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## Technical Report for

**AECOM, INC.**

**N6274223F0104 RH Fire Suppression System**

**60697810**

**SGS Job Number: FC5164**

**Sampling Date: 04/11/23**



### Report to:

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**Total number of pages in report: 611**



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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## Sample Summary

AECOM, INC.

Job No: FC5164

N6274223F0104 RH Fire Suppression System  
Project No: 60697810

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FC5164-1	04/11/23	09:55 JV	04/12/23	AQ	Ground Water	AF-HDMW225303-WGN01LF-2304W2
FC5164-2	04/11/23	13:38 JV	04/12/23	AQ	Ground Water	AF-RHMW10-WGN01LF-2304W2

# SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** AECOM, INC.

**Job No:** FC5164

**Site:** N6274223F0104 RH Fire Suppression System

**Report Date:** 4/19/2023 6:35:31 PM

On 04/12/2023, 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 3.7 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC5164 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:** OP96403

Sample(s) FC5194-1MS, FC5194-2DUP were used as the QC samples indicated.

Blank Spike Recovery(s) for Perfluoroheptanoic acid, Perfluorohexanesulfonic acid, Perfluorohexanoic acid, Perfluorooctanoic acid are outside control limits.

FC5164-1 for Perfluoroheptanoic acid: Associated Low Level BS outside of control limits high, sample was ND.

FC5164-1 for Perfluorohexanesulfonic acid: Associated Low Level BS outside of control limits high, sample was ND.

FC5164-1 for Perfluorohexanoic acid: Associated Low Level BS outside of control limits high, sample was ND.

FC5164-1 for Perfluorooctanoic acid: Associated Low Level BS outside of control limits high, sample was ND.

FC5164-2 for Perfluoroheptanoic acid: Associated Low Level BS outside of control limits high, sample was ND.

FC5164-2 for Perfluorohexanesulfonic acid: Associated Low Level BS outside of control limits high, sample was ND.

FC5164-2 for Perfluorohexanoic acid: Associated Low Level BS outside of control limits high, sample was ND.

FC5164-2 for Perfluorooctanoic acid: Associated Low Level BS outside of control limits high, sample was ND.

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

Narrative prepared by:

\_\_\_\_\_  
Kim Benham, Client Services (Signature on File)



## Summary of Hits

**Job Number:** FC5164  
**Account:** AECOM, INC.  
**Project:** N6274223F0104 RH Fire Suppression System  
**Collected:** 04/11/23



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
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FC5164-1      AF-HDMW225303-WGN01LF-2304W2

No hits reported in this sample.

FC5164-2      AF-RHMW10-WGN01LF-2304W2

No hits reported in this sample.

**Sample Results**

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**Report of Analysis**

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SGS North America Inc.

## Report of Analysis

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Client Sample ID:	AF-HDMW225303-WGN01LF-2304W2		
Lab Sample ID:	FC5164-1	Date Sampled:	04/11/23
Matrix:	AQ - Ground Water	Date Received:	04/12/23
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	4Q43157.D	1	04/18/23 13:22	MV	04/14/23 10:00	OP96403	S4Q624
Run #2							

Run #	Initial Volume	Final Volume
Run #1	560 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	3.6 U	18	3.6	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8 U	8.9	1.8	0.84	ng/l	
307-24-4	Perfluorohexanoic acid <sup>a</sup>	0.89 U	4.5	0.89	0.45	ng/l	
375-85-9	Perfluoroheptanoic acid <sup>a</sup>	0.89 U	4.5	0.89	0.45	ng/l	
335-67-1	Perfluorooctanoic acid <sup>a</sup>	0.89 U	4.5	0.89	0.45	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	4.5	1.8	0.54	ng/l	
335-76-2	Perfluorodecanoic acid	0.89 U	4.5	0.89	0.45	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	4.5	1.8	0.54	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	4.5	1.8	0.54	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	4.5	1.8	0.75	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.89 U	4.5	0.89	0.45	ng/l	
<b>PERFLUOROALKYL SULFONIC ACIDS</b>							
375-73-5	Perfluorobutanesulfonic acid	0.89 U	4.5	0.89	0.45	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.6 U	4.5	3.6	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid <sup>a</sup>	1.8 U	4.5	1.8	0.62	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.89 U	4.5	0.89	0.45	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	4.5	1.8	0.48	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	4.5	1.8	0.51	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	4.5	1.8	0.57	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.6 U	4.5	3.6	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	7.1 U	18	7.1	3.1	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.1 U	18	7.1	3.7	ng/l	
<b>PERFLUOROOCCTANE SULFONAMIDES</b>							
754-91-6	PFOSA	1.8 U	4.5	1.8	0.60	ng/l	
31506-32-8	MeFOSA	1.8 U	4.5	1.8	0.89	ng/l	
4151-50-2	EtFOSA	1.8 U	4.5	1.8	0.89	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

# Report of Analysis

Client Sample ID:	AF-HDMW225303-WGN01LF-2304W2		
Lab Sample ID:	FC5164-1	Date Sampled:	04/11/23
Matrix:	AQ - Ground Water	Date Received:	04/12/23
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	3.6 U	4.5	3.6	0.89	ng/l	
2991-50-6	EtFOSAA	3.6 U	4.5	3.6	1.2	ng/l	

**PERFLUOROOCCTANE SULFONAMIDO ETHANOLS**

24448-09-7	MeFOSE	8.9 U	45	8.9	3.9	ng/l	
1691-99-2	EtFOSE	18 U	45	18	6.6	ng/l	

**PER and POLYFLUOROETHER CARBOXYLIC ACIDS**

13252-13-6	HFPO-DA (GenX)	3.6 U	18	3.6	0.89	ng/l	
919005-14-4	ADONA	3.6 U	18	3.6	1.7	ng/l	
377-73-1	PFMPA	1.8 U	8.9	1.8	0.89	ng/l	
863090-89-5	PFMBA	3.6 U	8.9	3.6	1.0	ng/l	
151772-58-6	NFDHA	3.6 U	8.9	3.6	1.1	ng/l	

**PER and POLYFLUOROETHER SULFONIC ACIDS**

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.6 U	18	3.6	1.2	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.6 U	18	3.6	1.6	ng/l	
113507-82-7	PFEESA	1.8 U	8.9	1.8	0.70	ng/l	

**FLUOROTELOMER CARBOXYLIC ACIDS**

356-02-5	3:3 Fluorotelomer carboxylate	8.9 U	22	8.9	4.0	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	110	18	7.8	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	18 U	110	18	7.0	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	112%		20-150%
	13C5-PFPeA	106%		20-150%
	13C5-PFHxA	105%		20-150%
	13C4-PFHpA	110%		20-150%
	13C8-PFOA	104%		20-150%
	13C9-PFNA	102%		20-150%
	13C6-PFDA	109%		20-150%
	13C7-PFUnDA	103%		20-150%
	13C2-PFDoDA	92%		20-150%
	13C2-PFTeDA	81%		20-150%
	13C3-PFBS	105%		20-150%
	13C3-PFHxS	110%		20-150%

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

## Report of Analysis

Client Sample ID:	AF-HDMW225303-WGN01LF-2304W2		
Lab Sample ID:	FC5164-1	Date Sampled:	04/11/23
Matrix:	AQ - Ground Water	Date Received:	04/12/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	102%		20-150%
	13C8-FOSA	83%		20-150%
	d3-MeFOSA	96%		20-150%
	d5-EtFOSA	96%		20-150%
	d3-MeFOSAA	104%		20-150%
	d5-EtFOSAA	103%		20-150%
	d7-MeFOSE	75%		20-150%
	d9-EtFOSE	77%		20-150%
	13C2-4:2FTS	115%		20-150%
	13C2-6:2FTS	127%		20-150%
	13C2-8:2FTS	114%		20-150%
	13C3-HFPO-DA	110%		20-150%

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

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

SGS North America Inc.

## Report of Analysis

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Client Sample ID:	AF-RHMW10-WGN01LF-2304W2		
Lab Sample ID:	FC5164-2	Date Sampled:	04/11/23
Matrix:	AQ - Ground Water	Date Received:	04/12/23
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	4Q43158.D	1	04/18/23 13:36	MV	04/14/23 10:00	OP96403	S4Q624
Run #2							

Run #	Initial Volume	Final Volume
Run #1	550 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	3.6 U	18	3.6	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8 U	9.1	1.8	0.85	ng/l	
307-24-4	Perfluorohexanoic acid <sup>a</sup>	0.91 U	4.5	0.91	0.45	ng/l	
375-85-9	Perfluoroheptanoic acid <sup>a</sup>	0.91 U	4.5	0.91	0.45	ng/l	
335-67-1	Perfluorooctanoic acid <sup>a</sup>	0.91 U	4.5	0.91	0.45	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	4.5	1.8	0.55	ng/l	
335-76-2	Perfluorodecanoic acid	0.91 U	4.5	0.91	0.45	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	4.5	1.8	0.55	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	4.5	1.8	0.55	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	4.5	1.8	0.76	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.91 U	4.5	0.91	0.45	ng/l	
<b>PERFLUOROALKYL SULFONIC ACIDS</b>							
375-73-5	Perfluorobutanesulfonic acid	0.91 U	4.5	0.91	0.45	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.6 U	4.5	3.6	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid <sup>a</sup>	1.8 U	4.5	1.8	0.64	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.91 U	4.5	0.91	0.45	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	4.5	1.8	0.49	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	4.5	1.8	0.52	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	4.5	1.8	0.58	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.6 U	4.5	3.6	1.0	ng/l	
<b>FLUOROTELOMER SULFONIC ACIDS</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	7.3 U	18	7.3	2.9	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.2	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.7	ng/l	
<b>PERFLUOROOCCTANE SULFONAMIDES</b>							
754-91-6	PFOSA	1.8 U	4.5	1.8	0.61	ng/l	
31506-32-8	MeFOSA	1.8 U	4.5	1.8	0.91	ng/l	
4151-50-2	EtFOSA	1.8 U	4.5	1.8	0.91	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-RHMW10-WGN01LF-2304W2		Date Sampled:	04/11/23
Lab Sample ID:	FC5164-2		Date Received:	04/12/23
Matrix:	AQ - Ground Water		Percent Solids:	n/a
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
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	3.6 U	4.5	3.6	0.91	ng/l	
2991-50-6	EtFOSAA	3.6 U	4.5	3.6	1.2	ng/l	

**PERFLUOROOCCTANE SULFONAMIDO ETHANOLS**

24448-09-7	MeFOSE	9.1 U	45	9.1	4.0	ng/l	
1691-99-2	EtFOSE	18 U	45	18	6.7	ng/l	

**PER and POLYFLUOROETHER CARBOXYLIC ACIDS**

13252-13-6	HFPO-DA (GenX)	3.6 U	18	3.6	0.91	ng/l	
919005-14-4	ADONA	3.6 U	18	3.6	1.7	ng/l	
377-73-1	PFMPA	1.8 U	9.1	1.8	0.91	ng/l	
863090-89-5	PFMBA	3.6 U	9.1	3.6	1.0	ng/l	
151772-58-6	NFDHA	3.6 U	9.1	3.6	1.1	ng/l	

**PER and POLYFLUOROETHER SULFONIC ACIDS**

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.6 U	18	3.6	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.6 U	18	3.6	1.6	ng/l	
113507-82-7	PFEESA	1.8 U	9.1	1.8	0.71	ng/l	

**FLUOROTELOMER CARBOXYLIC ACIDS**

356-02-5	3:3 Fluorotelomer carboxylate	9.1 U	23	9.1	4.1	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	110	18	7.9	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	18 U	110	18	7.1	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	115%		20-150%
	13C5-PFPeA	109%		20-150%
	13C5-PFHxA	109%		20-150%
	13C4-PFHpA	112%		20-150%
	13C8-PFOA	105%		20-150%
	13C9-PFNA	104%		20-150%
	13C6-PFDA	108%		20-150%
	13C7-PFUnDA	97%		20-150%
	13C2-PFDoDA	85%		20-150%
	13C2-PFTeDA	71%		20-150%
	13C3-PFBS	110%		20-150%
	13C3-PFHxS	108%		20-150%

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

4.2  
4

## Report of Analysis

Client Sample ID:	AF-RHMW10-WGN01LF-2304W2		Date Sampled:	04/11/23
Lab Sample ID:	FC5164-2		Date Received:	04/12/23
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	103%		20-150%
	13C8-FOSA	88%		20-150%
	d3-MeFOSA	90%		20-150%
	d5-EtFOSA	92%		20-150%
	d3-MeFOSAA	108%		20-150%
	d5-EtFOSAA	103%		20-150%
	d7-MeFOSE	73%		20-150%
	d9-EtFOSE	72%		20-150%
	13C2-4:2FTS	126%		20-150%
	13C2-6:2FTS	119%		20-150%
	13C2-8:2FTS	121%		20-150%
	13C3-HFPO-DA	112%		20-150%

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

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



**Misc. Forms**

**Custody Documents and Other Forms**

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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 Vinland Road, Suite C-15 Orlando, FL 32811  
TEL: 407-425-0700 FAX: 407-425-0707

# FC5164

COC #: 2304W2AFSG04

SGS - ORLANDO JOB # :

PAGE 1 OF 1

Client / Reporting Information			Project Information			SGS - ORLANDO Quote #	SKIFF #													
Company Name: AECOM			Project Name: N6274223F0104 RH Fire Suppression System																	
Address: 1001 Bishop St. ste 1600			Street																	
City: Honolulu State: HI Zip: 96813		City: Honolulu State: Hawaii																		
Project Contact: Katie Abbott Email: katie.abbott@aecom.com		Project # 60697810																		
Project Manager: Watson Tanji Email: watson.tanji@aecom.com		Fax #																		
Phone #: 303-796-4624 / 808-954-4512		Client Purchase Order #																		
Sampler(s) Name(s) (Printed) Sampler 1: <u>30766 VONA</u> Sampler 2:																				
SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NH3	HNO3	POSC4	NH4H2NAC	DI WATER	MECH	PFAS EPA Draft 1633	Matrix Codes			
1	AF-HDMW225303-WGN01LF-2304W2	4/11/23	09:55	JW	GW	3	X									X	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  <b>LAB USE ONLY</b>			
<div style="display: flex; justify-content: space-between;"> <div> <p><i>MD 4/11/23</i></p> <p>INITIAL ASSESSMENT <i>[Signature]</i></p> <p>LABEL VERIFICATION <i>[Signature]</i></p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>Turnaround Time ( Business days )</p> <p>10 Day (Business) Approved By: / Date: _____</p> <p>7 Day _____</p> <p><span style="border: 1px solid black; padding: 2px;">5 Day</span></p> <p>3 Day RUSH _____</p> <p>2 Day RUSH _____</p> <p>1 Day RUSH _____</p> <p>Other _____</p> <p><small>Rush T/A Data Available VIA Email or Lablink</small></p> </div> <div> <p>Data Deliverable Information</p> <p><input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY)</p> <p><input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC)</p> <p><input type="checkbox"/> REDT1 (EPA LEVEL 3)</p> <p><input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4)</p> <p><input checked="" type="checkbox"/> EDD'S</p> </div> <div> <p>Comments / Remarks</p> <p>EDMS upload database: JBPHE</p> <p>EDMS Coverage: AFFF Assessment Sampling GW</p> <p><i>United AWRB 016-25976333</i></p> </div> </div>																				
Relinquished by Sampler/Affiliation			Received By/Affiliation			Relinquished By/Affiliation			Received By/Affiliation			Date Time			Date Time			Date Time		
1 <i>[Signature] / AECOM</i>			4/11/23			2 <i>Miranda Decarmo / AECOM</i>			3 <i>Miranda Decarmo / AECOM</i>			4 <i>[Signature] / AECOM</i>			4/11/23			4 <i>[Signature] / AECOM</i>		
5			6			7			8			Date Time			Received By/Affiliation					
Lab Use Only : Cooler Temperature (s) Celsius (corrected):			3.9210												http://www.sgs.com/en/terms-and-conditions					

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## FC5164: Chain of Custody

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SGS North America Inc - Orlando  
Chain of Custody

4405 Vineland Road, Suite C-15 Orlando, FL 32811  
TEL: 407-425-6700 FAX: 407-423-0707  
www.sgs.com

FC5164

COC #: 2304W2AFSG03

SGS - ORLANDO JOB # :

PAGE 1 OF 1

Client / Reporting Information		Project Information				SGS - ORLANDO Quote #		SKIFF #											
Company Name: AECOM		Project Name: N6274223F0104 RH Fire Suppression System																	
Address: 1001 Bishop St. ste 1600		Street																	
City: Honolulu State: HI Zip: 96813		City: Honolulu State: Hawaii																	
Project Contact: Katie Abbott Email: katie.abbott@aecom.com		Project # 60697810																	
Project Manager: Watson Tanji Email: watson.tanji@aecom.com		Fax #																	
Phone #: 303-796-4624 / 808-954-4512		Client Purchase Order #																	
Sampler(s) Name(s) (Printed)																			
Sampler 1: <i>Jorge Velazquez</i> Sampler 2:																			
SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION			CONTAINER INFORMATION										PFAS EPA Draft 1633	LAB USE ONLY			
		DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NH <sub>4</sub>	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	H <sub>2</sub> O <sub>2</sub>	NH <sub>4</sub> OH			DI WATER	MEDI	
2	AF-RHMW10-WGN01LF-2304W2	4/11/23	1333	JV	GW	3		X											
Turnaround Time ( Business days)		Data Deliverable Information				Comments / Remarks													
10 Day (Business) Approved By: / Date:		<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY)				EDMS upload database: JBPHE													
7 Day		<input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC)				EDMS Coverage: AFFF Assessment Sampling GW													
5 Day <input type="checkbox"/>		<input type="checkbox"/> REDT1 (EPA LEVEL 3)				United AWB 016-25976333													
3 Day RUSH		<input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4)																	
2 Day RUSH		<input checked="" type="checkbox"/> EDD'S																	
1 Day RUSH																			
Other																			
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	Relinquished By/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation											
1 <i>Jorge Velazquez / AECOM</i>	4/11/23 1545	2 <i>Miranda Degarmo / AECOM</i>	3 <i>Miranda Degarmo / AECOM</i>	4/11/23 1550	4 <i>Jorge Velazquez / AECOM</i>	5 <i>Jorge Velazquez / AECOM</i>	4/12/23	6 <i>Jorge Velazquez / AECOM</i>											
Relinquished by/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation											
5		6	7		8														
Lab Use Only : Cooler Temperature (s) Celsius (corrected):								<a href="http://www.sgs.com/en/terms-and-conditions">http://www.sgs.com/en/terms-and-conditions</a>											

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FC5164: Chain of Custody

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## SGS Sample Receipt Summary

Job Number: FC5164

Client: AECOM

Project: N6274223F0104 RH Fire Suppression System

Date / Time Received: 4/12/2023 3:00:00 PM

Delivery Method: United Cargo/Airspace

Airbill #s: United Cargo AWB #: 016-25976333

Therm ID: IR 1;

Therm CF: -0.1;

# of Coolers: 1

Cooler Temps (Raw Measured) °C: Cooler 1: (3.8);

Cooler Temps (Corrected) °C: Cooler 1: (3.7);

**Cooler Information**

Y or N

- 1. Custody Seals Present
- 2. Custody Seals Intact
- 3. Temp criteria achieved
- 4. Cooler temp verification IR Gun
- 5. Cooler media Ice (Bag)

**Trip Blank Information**

Y or N N/A

- 1. Trip Blank present / cooler
  - 2. Trip Blank listed on COC
- W or S N/A
- 3. Type Of TB Received

**Sample Information**

Y or N N/A

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

**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: ZANEB

Date: 4/12/2023 3:00:00 PM

Reviewer: CD

Date: 4/17/2023

**FC5164: Chain of Custody**

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# QC Evaluation: DOD QSM5.x Limits

**Job Number:** FC5164  
**Account:** AECOM, INC.  
**Project:** N6274223F0104 RH Fire Suppression System  
**Collected:** 04/11/23

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 FC5164

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

**Instrument Blank**

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q624-IBLK	4Q43148.D	1	04/18/23	MV	n/a	n/a	S4Q624

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5164-1, FC5164-2

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	

# Instrument Blank

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q624-IBLK	4Q43148.D	1	04/18/23	MV	n/a	n/a	S4Q624

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5164-1, FC5164-2

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	103% 20-150%
	13C5-PFPeA	98% 20-150%
	13C5-PFHxA	102% 20-150%
	13C4-PFHpA	104% 20-150%
	13C8-PFOA	101% 20-150%
	13C9-PFNA	98% 20-150%
	13C6-PFDA	103% 20-150%
	13C7-PFUnDA	101% 20-150%
	13C2-PFDoDA	98% 20-150%
	13C2-PFTeDA	91% 20-150%
	13C3-PFBS	104% 20-150%
	13C3-PFHxS	110% 20-150%
	13C8-PFOS	96% 20-150%
	13C8-FOSA	85% 20-150%
	d3-MeFOSA	97% 20-150%
	d5-EtFOSA	102% 20-150%
	d3-MeFOSAA	107% 20-150%
	d5-EtFOSAA	108% 20-150%
	d7-MeFOSE	80% 20-150%
	d9-EtFOSE	81% 20-150%
	13C2-4:2FTS	122% 20-150%
	13C2-6:2FTS	119% 20-150%
	13C2-8:2FTS	119% 20-150%
	13C3-HFPO-DA	103% 20-150%



## Method Blank Summary

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96403-MB	4Q43156.D	1	04/18/23	MV	04/14/23	OP96403	S4Q624

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5164-1, FC5164-2

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	0.00056	0.0050	0.00050	ug/l	J
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: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96403-MB	4Q43156.D	1	04/18/23	MV	04/14/23	OP96403	S4Q624

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5164-1, FC5164-2

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	109% 20-150%
	13C5-PFPeA	105% 20-150%
	13C5-PFHxA	106% 20-150%
	13C4-PFHpA	108% 20-150%
	13C8-PFOA	104% 20-150%
	13C9-PFNA	108% 20-150%
	13C6-PFDA	106% 20-150%
	13C7-PFUnDA	92% 20-150%
	13C2-PFDoDA	83% 20-150%
	13C2-PFTeDA	68% 20-150%
	13C3-PFBS	105% 20-150%
	13C3-PFHxS	107% 20-150%
	13C8-PFOS	103% 20-150%
	13C8-FOSA	77% 20-150%
	d3-MeFOSA	84% 20-150%
	d5-EtFOSA	80% 20-150%
	d3-MeFOSAA	108% 20-150%
	d5-EtFOSAA	98% 20-150%
	d7-MeFOSE	67% 20-150%
	d9-EtFOSE	66% 20-150%
	13C2-4:2FTS	129% 20-150%
	13C2-6:2FTS	124% 20-150%
	13C2-8:2FTS	108% 20-150%
	13C3-HFPO-DA	105% 20-150%

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## Continuing Calibration Blank

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q624-ICCB	4Q43162.D	1	04/18/23	MV	n/a	n/a	S4Q624

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

OP96403-DUP

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

# Continuing Calibration Blank

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q624-ICCB	4Q43162.D	1	04/18/23	MV	n/a	n/a	S4Q624

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

OP96403-DUP

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	103% 20-150%
	13C5-PFPeA	103% 20-150%
	13C5-PFHxA	101% 20-150%
	13C4-PFHpA	106% 20-150%
	13C8-PFOA	99% 20-150%
	13C9-PFNA	101% 20-150%
	13C6-PFDA	102% 20-150%
	13C7-PFUnDA	101% 20-150%
	13C2-PFDoDA	98% 20-150%
	13C2-PFTeDA	88% 20-150%
	13C3-PFBS	103% 20-150%
	13C3-PFHxS	103% 20-150%
	13C8-PFOS	100% 20-150%
	13C8-FOSA	86% 20-150%
	d3-MeFOSAA	111% 20-150%
	d5-EtFOSAA	111% 20-150%
	13C2-4:2FTS	123% 20-150%
	13C2-6:2FTS	116% 20-150%
	13C2-8:2FTS	117% 20-150%

6.1.3

6

**Blank Spike Summary**

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96403-LLBS	4Q43155.D	1	04/18/23	MV	04/14/23	OP96403	S4Q624

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5164-1, FC5164-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.03	0.0322	107	40-150
2706-90-3	Perfluoropentanoic acid	0.015	0.0184	123	40-150
307-24-4	Perfluorohexanoic acid	0.0075	0.0137	183*	40-150
375-85-9	Perfluoroheptanoic acid	0.0075	0.0115	153*	40-150
335-67-1	Perfluorooctanoic acid	0.0075	0.0145	193*	40-150
375-95-1	Perfluorononanoic acid	0.0075	0.0078	104	40-150
335-76-2	Perfluorodecanoic acid	0.0075	0.0080	107	40-150
2058-94-8	Perfluoroundecanoic acid	0.0075	0.0086	115	40-150
307-55-1	Perfluorododecanoic acid	0.0075	0.0074	99	40-150
72629-94-8	Perfluorotridecanoic acid	0.0075	0.0069	92	40-150
376-06-7	Perfluorotetradecanoic acid	0.0075	0.0079	105	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00665	0.0076	114	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00706	0.0091	129	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00686	0.0154	225*	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00715	0.0089	125	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00696	0.0099	142	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00722	0.0081	112	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00724	0.0066	91	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.00728	0.0065	89	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0281	0.0324	115	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.0285	0.0294	103	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0288	0.0353	123	40-150
754-91-6	PFOSA	0.0075	0.0079	105	40-150
31506-32-8	MeFOSA	0.015	0.0151	101	40-150
4151-50-2	EtFOSA	0.015	0.0150	100	40-150
2355-31-9	MeFOSAA	0.0075	0.0069	92	40-150
2991-50-6	EtFOSAA	0.0075	0.0085	113	40-150
24448-09-7	MeFOSE	0.0375	0.0380	101	40-150
1691-99-2	EtFOSE	0.0375	0.0421	112	40-150
13252-13-6	HFPO-DA (GenX)	0.015	0.0159	106	40-150
919005-14-4	ADONA	0.0142	0.0156	110	40-150
377-73-1	PFMPA	0.015	0.0164	109	40-150
863090-89-5	PFMBA	0.015	0.0162	108	40-150
151772-58-6	NFDHA	0.015	0.0167	111	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.014	0.0146	104	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0142	0.0143	101	40-150

\* = Outside of Control Limits.

# Blank Spike Summary

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96403-LLBS	4Q43155.D	1	04/18/23	MV	04/14/23	OP96403	S4Q624

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5164-1, FC5164-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0134	0.0140	105	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.0375	0.0361	96	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.188	0.200	107	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.188	0.193	103	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	124%	20-150%
	13C5-PFPeA	121%	20-150%
	13C5-PFHxA	122%	20-150%
	13C4-PFHpA	125%	20-150%
	13C8-PFOA	112%	20-150%
	13C9-PFNA	113%	20-150%
	13C6-PFDA	111%	20-150%
	13C7-PFUnDA	106%	20-150%
	13C2-PFDoDA	96%	20-150%
	13C2-PFTeDA	77%	20-150%
	13C3-PFBS	112%	20-150%
	13C3-PFHxS	116%	20-150%
	13C8-PFOS	116%	20-150%
	13C8-FOSA	89%	20-150%
	d3-MeFOSA	99%	20-150%
	d5-EtFOSA	99%	20-150%
	d3-MeFOSAA	112%	20-150%
	d5-EtFOSAA	115%	20-150%
	d7-MeFOSE	80%	20-150%
	d9-EtFOSE	79%	20-150%
	13C2-4:2FTS	129%	20-150%
	13C2-6:2FTS	131%	20-150%
	13C2-8:2FTS	111%	20-150%
	13C3-HFPO-DA	120%	20-150%

\* = Outside of Control Limits.

**Blank Spike Summary**

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96403-BS	4Q43154.D	1	04/18/23	MV	04/14/23	OP96403	S4Q624

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5164-1, FC5164-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.106	106	40-150
2706-90-3	Perfluoropentanoic acid	0.05	0.0589	118	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0271	108	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0279	112	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0281	112	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0278	111	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0271	108	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0266	106	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0272	109	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0256	102	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0276	110	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0239	108	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0285	121	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0258	113	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0312	131	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0305	131	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0293	122	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0300	124	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0271	112	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0938	0.112	119	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.105	111	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.111	116	40-150
754-91-6	PFOSA	0.025	0.0293	117	40-150
31506-32-8	MeFOSA	0.05	0.0540	108	40-150
4151-50-2	EtFOSA	0.05	0.0530	106	40-150
2355-31-9	MeFOSAA	0.025	0.0260	104	40-150
2991-50-6	EtFOSAA	0.025	0.0286	114	40-150
24448-09-7	MeFOSE	0.125	0.141	113	40-150
1691-99-2	EtFOSE	0.125	0.138	110	40-150
13252-13-6	HFPO-DA (GenX)	0.05	0.0598	120	40-150
919005-14-4	ADONA	0.0473	0.0579	123	40-150
377-73-1	PFMPA	0.05	0.0580	116	40-150
863090-89-5	PFMBA	0.05	0.0586	117	40-150
151772-58-6	NFDHA	0.05	0.0569	114	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0468	0.0535	114	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0473	0.0553	117	40-150

\* = Outside of Control Limits.

# Blank Spike Summary

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96403-BS	4Q43154.D	1	04/18/23	MV	04/14/23	OP96403	S4Q624

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5164-1, FC5164-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0491	110	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.136	109	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.625	0.698	112	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.688	110	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	110%	20-150%
	13C5-PFPeA	104%	20-150%
	13C5-PFHxA	109%	20-150%
	13C4-PFHpA	109%	20-150%
	13C8-PFOA	103%	20-150%
	13C9-PFNA	104%	20-150%
	13C6-PFDA	107%	20-150%
	13C7-PFUnDA	103%	20-150%
	13C2-PFDoDA	97%	20-150%
	13C2-PFTeDA	79%	20-150%
	13C3-PFBS	107%	20-150%
	13C3-PFHxS	103%	20-150%
	13C8-PFOS	90%	20-150%
	13C8-FOSA	81%	20-150%
	d3-MeFOSA	89%	20-150%
	d5-EtFOSA	88%	20-150%
	d3-MeFOSAA	106%	20-150%
	d5-EtFOSAA	105%	20-150%
	d7-MeFOSE	73%	20-150%
	d9-EtFOSE	74%	20-150%
	13C2-4:2FTS	108%	20-150%
	13C2-6:2FTS	122%	20-150%
	13C2-8:2FTS	110%	20-150%
	13C3-HFPO-DA	105%	20-150%

\* = Outside of Control Limits.



## Matrix Spike Summary

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96403-MS	4Q43160.D	1	04/18/23	MV	04/14/23	OP96403	S4Q624
FC5194-1	4Q43159.D	1	04/18/23	MV	04/14/23	OP96403	S4Q624

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5164-1, FC5164-2

CAS No.	Compound	FC5194-1 ug/l	Spike Q	MS ug/l	MS %	Limits
375-22-4	Perfluorobutanoic acid	0.020 U	0.098	0.109	111	40-150
2706-90-3	Perfluoropentanoic acid	0.0098 U	0.049	0.0595	121	40-150
307-24-4	Perfluorohexanoic acid	0.0049 U	0.0245	0.0297	121	40-150
375-85-9	Perfluoroheptanoic acid	0.0049 U	0.0245	0.0295	120	40-150
335-67-1	Perfluorooctanoic acid	0.0049 U	0.0245	0.0267	109	40-150
375-95-1	Perfluorononanoic acid	0.0049 U	0.0245	0.0286	117	40-150
335-76-2	Perfluorodecanoic acid	0.0049 U	0.0245	0.0282	115	40-150
2058-94-8	Perfluoroundecanoic acid	0.0049 U	0.0245	0.0281	115	40-150
307-55-1	Perfluorododecanoic acid	0.0049 U	0.0245	0.0292	119	40-150
72629-94-8	Perfluorotridecanoic acid	0.0049 U	0.0245	0.0272	111	40-150
376-06-7	Perfluorotetradecanoic acid	0.0049 U	0.0245	0.0276	113	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0049 U	0.0217	0.0269	124	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0049 U	0.0231	0.0305	132	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0049 U	0.0224	0.0258	115	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0049 U	0.0234	0.0288	123	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0049 U	0.0227	0.0262	115	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0049 U	0.0236	0.0261	111	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0049 U	0.0237	0.0242	102	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0049 U	0.0238	0.0241	101	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.020 U	0.0919	0.113	123	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.020 U	0.0931	0.108	116	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.020 U	0.0941	0.116	123	40-150
754-91-6	PFOSA	0.0049 U	0.0245	0.0288	118	40-150
31506-32-8	MeFOSA	0.0049 U	0.049	0.0557	114	40-150
4151-50-2	EtFOSA	0.0049 U	0.049	0.0556	113	40-150
2355-31-9	MeFOSAA	0.0049 U	0.0245	0.0268	109	40-150
2991-50-6	EtFOSAA	0.0049 U	0.0245	0.0292	119	40-150
24448-09-7	MeFOSE	0.049 U	0.123	0.144	118	40-150
1691-99-2	EtFOSE	0.049 U	0.123	0.140	114	40-150
13252-13-6	HFPO-DA (GenX)	0.020 U	0.049	0.0583	119	40-150
919005-14-4	ADONA	0.020 U	0.0463	0.0586	127	40-150
377-73-1	PFMPA	0.0098 U	0.049	0.0585	119	40-150
863090-89-5	PFMBA	0.0098 U	0.049	0.0579	118	40-150
151772-58-6	NFDHA	0.0098 U	0.049	0.0645	132	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.020 U	0.0458	0.0506	110	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.020 U	0.0463	0.0516	111	40-150

\* = Outside of Control Limits.

# Matrix Spike Summary

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96403-MS	4Q43160.D	1	04/18/23	MV	04/14/23	OP96403	S4Q624
FC5194-1	4Q43159.D	1	04/18/23	MV	04/14/23	OP96403	S4Q624

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5164-1, FC5164-2

CAS No.	Compound	FC5194-1 ug/l	Spike Q	MS ug/l	MS %	Limits
113507-82-7	PFEESA	0.0098 U	0.0436	0.0527	121	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.025 U	0.123	0.135	110	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.12 U	0.613	0.741	121	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.12 U	0.613	0.723	118	40-150

CAS No.	ID Standard Recoveries	MS	FC5194-1	Limits
	13C4-PFBA	110%	115%	20-150%
	13C5-PFPeA	106%	113%	20-150%
	13C5-PFHxA	104%	111%	20-150%
	13C4-PFHpA	108%	115%	20-150%
	13C8-PFOA	109%	111%	20-150%
	13C9-PFNA	94%	103%	20-150%
	13C6-PFDA	110%	109%	20-150%
	13C7-PFUnDA	98%	97%	20-150%
	13C2-PFDoDA	91%	87%	20-150%
	13C2-PFTeDA	80%	72%	20-150%
	13C3-PFBS	102%	111%	20-150%
	13C3-PFHxS	103%	109%	20-150%
	13C8-PFOS	102%	99%	20-150%
	13C8-FOSA	86%	87%	20-150%
	d3-MeFOSA	91%	90%	20-150%
	d5-EtFOSA	94%	87%	20-150%
	d3-MeFOSAA	102%	98%	20-150%
	d5-EtFOSAA	102%	106%	20-150%
	d7-MeFOSE	73%	71%	20-150%
	d9-EtFOSE	73%	69%	20-150%
	13C2-4:2FTS	117%	131%	20-150%
	13C2-6:2FTS	124%	136%	20-150%
	13C2-8:2FTS	116%	113%	20-150%
	13C3-HFPO-DA	105%	115%	20-150%

\* = Outside of Control Limits.

## Duplicate Summary

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96403-DUP	4Q43164.D	1	04/18/23	MV	04/14/23	OP96403	S4Q624
FC5194-2 <sup>a</sup>	4Q43163.D	1	04/18/23	MV	04/14/23	OP96403	S4Q624

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5164-1, FC5164-2

CAS No.	Compound	FC5194-2 ug/l	DUP Q ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.018 U	ND		nc	30
2706-90-3	Perfluoropentanoic acid	0.0089 U	ND		nc	30
307-24-4	Perfluorohexanoic acid	0.00046 J	0.00052 J		12	30
375-85-9	Perfluoroheptanoic acid	0.0045 U	ND		nc	30
335-67-1	Perfluorooctanoic acid	0.0045 U	ND		nc	30
375-95-1	Perfluorononanoic acid	0.0045 U	ND		nc	30
335-76-2	Perfluorodecanoic acid	0.0045 U	ND		nc	30
2058-94-8	Perfluoroundecanoic acid	0.0045 U	ND		nc	30
307-55-1	Perfluorododecanoic acid	0.0045 U	ND		nc	30
72629-94-8	Perfluorotridecanoic acid	0.0045 U	ND		nc	30
376-06-7	Perfluorotetradecanoic acid	0.0045 U	ND		nc	30
375-73-5	Perfluorobutanesulfonic acid	0.0045 U	ND		nc	30
2706-91-4	Perfluoropentanesulfonic acid	0.0045 U	ND		nc	30
355-46-4	Perfluorohexanesulfonic acid	0.0045 U	ND		nc	30
375-92-8	Perfluoroheptanesulfonic acid	0.0045 U	ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	0.0045 U	ND		nc	30
68259-12-1	Perfluorononanesulfonic acid	0.0045 U	ND		nc	30
335-77-3	Perfluorodecanesulfonic acid	0.0045 U	ND		nc	30
79780-39-5	Perfluorododecanesulfonic aci	0.0045 U	ND		nc	30
757124-72-44:2	Fluorotelomer sulfonate	0.018 U	ND		nc	30
27619-97-2	6:2 Fluorotelomer sulfonate	0.018 U	ND		nc	30
39108-34-4	8:2 Fluorotelomer sulfonate	0.018 U	ND		nc	30
754-91-6	PFOSA	0.0045 U	ND		nc	30
31506-32-8	MeFOSA	0.0045 U	ND		nc	30
4151-50-2	EtFOSA	0.0045 U	ND		nc	30
2355-31-9	MeFOSAA	0.0045 U	ND		nc	30
2991-50-6	EtFOSAA	0.0045 U	ND		nc	30
24448-09-7	MeFOSE	0.045 U	ND		nc	30
1691-99-2	EtFOSE	0.045 U	ND		nc	30
13252-13-6	HFPO-DA (GenX)	0.018 U	ND		nc	30
919005-14-4	ADONA	0.018 U	ND		nc	30
377-73-1	PFMPA	0.0089 U	ND		nc	30
863090-89-5	PFMBA	0.0089 U	ND		nc	30
151772-58-6	NFDHA	0.0089 U	ND		nc	30
756426-58-19	Cl-PF3ONS (F-53B Major)	0.018 U	ND		nc	30
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.018 U	ND		nc	30

\* = Outside of Control Limits.

# Duplicate Summary

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96403-DUP	4Q43164.D	1	04/18/23	MV	04/14/23	OP96403	S4Q624
FC5194-2 <sup>a</sup>	4Q43163.D	1	04/18/23	MV	04/14/23	OP96403	S4Q624

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5164-1, FC5164-2

CAS No.	Compound	FC5194-2 ug/l	DUP Q	ug/l	Q	RPD	Limits
113507-82-7	PFEESA	0.0089	U	ND		nc	30
356-02-5	3:3 Fluorotelomer carboxylate	0.022	U	ND		nc	30
914637-49-35:3	Fluorotelomer carboxylate	0.11	U	ND		nc	30
812-70-4	7:3 Fluorotelomer carboxylate	0.11	U	ND		nc	30

CAS No.	ID Standard Recoveries	DUP	FC5194-2	Limits
	13C4-PFBA	88%	95%	20-150%
	13C5-PFPeA	85%	89%	20-150%
	13C5-PFHxA	111%	120%	20-150%
	13C4-PFHpA	119%	128%	20-150%
	13C8-PFOA	107%	120%	20-150%
	13C9-PFNA	104%	119%	20-150%
	13C6-PFDA	103%	127%	20-150%
	13C7-PFUnDA	104%	120%	20-150%
	13C2-PFDoDA	93%	108%	20-150%
	13C2-PFTeDA	74%	88%	20-150%
	13C3-PFBS	110%	112%	20-150%
	13C3-PFHxS	114%	117%	20-150%
	13C8-PFOS	107%	117%	20-150%
	13C8-FOSA	89%	94%	20-150%
	d3-MeFOSA	95%	99%	20-150%
	d5-EtFOSA	93%	99%	20-150%
	d3-MeFOSAA	104%	108%	20-150%
	d5-EtFOSAA	109%	111%	20-150%
	d7-MeFOSE	73%	76%	20-150%
	d9-EtFOSE	70%	75%	20-150%
	13C2-4:2FTS	119%	156%*	20-150%
	13C2-6:2FTS	113%	110%	20-150%
	13C2-8:2FTS	108%	100%	20-150%
	13C3-HFPO-DA	95%	100%	20-150%

(a) Insufficient sample for re-extraction.

\* = Outside of Control Limits.

# Injection Standard Area Summary

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q624-CC621	Injection Date:	04/18/23
Lab File ID:	4Q43149.D	Injection Time:	11:26
Instrument ID:	GCMS4Q	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>	67344	3.02	52056	5.66	44133	7.25	22333	7.81	17813	8.32
Check Std <sup>c</sup>	73315	2.97	51832	5.62	45562	7.21	23741	7.76	18679	8.27
Upper Limit <sup>d</sup>	134688	3.37	104112	6.02	88266	7.61	44666	8.16	35626	8.67
Lower Limit <sup>e</sup>	20203	2.57	15617	5.22	13240	6.81	6700	7.36	5344	7.87

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>
ZZZZZZ	29429	2.93	43784	5.62	37726	7.21	17223	7.76	15225	8.25	1
ZZZZZZ	61680	2.99	48980	5.62	41040	7.21	16350	7.76	15620	8.27	10
ZZZZZZ	54370	2.99	38475	5.62	33335	7.21	15400	7.76	11225	8.27	5
OP96403-BS	60071	3.00	41068	5.63	36330	7.21	17955	7.76	14000	8.27	1
OP96403-LLBS	57388	3.08	36717	5.65	33259	7.23	16782	7.77	13310	8.27	1
OP96403-MB	61368	3.00	40808	5.62	36064	7.21	17607	7.76	14626	8.27	1
FC5164-1	58851	3.00	39279	5.62	34778	7.21	17289	7.76	12876	8.27	1
FC5164-2	57655	3.00	37678	5.62	33874	7.21	17154	7.76	12995	8.27	1
FC5194-1	58532	3.00	37514	5.62	33909	7.21	17093	7.76	13396	8.27	1
OP96403-MS	56698	3.00	37805	5.62	33659	7.21	17409	7.76	12396	8.25	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: S4Q621-ICC621 4Q42939.D 04/14/23 12:41. 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: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q624-CC621	Injection Date:	04/18/23
Lab File ID:	4Q43149.D	Injection Time:	11:26
Instrument ID:	GCMS4Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal <sup>b</sup>	5630	7.35	11686	8.47
Check Std <sup>c</sup>	5988	7.32	12080	8.42
Upper Limit <sup>d</sup>	11260	7.72	23372	8.82
Lower Limit <sup>e</sup>	1689	6.92	3506	8.02

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF <sup>a</sup>
ZZZZZZ	4743	7.32	9204	8.41	1
ZZZZZZ	4360	7.30	10320	8.43	10
ZZZZZZ	3660	7.32	9965	8.42	5
OP96403-BS	4584	7.32	9488	8.42	1
OP96403-LLBS	4273	7.33	8468	8.43	1
OP96403-MB	4392	7.32	9384	8.42	1
FC5164-1	4297	7.32	9159	8.42	1
FC5164-2	4190	7.32	8820	8.42	1
FC5194-1	4166	7.32	9411	8.43	1
OP96403-MS	4095	7.32	8664	8.40	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S4Q621-ICC621 4Q42939.D 04/14/23 12:41. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

# Injection Standard Area Summary

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q624-CC621	Injection Date:	04/18/23
Lab File ID:	4Q43161.D	Injection Time:	14:29
Instrument ID:	GCMS4Q	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>	67344	3.02	52056	5.66	44133	7.25	22333	7.81	17813	8.32
Check Std <sup>c</sup>	79564	3.07	53192	5.65	46011	7.21	23837	7.77	17318	8.27
Upper Limit <sup>d</sup>	134688	3.47	104112	6.05	88266	7.61	44666	8.17	35626	8.67
Lower Limit <sup>e</sup>	20203	2.67	15617	5.25	13240	6.81	6700	7.37	5344	7.87

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>
S4Q624-ICCB	85940	2.97	59268	5.62	52922	7.21	27538	7.76	20294	8.27	1
FC5194-2	36316	2.99	36225	5.62	31137	7.21	15314	7.76	11882	8.27	1
OP96403-DUP	37761	2.99	37445	5.62	33249	7.21	16882	7.76	13541	8.27	1
ZZZZZZ	55756	2.99	37963	5.63	34325	7.21	17758	7.76	13843	8.27	1
FC5088-3	58365	3.00	39022	5.63	34300	7.21	17578	7.76	13865	8.27	1
OP96427-BS	54970	2.99	37325	5.63	33625	7.21	16477	7.77	13102	8.27	1
OP96427-LLBS	59288	2.99	38118	5.63	35752	7.21	17857	7.77	14225	8.28	1
OP96427-MB	54181	2.99	35889	5.63	32066	7.21	16470	7.77	12627	8.28	1
ZZZZZZ	54671	3.00	34992	5.63	32577	7.21	15911	7.77	12497	8.28	1
FC5252-2	55919	3.00	36999	5.63	33529	7.21	16520	7.77	12499	8.28	1
OP96427-MS	53038	3.00	34835	5.63	31292	7.21	15481	7.77	12270	8.28	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: S4Q621-ICC621 4Q42939.D 04/14/23 12:41. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

# Injection Standard Area Summary

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q624-CC621	Injection Date:	04/18/23
Lab File ID:	4Q43161.D	Injection Time:	14:29
Instrument ID:	GCMS4Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal <sup>b</sup>	5630	7.35	11686	8.47
Check Std <sup>c</sup>	5651	7.33	12210	8.43
Upper Limit <sup>d</sup>	11260	7.73	23372	8.83
Lower Limit <sup>e</sup>	1689	6.93	3506	8.03

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF <sup>a</sup>
S4Q624-ICCB	6417	7.32	13327	8.42	1
FC5194-2	3991	7.32	8072	8.43	1
OP96403-DUP	4033	7.32	8733	8.42	1
ZZZZZZ	4244	7.32	9087	8.43	1
FC5088-3	4476	7.32	7256	8.40	1
OP96427-BS	4401	7.32	8308	8.43	1
OP96427-LLBS	4376	7.32	8997	8.43	1
OP96427-MB	3878	7.32	8658	8.43	1
ZZZZZZ	4122	7.32	8548	8.43	1
FC5252-2	3994	7.32	8877	8.43	1
OP96427-MS	3800	7.32	7841	8.43	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S4Q621-ICC621 4Q42939.D 04/14/23 12:41. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

6.5.2  
6



# TDCA Retention Time Check

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q621-RT	Injection Date:	04/14/23
Lab File ID:	4Q42933.D	Injection Time:	11:07
Instrument ID:	GCMS4Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.456	--	--
TDCA	6.947	1.509	1.000
TCDCA	6.798	1.658	1.000
TUDCA	5.966	2.490	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
S4Q621-IC621	4Q42935.D	04/14/23	11:35	00:28	Mass Calibration Verification
S4Q621-IC621	4Q42936.D	04/14/23	11:49	00:42	Initial cal 1
S4Q621-IC621	4Q42937.D	04/14/23	12:04	00:57	Initial cal 2
S4Q621-IC621	4Q42938.D	04/14/23	12:27	01:20	Initial cal 3
S4Q621-ICC621	4Q42939.D	04/14/23	12:41	01:34	Initial cal 4
S4Q621-IC621	4Q42940.D	04/14/23	12:55	01:48	Initial cal 5
S4Q621-IC621	4Q42941.D	04/14/23	13:09	02:02	Initial cal 6
S4Q621-IC621	4Q42942.D	04/14/23	13:23	02:16	Initial cal 7
S4Q621-IC621	4Q42943.D	04/14/23	13:37	02:30	Initial cal 8
S4Q621-IBLK	4Q42944.D	04/14/23	13:51	02:44	Instrument Blank
S4Q621-IBLK	4Q42944.D	04/14/23	13:51	02:44	Instrument Blank
S4Q621-ICV621	4Q42945.D	04/14/23	14:05	02:58	Initial cal verification 4
S4Q621-ICV621	4Q42946.D	04/14/23	14:19	03:12	Initial cal verification 20
S4Q621-CC621	4Q42947.D	04/14/23	14:57	03:50	Continuing cal 4
S4Q621-CC621	4Q42948.D	04/14/23	15:11	04:04	Continuing cal 1.0LL
S4Q621-CC621	4Q42954.D	04/14/23	16:36	05:29	Continuing cal 4
S4Q621-ICCB	4Q42955.D	04/14/23	16:50	05:43	Continuing Calibration Blank
S4Q621-CC621	4Q42966.D	04/14/23	19:24	08:17	Continuing cal 4
S4Q621-ICCB	4Q42967.D	04/14/23	19:38	08:31	Continuing Calibration Blank
S4Q621-CC621	4Q42978.D	04/14/23	22:13	11:06	Continuing cal 4
S4Q621-CC621	4Q42979.D	04/14/23	22:27	11:20	Continuing cal 1.0LL
S4Q621-ICCB	4Q42980.D	04/14/23	22:41	11:34	Continuing Calibration Blank
OP96297-BS	4Q42984.D	04/14/23	23:37	12:30	Blank Spike
OP96297-LLBS	4Q42985.D	04/14/23	23:52	12:45	Blank Spike
OP96297-MB	4Q42986.D	04/15/23	00:06	12:59	Method Blank
ZZZZZZ	4Q42987.D	04/15/23	00:20	13:13	(unrelated sample)
ZZZZZZ	4Q42988.D	04/15/23	00:34	13:27	(unrelated sample)
ZZZZZZ	4Q42989.D	04/15/23	00:48	13:41	(unrelated sample)
ZZZZZZ	4Q42990.D	04/15/23	01:02	13:55	(unrelated sample)
S4Q621-CC621	4Q42991.D	04/15/23	01:16	14:09	Continuing cal 4
S4Q621-ICCB	4Q42992.D	04/15/23	01:30	14:23	Continuing Calibration Blank
FC3790-5	4Q42993.D	04/15/23	01:44	14:37	(used for QC only; not part of job FC5164)
OP96297-MS	4Q42994.D	04/15/23	01:58	14:51	Matrix Spike
OP96297-MSD	4Q42995.D	04/15/23	02:12	15:05	Matrix Spike Duplicate

# TDCA Retention Time Check

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q621-RT	Injection Date:	04/14/23
Lab File ID:	4Q42933.D	Injection Time:	11:07
Instrument ID:	GCMS4Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
FC3757-19	4Q42998.D	04/15/23	02:54	15:47	(used for QC only; not part of job FC5164)
OP96301-DUP	4Q42999.D	04/15/23	03:08	16:01	Duplicate
ZZZZZZ	4Q43000.D	04/15/23	03:22	16:15	(unrelated sample)
ZZZZZZ	4Q43001.D	04/15/23	03:36	16:29	(unrelated sample)
S4Q621-ECC621	4Q43002.D	04/15/23	03:50	16:43	Ending cal 4
S4Q621-ICCB	4Q43003.D	04/15/23	04:04	16:57	Continuing Calibration Blank

6.6.1

6

## TDCA Retention Time Check

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q624-RT	Injection Date:	04/18/23
Lab File ID:	4Q43145.D	Injection Time:	10:28
Instrument ID:	GCMS4Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.431	--	--
TDCA	6.935	1.496	1.000
TCDCA	6.786	1.645	1.000
TUDCA	5.954	2.477	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
S4Q624-IBLK	4Q43148.D	04/18/23	11:12	00:44	Instrument Blank
S4Q624-IBLK	4Q43148.D	04/18/23	11:12	00:44	Instrument Blank
S4Q624-CC621	4Q43149.D	04/18/23	11:26	00:58	Continuing cal 4
S4Q624-CC621	4Q43150.D	04/18/23	11:40	01:12	Continuing cal 1.0LL
ZZZZZ	4Q43151.D	04/18/23	11:54	01:26	(unrelated sample)
ZZZZZ	4Q43152.D	04/18/23	12:08	01:40	(unrelated sample)
ZZZZZ	4Q43153.D	04/18/23	12:22	01:54	(unrelated sample)
OP96403-BS	4Q43154.D	04/18/23	12:36	02:08	Blank Spike
OP96403-LLBS	4Q43155.D	04/18/23	12:54	02:26	Blank Spike
OP96403-MB	4Q43156.D	04/18/23	13:08	02:40	Method Blank
FC5164-1	4Q43157.D	04/18/23	13:22	02:54	AF-HDMW225303-WGN01LF-2304W2
FC5164-2	4Q43158.D	04/18/23	13:36	03:08	AF-RHMW10-WGN01LF-2304W2
FC5194-1	4Q43159.D	04/18/23	13:50	03:22	(used for QC only; not part of job FC5164)
OP96403-MS	4Q43160.D	04/18/23	14:04	03:36	Matrix Spike
S4Q624-CC621	4Q43161.D	04/18/23	14:29	04:01	Continuing cal 4
S4Q624-ICCB	4Q43162.D	04/18/23	14:43	04:15	Continuing Calibration Blank
FC5194-2	4Q43163.D	04/18/23	14:57	04:29	(used for QC only; not part of job FC5164)
OP96403-DUP	4Q43164.D	04/18/23	15:11	04:43	Duplicate
ZZZZZ	4Q43165.D	04/18/23	15:25	04:57	(unrelated sample)
FC5088-3	4Q43166.D	04/18/23	15:39	05:11	(used for QC only; not part of job FC5164)
OP96427-BS	4Q43167.D	04/18/23	15:53	05:25	Blank Spike
OP96427-LLBS	4Q43168.D	04/18/23	16:07	05:39	Blank Spike
OP96427-MB	4Q43169.D	04/18/23	16:21	05:53	Method Blank
ZZZZZ	4Q43170.D	04/18/23	16:35	06:07	(unrelated sample)
FC5252-2	4Q43171.D	04/18/23	16:49	06:21	(used for QC only; not part of job FC5164)
OP96427-MS	4Q43172.D	04/18/23	17:03	06:35	Matrix Spike
S4Q624-CC621	4Q43173.D	04/18/23	17:17	06:49	Continuing cal 4
S4Q624-ICCB	4Q43174.D	04/18/23	17:32	07:04	Continuing Calibration Blank
FC5252-3	4Q43175.D	04/18/23	17:46	07:18	(used for QC only; not part of job FC5164)
OP96427-DUP	4Q43176.D	04/18/23	18:00	07:32	Duplicate
ZZZZZ	4Q43177.D	04/18/23	18:14	07:46	(unrelated sample)
ZZZZZ	4Q43178.D	04/18/23	18:28	08:00	(unrelated sample)
OP96386-BS	4Q43179.D	04/18/23	18:42	08:14	Blank Spike
OP96386-LLBS	4Q43180.D	04/18/23	18:56	08:28	Blank Spike

# TDCA Retention Time Check

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q624-RT	Injection Date:	04/18/23
Lab File ID:	4Q43145.D	Injection Time:	10:28
Instrument ID:	GCMS4Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
OP96386-MB	4Q43181.D	04/18/23	19:10	08:42	Method Blank
ZZZZZZ	4Q43182.D	04/18/23	19:24	08:56	(unrelated sample)
ZZZZZZ	4Q43183.D	04/18/23	19:38	09:10	(unrelated sample)
S4Q624-CC621	4Q43184.D	04/18/23	19:52	09:24	Continuing cal 4
S4Q624-CC621	4Q43185.D	04/18/23	20:06	09:38	Continuing cal 1.0LL
S4Q624-ICCB	4Q43186.D	04/18/23	20:20	09:52	Continuing Calibration Blank
JD63151-3	4Q43187.D	04/18/23	20:34	10:06	(used for QC only; not part of job FC5164)
OP96386-MS	4Q43188.D	04/18/23	20:48	10:20	Matrix Spike
JD63151-4	4Q43189.D	04/18/23	21:02	10:34	(used for QC only; not part of job FC5164)
OP96386-DUP	4Q43190.D	04/18/23	21:17	10:49	Duplicate
ZZZZZZ	4Q43191.D	04/18/23	21:31	11:03	(unrelated sample)
ZZZZZZ	4Q43192.D	04/18/23	21:45	11:17	(unrelated sample)
ZZZZZZ	4Q43193.D	04/18/23	21:59	11:31	(unrelated sample)
ZZZZZZ	4Q43194.D	04/18/23	22:13	11:45	(unrelated sample)
ZZZZZZ	4Q43195.D	04/18/23	22:27	11:59	(unrelated sample)
S4Q624-CC621	4Q43196.D	04/18/23	22:41	12:13	Continuing cal 4
S4Q624-ICCB	4Q43197.D	04/18/23	22:55	12:27	Continuing Calibration Blank
ZZZZZZ	4Q43198.D	04/18/23	23:09	12:41	(unrelated sample)
ZZZZZZ	4Q43199.D	04/18/23	23:23	12:55	(unrelated sample)
ZZZZZZ	4Q43200.D	04/18/23	23:37	13:09	(unrelated sample)
ZZZZZZ	4Q43201.D	04/18/23	23:51	13:23	(unrelated sample)
ZZZZZZ	4Q43202.D	04/19/23	00:05	13:37	(unrelated sample)
ZZZZZZ	4Q43203.D	04/19/23	00:19	13:51	(unrelated sample)
S4Q624-CC621	4Q43204.D	04/19/23	00:33	14:05	Continuing cal 4
S4Q624-ICCB	4Q43205.D	04/19/23	00:47	14:19	Continuing Calibration Blank
S4Q624-ICCB	4Q43205.D	04/19/23	00:47	14:19	Continuing Calibration Blank
OP96364-BS	4Q43206.D	04/19/23	01:01	14:33	Blank Spike
OP96364-LLBS	4Q43207.D	04/19/23	01:16	14:48	Blank Spike
OP96364-MB	4Q43208.D	04/19/23	01:30	15:02	Method Blank
JD62946-1	4Q43209.D	04/19/23	01:44	15:16	(used for QC only; not part of job FC5164)
OP96364-MS	4Q43210.D	04/19/23	01:58	15:30	Matrix Spike
JD62924-1B	4Q43211.D	04/19/23	02:12	15:44	(used for QC only; not part of job FC5164)
OP96364-DUP	4Q43212.D	04/19/23	02:26	15:58	Duplicate
ZZZZZZ	4Q43213.D	04/19/23	02:40	16:12	(unrelated sample)
ZZZZZZ	4Q43214.D	04/19/23	02:54	16:26	(unrelated sample)
ZZZZZZ	4Q43215.D	04/19/23	03:08	16:40	(unrelated sample)
S4Q624-CC621	4Q43216.D	04/19/23	03:22	16:54	Continuing cal 4
S4Q624-ICCB	4Q43217.D	04/19/23	03:36	17:08	Continuing Calibration Blank
ZZZZZZ	4Q43218.D	04/19/23	03:50	17:22	(unrelated sample)
ZZZZZZ	4Q43219.D	04/19/23	04:04	17:36	(unrelated sample)
ZZZZZZ	4Q43220.D	04/19/23	04:18	17:50	(unrelated sample)
ZZZZZZ	4Q43221.D	04/19/23	04:32	18:04	(unrelated sample)
ZZZZZZ	4Q43222.D	04/19/23	04:46	18:18	(unrelated sample)
ZZZZZZ	4Q43223.D	04/19/23	05:00	18:32	(unrelated sample)

6.6.2

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# TDCA Retention Time Check

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q624-RT	Injection Date:	04/18/23
Lab File ID:	4Q43145.D	Injection Time:	10:28
Instrument ID:	GCMS4Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	4Q43224.D	04/19/23	05:15	18:47	(unrelated sample)
ZZZZZZ	4Q43225.D	04/19/23	05:29	19:01	(unrelated sample)
ZZZZZZ	4Q43226.D	04/19/23	05:43	19:15	(unrelated sample)
ZZZZZZ	4Q43227.D	04/19/23	05:57	19:29	(unrelated sample)
S4Q624-CC621	4Q43228.D	04/19/23	06:11	19:43	Continuing cal 4
S4Q624-CC621	4Q43229.D	04/19/23	06:25	19:57	Continuing cal 1.0LL
S4Q624-ICCB	4Q43230.D	04/19/23	06:39	20:11	Continuing Calibration Blank
ZZZZZZ	4Q43231.D	04/19/23	06:53	20:25	(unrelated sample)
ZZZZZZ	4Q43232.D	04/19/23	07:07	20:39	(unrelated sample)
ZZZZZZ	4Q43233.D	04/19/23	07:21	20:53	(unrelated sample)
ZZZZZZ	4Q43234.D	04/19/23	07:35	21:07	(unrelated sample)
S4Q624-ECC621	4Q43235.D	04/19/23	07:49	21:21	Ending cal 4
S4Q624-ICCB	4Q43236.D	04/19/23	08:03	21:35	Continuing Calibration Blank

6.6.2  
6

# Isotope Dilution Standard Recovery Summary

Job Number: FC5164  
 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
FC5164-1	4Q43157.D	112	106	105	110	104	102	109	103
FC5164-2	4Q43158.D	115	109	109	112	105	104	108	97
OP96403-BS	4Q43154.D	110	104	109	109	103	104	107	103
OP96403-DUP	4Q43164.D	88	85	111	119	107	104	103	104
OP96403-LLBS	4Q43155.D	124	121	122	125	112	113	111	106
OP96403-MB	4Q43156.D	109	105	106	108	104	108	106	92
OP96403-MS	4Q43160.D	110	106	104	108	109	94	110	98
S4Q624-IBLK	4Q43148.D	103	98	102	104	101	98	103	101
S4Q624-ICCB	4Q43162.D	103	103	101	106	99	101	102	101

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%

# Isotope Dilution Standard Recovery Summary

Job Number: FC5164  
 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
FC5164-1	4Q43157.D	92	81	105	110	102	83	96	96
FC5164-2	4Q43158.D	85	71	110	108	103	88	90	92
OP96403-BS	4Q43154.D	97	79	107	103	90	81	89	88
OP96403-DUP	4Q43164.D	93	74	110	114	107	89	95	93
OP96403-LLBS	4Q43155.D	96	77	112	116	116	89	99	99
OP96403-MB	4Q43156.D	83	68	105	107	103	77	84	80
OP96403-MS	4Q43160.D	91	80	102	103	102	86	91	94
S4Q624-IBLK	4Q43148.D	98	91	104	110	96	85	97	102
S4Q624-ICCB	4Q43162.D	98	88	103	103	100	86		

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

6.7.1

6

# Isotope Dilution Standard Recovery Summary

Job Number: FC5164  
 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
FC5164-1	4Q43157.D	104	103	75	77	115	127	114	110
FC5164-2	4Q43158.D	108	103	73	72	126	119	121	112
OP96403-BS	4Q43154.D	106	105	73	74	108	122	110	105
OP96403-DUP	4Q43164.D	104	109	73	70	119	113	108	95
OP96403-LLBS	4Q43155.D	112	115	80	79	129	131	111	120
OP96403-MB	4Q43156.D	108	98	67	66	129	124	108	105
OP96403-MS	4Q43160.D	102	102	73	73	117	124	116	105
S4Q624-IBLK	4Q43148.D	107	108	80	81	122	119	119	103
S4Q624-ICCB	4Q43162.D	111	111			123	116	117	

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

6.7.1

6



# Initial Calibration Summary

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q621-ICC621  
 Lab FileID: 4Q42939.D

## Initial Calibration Report

Method Path	D:\MassHunter\methods											
Method File	1633_041423_S4Q621.quantmethod.xml											
Batch Name	D:\MassHunter\Data\041423_1633_S4Q621\QuantResults\S4Q621.batch.bin											
Last Calib Update	4/16/2023 3:46:16 PM											
Level Name	Calibration Files	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
1	D:\MassHunter\Data\041423_1633_S4Q621\4Q42936.d											
2	D:\MassHunter\Data\041423_1633_S4Q621\4Q42937.d											
3	D:\MassHunter\Data\041423_1633_S4Q621\4Q42938.d											
4	D:\MassHunter\Data\041423_1633_S4Q621\4Q42939.d											
5	D:\MassHunter\Data\041423_1633_S4Q621\4Q42940.d											
6	D:\MassHunter\Data\041423_1633_S4Q621\4Q42941.d											
7	D:\MassHunter\Data\041423_1633_S4Q621\4Q42942.d											
8	D:\MassHunter\Data\041423_1633_S4Q621\4Q42943.d											
Compound												
I M4-PFBA		Avg RF	0.2427	0.2070	0.2162	0.2239	0.2248	0.2239	0.2489	0.2396	0.2284	6.215
T PFBA												
I M5-PFPeA		Avg RF	0.4786	0.4346	0.4450	0.4524	0.4620	0.4746	0.5213	0.5179	0.4733	6.773
T PFMPA												
T 3:3FTCA		Avg RF	0.0415	0.0405	0.0416	0.0414	0.0428	0.0441	0.0496	0.0513	0.0441	9.285
T PFPeA		Avg RF	0.9811	0.8647	0.8930	0.9169	0.9349	0.9396	1.0399	1.0016	0.9465	6.131
T PFMBa		Avg RF	0.5500	0.4937	0.5214	0.5197	0.5302	0.5404	0.5964	0.5776	0.5412	6.120
I M5-PFHxA		Avg RF	0.0499	0.0474	0.0514	0.0516	0.0517	0.0503	0.0518	0.0439	0.0497	5.601
T NFDHA												
T PFHxA		Avg RF	0.7914	0.7041	0.7043	0.7146	0.7293	0.7284	0.7836	0.7648	0.7401	4.741
T PFEEA		Avg RF	0.6337	0.5711	0.5970	0.6005	0.6199	0.6261	0.6697	0.6530	0.6214	5.114
T 5:3FTCA		Avg RF	0.1041	0.0955	0.1005	0.1030	0.1050	0.1061	0.1120	0.1100	0.1045	4.974
T 7:3FTCA		Avg RF	0.0431	0.0403	0.0420	0.0424	0.0440	0.0426	0.0451	0.0432	0.0428	3.292
I M4-PFHpA		Avg RF	1.2331	1.1038	1.2217	1.1928	1.2406	1.2501	1.4179	1.3171	1.2471	7.327
T PFHpA												
I M8-PFOA		Avg RF	1.4659	1.0136	1.0891	1.0547	1.0821	1.1604	1.2604	1.2181	1.1680	12.537
T PFOA												
I M9-PFNA		Avg RF	0.7786	0.6522	0.6176	0.6101	0.6504	0.6327	0.7335	0.6704	0.6682	8.805
T PFNA												
I M6-PFDA		Avg RF	0.7587	0.6068	0.6721	0.7006	0.7164	0.6982	0.8097	0.7558	0.7148	8.624
T PFDA												
I M7-PFUnDA		Avg RF	0.8588	0.6928	0.6919	0.6409	0.6770	0.6611	0.7345	0.6991	0.7070	9.511
T PFUnDA												
I M2-PFDaDA												



# Initial Calibration Summary

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q621-ICC621  
 Lab FileID: 4Q42939.D

## Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	0.8121	0.6982	0.7659	0.7910	0.7988	0.7871	0.8582	0.7944	0.7882	5.718
T PFTfDA	Avg RF	1.2104	0.9816	0.9927	1.0146	1.0134	0.9720	1.0363	0.9043	1.0157	8.675
I M2-PFTeDA	Avg RF	1.0733	0.9483	0.9814	0.9491	0.9831	0.9628	1.0262	0.9493	0.9842	4.529
T PFTeDA	Avg RF	0.8245	0.7537	0.7869	0.7941	0.8017	0.7739	0.8702	0.8348	0.8050	4.595
I M8-FOSA	Avg RF	0.8245	0.7537	0.7869	0.7941	0.8017	0.7739	0.8702	0.8348	0.8050	4.595
T FOSA	Avg RF	0.8245	0.7537	0.7869	0.7941	0.8017	0.7739	0.8702	0.8348	0.8050	4.595
I M3-PFBS	Avg RF	0.8776	0.9261	0.8830	0.9299	0.9206	0.9224	1.0417	0.9629	0.9330	5.525
T PFBS	Avg RF	0.8776	0.9261	0.8830	0.9299	0.9206	0.9224	1.0417	0.9629	0.9330	5.525
I M3-PFHxS	Avg RF	0.6671	0.6350	0.7010	0.7583	0.7488	0.7440	0.8143	0.7642	0.7291	7.936
T PFPeS	Avg RF	0.6671	0.6350	0.7010	0.7583	0.7488	0.7440	0.8143	0.7642	0.7291	7.936
T PFHxS	Avg RF	0.8976	0.8131	0.8230	0.8565	0.7667	0.8285	0.9423	0.9245	0.8565	7.053
I M8-PFOS	Avg RF	0.6863	0.5576	0.6391	0.5940	0.6382	0.6422	0.7150	0.7337	0.6508	9.097
T PFHpS	Avg RF	1.1227	0.8514	0.9697	0.9407	0.9379	0.9368	1.0115	1.0142	0.9731	8.144
T PFOs	Avg RF	0.3207	0.3424	0.3617	0.3744	0.3889	0.3834	0.4417	0.4647	0.3847	12.501
T PFNS	Avg RF	0.5445	0.5600	0.5479	0.5465	0.5513	0.5360	0.5936	0.5926	0.5590	3.950
T PFDS	Avg RF	0.4983	0.4559	0.4751	0.4650	0.4653	0.4671	0.5149	0.5248	0.4833	5.353
T PFDoDS	Avg RF	5.8406	6.0705	6.4792	6.0146	5.9261	6.3370	6.5003	6.6978	6.2333	5.005
I M2-4:2FTS	Avg RF	3.5584	3.0964	3.4480	3.5368	3.3618	3.2511	3.9534	3.3094	3.4144	7.437
T 4:2FTS	Avg RF	3.5584	3.0964	3.4480	3.5368	3.3618	3.2511	3.9534	3.3094	3.4144	7.437
I M2-6:2FTS	Avg RF	2.5302	2.2547	2.0644	2.3465	2.1716	2.1983	2.2282	2.1408	2.2418	6.375
T 6:2FTS	Avg RF	2.5302	2.2547	2.0644	2.3465	2.1716	2.1983	2.2282	2.1408	2.2418	6.375
I M2-8:2FTS	Avg RF	0.8899	0.5923	0.6266	0.7083	0.6772	0.6010	0.6984	0.7184	0.6890	13.746
T 8:2FTS	Avg RF	0.8899	0.5923	0.6266	0.7083	0.6772	0.6010	0.6984	0.7184	0.6890	13.746
I M3-MeFOSAA	Avg RF	0.8196	0.7572	0.7893	0.7826	0.7649	0.7709	0.8429	0.8128	0.7925	3.777
T MeFOSAA	Avg RF	0.8196	0.7572	0.7893	0.7826	0.7649	0.7709	0.8429	0.8128	0.7925	3.777
I M3-HFO-DA	Avg RF	5.9451	5.5029	5.9635	6.2030	5.9413	6.0043	6.3632	6.1322	6.0069	4.198
T HFO-DA	Avg RF	5.9451	5.5029	5.9635	6.2030	5.9413	6.0043	6.3632	6.1322	6.0069	4.198
I M3-ADONA	Avg RF	2.7559	2.7047	2.8906	2.9217	2.9059	2.9631	3.2293	2.9547	2.9157	5.390
T ADONA	Avg RF	2.7559	2.7047	2.8906	2.9217	2.9059	2.9631	3.2293	2.9547	2.9157	5.390
I M3-9CI-PF3ONS	Avg RF	2.4661	2.4876	2.6028	2.7946	2.7007	2.6427	2.7043	2.4816	2.6101	4.681
T 9CI-PF3ONs	Avg RF	2.4661	2.4876	2.6028	2.7946	2.7007	2.6427	2.7043	2.4816	2.6101	4.681
I M5-ERFOSAA	Avg RF	0.6858	0.7438	0.7701	0.7035	0.7350	0.7097	0.8026	0.8249	0.7469	6.574
T ERFOSAA	Avg RF	0.6858	0.7438	0.7701	0.7035	0.7350	0.7097	0.8026	0.8249	0.7469	6.574
I M7-MeFOSE	Avg RF	0.9431	0.8564	0.8572	0.8388	0.8563	0.8414	0.9227	0.9131	0.8786	4.654
T MeFOSE	Avg RF	0.9431	0.8564	0.8572	0.8388	0.8563	0.8414	0.9227	0.9131	0.8786	4.654
I M9-ERFOSE	Avg RF	0.8558	0.7172	0.7472	0.7421	0.7448	0.7425	0.8350	0.7797	0.7705	6.424
T ERFOSE	Avg RF	0.8558	0.7172	0.7472	0.7421	0.7448	0.7425	0.8350	0.7797	0.7705	6.424

Generated at 3:46 PM on 4/16/2023

Page 2 of 4

# Initial Calibration Summary

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q621-ICC621  
 Lab FileID: 4Q42939.D

## Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-EFOSA											
T EtFOSA	Avg RF	0.8690	0.8589	0.8838	0.8346	0.8899	0.8912	0.9612	0.9380	0.8908	4.624
I M3-MeFOSA											
T MeFOSA	Avg RF	0.8676	0.7437	0.8189	0.8369	0.7724	0.7539	0.8636	0.8094	0.8083	5.901
I 13C4-PFOS											
S d3-MeFOSAA	Linear	0.7656	0.7552	0.8058	0.7481	0.6961	0.7058	0.7165	0.6975	0.7363	5.292
S 13C8-PFOS	Linear	0.9665	0.9710	1.0122	0.9463	0.9320	0.9528	0.9944	0.9787	0.9692	2.690
S d5-EFOSAA	Linear	0.6362	0.6101	0.6518	0.6515	0.5843	0.5543	0.5617	0.5384	0.5985	7.557
S 13C8-FOSA	Linear	1.5924	1.6717	1.9209	1.8649	1.6795	1.3840	1.4267	1.5403	1.6351	11.675
S d7-MeFOSE	Linear	0.6985	0.7316	0.7658	0.7577	0.6791	0.4960	0.5203	0.5092	0.6448	18.070
S d3-MeFOSA	Linear	0.8056	0.7664	0.7846	0.6930	0.7937	0.7565	0.7774	0.8145	0.7740	4.903
S d9-EFOSE	Linear	0.8600	0.8810	0.9400	0.8959	0.8211	0.6330	0.6253	0.6554	0.7890	16.441
S d5-EFOSA	Linear	0.8784	0.8130	0.8254	0.7902	0.8406	0.8016	0.8602	0.8806	0.8362	4.120
I 13C3-PFBA											
S 13C4-PFBA	Linear	0.8547	0.8631	0.8991	0.8708	0.8709	0.8702	0.8665	0.8704	0.8707	1.465
I 18O2-PFHxS											
S 13C2-4:2FTS	Linear	0.1665	0.1473	0.1509	0.1505	0.1436	0.1198	0.1178	0.0960	0.1365	16.929
S 13C3-PBBS	Linear	2.3414	2.1575	2.4161	2.3817	2.3603	2.3278	2.2517	2.1462	2.2978	4.429
S 13C2-6:2FTS	Linear	0.2519	0.2237	0.2069	0.1990	0.2052	0.1844	0.1524	0.1441	0.1960	18.129
S 13C3-PFHxS	Linear	1.4162	1.3623	1.3611	1.3717	1.4423	1.3866	1.3665	1.3866	1.3836	2.180
S 13C2-8:2FTS	Linear	0.3798	0.3419	0.3497	0.3347	0.3432	0.2910	0.2930	0.2468	0.3225	13.143
I 13C4-PFOA											
S 13C8-PFOA	Linear	0.8136	0.8339	0.8231	0.8276	0.8522	0.8054	0.8174	0.8125	0.8232	1.795
I 13C2-PFDA											
S 13C6-PFDA	Linear	1.0424	1.1469	1.1292	1.0956	1.0668	1.1154	1.1150	1.0824	1.0992	3.126
S 13C7-PFUnDA	Linear	1.1992	1.2715	1.1954	1.2111	1.1941	1.1407	1.2168	1.1258	1.1943	3.788
S 13C2-PFDODA	Linear	1.5091	1.6410	1.5664	1.5468	1.5338	1.4540	1.5268	1.5352	1.5391	3.432
S 13C2-PFTeDA	Linear	1.1608	1.2839	1.2478	1.2605	1.2026	1.0896	1.1708	1.1672	1.1979	5.337
I 13C5-PFNA											
S 13C9-PFNA	Linear	0.9403	0.9513	0.9559	0.9014	0.8600	0.8799	0.8538	0.9434	0.9107	4.638
I 13C2-PFHxA											
S 13C5-PPeA	Linear	0.7463	0.7459	0.7392	0.7625	0.7447	0.7411	0.7093	0.7033	0.7365	2.713
S 13C5-PFHxA	Linear	1.1490	1.1564	1.1430	1.1831	1.1535	1.1507	1.1582	1.1472	1.1551	1.067
S 13C3-HPPO-DA	Linear	0.1789	0.1776	0.1669	0.1722	0.1761	0.1763	0.1776	0.1780	0.1755	2.284
S 13C4-PFHpA	Linear	0.5807	0.5853	0.5196	0.5926	0.5789	0.5762	0.5449	0.5636	0.5677	4.289

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

# Initial Calibration Summary

Job Number: FC5164  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q621-ICC621  
Lab FileID: 4Q42939.D

## Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	%RSE
S 13C4-PBBA	Linear	$y = 0.870732 * x$	
S 13C5-PFPeA	Linear	$y = 0.736539 * x$	
S 13C2-4:2FTS	Linear	$y = 0.136547 * x$	
S 13C3-PFBS	Linear	$y = 2.297832 * x$	
S 13C5-PFHxA	Linear	$y = 1.155140 * x$	
S 13C3-HFPO-DA	Linear	$y = 0.175458 * x$	
S 13C4-PFHpA	Linear	$y = 0.567714 * x$	
S 13C8-PFOA	Linear	$y = 0.195959 * x$	
S 13C3-PFHxS	Linear	$y = 0.823219 * x$	
S 13C9-PFNA	Linear	$y = 1.383618 * x$	
S 13C2-8:2FTS	Linear	$y = 0.910745 * x$	
S 13C6-PEDA	Linear	$y = 0.322508 * x$	
S d3-MeFOSAA	Linear	$y = 1.099204 * x$	
S 13C8-PFOS	Linear	$y = 0.736329 * x$	
S d5-EFOSAA	Linear	$y = 0.969247 * x$	
S 13C7-PFUInDA	Linear	$y = 0.598531 * x$	
S 13C2-PFDODA	Linear	$y = 1.194332 * x$	
S 13C8-FOSA	Linear	$y = 1.539126 * x$	
S 13C2-PFTeDA	Linear	$y = 1.635055 * x$	
S d7-MeFOSE	Linear	$y = 1.197901 * x$	
S d3-MeFOSA	Linear	$y = 0.644769 * x$	
S d9-EFOSE	Linear	$y = 0.773967 * x$	
S d5-EFOSA	Linear	$y = 0.788968 * x$	
S d5-EFOSA	Linear	$y = 0.836240 * x$	

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

**Initial Calibration Verification**

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q621-ICV621  
 Lab FileID: 4Q42945.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\041423\_1633\_S4Q621\s4q621.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42936.d  
 2:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42937.d  
 3:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42938.d  
 4:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42939.d  
 5:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42940.d  
 6:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42941.d  
 7:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42942.d  
 8:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42943.d

Data File: 4Q42945  
 Type : QC  
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.602	-8.0	92.0
13C2-6:2FTS	5.000	4.830	-3.4	96.6
13C2-8:2FTS	5.000	4.651	-7.0	93.0
13C2-PFDoDA	1.250	1.134	-9.3	90.7
13C2-PFTeDA	1.250	1.096	-12.3	87.7
13C3-PFBS	2.500	2.645	5.8	105.8
13C3-PFHxS	2.500	2.634	5.4	105.4
13C4-PFBA	10.000	9.833	-1.7	98.3
13C4-PFHpA	2.500	2.485	-0.6	99.4
13C5-PFHxA	2.500	2.469	-1.2	98.8
13C5-PFPeA	5.000	4.983	-0.3	99.7
13C6-PFDA	1.250	1.213	-3.0	97.0
13C7-PFUnDA	1.250	1.188	-4.9	95.1
13C8-FOSA	2.500	2.084	-16.6	83.4
13C8-PFOA	2.500	2.510	0.4	100.4
13C8-PFOS	2.500	2.487	-0.5	99.5
13C9-PFNA	1.250	1.152	-7.8	92.2
4:2FTS	9.375	8.936	-4.7	95.3
6:2FTS	9.500	9.258	-2.5	97.5
8:2FTS	9.600	9.602	0.0	100.0
d3-MeFOSAA	5.000	4.659	-6.8	93.2
EtFOSAA	2.500	2.357	-5.7	94.3
FOSA	2.500	2.349	-6.1	93.9
MeFOSAA	2.500	2.297	-8.1	91.9
PFBA	10.000	9.441	-5.6	94.4
PFBS	2.218	2.110	-4.9	95.1
PFDA	2.500	2.342	-6.3	93.7
PFDoDA	2.500	2.423	-3.1	96.9
PFDS	2.413	2.279	-5.6	94.4
PFHpA	2.500	2.401	-4.0	96.0
PFHpS	2.383	2.262	-5.1	94.9
PFHxA	2.500	2.357	-5.7	94.3
PFHxS	2.285	2.016	-11.8	88.2
PFNA	2.500	2.435	-2.6	97.4
PFNS	2.405	2.240	-6.9	93.1
PFOA	2.500	2.201	-12.0	88.0
PFOS	2.320	2.225	-4.1	95.9

# Initial Calibration Verification

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q621-ICV621  
 Lab FileID: 4Q42945.D

PFPeA	5.000	4.734	-5.3	94.7
PFPeS	2.353	2.167	-7.9	92.1
PFTeDA	2.500	2.349	-6.0	94.0
PFTTrDA	2.500	2.365	-5.4	94.6
PFUnDA	2.500	2.168	-13.3	86.7
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	4.725	4.566	-3.4	96.6
13C3-HFPO-DA	10.000	10.258	2.6	102.6
9C1-PF3ONS	4.675	4.410	-5.7	94.3
ADONA	4.725	4.526	-4.2	95.8
HFPO-DA	5.000	4.604	-7.9	92.1
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.803	-5.4	94.6
5:3FTCA	62.400	60.149	-3.6	96.4
7:3FTCA	62.400	59.415	-4.8	95.2
d3-MeFOSA	2.500	2.349	-6.1	93.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.631	-7.4	92.6
EtFOSE	12.500	12.176	-2.6	97.4
MeFOSA	5.000	4.830	-3.4	96.6
MeFOSE	12.500	11.691	-6.5	93.5
PFDoDS	2.425	2.238	-7.7	92.3
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.435	-11.3	88.7
d7-MeFOSE	25.000	19.102	-23.6	76.4
d9-EtFOSE	25.000	19.723	-21.1	78.9
d5-EtFOSA	2.500	2.494	-0.2	99.8
NFDHA	5.000	4.658	-6.8	93.2
PFMBA	5.000	4.684	-6.3	93.7
PFMPA	5.000	4.657	-6.9	93.1
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.184	-6.0	94.0

CC Criteria: +/- 30%

**Initial Calibration Verification**

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q621-ICV621  
 Lab FileID: 4Q42946.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\041423\_1633\_S4Q621\s4q621.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42936.d  
 2:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42937.d  
 3:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42938.d  
 4:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42939.d  
 5:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42940.d  
 6:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42941.d  
 7:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42942.d  
 8:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42943.d

Data File: 4Q42946  
 Type : QC  
 Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.265	-14.7	85.3
13C2-6:2FTS	5.000	4.360	-12.8	87.2
13C2-8:2FTS	5.000	4.491	-10.2	89.8
13C2-PFDoDA	1.250	1.189	-4.9	95.1
13C2-PFTeDA	1.250	1.133	-9.3	90.7
13C3-PFBS	2.500	2.438	-2.5	97.5
13C3-PFHxS	2.500	2.423	-3.1	96.9
13C4-PFBA	10.000	9.899	-1.0	99.0
13C4-PFHpA	2.500	2.421	-3.2	96.8
13C5-PFHxA	2.500	2.513	0.5	100.5
13C5-PFPeA	5.000	5.044	0.9	100.9
13C6-PFDA	1.250	1.200	-4.0	96.0
13C7-PFUnDA	1.250	1.139	-8.9	91.1
13C8-FOSA	2.500	2.204	-11.9	88.1
13C8-PFOA	2.500	2.480	-0.8	99.2
13C8-PFOS	2.500	2.502	0.1	100.1
13C9-PFNA	1.250	1.177	-5.9	94.1
4:2FTS	20.000	24.072	20.4	120.4
6:2FTS	20.000	25.021	25.1	125.1
8:2FTS	20.000	23.430	17.2	117.2
d3-MeFOSAA	5.000	4.590	-8.2	91.8
EtFOSAA	20.000	22.420	12.1	112.1
FOSA	20.000	23.743	18.7	118.7
MeFOSAA	20.000	23.232	16.2	116.2
PFBA	20.000	21.795	9.0	109.0
PFBS	20.000	24.889	24.4	124.4
PFDA	20.000	24.397	22.0	122.0
PFDoDA	20.000	20.461	2.3	102.3
PFDS	20.000	23.268	16.3	116.3
PFHpA	20.000	23.841	19.2	119.2
PFHpS	20.000	23.617	18.1	118.1
PFHxA	20.000	23.396	17.0	117.0
PFHxS	20.000	24.686	23.4	123.4
PFNA	20.000	25.839	29.2	129.2
PFNS	20.000	24.907	24.5	124.5
PFOA	20.000	21.983	9.9	109.9
PFOS	20.000	20.139	0.7	100.7

# Initial Calibration Verification

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q621-ICV621  
 Lab FileID: 4Q42946.D

PFPeA	20.000	24.428	22.1	122.1
PFPeS	20.000	25.622	28.1	128.1
PFTeDA	20.000	23.790	19.0	119.0
PFTTrDA	20.000	19.059	-4.7	95.3
PFUnDA	20.000	22.357	11.8	111.8
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	23.484	17.4	117.4
13C3-HFPO-DA	10.000	10.101	1.0	101.0
9C1-PF3ONS	20.000	23.198	16.0	116.0
ADONA	20.000	22.550	12.8	112.8
HFPO-DA	20.000	21.684	8.4	108.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	22.292	11.5	111.5
5:3FTCA	20.000	23.885	19.4	119.4
7:3FTCA	20.000	21.005	5.0	105.0
d3-MeFOSA	2.500	2.423	-3.1	96.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	22.070	10.3	110.3
EtFOSE	100.000	120.820	20.8	120.8
MeFOSA	20.000	22.722	13.6	113.6
MeFOSE	100.000	113.926	13.9	113.9
PFDoDS	20.000	22.709	13.5	113.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.694	-6.1	93.9
d7-MeFOSE	25.000	19.924	-20.3	79.7
d9-EtFOSE	25.000	19.832	-20.7	79.3
d5-EtFOSA	2.500	2.639	5.6	105.6
NFDHA	20.000	22.891	14.5	114.5
PFMBA	20.000	23.563	17.8	117.8
PFMPA	20.000	23.282	16.4	116.4
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	20.000	20.704	3.5	103.5

CC Criteria: +/- 30%



**Continuing Calibration Summary**

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q624-CC621  
 Lab FileID: 4Q43149.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\041823\_1633\_S4Q624\s4q624.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42936.d  
 2:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42937.d  
 3:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42938.d  
 4:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42939.d  
 5:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42940.d  
 6:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42941.d  
 7:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42942.d  
 8:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42943.d

Data File: 4Q43149  
 Type : QC  
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.028	0.6	100.6
13C2-6:2FTS	5.000	5.872	17.4	117.4
13C2-8:2FTS	5.000	5.353	7.1	107.1
13C2-PFDoDA	1.250	1.185	-5.2	94.8
13C2-PFTeDA	1.250	1.079	-13.7	86.3
13C3-PFBS	2.500	2.468	-1.3	98.7
13C3-PFHxS	2.500	2.502	0.1	100.1
13C4-PFBA	10.000	10.294	2.9	102.9
13C4-PFHpA	2.500	2.722	8.9	108.9
13C5-PFHxA	2.500	2.574	2.9	102.9
13C5-PFPeA	5.000	5.043	0.9	100.9
13C6-PFDA	1.250	1.221	-2.3	97.7
13C7-PFUnDA	1.250	1.256	0.4	100.4
13C8-FOSA	2.500	2.086	-16.5	83.5
13C8-PFOA	2.500	2.513	0.5	100.5
13C8-PFOS	2.500	2.526	1.0	101.0
13C9-PFNA	1.250	1.241	-0.7	99.3
4:2FTS	9.375	8.366	-10.8	89.2
6:2FTS	9.500	7.660	-19.4	80.6
8:2FTS	9.600	8.811	-8.2	91.8
d3-MeFOSAA	5.000	5.339	6.8	106.8
EtFOSAA	2.500	2.168	-13.3	86.7
FOSA	2.500	2.084	-16.6	83.4
MeFOSAA	2.500	1.946	-22.2	77.8
PFBA	10.000	7.769	-22.3	77.7
PFBS	2.218	1.864	-16.0	84.0
PFDA	2.500	2.266	-9.4	90.6
PFDoDA	2.500	2.047	-18.1	81.9
PFDS	2.413	1.868	-22.6	77.4
PFHpA	2.500	2.049	-18.0	82.0
PFHpS	2.383	2.052	-13.9	86.1
PFHxA	2.500	2.061	-17.6	82.4
PFHxS	2.285	1.887	-17.4	82.6
PFNA	2.500	2.030	-18.8	81.2
PFNS	2.405	2.009	-16.5	83.5
PFOA	2.500	2.033	-18.7	81.3
PFOS	2.320	1.930	-16.8	83.2

# Continuing Calibration Summary

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q624-CC621  
 Lab FileID: 4Q43149.D

PFPeA	5.000	4.347	-13.1	86.9
PFPeS	2.353	1.965	-16.5	83.5
PFTeDA	2.500	2.055	-17.8	82.2
PFTTrDA	2.500	1.943	-22.3	77.7
PFUnDA	2.500	1.908	-23.7	76.3
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDODA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.920	4.1	104.1
13C3-HFPO-DA	10.000	10.470	4.7	104.7
9C1-PF3ONS	4.675	4.539	-2.9	97.1
ADONA	4.725	4.928	4.3	104.3
HFPO-DA	5.000	4.981	-0.4	99.6
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.944	3.7	103.7
5:3FTCA	62.400	65.408	4.8	104.8
7:3FTCA	62.400	63.944	2.5	102.5
d3-MeFOSA	2.500	2.544	1.8	101.8
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.227	4.5	104.5
EtFOSE	12.500	12.863	2.9	102.9
MeFOSA	5.000	4.906	-1.9	98.1
MeFOSE	12.500	12.279	-1.8	98.2
PFDODS	2.425	1.862	-23.2	76.8
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.094	1.9	101.9
d7-MeFOSE	25.000	19.456	-22.2	77.8
d9-EtFOSE	25.000	19.914	-20.3	79.7
d5-EtFOSA	2.500	2.457	-1.7	98.3
NFDHA	5.000	5.627	12.5	112.5
PFMBA	5.000	5.149	3.0	103.0
PFMPA	5.000	5.229	4.6	104.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.482	0.7	100.7

CC Criteria: +/- 30%

**Continuing Calibration Summary**

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q624-CC621  
 Lab FileID: 4Q43150.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\041823\_1633\_S4Q624\s4q624.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42936.d  
 2:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42937.d  
 3:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42938.d  
 4:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42939.d  
 5:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42940.d  
 6:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42941.d  
 7:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42942.d  
 8:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42943.d

Data File: 4Q43150  
 Type : QC  
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.853	17.1	117.1
13C2-6:2FTS	5.000	5.988	19.8	119.8
13C2-8:2FTS	5.000	5.377	7.5	107.5
13C2-PFDoDA	1.250	1.173	-6.2	93.8
13C2-PFTeDA	1.250	1.117	-10.6	89.4
13C3-PFBS	2.500	2.424	-3.0	97.0
13C3-PFHxS	2.500	2.483	-0.7	99.3
13C4-PFBA	10.000	10.345	3.4	103.4
13C4-PFHpA	2.500	2.615	4.6	104.6
13C5-PFHxA	2.500	2.552	2.1	102.1
13C5-PFPeA	5.000	4.956	-0.9	99.1
13C6-PFDA	1.250	1.277	2.2	102.2
13C7-PFUnDA	1.250	1.269	1.6	101.6
13C8-FOSA	2.500	2.106	-15.8	84.2
13C8-PFOA	2.500	2.501	0.0	100.0
13C8-PFOS	2.500	2.656	6.2	106.2
13C9-PFNA	1.250	1.257	0.6	100.6
4:2FTS	0.750	0.761	1.5	101.5
6:2FTS	0.760	0.877	15.4	115.4
8:2FTS	0.768	0.749	-2.5	97.5
d3-MeFOSAA	5.000	5.238	4.8	104.8
EtFOSAA	0.200	0.193	-3.4	96.6
FOSA	0.200	0.234	16.8	116.8
MeFOSAA	0.200	0.141	-29.3	70.7
PFBA	0.800	0.769	-3.9	96.1
PFBS	0.177	0.188	6.2	106.2
PFDA	0.200	0.230	15.0	115.0
PFDoDA	0.200	0.192	-3.9	96.1
PFDS	0.193	0.170	-12.2	87.8
PFHpA	0.200	0.186	-6.9	93.1
PFHpS	0.191	0.192	0.6	100.6
PFHxA	0.200	0.212	6.0	106.0
PFHxS	0.183	0.180	-1.5	98.5
PFNA	0.200	0.242	21.1	121.1
PFNS	0.192	0.198	3.0	103.0
PFOA	0.200	0.240	20.1	120.1
PFOS	0.186	0.184	-1.2	98.8

# Continuing Calibration Summary

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q624-CC621  
 Lab FileID: 4Q43150.D

PFPeA	0.400	0.419	4.8	104.8
PFPeS	0.188	0.236	25.5	125.5
PFTeDA	0.200	0.159	-20.6	79.4
PFTrDA	0.200	0.183	-8.6	91.4
PFUnDA	0.200	0.157	-21.5	78.5
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	0.378	0.414	9.5	109.5
13C3-HFPO-DA	10.000	10.277	2.8	102.8
9C1-PF3ONS	0.367	0.360	-2.0	98.0
ADONA	0.378	0.393	3.9	103.9
HFPO-DA	0.400	0.399	-0.3	99.7
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	1.182	18.4	118.4
5:3FTCA	4.992	5.315	6.5	106.5
7:3FTCA	4.992	4.935	-1.1	98.9
d3-MeFOSA	2.500	2.499	0.0	100.0
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.424	6.1	106.1
EtFOSE	1.000	0.944	-5.6	94.4
MeFOSA	0.400	0.422	5.5	105.5
MeFOSE	1.000	1.161	16.1	116.1
PFDoDS	0.194	0.221	13.8	113.8
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.520	10.4	110.4
d7-MeFOSE	25.000	19.476	-22.1	77.9
d9-EtFOSE	25.000	20.088	-19.6	80.4
d5-EtFOSA	2.500	2.554	2.2	102.2
NFDHA	0.400	0.397	-0.7	99.3
PFMBA	0.400	0.438	9.6	109.6
PFMPA	0.400	0.430	7.5	107.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	0.356	0.364	2.2	102.2

CC Criteria: +/- 30%

**Continuing Calibration Summary**

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q624-CC621  
 Lab FileID: 4Q43161.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\041823\_1633\_S4Q624\s4q624.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42936.d  
 2:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42937.d  
 3:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42938.d  
 4:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42939.d  
 5:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42940.d  
 6:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42941.d  
 7:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42942.d  
 8:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42943.d

Data File: 4Q43161  
 Type : QC  
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.654	13.1	113.1
13C2-6:2FTS	5.000	5.006	0.1	100.1
13C2-8:2FTS	5.000	4.947	-1.1	98.9
13C2-PFDoDA	1.250	1.233	-1.4	98.6
13C2-PFTeDA	1.250	1.120	-10.4	89.6
13C3-PFBS	2.500	2.568	2.7	102.7
13C3-PFHxS	2.500	2.673	6.9	106.9
13C4-PFBA	10.000	10.605	6.1	106.1
13C4-PFHpA	2.500	2.386	-4.6	95.4
13C5-PFHxA	2.500	2.523	0.9	100.9
13C5-PFPeA	5.000	5.055	1.1	101.1
13C6-PFDA	1.250	1.315	5.2	105.2
13C7-PFUnDA	1.250	1.270	1.6	101.6
13C8-FOSA	2.500	2.133	-14.7	85.3
13C8-PFOA	2.500	2.506	0.2	100.2
13C8-PFOS	2.500	2.536	1.4	101.4
13C9-PFNA	1.250	1.212	-3.0	97.0
4:2FTS	9.375	7.918	-15.5	84.5
6:2FTS	9.500	8.799	-7.4	92.6
8:2FTS	9.600	8.806	-8.3	91.7
d3-MeFOSAA	5.000	4.663	-6.7	93.3
EtFOSAA	2.500	2.006	-19.8	80.2
FOSA	2.500	2.073	-17.1	82.9
MeFOSAA	2.500	2.274	-9.0	91.0
PFBA	10.000	7.766	-22.3	77.7
PFBS	2.218	1.824	-17.8	82.2
PFDA	2.500	2.187	-12.5	87.5
PFDoDA	2.500	2.044	-18.2	81.8
PFDS	2.413	1.858	-23.0	77.0
PFHpA	2.500	2.117	-15.3	84.7
PFHpS	2.383	1.920	-19.4	80.6
PFHxA	2.500	2.054	-17.9	82.1
PFHxS	2.285	1.785	-21.9	78.1
PFNA	2.500	2.011	-19.6	80.4
PFNS	2.405	1.914	-20.4	79.6
PFOA	2.500	1.988	-20.5	79.5
PFOS	2.320	1.864	-19.6	80.4

# Continuing Calibration Summary

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q624-CC621  
 Lab FileID: 4Q43161.D

PFPeA	5.000	4.240	-15.2	84.8
PFPeS	2.353	1.773	-24.7	75.3
PFTeDA	2.500	2.046	-18.2	81.8
PFTTrDA	2.500	2.011	-19.6	80.4
PFUnDA	2.500	2.061	-17.6	82.4
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.995	5.7	105.7
13C3-HFPO-DA	10.000	9.804	-2.0	98.0
9C1-PF3ONS	4.675	4.666	-0.2	99.8
ADONA	4.725	4.808	1.8	101.8
HFPO-DA	5.000	4.658	-6.8	93.2
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.990	4.1	104.1
5:3FTCA	62.400	65.065	4.3	104.3
7:3FTCA	62.400	63.529	1.8	101.8
d3-MeFOSA	2.500	2.300	-8.0	92.0
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.122	2.4	102.4
EtFOSE	12.500	12.729	1.8	101.8
MeFOSA	5.000	5.084	1.7	101.7
MeFOSE	12.500	12.769	2.2	102.2
PFDoDS	2.425	1.831	-24.5	75.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.923	-1.5	98.5
d7-MeFOSE	25.000	18.483	-26.1	73.9
d9-EtFOSE	25.000	18.424	-26.3	73.7
d5-EtFOSA	2.500	2.379	-4.8	95.2
NFDHA	5.000	4.990	-0.2	99.8
PFMBA	5.000	5.072	1.4	101.4
PFMPA	5.000	5.132	2.6	102.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.420	-0.7	99.3

CC Criteria: +/- 30%

**Continuing Calibration Summary**

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q624-CC621  
 Lab FileID: 4Q43173.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\041823\_1633\_S4Q624\s4q624.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42936.d  
 2:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42937.d  
 3:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42938.d  
 4:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42939.d  
 5:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42940.d  
 6:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42941.d  
 7:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42942.d  
 8:D:\MassHunter\Data\041423\_1633\_S4Q621\4Q42943.d

Data File: 4Q43173  
 Type : QC  
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.867	17.3	117.3
13C2-6:2FTS	5.000	5.682	13.6	113.6
13C2-8:2FTS	5.000	5.388	7.8	107.8
13C2-PFDoDA	1.250	1.209	-3.3	96.7
13C2-PFTeDA	1.250	1.090	-12.8	87.2
13C3-PFBS	2.500	2.673	6.9	106.9
13C3-PFHxS	2.500	2.653	6.1	106.1
13C4-PFBA	10.000	10.511	5.1	105.1
13C4-PFHpA	2.500	2.607	4.3	104.3
13C5-PFHxA	2.500	2.532	1.3	101.3
13C5-PFPeA	5.000	4.914	-1.7	98.3
13C6-PFDA	1.250	1.241	-0.7	99.3
13C7-PFUnDA	1.250	1.191	-4.7	95.3
13C8-FOSA	2.500	2.054	-17.8	82.2
13C8-PFOA	2.500	2.406	-3.8	96.2
13C8-PFOS	2.500	2.408	-3.7	96.3
13C9-PFNA	1.250	1.227	-1.8	98.2
4:2FTS	9.375	7.568	-19.3	80.7
6:2FTS	9.500	8.228	-13.4	86.6
8:2FTS	9.600	8.932	-7.0	93.0
d3-MeFOSAA	5.000	4.964	-0.7	99.3
EtFOSAA	2.500	2.094	-16.2	83.8
FOSA	2.500	2.111	-15.6	84.4
MeFOSAA	2.500	2.017	-19.3	80.7
PFBA	10.000	7.754	-22.5	77.5
PFBS	2.218	1.836	-17.2	82.8
PFDA	2.500	2.253	-9.9	90.1
PFDoDA	2.500	2.069	-17.2	82.8
PFDS	2.413	1.932	-19.9	80.1
PFHpA	2.500	2.085	-16.6	83.4
PFHpS	2.383	2.191	-8.1	91.9
PFHxA	2.500	2.001	-19.9	80.1
PFHxS	2.285	1.940	-15.1	84.9
PFNA	2.500	2.043	-18.3	81.7
PFNS	2.405	2.056	-14.5	85.5
PFOA	2.500	2.044	-18.2	81.8
PFOS	2.320	1.825	-21.3	78.7

# Continuing Calibration Summary

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q624-CC621  
 Lab FileID: 4Q43173.D

PFPeA	5.000	4.311	-13.8	86.2
PFPeS	2.353	2.094	-11.0	89.0
PFTeDA	2.500	2.004	-19.9	80.1
PFTrDA	2.500	1.996	-20.1	79.9
PFUnDA	2.500	1.972	-21.1	78.9
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	4.725	5.252	11.1	111.1
13C3-HFPO-DA	10.000	9.827	-1.7	98.3
9C1-PF3ONS	4.675	4.734	1.3	101.3
ADONA	4.725	5.056	7.0	107.0
HFPO-DA	5.000	4.827	-3.5	96.5
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	13.472	8.0	108.0
5:3FTCA	62.400	66.087	5.9	105.9
7:3FTCA	62.400	64.503	3.4	103.4
d3-MeFOSA	2.500	2.350	-6.0	94.0
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.018	0.4	100.4
EtFOSE	12.500	13.028	4.2	104.2
MeFOSA	5.000	5.141	2.8	102.8
MeFOSE	12.500	12.391	-0.9	99.1
PFDoDS	2.425	1.939	-20.0	80.0
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.213	4.3	104.3
d7-MeFOSE	25.000	18.630	-25.5	74.5
d9-EtFOSE	25.000	18.878	-24.5	75.5
d5-EtFOSA	2.500	2.408	-3.7	96.3
NFDHA	5.000	5.419	8.4	108.4
PFMBA	5.000	5.253	5.1	105.1
PFMPA	5.000	5.367	7.3	107.3
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.462	0.3	100.3

CC Criteria: +/- 30%



## Run Sequence Report

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q621	Method: EPA DRAFT 1633	Instrument ID: GCMS4Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S4Q621-RT	4Q42933.D	04/14/23 11:07	n/a	Retention Time Marker
S4Q621-RT	4Q42934.D	04/14/23 11:21	n/a	Retention Time Marker
S4Q621-IC621	4Q42935.D	04/14/23 11:35	n/a	Mass Calibration Verification
S4Q621-IC621	4Q42936.D	04/14/23 11:49	n/a	Initial cal 1
S4Q621-IC621	4Q42937.D	04/14/23 12:04	n/a	Initial cal 2
S4Q621-IC621	4Q42938.D	04/14/23 12:27	n/a	Initial cal 3
S4Q621-ICC621	4Q42939.D	04/14/23 12:41	n/a	Initial cal 4
S4Q621-IC621	4Q42940.D	04/14/23 12:55	n/a	Initial cal 5
S4Q621-IC621	4Q42941.D	04/14/23 13:09	n/a	Initial cal 6
S4Q621-IC621	4Q42942.D	04/14/23 13:23	n/a	Initial cal 7
S4Q621-IC621	4Q42943.D	04/14/23 13:37	n/a	Initial cal 8
S4Q621-IBLK	4Q42944.D	04/14/23 13:51	n/a	Instrument Blank
S4Q621-IBLK	4Q42944.D	04/14/23 13:51	n/a	Instrument Blank
S4Q621-ICV621	4Q42945.D	04/14/23 14:05	n/a	Initial cal verification 4
S4Q621-ICV621	4Q42946.D	04/14/23 14:19	n/a	Initial cal verification 20
S4Q621-CC621	4Q42947.D	04/14/23 14:57	n/a	Continuing cal 4
S4Q621-CC621	4Q42948.D	04/14/23 15:11	n/a	Continuing cal 1.0LL
S4Q621-CC621	4Q42954.D	04/14/23 16:36	n/a	Continuing cal 4
S4Q621-ICCB	4Q42955.D	04/14/23 16:50	n/a	Continuing Calibration Blank
S4Q621-CC621	4Q42966.D	04/14/23 19:24	n/a	Continuing cal 4
S4Q621-ICCB	4Q42967.D	04/14/23 19:38	n/a	Continuing Calibration Blank
S4Q621-CC621	4Q42978.D	04/14/23 22:13	n/a	Continuing cal 4
S4Q621-CC621	4Q42979.D	04/14/23 22:27	n/a	Continuing cal 1.0LL
S4Q621-ICCB	4Q42980.D	04/14/23 22:41	n/a	Continuing Calibration Blank
OP96297-BS	4Q42984.D	04/14/23 23:37	OP96297	Blank Spike
OP96297-LLBS	4Q42985.D	04/14/23 23:52	OP96297	Blank Spike
OP96297-MB	4Q42986.D	04/15/23 00:06	OP96297	Method Blank
ZZZZZZ	4Q42987.D	04/15/23 00:20	OP96297	(unrelated sample)
ZZZZZZ	4Q42988.D	04/15/23 00:34	OP96297	(unrelated sample)
ZZZZZZ	4Q42989.D	04/15/23 00:48	OP96297	(unrelated sample)
ZZZZZZ	4Q42990.D	04/15/23 01:02	OP96297	(unrelated sample)
S4Q621-CC621	4Q42991.D	04/15/23 01:16	n/a	Continuing cal 4
S4Q621-ICCB	4Q42992.D	04/15/23 01:30	n/a	Continuing Calibration Blank
FC3790-5	4Q42993.D	04/15/23 01:44	OP96297	(used for QC only; not part of job FC5164)
OP96297-MS	4Q42994.D	04/15/23 01:58	OP96297	Matrix Spike
OP96297-MSD	4Q42995.D	04/15/23 02:12	OP96297	Matrix Spike Duplicate
FC3757-19	4Q42998.D	04/15/23 02:54	OP96301	(used for QC only; not part of job FC5164)
OP96301-DUP	4Q42999.D	04/15/23 03:08	OP96301	Duplicate
ZZZZZZ	4Q43000.D	04/15/23 03:22	OP96323	(unrelated sample)
ZZZZZZ	4Q43001.D	04/15/23 03:36	OP96323	(unrelated sample)
S4Q621-ECC621	4Q43002.D	04/15/23 03:50	n/a	Ending cal 4
S4Q621-ICCB	4Q43003.D	04/15/23 04:04	n/a	Continuing Calibration Blank

## Run Sequence Report

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q624	Method: EPA DRAFT 1633	Instrument ID: GCMS4Q		
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S4Q624-RT	4Q43145.D	04/18/23 10:28	n/a	Retention Time Marker
S4Q624-RT	4Q43146.D	04/18/23 10:44	n/a	Retention Time Marker
S4Q624-IBLK	4Q43148.D	04/18/23 11:12	n/a	Instrument Blank
S4Q624-IBLK	4Q43148.D	04/18/23 11:12	n/a	Instrument Blank
S4Q624-CC621	4Q43149.D	04/18/23 11:26	n/a	Continuing cal 4
S4Q624-CC621	4Q43150.D	04/18/23 11:40	n/a	Continuing cal 1.0LL
ZZZZZ	4Q43151.D	04/18/23 11:54	OP96371	(unrelated sample)
ZZZZZ	4Q43152.D	04/18/23 12:08	OP96371	(unrelated sample)
ZZZZZ	4Q43153.D	04/18/23 12:22	OP96368	(unrelated sample)
OP96403-BS	4Q43154.D	04/18/23 12:36	OP96403	Blank Spike
OP96403-LLBS	4Q43155.D	04/18/23 12:54	OP96403	Blank Spike
OP96403-MB	4Q43156.D	04/18/23 13:08	OP96403	Method Blank
FC5164-1	4Q43157.D	04/18/23 13:22	OP96403	AF-HDMW225303-WGN01LF-2304W2
FC5164-2	4Q43158.D	04/18/23 13:36	OP96403	AF-RHMW10-WGN01LF-2304W2
FC5194-1	4Q43159.D	04/18/23 13:50	OP96403	(used for QC only; not part of job FC5164)
OP96403-MS	4Q43160.D	04/18/23 14:04	OP96403	Matrix Spike
S4Q624-CC621	4Q43161.D	04/18/23 14:29	n/a	Continuing cal 4
S4Q624-ICCB	4Q43162.D	04/18/23 14:43	n/a	Continuing Calibration Blank
FC5194-2	4Q43163.D	04/18/23 14:57	OP96403	(used for QC only; not part of job FC5164)
OP96403-DUP	4Q43164.D	04/18/23 15:11	OP96403	Duplicate
ZZZZZ	4Q43165.D	04/18/23 15:25	OP96403	(unrelated sample)
FC5088-3	4Q43166.D	04/18/23 15:39	OP96368	(used for QC only; not part of job FC5164)
OP96427-BS	4Q43167.D	04/18/23 15:53	OP96427	Blank Spike
OP96427-LLBS	4Q43168.D	04/18/23 16:07	OP96427	Blank Spike
OP96427-MB	4Q43169.D	04/18/23 16:21	OP96427	Method Blank
ZZZZZ	4Q43170.D	04/18/23 16:35	OP96427	(unrelated sample)
FC5252-2	4Q43171.D	04/18/23 16:49	OP96427	(used for QC only; not part of job FC5164)
OP96427-MS	4Q43172.D	04/18/23 17:03	OP96427	Matrix Spike
S4Q624-CC621	4Q43173.D	04/18/23 17:17	n/a	Continuing cal 4
S4Q624-ICCB	4Q43174.D	04/18/23 17:32	n/a	Continuing Calibration Blank
FC5252-3	4Q43175.D	04/18/23 17:46	OP96427	(used for QC only; not part of job FC5164)
OP96427-DUP	4Q43176.D	04/18/23 18:00	OP96427	Duplicate
ZZZZZ	4Q43177.D	04/18/23 18:14	OP96427	(unrelated sample)
ZZZZZ	4Q43178.D	04/18/23 18:28	OP96427	(unrelated sample)
OP96386-BS	4Q43179.D	04/18/23 18:42	OP96386	Blank Spike
OP96386-LLBS	4Q43180.D	04/18/23 18:56	OP96386	Blank Spike
OP96386-MB	4Q43181.D	04/18/23 19:10	OP96386	Method Blank
ZZZZZ	4Q43182.D	04/18/23 19:24	OP96386	(unrelated sample)
ZZZZZ	4Q43183.D	04/18/23 19:38	OP96386	(unrelated sample)
S4Q624-CC621	4Q43184.D	04/18/23 19:52	n/a	Continuing cal 4
S4Q624-CC621	4Q43185.D	04/18/23 20:06	n/a	Continuing cal 1.0LL
S4Q624-ICCB	4Q43186.D	04/18/23 20:20	n/a	Continuing Calibration Blank
JD63151-3	4Q43187.D	04/18/23 20:34	OP96386	(used for QC only; not part of job FC5164)
OP96386-MS	4Q43188.D	04/18/23 20:48	OP96386	Matrix Spike
JD63151-4	4Q43189.D	04/18/23 21:02	OP96386	(used for QC only; not part of job FC5164)
OP96386-DUP	4Q43190.D	04/18/23 21:17	OP96386	Duplicate

# Run Sequence Report

Job Number: FC5164  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q624	Method: EPA DRAFT 1633	Instrument ID: GCMS4Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
ZZZZZZ	4Q43191.D	04/18/23 21:31	OP96386	(unrelated sample)
ZZZZZZ	4Q43192.D	04/18/23 21:45	OP96386	(unrelated sample)
ZZZZZZ	4Q43193.D	04/18/23 21:59	OP96386	(unrelated sample)
ZZZZZZ	4Q43194.D	04/18/23 22:13	OP96386	(unrelated sample)
ZZZZZZ	4Q43195.D	04/18/23 22:27	OP96386	(unrelated sample)
S4Q624-CC621	4Q43196.D	04/18/23 22:41	n/a	Continuing cal 4
S4Q624-ICCB	4Q43197.D	04/18/23 22:55	n/a	Continuing Calibration Blank
ZZZZZZ	4Q43198.D	04/18/23 23:09	OP96386	(unrelated sample)
ZZZZZZ	4Q43199.D	04/18/23 23:23	OP96386	(unrelated sample)
ZZZZZZ	4Q43200.D	04/18/23 23:37	OP96386	(unrelated sample)
ZZZZZZ	4Q43201.D	04/18/23 23:51	OP96386	(unrelated sample)
ZZZZZZ	4Q43202.D	04/19/23 00:05	OP96386	(unrelated sample)
ZZZZZZ	4Q43203.D	04/19/23 00:19	OP96386	(unrelated sample)
S4Q624-CC621	4Q43204.D	04/19/23 00:33	n/a	Continuing cal 4
S4Q624-ICCB	4Q43205.D	04/19/23 00:47	n/a	Continuing Calibration Blank
S4Q624-ICCB	4Q43205.D	04/19/23 00:47	n/a	Continuing Calibration Blank
OP96364-BS	4Q43206.D	04/19/23 01:01	OP96364	Blank Spike
OP96364-LLBS	4Q43207.D	04/19/23 01:16	OP96364	Blank Spike
OP96364-MB	4Q43208.D	04/19/23 01:30	OP96364	Method Blank
JD62946-1	4Q43209.D	04/19/23 01:44	OP96364	(used for QC only; not part of job FC5164)
OP96364-MS	4Q43210.D	04/19/23 01:58	OP96364	Matrix Spike
JD62924-1B	4Q43211.D	04/19/23 02:12	OP96364	(used for QC only; not part of job FC5164)
OP96364-DUP	4Q43212.D	04/19/23 02:26	OP96364	Duplicate
ZZZZZZ	4Q43213.D	04/19/23 02:40	OP96364	(unrelated sample)
ZZZZZZ	4Q43214.D	04/19/23 02:54	OP96364	(unrelated sample)
ZZZZZZ	4Q43215.D	04/19/23 03:08	OP96364	(unrelated sample)
S4Q624-CC621	4Q43216.D	04/19/23 03:22	n/a	Continuing cal 4
S4Q624-ICCB	4Q43217.D	04/19/23 03:36	n/a	Continuing Calibration Blank
ZZZZZZ	4Q43218.D	04/19/23 03:50	OP96364	(unrelated sample)
ZZZZZZ	4Q43219.D	04/19/23 04:04	OP96364	(unrelated sample)
ZZZZZZ	4Q43220.D	04/19/23 04:18	OP96364	(unrelated sample)
ZZZZZZ	4Q43221.D	04/19/23 04:32	OP96364	(unrelated sample)
ZZZZZZ	4Q43222.D	04/19/23 04:46	OP96364	(unrelated sample)
ZZZZZZ	4Q43223.D	04/19/23 05:00	OP96364	(unrelated sample)
ZZZZZZ	4Q43224.D	04/19/23 05:15	OP96364	(unrelated sample)
ZZZZZZ	4Q43225.D	04/19/23 05:29	OP96364	(unrelated sample)
ZZZZZZ	4Q43226.D	04/19/23 05:43	OP96364	(unrelated sample)
ZZZZZZ	4Q43227.D	04/19/23 05:57	OP96364	(unrelated sample)
S4Q624-CC621	4Q43228.D	04/19/23 06:11	n/a	Continuing cal 4
S4Q624-CC621	4Q43229.D	04/19/23 06:25	n/a	Continuing cal 1.0LL
S4Q624-ICCB	4Q43230.D	04/19/23 06:39	n/a	Continuing Calibration Blank
ZZZZZZ	4Q43231.D	04/19/23 06:53	OP96364	(unrelated sample)
ZZZZZZ	4Q43232.D	04/19/23 07:07	OP96364	(unrelated sample)
ZZZZZZ	4Q43233.D	04/19/23 07:21	OP96364	(unrelated sample)
ZZZZZZ	4Q43234.D	04/19/23 07:35	OP96364	(unrelated sample)
S4Q624-ECC621	4Q43235.D	04/19/23 07:49	n/a	Ending cal 4

# Run Sequence Report

**Job Number:** FC5164  
**Account:** AECOMCOD AECOM, INC.  
**Project:** N6274223F0104 RH Fire Suppression System

<b>Run ID:</b> S4Q624	<b>Method:</b> EPA DRAFT 1633	<b>Instrument ID:</b> GCMS4Q
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<b>Lab Sample ID</b>	<b>Lab File ID</b>	<b>Date/Time Analyzed</b>	<b>Prep QC Batch</b>	<b>Client Sample ID</b>
S4Q624-ICCB	4Q43236.D	04/19/23 08:03	n/a	Continuing Calibration Blank

6.9.2

6

**MS Semi-volatiles**

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**Raw Data**

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43157.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 4/18/2023 1:22:42 PM  
 Sample Name : FC5164-1  
 Vial : P4-C4  
 DA Method File : 1633\_041423\_S4Q621.quantmethod.xml  
 Batch Name : s4q624.batch.bin  
 Sample Information : OP96403,S4q624,560,,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	3.002	216.8 -> 171.9	115127	10.00 µg/L	0.041
M5-PFPeA	4.462	268.3 -> 223.0	61605	5.00 µg/L	0.012
M5-PFHxA	5.622	318.0 -> 273.0	47703	2.50 µg/L	0.000
M4-PFHpA	6.555	367.1 -> 322.0	24513	2.50 µg/L	0.000
M8-PFOA	7.213	421.1 -> 376.0	29915	2.50 µg/L	0.000
M9-PFNA	7.758	472.1 -> 427.0	16085	1.25 µg/L	-0.001
M6-PFDA	8.265	519.1 -> 474.1	15442	1.25 µg/L	-0.001
M7-PFUnDA	8.747	570.0 -> 525.1	15872	1.25 µg/L	-0.001
M2-PFDoDA	9.193	615.1 -> 570.0	18223	1.25 µg/L	-0.001
M2-PFTeDA	9.998	715.2 -> 670.0	12536	1.25 µg/L	0.011
M8-FOSA	9.845	506.1 -> 77.8	12416	2.50 µg/L	0.011
M3-PFBS	5.539	302.1 -> 79.9	10371	2.50 µg/L	0.012
M3-PFHxS	7.316	402.1 -> 79.9	6529	2.50 µg/L	-0.001
M8-PFOS	8.417	507.1 -> 79.9	9067	2.50 µg/L	0.000
M2-4:2FTS	5.310	329.1 -> 80.9	1345	5.00 µg/L	0.001
M2-6:2FTS	6.973	429.1 -> 80.9	2140	5.00 µg/L	-0.001
M2-8:2FTS	8.052	529.1 -> 80.9	3167	5.00 µg/L	-0.001
M3-MeFOSAA	8.323	573.2 -> 419.0	14046	5.00 µg/L	-0.001
M3-HFPO-DA	5.989	286.9 -> 168.9	30227	10.00 µg/L	0.000
M5-EtFOSAA	8.532	589.2 -> 419.0	11333	5.00 µg/L	-0.001
M7-MeFOSE	10.972	623.2 -> 58.9	44583	25.00 µg/L	-0.002
M9-EtFOSE	11.269	639.2 -> 58.9	55323	25.00 µg/L	-0.013
M5-EtFOSA	11.373	531.1 -> 219.0	7385	2.50 µg/L	-0.001
M3-MeFOSA	11.089	515.0 -> 219.0	6833	2.50 µg/L	-0.002
13C4-PFOS	8.418	502.8 -> 79.9	9159	2.50 µg/L	0.000
13C3-PFBA	3.005	216.0 -> 172.0	58851	5.00 µg/L	0.040
18O2-PFHxS	7.315	403.0 -> 83.9	4297	2.50 µg/L	-0.001
13C4-PFOA	7.214	417.1 -> 372.0	34778	2.50 µg/L	0.000
13C2-PFDA	8.265	515.1 -> 470.1	12876	1.25 µg/L	-0.001
13C5-PFNA	7.759	468.0 -> 423.0	17289	1.25 µg/L	-0.001
13C2-PFHxA	5.623	315.1 -> 270.0	39279	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.310	329.1 -> 80.9	1345	5.73 µg/L	0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.6%		
13C2-6:2FTS	6.973	429.1 -> 80.9	2140	6.35 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 127.0%		
13C2-8:2FTS	8.052	529.1 -> 80.9	3167	5.71 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.3%		
13C2-PFDoDA	9.193	615.1 -> 570.0	18223	1.15 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.9%		
13C2-PFTeDA	9.998	715.2 -> 670.0	12536	1.02 µg/L	0.011
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 81.3%		
13C3-PFBS	5.539	302.1 -> 79.9	10371	2.63 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.0%		
13C3-PFHxS	7.316	402.1 -> 79.9	6529	2.74 µg/L	-0.001



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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.8%	
13C4-PFBA	3.002	216.8 -> 171.9	115127	11.23 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 112.3%	
13C4-PFHpA	6.555	367.1 -> 322.0	24513	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.9%	
13C5-PFHxA	5.622	318.0 -> 273.0	47703	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.1%	
13C5-PFPeA	4.462	268.3 -> 223.0	61605	5.32 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C6-PFDA	8.265	519.1 -> 474.1	15442	1.36 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.1%	
13C7-PFUnDA	8.747	570.0 -> 525.1	15872	1.29 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C8-FOSA	9.845	506.1 -> 77.8	12416	2.07 µg/L	0.011
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 82.9%	
13C8-PFOA	7.213	421.1 -> 376.0	29915	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C8-PFOS	8.417	507.1 -> 79.9	9067	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C9-PFNA	7.758	472.1 -> 427.0	16085	1.28 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.2%	
d3-MeFOSAA	8.323	573.2 -> 419.0	14046	5.21 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.1%	
13C3-HFPO-DA	5.989	286.9 -> 168.9	30227	10.96 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 109.6%	
d3-MeFOSA	11.089	515.0 -> 219.0	6833	2.41 µg/L	-0.002
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.4%	
d5-EtFOSAA	8.532	589.2 -> 419.0	11333	5.17 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
d7-MeFOSE	10.972	623.2 -> 58.9	44583	18.87 µg/L	-0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 75.5%	
d9-EtFOSE	11.269	639.2 -> 58.9	55323	19.14 µg/L	-0.013
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 76.6%	
d5-EtFOSA	11.373	531.1 -> 219.0	7385	2.41 µg/L	-0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.4%	

**Target Compounds**

Compound	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	8.713	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	0		
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.	
		363.1 -> 319.0			
PFHpS	-	363.1 -> 169.0	-	N.D.	
		449.0 -> 79.9			
PFHxA	-	449.0 -> 98.9	-	N.D.	
		313.0 -> 269.0			
PFHxS	-	313.0 -> 118.9	-	N.D.	
		398.7 -> 79.9			
PFNA	-	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

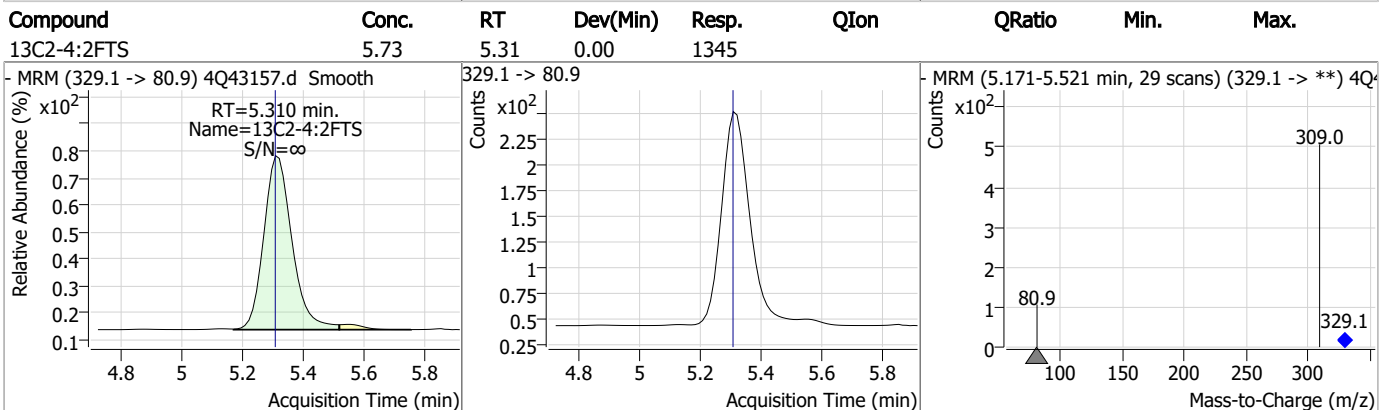
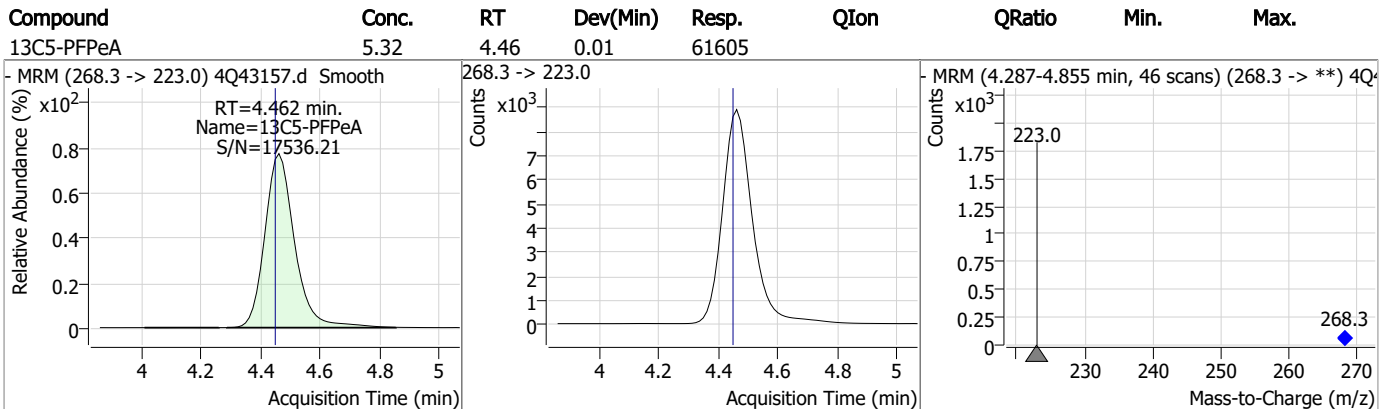
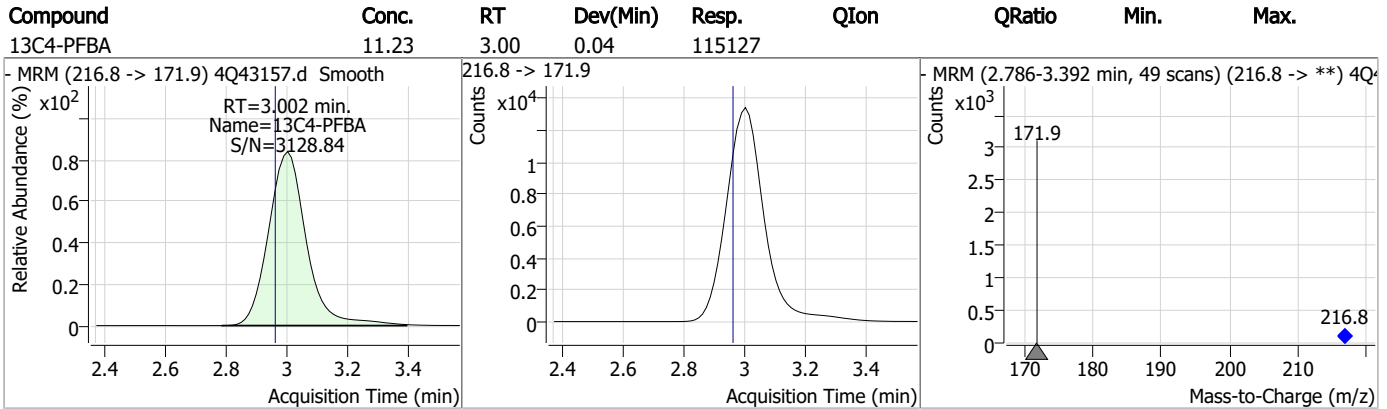
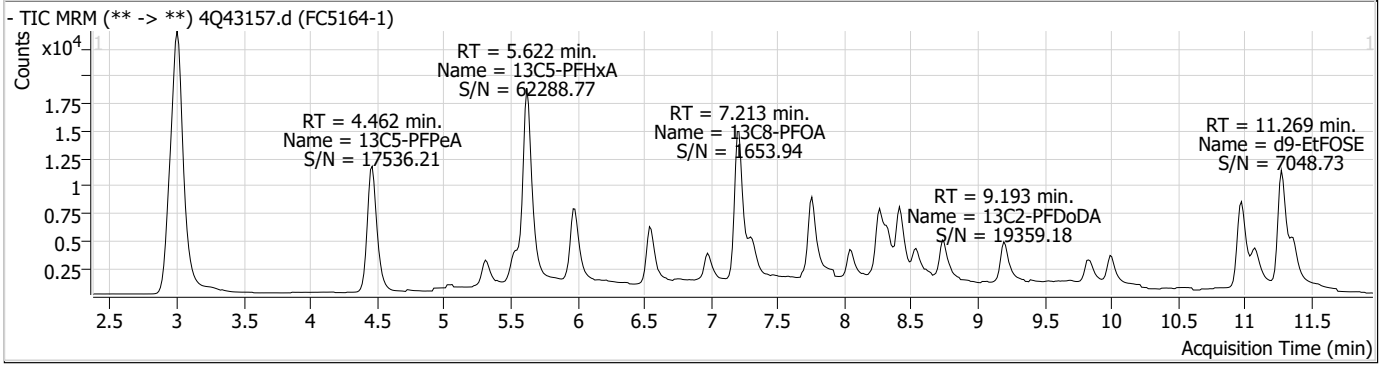


### Perfluorinated Compounds by LC/MS/MS

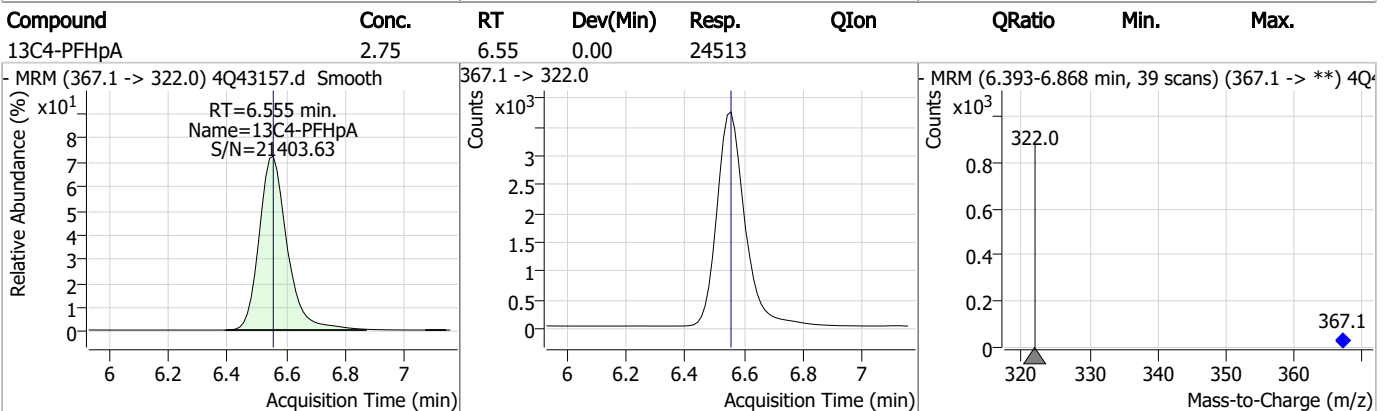
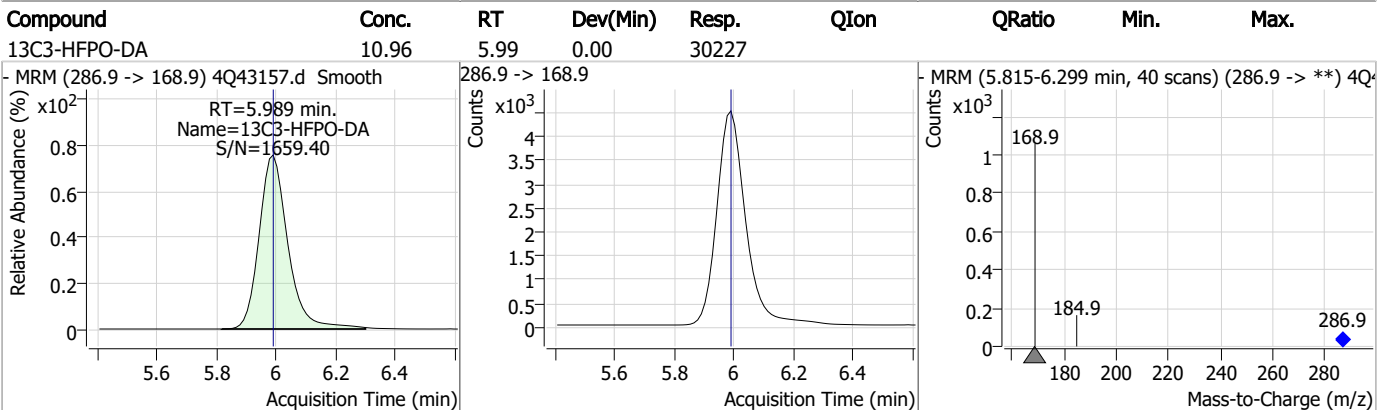
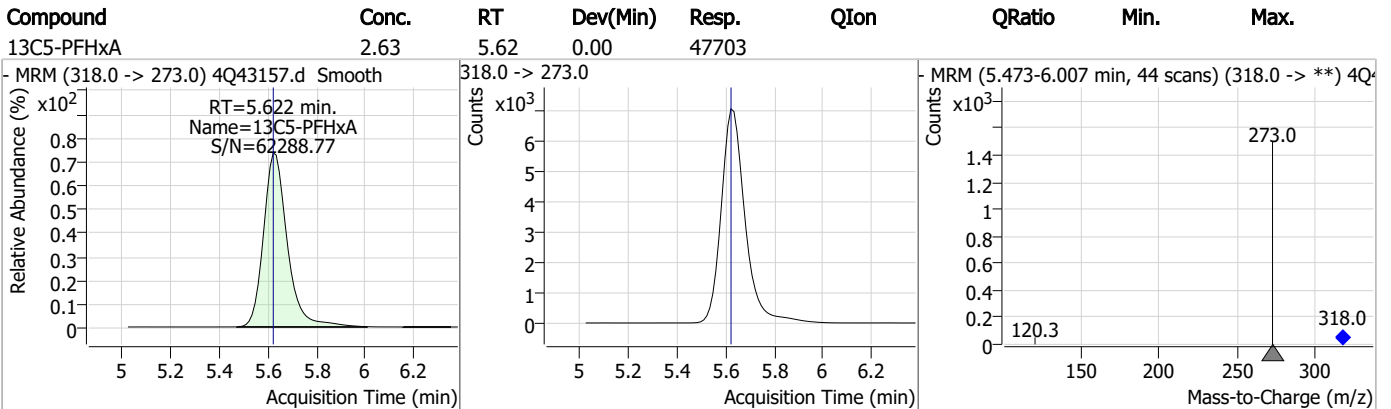
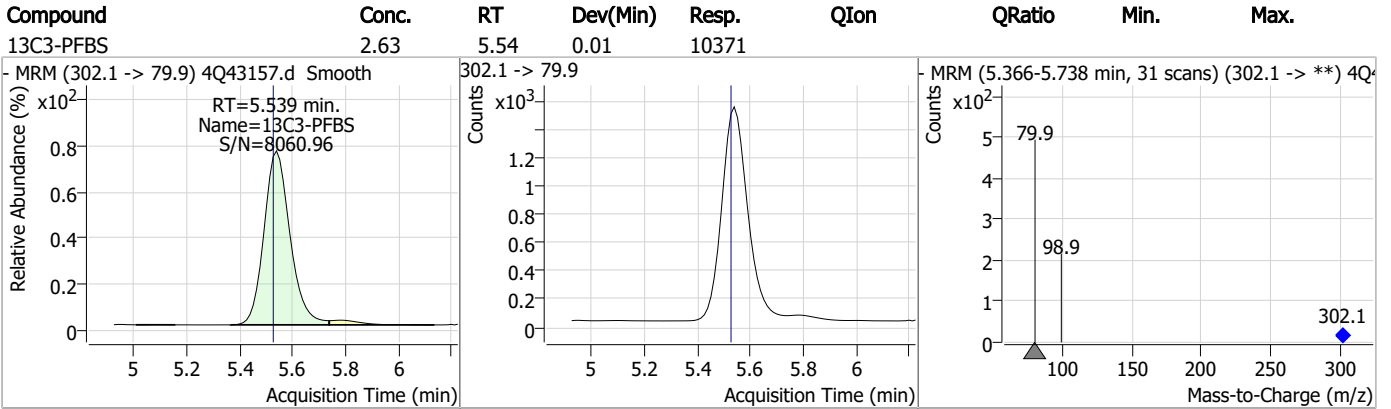
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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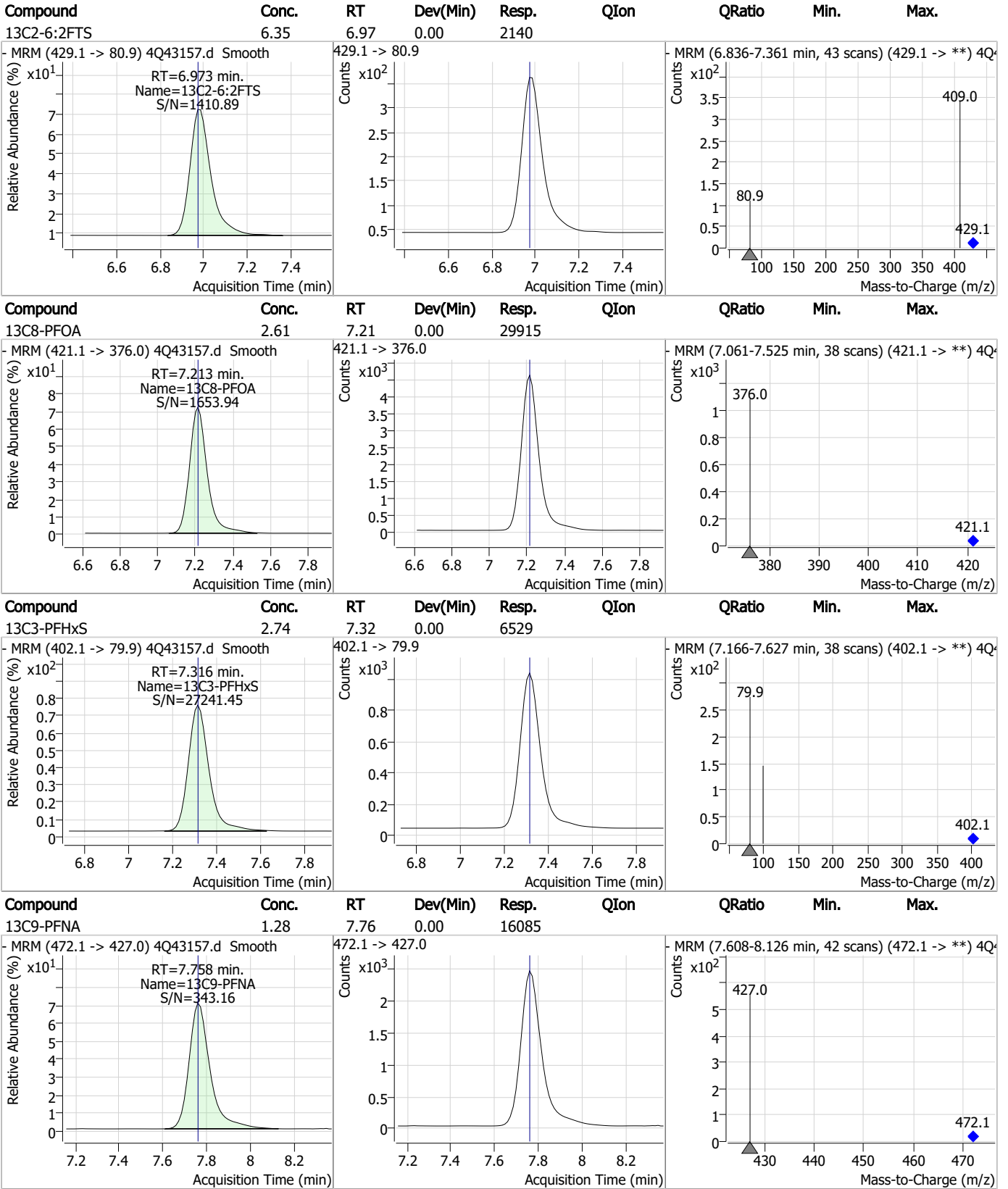
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



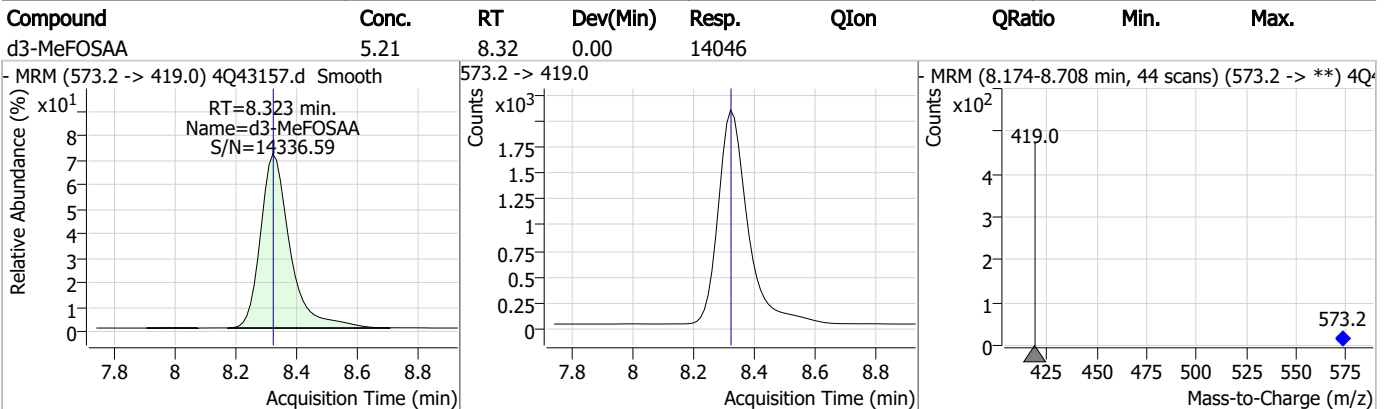
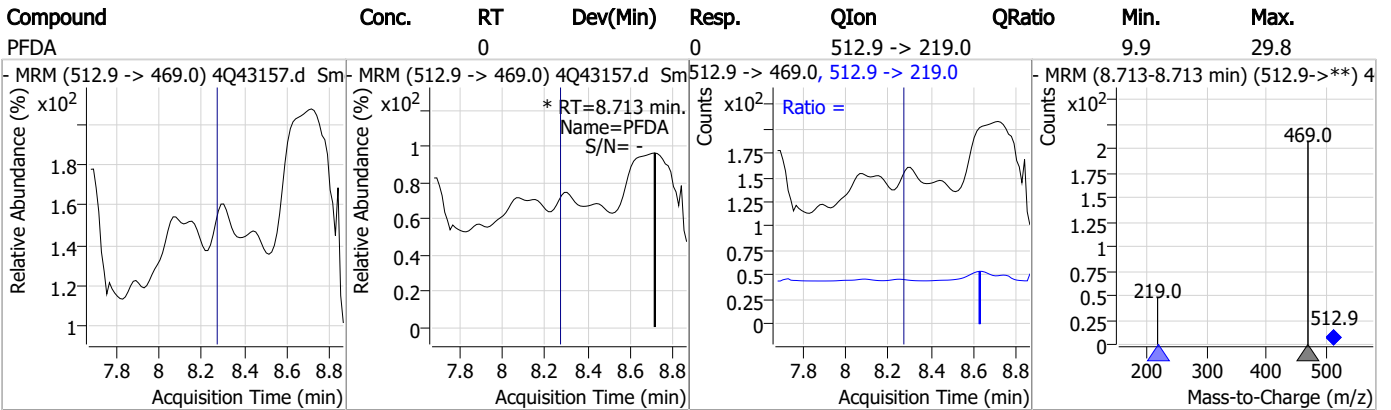
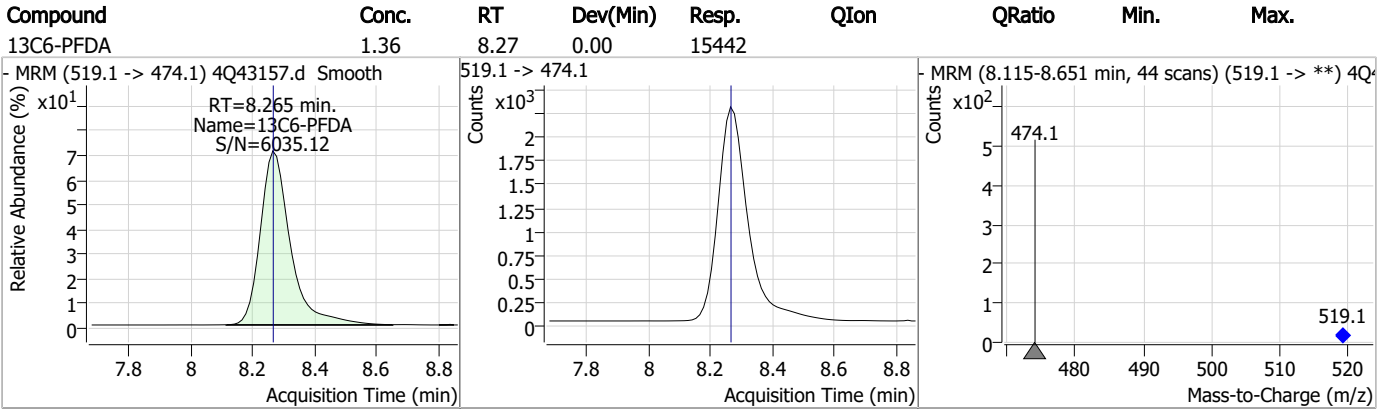
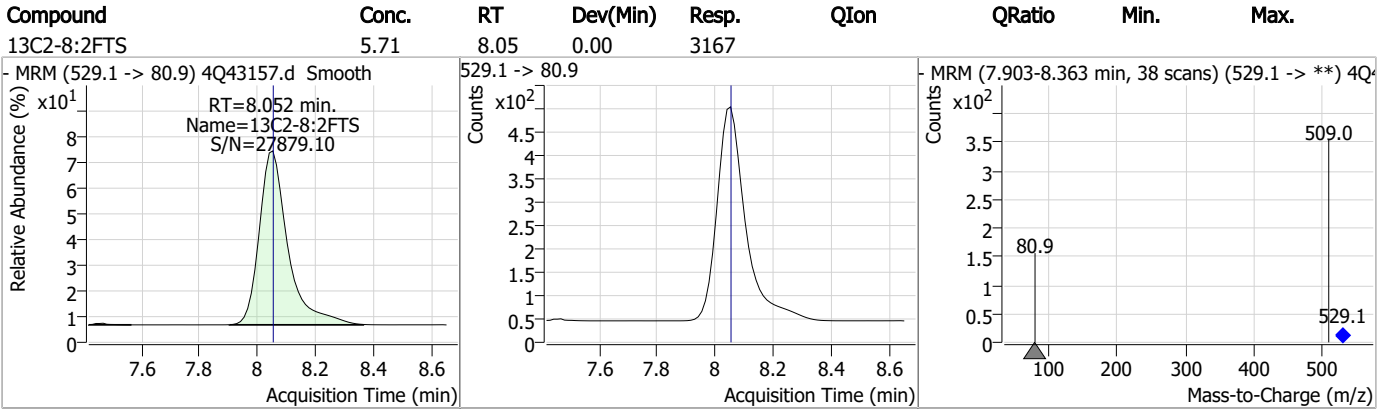
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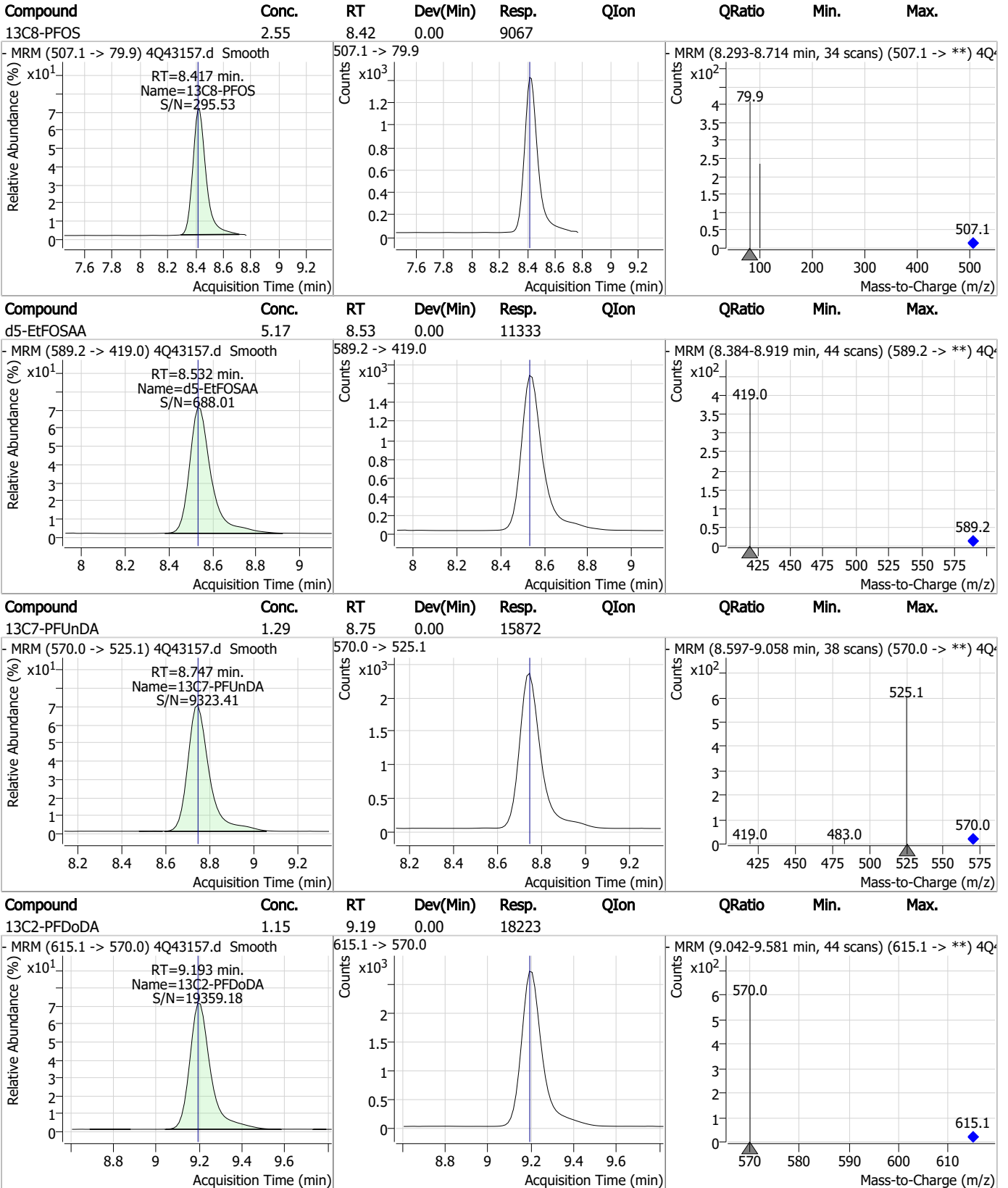
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### Perfluorinated Compounds by LC/MS/MS

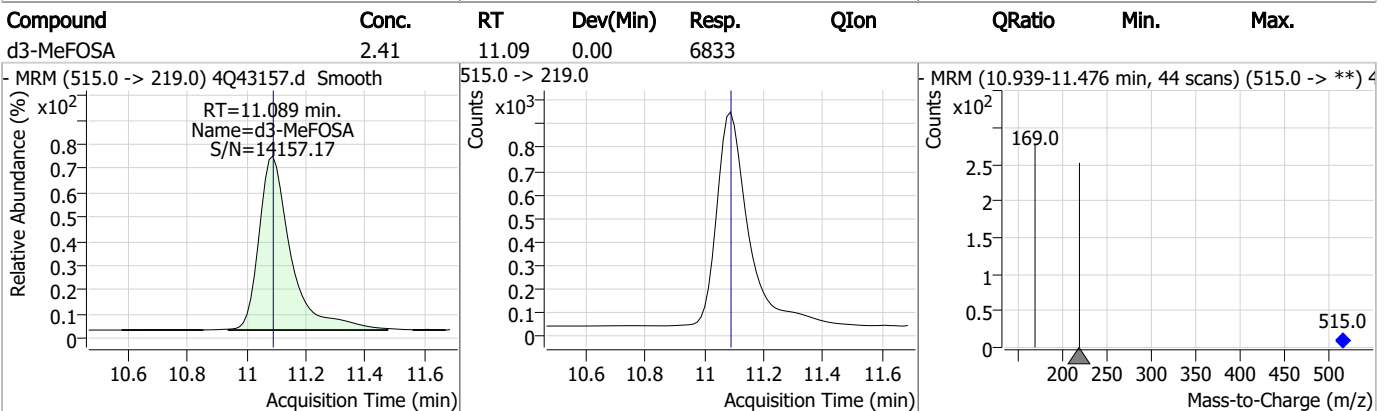
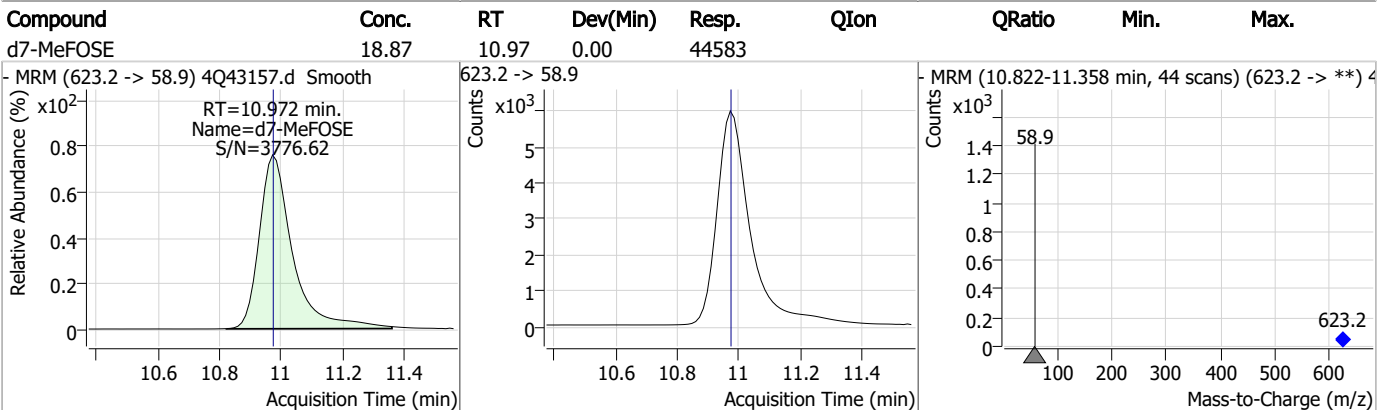
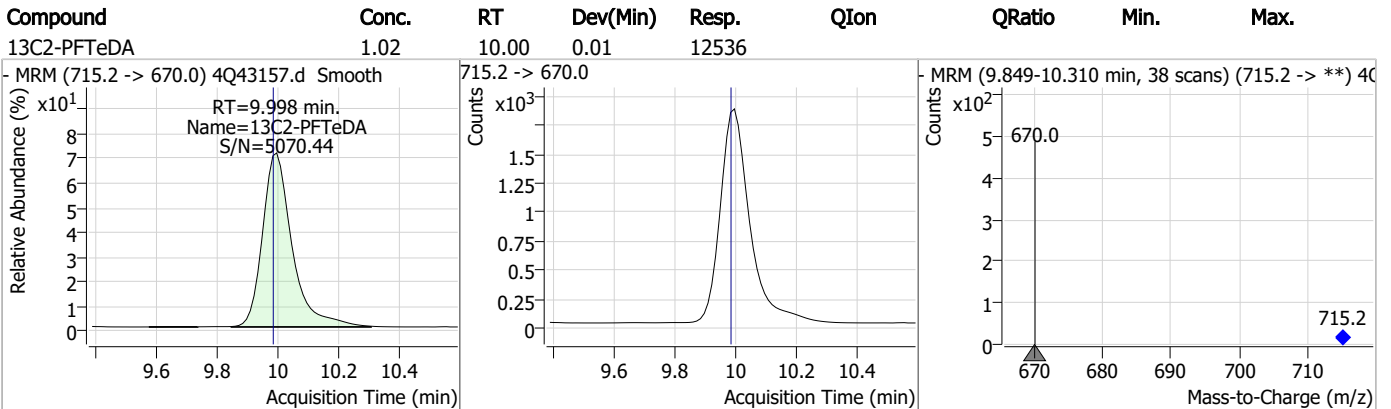
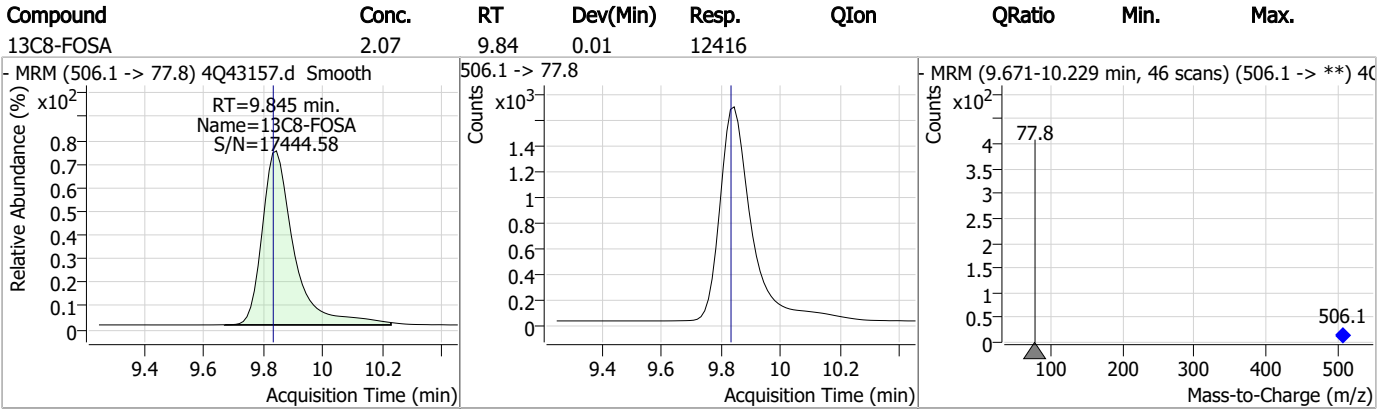


### Perfluorinated Compounds by LC/MS/MS



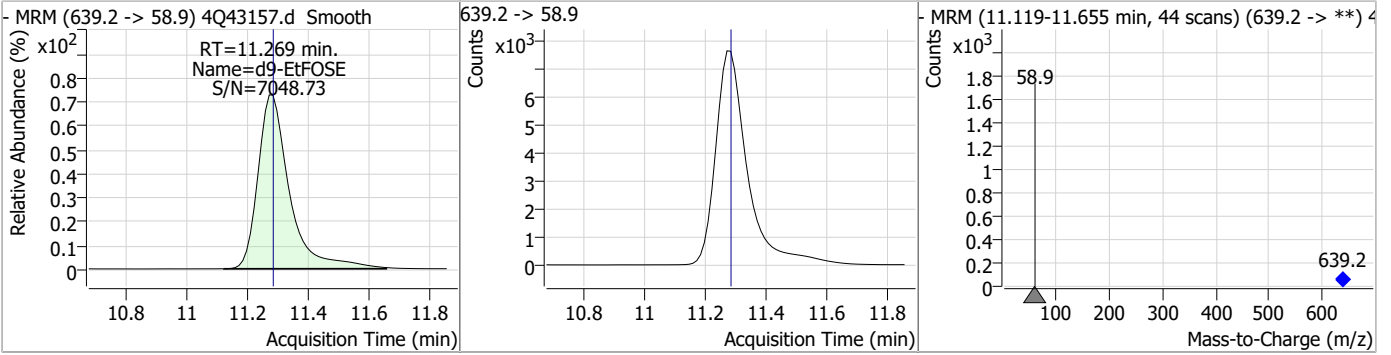
7.1.1  
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### Perfluorinated Compounds by LC/MS/MS

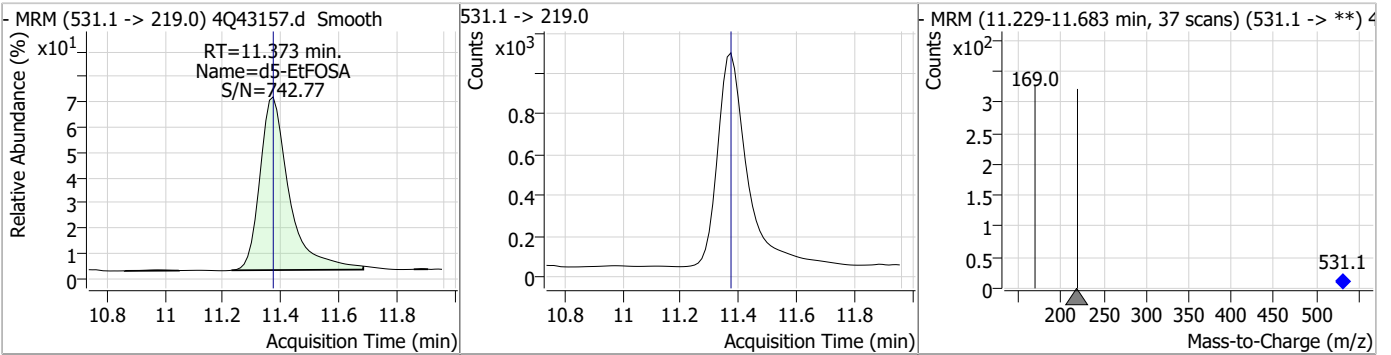


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	19.14	11.27	-0.01	55323				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.41	11.37	0.00	7385				



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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43158.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 4/18/2023 1:36:46 PM  
 Sample Name : FC5164-2  
 Vial : P4-C5  
 DA Method File : 1633\_041423\_S4Q621.quantmethod.xml  
 Batch Name : s4q624.batch.bin  
 Sample Information : OP96403,S4q624,550,,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	3.002	216.8 -> 171.9	115152	10.00 µg/L	0.041
M5-PFPeA	4.462	268.3 -> 223.0	60650	5.00 µg/L	0.012
M5-PFHxA	5.622	318.0 -> 273.0	47653	2.50 µg/L	0.000
M4-PFHpA	6.542	367.1 -> 322.0	23920	2.50 µg/L	-0.013
M8-PFOA	7.213	421.1 -> 376.0	29296	2.50 µg/L	0.000
M9-PFNA	7.758	472.1 -> 427.0	16316	1.25 µg/L	-0.001
M6-PFDA	8.265	519.1 -> 474.1	15438	1.25 µg/L	-0.001
M7-PFUnDA	8.747	570.0 -> 525.1	15026	1.25 µg/L	-0.001
M2-PFDoDA	9.193	615.1 -> 570.0	17096	1.25 µg/L	-0.001
M2-PFTeDA	9.986	715.2 -> 670.0	11123	1.25 µg/L	-0.001
M8-FOSA	9.845	506.1 -> 77.8	12751	2.50 µg/L	0.011
M3-PFBS	5.539	302.1 -> 79.9	10613	2.50 µg/L	0.012
M3-PFHxS	7.316	402.1 -> 79.9	6245	2.50 µg/L	-0.001
M8-PFOS	8.417	507.1 -> 79.9	8830	2.50 µg/L	0.000
M2-4:2FTS	5.310	329.1 -> 80.9	1439	5.00 µg/L	0.001
M2-6:2FTS	6.973	429.1 -> 80.9	1956	5.00 µg/L	-0.001
M2-8:2FTS	8.052	529.1 -> 80.9	3261	5.00 µg/L	-0.001
M3-MeFOSAA	8.323	573.2 -> 419.0	14050	5.00 µg/L	-0.001
M3-HFPO-DA	5.976	286.9 -> 168.9	29558	10.00 µg/L	-0.013
M5-EtFOSAA	8.532	589.2 -> 419.0	10861	5.00 µg/L	-0.001
M7-MeFOSE	10.972	623.2 -> 58.9	41412	25.00 µg/L	-0.002
M9-EtFOSE	11.281	639.2 -> 58.9	49824	25.00 µg/L	-0.001
M5-EtFOSA	11.373	531.1 -> 219.0	6819	2.50 µg/L	-0.001
M3-MeFOSA	11.089	515.0 -> 219.0	6143	2.50 µg/L	-0.002
13C4-PFOS	8.418	502.8 -> 79.9	8820	2.50 µg/L	0.000
13C3-PFBA	3.005	216.0 -> 172.0	57655	5.00 µg/L	0.040
18O2-PFHxS	7.315	403.0 -> 83.9	4190	2.50 µg/L	-0.001
13C4-PFOA	7.214	417.1 -> 372.0	33874	2.50 µg/L	0.000
13C2-PFDA	8.265	515.1 -> 470.1	12995	1.25 µg/L	-0.001
13C5-PFNA	7.759	468.0 -> 423.0	17154	1.25 µg/L	-0.001
13C2-PFHxA	5.623	315.1 -> 270.0	37678	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.310	329.1 -> 80.9	1439	6.29 µg/L	0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 125.8%		
13C2-6:2FTS	6.973	429.1 -> 80.9	1956	5.96 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.1%		
13C2-8:2FTS	8.052	529.1 -> 80.9	3261	6.03 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.7%		
13C2-PFDoDA	9.193	615.1 -> 570.0	17096	1.07 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 85.5%		
13C2-PFTeDA	9.986	715.2 -> 670.0	11123	0.89 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 71.5%		
13C3-PFBS	5.539	302.1 -> 79.9	10613	2.76 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.2%		
13C3-PFHxS	7.316	402.1 -> 79.9	6245	2.69 µg/L	-0.001

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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.7%	
13C4-PFBA	3.002	216.8 -> 171.9	115152	11.47 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 114.7%	
13C4-PFHpA	6.542	367.1 -> 322.0	23920	2.80 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.8%	
13C5-PFHxA	5.622	318.0 -> 273.0	47653	2.74 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.5%	
13C5-PFPeA	4.462	268.3 -> 223.0	60650	5.46 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.3%	
13C6-PFDA	8.265	519.1 -> 474.1	15438	1.35 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.1%	
13C7-PFUnDA	8.747	570.0 -> 525.1	15026	1.21 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C8-FOSA	9.845	506.1 -> 77.8	12751	2.21 µg/L	0.011
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.4%	
13C8-PFOA	7.213	421.1 -> 376.0	29296	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.1%	
13C8-PFOS	8.417	507.1 -> 79.9	8830	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C9-PFNA	7.758	472.1 -> 427.0	16316	1.31 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.4%	
d3-MeFOSAA	8.323	573.2 -> 419.0	14050	5.41 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.2%	
13C3-HFPO-DA	5.976	286.9 -> 168.9	29558	11.18 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 111.8%	
d3-MeFOSA	11.089	515.0 -> 219.0	6143	2.25 µg/L	-0.002
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.0%	
d5-EtFOSAA	8.532	589.2 -> 419.0	10861	5.14 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
d7-MeFOSE	10.972	623.2 -> 58.9	41412	18.20 µg/L	-0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 72.8%	
d9-EtFOSE	11.281	639.2 -> 58.9	49824	17.90 µg/L	-0.001
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 71.6%	
d5-EtFOSA	11.373	531.1 -> 219.0	6819	2.31 µg/L	-0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.5%	

**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.	

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	7.646	398.7 -> 98.9	0	µg/L	m	1
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	7.613	548.8 -> 98.9	0	µg/L	m	1
		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

7.1.2  
7



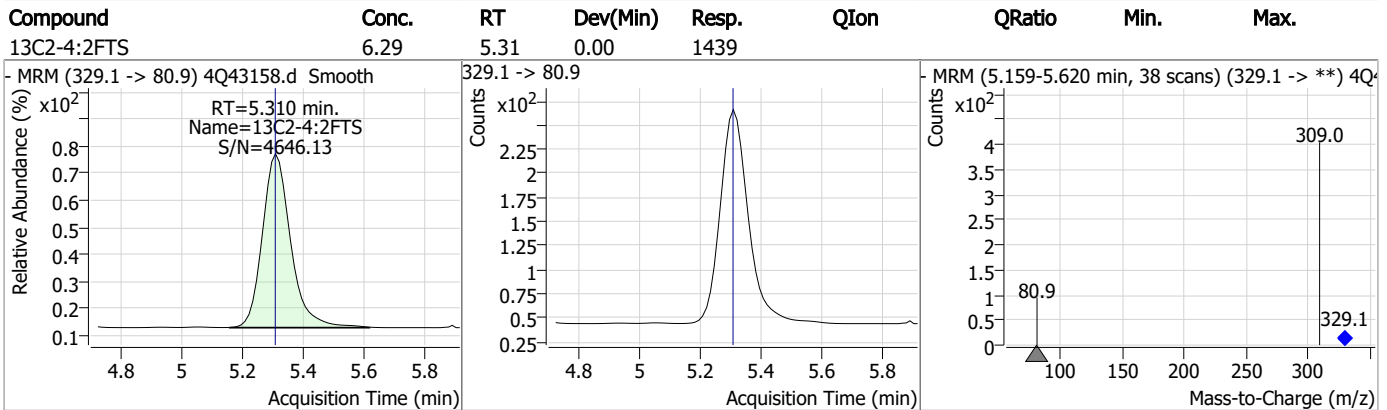
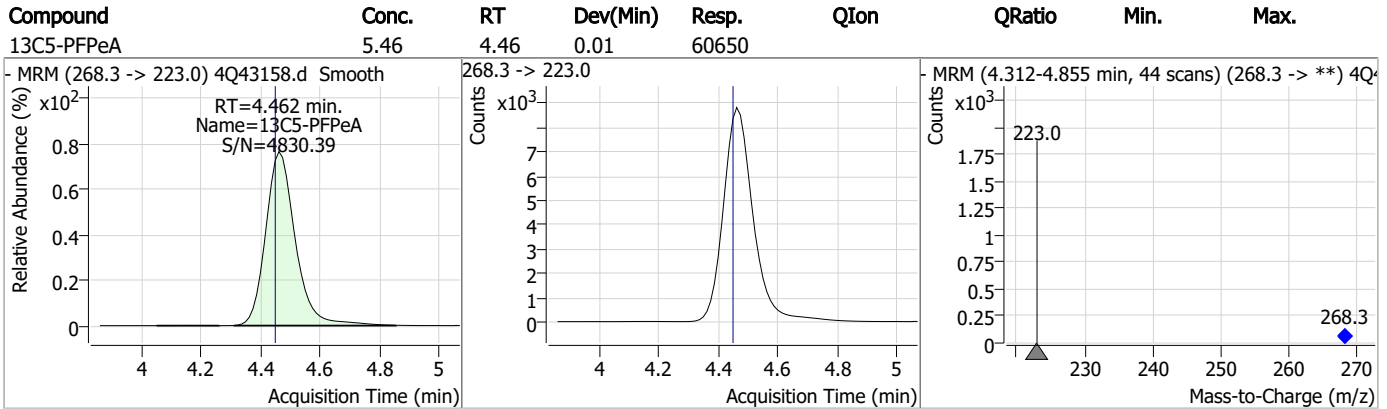
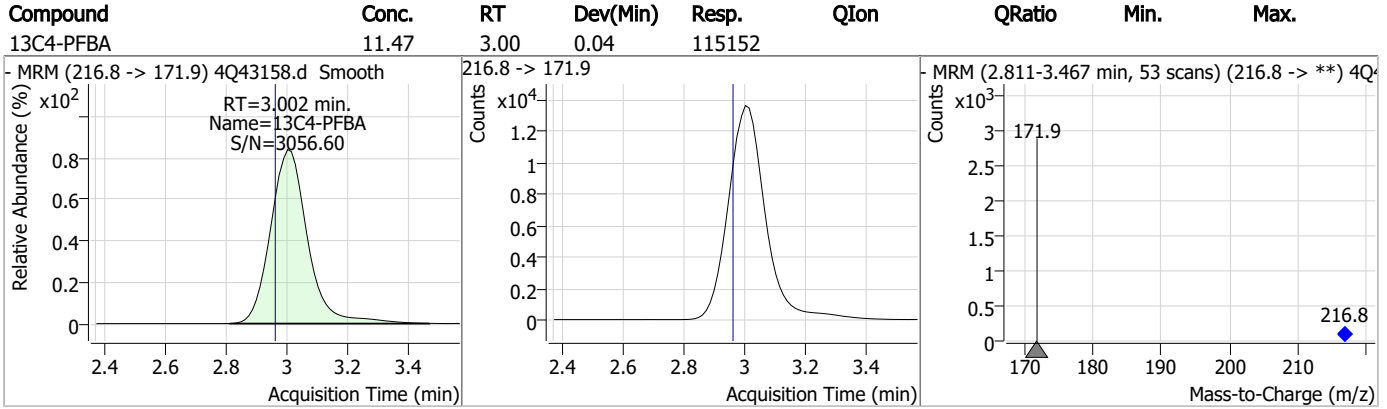
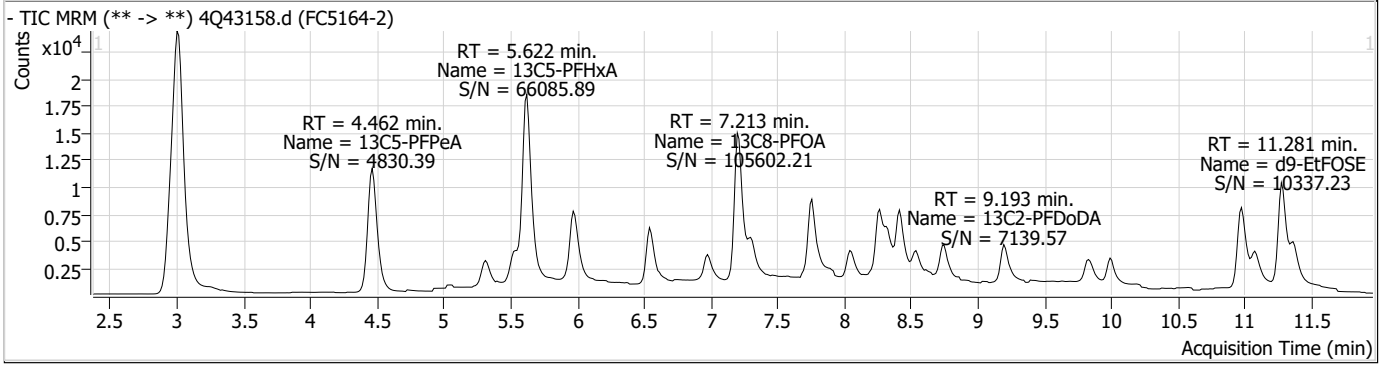
### Perfluorinated Compounds by LC/MS/MS

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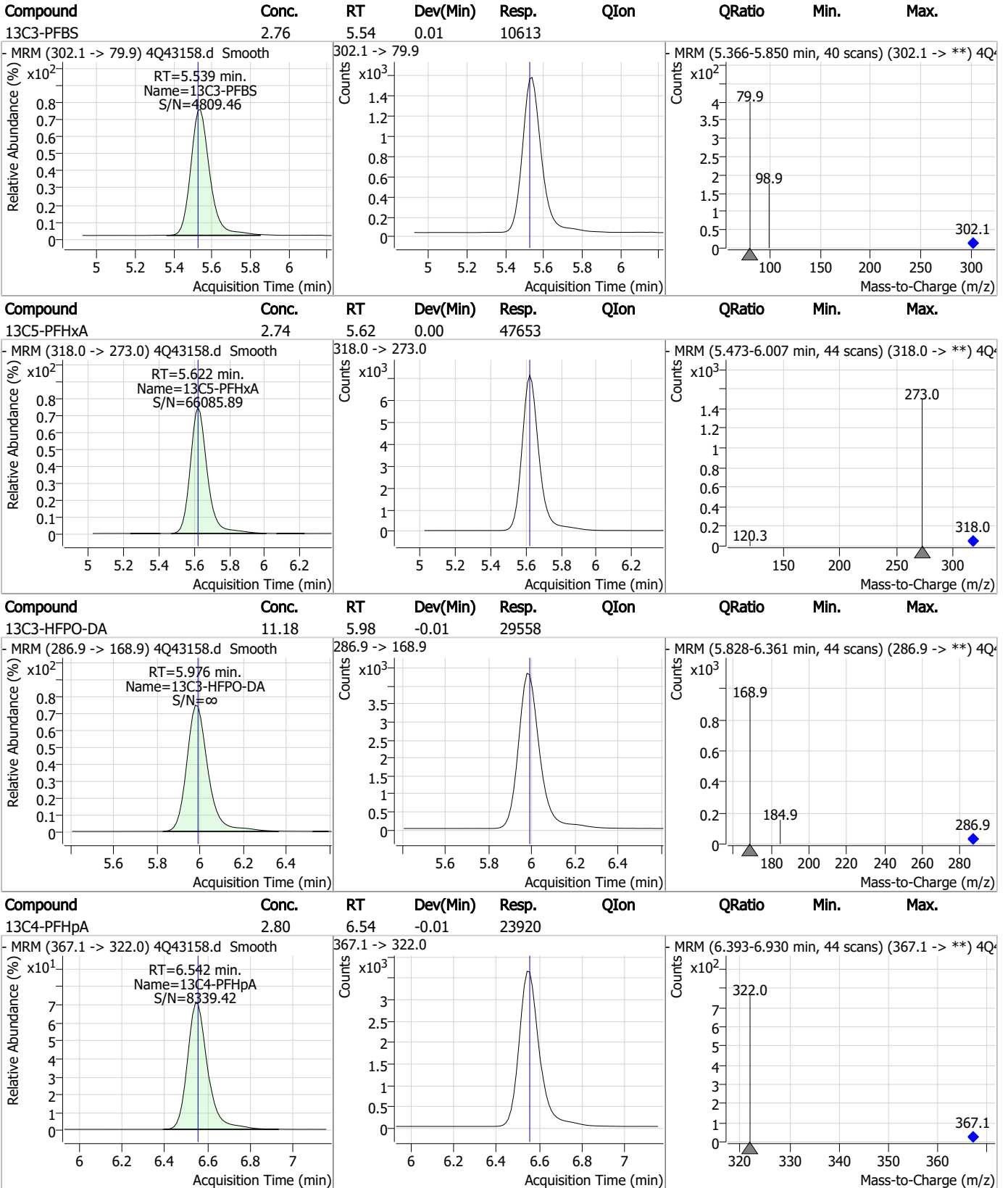
7.1.2

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### Perfluorinated Compounds by LC/MS/MS

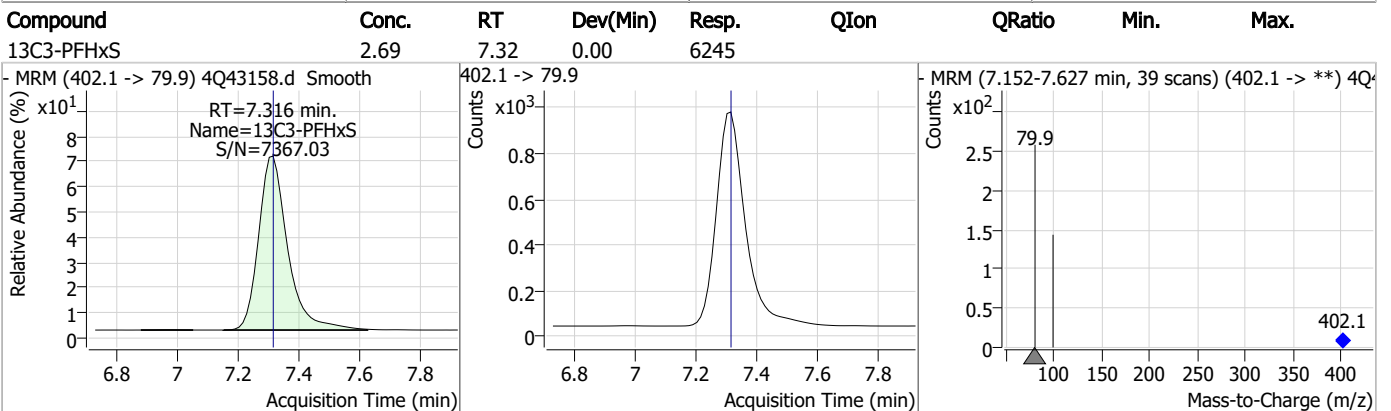
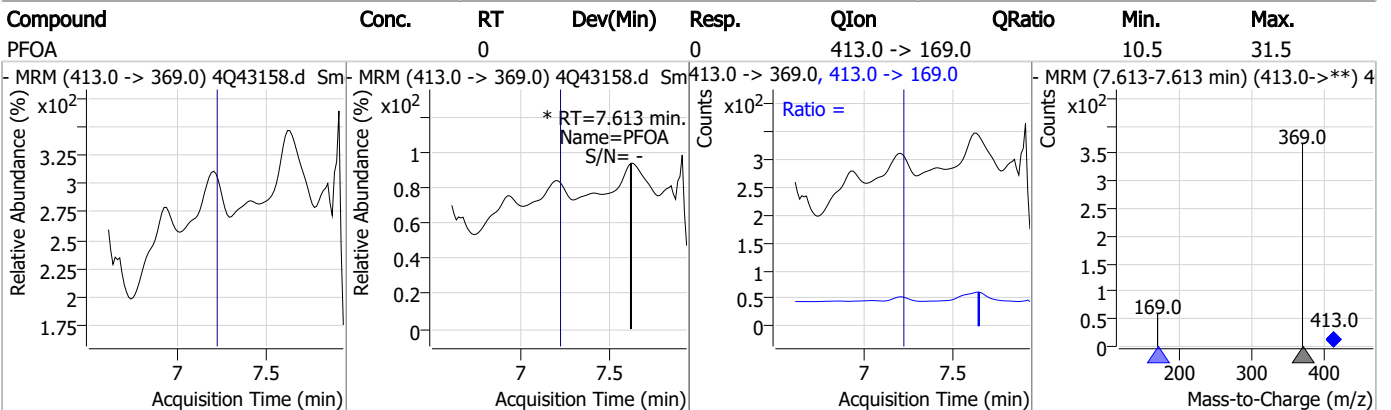
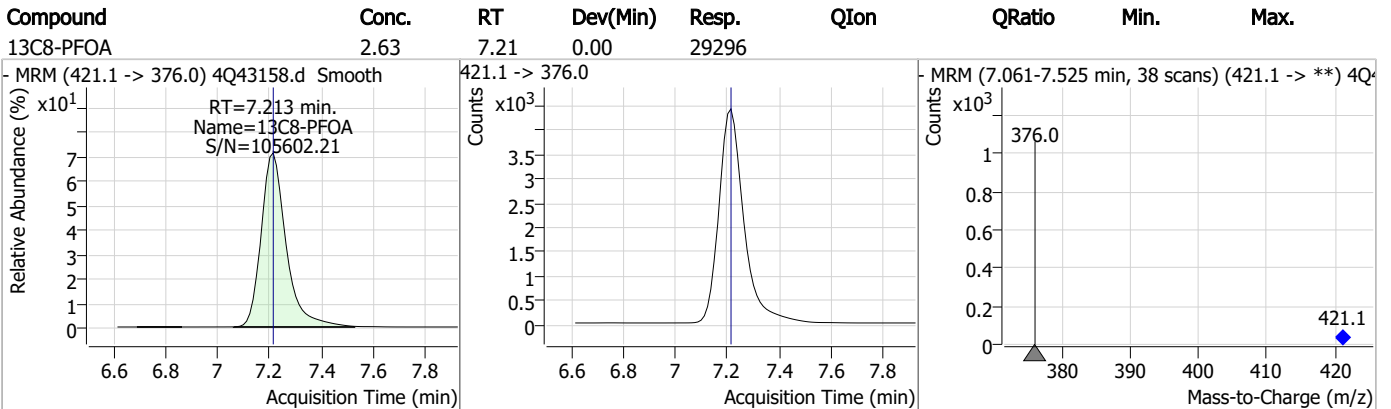
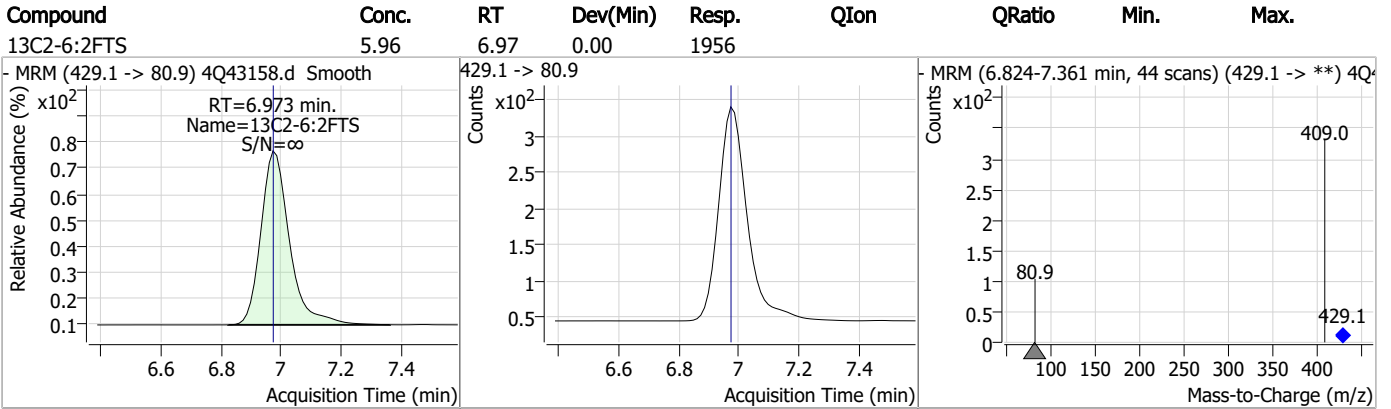


### Perfluorinated Compounds by LC/MS/MS

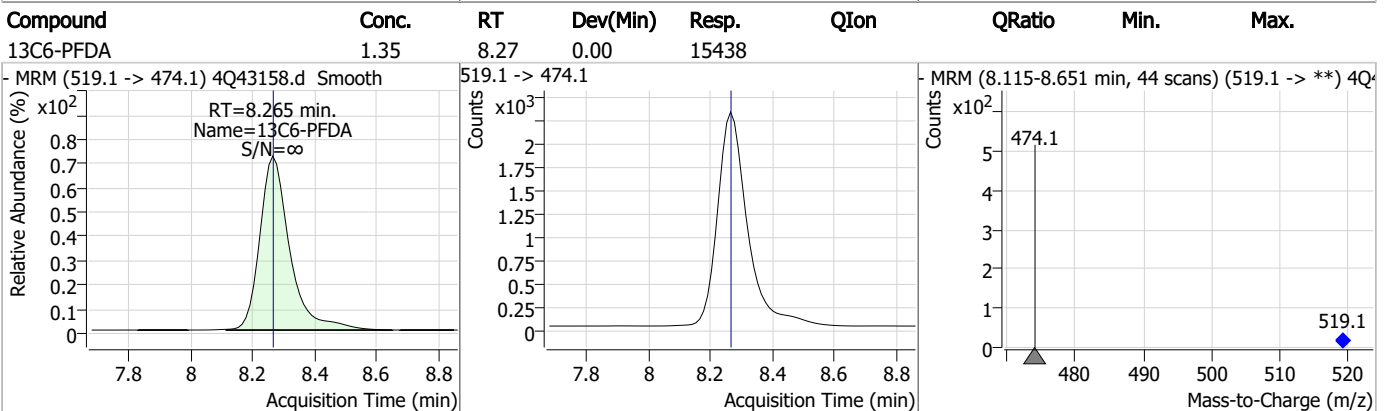
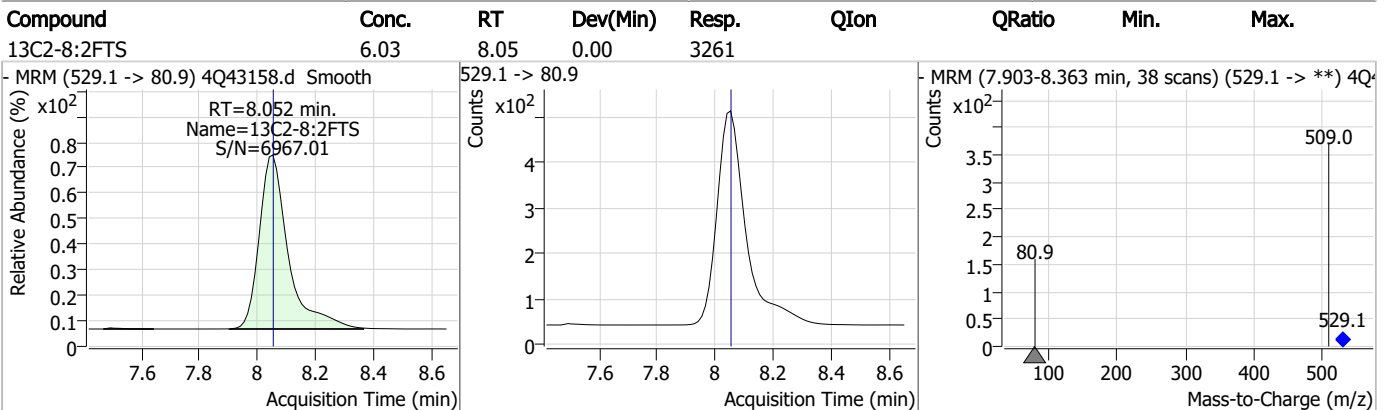
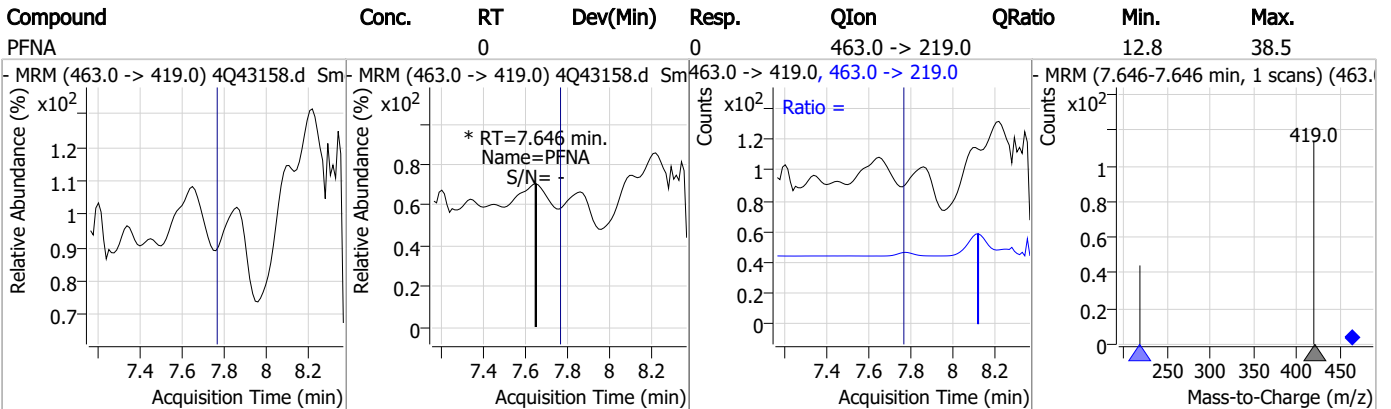
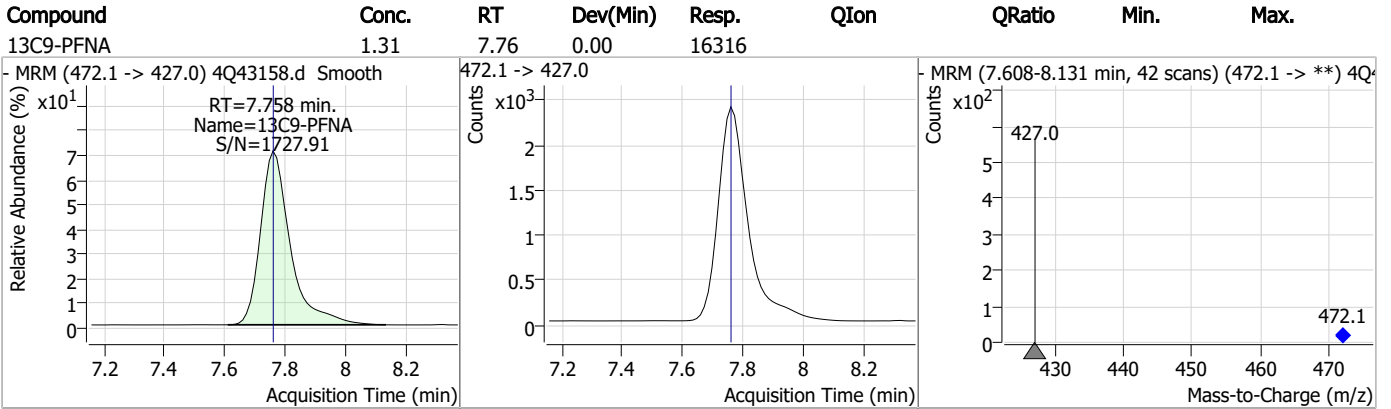


7.1.2  
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### Perfluorinated Compounds by LC/MS/MS

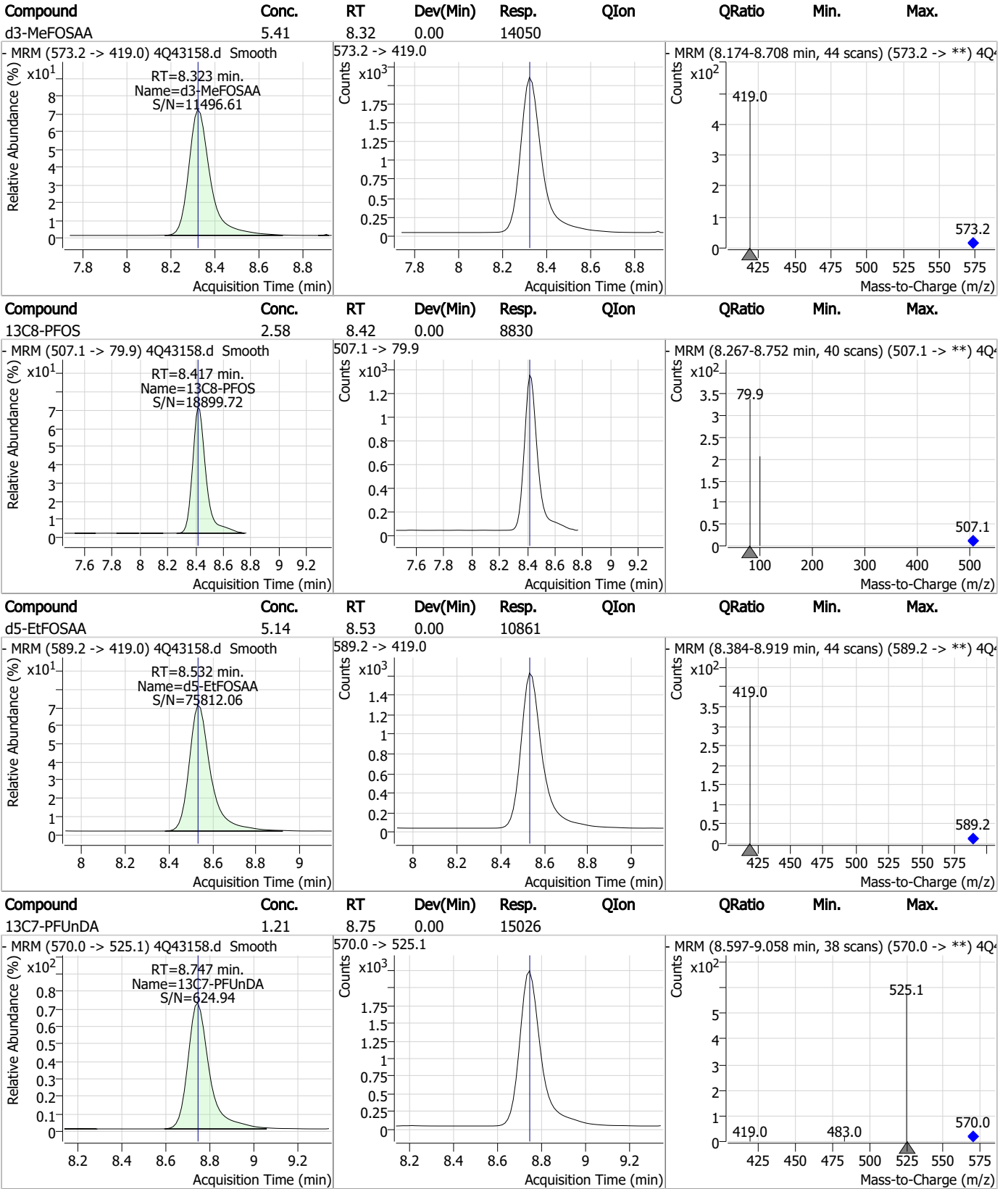


### Perfluorinated Compounds by LC/MS/MS





### Perfluorinated Compounds by LC/MS/MS

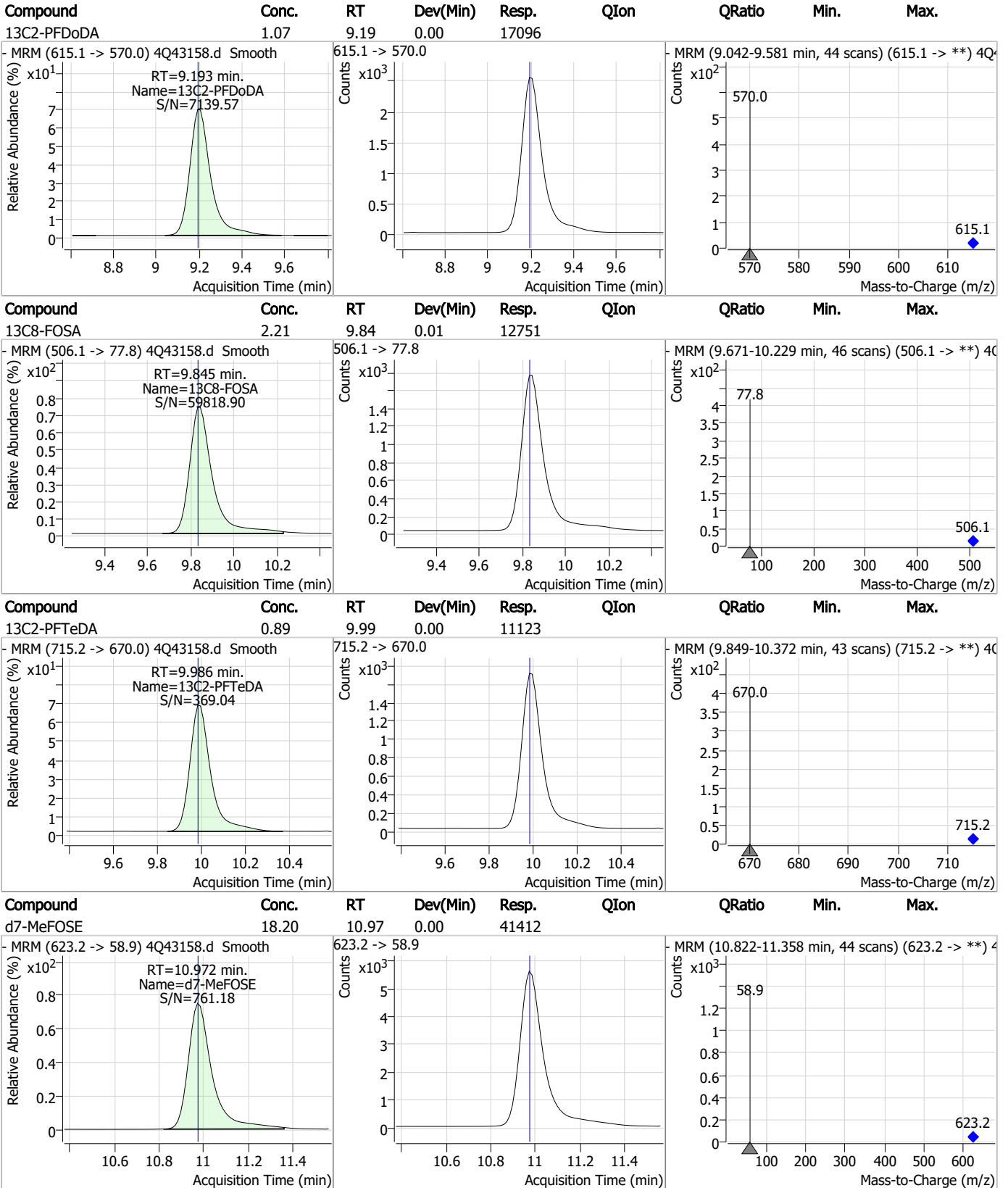


7.1.2

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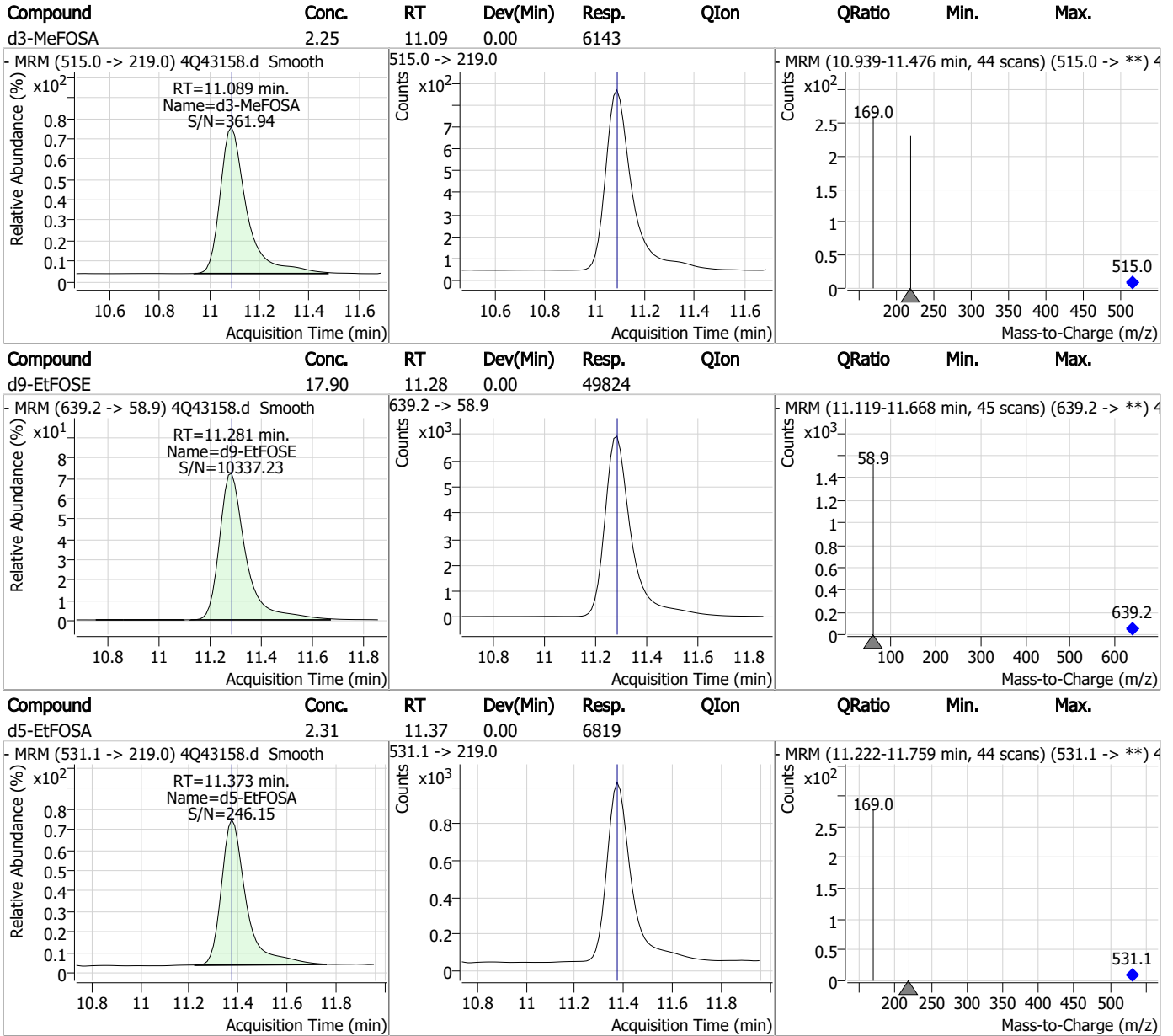


### Perfluorinated Compounds by LC/MS/MS



7.1.2  
7

Perfluorinated Compounds by LC/MS/MS



7.1.2

7

### Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43156.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 4/18/2023 1:08:39 PM  
 Sample Name : op96403-mb  
 Vial : P4-C3  
 DA Method File : 1633\_041423\_S4Q621.quantmethod.xml  
 Batch Name : s4q624.batch.bin  
 Sample Information : OP96403,S4q624,500,,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	3.002	216.8 -> 171.9	116020	10.00 µg/L	0.041
M5-PFPeA	4.462	268.3 -> 223.0	63132	5.00 µg/L	0.012
M5-PFHxA	5.622	318.0 -> 273.0	50188	2.50 µg/L	0.000
M4-PFHpA	6.542	367.1 -> 322.0	25101	2.50 µg/L	-0.013
M8-PFOA	7.213	421.1 -> 376.0	30804	2.50 µg/L	0.000
M9-PFNA	7.758	472.1 -> 427.0	17334	1.25 µg/L	-0.001
M6-PFDA	8.265	519.1 -> 474.1	17031	1.25 µg/L	-0.001
M7-PFUnDA	8.747	570.0 -> 525.1	16048	1.25 µg/L	-0.001
M2-PFDoDA	9.193	615.1 -> 570.0	18647	1.25 µg/L	-0.001
M2-PFTeDA	9.998	715.2 -> 670.0	11999	1.25 µg/L	0.011
M8-FOSA	9.845	506.1 -> 77.8	11866	2.50 µg/L	0.011
M3-PFBS	5.539	302.1 -> 79.9	10547	2.50 µg/L	0.012
M3-PFHxS	7.316	402.1 -> 79.9	6472	2.50 µg/L	-0.001
M8-PFOS	8.417	507.1 -> 79.9	9397	2.50 µg/L	0.000
M2-4:2FTS	5.310	329.1 -> 80.9	1543	5.00 µg/L	0.001
M2-6:2FTS	6.973	429.1 -> 80.9	2128	5.00 µg/L	-0.001
M2-8:2FTS	8.052	529.1 -> 80.9	3051	5.00 µg/L	-0.001
M3-MeFOSAA	8.323	573.2 -> 419.0	14869	5.00 µg/L	-0.001
M3-HFPO-DA	5.976	286.9 -> 168.9	30145	10.00 µg/L	-0.013
M5-EtFOSAA	8.532	589.2 -> 419.0	11015	5.00 µg/L	-0.001
M7-MeFOSE	10.972	623.2 -> 58.9	40558	25.00 µg/L	-0.002
M9-EtFOSE	11.281	639.2 -> 58.9	48904	25.00 µg/L	-0.001
M5-EtFOSA	11.373	531.1 -> 219.0	6287	2.50 µg/L	-0.001
M3-MeFOSA	11.089	515.0 -> 219.0	6072	2.50 µg/L	-0.002
13C4-PFOS	8.418	502.8 -> 79.9	9384	2.50 µg/L	0.000
13C3-PFBA	3.005	216.0 -> 172.0	61368	5.00 µg/L	0.040
18O2-PFHxS	7.315	403.0 -> 83.9	4392	2.50 µg/L	-0.001
13C4-PFOA	7.214	417.1 -> 372.0	36064	2.50 µg/L	0.000
13C2-PFDA	8.265	515.1 -> 470.1	14626	1.25 µg/L	-0.001
13C5-PFNA	7.759	468.0 -> 423.0	17607	1.25 µg/L	-0.001
13C2-PFHxA	5.623	315.1 -> 270.0	40808	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.310	329.1 -> 80.9	1543	6.43 µg/L	0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 128.6%		
13C2-6:2FTS	6.973	429.1 -> 80.9	2128	6.18 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.6%		
13C2-8:2FTS	8.052	529.1 -> 80.9	3051	5.39 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.7%		
13C2-PFDoDA	9.193	615.1 -> 570.0	18647	1.04 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 82.8%		
13C2-PFTeDA	9.998	715.2 -> 670.0	11999	0.86 µg/L	0.011
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 68.5%		
13C3-PFBS	5.539	302.1 -> 79.9	10547	2.61 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.5%		
13C3-PFHxS	7.316	402.1 -> 79.9	6472	2.66 µg/L	-0.001

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C4-PFBA	3.002	216.8 -> 171.9	116020	10.86 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.6%	
13C4-PFHpA	6.542	367.1 -> 322.0	25101	2.71 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.3%	
13C5-PFHxA	5.622	318.0 -> 273.0	50188	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C5-PFPeA	4.462	268.3 -> 223.0	63132	5.25 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C6-PFDA	8.265	519.1 -> 474.1	17031	1.32 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C7-PFUnDA	8.747	570.0 -> 525.1	16048	1.15 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.9%	
13C8-FOSA	9.845	506.1 -> 77.8	11866	1.93 µg/L	0.011
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 77.3%	
13C8-PFOA	7.213	421.1 -> 376.0	30804	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C8-PFOS	8.417	507.1 -> 79.9	9397	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C9-PFNA	7.758	472.1 -> 427.0	17334	1.35 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.1%	
d3-MeFOSAA	8.323	573.2 -> 419.0	14869	5.38 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.6%	
13C3-HFPO-DA	5.976	286.9 -> 168.9	30145	10.53 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.3%	
d3-MeFOSA	11.089	515.0 -> 219.0	6072	2.09 µg/L	-0.002
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 83.6%	
d5-EtFOSAA	8.532	589.2 -> 419.0	11015	4.90 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.1%	
d7-MeFOSE	10.972	623.2 -> 58.9	40558	16.76 µg/L	-0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 67.0%	
d9-EtFOSE	11.281	639.2 -> 58.9	48904	16.51 µg/L	-0.001
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 66.1%	
d5-EtFOSA	11.373	531.1 -> 219.0	6287	2.00 µg/L	-0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 80.1%	

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

7.2.1  
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	5.625	449.0 -> 98.9	837	0.06 µg/L	#	91
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	50	N.D.		
		398.7 -> 79.9				
PFNA	8.183	398.7 -> 98.9	0	µg/L	m	1
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	0	N.D.		
		548.8 -> 79.9				
PFOA	-	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	11.656	630.0 -> 58.9	0	µg/L	m	1
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.2.1  
7

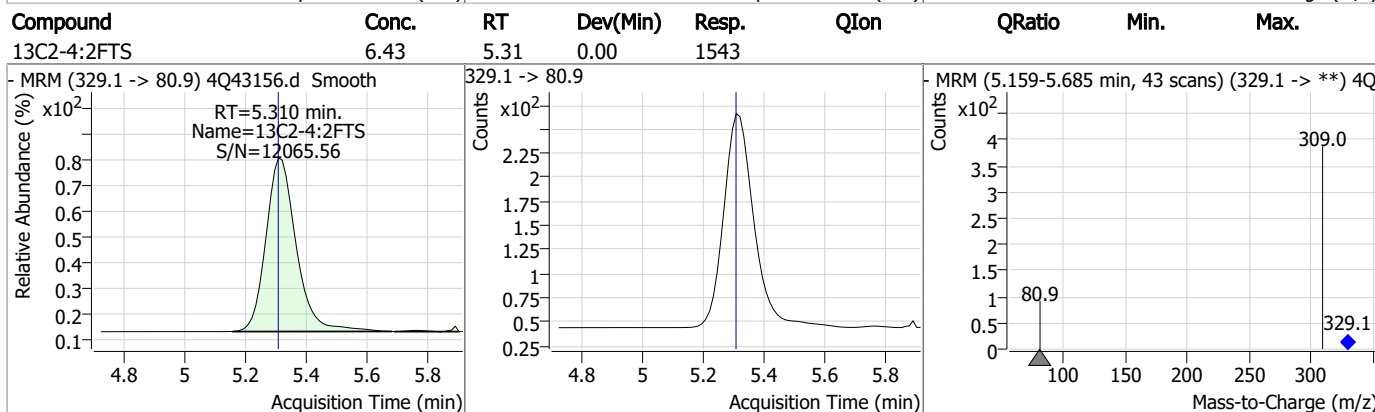
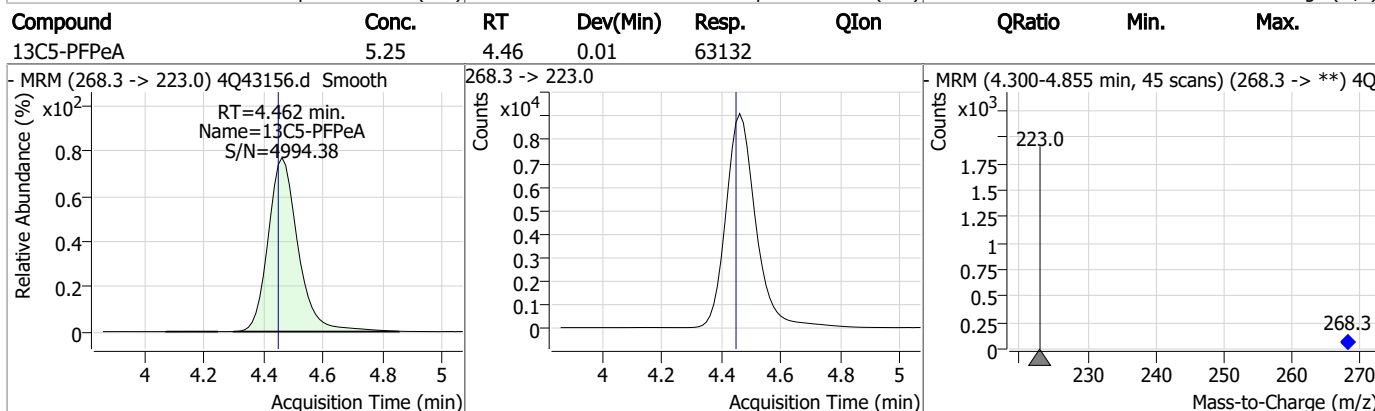
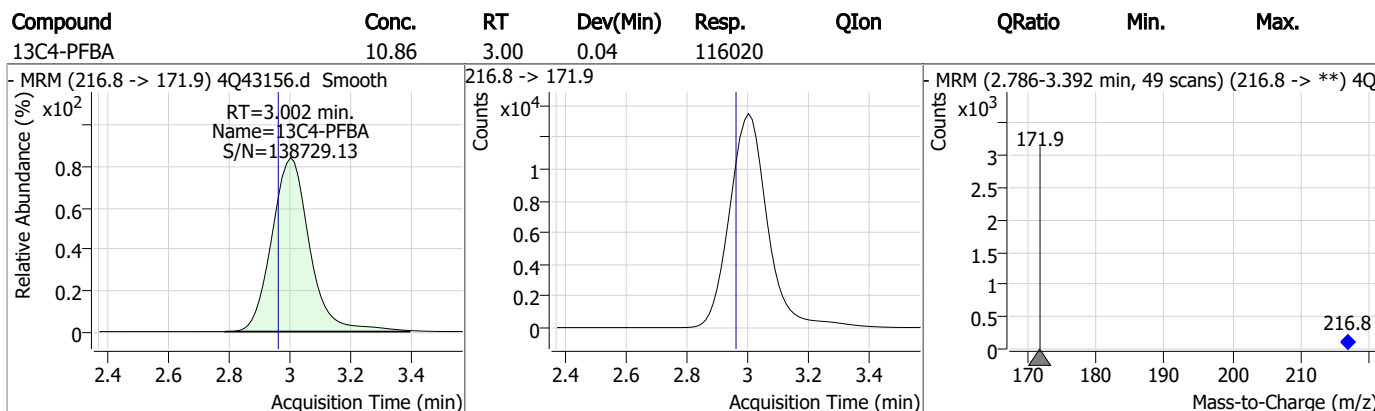
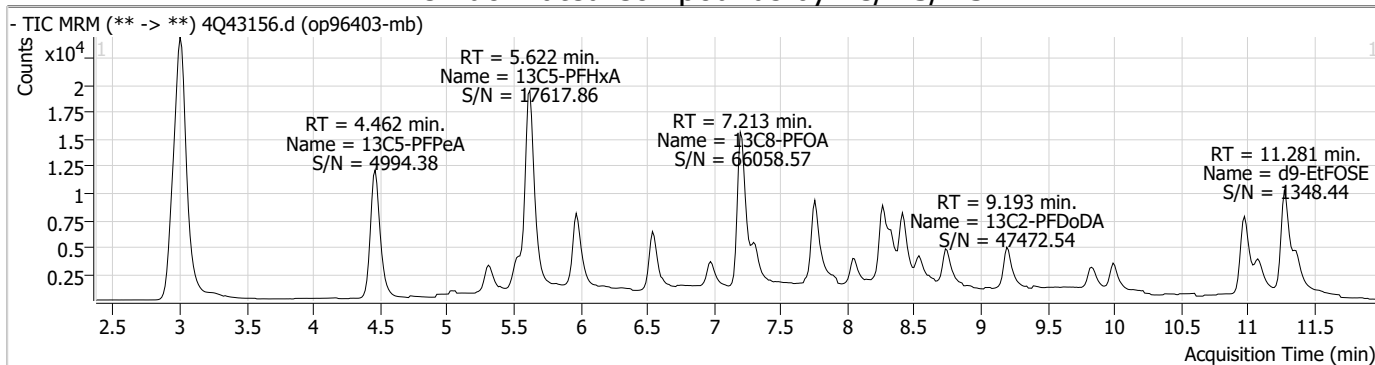
### Perfluorinated Compounds by LC/MS/MS

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

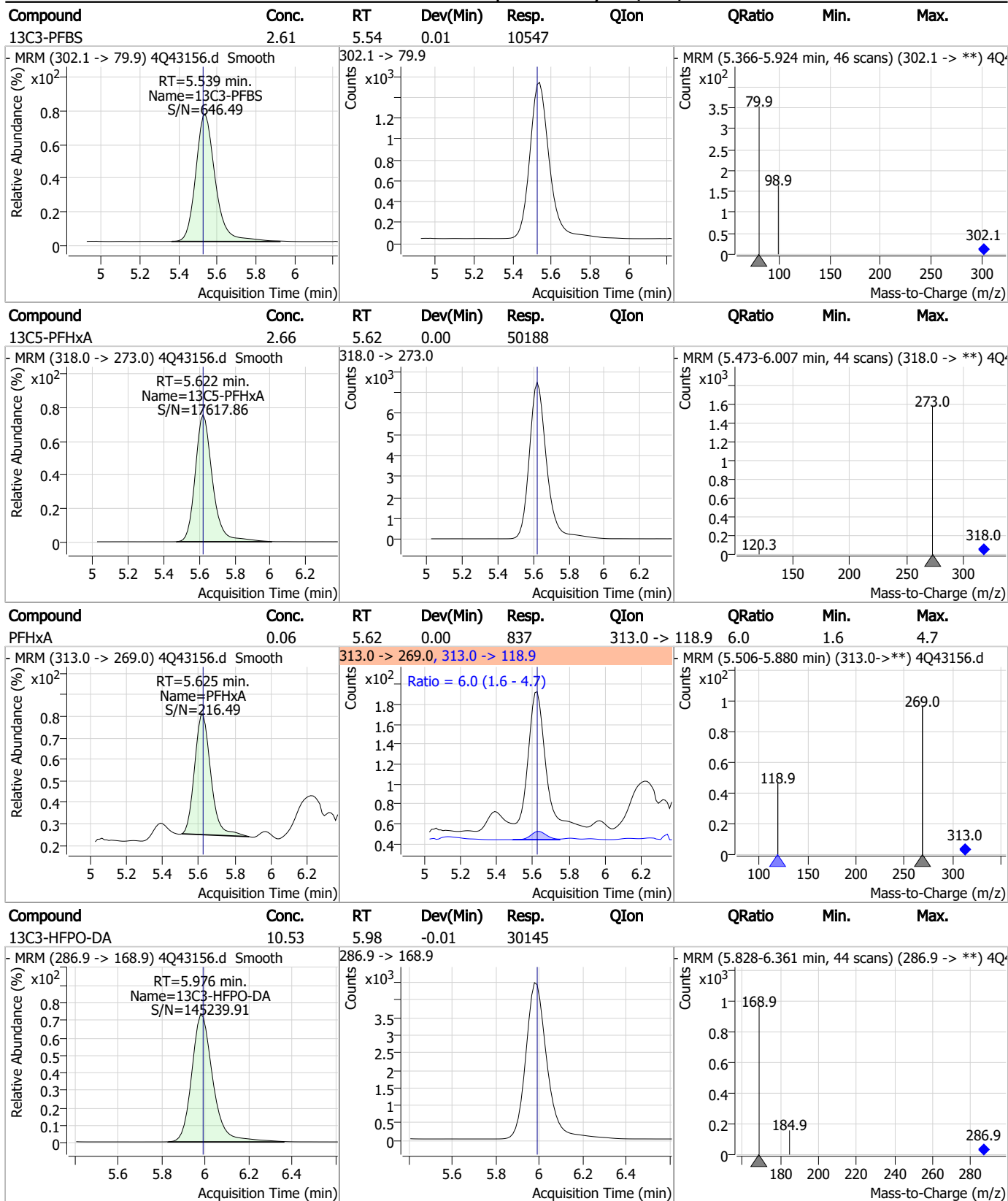
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### Perfluorinated Compounds by LC/MS/MS



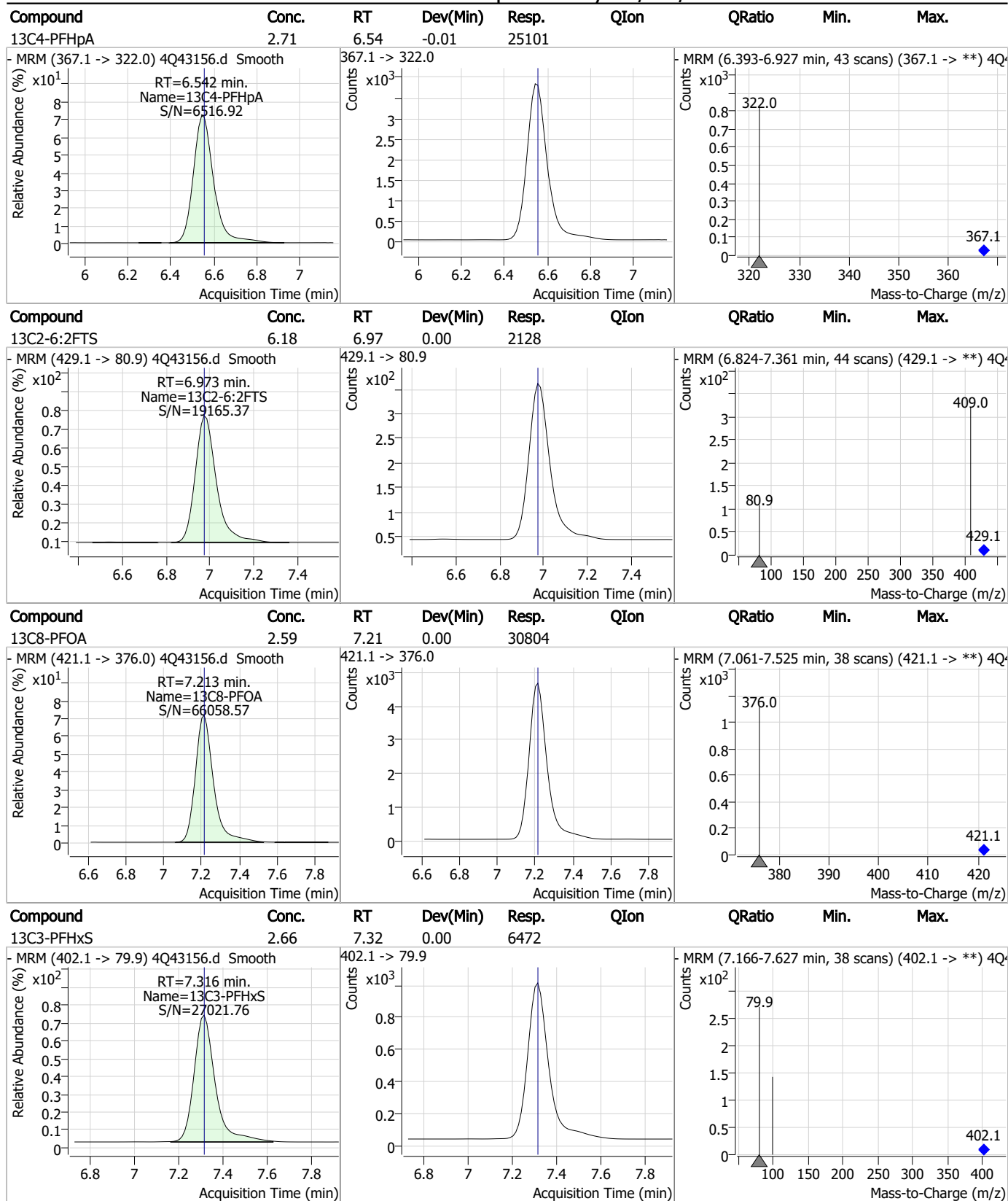


### Perfluorinated Compounds by LC/MS/MS



7.2.1  
7

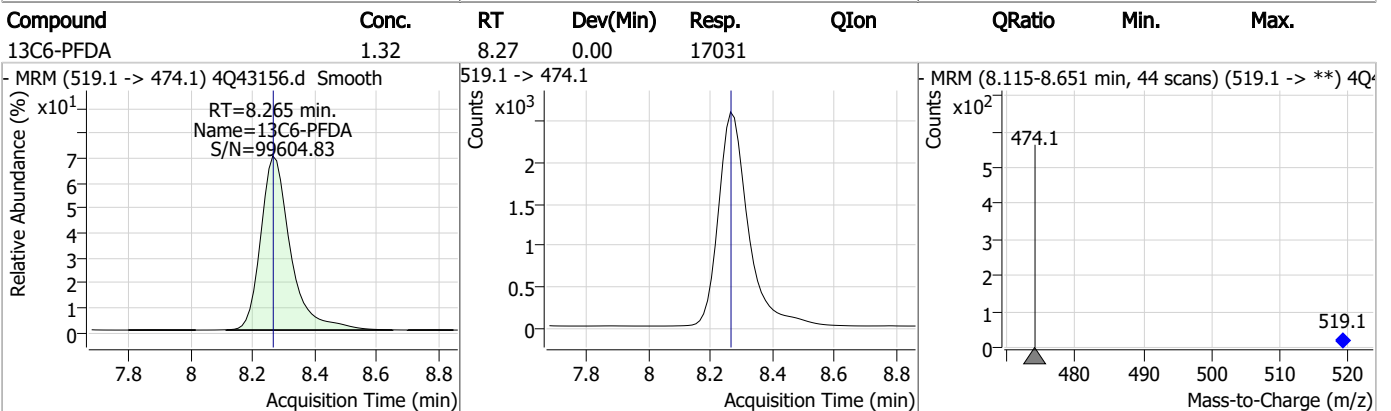
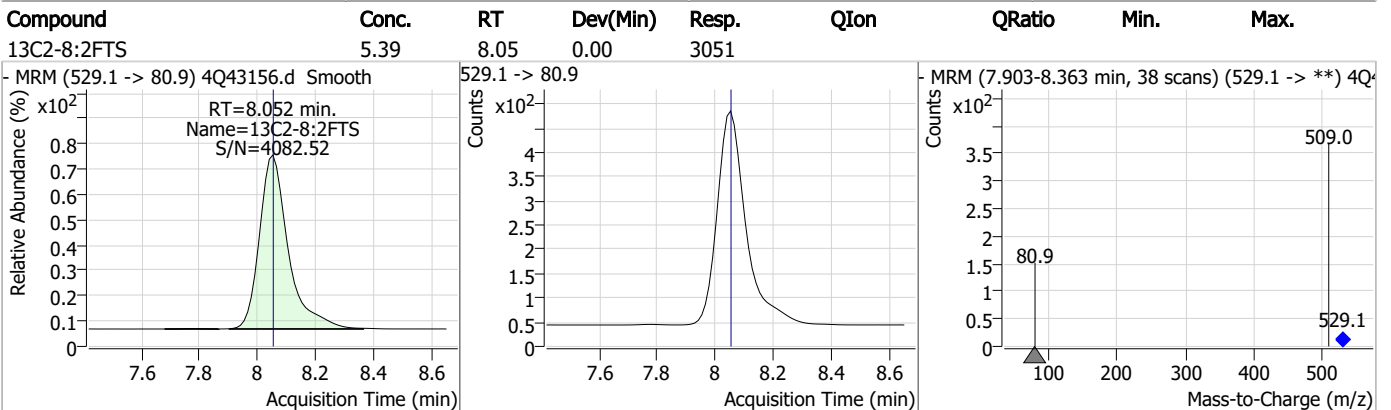
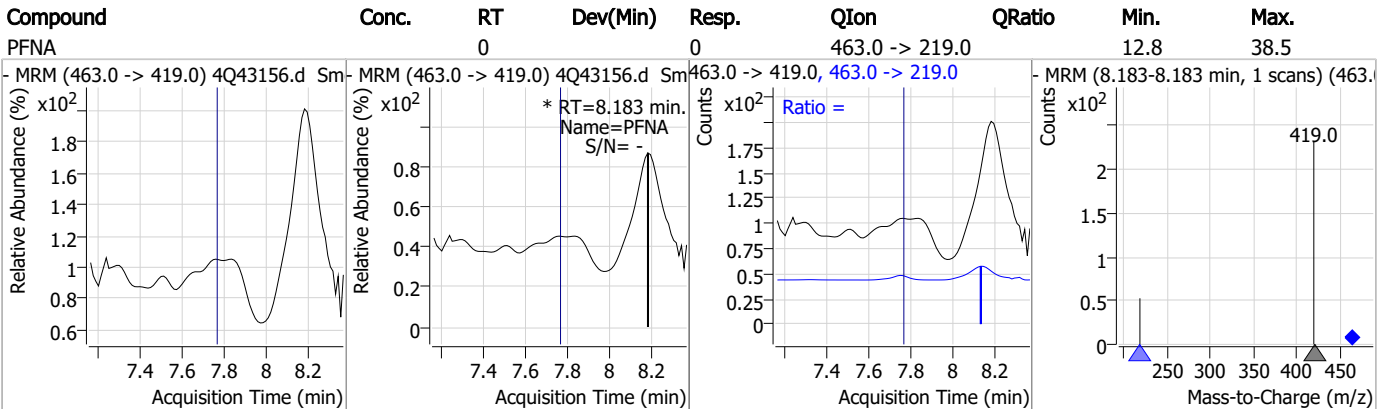
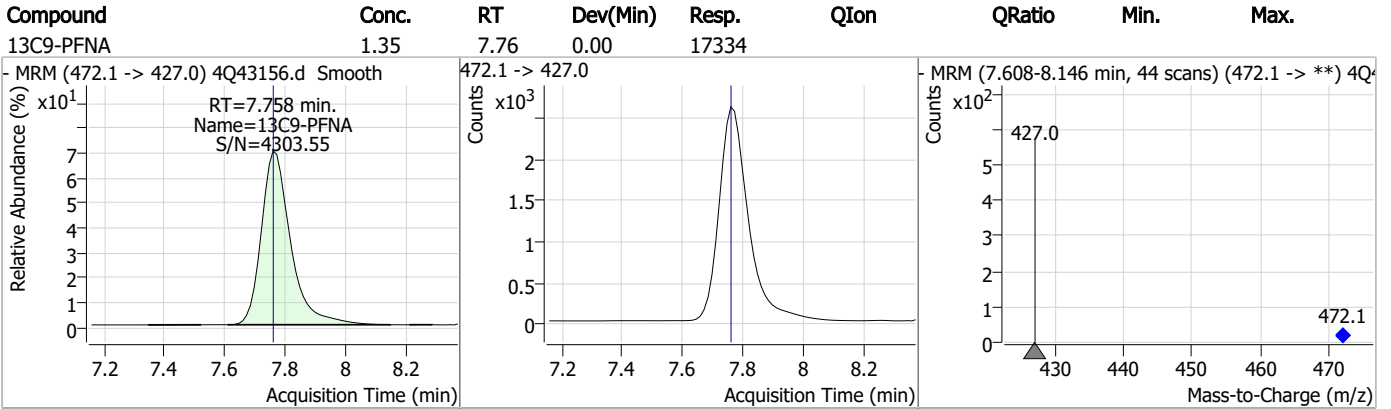
### Perfluorinated Compounds by LC/MS/MS



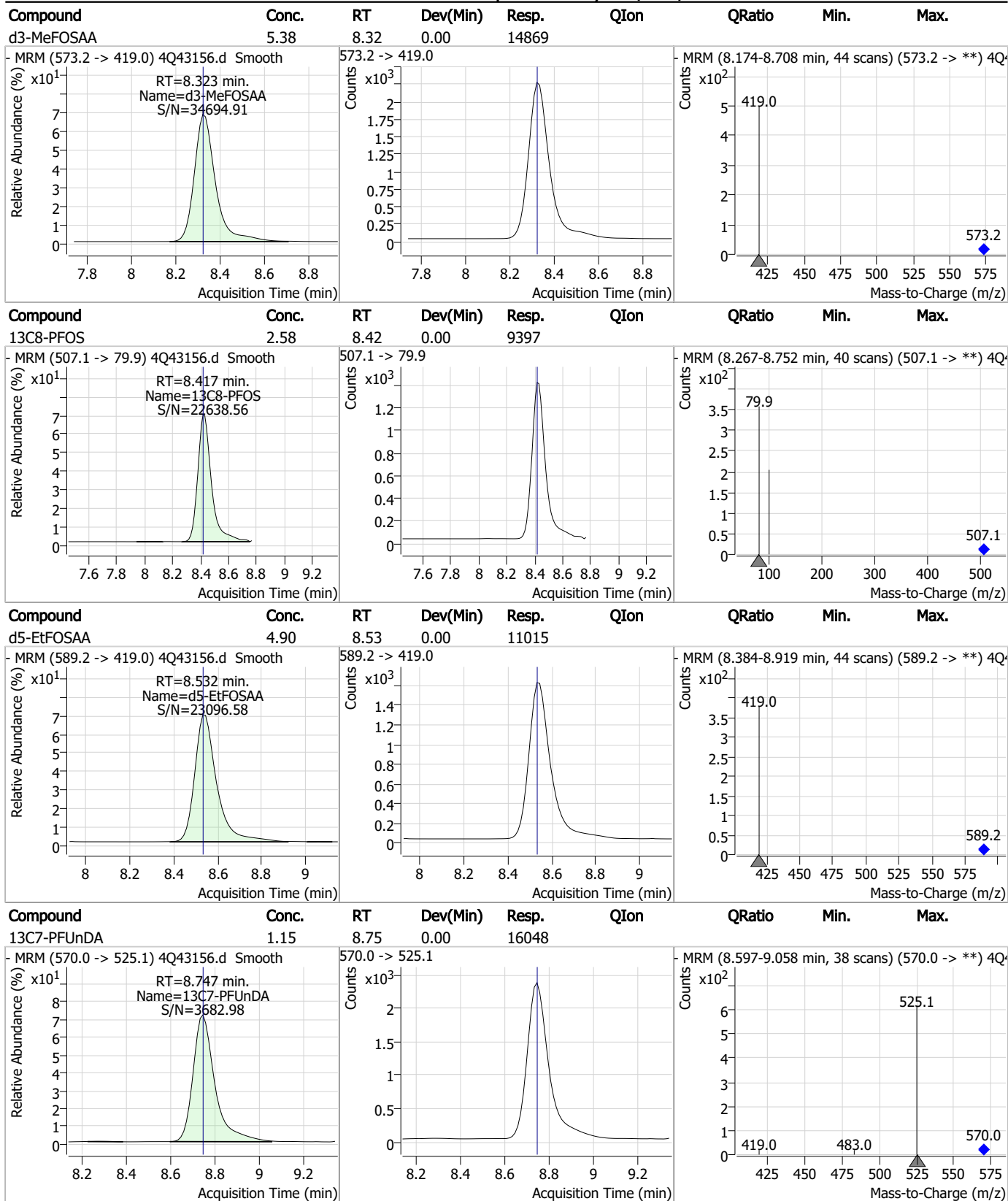
7.2.1  
7



### Perfluorinated Compounds by LC/MS/MS



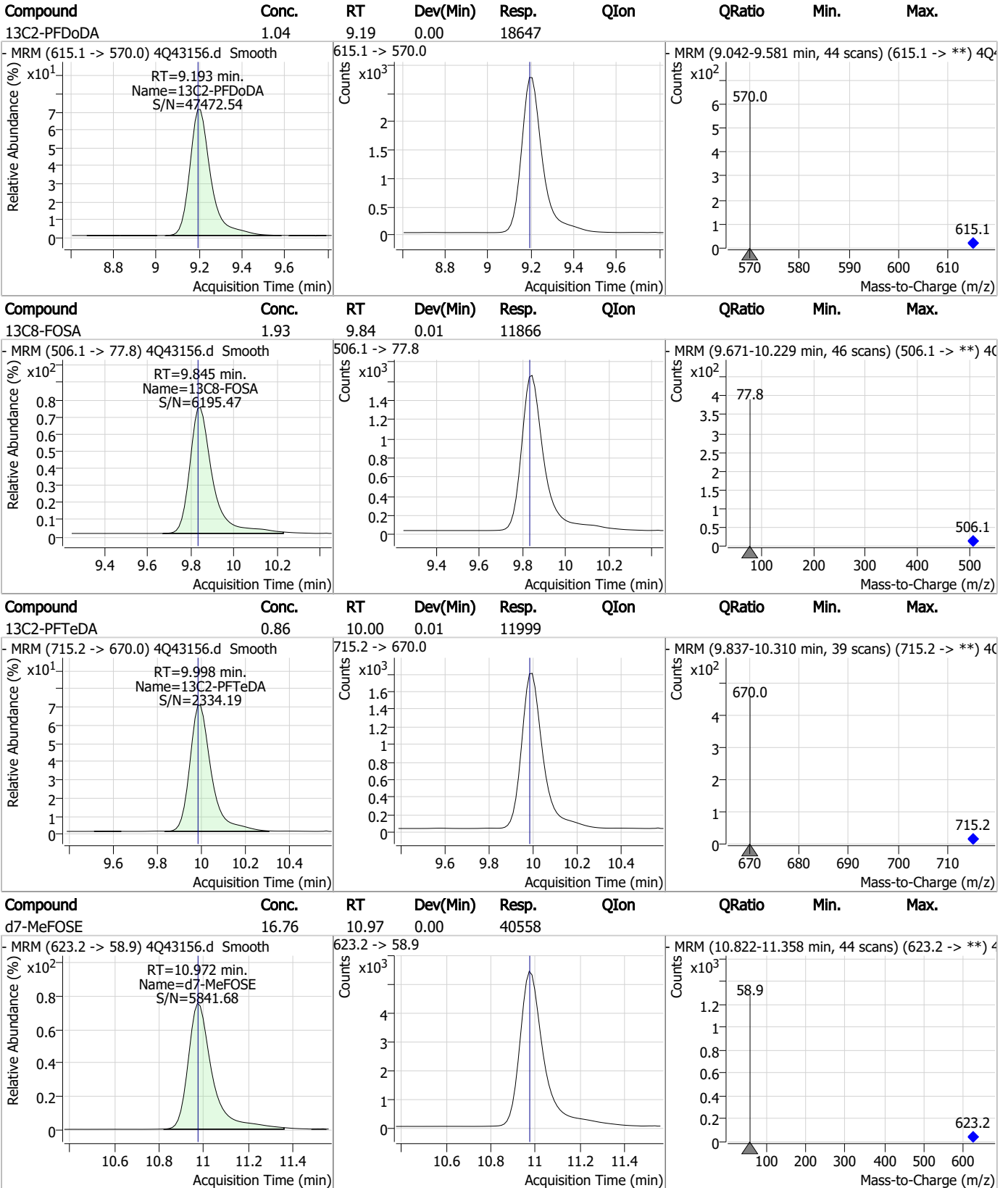
### Perfluorinated Compounds by LC/MS/MS



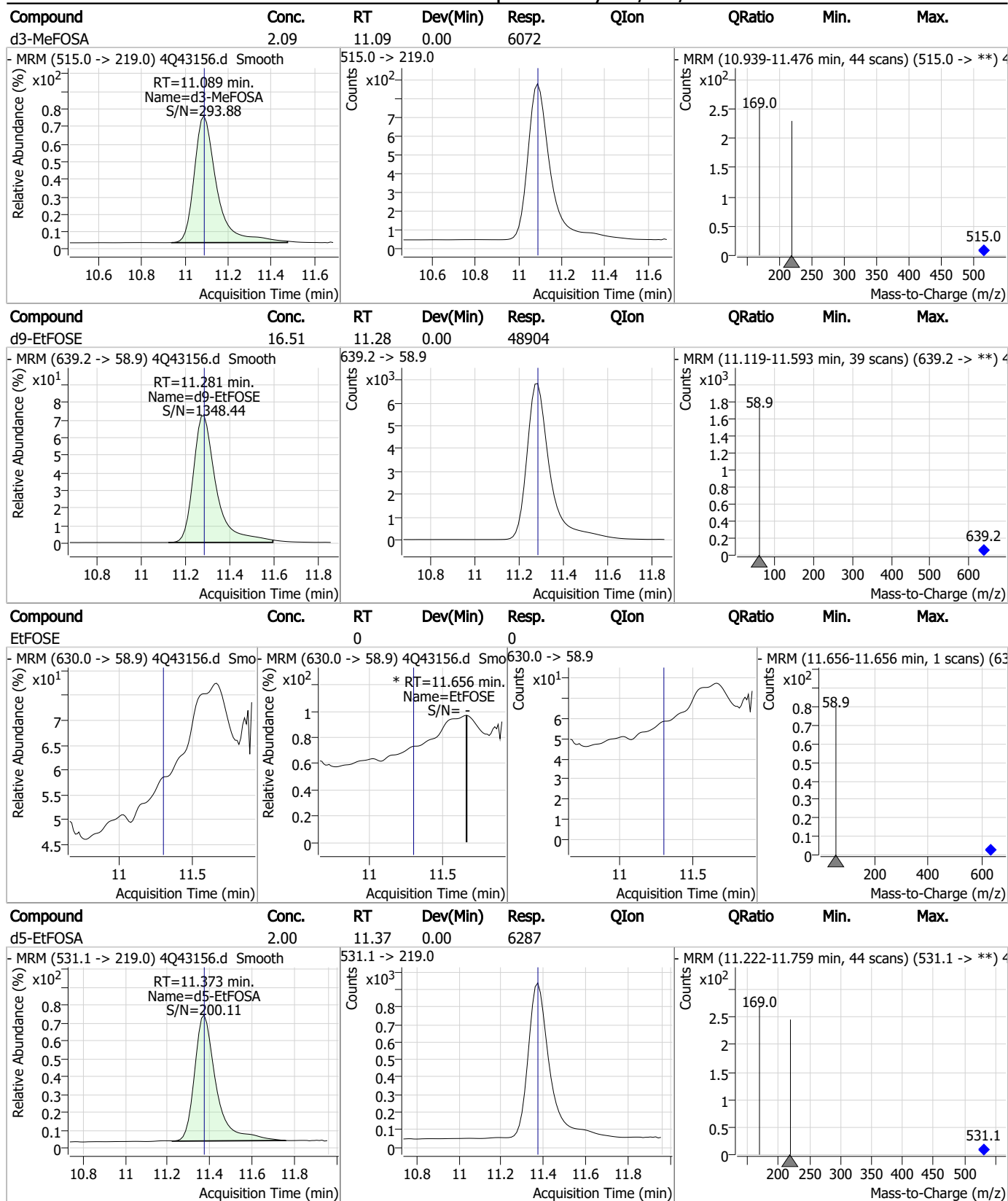
7.2.1  
7



### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



7.2.1  
7

## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43148.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 4/18/2023 11:12:30 AM  
 Sample Name : IBLK  
 Vial : P1-A1  
 DA Method File : 1633\_041423\_S4Q621.quantmethod.xml  
 Batch Name : s4q624.batch.bin  
 Sample Information : OP96301,S4q624,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.961	216.8 -> 171.9	151096	10.00 µg/L	0.000
M5-PFPeA	4.450	268.3 -> 223.0	87885	5.00 µg/L	0.000
M5-PFHxA	5.622	318.0 -> 273.0	71433	2.50 µg/L	0.000
M4-PFHpA	6.555	367.1 -> 322.0	35751	2.50 µg/L	0.000
M8-PFOA	7.214	421.1 -> 376.0	44777	2.50 µg/L	0.000
M9-PFNA	7.759	472.1 -> 427.0	24454	1.25 µg/L	0.000
M6-PFDA	8.266	519.1 -> 474.1	22912	1.25 µg/L	0.000
M7-PFUnDA	8.748	570.0 -> 525.1	24384	1.25 µg/L	0.000
M2-PFDoDA	9.194	615.1 -> 570.0	30497	1.25 µg/L	0.000
M2-PFTeDA	10.000	715.2 -> 670.0	22128	1.25 µg/L	0.012
M8-FOSA	9.846	506.1 -> 77.8	18847	2.50 µg/L	0.012
M3-PFBS	5.539	302.1 -> 79.9	15290	2.50 µg/L	0.012
M3-PFHxS	7.317	402.1 -> 79.9	9715	2.50 µg/L	0.000
M8-PFOS	8.430	507.1 -> 79.9	12696	2.50 µg/L	0.012
M2-4:2FTS	5.309	329.1 -> 80.9	2121	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	2985	5.00 µg/L	0.000
M2-8:2FTS	8.054	529.1 -> 80.9	4883	5.00 µg/L	0.000
M3-MeFOSAA	8.324	573.2 -> 419.0	21520	5.00 µg/L	0.000
M3-HFPO-DA	5.989	286.9 -> 168.9	43779	10.00 µg/L	0.000
M5-EtFOSAA	8.533	589.2 -> 419.0	17533	5.00 µg/L	0.000
M7-MeFOSE	10.974	623.2 -> 58.9	70163	25.00 µg/L	0.000
M9-EtFOSE	11.282	639.2 -> 58.9	86488	25.00 µg/L	0.000
M5-EtFOSA	11.373	531.1 -> 219.0	11572	2.50 µg/L	0.000
M3-MeFOSA	11.090	515.0 -> 219.0	10204	2.50 µg/L	0.000
13C4-PFOS	8.430	502.8 -> 79.9	13612	2.50 µg/L	0.012
13C3-PFBA	2.966	216.0 -> 172.0	84520	5.00 µg/L	0.000
18O2-PFHxS	7.316	403.0 -> 83.9	6384	2.50 µg/L	0.000
13C4-PFOA	7.214	417.1 -> 372.0	53803	2.50 µg/L	0.000
13C2-PFDA	8.267	515.1 -> 470.1	20193	1.25 µg/L	0.000
13C5-PFNA	7.759	468.0 -> 423.0	27529	1.25 µg/L	0.000
13C2-PFHxA	5.623	315.1 -> 270.0	60627	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.309	329.1 -> 80.9	2121	6.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.7%		
13C2-6:2FTS	6.974	429.1 -> 80.9	2985	5.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.3%		
13C2-8:2FTS	8.054	529.1 -> 80.9	4883	5.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 118.6%		
13C2-PFDoDA	9.194	615.1 -> 570.0	30497	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C2-PFTeDA	10.000	715.2 -> 670.0	22128	1.14 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.5%		
13C3-PFBS	5.539	302.1 -> 79.9	15290	2.61 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C3-PFHxS	7.317	402.1 -> 79.9	9715	2.75 µg/L	0.000

7.2.2  
7

### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.0%	
13C4-PFBA	2.961	216.8 -> 171.9	151096	10.27 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C4-PFHpA	6.555	367.1 -> 322.0	35751	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C5-PFHxA	5.622	318.0 -> 273.0	71433	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C5-PFPeA	4.450	268.3 -> 223.0	87885	4.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C6-PFDA	8.266	519.1 -> 474.1	22912	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C7-PFUnDA	8.748	570.0 -> 525.1	24384	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C8-FOSA	9.846	506.1 -> 77.8	18847	2.12 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.7%	
13C8-PFOA	7.214	421.1 -> 376.0	44777	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C8-PFOS	8.430	507.1 -> 79.9	12696	2.41 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C9-PFNA	7.759	472.1 -> 427.0	24454	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.5%	
d3-MeFOSAA	8.324	573.2 -> 419.0	21520	5.37 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C3-HFPO-DA	5.989	286.9 -> 168.9	43779	10.29 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
d3-MeFOSA	11.090	515.0 -> 219.0	10204	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%	
d5-EtFOSAA	8.533	589.2 -> 419.0	17533	5.38 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.6%	
d7-MeFOSE	10.974	623.2 -> 58.9	70163	19.99 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.9%	
d9-EtFOSE	11.282	639.2 -> 58.9	86488	20.13 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 80.5%	
d5-EtFOSA	11.373	531.1 -> 219.0	11572	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%	

7.22  
7

**Target Compounds**

**QValue**

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



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	8.235	398.7 -> 98.9	0	µg/L	m	1
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	-	548.8 -> 98.9	-	N.D.		
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.2.2  
7

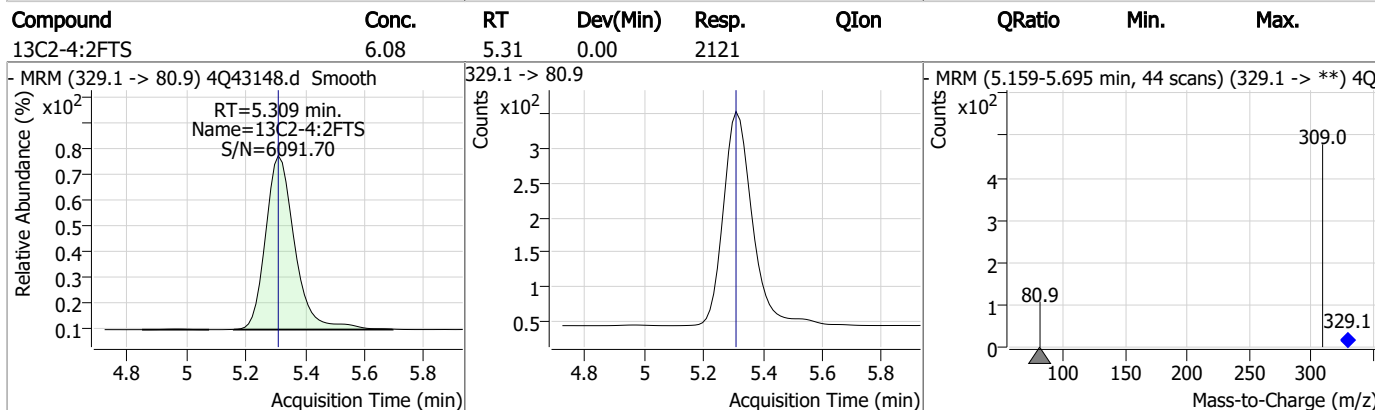
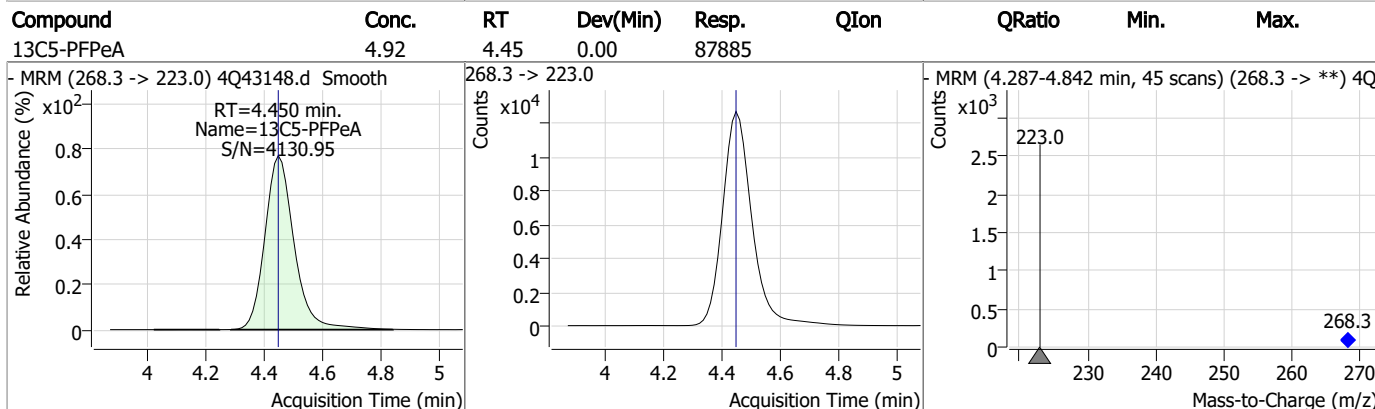
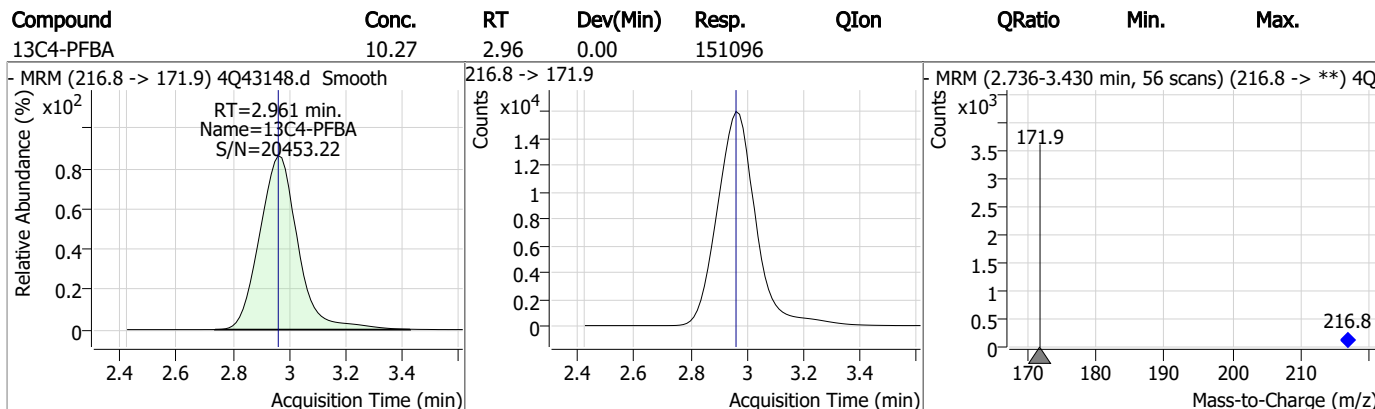
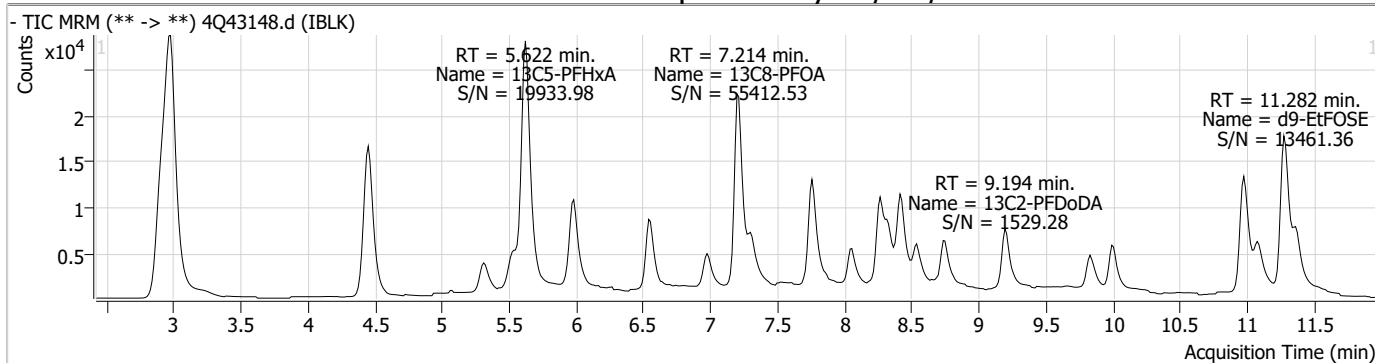
### Perfluorinated Compounds by LC/MS/MS

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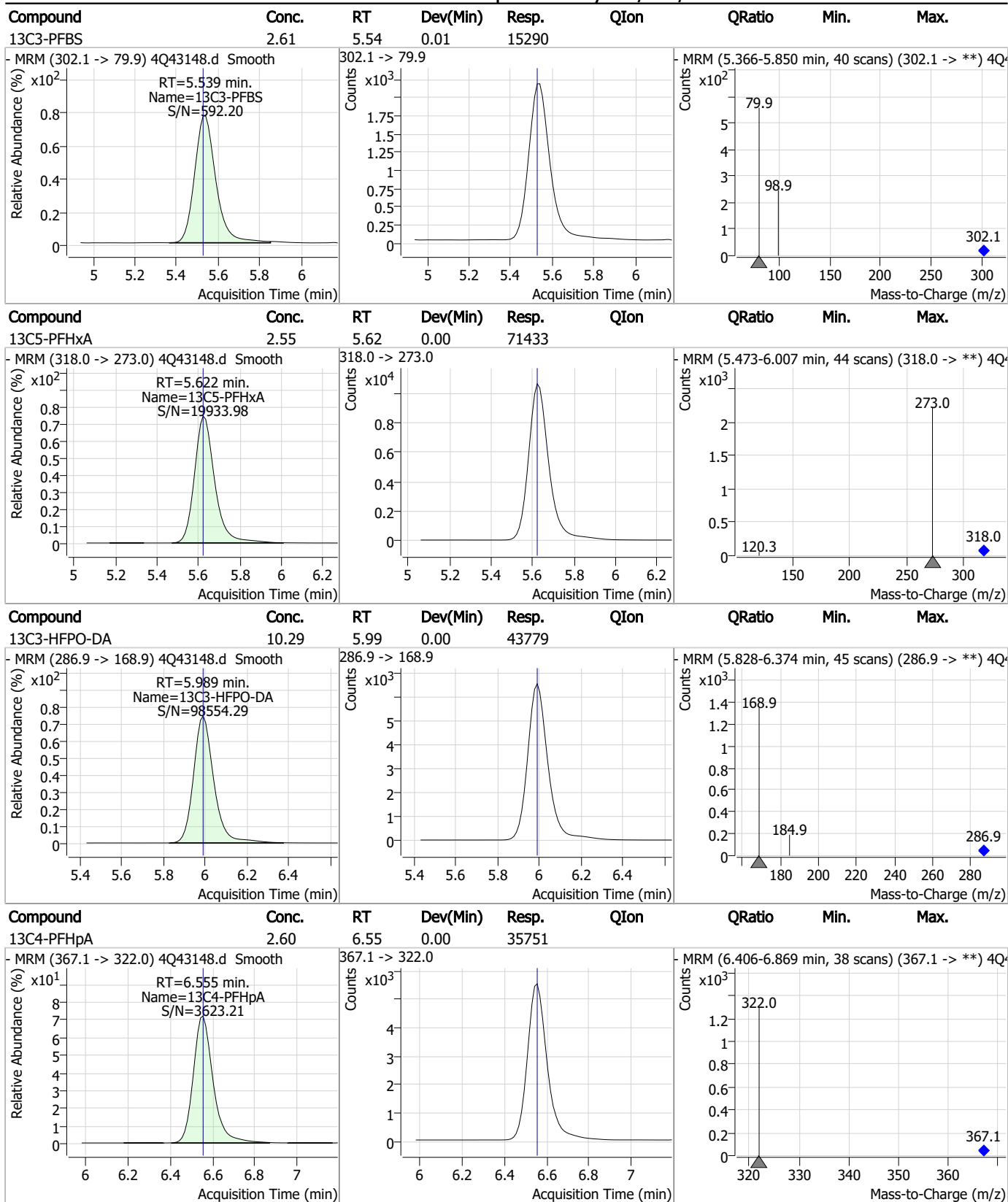
7.2.2

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### Perfluorinated Compounds by LC/MS/MS

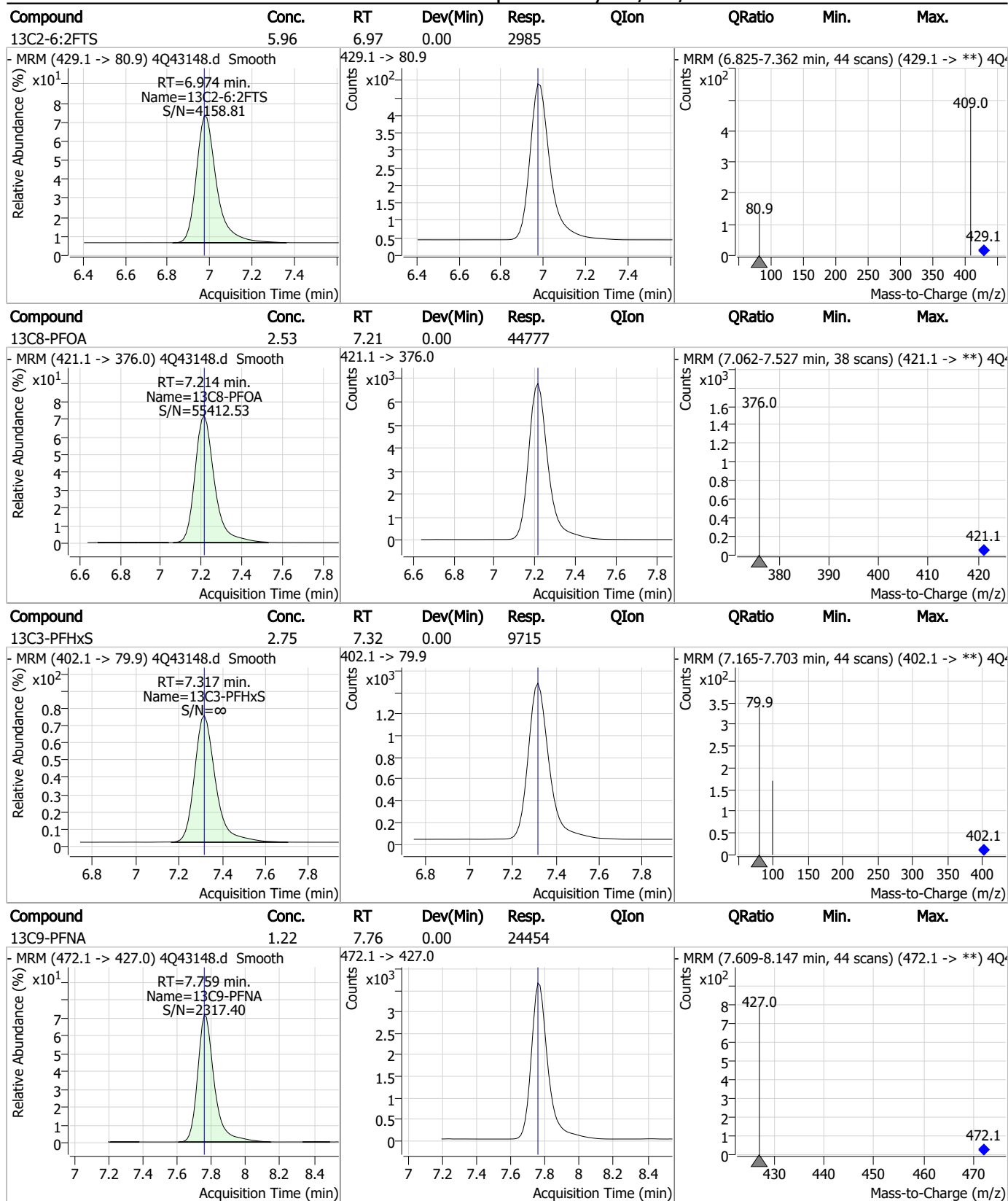


### Perfluorinated Compounds by LC/MS/MS



7.2.2  
7

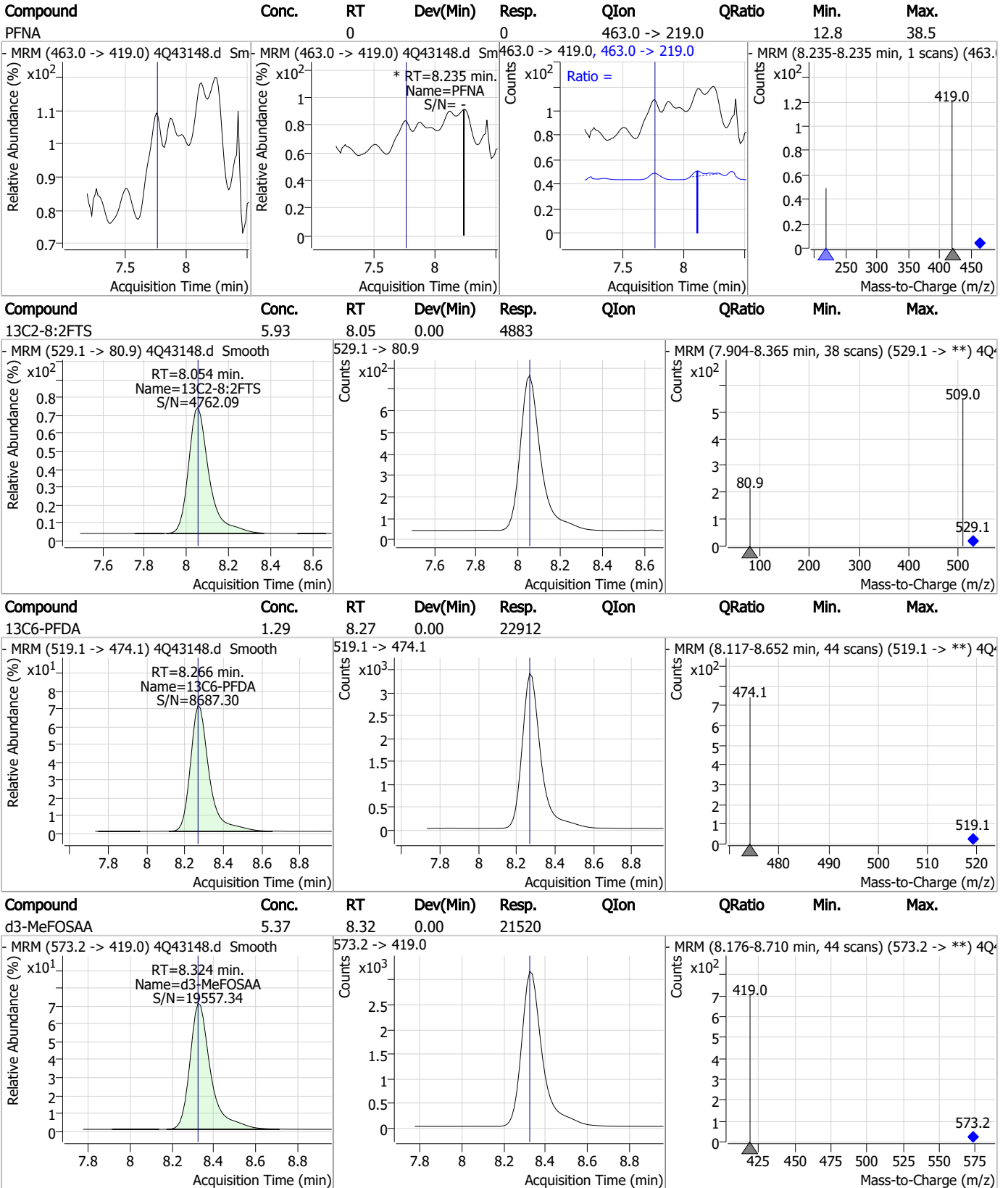
### Perfluorinated Compounds by LC/MS/MS



7.2.2  
7



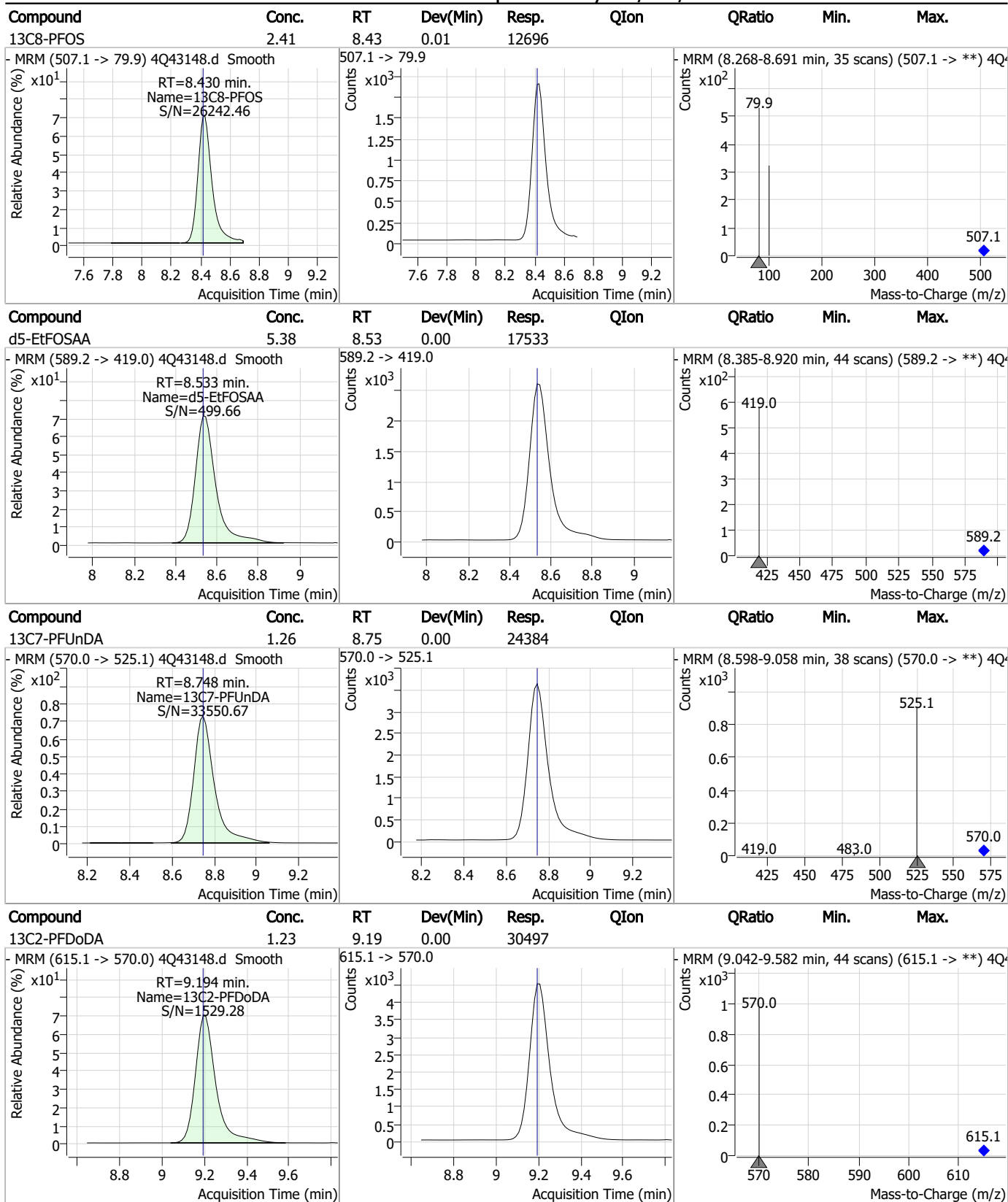
## Perfluorinated Compounds by LC/MS/MS



7.2.2

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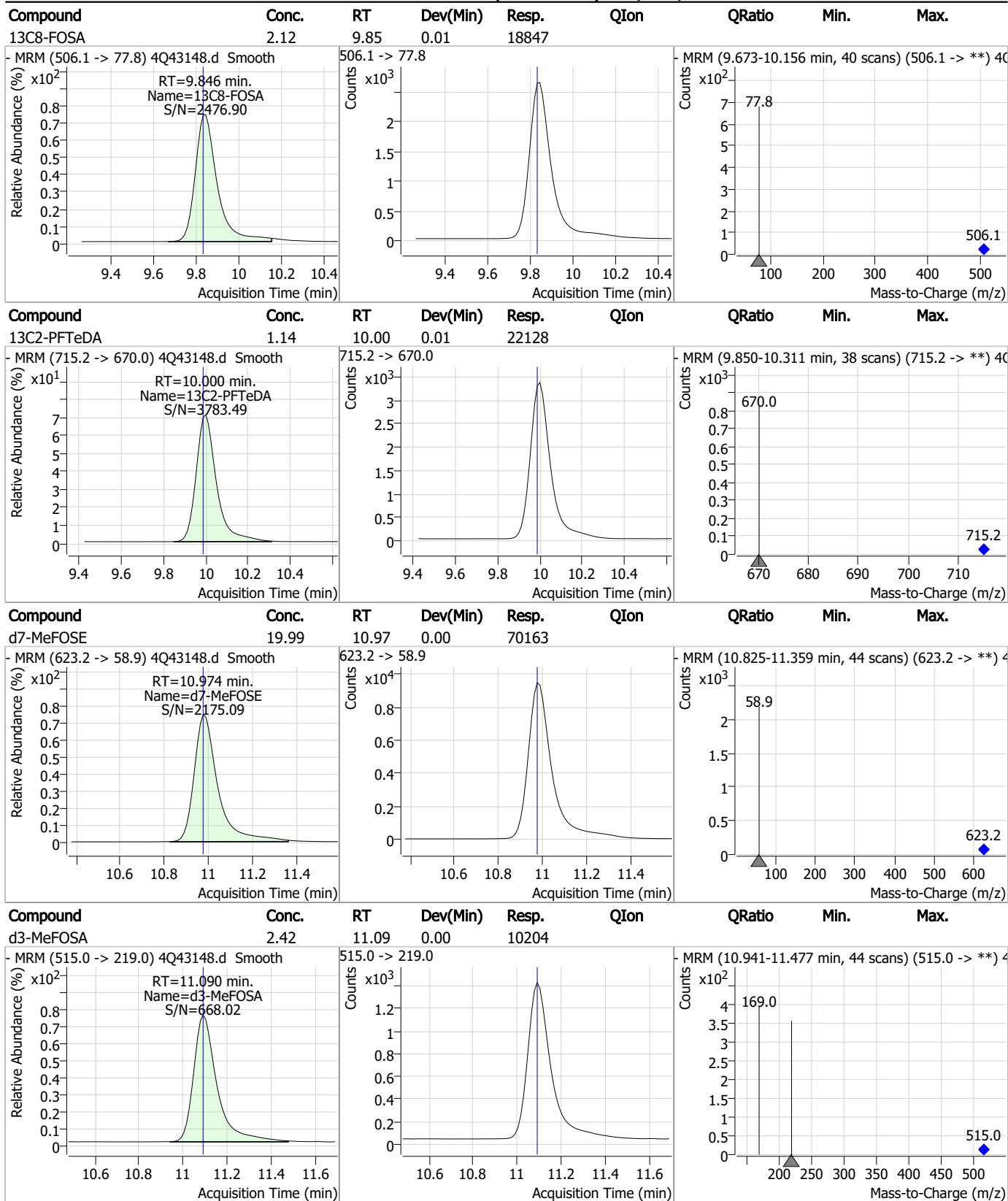
### Perfluorinated Compounds by LC/MS/MS



7.2.2

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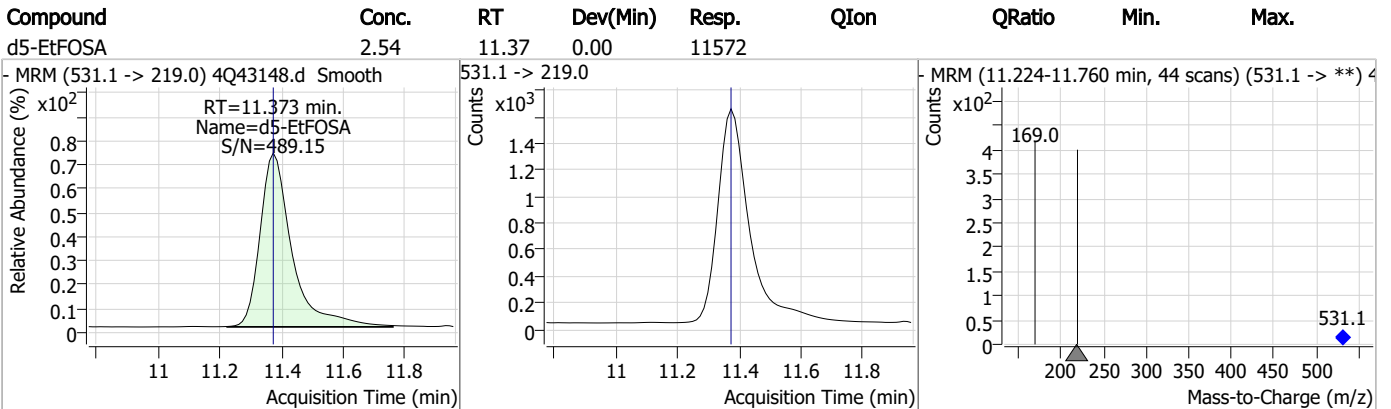
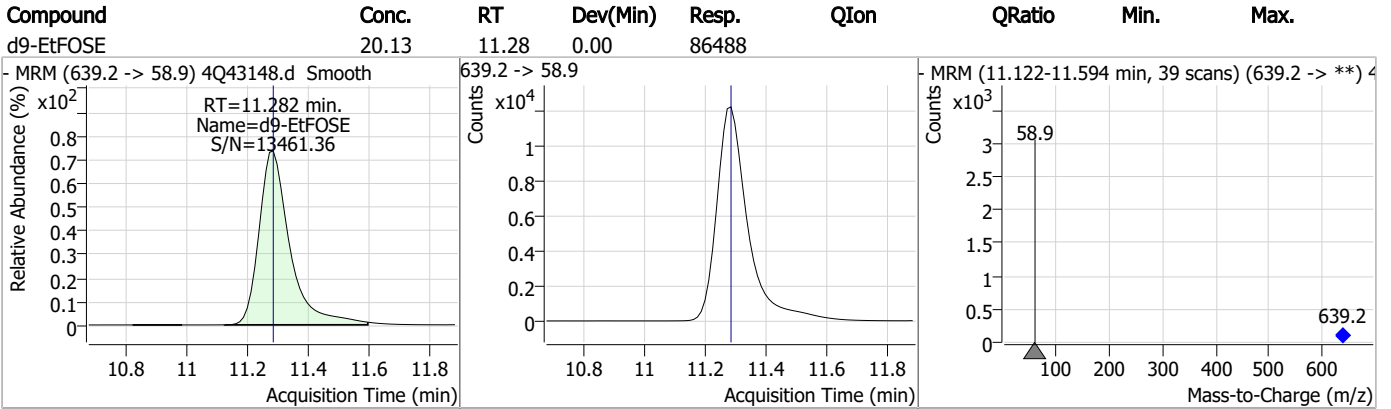
### Perfluorinated Compounds by LC/MS/MS



7.2.2  
7



### Perfluorinated Compounds by LC/MS/MS



7.2.2

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### Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43162.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 4/18/2023 2:43:14 PM  
 Sample Name : iccb  
 Vial : P1-A1  
 DA Method File : 1633\_041423\_S4Q621.quantmethod.xml  
 Batch Name : s4q624.batch.bin  
 Sample Information : OP96296,S4q624,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.961	216.8 -> 171.9	154529	10.00 µg/L	0.000
M5-PFPeA	4.449	268.3 -> 223.0	90009	5.00 µg/L	0.000
M5-PFHxA	5.622	318.0 -> 273.0	69485	2.50 µg/L	0.000
M4-PFHpA	6.555	367.1 -> 322.0	35825	2.50 µg/L	0.000
M8-PFOA	7.213	421.1 -> 376.0	43337	2.50 µg/L	0.000
M9-PFNA	7.758	472.1 -> 427.0	25294	1.25 µg/L	-0.001
M6-PFDA	8.265	519.1 -> 474.1	22662	1.25 µg/L	-0.001
M7-PFUnDA	8.747	570.0 -> 525.1	24360	1.25 µg/L	-0.001
M2-PFDoDA	9.193	615.1 -> 570.0	30570	1.25 µg/L	-0.001
M2-PFTeDA	9.986	715.2 -> 670.0	21431	1.25 µg/L	-0.001
M8-FOSA	9.832	506.1 -> 77.8	18842	2.50 µg/L	-0.002
M3-PFBS	5.527	302.1 -> 79.9	15176	2.50 µg/L	0.000
M3-PFHxS	7.304	402.1 -> 79.9	9149	2.50 µg/L	-0.013
M8-PFOS	8.417	507.1 -> 79.9	12933	2.50 µg/L	0.000
M2-4:2FTS	5.310	329.1 -> 80.9	2157	5.00 µg/L	0.001
M2-6:2FTS	6.973	429.1 -> 80.9	2920	5.00 µg/L	-0.001
M2-8:2FTS	8.052	529.1 -> 80.9	4849	5.00 µg/L	-0.001
M3-MeFOSAA	8.323	573.2 -> 419.0	21758	5.00 µg/L	-0.001
M3-HFPO-DA	5.989	286.9 -> 168.9	42685	10.00 µg/L	0.000
M5-EtFOSAA	8.532	589.2 -> 419.0	17636	5.00 µg/L	-0.001
M7-MeFOSE	10.972	623.2 -> 58.9	67217	25.00 µg/L	-0.002
M9-EtFOSE	11.281	639.2 -> 58.9	80944	25.00 µg/L	-0.001
M5-EtFOSA	11.373	531.1 -> 219.0	10868	2.50 µg/L	-0.001
M3-MeFOSA	11.089	515.0 -> 219.0	10221	2.50 µg/L	-0.002
13C4-PFOS	8.418	502.8 -> 79.9	13327	2.50 µg/L	0.000
13C3-PFBA	2.966	216.0 -> 172.0	85940	5.00 µg/L	0.000
18O2-PFHxS	7.315	403.0 -> 83.9	6417	2.50 µg/L	-0.001
13C4-PFOA	7.214	417.1 -> 372.0	52922	2.50 µg/L	0.000
13C2-PFDA	8.265	515.1 -> 470.1	20294	1.25 µg/L	-0.001
13C5-PFNA	7.759	468.0 -> 423.0	27538	1.25 µg/L	-0.001
13C2-PFHxA	5.623	315.1 -> 270.0	59268	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.310	329.1 -> 80.9	2157	6.16 µg/L	0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.1%		
13C2-6:2FTS	6.973	429.1 -> 80.9	2920	5.80 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.1%		
13C2-8:2FTS	8.052	529.1 -> 80.9	4849	5.86 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.2%		
13C2-PFDoDA	9.193	615.1 -> 570.0	30570	1.22 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.9%		
13C2-PFTeDA	9.986	715.2 -> 670.0	21431	1.10 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.2%		
13C3-PFBS	5.527	302.1 -> 79.9	15176	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C3-PFHxS	7.304	402.1 -> 79.9	9149	2.58 µg/L	-0.013

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

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C4-PFBA	2.961	216.8 -> 171.9	154529	10.33 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C4-PFHpA	6.555	367.1 -> 322.0	35825	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C5-PFHxA	5.622	318.0 -> 273.0	69485	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C5-PFPeA	4.449	268.3 -> 223.0	90009	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C6-PFDA	8.265	519.1 -> 474.1	22662	1.27 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C7-PFUnDA	8.747	570.0 -> 525.1	24360	1.26 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C8-FOSA	9.832	506.1 -> 77.8	18842	2.16 µg/L	-0.002
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.5%	
13C8-PFOA	7.213	421.1 -> 376.0	43337	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C8-PFOS	8.417	507.1 -> 79.9	12933	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C9-PFNA	7.758	472.1 -> 427.0	25294	1.26 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.9%	
d3-MeFOSAA	8.323	573.2 -> 419.0	21758	5.54 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.9%	
13C3-HFPO-DA	5.989	286.9 -> 168.9	42685	10.26 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
d3-MeFOSA	11.089	515.0 -> 219.0	10221	2.48 µg/L	-0.002
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
d5-EtFOSAA	8.532	589.2 -> 419.0	17636	5.53 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.5%	
d7-MeFOSE	10.972	623.2 -> 58.9	67217	19.56 µg/L	-0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 78.2%	
d9-EtFOSE	11.281	639.2 -> 58.9	80944	19.25 µg/L	-0.001
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 77.0%	
d5-EtFOSA	11.373	531.1 -> 219.0	10868	2.44 µg/L	-0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%	

**Target Compounds**

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



7.2.3  
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Perfluorinated Compounds by LC/MS/MS

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

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

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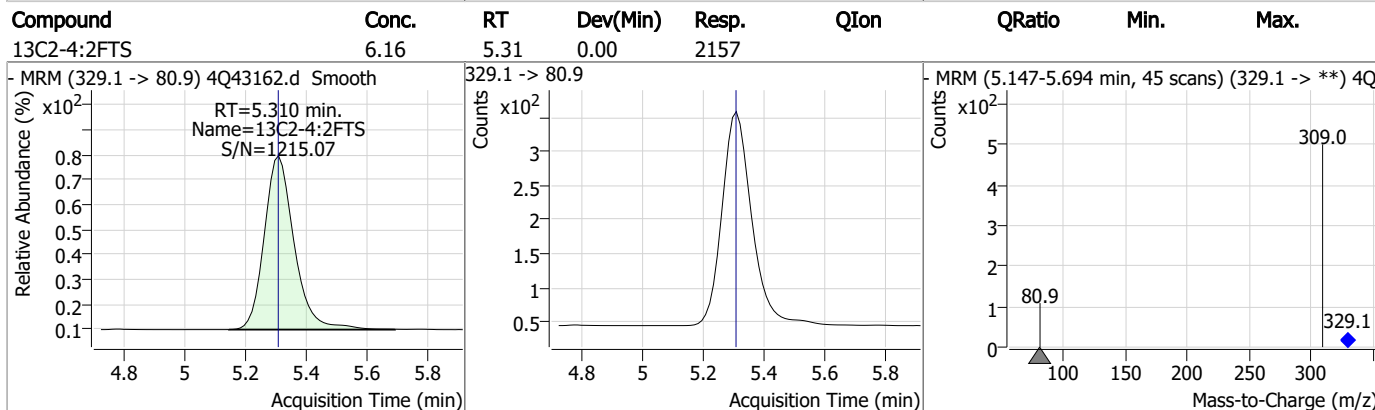
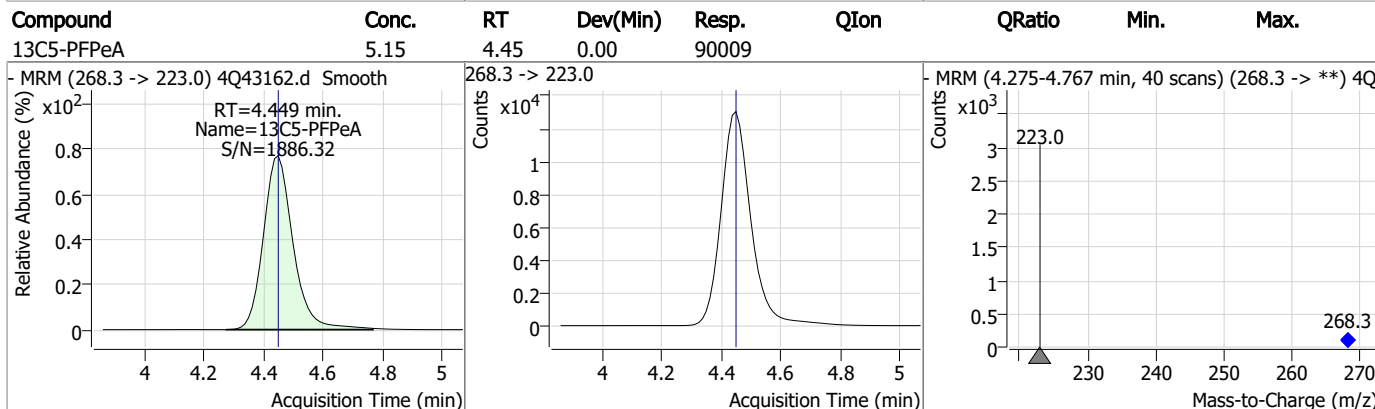
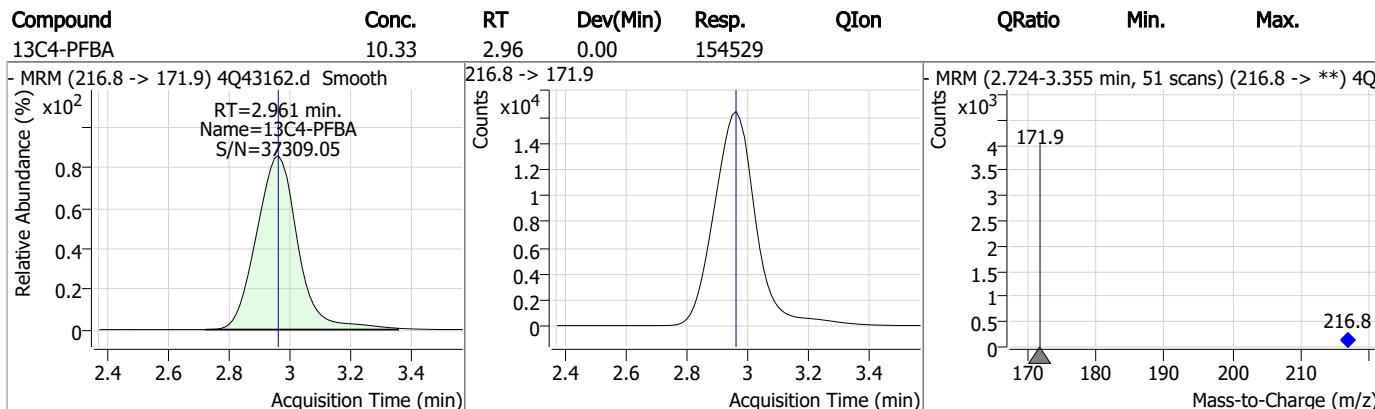
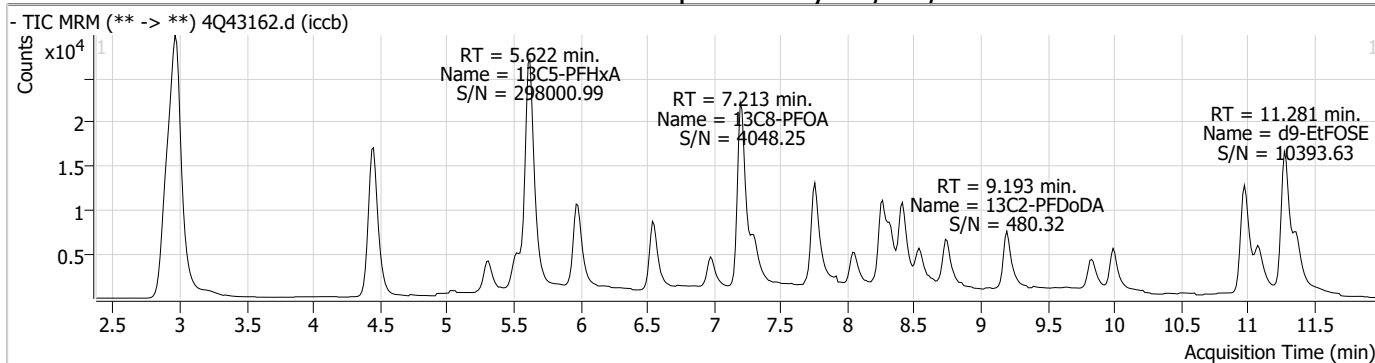
### Perfluorinated Compounds by LC/MS/MS

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

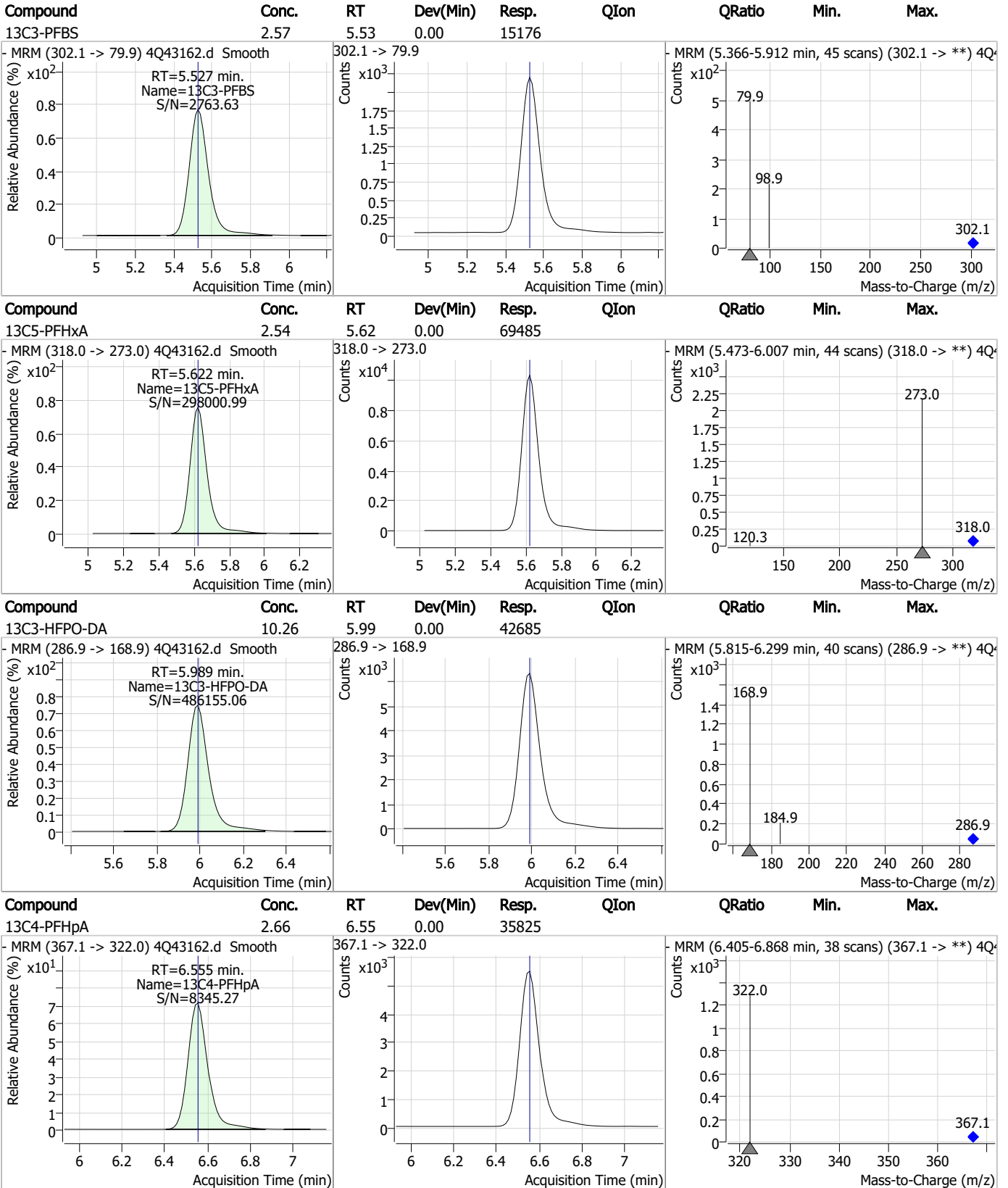
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### Perfluorinated Compounds by LC/MS/MS

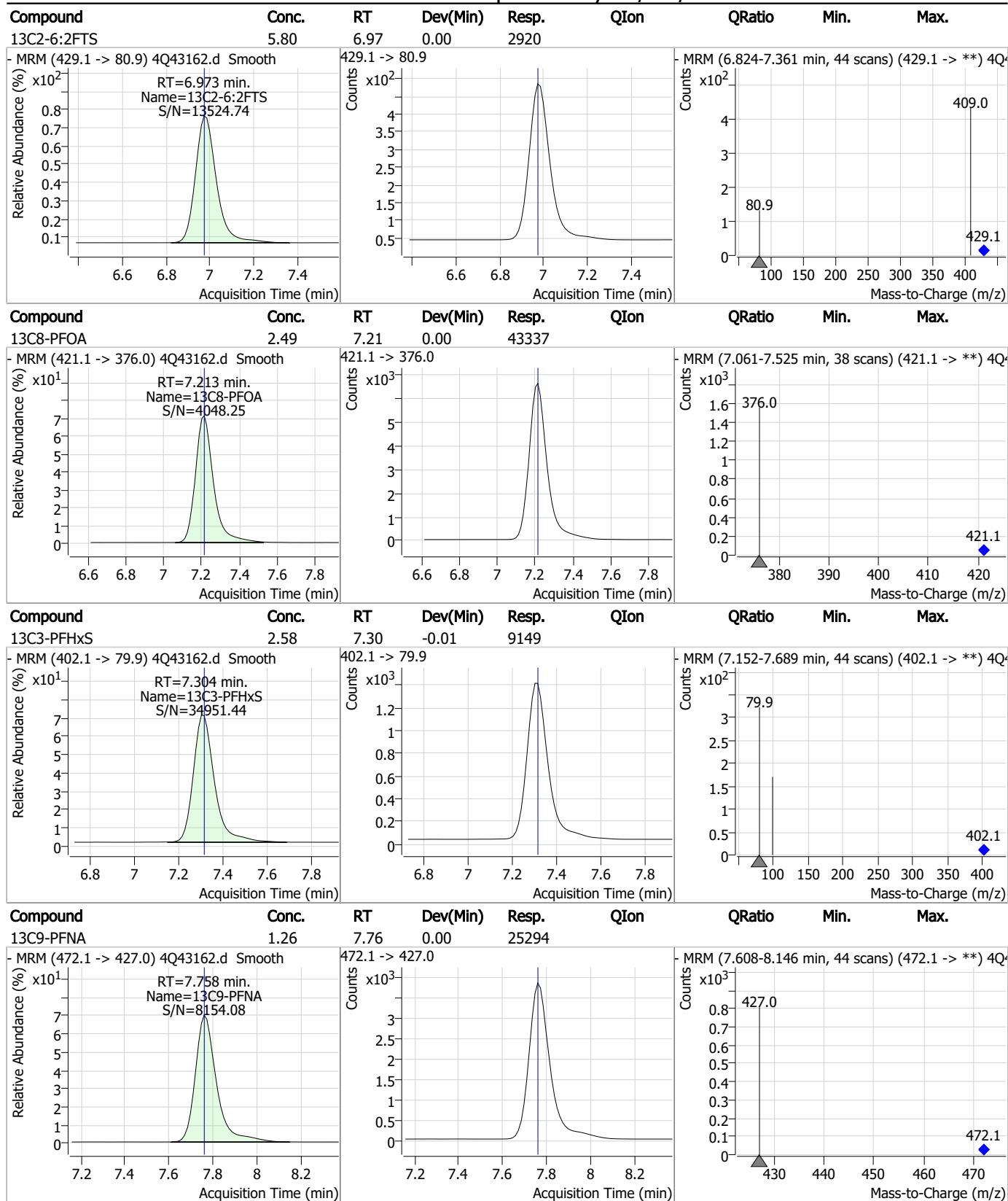


7.2.3  
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### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

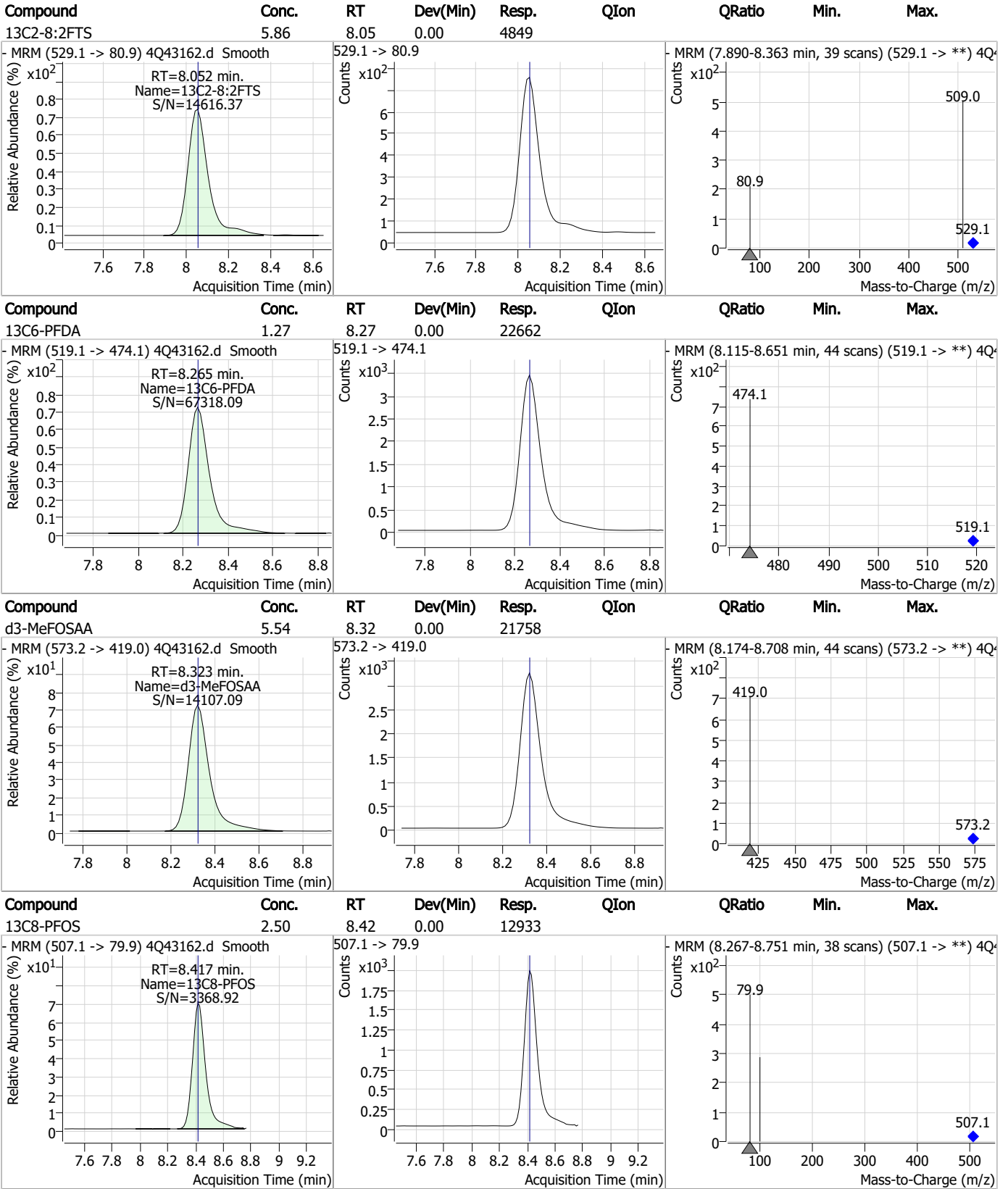


7.2.3  
7

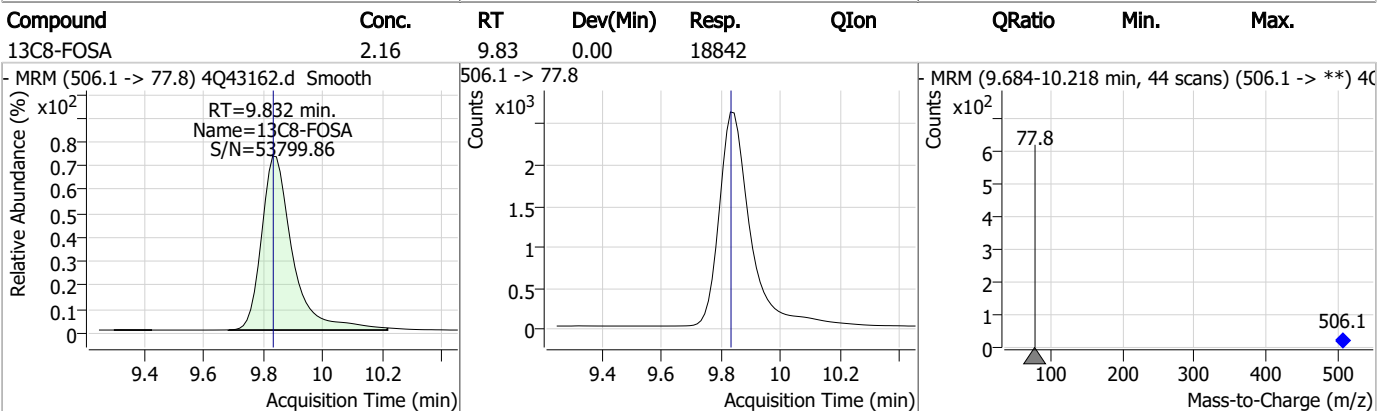
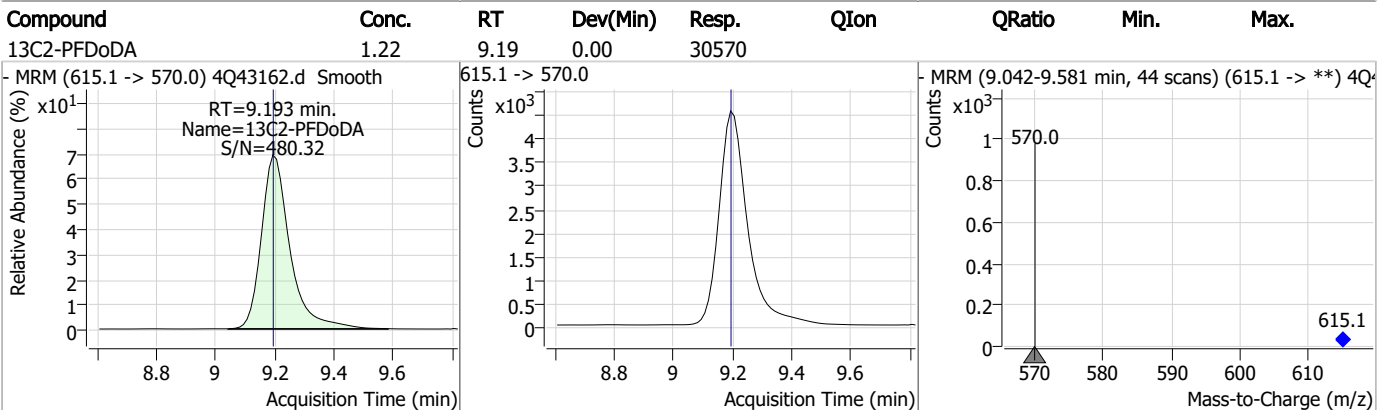
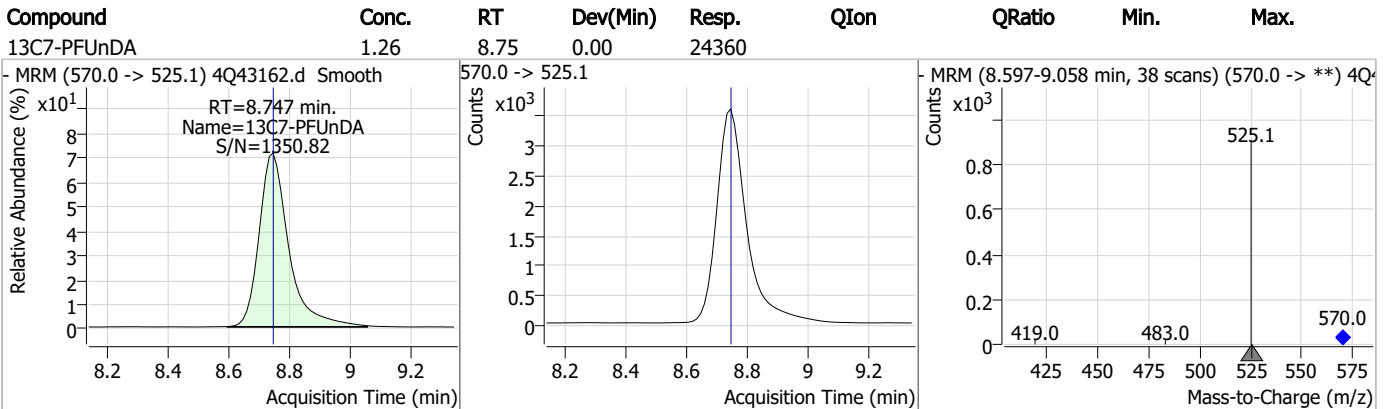
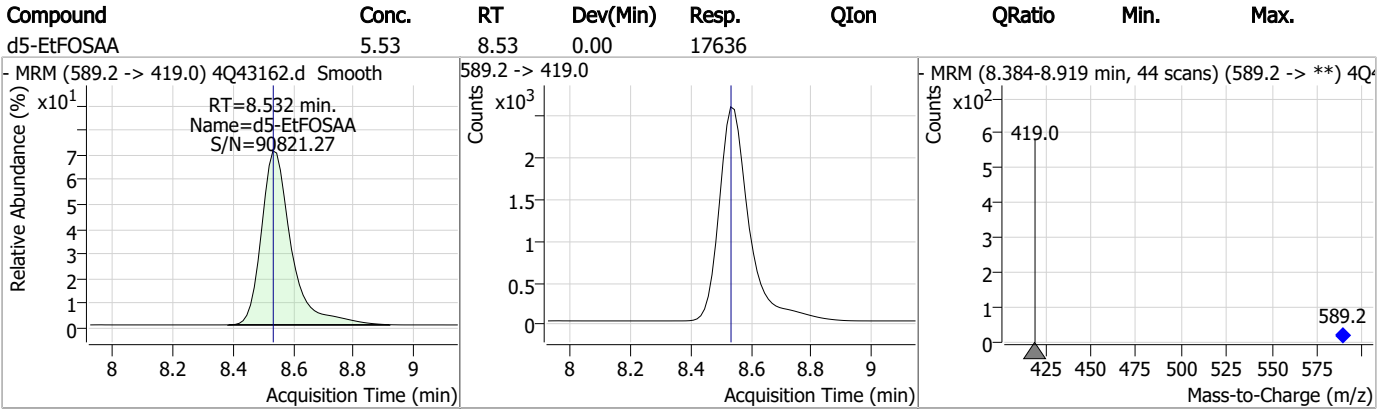




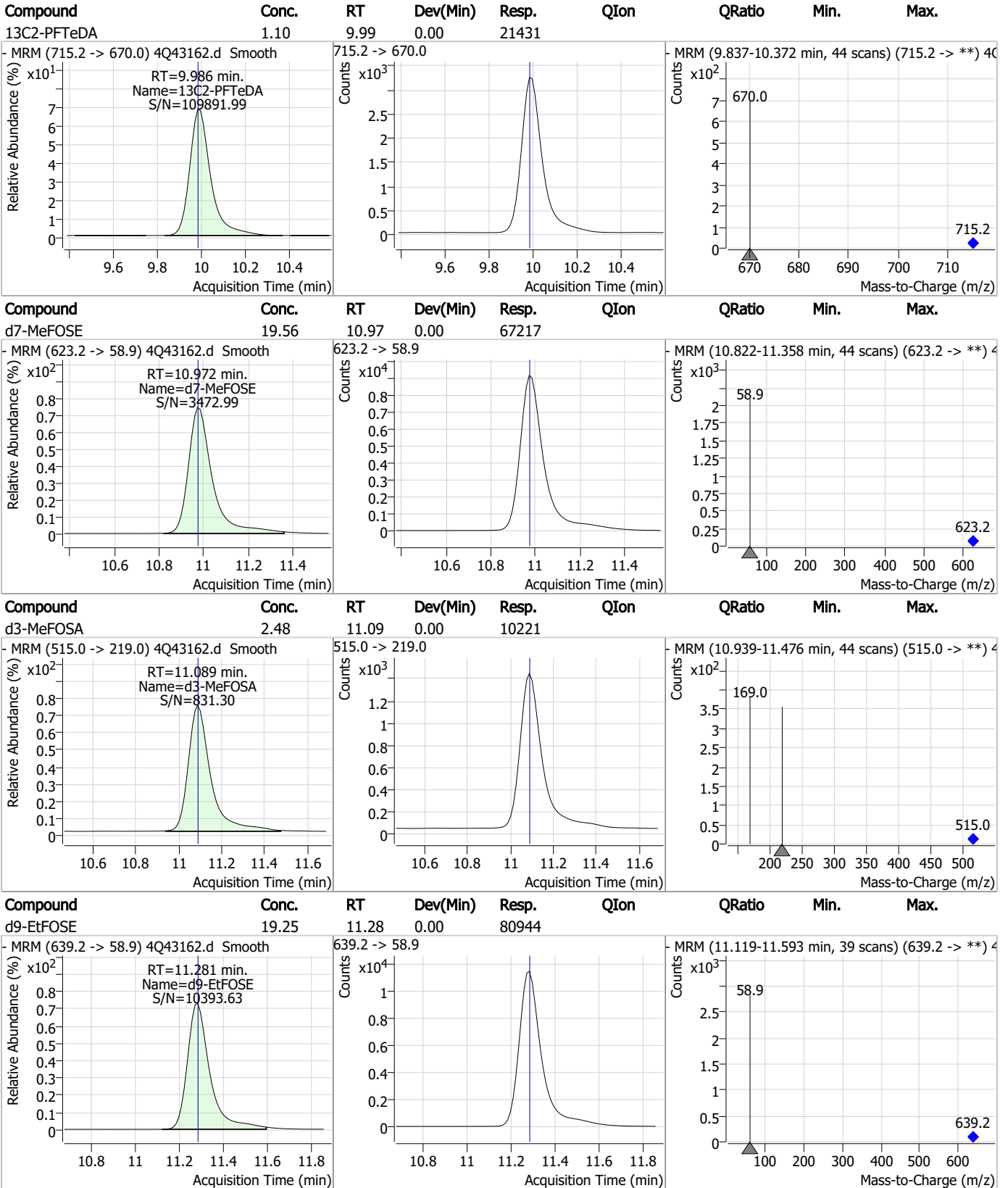
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

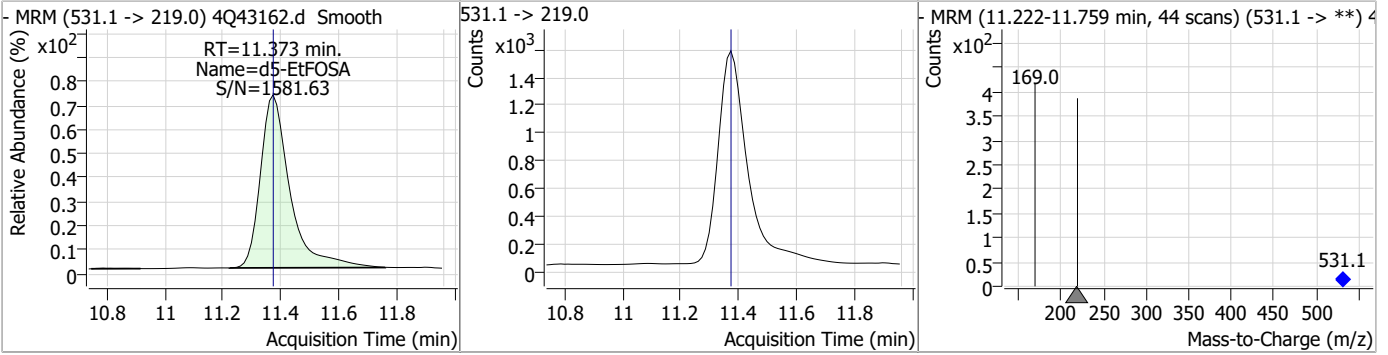


### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.44	11.37	0.00	10868				



7.2.3

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43154.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 4/18/2023 12:36:48 PM  
 Sample Name : op96403-bs  
 Vial : P4-C1  
 DA Method File : 1633\_041423\_S4Q621.quantmethod.xml  
 Batch Name : s4q624.batch.bin  
 Sample Information : OP96403,S4q624,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.999	216.8 -> 171.9	115396	10.00 µg/L	0.038
M5-PFPeA	4.462	268.3 -> 223.0	62616	5.00 µg/L	0.012
M5-PFHxA	5.634	318.0 -> 273.0	51815	2.50 µg/L	0.012
M4-PFHpA	6.555	367.1 -> 322.0	25358	2.50 µg/L	0.000
M8-PFOA	7.214	421.1 -> 376.0	30703	2.50 µg/L	0.000
M9-PFNA	7.759	472.1 -> 427.0	16947	1.25 µg/L	0.000
M6-PFDA	8.266	519.1 -> 474.1	16528	1.25 µg/L	0.000
M7-PFUnDA	8.748	570.0 -> 525.1	17197	1.25 µg/L	0.000
M2-PFDoDA	9.194	615.1 -> 570.0	20937	1.25 µg/L	0.000
M2-PFTeDA	10.000	715.2 -> 670.0	13236	1.25 µg/L	0.012
M8-FOSA	9.846	506.1 -> 77.8	12523	2.50 µg/L	0.012
M3-PFBS	5.539	302.1 -> 79.9	11246	2.50 µg/L	0.012
M3-PFHxS	7.317	402.1 -> 79.9	6556	2.50 µg/L	0.000
M8-PFOS	8.417	507.1 -> 79.9	8310	2.50 µg/L	0.000
M2-4:2FTS	5.323	329.1 -> 80.9	1354	5.00 µg/L	0.014
M2-6:2FTS	6.974	429.1 -> 80.9	2196	5.00 µg/L	0.000
M2-8:2FTS	8.054	529.1 -> 80.9	3245	5.00 µg/L	0.000
M3-MeFOSAA	8.324	573.2 -> 419.0	14854	5.00 µg/L	0.000
M3-HFPO-DA	5.989	286.9 -> 168.9	30126	10.00 µg/L	0.000
M5-EtFOSAA	8.533	589.2 -> 419.0	11928	5.00 µg/L	0.000
M7-MeFOSE	10.974	623.2 -> 58.9	44430	25.00 µg/L	0.000
M9-EtFOSE	11.282	639.2 -> 58.9	55492	25.00 µg/L	0.000
M5-EtFOSA	11.386	531.1 -> 219.0	7005	2.50 µg/L	0.012
M3-MeFOSA	11.090	515.0 -> 219.0	6516	2.50 µg/L	0.000
13C4-PFOS	8.418	502.8 -> 79.9	9488	2.50 µg/L	0.000
13C3-PFBA	3.003	216.0 -> 172.0	60071	5.00 µg/L	0.037
18O2-PFHxS	7.316	403.0 -> 83.9	4584	2.50 µg/L	0.000
13C4-PFOA	7.214	417.1 -> 372.0	36330	2.50 µg/L	0.000
13C2-PFDA	8.267	515.1 -> 470.1	14000	1.25 µg/L	0.000
13C5-PFNA	7.759	468.0 -> 423.0	17955	1.25 µg/L	0.000
13C2-PFHxA	5.635	315.1 -> 270.0	41068	2.50 µg/L	0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.323	329.1 -> 80.9	1354	5.41 µg/L	0.014
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.1%		
13C2-6:2FTS	6.974	429.1 -> 80.9	2196	6.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 122.2%		
13C2-8:2FTS	8.054	529.1 -> 80.9	3245	5.49 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.8%		
13C2-PFDoDA	9.194	615.1 -> 570.0	20937	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.2%		
13C2-PFTeDA	10.000	715.2 -> 670.0	13236	0.99 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 78.9%		
13C3-PFBS	5.539	302.1 -> 79.9	11246	2.67 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.8%		
13C3-PFHxS	7.317	402.1 -> 79.9	6556	2.58 µg/L	0.000

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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C4-PFBA	2.999	216.8 -> 171.9	115396	11.03 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 110.3%	
13C4-PFHpA	6.555	367.1 -> 322.0	25358	2.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.8%	
13C5-PFHxA	5.634	318.0 -> 273.0	51815	2.73 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.2%	
13C5-PFPeA	4.462	268.3 -> 223.0	62616	5.18 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C6-PFDA	8.266	519.1 -> 474.1	16528	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C7-PFUnDA	8.748	570.0 -> 525.1	17197	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C8-FOSA	9.846	506.1 -> 77.8	12523	2.02 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 80.7%	
13C8-PFOA	7.214	421.1 -> 376.0	30703	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C8-PFOS	8.417	507.1 -> 79.9	8310	2.26 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.4%	
13C9-PFNA	7.759	472.1 -> 427.0	16947	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.6%	
d3-MeFOSAA	8.324	573.2 -> 419.0	14854	5.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.3%	
13C3-HFPO-DA	5.989	286.9 -> 168.9	30126	10.45 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.5%	
d3-MeFOSA	11.090	515.0 -> 219.0	6516	2.22 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.7%	
d5-EtFOSAA	8.533	589.2 -> 419.0	11928	5.25 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.0%	
d7-MeFOSE	10.974	623.2 -> 58.9	44430	18.16 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 72.6%	
d9-EtFOSE	11.282	639.2 -> 58.9	55492	18.53 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 74.1%	
d5-EtFOSA	11.386	531.1 -> 219.0	7005	2.21 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.3%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.323	327.1 -> 307.0	18920	11.21 µg/L	97
		327.1 -> 80.9	8259		
6:2FTS	6.974	427.1 -> 407.0	15784	10.53 µg/L	99
		427.1 -> 80.9	7000		
8:2FTS	8.054	527.1 -> 507.0	16082	11.05 µg/L	97
		527.1 -> 80.8	6774		
EtFOSAA	8.547	584.2 -> 419.1	5089	2.86 µg/L	m 96
		584.2 -> 526.0	2530		
FOSA	9.837	498.1 -> 77.9	11808	2.93 µg/L	98
		498.1 -> 478.0	355		
MeFOSAA	8.325	570.1 -> 419.0	5319	2.60 µg/L	m 98
		570.1 -> 483.0	1263		
PFBA	3.007	212.8 -> 168.9	28001	10.63 µg/L	100
PFBS	5.540	298.7 -> 79.9	10022	2.39 µg/L	97
		298.7 -> 98.8	3846		
PFDA	8.267	512.9 -> 469.0	25627	2.71 µg/L	100
		512.9 -> 219.0	5128		
PFDoDA	9.195	613.1 -> 569.0	35910	2.72 µg/L	99
		613.1 -> 319.0	5097		
PFDS	9.358	599.0 -> 79.9	5575	3.00 µg/L	99

7.3.1  
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2701			
PFHpA	6.555	363.1 -> 319.0	35309	2.79	µg/L	98
		363.1 -> 169.0	6990			
PFHpS	7.900	449.0 -> 79.9	6753	3.12	µg/L	94
		449.0 -> 98.9	3286			
PFHxA	5.625	313.0 -> 269.0	41629	2.71	µg/L	100
		313.0 -> 118.9	1318			
PFHxS	7.318	398.7 -> 79.9	5791	2.58	µg/L	m 97
		398.7 -> 98.9	3096			
PFNA	7.760	463.0 -> 419.0	25184	2.78	µg/L	100
		463.0 -> 219.0	6413			
PFNS	8.912	548.8 -> 79.9	3753	2.93	µg/L	94
		548.8 -> 98.9	2172			
PFOA	7.215	413.0 -> 369.0	40310	2.81	µg/L	100
		413.0 -> 169.0	8505			
PFOS	8.419	498.9 -> 79.9	9857	3.05	µg/L	m 99
		498.9 -> 98.8	4586			
PFPeA	4.464	263.0 -> 219.0	69851	5.89	µg/L	100
PFPeS	6.595	349.1 -> 79.9	5454	2.85	µg/L	96
		349.1 -> 98.9	2305			
PFTeDA	10.000	713.1 -> 669.0	28808	2.76	µg/L	97
		713.1 -> 168.9	2297			
PFTrDA	9.617	663.0 -> 619.0	43522	2.56	µg/L	99
		663.0 -> 168.9	4203			
PFUnDA	8.748	563.1 -> 519.0	25881	2.66	µg/L	99
		563.1 -> 269.1	4966			
11CI-PF3OUdS	9.656	630.9 -> 450.9	43447	5.53	µg/L	99
		632.9 -> 452.9	13565			
9CI-PF3ONS	8.775	530.8 -> 351.0	46951	5.35	µg/L	99
		532.8 -> 353.0	14358			
ADONA	6.806	376.9 -> 250.9	104813	5.79	µg/L	98
		376.9 -> 84.8	28425			
HFPO-DA	5.990	284.9 -> 168.9	14284	5.98	µg/L	94
		284.9 -> 184.9	1554			
3:3FTCA	3.967	241.0 -> 177.0	7494	13.57	µg/L	98
		241.0 -> 117.0	722			
5:3FTCA	6.321	341.0 -> 237.1	151235	69.82	µg/L	99
		341.0 -> 217.0	106459			
7:3FTCA	7.762	441.0 -> 316.9	61043	68.76	µg/L	99
		441.0 -> 336.9	138416			
EtFOSA	11.388	526.0 -> 219.0	13224	5.30	µg/L	m 97
		526.0 -> 169.0	18226			
EtFOSE	11.295	630.0 -> 58.9	23619	13.81	µg/L	100
MeFOSA	11.092	511.9 -> 219.0	11378	5.40	µg/L	m 97
		511.9 -> 169.0	16923			
MeFOSE	11.000	616.1 -> 58.9	22007	14.09	µg/L	m 100
PFDoDS	10.140	699.1 -> 79.9	4348	2.71	µg/L	99
		699.1 -> 98.8	2632			
NFDHA	5.516	295.0 -> 201.0	5868	5.69	µg/L	99
		295.0 -> 84.9	1504			
PFMBA	4.866	279.0 -> 85.1	39691	5.86	µg/L	100
PFMPA	3.602	229.0 -> 84.9	34361	5.80	µg/L	100
PFEESA	6.071	314.8 -> 134.9	63205	4.91	µg/L	99
		314.8 -> 82.9	2260			

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

7.3.1  
7

### Perfluorinated Compounds by LC/MS/MS

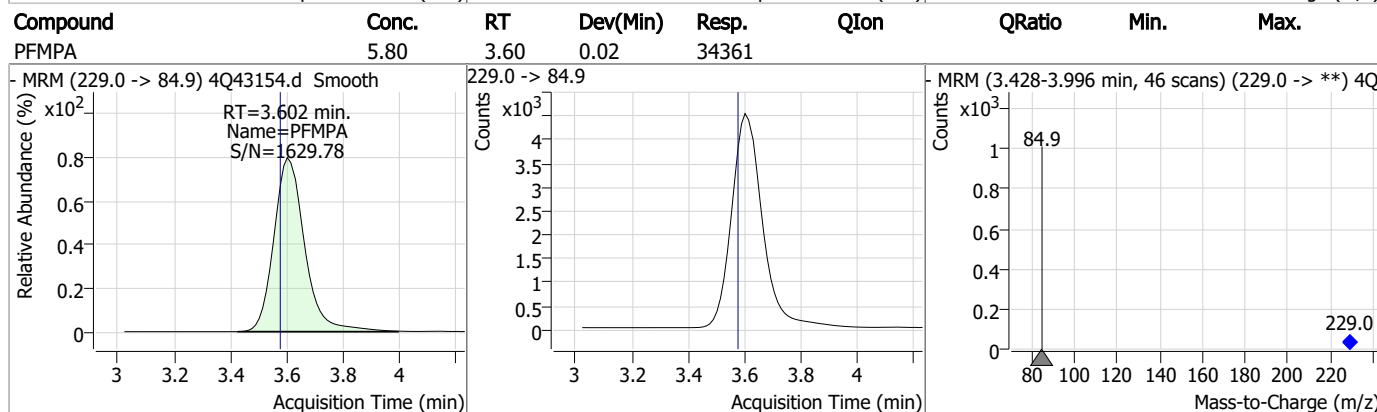
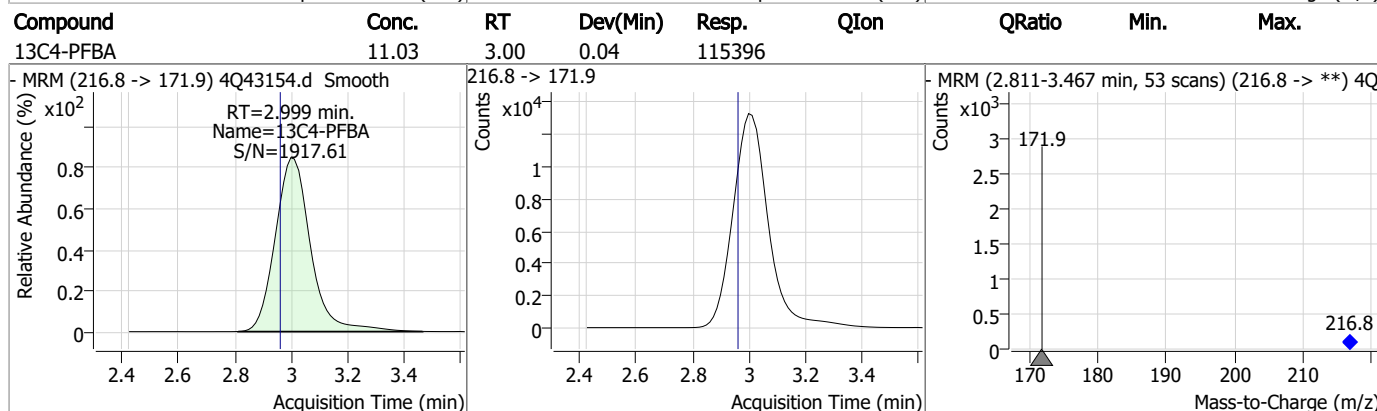
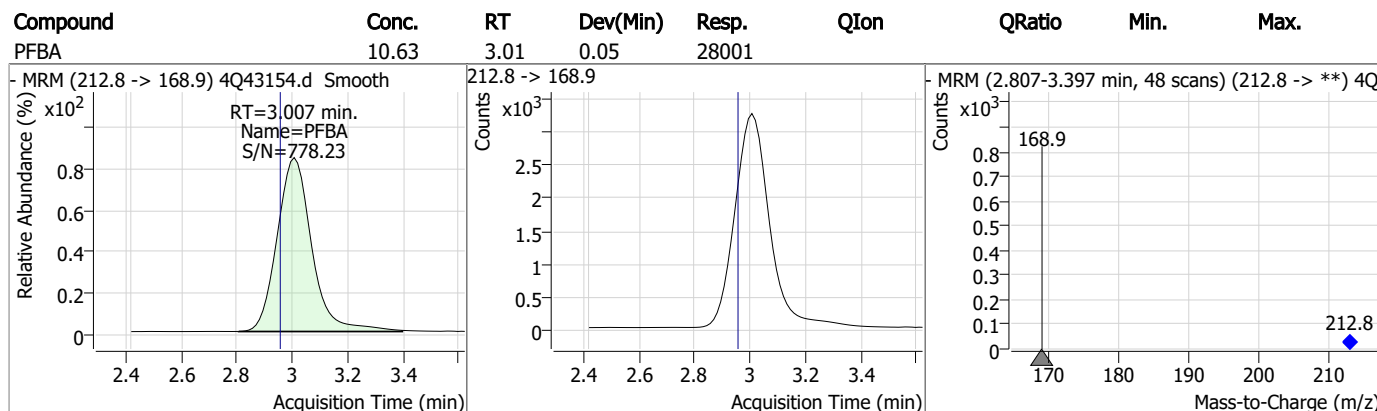
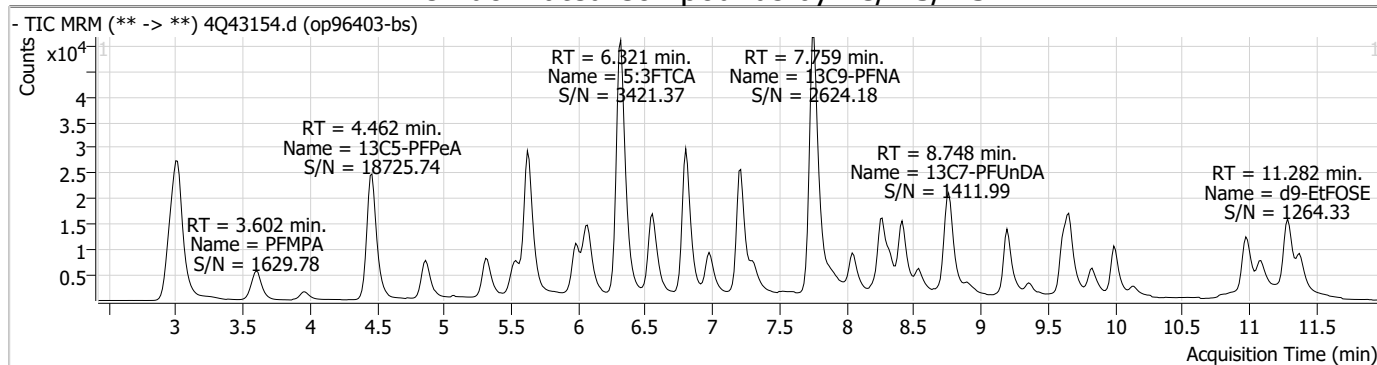
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.3.1

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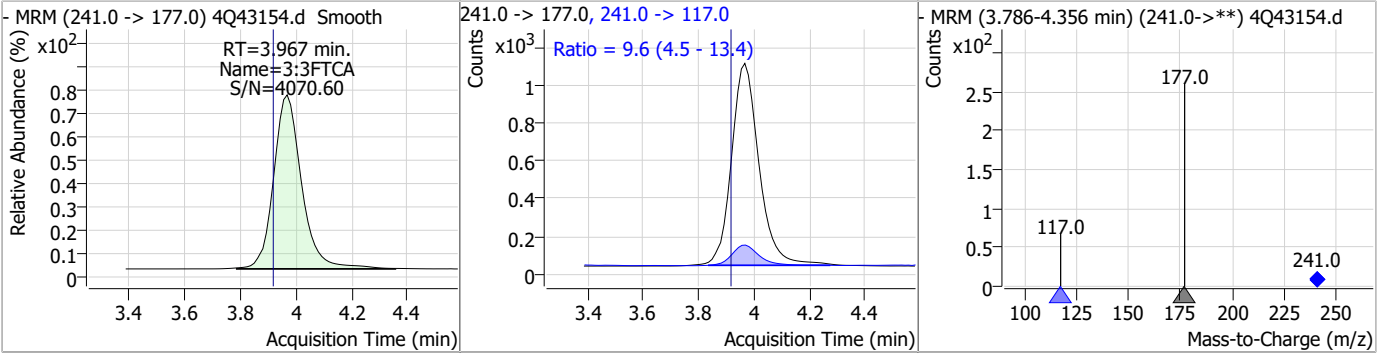


### Perfluorinated Compounds by LC/MS/MS

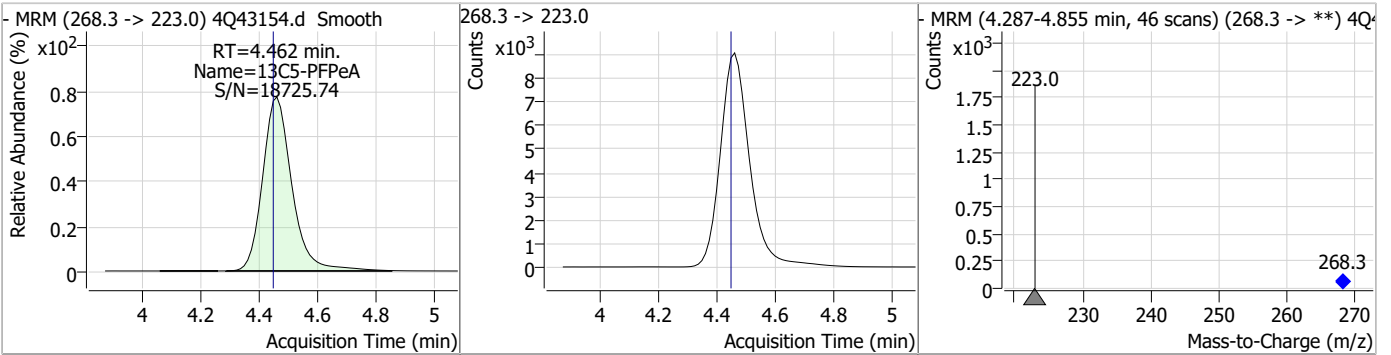


### Perfluorinated Compounds by LC/MS/MS

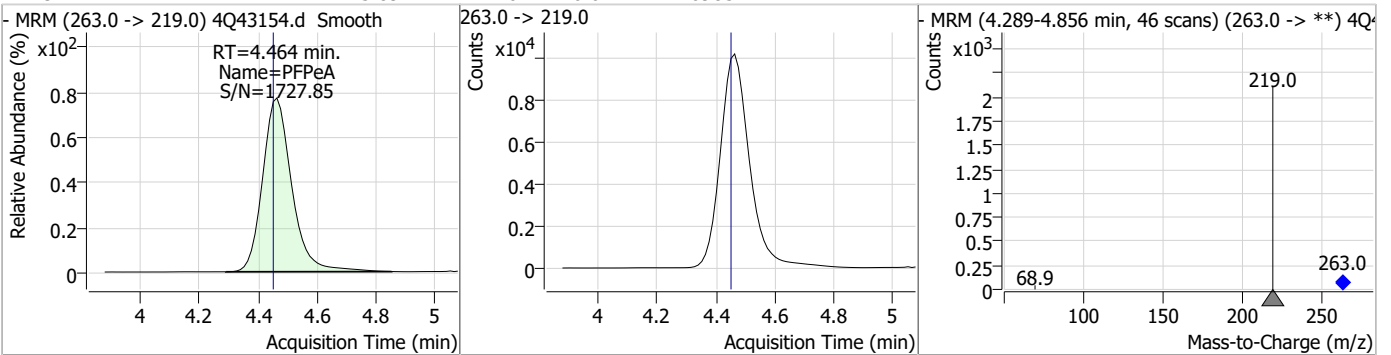
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	13.57	3.97	0.05	7494	241.0 -> 117.0	9.6	4.5	13.4



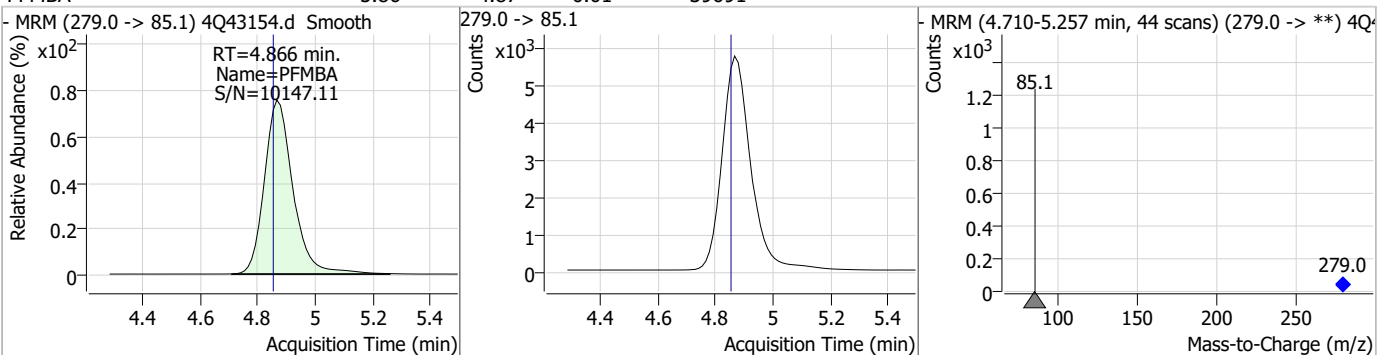
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.18	4.46	0.01	62616				



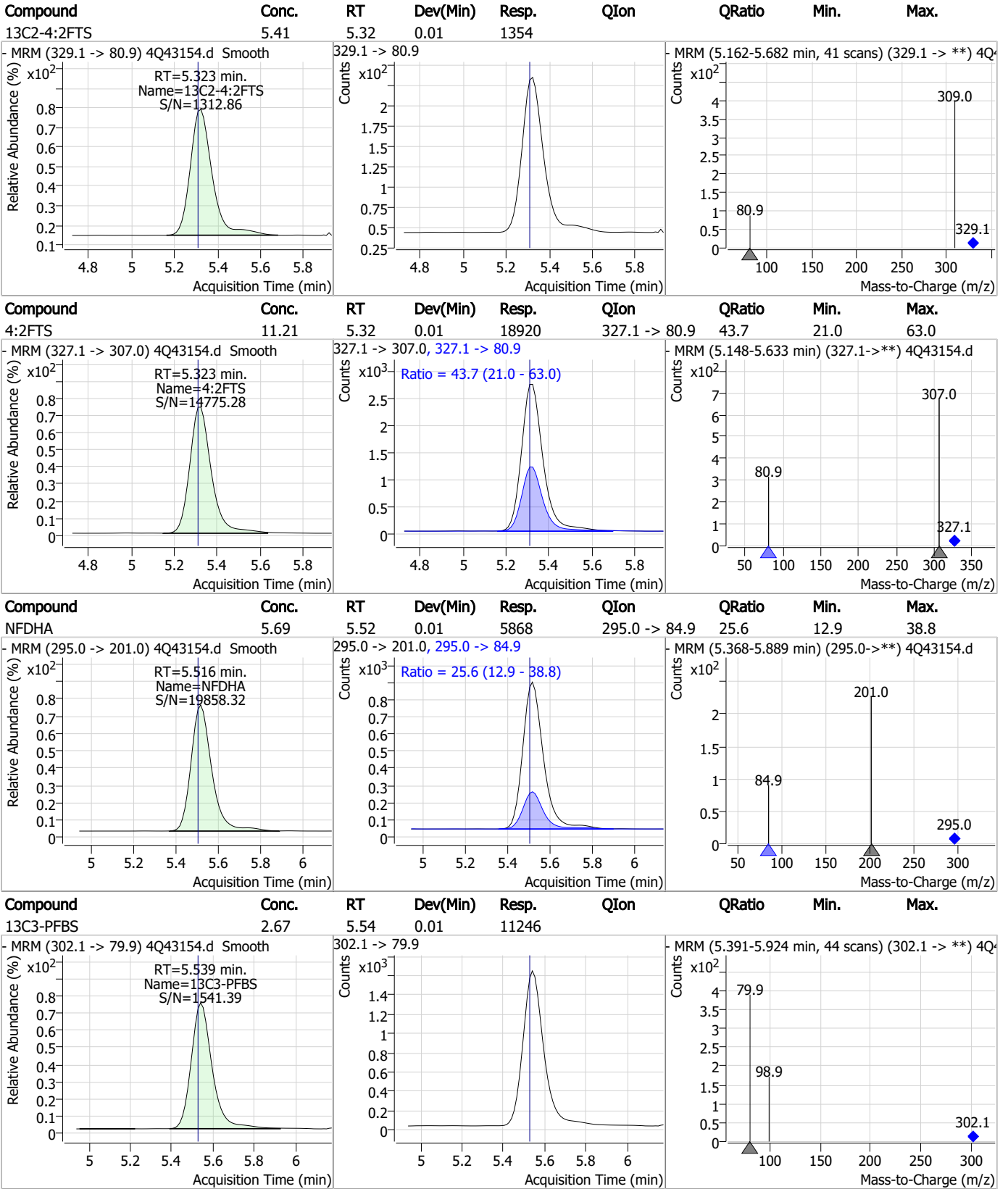
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	5.89	4.46	0.01	69851				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	5.86	4.87	0.01	39691				



### Perfluorinated Compounds by LC/MS/MS

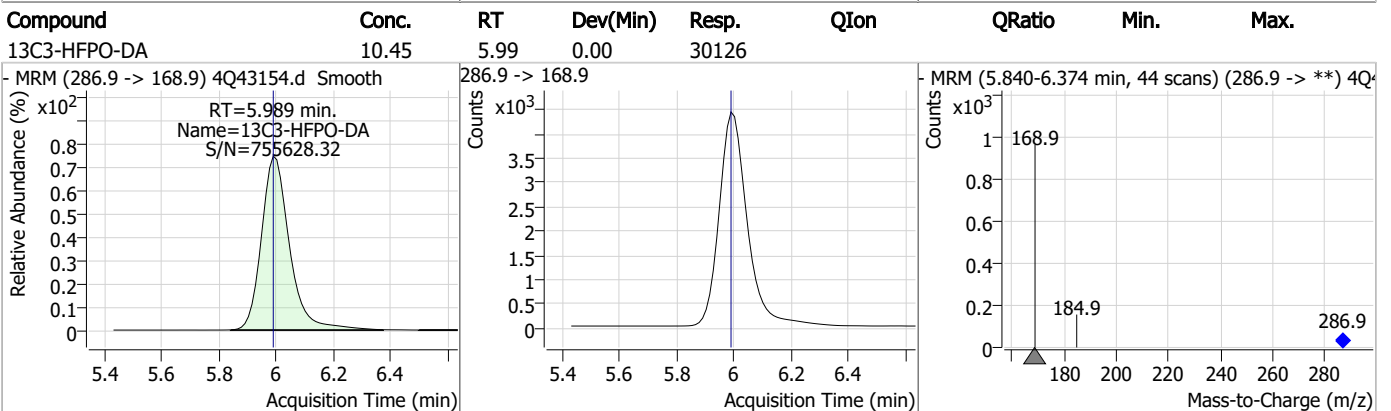
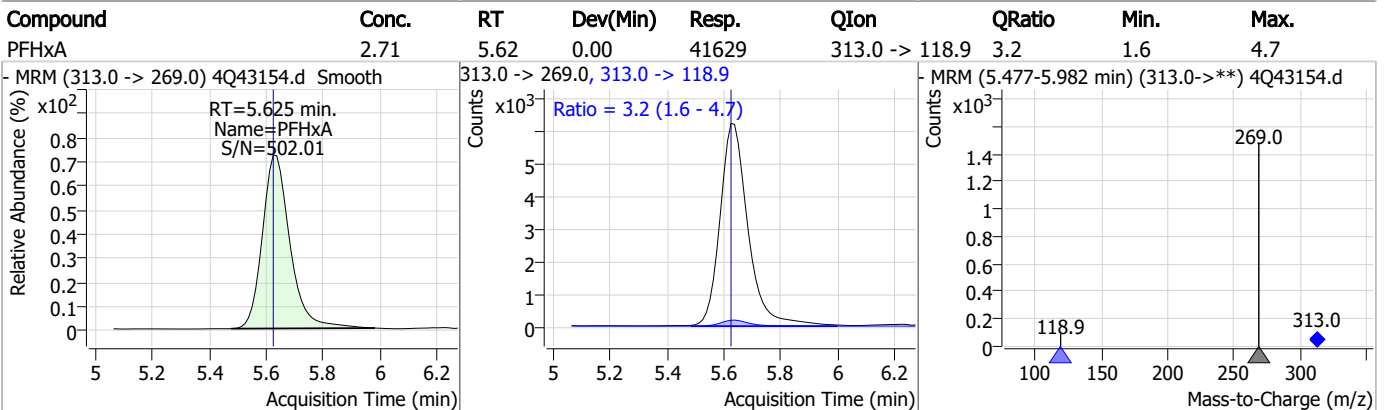
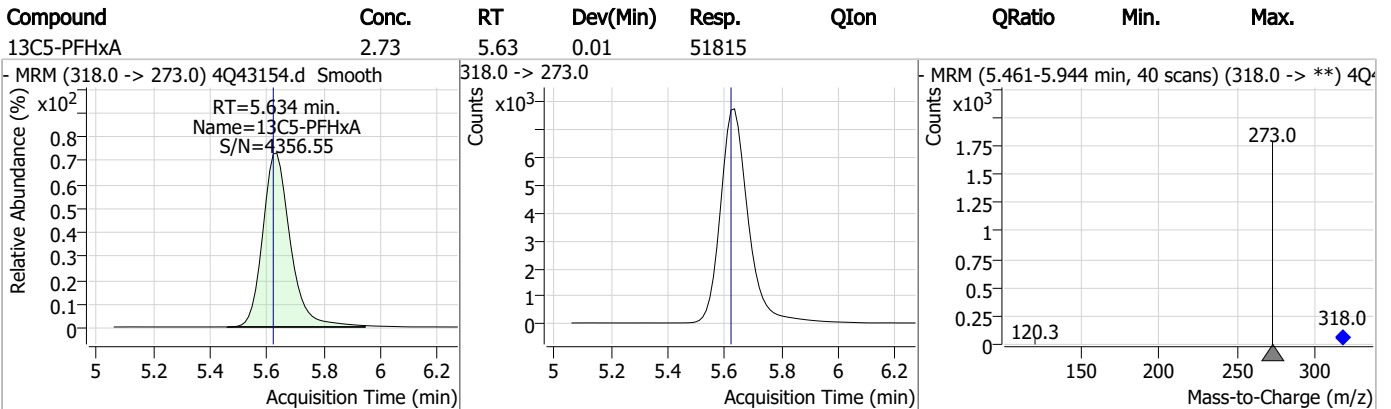
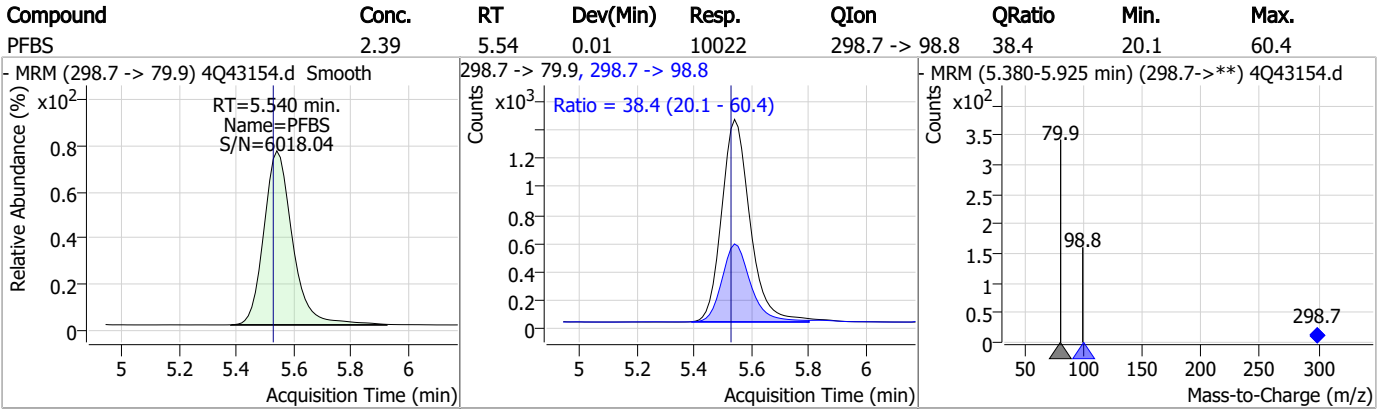


7.3.1

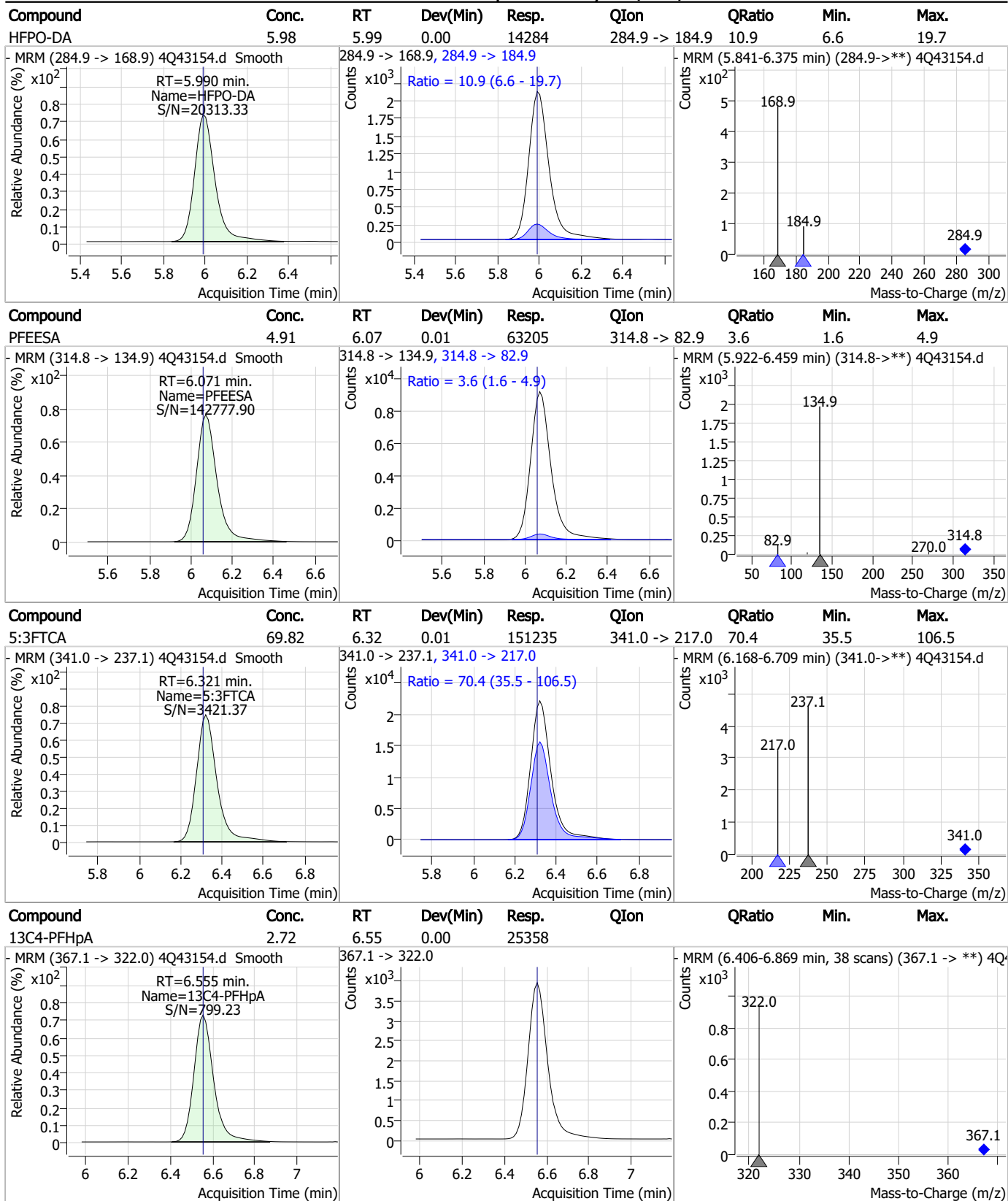
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### Perfluorinated Compounds by LC/MS/MS



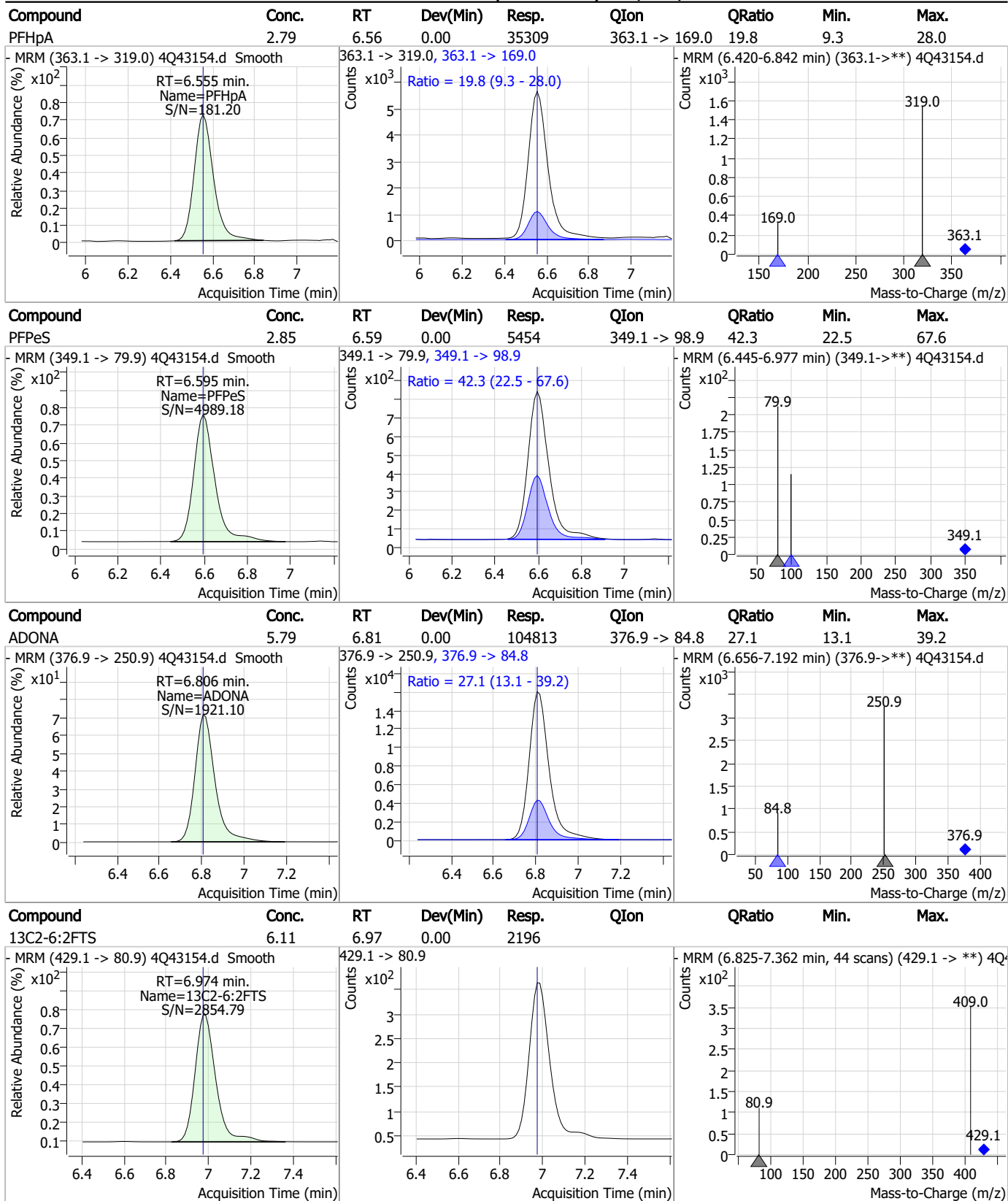
### Perfluorinated Compounds by LC/MS/MS



7.3.1  
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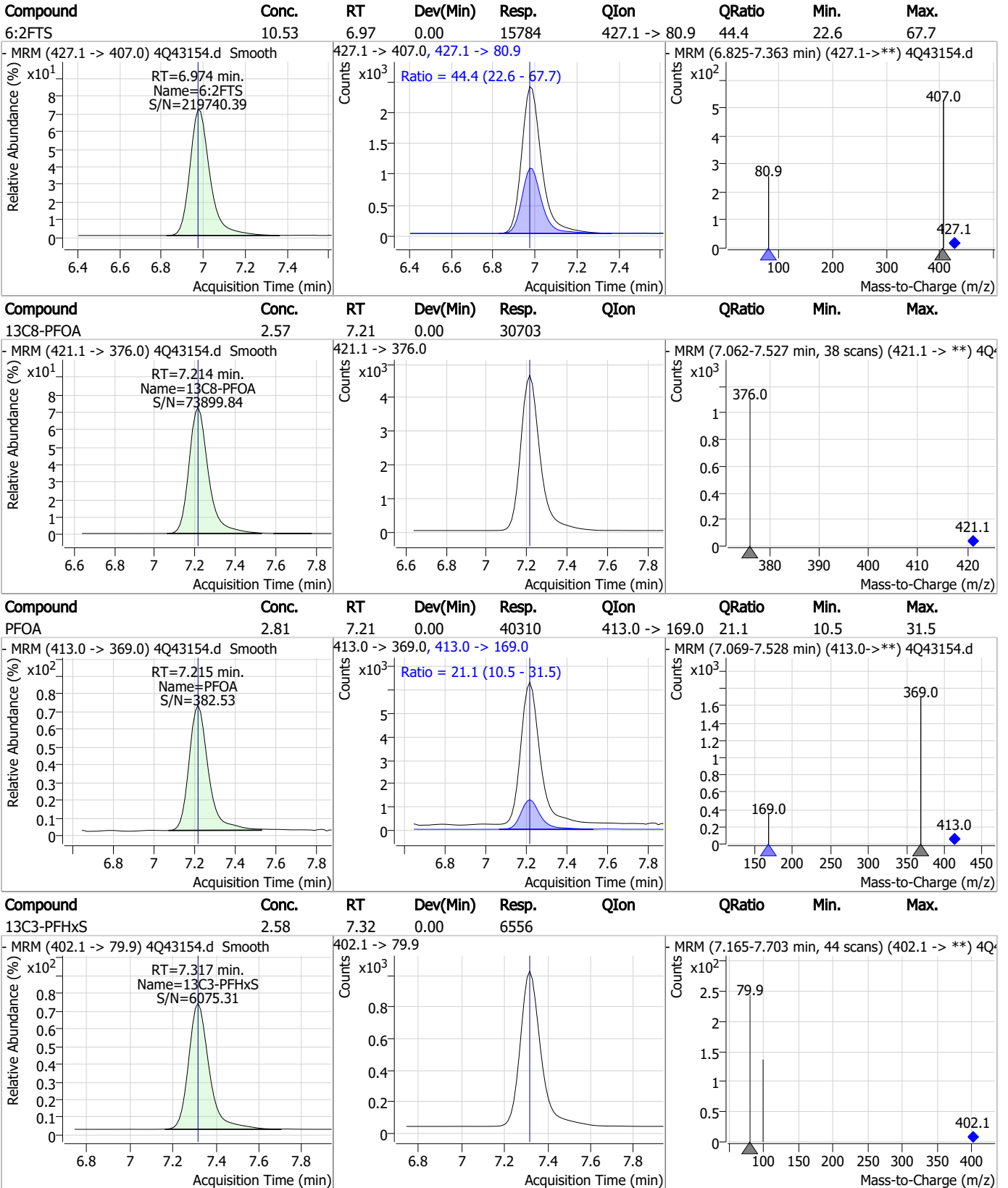


### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

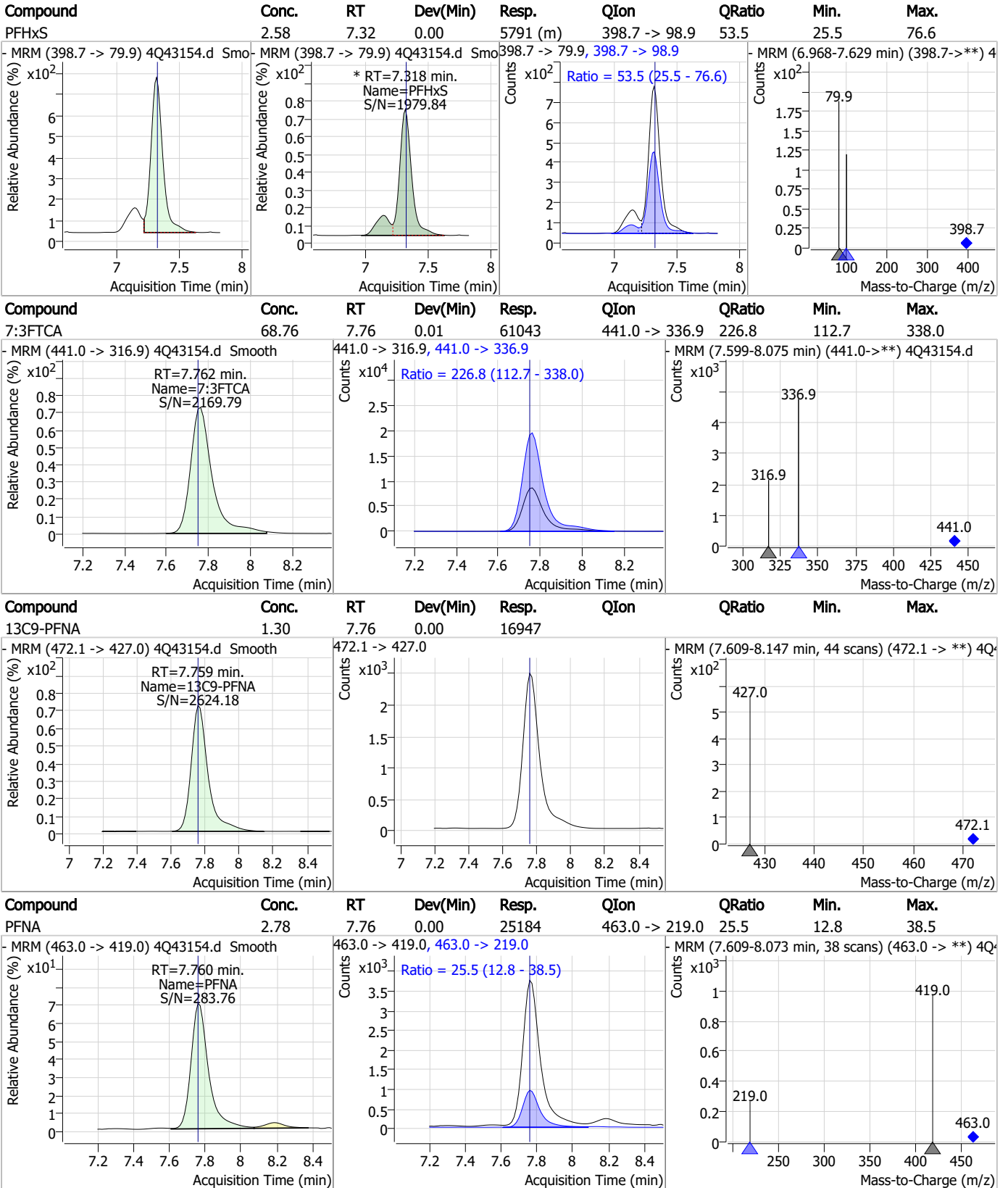


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### Perfluorinated Compounds by LC/MS/MS



7.3.1

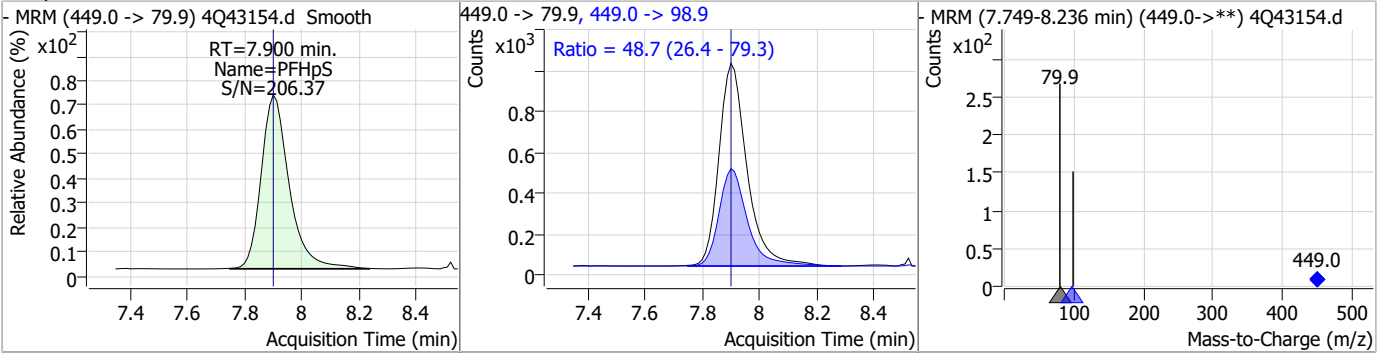
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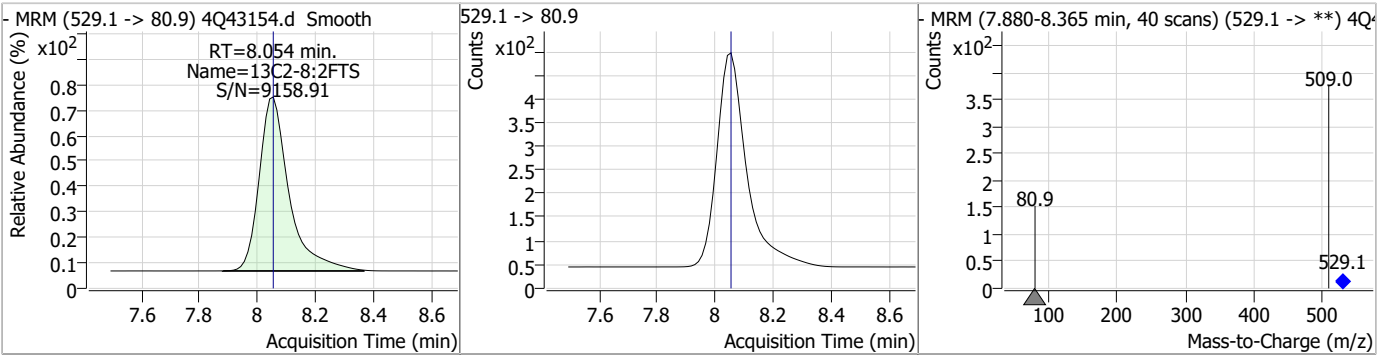


### Perfluorinated Compounds by LC/MS/MS

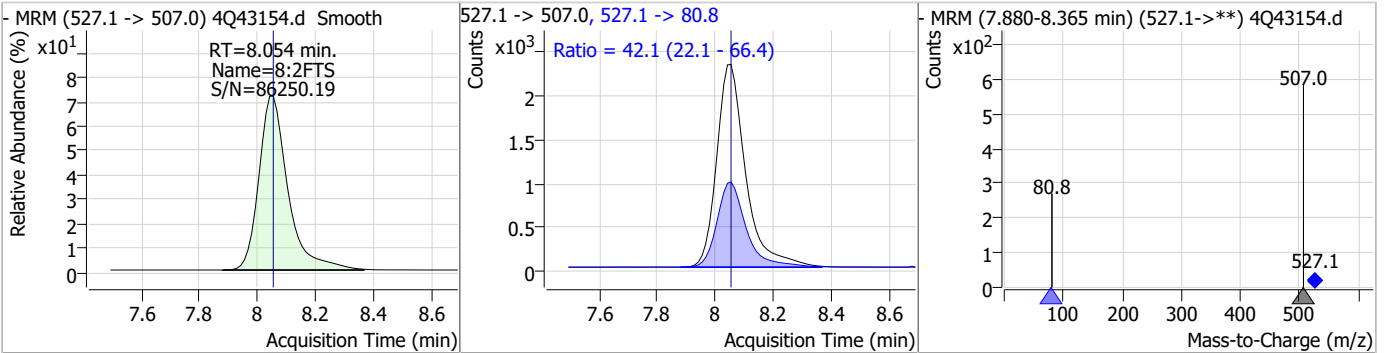
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	3.12	7.90	0.00	6753	449.0 -> 98.9	48.7	26.4	79.3



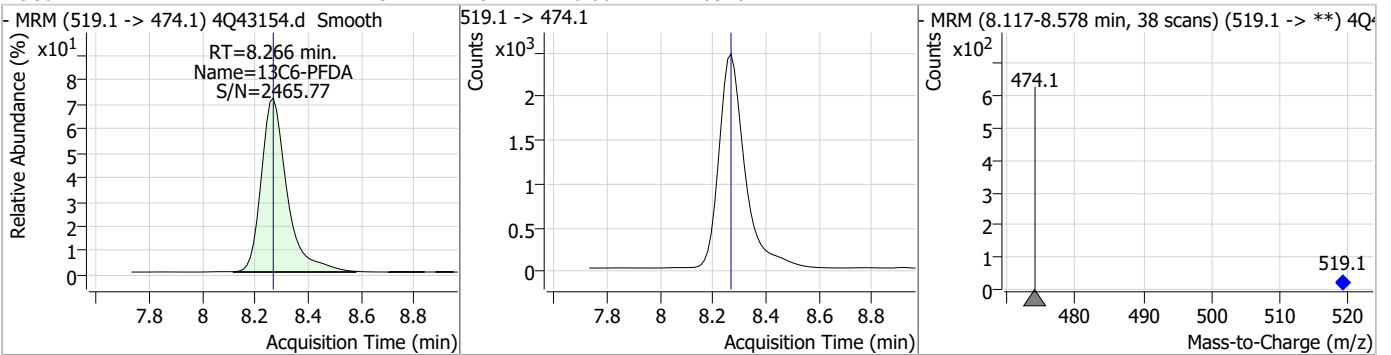
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.49	8.05	0.00	3245				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	11.05	8.05	0.00	16082	527.1 -> 80.8	42.1	22.1	66.4

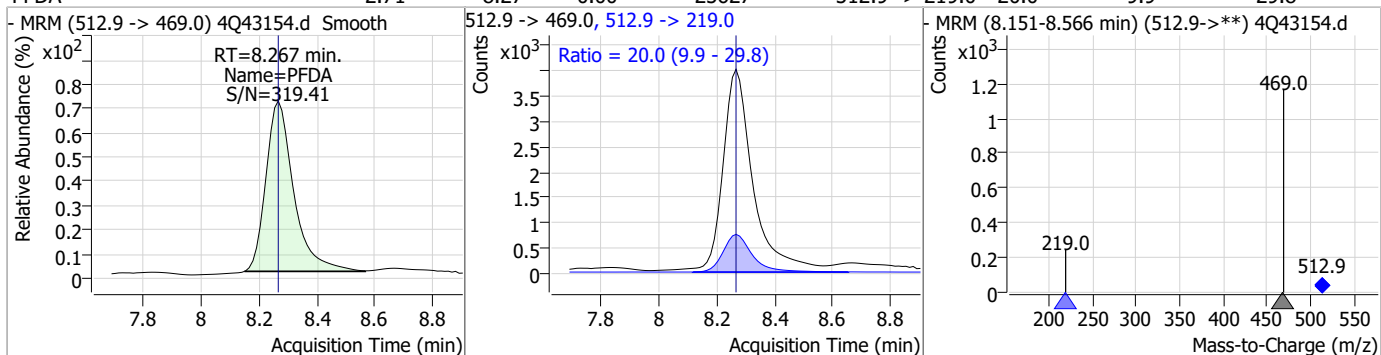


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.34	8.27	0.00	16528				

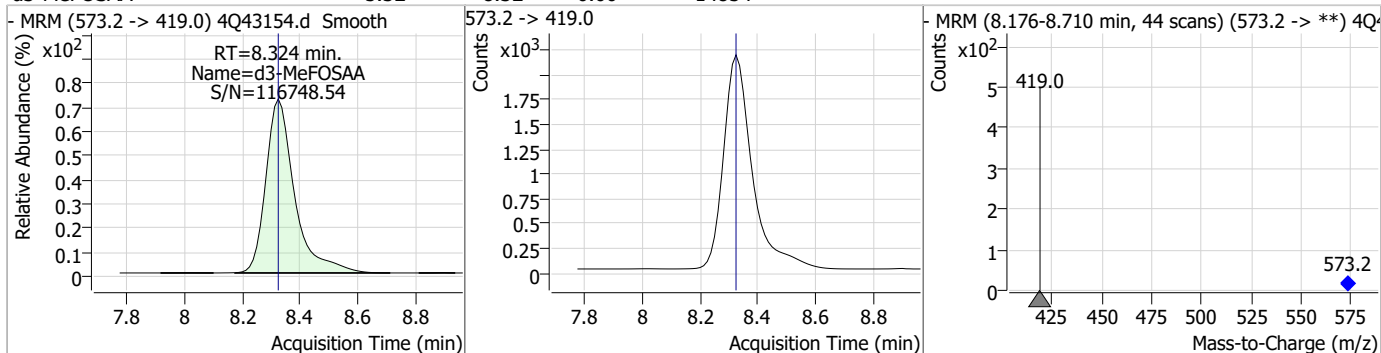


### Perfluorinated Compounds by LC/MS/MS

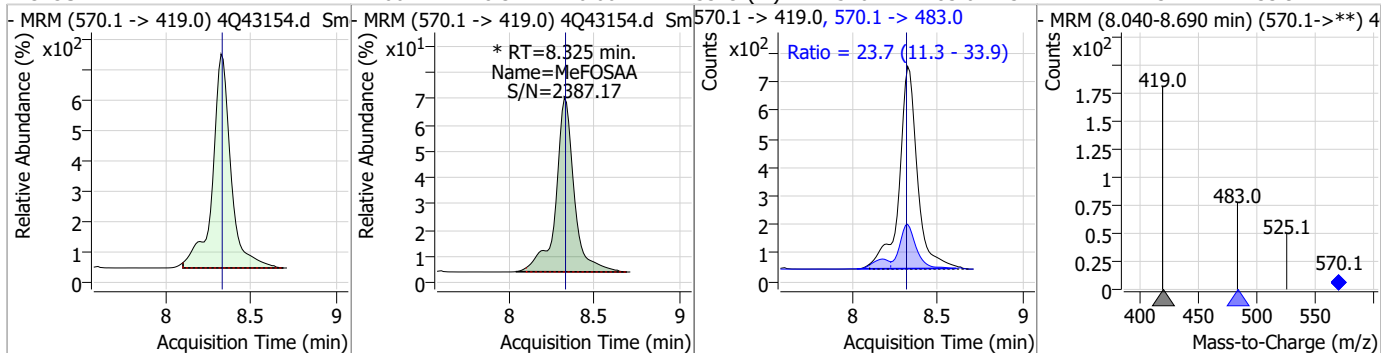
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.71	8.27	0.00	25627	512.9 -> 219.0	20.0	9.9	29.8



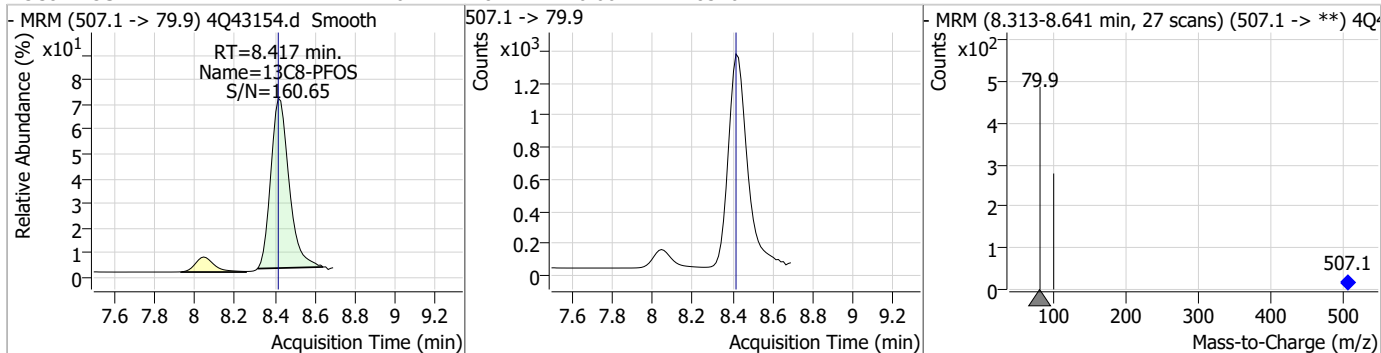
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.32	8.32	0.00	14854				



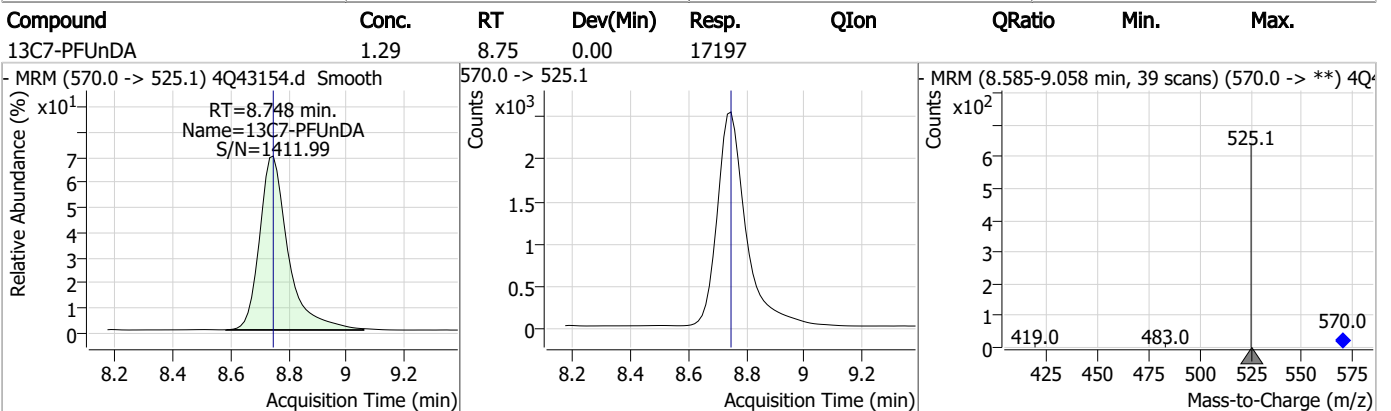
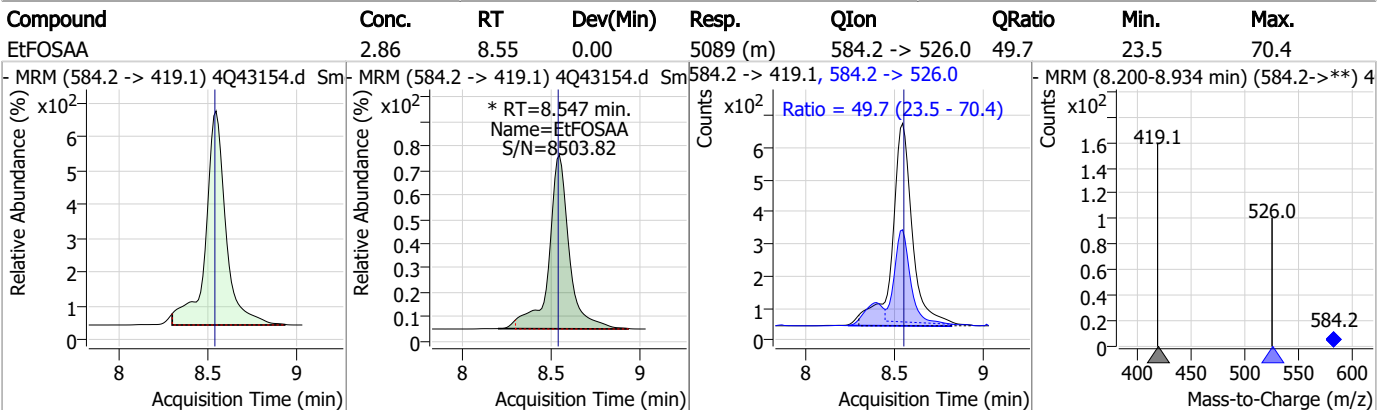
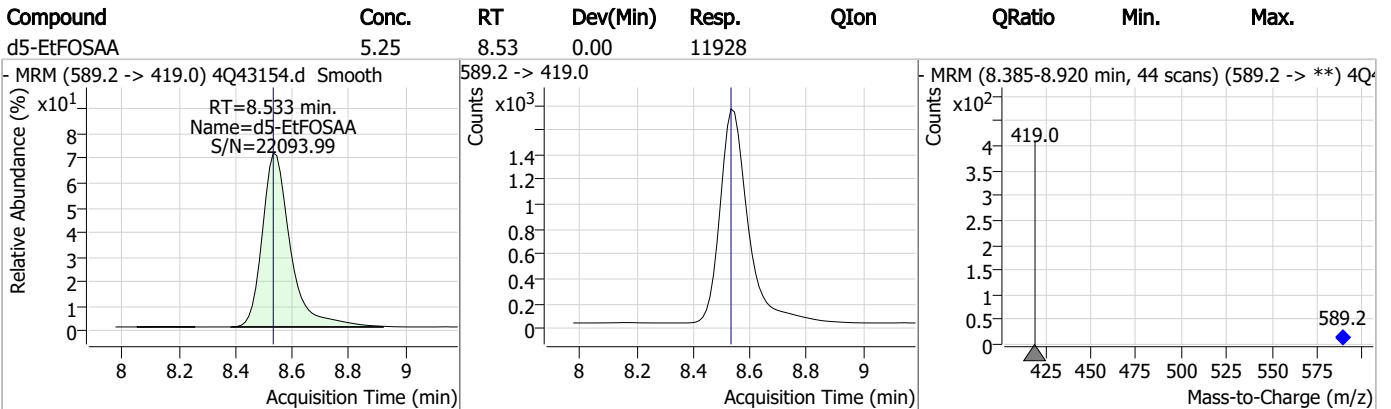
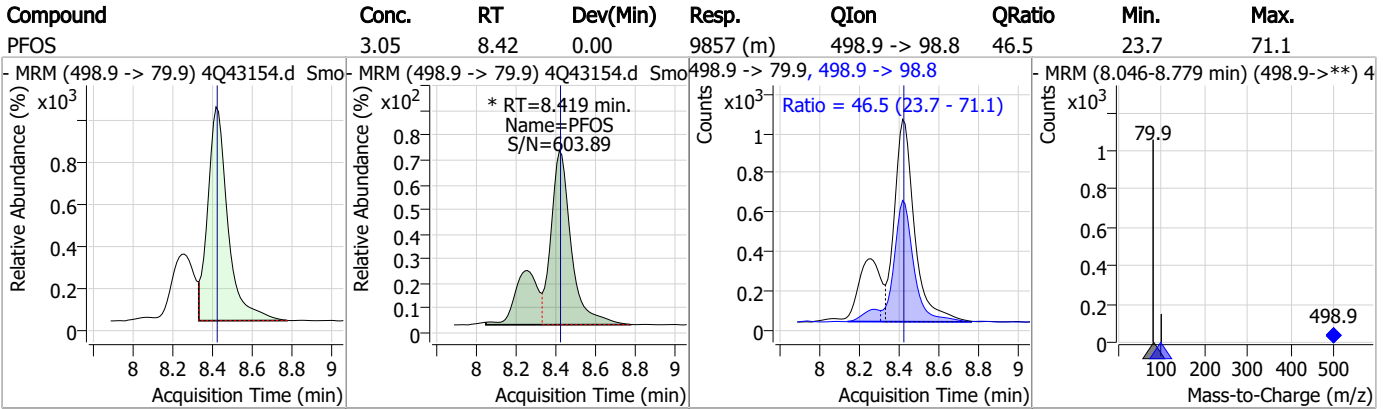
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.60	8.32	0.00	5319 (m)	570.1 -> 483.0	23.7	11.3	33.9



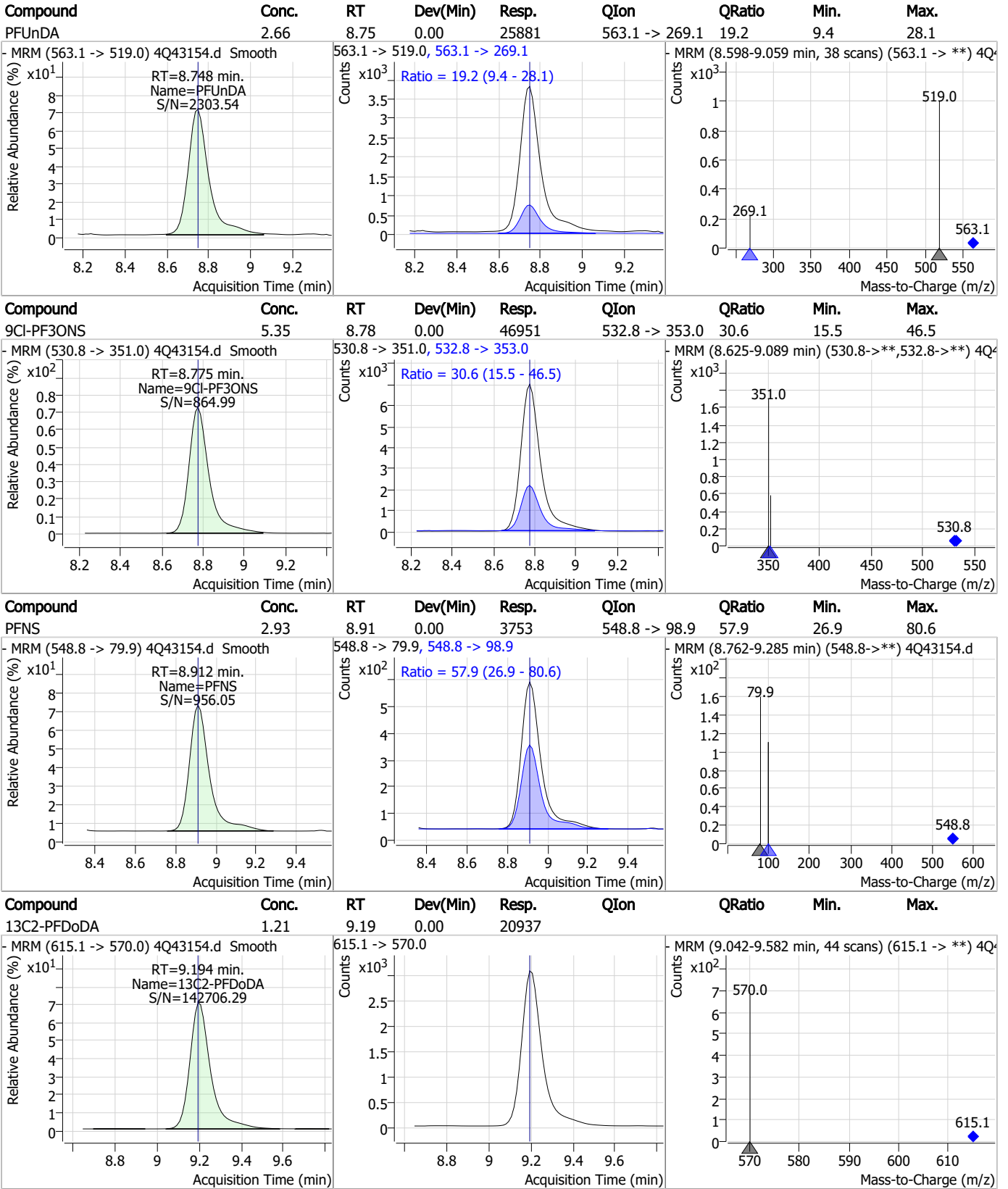
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.26	8.42	0.00	8310				



### Perfluorinated Compounds by LC/MS/MS



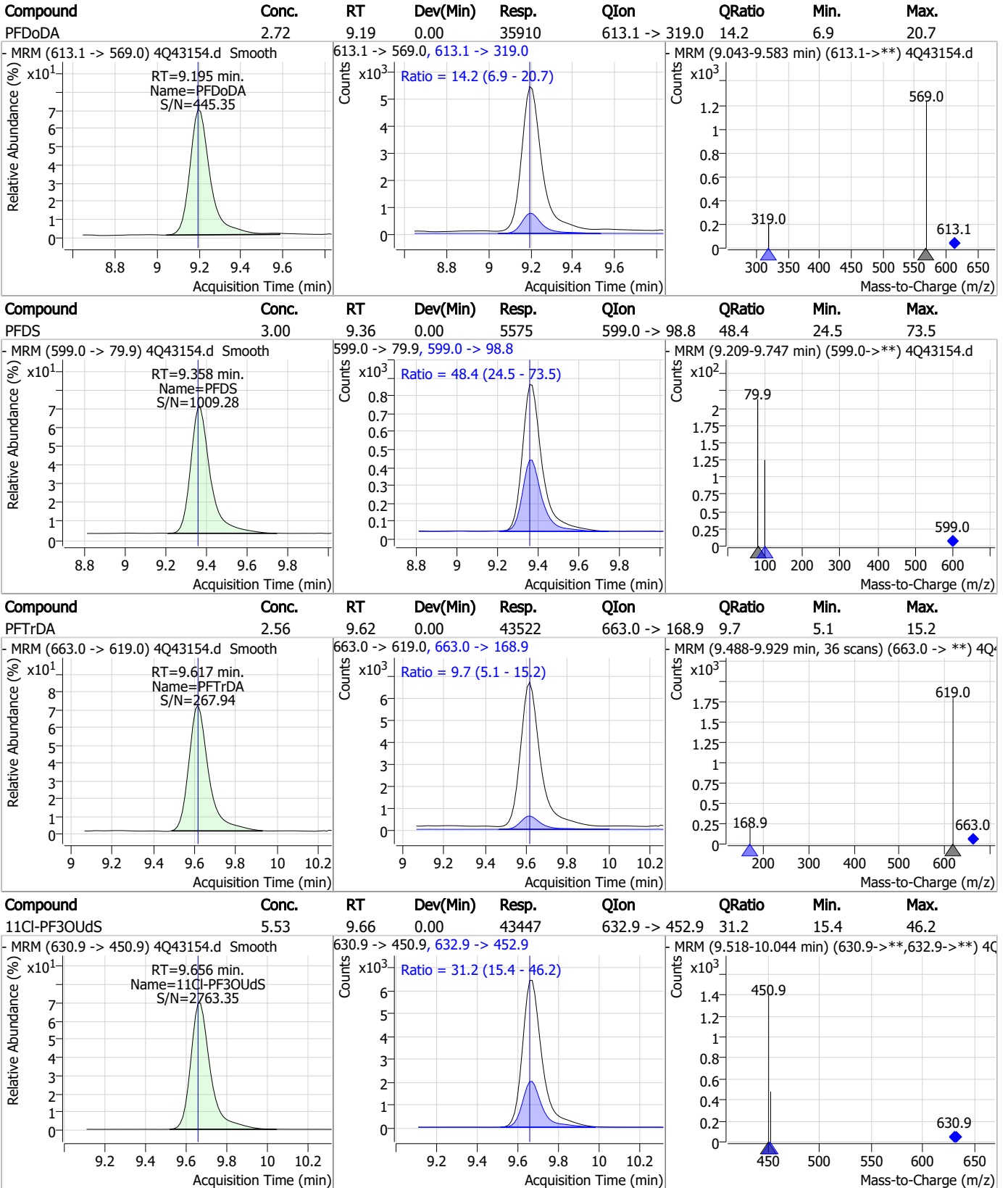
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

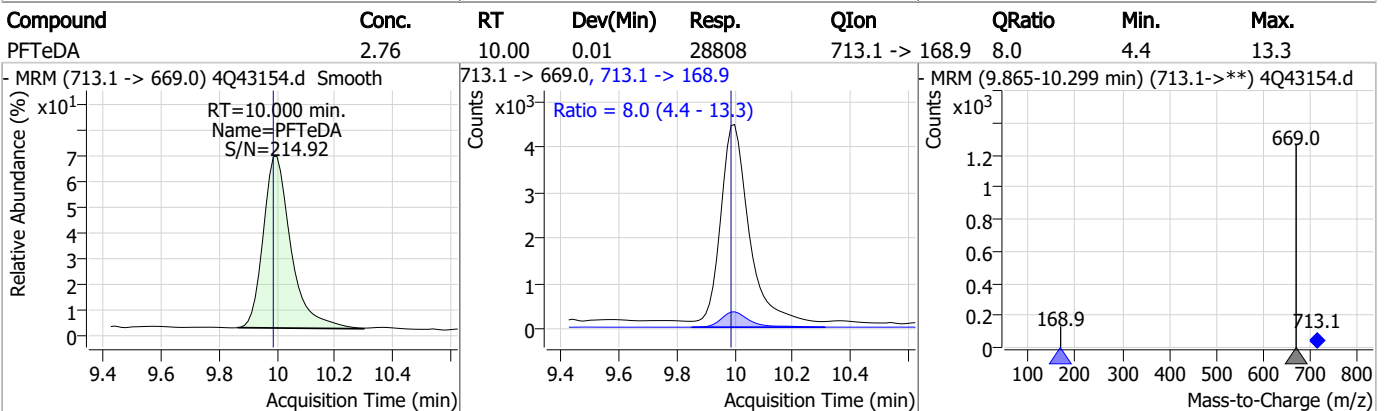
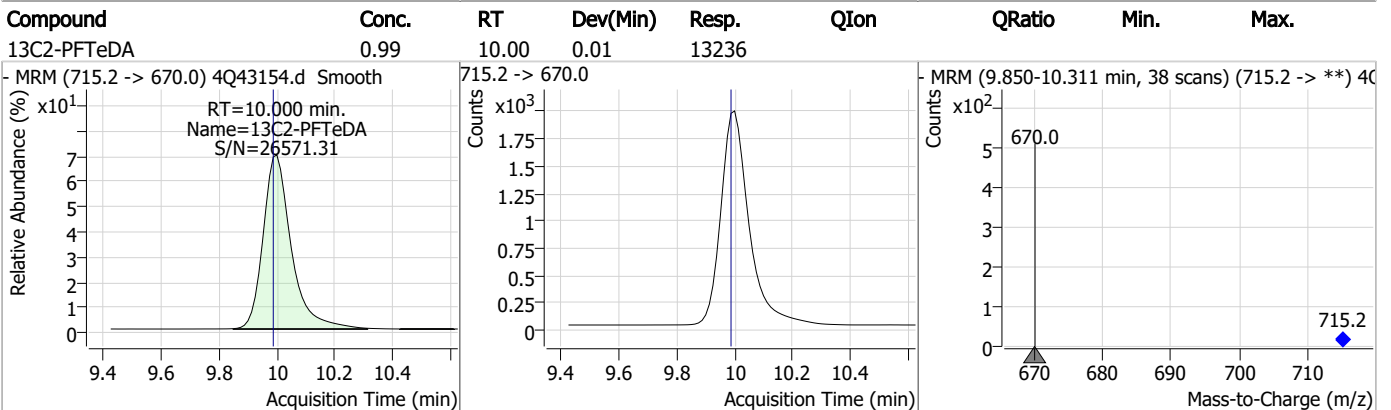
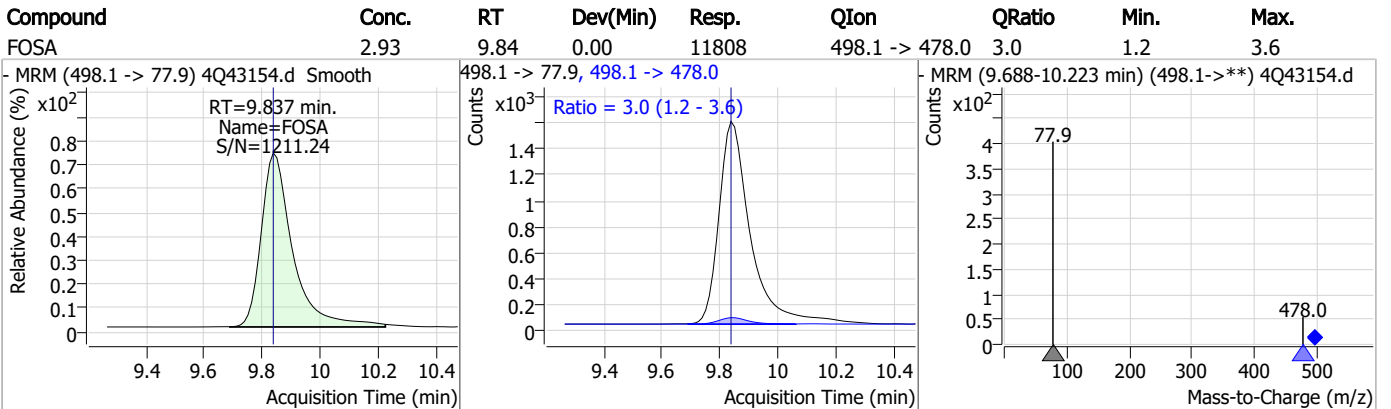
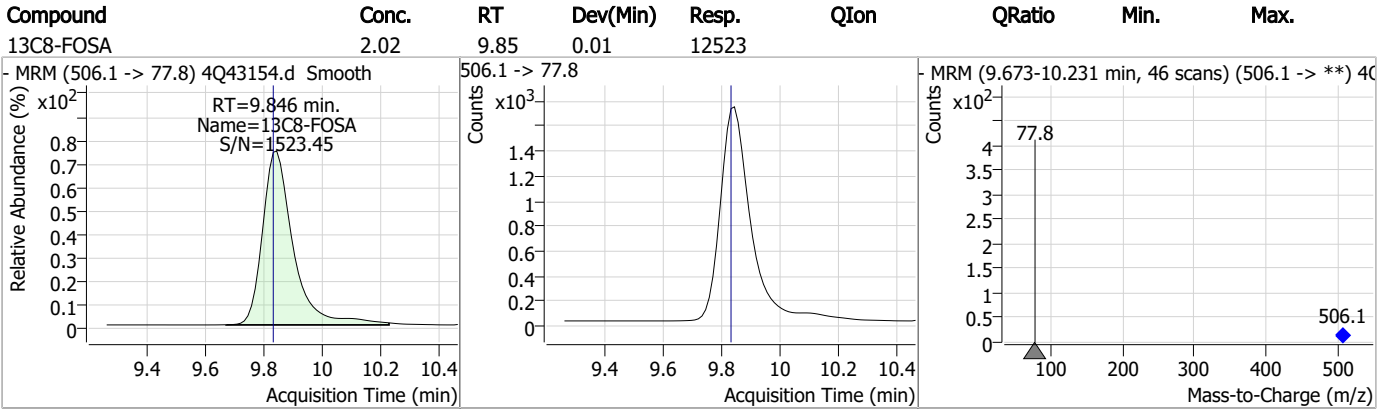


7.3.1

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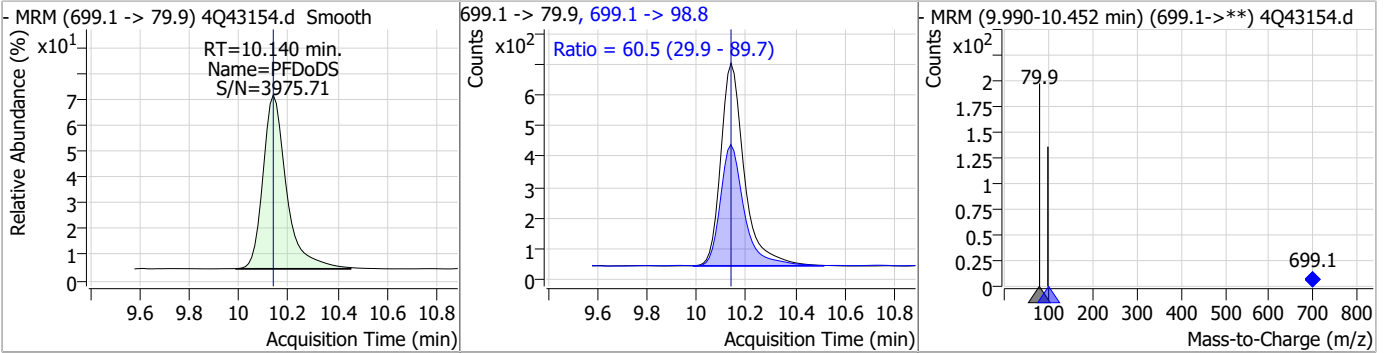


### Perfluorinated Compounds by LC/MS/MS

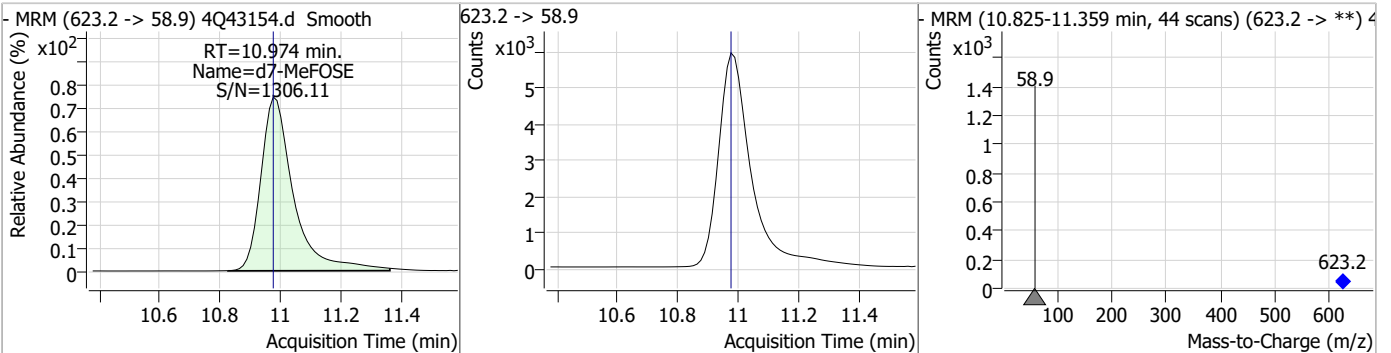


### Perfluorinated Compounds by LC/MS/MS

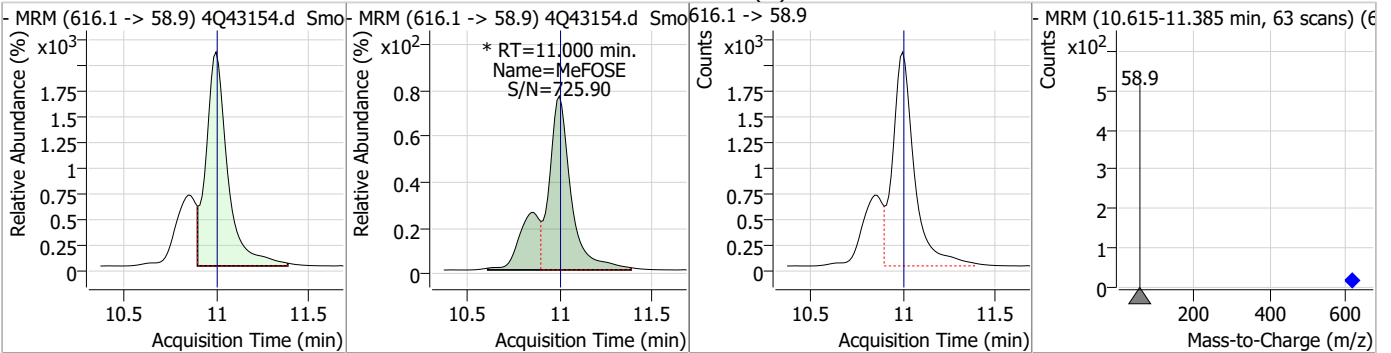
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.71	10.14	0.00	4348	699.1 -> 98.8	60.5	29.9	89.7



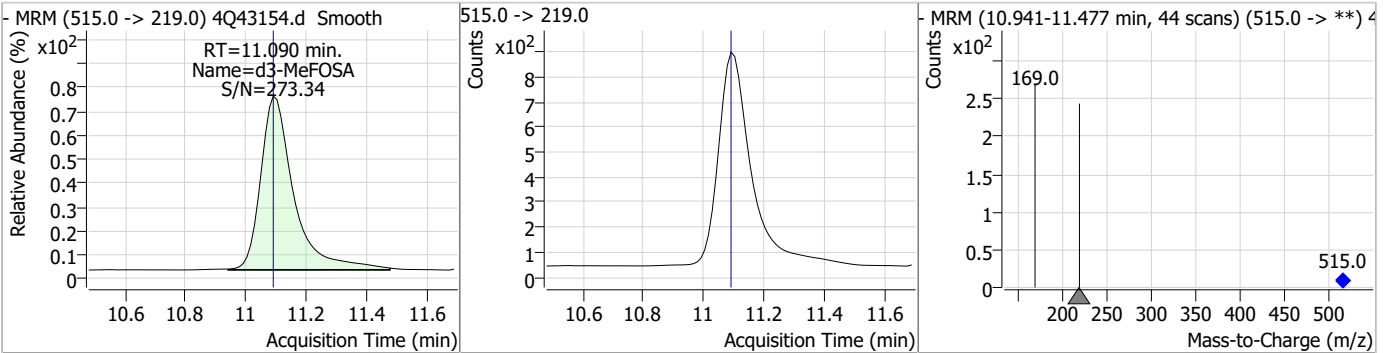
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	18.16	10.97	0.00	44430				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	14.09	11.00	0.00	22007 (m)				



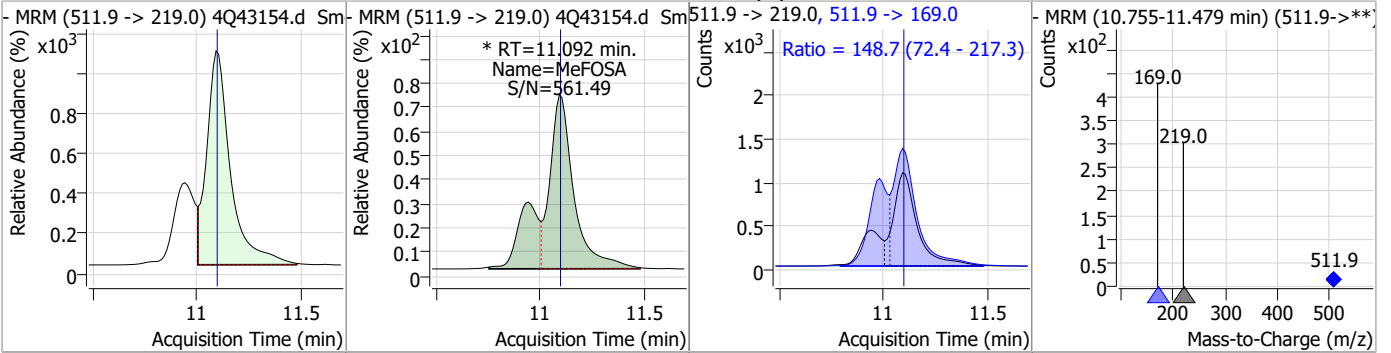
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.22	11.09	0.00	6516				



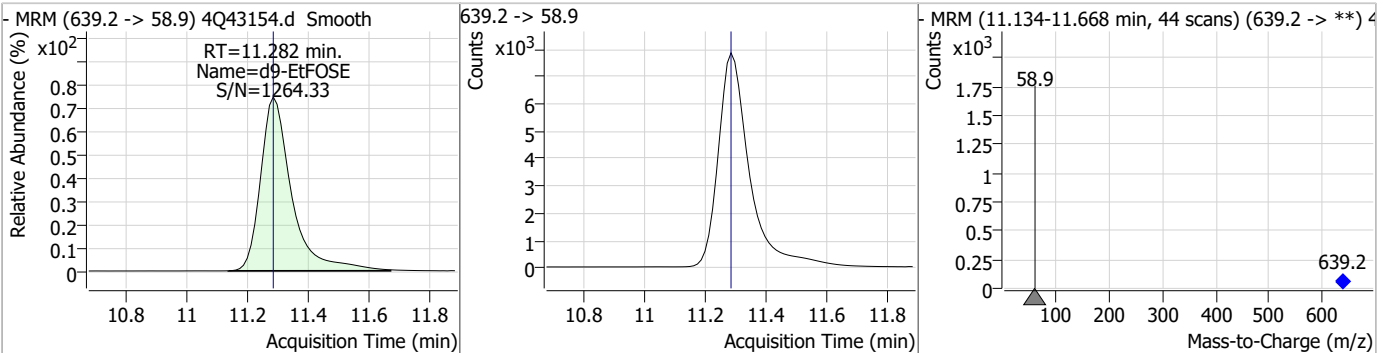


### Perfluorinated Compounds by LC/MS/MS

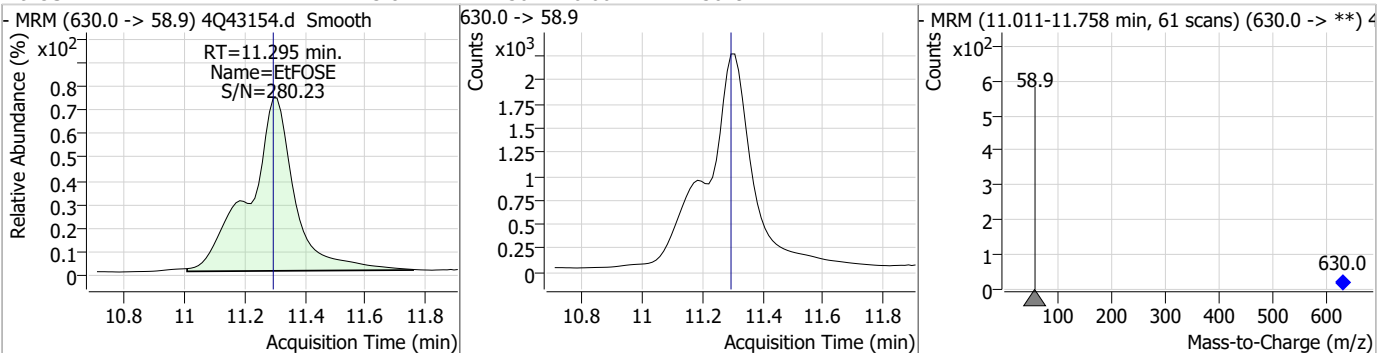
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.40	11.09	0.00	11378 (m)	511.9 -> 169.0	148.7	72.4	217.3



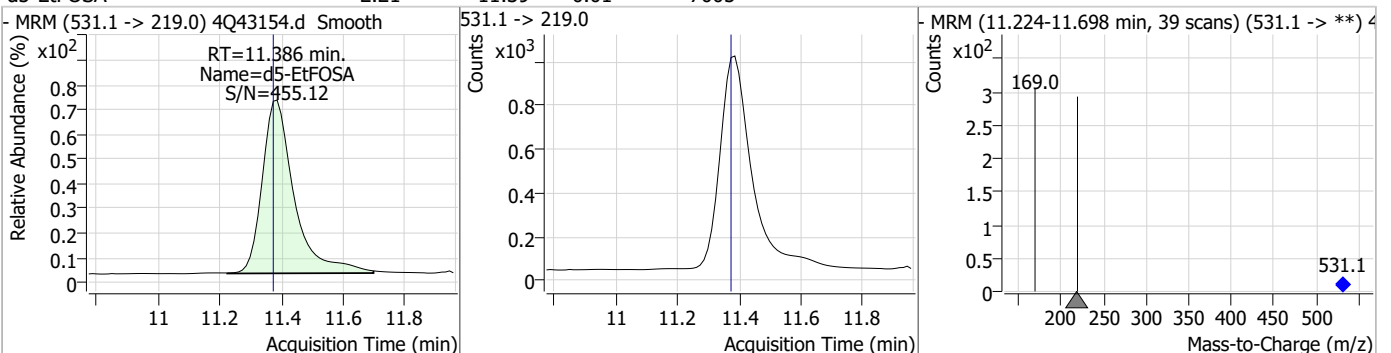
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	18.53	11.28	0.00	55492				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	13.81	11.30	0.00	23619				

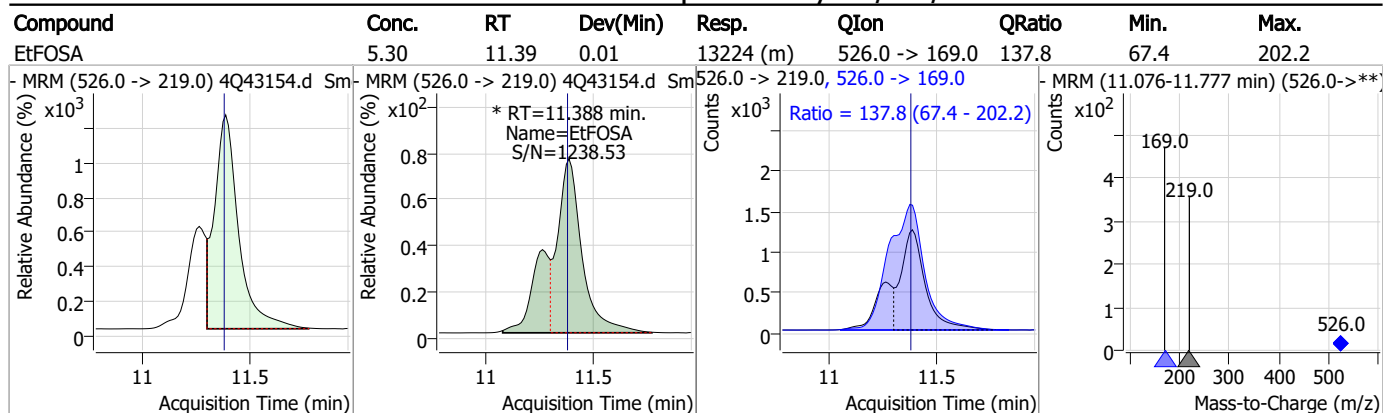


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.21	11.39	0.01	7005				





### Perfluorinated Compounds by LC/MS/MS



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# Manual Integration Approval Summary

Sample Number: OP96403-BS                      Method: EPA DRAFT 1633  
Lab FileID: 4Q43154.D                      Analyst approved: 04/19/23 13:20 Martha Valls  
Injection Time: 04/18/23 12:36                      Supervisor approved: 04/19/23 16:26 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.32	Split peak
MeFOSAA	2355-31-9		8.32	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.42	Split peak
EtFOSAA	2991-50-6		8.55	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.09	Split peak
EtFOSA	4151-50-2		11.39	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43155.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 4/18/2023 12:54:37 PM  
 Sample Name : op96403-llbs:3  
 Vial : P4-C2  
 DA Method File : 1633\_041423\_S4Q621.quantmethod.xml  
 Batch Name : s4q624.batch.bin  
 Sample Information : OP96403,S4q624,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	3.089	216.8 -> 171.9	123427	10.00 µg/L	0.128
M5-PFPeA	4.487	268.3 -> 223.0	65346	5.00 µg/L	0.037
M5-PFHxA	5.646	318.0 -> 273.0	51783	2.50 µg/L	0.024
M4-PFHpA	6.567	367.1 -> 322.0	25998	2.50 µg/L	0.012
M8-PFOA	7.226	421.1 -> 376.0	30752	2.50 µg/L	0.012
M9-PFNA	7.771	472.1 -> 427.0	17340	1.25 µg/L	0.012
M6-PFDA	8.265	519.1 -> 474.1	16293	1.25 µg/L	-0.001
M7-PFUnDA	8.747	570.0 -> 525.1	16867	1.25 µg/L	-0.001
M2-PFDoDA	9.205	615.1 -> 570.0	19759	1.25 µg/L	0.011
M2-PFTeDA	9.998	715.2 -> 670.0	12217	1.25 µg/L	0.011
M8-FOSA	9.845	506.1 -> 77.8	12356	2.50 µg/L	0.011
M3-PFBS	5.564	302.1 -> 79.9	10980	2.50 µg/L	0.037
M3-PFHxS	7.329	402.1 -> 79.9	6873	2.50 µg/L	0.012
M8-PFOS	8.429	507.1 -> 79.9	9546	2.50 µg/L	0.012
M2-4:2FTS	5.335	329.1 -> 80.9	1501	5.00 µg/L	0.026
M2-6:2FTS	6.985	429.1 -> 80.9	2200	5.00 µg/L	0.012
M2-8:2FTS	8.052	529.1 -> 80.9	3056	5.00 µg/L	-0.001
M3-MeFOSAA	8.335	573.2 -> 419.0	13988	5.00 µg/L	0.011
M3-HFPO-DA	6.001	286.9 -> 168.9	30831	10.00 µg/L	0.012
M5-EtFOSAA	8.545	589.2 -> 419.0	11653	5.00 µg/L	0.011
M7-MeFOSE	10.972	623.2 -> 58.9	43761	25.00 µg/L	-0.002
M9-EtFOSE	11.281	639.2 -> 58.9	52707	25.00 µg/L	-0.001
M5-EtFOSA	11.373	531.1 -> 219.0	7020	2.50 µg/L	-0.001
M3-MeFOSA	11.089	515.0 -> 219.0	6517	2.50 µg/L	-0.002
13C4-PFOS	8.430	502.8 -> 79.9	8468	2.50 µg/L	0.012
13C3-PFBA	3.080	216.0 -> 172.0	57388	5.00 µg/L	0.115
18O2-PFHxS	7.328	403.0 -> 83.9	4273	2.50 µg/L	0.012
13C4-PFOA	7.226	417.1 -> 372.0	33259	2.50 µg/L	0.012
13C2-PFDA	8.265	515.1 -> 470.1	13310	1.25 µg/L	-0.001
13C5-PFNA	7.771	468.0 -> 423.0	16782	1.25 µg/L	0.012
13C2-PFHxA	5.647	315.1 -> 270.0	36717	2.50 µg/L	0.024
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.335	329.1 -> 80.9	1501	6.43 µg/L	0.026
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 128.7%		
13C2-6:2FTS	6.985	429.1 -> 80.9	2200	6.57 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 131.4%		
13C2-8:2FTS	8.052	529.1 -> 80.9	3056	5.54 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.9%		
13C2-PFDoDA	9.205	615.1 -> 570.0	19759	1.21 µg/L	0.011
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.5%		
13C2-PFTeDA	9.998	715.2 -> 670.0	12217	0.96 µg/L	0.011
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 76.6%		
13C3-PFBS	5.564	302.1 -> 79.9	10980	2.80 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.8%		
13C3-PFHxS	7.329	402.1 -> 79.9	6873	2.91 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 = 116.3%	
13C4-PFBA	3.089	216.8 -> 171.9	123427	12.35 µg/L	0.128
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 123.5%	
13C4-PFHpA	6.567	367.1 -> 322.0	25998	3.12 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 124.7%	
13C5-PFHxA	5.646	318.0 -> 273.0	51783	3.05 µg/L	0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 122.1%	
13C5-PFPeA	4.487	268.3 -> 223.0	65346	6.04 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 120.8%	
13C6-PFDA	8.265	519.1 -> 474.1	16293	1.39 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.4%	
13C7-PFUnDA	8.747	570.0 -> 525.1	16867	1.33 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C8-FOSA	9.845	506.1 -> 77.8	12356	2.23 µg/L	0.011
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.2%	
13C8-PFOA	7.226	421.1 -> 376.0	30752	2.81 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.3%	
13C8-PFOS	8.429	507.1 -> 79.9	9546	2.91 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 116.3%	
13C9-PFNA	7.771	472.1 -> 427.0	17340	1.42 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.5%	
d3-MeFOSAA	8.335	573.2 -> 419.0	13988	5.61 µg/L	0.011
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.2%	
13C3-HFPO-DA	6.001	286.9 -> 168.9	30831	11.96 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 119.6%	
d3-MeFOSA	11.089	515.0 -> 219.0	6517	2.49 µg/L	-0.002
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
d5-EtFOSAA	8.545	589.2 -> 419.0	11653	5.75 µg/L	0.011
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 115.0%	
d7-MeFOSE	10.972	623.2 -> 58.9	43761	20.04 µg/L	-0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 80.1%	
d9-EtFOSE	11.281	639.2 -> 58.9	52707	19.72 µg/L	-0.001
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 78.9%	
d5-EtFOSA	11.373	531.1 -> 219.0	7020	2.48 µg/L	-0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.336	327.1 -> 307.0	6057	3.24 µg/L	98
		327.1 -> 80.9	2473		
6:2FTS	6.986	427.1 -> 407.0	4414	2.94 µg/L	96
		427.1 -> 80.9	1869		
8:2FTS	8.053	527.1 -> 507.0	4841	3.53 µg/L	95
		527.1 -> 80.8	1986		
EtFOSAA	8.545	584.2 -> 419.1	1478	0.85 µg/L	m 87
		584.2 -> 526.0	825		
FOSA	9.848	498.1 -> 77.9	3136	0.79 µg/L	99
		498.1 -> 478.0	91		
MeFOSAA	8.336	570.1 -> 419.0	1329	0.69 µg/L	m 88
		570.1 -> 483.0	375		
PFBA	3.083	212.8 -> 168.9	9062	3.21 µg/L	100
PFBS	5.565	298.7 -> 79.9	3103	0.76 µg/L	98
		298.7 -> 98.8	1218		
PFDA	8.278	512.9 -> 469.0	7474	0.80 µg/L	99
		512.9 -> 219.0	1447		
PFDODA	9.206	613.1 -> 569.0	9274	0.74 µg/L	99
		613.1 -> 319.0	1302		
PFDS	9.369	599.0 -> 79.9	1419	0.66 µg/L	95

7.3.2  
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.568	599.0 -> 98.8	744	1.15	µg/L	98
		363.1 -> 319.0	14957			
PFHpS	7.910	363.1 -> 169.0	2645	0.89	µg/L	94
		449.0 -> 79.9	2218			
PFHxA	5.649	449.0 -> 98.9	1073	1.37	µg/L	99
		313.0 -> 269.0	21028			
PFHxS	7.330	313.0 -> 118.9	613	1.54	µg/L	91
		398.7 -> 79.9	3624			
PFNA	7.771	398.7 -> 98.9	1629	0.78	µg/L	95
		463.0 -> 419.0	7226			
PFNS	8.911	463.0 -> 219.0	2043	0.81	µg/L	86
		548.8 -> 79.9	1187			
PFOA	7.215	548.8 -> 98.9	518	1.45	µg/L	95
		413.0 -> 369.0	20784			
PFOS	8.431	413.0 -> 169.0	4851	0.99	µg/L	97
		498.9 -> 79.9	3682			
PFPeA	4.489	498.9 -> 98.8	1680	1.84	µg/L	100
		263.0 -> 219.0	22699			
PFPeS	6.606	349.1 -> 79.9	1832	0.91	µg/L	99
		349.1 -> 98.9	841			
PFTeDA	9.999	713.1 -> 669.0	7588	0.79	µg/L	98
		713.1 -> 168.9	740			
PFTrDA	9.616	663.0 -> 619.0	11095	0.69	µg/L	100
		663.0 -> 168.9	1104			
PFUnDA	8.747	563.1 -> 519.0	8201	0.86	µg/L	97
		563.1 -> 269.1	1421			
11CI-PF3OUdS	9.668	630.9 -> 450.9	11471	1.43	µg/L	97
		632.9 -> 452.9	3352			
9CI-PF3ONS	8.775	530.8 -> 351.0	13151	1.46	µg/L	95
		532.8 -> 353.0	4458			
ADONA	6.818	376.9 -> 250.9	28874	1.56	µg/L	100
		376.9 -> 84.8	7548			
HFPO-DA	6.015	284.9 -> 168.9	3883	1.59	µg/L	99
		284.9 -> 184.9	517			
3:3FTCA	4.042	241.0 -> 177.0	2083	3.61	µg/L	97
		241.0 -> 117.0	207			
5:3FTCA	6.343	341.0 -> 237.1	43243	19.97	µg/L	98
		341.0 -> 217.0	31370			
7:3FTCA	7.773	441.0 -> 316.9	17100	19.27	µg/L	98
		441.0 -> 336.9	37990			
EtFOSA	11.375	526.0 -> 219.0	3750	1.50	µg/L	94
		526.0 -> 169.0	4795			
EtFOSE	11.295	630.0 -> 58.9	6833	4.21	µg/L	100
		511.9 -> 219.0	3180			
MeFOSA	11.090	511.9 -> 169.0	4654	1.51	µg/L	99
		616.1 -> 58.9	5847			
MeFOSE	10.997	699.1 -> 79.9	1196	3.80	µg/L	100
		699.1 -> 98.8	657			
PFDoDS	10.139	295.0 -> 201.0	1725	0.65	µg/L	94
		295.0 -> 84.9	374			
NFDHA	5.541	279.0 -> 85.1	11485	1.67	µg/L	92
		229.0 -> 84.9	10169			
PFMBA	4.891	314.8 -> 134.9	17964	1.64	µg/L	100
		314.8 -> 82.9	615			
PFMPA	3.653			1.40	µg/L	100
PFEESA	6.083					

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

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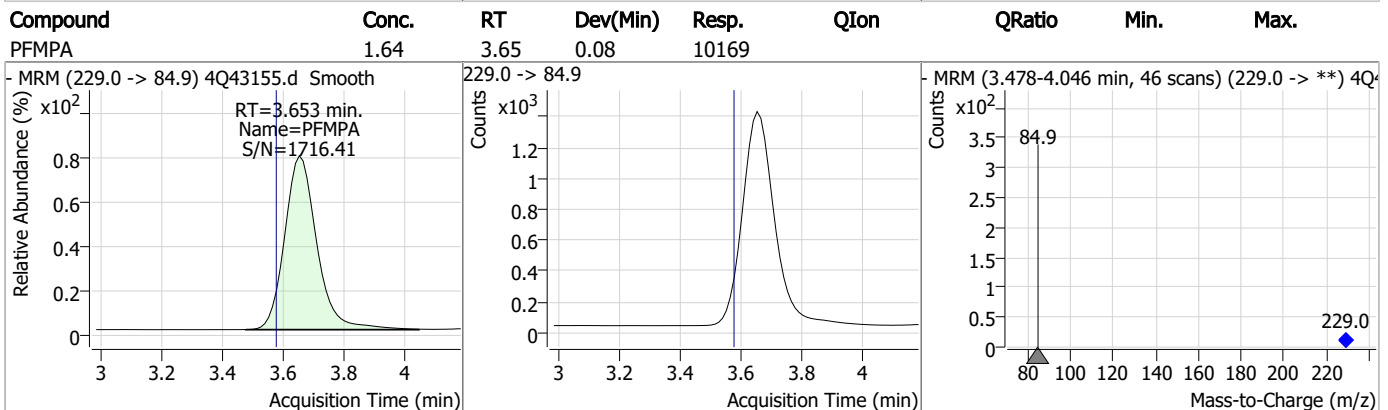
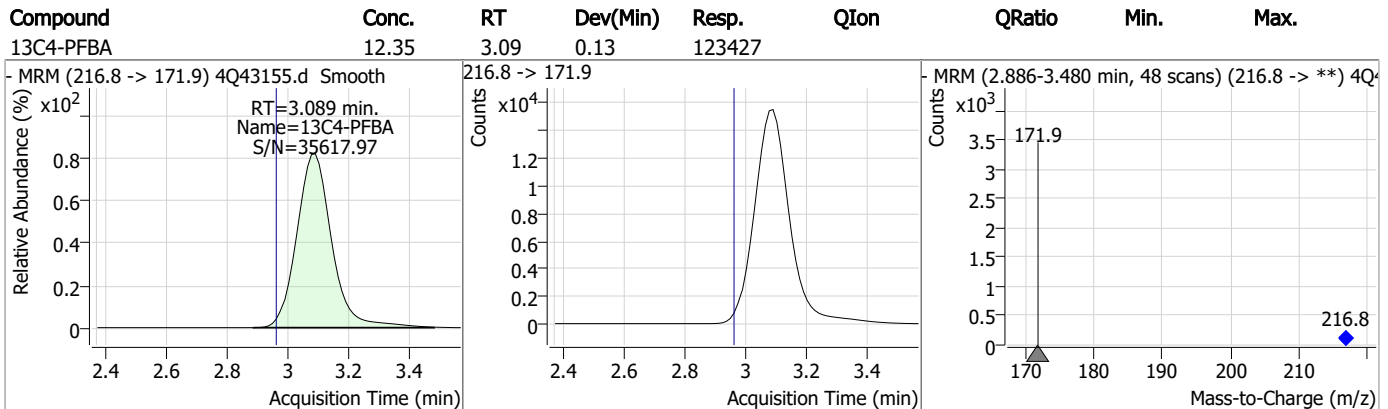
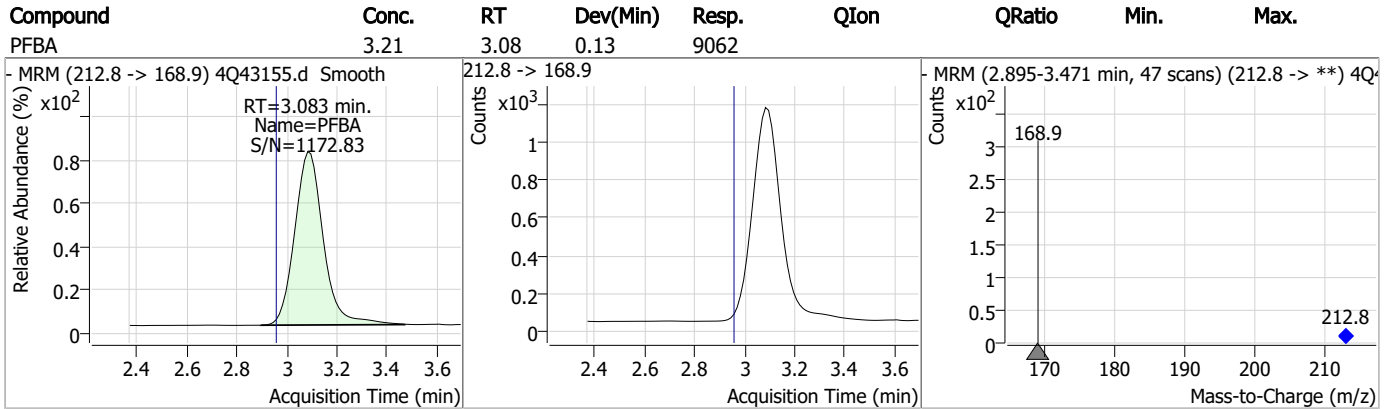
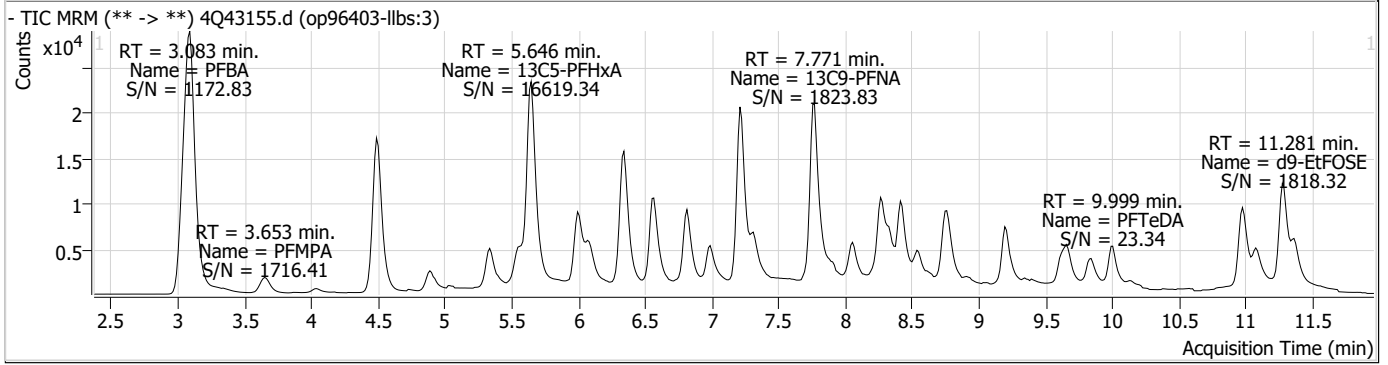
### Perfluorinated Compounds by LC/MS/MS

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

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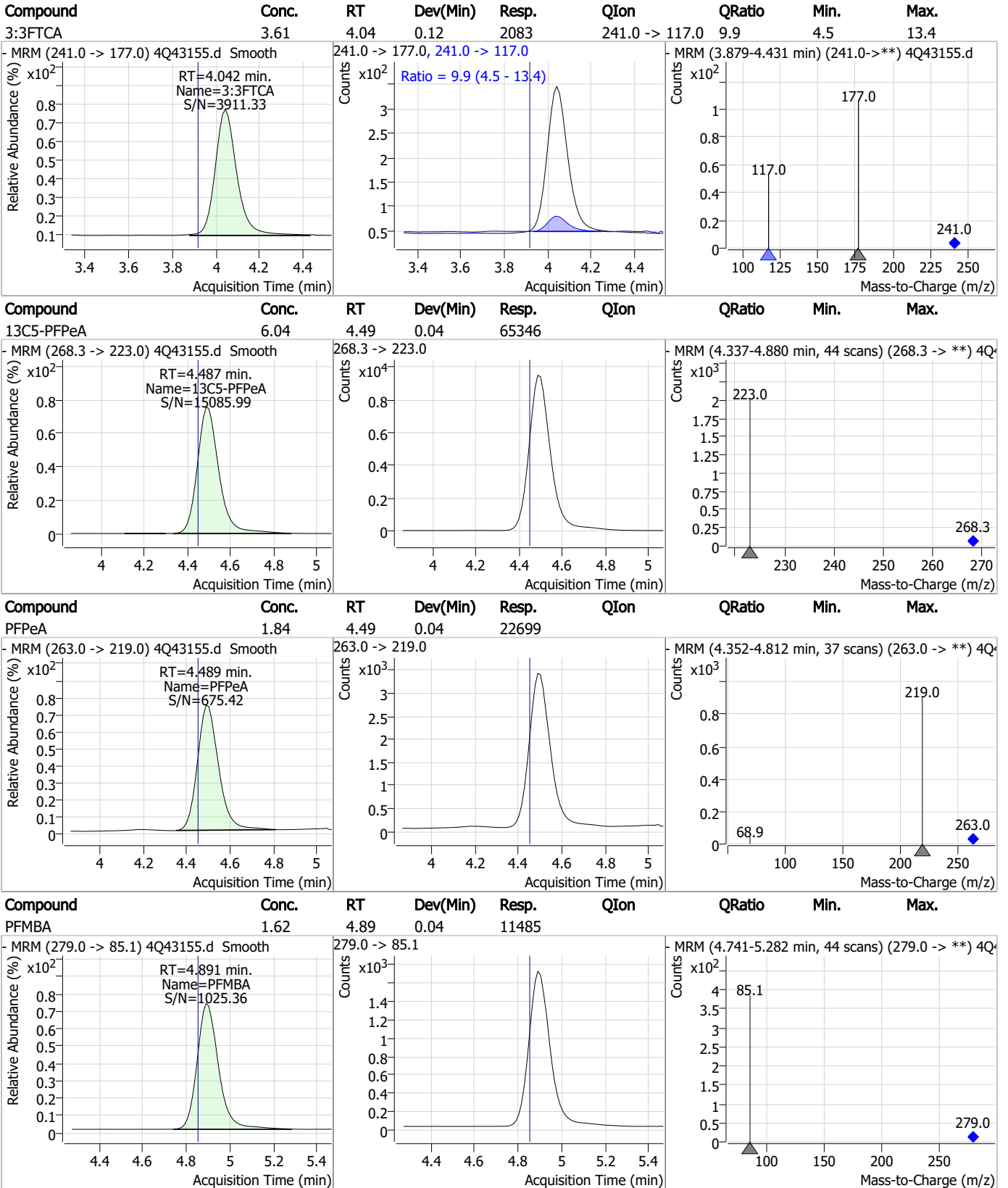
### Perfluorinated Compounds by LC/MS/MS



7.3.2

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### Perfluorinated Compounds by LC/MS/MS



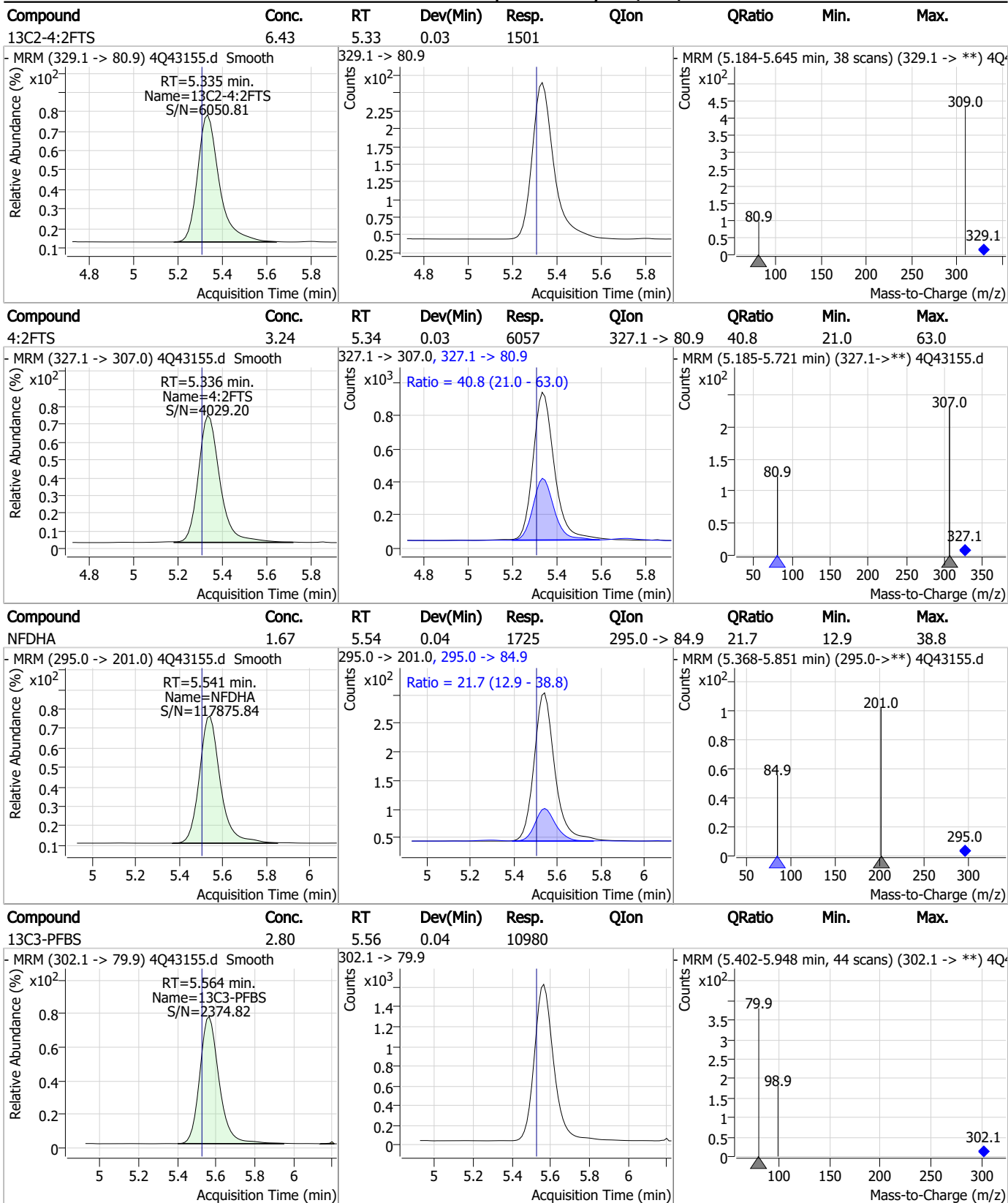
7.3.2

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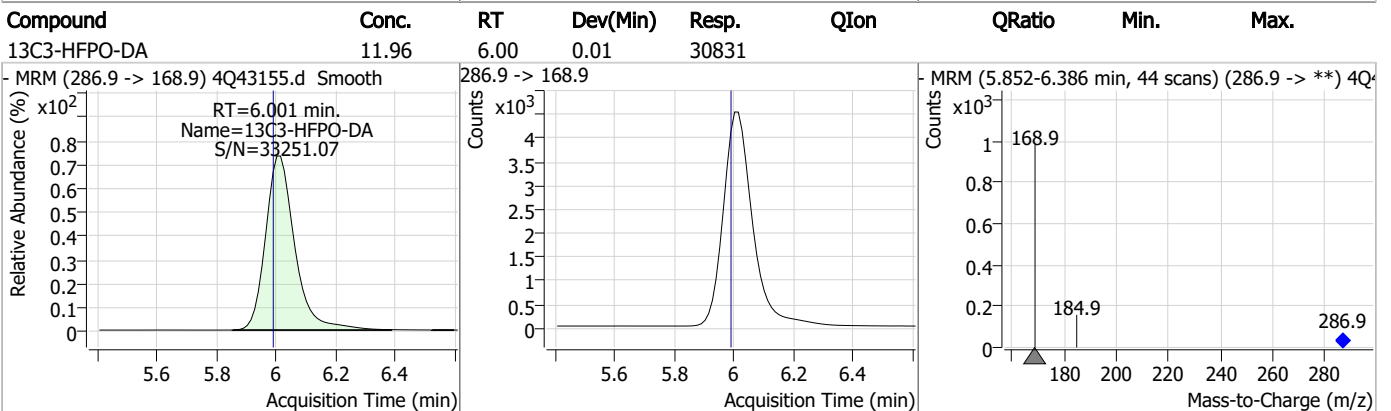
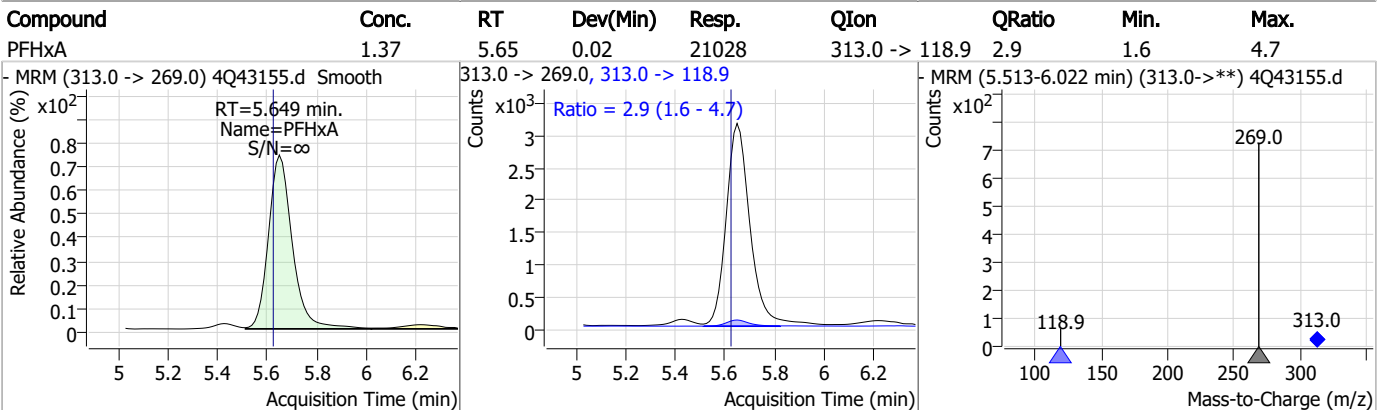
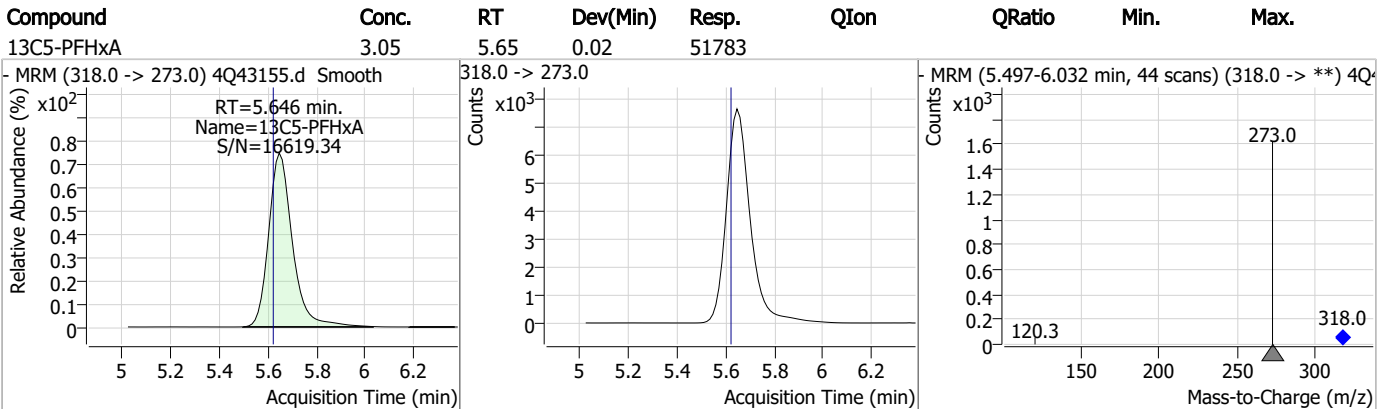
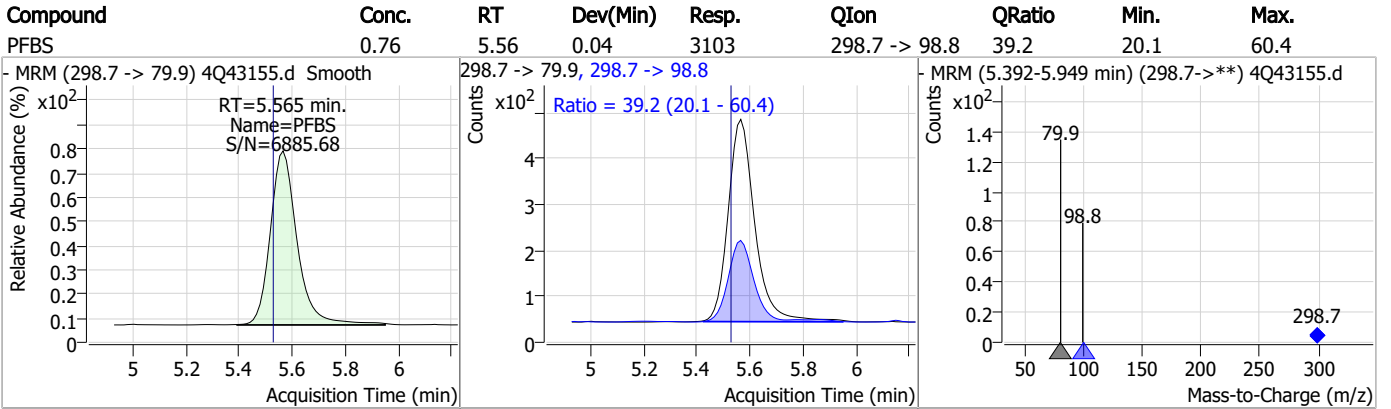


### Perfluorinated Compounds by LC/MS/MS



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

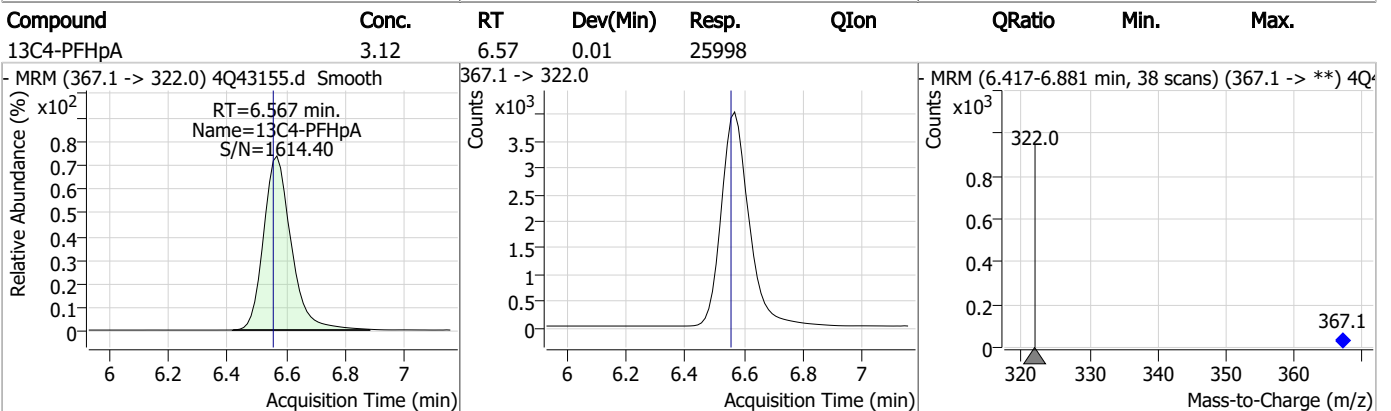
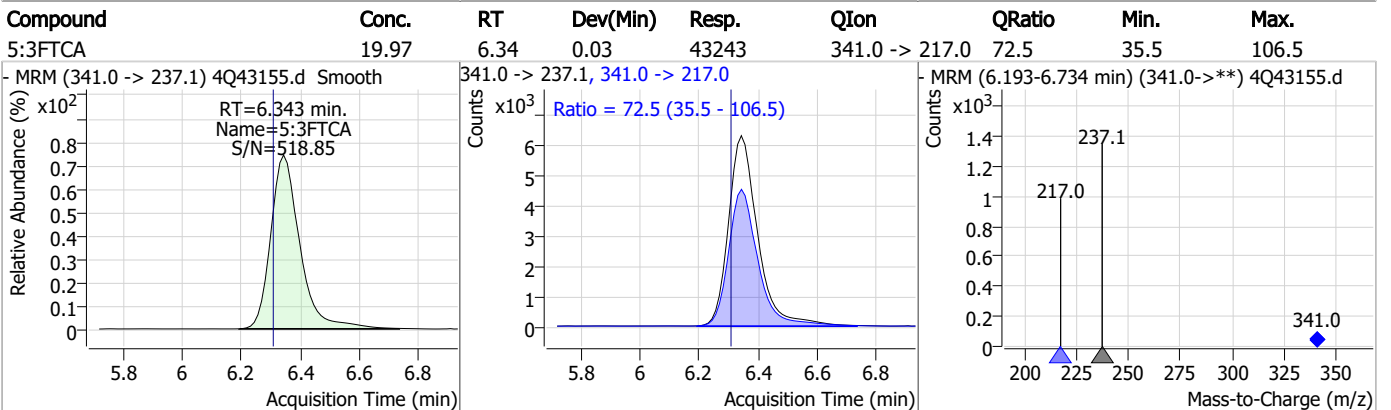
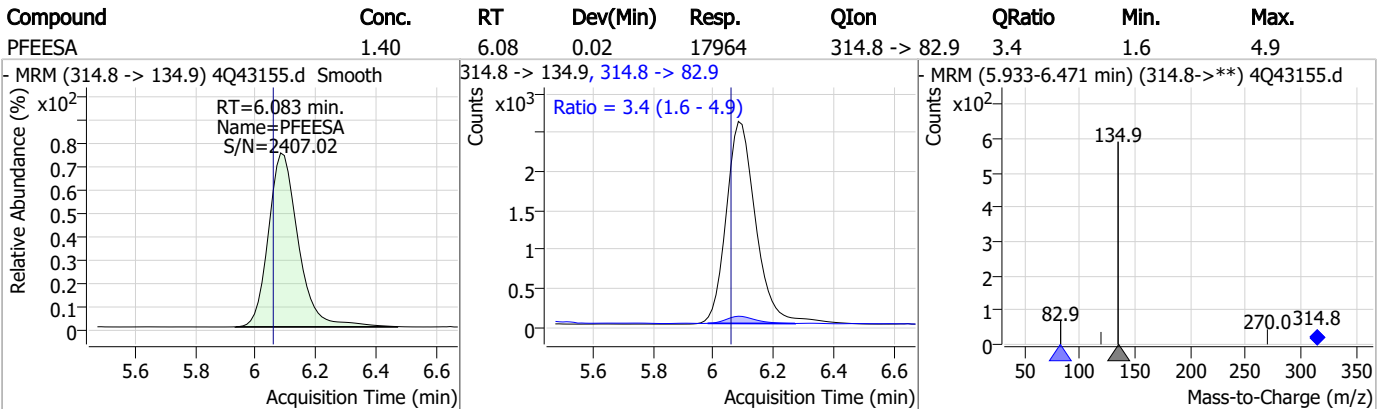
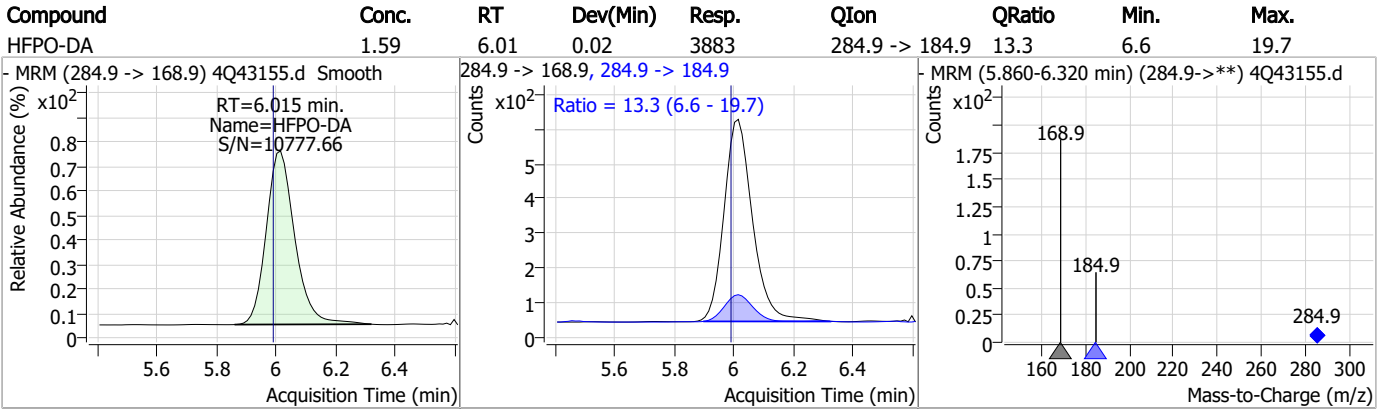


7.3.2

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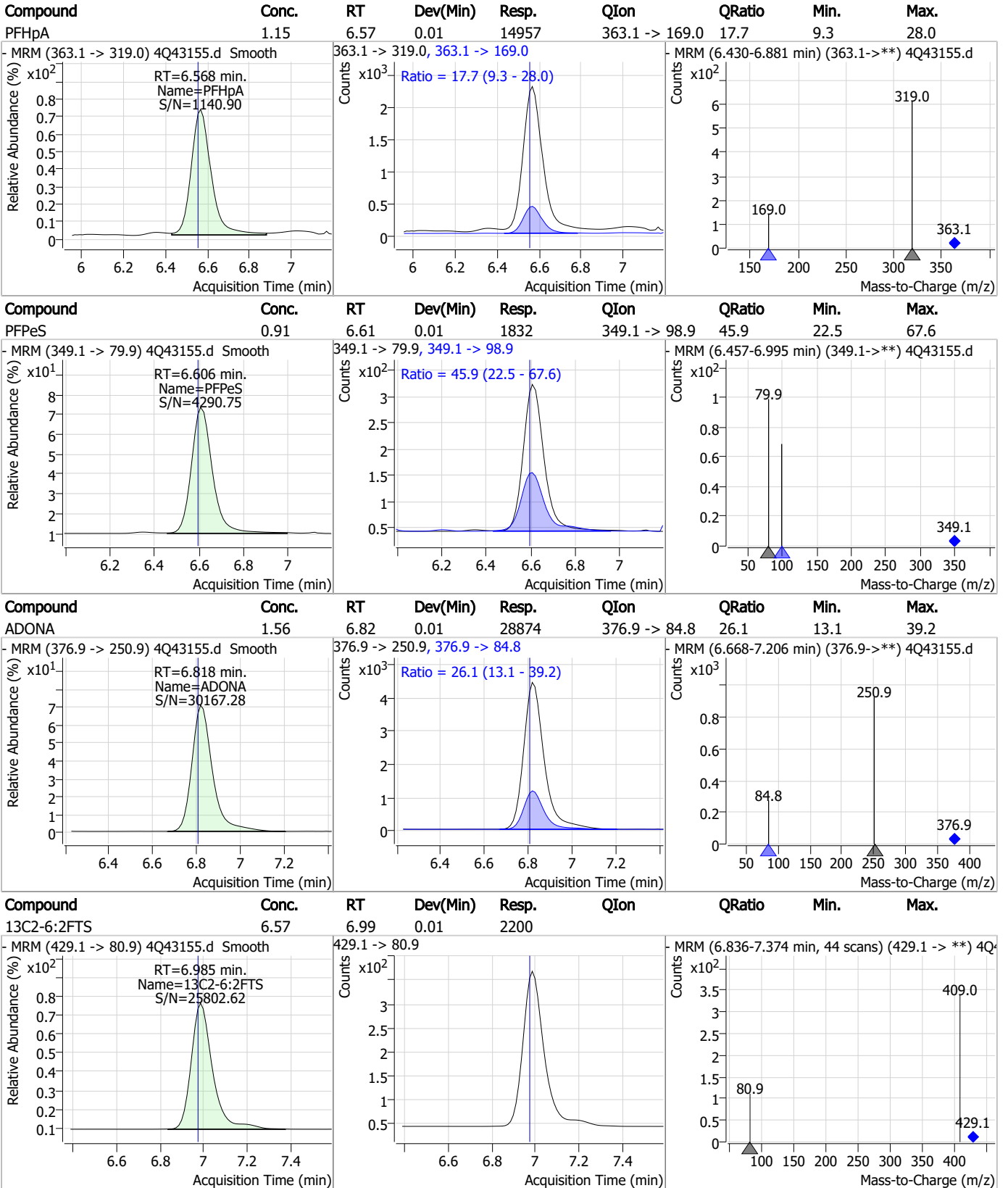
### Perfluorinated Compounds by LC/MS/MS



7.3.2

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### Perfluorinated Compounds by LC/MS/MS

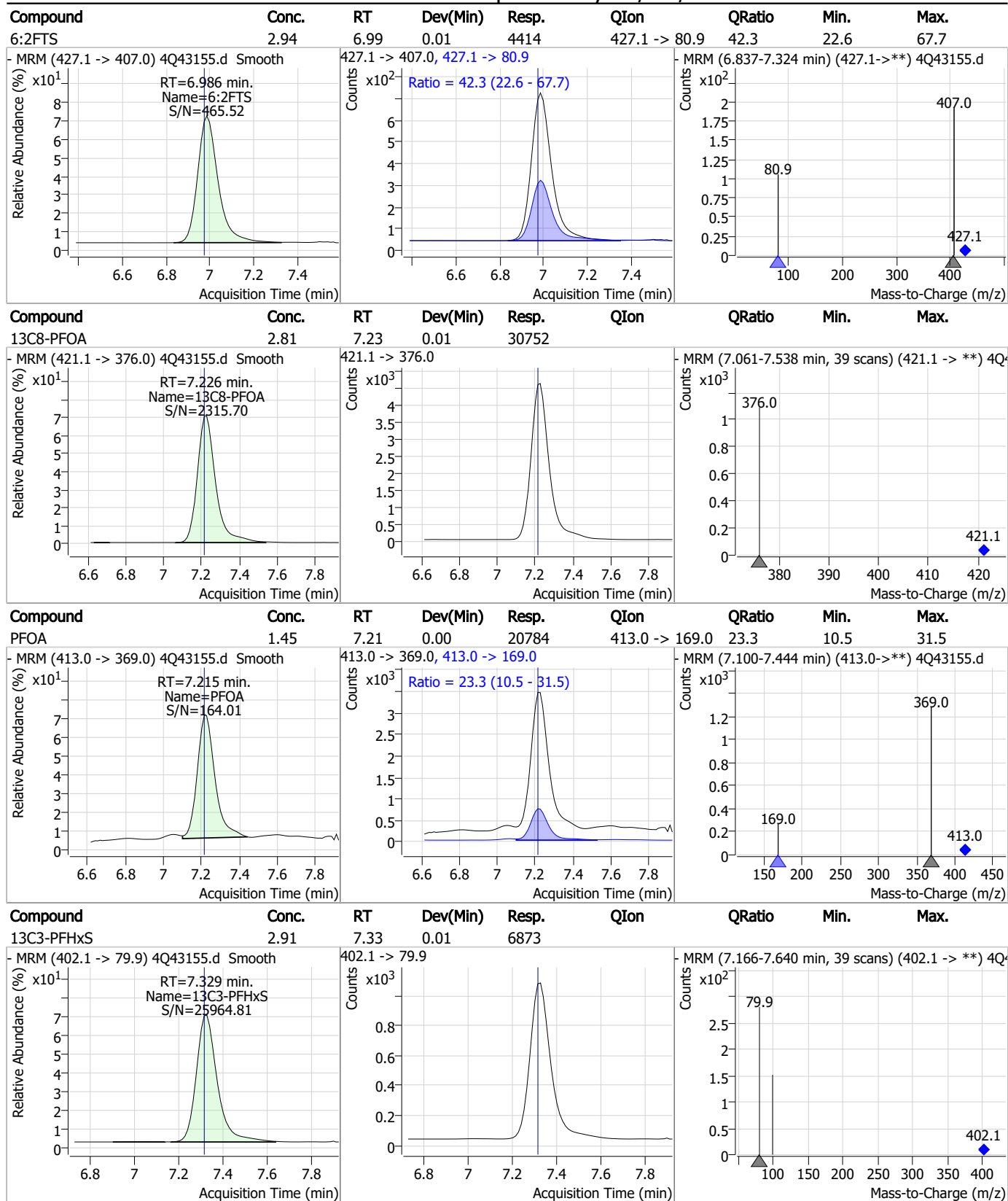


7.3.2

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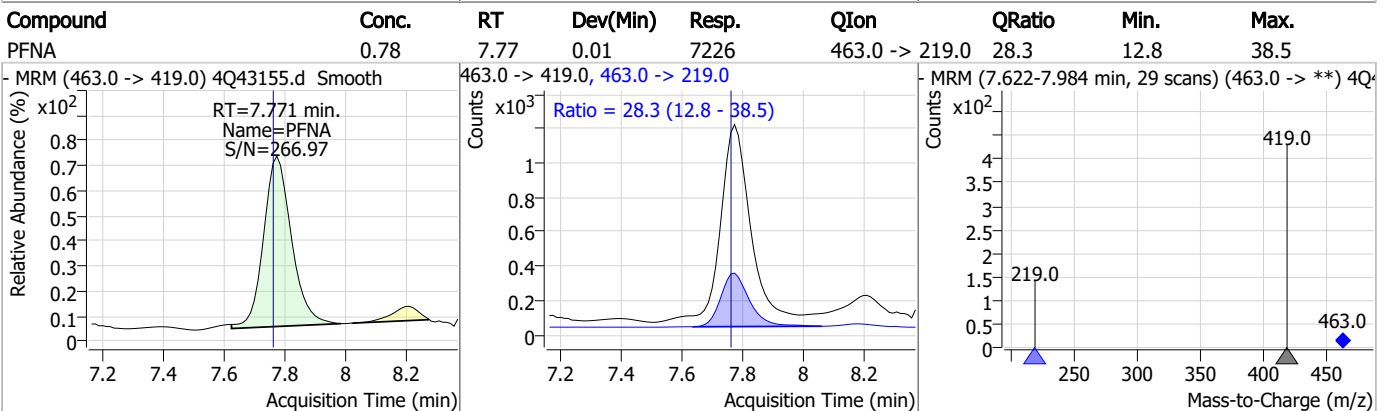
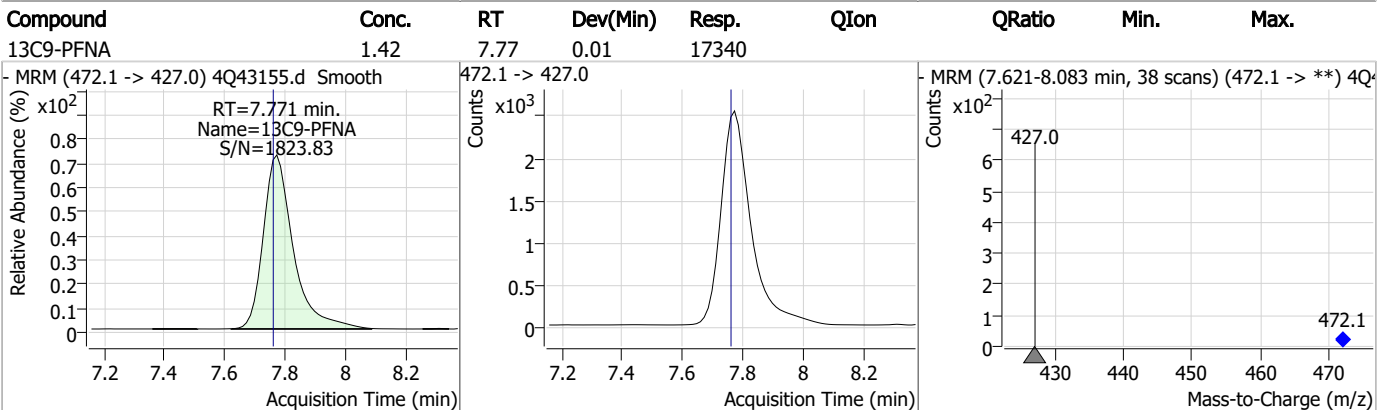
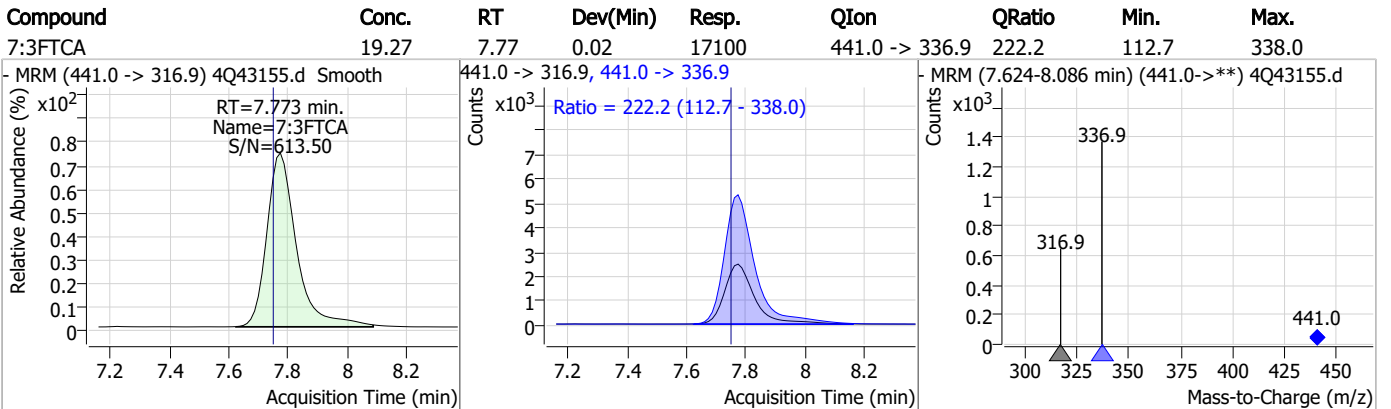
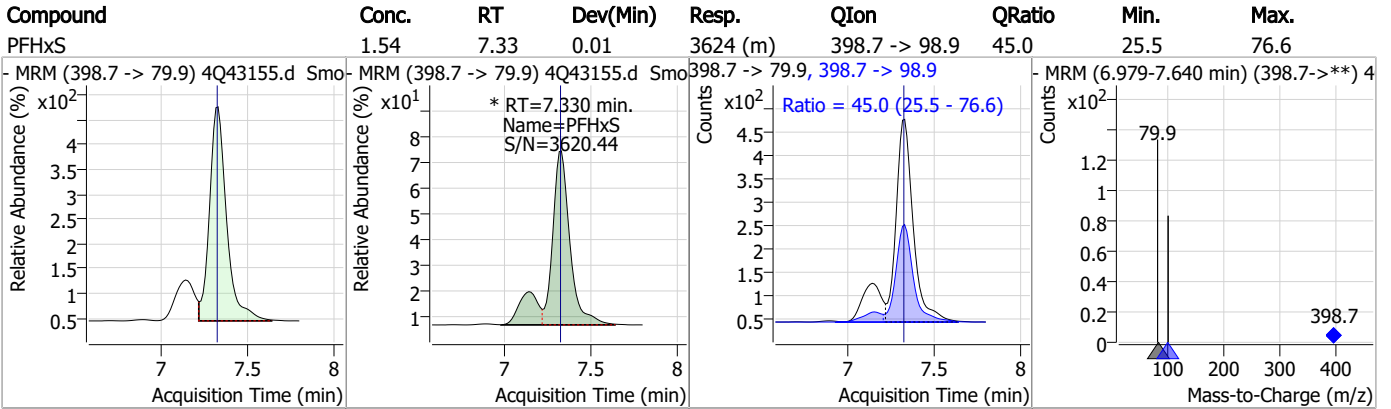


### Perfluorinated Compounds by LC/MS/MS



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

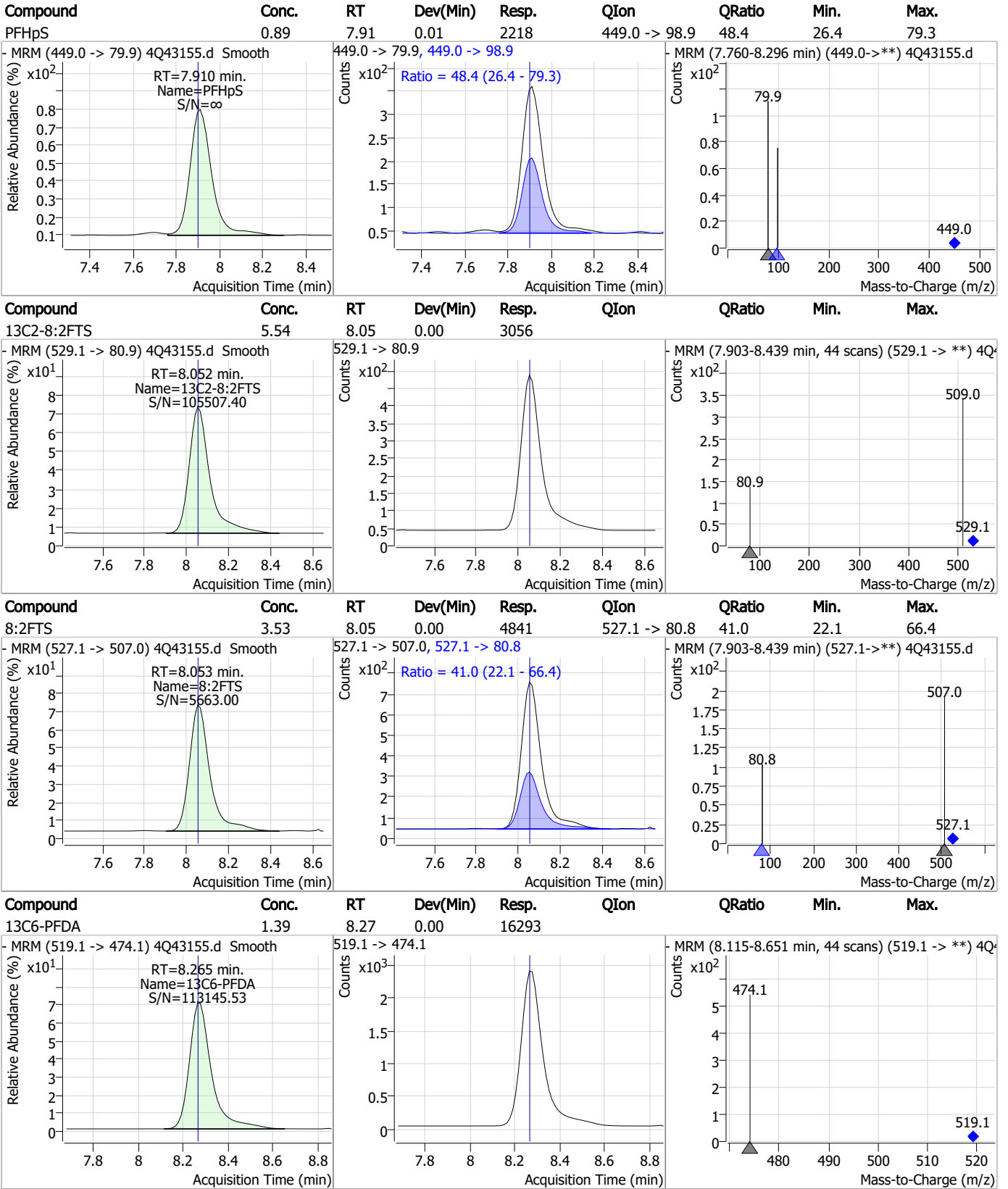


7.3.2

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### Perfluorinated Compounds by LC/MS/MS

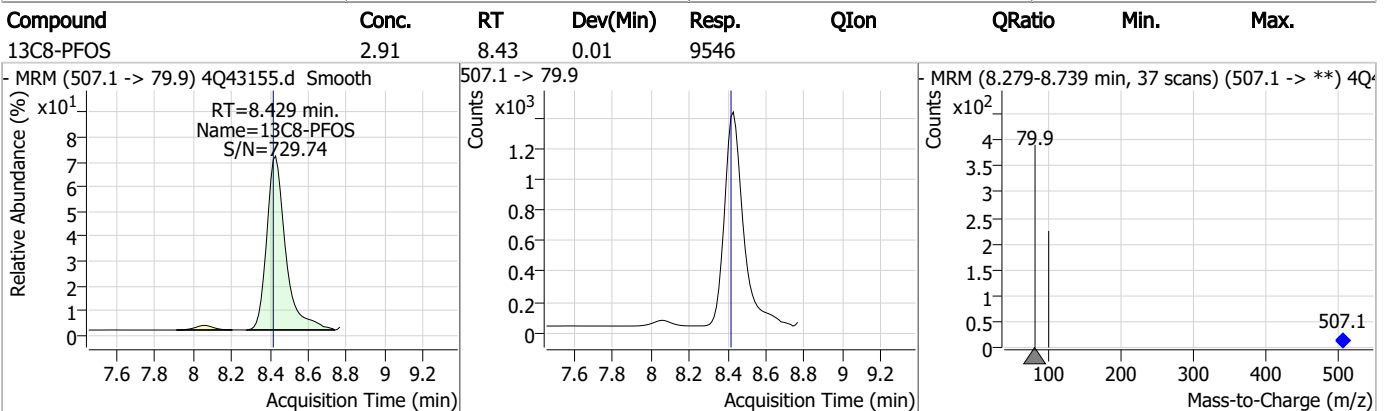
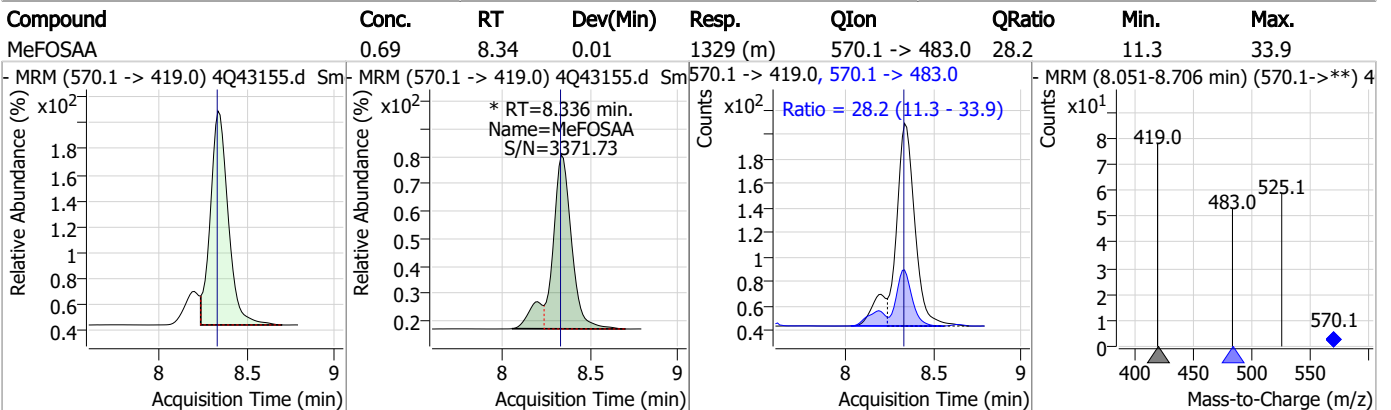
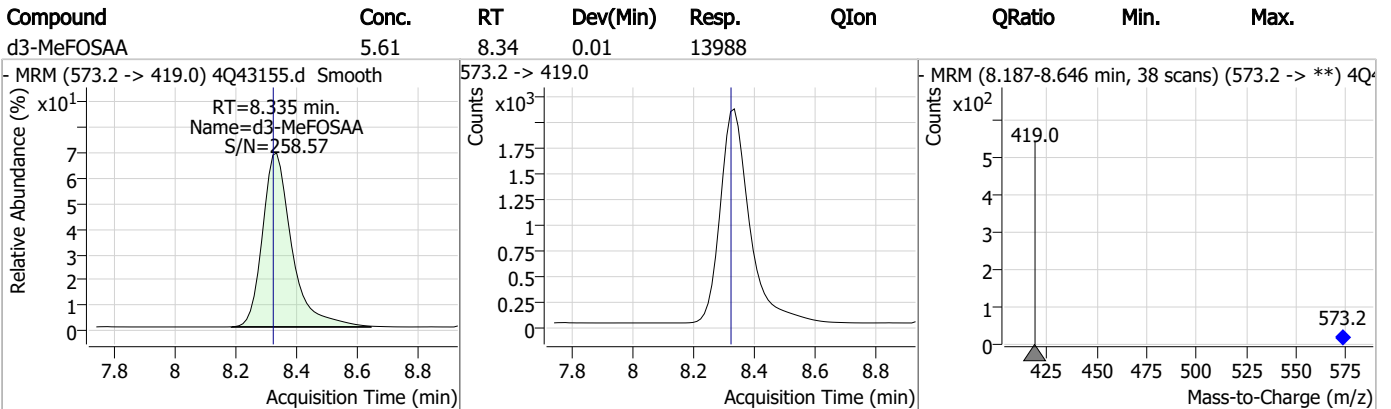
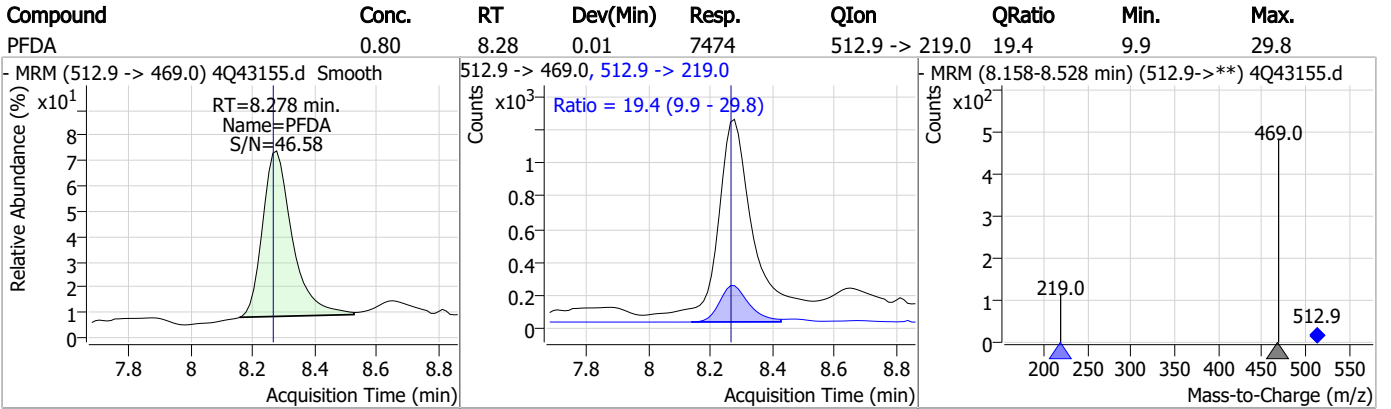


7.3.2  
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### Perfluorinated Compounds by LC/MS/MS

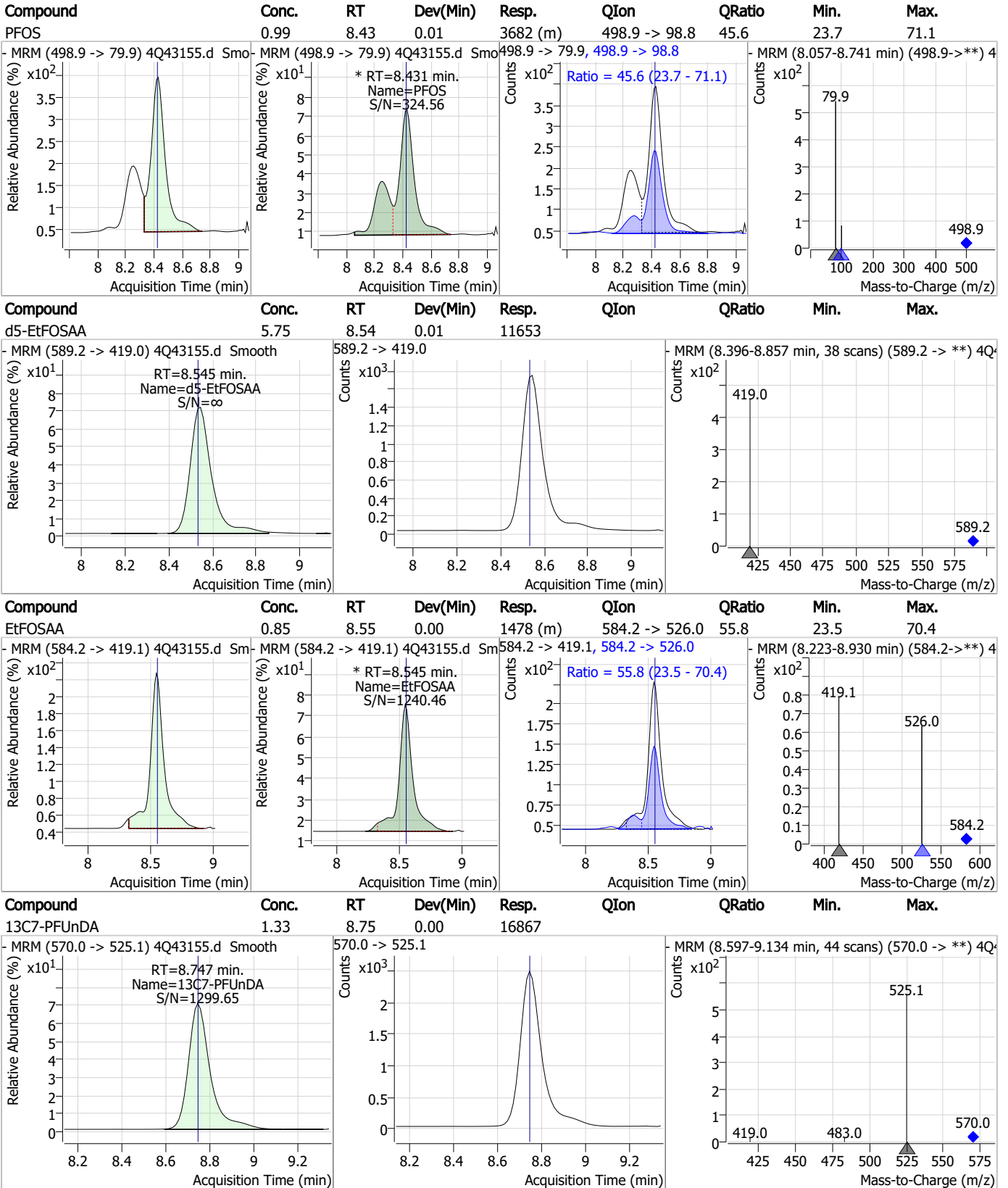


7.3.2

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### Perfluorinated Compounds by LC/MS/MS

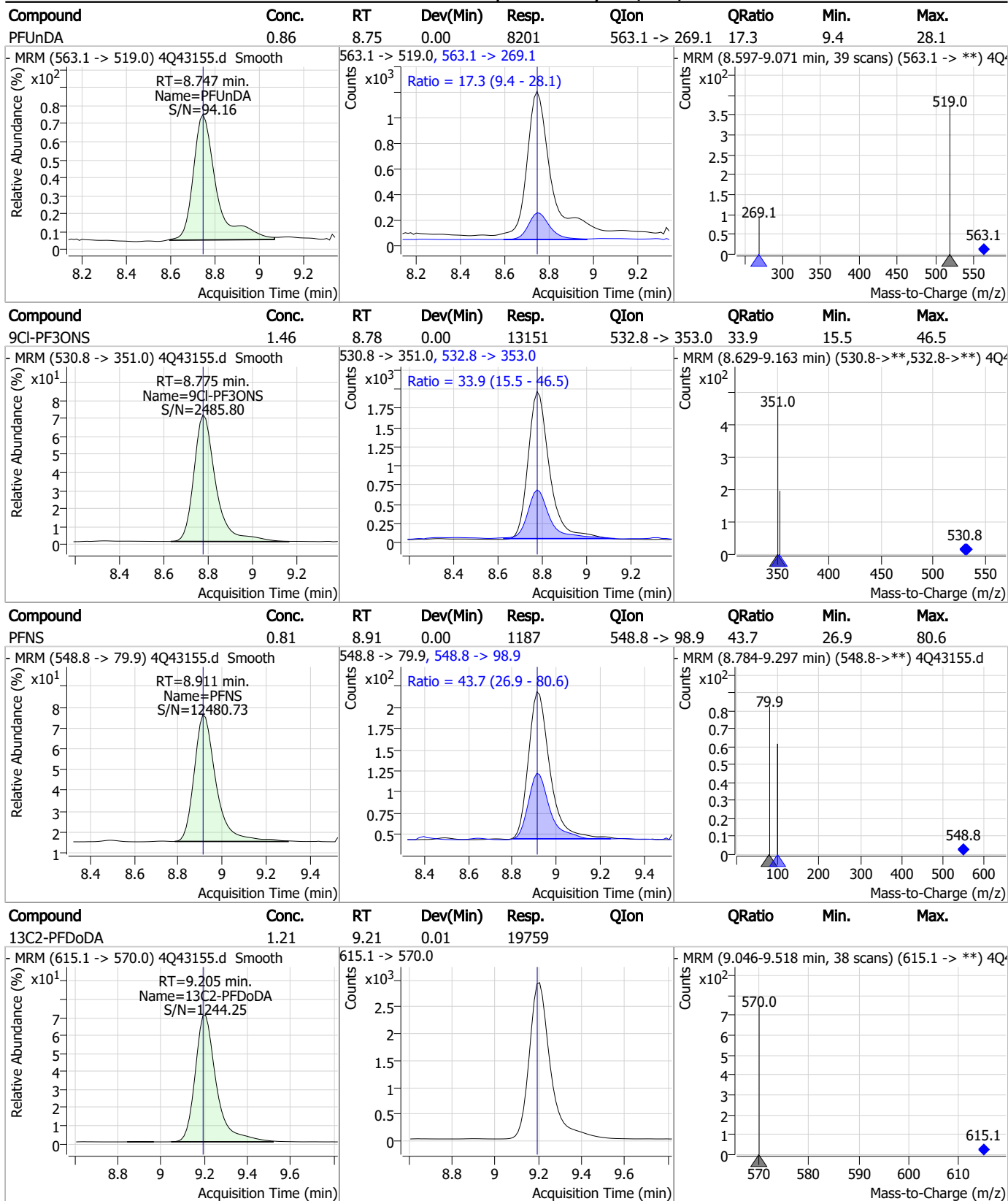


7.3.2

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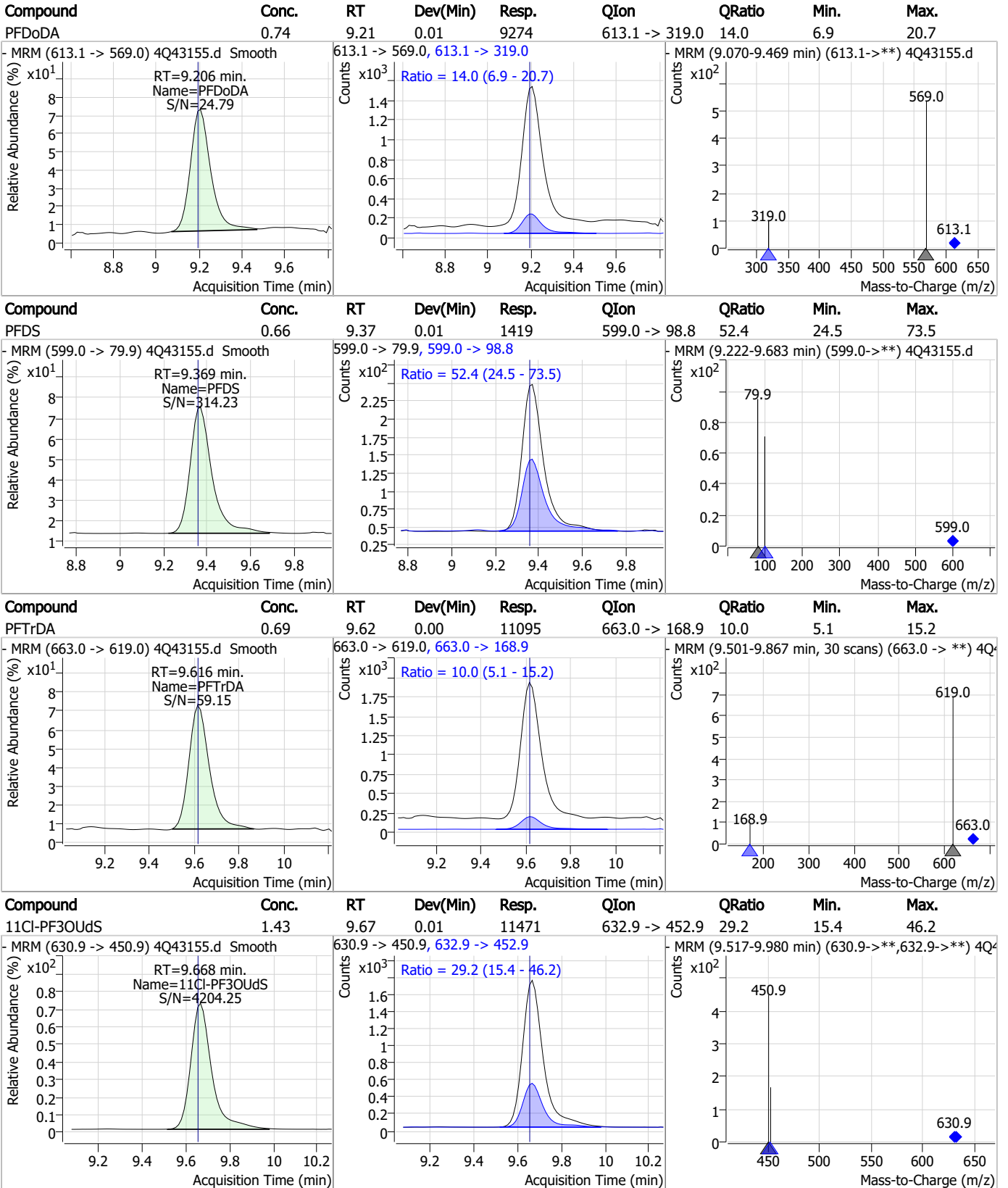
### Perfluorinated Compounds by LC/MS/MS



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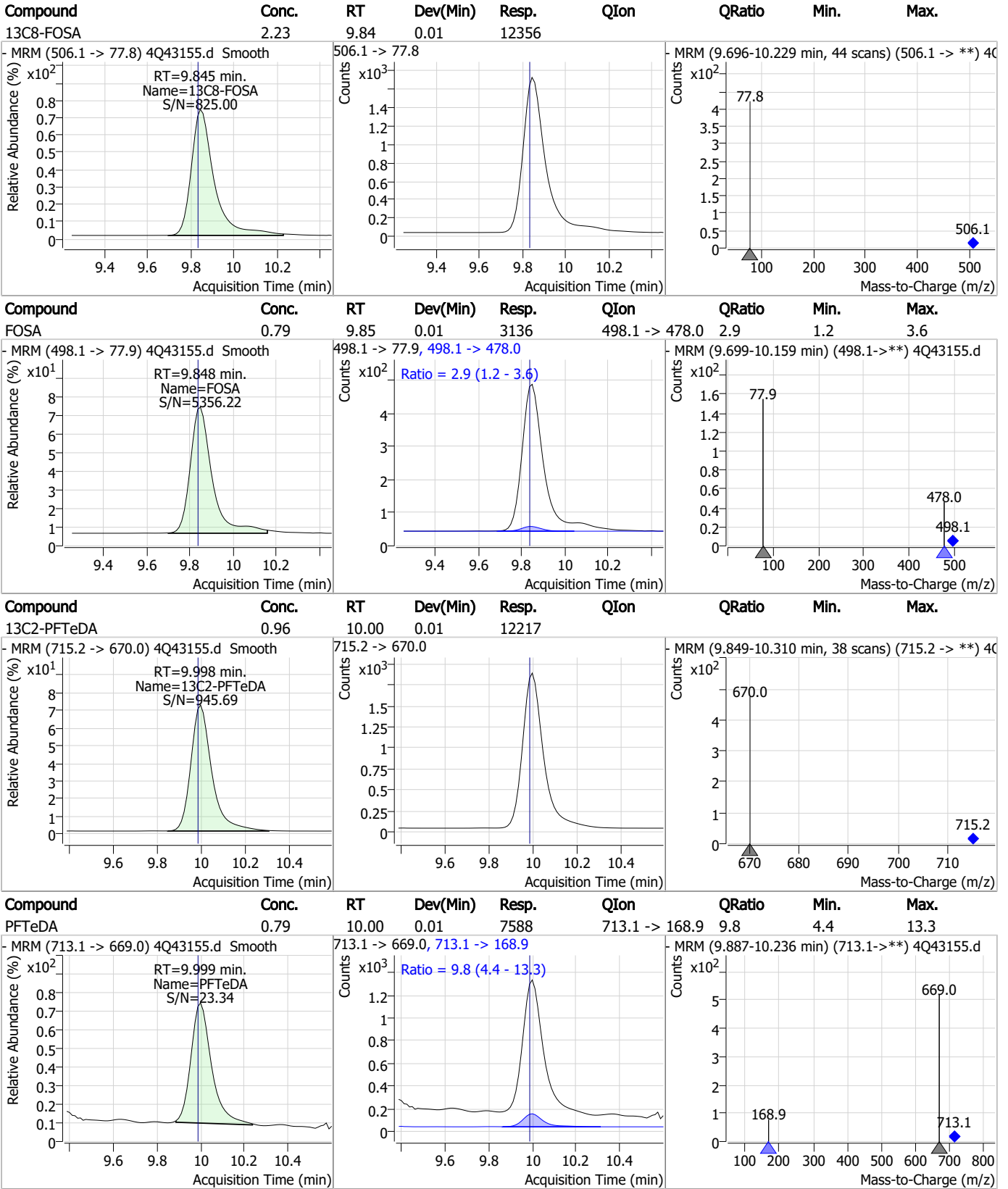
### Perfluorinated Compounds by LC/MS/MS



7.3.2 7



### Perfluorinated Compounds by LC/MS/MS



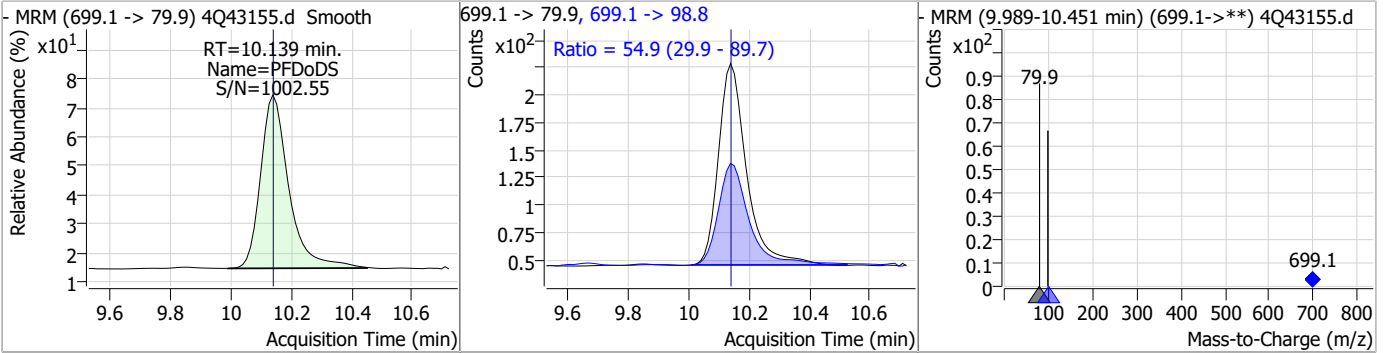
7.3.2

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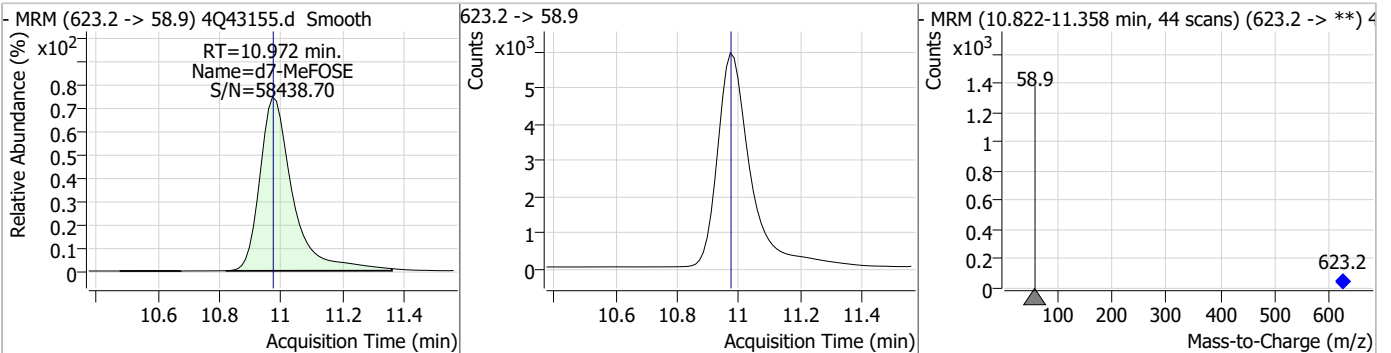


### Perfluorinated Compounds by LC/MS/MS

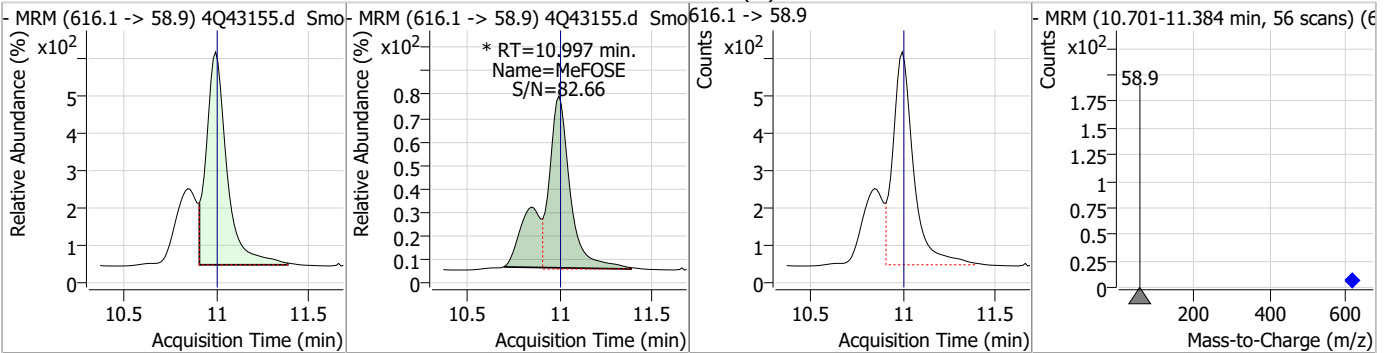
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD <sub>2</sub> DS	0.65	10.14	0.00	1196	699.1 -> 98.8	54.9	29.9	89.7



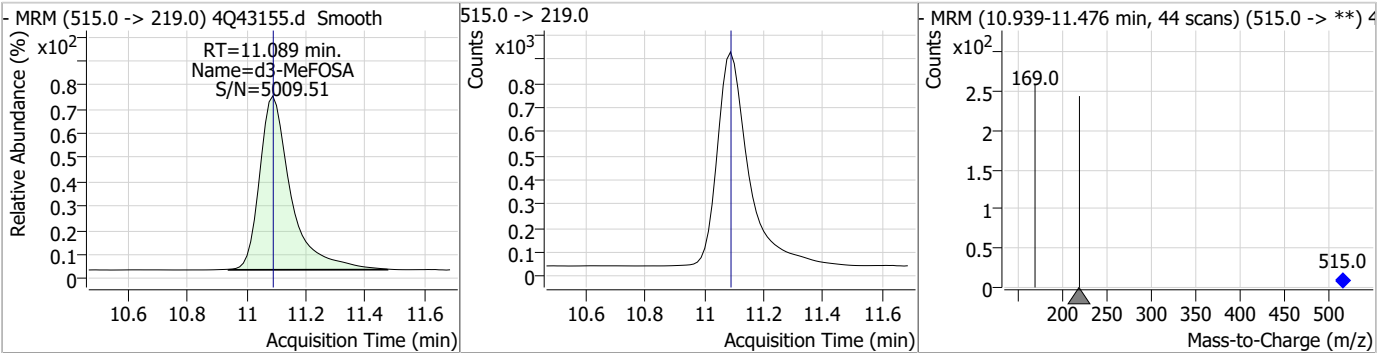
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	20.04	10.97	0.00	43761				



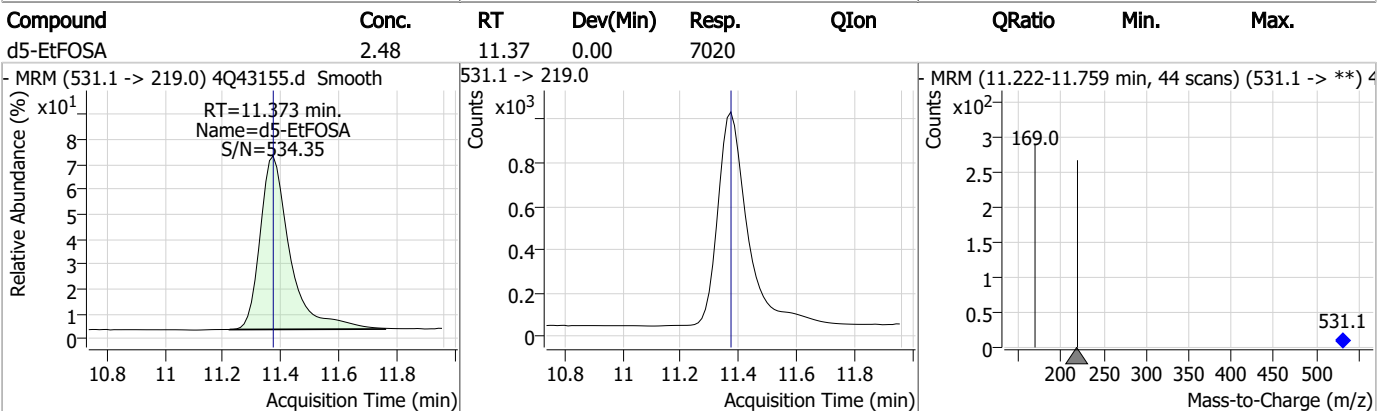
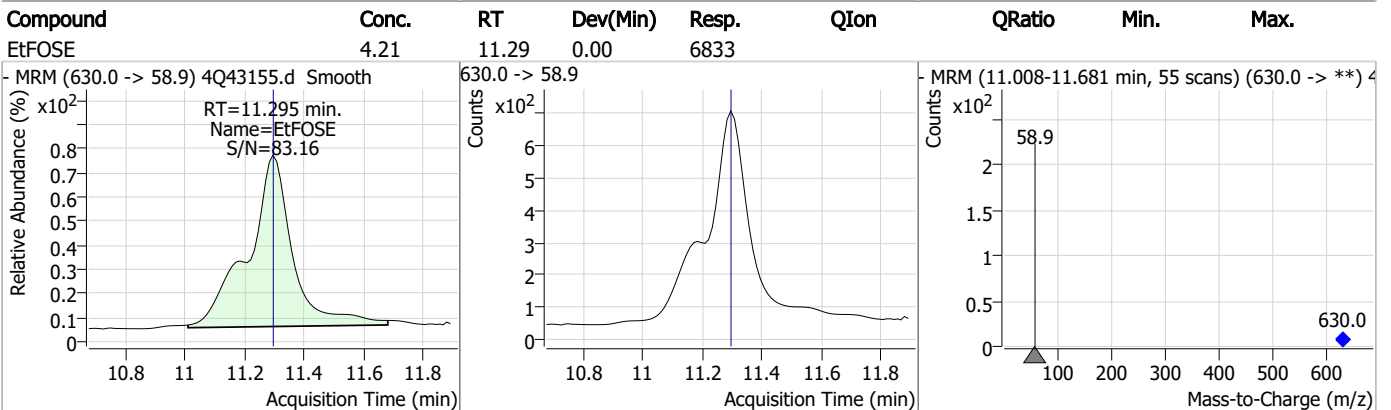
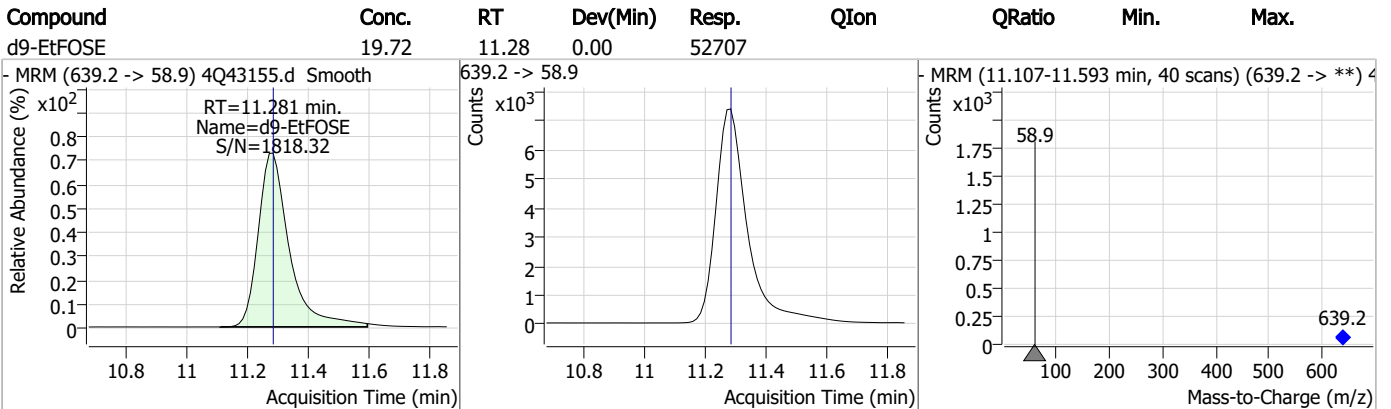
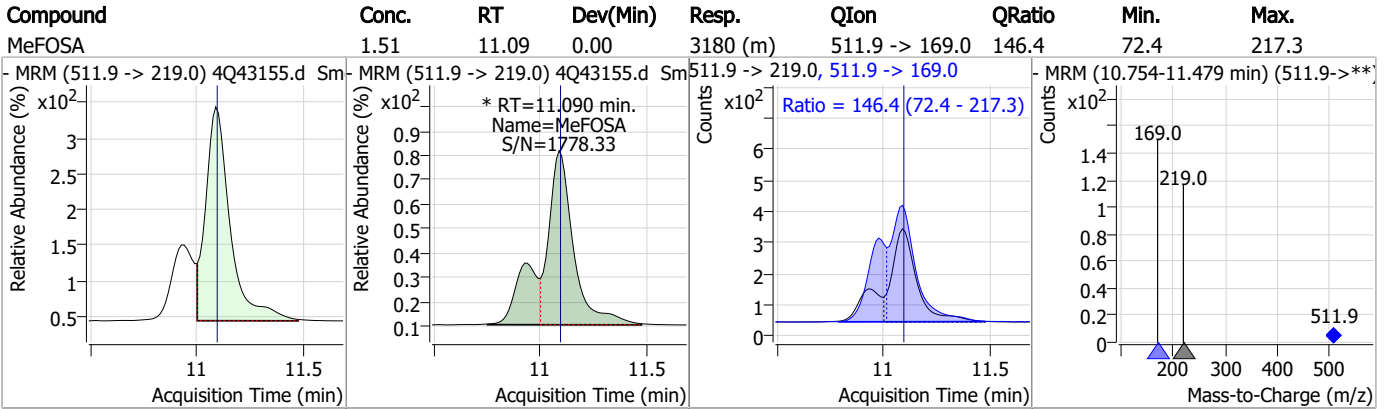
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	3.80	11.00	0.00	5847 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.49	11.09	0.00	6517				



### Perfluorinated Compounds by LC/MS/MS

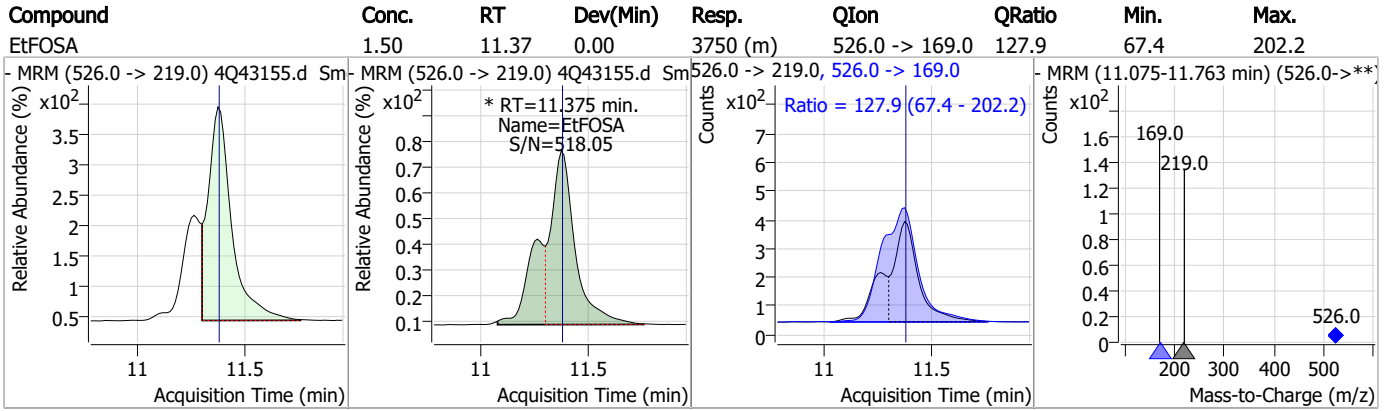


7.3.2

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### Perfluorinated Compounds by LC/MS/MS



7.3.2

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# Manual Integration Approval Summary

Sample Number: OP96403-LLBS      Method: EPA DRAFT 1633  
Lab FileID: 4Q43155.D      Analyst approved: 04/19/23 13:20 Martha Valls  
Injection Time: 04/18/23 12:54      Supervisor approved: 04/19/23 17:03 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.33	Split peak
MeFOSAA	2355-31-9		8.34	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.43	Split peak
EtFOSAA	2991-50-6		8.54	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.09	Split peak
EtFOSA	4151-50-2		11.38	Split peak

7.3.2.1  
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### Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43160.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 4/18/2023 2:04:52 PM  
 Sample Name : op96403-ms  
 Vial : P4-C7  
 DA Method File : 1633\_041423\_S4Q621.quantmethod.xml  
 Batch Name : s4q624.batch.bin  
 Sample Information : OP96403,S4q624,510,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	3.002	216.8 -> 171.9	108744	10.00 µg/L	0.041
M5-PFPeA	4.462	268.3 -> 223.0	59280	5.00 µg/L	0.012
M5-PFHxA	5.622	318.0 -> 273.0	45302	2.50 µg/L	0.000
M4-PFHpA	6.555	367.1 -> 322.0	23156	2.50 µg/L	0.000
M8-PFOA	7.213	421.1 -> 376.0	30124	2.50 µg/L	0.000
M9-PFNA	7.758	472.1 -> 427.0	14975	1.25 µg/L	-0.001
M6-PFDA	8.253	519.1 -> 474.1	14966	1.25 µg/L	-0.014
M7-PFUnDA	8.734	570.0 -> 525.1	14574	1.25 µg/L	-0.013
M2-PFDoDA	9.193	615.1 -> 570.0	17356	1.25 µg/L	-0.001
M2-PFTeDA	9.986	715.2 -> 670.0	11935	1.25 µg/L	-0.001
M8-FOSA	9.832	506.1 -> 77.8	12195	2.50 µg/L	-0.002
M3-PFBS	5.539	302.1 -> 79.9	9641	2.50 µg/L	0.012
M3-PFHxS	7.316	402.1 -> 79.9	5858	2.50 µg/L	-0.001
M8-PFOS	8.405	507.1 -> 79.9	8582	2.50 µg/L	-0.013
M2-4:2FTS	5.310	329.1 -> 80.9	1310	5.00 µg/L	0.001
M2-6:2FTS	6.985	429.1 -> 80.9	1984	5.00 µg/L	0.012
M2-8:2FTS	8.040	529.1 -> 80.9	3067	5.00 µg/L	-0.014
M3-MeFOSAA	8.310	573.2 -> 419.0	13074	5.00 µg/L	-0.014
M3-HFPO-DA	5.989	286.9 -> 168.9	27987	10.00 µg/L	0.000
M5-EtFOSAA	8.520	589.2 -> 419.0	10617	5.00 µg/L	-0.014
M7-MeFOSE	10.972	623.2 -> 58.9	40771	25.00 µg/L	-0.002
M9-EtFOSE	11.269	639.2 -> 58.9	49658	25.00 µg/L	-0.013
M5-EtFOSA	11.373	531.1 -> 219.0	6786	2.50 µg/L	-0.001
M3-MeFOSA	11.076	515.0 -> 219.0	6094	2.50 µg/L	-0.014
13C4-PFOS	8.405	502.8 -> 79.9	8664	2.50 µg/L	-0.013
13C3-PFBA	3.005	216.0 -> 172.0	56698	5.00 µg/L	0.040
18O2-PFHxS	7.315	403.0 -> 83.9	4095	2.50 µg/L	-0.001
13C4-PFOA	7.214	417.1 -> 372.0	33659	2.50 µg/L	0.000
13C2-PFDA	8.253	515.1 -> 470.1	12396	1.25 µg/L	-0.014
13C5-PFNA	7.759	468.0 -> 423.0	17409	1.25 µg/L	-0.001
13C2-PFHxA	5.623	315.1 -> 270.0	37805	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.310	329.1 -> 80.9	1310	5.86 µg/L	0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.2%		
13C2-6:2FTS	6.985	429.1 -> 80.9	1984	6.18 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.6%		
13C2-8:2FTS	8.040	529.1 -> 80.9	3067	5.81 µg/L	-0.014
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.1%		
13C2-PFDoDA	9.193	615.1 -> 570.0	17356	1.14 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.0%		
13C2-PFTeDA	9.986	715.2 -> 670.0	11935	1.00 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 80.4%		
13C3-PFBS	5.539	302.1 -> 79.9	9641	2.56 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C3-PFHxS	7.316	402.1 -> 79.9	5858	2.58 µg/L	-0.001

7.4.1  
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C4-PFBA	3.002	216.8 -> 171.9	108744	11.01 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 110.1%	
13C4-PFHpA	6.555	367.1 -> 322.0	23156	2.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.9%	
13C5-PFHxA	5.622	318.0 -> 273.0	45302	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C5-PFPeA	4.462	268.3 -> 223.0	59280	5.32 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.4%	
13C6-PFDA	8.253	519.1 -> 474.1	14966	1.37 µg/L	-0.014
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.8%	
13C7-PFUnDA	8.734	570.0 -> 525.1	14574	1.23 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C8-FOSA	9.832	506.1 -> 77.8	12195	2.15 µg/L	-0.002
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.1%	
13C8-PFOA	7.213	421.1 -> 376.0	30124	2.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.7%	
13C8-PFOS	8.405	507.1 -> 79.9	8582	2.55 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C9-PFNA	7.758	472.1 -> 427.0	14975	1.18 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.4%	
d3-MeFOSAA	8.310	573.2 -> 419.0	13074	5.12 µg/L	-0.014
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C3-HFPO-DA	5.989	286.9 -> 168.9	27987	10.55 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.5%	
d3-MeFOSA	11.076	515.0 -> 219.0	6094	2.27 µg/L	-0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.9%	
d5-EtFOSAA	8.520	589.2 -> 419.0	10617	5.12 µg/L	-0.014
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
d7-MeFOSE	10.972	623.2 -> 58.9	40771	18.25 µg/L	-0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 73.0%	
d9-EtFOSE	11.269	639.2 -> 58.9	49658	18.16 µg/L	-0.013
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 72.6%	
d5-EtFOSA	11.373	531.1 -> 219.0	6786	2.34 µg/L	-0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.7%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.311	327.1 -> 307.0	18832	11.53 µg/L	99
		327.1 -> 80.9	7987		
6:2FTS	6.974	427.1 -> 407.0	14922	11.01 µg/L	98
		427.1 -> 80.9	6512		
8:2FTS	8.040	527.1 -> 507.0	16241	11.81 µg/L	96
		527.1 -> 80.8	6794		
EtFOSAA	8.533	584.2 -> 419.1	4729	2.98 µg/L	99
		584.2 -> 526.0	2258		
FOSA	9.836	498.1 -> 77.9	11530	2.94 µg/L	99
		498.1 -> 478.0	334		
MeFOSAA	8.323	570.1 -> 419.0	4927	2.73 µg/L	97
		570.1 -> 483.0	1043		
PFBA	3.008	212.8 -> 168.9	27726	11.16 µg/L	100
PFBS	5.540	298.7 -> 79.9	9887	2.75 µg/L	99
		298.7 -> 98.8	3898		
PFDA	8.253	512.9 -> 469.0	24598	2.87 µg/L	99
		512.9 -> 219.0	4966		
PFDODA	9.193	613.1 -> 569.0	32555	2.97 µg/L	97
		613.1 -> 319.0	4931		
PFDS	9.357	599.0 -> 79.9	4730	2.46 µg/L	99

7.4.1  
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2349			
PFHpA	6.555	363.1 -> 319.0	34807	3.01	µg/L	99
		363.1 -> 169.0	6398			
PFHpS	7.897	449.0 -> 79.9	6552	2.93	µg/L	95
		449.0 -> 98.9	3236			
PFHxA	5.625	313.0 -> 269.0	40666	3.03	µg/L	99
		313.0 -> 118.9	1157			
PFHxS	7.317	398.7 -> 79.9	5290	2.64	µg/L	m 96
		398.7 -> 98.9	2863			
PFNA	7.759	463.0 -> 419.0	23355	2.92	µg/L	95
		463.0 -> 219.0	6586			
PFNS	8.899	548.8 -> 79.9	3516	2.66	µg/L	100
		548.8 -> 98.9	1890			
PFOA	7.215	413.0 -> 369.0	38342	2.72	µg/L	100
		413.0 -> 169.0	8042			
PFOS	8.406	498.9 -> 79.9	8941	2.68	µg/L	m 96
		498.9 -> 98.8	4489			
PFPeA	4.464	263.0 -> 219.0	68063	6.07	µg/L	100
PFPeS	6.594	349.1 -> 79.9	5307	3.11	µg/L	98
		349.1 -> 98.9	2321			
PFTeDA	9.987	713.1 -> 669.0	26473	2.82	µg/L	100
		713.1 -> 168.9	2351			
PFTrDA	9.604	663.0 -> 619.0	39176	2.78	µg/L	99
		663.0 -> 168.9	4033			
PFUnDA	8.735	563.1 -> 519.0	23655	2.87	µg/L	99
		563.1 -> 269.1	4531			
11CI-PF3OUdS	9.655	630.9 -> 450.9	38467	5.27	µg/L	100
		632.9 -> 452.9	11815			
9CI-PF3ONS	8.762	530.8 -> 351.0	42082	5.16	µg/L	100
		532.8 -> 353.0	12951			
ADONA	6.805	376.9 -> 250.9	100441	5.97	µg/L	98
		376.9 -> 84.8	27495			
HFPO-DA	5.990	284.9 -> 168.9	13179	5.94	µg/L	96
		284.9 -> 184.9	1521			
3:3FTCA	3.967	241.0 -> 177.0	7173	13.72	µg/L	100
		241.0 -> 117.0	641			
5:3FTCA	6.318	341.0 -> 237.1	143118	75.57	µg/L	100
		341.0 -> 217.0	101208			
7:3FTCA	7.761	441.0 -> 316.9	57240	73.75	µg/L	100
		441.0 -> 336.9	129341			
EtFOSA	11.375	526.0 -> 219.0	13709	5.67	µg/L	m 99
		526.0 -> 169.0	18679			
EtFOSE	11.295	630.0 -> 58.9	21868	14.29	µg/L	m 100
MeFOSA	11.078	511.9 -> 219.0	11189	5.68	µg/L	m 96
		511.9 -> 169.0	16795			
MeFOSE	10.985	616.1 -> 58.9	20976	14.64	µg/L	m 100
PFDoDS	10.126	699.1 -> 79.9	4082	2.46	µg/L	97
		699.1 -> 98.8	2348			
NFDHA	5.516	295.0 -> 201.0	5927	6.58	µg/L	96
		295.0 -> 84.9	1427			
PFMBA	4.866	279.0 -> 85.1	37887	5.91	µg/L	100
PFMPA	3.603	229.0 -> 84.9	33506	5.97	µg/L	100
PFEESA	6.059	314.8 -> 134.9	60522	5.38	µg/L	99
		314.8 -> 82.9	2240			

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

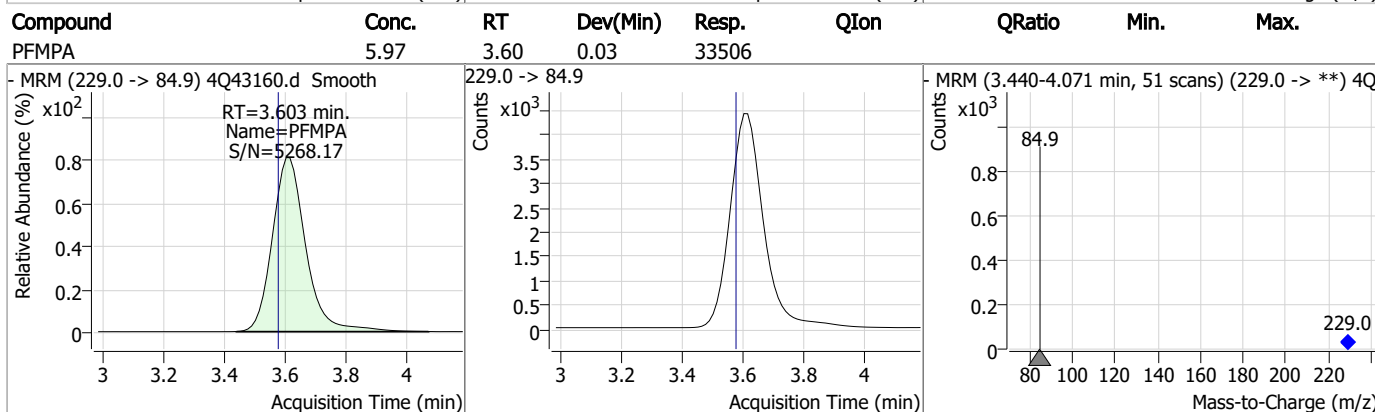
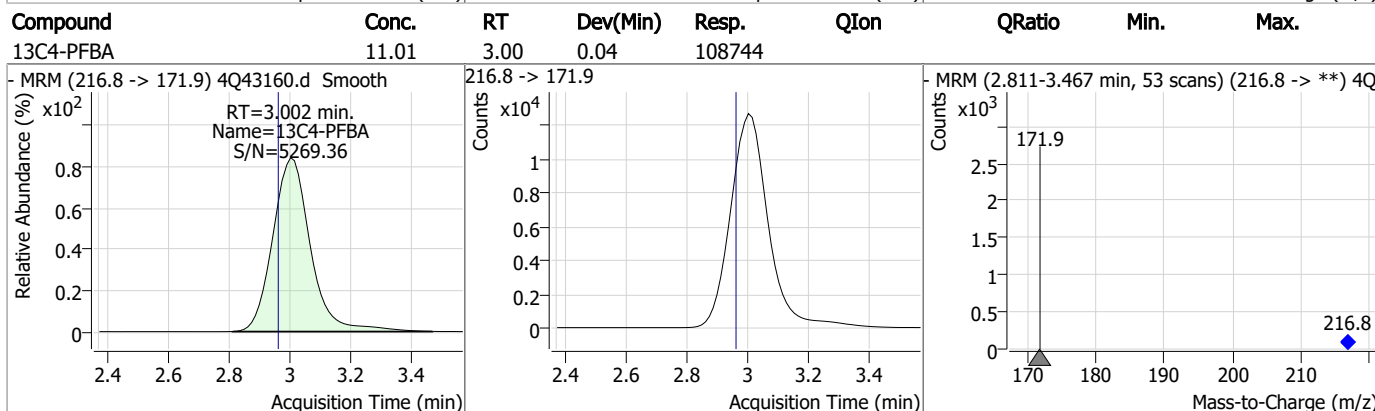
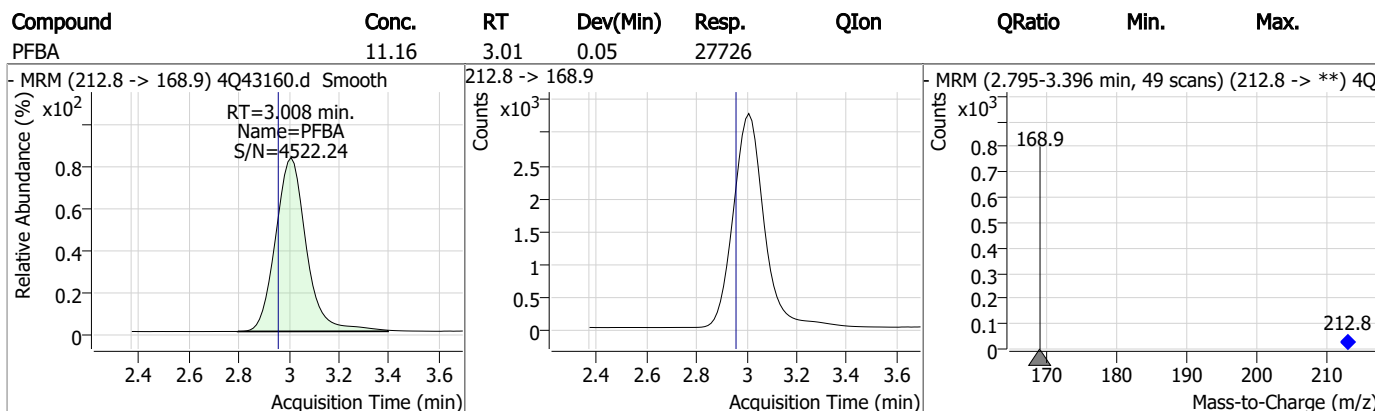
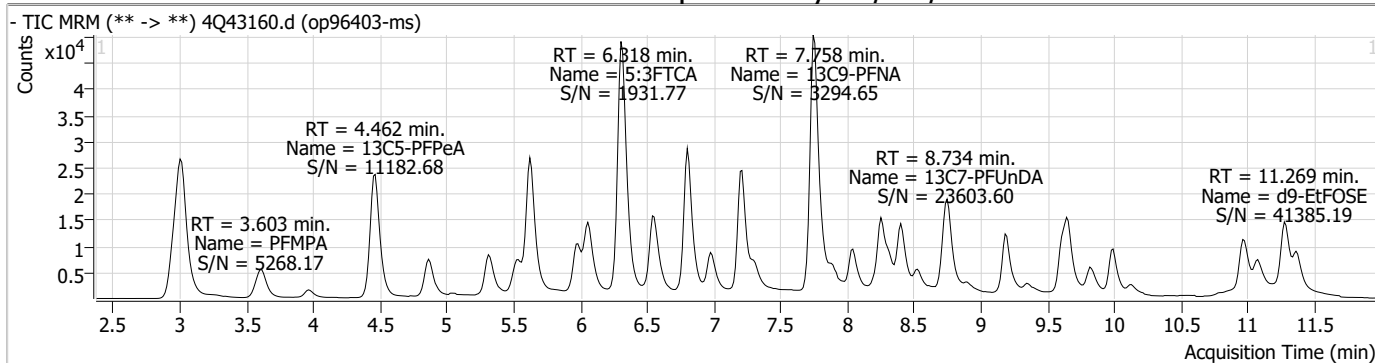
### Perfluorinated Compounds by LC/MS/MS

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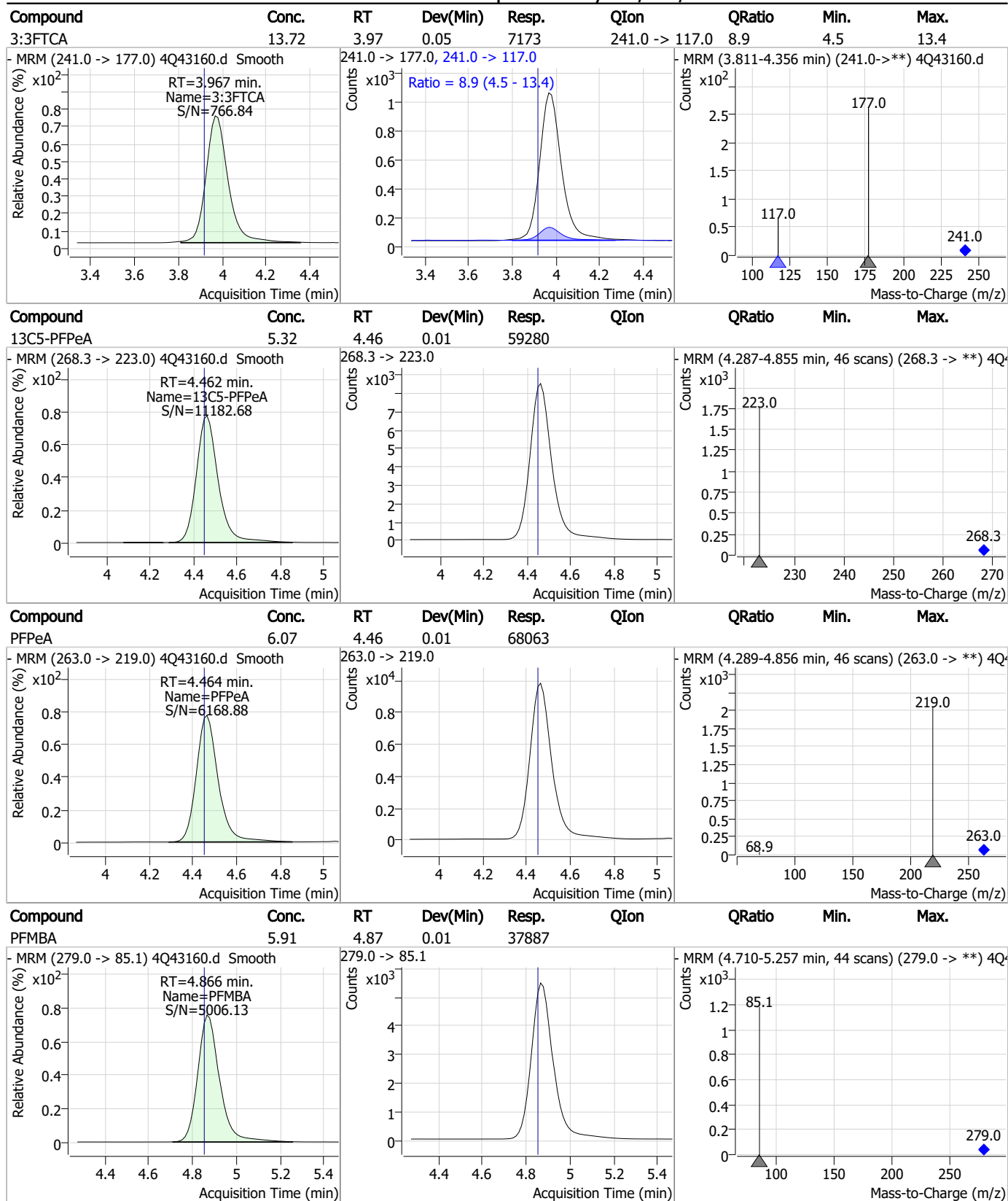
7.4.1

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### Perfluorinated Compounds by LC/MS/MS



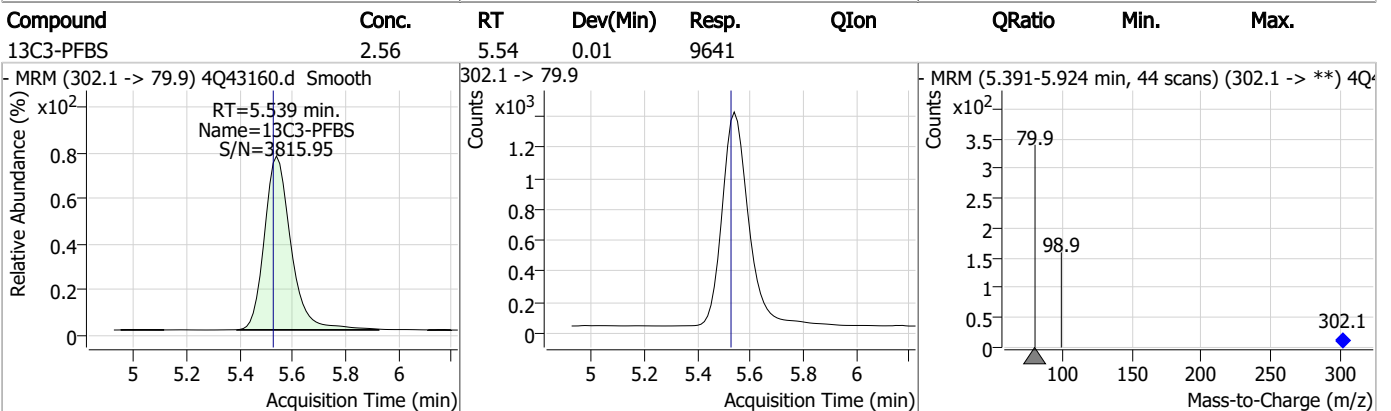
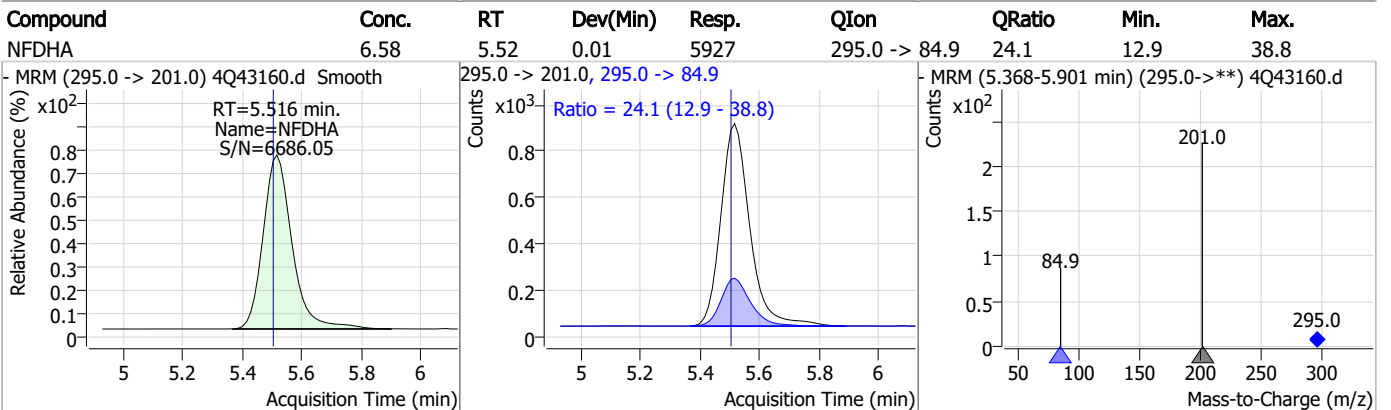
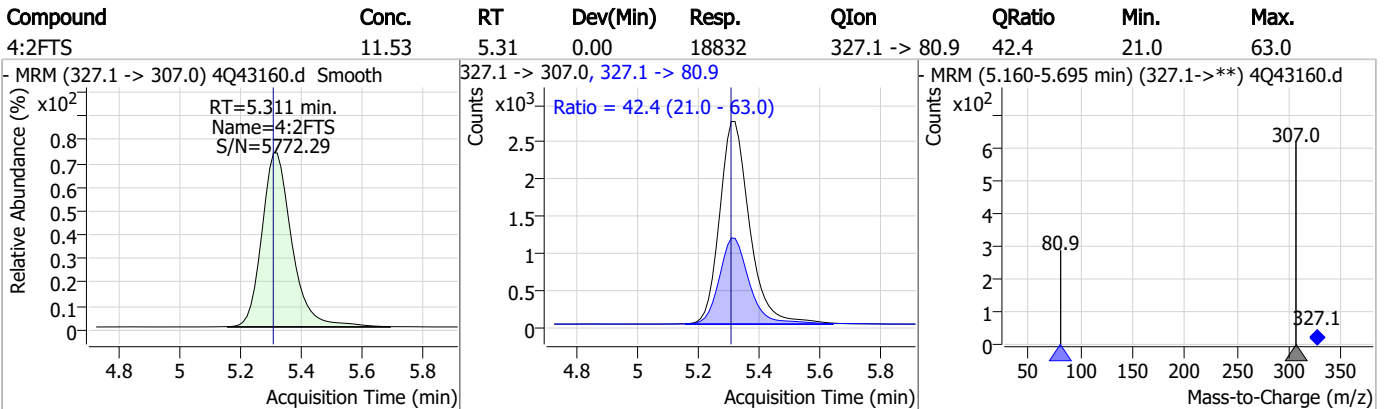
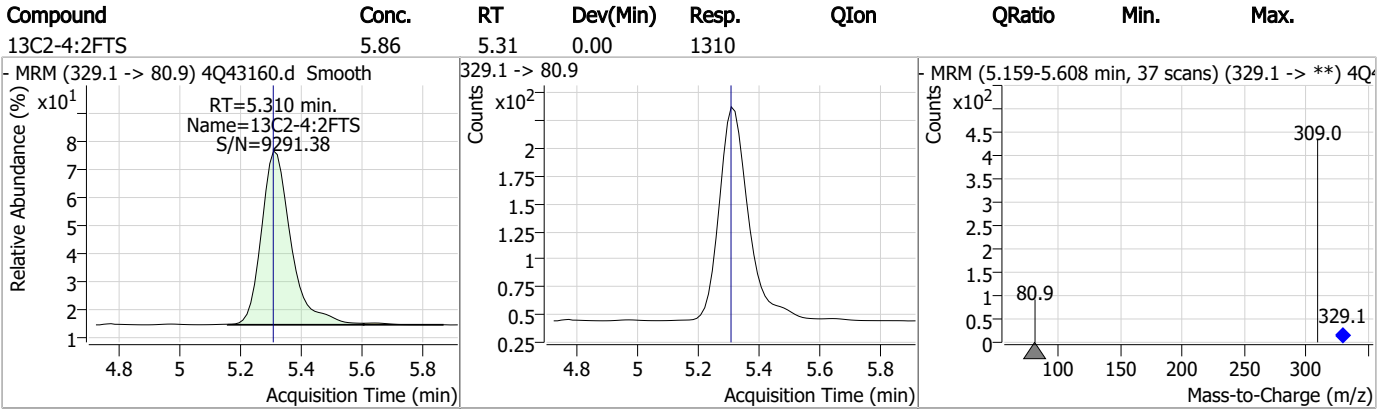
### Perfluorinated Compounds by LC/MS/MS



7.4.1

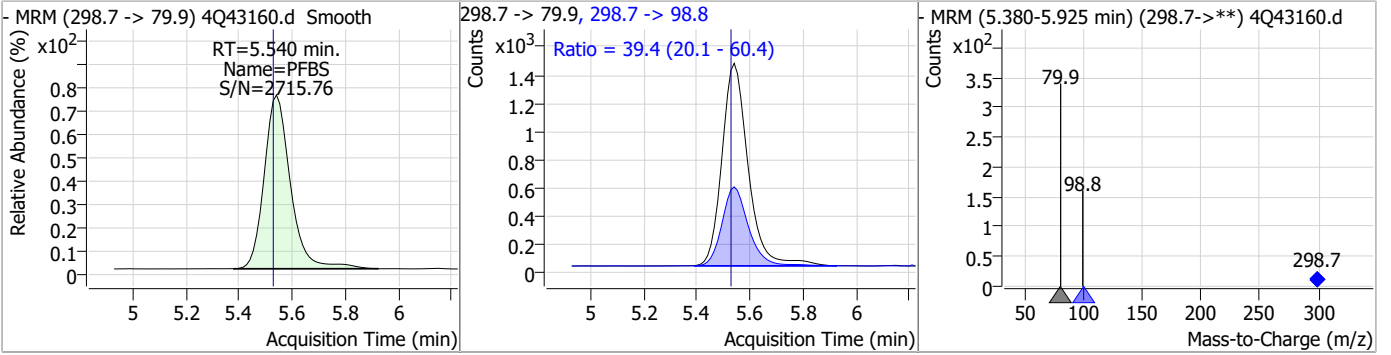
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### Perfluorinated Compounds by LC/MS/MS

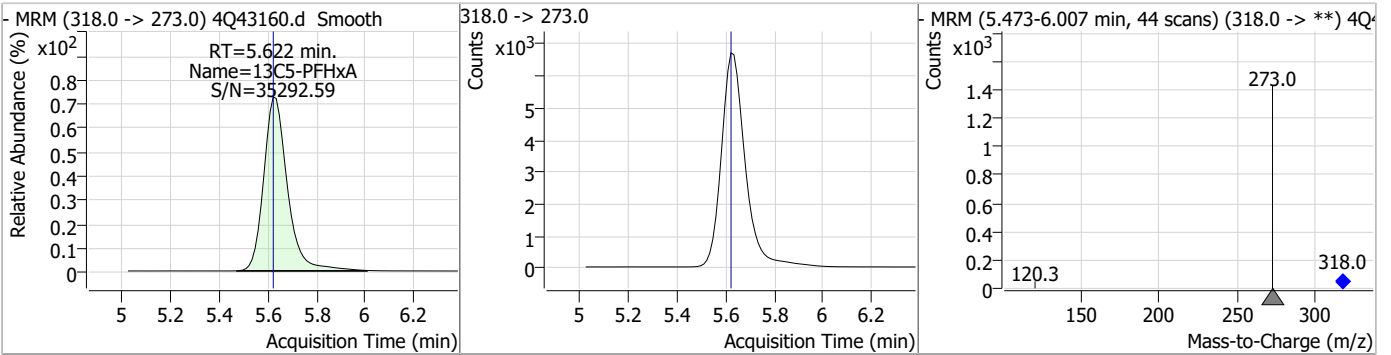


### Perfluorinated Compounds by LC/MS/MS

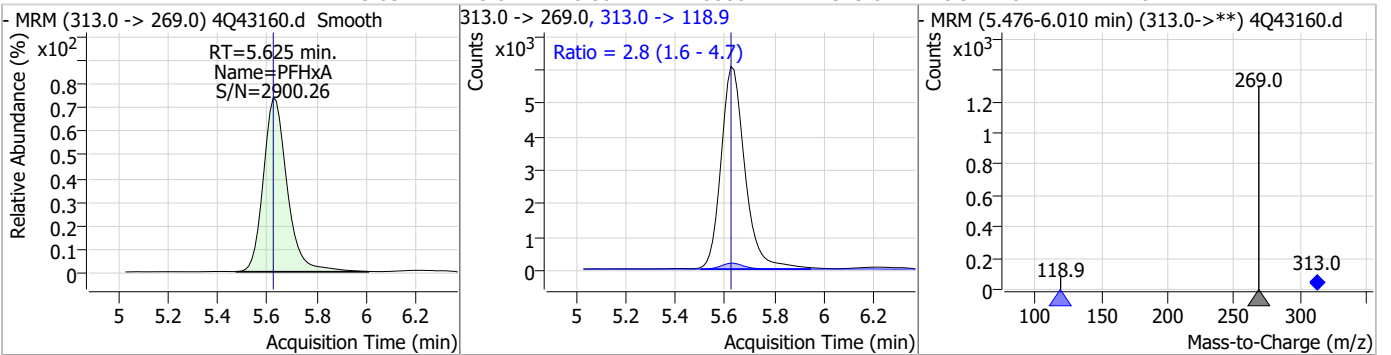
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.75	5.54	0.01	9887	298.7 -> 98.8	39.4	20.1	60.4



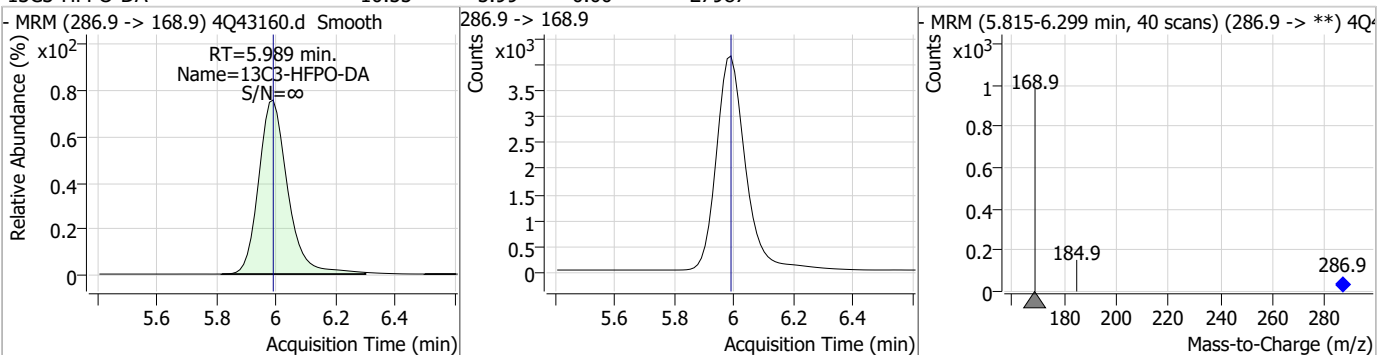
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.59	5.62	0.00	45302				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	3.03	5.62	0.00	40666	313.0 -> 118.9	2.8	1.6	4.7



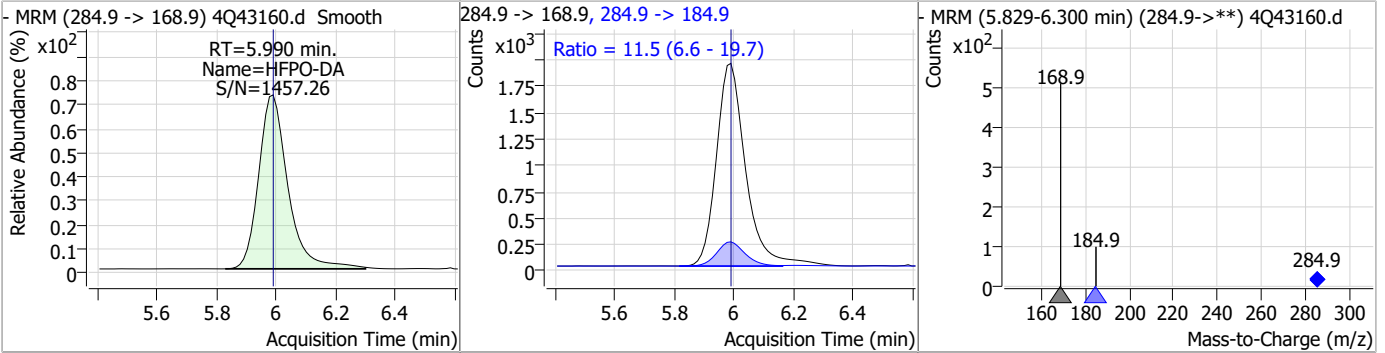
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.55	5.99	0.00	27987				



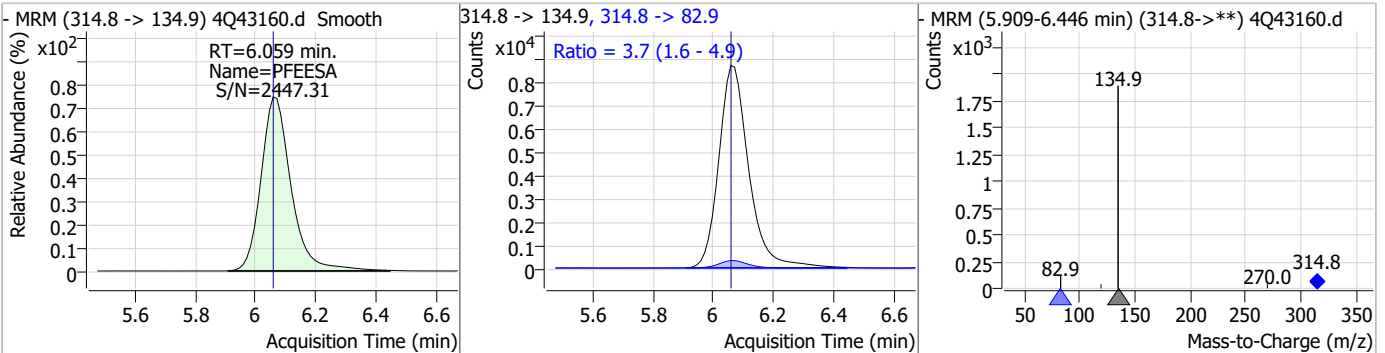


### Perfluorinated Compounds by LC/MS/MS

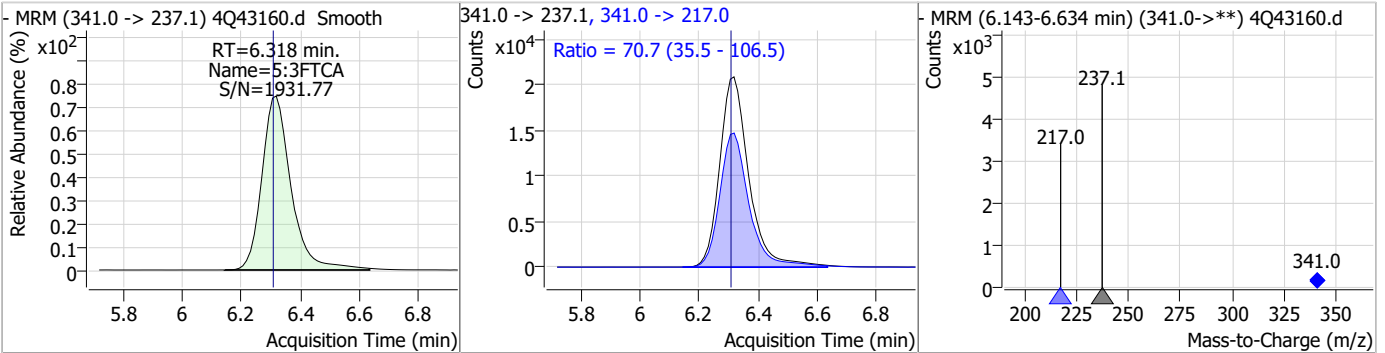
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.94	5.99	0.00	13179	284.9 -> 184.9	11.5	6.6	19.7



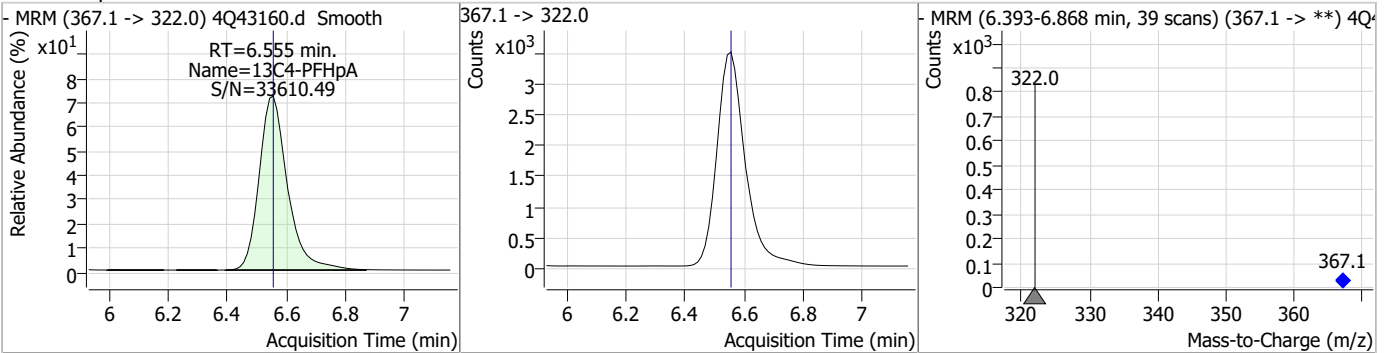
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	5.38	6.06	0.00	60522	314.8 -> 82.9	3.7	1.6	4.9



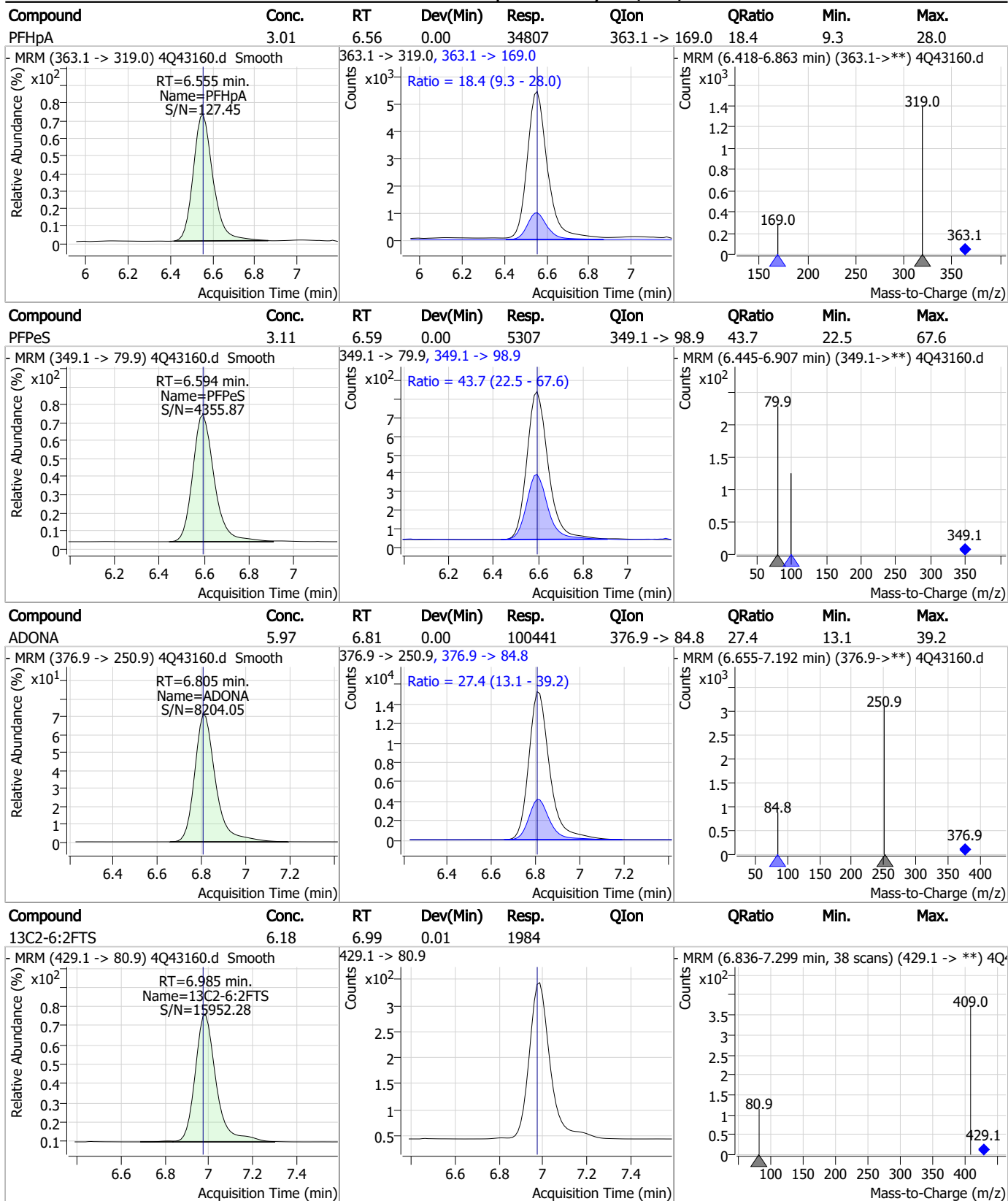
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	75.57	6.32	0.01	143118	341.0 -> 217.0	70.7	35.5	106.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.70	6.55	0.00	23156	367.1 -> 322.0			

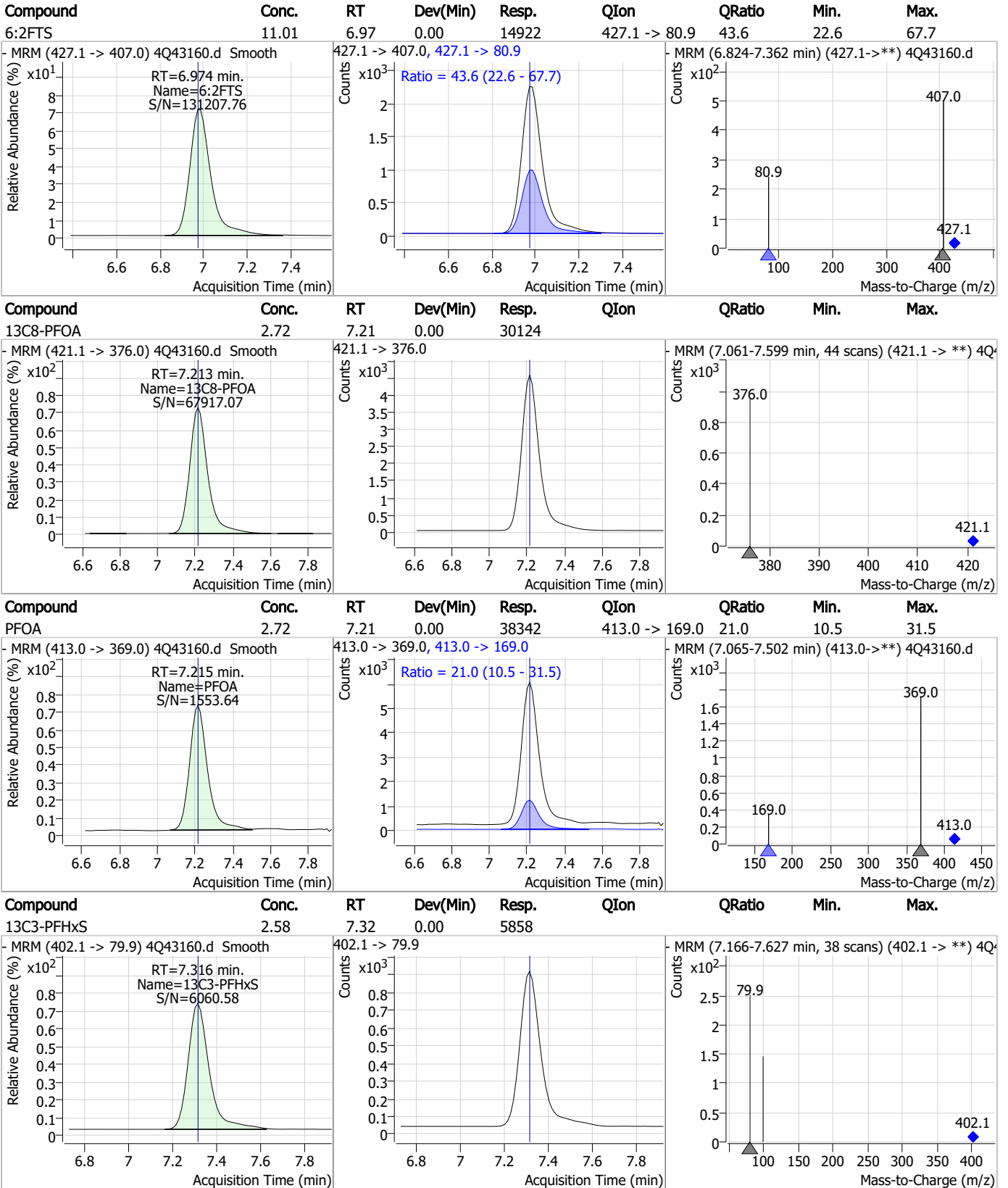


### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

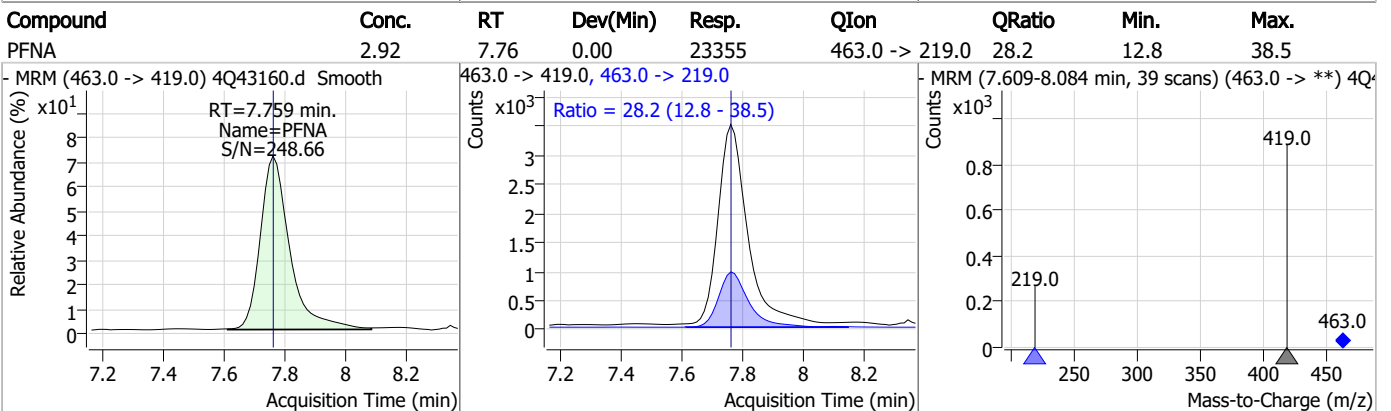
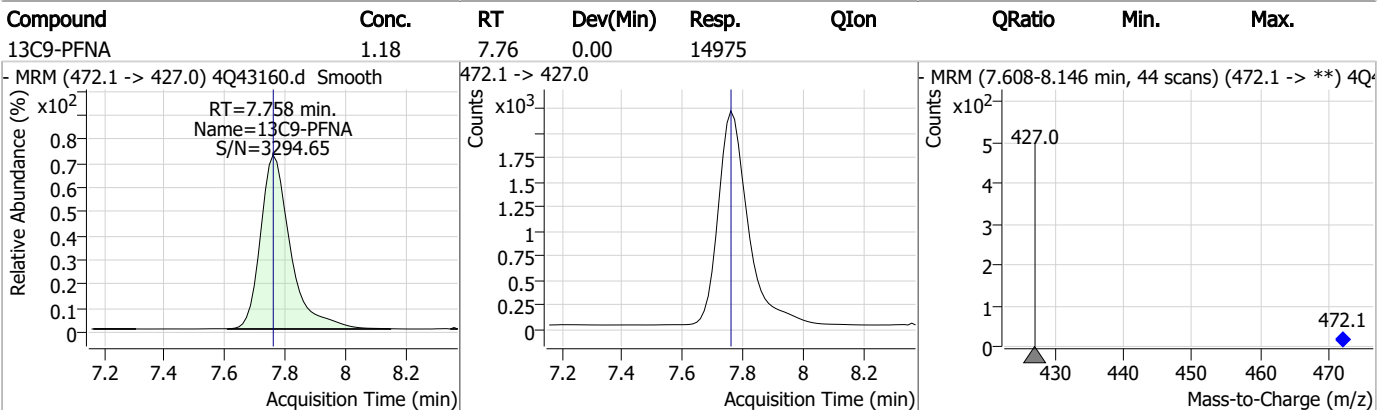
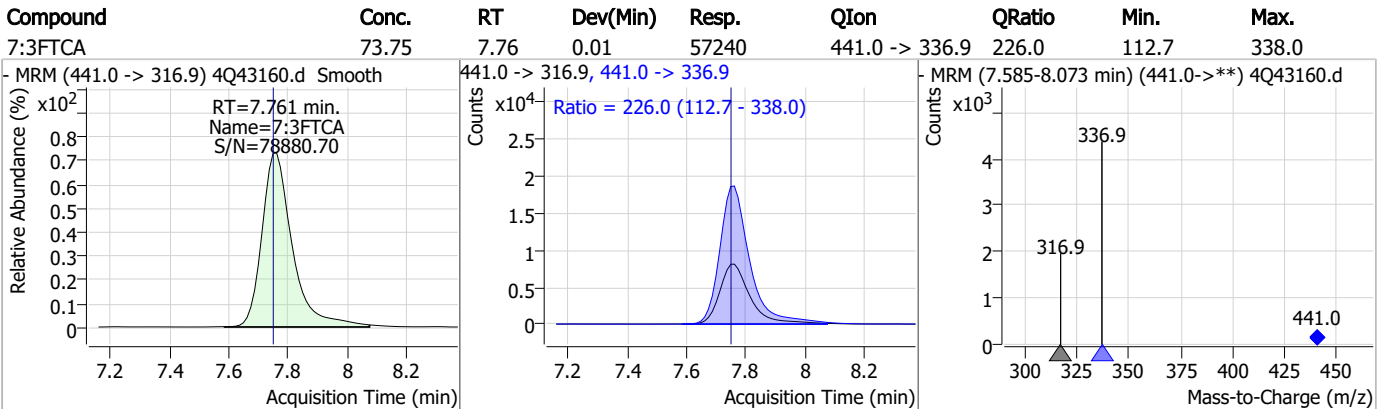
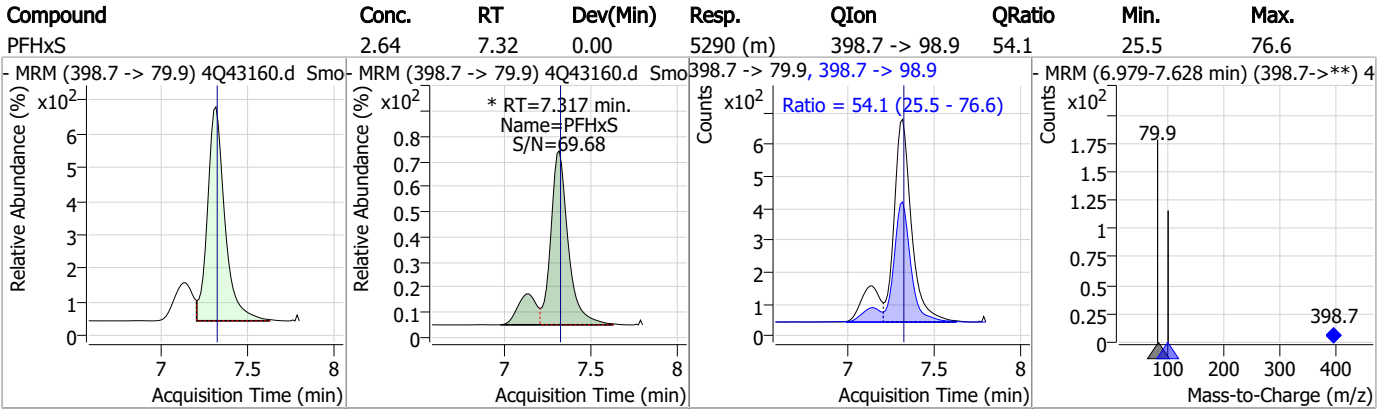


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### Perfluorinated Compounds by LC/MS/MS

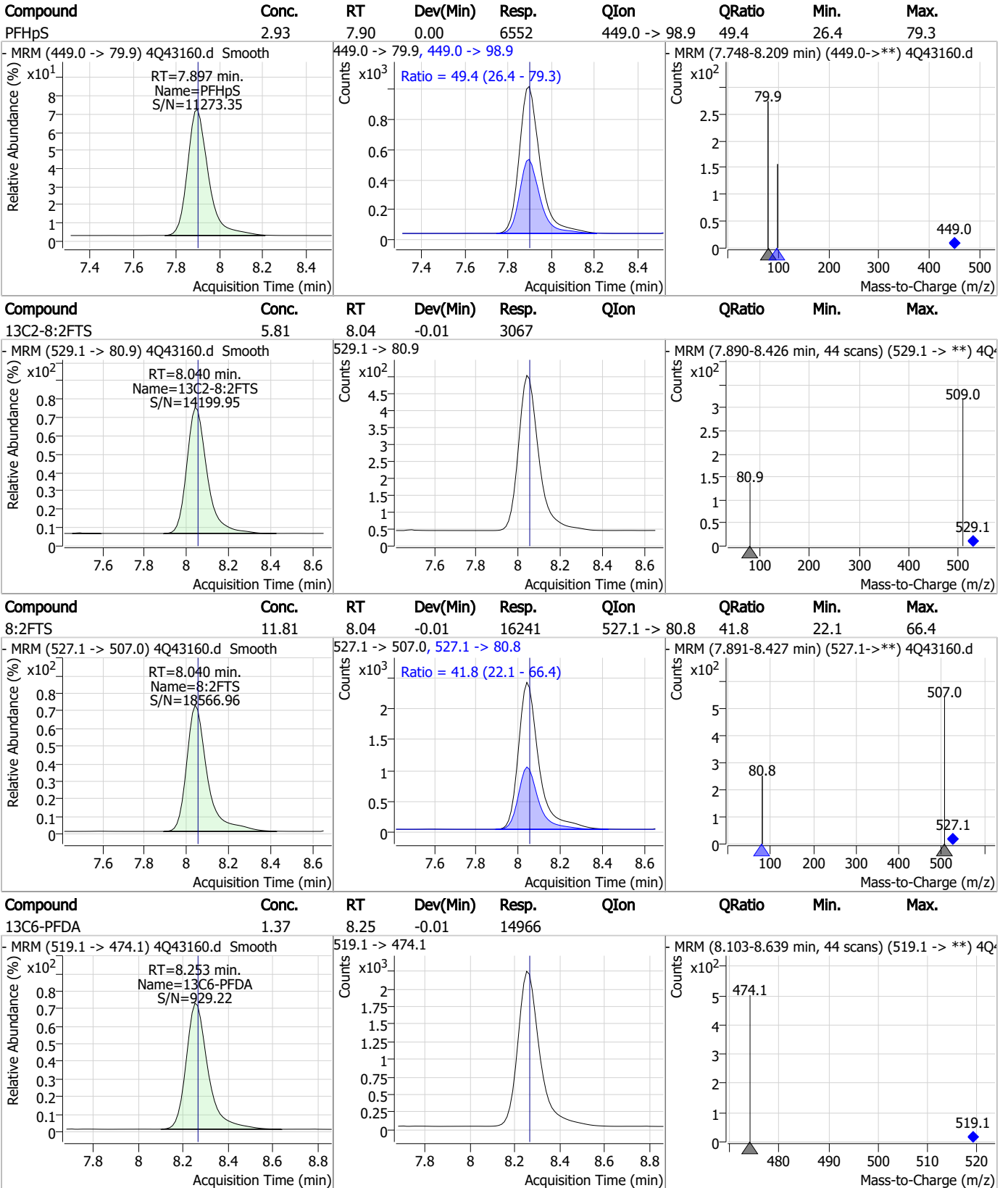


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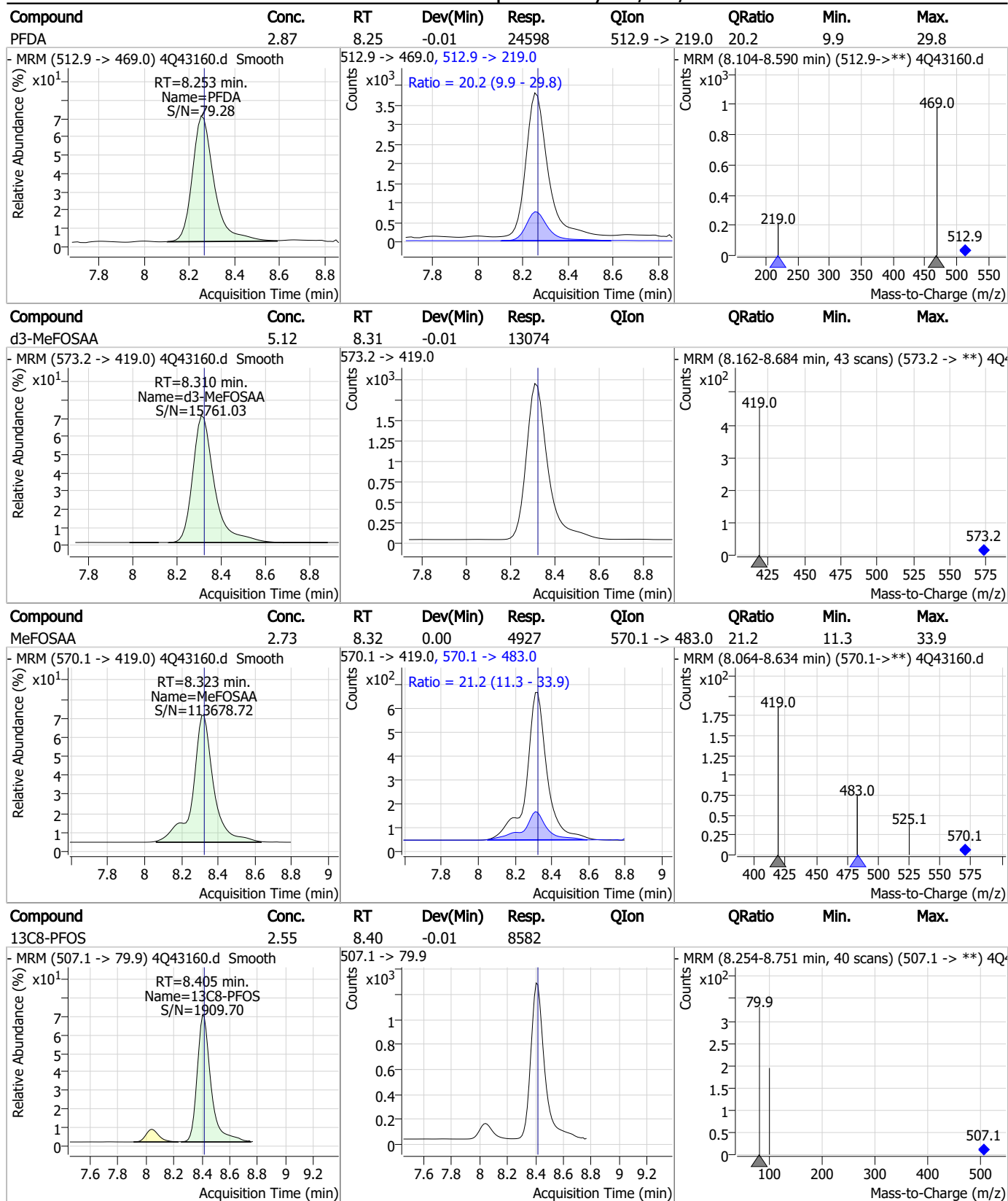
### Perfluorinated Compounds by LC/MS/MS



7.4.1

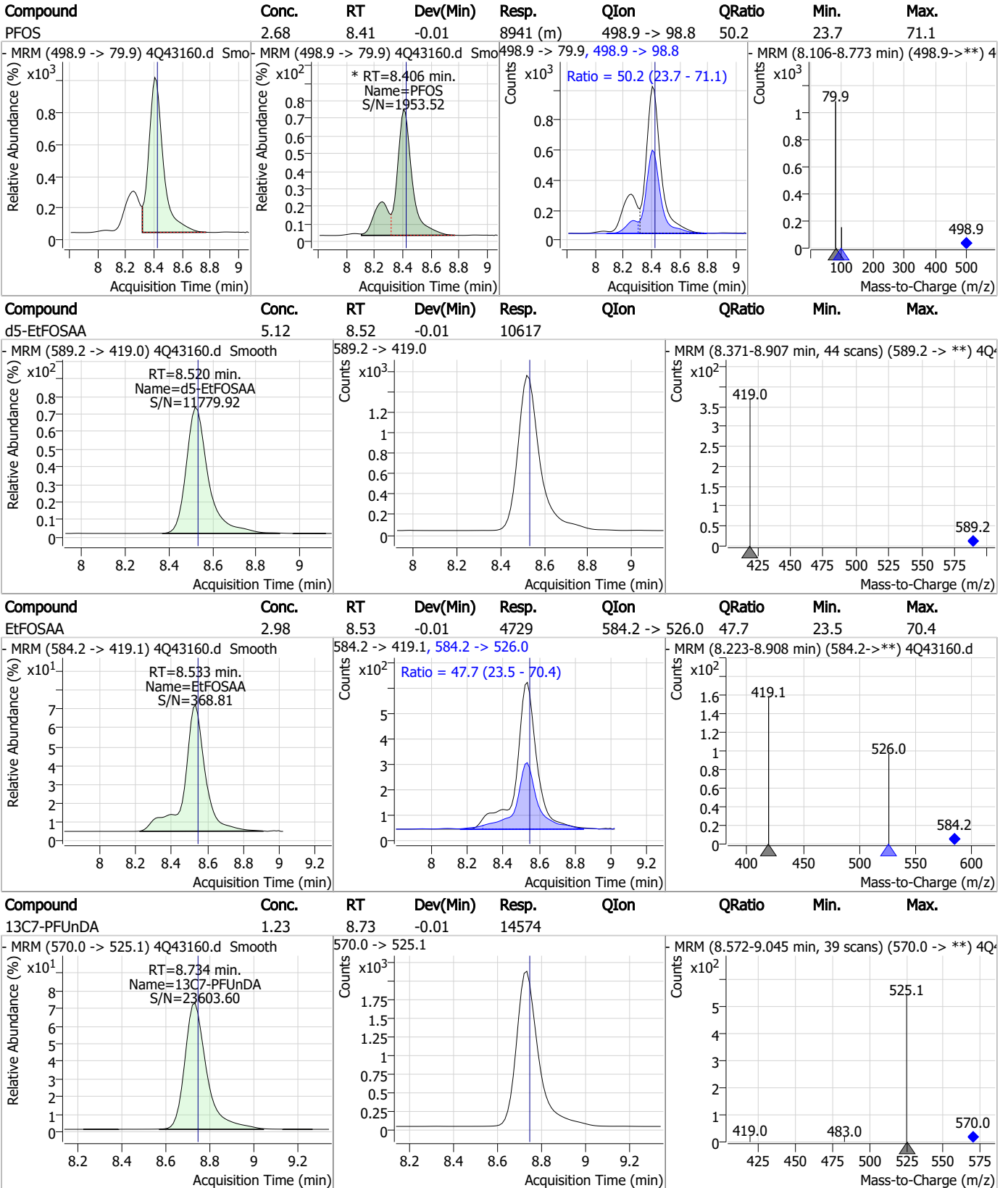
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### Perfluorinated Compounds by LC/MS/MS



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## Perfluorinated Compounds by LC/MS/MS

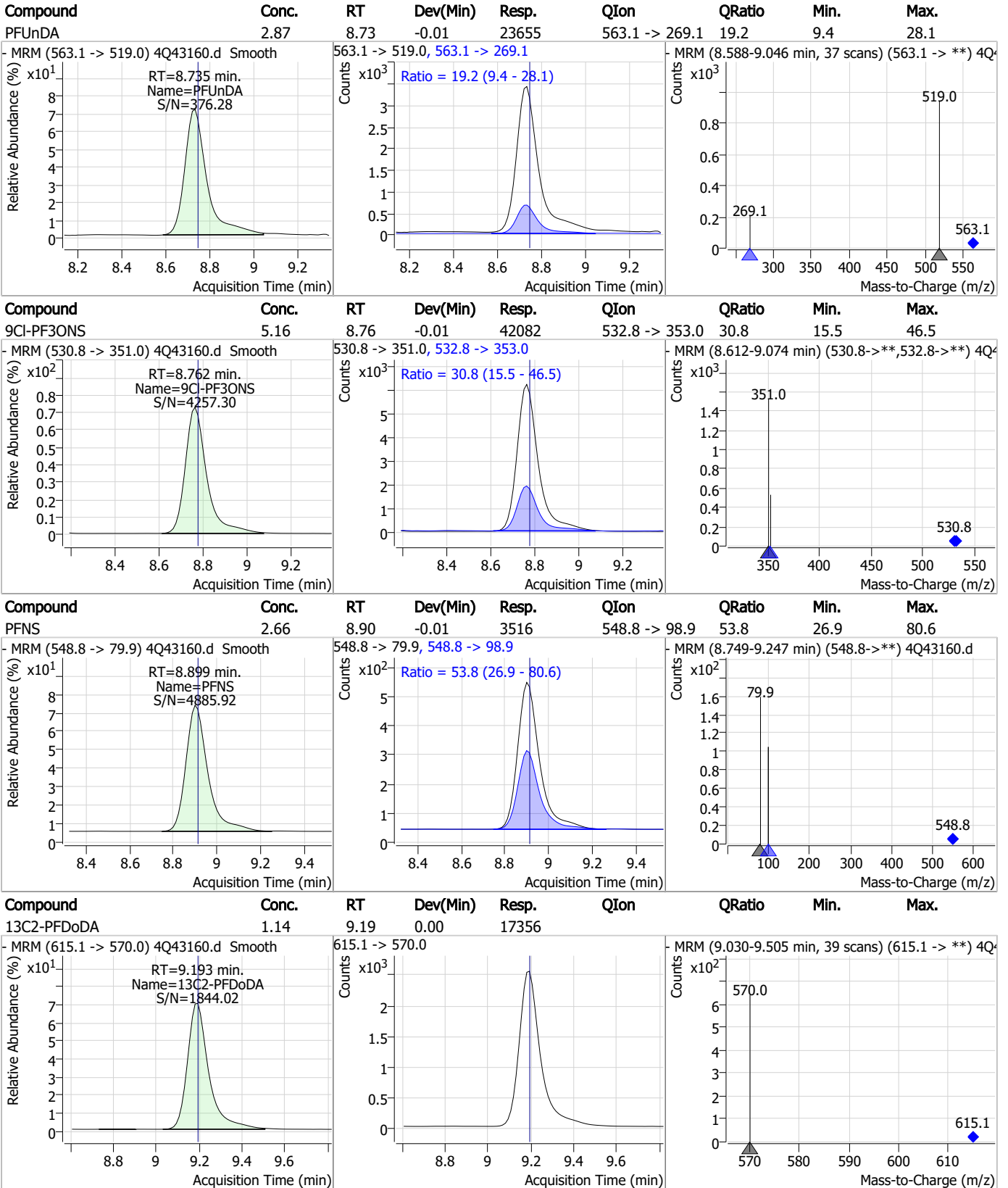


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### Perfluorinated Compounds by LC/MS/MS

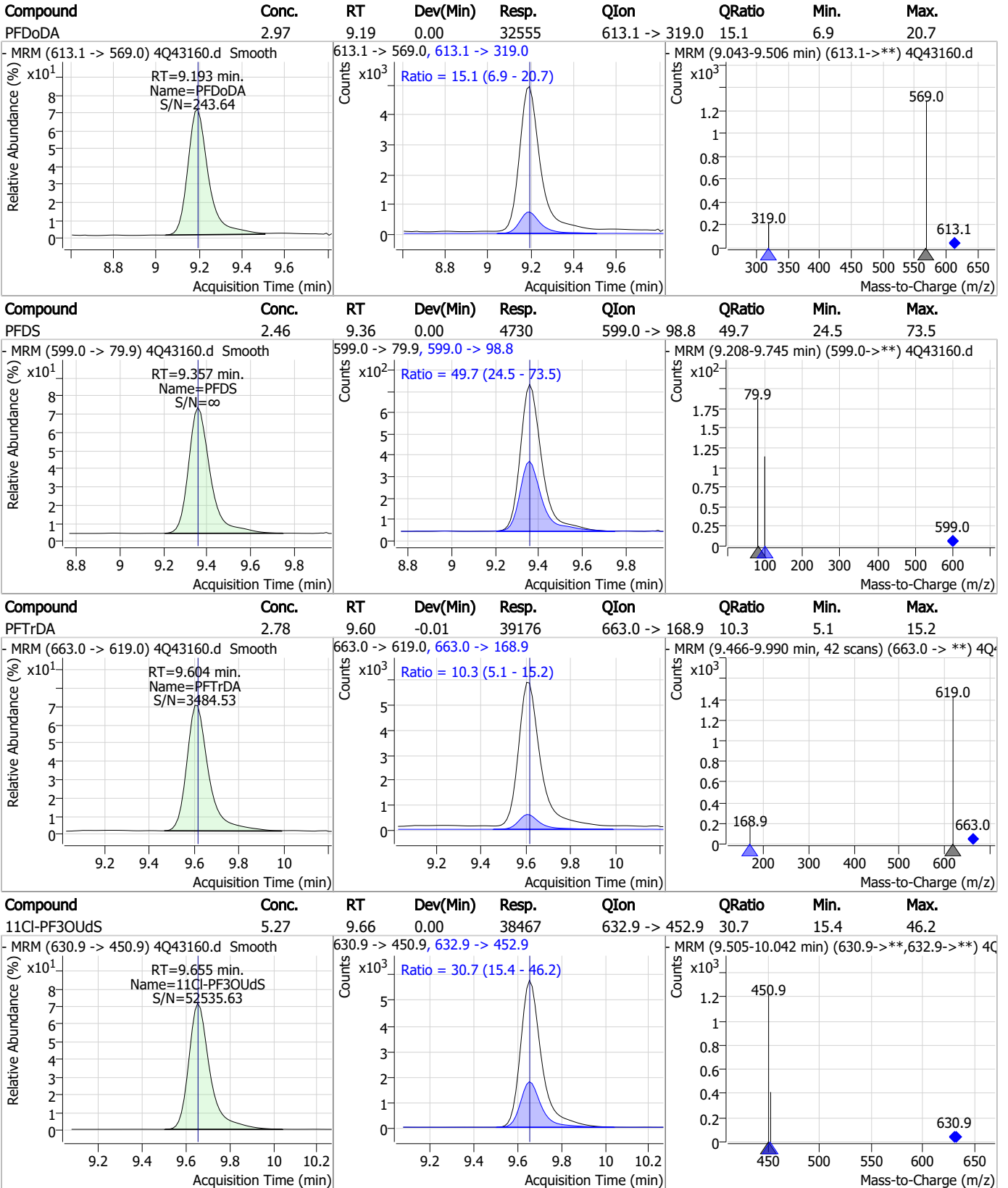


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### Perfluorinated Compounds by LC/MS/MS

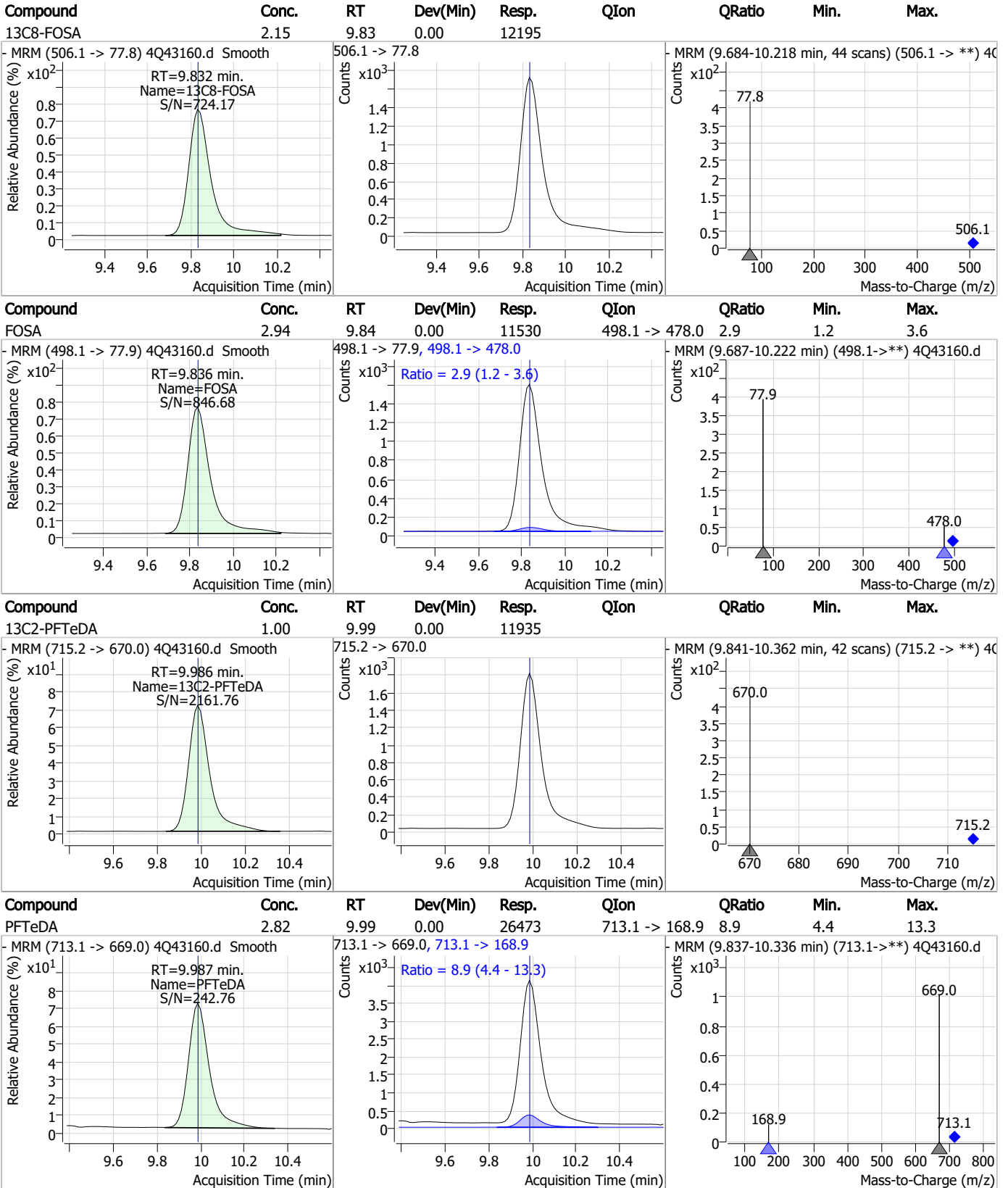


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### Perfluorinated Compounds by LC/MS/MS



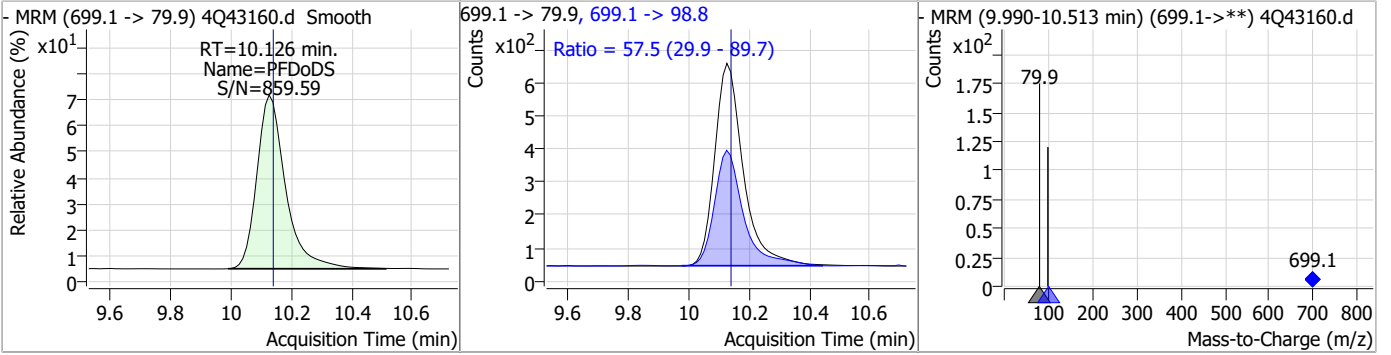
7.4.1

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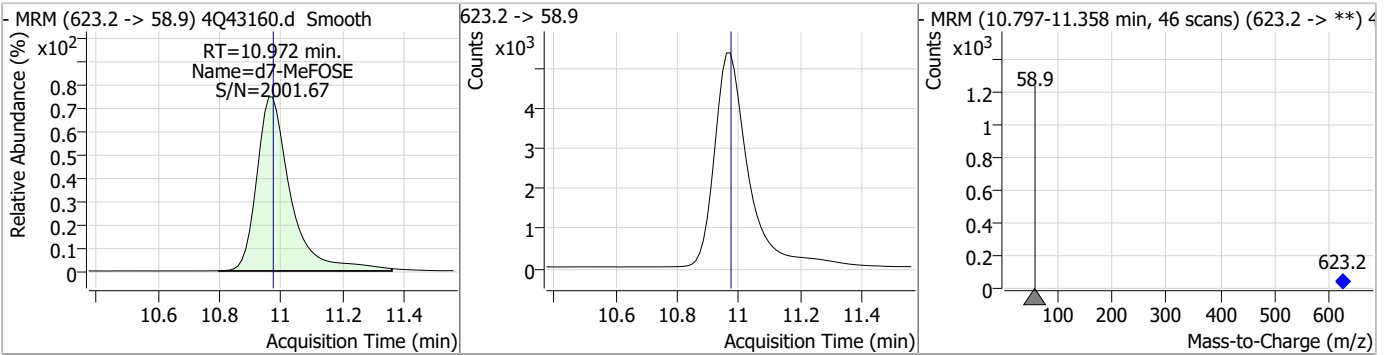


### Perfluorinated Compounds by LC/MS/MS

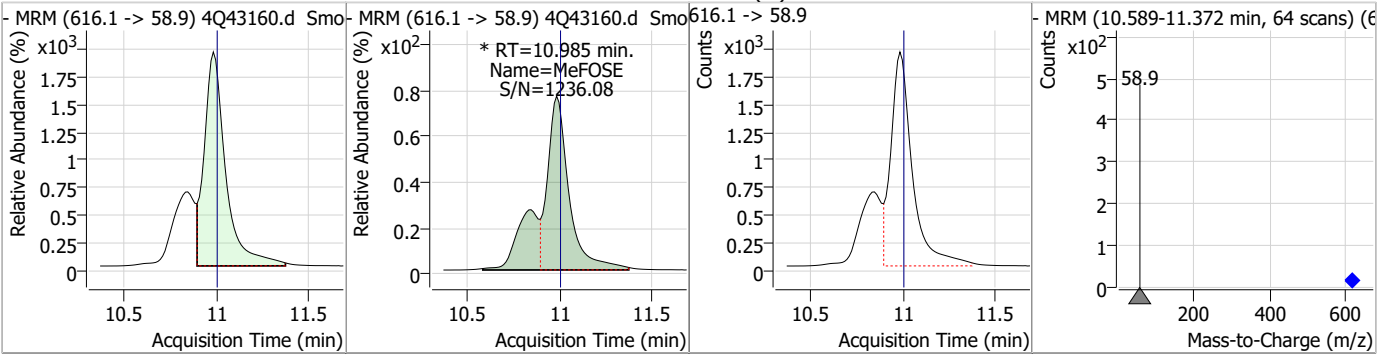
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	2.46	10.13	-0.01	4082	699.1 -> 98.8	57.5	29.9	89.7



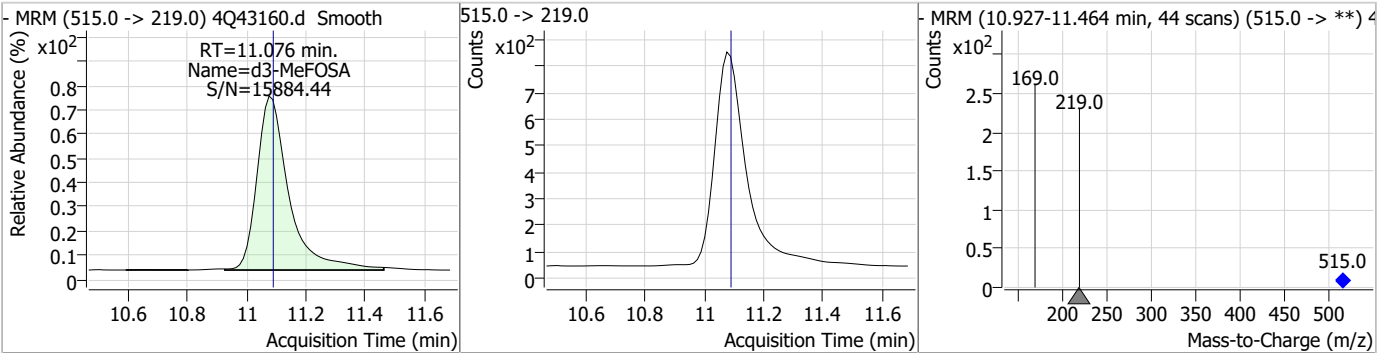
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	18.25	10.97	0.00	40771				



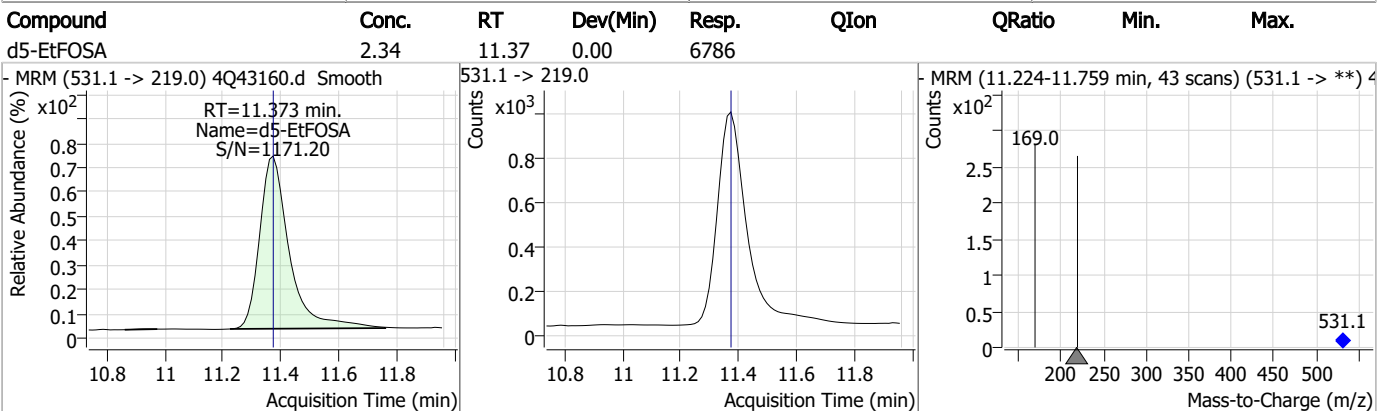
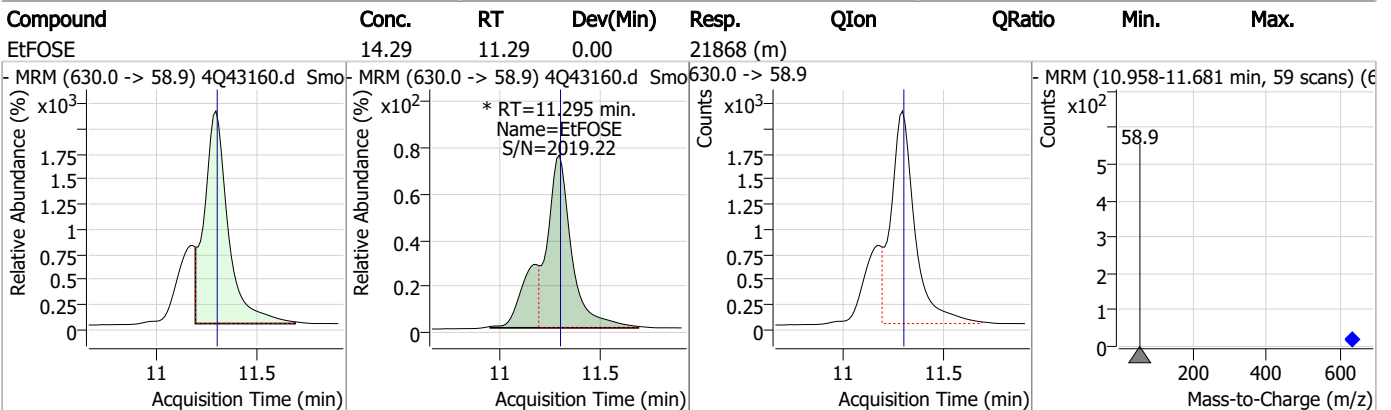
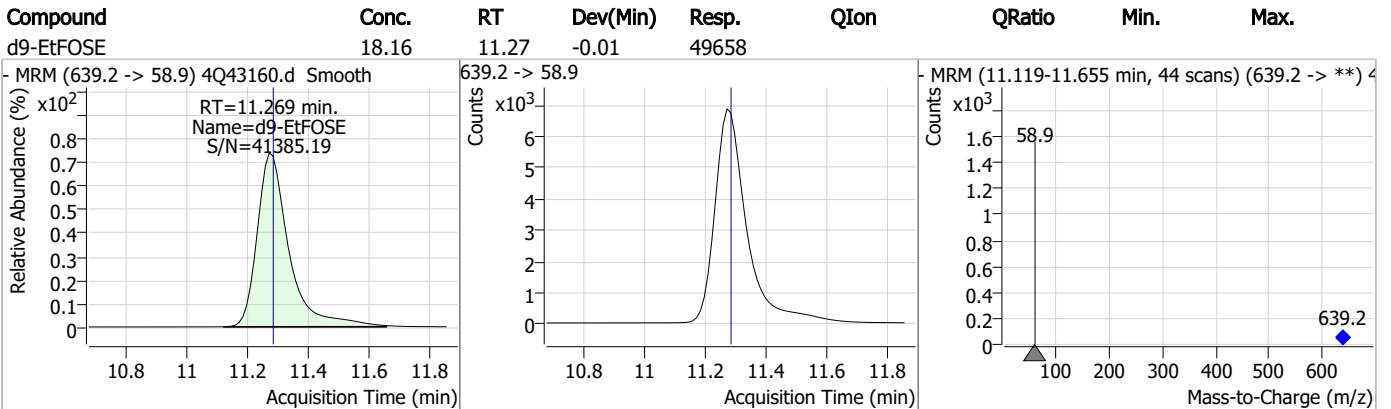
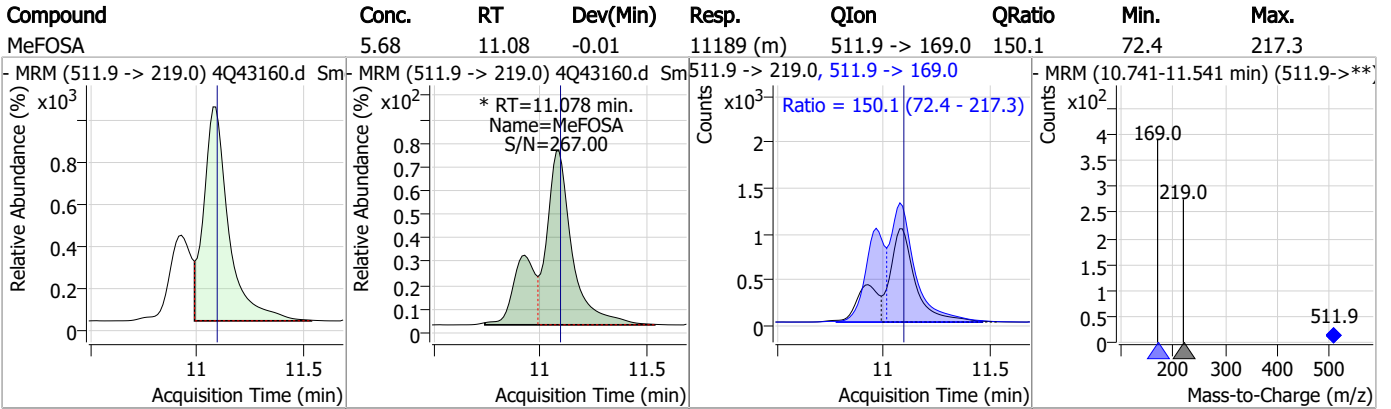
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	14.64	10.99	-0.01	20976 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.27	11.08	-0.01	6094				



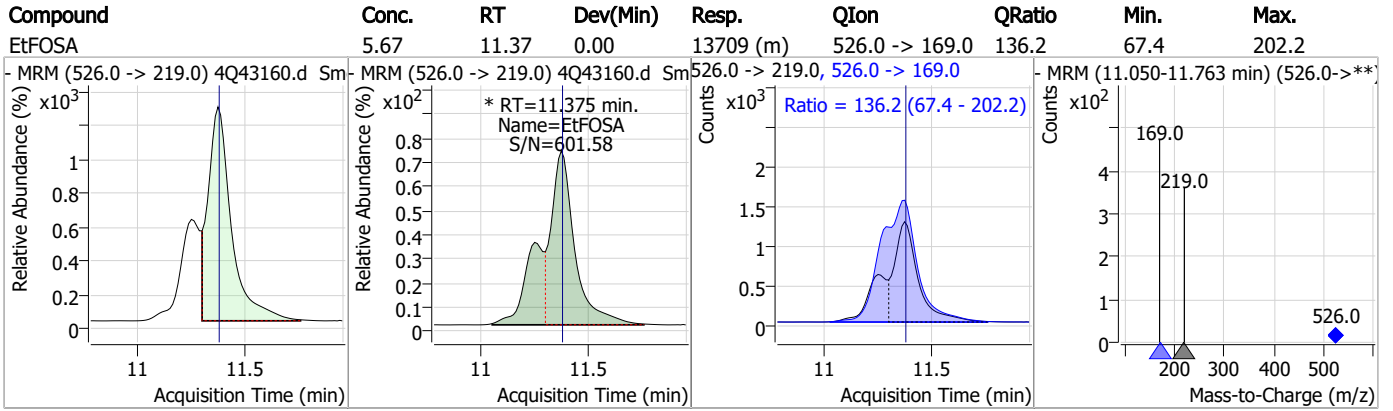
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS



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# Manual Integration Approval Summary

Sample Number: OP96403-MS                      Method: EPA DRAFT 1633  
Lab FileID: 4Q43160.D                      Analyst approved: 04/19/23 14:12 Martha Valls  
Injection Time: 04/18/23 14:04                      Supervisor approved: 04/19/23 16:26 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.32	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.41	Split peak
MeFOSE	24448-09-7		10.98	Split peak
MeFOSA	31506-32-8		11.08	Split peak
EtFOSE	1691-99-2		11.29	Split peak
EtFOSA	4151-50-2		11.38	Split peak

7.4.1.1  
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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43164.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 4/18/2023 3:11:26 PM  
 Sample Name : op96403-dup  
 Vial : P4-C9  
 DA Method File : 1633\_041423\_S4Q621.quantmethod.xml  
 Batch Name : s4q624.batch.bin  
 Sample Information : OP96403,S4q624,570,,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.990	216.8 -> 171.9	57907	10.00 µg/L	0.028
M5-PFPeA	4.437	268.3 -> 223.0	46634	5.00 µg/L	-0.013
M5-PFHxA	5.622	318.0 -> 273.0	48124	2.50 µg/L	0.000
M4-PFHpA	6.555	367.1 -> 322.0	25352	2.50 µg/L	0.000
M8-PFOA	7.213	421.1 -> 376.0	29361	2.50 µg/L	0.000
M9-PFNA	7.771	472.1 -> 427.0	15978	1.25 µg/L	0.012
M6-PFDA	8.265	519.1 -> 474.1	15315	1.25 µg/L	-0.001
M7-PFUnDA	8.747	570.0 -> 525.1	16760	1.25 µg/L	-0.001
M2-PFDoDA	9.193	615.1 -> 570.0	19431	1.25 µg/L	-0.001
M2-PFTeDA	9.998	715.2 -> 670.0	11956	1.25 µg/L	0.011
M8-FOSA	9.845	506.1 -> 77.8	12754	2.50 µg/L	0.011
M3-PFBS	5.527	302.1 -> 79.9	10210	2.50 µg/L	0.000
M3-PFHxS	7.316	402.1 -> 79.9	6341	2.50 µg/L	-0.001
M8-PFOS	8.429	507.1 -> 79.9	9026	2.50 µg/L	0.012
M2-4:2FTS	5.298	329.1 -> 80.9	1314	5.00 µg/L	-0.012
M2-6:2FTS	6.973	429.1 -> 80.9	1790	5.00 µg/L	-0.001
M2-8:2FTS	8.052	529.1 -> 80.9	2816	5.00 µg/L	-0.001
M3-MeFOSAA	8.323	573.2 -> 419.0	13409	5.00 µg/L	-0.001
M3-HFPO-DA	5.989	286.9 -> 168.9	25020	10.00 µg/L	0.000
M5-EtFOSAA	8.545	589.2 -> 419.0	11433	5.00 µg/L	0.011
M7-MeFOSE	10.972	623.2 -> 58.9	41006	25.00 µg/L	-0.002
M9-EtFOSE	11.281	639.2 -> 58.9	48529	25.00 µg/L	-0.001
M5-EtFOSA	11.373	531.1 -> 219.0	6775	2.50 µg/L	-0.001
M3-MeFOSA	11.089	515.0 -> 219.0	6439	2.50 µg/L	-0.002
13C4-PFOS	8.418	502.8 -> 79.9	8733	2.50 µg/L	0.000
13C3-PFBA	2.993	216.0 -> 172.0	37761	5.00 µg/L	0.027
18O2-PFHxS	7.315	403.0 -> 83.9	4033	2.50 µg/L	-0.001
13C4-PFOA	7.214	417.1 -> 372.0	33249	2.50 µg/L	0.000
13C2-PFDA	8.265	515.1 -> 470.1	13541	1.25 µg/L	-0.001
13C5-PFNA	7.759	468.0 -> 423.0	16882	1.25 µg/L	-0.001
13C2-PFHxA	5.623	315.1 -> 270.0	37445	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.298	329.1 -> 80.9	1314	5.97 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.3%		
13C2-6:2FTS	6.973	429.1 -> 80.9	1790	5.66 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.2%		
13C2-8:2FTS	8.052	529.1 -> 80.9	2816	5.41 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.3%		
13C2-PFDoDA	9.193	615.1 -> 570.0	19431	1.17 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.2%		
13C2-PFTeDA	9.998	715.2 -> 670.0	11956	0.92 µg/L	0.011
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 73.7%		
13C3-PFBS	5.527	302.1 -> 79.9	10210	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.2%		
13C3-PFHxS	7.316	402.1 -> 79.9	6341	2.84 µg/L	-0.001

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

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 113.6%		
13C4-PFBA	2.990	216.8 -> 171.9	57907	8.81 µg/L	0.028
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 88.1%		
13C4-PFHpA	6.555	367.1 -> 322.0	25352	2.98 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 119.3%		
13C5-PFHxA	5.622	318.0 -> 273.0	48124	2.78 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.3%		
13C5-PFPeA	4.437	268.3 -> 223.0	46634	4.23 µg/L	-0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 84.5%		
13C6-PFDA	8.265	519.1 -> 474.1	15315	1.29 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C7-PFUnDA	8.747	570.0 -> 525.1	16760	1.30 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C8-FOSA	9.845	506.1 -> 77.8	12754	2.23 µg/L	0.011
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 89.3%		
13C8-PFOA	7.213	421.1 -> 376.0	29361	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.3%		
13C8-PFOS	8.429	507.1 -> 79.9	9026	2.67 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.6%		
13C9-PFNA	7.771	472.1 -> 427.0	15978	1.30 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.9%		
d3-MeFOSAA	8.323	573.2 -> 419.0	13409	5.21 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C3-HFPO-DA	5.989	286.9 -> 168.9	25020	9.52 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 95.2%		
d3-MeFOSA	11.089	515.0 -> 219.0	6439	2.38 µg/L	-0.002
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.3%		
d5-EtFOSAA	8.545	589.2 -> 419.0	11433	5.47 µg/L	0.011
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.4%		
d7-MeFOSE	10.972	623.2 -> 58.9	41006	18.21 µg/L	-0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 72.8%		
d9-EtFOSE	11.281	639.2 -> 58.9	48529	17.61 µg/L	-0.001
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 70.4%		
d5-EtFOSA	11.373	531.1 -> 219.0	6775	2.32 µg/L	-0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.8%		
<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	3.046	212.8 -> 168.9	0	µg/L m	1
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.	

7.5.1  
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	5.625	449.0 -> 98.9	851	0.06 µg/L	#m	95
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	41	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	4.526	498.9 -> 98.8	0	µg/L	m	1
		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	4.230	241.0 -> 177.0	0	µg/L	m	1
		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

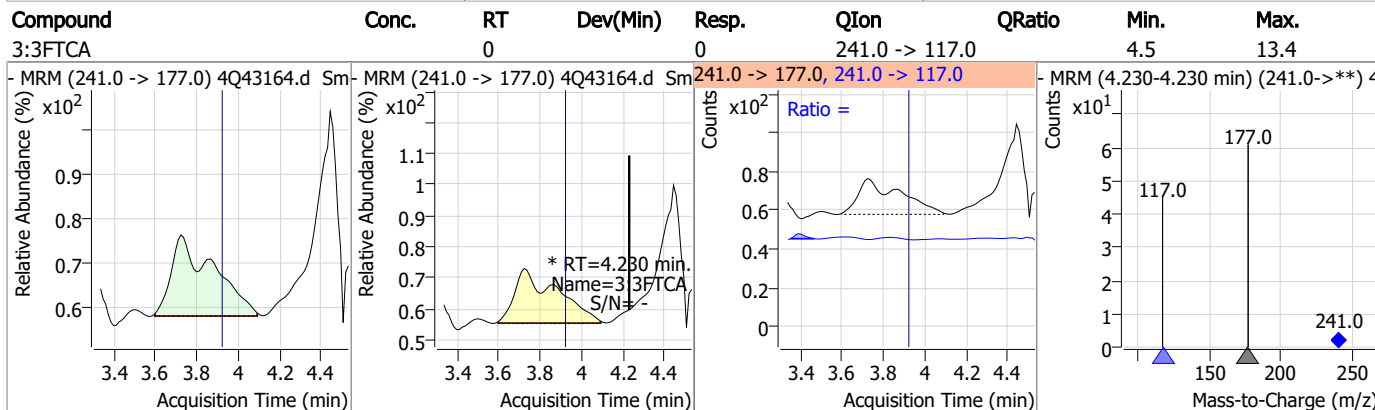
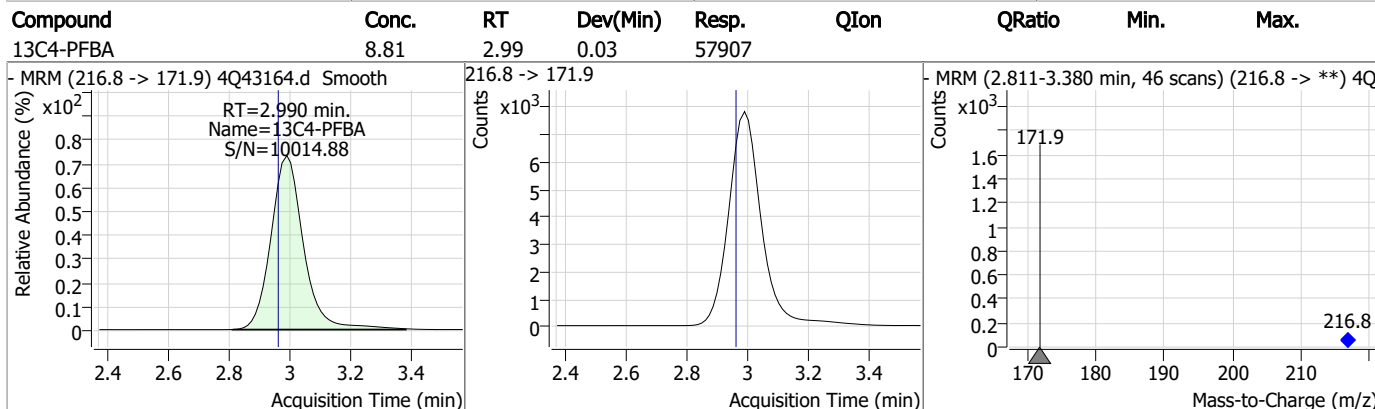
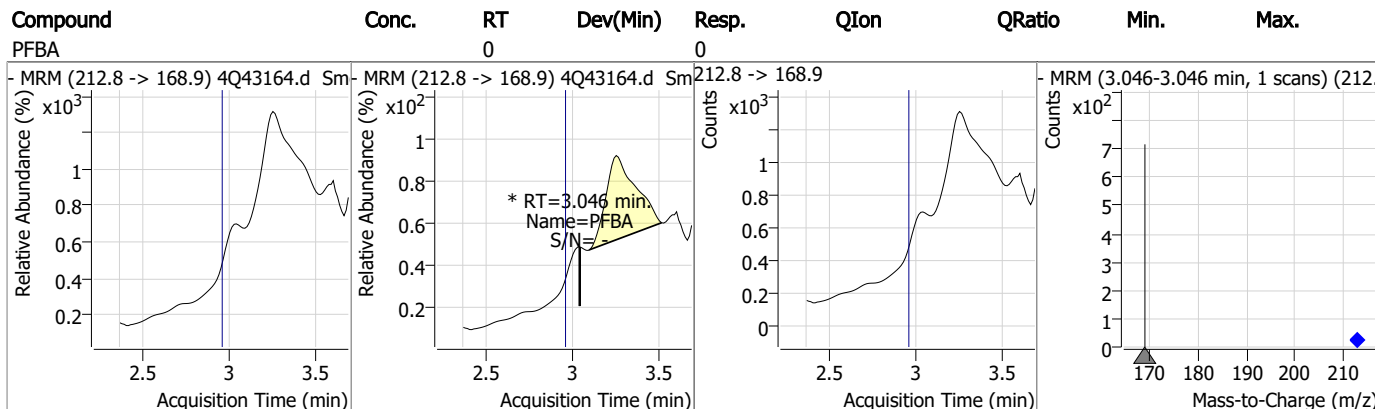
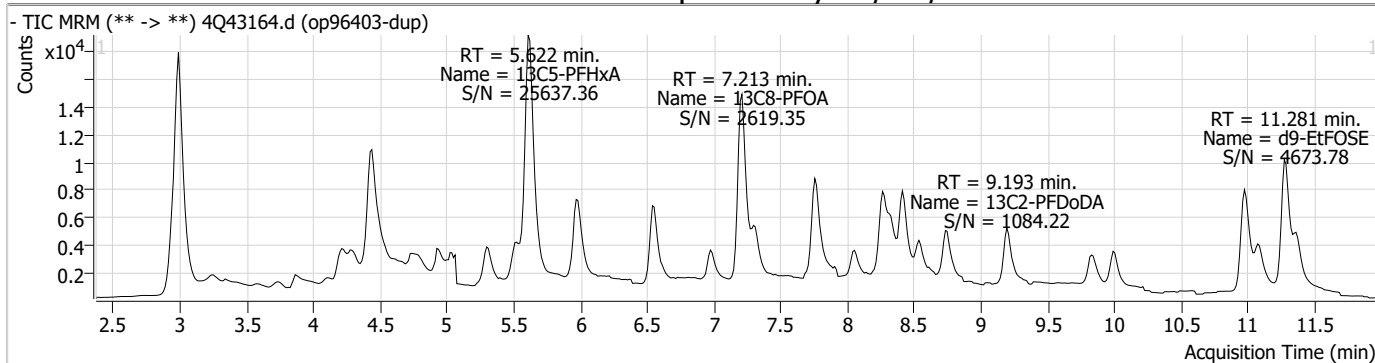
### Perfluorinated Compounds by LC/MS/MS

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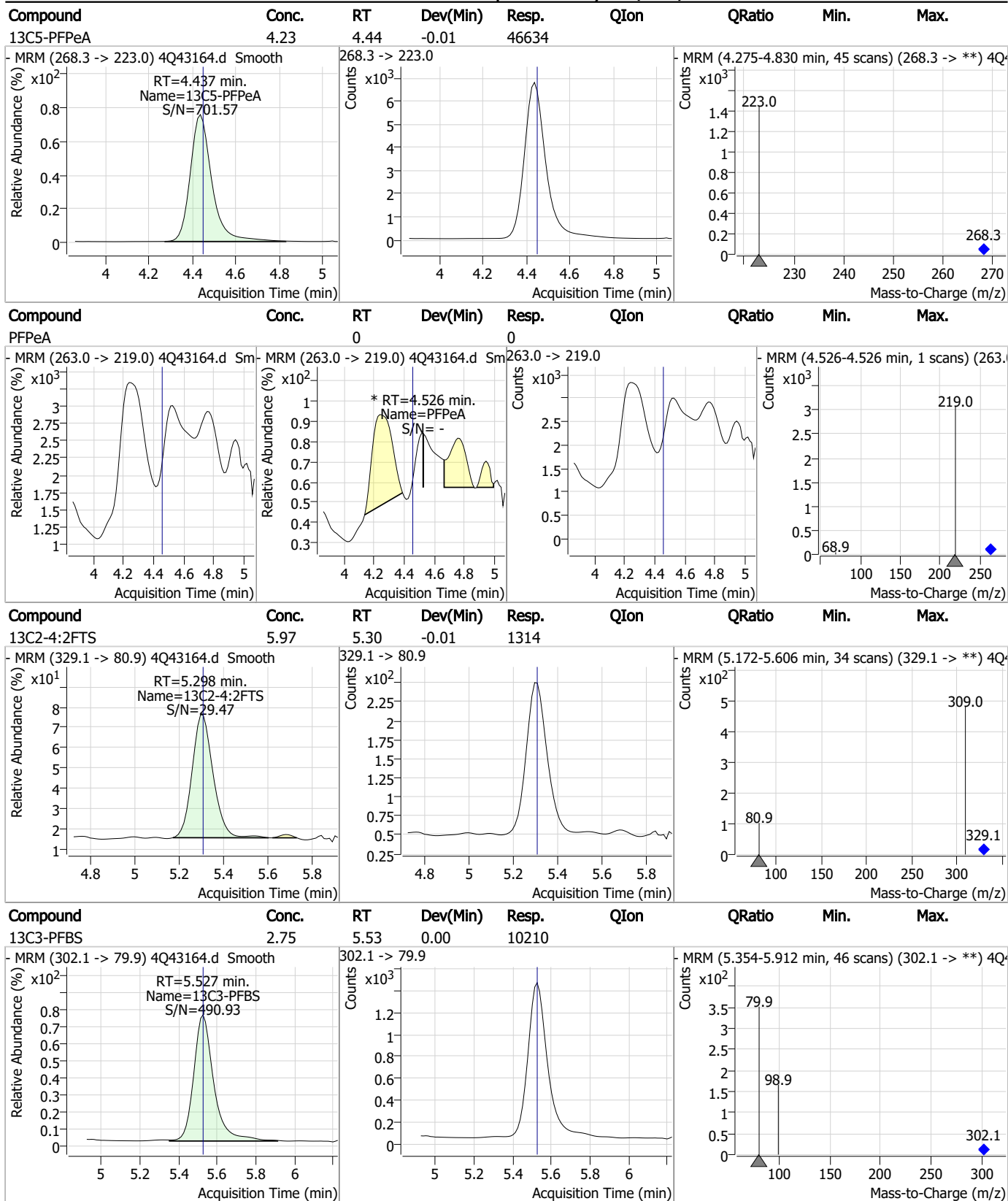
7.5.1

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### Perfluorinated Compounds by LC/MS/MS

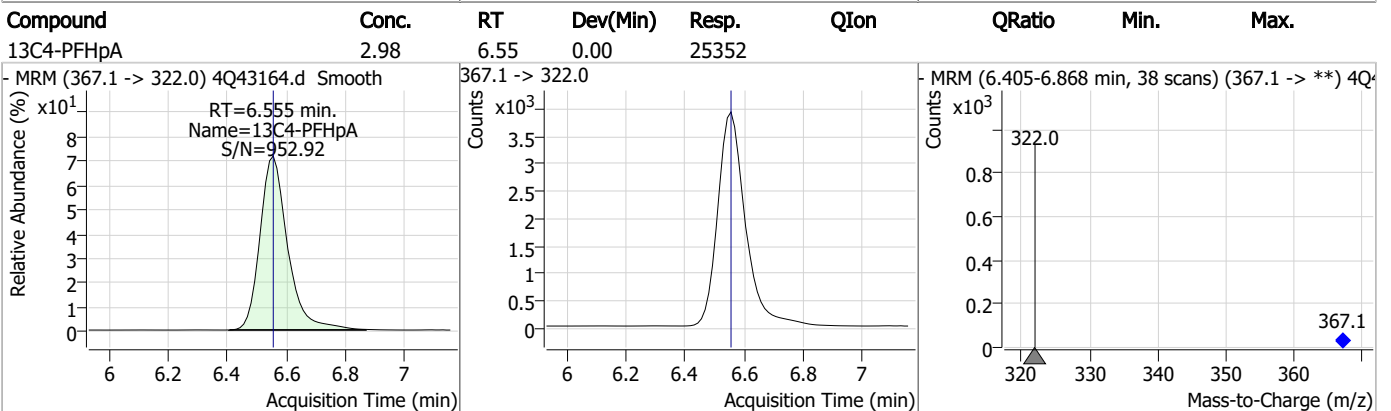
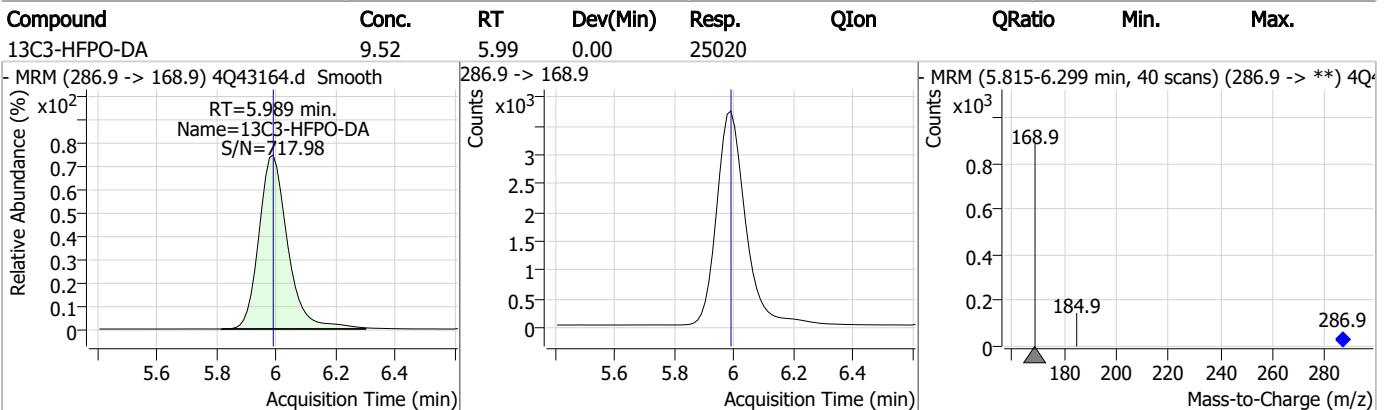
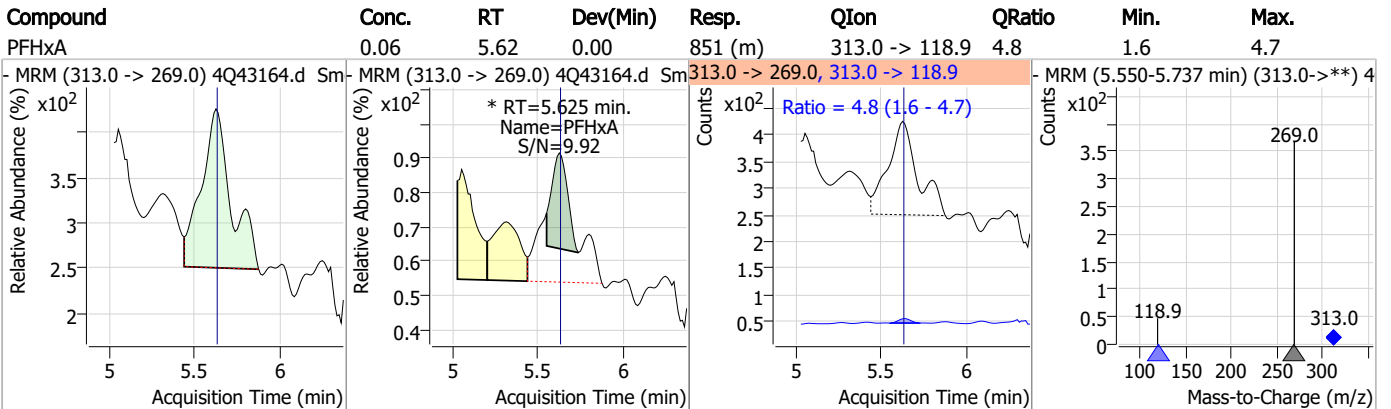
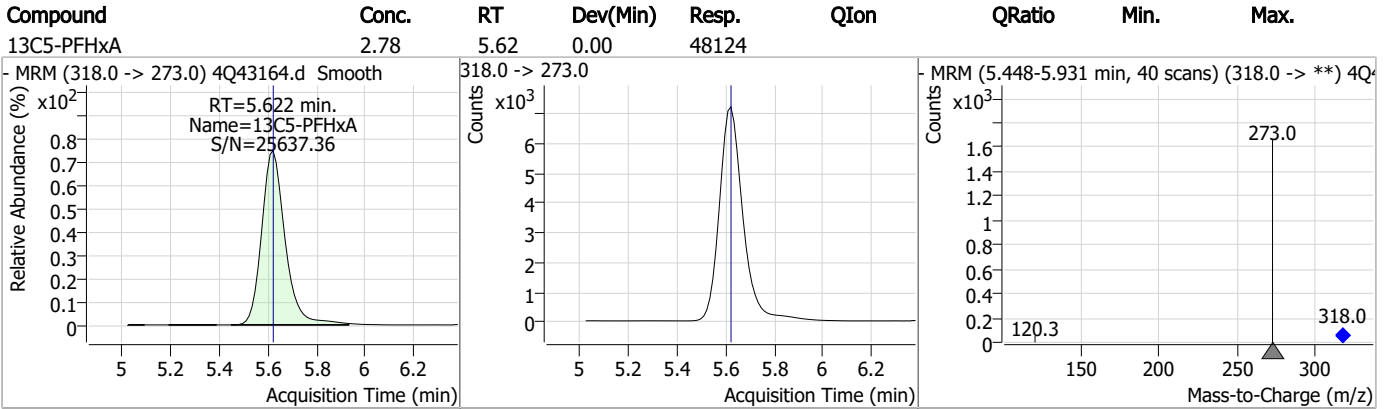


### Perfluorinated Compounds by LC/MS/MS



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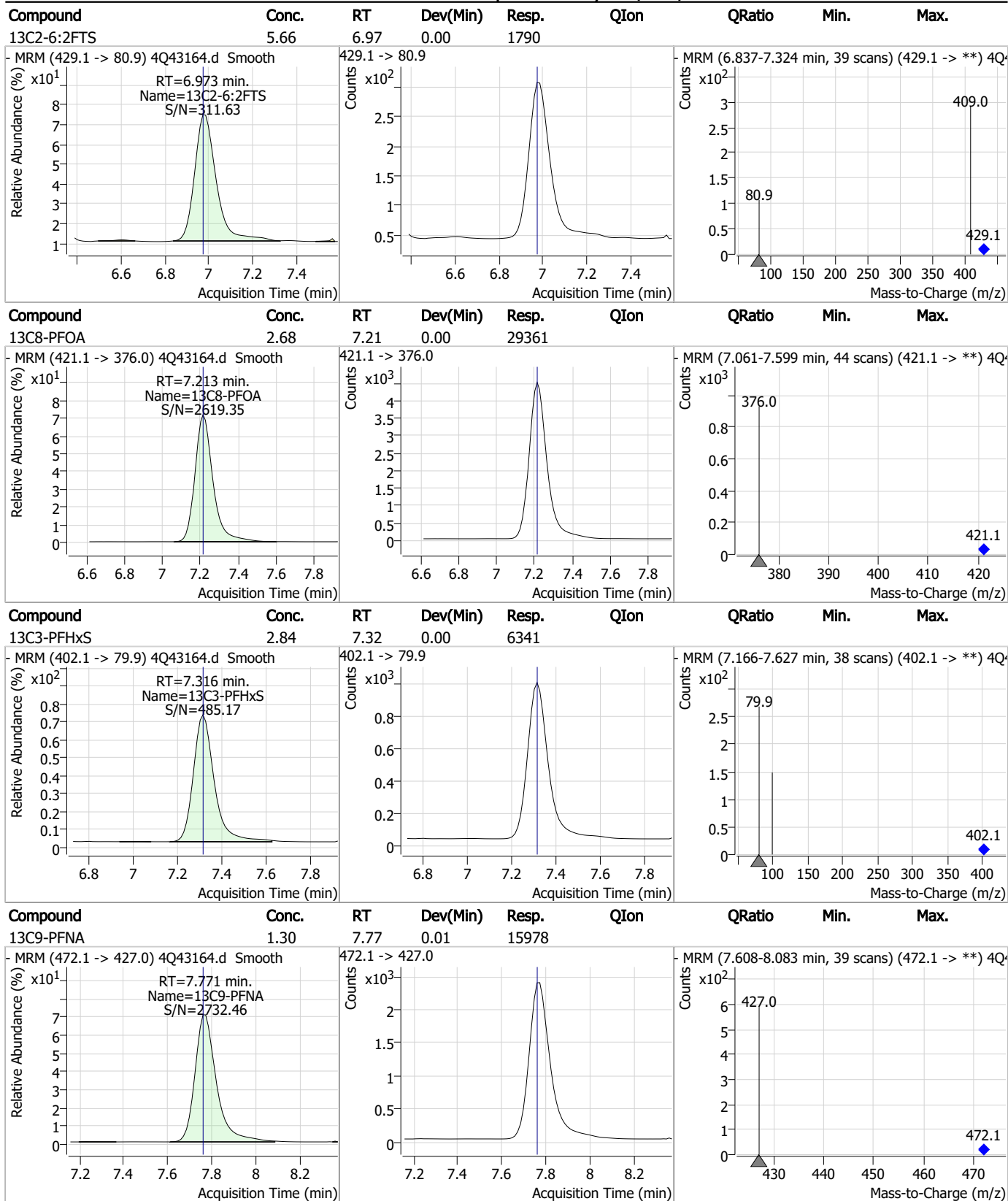
### Perfluorinated Compounds by LC/MS/MS



7.5.1

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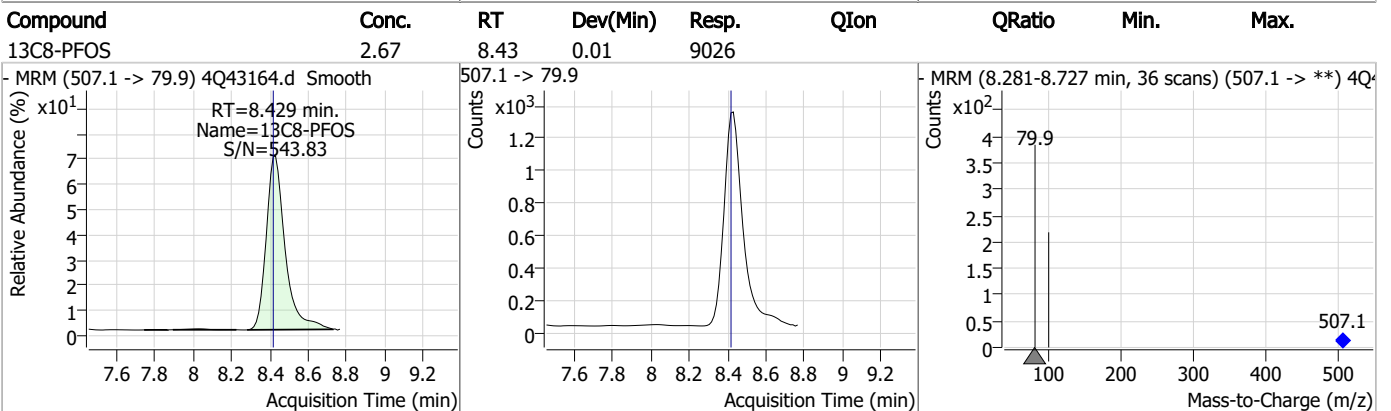
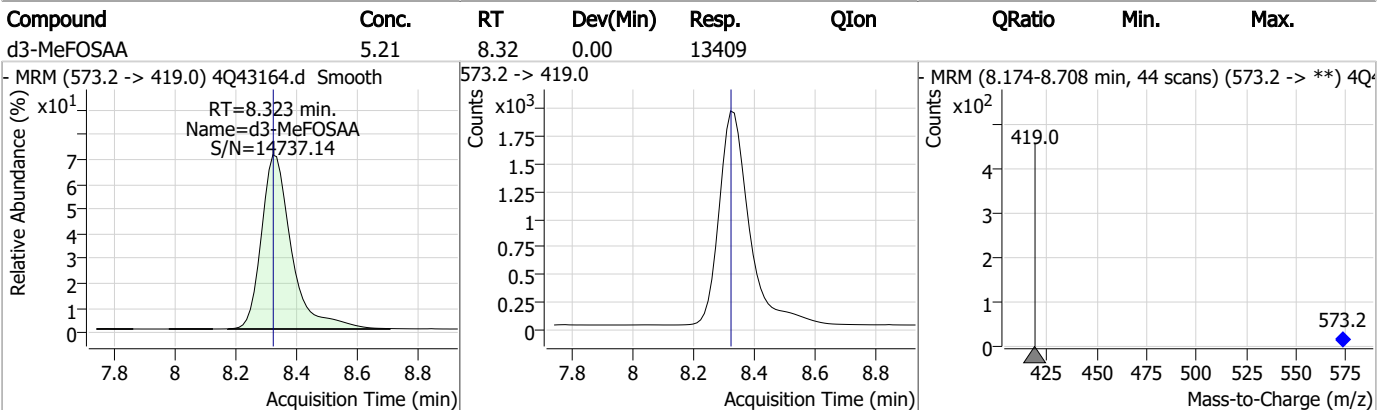
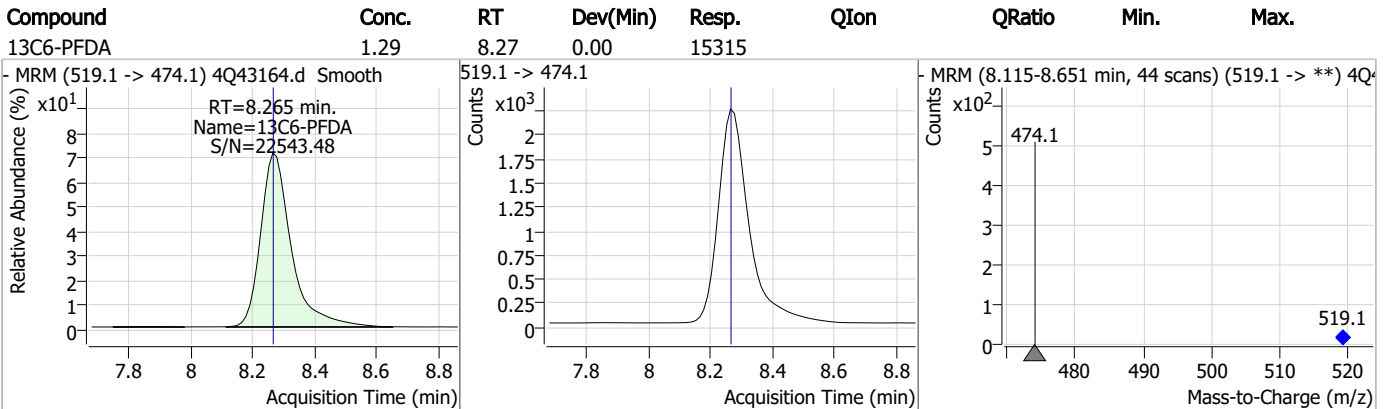
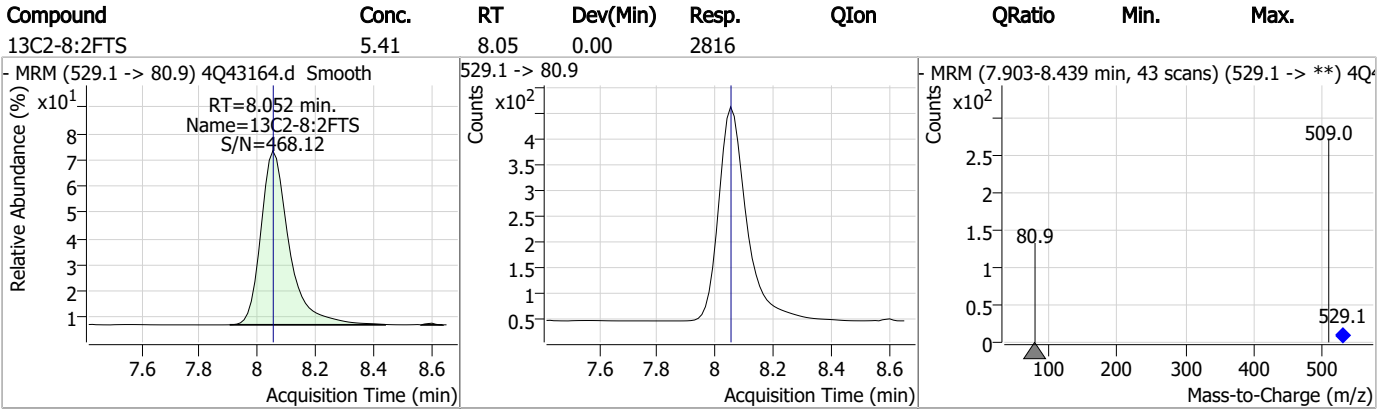
### Perfluorinated Compounds by LC/MS/MS



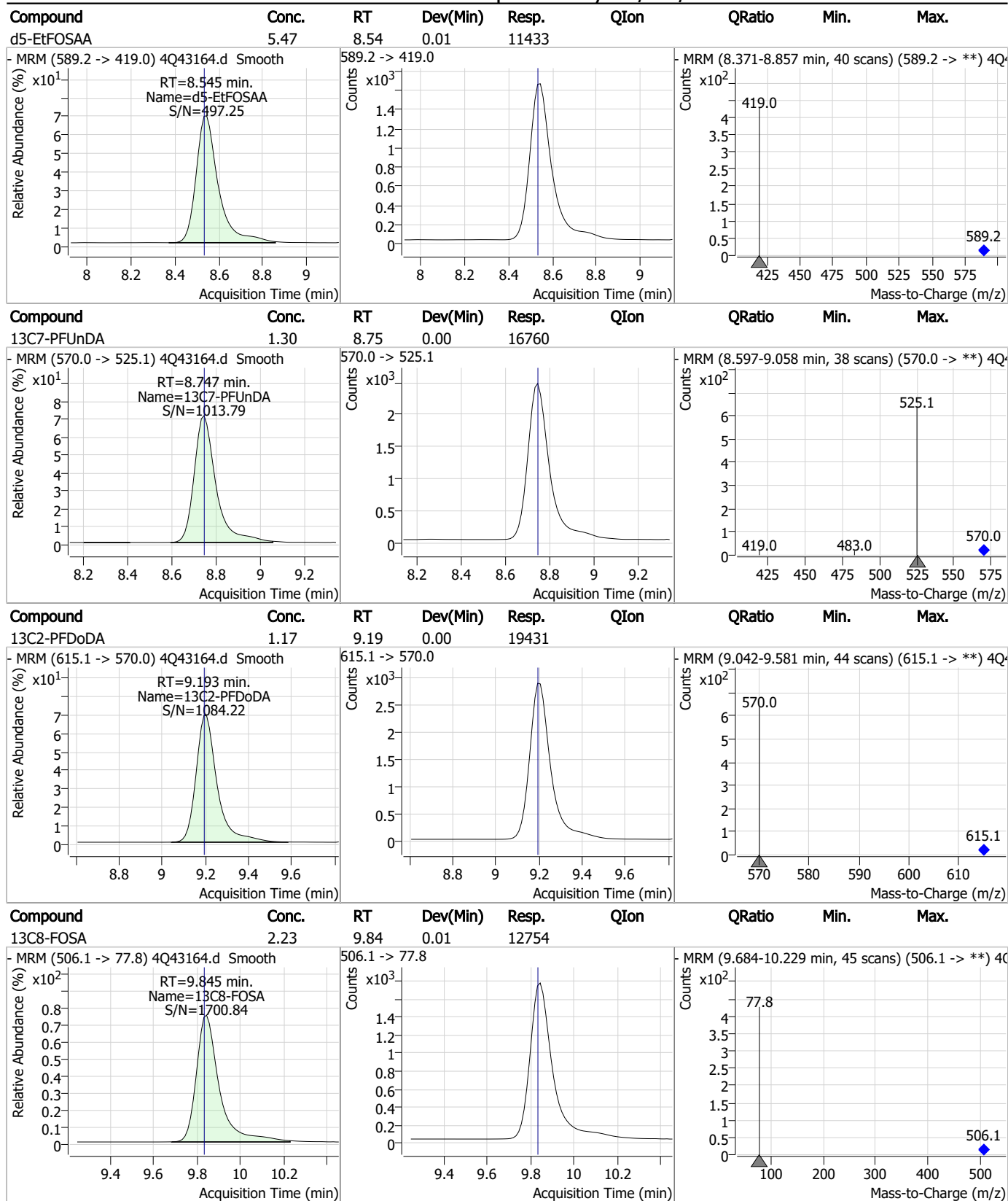
7.5.1

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### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

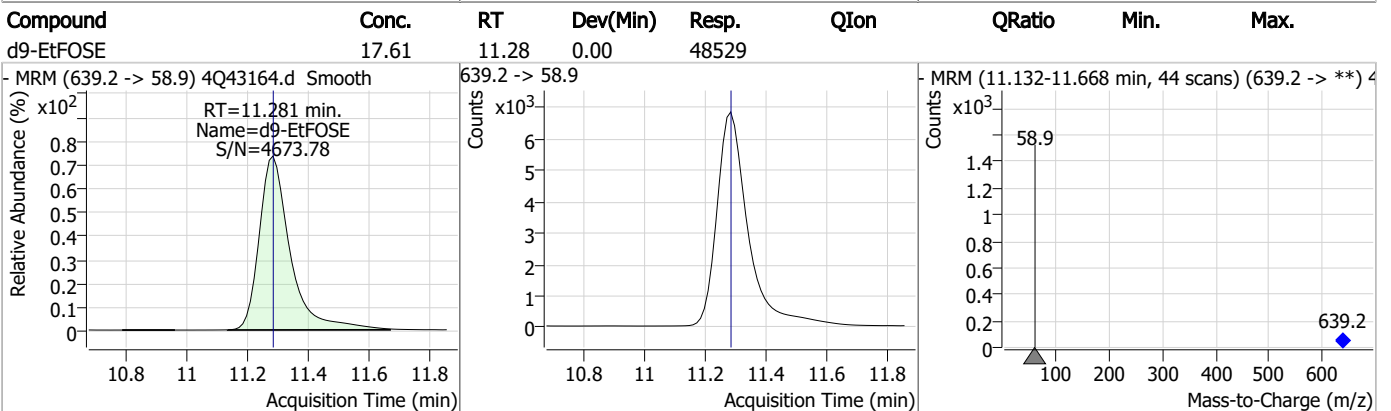
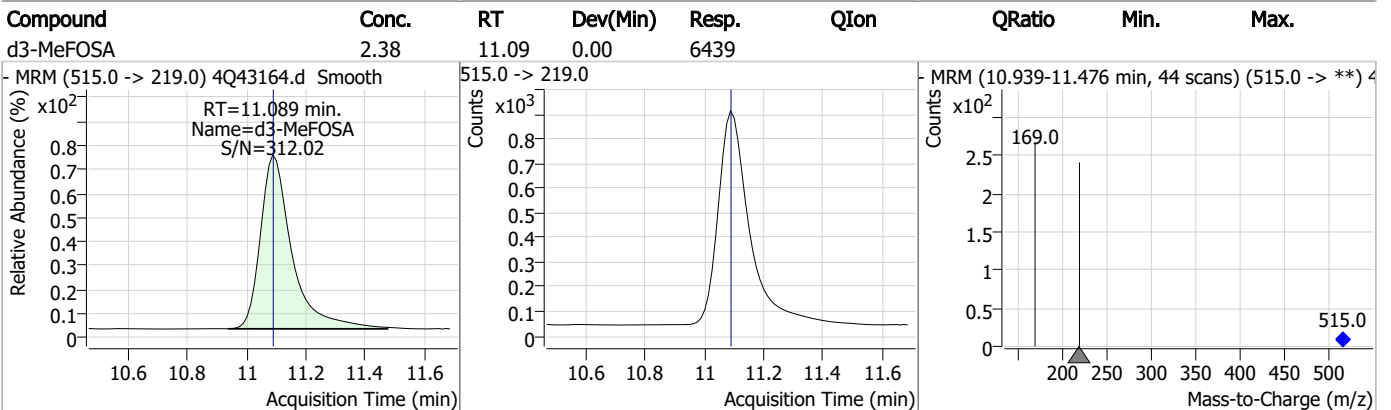
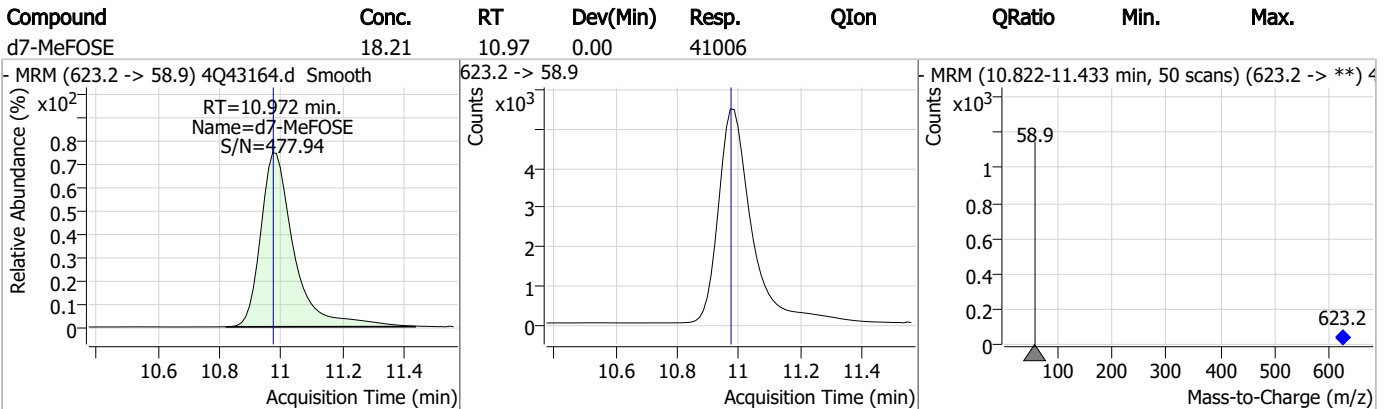
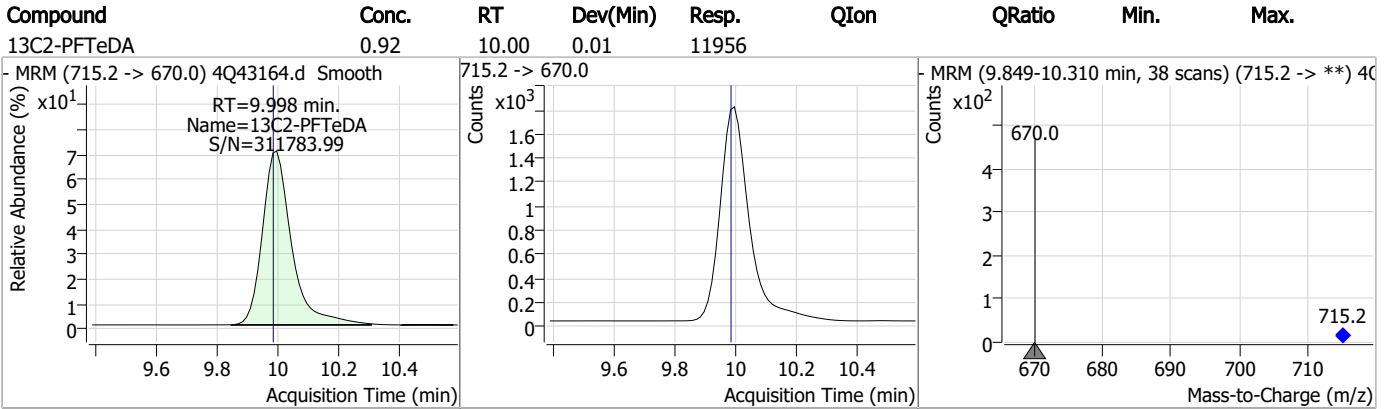


7.5.1

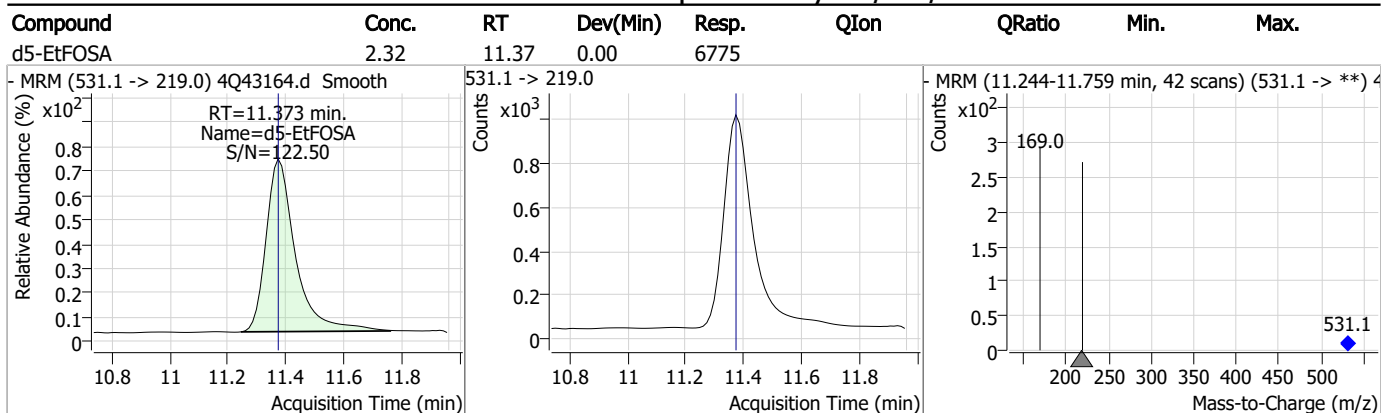
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### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



7.5.1

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# Manual Integration Approval Summary

Sample Number: OP96403-DUP                      Method: EPA DRAFT 1633  
Lab FileID: 4Q43164.D                      Analyst approved: 04/19/23 17:31 Norman Farmer  
Injection Time: 04/18/23 15:11                      Supervisor approved: 04/19/23 17:32 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanoic acid	307-24-4		5.62	Poorly defined baseline

7.5.1.1

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Perfluorinated Compounds by LC/MS/MS

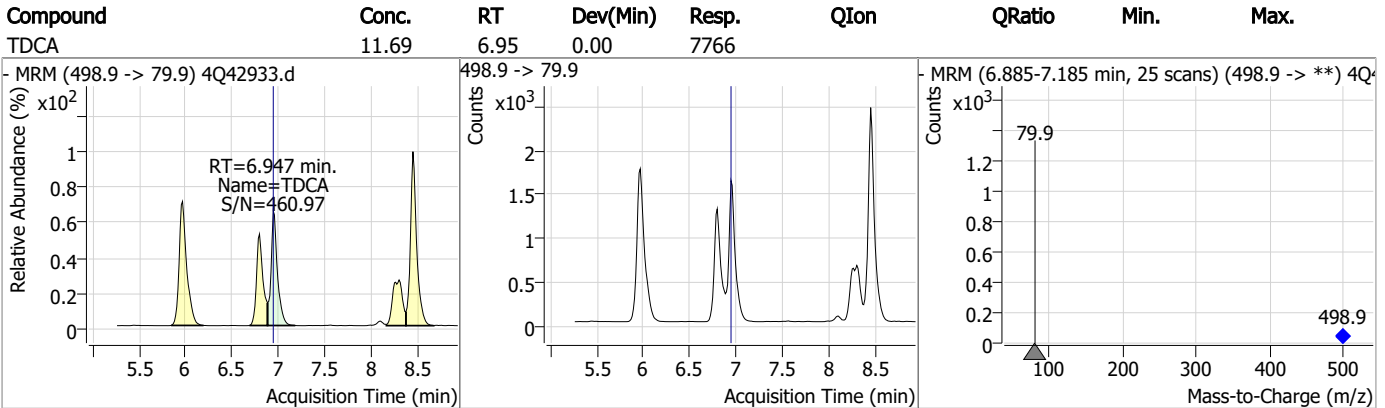
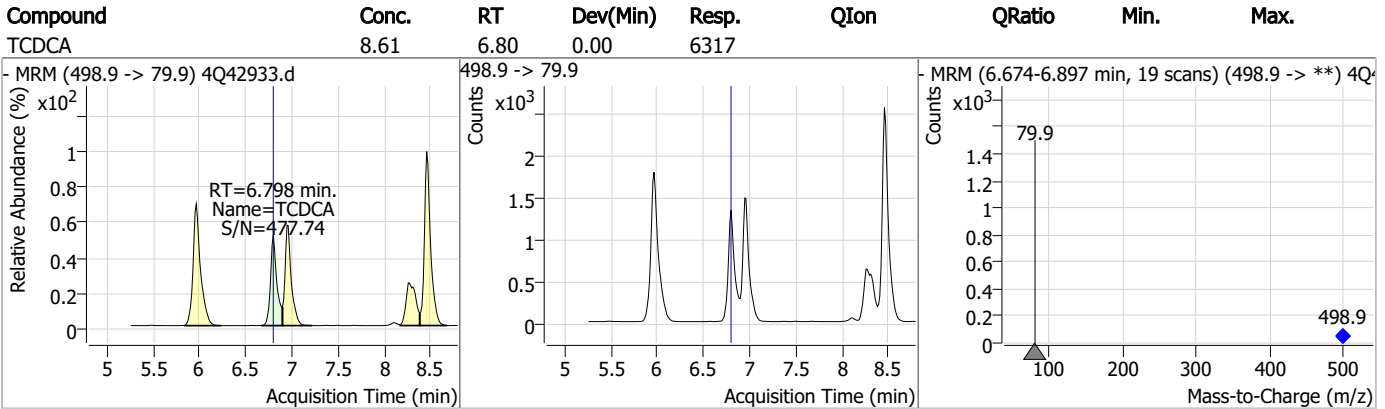
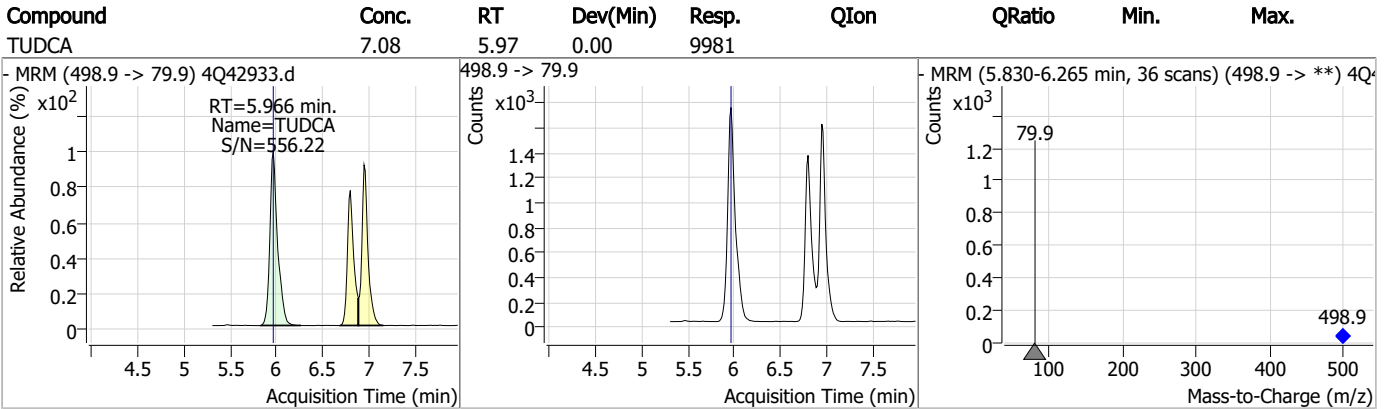
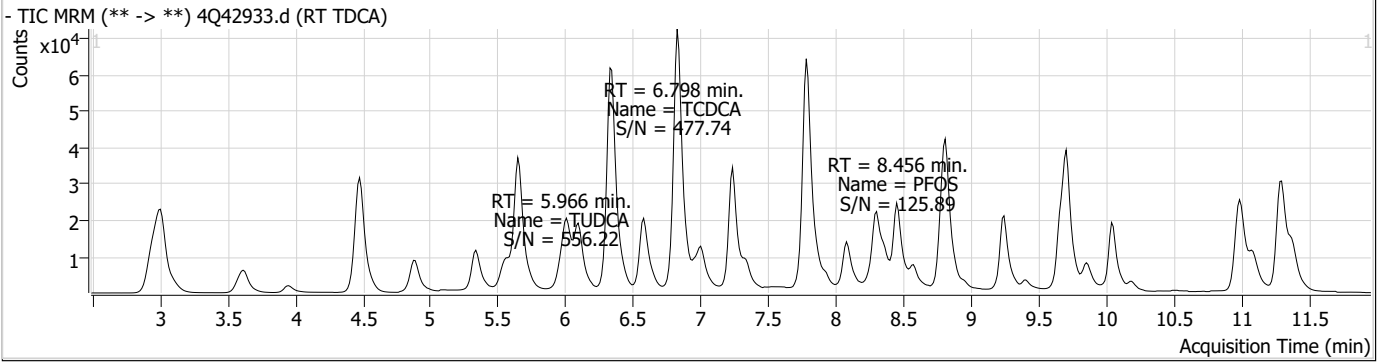
Data File : 4Q42933.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 4/14/2023 11:07:46 AM  
 Sample Name : RT TDCA  
 Vial : P1-B3  
 DA Method File : TDCA.quantmethod.xml  
 Batch Name : s4q621 TDCA.batch.bin  
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
<b>Internal Standards</b>							
M8-PFOS	8.467	507.1 -> 79.9	15897	2.50	µg/L	0.000	
13C4-PFOS	8.455	502.8 -> 79.9	16267	2.50	µg/L	0.000	
<b>System Monitoring Compounds</b>							
13C8-PFOS	8.467	507.1 -> 79.9	15897	2.48	µg/L	0.000	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.1%				
<b>Target Compounds</b>							
PFOS	8.456	498.9 -> 79.9 498.9 -> 98.8	16177 8244	2.98	µg/L m		89
TCDCa	6.798	498.9 -> 79.9	6317	8.61	ng/ml		100
TDCA	6.947	498.9 -> 79.9	7766	11.69	ng/ml		100
TUDCA	5.966	498.9 -> 79.9	9981	7.08	ng/ml		100

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

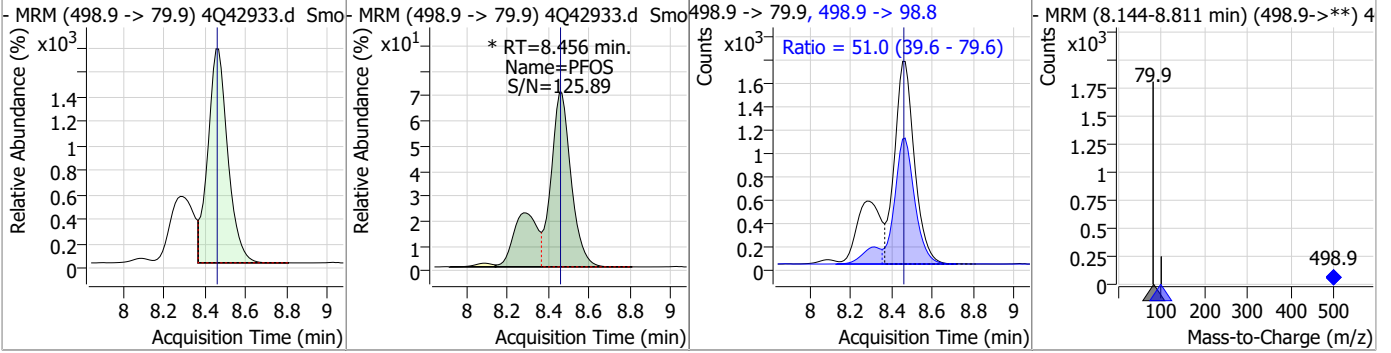
7.6.1  
7

### Perfluorinated Compounds by LC/MS/MS

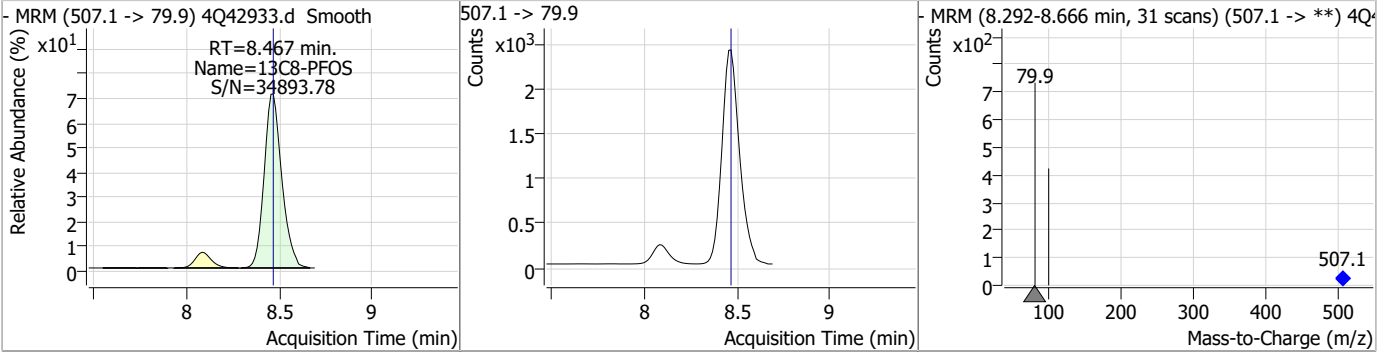


### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.98	8.46	0.00	16177 (m)	498.9 -> 98.8	51.0	39.6	79.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.48	8.47	0.00	15897				



7.6.1

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# Manual Integration Approval Summary

Sample Number: S4Q621-RT                      Method: EPA DRAFT 1633  
Lab FileID: 4Q42933.D                      Analyst approved: 04/16/23 19:11 Martha Valls  
Injection Time: 04/14/23 11:07                      Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.46	Split peak

7.6.1.1

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## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42934.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 4/14/2023 11:21:49 AM  
 Sample Name : RT BR-LN  
 Vial : P1-B4  
 DA Method File : 1633\_041423\_S4Q621.quantmethod.xml  
 Batch Name : s4q621.batch.bin  
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.999	216.8 -> 171.9	92046	10.00 µg/L	0.000
M5-PFPeA	4.475	268.3 -> 223.0	74095	5.00 µg/L	0.000
M5-PFHxA	5.646	318.0 -> 273.0	56616	2.50 µg/L	0.000
M4-PFHpA	6.580	367.1 -> 322.0	28736	2.50 µg/L	0.000
M8-PFOA	7.237	421.1 -> 376.0	34976	2.50 µg/L	0.000
M9-PFNA	7.797	472.1 -> 427.0	20317	1.25 µg/L	0.000
M6-PFDA	8.303	519.1 -> 474.1	20288	1.25 µg/L	0.000
M7-PFUnDA	8.785	570.0 -> 525.1	19564	1.25 µg/L	0.000
M2-PFDoDA	9.243	615.1 -> 570.0	27933	1.25 µg/L	0.000
M2-PFTeDA	10.036	715.2 -> 670.0	20352	1.25 µg/L	0.000
M8-FOSA	9.870	506.1 -> 77.8	17843	2.50 µg/L	0.000
M3-PFBS	5.564	302.1 -> 79.9	12663	2.50 µg/L	0.000
M3-PFHxS	7.341	402.1 -> 79.9	7360	2.50 µg/L	0.000
M8-PFOS	8.467	507.1 -> 79.9	10515	2.50 µg/L	0.000
M2-4:2FTS	5.335	329.1 -> 80.9	1515	5.00 µg/L	0.000
M2-6:2FTS	6.998	429.1 -> 80.9	2178	5.00 µg/L	0.000
M2-8:2FTS	8.090	529.1 -> 80.9	4080	5.00 µg/L	0.000
M3-MeFOSAA	8.360	573.2 -> 419.0	16839	5.00 µg/L	0.000
M3-HFPO-DA	6.014	286.9 -> 168.9	36471	10.00 µg/L	0.000
M5-EtFOSAA	8.570	589.2 -> 419.0	13902	5.00 µg/L	0.000
M7-MeFOSE	10.985	623.2 -> 58.9	66941	25.00 µg/L	0.000
M9-EtFOSE	11.282	639.2 -> 58.9	85392	25.00 µg/L	0.000
M5-EtFOSA	11.386	531.1 -> 219.0	9291	2.50 µg/L	0.000
M3-MeFOSA	11.102	515.0 -> 219.0	8448	2.50 µg/L	0.000
13C4-PFOS	8.467	502.8 -> 79.9	10411	2.50 µg/L	0.000
13C3-PFBA	2.991	216.0 -> 172.0	56214	5.00 µg/L	0.000
18O2-PFHxS	7.340	403.0 -> 83.9	5465	2.50 µg/L	0.000
13C4-PFOA	7.237	417.1 -> 372.0	41449	2.50 µg/L	0.000
13C2-PFDA	8.303	515.1 -> 470.1	18081	1.25 µg/L	0.000
13C5-PFNA	7.797	468.0 -> 423.0	20749	1.25 µg/L	0.000
13C2-PFHxA	5.647	315.1 -> 270.0	50284	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.335	329.1 -> 80.9	1515	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C2-6:2FTS	6.998	429.1 -> 80.9	2178	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C2-8:2FTS	8.090	529.1 -> 80.9	4080	5.79 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.7%		
13C2-PFDoDA	9.243	615.1 -> 570.0	27933	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C2-PFTeDA	10.036	715.2 -> 670.0	20352	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.0%		
13C3-PFBS	5.564	302.1 -> 79.9	12663	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C3-PFHxS	7.341	402.1 -> 79.9	7360	2.43 µg/L	0.000

7.6.2  
7



## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C4-PFBA	2.999	216.8 -> 171.9	92046	9.40 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.0%	
13C4-PFHpA	6.580	367.1 -> 322.0	28736	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C5-PFHxA	5.646	318.0 -> 273.0	56616	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C5-PFPeA	4.475	268.3 -> 223.0	74095	5.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C6-PFDA	8.303	519.1 -> 474.1	20288	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C7-PFUnDA	8.785	570.0 -> 525.1	19564	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.6%	
13C8-FOSA	9.870	506.1 -> 77.8	17843	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C8-PFOA	7.237	421.1 -> 376.0	34976	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C8-PFOS	8.467	507.1 -> 79.9	10515	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C9-PFNA	7.797	472.1 -> 427.0	20317	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.5%	
d3-MeFOSAA	8.360	573.2 -> 419.0	16839	5.49 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.8%	
13C3-HFPO-DA	6.014	286.9 -> 168.9	36471	10.33 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.3%	
d3-MeFOSA	11.102	515.0 -> 219.0	8448	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.8%	
d5-EtFOSAA	8.570	589.2 -> 419.0	13902	5.58 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 111.6%	
d7-MeFOSE	10.985	623.2 -> 58.9	66941	24.93 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
d9-EtFOSE	11.282	639.2 -> 58.9	85392	25.99 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.0%	
d5-EtFOSA	11.386	531.1 -> 219.0	9291	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.7%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.336	327.1 -> 307.0	108196	57.28 µg/L	100
		327.1 -> 80.9	43879		
6:2FTS	6.998	427.1 -> 407.0	88174	59.28 µg/L	100
		427.1 -> 80.9	37341		
8:2FTS	8.090	527.1 -> 507.0	104865	57.33 µg/L	100
		527.1 -> 80.8	41461		
EtFOSAA	8.583	584.2 -> 419.1	32283	15.55 µg/L	m 87
		584.2 -> 526.0	14863		
FOSA	9.861	498.1 -> 77.9	197227	34.33 µg/L	m 100
		498.1 -> 478.0	5443		
MeFOSAA	8.361	570.1 -> 419.0	35797	15.43 µg/L	m 90
		570.1 -> 483.0	7124		
PFBA	2.995	212.8 -> 168.9	131767	62.68 µg/L	100
PFBS	5.565	298.7 -> 79.9	59395	12.57 µg/L	100
		298.7 -> 98.8	22824		
PFDA	8.304	512.9 -> 469.0	161174	13.89 µg/L	100
		512.9 -> 219.0	31178		
PFDoDA	9.244	613.1 -> 569.0	260313	14.78 µg/L	100
		613.1 -> 319.0	36532		
PFDS	9.409	599.0 -> 79.9	33829	14.39 µg/L	100

7.6.2  
7

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.580	599.0 -> 98.8	16401	15.43	µg/L	100
		363.1 -> 319.0	221231			
PFHpS	7.936	363.1 -> 169.0	38658	14.44	µg/L	100
		449.0 -> 79.9	39516			
PFHxA	5.649	449.0 -> 98.9	20540	15.04	µg/L	100
		313.0 -> 269.0	252130			
PFHxS	7.342	313.0 -> 118.9	7499	13.43	µg/L	m
		398.7 -> 79.9	33870			
PFNA	7.659	398.7 -> 98.9	16778	28.59	µg/L	m
		463.0 -> 419.0	310533			
PFNS	8.961	463.0 -> 219.0	81533	13.92	µg/L	100
		548.8 -> 79.9	22523			
PFOA	7.238	548.8 -> 98.9	11580	30.41	µg/L	m
		413.0 -> 369.0	496946			
PFOS	8.468	413.0 -> 169.0	103781	13.53	µg/L	m
		498.9 -> 79.9	55388			
PFPeA	4.477	498.9 -> 98.8	28068	28.83	µg/L	100
		263.0 -> 219.0	404422			
PFPeS	6.619	349.1 -> 79.9	30978	14.43	µg/L	100
		349.1 -> 98.9	13212			
PFTeDA	10.037	713.1 -> 669.0	247206	15.43	µg/L	100
		713.1 -> 168.9	19772			
PFTrDA	9.666	663.0 -> 619.0	317820	14.00	µg/L	100
		663.0 -> 168.9	30774			
PFUnDA	8.785	563.1 -> 519.0	171152	15.47	µg/L	100
		563.1 -> 269.1	33306			
11Cl-PF3OUdS	9.705	630.9 -> 450.9	251859	26.46	µg/L	100
		632.9 -> 452.9	78861			
9Cl-PF3ONS	8.825	530.8 -> 351.0	278388	26.18	µg/L	100
		532.8 -> 353.0	85497			
ADONA	6.831	376.9 -> 250.9	590183	26.94	µg/L	100
		376.9 -> 84.8	157955			
HFPO-DA	6.015	284.9 -> 168.9	81268	28.12	µg/L	100
		284.9 -> 184.9	10073			
3:3FTCA	3.954	241.0 -> 177.0	45444	69.54	µg/L	100
		241.0 -> 117.0	4355			
5:3FTCA	6.345	341.0 -> 237.1	875683	369.97	µg/L	100
		341.0 -> 217.0	624391			
7:3FTCA	7.786	441.0 -> 316.9	353074	363.99	µg/L	100
		441.0 -> 336.9	778578			
EtFOSA	11.388	526.0 -> 219.0	164350	49.64	µg/L	m
		526.0 -> 169.0	226245			
EtFOSE	11.308	630.0 -> 58.9	236589	89.89	µg/L	100
		511.9 -> 219.0	134898			
MeFOSA	11.103	511.9 -> 169.0	198920	49.39	µg/L	m
		616.1 -> 58.9	222770			
MeFOSE	10.998	699.1 -> 79.9	29364	94.69	µg/L	m
		699.1 -> 98.8	16601			
PFDoDS	10.189	295.0 -> 201.0	36076	14.45	µg/L	100
		295.0 -> 84.9	8931			
NFDHA	5.541	279.0 -> 85.1	231696	32.02	µg/L	100
		229.0 -> 84.9	196884			
PFMBA	4.878	314.8 -> 134.9	376485	28.89	µg/L	100
PFMPA	3.611	314.8 -> 82.9	12821	28.07	µg/L	100
PFEESA	6.096			26.75	µg/L	100

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

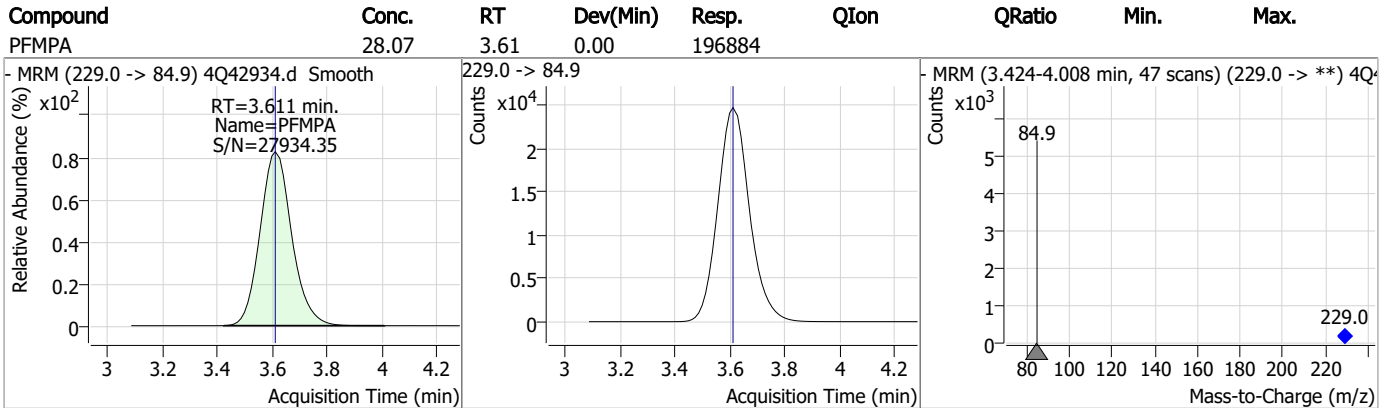
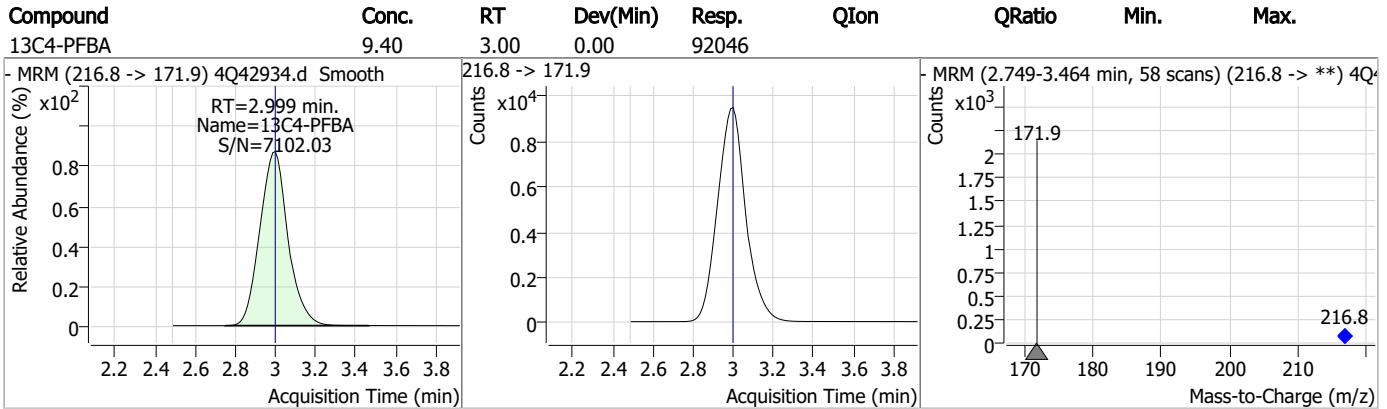
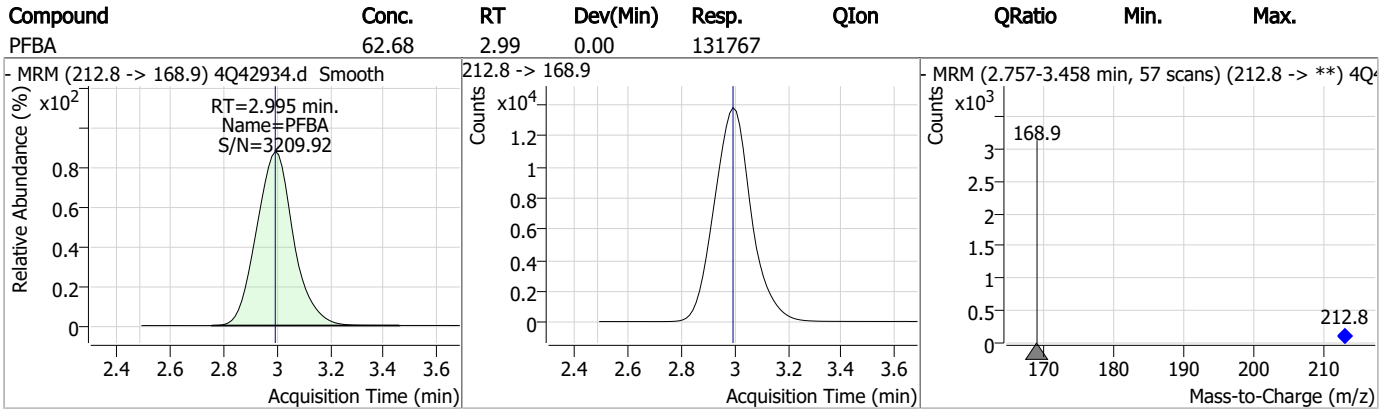
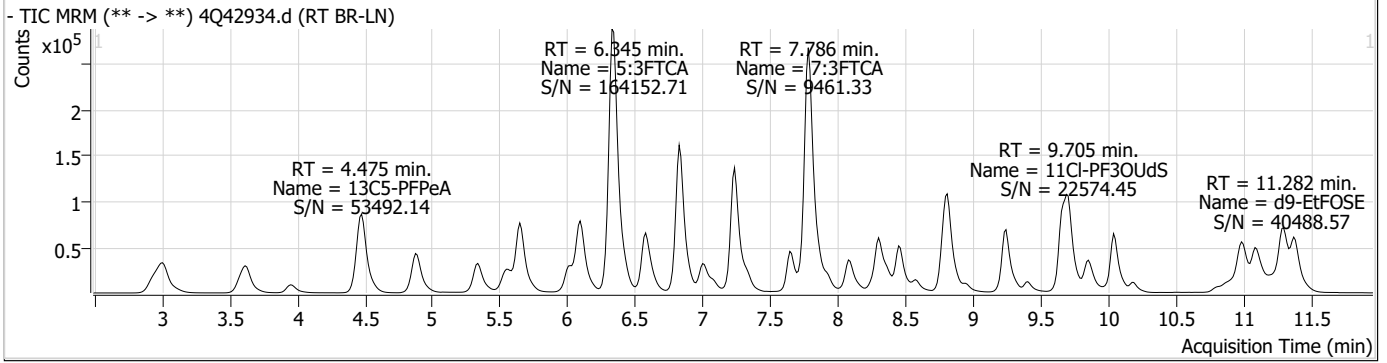
# Perfluorinated Compounds by LC/MS/MS

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

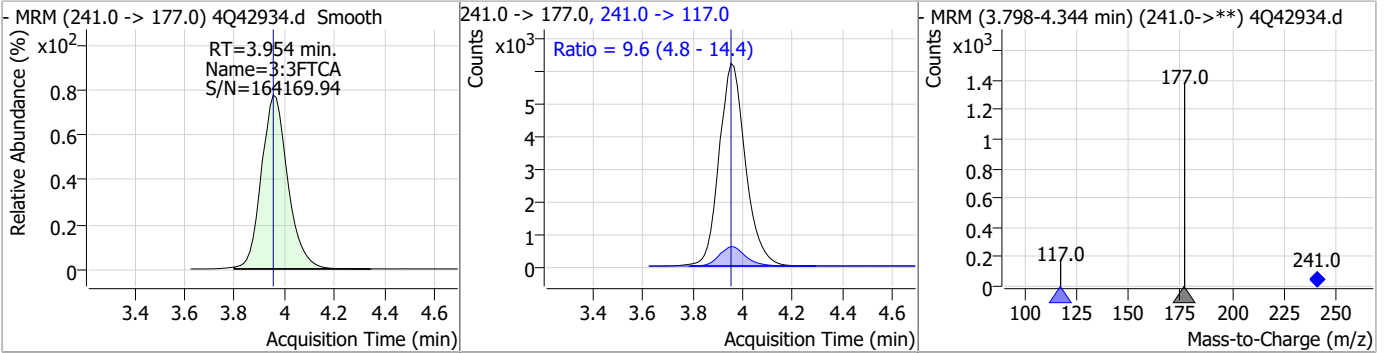
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# Perfluorinated Compounds by LC/MS/MS

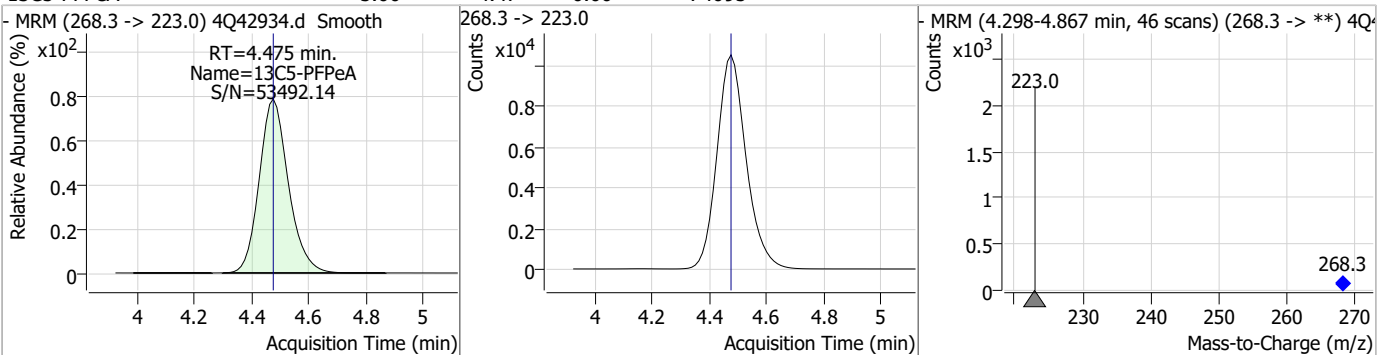


# Perfluorinated Compounds by LC/MS/MS

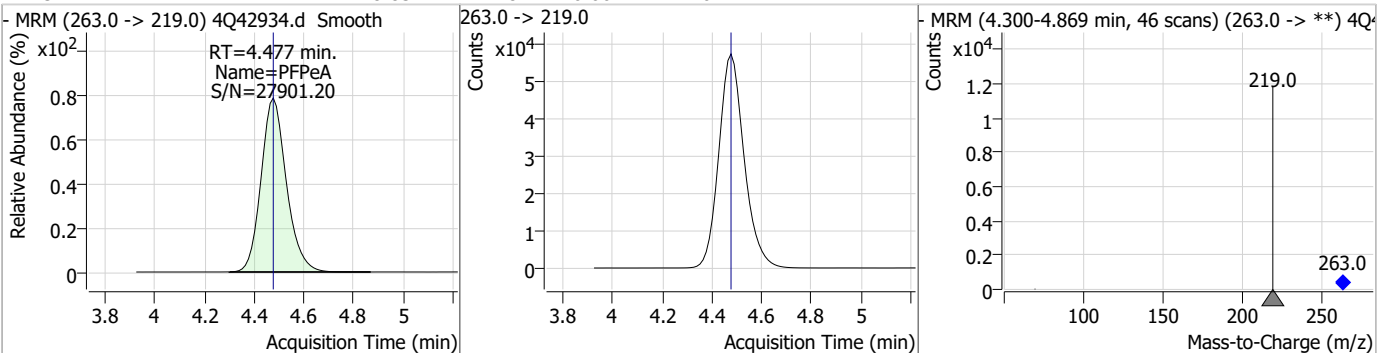
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	69.54	3.95	0.00	45444	241.0 -> 117.0	9.6	4.8	14.4



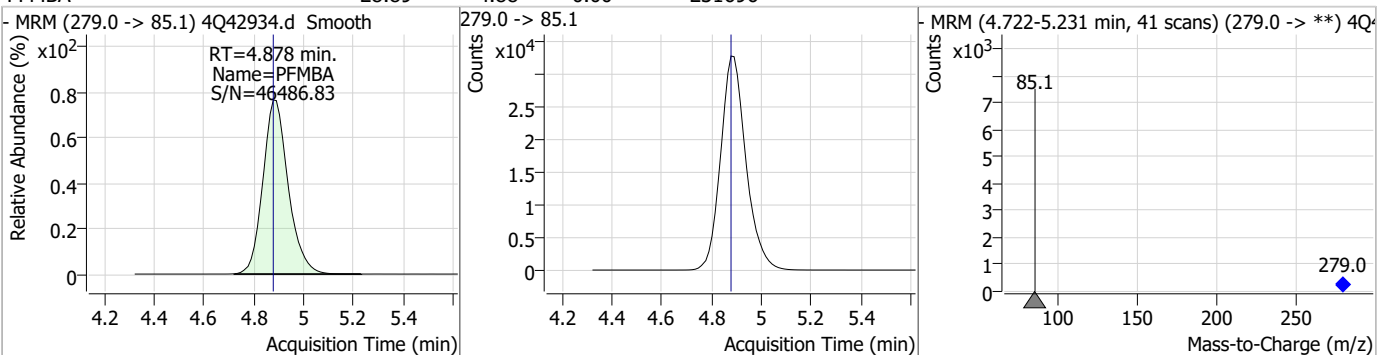
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.00	4.47	0.00	74095				



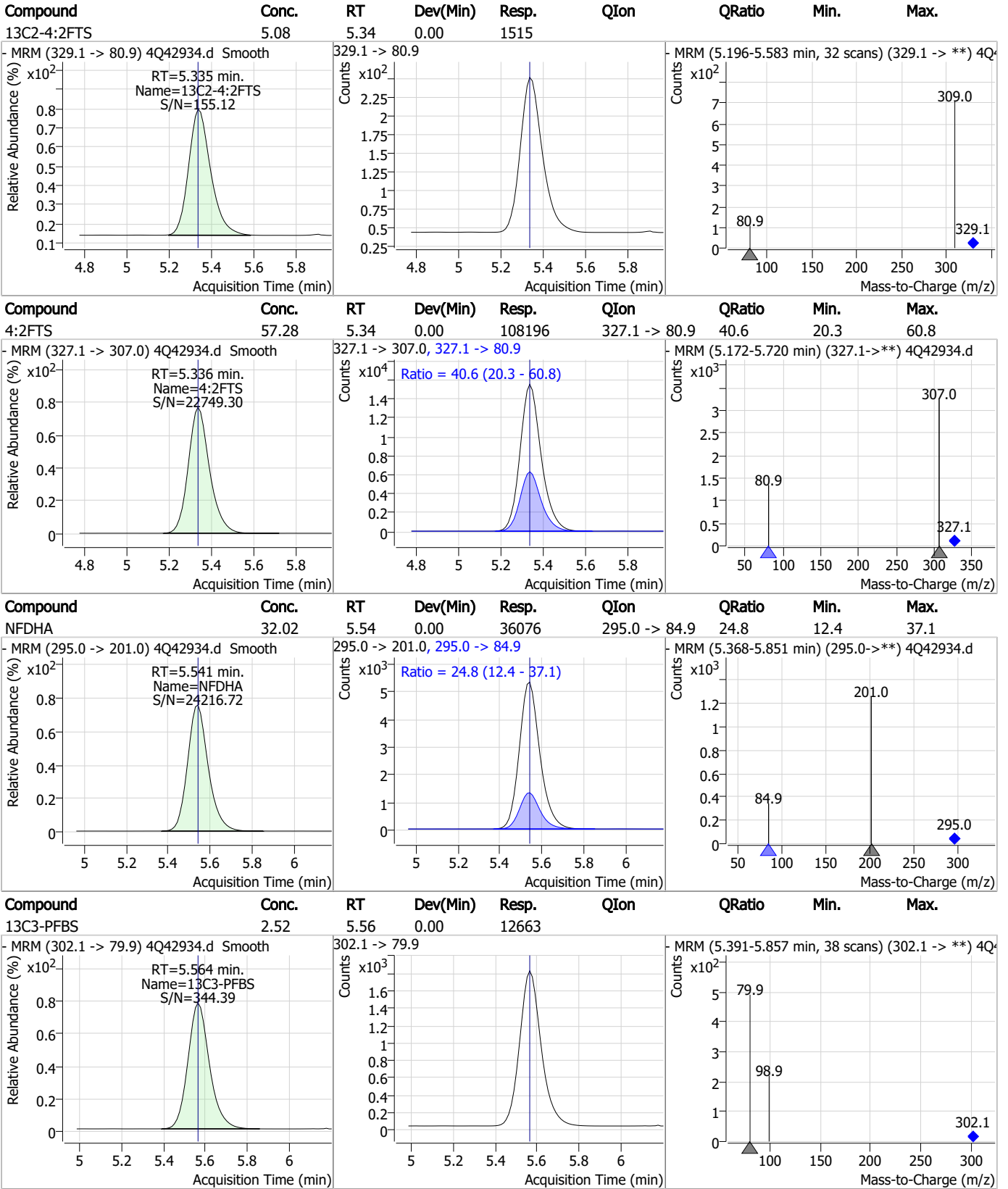
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	28.83	4.48	0.00	404422				



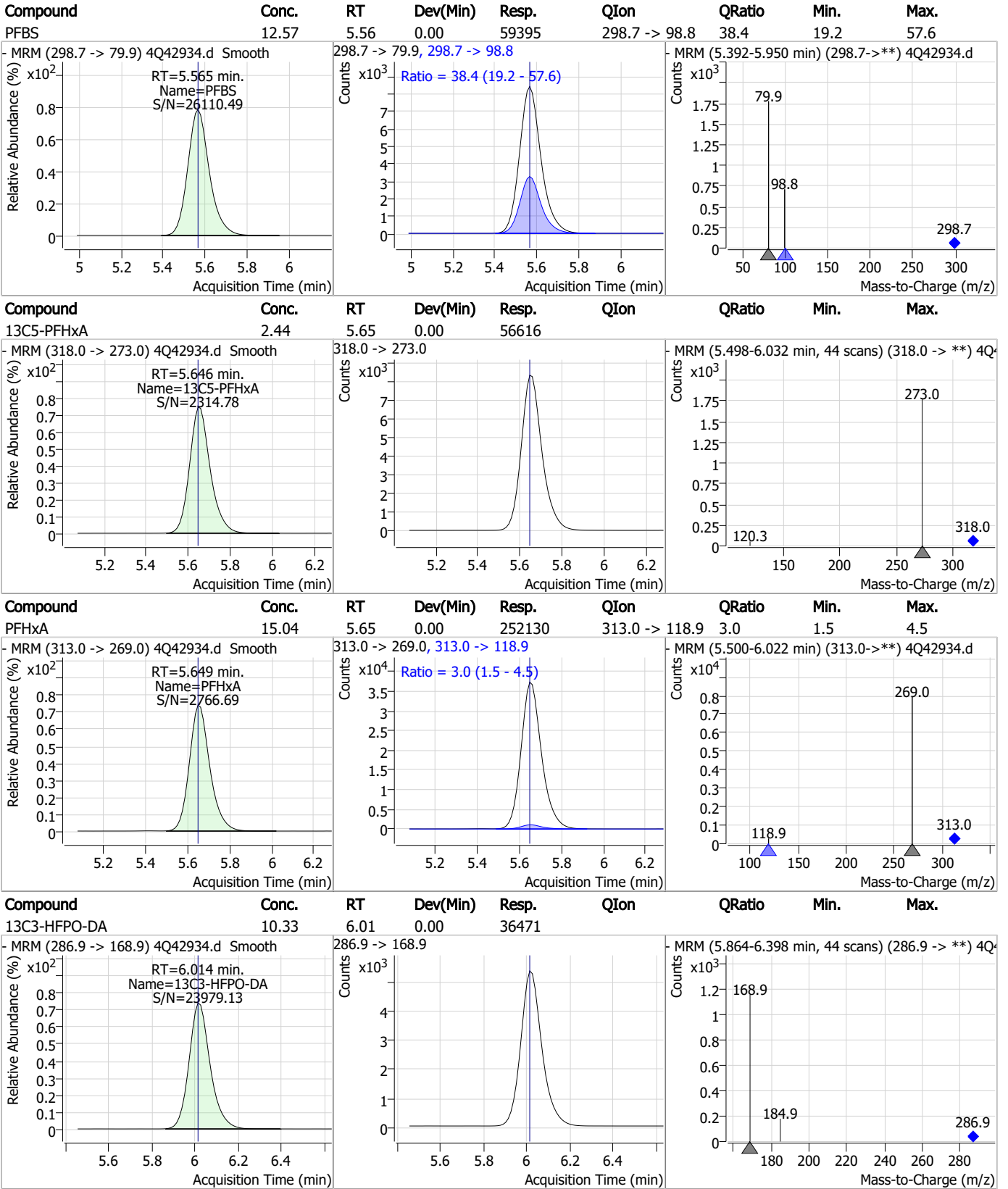
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	28.89	4.88	0.00	231696				



# Perfluorinated Compounds by LC/MS/MS

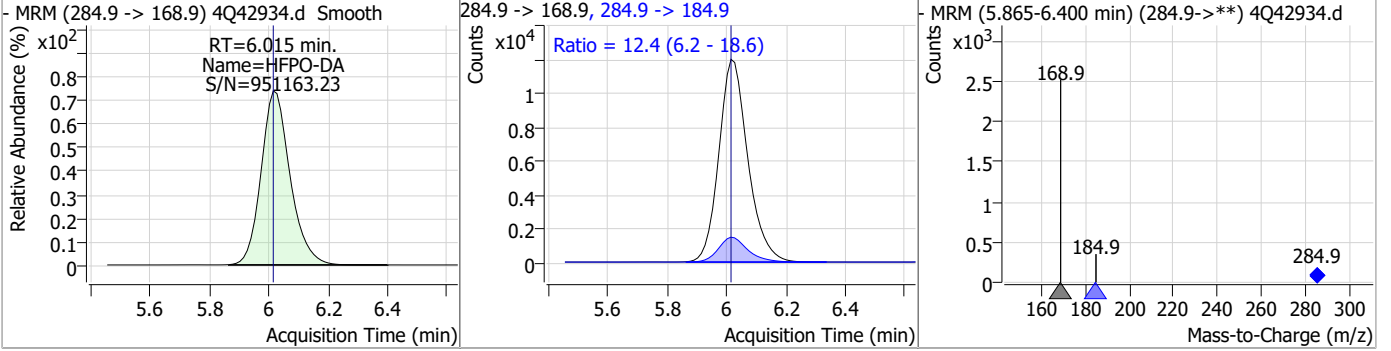


# Perfluorinated Compounds by LC/MS/MS

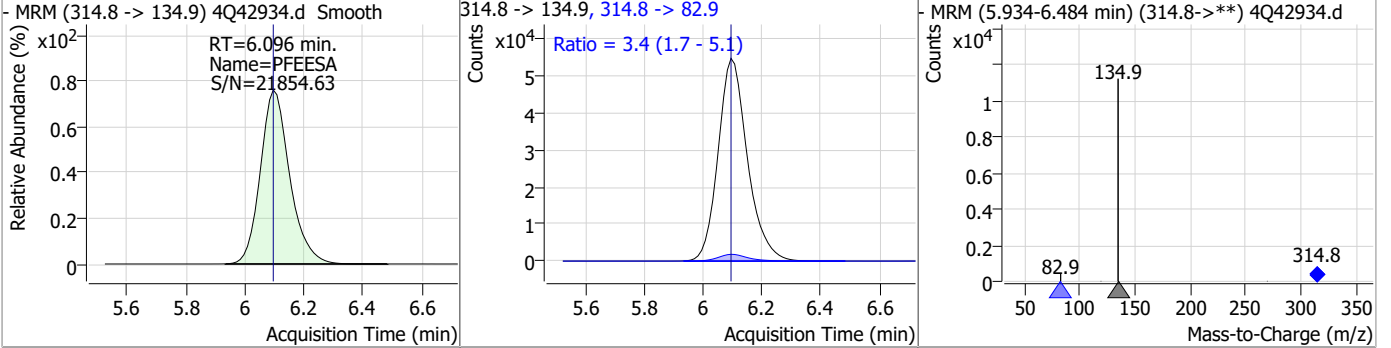


# Perfluorinated Compounds by LC/MS/MS

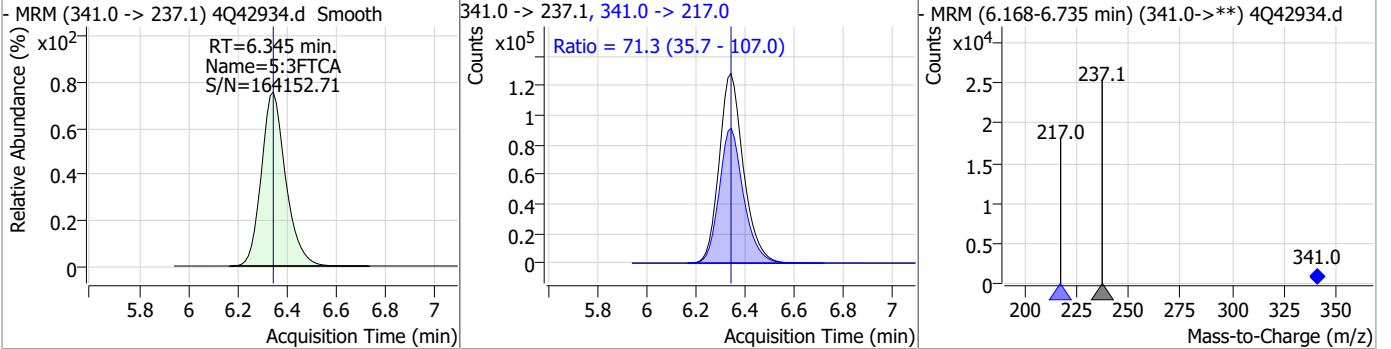
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	28.12	6.01	0.00	81268	284.9 -> 184.9	12.4	6.2	18.6



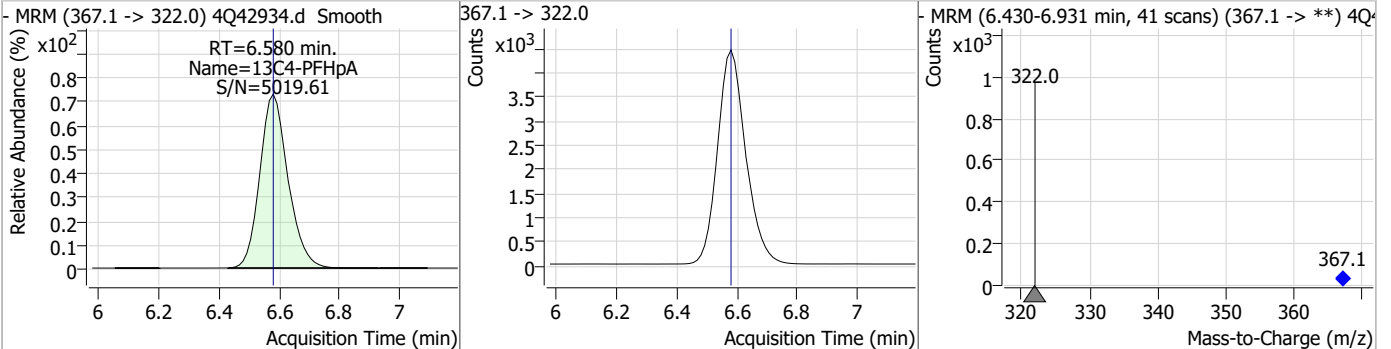
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	26.75	6.10	0.00	376485	314.8 -> 82.9	3.4	1.7	5.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	369.97	6.35	0.00	875683	341.0 -> 217.0	71.3	35.7	107.0

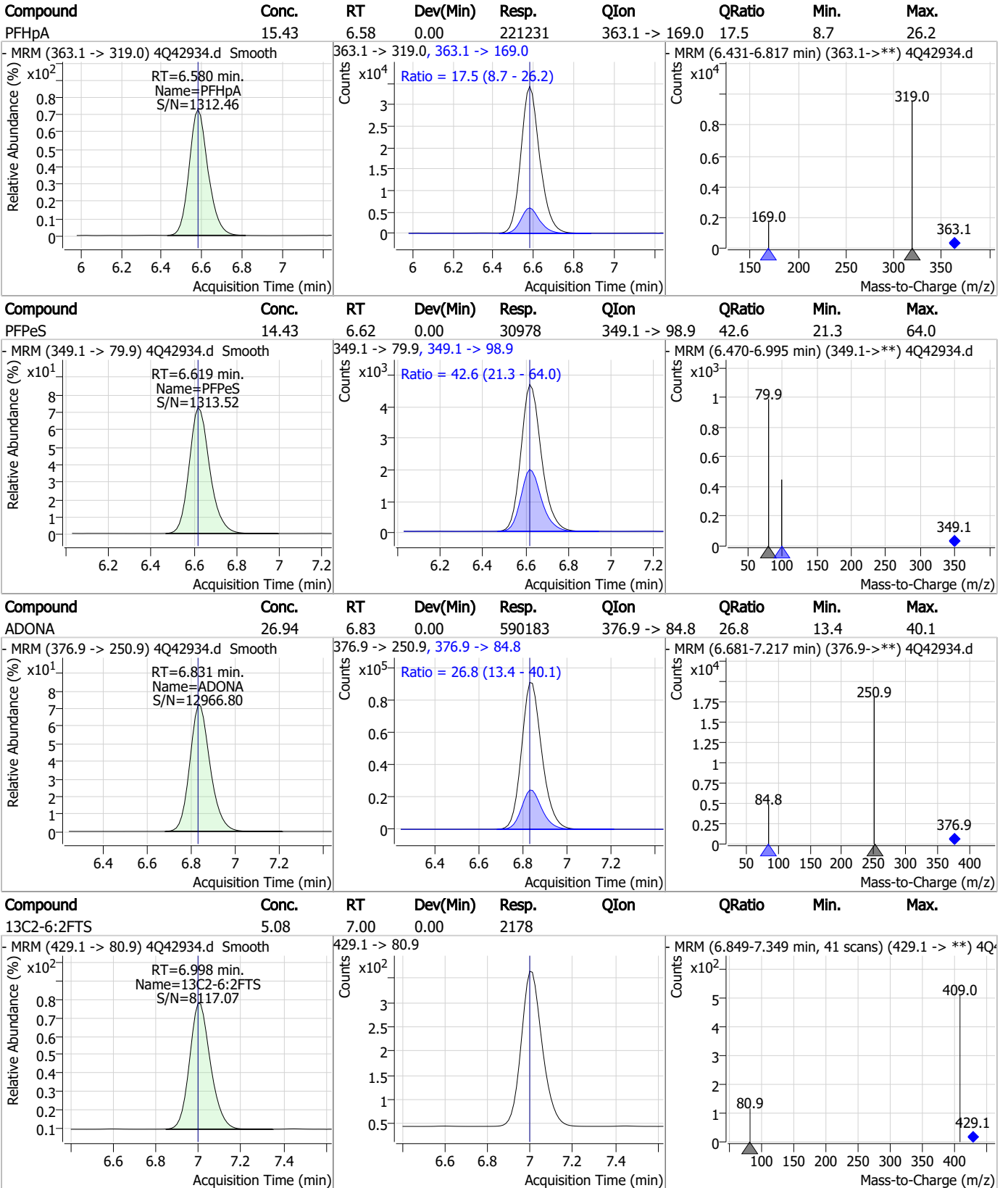


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.52	6.58	0.00	28736	367.1 -> 322.0			





# Perfluorinated Compounds by LC/MS/MS

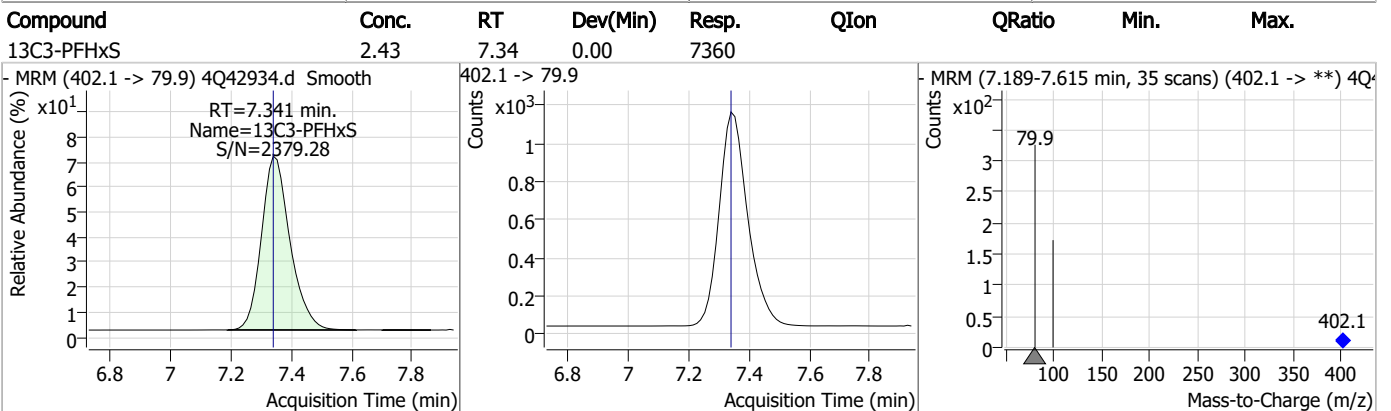
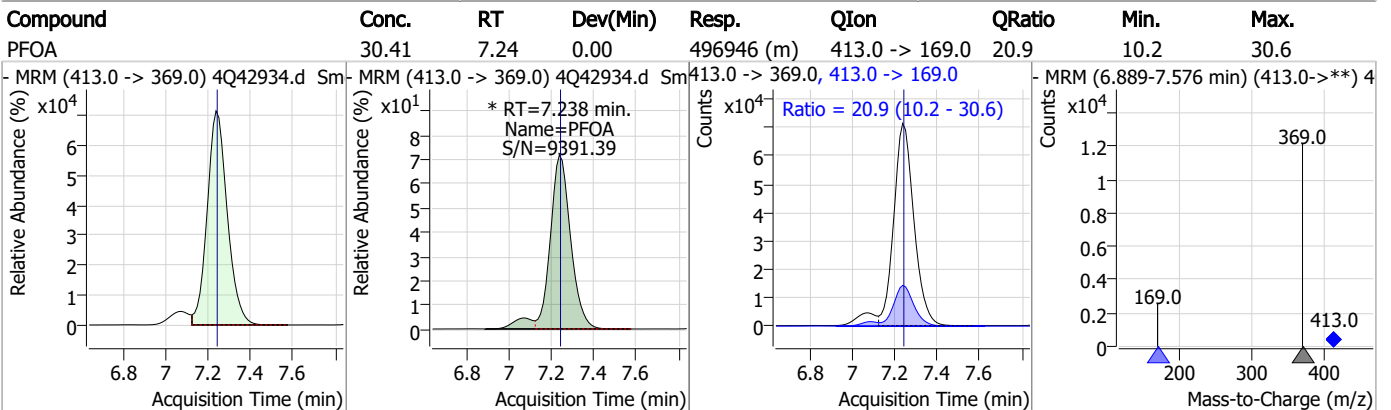
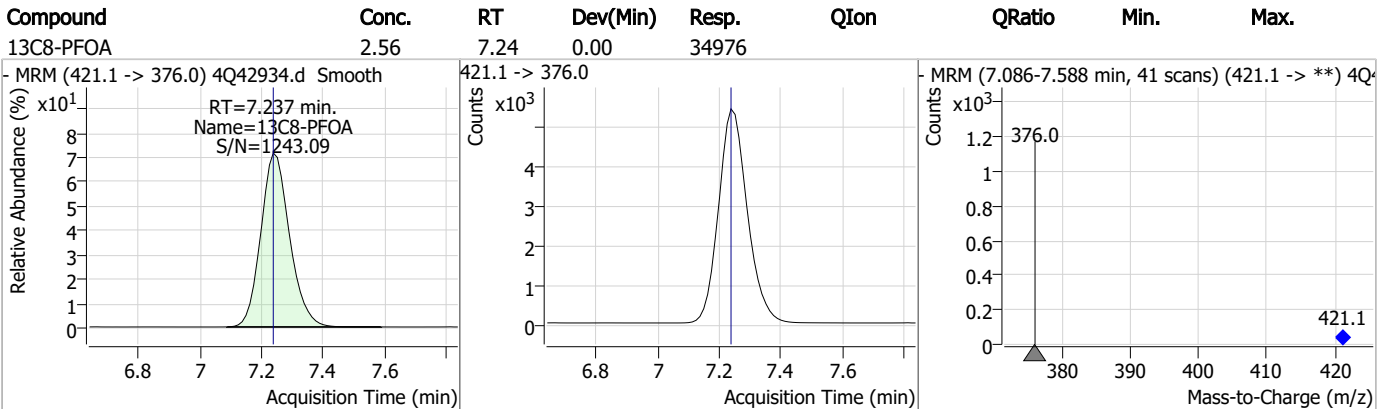
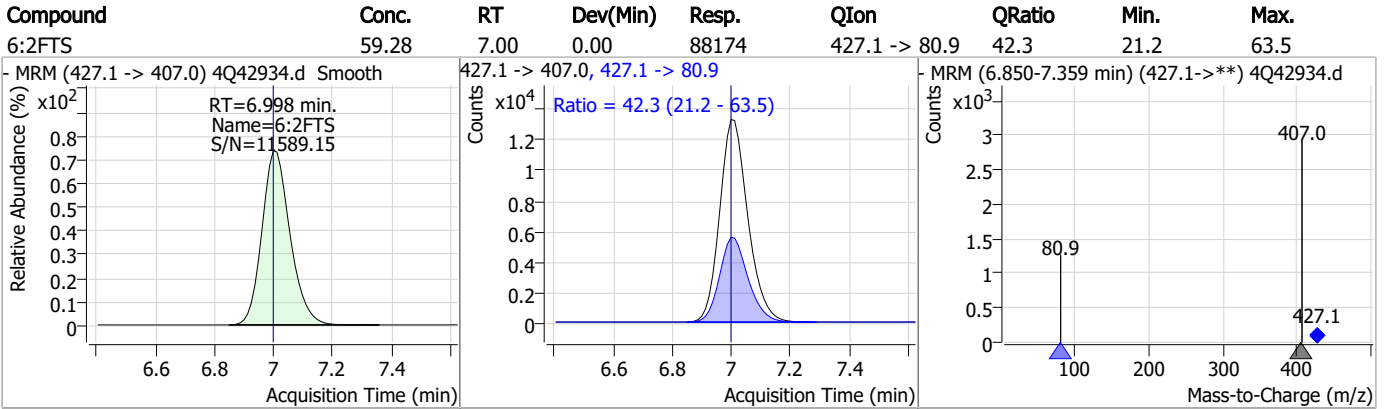


7.6.2

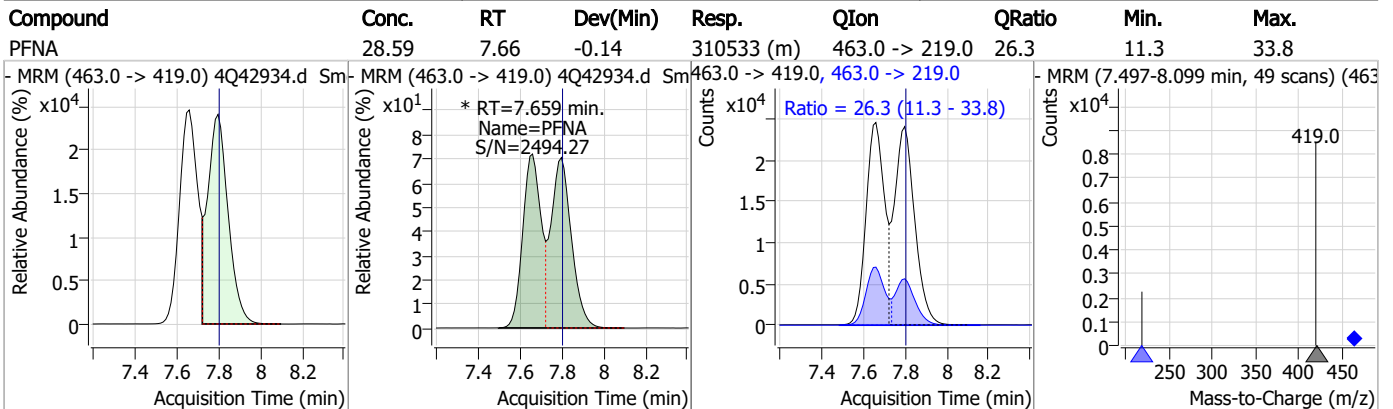
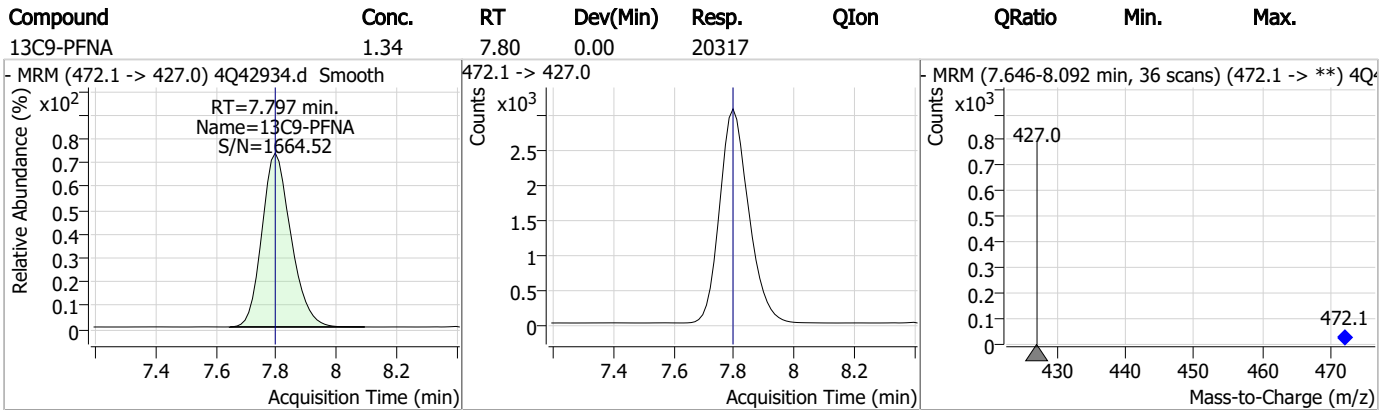
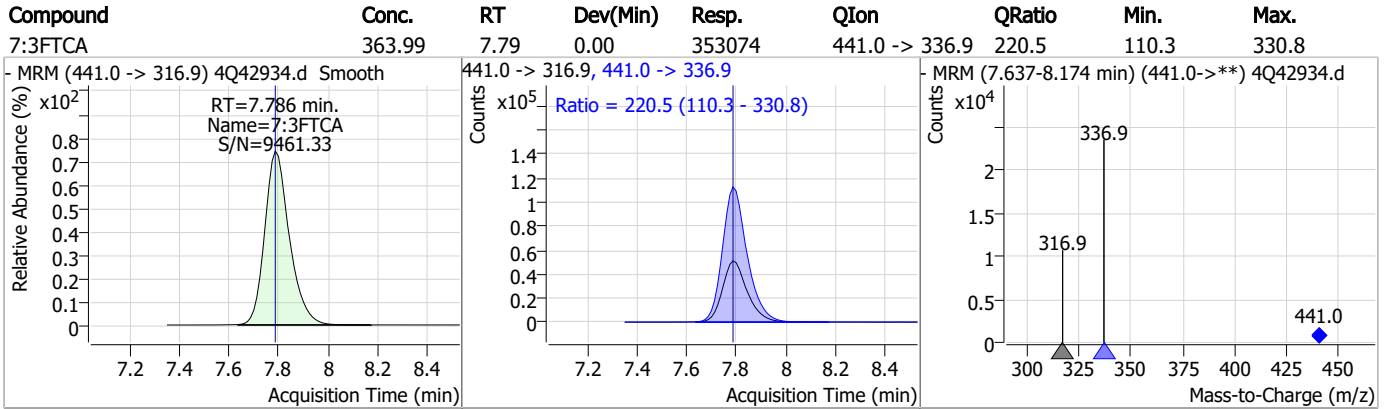
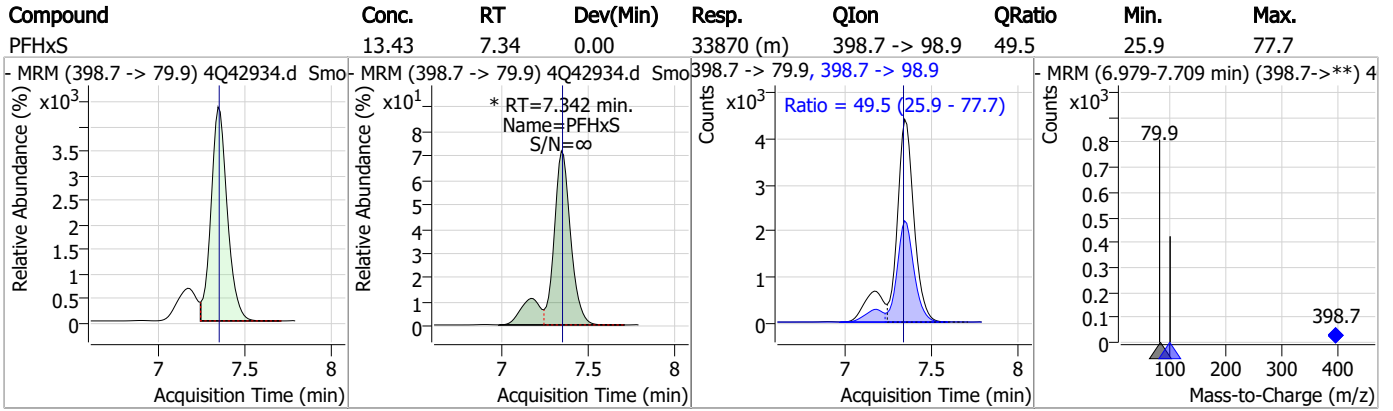
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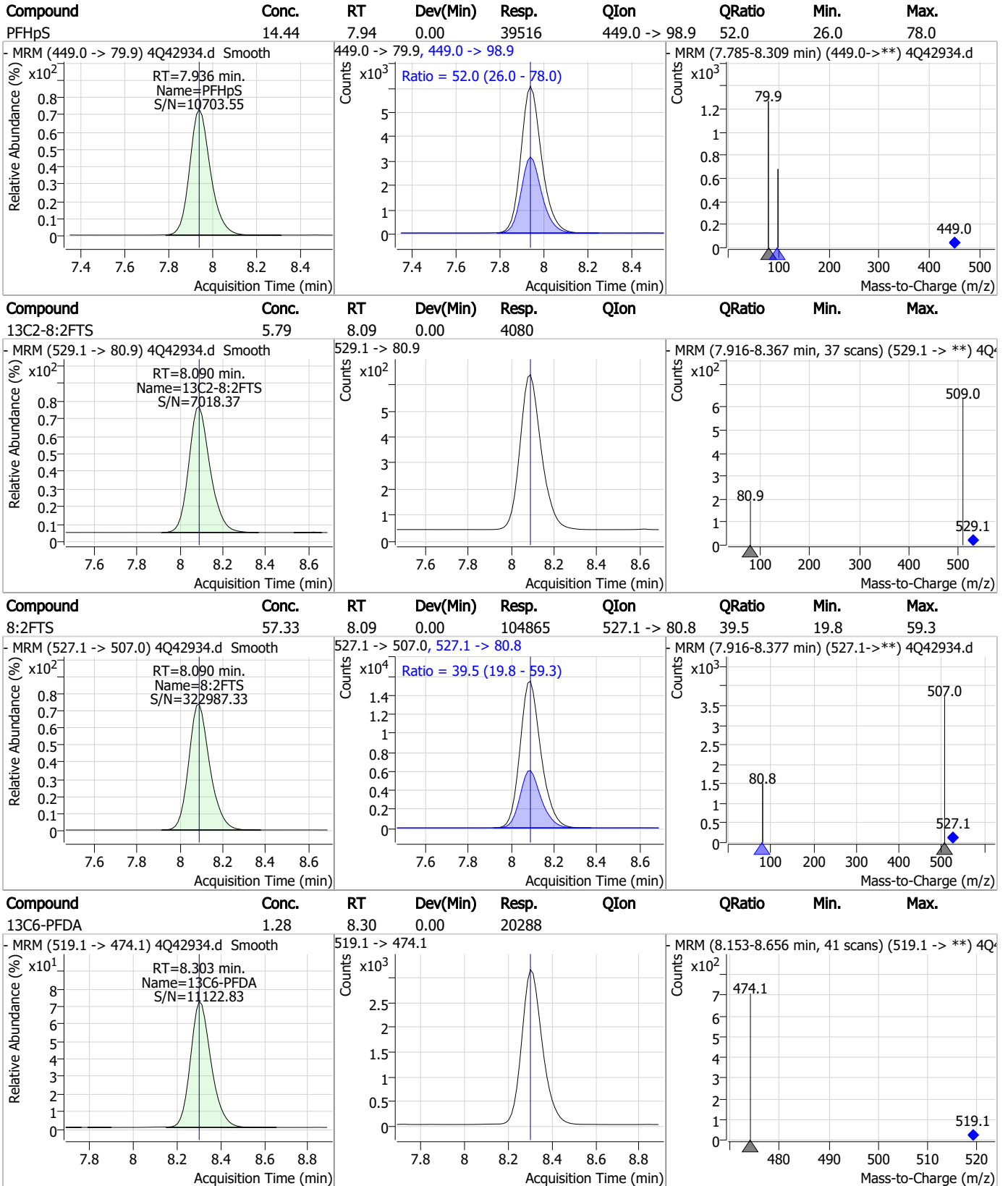
# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS

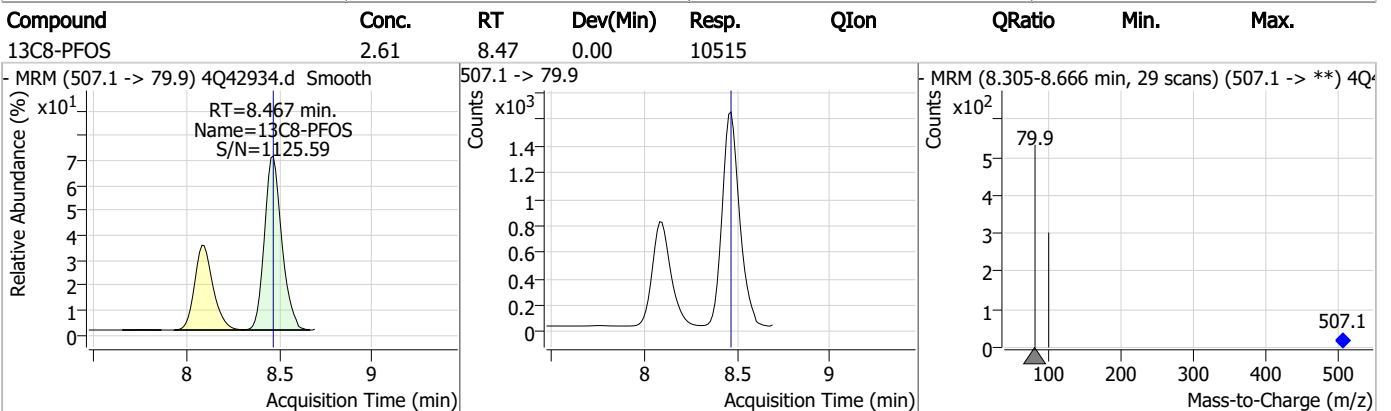
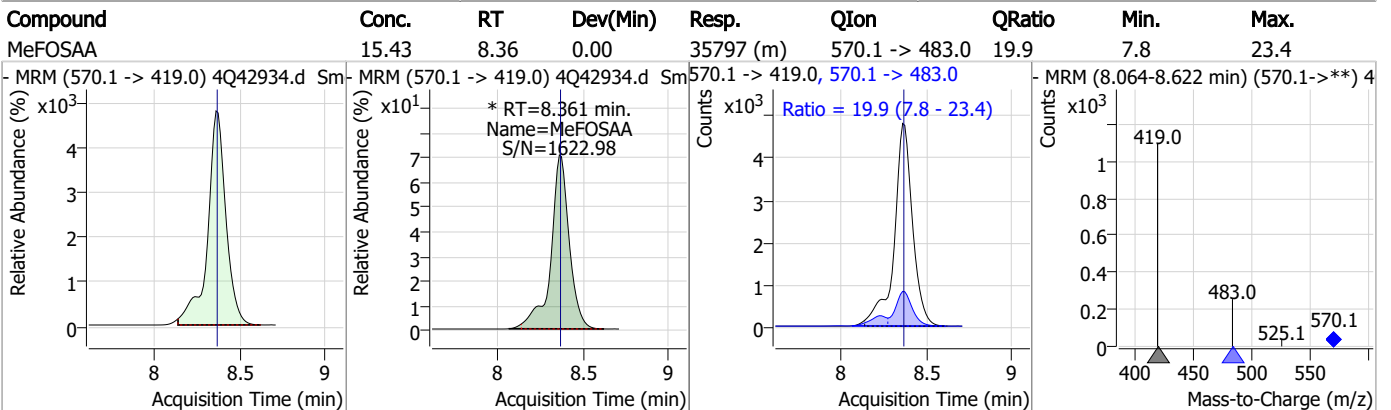
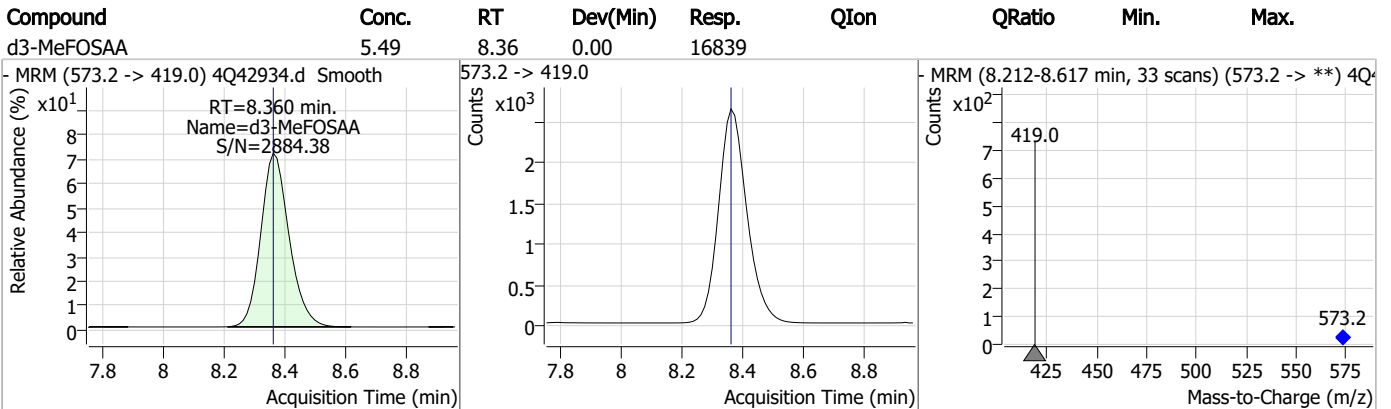
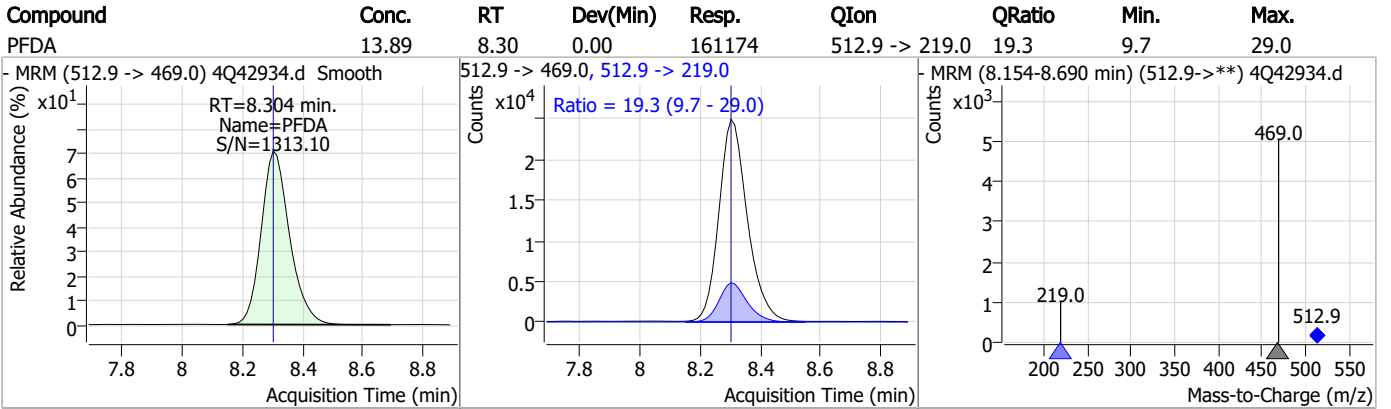


7.6.2

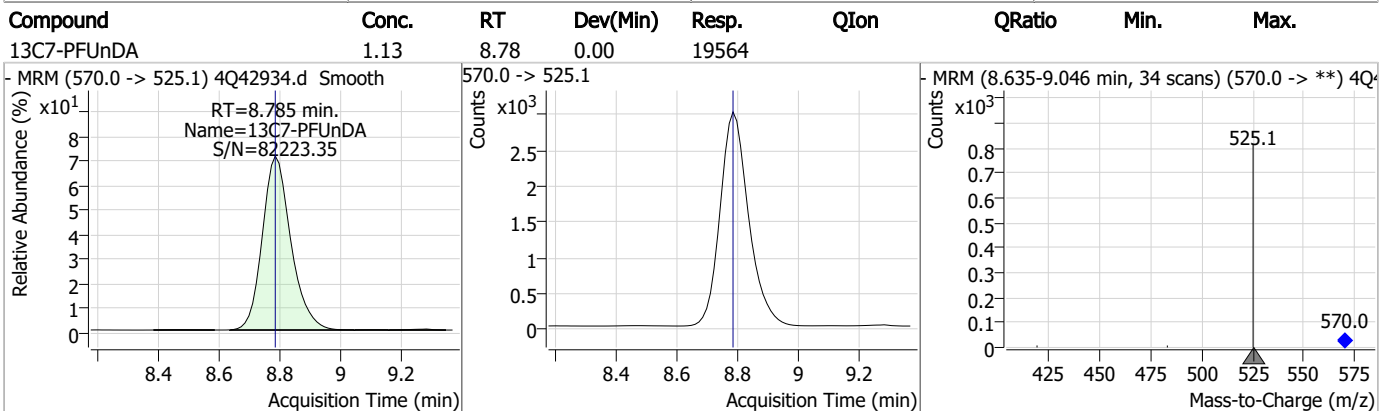
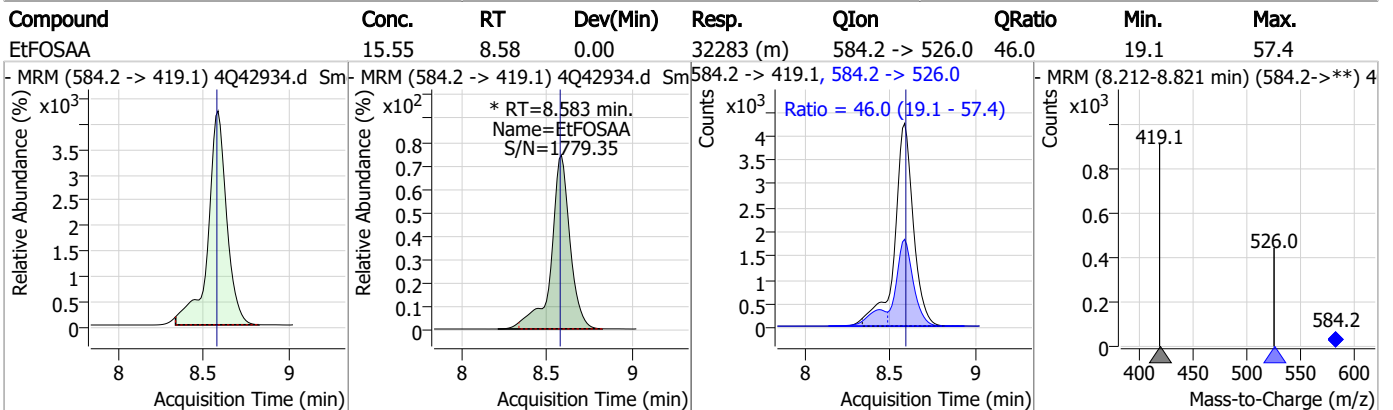
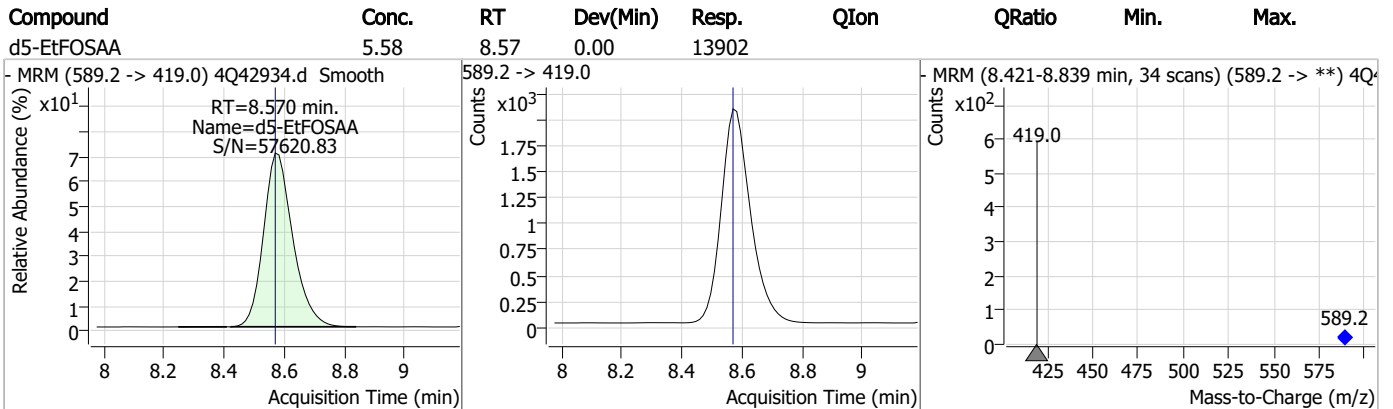
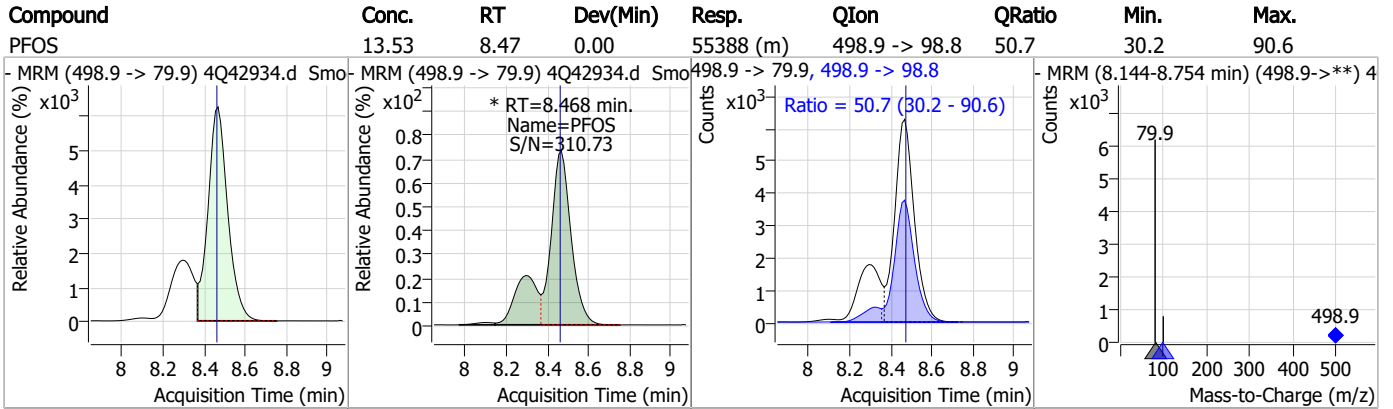
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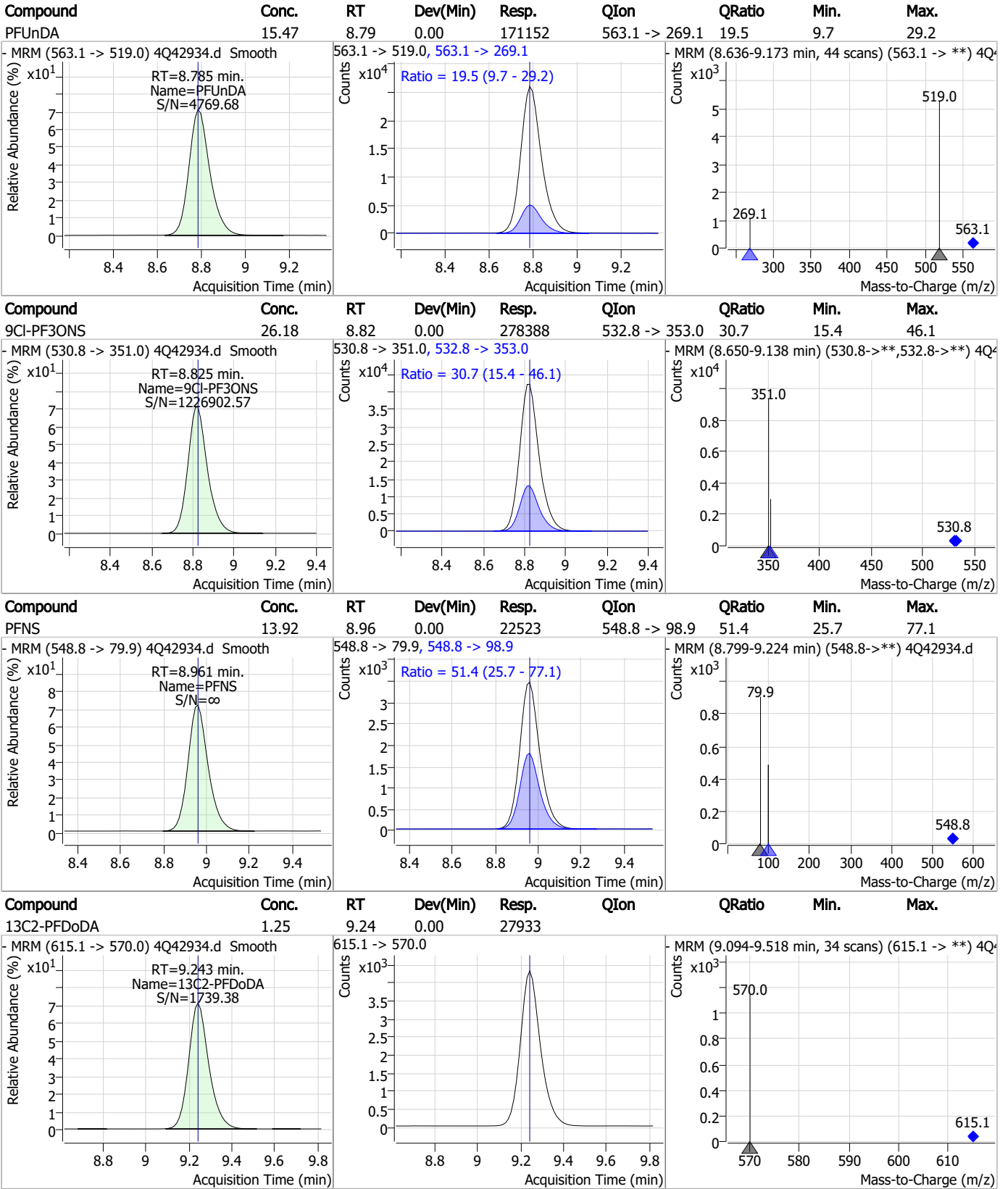
# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS



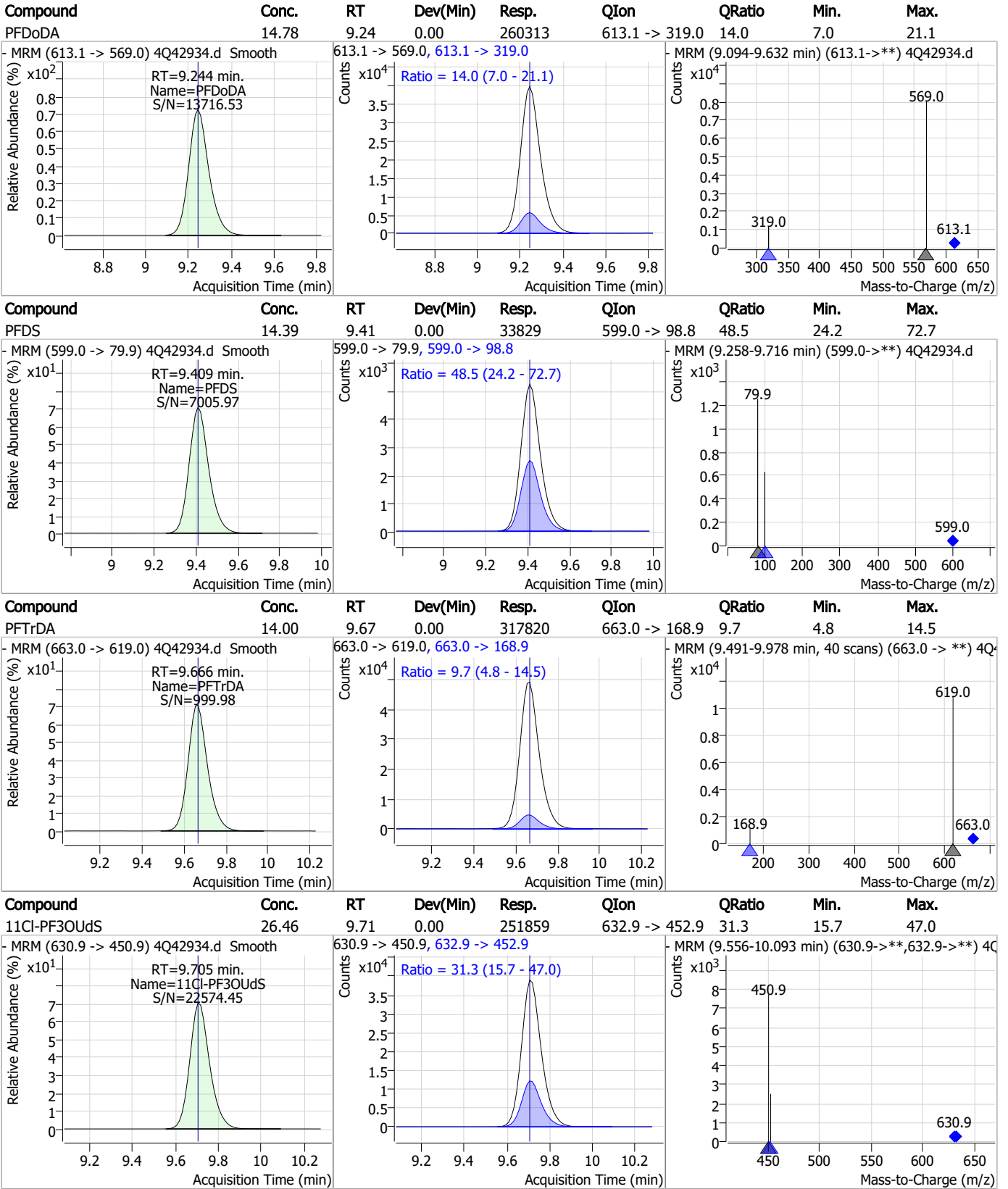
7.6.2

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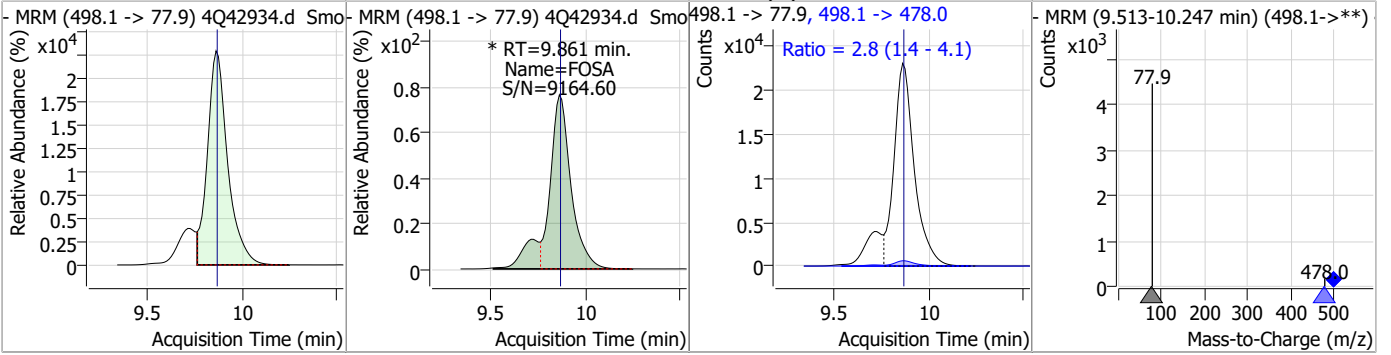
# Perfluorinated Compounds by LC/MS/MS



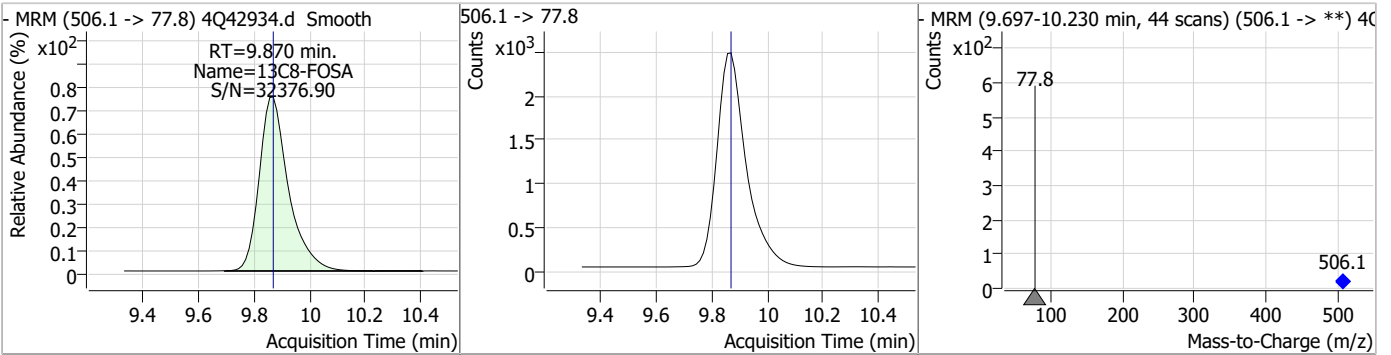


# Perfluorinated Compounds by LC/MS/MS

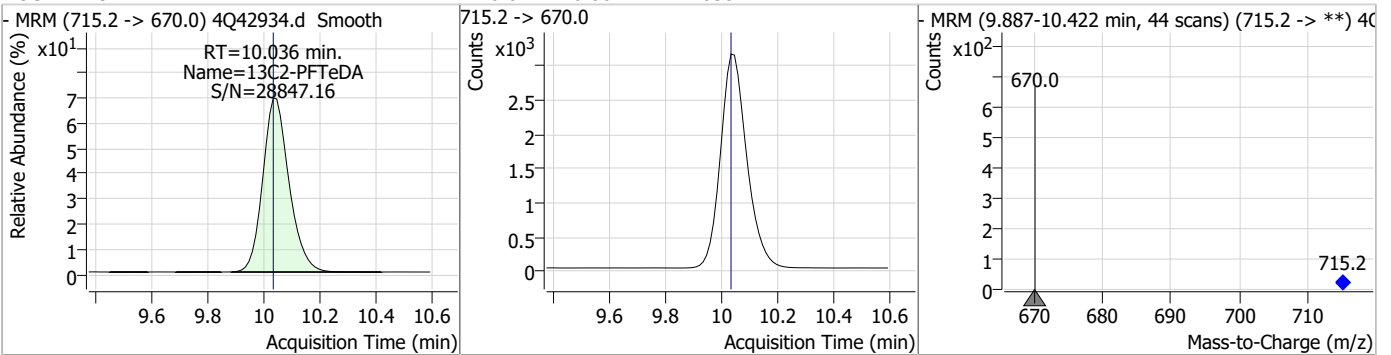
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	34.33	9.86	0.00	197227 (m)	498.1 -> 478.0	2.8	1.4	4.1



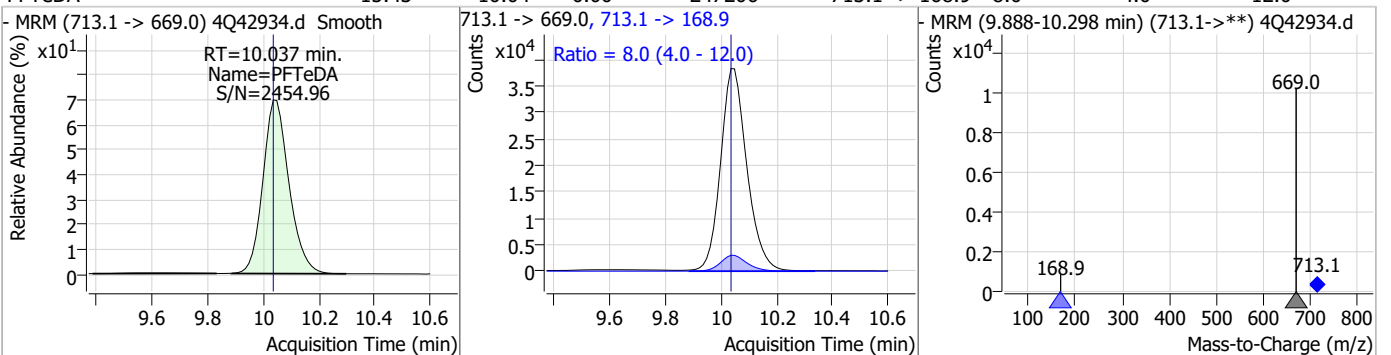
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.62	9.87	0.00	17843				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.17	10.04	0.00	20352				

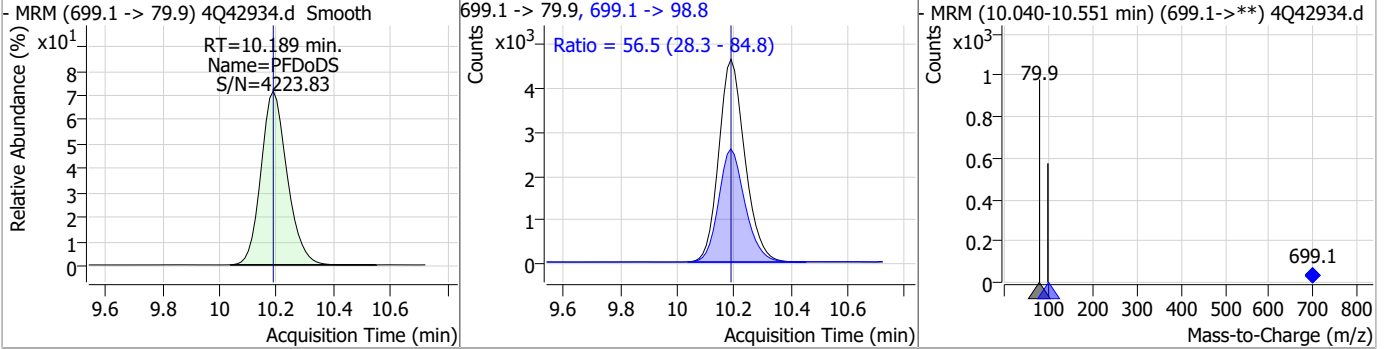


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	15.43	10.04	0.00	247206	713.1 -> 168.9	8.0	4.0	12.0

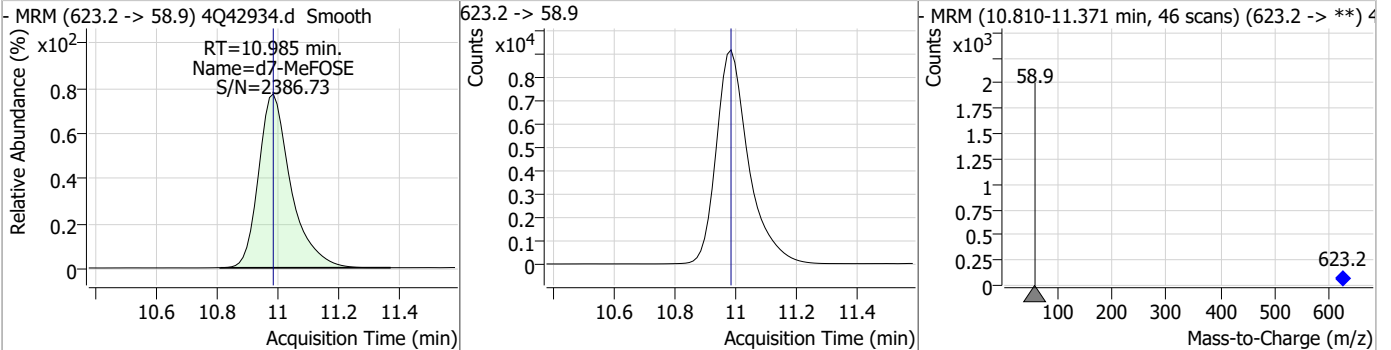


# Perfluorinated Compounds by LC/MS/MS

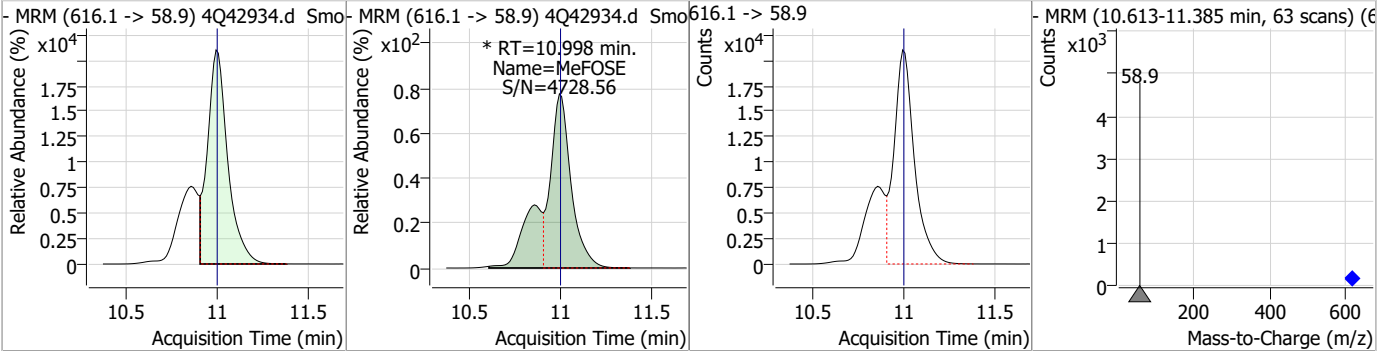
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	14.45	10.19	0.00	29364	699.1 -> 98.8	56.5	28.3	84.8



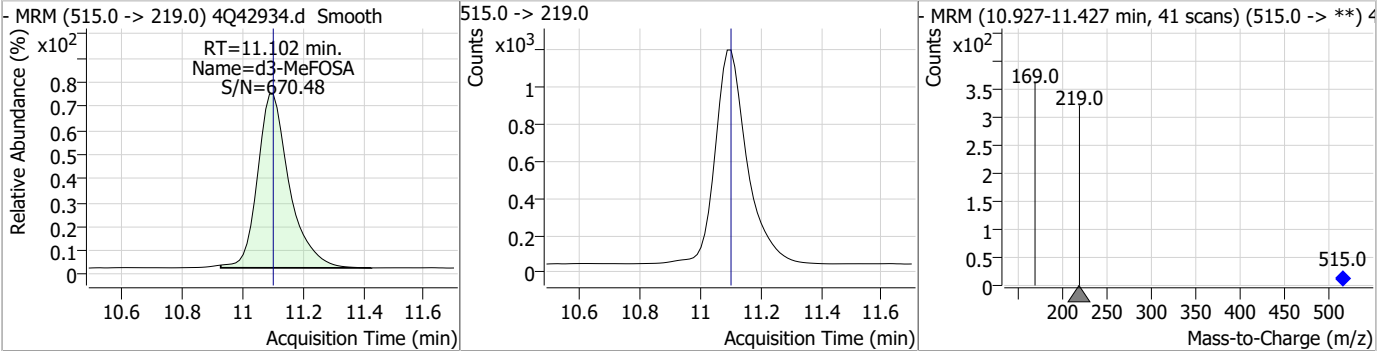
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.93	10.98	0.00	66941				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	94.69	11.00	0.00	222770 (m)				

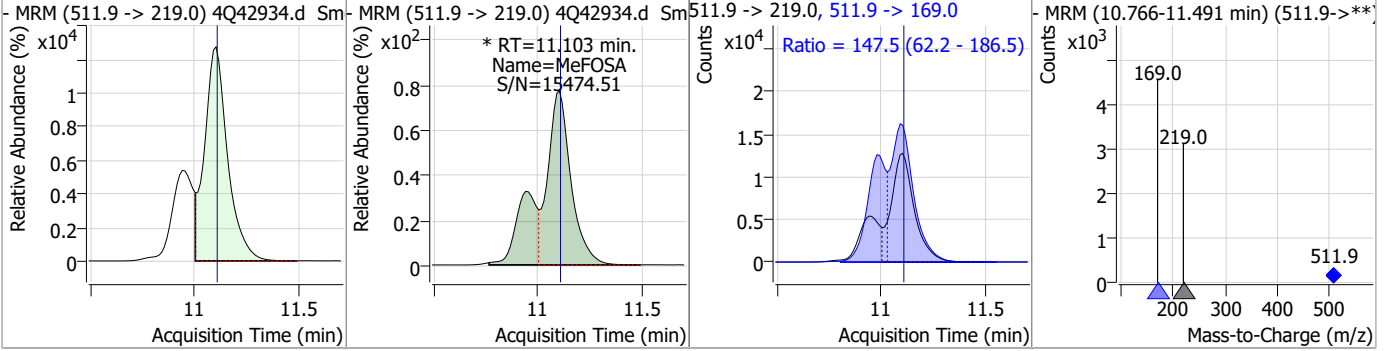


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.62	11.10	0.00	8448				

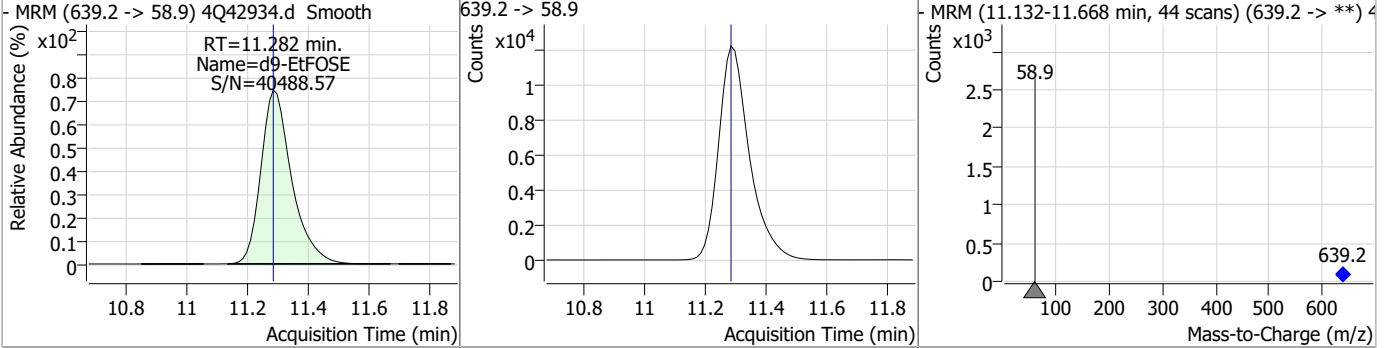


# Perfluorinated Compounds by LC/MS/MS

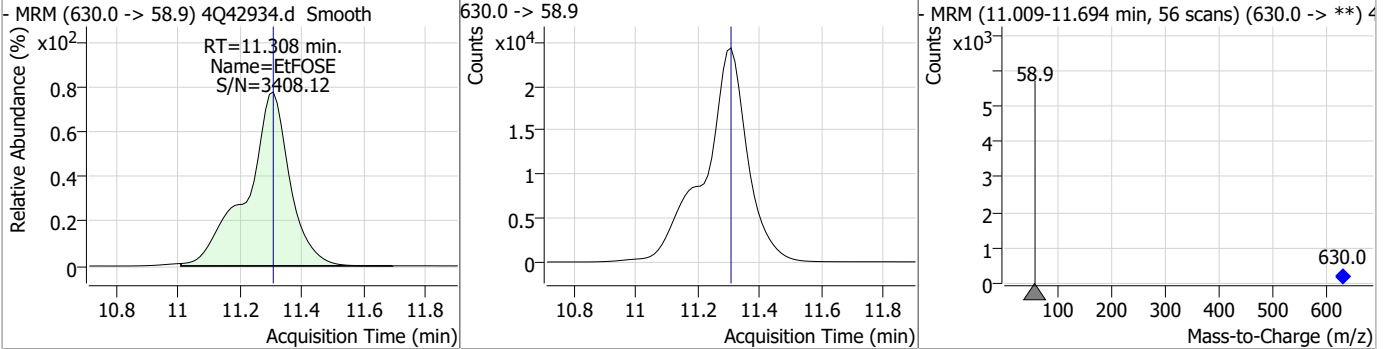
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	49.39	11.10	0.00	134898 (m)	511.9 -> 169.0	147.5	62.2	186.5



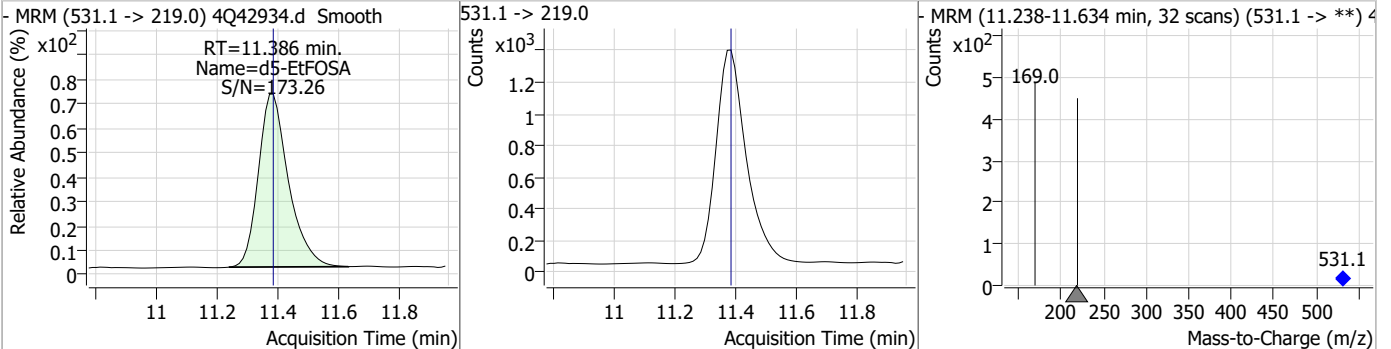
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.99	11.28	0.00	85392				



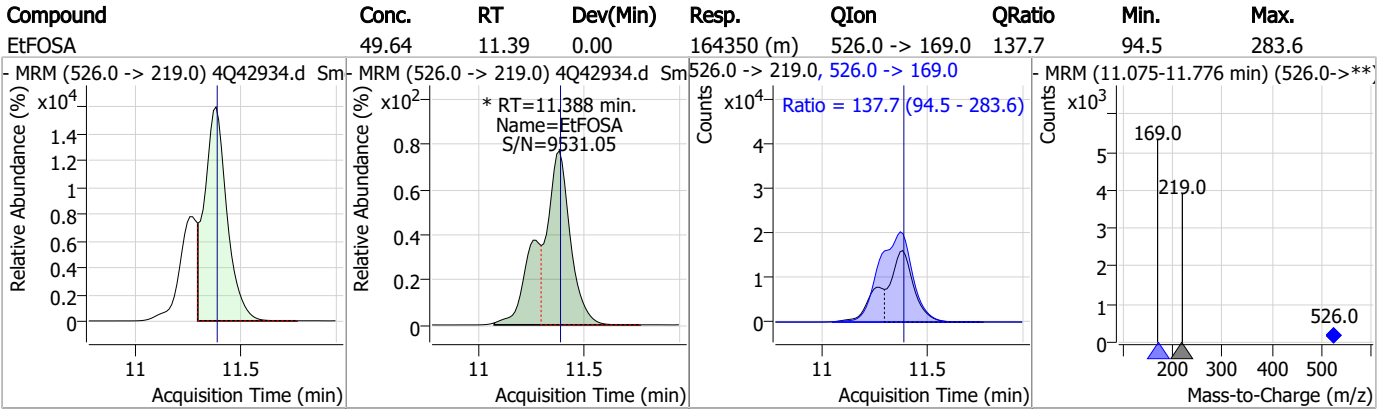
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	89.89	11.31	0.00	236589				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.67	11.39	0.00	9291				



# Perfluorinated Compounds by LC/MS/MS



7.6.2

7

# Manual Integration Approval Summary

Sample Number: S4Q621-RT                      Method: EPA DRAFT 1633  
Lab FileID: 4Q42934.D                      Analyst approved: 04/17/23 14:53 Martha Valls  
Injection Time: 04/14/23 11:21                      Supervisor approved: 04/17/23 15:47 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.24	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.34	Split peak
Perfluorononanoic acid	375-95-1		7.66	Split peak
MeFOSAA	2355-31-9		8.36	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.47	Split peak
EtFOSAA	2991-50-6		8.58	Split peak
PFOSA	754-91-6		9.86	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.10	Split peak
EtFOSA	4151-50-2		11.39	Split peak

7.6.2.1  
7

Manual Integrations  
**APPROVED**  
 (compounds with "m" flag)  
 Norman Farmer  
 04/19/23 16:01

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43145.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 4/18/2023 10:28:42 AM  
 Sample Name : RT TDCA  
 Vial : P1-B3  
 DA Method File : TDCA.quantmethod.xml  
 Batch Name : s4q624 TDCA.batch.bin  
 Sample Information : OP96301,S4q624,500,,,5.0,1,water

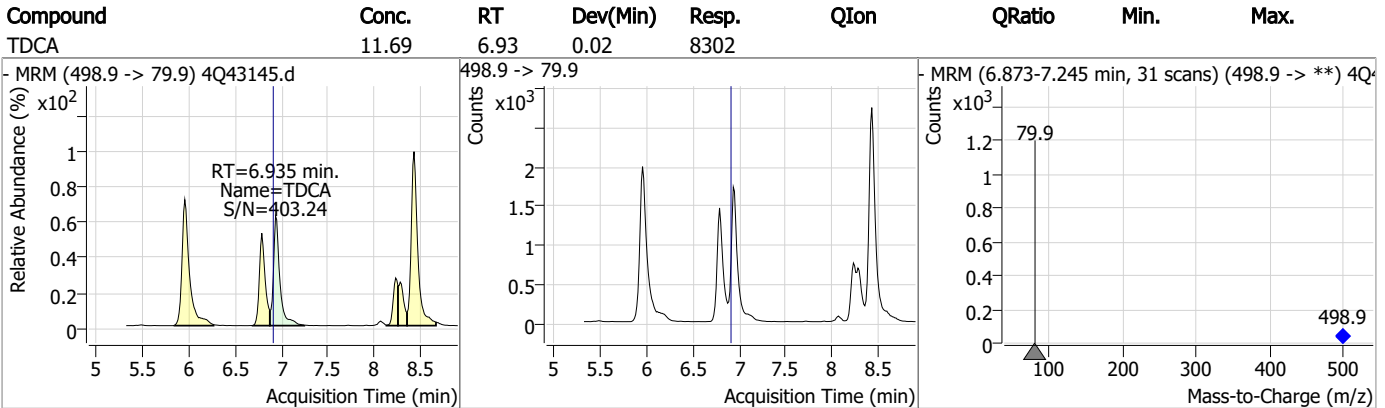
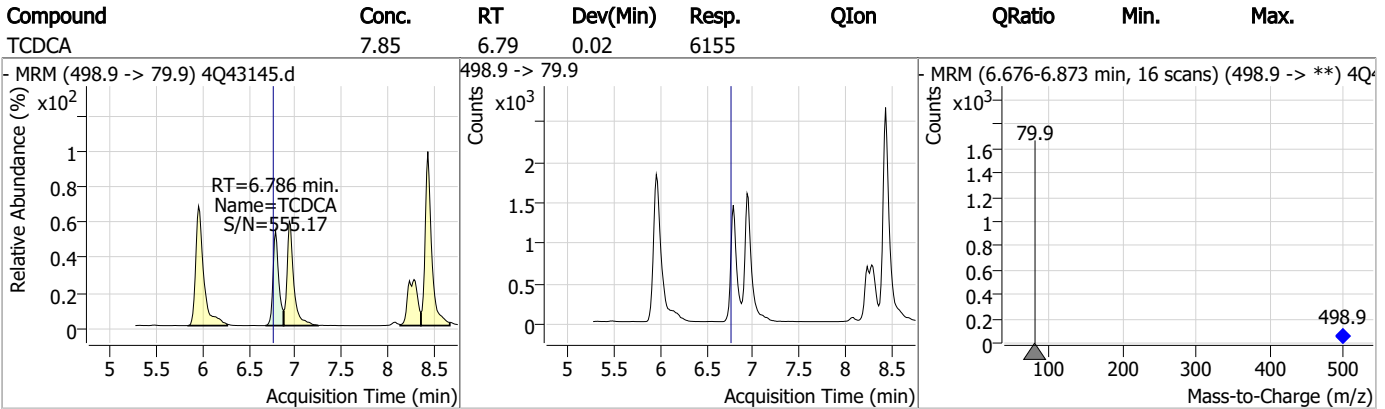
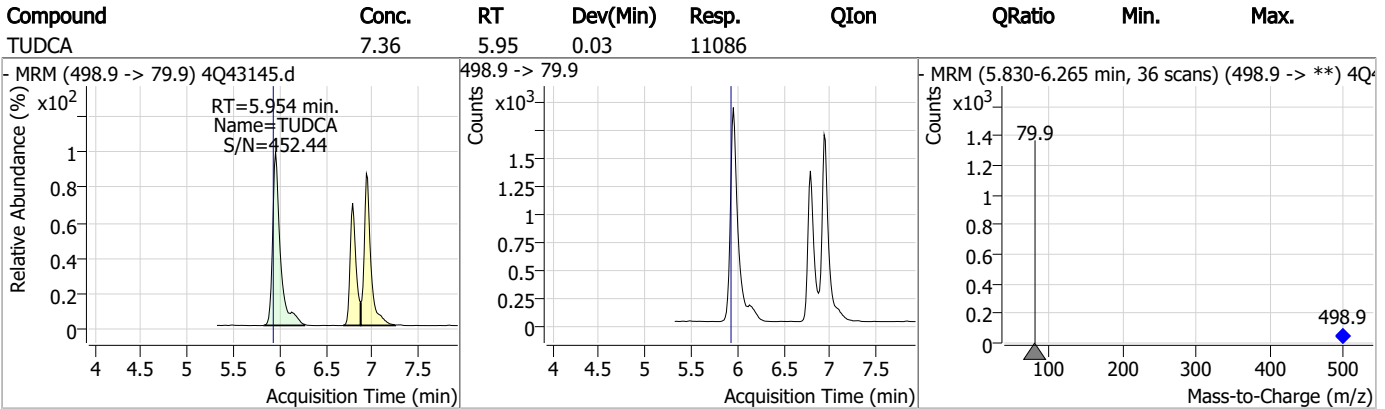
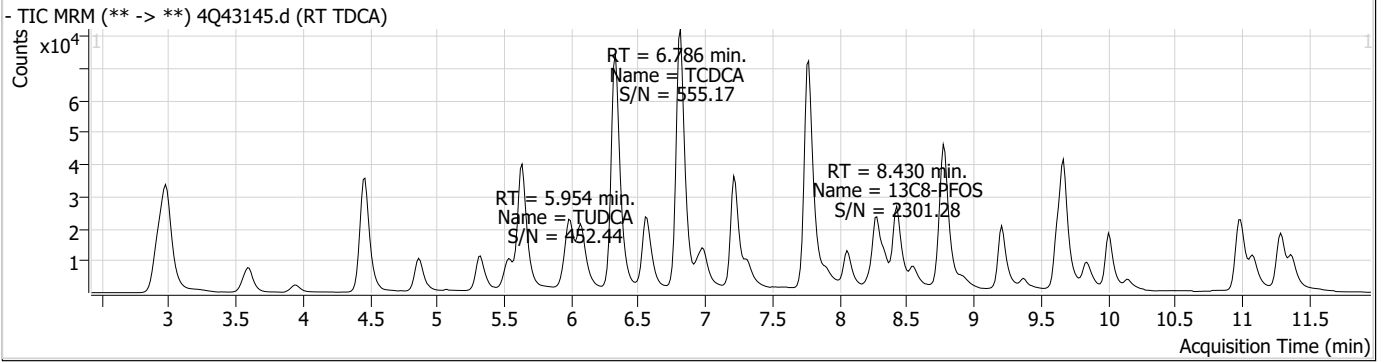
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M8-PFOS	8.430	507.1 -> 79.9	16995	2.50 µg/L	0.025
13C4-PFOS	8.430	502.8 -> 79.9	18423	2.50 µg/L	0.025
<b>System Monitoring Compounds</b>					
13C8-PFOS	8.430	507.1 -> 79.9	16995	2.34 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.6%		
<b>Target Compounds</b>					
PFOS	8.431	498.9 -> 79.9 498.9 -> 98.8	17687 8755	3.05 µg/L m	87
TCDCa	6.786	498.9 -> 79.9	6155	7.85 ng/ml	100
TDCA	6.935	498.9 -> 79.9	8302	11.69 ng/ml	100
TUDCA	5.954	498.9 -> 79.9	11086	7.36 ng/ml	100

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

7.6.3

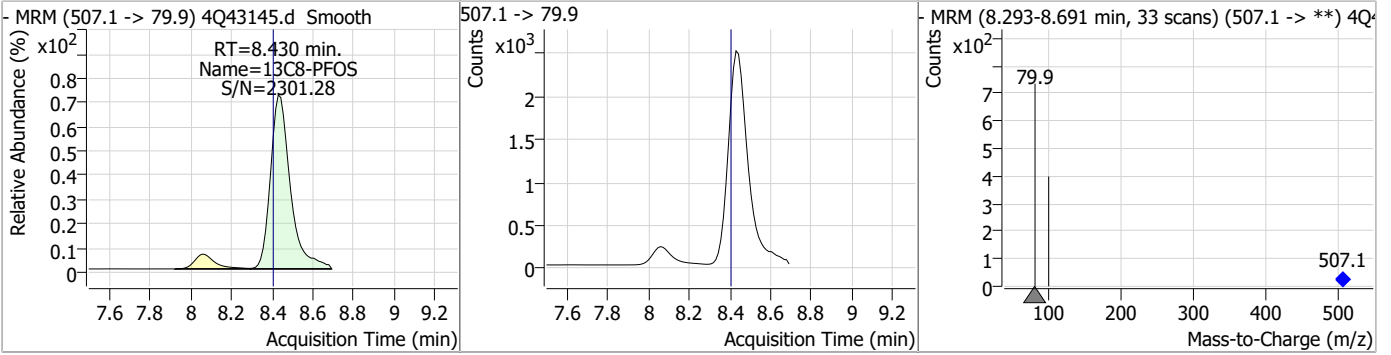
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### Perfluorinated Compounds by LC/MS/MS

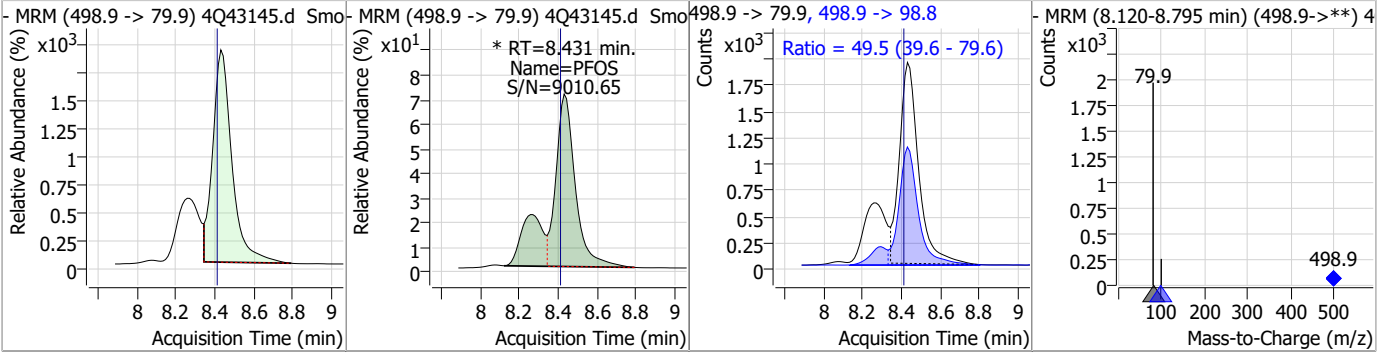


### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.34	8.43	0.02	16995				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	3.05	8.43	0.02	17687 (m)	498.9 -> 98.8	49.5	39.6	79.6



7.6.3

7





# Manual Integration Approval Summary

Sample Number: S4Q624-RT                      Method: EPA DRAFT 1633  
Lab FileID: 4Q43145.D                      Analyst approved: 04/19/23 13:20 Martha Valls  
Injection Time: 04/18/23 10:28                      Supervisor approved: 04/19/23 16:01 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.43	Split peak

7.6.3.1

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## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43146.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 4/18/2023 10:44:23 AM  
 Sample Name : RT BR-LN  
 Vial : P1-B4  
 DA Method File : 1633\_041423\_S4Q621.quantmethod.xml  
 Batch Name : s4q624.batch.bin  
 Sample Information : OP96301,S4q624,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	3.077	216.8 -> 171.9	149651	10.00 µg/L	0.116
M5-PFPeA	4.500	268.3 -> 223.0	81998	5.00 µg/L	0.050
M5-PFHxA	5.647	318.0 -> 273.0	67777	2.50 µg/L	0.025
M4-PFHpA	6.567	367.1 -> 322.0	32891	2.50 µg/L	0.012
M8-PFOA	7.214	421.1 -> 376.0	38836	2.50 µg/L	0.000
M9-PFNA	7.759	472.1 -> 427.0	21838	1.25 µg/L	0.000
M6-PFDA	8.266	519.1 -> 474.1	22150	1.25 µg/L	0.000
M7-PFUnDA	8.748	570.0 -> 525.1	21989	1.25 µg/L	0.000
M2-PFDoDA	9.194	615.1 -> 570.0	28804	1.25 µg/L	0.000
M2-PFTeDA	9.987	715.2 -> 670.0	20691	1.25 µg/L	0.000
M8-FOSA	9.846	506.1 -> 77.8	17622	2.50 µg/L	0.012
M3-PFBS	5.564	302.1 -> 79.9	14168	2.50 µg/L	0.037
M3-PFHxS	7.317	402.1 -> 79.9	8631	2.50 µg/L	0.000
M8-PFOS	8.430	507.1 -> 79.9	12015	2.50 µg/L	0.012
M2-4:2FTS	5.335	329.1 -> 80.9	1512	5.00 µg/L	0.026
M2-6:2FTS	6.986	429.1 -> 80.9	2466	5.00 µg/L	0.012
M2-8:2FTS	8.054	529.1 -> 80.9	3336	5.00 µg/L	0.000
M3-MeFOSAA	8.337	573.2 -> 419.0	19698	5.00 µg/L	0.012
M3-HFPO-DA	6.014	286.9 -> 168.9	41985	10.00 µg/L	0.025
M5-EtFOSAA	8.546	589.2 -> 419.0	14872	5.00 µg/L	0.012
M7-MeFOSE	10.962	623.2 -> 58.9	60484	25.00 µg/L	-0.012
M9-EtFOSE	11.270	639.2 -> 58.9	73237	25.00 µg/L	-0.012
M5-EtFOSA	11.361	531.1 -> 219.0	9985	2.50 µg/L	-0.012
M3-MeFOSA	11.078	515.0 -> 219.0	9831	2.50 µg/L	-0.012
13C4-PFOS	8.430	502.8 -> 79.9	13452	2.50 µg/L	0.012
13C3-PFBA	3.068	216.0 -> 172.0	82316	5.00 µg/L	0.102
18O2-PFHxS	7.316	403.0 -> 83.9	6414	2.50 µg/L	0.000
13C4-PFOA	7.214	417.1 -> 372.0	47330	2.50 µg/L	0.000
13C2-PFDA	8.267	515.1 -> 470.1	19679	1.25 µg/L	0.000
13C5-PFNA	7.759	468.0 -> 423.0	26520	1.25 µg/L	0.000
13C2-PFHxA	5.648	315.1 -> 270.0	56143	2.50 µg/L	0.025
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.335	329.1 -> 80.9	1512	4.31 µg/L	0.026
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 86.3%		
13C2-6:2FTS	6.986	429.1 -> 80.9	2466	4.90 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C2-8:2FTS	8.054	529.1 -> 80.9	3336	4.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 80.6%		
13C2-PFDoDA	9.194	615.1 -> 570.0	28804	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.1%		
13C2-PFTeDA	9.987	715.2 -> 670.0	20691	1.10 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.8%		
13C3-PFBS	5.564	302.1 -> 79.9	14168	2.40 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.1%		
13C3-PFHxS	7.317	402.1 -> 79.9	8631	2.43 µg/L	0.000

7.6.4  
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## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C4-PFBA	3.077	216.8 -> 171.9	149651	10.44 µg/L	0.116
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C4-PFHpA	6.567	367.1 -> 322.0	32891	2.58 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C5-PFHxA	5.647	318.0 -> 273.0	67777	2.61 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C5-PFPeA	4.500	268.3 -> 223.0	81998	4.96 µg/L	0.050
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C6-PFDA	8.266	519.1 -> 474.1	22150	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C7-PFUnDA	8.748	570.0 -> 525.1	21989	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.6%	
13C8-FOSA	9.846	506.1 -> 77.8	17622	2.00 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 80.1%	
13C8-PFOA	7.214	421.1 -> 376.0	38836	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C8-PFOS	8.430	507.1 -> 79.9	12015	2.30 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.2%	
13C9-PFNA	7.759	472.1 -> 427.0	21838	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.4%	
d3-MeFOSAA	8.337	573.2 -> 419.0	19698	4.97 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C3-HFPO-DA	6.014	286.9 -> 168.9	41985	10.66 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.6%	
d3-MeFOSA	11.078	515.0 -> 219.0	9831	2.36 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.4%	
d5-EtFOSAA	8.546	589.2 -> 419.0	14872	4.62 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.4%	
d7-MeFOSE	10.962	623.2 -> 58.9	60484	17.43 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 69.7%	
d9-EtFOSE	11.270	639.2 -> 58.9	73237	17.25 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 69.0%	
d5-EtFOSA	11.361	531.1 -> 219.0	9985	2.22 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.8%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.336	327.1 -> 307.0	114595	60.81 µg/L	99
		327.1 -> 80.9	49125		
6:2FTS	6.987	427.1 -> 407.0	93643	55.61 µg/L	95
		427.1 -> 80.9	39008		
8:2FTS	8.054	527.1 -> 507.0	104287	69.72 µg/L	92
		527.1 -> 80.8	40833		
EtFOSAA	8.547	584.2 -> 419.1	33807	15.22 µg/L	m 96
		584.2 -> 526.0	16690		
FOSA	9.837	498.1 -> 77.9	201325	35.48 µg/L	m 98
		498.1 -> 478.0	6219		
MeFOSAA	8.337	570.1 -> 419.0	37563	13.84 µg/L	m 95
		570.1 -> 483.0	7522		
PFBA	3.071	212.8 -> 168.9	194917	57.03 µg/L	100
PFBS	5.565	298.7 -> 79.9	70784	13.39 µg/L	97
		298.7 -> 98.8	27410		
PFDA	8.280	512.9 -> 469.0	186807	14.75 µg/L	100
		512.9 -> 219.0	36932		
PFDoDA	9.195	613.1 -> 569.0	269602	14.84 µg/L	100
		613.1 -> 319.0	36906		
PFDS	9.358	599.0 -> 79.9	37214	13.85 µg/L	99

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.568	599.0 -> 98.8	18451	15.58	µg/L	97
		363.1 -> 319.0	255633			
PFHpS	7.900	363.1 -> 169.0	44754	14.72	µg/L	99
		449.0 -> 79.9	46038			
PFHxA	5.650	449.0 -> 98.9	24042	14.59	µg/L	100
		313.0 -> 269.0	292638			
PFHxS	7.318	313.0 -> 118.9	8857	13.86	µg/L	99
		398.7 -> 79.9	40977			
PFNA	7.760	398.7 -> 98.9	21208	30.36	µg/L	97
		463.0 -> 419.0	354375			
PFNS	8.912	463.0 -> 219.0	96245	14.77	µg/L	97
		548.8 -> 79.9	27318			
PFOA	7.215	548.8 -> 98.9	14091	32.54	µg/L	100
		413.0 -> 369.0	590455			
PFOS	8.431	413.0 -> 169.0	124740	13.62	µg/L	94
		498.9 -> 79.9	63694			
PFPeA	4.502	498.9 -> 98.8	32660	31.13	µg/L	100
		263.0 -> 219.0	483165			
PFPeS	6.607	349.1 -> 79.9	37019	14.71	µg/L	98
		349.1 -> 98.9	16135			
PFTeDA	9.988	713.1 -> 669.0	240358	14.75	µg/L	98
		713.1 -> 168.9	19888			
PFTrDA	9.617	663.0 -> 619.0	328020	14.02	µg/L	99
		663.0 -> 168.9	31920			
PFUnDA	8.748	563.1 -> 519.0	179540	14.44	µg/L	97
		563.1 -> 269.1	35803			
11CI-PF3OUdS	9.656	630.9 -> 450.9	297763	27.17	µg/L	100
		632.9 -> 452.9	91668			
9CI-PF3ONS	8.775	530.8 -> 351.0	336305	27.47	µg/L	98
		532.8 -> 353.0	101172			
ADONA	6.819	376.9 -> 250.9	703029	27.88	µg/L	98
		376.9 -> 84.8	191322			
HFPO-DA	6.015	284.9 -> 168.9	94429	28.38	µg/L	96
		284.9 -> 184.9	10847			
3:3FTCA	4.017	241.0 -> 177.0	56986	78.79	µg/L	100
		241.0 -> 117.0	5169			
5:3FTCA	6.345	341.0 -> 237.1	1071731	378.23	µg/L	99
		341.0 -> 217.0	756498			
7:3FTCA	7.762	441.0 -> 316.9	431974	372.00	µg/L	99
		441.0 -> 336.9	963154			
EtFOSA	11.375	526.0 -> 219.0	187347	52.66	µg/L	98
		526.0 -> 169.0	257662			
EtFOSE	11.283	630.0 -> 58.9	220857	97.84	µg/L	100
		511.9 -> 219.0	145538			
MeFOSA	11.079	511.9 -> 169.0	228894	45.79	µg/L	90
		616.1 -> 58.9	201715			
MeFOSE	10.987	699.1 -> 79.9	32431	94.89	µg/L	100
		699.1 -> 98.8	18350			
PFDoDS	10.140	295.0 -> 201.0	39606	13.96	µg/L	96
		295.0 -> 84.9	10060			
NFDHA	5.529	279.0 -> 85.1	276159	29.37	µg/L	99
		229.0 -> 84.9	244504			
PFMBA	4.891	314.8 -> 134.9	445492	31.12	µg/L	100
		314.8 -> 82.9	15002			
PFMPA	3.657			31.50	µg/L	100
PFEESA	6.084			26.45	µg/L	100

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

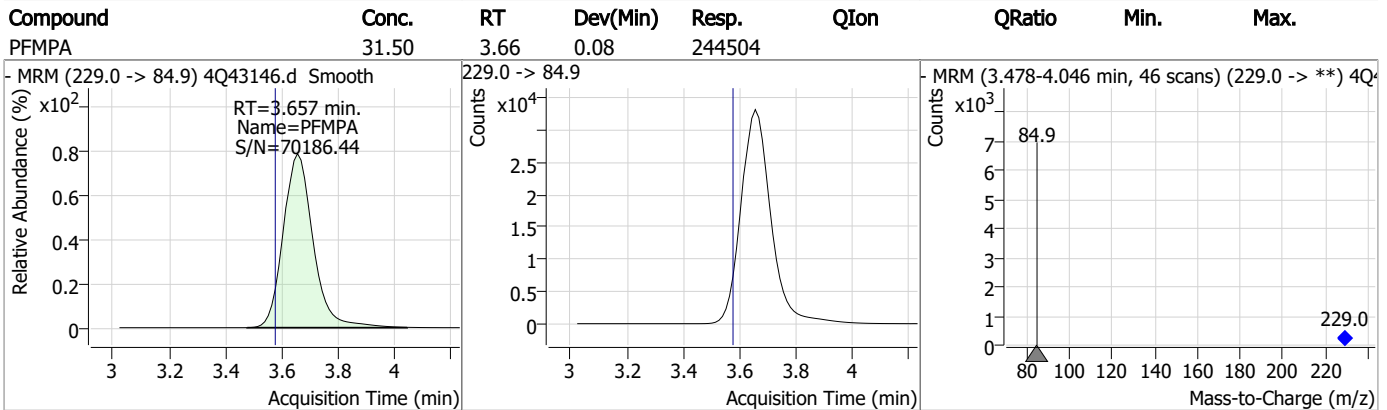
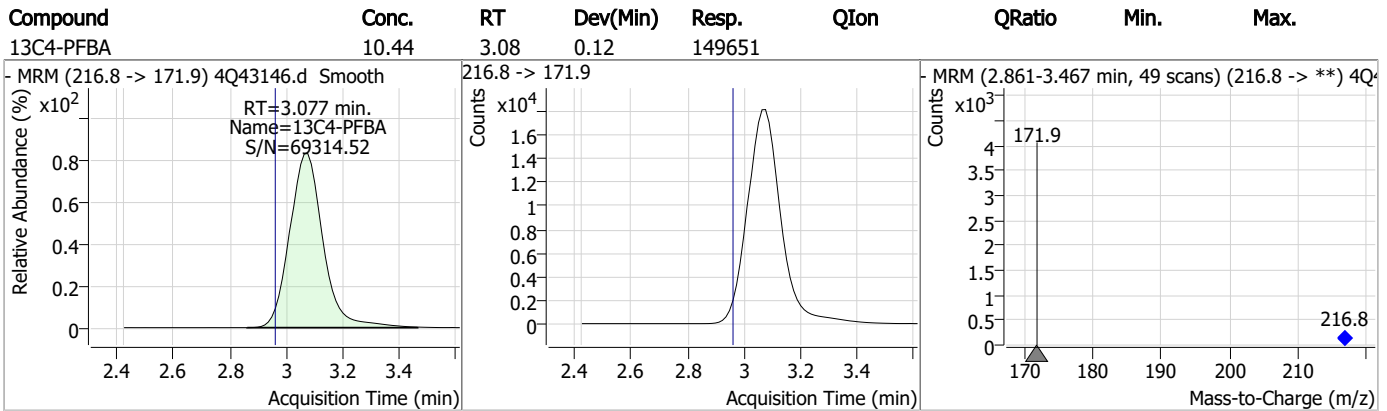
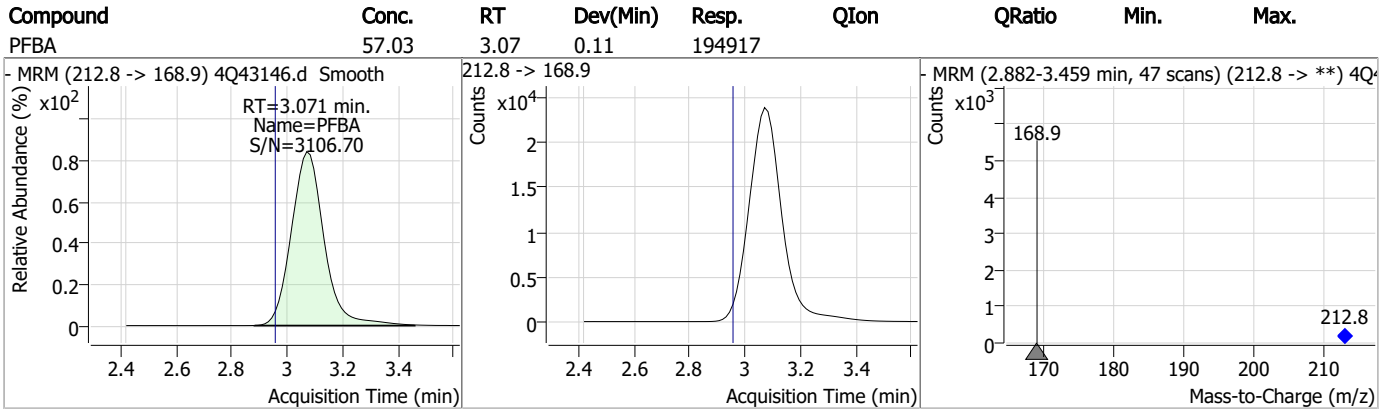
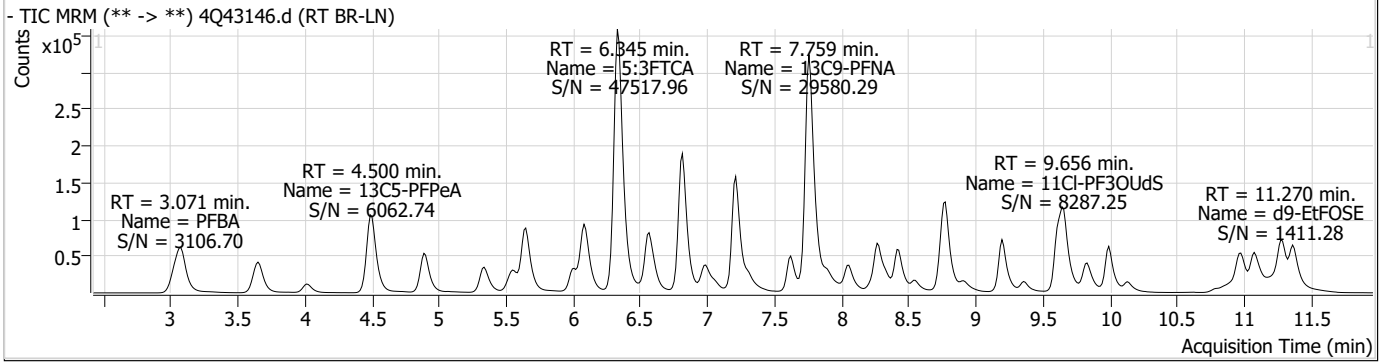
# Perfluorinated Compounds by LC/MS/MS

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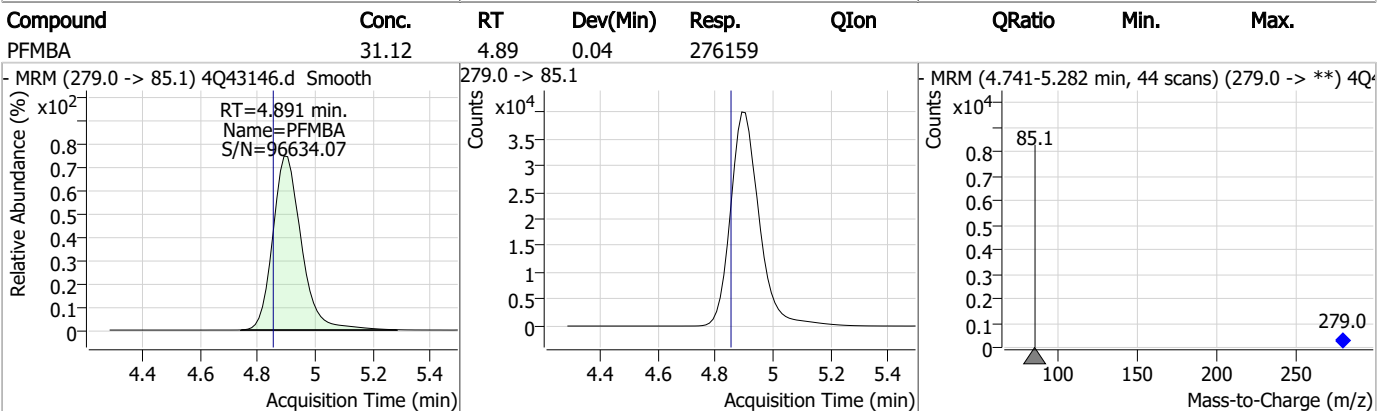
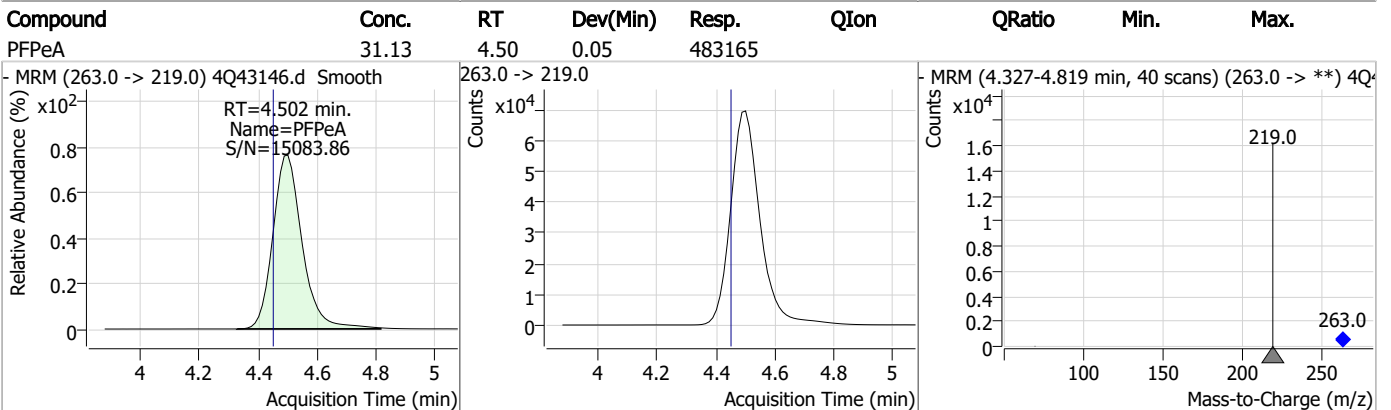
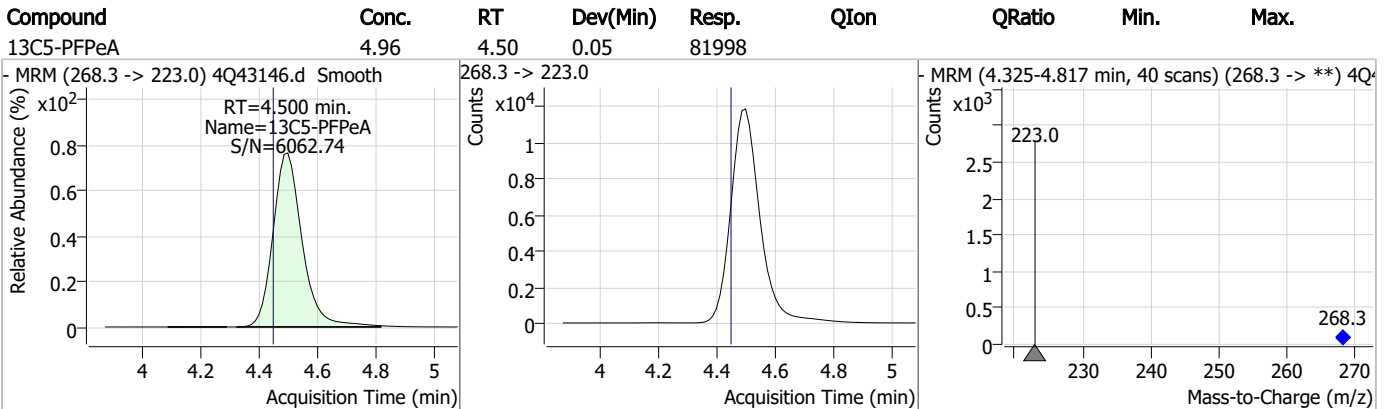
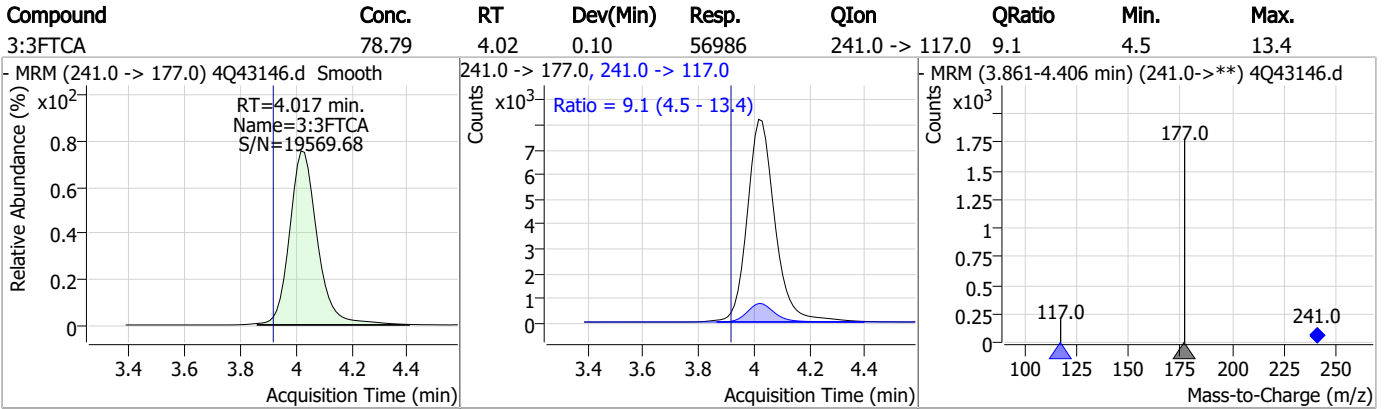
7.6.4

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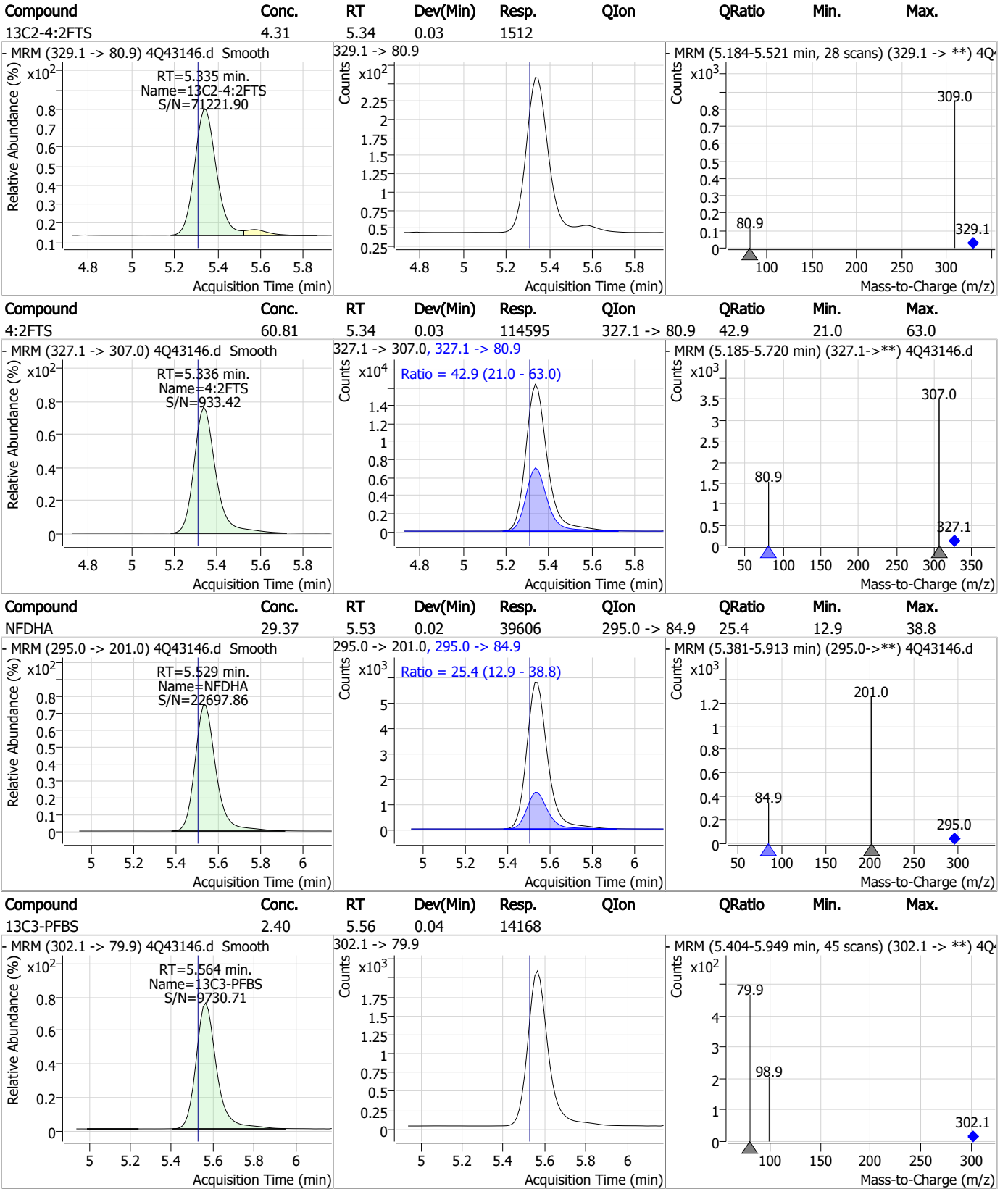
# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS



7.6.4

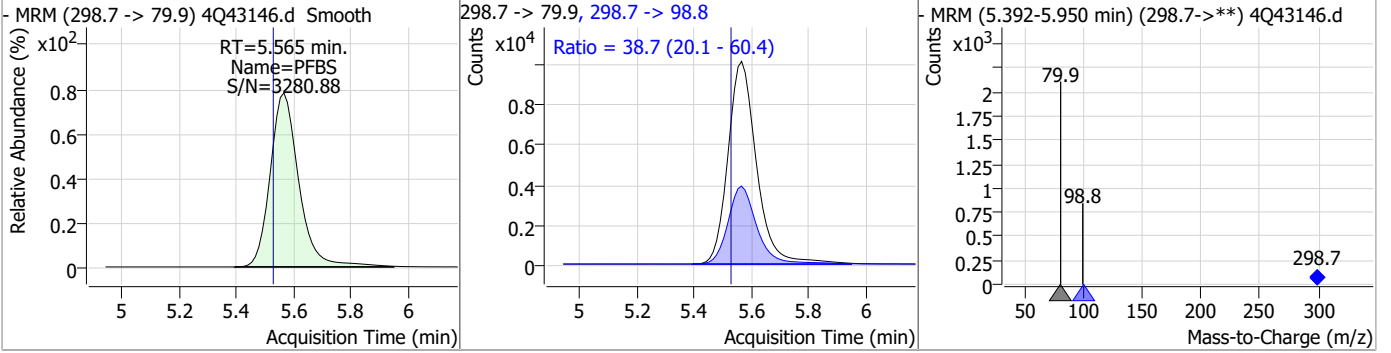
7



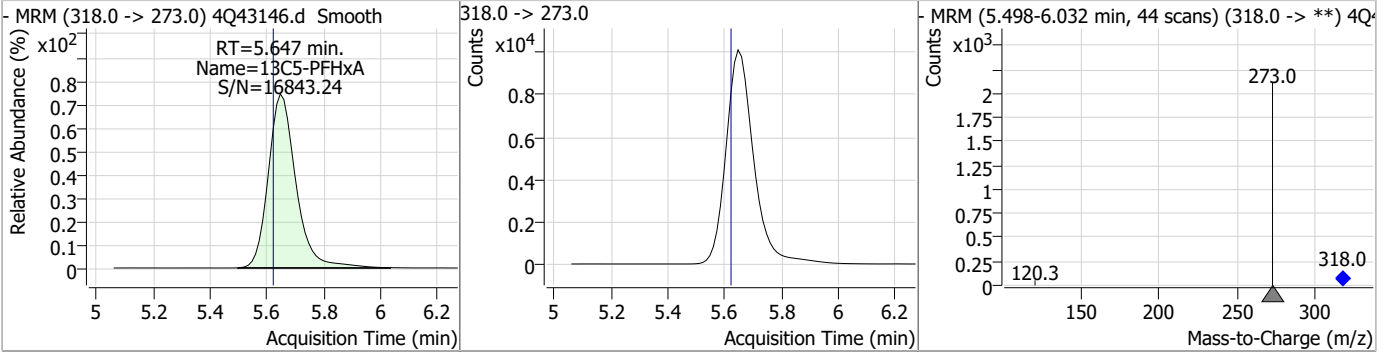


# Perfluorinated Compounds by LC/MS/MS

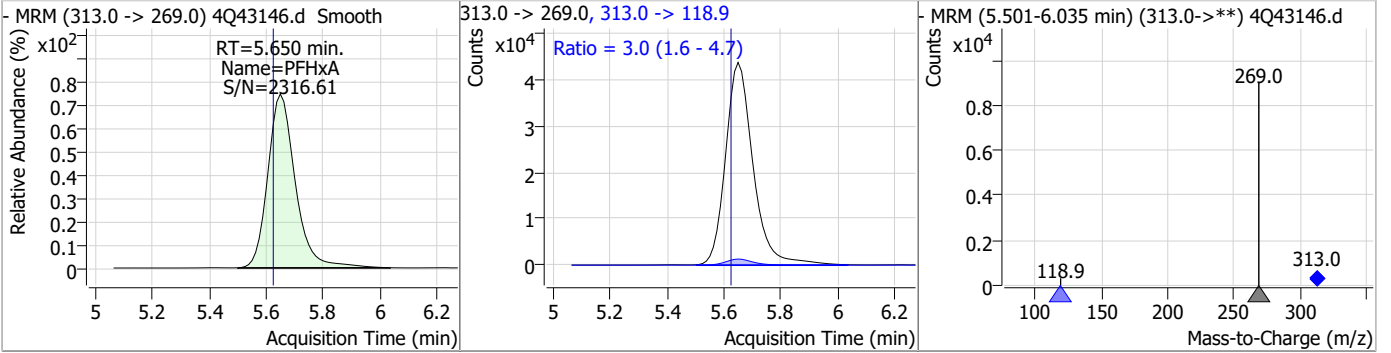
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	13.39	5.57	0.04	70784	298.7 -> 98.8	38.7	20.1	60.4



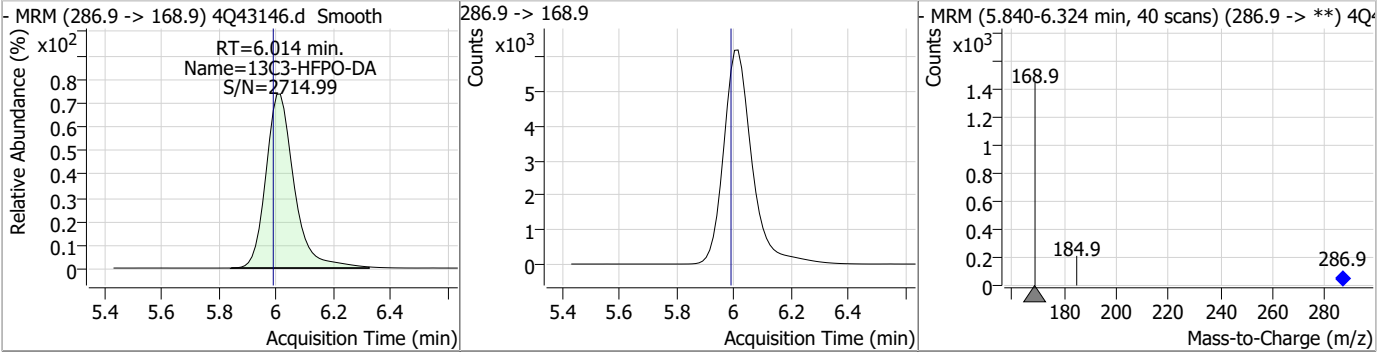
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.61	5.65	0.02	67777				



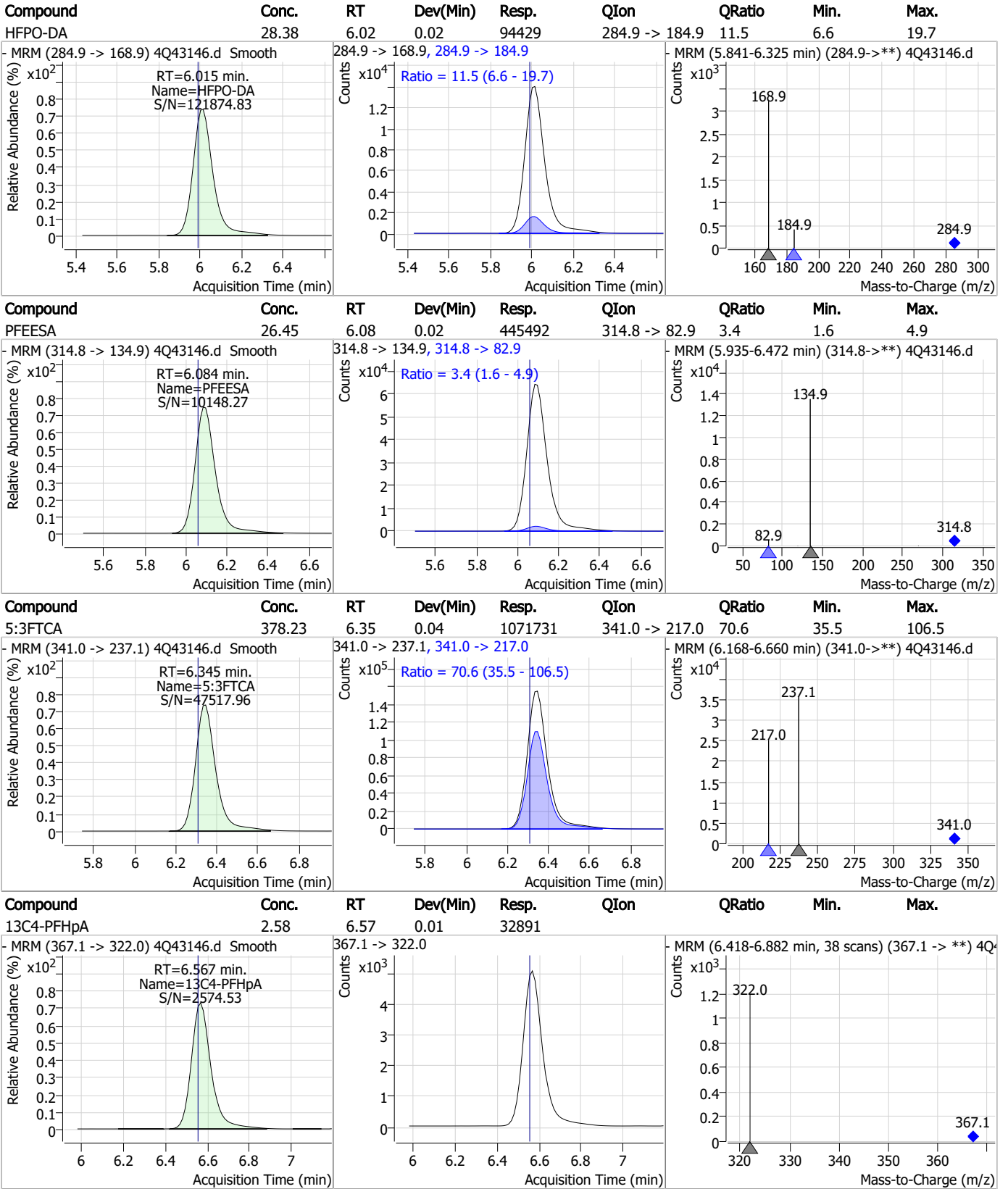
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	14.59	5.65	0.02	292638	313.0 -> 118.9	3.0	1.6	4.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.66	6.01	0.02	41985				



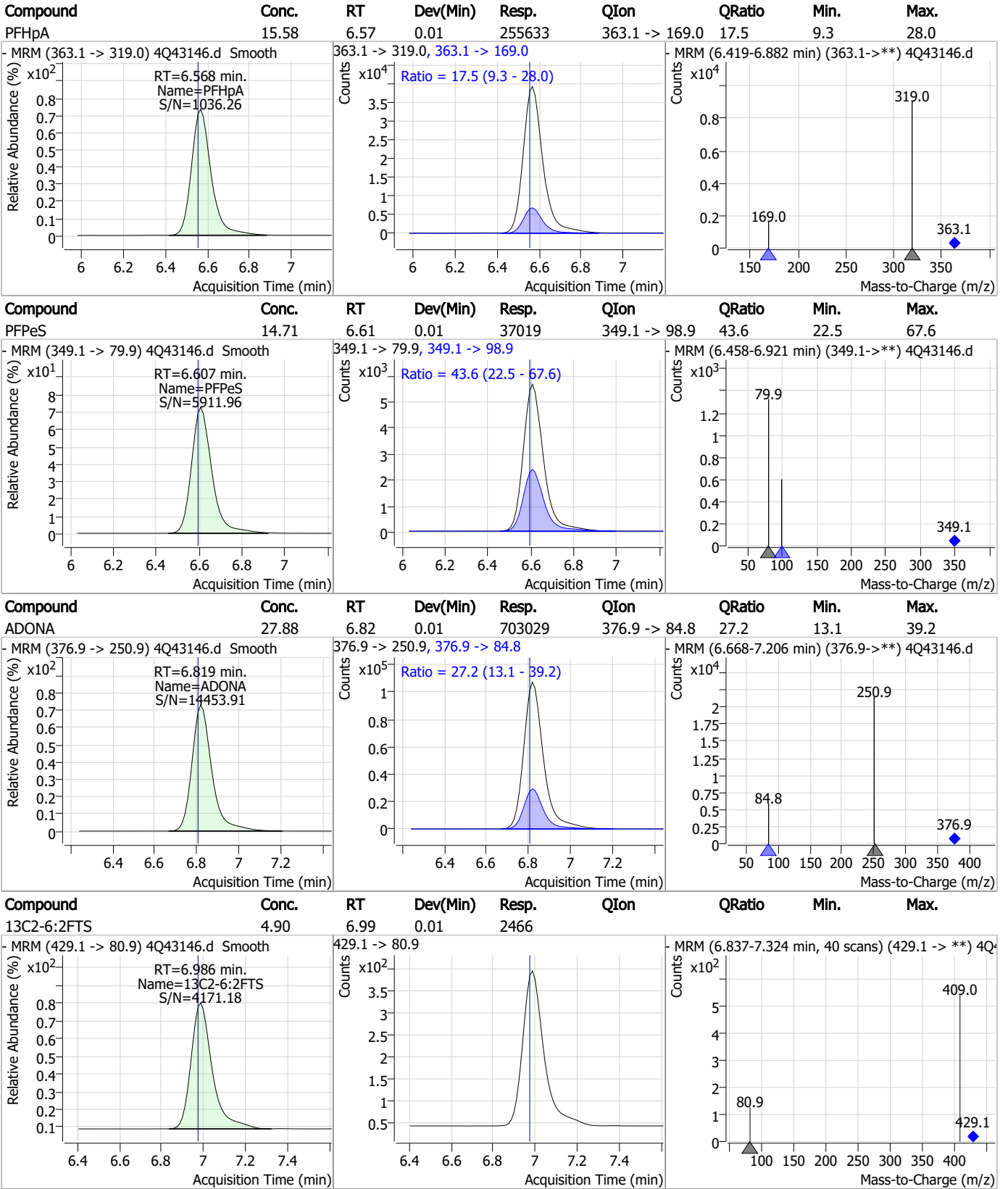
# Perfluorinated Compounds by LC/MS/MS



7.6.4

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# Perfluorinated Compounds by LC/MS/MS

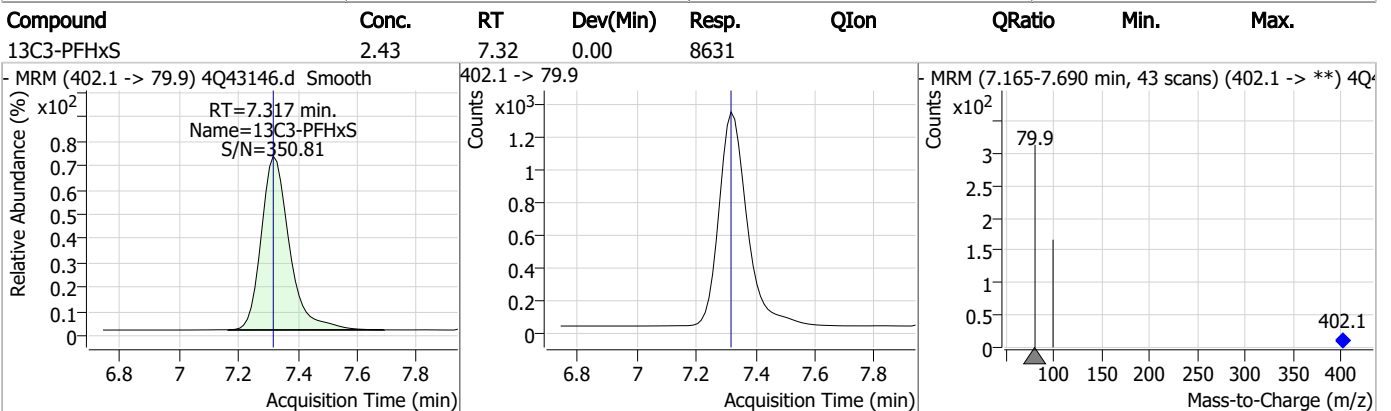
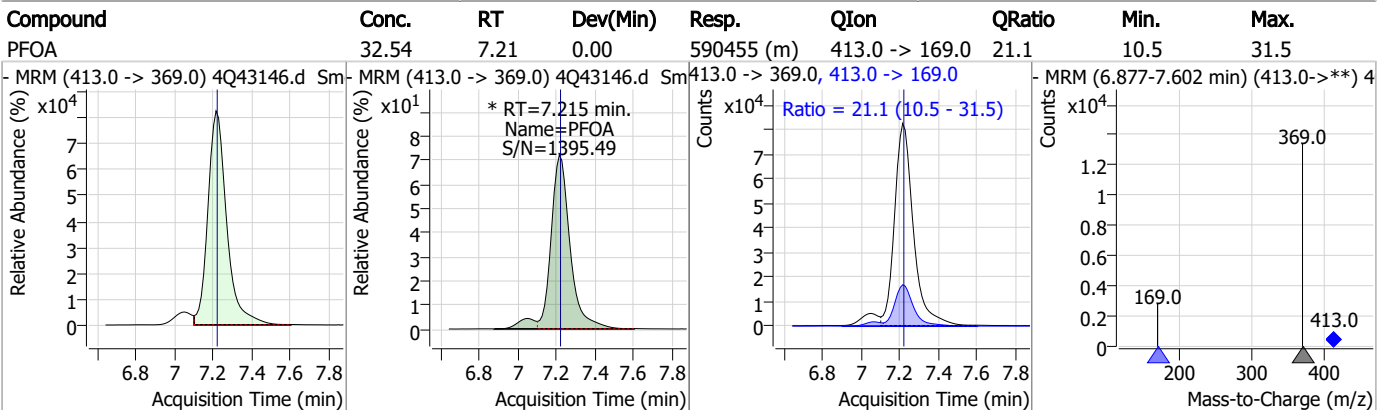
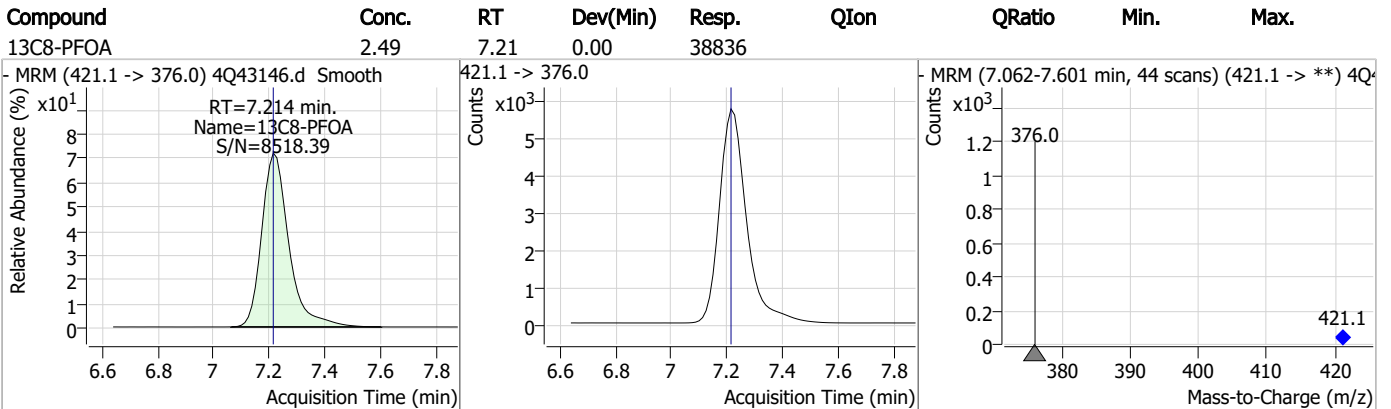
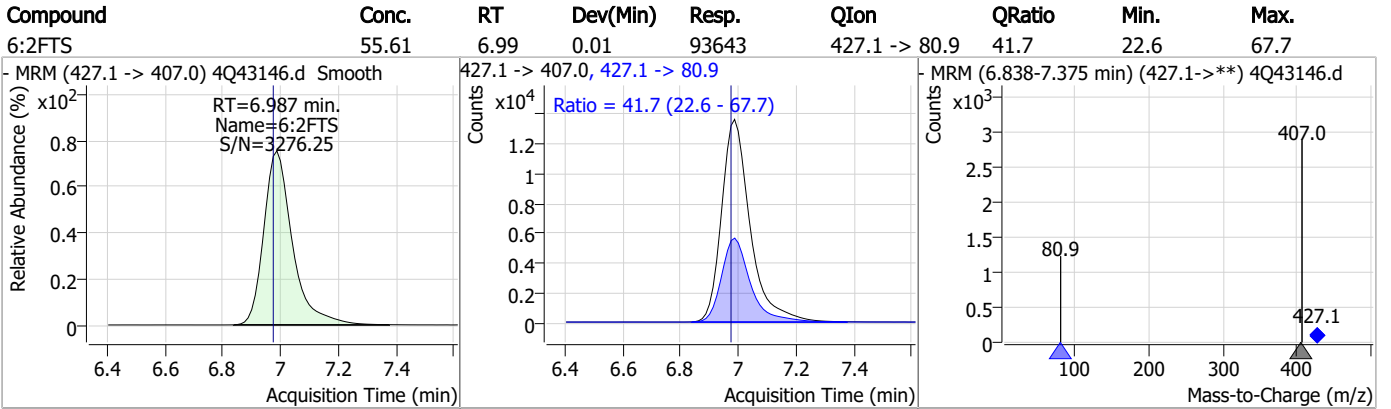


7.6.4

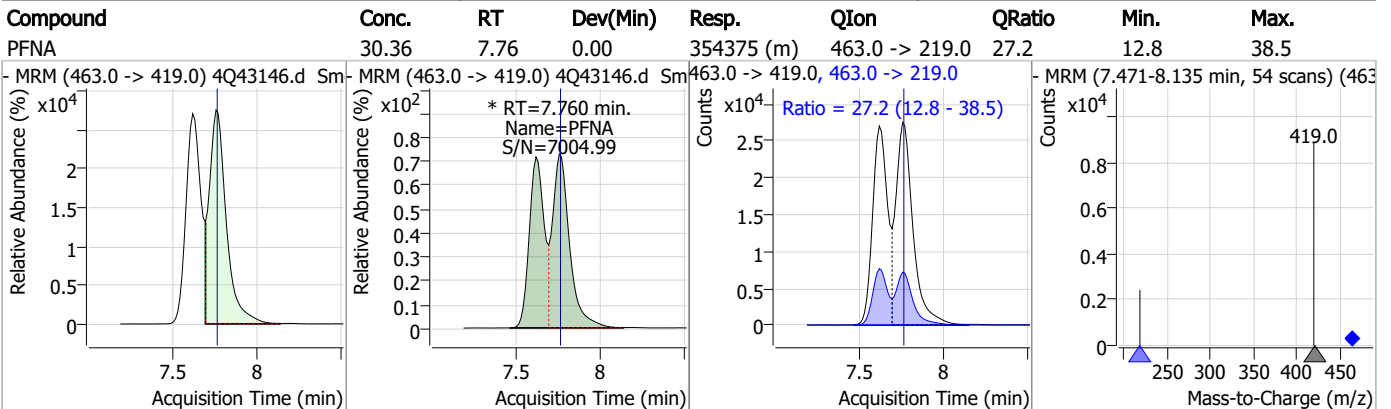
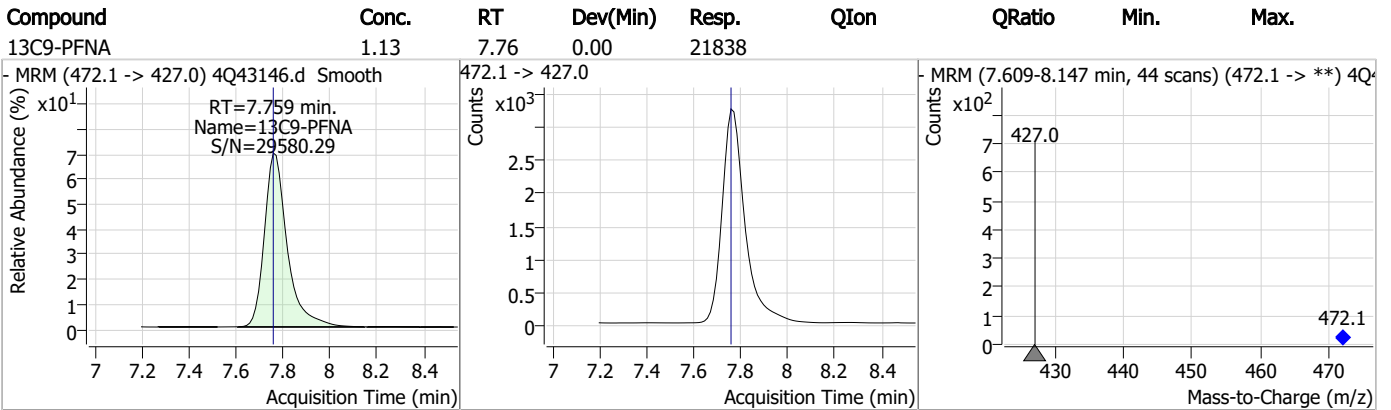
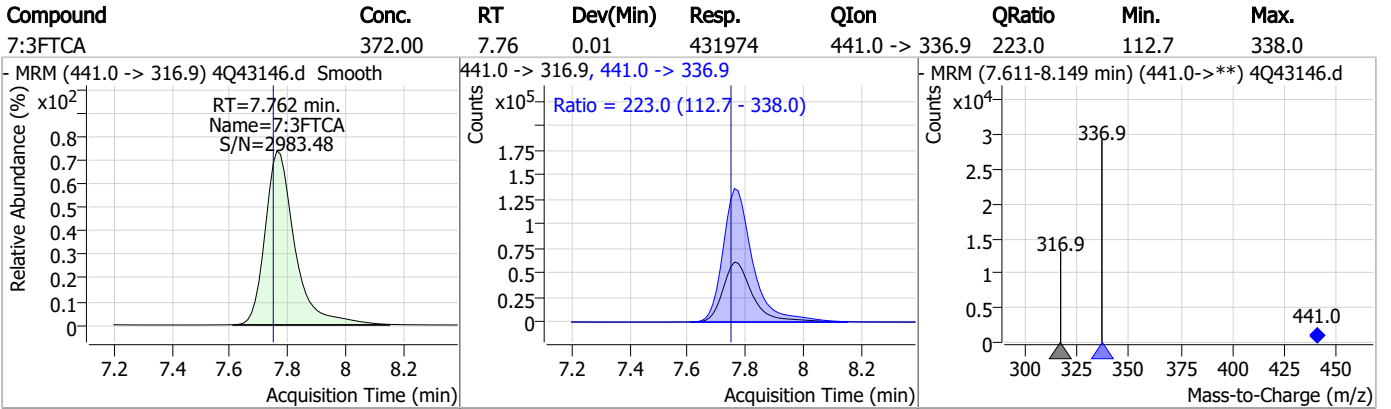
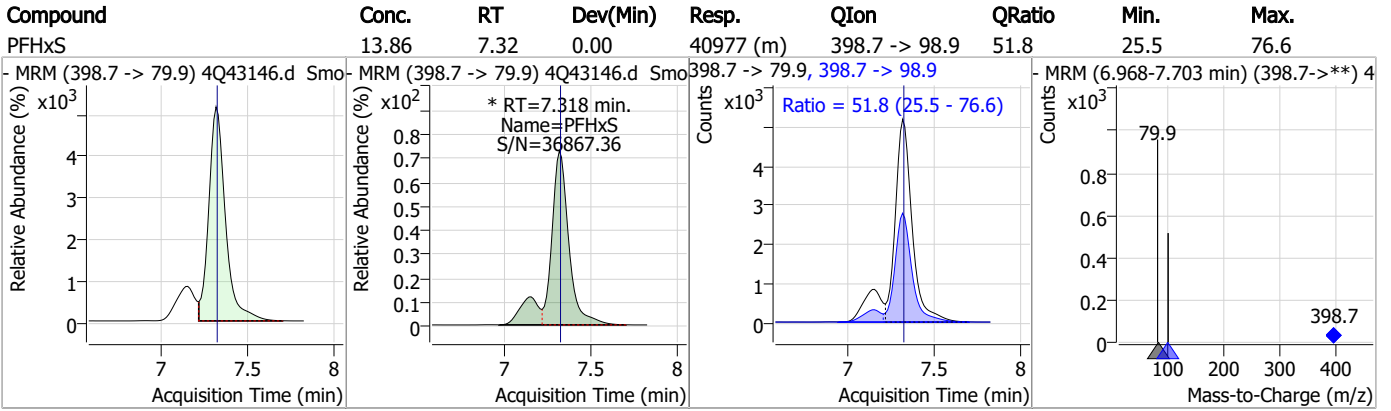
7



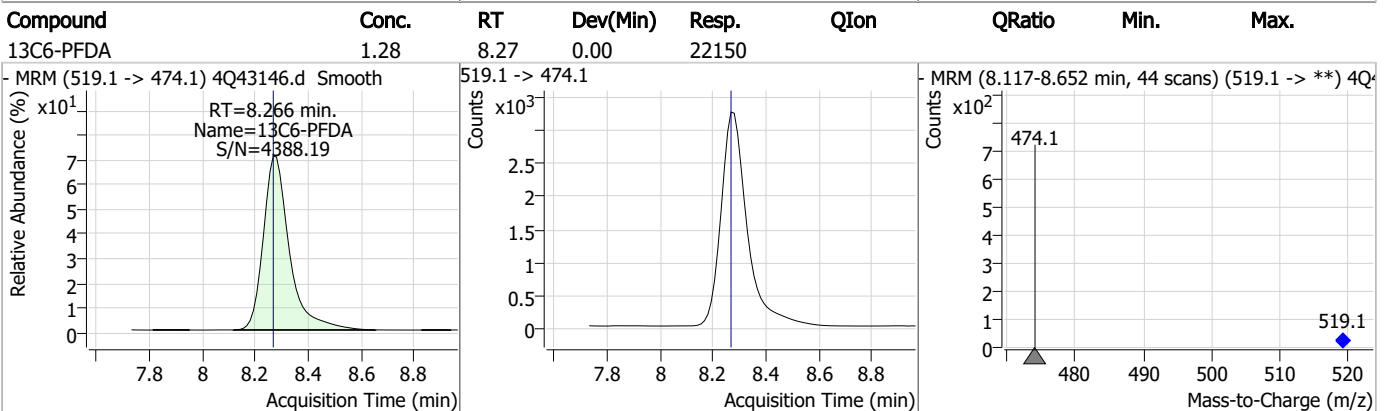
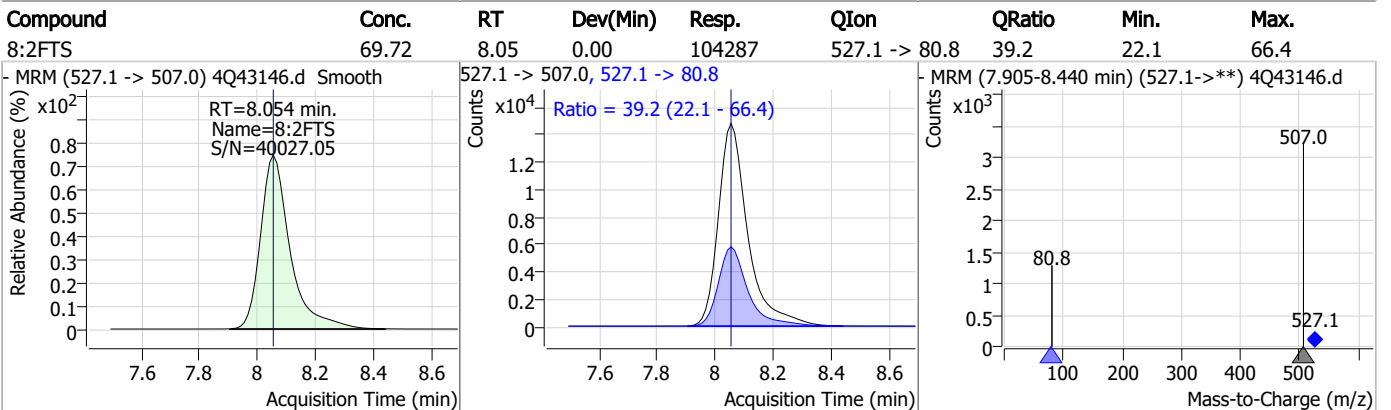
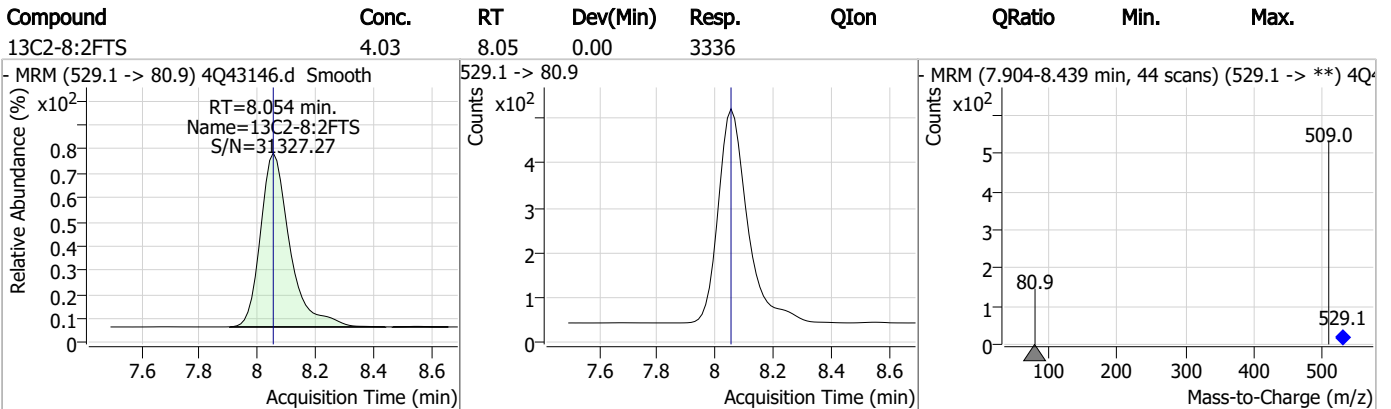
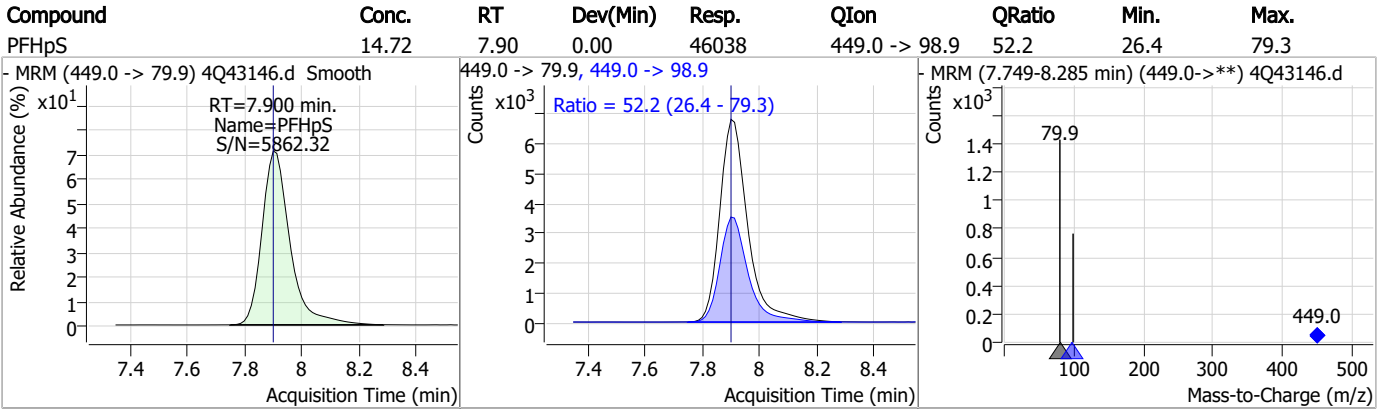
# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS

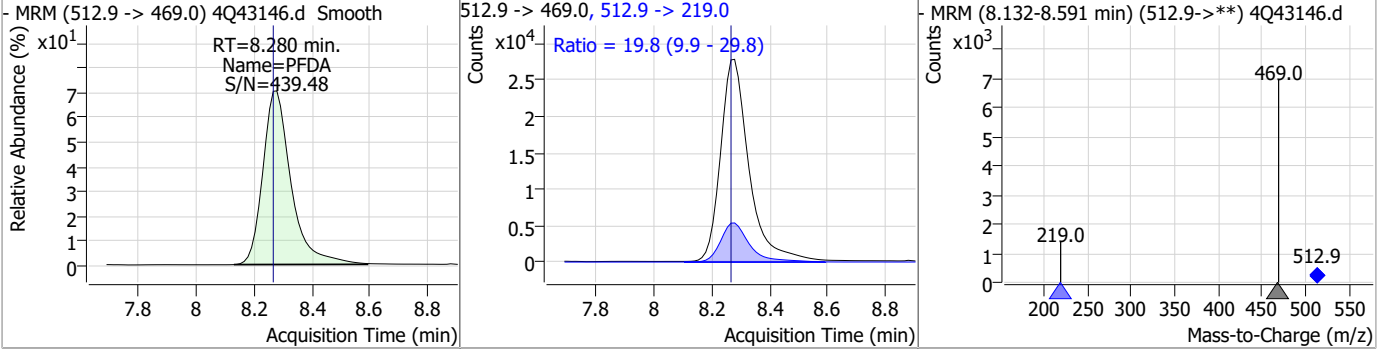


# Perfluorinated Compounds by LC/MS/MS

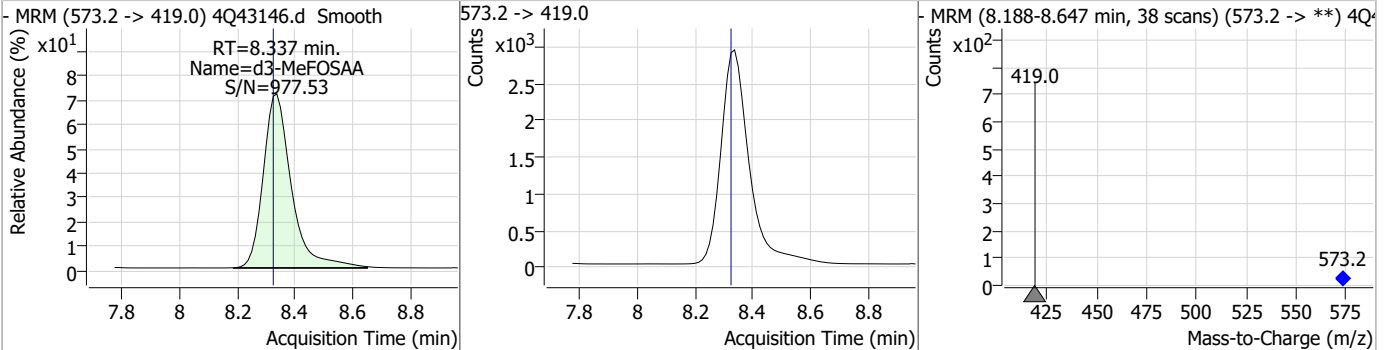


# Perfluorinated Compounds by LC/MS/MS

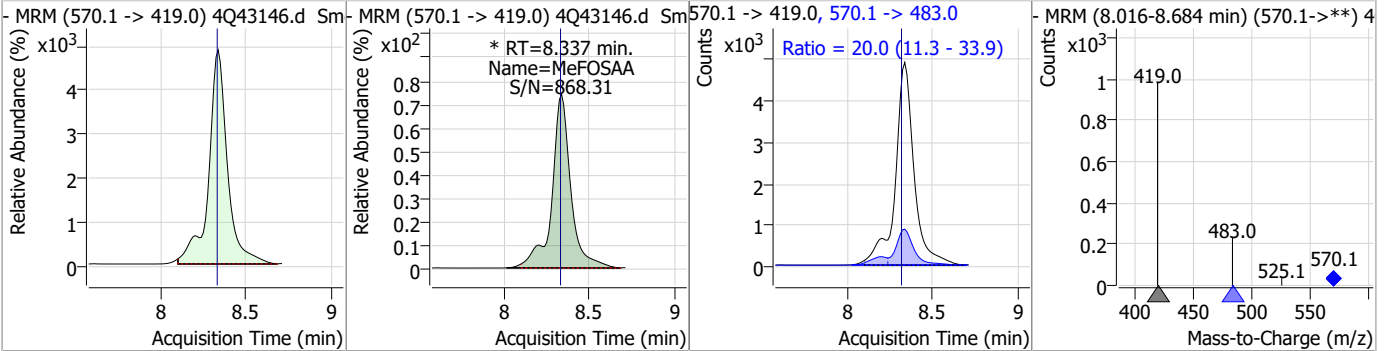
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	14.75	8.28	0.01	186807	512.9 -> 219.0	19.8	9.9	29.8



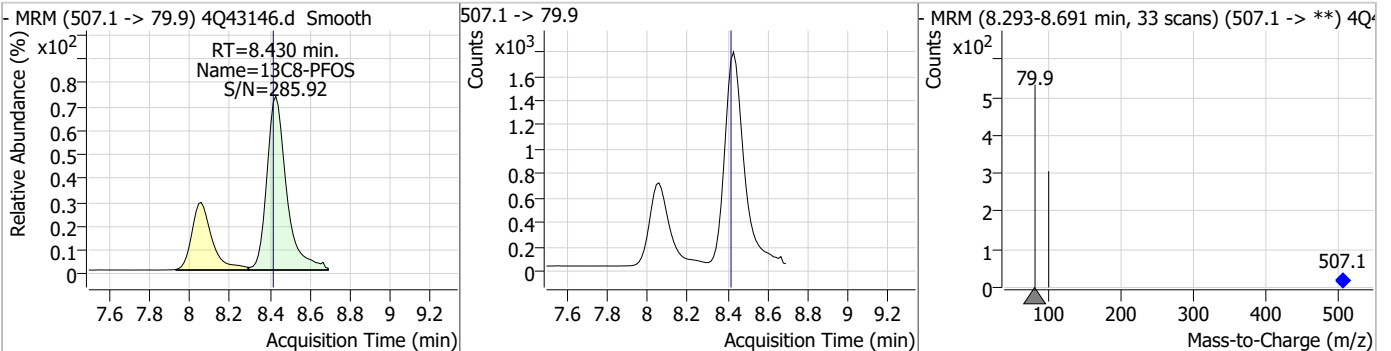
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.97	8.34	0.01	19698				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	13.84	8.34	0.01	37563 (m)	570.1 -> 483.0	20.0	11.3	33.9

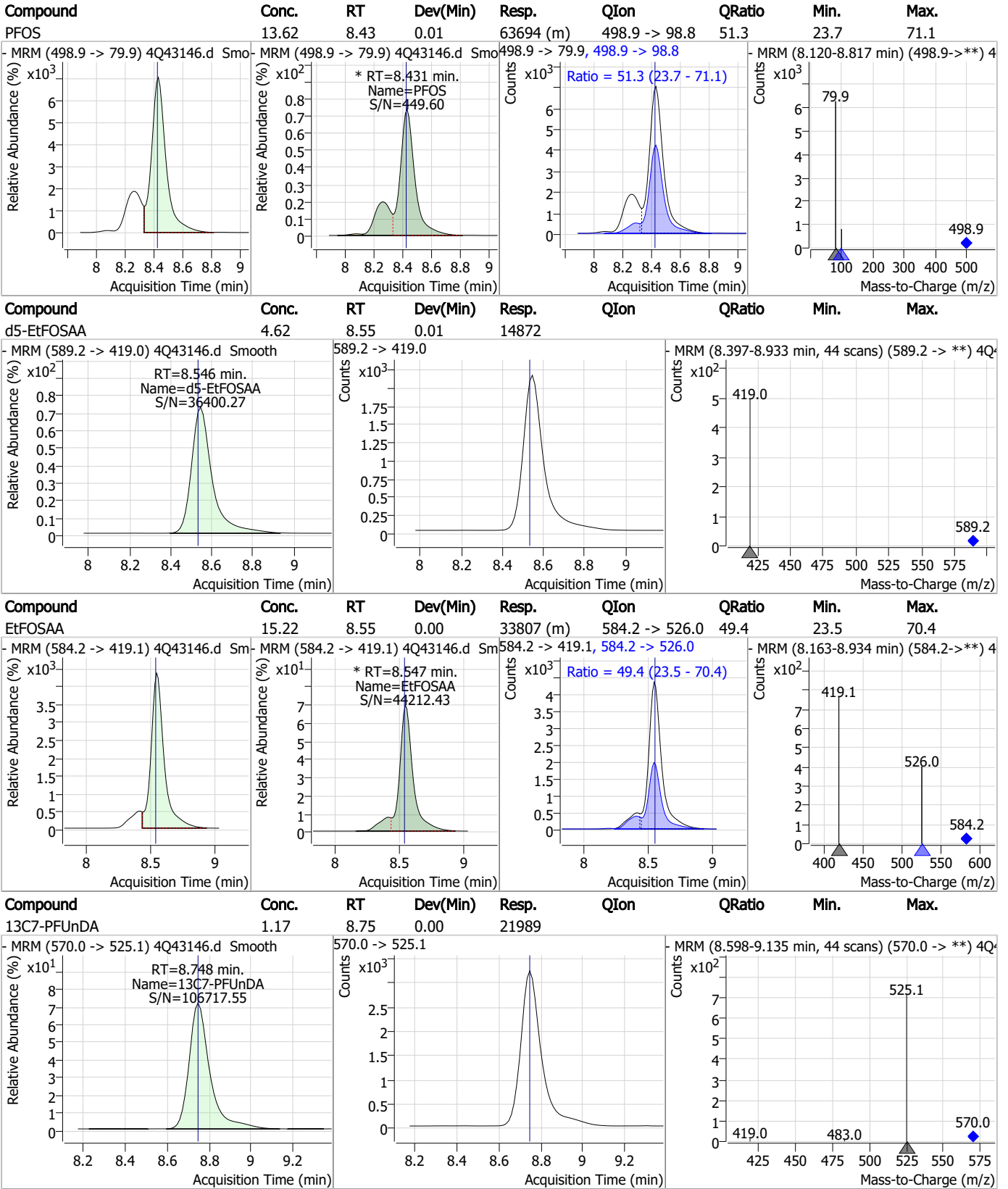


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.30	8.43	0.01	12015				



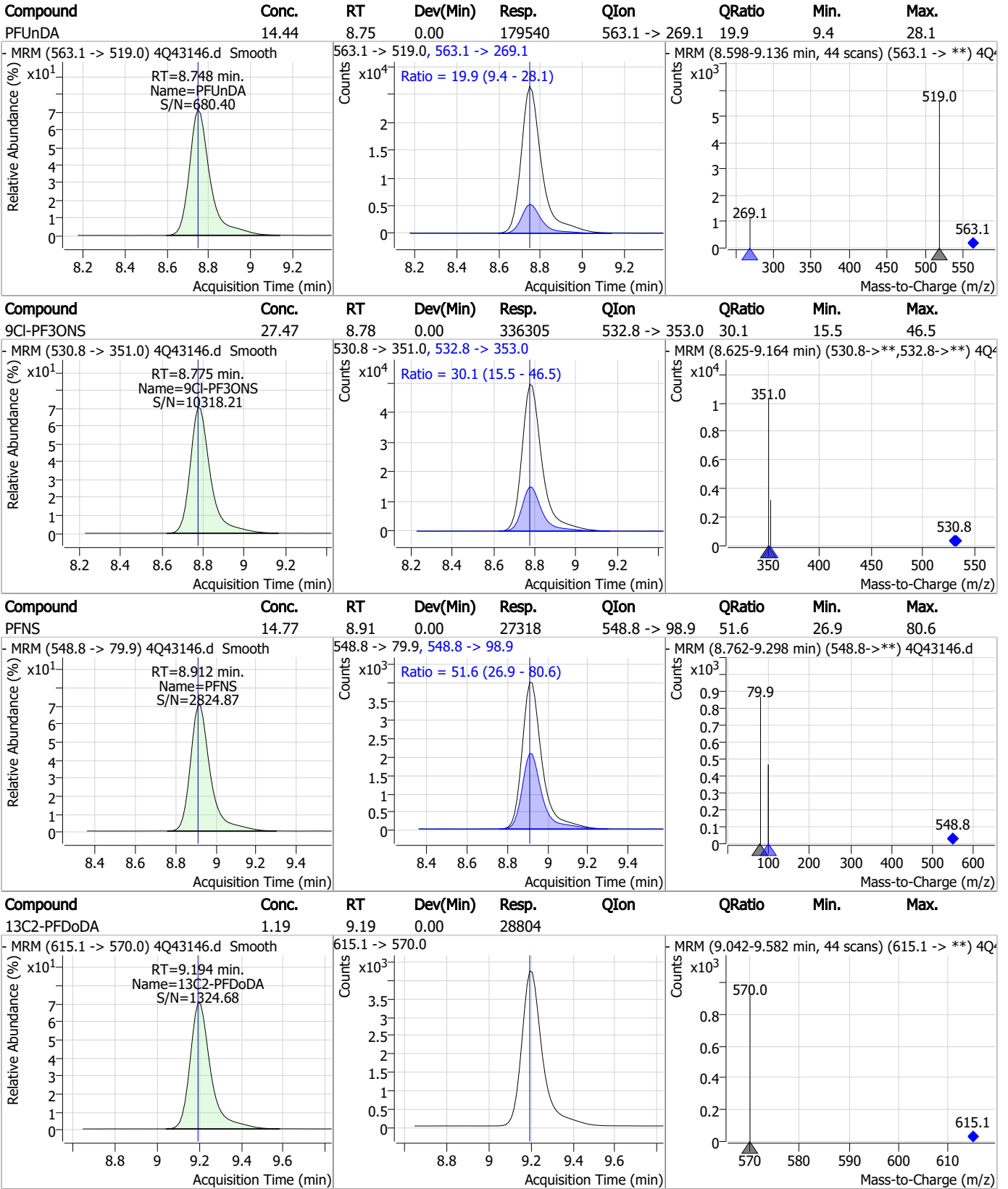


# Perfluorinated Compounds by LC/MS/MS

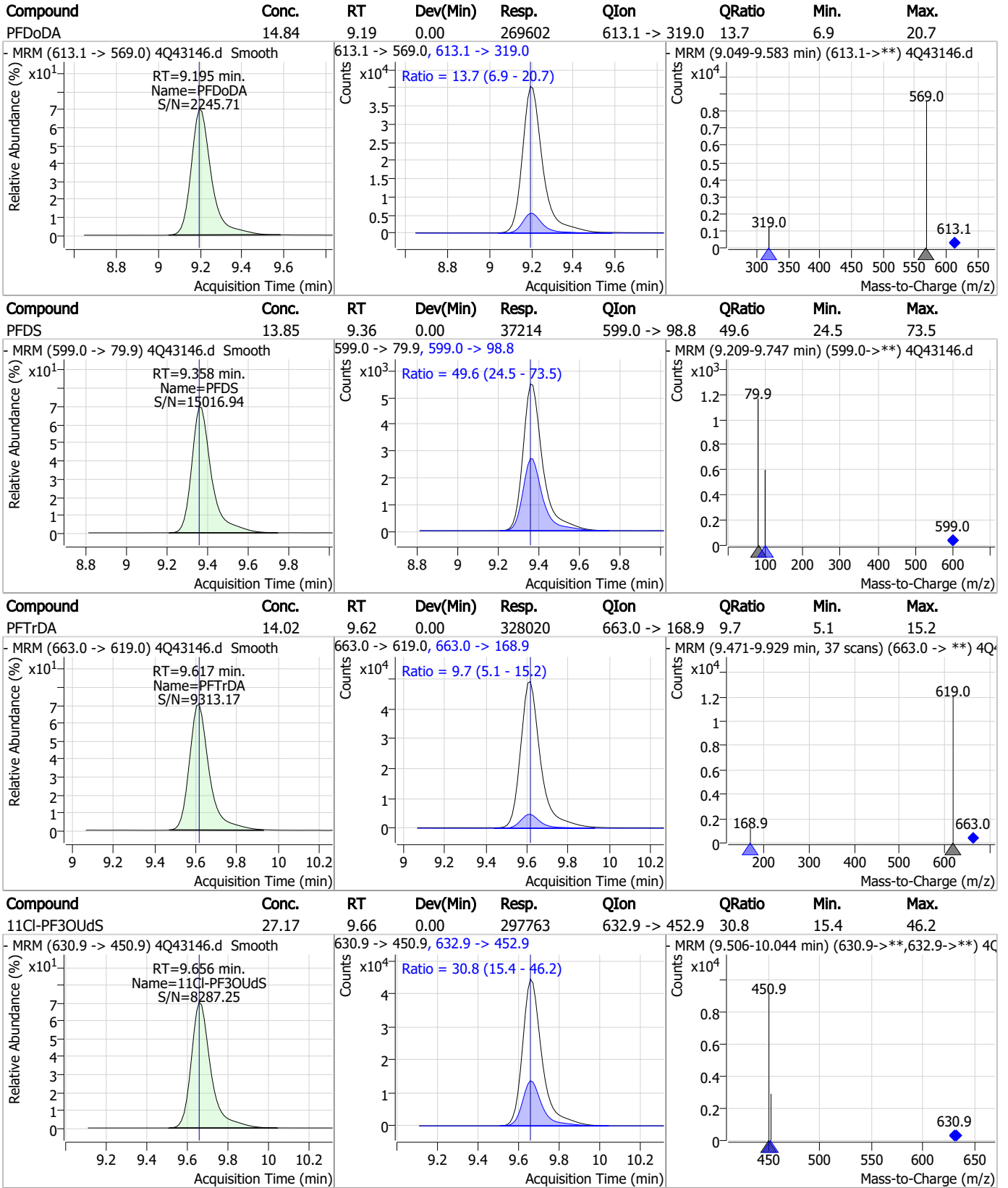




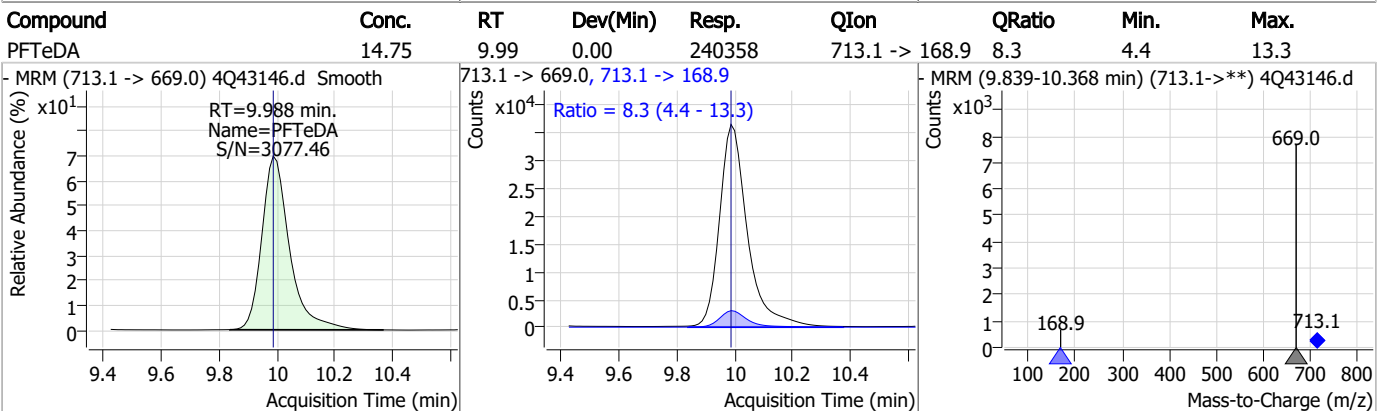
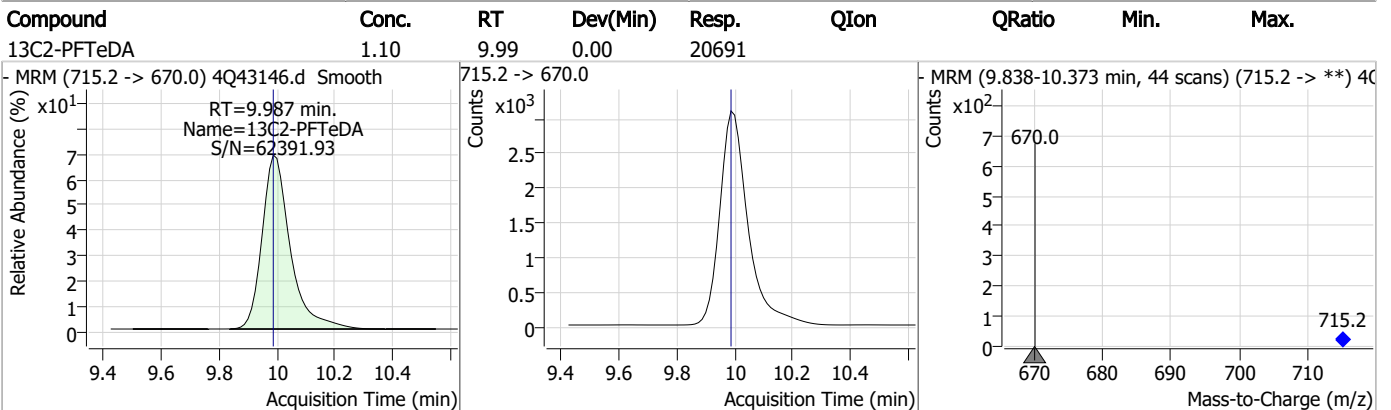
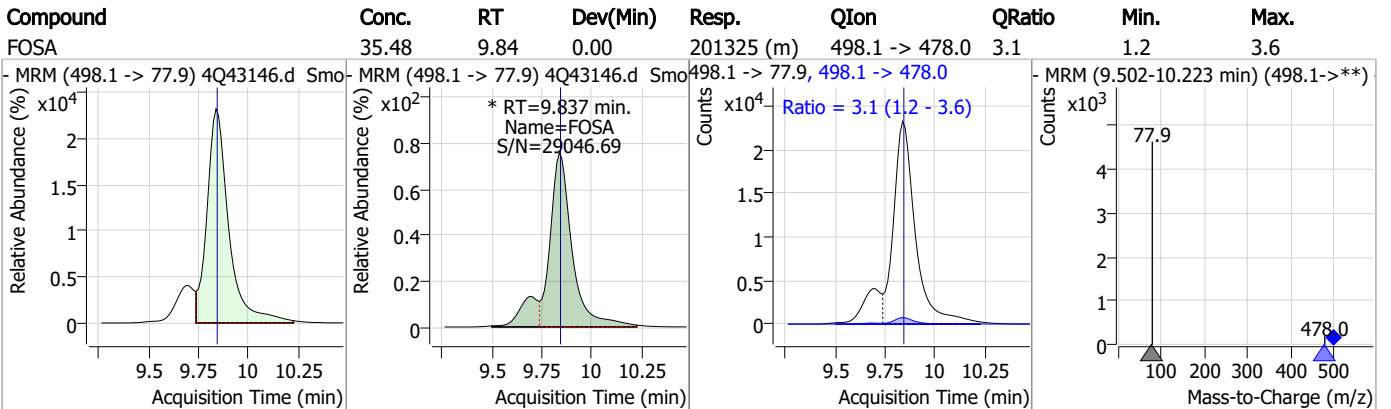
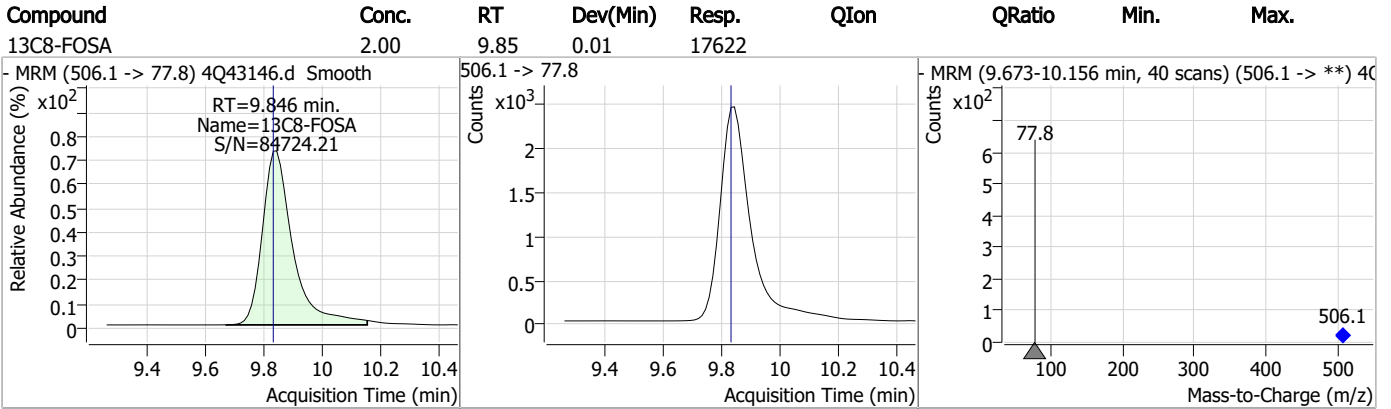
# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS

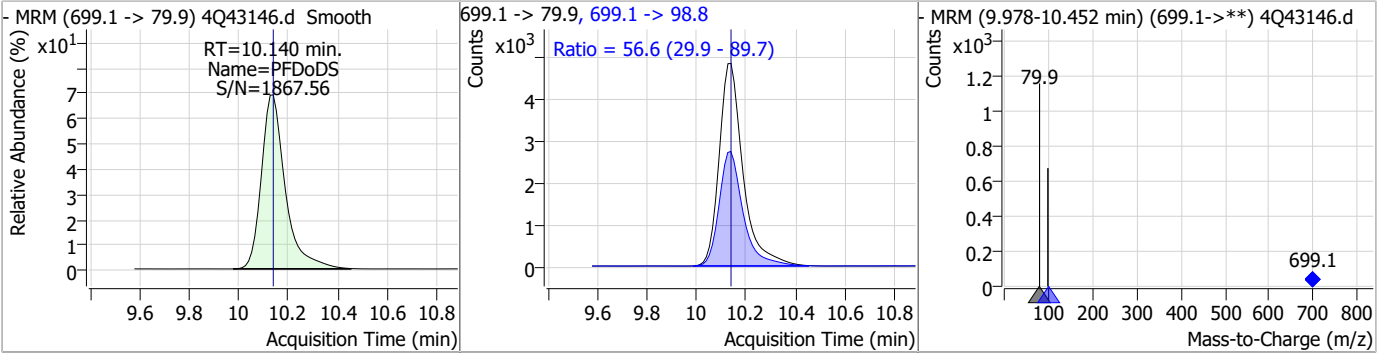


# Perfluorinated Compounds by LC/MS/MS

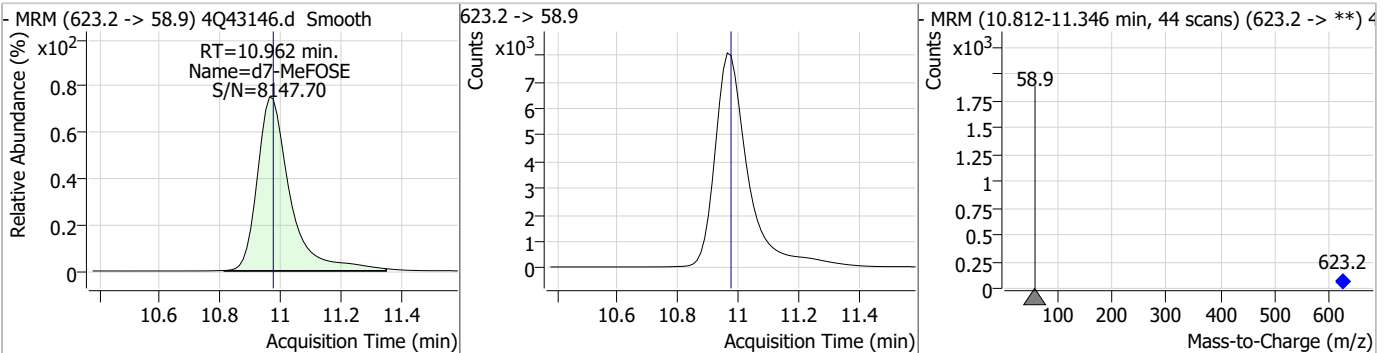


# Perfluorinated Compounds by LC/MS/MS

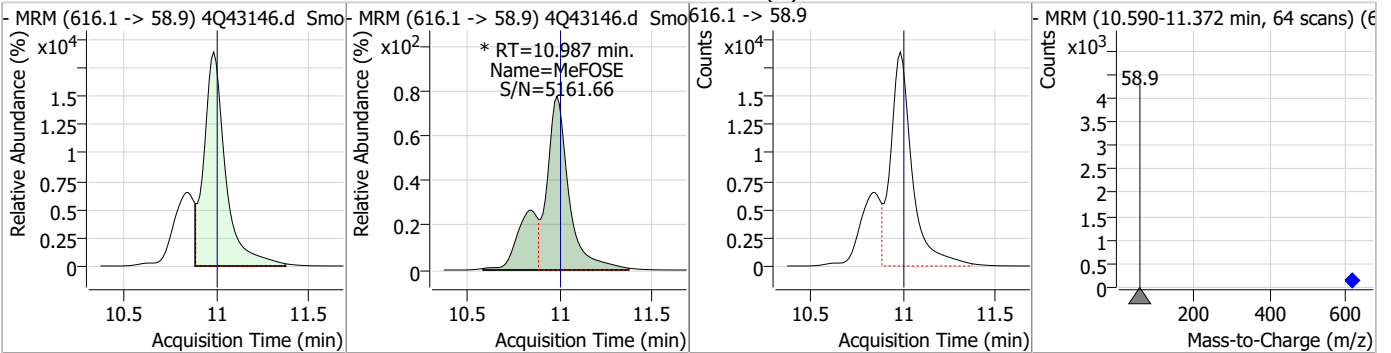
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	13.96	10.14	0.00	32431	699.1 -> 98.8	56.6	29.9	89.7



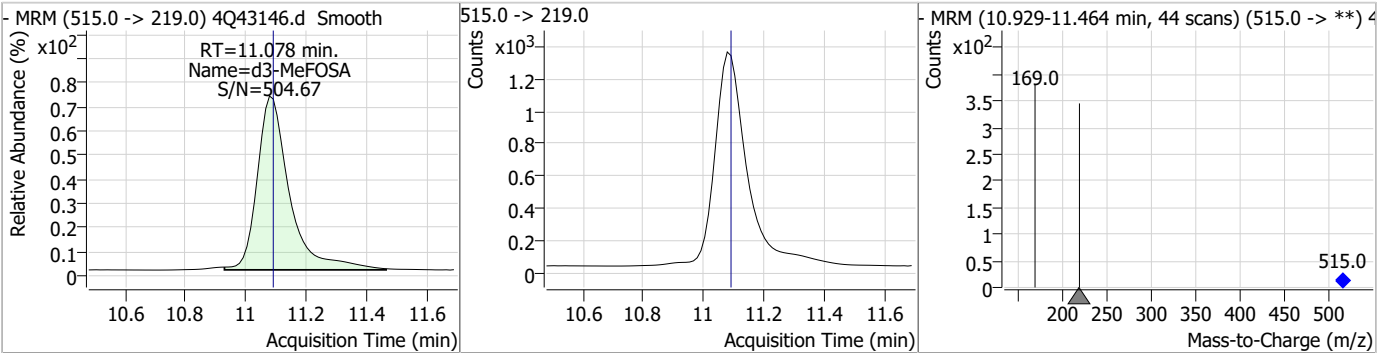
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	17.43	10.96	-0.01	60484				



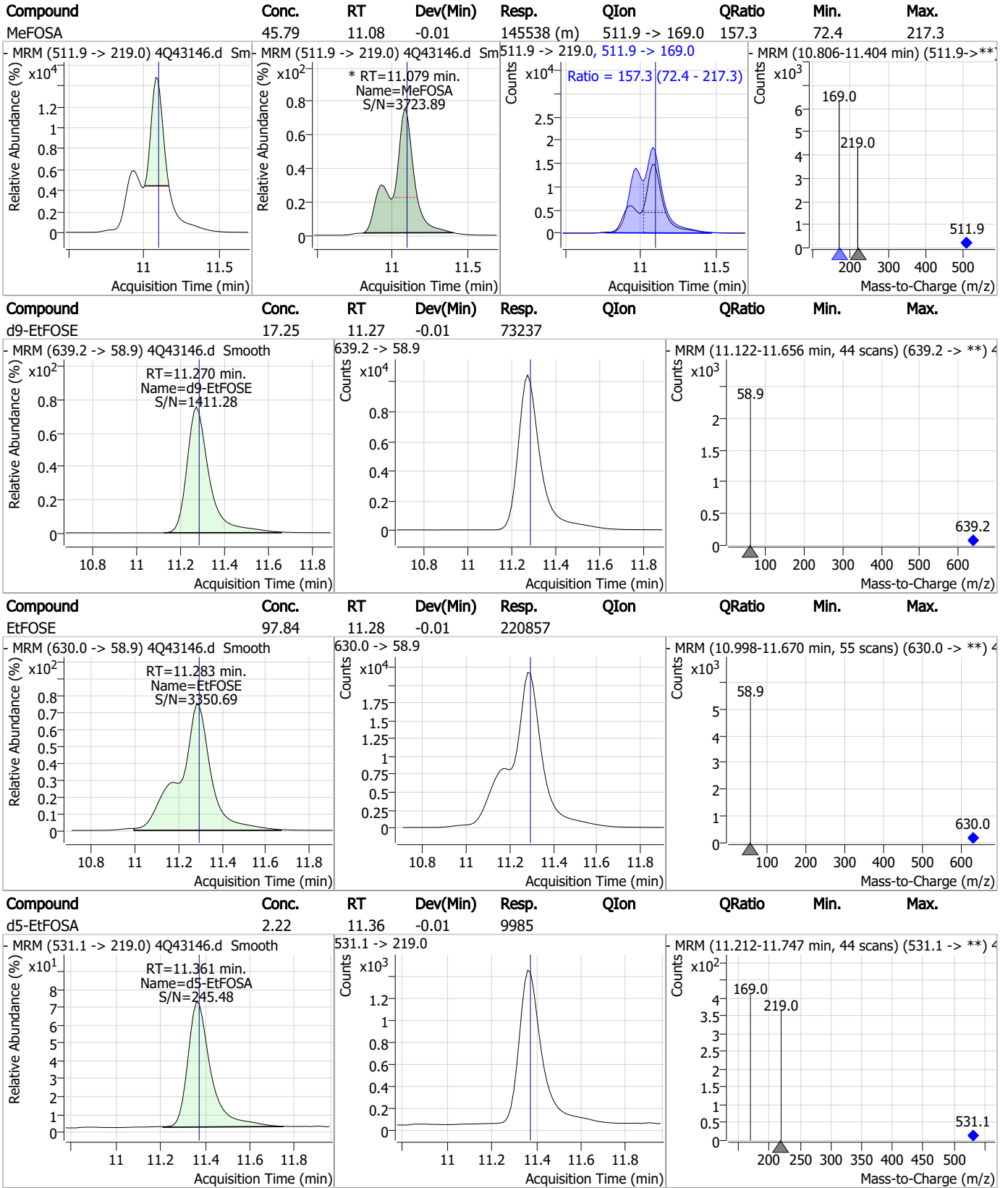
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	94.89	10.99	-0.01	201715 (m)				



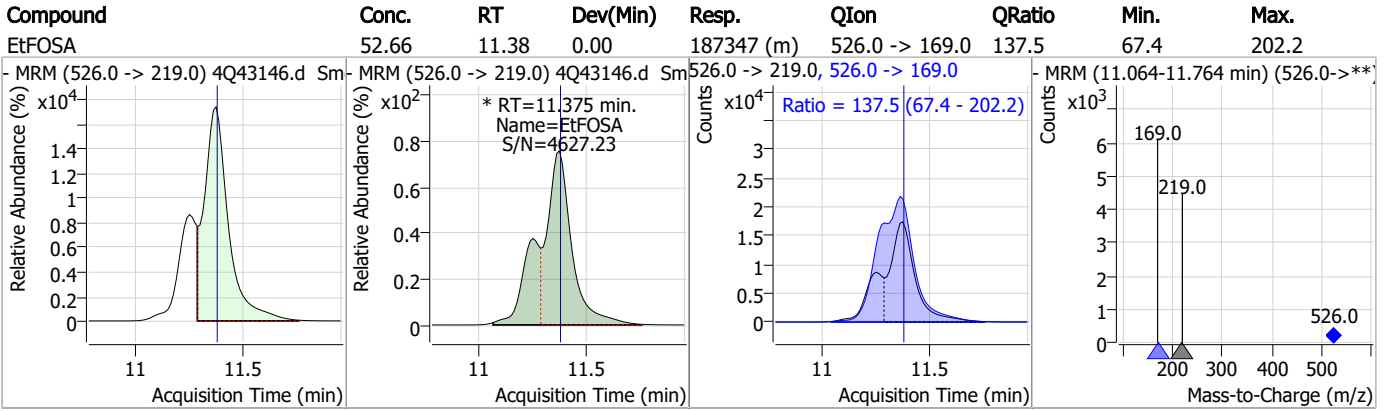
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.36	11.08	-0.01	9831				



# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS



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# Manual Integration Approval Summary

**Sample Number:** S4Q624-RT                      **Method:** EPA DRAFT 1633  
**Lab FileID:** 4Q43146.D                      **Analyst approved:** 04/19/23 13:20 Martha Valls  
**Injection Time:** 04/18/23 10:44                      **Supervisor approved:** 04/19/23 16:01 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.21	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.32	Split peak
Perfluorononanoic acid	375-95-1		7.76	Split peak
MeFOSAA	2355-31-9		8.34	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.43	Split peak
EtFOSAA	2991-50-6		8.55	Split peak
PFOSA	754-91-6		9.84	Split peak
MeFOSE	24448-09-7		10.99	Split peak
MeFOSA	31506-32-8		11.08	Split peak
EtFOSA	4151-50-2		11.38	Split peak

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## QQQ Check Tune Report



**Instrument Name** LCMS4-Q  
**MS Model** G6470A  
**MS Instrument Serial** SG2004G105  
**Software\_Firmware Version** 10.0.142, FW: A.00.08.100  
**Tune Date & Time** 10 April 2023 11:18:30  
**Data Path** D:\MassHunter\Tune\QQQ\G6470A\atunes.TUNE.XML  
**Ion Source** AJS ESI  
**Ionization Mode** AJS ESI  
**Tuned Resolution** All  
**Vacuum Pressure** 1.62E+0 [R] (Torr); 3.48E-5 [H] (Torr)

**Source Parameters**

Parameter	Negative
Gas Temp (°C)	300
Gas Flow (l/min)	8
Nebulizer (psi)	15
Capillary (V)	4000
Nozzle Voltage (V)	1500
Sheath Gas Temp (°C)	250
Sheath Gas Flow (l/min)	7

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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	112.99	0.00	Pass	0.70	0.66	-0.04	Pass	131498
302.00	302.02	0.02	Pass	0.70	0.67	-0.03	Pass	181863
601.98	602.05	0.07	Pass	0.70	0.68	-0.02	Pass	385148
1033.99	1034.06	0.07	Pass	0.70	0.68	-0.02	Pass	594104
1633.95	1633.99	0.04	Pass	0.70	0.67	-0.03	Pass	1150578
2233.91	2233.92	0.01	Pass	0.70	0.71	0.01	Pass	785740

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

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.08	0.08	Pass	0.70	0.60	-0.10	Pass	30294
112.99	112.98	-0.01	Pass	0.70	0.71	0.01	Pass	104967
302.00	302.00	0.00	Pass	0.70	0.68	-0.02	Pass	129052
601.98	601.93	-0.05	Pass	0.70	0.70	0.00	Pass	214015
1033.99	1033.89	-0.10	Pass	0.70	0.73	0.03	Pass	103123
1633.95	1633.75	-0.20	Pass	0.70	0.79	0.09	Pass	133334
2233.91	2233.61	-0.30	Pass	0.70	0.78	0.08	Pass	69357

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

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	113.01	0.02	Pass	1.20	1.18	-0.02	Pass	179323
302.00	302.00	0.00	Pass	1.20	1.41	0.21	Pass	240318
601.98	602.02	0.04	Pass	1.20	1.44	0.24	Pass	651863
1033.99	1034.03	0.04	Pass	1.20	1.50	0.30	Pass	1242281
1633.95	1633.96	0.01	Pass	1.20	1.33	0.13	Pass	3088977
2233.91	2233.88	-0.03	Pass	1.20	1.20	0.00	Pass	1794324

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

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.09	0.09	Pass	1.20	1.10	-0.10	Pass	40477
112.99	112.96	-0.03	Pass	1.20	1.21	0.01	Pass	147250
302.00	302.00	0.00	Pass	1.20	1.44	0.24	Pass	192249
601.98	601.99	0.01	Pass	1.20	1.51	0.31	Pass	419577
1033.99	1033.87	-0.12	Pass	1.20	1.55	0.35	Pass	220523
1633.95	1633.69	-0.26	Pass	1.20	1.54	0.34	Pass	377309
2233.91	2233.67	-0.24	Pass	1.20	1.38	0.18	Pass	259352

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

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.90	-0.09	Pass	2.50	2.48	-0.02	Pass	252983
302.00	302.01	0.01	Pass	2.50	2.74	0.24	Pass	302089
601.98	602.07	0.09	Pass	2.50	2.69	0.19	Pass	868943
1033.99	1034.04	0.05	Pass	2.50	2.73	0.23	Pass	2046121
1633.95	1633.96	0.01	Pass	2.50	2.59	0.09	Pass	6120042
2233.91	2233.80	-0.11	Pass	2.50	2.41	-0.09	Pass	4664111

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

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.04	0.04	Pass	2.50	2.36	-0.14	Pass	51400
112.99	112.98	-0.01	Pass	2.50	2.50	0.00	Pass	195155
302.00	301.99	-0.01	Pass	2.50	2.67	0.17	Pass	250730
601.98	601.96	-0.02	Pass	2.50	2.77	0.27	Pass	544063
1033.99	1033.87	-0.12	Pass	2.50	2.82	0.32	Pass	327135
1633.95	1633.74	-0.21	Pass	2.50	2.69	0.19	Pass	682574
2233.91	2233.64	-0.27	Pass	2.50	2.51	0.01	Pass	606196

7.7.1  
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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42936.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 4/14/2023 11:49:59 AM  
 Sample Name : ic621-1  
 Vial : P1-A2  
 DA Method File : 1633\_041423\_S4Q621.quantmethod.xml  
 Batch Name : s4q621.batch.bin  
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	3.011	216.8 -> 171.9	98817	10.00 µg/L	0.012
M5-PFPeA	4.475	268.3 -> 223.0	68363	5.00 µg/L	0.000
M5-PFHxA	5.659	318.0 -> 273.0	52629	2.50 µg/L	0.012
M4-PFHpA	6.580	367.1 -> 322.0	26597	2.50 µg/L	0.000
M8-PFOA	7.250	421.1 -> 376.0	32978	2.50 µg/L	0.013
M9-PFNA	7.797	472.1 -> 427.0	18186	1.25 µg/L	0.000
M6-PFDA	8.315	519.1 -> 474.1	17072	1.25 µg/L	0.012
M7-PFUnDA	8.785	570.0 -> 525.1	19641	1.25 µg/L	0.000
M2-PFDoDA	9.243	615.1 -> 570.0	24715	1.25 µg/L	0.000
M2-PFTeDA	10.036	715.2 -> 670.0	19011	1.25 µg/L	0.000
M8-FOSA	9.870	506.1 -> 77.8	16781	2.50 µg/L	0.000
M3-PFBS	5.564	302.1 -> 79.9	11429	2.50 µg/L	0.000
M3-PFHxS	7.354	402.1 -> 79.9	6913	2.50 µg/L	0.013
M8-PFOS	8.467	507.1 -> 79.9	10185	2.50 µg/L	0.000
M2-4:2FTS	5.335	329.1 -> 80.9	1625	5.00 µg/L	0.000
M2-6:2FTS	7.010	429.1 -> 80.9	2459	5.00 µg/L	0.012
M2-8:2FTS	8.090	529.1 -> 80.9	3708	5.00 µg/L	0.000
M3-MeFOSAA	8.373	573.2 -> 419.0	16135	5.00 µg/L	0.012
M3-HFPO-DA	6.014	286.9 -> 168.9	32774	10.00 µg/L	0.000
M5-EtFOSAA	8.582	589.2 -> 419.0	13408	5.00 µg/L	0.012
M7-MeFOSE	10.985	623.2 -> 58.9	73605	25.00 µg/L	0.000
M9-EtFOSE	11.294	639.2 -> 58.9	90628	25.00 µg/L	0.012
M5-EtFOSA	11.386	531.1 -> 219.0	9256	2.50 µg/L	0.000
M3-MeFOSA	11.102	515.0 -> 219.0	8489	2.50 µg/L	0.000
13C4-PFOS	8.467	502.8 -> 79.9	10538	2.50 µg/L	0.000
13C3-PFBA	3.016	216.0 -> 172.0	57805	5.00 µg/L	0.025
18O2-PFHxS	7.353	403.0 -> 83.9	4881	2.50 µg/L	0.013
13C4-PFOA	7.251	417.1 -> 372.0	40535	2.50 µg/L	0.013
13C2-PFDA	8.316	515.1 -> 470.1	16378	1.25 µg/L	0.012
13C5-PFNA	7.797	468.0 -> 423.0	19341	1.25 µg/L	0.000
13C2-PFHxA	5.647	315.1 -> 270.0	45802	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.335	329.1 -> 80.9	1625	6.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.9%		
13C2-6:2FTS	7.010	429.1 -> 80.9	2459	6.43 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 128.5%		
13C2-8:2FTS	8.090	529.1 -> 80.9	3708	5.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.8%		
13C2-PFDoDA	9.243	615.1 -> 570.0	24715	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.0%		
13C2-PFTeDA	10.036	715.2 -> 670.0	19011	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C3-PFBS	5.564	302.1 -> 79.9	11429	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C3-PFHxS	7.354	402.1 -> 79.9	6913	2.56 µg/L	0.013

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## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C4-PFBA	3.011	216.8 -> 171.9	98817	9.82 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C4-PFHpA	6.580	367.1 -> 322.0	26597	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C5-PFHxA	5.659	318.0 -> 273.0	52629	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C5-PFPeA	4.475	268.3 -> 223.0	68363	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C6-PFDA	8.315	519.1 -> 474.1	17072	1.19 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.8%	
13C7-PFUnDA	8.785	570.0 -> 525.1	19641	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C8-FOSA	9.870	506.1 -> 77.8	16781	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C8-PFOA	7.250	421.1 -> 376.0	32978	2.47 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C8-PFOS	8.467	507.1 -> 79.9	10185	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C9-PFNA	7.797	472.1 -> 427.0	18186	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.2%	
d3-MeFOSAA	8.373	573.2 -> 419.0	16135	5.20 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C3-HFPO-DA	6.014	286.9 -> 168.9	32774	10.20 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
d3-MeFOSA	11.102	515.0 -> 219.0	8489	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.1%	
d5-EtFOSAA	8.582	589.2 -> 419.0	13408	5.31 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.3%	
d7-MeFOSE	10.985	623.2 -> 58.9	73605	27.08 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 108.3%	
d9-EtFOSE	11.294	639.2 -> 58.9	90628	27.25 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 109.0%	
d5-EtFOSA	11.386	531.1 -> 219.0	9256	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.0%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.336	327.1 -> 307.0	1424	0.70 µg/L	93
		327.1 -> 80.9	640		
6:2FTS	7.011	427.1 -> 407.0	1255	0.75 µg/L	94
		427.1 -> 80.9	576		
8:2FTS	8.090	527.1 -> 507.0	1441	0.87 µg/L	94
		527.1 -> 80.8	519		
EtFOSAA	8.583	584.2 -> 419.1	368	0.18 µg/L	m 79
		584.2 -> 526.0	187		
FOSA	9.861	498.1 -> 77.9	1107	0.20 µg/L	97
		498.1 -> 478.0	40		
MeFOSAA	8.361	570.1 -> 419.0	574	0.26 µg/L	m 90
		570.1 -> 483.0	114		
PFBA	3.020	212.8 -> 168.9	1918	0.85 µg/L	100
PFBS	5.565	298.7 -> 79.9	710	0.17 µg/L	79
		298.7 -> 98.8	363		
PFDA	8.304	512.9 -> 469.0	2072	0.21 µg/L	95
		512.9 -> 219.0	448		
PFDODA	9.244	613.1 -> 569.0	3212	0.21 µg/L	98
		613.1 -> 319.0	422		
PFDS	9.409	599.0 -> 79.9	428	0.19 µg/L	90

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	236			
PFHpA	6.580	363.1 -> 319.0	2624	0.20	µg/L	94
		363.1 -> 169.0	534			
PFHpS	7.936	449.0 -> 79.9	534	0.20	µg/L	89
		449.0 -> 98.9	235			
PFHxA	5.662	313.0 -> 269.0	3332	0.21	µg/L	96
		313.0 -> 118.9	147			
PFHxS	7.355	398.7 -> 79.9	454	0.19	µg/L	m 85
		398.7 -> 98.9	188			
PFNA	7.797	463.0 -> 419.0	2266	0.23	µg/L	98
		463.0 -> 219.0	537			
PFNS	8.961	548.8 -> 79.9	251	0.16	µg/L	84
		548.8 -> 98.9	157			
PFOA	7.252	413.0 -> 369.0	3867	0.25	µg/L	91
		413.0 -> 169.0	622			
PFOS	8.456	498.9 -> 79.9	851	0.21	µg/L	90
		498.9 -> 98.8	450			
PFPeA	4.477	263.0 -> 219.0	5366	0.41	µg/L	100
PFPeS	6.619	349.1 -> 79.9	347	0.17	µg/L	78
		349.1 -> 98.9	196			
PFTeDA	10.037	713.1 -> 669.0	3265	0.22	µg/L	99
		713.1 -> 168.9	250			
PFTrDA	9.666	663.0 -> 619.0	4786	0.24	µg/L	96
		663.0 -> 168.9	390			
PFUnDA	8.785	563.1 -> 519.0	2699	0.24	µg/L	93
		563.1 -> 269.1	443			
11CI-PF3OUdS	9.705	630.9 -> 450.9	3055	0.36	µg/L	96
		632.9 -> 452.9	885			
9CI-PF3ONS	8.825	530.8 -> 351.0	3318	0.35	µg/L	97
		532.8 -> 353.0	971			
ADONA	6.843	376.9 -> 250.9	7365	0.37	µg/L	96
		376.9 -> 84.8	1815			
HFPO-DA	6.015	284.9 -> 168.9	1075	0.41	µg/L	89
		284.9 -> 184.9	180			
3:3FTCA	3.979	241.0 -> 177.0	567	0.94	µg/L	96
		241.0 -> 117.0	63			
5:3FTCA	6.345	341.0 -> 237.1	10936	4.97	µg/L	99
		341.0 -> 217.0	7750			
7:3FTCA	7.799	441.0 -> 316.9	4527	5.02	µg/L	98
		441.0 -> 336.9	10137			
EtFOSA	11.388	526.0 -> 219.0	1287	0.39	µg/L	73
		526.0 -> 169.0	1921			
EtFOSE	11.308	630.0 -> 58.9	3102	1.11	µg/L	100
MeFOSA	11.103	511.9 -> 219.0	1178	0.43	µg/L	m 92
		511.9 -> 169.0	1569			
MeFOSE	10.998	616.1 -> 58.9	2777	1.07	µg/L	100
PFDoDS	10.189	699.1 -> 79.9	394	0.20	µg/L	99
		699.1 -> 98.8	225			
NFDHA	5.541	295.0 -> 201.0	420	0.40	µg/L	88
		295.0 -> 84.9	129			
PFMBA	4.891	279.0 -> 85.1	3008	0.41	µg/L	100
PFMPA	3.628	229.0 -> 84.9	2618	0.40	µg/L	100
PFEESA	6.096	314.8 -> 134.9	4749	0.36	µg/L	98
		314.8 -> 82.9	135			

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

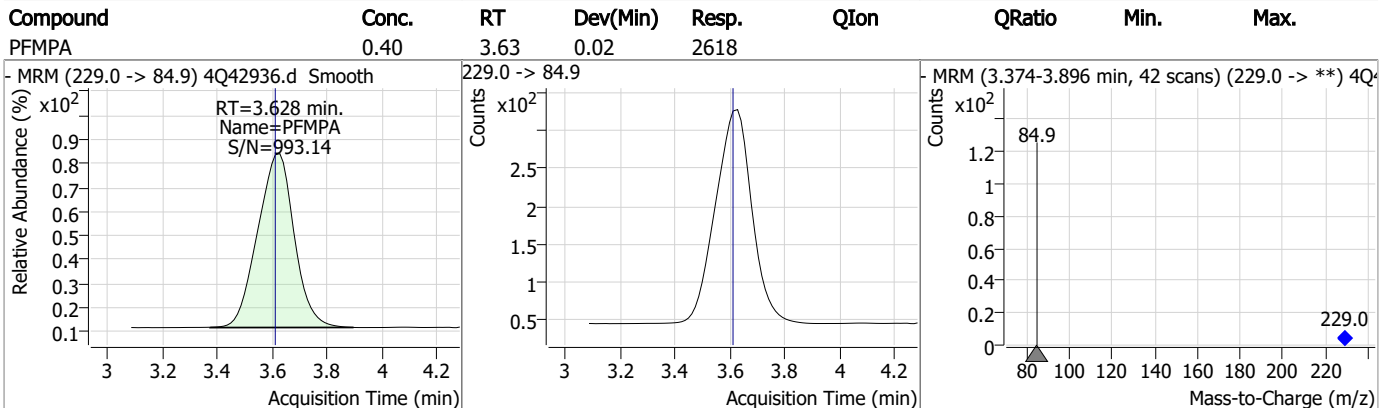
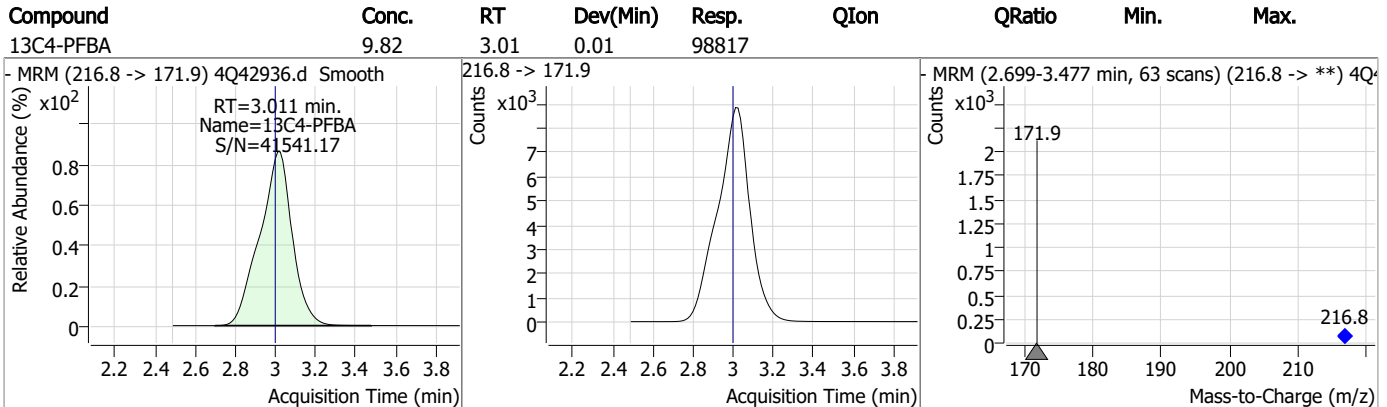
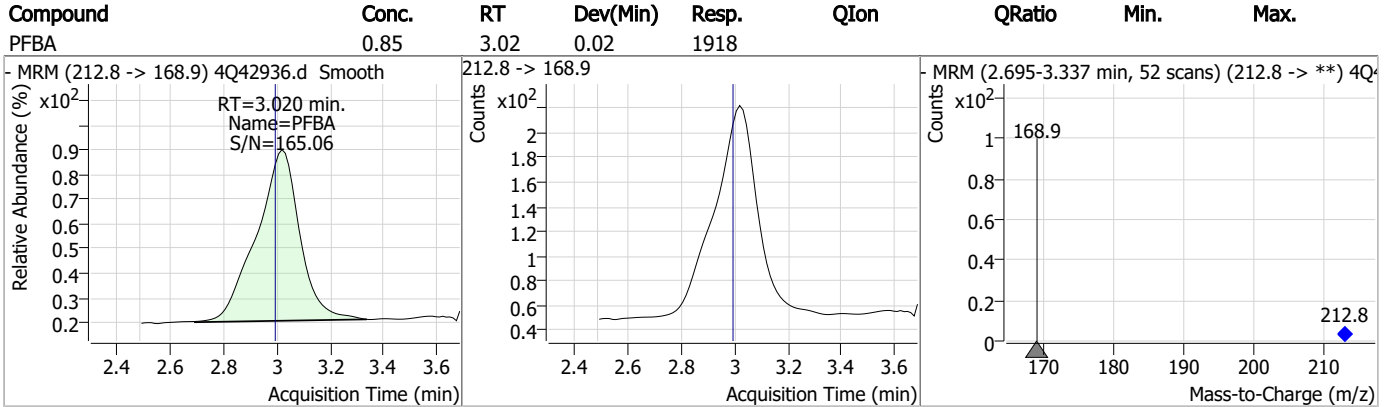
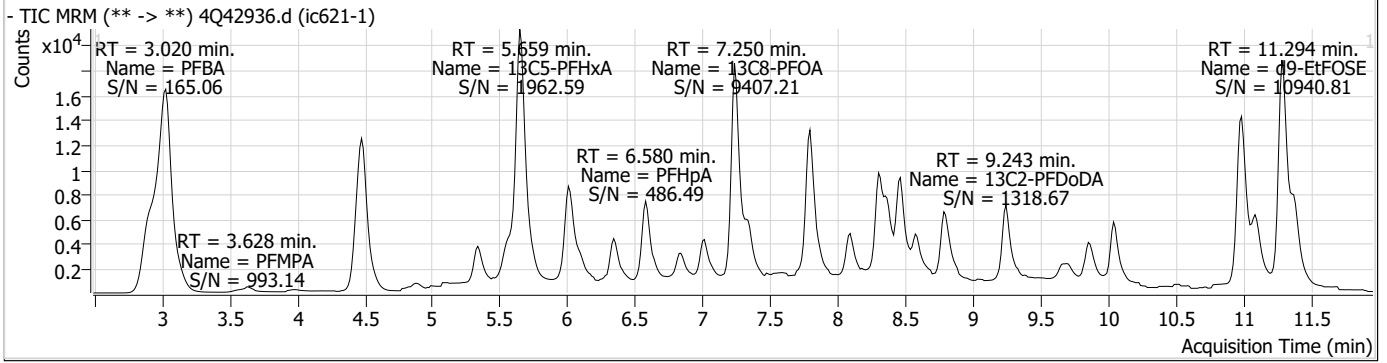
### Perfluorinated Compounds by LC/MS/MS

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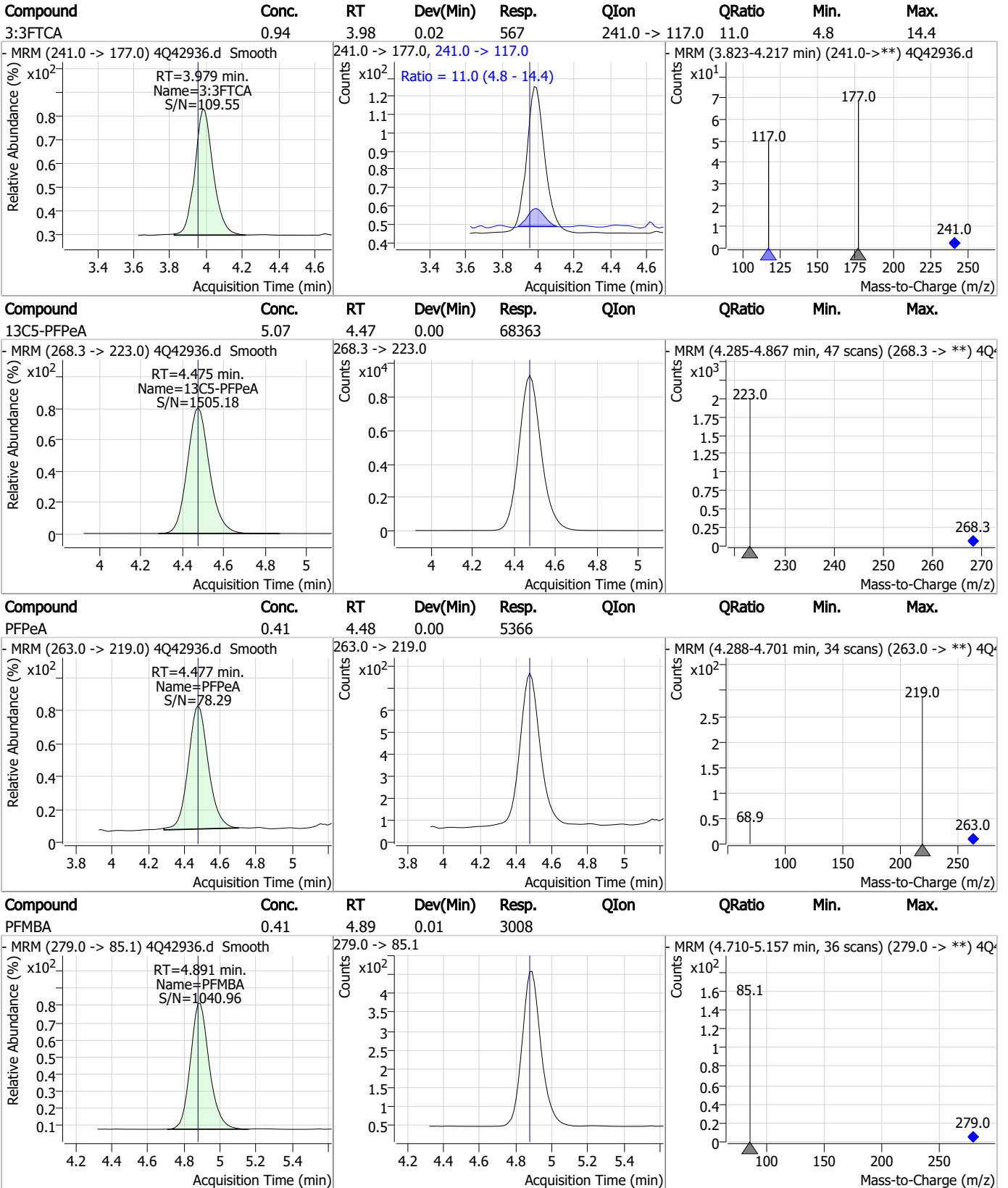
### Perfluorinated Compounds by LC/MS/MS



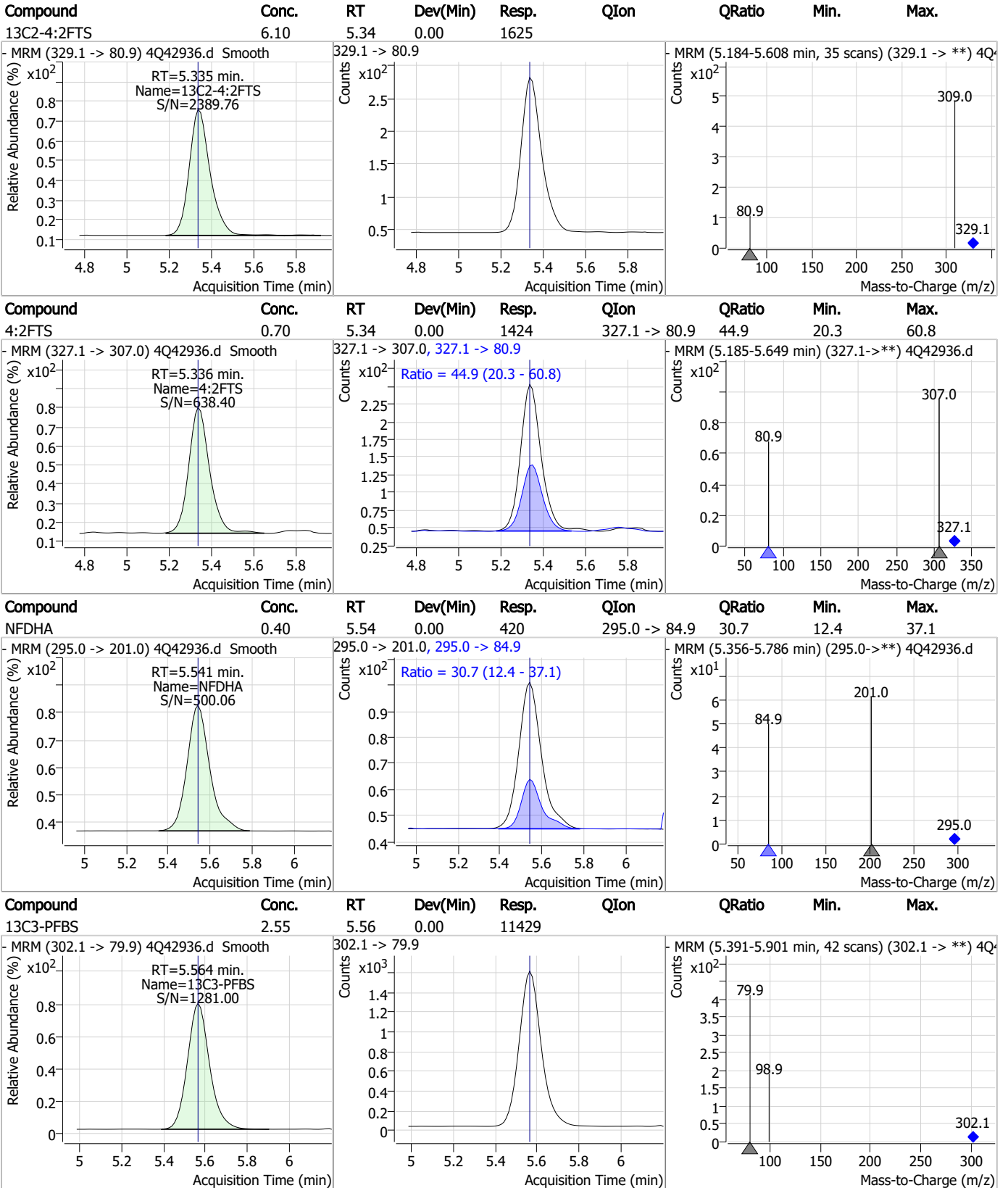
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### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



7.7.2

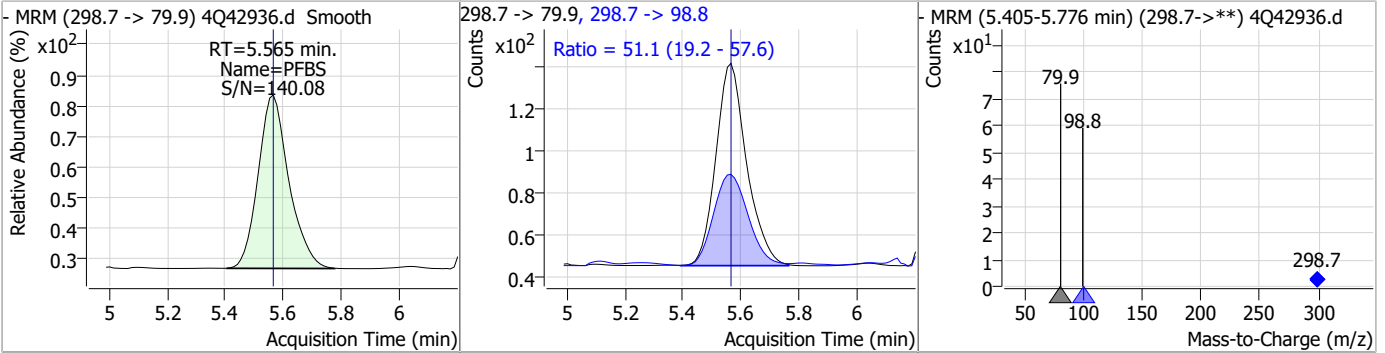
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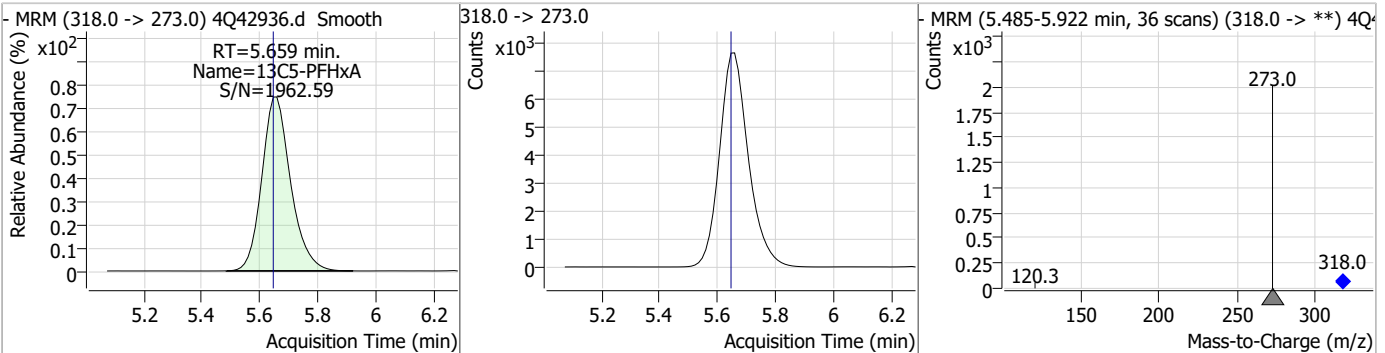


### Perfluorinated Compounds by LC/MS/MS

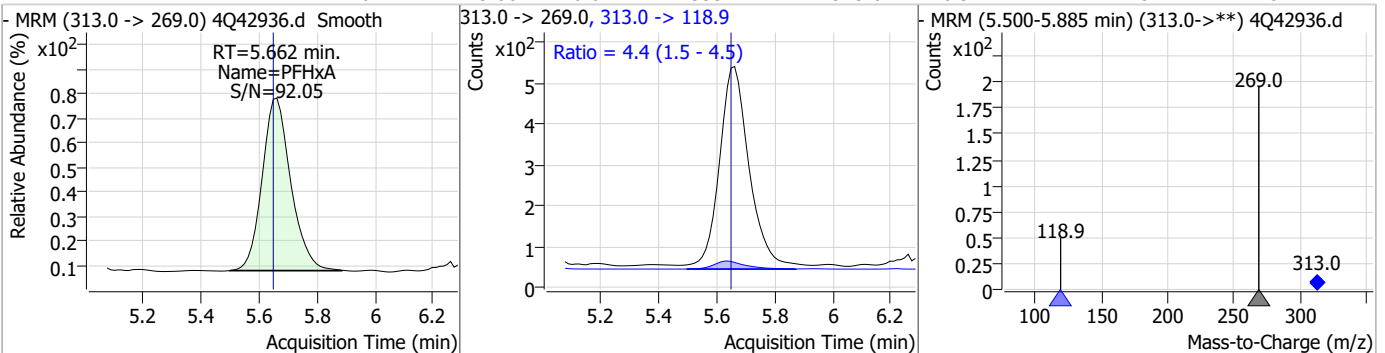
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.17	5.56	0.00	710	298.7 -> 98.8	51.1	19.2	57.6



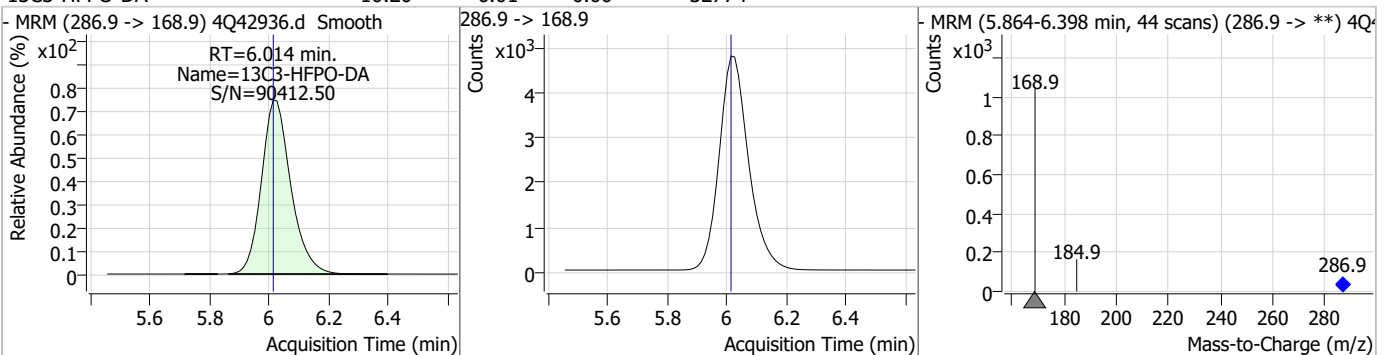
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.49	5.66	0.01	52629				



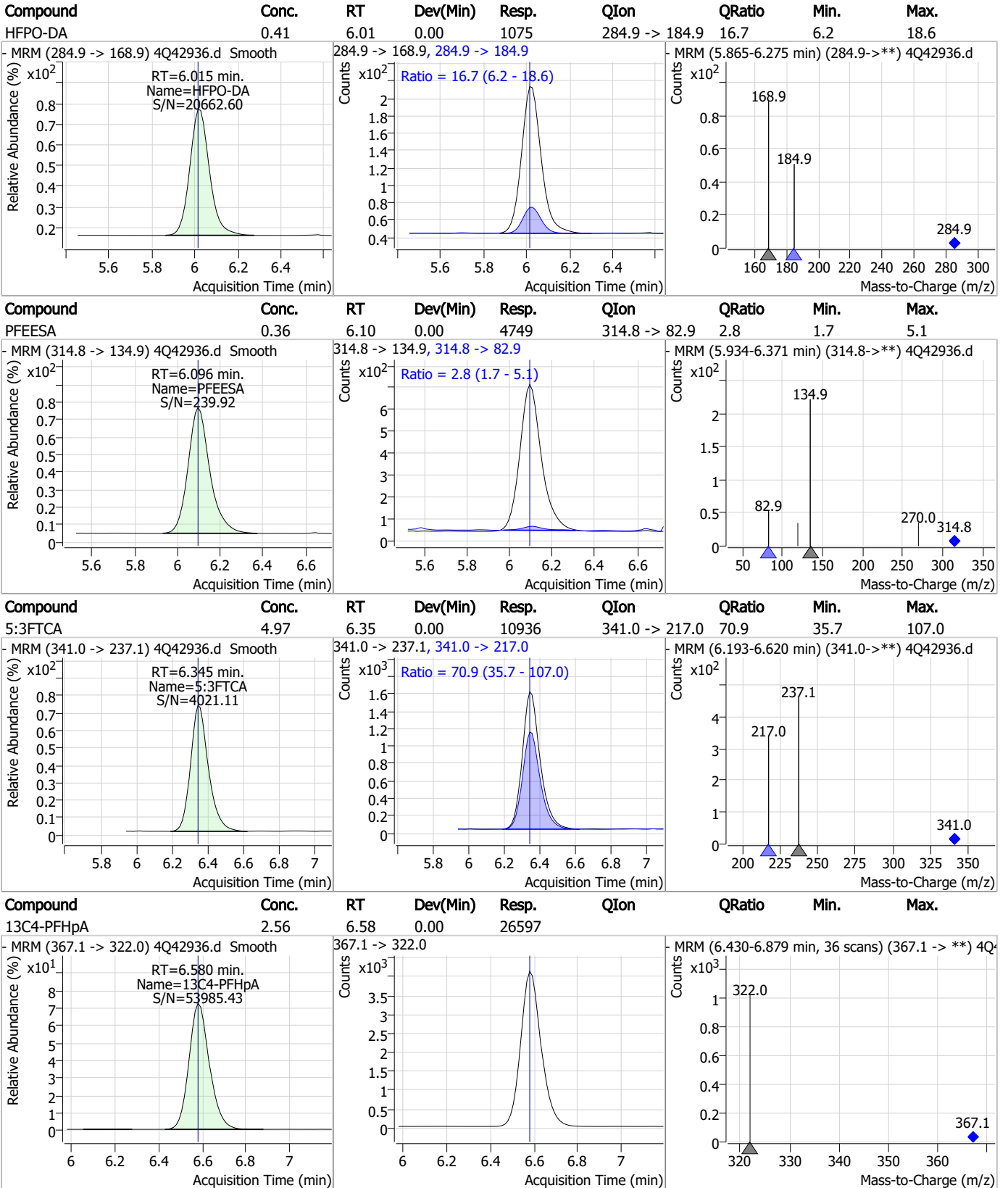
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.21	5.66	0.01	3332	313.0 -> 118.9	4.4	1.5	4.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.20	6.01	0.00	32774				



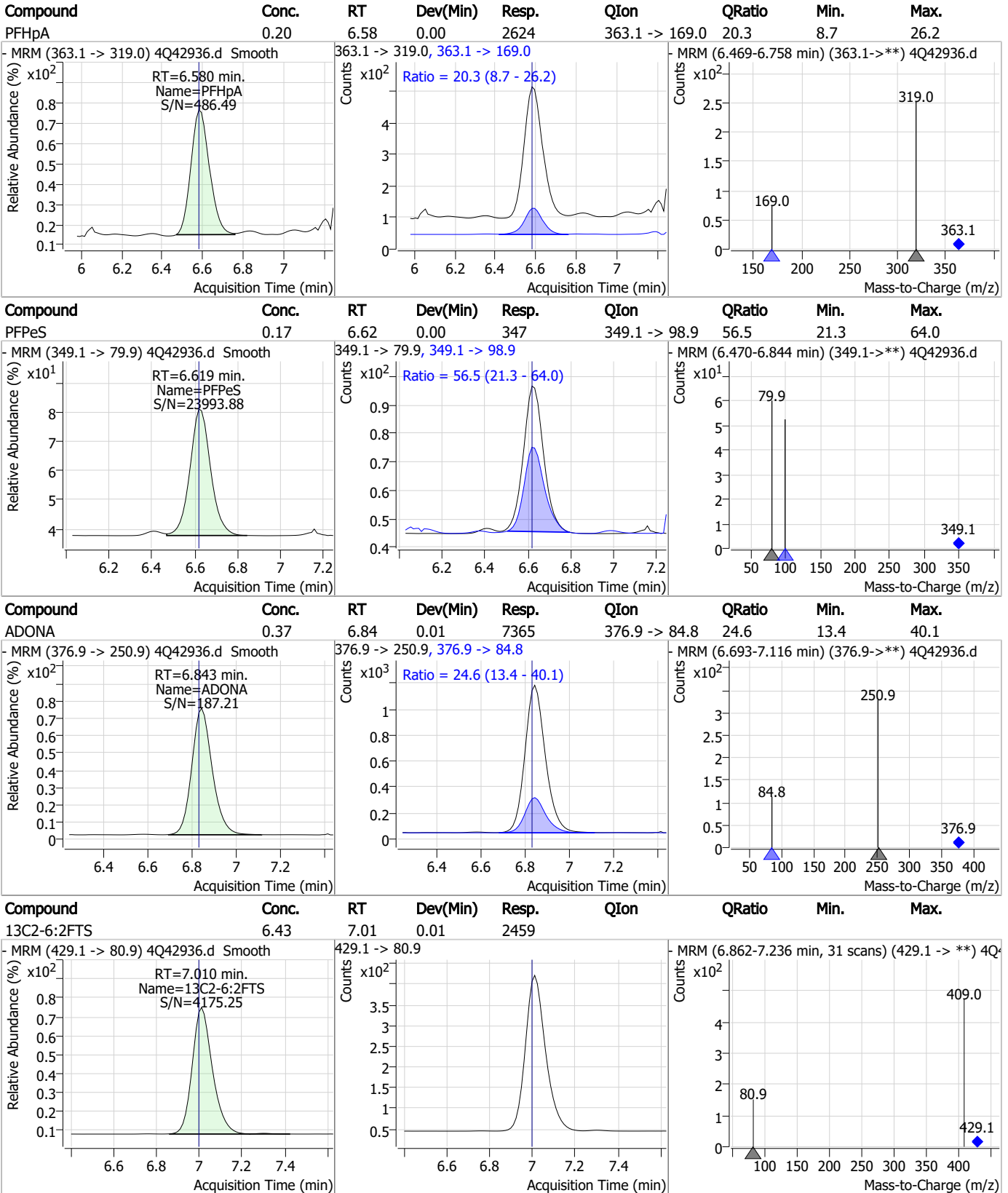
### Perfluorinated Compounds by LC/MS/MS



7.7.2

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Perfluorinated Compounds by LC/MS/MS

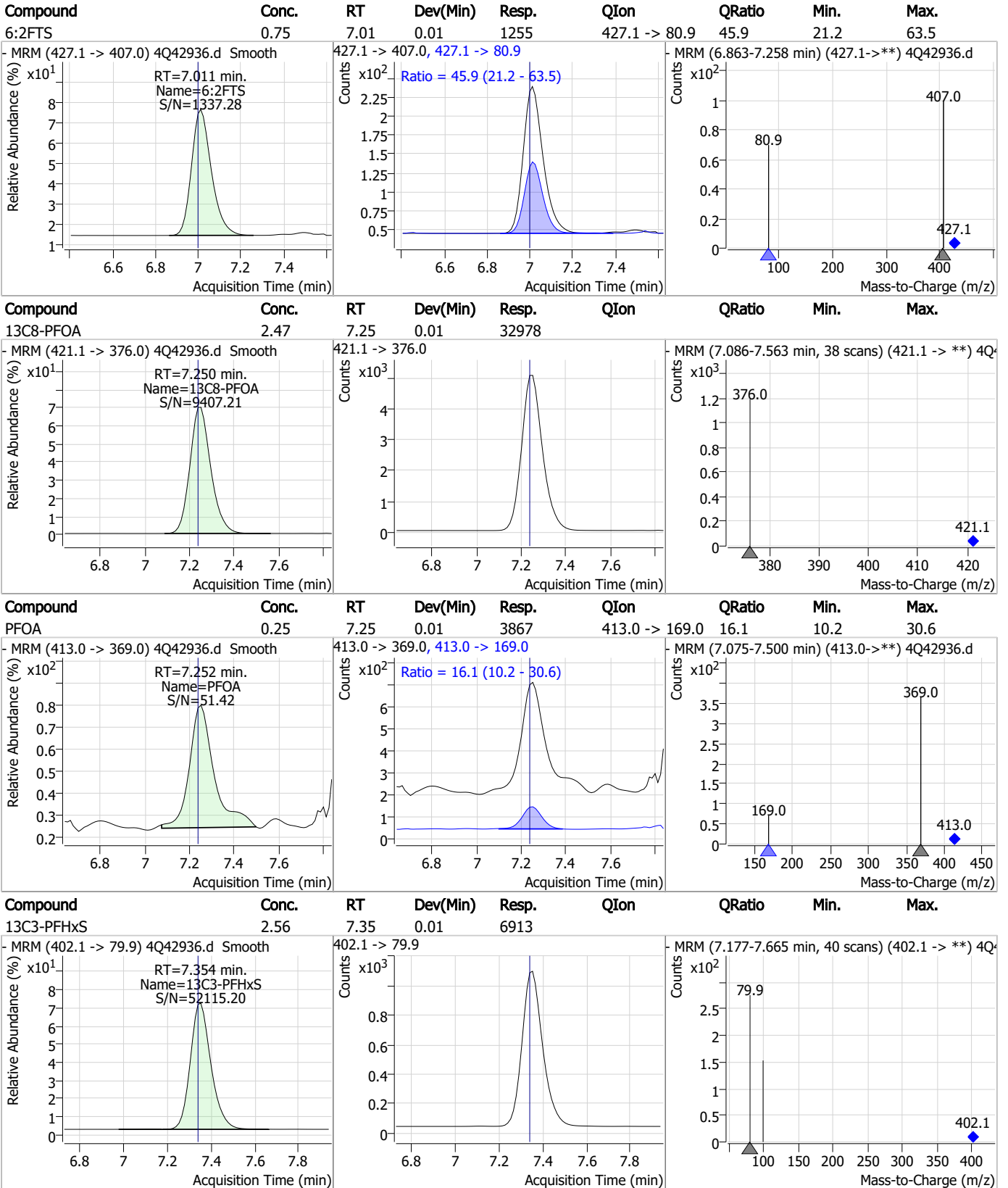


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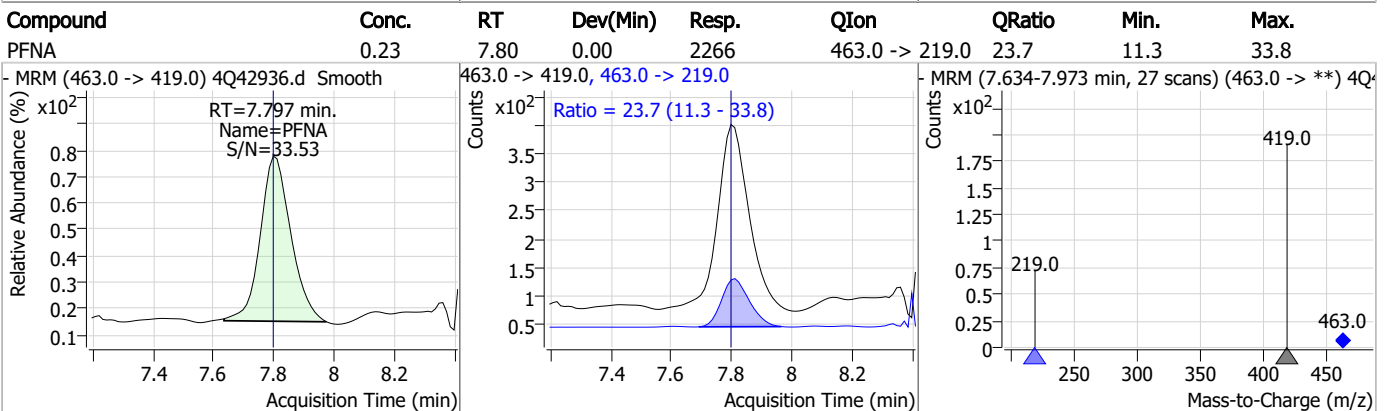
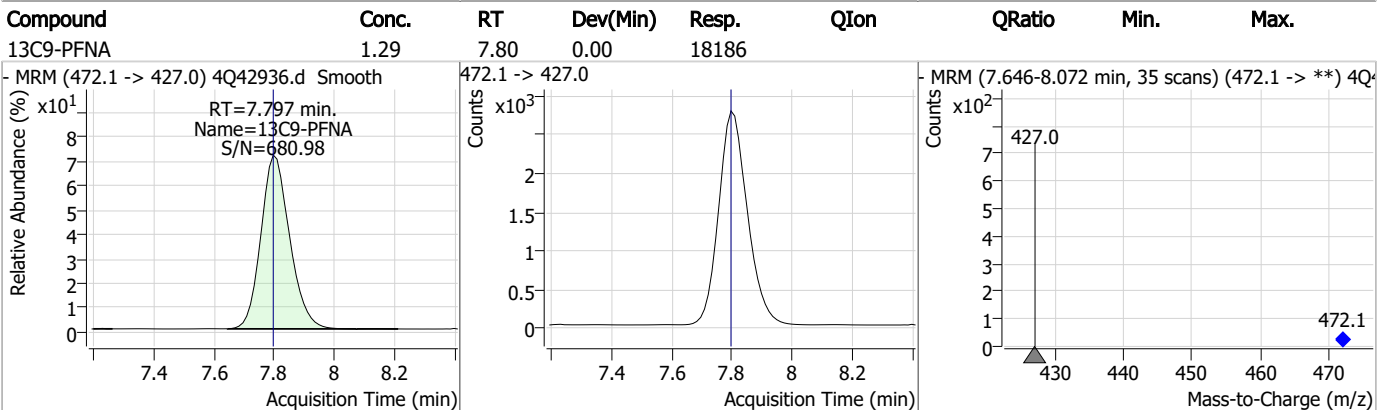
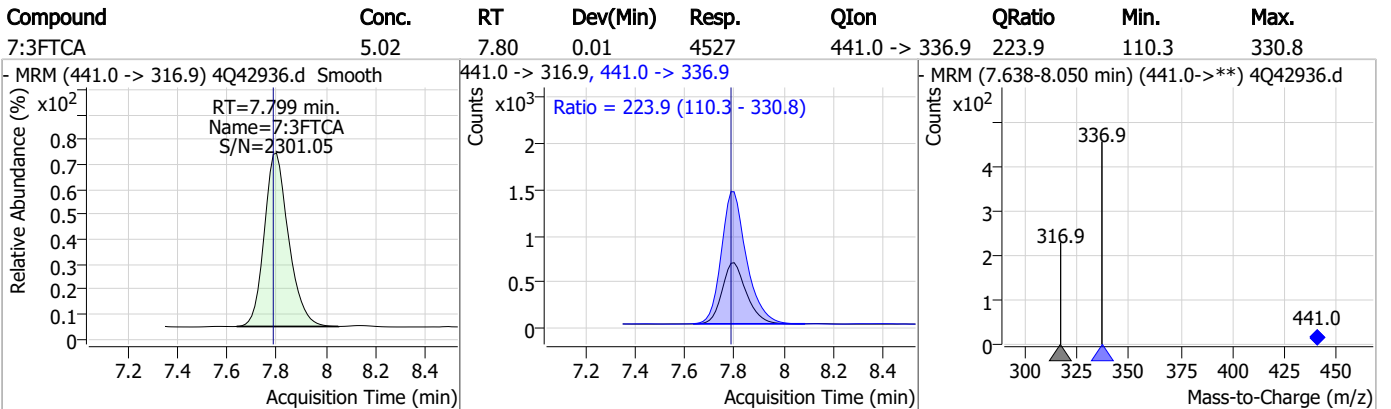
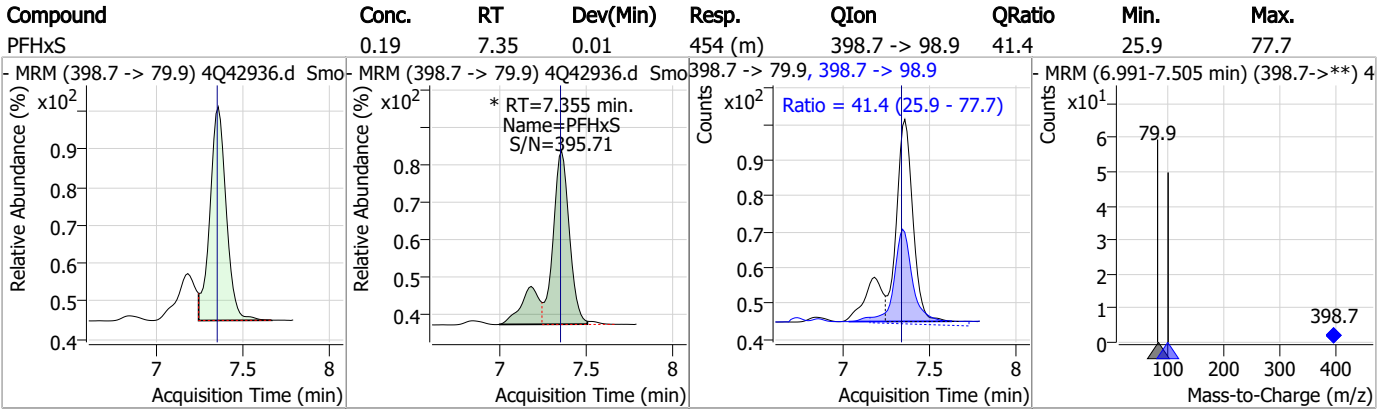
### Perfluorinated Compounds by LC/MS/MS



7.7.2  
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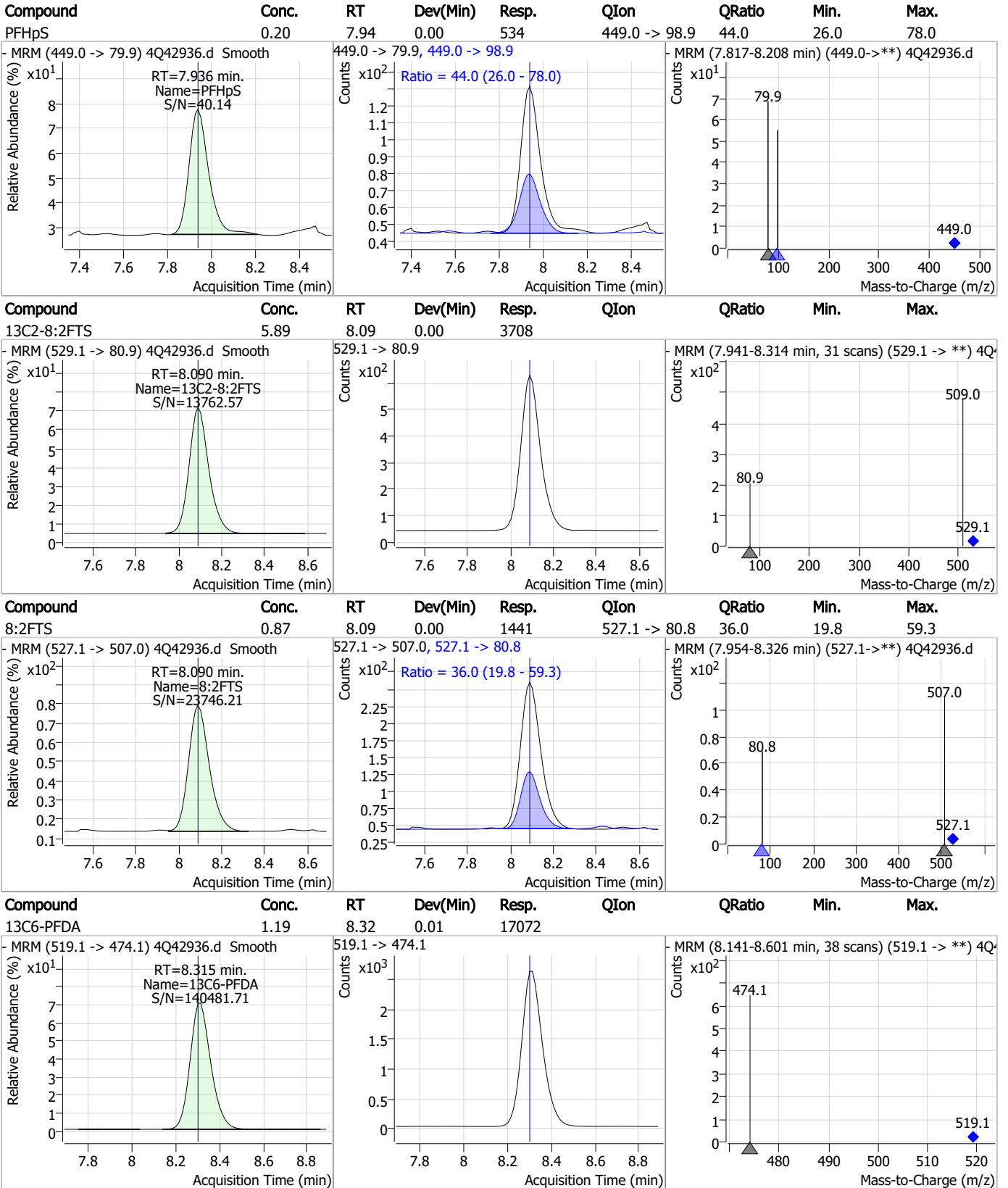
### Perfluorinated Compounds by LC/MS/MS



7.7.2

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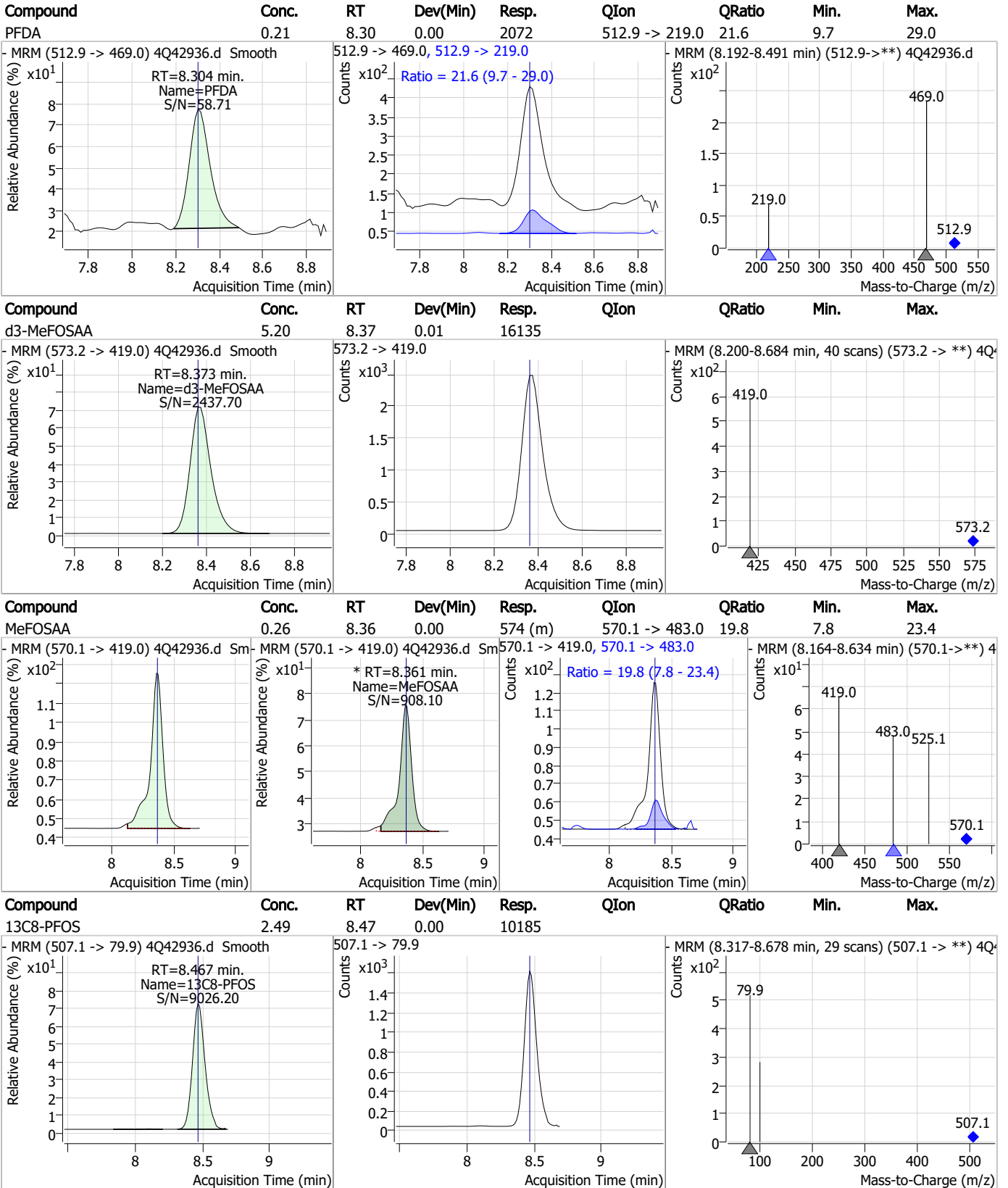
### Perfluorinated Compounds by LC/MS/MS



7.7.2

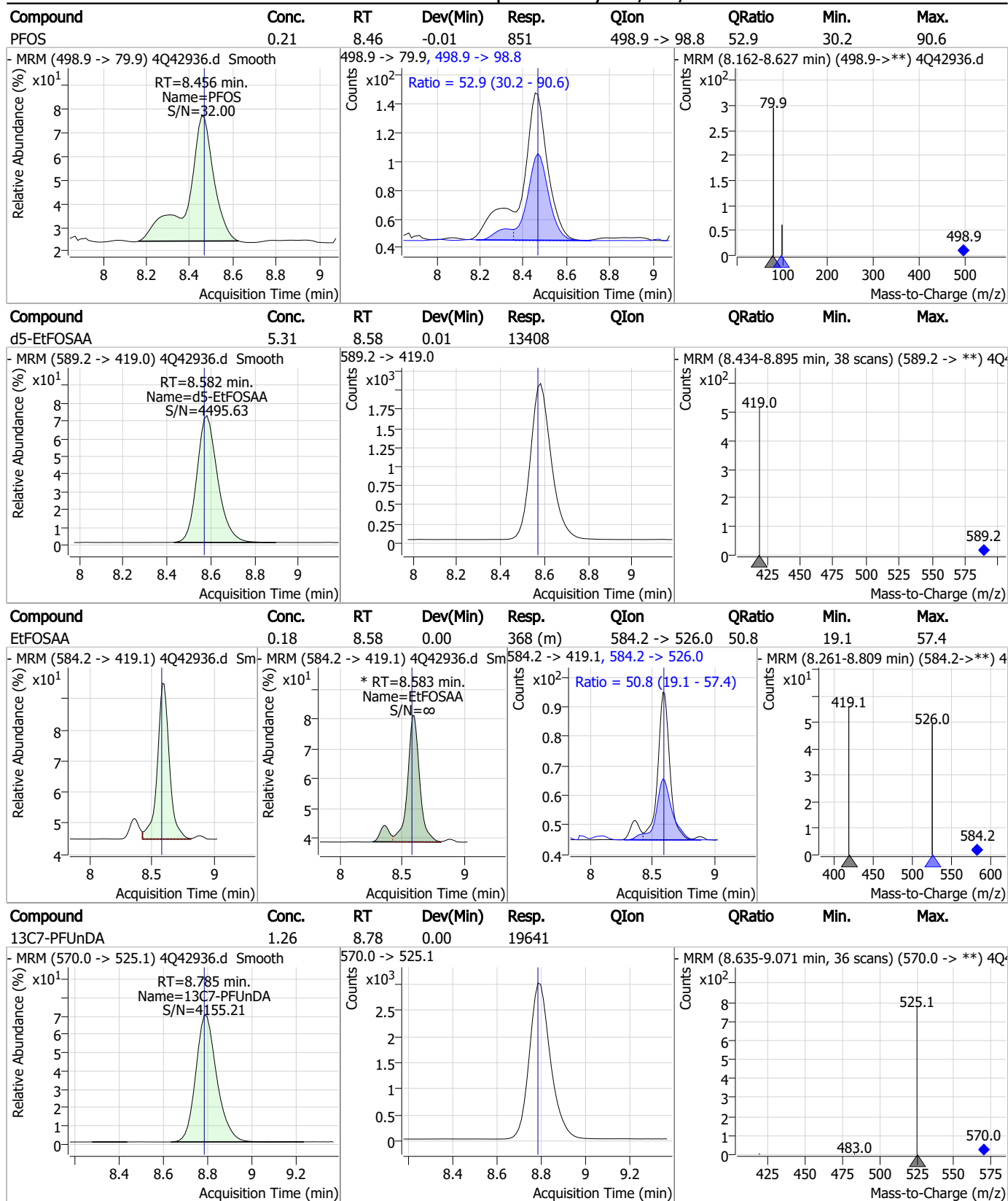
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### Perfluorinated Compounds by LC/MS/MS





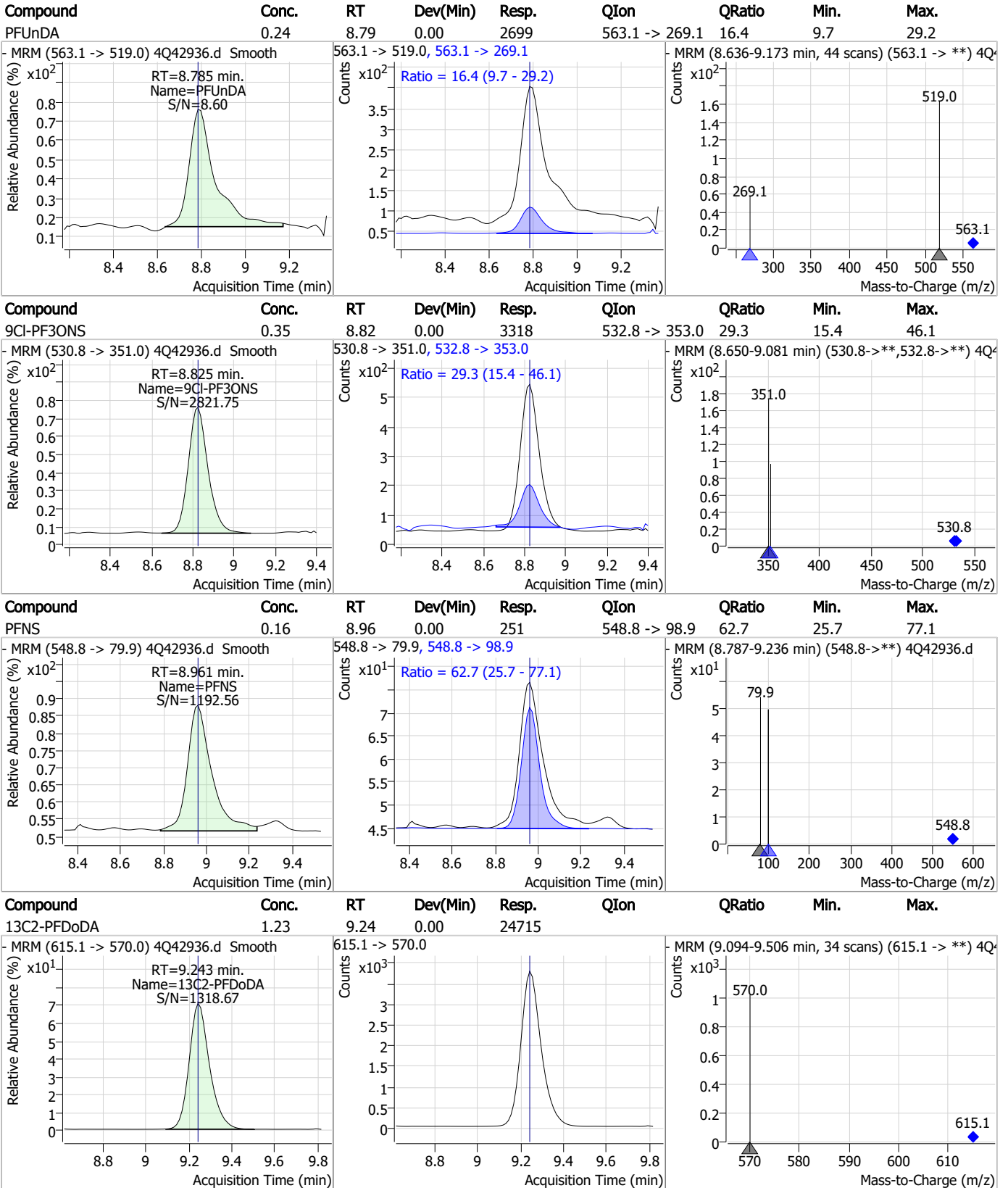
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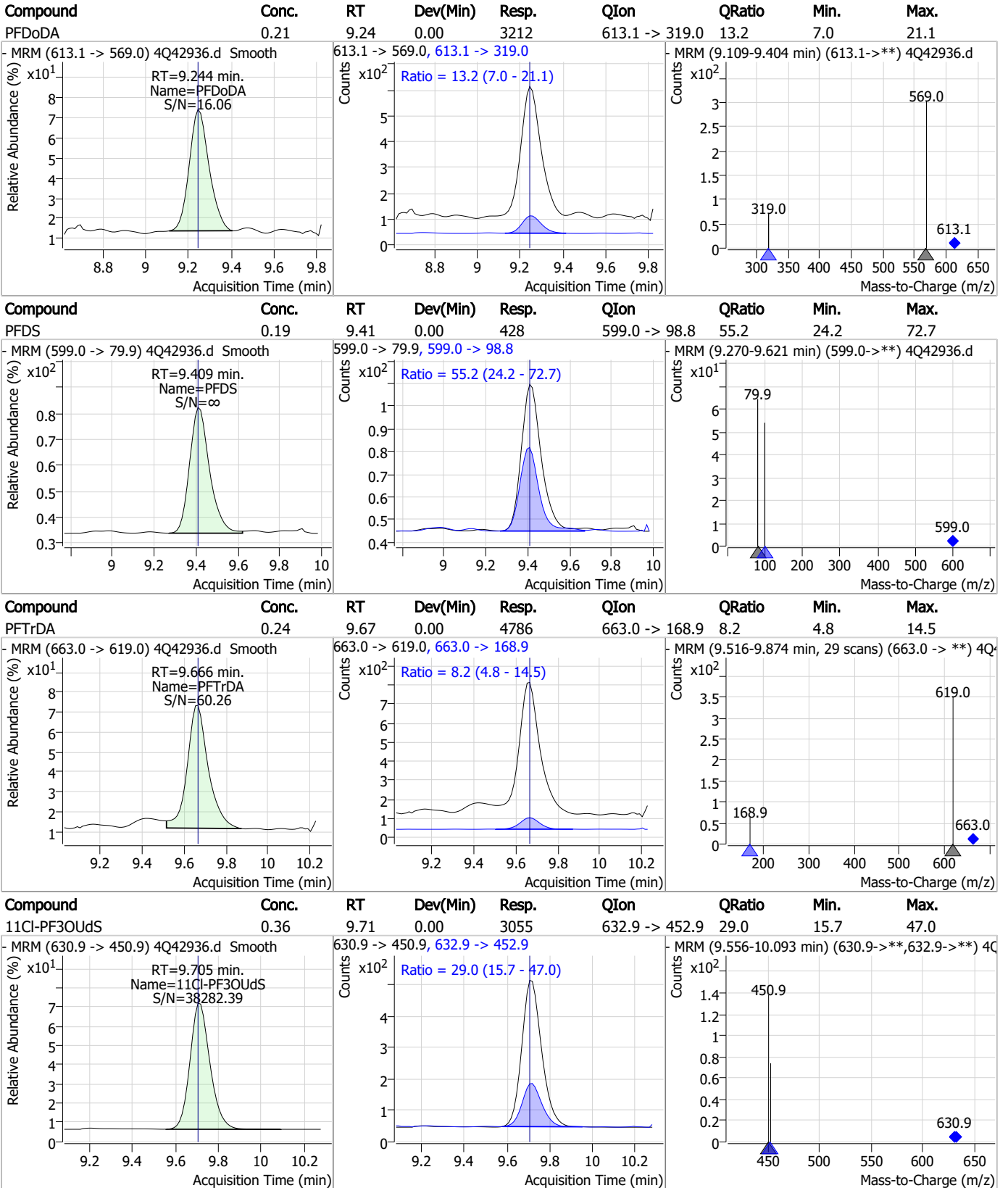
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### Perfluorinated Compounds by LC/MS/MS



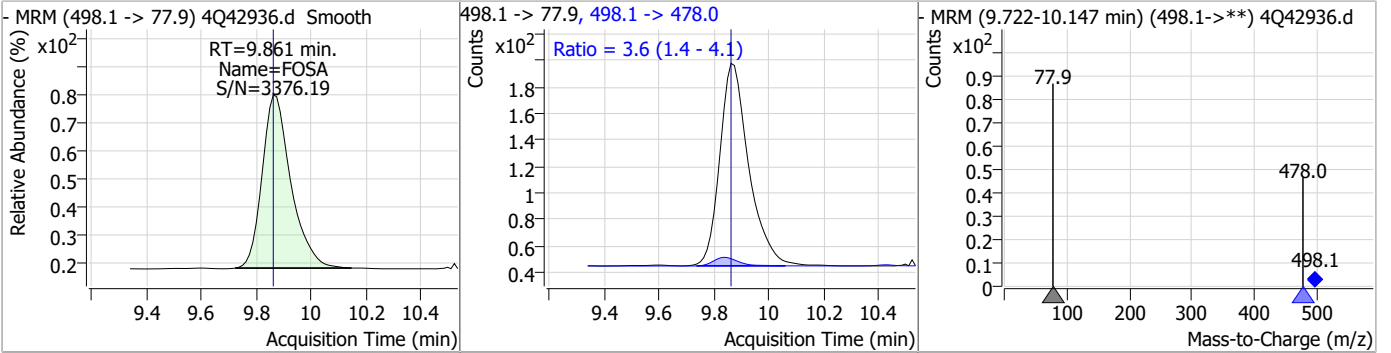
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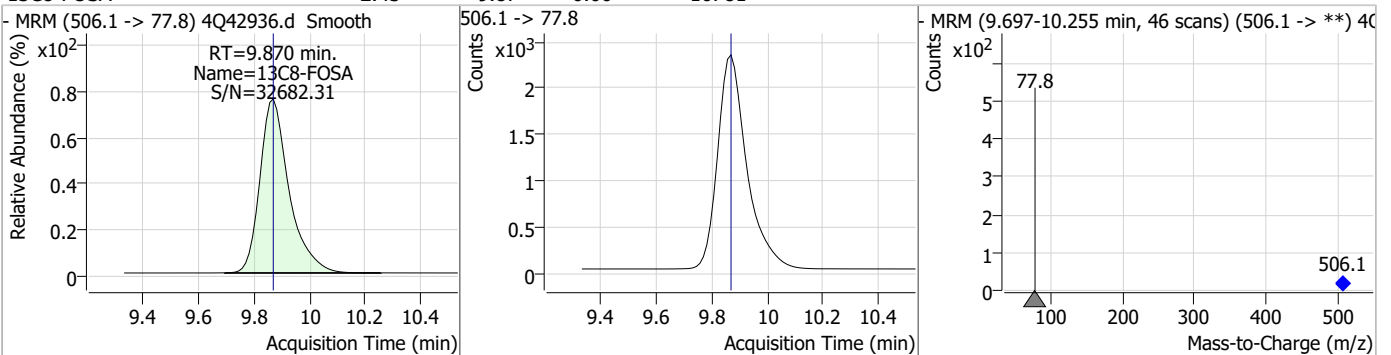
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### Perfluorinated Compounds by LC/MS/MS

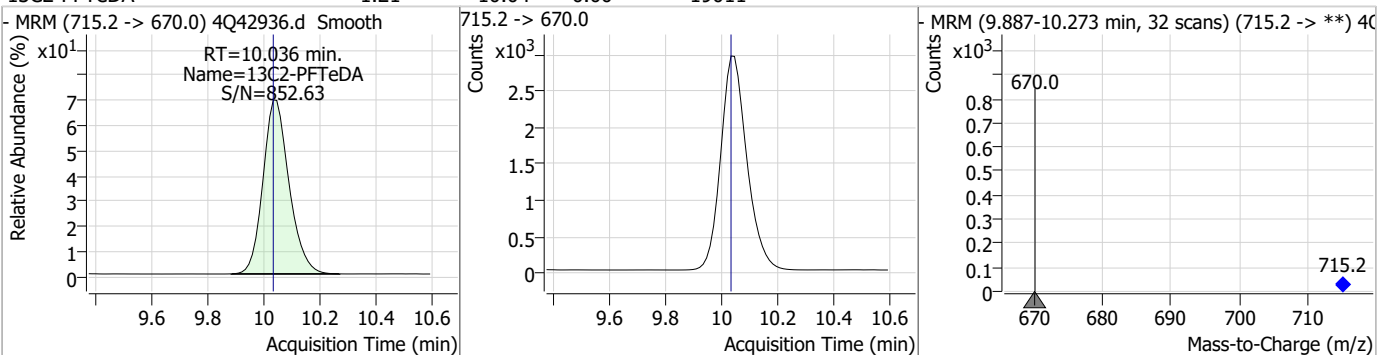
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.20	9.86	0.00	1107	498.1 -> 478.0	3.6	1.4	4.1



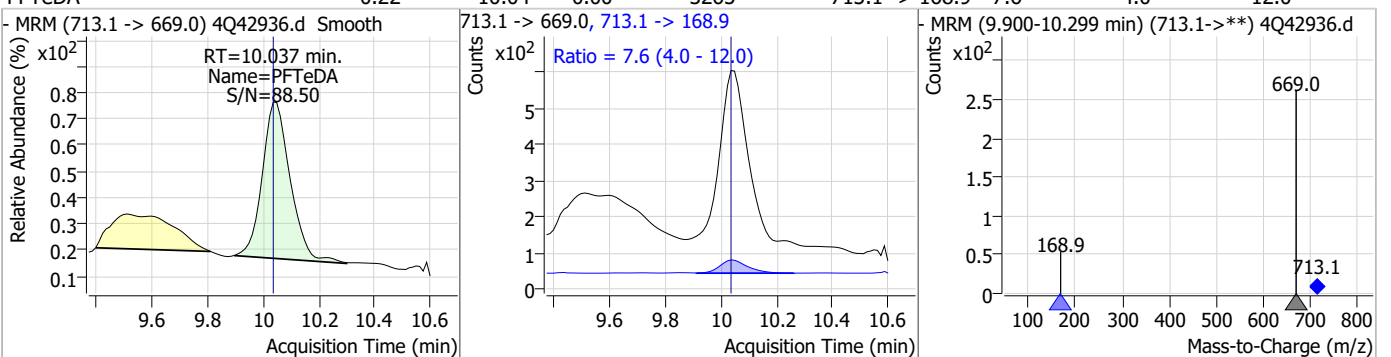
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.43	9.87	0.00	16781				



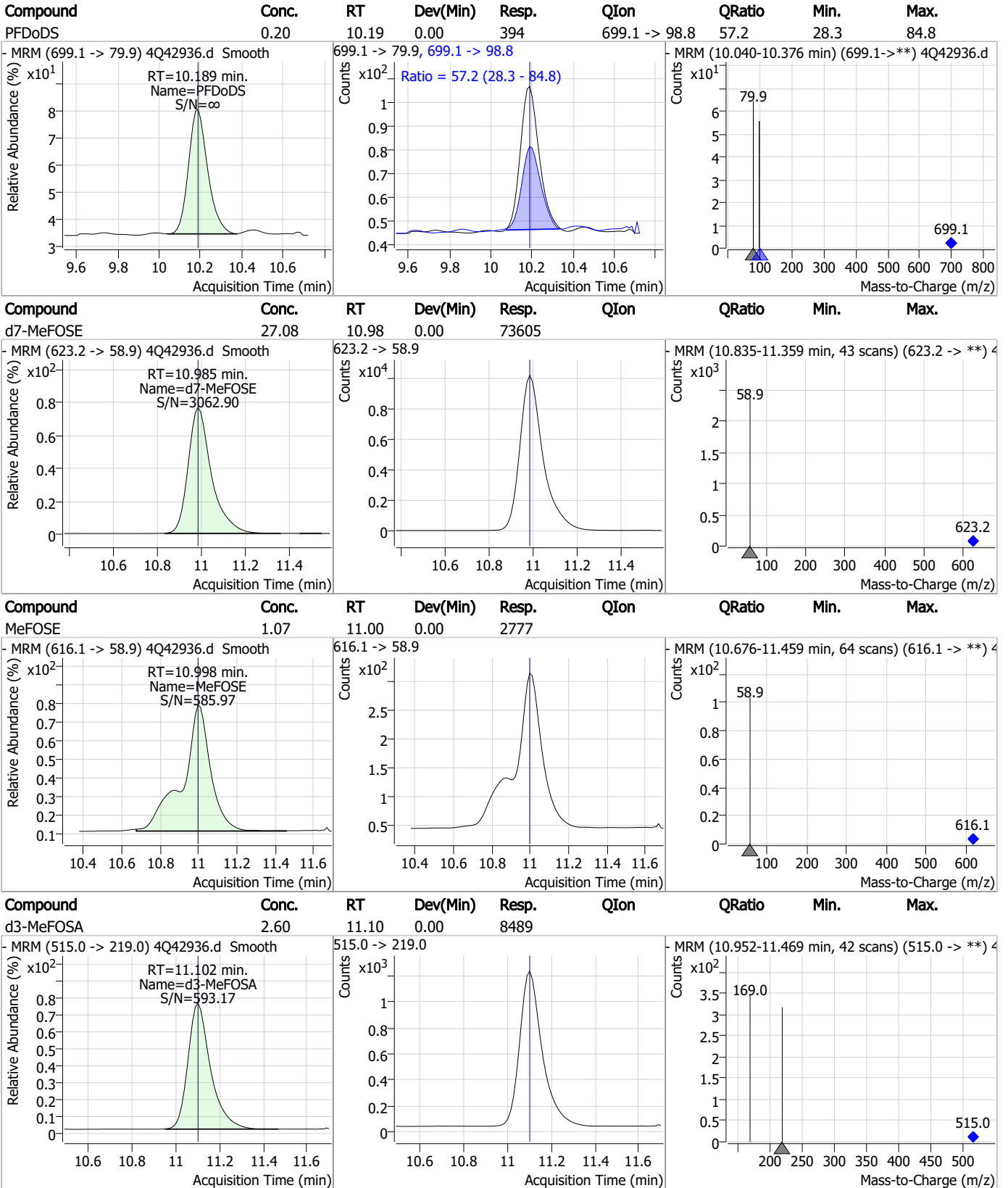
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.21	10.04	0.00	19011				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.22	10.04	0.00	3265	713.1 -> 168.9	7.6	4.0	12.0



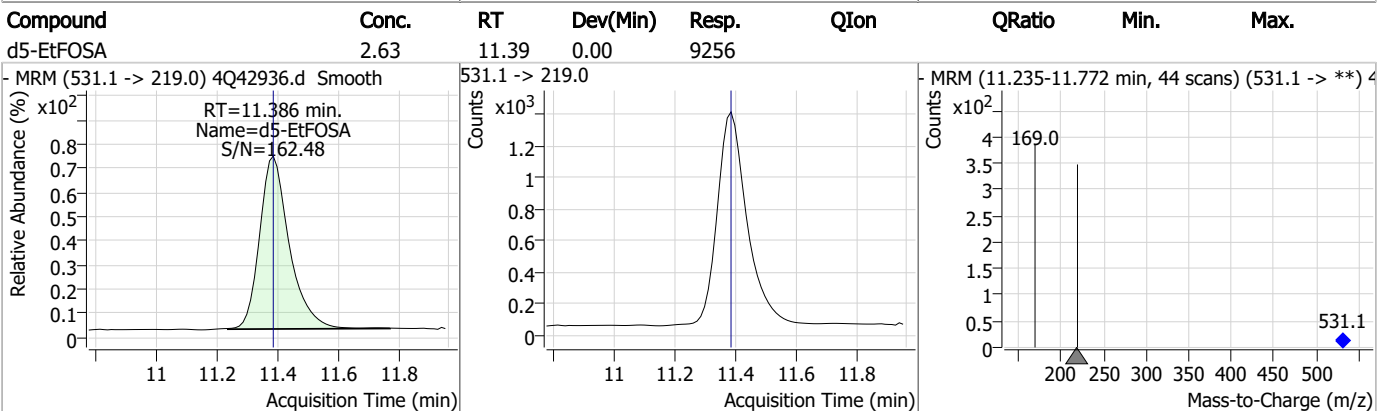
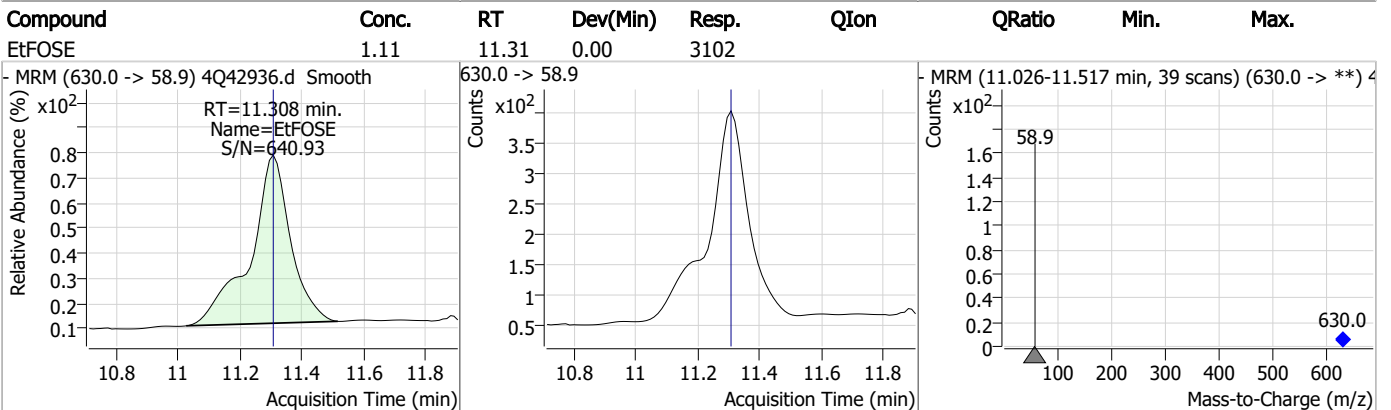
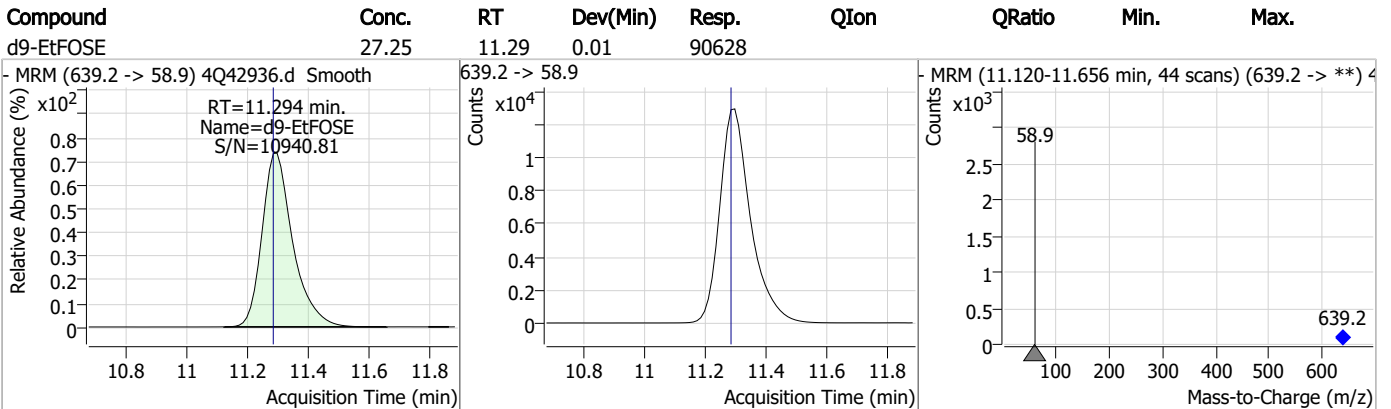
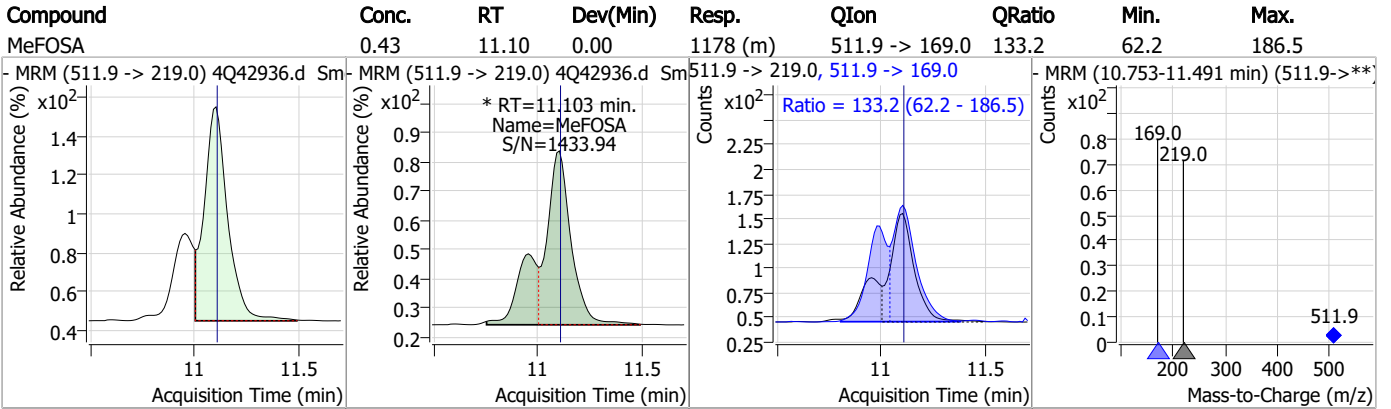
### Perfluorinated Compounds by LC/MS/MS



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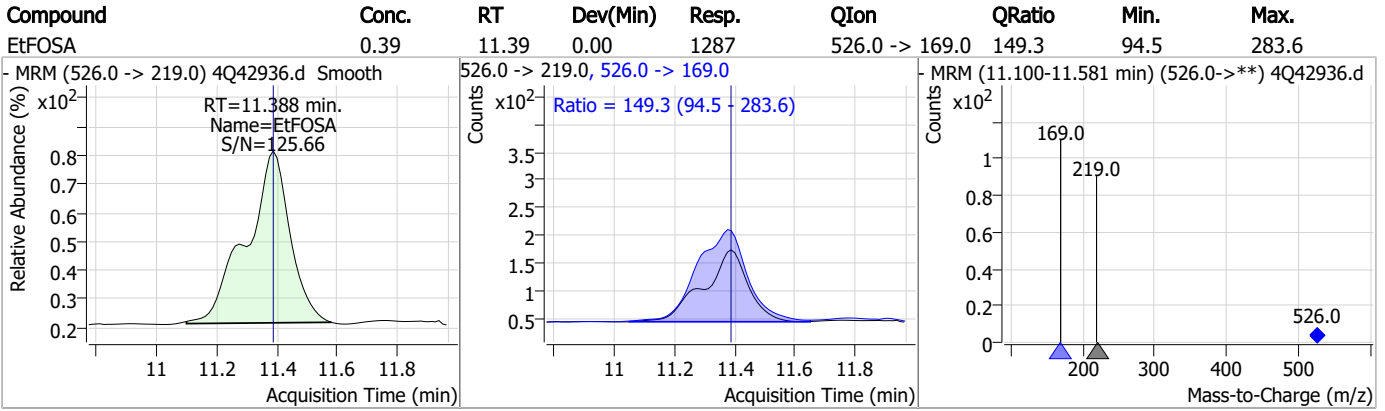
### Perfluorinated Compounds by LC/MS/MS



7.7.2

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### Perfluorinated Compounds by LC/MS/MS



7.7.2

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# Manual Integration Approval Summary

Sample Number: S4Q621-IC621      Method: EPA DRAFT 1633  
Lab FileID: 4Q42936.D      Analyst approved: 04/16/23 19:11 Martha Valls  
Injection Time: 04/14/23 11:49      Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.36	Split peak
MeFOSAA	2355-31-9		8.36	Split peak
EtFOSAA	2991-50-6		8.58	Split peak
MeFOSA	31506-32-8		11.10	Split peak

7.7.2.1

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## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42937.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 4/14/2023 12:04:03 PM  
 Sample Name : ic621-2  
 Vial : P1-A3  
 DA Method File : 1633\_041423\_S4Q621.quantmethod.xml  
 Batch Name : s4q621.batch.bin  
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	3.011	216.8 -> 171.9	118430	10.00 µg/L	0.012
M5-PFPeA	4.475	268.3 -> 223.0	79249	5.00 µg/L	0.000
M5-PFHxA	5.659	318.0 -> 273.0	61431	2.50 µg/L	0.012
M4-PFHpA	6.580	367.1 -> 322.0	31091	2.50 µg/L	0.000
M8-PFOA	7.250	421.1 -> 376.0	39202	2.50 µg/L	0.013
M9-PFNA	7.797	472.1 -> 427.0	21663	1.25 µg/L	0.000
M6-PFDA	8.315	519.1 -> 474.1	20734	1.25 µg/L	0.012
M7-PFUnDA	8.785	570.0 -> 525.1	22986	1.25 µg/L	0.000
M2-PFDoDA	9.243	615.1 -> 570.0	29666	1.25 µg/L	0.000
M2-PFTeDA	10.036	715.2 -> 670.0	23211	1.25 µg/L	0.000
M8-FOSA	9.870	506.1 -> 77.8	20720	2.50 µg/L	0.000
M3-PFBS	5.564	302.1 -> 79.9	13025	2.50 µg/L	0.000
M3-PFHxS	7.354	402.1 -> 79.9	8224	2.50 µg/L	0.013
M8-PFOS	8.467	507.1 -> 79.9	12035	2.50 µg/L	0.000
M2-4:2FTS	5.335	329.1 -> 80.9	1779	5.00 µg/L	0.000
M2-6:2FTS	7.010	429.1 -> 80.9	2701	5.00 µg/L	0.012
M2-8:2FTS	8.090	529.1 -> 80.9	4128	5.00 µg/L	0.000
M3-MeFOSAA	8.373	573.2 -> 419.0	18722	5.00 µg/L	0.012
M3-HFPO-DA	6.014	286.9 -> 168.9	37746	10.00 µg/L	0.000
M5-EtFOSAA	8.582	589.2 -> 419.0	15123	5.00 µg/L	0.012
M7-MeFOSE	10.985	623.2 -> 58.9	90682	25.00 µg/L	0.000
M9-EtFOSE	11.282	639.2 -> 58.9	109200	25.00 µg/L	0.000
M5-EtFOSA	11.386	531.1 -> 219.0	10076	2.50 µg/L	0.000
M3-MeFOSA	11.102	515.0 -> 219.0	9499	2.50 µg/L	0.000
13C4-PFOS	8.467	502.8 -> 79.9	12395	2.50 µg/L	0.000
13C3-PFBA	3.016	216.0 -> 172.0	68609	5.00 µg/L	0.025
18O2-PFHxS	7.353	403.0 -> 83.9	6037	2.50 µg/L	0.013
13C4-PFOA	7.251	417.1 -> 372.0	47008	2.50 µg/L	0.013
13C2-PFDA	8.316	515.1 -> 470.1	18078	1.25 µg/L	0.012
13C5-PFNA	7.797	468.0 -> 423.0	22771	1.25 µg/L	0.000
13C2-PFHxA	5.660	315.1 -> 270.0	53124	2.50 µg/L	0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.335	329.1 -> 80.9	1779	5.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.9%		
13C2-6:2FTS	7.010	429.1 -> 80.9	2701	5.71 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.2%		
13C2-8:2FTS	8.090	529.1 -> 80.9	4128	5.30 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C2-PFDoDA	9.243	615.1 -> 570.0	29666	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.6%		
13C2-PFTeDA	10.036	715.2 -> 670.0	23211	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.2%		
13C3-PFBS	5.564	302.1 -> 79.9	13025	2.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.9%		
13C3-PFHxS	7.354	402.1 -> 79.9	8224	2.46 µg/L	0.013



### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C4-PFBA	3.011	216.8 -> 171.9	118430	9.91 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C4-PFHpA	6.580	367.1 -> 322.0	31091	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C5-PFHxA	5.659	318.0 -> 273.0	61431	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C5-PFPeA	4.475	268.3 -> 223.0	79249	5.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C6-PFDA	8.315	519.1 -> 474.1	20734	1.30 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.3%	
13C7-PFUnDA	8.785	570.0 -> 525.1	22986	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C8-FOSA	9.870	506.1 -> 77.8	20720	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C8-PFOA	7.250	421.1 -> 376.0	39202	2.53 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C8-PFOS	8.467	507.1 -> 79.9	12035	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C9-PFNA	7.797	472.1 -> 427.0	21663	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.5%	
d3-MeFOSAA	8.373	573.2 -> 419.0	18722	5.13 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C3-HFPO-DA	6.014	286.9 -> 168.9	37746	10.12 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
d3-MeFOSA	11.102	515.0 -> 219.0	9499	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.0%	
d5-EtFOSAA	8.582	589.2 -> 419.0	15123	5.10 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
d7-MeFOSE	10.985	623.2 -> 58.9	90682	28.37 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 113.5%	
d9-EtFOSE	11.282	639.2 -> 58.9	109200	27.92 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 111.7%	
d5-EtFOSA	11.386	531.1 -> 219.0	10076	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.2%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.336	327.1 -> 307.0	3240	1.46 µg/L	99
		327.1 -> 80.9	1290		
6:2FTS	7.011	427.1 -> 407.0	2543	1.38 µg/L	94
		427.1 -> 80.9	1172		
8:2FTS	8.090	527.1 -> 507.0	2859	1.54 µg/L	92
		527.1 -> 80.8	1271		
EtFOSAA	8.583	584.2 -> 419.1	900	0.40 µg/L	m 88
		584.2 -> 526.0	410		
FOSA	9.861	498.1 -> 77.9	2499	0.37 µg/L	99
		498.1 -> 478.0	72		
MeFOSAA	8.373	570.1 -> 419.0	887	0.34 µg/L	m 92
		570.1 -> 483.0	169		
PFBA	3.020	212.8 -> 168.9	3923	1.45 µg/L	100
PFBS	5.565	298.7 -> 79.9	1713	0.35 µg/L	99
		298.7 -> 98.8	667		
PFDA	8.316	512.9 -> 469.0	4026	0.34 µg/L	87
		512.9 -> 219.0	1019		
PFDODA	9.244	613.1 -> 569.0	6629	0.35 µg/L	97
		613.1 -> 319.0	1008		
PFDS	9.409	599.0 -> 79.9	1041	0.39 µg/L	100

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## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	501			
PFHpA	6.580	363.1 -> 319.0	5491	0.35	µg/L	91
		363.1 -> 169.0	1181			
PFHpS	7.936	449.0 -> 79.9	1023	0.33	µg/L	92
		449.0 -> 98.9	590			
PFHxA	5.649	313.0 -> 269.0	6920	0.38	µg/L	99
		313.0 -> 118.9	188			
PFHxS	7.342	398.7 -> 79.9	979	0.35	µg/L	m 92
		398.7 -> 98.9	451			
PFNA	7.797	463.0 -> 419.0	4521	0.39	µg/L	95
		463.0 -> 219.0	1118			
PFNS	8.961	548.8 -> 79.9	635	0.34	µg/L	94
		548.8 -> 98.9	300			
PFOA	7.252	413.0 -> 369.0	6358	0.35	µg/L	99
		413.0 -> 169.0	1268			
PFOS	8.468	498.9 -> 79.9	1521	0.32	µg/L	m 89
		498.9 -> 98.8	790			
PFPeA	4.477	263.0 -> 219.0	10964	0.73	µg/L	100
PFPeS	6.619	349.1 -> 79.9	785	0.33	µg/L	m 99
		349.1 -> 98.9	337			
PFTeDA	10.050	713.1 -> 669.0	7043	0.39	µg/L	99
		713.1 -> 168.9	601			
PFTrDA	9.666	663.0 -> 619.0	9319	0.39	µg/L	98
		663.0 -> 168.9	844			
PFUnDA	8.785	563.1 -> 519.0	5096	0.39	µg/L	99
		563.1 -> 269.1	1010			
11Cl-PF3OUdS	9.705	630.9 -> 450.9	7099	0.72	µg/L	100
		632.9 -> 452.9	2206			
9Cl-PF3ONS	8.825	530.8 -> 351.0	7636	0.69	µg/L	98
		532.8 -> 353.0	2441			
ADONA	6.843	376.9 -> 250.9	15703	0.69	µg/L	96
		376.9 -> 84.8	4533			
HFPO-DA	6.015	284.9 -> 168.9	2287	0.76	µg/L	93
		284.9 -> 184.9	347			
3:3FTCA	3.979	241.0 -> 177.0	1280	1.83	µg/L	97
		241.0 -> 117.0	138			
5:3FTCA	6.345	341.0 -> 237.1	23272	9.06	µg/L	97
		341.0 -> 217.0	17127			
7:3FTCA	7.799	441.0 -> 316.9	9824	9.33	µg/L	99
		441.0 -> 336.9	21874			
EtFOSA	11.388	526.0 -> 219.0	2770	0.77	µg/L	m 59
		526.0 -> 169.0	3589			
EtFOSE	11.308	630.0 -> 58.9	6266	1.86	µg/L	100
MeFOSA	11.091	511.9 -> 219.0	2261	0.74	µg/L	m 79
		511.9 -> 169.0	3344			
MeFOSE	10.998	616.1 -> 58.9	6213	1.95	µg/L	m 100
PFDoDS	10.189	699.1 -> 79.9	852	0.37	µg/L	95
		699.1 -> 98.8	451			
NFDHA	5.541	295.0 -> 201.0	932	0.76	µg/L	94
		295.0 -> 84.9	259			
PFMBA	4.878	279.0 -> 85.1	6260	0.73	µg/L	100
PFMPA	3.611	229.0 -> 84.9	5511	0.73	µg/L	100
PFEESA	6.096	314.8 -> 134.9	9991	0.65	µg/L	99
		314.8 -> 82.9	378			

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

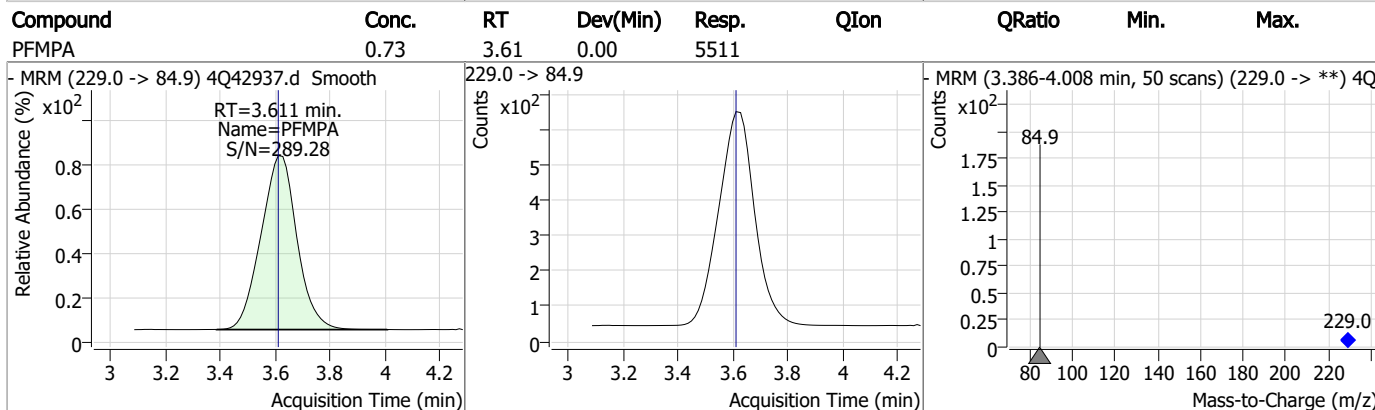
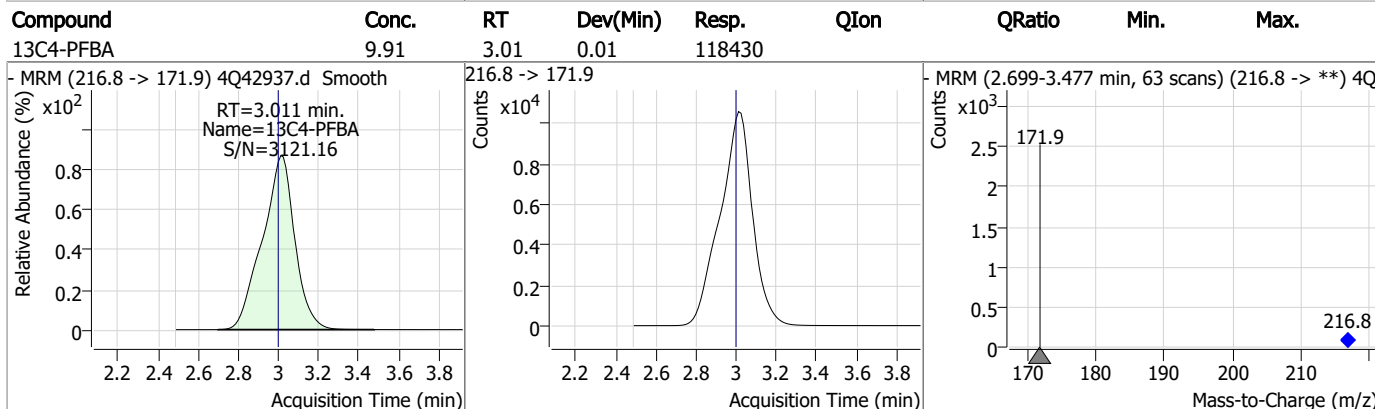
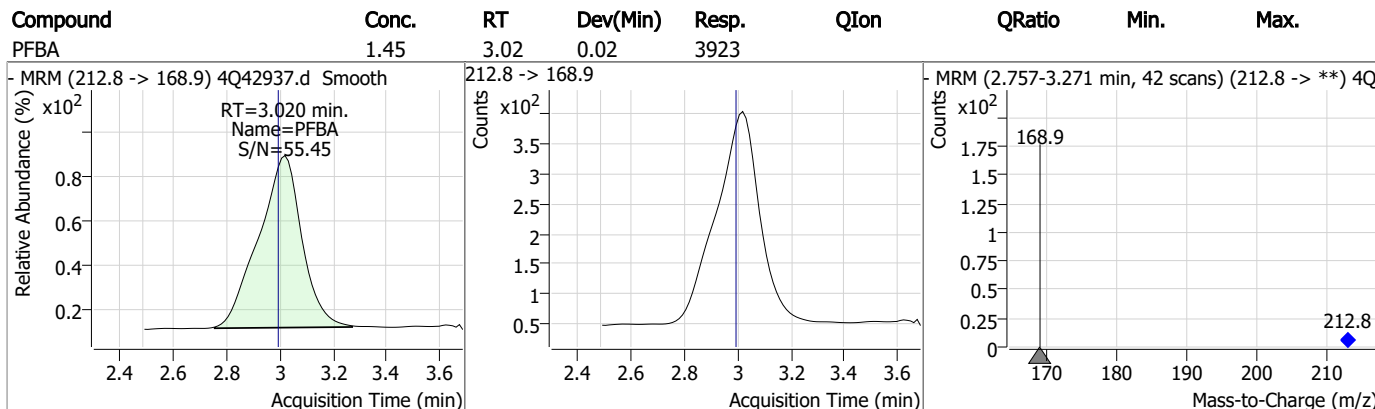
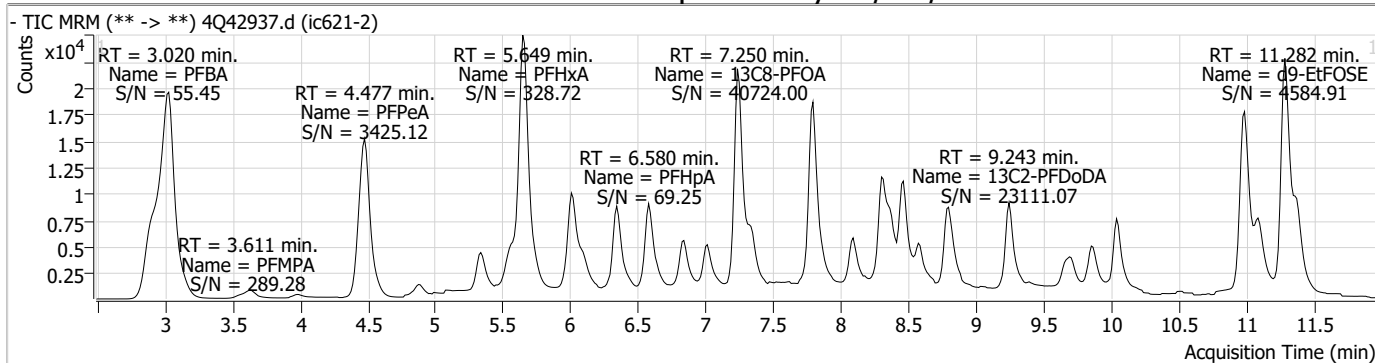
### Perfluorinated Compounds by LC/MS/MS

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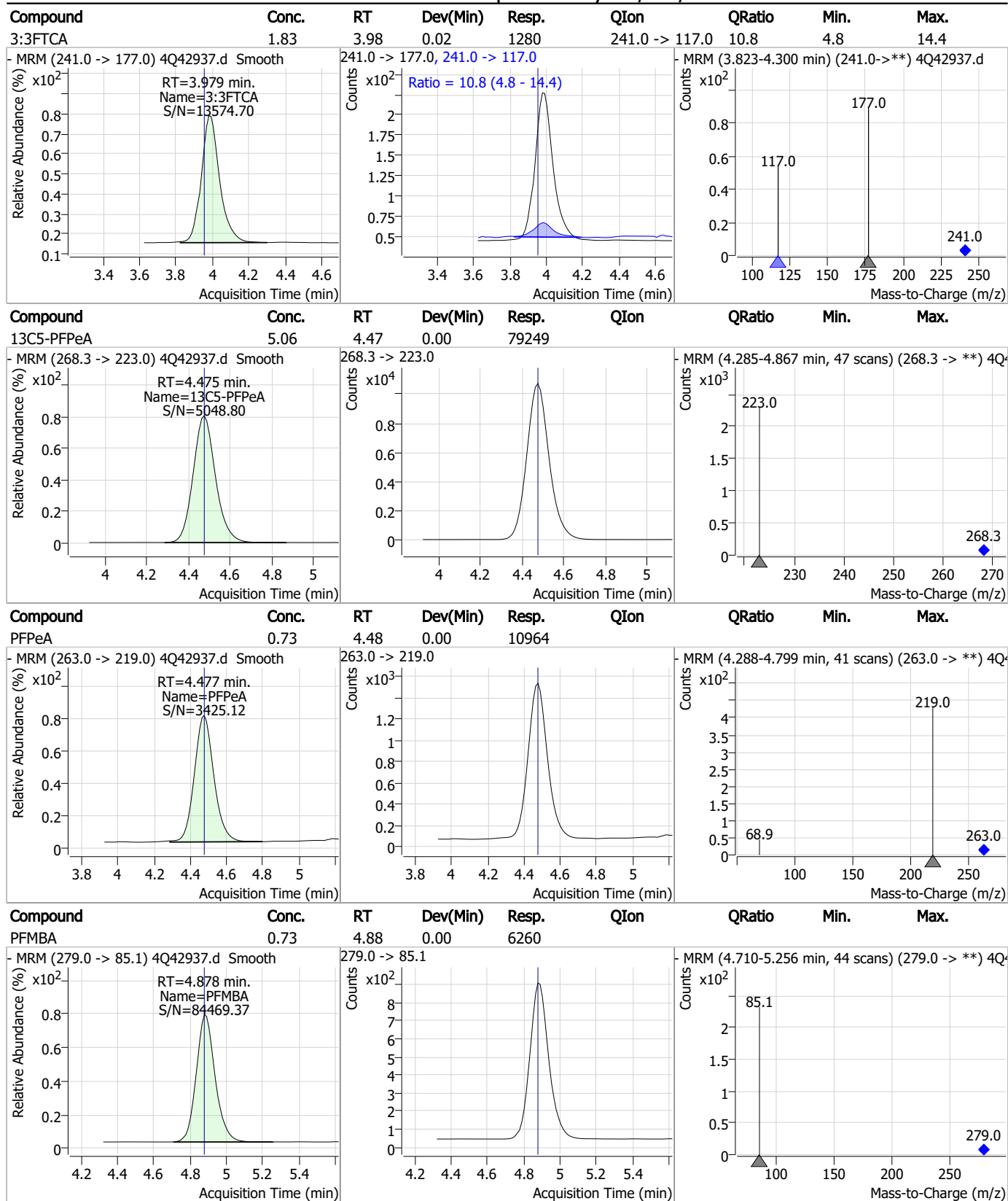
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### Perfluorinated Compounds by LC/MS/MS



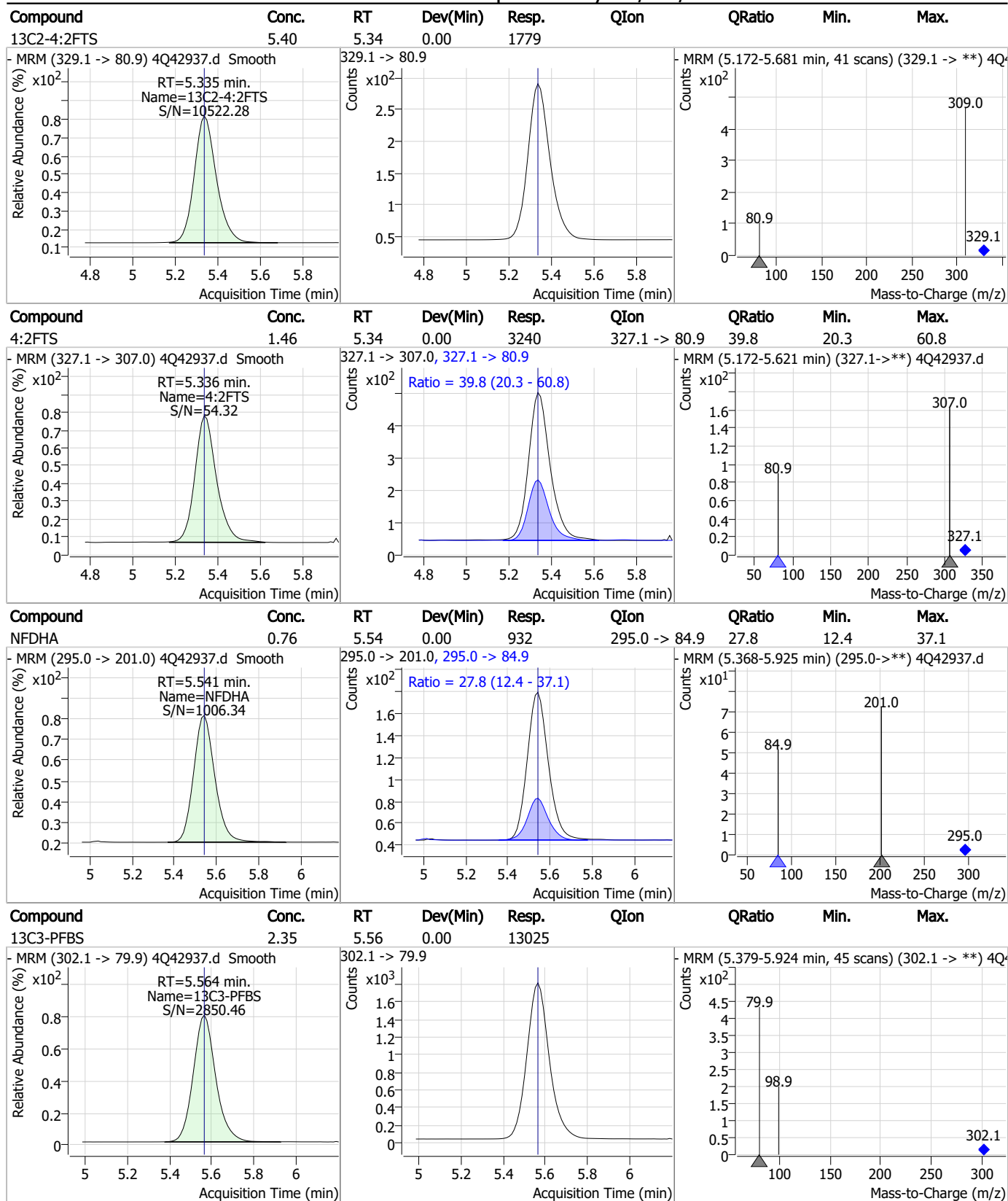
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### Perfluorinated Compounds by LC/MS/MS



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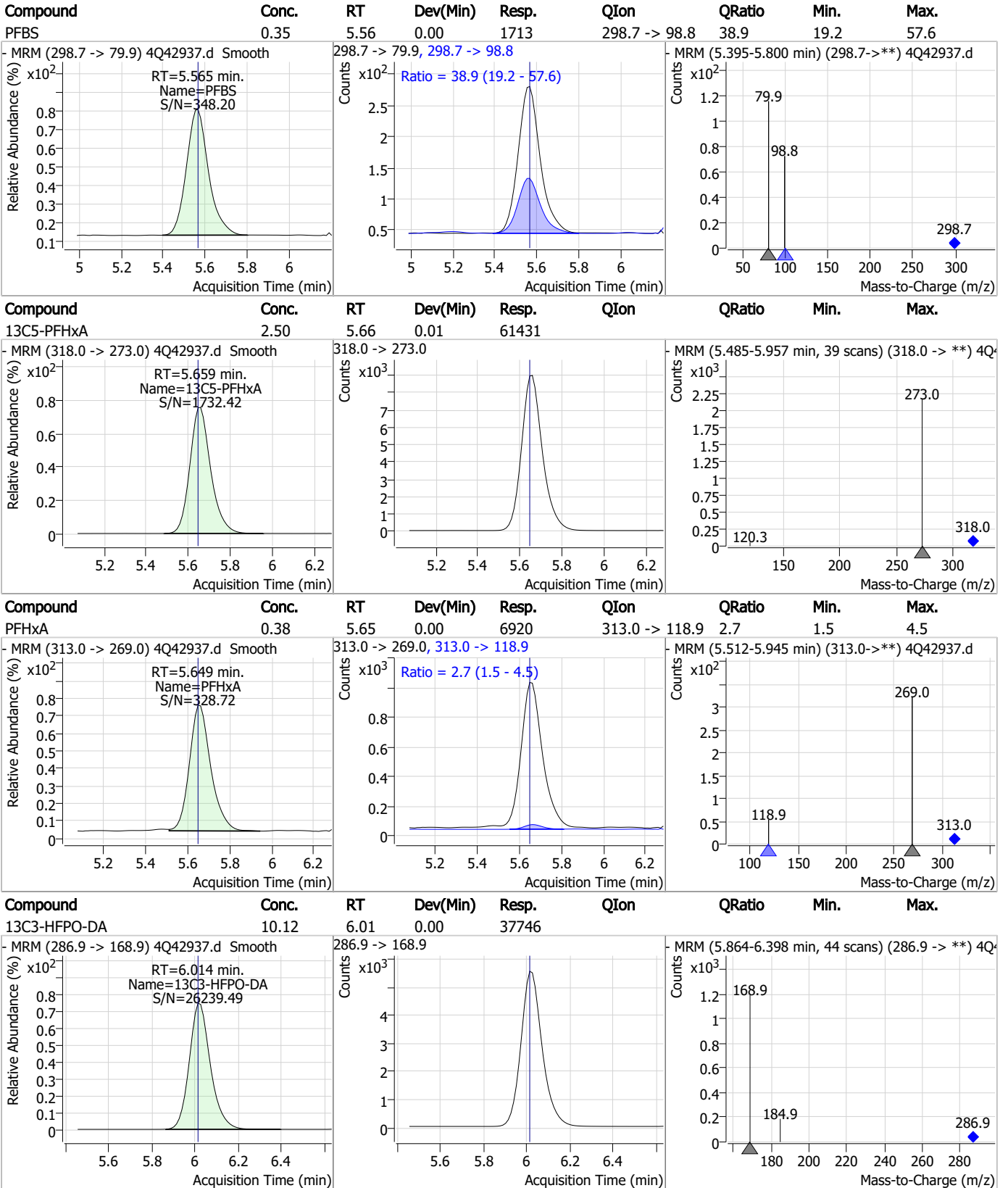
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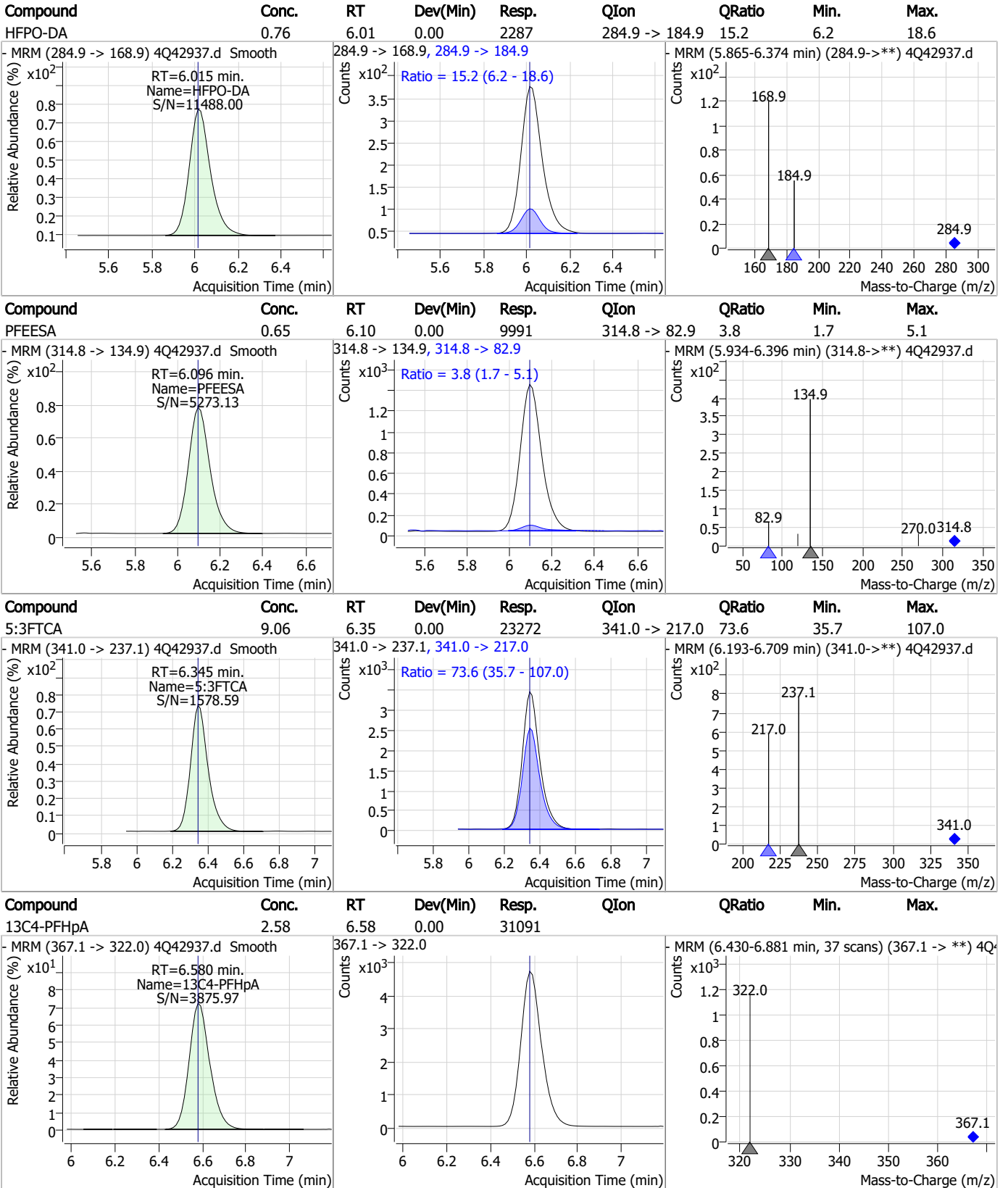
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### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

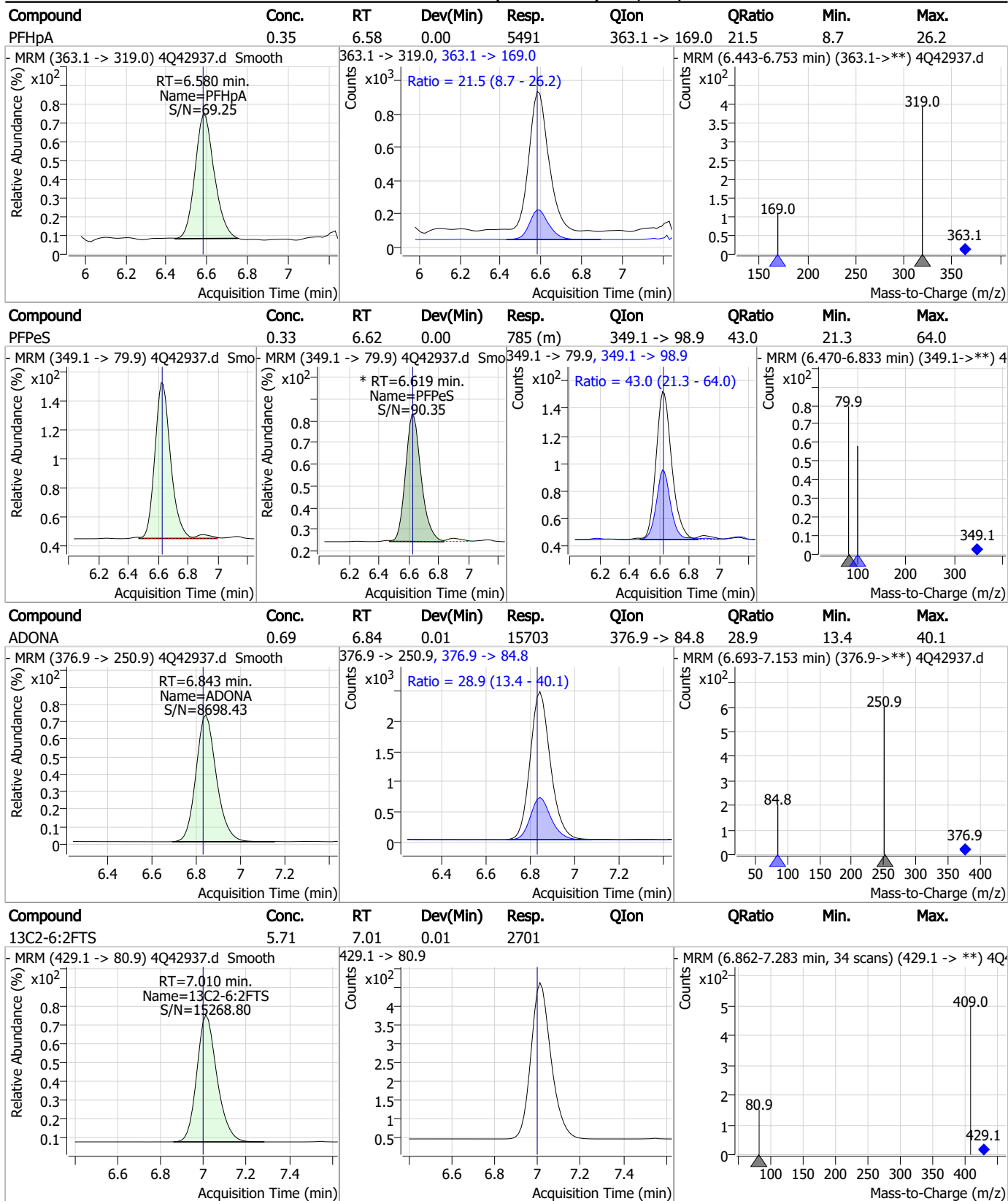


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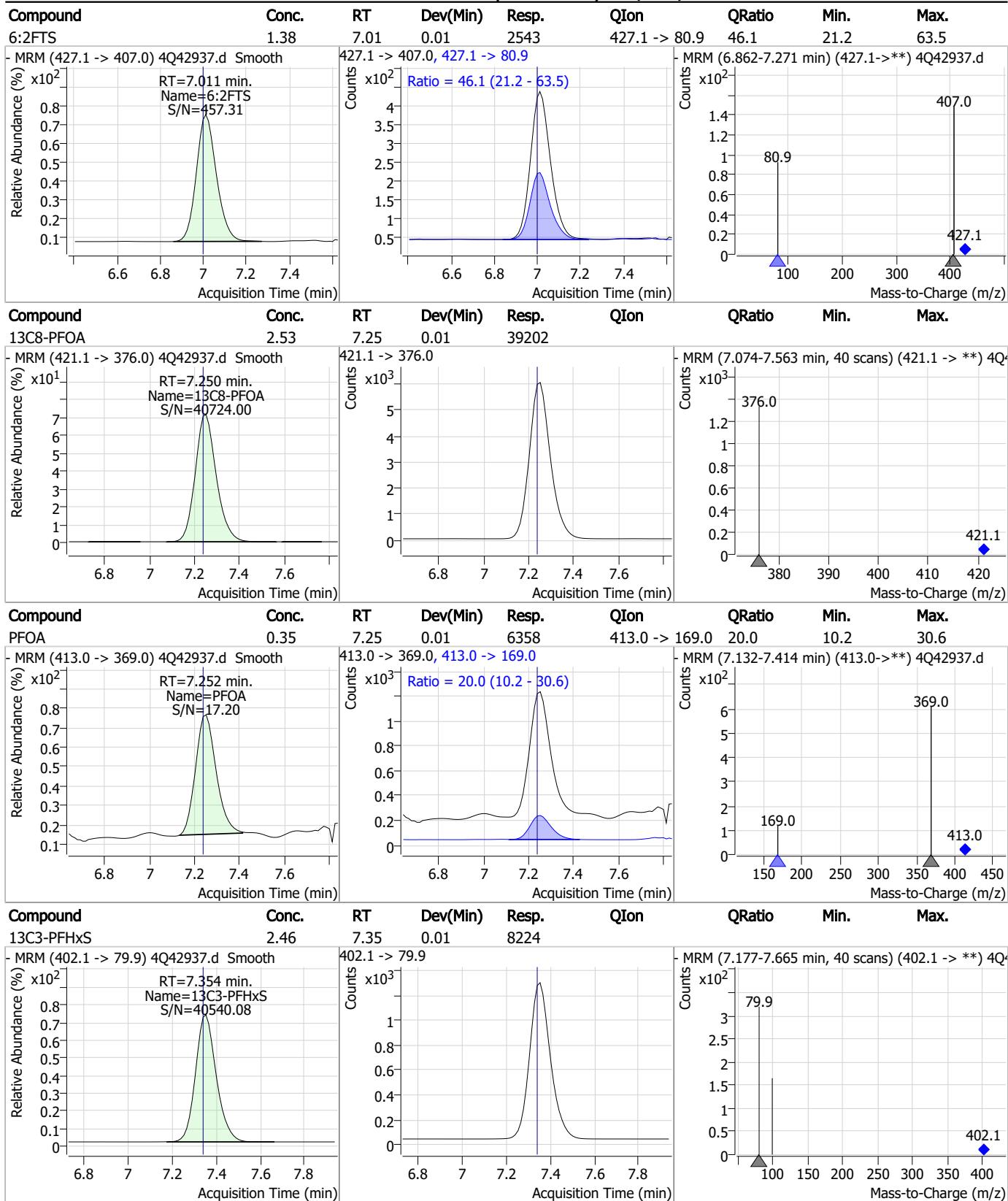


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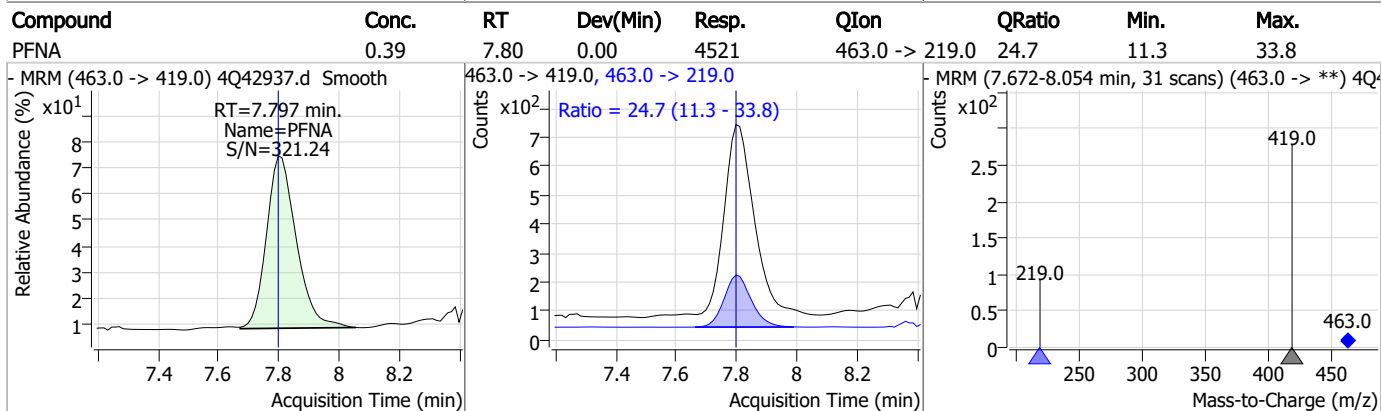
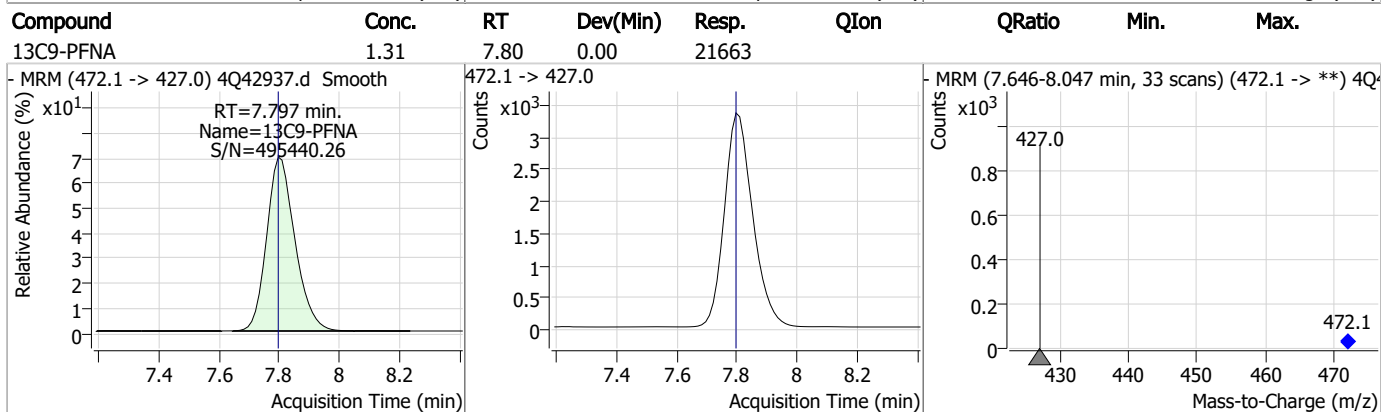
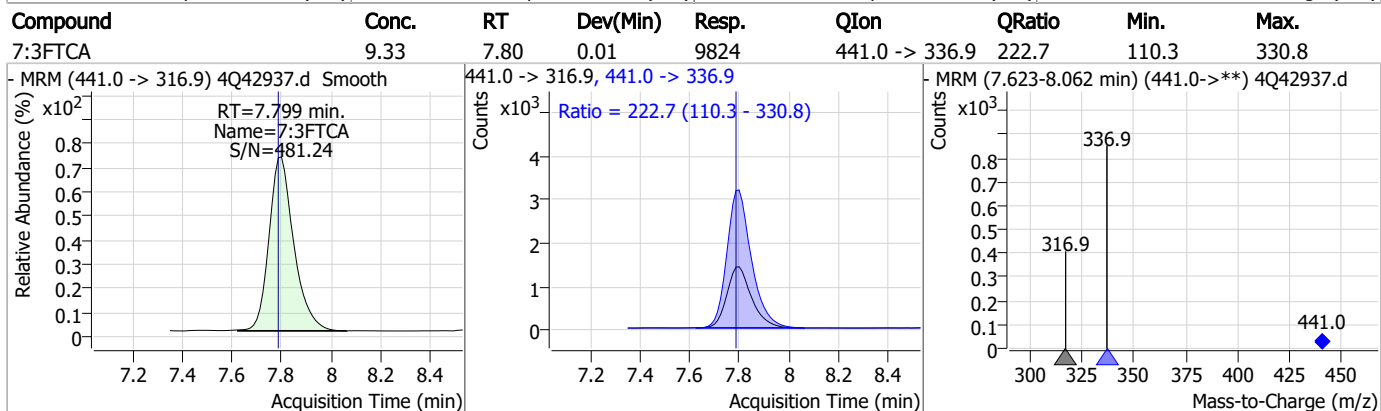
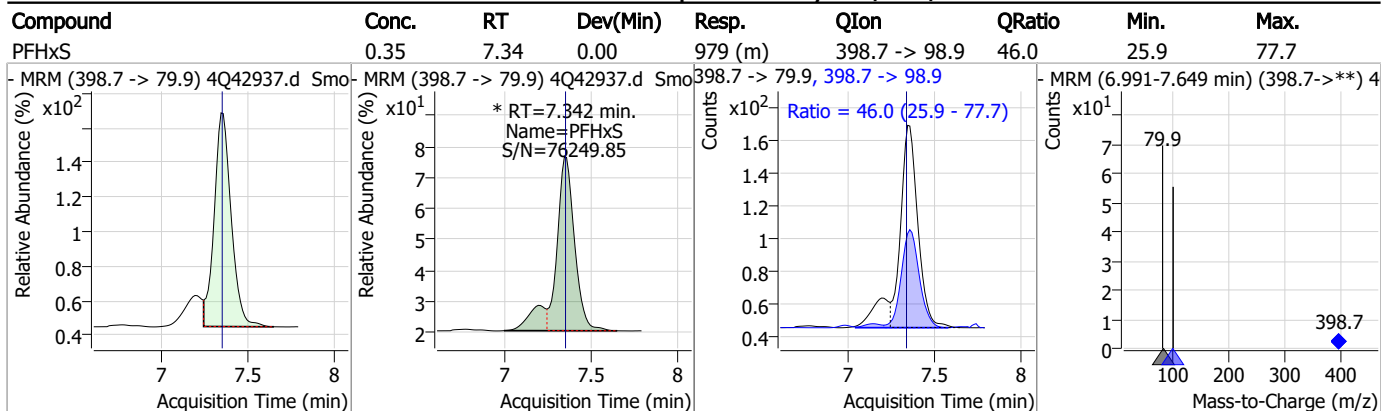


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### Perfluorinated Compounds by LC/MS/MS

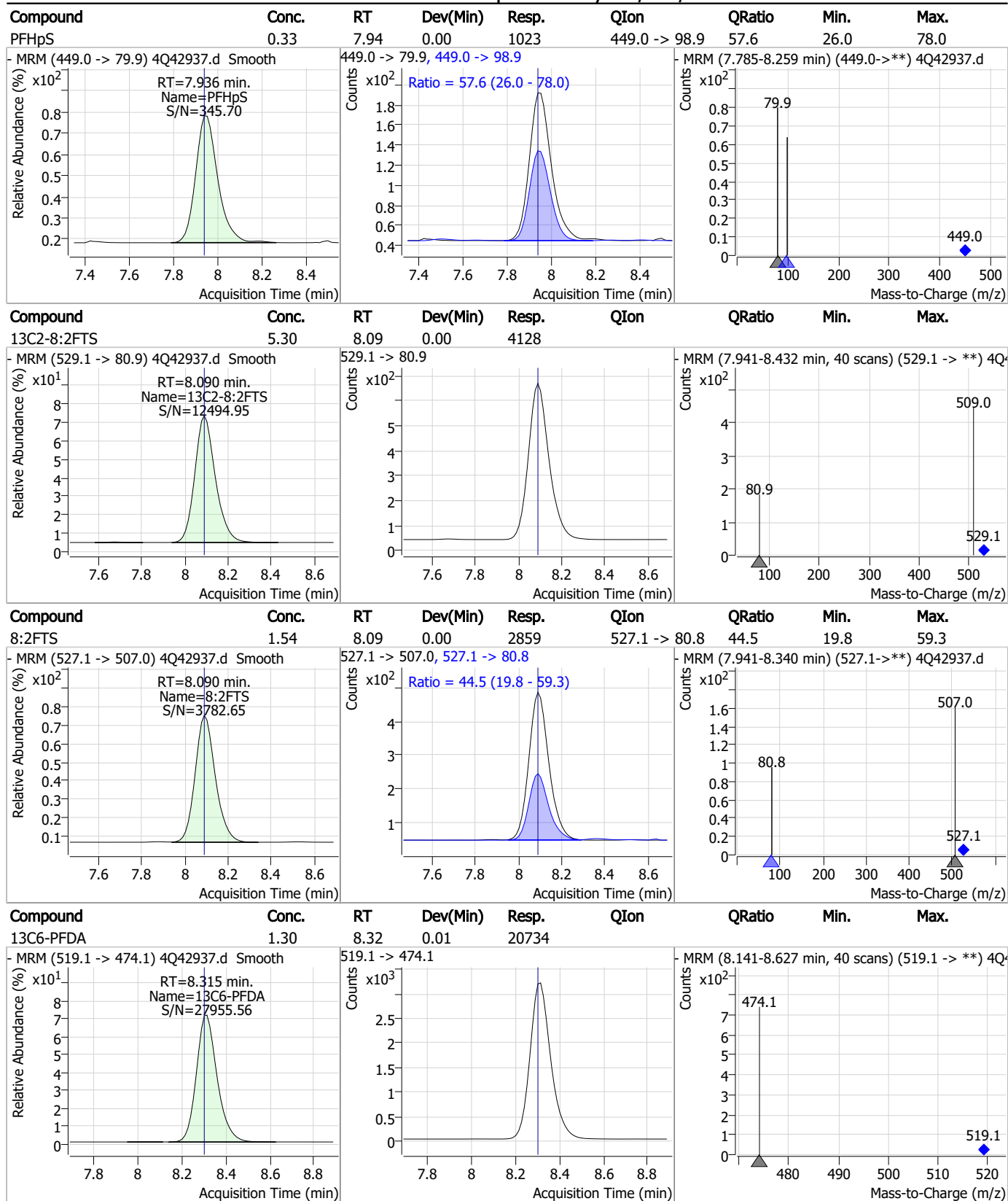


### Perfluorinated Compounds by LC/MS/MS



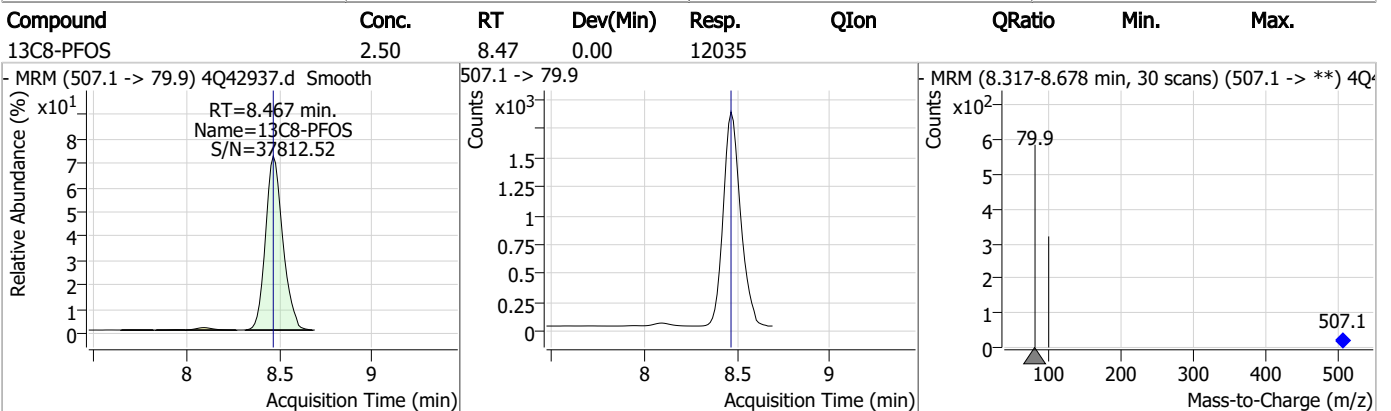
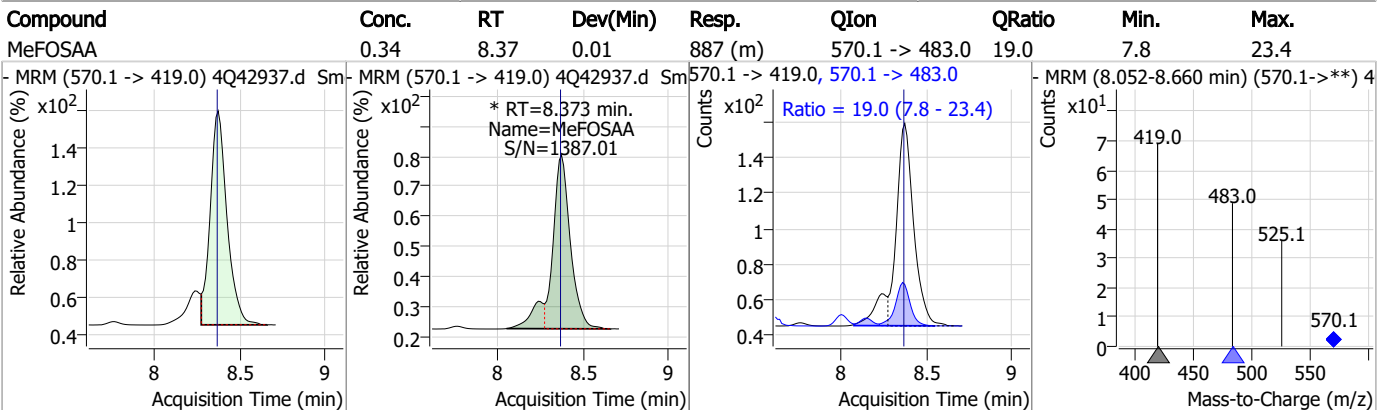
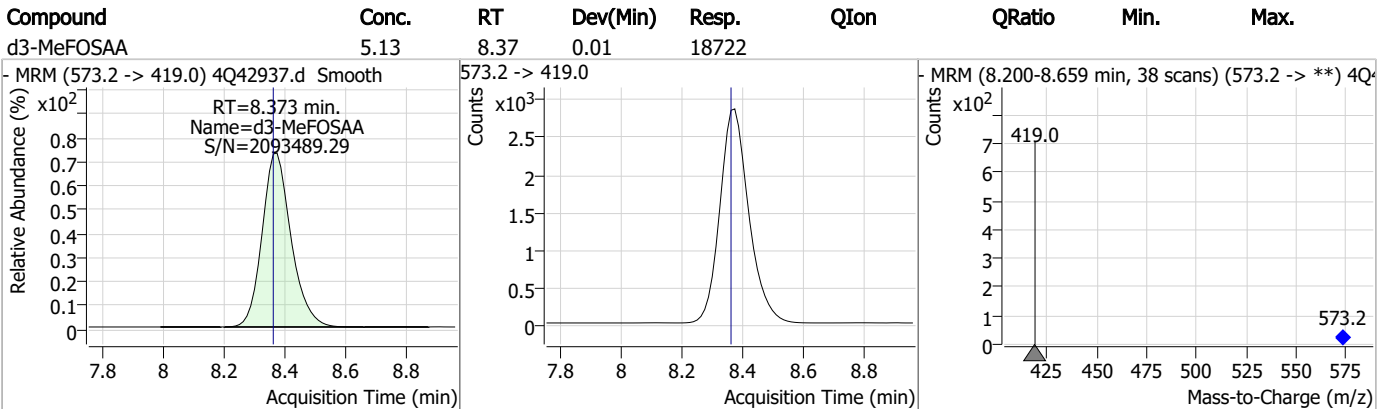
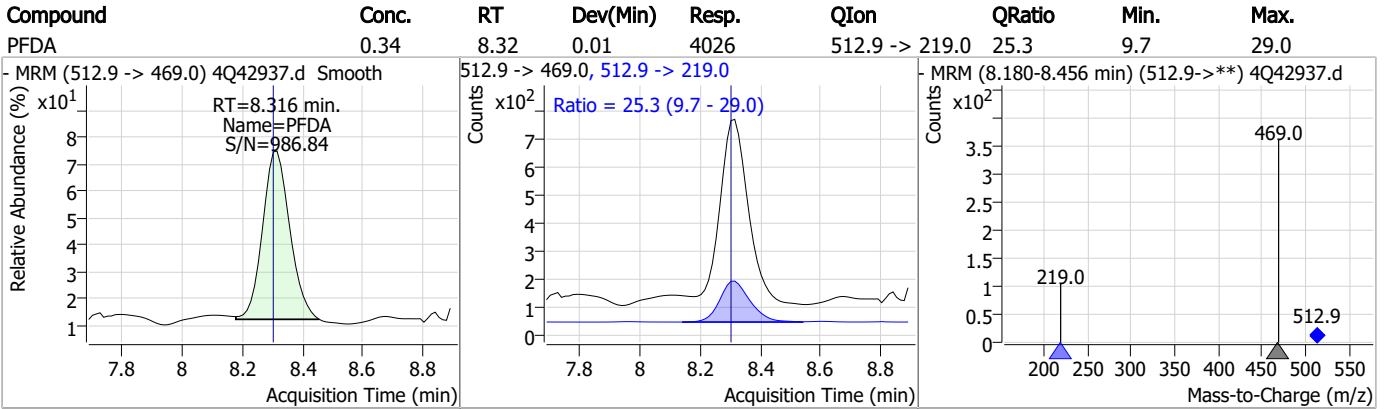
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### Perfluorinated Compounds by LC/MS/MS



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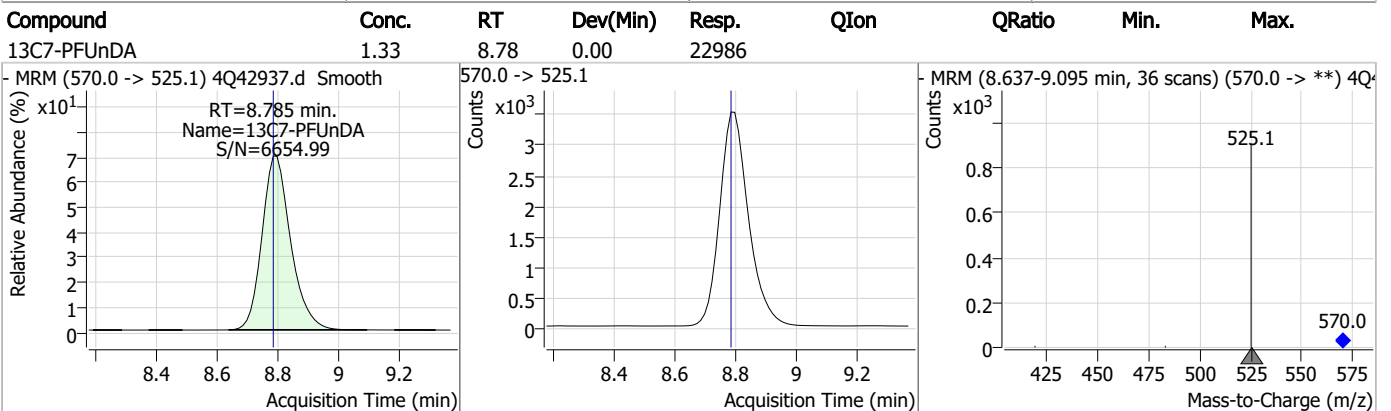
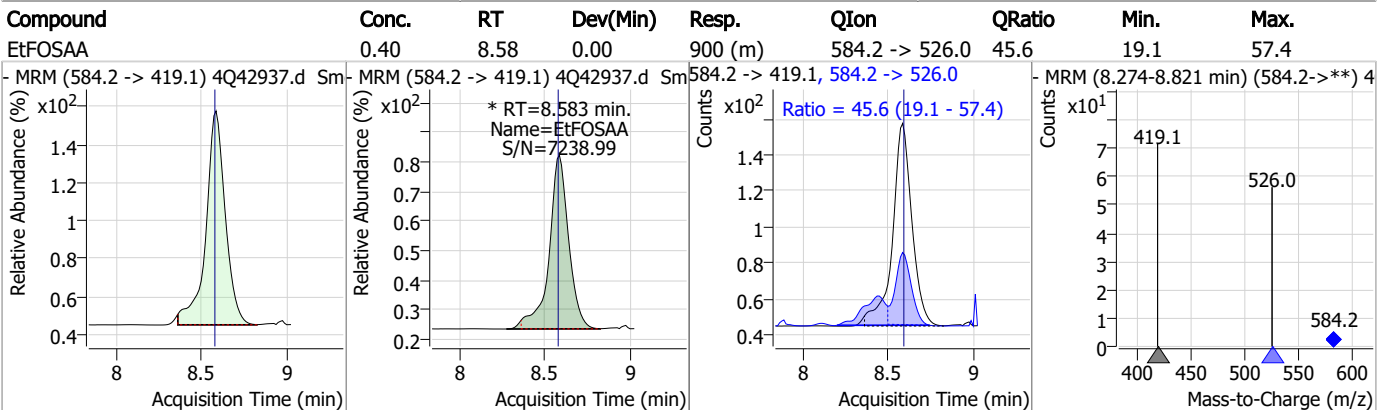
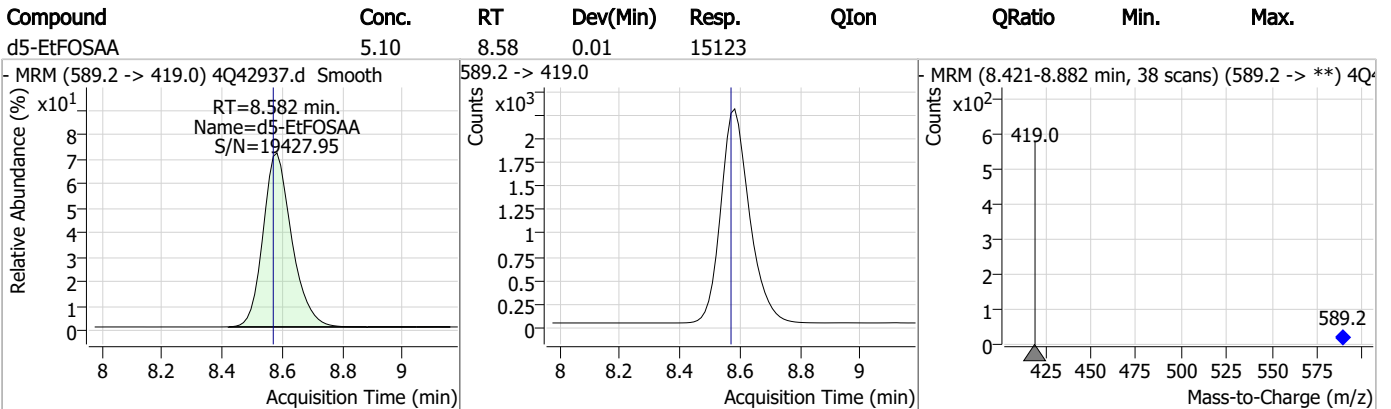
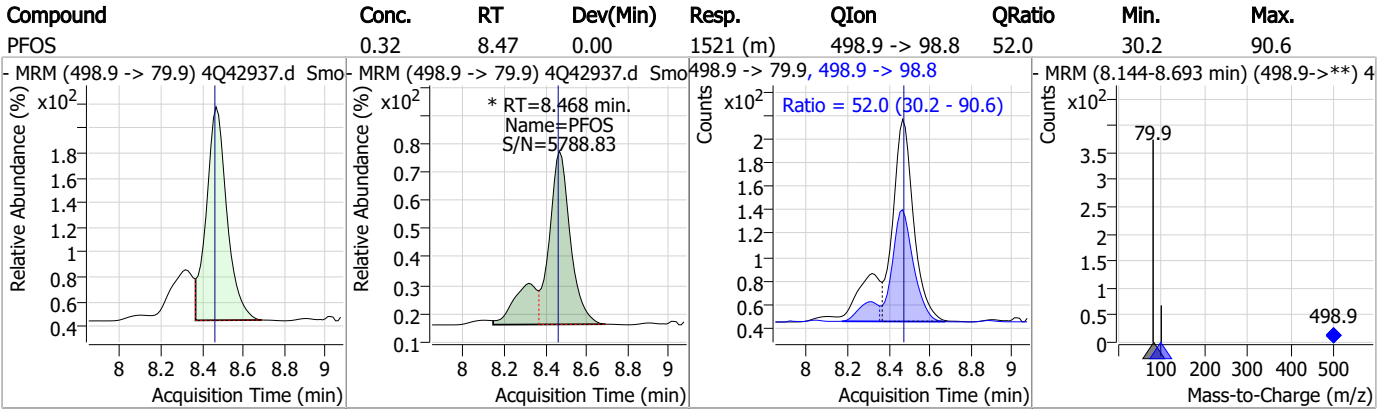
### Perfluorinated Compounds by LC/MS/MS



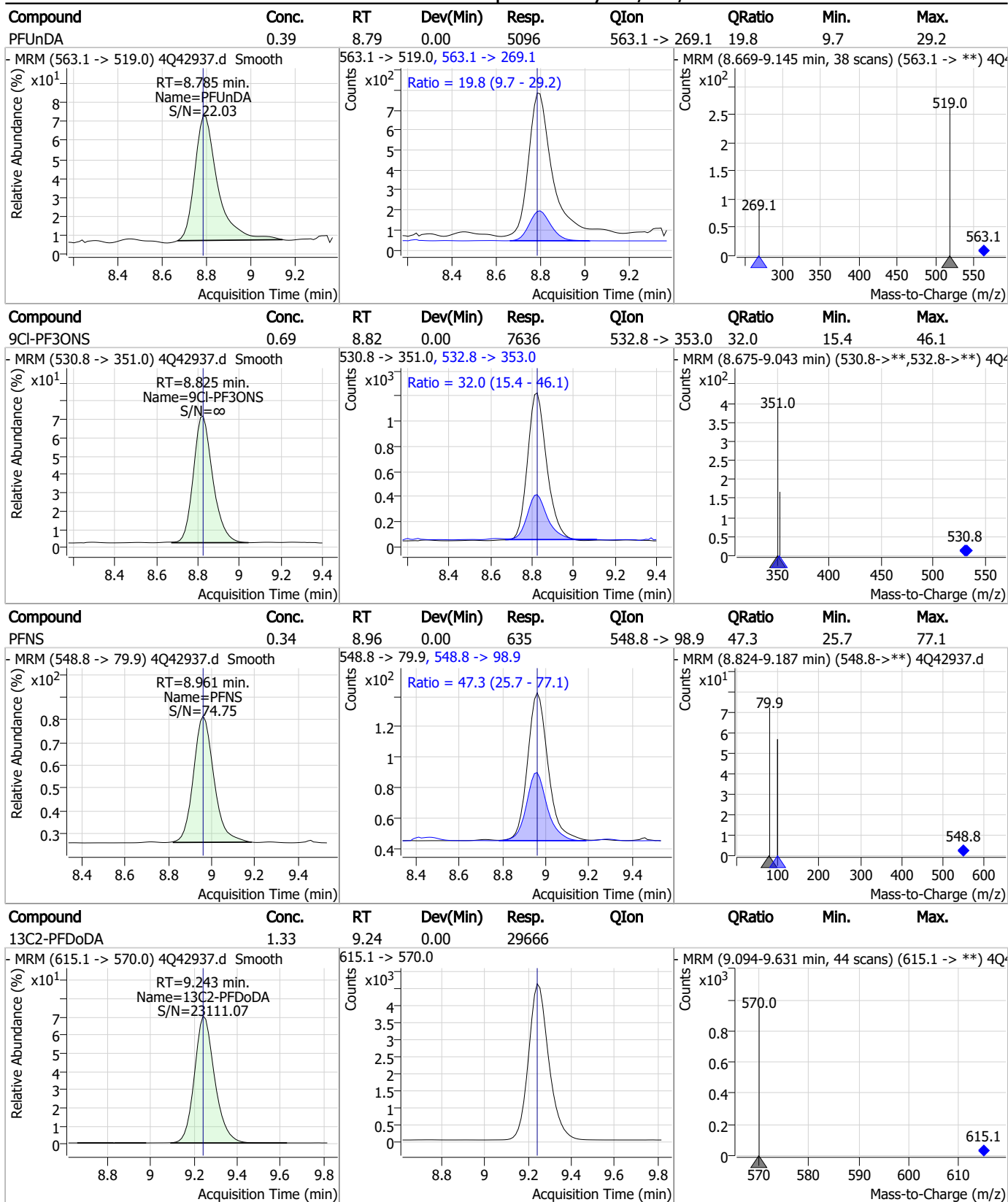
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### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

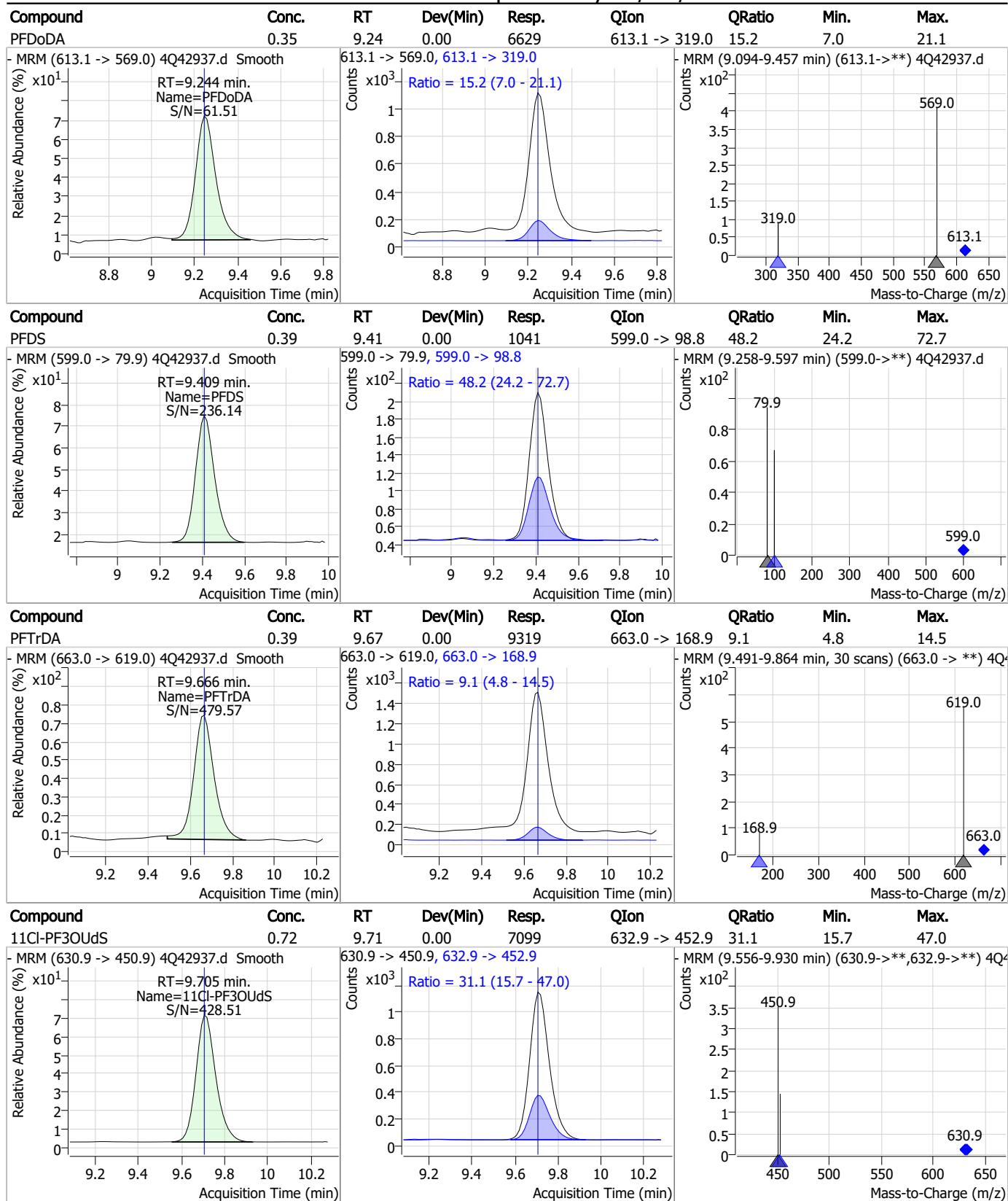


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### Perfluorinated Compounds by LC/MS/MS

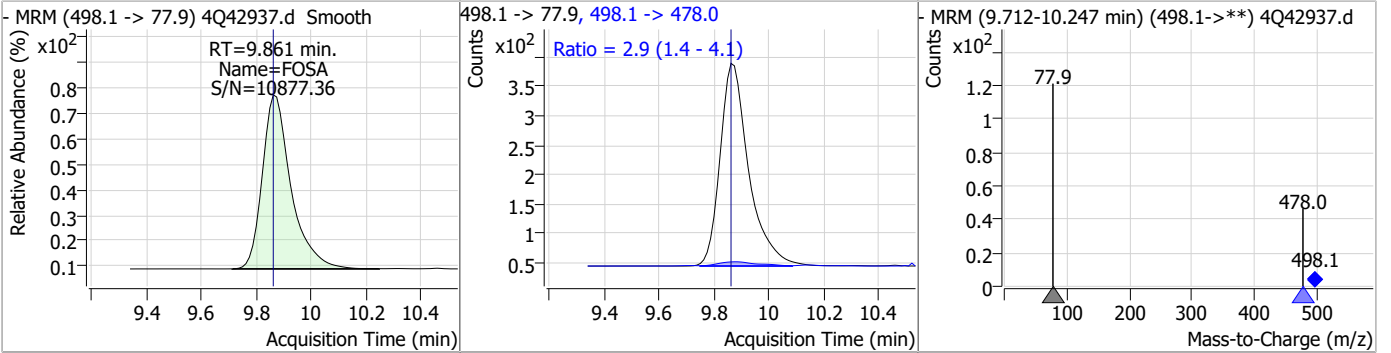


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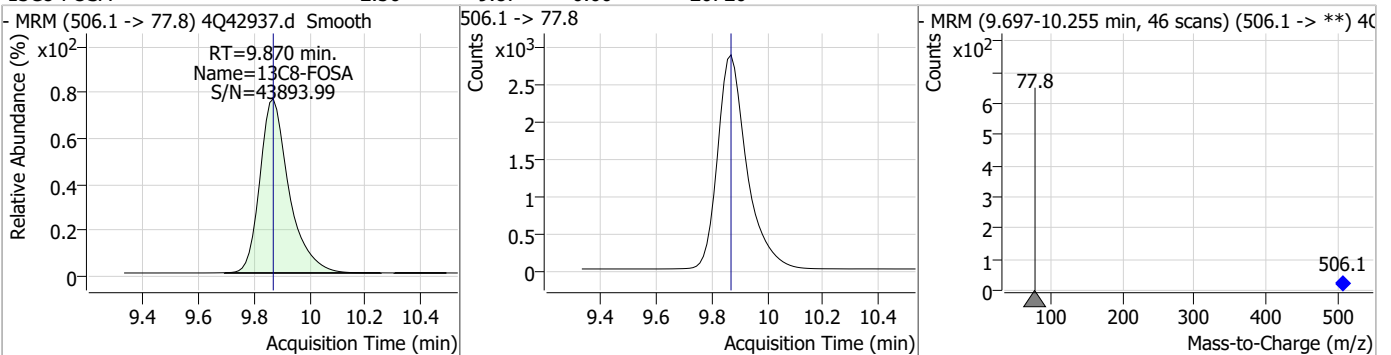


### Perfluorinated Compounds by LC/MS/MS

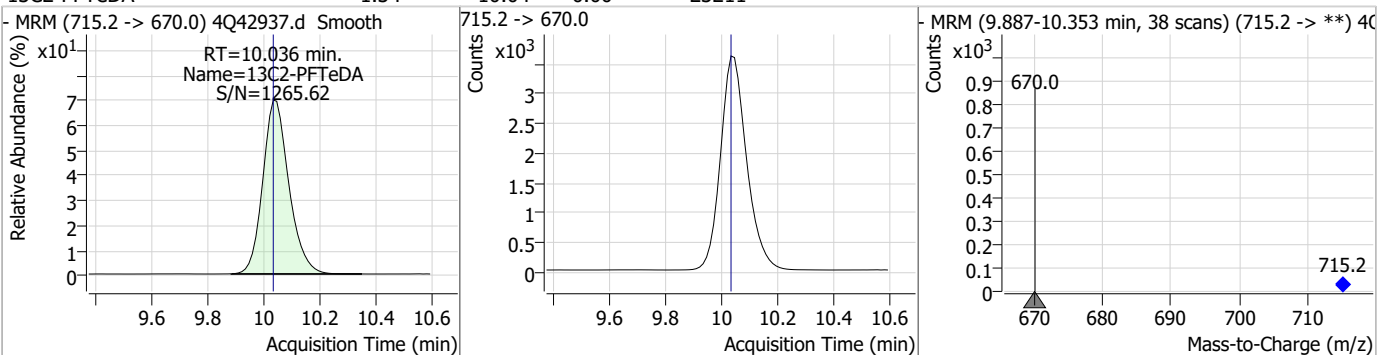
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.37	9.86	0.00	2499	498.1 -> 478.0	2.9	1.4	4.1



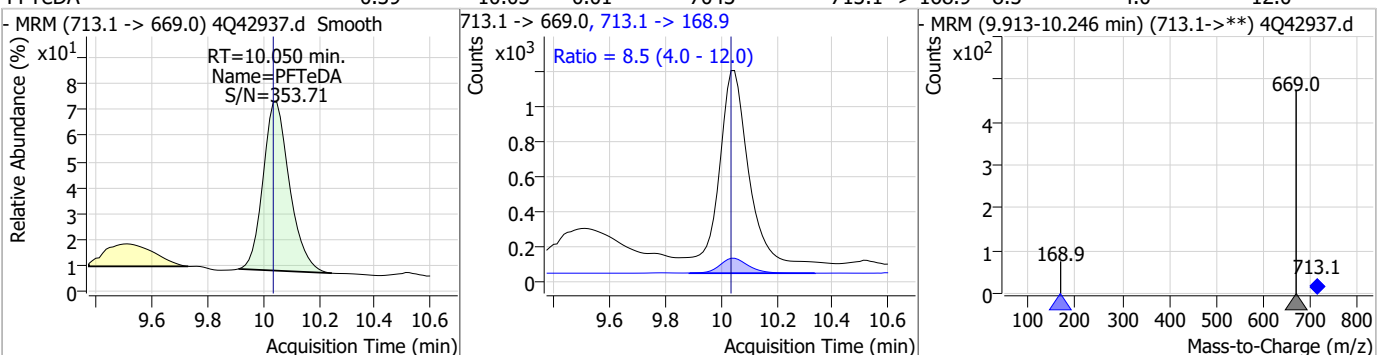
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.56	9.87	0.00	20720				



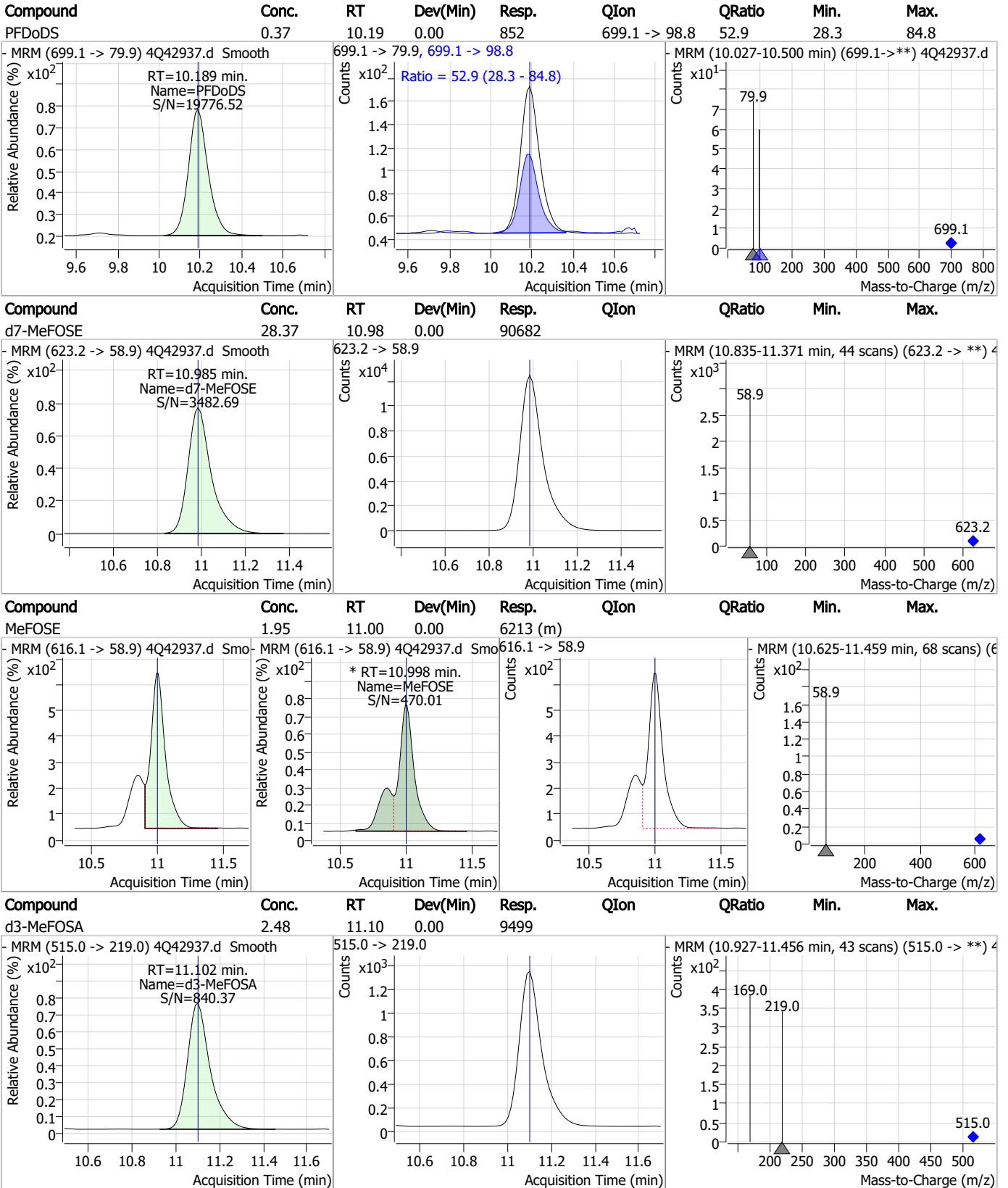
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.34	10.04	0.00	23211				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.39	10.05	0.01	7043	713.1 -> 168.9	8.5	4.0	12.0



### Perfluorinated Compounds by LC/MS/MS

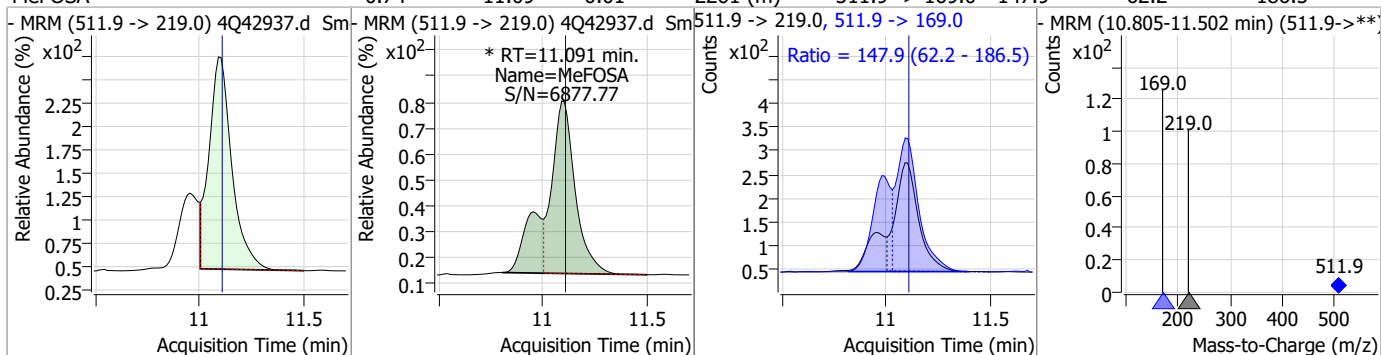


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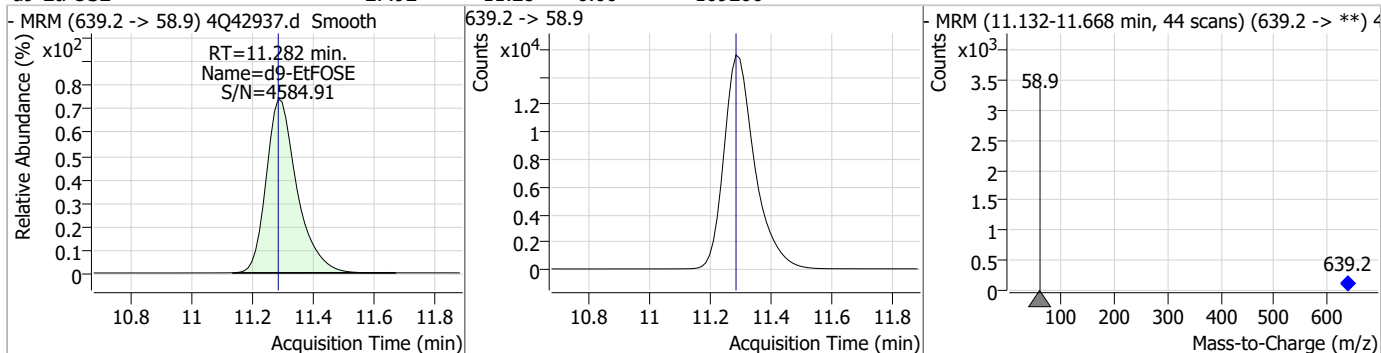
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### Perfluorinated Compounds by LC/MS/MS

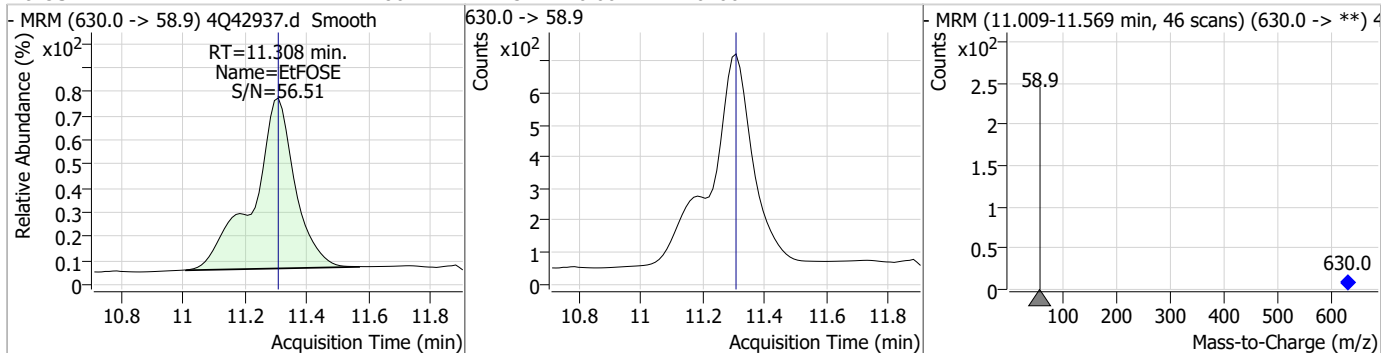
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.74	11.09	-0.01	2261 (m)	511.9 -> 169.0	147.9	62.2	186.5



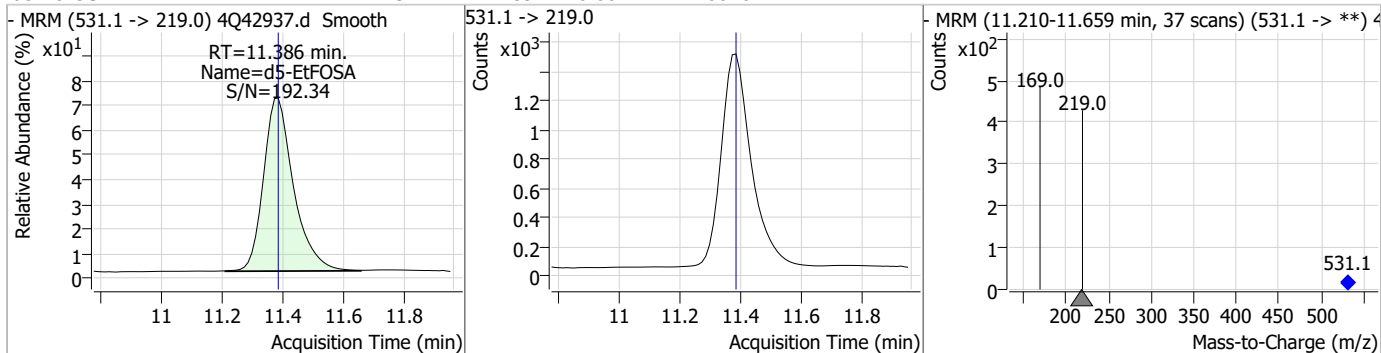
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	27.92	11.28	0.00	109200				



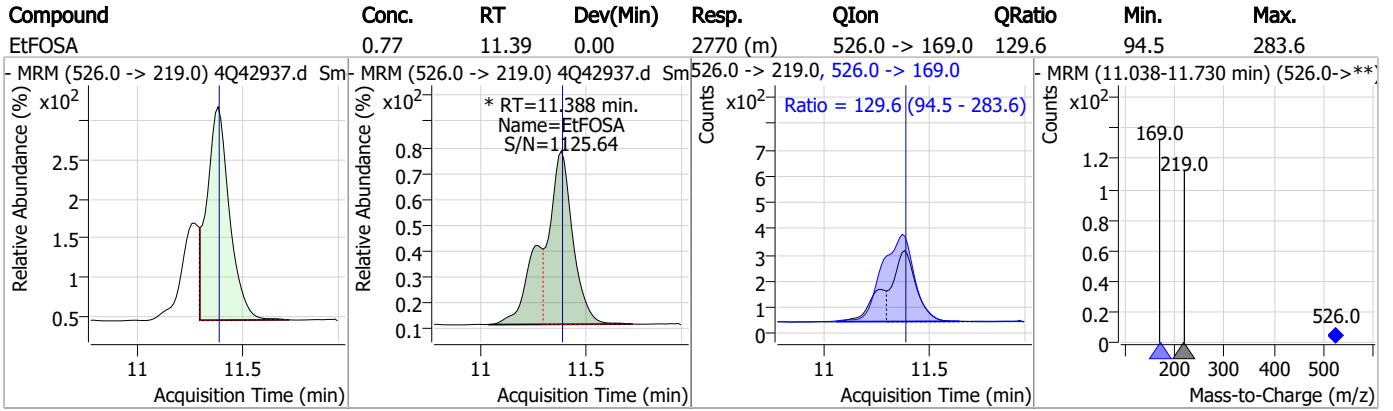
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	1.86	11.31	0.00	6266				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.43	11.39	0.00	10076				



### Perfluorinated Compounds by LC/MS/MS



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# Manual Integration Approval Summary

Sample Number: S4Q621-IC621      Method: EPA DRAFT 1633  
Lab FileID: 4Q42937.D      Analyst approved: 04/16/23 19:11 Martha Valls  
Injection Time: 04/14/23 12:04      Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluoropentanesulfonic acid	2706-91-4		6.62	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.34	Split peak
MeFOSAA	2355-31-9		8.37	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.47	Split peak
EtFOSAA	2991-50-6		8.58	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.09	Split peak
EtFOSA	4151-50-2		11.39	Split peak

7.7.3.1  
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## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42938.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 4/14/2023 12:27:15 PM  
 Sample Name : ic621-3  
 Vial : P1-A4  
 DA Method File : 1633\_041423\_S4Q621.quantmethod.xml  
 Batch Name : s4q621.batch.bin  
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	3.114	216.8 -> 171.9	145141	10.00 µg/L	0.116
M5-PFPeA	4.525	268.3 -> 223.0	85658	5.00 µg/L	0.050
M5-PFHxA	5.684	318.0 -> 273.0	66221	2.50 µg/L	0.037
M4-PFHpA	6.605	367.1 -> 322.0	30104	2.50 µg/L	0.025
M8-PFOA	7.250	421.1 -> 376.0	40124	2.50 µg/L	0.013
M9-PFNA	7.809	472.1 -> 427.0	22828	1.25 µg/L	0.012
M6-PFDA	8.315	519.1 -> 474.1	22483	1.25 µg/L	0.012
M7-PFUnDA	8.797	570.0 -> 525.1	23802	1.25 µg/L	0.012
M2-PFDoDA	9.255	615.1 -> 570.0	31188	1.25 µg/L	0.012
M2-PFTeDA	10.049	715.2 -> 670.0	24845	1.25 µg/L	0.012
M8-FOSA	9.883	506.1 -> 77.8	23891	2.50 µg/L	0.012
M3-PFBS	5.601	302.1 -> 79.9	14615	2.50 µg/L	0.037
M3-PFHxS	7.354	402.1 -> 79.9	8233	2.50 µg/L	0.013
M8-PFOS	8.479	507.1 -> 79.9	12589	2.50 µg/L	0.012
M2-4:2FTS	5.372	329.1 -> 80.9	1825	5.00 µg/L	0.037
M2-6:2FTS	7.023	429.1 -> 80.9	2503	5.00 µg/L	0.025
M2-8:2FTS	8.102	529.1 -> 80.9	4231	5.00 µg/L	0.012
M3-MeFOSAA	8.373	573.2 -> 419.0	20044	5.00 µg/L	0.012
M3-HFPO-DA	6.051	286.9 -> 168.9	38681	10.00 µg/L	0.037
M5-EtFOSAA	8.582	589.2 -> 419.0	16212	5.00 µg/L	0.012
M7-MeFOSE	10.985	623.2 -> 58.9	95244	25.00 µg/L	0.000
M9-EtFOSE	11.294	639.2 -> 58.9	116911	25.00 µg/L	0.012
M5-EtFOSA	11.386	531.1 -> 219.0	10266	2.50 µg/L	0.000
M3-MeFOSA	11.102	515.0 -> 219.0	9758	2.50 µg/L	0.000
13C4-PFOS	8.480	502.8 -> 79.9	12437	2.50 µg/L	0.012
13C3-PFBA	3.105	216.0 -> 172.0	80712	5.00 µg/L	0.115
18O2-PFHxS	7.353	403.0 -> 83.9	6049	2.50 µg/L	0.013
13C4-PFOA	7.251	417.1 -> 372.0	48748	2.50 µg/L	0.013
13C2-PFDA	8.316	515.1 -> 470.1	19911	1.25 µg/L	0.012
13C5-PFNA	7.809	468.0 -> 423.0	23883	1.25 µg/L	0.012
13C2-PFHxA	5.685	315.1 -> 270.0	57939	2.50 µg/L	0.037
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.372	329.1 -> 80.9	1825	5.52 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.5%		
13C2-6:2FTS	7.023	429.1 -> 80.9	2503	5.28 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.6%		
13C2-8:2FTS	8.102	529.1 -> 80.9	4231	5.42 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.4%		
13C2-PFDoDA	9.255	615.1 -> 570.0	31188	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C2-PFTeDA	10.049	715.2 -> 670.0	24845	1.30 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C3-PFBS	5.601	302.1 -> 79.9	14615	2.63 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.1%		
13C3-PFHxS	7.354	402.1 -> 79.9	8233	2.46 µg/L	0.013

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.4%		
13C4-PFBA	3.114	216.8 -> 171.9	145141	10.33 µg/L	0.116
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 103.3%		
13C4-PFHpA	6.605	367.1 -> 322.0	30104	2.29 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 91.5%		
13C5-PFHxA	5.684	318.0 -> 273.0	66221	2.47 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C5-PFPeA	4.525	268.3 -> 223.0	85658	5.02 µg/L	0.050
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C6-PFDA	8.315	519.1 -> 474.1	22483	1.28 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C7-PFUnDA	8.797	570.0 -> 525.1	23802	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C8-FOSA	9.883	506.1 -> 77.8	23891	2.94 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 117.5%		
13C8-PFOA	7.250	421.1 -> 376.0	40124	2.50 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C8-PFOS	8.479	507.1 -> 79.9	12589	2.61 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.4%		
13C9-PFNA	7.809	472.1 -> 427.0	22828	1.31 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.0%		
d3-MeFOSAA	8.373	573.2 -> 419.0	20044	5.47 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.4%		
13C3-HFPO-DA	6.051	286.9 -> 168.9	38681	9.51 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 95.1%		
d3-MeFOSA	11.102	515.0 -> 219.0	9758	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.4%		
d5-EtFOSAA	8.582	589.2 -> 419.0	16212	5.44 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.9%		
d7-MeFOSE	10.985	623.2 -> 58.9	95244	29.69 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 118.8%		
d9-EtFOSE	11.294	639.2 -> 58.9	116911	29.79 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 119.1%		
d5-EtFOSA	11.386	531.1 -> 219.0	10266	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.7%		
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.373	327.1 -> 307.0	11088	4.87 µg/L	100
		327.1 -> 80.9	4495		
6:2FTS	7.023	427.1 -> 407.0	8199	4.80 µg/L	99
		427.1 -> 80.9	3545		
8:2FTS	8.103	527.1 -> 507.0	8385	4.42 µg/L	93
		527.1 -> 80.8	3686		
EtFOSAA	8.595	584.2 -> 419.1	3121	1.29 µg/L	m 88
		584.2 -> 526.0	1428		
FOSA	9.874	498.1 -> 77.9	9400	1.22 µg/L	99
		498.1 -> 478.0	283		
MeFOSAA	8.373	570.1 -> 419.0	3140	1.14 µg/L	92
		570.1 -> 483.0	602		
PFBA	3.108	212.8 -> 168.9	15687	4.73 µg/L	100
PFBS	5.590	298.7 -> 79.9	5725	1.05 µg/L	87
		298.7 -> 98.8	2633		
PFDA	8.316	512.9 -> 469.0	15110	1.18 µg/L	99
		512.9 -> 219.0	2839		
PFDODA	9.256	613.1 -> 569.0	23887	1.21 µg/L	100
		613.1 -> 319.0	3310		
PFDS	9.409	599.0 -> 79.9	3327	1.18 µg/L	99

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	1630			
PFHpA	6.605	363.1 -> 319.0	18390	1.22	µg/L	98
		363.1 -> 169.0	3362			
PFHpS	7.950	449.0 -> 79.9	3833	1.17	µg/L	97
		449.0 -> 98.9	1900			
PFHxA	5.686	313.0 -> 269.0	23319	1.19	µg/L	100
		313.0 -> 118.9	724			
PFHxS	7.355	398.7 -> 79.9	3098	1.10	µg/L	m 97
		398.7 -> 98.9	1660			
PFNA	7.810	463.0 -> 419.0	14099	1.16	µg/L	94
		463.0 -> 219.0	3594			
PFNS	8.961	548.8 -> 79.9	2191	1.13	µg/L	96
		548.8 -> 98.9	1191			
PFOA	7.252	413.0 -> 369.0	21849	1.17	µg/L	98
		413.0 -> 169.0	4651			
PFOS	8.480	498.9 -> 79.9	5664	1.16	µg/L	m 81
		498.9 -> 98.8	2596			
PFPeA	4.527	263.0 -> 219.0	38246	2.36	µg/L	100
PFPeS	6.646	349.1 -> 79.9	2715	1.13	µg/L	99
		349.1 -> 98.9	1179			
PFTeDA	10.050	713.1 -> 669.0	24383	1.25	µg/L	100
		713.1 -> 168.9	1949			
PFTrDA	9.666	663.0 -> 619.0	30959	1.22	µg/L	99
		663.0 -> 168.9	3065			
PFUnDA	8.798	563.1 -> 519.0	16468	1.22	µg/L	99
		563.1 -> 269.1	3143			
11CI-PF3OUdS	9.718	630.9 -> 450.9	23785	2.36	µg/L	98
		632.9 -> 452.9	7731			
9CI-PF3ONS	8.825	530.8 -> 351.0	26136	2.32	µg/L	96
		532.8 -> 353.0	7496			
ADONA	6.855	376.9 -> 250.9	54497	2.35	µg/L	100
		376.9 -> 84.8	14616			
HFPO-DA	6.052	284.9 -> 168.9	7632	2.49	µg/L	99
		284.9 -> 184.9	990			
3:3FTCA	4.092	241.0 -> 177.0	4451	5.89	µg/L	97
		241.0 -> 117.0	482			
5:3FTCA	6.382	341.0 -> 237.1	83027	29.99	µg/L	100
		341.0 -> 217.0	59146			
7:3FTCA	7.811	441.0 -> 316.9	34714	30.60	µg/L	98
		441.0 -> 336.9	75219			
EtFOSA	11.388	526.0 -> 219.0	9073	2.48	µg/L	65
		526.0 -> 169.0	12520			
EtFOSE	11.308	630.0 -> 58.9	21840	6.06	µg/L	100
MeFOSA	11.103	511.9 -> 219.0	7991	2.53	µg/L	m 82
		511.9 -> 169.0	11604			
MeFOSE	11.010	616.1 -> 58.9	20412	6.10	µg/L	m 100
PFDoDS	10.189	699.1 -> 79.9	2902	1.19	µg/L	94
		699.1 -> 98.8	1773			
NFDHA	5.565	295.0 -> 201.0	3405	2.58	µg/L	100
		295.0 -> 84.9	840			
PFMBA	4.928	279.0 -> 85.1	22330	2.41	µg/L	100
PFMPA	3.691	229.0 -> 84.9	19059	2.35	µg/L	100
PFEESA	6.121	314.8 -> 134.9	35188	2.14	µg/L	99
		314.8 -> 82.9	1273			

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



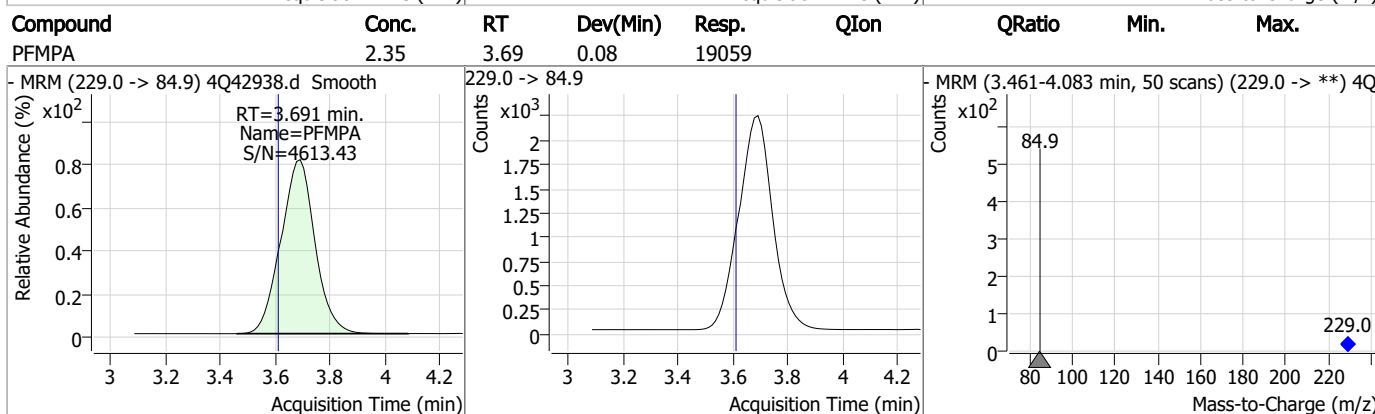
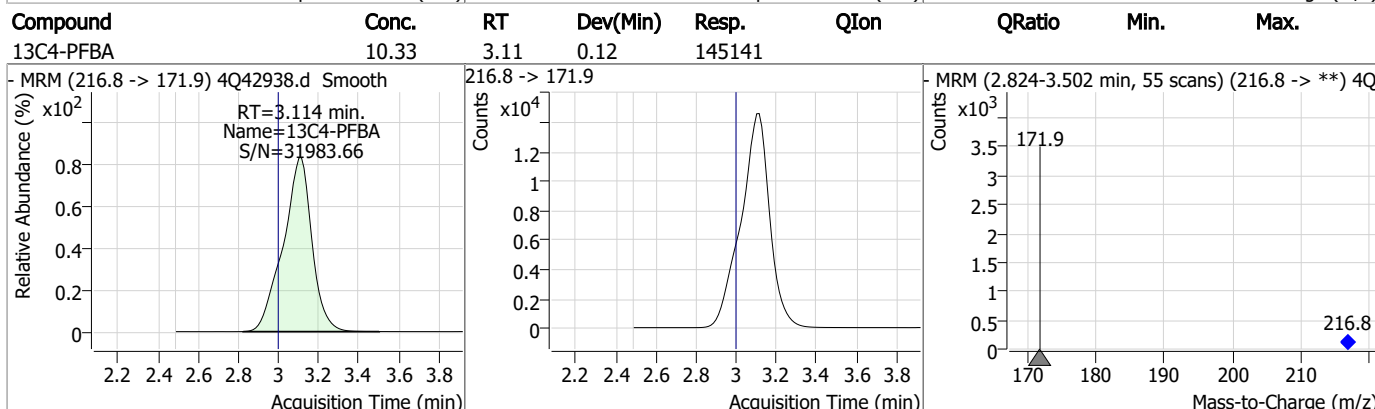
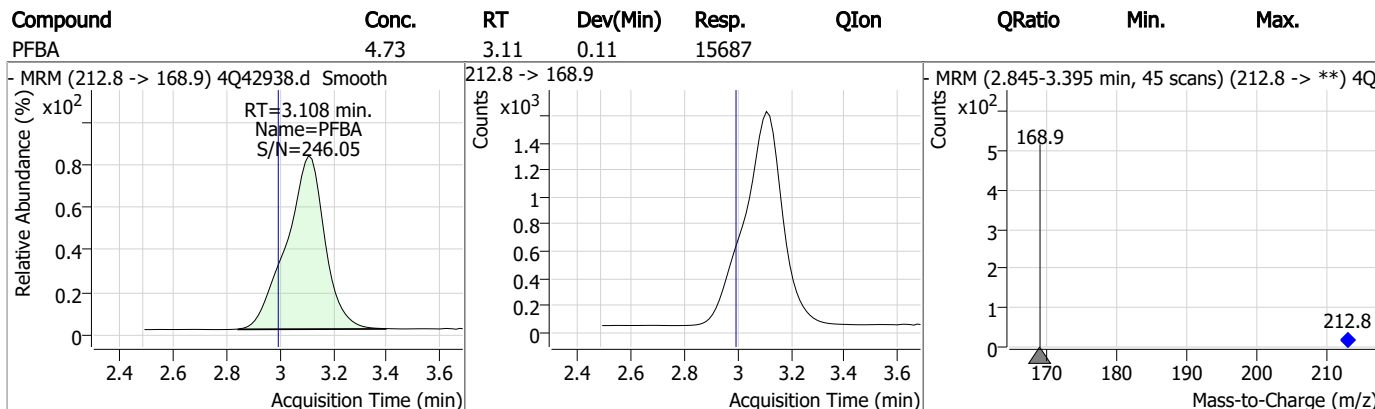
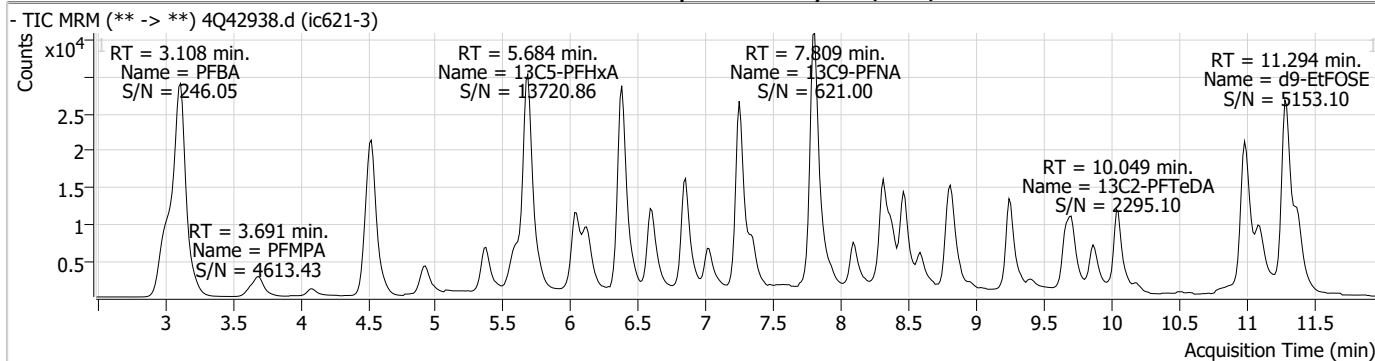
### Perfluorinated Compounds by LC/MS/MS

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

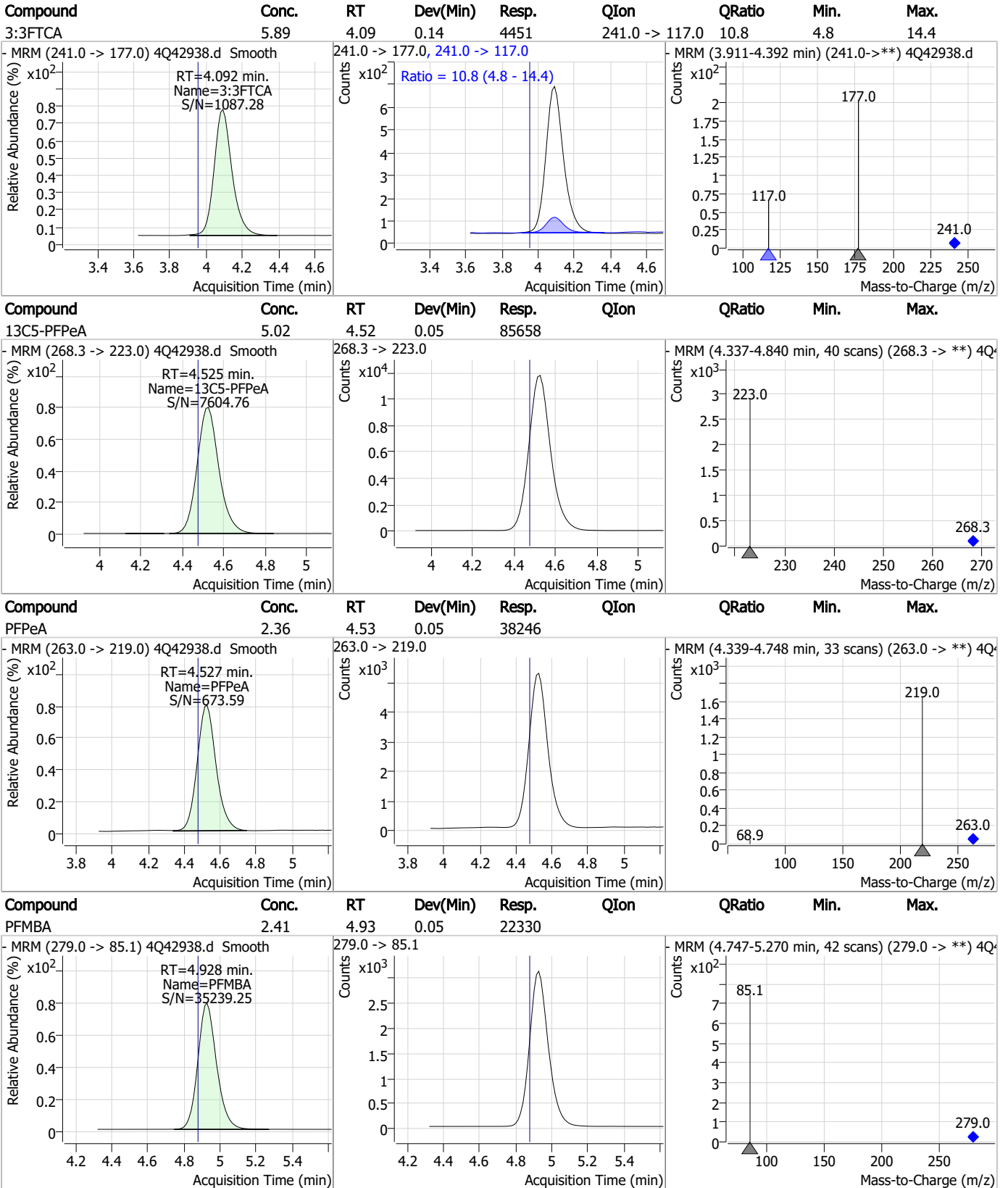
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### Perfluorinated Compounds by LC/MS/MS



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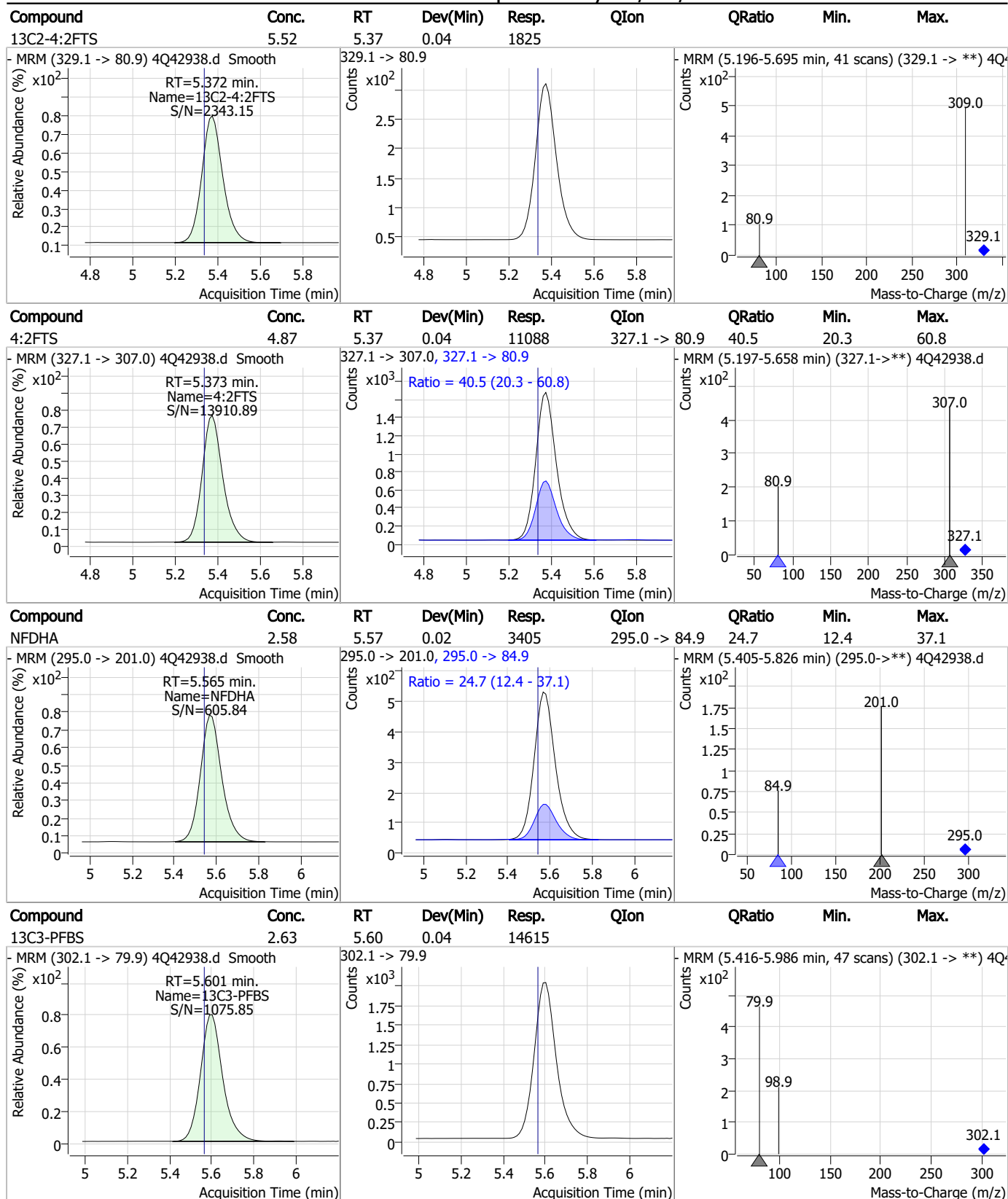
### Perfluorinated Compounds by LC/MS/MS



7.7.4

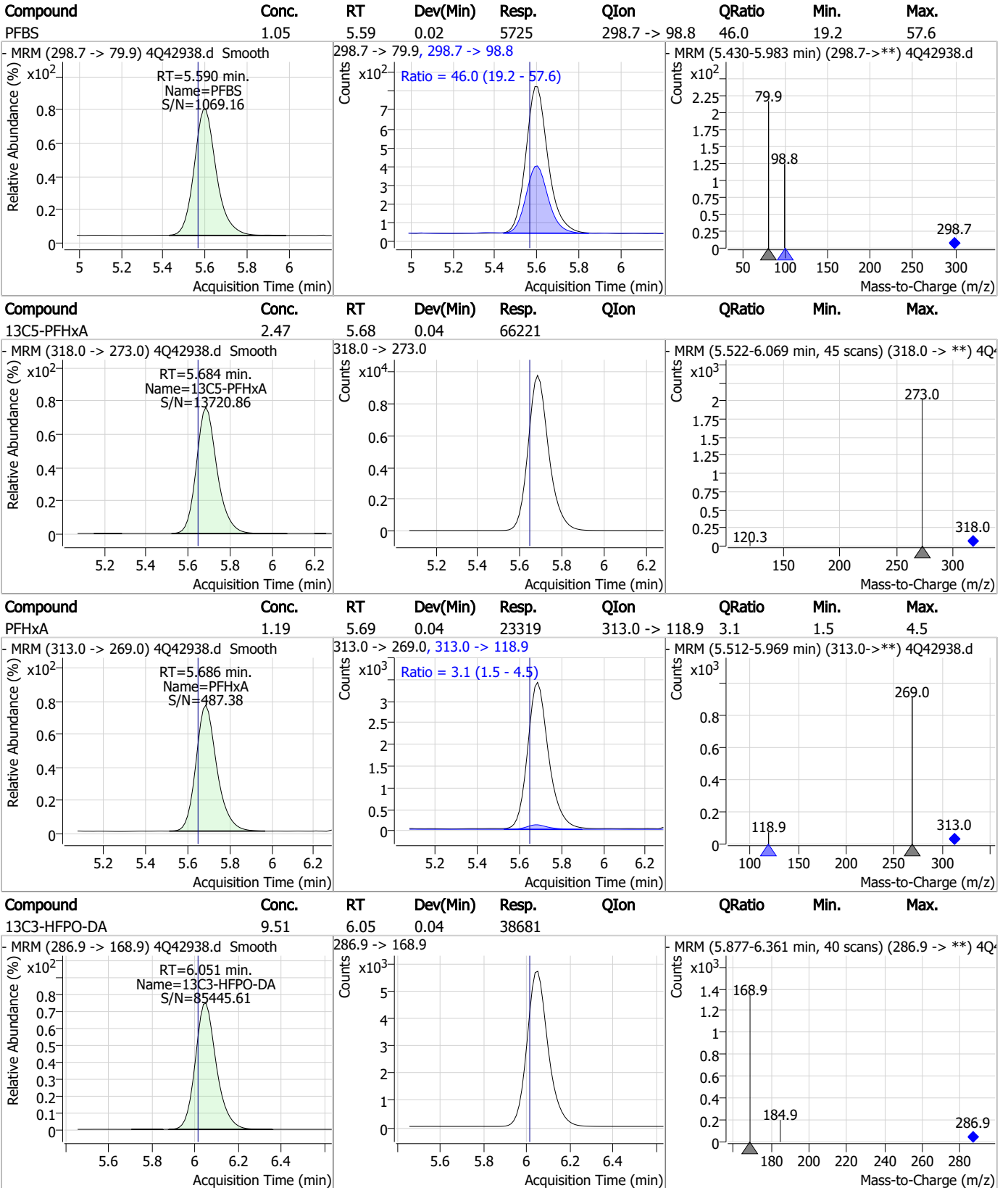
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### Perfluorinated Compounds by LC/MS/MS



7.7.4  
7

### Perfluorinated Compounds by LC/MS/MS

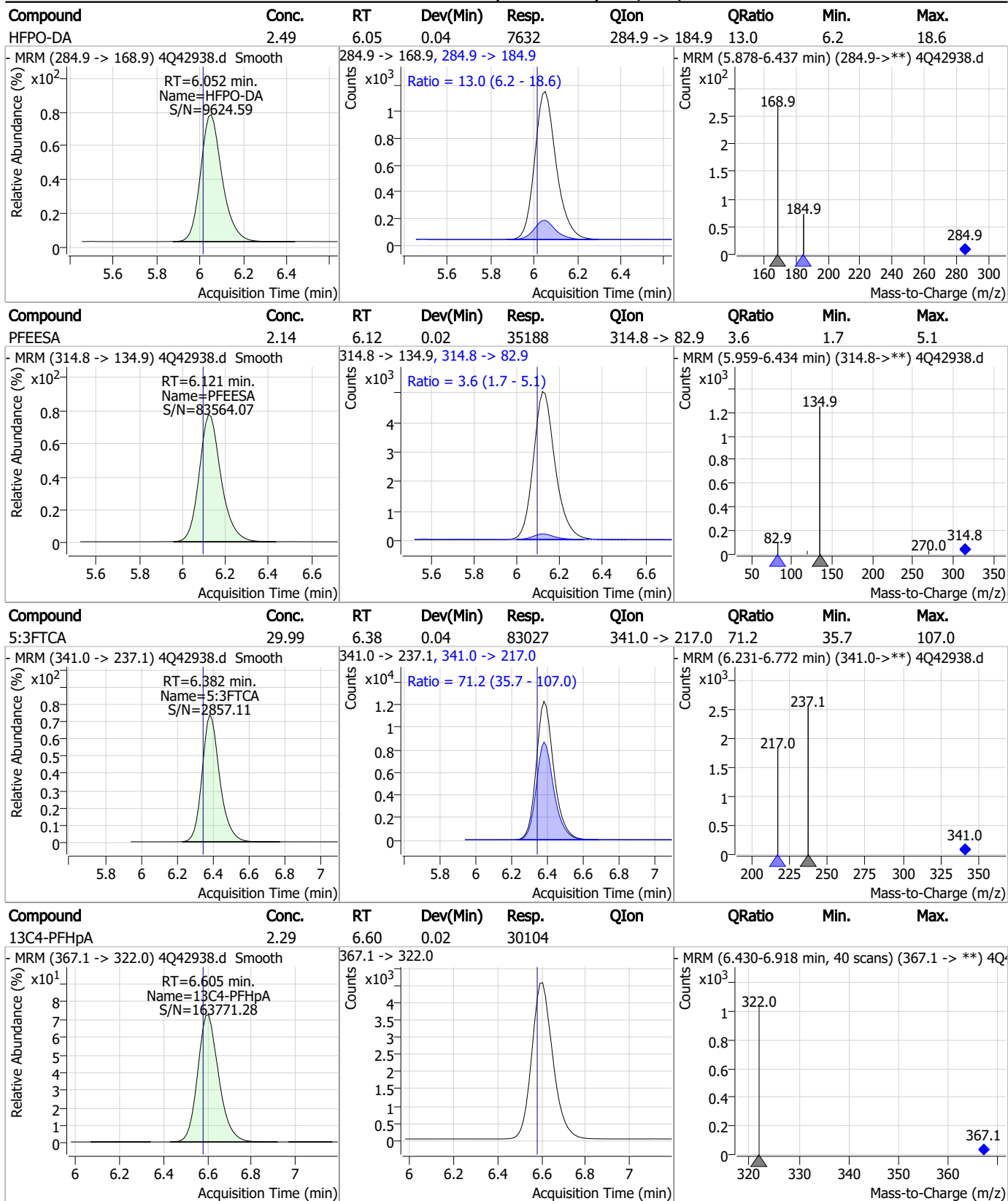


7.7.4

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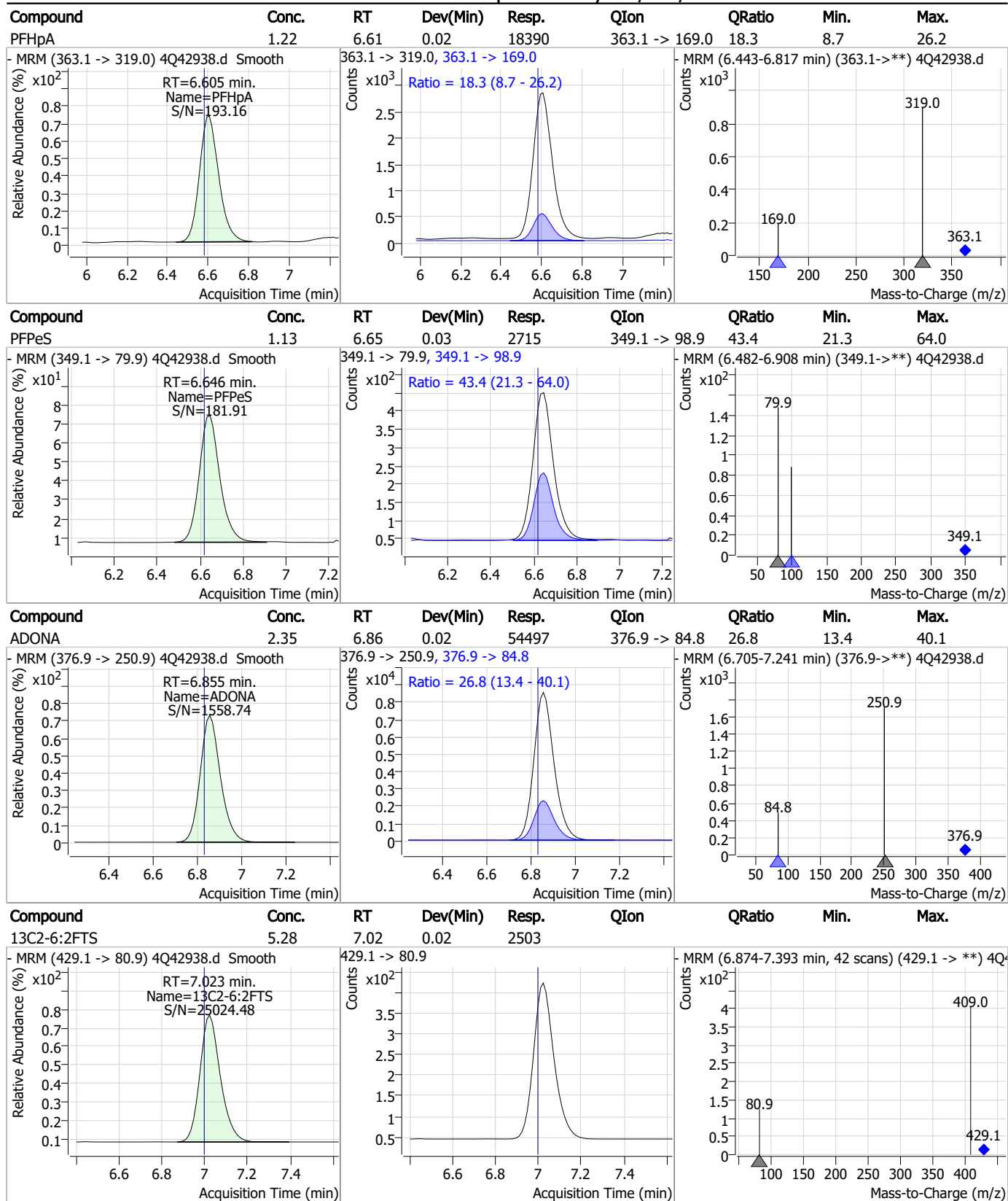


### Perfluorinated Compounds by LC/MS/MS



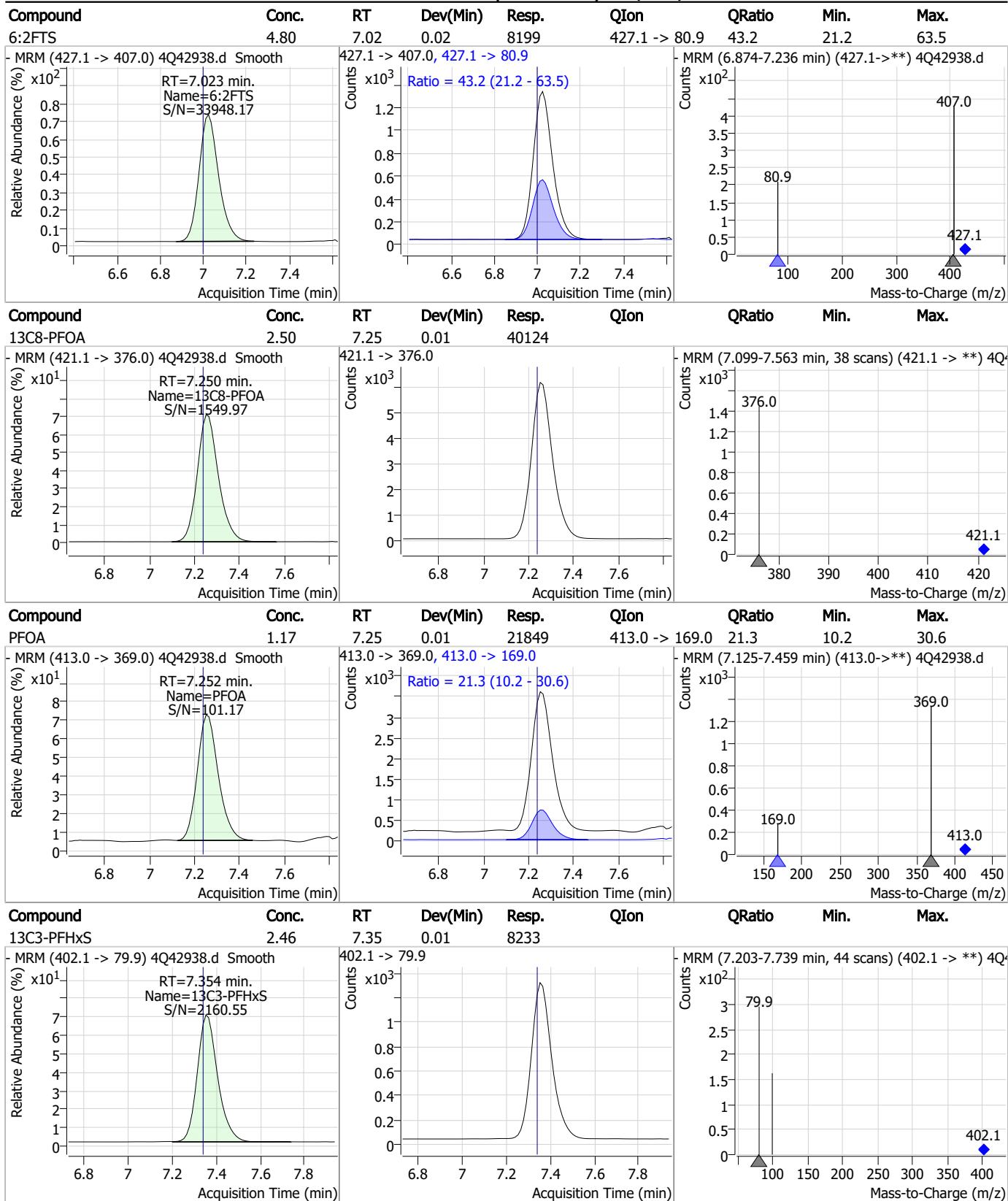
7.7.4  
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### Perfluorinated Compounds by LC/MS/MS



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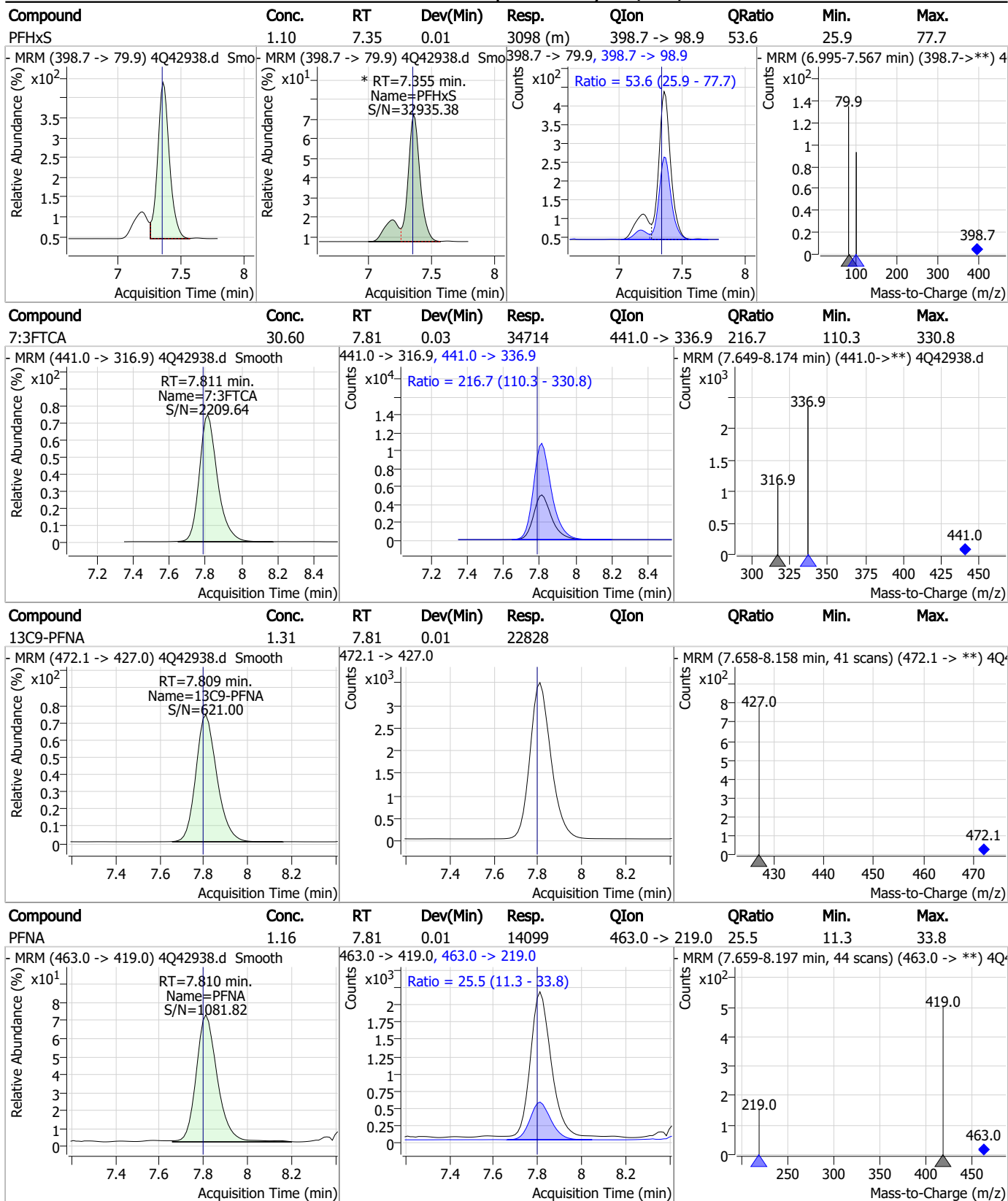
### Perfluorinated Compounds by LC/MS/MS



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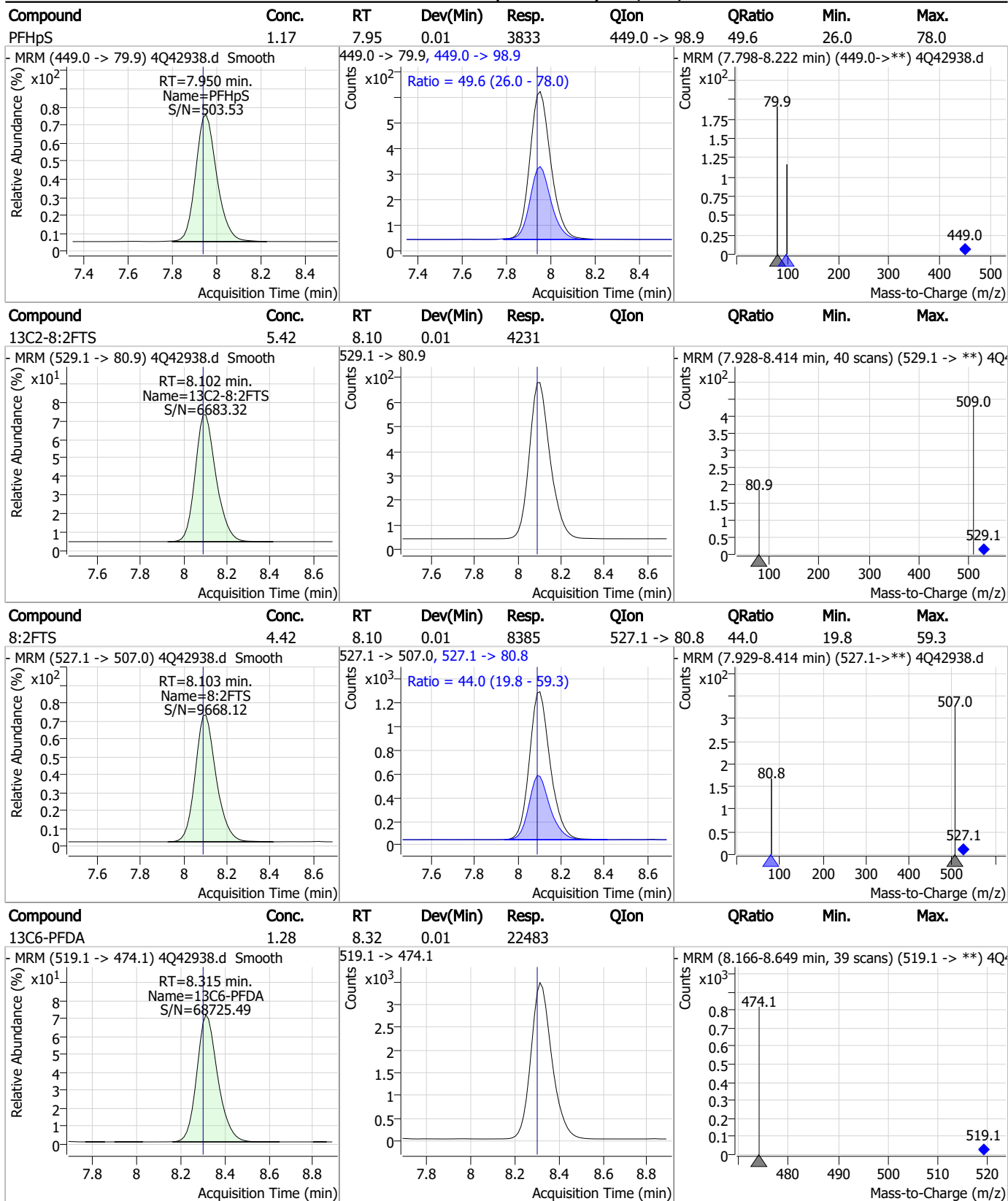
### Perfluorinated Compounds by LC/MS/MS



7.7.4  
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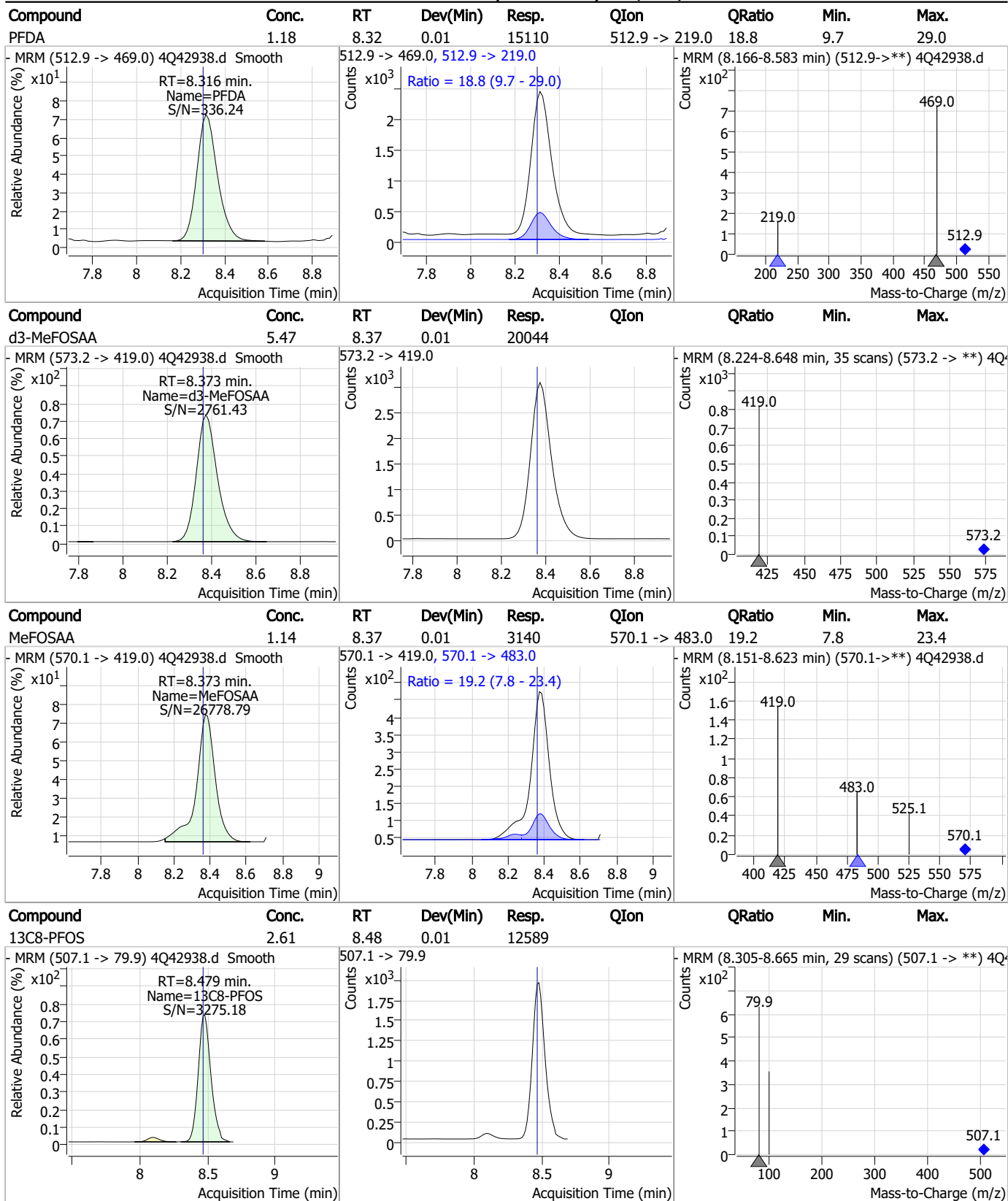


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7.7.4  
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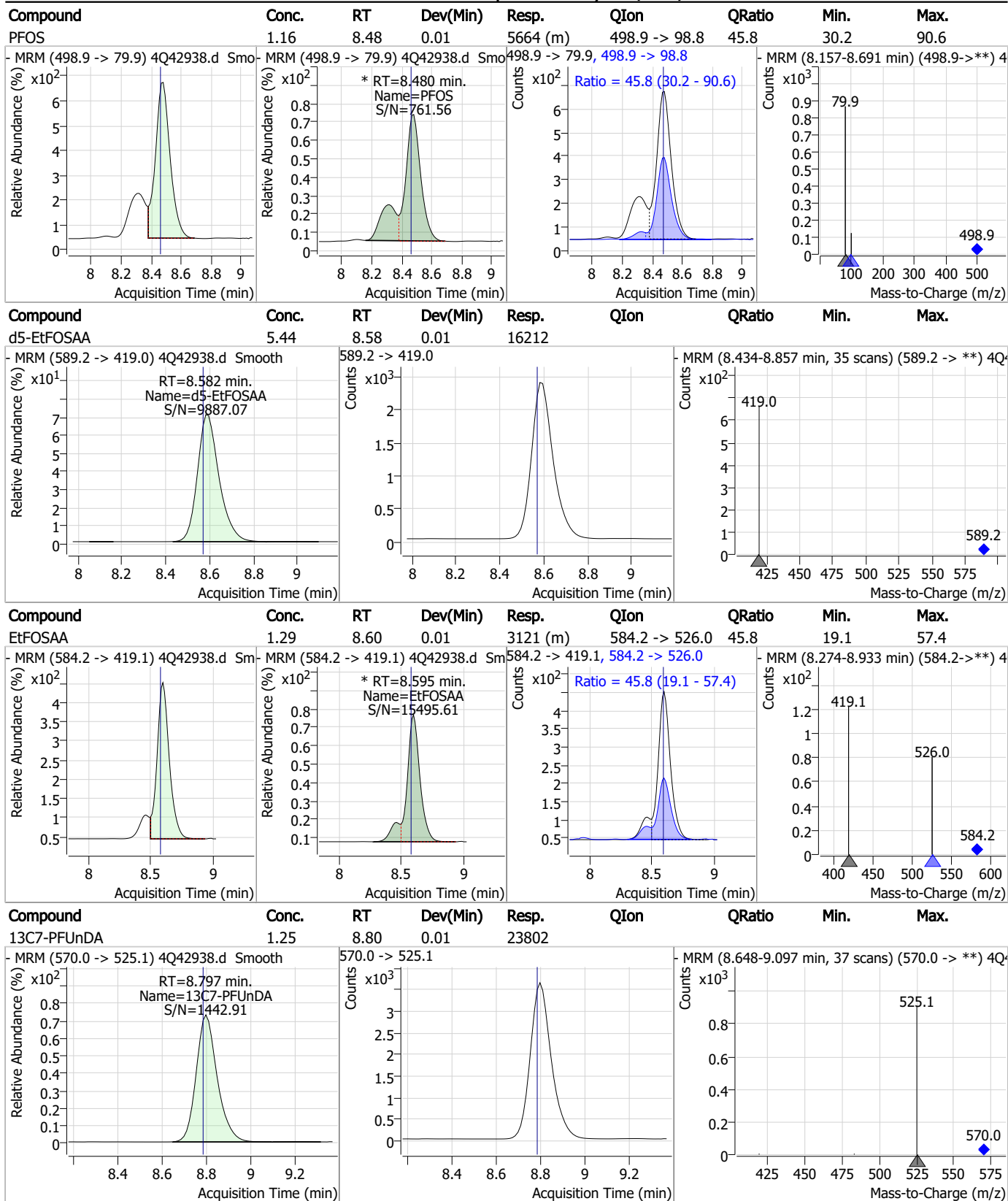
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7.7.4

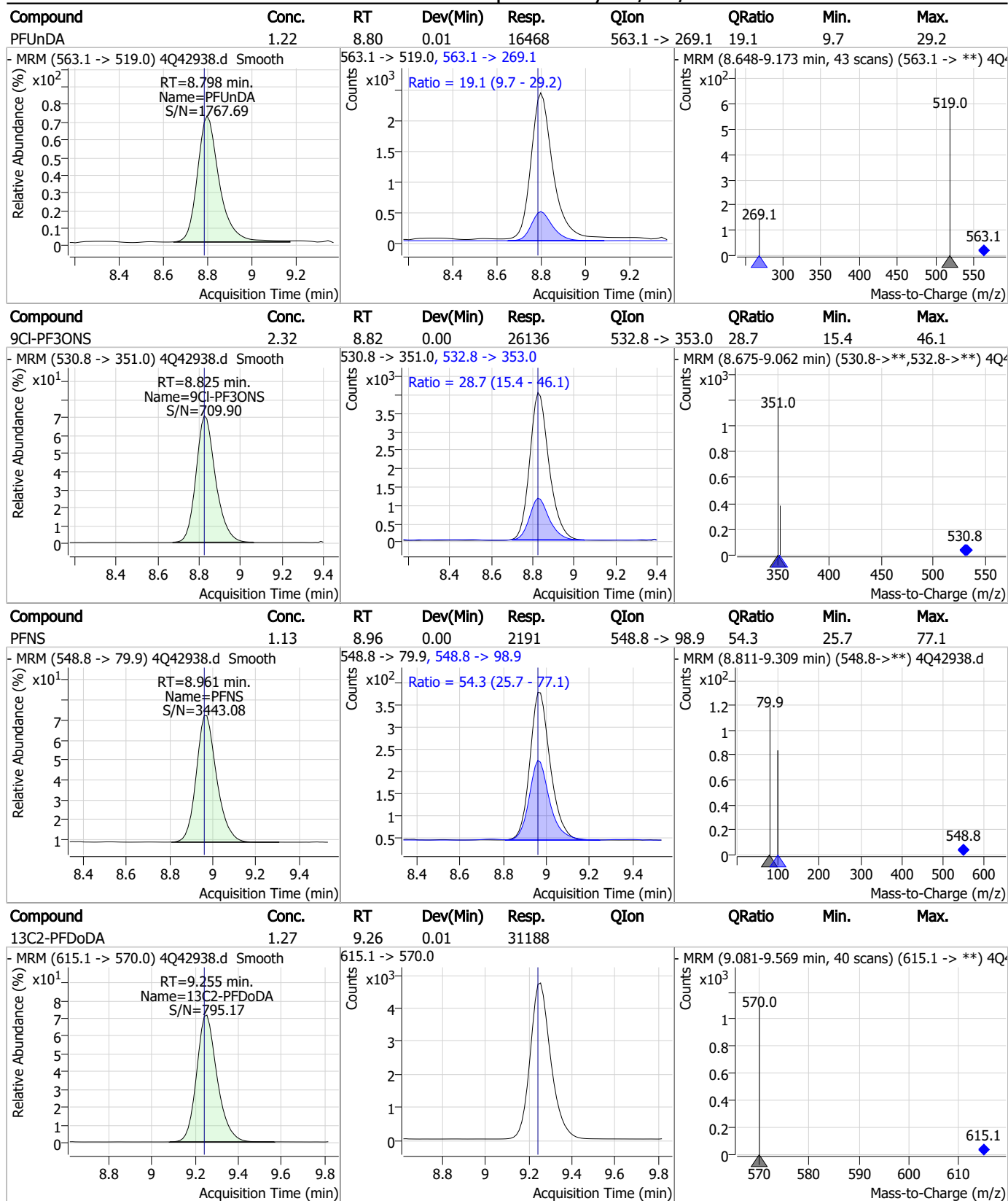
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### Perfluorinated Compounds by LC/MS/MS



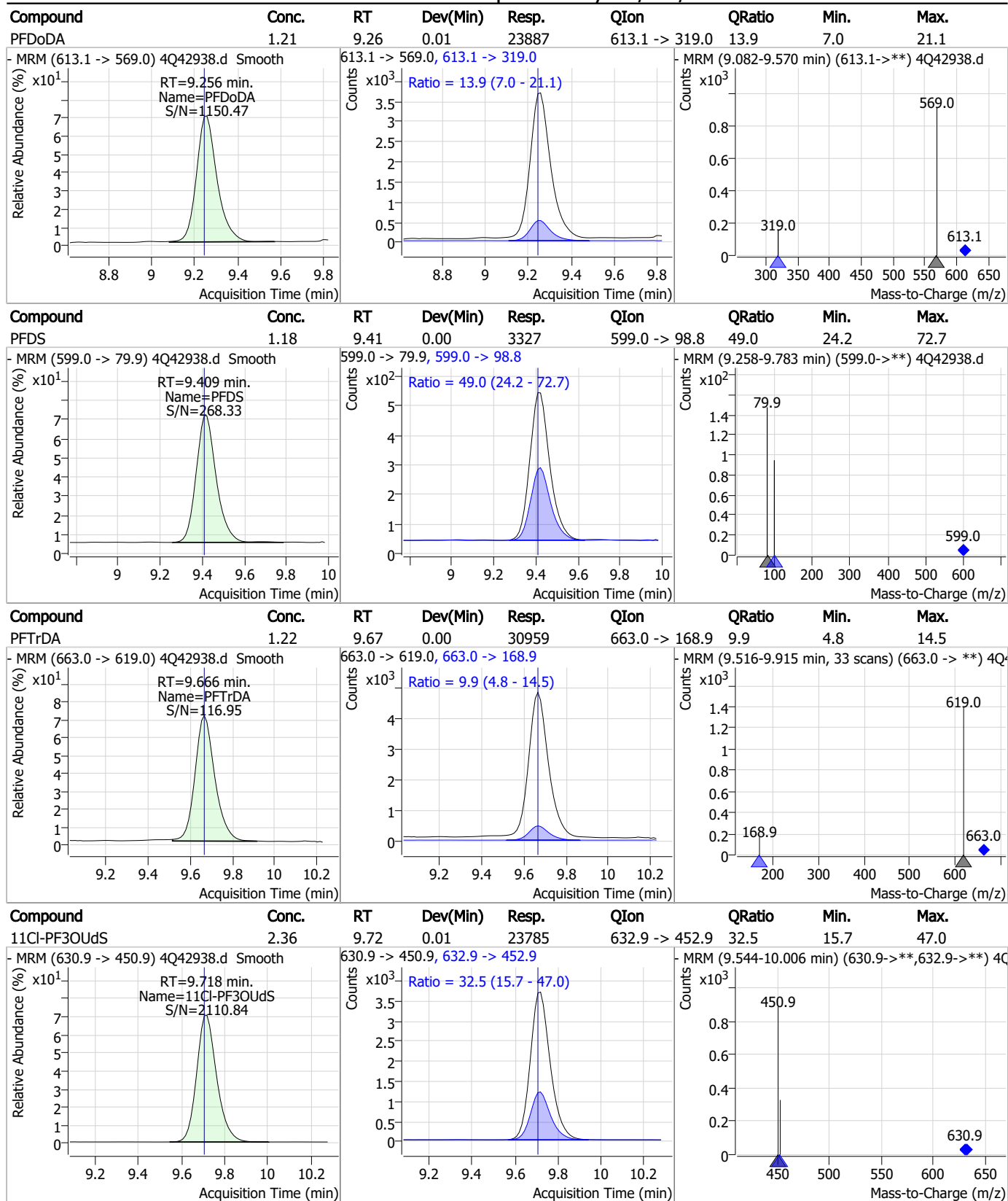
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### Perfluorinated Compounds by LC/MS/MS



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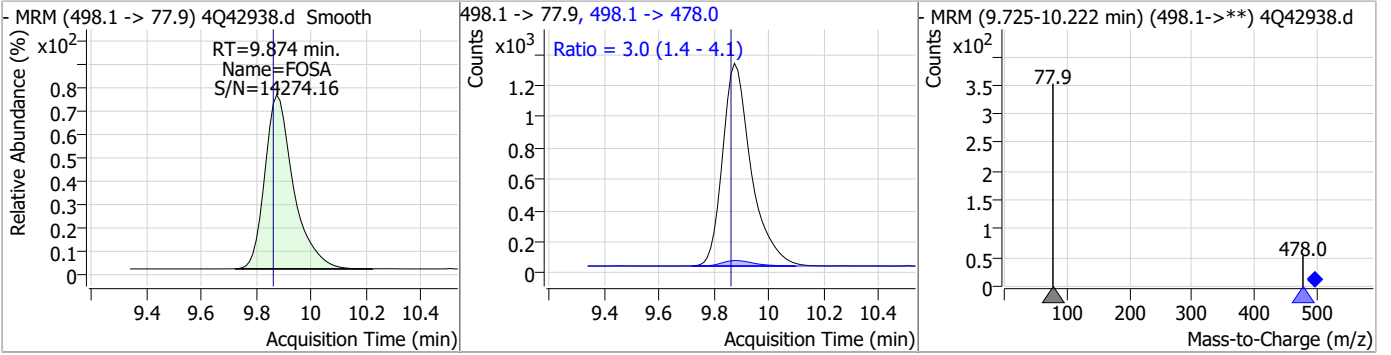
### Perfluorinated Compounds by LC/MS/MS



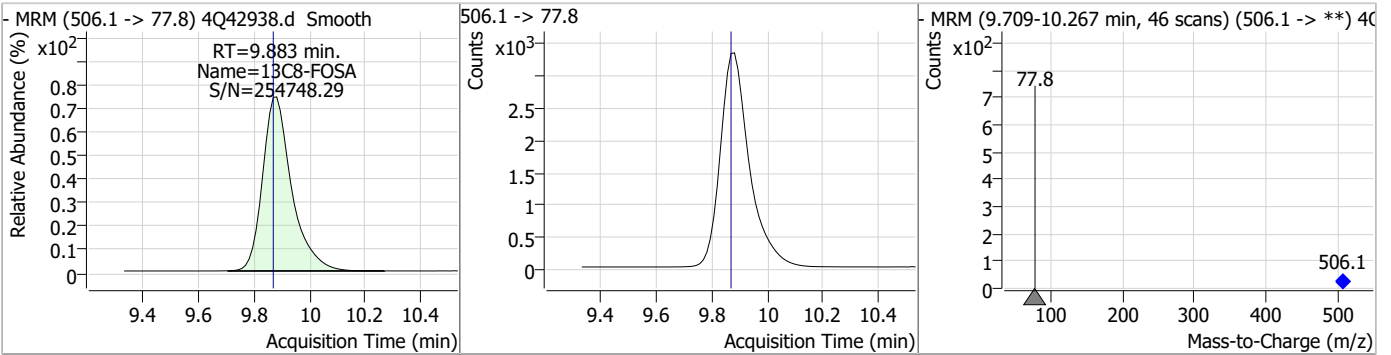
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### Perfluorinated Compounds by LC/MS/MS

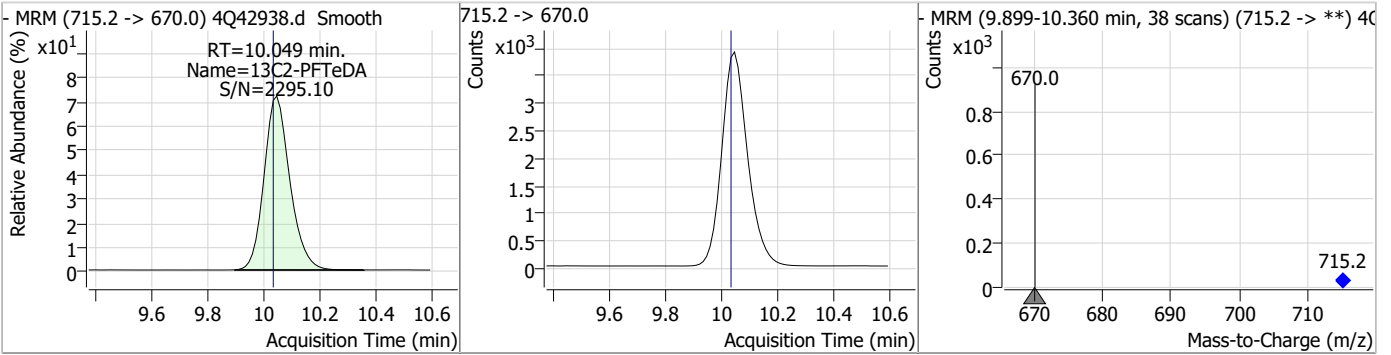
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	1.22	9.87	0.01	9400	498.1 -> 478.0	3.0	1.4	4.1



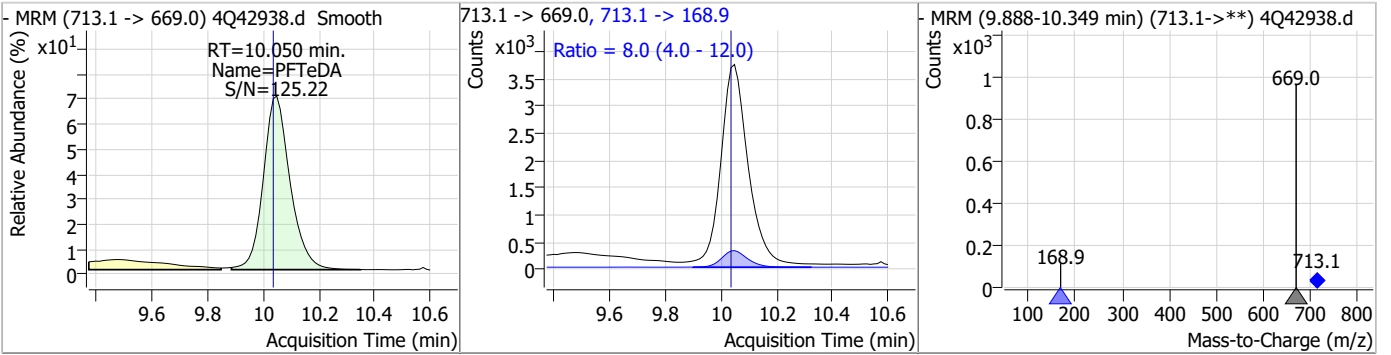
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.94	9.88	0.01	23891				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.30	10.05	0.01	24845				

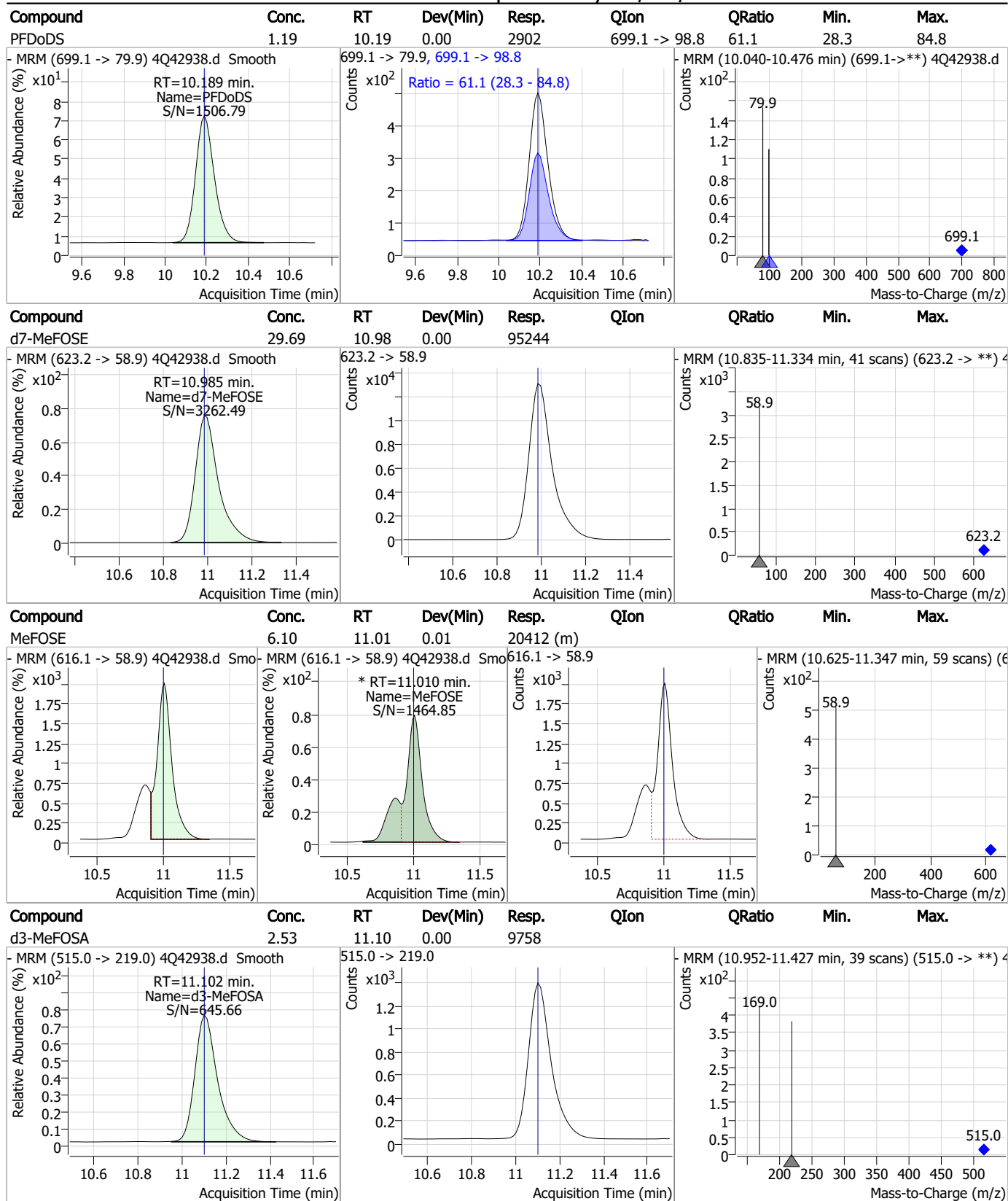


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.25	10.05	0.01	24383	713.1 -> 168.9	8.0	4.0	12.0





### Perfluorinated Compounds by LC/MS/MS

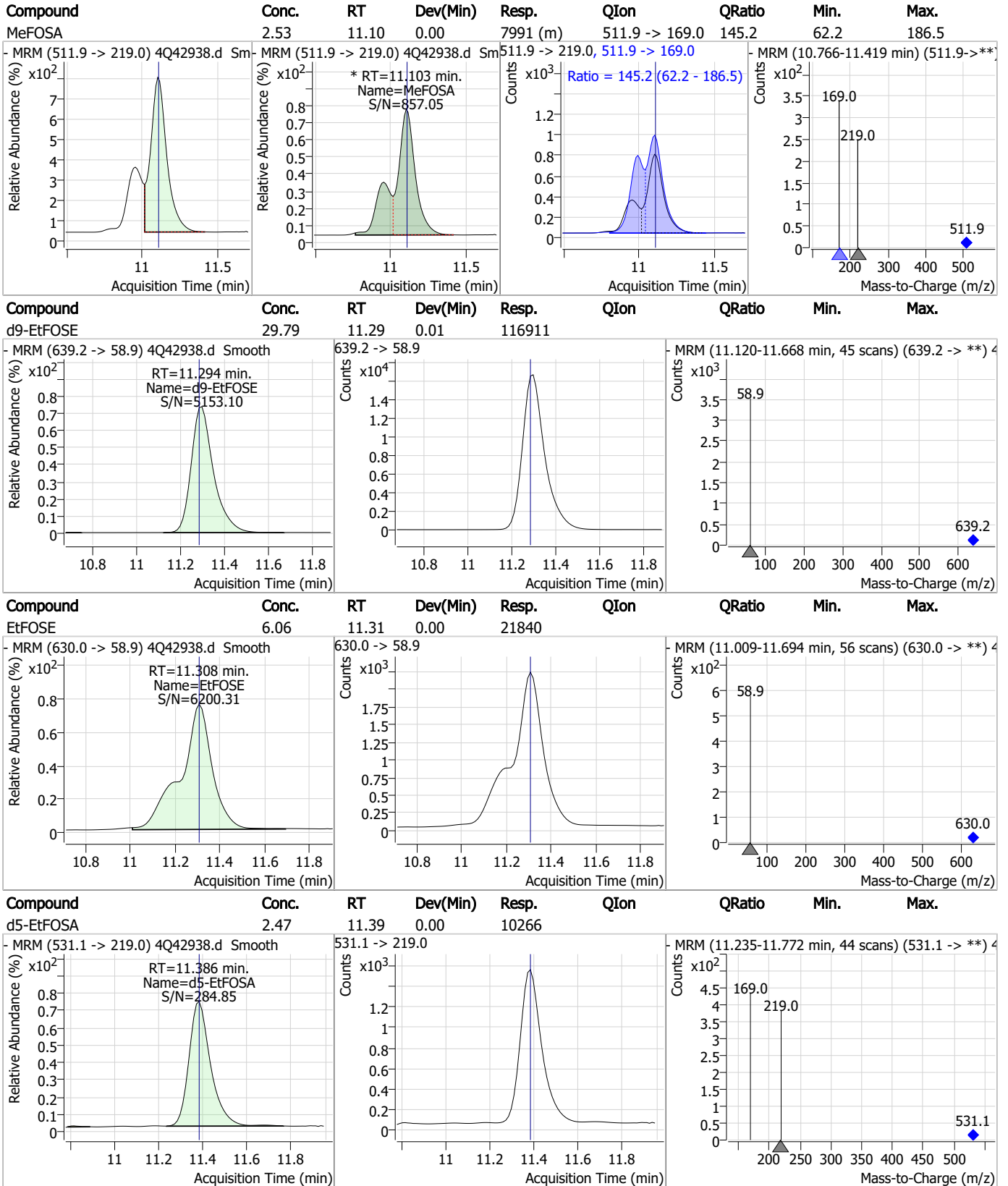


7.7.4

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### Perfluorinated Compounds by LC/MS/MS

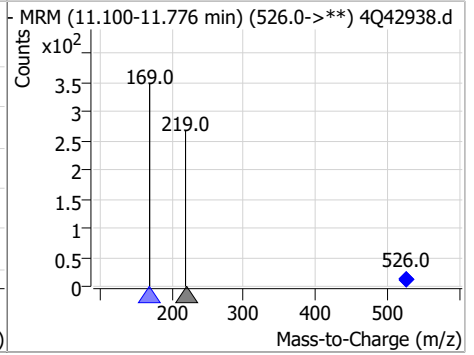
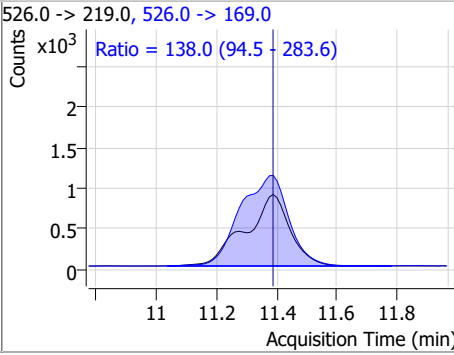
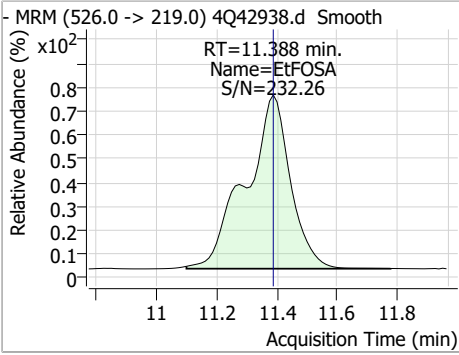


7.7.4

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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOFA	2.48	11.39	0.00	9073	526.0 -> 169.0	138.0	94.5	283.6



7.7.4

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# Manual Integration Approval Summary

Sample Number: S4Q621-IC621      Method: EPA DRAFT 1633  
Lab FileID: 4Q42938.D      Analyst approved: 04/16/23 19:11 Martha Valls  
Injection Time: 04/14/23 12:27      Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.36	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.48	Split peak
EtFOSAA	2991-50-6		8.60	Split peak
MeFOSE	24448-09-7		11.01	Split peak
MeFOSA	31506-32-8		11.10	Split peak

7.7.4.1  
7

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

Natasha Gumtje  
 04/17/23 14:32

### Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42939.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 4/14/2023 12:41:22 PM  
 Sample Name : icc621-4  
 Vial : P1-A5  
 DA Method File : 1633\_041423\_S4Q621.quantmethod.xml  
 Batch Name : s4q621.batch.bin  
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	3.011	216.8 -> 171.9	120375	10.00 µg/L	0.012
M5-PFPeA	4.475	268.3 -> 223.0	80061	5.00 µg/L	0.000
M5-PFHxA	5.659	318.0 -> 273.0	62115	2.50 µg/L	0.012
M4-PFHpA	6.580	367.1 -> 322.0	31115	2.50 µg/L	0.000
M8-PFOA	7.250	421.1 -> 376.0	37981	2.50 µg/L	0.013
M9-PFNA	7.797	472.1 -> 427.0	21026	1.25 µg/L	0.000
M6-PFDA	8.315	519.1 -> 474.1	21093	1.25 µg/L	0.012
M7-PFUnDA	8.797	570.0 -> 525.1	23316	1.25 µg/L	0.012
M2-PFDoDA	9.243	615.1 -> 570.0	29780	1.25 µg/L	0.000
M2-PFTeDA	10.049	715.2 -> 670.0	24267	1.25 µg/L	0.012
M8-FOSA	9.870	506.1 -> 77.8	23409	2.50 µg/L	0.000
M3-PFBS	5.564	302.1 -> 79.9	13467	2.50 µg/L	0.000
M3-PFHxS	7.354	402.1 -> 79.9	7756	2.50 µg/L	0.013
M8-PFOS	8.467	507.1 -> 79.9	11879	2.50 µg/L	0.000
M2-4:2FTS	5.335	329.1 -> 80.9	1702	5.00 µg/L	0.000
M2-6:2FTS	7.010	429.1 -> 80.9	2251	5.00 µg/L	0.012
M2-8:2FTS	8.090	529.1 -> 80.9	3785	5.00 µg/L	0.000
M3-MeFOSAA	8.373	573.2 -> 419.0	18782	5.00 µg/L	0.012
M3-HFPO-DA	6.026	286.9 -> 168.9	36164	10.00 µg/L	0.012
M5-EtFOSAA	8.582	589.2 -> 419.0	16357	5.00 µg/L	0.012
M7-MeFOSE	10.985	623.2 -> 58.9	95106	25.00 µg/L	0.000
M9-EtFOSE	11.282	639.2 -> 58.9	112460	25.00 µg/L	0.000
M5-EtFOSA	11.386	531.1 -> 219.0	9919	2.50 µg/L	0.000
M3-MeFOSA	11.102	515.0 -> 219.0	8698	2.50 µg/L	0.000
13C4-PFOS	8.467	502.8 -> 79.9	12553	2.50 µg/L	0.000
13C3-PFBA	3.016	216.0 -> 172.0	69115	5.00 µg/L	0.025
18O2-PFHxS	7.353	403.0 -> 83.9	5654	2.50 µg/L	0.013
13C4-PFOA	7.251	417.1 -> 372.0	45894	2.50 µg/L	0.013
13C2-PFDA	8.316	515.1 -> 470.1	19253	1.25 µg/L	0.012
13C5-PFNA	7.809	468.0 -> 423.0	23326	1.25 µg/L	0.012
13C2-PFHxA	5.660	315.1 -> 270.0	52502	2.50 µg/L	0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.335	329.1 -> 80.9	1702	5.51 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.2%		
13C2-6:2FTS	7.010	429.1 -> 80.9	2251	5.08 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C2-8:2FTS	8.090	529.1 -> 80.9	3785	5.19 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.8%		
13C2-PFDoDA	9.243	615.1 -> 570.0	29780	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C2-PFTeDA	10.049	715.2 -> 670.0	24267	1.32 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.2%		
13C3-PFBS	5.564	302.1 -> 79.9	13467	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C3-PFHxS	7.354	402.1 -> 79.9	7756	2.48 µg/L	0.013

7.7.5  
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## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C4-PFBA	3.011	216.8 -> 171.9	120375	10.00 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFHpA	6.580	367.1 -> 322.0	31115	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C5-PFHxA	5.659	318.0 -> 273.0	62115	2.56 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C5-PFPeA	4.475	268.3 -> 223.0	80061	5.18 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C6-PFDA	8.315	519.1 -> 474.1	21093	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C7-PFUnDA	8.797	570.0 -> 525.1	23316	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C8-FOSA	9.870	506.1 -> 77.8	23409	2.85 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.1%	
13C8-PFOA	7.250	421.1 -> 376.0	37981	2.51 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C8-PFOS	8.467	507.1 -> 79.9	11879	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C9-PFNA	7.797	472.1 -> 427.0	21026	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.0%	
d3-MeFOSAA	8.373	573.2 -> 419.0	18782	5.08 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C3-HFPO-DA	6.026	286.9 -> 168.9	36164	9.81 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.1%	
d3-MeFOSA	11.102	515.0 -> 219.0	8698	2.24 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.5%	
d5-EtFOSAA	8.582	589.2 -> 419.0	16357	5.44 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.9%	
d7-MeFOSE	10.985	623.2 -> 58.9	95106	29.38 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 117.5%	
d9-EtFOSE	11.282	639.2 -> 58.9	112460	28.39 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 113.6%	
d5-EtFOSA	11.386	531.1 -> 219.0	9919	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.5%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.336	327.1 -> 307.0	19194	9.05 µg/L	100
		327.1 -> 80.9	7773		
6:2FTS	7.011	427.1 -> 407.0	15124	9.84 µg/L	96
		427.1 -> 80.9	6737		
8:2FTS	8.090	527.1 -> 507.0	17053	10.05 µg/L	95
		527.1 -> 80.8	7291		
EtFOSAA	8.595	584.2 -> 419.1	5753	2.35 µg/L	m 86
		584.2 -> 526.0	2697		
FOSA	9.874	498.1 -> 77.9	18589	2.47 µg/L	99
		498.1 -> 478.0	553		
MeFOSAA	8.373	570.1 -> 419.0	6652	2.57 µg/L	m 97
		570.1 -> 483.0	940		
PFBA	3.020	212.8 -> 168.9	26946	9.80 µg/L	100
PFBS	5.565	298.7 -> 79.9	11111	2.21 µg/L	97
		298.7 -> 98.8	4474		
PFDA	8.316	512.9 -> 469.0	29554	2.45 µg/L	94
		512.9 -> 219.0	6510		
PFDODA	9.244	613.1 -> 569.0	47114	2.51 µg/L	100
		613.1 -> 319.0	6566		
PFDS	9.421	599.0 -> 79.9	6265	2.36 µg/L	94

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3296			
PFHpA	6.593	363.1 -> 319.0	37116	2.39	µg/L	100
		363.1 -> 169.0	6516			
PFHpS	7.936	449.0 -> 79.9	6726	2.18	µg/L	96
		449.0 -> 98.9	3699			
PFHxA	5.662	313.0 -> 269.0	44388	2.41	µg/L	99
		313.0 -> 118.9	1413			
PFHxS	7.355	398.7 -> 79.9	6072	2.28	µg/L	m 93
		398.7 -> 98.9	2840			
PFNA	7.797	463.0 -> 419.0	25657	2.28	µg/L	94
		463.0 -> 219.0	6530			
PFNS	8.961	548.8 -> 79.9	4279	2.34	µg/L	98
		548.8 -> 98.9	2259			
PFOA	7.252	413.0 -> 369.0	40059	2.26	µg/L	99
		413.0 -> 169.0	8343			
PFOS	8.468	498.9 -> 79.9	10370	2.24	µg/L	m 87
		498.9 -> 98.8	5269			
PFPeA	4.477	263.0 -> 219.0	73408	4.84	µg/L	100
PFPeS	6.632	349.1 -> 79.9	5535	2.45	µg/L	98
		349.1 -> 98.9	2432			
PFTeDA	10.050	713.1 -> 669.0	46064	2.41	µg/L	98
		713.1 -> 168.9	4091			
PFTrDA	9.666	663.0 -> 619.0	60430	2.50	µg/L	100
		663.0 -> 168.9	5921			
PFUnDA	8.798	563.1 -> 519.0	29888	2.27	µg/L	98
		563.1 -> 269.1	6052			
11CI-PF3OUdS	9.718	630.9 -> 450.9	47754	5.06	µg/L	99
		632.9 -> 452.9	14653			
9CI-PF3ONS	8.825	530.8 -> 351.0	49397	4.68	µg/L	99
		532.8 -> 353.0	14813			
ADONA	6.843	376.9 -> 250.9	105995	4.88	µg/L	98
		376.9 -> 84.8	27486			
HFPO-DA	6.027	284.9 -> 168.9	14152	4.94	µg/L	99
		284.9 -> 184.9	1793			
3:3FTCA	3.992	241.0 -> 177.0	8279	11.72	µg/L	100
		241.0 -> 117.0	796			
5:3FTCA	6.357	341.0 -> 237.1	159751	61.52	µg/L	99
		341.0 -> 217.0	112343			
7:3FTCA	7.799	441.0 -> 316.9	65764	61.80	µg/L	98
		441.0 -> 336.9	147416			
EtFOSA	11.388	526.0 -> 219.0	16558	4.68	µg/L	m 65
		526.0 -> 169.0	22815			
EtFOSE	11.308	630.0 -> 58.9	41731	12.04	µg/L	100
MeFOSA	11.103	511.9 -> 219.0	14559	5.18	µg/L	m 81
		511.9 -> 169.0	21314			
MeFOSE	11.010	616.1 -> 58.9	39887	11.93	µg/L	m 100
PFDoDS	10.189	699.1 -> 79.9	5357	2.33	µg/L	100
		699.1 -> 98.8	3009			
NFDHA	5.541	295.0 -> 201.0	6406	5.18	µg/L	99
		295.0 -> 84.9	1609			
PFMBA	4.891	279.0 -> 85.1	41607	4.80	µg/L	100
PFMPA	3.628	229.0 -> 84.9	36216	4.78	µg/L	100
PFEESA	6.096	314.8 -> 134.9	66394	4.30	µg/L	100
		314.8 -> 82.9	2302			

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

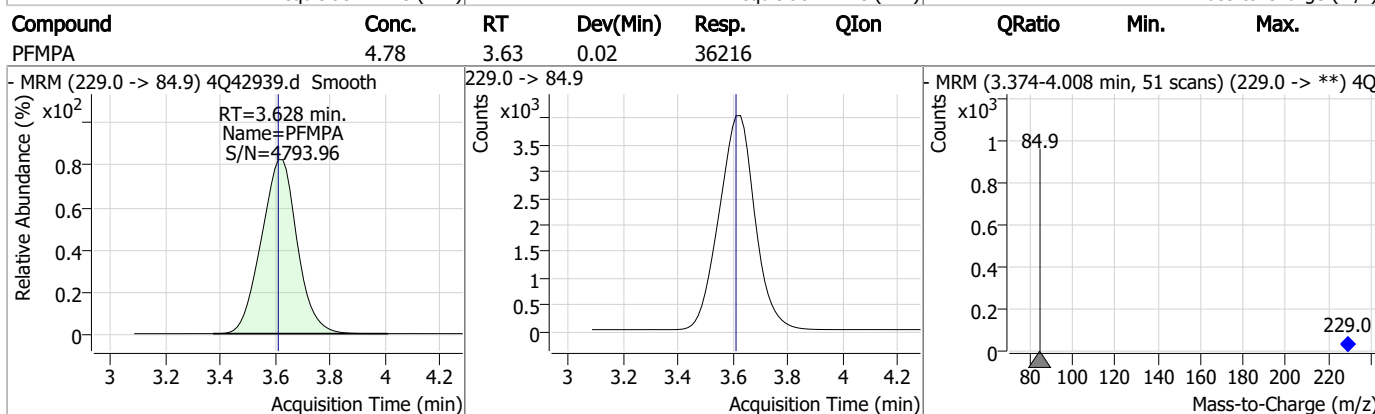
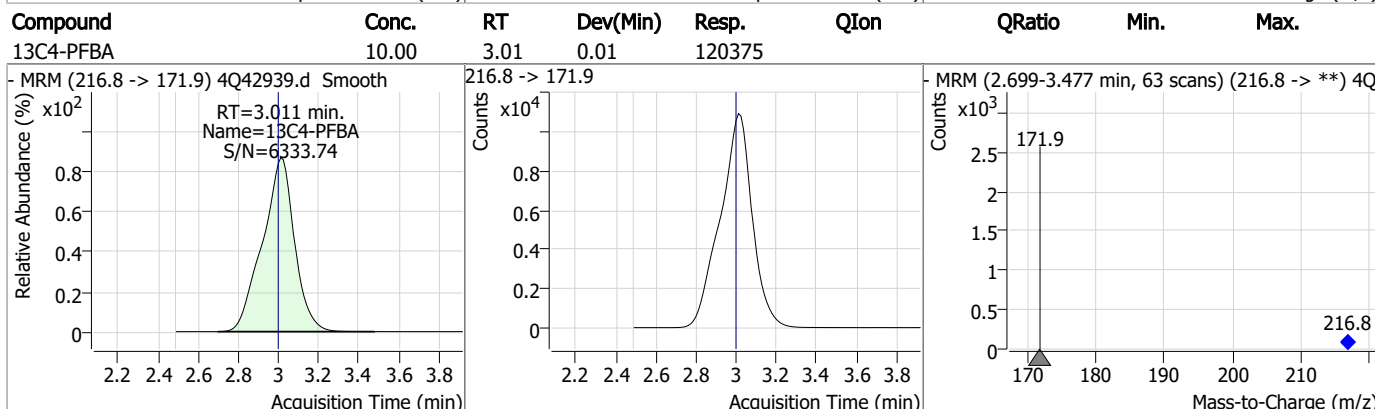
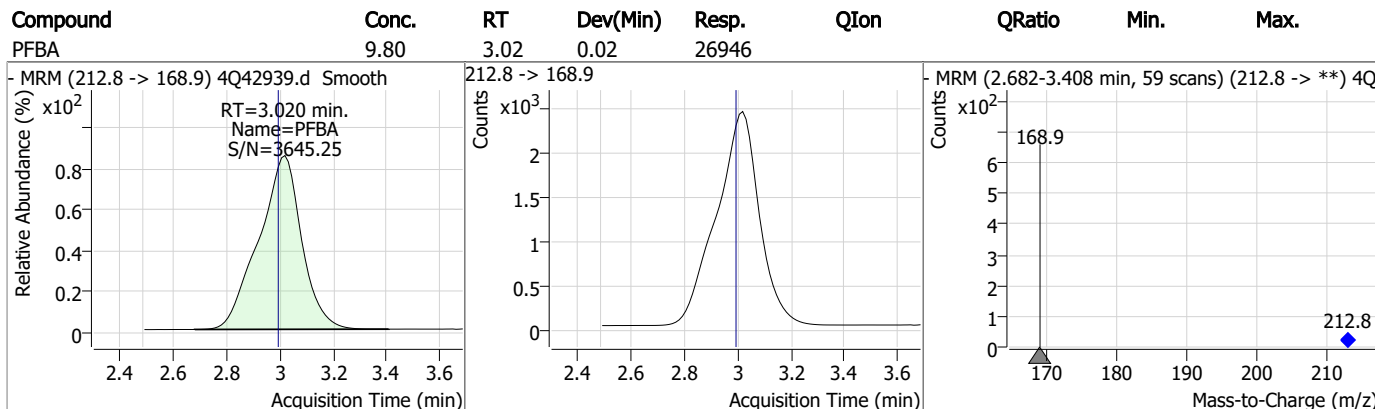
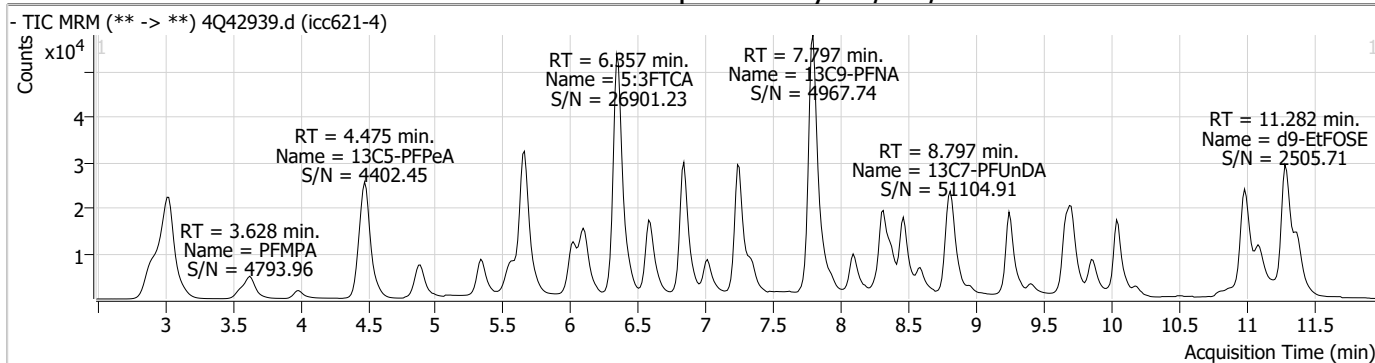
### Perfluorinated Compounds by LC/MS/MS

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

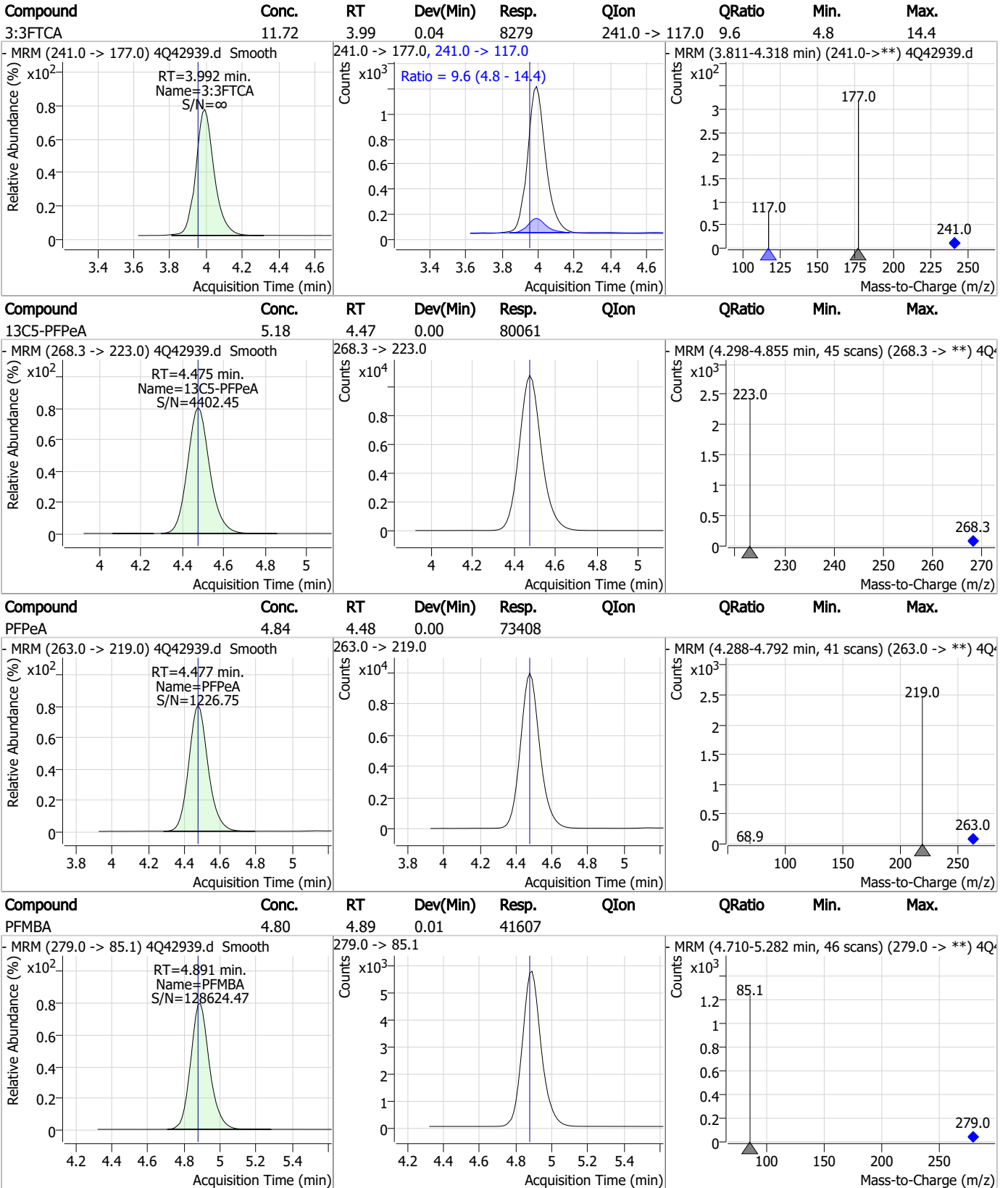
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### Perfluorinated Compounds by LC/MS/MS

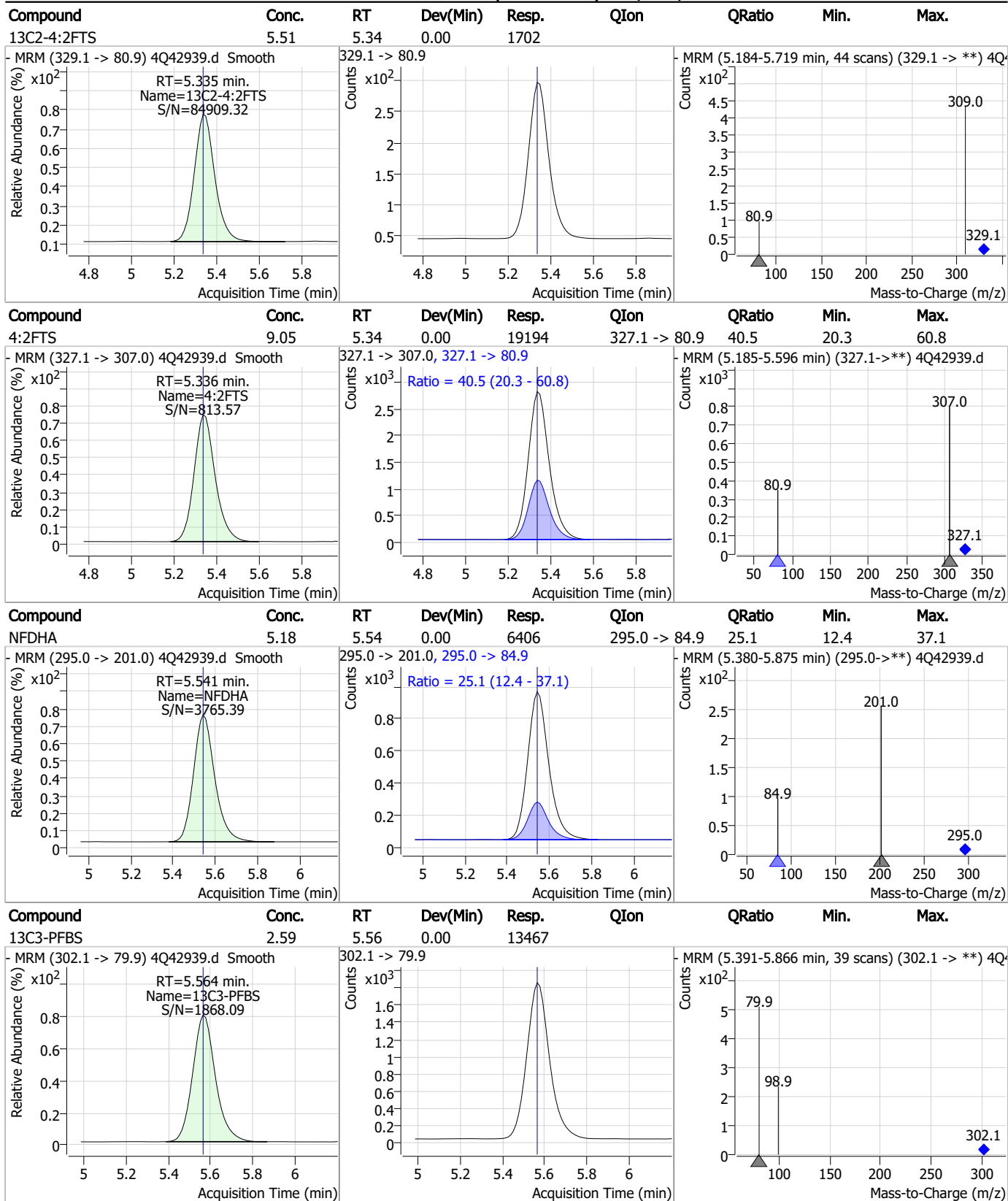




### Perfluorinated Compounds by LC/MS/MS



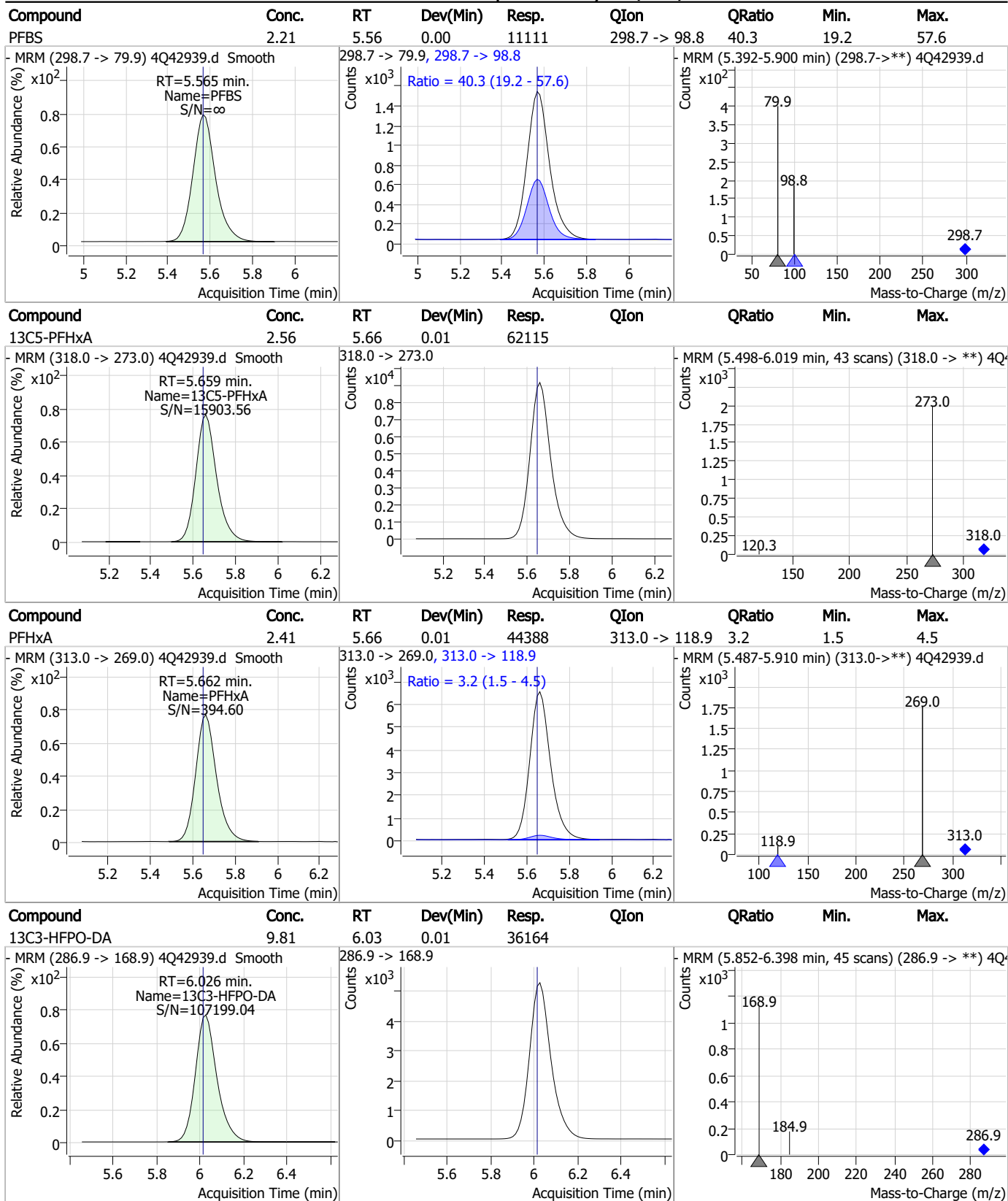
### Perfluorinated Compounds by LC/MS/MS



7.7.5

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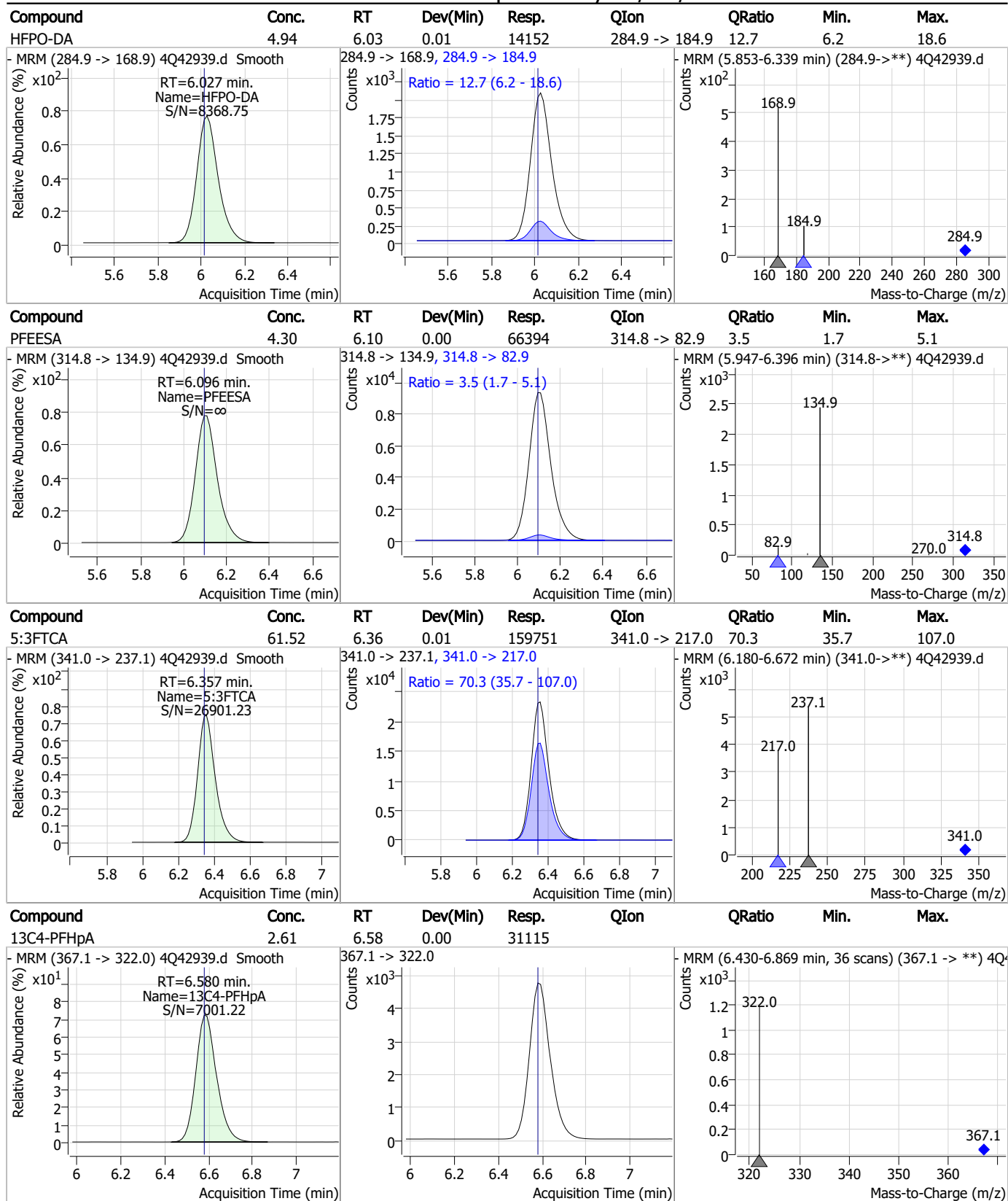
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7.7.5

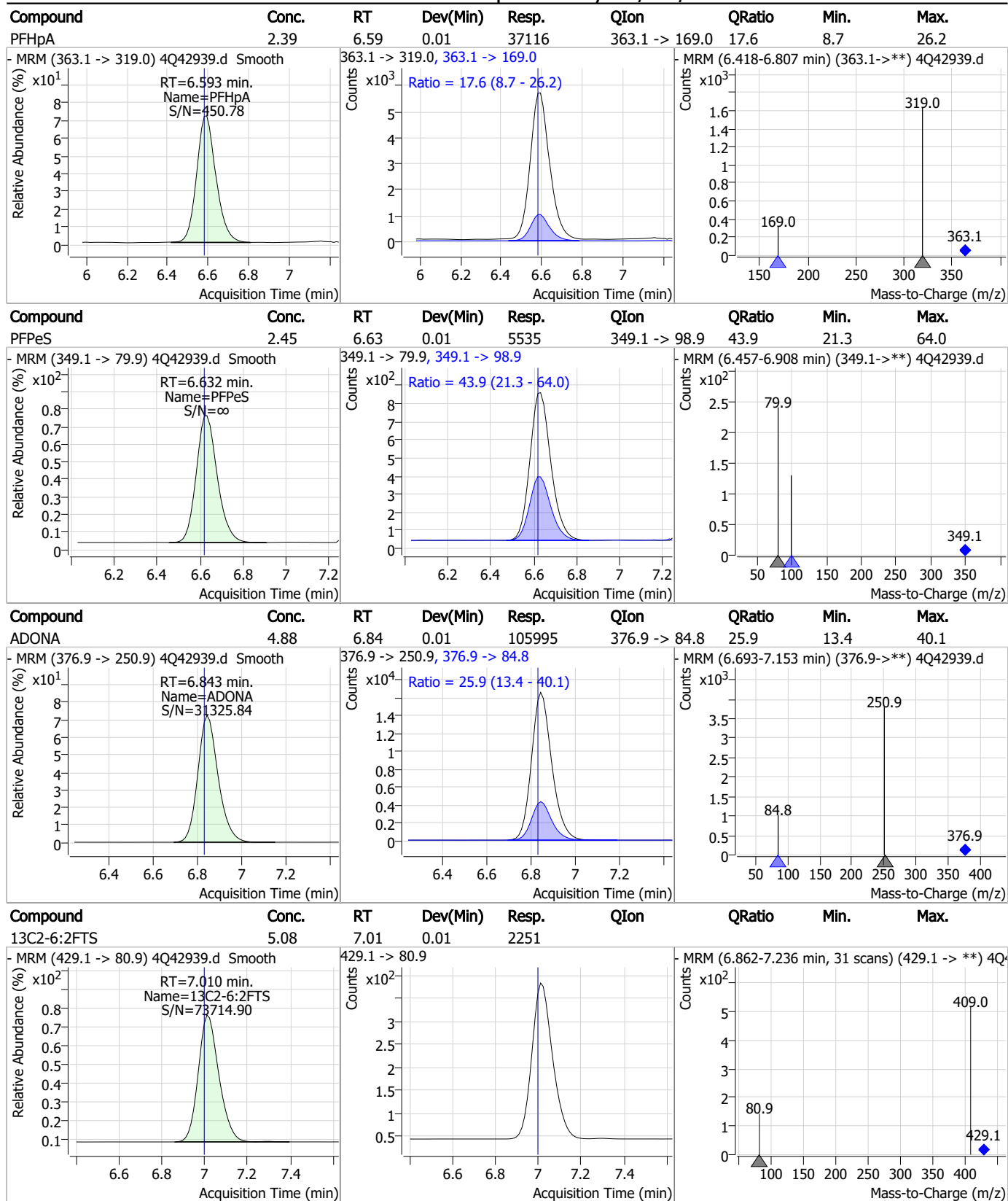
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### Perfluorinated Compounds by LC/MS/MS



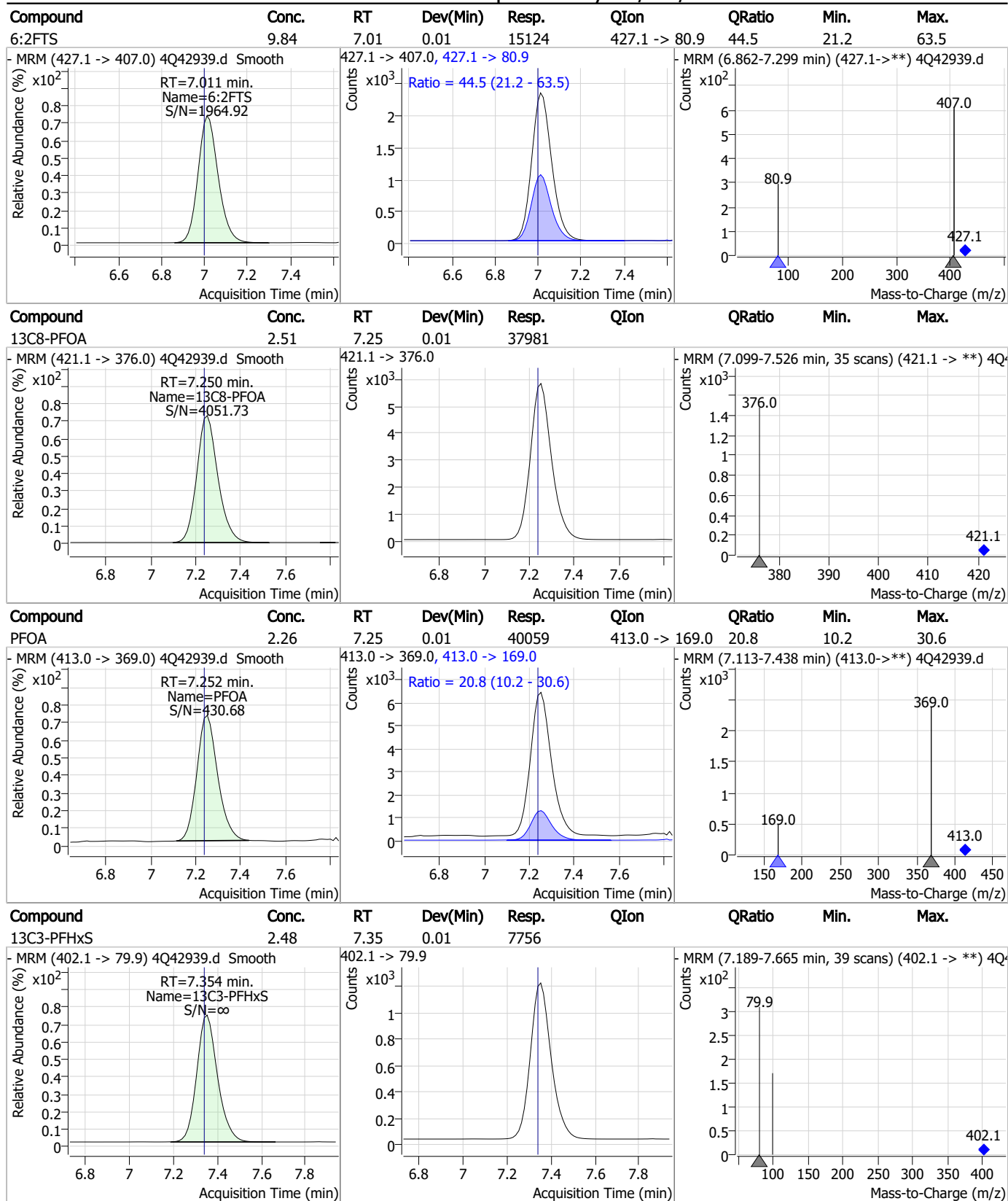
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### Perfluorinated Compounds by LC/MS/MS



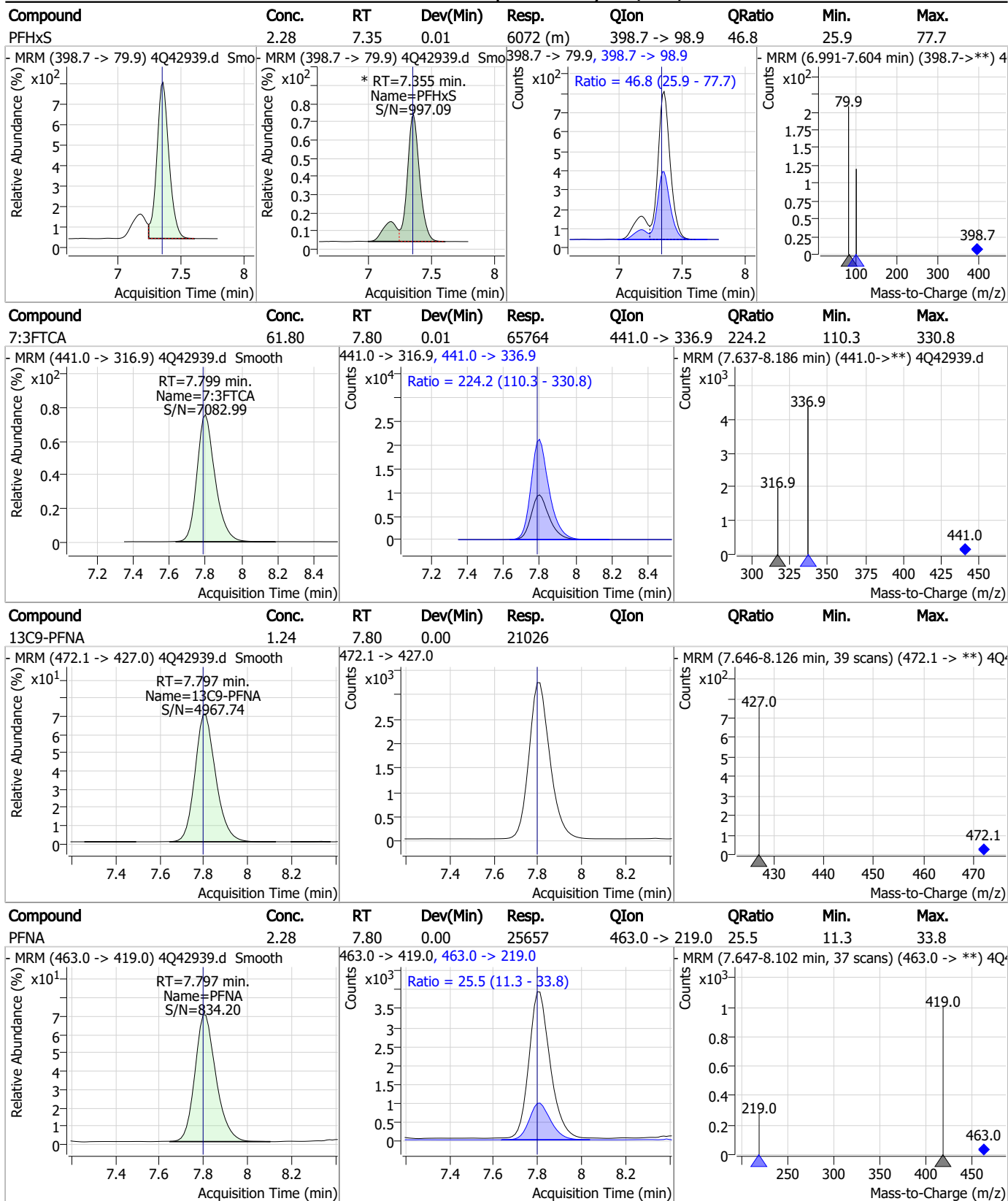
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### Perfluorinated Compounds by LC/MS/MS



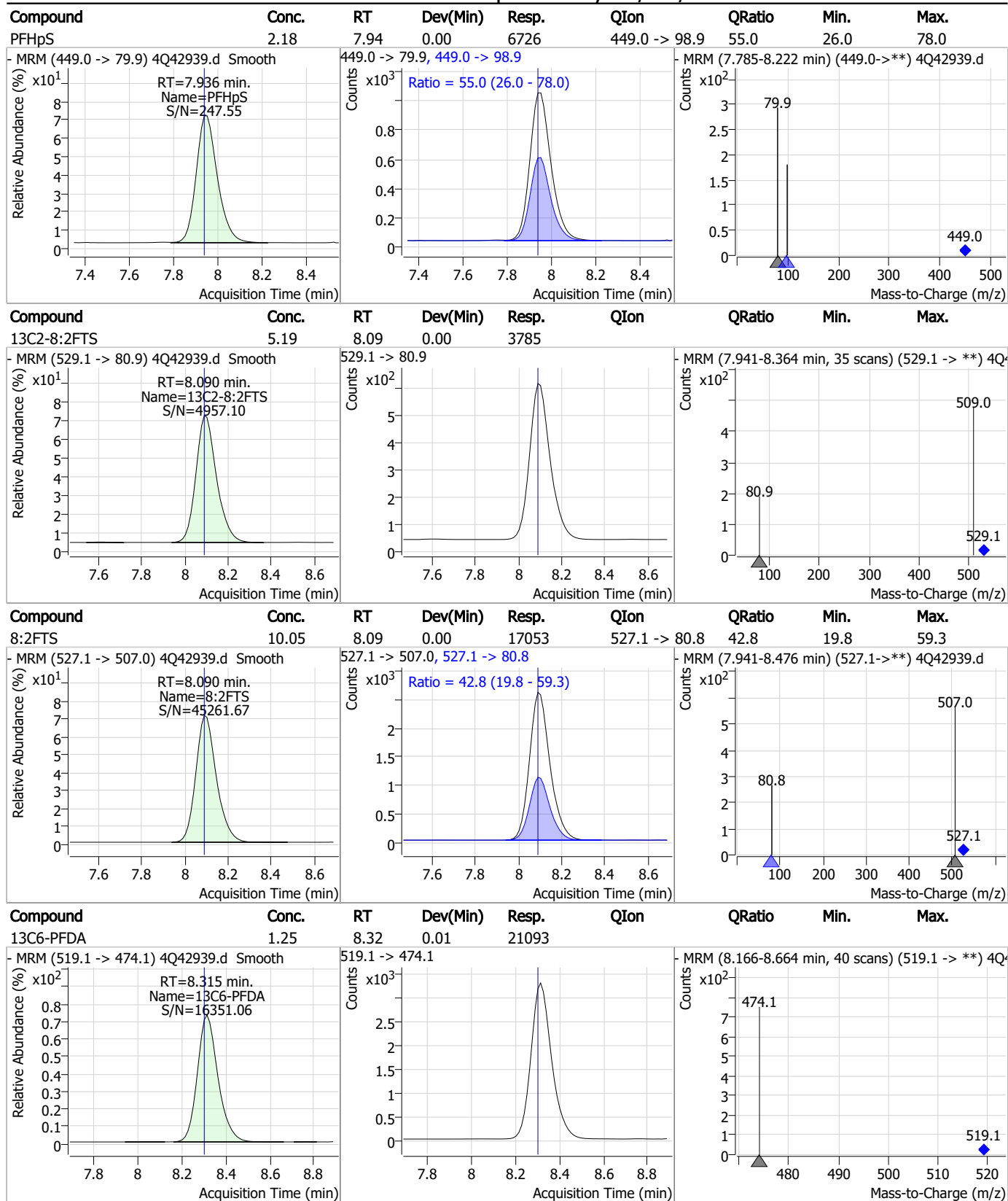
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### Perfluorinated Compounds by LC/MS/MS



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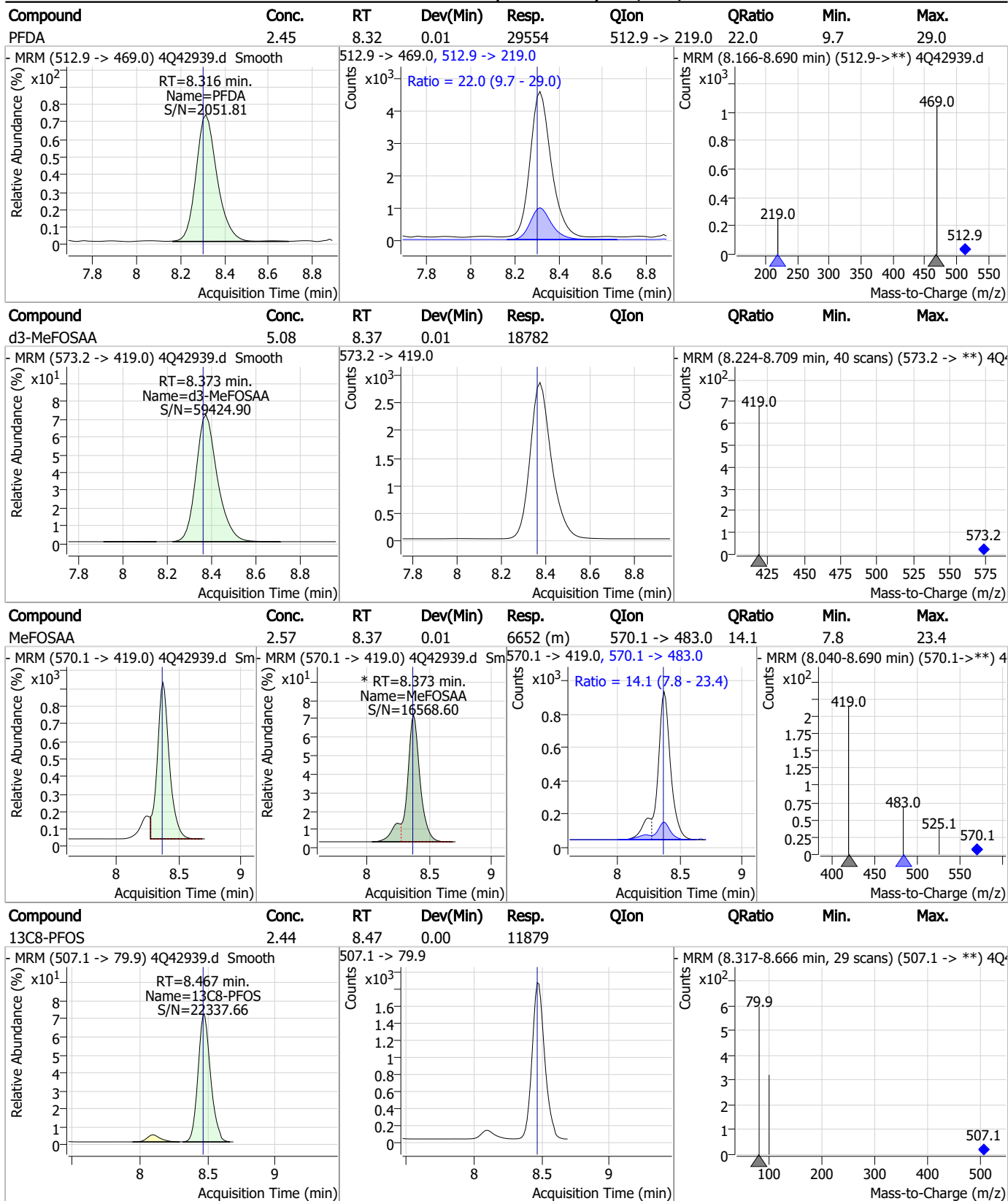
### Perfluorinated Compounds by LC/MS/MS



7.7.5  
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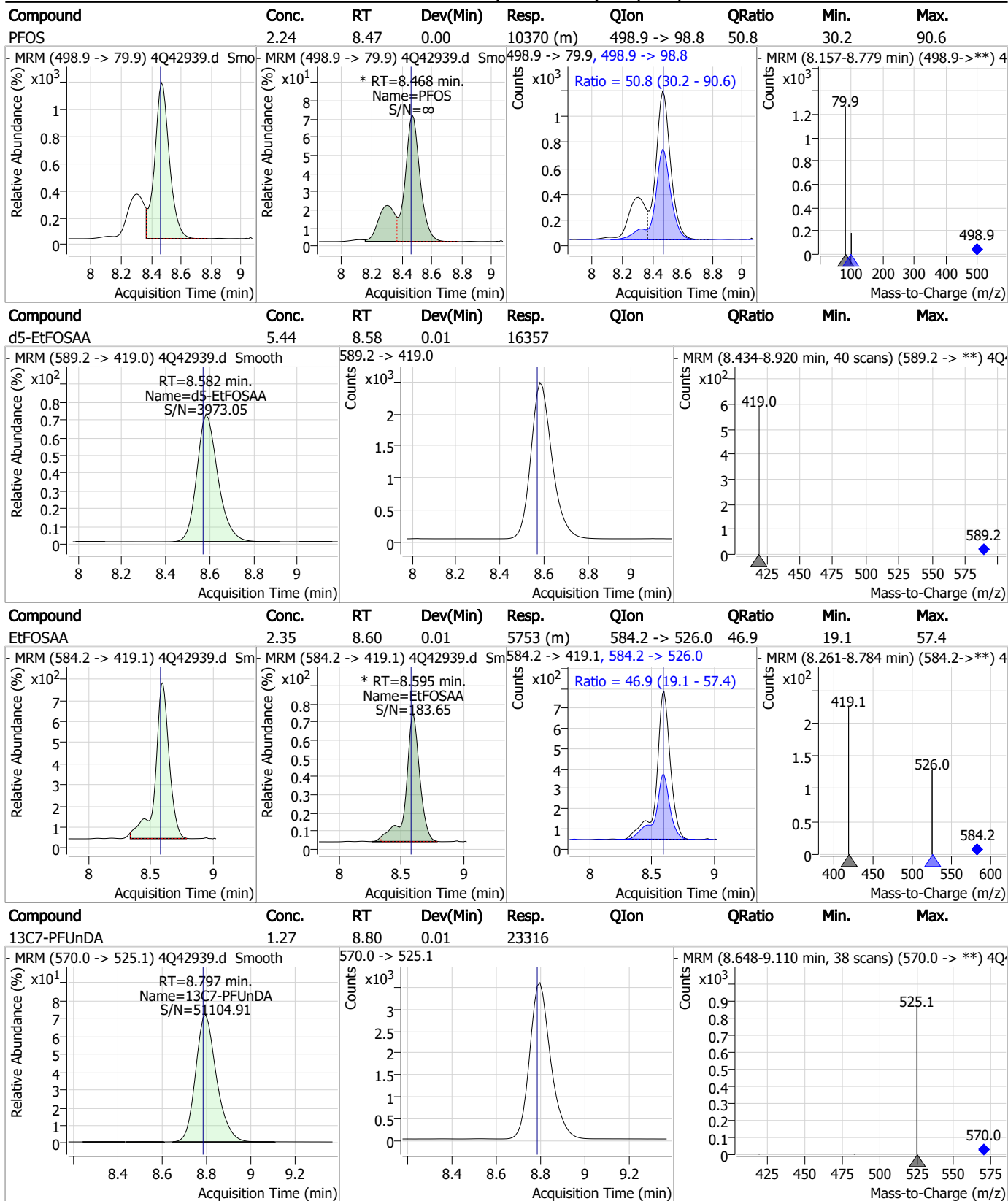


### Perfluorinated Compounds by LC/MS/MS



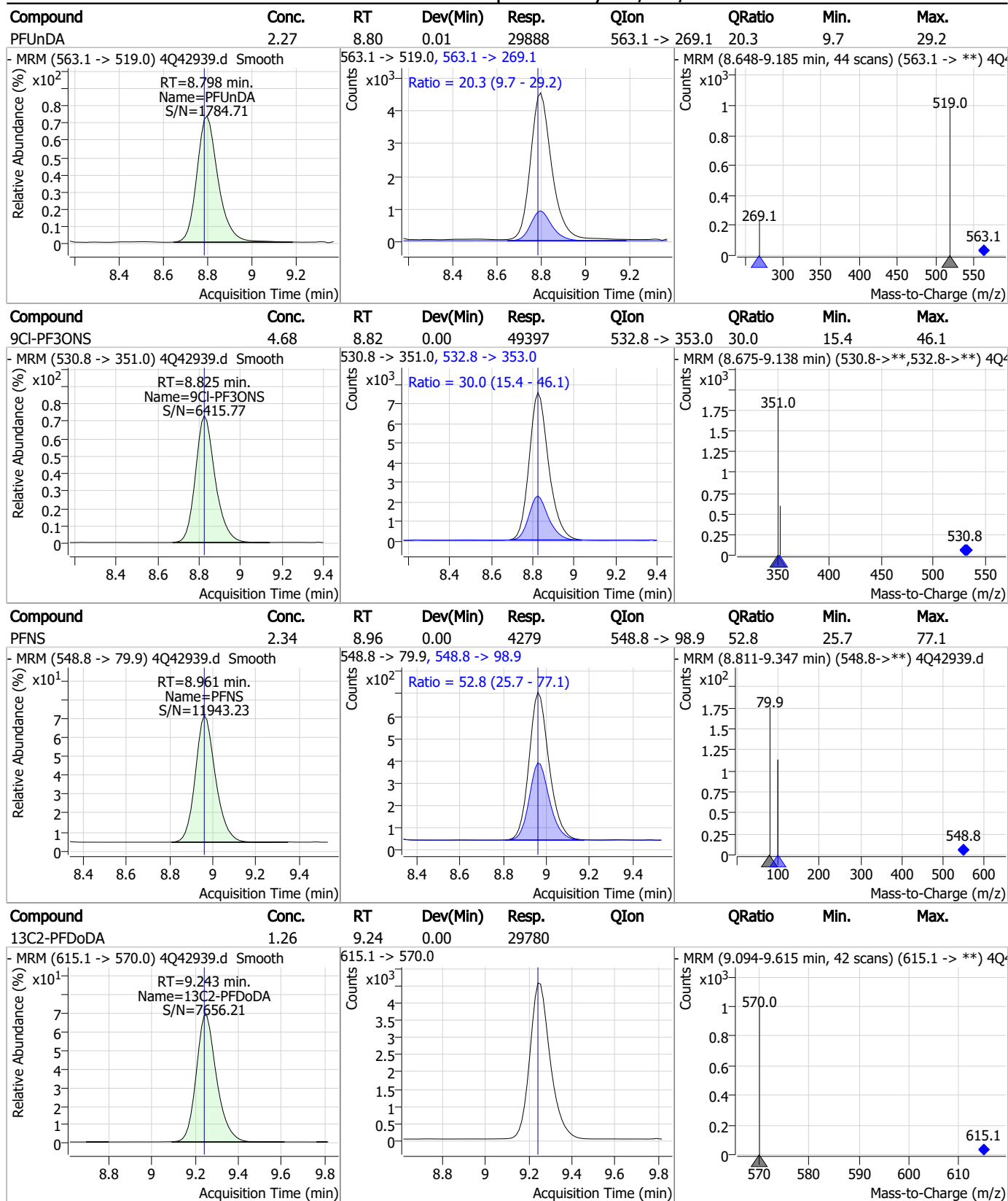
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### Perfluorinated Compounds by LC/MS/MS



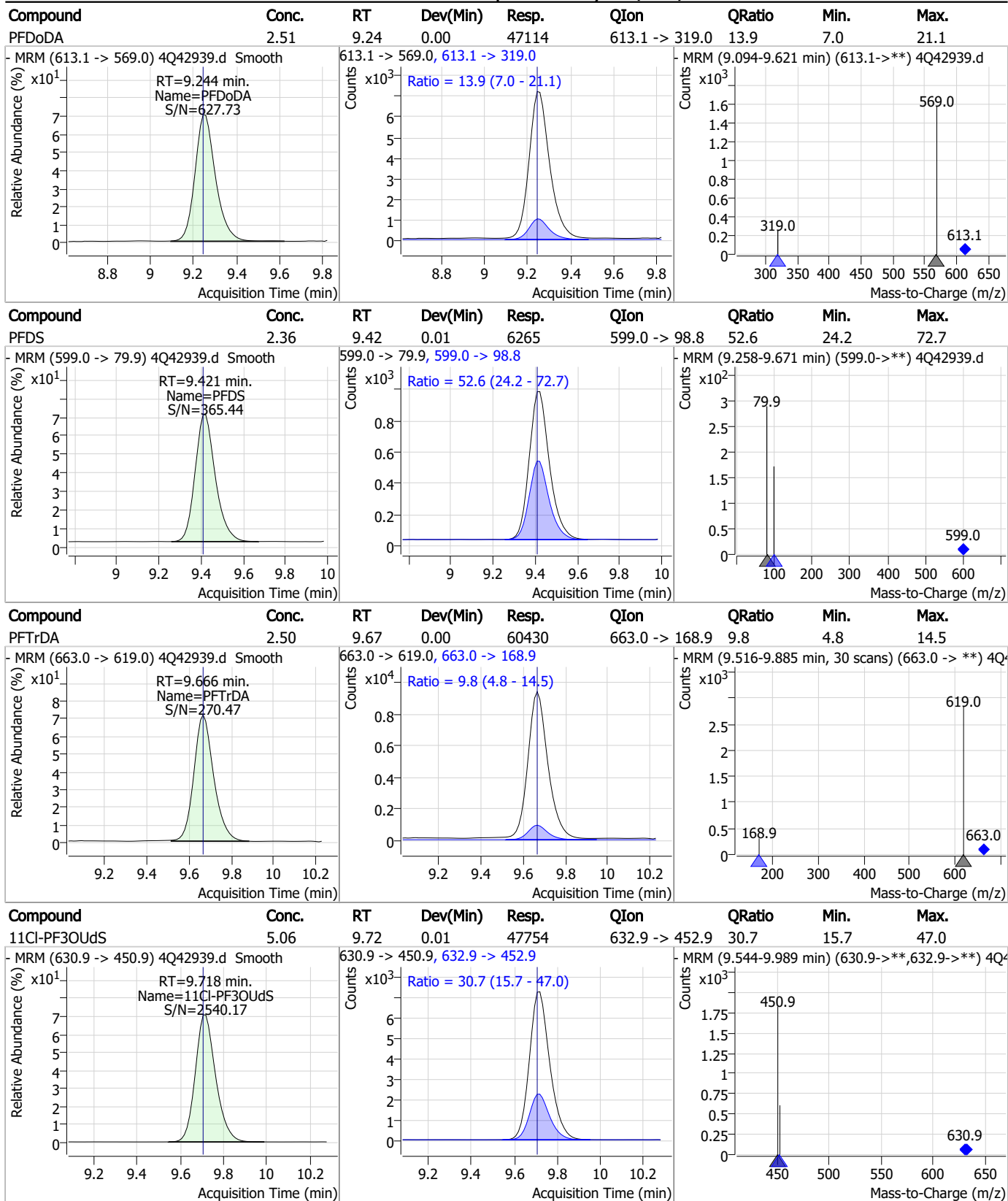
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### Perfluorinated Compounds by LC/MS/MS



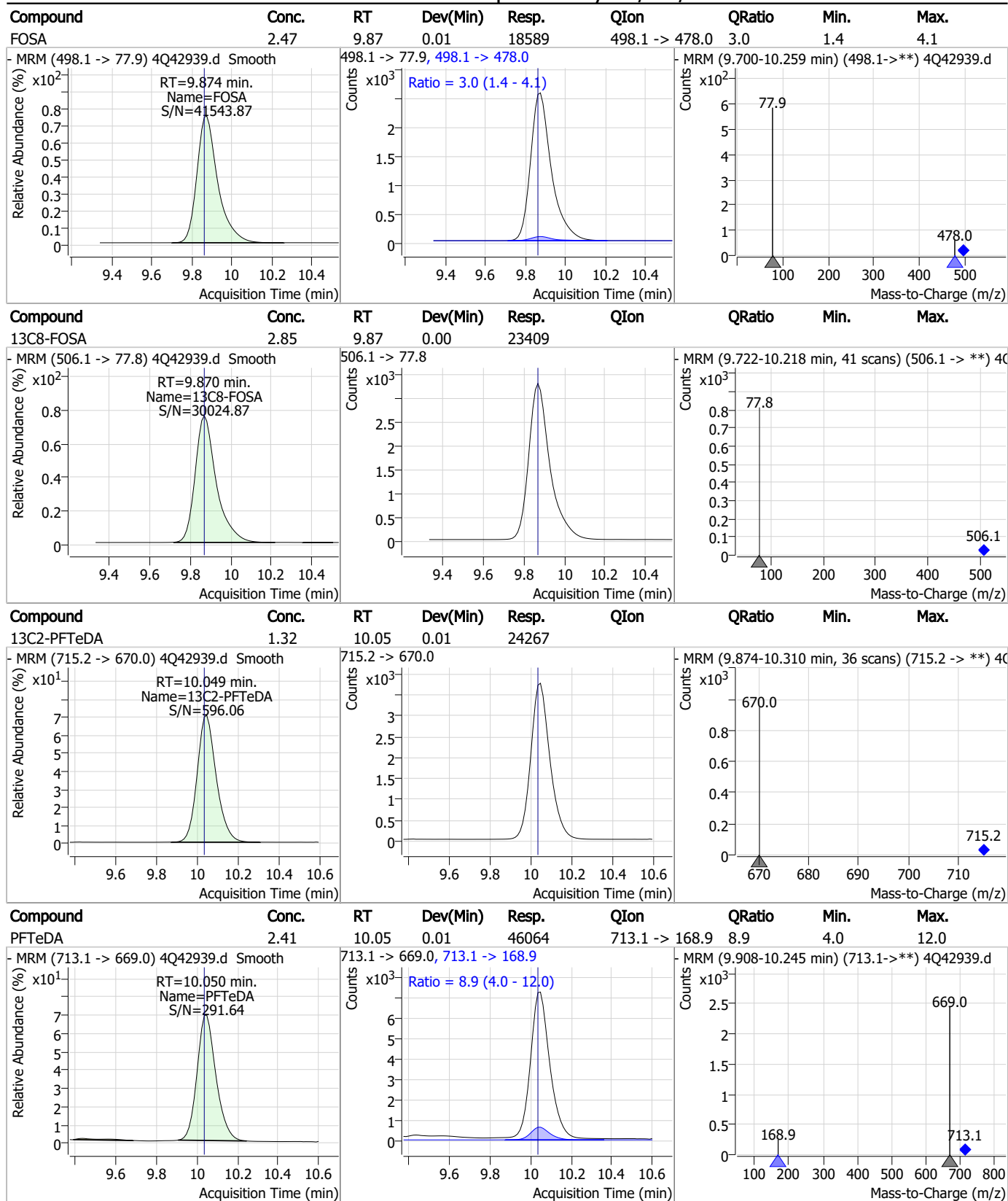
7.7.5  
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### Perfluorinated Compounds by LC/MS/MS



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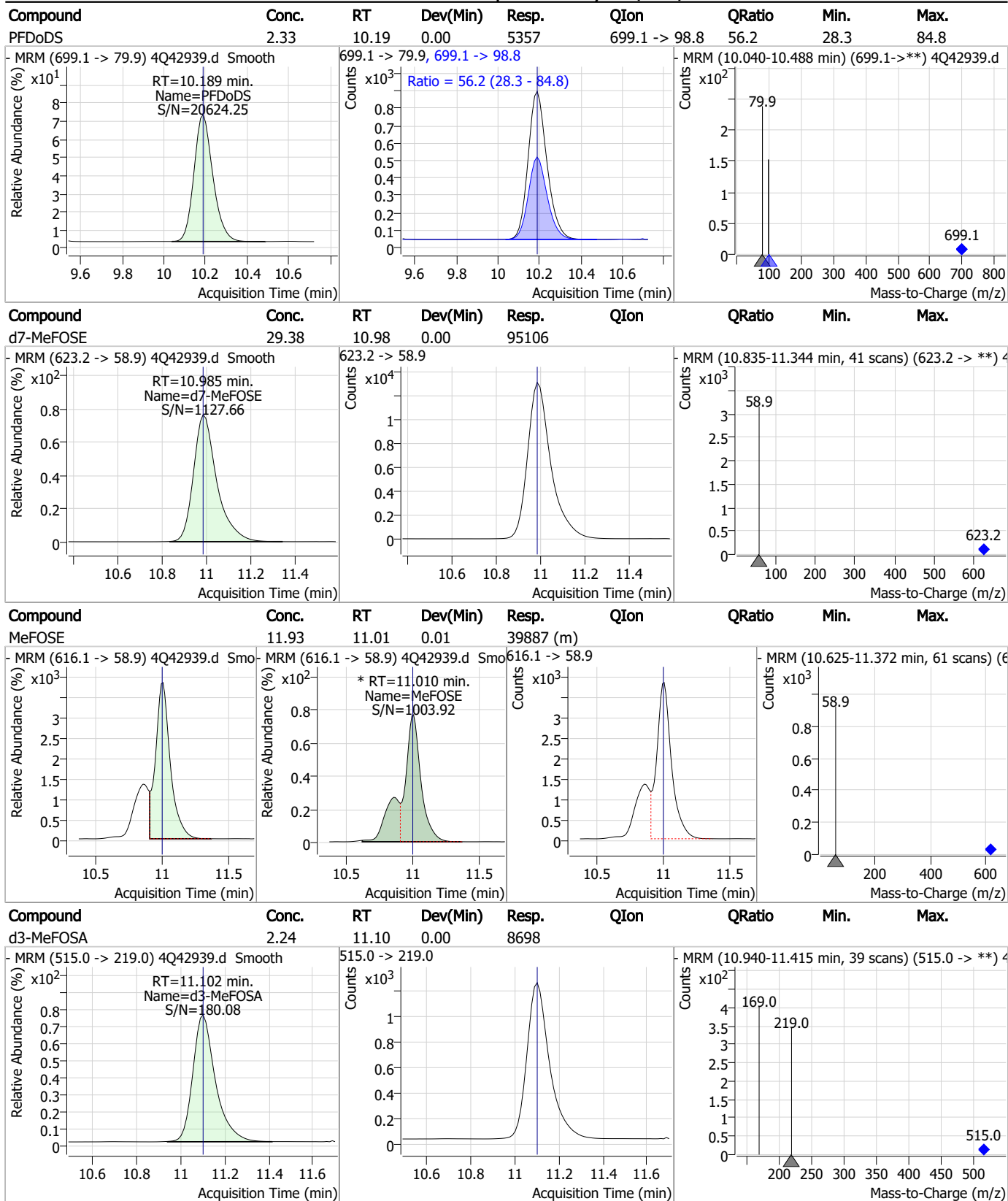
### Perfluorinated Compounds by LC/MS/MS



7.7.5

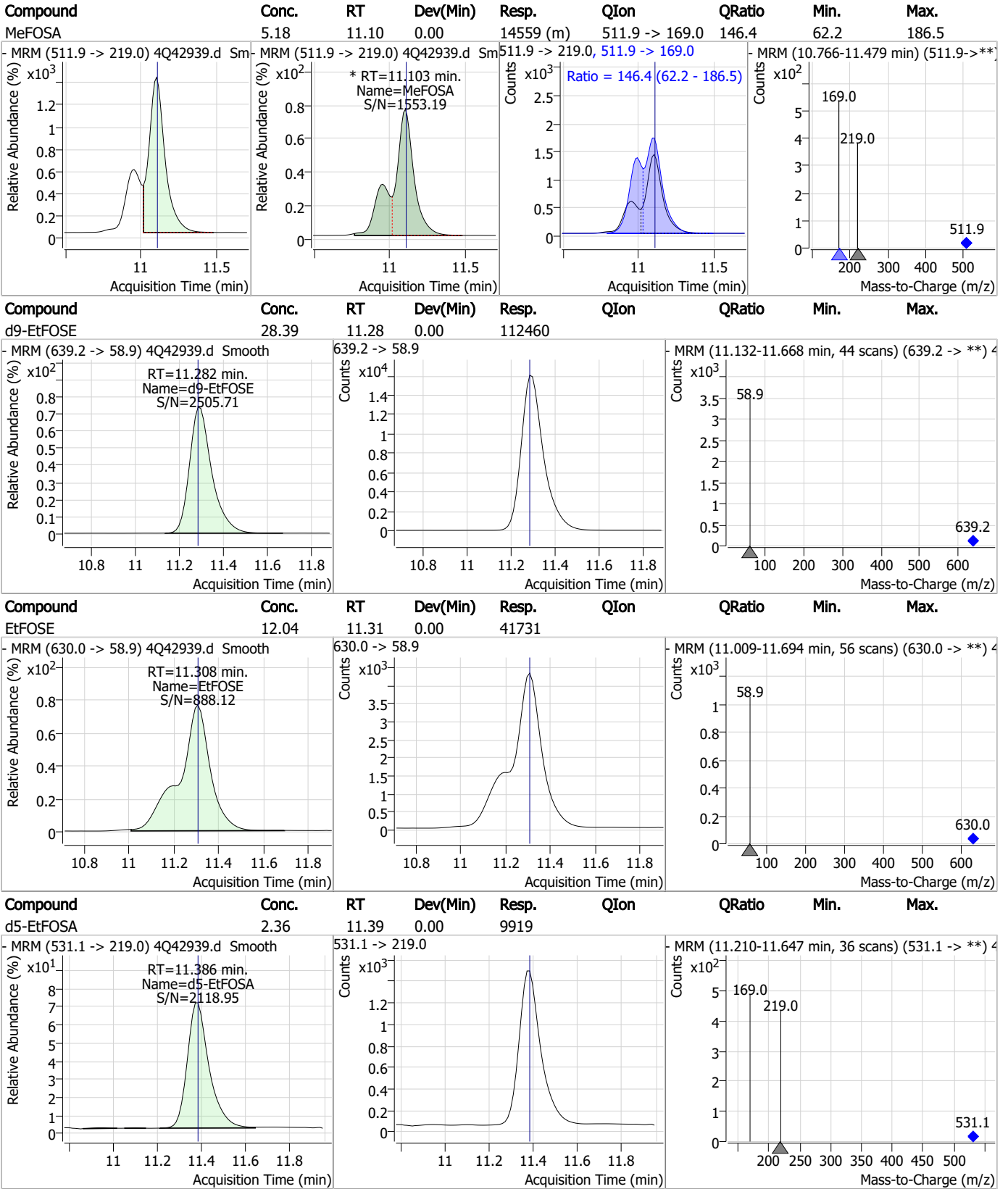
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### Perfluorinated Compounds by LC/MS/MS

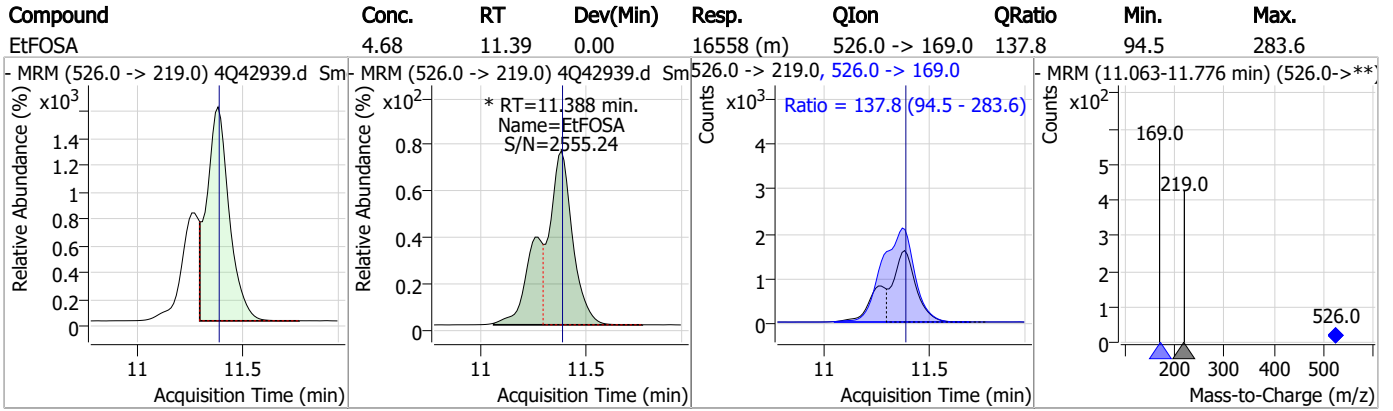


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### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



7.7.5

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# Manual Integration Approval Summary

Sample Number: S4Q621-ICC621      Method: EPA DRAFT 1633  
Lab FileID: 4Q42939.D      Analyst approved: 04/16/23 19:11 Martha Valls  
Injection Time: 04/14/23 12:41      Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.36	Split peak
MeFOSAA	2355-31-9		8.37	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.47	Split peak
EtFOSAA	2991-50-6		8.60	Split peak
MeFOSE	24448-09-7		11.01	Split peak
MeFOSA	31506-32-8		11.10	Split peak
EtFOSA	4151-50-2		11.39	Split peak

7.7.5.1  
7

## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42940.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 4/14/2023 12:55:26 PM  
 Sample Name : ic621-5  
 Vial : P1-A6  
 DA Method File : 1633\_041423\_S4Q621.quantmethod.xml  
 Batch Name : s4q621.batch.bin  
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	3.011	216.8 -> 171.9	124921	10.00 µg/L	0.012
M5-PFPeA	4.475	268.3 -> 223.0	81444	5.00 µg/L	0.000
M5-PFHxA	5.659	318.0 -> 273.0	63076	2.50 µg/L	0.012
M4-PFHpA	6.592	367.1 -> 322.0	31657	2.50 µg/L	0.012
M8-PFOA	7.250	421.1 -> 376.0	38752	2.50 µg/L	0.013
M9-PFNA	7.809	472.1 -> 427.0	21167	1.25 µg/L	0.012
M6-PFDA	8.315	519.1 -> 474.1	20520	1.25 µg/L	0.012
M7-PFUnDA	8.797	570.0 -> 525.1	22969	1.25 µg/L	0.012
M2-PFDoDA	9.243	615.1 -> 570.0	29504	1.25 µg/L	0.000
M2-PFTeDA	10.049	715.2 -> 670.0	23133	1.25 µg/L	0.012
M8-FOSA	9.870	506.1 -> 77.8	21479	2.50 µg/L	0.000
M3-PFBS	5.564	302.1 -> 79.9	13607	2.50 µg/L	0.000
M3-PFHxS	7.354	402.1 -> 79.9	8315	2.50 µg/L	0.013
M8-PFOS	8.467	507.1 -> 79.9	11920	2.50 µg/L	0.000
M2-4:2FTS	5.348	329.1 -> 80.9	1656	5.00 µg/L	0.012
M2-6:2FTS	7.010	429.1 -> 80.9	2366	5.00 µg/L	0.012
M2-8:2FTS	8.090	529.1 -> 80.9	3957	5.00 µg/L	0.000
M3-MeFOSAA	8.373	573.2 -> 419.0	17803	5.00 µg/L	0.012
M3-HFPO-DA	6.026	286.9 -> 168.9	38527	10.00 µg/L	0.012
M5-EtFOSAA	8.582	589.2 -> 419.0	14945	5.00 µg/L	0.012
M7-MeFOSE	10.997	623.2 -> 58.9	86850	25.00 µg/L	0.012
M9-EtFOSE	11.307	639.2 -> 58.9	105010	25.00 µg/L	0.025
M5-EtFOSA	11.398	531.1 -> 219.0	10750	2.50 µg/L	0.012
M3-MeFOSA	11.114	515.0 -> 219.0	10151	2.50 µg/L	0.012
13C4-PFOS	8.467	502.8 -> 79.9	12789	2.50 µg/L	0.000
13C3-PFBA	3.016	216.0 -> 172.0	71718	5.00 µg/L	0.025
18O2-PFHxS	7.353	403.0 -> 83.9	5765	2.50 µg/L	0.013
13C4-PFOA	7.251	417.1 -> 372.0	45475	2.50 µg/L	0.013
13C2-PFDA	8.316	515.1 -> 470.1	19235	1.25 µg/L	0.012
13C5-PFNA	7.809	468.0 -> 423.0	24615	1.25 µg/L	0.012
13C2-PFHxA	5.660	315.1 -> 270.0	54681	2.50 µg/L	0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.348	329.1 -> 80.9	1656	5.26 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.2%		
13C2-6:2FTS	7.010	429.1 -> 80.9	2366	5.24 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C2-8:2FTS	8.090	529.1 -> 80.9	3957	5.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.4%		
13C2-PFDoDA	9.243	615.1 -> 570.0	29504	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C2-PFTeDA	10.049	715.2 -> 670.0	23133	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C3-PFBS	5.564	302.1 -> 79.9	13607	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C3-PFHxS	7.354	402.1 -> 79.9	8315	2.61 µg/L	0.013

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C4-PFBA	3.011	216.8 -> 171.9	124921	10.00 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFHpA	6.592	367.1 -> 322.0	31657	2.55 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C5-PFHxA	5.659	318.0 -> 273.0	63076	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C5-PFPeA	4.475	268.3 -> 223.0	81444	5.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C6-PFDA	8.315	519.1 -> 474.1	20520	1.21 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C7-PFUnDA	8.797	570.0 -> 525.1	22969	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C8-FOSA	9.870	506.1 -> 77.8	21479	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C8-PFOA	7.250	421.1 -> 376.0	38752	2.59 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C8-PFOS	8.467	507.1 -> 79.9	11920	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C9-PFNA	7.809	472.1 -> 427.0	21167	1.18 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.4%	
d3-MeFOSAA	8.373	573.2 -> 419.0	17803	4.73 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.5%	
13C3-HFPO-DA	6.026	286.9 -> 168.9	38527	10.04 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
d3-MeFOSA	11.114	515.0 -> 219.0	10151	2.56 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
d5-EtFOSAA	8.582	589.2 -> 419.0	14945	4.88 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.6%	
d7-MeFOSE	10.997	623.2 -> 58.9	86850	26.33 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 105.3%	
d9-EtFOSE	11.307	639.2 -> 58.9	105010	26.02 µg/L	0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.1%	
d5-EtFOSA	11.398	531.1 -> 219.0	10750	2.51 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.348	327.1 -> 307.0	36799	17.83 µg/L	98
		327.1 -> 80.9	15406		
6:2FTS	7.011	427.1 -> 407.0	30231	18.71 µg/L	99
		427.1 -> 80.9	12999		
8:2FTS	8.090	527.1 -> 507.0	33000	18.60 µg/L	100
		527.1 -> 80.8	13134		
EtFOSAA	8.595	584.2 -> 419.1	10984	4.92 µg/L	m 81
		584.2 -> 526.0	5467		
FOSA	9.874	498.1 -> 77.9	34438	4.98 µg/L	98
		498.1 -> 478.0	1137		
MeFOSAA	8.373	570.1 -> 419.0	12057	4.91 µg/L	m 94
		570.1 -> 483.0	2201		
PFBA	3.020	212.8 -> 168.9	56170	19.69 µg/L	100
PFBS	5.565	298.7 -> 79.9	22223	4.38 µg/L	95
		298.7 -> 98.8	9189		
PFDA	8.316	512.9 -> 469.0	58800	5.01 µg/L	99
		512.9 -> 219.0	11537		
PFDODA	9.244	613.1 -> 569.0	94272	5.07 µg/L	100
		613.1 -> 319.0	13067		
PFDS	9.409	599.0 -> 79.9	12682	4.76 µg/L	97

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	6404			
PFHpA	6.593	363.1 -> 319.0	78545	4.97	µg/L	99
		363.1 -> 169.0	13546			
PFHpS	7.936	449.0 -> 79.9	14498	4.67	µg/L	99
		449.0 -> 98.9	7427			
PFHxA	5.662	313.0 -> 269.0	92008	4.93	µg/L	100
		313.0 -> 118.9	2717			
PFHxS	7.355	398.7 -> 79.9	11654	4.09	µg/L	m 96
		398.7 -> 98.9	6387			
PFNA	7.810	463.0 -> 419.0	55072	4.87	µg/L	96
		463.0 -> 219.0	13387			
PFNS	8.961	548.8 -> 79.9	8919	4.86	µg/L	96
		548.8 -> 98.9	4317			
PFOA	7.252	413.0 -> 369.0	83867	4.63	µg/L	98
		413.0 -> 169.0	17926			
PFOS	8.468	498.9 -> 79.9	20749	4.47	µg/L	m 85
		498.9 -> 98.8	10167			
PFPeA	4.477	263.0 -> 219.0	152277	9.88	µg/L	100
PFPeS	6.632	349.1 -> 79.9	11718	4.83	µg/L	98
		349.1 -> 98.9	4855			
PFTeDA	10.050	713.1 -> 669.0	90965	4.99	µg/L	100
		713.1 -> 168.9	7419			
PFTrDA	9.666	663.0 -> 619.0	119591	4.99	µg/L	99
		663.0 -> 168.9	11208			
PFUnDA	8.798	563.1 -> 519.0	62199	4.79	µg/L	100
		563.1 -> 269.1	12206			
11CI-PF3OUdS	9.705	630.9 -> 450.9	98327	9.78	µg/L	99
		632.9 -> 452.9	30139			
9CI-PF3ONS	8.825	530.8 -> 351.0	104680	9.32	µg/L	99
		532.8 -> 353.0	31565			
ADONA	6.843	376.9 -> 250.9	216314	9.35	µg/L	99
		376.9 -> 84.8	58876			
HFPO-DA	6.027	284.9 -> 168.9	29468	9.65	µg/L	100
		284.9 -> 184.9	3608			
3:3FTCA	3.992	241.0 -> 177.0	17393	24.21	µg/L	98
		241.0 -> 117.0	1572			
5:3FTCA	6.357	341.0 -> 237.1	330585	125.37	µg/L	99
		341.0 -> 217.0	238118			
7:3FTCA	7.799	441.0 -> 316.9	138396	128.06	µg/L	99
		441.0 -> 336.9	307498			
EtFOSA	11.400	526.0 -> 219.0	38265	9.99	µg/L	m 63
		526.0 -> 169.0	51446			
EtFOSE	11.320	630.0 -> 58.9	78212	24.16	µg/L	100
MeFOSA	11.116	511.9 -> 219.0	31361	9.56	µg/L	m 79
		511.9 -> 169.0	46574			
MeFOSE	11.010	616.1 -> 58.9	74370	24.36	µg/L	m 100
PFDoDS	10.189	699.1 -> 79.9	10759	4.67	µg/L	99
		699.1 -> 98.8	6195			
NFDHA	5.541	295.0 -> 201.0	13046	10.39	µg/L	100
		295.0 -> 84.9	3244			
PFMBA	4.891	279.0 -> 85.1	86371	9.80	µg/L	100
PFMPA	3.628	229.0 -> 84.9	75259	9.76	µg/L	100
PFEESA	6.108	314.8 -> 134.9	139198	8.88	µg/L	100
		314.8 -> 82.9	4696			

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

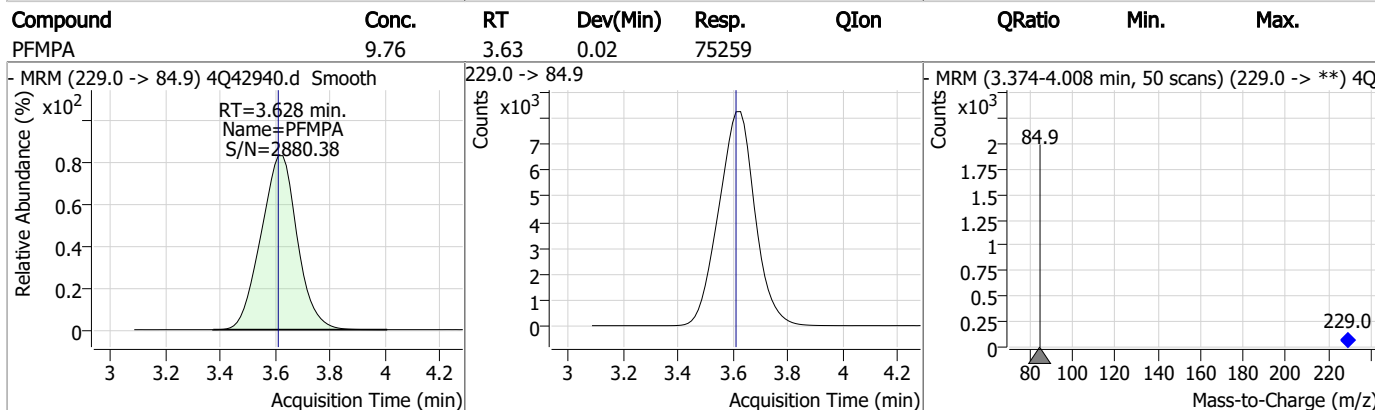
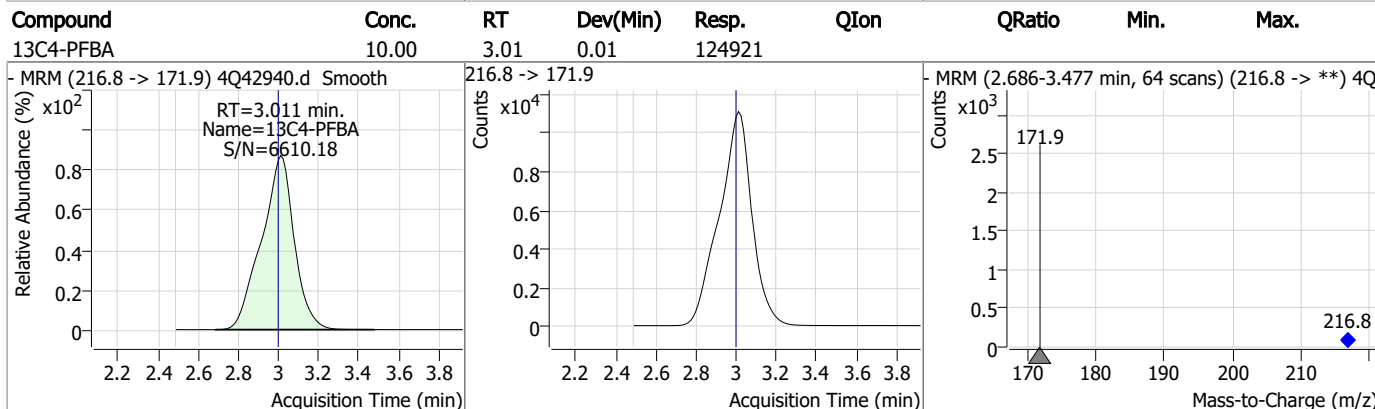
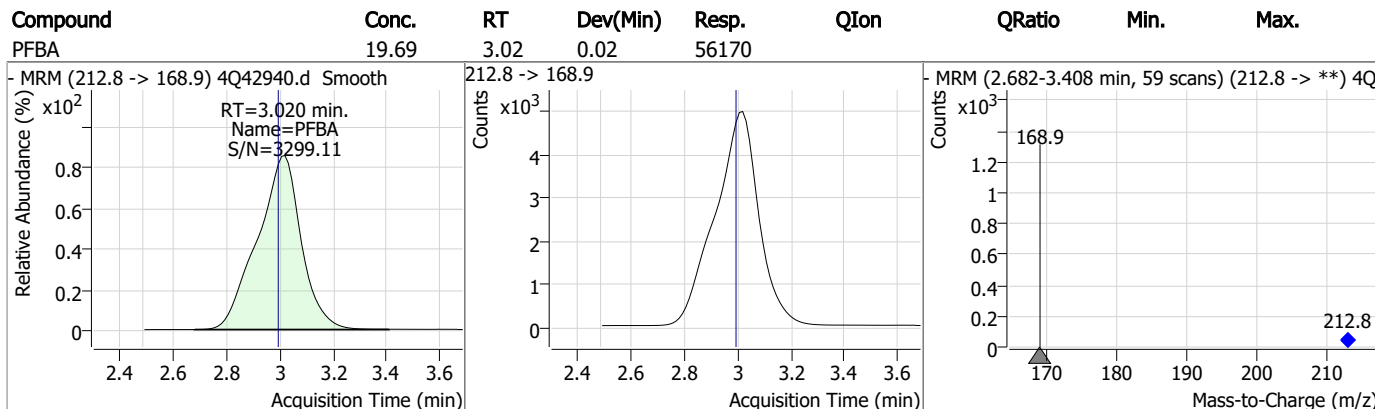
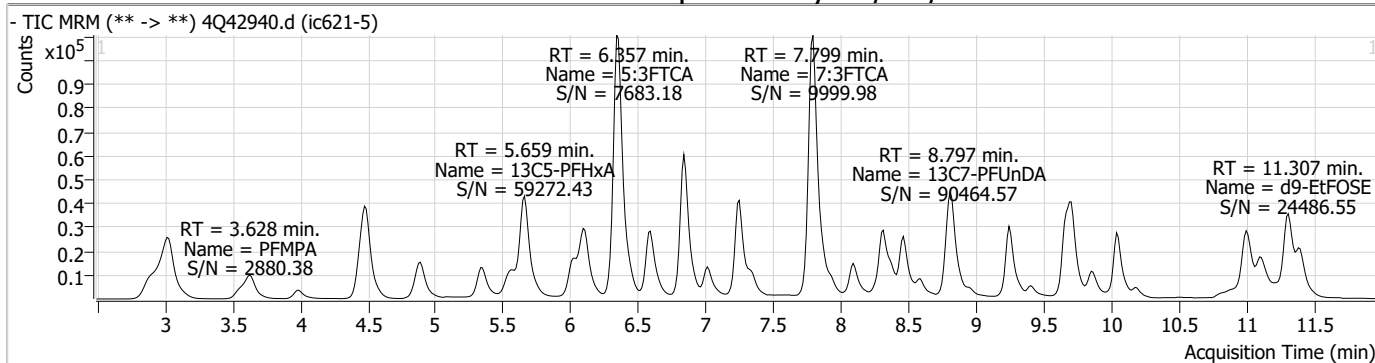
### Perfluorinated Compounds by LC/MS/MS

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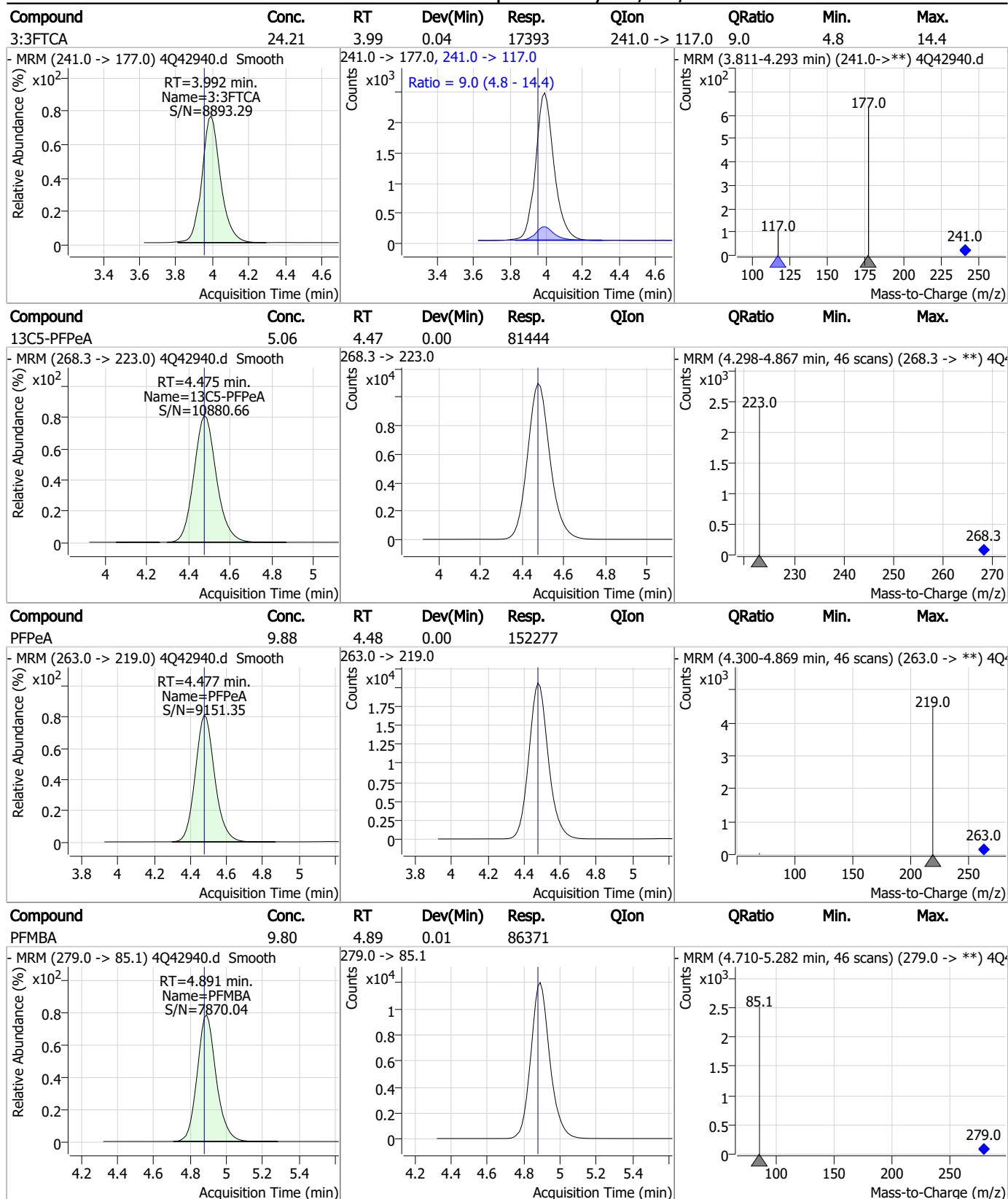


### Perfluorinated Compounds by LC/MS/MS



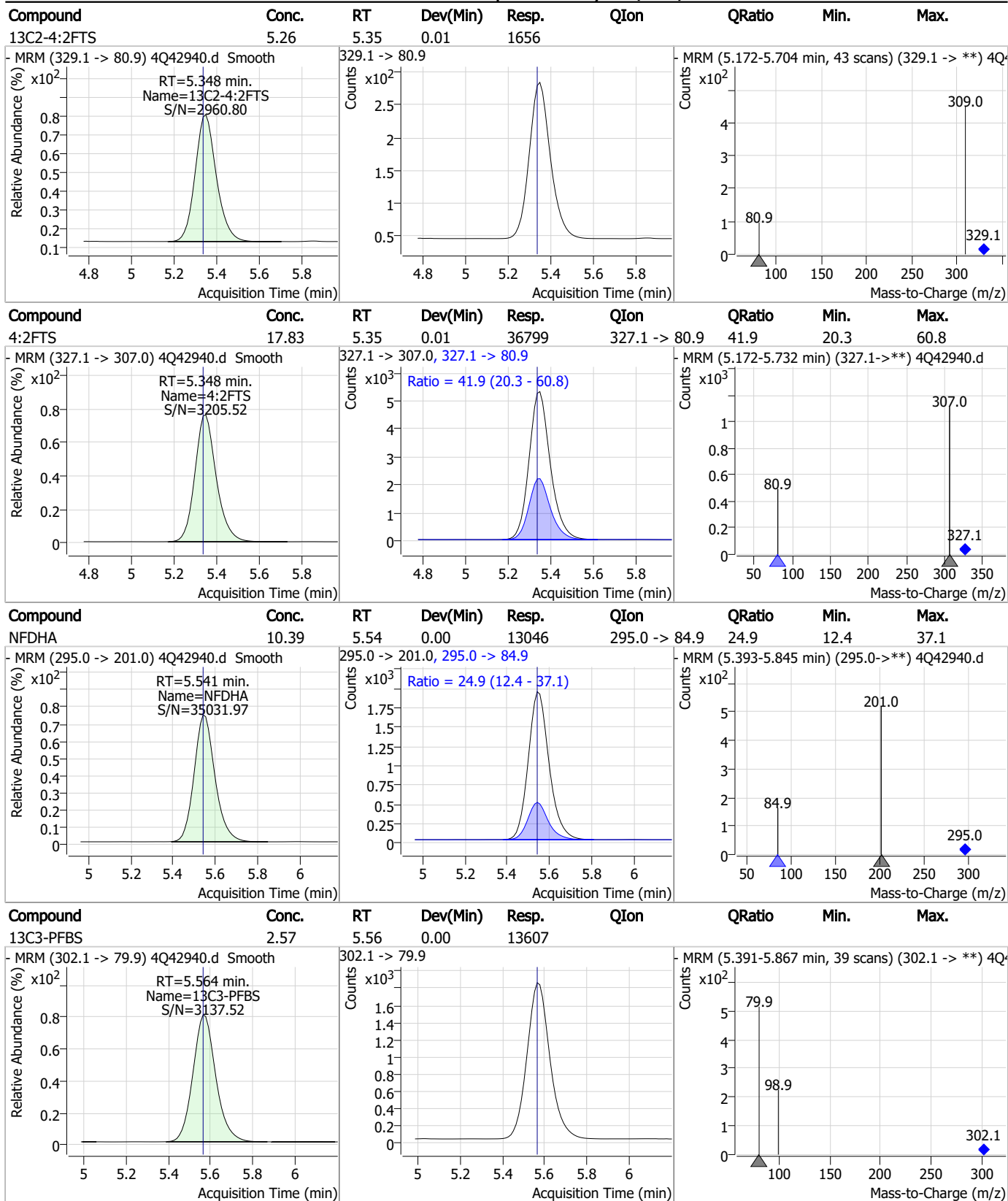
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### Perfluorinated Compounds by LC/MS/MS



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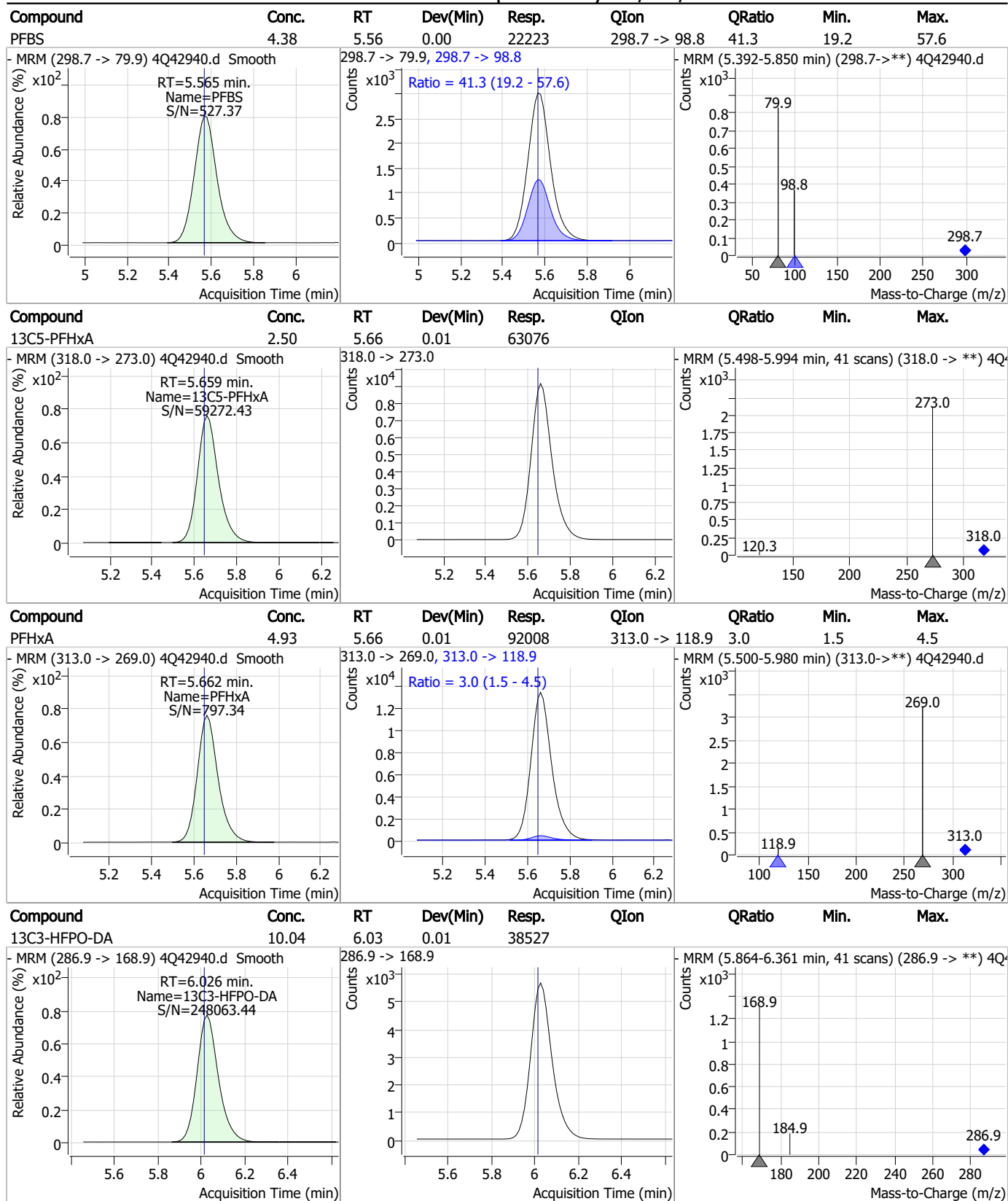
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

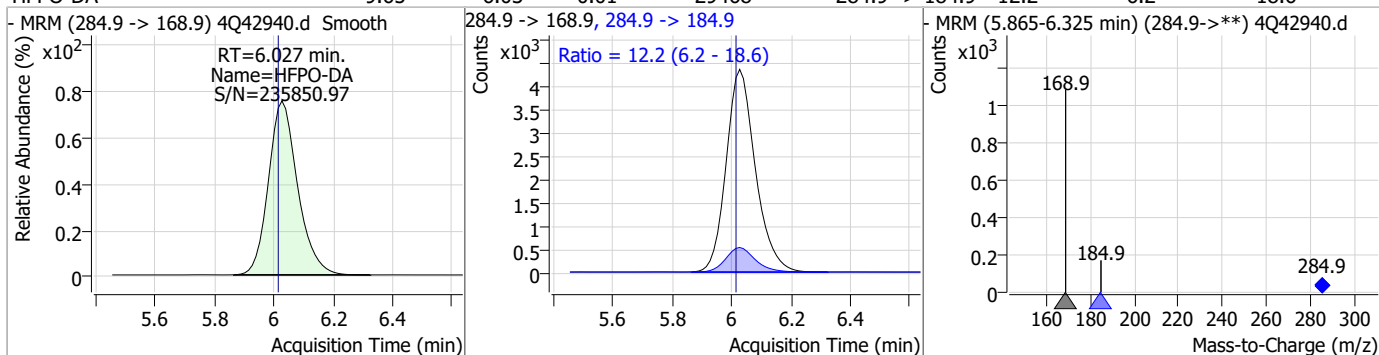


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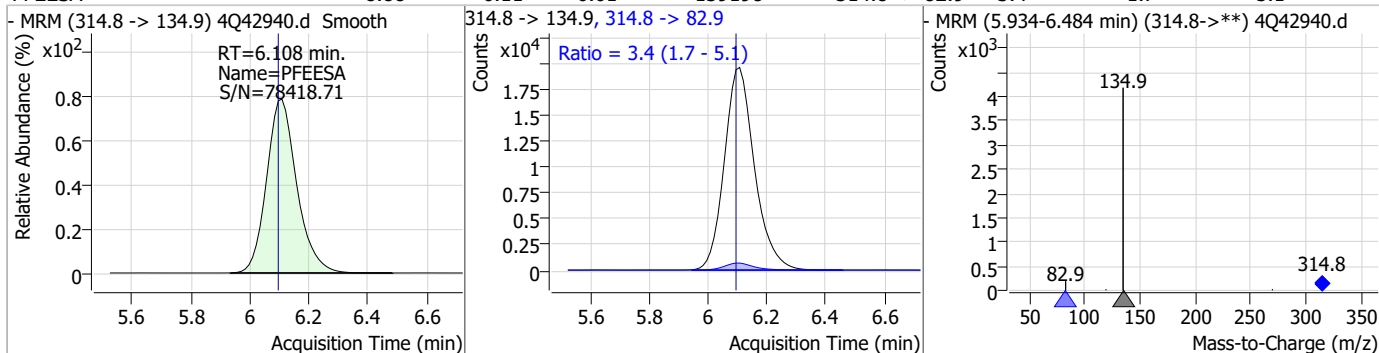
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### Perfluorinated Compounds by LC/MS/MS

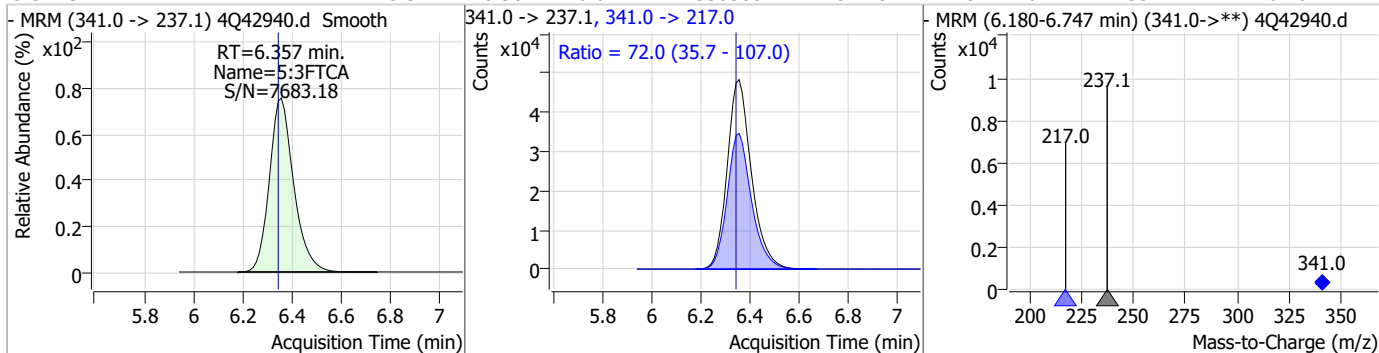
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.65	6.03	0.01	29468	284.9 -> 184.9	12.2	6.2	18.6



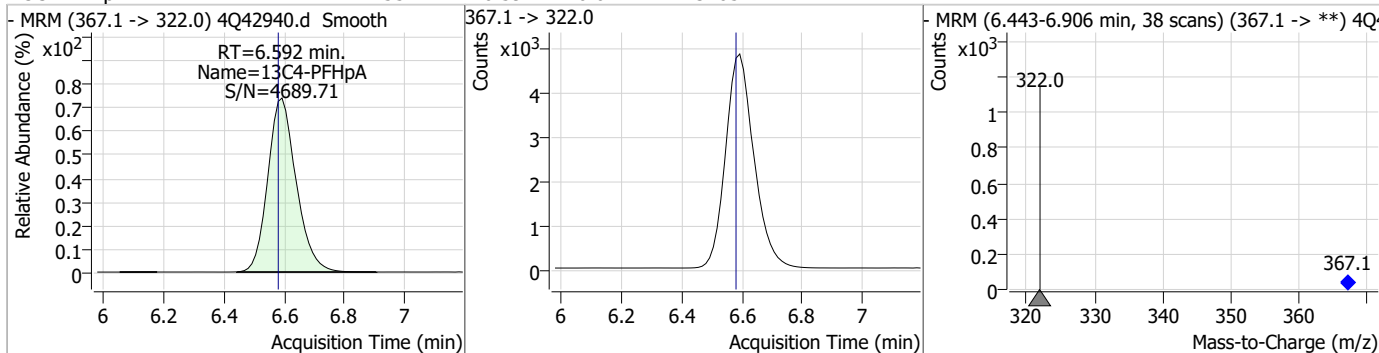
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	8.88	6.11	0.01	139198	314.8 -> 82.9	3.4	1.7	5.1



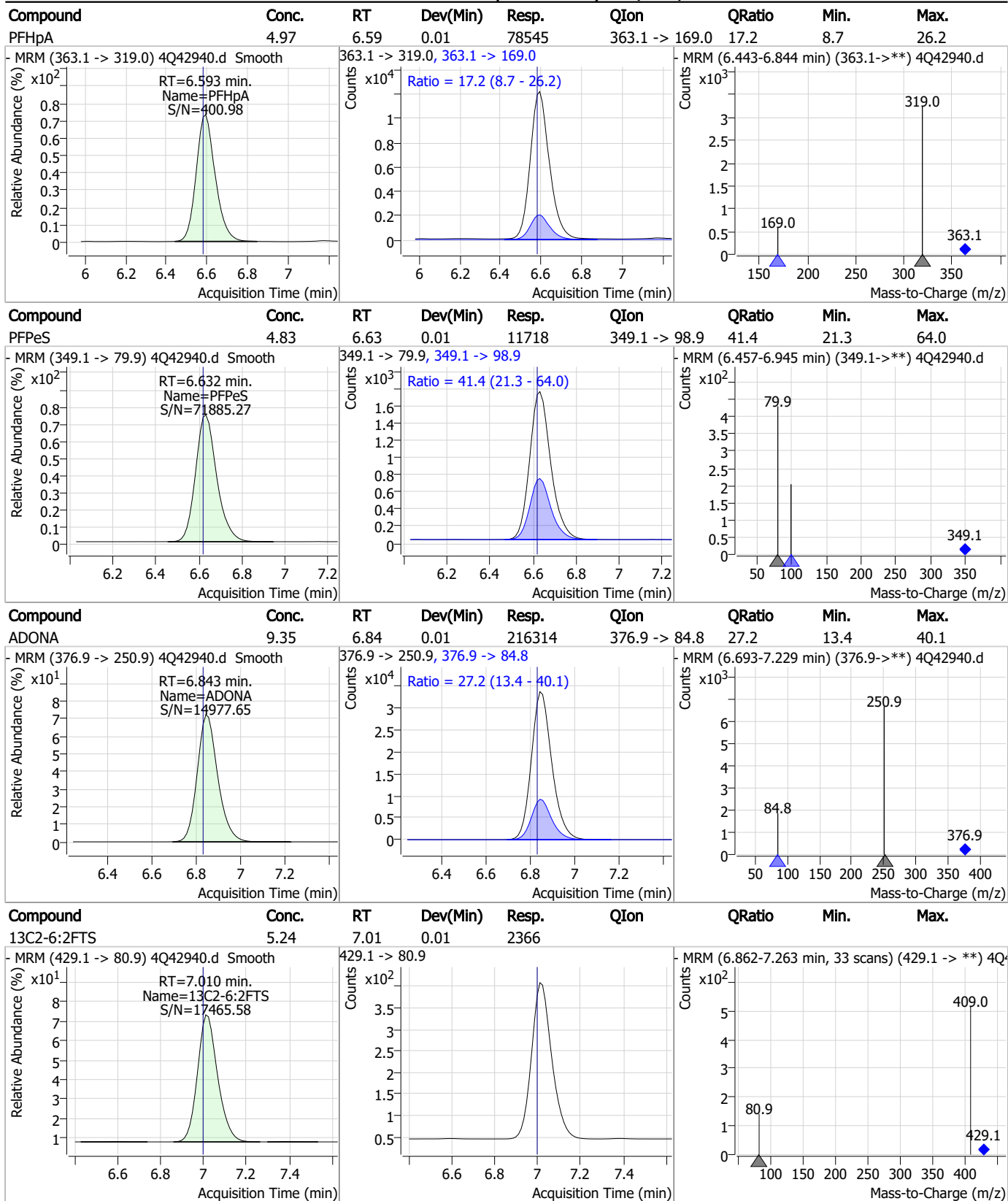
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	125.37	6.36	0.01	330585	341.0 -> 217.0	72.0	35.7	107.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.55	6.59	0.01	31657	367.1 -> 322.0			



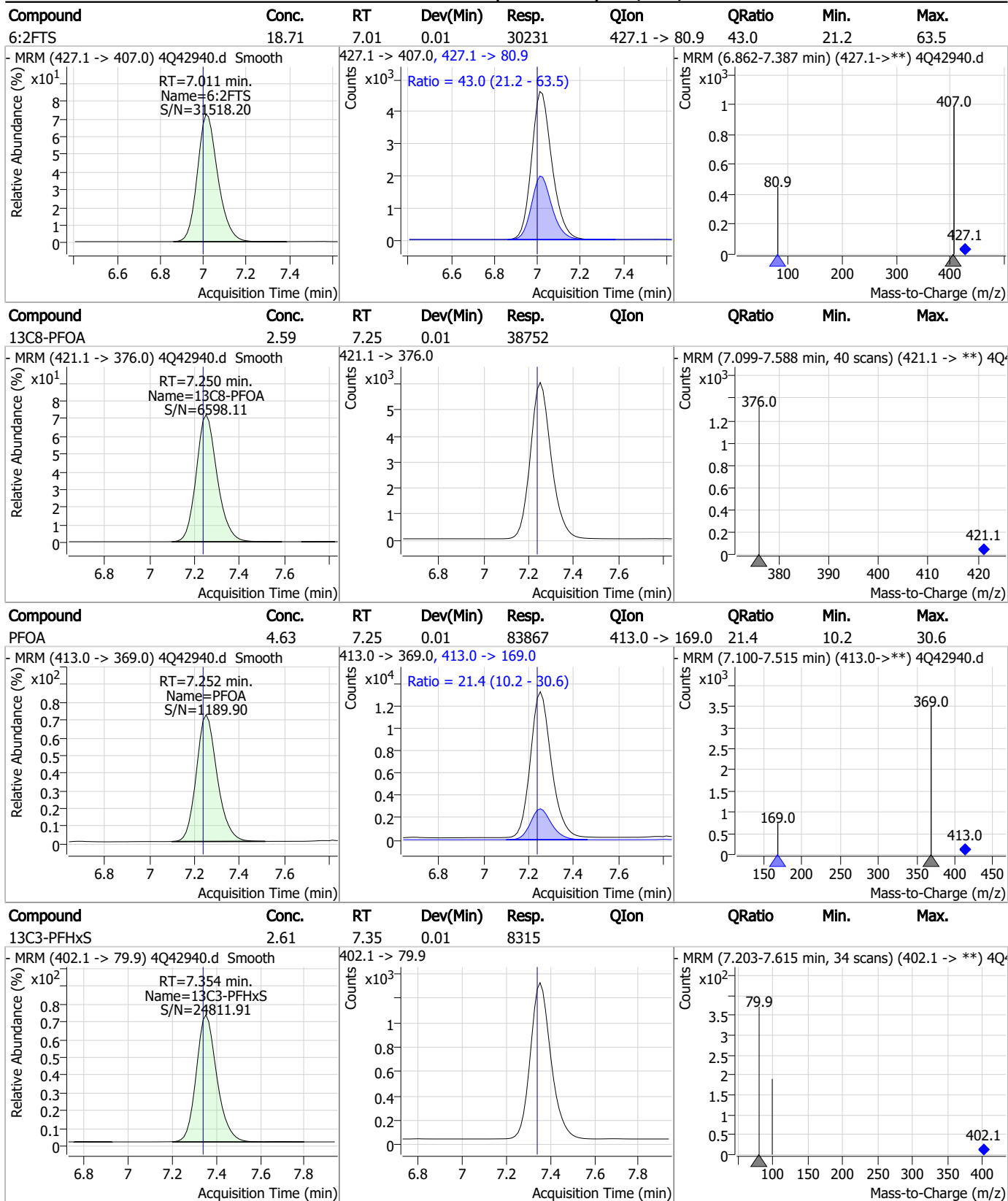
### Perfluorinated Compounds by LC/MS/MS



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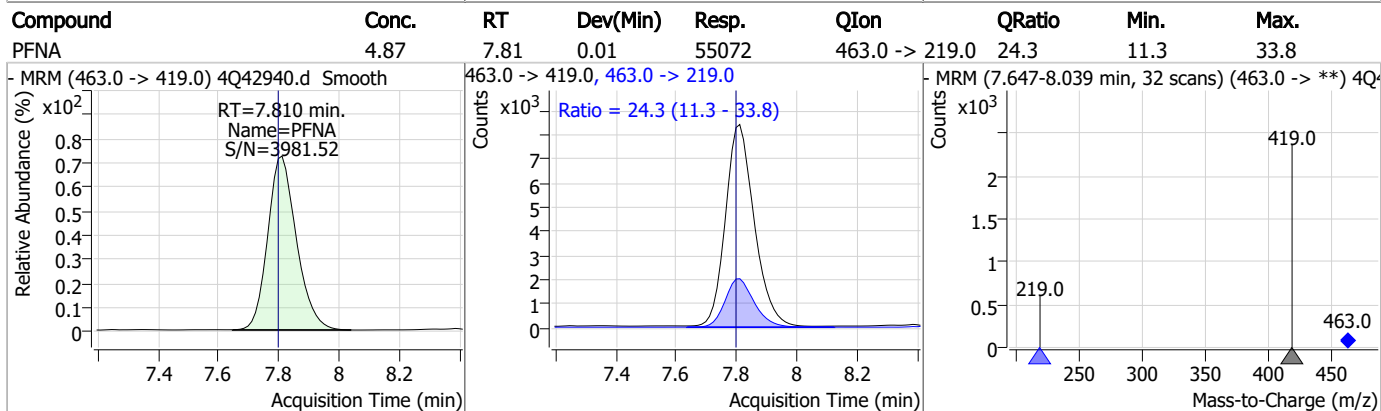
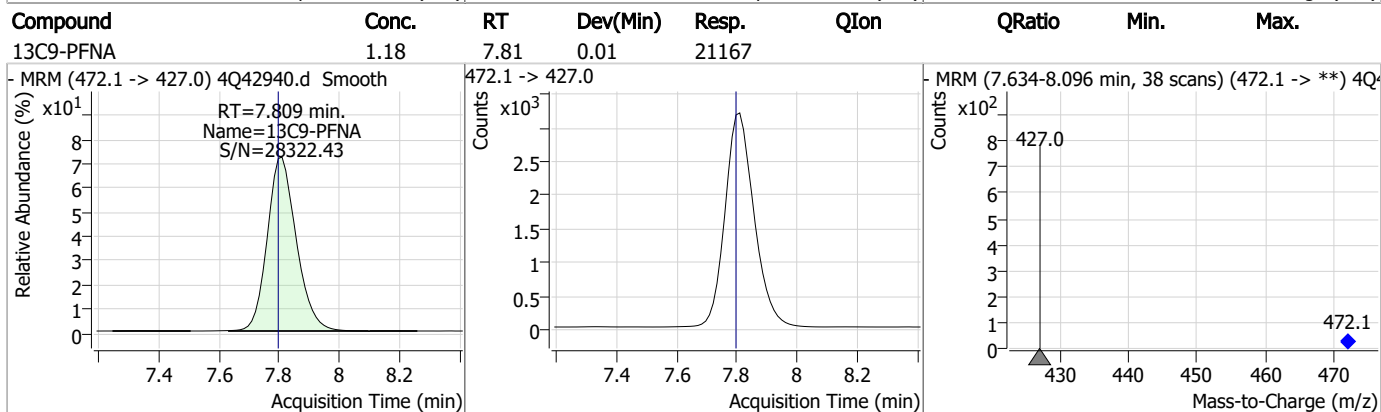
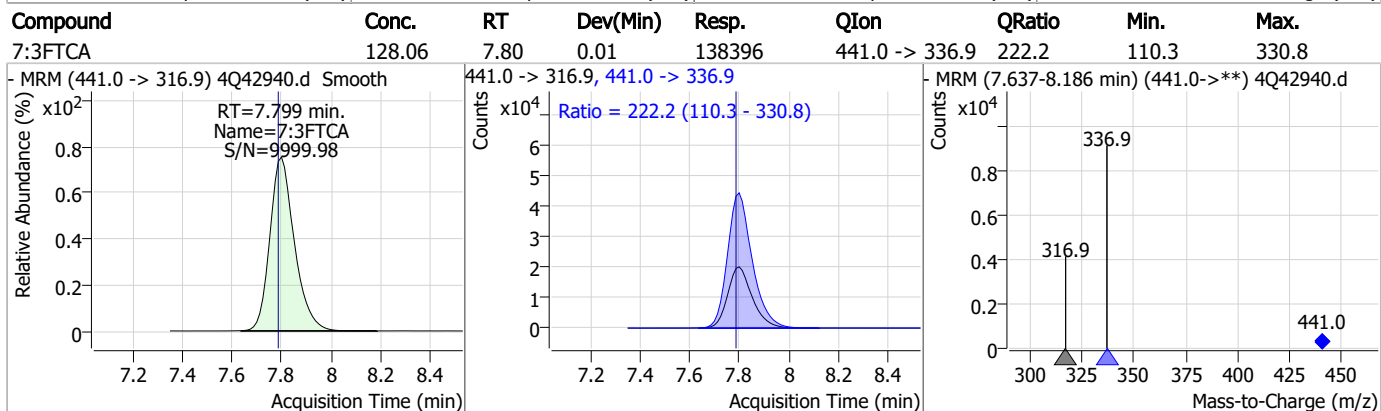
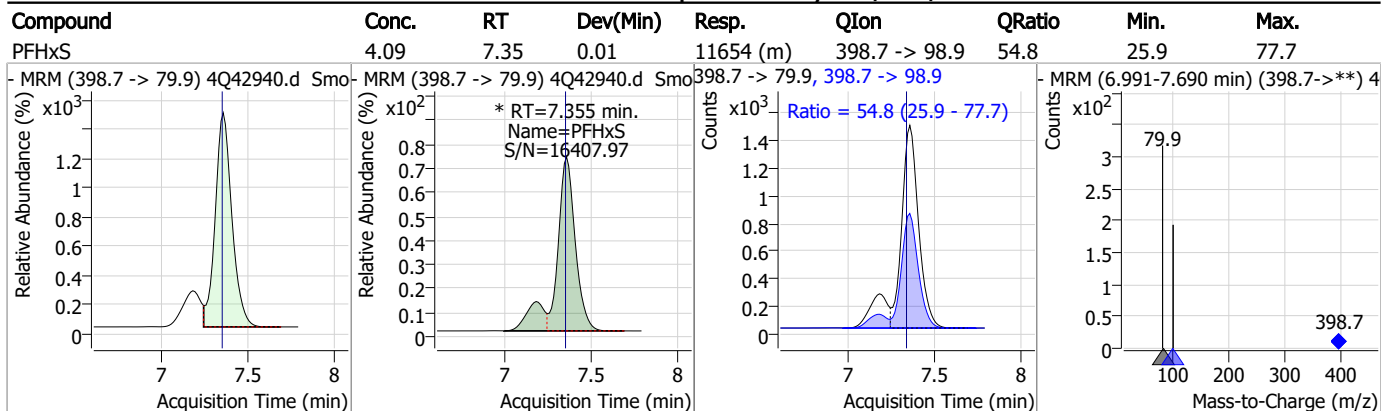


### Perfluorinated Compounds by LC/MS/MS



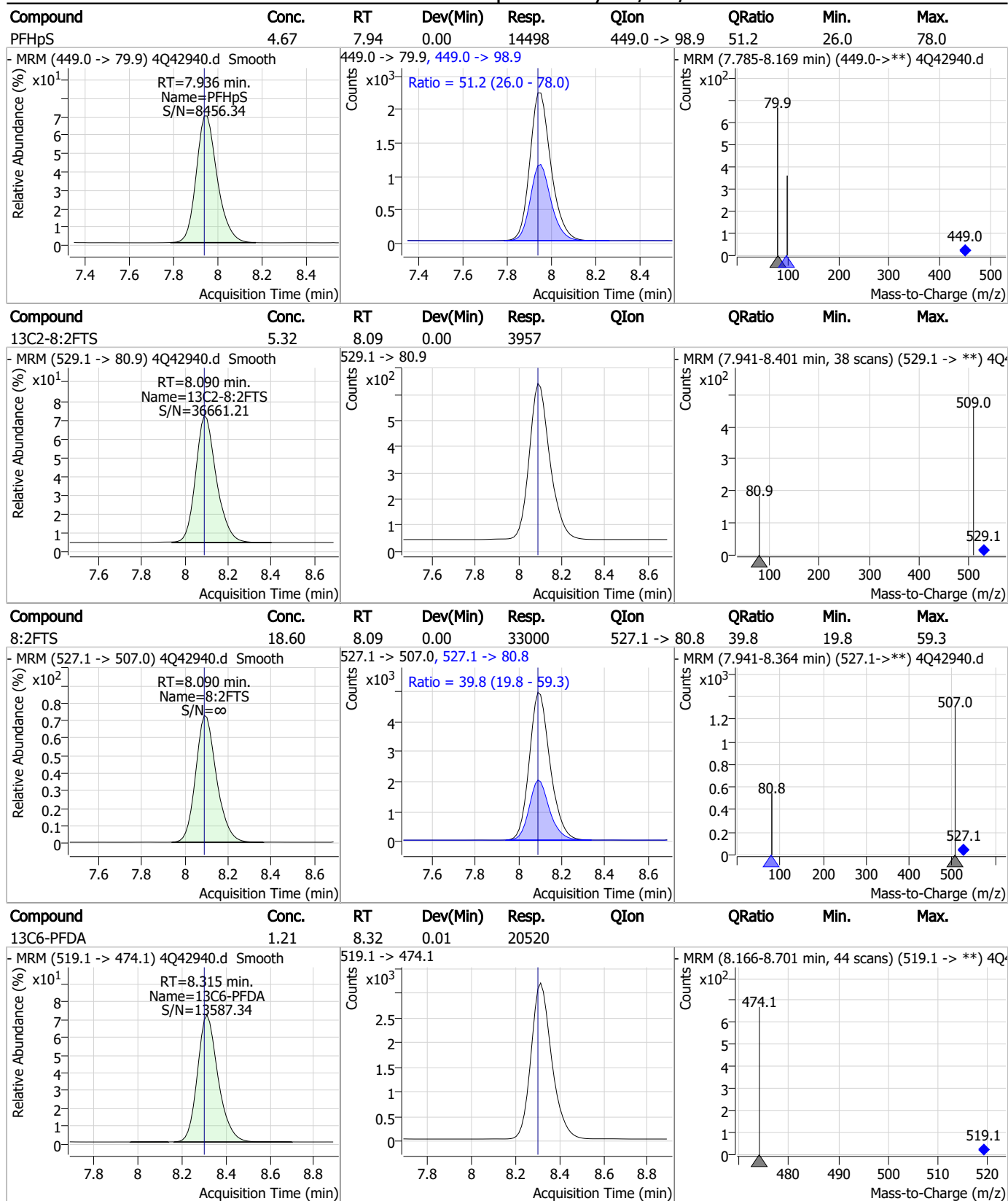
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### Perfluorinated Compounds by LC/MS/MS



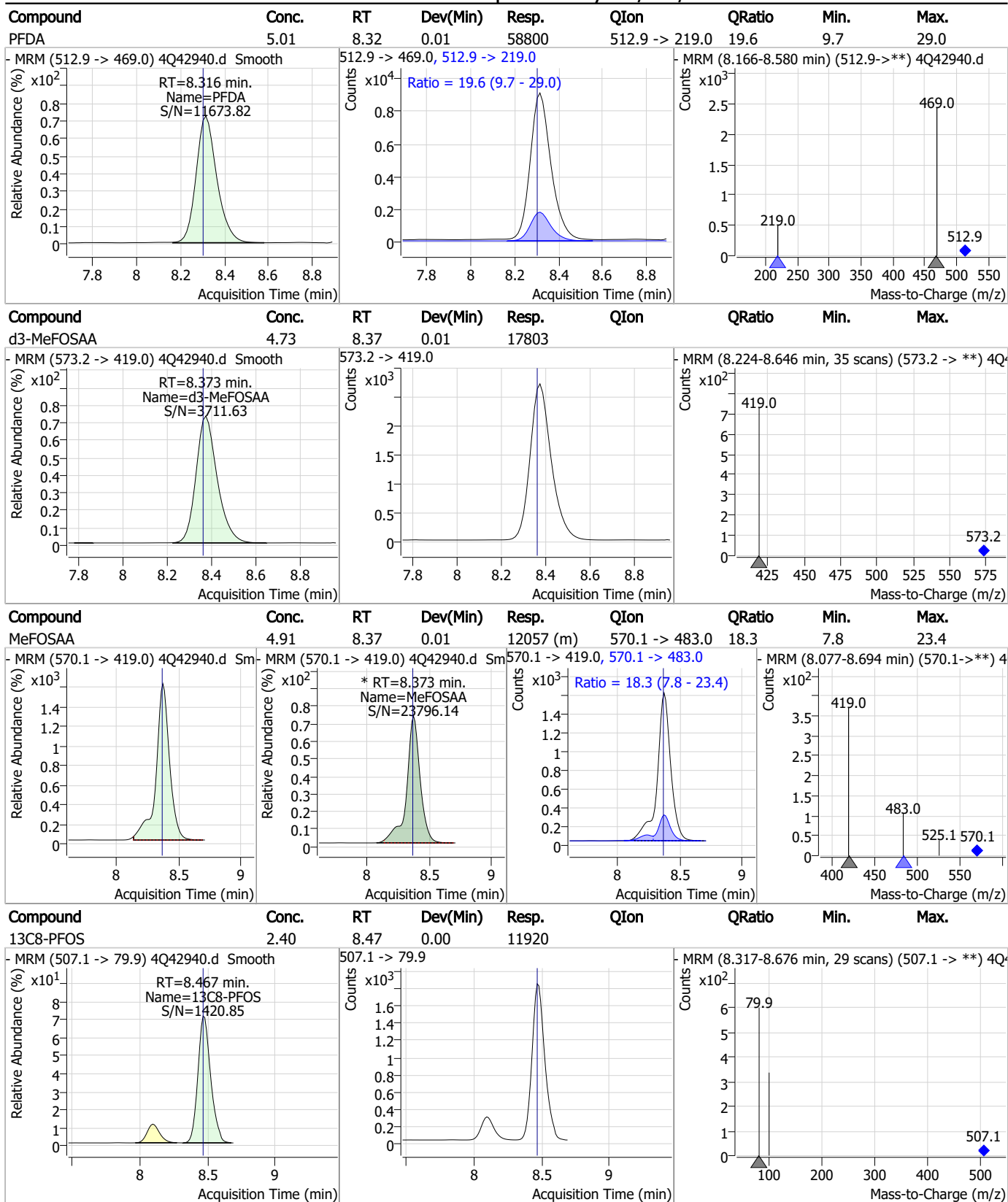
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### Perfluorinated Compounds by LC/MS/MS



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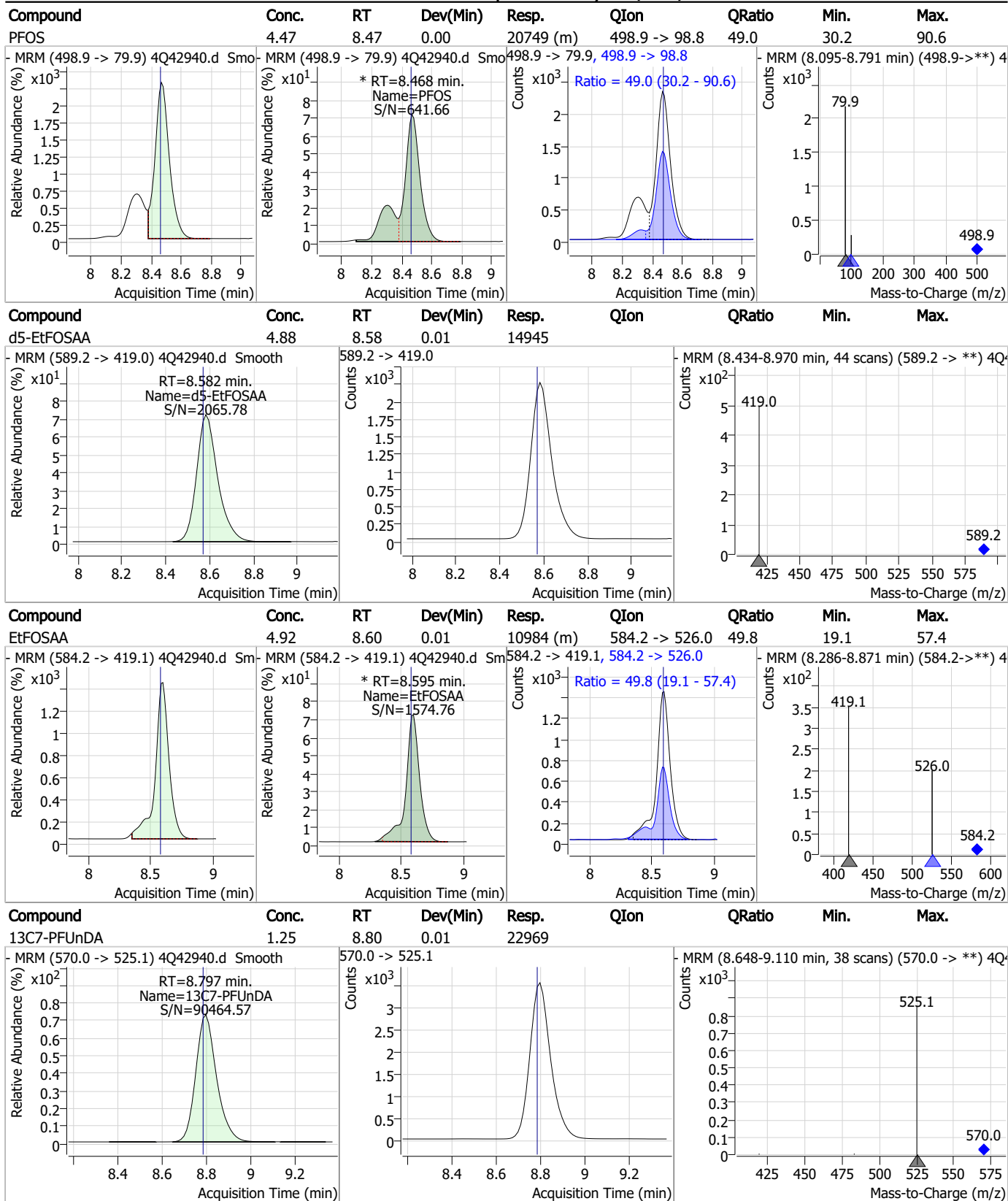
### Perfluorinated Compounds by LC/MS/MS



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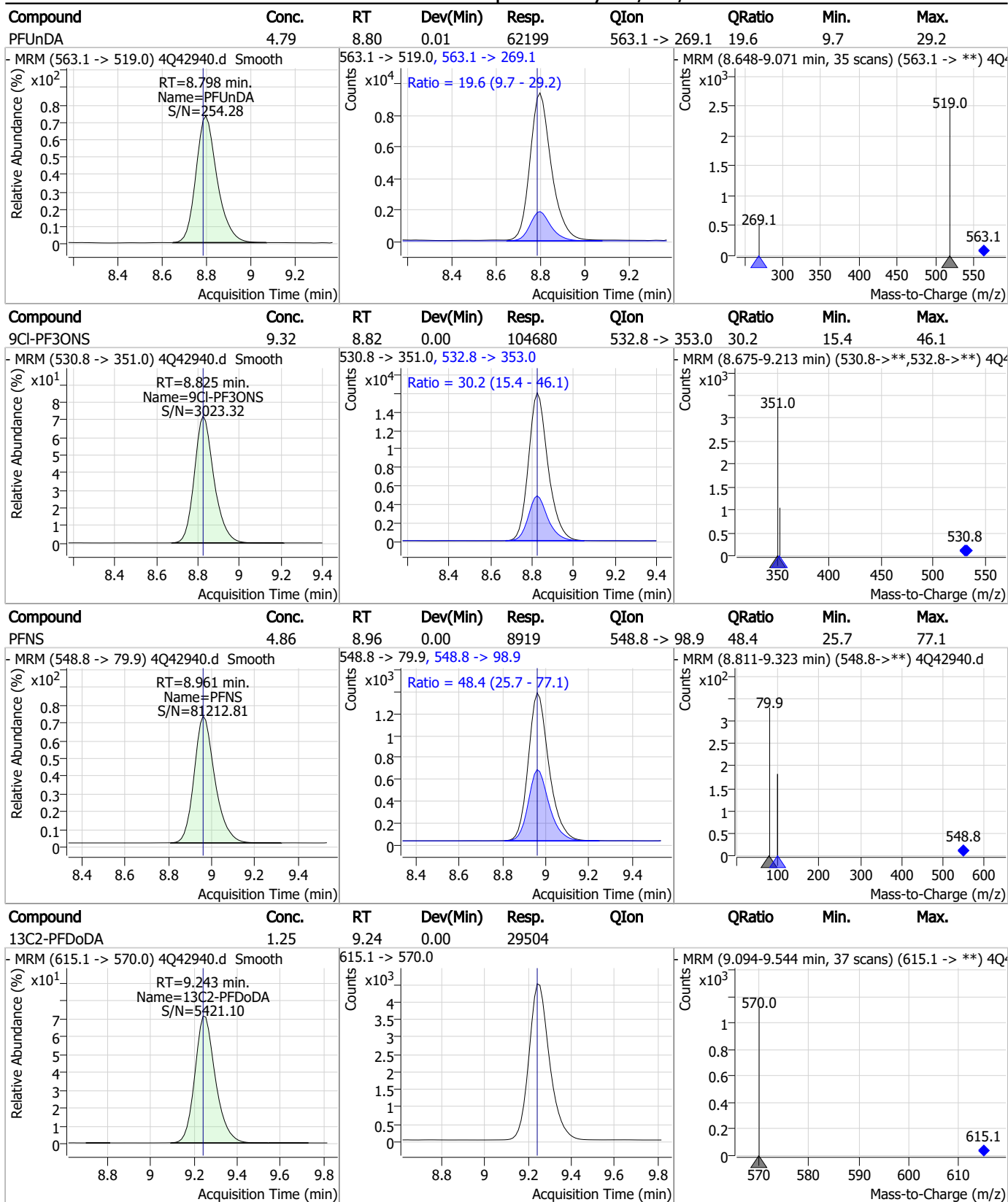
### Perfluorinated Compounds by LC/MS/MS



7.7.6  
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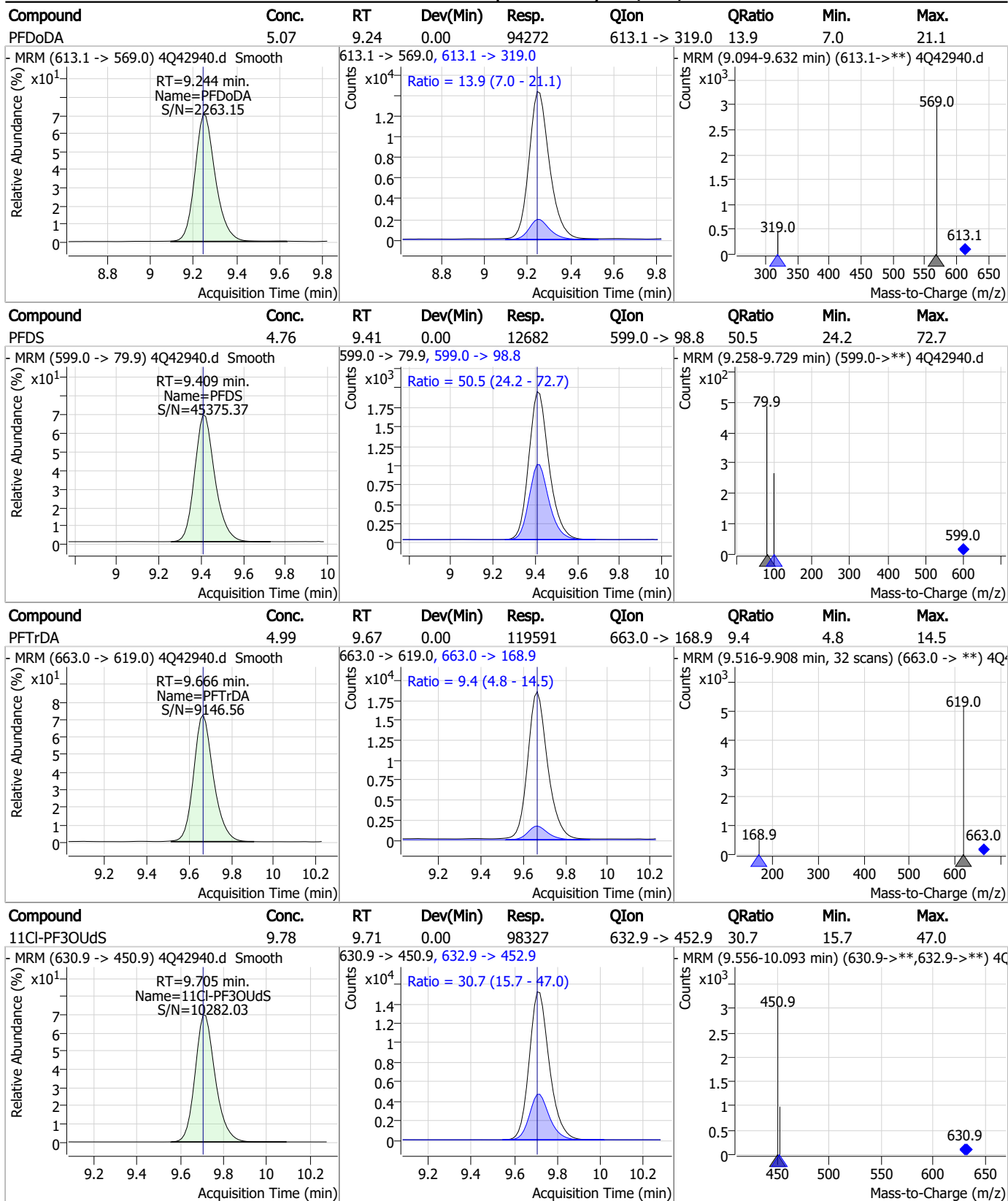


### Perfluorinated Compounds by LC/MS/MS



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



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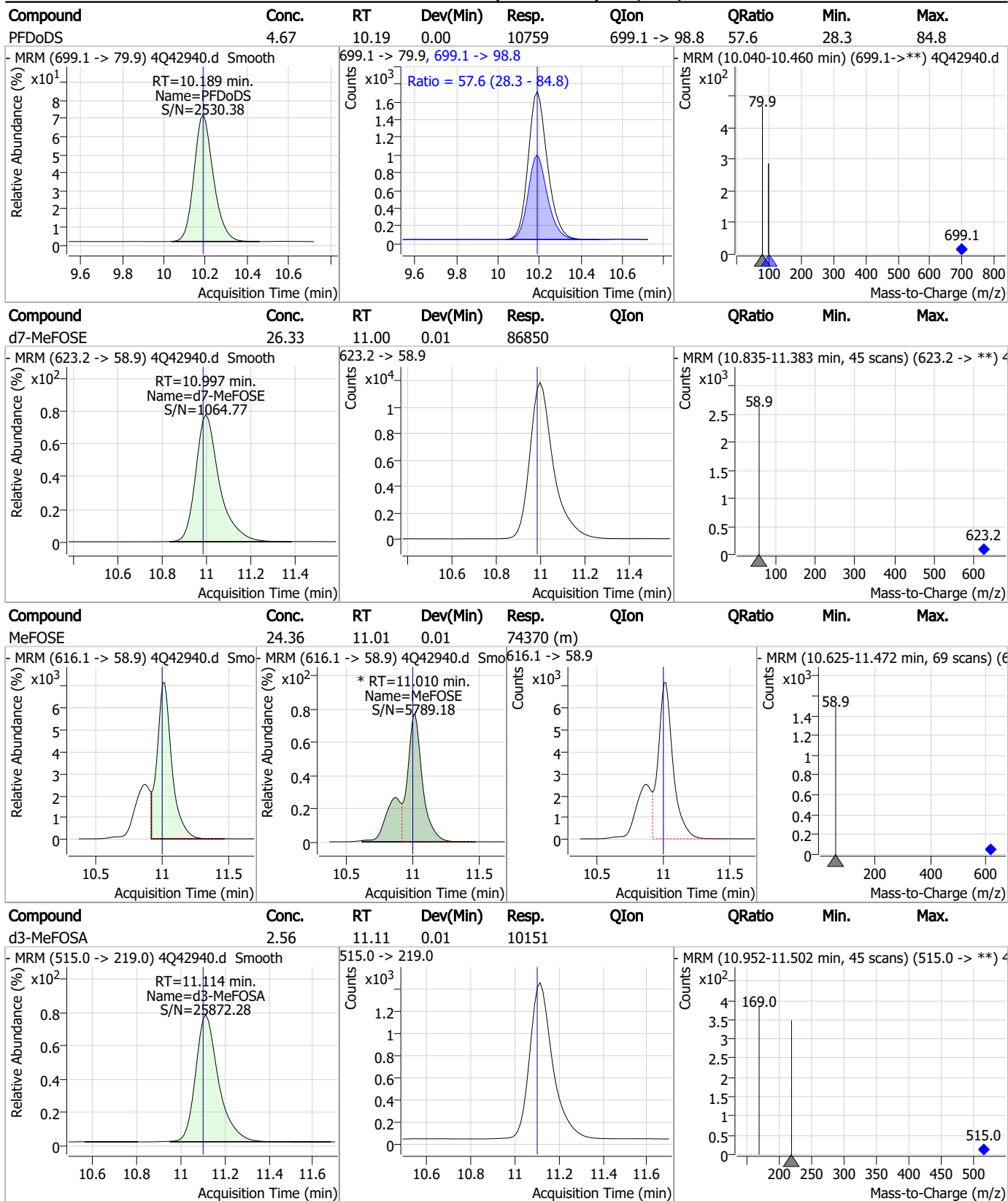
### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	4.98	9.87	0.01	34438	498.1 -> 478.0	3.3	1.4	4.1
13C8-FOSA	2.57	9.87	0.00	21479	506.1 -> 77.8			
13C2-PFTEdA	1.25	10.05	0.01	23133	715.2 -> 670.0			
PFTEdA	4.99	10.05	0.01	90965	713.1 -> 168.9	8.2	4.0	12.0

7.7.6

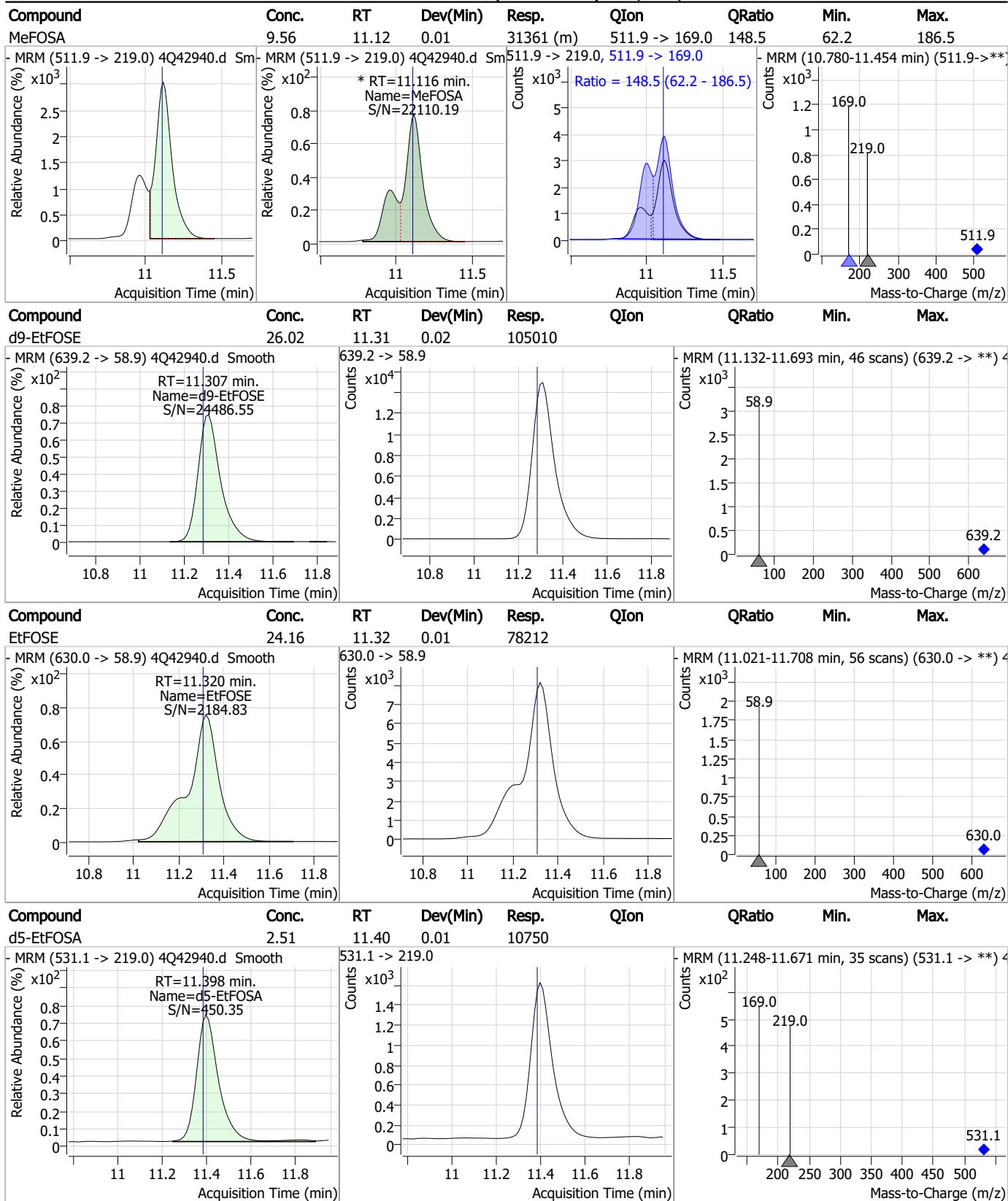
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### Perfluorinated Compounds by LC/MS/MS



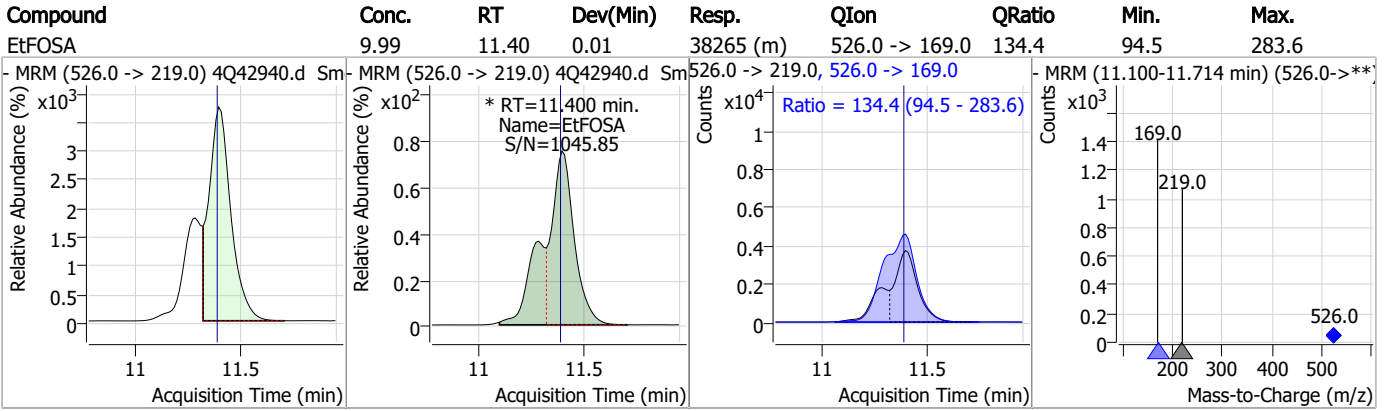
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### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS



7.7.6

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# Manual Integration Approval Summary

Sample Number: S4Q621-IC621      Method: EPA DRAFT 1633  
Lab FileID: 4Q42940.D      Analyst approved: 04/16/23 19:11 Martha Valls  
Injection Time: 04/14/23 12:55      Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.36	Split peak
MeFOSAA	2355-31-9		8.37	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.47	Split peak
EtFOSAA	2991-50-6		8.60	Split peak
MeFOSE	24448-09-7		11.01	Split peak
MeFOSA	31506-32-8		11.12	Split peak
EtFOSA	4151-50-2		11.40	Split peak

7.7.6.1  
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## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42941.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 4/14/2023 1:09:29 PM  
 Sample Name : ic621-6  
 Vial : P1-A7  
 DA Method File : 1633\_041423\_S4Q621.quantmethod.xml  
 Batch Name : s4q621.batch.bin  
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	3.024	216.8 -> 171.9	126412	10.00 µg/L	0.025
M5-PFPeA	4.462	268.3 -> 223.0	81834	5.00 µg/L	-0.012
M5-PFHxA	5.646	318.0 -> 273.0	63527	2.50 µg/L	0.000
M4-PFHpA	6.580	367.1 -> 322.0	31808	2.50 µg/L	0.000
M8-PFOA	7.250	421.1 -> 376.0	37243	2.50 µg/L	0.013
M9-PFNA	7.797	472.1 -> 427.0	21809	1.25 µg/L	0.000
M6-PFDA	8.315	519.1 -> 474.1	20998	1.25 µg/L	0.012
M7-PFUnDA	8.797	570.0 -> 525.1	21474	1.25 µg/L	0.012
M2-PFDoDA	9.243	615.1 -> 570.0	27372	1.25 µg/L	0.000
M2-PFTeDA	10.036	715.2 -> 670.0	20512	1.25 µg/L	0.000
M8-FOSA	9.870	506.1 -> 77.8	17533	2.50 µg/L	0.000
M3-PFBS	5.551	302.1 -> 79.9	14110	2.50 µg/L	-0.012
M3-PFHxS	7.354	402.1 -> 79.9	8257	2.50 µg/L	0.013
M8-PFOS	8.467	507.1 -> 79.9	12070	2.50 µg/L	0.000
M2-4:2FTS	5.323	329.1 -> 80.9	1452	5.00 µg/L	-0.012
M2-6:2FTS	7.010	429.1 -> 80.9	2236	5.00 µg/L	0.012
M2-8:2FTS	8.090	529.1 -> 80.9	3527	5.00 µg/L	0.000
M3-MeFOSAA	8.373	573.2 -> 419.0	17884	5.00 µg/L	0.012
M3-HFPO-DA	6.014	286.9 -> 168.9	38938	10.00 µg/L	0.000
M5-EtFOSAA	8.582	589.2 -> 419.0	14045	5.00 µg/L	0.012
M7-MeFOSE	10.985	623.2 -> 58.9	62837	25.00 µg/L	0.000
M9-EtFOSE	11.294	639.2 -> 58.9	80189	25.00 µg/L	0.012
M5-EtFOSA	11.386	531.1 -> 219.0	10156	2.50 µg/L	0.000
M3-MeFOSA	11.102	515.0 -> 219.0	9584	2.50 µg/L	0.000
13C4-PFOS	8.467	502.8 -> 79.9	12669	2.50 µg/L	0.000
13C3-PFBA	3.028	216.0 -> 172.0	72633	5.00 µg/L	0.037
18O2-PFHxS	7.353	403.0 -> 83.9	6061	2.50 µg/L	0.013
13C4-PFOA	7.251	417.1 -> 372.0	46239	2.50 µg/L	0.013
13C2-PFDA	8.316	515.1 -> 470.1	18825	1.25 µg/L	0.012
13C5-PFNA	7.797	468.0 -> 423.0	24784	1.25 µg/L	0.000
13C2-PFHxA	5.647	315.1 -> 270.0	55207	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.323	329.1 -> 80.9	1452	4.39 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 87.7%		
13C2-6:2FTS	7.010	429.1 -> 80.9	2236	4.71 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.1%		
13C2-8:2FTS	8.090	529.1 -> 80.9	3527	4.51 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.2%		
13C2-PFDoDA	9.243	615.1 -> 570.0	27372	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.5%		
13C2-PFTeDA	10.036	715.2 -> 670.0	20512	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.0%		
13C3-PFBS	5.551	302.1 -> 79.9	14110	2.53 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C3-PFHxS	7.354	402.1 -> 79.9	8257	2.46 µg/L	0.013



### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C4-PFBA	3.024	216.8 -> 171.9	126412	9.99 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C4-PFHpA	6.580	367.1 -> 322.0	31808	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C5-PFHxA	5.646	318.0 -> 273.0	63527	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C5-PFPeA	4.462	268.3 -> 223.0	81834	5.03 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C6-PFDA	8.315	519.1 -> 474.1	20998	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C7-PFUnDA	8.797	570.0 -> 525.1	21474	1.19 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.5%	
13C8-FOSA	9.870	506.1 -> 77.8	17533	2.12 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.6%	
13C8-PFOA	7.250	421.1 -> 376.0	37243	2.45 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C8-PFOS	8.467	507.1 -> 79.9	12070	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C9-PFNA	7.797	472.1 -> 427.0	21809	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.6%	
d3-MeFOSAA	8.373	573.2 -> 419.0	17884	4.79 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.9%	
13C3-HFPO-DA	6.014	286.9 -> 168.9	38938	10.05 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
d3-MeFOSA	11.102	515.0 -> 219.0	9584	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.7%	
d5-EtFOSAA	8.582	589.2 -> 419.0	14045	4.63 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.6%	
d7-MeFOSE	10.985	623.2 -> 58.9	62837	19.23 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 76.9%	
d9-EtFOSE	11.294	639.2 -> 58.9	80189	20.06 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 80.2%	
d5-EtFOSA	11.386	531.1 -> 219.0	10156	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.9%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.323	327.1 -> 307.0 327.1 -> 80.9	86277 36011	47.66 µg/L	98
6:2FTS	7.011	427.1 -> 407.0 427.1 -> 80.9	69045 29064	45.23 µg/L	100
8:2FTS	8.090	527.1 -> 507.0 527.1 -> 80.8	74437 31399	47.07 µg/L	96
EtFOSAA	8.583	584.2 -> 419.1 584.2 -> 526.0	24919 11587	11.88 µg/L	m 86
FOSA	9.874	498.1 -> 77.9 498.1 -> 478.0	67848 1957	12.02 µg/L	99
MeFOSAA	8.373	570.1 -> 419.0 570.1 -> 483.0	26871 5843	10.90 µg/L	m 85
PFBA	3.032	212.8 -> 168.9	141543	49.03 µg/L	100
PFBS	5.552	298.7 -> 79.9 298.7 -> 98.8	57723 21216	10.96 µg/L	97
PFDA	8.316	512.9 -> 469.0 512.9 -> 219.0	146600 28673	12.21 µg/L	99
PFDoDA	9.244	613.1 -> 569.0 613.1 -> 319.0	215453 29708	12.48 µg/L	99
PFDS	9.409	599.0 -> 79.9	31216	11.57 µg/L	100

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## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	15229			
PFHpA	6.580	363.1 -> 319.0	198822	12.53	µg/L	100
		363.1 -> 169.0	35138			
PFHpS	7.936	449.0 -> 79.9	36937	11.76	µg/L	99
		449.0 -> 98.9	18919			
PFHxA	5.649	313.0 -> 269.0	231353	12.30	µg/L	99
		313.0 -> 118.9	7474			
PFHxS	7.355	398.7 -> 79.9	31261	11.05	µg/L	m 100
		398.7 -> 98.9	16193			
PFNA	7.797	463.0 -> 419.0	137984	11.84	µg/L	95
		463.0 -> 219.0	34461			
PFNS	8.961	548.8 -> 79.9	22258	11.98	µg/L	100
		548.8 -> 98.9	11487			
PFOA	7.252	413.0 -> 369.0	216081	12.42	µg/L	99
		413.0 -> 169.0	43078			
PFOS	8.468	498.9 -> 79.9	52470	11.17	µg/L	m 84
		498.9 -> 98.8	25355			
PFPeA	4.464	263.0 -> 219.0	384441	24.82	µg/L	100
PFPeS	6.619	349.1 -> 79.9	28905	12.00	µg/L	99
		349.1 -> 98.9	12488			
PFTeDA	10.037	713.1 -> 669.0	197481	12.23	µg/L	99
		713.1 -> 168.9	16352			
PFTrDA	9.666	663.0 -> 619.0	266056	11.96	µg/L	99
		663.0 -> 168.9	25219			
PFUnDA	8.798	563.1 -> 519.0	141972	11.69	µg/L	100
		563.1 -> 269.1	27866			
11Cl-PF3OUdS	9.705	630.9 -> 450.9	243104	23.92	µg/L	100
		632.9 -> 452.9	75926			
9Cl-PF3ONS	8.825	530.8 -> 351.0	269692	23.75	µg/L	100
		532.8 -> 353.0	82823			
ADONA	6.843	376.9 -> 250.9	552337	23.61	µg/L	100
		376.9 -> 84.8	148755			
HFPO-DA	6.015	284.9 -> 168.9	75047	24.32	µg/L	100
		284.9 -> 184.9	9286			
3:3FTCA	3.979	241.0 -> 177.0	44989	62.33	µg/L	100
		241.0 -> 117.0	4315			
5:3FTCA	6.345	341.0 -> 237.1	841310	316.78	µg/L	100
		341.0 -> 217.0	599805			
7:3FTCA	7.786	441.0 -> 316.9	337679	310.25	µg/L	98
		441.0 -> 336.9	756780			
EtFOSA	11.388	526.0 -> 219.0	90504	25.01	µg/L	m 64
		526.0 -> 169.0	123529			
EtFOSE	11.308	630.0 -> 58.9	148842	60.22	µg/L	100
MeFOSA	11.103	511.9 -> 219.0	72250	23.32	µg/L	m 77
		511.9 -> 169.0	108340			
MeFOSE	11.010	616.1 -> 58.9	132184	59.85	µg/L	m 100
PFDoDS	10.189	699.1 -> 79.9	27343	11.72	µg/L	99
		699.1 -> 98.8	15267			
NFDHA	5.528	295.0 -> 201.0	31926	25.26	µg/L	98
		295.0 -> 84.9	8190			
PFMBA	4.878	279.0 -> 85.1	221121	24.97	µg/L	100
PFMPA	3.628	229.0 -> 84.9	194173	25.07	µg/L	100
PFEESA	6.083	314.8 -> 134.9	353987	22.42	µg/L	100
		314.8 -> 82.9	11637			

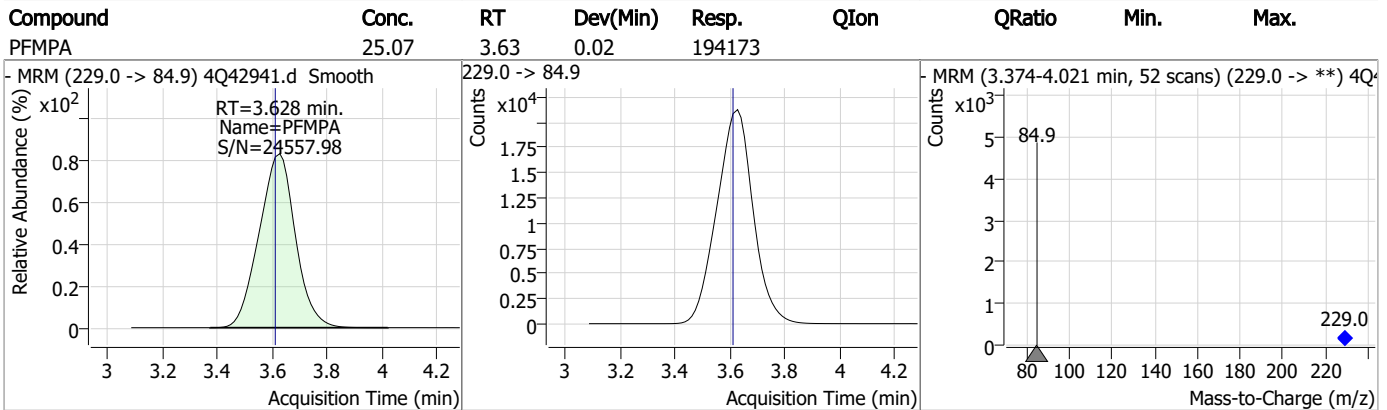
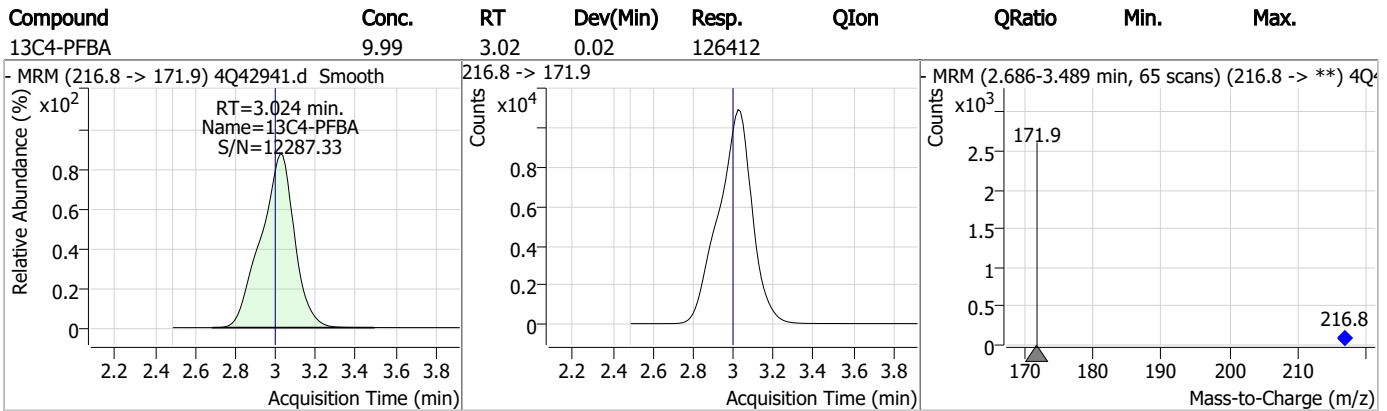
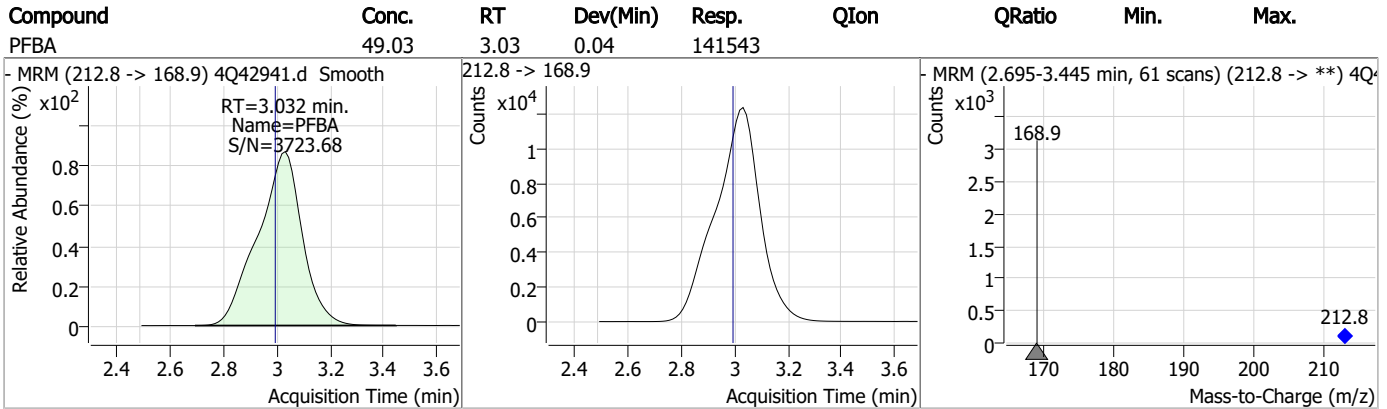
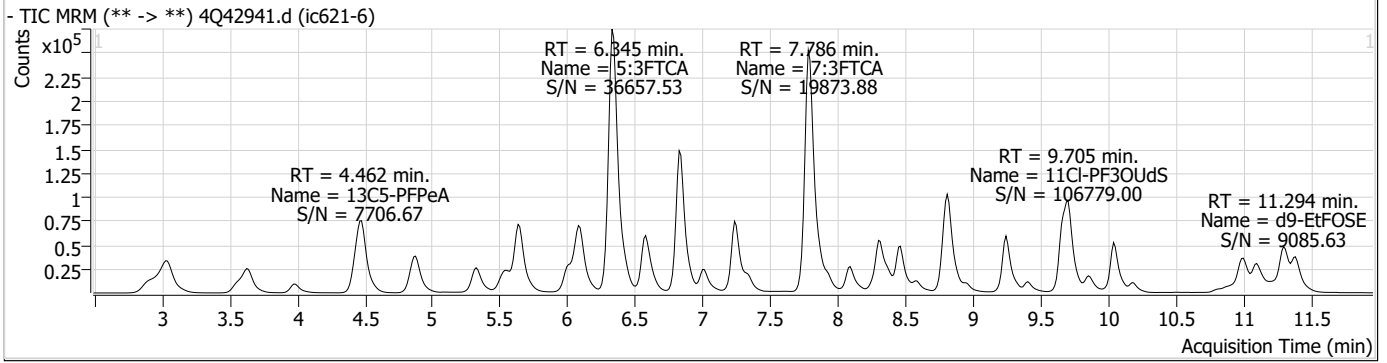
# = Qualifier out of range, m = manually integrated, + = Area summed

### Perfluorinated Compounds by LC/MS/MS

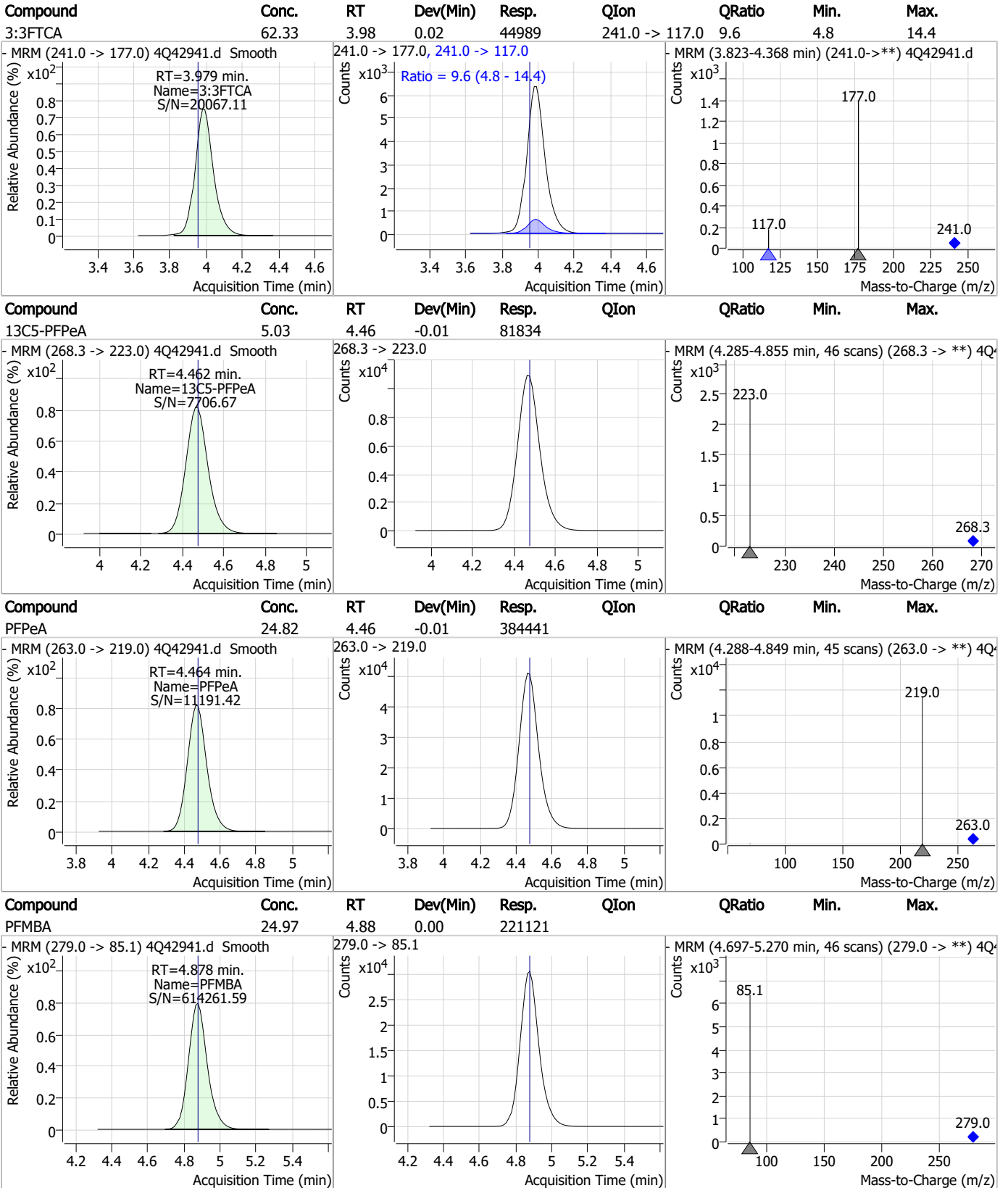
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
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### Perfluorinated Compounds by LC/MS/MS



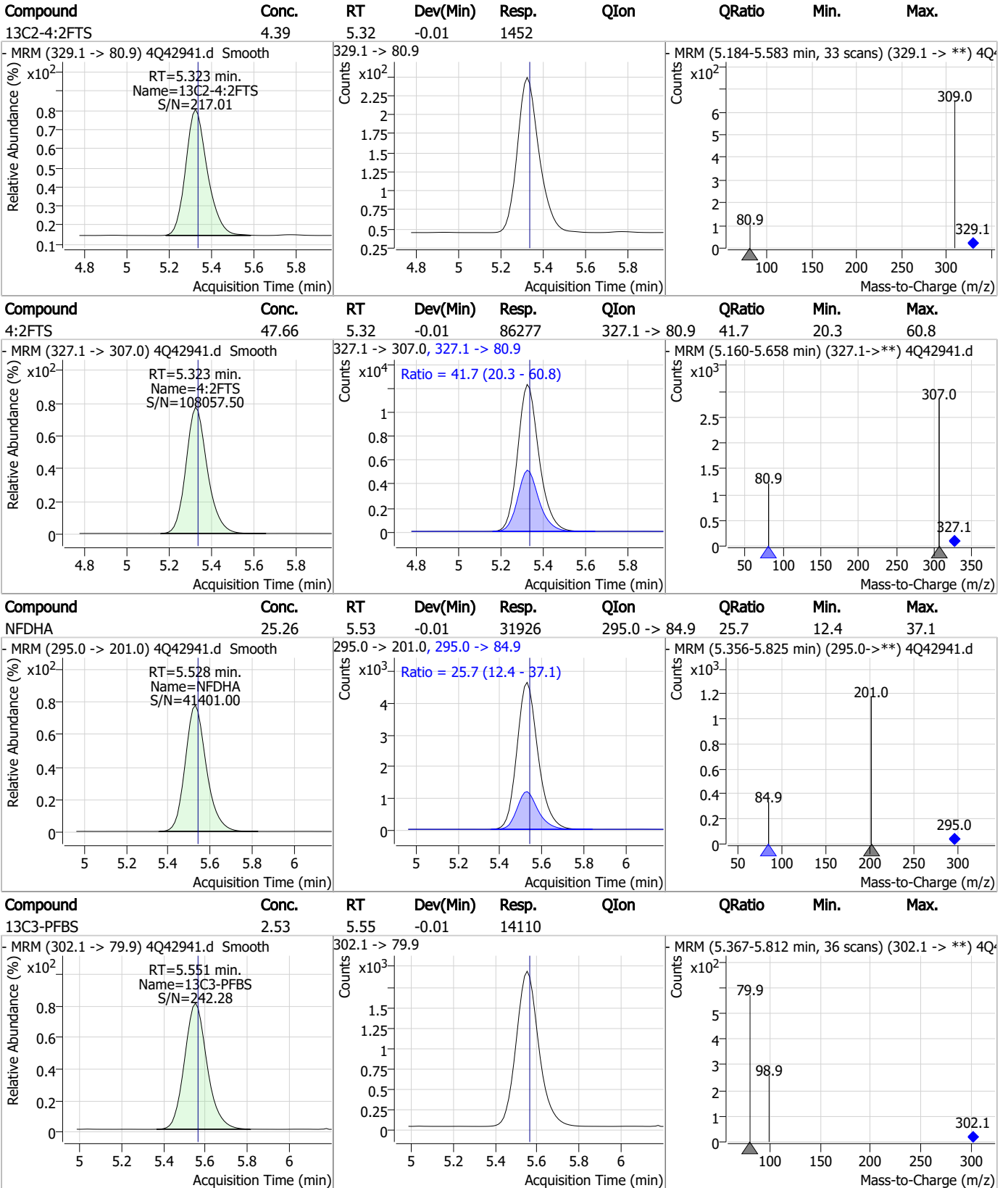
### Perfluorinated Compounds by LC/MS/MS



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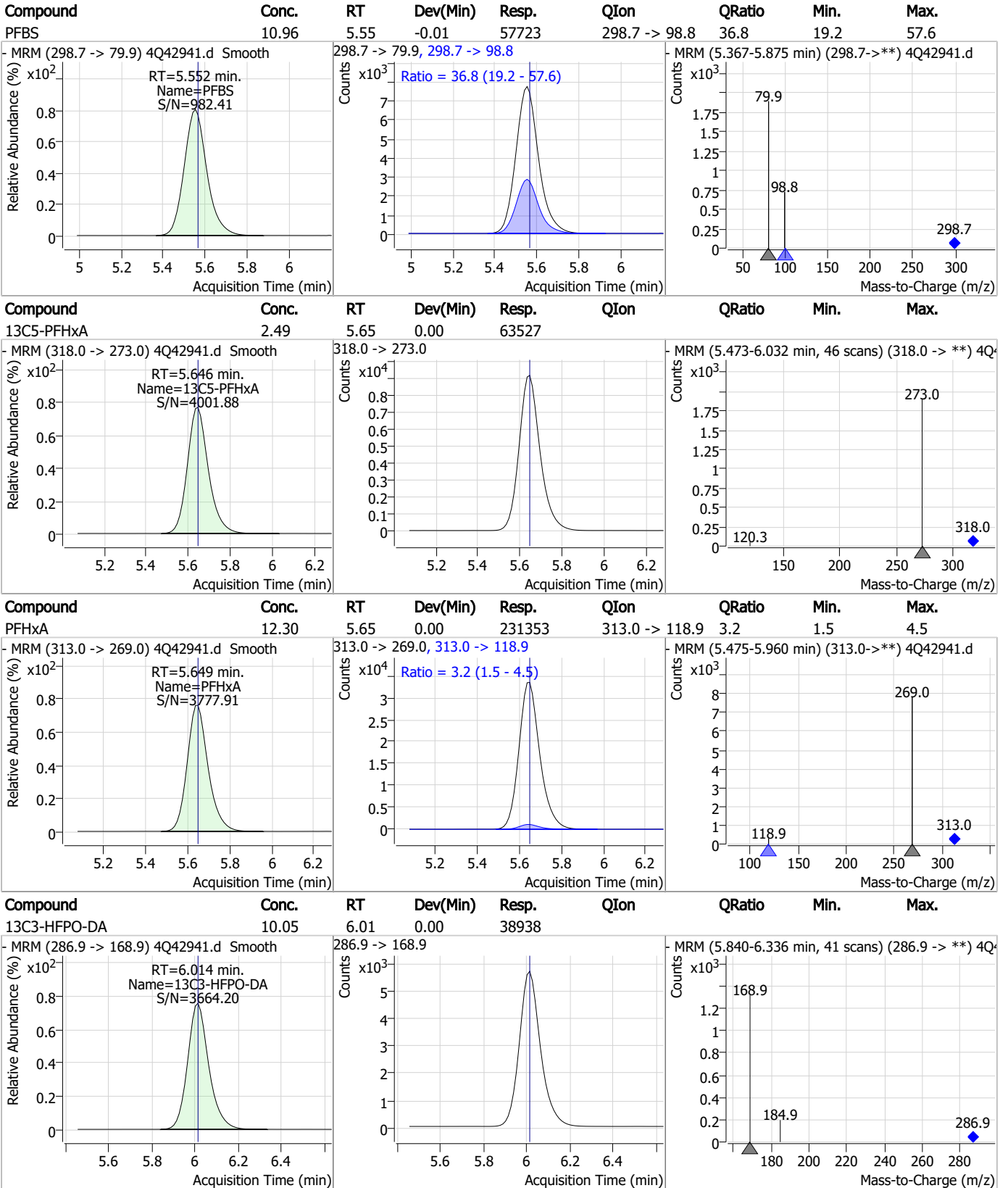
### Perfluorinated Compounds by LC/MS/MS



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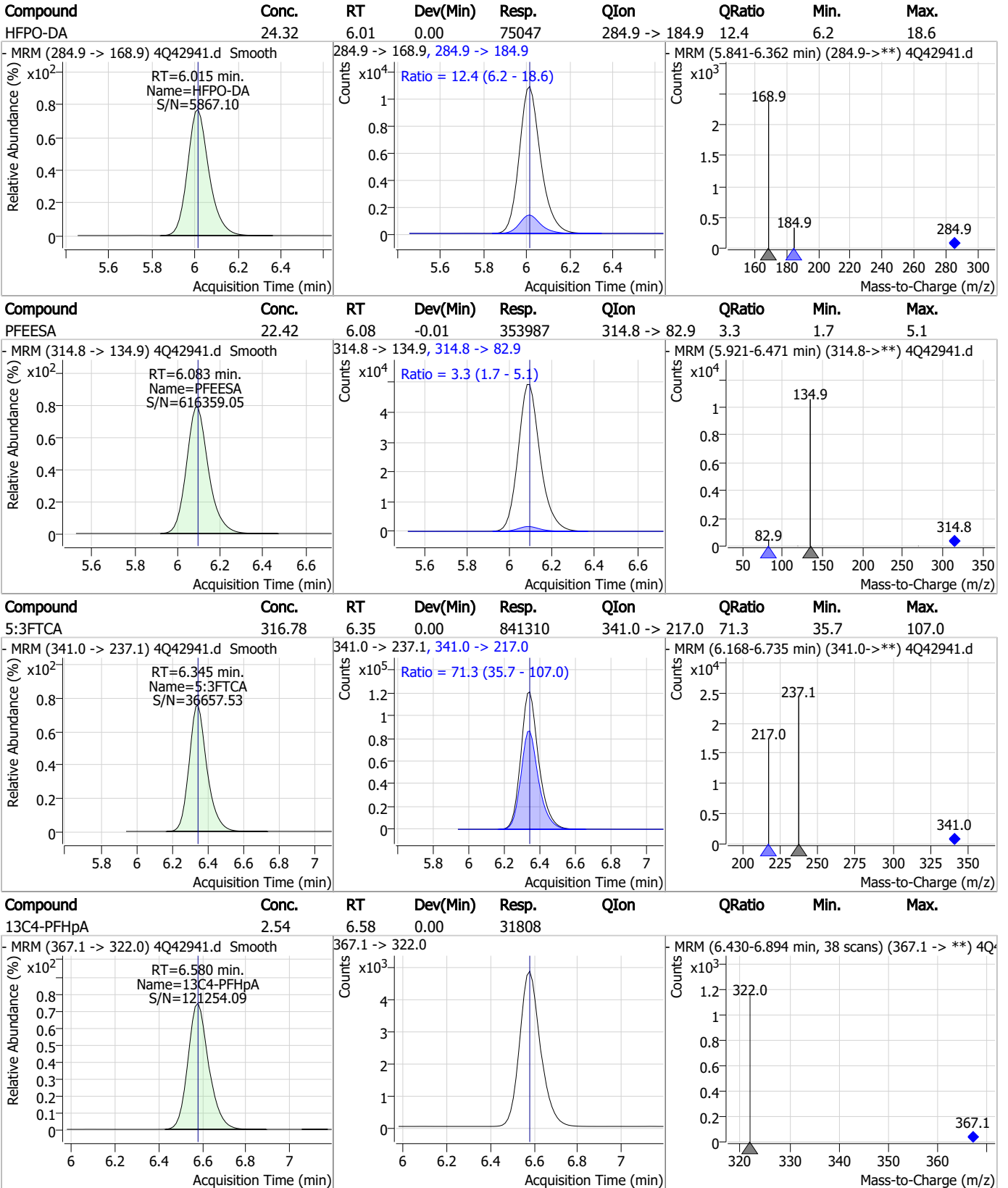
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

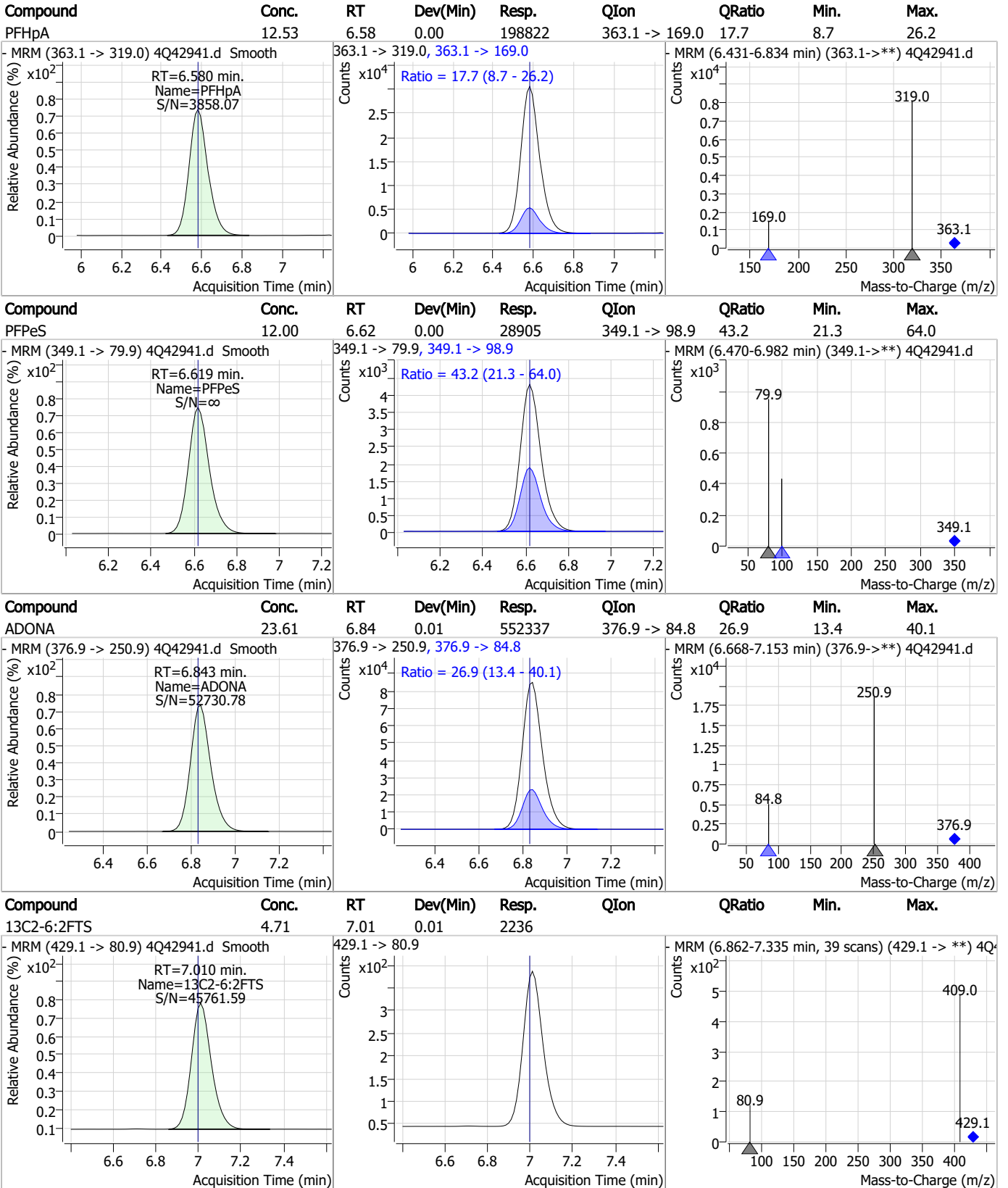


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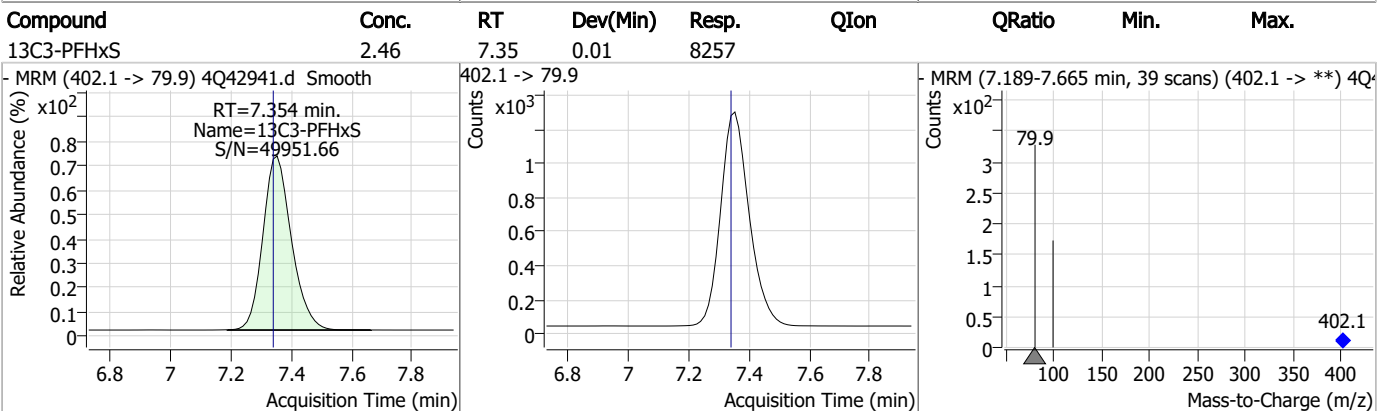
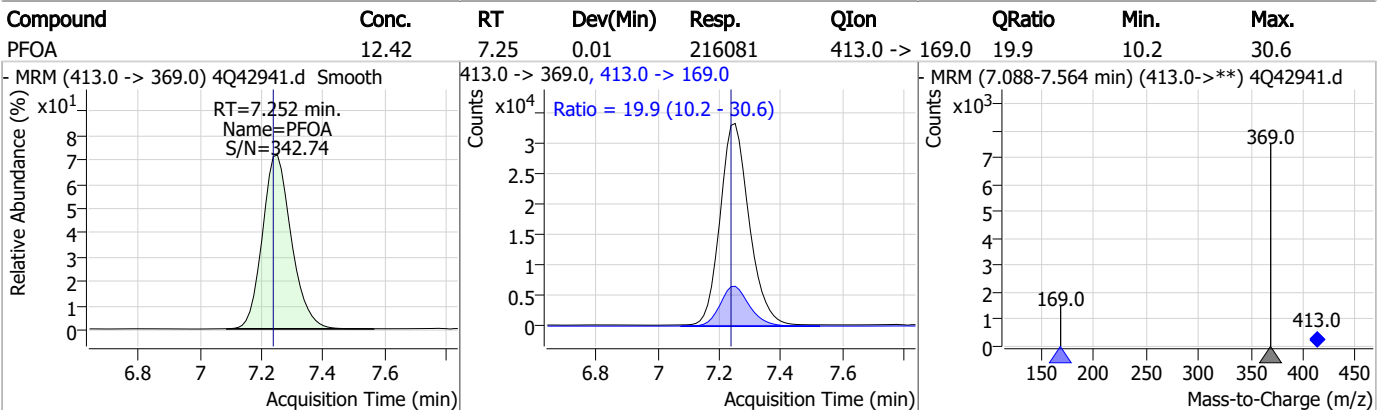
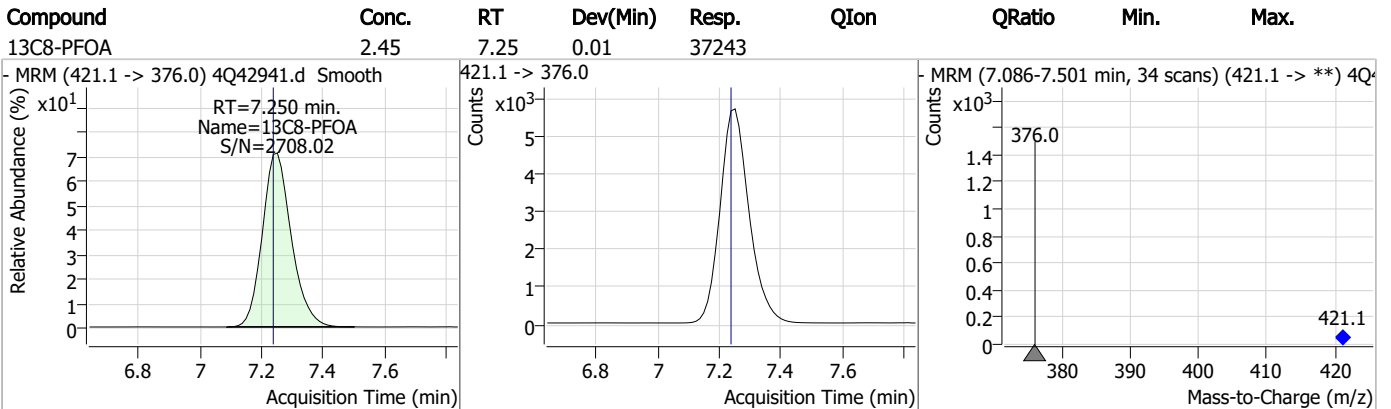
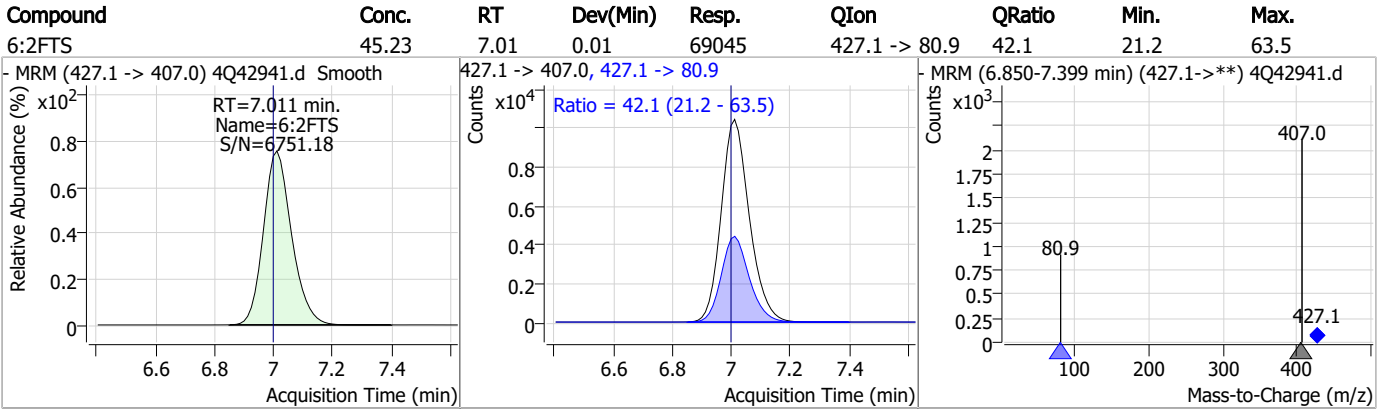


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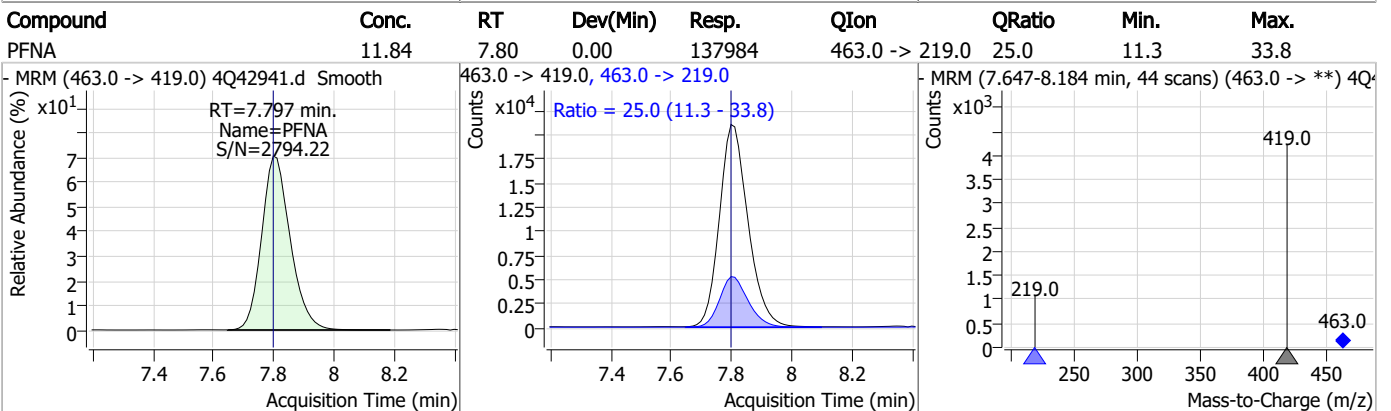
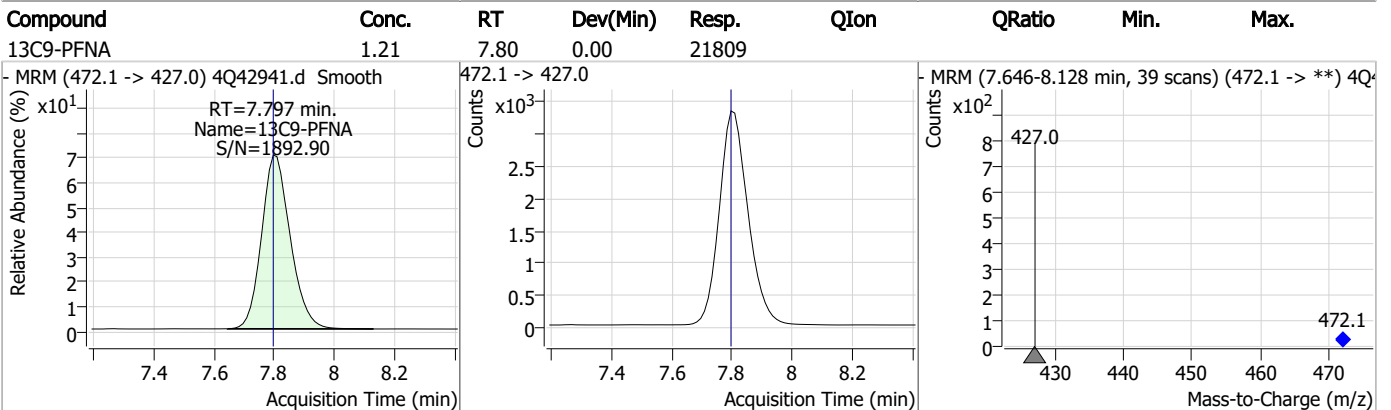
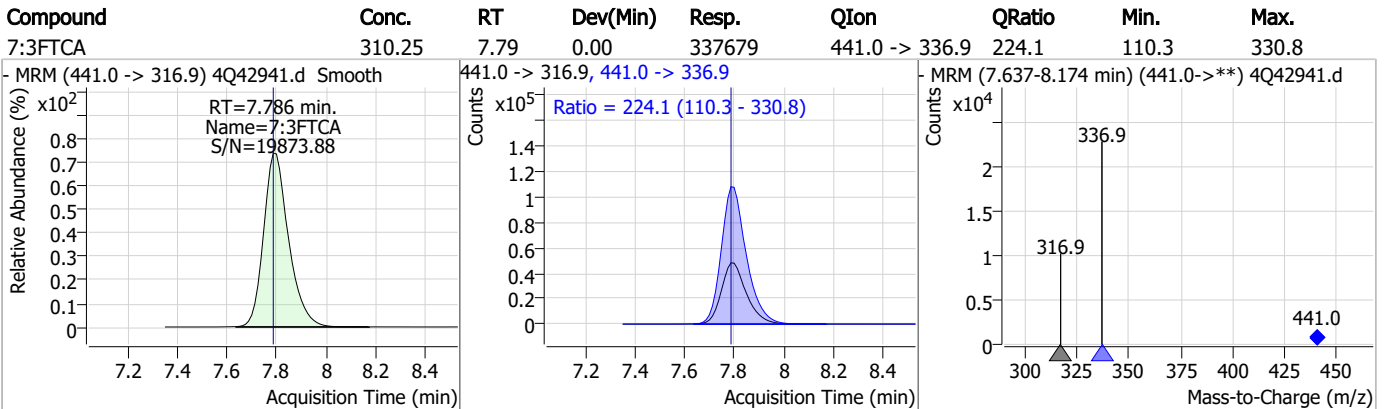
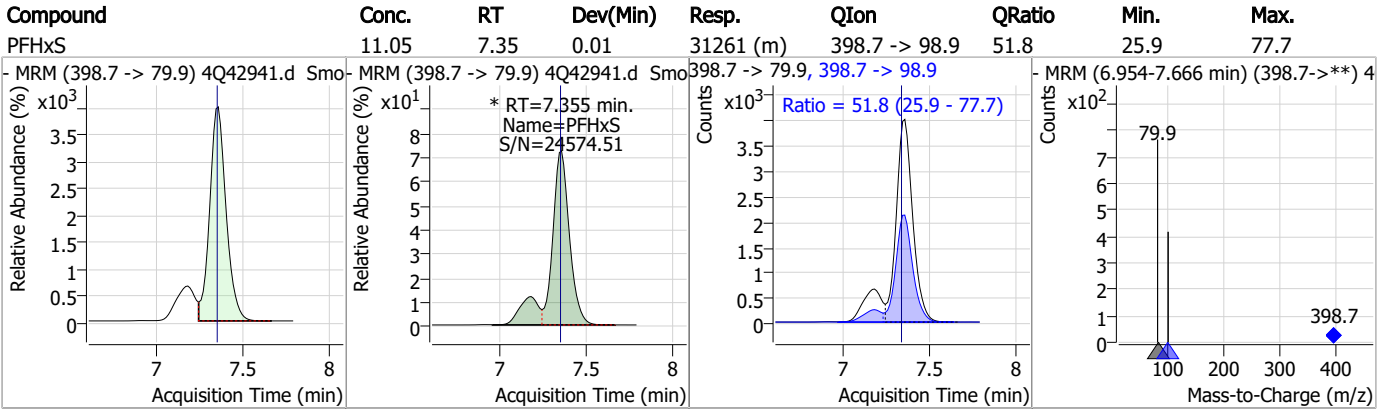


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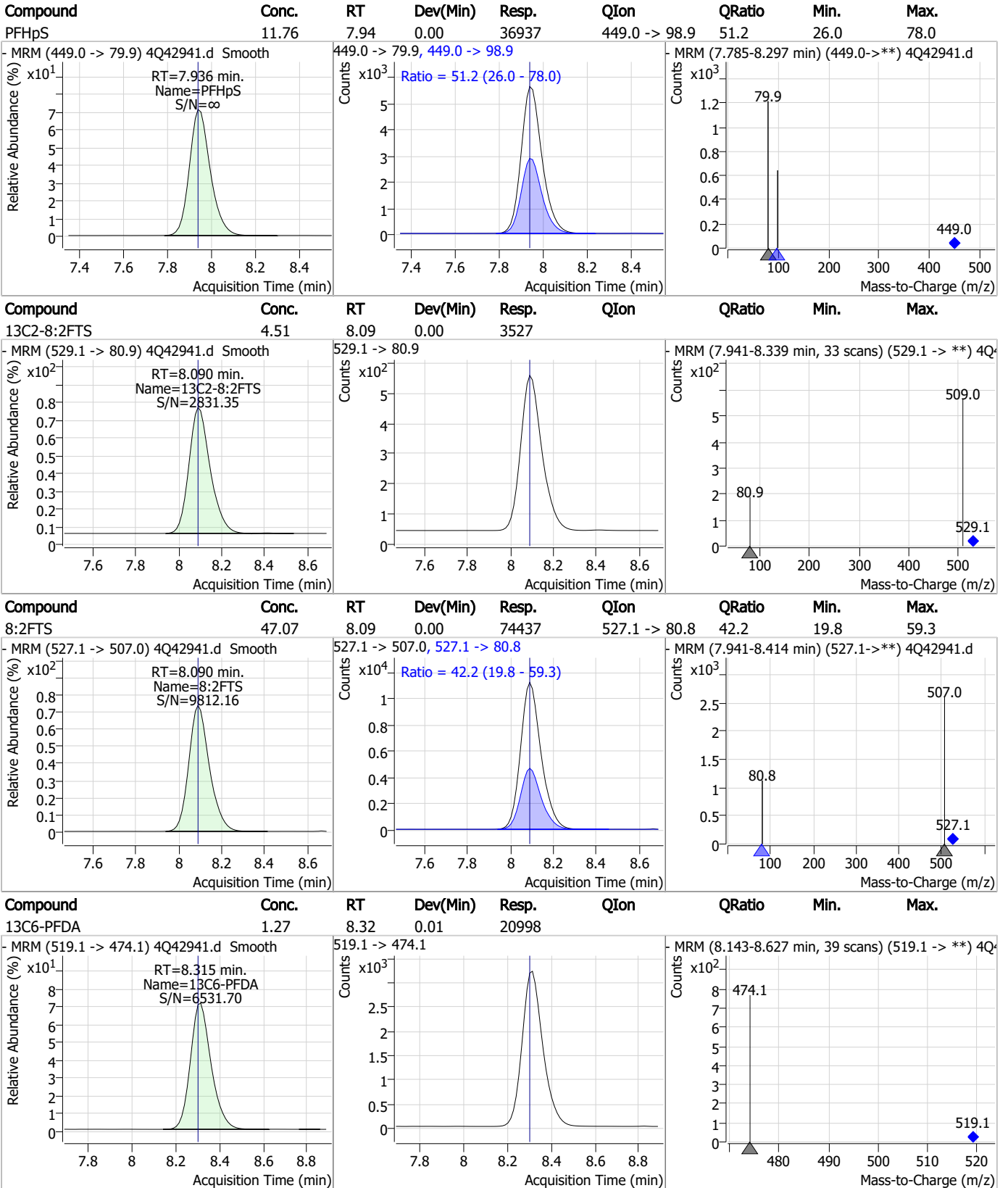
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



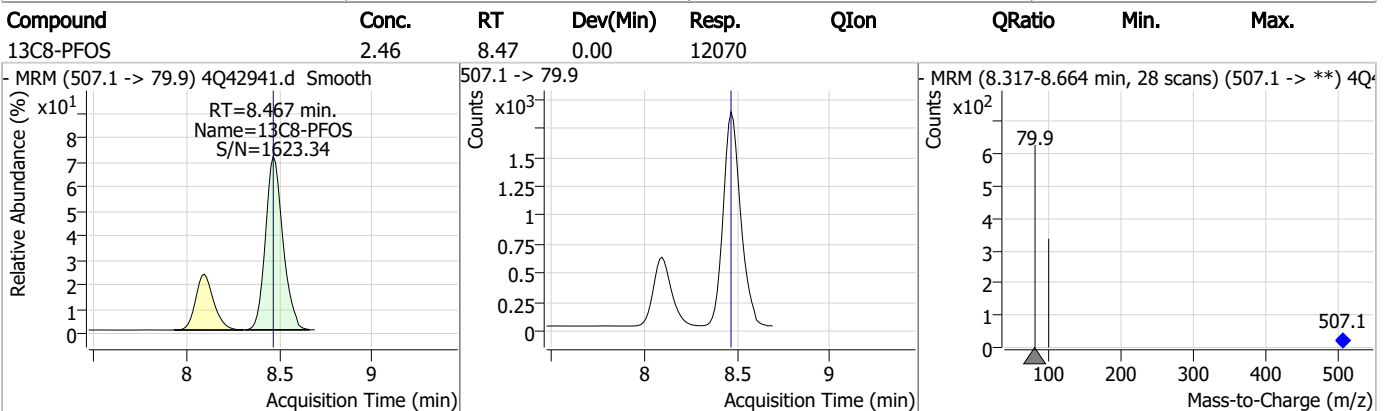
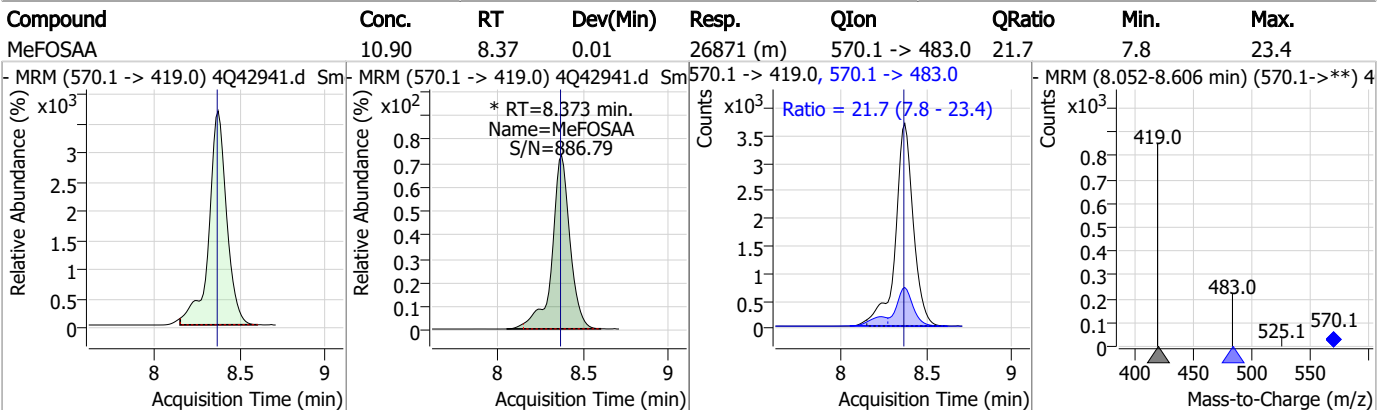
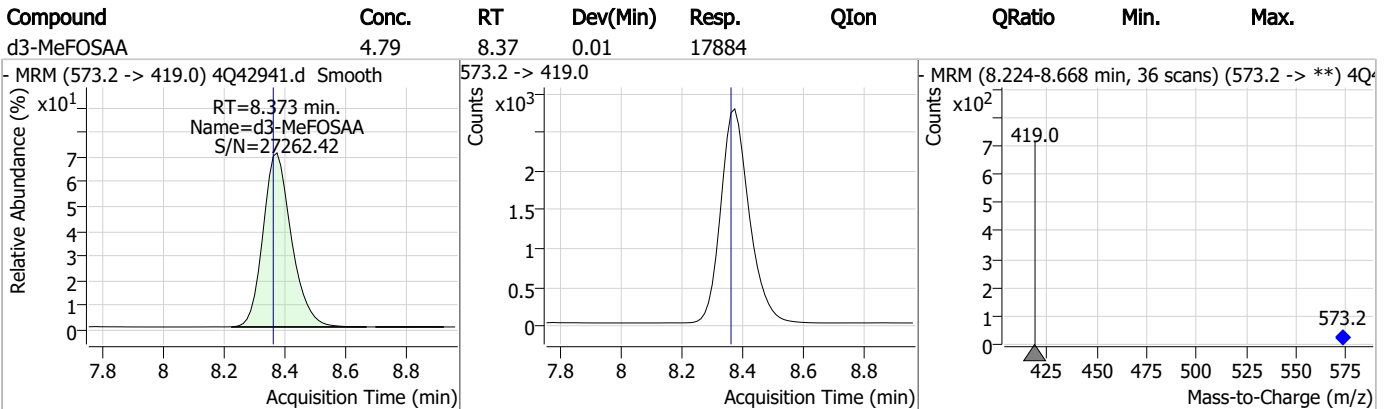
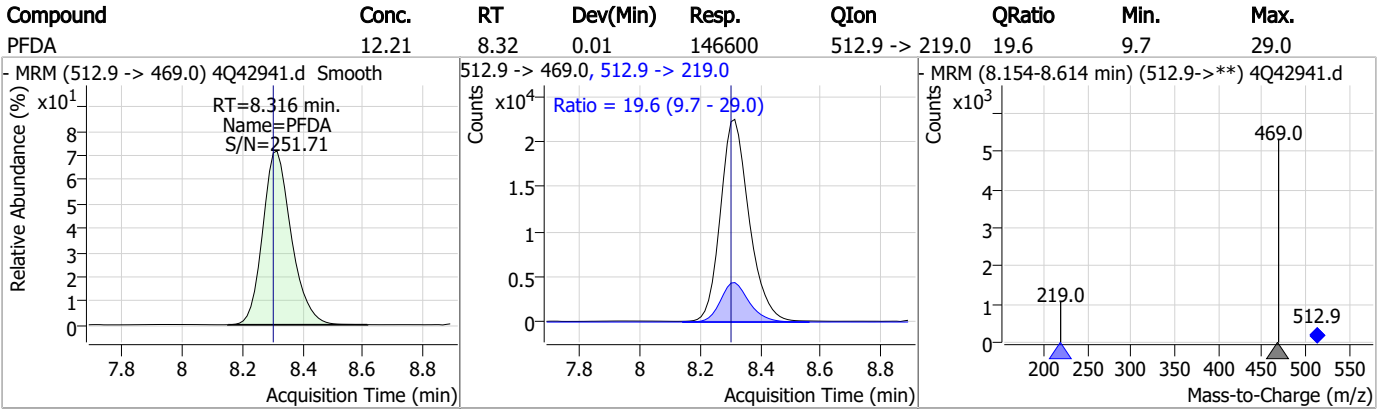
### Perfluorinated Compounds by LC/MS/MS



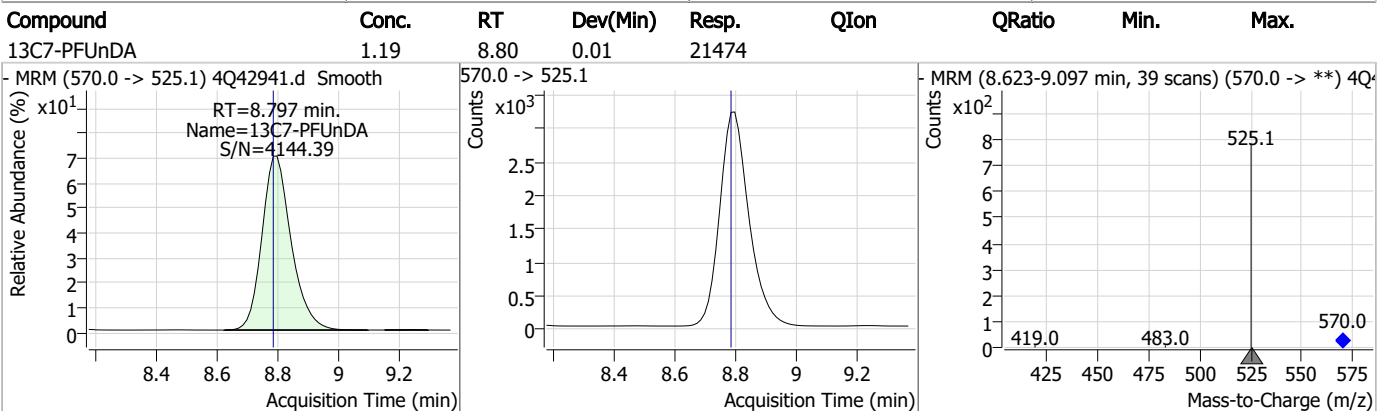
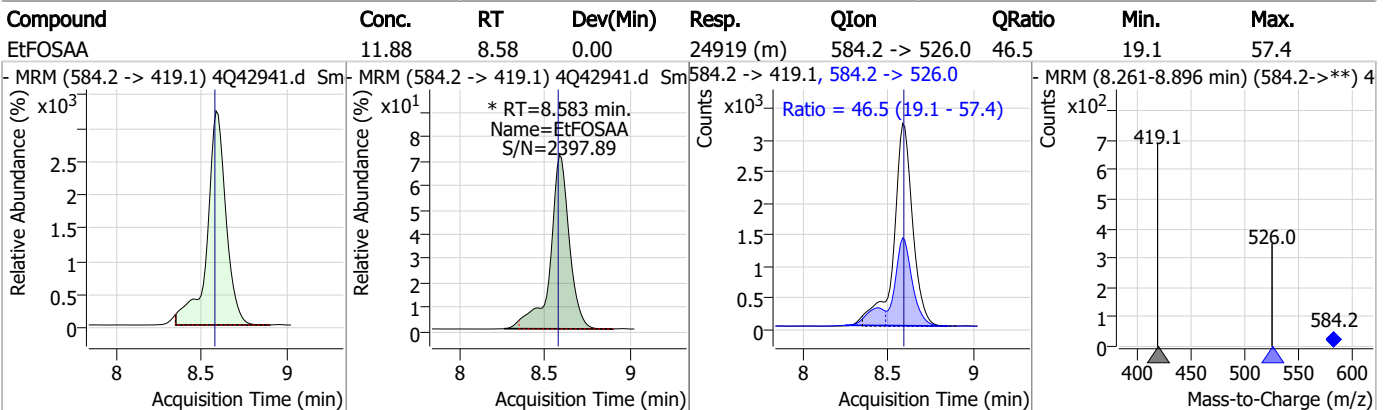
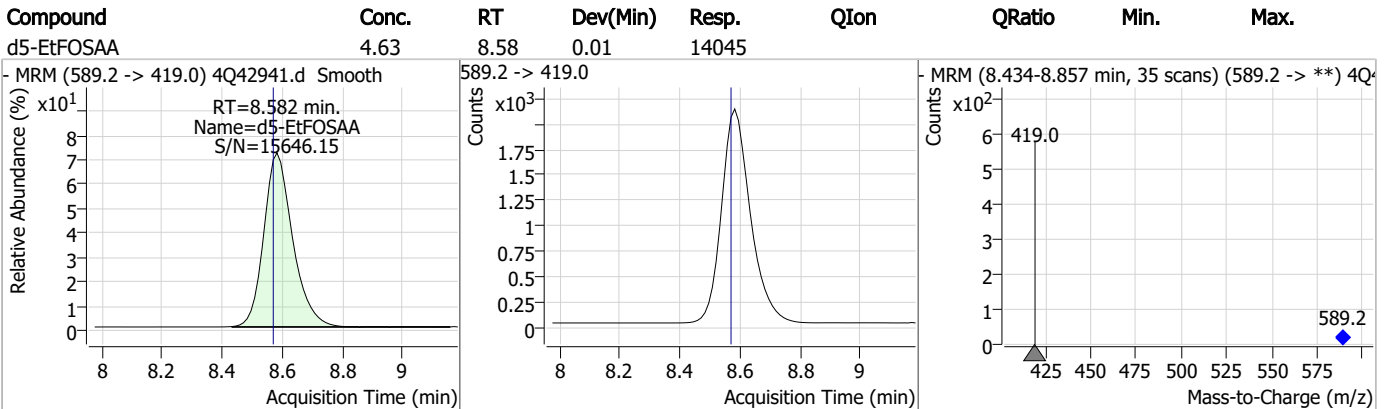
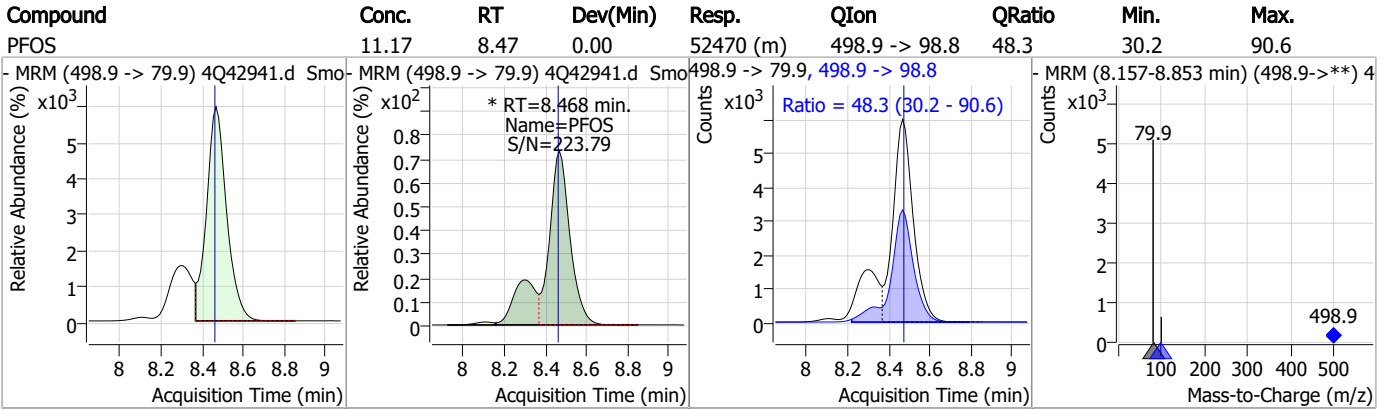
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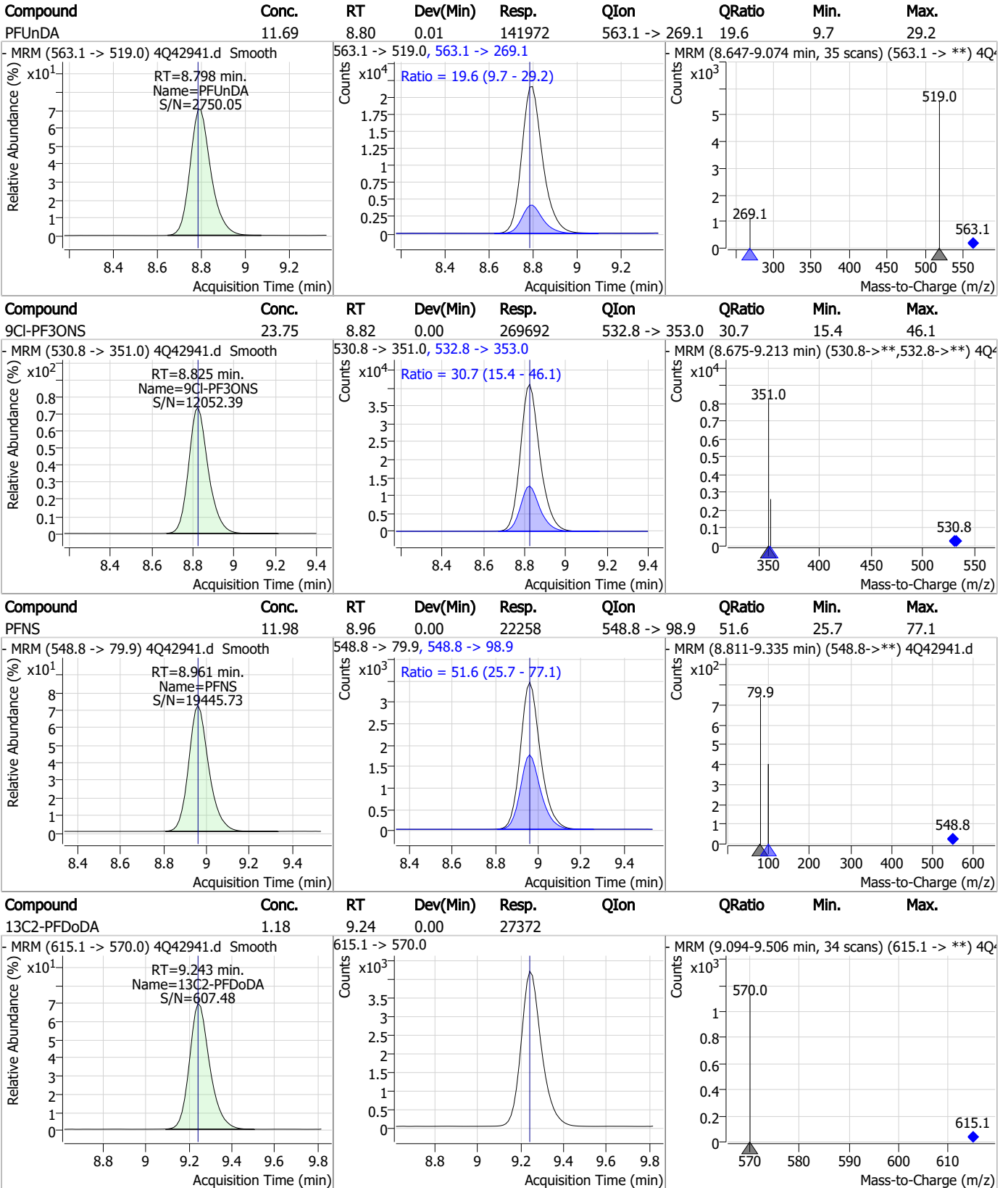
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

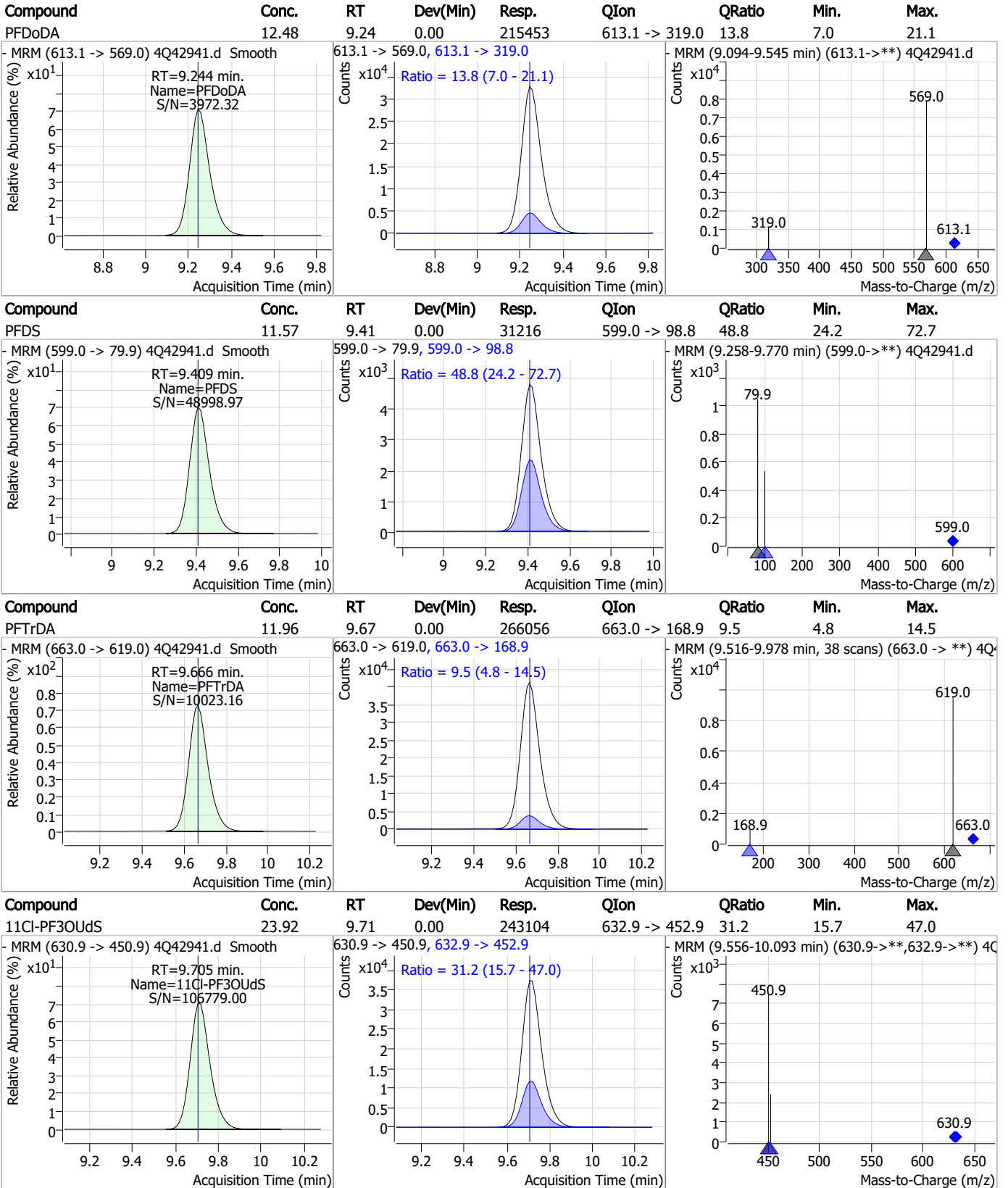


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### Perfluorinated Compounds by LC/MS/MS



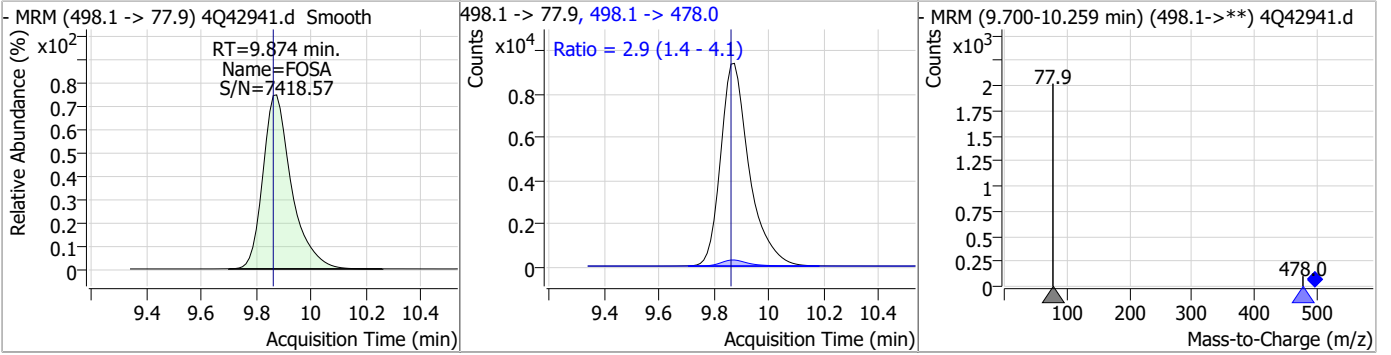
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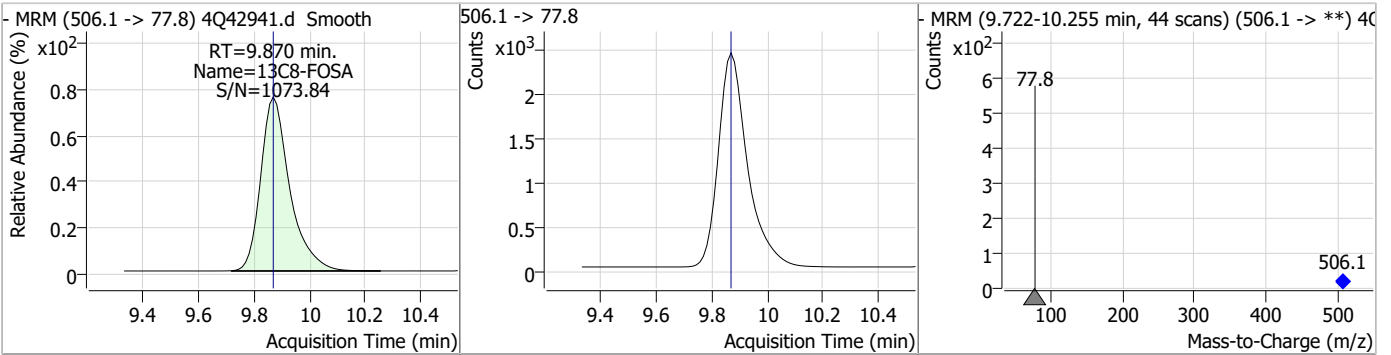


### Perfluorinated Compounds by LC/MS/MS

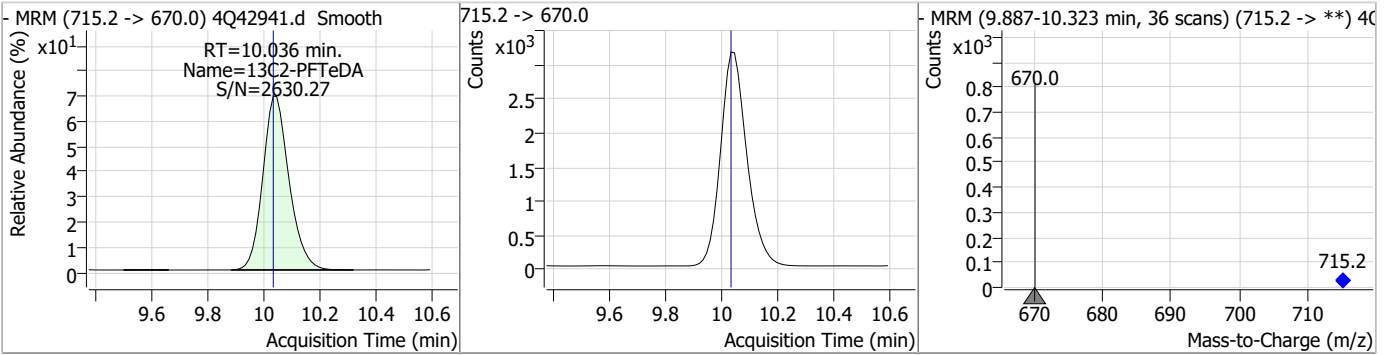
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	12.02	9.87	0.01	67848	498.1 -> 478.0	2.9	1.4	4.1



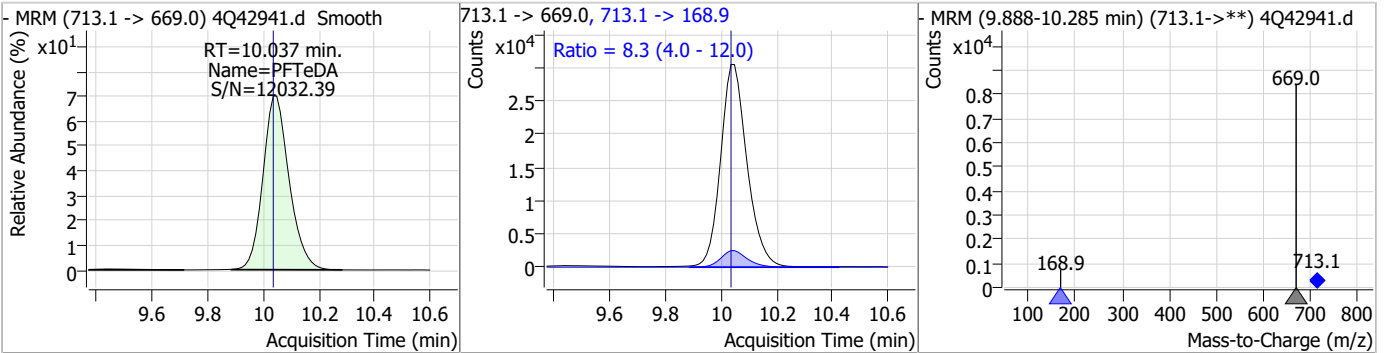
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.12	9.87	0.00	17533				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.14	10.04	0.00	20512				



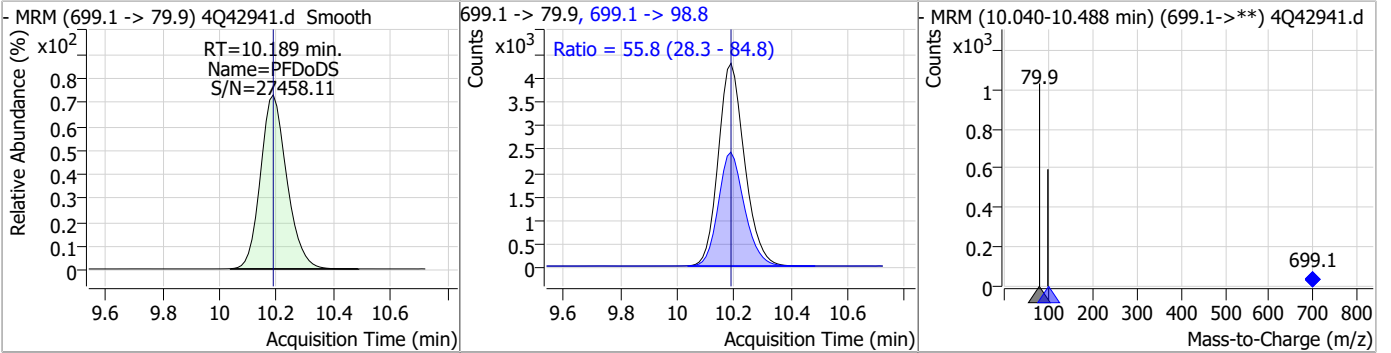
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	12.23	10.04	0.00	197481	713.1 -> 168.9	8.3	4.0	12.0



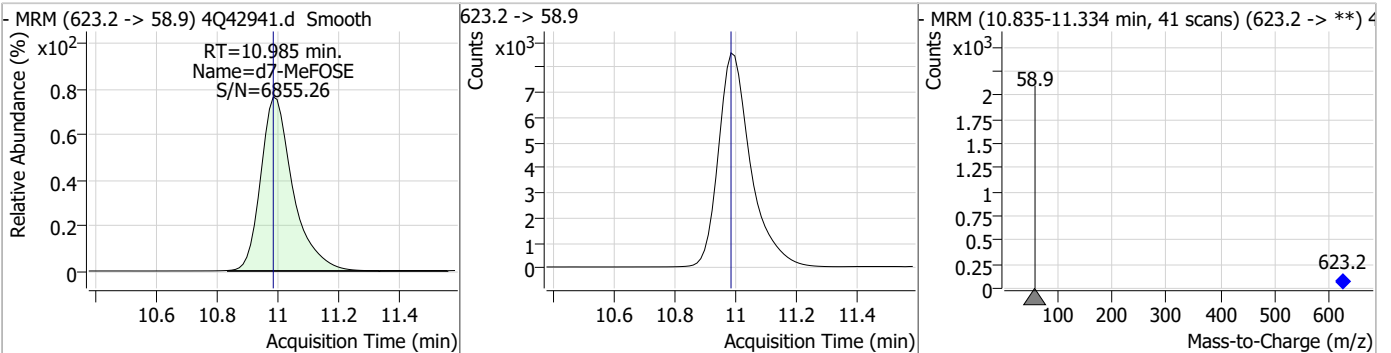
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### Perfluorinated Compounds by LC/MS/MS

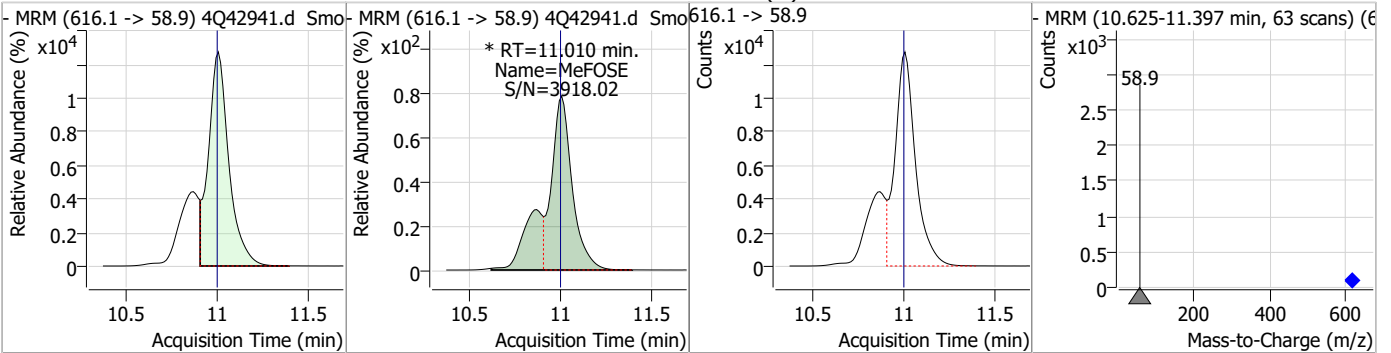
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	11.72	10.19	0.00	27343	699.1 -> 98.8	55.8	28.3	84.8



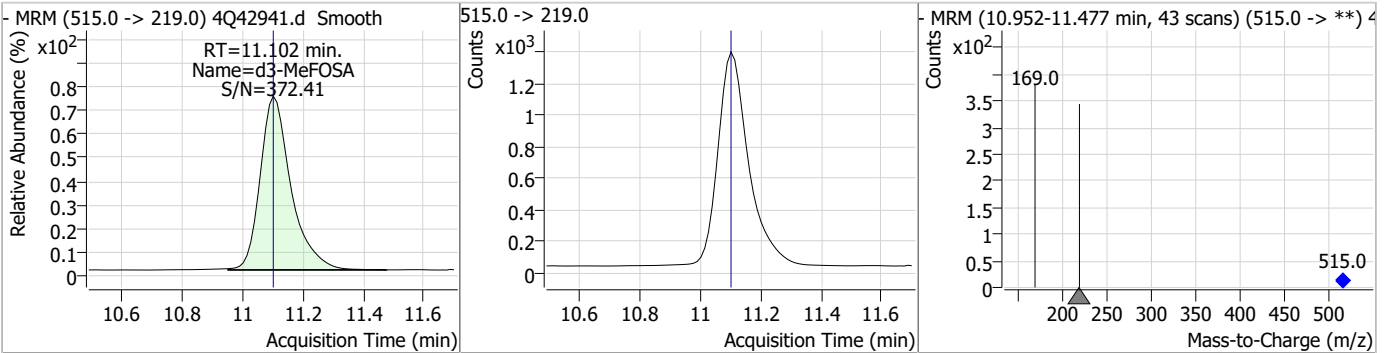
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.23	10.98	0.00	62837				



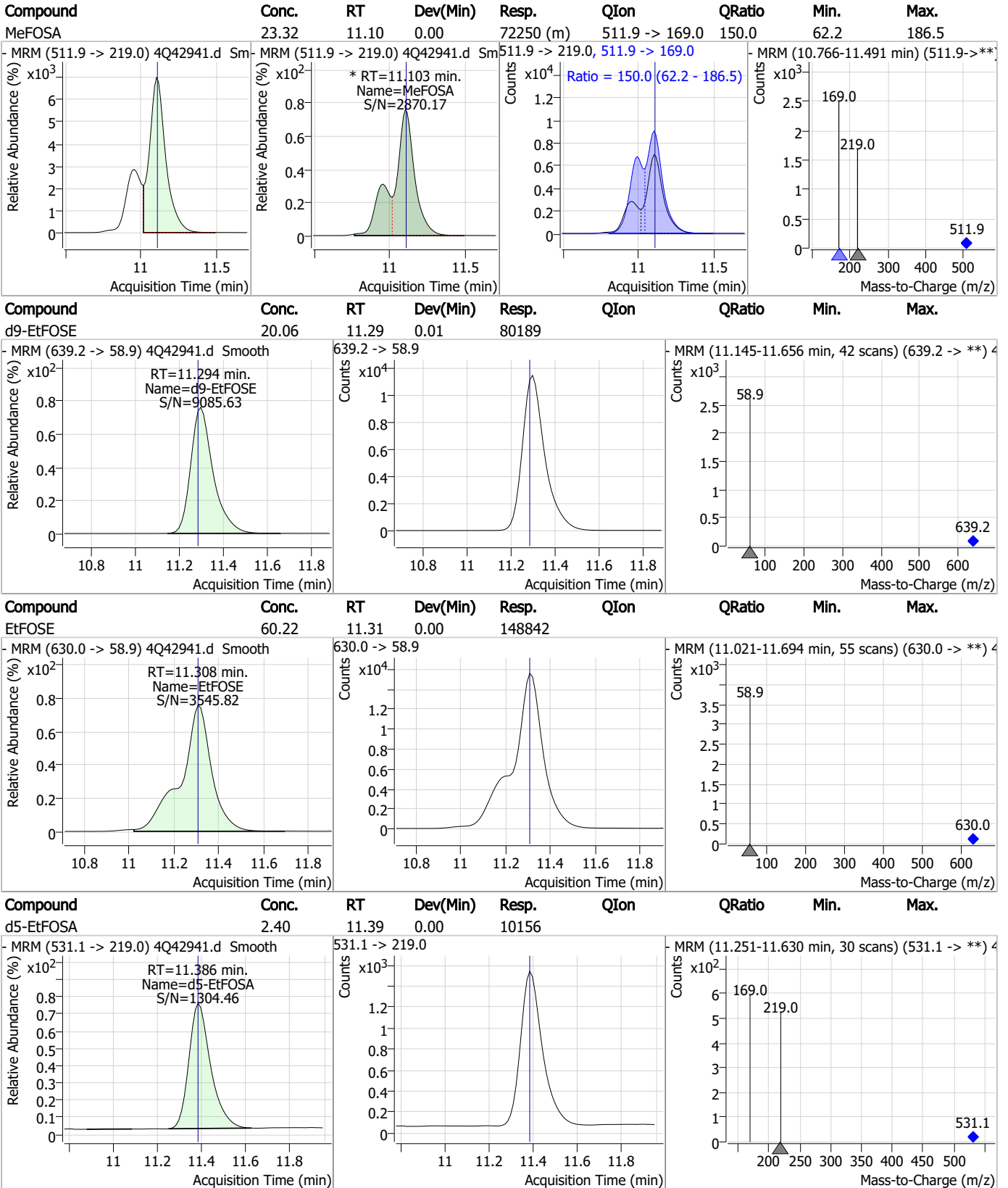
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	59.85	11.01	0.01	132184 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.44	11.10	0.00	9584				



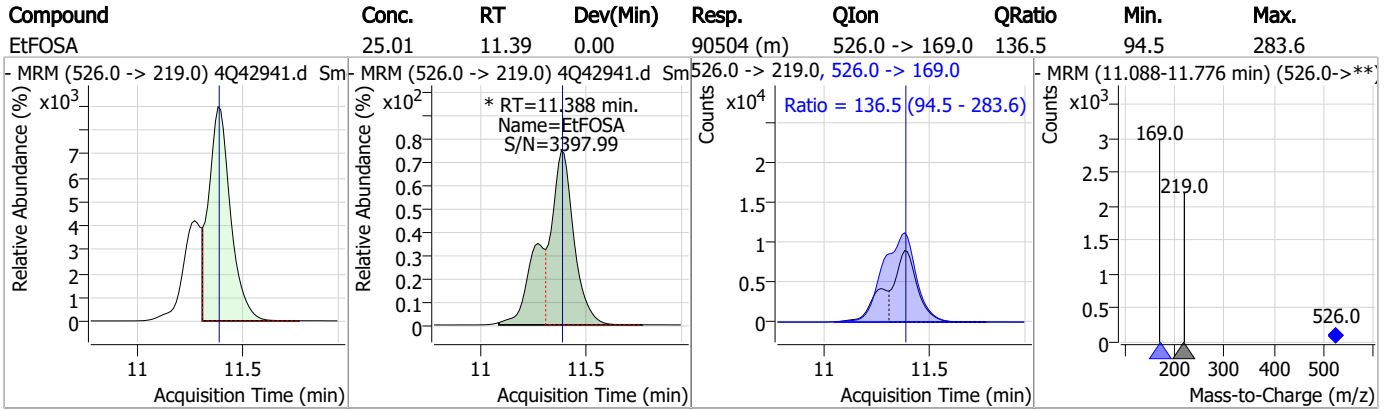
### Perfluorinated Compounds by LC/MS/MS



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: S4Q621-IC621      Method: EPA DRAFT 1633  
Lab FileID: 4Q42941.D      Analyst approved: 04/16/23 19:11 Martha Valls  
Injection Time: 04/14/23 13:09      Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.36	Split peak
MeFOSAA	2355-31-9		8.37	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.47	Split peak
EtFOSAA	2991-50-6		8.58	Split peak
MeFOSE	24448-09-7		11.01	Split peak
MeFOSA	31506-32-8		11.10	Split peak
EtFOSA	4151-50-2		11.39	Split peak

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

Natasha Gumtje  
 04/17/23 14:32

## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42942.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 4/14/2023 1:23:33 PM  
 Sample Name : ic621-7  
 Vial : P1-A8  
 DA Method File : 1633\_041423\_S4Q621.quantmethod.xml  
 Batch Name : s4q621.batch.bin  
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.986	216.8 -> 171.9	102593	10.00 µg/L	-0.013
M5-PFPeA	4.475	268.3 -> 223.0	69460	5.00 µg/L	0.000
M5-PFHxA	5.659	318.0 -> 273.0	56715	2.50 µg/L	0.012
M4-PFHpA	6.592	367.1 -> 322.0	26681	2.50 µg/L	0.012
M8-PFOA	7.250	421.1 -> 376.0	32514	2.50 µg/L	0.013
M9-PFNA	7.809	472.1 -> 427.0	17690	1.25 µg/L	0.012
M6-PFDA	8.315	519.1 -> 474.1	17039	1.25 µg/L	0.012
M7-PFUnDA	8.797	570.0 -> 525.1	18595	1.25 µg/L	0.012
M2-PFDoDA	9.255	615.1 -> 570.0	23332	1.25 µg/L	0.012
M2-PFTeDA	10.049	715.2 -> 670.0	17892	1.25 µg/L	0.012
M8-FOSA	9.870	506.1 -> 77.8	14752	2.50 µg/L	0.000
M3-PFBS	5.564	302.1 -> 79.9	11690	2.50 µg/L	0.000
M3-PFHxS	7.354	402.1 -> 79.9	7094	2.50 µg/L	0.013
M8-PFOS	8.467	507.1 -> 79.9	10282	2.50 µg/L	0.000
M2-4:2FTS	5.348	329.1 -> 80.9	1223	5.00 µg/L	0.012
M2-6:2FTS	7.010	429.1 -> 80.9	1583	5.00 µg/L	0.012
M2-8:2FTS	8.090	529.1 -> 80.9	3042	5.00 µg/L	0.000
M3-MeFOSAA	8.373	573.2 -> 419.0	14817	5.00 µg/L	0.012
M3-HFPO-DA	6.026	286.9 -> 168.9	34783	10.00 µg/L	0.012
M5-EtFOSAA	8.582	589.2 -> 419.0	11616	5.00 µg/L	0.012
M7-MeFOSE	10.985	623.2 -> 58.9	53798	25.00 µg/L	0.000
M9-EtFOSE	11.294	639.2 -> 58.9	64655	25.00 µg/L	0.012
M5-EtFOSA	11.386	531.1 -> 219.0	8894	2.50 µg/L	0.000
M3-MeFOSA	11.102	515.0 -> 219.0	8039	2.50 µg/L	0.000
13C4-PFOS	8.467	502.8 -> 79.9	10340	2.50 µg/L	0.000
13C3-PFBA	2.991	216.0 -> 172.0	59199	5.00 µg/L	0.000
18O2-PFHxS	7.353	403.0 -> 83.9	5192	2.50 µg/L	0.013
13C4-PFOA	7.251	417.1 -> 372.0	39776	2.50 µg/L	0.013
13C2-PFDA	8.316	515.1 -> 470.1	15282	1.25 µg/L	0.012
13C5-PFNA	7.809	468.0 -> 423.0	20720	1.25 µg/L	0.012
13C2-PFHxA	5.660	315.1 -> 270.0	48967	2.50 µg/L	0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.348	329.1 -> 80.9	1223	4.31 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 86.3%		
13C2-6:2FTS	7.010	429.1 -> 80.9	1583	3.89 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 77.8%		
13C2-8:2FTS	8.090	529.1 -> 80.9	3042	4.54 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.8%		
13C2-PFDoDA	9.255	615.1 -> 570.0	23332	1.24 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.2%		
13C2-PFTeDA	10.049	715.2 -> 670.0	17892	1.22 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C3-PFBS	5.564	302.1 -> 79.9	11690	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.0%		
13C3-PFHxS	7.354	402.1 -> 79.9	7094	2.47 µg/L	0.013

## 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	2.986	216.8 -> 171.9	102593	9.95 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C4-PFHpA	6.592	367.1 -> 322.0	26681	2.40 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C5-PFHxA	5.659	318.0 -> 273.0	56715	2.51 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C5-PFPeA	4.475	268.3 -> 223.0	69460	4.81 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
13C6-PFDA	8.315	519.1 -> 474.1	17039	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C7-PFUnDA	8.797	570.0 -> 525.1	18595	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C8-FOSA	9.870	506.1 -> 77.8	14752	2.18 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.3%	
13C8-PFOA	7.250	421.1 -> 376.0	32514	2.48 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C8-PFOS	8.467	507.1 -> 79.9	10282	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C9-PFNA	7.809	472.1 -> 427.0	17690	1.17 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.7%	
d3-MeFOSAA	8.373	573.2 -> 419.0	14817	4.87 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C3-HFPO-DA	6.026	286.9 -> 168.9	34783	10.12 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
d3-MeFOSA	11.102	515.0 -> 219.0	8039	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
d5-EtFOSAA	8.582	589.2 -> 419.0	11616	4.69 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.8%	
d7-MeFOSE	10.985	623.2 -> 58.9	53798	20.17 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 80.7%	
d9-EtFOSE	11.294	639.2 -> 58.9	64655	19.81 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.3%	
d5-EtFOSA	11.386	531.1 -> 219.0	8894	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.9%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.336	327.1 -> 307.0	149113	97.77 µg/L	98
		327.1 -> 80.9	62168		
6:2FTS	7.011	427.1 -> 407.0	118873	110.00 µg/L	99
		427.1 -> 80.9	50766		
8:2FTS	8.090	527.1 -> 507.0	130148	95.42 µg/L	98
		527.1 -> 80.8	52682		
EtFOSAA	8.595	584.2 -> 419.1	46615	26.86 µg/L	m 83
		584.2 -> 526.0	22537		
FOSA	9.874	498.1 -> 77.9	128381	27.03 µg/L	100
		498.1 -> 478.0	3676		
MeFOSAA	8.373	570.1 -> 419.0	51741	25.34 µg/L	m 84
		570.1 -> 483.0	11601		
PFBA	2.982	212.8 -> 168.9	255389	109.00 µg/L	100
PFBS	5.565	298.7 -> 79.9	108008	24.76 µg/L	100
		298.7 -> 98.8	41796		
PFDA	8.316	512.9 -> 469.0	275937	28.32 µg/L	99
		512.9 -> 219.0	54317		
PFDoDA	9.256	613.1 -> 569.0	400458	27.22 µg/L	100
		613.1 -> 319.0	56638		
PFDS	9.421	599.0 -> 79.9	58904	25.62 µg/L	99

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	29103			
PFHpA	6.593	363.1 -> 319.0	378304	28.42	µg/L	99
		363.1 -> 169.0	67836			
PFHpS	7.936	449.0 -> 79.9	70063	26.18	µg/L	100
		449.0 -> 98.9	36405			
PFHxA	5.662	313.0 -> 269.0	444401	26.47	µg/L	100
		313.0 -> 118.9	13168			
PFHxS	7.355	398.7 -> 79.9	61105	25.14	µg/L	m 98
		398.7 -> 98.9	30890			
PFNA	7.810	463.0 -> 419.0	259527	27.44	µg/L	95
		463.0 -> 219.0	64719			
PFNS	8.961	548.8 -> 79.9	43695	27.61	µg/L	97
		548.8 -> 98.9	21676			
PFOA	7.252	413.0 -> 369.0	409809	26.98	µg/L	100
		413.0 -> 169.0	83910			
PFOS	8.468	498.9 -> 79.9	96521	24.12	µg/L	m 85
		498.9 -> 98.8	47000			
PFPeA	4.477	263.0 -> 219.0	722329	54.94	µg/L	100
PFPeS	6.619	349.1 -> 79.9	54365	26.28	µg/L	99
		349.1 -> 98.9	23502			
PFTeDA	10.050	713.1 -> 669.0	367233	26.07	µg/L	100
		713.1 -> 168.9	29972			
PFTrDA	9.666	663.0 -> 619.0	483565	25.51	µg/L	100
		663.0 -> 168.9	46443			
PFUnDA	8.798	563.1 -> 519.0	273178	25.97	µg/L	98
		563.1 -> 269.1	51378			
11CI-PF3OUdS	9.718	630.9 -> 450.9	444453	48.96	µg/L	100
		632.9 -> 452.9	138808			
9CI-PF3ONS	8.825	530.8 -> 351.0	525108	51.78	µg/L	99
		532.8 -> 353.0	158417			
ADONA	6.843	376.9 -> 250.9	1045774	50.05	µg/L	99
		376.9 -> 84.8	284110			
HFPO-DA	6.027	284.9 -> 168.9	146599	53.18	µg/L	99
		284.9 -> 184.9	17473			
3:3FTCA	3.954	241.0 -> 177.0	85991	140.36	µg/L	99
		241.0 -> 117.0	8070			
5:3FTCA	6.345	341.0 -> 237.1	1585312	668.61	µg/L	100
		341.0 -> 217.0	1136011			
7:3FTCA	7.786	441.0 -> 316.9	638400	656.99	µg/L	100
		441.0 -> 336.9	1407835			
EtFOSA	11.388	526.0 -> 219.0	170980	53.95	µg/L	m 63
		526.0 -> 169.0	230636			
EtFOSE	11.308	630.0 -> 58.9	269944	135.46	µg/L	100
MeFOSA	11.103	511.9 -> 219.0	138850	53.42	µg/L	m 81
		511.9 -> 169.0	202913			
MeFOSE	11.010	616.1 -> 58.9	248200	131.27	µg/L	m 100
PFDoDS	10.189	699.1 -> 79.9	51354	25.83	µg/L	100
		699.1 -> 98.8	28999			
NFDHA	5.541	295.0 -> 201.0	58788	52.09	µg/L	100
		295.0 -> 84.9	14454			
PFMBA	4.891	279.0 -> 85.1	414238	55.10	µg/L	100
PFMPA	3.598	229.0 -> 84.9	362117	55.07	µg/L	100
PFEESA	6.096	314.8 -> 134.9	676104	47.96	µg/L	100
		314.8 -> 82.9	22203			

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

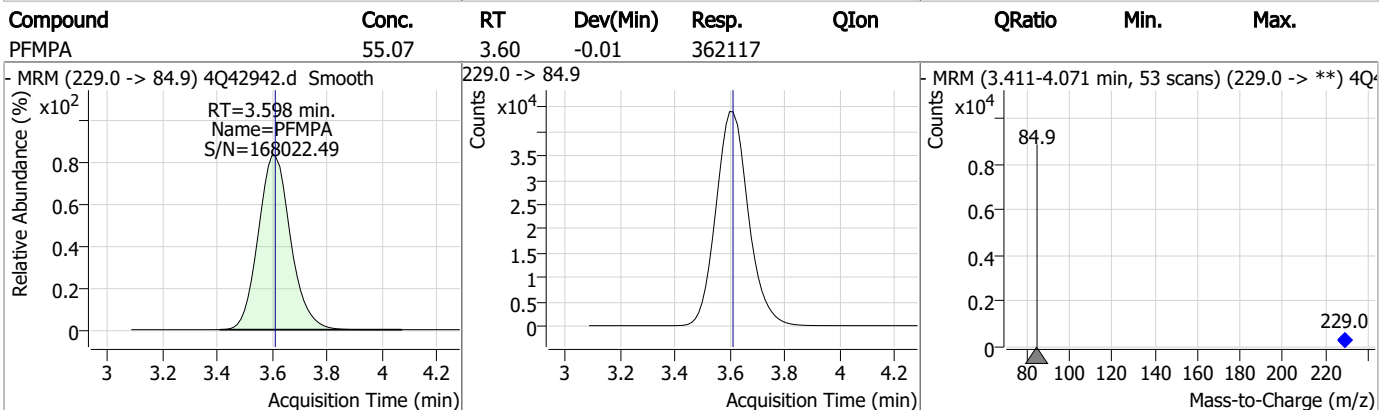
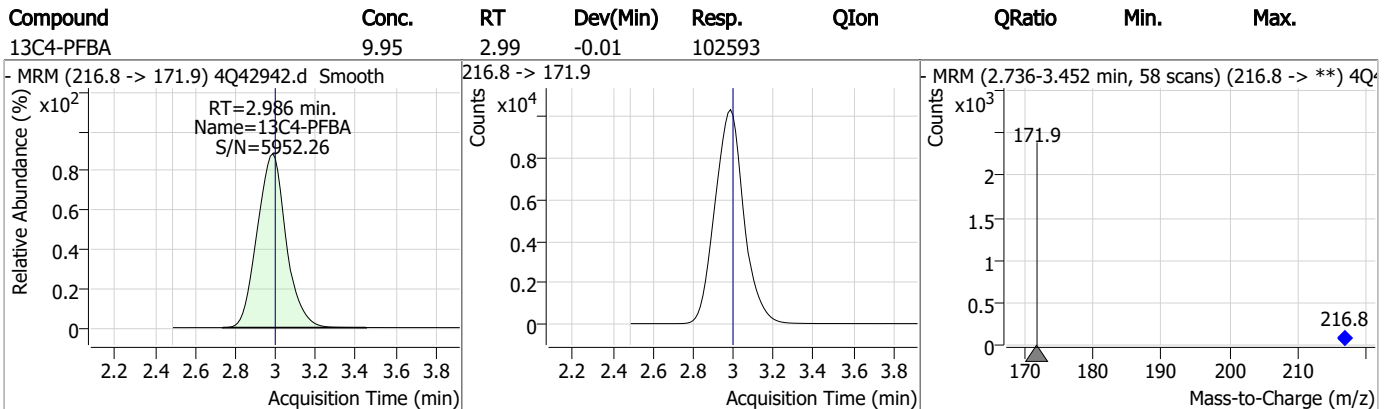
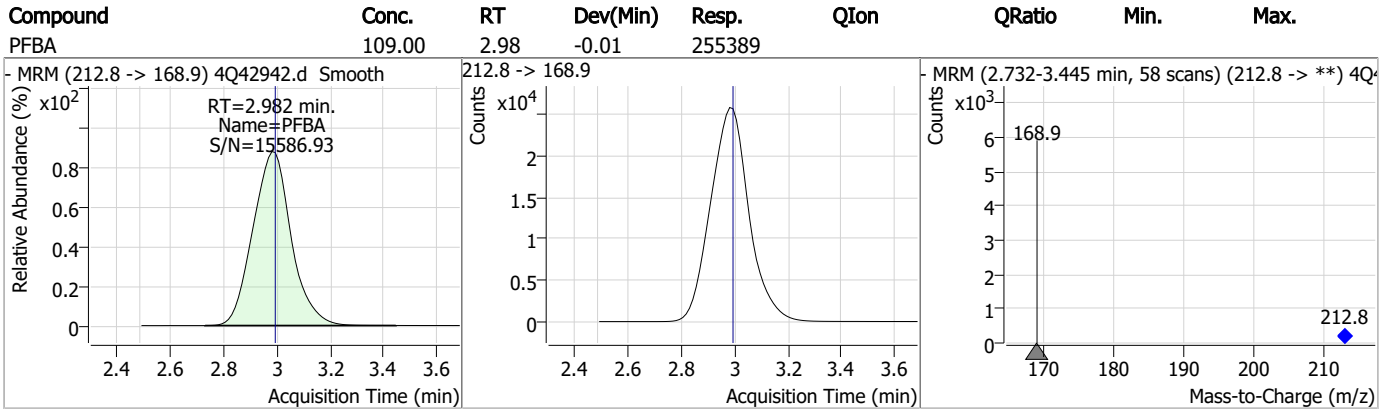
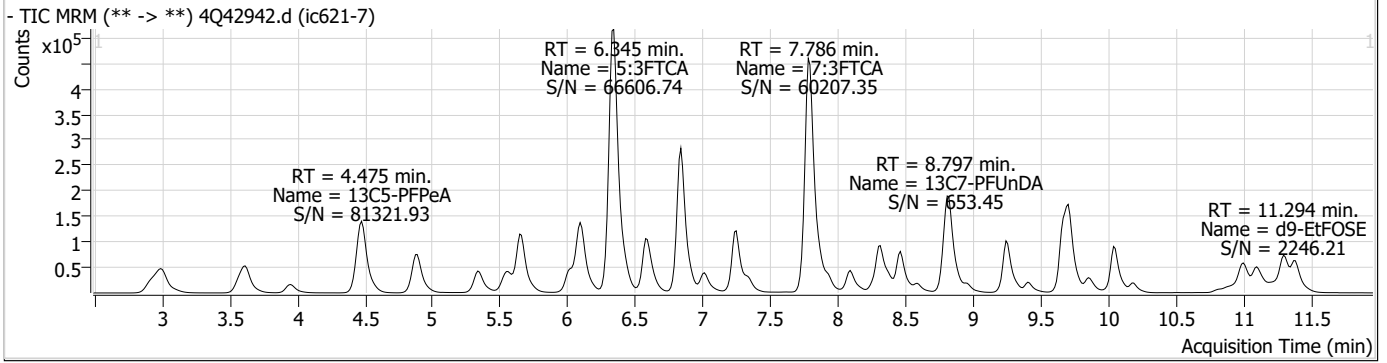


### Perfluorinated Compounds by LC/MS/MS

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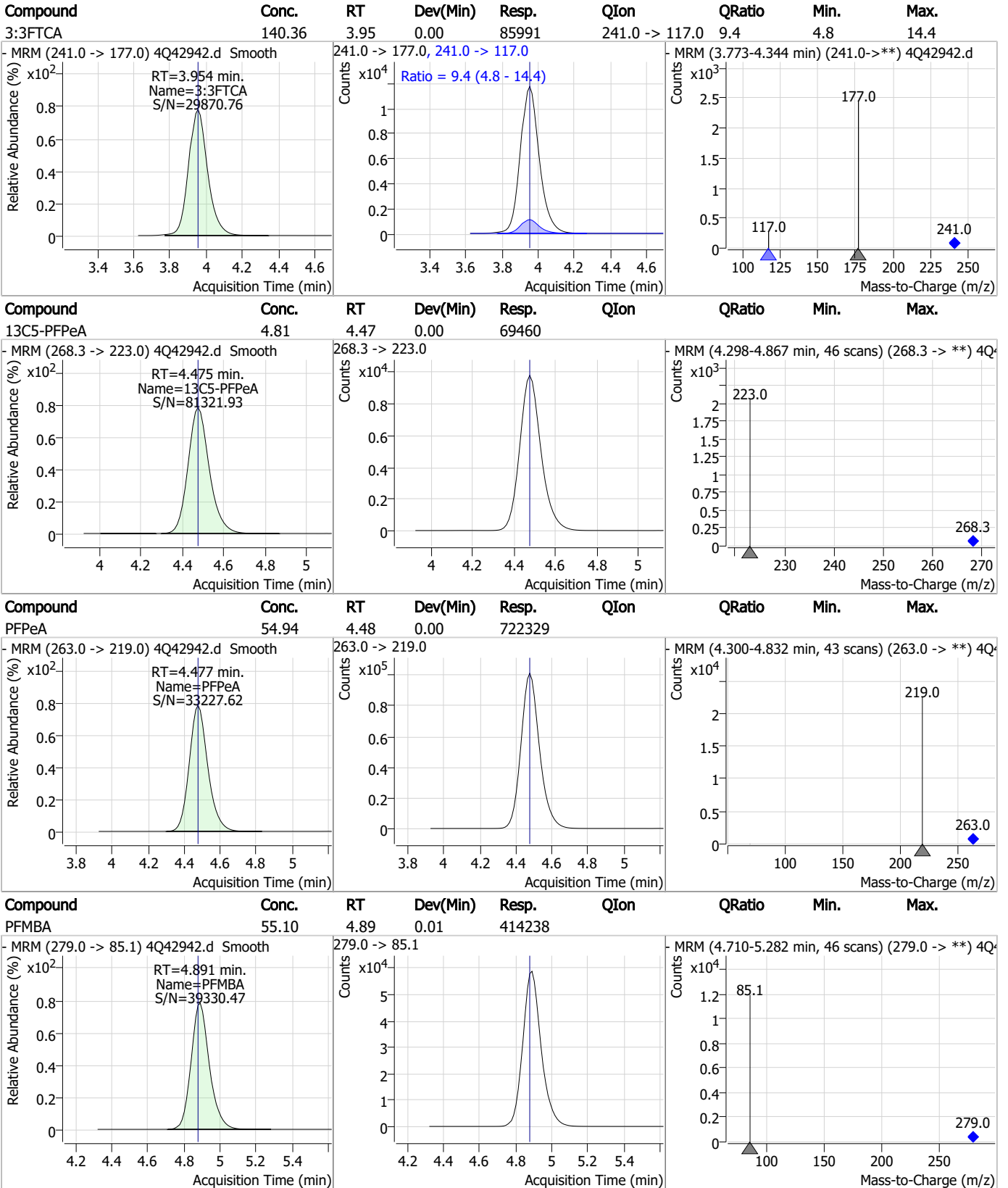
### Perfluorinated Compounds by LC/MS/MS



7.7.8

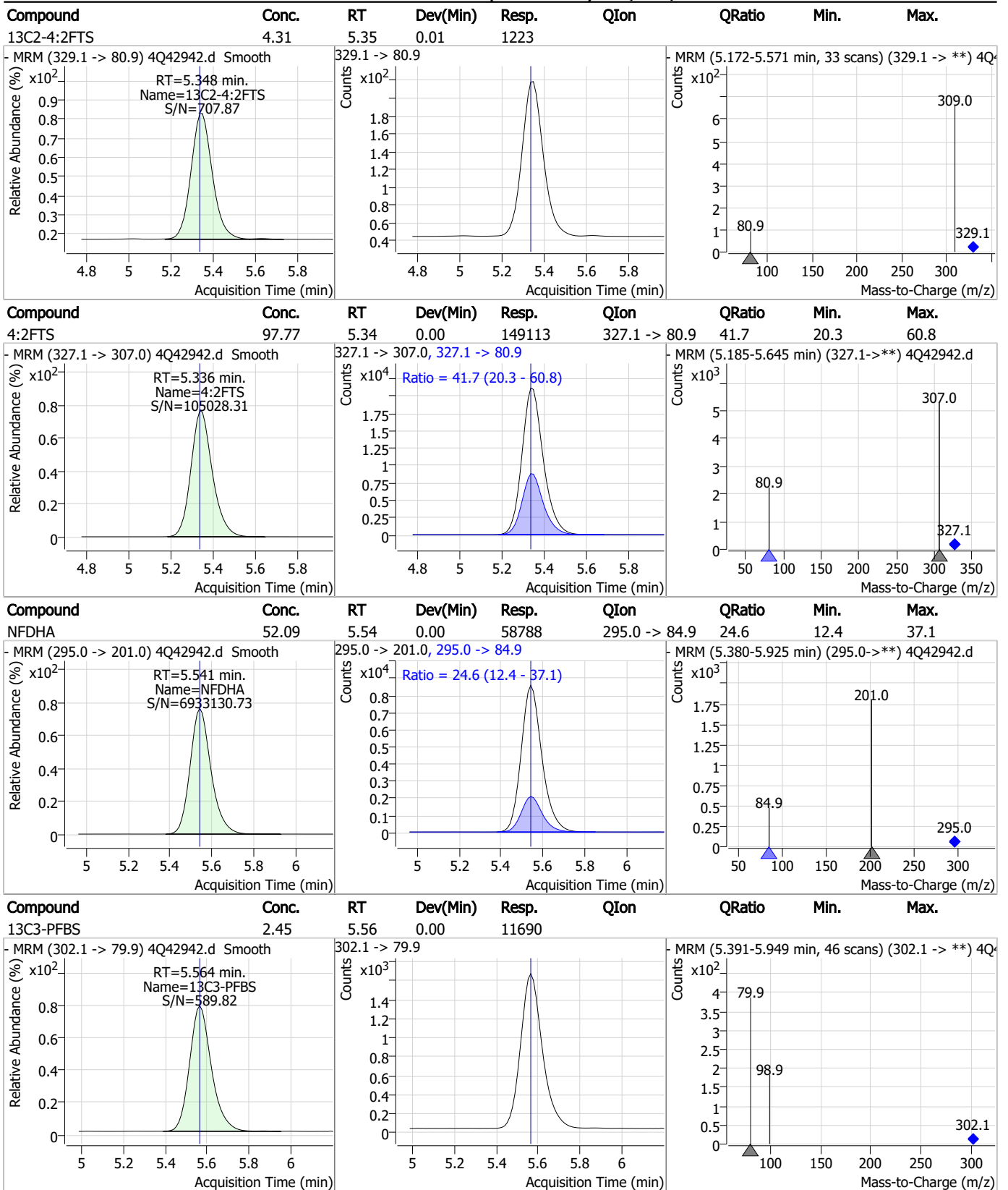
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### Perfluorinated Compounds by LC/MS/MS



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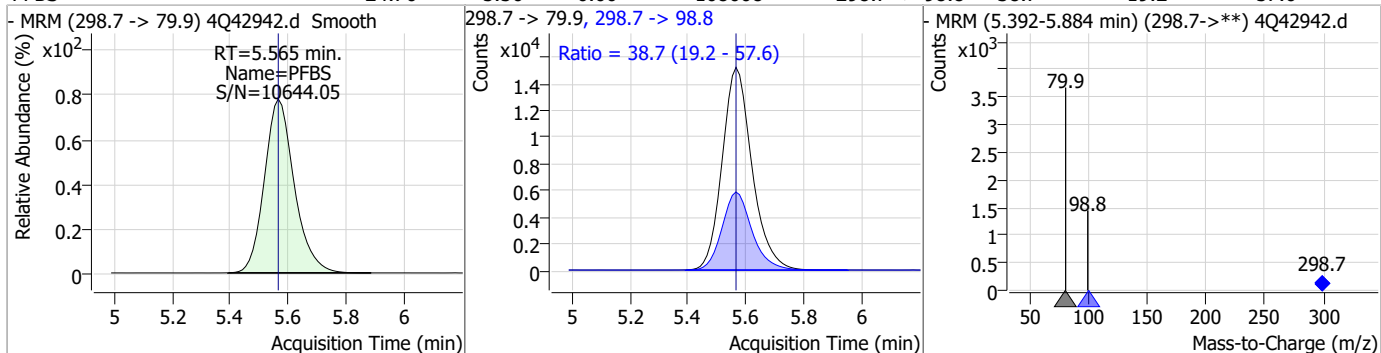
### Perfluorinated Compounds by LC/MS/MS



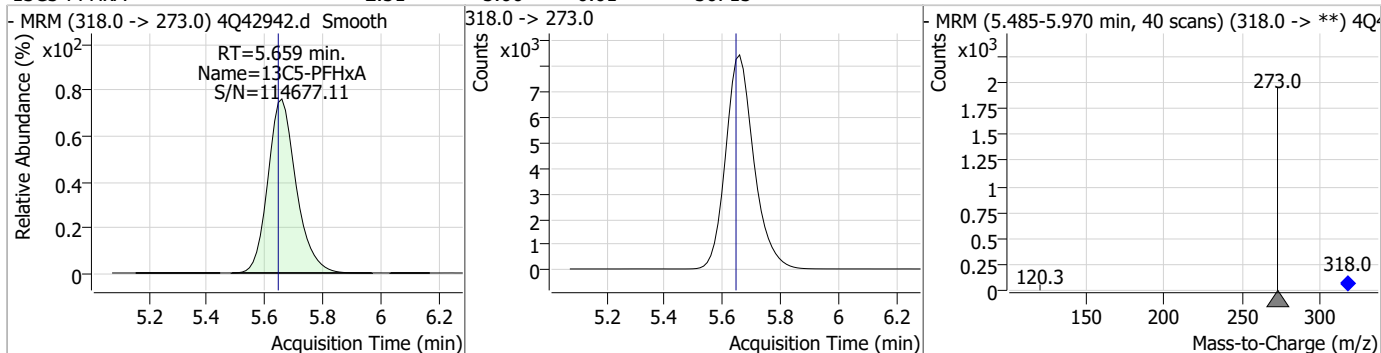
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### Perfluorinated Compounds by LC/MS/MS

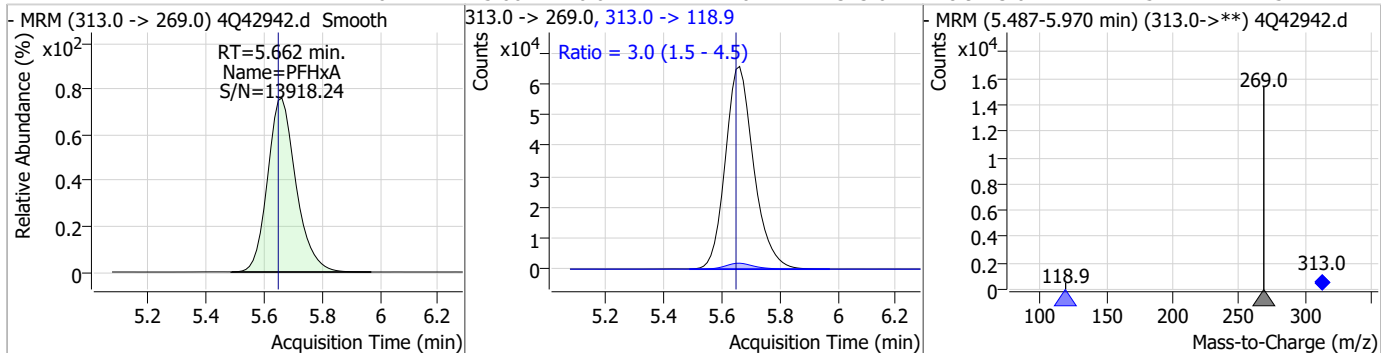
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	24.76	5.56	0.00	108008	298.7 -> 98.8	38.7	19.2	57.6



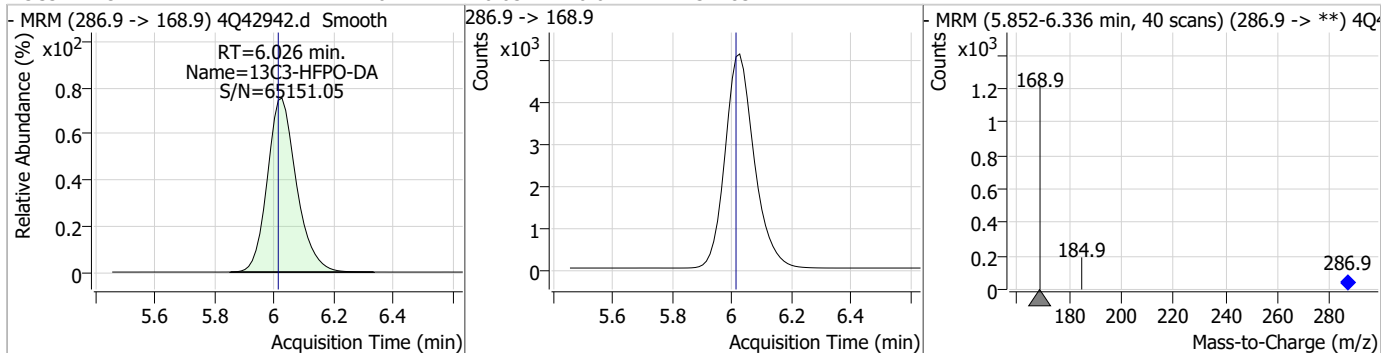
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.51	5.66	0.01	56715				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	26.47	5.66	0.01	444401	313.0 -> 118.9	3.0	1.5	4.5

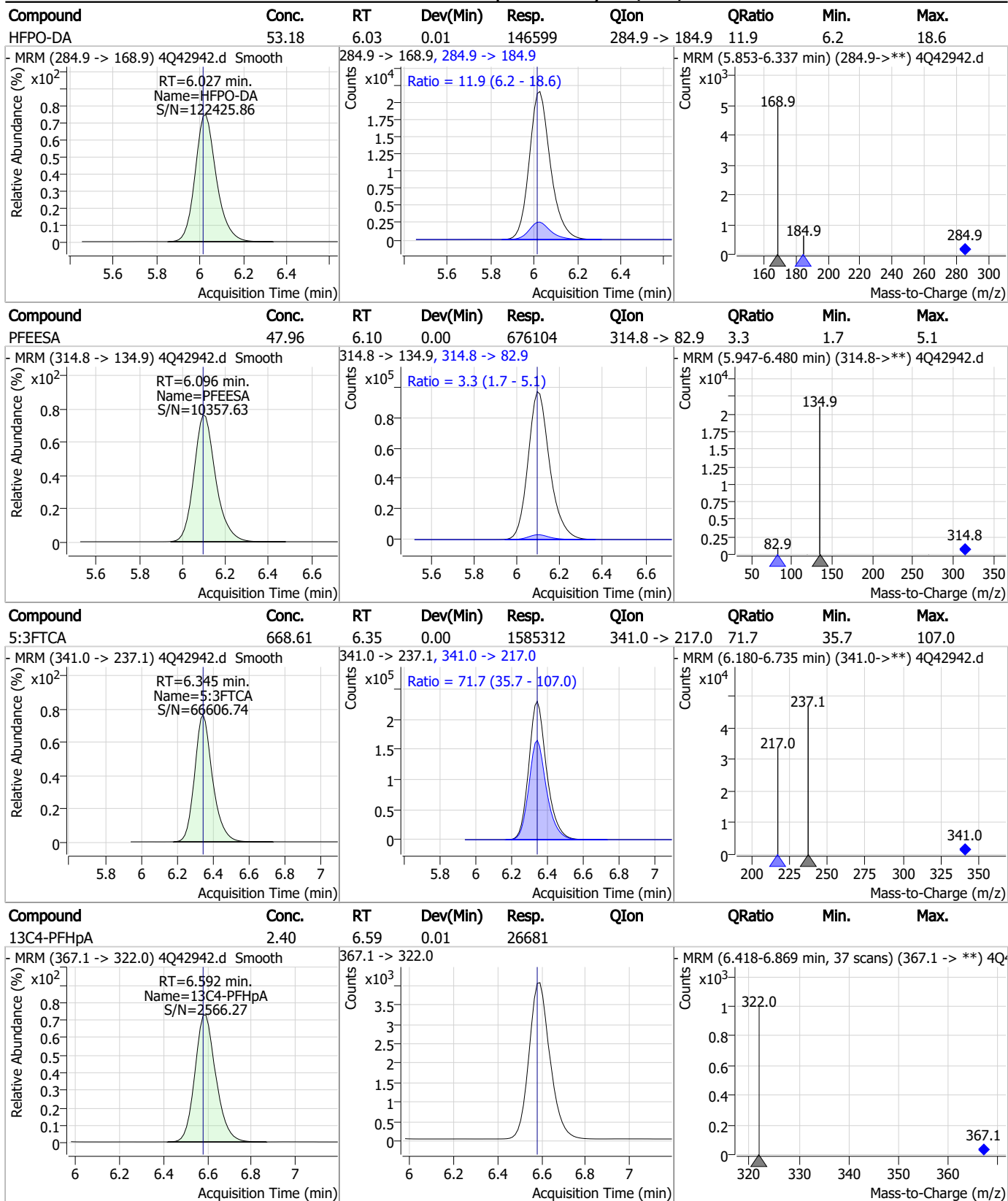


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.12	6.03	0.01	34783				



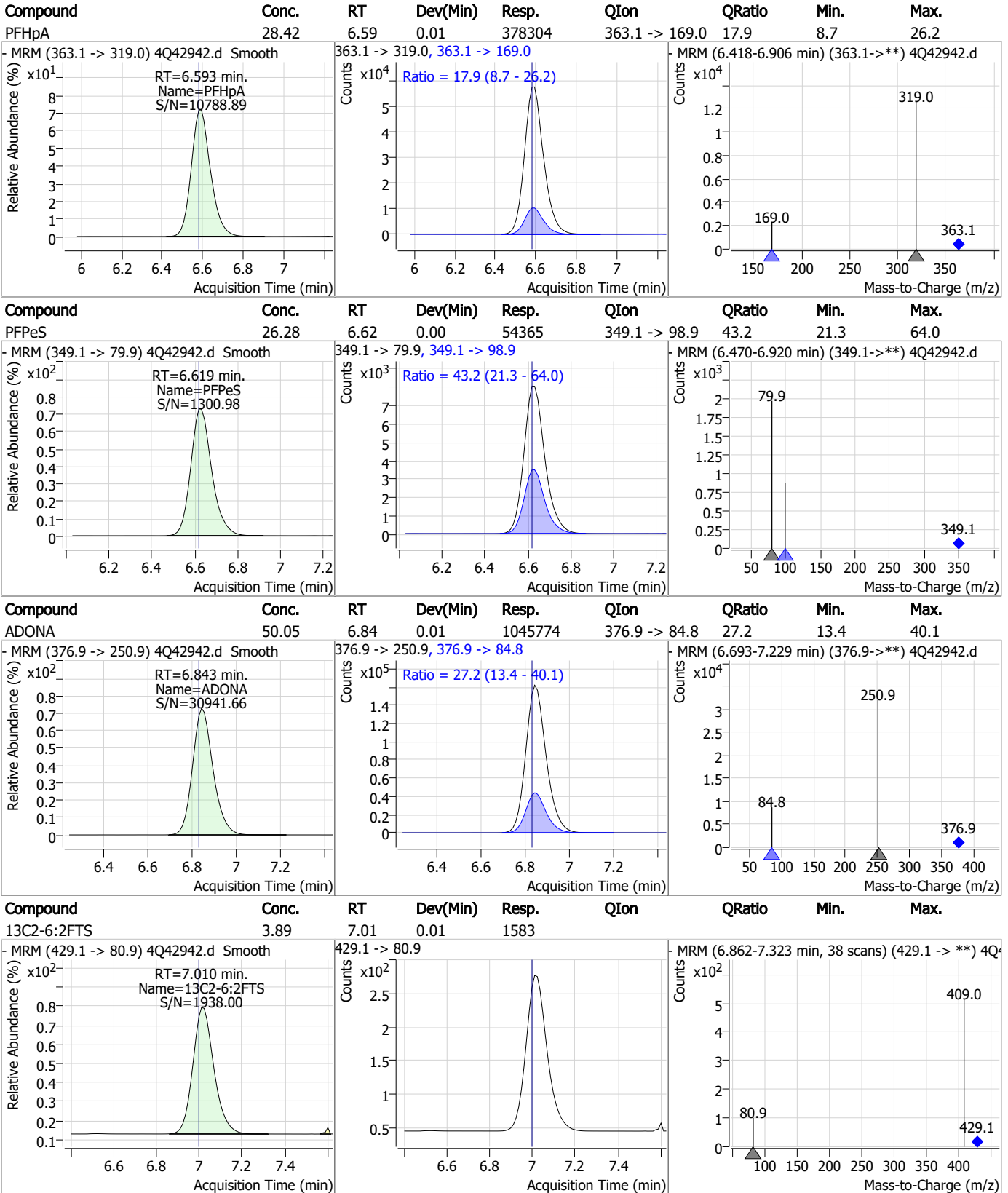
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### Perfluorinated Compounds by LC/MS/MS



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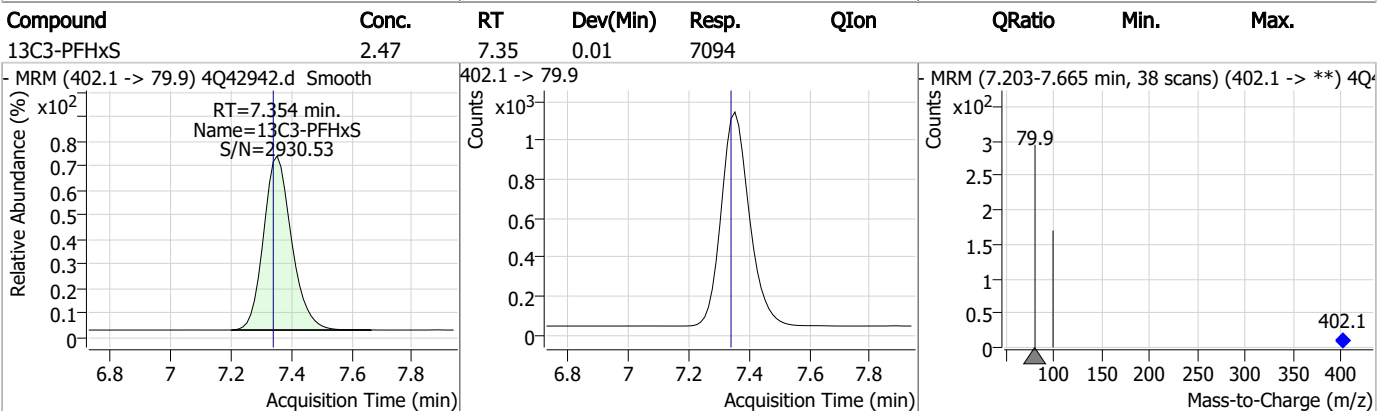
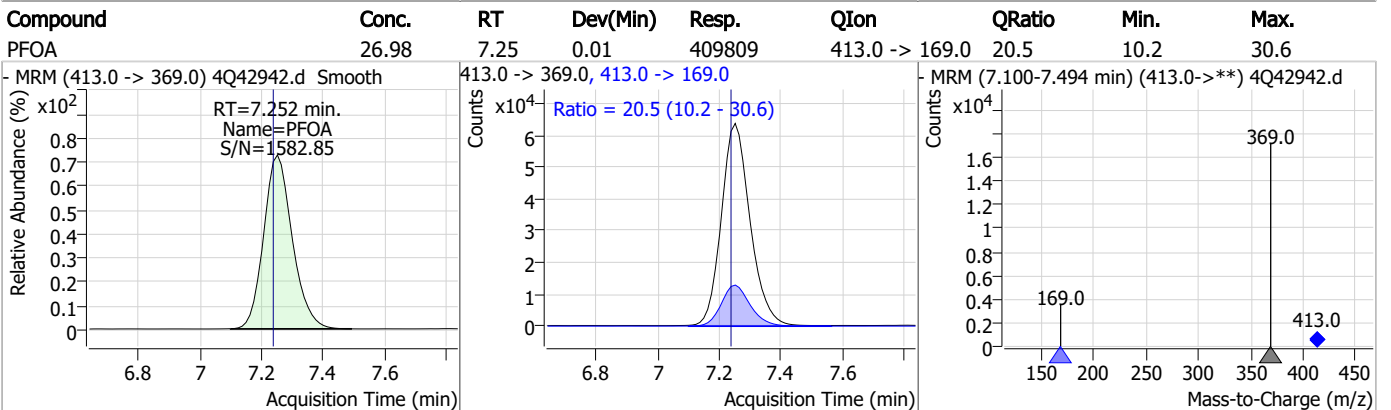
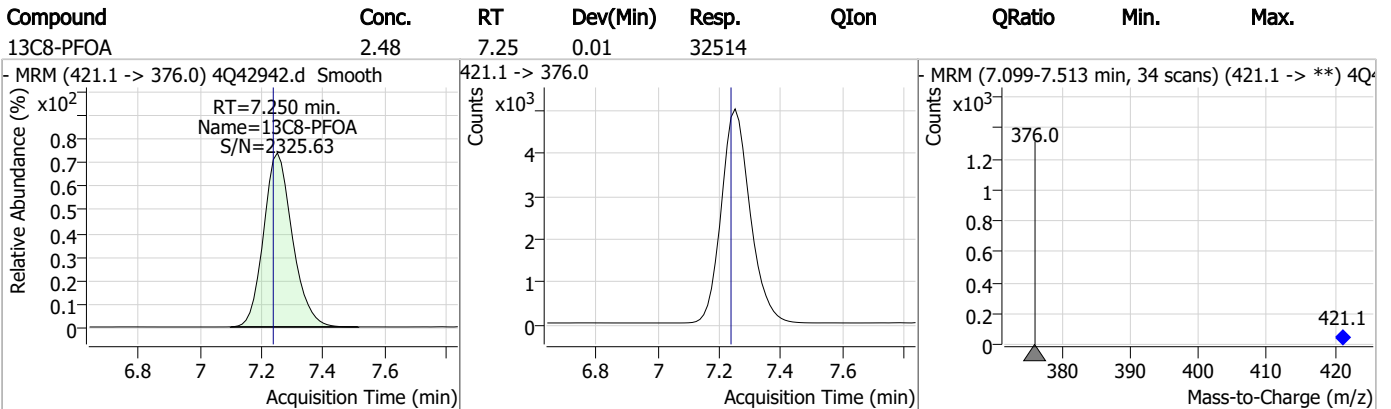
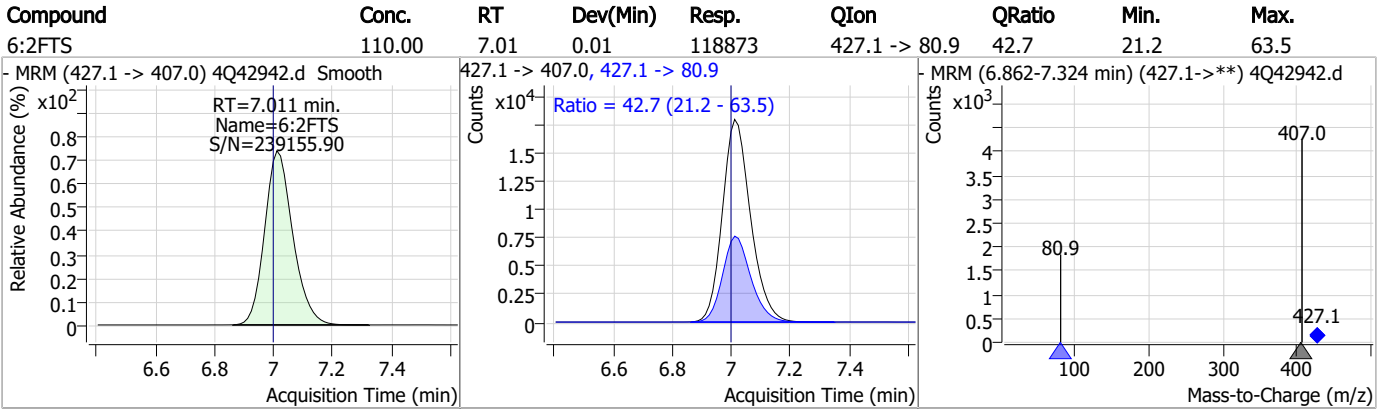
### Perfluorinated Compounds by LC/MS/MS



7.7.8

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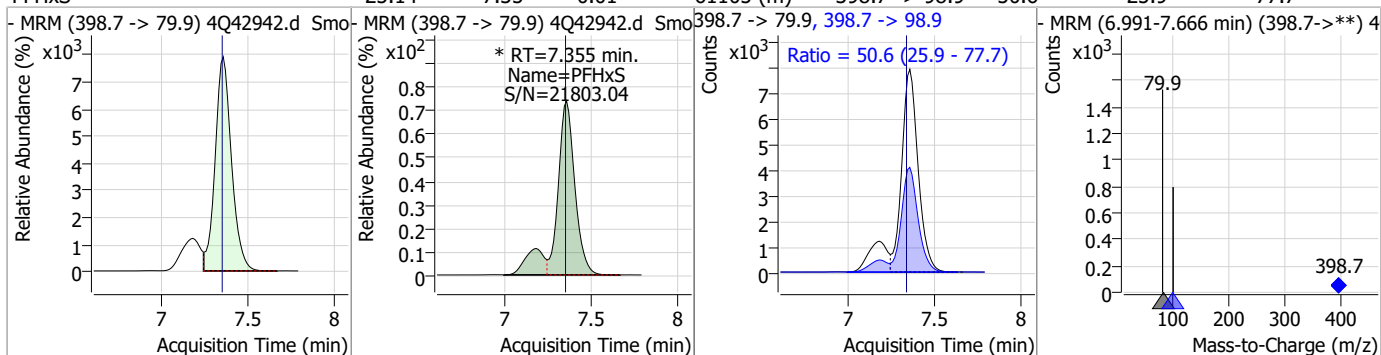
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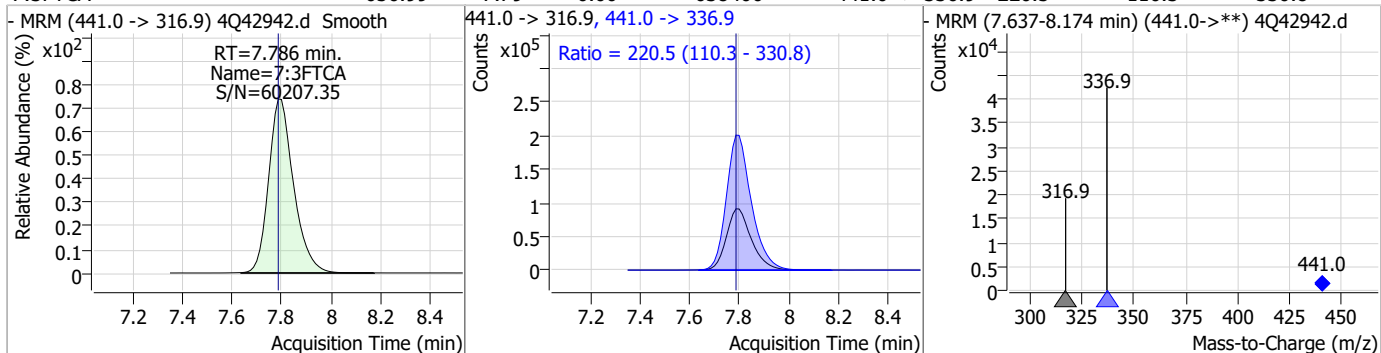


### Perfluorinated Compounds by LC/MS/MS

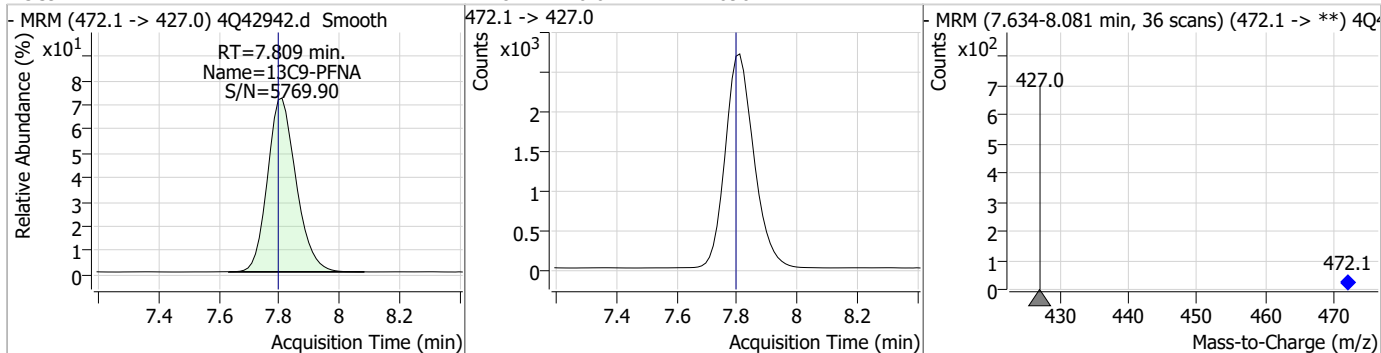
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	25.14	7.35	0.01	61105 (m)	398.7 -> 98.9	50.6	25.9	77.7



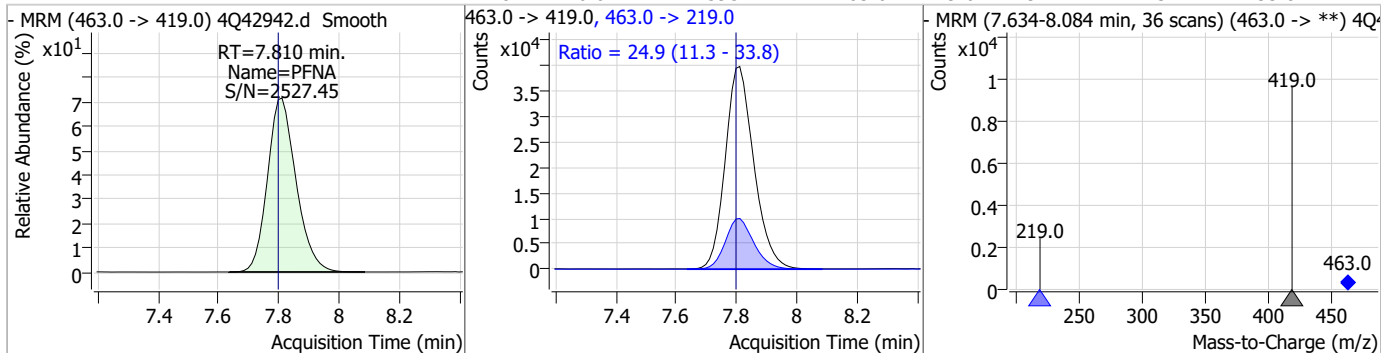
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	656.99	7.79	0.00	638400	441.0 -> 336.9	220.5	110.3	330.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.17	7.81	0.01	17690				

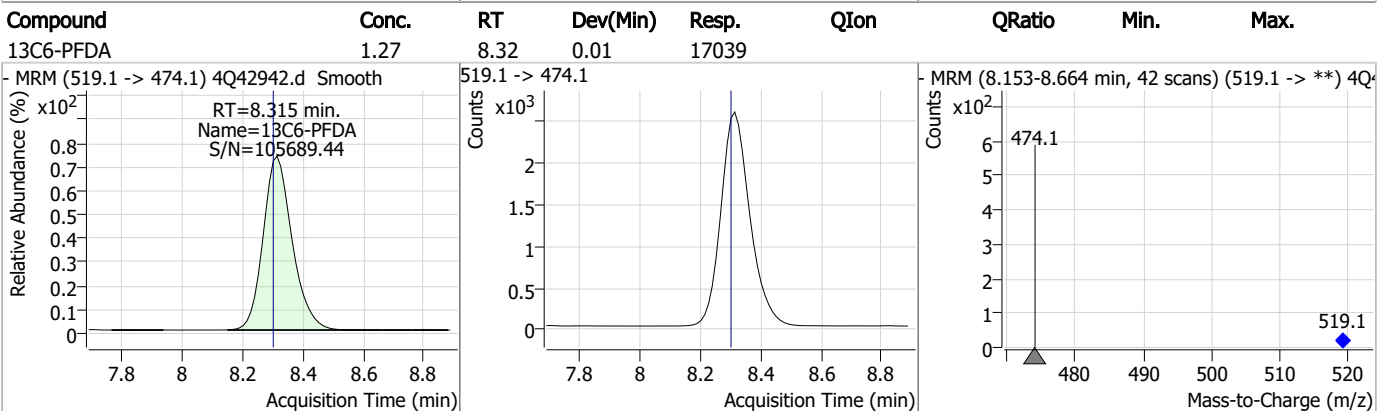
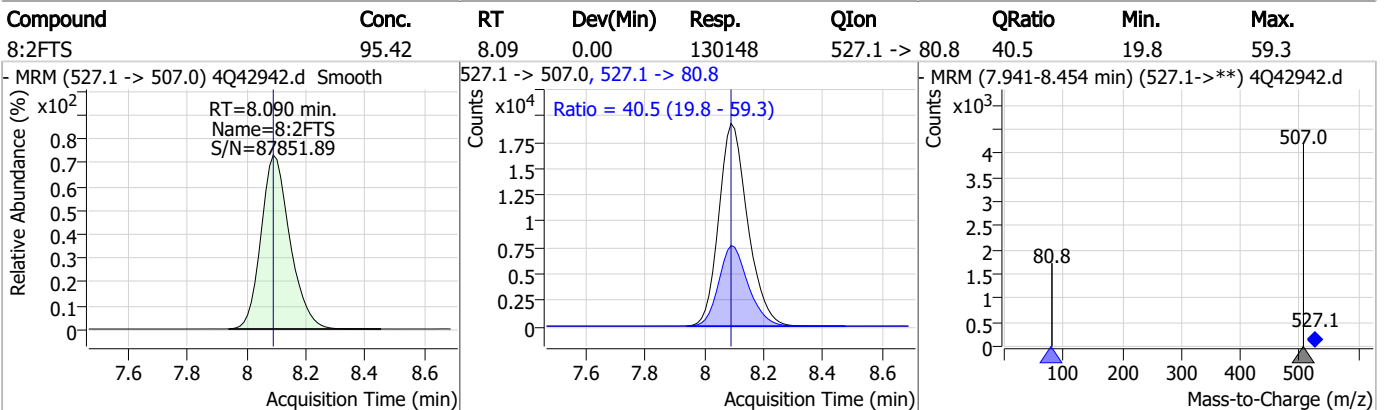
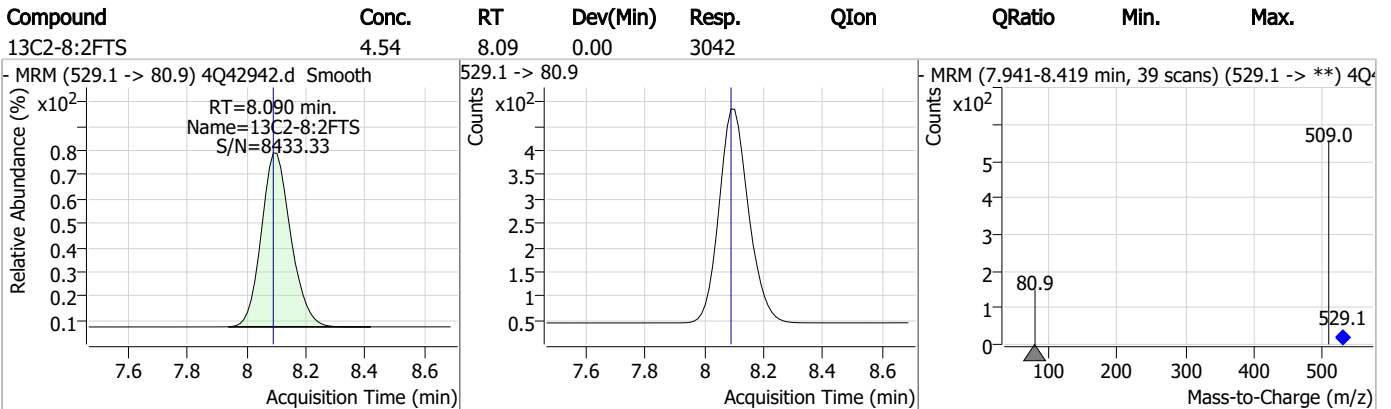
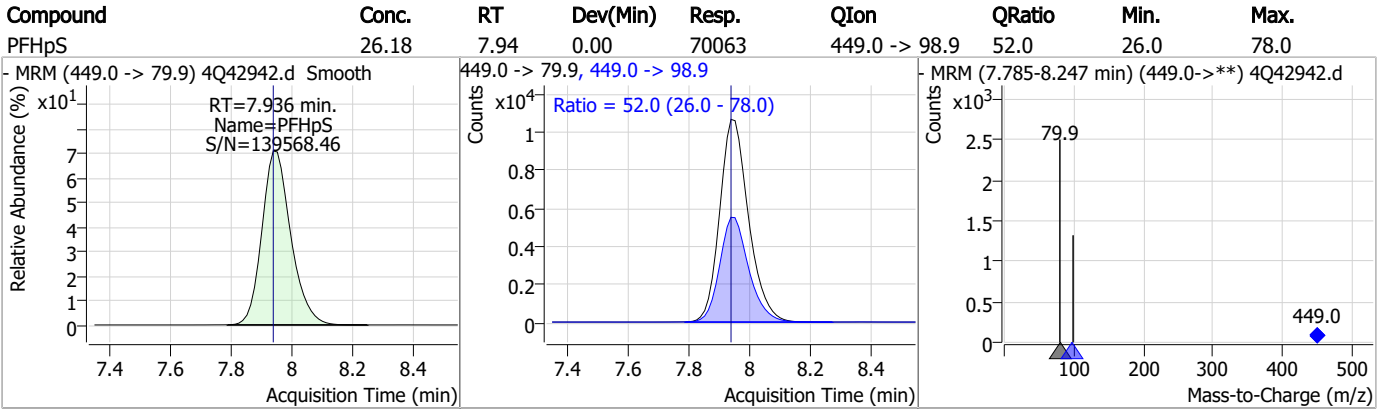


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	27.44	7.81	0.01	259527	463.0 -> 219.0	24.9	11.3	33.8



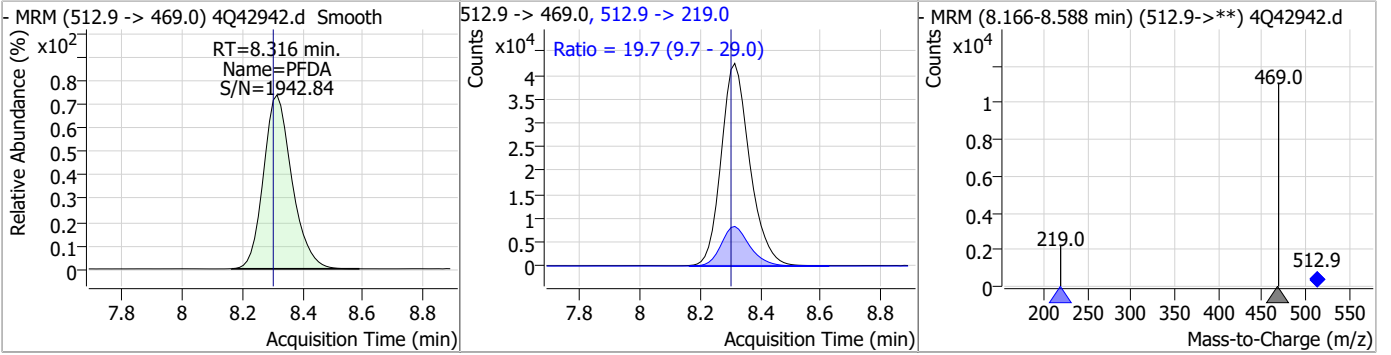
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### Perfluorinated Compounds by LC/MS/MS

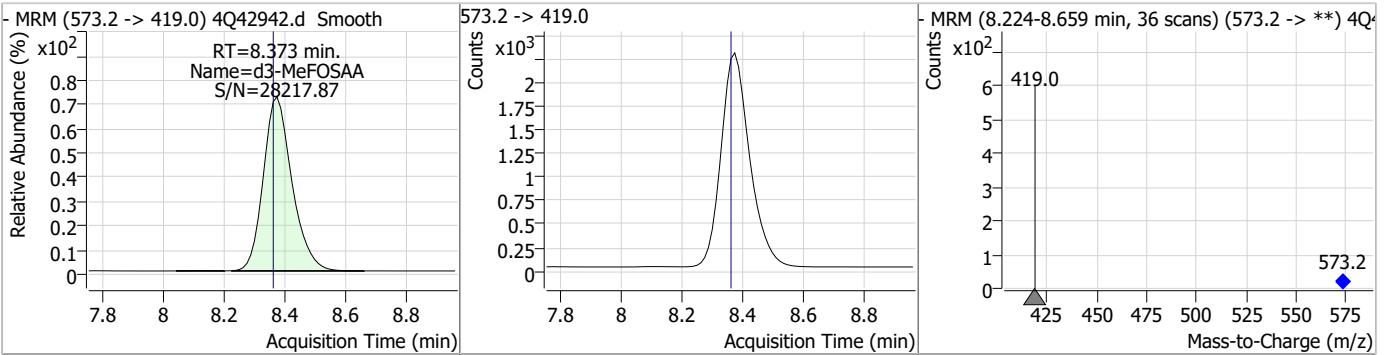


### Perfluorinated Compounds by LC/MS/MS

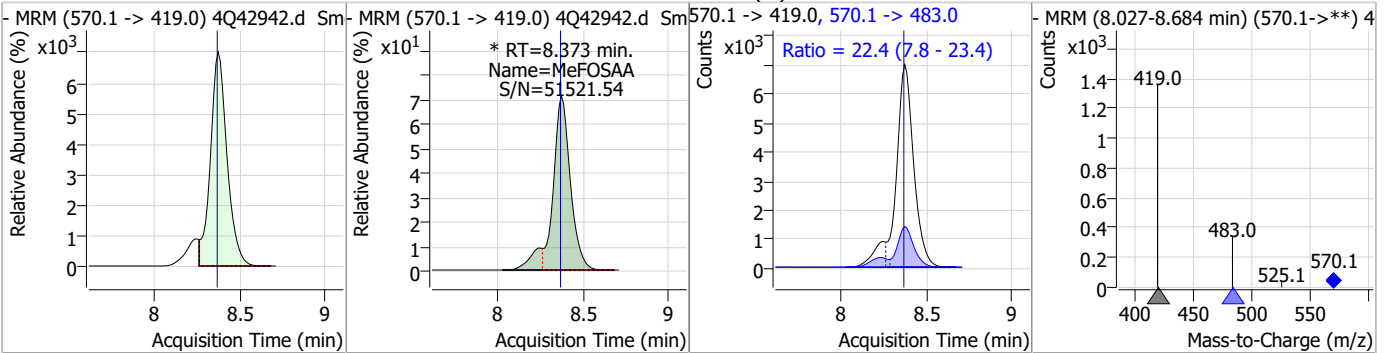
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	28.32	8.32	0.01	275937	512.9 -> 219.0	19.7	9.7	29.0



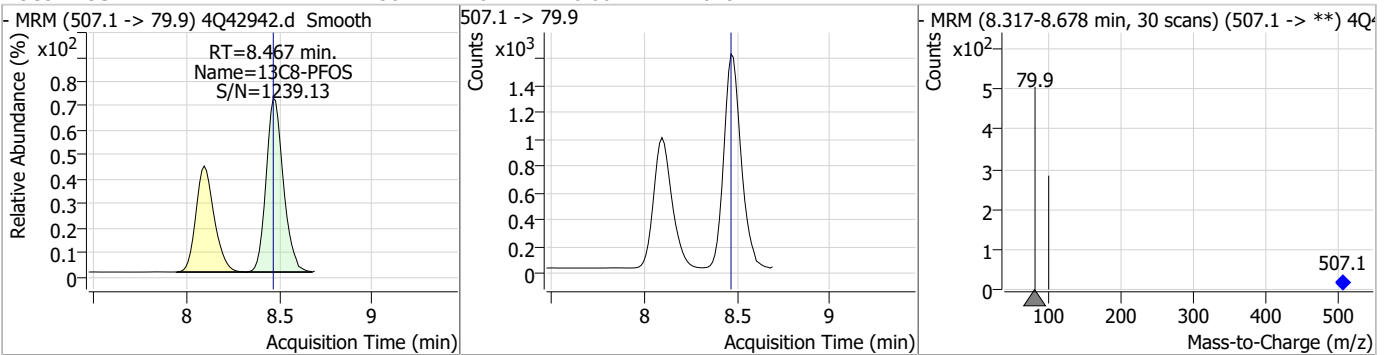
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.87	8.37	0.01	14817				



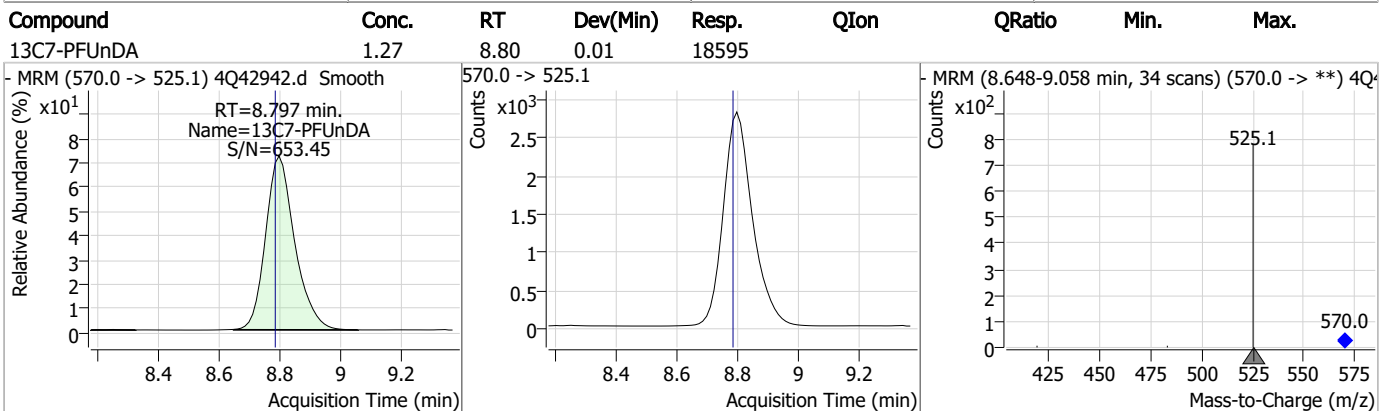
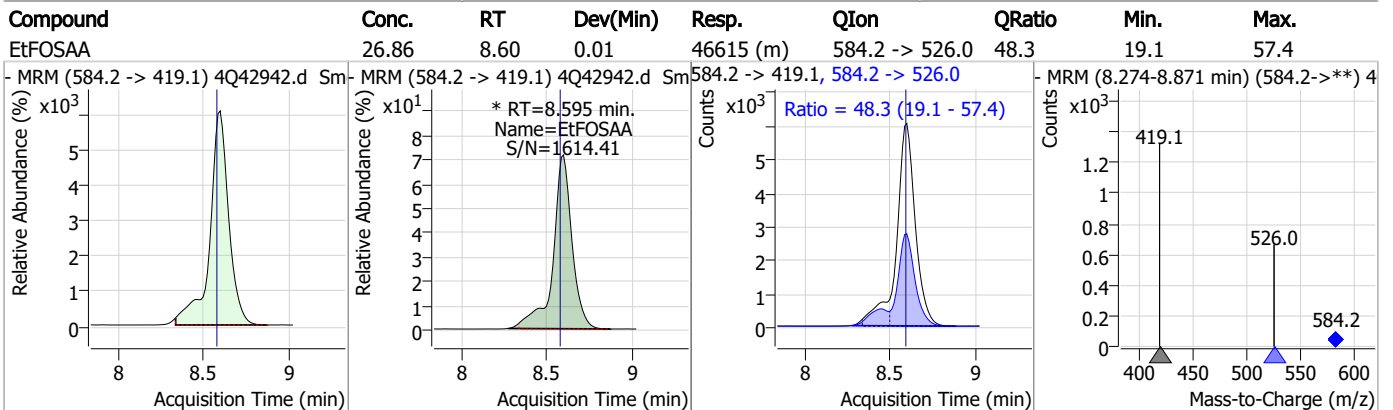
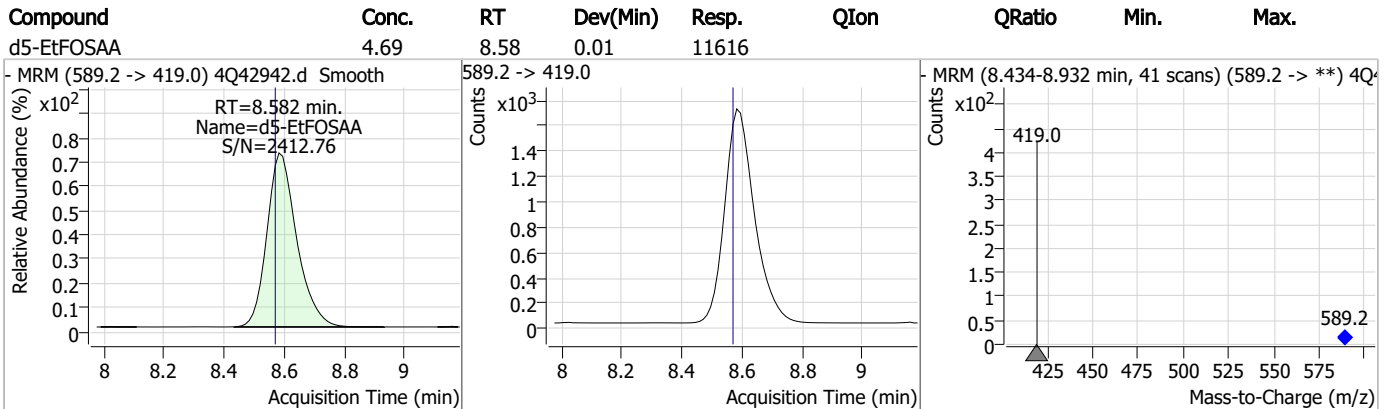
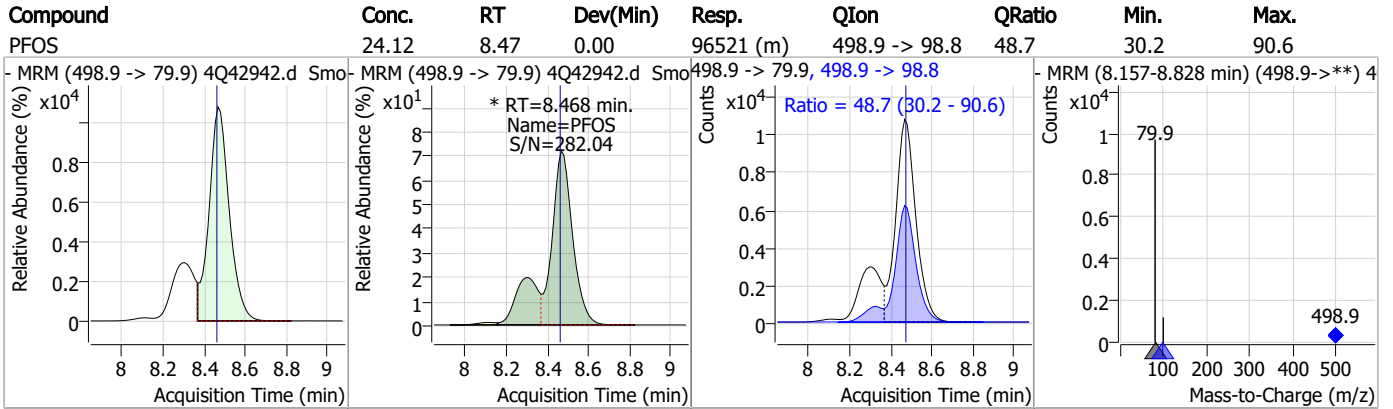
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	25.34	8.37	0.01	51741 (m)	570.1 -> 483.0	22.4	7.8	23.4



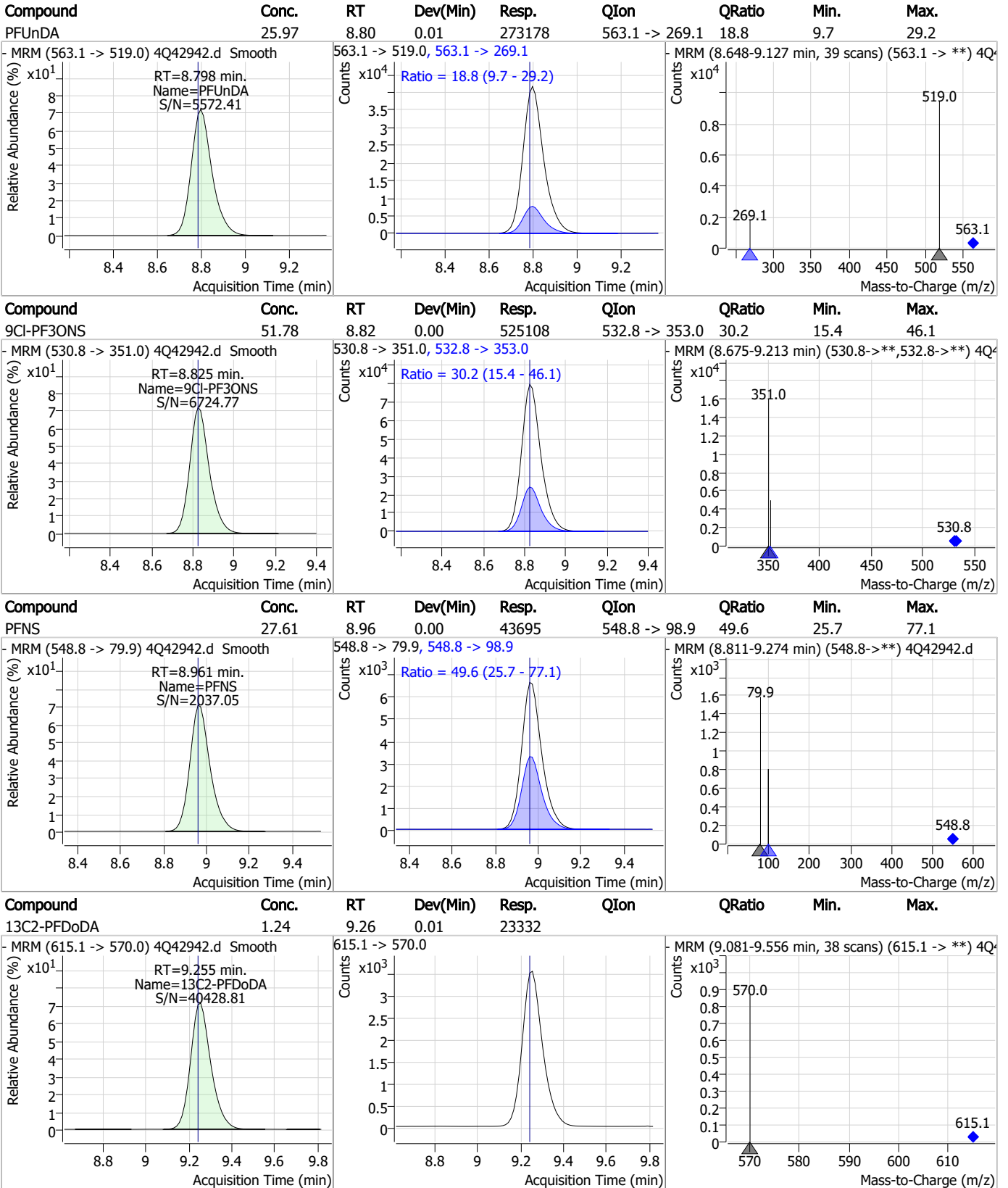
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.56	8.47	0.00	10282				



### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

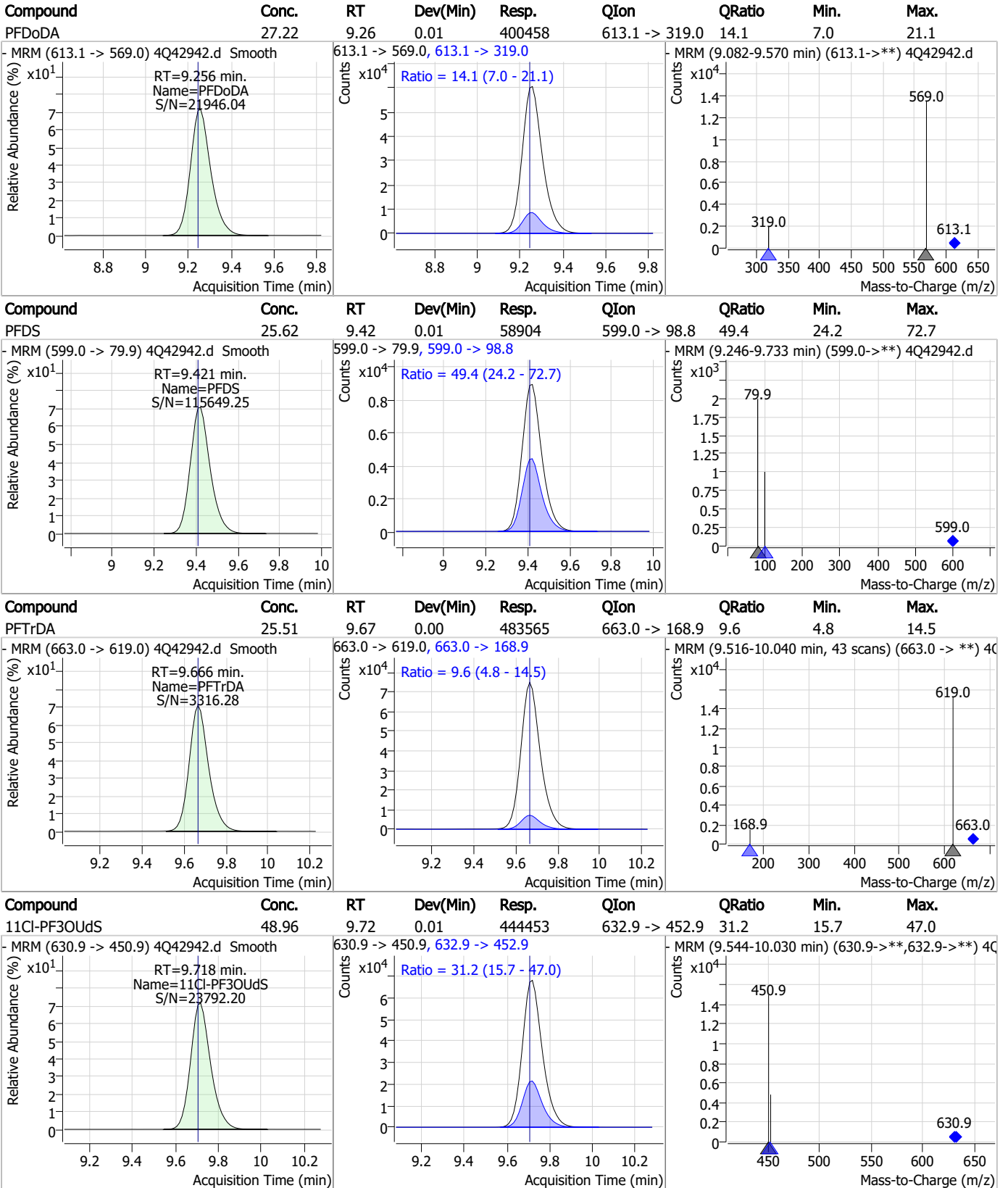


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### Perfluorinated Compounds by LC/MS/MS



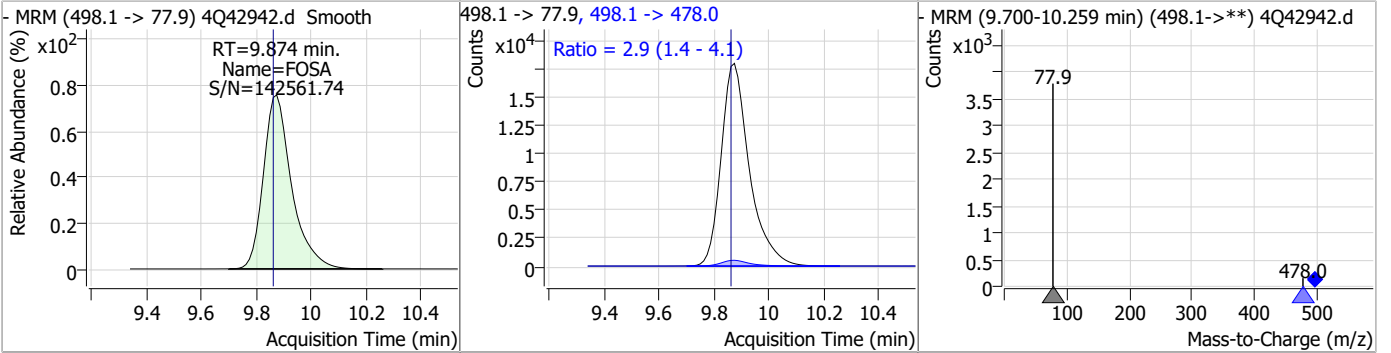
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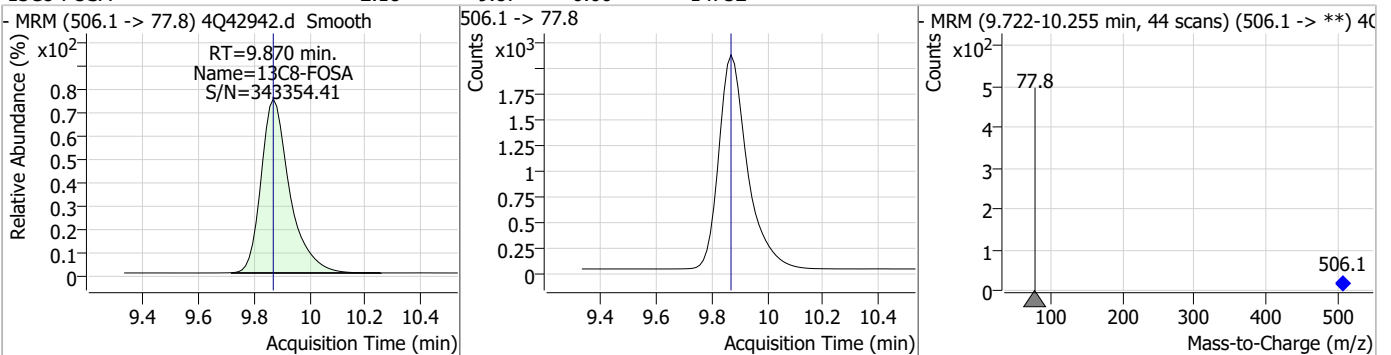


### Perfluorinated Compounds by LC/MS/MS

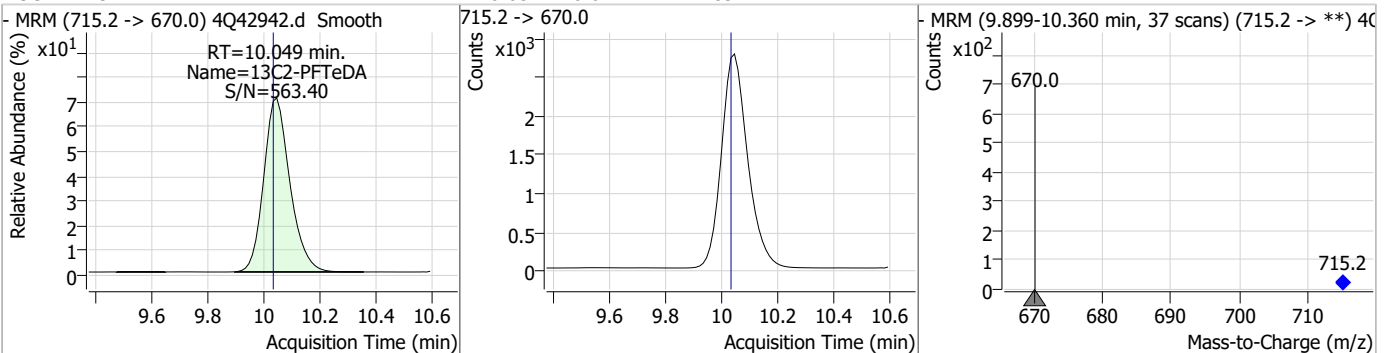
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	27.03	9.87	0.01	128381	498.1 -> 478.0	2.9	1.4	4.1



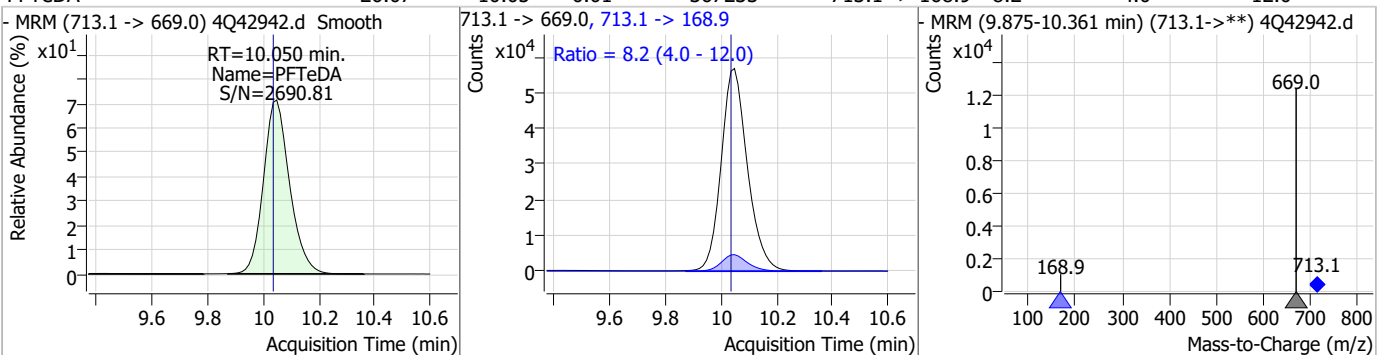
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.18	9.87	0.00	14752				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.22	10.05	0.01	17892				

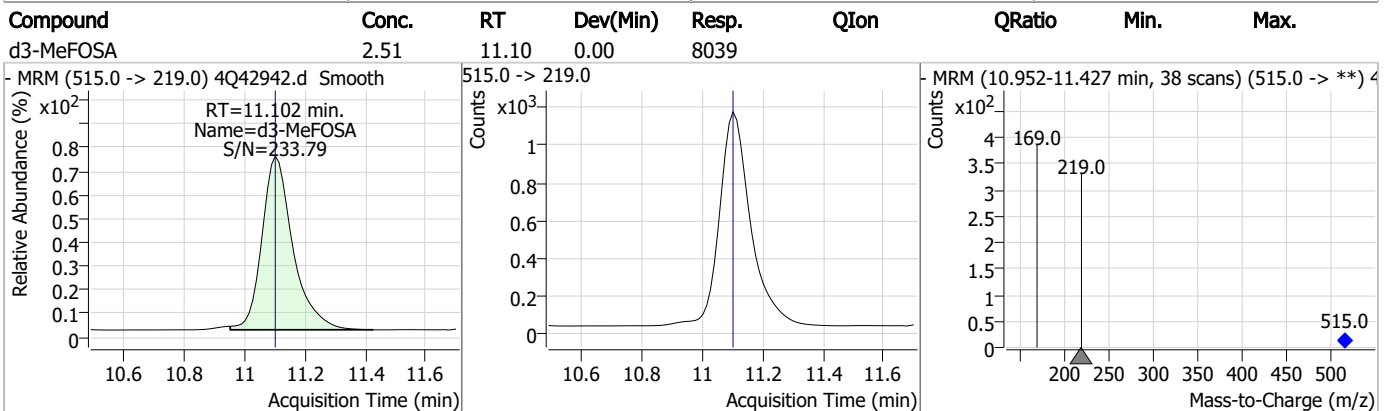
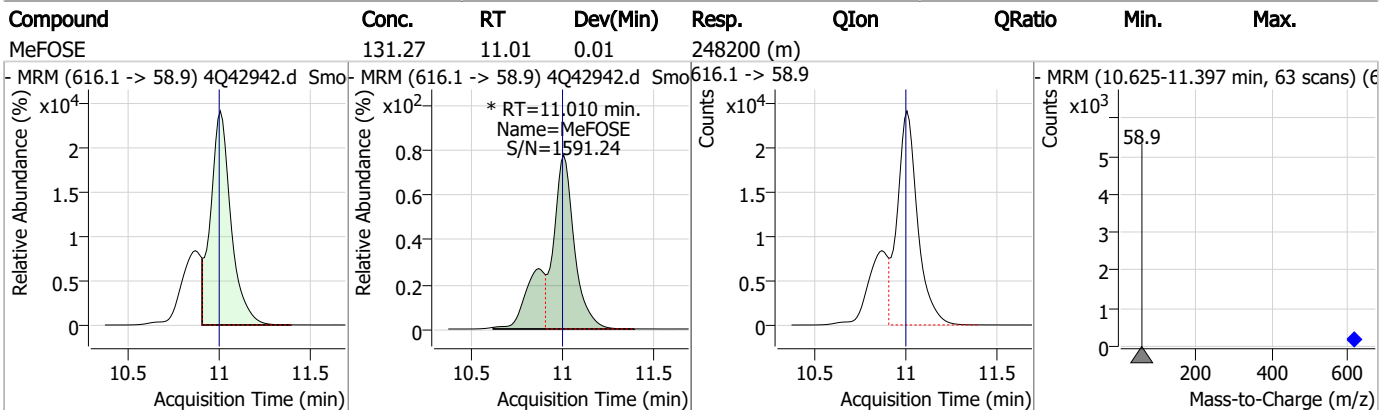
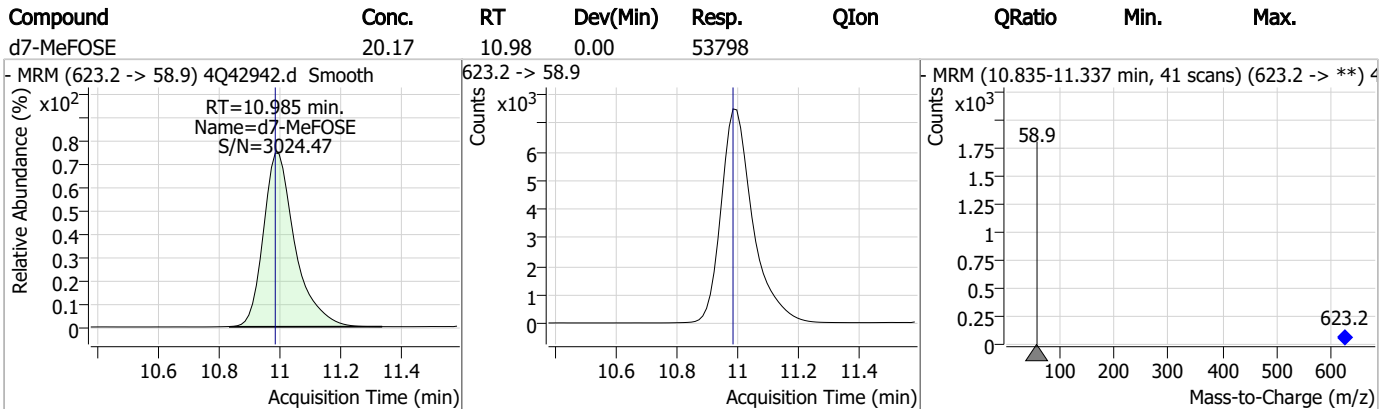
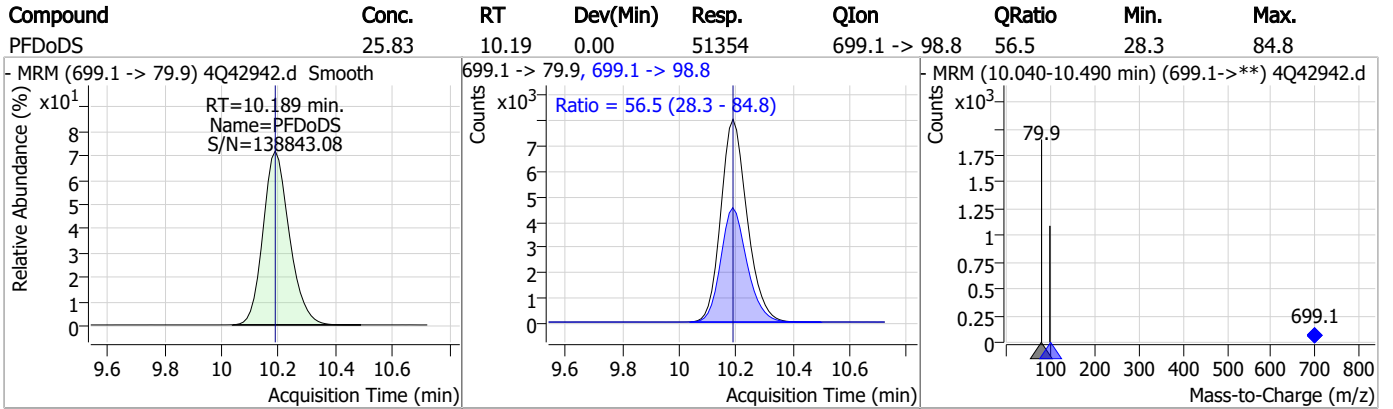


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	26.07	10.05	0.01	367233	713.1 -> 168.9	8.2	4.0	12.0





### Perfluorinated Compounds by LC/MS/MS

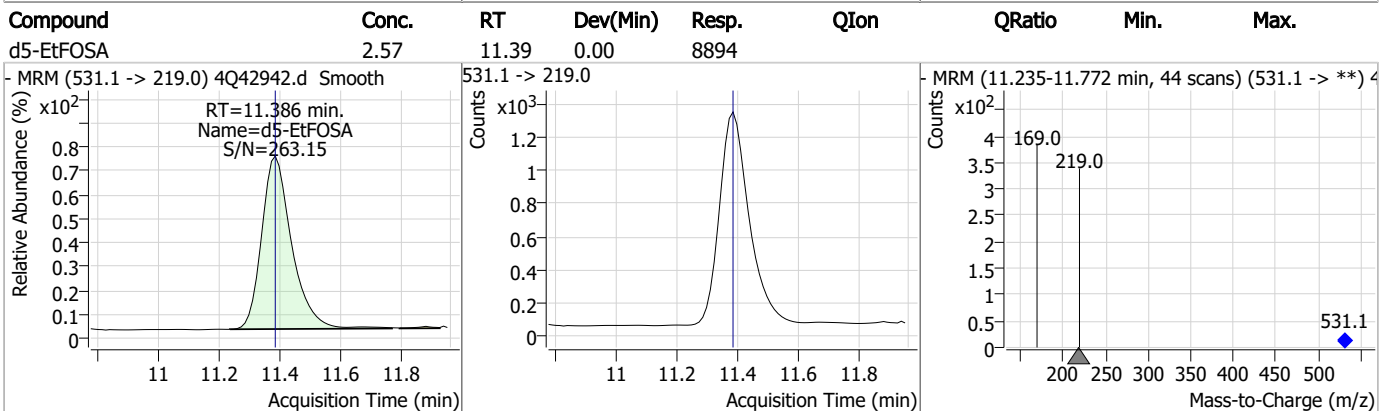
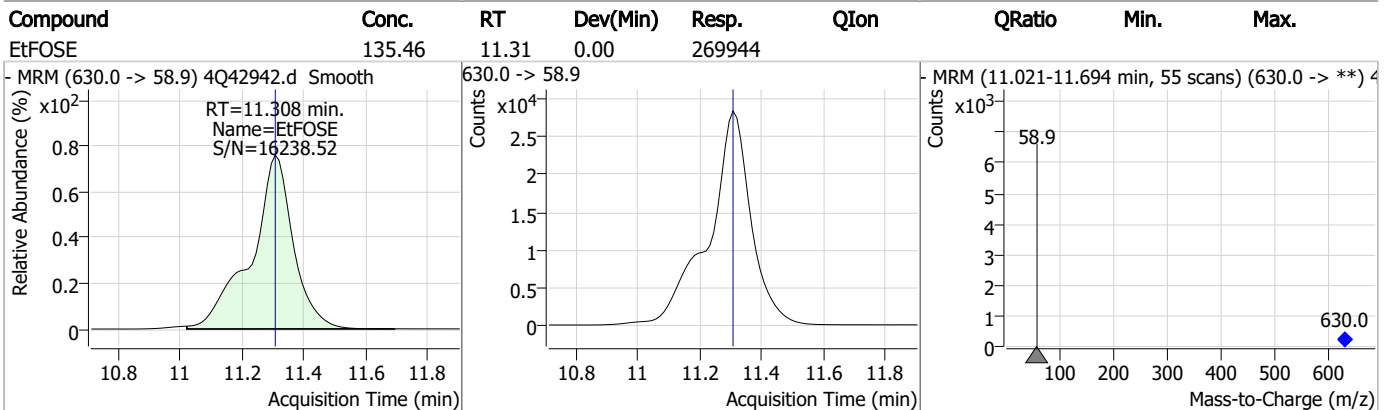
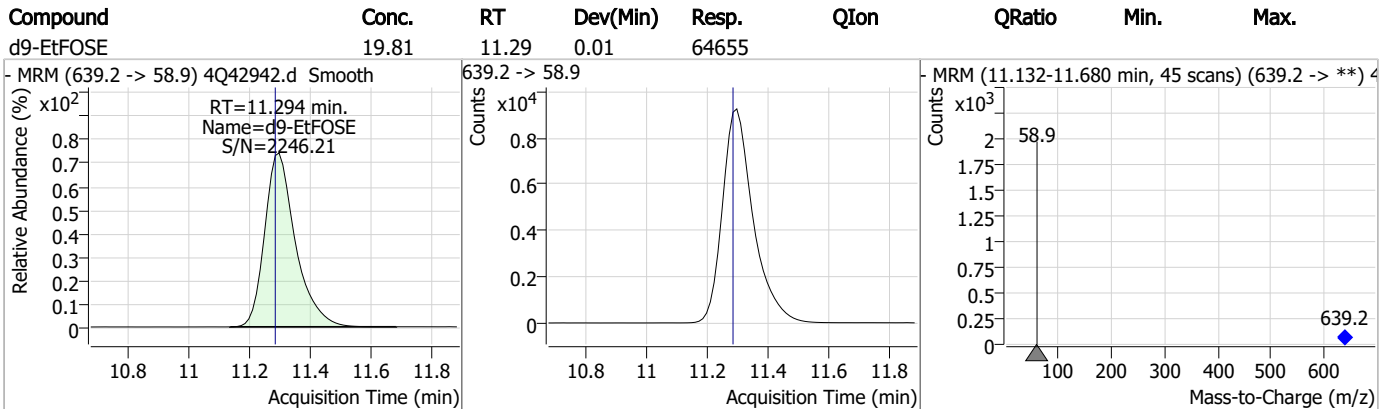
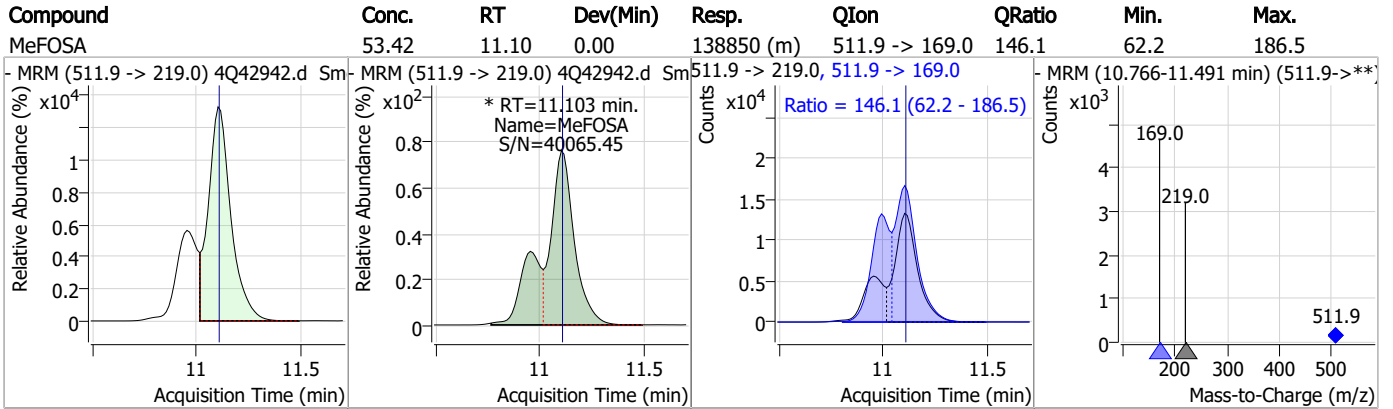


7.7.8

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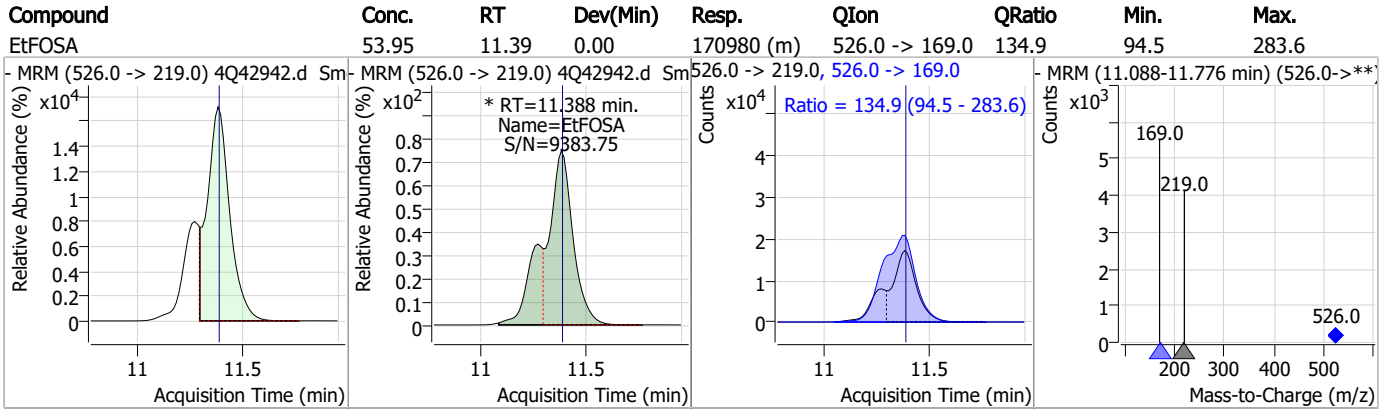
### Perfluorinated Compounds by LC/MS/MS



7.7.8

7

### Perfluorinated Compounds by LC/MS/MS



7.7.8

7

# Manual Integration Approval Summary

Sample Number: S4Q621-IC621      Method: EPA DRAFT 1633  
Lab FileID: 4Q42942.D      Analyst approved: 04/16/23 19:11 Martha Valls  
Injection Time: 04/14/23 13:23      Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.36	Split peak
MeFOSAA	2355-31-9		8.37	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.47	Split peak
EtFOSAA	2991-50-6		8.60	Split peak
MeFOSE	24448-09-7		11.01	Split peak
MeFOSA	31506-32-8		11.10	Split peak
EtFOSA	4151-50-2		11.39	Split peak

7.7.8.1  
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42943.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 4/14/2023 1:37:37 PM  
 Sample Name : ic621-8  
 Vial : P1-A9  
 DA Method File : 1633\_041423\_S4Q621.quantmethod.xml  
 Batch Name : s4q621.batch.bin  
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	3.011	216.8 -> 171.9	102643	10.00 µg/L	0.012
M5-PFPeA	4.475	268.3 -> 223.0	67834	5.00 µg/L	0.000
M5-PFHxA	5.659	318.0 -> 273.0	55320	2.50 µg/L	0.012
M4-PFHpA	6.580	367.1 -> 322.0	27176	2.50 µg/L	0.000
M8-PFOA	7.250	421.1 -> 376.0	32006	2.50 µg/L	0.013
M9-PFNA	7.797	472.1 -> 427.0	18136	1.25 µg/L	0.000
M6-PFDA	8.303	519.1 -> 474.1	16822	1.25 µg/L	0.000
M7-PFUnDA	8.785	570.0 -> 525.1	17497	1.25 µg/L	0.000
M2-PFDoDA	9.243	615.1 -> 570.0	23859	1.25 µg/L	0.000
M2-PFTeDA	10.036	715.2 -> 670.0	18140	1.25 µg/L	0.000
M8-FOSA	9.870	506.1 -> 77.8	15039	2.50 µg/L	0.000
M3-PFBS	5.564	302.1 -> 79.9	11594	2.50 µg/L	0.000
M3-PFHxS	7.341	402.1 -> 79.9	7490	2.50 µg/L	0.000
M8-PFOS	8.467	507.1 -> 79.9	9556	2.50 µg/L	0.000
M2-4:2FTS	5.348	329.1 -> 80.9	1037	5.00 µg/L	0.012
M2-6:2FTS	7.010	429.1 -> 80.9	1557	5.00 µg/L	0.012
M2-8:2FTS	8.090	529.1 -> 80.9	2666	5.00 µg/L	0.000
M3-MeFOSAA	8.360	573.2 -> 419.0	13621	5.00 µg/L	0.000
M3-HFPO-DA	6.026	286.9 -> 168.9	34332	10.00 µg/L	0.012
M5-EtFOSAA	8.582	589.2 -> 419.0	10514	5.00 µg/L	0.012
M7-MeFOSE	10.997	623.2 -> 58.9	49713	25.00 µg/L	0.012
M9-EtFOSE	11.294	639.2 -> 58.9	63989	25.00 µg/L	0.012
M5-EtFOSA	11.398	531.1 -> 219.0	8598	2.50 µg/L	0.012
M3-MeFOSA	11.102	515.0 -> 219.0	7952	2.50 µg/L	0.000
13C4-PFOS	8.467	502.8 -> 79.9	9764	2.50 µg/L	0.000
13C3-PFBA	3.016	216.0 -> 172.0	58962	5.00 µg/L	0.025
18O2-PFHxS	7.353	403.0 -> 83.9	5402	2.50 µg/L	0.013
13C4-PFOA	7.251	417.1 -> 372.0	39389	2.50 µg/L	0.013
13C2-PFDA	8.303	515.1 -> 470.1	15542	1.25 µg/L	0.000
13C5-PFNA	7.797	468.0 -> 423.0	19223	1.25 µg/L	0.000
13C2-PFHxA	5.660	315.1 -> 270.0	48222	2.50 µg/L	0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.348	329.1 -> 80.9	1037	3.51 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 70.3%		
13C2-6:2FTS	7.010	429.1 -> 80.9	1557	3.68 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 73.5%		
13C2-8:2FTS	8.090	529.1 -> 80.9	2666	3.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 76.5%		
13C2-PFDoDA	9.243	615.1 -> 570.0	23859	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C2-PFTeDA	10.036	715.2 -> 670.0	18140	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.4%		
13C3-PFBS	5.564	302.1 -> 79.9	11594	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.4%		
13C3-PFHxS	7.341	402.1 -> 79.9	7490	2.51 µg/L	0.000

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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C4-PFBA	3.011	216.8 -> 171.9	102643	10.00 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFHpA	6.580	367.1 -> 322.0	27176	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C5-PFHxA	5.659	318.0 -> 273.0	55320	2.48 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C5-PFPeA	4.475	268.3 -> 223.0	67834	4.77 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.5%	
13C6-PFDA	8.303	519.1 -> 474.1	16822	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C7-PFUnDA	8.785	570.0 -> 525.1	17497	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.3%	
13C8-FOSA	9.870	506.1 -> 77.8	15039	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.2%	
13C8-PFOA	7.250	421.1 -> 376.0	32006	2.47 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C8-PFOS	8.467	507.1 -> 79.9	9556	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C9-PFNA	7.797	472.1 -> 427.0	18136	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.6%	
d3-MeFOSAA	8.360	573.2 -> 419.0	13621	4.74 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.7%	
13C3-HFPO-DA	6.026	286.9 -> 168.9	34332	10.14 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
d3-MeFOSA	11.102	515.0 -> 219.0	7952	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.2%	
d5-EtFOSAA	8.582	589.2 -> 419.0	10514	4.50 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 90.0%	
d7-MeFOSE	10.997	623.2 -> 58.9	49713	19.74 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.0%	
d9-EtFOSE	11.294	639.2 -> 58.9	63989	20.77 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 83.1%	
d5-EtFOSA	11.398	531.1 -> 219.0	8598	2.63 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.3%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.336	327.1 -> 307.0 327.1 -> 80.9	325462 134920	251.84 µg/L	99
6:2FTS	7.011	427.1 -> 407.0 427.1 -> 80.9	244704 102296	230.19 µg/L	99
8:2FTS	8.090	527.1 -> 507.0 527.1 -> 80.8	273965 108192	229.18 µg/L	100
EtFOSAA	8.583	584.2 -> 419.1 584.2 -> 526.0	108416 51029	69.03 µg/L	m 86
FOSA	9.861	498.1 -> 77.9 498.1 -> 478.0	313877 8852	64.82 µg/L	100
MeFOSAA	8.373	570.1 -> 419.0 570.1 -> 483.0	122323 24998	65.17 µg/L	m 89
PFBA	3.020	212.8 -> 168.9	614809	262.28 µg/L	100
PFBS	5.565	298.7 -> 79.9 298.7 -> 98.8	247553 96440	57.21 µg/L	99
PFDA	8.304	512.9 -> 469.0 512.9 -> 219.0	635700 126012	66.09 µg/L	99
PFDoDA	9.244	613.1 -> 569.0 613.1 -> 319.0	947715 135269	62.99 µg/L	99
PFDS	9.409	599.0 -> 79.9	136623	63.94 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	67872			
PFHpA	6.593	363.1 -> 319.0	894863	66.01	µg/L	100
		363.1 -> 169.0	158450			
PFHpS	7.936	449.0 -> 79.9	167050	67.16	µg/L	100
		449.0 -> 98.9	86636			
PFHxA	5.662	313.0 -> 269.0	1057722	64.59	µg/L	100
		313.0 -> 118.9	31634			
PFHxS	7.342	398.7 -> 79.9	158231	61.66	µg/L	m 96
		398.7 -> 98.9	78041			
PFNA	7.797	463.0 -> 419.0	607902	62.70	µg/L	94
		463.0 -> 219.0	153301			
PFNS	8.961	548.8 -> 79.9	106786	72.62	µg/L	99
		548.8 -> 98.9	55497			
PFOA	7.252	413.0 -> 369.0	974655	65.18	µg/L	100
		413.0 -> 169.0	197208			
PFOS	8.468	498.9 -> 79.9	224848	60.45	µg/L	m 85
		498.9 -> 98.8	110965			
PFPeA	4.477	263.0 -> 219.0	1698521	132.28	µg/L	100
PFPeS	6.632	349.1 -> 79.9	134652	61.64	µg/L	98
		349.1 -> 98.9	58711			
PFTeDA	10.037	713.1 -> 669.0	861044	60.29	µg/L	100
		713.1 -> 168.9	70146			
PFTrDA	9.654	663.0 -> 619.0	1078811	55.65	µg/L	100
		663.0 -> 168.9	103955			
PFUnDA	8.785	563.1 -> 519.0	611628	61.80	µg/L	100
		563.1 -> 269.1	118771			
11Cl-PF3OUdS	9.705	630.9 -> 450.9	1006397	112.31	µg/L	99
		632.9 -> 452.9	310164			
9Cl-PF3ONS	8.812	530.8 -> 351.0	1185562	118.44	µg/L	100
		532.8 -> 353.0	364698			
ADONA	6.843	376.9 -> 250.9	2486865	120.59	µg/L	100
		376.9 -> 84.8	666664			
HFPO-DA	6.027	284.9 -> 168.9	348817	128.20	µg/L	98
		284.9 -> 184.9	40558			
3:3FTCA	3.979	241.0 -> 177.0	217606	363.71	µg/L	99
		241.0 -> 117.0	19941			
5:3FTCA	6.345	341.0 -> 237.1	3796979	1641.78	µg/L	100
		341.0 -> 217.0	2710111			
7:3FTCA	7.786	441.0 -> 316.9	1491931	1574.11	µg/L	99
		441.0 -> 336.9	3308937			
EtFOSA	11.400	526.0 -> 219.0	403228	131.62	µg/L	m 64
		526.0 -> 169.0	550141			
EtFOSE	11.320	630.0 -> 58.9	623625	316.20	µg/L	100
MeFOSA	11.116	511.9 -> 219.0	321816	125.17	µg/L	m 79
		511.9 -> 169.0	476751			
MeFOSE	11.010	616.1 -> 58.9	567406	324.75	µg/L	m 100
PFDoDS	10.176	699.1 -> 79.9	121607	65.83	µg/L	99
		699.1 -> 98.8	67715			
NFDHA	5.541	295.0 -> 201.0	121383	110.27	µg/L	100
		295.0 -> 84.9	30125			
PFMBA	4.891	279.0 -> 85.1	979514	133.41	µg/L	100
PFMPA	3.611	229.0 -> 84.9	878322	136.79	µg/L	100
PFEESA	6.096	314.8 -> 134.9	1607415	116.91	µg/L	100
		314.8 -> 82.9	54107			

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

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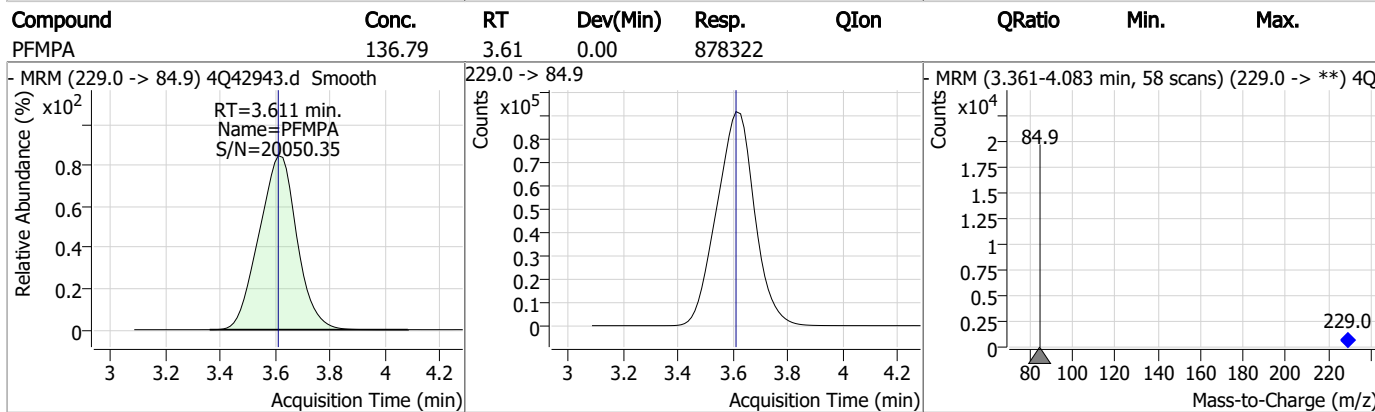
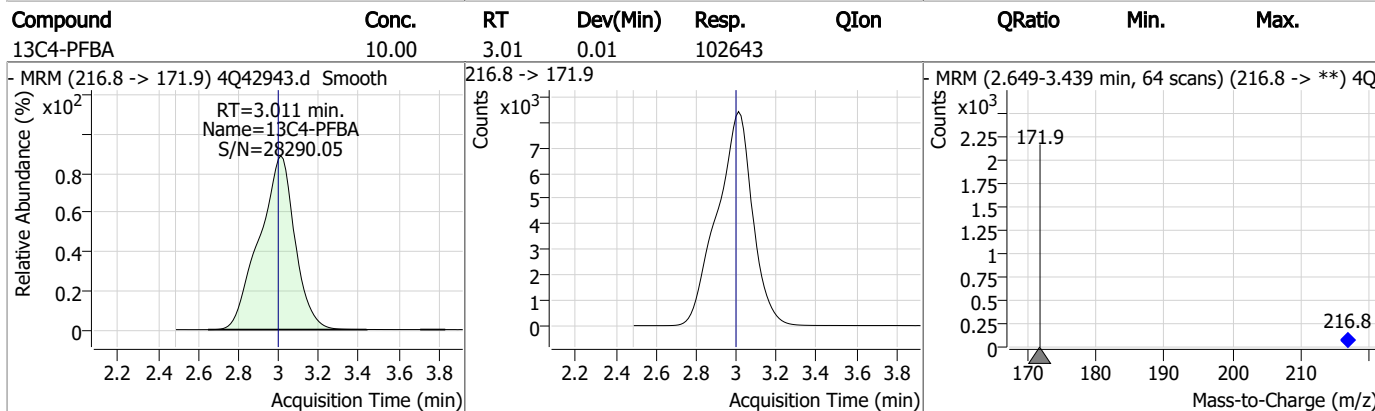
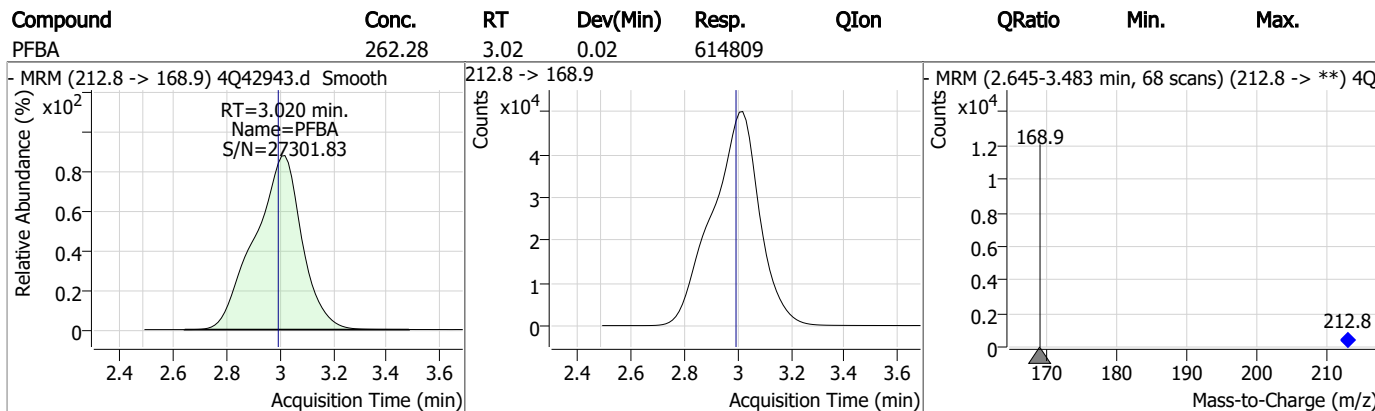
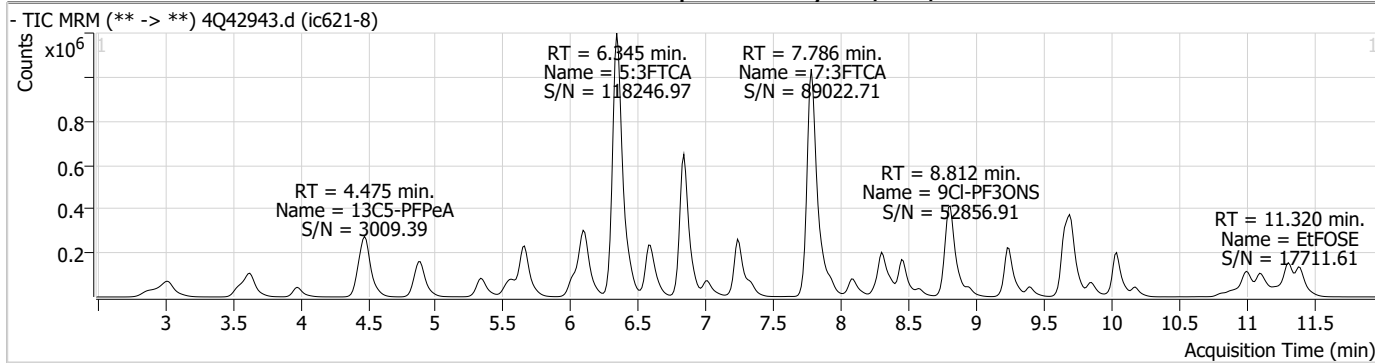
### Perfluorinated Compounds by LC/MS/MS

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

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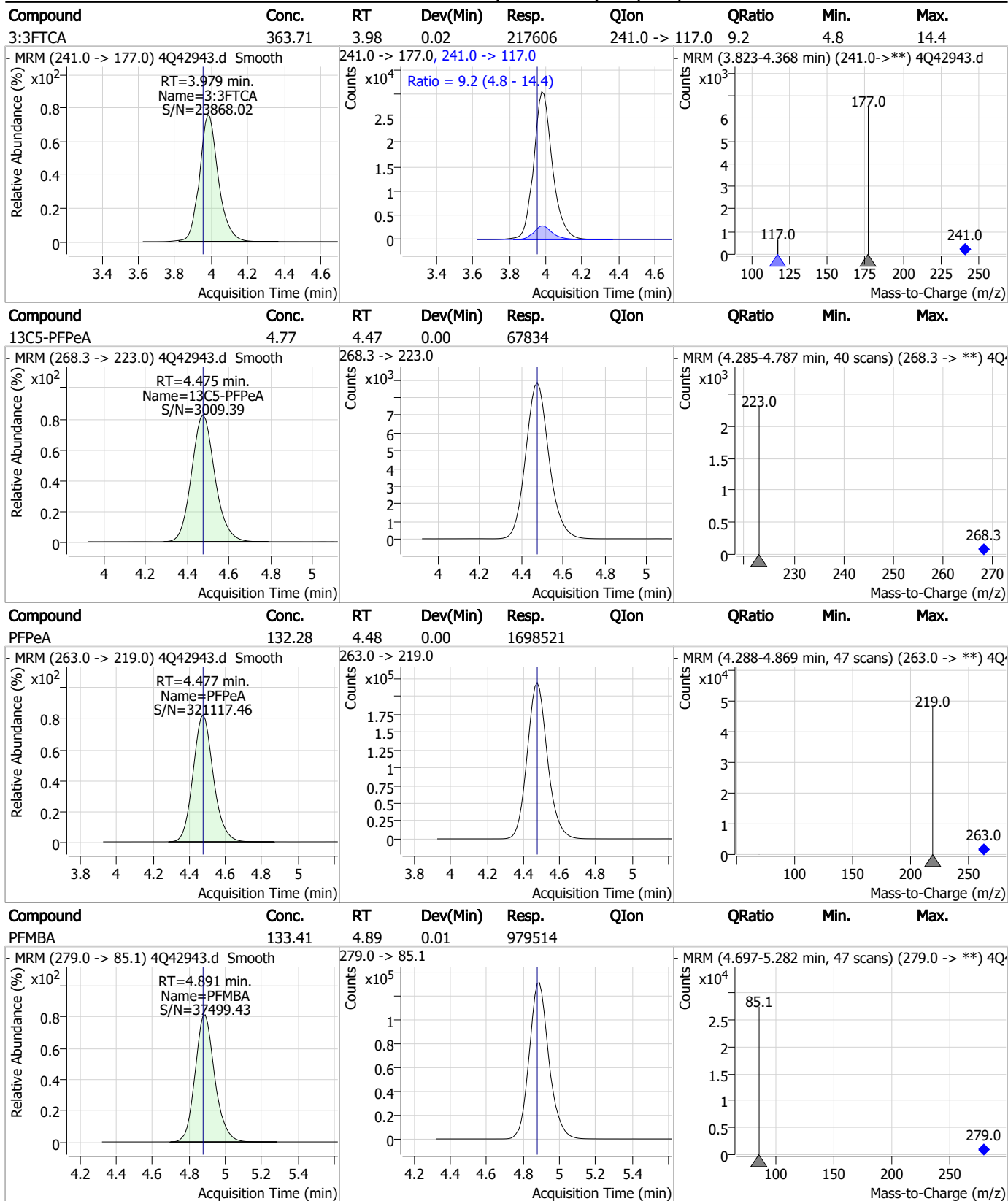
### Perfluorinated Compounds by LC/MS/MS



7.7.9  
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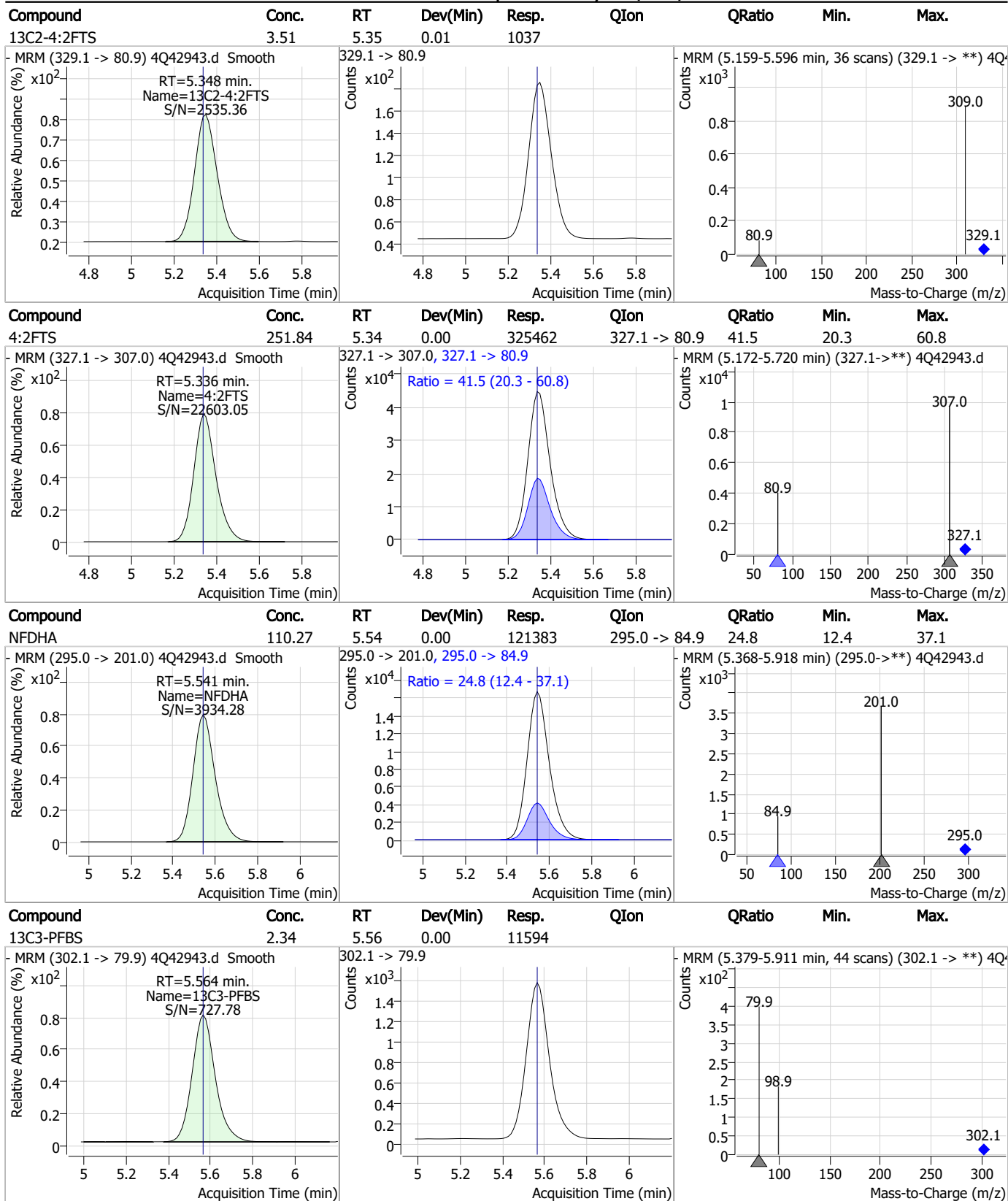


### Perfluorinated Compounds by LC/MS/MS



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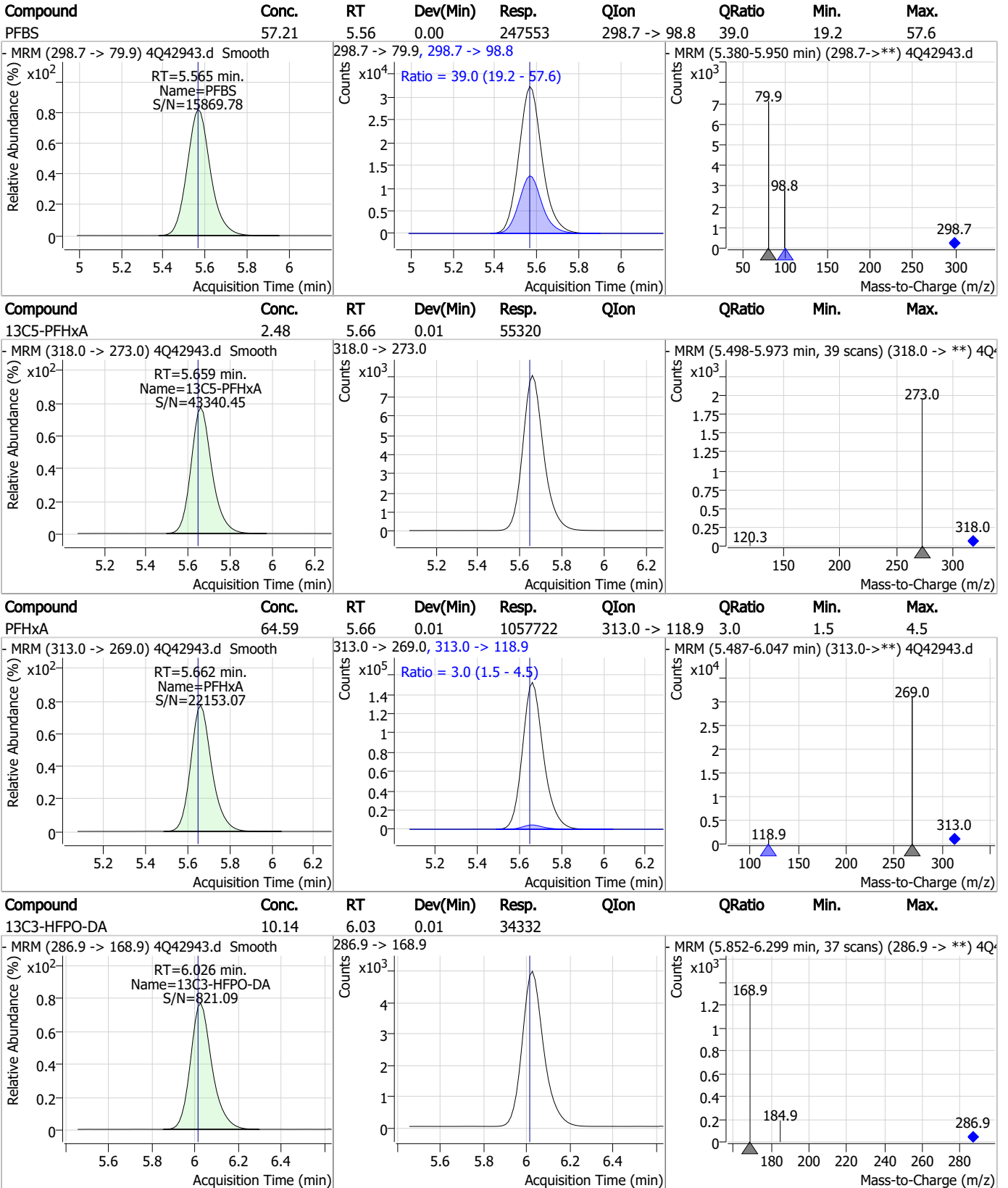
### Perfluorinated Compounds by LC/MS/MS



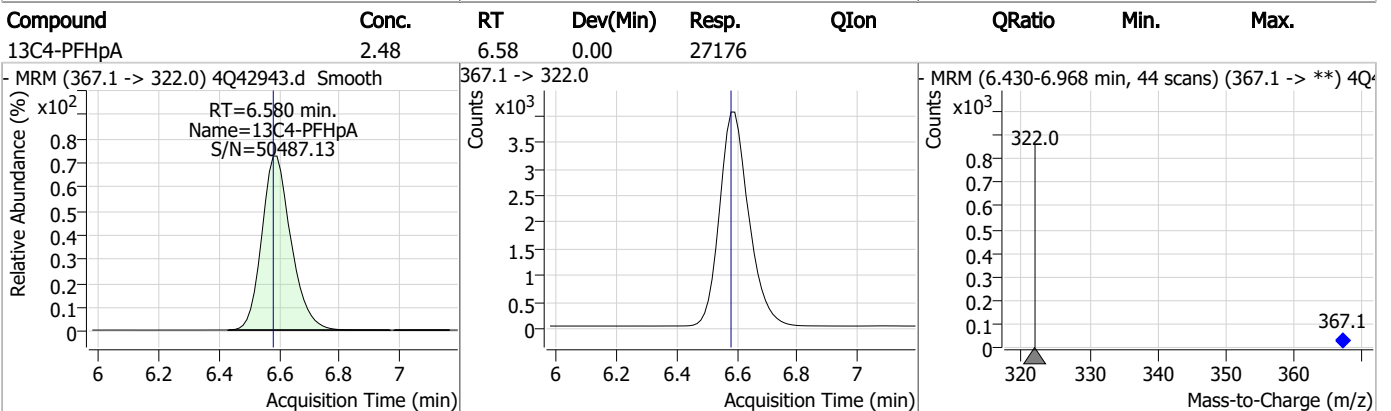
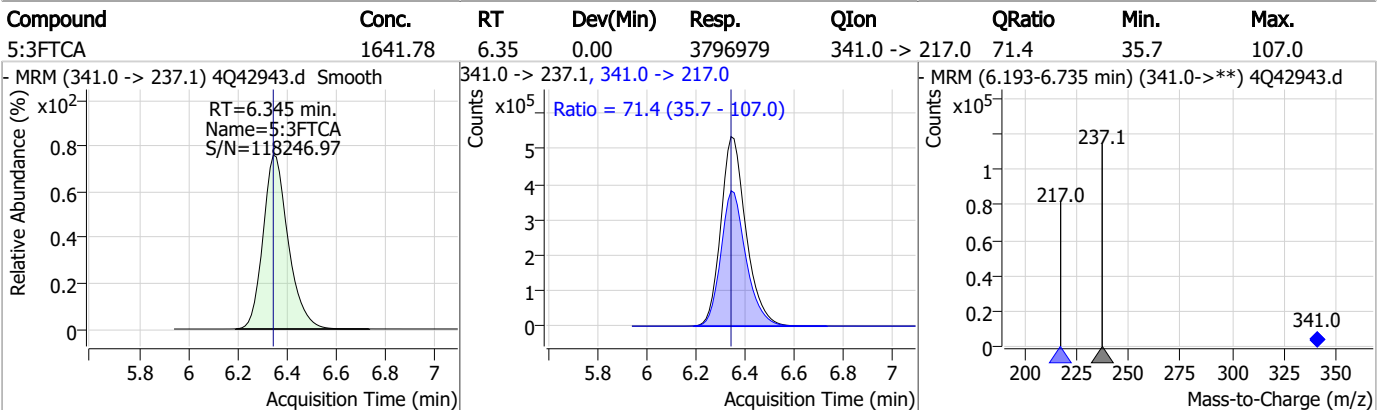
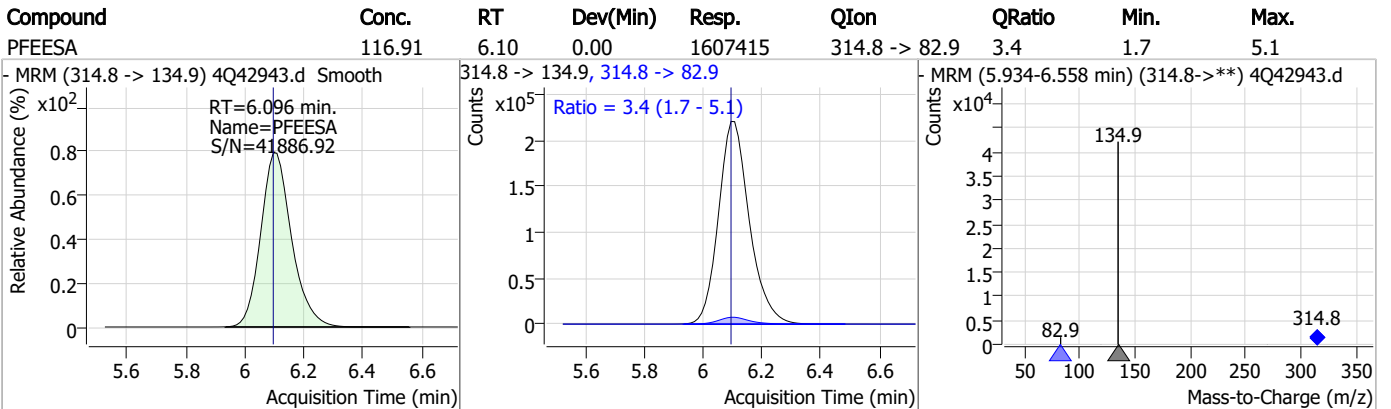
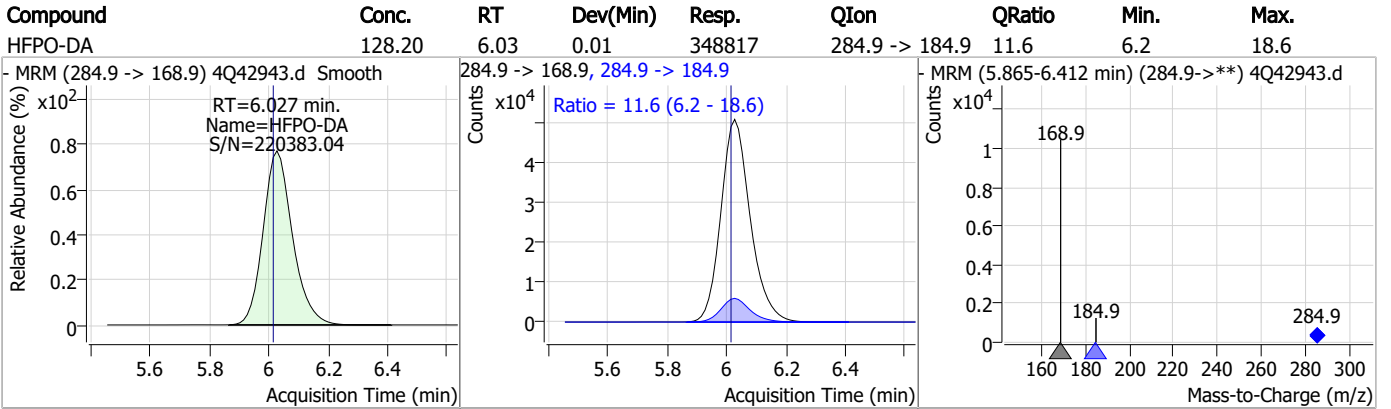
7.7.9  
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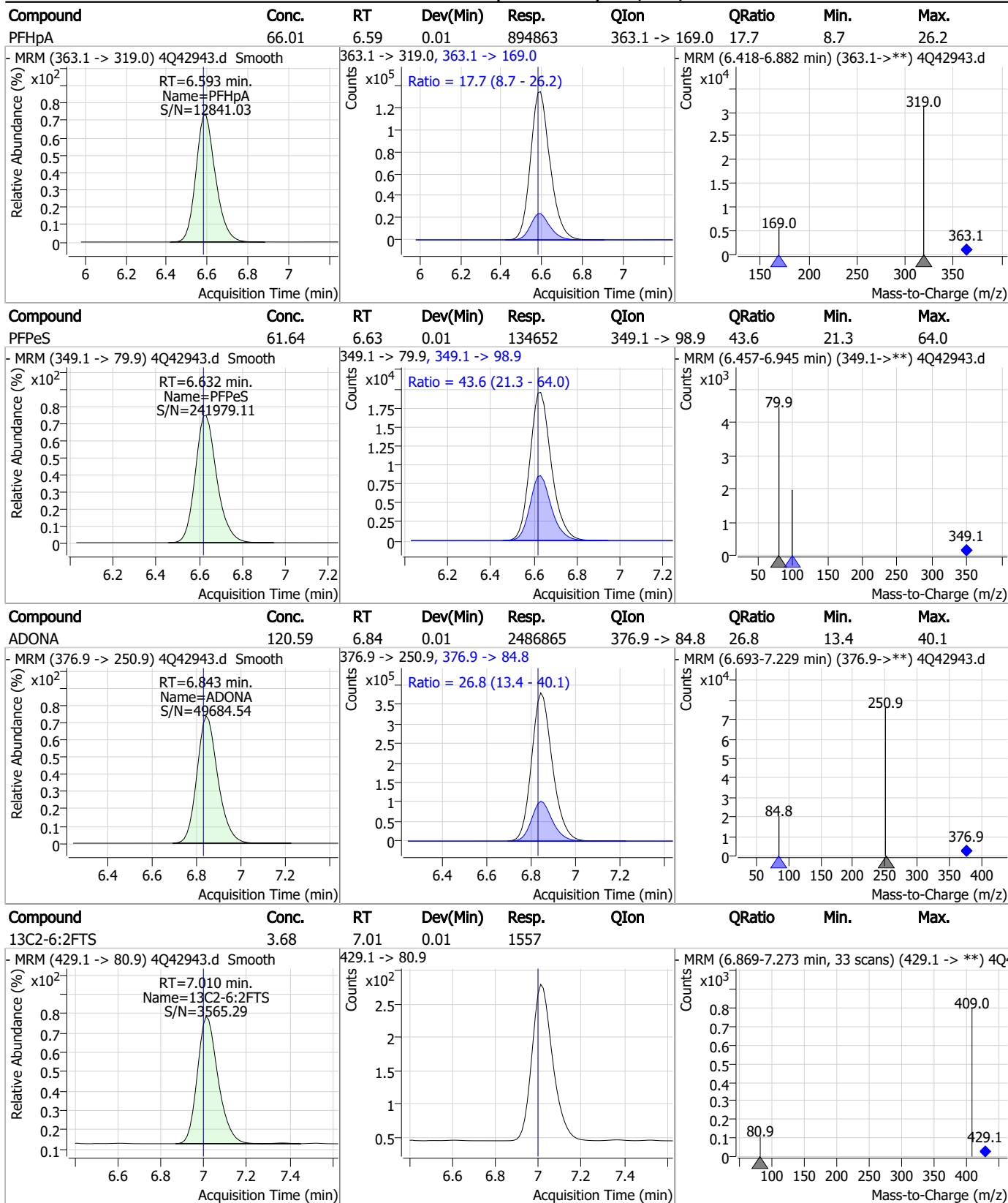
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

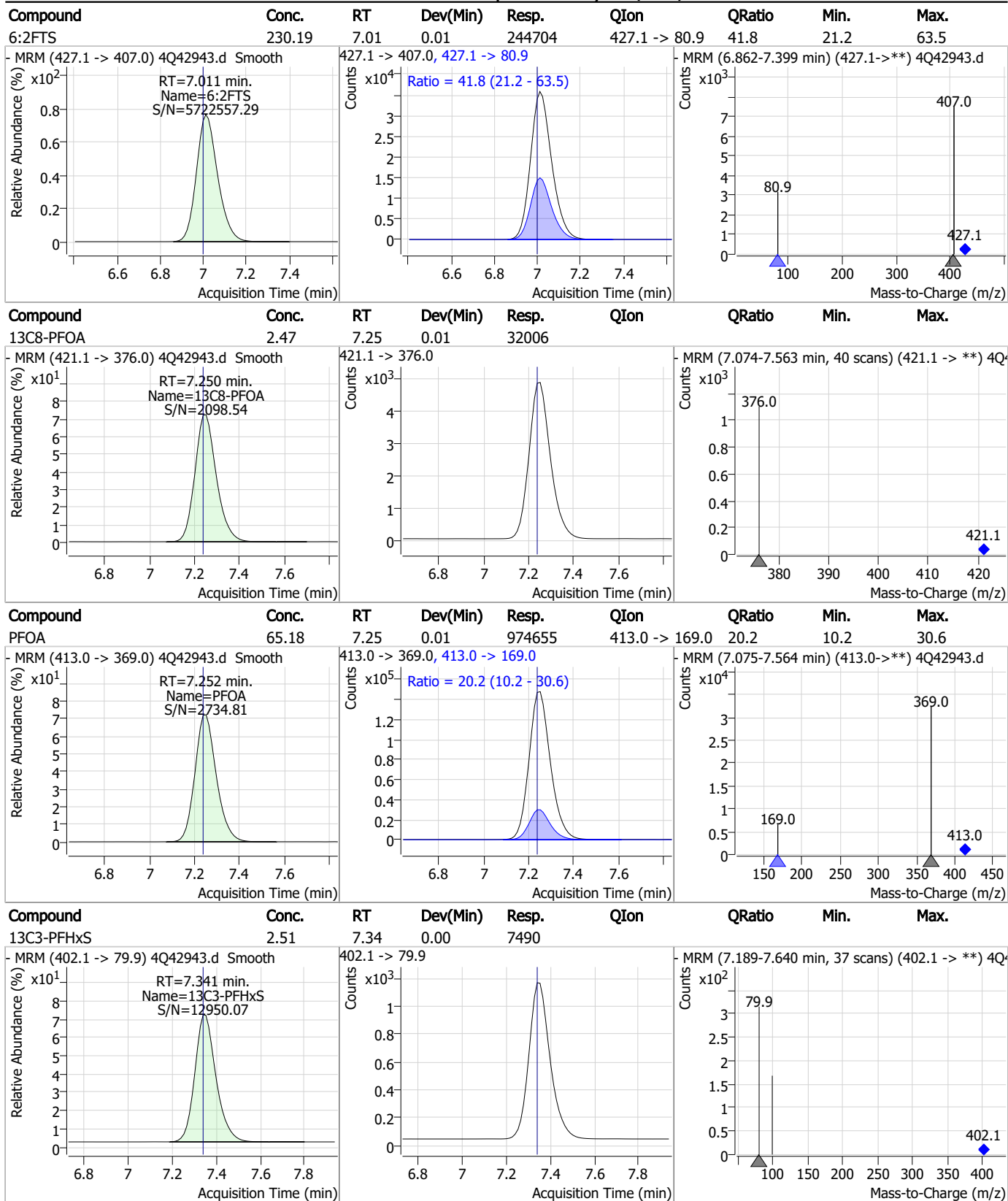


### Perfluorinated Compounds by LC/MS/MS



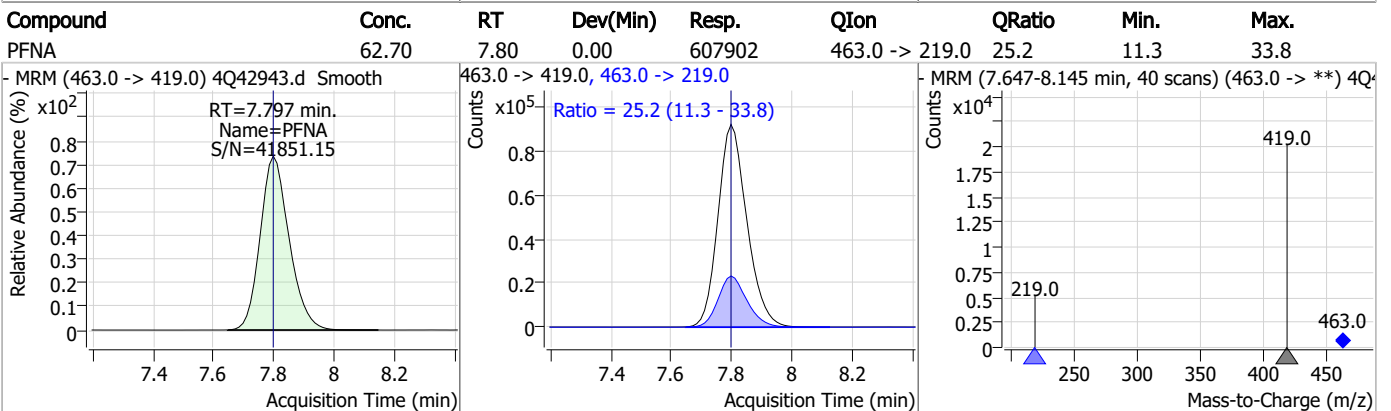
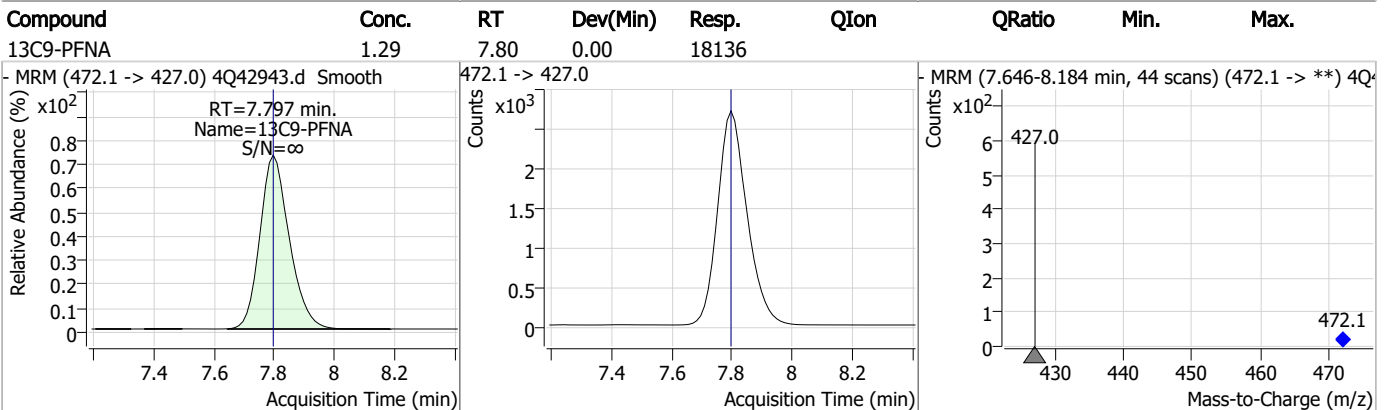
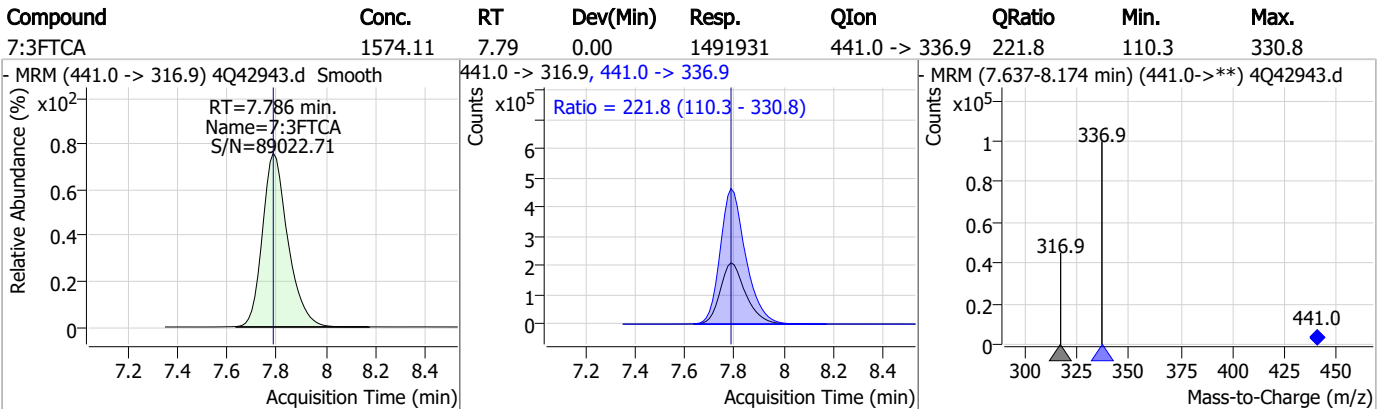
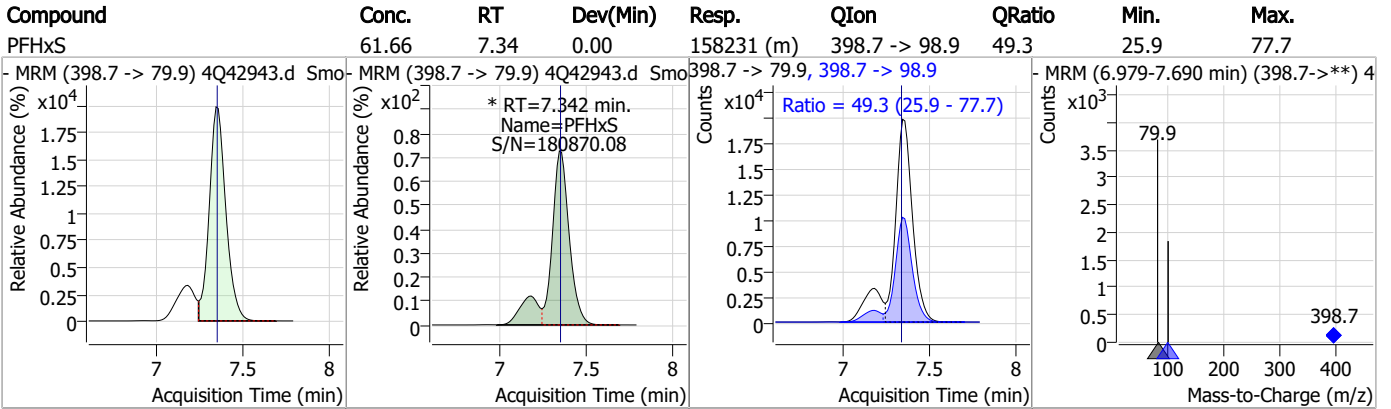
7.7.9  
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### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

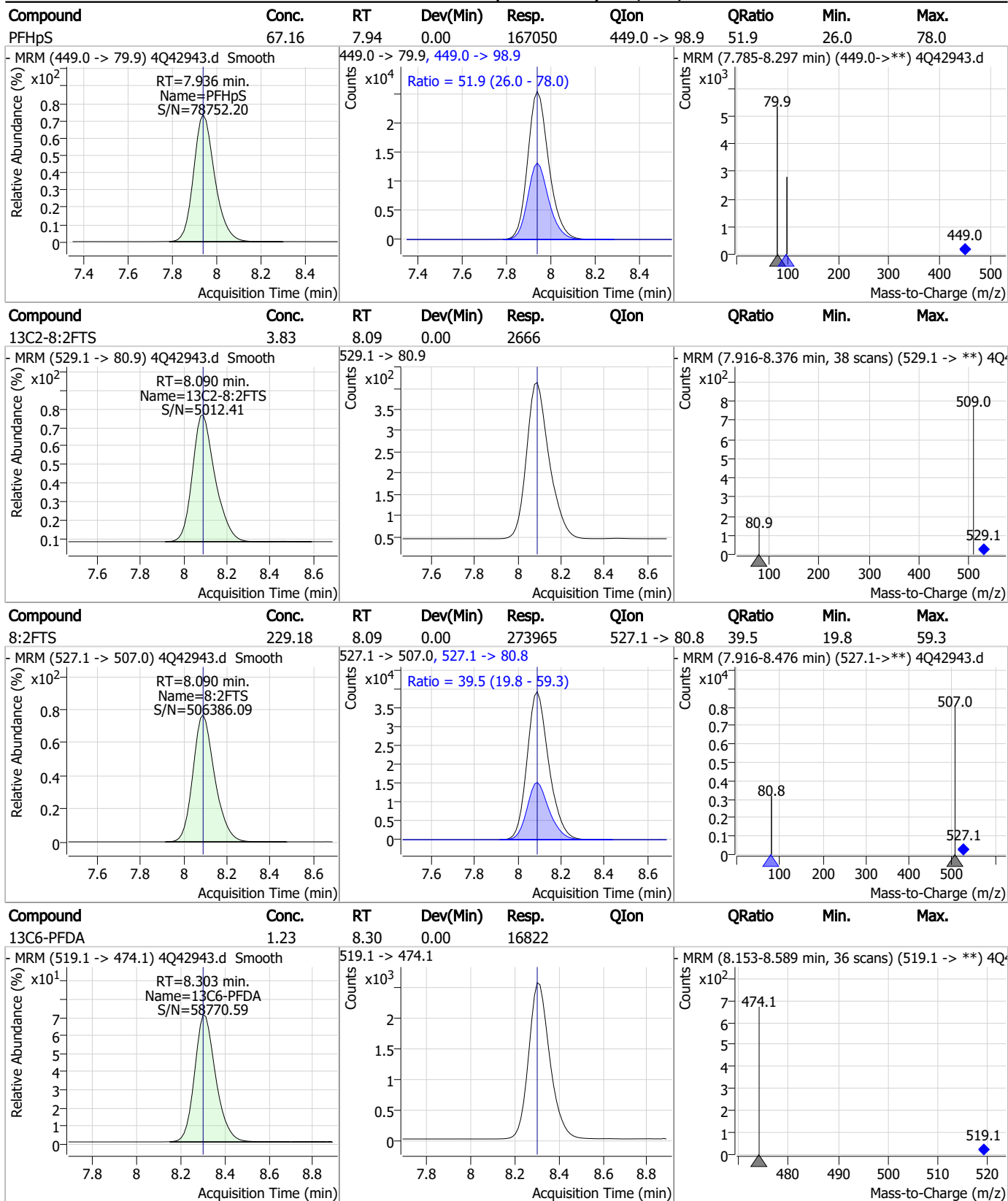


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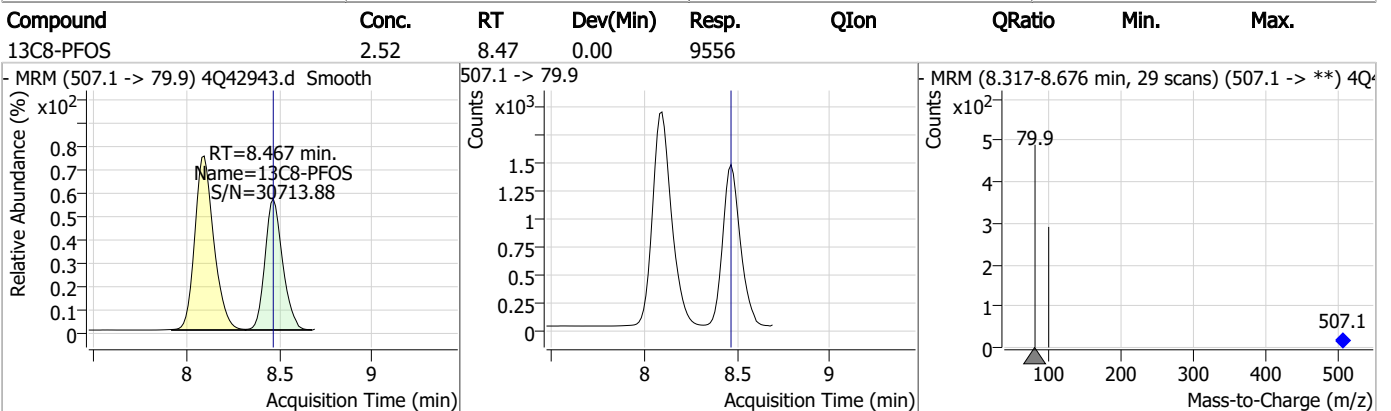
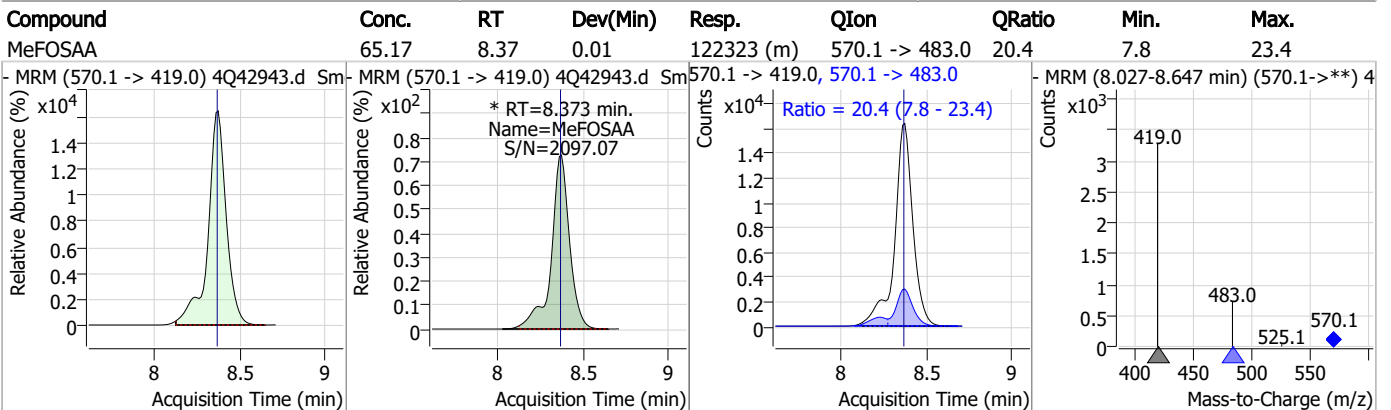
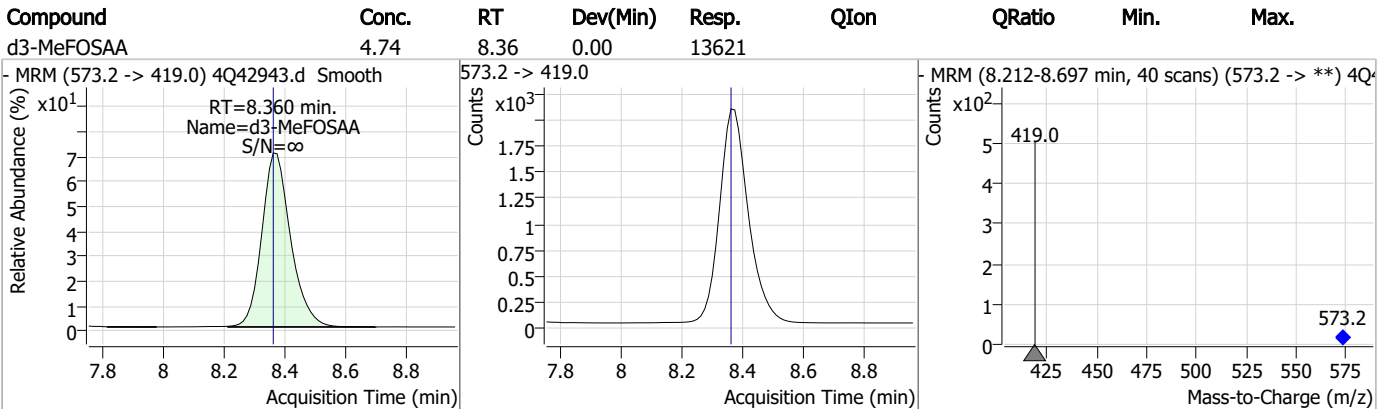
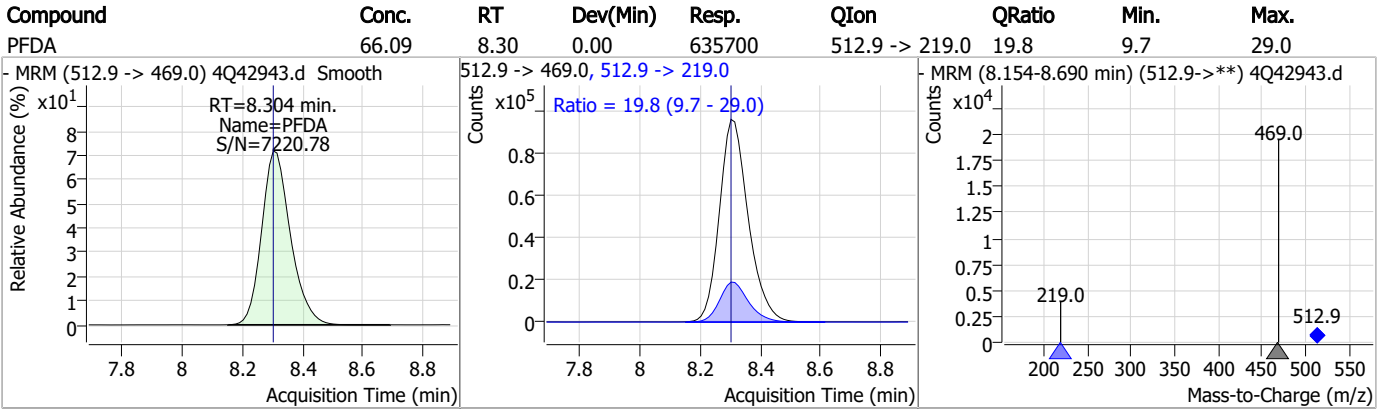
### Perfluorinated Compounds by LC/MS/MS



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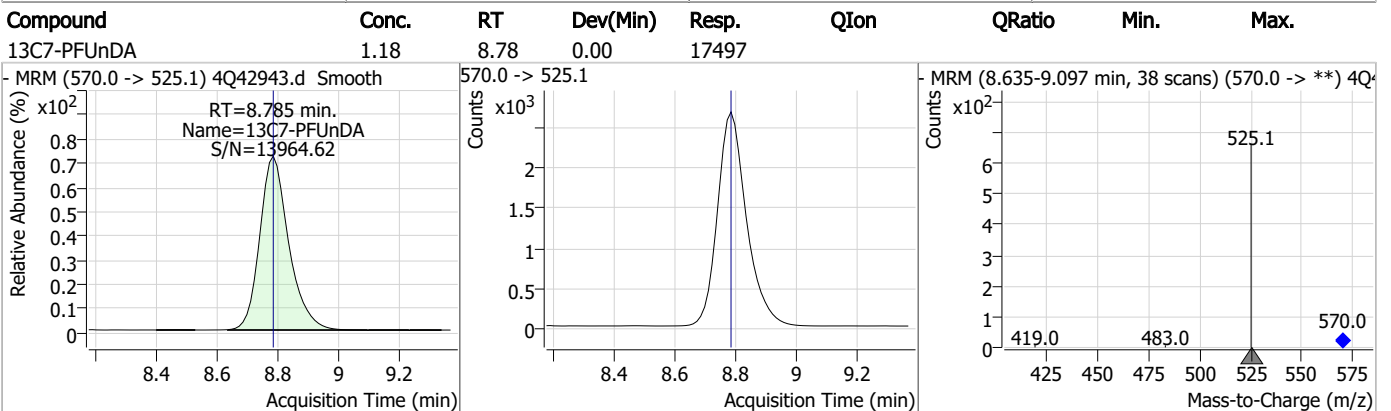
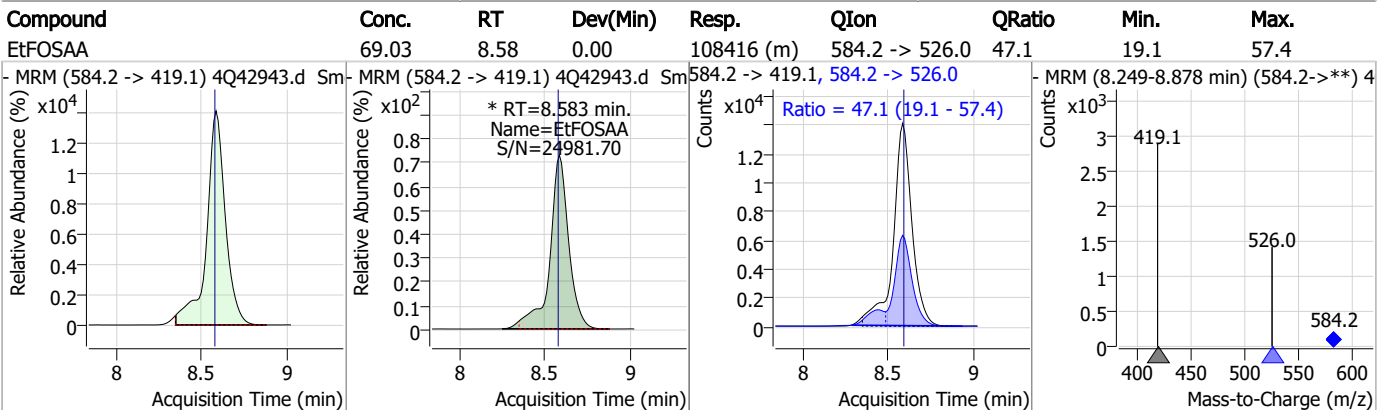
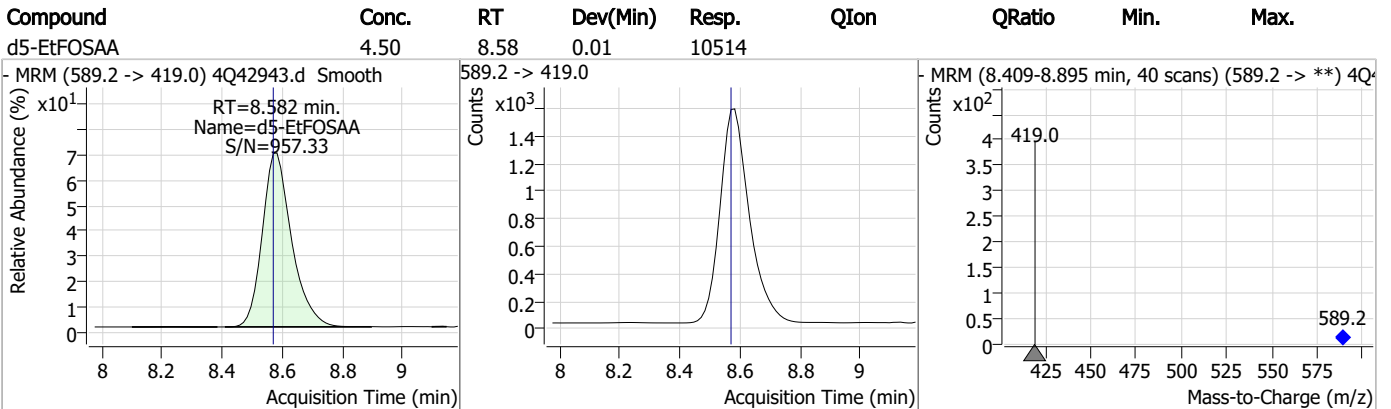
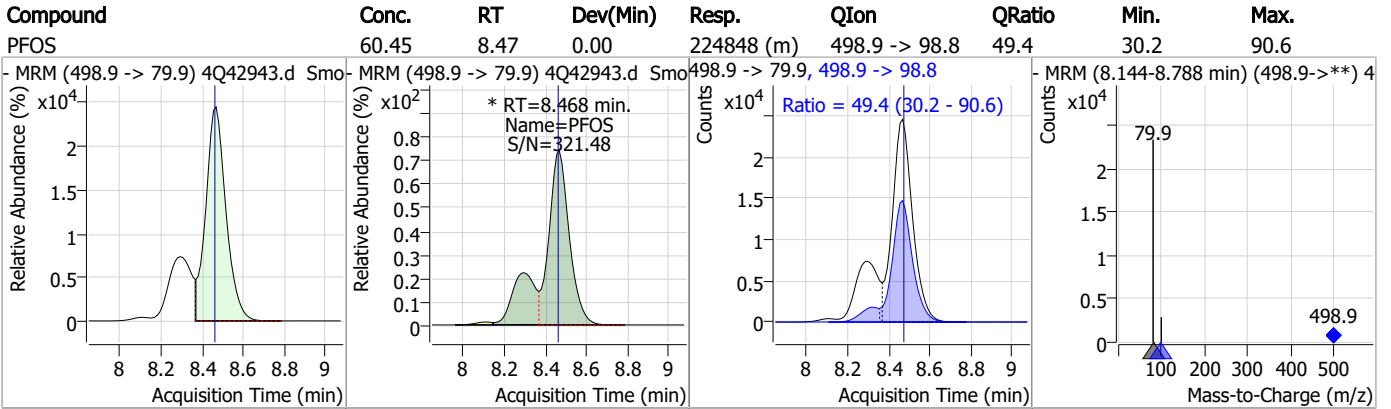
### Perfluorinated Compounds by LC/MS/MS



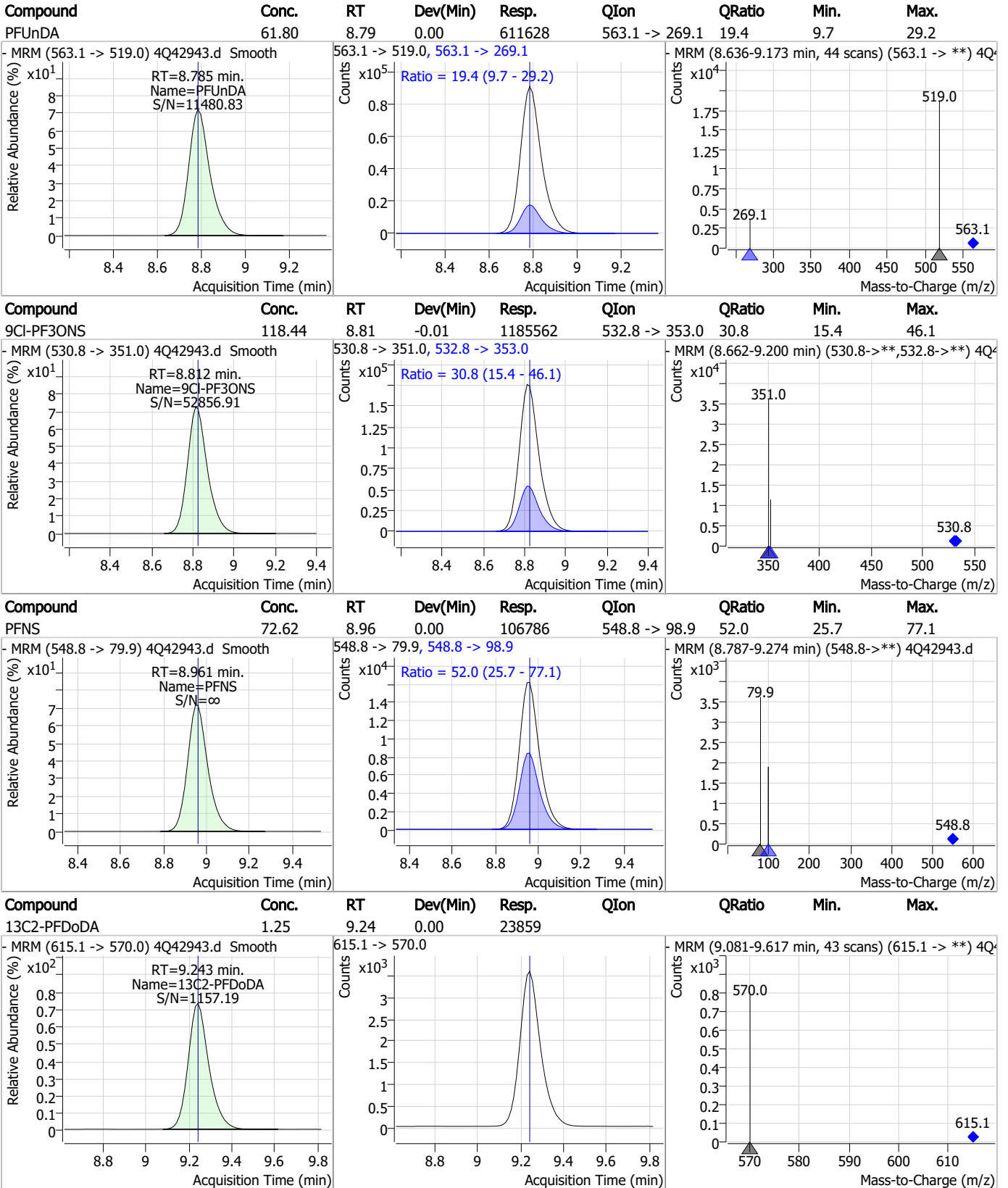
7.7.9

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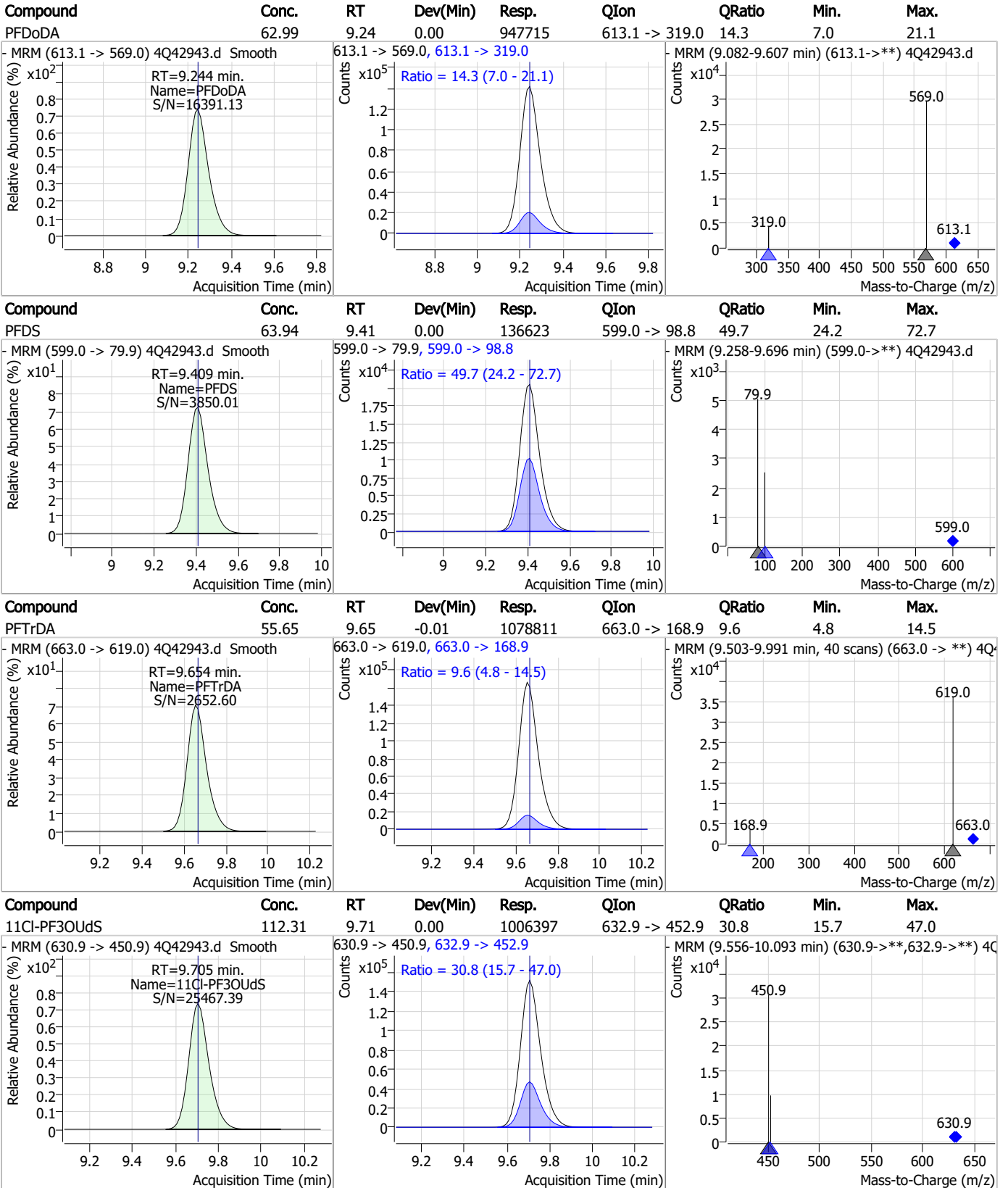
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



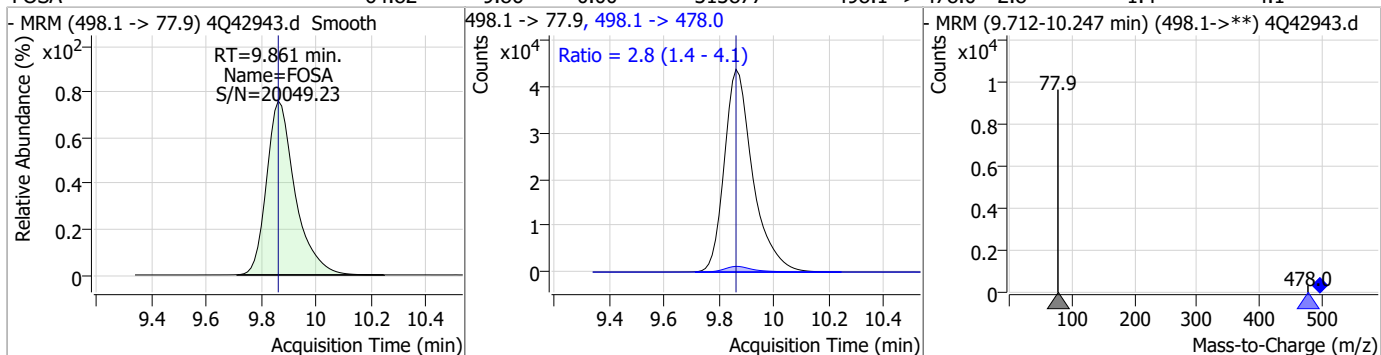
7.7.9

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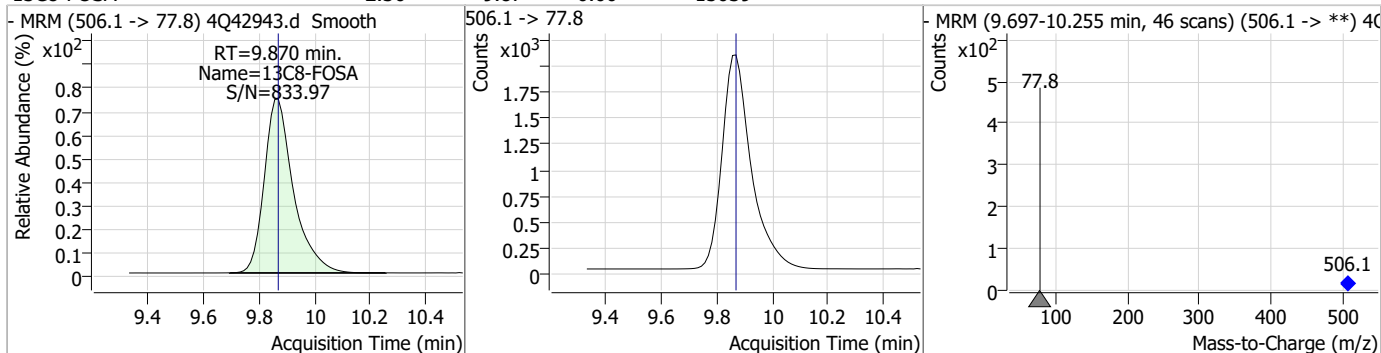


### Perfluorinated Compounds by LC/MS/MS

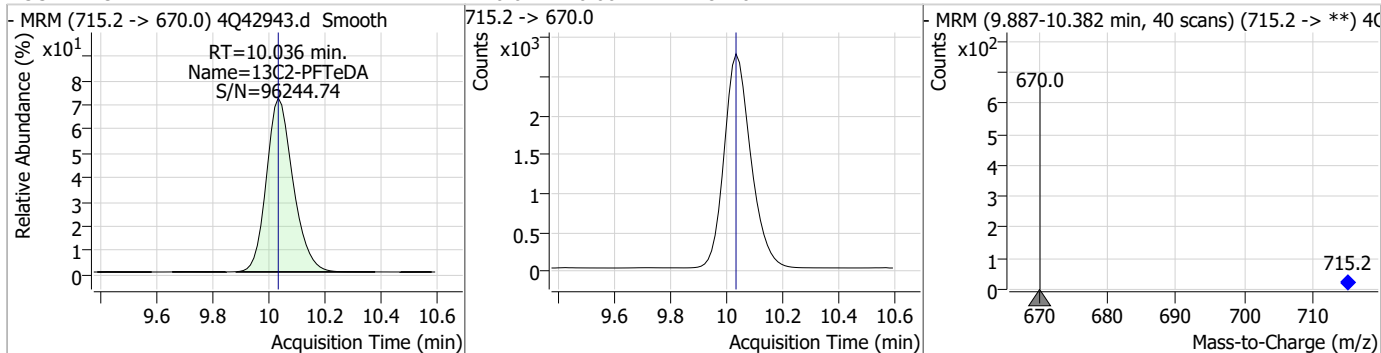
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	64.82	9.86	0.00	313877	498.1 -> 478.0	2.8	1.4	4.1



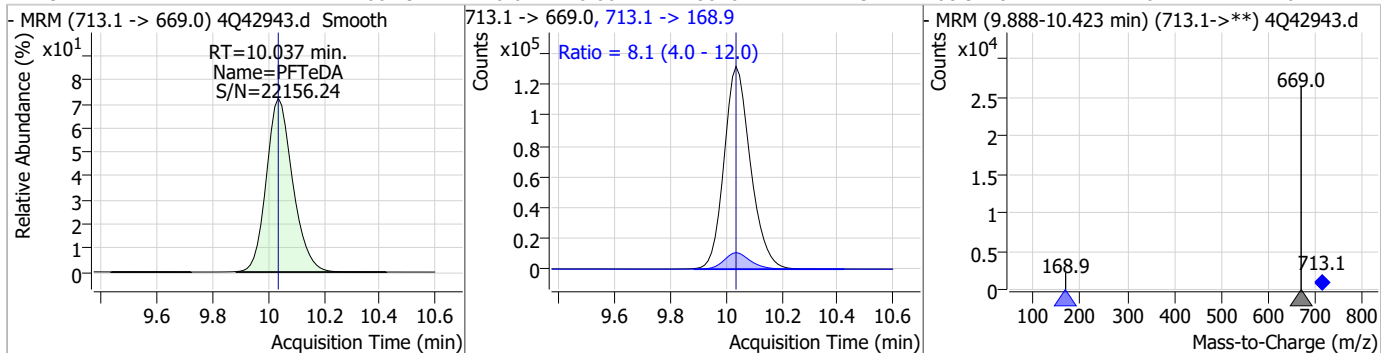
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.36	9.87	0.00	15039				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.22	10.04	0.00	18140				



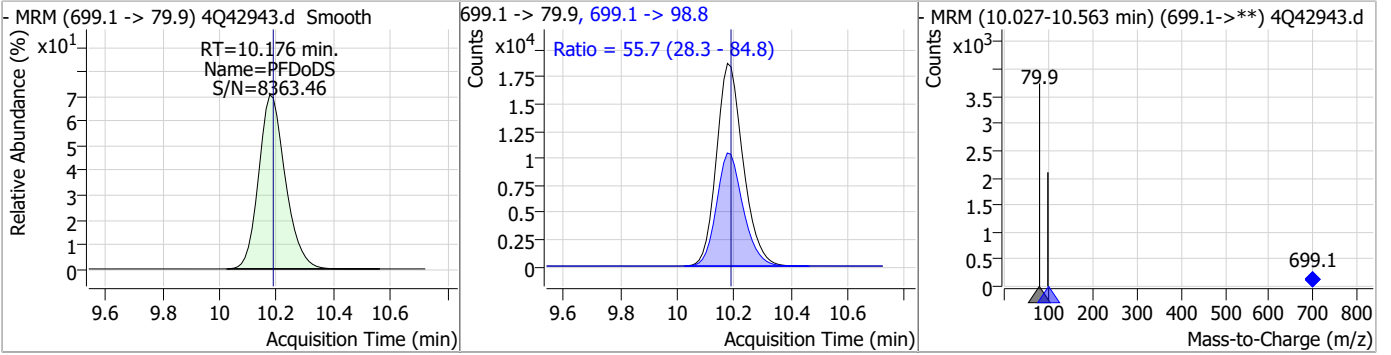
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	60.29	10.04	0.00	861044	713.1 -> 168.9	8.1	4.0	12.0



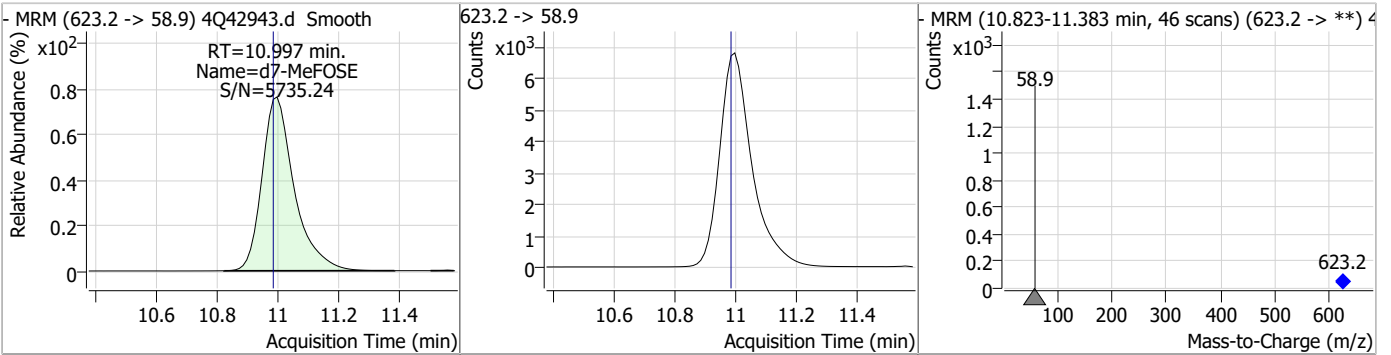
7.7.9  
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### Perfluorinated Compounds by LC/MS/MS

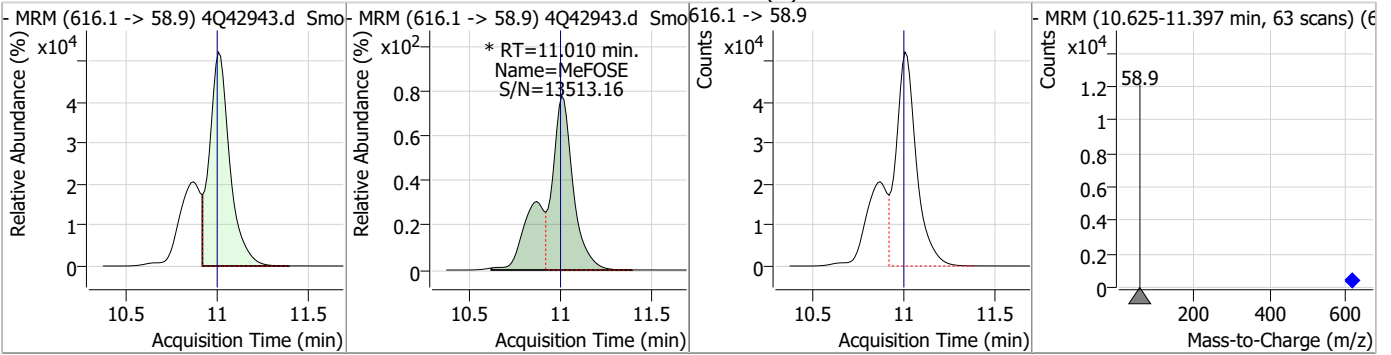
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PfDoDS	65.83	10.18	-0.01	121607	699.1 -> 98.8	55.7	28.3	84.8



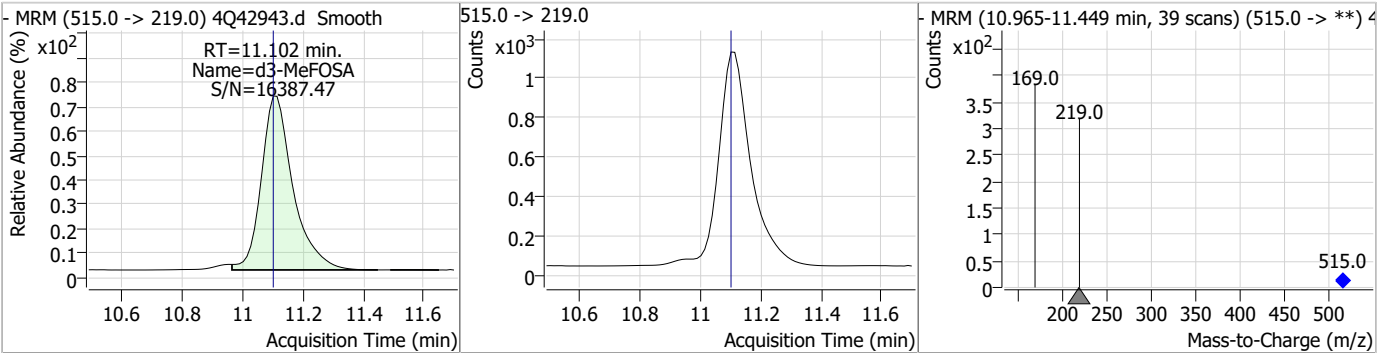
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.74	11.00	0.01	49713				



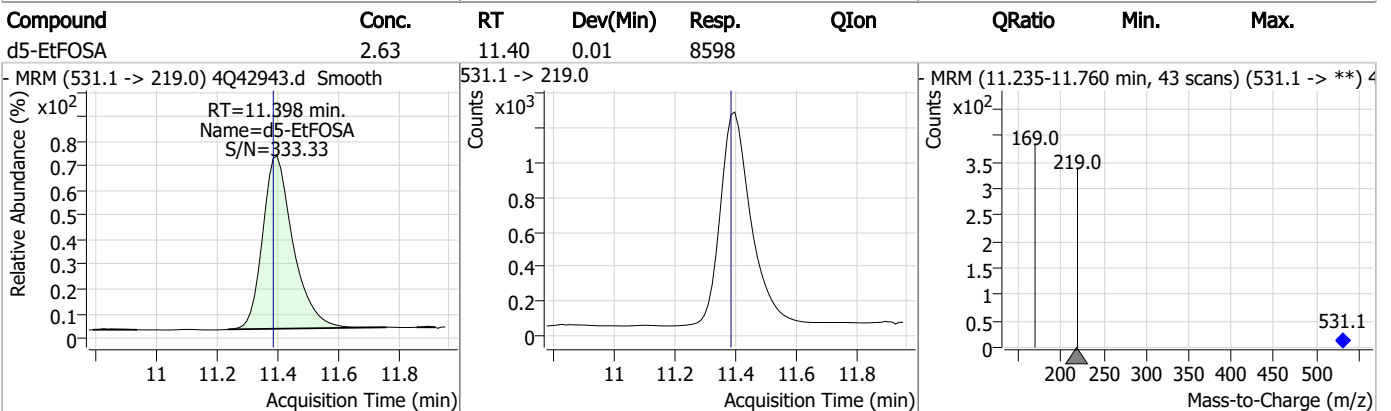
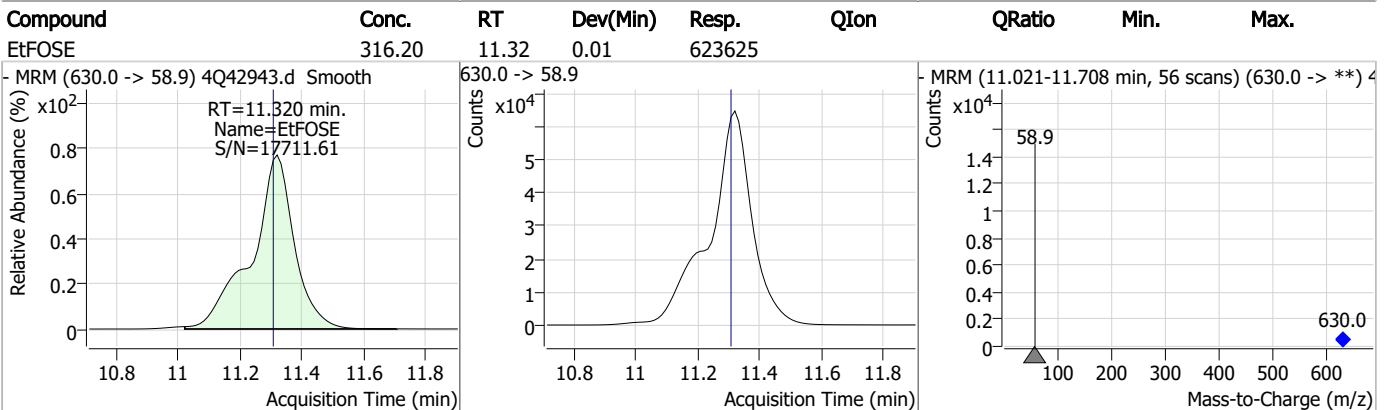
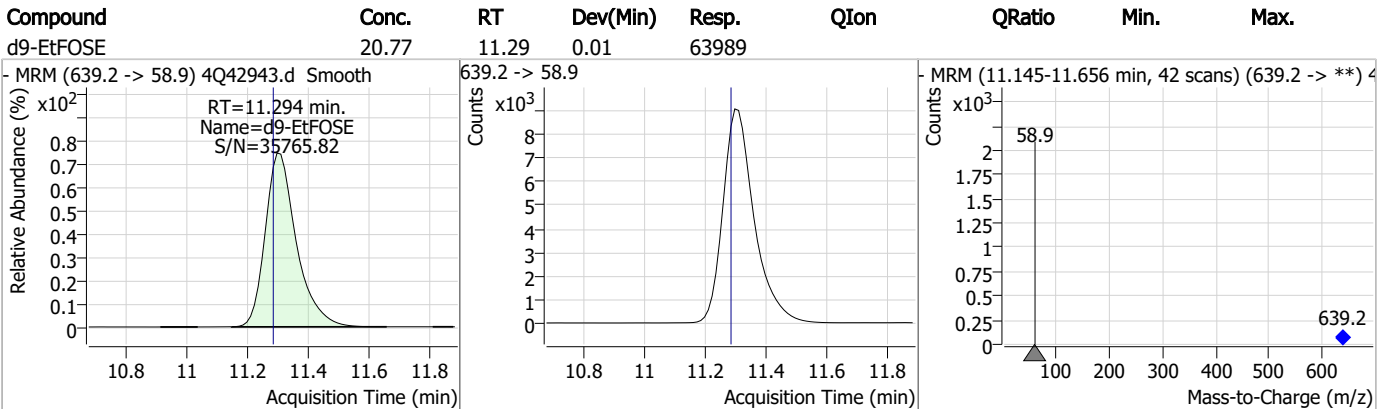
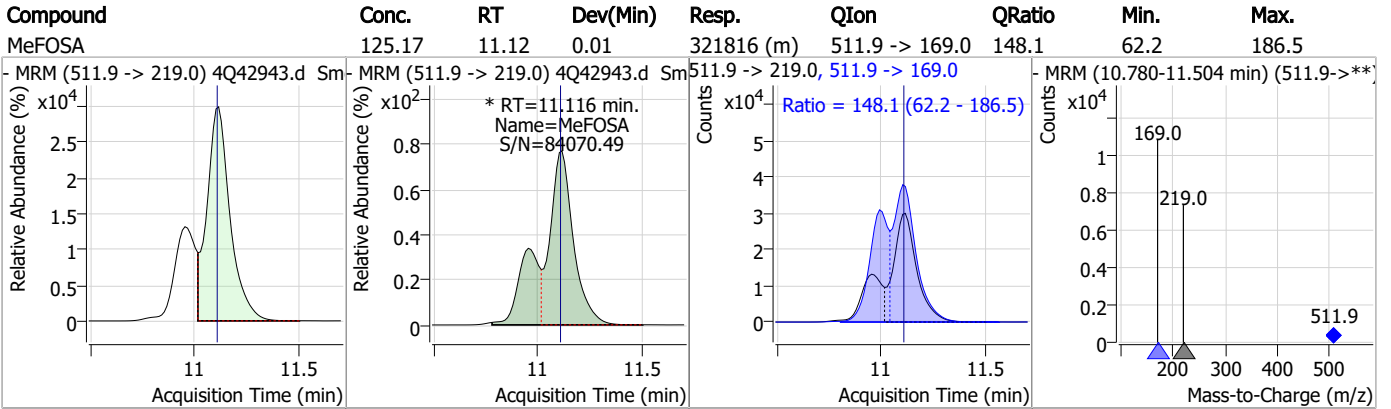
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	324.75	11.01	0.01	567406 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.63	11.10	0.00	7952				



### Perfluorinated Compounds by LC/MS/MS

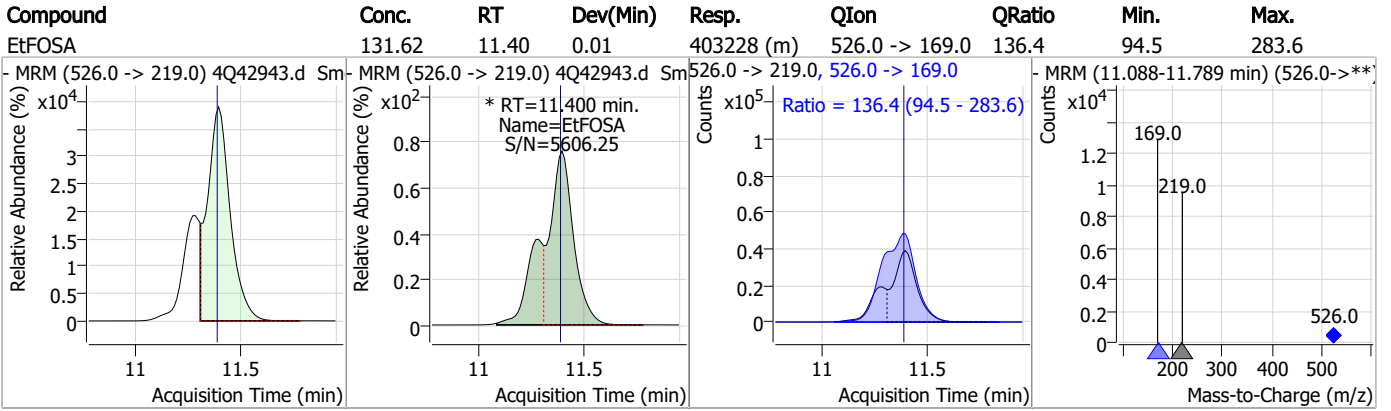


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### Perfluorinated Compounds by LC/MS/MS



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# Manual Integration Approval Summary

Sample Number: S4Q621-IC621      Method: EPA DRAFT 1633  
Lab FileID: 4Q42943.D      Analyst approved: 04/16/23 19:11 Martha Valls  
Injection Time: 04/14/23 13:37      Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.34	Split peak
MeFOSAA	2355-31-9		8.37	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.47	Split peak
EtFOSAA	2991-50-6		8.58	Split peak
MeFOSE	24448-09-7		11.01	Split peak
MeFOSA	31506-32-8		11.12	Split peak
EtFOSA	4151-50-2		11.40	Split peak

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### Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42945.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 4/14/2023 2:05:46 PM  
 Sample Name : icv621-4  
 Vial : P1-B1  
 DA Method File : 1633\_041423\_S4Q621.quantmethod.xml  
 Batch Name : s4q621.batch.bin  
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.986	216.8 -> 171.9	114282	10.00 µg/L	-0.013
M5-PFPeA	4.475	268.3 -> 223.0	75854	5.00 µg/L	0.000
M5-PFHxA	5.659	318.0 -> 273.0	58947	2.50 µg/L	0.012
M4-PFHpA	6.592	367.1 -> 322.0	29149	2.50 µg/L	0.012
M8-PFOA	7.250	421.1 -> 376.0	37022	2.50 µg/L	0.013
M9-PFNA	7.809	472.1 -> 427.0	18964	1.25 µg/L	0.012
M6-PFDA	8.328	519.1 -> 474.1	19212	1.25 µg/L	0.025
M7-PFUnDA	8.797	570.0 -> 525.1	20455	1.25 µg/L	0.012
M2-PFDoDA	9.243	615.1 -> 570.0	25144	1.25 µg/L	0.000
M2-PFTeDA	10.011	715.2 -> 670.0	18924	1.25 µg/L	-0.025
M8-FOSA	9.858	506.1 -> 77.8	15960	2.50 µg/L	-0.012
M3-PFBS	5.564	302.1 -> 79.9	13068	2.50 µg/L	0.000
M3-PFHxS	7.354	402.1 -> 79.9	7835	2.50 µg/L	0.013
M8-PFOS	8.479	507.1 -> 79.9	11292	2.50 µg/L	0.012
M2-4:2FTS	5.335	329.1 -> 80.9	1351	5.00 µg/L	0.000
M2-6:2FTS	7.023	429.1 -> 80.9	2035	5.00 µg/L	0.025
M2-8:2FTS	8.102	529.1 -> 80.9	3225	5.00 µg/L	0.012
M3-MeFOSAA	8.385	573.2 -> 419.0	16070	5.00 µg/L	0.025
M3-HFPO-DA	6.026	286.9 -> 168.9	37196	10.00 µg/L	0.012
M5-EtFOSAA	8.595	589.2 -> 419.0	12435	5.00 µg/L	0.025
M7-MeFOSE	10.972	623.2 -> 58.9	57691	25.00 µg/L	-0.012
M9-EtFOSE	11.282	639.2 -> 58.9	72890	25.00 µg/L	0.000
M5-EtFOSA	11.373	531.1 -> 219.0	9770	2.50 µg/L	-0.012
M3-MeFOSA	11.089	515.0 -> 219.0	8514	2.50 µg/L	-0.012
13C4-PFOS	8.480	502.8 -> 79.9	11710	2.50 µg/L	0.012
13C3-PFBA	2.991	216.0 -> 172.0	66740	5.00 µg/L	0.000
18O2-PFHxS	7.353	403.0 -> 83.9	5375	2.50 µg/L	0.013
13C4-PFOA	7.251	417.1 -> 372.0	44799	2.50 µg/L	0.013
13C2-PFDA	8.328	515.1 -> 470.1	18014	1.25 µg/L	0.025
13C5-PFNA	7.809	468.0 -> 423.0	22595	1.25 µg/L	0.012
13C2-PFHxA	5.660	315.1 -> 270.0	51664	2.50 µg/L	0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.335	329.1 -> 80.9	1351	4.60 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.0%		
13C2-6:2FTS	7.023	429.1 -> 80.9	2035	4.83 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C2-8:2FTS	8.102	529.1 -> 80.9	3225	4.65 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.0%		
13C2-PFDoDA	9.243	615.1 -> 570.0	25144	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.7%		
13C2-PFTeDA	10.011	715.2 -> 670.0	18924	1.10 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.7%		
13C3-PFBS	5.564	302.1 -> 79.9	13068	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.8%		
13C3-PFHxS	7.354	402.1 -> 79.9	7835	2.63 µg/L	0.013

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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C4-PFBA	2.986	216.8 -> 171.9	114282	9.83 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C4-PFHpA	6.592	367.1 -> 322.0	29149	2.48 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C5-PFHxA	5.659	318.0 -> 273.0	58947	2.47 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C5-PFPeA	4.475	268.3 -> 223.0	75854	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C6-PFDA	8.328	519.1 -> 474.1	19212	1.21 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C7-PFUnDA	8.797	570.0 -> 525.1	20455	1.19 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C8-FOSA	9.858	506.1 -> 77.8	15960	2.08 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 83.4%	
13C8-PFOA	7.250	421.1 -> 376.0	37022	2.51 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C8-PFOS	8.479	507.1 -> 79.9	11292	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C9-PFNA	7.809	472.1 -> 427.0	18964	1.15 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.2%	
d3-MeFOSAA	8.385	573.2 -> 419.0	16070	4.66 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.2%	
13C3-HFPO-DA	6.026	286.9 -> 168.9	37196	10.26 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
d3-MeFOSA	11.089	515.0 -> 219.0	8514	2.35 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.9%	
d5-EtFOSAA	8.595	589.2 -> 419.0	12435	4.44 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 88.7%	
d7-MeFOSE	10.972	623.2 -> 58.9	57691	19.10 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 76.4%	
d9-EtFOSE	11.282	639.2 -> 58.9	72890	19.72 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 78.9%	
d5-EtFOSA	11.373	531.1 -> 219.0	9770	2.49 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.348	327.1 -> 307.0	15049	8.94 µg/L	95
		327.1 -> 80.9	6599		
6:2FTS	7.023	427.1 -> 407.0	12866	9.26 µg/L	94
		427.1 -> 80.9	5927		
8:2FTS	8.103	527.1 -> 507.0	13884	9.60 µg/L	97
		527.1 -> 80.8	5771		
EtFOSAA	8.608	584.2 -> 419.1	4379	2.36 µg/L	m 81
		584.2 -> 526.0	2191		
FOSA	9.849	498.1 -> 77.9	12070	2.35 µg/L	99
		498.1 -> 478.0	380		
MeFOSAA	8.386	570.1 -> 419.0	5086	2.30 µg/L	m 83
		570.1 -> 483.0	1150		
PFBA	2.995	212.8 -> 168.9	24641	9.44 µg/L	100
PFBS	5.565	298.7 -> 79.9	10292	2.11 µg/L	99
		298.7 -> 98.8	3874		
PFDA	8.328	512.9 -> 469.0	25728	2.34 µg/L	99
		512.9 -> 219.0	5106		
PFDODA	9.244	613.1 -> 569.0	38415	2.42 µg/L	100
		613.1 -> 319.0	5358		
PFDS	9.396	599.0 -> 79.9	5754	2.28 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	2819			
PFHpA	6.593	363.1 -> 319.0	34915	2.40	µg/L	97
		363.1 -> 169.0	6562			
PFHpS	7.950	449.0 -> 79.9	6649	2.26	µg/L	99
		449.0 -> 98.9	3523			
PFHxA	5.662	313.0 -> 269.0	41136	2.36	µg/L	100
		313.0 -> 118.9	1266			
PFHxS	7.355	398.7 -> 79.9	5413	2.02	µg/L	m 96
		398.7 -> 98.9	2944			
PFNA	7.810	463.0 -> 419.0	24681	2.43	µg/L	95
		463.0 -> 219.0	6197			
PFNS	8.961	548.8 -> 79.9	3892	2.24	µg/L	97
		548.8 -> 98.9	1922			
PFOA	7.252	413.0 -> 369.0	38063	2.20	µg/L	99
		413.0 -> 169.0	7891			
PFOS	8.480	498.9 -> 79.9	9782	2.23	µg/L	m 84
		498.9 -> 98.8	4751			
PFPeA	4.477	263.0 -> 219.0	67966	4.73	µg/L	100
PFPeS	6.632	349.1 -> 79.9	4953	2.17	µg/L	100
		349.1 -> 98.9	2100			
PFTeDA	10.012	713.1 -> 669.0	34997	2.35	µg/L	100
		713.1 -> 168.9	2826			
PFTrDA	9.641	663.0 -> 619.0	48326	2.37	µg/L	99
		663.0 -> 168.9	4886			
PFUnDA	8.798	563.1 -> 519.0	25089	2.17	µg/L	98
		563.1 -> 269.1	5070			
11CI-PF3OUdS	9.693	630.9 -> 450.9	44324	4.57	µg/L	99
		632.9 -> 452.9	14005			
9CI-PF3ONS	8.825	530.8 -> 351.0	47826	4.41	µg/L	99
		532.8 -> 353.0	14549			
ADONA	6.843	376.9 -> 250.9	101133	4.53	µg/L	99
		376.9 -> 84.8	27669			
HFPO-DA	6.027	284.9 -> 168.9	13573	4.60	µg/L	100
		284.9 -> 184.9	1681			
3:3FTCA	3.954	241.0 -> 177.0	7897	11.80	µg/L	98
		241.0 -> 117.0	802			
5:3FTCA	6.345	341.0 -> 237.1	148231	60.15	µg/L	100
		341.0 -> 217.0	105285			
7:3FTCA	7.799	441.0 -> 316.9	60006	59.42	µg/L	98
		441.0 -> 336.9	133869			
EtFOSA	11.375	526.0 -> 219.0	16122	4.63	µg/L	m 63
		526.0 -> 169.0	21744			
EtFOSE	11.295	630.0 -> 58.9	27354	12.18	µg/L	100
MeFOSA	11.091	511.9 -> 219.0	13297	4.83	µg/L	m 83
		511.9 -> 169.0	19157			
MeFOSE	10.985	616.1 -> 58.9	23703	11.69	µg/L	m 100
PFDoDS	10.152	699.1 -> 79.9	4884	2.24	µg/L	99
		699.1 -> 98.8	2784			
NFDHA	5.541	295.0 -> 201.0	5463	4.66	µg/L	98
		295.0 -> 84.9	1417			
PFMBA	4.891	279.0 -> 85.1	38460	4.68	µg/L	100
PFMPA	3.611	229.0 -> 84.9	33438	4.66	µg/L	100
PFEESA	6.108	314.8 -> 134.9	61306	4.18	µg/L	100
		314.8 -> 82.9	2104			

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

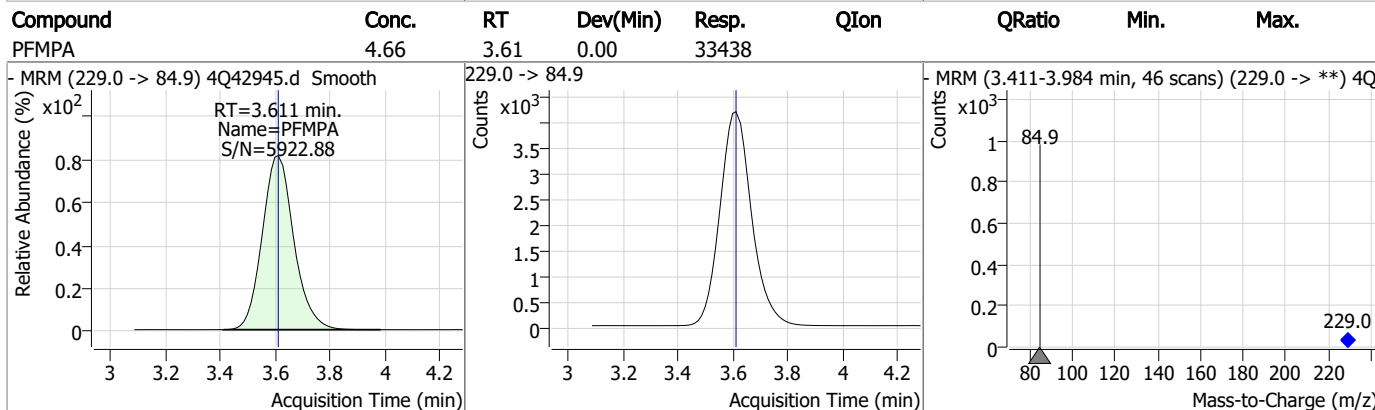
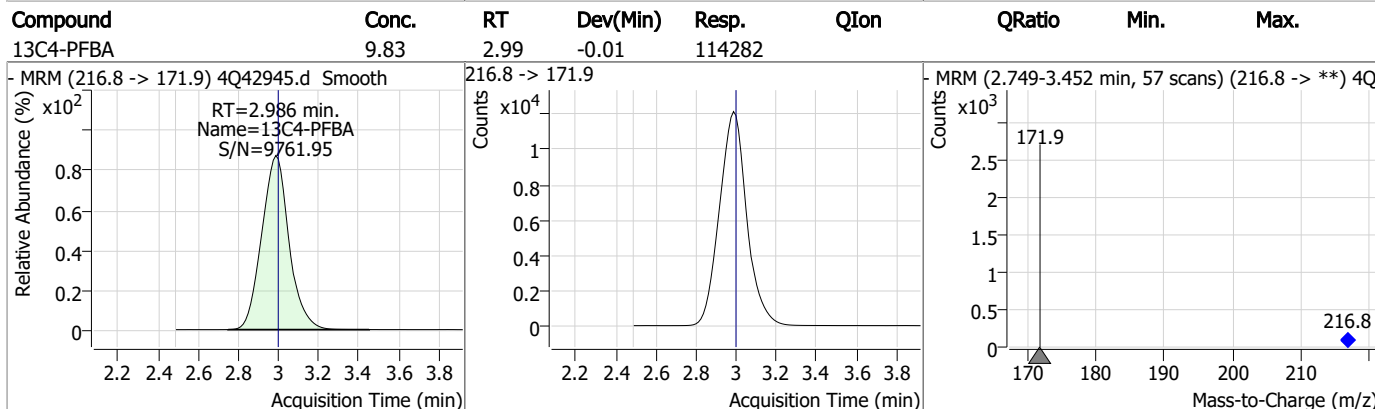
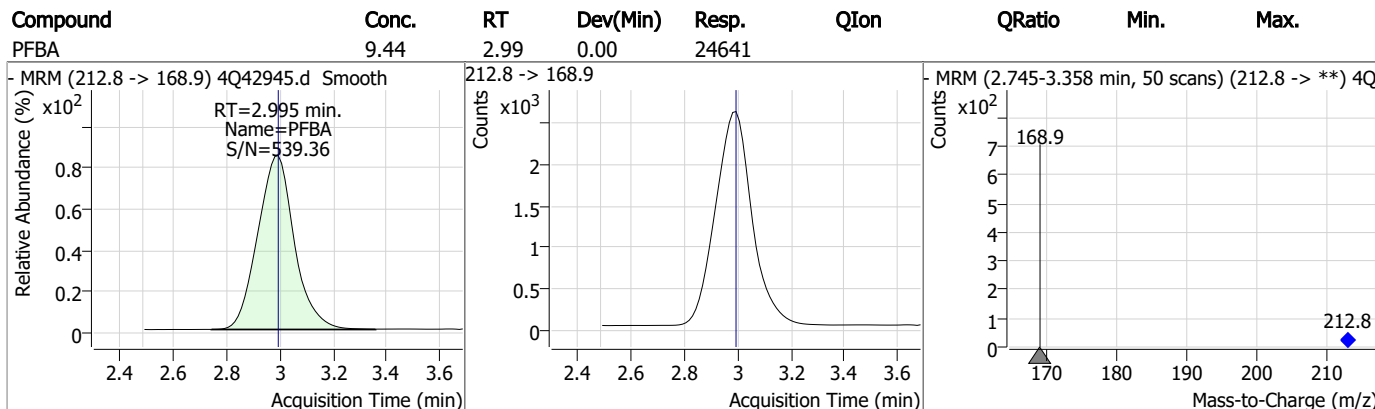
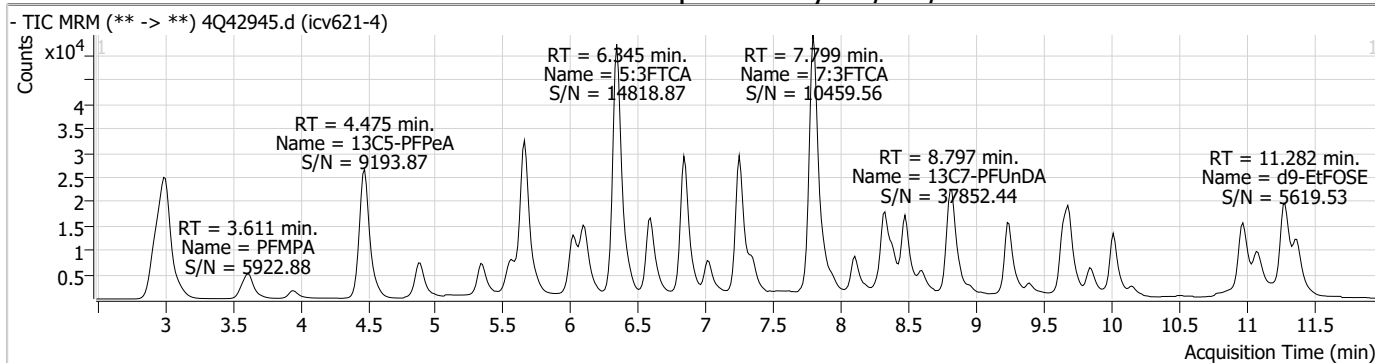
### Perfluorinated Compounds by LC/MS/MS

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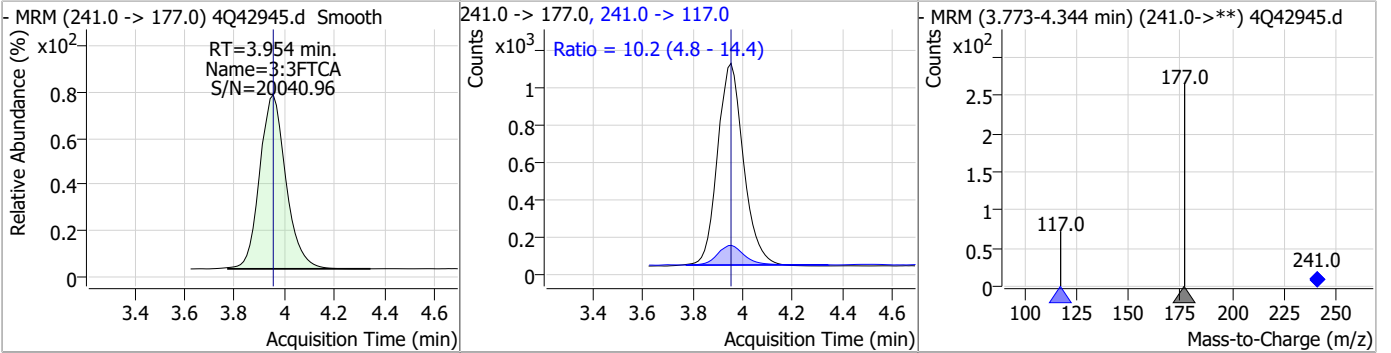
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### Perfluorinated Compounds by LC/MS/MS

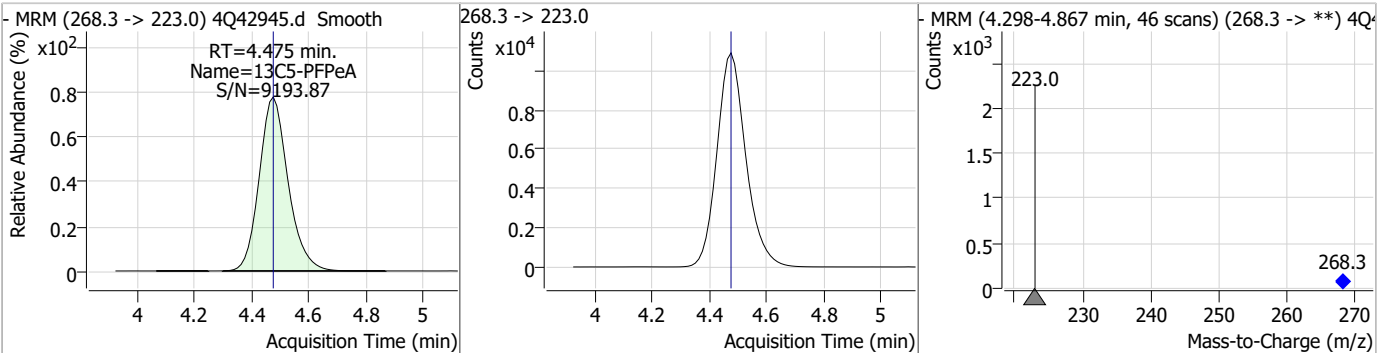


### Perfluorinated Compounds by LC/MS/MS

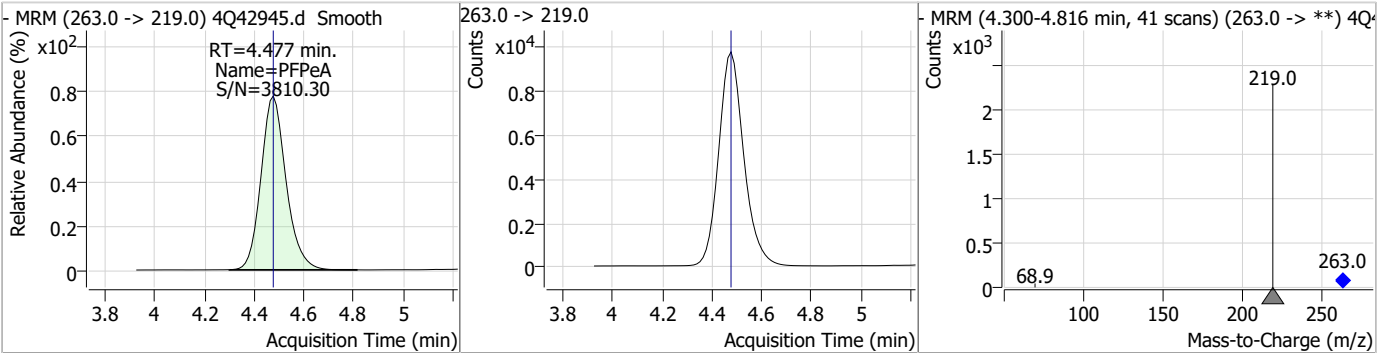
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.80	3.95	0.00	7897	241.0 -> 117.0	10.2	4.8	14.4



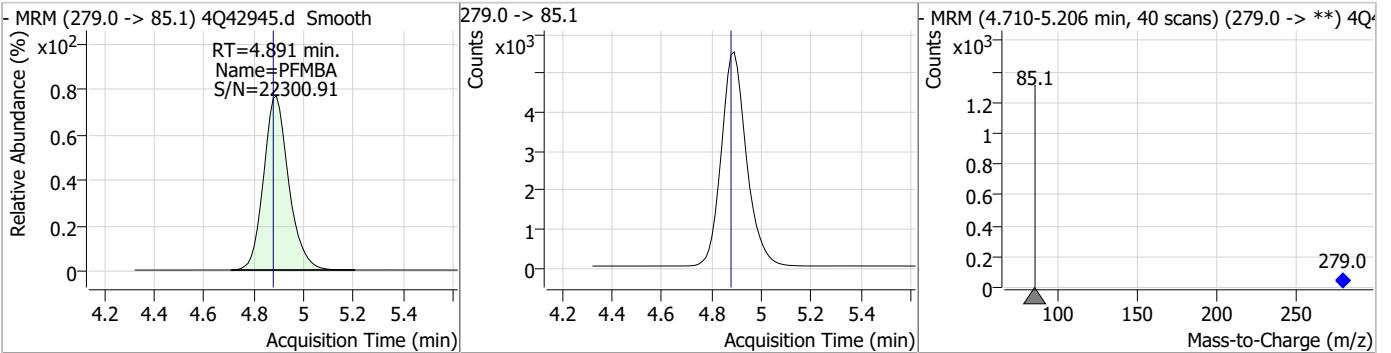
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.98	4.47	0.00	75854				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.73	4.48	0.00	67966				

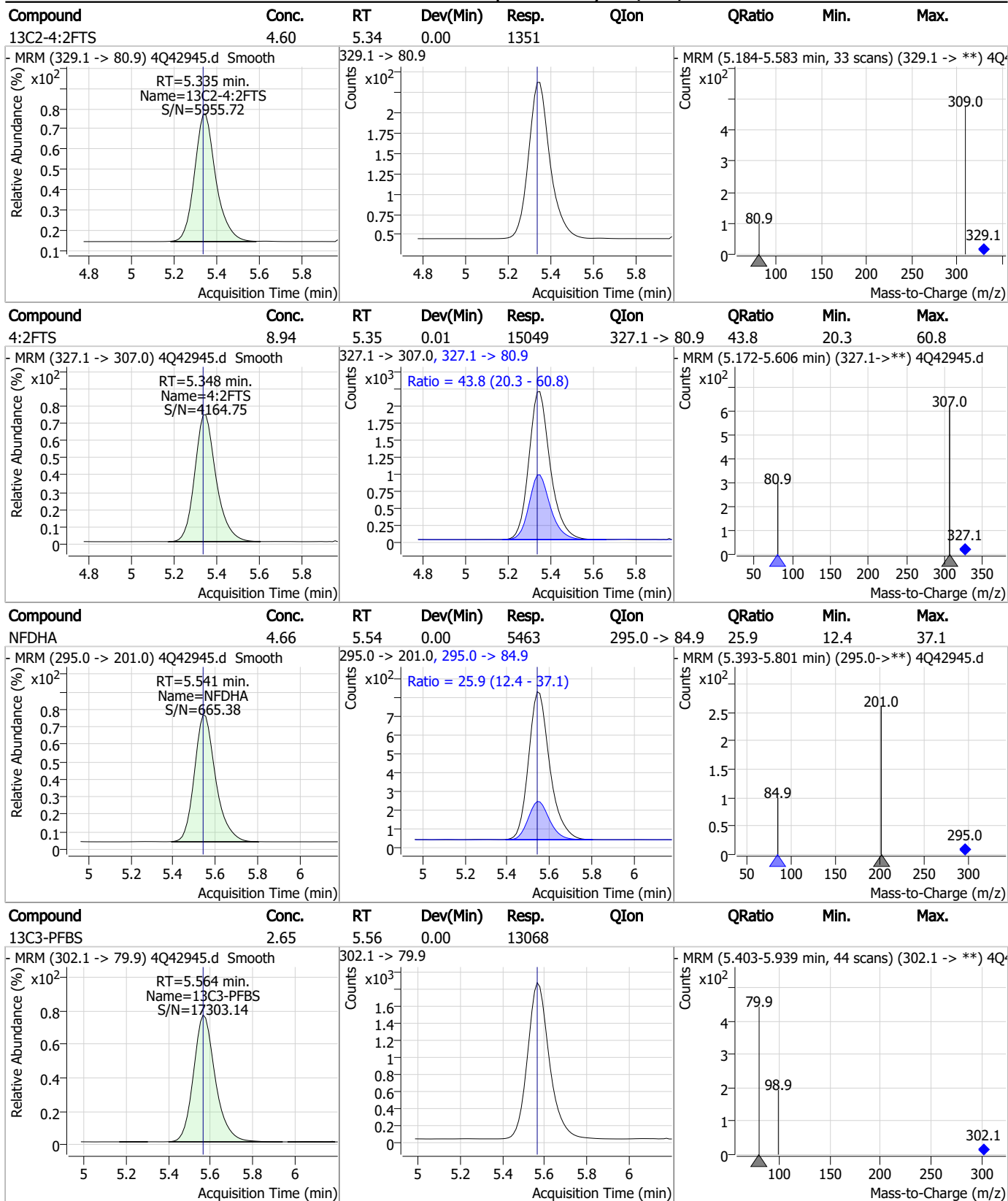


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.68	4.89	0.01	38460				



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### Perfluorinated Compounds by LC/MS/MS

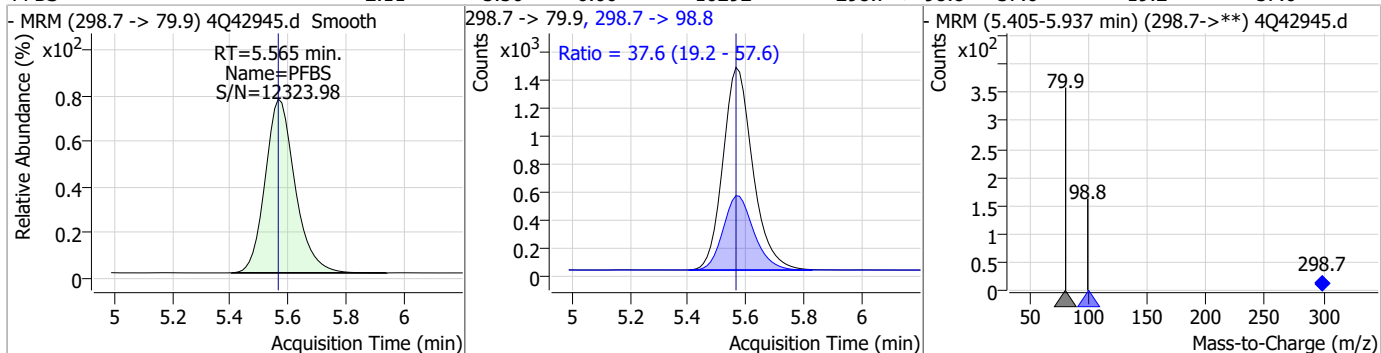


7.7.10 7

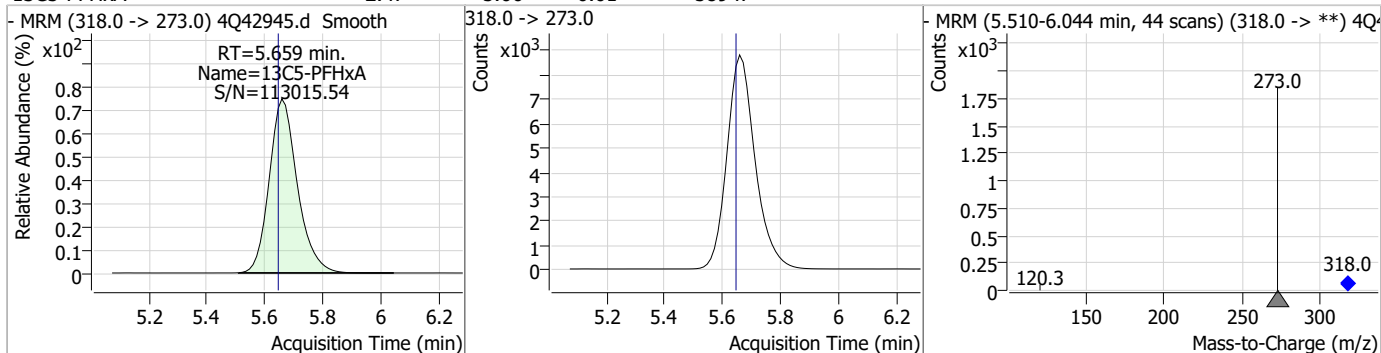


### Perfluorinated Compounds by LC/MS/MS

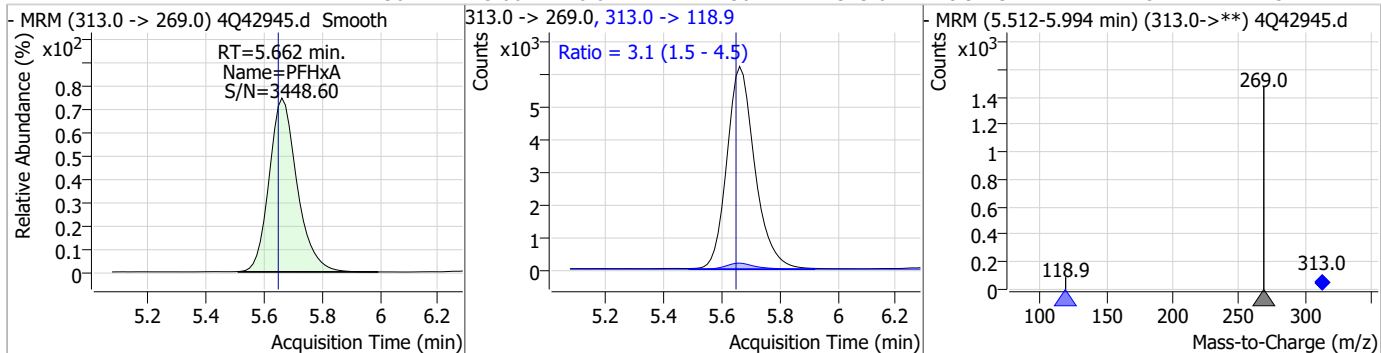
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.11	5.56	0.00	10292	298.7 -> 98.8	37.6	19.2	57.6



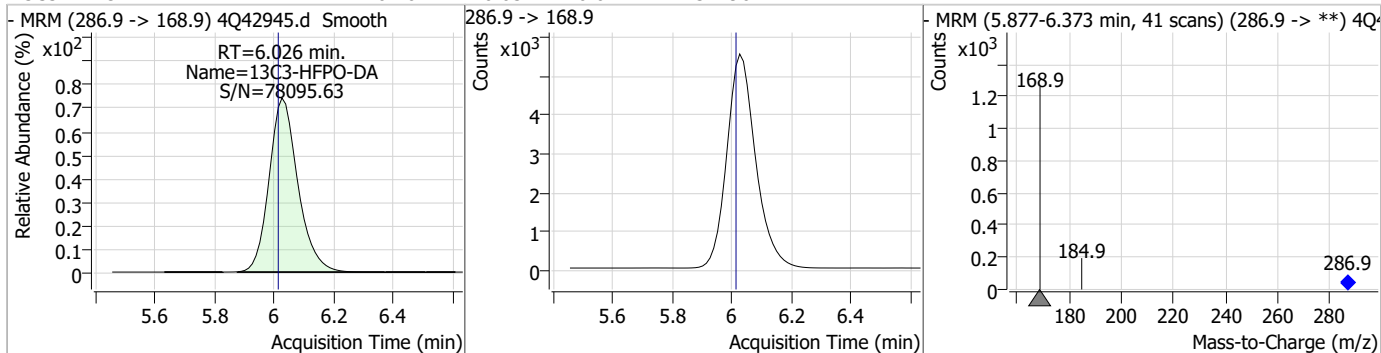
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.47	5.66	0.01	58947				



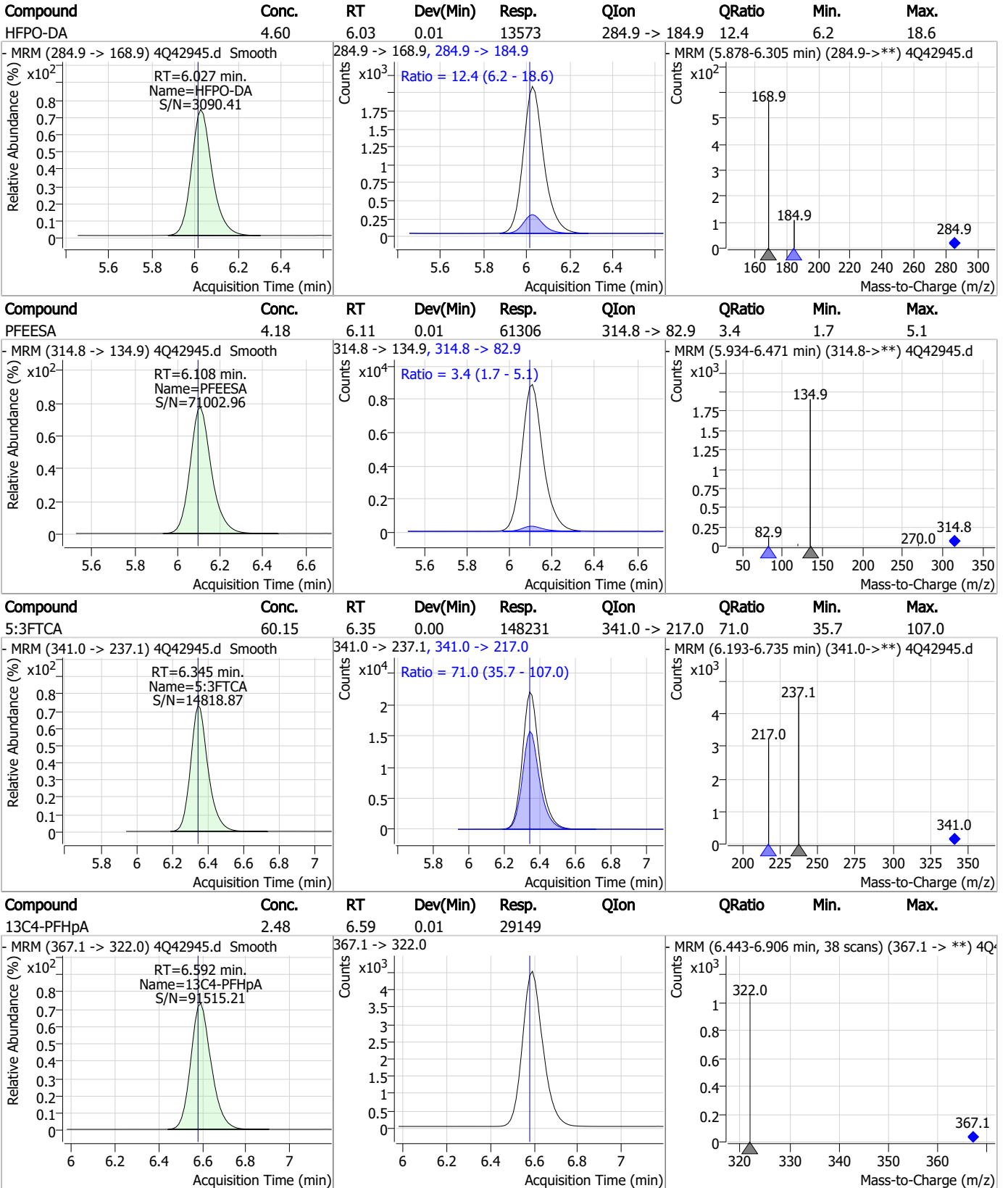
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.36	5.66	0.01	41136	313.0 -> 118.9	3.1	1.5	4.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.26	6.03	0.01	37196				

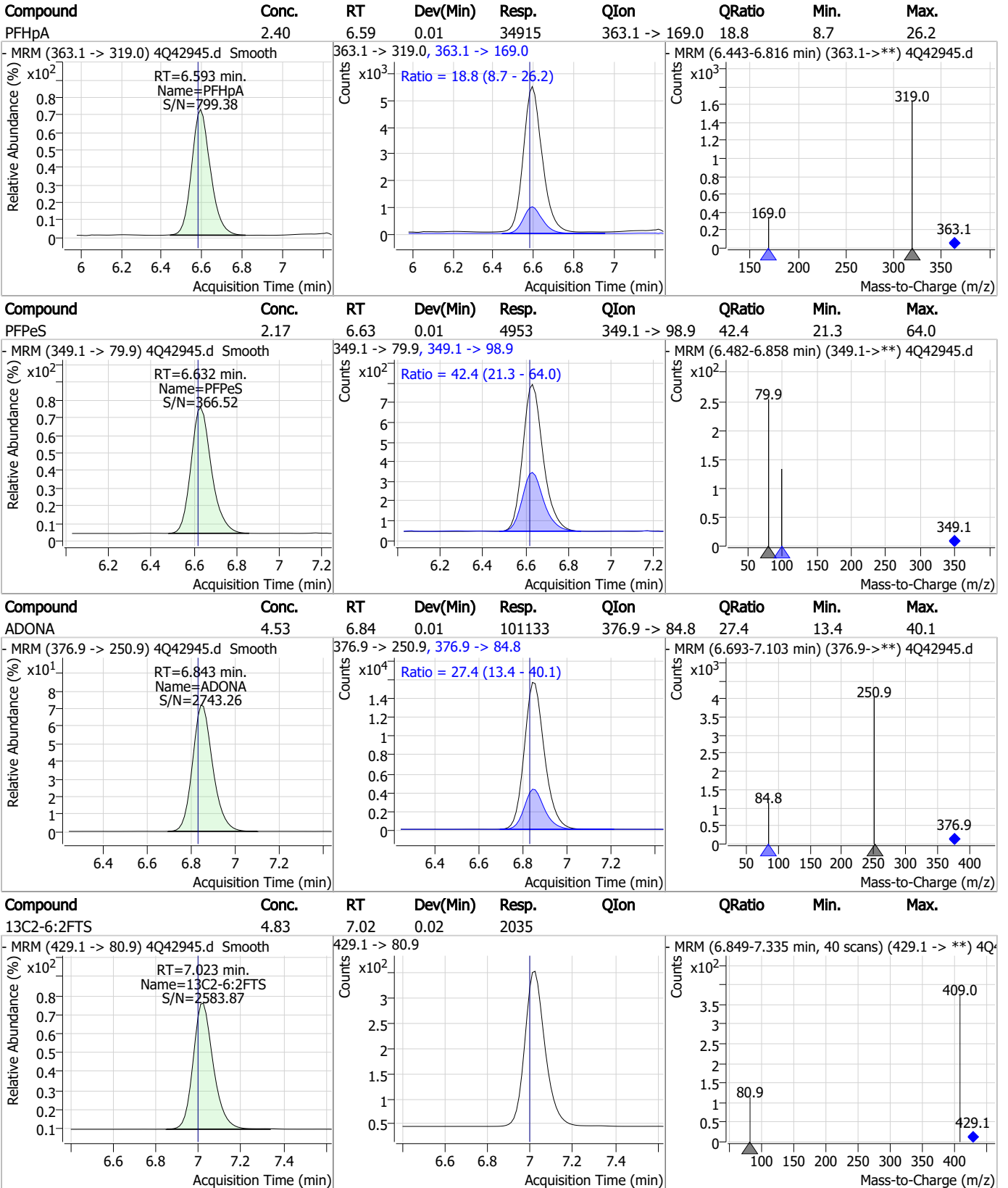


### Perfluorinated Compounds by LC/MS/MS



7.7.10 7

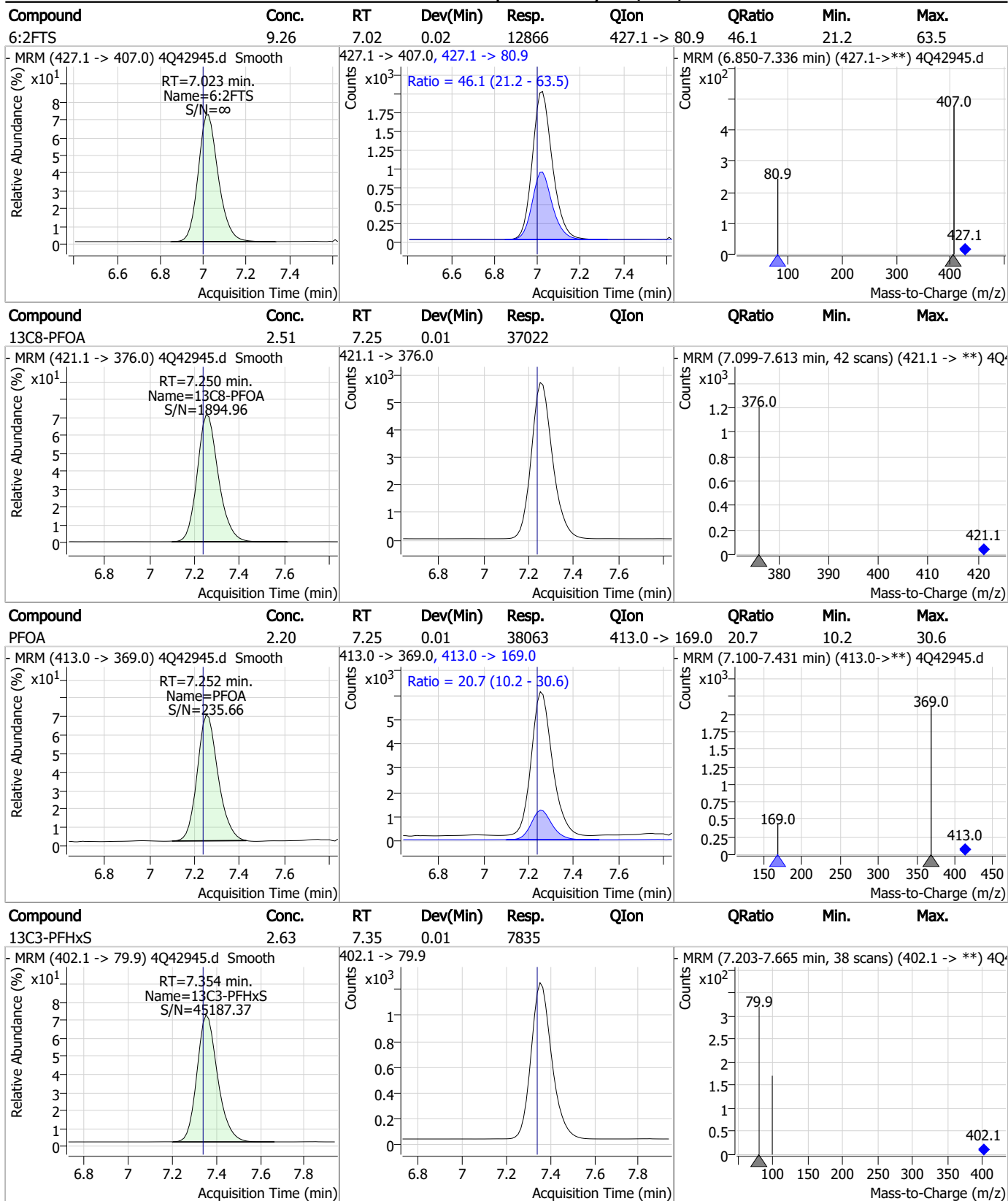
### Perfluorinated Compounds by LC/MS/MS



7.7.10 7

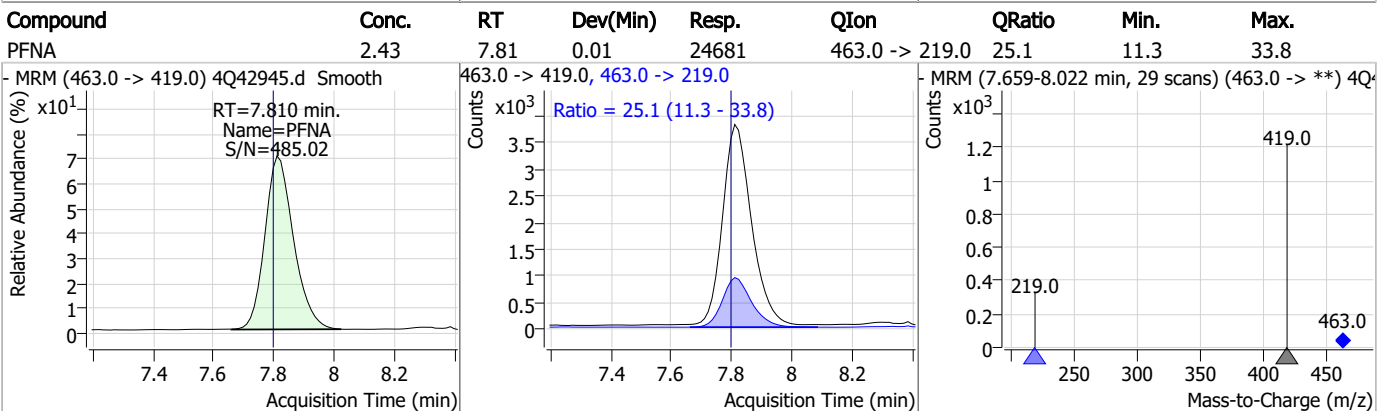
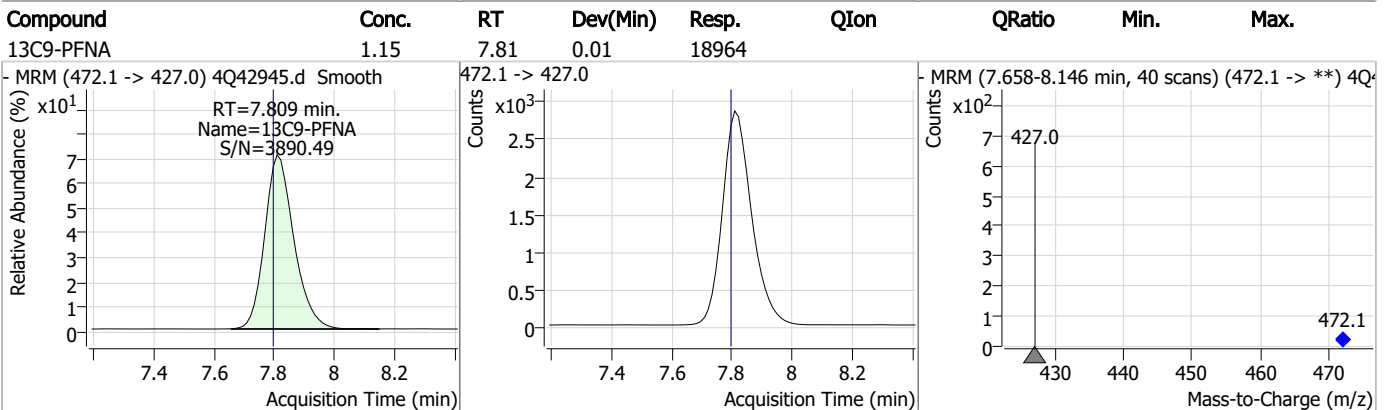
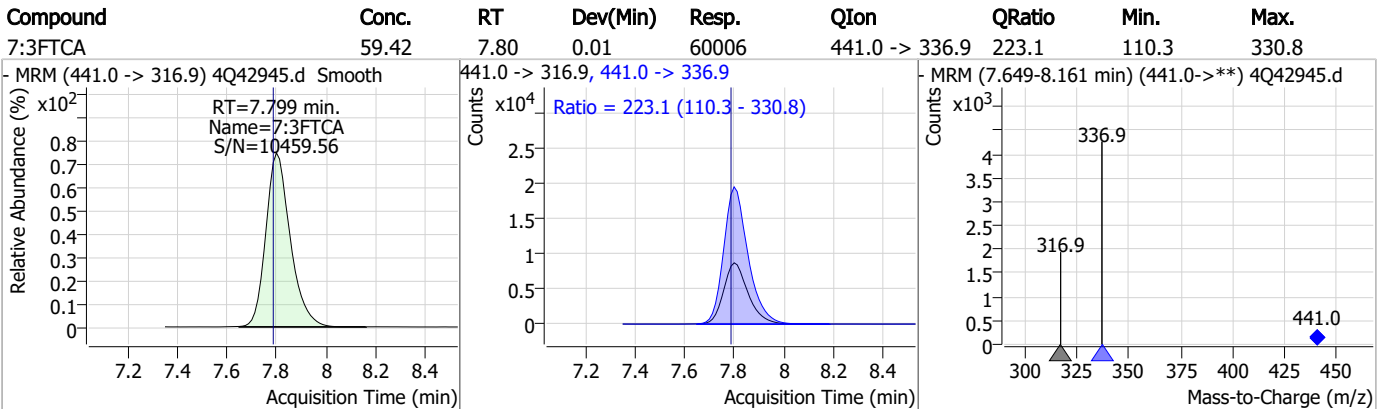
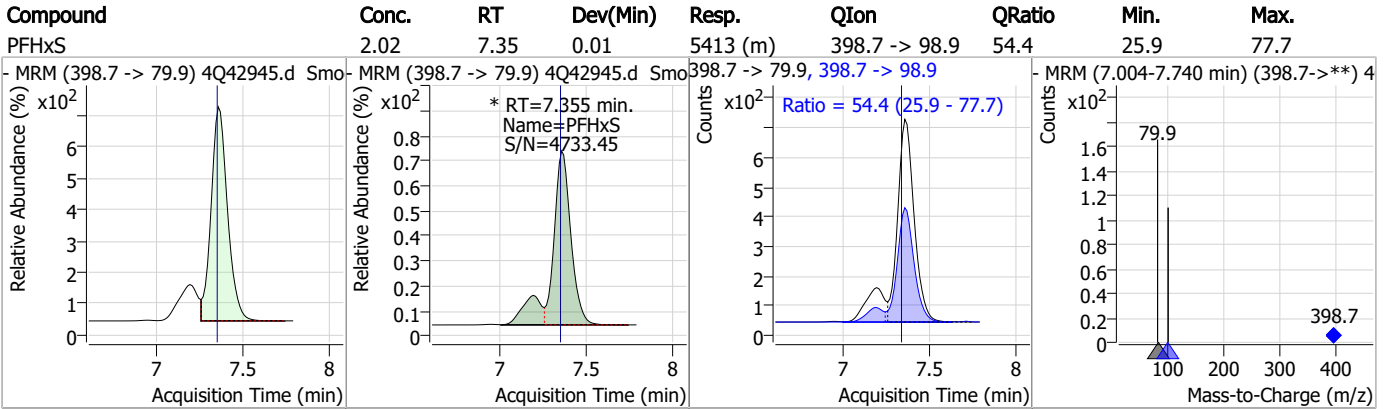


### Perfluorinated Compounds by LC/MS/MS



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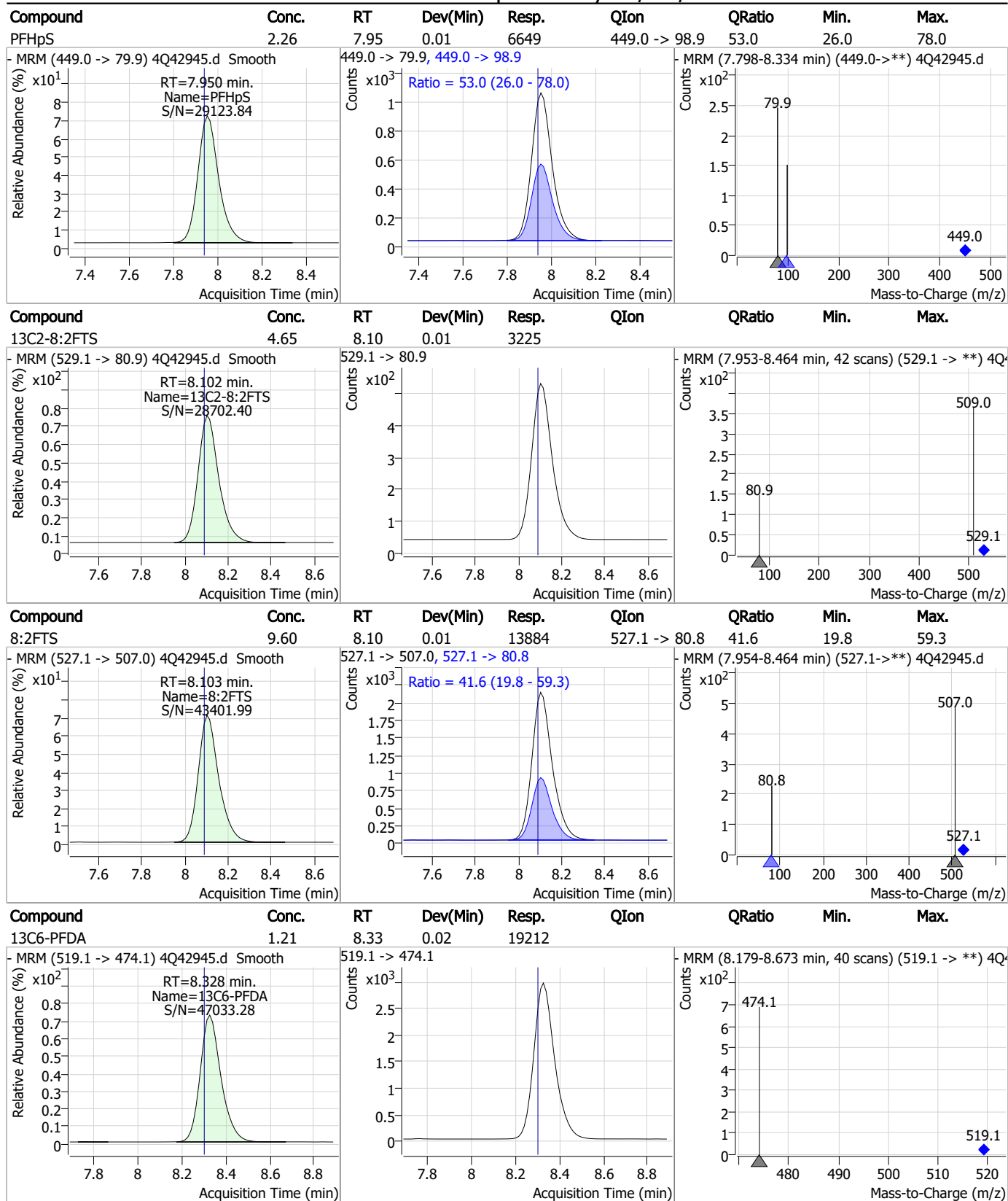
### Perfluorinated Compounds by LC/MS/MS



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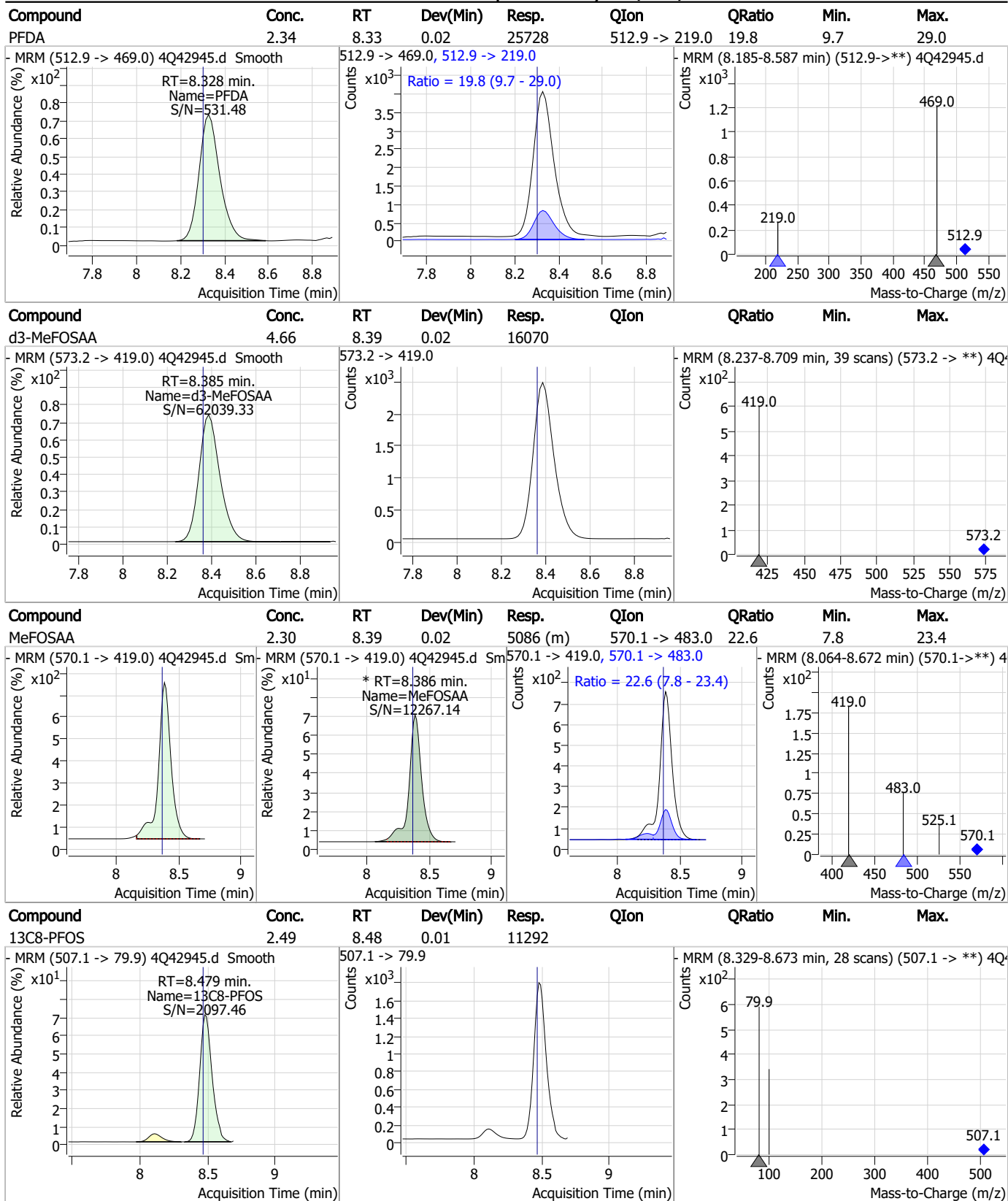


### Perfluorinated Compounds by LC/MS/MS



7.7.10 7

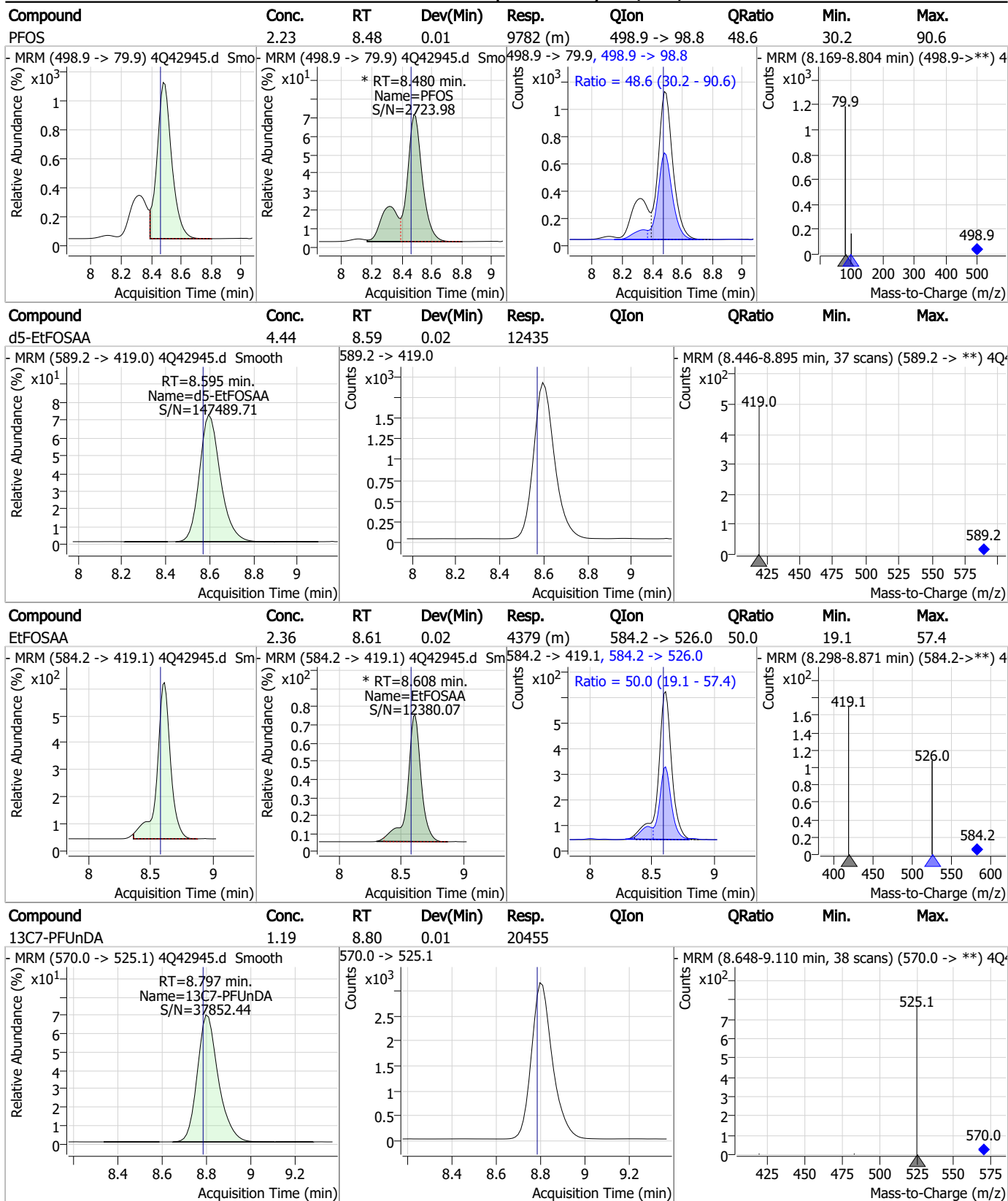
### Perfluorinated Compounds by LC/MS/MS



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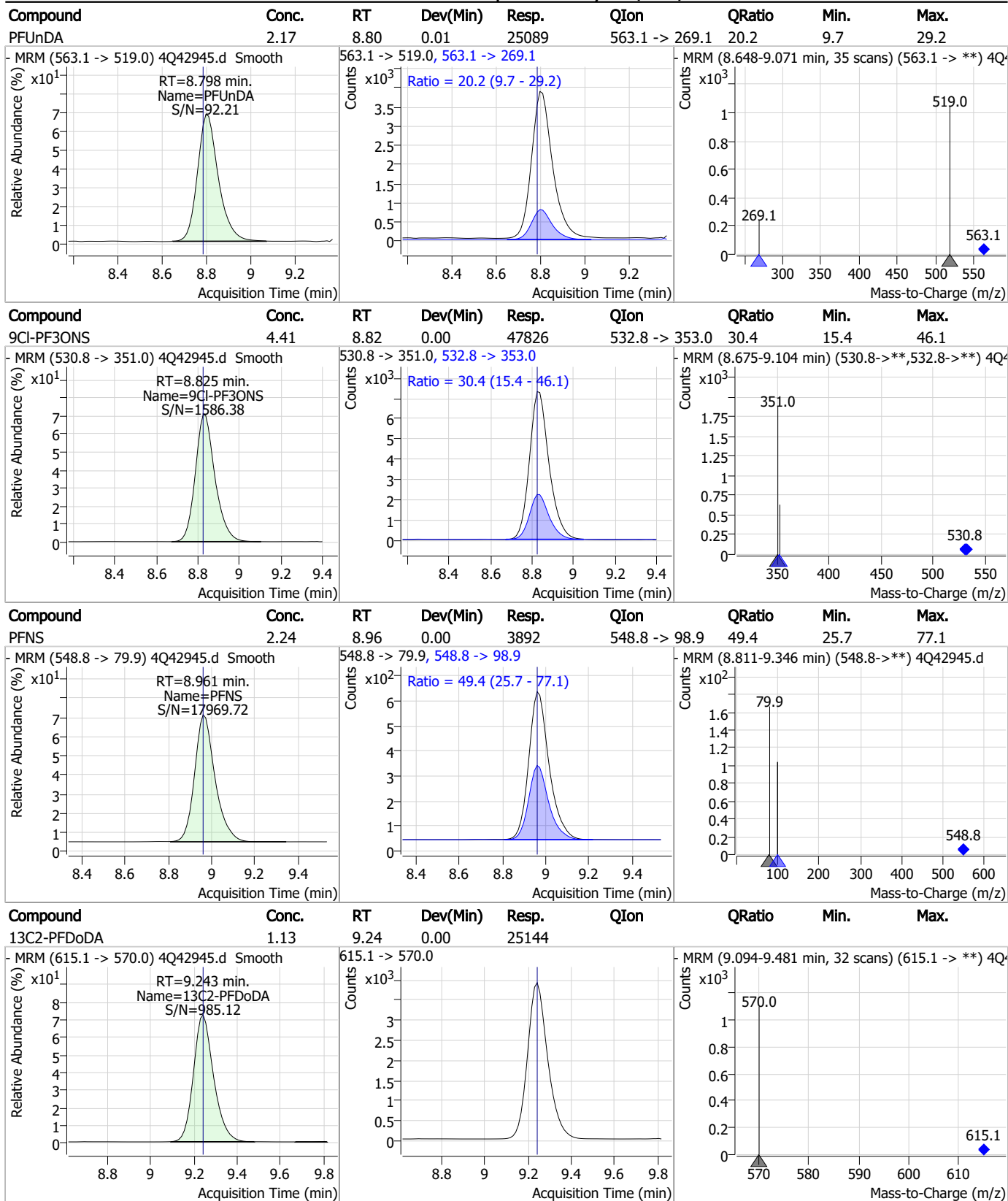
### Perfluorinated Compounds by LC/MS/MS



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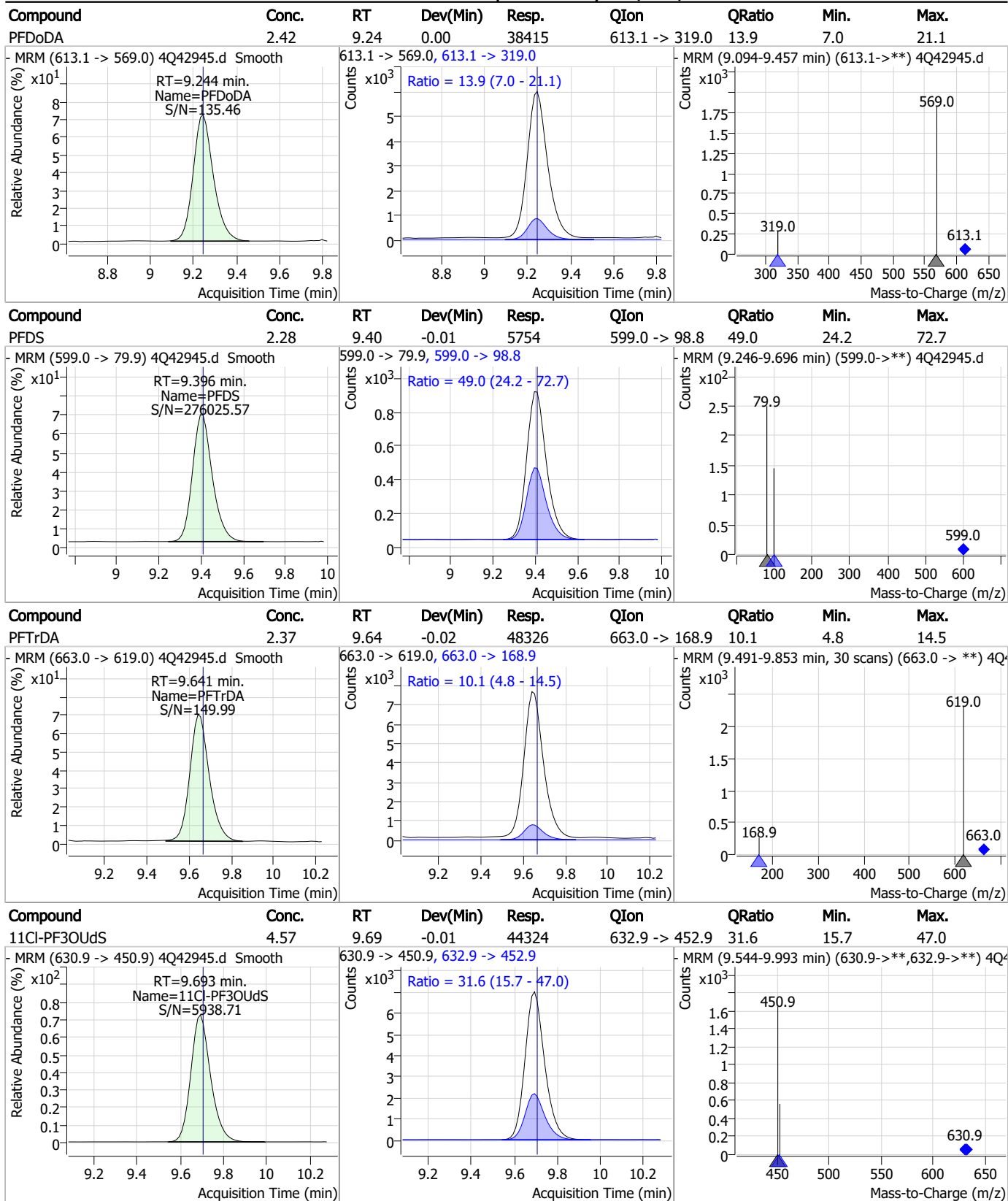
### Perfluorinated Compounds by LC/MS/MS



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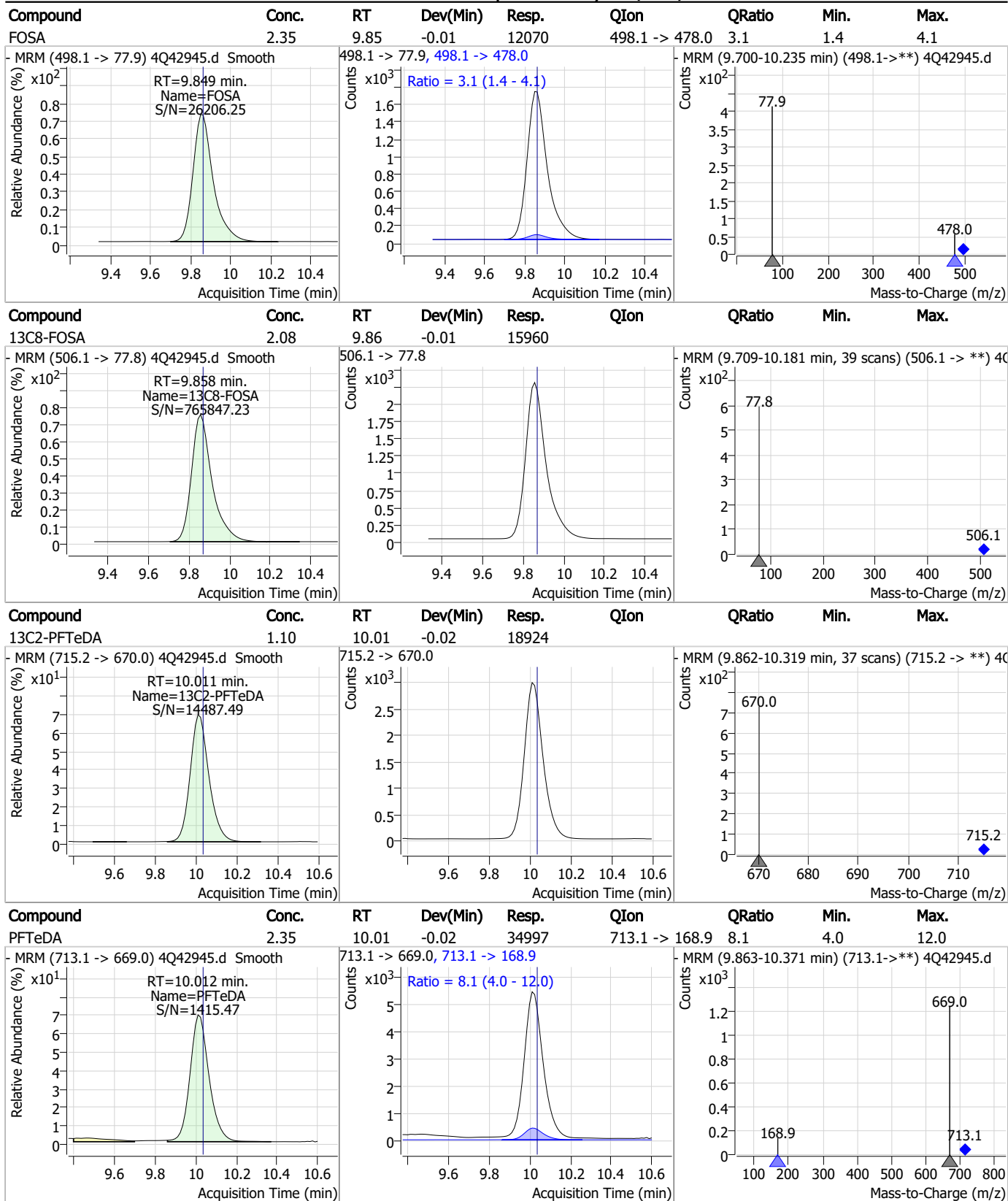


### Perfluorinated Compounds by LC/MS/MS



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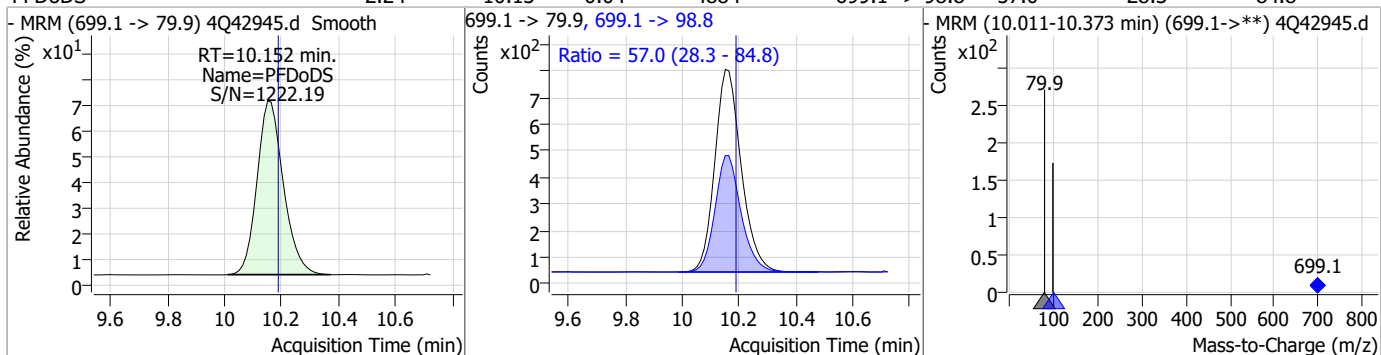
### Perfluorinated Compounds by LC/MS/MS



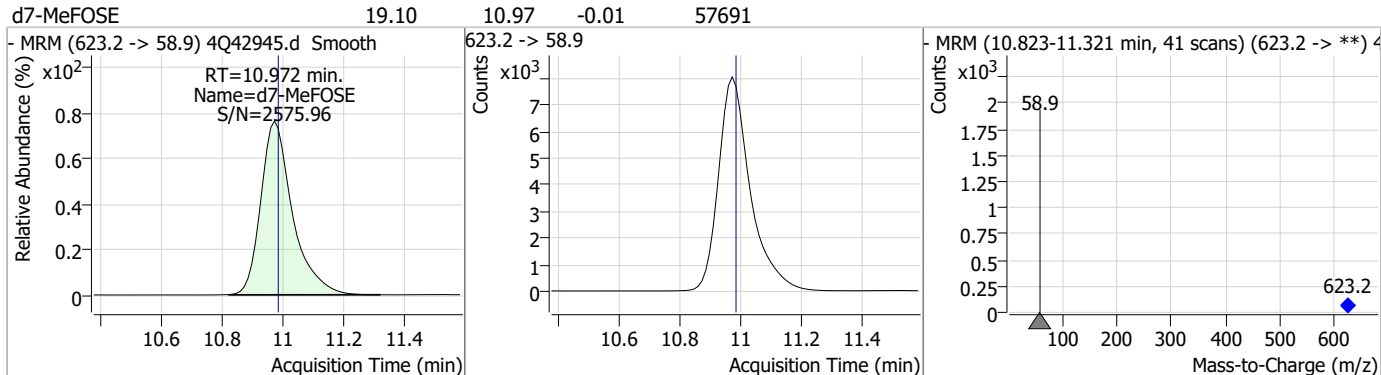
7.7.10  
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### Perfluorinated Compounds by LC/MS/MS

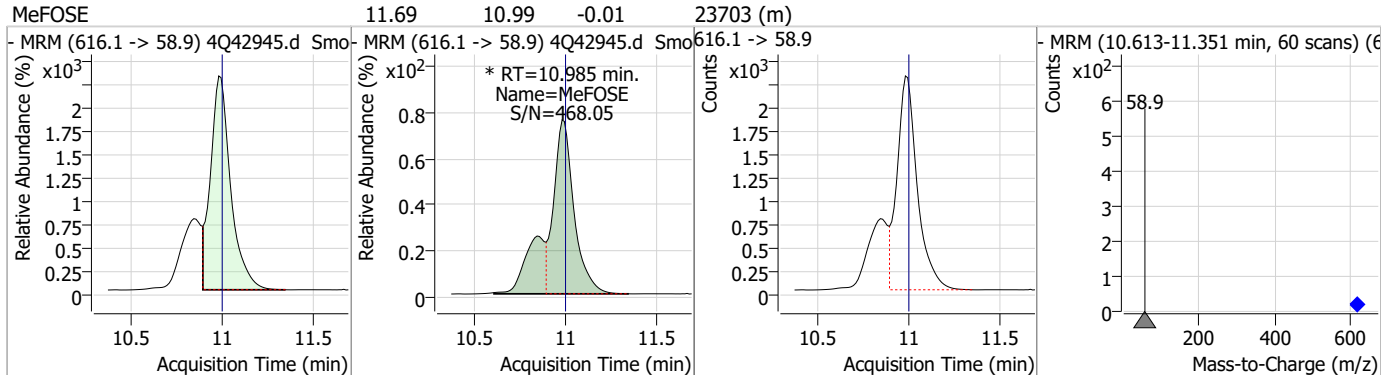
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.24	10.15	-0.04	4884	699.1 -> 98.8	57.0	28.3	84.8



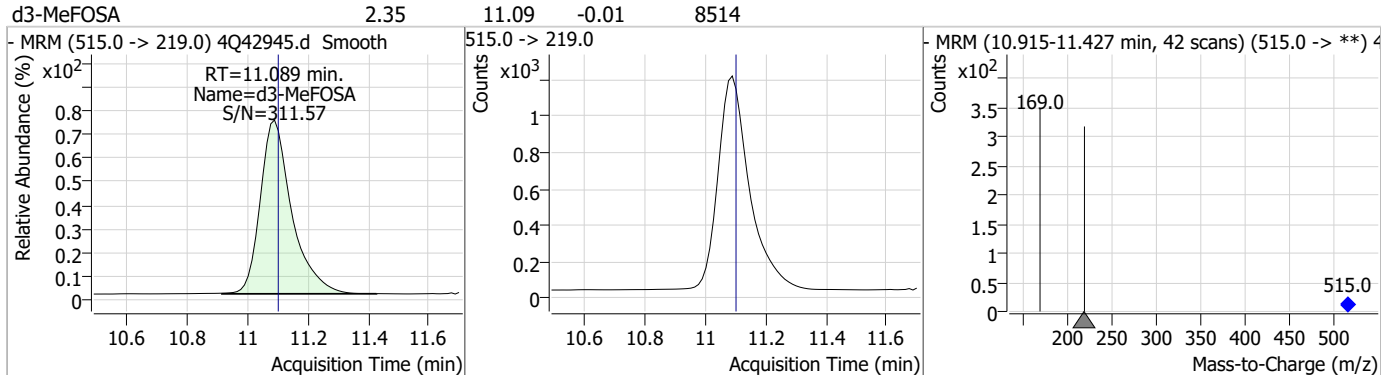
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.10	10.97	-0.01	57691				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.69	10.99	-0.01	23703 (m)				

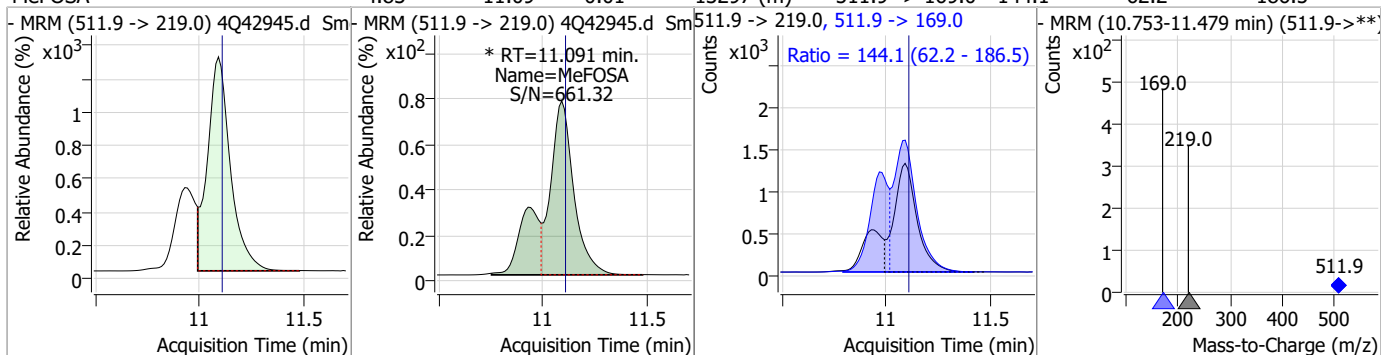


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.35	11.09	-0.01	8514				

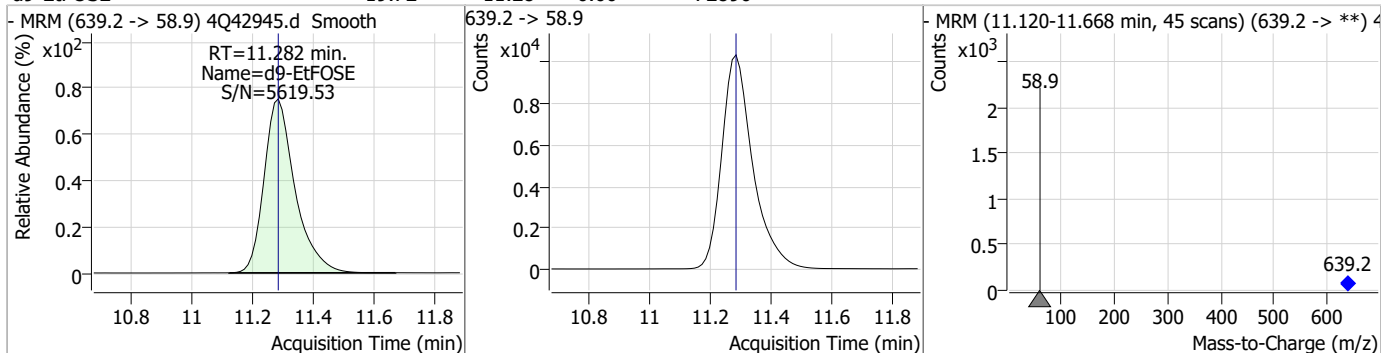


### Perfluorinated Compounds by LC/MS/MS

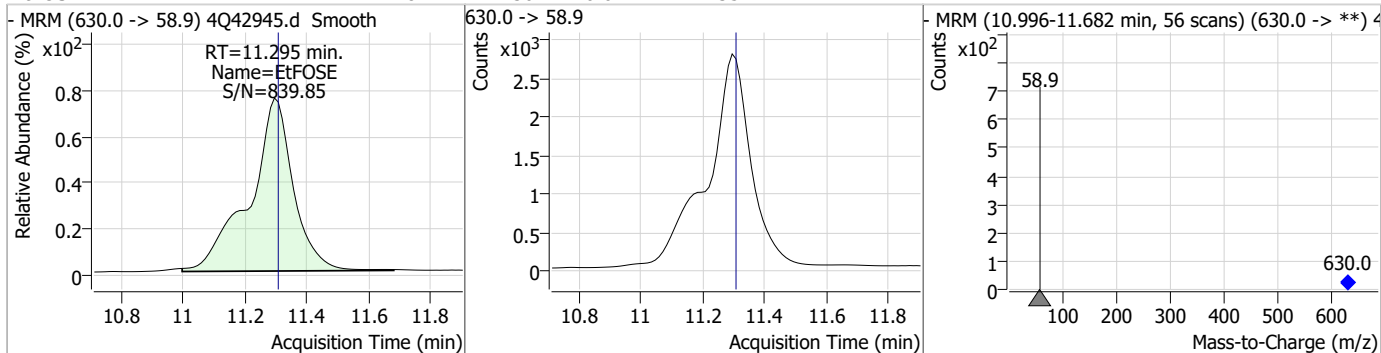
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	4.83	11.09	-0.01	13297 (m)	511.9 -> 169.0	144.1	62.2	186.5



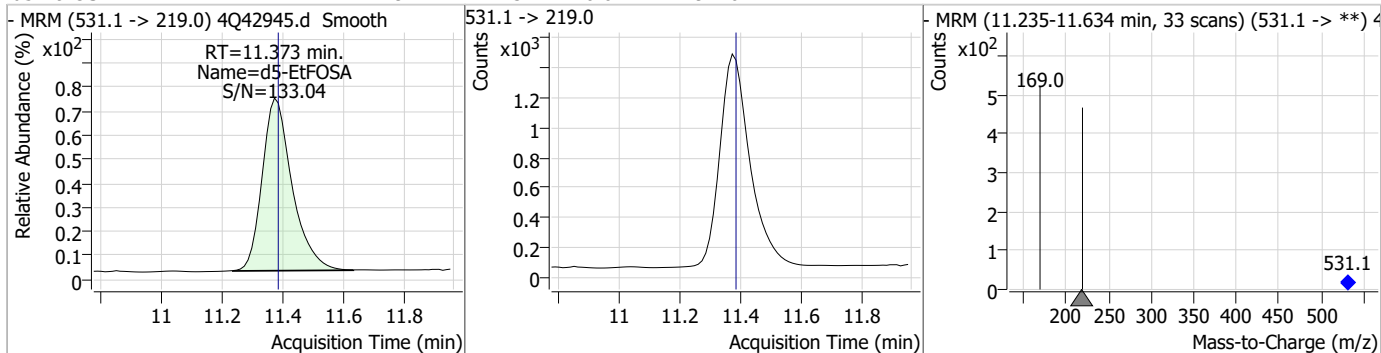
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	19.72	11.28	0.00	72890				



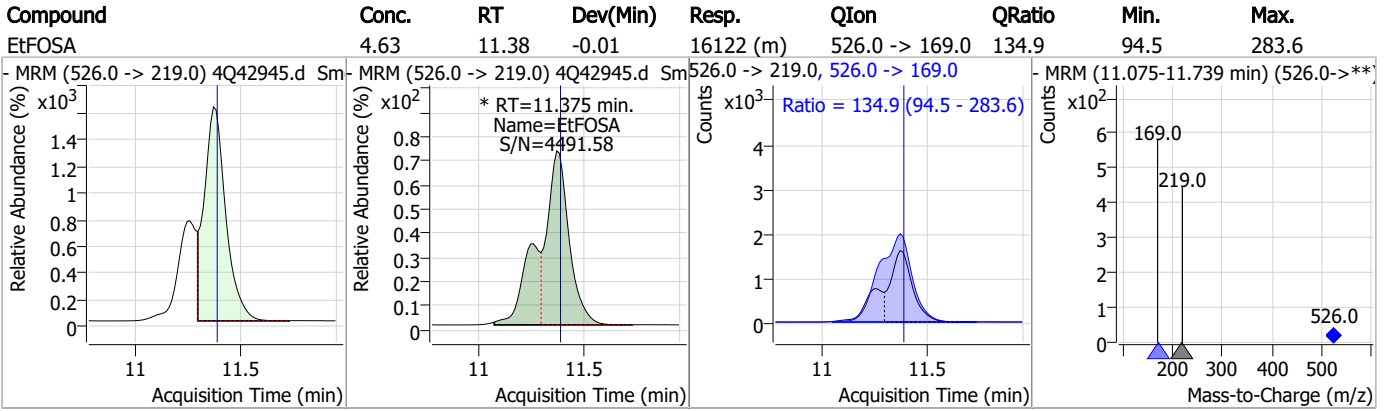
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.18	11.30	-0.01	27354				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.49	11.37	-0.01	9770				



### Perfluorinated Compounds by LC/MS/MS



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# Manual Integration Approval Summary

Sample Number: S4Q621-ICV621      Method: EPA DRAFT 1633  
Lab FileID: 4Q42945.D      Analyst approved: 04/16/23 19:11 Martha Valls  
Injection Time: 04/14/23 14:05      Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.36	Split peak
MeFOSAA	2355-31-9		8.39	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.48	Split peak
EtFOSAA	2991-50-6		8.61	Split peak
MeFOSE	24448-09-7		10.98	Split peak
MeFOSA	31506-32-8		11.09	Split peak
EtFOSA	4151-50-2		11.38	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42946.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 4/14/2023 2:19:52 PM  
 Sample Name : icv621-20  
 Vial : P1-B2  
 DA Method File : 1633\_041423\_S4Q621.quantmethod.xml  
 Batch Name : s4q621.batch.bin  
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.986	216.8 -> 171.9	130871	10.00 µg/L	-0.013
M5-PFPeA	4.475	268.3 -> 223.0	86264	5.00 µg/L	0.000
M5-PFHxA	5.659	318.0 -> 273.0	67390	2.50 µg/L	0.012
M4-PFHpA	6.592	367.1 -> 322.0	31914	2.50 µg/L	0.012
M8-PFOA	7.250	421.1 -> 376.0	40502	2.50 µg/L	0.013
M9-PFNA	7.809	472.1 -> 427.0	21152	1.25 µg/L	0.012
M6-PFDA	8.315	519.1 -> 474.1	20562	1.25 µg/L	0.012
M7-PFUnDA	8.797	570.0 -> 525.1	21203	1.25 µg/L	0.012
M2-PFDoDA	9.243	615.1 -> 570.0	28529	1.25 µg/L	0.000
M2-PFTeDA	10.036	715.2 -> 670.0	21163	1.25 µg/L	0.000
M8-FOSA	9.870	506.1 -> 77.8	18047	2.50 µg/L	0.000
M3-PFBS	5.564	302.1 -> 79.9	14054	2.50 µg/L	0.000
M3-PFHxS	7.354	402.1 -> 79.9	8413	2.50 µg/L	0.013
M8-PFOS	8.467	507.1 -> 79.9	12146	2.50 µg/L	0.000
M2-4:2FTS	5.335	329.1 -> 80.9	1461	5.00 µg/L	0.000
M2-6:2FTS	7.010	429.1 -> 80.9	2144	5.00 µg/L	0.012
M2-8:2FTS	8.090	529.1 -> 80.9	3635	5.00 µg/L	0.000
M3-MeFOSAA	8.373	573.2 -> 419.0	16928	5.00 µg/L	0.012
M3-HFPO-DA	6.026	286.9 -> 168.9	41152	10.00 µg/L	0.012
M5-EtFOSAA	8.582	589.2 -> 419.0	14073	5.00 µg/L	0.012
M7-MeFOSE	10.997	623.2 -> 58.9	64344	25.00 µg/L	0.012
M9-EtFOSE	11.294	639.2 -> 58.9	78370	25.00 µg/L	0.012
M5-EtFOSA	11.386	531.1 -> 219.0	11053	2.50 µg/L	0.000
M3-MeFOSA	11.102	515.0 -> 219.0	9393	2.50 µg/L	0.000
13C4-PFOS	8.467	502.8 -> 79.9	12522	2.50 µg/L	0.000
13C3-PFBA	2.991	216.0 -> 172.0	75920	5.00 µg/L	0.000
18O2-PFHxS	7.353	403.0 -> 83.9	6273	2.50 µg/L	0.013
13C4-PFOA	7.251	417.1 -> 372.0	49589	2.50 µg/L	0.013
13C2-PFDA	8.316	515.1 -> 470.1	19488	1.25 µg/L	0.012
13C5-PFNA	7.797	468.0 -> 423.0	24673	1.25 µg/L	0.000
13C2-PFHxA	5.660	315.1 -> 270.0	58049	2.50 µg/L	0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.335	329.1 -> 80.9	1461	4.26 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 85.3%		
13C2-6:2FTS	7.010	429.1 -> 80.9	2144	4.36 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 87.2%		
13C2-8:2FTS	8.090	529.1 -> 80.9	3635	4.49 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.8%		
13C2-PFDoDA	9.243	615.1 -> 570.0	28529	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.1%		
13C2-PFTeDA	10.036	715.2 -> 670.0	21163	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.7%		
13C3-PFBS	5.564	302.1 -> 79.9	14054	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C3-PFHxS	7.354	402.1 -> 79.9	8413	2.42 µg/L	0.013

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%	
13C4-PFBA	2.986	216.8 -> 171.9	130871	9.90 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C4-PFHpA	6.592	367.1 -> 322.0	31914	2.42 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C5-PFHxA	5.659	318.0 -> 273.0	67390	2.51 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C5-PFPeA	4.475	268.3 -> 223.0	86264	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C6-PFDA	8.315	519.1 -> 474.1	20562	1.20 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C7-PFUnDA	8.797	570.0 -> 525.1	21203	1.14 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.1%	
13C8-FOSA	9.870	506.1 -> 77.8	18047	2.20 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.1%	
13C8-PFOA	7.250	421.1 -> 376.0	40502	2.48 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C8-PFOS	8.467	507.1 -> 79.9	12146	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C9-PFNA	7.809	472.1 -> 427.0	21152	1.18 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.1%	
d3-MeFOSAA	8.373	573.2 -> 419.0	16928	4.59 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 91.8%	
13C3-HFPO-DA	6.026	286.9 -> 168.9	41152	10.10 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
d3-MeFOSA	11.102	515.0 -> 219.0	9393	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%	
d5-EtFOSAA	8.582	589.2 -> 419.0	14073	4.69 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.9%	
d7-MeFOSE	10.997	623.2 -> 58.9	64344	19.92 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.7%	
d9-EtFOSE	11.294	639.2 -> 58.9	78370	19.83 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.3%	
d5-EtFOSA	11.386	531.1 -> 219.0	11053	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.6%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.348	327.1 -> 307.0	43850	24.07 µg/L	97
		327.1 -> 80.9	18548		
6:2FTS	7.011	427.1 -> 407.0	36632	25.02 µg/L	99
		427.1 -> 80.9	15338		
8:2FTS	8.090	527.1 -> 507.0	38182	23.43 µg/L	97
		527.1 -> 80.8	15711		
EtFOSAA	8.595	584.2 -> 419.1	47132	22.42 µg/L	m 85
		584.2 -> 526.0	22430		
FOSA	9.861	498.1 -> 77.9	137970	23.74 µg/L	100
		498.1 -> 478.0	3956		
MeFOSAA	8.373	570.1 -> 419.0	54195	23.23 µg/L	m 87
		570.1 -> 483.0	11422		
PFBA	2.995	212.8 -> 168.9	65140	21.79 µg/L	100
PFBS	5.565	298.7 -> 79.9	130543	24.89 µg/L	99
		298.7 -> 98.8	49476		
PFDA	8.316	512.9 -> 469.0	286852	24.40 µg/L	99
		512.9 -> 219.0	56409		
PFDoDA	9.244	613.1 -> 569.0	368092	20.46 µg/L	100
		613.1 -> 319.0	50909		
PFDS	9.409	599.0 -> 79.9	63196	23.27 µg/L	100

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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.593	599.0 -> 98.8	30566	23.84	µg/L	99
		363.1 -> 319.0	379568			
PFHpS	7.936	363.1 -> 169.0	67414	23.62	µg/L	99
		449.0 -> 79.9	74668			
PFHxA	5.662	449.0 -> 98.9	39316	23.40	µg/L	100
		313.0 -> 269.0	466735			
PFHxS	7.355	313.0 -> 118.9	14050	24.69	µg/L	98
		398.7 -> 79.9	71158			
PFNA	7.797	398.7 -> 98.9	36091	25.84	µg/L	96
		463.0 -> 419.0	292165			
PFNS	8.961	463.0 -> 219.0	71416	24.91	µg/L	99
		548.8 -> 79.9	46554			
PFOA	7.252	548.8 -> 98.9	23467	21.98	µg/L	100
		413.0 -> 369.0	415985			
PFOS	8.468	413.0 -> 169.0	84619	20.14	µg/L	82
		498.9 -> 79.9	95210			
PFPeA	4.477	498.9 -> 98.8	44149	24.43	µg/L	100
		263.0 -> 219.0	398882			
PFPeS	6.632	349.1 -> 79.9	62867	25.62	µg/L	99
		349.1 -> 98.9	27189			
PFTeDA	10.037	713.1 -> 669.0	396398	23.79	µg/L	100
		713.1 -> 168.9	32160			
PFTrDA	9.666	663.0 -> 619.0	441790	19.06	µg/L	100
		663.0 -> 168.9	43545			
PFUnDA	8.798	563.1 -> 519.0	268118	22.36	µg/L	99
		563.1 -> 269.1	51192			
11CI-PF3OUdS	9.705	630.9 -> 450.9	252237	23.48	µg/L	98
		632.9 -> 452.9	76305			
9CI-PF3ONS	8.825	530.8 -> 351.0	278343	23.20	µg/L	99
		532.8 -> 353.0	83771			
ADONA	6.843	376.9 -> 250.9	557441	22.55	µg/L	99
		376.9 -> 84.8	151992			
HFPO-DA	6.027	284.9 -> 168.9	70722	21.68	µg/L	100
		284.9 -> 184.9	8706			
3:3FTCA	3.954	241.0 -> 177.0	16961	22.29	µg/L	99
		241.0 -> 117.0	1669			
5:3FTCA	6.345	341.0 -> 237.1	67293	23.89	µg/L	99
		341.0 -> 217.0	47323			
7:3FTCA	7.786	441.0 -> 316.9	24253	21.01	µg/L	96
		441.0 -> 336.9	55063			
EtFOSA	11.388	526.0 -> 219.0	86921	22.07	µg/L	47
		526.0 -> 169.0	97241			
EtFOSE	11.308	630.0 -> 58.9	291838	120.82	µg/L	100
MeFOSA	11.103	511.9 -> 219.0	69001	22.72	µg/L	94
		511.9 -> 169.0	80787			
MeFOSE	11.010	616.1 -> 58.9	257631	113.93	µg/L	100
PFDoDS	10.176	699.1 -> 79.9	53320	22.71	µg/L	99
		699.1 -> 98.8	29639			
NFDHA	5.541	295.0 -> 201.0	30696	22.89	µg/L	99
		295.0 -> 84.9	7783			
PFMBA	4.891	279.0 -> 85.1	220004	23.56	µg/L	100
PFMPA	3.598	229.0 -> 84.9	190119	23.28	µg/L	100
PFEESA	6.108	314.8 -> 134.9	346780	20.70	µg/L	100
		314.8 -> 82.9	11571			

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

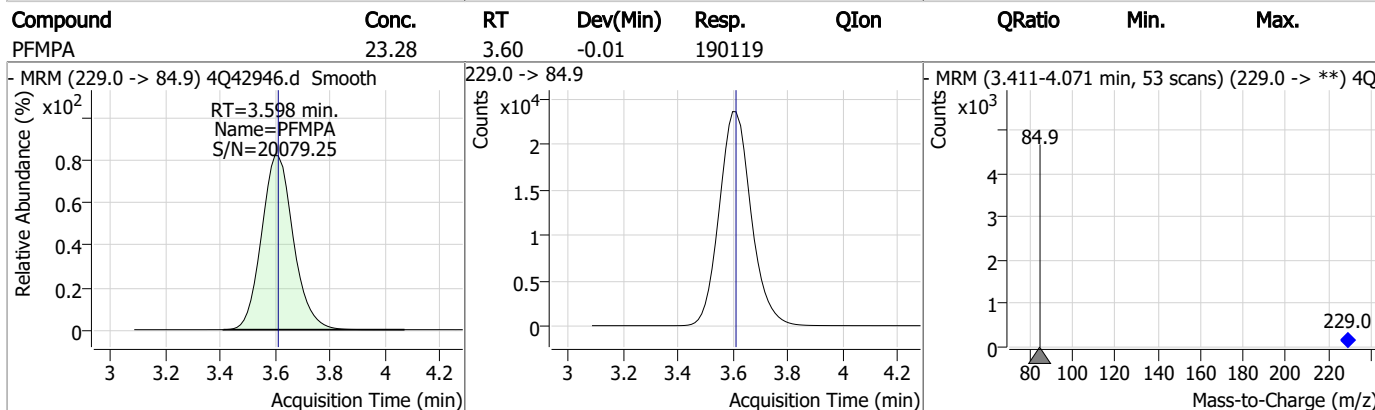
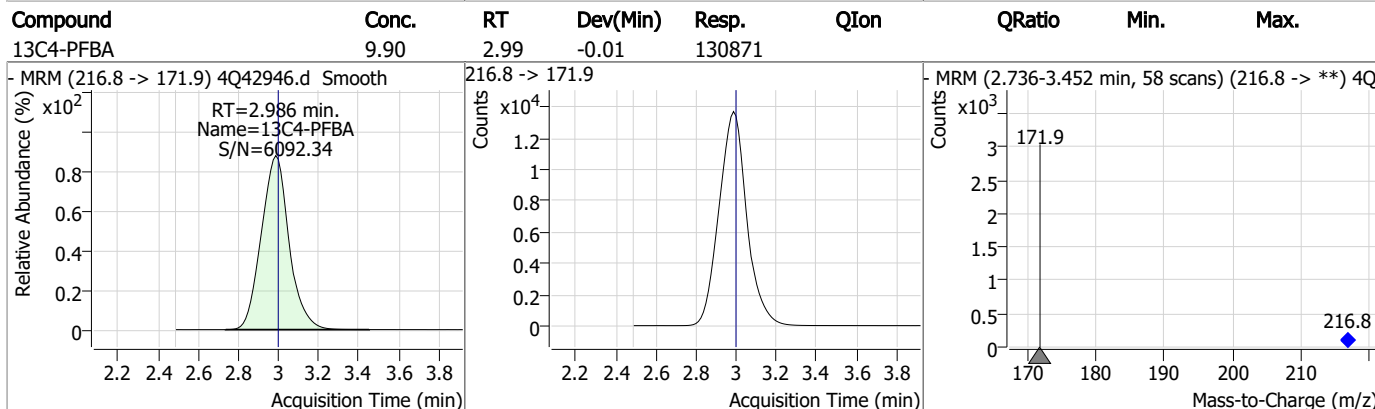
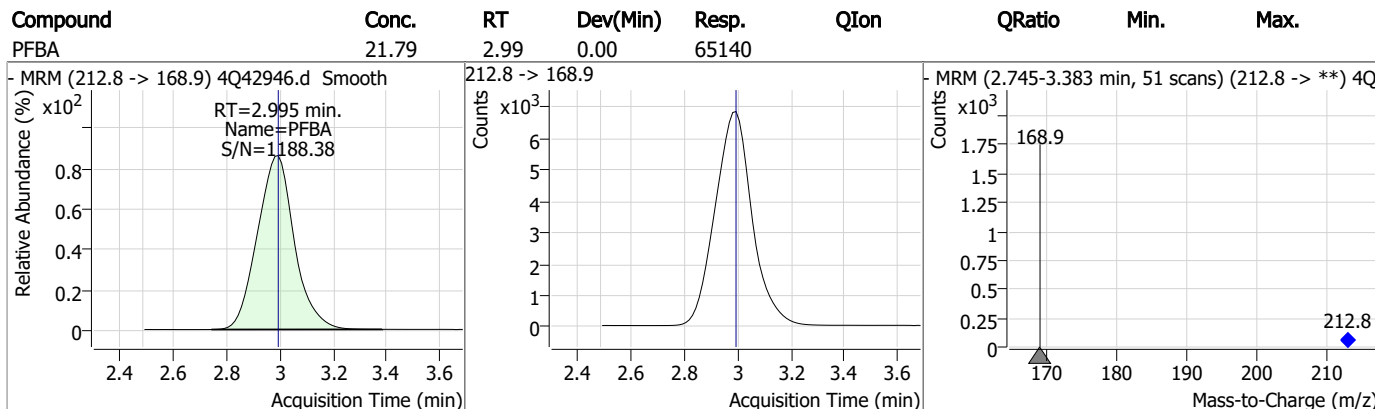
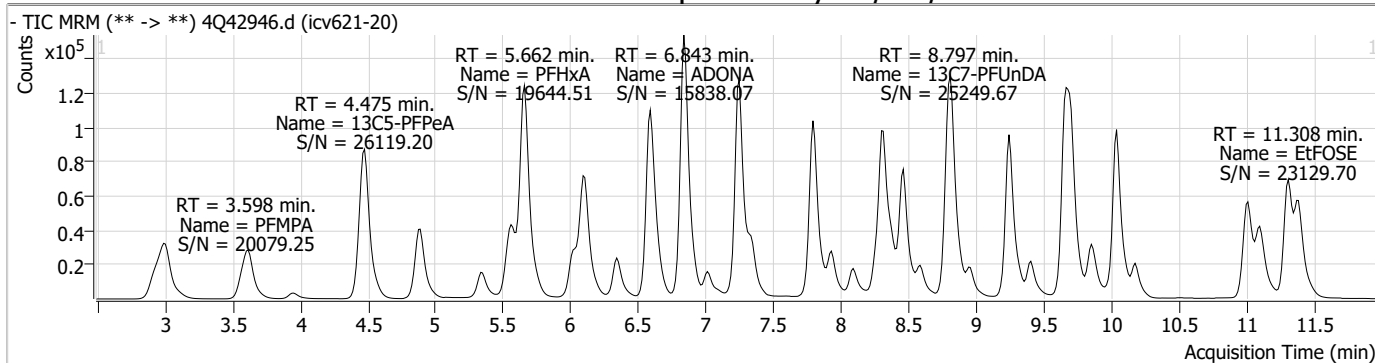
### Perfluorinated Compounds by LC/MS/MS

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

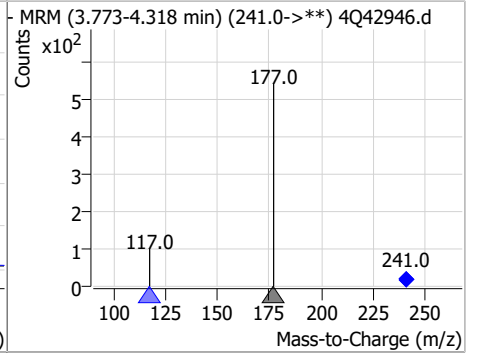
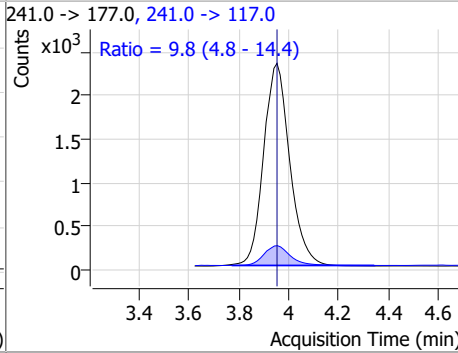
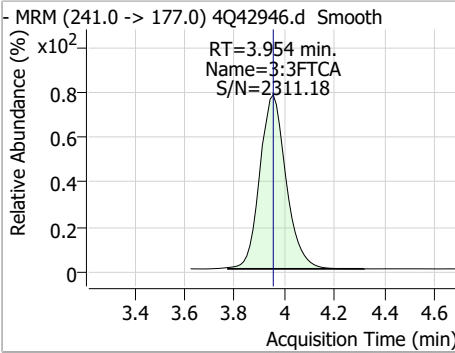
7

### Perfluorinated Compounds by LC/MS/MS

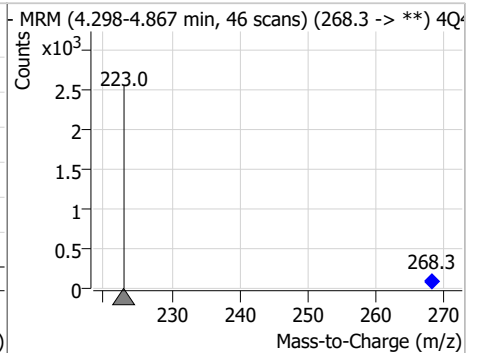
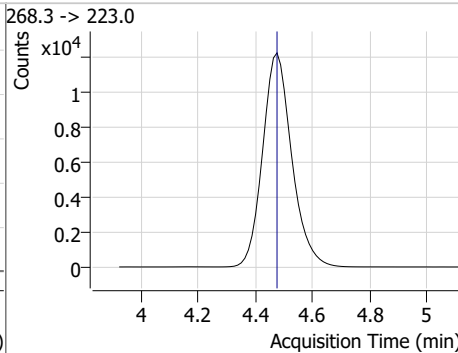
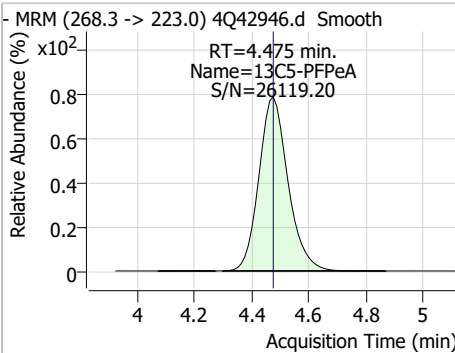


### Perfluorinated Compounds by LC/MS/MS

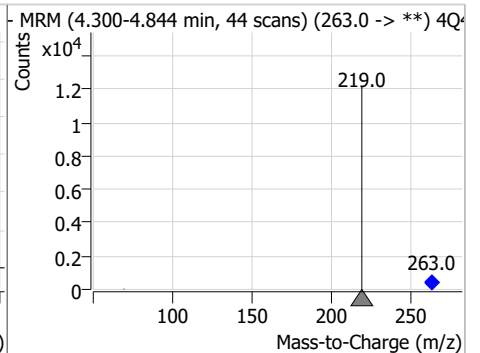
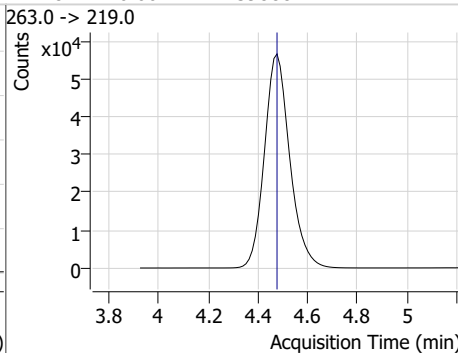
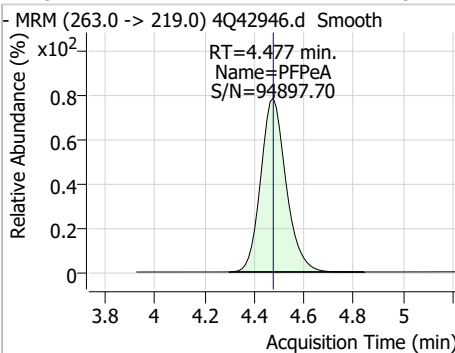
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	22.29	3.95	0.00	16961	241.0 -> 117.0	9.8	4.8	14.4



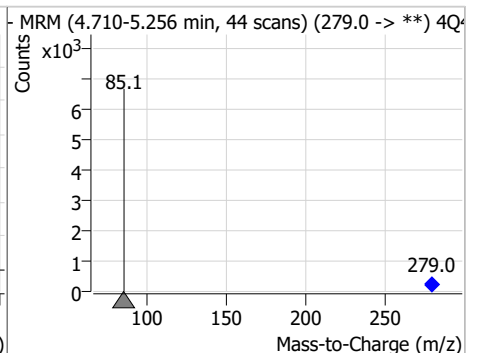
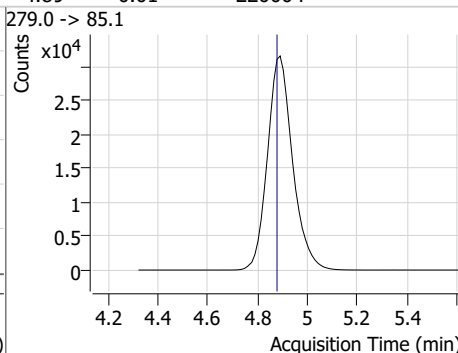
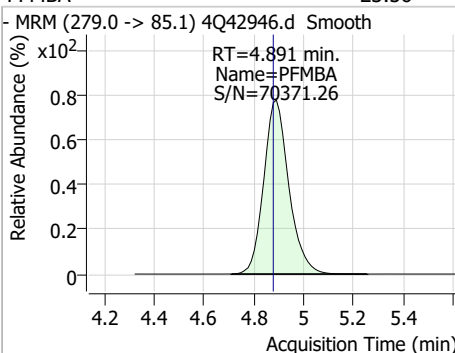
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.04	4.47	0.00	86264				



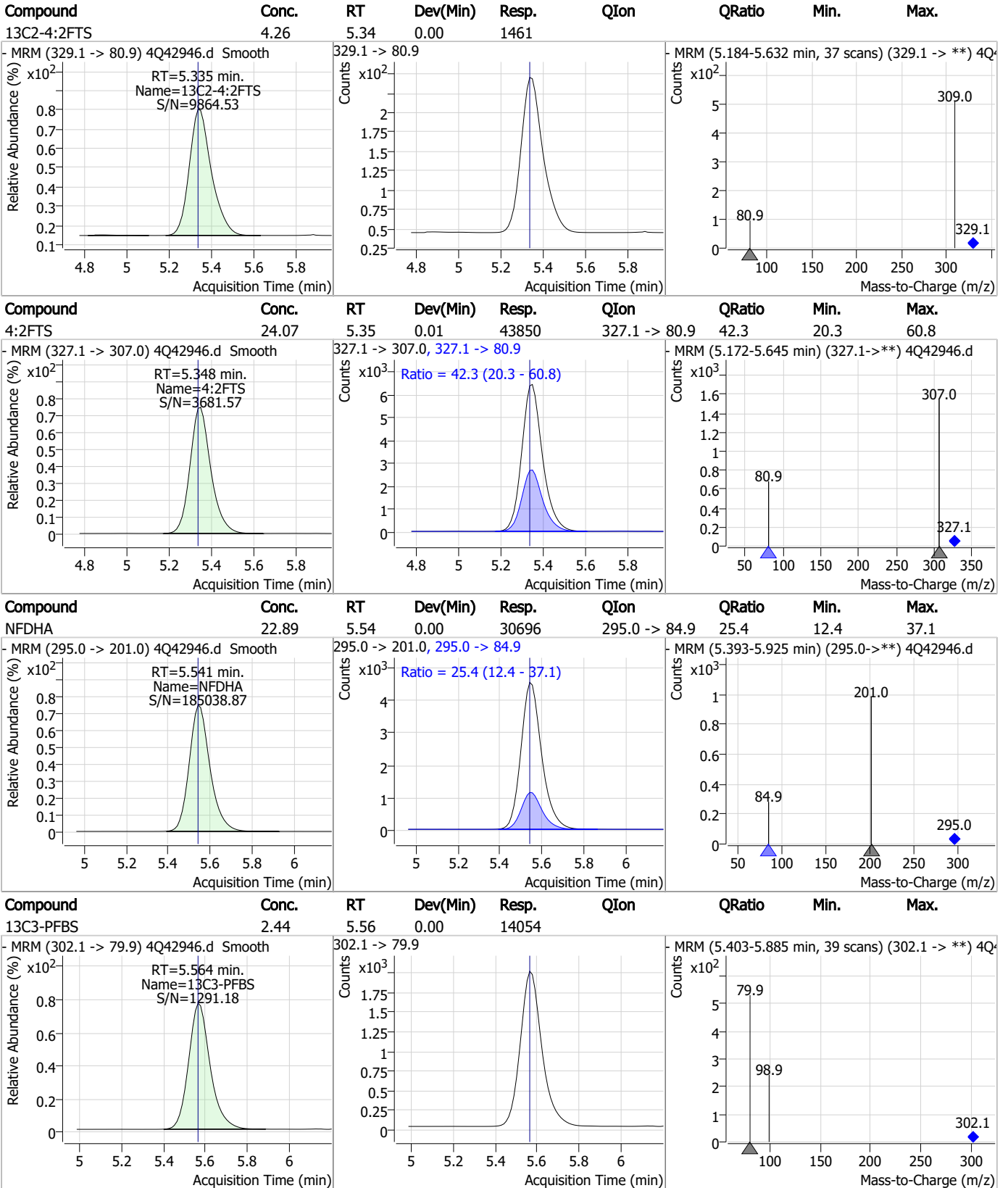
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	24.43	4.48	0.00	398882				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	23.56	4.89	0.01	220004				



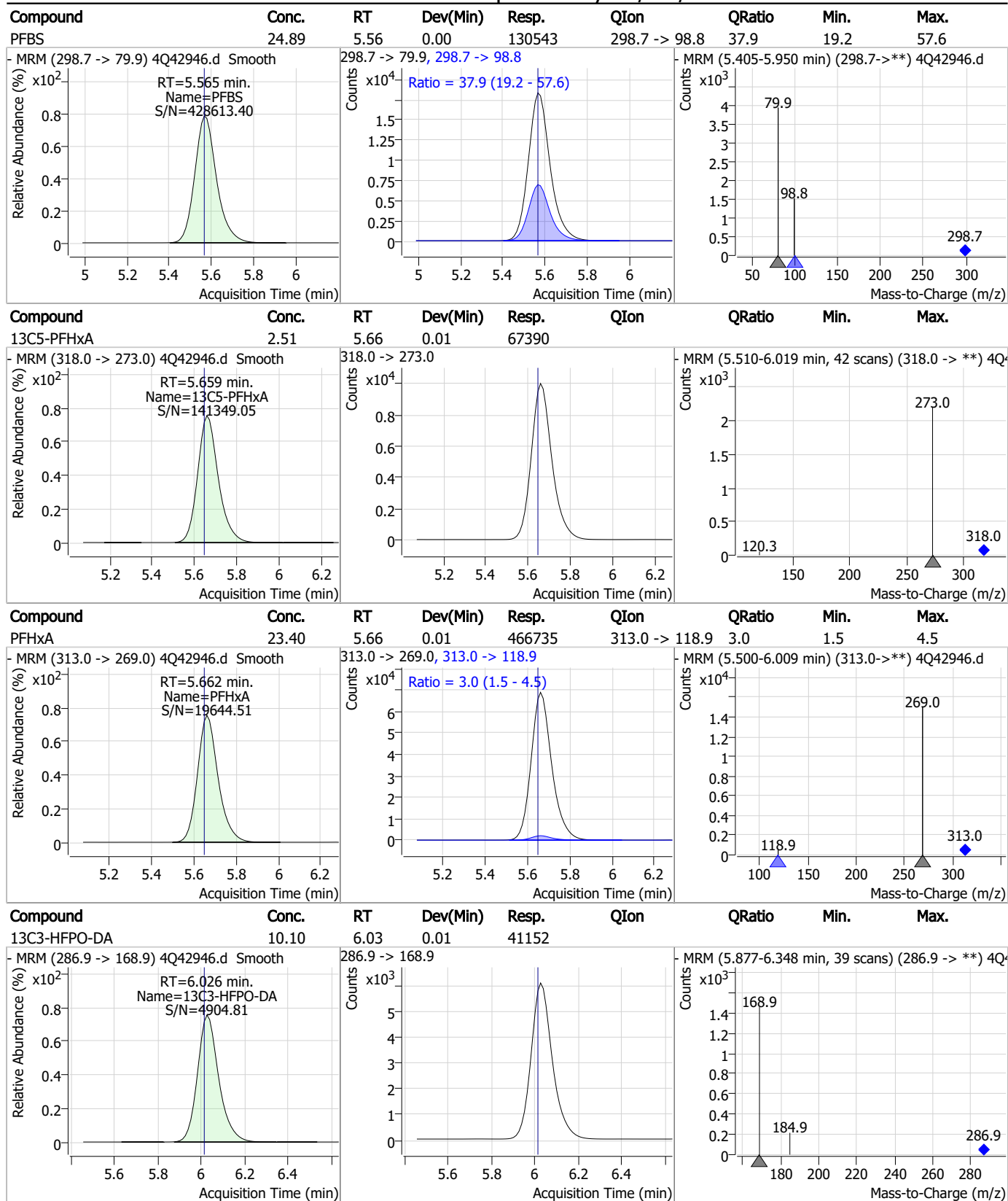
### Perfluorinated Compounds by LC/MS/MS



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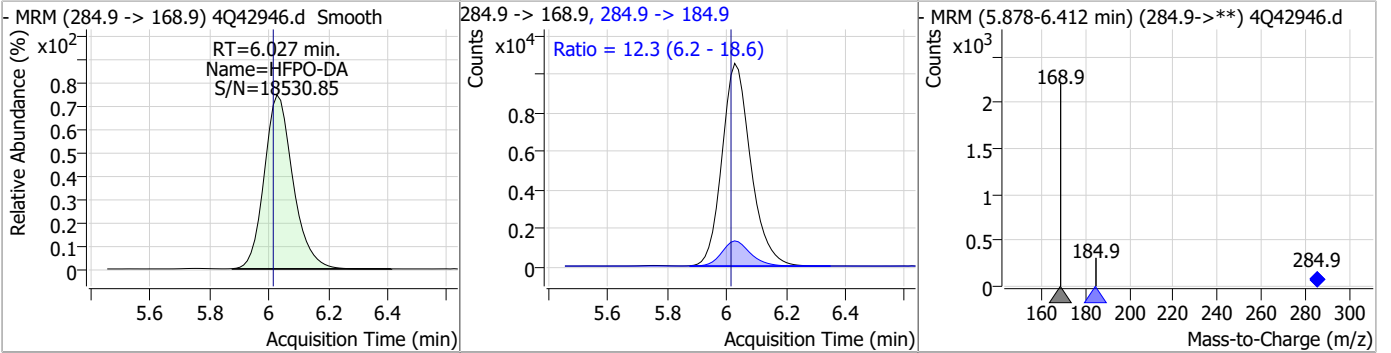
### Perfluorinated Compounds by LC/MS/MS



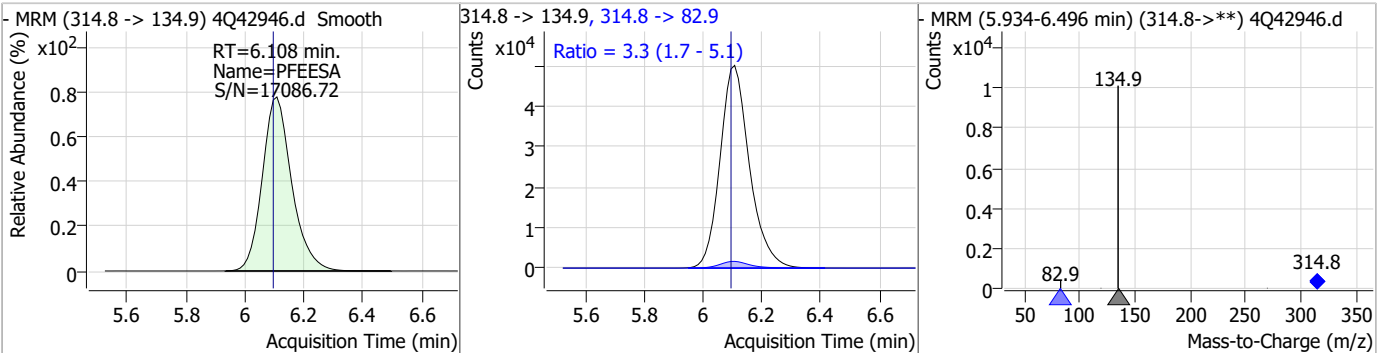
7.7.11  
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### Perfluorinated Compounds by LC/MS/MS

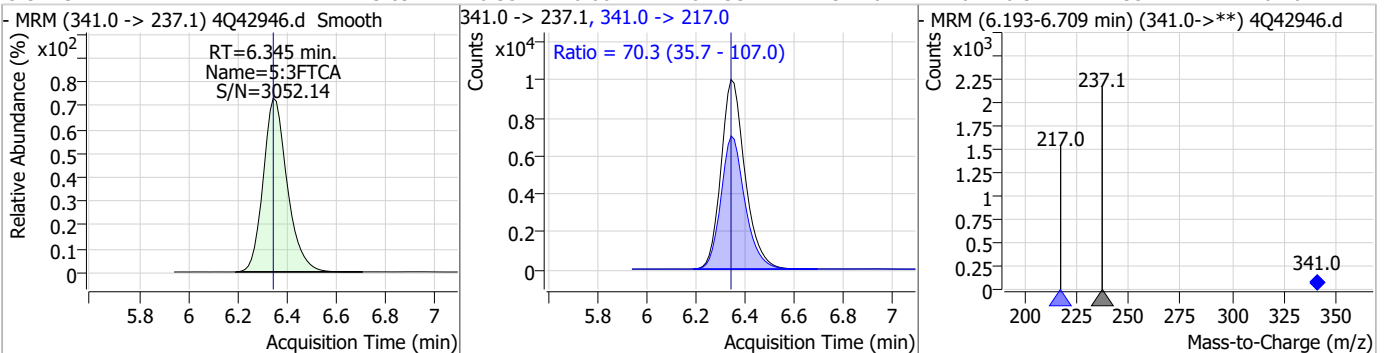
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	21.68	6.03	0.01	70722	284.9 -> 184.9	12.3	6.2	18.6



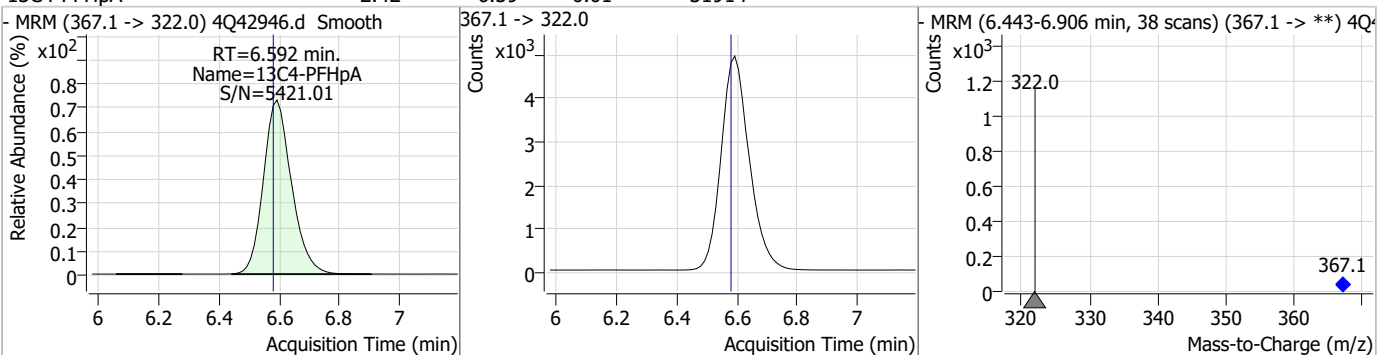
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	20.70	6.11	0.01	346780	314.8 -> 82.9	3.3	1.7	5.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	23.89	6.35	0.00	67293	341.0 -> 217.0	70.3	35.7	107.0

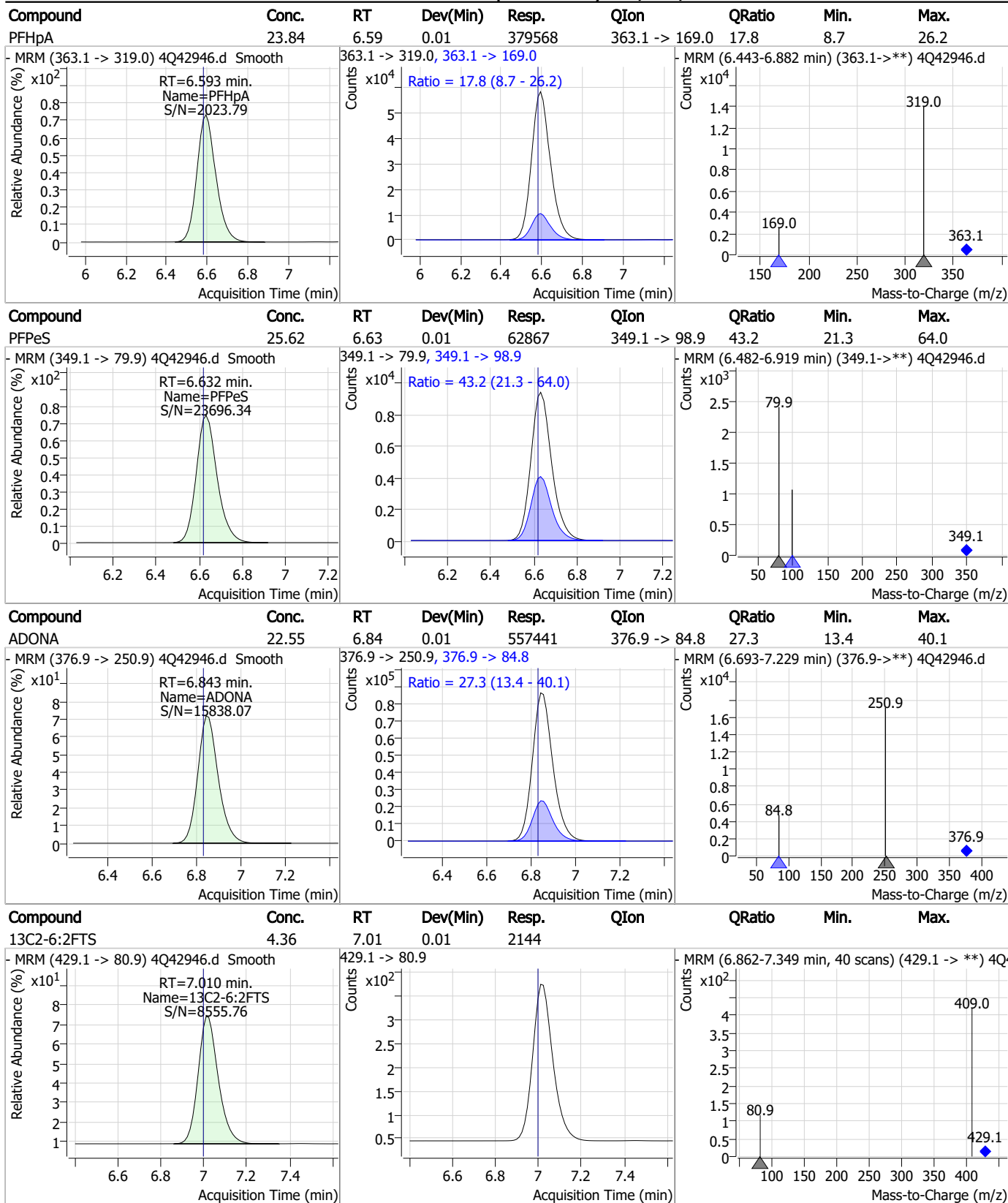


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.42	6.59	0.01	31914	367.1 -> 322.0	-	-	-



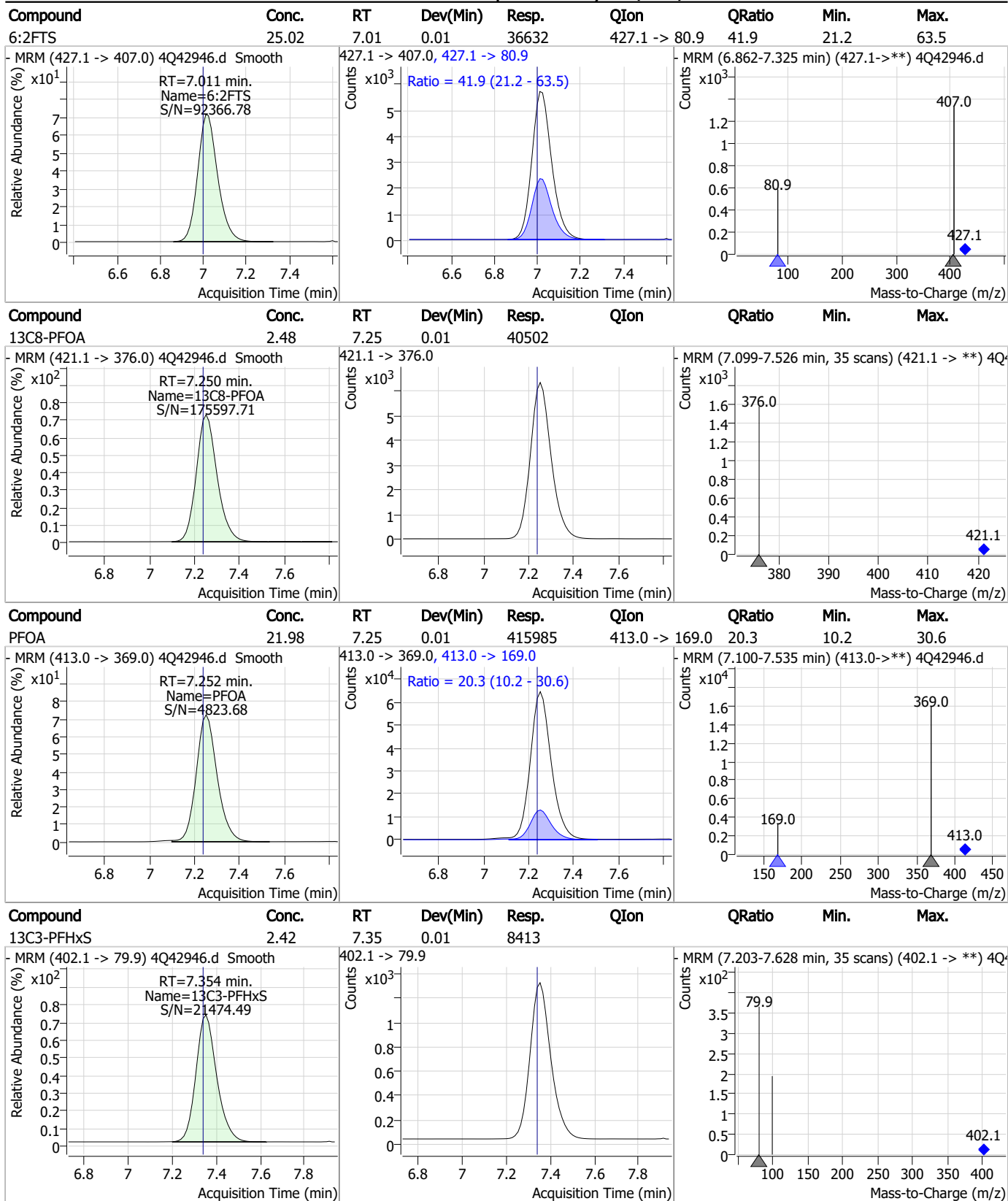


### Perfluorinated Compounds by LC/MS/MS



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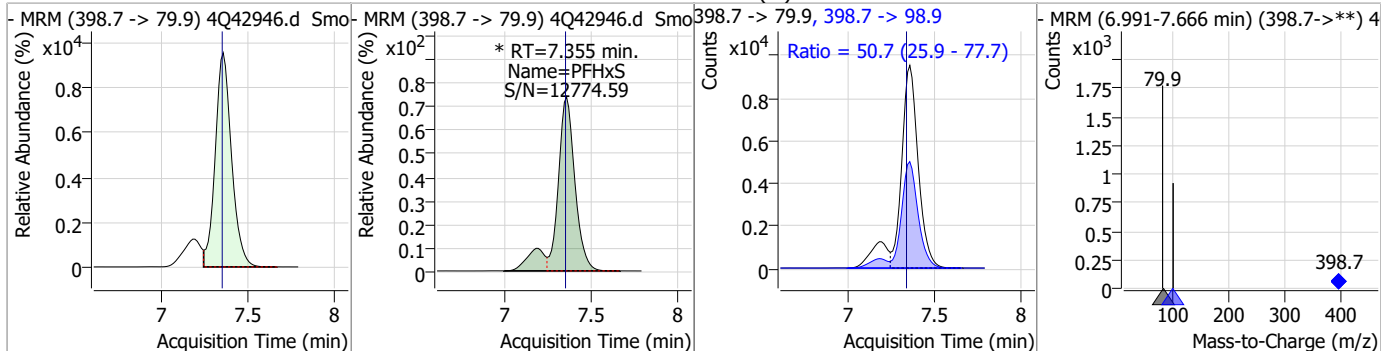
### Perfluorinated Compounds by LC/MS/MS



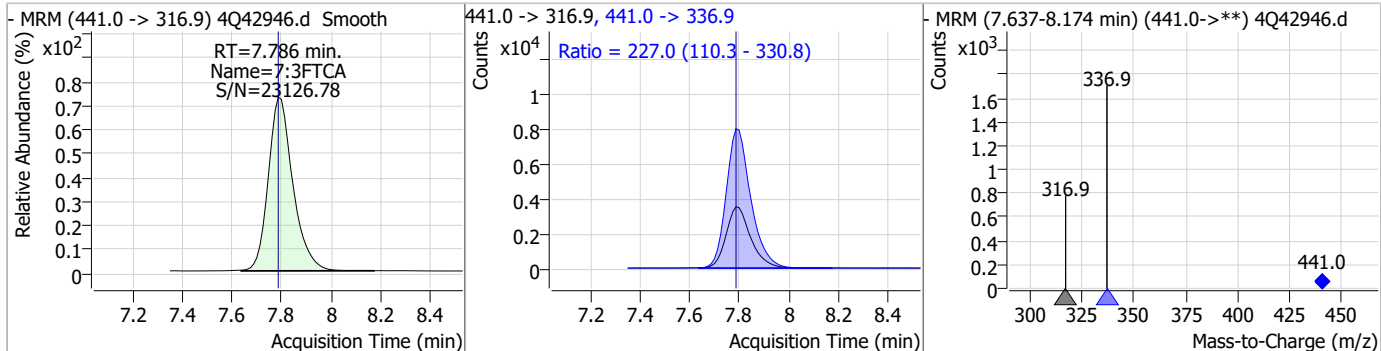
7.7.11

### Perfluorinated Compounds by LC/MS/MS

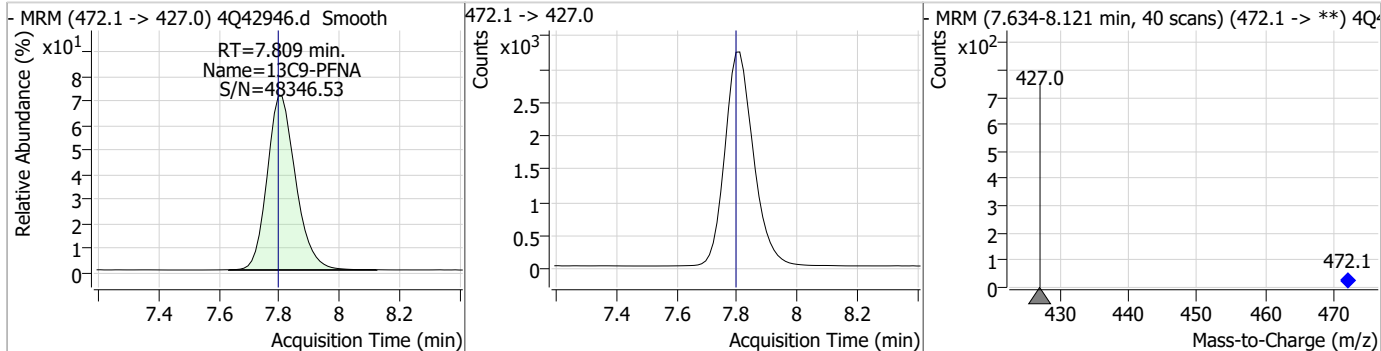
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	24.69	7.35	0.01	71158 (m)	398.7 -> 98.9	50.7	25.9	77.7



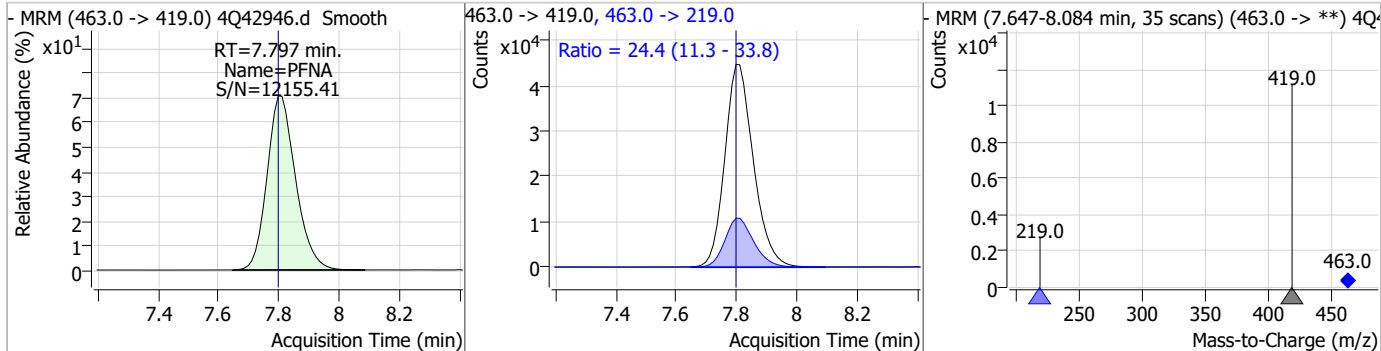
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	21.01	7.79	0.00	24253	441.0 -> 336.9	227.0	110.3	330.8



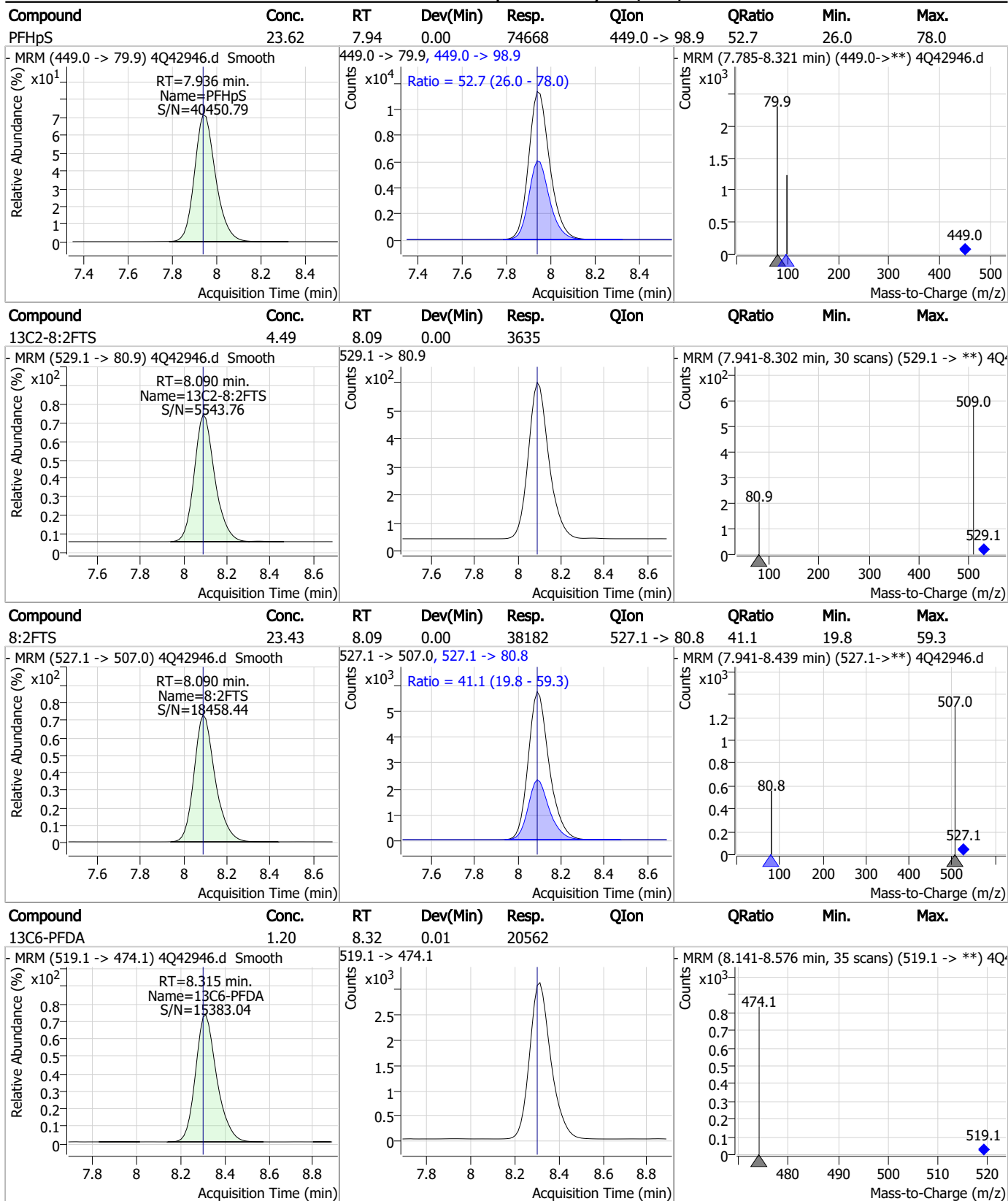
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.18	7.81	0.01	21152	472.1 -> 427.0	472.1	427.0	472.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	25.84	7.80	0.00	292165	463.0 -> 219.0	24.4	11.3	33.8



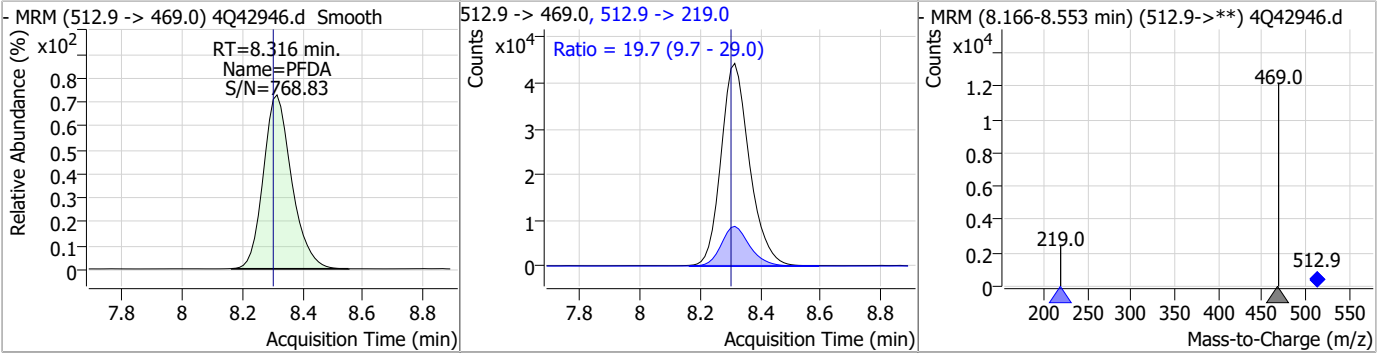
### Perfluorinated Compounds by LC/MS/MS



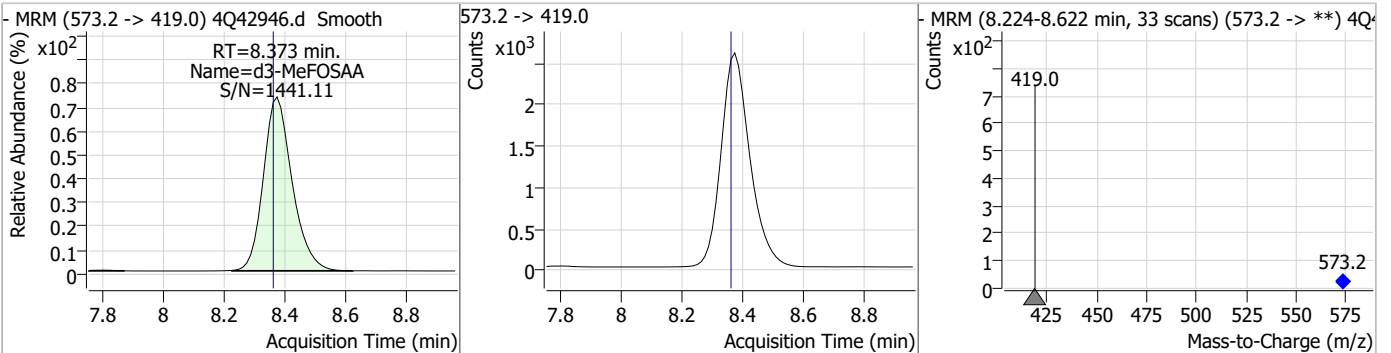
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### Perfluorinated Compounds by LC/MS/MS

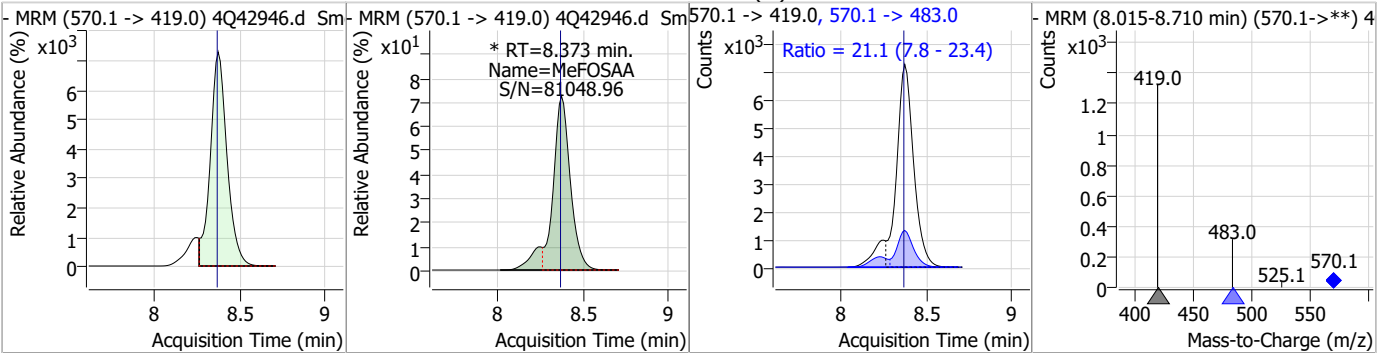
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	24.40	8.32	0.01	286852	512.9 -> 219.0	19.7	9.7	29.0



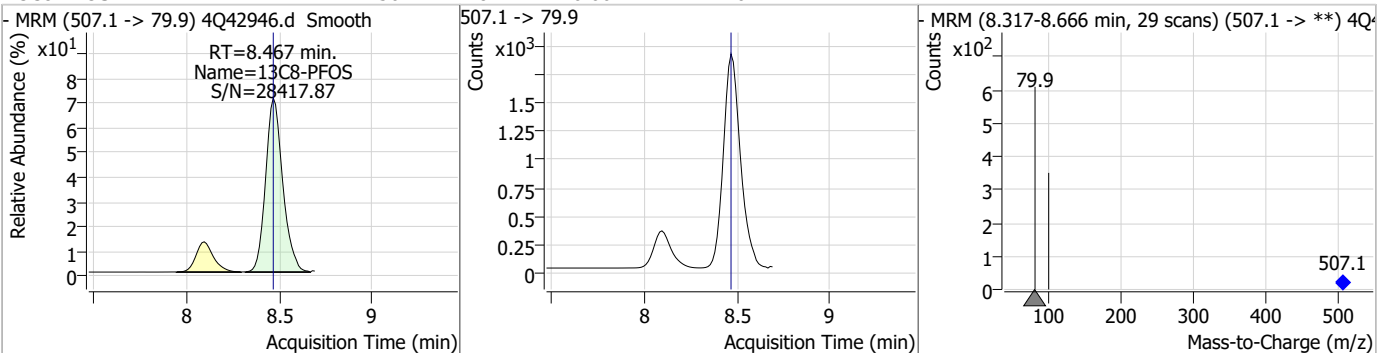
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.59	8.37	0.01	16928				



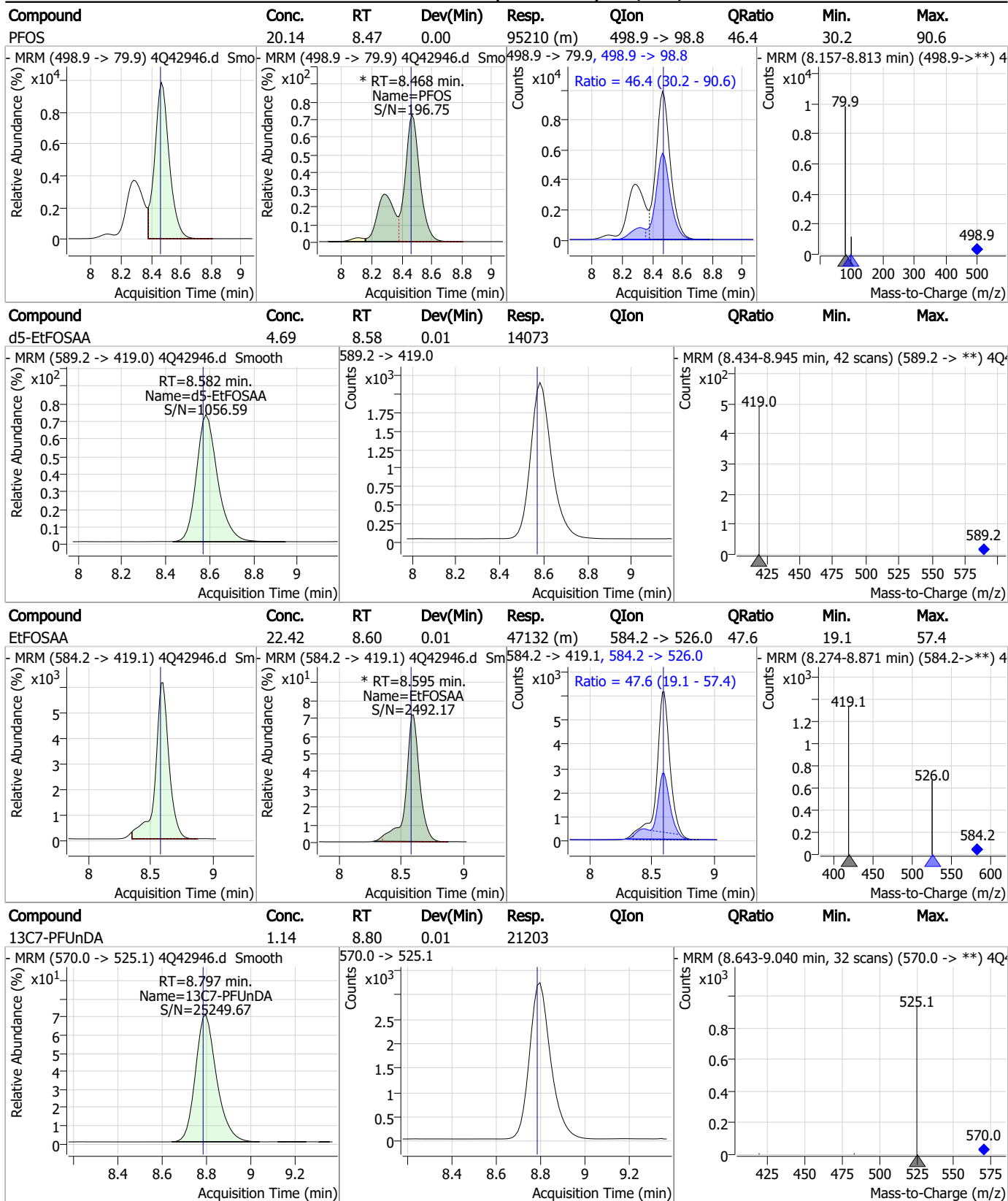
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	23.23	8.37	0.01	54195 (m)	570.1 -> 483.0	21.1	7.8	23.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.50	8.47	0.00	12146				



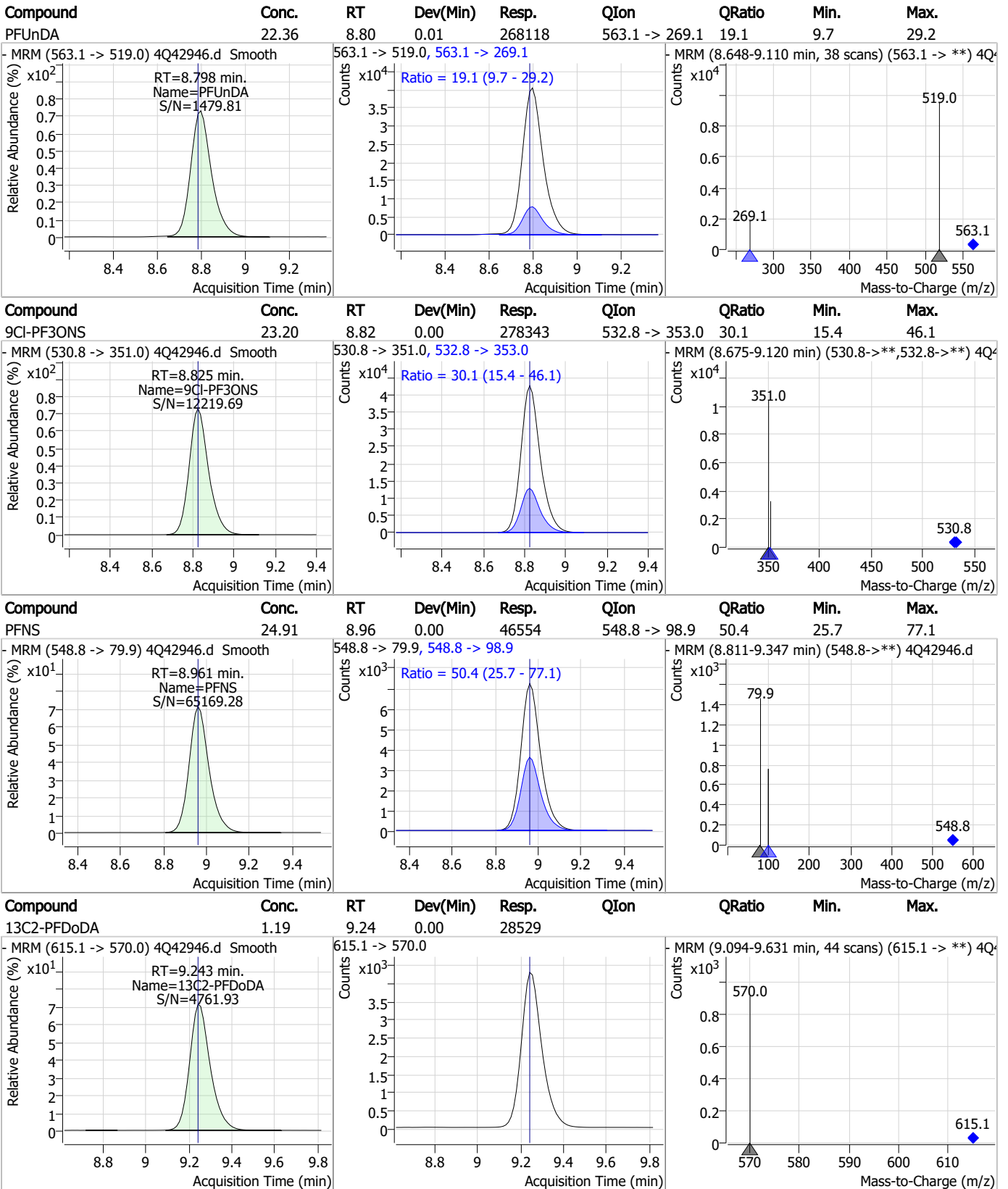
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS



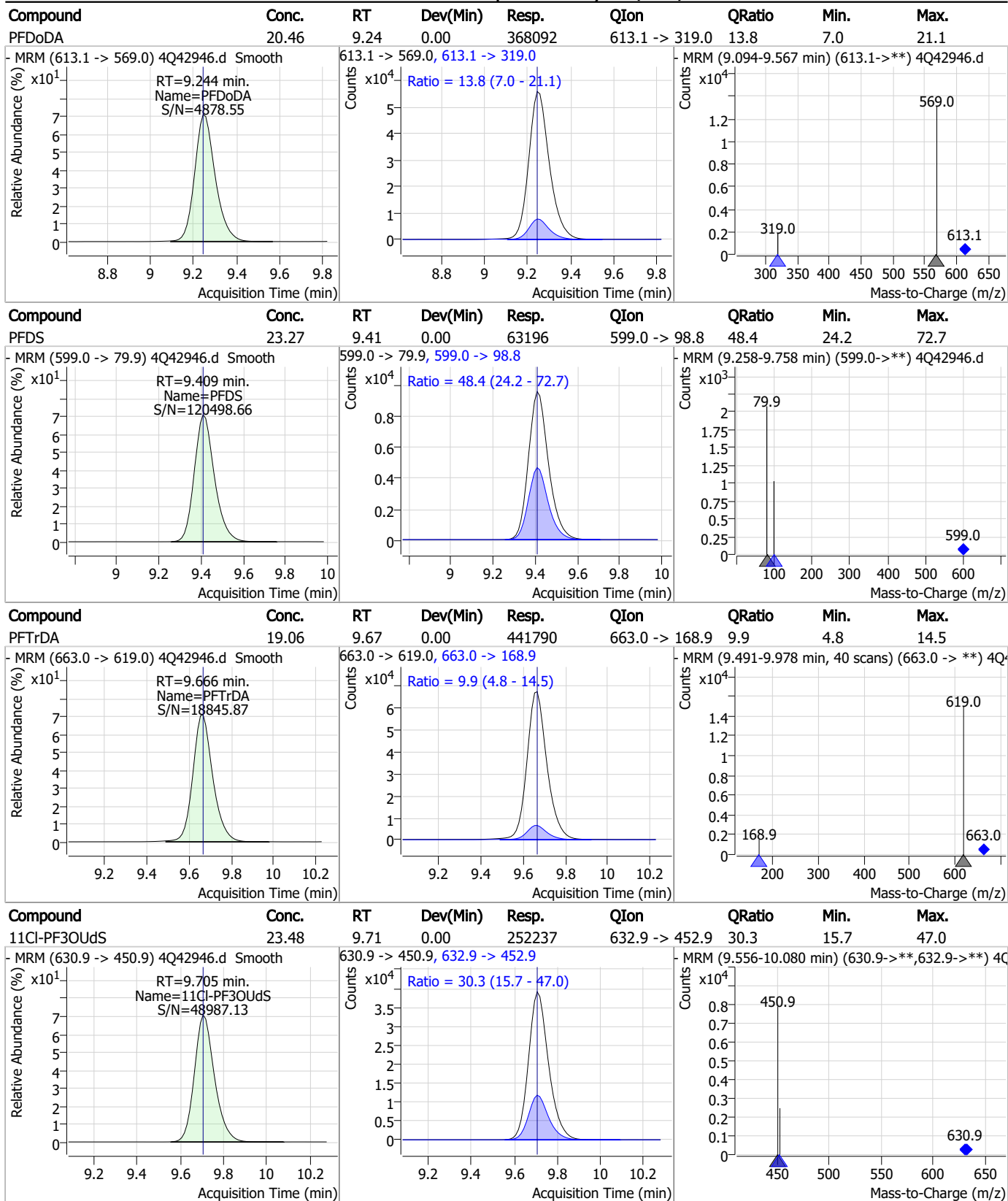
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### Perfluorinated Compounds by LC/MS/MS

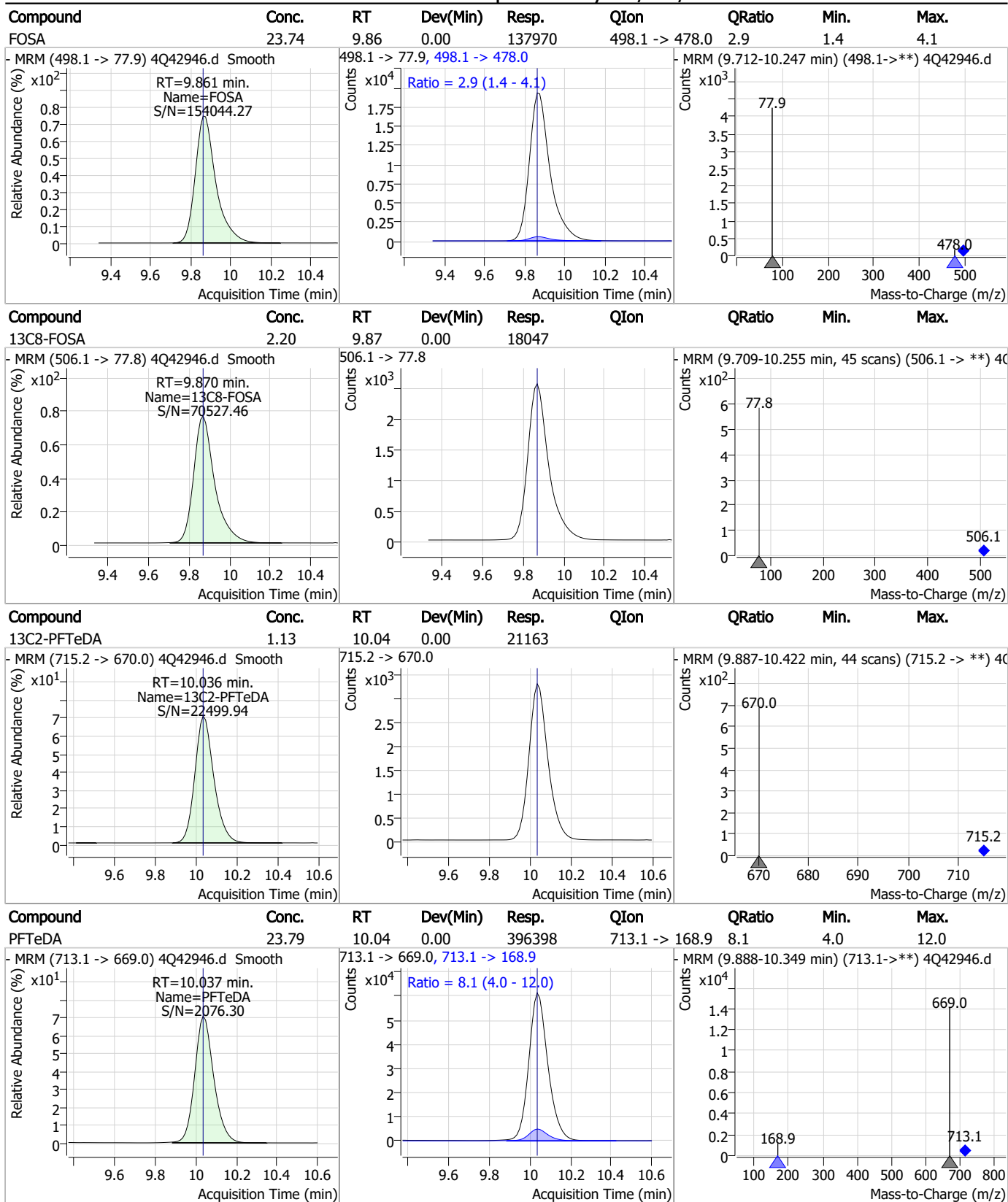


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### Perfluorinated Compounds by LC/MS/MS

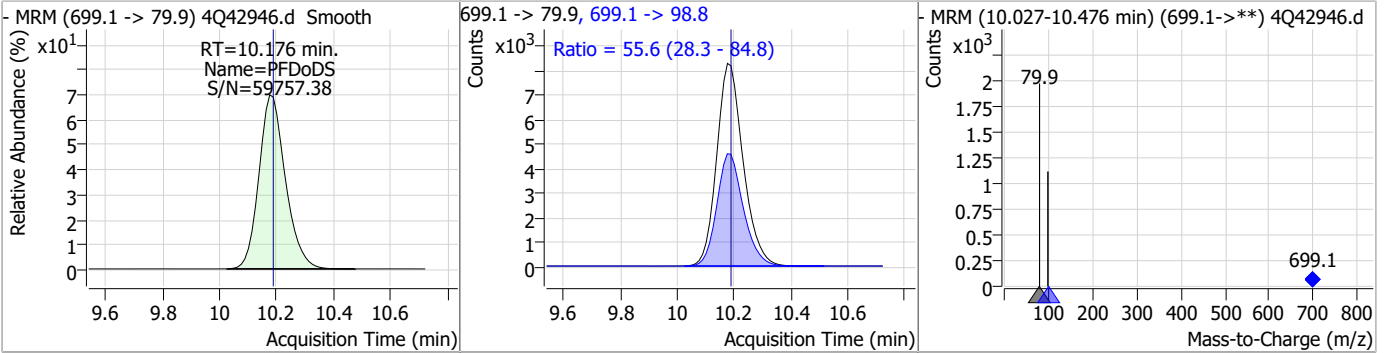


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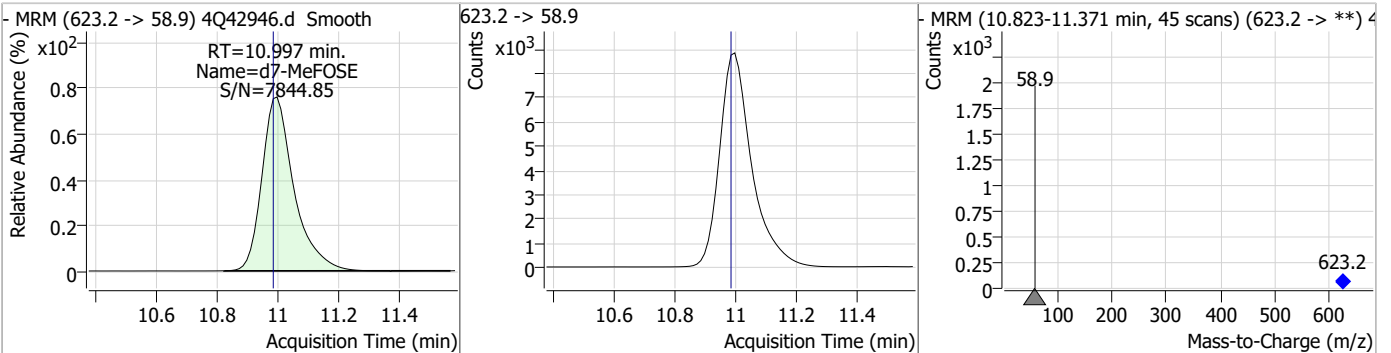
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### Perfluorinated Compounds by LC/MS/MS

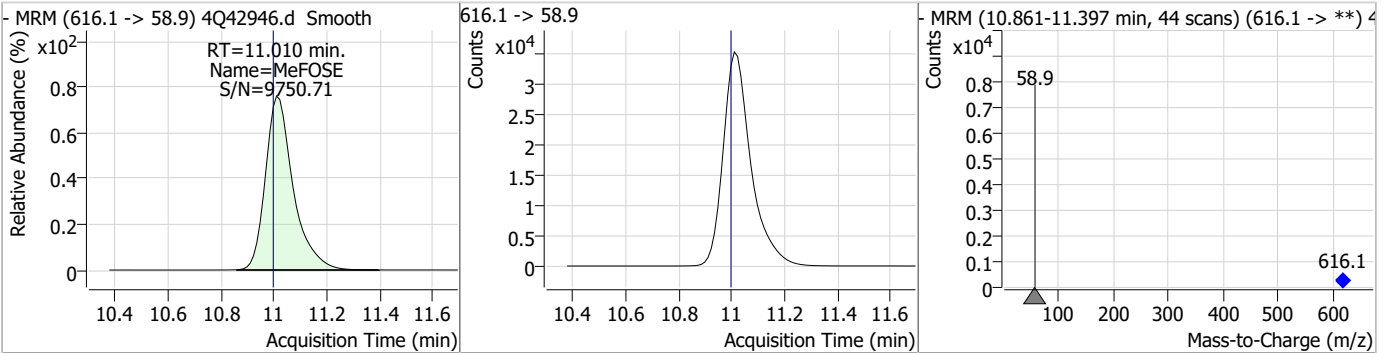
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PfDoDS	22.71	10.18	-0.01	53320	699.1 -> 98.8	55.6	28.3	84.8



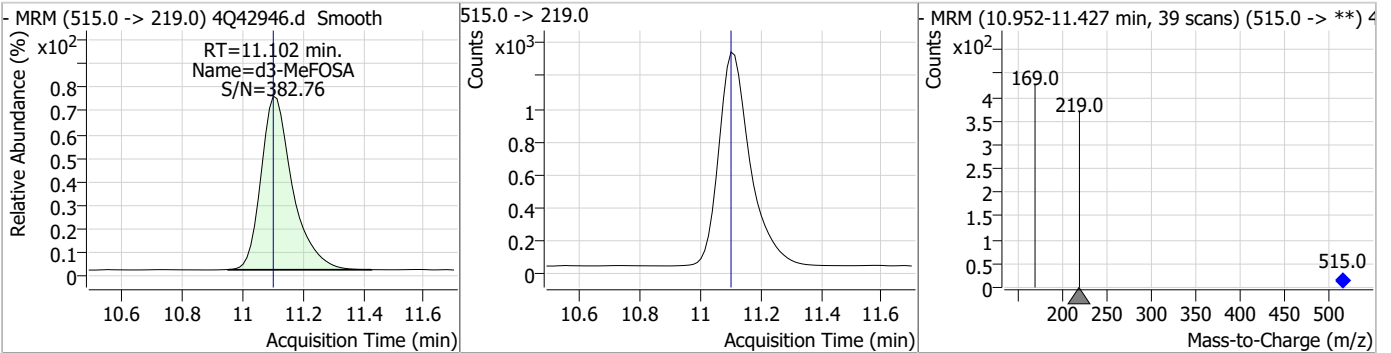
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.92	11.00	0.01	64344				



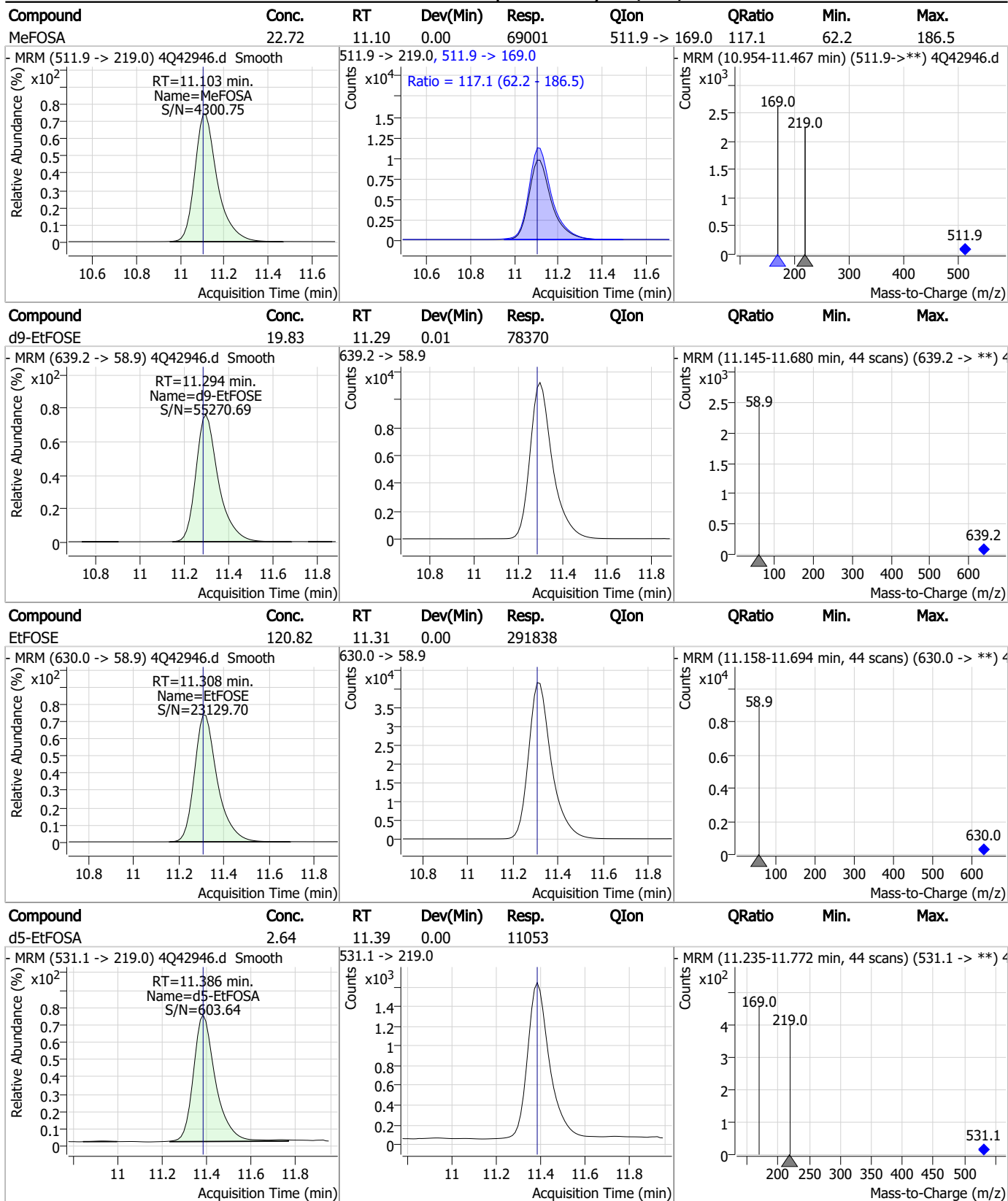
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	113.93	11.01	0.01	257631				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.42	11.10	0.00	9393				



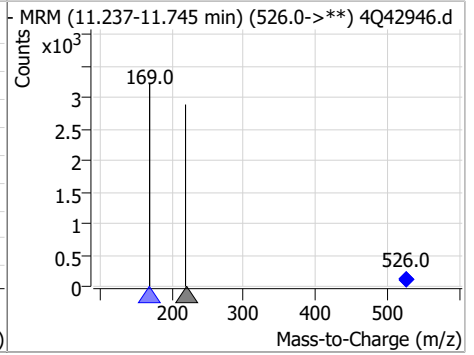
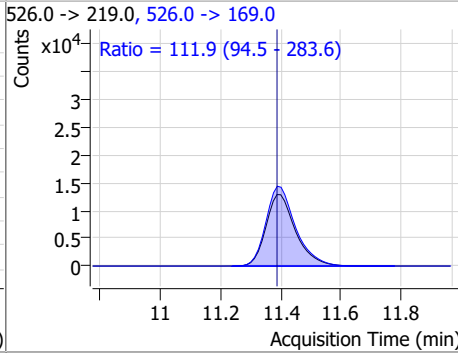
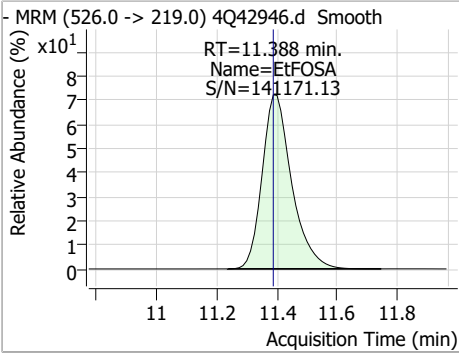
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	22.07	11.39	0.00	86921	526.0 -> 169.0	111.9	94.5	283.6



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# Manual Integration Approval Summary

Sample Number: S4Q621-ICV621      Method: EPA DRAFT 1633  
Lab FileID: 4Q42946.D      Analyst approved: 04/16/23 19:11 Martha Valls  
Injection Time: 04/14/23 14:19      Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.36	Split peak
MeFOSAA	2355-31-9		8.37	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.47	Split peak
EtFOSAA	2991-50-6		8.60	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43149.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 4/18/2023 11:26:32 AM  
 Sample Name : cc621-4  
 Vial : P1-A5  
 DA Method File : 1633\_041423\_S4Q621.quantmethod.xml  
 Batch Name : s4q624.batch.bin  
 Sample Information : OP96301,S4q624,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.961	216.8 -> 171.9	131431	10.00 µg/L	0.000
M5-PFPeA	4.450	268.3 -> 223.0	77007	5.00 µg/L	0.000
M5-PFHxA	5.622	318.0 -> 273.0	61637	2.50 µg/L	0.000
M4-PFHpA	6.555	367.1 -> 322.0	32038	2.50 µg/L	0.000
M8-PFOA	7.214	421.1 -> 376.0	37708	2.50 µg/L	0.000
M9-PFNA	7.759	472.1 -> 427.0	21465	1.25 µg/L	0.000
M6-PFDA	8.266	519.1 -> 474.1	20061	1.25 µg/L	0.000
M7-PFUnDA	8.748	570.0 -> 525.1	22408	1.25 µg/L	0.000
M2-PFDoDA	9.194	615.1 -> 570.0	27252	1.25 µg/L	0.000
M2-PFTeDA	9.987	715.2 -> 670.0	19312	1.25 µg/L	0.000
M8-FOSA	9.834	506.1 -> 77.8	16484	2.50 µg/L	0.000
M3-PFBS	5.527	302.1 -> 79.9	13582	2.50 µg/L	0.000
M3-PFHxS	7.317	402.1 -> 79.9	8292	2.50 µg/L	0.000
M8-PFOS	8.417	507.1 -> 79.9	11830	2.50 µg/L	0.000
M2-4:2FTS	5.309	329.1 -> 80.9	1645	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	2756	5.00 µg/L	0.000
M2-8:2FTS	8.054	529.1 -> 80.9	4136	5.00 µg/L	0.000
M3-MeFOSAA	8.324	573.2 -> 419.0	18997	5.00 µg/L	0.000
M3-HFPO-DA	5.989	286.9 -> 168.9	38086	10.00 µg/L	0.000
M5-EtFOSAA	8.533	589.2 -> 419.0	14732	5.00 µg/L	0.000
M7-MeFOSE	10.974	623.2 -> 58.9	60614	25.00 µg/L	0.000
M9-EtFOSE	11.282	639.2 -> 58.9	75918	25.00 µg/L	0.000
M5-EtFOSA	11.373	531.1 -> 219.0	9928	2.50 µg/L	0.000
M3-MeFOSA	11.090	515.0 -> 219.0	9515	2.50 µg/L	0.000
13C4-PFOS	8.418	502.8 -> 79.9	12080	2.50 µg/L	0.000
13C3-PFBA	2.966	216.0 -> 172.0	73315	5.00 µg/L	0.000
18O2-PFHxS	7.316	403.0 -> 83.9	5988	2.50 µg/L	0.000
13C4-PFOA	7.214	417.1 -> 372.0	45562	2.50 µg/L	0.000
13C2-PFDA	8.267	515.1 -> 470.1	18679	1.25 µg/L	0.000
13C5-PFNA	7.759	468.0 -> 423.0	23741	1.25 µg/L	0.000
13C2-PFHxA	5.623	315.1 -> 270.0	51832	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.309	329.1 -> 80.9	1645	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C2-6:2FTS	6.974	429.1 -> 80.9	2756	5.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.4%		
13C2-8:2FTS	8.054	529.1 -> 80.9	4136	5.35 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.1%		
13C2-PFDoDA	9.194	615.1 -> 570.0	27252	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.8%		
13C2-PFTeDA	9.987	715.2 -> 670.0	19312	1.08 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 86.3%		
13C3-PFBS	5.527	302.1 -> 79.9	13582	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C3-PFHxS	7.317	402.1 -> 79.9	8292	2.50 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFBA	2.961	216.8 -> 171.9	131431	10.29 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C4-PFHpA	6.555	367.1 -> 322.0	32038	2.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.9%	
13C5-PFHxA	5.622	318.0 -> 273.0	61637	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C5-PFPeA	4.450	268.3 -> 223.0	77007	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C6-PFDA	8.266	519.1 -> 474.1	20061	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C7-PFUnDA	8.748	570.0 -> 525.1	22408	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C8-FOSA	9.834	506.1 -> 77.8	16484	2.09 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 83.5%	
13C8-PFOA	7.214	421.1 -> 376.0	37708	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C8-PFOS	8.417	507.1 -> 79.9	11830	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C9-PFNA	7.759	472.1 -> 427.0	21465	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.3%	
d3-MeFOSAA	8.324	573.2 -> 419.0	18997	5.34 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.8%	
13C3-HFPO-DA	5.989	286.9 -> 168.9	38086	10.47 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.7%	
d3-MeFOSA	11.090	515.0 -> 219.0	9515	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.8%	
d5-EtFOSAA	8.533	589.2 -> 419.0	14732	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
d7-MeFOSE	10.974	623.2 -> 58.9	60614	19.46 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 77.8%	
d9-EtFOSE	11.282	639.2 -> 58.9	75918	19.91 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.7%	
d5-EtFOSA	11.373	531.1 -> 219.0	9928	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	5.310	327.1 -> 307.0	17151	8.37 µg/L	97
		327.1 -> 80.9	7498		
6:2FTS	6.974	427.1 -> 407.0	14418	7.66 µg/L	97
		427.1 -> 80.9	6255		
8:2FTS	8.054	527.1 -> 507.0	16338	8.81 µg/L	95
		527.1 -> 80.8	6672		
EtFOSAA	8.547	584.2 -> 419.1	4772	2.17 µg/L	90
		584.2 -> 526.0	2572		
FOSA	9.837	498.1 -> 77.9	11064	2.08 µg/L	99
		498.1 -> 478.0	315		
MeFOSAA	8.325	570.1 -> 419.0	5095	1.95 µg/L	m 97
		570.1 -> 483.0	1231		
PFBA	2.957	212.8 -> 168.9	23320	7.77 µg/L	100
PFBS	5.528	298.7 -> 79.9	9449	1.86 µg/L	96
		298.7 -> 98.8	3569		
PFDA	8.267	512.9 -> 469.0	25992	2.27 µg/L	97
		512.9 -> 219.0	4776		
PFDoDA	9.195	613.1 -> 569.0	35169	2.05 µg/L	99
		613.1 -> 319.0	4962		
PFDS	9.358	599.0 -> 79.9	4941	1.87 µg/L	96

7.7.12  
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.555	599.0 -> 98.8	2554	2.05	µg/L	99
		363.1 -> 319.0	32748			
PFHpS	7.900	363.1 -> 169.0	6015	2.05	µg/L	98
		449.0 -> 79.9	6321			
PFHxA	5.625	449.0 -> 98.9	3262	2.06	µg/L	99
		313.0 -> 269.0	37602			
PFHxS	7.318	313.0 -> 118.9	1074	1.89	µg/L	m
		398.7 -> 79.9	5359			
PFNA	7.760	398.7 -> 98.9	2575	2.03	µg/L	99
		463.0 -> 419.0	23290			
PFNS	8.912	463.0 -> 219.0	5906	2.01	µg/L	97
		548.8 -> 79.9	3657			
PFOA	7.215	548.8 -> 98.9	1894	2.03	µg/L	98
		413.0 -> 369.0	35809			
PFOS	8.419	413.0 -> 169.0	7173	1.93	µg/L	m
		498.9 -> 79.9	8889			
PFPeA	4.452	498.9 -> 98.8	4106	4.35	µg/L	100
		263.0 -> 219.0	63363			
PFPeS	6.595	349.1 -> 79.9	4751	1.96	µg/L	99
		349.1 -> 98.9	2170			
PFTeDA	9.988	713.1 -> 669.0	31253	2.06	µg/L	98
		713.1 -> 168.9	2577			
PFTrDA	9.617	663.0 -> 619.0	43017	1.94	µg/L	100
		663.0 -> 168.9	4346			
PFUnDA	8.748	563.1 -> 519.0	24185	1.91	µg/L	95
		563.1 -> 269.1	5045			
11Cl-PF3OUdS	9.656	630.9 -> 450.9	48907	4.92	µg/L	100
		632.9 -> 452.9	14940			
9Cl-PF3ONS	8.775	530.8 -> 351.0	50402	4.54	µg/L	99
		532.8 -> 353.0	15332			
ADONA	6.806	376.9 -> 250.9	112748	4.93	µg/L	99
		376.9 -> 84.8	30034			
HFPO-DA	5.990	284.9 -> 168.9	15034	4.98	µg/L	98
		284.9 -> 184.9	1850			
3:3FTCA	3.917	241.0 -> 177.0	8791	12.94	µg/L	99
		241.0 -> 117.0	804			
5:3FTCA	6.308	341.0 -> 237.1	168544	65.41	µg/L	99
		341.0 -> 217.0	118275			
7:3FTCA	7.749	441.0 -> 316.9	67527	63.94	µg/L	98
		441.0 -> 336.9	154485			
EtFOSA	11.375	526.0 -> 219.0	18490	5.23	µg/L	m
		526.0 -> 169.0	24947			
EtFOSE	11.295	630.0 -> 58.9	30099	12.86	µg/L	100
		511.9 -> 219.0	15091			
MeFOSA	11.092	511.9 -> 169.0	22086	4.91	µg/L	m
		616.1 -> 58.9	26158			
MeFOSE	11.000	699.1 -> 79.9	4257	12.28	µg/L	100
		699.1 -> 98.8	2466			
PFDoDS	10.140	295.0 -> 201.0	6902	1.86	µg/L	98
		295.0 -> 84.9	1593			
NFDHA	5.504	279.0 -> 85.1	42913	5.63	µg/L	94
		229.0 -> 84.9	38117			
PFMBA	4.853	314.8 -> 134.9	68663	5.15	µg/L	100
PFMPA	3.578	314.8 -> 82.9	2257	5.23	µg/L	100
PFEESA	6.059			4.48	µg/L	100

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



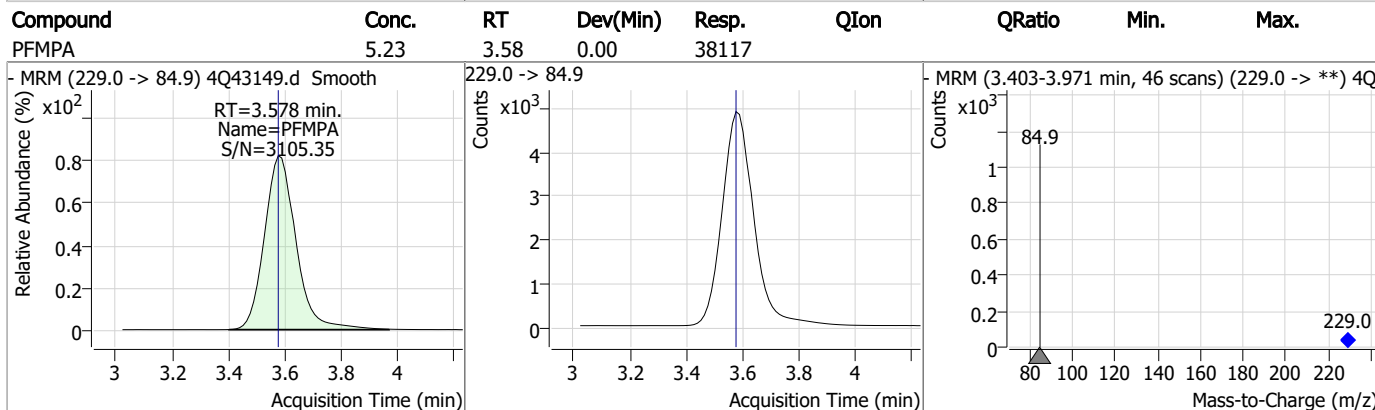
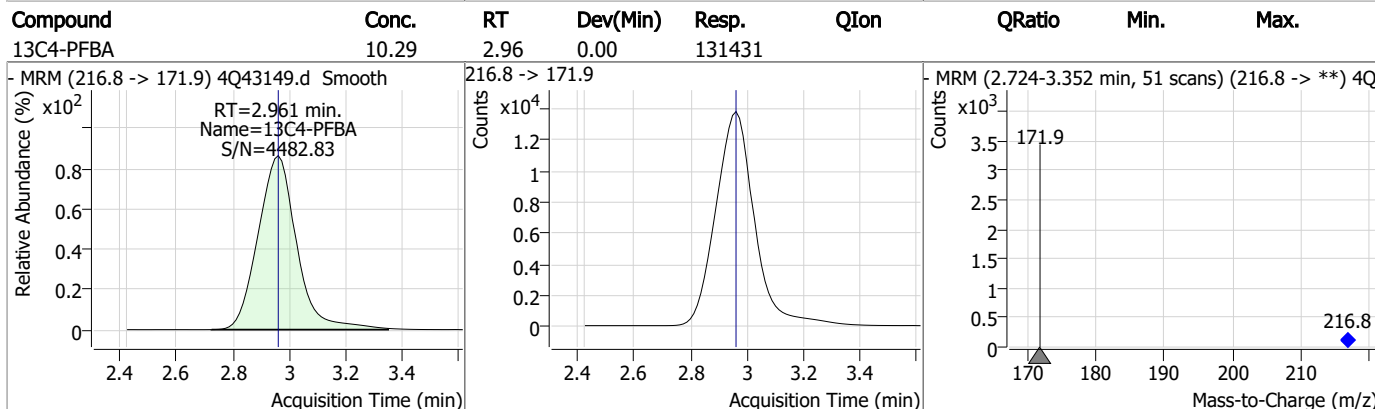
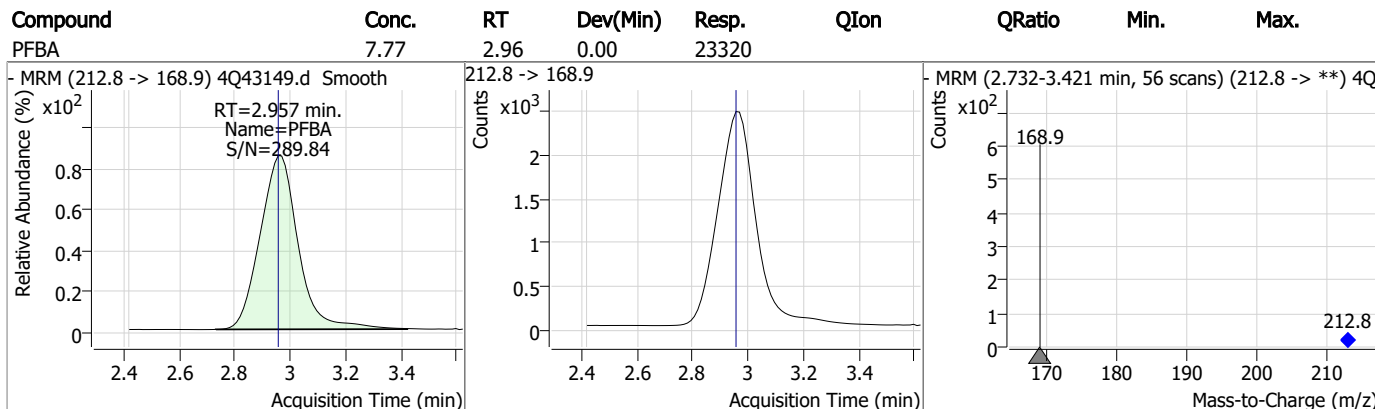
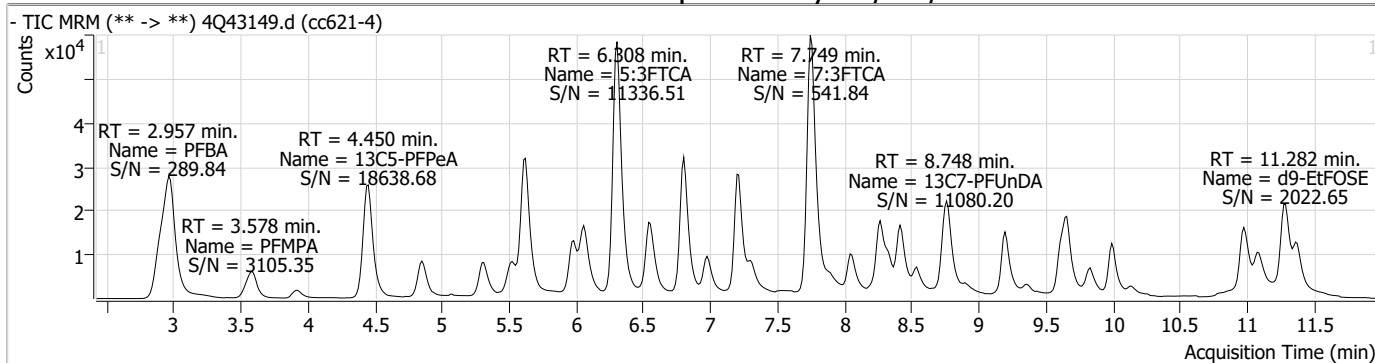
### Perfluorinated Compounds by LC/MS/MS

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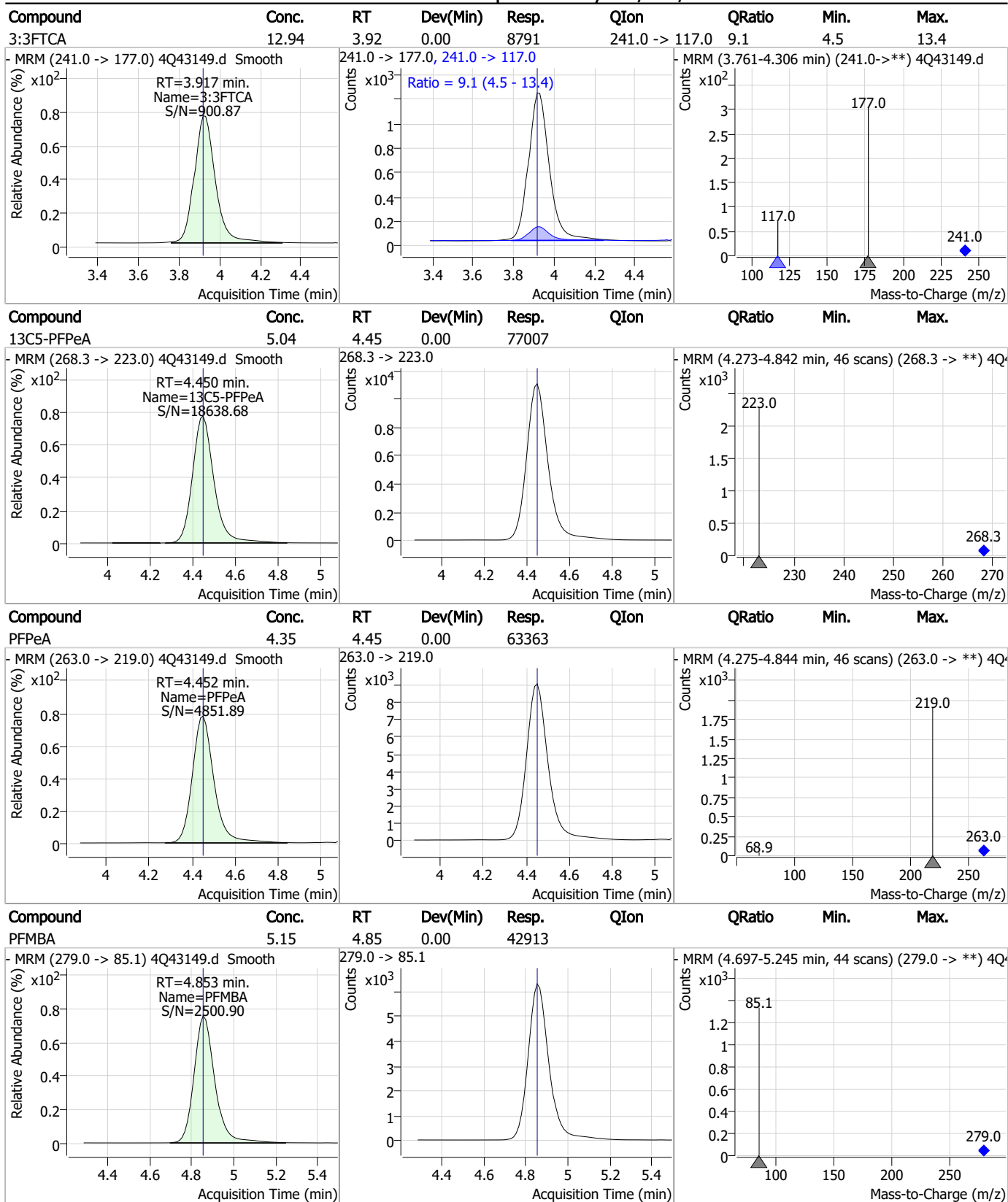
7.7.12

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### Perfluorinated Compounds by LC/MS/MS



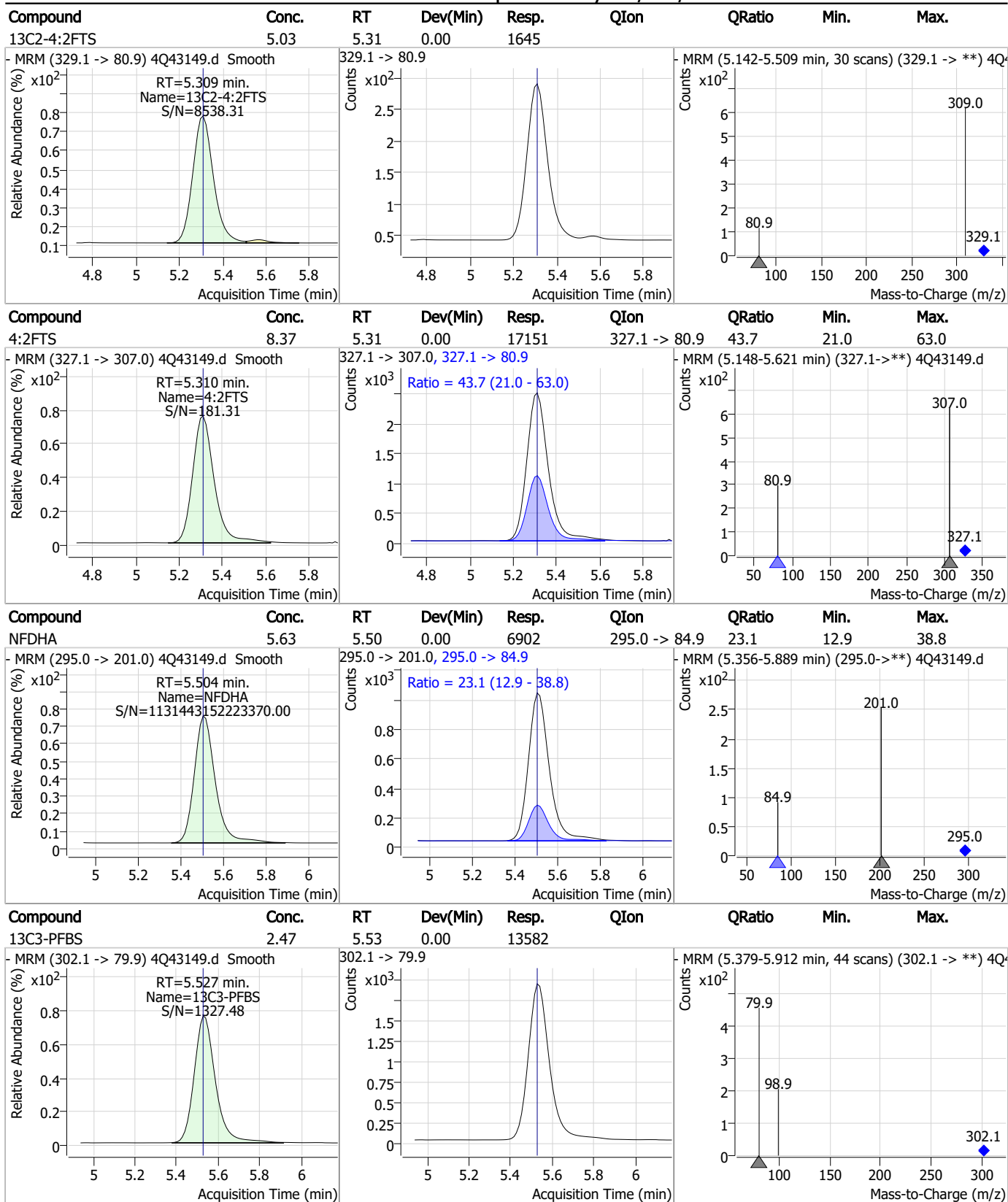
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

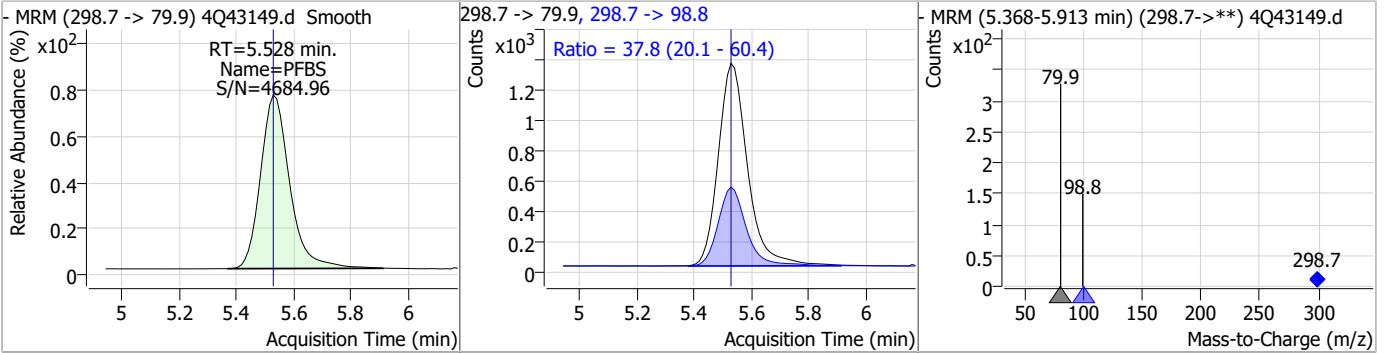


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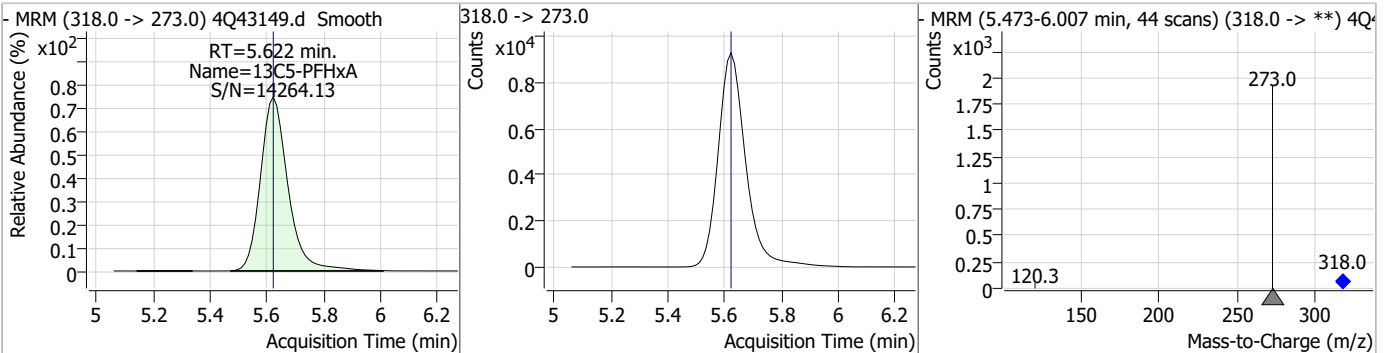
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### Perfluorinated Compounds by LC/MS/MS

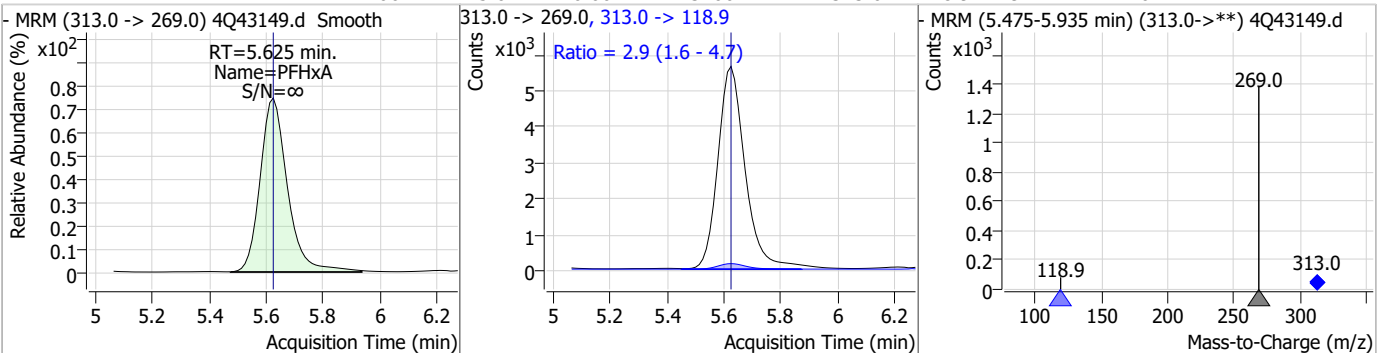
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.86	5.53	0.00	9449	298.7 -> 98.8	37.8	20.1	60.4



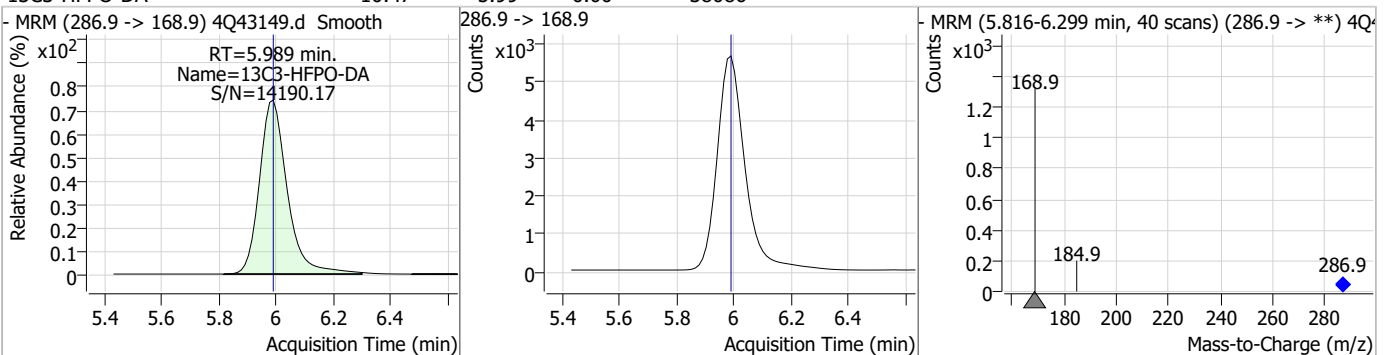
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.57	5.62	0.00	61637				



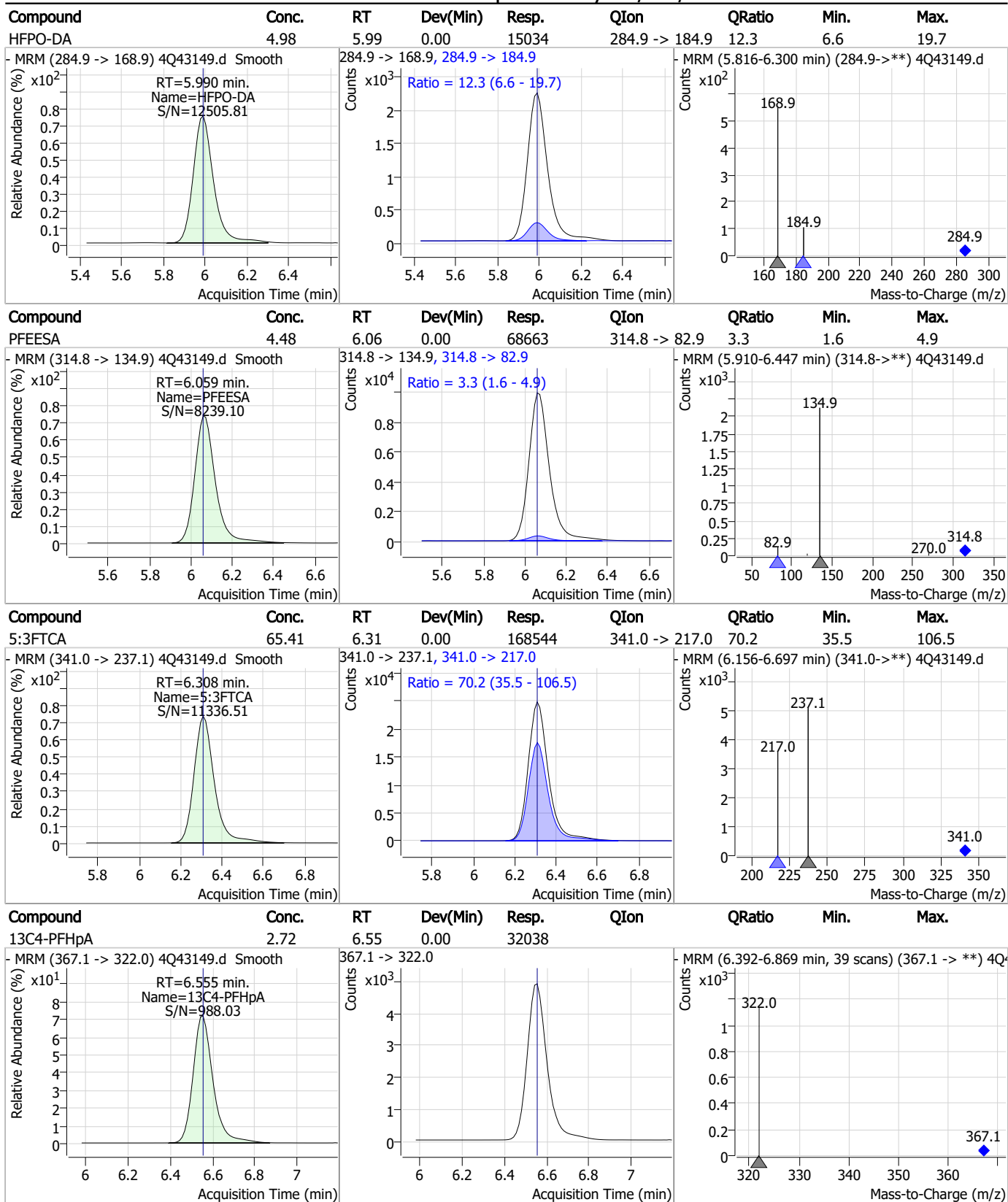
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.06	5.62	0.00	37602	313.0 -> 118.9	2.9	1.6	4.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.47	5.99	0.00	38086				

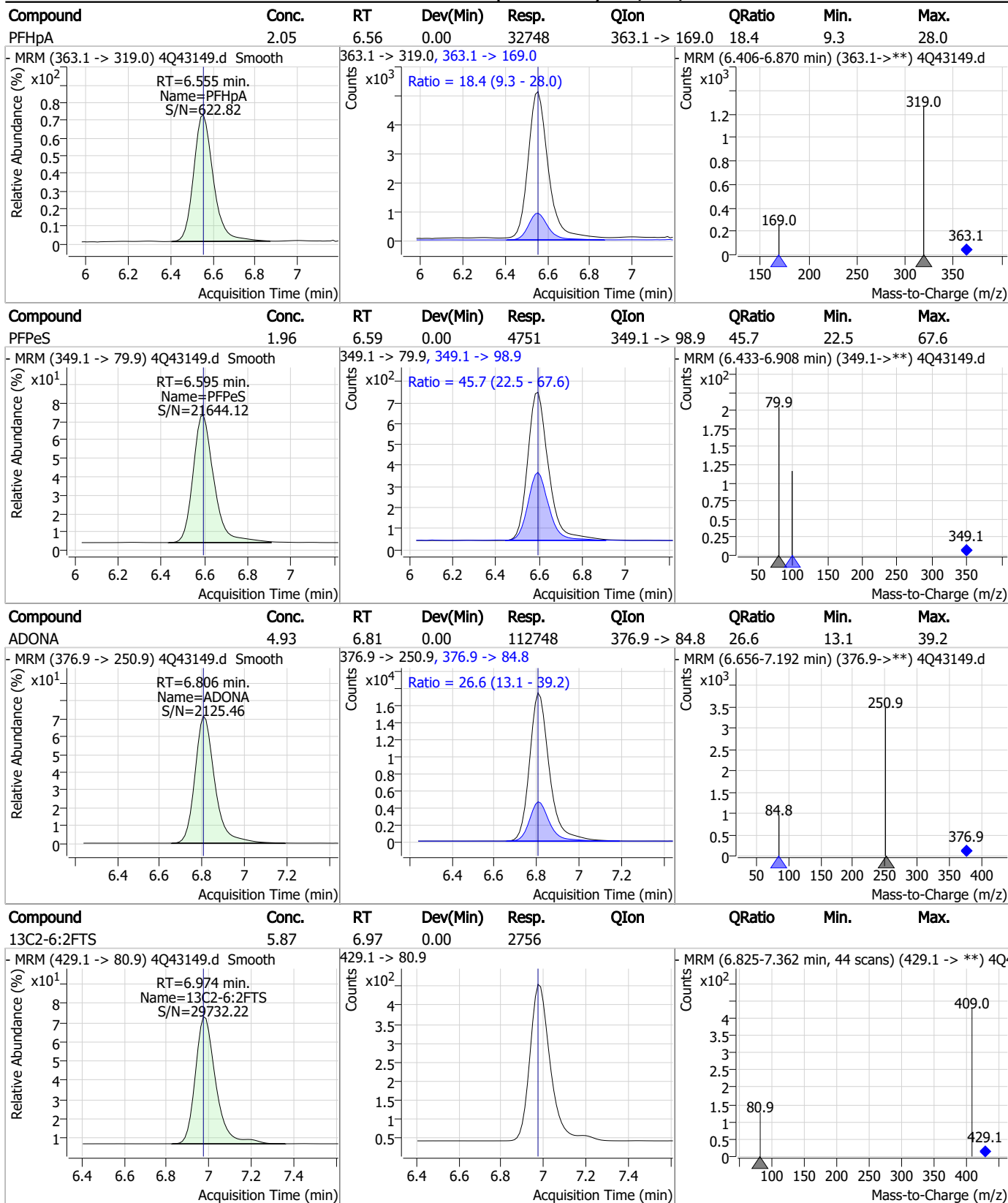


### Perfluorinated Compounds by LC/MS/MS



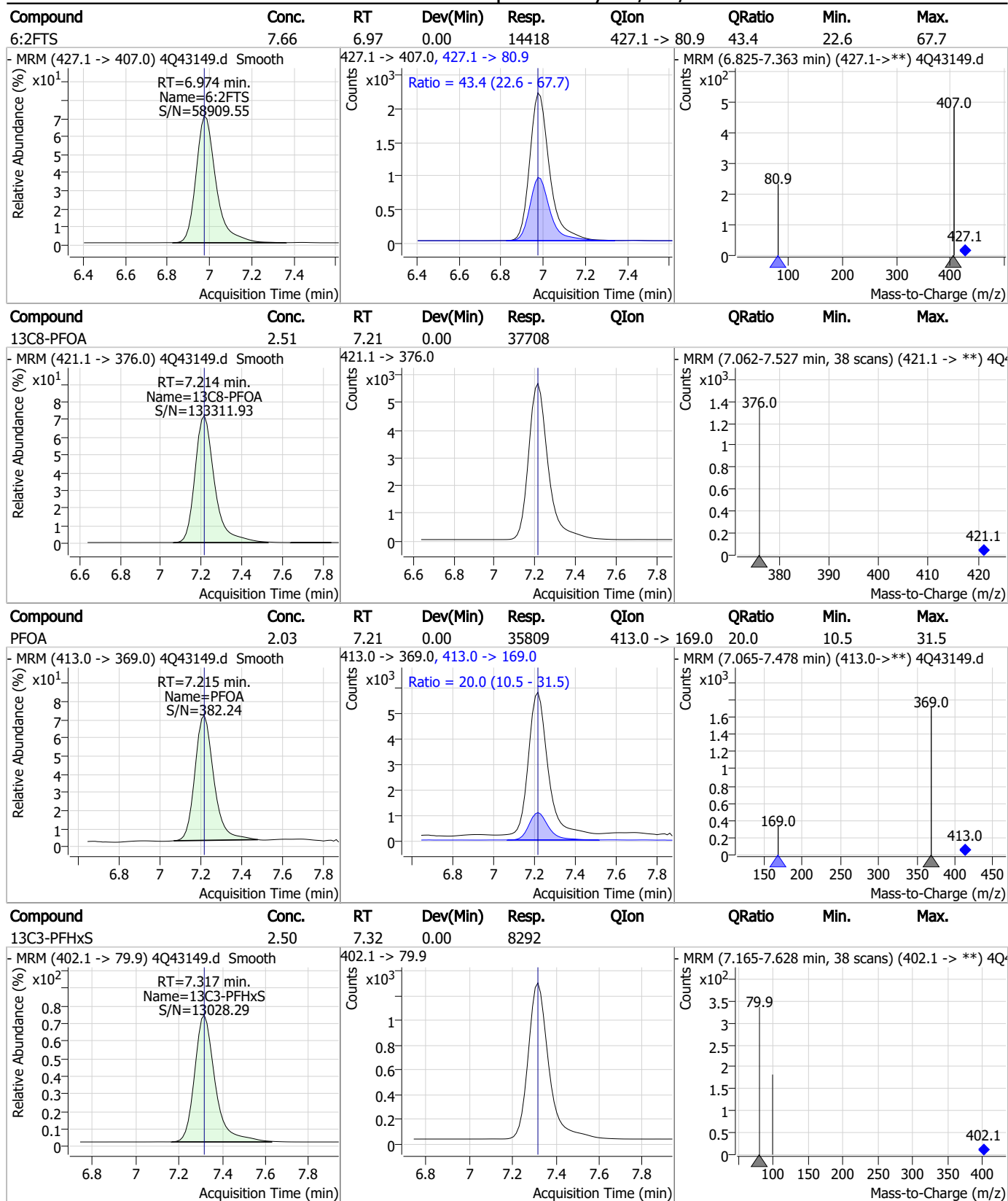
7.7.12  
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### Perfluorinated Compounds by LC/MS/MS



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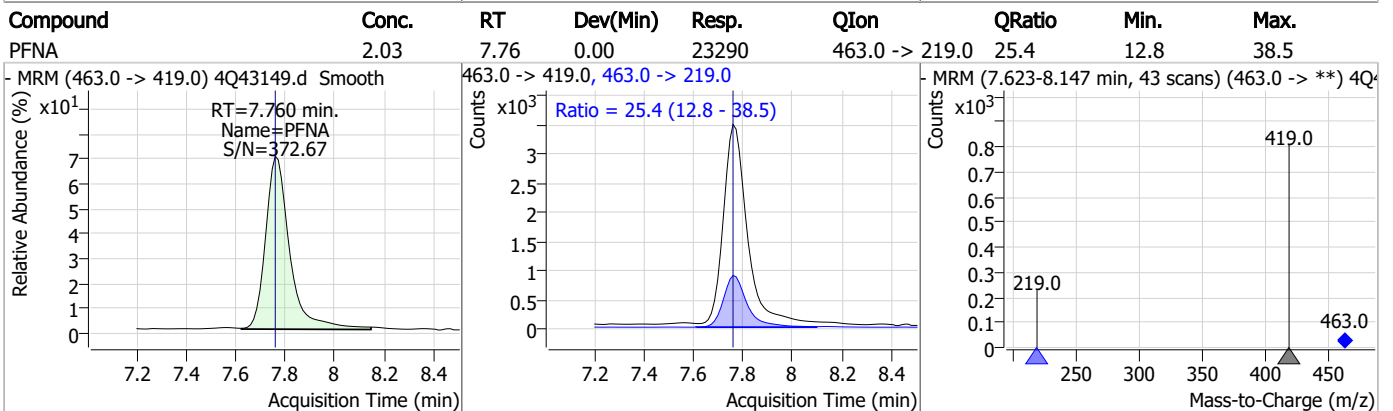
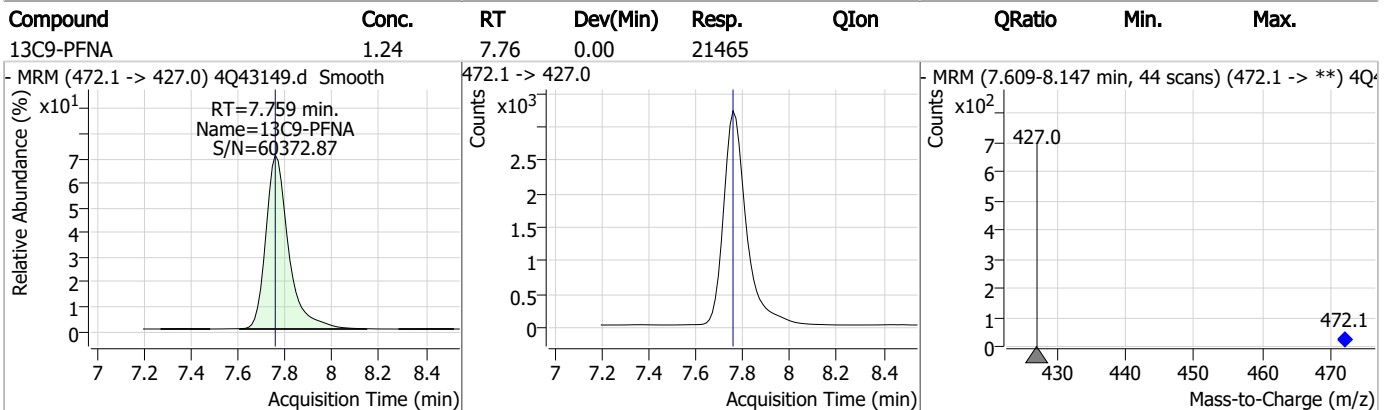
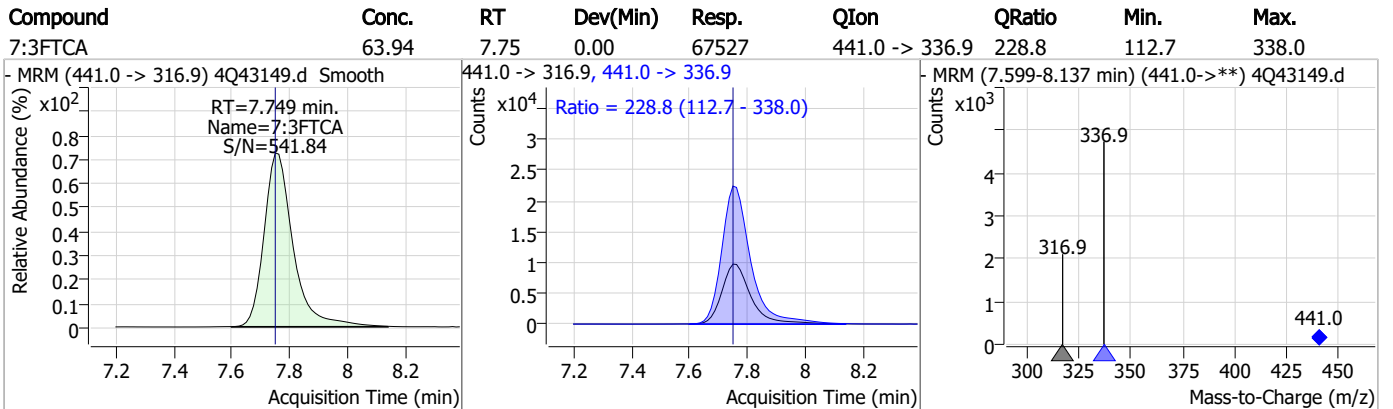
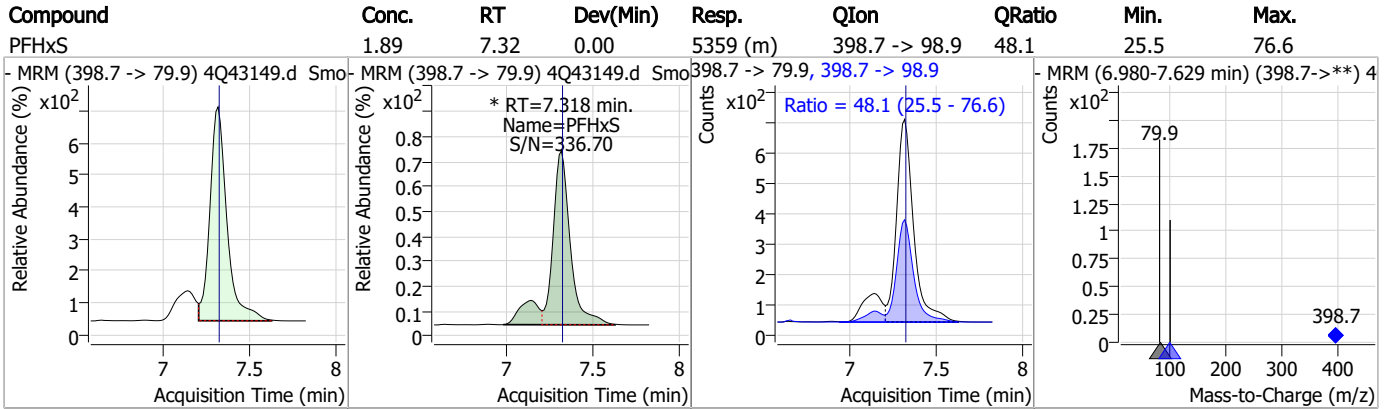
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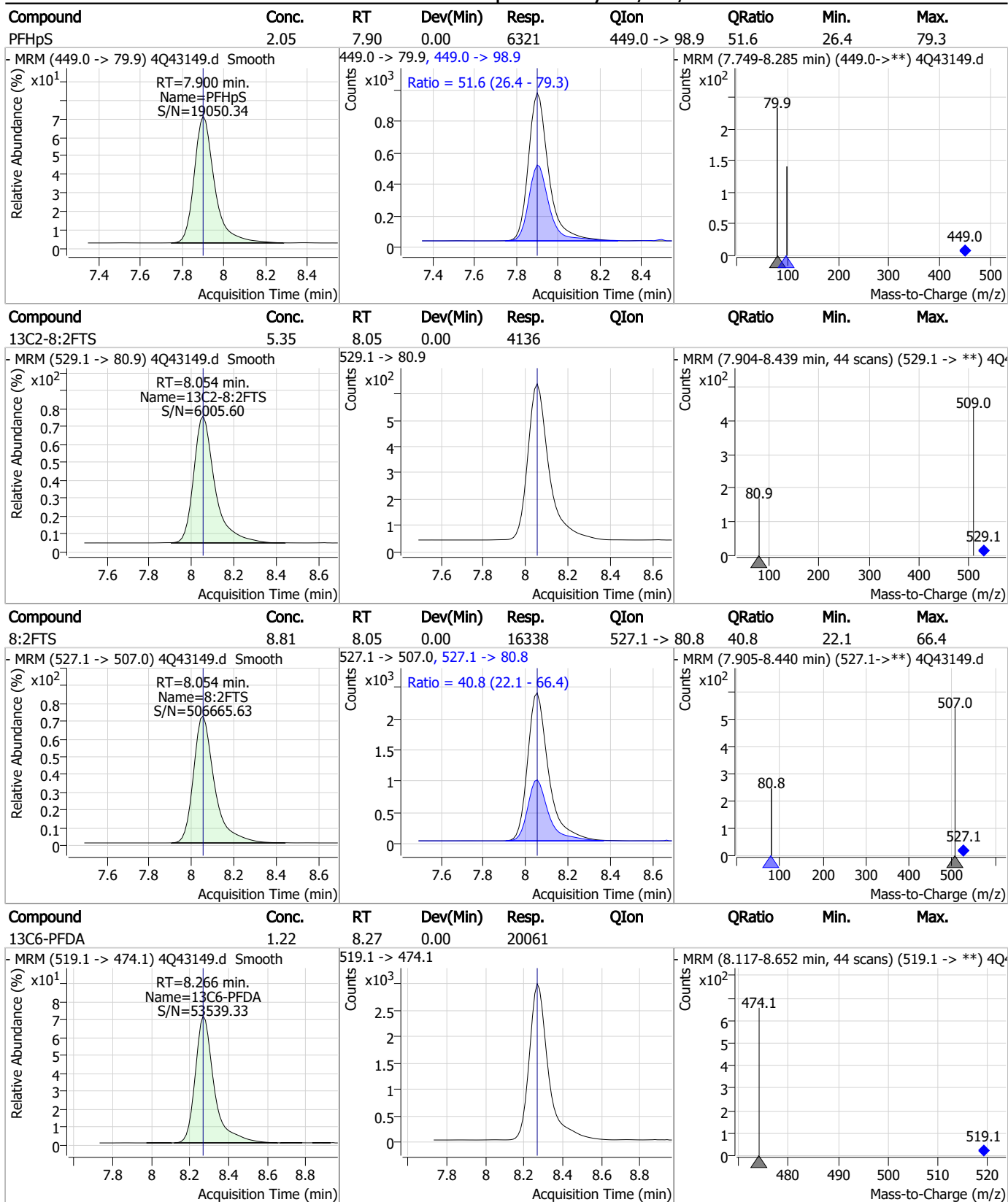
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## Perfluorinated Compounds by LC/MS/MS



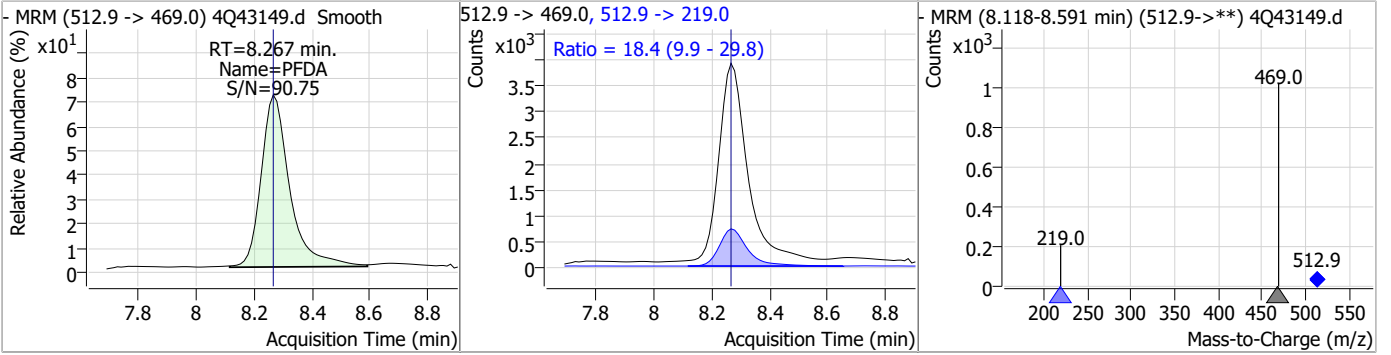
### Perfluorinated Compounds by LC/MS/MS



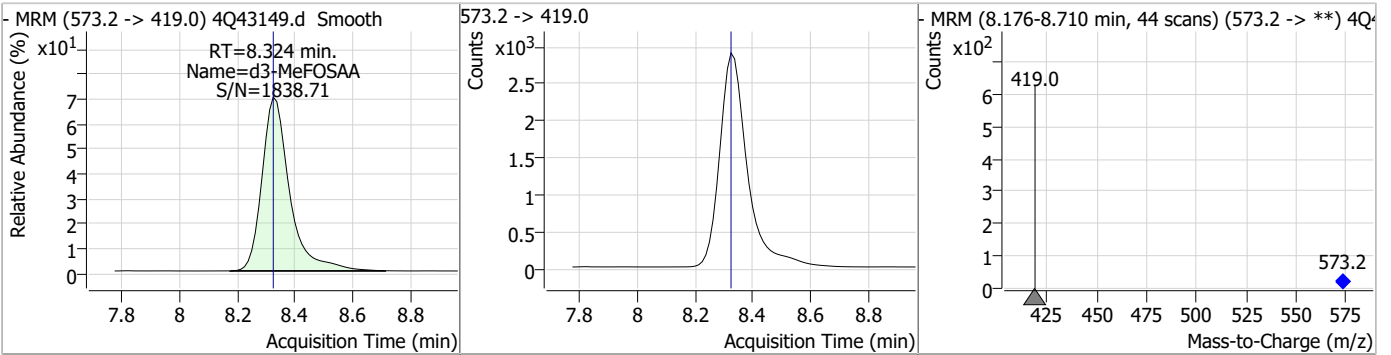
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### Perfluorinated Compounds by LC/MS/MS

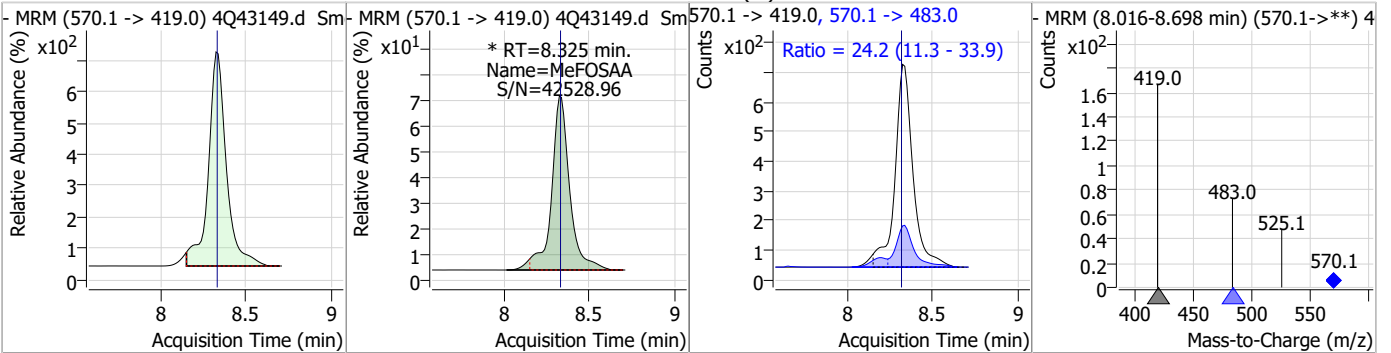
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.27	8.27	0.00	25992	512.9 -> 219.0	18.4	9.9	29.8



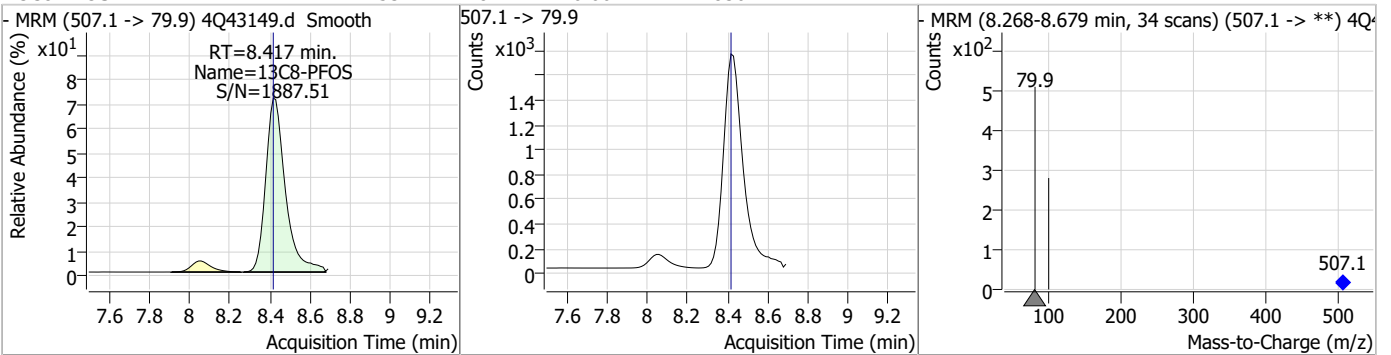
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.34	8.32	0.00	18997				



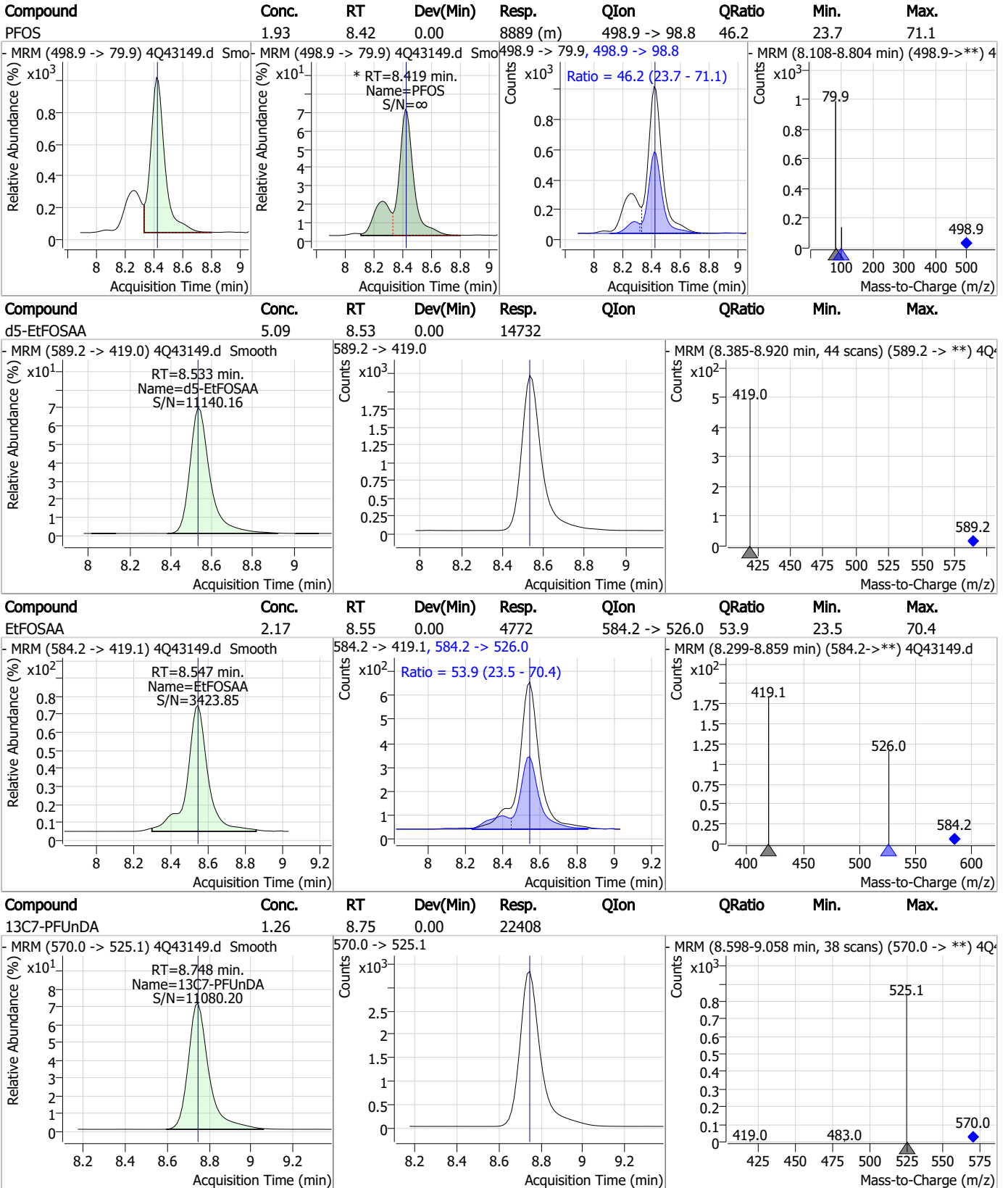
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	1.95	8.32	0.00	5095 (m)	570.1 -> 483.0	24.2	11.3	33.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.53	8.42	0.00	11830				



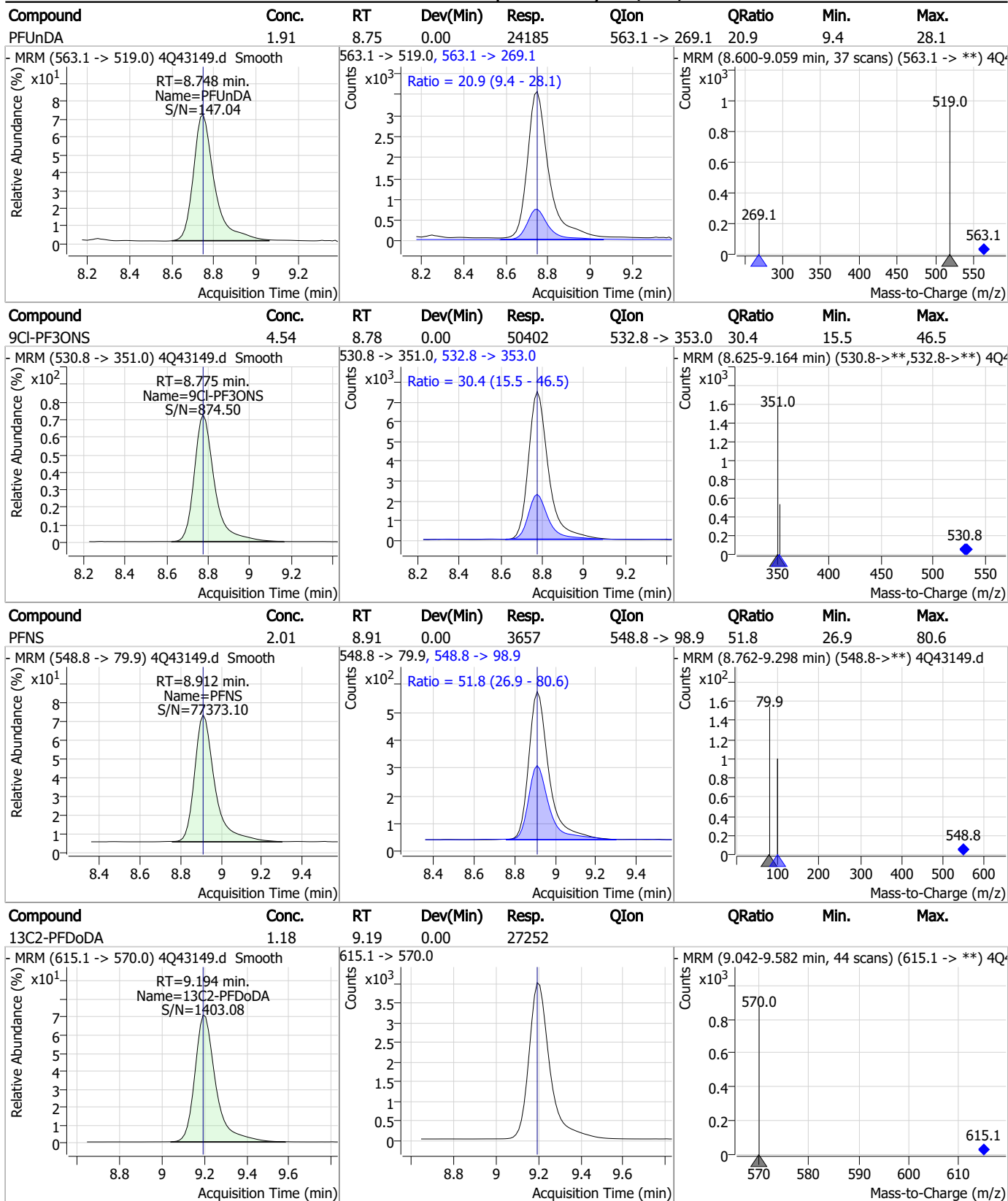
### Perfluorinated Compounds by LC/MS/MS



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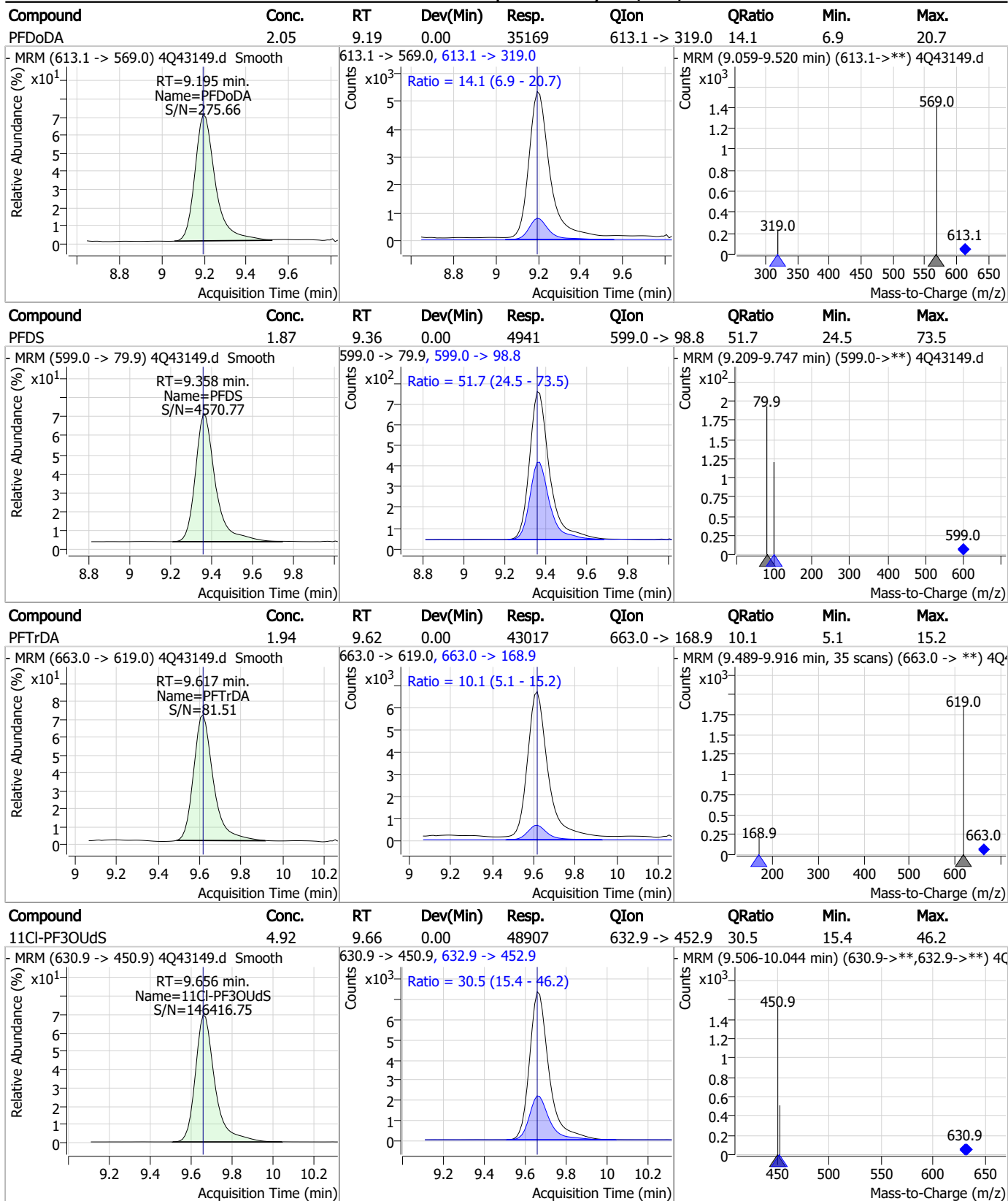
### Perfluorinated Compounds by LC/MS/MS



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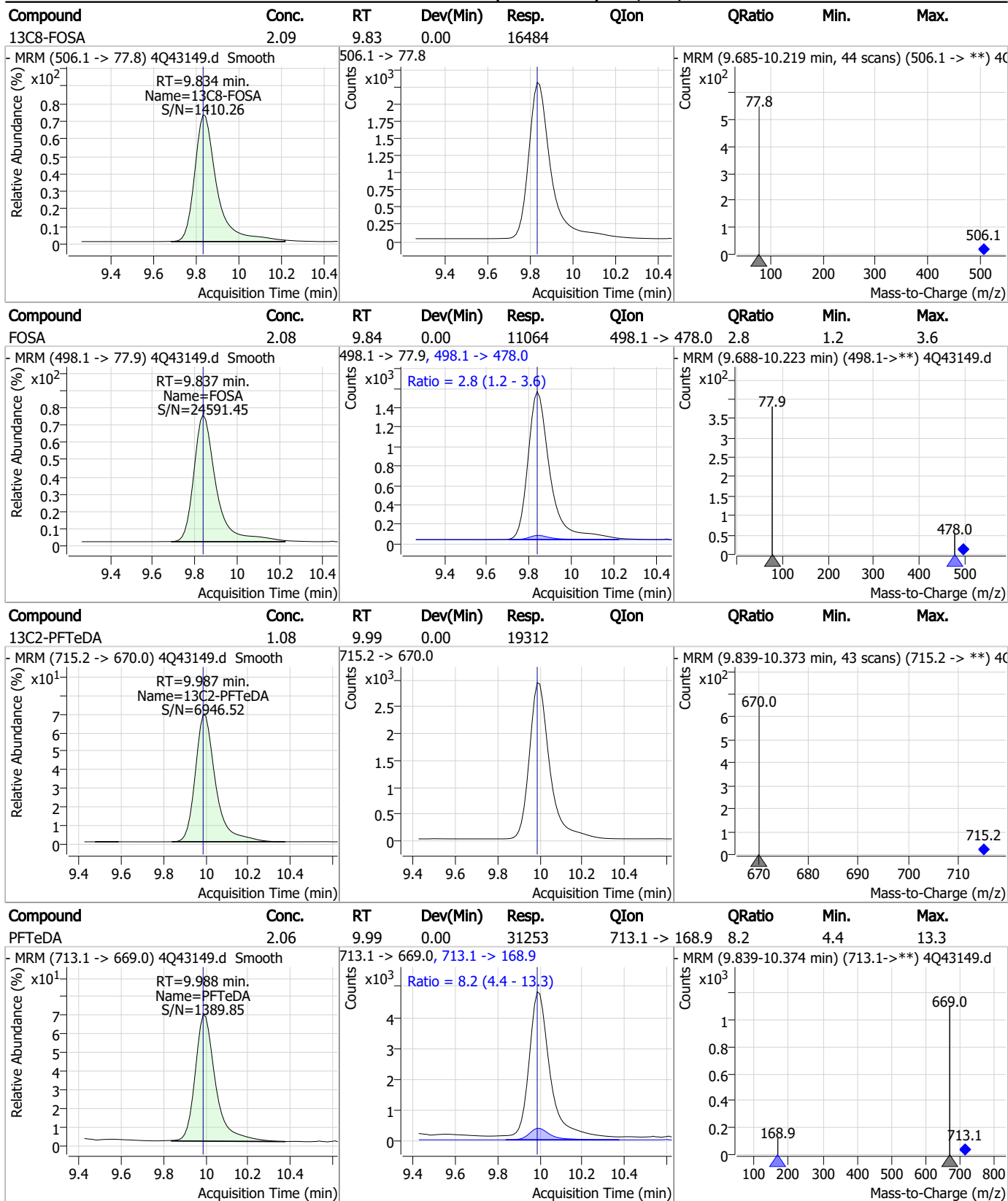
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

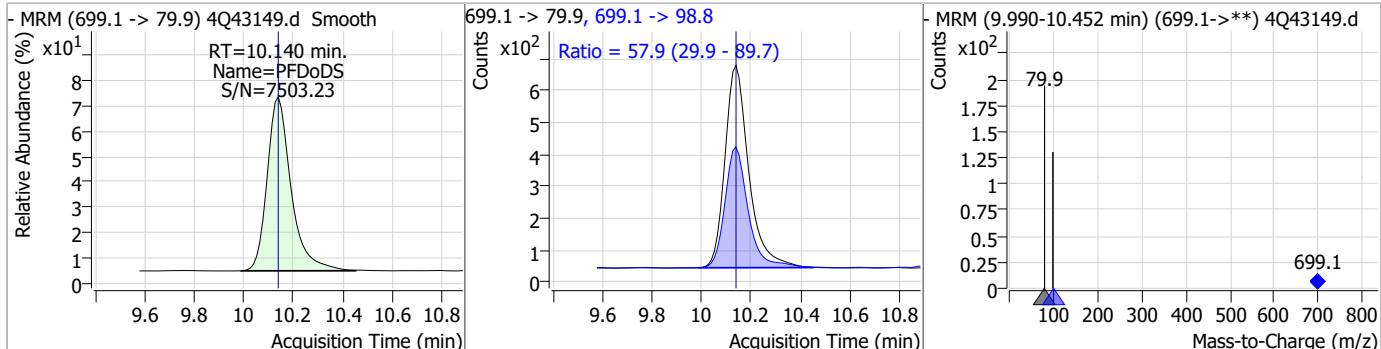


7.7.12  
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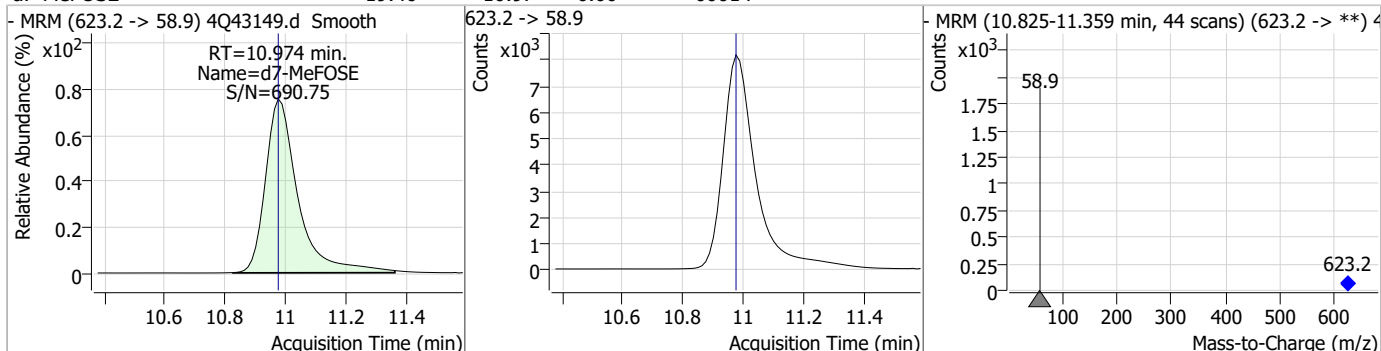


### Perfluorinated Compounds by LC/MS/MS

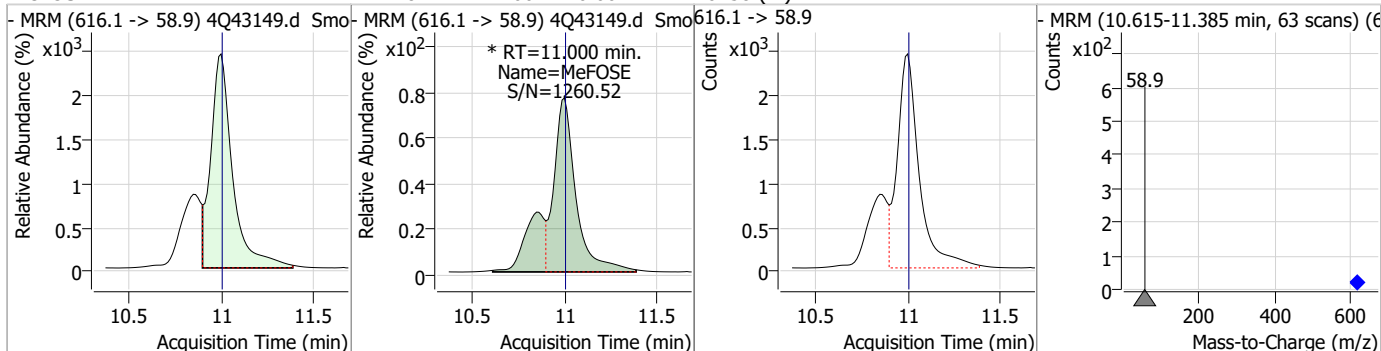
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	1.86	10.14	0.00	4257	699.1 -> 98.8	57.9	29.9	89.7



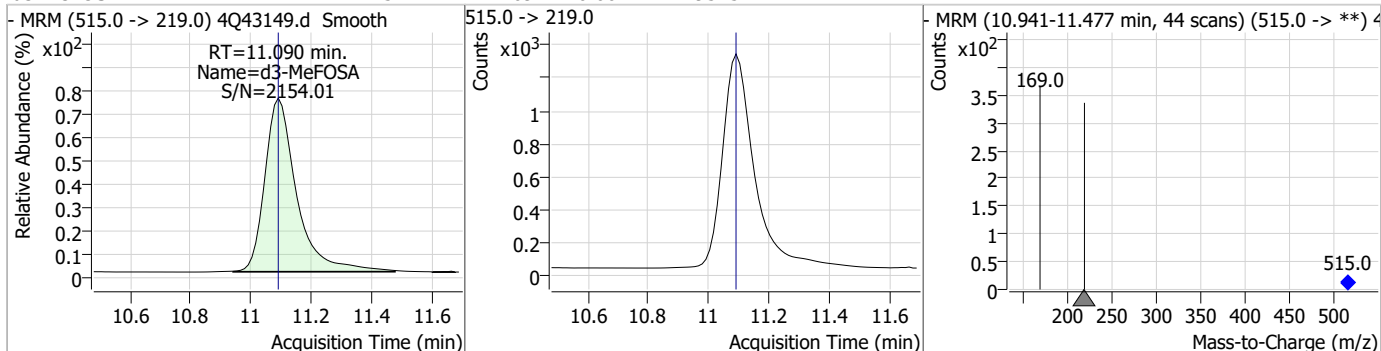
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.46	10.97	0.00	60614				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.28	11.00	0.00	26158 (m)				



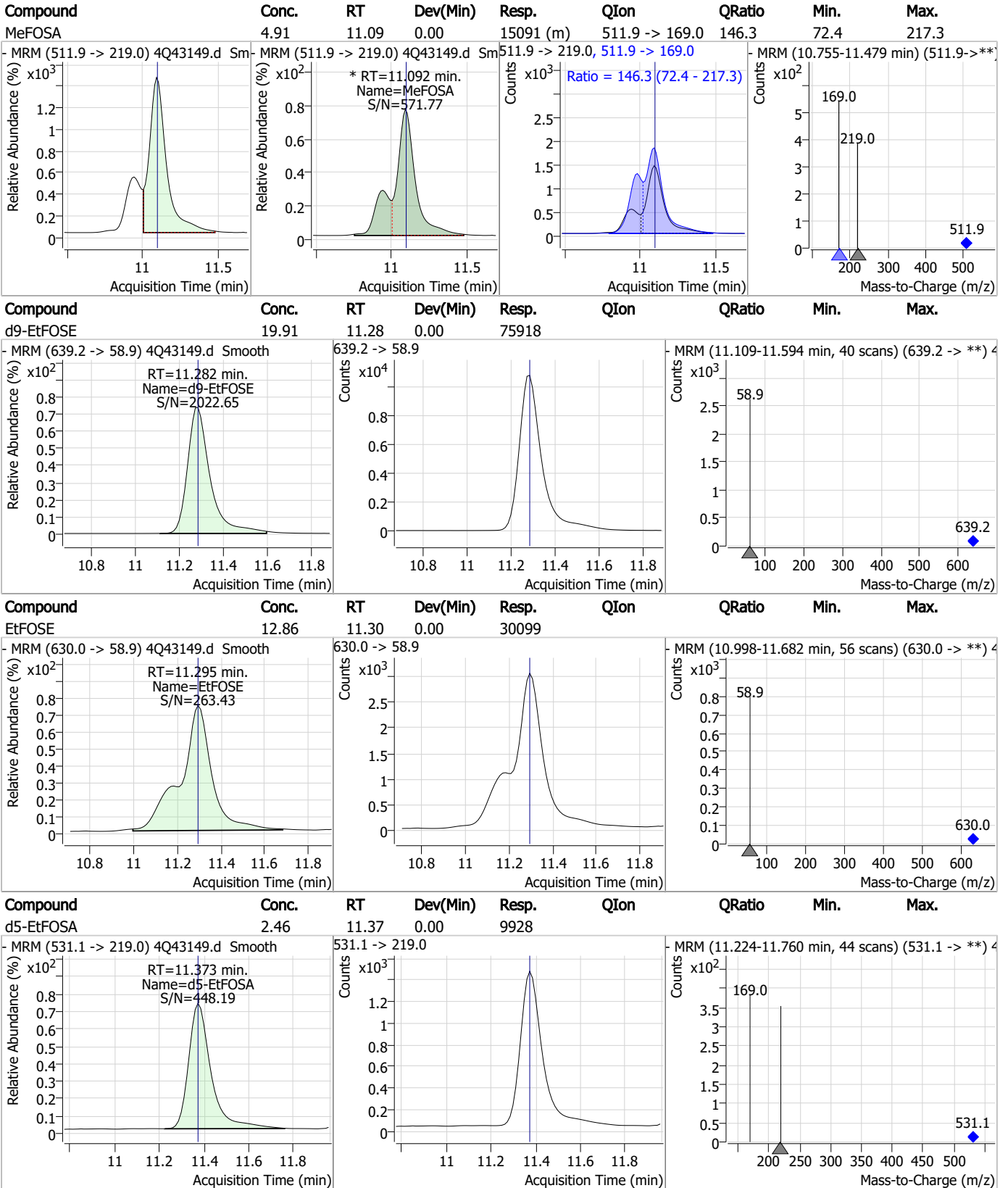
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.54	11.09	0.00	9515				



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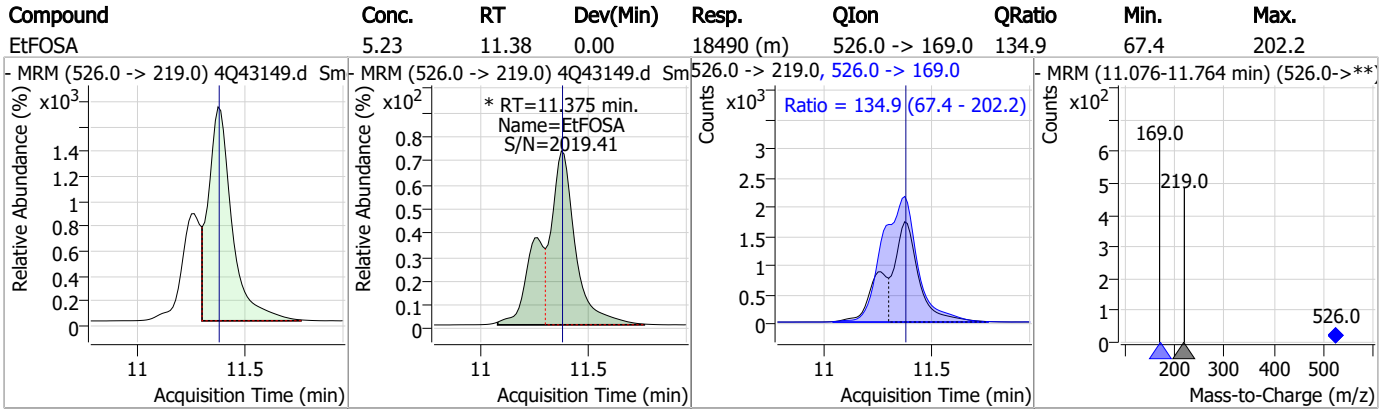
### Perfluorinated Compounds by LC/MS/MS



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



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# Manual Integration Approval Summary

Sample Number: S4Q624-CC621      Method: EPA DRAFT 1633  
Lab FileID: 4Q43149.D      Analyst approved: 04/19/23 13:20 Martha Valls  
Injection Time: 04/18/23 11:26      Supervisor approved: 04/19/23 16:01 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.32	Split peak
MeFOSAA	2355-31-9		8.32	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.42	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.09	Split peak
EtFOSA	4151-50-2		11.38	Split peak

7.7.12.1

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### Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43150.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 4/18/2023 11:40:35 AM  
 Sample Name : cc621-1.0LL  
 Vial : P1-A2  
 DA Method File : 1633\_041423\_S4Q621.quantmethod.xml  
 Batch Name : s4q624.batch.bin  
 Sample Information : OP96301,S4q624,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.999	216.8 -> 171.9	122225	10.00 µg/L	0.038
M5-PFPeA	4.450	268.3 -> 223.0	67216	5.00 µg/L	0.000
M5-PFHxA	5.622	318.0 -> 273.0	54275	2.50 µg/L	0.000
M4-PFHpA	6.555	367.1 -> 322.0	27334	2.50 µg/L	0.000
M8-PFOA	7.214	421.1 -> 376.0	33601	2.50 µg/L	0.000
M9-PFNA	7.759	472.1 -> 427.0	19049	1.25 µg/L	0.000
M6-PFDA	8.254	519.1 -> 474.1	18234	1.25 µg/L	-0.012
M7-PFUnDA	8.735	570.0 -> 525.1	19696	1.25 µg/L	-0.012
M2-PFDoDA	9.194	615.1 -> 570.0	23444	1.25 µg/L	0.000
M2-PFTeDA	10.000	715.2 -> 670.0	17386	1.25 µg/L	0.012
M8-FOSA	9.846	506.1 -> 77.8	14846	2.50 µg/L	0.012
M3-PFBS	5.539	302.1 -> 79.9	11707	2.50 µg/L	0.012
M3-PFHxS	7.317	402.1 -> 79.9	7220	2.50 µg/L	0.000
M8-PFOS	8.405	507.1 -> 79.9	11096	2.50 µg/L	-0.012
M2-4:2FTS	5.309	329.1 -> 80.9	1679	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	2466	5.00 µg/L	0.000
M2-8:2FTS	8.041	529.1 -> 80.9	3644	5.00 µg/L	-0.012
M3-MeFOSAA	8.312	573.2 -> 419.0	16628	5.00 µg/L	-0.012
M3-HFPO-DA	5.989	286.9 -> 168.9	33199	10.00 µg/L	0.000
M5-EtFOSAA	8.521	589.2 -> 419.0	14244	5.00 µg/L	-0.012
M7-MeFOSE	10.974	623.2 -> 58.9	54134	25.00 µg/L	0.000
M9-EtFOSE	11.282	639.2 -> 58.9	68326	25.00 µg/L	0.000
M5-EtFOSA	11.373	531.1 -> 219.0	9208	2.50 µg/L	0.000
M3-MeFOSA	11.090	515.0 -> 219.0	8339	2.50 µg/L	0.000
13C4-PFOS	8.406	502.8 -> 79.9	10777	2.50 µg/L	-0.012
13C3-PFBA	2.991	216.0 -> 172.0	67847	5.00 µg/L	0.025
18O2-PFHxS	7.316	403.0 -> 83.9	5253	2.50 µg/L	0.000
13C4-PFOA	7.214	417.1 -> 372.0	40803	2.50 µg/L	0.000
13C2-PFDA	8.254	515.1 -> 470.1	16239	1.25 µg/L	-0.012
13C5-PFNA	7.759	468.0 -> 423.0	20802	1.25 µg/L	0.000
13C2-PFHxA	5.623	315.1 -> 270.0	46030	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.309	329.1 -> 80.9	1679	5.85 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.1%		
13C2-6:2FTS	6.974	429.1 -> 80.9	2466	5.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.8%		
13C2-8:2FTS	8.041	529.1 -> 80.9	3644	5.38 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.5%		
13C2-PFDoDA	9.194	615.1 -> 570.0	23444	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.8%		
13C2-PFTeDA	10.000	715.2 -> 670.0	17386	1.12 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.4%		
13C3-PFBS	5.539	302.1 -> 79.9	11707	2.42 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C3-PFHxS	7.317	402.1 -> 79.9	7220	2.48 µg/L	0.000

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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C4-PFBA	2.999	216.8 -> 171.9	122225	10.34 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C4-PFHpA	6.555	367.1 -> 322.0	27334	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C5-PFHxA	5.622	318.0 -> 273.0	54275	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C5-PFPeA	4.450	268.3 -> 223.0	67216	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C6-PFDA	8.254	519.1 -> 474.1	18234	1.28 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C7-PFUnDA	8.735	570.0 -> 525.1	19696	1.27 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C8-FOSA	9.846	506.1 -> 77.8	14846	2.11 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.2%	
13C8-PFOA	7.214	421.1 -> 376.0	33601	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C8-PFOS	8.405	507.1 -> 79.9	11096	2.66 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.2%	
13C9-PFNA	7.759	472.1 -> 427.0	19049	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.6%	
d3-MeFOSAA	8.312	573.2 -> 419.0	16628	5.24 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C3-HFPO-DA	5.989	286.9 -> 168.9	33199	10.28 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.8%	
d3-MeFOSA	11.090	515.0 -> 219.0	8339	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
d5-EtFOSAA	8.521	589.2 -> 419.0	14244	5.52 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.4%	
d7-MeFOSE	10.974	623.2 -> 58.9	54134	19.48 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 77.9%	
d9-EtFOSE	11.282	639.2 -> 58.9	68326	20.09 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 80.4%	
d5-EtFOSA	11.373	531.1 -> 219.0	9208	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.2%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.310	327.1 -> 307.0	1594	0.76 µg/L	96
		327.1 -> 80.9	709		
6:2FTS	6.974	427.1 -> 407.0	1476	0.88 µg/L	88
		427.1 -> 80.9	548		
8:2FTS	8.042	527.1 -> 507.0	1224	0.75 µg/L	95
		527.1 -> 80.8	583		
EtFOSAA	8.534	584.2 -> 419.1	411	0.19 µg/L	m 79
		584.2 -> 526.0	252		
FOSA	9.837	498.1 -> 77.9	1117	0.23 µg/L	97
		498.1 -> 478.0	17		
MeFOSAA	8.312	570.1 -> 419.0	324	0.14 µg/L	m 86
		570.1 -> 483.0	96		
PFBA	2.995	212.8 -> 168.9	2145	0.77 µg/L	100
PFBS	5.540	298.7 -> 79.9	821	0.19 µg/L	94
		298.7 -> 98.8	363		
PFDA	8.255	512.9 -> 469.0	2398	0.23 µg/L	93
		512.9 -> 219.0	398		
PFDODA	9.195	613.1 -> 569.0	2842	0.19 µg/L	97
		613.1 -> 319.0	432		
PFDS	9.370	599.0 -> 79.9	421	0.17 µg/L	71

7.7.13  
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.555	599.0 -> 98.8	290	0.19	µg/L	92
		363.1 -> 319.0	2538			
PFHpS	7.887	363.1 -> 169.0	568	0.19	µg/L	84
		449.0 -> 79.9	555			
PFHxA	5.625	449.0 -> 98.9	230	0.21	µg/L	99
		313.0 -> 269.0	3405			
PFHxS	7.318	313.0 -> 118.9	119	0.18	µg/L	m
		398.7 -> 79.9	446			
PFNA	7.760	398.7 -> 98.9	292	0.24	µg/L	93
		463.0 -> 419.0	2467			
PFNS	8.899	463.0 -> 219.0	541	0.20	µg/L	97
		548.8 -> 79.9	338			
PFOA	7.215	548.8 -> 98.9	174	0.24	µg/L	96
		413.0 -> 369.0	3772			
PFOS	8.406	413.0 -> 169.0	715	0.18	µg/L	m
		498.9 -> 79.9	794			
PFPeA	4.452	498.9 -> 98.8	428	0.42	µg/L	100
		263.0 -> 219.0	5333			
PFPeS	6.595	349.1 -> 79.9	497	0.24	µg/L	81
		349.1 -> 98.9	162			
PFTeDA	10.000	713.1 -> 669.0	2174	0.16	µg/L	93
		713.1 -> 168.9	249			
PFTrDA	9.617	663.0 -> 619.0	3481	0.18	µg/L	100
		663.0 -> 168.9	353			
PFUnDA	8.736	563.1 -> 519.0	1749	0.16	µg/L	85
		563.1 -> 269.1	448			
11CI-PF3OUdS	9.669	630.9 -> 450.9	3586	0.41	µg/L	99
		632.9 -> 452.9	1087			
9CI-PF3ONS	8.763	530.8 -> 351.0	3485	0.36	µg/L	99
		532.8 -> 353.0	1108			
ADONA	6.806	376.9 -> 250.9	7835	0.39	µg/L	97
		376.9 -> 84.8	2180			
HFPO-DA	5.990	284.9 -> 168.9	1049	0.40	µg/L	90
		284.9 -> 184.9	177			
3:3FTCA	3.967	241.0 -> 177.0	701	1.18	µg/L	92
		241.0 -> 117.0	84			
5:3FTCA	6.321	341.0 -> 237.1	12061	5.32	µg/L	99
		341.0 -> 217.0	8418			
7:3FTCA	7.749	441.0 -> 316.9	4589	4.94	µg/L	86
		441.0 -> 336.9	11388			
EtFOSA	11.375	526.0 -> 219.0	1393	0.42	µg/L	m
		526.0 -> 169.0	1810			
EtFOSE	11.295	630.0 -> 58.9	1988	0.94	µg/L	m
		511.9 -> 219.0	1138			
MeFOSA	11.092	511.9 -> 169.0	1578	0.42	µg/L	m
		616.1 -> 58.9	2208			
MeFOSE	11.000	699.1 -> 79.9	473	1.16	µg/L	m
		699.1 -> 98.8	218			
PFDoDS	10.140	295.0 -> 201.0	429	0.22	µg/L	82
		295.0 -> 84.9	94			
NFDHA	5.504	279.0 -> 85.1	3189	0.44	µg/L	100
		229.0 -> 84.9	2735			
PFMBA	4.866	314.8 -> 134.9	4910	0.43	µg/L	100
		314.8 -> 82.9	198			
PFMPA	3.590			0.36	µg/L	98
PFEESA	6.071					

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

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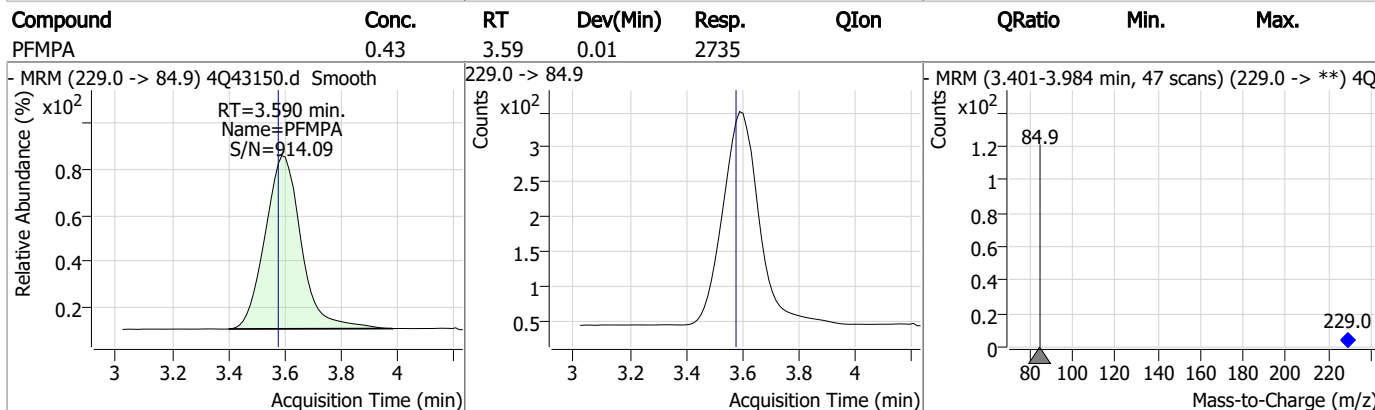
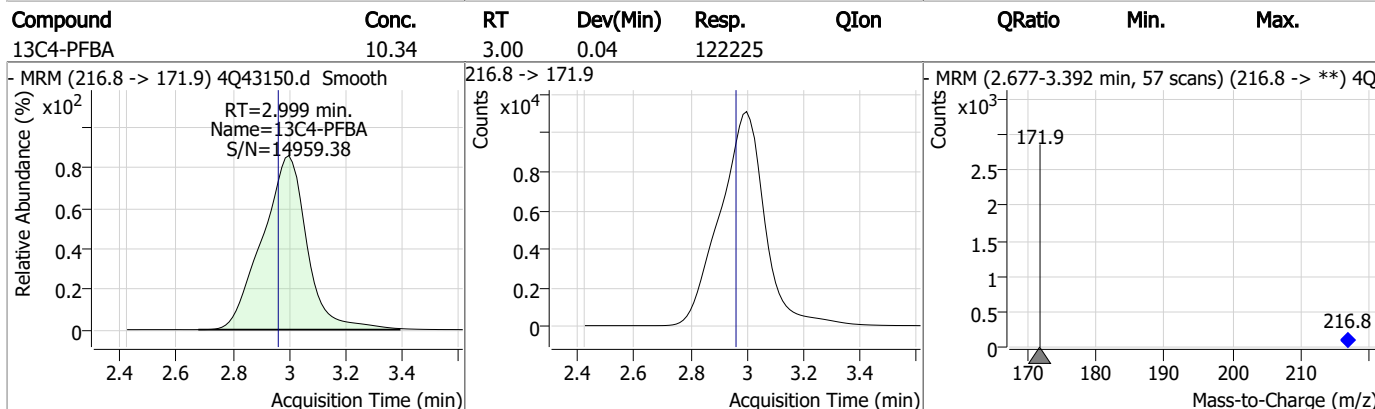
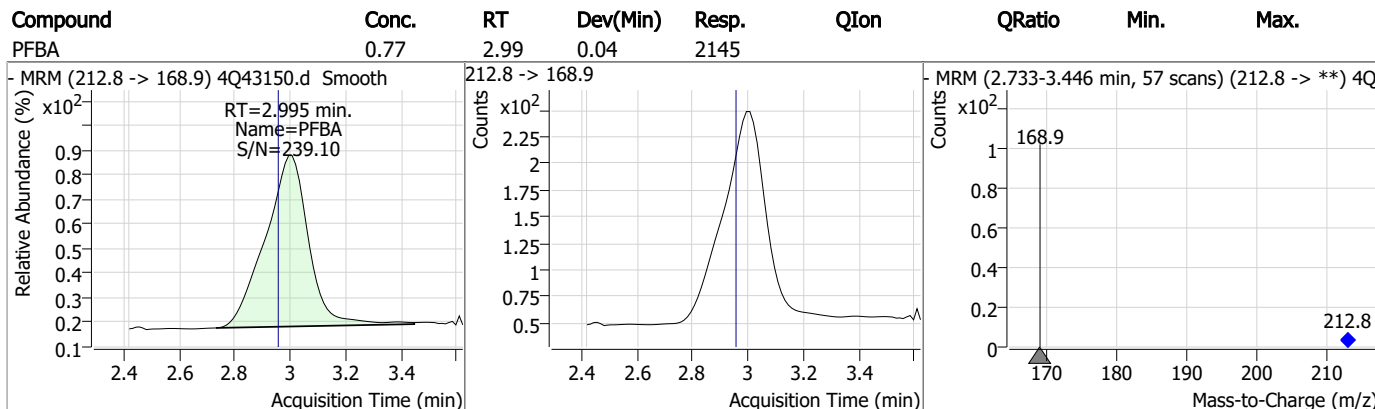
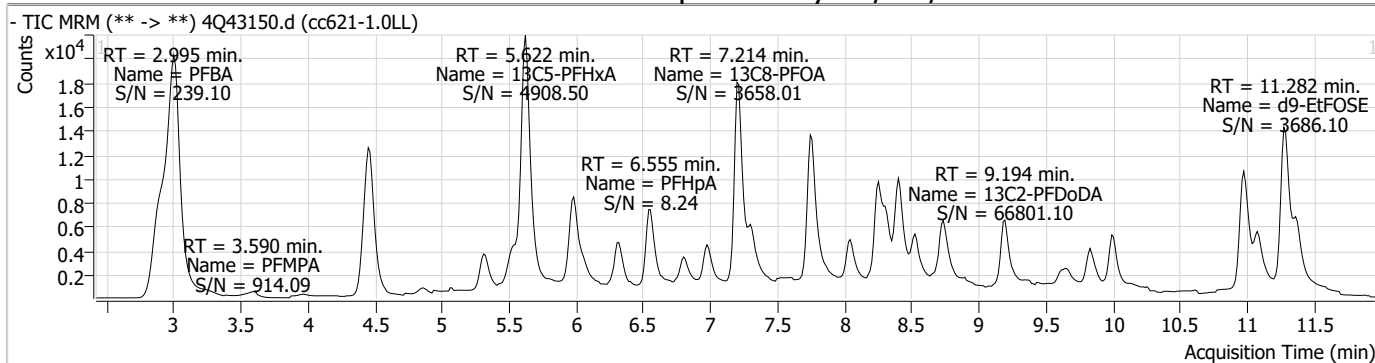
### Perfluorinated Compounds by LC/MS/MS

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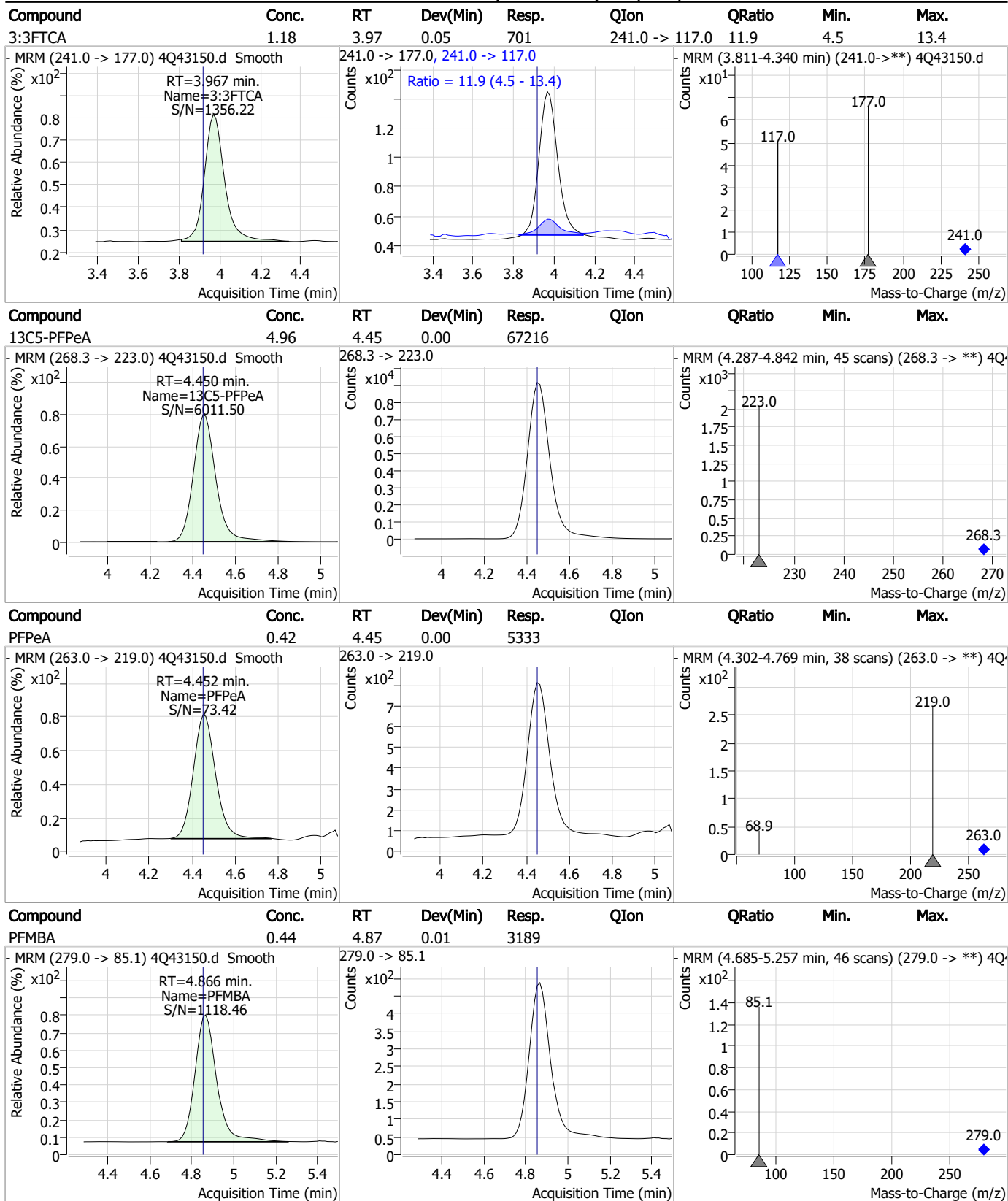
### Perfluorinated Compounds by LC/MS/MS



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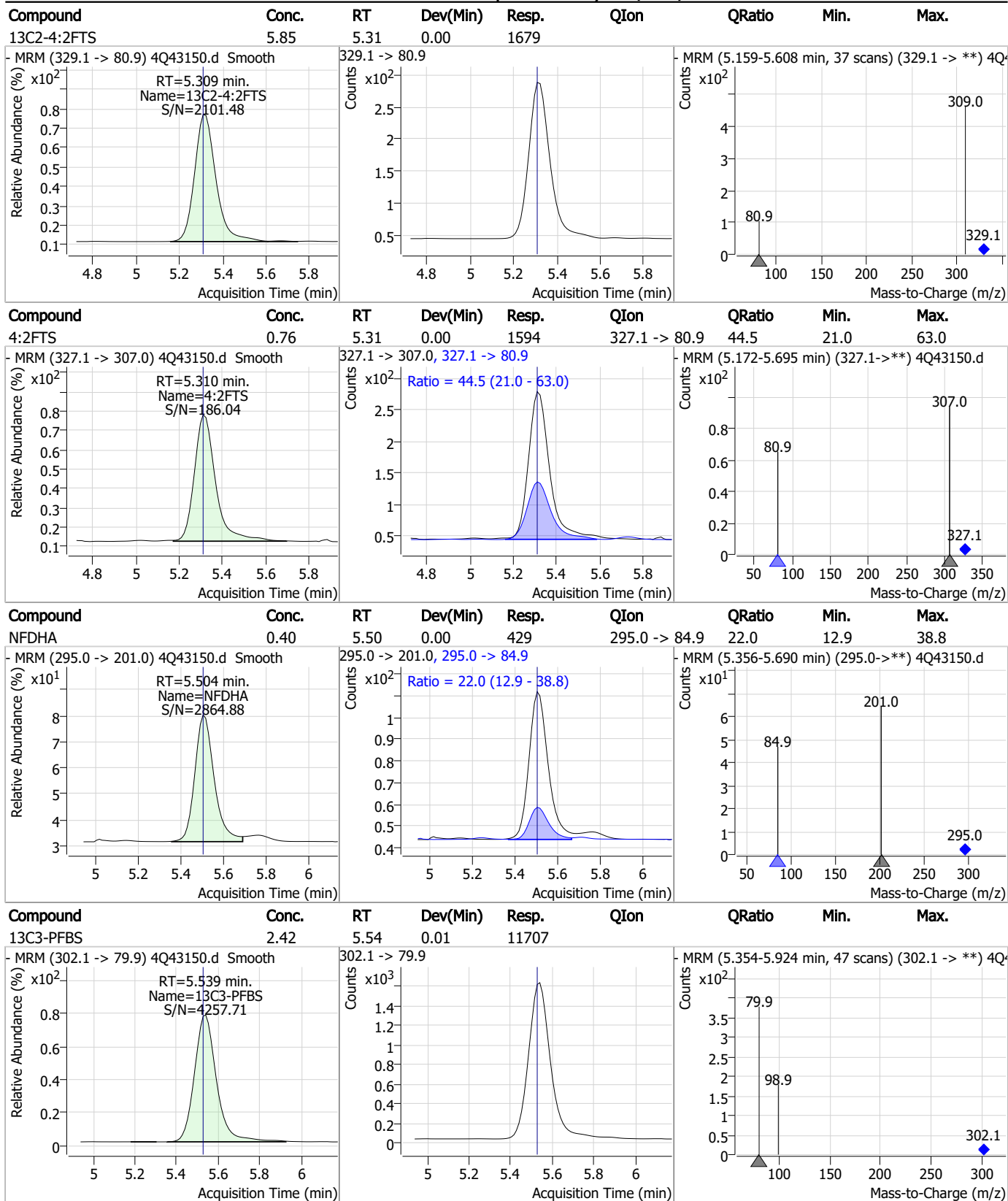
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

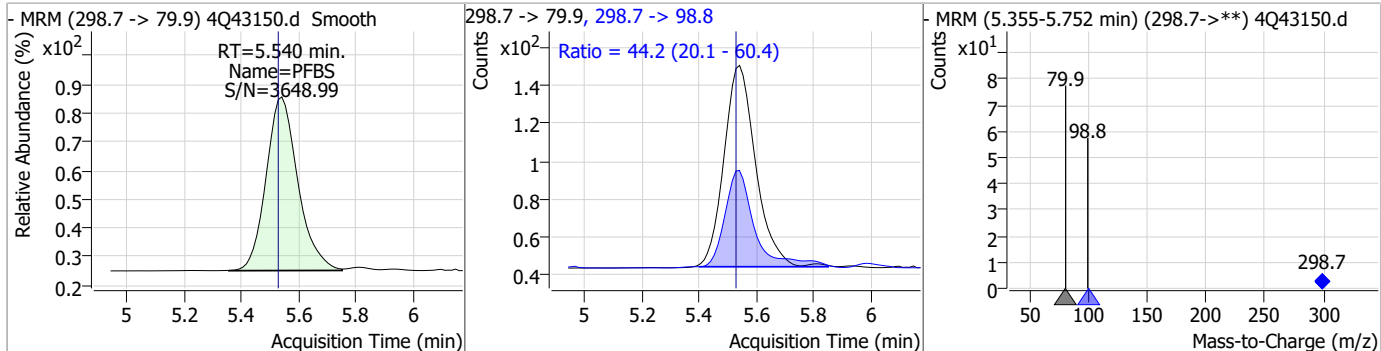


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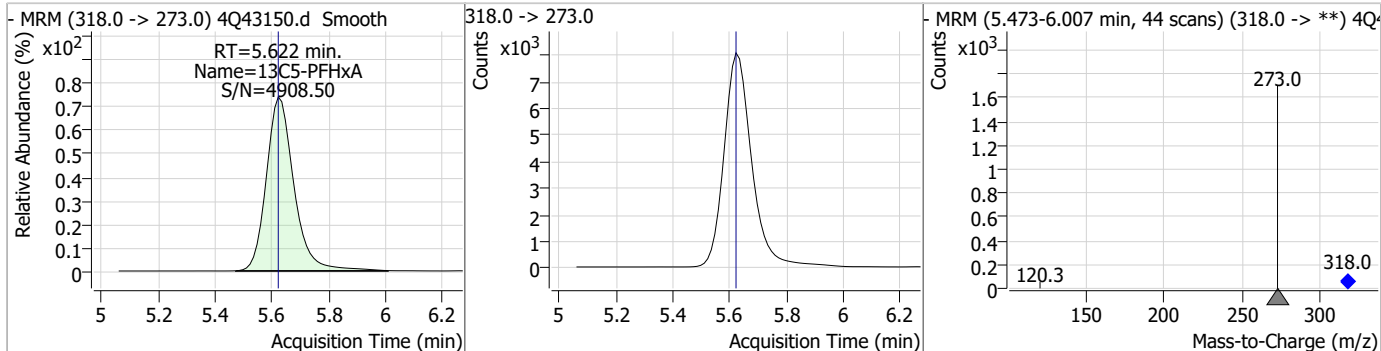
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### Perfluorinated Compounds by LC/MS/MS

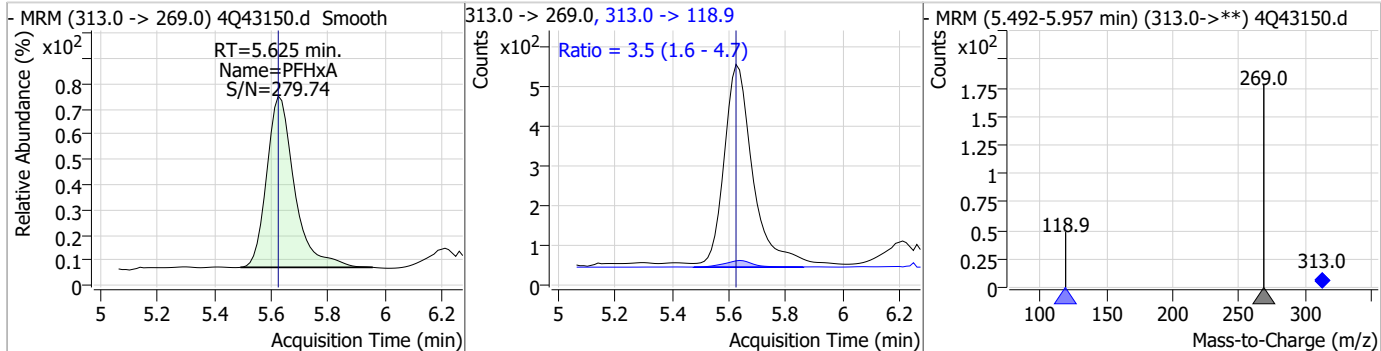
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.19	5.54	0.01	821	298.7 -> 98.8	44.2	20.1	60.4



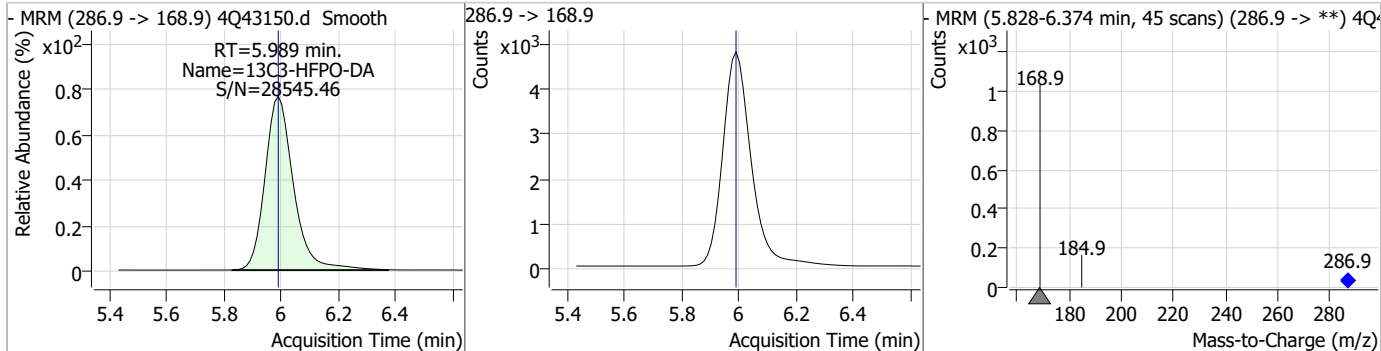
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.55	5.62	0.00	54275				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.21	5.62	0.00	3405	313.0 -> 118.9	3.5	1.6	4.7

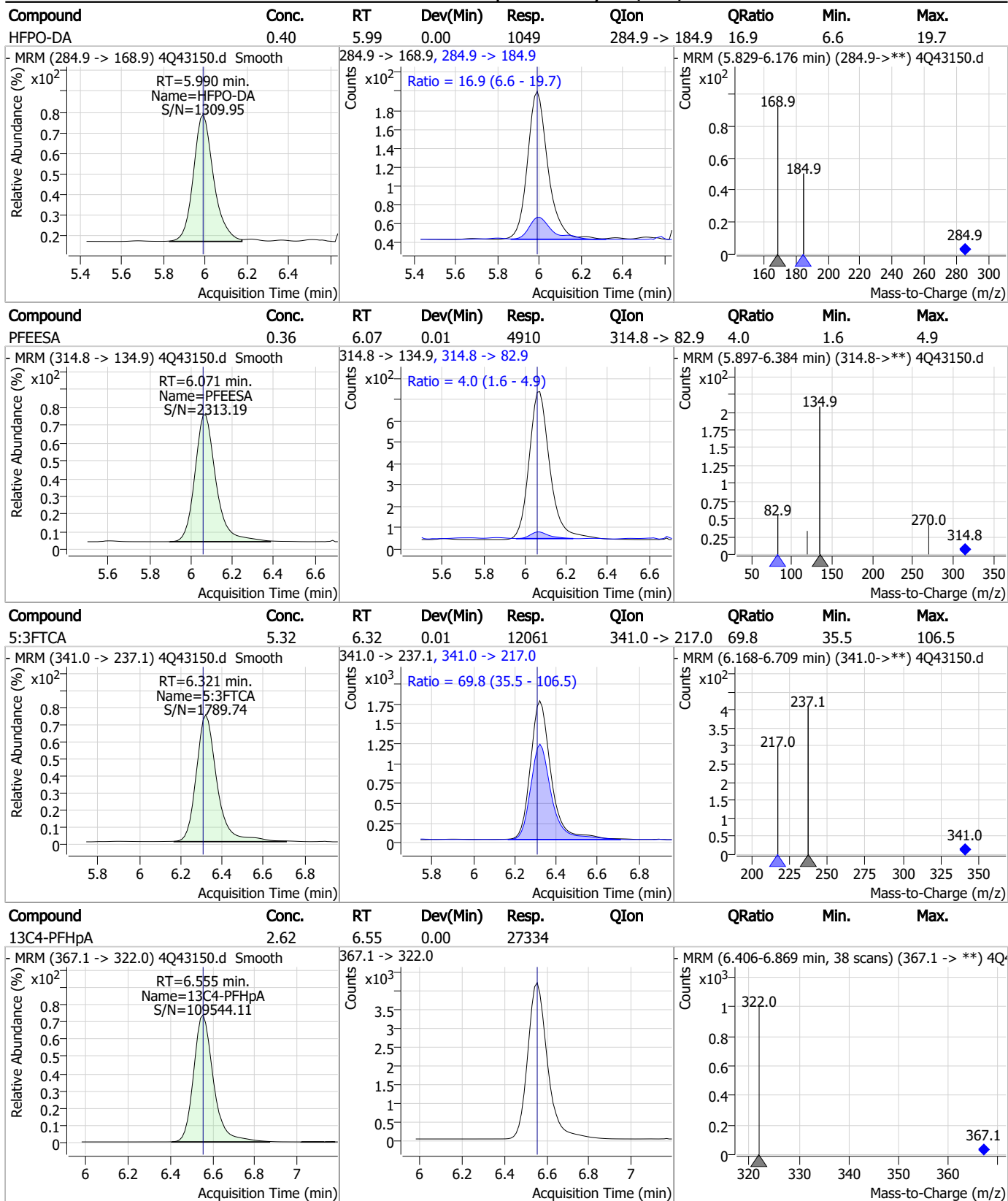


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.28	5.99	0.00	33199				



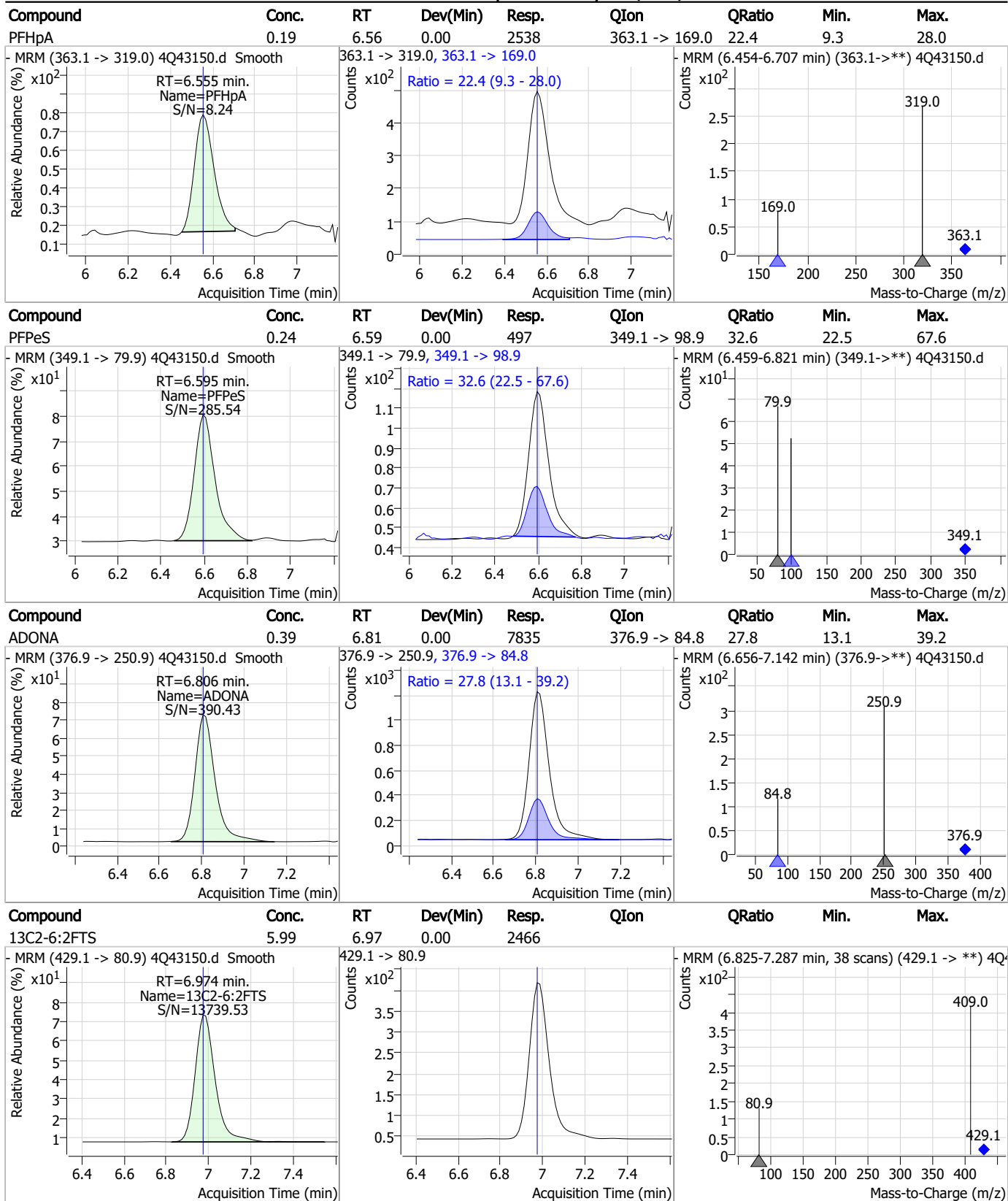
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### Perfluorinated Compounds by LC/MS/MS



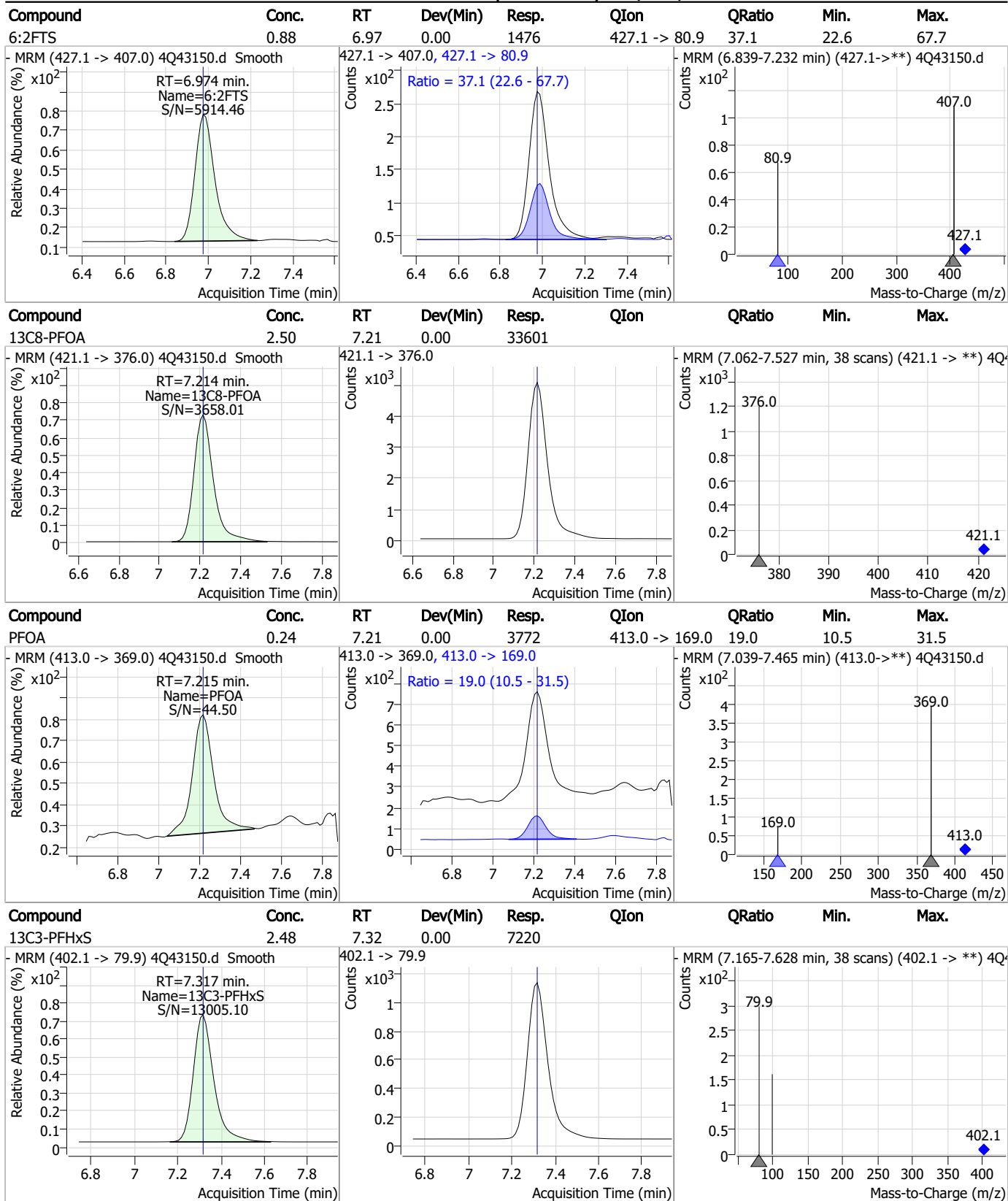
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### Perfluorinated Compounds by LC/MS/MS



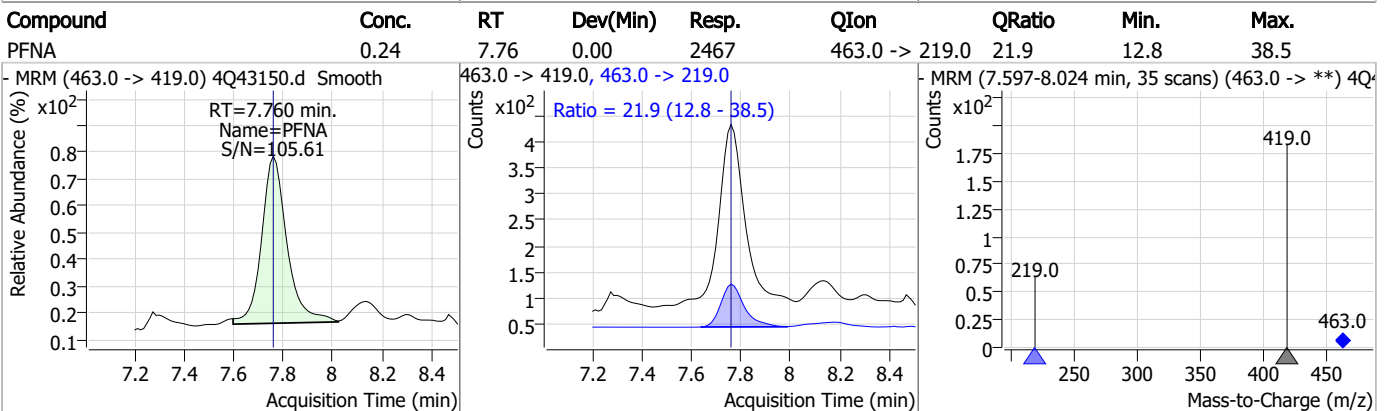
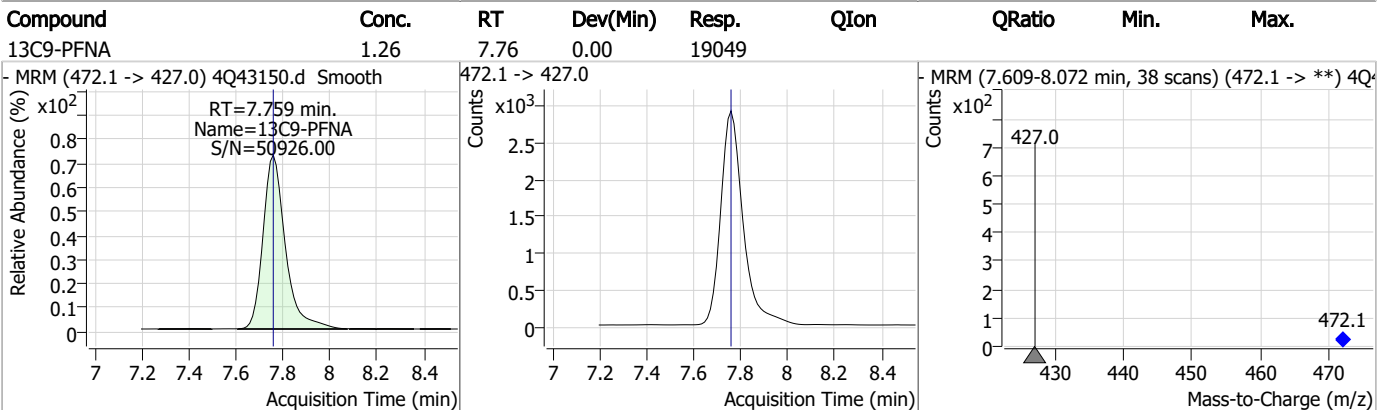
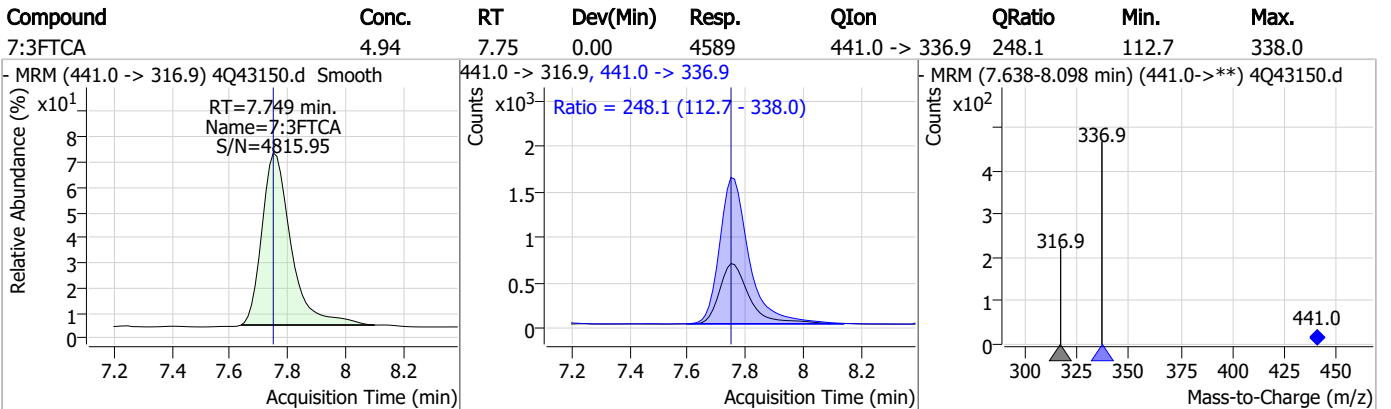
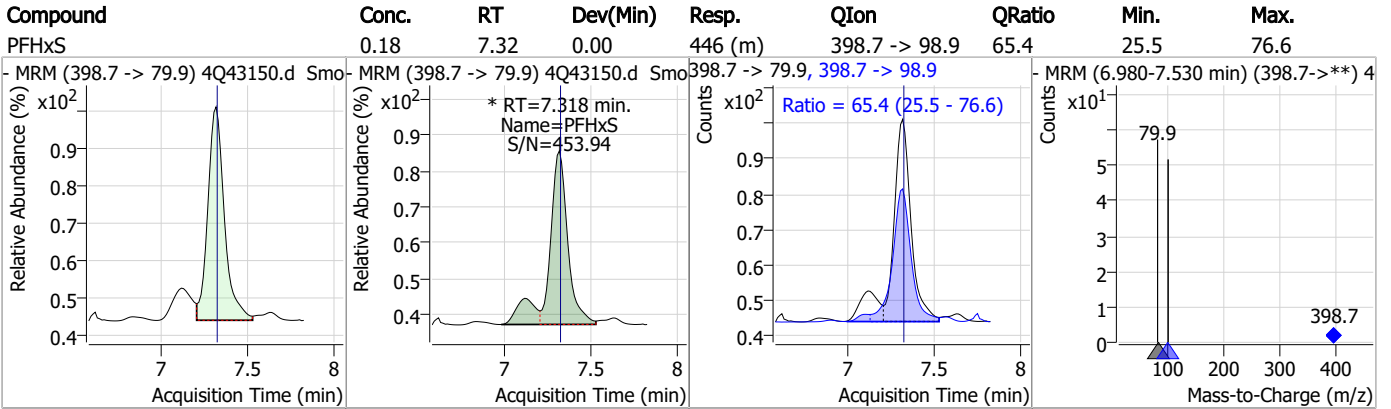
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### Perfluorinated Compounds by LC/MS/MS



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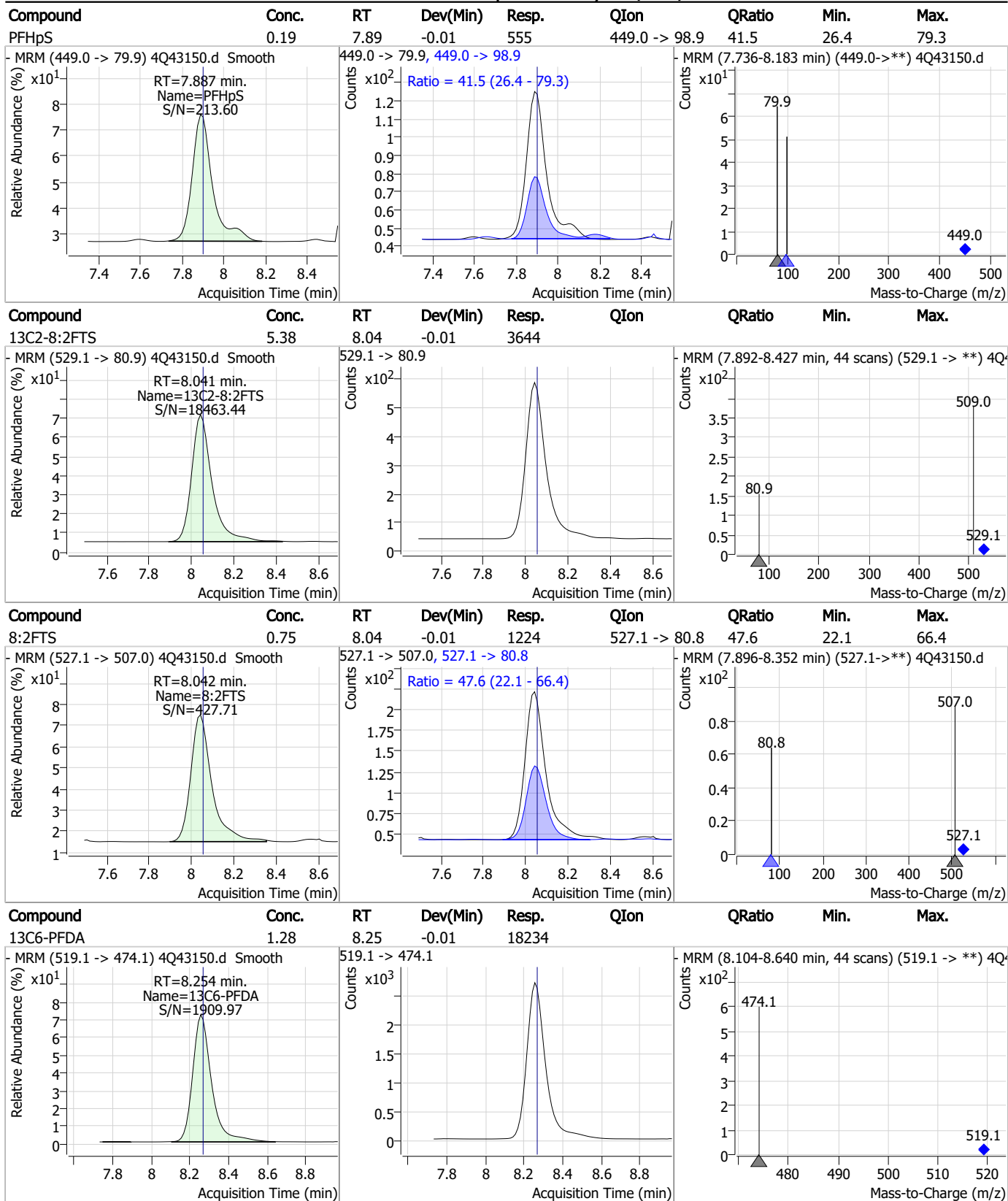
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

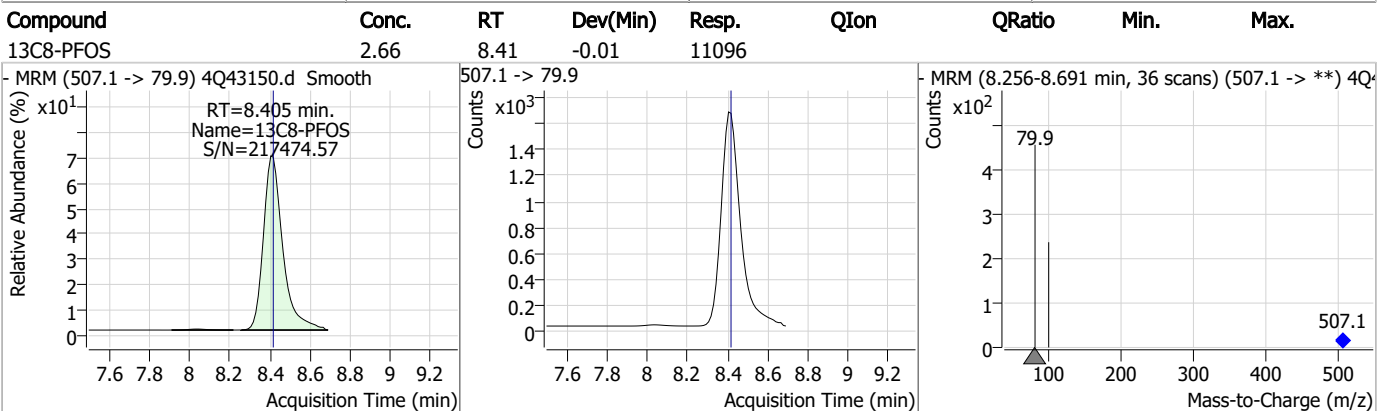
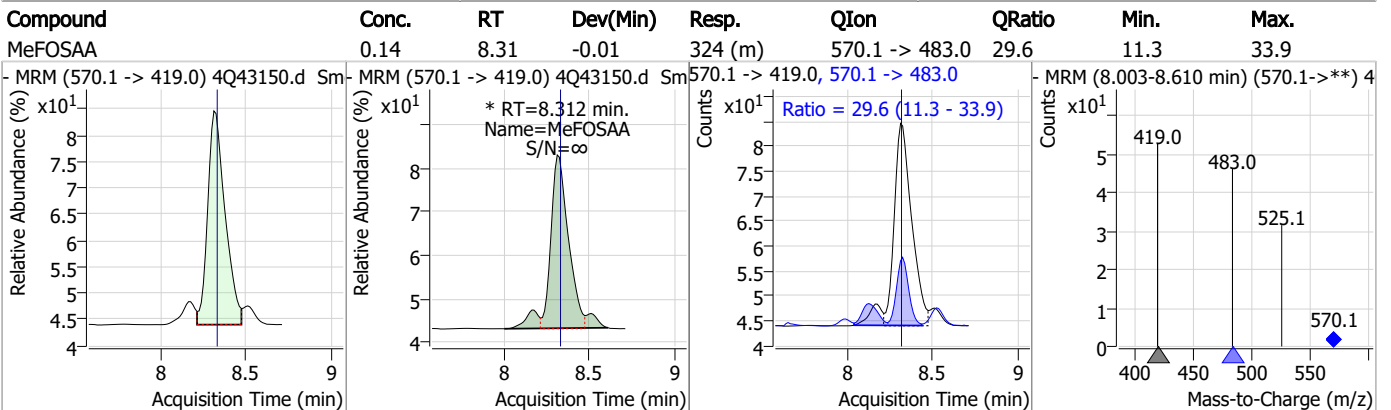
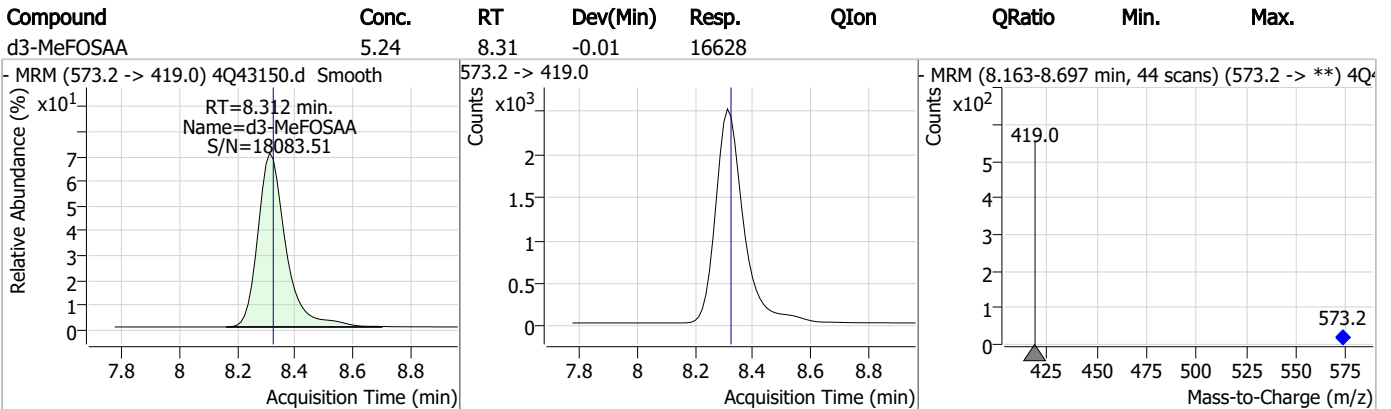
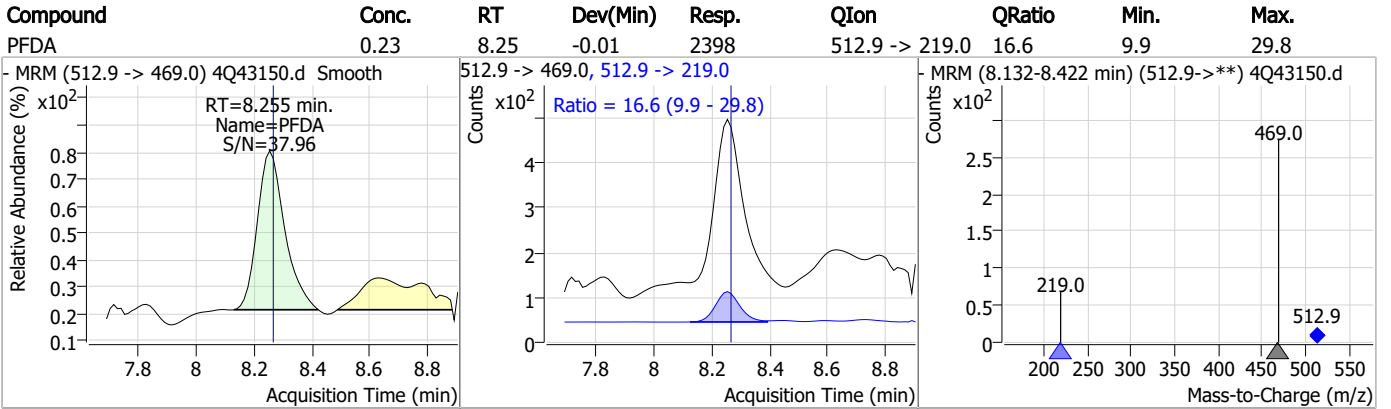


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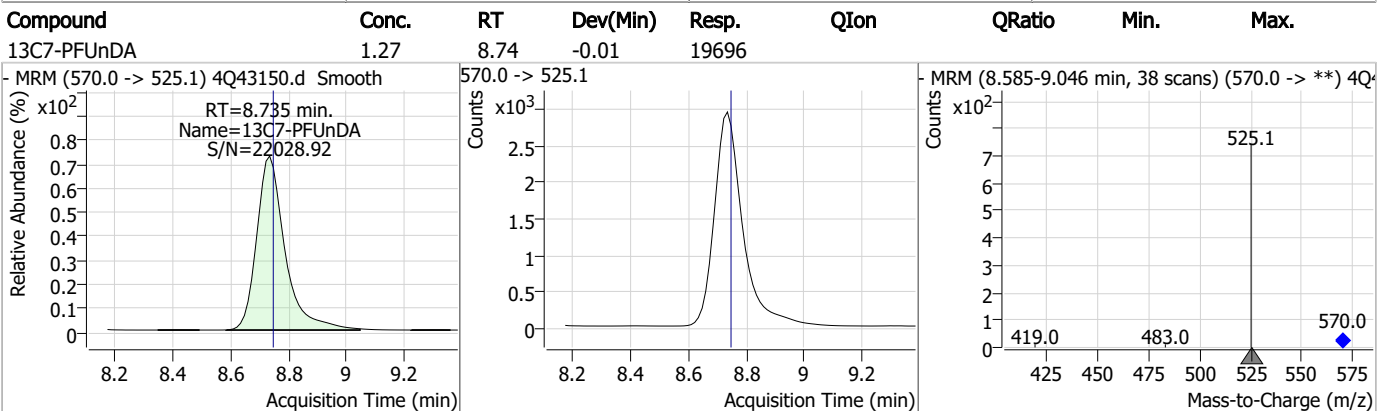
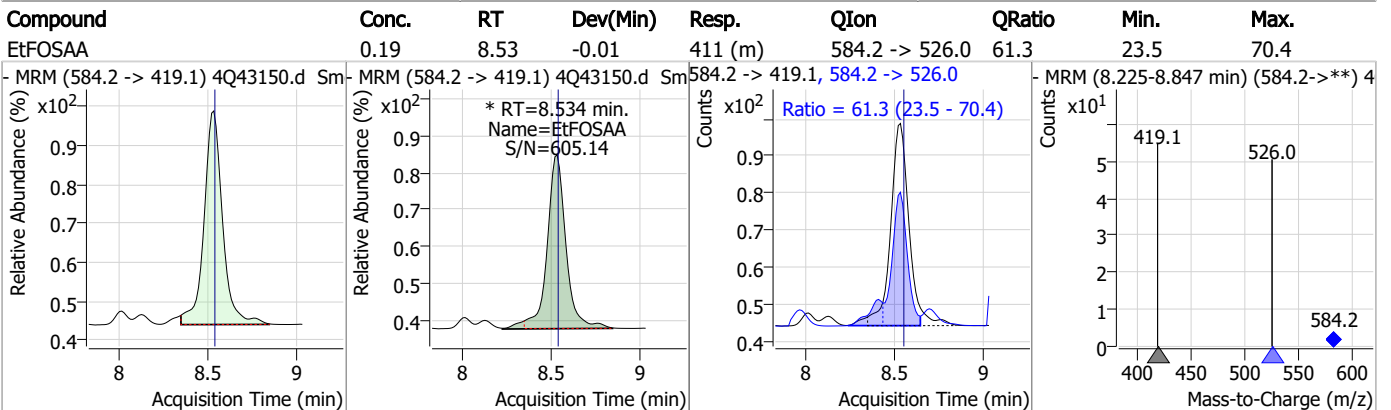
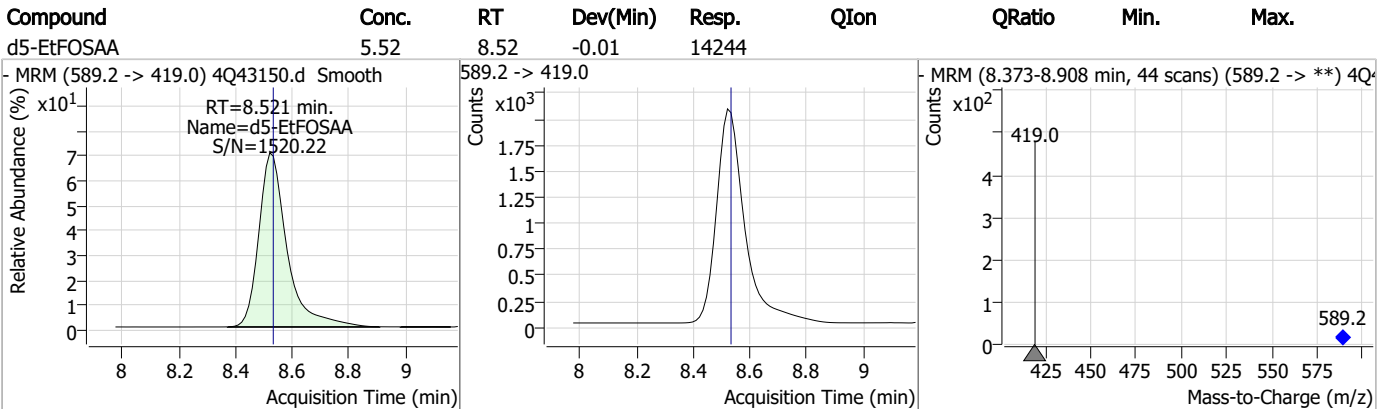
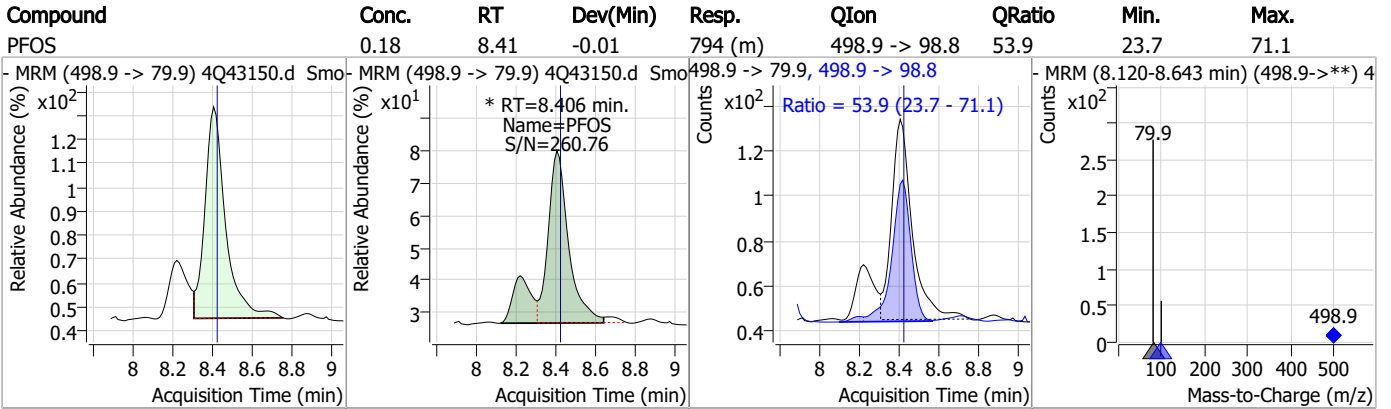
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### Perfluorinated Compounds by LC/MS/MS

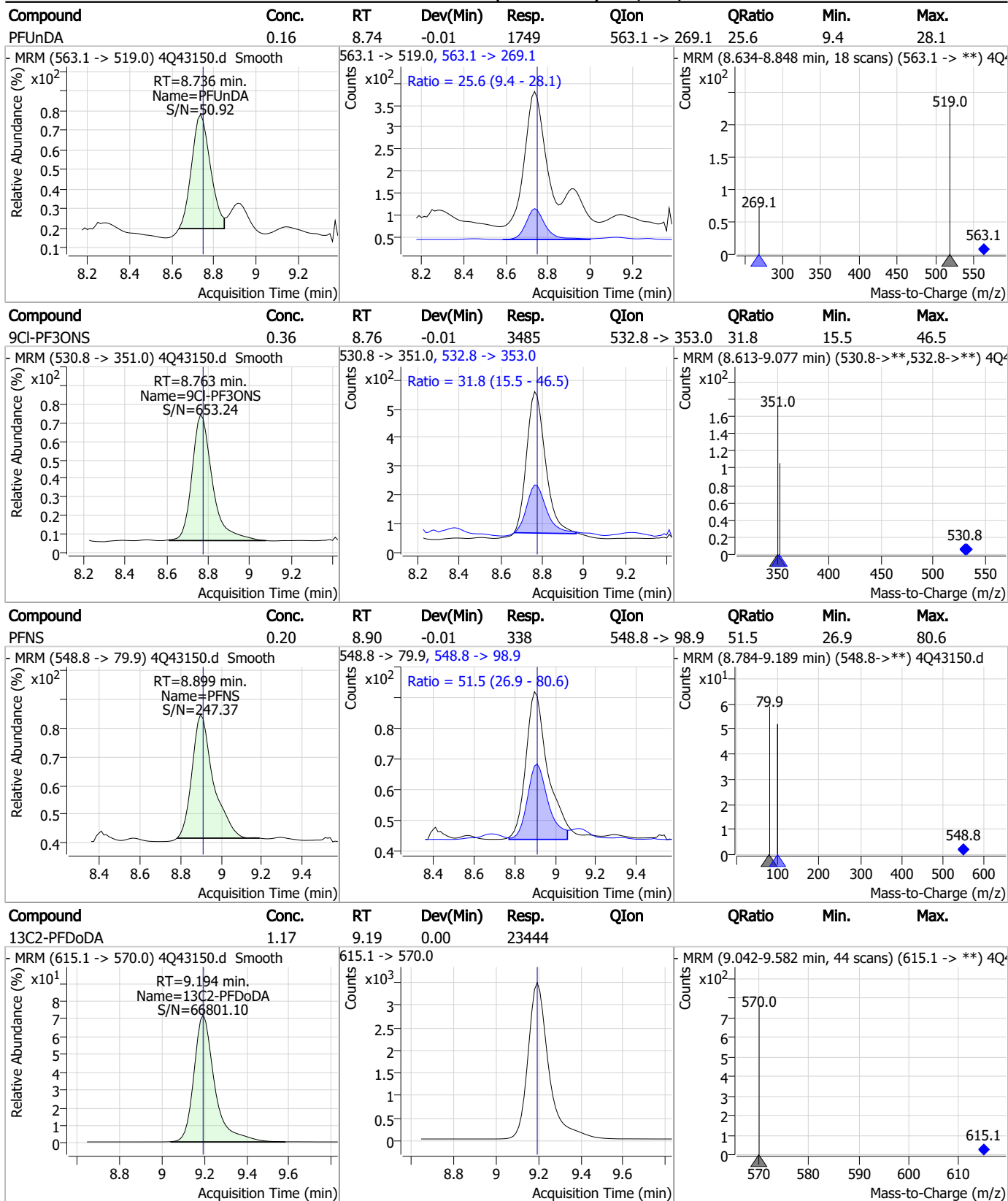


### Perfluorinated Compounds by LC/MS/MS



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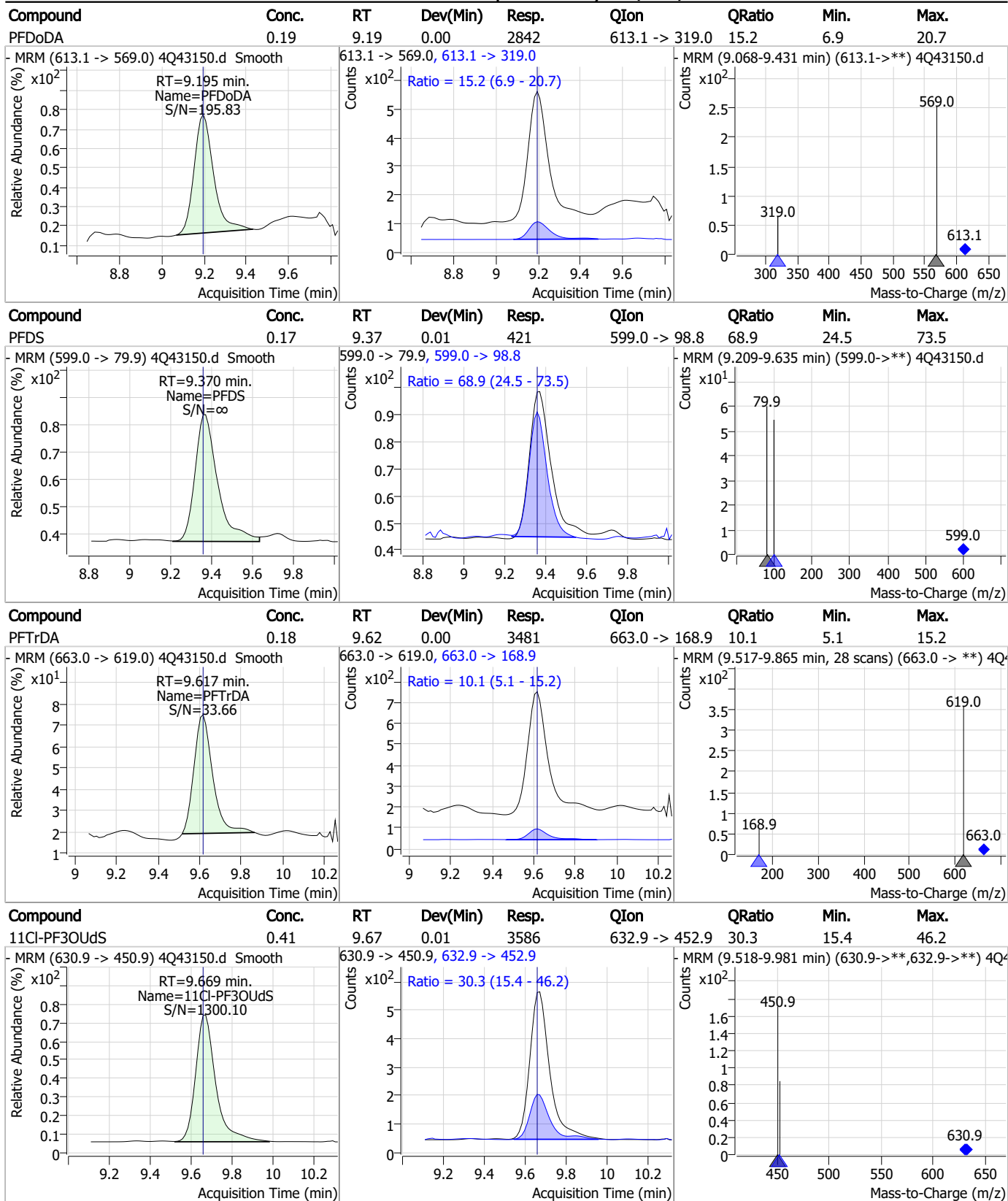
### Perfluorinated Compounds by LC/MS/MS



7.7.13

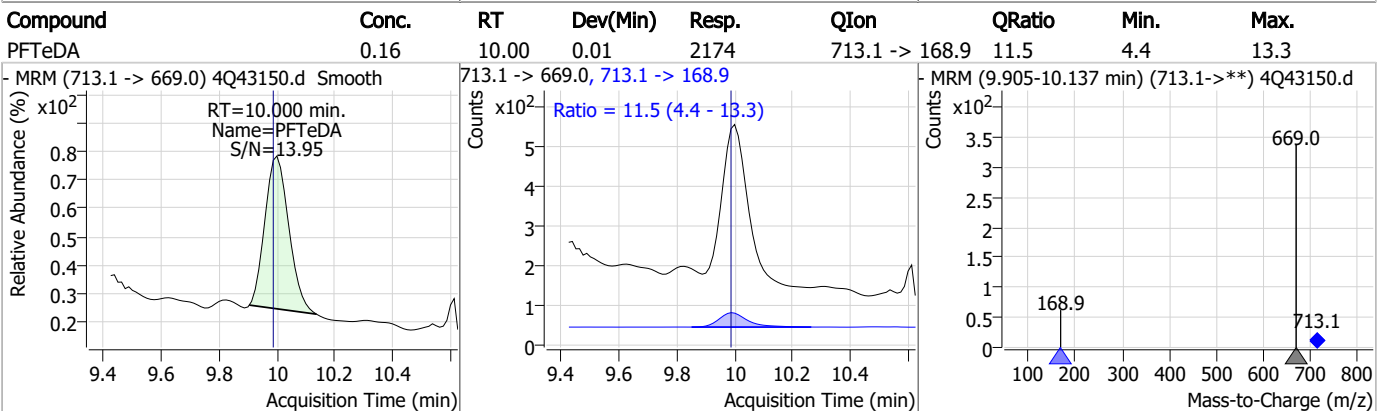
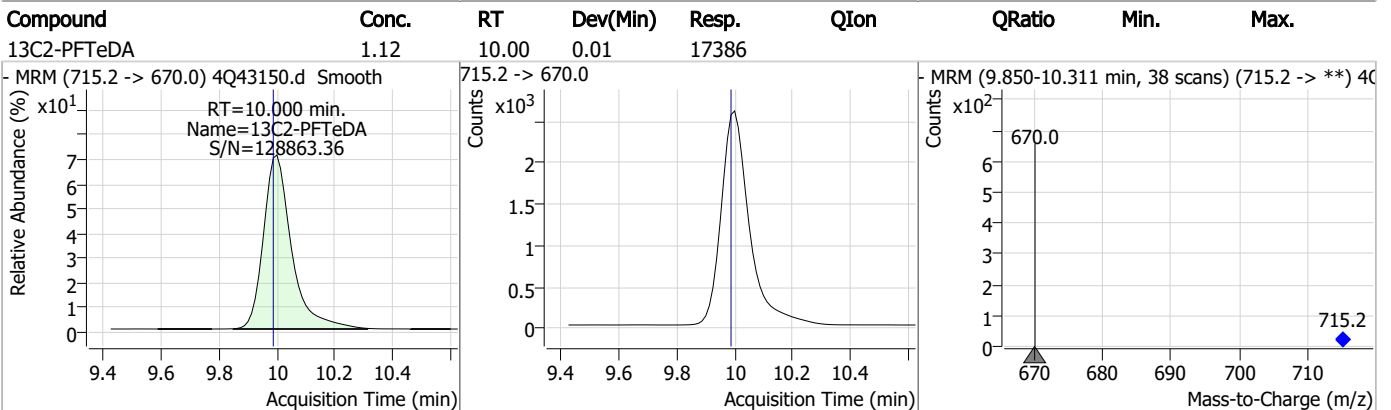
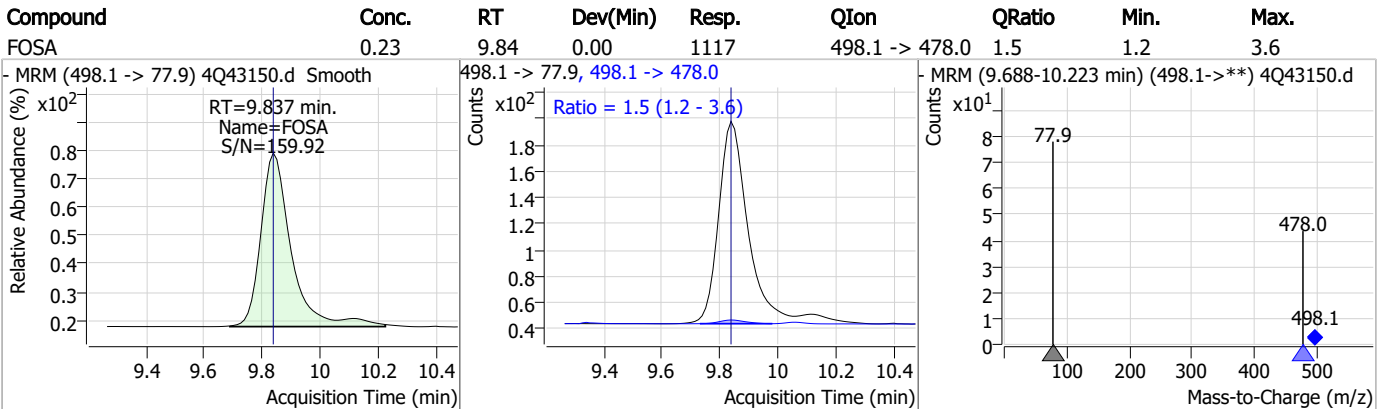
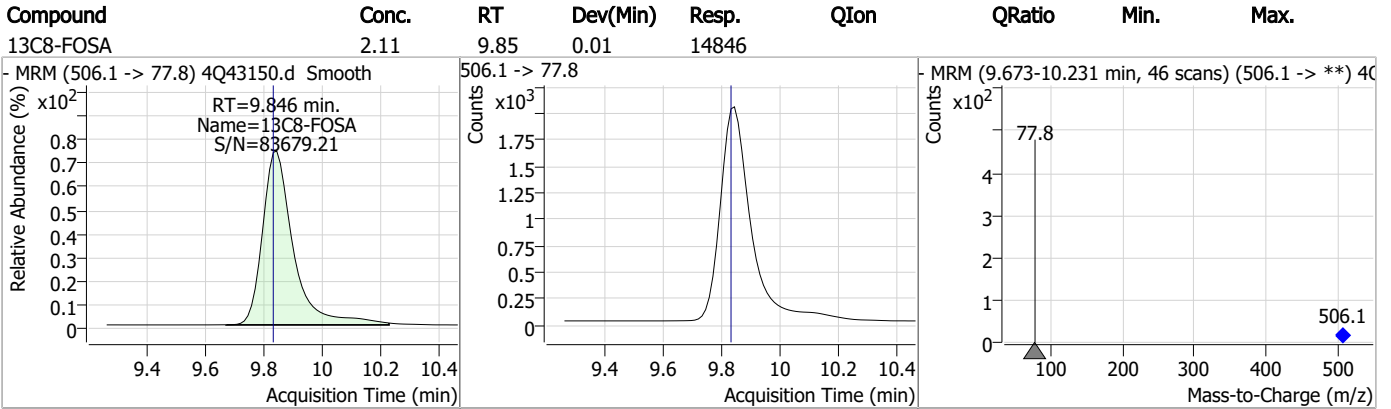
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### Perfluorinated Compounds by LC/MS/MS



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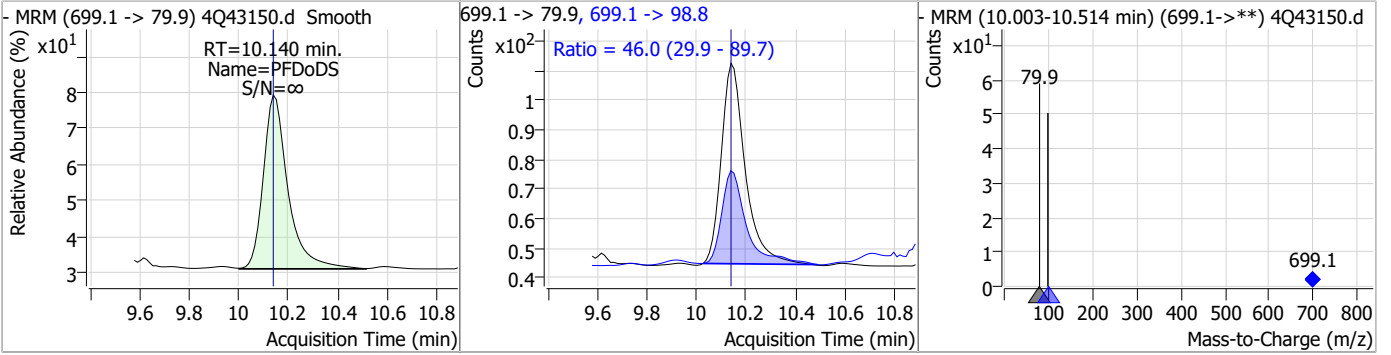
### Perfluorinated Compounds by LC/MS/MS



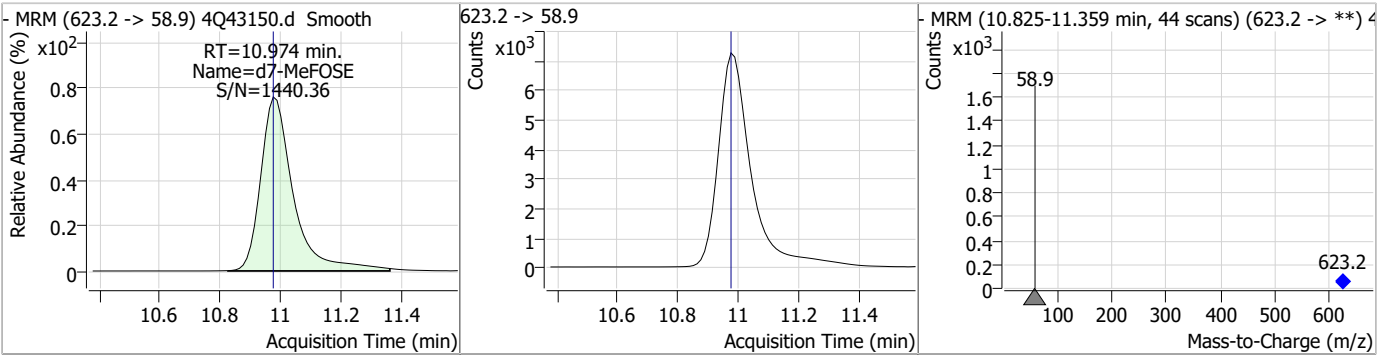
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### Perfluorinated Compounds by LC/MS/MS

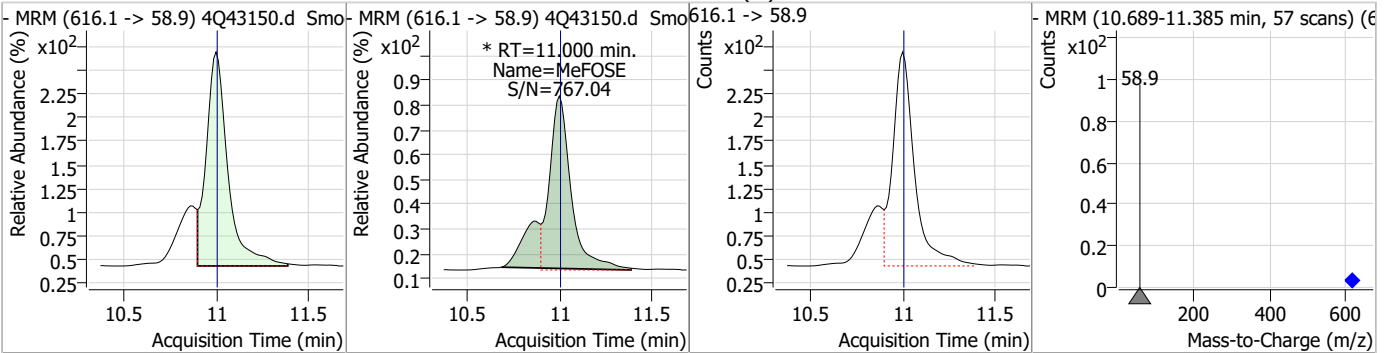
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	0.22	10.14	0.00	473	699.1 -> 98.8	46.0	29.9	89.7



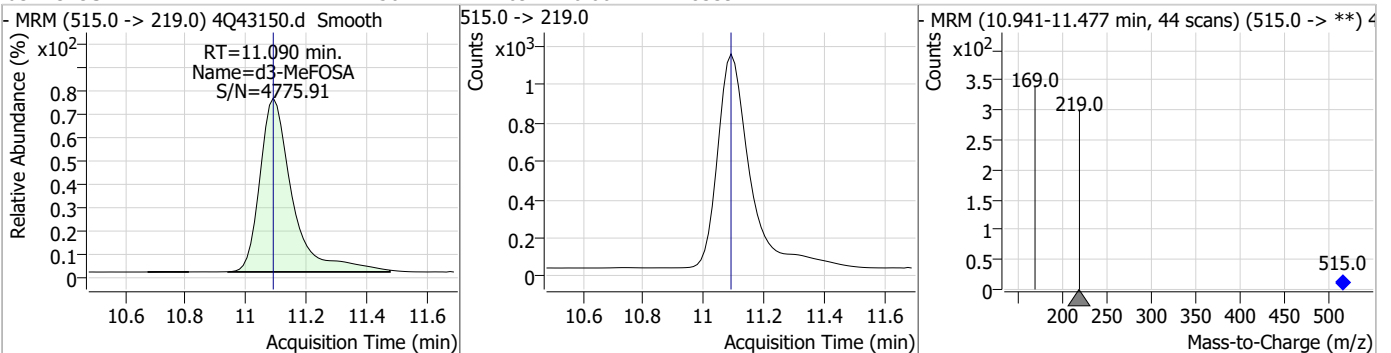
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.48	10.97	0.00	54134				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	1.16	11.00	0.00	2208 (m)				

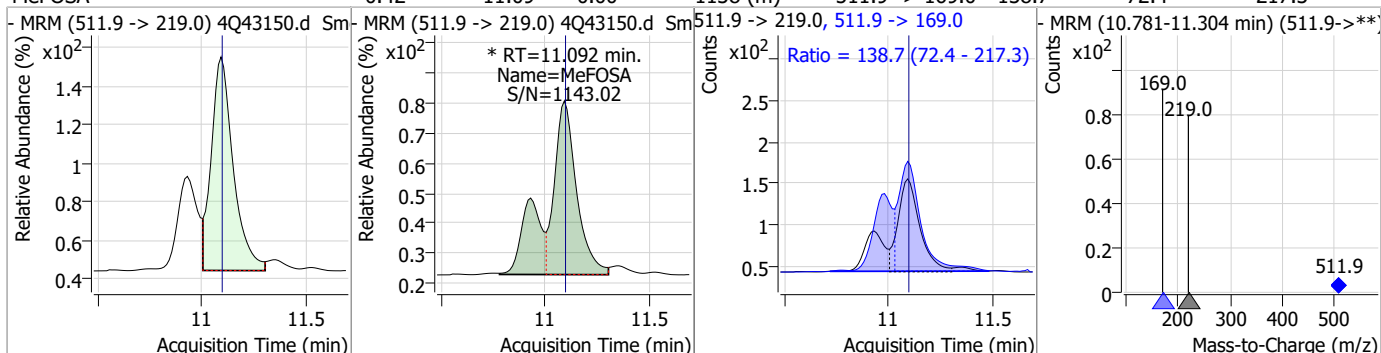


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.50	11.09	0.00	8339				

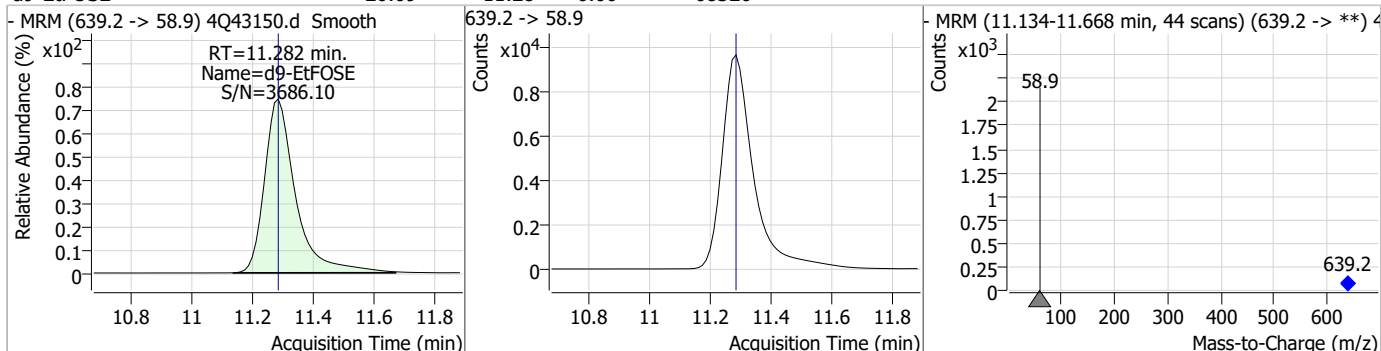


### Perfluorinated Compounds by LC/MS/MS

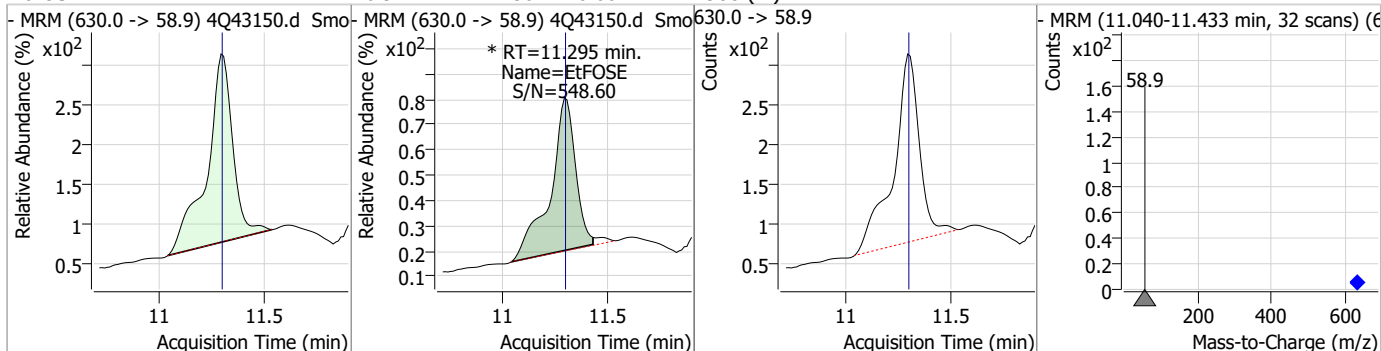
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.42	11.09	0.00	1138 (m)	511.9 -> 169.0	138.7	72.4	217.3



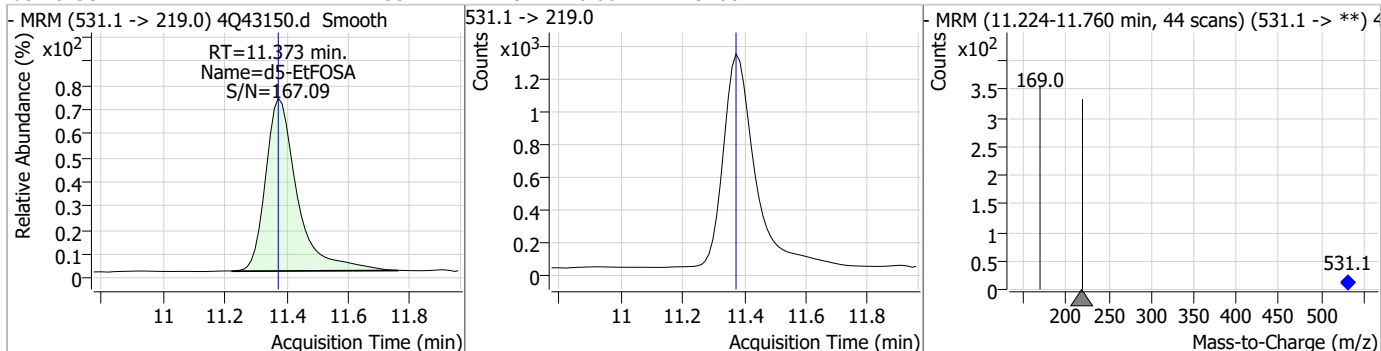
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	20.09	11.28	0.00	68326				



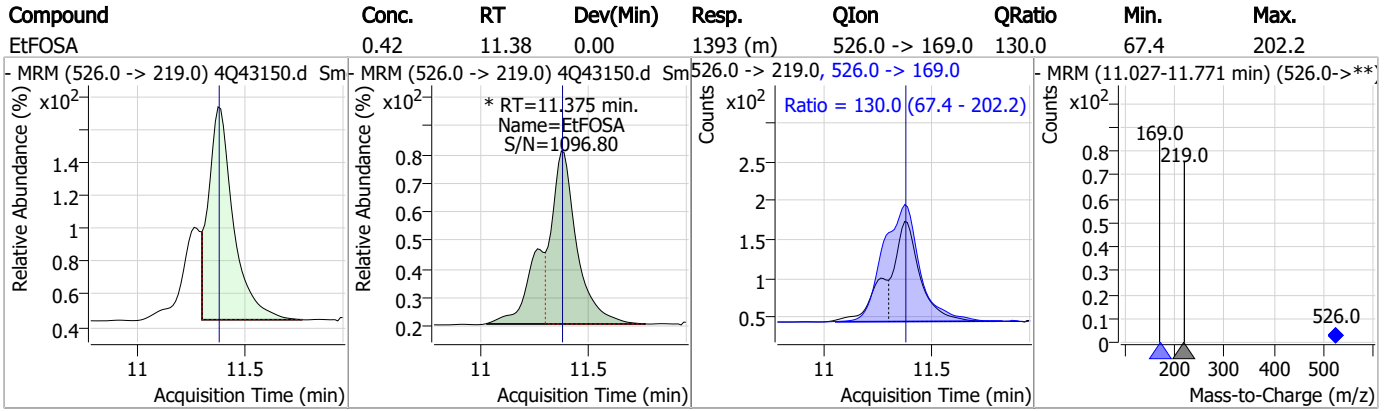
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	0.94	11.30	0.00	1988 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.55	11.37	0.00	9208				



### Perfluorinated Compounds by LC/MS/MS



7.7.13

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# Manual Integration Approval Summary

**Sample Number:** S4Q624-CC621      **Method:** EPA DRAFT 1633  
**Lab FileID:** 4Q43150.D      **Analyst approved:** 04/19/23 14:48 Martha Valls  
**Injection Time:** 04/18/23 11:40      **Supervisor approved:** 04/19/23 16:01 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.32	Split peak
MeFOSAA	2355-31-9		8.31	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.41	Split peak
EtFOSAA	2991-50-6		8.53	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.09	Split peak
EtFOSE	1691-99-2		11.29	Split peak
EtFOSA	4151-50-2		11.38	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43161.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 4/18/2023 2:29:11 PM  
 Sample Name : cc621-4  
 Vial : P1-A5  
 DA Method File : 1633\_041423\_S4Q621.quantmethod.xml  
 Batch Name : s4q624.batch.bin  
 Sample Information : OP96296,S4q624,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	3.064	216.8 -> 171.9	146945	10.00 µg/L	0.103
M5-PFPeA	4.487	268.3 -> 223.0	79216	5.00 µg/L	0.037
M5-PFHxA	5.646	318.0 -> 273.0	62019	2.50 µg/L	0.024
M4-PFHpA	6.567	367.1 -> 322.0	28817	2.50 µg/L	0.012
M8-PFOA	7.213	421.1 -> 376.0	37962	2.50 µg/L	0.000
M9-PFNA	7.771	472.1 -> 427.0	21058	1.25 µg/L	0.012
M6-PFDA	8.265	519.1 -> 474.1	20032	1.25 µg/L	-0.001
M7-PFUnDA	8.747	570.0 -> 525.1	21009	1.25 µg/L	-0.001
M2-PFDoDA	9.205	615.1 -> 570.0	26282	1.25 µg/L	0.011
M2-PFTeDA	9.998	715.2 -> 670.0	18593	1.25 µg/L	0.011
M8-FOSA	9.845	506.1 -> 77.8	17031	2.50 µg/L	0.011
M3-PFBS	5.564	302.1 -> 79.9	13339	2.50 µg/L	0.037
M3-PFHxS	7.316	402.1 -> 79.9	8360	2.50 µg/L	-0.001
M8-PFOS	8.429	507.1 -> 79.9	12004	2.50 µg/L	0.012
M2-4:2FTS	5.335	329.1 -> 80.9	1745	5.00 µg/L	0.026
M2-6:2FTS	6.985	429.1 -> 80.9	2218	5.00 µg/L	0.012
M2-8:2FTS	8.052	529.1 -> 80.9	3607	5.00 µg/L	-0.001
M3-MeFOSAA	8.335	573.2 -> 419.0	16770	5.00 µg/L	0.011
M3-HFPO-DA	6.014	286.9 -> 168.9	36600	10.00 µg/L	0.025
M5-EtFOSAA	8.545	589.2 -> 419.0	14391	5.00 µg/L	0.011
M7-MeFOSE	10.972	623.2 -> 58.9	58204	25.00 µg/L	-0.002
M9-EtFOSE	11.281	639.2 -> 58.9	70991	25.00 µg/L	-0.001
M5-EtFOSA	11.373	531.1 -> 219.0	9718	2.50 µg/L	-0.001
M3-MeFOSA	11.089	515.0 -> 219.0	8695	2.50 µg/L	-0.002
13C4-PFOS	8.430	502.8 -> 79.9	12210	2.50 µg/L	0.012
13C3-PFBA	3.068	216.0 -> 172.0	79564	5.00 µg/L	0.102
18O2-PFHxS	7.328	403.0 -> 83.9	5651	2.50 µg/L	0.012
13C4-PFOA	7.214	417.1 -> 372.0	46011	2.50 µg/L	0.000
13C2-PFDA	8.265	515.1 -> 470.1	17318	1.25 µg/L	-0.001
13C5-PFNA	7.771	468.0 -> 423.0	23837	1.25 µg/L	0.012
13C2-PFHxA	5.647	315.1 -> 270.0	53192	2.50 µg/L	0.024
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.335	329.1 -> 80.9	1745	5.65 µg/L	0.026
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.1%		
13C2-6:2FTS	6.985	429.1 -> 80.9	2218	5.01 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C2-8:2FTS	8.052	529.1 -> 80.9	3607	4.95 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C2-PFDoDA	9.205	615.1 -> 570.0	26282	1.23 µg/L	0.011
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C2-PFTeDA	9.998	715.2 -> 670.0	18593	1.12 µg/L	0.011
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.6%		
13C3-PFBS	5.564	302.1 -> 79.9	13339	2.57 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C3-PFHxS	7.316	402.1 -> 79.9	8360	2.67 µg/L	-0.001

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.9%	
13C4-PFBA	3.064	216.8 -> 171.9	146945	10.61 µg/L	0.103
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C4-PFHpA	6.567	367.1 -> 322.0	28817	2.39 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.4%	
13C5-PFHxA	5.646	318.0 -> 273.0	62019	2.52 µg/L	0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C5-PFPeA	4.487	268.3 -> 223.0	79216	5.05 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C6-PFDA	8.265	519.1 -> 474.1	20032	1.32 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.2%	
13C7-PFUnDA	8.747	570.0 -> 525.1	21009	1.27 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C8-FOSA	9.845	506.1 -> 77.8	17031	2.13 µg/L	0.011
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 85.3%	
13C8-PFOA	7.213	421.1 -> 376.0	37962	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C8-PFOS	8.429	507.1 -> 79.9	12004	2.54 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C9-PFNA	7.771	472.1 -> 427.0	21058	1.21 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.0%	
d3-MeFOSAA	8.335	573.2 -> 419.0	16770	4.66 µg/L	0.011
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.3%	
13C3-HFPO-DA	6.014	286.9 -> 168.9	36600	9.80 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
d3-MeFOSA	11.089	515.0 -> 219.0	8695	2.30 µg/L	-0.002
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.0%	
d5-EtFOSAA	8.545	589.2 -> 419.0	14391	4.92 µg/L	0.011
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.5%	
d7-MeFOSE	10.972	623.2 -> 58.9	58204	18.48 µg/L	-0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 73.9%	
d9-EtFOSE	11.281	639.2 -> 58.9	70991	18.42 µg/L	-0.001
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 73.7%	
d5-EtFOSA	11.373	531.1 -> 219.0	9718	2.38 µg/L	-0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.2%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.336	327.1 -> 307.0	17228	7.92 µg/L	96
		327.1 -> 80.9	7651		
6:2FTS	6.986	427.1 -> 407.0	13325	8.80 µg/L	99
		427.1 -> 80.9	5904		
8:2FTS	8.053	527.1 -> 507.0	14241	8.81 µg/L	95
		527.1 -> 80.8	5832		
EtFOSAA	8.545	584.2 -> 419.1	4313	2.01 µg/L	m 87
		584.2 -> 526.0	2408		
FOSA	9.848	498.1 -> 77.9	11367	2.07 µg/L	97
		498.1 -> 478.0	390		
MeFOSAA	8.336	570.1 -> 419.0	5255	2.27 µg/L	m 97
		570.1 -> 483.0	1104		
PFBA	3.071	212.8 -> 168.9	26063	7.77 µg/L	100
PFBS	5.565	298.7 -> 79.9	9079	1.82 µg/L	98
		298.7 -> 98.8	3558		
PFDA	8.278	512.9 -> 469.0	25050	2.19 µg/L	99
		512.9 -> 219.0	5025		
PFDODA	9.206	613.1 -> 569.0	33876	2.04 µg/L	97
		613.1 -> 319.0	5104		
PFDS	9.369	599.0 -> 79.9	4988	1.86 µg/L	97

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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2553			
PFHpA	6.568	363.1 -> 319.0	30429	2.12	µg/L	99
		363.1 -> 169.0	5555			
PFHpS	7.910	449.0 -> 79.9	5999	1.92	µg/L	98
		449.0 -> 98.9	3264			
PFHxA	5.649	313.0 -> 269.0	37702	2.05	µg/L	99
		313.0 -> 118.9	1284			
PFHxS	7.317	398.7 -> 79.9	5114	1.79	µg/L	m 96
		398.7 -> 98.9	2749			
PFNA	7.771	463.0 -> 419.0	22635	2.01	µg/L	98
		463.0 -> 219.0	5580			
PFNS	8.911	548.8 -> 79.9	3536	1.91	µg/L	94
		548.8 -> 98.9	1755			
PFOA	7.215	413.0 -> 369.0	35261	1.99	µg/L	99
		413.0 -> 169.0	7505			
PFOS	8.431	498.9 -> 79.9	8710	1.86	µg/L	m 99
		498.9 -> 98.8	4180			
PFPeA	4.489	263.0 -> 219.0	63581	4.24	µg/L	100
PFPeS	6.606	349.1 -> 79.9	4322	1.77	µg/L	99
		349.1 -> 98.9	1980			
PFTeDA	9.999	713.1 -> 669.0	29945	2.05	µg/L	100
		713.1 -> 168.9	2639			
PFTrDA	9.616	663.0 -> 619.0	42936	2.01	µg/L	100
		663.0 -> 168.9	4340			
PFUnDA	8.747	563.1 -> 519.0	24492	2.06	µg/L	99
		563.1 -> 269.1	4702			
11CI-PF3OUdS	9.668	630.9 -> 450.9	47721	5.00	µg/L	98
		632.9 -> 452.9	15277			
9CI-PF3ONS	8.775	530.8 -> 351.0	49792	4.67	µg/L	99
		532.8 -> 353.0	15604			
ADONA	6.818	376.9 -> 250.9	105705	4.81	µg/L	99
		376.9 -> 84.8	28038			
HFPO-DA	6.015	284.9 -> 168.9	13511	4.66	µg/L	99
		284.9 -> 184.9	1808			
3:3FTCA	4.029	241.0 -> 177.0	9076	12.99	µg/L	99
		241.0 -> 117.0	842			
5:3FTCA	6.343	341.0 -> 237.1	168699	65.07	µg/L	99
		341.0 -> 217.0	118893			
7:3FTCA	7.773	441.0 -> 316.9	67504	63.53	µg/L	97
		441.0 -> 336.9	148597			
EtFOSA	11.375	526.0 -> 219.0	17736	5.12	µg/L	m 100
		526.0 -> 169.0	23887			
EtFOSE	11.295	630.0 -> 58.9	27851	12.73	µg/L	100
MeFOSA	11.090	511.9 -> 219.0	14293	5.08	µg/L	m 98
		511.9 -> 169.0	21102			
MeFOSE	10.997	616.1 -> 58.9	26121	12.77	µg/L	m 100
PFDoDS	10.139	699.1 -> 79.9	4248	1.83	µg/L	98
		699.1 -> 98.8	2475			
NFDHA	5.541	295.0 -> 201.0	6158	4.99	µg/L	100
		295.0 -> 84.9	1609			
PFMBA	4.891	279.0 -> 85.1	43483	5.07	µg/L	100
PFMPA	3.653	229.0 -> 84.9	38485	5.13	µg/L	100
PFEESA	6.083	314.8 -> 134.9	68139	4.42	µg/L	99
		314.8 -> 82.9	2541			

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

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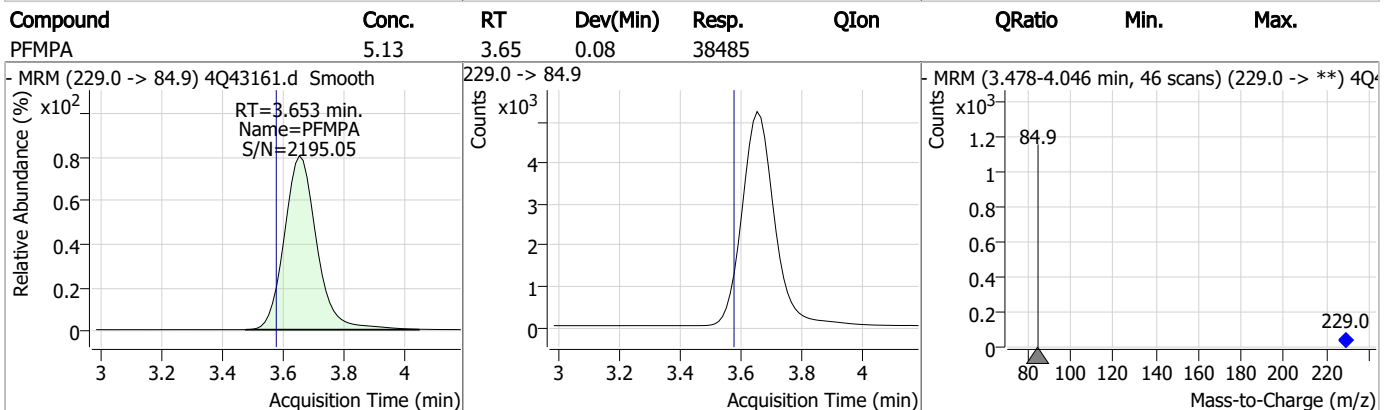
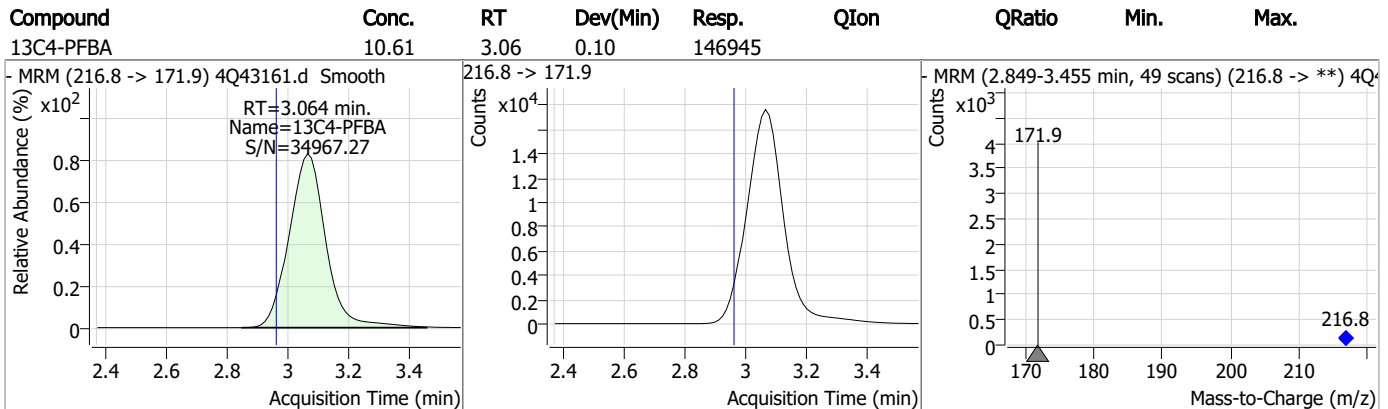
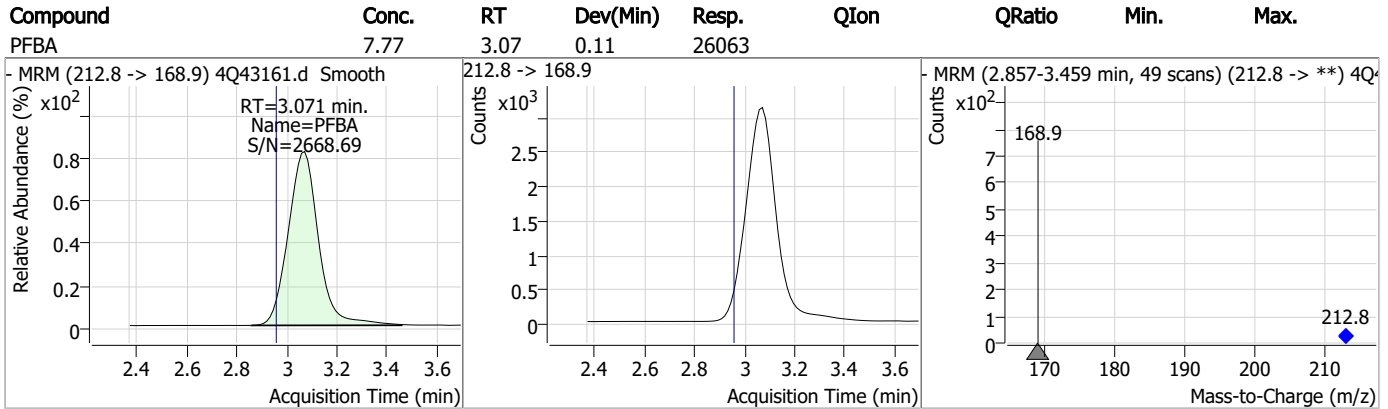
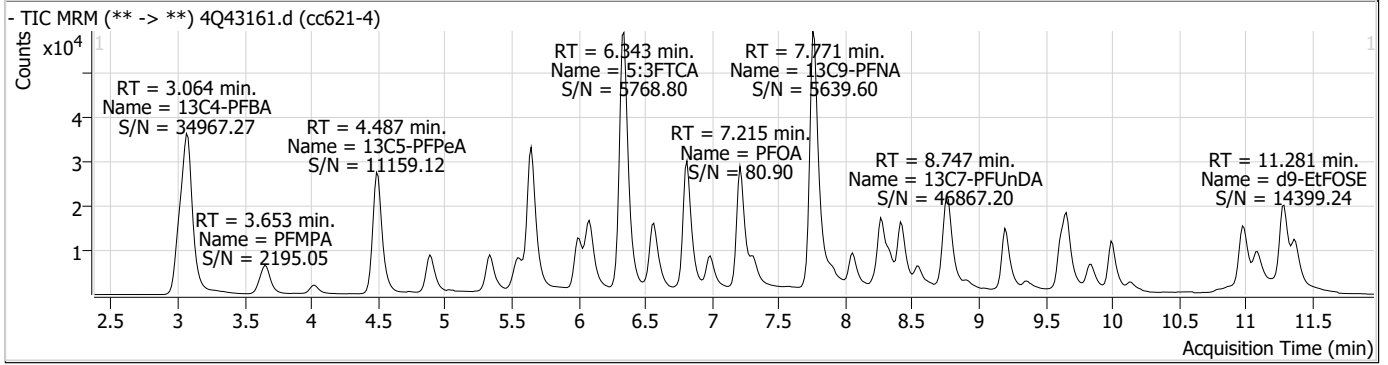
### Perfluorinated Compounds by LC/MS/MS

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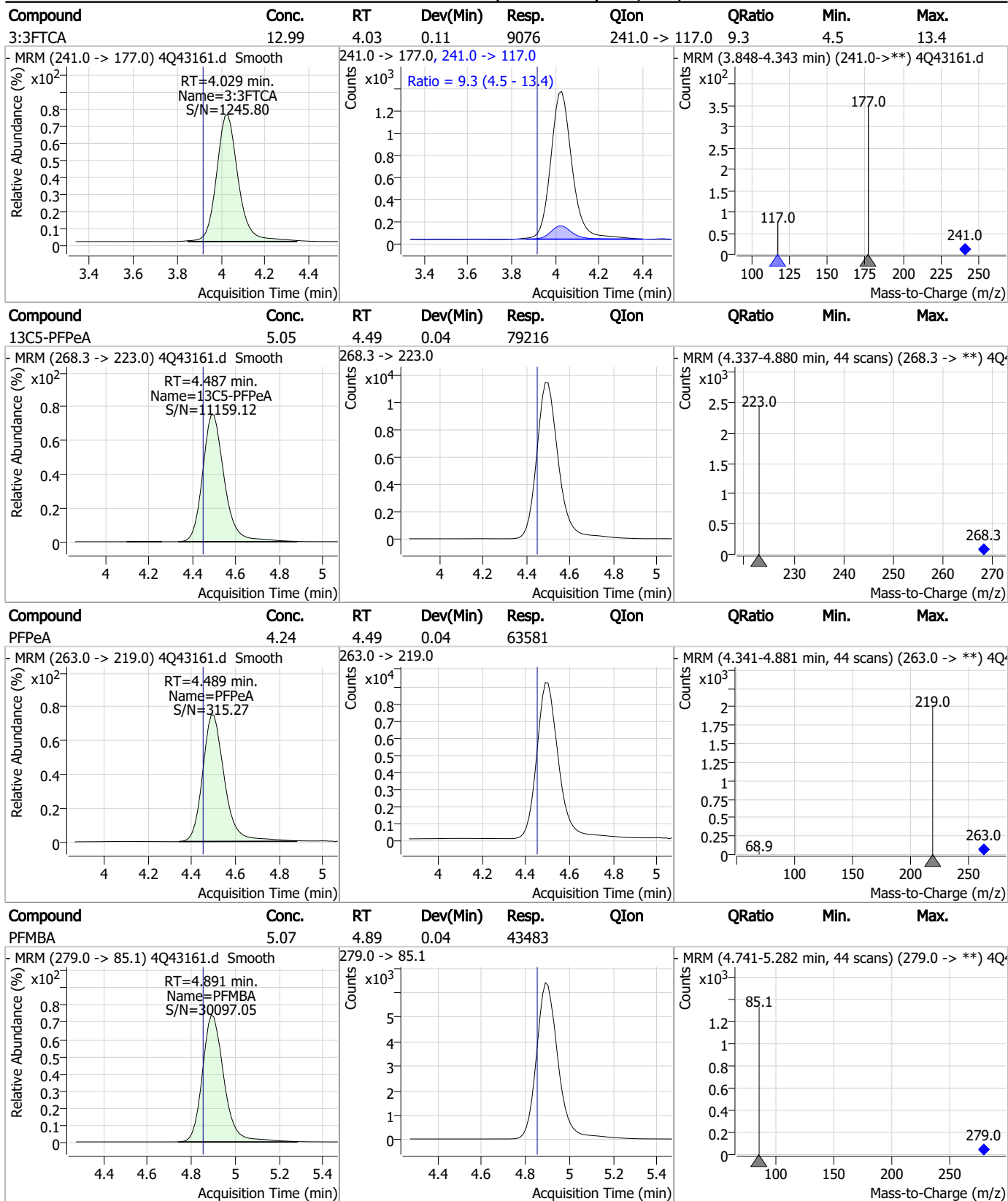
### Perfluorinated Compounds by LC/MS/MS



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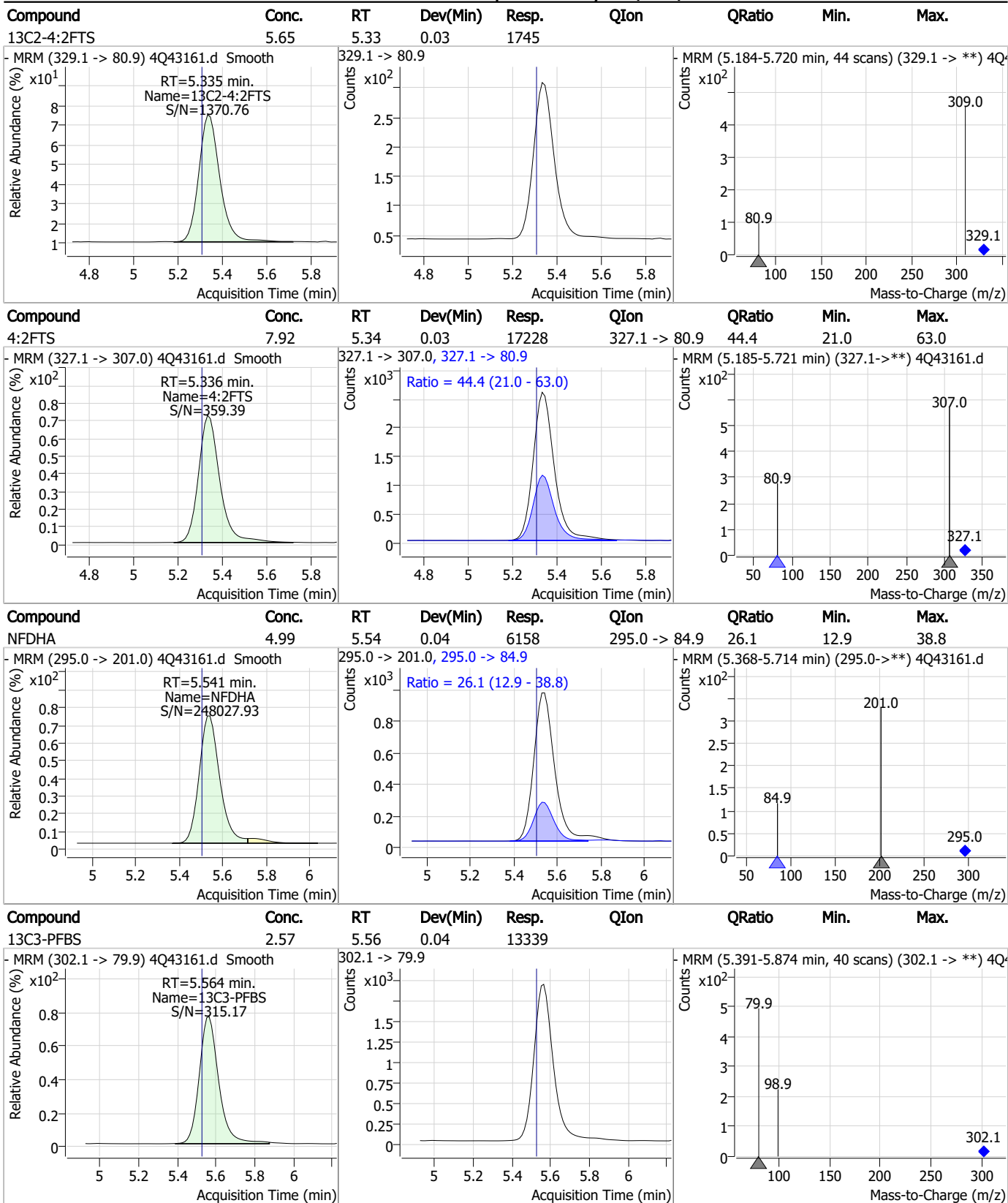
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

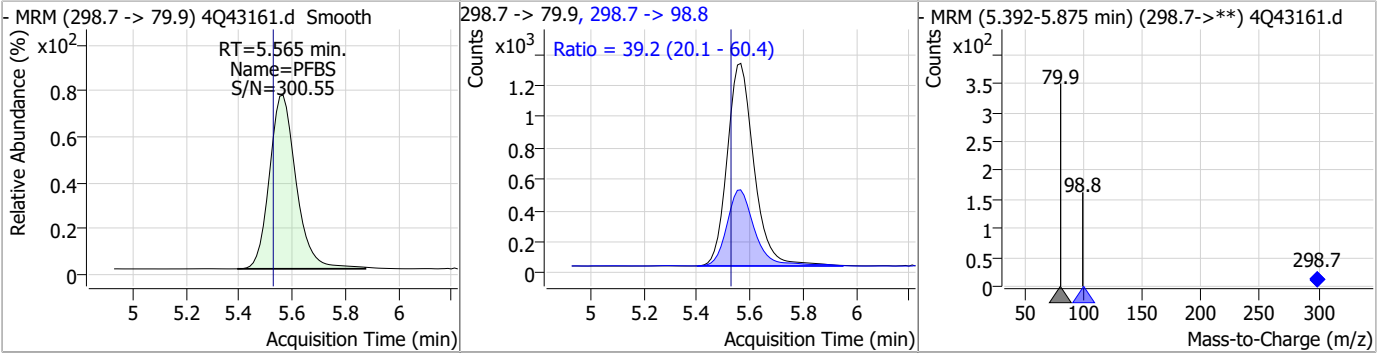


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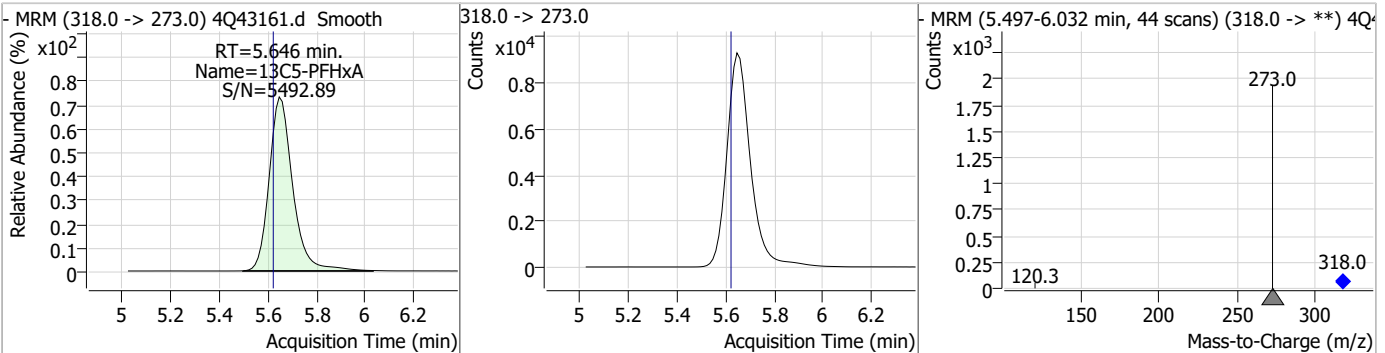


### Perfluorinated Compounds by LC/MS/MS

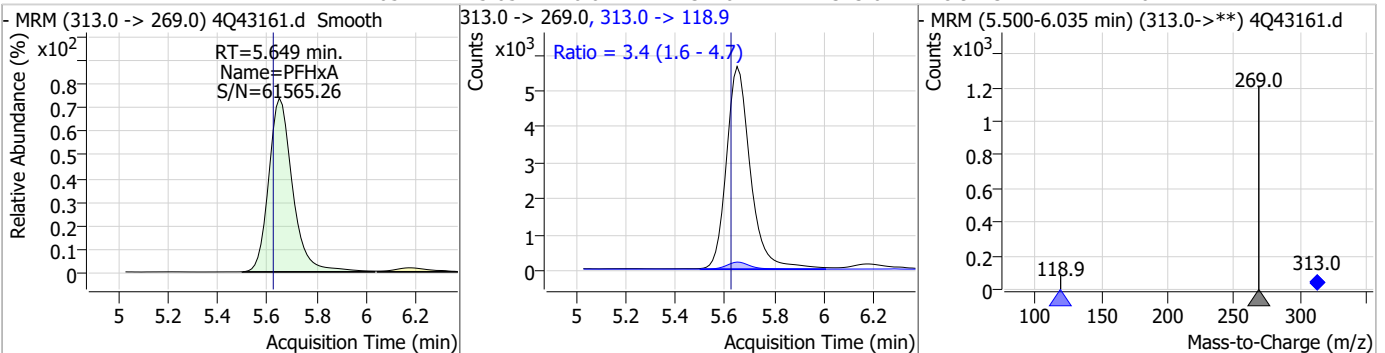
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.82	5.56	0.04	9079	298.7 -> 98.8	39.2	20.1	60.4



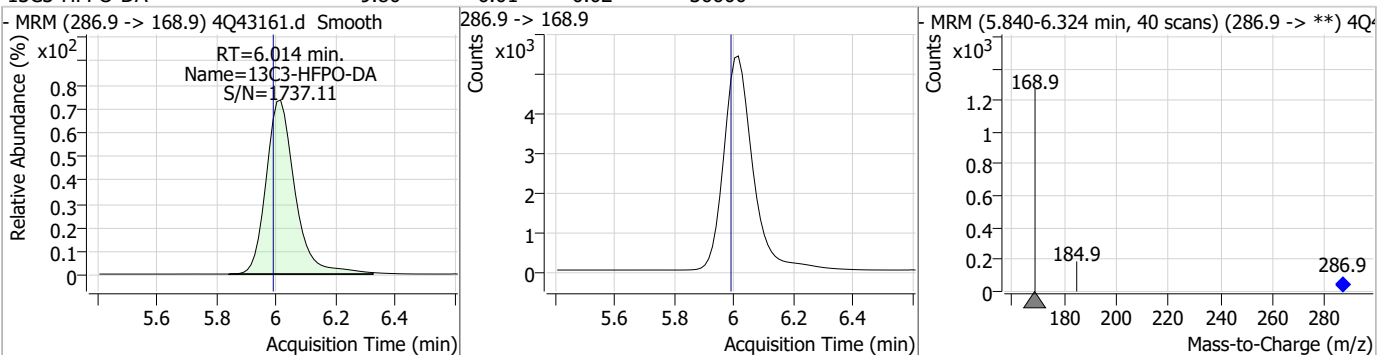
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.52	5.65	0.02	62019				



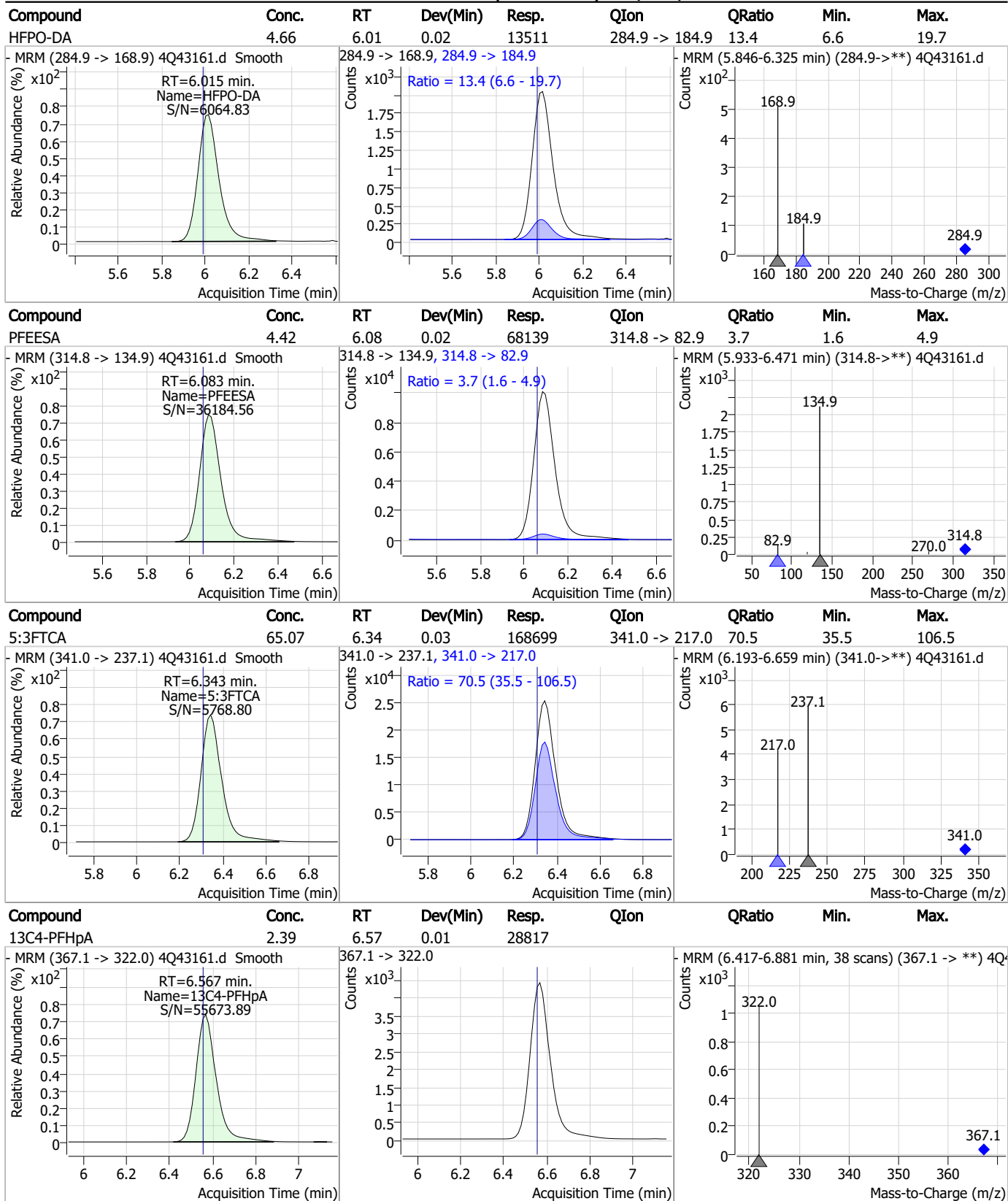
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.05	5.65	0.02	37702	313.0 -> 118.9	3.4	1.6	4.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.80	6.01	0.02	36600				

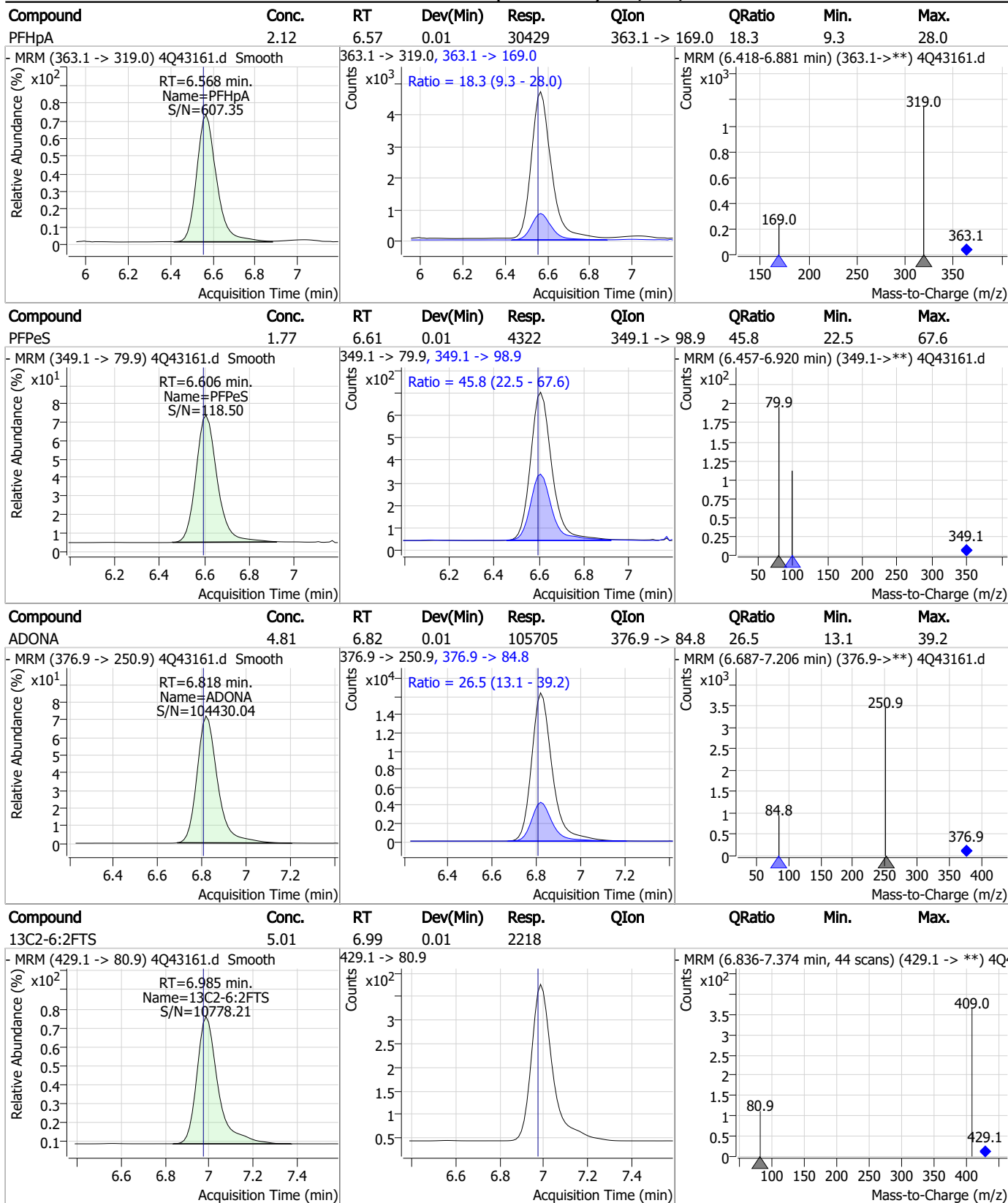


### Perfluorinated Compounds by LC/MS/MS



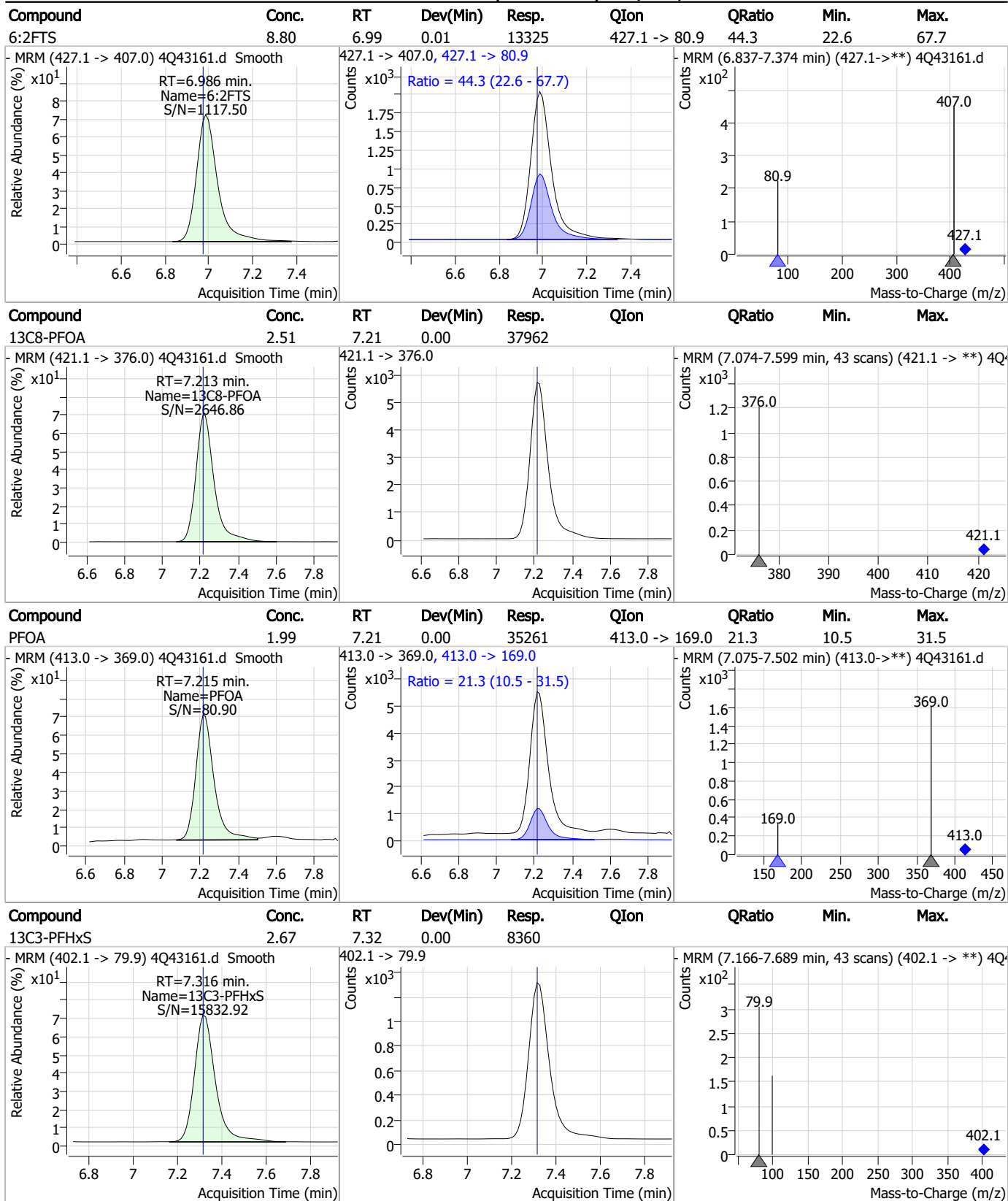
7.7.14  
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### Perfluorinated Compounds by LC/MS/MS



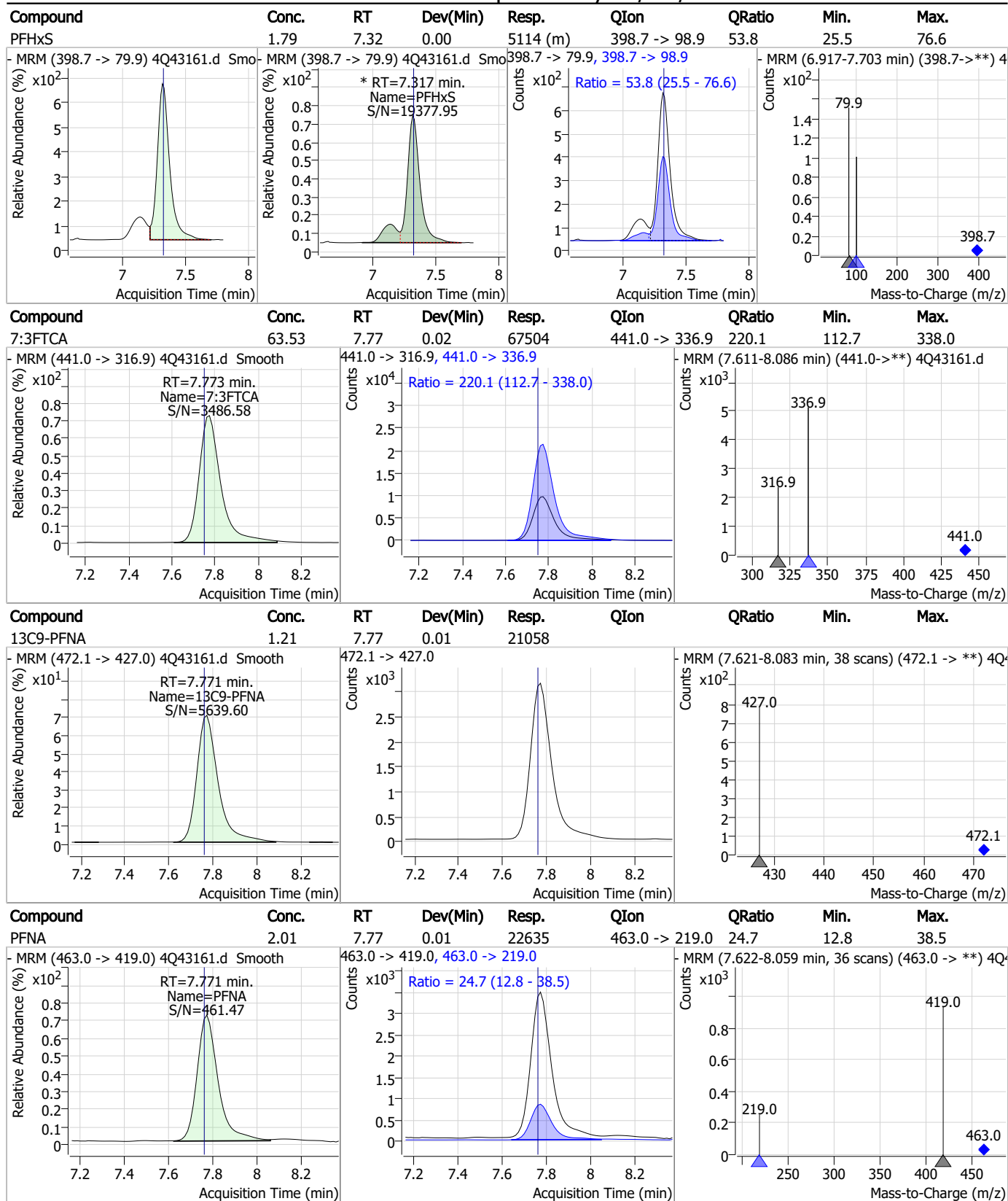
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### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

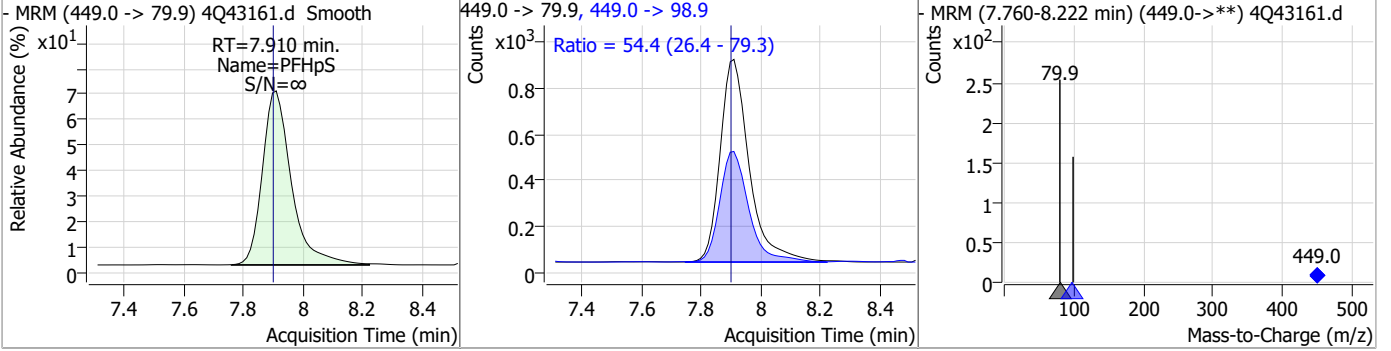


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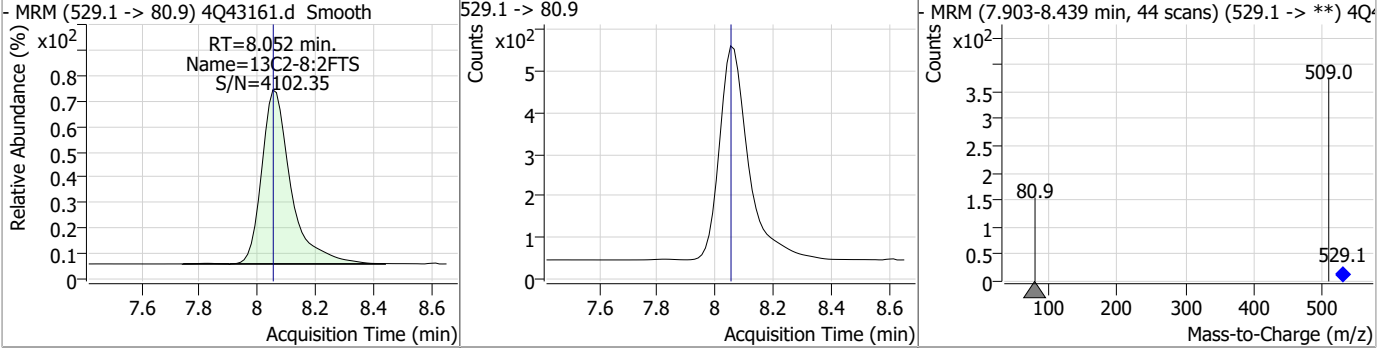


### Perfluorinated Compounds by LC/MS/MS

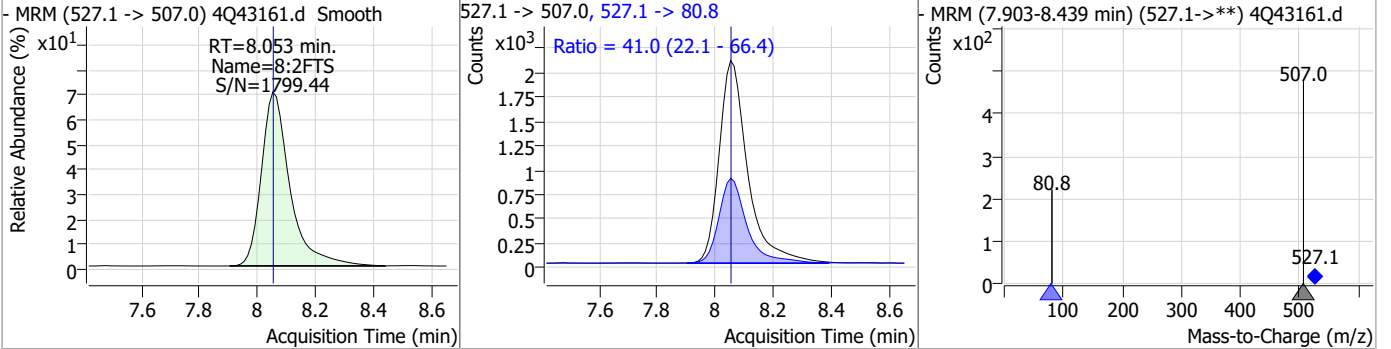
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	1.92	7.91	0.01	5999	449.0 -> 98.9	54.4	26.4	79.3



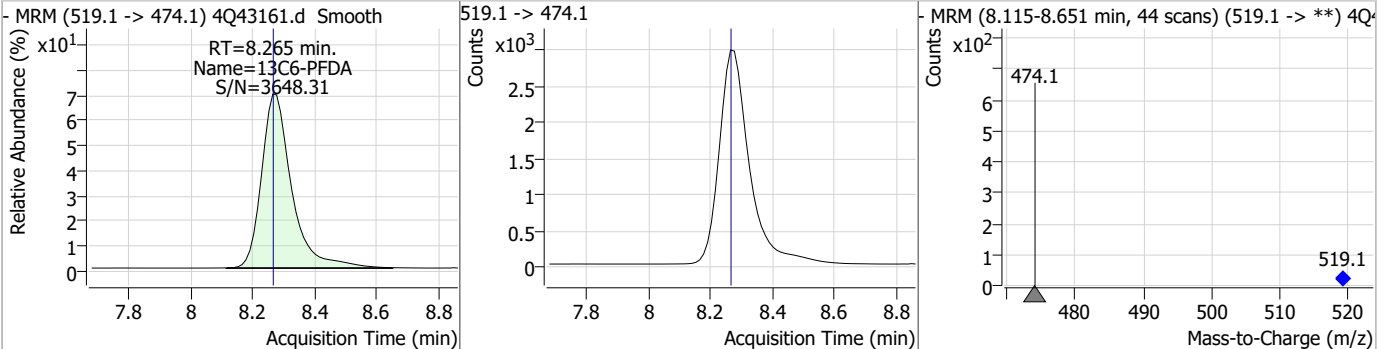
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	4.95	8.05	0.00	3607	529.1 -> 80.9	41.0	22.1	66.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	8.81	8.05	0.00	14241	527.1 -> 80.8	41.0	22.1	66.4

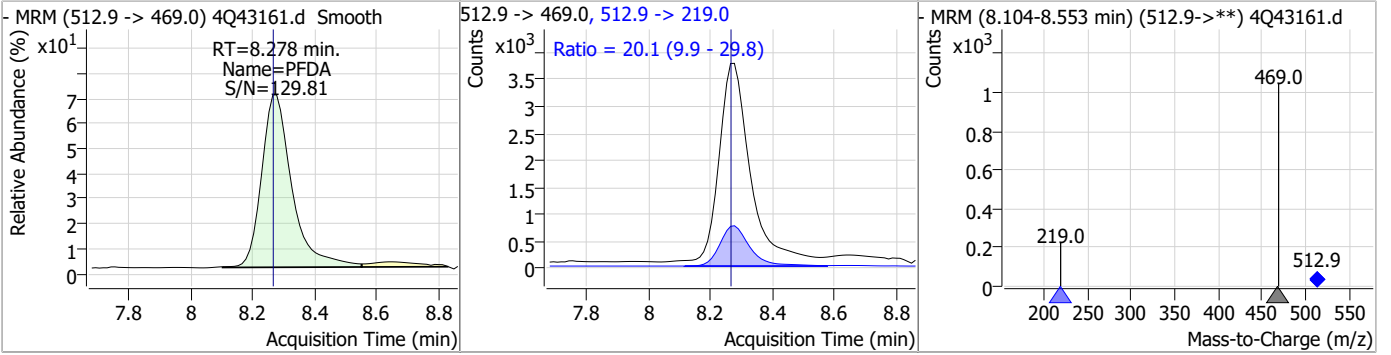


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.32	8.27	0.00	20032	519.1 -> 474.1	41.0	22.1	66.4

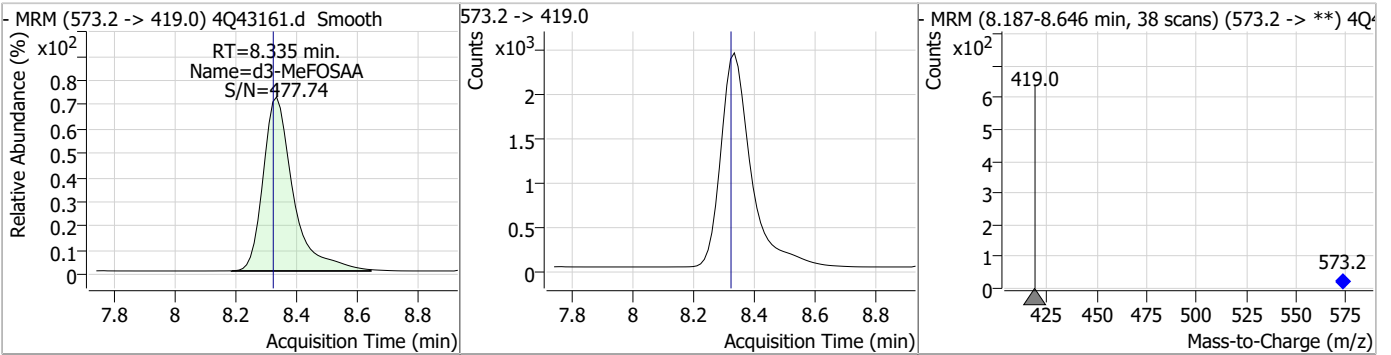


### Perfluorinated Compounds by LC/MS/MS

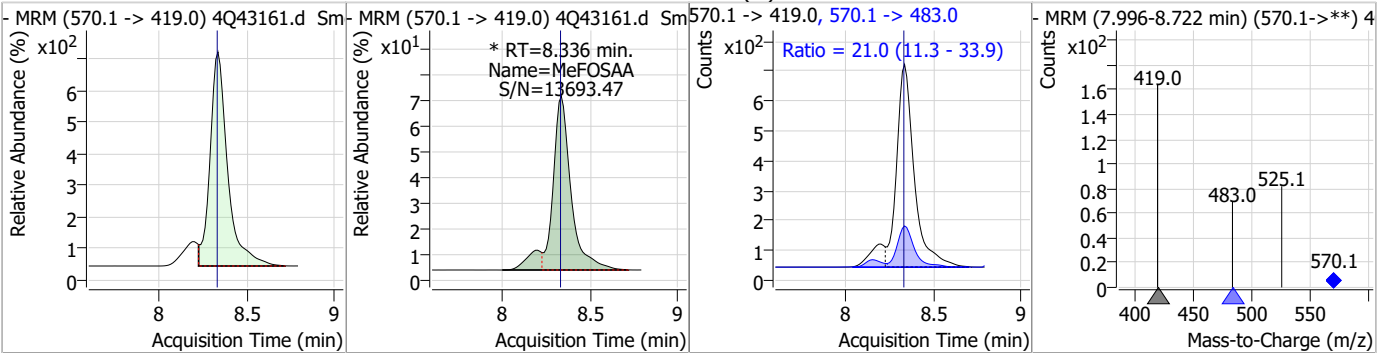
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.19	8.28	0.01	25050	512.9 -> 219.0	20.1	9.9	29.8



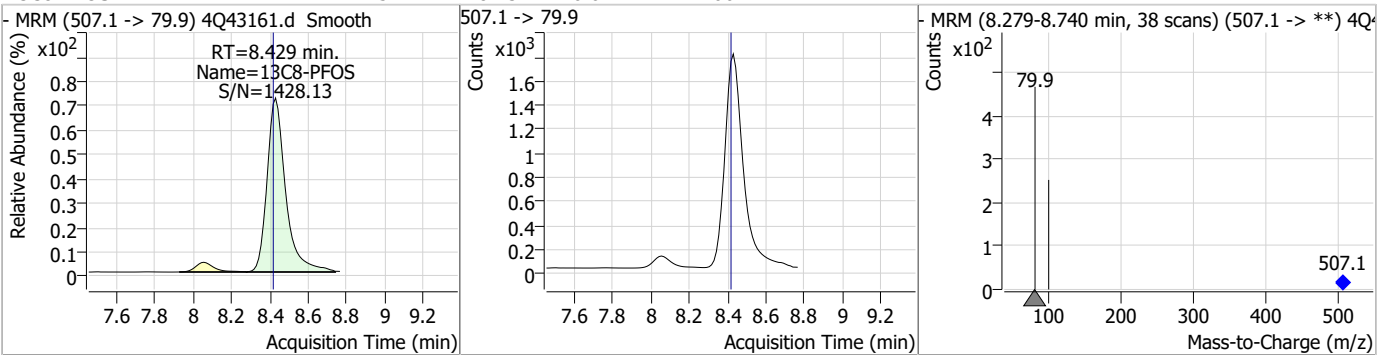
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.66	8.34	0.01	16770				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.27	8.34	0.01	5255 (m)	570.1 -> 483.0	21.0	11.3	33.9



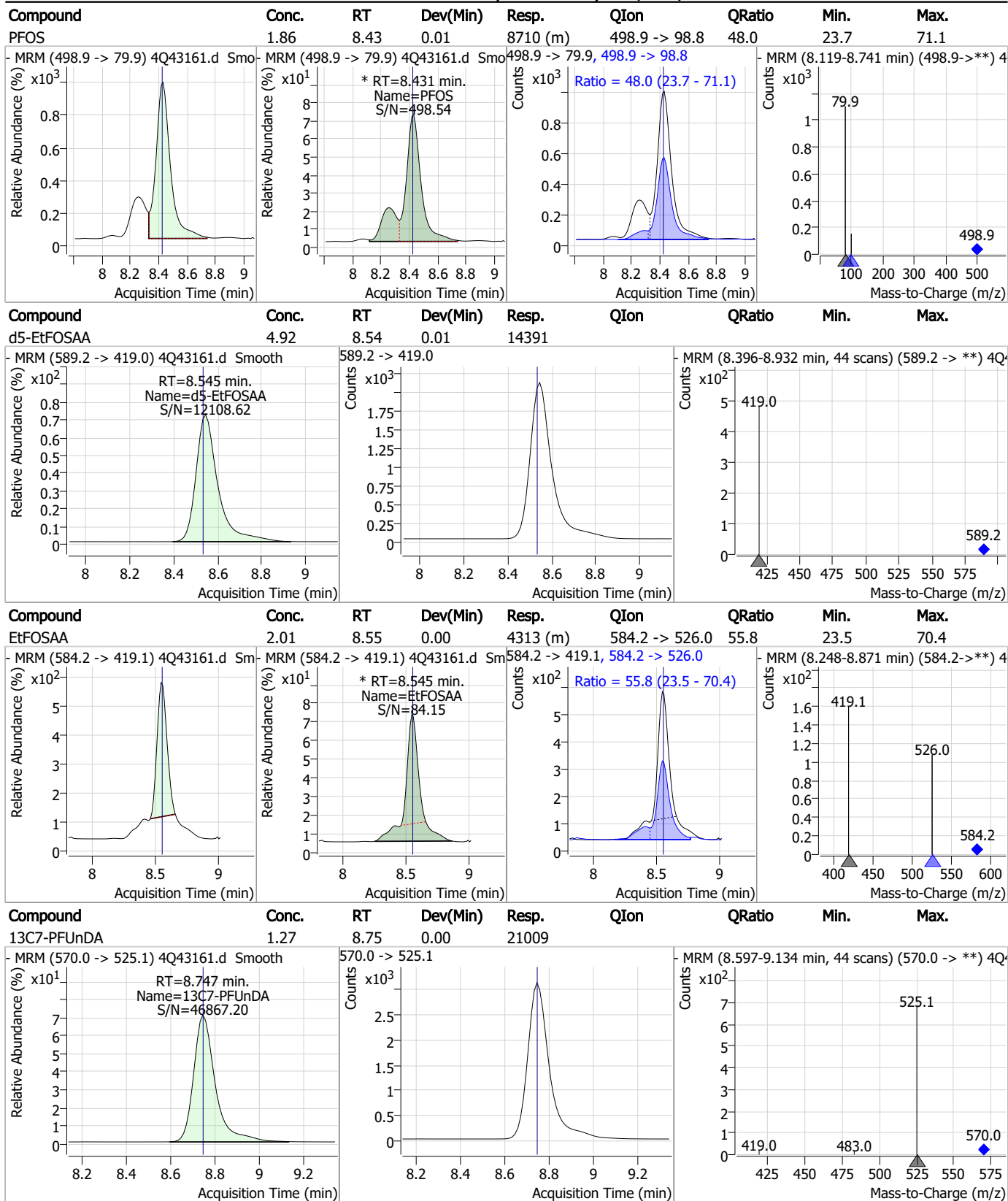
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.54	8.43	0.01	12004				



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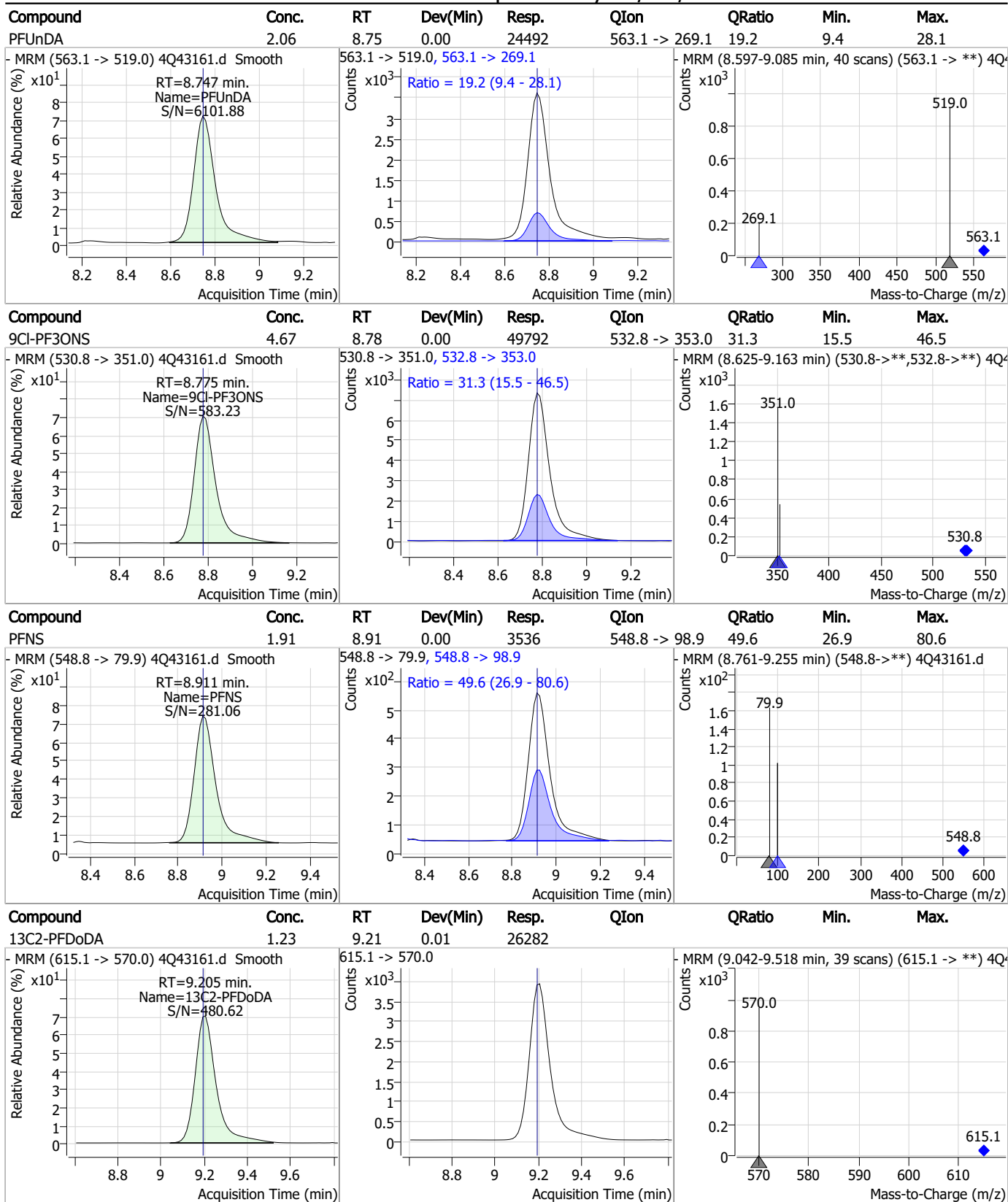
### Perfluorinated Compounds by LC/MS/MS



7.7.14  
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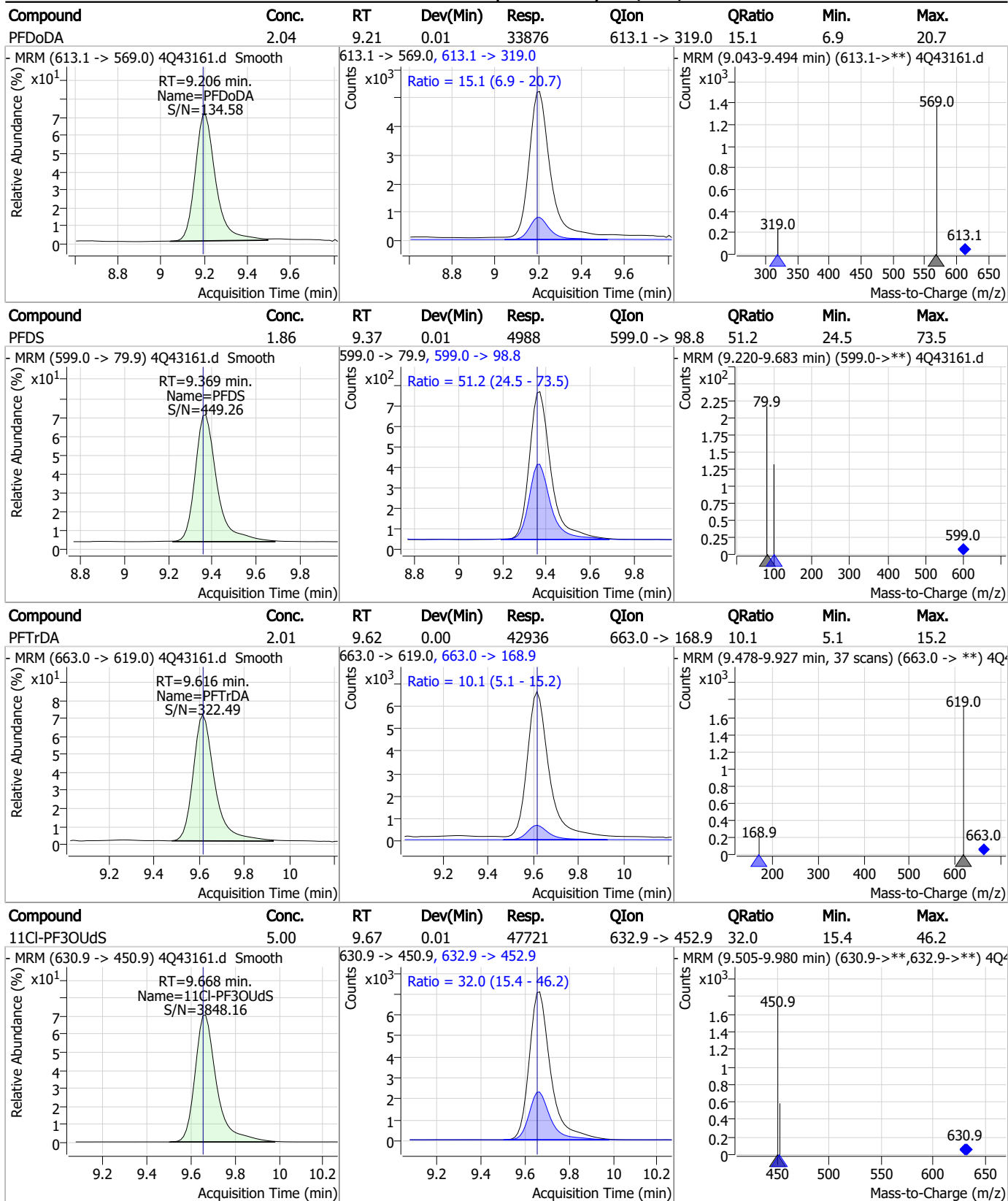


### Perfluorinated Compounds by LC/MS/MS



7.7.14

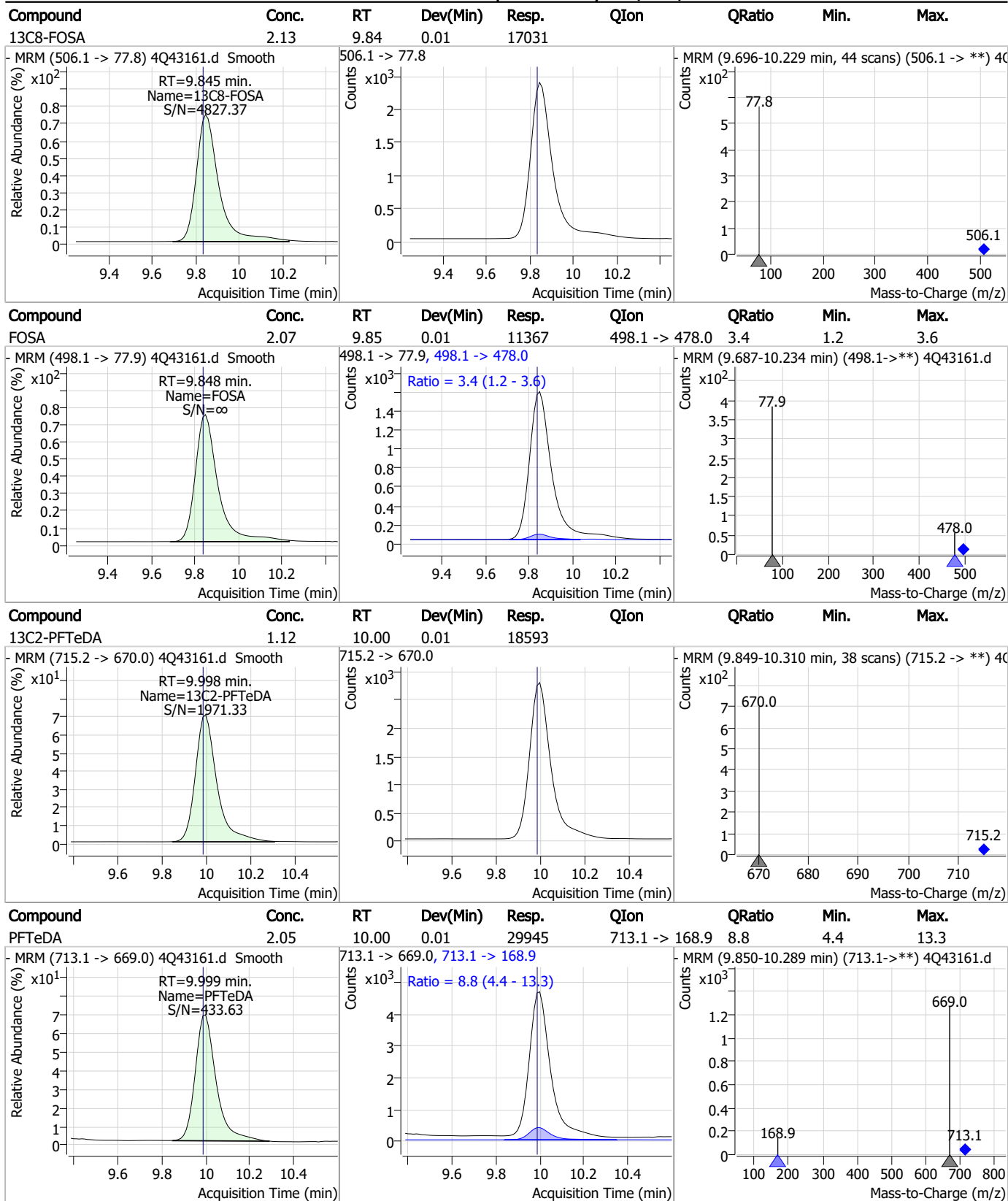
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

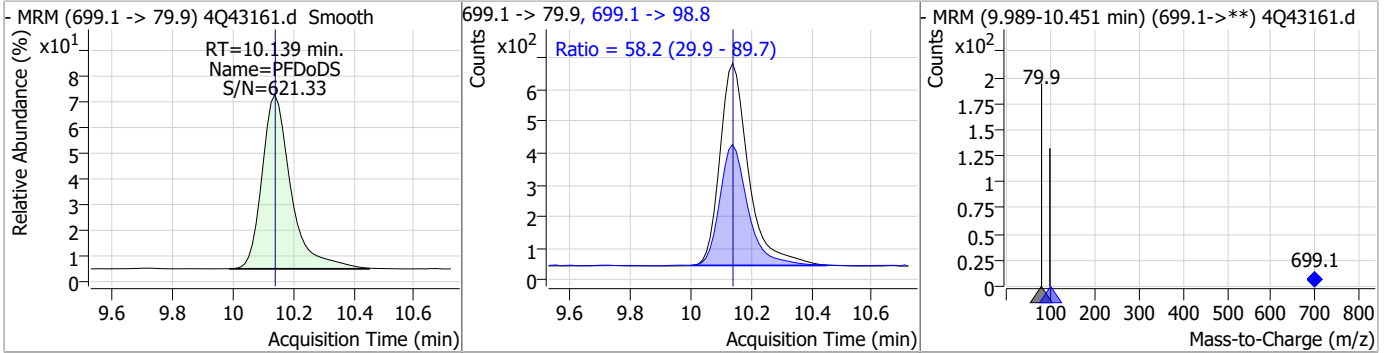


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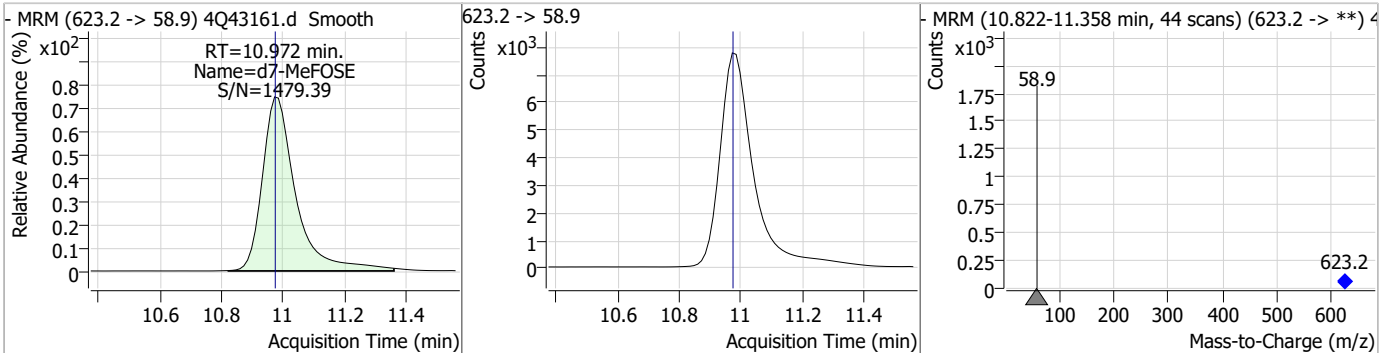


### Perfluorinated Compounds by LC/MS/MS

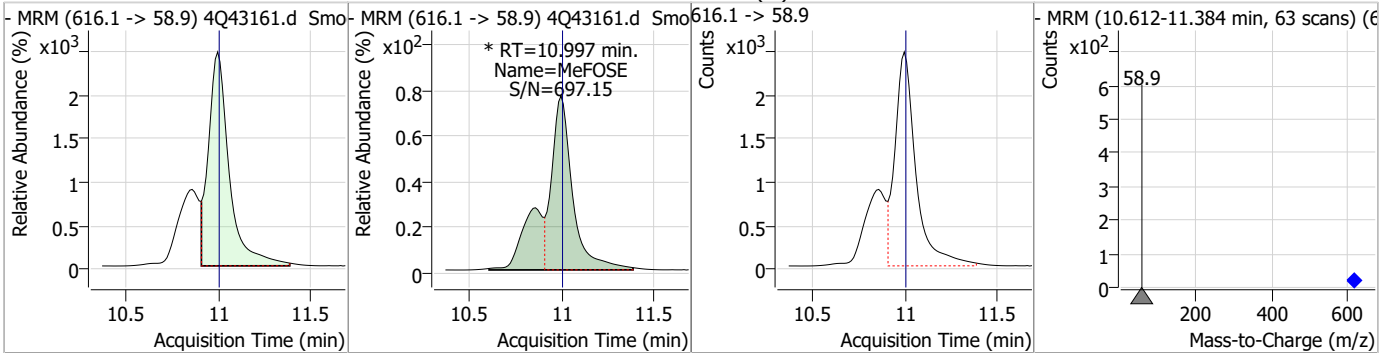
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	1.83	10.14	0.00	4248	699.1 -> 98.8	58.2	29.9	89.7



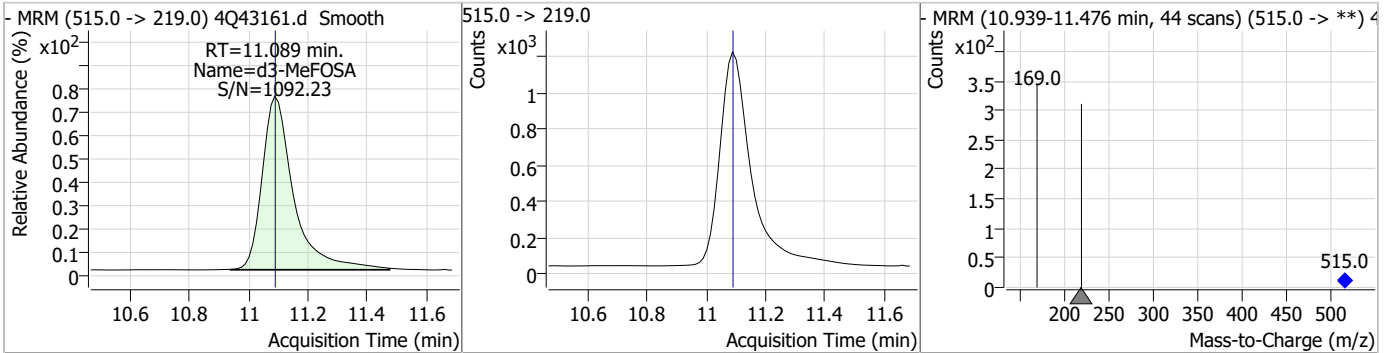
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	18.48	10.97	0.00	58204				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.77	11.00	0.00	26121 (m)				

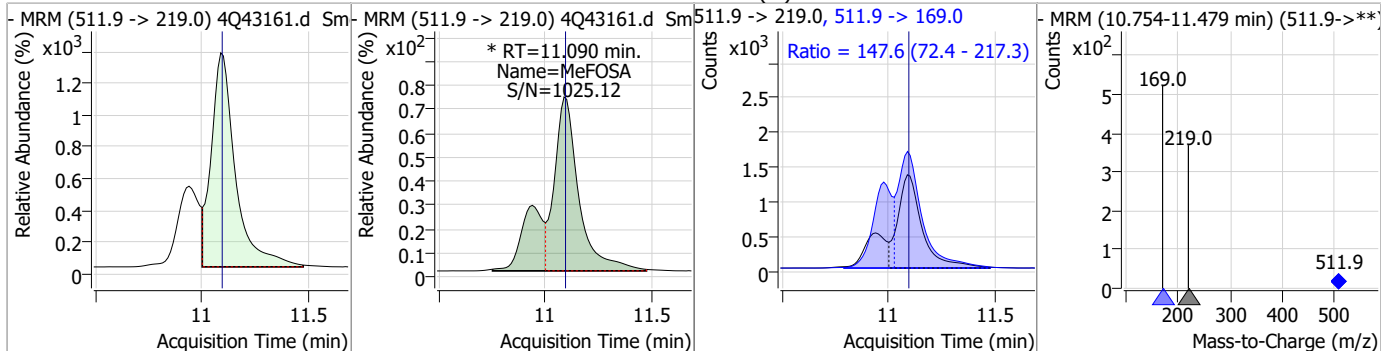


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.30	11.09	0.00	8695				

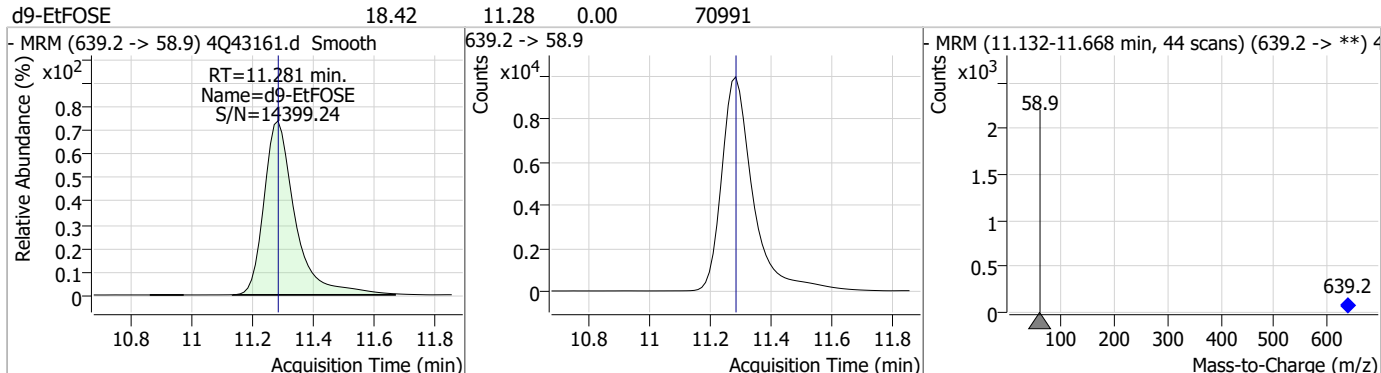


### Perfluorinated Compounds by LC/MS/MS

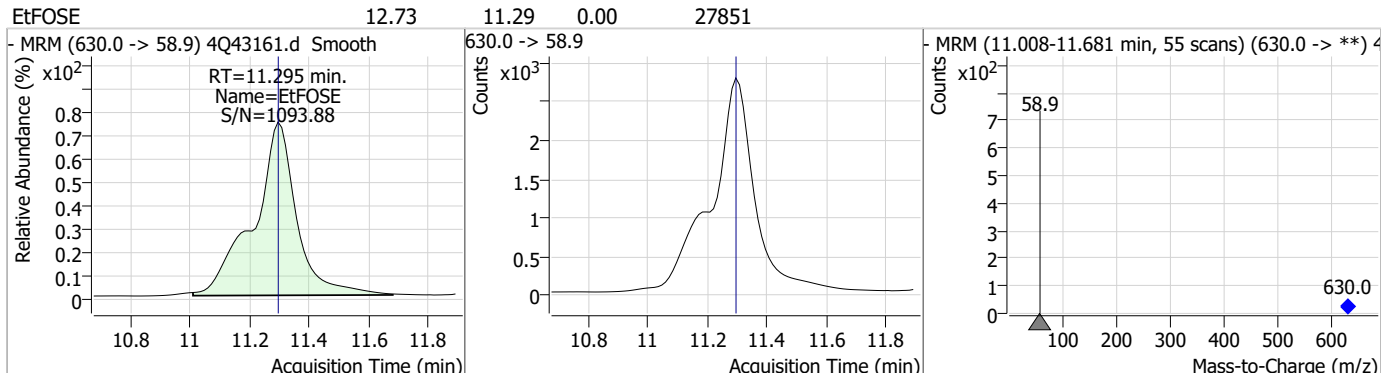
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.08	11.09	0.00	14293 (m)	511.9 -> 169.0	147.6	72.4	217.3



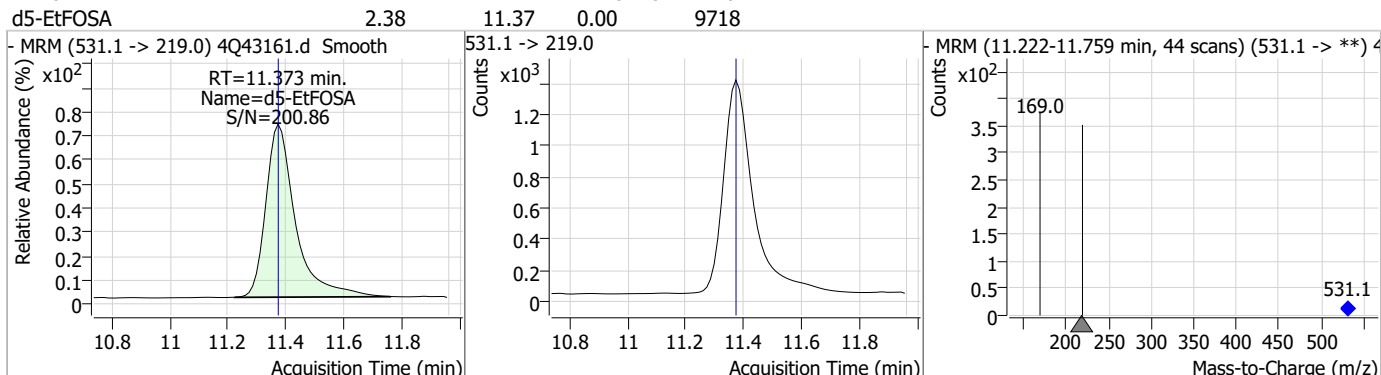
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	18.42	11.28	0.00	70991				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.73	11.29	0.00	27851				

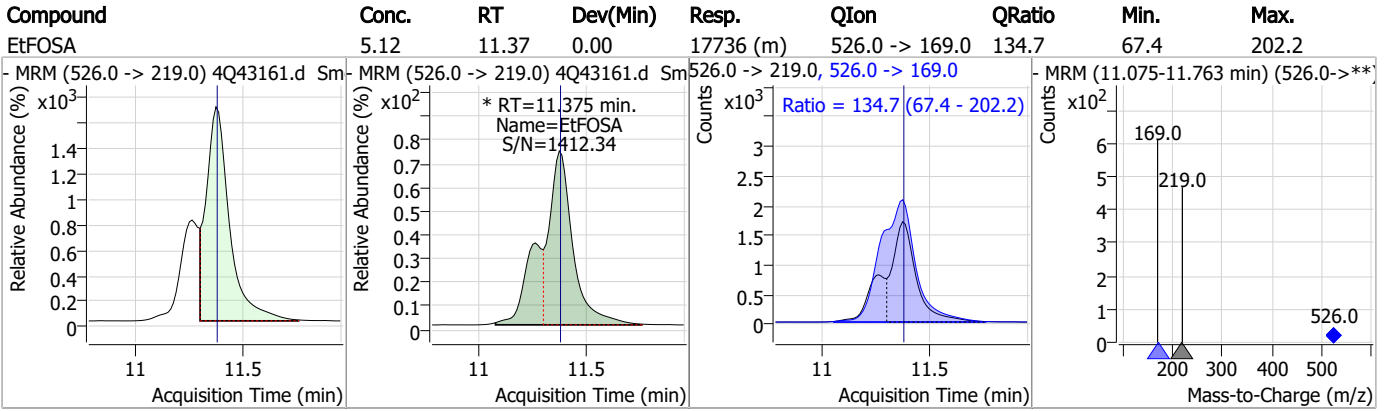


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.38	11.37	0.00	9718				



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### Perfluorinated Compounds by LC/MS/MS



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# Manual Integration Approval Summary

Sample Number: S4Q624-CC621      Method: EPA DRAFT 1633  
Lab FileID: 4Q43161.D      Analyst approved: 04/19/23 13:20 Martha Valls  
Injection Time: 04/18/23 14:29      Supervisor approved: 04/19/23 16:26 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.32	Split peak
MeFOSAA	2355-31-9		8.34	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.43	Split peak
EtFOSAA	2991-50-6		8.54	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.09	Split peak
EtFOSA	4151-50-2		11.38	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43173.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 4/18/2023 5:17:53 PM  
 Sample Name : cc621-4  
 Vial : P1-A5  
 DA Method File : 1633\_041423\_S4Q621.quantmethod.xml  
 Batch Name : s4q624.batch.bin  
 Sample Information : OP96296,S4q624,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.961	216.8 -> 171.9	139131	10.00 µg/L	0.000
M5-PFPeA	4.449	268.3 -> 223.0	76849	5.00 µg/L	0.000
M5-PFHxA	5.634	318.0 -> 273.0	62106	2.50 µg/L	0.012
M4-PFHpA	6.555	367.1 -> 322.0	31429	2.50 µg/L	0.000
M8-PFOA	7.213	421.1 -> 376.0	36923	2.50 µg/L	0.000
M9-PFNA	7.771	472.1 -> 427.0	20726	1.25 µg/L	0.012
M6-PFDA	8.265	519.1 -> 474.1	20118	1.25 µg/L	-0.001
M7-PFUnDA	8.747	570.0 -> 525.1	20979	1.25 µg/L	-0.001
M2-PFDoDA	9.205	615.1 -> 570.0	27442	1.25 µg/L	0.011
M2-PFTeDA	9.998	715.2 -> 670.0	19256	1.25 µg/L	0.011
M8-FOSA	9.845	506.1 -> 77.8	16591	2.50 µg/L	0.011
M3-PFBS	5.539	302.1 -> 79.9	13200	2.50 µg/L	0.012
M3-PFHxS	7.316	402.1 -> 79.9	7887	2.50 µg/L	-0.001
M8-PFOS	8.429	507.1 -> 79.9	11528	2.50 µg/L	0.012
M2-4:2FTS	5.322	329.1 -> 80.9	1722	5.00 µg/L	0.013
M2-6:2FTS	6.985	429.1 -> 80.9	2393	5.00 µg/L	0.012
M2-8:2FTS	8.052	529.1 -> 80.9	3734	5.00 µg/L	-0.001
M3-MeFOSAA	8.335	573.2 -> 419.0	18058	5.00 µg/L	0.011
M3-HFPO-DA	5.989	286.9 -> 168.9	36613	10.00 µg/L	0.000
M5-EtFOSAA	8.545	589.2 -> 419.0	15414	5.00 µg/L	0.011
M7-MeFOSE	10.984	623.2 -> 58.9	59346	25.00 µg/L	0.010
M9-EtFOSE	11.281	639.2 -> 58.9	73584	25.00 µg/L	-0.001
M5-EtFOSA	11.373	531.1 -> 219.0	9949	2.50 µg/L	-0.001
M3-MeFOSA	11.089	515.0 -> 219.0	8985	2.50 µg/L	-0.002
13C4-PFOS	8.430	502.8 -> 79.9	12351	2.50 µg/L	0.012
13C3-PFBA	2.966	216.0 -> 172.0	76007	5.00 µg/L	0.000
18O2-PFHxS	7.315	403.0 -> 83.9	5372	2.50 µg/L	-0.001
13C4-PFOA	7.214	417.1 -> 372.0	46607	2.50 µg/L	0.000
13C2-PFDA	8.278	515.1 -> 470.1	18434	1.25 µg/L	0.011
13C5-PFNA	7.771	468.0 -> 423.0	23176	1.25 µg/L	0.012
13C2-PFHxA	5.635	315.1 -> 270.0	53084	2.50 µg/L	0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.322	329.1 -> 80.9	1722	5.87 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.3%		
13C2-6:2FTS	6.985	429.1 -> 80.9	2393	5.68 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.6%		
13C2-8:2FTS	8.052	529.1 -> 80.9	3734	5.39 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.8%		
13C2-PFDoDA	9.205	615.1 -> 570.0	27442	1.21 µg/L	0.011
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C2-PFTeDA	9.998	715.2 -> 670.0	19256	1.09 µg/L	0.011
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.2%		
13C3-PFBS	5.539	302.1 -> 79.9	13200	2.67 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.9%		
13C3-PFHxS	7.316	402.1 -> 79.9	7887	2.65 µg/L	-0.001

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C4-PFBA	2.961	216.8 -> 171.9	139131	10.51 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.1%	
13C4-PFHpA	6.555	367.1 -> 322.0	31429	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.3%	
13C5-PFHxA	5.634	318.0 -> 273.0	62106	2.53 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C5-PFPeA	4.449	268.3 -> 223.0	76849	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C6-PFDA	8.265	519.1 -> 474.1	20118	1.24 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C7-PFUnDA	8.747	570.0 -> 525.1	20979	1.19 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.3%	
13C8-FOSA	9.845	506.1 -> 77.8	16591	2.05 µg/L	0.011
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 82.2%	
13C8-PFOA	7.213	421.1 -> 376.0	36923	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C8-PFOS	8.429	507.1 -> 79.9	11528	2.41 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.3%	
13C9-PFNA	7.771	472.1 -> 427.0	20726	1.23 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.2%	
d3-MeFOSAA	8.335	573.2 -> 419.0	18058	4.96 µg/L	0.011
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C3-HFPO-DA	5.989	286.9 -> 168.9	36613	9.83 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
d3-MeFOSA	11.089	515.0 -> 219.0	8985	2.35 µg/L	-0.002
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.0%	
d5-EtFOSAA	8.545	589.2 -> 419.0	15414	5.21 µg/L	0.011
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.3%	
d7-MeFOSE	10.984	623.2 -> 58.9	59346	18.63 µg/L	0.010
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 74.5%	
d9-EtFOSE	11.281	639.2 -> 58.9	73584	18.88 µg/L	-0.001
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 75.5%	
d5-EtFOSA	11.373	531.1 -> 219.0	9949	2.41 µg/L	-0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.3%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.311	327.1 -> 307.0	16243	7.57 µg/L	98
		327.1 -> 80.9	7028		
6:2FTS	6.986	427.1 -> 407.0	13443	8.23 µg/L	96
		427.1 -> 80.9	6378		
8:2FTS	8.053	527.1 -> 507.0	14955	8.93 µg/L	96
		527.1 -> 80.8	6223		
EtFOSAA	8.545	584.2 -> 419.1	4822	2.09 µg/L	m 97
		584.2 -> 526.0	2185		
FOSA	9.848	498.1 -> 77.9	11279	2.11 µg/L	97
		498.1 -> 478.0	396		
MeFOSAA	8.336	570.1 -> 419.0	5020	2.02 µg/L	100
		570.1 -> 483.0	1136		
PFBA	2.970	212.8 -> 168.9	24639	7.75 µg/L	100
PFBS	5.540	298.7 -> 79.9	9047	1.84 µg/L	99
		298.7 -> 98.8	3715		
PFDA	8.266	512.9 -> 469.0	25921	2.25 µg/L	100
		512.9 -> 219.0	5120		
PFDODA	9.206	613.1 -> 569.0	35809	2.07 µg/L	99
		613.1 -> 319.0	5117		
PFDS	9.369	599.0 -> 79.9	4982	1.93 µg/L	95

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2611			
PFHpA	6.555	363.1 -> 319.0	32697	2.09	µg/L	99
		363.1 -> 169.0	5900			
PFHpS	7.897	449.0 -> 79.9	6574	2.19	µg/L	93
		449.0 -> 98.9	3142			
PFHxA	5.637	313.0 -> 269.0	36797	2.00	µg/L	100
		313.0 -> 118.9	1107			
PFHxS	7.317	398.7 -> 79.9	5243	1.94	µg/L	m 97
		398.7 -> 98.9	2553			
PFNA	7.771	463.0 -> 419.0	22633	2.04	µg/L	99
		463.0 -> 219.0	5925			
PFNS	8.911	548.8 -> 79.9	3647	2.06	µg/L	99
		548.8 -> 98.9	1938			
PFOA	7.215	413.0 -> 369.0	35262	2.04	µg/L	99
		413.0 -> 169.0	7196			
PFOS	8.431	498.9 -> 79.9	8189	1.82	µg/L	m 91
		498.9 -> 98.8	4389			
PFPeA	4.452	263.0 -> 219.0	62711	4.31	µg/L	100
PFPeS	6.594	349.1 -> 79.9	4815	2.09	µg/L	99
		349.1 -> 98.9	2215			
PFTeDA	9.999	713.1 -> 669.0	30377	2.00	µg/L	100
		713.1 -> 168.9	2653			
PFTrDA	9.616	663.0 -> 619.0	44511	2.00	µg/L	99
		663.0 -> 168.9	4260			
PFUnDA	8.747	563.1 -> 519.0	23400	1.97	µg/L	96
		563.1 -> 269.1	4814			
11CI-PF3OUdS	9.668	630.9 -> 450.9	50187	5.25	µg/L	98
		632.9 -> 452.9	14845			
9CI-PF3ONS	8.775	530.8 -> 351.0	50537	4.73	µg/L	100
		532.8 -> 353.0	15646			
ADONA	6.818	376.9 -> 250.9	111203	5.06	µg/L	99
		376.9 -> 84.8	29682			
HFPO-DA	6.002	284.9 -> 168.9	14007	4.83	µg/L	99
		284.9 -> 184.9	1779			
3:3FTCA	3.929	241.0 -> 177.0	9132	13.47	µg/L	98
		241.0 -> 117.0	876			
5:3FTCA	6.318	341.0 -> 237.1	171591	66.09	µg/L	97
		341.0 -> 217.0	117200			
7:3FTCA	7.761	441.0 -> 316.9	68635	64.50	µg/L	98
		441.0 -> 336.9	156838			
EtFOSA	11.387	526.0 -> 219.0	17788	5.02	µg/L	m 99
		526.0 -> 169.0	24123			
EtFOSE	11.295	630.0 -> 58.9	29547	13.03	µg/L	100
MeFOSA	11.090	511.9 -> 219.0	14935	5.14	µg/L	m 99
		511.9 -> 169.0	21468			
MeFOSE	10.997	616.1 -> 58.9	25844	12.39	µg/L	m 100
PFDoDS	10.139	699.1 -> 79.9	4321	1.94	µg/L	99
		699.1 -> 98.8	2542			
NFDHA	5.516	295.0 -> 201.0	6697	5.42	µg/L	93
		295.0 -> 84.9	1502			
PFMBA	4.866	279.0 -> 85.1	43694	5.25	µg/L	100
PFMPA	3.591	229.0 -> 84.9	39046	5.37	µg/L	100
PFEESA	6.071	314.8 -> 134.9	68878	4.46	µg/L	100
		314.8 -> 82.9	2351			

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



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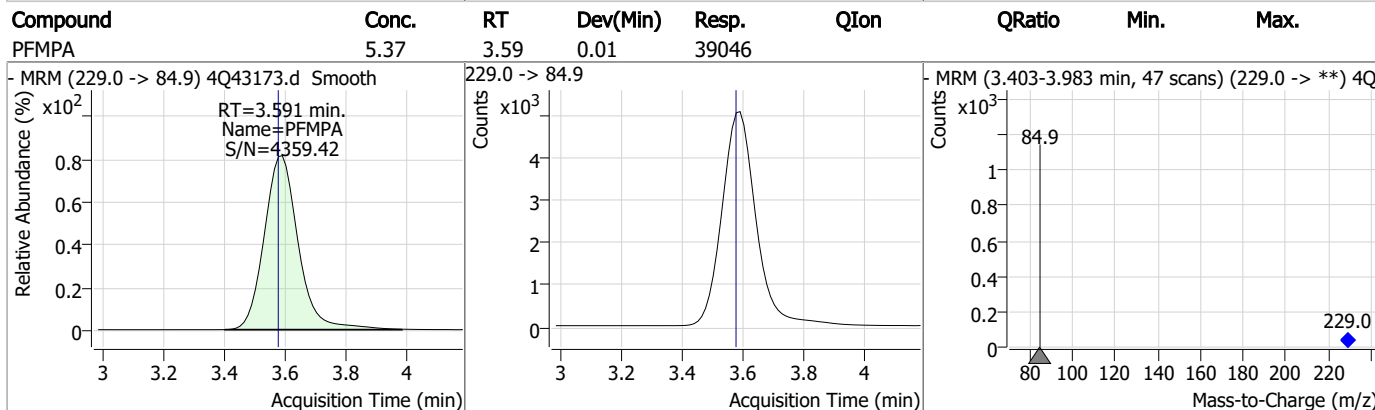
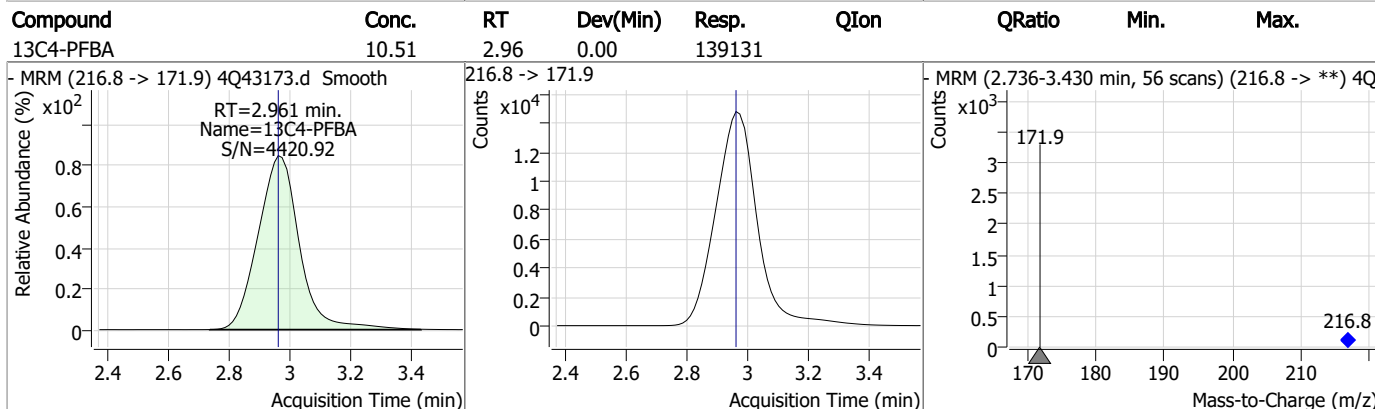
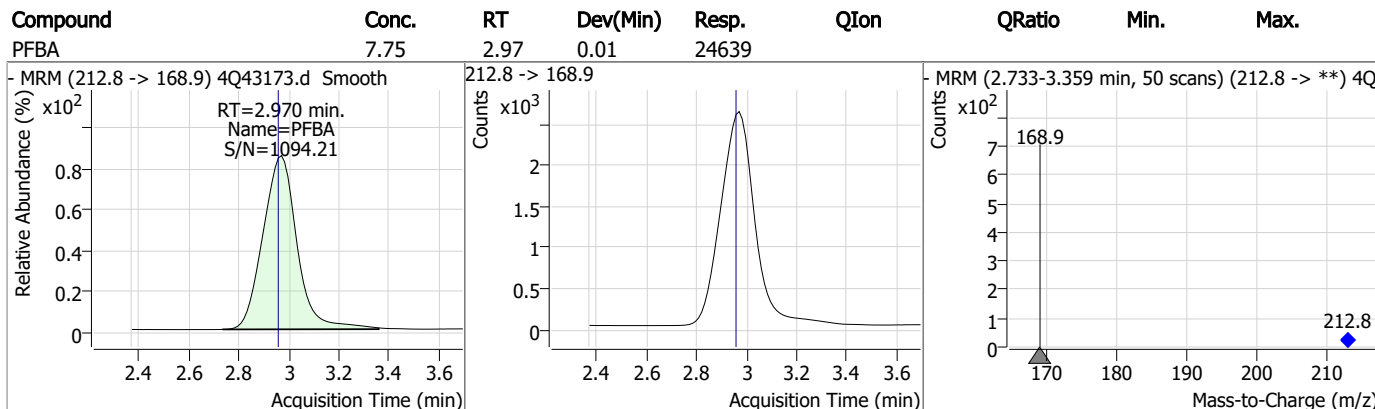
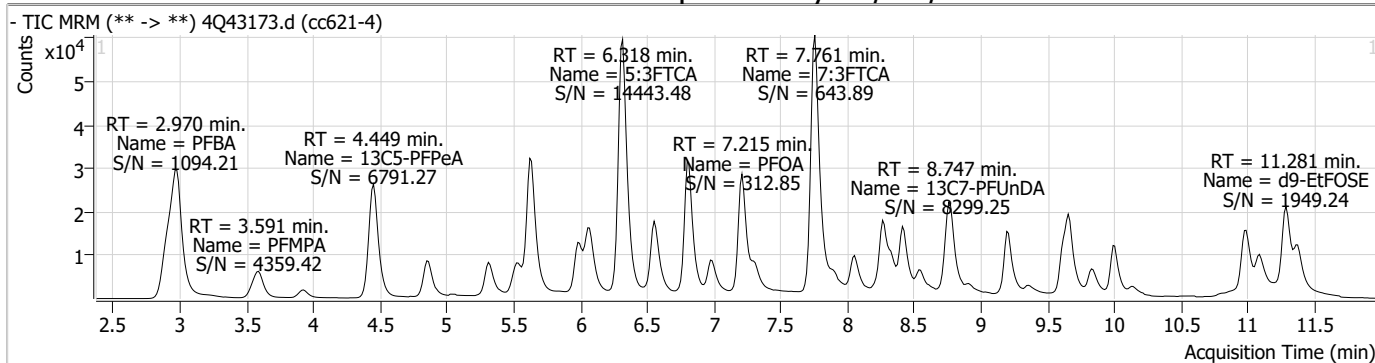
### Perfluorinated Compounds by LC/MS/MS

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

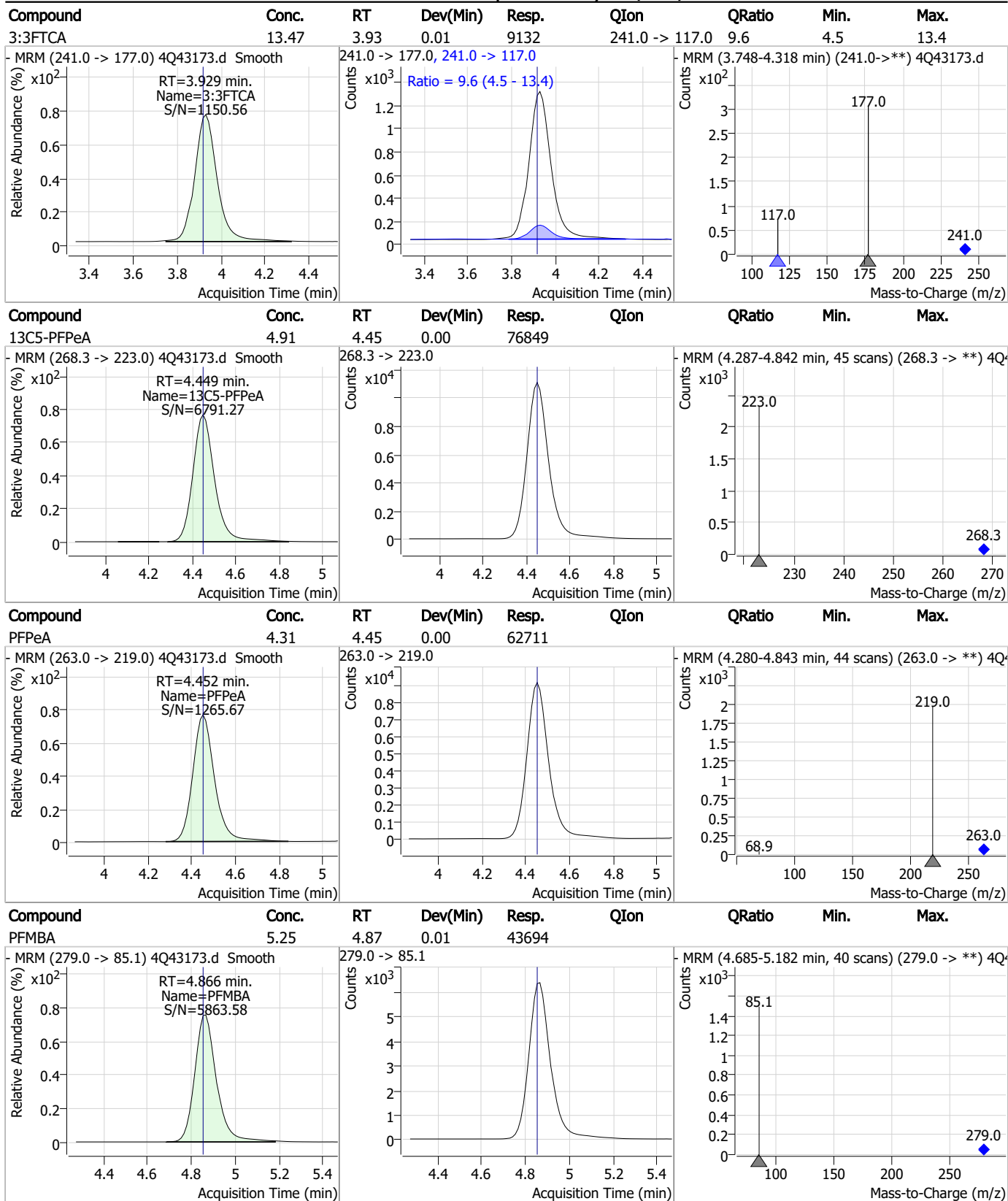
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### Perfluorinated Compounds by LC/MS/MS



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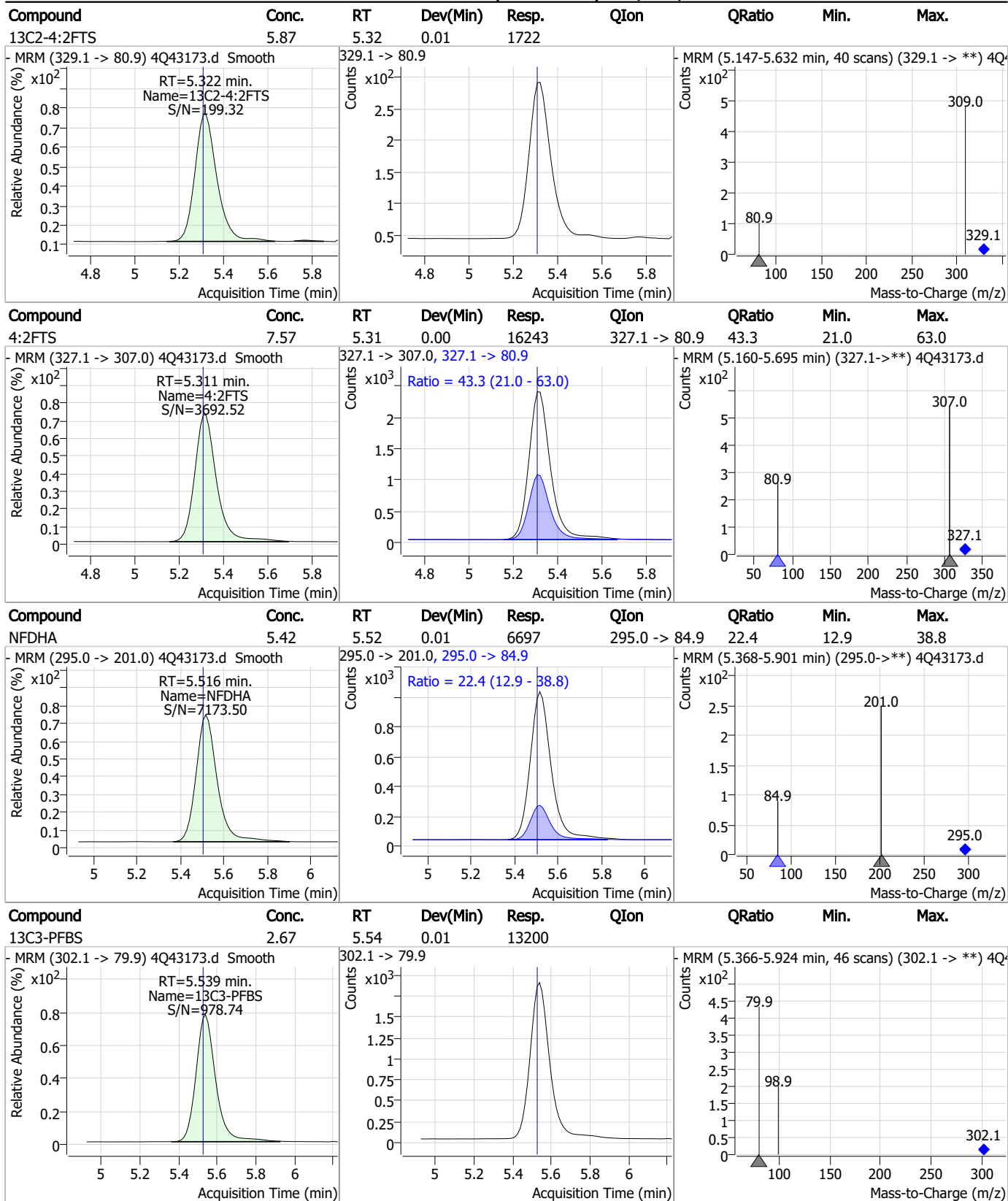
### Perfluorinated Compounds by LC/MS/MS



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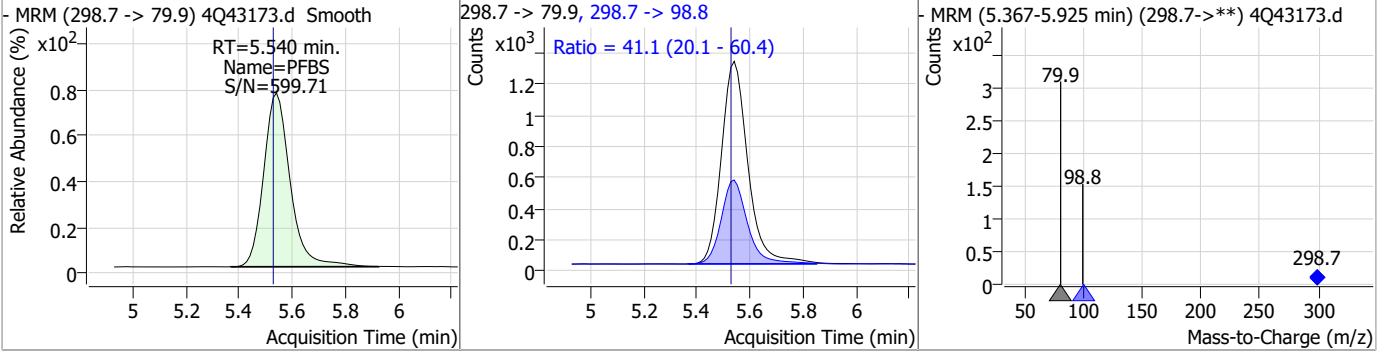
### Perfluorinated Compounds by LC/MS/MS



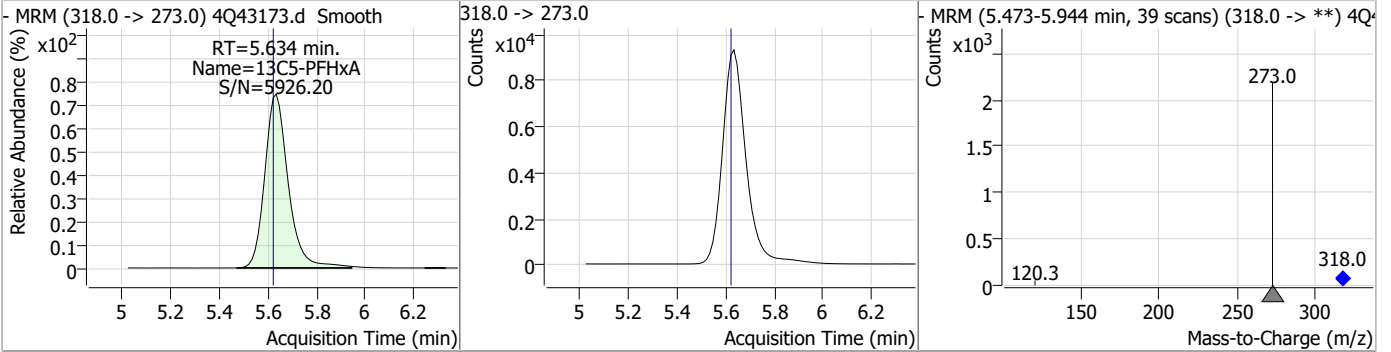
7.7.15  
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### Perfluorinated Compounds by LC/MS/MS

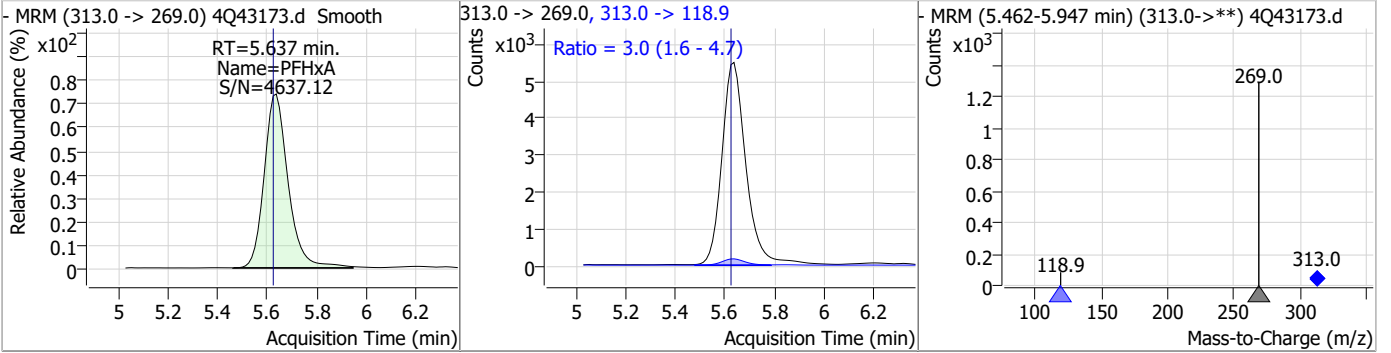
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.84	5.54	0.01	9047	298.7 -> 98.8	41.1	20.1	60.4



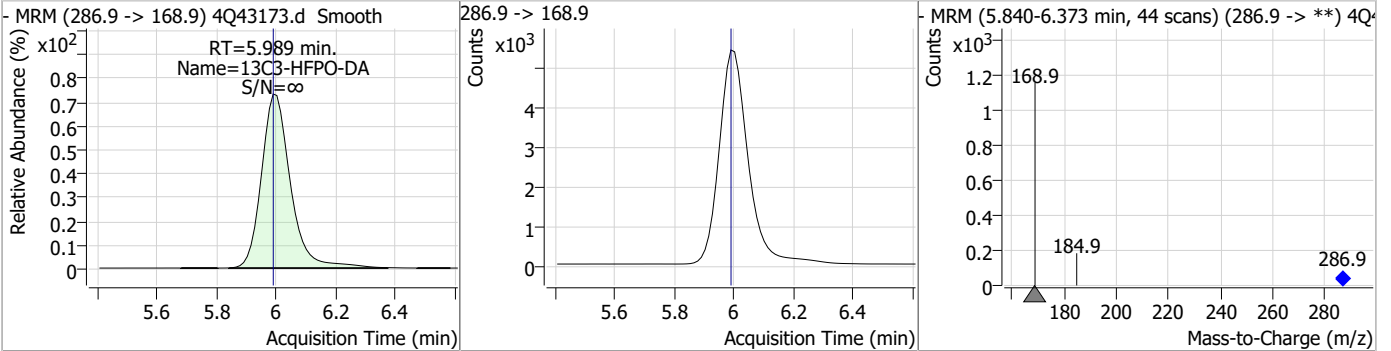
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.53	5.63	0.01	62106				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.00	5.64	0.01	36797	313.0 -> 118.9	3.0	1.6	4.7

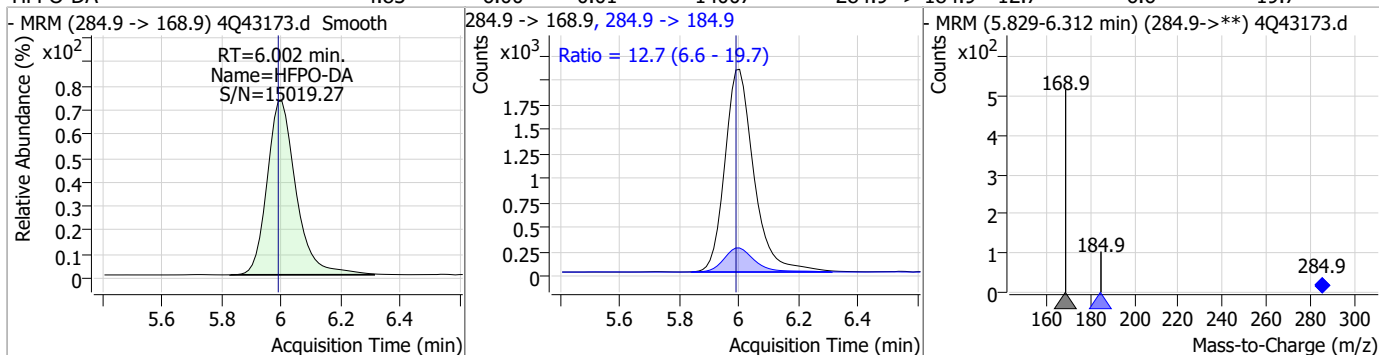


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.83	5.99	0.00	36613				

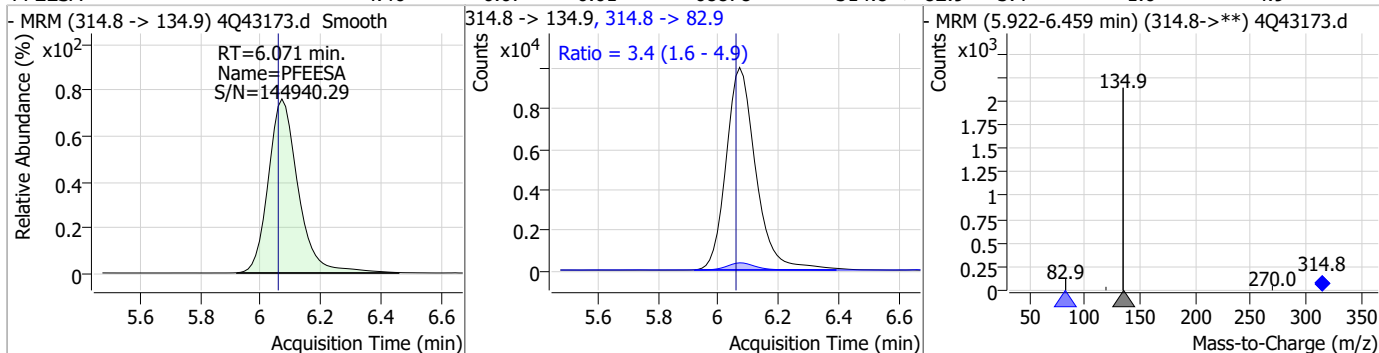


### Perfluorinated Compounds by LC/MS/MS

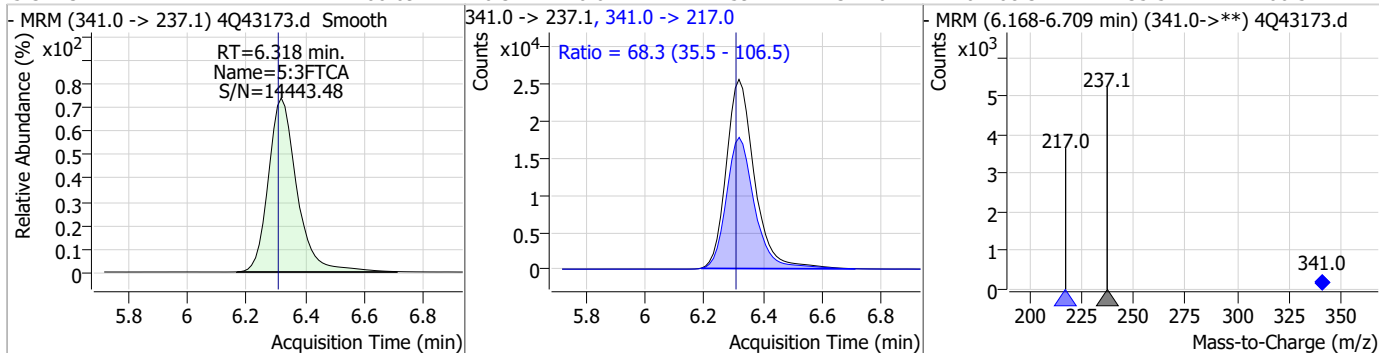
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.83	6.00	0.01	14007	284.9 -> 184.9	12.7	6.6	19.7



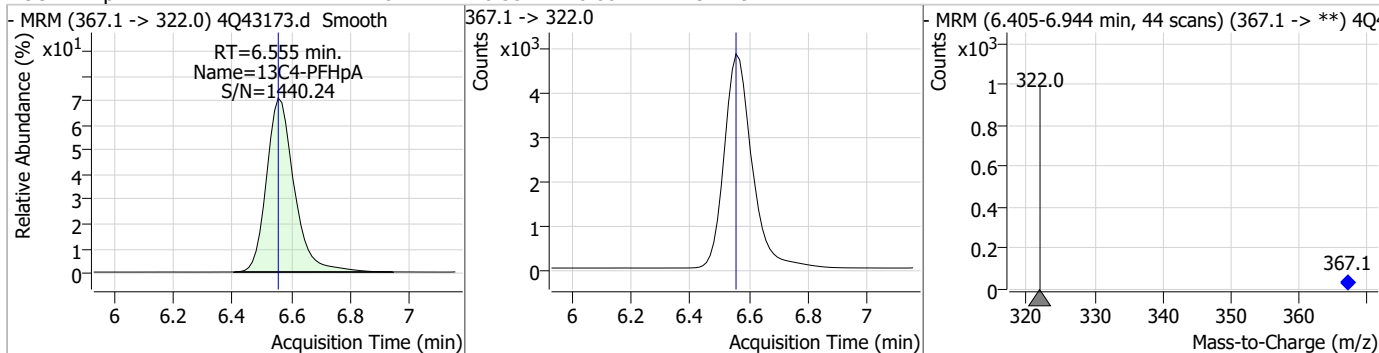
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.46	6.07	0.01	68878	314.8 -> 82.9	3.4	1.6	4.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	66.09	6.32	0.01	171591	341.0 -> 217.0	68.3	35.5	106.5



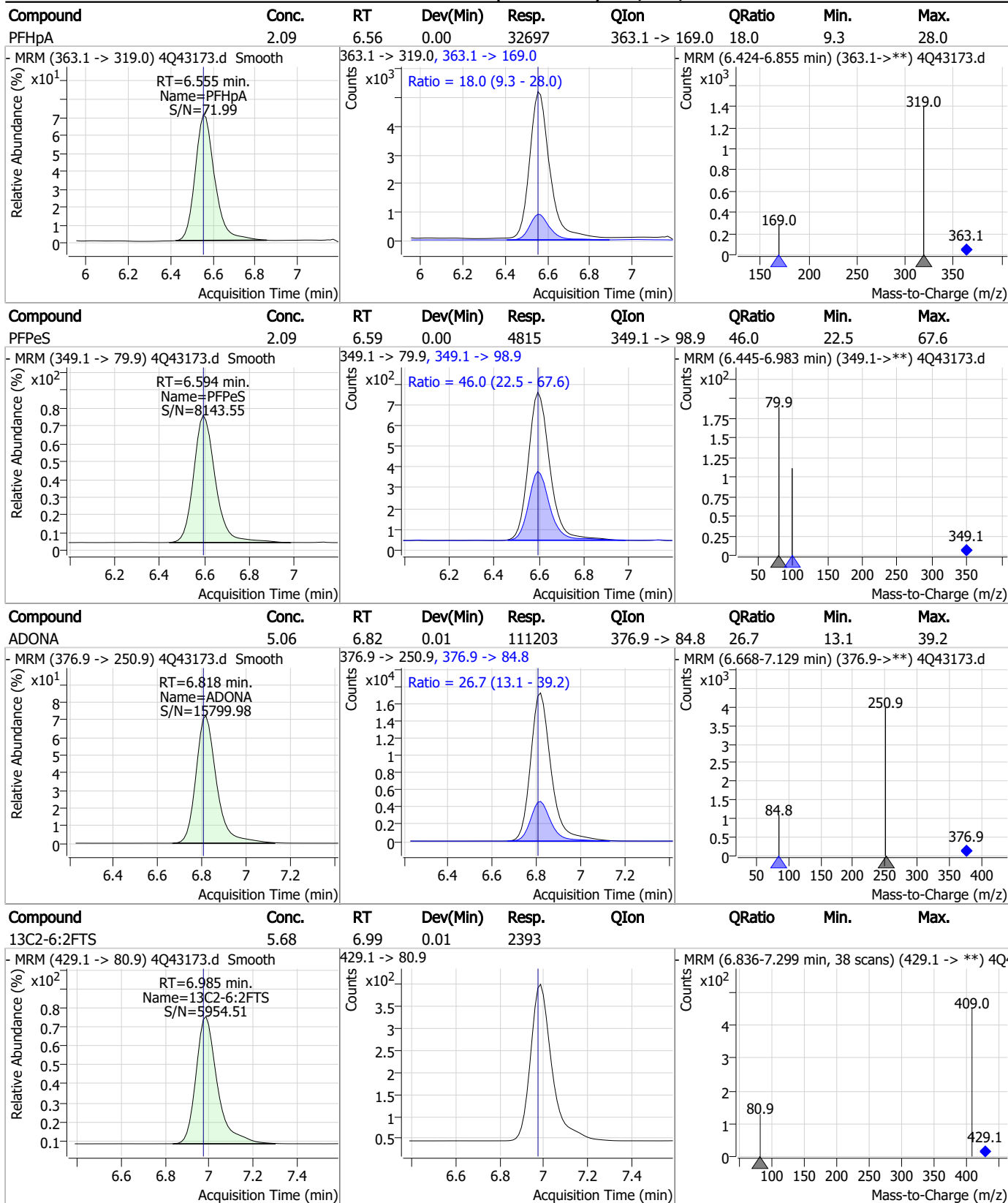
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.61	6.55	0.00	31429				



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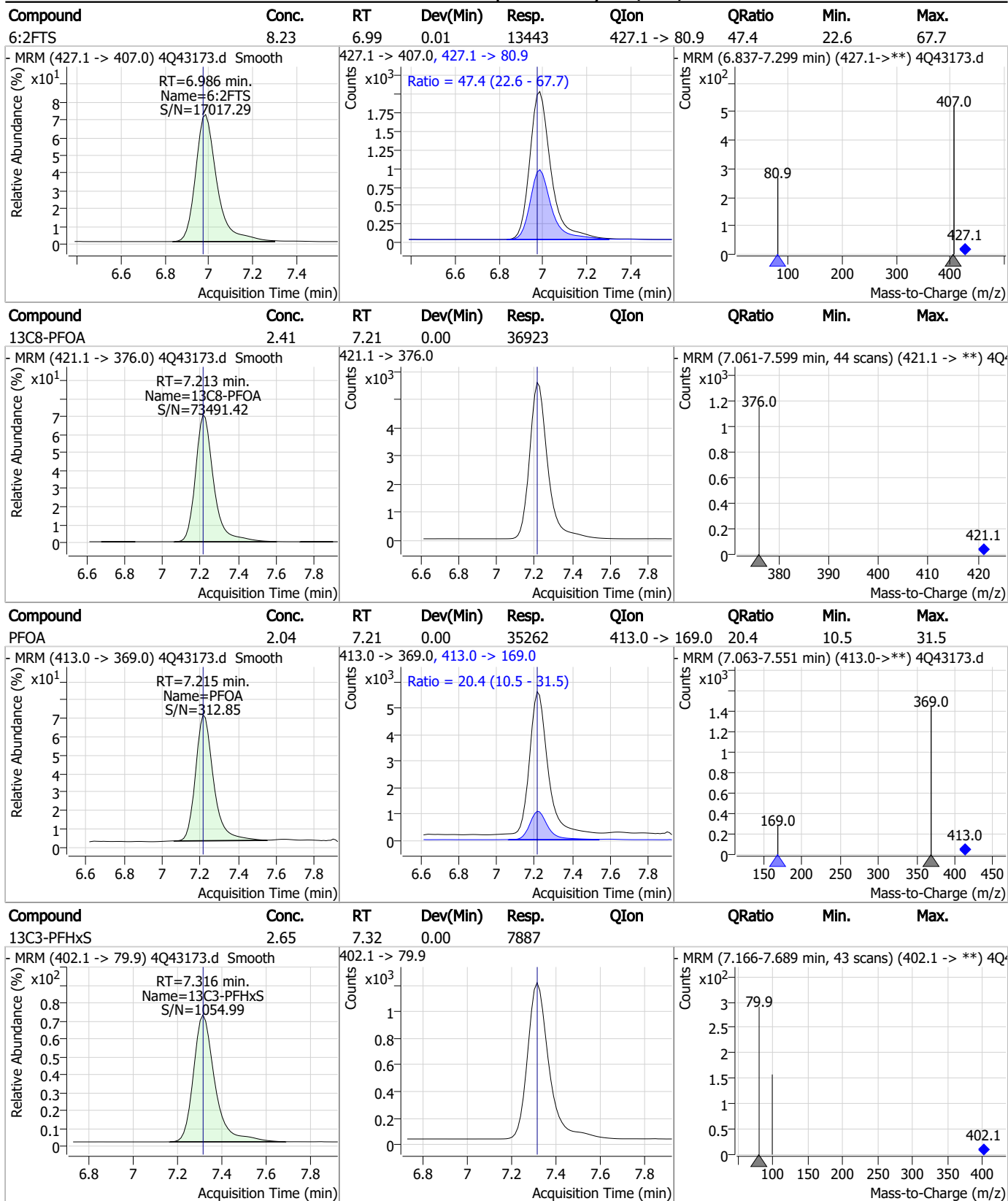
### Perfluorinated Compounds by LC/MS/MS



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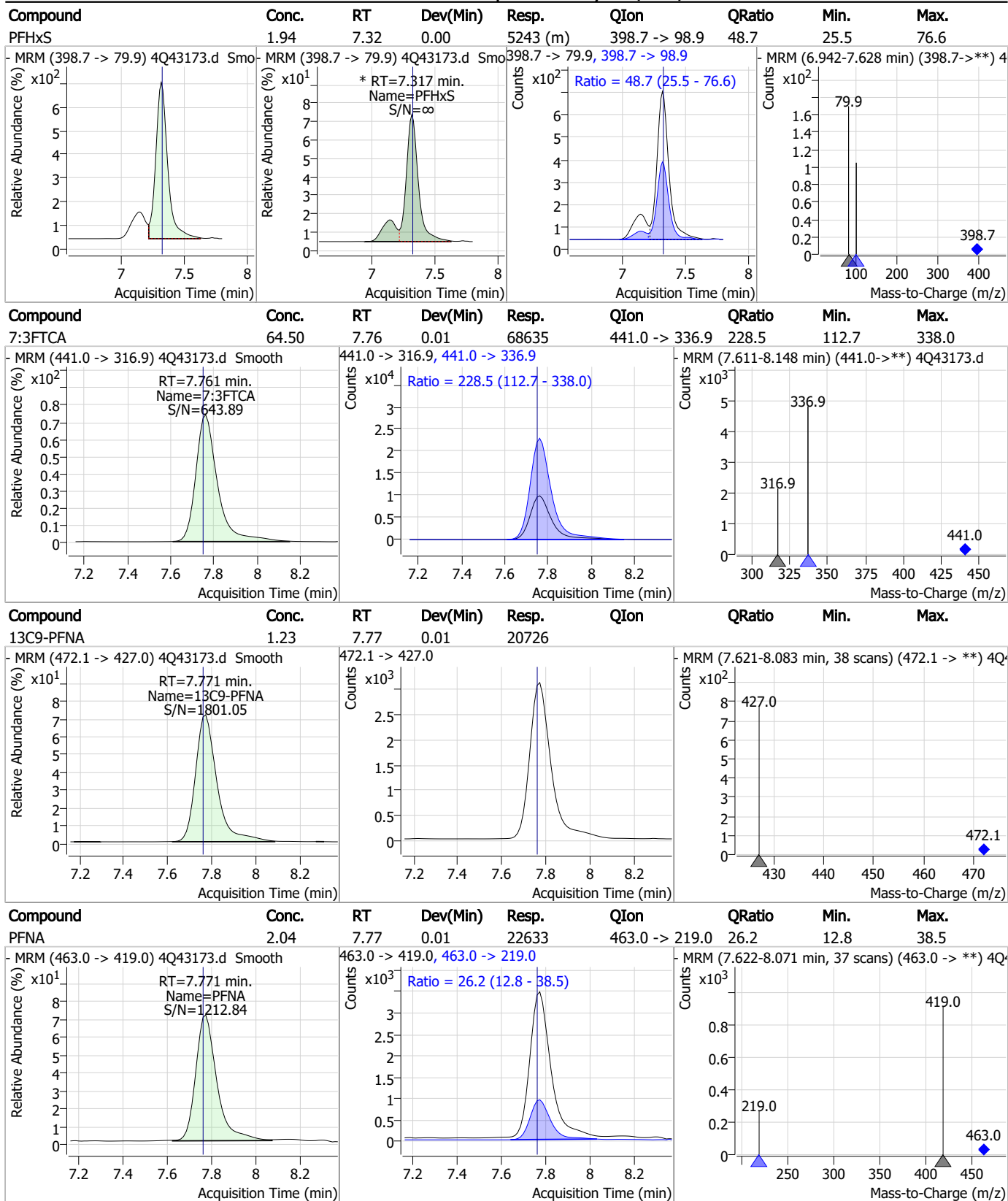
### Perfluorinated Compounds by LC/MS/MS



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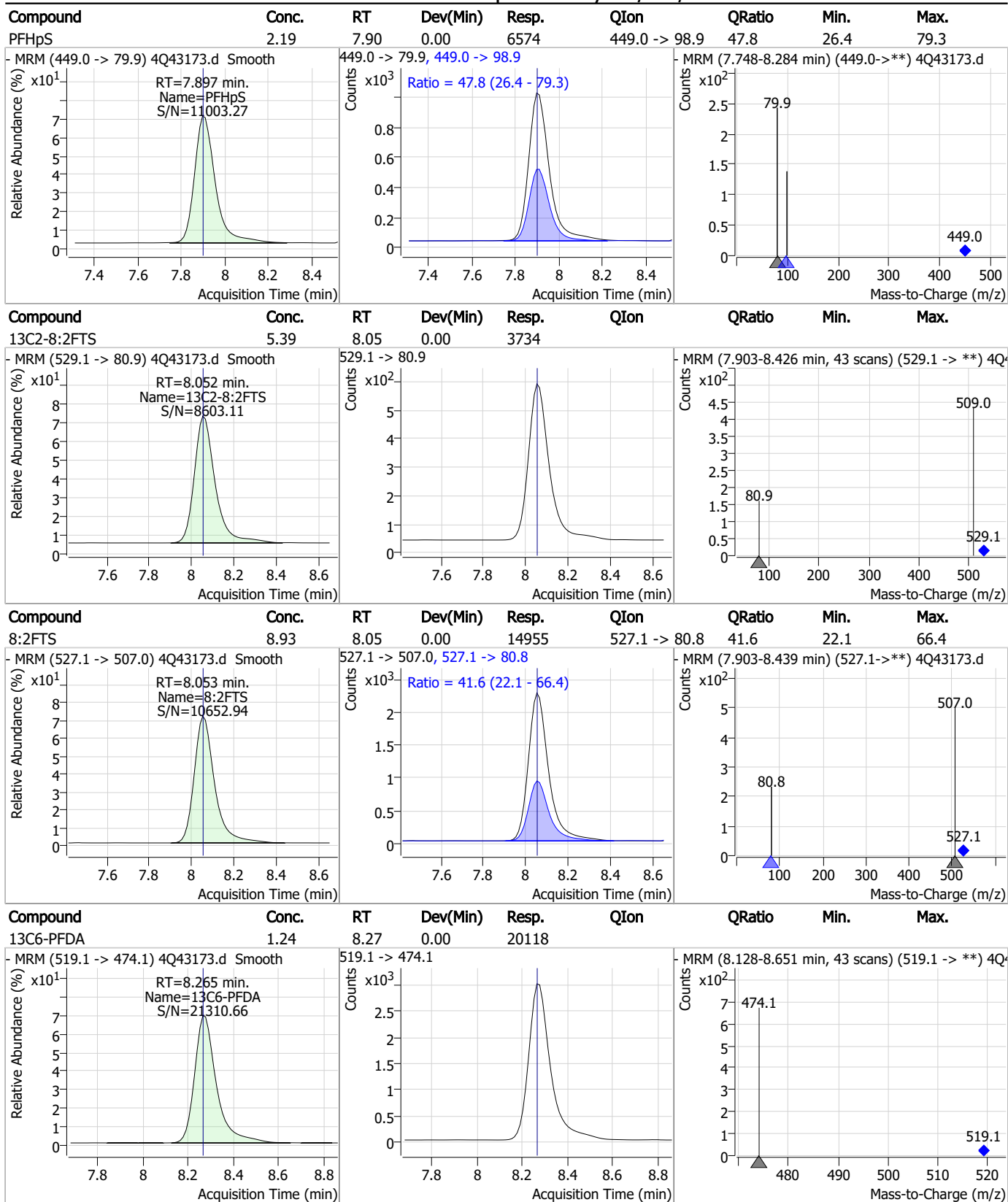


### Perfluorinated Compounds by LC/MS/MS



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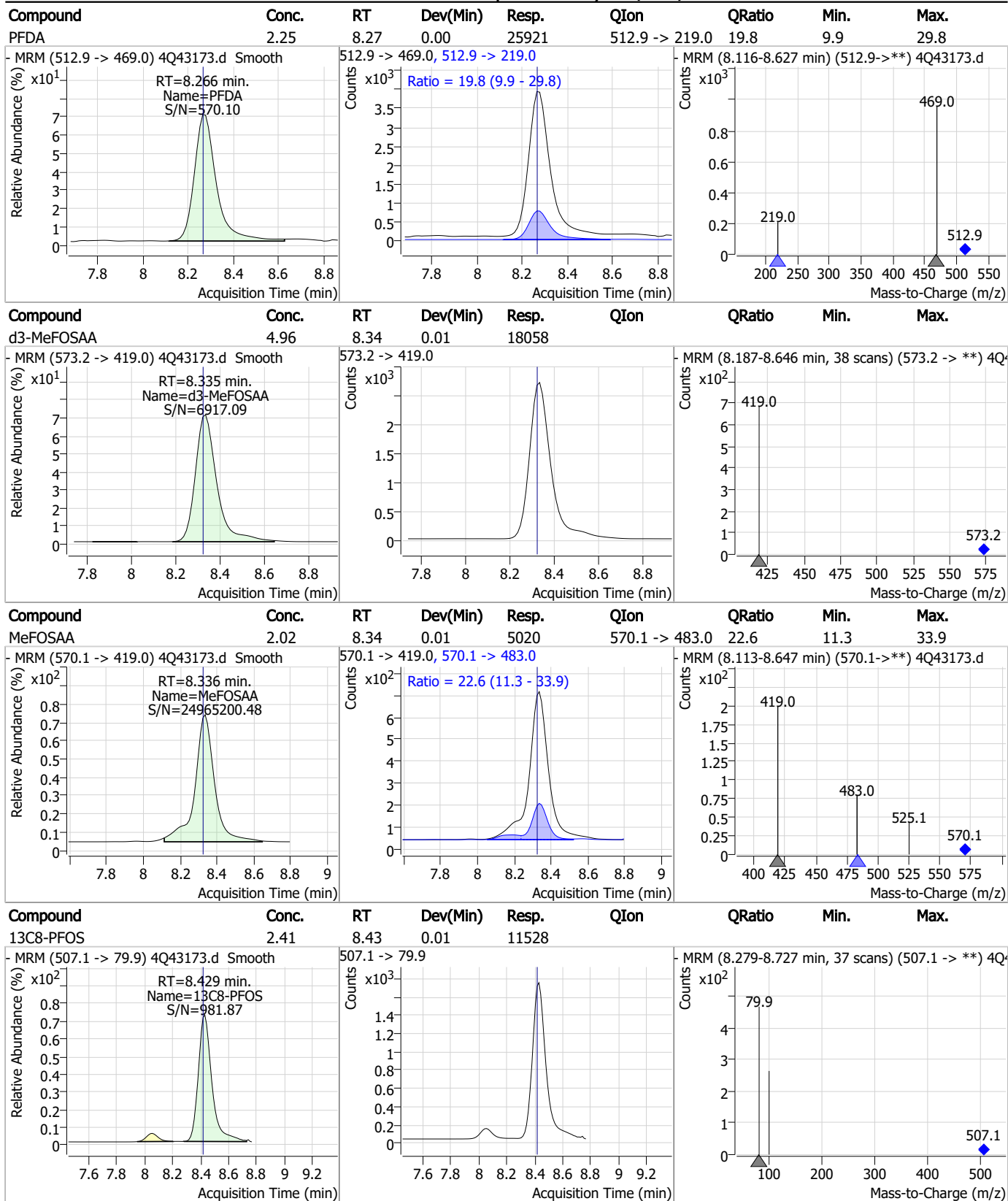
### Perfluorinated Compounds by LC/MS/MS



7.7.15  
7



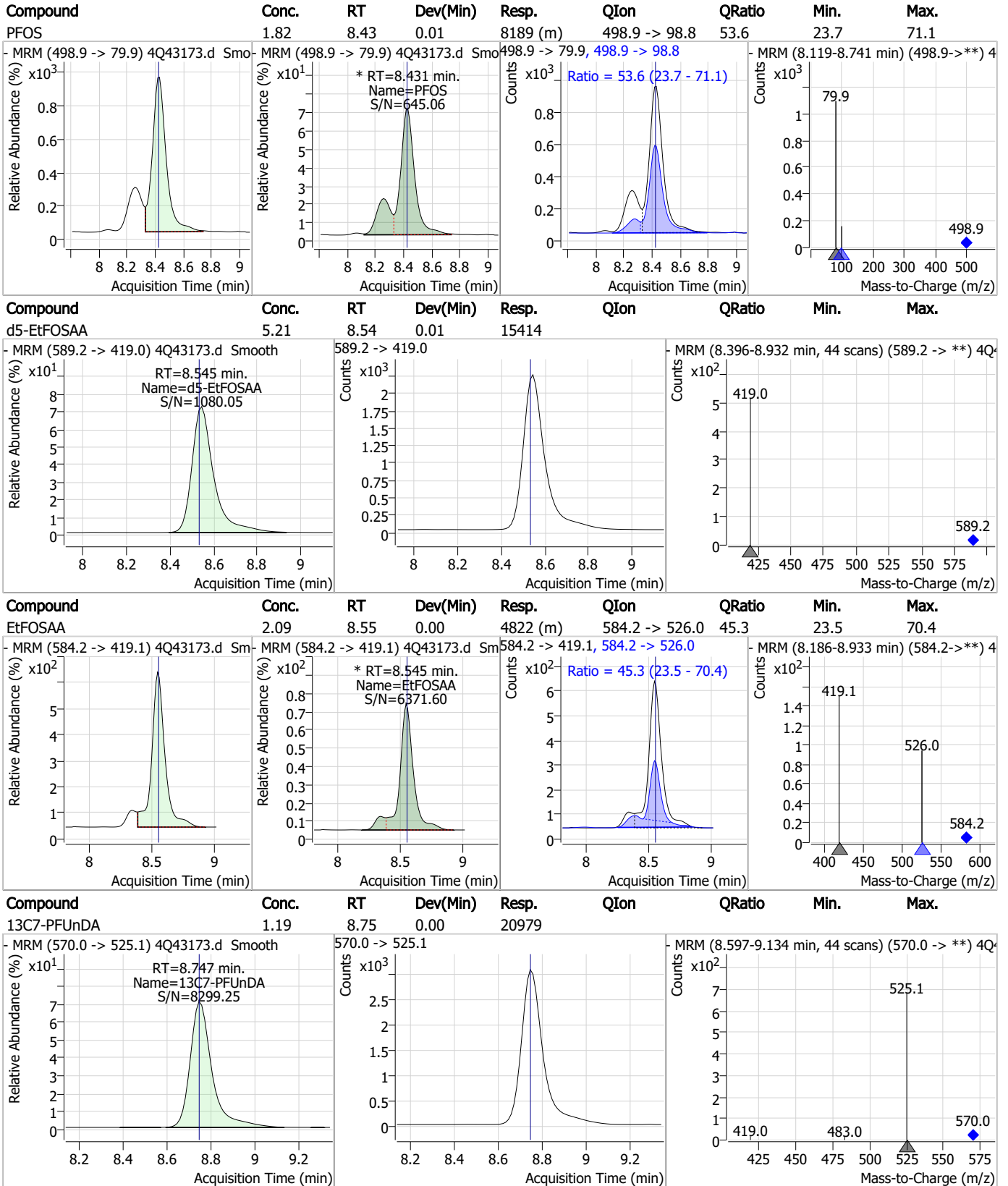
### Perfluorinated Compounds by LC/MS/MS



7.7.15  
7



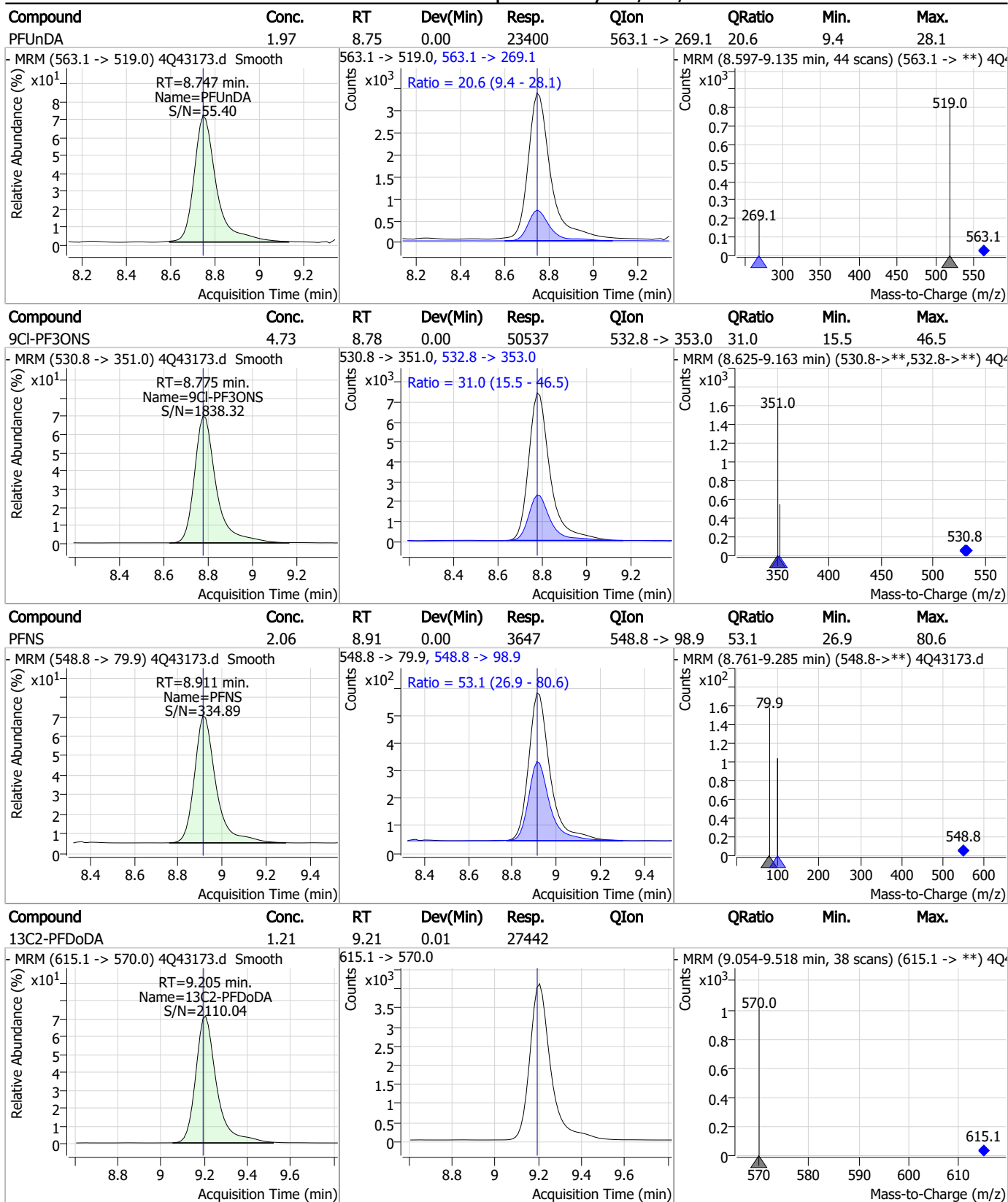
## Perfluorinated Compounds by LC/MS/MS



7.7.15  
7



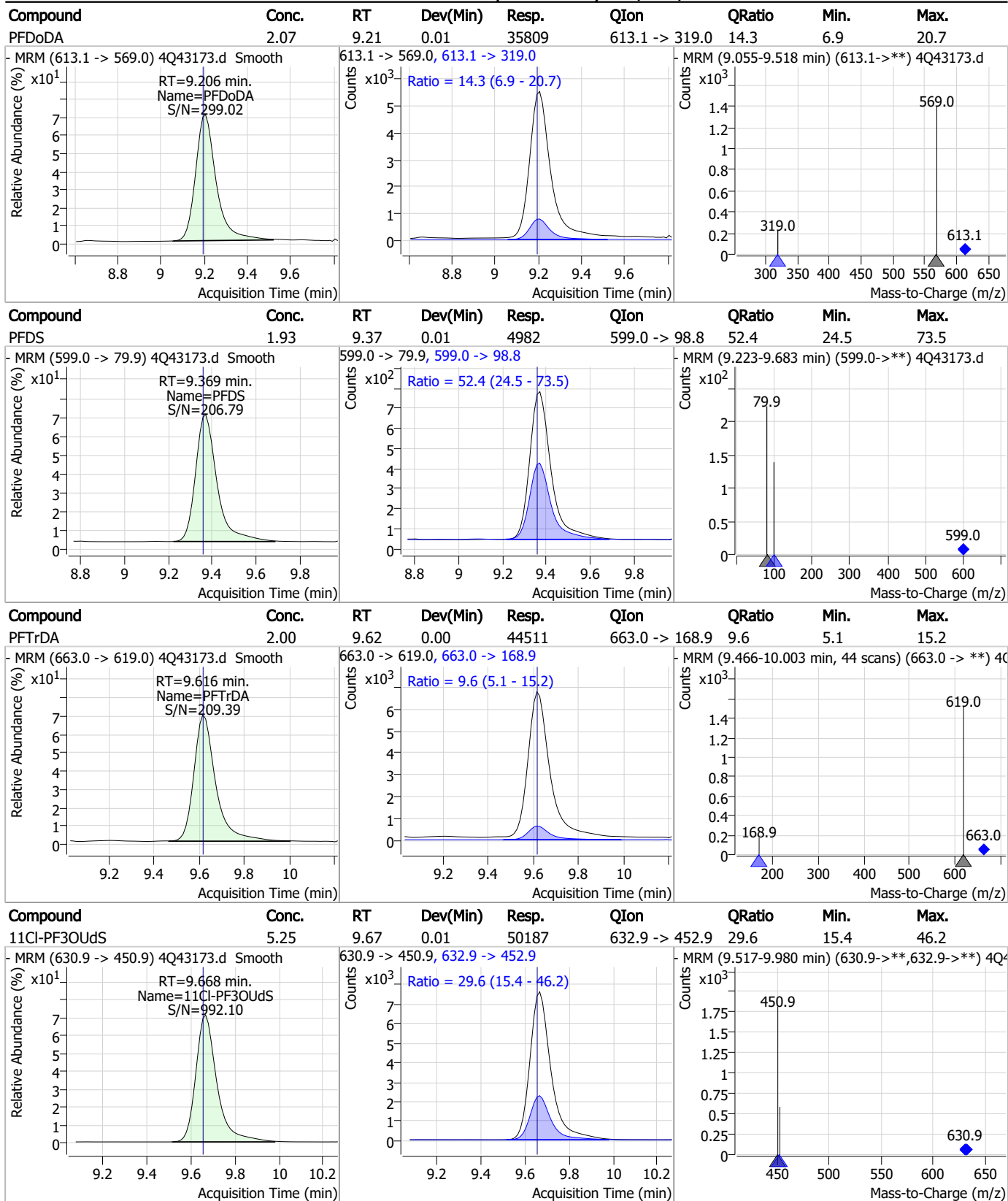
### Perfluorinated Compounds by LC/MS/MS



7.7.15  
7



### Perfluorinated Compounds by LC/MS/MS

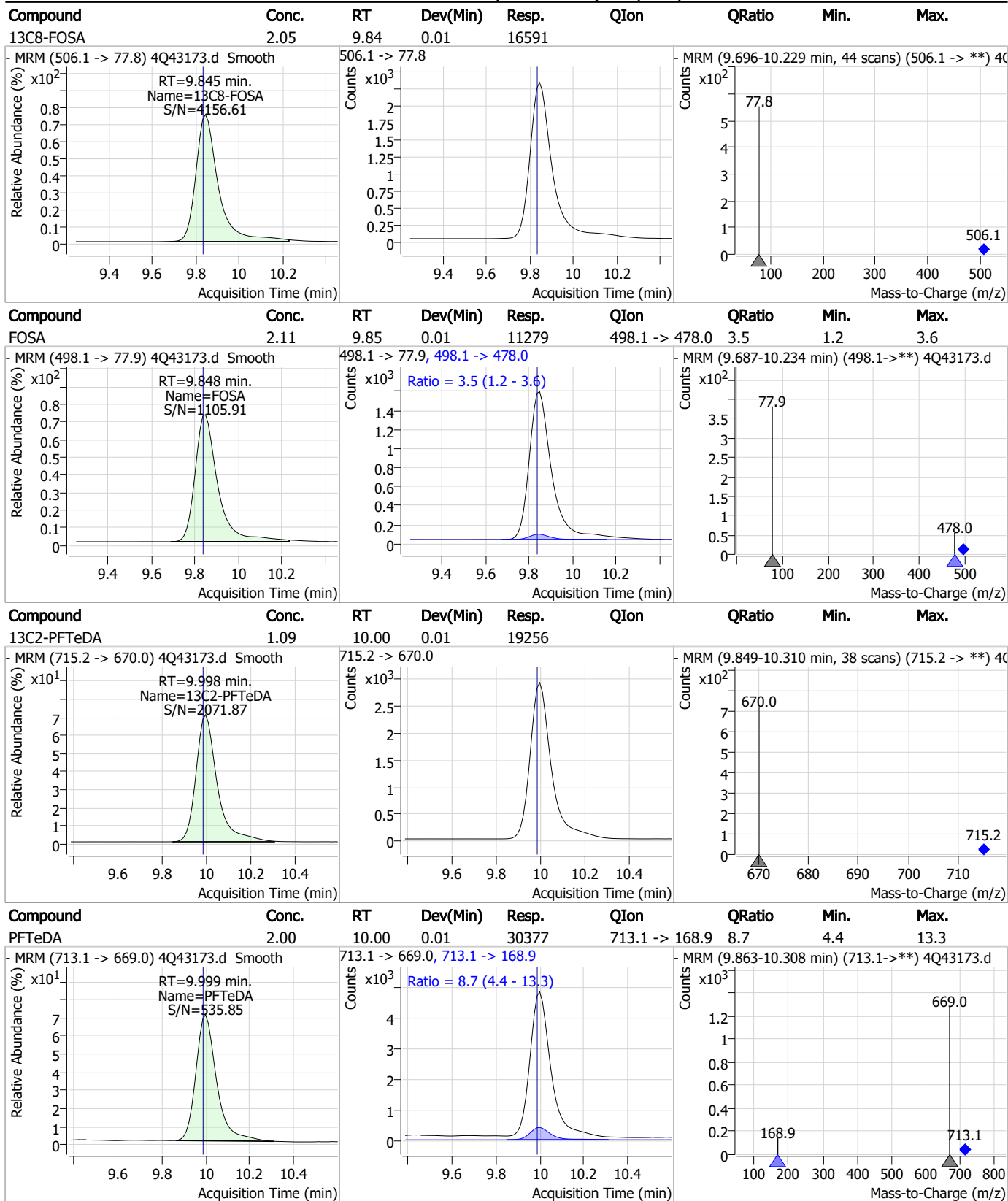


7.7.15  
7





### Perfluorinated Compounds by LC/MS/MS

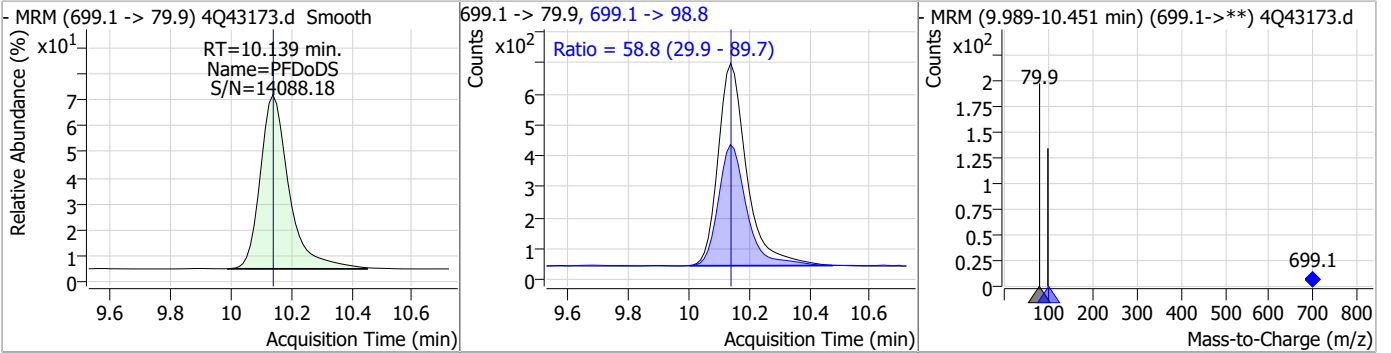


7.7.15  
7

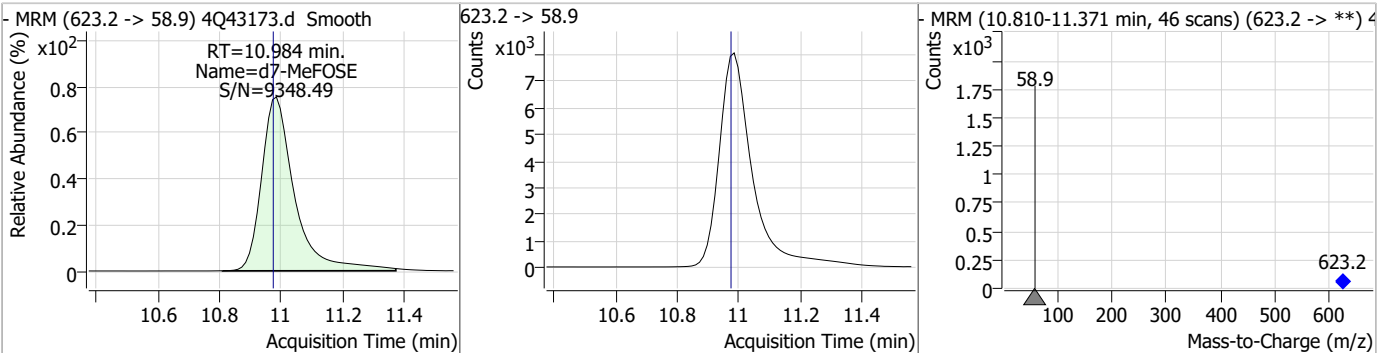


### Perfluorinated Compounds by LC/MS/MS

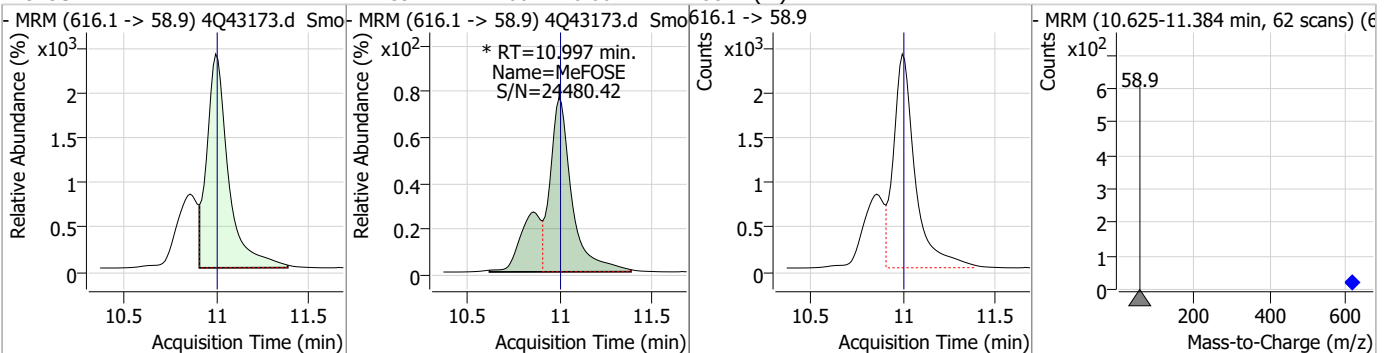
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	1.94	10.14	0.00	4321	699.1 -> 98.8	58.8	29.9	89.7



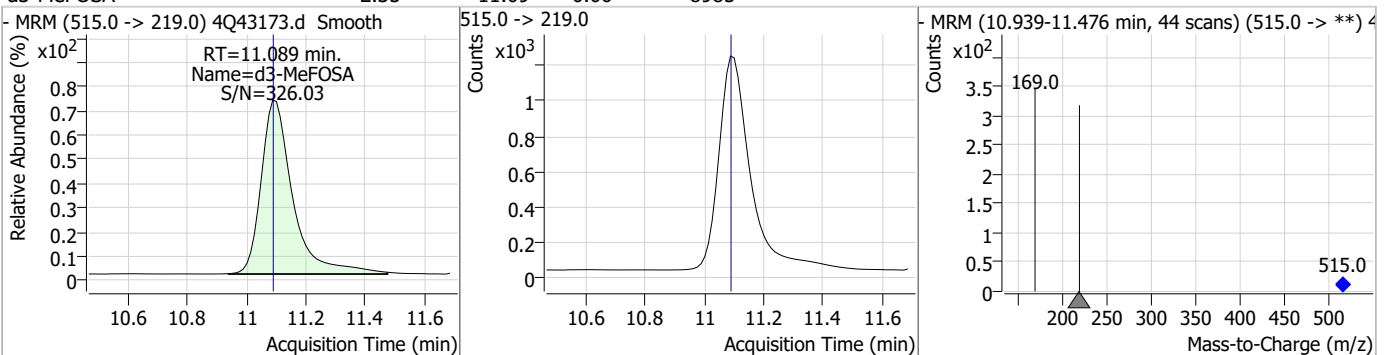
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	18.63	10.98	0.01	59346				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.39	11.00	0.00	25844 (m)				

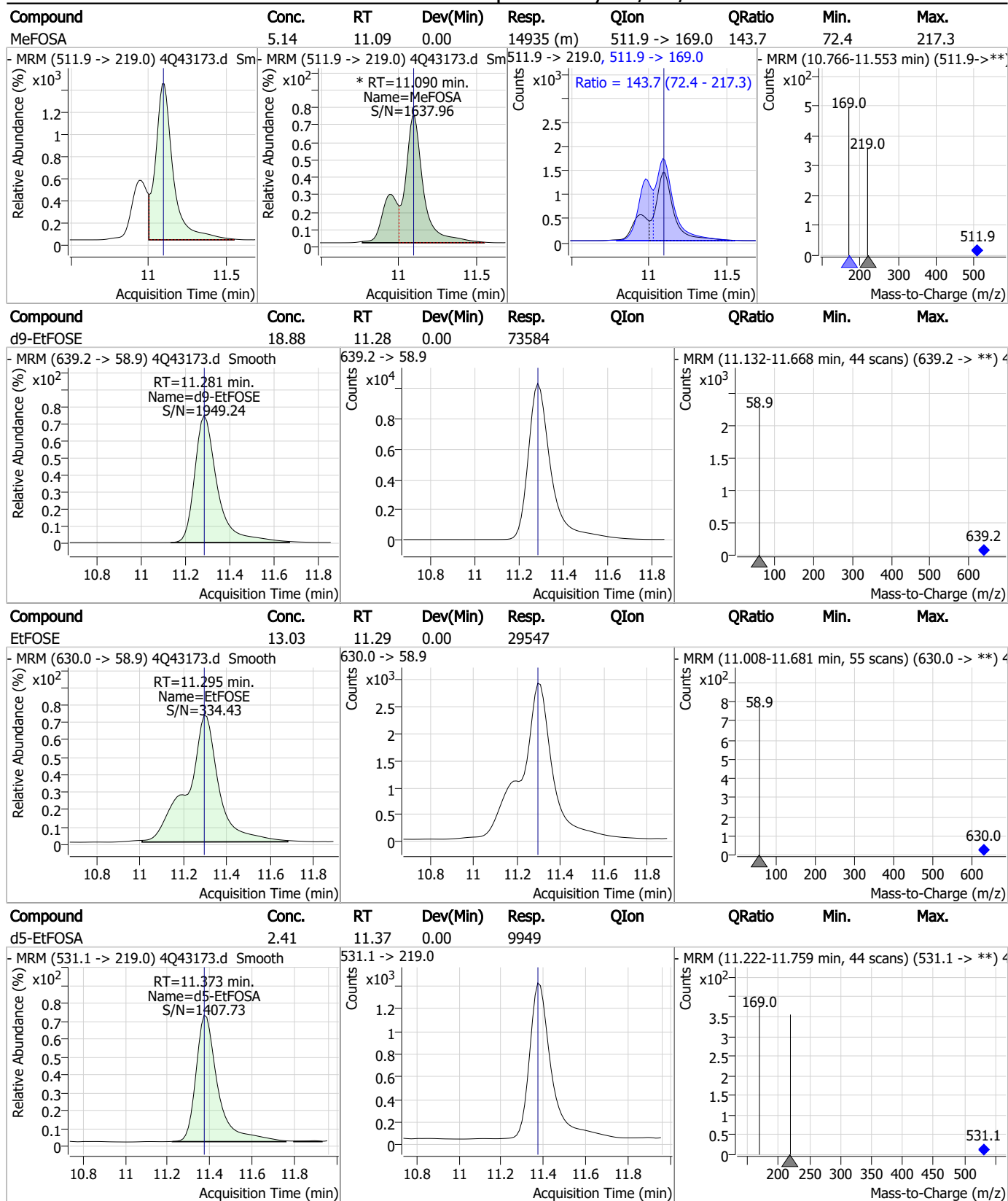


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.35	11.09	0.00	8985				



7.7.15  
7

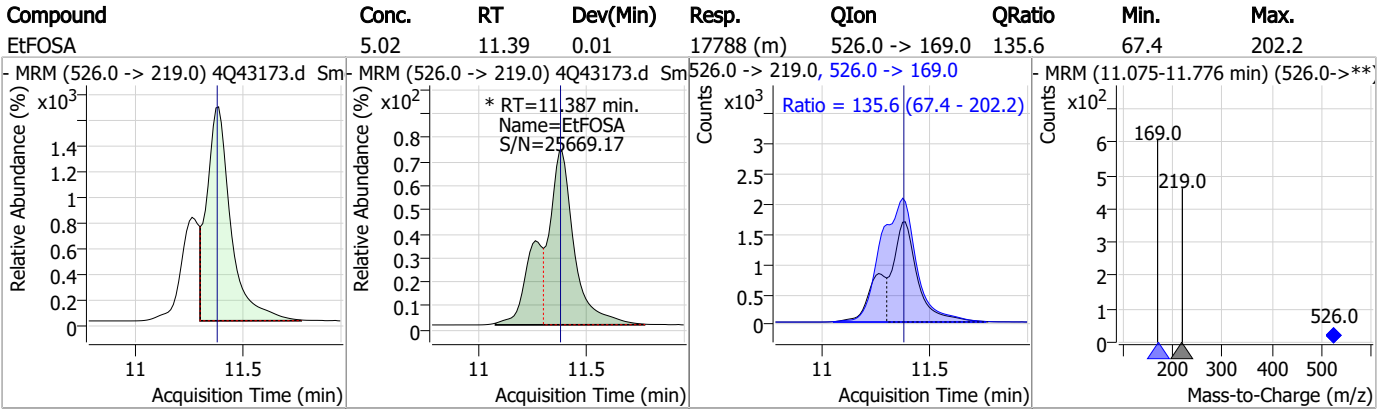
### Perfluorinated Compounds by LC/MS/MS



7.7.15

7

### Perfluorinated Compounds by LC/MS/MS



7.7.15

7

# Manual Integration Approval Summary

Sample Number: S4Q624-CC621      Method: EPA DRAFT 1633  
Lab FileID: 4Q43173.D      Analyst approved: 04/19/23 13:20 Martha Valls  
Injection Time: 04/18/23 17:17      Supervisor approved: 04/19/23 17:20 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.32	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.43	Split peak
EtFOSAA	2991-50-6		8.54	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.09	Split peak
EtFOSA	4151-50-2		11.39	Split peak

7.7.15.1

7

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DATE:	04/14/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	6 ul
INSTRUMENT:	LCMS4-4Q

LCMS4-4Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	ID_041423_S4Q621
CAL DATE:	04/14/23
ANALYST:	M. Valls
RUN BATCH:	S4Q621

ELUENT A LOT #:	224863 W5%ACN 214785 2ml(MA)MAC.11387
ELUENT B LOT #:	ACN 214785
IC/CC STD LOT #:	LCMS 2098B
ICV STD LOT #:	LCMS 2098B/2100B
ISTD/ID STD LOT #:	11615/11636

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	4Q42930.d	P1-B9	CCB	1633full_4Q.m	Sample		OP96301,S4q621500,,5.0.1,water	✓
2	4Q42931.d	P1-B9	CCB	1633full_4Q.m	Sample		OP96301,S4q621500,,5.0.1,water	✓
3	4Q42932.d	P1-B9	CCB	1633full_4Q.m	Sample		OP96301,S4q621500,,5.0.1,water	✓
4	4Q42933.d	P1-B3	RT TDCA	1633full_4Q.m	Sample		OP96301,S4q621500,,5.0.1,water	✓
5	4Q42934.d	P1-B4	RT BR-LN	1633full_4Q.m	Sample		OP96301,S4q621500,,5.0.1,water	✓
6	4Q42935.d	P1-A1	ic621-0	1633full_4Q.m	Sample		OP96301,S4q621500,,5.0.1,water	✓
7	4Q42936.d	P1-A2	ic621-1	1633full_4Q.m	Calibration	1.6/500	OP96301,S4q621500,,5.0.1,water	✓
8	4Q42937.d	P1-A3	ic621-2	1633full_4Q.m	Calibration	3.2/500	OP96301,S4q621500,,5.0.1,water	✓
9	4Q42938.d	P1-A4	ic621-3	1633full_4Q.m	Calibration	10/500	OP96301,S4q621500,,5.0.1,water	✓
10	4Q42939.d	P1-A5	ic621-4	1633full_4Q.m	Calibration	20/500	OP96301,S4q621500,,5.0.1,water	✓
11	4Q42940.d	P1-A6	ic621-5	1633full_4Q.m	Calibration	40/500	OP96301,S4q621500,,5.0.1,water	✓
12	4Q42941.d	P1-A7	ic621-6	1633full_4Q.m	Calibration	100/500	OP96301,S4q621500,,5.0.1,water	✓
13	4Q42942.d	P1-A8	ic621-7	1633full_4Q.m	Calibration	200/500	OP96301,S4q621500,,5.0.1,water	✓
14	4Q42943.d	P1-A9	ic621-8	1633full_4Q.m	Calibration	1x	OP96301,S4q621500,,5.0.1,water	✓
15	4Q42944.d	P1-A1	iblk	1633full_4Q.m	Sample		OP96301,S4q621500,,5.0.1,water	✓
16	4Q42945.d	P1-B1	icv621-4	1633full_4Q.m	QC	20/500	OP96301,S4q621500,,5.0.1,water	✓
17	4Q42946.d	P1-B2	icv621-20	1633full_4Q.m	QC	100/500	OP96301,S4q621500,,5.0.1,water	Prep by NG
18	4Q42947.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96301,S4q621500,,5.0.1,water	✓
19	4Q42948.d	P1-A2	cc621-1.0LL	1633full_4Q.m	QC	1.6/500	OP96301,S4q621500,,5.0.1,water	✓
20	4Q42949.d	P1-C1	Test cc4 2104-a	1633full_4Q.m	QC	20/500	OP96301,S4q621500,,5.0.1,water	LCMS2104-A Pass
21	4Q42950.d	P1-C2	Test cc4 2104-b	1633full_4Q.m	QC	20/500	OP96301,S4q621500,,5.0.1,water	LCMS2104-B Pass
22	4Q42951.d	P1-C3	Test cc4 2104-c	1633full_4Q.m	QC	20/500	OP96301,S4q621500,,5.0.1,water	LCMS2104-C Pass
23	4Q42952.d	P1-C4	Full list 2100-a	1633full_4Q.m	QC	100/500	OP96301,S4q621500,,5.0.1,water	LCMS2100-C Pass
24	4Q42953.d	P1-B8	blank	1633full_4Q.m	QC		OP96301,S4q621500,,5.0.1,water	Clean
25	4Q42954.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96296,S4q621500,,5.0.1,water	✓
26	4Q42955.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96296,S4q621500,,5.0.1,water	✓
27	4Q42956.d	P2-F6	op96296-bs	1633full_4Q.m	Sample		OP96296,S4q621500,,5.0.1,water	rr batch, no peaks
28	4Q42957.d	P2-F7	op96296-llbs:3	1633full_4Q.m	Sample		OP96296,S4q621500,,5.0.1,water	↓
29	4Q42958.d	P2-F8	op96296-mb	1633full_4Q.m	Sample		OP96296,S4q621500,,5.0.1,water	↓
30	4Q42959.d	P2-F9	FC3816-1	1633full_4Q.m	Sample		OP96296,S4q621560,,5.0.1,water	rr1x
31	4Q42960.d	P3-A1	FC3816-2	1633full_4Q.m	Sample		OP96296,S4q621550,,5.0.1,water	↓
32	4Q42961.d	P3-A2	op96296-ms	1633full_4Q.m	Sample		OP96296,S4q621530,,5.0.1,water	↓
33	4Q42962.d	P3-A3	FC3816-3	1633full_4Q.m	Sample		OP96296,S4q621530,,5.0.1,water	↓
34	4Q42963.d	P3-A4	op96296-dup	1633full_4Q.m	Sample		OP96296,S4q621540,,5.0.1,water	↓
35	4Q42964.d	P3-A5	FC3816-4	1633full_4Q.m	Sample		OP96296,S4q621550,,5.0.1,water	↓

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LCMS4-4Q ANALYSIS LOG

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36	4Q42965.d	P3-A6	FC3816-5	1633full_4Q.m	Sample		OP96296,S4q621,550,,5.0.1,water	↓
37	4Q42966.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96296,S4q621,500,,5.0.1,water	✓
38	4Q42967.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96296,S4q621,500,,5.0.1,water	✓
39	4Q42968.d	P3-A7	FC3816-6	1633full_4Q.m	Sample		OP96296,S4q621,520,,5.0.1,water	↓
40	4Q42969.d	P3-A8	FC3816-7	1633full_4Q.m	Sample		OP96296,S4q621,560,,5.0.1,water	↓
41	4Q42970.d	P3-A9	FC3816-8	1633full_4Q.m	Sample		OP96296,S4q621,560,,5.0.1,water	↓
42	4Q42971.d	P3-B1	FC3816-9	1633full_4Q.m	Sample		OP96296,S4q621,560,,5.0.1,water	↓
43	4Q42972.d	P3-B2	FC3816-10	1633full_4Q.m	Sample		OP96296,S4q621,560,,5.0.1,water	↓
44	4Q42973.d	P3-B3	FC3816-11	1633full_4Q.m	Sample		OP96296,S4q621,540,,5.0.1,water	↓
45	4Q42974.d	P3-B4	FC3816-12	1633full_4Q.m	Sample		OP96296,S4q621,520,,5.0.1,water	↓
46	4Q42975.d	P3-B5	FC3816-13	1633full_4Q.m	Sample		OP96296,S4q621,530,,5.0.1,water	↓
47	4Q42976.d	P3-B6	FC3816-14	1633full_4Q.m	Sample		OP96296,S4q621,570,,5.0.1,water	↓
48	4Q42977.d	P3-B7	FC3816-15	1633full_4Q.m	Sample		OP96296,S4q621,530,,5.0.1,water	↓
49	4Q42978.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96296,S4q621,500,,5.0.1,water	✓
50	4Q42979.d	P1-A2	cc621-1.0LL	1633full_4Q.m	QC	1.6/500	OP96301,S4q621,500,,5.0.1,water	✓
51	4Q42980.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96296,S4q621,500,,5.0.1,water	✓
52	4Q42981.d	P3-B8	FC3816-16	1633full_4Q.m	Sample		OP96296,S4q621,530,,5.0.1,water	↓
53	4Q42982.d	P3-B9	FC3816-17	1633full_4Q.m	Sample		OP96296,S4q621,530,,5.0.1,water	↓
54	4Q42983.d	P3-C1	FC3816-18	1633full_4Q.m	Sample		OP96296,S4q621,530,,5.0.1,water	↓
55	4Q42984.d	P3-C2	op96297-bs	1633full_4Q.m	Sample		OP96297,S4q621,500,,5.0.1,water	✓
56	4Q42985.d	P3-C3	op96297-llbs:2	1633full_4Q.m	Sample		OP96297,S4q621,500,,5.0.1,water	✓
57	4Q42986.d	P3-C4	op96297-mb	1633full_4Q.m	Sample		OP96297,S4q621,500,,5.0.1,water	✓
58	4Q42987.d	P3-C5	FC3790-1	1633full_4Q.m	Sample		OP96297,S4q621,570,,5.0.1,water	r5x surr high
59	4Q42988.d	P3-C6	FC3790-2	1633full_4Q.m	Sample		OP96297,S4q621,570,,5.0.1,water	✓
60	4Q42989.d	P3-C7	FC3790-3	1633full_4Q.m	Sample		OP96297,S4q621,560,,5.0.1,water	✓
61	4Q42990.d	P3-C8	FC3790-4	1633full_4Q.m	Sample		OP96297,S4q621,560,,5.0.1,water	✓ + r12x FNA
62	4Q42991.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96297,S4q621,500,,5.0.1,water	✓
63	4Q42992.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96297,S4q621,500,,5.0.1,water	✓
64	4Q42993.d	P3-C9	FC3790-5	1633full_4Q.m	Sample		OP96297,S4q621,570,,5.0.1,water	✓
65	4Q42994.d	P3-D1	op96297-ms	1633full_4Q.m	Sample		OP96297,S4q621,560,,5.0.1,water	✓
66	4Q42995.d	P3-D2	op96297-msd	1633full_4Q.m	Sample		OP96297,S4q621,570,,5.0.1,water	✓
67	4Q42996.d	P3-D3	FC3790-6	1633full_4Q.m	Sample		OP96297,S4q621,550,,5.0.1,water	rr, no NIS
68	4Q42997.d	P3-D4	FC3790-4	1633full_4Q.m	Sample	50/500	OP96297,S4q621,560,,5.0.10,water	rr lower dilution. 2x
69	4Q42998.d	P3-D5	FC3757-19	1633full_4Q.m	Sample	250/500	OP96301,S4q621,560,,5.0.2,water	✓
70	4Q42999.d	P3-D6	op96301-dup	1633full_4Q.m	Sample	250/500	OP96301,S4q621,560,,5.0.2,water	✓
71	4Q43000.d	P3-D7	FC3818-4	1633full_4Q.m	Sample	100/500	OP96323,S4q621,545,,5.0.5,water	✓
72	4Q43001.d	P3-D8	FC3818-5	1633full_4Q.m	Sample	100/500	OP96323,S4q621,520,,5.0.5,water	✓
73	4Q43002.d	P1-A5	ecc621-4	1633full_4Q.m	QC	20/500	OP96296,S4q621,500,,5.0.1,water	✓
74	4Q43003.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96296,S4q621,500,,5.0.1,water	✓



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LCMS4-4Q ANALYSIS LOG

DATE:	04/18/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	6 ul
INSTRUMENT:	LCMS4-4Q

METHODS:	1633
PROC. METH:	ID_041423_S4Q621
CAL DATE:	04/14/23
ANALYST:	M. Valls
RUN BATCH:	S4Q624

ELUENT A LOT #:	224863 W5%ACN 214785 2mmMAMAC.11387
ELUENT B LOT #:	ACN 214785
IC/CC STD LOT #:	LCMS 2098
ICV STD LOT #:	LCMS 2098B/2100B
ISTD/ID STD LOT #:	11615/11636

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	4Q43143.d	P1-B9	CCB	1633full_4Q.m	Sample		OP96301,S4q624,500,,5.0.1,water	✓
2	4Q43144.d	P1-B9	CCB	1633full_4Q.m	Sample		OP96301,S4q624,500,,5.0.1,water	✓
3	4Q43145.d	P1-B3	RT TDCA	1633full_4Q.m	Sample		OP96301,S4q624,500,,5.0.1,water	✓
4	4Q43146.d	P1-B4	RT BR-LN	1633full_4Q.m	Sample		OP96301,S4q624,500,,5.0.1,water	✓
5	4Q43147.d	P1-A9	High Std	1633full_4Q.m	Sample		OP96301,S4q624,500,,5.0.1,water	✓
6	4Q43148.d	P1-A1	IBLK	1633full_4Q.m	Sample		OP96301,S4q624,500,,5.0.1,water	✓
7	4Q43149.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96301,S4q624,500,,5.0.1,water	✓
8	4Q43150.d	P1-A2	cc621-1.0LL	1633full_4Q.m	QC	1.6/500	OP96301,S4q624,500,,5.0.1,water	✓
9	4Q43151.d	P4-B7	JD63141-12A	1633full_4Q.m	Sample		OP96371,S4q624,60,,5.0.1,water	✓
10	4Q43152.d	P4-B8	JD63141-17A	1633full_4Q.m	Sample	50/500	OP96371,S4q624,545,,5.0.10,water	✓
11	4Q43153.d	P4-B9	FC5088-1	1633full_4Q.m	Sample	100/500	OP96368,S4q624,540,,5.0.5,water	✓
12	4Q43154.d	P4-C1	op96403-bs	1633full_4Q.m	Sample		OP96403,S4q624,500,,5.0.1,water	✓
13	4Q43155.d	P4-C2	op96403-llbs:3	1633full_4Q.m	Sample		OP96403,S4q624,500,,5.0.1,water	✓
14	4Q43156.d	P4-C3	op96403-mb	1633full_4Q.m	Sample		OP96403,S4q624,500,,5.0.1,water	✓
15	4Q43157.d	P4-C4	FC5164-1	1633full_4Q.m	Sample		OP96403,S4q624,560,,5.0.1,water	✓
16	4Q43158.d	P4-C5	FC5164-2	1633full_4Q.m	Sample		OP96403,S4q624,550,,5.0.1,water	✓
17	4Q43159.d	P4-C6	FC5194-1	1633full_4Q.m	Sample		OP96403,S4q624,510,,5.0.1,water	✓
18	4Q43160.d	P4-C7	op96403-ms	1633full_4Q.m	Sample		OP96403,S4q624,510,,5.0.1,water	✓
19	4Q43161.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96296,S4q624,500,,5.0.1,water	✓
20	4Q43162.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96296,S4q624,500,,5.0.1,water	✓
21	4Q43163.d	P4-C8	FC5194-2	1633full_4Q.m	Sample		OP96403,S4q624,560,,5.0.1,water	REDO
22	4Q43164.d	P4-C9	op96403-dup	1633full_4Q.m	Sample		OP96403,S4q624,570,,5.0.1,water	REDO
23	4Q43165.d	P4-D1	FC5194-3	1633full_4Q.m	Sample		OP96403,S4q624,530,,5.0.1,water	REDO
24	4Q43166.d	P4-D2	FC5088-3	1633full_4Q.m	Sample		OP96368,S4q624,570,,5.0.1,water	✓
25	4Q43167.d	P5-A1	op96427-bs	1633full_4Q.m	Sample		OP96427,S4q624,500,,5.0.1,water	✓
26	4Q43168.d	P5-A2	op96427-llbs:3	1633full_4Q.m	Sample		OP96427,S4q624,500,,5.0.1,water	✓
27	4Q43169.d	P5-A3	op96427-mb	1633full_4Q.m	Sample		OP96427,S4q624,500,,5.0.1,water	✓
28	4Q43170.d	P5-A4	FC5252-1	1633full_4Q.m	Sample		OP96427,S4q624,570,,5.0.1,water	✓
29	4Q43171.d	P5-A5	FC5252-2	1633full_4Q.m	Sample		OP96427,S4q624,550,,5.0.1,water	✓
30	4Q43172.d	P5-A6	op96427-ms	1633full_4Q.m	Sample		OP96427,S4q624,540,,5.0.1,water	✓
31	4Q43173.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96296,S4q624,500,,5.0.1,water	✓
32	4Q43174.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96296,S4q624,500,,5.0.1,water	✓
33	4Q43175.d	P5-A7	FC5252-3	1633full_4Q.m	Sample		OP96427,S4q624,550,,5.0.1,water	✓
34	4Q43176.d	P5-A8	op96427-dup	1633full_4Q.m	Sample		OP96427,S4q624,560,,5.0.1,water	✓
35	4Q43177.d	P5-A9	FC5252-4	1633full_4Q.m	Sample		OP96427,S4q624,570,,5.0.1,water	✓

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LCMS4-4Q ANALYSIS LOG

SGS ORLANDO

36	4Q43178.d	P5-B1	FC5252-5	1633full_4Q.m	Sample	OP96427,S4q624,510,,5.0.1,water	pfba low. Redo
37	4Q43179.d	P5-B2	op96386-bs	1633full_4Q.m	Sample	OP96386,S4q624,500,,5.0.1,water	✓
38	4Q43180.d	P5-B3	op96386-llbs:2	1633full_4Q.m	Sample	OP96386,S4q624,500,,5.0.1,water	✓
39	4Q43181.d	P5-B4	op96386-mb	1633full_4Q.m	Sample	OP96386,S4q624,500,,5.0.1,water	✓
40	4Q43182.d	P5-B5	JD63151-1	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	✓
41	4Q43183.d	P5-B6	JD63151-2	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	✓ + RR2X
42	4Q43184.d	P1-A5	cc621-4	1633full_4Q.m	QC	OP96296,S4q624,500,,5.0.1,water	✓
43	4Q43185.d	P1-A2	cc621-1,OLL	1633full_4Q.m	QC	OP96301,S4q624,500,,5.0.1,water	✓
44	4Q43186.d	P1-A1	iccb	1633full_4Q.m	Sample	OP96296,S4q624,500,,5.0.1,water	✓
45	4Q43187.d	P5-B7	JD63151-3	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	✓
46	4Q43188.d	P5-B8	op96386-ms	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	✓
47	4Q43189.d	P5-B9	JD63151-4	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	✓
48	4Q43190.d	P5-C1	op96386-dup	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	✓
49	4Q43191.d	P5-C2	JD63151-5	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	✓
50	4Q43192.d	P5-C3	JD63151-6	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	✓
51	4Q43193.d	P5-C4	JD63151-7	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	✓
52	4Q43194.d	P5-C5	JD63151-8	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	✓
53	4Q43195.d	P5-C7	JD63170-1	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	✓
54	4Q43196.d	P1-A5	cc621-4	1633full_4Q.m	QC	OP96296,S4q624,500,,5.0.1,water	✓
55	4Q43197.d	P1-A1	iccb	1633full_4Q.m	Sample	OP96296,S4q624,500,,5.0.1,water	✓
56	4Q43198.d	P5-C8	JD63170-2	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	rr10x, high surr
57	4Q43199.d	P5-C9	JD63170-3	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	rr1x co + 5x high surr
58	4Q43200.d	P5-D1	JD63170-4	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	rr5x
59	4Q43201.d	P5-D2	JD63170-5	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	rr10x, high surr
60	4Q43202.d	P5-D3	JD63170-6	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	rr10x, high surr
61	4Q43203.d	P5-D4	JD63170-7	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	rr1x co
62	4Q43204.d	P1-A5	cc621-4	1633full_4Q.m	QC	OP96296,S4q624,500,,5.0.1,water	✓
63	4Q43205.d	P1-A1	iccb	1633full_4Q.m	Sample	OP96296,S4q624,500,,5.0.1,water	✓
64	4Q43206.d	P5-D5	op96364-bs	1633full_4Q.m	Sample	OP96364,S4q624,500,,5.0.1,soil	✓
65	4Q43207.d	P5-D6	op96364-llbs:2	1633full_4Q.m	Sample	OP96364,S4q624,500,,5.0.1,soil	✓
66	4Q43208.d	P5-D7	op96364-mb	1633full_4Q.m	Sample	OP96364,S4q624,500,,5.0.1,soil	✓
67	4Q43209.d	P5-D8	JD62946-1	1633full_4Q.m	Sample	OP96364,S4q624,4.96,,5.0.1,soil	✓
68	4Q43210.d	P5-D9	op96364-ms	1633full_4Q.m	Sample	OP96364,S4q624,4.98,,5.0.1,soil	✓
69	4Q43211.d	P5-E1	JD62924-1B	1633full_4Q.m	Sample	OP96364,S4q624,5.05,,5.0.1,soil	✓
70	4Q43212.d	P5-E2	op96364-dup	1633full_4Q.m	Sample	OP96364,S4q624,4.95,,5.0.1,soil	✓
71	4Q43213.d	P5-E3	JD63287-1	1633full_4Q.m	Sample	OP96364,S4q624,5.04,,5.0.1,soil	✓
72	4Q43214.d	P5-E4	JD63287-2	1633full_4Q.m	Sample	OP96364,S4q624,4.96,,5.0.1,soil	✓
73	4Q43215.d	P5-E5	JD63287-3	1633full_4Q.m	Sample	OP96364,S4q624,5.01,,5.0.1,soil	✓
74	4Q43216.d	P1-A5	cc621-4	1633full_4Q.m	QC	OP96296,S4q624,500,,5.0.1,water	✓
75	4Q43217.d	P1-A1	iccb	1633full_4Q.m	Sample	OP96296,S4q624,500,,5.0.1,water	✓
76	4Q43218.d	P5-E6	JD63287-4	1633full_4Q.m	Sample	OP96364,S4q624,4.96,,5.0.1,soil	✓
77	4Q43219.d	P5-E7	JD63287-5	1633full_4Q.m	Sample	OP96364,S4q624,4.95,,5.0.1,soil	✓
78	4Q43220.d	P5-E8	JD63287-6	1633full_4Q.m	Sample	OP96364,S4q624,4.99,,5.0.1,soil	✓

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SGS ORLANDO LCMS4-4Q ANALYSIS LOG

79	4Q43221.d	P5-E9	JD63287-7	1633full_4Q.m	Sample	OP96364,S4q624,5.02,,5.0,1,soil	✓
80	4Q43222.d	P5-F1	JD63287-8	1633full_4Q.m	Sample	OP96364,S4q624,4.96,,5.0,1,soil	✓
81	4Q43223.d	P5-F2	JD63287-9	1633full_4Q.m	Sample	OP96364,S4q624,5.00,,5.0,1,soil	✓
82	4Q43224.d	P5-F3	JD63287-10	1633full_4Q.m	Sample	OP96364,S4q624,5.00,,5.0,1,soil	✓
83	4Q43225.d	P5-F4	JD63287-11	1633full_4Q.m	Sample	OP96364,S4q624,4.98,,5.0,1,soil	✓
84	4Q43226.d	P5-F5	JD63287-12	1633full_4Q.m	Sample	OP96364,S4q624,4.99,,5.0,1,soil	✓
85	4Q43227.d	P5-F6	JD63287-13	1633full_4Q.m	Sample	OP96364,S4q624,4.97,,5.0,1,soil	✓
86	4Q43228.d	P1-A5	cc621-4	1633full_4Q.m	QC	OP96296,S4q624,5.00,,5.0,1,water	✓
87	4Q43229.d	P1-A2	cc621-1.0LL	1633full_4Q.m	QC	OP96301,S4q624,5.00,,5.0,1,water	✓
88	4Q43230.d	P1-A1	iccb	1633full_4Q.m	Sample	OP96296,S4q624,5.00,,5.0,1,water	✓
89	4Q43231.d	P5-F7	JD63287-14	1633full_4Q.m	Sample	OP96364,S4q624,4.99,,5.0,1,soil	✓
90	4Q43232.d	P5-F8	JD63287-15	1633full_4Q.m	Sample	OP96364,S4q624,4.97,,5.0,1,soil	✓
91	4Q43233.d	P5-F9	JD63287-16	1633full_4Q.m	Sample	OP96364,S4q624,5.00,,5.0,1,soil	✓
92	4Q43234.d	P5-C7	JD63287-17	1633full_4Q.m	Sample	OP96364,S4q624,4.99,,5.0,1,soil	✓
93	4Q43235.d	P1-A5	ecc621-4	1633full_4Q.m	QC	OP96296,S4q624,5.00,,5.0,1,water	✓
94	4Q43236.d	P1-A1	iccb	1633full_4Q.m	Sample	OP96296,S4q624,5.00,,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 2098A	1033 SPIKE Cal std.	11672A	PFAC	Wellington	8/18/27	3/23/24	1-4 ppm	2.50uL	4mL	0.25 ppm	1033 MIX	4/6/23	10/6/23	MW
LCMS 2097		LCMS 2097	Br-In Et, Me	Sgs 1A60	9/1	10/28/23	2ppm	250uL		125ppb				
LCMS 11674B		11674B	PFAC MyF	Wellington	1/11/25	3/30/24	2ppm	250uL		312.5ppb				
LCMS 11675		11675	PFAC MyG		12/1/27	3/30/24	2ppm	250uL		125ppb				
LCMS 11642B		11642B	PFAC MyJ		9/14/26	3/23/24	4-20 ppm	312uL		312/1000 ppb				
LCMS 2099	537.1 Du std.	11070	MPF-PEA	Wellington Labs	07/06/25	04/06/24	50ppm	80uL	4mL	1.0ppm	2011MEH 41, H2O	04/03/23	06/15/23	NG
LCMS 10438A		10438A	Mw:2 FTS		11/05/25	04/06/24		80uL		1.0ppm				NG
LCMS 10512B		10512B	d3-N-NIST684A		10/22/25	05/15/23		160uL		2.0ppm				NG
LCMS 10498A		10498A	MFP05		11/02/25	03/22/24		80uL		1.0ppm				NG
LCMS 11069		11069	M3PFA		12/09/26	03/22/24		80uL		1.0ppm				NG
LCMS 2099	Full List (90)	11626	PFOR 28 Comp.	Absolute	11/19/27	4/11/24	1.0ppm	400uL	4.0mL	100ppb	75% MeOH 5% H2O	4/11/23	7/24/23	MW
LCMS 2067		LCMS 2067	40 List ADD ON #1	Sgs wld.		8/23/23	1.0ppm	400uL			(2, 40031)			
LCMS 2070		LCMS 2070	40 List ADD ON #2			5/12/23	1.0ppm	400uL						
LCMS 2054		LCMS 2054	F05g std.			7/24/23	5.0ppm	400uL		500ppb				
LCMS 2101	F05e std.	11336	N-et F05e	Wellington	5/13/27	9/19/23	50ppm	200uL	2.0mL	5ppm	95% MeOH 5% H2O	9/11/23	9/19/23	MW
LCMS 2101		11338	N-me F05e		5/13/27	9/19/23	50ppm	200uL						

\* B/C checked are normal

\* tested & passed on 10/11/23

LCMS 2100 91B \* tested & passed on 10/11/23

\* based on date opened as specified in each SGS - Orlando SOP. (1, 4000)

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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 2095A-J	(10ppb) PFC ID SURF	A-J 11669	MPFAC-2YES	Wellington Labs	01/15/23	03/28/24	1.0ppm	2.4mL	~50mL	0.5ppm	05/11/23 57.425	03/28/23	09/26/23	NS
↓	↓	11585	M2HFO-DA	↓	11/08/23	01/26/24	50ppm	48uL	↓	↓	↓	↓	↓	NS
↓	↓	11431	d-N-METOSA	↓	05/06/27	03/13/24	50ppm	48uL	↓	↓	↓	↓	↓	NS
LCMS 2096A-B	1033 spike Cal cert.	11672	PFAC-MxH	Wellington Labs	8/15/27	3/23/24	1-4 ppm	250uL	4mL	0.25 1.25 2.50ppb	1033 MIX	3/30/23	9/30/23	MUJ
↓	↓	11686	PFAC-MxI	↓	2/27/28	3/30/24	170 ppm	250uL	↓	↓	↓	↓	↓	↓
↓	↓	11674A	PFAC-MxG	↓	11/1/25	3/23/24	2ppm	500uL	↓	250ppb	↓	↓	↓	↓
↓	↓	11674B	PFAC-MxH	↓	12/1/27	3/30/24	2ppm	250uL	↓	125ppb	↓	↓	↓	↓
↓	↓	11675	PFAC-MxG	↓	9/14/26	3/23/24	4-20 ppm	312uL	↓	312/100 ppb	↓	↓	↓	↓
↓	↓	11642B	PFAC-MxJ	↓	10/28/23	10/28/23	50ppm	200uL	5mL	2ppm	1033 MIX	4/16/23	10/28/23	MUJ
LCMS 2097A-B	BR-LN metet for 1033	11497	br-N metosa	Wellington Labs	08/23/27	10/28/23	50ppm	200uL	↓	2ppm	↓	↓	↓	↓
↓	↓	11498	br-N Effosa	↓	10/07/27	10/28/23	50ppm	200uL	↓	5ppm	↓	↓	↓	↓
↓	↓	11495	br-N metosa	↓	10/28/23	10/28/23	50ppm	500uL	↓	5ppm	↓	↓	↓	↓
↓	↓	11494	br-N Effosa	↓	10/17/27	10/28/23	50ppm	500uL	↓	5ppm	↓	↓	↓	↓
↓	↓					4/6/27								

\* tested & used on 3/29/24 10/27

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



Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2067	40 List Std. ADD-ON #1	10726A	10:2 FTS	Wellington	3/3/26	3/21/23	50 ppm	80 uL	4.0 mL	1 ppm	95% meth	2/8/23	3/21/23	MV
		10840	L <sup>-</sup> PFDOS		7/9/26	10/18/23							8/23/23	
		10829	N <sup>-</sup> McFOSA		8/3/26	8/23/23								
		10837	N <sup>-</sup> EtFOSA		8/3/26	8/23/23								
		10842	PFHxDA		9/3/26	10/18/23								
		10841	PFODA		5/7/26	10/18/23								
		11116 B	3:3 FTCA PFPAPA		2/3/27	2/8/24								
		10685A	5:3 FTCA PFPAPA		11/11/25	8/23/23								
		11116 A	7:3 FTCA FHPAPA		11/12/25	2/8/24								
		11332	PFECHS		3/2/27	10/18/23								
		10762B	PFEESA		5/13/25	10/18/23								
		10763B	PFMBA PF50HxA		3/31/25	10/18/23								
		10764	PFMPA PF406A		3/31/25	2/8/24								
		10765B	NFHDA 3.6-08PAPA		3/31/25	10/18/23								
					NS 02/10/23									

\* 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
* 2074 A-B LCMS	PFC SPIKE	11613	PROA-SD C8800015	Absolute	11/09/27	02/23/24	1.0ppm	2mL	5mL	400ppb	95% MeOH 5% H2O	02/23/23	03/23/23	NG
↓	↓	10829	N-Me- FSA-M	Wellington Labs	08/23/26	09/23/23	50ppm	40uL	↓	↓	↓	↓	↓	NG
↓	↓	11250	FBSA-1	↓	11/10/26	11/08/23	↓	↓	↓	↓	↓	↓	↓	NG
↓	↓	11249	FHSA-1	↓	12/29/26	11/03/23	↓	↓	↓	↓	↓	↓	↓	NG
↓	↓	11332	FTECHS	↓	03/28/27	10/18/23	↓	↓	↓	↓	↓	↓	↓	NG
* 2075 A-F LCMS	(10 PPB) PFC ID SURC	11639	MPAC- 24ES	Wellington Labs	03/24/27	02/23/24	1.0ppm	2.4mL	~50 mL	0.5ppm	95% MeOH 5% H2O	02/23/23	02/23/23	NG
↓	↓	11585	N2HFO- DA	Wellington Labs	11/08/25	01/26/24	50ppm	48uL	↓	↓	↓	↓	↓	NG
↓	↓	11385	A-N- NFCOSAM	Wellington Labs	05/10/27	01/01/24	50ppm	48uL	↓	↓	↓	↓	↓	NG
↓	↓	11250	FBSA-1	Wellington Labs	11/10/26	11/8/23	50ppm	80uL	4.0mL	1ppm	95% MeOH 5% H2O	2/17/23	5/19/26	MV
↓	↓	11249	FHSA-1	↓	2/29/26	11/3/23	50ppm	80uL	↓	↓	↓	↓	↓	↓
↓	↓	11140	L-PFAS	↓	7/12/26	5/26/23	50ppm	80uL	↓	↓	↓	↓	↓	↓
LCMS 2077A-B	1633 Solvent B	11387	Ammonium Acetate	Sigmall drich	---	1/25/24	99.9%	0.62g	4L	2mM	MA	2/28/23	4/28/23	MV
↓	↓	224870	HPLC water	Fisher	---	2/28/23	↓	3,800ml	↓	95%	↓	↓	↓	↓
↓	↓	220225	Acetonil trile	↓	---	2/20/24	↓	200mL	↓	5%	↓	↓	↓	↓
↓	↓	---	---	---	---	n/a	n/a	n/a	2/28/23	---	---	---	---	---
↓	↓	---	---	---	---	Continue next page 21	---	---	---	---	---	---	---	---

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

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2052	1633 prep mix	Lot: 221044	MeOH	Fisher	—	1/4/24	99.9%	92 mL	100 mL	92%	N/A	1/19/23	2/19/23	MV
↓	↓	Lot: 219481	NH4OH	↓	—	9/19/23	100%	3.3 mL	↓	1%	↓	↓	↓	↓
↓	↓	Lot: 224863	H2O	↓	—	1/17/24	100%	1.7 mL	↓	4%	↓	↓	↓	↓
↓	↓	Lot: 224297	Acetic ACID	↓	—	6/24	99.7%	0.625 mL	↓	.625%	↓	↓	↓	↓
LCMS 2053	(spike) Full list std	11568	PF6A 200 28	SGS standards	11/9/27	1/10/24	1.0 ppm	400 NL	4.0 mL	100 ppb	95% MeOH 5% H2O	12/4/23	3/21/23	MV
↓	↓	LCMS 1987	40 list add-on #1	↓	—	3/21/23	1.0 ppm	400 NL	↓	↓	↓	↓	↓	↓
↓	↓	LCMS 1986	40 list add-on #2	↓	—	4/8/23	1.0 ppm	400 NL	↓	↓	↓	↓	↓	↓
↓	↓	LCMS 2054	FOSC std.	↓	—	7/24/23	5.0 ppm	400 NL	↓	500 ppb	↓	↓	↓	↓
LCMS 2054	FOSC std.	11336	N-Et-FOSE	Wellington	5/13/27	9/19/23	50 ppm	200 NL	2.0 mL	5 ppm	95% MeOH 5% H2O	12/4/23	7/24/23	MV
↓	↓	11338	N-ME FOSE	↓	5/13/27	9/19/23	50 ppm	200 NL	↓	↓	↓	↓	↓	↓
LCMS 2055	1633 Cal std.	10855	PFAC-MxH	Wellington	9/14/26	1/17/24	1-4 ppm	250 NL	4 mL	62.5 125 250 ppb	1633 MIX	1/24/23	7/24/23	MV
↓	↓	10853I	PFAC-MxI	↓	9/14/26	1/11/24	1-10 ppm	250 NL	↓	62.5 125 250 ppb	↓	↓	↓	↓
↓	↓	11579B	PFAC-MxF	↓	11/1/25	1/11/24	2 ppm	500 NL	↓	250 ppb	↓	↓	↓	↓
↓	↓	11607A	PFAC-MxG	↓	3/4/25	1/24/24	2 ppm	250 NL	↓	125 ppb	↓	↓	↓	↓
↓	↓	11492	PFAC-MxJ	↓	9/14/26	1/11/24	4-20 ppm	312 NL	↓	312/100 ppb	↓	↓	↓	↓
↓	↓	11603	PFAC-MxJ	↓	—	1/24/24	4-20 ppm	312 NL	↓	ppb	↓	↓	↓	↓

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

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



11494



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**CERTIFICATE OF ANALYSIS  
DOCUMENTATION**

**br-NMeFOSE**

**2-(N-Methylperfluorooctanesulfonamido)ethanol  
Isomeric Mix**

<b><u>PRODUCT CODE:</u></b>	br-NMeFOSE
<b><u>LOT NUMBER:</u></b>	brNMeFOSE0922
<b><u>CONCENTRATION:</u></b>	50.0 ± 2.5 µg/mL
<b><u>SOLVENT(S):</u></b>	Methanol
<b><u>DATE PREPARED:</u></b> (mm/dd/yyyy)	09/02/2022
<b><u>LAST TESTED:</u></b> (mm/dd/yyyy)	09/07/2022 (HRGC/LRMS) 10/07/2022 (LC/MS)
<b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)	10/07/2027
<b><u>RECOMMENDED STORAGE:</u></b>	Store ampoule in a cool, dark place

**DESCRIPTION:**

The chemical purity has been determined to be ≥98% 2-(N-methylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

**DOCUMENTATION/ DATA ATTACHED:**

Table A: Isomeric Components and Percent Composition by <sup>19</sup>F-NMR  
 Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)  
 Figure 2: LC/MS Data (Full Scan and Mass Spectrum)  
 Figure 3: LC/MS Data (SIR)  
 Figure 4: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- CAS #: 24448-09-7 (for linear isomer).

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

brNMeFOSE0922 (1 of 7)  
rev1

7.9.1

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# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### br-NEtFOSE

**2-(N-Ethylperfluorooctanesulfonamido)ethanol  
Isomeric Mix**

<b><u>PRODUCT CODE:</u></b>	br-NEtFOSE
<b><u>LOT NUMBER:</u></b>	brNEtFOSE1022
<b><u>CONCENTRATION:</u></b>	50.0 ± 2.5 µg/mL
<b><u>SOLVENT(S):</u></b>	Methanol
<b><u>DATE PREPARED:</u></b> (mm/dd/yyyy)	09/12/2022
<b><u>LAST TESTED:</u></b> (mm/dd/yyyy)	09/12/2022 (HRGC/LRMS) 10/07/2022 (LC/MS)
<b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)	10/07/2027
<b><u>RECOMMENDED STORAGE:</u></b>	Store ampoule in a cool, dark place

### DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-ethylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

### DOCUMENTATION/ DATA ATTACHED:

- Table A: Isomeric Components and Percent Composition by <sup>19</sup>F-NMR
- Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 3: LC/MS Data (SIR)
- Figure 4: LC/MS/MS Data (Selected MRM Transitions)

### ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 1691-99-2 (for linear isomer).

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# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### br-NMeFOSA

#### **N-Methylperfluorooctanesulfonamide Isomeric Mix**

<b>PRODUCT CODE:</b>	br-NMeFOSA
<b>LOT NUMBER:</b>	brNMeFOSA0822
<b>CONCENTRATION:</b>	50.0 ± 2.5 µg/mL
<b>SOLVENT(S):</b>	Methanol
<b>DATE PREPARED:</b> (mm/dd/yyyy)	08/18/2022
<b>LAST TESTED:</b> (mm/dd/yyyy)	08/23/2022
<b>EXPIRY DATE:</b> (mm/dd/yyyy)	08/23/2027
<b>RECOMMENDED STORAGE:</b>	Store ampoule in a cool, dark place

#### **DESCRIPTION:**

The chemical purity has been determined to be ≥98% N-methylperfluorooctanesulfonamide (linear and branched isomers). The full name, structure, and percent composition for each of the identified isomeric components are given in Table A.

#### **DOCUMENTATION/ DATA ATTACHED:**

Table A: Isomeric Components and Percent Composition by <sup>19</sup>F-NMR  
Figure 1: LC/MS Data (Full Scan and Mass Spectrum)  
Figure 2: LC/MS Data (SIR)  
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

#### **ADDITIONAL INFORMATION:**

- See page 2 for further details.
- CAS #: 31506-32-8 (for linear isomer).

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# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### br-NEtFOSA

#### N-Ethylperfluorooctanesulfonamide Isomeric Mix

<b>PRODUCT CODE:</b>	br-NEtFOSA
<b>LOT NUMBER:</b>	brNEtFOSA0922
<b>CONCENTRATION:</b>	50.0 ± 2.5 µg/mL
<b>SOLVENT(S):</b>	Methanol
<b>DATE PREPARED:</b> (mm/dd/yyyy)	08/23/2022
<b>LAST TESTED:</b> (mm/dd/yyyy)	10/07/2022
<b>EXPIRY DATE:</b> (mm/dd/yyyy)	10/07/2027
<b>RECOMMENDED STORAGE:</b>	Store ampoule in a cool, dark place

#### DESCRIPTION:

The chemical purity has been determined to be ≥98% N-ethylperfluorooctanesulfonamide (linear and branched isomers). The full name, structure, and percent composition for each of the identified isomeric components are given in Table A.

#### DOCUMENTATION/ DATA ATTACHED:

- Table A: Isomeric Components and Percent Composition by <sup>19</sup>F-NMR
- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (SIR)
- Figure 3: LC/MS/MS Data (Selected MRM Transitions)

#### ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 4151-50-2 (for linear isomer).

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brNEtFOSA0922 (1 of 6)  
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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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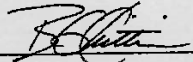
PFACMXJ:0921 (1 of 5)  
rev1

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

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

Certified By:   
 B.G. Chittim, General Manager

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

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

PFACMX.0921 (3 of 5)  
 rev1

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rec'd: 02/23/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXH

**Native PFAS  
Solution/Mixture**

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

#### DESCRIPTION:

PFAC-MXH is a solution/mixture of 11 native linear perfluoroalkylcarboxylic acids (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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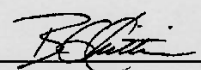


**Table A: PFAC-MXH; Components and Concentrations**  
(ng/mL, ± 5% in methanol/isopropanol (2%)/water (<1%))

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	PFTDA	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-butanesulfonate	L-PFBS	1000	887	3
Sodium perfluoro-1-pentanesulfonate	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-heptanesulfonate	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-nonanesulfonate	L-PFNS	1000	962	19
Sodium perfluoro-1-decanesulfonate	L-PFDS	1000	965	25
Sodium perfluoro-1-dodecanesulfonate	L-PFDoS	1000	970	28
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	4000	3750	4
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	4000	3800	10
Sodium 1H,1H,2H,2H-perfluorodecanesulfonate	8:2FTS	4000	3840	16

<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>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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**Table A:**

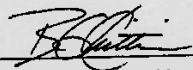
**PFAC-MXF; Components and Concentrations (ng/mL; ± 5% in Methanol/Water (<1%))**

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

\* Concentrations have been rounded to three significant figures.

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

B.G. Chittim, General Manager



Date: 01/12/2022

(mm/dd/yyyy)

11675  
rec'd: 02/23/23



# 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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Revision# 9, Revised 2020-12-23

PFACMXG1122 (1 of 5)  
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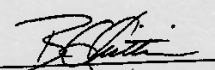


**PFAC-MXG; Components and Concentrations (ng/mL; ± 5% in methanol/water (<1%))**

Table A

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:  Date: 12/09/2022  
(mm/dd/yyyy)  
 B.G. Chittim, General Manager

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# WELLINGTON LABORATORIES

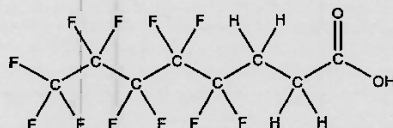
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** FPePA  
**COMPOUND:** 3-Perfluoropentyl propanoic acid

**LOT NUMBER:** FPePA1120

**STRUCTURE:**

**CAS #:** 914637-49-3



**MOLECULAR FORMULA:** C<sub>8</sub>H<sub>5</sub>F<sub>11</sub>O<sub>2</sub>  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL  
**CHEMICAL PURITY:** >98%  
**LAST TESTED:** (mm/dd/yyyy) 11/11/2020  
**EXPIRY DATE:** (mm/dd/yyyy) 11/11/2025  
**RECOMMENDED STORAGE:** Refrigerate ampoule

**MOLECULAR WEIGHT:** 342.11  
**SOLVENT(S):** Methanol

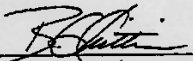
**DOCUMENTATION/ DATA ATTACHED:**

- 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.
- Contains <1% of the unsaturated 5:3 telomer acid (C<sub>8</sub>H<sub>3</sub>F<sub>11</sub>O<sub>2</sub>) as an impurity determined by <sup>19</sup>F NMR.

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

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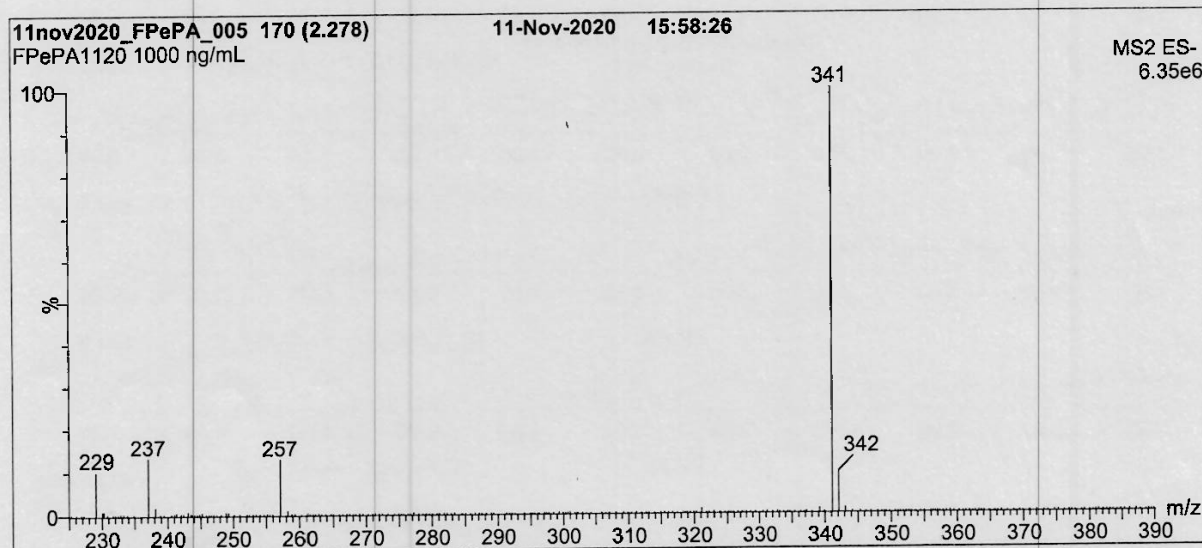
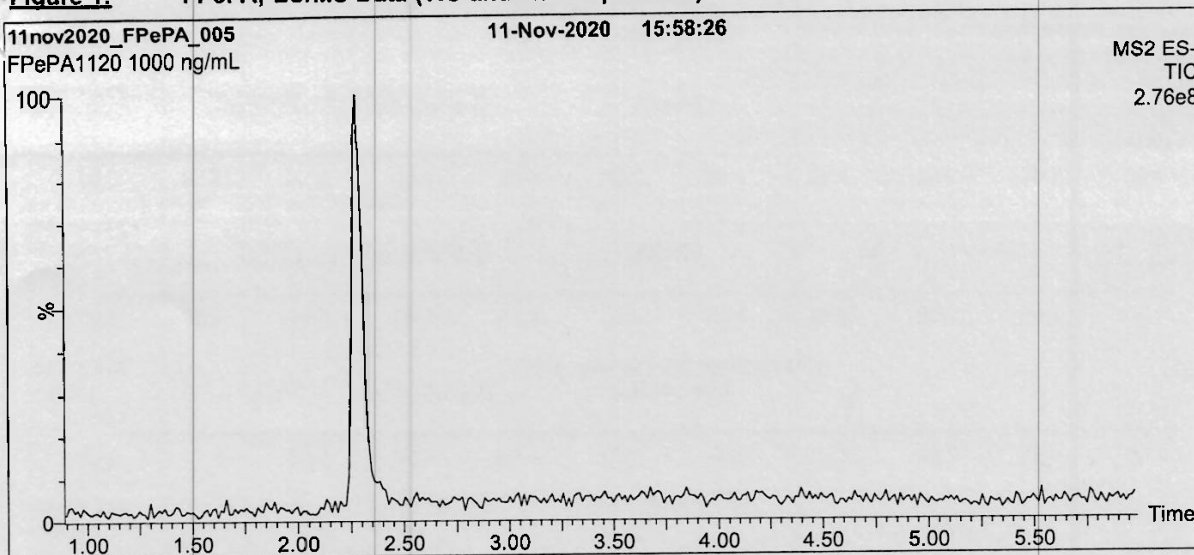
Form#:27, Issued 2004-11-10  
Revision#:8, Revised 2020-09-10

FPePA1120 (1 of 4)  
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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

10726 A

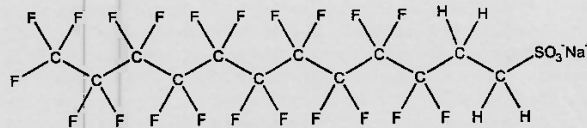


# WELLINGTON LABORATORIES

## 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

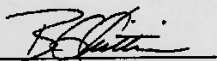
**DOCUMENTATION/ DATA ATTACHED:**

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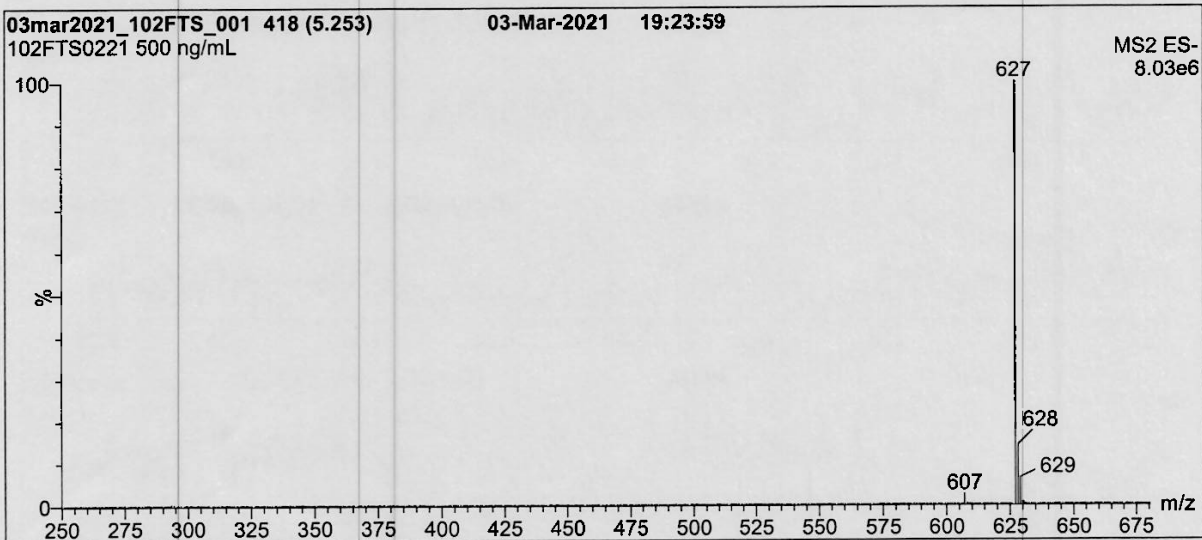
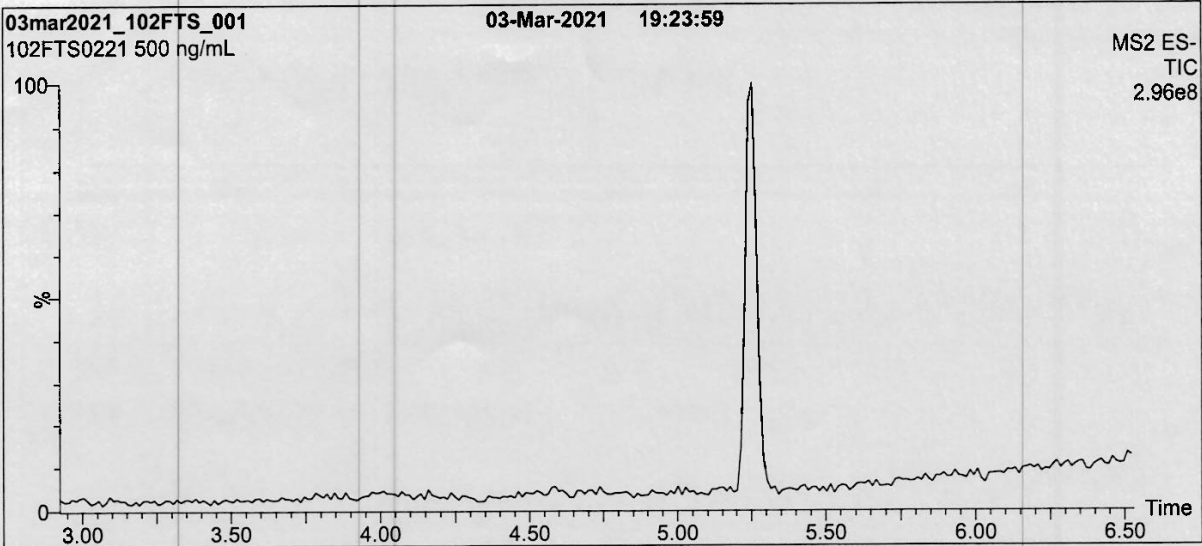
Form#: 27, Issued 2004-11-10  
Revision#: 9, Revised 2020-12-23

7.9.1

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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

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

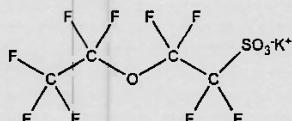
10762 A-B



# WELLINGTON LABORATORIES

## 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

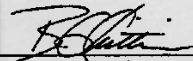
**DOCUMENTATION/ DATA ATTACHED:**

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).

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**   
 B.G. Chittim, General Manager

**Date:** 05/29/2020  
 (mm/dd/yyyy)

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Form#:27, Issued 2004-11-10  
 Revision#:7, Revised 2020-01-09

PFEESA0520 (1 of 4)  
 rev0

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10763 A-B



# WELLINGTON LABORATORIES

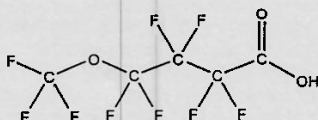
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**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

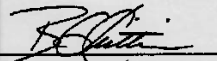
**DOCUMENTATION/ DATA ATTACHED:**

- 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.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**   
B.G. Chittim, General Manager

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

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

PF5OHxA0320 (1 of 4)  
rev1

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# WELLINGTON LABORATORIES

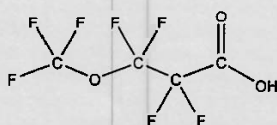
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**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

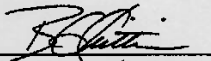
### DOCUMENTATION/ DATA ATTACHED:

- 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)

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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

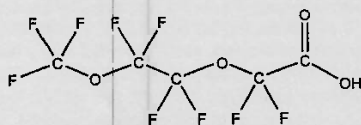
**COMPOUND:**

Perfluoro-3,6-dioxaheptanoic acid

**STRUCTURE:**

**CAS #:**

151772-58-6



**MOLECULAR FORMULA:**

C<sub>6</sub>H<sub>2</sub>F<sub>8</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.

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**Certified By:**

B.G. Chittim, General Manager

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

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10829



# WELLINGTON LABORATORIES

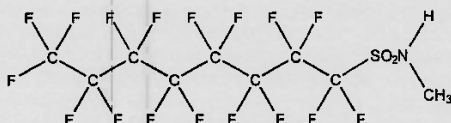
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**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

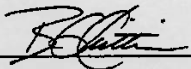
**DOCUMENTATION/ DATA ATTACHED:**

- 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.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**   
B.G. Chittim, General Manager

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

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

NMeFOSA0721M (1 of 4)  
rev0

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# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

N-EtFOSA-M

10837

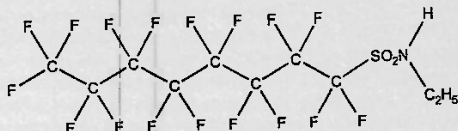
**LOT NUMBER:** NEtFOSA0821M

**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)

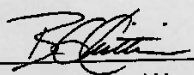
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**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

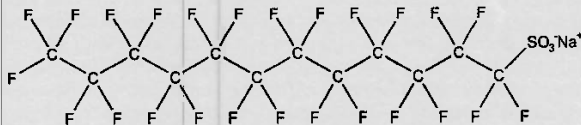
10840

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

**LOT NUMBER:** LPFDoS0721

**STRUCTURE:**

**CAS #:** 1260224-54-1



**MOLECULAR FORMULA:** C<sub>12</sub>F<sub>25</sub>SO<sub>3</sub>Na  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL (Na salt)  
48.5 ± 2.4 µg/mL (PFDoS acid)  
48.4 ± 2.4 µg/mL (PFDoS anion)  
**CHEMICAL PURITY:** >98%  
**LAST TESTED:** (mm/dd/yyyy) 07/09/2021  
**EXPIRY DATE:** (mm/dd/yyyy) 07/09/2026  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

**MOLECULAR WEIGHT:** 722.14  
**SOLVENT(S):** Methanol


**DOCUMENTATION/ DATA ATTACHED:**

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

**ADDITIONAL INFORMATION:**

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

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**   
B.G. Chittim, General Manager

**Date:** 07/16/2021  
(mm/dd/yyyy)

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# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

10847 NS 01/18/23

**PRODUCT CODE:**

PFODA

**LOT NUMBER:**

PFODA0821

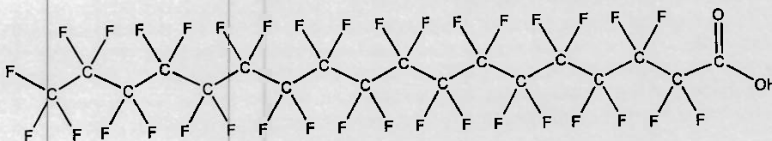
**COMPOUND:**

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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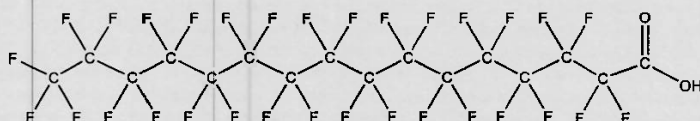


**WELLINGTON**  
LABORATORIES

**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

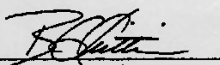
**DOCUMENTATION/ DATA ATTACHED:**

- 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  
 B.G. Chittim, General Manager (mm/dd/yyyy)

**Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA**  
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Form#:27, Issued 2004-11-10  
 Revision#:9, Revised 2020-12-23

PFHxDA0421 (1 of 4)  
 rev0

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7



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1116B on the back NW



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

FHpPA

**LOT NUMBER:**

FHpPA1020

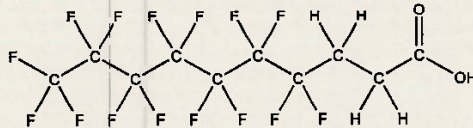
**COMPOUND:**

3-Perfluoroheptyl propanoic acid

**STRUCTURE:**

**CAS #:**

812-70-4



**MOLECULAR FORMULA:**

C<sub>10</sub>H<sub>5</sub>F<sub>15</sub>O<sub>2</sub>

**MOLECULAR WEIGHT:**

442.12

**CONCENTRATION:**

50.0 ± 2.5 µg/mL

**SOLVENT(S):**

Methanol

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

11/12/2020

**EXPIRY DATE:** (mm/dd/yyyy)

11/12/2025

**RECOMMENDED STORAGE:**

Refrigerate ampoule

**DOCUMENTATION/ DATA ATTACHED:**

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

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

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**

B.G. Chittim, General Manager

**Date:** 11/27/2020

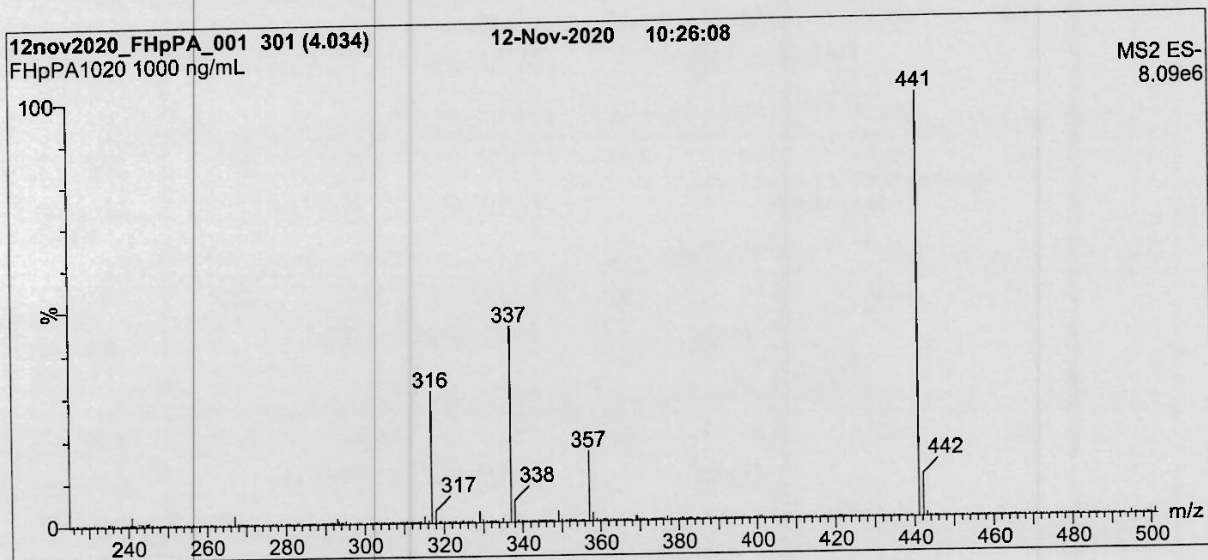
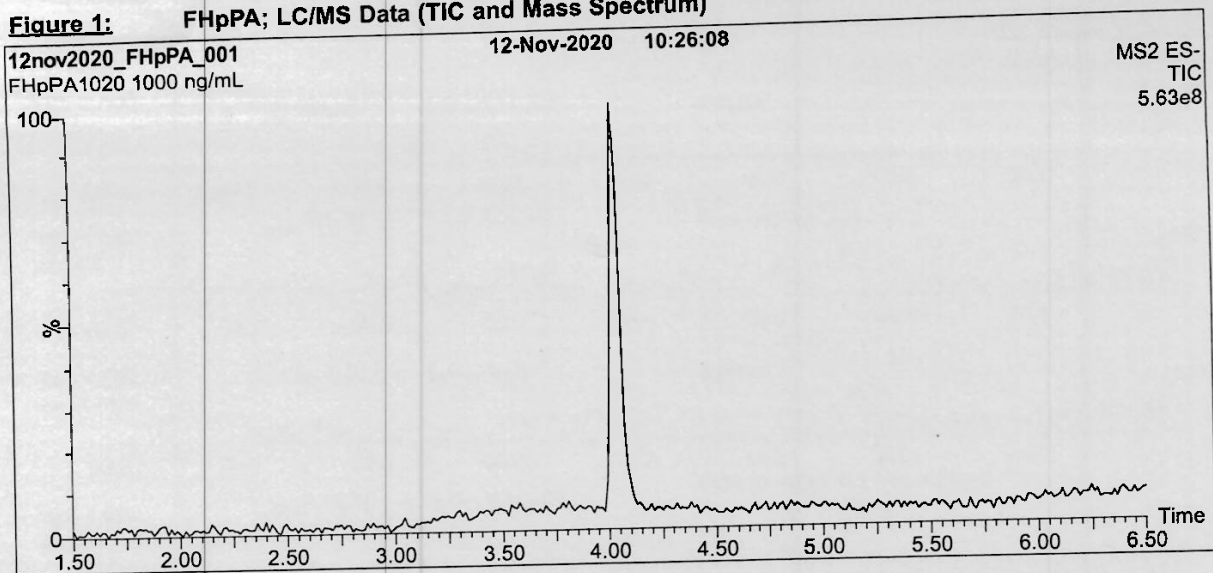
(mm/dd/yyyy)

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

FHpPA1020 (1 of 4)  
rev0

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



**Conditions for Figure 1:**

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

**Chromatographic Conditions:**

Column: Acquity UPLC BEH Shield RP<sub>18</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) = 28.50  
Desolvation Temperature ( $^{\circ}$ C) = 500  
Desolvation Gas Flow (L/hr) = 1000

FPrPA(3:3FTEA) 1116 B



**WELLINGTON**  
LABORATORIES

**CERTIFICATE OF ANALYSIS**  
DOCUMENTATION

**PRODUCT CODE:**

FPrPA

**LOT NUMBER:**

FPrPA0122

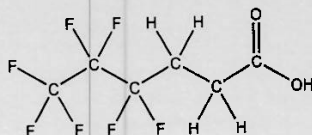
**COMPOUND:**

3-Perfluoropropyl propanoic acid

**STRUCTURE:**

**CAS #:**

356-02-5



**MOLECULAR FORMULA:**

$C_6H_5F_7O_2$

**MOLECULAR WEIGHT:**

242.09

**CONCENTRATION:**

$50.0 \pm 2.5 \mu\text{g/mL}$

**SOLVENT(S):**

Methanol

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

02/03/2022

**EXPIRY DATE:** (mm/dd/yyyy)

02/03/2027

**RECOMMENDED STORAGE:**

Refrigerate ampoule

**DOCUMENTATION/ DATA ATTACHED:**

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

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

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains <1% of the unsaturated 3:3 telomer acid ( $C_6H_3F_7O_2$ ) as an impurity determined by  $^{19}\text{F}$  NMR.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

Certified By:

B.G. Chittim, General Manager

Date: 02/04/2022  
(mm/dd/yyyy)

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11140



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

L-PFPrS

**LOT NUMBER:**

LPFPrS0721

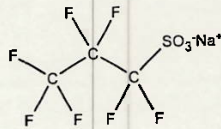
**COMPOUND:**

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.

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Certified By:

B.G. Chittim, General Manager

Date: 08/04/2021

(mm/dd/yyyy)

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11252 11249  
7/1/22 KA



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

FHxSA-I

**LOT NUMBER:**

FHxSA12211

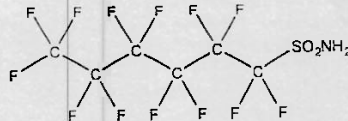
**COMPOUND:**

Perfluoro-1-hexanesulfonamide

**STRUCTURE:**

**CAS #:**

41997-13-1



**MOLECULAR FORMULA:**

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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11250 Lx 7/1122



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

FBSA-I

**LOT NUMBER:**

FBSA11211

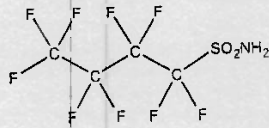
**COMPOUND:**

Perfluoro-1-butananesulfonamide

**STRUCTURE:**

**CAS #:**

30334-69-1



**MOLECULAR FORMULA:**

C<sub>4</sub>H<sub>2</sub>F<sub>10</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:**

B.G. Chittim, General Manager

**Date:** 11/10/2021

(mm/dd/yyyy)

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

FBSA11211 (1 of 4)  
rev0

11332



# WELLINGTON LABORATORIES

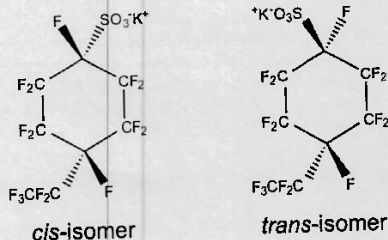
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**  
**COMPOUND:**

PFECHS  
Potassium perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)

**LOT NUMBER:** PFECHS0222

**STRUCTURE:**



**CAS #:** 335-24-0

**MOLECULAR FORMULA:**  
**CONCENTRATION:**

$C_8F_{15}SO_3K$   
50.0 ± 2.5 µg/mL (K salt)  
46.2 ± 2.3 µg/mL (PFECHS acid)  
46.1 ± 2.3 µg/mL (PFECHS anion)  
>98%

**MOLECULAR WEIGHT:** 500.22  
**SOLVENT(S):** Methanol

**CHEMICAL PURITY:**

**LAST TESTED:** (mm/dd/yyyy)

03/28/2022

**EXPIRY DATE:** (mm/dd/yyyy)

03/28/2027

**RECOMMENDED STORAGE:**

Store ampoule in a cool, dark place

**DOCUMENTATION/ DATA ATTACHED:**

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

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains a mixture of the *cis/trans* isomers of PFECHS at a ratio of 1:1.27 (*cis:trans*).

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Certified By:

B.G. Chittim, General Manager

Date: 03/30/2022  
(mm/dd/yyyy)

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11338



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

N-MeFOSE-M

**LOT NUMBER:**

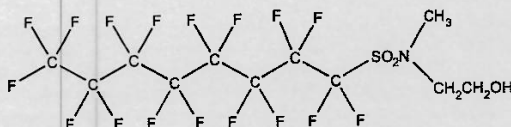
NMeFOSE0522M

**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)

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11615 A-5  
rec'd 01/19/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### MPFAC-HIF-IS

Mass-Labelled PFAS Injection  
Standard Solution/Mixture

**PRODUCT CODE:** MPFAC-HIF-IS  
**LOT NUMBER:** MPFACHIFIS1122  
**SOLVENT(S):** Methanol/Water (<1%)  
**DATE PREPARED:** (mm/dd/yyyy) 11/28/2022  
**LAST TESTED:** (mm/dd/yyyy) 11/29/2022  
**EXPIRY DATE:** (mm/dd/yyyy) 11/29/2027  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

#### DESCRIPTION:

MPFAC-HIF-IS is a solution/mixture of five mass-labelled ( $^{13}\text{C}$ ) perfluoroalkylcarboxylic acids ( $\text{C}_4$ ,  $\text{C}_6$ ,  $\text{C}_8$ - $\text{C}_{10}$ ) and two mass-labelled ( $^{18}\text{O}$  and  $^{13}\text{C}$ ) perfluoroalkanesulfonates ( $\text{C}_6$  and  $\text{C}_8$ ). 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  $\geq 99\%$  per  $^{13}\text{C}$  or >94% per  $^{18}\text{O}$ .

#### 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

MPFACHIFIS1122 (1 of 5)  
rev0

7.9.1

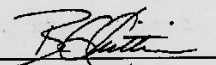
7



**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: 12/05/2022  
(mm/dd/yyyy)



11626  
rec'd 01/26/23

**CERTIFIED WEIGHT REPORT**

Part Number: **64029A**  
Lot Number: **110922**  
Description: **PFOA - DOD**  
28 components  
Expiration Date: **110827**  
Recommended Storage: **Freezer (0 °C)**  
Nominal Concentration (µg/mL): **1.0**  
NIST Test ID#: **6UTB**

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

Formulated By: <i>P. S. Chauhan</i>	110922
Prepared By: <i>Prashant Chauhan</i>	DATE
Reviewed By: <i>Prashant Chauhan</i>	110922
Reviewed By: <i>Pedro L. Rentas</i>	DATE

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

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (+/-) µg/mL	SDS Information (Solvent Safety Info. On Attached pg.)		
									Free Acid CAS#	OSHA PEL (TWA)	LD50
1. Perfluoro-n-butanoic acid (PFBA)	99542	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-22-4	N/A	N/A
2. Perfluoro-n-pentanoic acid (PFPeA)	99543	050222	0.02	2.00	0.017	50.3	1.01	0.02	2706-90-3	N/A	N/A
3. Perfluorohexanoic acid (PFHxA)	99199	071122	0.02	2.00	0.017	50.2	1.00	0.02	307-24-4	N/A	N/A
4. Perfluoroheptanoic acid (PFHpA)	99197	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-85-9	N/A	N/A
5. Perfluorooctanoic acid (br-PFOA)*	99202	080522	0.02	2.00	0.017	50.2	1.00	0.02	335-67-1 (L)	N/A	ipr-rat 189mg/kg
6. Perfluorononanoic acid (PFNA)	99200	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-95-1	N/A	N/A
7. Perfluorodecanoic acid (PFDA)	99195	110922	0.02	2.00	0.017	50.0	1.00	0.02	335-76-2	N/A	rat 57mg/kg
8. Perfluoroundecanoic acid (PFUnA)	99205	071522	0.02	2.00	0.017	50.2	1.00	0.02	2058-94-8	N/A	N/A
9. Perfluorododecanoic acid (PFDoA)	99196	071522	0.02	2.00	0.017	50.1	1.00	0.02	307-55-1	N/A	N/A
10. Perfluorotridecanoic acid (PTTDA)	99204	110922	0.02	2.00	0.017	50.1	1.00	0.02	72629-94-8	N/A	N/A
11. Perfluorotetradecanoic acid (PFTeDA)	99203	033022	0.02	2.00	0.017	50.1	1.00	0.02	376-06-7	N/A	N/A
12. Perfluoro-1-octanesulfonamide (FOSA)	3677	FOSA03221	0.02	2.00	0.017	50.0	1.00	0.05	2355-31-9 (L)	N/A	N/A
13. N-Methylperfluoro-1-octanesulfonamidoacetic acid (br-NMeFOSAA)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	50.0	1.00	0.05	2991-50-6 (L)	N/A	N/A
14. N-Ethylperfluoro-1-octanesulfonamidoacetic acid (br-NEFOSAA)*	4163	brNEFOSAA1121	0.02	2.00	0.017	50.0	1.00	0.05	2991-50-6 (L)	N/A	N/A
15. Perfluorobutanesulfonic acid (PFBS)	99194	080522	0.02	2.00	0.017	50.2	1.00	0.02	375-73-5	N/A	N/A
16. Perfluoro-1-pentanesulfonic acid (PFPeS)	99544	032422	0.02	2.00	0.017	50.1	1.00	0.02	2706-91-4	N/A	N/A
17. Perfluorohexanesulfonic acid (br-PFHxS)*	99198	071522	0.02	2.00	0.017	50.2	1.00	0.02	355-46-4 (L)	N/A	N/A
18. Perfluoro-1-heptanesulfonic acid (PFHpS)	3672	LPFHpS0822	0.021	2.10	0.017	47.6	1.00	0.05	375-92-8	N/A	N/A
19. Heptadecafluorooctanesulfonic acid (br-PFOS)*	99201	033022	0.02	2.00	0.017	50.1	1.00	0.02	1763-23-1 (L)	N/A	N/A
20. Perfluoro-1-nonanesulfonic acid (PFNS)	3957	LPFNS1021	0.021	2.10	0.017	48.0	1.01	0.05	68259-12-1	N/A	N/A
21. Perfluoro-1-decanesulfonic acid (PFDS)	3671	LPFDS0222	0.021	2.10	0.017	48.2	1.01	0.05	335-77-3	N/A	N/A
22. 1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	65271	080522	0.02	2.00	0.017	50.2	1.00	0.05	757124-72-4	N/A	N/A
23. 1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	65272	071522	0.02	2.00	0.017	50.2	1.00	0.05	29108-34-4	N/A	N/A
24. 1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	3662	82FTS0822	0.021	2.10	0.017	47.9	1.01	0.05	39108-34-4	N/A	N/A
25. 2-(Heptafluoropropoxy)-2,3,3,3-tetrafluoropropanoic acid (HFPO-DA)	99666	080522	0.02	2.00	0.017	50.1	1.00	0.02	13252-13-6	N/A	N/A
26. 11-Chlorooctadecafluoro-3-oxadecane-1-sulfonic acid (11Cl-PF3OUdS)	4165	11ClPF3OUdS0522	0.021	2.12	0.017	47.1	1.00	0.05	763051-92-9	N/A	N/A
27. 9-Chlorooctadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	4164	9ClPF3ONS0522	0.021	2.14	0.017	46.8	1.00	0.05	756426-56-1	N/A	N/A
28. Dodecafluoro-3H-4,8-dioxanonanoic acid (ADONA)	4103	NaDONA0922	0.021	2.12	0.017	47.1	1.00	0.05	919005-14-4	N/A	N/A
Perfluorooctanoic acid (linear)*	99202	080522	0.02	2.00	0.004	49.6	0.99	0.010	335-67-1 (L)	N/A	ipr-rat 189mg/kg
Perfluorooctanoic acid (branched isomer)*	99202	080522	0.02	2.00	0.004	0.6	0.01	0.001	335-67-1 (L)	N/A	ipr-rat 189mg/kg
Perfluorohexanesulfonic acid (linear)*	99198	071522	0.02	2.00	0.017	44.2	0.88	0.02	355-46-4 (L)	N/A	N/A
Perfluorohexanesulfonic acid (branched isomer)*	99198	071522	0.02	2.00	0.017	6.0	0.12	0.0021	355-46-4 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (linear)*	99201	033022	0.02	2.00	0.017	38.1	0.76	0.02	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	7.5	0.15	0.003	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	4.0	0.08	0.002	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	0.5	0.010	0.0002	1763-23-1 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	36.0	0.72	0.04	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	6.5	0.13	0.011	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	5.0	0.10	0.005	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	2.5	0.05	0.0009	2355-31-9 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4163	brNEFOSAA1121	0.02	2.00	0.017	36.6	0.73	0.04	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	7.7	0.15	0.009	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	6.3	0.11	0.005	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	0.4	0.007	0.0006	2991-50-6 (L)	N/A	N/A

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

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

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



11636 A-J  
rec'd 02/06/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### MPFAC-HIF-ES

#### Mass-Labelled PFAS Extraction Standard Solution/Mixture

**PRODUCT CODE:** MPFAC-HIF-ES  
**LOT NUMBER:** MPFACHIFES1022  
**SOLVENT(S):** Methanol/Isopropanol (1%)/Water (<1%)  
**DATE PREPARED:** (mm/dd/yyyy) 10/28/2022  
**LAST TESTED:** (mm/dd/yyyy) 11/23/2022  
**EXPIRY DATE:** (mm/dd/yyyy) 11/23/2025  
**RECOMMENDED STORAGE:** Refrigerate ampoule

#### DESCRIPTION:

MPFAC-HIF-ES is a solution/mixture of ten mass-labelled (<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) perfluorooctanesulfonamidoethanols, 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.

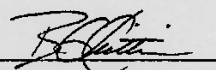
**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

**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>6</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		18
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		22
Perfluoro-1-( <sup>13</sup> C <sub>8</sub> )octanesulfonamide	M8FOSA	500		17
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>3</sub> -ol	d9-N-EtFOSE	5000		23
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: 11/24/2022  
(mm/dd/yyyy)



SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 04/14/23 10:00  
 Started (mm/dd/yy 24:00)

Method: EPA 1633 Draft (QSM)

Date/Time: 4/17/23 14:24  
 Finished (mm/dd/yy 24:00)

Balance ID: \_\_\_\_\_

Batch#: OP96403 Ext. By: GH

Conc. By: \_\_\_\_\_ Viald By: \_\_\_\_\_

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount (ul)	Spike Amount (ul)	Final Volume (ml)	Manifold ID	Comments
OP 96403 MB		500	7	N/A	25		5	Ab	
OP 96403 BS		500	7						
OP 96403 LLBS		500	7			200			
FC5164-1	2	560				60			
	2	550							
FC5194-1	2	510							
	2	560							
FC5194-3	2	530	7	N/A	25		5	Ab	
OP FC5194-1 MS	3	510	7	N/A	25	200	5	Ab	
OP FC5194-2 DUP	3	570	7	N/A	25		5	Ab	

Comments:

EIS (SURR) ID: 11741 D-F Conc: 250-5000 ng/ml Exp. Date: 04/11/24 Inj. By: GH Ver. By: DBL  
 SPIKE.1 ID: LCMS 2098C Conc: VARIED Exp. Date: 10/06/23 Inj. By: GH Ver. By: DBL  
 SPIKE.2 ID: \_\_\_\_\_ Conc: \_\_\_\_\_ Exp. Date: \_\_\_\_\_ Inj. By: \_\_\_\_\_ Ver. By: \_\_\_\_\_  
 NIS (ISTD) ID: 11702 D-F Conc: 250-1000 ng/ml Exp. Date: 4/15/24 Inj. By: NW Ver. By: NG

TurboVap Temp (Therm ID): \_\_\_\_\_ N-Evap Temp (Therm ID): \_\_\_\_\_  
 Observed Temp °C: \_\_\_\_\_ Corr. Temp °C: \_\_\_\_\_ Observed Temp °C: \_\_\_\_\_ Corr. Temp °C: \_\_\_\_\_

Methanol Lot # 224231 1% NH4OH MeOH PF356 SPE Lot # 523-001184  
 Water Lot# 0P96255 0.3M Formic Acid PF347 Syringe filter Lot # \_\_\_\_\_  
 Acetic Acid# 194003 3% NH4OH Sol \_\_\_\_\_ pH paper Lot# 215322  
 0.1M Formic PF351 5% Formic Acid \_\_\_\_\_ Carbon Lot# 160898

Relinquished By: Shaniceh Vadgait  
 Accepted By: M. Valls

Date: 04/14/23  
 Date: 4/17/23

1633 AQ extraction 042222.xls.NF