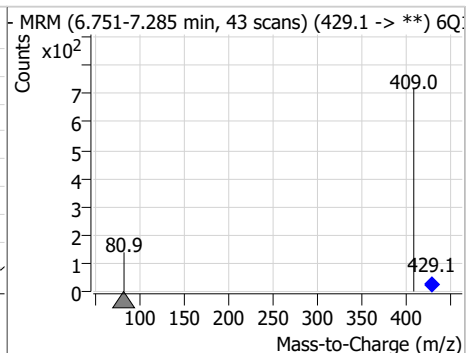
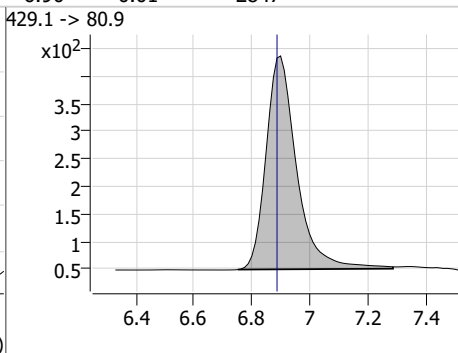
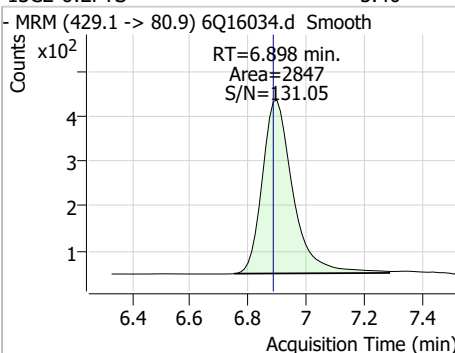
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.20	6.53	0.00	9604	349.1 -> 98.9	52.4	25.8	77.5



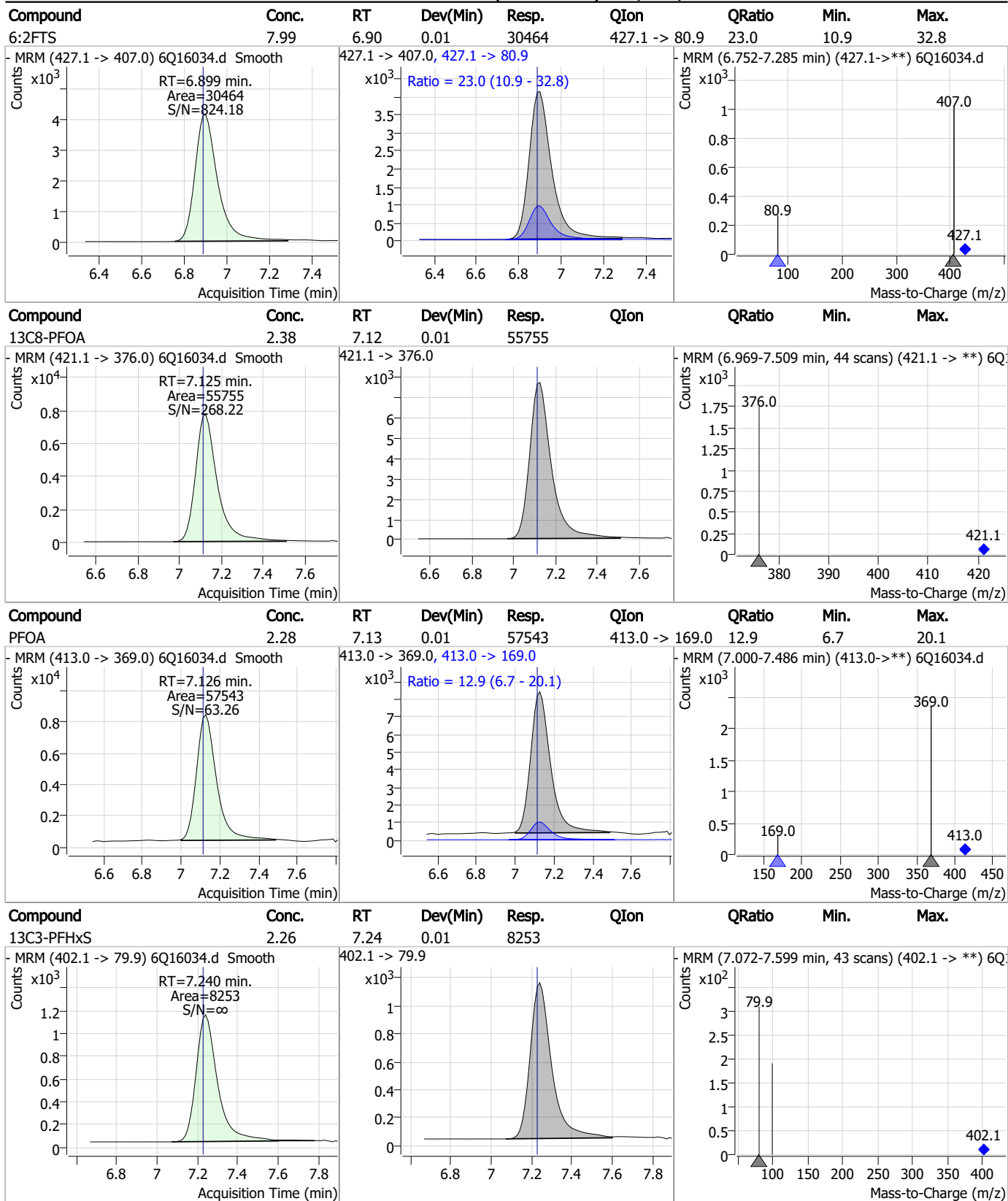
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	8.76	6.73	0.00	258098	376.9 -> 84.8	22.8	11.6	34.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.40	6.90	0.01	2847	429.1 -> 80.9			



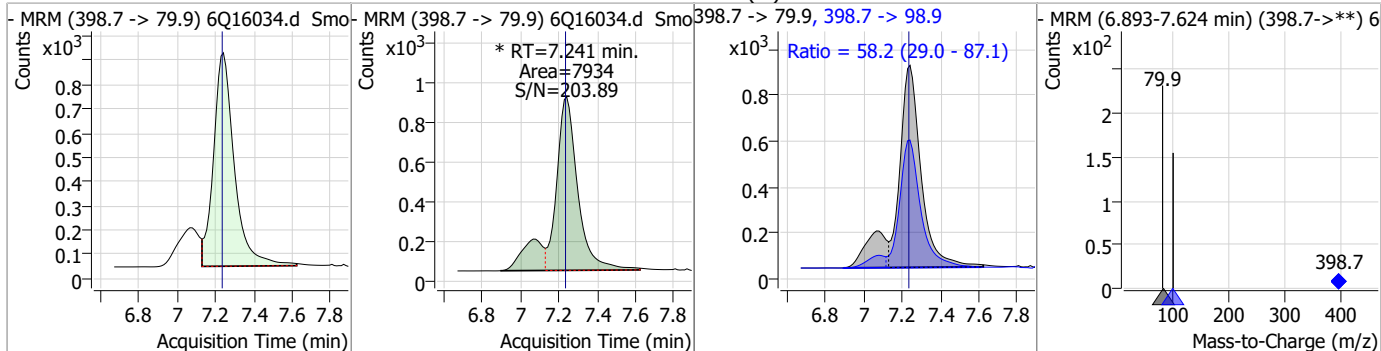
### Perfluorinated Compounds by LC/MS/MS



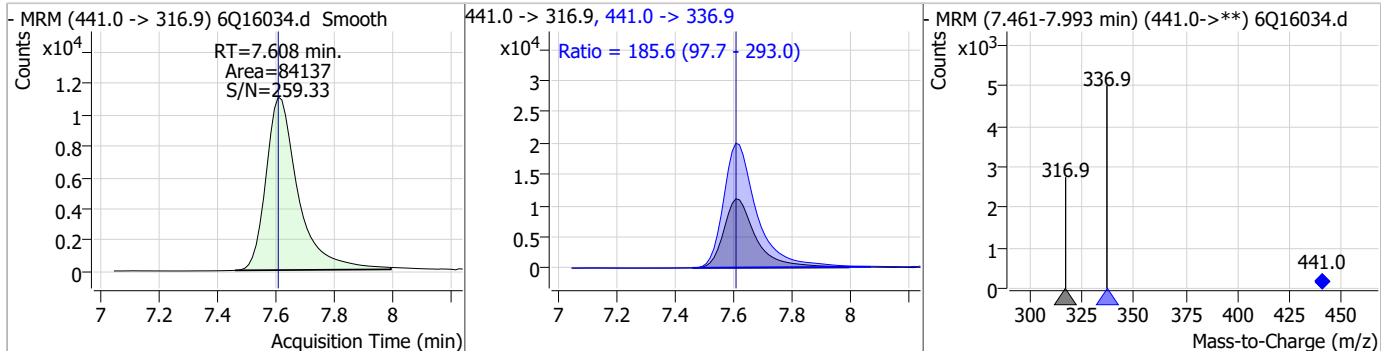
7.7.15  
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### Perfluorinated Compounds by LC/MS/MS

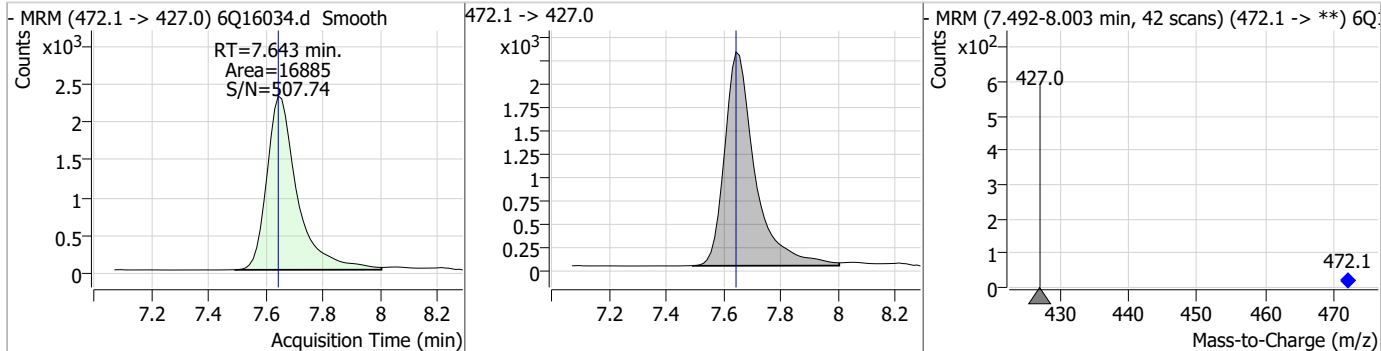
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.19	7.24	0.01	7934 (m)	398.7 -> 98.9	58.2	29.0	87.1



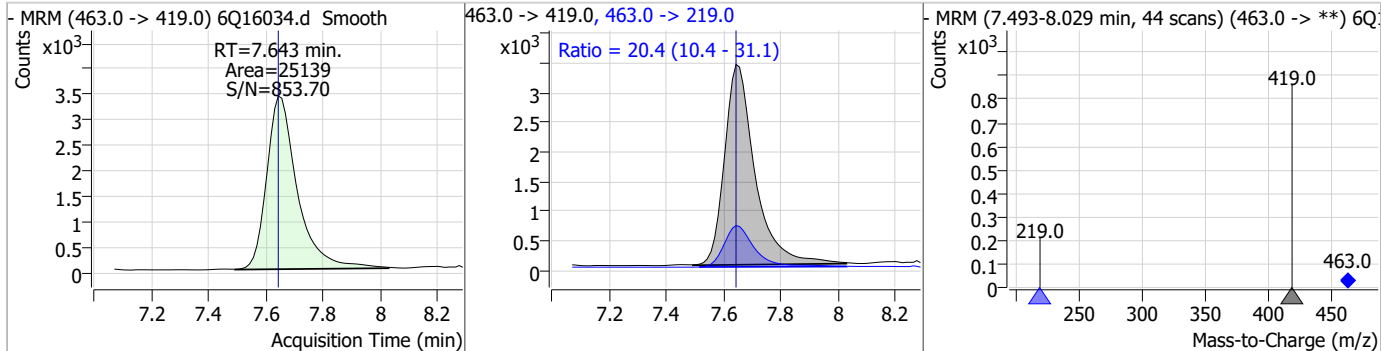
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	58.62	7.61	0.00	84137	441.0 -> 336.9	185.6	97.7	293.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.21	7.64	0.00	16885	472.1 -> 427.0			



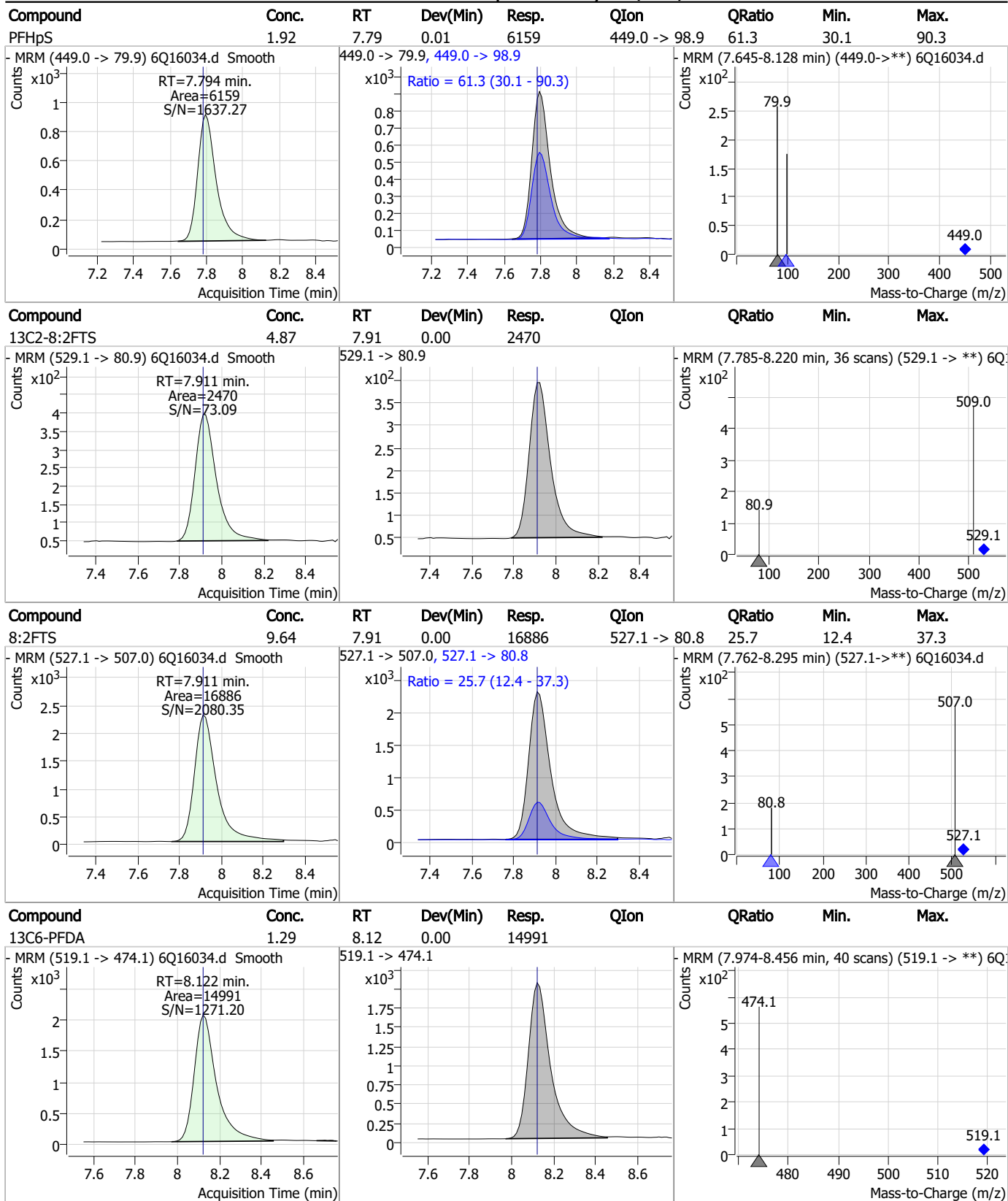
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.29	7.64	0.00	25139	463.0 -> 219.0	20.4	10.4	31.1



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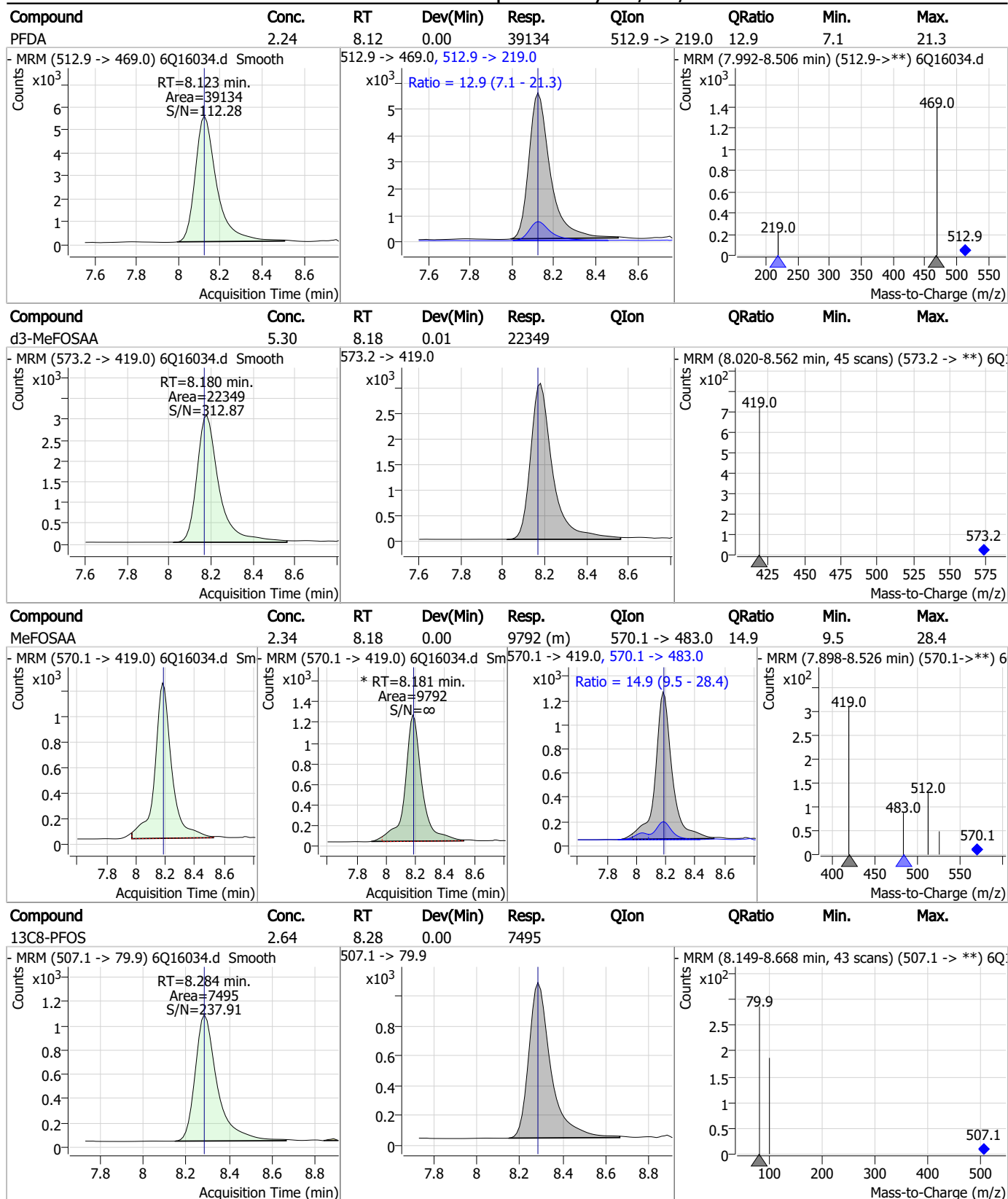


### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS



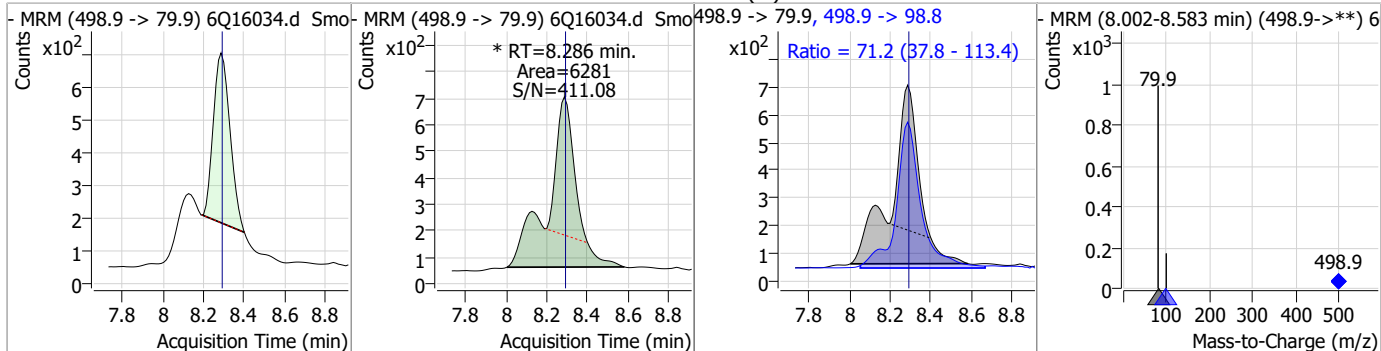
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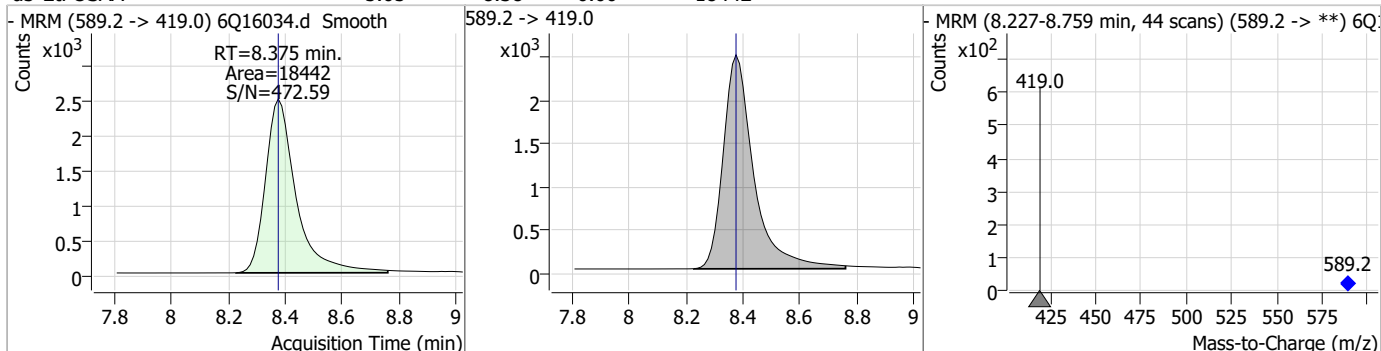


### Perfluorinated Compounds by LC/MS/MS

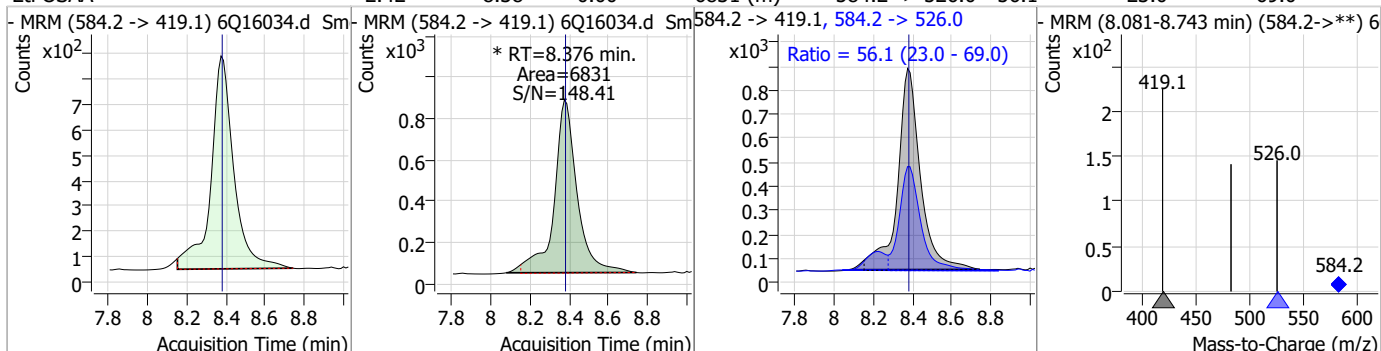
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.91	8.29	0.00	6281 (m)	498.9 -> 98.8	71.2	37.8	113.4



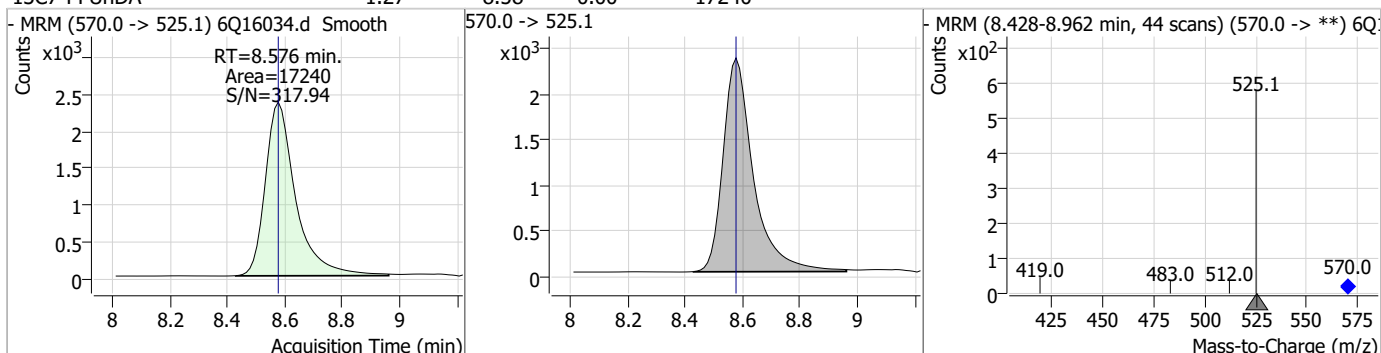
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.05	8.38	0.00	18442				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.42	8.38	0.00	6831 (m)	584.2 -> 526.0	56.1	23.0	69.0

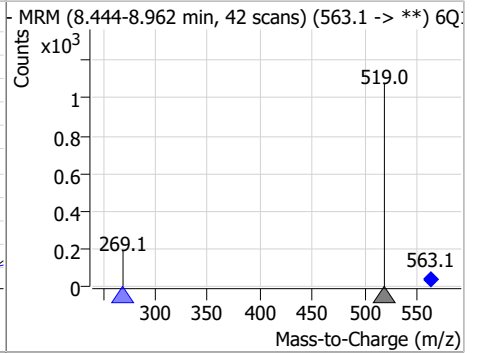
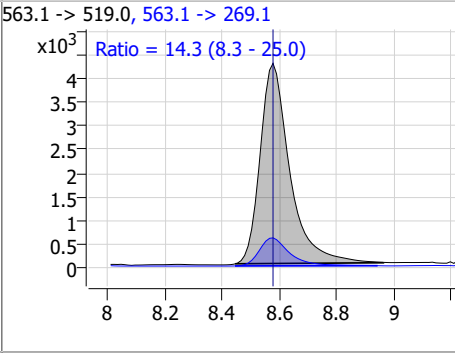
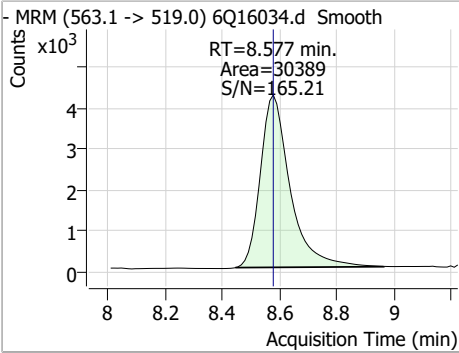


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.27	8.58	0.00	17240				

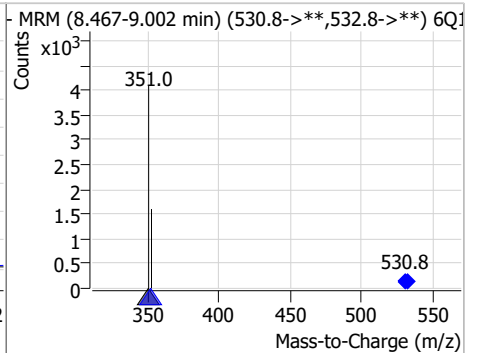
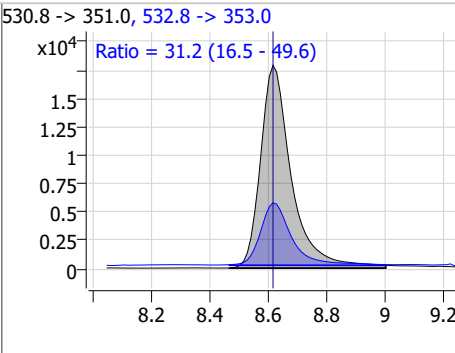
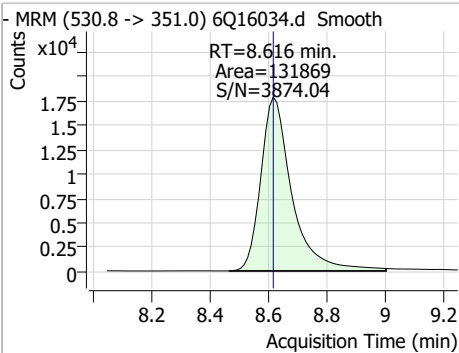


### Perfluorinated Compounds by LC/MS/MS

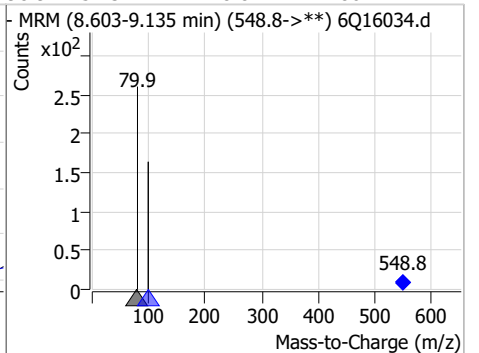
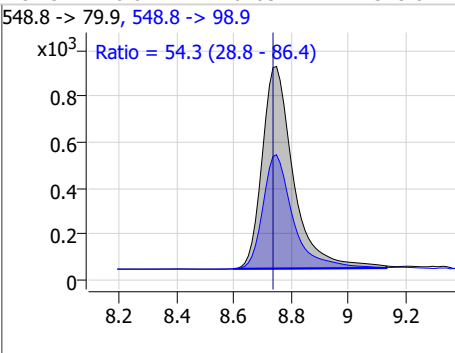
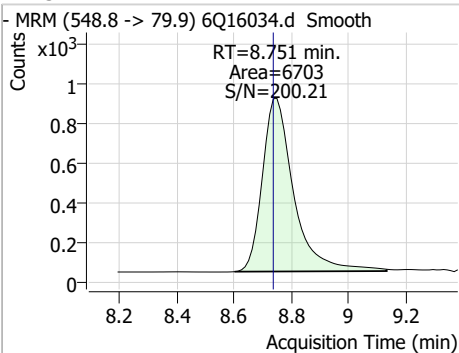
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.20	8.58	0.00	30389	563.1 -> 269.1	14.3	8.3	25.0



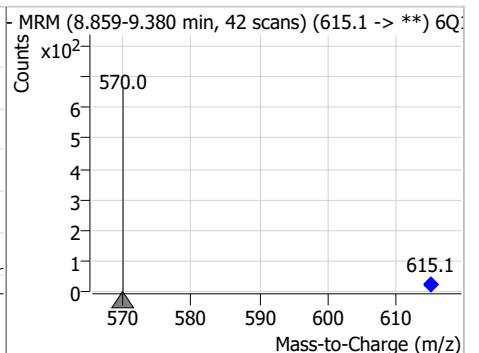
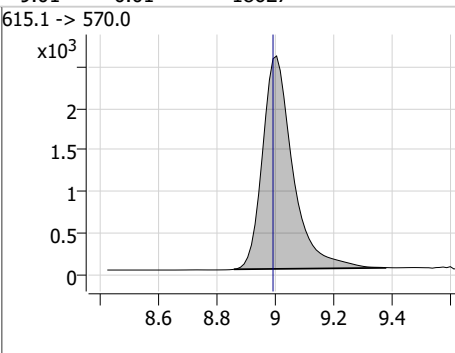
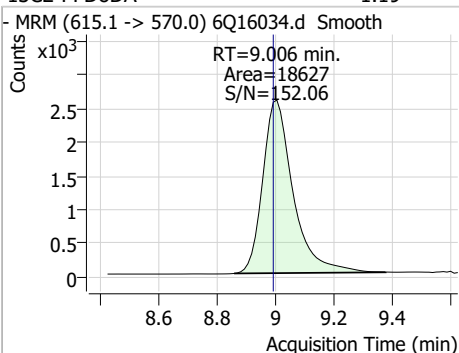
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	8.83	8.62	0.00	131869	532.8 -> 353.0	31.2	16.5	49.6



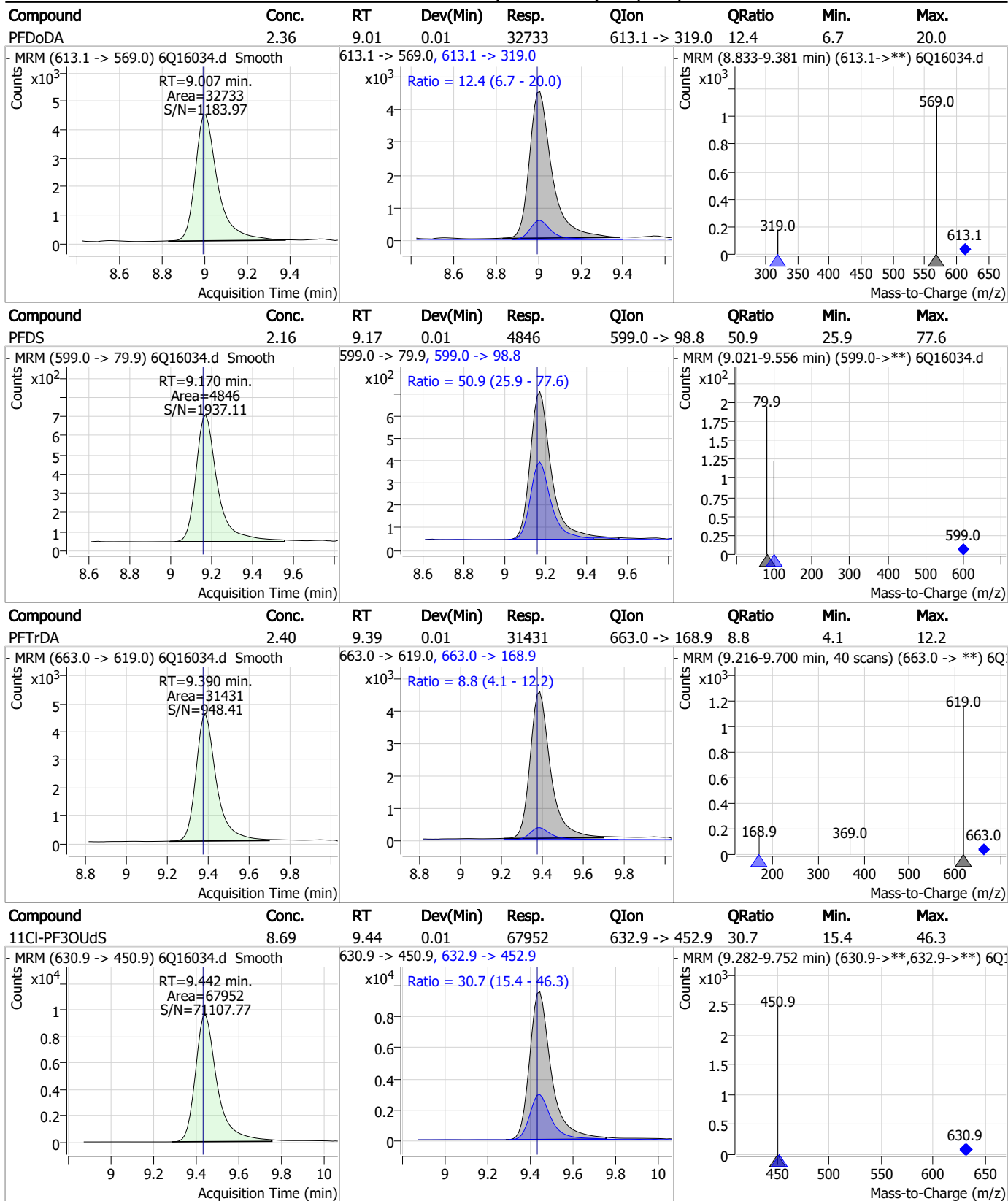
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.11	8.75	0.01	6703	548.8 -> 98.9	54.3	28.8	86.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.19	9.01	0.01	18627	615.1 -> 570.0			

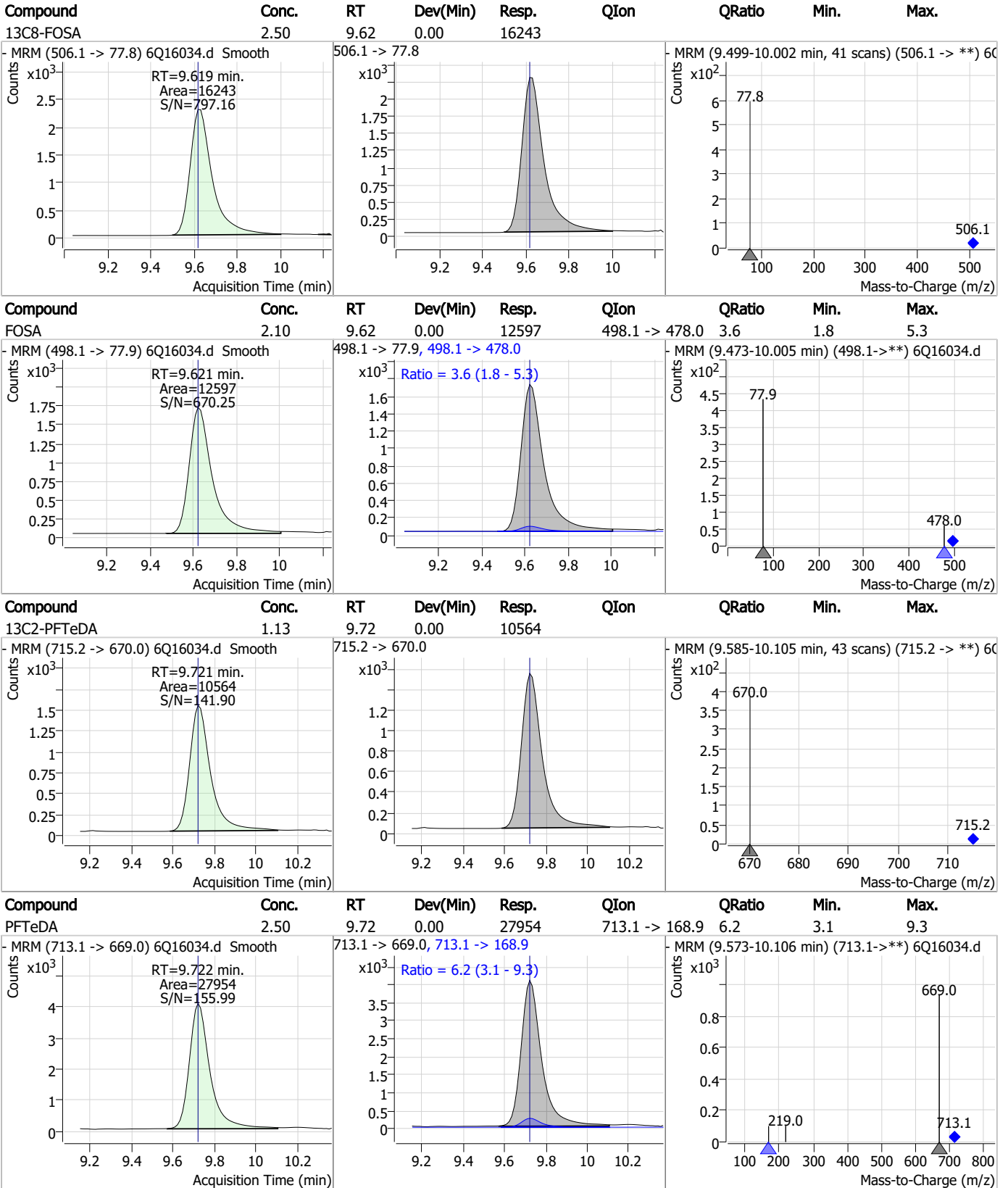


### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

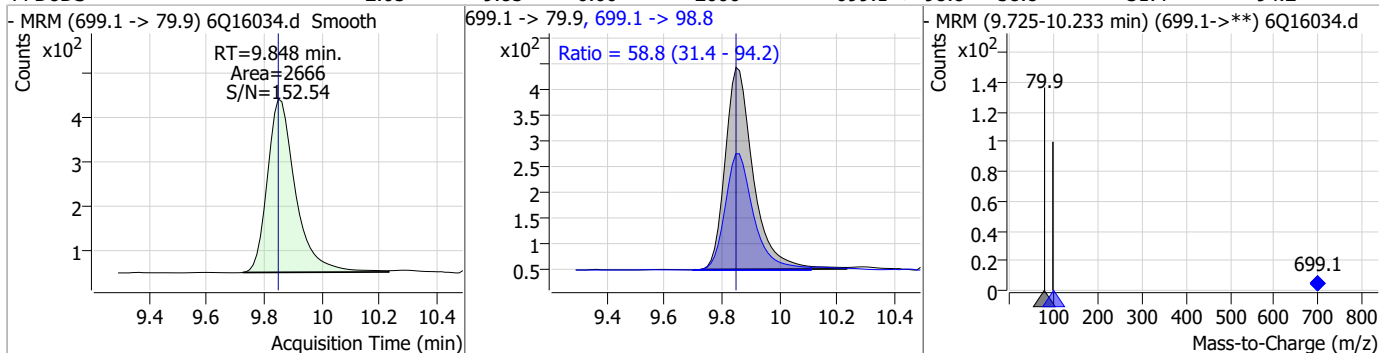


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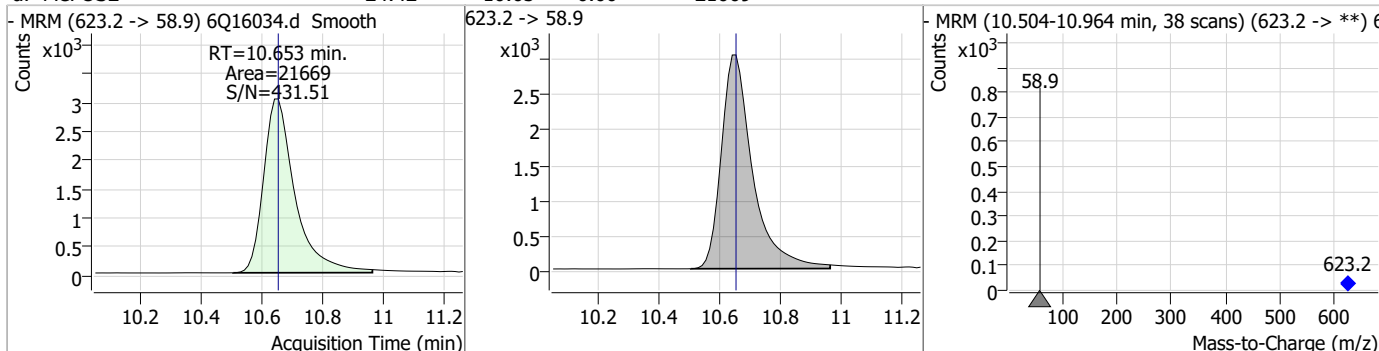


### Perfluorinated Compounds by LC/MS/MS

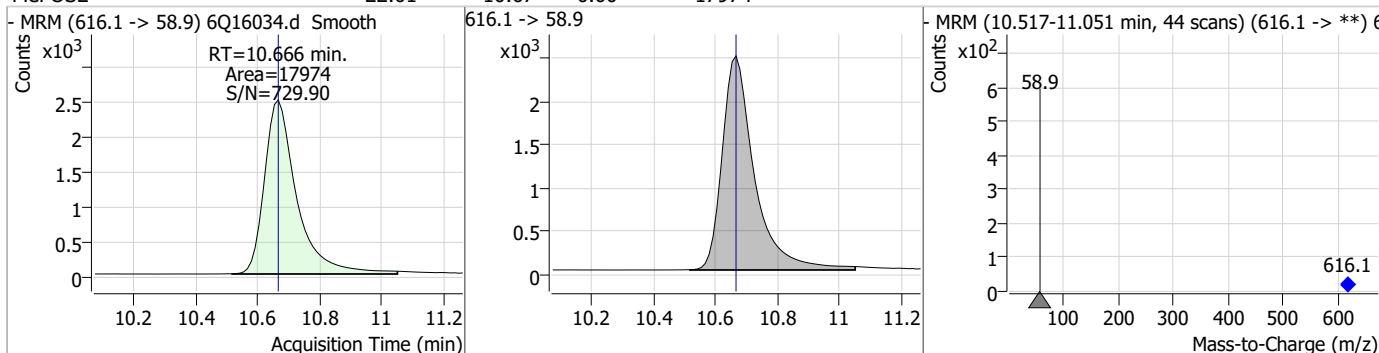
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.05	9.85	0.00	2666	699.1 -> 98.8	58.8	31.4	94.2



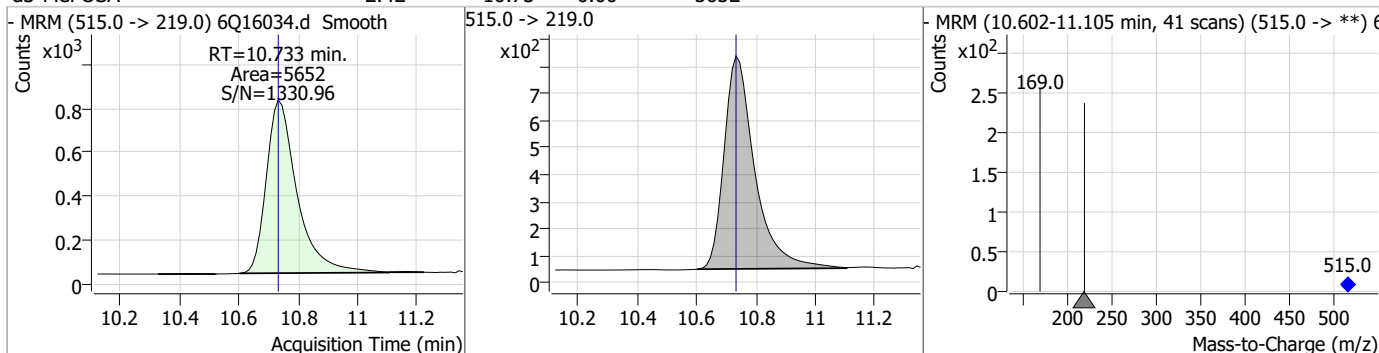
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.42	10.65	0.00	21669				



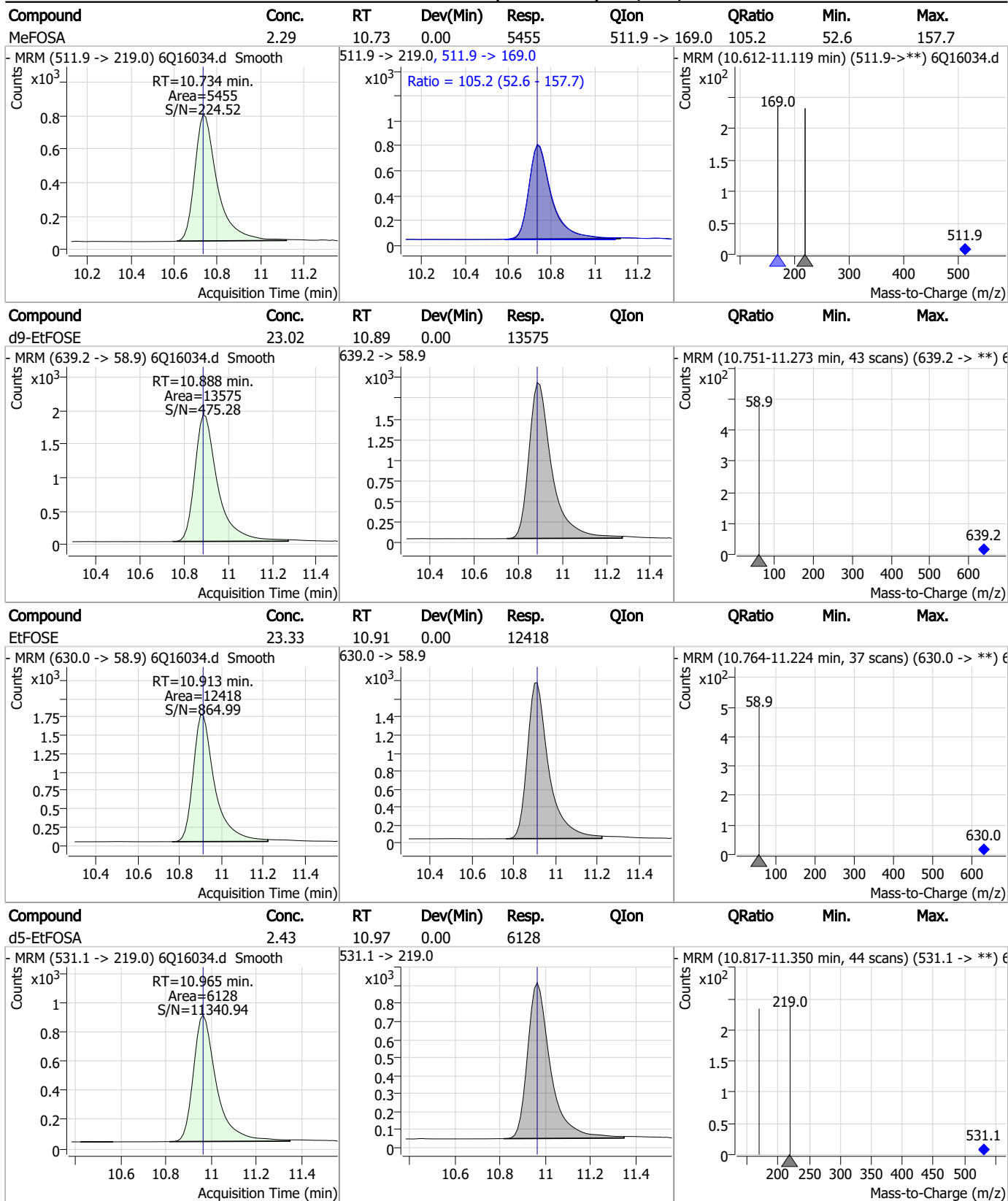
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	22.01	10.67	0.00	17974				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.42	10.73	0.00	5652				



### Perfluorinated Compounds by LC/MS/MS

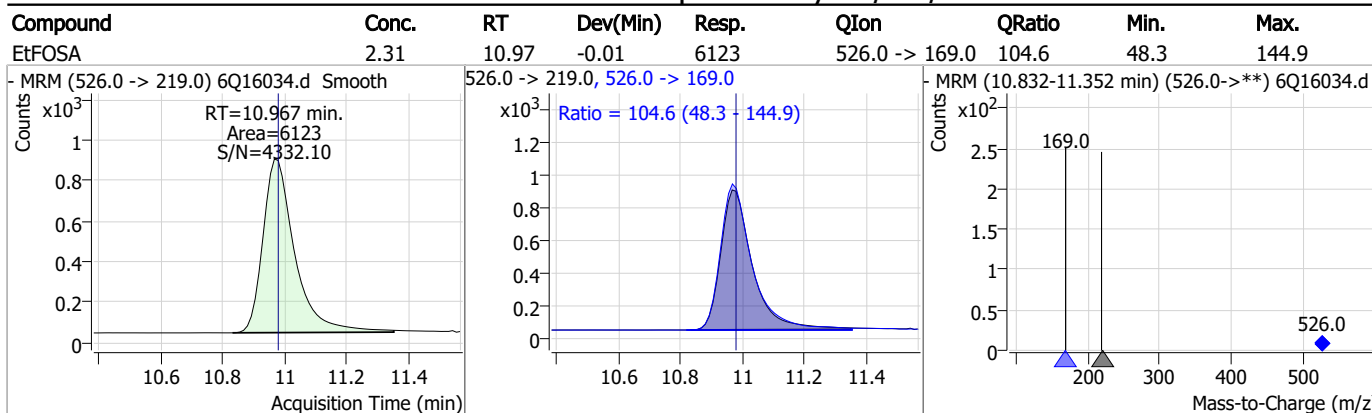


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### Perfluorinated Compounds by LC/MS/MS



7.7.15

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# Manual Integration Approval Summary

Sample Number: S6Q239-CC239      Method: EPA DRAFT 1633  
Lab FileID: 6Q16034.D      Analyst approved: 04/05/23 11:17 Martha Valls  
Injection Time: 04/04/23 20:47      Supervisor approved: 04/05/23 17:23 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
MeFOSAA	2355-31-9		8.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.29	Split peak
EtFOSAA	2991-50-6		8.38	Split peak

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SGS ORLANDO

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

LCMS6-6Q ANALYSIS LOG

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

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

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



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



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79	6Q16079.d	P6-E1	JD62640-4A	1633full.m	Sample	OP96192,S6Q239,525,,,5.0,1,water	✓
80	6Q16080.d	P6-E2	JD62640-5A	1633full.m	Sample	OP96192,S6Q239,515,,,5.0,1,water	✓
81	6Q16081.d	P6-E3	JD62640-6A	1633full.m	Sample	OP96192,S6Q239,520,,,5.0,1,water	rf5x
82	6Q16082.d	P6-E4	JD62658-1	1633full.m	Sample	OP96192,S6Q239,410,,,5.0,1,water	rr1x co
83	6Q16083.d	P1-A5	cc239-4	1633full.m	QC	OP96085,S6Q239,500,,,5.0,1,water	Pass
84	6Q16084.d	P1-A1	iccb	1633full.m	Sample	OP96085,S6Q239,500,,,5.0,1,water	✓
85	6Q16085.d	P6-E5	JD62658-2	1633full.m	Sample	OP96192,S6Q239,495,,,5.0,1,water	✓
86	6Q16086.d	P6-E6	JD62658-3	1633full.m	Sample	OP96192,S6Q239,490,,,5.0,1,water	✓
87	6Q16087.d	P6-E7	JD62658-4	1633full.m	Sample	OP96192,S6Q239,535,,,5.0,1,water	✓
88	6Q16088.d	P6-E8	JD62658-5	1633full.m	Sample	OP96192,S6Q239,515,,,5.0,1,water	✓
89	6Q16089.d	P6-E9	JD62658-6	1633full.m	Sample	OP96192,S6Q239,535,,,5.0,1,water	✓
90	6Q16090.d	P6-F1	JD62629-1A	1633full.m	Sample	OP96192,S6Q239,530,,,5.0,1,water	✓
91	6Q16091.d	P6-F2	JD62629-3A	1633full.m	Sample	OP96192,S6Q239,465,,,5.0,1,water	✓
92	6Q16092.d	P1-A5	cc239-4	1633full.m	QC	OP96085,S6Q239,500,,,5.0,1,water	Pass
93	6Q16093.d	P1-A1	iccb	1633full.m	Sample	OP96085,S6Q239,500,,,5.0,1,water	✓
94	6Q16094.d	P1-A1	Reset injector	1633full.m	Sample	OP96085,S6Q239,500,,,5.0,1,water	✓
95	6Q16095.d	P2-D5	JD62439-4	1633full.m	Sample	OP96190,S6Q239,540,,,5.0,1,water	✓
96	6Q16096.d	P2-D6	FC3457-7	1633full.m	Sample	OP96208,S6Q239,60,,,5.0,10,water	✓
97	6Q16097.d	P2-D7	JD62439-1	1633full.m	Sample	OP96190,S6Q239,540,,,5.0,10,water	redo at lower volume
98	6Q16098.d	P2-D8	JD62439-2	1633full.m	Sample	OP96190,S6Q239,540,,,5.0,10,water	redo at lower volume
99	6Q16099.d	P2-D9	JD62439-3	1633full.m	Sample	OP96190,S6Q239,540,,,5.0,10,water	redo at lower volume
100	6Q16100.d	P1-A5	ecc239-4	1633full.m	QC	OP96085,S6Q239,500,,,5.0,1,water	Pass
101	6Q16101.d	P1-B9	iccb	1633full.m	Sample	OP96085,S6Q240,500,,,5.0,1,water	✓

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2092	1033 SPIKE Cal. Std. A-B	11672	PFAC-MxH	Wellington	8/8/27	3/23/23	1-4 ppm	250uL	4mL	02.5 125 250ppb	1033 MIX	3/23/23	9/23/23	NUU
		11658	PFAC-MxI		9/14/26	3/6/24	1-10 ppm	250uL		02.5 025ppb				
		11659B	PFAC-MxJ		04/17/23	3/20/24	2 ppm	500uL		25ppb				
		11674A	PFAC-MxK		01/11/25	3/23/24	2 ppm	250uL		125ppb				
		11660	PFAC-MxL		12/1/27	3/6/24	2 ppm	250uL		312/160 ppb				
		11642A	PFAC-MxM		9/14/26	3/6/24	4-20 ppm	312uL						
		11642B	PFAC-MxN		9/14/26	3/23/24	50ppm	400uL	4.0mL	15ppm	95/160H S/1420	03-18-23	06-23-23	NG
LCMS 2093	List 40 SURF AND-ON-SCOPE MIX	11333	d7-N- METROSE	Wellington Labs	01/27/27	10/16/23	50ppm	400uL						NG
		11460	d9-N- EROSE		01/27/27	10/16/23		400uL						NG
		11115	N2- PFHDA		11/23/28	08/12/23		80uL						NG
		10836	D-N- EROSA		12/30/25	08/12/23		80uL						NG
LCMS 2094A-B	PFC ID Std.	11668	PFOA-TOD (20 Comp)	Absolute	11/09/27	03/13/24	1.0ppm	400uL	4.0mL	100ppb	95/160H S/1420	03-18-23	09-18-23	NG
		11432	N-ME- ROSA-M	Wellington Labs	02/08/27	02/13/24	50ppm	8uL						NG
		11250	PBSA-1		11/10/26	11/08/23								NG
		11249	FluSA-1		10/29/26	11/02/23								NG
		11327	PFCMS		03/20/27	10/16/23								NG
					NG	03/28/23								

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

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2071	SPIKE Full list std.	11600	PFAC DOD 28 Comp.	Absave	11/9/27	2/17/24	1.0ppm	200uL	2.0mL	100ppb	9570 600H + 5/17/20	2/16/23	3/21/23	MW
		LCMS 1987	40LIST PPD 191 Std #1	SGS std.		3/21/23	1.0ppm	200uL						
		LCMS 1980	40LIST Add 0.5 #2			4/18/23	1.0ppm	200uL						
		LCMS 2012	FOSGHA			5/11/23	5.0ppm	200uL		500ppb				
LCMS 2072	A-C 1633 Cal Std.	11599	PFAC- HXH	Wellington	8/8/27	2/7/24	1-4 ppm	250uL	4mL	62.5 125 250ppb	1633 MIX	2/20/23	8/20/23	MV
		11491	PFAC- MXI		9/14/26	2/7/24	1-10 ppm	250uL		62.5 125 250ppb				
		11600	PFAC- MXI		2/20/24	2/20/24	2ppm	500uL		250ppb				
		11427A	PFAC- MXF		1/11/25	2/20/24	2ppm	250uL		125ppb				
		11602	PFAC- MXG		2/22/27	2/20/24	2ppm	250uL		125ppb				
		11618B	PFAC- MXJ		9/14/26	2/7/24	4-20 ppm	312uL		312/100 ppb				
LCMS 2073 A-D	1633 OPIKE CAL std.	11599	PFAC- MXH	Wellington	8/8/27	2/7/24	1-4 ppm	250uL	4mL	62.5 125 250ppb	1633 MIX	2/22/23	8/21/23	MV
		11638	PFAC- MXI		9/14/26	2/22/24	1-10 ppm	250uL		62.5 125 250ppb				
		11600	PFAC- MXI		9/14/26	2/22/24	2ppm	500uL		250ppb				
		11627B	PFAC- MXF		11/11/25	2/22/24	2ppm	250uL		125ppb				
		11602	PFAC- MXG		12/11/27	2/22/24	2ppm	250uL		125ppb				
		11641	PFAC- MXH		12/11/27	2/22/24	4-20 ppm	312uL		312/100 ppb				
		11683B	PFAC- MXJ		9/14/26	2/7/24	4-20 ppm	312uL		312/100 ppb				
		11628A	PFAC- MXJ		9/14/26	2/22/24	4-20 ppm	312uL		312/100 ppb				
						NG	00/23/23							

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

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Organic Standards Preparation Log

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

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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 ADD-ON	11333	D-N- MEROSE	Wellington Labs	01/27/27	10/12/23	50ppm	200µL	20mL	15 ppm	95% MeOH 5% H2O	10/18/22	10/18/23	NS
		11339	D-N- EROSE		01/27/27	10/12/23		200µL						NS
		11115	D-N- REHXA		11/29/28	08/23/23		40µL						NS
		10836	D-N- EROSA		12/30/25	08/23/23		40µL						NS
LCMS 1986	40 List Std. ADD-ON #2	11224	FBSA	Wellington Labs	11/10/26	06/12/22	50ppm	80µL	4.0mL	1ppm	95% MeOH 5% H2O	10/18/22	10/18/23	NS
		11225	FHXA		12/09/26	06/12/23	50ppm	80µL						NS
		11140	L-PFRS		01/26/26	05/26/23	50ppm	80µL						NS
NS 10/18/22														

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

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

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS A 2009 B	PFC Spike	11483	PFOA-DOD (28 Comp)	Wellington Labs	08/05/17	11/05/13	1.0ppm	2mL	5mL	400ppb	95/MEOH 5% H2O	11/08/12	05/10/12	NG
		10839	N-ME-FOXA-M		08/13/16	09/13/13	50ppm	40uL						NG
		11294	FOXA-1		11/10/16	06/12/13								NG
		11249	FHXSA-1		12/29/16	11/03/13								NG
		11332	PFCHS		03/28/17	10/18/13								NG
LCMS A-B 2010	(Spike) 1623 CAL. Std.	10855F	PFAC-NXH	Wellington Labs	09/14/16	11/04/13	1-4 ppm	250uL	4mL	92.5/105/1250 ppb	16233	11/01/12	05/10/12	NG
		10853E	PFAC-NXI		09/14/16	11/04/13	1-10 ppm	250uL		162.5/162.5 ppb				NG
		10856I	PFAC-NXF		05/10/13	05/10/13	2 ppm	500uL		250ppb				NG
		10854E	PFAC-NXG		03/14/15	11/04/13	2 ppm	250uL		12.5 ppb				NG
		10857D	PFAC-NXJ		10/12/13	11/05/13	4-20 ppm	312uL		212/1160 ppb				NG
LCMS 2011	(Spike) FULL List std.	11440	PFOA-DOD (28)	Absolute	08/05/17	10/14/13	1.0ppm	400uL	4.0mL	100ppb	95/MEOH 5% H2O	11/11/12	07/12/12	NG
		LCMS 1987	40 List ADDON #1			02/11/13	1.0ppm	400uL		100ppb				NG
		LCMS 1986	40 List ADDON #2			01/18/13	1.0ppm	400uL		100ppb				NG
		LCMS 2012	FOSE std.			05/11/13	50ppm	400uL		500ppb				NG
LCMS 2012	FOSE std.	11336	N-ET-FOSE	Wellington Labs	05/13/17	09/19/13	50ppm	200uL	2.0mL	5ppm	95/MEOH 5% H2O	11/11/12	05/11/12	NG
		11336	N-ME-FOSE		05/13/17	09/19/13	50ppm	200uL						NG

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

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





11606 rec'd 01/13/23

**CERTIFIED WEIGHT REPORT**

**Part Number:** 64029A  
**Lot Number:** 110922  
**Description:** PFOA - DOD  
28 components  
**Expiry Date:** 11/09/27  
**Recommended Storage:** Freezer (0 °C)  
**Nominal Concentration (µg/mL):** 1.0  
**NIST Test ID#:** 8UTB

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

**SE-05 Balance Uncertainty**  
**0.018 Flask Uncertainty**

*Prashant Chauhan*  
**Formulated By:** Prashant Chauhan  
**DATE:** 11/09/22

*Pedro L. Rentas*  
**Reviewed By:** Pedro L. Rentas  
**DATE:** 11/09/22

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

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (+/-) µg/mL	SDS Information (Solvent Safety Info. On Attached pg.)		
									Free Acid CAS#	OSHA PEL (TWA)	LD50
1. Perfluoro-n-butanoic acid (PFBA)	99542	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-22-4	N/A	N/A
2. Perfluoro-n-pentanoic acid (PFPeA)	99543	050222	0.02	2.00	0.017	50.3	1.01	0.02	2706-90-3	N/A	N/A
3. Perfluorohexanoic acid (PFHxA)	99199	071122	0.02	2.00	0.017	50.2	1.00	0.02	307-24-4	N/A	N/A
4. Perfluoroheptanoic acid (PFHpA)	99197	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-85-9	N/A	N/A
5. Perfluorooctanoic acid (br-PFOA)*	99202	080522	0.02	2.00	0.017	50.2	1.00	0.02	335-67-1 (L)	N/A	ipr-ret 189mg/kg
6. Perfluorononanoic acid (PFNA)	99200	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-95-1	N/A	N/A
7. Perfluorodecanoic acid (PFDA)	99195	110922	0.02	2.00	0.017	50.0	1.00	0.02	335-76-2	N/A	ori-ret 57mg/kg
8. Perfluoroundecanoic acid (PFUnA)	99205	071522	0.02	2.00	0.017	50.2	1.00	0.02	2058-94-8	N/A	N/A
9. Perfluorododecanoic acid (PFDDA)	99196	071522	0.02	2.00	0.017	50.1	1.00	0.02	307-55-1	N/A	N/A
10. Perfluorotridecanoic acid (PFTDA)	99204	110922	0.02	2.00	0.017	50.1	1.00	0.02	72629-94-8	N/A	N/A
11. Perfluorotetradecanoic acid (PFTeDA)	99203	033022	0.02	2.00	0.017	50.1	1.00	0.02	378-06-7	N/A	N/A
12. Perfluoro-1-octanesulfonamide (FOSA)	3677	FOSA03221	0.02	2.00	0.017	50.0	1.00	0.05	754-91-6	N/A	N/A
13. N-Methylperfluorooctanesulfonamidoacetic acid (br-NMeFOSAA)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	50.0	1.00	0.05	2355-31-9 (L)	N/A	N/A
14. N-Ethylperfluorooctanesulfonamidoacetic acid (br-NEFOSAA)*	4163	brNEFOSAA1121	0.02	2.00	0.017	50.0	1.00	0.05	2991-50-6 (L)	N/A	N/A
15. Perfluorooctanesulfonic acid (PFBS)	99194	080522	0.02	2.00	0.017	50.2	1.00	0.02	375-73-5	N/A	N/A
16. Perfluoro-1-pentanesulfonic acid (PFPeS)	99544	032422	0.02	2.00	0.017	50.1	1.00	0.02	2706-91-4	N/A	N/A
17. Perfluorohexanesulfonic acid (br-PFHxS)*	99198	071522	0.02	2.00	0.017	50.2	1.00	0.02	355-46-4 (L)	N/A	N/A
18. Perfluoro-1-heptanesulfonic acid (PFHpS)	3672	LPFHps0822	0.021	2.10	0.017	47.6	1.00	0.05	375-92-8	N/A	N/A
19. Heptadecafluorooctanesulfonic acid (br-PFOS)*	99201	033022	0.02	2.00	0.017	50.1	1.00	0.02	1763-23-1 (L)	N/A	N/A
20. Perfluoro-1-nonanesulfonic acid (PFNS)	3957	LPFNS1021	0.021	2.10	0.017	48.0	1.01	0.05	68259-12-1	N/A	N/A
21. Perfluoro-1-decanesulfonic acid (PFDS)	3671	LPFDS0222	0.021	2.10	0.017	48.2	1.01	0.05	335-77-3	N/A	N/A
22. 1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	65271	080522	0.02	2.00	0.017	50.2	1.00	0.05	757124-72-4	N/A	N/A
23. 1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	65272	071522	0.02	2.00	0.017	50.2	1.00	0.05	27819-97-2	N/A	N/A
24. 1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	3662	82FTS0822	0.021	2.10	0.017	47.9	1.01	0.05	39108-34-4	N/A	N/A
25. 2-(Heptafluoropropoxy)-2,3,3-tetrafluoropropanoic acid (HPFO-DA)	99666	080522	0.02	2.00	0.017	50.1	1.00	0.02	13252-13-6	N/A	N/A
26. 11-Chlorooctadecafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF30Uds)	4165	11ClPF30Uds0522	0.021	2.12	0.017	47.1	1.00	0.05	763051-92-9	N/A	N/A
27. 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF30NS)	4164	9ClPF30NS0522	0.021	2.14	0.017	46.6	1.00	0.05	756426-58-1	N/A	N/A
Dodecafluoro-3H-4,8-dioxanonanoic acid (ADONA)	4103	NaDONA0922	0.021	2.12	0.017	47.1	1.00	0.05	919005-14-4	N/A	N/A
Perfluorooctanoic acid (linear)*	99202	080522	0.02	2.00	0.004	49.6	0.99	0.010	335-67-1 (L)	N/A	ipr-ret 189mg/kg
Perfluorooctanoic acid (branched isomer)*	99202	080522	0.02	2.00	0.004	0.6	0.01	0.001	335-67-1 (L)	N/A	ipr-ret 189mg/kg
Perfluorohexanesulfonic acid (linear)*	99198	071522	0.02	2.00	0.017	44.2	0.88	0.02	355-46-4 (L)	N/A	N/A
Perfluorohexanesulfonic acid (branched isomer)*	99198	071522	0.02	2.00	0.017	6.0	0.12	0.0021	355-46-4 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (linear)*	99201	033022	0.02	2.00	0.017	38.1	0.76	0.02	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	7.5	0.15	0.003	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	4.0	0.08	0.002	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	0.5	0.010	0.0002	1763-23-1 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	36.0	0.72	0.04	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	6.5	0.13	0.011	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	5.0	0.10	0.005	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	2.5	0.05	0.0009	2355-31-9 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4163	brNEFOSAA1121	0.02	2.00	0.017	36.6	0.73	0.04	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	7.7	0.15	0.009	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	5.3	0.11	0.005	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	0.4	0.007	0.0006	2991-50-6 (L)	N/A	N/A

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

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

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

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



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic  
Acid Solution/Mixture

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

### DESCRIPTION:

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

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

### DOCUMENTATION/ DATA ATTACHED:

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

### ADDITIONAL INFORMATION:

- See page 2 for further details.

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

PFACMXJ:0921 (1 of 5)  
rev1

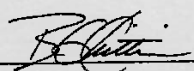
7.9.1  
7



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

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

Certified By: \_\_\_\_\_

  
 B.G. Chittim, General Manager

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

11658 rec'd 02/20/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXI

#### Native Perfluorooctanesulfonamide and Perfluorooctanesulfonamidoethanol Solution/Mixture

<b><u>PRODUCT CODE:</u></b>	PFAC-MXI
<b><u>LOT NUMBER:</u></b>	PFACMXI0921
<b><u>SOLVENT(S):</u></b>	Methanol
<b><u>DATE PREPARED:</u></b> (mm/dd/yyyy)	09/08/2021
<b><u>LAST TESTED:</u></b> (mm/dd/yyyy)	09/14/2021
<b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)	09/14/2026
<b><u>RECOMMENDED STORAGE:</u></b>	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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Revision# 9, Revised 2020-12-23

PFACMXI0921 (1 of 5)  
rev0

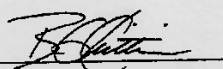
7.9.1

7

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

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

Certified By:

  
B.G. Chittim, General Manager

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



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



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXF

#### Native Replacement PFAS Solution/Mixture

<b>PRODUCT CODE:</b>	PFAC-MXF
<b>LOT NUMBER:</b>	PFACMXF0122
<b>SOLVENT(S):</b>	Methanol / Water (<1%)
<b>DATE PREPARED:</b> (mm/dd/yyyy)	01/10/2022
<b>LAST TESTED:</b> (mm/dd/yyyy)	01/11/2022
<b>EXPIRY DATE:</b> (mm/dd/yyyy)	01/11/2025
<b>RECOMMENDED STORAGE:</b>	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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Revision#: 9, Revised 2020-12-23

PFACMXF0122 (1 of 5)  
rev0

7.9.1  
7

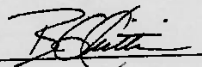


**Table A:** PFAC-MXF; Components and Concentrations (ng/mL;  $\pm$  5% in Methanol/Water (<1%))

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

\* Concentrations have been rounded to three significant figures.

Certified By:

  
B.G. Chittim, General Manager

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

11660 rec'd: 02/20/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXG

**Native Perfluoroalkyl Ether Carboxylic  
Acids and Sulfonate Solution/Mixture**

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

### DESCRIPTION:

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

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

### DOCUMENTATION/ DATA ATTACHED:

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

### ADDITIONAL INFORMATION:

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

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

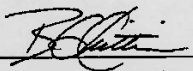
PFACMXG1122 (1 of 5)  
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**Table A:** PFAC-MXG; Components and Concentrations (ng/mL;  $\pm 5\%$  in methanol/water (<1%))

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

\* Concentrations have been rounded to three significant figures.

Certified By:   
B.G. Chittim, General Manager

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



11672  
rec'd: 02/23/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXH

**Native PFAS  
Solution/Mixture**

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

#### DESCRIPTION:

PFAC-MXH is a solution/mixture of 11 native linear perfluoroalkylcarboxylic acids (C<sub>4</sub>-C<sub>14</sub>), eight native perfluoroalkanesulfonates (C<sub>4</sub>, C<sub>5</sub>, C<sub>7</sub>, C<sub>9</sub>, C<sub>10</sub> and C<sub>12</sub> linear; C<sub>6</sub> and C<sub>8</sub> linear and branched), three native fluorotelomer sulfonates (4:2, 6:2, and 8:2), two native linear and branched perfluorooctanesulfonamidoacetic acids, and perfluoro-1-octanesulfonamide (FOSA). The components and their concentrations are given in Table A.

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

#### DOCUMENTATION/ DATA ATTACHED:

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

#### ADDITIONAL INFORMATION:

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

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

PFACMXH0822 1 of 11  
rev0

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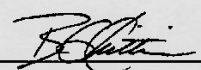
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**Table A: PFAC-MXH; Components and Concentrations**  
(ng/mL, ± 5% in methanol/isopropanol (2%)/water (<1%))

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

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

\* Concentrations have been rounded to three significant figures.

Certified By:   
 B.G. Chittim, General Manager

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



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



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXF

#### Native Replacement PFAS Solution/Mixture

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

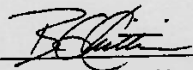
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**Table A: PFAC-MXF; Components and Concentrations (ng/mL; ± 5% in Methanol/Water (<1%))**

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

\* Concentrations have been rounded to three significant figures.

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

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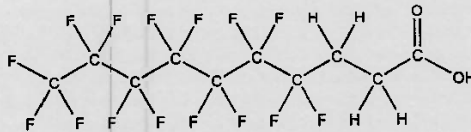
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** FHpPA  
**COMPOUND:** 3-Perfluoroheptyl propanoic acid

**LOT NUMBER:** FHpPA1020

**STRUCTURE:**

**CAS #:** 812-70-4



**MOLECULAR FORMULA:** C<sub>10</sub>H<sub>9</sub>F<sub>15</sub>O<sub>2</sub>  
**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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Revision#:8, Revised 2020-09-10

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## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

FPrPA

**LOT NUMBER:**

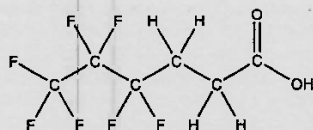
FPrPA1020

**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:**

&gt;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  $^{19}\text{F}$  NMR.

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Certified By:

B.G. Chittim, General Manager

Date: 11/27/2020

(mm/dd/yyyy)

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# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

FPePA

**LOT NUMBER:**

FPePA1120

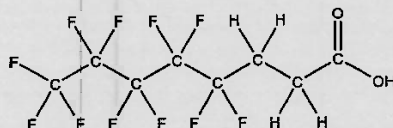
**COMPOUND:**

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)

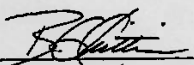
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**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  $^{19}\text{F}$  NMR.

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**Certified By:**

  
B.G. Chittim, General Manager

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

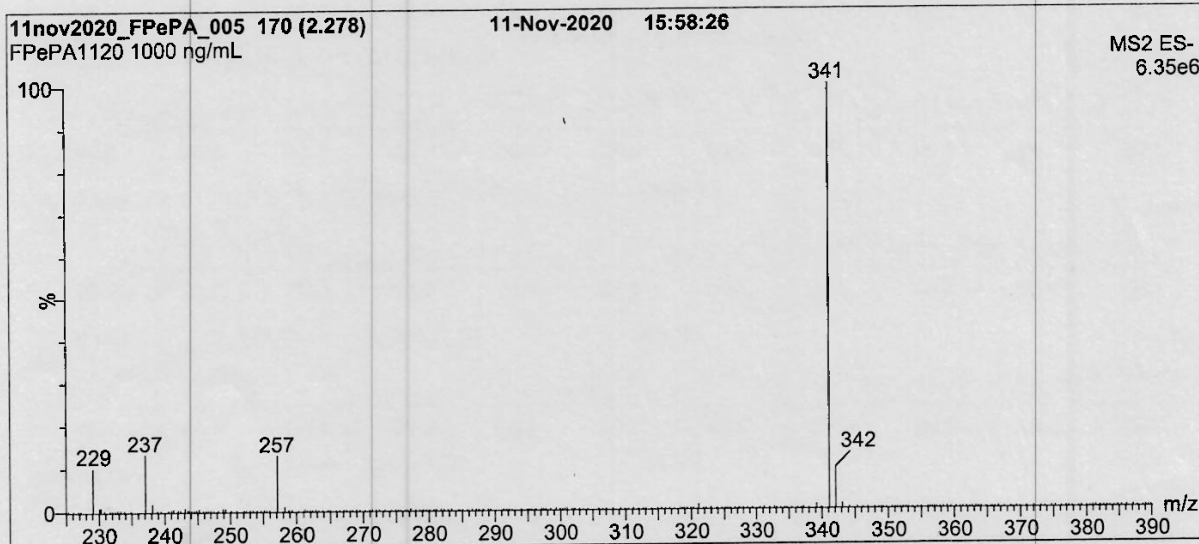
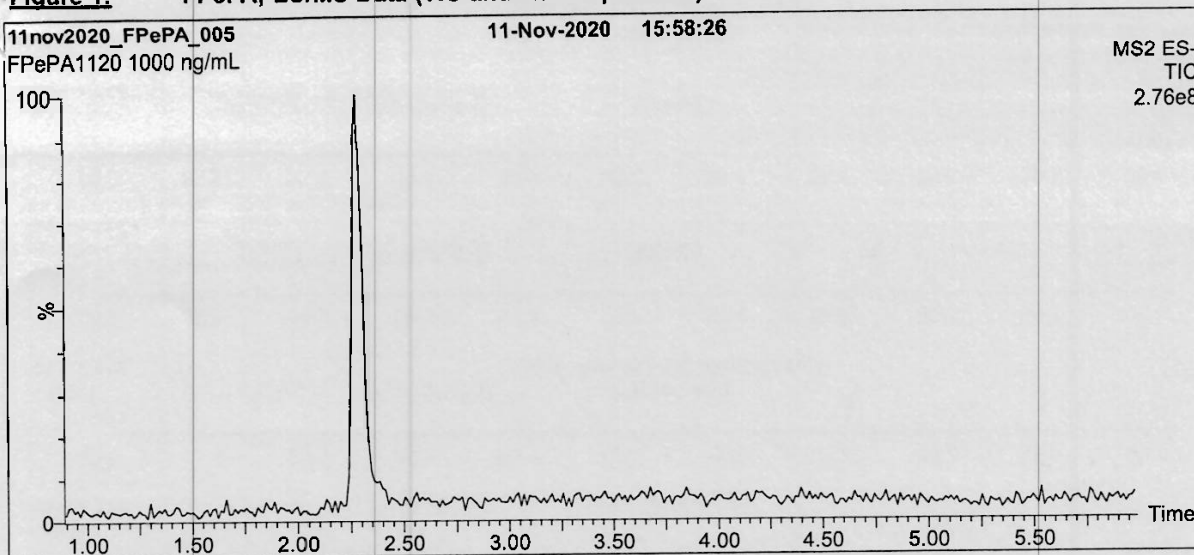
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Revision#:8, Revised 2020-09-10

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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<sub>1a</sub>  
1.7  $\mu$ m, 2.1 x 100 mm

Mobile phase: Gradient  
Start: 45% H<sub>2</sub>O / 55% (80:20 MeOH:ACN)  
(both with 10 mM NH<sub>4</sub>OAc 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  $\mu$ 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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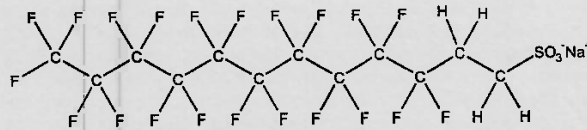


# WELLINGTON LABORATORIES

## 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:** C<sub>12</sub>H<sub>4</sub>F<sub>21</sub>SO<sub>3</sub>Na **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

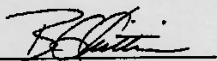
**DOCUMENTATION/ DATA ATTACHED:**

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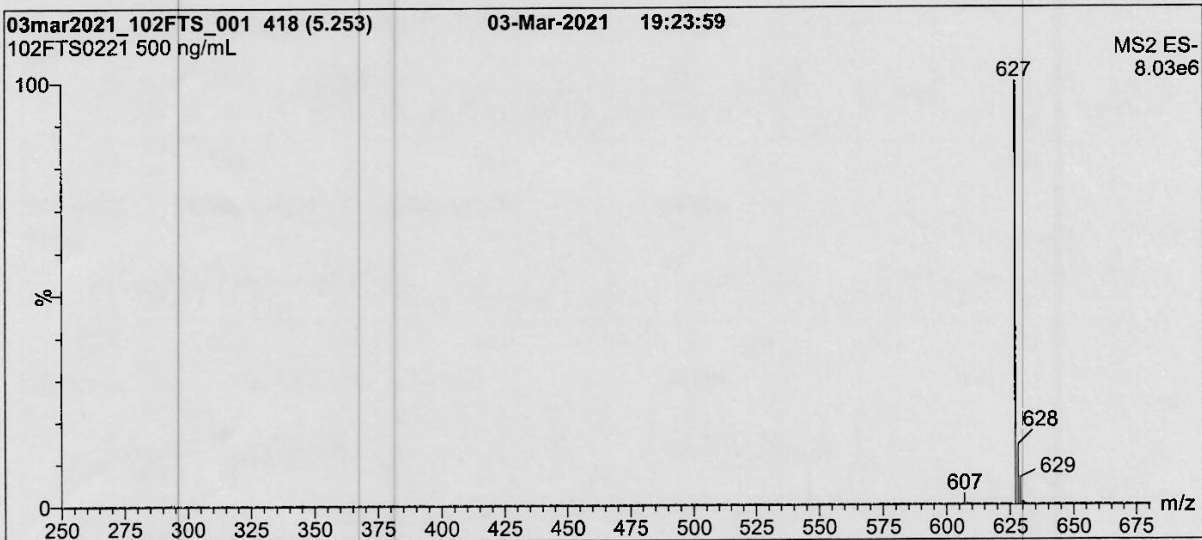
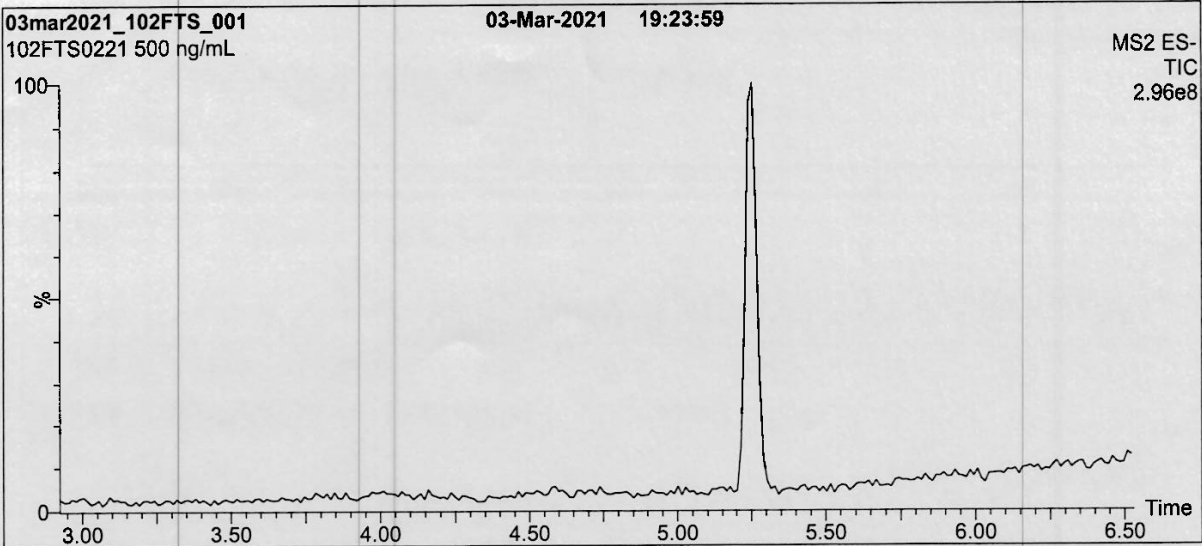
Form#: 27, Issued 2004-11-10  
Revision#: 9, Revised 2020-12-23

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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 RP<sub>18</sub>  
1.7  $\mu$ m, 2.1 x 100 mm

Mobile phase: Gradient  
Start: 40% H<sub>2</sub>O / 60% (80:20 MeOH:ACN)  
(both with 10 mM NH<sub>4</sub>OAc 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  $\mu$ L/min

**MS Parameters:**

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

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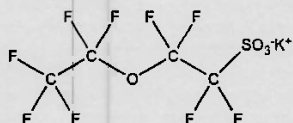
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## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** PFEESA *retd  
8/20/21  
WPH* **LOT NUMBER:** PFEESA0520

**COMPOUND:** Potassium perfluoro(2-ethoxyethane)sulfonate

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



**MOLECULAR FORMULA:** C<sub>4</sub>F<sub>8</sub>SO<sub>4</sub>K **MOLECULAR WEIGHT:** 354.19

**CONCENTRATION:** 50.0 ± 2.5 µg/ml (K salt) **SOLVENT(S):** Methanol

44.6 ± 2.2 µg/ml (PFEESA acid)

44.5 ± 2.2 µg/ml (PFEESA anion)

**CHEMICAL PURITY:** >98%

**LAST TESTED:** (mm/dd/yyyy) 05/13/2020

**EXPIRY DATE:** (mm/dd/yyyy) 05/13/2025

**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

**DOCUMENTATION/ DATA ATTACHED:**

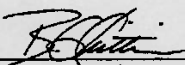
Figure 1: LC/MS Data (TIC and Mass Spectrum)

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

**ADDITIONAL INFORMATION:**

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

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**Certified By:**  **Date:** 05/29/2020  
(mm/dd/yyyy)

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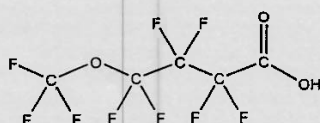
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**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:** C<sub>5</sub>HF<sub>9</sub>O<sub>3</sub> **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

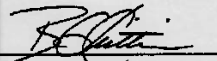
**DOCUMENTATION/ DATA ATTACHED:**

- 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.

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

B.G. Chittim, General Manager

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Revision#: 8, Revised 2020-09-10

PF5OHxA0320 (1 of 4)  
rev1

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10764A-B



# WELLINGTON LABORATORIES

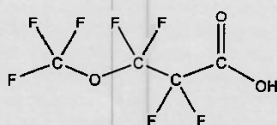
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**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:** C<sub>4</sub>HF<sub>7</sub>O<sub>3</sub> **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

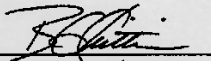
### DOCUMENTATION/ DATA ATTACHED:

- 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)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
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10765 A-13



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

3,6-OPFHpA

*rec'd  
WPH  
8/20/21*

**LOT NUMBER:**

36OPFHpA0320

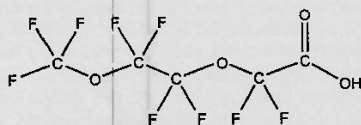
**COMPOUND:**

Perfluoro-3,6-dioxaheptanoic acid

**STRUCTURE:**

**CAS #:**

151772-58-6



**MOLECULAR FORMULA:**

C<sub>6</sub>H<sub>2</sub>F<sub>9</sub>O<sub>4</sub>

**MOLECULAR WEIGHT:**

296.04

**CONCENTRATION:**

50.0 ± 2.5 µg/ml

**SOLVENT(S):**

Methanol  
Water (<1%)

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

03/31/2020

**EXPIRY DATE:** (mm/dd/yyyy)

03/31/2025

**RECOMMENDED STORAGE:**

Store ampoule in a cool, dark place

**DOCUMENTATION/ DATA ATTACHED:**

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

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

**ADDITIONAL INFORMATION:**

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

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**

B.G. Chittim, General Manager

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

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10829



# WELLINGTON LABORATORIES

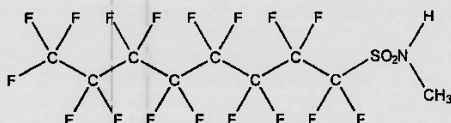
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**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:** C<sub>9</sub>H<sub>4</sub>F<sub>17</sub>NO<sub>2</sub>S  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL  
**CHEMICAL PURITY:** >98%  
**LAST TESTED:** (mm/dd/yyyy) 08/03/2021  
**EXPIRY DATE:** (mm/dd/yyyy) 08/03/2026  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

**MOLECULAR WEIGHT:** 513.17  
**SOLVENT(S):** Methanol

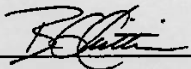
**DOCUMENTATION/ DATA ATTACHED:**

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

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

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**Certified By:**   
B.G. Chittim, General Manager

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

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

NMeFOSA0721M (1 of 4)  
rev0

7.9.1

7





# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

N-EtFOSA-M

10837

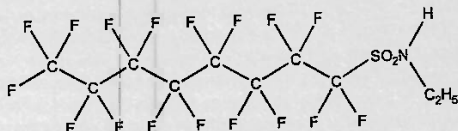
**LOT NUMBER:** NEtFOSA0821M

**COMPOUND:**

N-ethylperfluoro-1-octanesulfonamide

**STRUCTURE:**

**CAS #:** 4151-50-2



**MOLECULAR FORMULA:**

C<sub>10</sub>H<sub>9</sub>F<sub>17</sub>NO<sub>2</sub>S

**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)

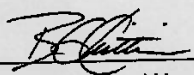
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**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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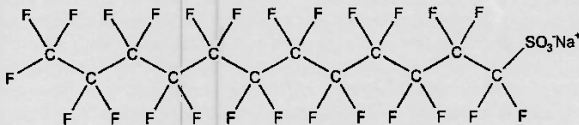
# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

10840

**PRODUCT CODE:** L-PFDoS **LOT NUMBER:** LPFDoS0721  
**COMPOUND:** Sodium perfluoro-1-dodecanesulfonate

**STRUCTURE:** **CAS #:** 1260224-54-1



**MOLECULAR FORMULA:** C<sub>12</sub>F<sub>25</sub>SO<sub>3</sub>Na **MOLECULAR WEIGHT:** 722.14  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL (Na salt) **SOLVENT(S):** Methanol  
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

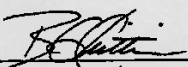
**DOCUMENTATION/ DATA ATTACHED:**

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

**ADDITIONAL INFORMATION:**

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

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**  **Date:** 07/16/2021  
B.G. Chittim, General Manager (mm/dd/yyyy)

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# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

PFODA

10847 NG 01/18/23

**LOT NUMBER:**

PFODA0821

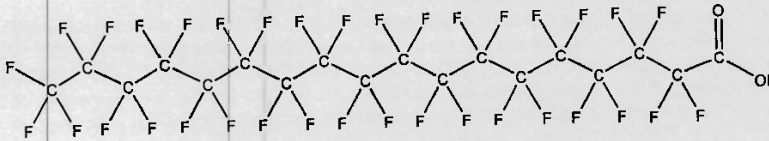
**COMPOUND:**

Perfluoro-n-octadecanoic acid

**STRUCTURE:**

**CAS #:**

16517-11-6



**MOLECULAR FORMULA:**

C<sub>18</sub>H<sub>35</sub>O<sub>2</sub>

**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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**WELLINGTON**  
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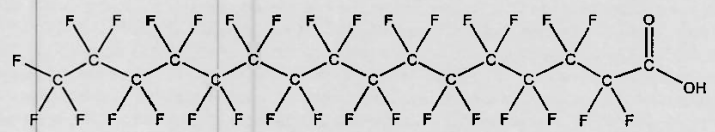
**CERTIFICATE OF ANALYSIS**  
DOCUMENTATION

10842 \* NG 01/18/23

**PRODUCT CODE:** PFHxDA **LOT NUMBER:** PFHxDA0421

**COMPOUND:** Perfluoro-n-hexadecanoic acid

**STRUCTURE:** **CAS #:** 67905-19-5



**MOLECULAR FORMULA:** C<sub>16</sub>HF<sub>31</sub>O<sub>2</sub> **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

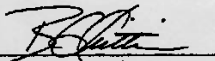
**DOCUMENTATION/ DATA ATTACHED:**

- 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:**  **Date:** 05/25/2021  
(mm/dd/yyyy)  
B.G. Chittim, General Manager

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

PFHxDA0421 (1 of 4)  
rev0

7.9.1  
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1117



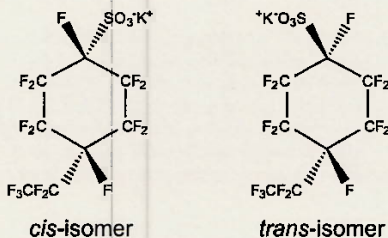
# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

7.9.1  
7

**PRODUCT CODE:** PFECHS      **LOT NUMBER:** PFECHS1021  
**COMPOUND:** Potassium perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)

**STRUCTURE:**      **CAS #:** 335-24-0



**MOLECULAR FORMULA:** C<sub>8</sub>F<sub>16</sub>SO<sub>3</sub>K      **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

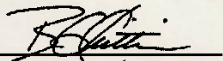
**DOCUMENTATION/ DATA ATTACHED:**

- 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

11140



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

L-PFPrS

**LOT NUMBER:**

LPFPrS0721

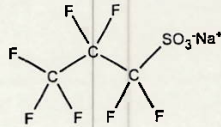
**COMPOUND:**

Sodium perfluoro-1-propanesulfonate

**STRUCTURE:**

**CAS #:**

Not available



**MOLECULAR FORMULA:**

C<sub>3</sub>F<sub>7</sub>SO<sub>3</sub>Na

**MOLECULAR WEIGHT:**

272.07

**CONCENTRATION:**

50.0 ± 2.5 µg/mL (Na salt)

46.0 ± 2.3 µg/mL (PFPrS acid)

45.8 ± 2.3 µg/mL (PFPrS anion)

**SOLVENT(S):**

Methanol

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

07/12/2021

**EXPIRY DATE:** (mm/dd/yyyy)

07/12/2026

**RECOMMENDED STORAGE:**

Store ampoule in a cool, dark place

**DOCUMENTATION/ DATA ATTACHED:**

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

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

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

Certified By:

B.G. Chittim, General Manager

Date: 08/04/2021

(mm/dd/yyyy)

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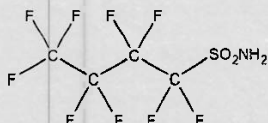
11224



**WELLINGTON**  
LABORATORIES

**CERTIFICATE OF ANALYSIS**  
DOCUMENTATION

**PRODUCT CODE:** FBSA-I **LOT NUMBER:** FBSA11211  
**COMPOUND:** Perfluoro-1-butanesulfonamide  
**STRUCTURE:** **CAS #:** 30334-69-1



**MOLECULAR FORMULA:** C<sub>4</sub>H<sub>2</sub>F<sub>9</sub>NO<sub>2</sub>S **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

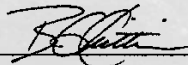
**DOCUMENTATION/ DATA ATTACHED:**

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.

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**Certified By:**  **Date:** 11/10/2021  
 B.G. Chittim, General Manager (mm/dd/yyyy)

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11225



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

FHxSA-I

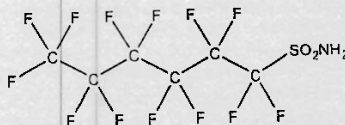
**LOT NUMBER:** FHxSA12211

**COMPOUND:**

Perfluoro-1-hexanesulfonamide

**CAS #:** 41997-13-1

**STRUCTURE:**



**MOLECULAR FORMULA:**

C<sub>6</sub>H<sub>2</sub>F<sub>13</sub>NO<sub>2</sub>S

**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)

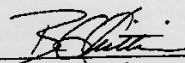
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

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Certified By:

  
B.G. Chittim, General Manager

Date: 01/10/2022  
(mm/dd/yyyy)

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# WELLINGTON LABORATORIES

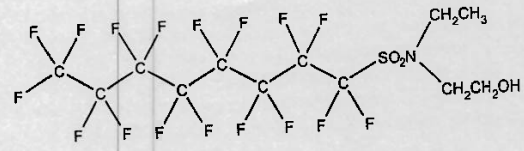
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**  
**COMPOUND:**  
**STRUCTURE:**

N-EtFOSE-M  
2-(N-ethylperfluoro-1-octanesulfonamido)ethanol

**LOT NUMBER:** NEtFOSE0622M

**CAS #:** 1691-99-2



**MOLECULAR FORMULA:**  
**CONCENTRATION:**  
**CHEMICAL PURITY:**  
**LAST TESTED:** (mm/dd/yyyy)  
**EXPIRY DATE:** (mm/dd/yyyy)  
**RECOMMENDED STORAGE:**

C<sub>12</sub>H<sub>10</sub>F<sub>17</sub>NO<sub>3</sub>S  
50.0 ± 2.5 µg/mL  
>98%  
05/13/2022 (HRGC/LRMS)  
05/13/2022 (LC/MS)  
05/13/2027  
Store ampoule in a cool, dark place

**MOLECULAR WEIGHT:** 571.25  
**SOLVENT(S):** Methanol

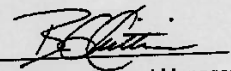
**DOCUMENTATION/ DATA ATTACHED:**

- 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:  Date: 07/13/2022  
(mm/dd/yyyy)  
B.G. Chittim, General Manager

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

NEtFOSE0622M (1 of 5)  
rev0



11338



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

N-MeFOSE-M

**LOT NUMBER:**

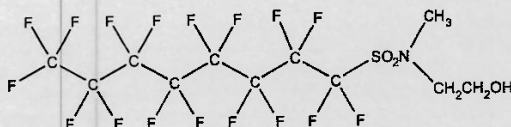
NMeFOSE0522M

**COMPOUND:**

2-(N-methylperfluoro-1-octanesulfonamido)ethanol

**STRUCTURE:****CAS #:**

24448-09-7

**MOLECULAR FORMULA:**C<sub>11</sub>H<sub>8</sub>F<sub>17</sub>NO<sub>3</sub>S**MOLECULAR WEIGHT:**

557.22

**CONCENTRATION:**

50.0 ± 2.5 µg/mL

**SOLVENT(S):**

Methanol

**CHEMICAL PURITY:**

&gt;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)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com



11383 A-J



# WELLINGTON LABORATORIES

## 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 (<sup>13</sup>C) perfluoroalkylcarboxylic acids (C<sub>4</sub>-C<sub>12</sub>, C<sub>14</sub>), three mass-labelled (<sup>13</sup>C) perfluoroalkanesulfonates (C<sub>4</sub>, C<sub>6</sub>, and C<sub>8</sub>), three mass-labelled (one <sup>13</sup>C and two <sup>2</sup>H) perfluoro-1-octanesulfonamides, three mass-labelled (<sup>13</sup>C) fluorotelomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (<sup>2</sup>H) perfluorooctanesulfonamidoacetic acids, two mass-labelled (<sup>2</sup>H) perfluorooctane-sulfonamidoethanols, and mass-labelled (<sup>13</sup>C) hexafluoropropylene oxide dimer acid (GenX, M3HFPO-DA). The components and their concentrations are given in Table A.

The individual <sup>13</sup>C-labelled components all have chemical purities >98% and isotopic purities of ≥99%. The individual <sup>2</sup>H-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.

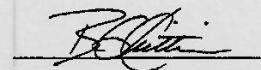
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**Table A: MPFAC-HIF-ES; Components and Concentrations**  
(ng/mL, ± 5% in methanol/isopropanol (1%)/water (<1%))

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-( <sup>13</sup> C <sub>4</sub> )butanoic acid	MPFBA	2000		1
Perfluoro-n-( <sup>13</sup> C <sub>5</sub> )pentanoic acid	M5PFPeA	1000		2
Perfluoro-n-(1,2,3,4,6- <sup>13</sup> C <sub>5</sub> )hexanoic acid	M5PFHxA	500		5
Perfluoro-n-(1,2,3,4- <sup>13</sup> C <sub>6</sub> )heptanoic acid	M4PFHpA	500		7
Perfluoro-n-( <sup>13</sup> C <sub>8</sub> )octanoic acid	M8PFOA	500		10
Perfluoro-n-( <sup>13</sup> C <sub>9</sub> )nonanoic acid	M9PFNA	250		11
Perfluoro-n-(1,2,3,4,5,6- <sup>13</sup> C <sub>10</sub> )decanoic acid	M6PFDA	250		14
Perfluoro-n-(1,2,3,4,5,6,7- <sup>13</sup> C <sub>11</sub> )undecanoic acid	M7PFUdA	250		17
Perfluoro-n-(1,2- <sup>13</sup> C <sub>12</sub> )dodecanoic acid	MPFDoA	250		19
Perfluoro-n-(1,2- <sup>13</sup> C <sub>14</sub> )tetradecanoic acid	M2PFTeDA	250		23
Perfluoro-1-( <sup>13</sup> C <sub>8</sub> )octanesulfonamide	M8FOSA	500		18
N-methyl-d <sub>3</sub> -perfluoro-1-octanesulfonamide	d-N-MeFOSA	500		21
N-ethyl-d <sub>5</sub> -perfluoro-1-octanesulfonamide	d-N-EtFOSA	500		24
N-methyl-d <sub>3</sub> -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000		15
N-ethyl-d <sub>5</sub> -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000		16
2-(N-methyl-d <sub>3</sub> -perfluoro-1-octanesulfonamido)ethan-d <sub>3</sub> -ol	d7-N-MeFOSE	5000		20
2-(N-ethyl-d <sub>5</sub> -perfluoro-1-octanesulfonamido)ethan-d <sub>5</sub> -ol	d9-N-EtFOSE	5000		22
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)( <sup>13</sup> C <sub>3</sub> )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- <sup>13</sup> C <sub>3</sub> )butanesulfonate	M3PFBS	500	466	3
Sodium perfluoro-1-(1,2,3- <sup>13</sup> C <sub>3</sub> )hexanesulfonate	M3PFHxS	500	474	8
Sodium perfluoro-1-( <sup>13</sup> C <sub>8</sub> )octanesulfonate	M8PFOS	500	479	12
Sodium 1H,1H,2H,2H-perfluoro-(1,2- <sup>13</sup> C <sub>2</sub> )hexanesulfonate	M2-4:2FTS	1000	938	4
Sodium 1H,1H,2H,2H-perfluoro-(1,2- <sup>13</sup> C <sub>2</sub> )octanesulfonate	M2-6:2FTS	1000	951	9
Sodium 1H,1H,2H,2H-perfluoro-(1,2- <sup>13</sup> C <sub>2</sub> )decanesulfonate	M2-8:2FTS	1000	960	13

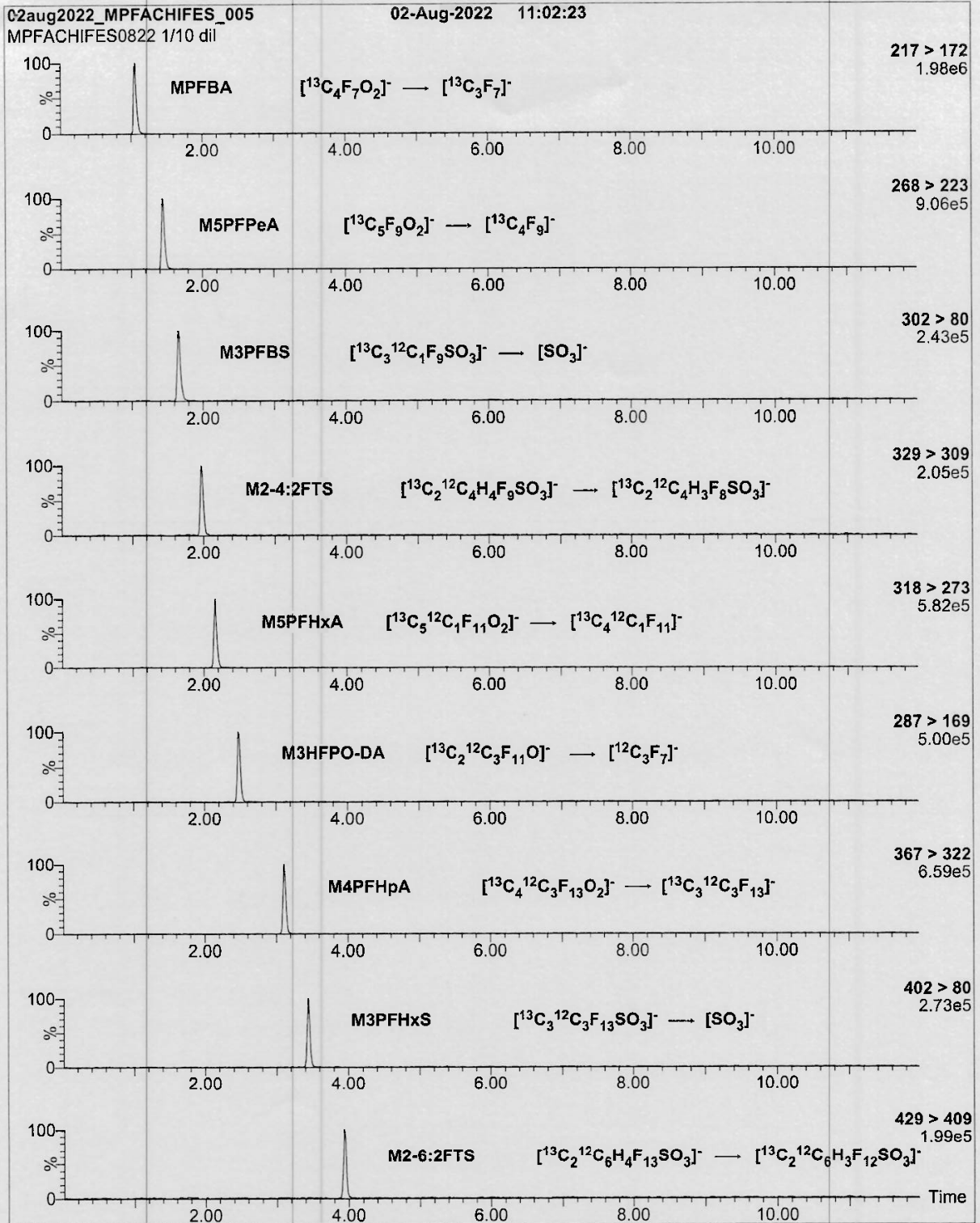
\* Concentrations have been rounded to three significant figures.

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)**



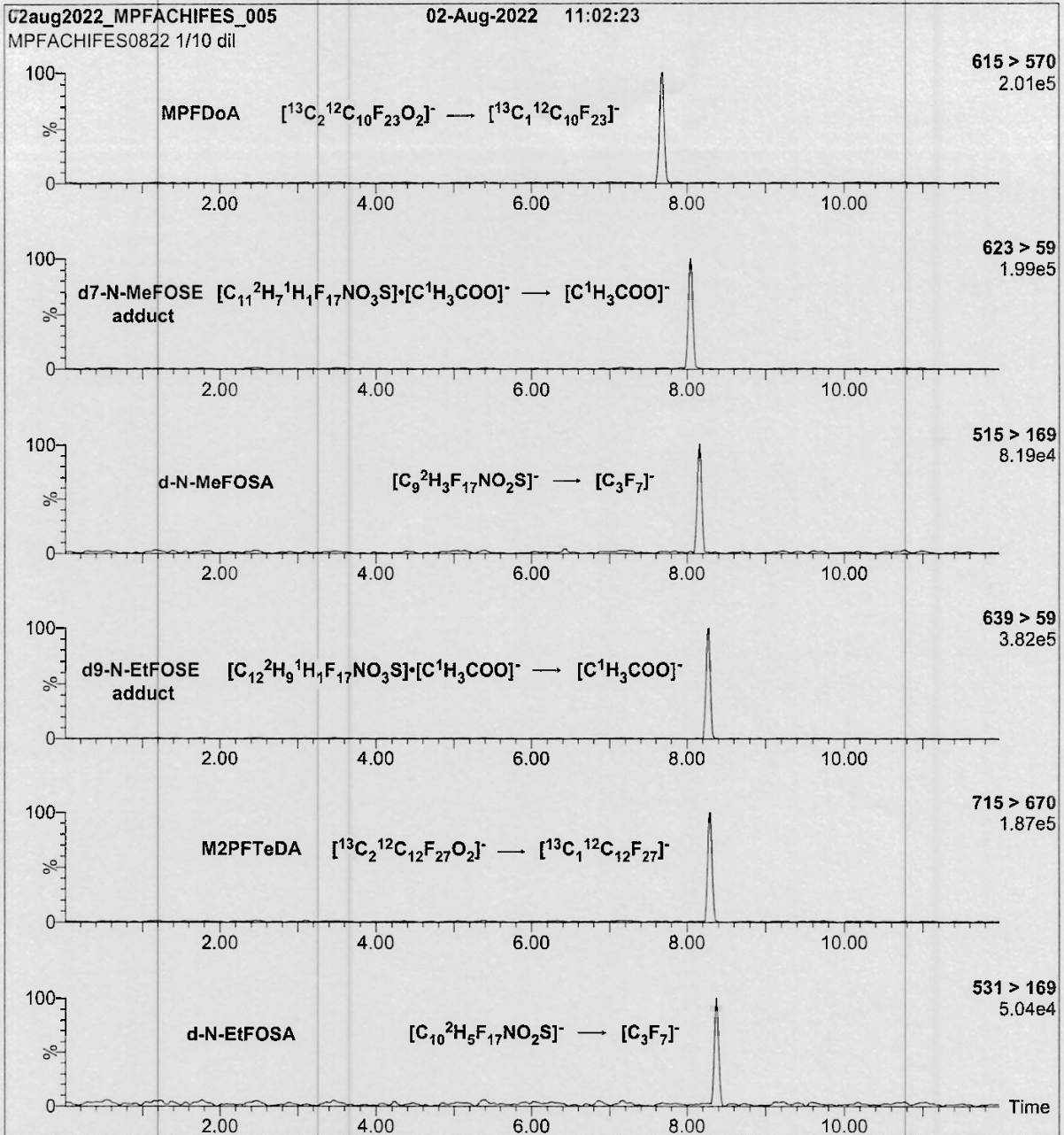
Form# 13, Issued 2004-11-10  
Revision#: 9, Revised 2020-12-23

MPFACHIFES0822 (5 of 7)  
rev0

7.9.1

7

**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**

<b><u>PRODUCT CODE:</u></b>	MPFAC-HIF-IS
<b><u>LOT NUMBER:</u></b>	MPFACHIFIS0921
<b><u>SOLVENT(S):</u></b>	Methanol/Water (<1%)
<b><u>DATE PREPARED:</u></b> (mm/dd/yyyy)	09/07/2021
<b><u>LAST TESTED:</u></b> (mm/dd/yyyy)	09/07/2021
<b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)	09/07/2026
<b><u>RECOMMENDED STORAGE:</u></b>	Store ampoule in a cool, dark place

### DESCRIPTION:

MPFAC-HIF-IS is a solution/mixture of five mass-labelled (<sup>13</sup>C) perfluoroalkylcarboxylic acids (C<sub>4</sub>, C<sub>6</sub>, C<sub>8</sub>-C<sub>10</sub>) and two mass-labelled (<sup>18</sup>O and <sup>13</sup>C) perfluoroalkanesulfonates (C<sub>8</sub> and C<sub>9</sub>). 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 <sup>13</sup>C or >94% per <sup>18</sup>O.

### DOCUMENTATION/ DATA ATTACHED:

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

### ADDITIONAL INFORMATION:

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

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

MPFACHIFIS0921 (1 of 5)  
rev1


7.9.1

7

**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- <sup>13</sup> C <sub>3</sub> )butanoic acid	M3PFBA	1000		1
Perfluoro-n-(1,2- <sup>13</sup> C <sub>2</sub> )hexanoic acid	MPFHxA	500		2
Perfluoro-n-(1,2,3,4- <sup>13</sup> C <sub>4</sub> )octanoic acid	MPFOA	500		4
Perfluoro-n-(1,2,3,4,5- <sup>13</sup> C <sub>5</sub> )nonanoic acid	MPFNA	250		5
Perfluoro-n-(1,2- <sup>13</sup> C <sub>2</sub> )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( <sup>18</sup> O <sub>2</sub> )sulfonate	MPFHxS	500	474	3
Sodium perfluoro-1-(1,2,3,4- <sup>13</sup> C <sub>4</sub> )octanesulfonate	MPFOS	500	479	6

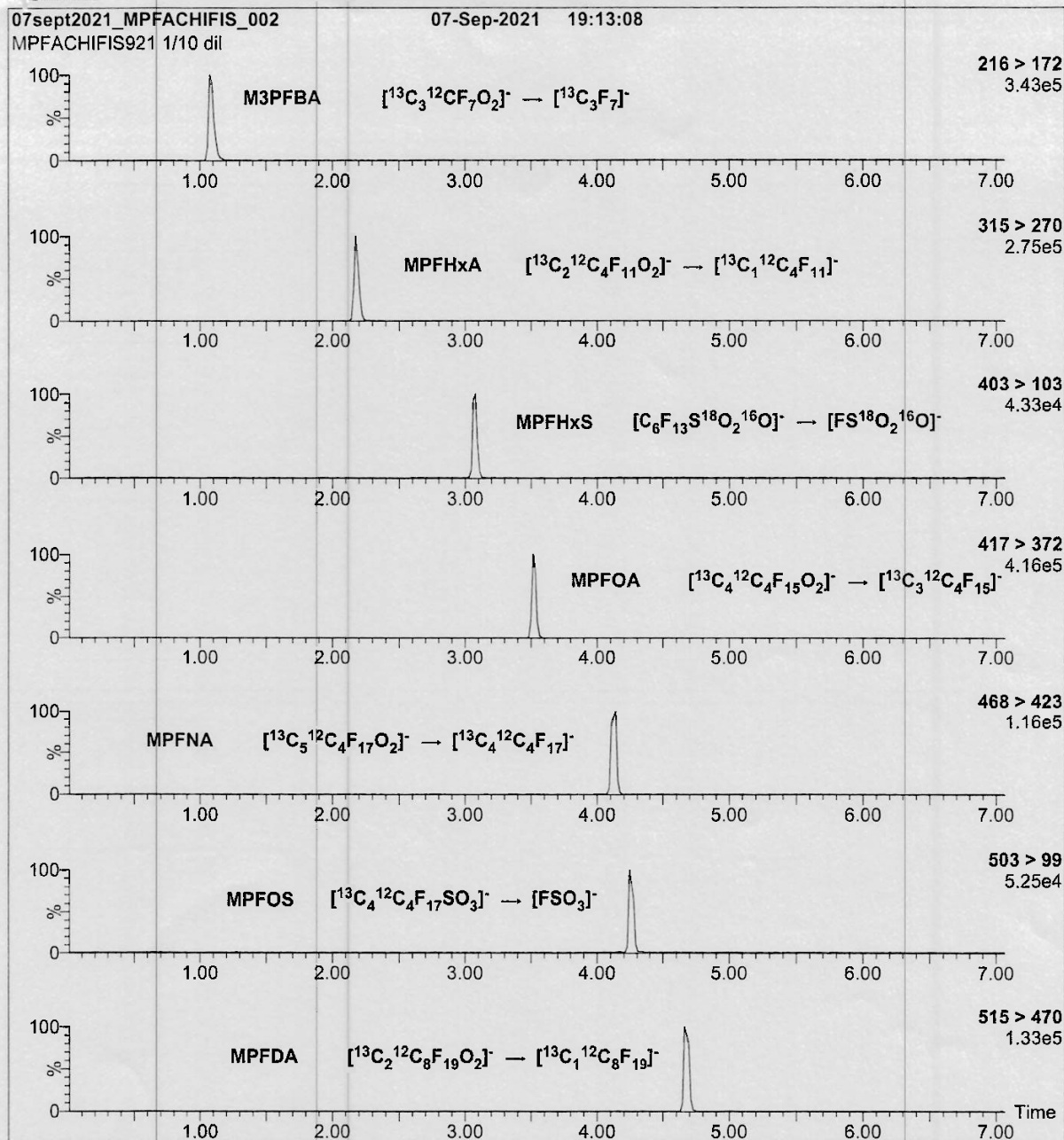
\* Concentrations have been rounded to three significant figures.

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: 04-03-23 13:30  
Started (mm/dd/yy 24:00)

Method: EPA 1633 Draft QSM

Date/Time: 4/4/23 13:35  
Finished (mm/dd/yy 24:00)

Balance ID: \_\_\_\_\_

Batch#: OP96209

Ext. By: DBL

Conc. By: \_\_\_\_\_

Vialed 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 <del>96209</del> MB	<del>n/a</del>	<del>500</del>	<del>7.0</del>	<del>n/a</del>	<del>25</del>		<del>5</del>	<del>A1</del>	
OP <del>96209</del> BS	<del>1</del>	<del>500</del>	<del>↓</del>	<del>↓</del>	<del>↓</del>	<del>200</del>	<del>↓</del>	<del>↓</del>	
OP <del>96209</del> LLBS	<del>1</del>	<del>500</del>	<del>↓</del>	<del>↓</del>	<del>↓</del>	<del>80</del>	<del>↓</del>	<del>↓</del>	
FC <del>3853-1</del>	<del>2</del>	<del>565</del>	<del>↓</del>	<del>↓</del>	<del>↓</del>		<del>↓</del>	<del>↓</del>	
<del>↓ -2</del>	<del>2</del>	<del>535</del>	<del>↓</del>	<del>↓</del>	<del>↓</del>		<del>↓</del>	<del>↓</del>	
FC <del>3641-1 RE</del>	<del>2</del>	<del>525</del>	<del>↓</del>	<del>↓</del>	<del>↓</del>		<del>↓</del>	<del>↓</del>	
FC <del>3671-9 RE</del>	<del>2</del>	<del>535</del>	<del>↓</del>	<del>↓</del>	<del>↓</del>		<del>↓</del>	<del>↓</del>	
DBL 04-03-23									
OP <del>96209</del> MS	<del>3</del>	<del>565</del>	<del>7.0</del>	<del>n/a</del>	<del>25</del>	<del>200</del>	<del>5</del>	<del>A1</del>	<del>FC3853-1</del>
OP MSD		<del>DBL 04-03-23</del>							
OP <del>96209</del> DUP	<del>3</del>	<del>565</del>	<del>7.0</del>	<del>n/a</del>	<del>25</del>		<del>5</del>	<del>A1</del>	<del>FC3853-2</del>

Comments:

EIS (SURR) ID: 116701-5 Conc: 250-5000 ng/ml Exp. Date: 03-23-24 Inj. By: DBL Ver. By: GH  
 SPIKE.1 ID: LCMS-2096B Conc: varied Exp. Date: 09-30-23 Inj. By: DBL Ver. By: GH  
 SPIKE.2 ID: \_\_\_\_\_ Conc: \_\_\_\_\_ Exp. Date: \_\_\_\_\_ Inj. By: \_\_\_\_\_ Ver. By: \_\_\_\_\_  
 NIS (ISTD) ID: 11671A-C Conc: 250-1000 ng/ml Exp. Date: 3/23/24 Inj. By: MW Ver. By: JR

TurboVap Temp (Therm ID): \_\_\_\_\_ N-Evap Temp (Therm ID): \_\_\_\_\_  
 Observed Temp °C: \_\_\_\_\_ Corr. Temp °C: \_\_\_\_\_ Observed Temp °C: \_\_\_\_\_ Corr. Temp °C: \_\_\_\_\_

Methanol Lot # 224231 1% NH4OH MeOH PF340 SPE Lot # 6686211-04  
 Water Lot# 0995448 0.3M Formic Acid PF335 Syringe filter Lot # \_\_\_\_\_  
 Acetic Acid# 194003 3% NH4OH Sol \_\_\_\_\_ pH paper Lot# 215322  
 0.1M Formic PF336 5% Formic Acid \_\_\_\_\_ Carbon Lot# 160898

Relinquished By: [Signature]  
 Accepted By: MW

Date: 03-04-03-23  
 Date: 4/4/23