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## Technical Report for

**AECOM, INC.**

**N6274223F0104 RH Fire Suppression System**

**60697810**

**SGS Job Number: FC8731**

**Sampling Date: 08/11/23**

### Report to:

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**Total number of pages in report: 606**



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 unless noted in the narrative, comments or footnotes.

A handwritten signature in black ink that reads "Norm Farmer".

**Norm Farmer**  
**Technical Director**

**Client Service contact: Elvin Kumar 407-425-6700**

Certifications: FL(E83510), LA(03051), KS(E-10327), NC(573), NJ(FL002), NY(12022), SC(96038001)

DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177),

AL, AK, AR, CT, IA, KY, MA, MI, MS, ND, NH, NV, OK, OR, IL, UT, VT, WA, WI, WV

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Test results relate only to samples analyzed.

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## Sample Summary

AECOM, INC.

Job No: FC8731

N6274223F0104 RH Fire Suppression System  
Project No: 60697810

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FC8731-1	08/11/23	10:35 MD	08/15/23	AQ	Ground Water	AF-HDMW225303-WGN01LF-2308

## SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** AECOM, INC.

**Job No:** FC8731

**Site:** N6274223F0104 RH Fire Suppression System

**Report Date:** 8/24/2023 5:31:45 PM

On 08/15/2023, 1 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS North America Inc - Orlando. at a maximum corrected temperature of 3.2 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC8731 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:** OP98526

Sample(s) FC8240-7MS, FC8240-8DUP were used as the QC samples indicated.

Blank Spike Recovery(s) for 3:3 Fluorotelomer carboxylate are outside control limits.

FC8731-1 for 3:3 Fluorotelomer carboxylate: Associated BS outside 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:

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

## Summary of Hits

**Job Number:** FC8731  
**Account:** AECOM, INC.  
**Project:** N6274223F0104 RH Fire Suppression System  
**Collected:** 08/11/23



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
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FC8731-1      AF-HDMW225303-WGN01LF-2308

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

Page 1 of 3

Client Sample ID:	AF-HDMW225303-WGN01LF-2308		
Lab Sample ID:	FC8731-1	Date Sampled:	08/11/23
Matrix:	AQ - Ground Water	Date Received:	08/15/23
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	4Q49345.D	1	08/23/23 12:04	MV	08/19/23 08:40	OP98526	S4Q723
Run #2							

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

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	3.5 U	14	3.5	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8 U	7.0	1.8	0.82	ng/l	
307-24-4	Perfluorohexanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
375-85-9	Perfluoroheptanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
335-67-1	Perfluorooctanoic acid	0.88 U	3.5	0.88	0.44	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	3.5	1.8	0.54	ng/l	
335-76-2	Perfluorodecanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	3.5	1.8	0.53	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	3.5	1.8	0.53	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	3.5	1.8	0.74	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
<b>PERFLUOROALKYL SULFONIC ACIDS</b>							
375-73-5	Perfluorobutanesulfonic acid	1.8 U	3.5	1.8	0.44	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.5 U	4.4	3.5	0.98	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	3.5	1.8	0.61	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.8 U	3.5	1.8	0.44	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	3.5	1.8	0.47	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	3.5	1.8	0.50	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	3.5	1.8	0.56	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.5 U	4.4	3.5	1.0	ng/l	
<b>FLUOROTELOMER SULFONIC ACIDS</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	7.0 U	18	7.0	2.8	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.0 U	18	7.0	3.0	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.0 U	18	7.0	3.6	ng/l	
<b>PERFLUOROOCCTANE SULFONAMIDES</b>							
754-91-6	PFOSA	1.8 U	3.5	1.8	0.59	ng/l	
31506-32-8	MeFOSA	3.5 U	7.0	3.5	0.88	ng/l	
4151-50-2	EtFOSA	3.5 U	7.0	3.5	0.88	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

# Report of Analysis

Client Sample ID:	AF-HDMW225303-WGN01LF-2308		
Lab Sample ID:	FC8731-1	Date Sampled:	08/11/23
Matrix:	AQ - Ground Water	Date Received:	08/15/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

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

2355-31-9	MeFOSAA	3.5 U	4.4	3.5	0.88	ng/l	
2991-50-6	EtFOSAA	3.5 U	4.4	3.5	1.2	ng/l	

**PERFLUOROOCCTANE SULFONAMIDO ETHANOLS**

24448-09-7	MeFOSE	18 U	35	18	3.8	ng/l	
1691-99-2	EtFOSE	18 U	35	18	6.5	ng/l	

**PER and POLYFLUOROETHER CARBOXYLIC ACIDS**

13252-13-6	HFPO-DA (GenX)	1.8 U	3.5	1.8	0.88	ng/l	
919005-14-4	ADONA	3.5 U	7.0	3.5	1.6	ng/l	
377-73-1	PFMPA	1.8 U	7.0	1.8	0.88	ng/l	
863090-89-5	PFMBA	3.5 U	7.0	3.5	1.0	ng/l	
151772-58-6	NFDHA	3.5 U	7.0	3.5	1.1	ng/l	

**PER and POLYFLUOROETHER SULFONIC ACIDS**

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.5 U	7.0	3.5	1.2	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.5 U	7.0	3.5	1.5	ng/l	
113507-82-7	PFEESA	1.8 U	7.0	1.8	0.68	ng/l	

**FLUOROTELOMER CARBOXYLIC ACIDS**

356-02-5	3:3 Fluorotelomer carboxylat <sup>a</sup>	8.8 U	18	8.8	4.0	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	88	18	7.7	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	18 U	88	18	6.9	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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13C4-PFBA	122%		20-150%
13C5-PFPeA	126%		20-150%
13C5-PFHxA	124%		20-150%
13C4-PFHpA	130%		20-150%
13C8-PFOA	122%		20-150%
13C9-PFNA	128%		20-150%
13C6-PFDA	125%		20-150%
13C7-PFUnDA	116%		20-150%
13C2-PFDoDA	112%		20-150%
13C2-PFTeDA	100%		20-150%
13C3-PFBS	123%		20-150%
13C3-PFHxS	113%		20-150%

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



# Report of Analysis

Client Sample ID:	AF-HDMW225303-WGN01LF-2308		
Lab Sample ID:	FC8731-1	Date Sampled:	08/11/23
Matrix:	AQ - Ground Water	Date Received:	08/15/23
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	117%		20-150%
	13C8-FOSA	101%		20-150%
	d3-MeFOSA	105%		20-150%
	d5-EtFOSA	103%		20-150%
	d3-MeFOSAA	115%		20-150%
	d5-EtFOSAA	121%		20-150%
	d7-MeFOSE	101%		20-150%
	d9-EtFOSE	102%		20-150%
	13C2-4:2FTS	120%		20-180%
	13C2-6:2FTS	152%		20-180%
	13C2-8:2FTS	129%		20-180%
	13C3-HFPO-DA	117%		20-150%

(a) Associated BS outside 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





# QC Evaluation: DOD QSM5.x Limits

**Job Number:** FC8731  
**Account:** AECOM, INC.  
**Project:** N6274223F0104 RH Fire Suppression System  
**Collected:** 08/11/23

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 FC8731

5.2  
5

## MS Semi-volatiles

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### QC Data Summaries

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#### Includes the following where applicable:

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

**Instrument Blank**

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q723-IBLK	4Q49339.D	1	08/23/23	MV	n/a	n/a	S4Q723

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC8731-1

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	0.0038	0.0080	0.0010	ug/l	J
4151-50-2	EtFOSA	0.0063	0.0080	0.0010	ug/l	J
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	0.0077	0.040	0.0044	ug/l	J
1691-99-2	EtFOSE	0.0138	0.040	0.0074	ug/l	J
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

# Instrument Blank

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q723-IBLK	4Q49339.D	1	08/23/23	MV	n/a	n/a	S4Q723

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC8731-1

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

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	99% 20-150%
	13C5-PFPeA	102% 20-150%
	13C5-PFHxA	100% 20-150%
	13C4-PFHpA	103% 20-150%
	13C8-PFOA	102% 20-150%
	13C9-PFNA	104% 20-150%
	13C6-PFDA	105% 20-150%
	13C7-PFUnDA	109% 20-150%
	13C2-PFDoDA	112% 20-150%
	13C2-PFTeDA	120% 20-150%
	13C3-PFBS	101% 20-150%
	13C3-PFHxS	98% 20-150%
	13C8-PFOS	97% 20-150%
	13C8-FOSA	110% 20-150%
	d3-MeFOSAA	97% 20-150%
	d5-EtFOSAA	96% 20-150%
	13C2-4:2FTS	104% 20-180%
	13C2-6:2FTS	106% 20-180%
	13C2-8:2FTS	97% 20-180%

6.1.1  
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## Method Blank Summary

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP98526-MB	4Q49344.D	1	08/23/23	MV	08/19/23	OP98526	S4Q723

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC8731-1

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

# Method Blank Summary

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP98526-MB	4Q49344.D	1	08/23/23	MV	08/19/23	OP98526	S4Q723

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC8731-1

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

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	115% 20-150%
	13C5-PFPeA	115% 20-150%
	13C5-PFHxA	117% 20-150%
	13C4-PFHpA	115% 20-150%
	13C8-PFOA	121% 20-150%
	13C9-PFNA	114% 20-150%
	13C6-PFDA	125% 20-150%
	13C7-PFUnDA	119% 20-150%
	13C2-PFDoDA	112% 20-150%
	13C2-PFTeDA	101% 20-150%
	13C3-PFBS	118% 20-150%
	13C3-PFHxS	111% 20-150%
	13C8-PFOS	114% 20-150%
	13C8-FOSA	77% 20-150%
	d3-MeFOSA	86% 20-150%
	d5-EtFOSA	84% 20-150%
	d3-MeFOSAA	108% 20-150%
	d5-EtFOSAA	117% 20-150%
	d7-MeFOSE	75% 20-150%
	d9-EtFOSE	87% 20-150%
	13C2-4:2FTS	129% 20-180%
	13C2-6:2FTS	142% 20-180%
	13C2-8:2FTS	127% 20-180%
	13C3-HFPO-DA	106% 20-150%

## Continuing Calibration Blank

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q723-ICCB	4Q49353.D	1	08/23/23	MV	n/a	n/a	S4Q723

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

OP98526-DUP

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

# Continuing Calibration Blank

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q723-ICCB	4Q49353.D	1	08/23/23	MV	n/a	n/a	S4Q723

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

OP98526-DUP

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

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	100% 20-150%
	13C5-PFPeA	102% 20-150%
	13C5-PFHxA	101% 20-150%
	13C4-PFHpA	102% 20-150%
	13C8-PFOA	99% 20-150%
	13C9-PFNA	104% 20-150%
	13C6-PFDA	108% 20-150%
	13C7-PFUnDA	108% 20-150%
	13C2-PFDoDA	108% 20-150%
	13C2-PFTeDA	100% 20-150%
	13C3-PFBS	99% 20-150%
	13C3-PFHxS	99% 20-150%
	13C8-PFOS	95% 20-150%
	13C8-FOSA	96% 20-150%
	d3-MeFOSAA	102% 20-150%
	d5-EtFOSAA	102% 20-150%
	13C2-4:2FTS	118% 20-180%
	13C2-6:2FTS	123% 20-180%
	13C2-8:2FTS	114% 20-180%

6.1.3

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**Blank Spike Summary**

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP98526-LLBS	4Q49343.D	1	08/23/23	MV	08/19/23	OP98526	S4Q723

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC8731-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.03	0.0324	108	40-150
2706-90-3	Perfluoropentanoic acid	0.015	0.0162	108	40-150
307-24-4	Perfluorohexanoic acid	0.0075	0.0082	109	40-150
375-85-9	Perfluoroheptanoic acid	0.0075	0.0078	104	40-150
335-67-1	Perfluorooctanoic acid	0.0075	0.0071	95	40-150
375-95-1	Perfluorononanoic acid	0.0075	0.0079	105	40-150
335-76-2	Perfluorodecanoic acid	0.0075	0.0070	93	40-150
2058-94-8	Perfluoroundecanoic acid	0.0075	0.0083	111	40-150
307-55-1	Perfluorododecanoic acid	0.0075	0.0082	109	40-150
72629-94-8	Perfluorotridecanoic acid	0.0075	0.0073	97	40-150
376-06-7	Perfluorotetradecanoic acid	0.0075	0.0082	109	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00665	0.0072	108	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00706	0.0080	113	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00686	0.0067	98	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00715	0.0083	116	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00696	0.0075	108	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00722	0.0079	109	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00724	0.0083	115	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.00728	0.0068	93	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0281	0.0288	102	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.0285	0.0319	112	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0288	0.0362	126	40-150
754-91-6	PFOSA	0.0075	0.0082	109	40-150
31506-32-8	MeFOSA	0.015	0.0144	96	40-150
4151-50-2	EtFOSA	0.015	0.0169	113	40-150
2355-31-9	MeFOSAA	0.0075	0.0077	103	40-150
2991-50-6	EtFOSAA	0.0075	0.0093	124	40-150
24448-09-7	MeFOSE	0.0375	0.0376	100	40-150
1691-99-2	EtFOSE	0.0375	0.0353	94	40-150
13252-13-6	HFPO-DA (GenX)	0.015	0.0161	107	40-150
919005-14-4	ADONA	0.0142	0.0149	105	40-150
377-73-1	PFMPA	0.015	0.0154	103	40-150
863090-89-5	PFMBA	0.015	0.0158	105	40-150
151772-58-6	NFDHA	0.015	0.0165	110	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.014	0.0134	96	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0142	0.0142	100	40-150

\* = Outside of Control Limits.

# Blank Spike Summary

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP98526-LLBS	4Q49343.D	1	08/23/23	MV	08/19/23	OP98526	S4Q723

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC8731-1

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	0.0307	82	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.188	0.189	101	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.188	0.197	105	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	119%	20-150%
	13C5-PFPeA	121%	20-150%
	13C5-PFHxA	120%	20-150%
	13C4-PFHpA	125%	20-150%
	13C8-PFOA	121%	20-150%
	13C9-PFNA	130%	20-150%
	13C6-PFDA	129%	20-150%
	13C7-PFUnDA	119%	20-150%
	13C2-PFDoDA	117%	20-150%
	13C2-PFTeDA	104%	20-150%
	13C3-PFBS	117%	20-150%
	13C3-PFHxS	113%	20-150%
	13C8-PFOS	117%	20-150%
	13C8-FOSA	90%	20-150%
	d3-MeFOSA	93%	20-150%
	d5-EtFOSA	87%	20-150%
	d3-MeFOSAA	112%	20-150%
	d5-EtFOSAA	114%	20-150%
	d7-MeFOSE	76%	20-150%
	d9-EtFOSE	86%	20-150%
	13C2-4:2FTS	129%	20-180%
	13C2-6:2FTS	131%	20-180%
	13C2-8:2FTS	105%	20-180%
	13C3-HFPO-DA	117%	20-150%

\* = Outside of Control Limits.

**Blank Spike Summary**

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP98526-BS	4Q49342.D	1	08/23/23	MV	08/19/23	OP98526	S4Q723

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC8731-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.119	119	40-150
2706-90-3	Perfluoropentanoic acid	0.05	0.0596	119	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0292	117	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0287	115	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0280	112	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0280	112	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0279	112	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0323	129	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0290	116	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0276	110	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0321	128	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0243	110	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0295	125	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0286	125	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0283	119	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0271	117	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0288	120	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0269	112	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0240	99	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0938	0.108	115	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.100	105	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.128	133	40-150
754-91-6	PFOSA	0.025	0.0316	126	40-150
31506-32-8	MeFOSA	0.05	0.0570	114	40-150
4151-50-2	EtFOSA	0.05	0.0554	111	40-150
2355-31-9	MeFOSAA	0.025	0.0284	114	40-150
2991-50-6	EtFOSAA	0.025	0.0277	111	40-150
24448-09-7	MeFOSE	0.125	0.135	108	40-150
1691-99-2	EtFOSE	0.125	0.132	106	40-150
13252-13-6	HFPO-DA (GenX)	0.05	0.0577	115	40-150
919005-14-4	ADONA	0.0473	0.0578	122	40-150
377-73-1	PFMPA	0.05	0.0261	52	40-150
863090-89-5	PFMBA	0.05	0.0600	120	40-150
151772-58-6	NFDHA	0.05	0.0574	115	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0468	0.0555	119	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0473	0.0509	108	40-150

\* = Outside of Control Limits.

# Blank Spike Summary

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP98526-BS	4Q49342.D	1	08/23/23	MV	08/19/23	OP98526	S4Q723

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC8731-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0522	117	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.242	194*	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.625	0.712	114	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.743	119	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	26%	20-150%
	13C5-PFPeA	112%	20-150%
	13C5-PFHxA	118%	20-150%
	13C4-PFHpA	123%	20-150%
	13C8-PFOA	116%	20-150%
	13C9-PFNA	121%	20-150%
	13C6-PFDA	120%	20-150%
	13C7-PFUnDA	112%	20-150%
	13C2-PFDoDA	114%	20-150%
	13C2-PFTeDA	90%	20-150%
	13C3-PFBS	126%	20-150%
	13C3-PFHxS	114%	20-150%
	13C8-PFOS	119%	20-150%
	13C8-FOSA	96%	20-150%
	d3-MeFOSA	100%	20-150%
	d5-EtFOSA	96%	20-150%
	d3-MeFOSAA	116%	20-150%
	d5-EtFOSAA	122%	20-150%
	d7-MeFOSE	87%	20-150%
	d9-EtFOSE	93%	20-150%
	13C2-4:2FTS	129%	20-180%
	13C2-6:2FTS	145%	20-180%
	13C2-8:2FTS	118%	20-180%
	13C3-HFPO-DA	113%	20-150%

\* = Outside of Control Limits.



## Matrix Spike Summary

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP98526-MS	4Q49350.D	1	08/23/23	MV	08/19/23	OP98526	S4Q723
FC8240-7	4Q49349.D	1	08/23/23	MV	08/19/23	OP98526	S4Q723

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC8731-1

CAS No.	Compound	FC8240-7 ug/l	Spike Q	MS ug/l	MS %	Limits	
375-22-4	Perfluorobutanoic acid	0.0435		0.0926	0.152	117	40-150
2706-90-3	Perfluoropentanoic acid	0.0213		0.0463	0.0765	119	40-150
307-24-4	Perfluorohexanoic acid	0.0017	J	0.0231	0.0275	111	40-150
375-85-9	Perfluoroheptanoic acid	0.0037	U	0.0231	0.0267	115	40-150
335-67-1	Perfluorooctanoic acid	0.0037	U	0.0231	0.0269	116	40-150
375-95-1	Perfluorononanoic acid	0.0037	U	0.0231	0.0278	120	40-150
335-76-2	Perfluorodecanoic acid	0.0037	U	0.0231	0.0260	112	40-150
2058-94-8	Perfluoroundecanoic acid	0.0037	U	0.0231	0.0283	122	40-150
307-55-1	Perfluorododecanoic acid	0.0037	U	0.0231	0.0288	124	40-150
72629-94-8	Perfluorotridecanoic acid	0.0037	U	0.0231	0.0266	115	40-150
376-06-7	Perfluorotetradecanoic acid	0.0037	U	0.0231	0.0261	113	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0037	U	0.0205	0.0242	118	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0046	U	0.0218	0.0280	129	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0037	U	0.0212	0.0270	128	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0037	U	0.0221	0.0302	137	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0037	U	0.0215	0.0278	129	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0037	U	0.0223	0.0287	129	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0037	U	0.0223	0.0274	123	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0046	U	0.0225	0.0247	110	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.019	U	0.0868	0.101	116	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.019	U	0.088	0.0933	106	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.019	U	0.0889	0.115	129	40-150
754-91-6	PFOSA	0.0037	U	0.0231	0.0279	121	40-150
31506-32-8	MeFOSA	0.0074	U	0.0463	0.0506	109	40-150
4151-50-2	EtFOSA	0.0074	U	0.0463	0.0557	120	40-150
2355-31-9	MeFOSAA	0.0046	U	0.0231	0.0257	111	40-150
2991-50-6	EtFOSAA	0.0046	U	0.0231	0.0243	105	40-150
24448-09-7	MeFOSE	0.037	U	0.116	0.131	113	40-150
1691-99-2	EtFOSE	0.037	U	0.116	0.130	112	40-150
13252-13-6	HFPO-DA (GenX)	0.0037	U	0.0463	0.0525	113	40-150
919005-14-4	ADONA	0.0074	U	0.0438	0.0540	123	40-150
377-73-1	PFMPA	0.0074	U	0.0463	0.0440	95	40-150
863090-89-5	PFMBA	0.0074	U	0.0463	0.0528	114	40-150
151772-58-6	NFDHA	0.0074	U	0.0463	0.0475	103	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0074	U	0.0433	0.0488	113	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0074	U	0.0438	0.0468	107	40-150

\* = Outside of Control Limits.

# Matrix Spike Summary

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP98526-MS	4Q49350.D	1	08/23/23	MV	08/19/23	OP98526	S4Q723
FC8240-7	4Q49349.D	1	08/23/23	MV	08/19/23	OP98526	S4Q723

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC8731-1

CAS No.	Compound	FC8240-7 ug/l	Spike Q	MS ug/l	MS %	Limits
113507-82-7	PFEESA	0.0074 U	0.0412	0.0449	109	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.019 U	0.116	0.162	140	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.093 U	0.579	0.618	107	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.093 U	0.579	0.657	114	40-150

CAS No.	ID Standard Recoveries	MS	FC8240-7	Limits
	13C4-PFBA	58%	69%	20-150%
	13C5-PFPeA	115%	117%	20-150%
	13C5-PFHxA	119%	119%	20-150%
	13C4-PFHpA	117%	120%	20-150%
	13C8-PFOA	112%	114%	20-150%
	13C9-PFNA	105%	115%	20-150%
	13C6-PFDA	118%	117%	20-150%
	13C7-PFUnDA	113%	104%	20-150%
	13C2-PFDoDA	109%	94%	20-150%
	13C2-PFTeDA	98%	90%	20-150%
	13C3-PFBS	120%	120%	20-150%
	13C3-PFHxS	106%	110%	20-150%
	13C8-PFOS	95%	99%	20-150%
	13C8-FOSA	83%	85%	20-150%
	d3-MeFOSA	92%		20-150%
	d5-EtFOSA	82%		20-150%
	d3-MeFOSAA	99%	102%	20-150%
	d5-EtFOSAA	110%	104%	20-150%
	d7-MeFOSE	79%		20-150%
	d9-EtFOSE	81%		20-150%
	13C2-4:2FTS	123%	137%	20-180%
	13C2-6:2FTS	137%	138%	20-180%
	13C2-8:2FTS	111%	122%	20-180%
	13C3-HFPO-DA	108%		20-150%

\* = Outside of Control Limits.

## Duplicate Summary

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP98526-DUP	4Q49355.D	1	08/23/23	MV	08/19/23	OP98526	S4Q723
FC8240-8	4Q49354.D	1	08/23/23	MV	08/19/23	OP98526	S4Q723

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC8731-1

CAS No.	Compound	FC8240-8 ug/l	DUP Q	ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.0422		0.0445		5	30
2706-90-3	Perfluoropentanoic acid	0.0129		0.0145		12	30
307-24-4	Perfluorohexanoic acid	0.0031	J	0.0039		23	30
375-85-9	Perfluoroheptanoic acid	0.0037	U	ND		nc	30
335-67-1	Perfluorooctanoic acid	0.0037	U	ND		nc	30
375-95-1	Perfluorononanoic acid	0.0037	U	ND		nc	30
335-76-2	Perfluorodecanoic acid	0.0037	U	ND		nc	30
2058-94-8	Perfluoroundecanoic acid	0.0037	U	ND		nc	30
307-55-1	Perfluorododecanoic acid	0.0037	U	ND		nc	30
72629-94-8	Perfluorotridecanoic acid	0.0037	U	ND		nc	30
376-06-7	Perfluorotetradecanoic acid	0.0037	U	ND		nc	30
375-73-5	Perfluorobutanesulfonic acid	0.0011	J	0.0010	J	10	30
2706-91-4	Perfluoropentanesulfonic acid	0.0046	U	ND		nc	30
355-46-4	Perfluorohexanesulfonic acid	0.0037	U	ND		nc	30
375-92-8	Perfluoroheptanesulfonic acid	0.0037	U	ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	0.0037	U	ND		nc	30
68259-12-1	Perfluorononanesulfonic acid	0.0037	U	ND		nc	30
335-77-3	Perfluorodecanesulfonic acid	0.0037	U	ND		nc	30
79780-39-5	Perfluorododecanesulfonic aci	0.0046	U	ND		nc	30
757124-72-44:2	Fluorotelomer sulfonate	0.019	U	ND		nc	30
27619-97-2	6:2 Fluorotelomer sulfonate	0.019	U	ND		nc	30
39108-34-4	8:2 Fluorotelomer sulfonate	0.019	U	ND		nc	30
754-91-6	PFOSA	0.0037	U	ND		nc	30
31506-32-8	MeFOSA	0.0074	U	ND		nc	30
4151-50-2	EtFOSA	0.0074	U	ND		nc	30
2355-31-9	MeFOSAA	0.0046	U	ND		nc	30
2991-50-6	EtFOSAA	0.0046	U	ND		nc	30
24448-09-7	MeFOSE	0.037	U	ND		nc	30
1691-99-2	EtFOSE	0.037	U	ND		nc	30
13252-13-6	HFPO-DA (GenX)	0.0037	U	ND		nc	30
919005-14-4	ADONA	0.0074	U	ND		nc	30
377-73-1	PFMPA	0.0074	U	ND		nc	30
863090-89-5	PFMBA	0.0074	U	ND		nc	30
151772-58-6	NFDHA	0.0074	U	ND		nc	30
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0074	U	ND		nc	30
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0074	U	ND		nc	30

\* = Outside of Control Limits.

# Duplicate Summary

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP98526-DUP	4Q49355.D	1	08/23/23	MV	08/19/23	OP98526	S4Q723
FC8240-8	4Q49354.D	1	08/23/23	MV	08/19/23	OP98526	S4Q723

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC8731-1

CAS No.	Compound	FC8240-8 ug/l	DUP Q	ug/l	Q	RPD	Limits
113507-82-7PFEESA		0.0074 U	ND			nc	30
356-02-5	3:3 Fluorotelomer carboxylate	0.019 U	ND			nc	30
914637-49-35:3	Fluorotelomer carboxylate	0.093 U	ND			nc	30
812-70-4	7:3 Fluorotelomer carboxylate	0.093 U	ND			nc	30

CAS No.	ID Standard Recoveries	DUP	FC8240-8	Limits
	13C4-PFBA	62%	62%	20-150%
	13C5-PFPeA	114%	120%	20-150%
	13C5-PFHxA	115%	120%	20-150%
	13C4-PFHpA	118%	122%	20-150%
	13C8-PFOA	112%	119%	20-150%
	13C9-PFNA	109%	111%	20-150%
	13C6-PFDA	115%	105%	20-150%
	13C7-PFUnDA	110%	92%	20-150%
	13C2-PFDoDA	100%	89%	20-150%
	13C2-PFTeDA	95%	87%	20-150%
	13C3-PFBS	114%	121%	20-150%
	13C3-PFHxS	106%	116%	20-150%
	13C8-PFOS	99%	101%	20-150%
	13C8-FOSA	74%	95%	20-150%
	d3-MeFOSA	82%		20-150%
	d5-EtFOSA	85%		20-150%
	d3-MeFOSAA	97%	99%	20-150%
	d5-EtFOSAA	104%	102%	20-150%
	d7-MeFOSE	76%		20-150%
	d9-EtFOSE	79%		20-150%
	13C2-4:2FTS	122%	119%	20-180%
	13C2-6:2FTS	132%	137%	20-180%
	13C2-8:2FTS	114%	121%	20-180%
	13C3-HFPO-DA	105%		20-150%

\* = Outside of Control Limits.

# Injection Standard Area Summary

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q723-CC722	Injection Date:	08/23/23
Lab File ID:	4Q49340.D	Injection Time:	10:49
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>	69029	2.80	42604	5.51	55905	7.15	19286	7.70	13010	8.19
Check Std <sup>c</sup>	79207	2.82	47867	5.51	64680	7.14	21410	7.70	14487	8.19
Upper Limit <sup>d</sup>	138058	3.22	85208	5.91	111810	7.54	38572	8.10	26020	8.59
Lower Limit <sup>e</sup>	27612	2.42	17042	5.11	22362	6.74	7714	7.30	5204	7.79

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>
OP98526-BS	54719	2.87	31658	5.51	43186	7.15	14387	7.70	9828	8.19	1
OP98526-LLBS	51023	2.85	30829	5.52	40821	7.15	13451	7.70	9494	8.19	1
OP98526-MB	55023	2.87	32902	5.52	42448	7.15	14789	7.70	9558	8.19	1
FC8731-1	50284	2.87	29513	5.52	39005	7.15	13267	7.71	8751	8.19	1
ZZZZZZ	52971	2.87	31967	5.52	41065	7.15	15094	7.71	9457	8.20	1
ZZZZZZ	53024	2.85	31844	5.52	41023	7.15	14996	7.71	9970	8.19	1
ZZZZZZ	52034	2.85	31967	5.52	39986	7.16	14359	7.71	9335	8.20	1
FC8240-7	53490	2.87	32470	5.52	42245	7.15	14430	7.70	9608	8.19	1
OP98526-MS	53560	2.87	31724	5.52	41513	7.16	14948	7.71	9112	8.19	1
ZZZZZZ	51958	2.87	30142	5.52	38700	7.15	13370	7.70	9236	8.19	2

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: S4Q722-ICC722 4Q49284.D 08/22/23 11:34. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -60 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 = -60% of initial standard area; Retention time -0.4 minutes of check standard.

6.5.1  
6

# Injection Standard Area Summary

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q723-CC722	Injection Date:	08/23/23
Lab File ID:	4Q49340.D	Injection Time:	10:49
Instrument ID:	GCMS4Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal <sup>b</sup>	6243	7.23	7649	8.33
Check Std <sup>c</sup>	7384	7.21	8266	8.32
Upper Limit <sup>d</sup>	12486	7.61	15298	8.72
Lower Limit <sup>e</sup>	2497	6.81	3060	7.92

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF <sup>a</sup>
OP98526-BS	4671	7.23	5768	8.32	1
OP98526-LLBS	4786	7.23	5623	8.33	1
OP98526-MB	4914	7.23	5771	8.33	1
FC8731-1	4558	7.23	5182	8.33	1
ZZZZZZ	4763	7.23	5780	8.33	1
ZZZZZZ	4800	7.24	5700	8.33	1
ZZZZZZ	4660	7.24	5497	8.33	1
FC8240-7	4700	7.23	5839	8.32	1
OP98526-MS	4670	7.24	5925	8.33	1
ZZZZZZ	4472	7.23	5614	8.33	2

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S4Q722-ICC722 4Q49284.D 08/22/23 11:34. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -60 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 = -60% of initial standard area; Retention time -0.4 minutes of check standard.

# Injection Standard Area Summary

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q723-CC722	Injection Date:	08/23/23
Lab File ID:	4Q49352.D	Injection Time:	13:47
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>	69029	2.80	42604	5.51	55905	7.15	19286	7.70	13010	8.19
Check Std <sup>c</sup>	80692	2.82	49193	5.54	63648	7.16	22104	7.71	14983	8.20
Upper Limit <sup>d</sup>	138058	3.22	85208	5.94	111810	7.56	38572	8.11	26020	8.60
Lower Limit <sup>e</sup>	27612	2.42	17042	5.14	22362	6.76	7714	7.31	5204	7.80

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>
S4Q723-ICCB	76125	2.80	45771	5.52	60357	7.16	20774	7.71	13770	8.20	1
FC8240-8	53686	2.88	32974	5.54	41380	7.16	15192	7.71	9826	8.20	1
OP98526-DUP	53788	2.87	31759	5.54	40743	7.18	14426	7.71	9312	8.20	1
ZZZZZZ	54238	2.87	31621	5.54	41197	7.15	14356	7.70	9702	8.20	1
ZZZZZZ	53898	2.87	32285	5.54	40899	7.18	14910	7.72	9100	8.22	1
ZZZZZZ	52634	2.87	31479	5.54	40170	7.18	14142	7.72	8637	8.22	1
ZZZZZZ	50847	2.87	30038	5.54	38278	7.18	14161	7.72	9353	8.22	1
ZZZZZZ	53613	2.87	31099	5.55	39977	7.18	15656	7.72	9341	8.22	1
FC8160-9	55962	2.87	31950	5.54	40184	7.18	15204	7.72	9114	8.22	2
OP98460-MS	55352	2.85	32138	5.54	41122	7.18	14930	7.72	9116	8.22	2
ZZZZZZ	55718	2.87	32494	5.54	42226	7.18	14370	7.72	10350	8.20	2

- 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: S4Q722-ICC722 4Q49284.D 08/22/23 11:34. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -60 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 = -60% of initial standard area; Retention time -0.4 minutes of check standard.

6.5.2  
6

# Injection Standard Area Summary

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q723-CC722	Injection Date:	08/23/23
Lab File ID:	4Q49352.D	Injection Time:	13:47
Instrument ID:	GCMS4Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal <sup>b</sup>	6243	7.23	7649	8.33
Check Std <sup>c</sup>	6994	7.24	8536	8.33
Upper Limit <sup>d</sup>	12486	7.64	15298	8.73
Lower Limit <sup>e</sup>	2497	6.84	3060	7.93

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF <sup>a</sup>
S4Q723-ICCB	6902	7.24	8438	8.33	1
FC8240-8	4904	7.24	5541	8.33	1
OP98526-DUP	4860	7.24	6062	8.33	1
ZZZZZZ	4763	7.23	5873	8.33	1
ZZZZZZ	4822	7.25	5354	8.34	1
ZZZZZZ	4463	7.24	5644	8.34	1
ZZZZZZ	4367	7.25	5427	8.34	1
ZZZZZZ	3945	7.25	5625	8.36	1
FC8160-9	4468	7.25	5366	8.34	2
OP98460-MS	4822	7.25	5654	8.34	2
ZZZZZZ	4922	7.25	5858	8.34	2

IS 6 = 1802-PFHXS  
 IS 7 = 13C4-PFOS

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S4Q722-ICC722 4Q49284.D 08/22/23 11:34. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -60 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 = -60% of initial standard area; Retention time -0.4 minutes of check standard.



**TDCA Retention Time Check**

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q722-RT	Injection Date:	08/22/23
Lab File ID:	4Q49278.D	Injection Time:	10:05
Instrument ID:	GCMS4Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.306	--	--
TDCA	6.885	1.421	1.000
TCDCA	6.735	1.571	1.000
TUDCA	5.892	2.414	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
S4Q722-IC722	4Q49280.D	08/22/23	10:35	00:30	Mass Calibration Verification
S4Q722-IC722	4Q49281.D	08/22/23	10:50	00:45	Initial cal 1
S4Q722-IC722	4Q49282.D	08/22/23	11:04	00:59	Initial cal 2
S4Q722-IC722	4Q49283.D	08/22/23	11:19	01:14	Initial cal 3
S4Q722-ICC722	4Q49284.D	08/22/23	11:34	01:29	Initial cal 4
S4Q722-IC722	4Q49285.D	08/22/23	11:49	01:44	Initial cal 5
S4Q722-IC722	4Q49286.D	08/22/23	12:03	01:58	Initial cal 6
S4Q722-IC722	4Q49287.D	08/22/23	12:18	02:13	Initial cal 7
S4Q722-IC722	4Q49288.D	08/22/23	12:33	02:28	Initial cal 8
S4Q722-IBLK	4Q49289.D	08/22/23	12:48	02:43	Instrument Blank
S4Q722-IBLK	4Q49289.D	08/22/23	12:48	02:43	Instrument Blank
S4Q722-ICV722	4Q49290.D	08/22/23	13:03	02:58	Initial cal verification 4
S4Q722-ICV722	4Q49291.D	08/22/23	13:17	03:12	Initial cal verification 20
S4Q722-CC722	4Q49292.D	08/22/23	13:32	03:27	Continuing cal 4
S4Q722-CC722	4Q49293.D	08/22/23	13:47	03:42	Continuing cal 1.0LL
ZZZZZZ	4Q49294.D	08/22/23	14:02	03:57	(unrelated sample)
ZZZZZZ	4Q49295.D	08/22/23	14:16	04:11	(unrelated sample)
ZZZZZZ	4Q49296.D	08/22/23	14:31	04:26	(unrelated sample)
ZZZZZZ	4Q49297.D	08/22/23	14:46	04:41	(unrelated sample)
OP98460-BS	4Q49299.D	08/22/23	15:15	05:10	Blank Spike
OP98460-LLBS	4Q49300.D	08/22/23	15:30	05:25	Blank Spike
OP98460-MB	4Q49301.D	08/22/23	15:45	05:40	Method Blank
ZZZZZZ	4Q49302.D	08/22/23	16:00	05:55	(unrelated sample)
ZZZZZZ	4Q49303.D	08/22/23	16:14	06:09	(unrelated sample)
S4Q722-CC722	4Q49304.D	08/22/23	16:29	06:24	Continuing cal 4
S4Q722-ICCB	4Q49305.D	08/22/23	16:44	06:39	Continuing Calibration Blank
ZZZZZZ	4Q49306.D	08/22/23	16:59	06:54	(unrelated sample)
ZZZZZZ	4Q49307.D	08/22/23	17:13	07:08	(unrelated sample)
ZZZZZZ	4Q49308.D	08/22/23	17:28	07:23	(unrelated sample)
ZZZZZZ	4Q49309.D	08/22/23	17:43	07:38	(unrelated sample)
ZZZZZZ	4Q49310.D	08/22/23	17:57	07:52	(unrelated sample)
ZZZZZZ	4Q49311.D	08/22/23	18:12	08:07	(unrelated sample)
FC8160-9	4Q49312.D	08/22/23	18:27	08:22	(used for QC only; not part of job FC8731)
FC8160-10	4Q49314.D	08/22/23	18:57	08:52	(used for QC only; not part of job FC8731)

# TDCA Retention Time Check

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q722-RT	Injection Date:	08/22/23
Lab File ID:	4Q49278.D	Injection Time:	10:05
Instrument ID:	GCMS4Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
OP98460-DUP	4Q49315.D	08/22/23	19:11	09:06	Duplicate
S4Q722-CC722	4Q49316.D	08/22/23	19:26	09:21	Continuing cal 4
S4Q722-ICCB	4Q49317.D	08/22/23	19:41	09:36	Continuing Calibration Blank
ZZZZZZ	4Q49318.D	08/22/23	19:56	09:51	(unrelated sample)
ZZZZZZ	4Q49319.D	08/22/23	20:10	10:05	(unrelated sample)
ZZZZZZ	4Q49320.D	08/22/23	20:25	10:20	(unrelated sample)
ZZZZZZ	4Q49321.D	08/22/23	20:40	10:35	(unrelated sample)
ZZZZZZ	4Q49322.D	08/22/23	20:55	10:50	(unrelated sample)
ZZZZZZ	4Q49323.D	08/22/23	21:09	11:04	(unrelated sample)
ZZZZZZ	4Q49324.D	08/22/23	21:24	11:19	(unrelated sample)
ZZZZZZ	4Q49325.D	08/22/23	21:39	11:34	(unrelated sample)
S4Q722-CC722	4Q49326.D	08/22/23	21:54	11:49	Continuing cal 4
S4Q722-ICCB	4Q49327.D	08/22/23	22:08	12:03	Continuing Calibration Blank
ZZZZZZ	4Q49328.D	08/22/23	22:23	12:18	(unrelated sample)
FC8249-2	4Q49329.D	08/22/23	22:38	12:33	(used for QC only; not part of job FC8731)
OP98501-MS	4Q49330.D	08/22/23	22:53	12:48	Matrix Spike
OP98501-MSD	4Q49331.D	08/22/23	23:07	13:02	Matrix Spike Duplicate
S4Q722-ECC722	4Q49332.D	08/22/23	23:22	13:17	Ending cal 4
S4Q722-ICCB	4Q49333.D	08/22/23	23:37	13:32	Continuing Calibration Blank

6.6.1  
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# TDCA Retention Time Check

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q723-RT	Injection Date:	08/23/23
Lab File ID:	4Q49336.D	Injection Time:	09:50
Instrument ID:	GCMS4Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.306	--	--
TDCA	6.885	1.421	1.000
TCDCA	6.735	1.571	1.000
TUDCA	5.892	2.414	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
S4Q723-IBLK	4Q49339.D	08/23/23	10:34	00:44	Instrument Blank
S4Q723-IBLK	4Q49339.D	08/23/23	10:34	00:44	Instrument Blank
S4Q723-CC722	4Q49340.D	08/23/23	10:49	00:59	Continuing cal 4
S4Q723-CC722	4Q49341.D	08/23/23	11:05	01:15	Continuing cal 1.0LL
OP98526-BS	4Q49342.D	08/23/23	11:20	01:30	Blank Spike
OP98526-LLBS	4Q49343.D	08/23/23	11:35	01:45	Blank Spike
OP98526-MB	4Q49344.D	08/23/23	11:49	01:59	Method Blank
FC8731-1	4Q49345.D	08/23/23	12:04	02:14	AF-HDMW225303-WGN01LF-2308
ZZZZZZ	4Q49346.D	08/23/23	12:19	02:29	(unrelated sample)
ZZZZZZ	4Q49347.D	08/23/23	12:34	02:44	(unrelated sample)
ZZZZZZ	4Q49348.D	08/23/23	12:48	02:58	(unrelated sample)
FC8240-7	4Q49349.D	08/23/23	13:03	03:13	(used for QC only; not part of job FC8731)
OP98526-MS	4Q49350.D	08/23/23	13:18	03:28	Matrix Spike
ZZZZZZ	4Q49351.D	08/23/23	13:33	03:43	(unrelated sample)
S4Q723-CC722	4Q49352.D	08/23/23	13:47	03:57	Continuing cal 4
S4Q723-ICCB	4Q49353.D	08/23/23	14:02	04:12	Continuing Calibration Blank
FC8240-8	4Q49354.D	08/23/23	14:17	04:27	(used for QC only; not part of job FC8731)
OP98526-DUP	4Q49355.D	08/23/23	14:32	04:42	Duplicate
ZZZZZZ	4Q49356.D	08/23/23	14:46	04:56	(unrelated sample)
ZZZZZZ	4Q49357.D	08/23/23	15:01	05:11	(unrelated sample)
ZZZZZZ	4Q49358.D	08/23/23	15:16	05:26	(unrelated sample)
ZZZZZZ	4Q49359.D	08/23/23	15:31	05:41	(unrelated sample)
ZZZZZZ	4Q49360.D	08/23/23	15:45	05:55	(unrelated sample)
FC8160-9	4Q49361.D	08/23/23	16:00	06:10	(used for QC only; not part of job FC8731)
OP98460-MS	4Q49362.D	08/23/23	16:15	06:25	Matrix Spike
ZZZZZZ	4Q49363.D	08/23/23	16:30	06:40	(unrelated sample)
S4Q723-CC722	4Q49364.D	08/23/23	16:44	06:54	Continuing cal 4
S4Q723-ICCB	4Q49365.D	08/23/23	16:59	07:09	Continuing Calibration Blank
OP98456-BS	4Q49366.D	08/23/23	17:14	07:24	Blank Spike
OP98456-LLBS	4Q49367.D	08/23/23	17:29	07:39	Blank Spike
OP98456-MB	4Q49368.D	08/23/23	17:43	07:53	Method Blank
ZZZZZZ	4Q49369.D	08/23/23	17:58	08:08	(unrelated sample)
ZZZZZZ	4Q49370.D	08/23/23	18:13	08:23	(unrelated sample)
ZZZZZZ	4Q49371.D	08/23/23	18:28	08:38	(unrelated sample)

# TDCA Retention Time Check

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q723-RT	Injection Date:	08/23/23
Lab File ID:	4Q49336.D	Injection Time:	09:50
Instrument ID:	GCMS4Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	4Q49372.D	08/23/23	18:42	08:52	(unrelated sample)
ZZZZZZ	4Q49373.D	08/23/23	18:57	09:07	(unrelated sample)
ZZZZZZ	4Q49374.D	08/23/23	19:12	09:22	(unrelated sample)
ZZZZZZ	4Q49375.D	08/23/23	19:27	09:37	(unrelated sample)
S4Q723-CC722	4Q49376.D	08/23/23	19:41	09:51	Continuing cal 4
S4Q723-ICCB	4Q49377.D	08/23/23	19:56	10:06	Continuing Calibration Blank
ZZZZZZ	4Q49378.D	08/23/23	20:11	10:21	(unrelated sample)
ZZZZZZ	4Q49379.D	08/23/23	20:26	10:36	(unrelated sample)
ZZZZZZ	4Q49380.D	08/23/23	20:40	10:50	(unrelated sample)
FC8158-11	4Q49381.D	08/23/23	20:55	11:05	(used for QC only; not part of job FC8731)
OP98456-MS	4Q49382.D	08/23/23	21:10	11:20	Matrix Spike
OP98456-MSD	4Q49383.D	08/23/23	21:25	11:35	Matrix Spike Duplicate
ZZZZZZ	4Q49384.D	08/23/23	21:39	11:49	(unrelated sample)
ZZZZZZ	4Q49385.D	08/23/23	21:54	12:04	(unrelated sample)
ZZZZZZ	4Q49386.D	08/23/23	22:09	12:19	(unrelated sample)
ZZZZZZ	4Q49387.D	08/23/23	22:24	12:34	(unrelated sample)
S4Q723-CC722	4Q49388.D	08/23/23	22:38	12:48	Continuing cal 4
S4Q723-ICCB	4Q49389.D	08/23/23	22:53	13:03	Continuing Calibration Blank
ZZZZZZ	4Q49390.D	08/23/23	23:08	13:18	(unrelated sample)
ZZZZZZ	4Q49391.D	08/23/23	23:23	13:33	(unrelated sample)
ZZZZZZ	4Q49392.D	08/23/23	23:37	13:47	(unrelated sample)
ZZZZZZ	4Q49393.D	08/23/23	23:52	14:02	(unrelated sample)
OP98462-BS	4Q49394.D	08/24/23	00:07	14:17	Blank Spike
OP98462-LLBS	4Q49395.D	08/24/23	00:22	14:32	Blank Spike
OP98462-MB	4Q49396.D	08/24/23	00:37	14:47	Method Blank
FC8179-2	4Q49397.D	08/24/23	00:51	15:01	(used for QC only; not part of job FC8731)
OP98462-MS	4Q49398.D	08/24/23	01:06	15:16	Matrix Spike
OP98462-MSD	4Q49399.D	08/24/23	01:21	15:31	Matrix Spike Duplicate
S4Q723-CC722	4Q49400.D	08/24/23	01:36	15:46	Continuing cal 4
S4Q723-ICCB	4Q49401.D	08/24/23	01:50	16:00	Continuing Calibration Blank
ZZZZZZ	4Q49402.D	08/24/23	02:05	16:15	(unrelated sample)
ZZZZZZ	4Q49403.D	08/24/23	02:20	16:30	(unrelated sample)
ZZZZZZ	4Q49404.D	08/24/23	02:35	16:45	(unrelated sample)
ZZZZZZ	4Q49405.D	08/24/23	02:49	16:59	(unrelated sample)
ZZZZZZ	4Q49406.D	08/24/23	03:04	17:14	(unrelated sample)
ZZZZZZ	4Q49407.D	08/24/23	03:19	17:29	(unrelated sample)
ZZZZZZ	4Q49408.D	08/24/23	03:34	17:44	(unrelated sample)
ZZZZZZ	4Q49409.D	08/24/23	03:48	17:58	(unrelated sample)
ZZZZZZ	4Q49410.D	08/24/23	04:03	18:13	(unrelated sample)
ZZZZZZ	4Q49411.D	08/24/23	04:18	18:28	(unrelated sample)
S4Q723-CC722	4Q49412.D	08/24/23	04:33	18:43	Continuing cal 4
S4Q723-ICCB	4Q49413.D	08/24/23	04:47	18:57	Continuing Calibration Blank
ZZZZZZ	4Q49414.D	08/24/23	05:02	19:12	(unrelated sample)
ZZZZZZ	4Q49415.D	08/24/23	05:17	19:27	(unrelated sample)

6.6.2  
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# TDCA Retention Time Check

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q723-RT	Injection Date:	08/23/23
Lab File ID:	4Q49336.D	Injection Time:	09:50
Instrument ID:	GCMS4Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	4Q49416.D	08/24/23	05:32	19:42	(unrelated sample)
FC8161-11	4Q49417.D	08/24/23	05:46	19:56	(used for QC only; not part of job FC8731)
OP98435-MS	4Q49418.D	08/24/23	06:01	20:11	Matrix Spike
FC8161-12	4Q49419.D	08/24/23	06:16	20:26	(used for QC only; not part of job FC8731)
OP98435-DUP	4Q49420.D	08/24/23	06:31	20:41	Duplicate
S4Q723-ECC722	4Q49421.D	08/24/23	06:45	20:55	Ending cal 4
S4Q723-ICCB	4Q49422.D	08/24/23	07:00	21:10	Continuing Calibration Blank

6.6.2  
 6

# Isotope Dilution Standard Recovery Summary

Job Number: FC8731  
 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
FC8731-1	4Q49345.D	122	126	124	130	122	128	125	116
OP98526-BS	4Q49342.D	26	112	118	123	116	121	120	112
OP98526-DUP	4Q49355.D	62	114	115	118	112	109	115	110
OP98526-LLBS	4Q49343.D	119	121	120	125	121	130	129	119
OP98526-MB	4Q49344.D	115	115	117	115	121	114	125	119
OP98526-MS	4Q49350.D	58	115	119	117	112	105	118	113
S4Q723-IBLK	4Q49339.D	99	102	100	103	102	104	105	109
S4Q723-ICCB	4Q49353.D	100	102	101	102	99	104	108	108

**Isotope Dilution Standards**                      **Recovery Limits**

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

6.7.1

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# Isotope Dilution Standard Recovery Summary

Job Number: FC8731  
 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
FC8731-1	4Q49345.D	112	100	123	113	117	101	105	103
OP98526-BS	4Q49342.D	114	90	126	114	119	96	100	96
OP98526-DUP	4Q49355.D	100	95	114	106	99	74	82	85
OP98526-LLBS	4Q49343.D	117	104	117	113	117	90	93	87
OP98526-MB	4Q49344.D	112	101	118	111	114	77	86	84
OP98526-MS	4Q49350.D	109	98	120	106	95	83	92	82
S4Q723-IBLK	4Q49339.D	112	120	101	98	97	110		
S4Q723-ICCB	4Q49353.D	108	100	99	99	95	96		

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

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# Isotope Dilution Standard Recovery Summary

Job Number: FC8731  
 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
FC8731-1	4Q49345.D	115	121	101	102	120	152	129	117
OP98526-BS	4Q49342.D	116	122	87	93	129	145	118	113
OP98526-DUP	4Q49355.D	97	104	76	79	122	132	114	105
OP98526-LLBS	4Q49343.D	112	114	76	86	129	131	105	117
OP98526-MB	4Q49344.D	108	117	75	87	129	142	127	106
OP98526-MS	4Q49350.D	99	110	79	81	123	137	111	108
S4Q723-IBLK	4Q49339.D	97	96			104	106	97	
S4Q723-ICCB	4Q49353.D	102	102			118	123	114	

Isotope Dilution Standards	Recovery Limits
S17 = d3-MeFOSAA	20-150%
S18 = d5-EtFOSAA	20-150%
S19 = d7-MeFOSE	20-150%
S20 = d9-EtFOSE	20-150%
S21 = 13C2-4:2FTS	20-180%
S22 = 13C2-6:2FTS	20-180%
S23 = 13C2-8:2FTS	20-180%
S24 = 13C3-HFPO-DA	20-150%

6.7.1

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# Initial Calibration Summary

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q722-ICC722  
 Lab FileID: 4Q49284.D

## Initial Calibration Report

Method Path	D:\MassHunter\methods											
Method File	1633_082223_S4Q722.quantmethod.xml											
Batch Name	D:\MassHunter\Data\082223_1633_S4Q722\QuantResults\s4q722.batch.bin											
Last Calib Update	8/22/2023 3:29:43 PM											
Level Name	Calibration Files	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
1	D:\MassHunter\Data\082223_1633_S4Q722\4Q49281.d											
2	D:\MassHunter\Data\082223_1633_S4Q722\4Q49282.d											
3	D:\MassHunter\Data\082223_1633_S4Q722\4Q49283.d											
4	D:\MassHunter\Data\082223_1633_S4Q722\4Q49284.d											
5	D:\MassHunter\Data\082223_1633_S4Q722\4Q49285.d											
6	D:\MassHunter\Data\082223_1633_S4Q722\4Q49286.d											
7	D:\MassHunter\Data\082223_1633_S4Q722\4Q49287.d											
8	D:\MassHunter\Data\082223_1633_S4Q722\4Q49288.d											
<b>Compound</b>												
I M4-PFBA												
T PFBA												
T 3:3FTCA												
I M5-PFPeA												
T PFMPA												
T PFPeA												
T PFMBA												
I M5-PFHxA												
T NFDHA												
T PFHxA												
T PFESA												
T 5:3FTCA												
T 7:3FTCA												
I M4-PFHpA												
T PFHpA												
I M8-PFOA												
T PFOA												
I M9-PFNA												
T PFNA												
I M6-PFDA												
T PFDA												
I M7-PFUnDA												
T PFUnDA												
I M2-PFDODA												

# Initial Calibration Summary

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q722-ICC722  
 Lab FileID: 4Q49284.D

## Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	0.6960	0.7589	0.6966	0.6781	0.8241	0.7854	0.7684	0.7648	0.7465	6.836
T PFTfDA	Avg RF	0.8120	0.7787	0.7790	0.7271	0.9396	0.8730	0.8625	0.8407	0.8266	8.063
I M2-PFTeDA	Avg RF	0.9341	0.8358	0.9159	0.8457	1.0066	0.9887	0.9299	0.9326	0.9237	6.496
T PFTeDA	Avg RF										
I M8-FOSA	Avg RF	0.6754	0.6578	0.6913	0.6069	0.7834	0.7280	0.7258	0.7155	0.6980	7.610
T FOSA	Avg RF										
I M3-PFBS	Avg RF	0.6352	0.7156	0.6675	0.6378	0.8214	0.7446	0.7553	0.8280	0.7257	10.452
T PFBS	Avg RF										
I M3-PFHxS	Avg RF	0.6207	0.5419	0.6653	0.5718	0.6974	0.6452	0.6550	0.6554	0.6316	8.141
T PFPeS	Avg RF	0.6703	0.6739	0.6753	0.6238	0.7714	0.7090	0.7327	0.7866	0.7054	7.855
T PFHxS	Avg RF										
I M8-PFOS	Avg RF	0.6911	0.7184	0.9084	0.7821	0.8958	0.9423	0.9183	0.9713	0.8535	12.565
T PFHpS	Avg RF	0.7887	1.0044	0.9561	0.8177	0.9504	0.9974	0.9465	0.9815	0.9303	8.779
T PFOs	Avg RF	0.4430	0.4083	0.5503	0.4265	0.5162	0.5008	0.4652	0.4728	0.4729	10.087
T PFNS	Avg RF	0.4754	0.6053	0.6125	0.5164	0.6545	0.6780	0.6343	0.6377	0.6018	11.635
T PFDS	Avg RF	0.4265	0.4524	0.4477	0.4031	0.4691	0.5006	0.4616	0.4793	0.4550	6.688
T PFDoDS	Avg RF										
I M2-4:2FTS	Avg RF	4.8947	5.1967	5.9059	5.4151	6.5439	6.2210	5.5686	5.9483	5.7118	9.559
T 4:2FTS	Avg RF										
I M2-6:2FTS	Avg RF	3.5662	3.3122	3.7562	3.2113	4.2769	3.8997	3.8438	3.5353	3.6502	9.847
T 6:2FTS	Avg RF										
I M2-8:2FTS	Quadratic	1.6353	1.7396	1.8258	1.7784	2.0966	1.9312	1.8513	1.8369	1.8369	8.019
T 8:2FTS	Quadratic										
I M3-MeFOSAA	Linear	0.5369	0.6187	0.6842	0.6244	0.7392	0.7196	0.6895	0.7315	0.6680	10.433
T MeFOSAA	Linear										
I M3-HFO-DA	Avg RF	0.7381	0.7897	0.8209	0.7181	0.9216	0.8362	0.8237	0.8136	0.8077	7.753
T HFPO-DA	Avg RF	5.9434	6.5721	7.1354	6.4114	8.2484	7.5224	7.3305	7.3383	7.0627	10.277
T ADONA	Avg RF	2.2029	2.3679	2.4249	2.1841	2.8517	2.4640	2.3317	2.1903	2.3772	9.267
T 9Cl-PF3ONS	Avg RF	1.9848	2.0409	2.1848	1.9931	2.5904	2.3864	2.3049	2.2264	2.2140	9.535
T 11Cl-PF3OUds	Avg RF										
I M5-EFOSAA	Avg RF	0.6727	0.7204	0.6780	0.6141	0.7566	0.7297	0.7256	0.7983	0.7119	7.924
T EFOSAA	Avg RF										
I M7-MeFOSE	Avg RF	0.7644	0.7821	0.8721	0.8282	1.0209	0.9218	0.9234	0.9842	0.8871	10.404
T MeFOSE	Avg RF										
I M9-EFOSE	Avg RF	0.6839	0.7070	0.7336	0.6885	0.8488	0.8183	0.8311	0.8285	0.7674	9.214
T EFOSE	Avg RF										

Generated at 3:29 PM on 8/22/2023

Page 2 of 4

# Initial Calibration Summary

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q722-ICC722  
 Lab FileID: 4Q49284.D

## Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-EFOSA	Avg RF	0.7286	0.8015	0.7926	0.8401	0.9501	0.9301	0.9327	0.9129	0.8611	9.489
T EFOSA						ISTD					
I M3-MeFOSA	Avg RF	0.7749	0.7880	0.9261	0.8344	0.9616	0.8987	0.8985	0.8567	0.8674	7.589
T MeFOSA						ISTD					
I 13C4-PFOS						ISTD					
S d3-MeFOSAA	Avg RF	0.9021	0.8673	0.8638	0.7884	0.9137	0.8436	0.8968	0.9204	0.8745	5.009
S 13C8-PFOS	Avg RF	1.1421	1.0401	1.0027	0.9951	1.1273	0.9178	0.9991	0.9889	1.0266	7.294
S d5-EFOSAA	Avg RF	0.7398	0.7546	0.7232	0.7161	0.7659	0.7011	0.7264	0.7228	0.7312	2.888
S 13C8-FOSA	Avg RF	1.8177	1.7624	1.6371	1.5717	1.7118	1.5742	1.6123	1.7856	1.6841	5.816
S d7-MeFOSE	Avg RF	1.1419	1.0354	0.9047	0.8123	0.8996	0.8481	0.8703	0.8628	0.9219	12.000
S d3-MeFOSA	Avg RF	0.8070	0.8153	0.7277	0.6673	0.7966	0.7184	0.7557	0.8738	0.7702	8.514
S d9-EFOSE	Avg RF	1.5526	1.4452	1.2054	1.1490	1.2716	1.0946	1.0874	1.0793	1.2356	14.361
S d5-EFOSA	Avg RF	1.0772	1.0153	0.9406	0.8392	1.0001	0.8580	0.8842	0.9982	0.9516	8.918
I 13C3-PFBA						ISTD					
S 13C4-PFBA	Avg RF	0.8740	0.8978	0.8807	0.8834	0.8902	0.9001	0.8955	0.8911	0.8891	1.018
I 1802-PFHxS						ISTD					
S 13C2-4:2FTS	Avg RF	0.1265	0.1305	0.1229	0.1117	0.1134	0.1069	0.1098	0.0869	0.1136	12.078
S 13C3-PFBS	Avg RF	2.0276	2.0033	2.0387	1.9681	1.8731	1.9838	1.8835	1.6762	1.9318	6.214
S 13C2-6:2FTS	Avg RF	0.1688	0.1800	0.1658	0.1736	0.1553	0.1574	0.1489	0.1401	0.1612	8.229
S 13C3-PFHxS	Avg RF	1.4654	1.4949	1.3998	1.3775	1.3478	1.4389	1.3797	1.3436	1.4059	3.927
S 13C2-8:2FTS	Avg RF	0.2544	0.2805	0.2805	0.2661	0.2527	0.2649	0.2549	0.2256	0.2600	6.816
I 13C4-PFOA						ISTD					
S 13C8-PFOA	Avg RF	0.8784	0.8866	0.8771	0.8580	0.8983	0.8977	0.8622	0.8675	0.8782	1.741
I 13C2-PFDA						ISTD					
S 13C6-PFDA	Avg RF	1.1020	1.1679	1.0841	0.7881	1.1230	1.1052	1.0240	1.1494	1.0680	11.341
S 13C7-PFUnDA	Avg RF	1.4635	1.6394	1.4665	1.5111	1.4861	1.4534	1.3178	1.2835	1.4527	7.654
S 13C2-PFDODA	Avg RF	1.6448	1.7912	1.6190	1.6089	1.6222	1.6143	1.5843	1.7207	1.6507	4.220
S 13C2-PFTeDA	Avg RF	1.1939	1.2367	1.0103	1.0316	1.0820	1.0495	1.0562	1.1625	1.1029	7.577
I 13C5-PFNA						ISTD					
S 13C9-PFNA	Avg RF	0.9909	0.9695	0.9999	0.9301	0.8912	0.9691	0.9340	0.9137	0.9498	4.047
I 13C2-PFHxA						ISTD					
S 13C5-PPFA	Avg RF	0.7913	0.8118	0.7813	0.7741	0.7752	0.7983	0.7738	0.7334	0.7799	2.963
S 13C5-PFHxA	Avg RF	1.0216	1.0665	1.0347	1.0430	1.0592	1.0713	1.0496	1.0717	1.0522	1.733
S 13C3-HPOD-A	Avg RF	0.2081	0.2131	0.2001	0.1997	0.1930	0.2028	0.2014	0.1962	0.2018	3.169
S 13C4-PFHxA	Avg RF	0.7645	0.7504	0.7023	0.7131	0.6885	0.7301	0.7008	0.6404	0.7113	5.431

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

# Initial Calibration Summary

Job Number: FC8731  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q722-ICC722  
Lab FileID: 4Q49284.D

## Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	%RSE
T 8:2FTS	Quadratic	$Y = -0.005594 * X^2 + 1.966987 * X$	12.3494
T MeFOSAA	Linear	$Y = 0.716160 * X$	13.0699

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

**Initial Calibration Verification**

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q722-ICV722  
 Lab FileID: 4Q49290.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\082223\_1633\_S4Q722\s4q722.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49281.d  
 2:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49282.d  
 3:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49283.d  
 4:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49284.d  
 5:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49285.d  
 6:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49286.d  
 7:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49287.d  
 8:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49288.d

Data File: 4Q49290  
 Type : QC  
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.456	9.1	109.1
13C2-6:2FTS	5.000	5.961	19.2	119.2
13C2-8:2FTS	5.000	4.959	-0.8	99.2
13C2-PFDoDA	1.250	1.224	-2.1	97.9
13C2-PFTeDA	1.250	1.194	-4.5	95.5
13C3-PFBS	2.500	2.453	-1.9	98.1
13C3-PFHxS	2.500	2.382	-4.7	95.3
13C4-PFBA	10.000	10.055	0.6	100.6
13C4-PFHpA	2.500	2.556	2.2	102.2
13C5-PFHxA	2.500	2.581	3.3	103.3
13C5-PFPeA	5.000	5.117	2.3	102.3
13C6-PFDA	1.250	1.302	4.2	104.2
13C7-PFUnDA	1.250	1.339	7.1	107.1
13C8-FOSA	2.500	2.428	-2.9	97.1
13C8-PFOA	2.500	2.472	-1.1	98.9
13C8-PFOS	2.500	2.569	2.8	102.8
13C9-PFNA	1.250	1.301	4.1	104.1
4:2FTS	9.375	10.921	16.5	116.5
6:2FTS	9.500	10.323	8.7	108.7
8:2FTS	9.600	12.468	29.9	129.9
d3-MeFOSAA	5.000	4.947	-1.1	98.9
EtFOSAA	2.500	2.639	5.6	105.6
FOSA	2.500	2.739	9.6	109.6
MeFOSAA	2.500	3.036	21.4	121.4
PFBA	10.000	11.284	12.8	112.8
PFBS	2.218	2.603	17.4	117.4
PFDA	2.500	2.686	7.4	107.4
PFDoDA	2.500	2.842	13.7	113.7
PFDS	2.413	2.777	15.1	115.1
PFHpA	2.500	2.847	13.9	113.9
PFHpS	2.383	2.619	9.9	109.9
PFHxA	2.500	2.777	11.1	111.1
PFHxS	2.285	2.779	21.6	121.6
PFNA	2.500	2.874	15.0	115.0
PFNS	2.405	2.758	14.7	114.7
PFOA	2.500	2.892	15.7	115.7
PFOS	2.320	2.462	6.1	106.1

# Initial Calibration Verification

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q722-ICV722  
 Lab FileID: 4Q49290.D

PFPeA	5.000	5.710	14.2	114.2
PFPeS	2.353	2.750	16.9	116.9
PFTeDA	2.500	2.818	12.7	112.7
PFTTrDA	2.500	2.934	17.4	117.4
PFUnDA	2.500	2.782	11.3	111.3
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	5.598	18.5	118.5
13C3-HFPO-DA	10.000	9.937	-0.6	99.4
9C1-PF3ONS	4.675	5.572	19.2	119.2
ADONA	4.725	5.683	20.3	120.3
HFPO-DA	5.000	5.755	15.1	115.1
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	13.484	8.0	108.0
5:3FTCA	62.400	71.245	14.2	114.2
7:3FTCA	62.400	68.847	10.3	110.3
d3-MeFOSA	2.500	2.389	-4.5	95.5
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.822	16.4	116.4
EtFOSE	12.500	14.869	19.0	119.0
MeFOSA	5.000	5.835	16.7	116.7
MeFOSE	12.500	14.014	12.1	112.1
PFDoDS	2.425	2.702	11.4	111.4
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.508	10.2	110.2
d7-MeFOSE	25.000	21.828	-12.7	87.3
d9-EtFOSE	25.000	22.298	-10.8	89.2
d5-EtFOSA	2.500	2.296	-8.2	91.8
NFDHA	5.000	5.761	15.2	115.2
PFMBA	5.000	5.854	17.1	117.1
PFMPA	5.000	5.637	12.7	112.7
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	5.118	15.0	115.0

CC Criteria: +/- 30%

**Initial Calibration Verification**

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q722-ICV722  
 Lab FileID: 4Q49291.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\082223\_1633\_S4Q722\s4q722.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49281.d  
 2:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49282.d  
 3:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49283.d  
 4:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49284.d  
 5:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49285.d  
 6:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49286.d  
 7:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49287.d  
 8:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49288.d

Data File: 4Q49291  
 Type : QC  
 Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.262	5.2	105.2
13C2-6:2FTS	5.000	5.613	12.3	112.3
13C2-8:2FTS	5.000	4.909	-1.8	98.2
13C2-PFDoDA	1.250	1.255	0.4	100.4
13C2-PFTeDA	1.250	1.221	-2.3	97.7
13C3-PFBS	2.500	2.551	2.0	102.0
13C3-PFHxS	2.500	2.334	-6.6	93.4
13C4-PFBA	10.000	10.200	2.0	102.0
13C4-PFHpA	2.500	2.430	-2.8	97.2
13C5-PFHxA	2.500	2.549	2.0	102.0
13C5-PFPeA	5.000	5.181	3.6	103.6
13C6-PFDA	1.250	1.248	-0.1	99.9
13C7-PFUnDA	1.250	1.273	1.9	101.9
13C8-FOSA	2.500	2.455	-1.8	98.2
13C8-PFOA	2.500	2.556	2.2	102.2
13C8-PFOS	2.500	2.500	0.0	100.0
13C9-PFNA	1.250	1.258	0.7	100.7
4:2FTS	20.000	22.741	13.7	113.7
6:2FTS	20.000	20.647	3.2	103.2
8:2FTS	20.000	23.230	16.2	116.2
d3-MeFOSAA	5.000	5.031	0.6	100.6
EtFOSAA	20.000	20.692	3.5	103.5
FOSA	20.000	20.079	0.4	100.4
MeFOSAA	20.000	20.117	0.6	100.6
PFBA	20.000	20.183	0.9	100.9
PFBS	20.000	21.524	7.6	107.6
PFDA	20.000	21.177	5.9	105.9
PFDoDA	20.000	19.404	-3.0	97.0
PFDS	20.000	20.658	3.3	103.3
PFHpA	20.000	21.682	8.4	108.4
PFHpS	20.000	20.725	3.6	103.6
PFHxA	20.000	21.492	7.5	107.5
PFHxS	20.000	23.753	18.8	118.8
PFNA	20.000	22.403	12.0	112.0
PFNS	20.000	20.122	0.6	100.6
PFOA	20.000	20.050	0.3	100.3
PFOS	20.000	18.766	-6.2	93.8

# Initial Calibration Verification

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q722-ICV722  
 Lab FileID: 4Q49291.D

PFPeA	20.000	21.626	8.1	108.1
PFPeS	20.000	22.758	13.8	113.8
PFTeDA	20.000	21.711	8.6	108.6
PFTTrDA	20.000	18.556	-7.2	92.8
PFUnDA	20.000	20.533	2.7	102.7
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	20.000	20.184	0.9	100.9
13C3-HFPO-DA	10.000	10.241	2.4	102.4
9C1-PF3ONS	20.000	19.846	-0.8	99.2
ADONA	20.000	18.322	-8.4	91.6
HFPO-DA	20.000	18.964	-5.2	94.8
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	19.734	-1.3	98.7
5:3FTCA	20.000	21.361	6.8	106.8
7:3FTCA	20.000	19.499	-2.5	97.5
d3-MeFOSA	2.500	2.493	-0.3	99.7
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	19.245	-3.8	96.2
EtFOSE	100.000	108.920	8.9	108.9
MeFOSA	20.000	18.596	-7.0	93.0
MeFOSE	100.000	110.454	10.5	110.5
PFDoDS	20.000	19.189	-4.1	95.9
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.100	2.0	102.0
d7-MeFOSE	25.000	23.014	-7.9	92.1
d9-EtFOSE	25.000	22.562	-9.8	90.2
d5-EtFOSA	2.500	2.432	-2.7	97.3
NFDHA	20.000	18.983	-5.1	94.9
PFMBA	20.000	20.915	4.6	104.6
PFMPA	20.000	20.914	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	20.000	18.608	-7.0	93.0

CC Criteria: +/- 30%



**Continuing Calibration Summary**

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q723-CC722  
 Lab FileID: 4Q49340.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\082223\_1633\_S4Q723\s4q723.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49281.d  
 2:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49282.d  
 3:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49283.d  
 4:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49284.d  
 5:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49285.d  
 6:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49286.d  
 7:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49287.d  
 8:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49288.d

Data File: 4Q49340  
 Type : QC  
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.727	-5.5	94.5
13C2-6:2FTS	5.000	4.860	-2.8	97.2
13C2-8:2FTS	5.000	4.752	-5.0	95.0
13C2-PFDoDA	1.250	1.307	4.6	104.6
13C2-PFTeDA	1.250	1.392	11.3	111.3
13C3-PFBS	2.500	2.429	-2.8	97.2
13C3-PFHxS	2.500	2.376	-5.0	95.0
13C4-PFBA	10.000	9.734	-2.7	97.3
13C4-PFHpA	2.500	2.568	2.7	102.7
13C5-PFHxA	2.500	2.446	-2.2	97.8
13C5-PFPeA	5.000	4.996	-0.1	99.9
13C6-PFDA	1.250	1.311	4.9	104.9
13C7-PFUnDA	1.250	1.317	5.3	105.3
13C8-FOSA	2.500	2.776	11.0	111.0
13C8-PFOA	2.500	2.457	-1.7	98.3
13C8-PFOS	2.500	2.452	-1.9	98.1
13C9-PFNA	1.250	1.261	0.9	100.9
4:2FTS	9.375	8.988	-4.1	95.9
6:2FTS	9.500	8.895	-6.4	93.6
8:2FTS	9.600	8.405	-12.4	87.6
d3-MeFOSAA	5.000	5.054	1.1	101.1
EtFOSAA	2.500	2.225	-11.0	89.0
FOSA	2.500	2.126	-15.0	85.0
MeFOSAA	2.500	2.086	-16.5	83.5
PFBA	10.000	8.982	-10.2	89.8
PFBS	2.218	1.884	-15.1	84.9
PFDA	2.500	2.117	-15.3	84.7
PFDoDA	2.500	2.297	-8.1	91.9
PFDS	2.413	2.320	-3.9	96.1
PFHpA	2.500	2.173	-13.1	86.9
PFHpS	2.383	2.408	1.1	101.1
PFHxA	2.500	2.177	-12.9	87.1
PFHxS	2.285	2.092	-8.5	91.5
PFNA	2.500	2.162	-13.5	86.5
PFNS	2.405	2.237	-7.0	93.0
PFOA	2.500	2.078	-16.9	83.1
PFOS	2.320	1.978	-14.7	85.3

# Continuing Calibration Summary

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q723-CC722  
 Lab FileID: 4Q49340.D

PFPeA	5.000	4.355	-12.9	87.1
PFPeS	2.353	2.137	-9.2	90.8
PFTeDA	2.500	2.288	-8.5	91.5
PFTTrDA	2.500	2.339	-6.4	93.6
PFUnDA	2.500	2.330	-6.8	93.2
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDODA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.488	-5.0	95.0
13C3-HFPO-DA	10.000	9.911	-0.9	99.1
9C1-PF3ONS	4.675	4.087	-12.6	87.4
ADONA	4.725	4.360	-7.7	92.3
HFPO-DA	5.000	4.210	-15.8	84.2
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.019	-11.7	88.3
5:3FTCA	62.400	55.688	-10.8	89.2
7:3FTCA	62.400	54.407	-12.8	87.2
d3-MeFOSA	2.500	2.470	-1.2	98.8
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.727	-5.5	94.5
EtFOSE	12.500	10.969	-12.2	87.8
MeFOSA	5.000	4.821	-3.6	96.4
MeFOSE	12.500	10.479	-16.2	83.8
PFDODS	2.425	2.628	8.4	108.4
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.079	1.6	101.6
d7-MeFOSE	25.000	28.163	12.7	112.7
d9-EtFOSE	25.000	29.902	19.6	119.6
d5-EtFOSA	2.500	2.593	3.7	103.7
NFDHA	5.000	4.590	-8.2	91.8
PFMBA	5.000	4.412	-11.8	88.2
PFMPA	5.000	4.403	-11.9	88.1
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.101	-7.9	92.1

CC Criteria: +/- 30%

**Continuing Calibration Summary**

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q723-CC722  
 Lab FileID: 4Q49341.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\082223\_1633\_S4Q723\s4q723.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49281.d  
 2:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49282.d  
 3:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49283.d  
 4:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49284.d  
 5:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49285.d  
 6:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49286.d  
 7:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49287.d  
 8:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49288.d

Data File: 4Q49341  
 Type : QC  
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.138	2.8	102.8
13C2-6:2FTS	5.000	5.629	12.6	112.6
13C2-8:2FTS	5.000	4.953	-0.9	99.1
13C2-PFDoDA	1.250	1.377	10.1	110.1
13C2-PFTeDA	1.250	1.336	6.9	106.9
13C3-PFBS	2.500	2.573	2.9	102.9
13C3-PFHxS	2.500	2.537	1.5	101.5
13C4-PFBA	10.000	9.909	-0.9	99.1
13C4-PFHpA	2.500	2.521	0.8	100.8
13C5-PFHxA	2.500	2.448	-2.1	97.9
13C5-PFPeA	5.000	5.077	1.5	101.5
13C6-PFDA	1.250	1.333	6.6	106.6
13C7-PFUnDA	1.250	1.361	8.9	108.9
13C8-FOSA	2.500	2.736	9.4	109.4
13C8-PFOA	2.500	2.464	-1.5	98.5
13C8-PFOS	2.500	2.480	-0.8	99.2
13C9-PFNA	1.250	1.323	5.8	105.8
4:2FTS	0.750	0.780	4.0	104.0
6:2FTS	0.760	0.561	-26.2	73.8
8:2FTS	0.768	0.759	-1.2	98.8
d3-MeFOSAA	5.000	4.859	-2.8	97.2
EtFOSAA	0.200	0.198	-1.0	99.0
FOSA	0.200	0.195	-2.3	97.7
MeFOSAA	0.200	0.170	-14.8	85.2
PFBA	0.800	0.731	-8.6	91.4
PFBS	0.177	0.151	-14.6	85.4
PFDA	0.200	0.171	-14.6	85.4
PFDoDA	0.200	0.204	1.9	101.9
PFDS	0.193	0.190	-1.5	98.5
PFHpA	0.200	0.184	-8.1	91.9
PFHpS	0.191	0.166	-13.0	87.0
PFHxA	0.200	0.184	-8.0	92.0
PFHxS	0.183	0.194	6.2	106.2
PFNA	0.200	0.185	-7.7	92.3
PFNS	0.192	0.196	2.1	102.1
PFOA	0.200	0.167	-16.3	83.7
PFOS	0.186	0.179	-3.7	96.3

# Continuing Calibration Summary

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q723-CC722  
 Lab FileID: 4Q49341.D

PFPeA	0.400	0.341	-14.7	85.3
PFPeS	0.188	0.173	-8.2	91.8
PFTeDA	0.200	0.163	-18.7	81.3
PFTrDA	0.200	0.190	-4.9	95.1
PFUnDA	0.200	0.191	-4.7	95.3
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	0.378	0.335	-11.2	88.8
13C3-HFPO-DA	10.000	10.047	0.5	100.5
9C1-PF3ONS	0.374	0.329	-11.9	88.1
ADONA	0.378	0.334	-11.6	88.4
HFPO-DA	0.400	0.385	-3.7	96.3
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	0.858	-14.0	86.0
5:3FTCA	4.992	4.372	-12.4	87.6
7:3FTCA	4.992	4.311	-13.6	86.4
d3-MeFOSA	2.500	2.641	5.7	105.7
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.433	8.2	108.2
EtFOSE	1.000	0.850	-15.0	85.0
MeFOSA	0.400	0.372	-7.0	93.0
MeFOSE	1.000	0.883	-11.7	88.3
PFDoDS	0.194	0.179	-7.5	92.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.142	2.8	102.8
d7-MeFOSE	25.000	26.154	4.6	104.6
d9-EtFOSE	25.000	26.503	6.0	106.0
d5-EtFOSA	2.500	2.682	7.3	107.3
NFDHA	0.400	0.408	2.0	102.0
PFMBA	0.400	0.366	-8.5	91.5
PFMPA	0.400	0.358	-10.5	89.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	0.356	0.318	-10.6	89.4

CC Criteria: +/- 30%

**Continuing Calibration Summary**

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q723-CC722  
 Lab FileID: 4Q49352.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\082223\_1633\_S4Q723\s4q723.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49281.d  
 2:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49282.d  
 3:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49283.d  
 4:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49284.d  
 5:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49285.d  
 6:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49286.d  
 7:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49287.d  
 8:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49288.d

Data File: 4Q49352  
 Type : QC  
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.747	14.9	114.9
13C2-6:2FTS	5.000	6.133	22.7	122.7
13C2-8:2FTS	5.000	5.442	8.8	108.8
13C2-PFDoDA	1.250	1.208	-3.3	96.7
13C2-PFTeDA	1.250	1.173	-6.2	93.8
13C3-PFBS	2.500	2.580	3.2	103.2
13C3-PFHxS	2.500	2.540	1.6	101.6
13C4-PFBA	10.000	9.843	-1.6	98.4
13C4-PFHpA	2.500	2.529	1.2	101.2
13C5-PFHxA	2.500	2.434	-2.6	97.4
13C5-PFPeA	5.000	5.006	0.1	100.1
13C6-PFDA	1.250	1.290	3.2	103.2
13C7-PFUnDA	1.250	1.216	-2.7	97.3
13C8-FOSA	2.500	2.477	-0.9	99.1
13C8-PFOA	2.500	2.411	-3.6	96.4
13C8-PFOS	2.500	2.514	0.6	100.6
13C9-PFNA	1.250	1.243	-0.6	99.4
4:2FTS	9.375	8.381	-10.6	89.4
6:2FTS	9.500	8.001	-15.8	84.2
8:2FTS	9.600	8.407	-12.4	87.6
d3-MeFOSAA	5.000	4.888	-2.2	97.8
EtFOSAA	2.500	2.197	-12.1	87.9
FOSA	2.500	2.273	-9.1	90.9
MeFOSAA	2.500	2.084	-16.6	83.4
PFBA	10.000	8.906	-10.9	89.1
PFBS	2.218	1.805	-18.6	81.4
PFDA	2.500	2.127	-14.9	85.1
PFDoDA	2.500	2.183	-12.7	87.3
PFDS	2.413	2.189	-9.3	90.7
PFHpA	2.500	2.211	-11.6	88.4
PFHpS	2.383	2.171	-8.9	91.1
PFHxA	2.500	2.201	-12.0	88.0
PFHxS	2.285	2.011	-12.0	88.0
PFNA	2.500	2.202	-11.9	88.1
PFNS	2.405	2.256	-6.2	93.8
PFOA	2.500	2.150	-14.0	86.0
PFOS	2.320	2.015	-13.2	86.8

# Continuing Calibration Summary

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q723-CC722  
 Lab FileID: 4Q49352.D

PFPeA	5.000	4.335	-13.3	86.7
PFPeS	2.353	2.053	-12.8	87.2
PFTeDA	2.500	2.280	-8.8	91.2
PFTTrDA	2.500	2.294	-8.2	91.8
PFUnDA	2.500	2.341	-6.4	93.6
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.393	-7.0	93.0
13C3-HFPO-DA	10.000	9.503	-5.0	95.0
9C1-PF3ONS	4.675	4.201	-10.1	89.9
ADONA	4.725	4.381	-7.3	92.7
HFPO-DA	5.000	4.337	-13.3	86.7
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	10.771	-13.7	86.3
5:3FTCA	62.400	57.127	-8.5	91.5
7:3FTCA	62.400	54.778	-12.2	87.8
d3-MeFOSA	2.500	2.305	-7.8	92.2
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.981	-0.4	99.6
EtFOSE	12.500	11.232	-10.1	89.9
MeFOSA	5.000	4.640	-7.2	92.8
MeFOSE	12.500	11.482	-8.1	91.9
PFDoDS	2.425	2.156	-11.1	88.9
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.325	6.5	106.5
d7-MeFOSE	25.000	23.617	-5.5	94.5
d9-EtFOSE	25.000	22.459	-10.2	89.8
d5-EtFOSA	2.500	2.189	-12.4	87.6
NFDHA	5.000	4.461	-10.8	89.2
PFMBA	5.000	4.425	-11.5	88.5
PFMPA	5.000	4.394	-12.1	87.9
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	3.900	-12.4	87.6

CC Criteria: +/- 30%

**Continuing Calibration Summary**

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q723-CC722  
 Lab FileID: 4Q49364.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\082223\_1633\_S4Q723\s4q723.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49281.d  
 2:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49282.d  
 3:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49283.d  
 4:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49284.d  
 5:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49285.d  
 6:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49286.d  
 7:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49287.d  
 8:D:\MassHunter\Data\082223\_1633\_S4Q722\4Q49288.d

Data File: 4Q49364  
 Type : QC  
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.071	1.4	101.4
13C2-6:2FTS	5.000	4.975	-0.5	99.5
13C2-8:2FTS	5.000	5.177	3.5	103.5
13C2-PFDoDA	1.250	1.325	6.0	106.0
13C2-PFTeDA	1.250	1.296	3.7	103.7
13C3-PFBS	2.500	2.385	-4.6	95.4
13C3-PFHxS	2.500	2.340	-6.4	93.6
13C4-PFBA	10.000	9.914	-0.9	99.1
13C4-PFHpA	2.500	2.448	-2.1	97.9
13C5-PFHxA	2.500	2.453	-1.9	98.1
13C5-PFPeA	5.000	4.981	-0.4	99.6
13C6-PFDA	1.250	1.424	13.9	113.9
13C7-PFUnDA	1.250	1.303	4.2	104.2
13C8-FOSA	2.500	2.598	3.9	103.9
13C8-PFOA	2.500	2.449	-2.0	98.0
13C8-PFOS	2.500	2.584	3.4	103.4
13C9-PFNA	1.250	1.257	0.5	100.5
4:2FTS	9.375	8.577	-8.5	91.5
6:2FTS	9.500	9.451	-0.5	99.5
8:2FTS	9.600	7.675	-20.1	79.9
d3-MeFOSAA	5.000	5.412	8.2	108.2
EtFOSAA	2.500	2.187	-12.5	87.5
FOSA	2.500	2.303	-7.9	92.1
MeFOSAA	2.500	1.896	-24.2	75.8
PFBA	10.000	8.790	-12.1	87.9
PFBS	2.218	1.867	-15.8	84.2
PFDA	2.500	2.039	-18.4	81.6
PFDoDA	2.500	2.199	-12.0	88.0
PFDS	2.413	2.184	-9.5	90.5
PFHpA	2.500	2.249	-10.0	90.0
PFHpS	2.383	2.213	-7.1	92.9
PFHxA	2.500	2.103	-15.9	84.1
PFHxS	2.285	2.156	-5.7	94.3
PFNA	2.500	2.192	-12.3	87.7
PFNS	2.405	2.208	-8.2	91.8
PFOA	2.500	2.205	-11.8	88.2
PFOS	2.320	2.075	-10.6	89.4

# Continuing Calibration Summary

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q723-CC722  
 Lab FileID: 4Q49364.D

PFPeA	5.000	4.334	-13.3	86.7
PFPeS	2.353	2.208	-6.1	93.9
PFTeDA	2.500	2.203	-11.9	88.1
PFTrDA	2.500	2.280	-8.8	91.2
PFUnDA	2.500	2.526	1.0	101.0
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.454	-5.7	94.3
13C3-HFPO-DA	10.000	8.992	-10.1	89.9
9C1-PF3ONS	4.675	4.452	-4.8	95.2
ADONA	4.725	4.514	-4.5	95.5
HFPO-DA	5.000	4.368	-12.6	87.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	10.356	-17.0	83.0
5:3FTCA	62.400	56.954	-8.7	91.3
7:3FTCA	62.400	56.015	-10.2	89.8
d3-MeFOSA	2.500	2.394	-4.2	95.8
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.711	-5.8	94.2
EtFOSE	12.500	11.640	-6.9	93.1
MeFOSA	5.000	4.781	-4.4	95.6
MeFOSE	12.500	11.508	-7.9	92.1
PFDoDS	2.425	2.217	-8.6	91.4
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.189	3.8	103.8
d7-MeFOSE	25.000	24.504	-2.0	98.0
d9-EtFOSE	25.000	24.150	-3.4	96.6
d5-EtFOSA	2.500	2.319	-7.2	92.8
NFDHA	5.000	4.065	-18.7	81.3
PFMBA	5.000	4.377	-12.5	87.5
PFMPA	5.000	4.288	-14.2	85.8
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	3.925	-11.8	88.2

CC Criteria: +/- 30%



## Run Sequence Report

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q722	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
S4Q722-RT	4Q49278.D	08/22/23 10:05	n/a	Retention Time Marker
S4Q722-RT	4Q49279.D	08/22/23 10:20	n/a	Retention Time Marker
S4Q722-IC722	4Q49280.D	08/22/23 10:35	n/a	Mass Calibration Verification
S4Q722-IC722	4Q49281.D	08/22/23 10:50	n/a	Initial cal 1
S4Q722-IC722	4Q49282.D	08/22/23 11:04	n/a	Initial cal 2
S4Q722-IC722	4Q49283.D	08/22/23 11:19	n/a	Initial cal 3
S4Q722-ICC722	4Q49284.D	08/22/23 11:34	n/a	Initial cal 4
S4Q722-IC722	4Q49285.D	08/22/23 11:49	n/a	Initial cal 5
S4Q722-IC722	4Q49286.D	08/22/23 12:03	n/a	Initial cal 6
S4Q722-IC722	4Q49287.D	08/22/23 12:18	n/a	Initial cal 7
S4Q722-IC722	4Q49288.D	08/22/23 12:33	n/a	Initial cal 8
S4Q722-IBLK	4Q49289.D	08/22/23 12:48	n/a	Instrument Blank
S4Q722-IBLK	4Q49289.D	08/22/23 12:48	n/a	Instrument Blank
S4Q722-ICV722	4Q49290.D	08/22/23 13:03	n/a	Initial cal verification 4
S4Q722-ICV722	4Q49291.D	08/22/23 13:17	n/a	Initial cal verification 20
S4Q722-CC722	4Q49292.D	08/22/23 13:32	n/a	Continuing cal 4
S4Q722-CC722	4Q49293.D	08/22/23 13:47	n/a	Continuing cal 1.0LL
ZZZZZZ	4Q49294.D	08/22/23 14:02	OP98458	(unrelated sample)
ZZZZZZ	4Q49295.D	08/22/23 14:16	OP98458	(unrelated sample)
ZZZZZZ	4Q49296.D	08/22/23 14:31	OP98458	(unrelated sample)
ZZZZZZ	4Q49297.D	08/22/23 14:46	OP98458	(unrelated sample)
OP98460-BS	4Q49299.D	08/22/23 15:15	OP98460	Blank Spike
OP98460-LLBS	4Q49300.D	08/22/23 15:30	OP98460	Blank Spike
OP98460-MB	4Q49301.D	08/22/23 15:45	OP98460	Method Blank
ZZZZZZ	4Q49302.D	08/22/23 16:00	OP98460	(unrelated sample)
ZZZZZZ	4Q49303.D	08/22/23 16:14	OP98460	(unrelated sample)
S4Q722-CC722	4Q49304.D	08/22/23 16:29	n/a	Continuing cal 4
S4Q722-ICCB	4Q49305.D	08/22/23 16:44	n/a	Continuing Calibration Blank
ZZZZZZ	4Q49306.D	08/22/23 16:59	OP98460	(unrelated sample)
ZZZZZZ	4Q49307.D	08/22/23 17:13	OP98460	(unrelated sample)
ZZZZZZ	4Q49308.D	08/22/23 17:28	OP98460	(unrelated sample)
ZZZZZZ	4Q49309.D	08/22/23 17:43	OP98460	(unrelated sample)
ZZZZZZ	4Q49310.D	08/22/23 17:57	OP98460	(unrelated sample)
ZZZZZZ	4Q49311.D	08/22/23 18:12	OP98460	(unrelated sample)
FC8160-9	4Q49312.D	08/22/23 18:27	OP98460	(used for QC only; not part of job FC8731)
FC8160-10	4Q49314.D	08/22/23 18:57	OP98460	(used for QC only; not part of job FC8731)
OP98460-DUP	4Q49315.D	08/22/23 19:11	OP98460	Duplicate
S4Q722-CC722	4Q49316.D	08/22/23 19:26	n/a	Continuing cal 4
S4Q722-ICCB	4Q49317.D	08/22/23 19:41	n/a	Continuing Calibration Blank
ZZZZZZ	4Q49318.D	08/22/23 19:56	OP98460	(unrelated sample)
ZZZZZZ	4Q49319.D	08/22/23 20:10	OP98460	(unrelated sample)
ZZZZZZ	4Q49320.D	08/22/23 20:25	OP98460	(unrelated sample)
ZZZZZZ	4Q49321.D	08/22/23 20:40	OP98460	(unrelated sample)
ZZZZZZ	4Q49322.D	08/22/23 20:55	OP98460	(unrelated sample)
ZZZZZZ	4Q49323.D	08/22/23 21:09	OP98460	(unrelated sample)
ZZZZZZ	4Q49324.D	08/22/23 21:24	OP98460	(unrelated sample)

# Run Sequence Report

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q722	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	4Q49325.D	08/22/23 21:39	OP98460	(unrelated sample)
S4Q722-CC722	4Q49326.D	08/22/23 21:54	n/a	Continuing cal 4
S4Q722-ICCB	4Q49327.D	08/22/23 22:08	n/a	Continuing Calibration Blank
ZZZZZZ	4Q49328.D	08/22/23 22:23	OP98501	(unrelated sample)
FC8249-2	4Q49329.D	08/22/23 22:38	OP98501	(used for QC only; not part of job FC8731)
OP98501-MS	4Q49330.D	08/22/23 22:53	OP98501	Matrix Spike
OP98501-MSD	4Q49331.D	08/22/23 23:07	OP98501	Matrix Spike Duplicate
S4Q722-ECC722	4Q49332.D	08/22/23 23:22	n/a	Ending cal 4
S4Q722-ICCB	4Q49333.D	08/22/23 23:37	n/a	Continuing Calibration Blank

6.9.1

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## Run Sequence Report

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q723	Method: EPA DRAFT 1633	Instrument ID: GCMS4Q		
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S4Q723-RT	4Q49336.D	08/23/23 09:50	n/a	Retention Time Marker
S4Q723-RT	4Q49337.D	08/23/23 10:04	n/a	Retention Time Marker
S4Q723-IBLK	4Q49339.D	08/23/23 10:34	n/a	Instrument Blank
S4Q723-IBLK	4Q49339.D	08/23/23 10:34	n/a	Instrument Blank
S4Q723-CC722	4Q49340.D	08/23/23 10:49	n/a	Continuing cal 4
S4Q723-CC722	4Q49341.D	08/23/23 11:05	n/a	Continuing cal 1.0LL
OP98526-BS	4Q49342.D	08/23/23 11:20	OP98526	Blank Spike
OP98526-LLBS	4Q49343.D	08/23/23 11:35	OP98526	Blank Spike
OP98526-MB	4Q49344.D	08/23/23 11:49	OP98526	Method Blank
FC8731-1	4Q49345.D	08/23/23 12:04	OP98526	AF-HDMW225303-WGN01LF-2308
ZZZZZZ	4Q49346.D	08/23/23 12:19	OP98526	(unrelated sample)
ZZZZZZ	4Q49347.D	08/23/23 12:34	OP98526	(unrelated sample)
ZZZZZZ	4Q49348.D	08/23/23 12:48	OP98526	(unrelated sample)
FC8240-7	4Q49349.D	08/23/23 13:03	OP98526	(used for QC only; not part of job FC8731)
OP98526-MS	4Q49350.D	08/23/23 13:18	OP98526	Matrix Spike
ZZZZZZ	4Q49351.D	08/23/23 13:33	OP98460	(unrelated sample)
S4Q723-CC722	4Q49352.D	08/23/23 13:47	n/a	Continuing cal 4
S4Q723-ICCB	4Q49353.D	08/23/23 14:02	n/a	Continuing Calibration Blank
FC8240-8	4Q49354.D	08/23/23 14:17	OP98526	(used for QC only; not part of job FC8731)
OP98526-DUP	4Q49355.D	08/23/23 14:32	OP98526	Duplicate
ZZZZZZ	4Q49356.D	08/23/23 14:46	OP98526	(unrelated sample)
ZZZZZZ	4Q49357.D	08/23/23 15:01	OP98526	(unrelated sample)
ZZZZZZ	4Q49358.D	08/23/23 15:16	OP98526	(unrelated sample)
ZZZZZZ	4Q49359.D	08/23/23 15:31	OP98526	(unrelated sample)
ZZZZZZ	4Q49360.D	08/23/23 15:45	OP98526	(unrelated sample)
FC8160-9	4Q49361.D	08/23/23 16:00	OP98460	(used for QC only; not part of job FC8731)
OP98460-MS	4Q49362.D	08/23/23 16:15	OP98460	Matrix Spike
ZZZZZZ	4Q49363.D	08/23/23 16:30	OP98460	(unrelated sample)
S4Q723-CC722	4Q49364.D	08/23/23 16:44	n/a	Continuing cal 4
S4Q723-ICCB	4Q49365.D	08/23/23 16:59	n/a	Continuing Calibration Blank
OP98456-BS	4Q49366.D	08/23/23 17:14	OP98456	Blank Spike
OP98456-LLBS	4Q49367.D	08/23/23 17:29	OP98456	Blank Spike
OP98456-MB	4Q49368.D	08/23/23 17:43	OP98456	Method Blank
ZZZZZZ	4Q49369.D	08/23/23 17:58	OP98456	(unrelated sample)
ZZZZZZ	4Q49370.D	08/23/23 18:13	OP98456	(unrelated sample)
ZZZZZZ	4Q49371.D	08/23/23 18:28	OP98456	(unrelated sample)
ZZZZZZ	4Q49372.D	08/23/23 18:42	OP98456	(unrelated sample)
ZZZZZZ	4Q49373.D	08/23/23 18:57	OP98456	(unrelated sample)
ZZZZZZ	4Q49374.D	08/23/23 19:12	OP98456	(unrelated sample)
ZZZZZZ	4Q49375.D	08/23/23 19:27	OP98456	(unrelated sample)
S4Q723-CC722	4Q49376.D	08/23/23 19:41	n/a	Continuing cal 4
S4Q723-ICCB	4Q49377.D	08/23/23 19:56	n/a	Continuing Calibration Blank
ZZZZZZ	4Q49378.D	08/23/23 20:11	OP98456	(unrelated sample)
ZZZZZZ	4Q49379.D	08/23/23 20:26	OP98456	(unrelated sample)
ZZZZZZ	4Q49380.D	08/23/23 20:40	OP98456	(unrelated sample)
FC8158-11	4Q49381.D	08/23/23 20:55	OP98456	(used for QC only; not part of job FC8731)

# Run Sequence Report

Job Number: FC8731  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q723	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
OP98456-MS	4Q49382.D	08/23/23 21:10	OP98456	Matrix Spike
OP98456-MSD	4Q49383.D	08/23/23 21:25	OP98456	Matrix Spike Duplicate
ZZZZZZ	4Q49384.D	08/23/23 21:39	OP98456	(unrelated sample)
ZZZZZZ	4Q49385.D	08/23/23 21:54	OP98456	(unrelated sample)
ZZZZZZ	4Q49386.D	08/23/23 22:09	OP98456	(unrelated sample)
ZZZZZZ	4Q49387.D	08/23/23 22:24	OP98456	(unrelated sample)
S4Q723-CC722	4Q49388.D	08/23/23 22:38	n/a	Continuing cal 4
S4Q723-ICCB	4Q49389.D	08/23/23 22:53	n/a	Continuing Calibration Blank
ZZZZZZ	4Q49390.D	08/23/23 23:08	OP98456	(unrelated sample)
ZZZZZZ	4Q49391.D	08/23/23 23:23	OP98456	(unrelated sample)
ZZZZZZ	4Q49392.D	08/23/23 23:37	OP98456	(unrelated sample)
ZZZZZZ	4Q49393.D	08/23/23 23:52	OP98460	(unrelated sample)
OP98462-BS	4Q49394.D	08/24/23 00:07	OP98462	Blank Spike
OP98462-LLBS	4Q49395.D	08/24/23 00:22	OP98462	Blank Spike
OP98462-MB	4Q49396.D	08/24/23 00:37	OP98462	Method Blank
FC8179-2	4Q49397.D	08/24/23 00:51	OP98462	(used for QC only; not part of job FC8731)
OP98462-MS	4Q49398.D	08/24/23 01:06	OP98462	Matrix Spike
OP98462-MSD	4Q49399.D	08/24/23 01:21	OP98462	Matrix Spike Duplicate
S4Q723-CC722	4Q49400.D	08/24/23 01:36	n/a	Continuing cal 4
S4Q723-ICCB	4Q49401.D	08/24/23 01:50	n/a	Continuing Calibration Blank
ZZZZZZ	4Q49402.D	08/24/23 02:05	OP98462	(unrelated sample)
ZZZZZZ	4Q49403.D	08/24/23 02:20	OP98462	(unrelated sample)
ZZZZZZ	4Q49404.D	08/24/23 02:35	OP98462	(unrelated sample)
ZZZZZZ	4Q49405.D	08/24/23 02:49	OP98462	(unrelated sample)
ZZZZZZ	4Q49406.D	08/24/23 03:04	OP98462	(unrelated sample)
ZZZZZZ	4Q49407.D	08/24/23 03:19	OP98462	(unrelated sample)
ZZZZZZ	4Q49408.D	08/24/23 03:34	OP98462	(unrelated sample)
ZZZZZZ	4Q49409.D	08/24/23 03:48	OP98462	(unrelated sample)
ZZZZZZ	4Q49410.D	08/24/23 04:03	OP98462	(unrelated sample)
ZZZZZZ	4Q49411.D	08/24/23 04:18	OP98462	(unrelated sample)
S4Q723-CC722	4Q49412.D	08/24/23 04:33	n/a	Continuing cal 4
S4Q723-ICCB	4Q49413.D	08/24/23 04:47	n/a	Continuing Calibration Blank
ZZZZZZ	4Q49414.D	08/24/23 05:02	OP98462	(unrelated sample)
ZZZZZZ	4Q49415.D	08/24/23 05:17	OP98462	(unrelated sample)
ZZZZZZ	4Q49416.D	08/24/23 05:32	OP98435	(unrelated sample)
FC8161-11	4Q49417.D	08/24/23 05:46	OP98435	(used for QC only; not part of job FC8731)
OP98435-MS	4Q49418.D	08/24/23 06:01	OP98435	Matrix Spike
FC8161-12	4Q49419.D	08/24/23 06:16	OP98435	(used for QC only; not part of job FC8731)
OP98435-DUP	4Q49420.D	08/24/23 06:31	OP98435	Duplicate
S4Q723-ECC722	4Q49421.D	08/24/23 06:45	n/a	Ending cal 4
S4Q723-ICCB	4Q49422.D	08/24/23 07:00	n/a	Continuing Calibration Blank

**MS Semi-volatiles**

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**Raw Data**

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### Perfluorinated Compounds by LC/MS/MS

Data File : 4Q49345.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 8/23/2023 12:04:39 PM  
 Sample Name : FC8731-1  
 Vial : P3-E4  
 DA Method File : 1633\_082223\_S4Q722.quantmethod.xml  
 Batch Name : s4q723.batch.bin  
 Sample Information : OP98526,S4Q723,570,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.874	216.8 -> 171.9	109356	10.00 µg/L	0.062
M5-PFPeA	4.337	268.3 -> 223.0	57921	5.00 µg/L	0.025
M5-PFHxA	5.522	318.0 -> 273.0	38412	2.50 µg/L	0.012
M4-PFHpA	6.479	367.1 -> 322.0	27299	2.50 µg/L	0.012
M8-PFOA	7.148	421.1 -> 376.0	41759	2.50 µg/L	0.000
M9-PFNA	7.708	472.1 -> 427.0	16149	1.25 µg/L	0.012
M6-PFDA	8.204	519.1 -> 474.1	11672	1.25 µg/L	0.012
M7-PFUnDA	8.660	570.0 -> 525.1	14731	1.25 µg/L	0.012
M2-PFDoDA	9.093	615.1 -> 570.0	16119	1.25 µg/L	0.012
M2-PFTeDA	9.861	715.2 -> 670.0	9613	1.25 µg/L	0.012
M8-FOSA	9.906	506.1 -> 77.8	8850	2.50 µg/L	0.012
M3-PFBS	5.402	302.1 -> 79.9	10836	2.50 µg/L	0.011
M3-PFHxS	7.229	402.1 -> 79.9	7251	2.50 µg/L	0.012
M8-PFOS	8.329	507.1 -> 79.9	6217	2.50 µg/L	0.000
M2-4:2FTS	5.221	329.1 -> 80.9	1241	5.00 µg/L	0.012
M2-6:2FTS	6.924	429.1 -> 80.9	2235	5.00 µg/L	0.013
M2-8:2FTS	7.991	529.1 -> 80.9	3063	5.00 µg/L	0.000
M3-MeFOSAA	8.274	573.2 -> 419.0	10379	5.00 µg/L	0.012
M3-HFPO-DA	5.889	286.9 -> 168.9	27948	10.00 µg/L	0.012
M5-EtFOSAA	8.483	589.2 -> 419.0	9160	5.00 µg/L	0.012
M7-MeFOSE	11.071	623.2 -> 58.9	48403	25.00 µg/L	0.012
M9-EtFOSE	11.343	639.2 -> 58.9	65093	25.00 µg/L	0.000
M5-EtFOSA	11.434	531.1 -> 219.0	5079	2.50 µg/L	0.012
M3-MeFOSA	11.163	515.0 -> 219.0	4189	2.50 µg/L	0.000
13C4-PFOS	8.330	502.8 -> 79.9	5182	2.50 µg/L	0.000
13C3-PFBA	2.866	216.0 -> 172.0	50284	5.00 µg/L	0.062
18O2-PFHxS	7.228	403.0 -> 83.9	4558	2.50 µg/L	0.000
13C4-PFOA	7.149	417.1 -> 372.0	39005	2.50 µg/L	0.000
13C2-PFDA	8.192	515.1 -> 470.1	8751	1.25 µg/L	0.000
13C5-PFNA	7.708	468.0 -> 423.0	13267	1.25 µg/L	0.012
13C2-PFHxA	5.523	315.1 -> 270.0	29513	2.50 µg/L	0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.221	329.1 -> 80.9	1241	5.99 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.9%		
13C2-6:2FTS	6.924	429.1 -> 80.9	2235	7.60 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 152.0%		
13C2-8:2FTS	7.991	529.1 -> 80.9	3063	6.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 129.2%		
13C2-PFDoDA	9.093	615.1 -> 570.0	16119	1.39 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 111.6%		
13C2-PFTeDA	9.861	715.2 -> 670.0	9613	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C3-PFBS	5.402	302.1 -> 79.9	10836	3.08 µg/L	0.011
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 123.1%		
13C3-PFHxS	7.229	402.1 -> 79.9	7251	2.83 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 = 113.1%	
13C4-PFBA	2.874	216.8 -> 171.9	109356	12.23 µg/L	0.062
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 122.3%	
13C4-PFHpA	6.479	367.1 -> 322.0	27299	3.25 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 130.0%	
13C5-PFHxA	5.522	318.0 -> 273.0	38412	3.09 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 123.7%	
13C5-PFPeA	4.337	268.3 -> 223.0	57921	6.29 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 125.8%	
13C6-PFDA	8.204	519.1 -> 474.1	11672	1.56 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 124.9%	
13C7-PFUnDA	8.660	570.0 -> 525.1	14731	1.45 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 115.9%	
13C8-FOSA	9.906	506.1 -> 77.8	8850	2.53 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C8-PFOA	7.148	421.1 -> 376.0	41759	3.05 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 121.9%	
13C8-PFOS	8.329	507.1 -> 79.9	6217	2.92 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 116.8%	
13C9-PFNA	7.708	472.1 -> 427.0	16149	1.60 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 128.2%	
d3-MeFOSAA	8.274	573.2 -> 419.0	10379	5.73 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 114.5%	
13C3-HFPO-DA	5.889	286.9 -> 168.9	27948	11.73 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 117.3%	
d3-MeFOSA	11.163	515.0 -> 219.0	4189	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.9%	
d5-EtFOSAA	8.483	589.2 -> 419.0	9160	6.04 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 120.9%	
d7-MeFOSE	11.071	623.2 -> 58.9	48403	25.33 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
d9-EtFOSE	11.343	639.2 -> 58.9	65093	25.41 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.7%	
d5-EtFOSA	11.434	531.1 -> 219.0	5079	2.57 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.0%	

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	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	7.452	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



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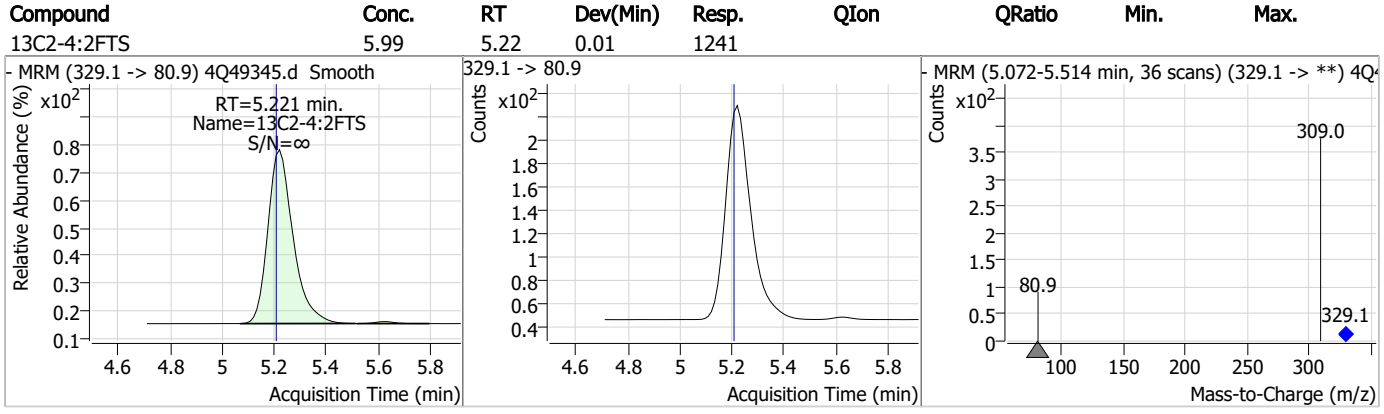
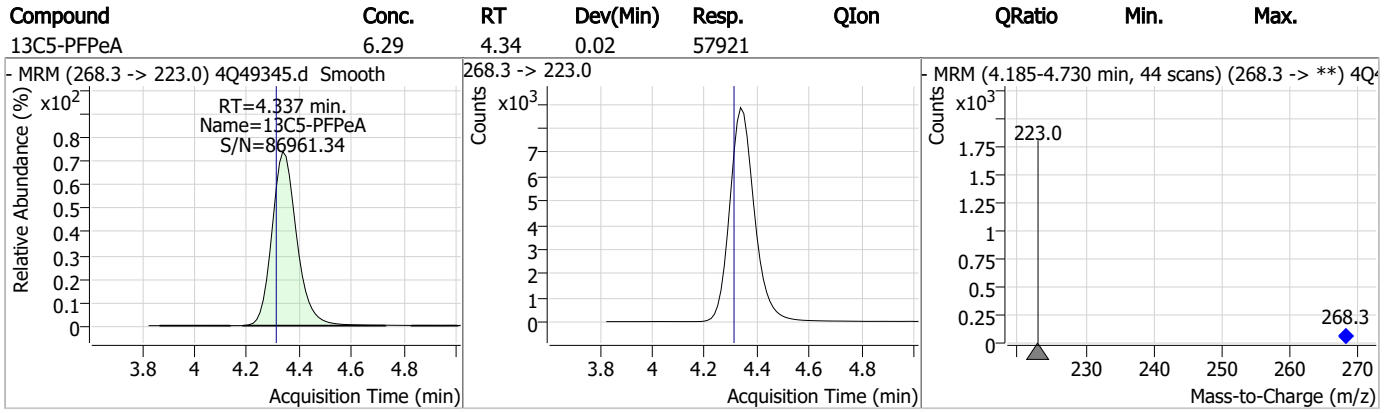
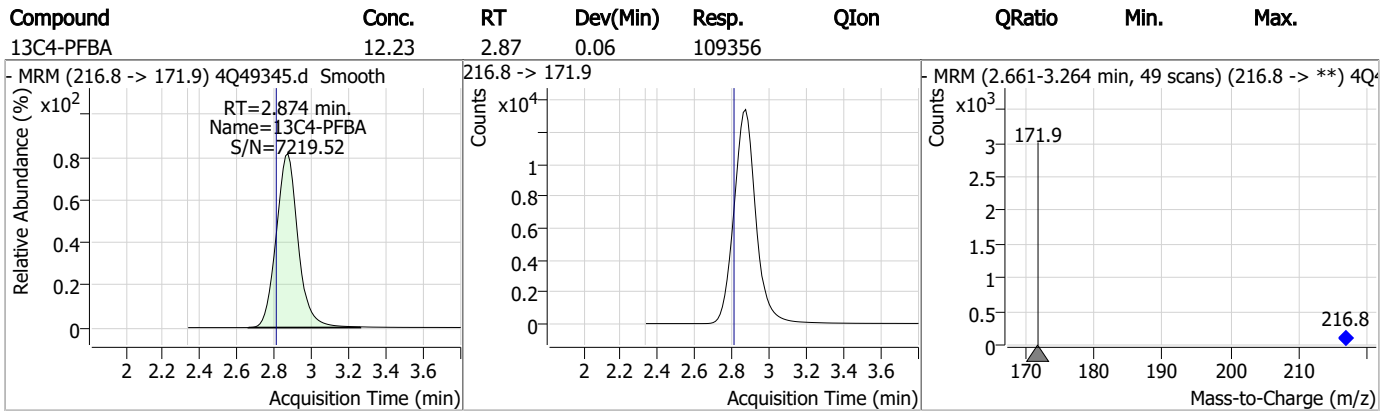
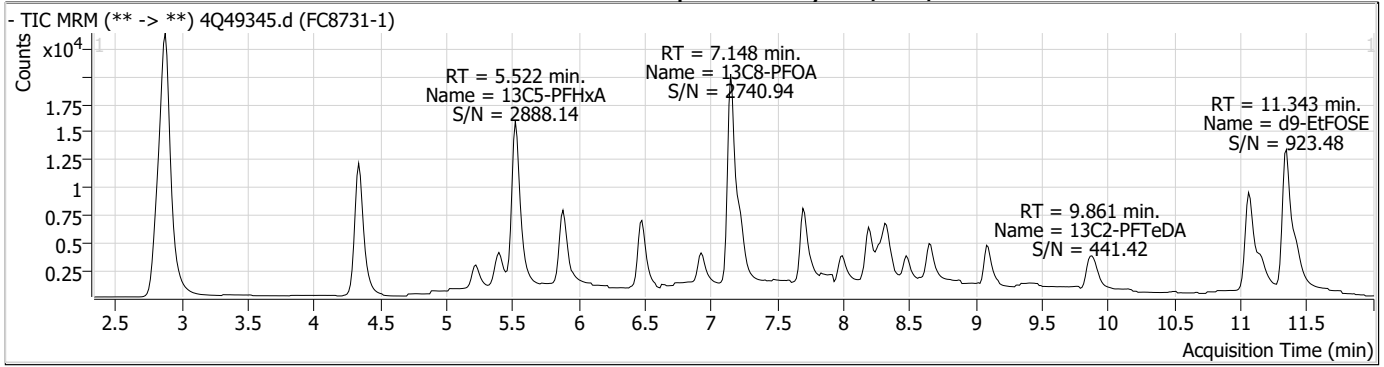
### Perfluorinated Compounds by LC/MS/MS

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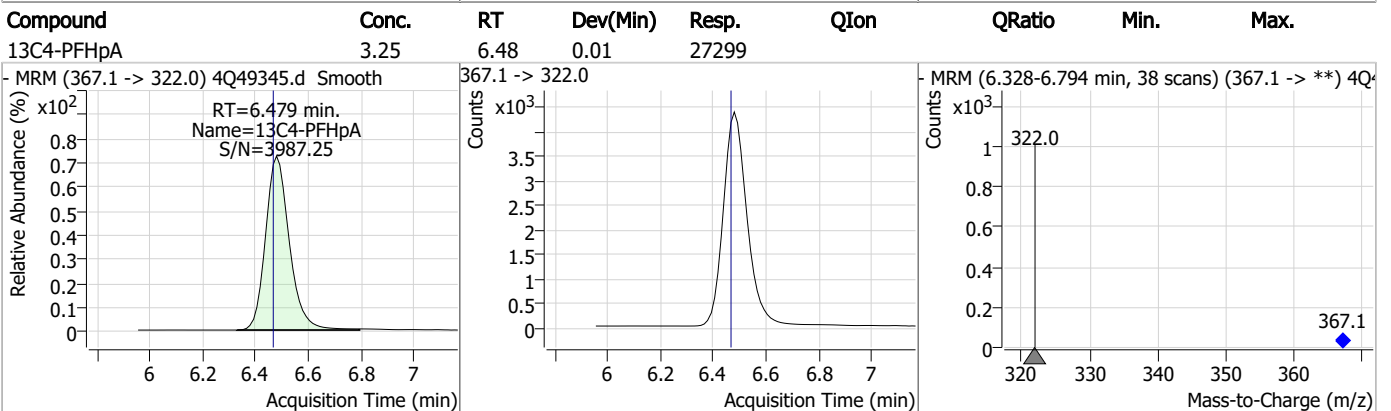
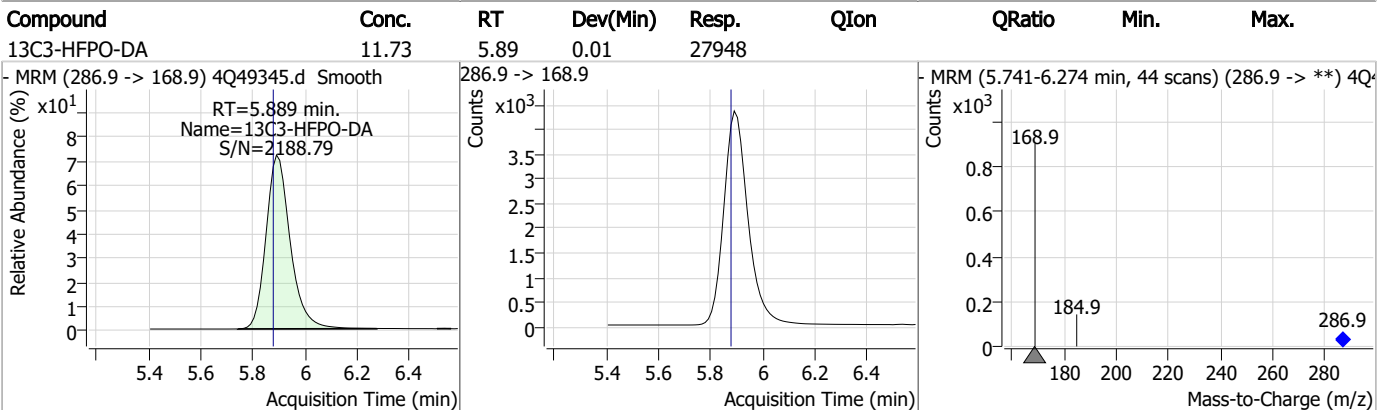
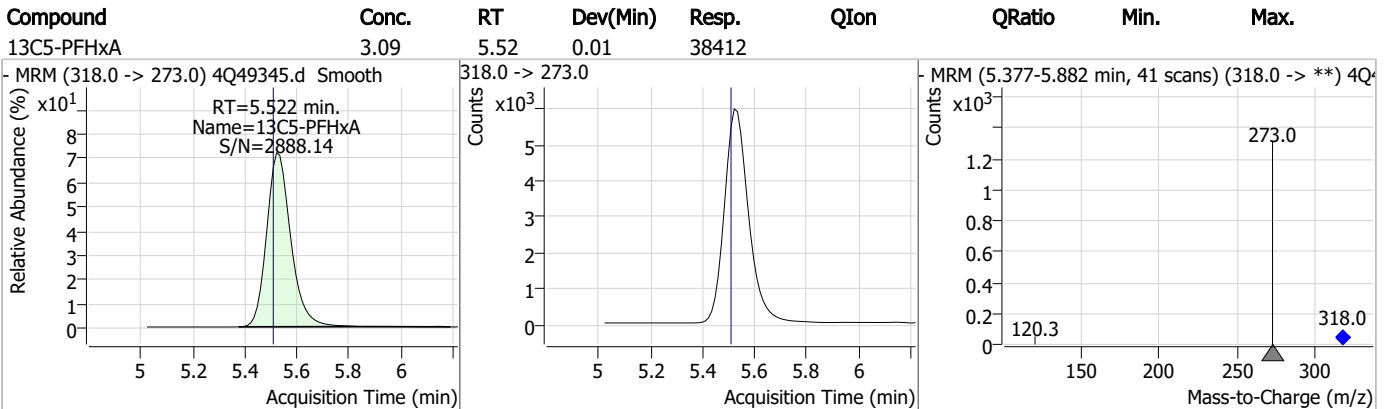
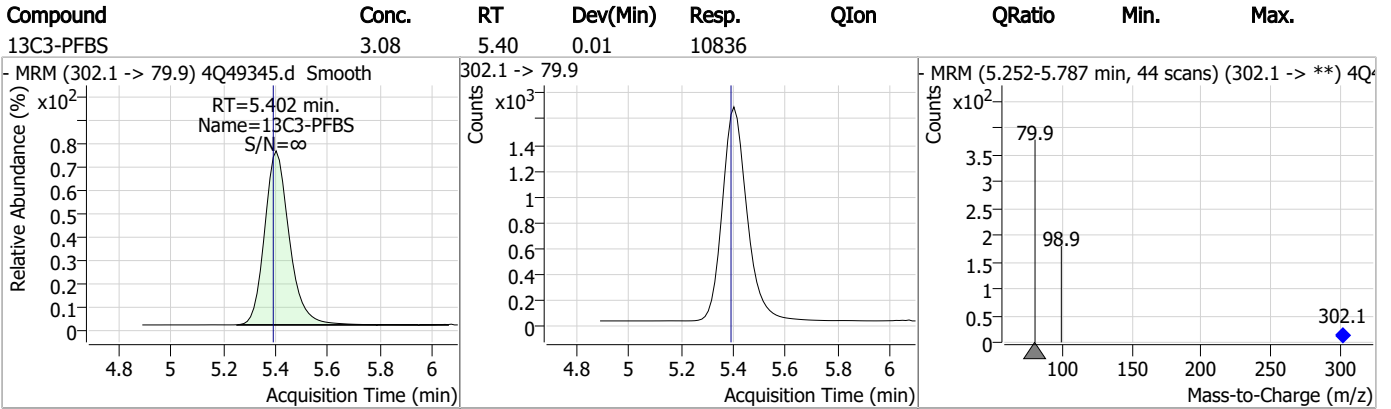
7.1.1  
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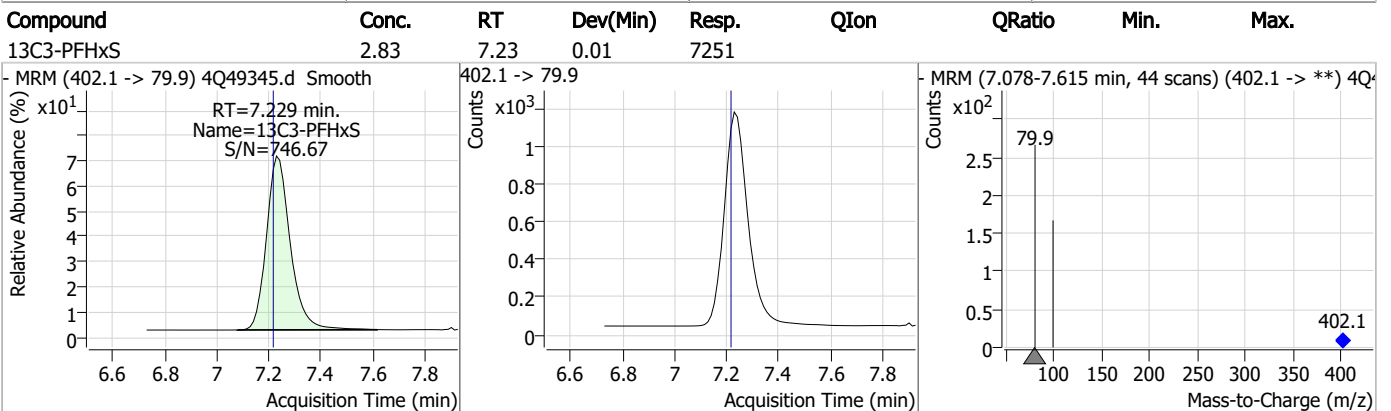
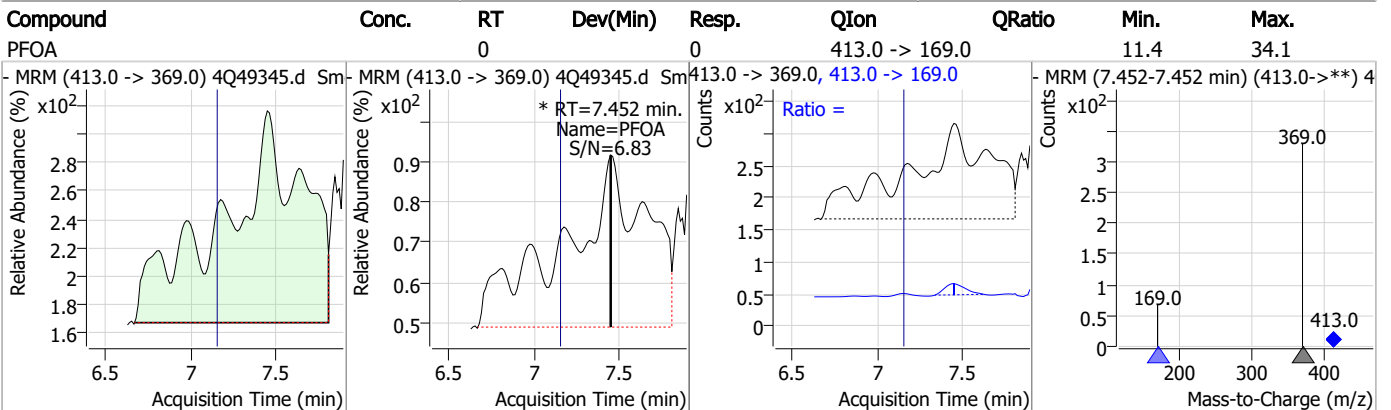
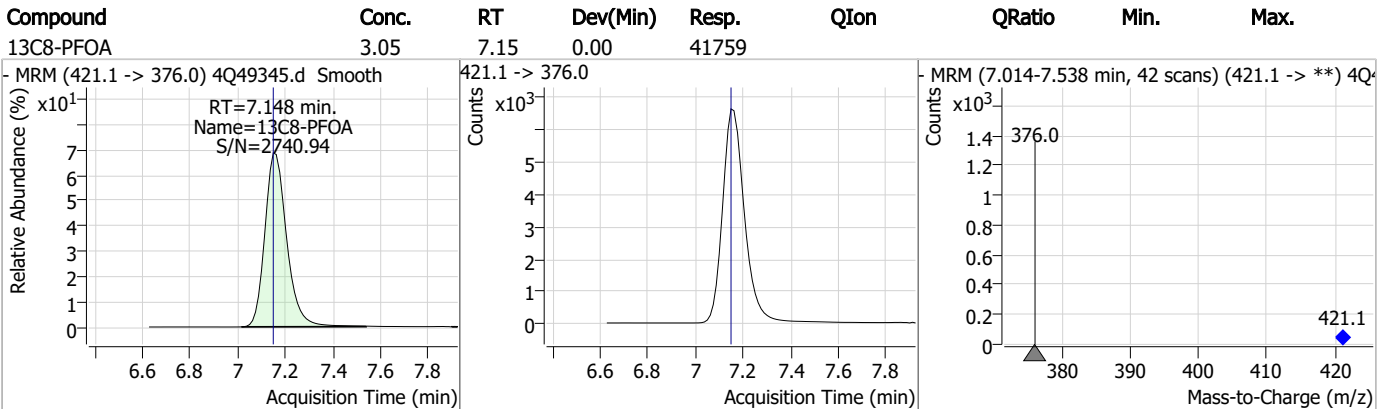
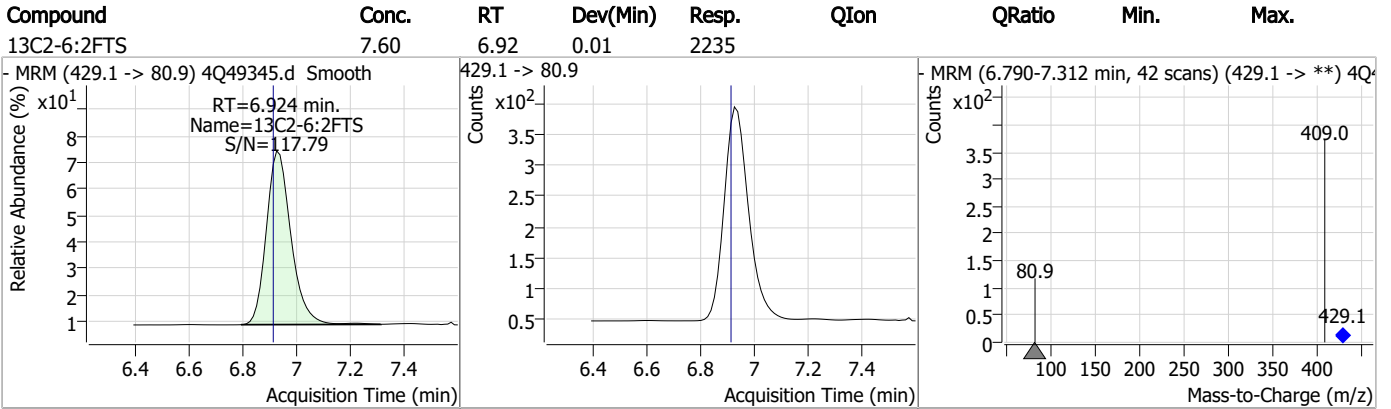
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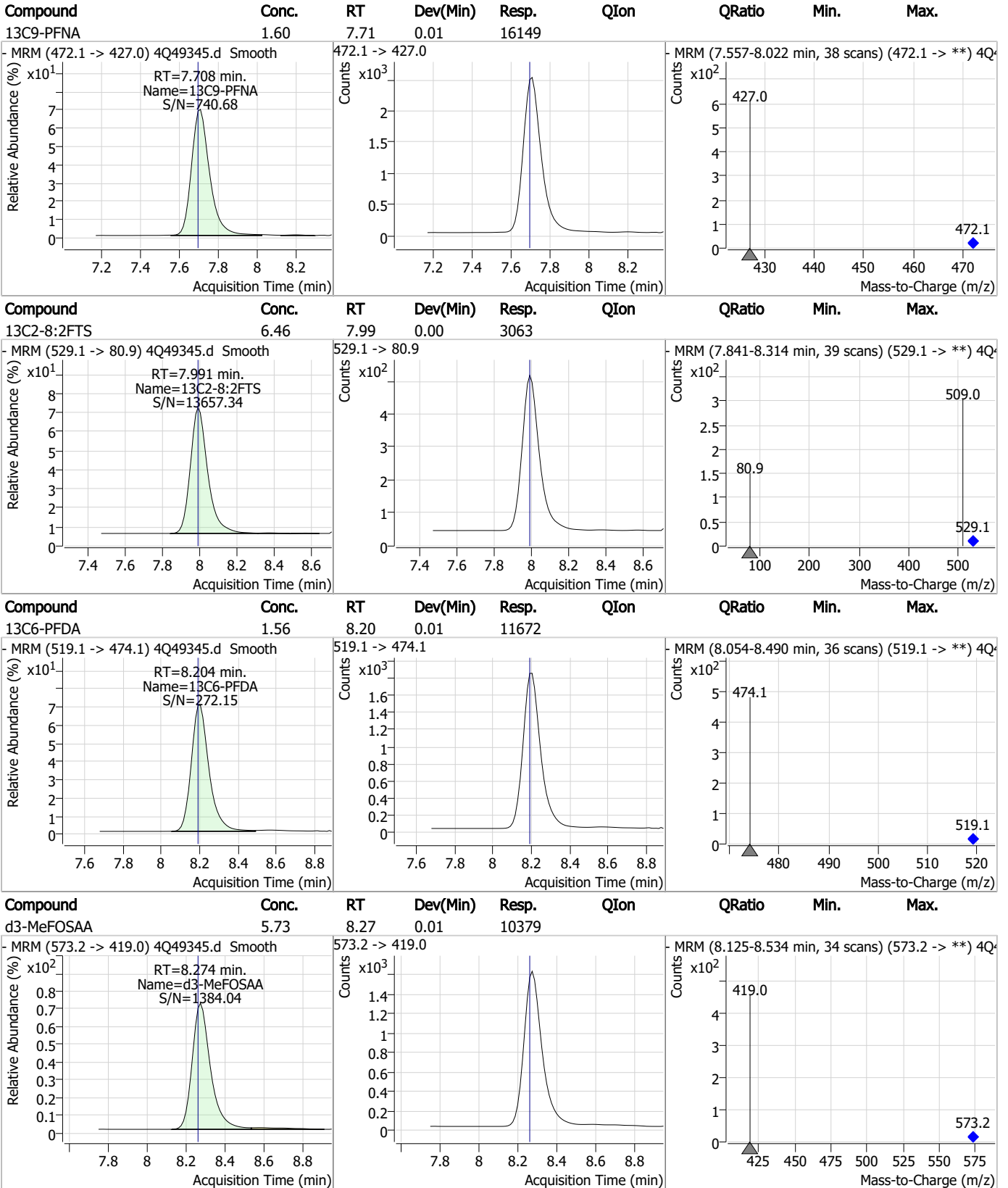
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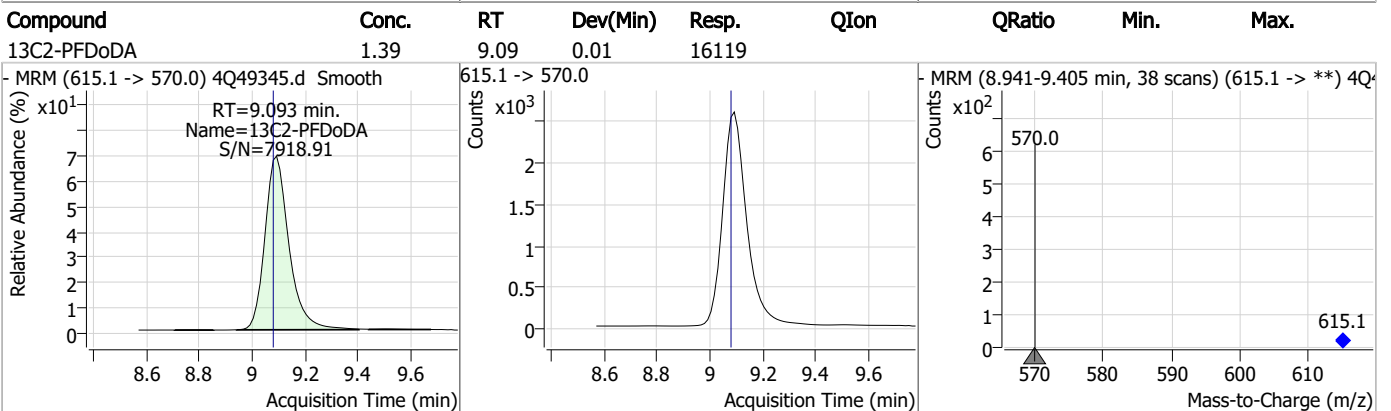
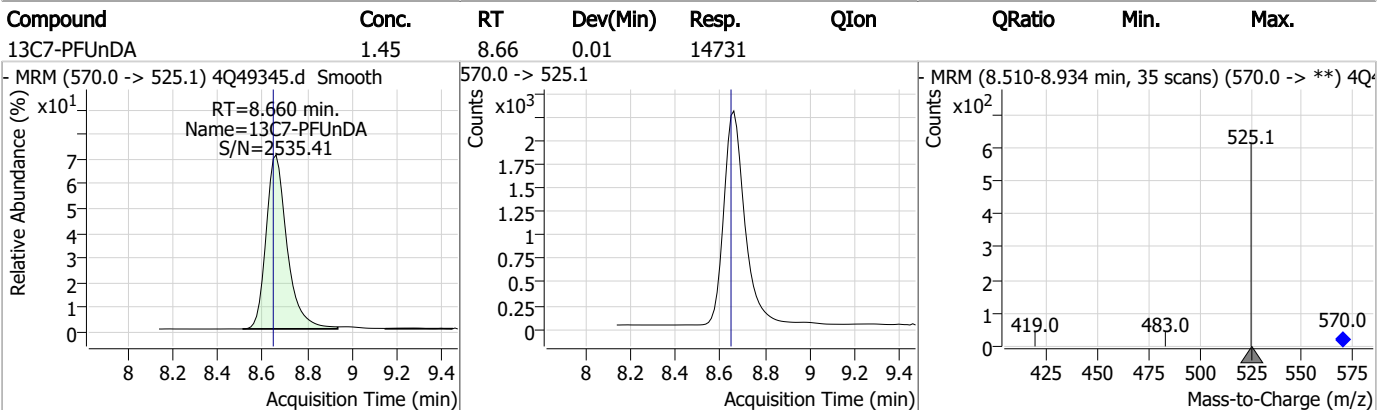
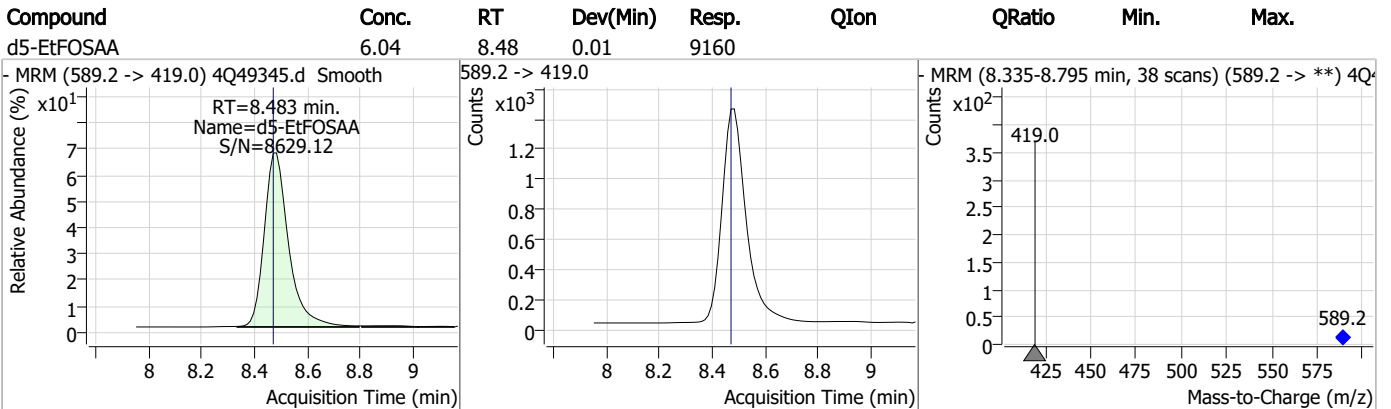
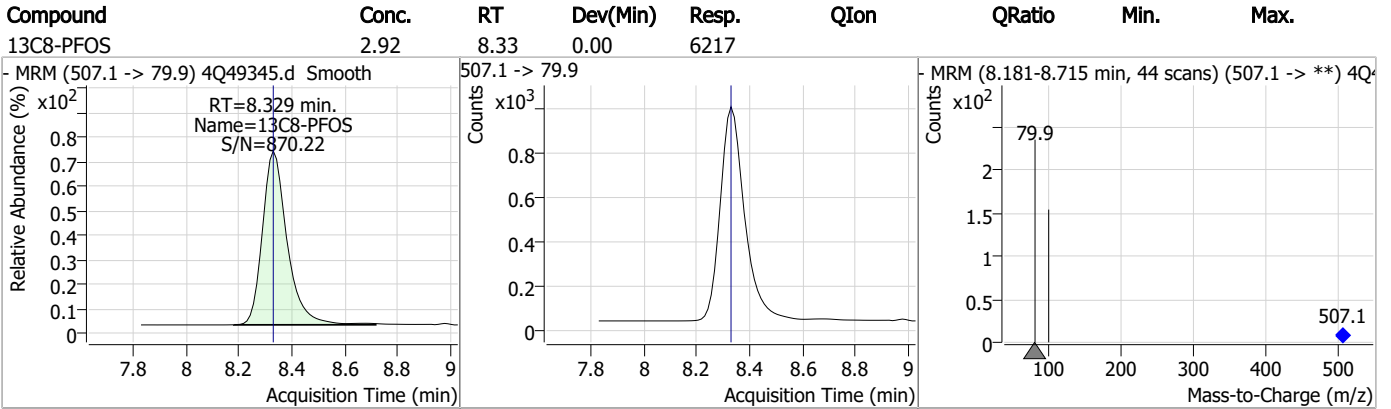
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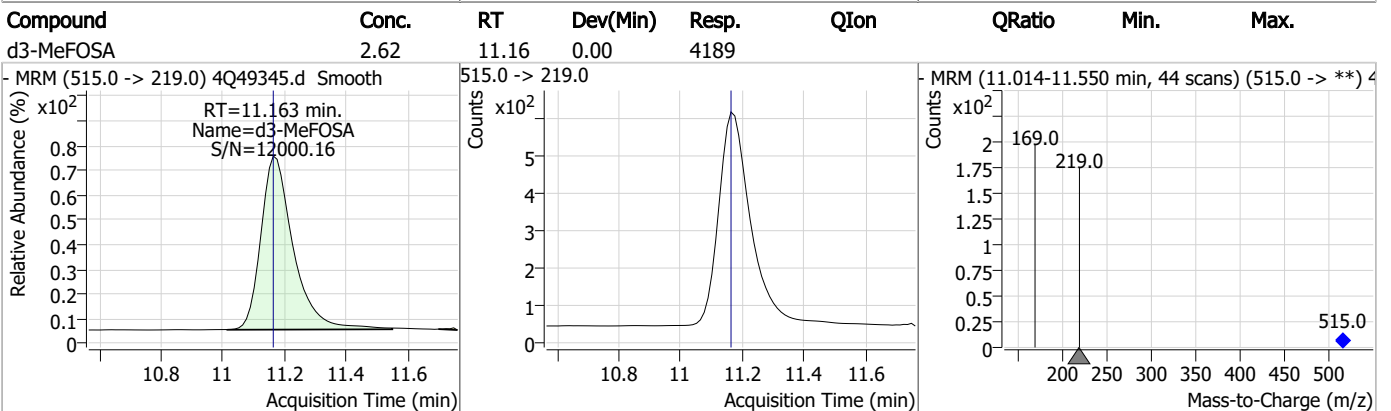
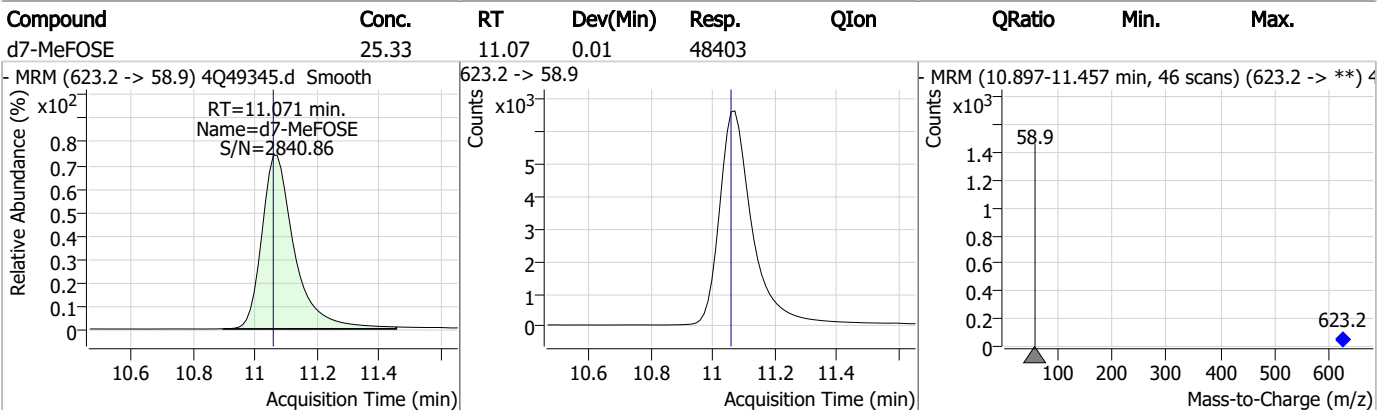
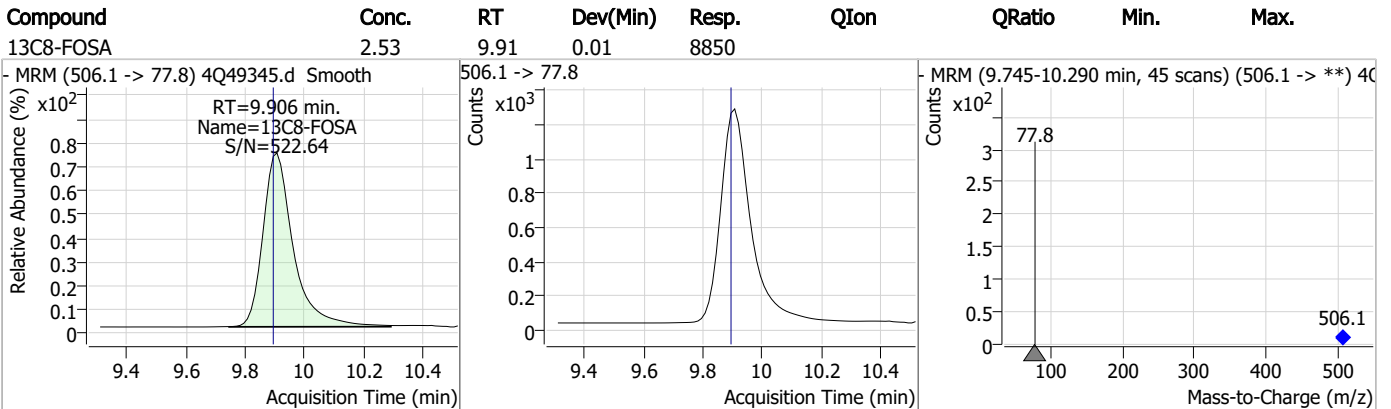
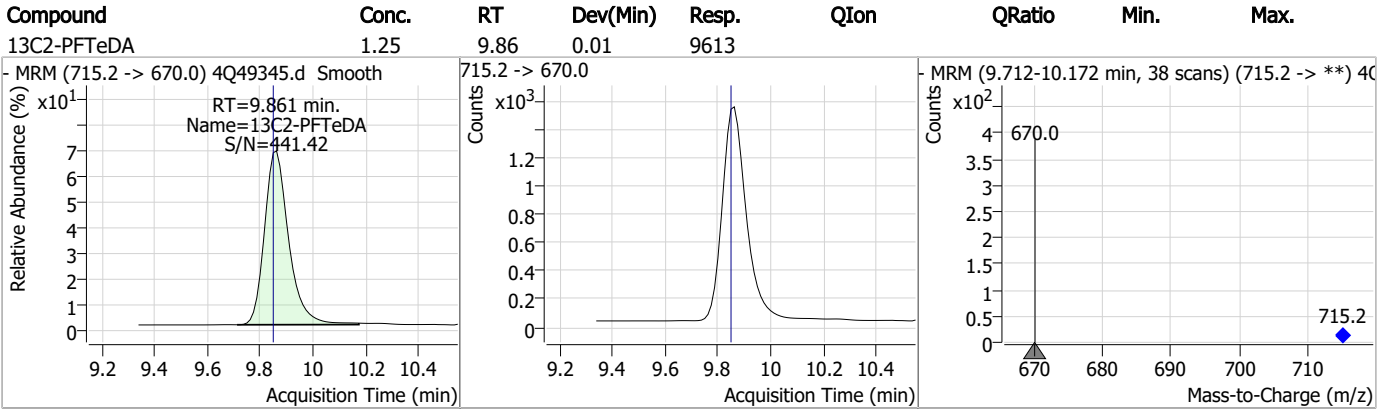
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

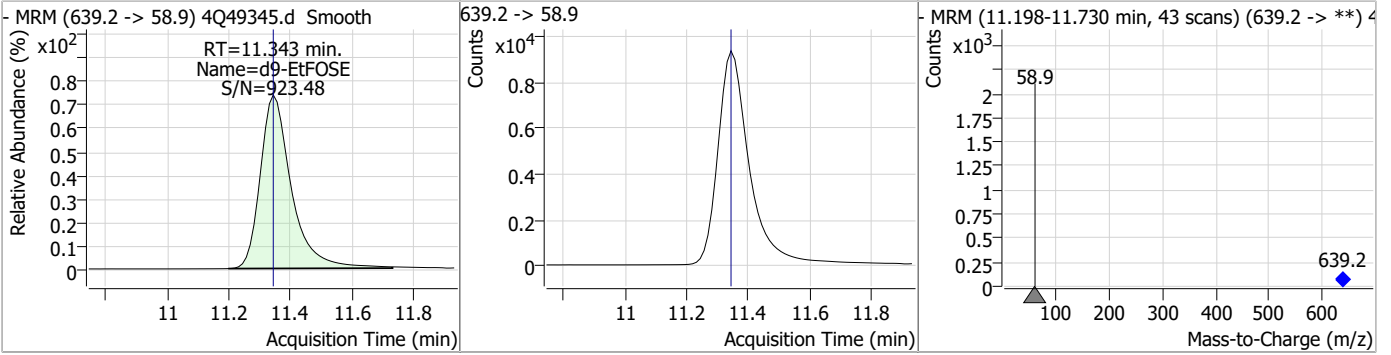


### Perfluorinated Compounds by LC/MS/MS

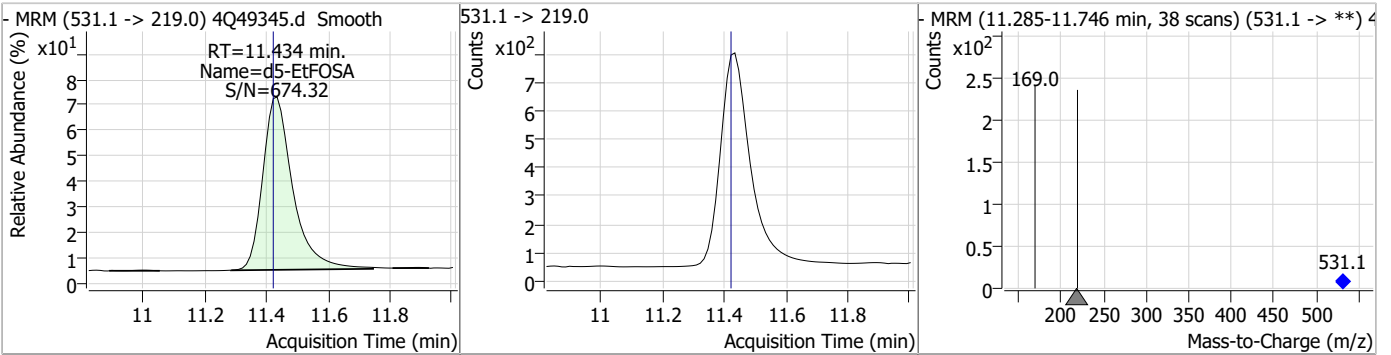


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.41	11.34	0.00	65093				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	2.57	11.43	0.01	5079				



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## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q49344.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 8/23/2023 11:49:53 AM  
 Sample Name : OP98526-MB  
 Vial : P3-E3  
 DA Method File : 1633\_082223\_S4Q722.quantmethod.xml  
 Batch Name : s4q723.batch.bin  
 Sample Information : OP98526,S4Q723,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.861	216.8 -> 171.9	112302	10.00 µg/L	0.050
M5-PFPeA	4.337	268.3 -> 223.0	59079	5.00 µg/L	0.025
M5-PFHxA	5.522	318.0 -> 273.0	40650	2.50 µg/L	0.012
M4-PFHpA	6.479	367.1 -> 322.0	27018	2.50 µg/L	0.012
M8-PFOA	7.148	421.1 -> 376.0	45055	2.50 µg/L	0.000
M9-PFNA	7.695	472.1 -> 427.0	16003	1.25 µg/L	0.000
M6-PFDA	8.191	519.1 -> 474.1	12782	1.25 µg/L	0.000
M7-PFUnDA	8.648	570.0 -> 525.1	16499	1.25 µg/L	0.000
M2-PFDoDA	9.080	615.1 -> 570.0	17641	1.25 µg/L	0.000
M2-PFTeDA	9.849	715.2 -> 670.0	10638	1.25 µg/L	0.000
M8-FOSA	9.894	506.1 -> 77.8	7464	2.50 µg/L	0.000
M3-PFBS	5.402	302.1 -> 79.9	11219	2.50 µg/L	0.011
M3-PFHxS	7.229	402.1 -> 79.9	7665	2.50 µg/L	0.012
M8-PFOS	8.329	507.1 -> 79.9	6749	2.50 µg/L	0.000
M2-4:2FTS	5.221	329.1 -> 80.9	1445	5.00 µg/L	0.012
M2-6:2FTS	6.924	429.1 -> 80.9	2252	5.00 µg/L	0.013
M2-8:2FTS	7.991	529.1 -> 80.9	3237	5.00 µg/L	0.000
M3-MeFOSAA	8.274	573.2 -> 419.0	10923	5.00 µg/L	0.012
M3-HFPO-DA	5.889	286.9 -> 168.9	28164	10.00 µg/L	0.012
M5-EtFOSAA	8.471	589.2 -> 419.0	9904	5.00 µg/L	0.000
M7-MeFOSE	11.059	623.2 -> 58.9	39694	25.00 µg/L	0.000
M9-EtFOSE	11.343	639.2 -> 58.9	61831	25.00 µg/L	0.000
M5-EtFOSA	11.422	531.1 -> 219.0	4634	2.50 µg/L	0.000
M3-MeFOSA	11.163	515.0 -> 219.0	3833	2.50 µg/L	0.000
13C4-PFOS	8.330	502.8 -> 79.9	5771	2.50 µg/L	0.000
13C3-PFBA	2.866	216.0 -> 172.0	55023	5.00 µg/L	0.062
18O2-PFHxS	7.228	403.0 -> 83.9	4914	2.50 µg/L	0.000
13C4-PFOA	7.149	417.1 -> 372.0	42448	2.50 µg/L	0.000
13C2-PFDA	8.192	515.1 -> 470.1	9558	1.25 µg/L	0.000
13C5-PFNA	7.696	468.0 -> 423.0	14789	1.25 µg/L	0.000
13C2-PFHxA	5.523	315.1 -> 270.0	32902	2.50 µg/L	0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.221	329.1 -> 80.9	1445	6.47 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 129.5%		
13C2-6:2FTS	6.924	429.1 -> 80.9	2252	7.11 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 142.1%		
13C2-8:2FTS	7.991	529.1 -> 80.9	3237	6.34 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 126.7%		
13C2-PFDoDA	9.080	615.1 -> 570.0	17641	1.40 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 111.8%		
13C2-PFTeDA	9.849	715.2 -> 670.0	10638	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C3-PFBS	5.402	302.1 -> 79.9	11219	2.95 µg/L	0.011
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 118.2%		
13C3-PFHxS	7.229	402.1 -> 79.9	7665	2.77 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 = 111.0%	
13C4-PFBA	2.861	216.8 -> 171.9	112302	11.48 µg/L	0.050
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 114.8%	
13C4-PFHpA	6.479	367.1 -> 322.0	27018	2.89 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.5%	
13C5-PFHxA	5.522	318.0 -> 273.0	40650	2.94 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 117.4%	
13C5-PFPeA	4.337	268.3 -> 223.0	59079	5.76 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 115.1%	
13C6-PFDA	8.191	519.1 -> 474.1	12782	1.57 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 125.2%	
13C7-PFUnDA	8.648	570.0 -> 525.1	16499	1.49 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 118.8%	
13C8-FOSA	9.894	506.1 -> 77.8	7464	1.92 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 76.8%	
13C8-PFOA	7.148	421.1 -> 376.0	45055	3.02 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 120.9%	
13C8-PFOS	8.329	507.1 -> 79.9	6749	2.85 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.9%	
13C9-PFNA	7.695	472.1 -> 427.0	16003	1.42 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.9%	
d3-MeFOSAA	8.274	573.2 -> 419.0	10923	5.41 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.2%	
13C3-HFPO-DA	5.889	286.9 -> 168.9	28164	10.60 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.0%	
d3-MeFOSA	11.163	515.0 -> 219.0	3833	2.16 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.2%	
d5-EtFOSAA	8.471	589.2 -> 419.0	9904	5.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 117.4%	
d7-MeFOSE	11.059	623.2 -> 58.9	39694	18.65 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 74.6%	
d9-EtFOSE	11.343	639.2 -> 58.9	61831	21.68 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 86.7%	
d5-EtFOSA	11.422	531.1 -> 219.0	4634	2.11 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.4%	

**Target Compounds**

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



7.2.1  
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	7.452	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	9.414	713.1 -> 669.0	0	µg/L	m	1
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.2.1  
7

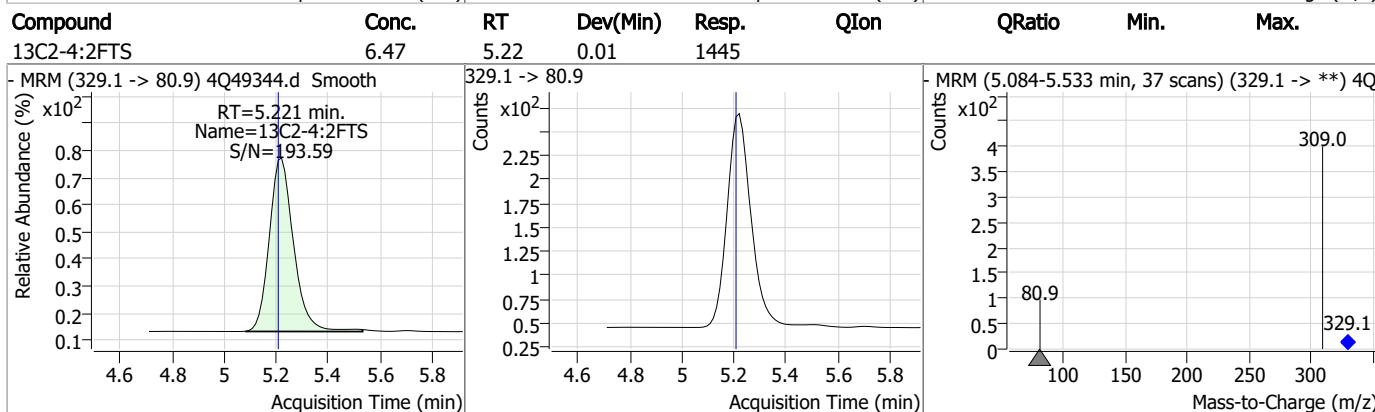
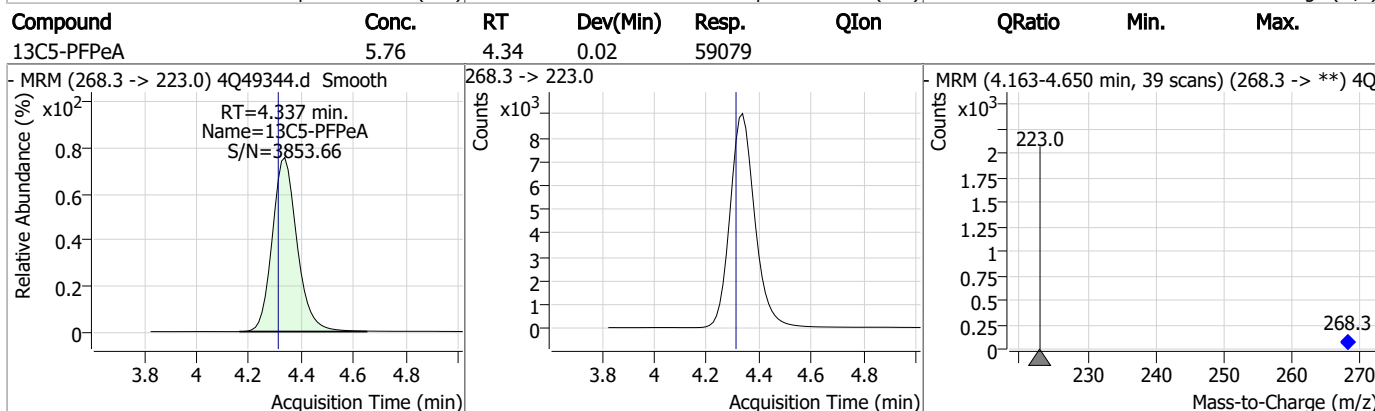
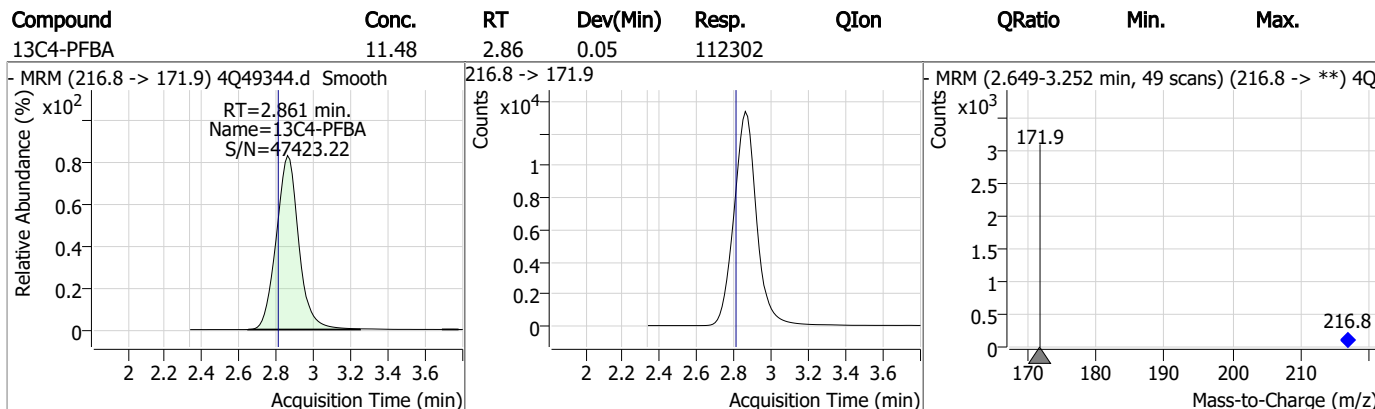
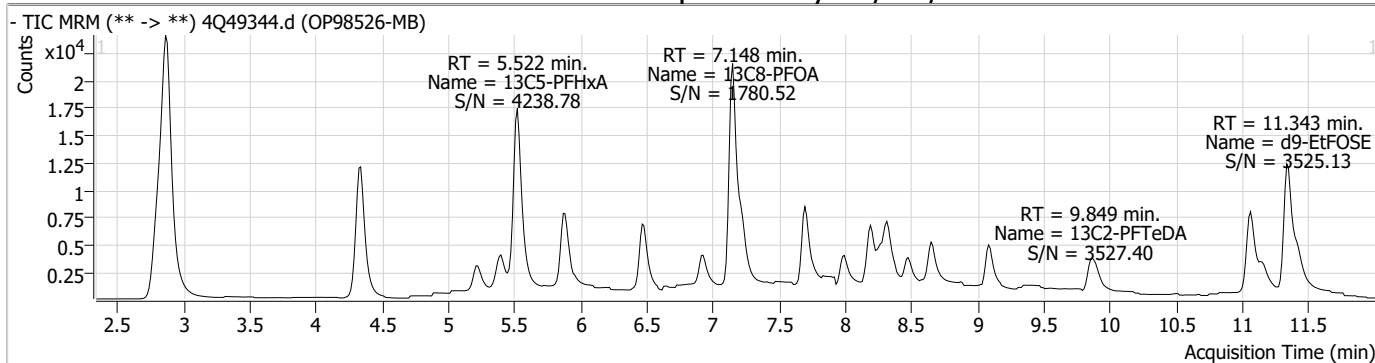
### Perfluorinated Compounds by LC/MS/MS

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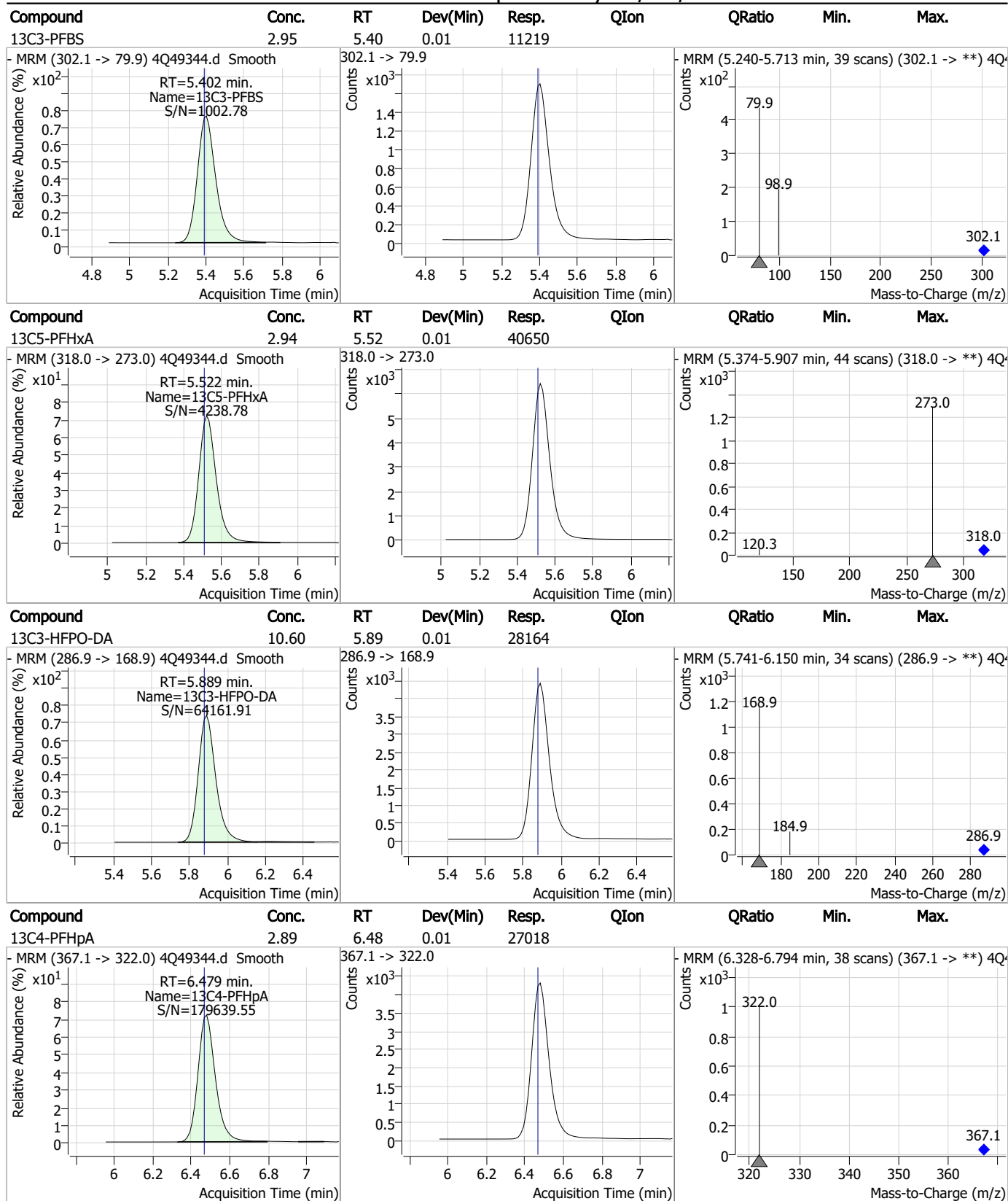
7.2.1

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### Perfluorinated Compounds by LC/MS/MS

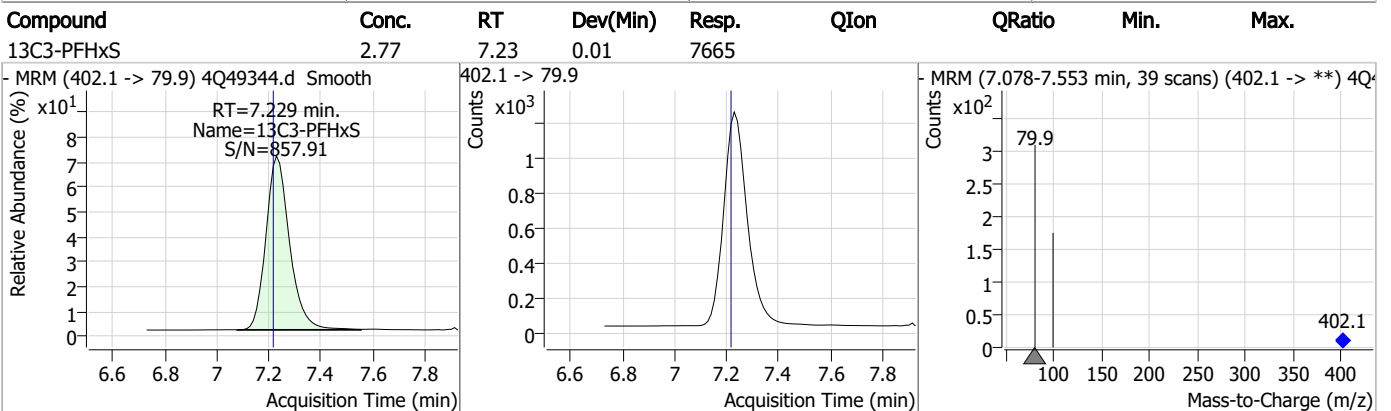
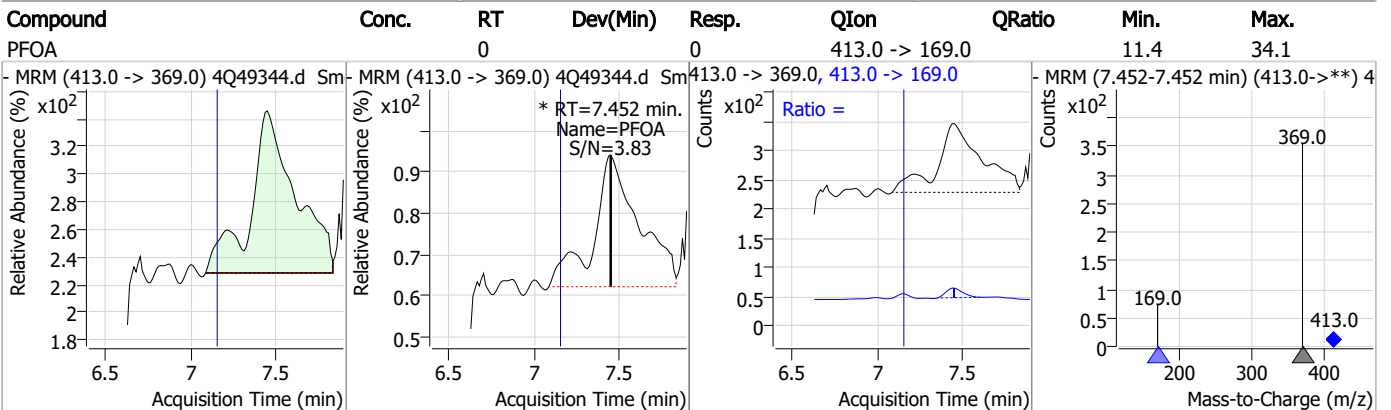
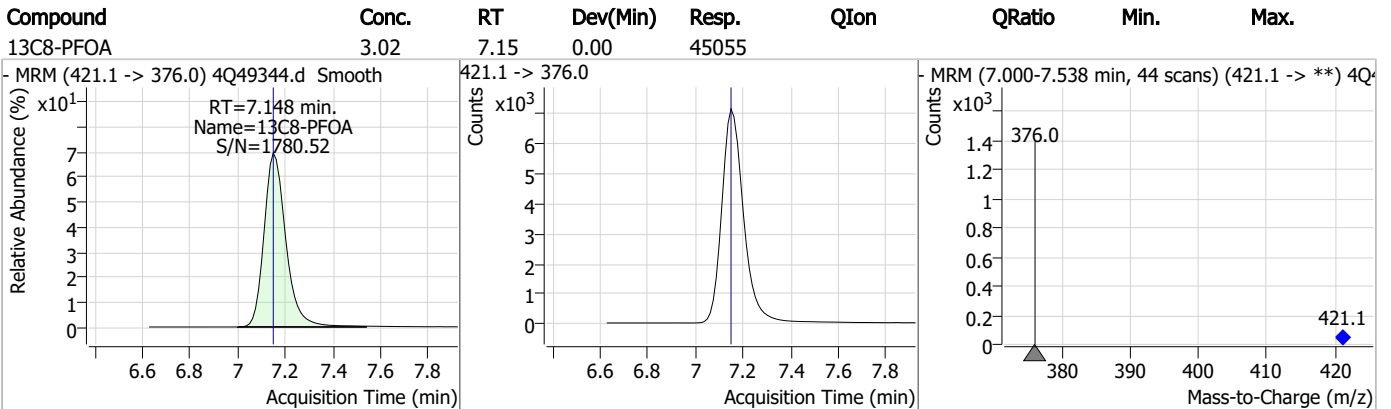
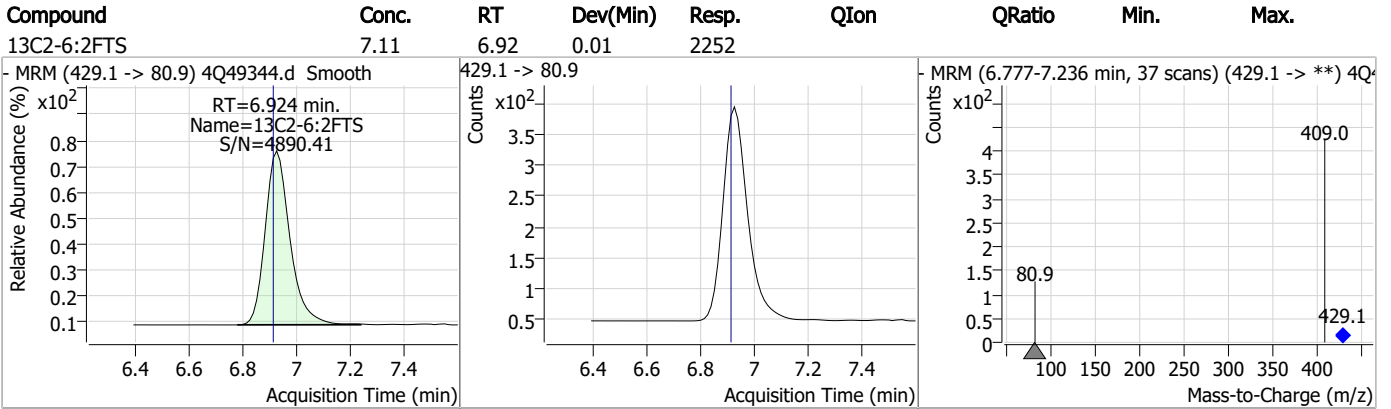


### Perfluorinated Compounds by LC/MS/MS



7.2.1  
7

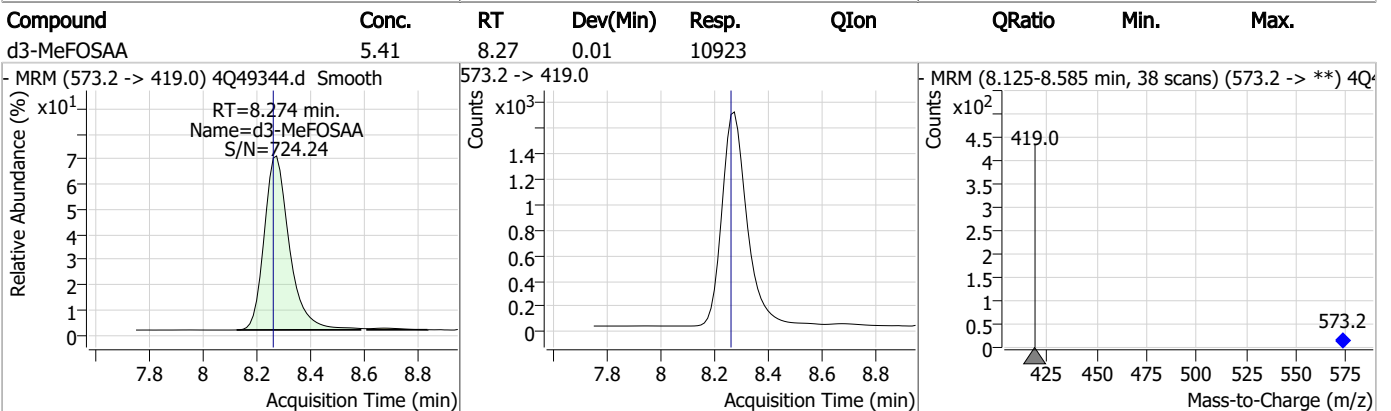
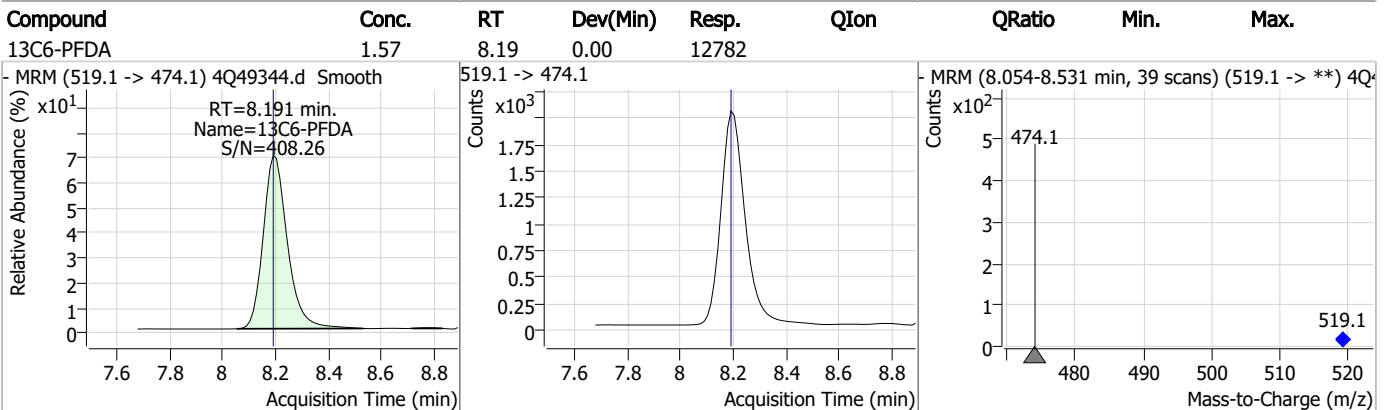
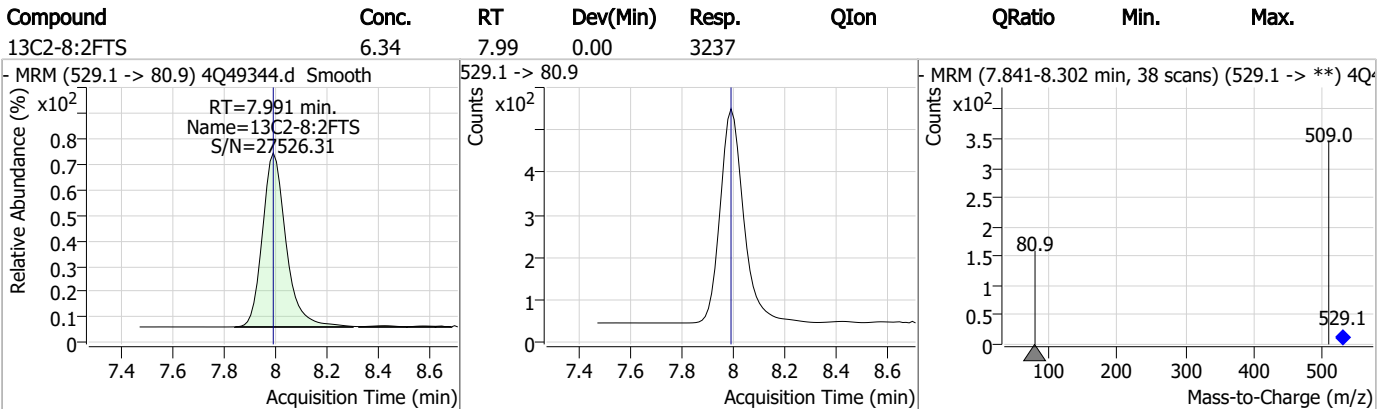
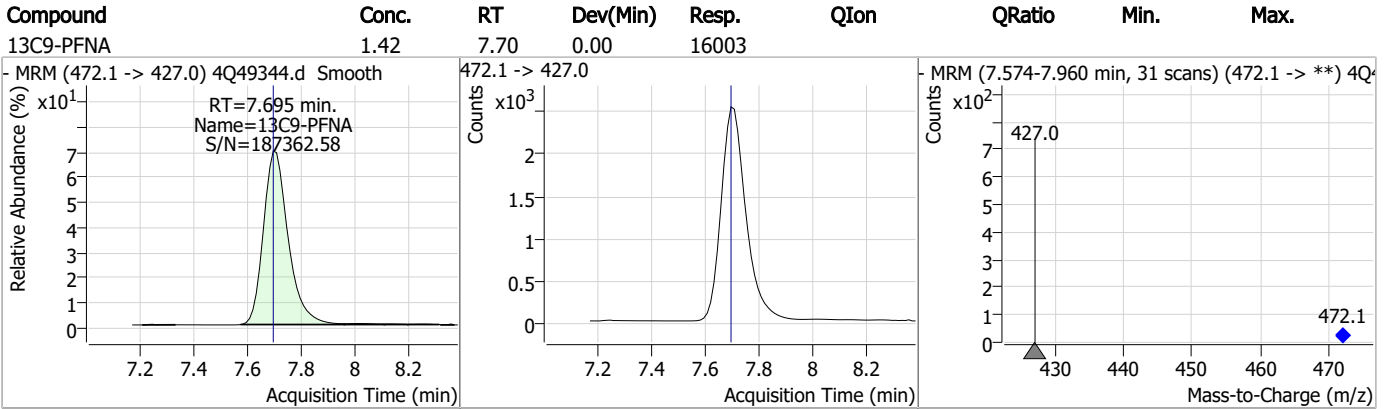
### Perfluorinated Compounds by LC/MS/MS



7.2.1

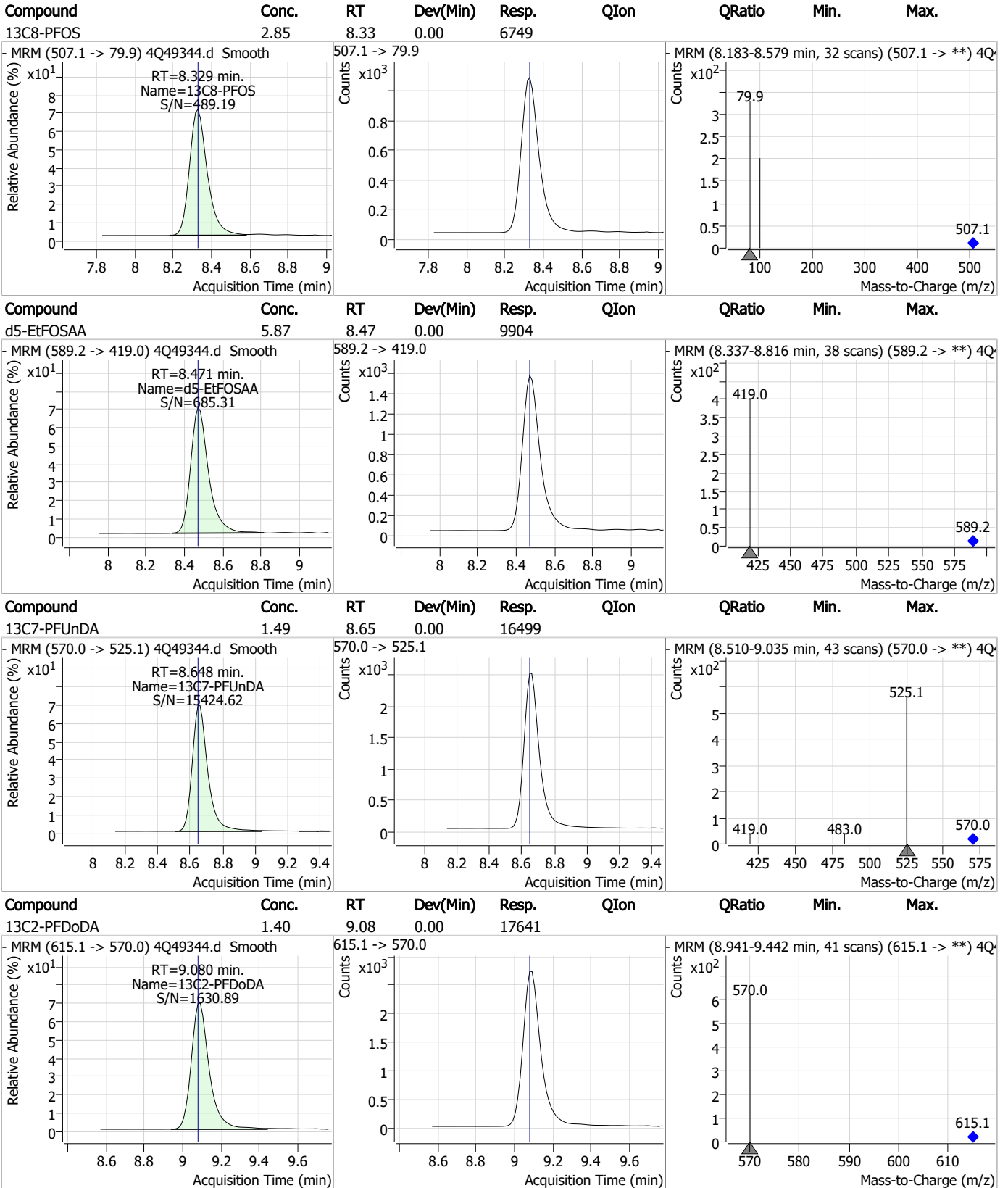
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### Perfluorinated Compounds by LC/MS/MS





### Perfluorinated Compounds by LC/MS/MS

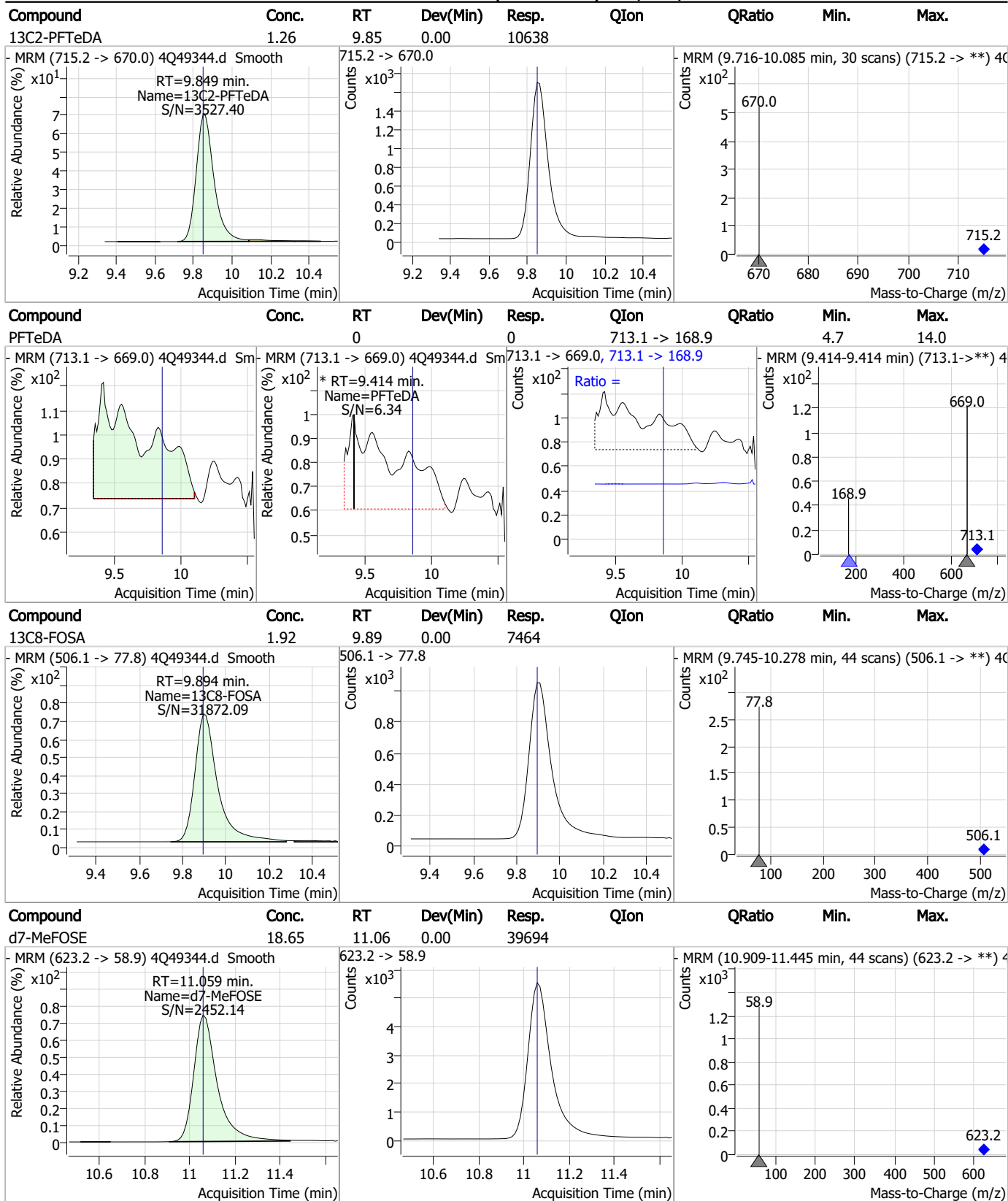


7.2.1

7

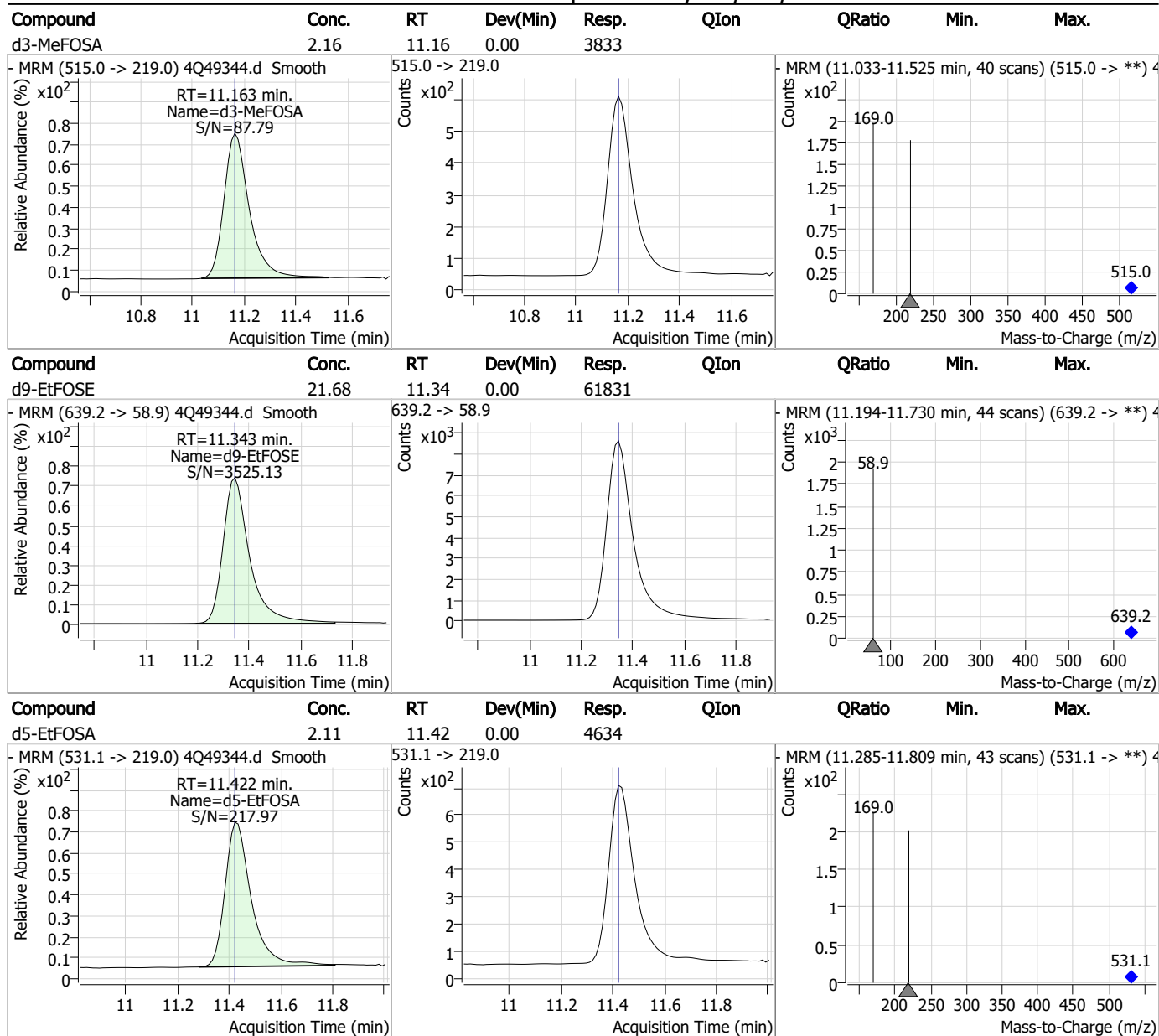


### Perfluorinated Compounds by LC/MS/MS



7.2.1  
7

### Perfluorinated Compounds by LC/MS/MS



7.2.1  
7



### Perfluorinated Compounds by LC/MS/MS

Data File : 4Q49339.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 8/23/2023 10:34:21 AM  
 Sample Name : IBLK  
 Vial : P1-A1  
 DA Method File : 1633\_082223\_S4Q722.quantmethod.xml  
 Batch Name : s4q723.batch.bin  
 Sample Information : OP98456,S4Q723,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.799	216.8 -> 171.9	129672	10.00 µg/L	-0.013
M5-PFPeA	4.312	268.3 -> 223.0	70943	5.00 µg/L	0.000
M5-PFHxA	5.510	318.0 -> 273.0	47216	2.50 µg/L	0.000
M4-PFHpA	6.455	367.1 -> 322.0	32814	2.50 µg/L	-0.012
M8-PFOA	7.136	421.1 -> 376.0	53365	2.50 µg/L	-0.012
M9-PFNA	7.695	472.1 -> 427.0	19508	1.25 µg/L	0.000
M6-PFDA	8.179	519.1 -> 474.1	15282	1.25 µg/L	-0.012
M7-PFUnDA	8.635	570.0 -> 525.1	21600	1.25 µg/L	-0.012
M2-PFDoDA	9.068	615.1 -> 570.0	25419	1.25 µg/L	-0.012
M2-PFTeDA	9.849	715.2 -> 670.0	18098	1.25 µg/L	0.000
M8-FOSA	9.882	506.1 -> 77.8	15400	2.50 µg/L	-0.012
M3-PFBS	5.378	302.1 -> 79.9	13289	2.50 µg/L	-0.012
M3-PFHxS	7.216	402.1 -> 79.9	9362	2.50 µg/L	0.000
M8-PFOS	8.317	507.1 -> 79.9	8335	2.50 µg/L	-0.012
M2-4:2FTS	5.196	329.1 -> 80.9	1611	5.00 µg/L	-0.012
M2-6:2FTS	6.911	429.1 -> 80.9	2330	5.00 µg/L	0.000
M2-8:2FTS	7.978	529.1 -> 80.9	3426	5.00 µg/L	-0.012
M3-MeFOSAA	8.261	573.2 -> 419.0	14108	5.00 µg/L	0.000
M3-HFPO-DA	5.865	286.9 -> 168.9	36533	10.00 µg/L	-0.012
M5-EtFOSAA	8.458	589.2 -> 419.0	11703	5.00 µg/L	-0.012
M7-MeFOSE	11.059	623.2 -> 58.9	99417	25.00 µg/L	0.000
M9-EtFOSE	11.331	639.2 -> 58.9	134653	25.00 µg/L	-0.012
M5-EtFOSA	11.422	531.1 -> 219.0	8492	2.50 µg/L	0.000
M3-MeFOSA	11.151	515.0 -> 219.0	6698	2.50 µg/L	-0.012
13C4-PFOS	8.318	502.8 -> 79.9	8338	2.50 µg/L	-0.012
13C3-PFBA	2.803	216.0 -> 172.0	73469	5.00 µg/L	0.000
18O2-PFHxS	7.215	403.0 -> 83.9	6804	2.50 µg/L	-0.012
13C4-PFOA	7.137	417.1 -> 372.0	59307	2.50 µg/L	-0.012
13C2-PFDA	8.179	515.1 -> 470.1	13691	1.25 µg/L	-0.012
13C5-PFNA	7.684	468.0 -> 423.0	19695	1.25 µg/L	-0.012
13C2-PFHxA	5.511	315.1 -> 270.0	44674	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.196	329.1 -> 80.9	1611	5.21 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C2-6:2FTS	6.911	429.1 -> 80.9	2330	5.31 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.2%		
13C2-8:2FTS	7.978	529.1 -> 80.9	3426	4.84 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.8%		
13C2-PFDoDA	9.068	615.1 -> 570.0	25419	1.41 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 112.5%		
13C2-PFTeDA	9.849	715.2 -> 670.0	18098	1.50 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 119.9%		
13C3-PFBS	5.378	302.1 -> 79.9	13289	2.53 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.1%		
13C3-PFHxS	7.216	402.1 -> 79.9	9362	2.45 µg/L	0.000

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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.9%	
13C4-PFBA	2.799	216.8 -> 171.9	129672	9.93 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C4-PFHpA	6.455	367.1 -> 322.0	32814	2.58 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C5-PFHxA	5.510	318.0 -> 273.0	47216	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C5-PFPeA	4.312	268.3 -> 223.0	70943	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C6-PFDA	8.179	519.1 -> 474.1	15282	1.31 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C7-PFUnDA	8.635	570.0 -> 525.1	21600	1.36 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.6%	
13C8-FOSA	9.882	506.1 -> 77.8	15400	2.74 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.7%	
13C8-PFOA	7.136	421.1 -> 376.0	53365	2.56 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C8-PFOS	8.317	507.1 -> 79.9	8335	2.43 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C9-PFNA	7.695	472.1 -> 427.0	19508	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.3%	
d3-MeFOSAA	8.261	573.2 -> 419.0	14108	4.84 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C3-HFPO-DA	5.865	286.9 -> 168.9	36533	10.13 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
d3-MeFOSA	11.151	515.0 -> 219.0	6698	2.61 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.3%	
d5-EtFOSAA	8.458	589.2 -> 419.0	11703	4.80 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.0%	
d7-MeFOSE	11.059	623.2 -> 58.9	99417	32.33 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 129.3%	
d9-EtFOSE	11.331	639.2 -> 58.9	134653	32.67 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 130.7%	
d5-EtFOSA	11.422	531.1 -> 219.0	8492	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.0%	

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	-	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	11.411	526.0 -> 219.0	1843	0.63 µg/L	93
		526.0 -> 169.0	2429		
EtFOSE	11.344	630.0 -> 58.9	5717	1.38 µg/L	100
		511.9 -> 219.0	875		
MeFOSA	11.140	511.9 -> 169.0	1116	0.38 µg/L	99
		616.1 -> 58.9	2733		
MeFOSE	11.060	616.1 -> 58.9	2733	0.77 µg/L	100
		699.1 -> 79.9	-		
PFDoDS	-	699.1 -> 98.8	-	N.D.	
		295.0 -> 201.0	-		
NFDHA	-	295.0 -> 84.9	-	N.D.	
		279.0 -> 85.1	-		
PFMBA	-	279.0 -> 85.1	-	N.D.	
		229.0 -> 84.9	-		
PFEESA	-	314.8 -> 134.9	-	N.D.	
		314.8 -> 82.9	-		

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

7.2.2  
7

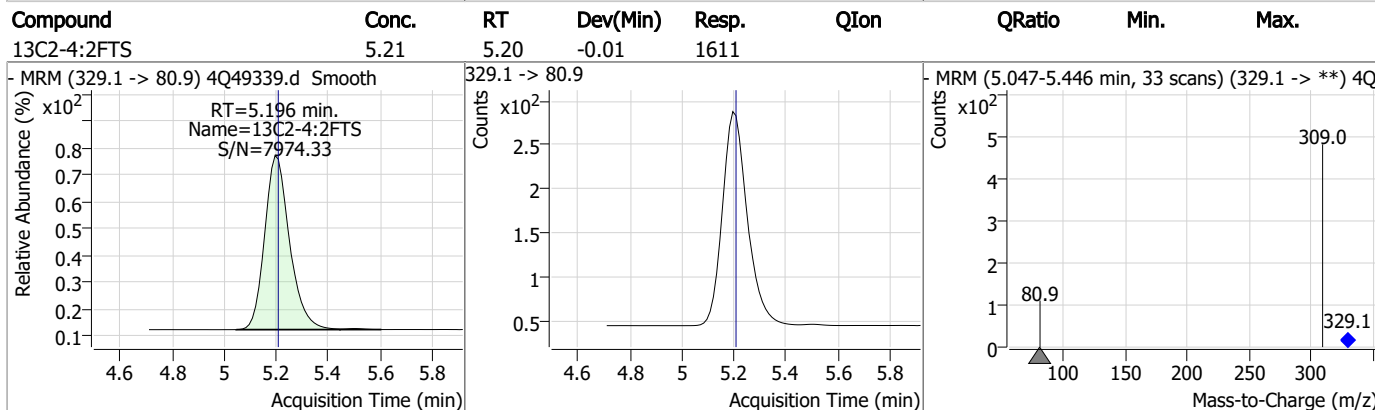
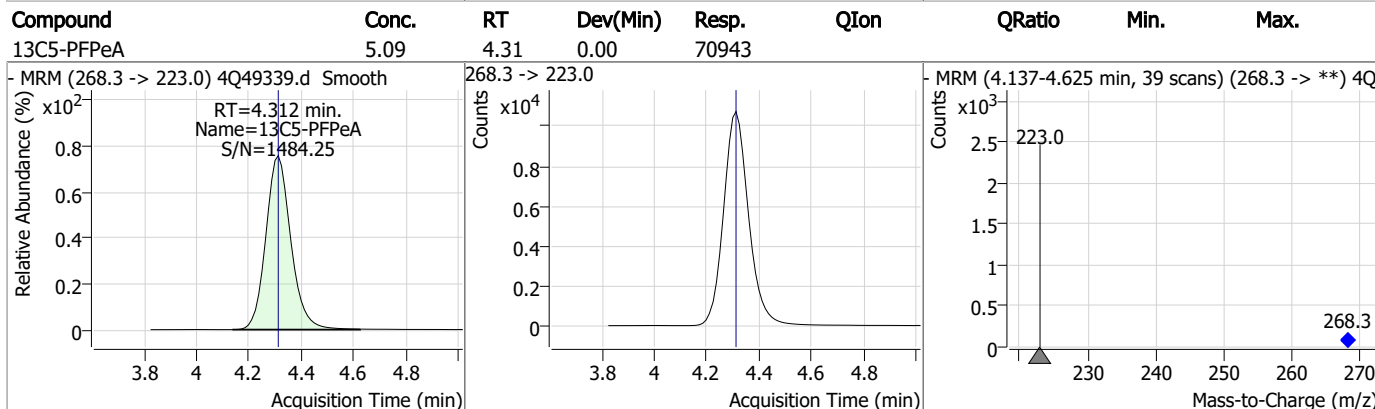
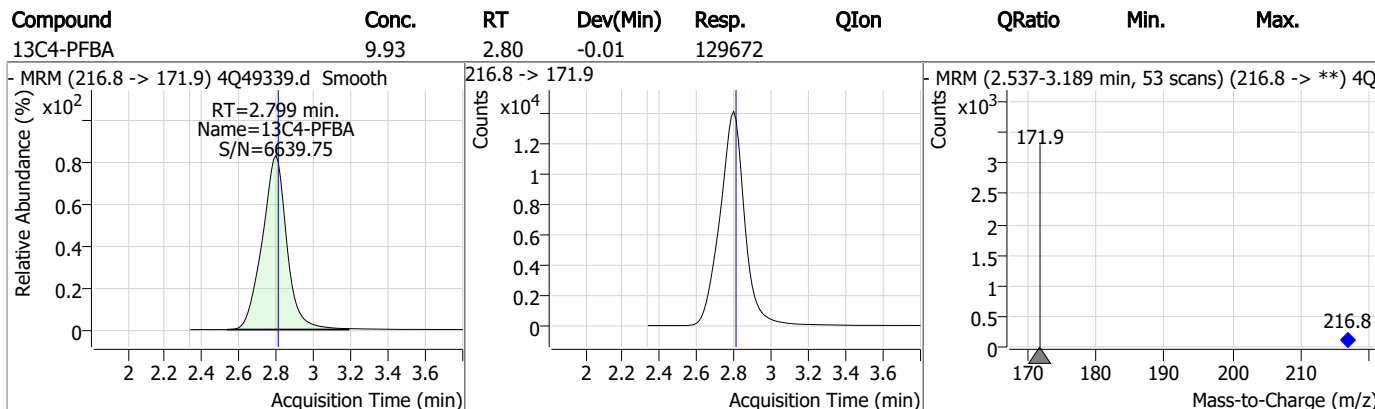
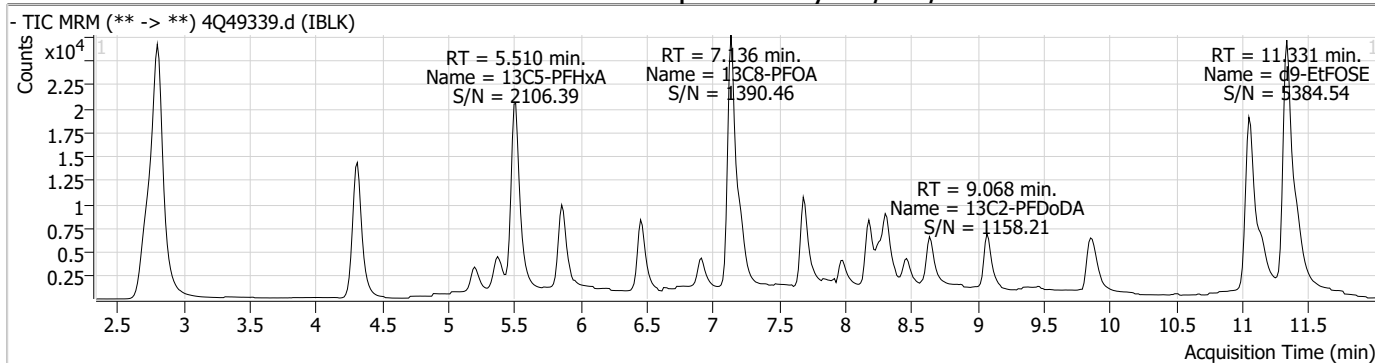
### Perfluorinated Compounds by LC/MS/MS

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

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### Perfluorinated Compounds by LC/MS/MS



7.2.2  
7



### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.53	5.38	-0.01	13289				
13C5-PFHxA	2.51	5.51	0.00	47216				
13C3-HFPO-DA	10.13	5.86	-0.01	36533				
13C4-PFHpA	2.58	6.45	-0.01	32814				

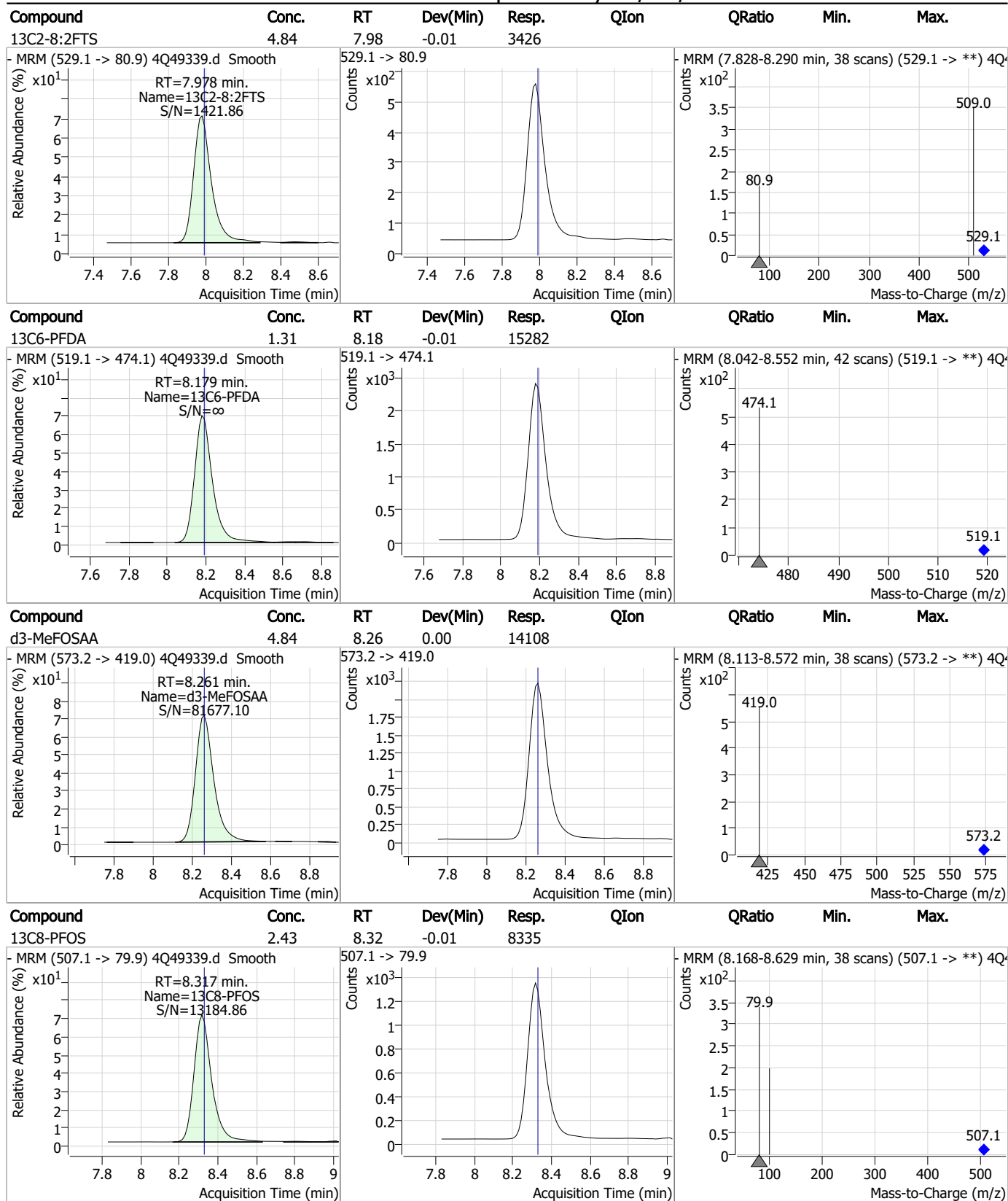
7.2.2  
7

### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.31	6.91	0.00	2330				
13C8-PFOA	2.56	7.14	-0.01	53365				
13C3-PFHxS	2.45	7.22	0.00	9362				
13C9-PFNA	1.30	7.70	0.00	19508				

7.2.2  
7

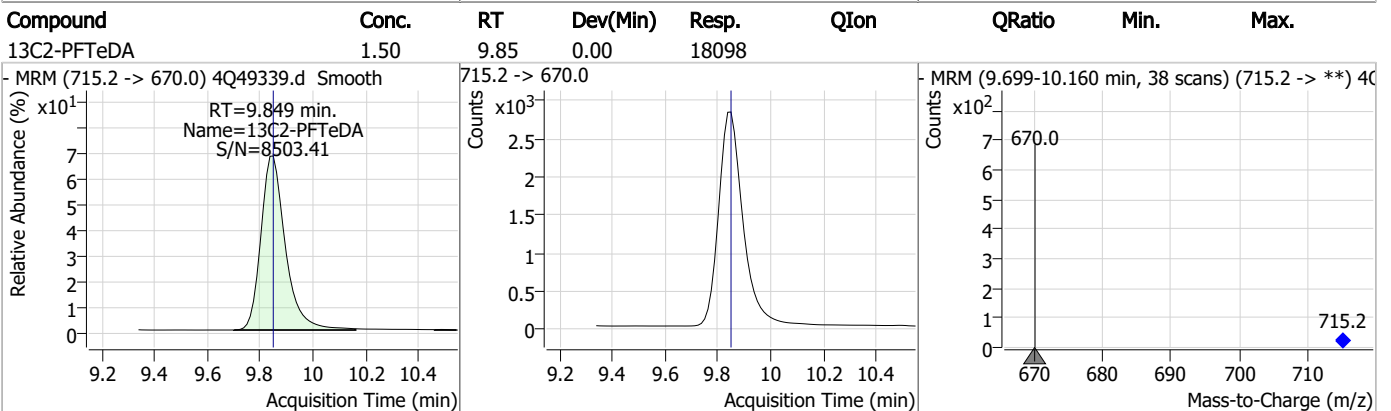
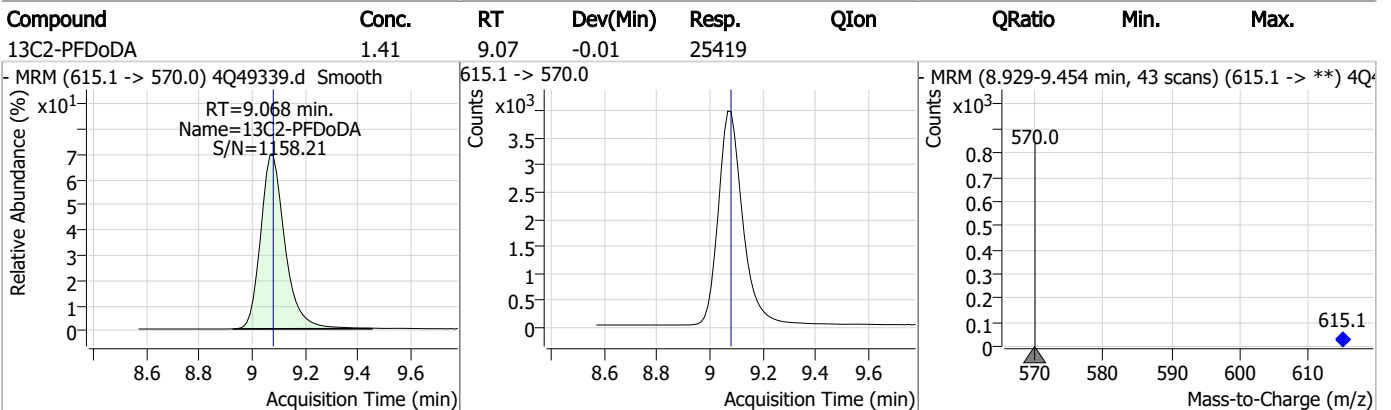
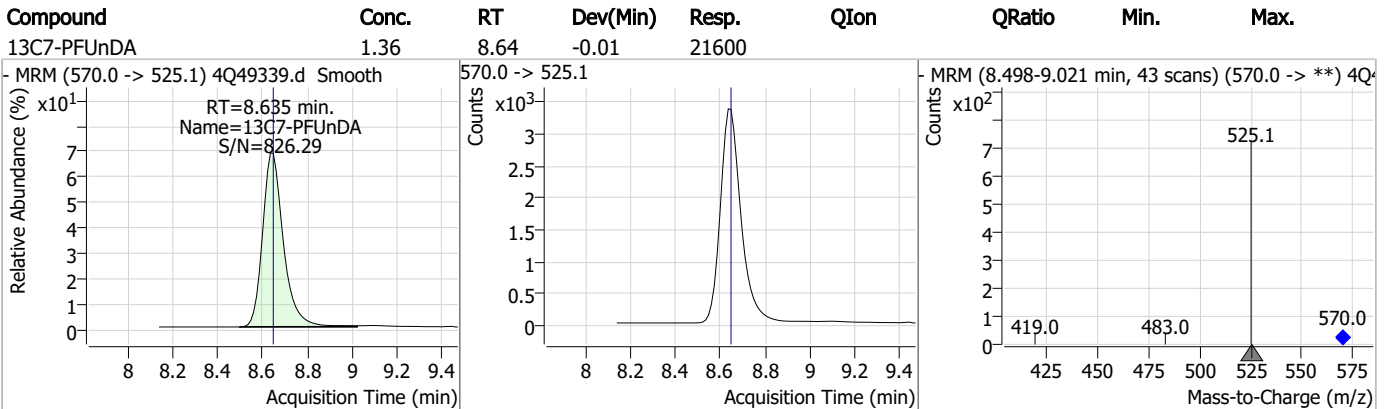
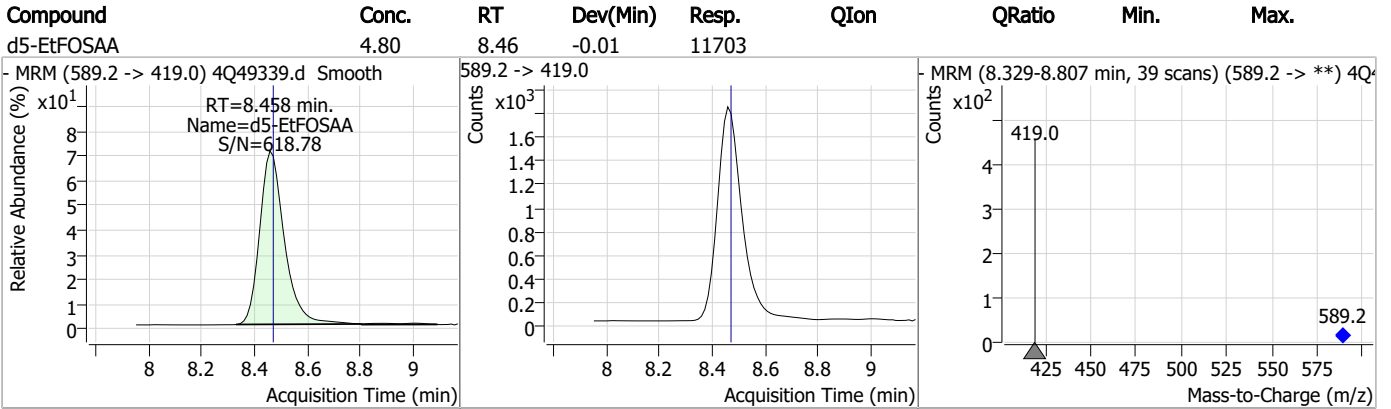
### Perfluorinated Compounds by LC/MS/MS



7.2.2  
7



### Perfluorinated Compounds by LC/MS/MS



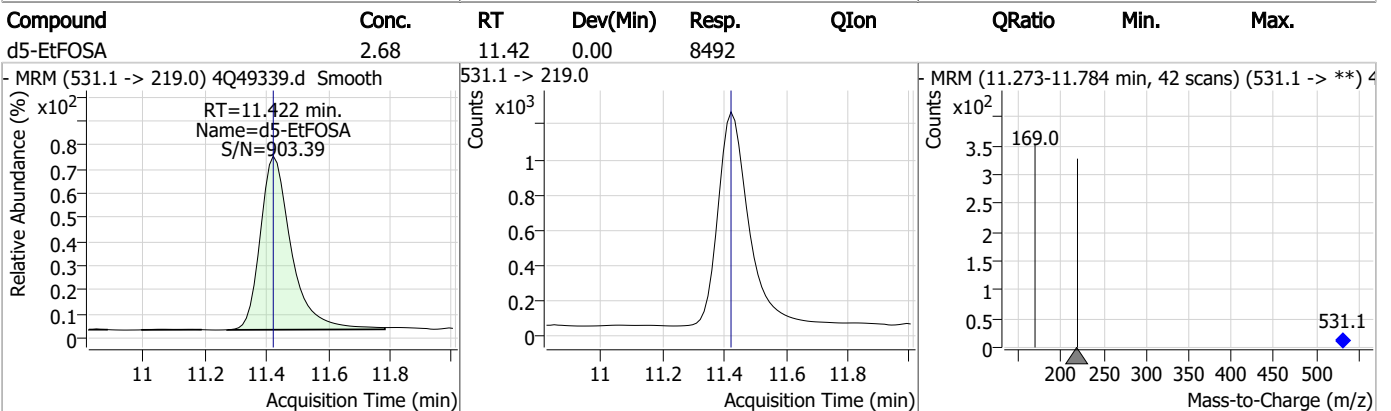
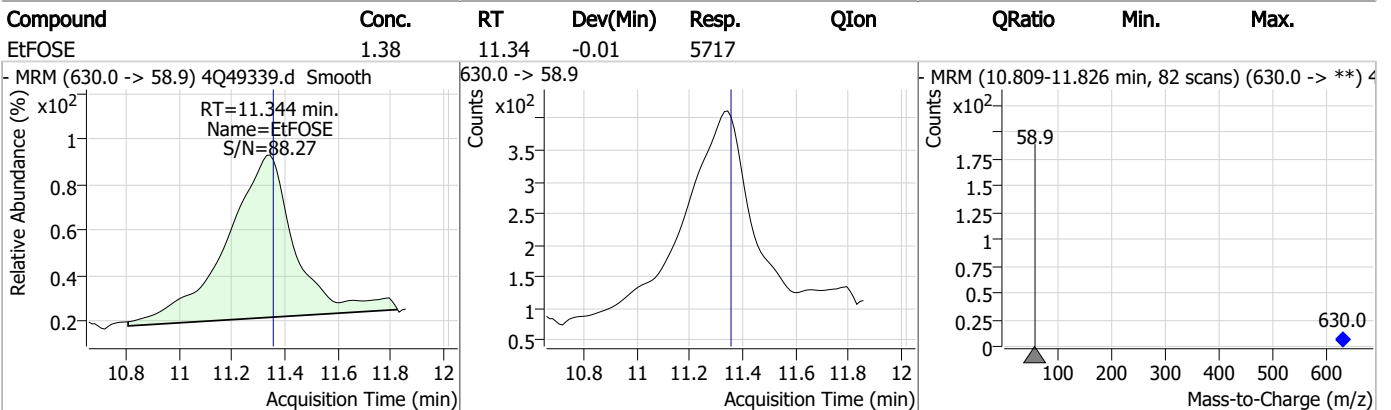
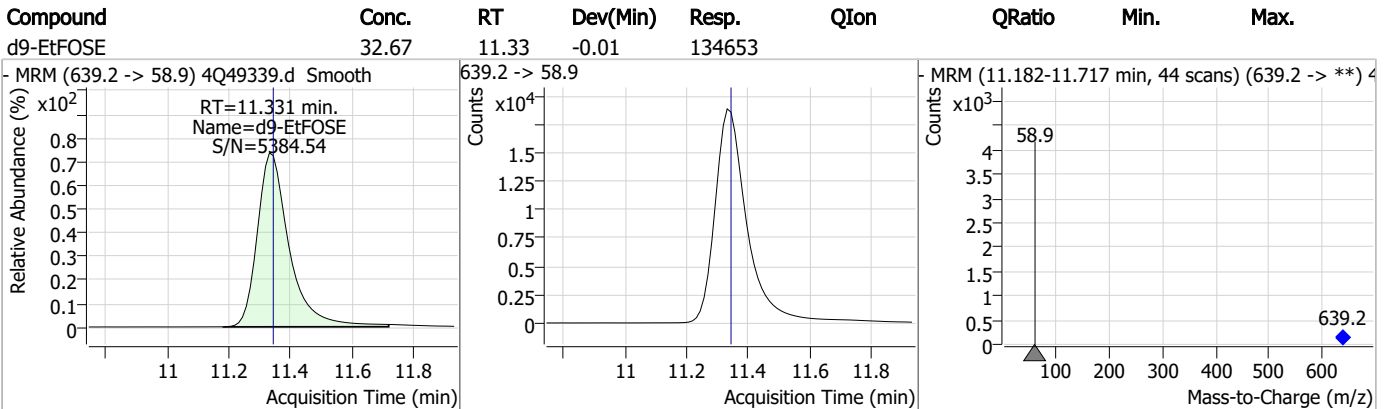
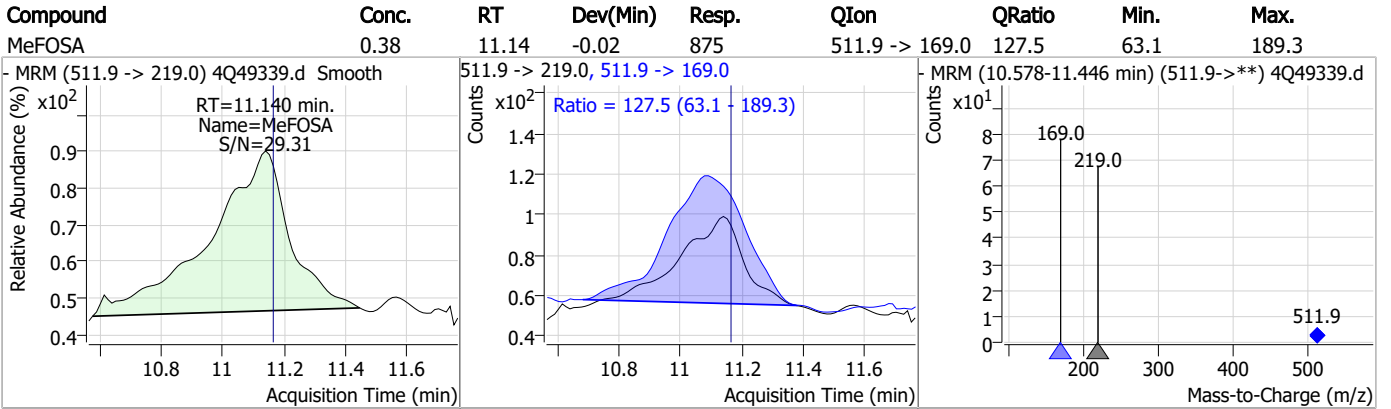
### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.74	9.88	-0.01	15400				
d7-MeFOSE	32.33	11.06	0.00	99417				
MeFOSE	0.77	11.06	-0.02	2733				
d3-MeFOSA	2.61	11.15	-0.01	6698				

7.2.2

7

### Perfluorinated Compounds by LC/MS/MS

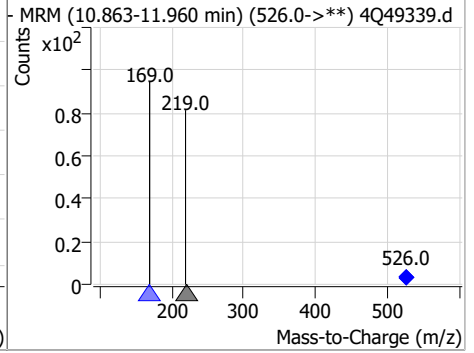
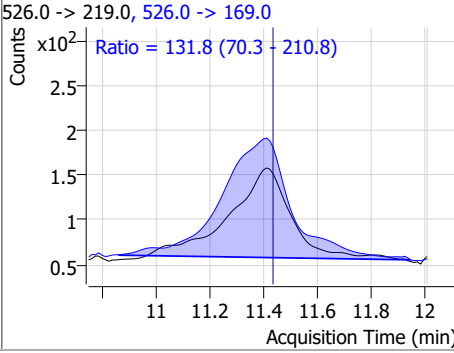
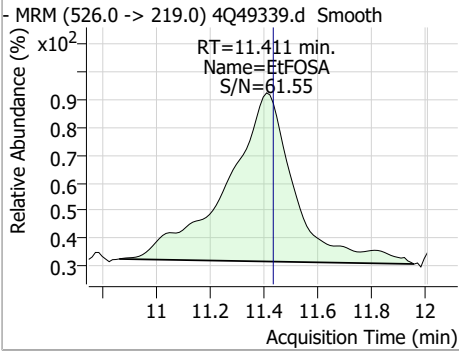


7.2.2

7

### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	0.63	11.41	-0.02	1843	526.0 -> 169.0	131.8	70.3	210.8



7.22  
7

### Perfluorinated Compounds by LC/MS/MS

Data File : 4Q49353.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 8/23/2023 2:02:38 PM  
 Sample Name : iccb  
 Vial : P1-A1  
 DA Method File : 1633\_082223\_S4Q722.quantmethod.xml  
 Batch Name : s4q723.batch.bin  
 Sample Information : OP98456,S4Q723,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.811	216.8 -> 171.9	134990	10.00 µg/L	0.000
M5-PFPeA	4.325	268.3 -> 223.0	72957	5.00 µg/L	0.012
M5-PFHxA	5.522	318.0 -> 273.0	48401	2.50 µg/L	0.012
M4-PFHpA	6.492	367.1 -> 322.0	33197	2.50 µg/L	0.025
M8-PFOA	7.161	421.1 -> 376.0	52300	2.50 µg/L	0.012
M9-PFNA	7.708	472.1 -> 427.0	20593	1.25 µg/L	0.012
M6-PFDA	8.204	519.1 -> 474.1	15869	1.25 µg/L	0.012
M7-PFUnDA	8.660	570.0 -> 525.1	21595	1.25 µg/L	0.012
M2-PFDoDA	9.093	615.1 -> 570.0	24635	1.25 µg/L	0.012
M2-PFTeDA	9.861	715.2 -> 670.0	15247	1.25 µg/L	0.012
M8-FOSA	9.906	506.1 -> 77.8	13642	2.50 µg/L	0.012
M3-PFBS	5.391	302.1 -> 79.9	13145	2.50 µg/L	0.000
M3-PFHxS	7.241	402.1 -> 79.9	9639	2.50 µg/L	0.025
M8-PFOS	8.329	507.1 -> 79.9	8213	2.50 µg/L	0.000
M2-4:2FTS	5.208	329.1 -> 80.9	1854	5.00 µg/L	0.000
M2-6:2FTS	6.936	429.1 -> 80.9	2742	5.00 µg/L	0.025
M2-8:2FTS	7.991	529.1 -> 80.9	4087	5.00 µg/L	0.000
M3-MeFOSAA	8.274	573.2 -> 419.0	15098	5.00 µg/L	0.012
M3-HFPO-DA	5.889	286.9 -> 168.9	34906	10.00 µg/L	0.012
M5-EtFOSAA	8.483	589.2 -> 419.0	12530	5.00 µg/L	0.012
M7-MeFOSE	11.071	623.2 -> 58.9	72040	25.00 µg/L	0.012
M9-EtFOSE	11.356	639.2 -> 58.9	94252	25.00 µg/L	0.012
M5-EtFOSA	11.434	531.1 -> 219.0	7124	2.50 µg/L	0.012
M3-MeFOSA	11.176	515.0 -> 219.0	6122	2.50 µg/L	0.012
13C4-PFOS	8.330	502.8 -> 79.9	8438	2.50 µg/L	0.000
13C3-PFBA	2.803	216.0 -> 172.0	76125	5.00 µg/L	0.000
18O2-PFHxS	7.240	403.0 -> 83.9	6902	2.50 µg/L	0.012
13C4-PFOA	7.161	417.1 -> 372.0	60357	2.50 µg/L	0.012
13C2-PFDA	8.204	515.1 -> 470.1	13770	1.25 µg/L	0.012
13C5-PFNA	7.708	468.0 -> 423.0	20774	1.25 µg/L	0.012
13C2-PFHxA	5.523	315.1 -> 270.0	45771	2.50 µg/L	0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.208	329.1 -> 80.9	1854	5.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 118.3%		
13C2-6:2FTS	6.936	429.1 -> 80.9	2742	6.16 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.2%		
13C2-8:2FTS	7.991	529.1 -> 80.9	4087	5.70 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.9%		
13C2-PFDoDA	9.093	615.1 -> 570.0	24635	1.35 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.4%		
13C2-PFTeDA	9.861	715.2 -> 670.0	15247	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C3-PFBS	5.391	302.1 -> 79.9	13145	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C3-PFHxS	7.241	402.1 -> 79.9	9639	2.48 µg/L	0.025

7.2.3  
7



### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C4-PFBA	2.811	216.8 -> 171.9	134990	9.97 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C4-PFHpA	6.492	367.1 -> 322.0	33197	2.55 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C5-PFHxA	5.522	318.0 -> 273.0	48401	2.51 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C5-PFPeA	4.325	268.3 -> 223.0	72957	5.11 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C6-PFDA	8.204	519.1 -> 474.1	15869	1.35 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.9%	
13C7-PFUnDA	8.660	570.0 -> 525.1	21595	1.35 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.0%	
13C8-FOSA	9.906	506.1 -> 77.8	13642	2.40 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C8-PFOA	7.161	421.1 -> 376.0	52300	2.47 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C8-PFOS	8.329	507.1 -> 79.9	8213	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.8%	
13C9-PFNA	7.708	472.1 -> 427.0	20593	1.30 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.4%	
d3-MeFOSAA	8.274	573.2 -> 419.0	15098	5.11 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C3-HFPO-DA	5.889	286.9 -> 168.9	34906	9.45 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.5%	
d3-MeFOSA	11.176	515.0 -> 219.0	6122	2.35 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.2%	
d5-EtFOSAA	8.483	589.2 -> 419.0	12530	5.08 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
d7-MeFOSE	11.071	623.2 -> 58.9	72040	23.15 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 92.6%	
d9-EtFOSE	11.356	639.2 -> 58.9	94252	22.60 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 90.4%	
d5-EtFOSA	11.434	531.1 -> 219.0	7124	2.22 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.7%	

**Target Compounds**

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



7.2.3  
7

Perfluorinated Compounds by LC/MS/MS

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

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

7.2.3  
7

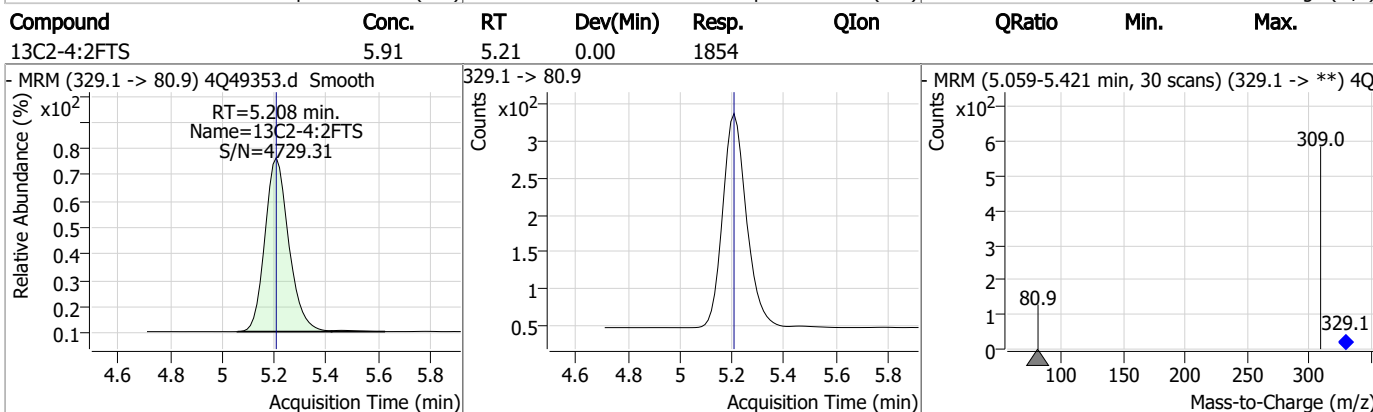
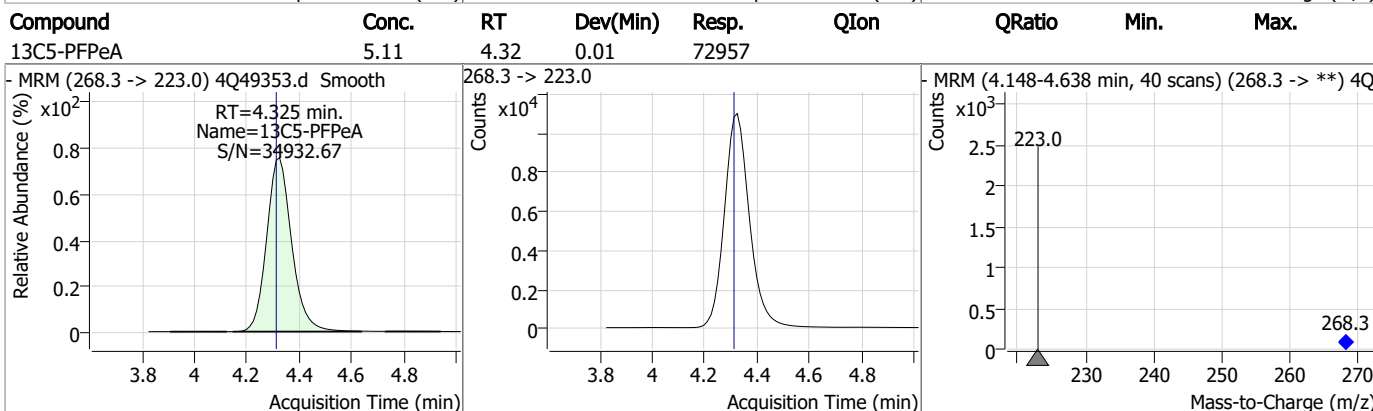
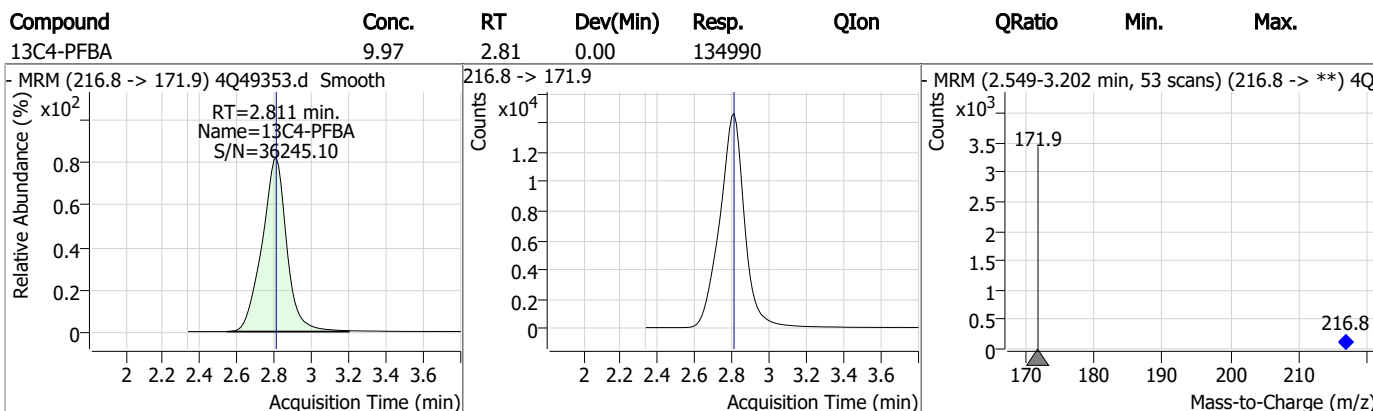
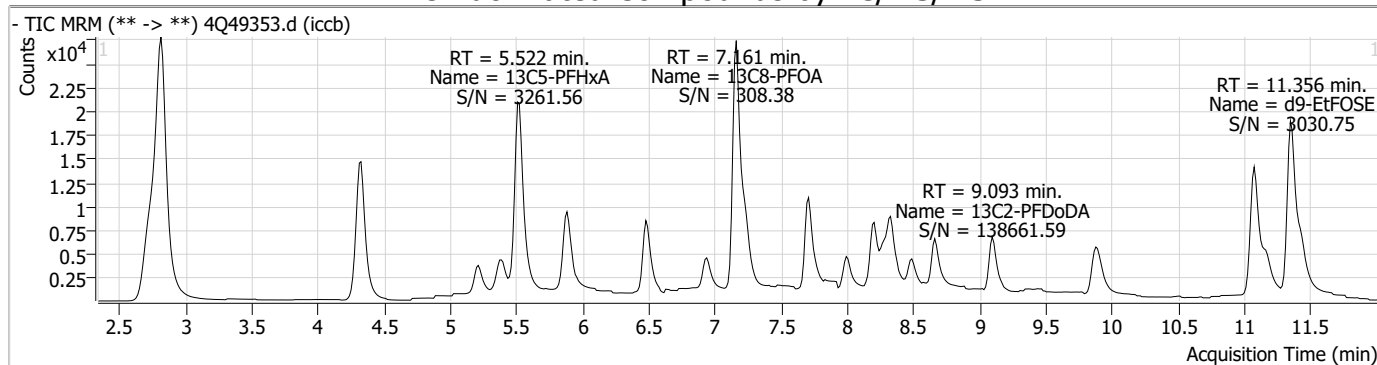
### Perfluorinated Compounds by LC/MS/MS

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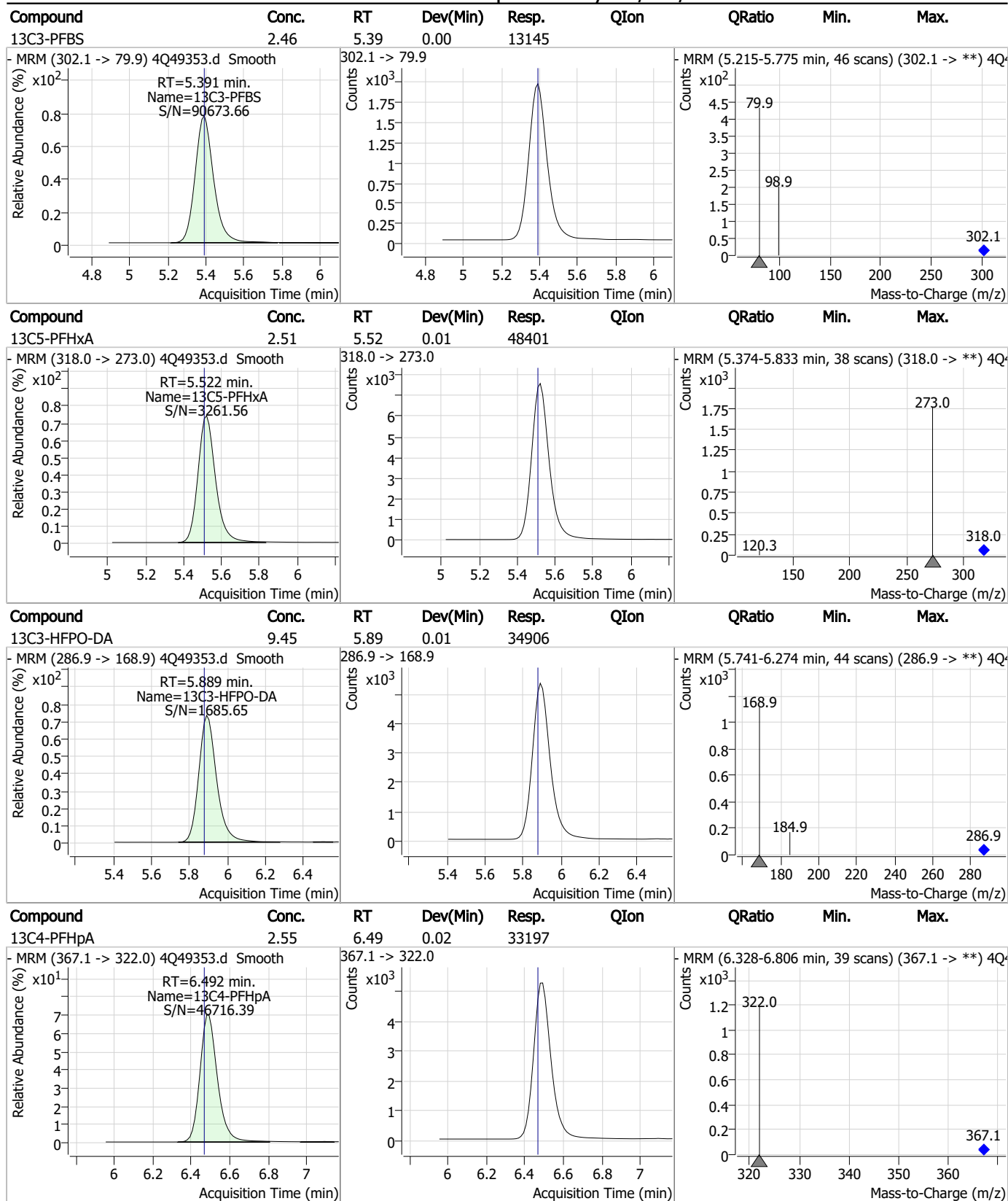
7.2.3

7

### Perfluorinated Compounds by LC/MS/MS

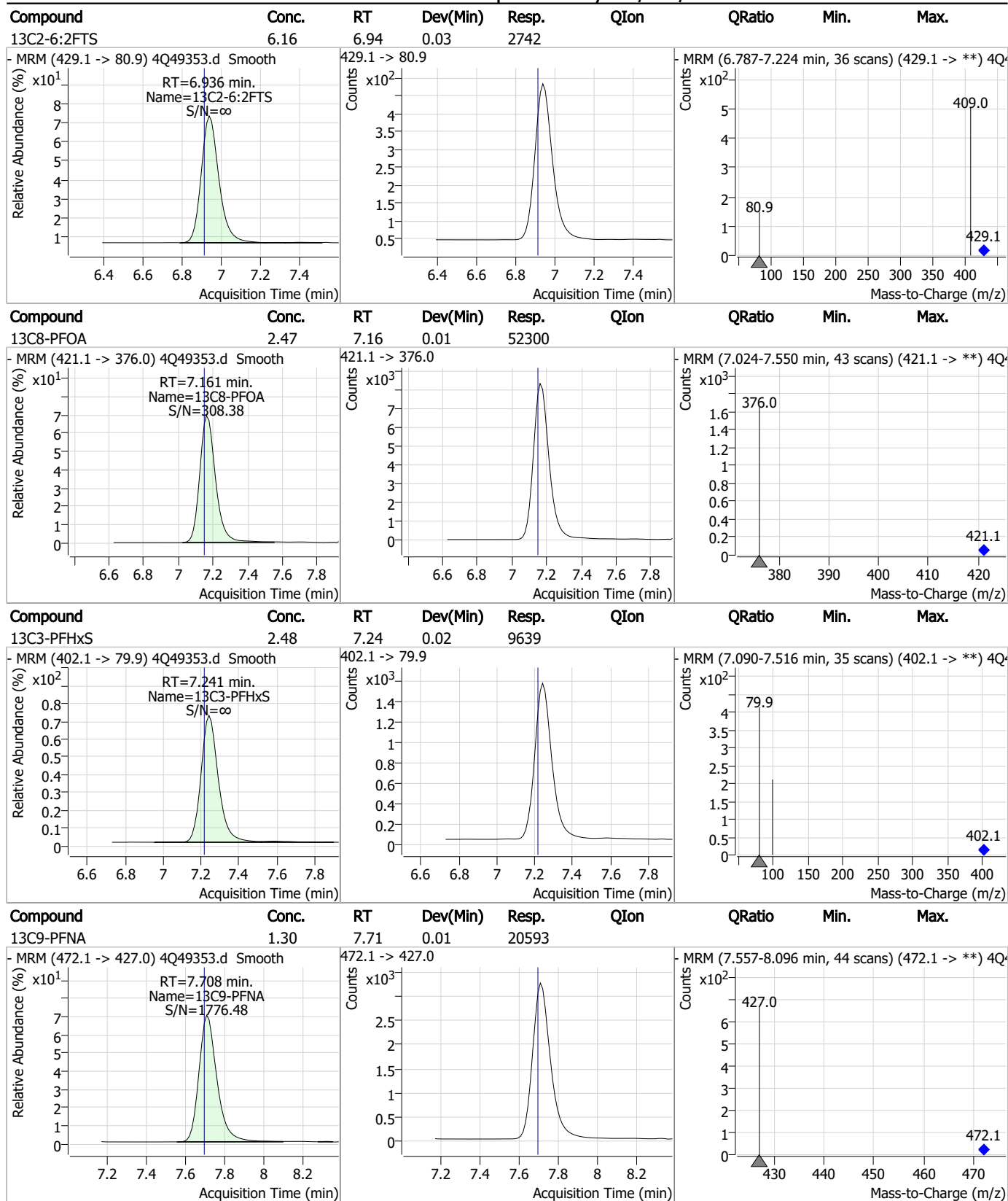


### Perfluorinated Compounds by LC/MS/MS



7.2.3  
7

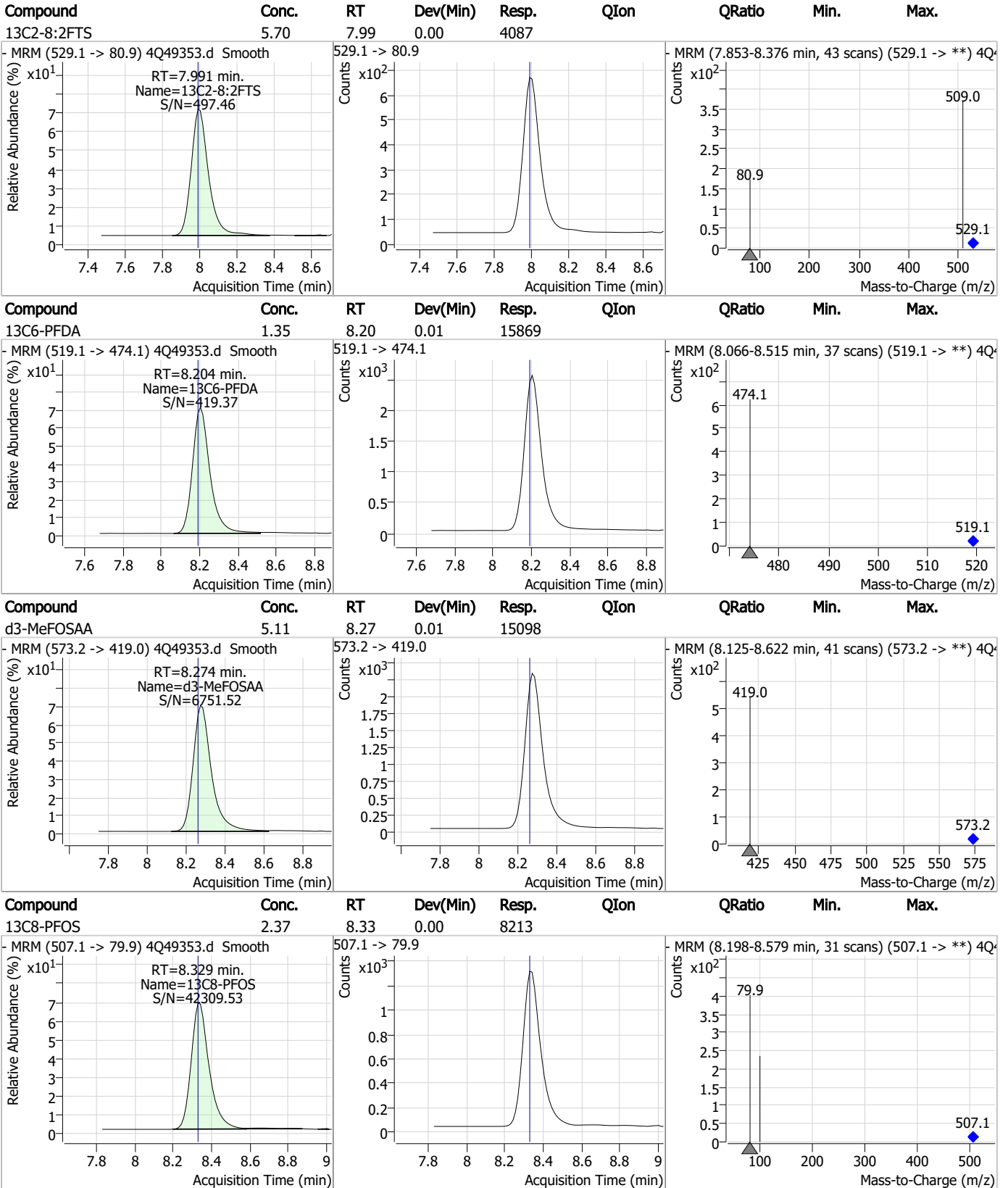
### Perfluorinated Compounds by LC/MS/MS



7.2.3  
7



### Perfluorinated Compounds by LC/MS/MS



7.2.3

7



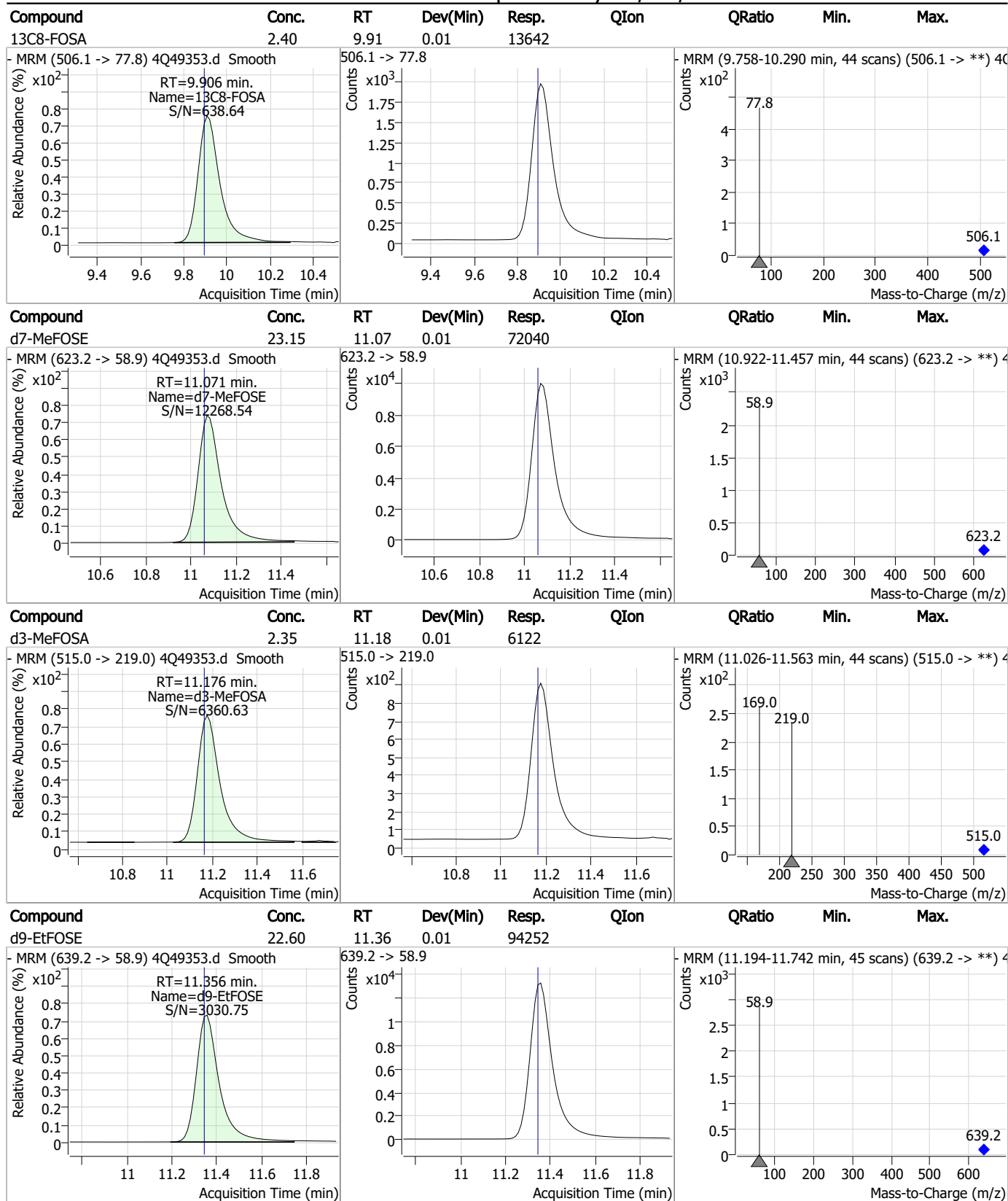
### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.08	8.48	0.01	12530				
<p>MRM (589.2 -&gt; 419.0) 4Q49353.d Smooth                      RT=8.483 min.                      Name=d5-EtFOSAA                      S/N=744182.84</p>			<p>589.2 -&gt; 419.0</p>			<p>MRM (8.335-8.770 min, 36 scans) (589.2 -&gt; **) 4Q</p>		
13C7-PFUnDA	1.35	8.66	0.01	21595				
<p>MRM (570.0 -&gt; 525.1) 4Q49353.d Smooth                      RT=8.660 min.                      Name=13C7-PFUnDA                      S/N=169125.87</p>			<p>570.0 -&gt; 525.1</p>			<p>MRM (8.523-9.048 min, 43 scans) (570.0 -&gt; **) 4Q</p>		
13C2-PFDoDA	1.35	9.09	0.01	24635				
<p>MRM (615.1 -&gt; 570.0) 4Q49353.d Smooth                      RT=9.093 min.                      Name=13C2-PFDoDA                      S/N=138661.59</p>			<p>615.1 -&gt; 570.0</p>			<p>MRM (8.955-9.405 min, 37 scans) (615.1 -&gt; **) 4Q</p>		
13C2-PFTeDA	1.25	9.86	0.01	15247				
<p>MRM (715.2 -&gt; 670.0) 4Q49353.d Smooth                      RT=9.861 min.                      Name=13C2-PFTeDA                      S/N=5887.24</p>			<p>715.2 -&gt; 670.0</p>			<p>MRM (9.724-10.247 min, 43 scans) (715.2 -&gt; **) 4Q</p>		

7.2.3  
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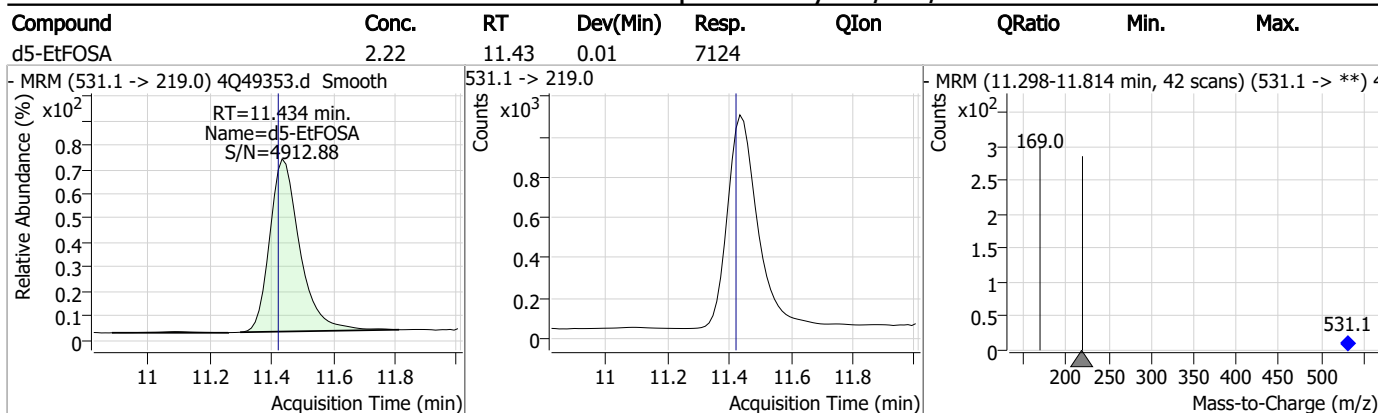


### Perfluorinated Compounds by LC/MS/MS



7.2.3  
7

### Perfluorinated Compounds by LC/MS/MS



7.2.3

7

## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q49342.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 8/23/2023 11:20:27 AM  
 Sample Name : OP98526-BS  
 Vial : P3-E1  
 DA Method File : 1633\_082223\_S4Q722.quantmethod.xml  
 Batch Name : s4q723.batch.bin  
 Sample Information : OP98526,S4Q723,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.861	216.8 -> 171.9	25121	10.00 µg/L	0.050
M5-PFPeA	4.325	268.3 -> 223.0	55268	5.00 µg/L	0.012
M5-PFHxA	5.510	318.0 -> 273.0	39281	2.50 µg/L	0.000
M4-PFHpA	6.467	367.1 -> 322.0	27795	2.50 µg/L	0.000
M8-PFOA	7.148	421.1 -> 376.0	43899	2.50 µg/L	0.000
M9-PFNA	7.695	472.1 -> 427.0	16568	1.25 µg/L	0.000
M6-PFDA	8.191	519.1 -> 474.1	12606	1.25 µg/L	0.000
M7-PFUnDA	8.648	570.0 -> 525.1	16012	1.25 µg/L	0.000
M2-PFDoDA	9.080	615.1 -> 570.0	18536	1.25 µg/L	0.000
M2-PFTeDA	9.849	715.2 -> 670.0	9737	1.25 µg/L	0.000
M8-FOSA	9.894	506.1 -> 77.8	9279	2.50 µg/L	0.000
M3-PFBS	5.391	302.1 -> 79.9	11360	2.50 µg/L	0.000
M3-PFHxS	7.229	402.1 -> 79.9	7454	2.50 µg/L	0.012
M8-PFOS	8.317	507.1 -> 79.9	7060	2.50 µg/L	-0.012
M2-4:2FTS	5.208	329.1 -> 80.9	1368	5.00 µg/L	0.000
M2-6:2FTS	6.924	429.1 -> 80.9	2179	5.00 µg/L	0.013
M2-8:2FTS	7.978	529.1 -> 80.9	2873	5.00 µg/L	-0.012
M3-MeFOSAA	8.261	573.2 -> 419.0	11705	5.00 µg/L	0.000
M3-HFPO-DA	5.877	286.9 -> 168.9	28780	10.00 µg/L	0.000
M5-EtFOSAA	8.471	589.2 -> 419.0	10270	5.00 µg/L	0.000
M7-MeFOSE	11.059	623.2 -> 58.9	46333	25.00 µg/L	0.000
M9-EtFOSE	11.343	639.2 -> 58.9	66215	25.00 µg/L	0.000
M5-EtFOSA	11.422	531.1 -> 219.0	5269	2.50 µg/L	0.000
M3-MeFOSA	11.163	515.0 -> 219.0	4446	2.50 µg/L	0.000
13C4-PFOS	8.318	502.8 -> 79.9	5768	2.50 µg/L	-0.012
13C3-PFBA	2.866	216.0 -> 172.0	54719	5.00 µg/L	0.062
18O2-PFHxS	7.228	403.0 -> 83.9	4671	2.50 µg/L	0.000
13C4-PFOA	7.149	417.1 -> 372.0	43186	2.50 µg/L	0.000
13C2-PFDA	8.192	515.1 -> 470.1	9828	1.25 µg/L	0.000
13C5-PFNA	7.696	468.0 -> 423.0	14387	1.25 µg/L	0.000
13C2-PFHxA	5.511	315.1 -> 270.0	31658	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.208	329.1 -> 80.9	1368	6.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 129.0%		
13C2-6:2FTS	6.924	429.1 -> 80.9	2179	7.23 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 144.7%		
13C2-8:2FTS	7.978	529.1 -> 80.9	2873	5.92 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 118.3%		
13C2-PFDoDA	9.080	615.1 -> 570.0	18536	1.43 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 114.3%		
13C2-PFTeDA	9.849	715.2 -> 670.0	9737	1.12 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.8%		
13C3-PFBS	5.391	302.1 -> 79.9	11360	3.15 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 125.9%		
13C3-PFHxS	7.229	402.1 -> 79.9	7454	2.84 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 = 113.5%		
13C4-PFBA	2.861	216.8 -> 171.9	25121	2.58 µg/L	0.050
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 25.8%		
13C4-PFHpA	6.467	367.1 -> 322.0	27795	3.09 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 123.4%		
13C5-PFHxA	5.510	318.0 -> 273.0	39281	2.95 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 117.9%		
13C5-PFPeA	4.325	268.3 -> 223.0	55268	5.60 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.9%		
13C6-PFDA	8.191	519.1 -> 474.1	12606	1.50 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 120.1%		
13C7-PFUnDA	8.648	570.0 -> 525.1	16012	1.40 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 112.2%		
13C8-FOSA	9.894	506.1 -> 77.8	9279	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.5%		
13C8-PFOA	7.148	421.1 -> 376.0	43899	2.89 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 115.7%		
13C8-PFOS	8.317	507.1 -> 79.9	7060	2.98 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 119.2%		
13C9-PFNA	7.695	472.1 -> 427.0	16568	1.52 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 121.2%		
d3-MeFOSAA	8.261	573.2 -> 419.0	11705	5.80 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.0%		
13C3-HFPO-DA	5.877	286.9 -> 168.9	28780	11.26 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 112.6%		
d3-MeFOSA	11.163	515.0 -> 219.0	4446	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
d5-EtFOSAA	8.471	589.2 -> 419.0	10270	6.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.7%		
d7-MeFOSE	11.059	623.2 -> 58.9	46333	21.78 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 87.1%		
d9-EtFOSE	11.343	639.2 -> 58.9	66215	23.23 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 92.9%		
d5-EtFOSA	11.422	531.1 -> 219.0	5269	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.0%		
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.209	327.1 -> 307.0	16884	10.80 µg/L	94
		327.1 -> 80.9	7146		
6:2FTS	6.924	427.1 -> 407.0	15943	10.02 µg/L	100
		427.1 -> 80.9	6578		
8:2FTS	7.979	527.1 -> 507.0	14363	12.80 µg/L	99
		527.1 -> 80.8	6927		
EtFOSAA	8.471	584.2 -> 419.1	4050	2.77 µg/L	m 74
		584.2 -> 526.0	2205		
FOSA	9.898	498.1 -> 77.9	8186	3.16 µg/L	98
		498.1 -> 478.0	245		
MeFOSAA	8.262	570.1 -> 419.0	4765	2.84 µg/L	m 99
		570.1 -> 483.0	908		
PFBA	2.870	212.8 -> 168.9	6409	11.87 µg/L	100
PFBS	5.392	298.7 -> 79.9	8016	2.43 µg/L	98
		298.7 -> 98.8	3173		
PFDA	8.192	512.9 -> 469.0	20300	2.79 µg/L	96
		512.9 -> 219.0	4213		
PFDoDA	9.081	613.1 -> 569.0	32131	2.90 µg/L	99
		613.1 -> 319.0	5001		
PFDS	9.232	599.0 -> 79.9	4568	2.69 µg/L	92

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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2222			
PFHpA	6.468	363.1 -> 319.0	38727	2.87	µg/L	99
		363.1 -> 169.0	7286			
PFHpS	7.810	449.0 -> 79.9	6809	2.83	µg/L	99
		449.0 -> 98.9	3528			
PFHxA	5.513	313.0 -> 269.0	35256	2.92	µg/L	99
		313.0 -> 118.9	1292			
PFHxS	7.229	398.7 -> 79.9	6008	2.86	µg/L	m 78
		398.7 -> 98.9	3120			
PFNA	7.696	463.0 -> 419.0	23382	2.80	µg/L	100
		463.0 -> 219.0	6101			
PFNS	8.799	548.8 -> 79.9	3840	2.88	µg/L	91
		548.8 -> 98.9	1858			
PFOA	7.150	413.0 -> 369.0	46409	2.80	µg/L	98
		413.0 -> 169.0	10197			
PFOS	8.318	498.9 -> 79.9	7124	2.71	µg/L	m 74
		498.9 -> 98.8	3126			
PFPeA	4.327	263.0 -> 219.0	58413	5.96	µg/L	100
PFPeS	6.482	349.1 -> 79.9	5552	2.95	µg/L	99
		349.1 -> 98.9	2578			
PFTeDA	9.849	713.1 -> 669.0	23097	3.21	µg/L	99
		713.1 -> 168.9	2073			
PFTrDA	9.478	663.0 -> 619.0	33790	2.76	µg/L	98
		663.0 -> 168.9	3566			
PFUnDA	8.648	563.1 -> 519.0	23898	3.23	µg/L	95
		563.1 -> 269.1	4111			
11CI-PF3OUdS	9.518	630.9 -> 450.9	32430	5.09	µg/L	100
		632.9 -> 452.9	10282			
9CI-PF3ONS	8.662	530.8 -> 351.0	37977	5.55	µg/L	98
		532.8 -> 353.0	11783			
ADONA	6.731	376.9 -> 250.9	117577	5.78	µg/L	99
		376.9 -> 84.8	35774			
HFPO-DA	5.878	284.9 -> 168.9	13425	5.77	µg/L	100
		284.9 -> 184.9	1601			
3:3FTCA	3.829	241.0 -> 177.0	2859	24.23	µg/L	99
		241.0 -> 117.0	316			
5:3FTCA	6.232	341.0 -> 237.1	122381	71.23	µg/L	100
		341.0 -> 217.0	89697			
7:3FTCA	7.723	441.0 -> 316.9	56071	74.30	µg/L	98
		441.0 -> 336.9	129633			
EtFOSA	11.436	526.0 -> 219.0	10046	5.54	µg/L	96
		526.0 -> 169.0	14570			
EtFOSE	11.357	630.0 -> 58.9	26794	13.18	µg/L	100
MeFOSA	11.165	511.9 -> 219.0	8799	5.70	µg/L	m 83
		511.9 -> 169.0	12789			
MeFOSE	11.072	616.1 -> 58.9	22182	13.49	µg/L	100
PFDoDS	9.989	699.1 -> 79.9	3083	2.40	µg/L	97
		699.1 -> 98.8	1742			
NFDHA	5.392	295.0 -> 201.0	5464	5.74	µg/L	94
		295.0 -> 84.9	1674			
PFMBA	4.741	279.0 -> 85.1	34617	6.00	µg/L	100
PFMPA	3.478	229.0 -> 84.9	16483	2.61	µg/L	100
PFEESA	5.921	314.8 -> 134.9	54720	5.22	µg/L	99
		314.8 -> 82.9	1800			

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

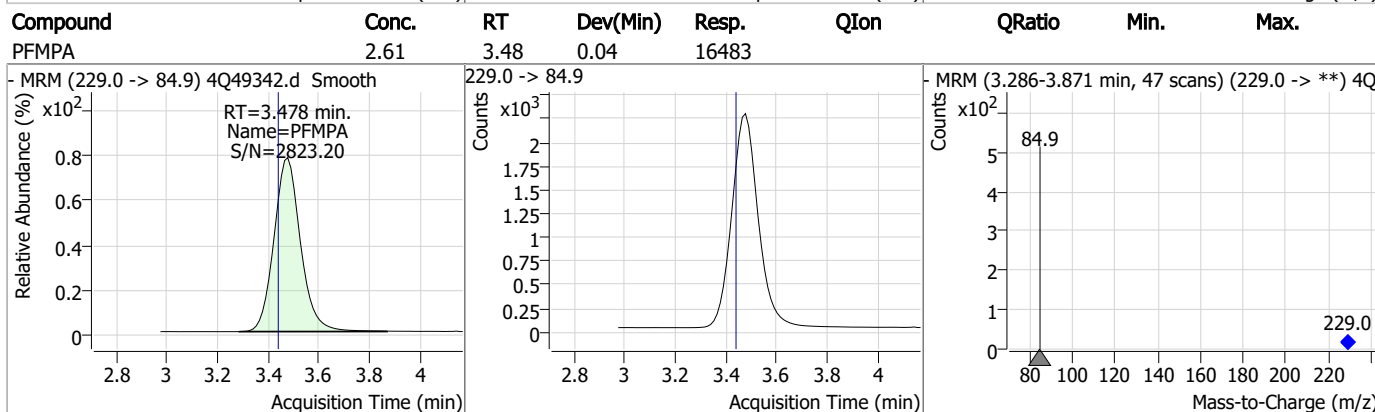
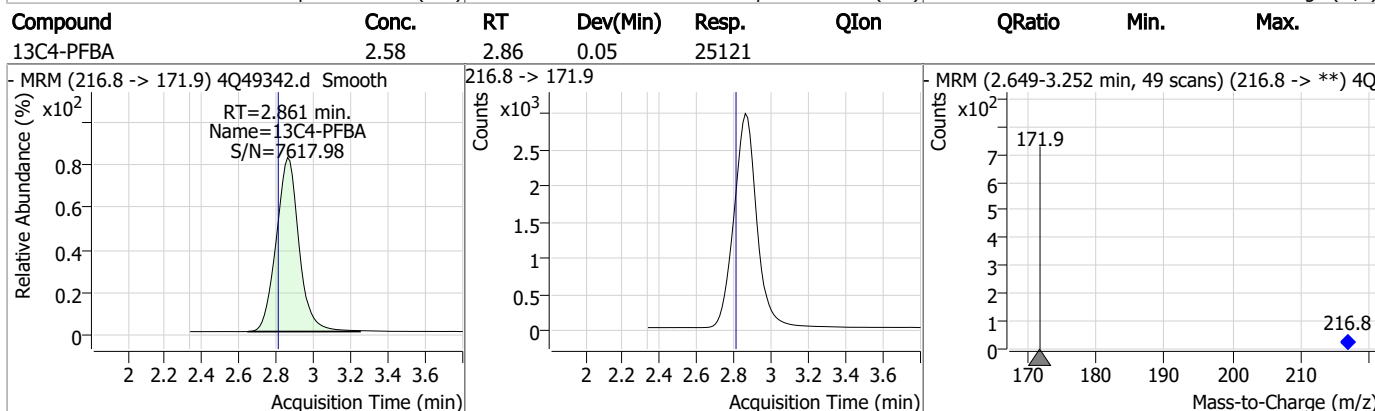
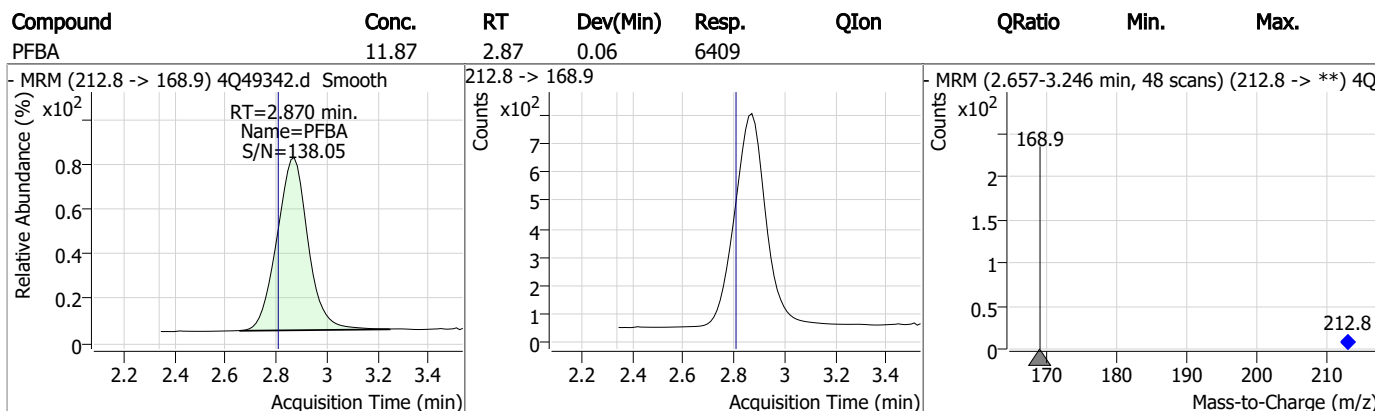
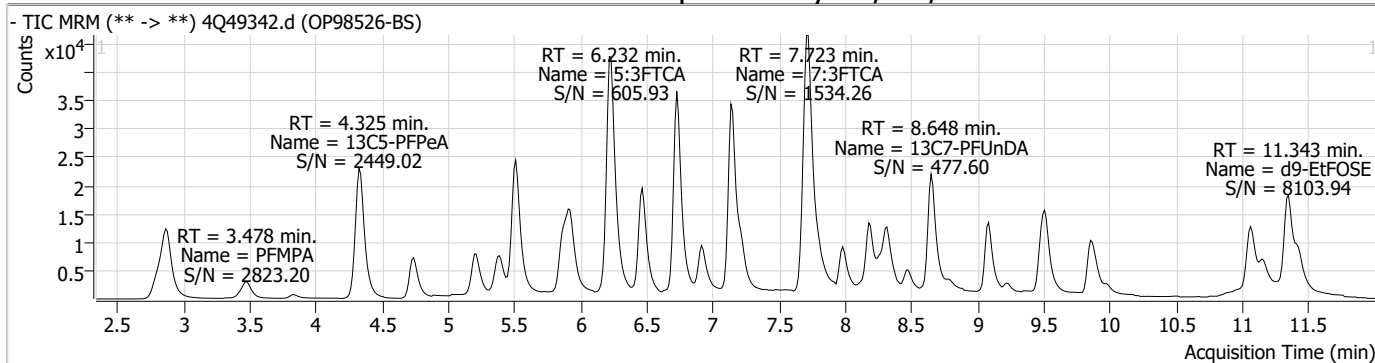
### Perfluorinated Compounds by LC/MS/MS

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

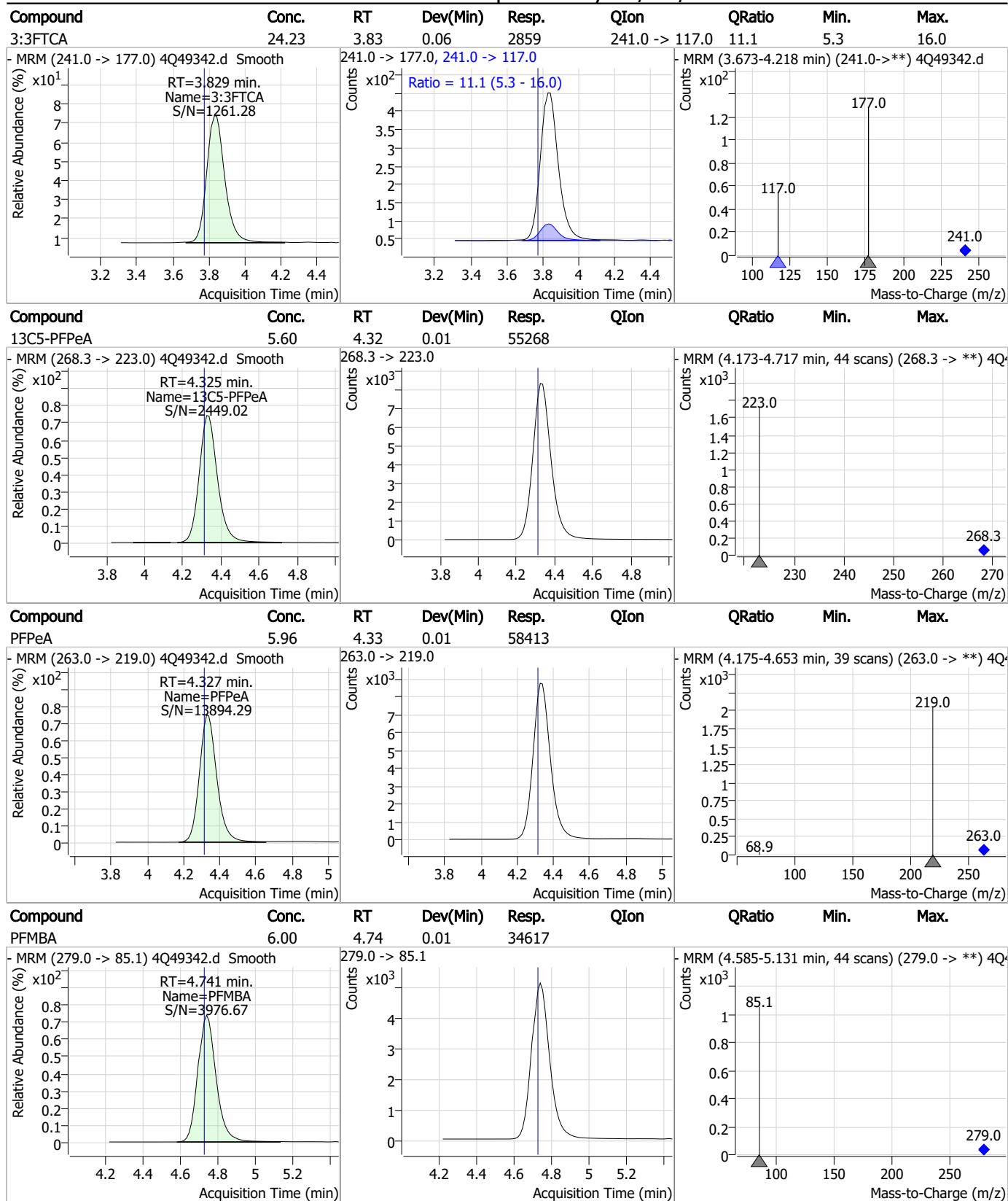
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### Perfluorinated Compounds by LC/MS/MS



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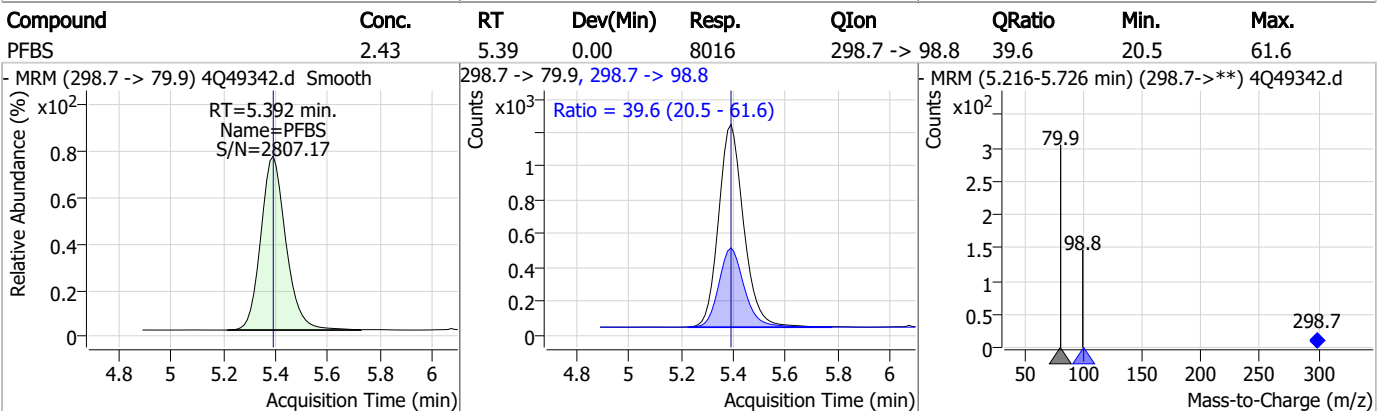
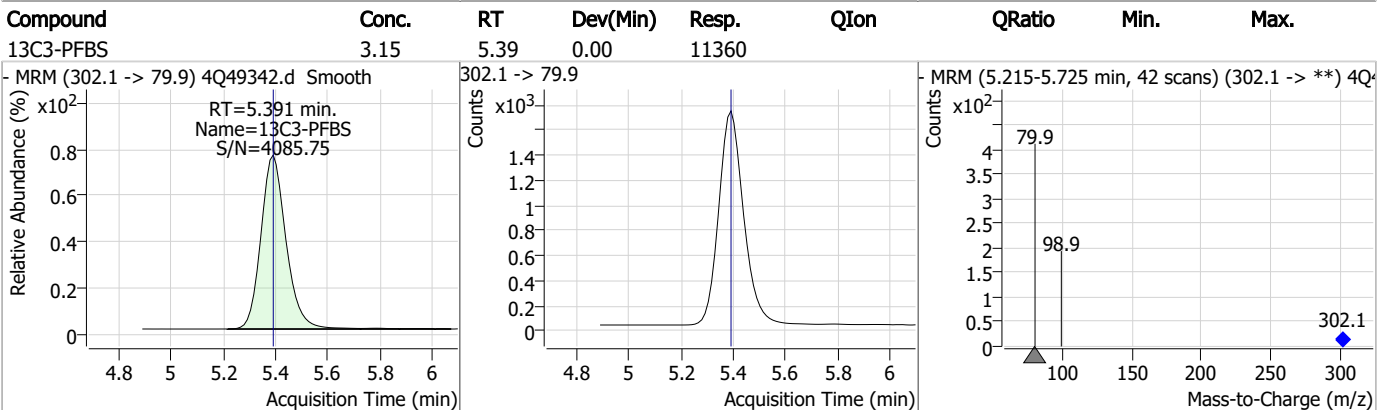
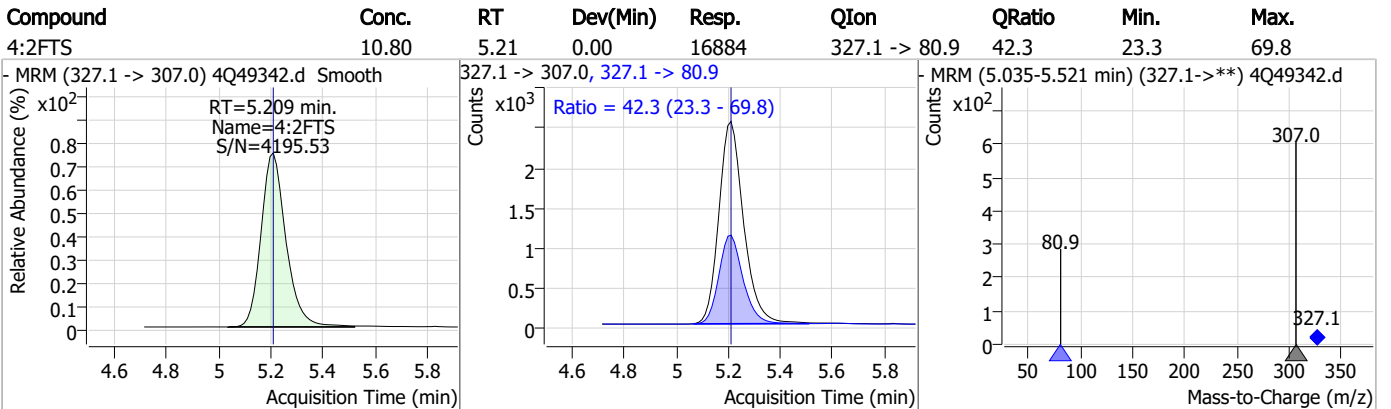
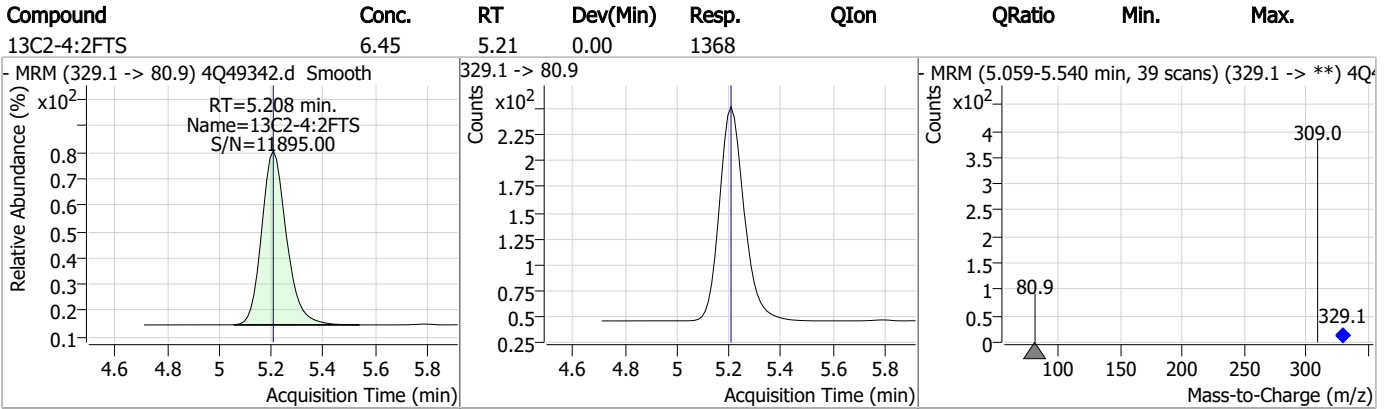
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

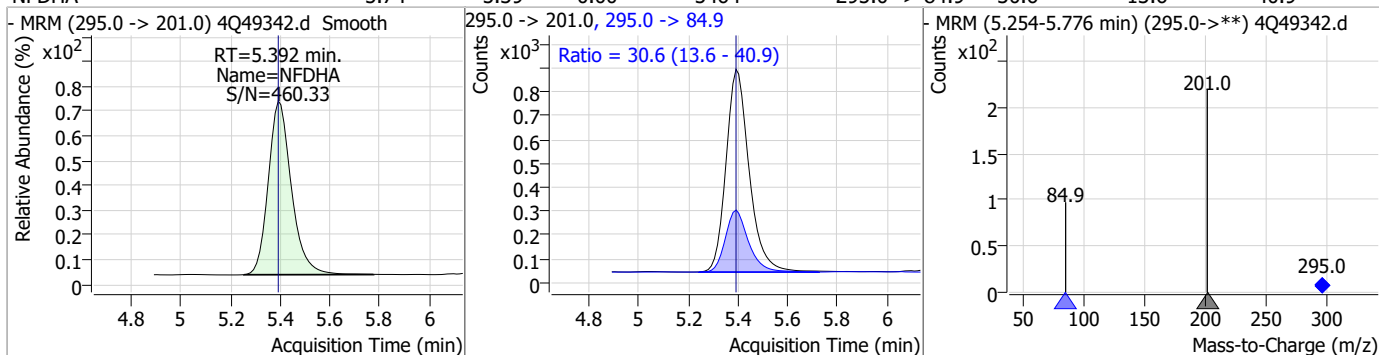


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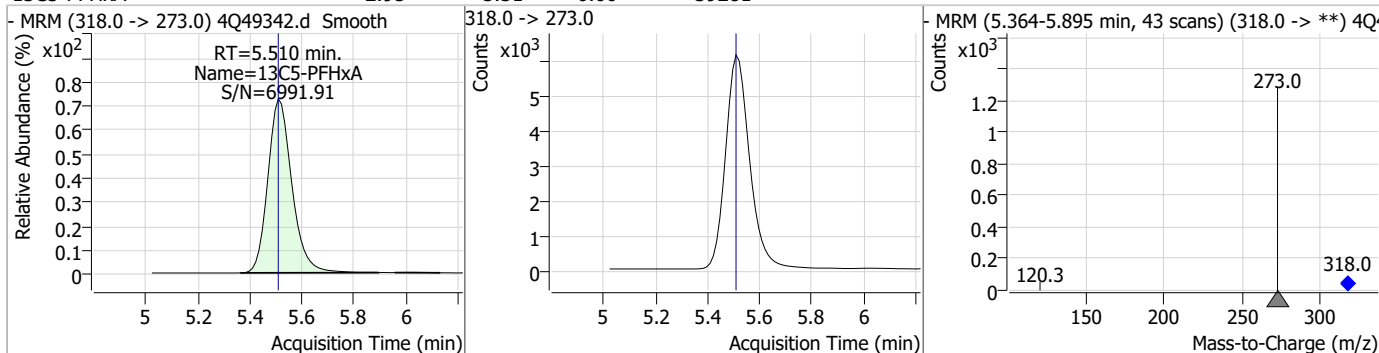
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### Perfluorinated Compounds by LC/MS/MS

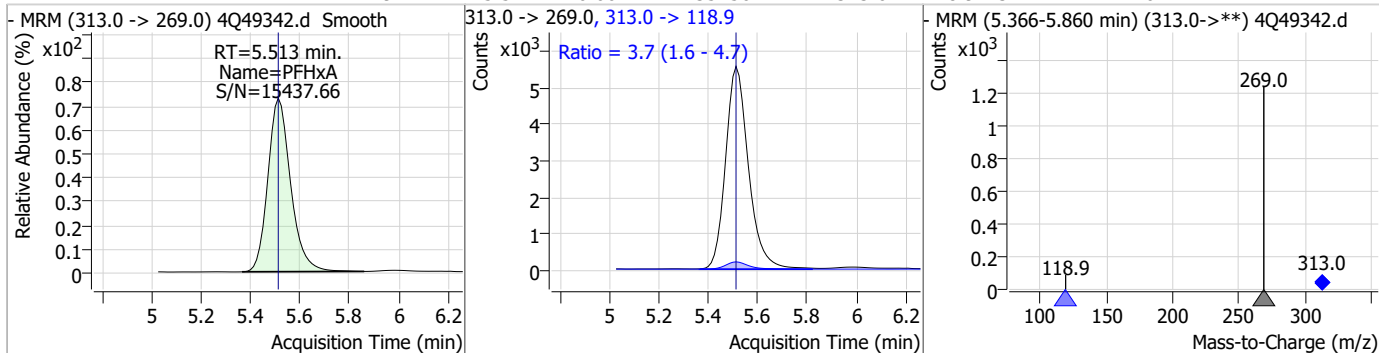
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	5.74	5.39	0.00	5464	295.0 -> 84.9	30.6	13.6	40.9



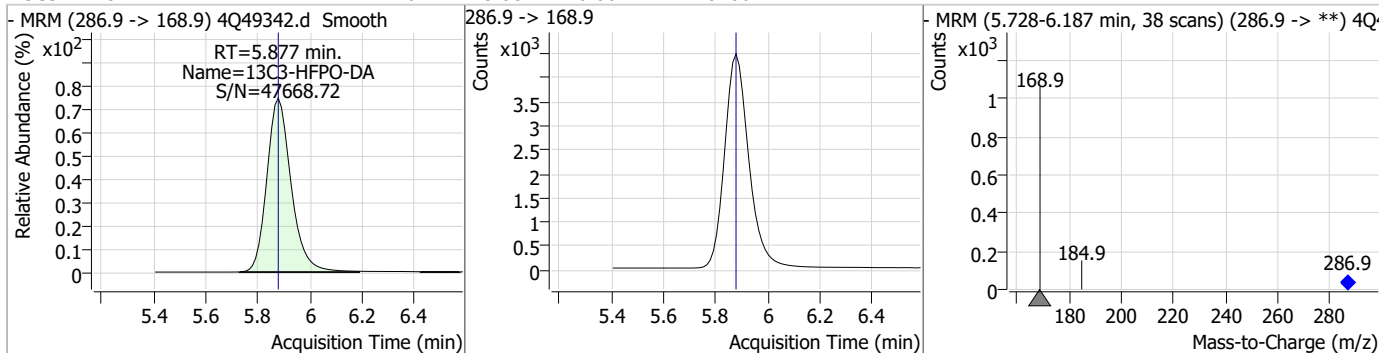
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.95	5.51	0.00	39281				



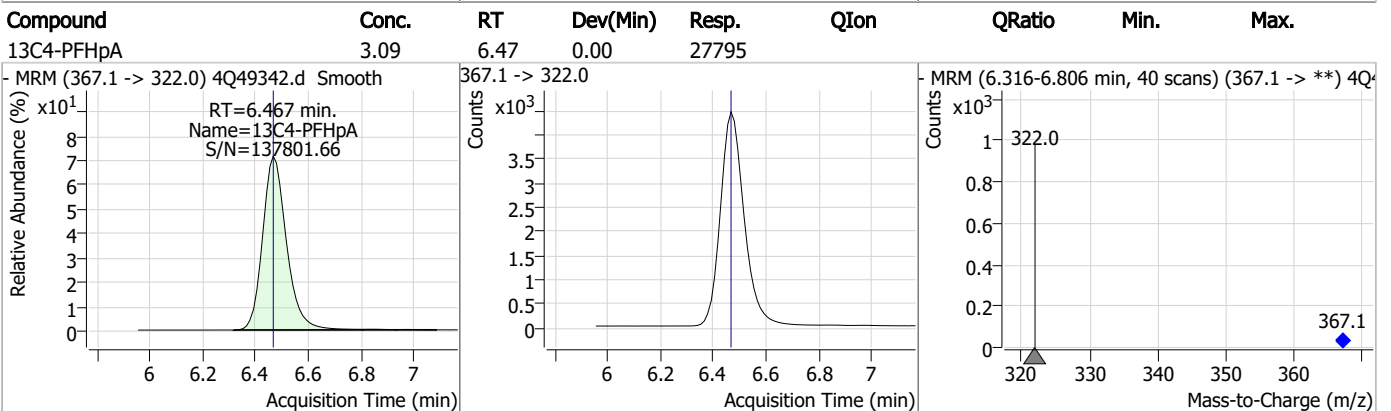
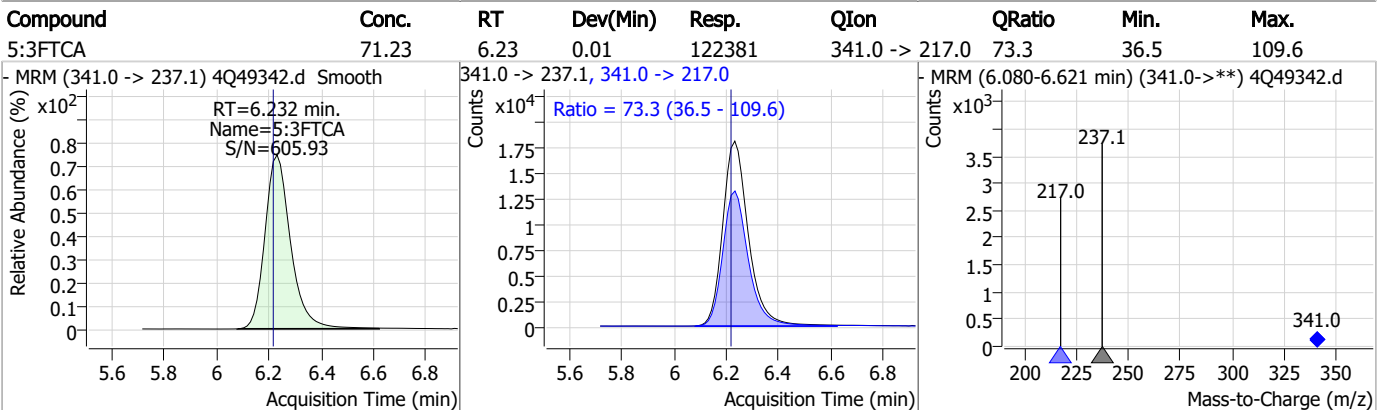
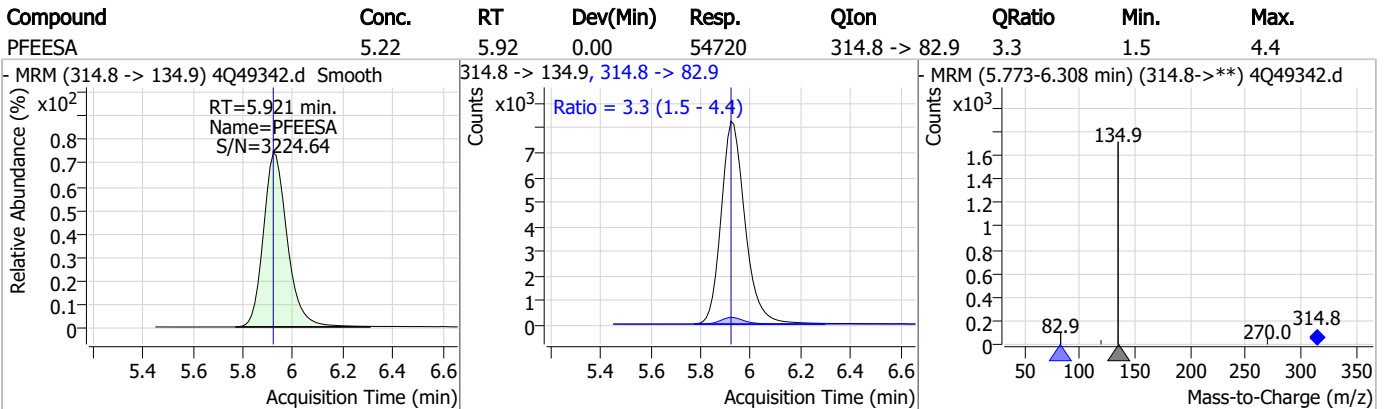
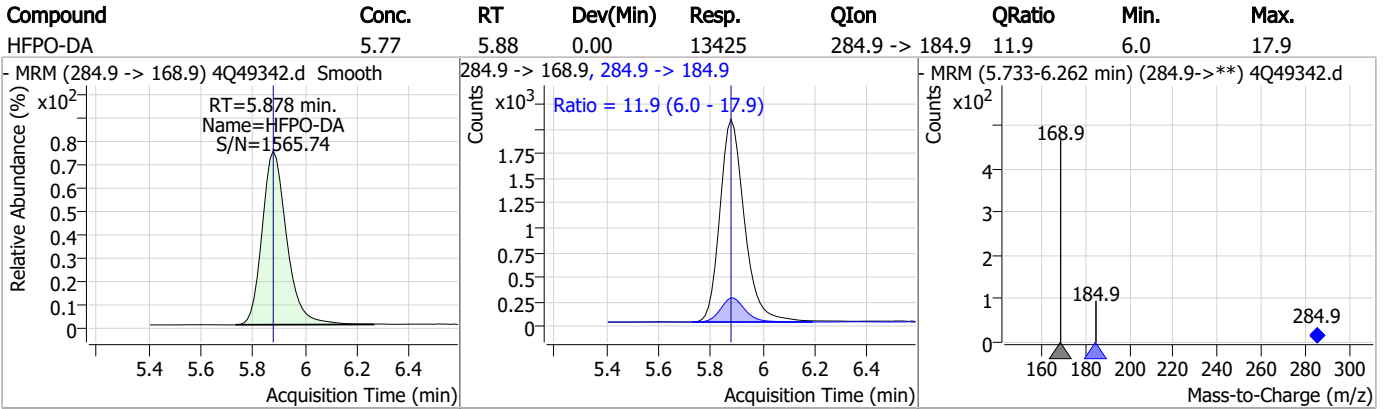
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.92	5.51	0.00	35256	313.0 -> 118.9	3.7	1.6	4.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	11.26	5.88	0.00	28780				



### Perfluorinated Compounds by LC/MS/MS

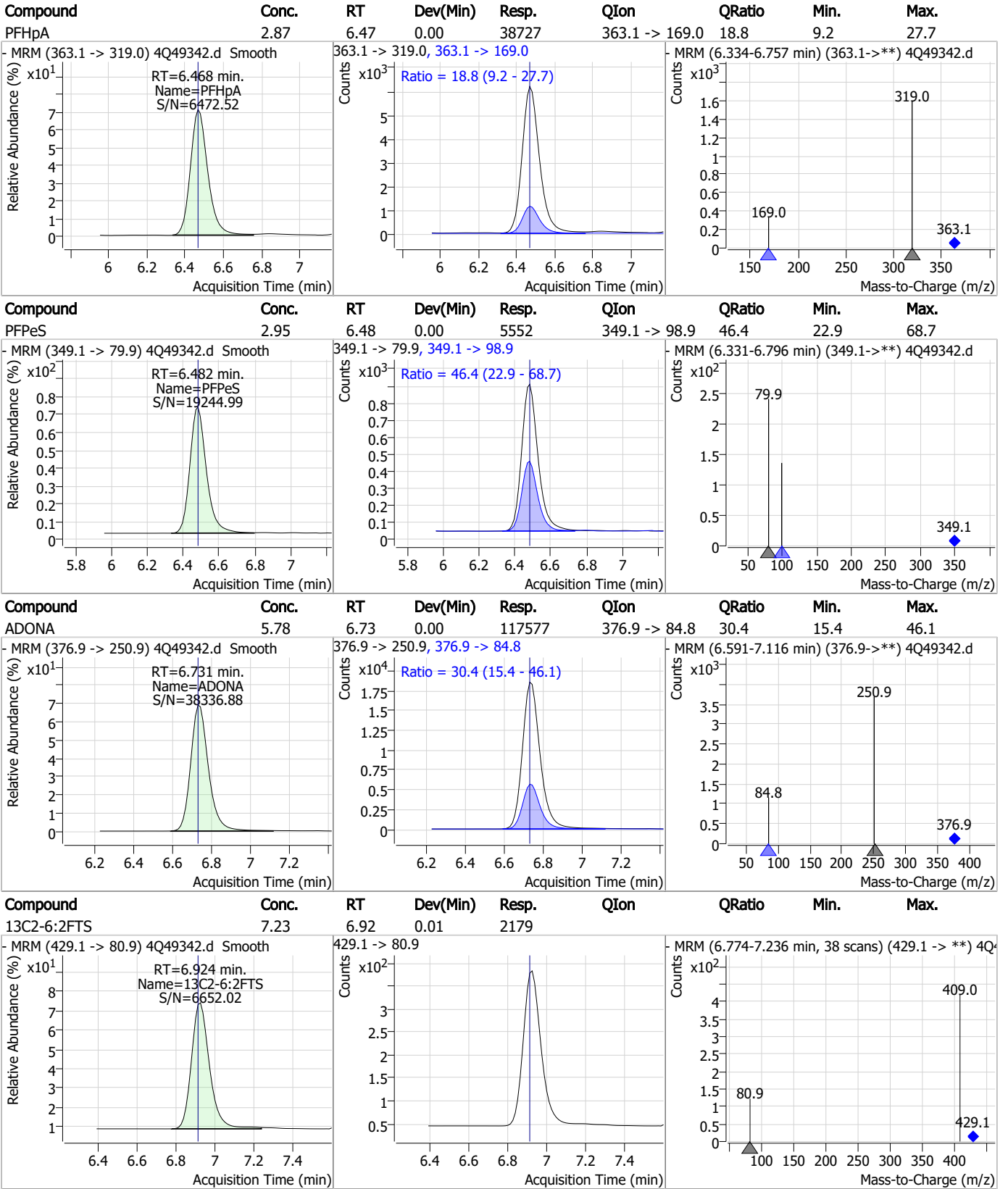


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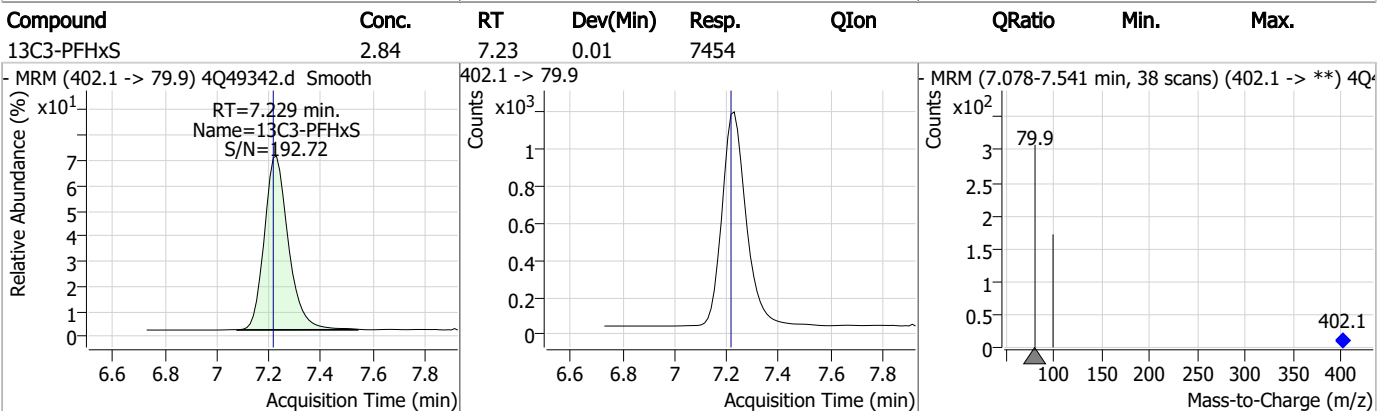
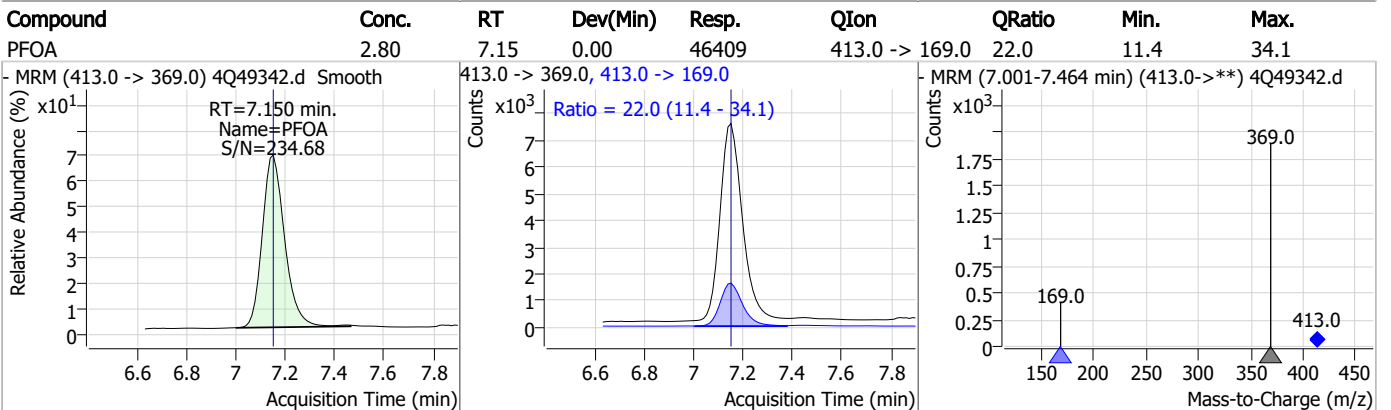
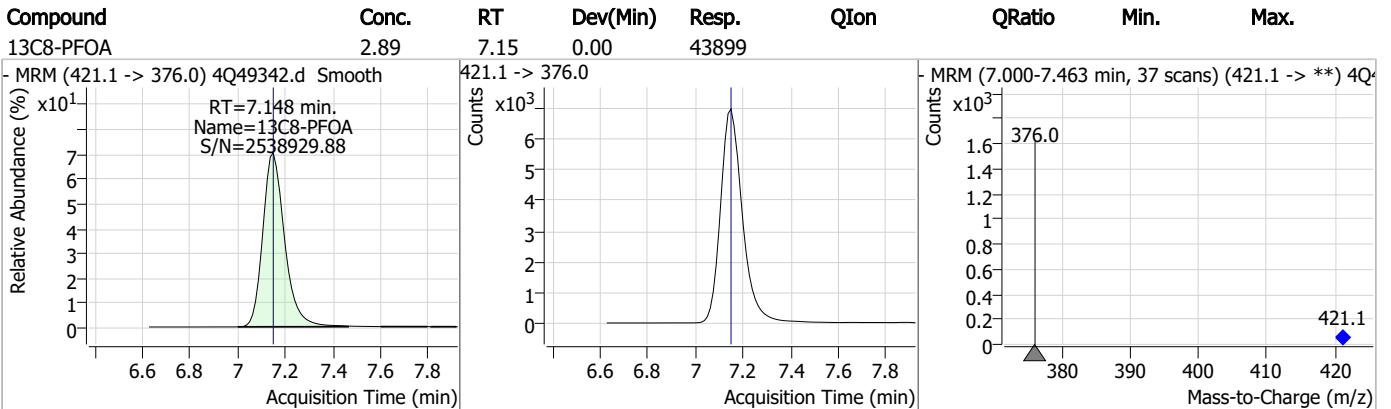
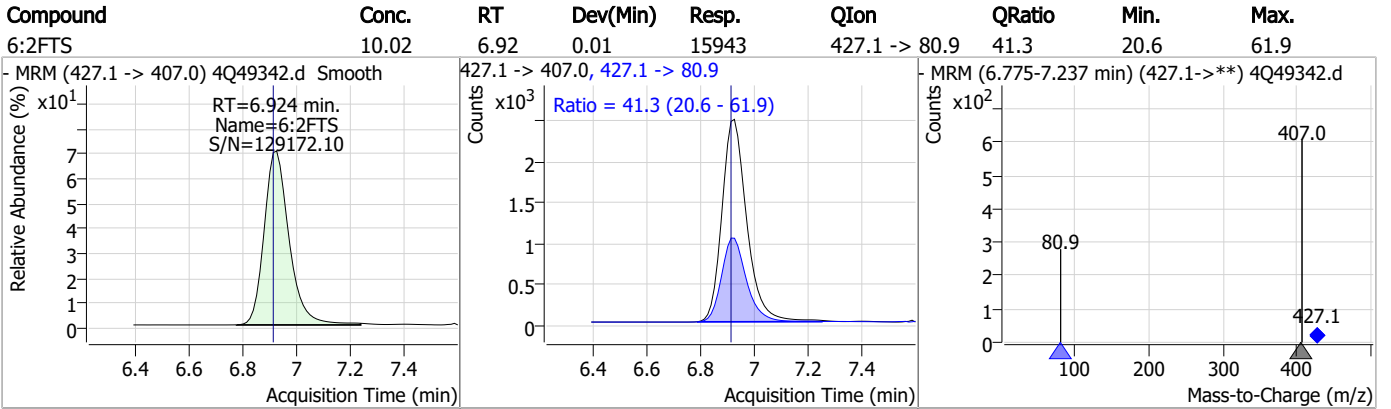
### Perfluorinated Compounds by LC/MS/MS



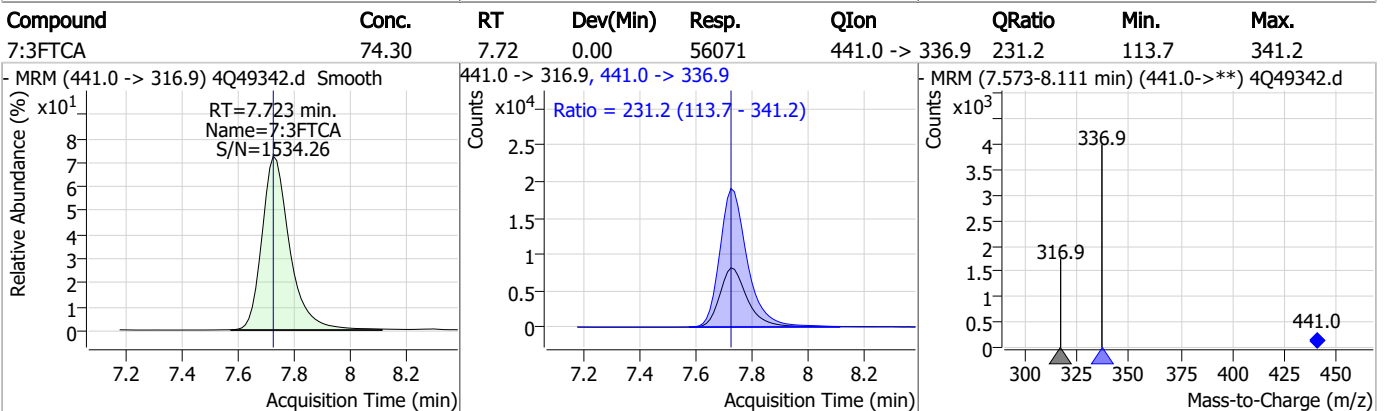
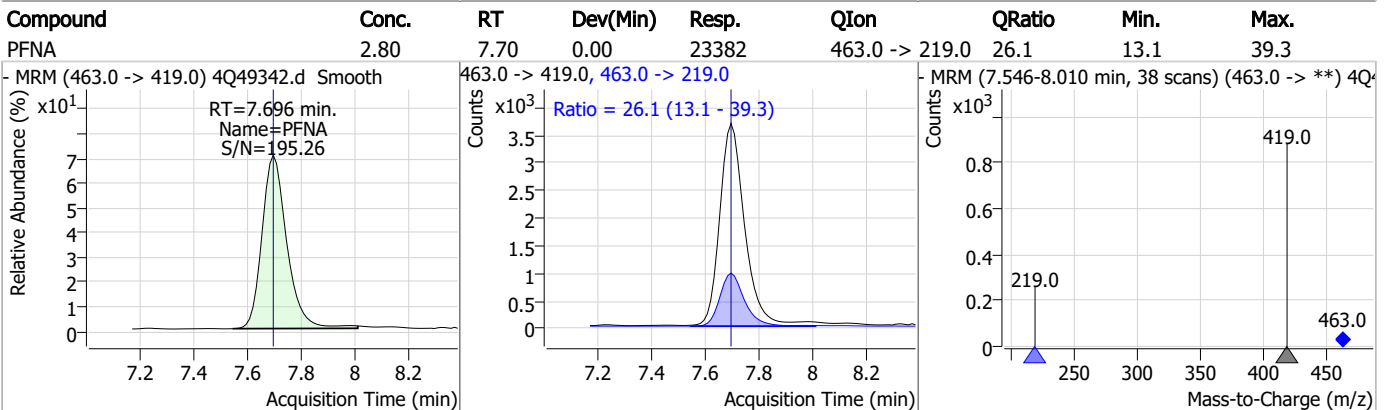
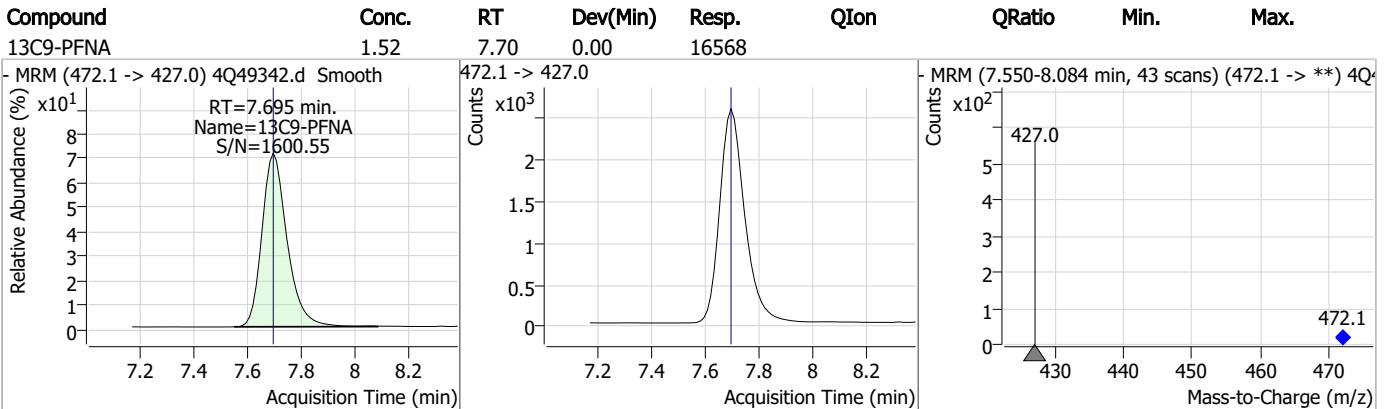
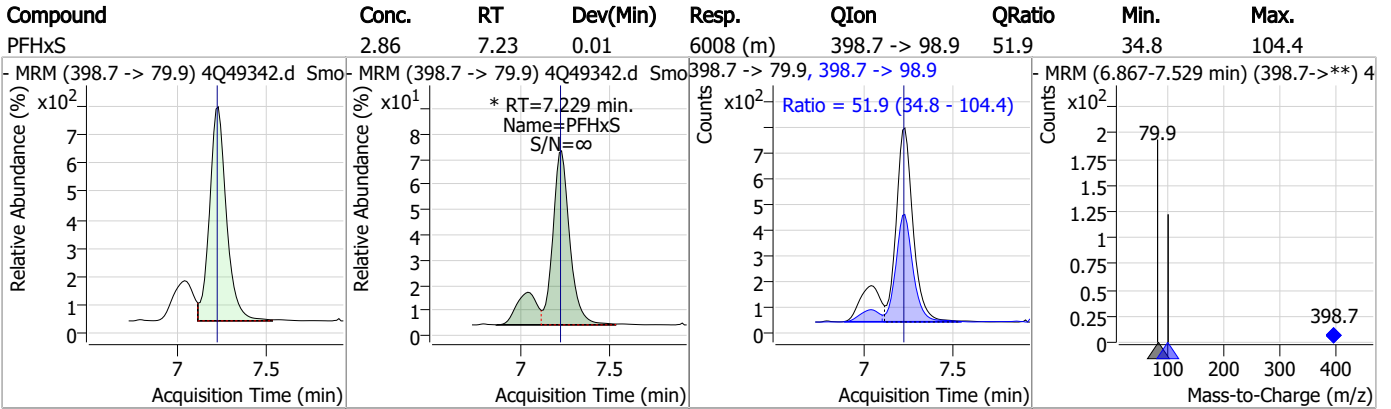
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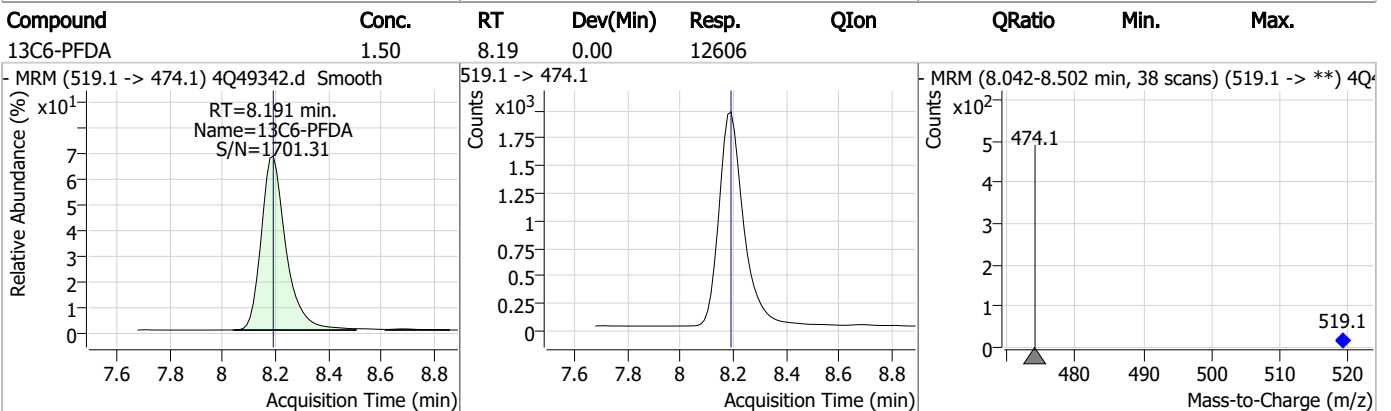
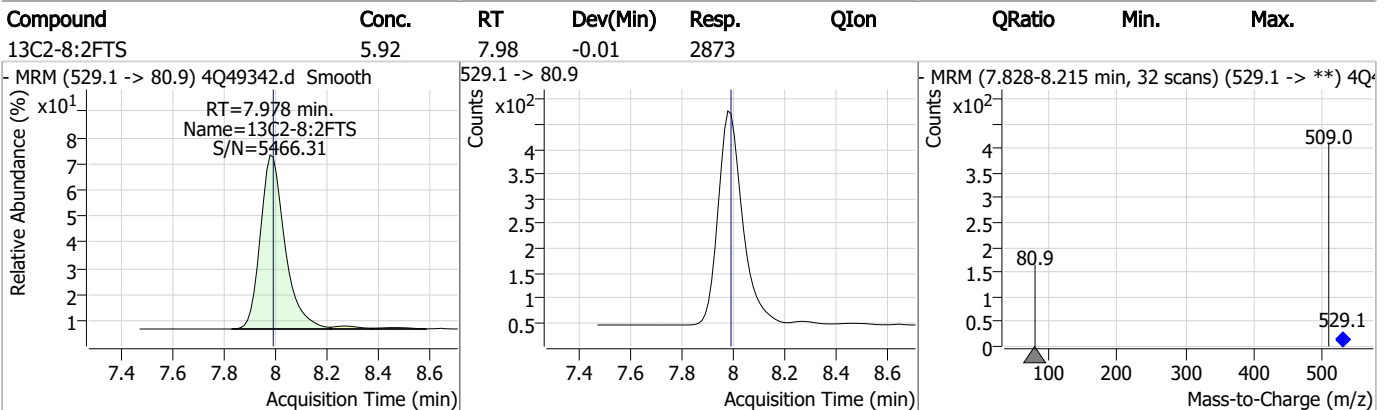
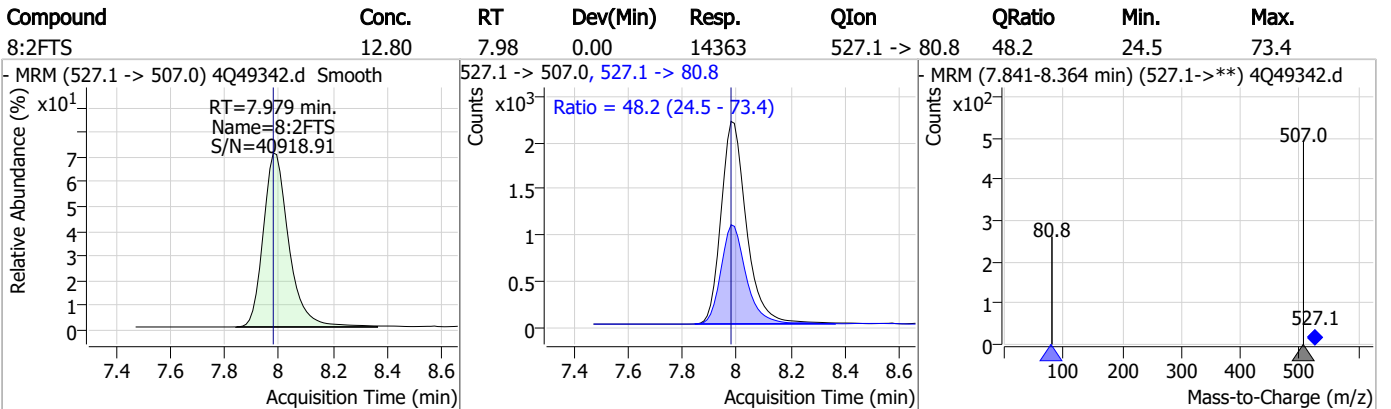
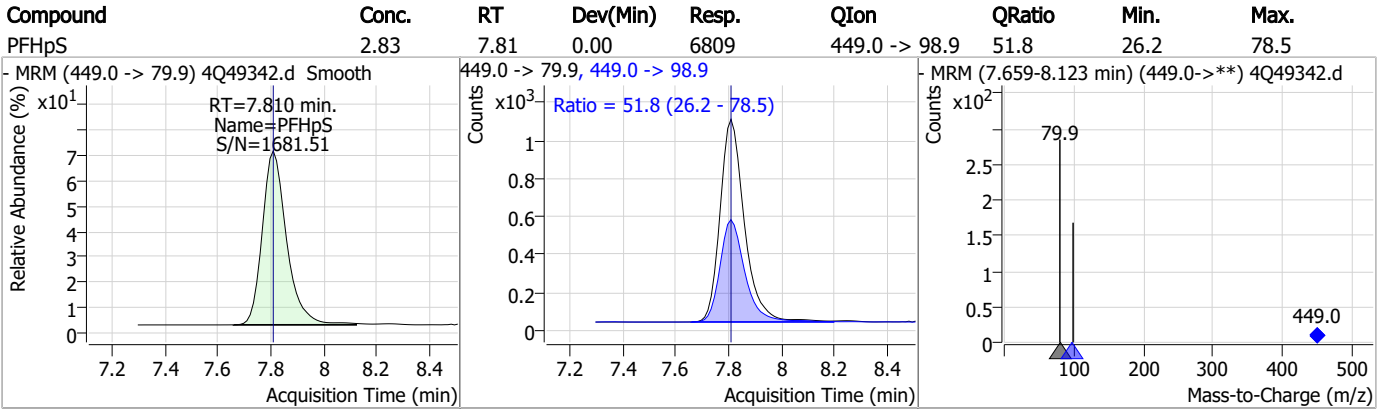
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

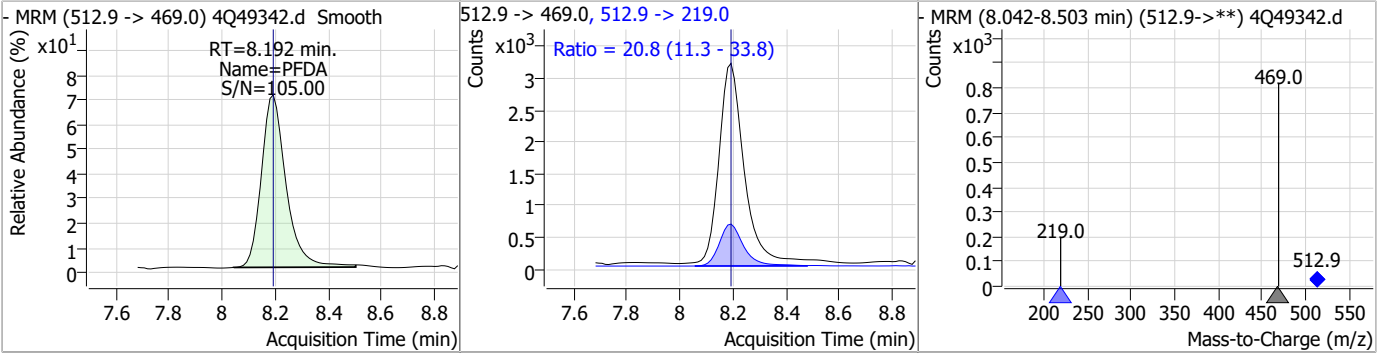


### Perfluorinated Compounds by LC/MS/MS

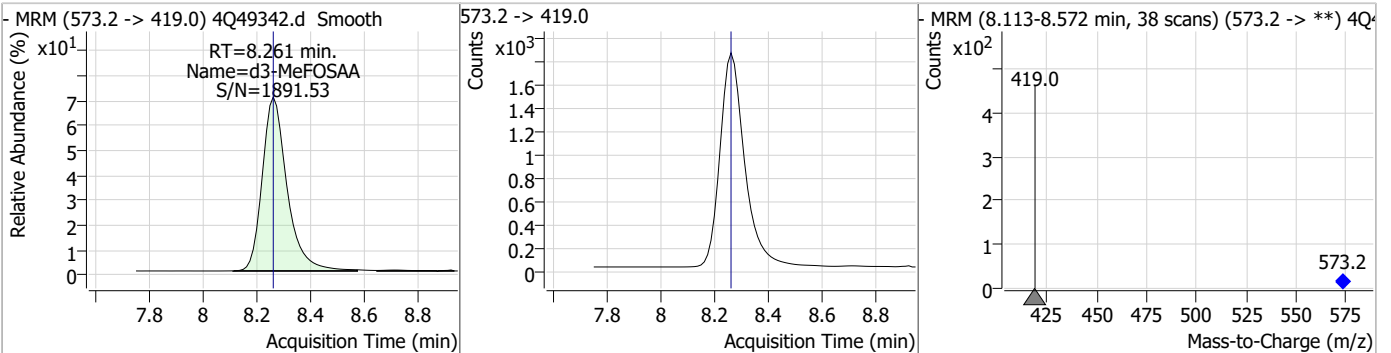


### Perfluorinated Compounds by LC/MS/MS

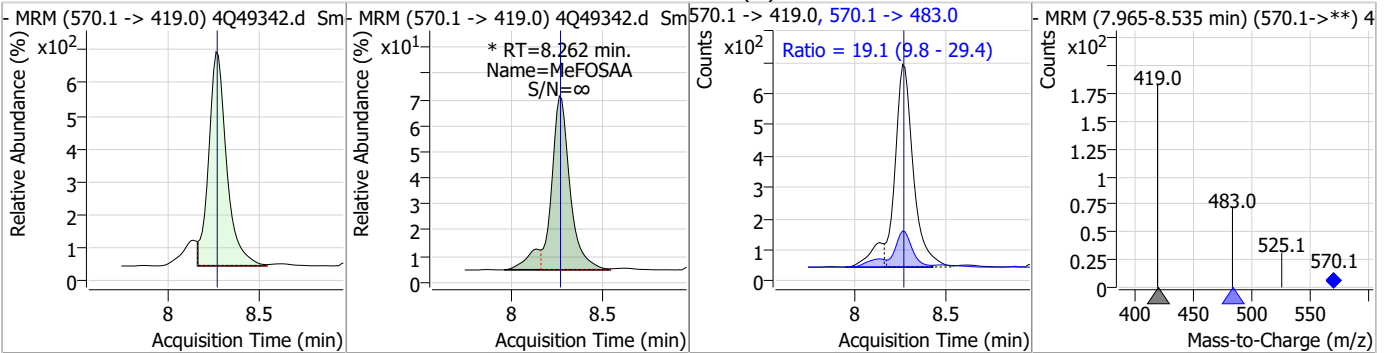
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.79	8.19	0.00	20300	512.9 -> 219.0	20.8	11.3	33.8



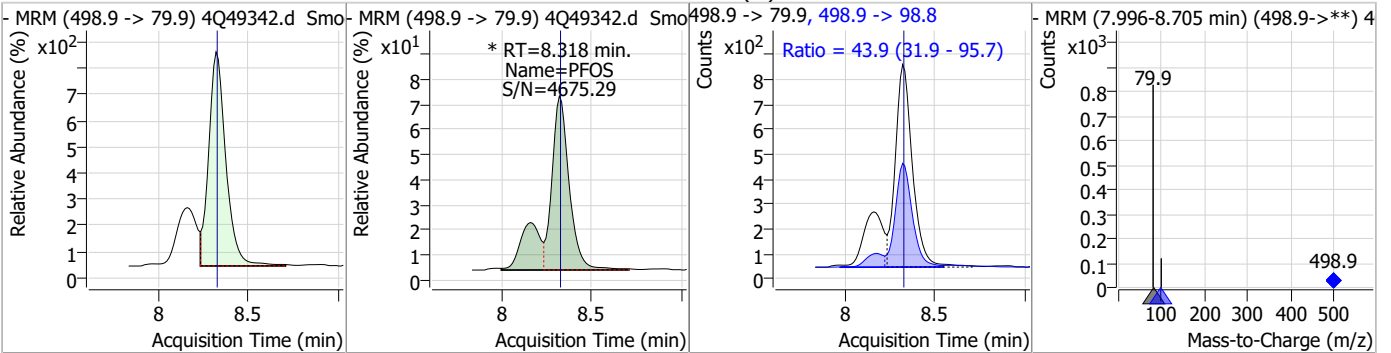
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.80	8.26	0.00	11705				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.84	8.26	0.00	4765 (m)	570.1 -> 483.0	19.1	9.8	29.4

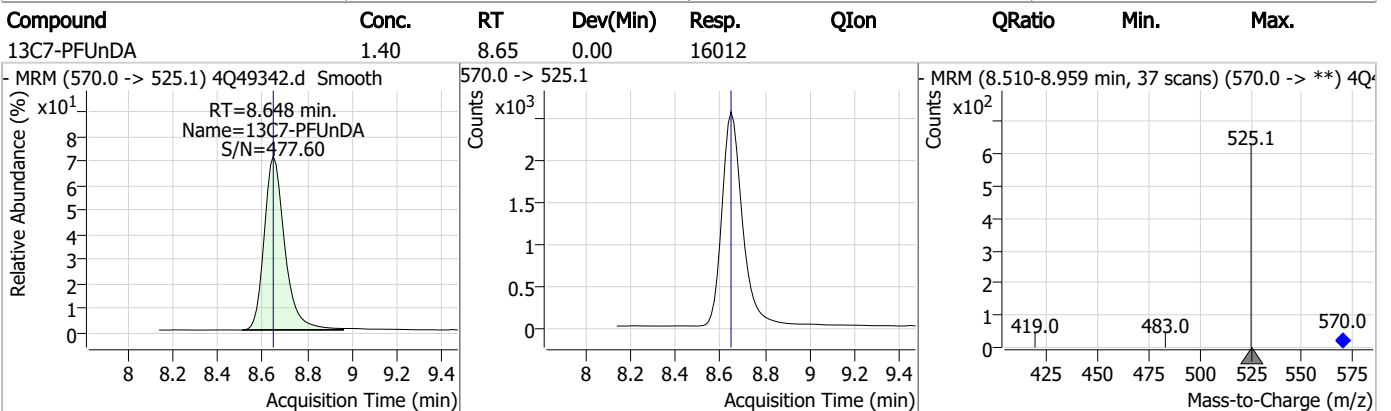
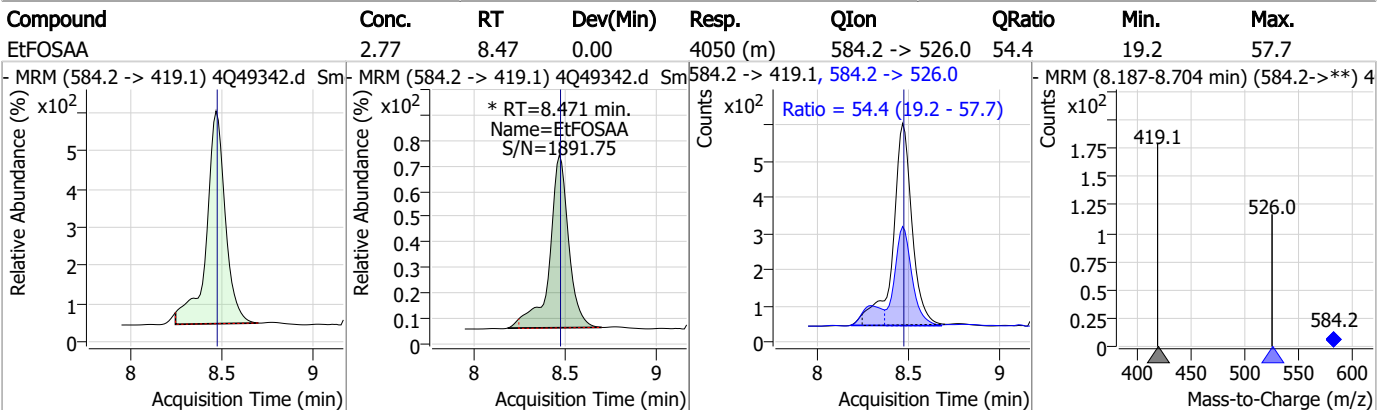
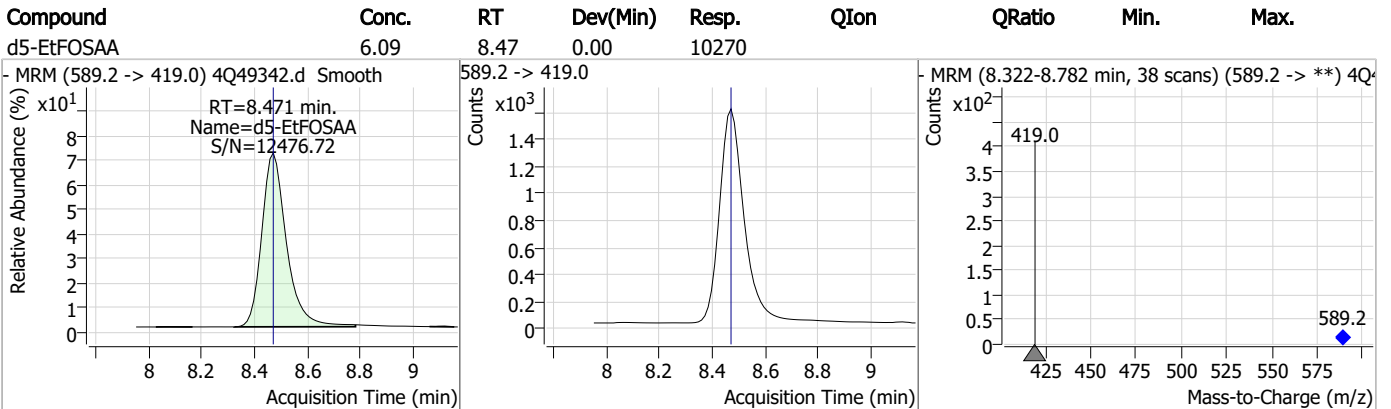
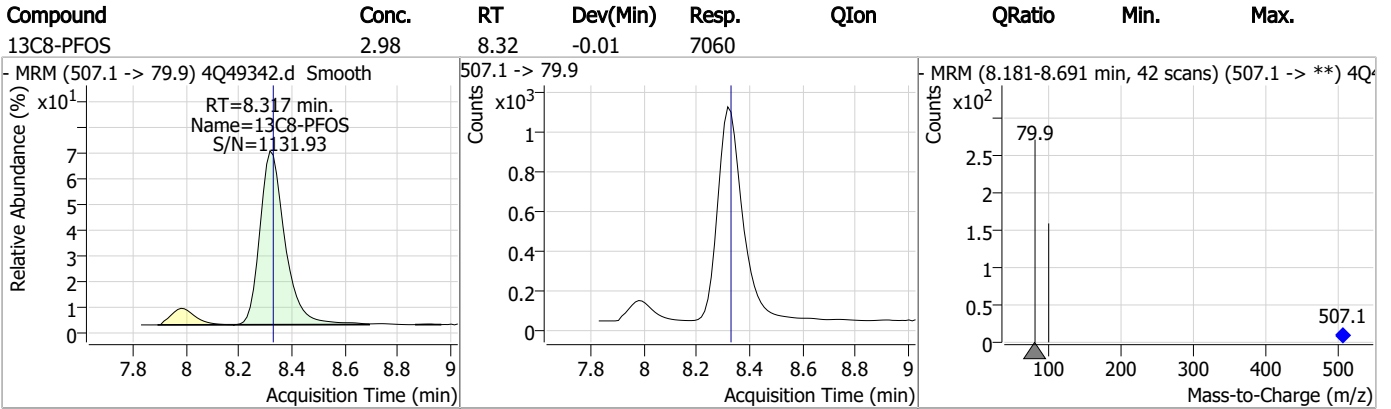


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.71	8.32	0.00	7124 (m)	498.9 -> 98.8	43.9	31.9	95.7





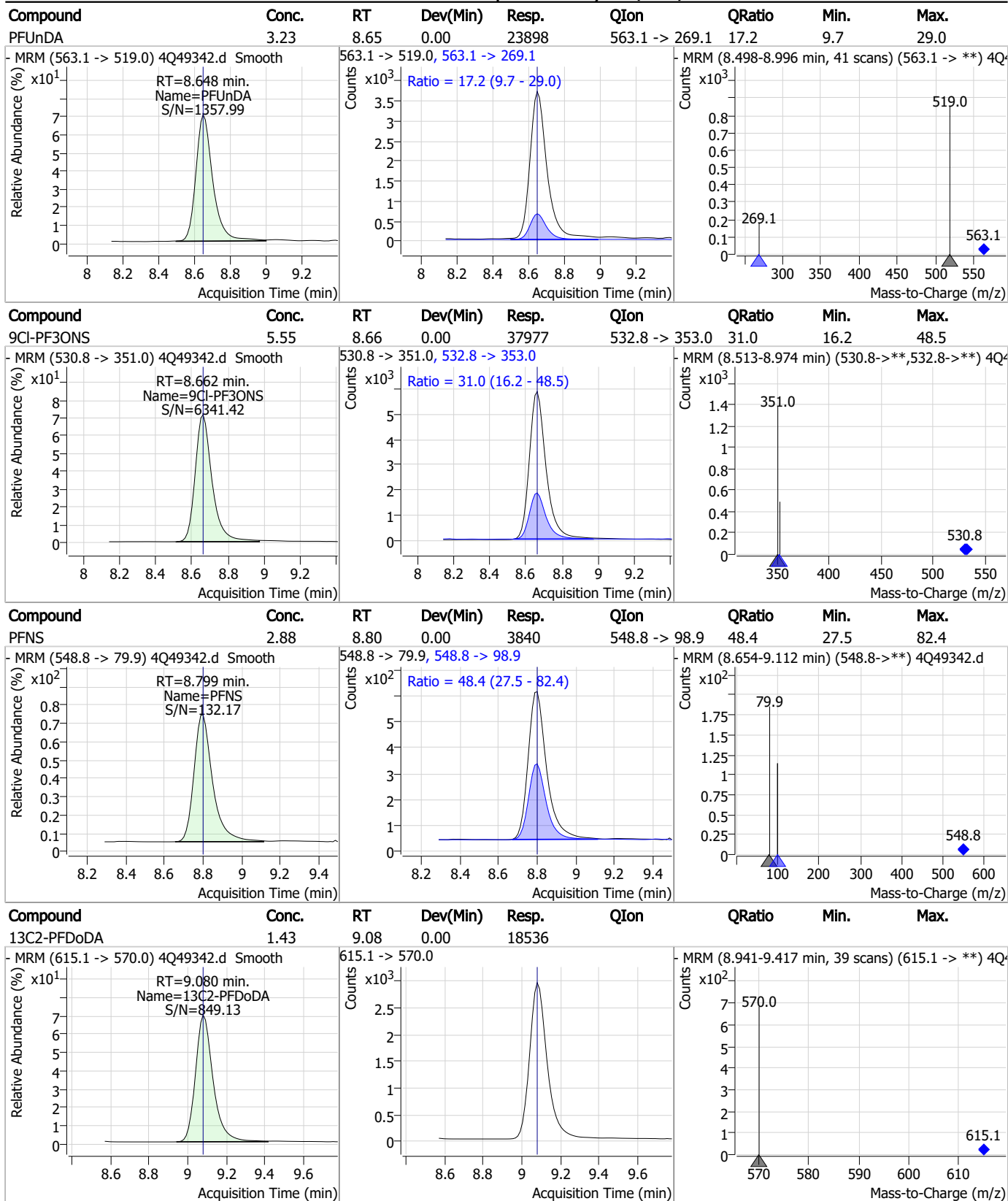
### Perfluorinated Compounds by LC/MS/MS



7.3.1

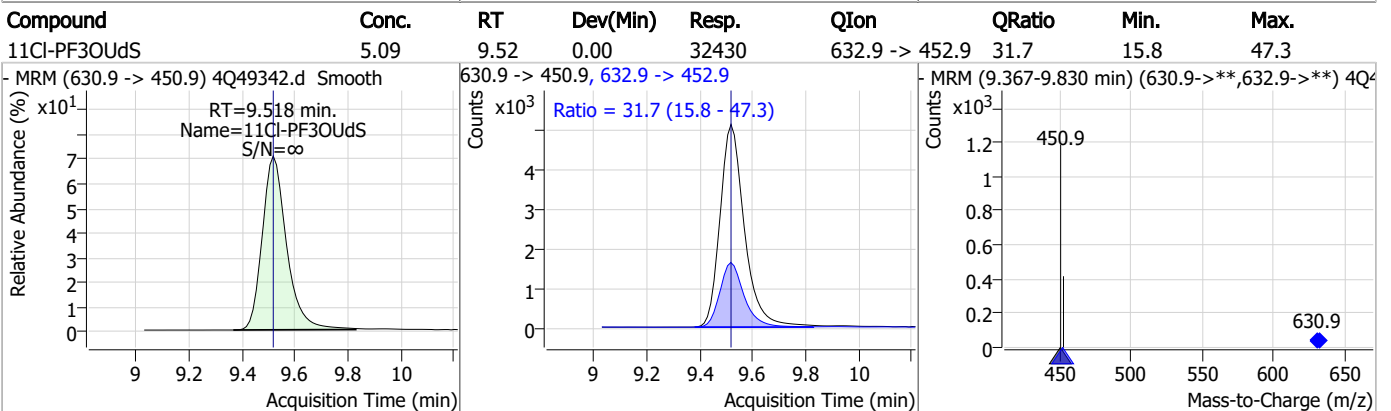
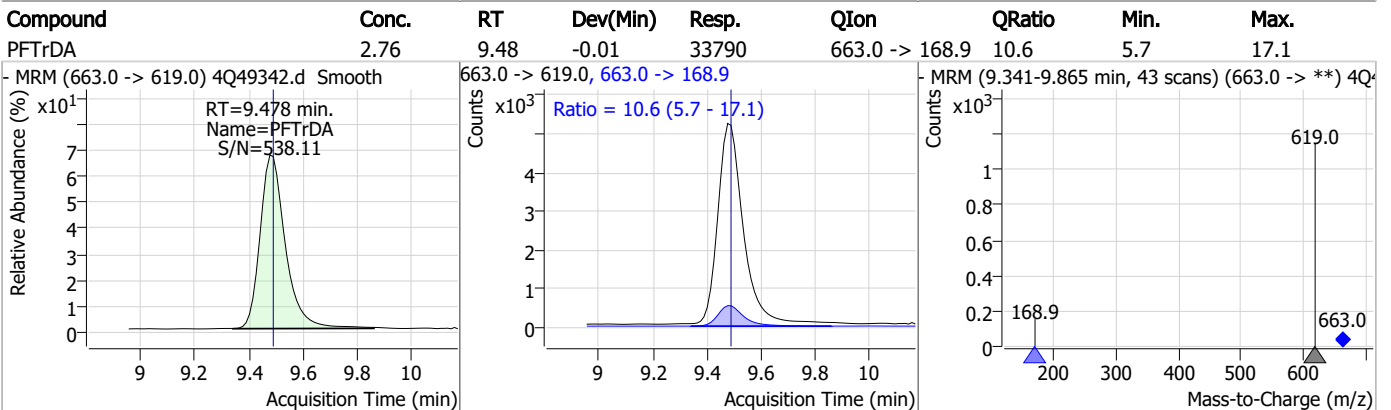
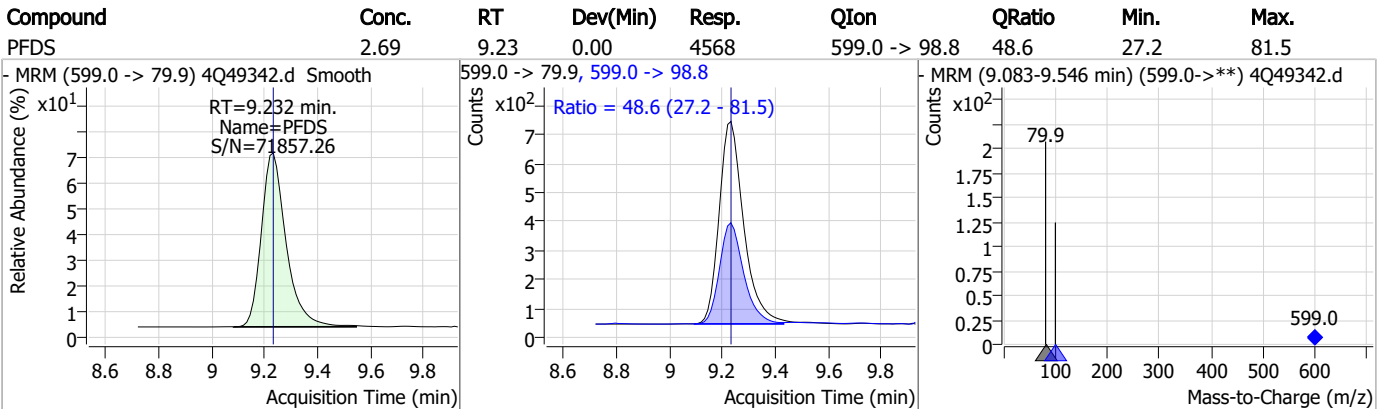
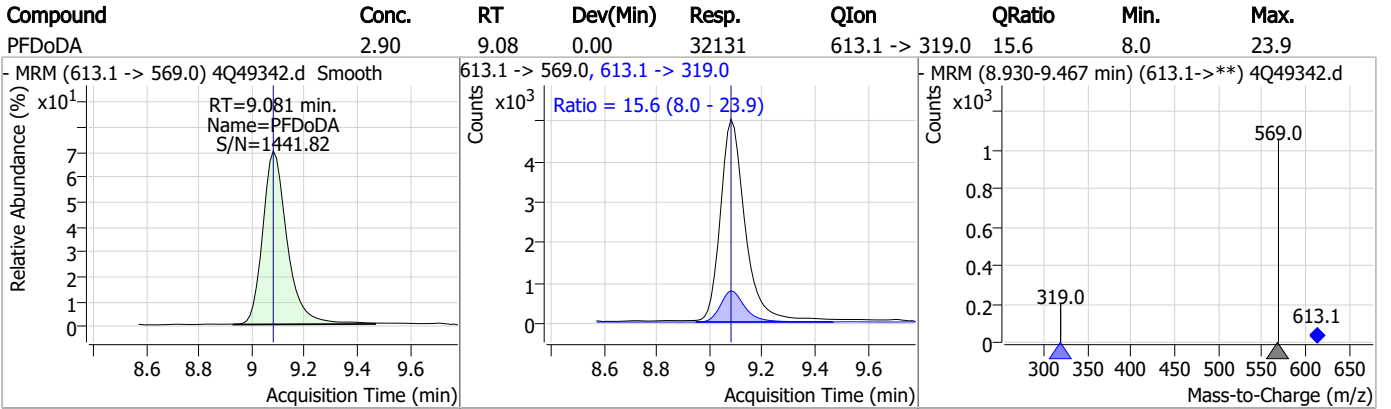
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### Perfluorinated Compounds by LC/MS/MS



7.3.1  
7

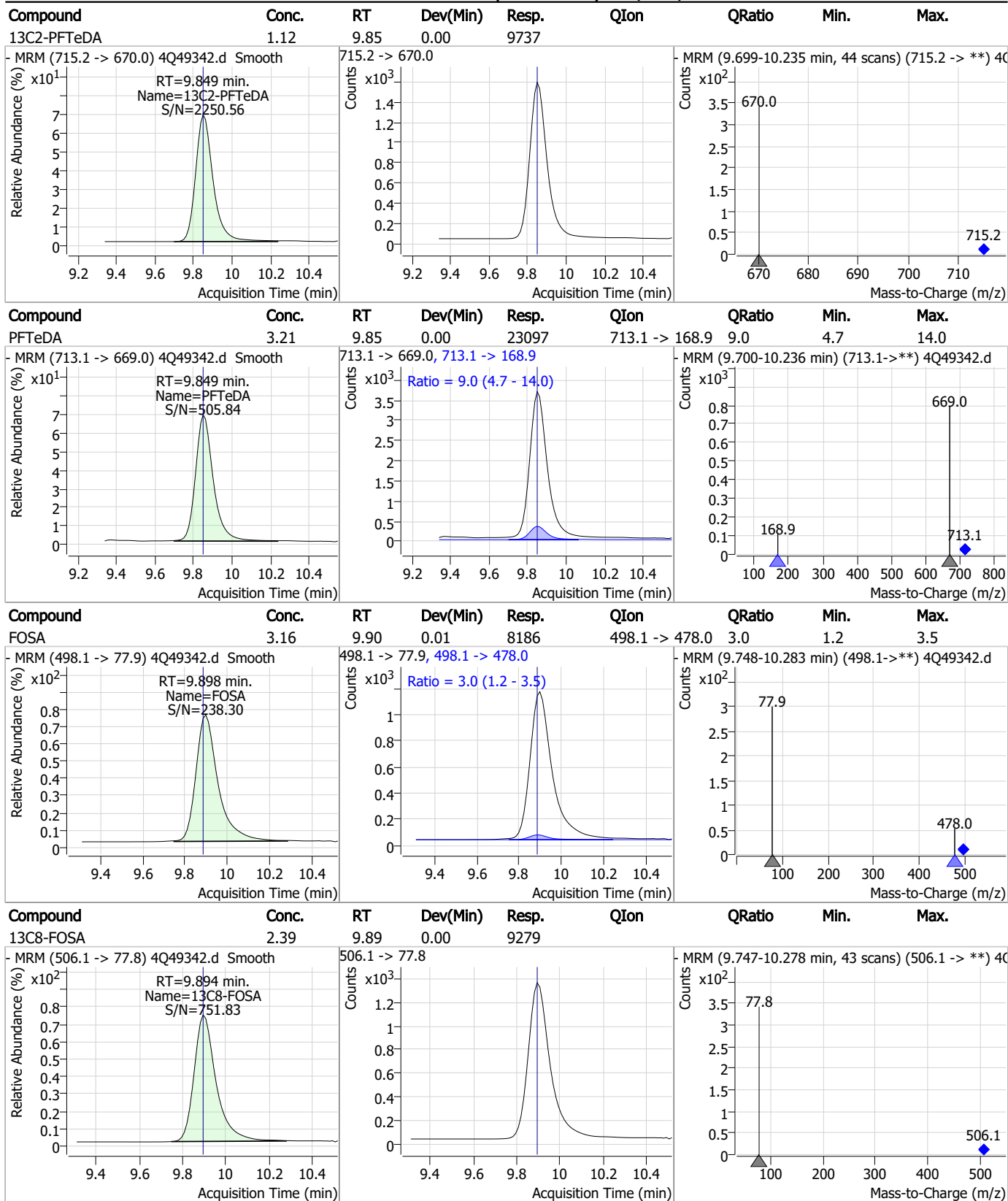
### Perfluorinated Compounds by LC/MS/MS



7.3.1

7

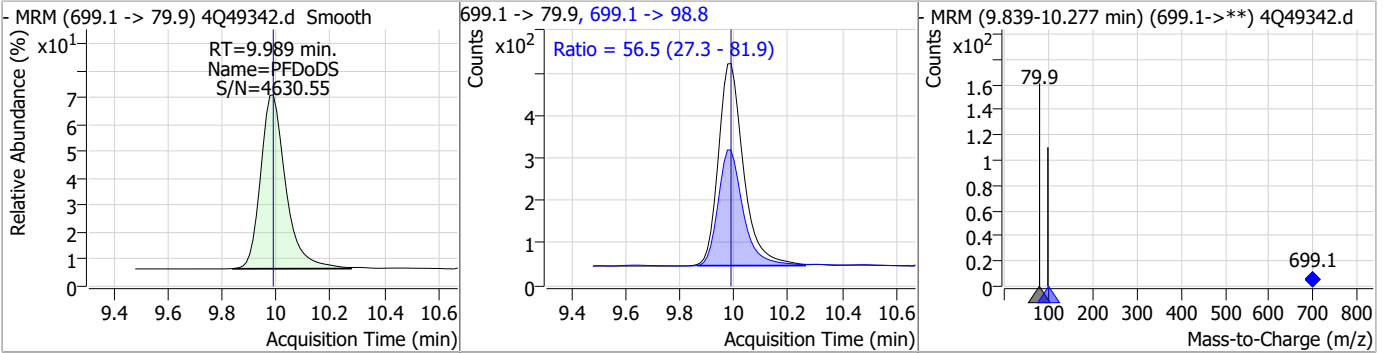
### Perfluorinated Compounds by LC/MS/MS



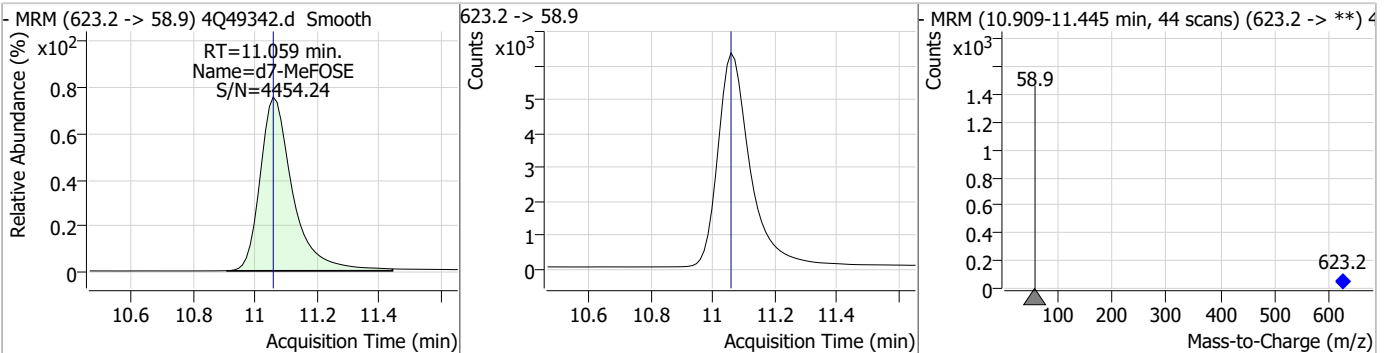
7.3.1  
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### Perfluorinated Compounds by LC/MS/MS

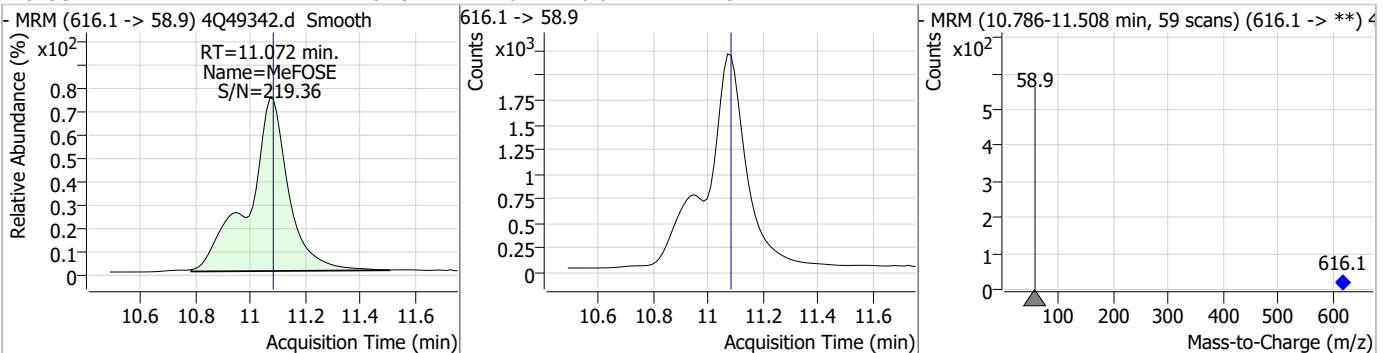
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.40	9.99	0.00	3083	699.1 -> 98.8	56.5	27.3	81.9



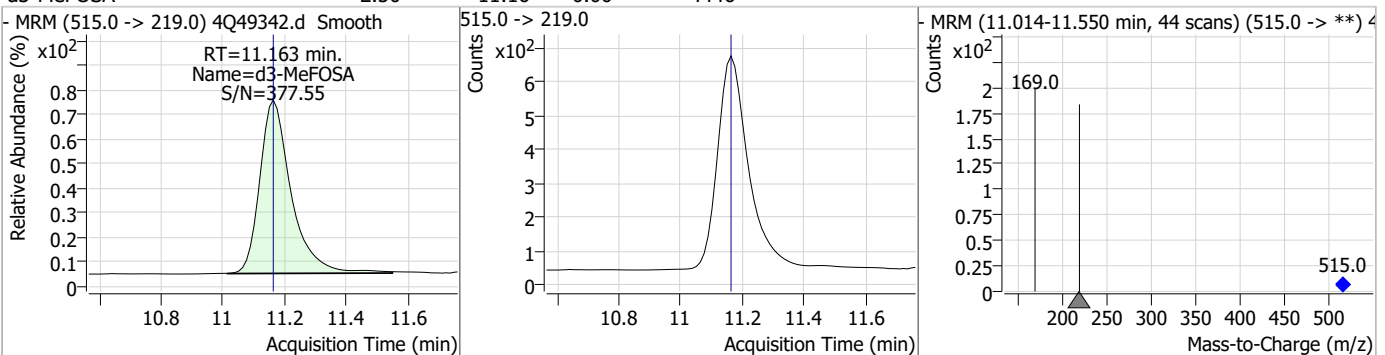
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	21.78	11.06	0.00	46333				



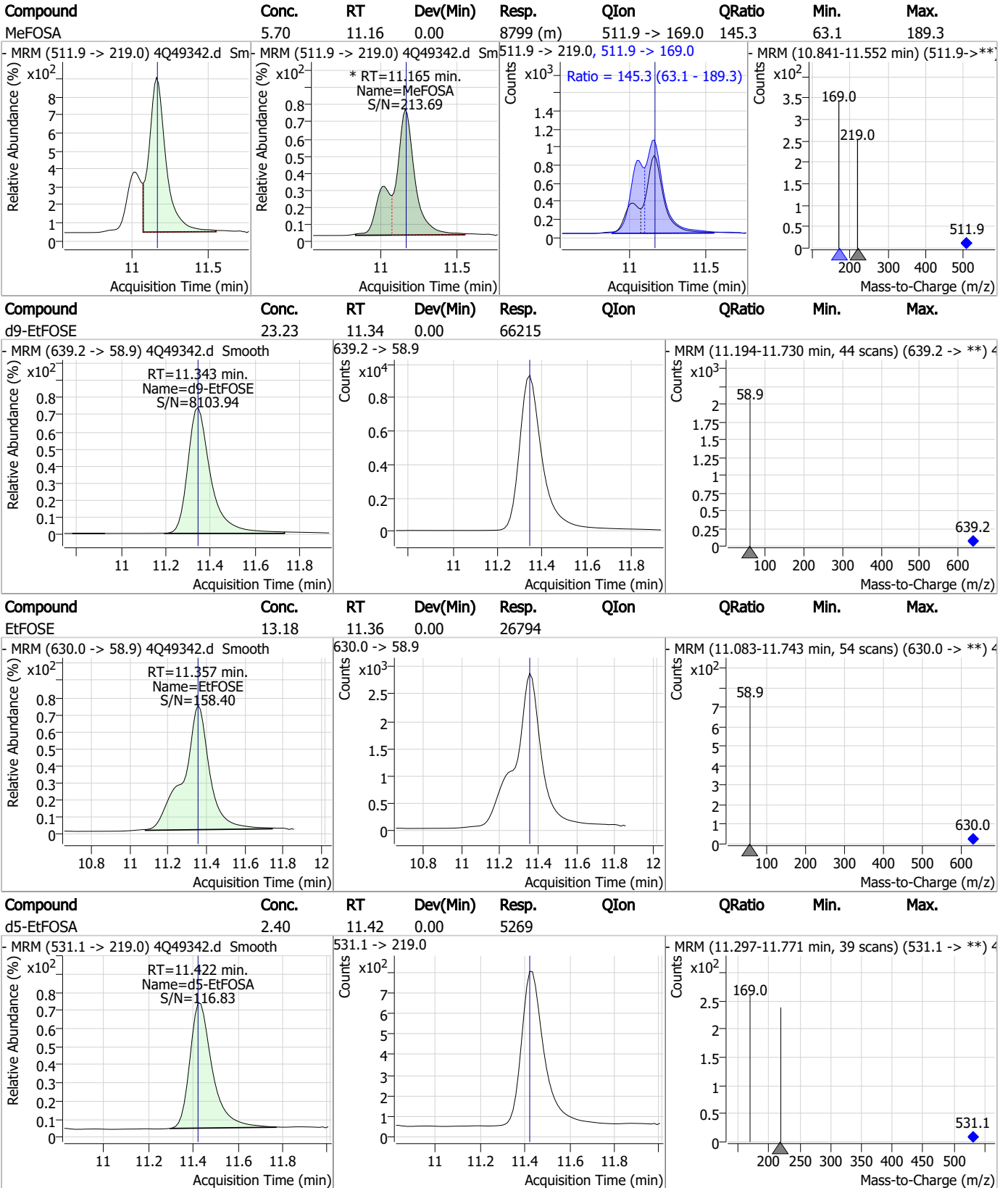
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	13.49	11.07	-0.01	22182				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.50	11.16	0.00	4446				



### Perfluorinated Compounds by LC/MS/MS

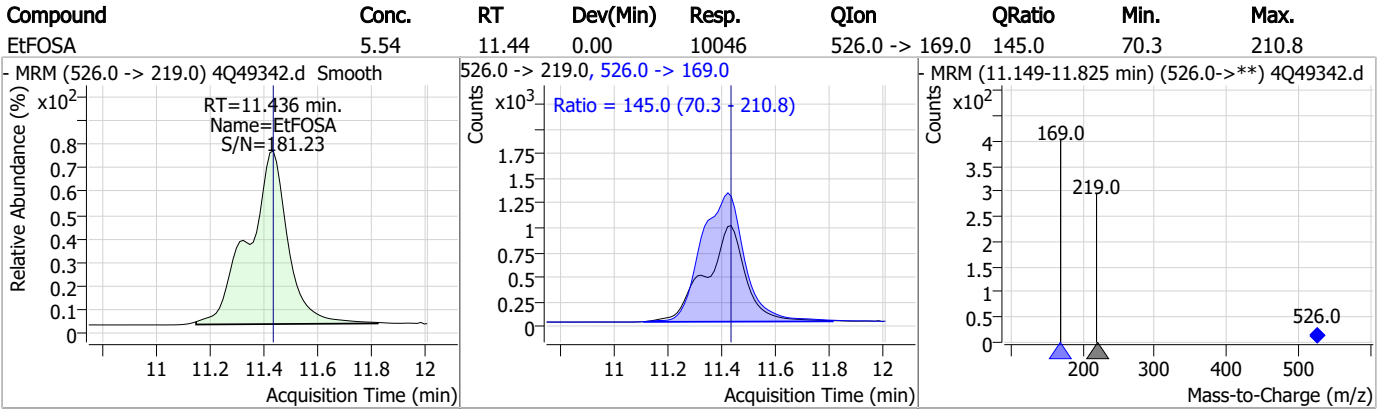


7.3.1

7



### Perfluorinated Compounds by LC/MS/MS



7.3.1

7

# Manual Integration Approval Summary

Sample Number: OP98526-BS                      Method: EPA DRAFT 1633  
Lab FileID: 4Q49342.D                      Analyst approved: 08/24/23 14:08 Anna Ludwig  
Injection Time: 08/23/23 11:20                      Supervisor approved: 08/24/23 16:15 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
MeFOSAA	2355-31-9		8.26	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.32	Split peak
EtFOSAA	2991-50-6		8.47	Split peak
MeFOSA	31506-32-8		11.16	Split peak

7.3.1.1

7



Perfluorinated Compounds by LC/MS/MS

Data File : 4Q49343.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 8/23/2023 11:35:10 AM  
 Sample Name : OP98526-LLBS:3  
 Vial : P3-E2  
 DA Method File : 1633\_082223\_S4Q722.quantmethod.xml  
 Batch Name : s4q723.batch.bin  
 Sample Information : OP98526,S4Q723,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.861	216.8 -> 171.9	108176	10.00 µg/L	0.050
M5-PFPeA	4.337	268.3 -> 223.0	58014	5.00 µg/L	0.025
M5-PFHxA	5.522	318.0 -> 273.0	39028	2.50 µg/L	0.012
M4-PFHpA	6.479	367.1 -> 322.0	27387	2.50 µg/L	0.012
M8-PFOA	7.148	421.1 -> 376.0	43289	2.50 µg/L	0.000
M9-PFNA	7.695	472.1 -> 427.0	16584	1.25 µg/L	0.000
M6-PFDA	8.191	519.1 -> 474.1	13116	1.25 µg/L	0.000
M7-PFUnDA	8.660	570.0 -> 525.1	16478	1.25 µg/L	0.012
M2-PFDoDA	9.080	615.1 -> 570.0	18369	1.25 µg/L	0.000
M2-PFTeDA	9.849	715.2 -> 670.0	10909	1.25 µg/L	0.000
M8-FOSA	9.906	506.1 -> 77.8	8517	2.50 µg/L	0.012
M3-PFBS	5.402	302.1 -> 79.9	10851	2.50 µg/L	0.011
M3-PFHxS	7.229	402.1 -> 79.9	7589	2.50 µg/L	0.012
M8-PFOS	8.329	507.1 -> 79.9	6730	2.50 µg/L	0.000
M2-4:2FTS	5.221	329.1 -> 80.9	1397	5.00 µg/L	0.012
M2-6:2FTS	6.924	429.1 -> 80.9	2025	5.00 µg/L	0.013
M2-8:2FTS	7.991	529.1 -> 80.9	2607	5.00 µg/L	0.000
M3-MeFOSAA	8.274	573.2 -> 419.0	11035	5.00 µg/L	0.012
M3-HFPO-DA	5.889	286.9 -> 168.9	29220	10.00 µg/L	0.012
M5-EtFOSAA	8.471	589.2 -> 419.0	9370	5.00 µg/L	0.000
M7-MeFOSE	11.059	623.2 -> 58.9	39644	25.00 µg/L	0.000
M9-EtFOSE	11.343	639.2 -> 58.9	60014	25.00 µg/L	0.000
M5-EtFOSA	11.422	531.1 -> 219.0	4662	2.50 µg/L	0.000
M3-MeFOSA	11.163	515.0 -> 219.0	4029	2.50 µg/L	0.000
13C4-PFOS	8.330	502.8 -> 79.9	5623	2.50 µg/L	0.000
13C3-PFBA	2.853	216.0 -> 172.0	51023	5.00 µg/L	0.050
18O2-PFHxS	7.228	403.0 -> 83.9	4786	2.50 µg/L	0.000
13C4-PFOA	7.149	417.1 -> 372.0	40821	2.50 µg/L	0.000
13C2-PFDA	8.192	515.1 -> 470.1	9494	1.25 µg/L	0.000
13C5-PFNA	7.696	468.0 -> 423.0	13451	1.25 µg/L	0.000
13C2-PFHxA	5.523	315.1 -> 270.0	30829	2.50 µg/L	0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.221	329.1 -> 80.9	1397	6.43 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 128.6%		
13C2-6:2FTS	6.924	429.1 -> 80.9	2025	6.56 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 131.2%		
13C2-8:2FTS	7.991	529.1 -> 80.9	2607	5.24 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.8%		
13C2-PFDoDA	9.080	615.1 -> 570.0	18369	1.47 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 117.2%		
13C2-PFTeDA	9.849	715.2 -> 670.0	10909	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C3-PFBS	5.402	302.1 -> 79.9	10851	2.93 µg/L	0.011
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 117.4%		
13C3-PFHxS	7.229	402.1 -> 79.9	7589	2.82 µg/L	0.012

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

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.8%	
13C4-PFBA	2.861	216.8 -> 171.9	108176	11.92 µg/L	0.050
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 119.2%	
13C4-PFHpA	6.479	367.1 -> 322.0	27387	3.12 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 124.9%	
13C5-PFHxA	5.522	318.0 -> 273.0	39028	3.01 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 120.3%	
13C5-PFPeA	4.337	268.3 -> 223.0	58014	6.03 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 120.6%	
13C6-PFDA	8.191	519.1 -> 474.1	13116	1.62 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 129.4%	
13C7-PFUnDA	8.660	570.0 -> 525.1	16478	1.49 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 119.5%	
13C8-FOSA	9.906	506.1 -> 77.8	8517	2.25 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.9%	
13C8-PFOA	7.148	421.1 -> 376.0	43289	3.02 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 120.8%	
13C8-PFOS	8.329	507.1 -> 79.9	6730	2.91 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 116.6%	
13C9-PFNA	7.695	472.1 -> 427.0	16584	1.62 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 129.8%	
d3-MeFOSAA	8.274	573.2 -> 419.0	11035	5.61 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.2%	
13C3-HFPO-DA	5.889	286.9 -> 168.9	29220	11.74 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 117.4%	
d3-MeFOSA	11.163	515.0 -> 219.0	4029	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.0%	
d5-EtFOSAA	8.471	589.2 -> 419.0	9370	5.70 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 113.9%	
d7-MeFOSE	11.059	623.2 -> 58.9	39644	19.12 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 76.5%	
d9-EtFOSE	11.343	639.2 -> 58.9	60014	21.60 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 86.4%	
d5-EtFOSA	11.422	531.1 -> 219.0	4662	2.18 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.1%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.222	327.1 -> 307.0	4604	2.88 µg/L	98
		327.1 -> 80.9	2069		
6:2FTS	6.924	427.1 -> 407.0	4713	3.19 µg/L	97
		427.1 -> 80.9	1865		
8:2FTS	7.991	527.1 -> 507.0	3704	3.62 µg/L	94
		527.1 -> 80.8	1660		
EtFOSAA	8.484	584.2 -> 419.1	1242	0.93 µg/L	m 84
		584.2 -> 526.0	602		
FOSA	9.898	498.1 -> 77.9	1946	0.82 µg/L	99
		498.1 -> 478.0	49		
MeFOSAA	8.274	570.1 -> 419.0	1217	0.77 µg/L	m 84
		570.1 -> 483.0	149		
PFBA	2.857	212.8 -> 168.9	7535	3.24 µg/L	100
PFBS	5.392	298.7 -> 79.9	2261	0.72 µg/L	96
		298.7 -> 98.8	990		
PFDA	8.192	512.9 -> 469.0	5273	0.70 µg/L	92
		512.9 -> 219.0	982		
PFDODA	9.081	613.1 -> 569.0	8996	0.82 µg/L	99
		613.1 -> 319.0	1479		
PFDS	9.232	599.0 -> 79.9	1343	0.83 µg/L	94

7.3.2  
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.480	599.0 -> 98.8	669	0.78	µg/L	97
		363.1 -> 319.0	10377			
PFHpS	7.810	363.1 -> 169.0	2037	0.83	µg/L	100
		449.0 -> 79.9	1902			
PFHxA	5.525	449.0 -> 98.9	988	0.82	µg/L	98
		313.0 -> 269.0	9810			
PFHxS	7.229	313.0 -> 118.9	370	0.67	µg/L	m
		398.7 -> 79.9	1428			
PFNA	7.696	398.7 -> 98.9	864	0.79	µg/L	97
		463.0 -> 419.0	6608			
PFNS	8.799	463.0 -> 219.0	1631	0.79	µg/L	89
		548.8 -> 79.9	999			
PFOA	7.150	548.8 -> 98.9	627	0.71	µg/L	99
		413.0 -> 369.0	11608			
PFOS	8.331	413.0 -> 169.0	2707	0.74	µg/L	m
		498.9 -> 79.9	1866			
PFPeA	4.339	498.9 -> 98.8	1204	1.62	µg/L	100
		263.0 -> 219.0	16643			
PFPeS	6.482	349.1 -> 79.9	1524	0.80	µg/L	93
		349.1 -> 98.9	769			
PFTeDA	9.849	713.1 -> 669.0	6648	0.82	µg/L	96
		713.1 -> 168.9	526			
PFTrDA	9.491	663.0 -> 619.0	8870	0.73	µg/L	99
		663.0 -> 168.9	1055			
PFUnDA	8.660	563.1 -> 519.0	6324	0.83	µg/L	94
		563.1 -> 269.1	1401			
11CI-PF3OUdS	9.518	630.9 -> 450.9	9173	1.42	µg/L	98
		632.9 -> 452.9	2801			
9CI-PF3ONS	8.662	530.8 -> 351.0	9302	1.34	µg/L	99
		532.8 -> 353.0	3077			
ADONA	6.743	376.9 -> 250.9	30770	1.49	µg/L	96
		376.9 -> 84.8	10045			
HFPO-DA	5.890	284.9 -> 168.9	3811	1.61	µg/L	94
		284.9 -> 184.9	376			
3:3FTCA	3.829	241.0 -> 177.0	1560	3.07	µg/L	97
		241.0 -> 117.0	152			
5:3FTCA	6.244	341.0 -> 237.1	32341	18.95	µg/L	98
		341.0 -> 217.0	24244			
7:3FTCA	7.736	441.0 -> 316.9	14759	19.68	µg/L	97
		441.0 -> 336.9	32887			
EtFOSA	11.436	526.0 -> 219.0	2710	1.69	µg/L	m
		526.0 -> 169.0	3587			
EtFOSE	11.357	630.0 -> 58.9	6497	3.53	µg/L	100
		511.9 -> 219.0	2007			
MeFOSA	11.165	511.9 -> 169.0	2917	1.44	µg/L	m
		616.1 -> 58.9	5292			
MeFOSE	11.072	699.1 -> 79.9	829	3.76	µg/L	m
		699.1 -> 98.8	563			
PFDoDS	9.989	295.0 -> 201.0	1565	0.68	µg/L	81
		295.0 -> 84.9	348			
NFDHA	5.403	279.0 -> 85.1	9576	1.65	µg/L	90
		229.0 -> 84.9	10222			
PFMBA	4.741	314.8 -> 134.9	14607	1.54	µg/L	100
		314.8 -> 82.9	477			
PFMPA	3.465			1.40	µg/L	99
PFEESA	5.933					

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

7.3.2  
7

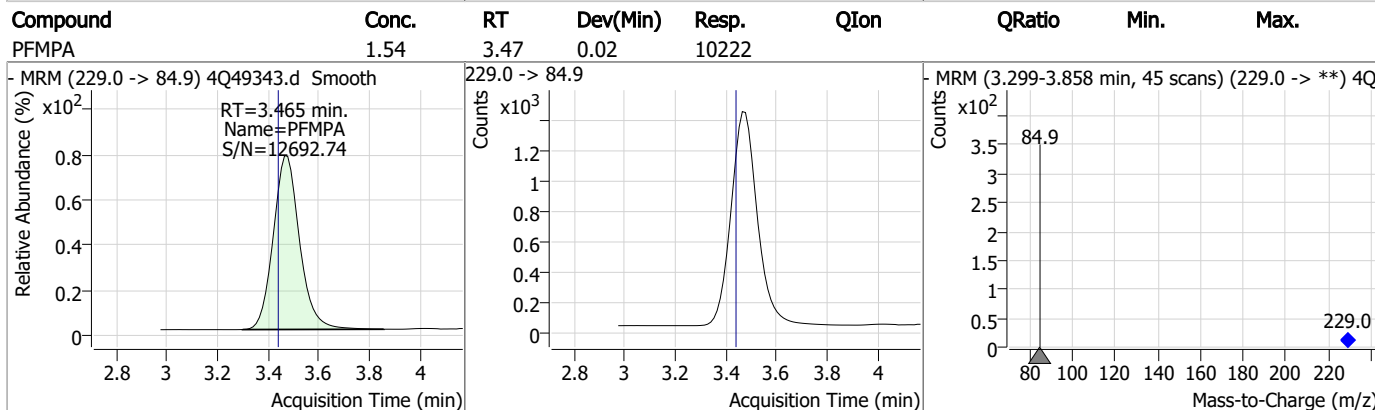
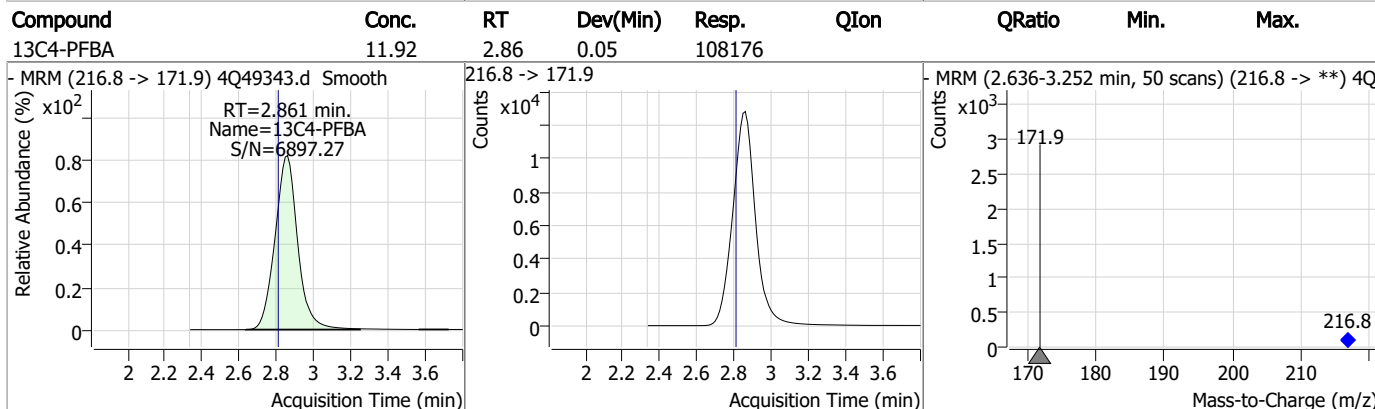
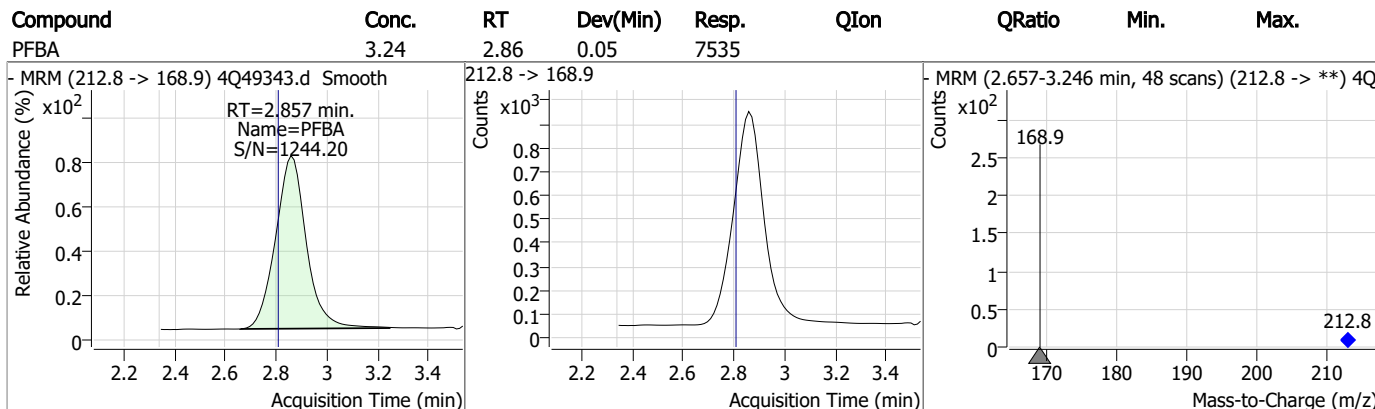
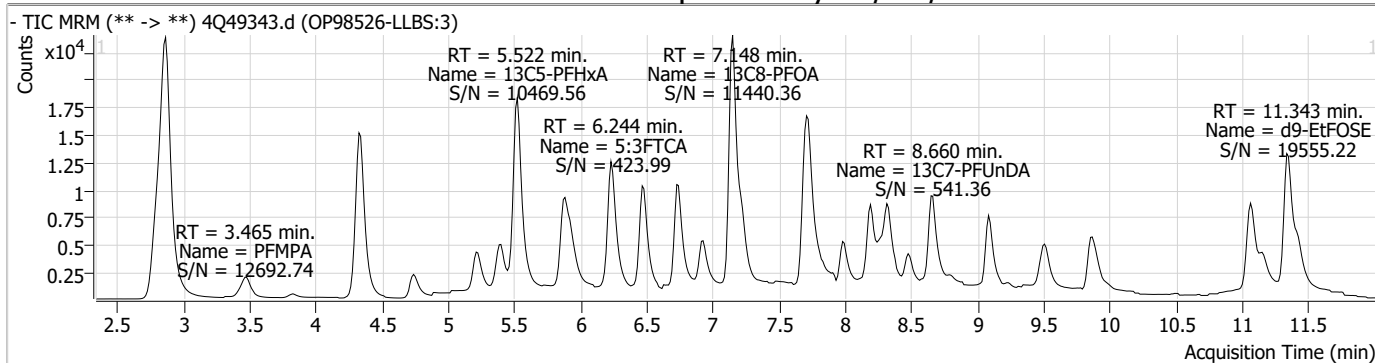
### Perfluorinated Compounds by LC/MS/MS

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

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### Perfluorinated Compounds by LC/MS/MS



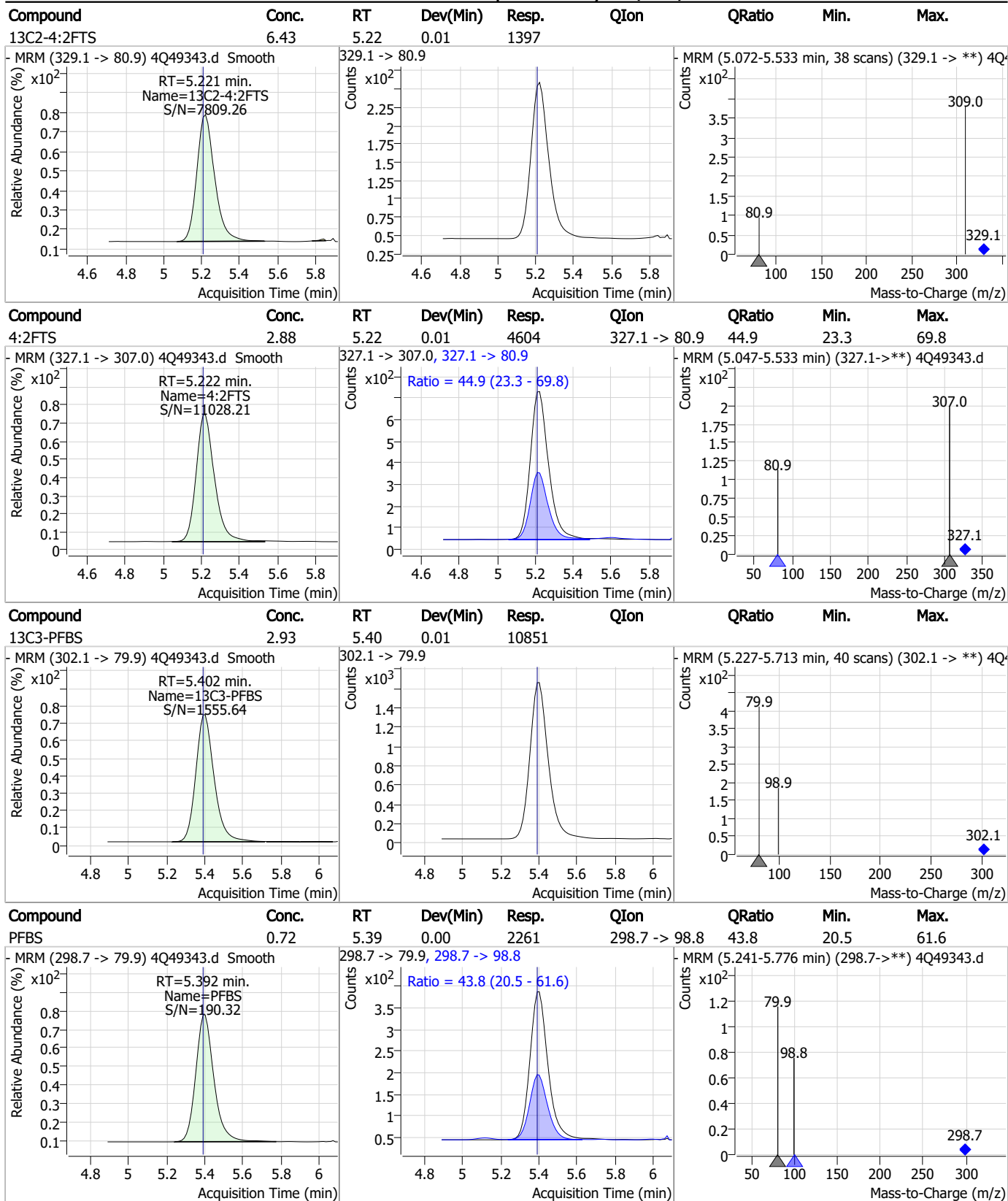
### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	3.07	3.83	0.06	1560	241.0 -> 117.0	9.7	5.3	16.0
13C5-PFPeA	6.03	4.34	0.02	58014				
PFPeA	1.62	4.34	0.02	16643				
PFMBA	1.58	4.74	0.01	9576				

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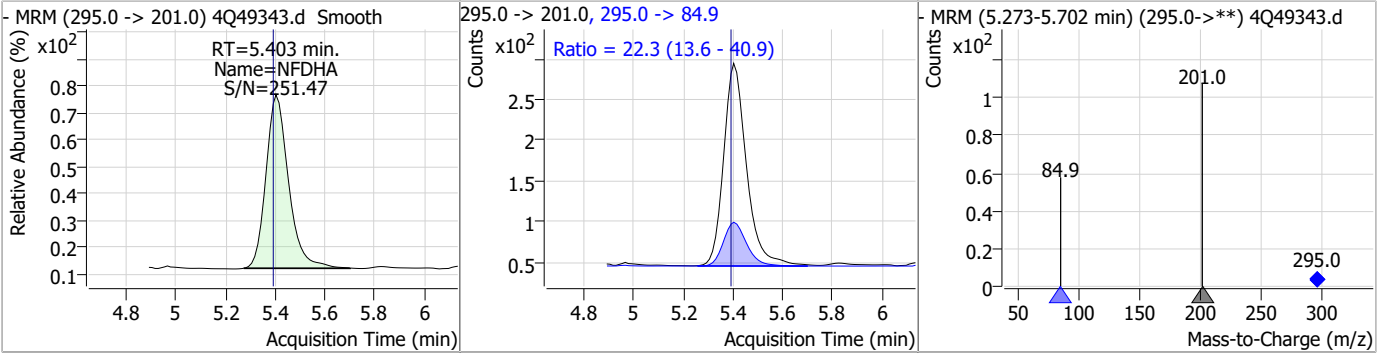
### Perfluorinated Compounds by LC/MS/MS



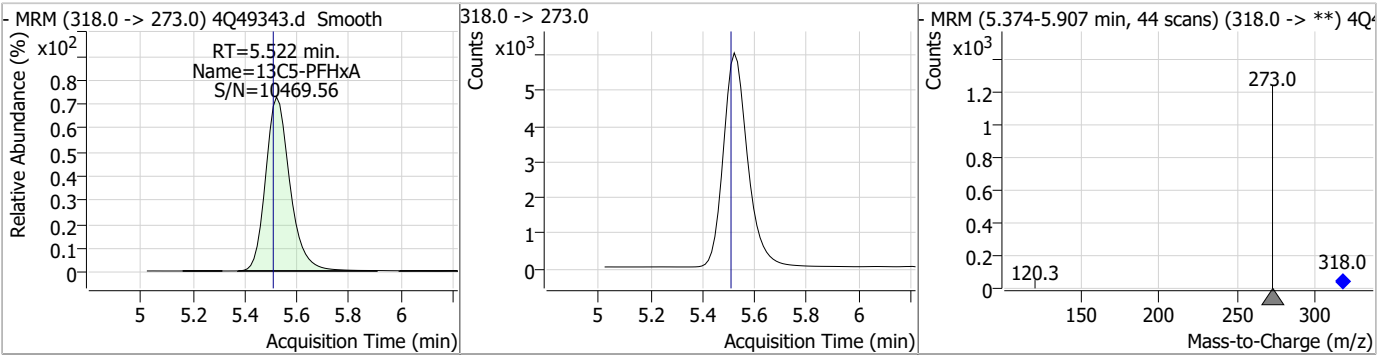
7.3.2  
7

### Perfluorinated Compounds by LC/MS/MS

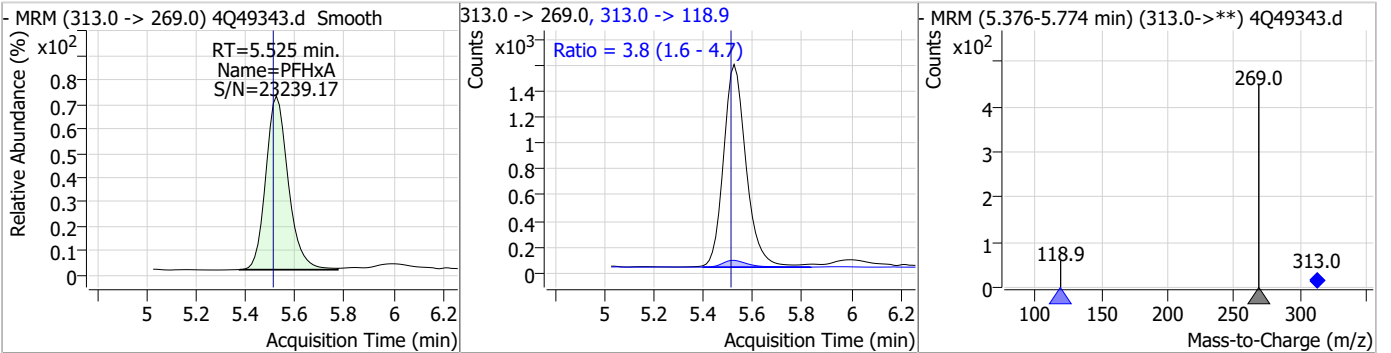
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	1.65	5.40	0.01	1565	295.0 -> 84.9	22.3	13.6	40.9



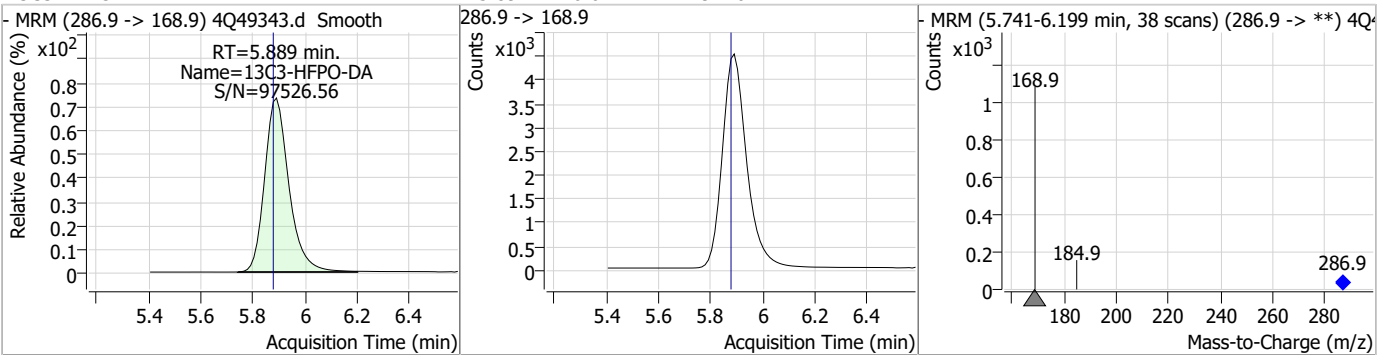
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	3.01	5.52	0.01	39028				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.82	5.52	0.01	9810	313.0 -> 118.9	3.8	1.6	4.7

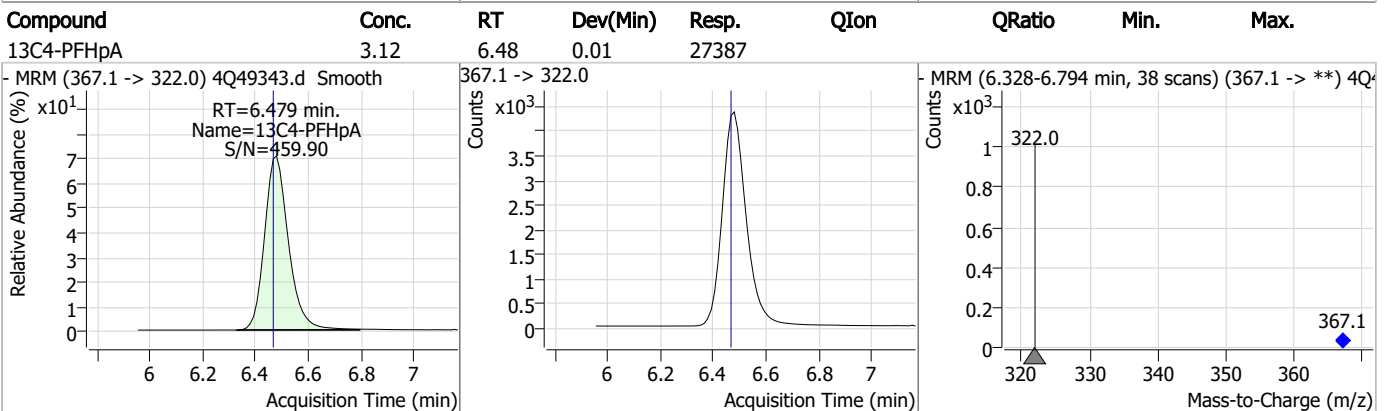
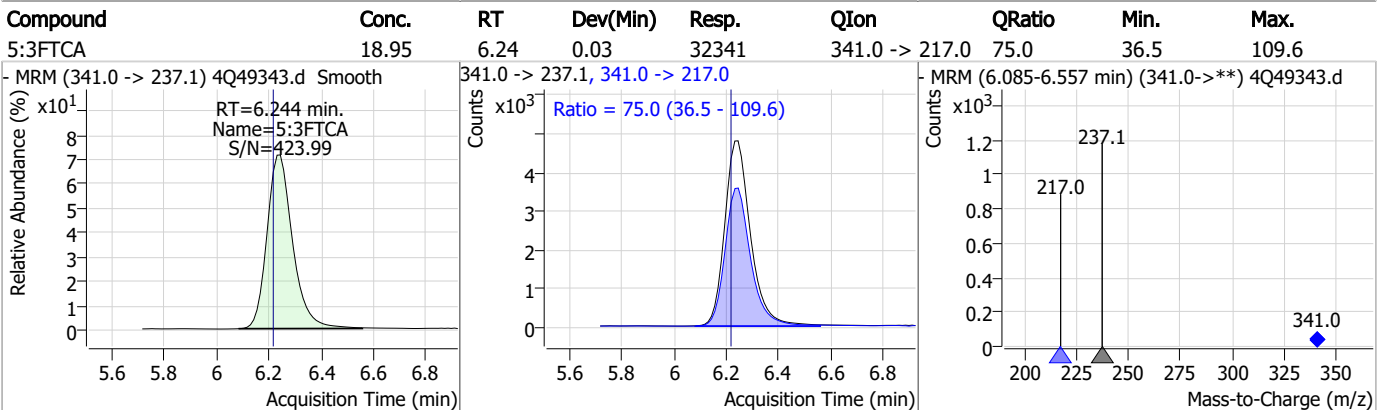
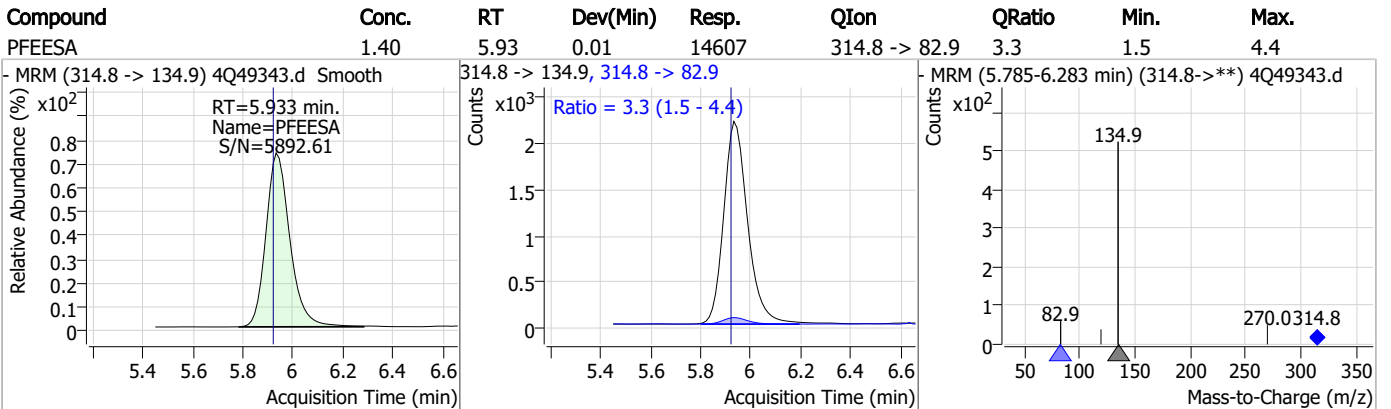
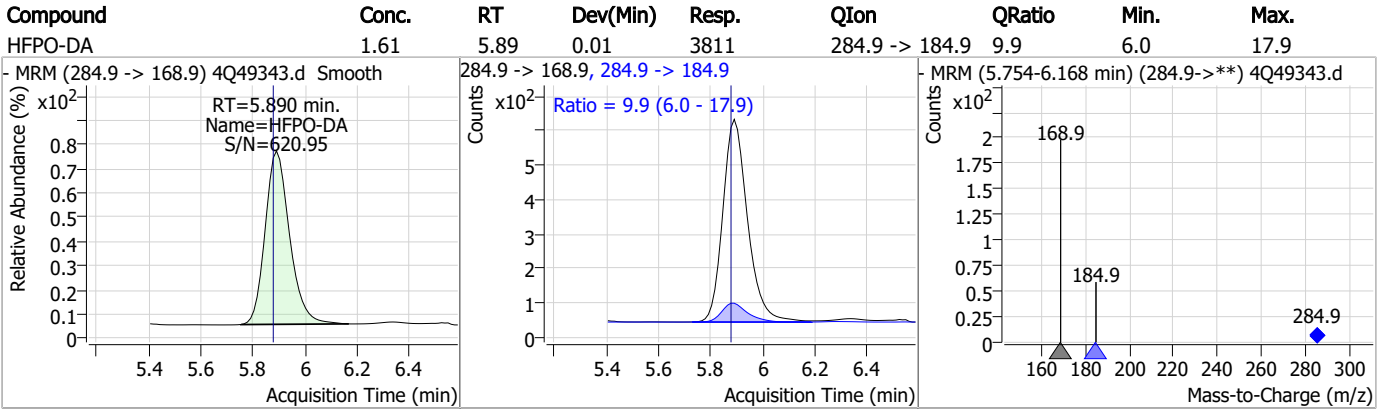


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	11.74	5.89	0.01	29220				

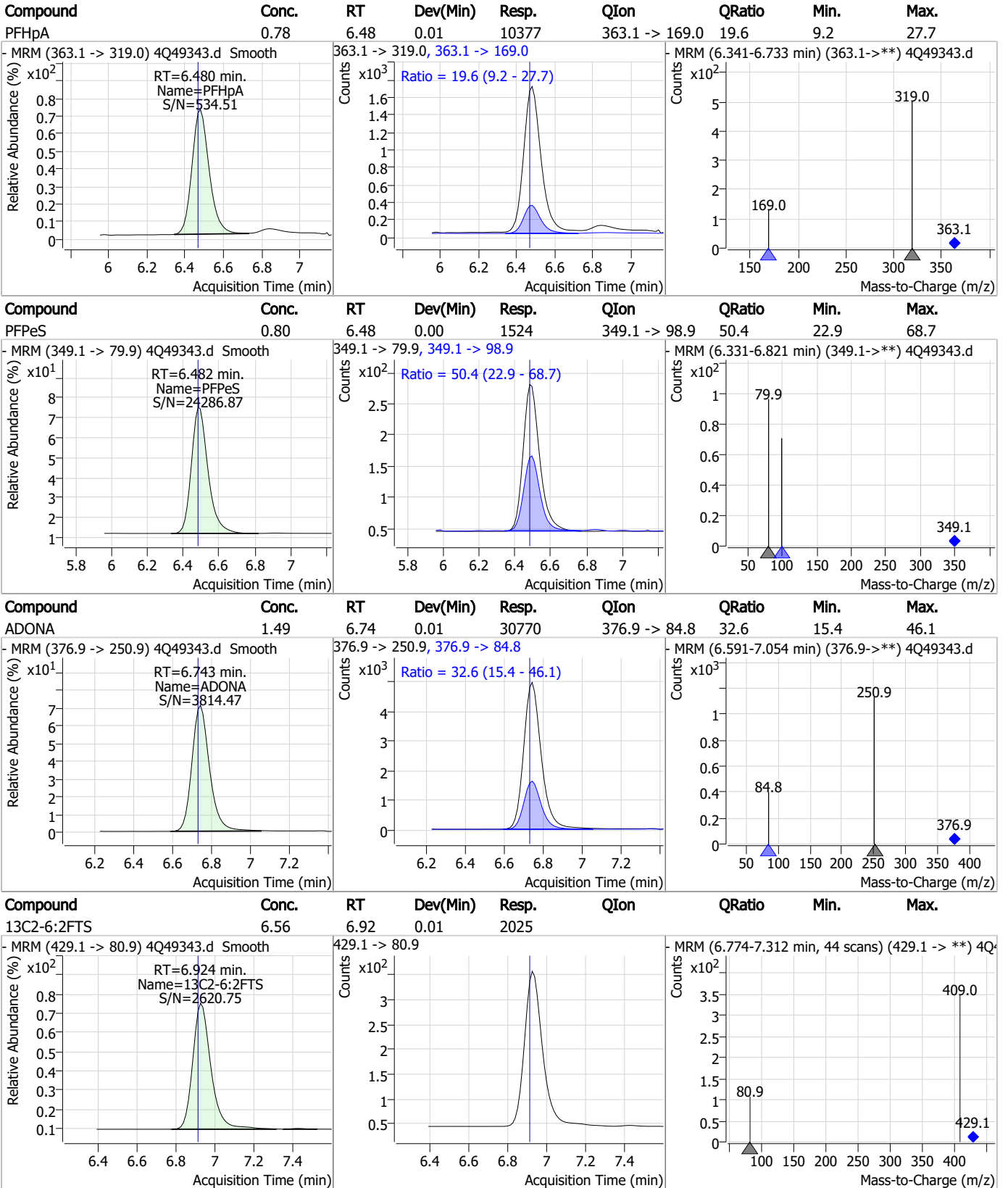




### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

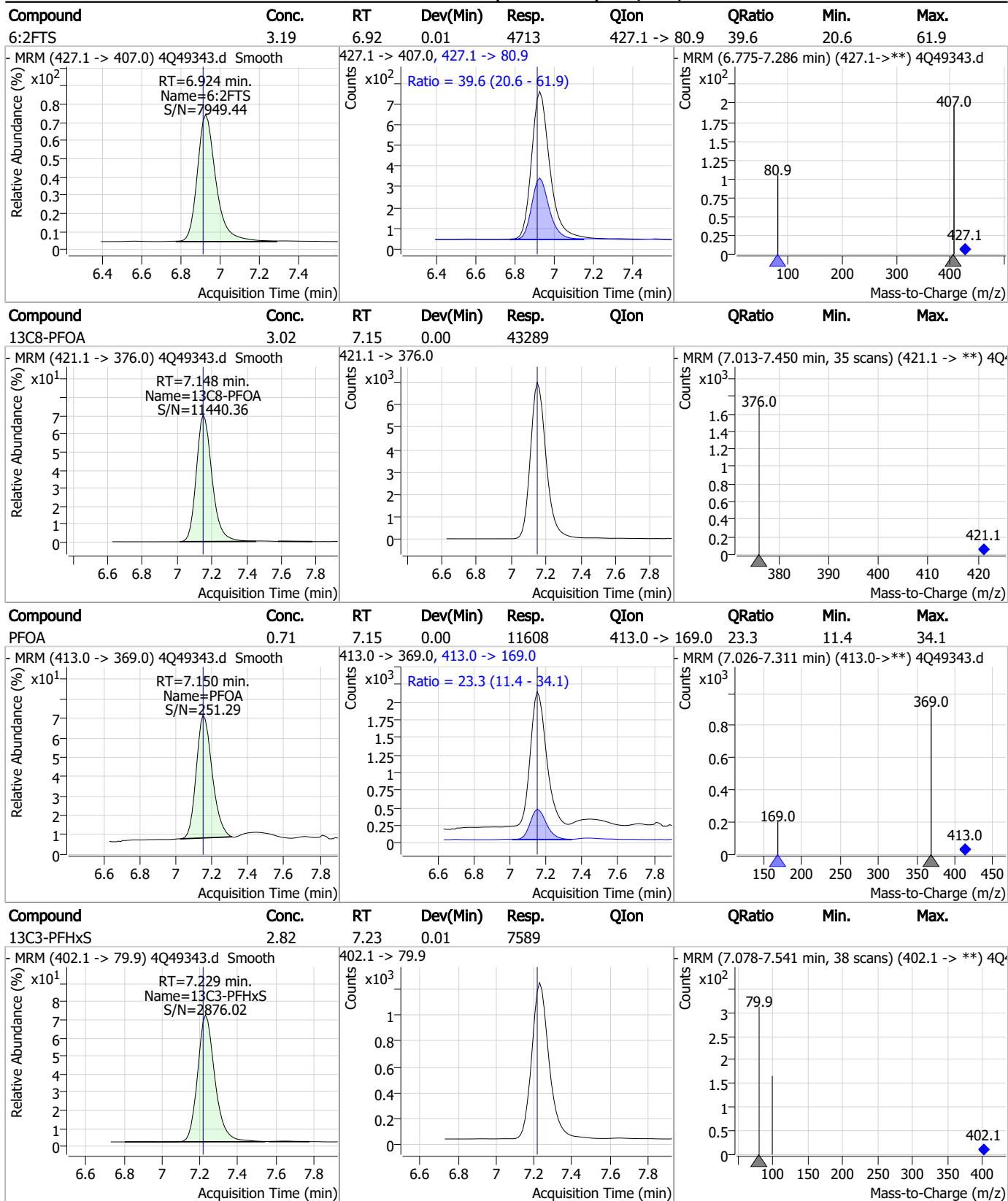


7.3.2

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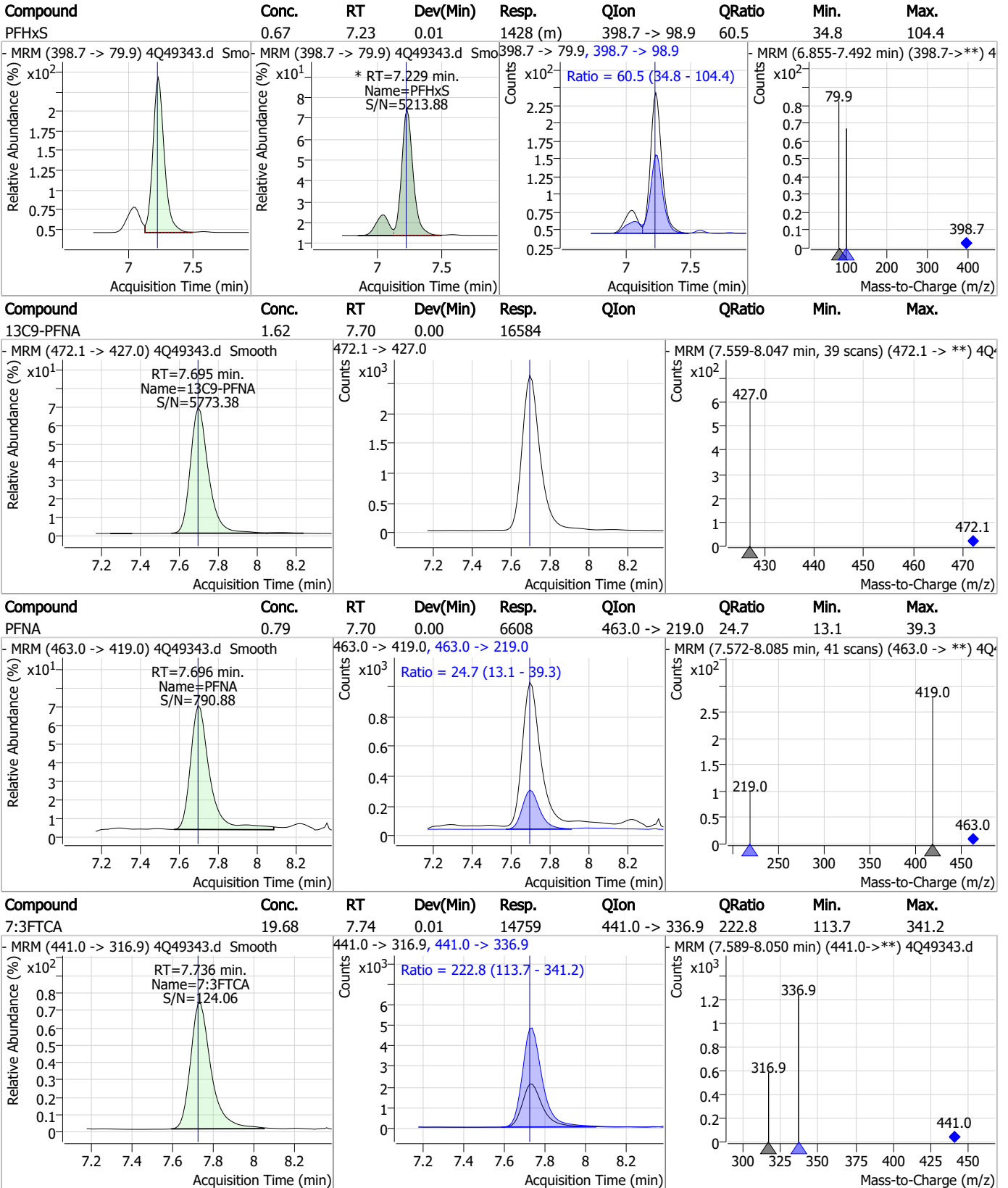


### Perfluorinated Compounds by LC/MS/MS



7.3.2  
7

### Perfluorinated Compounds by LC/MS/MS

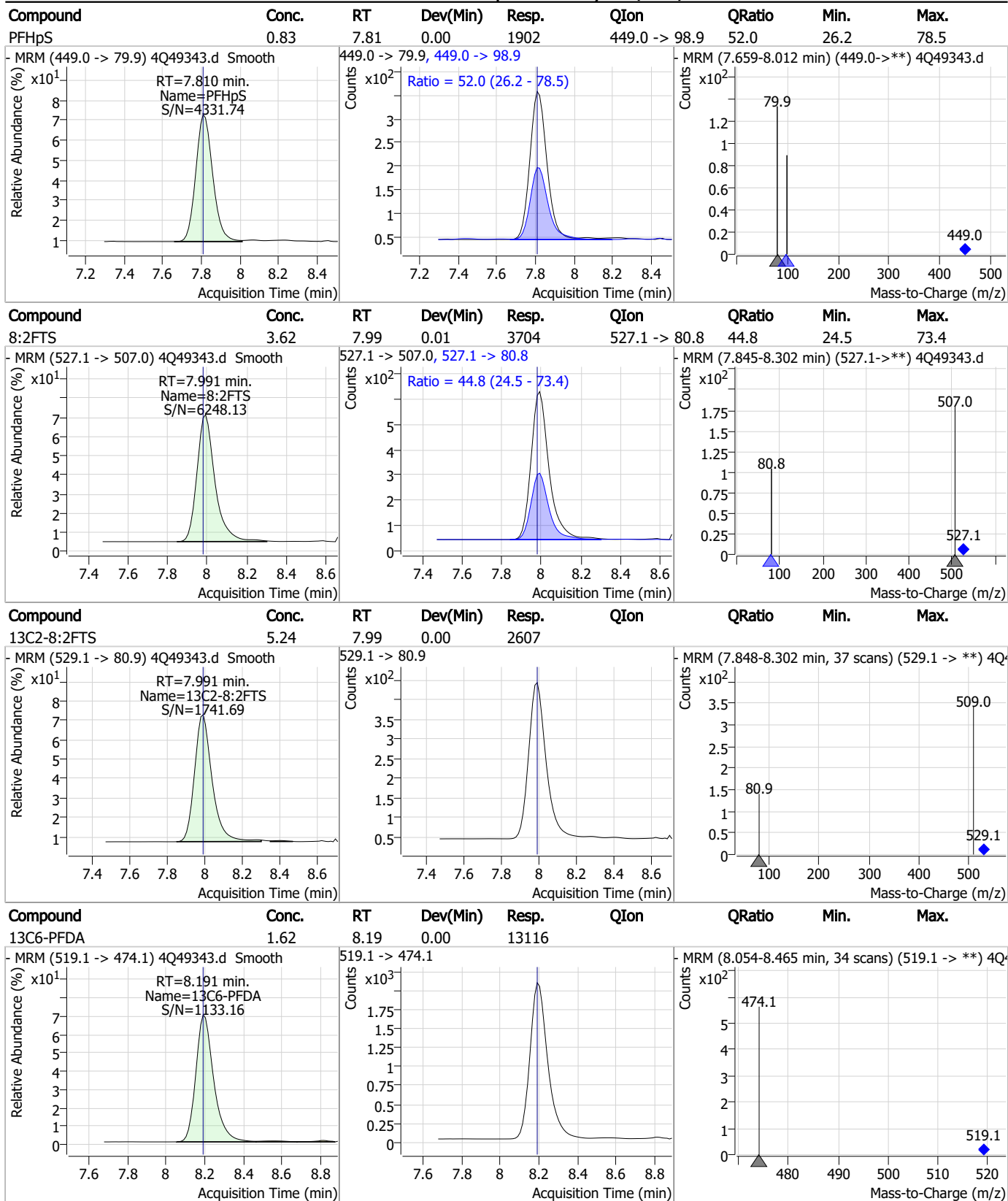


7.3.2

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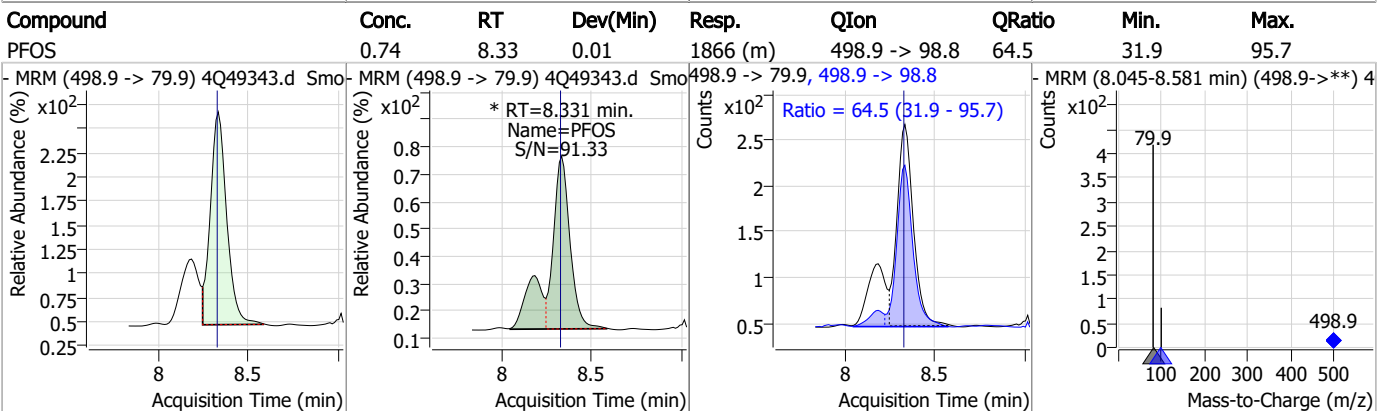
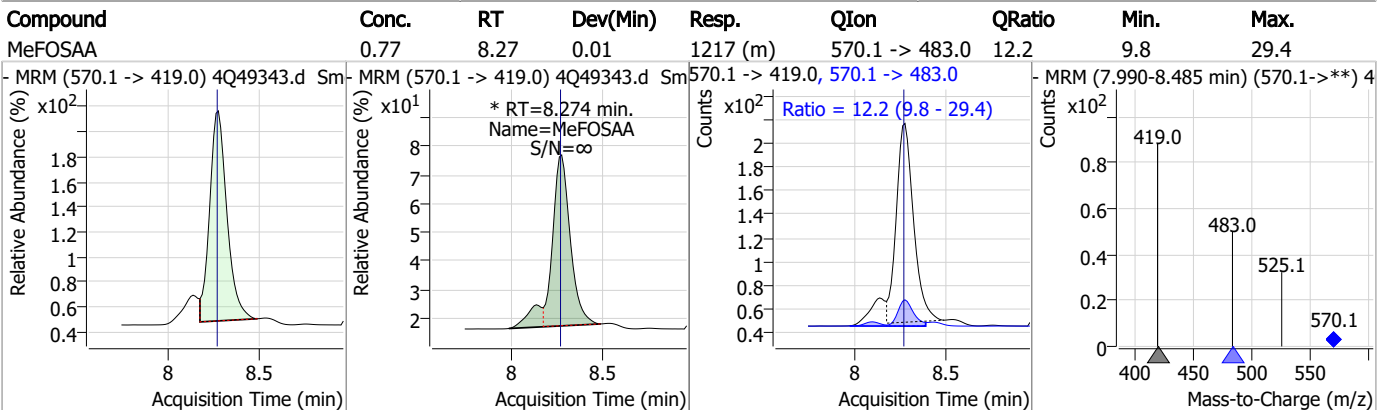
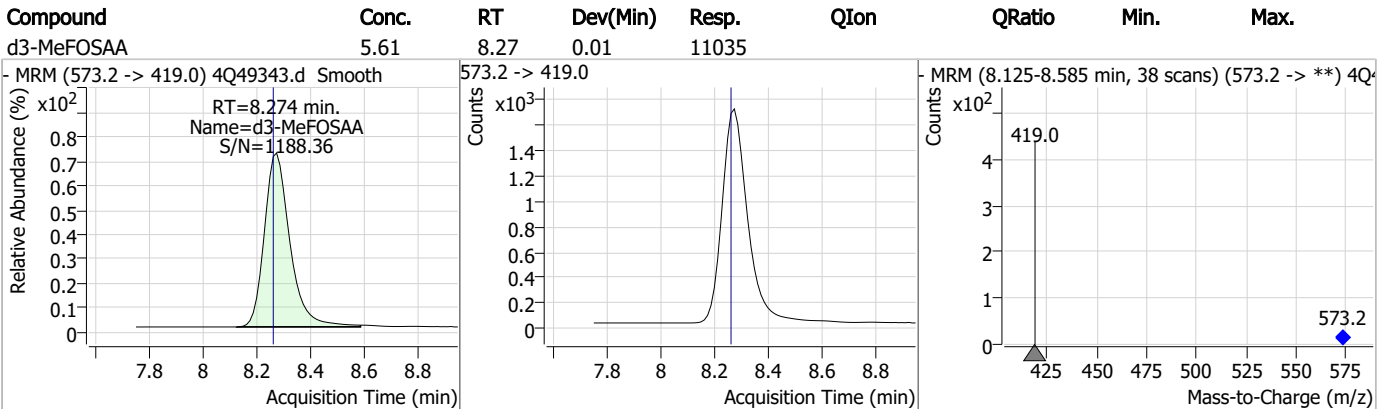
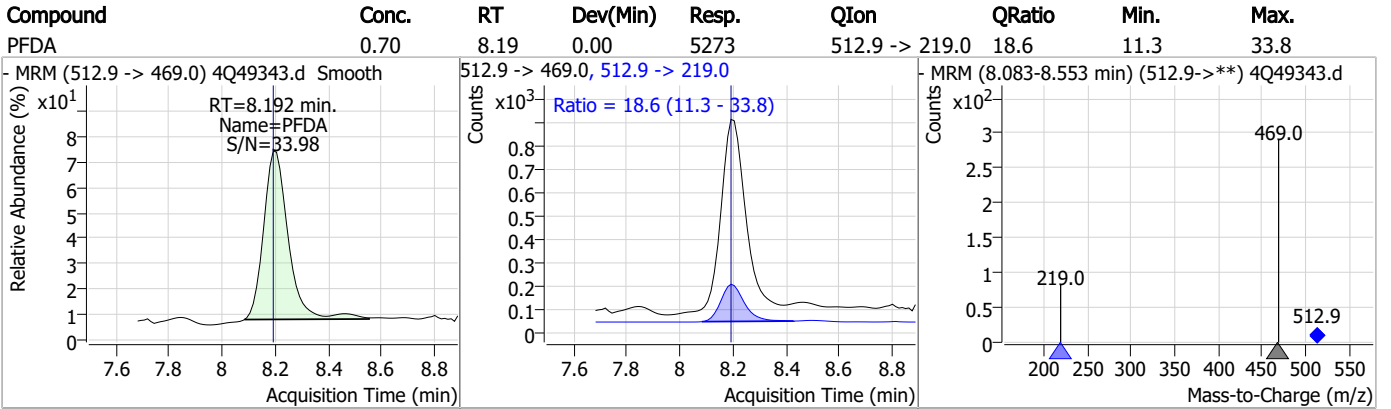


### Perfluorinated Compounds by LC/MS/MS



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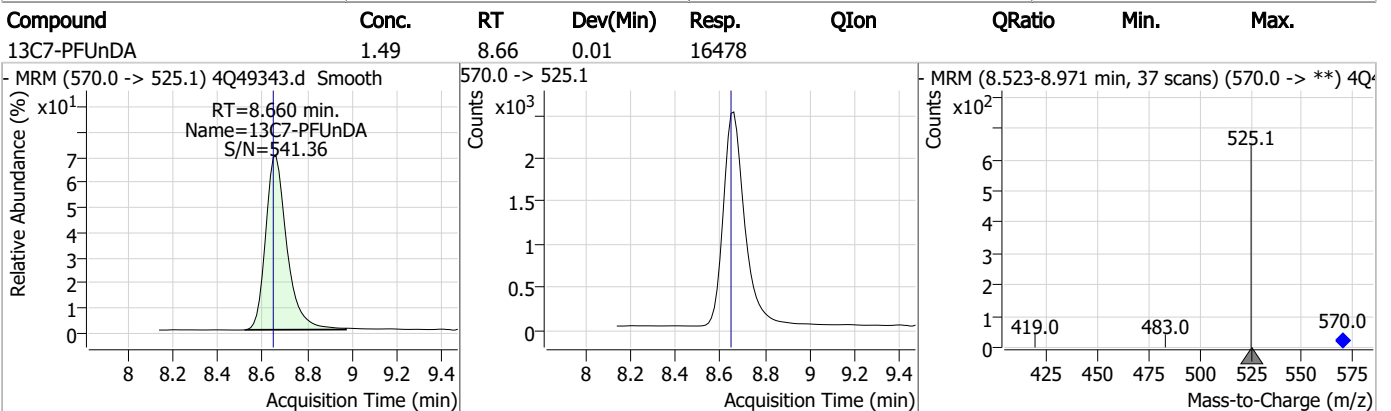
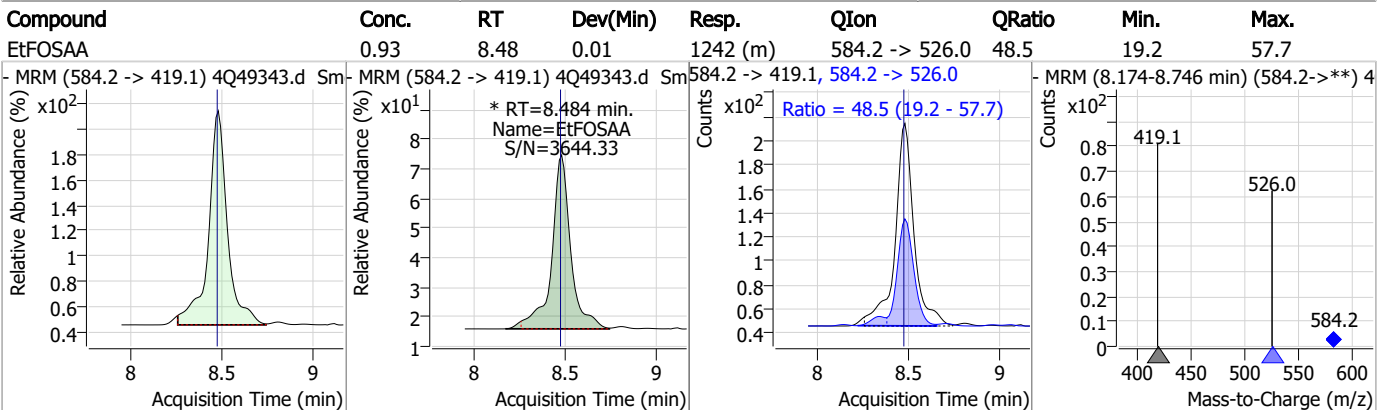
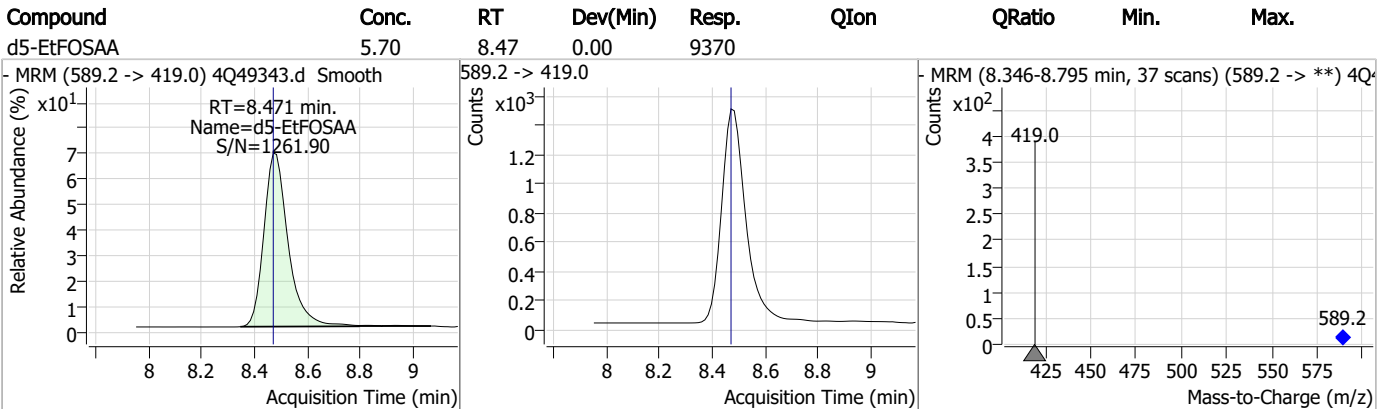
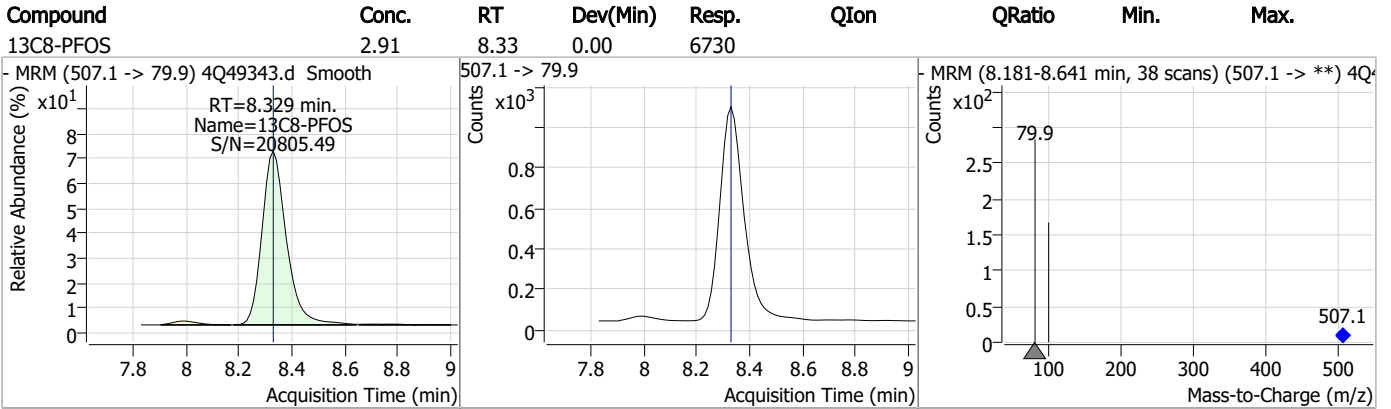
### Perfluorinated Compounds by LC/MS/MS



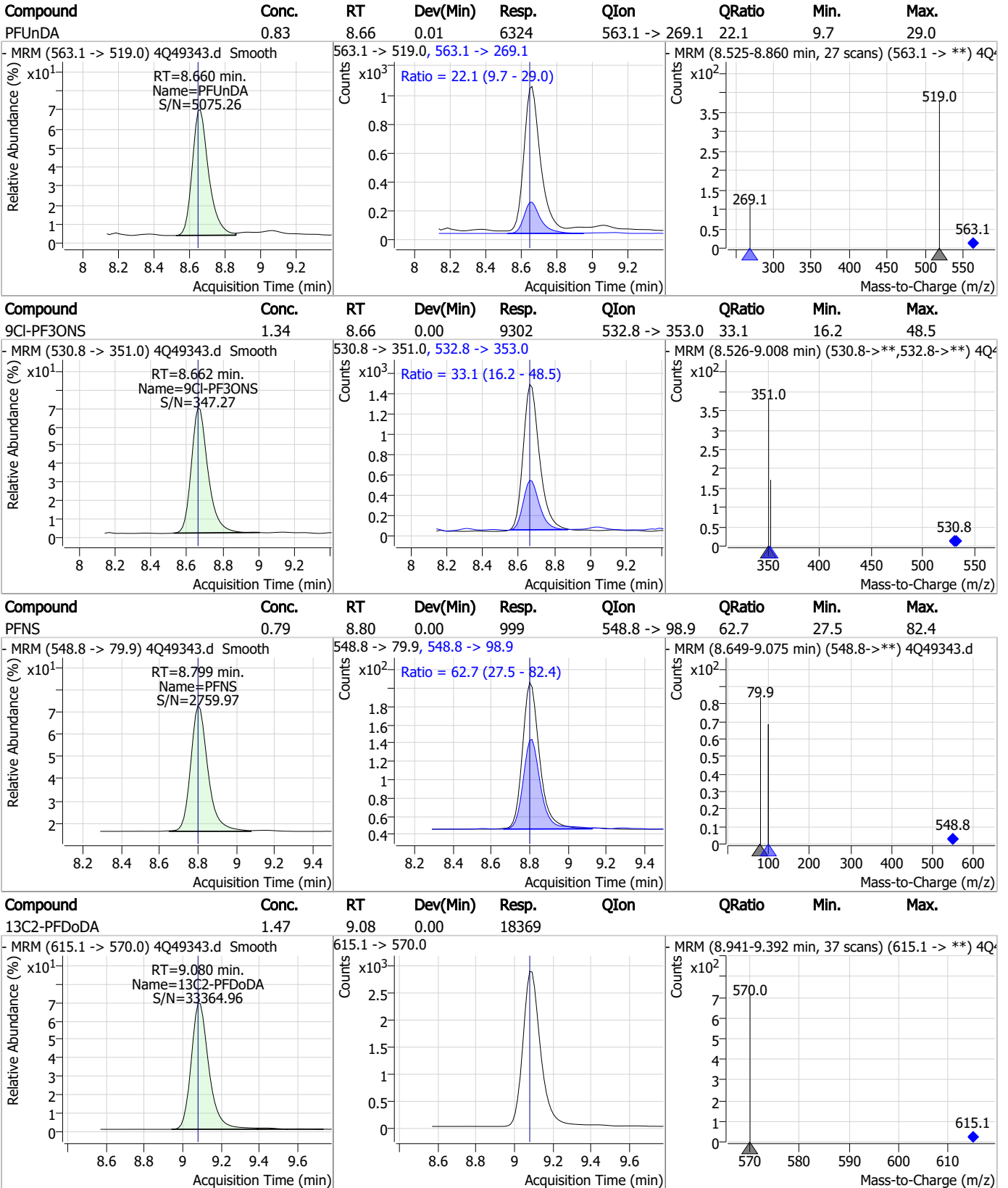
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### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

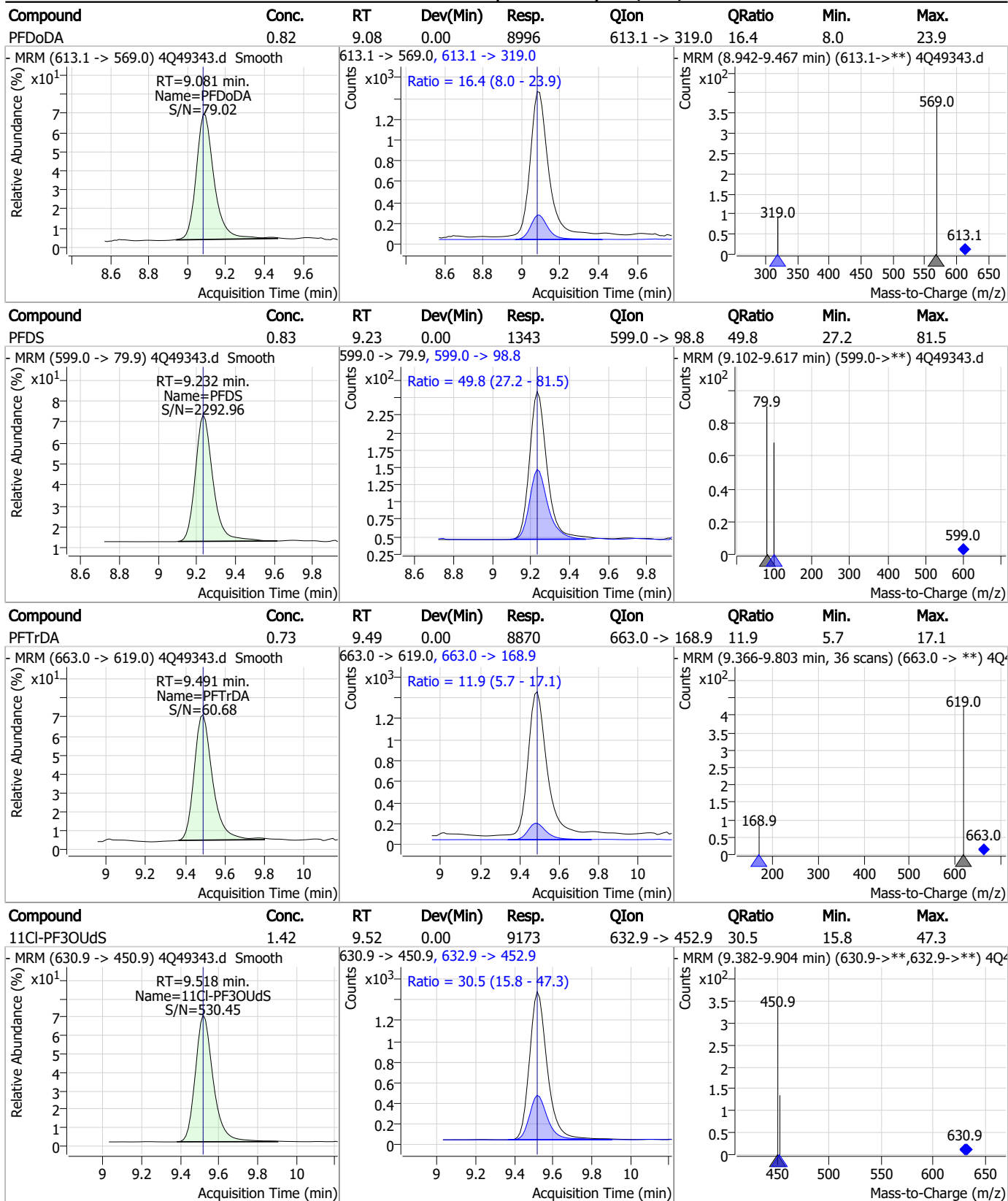


7.3.2

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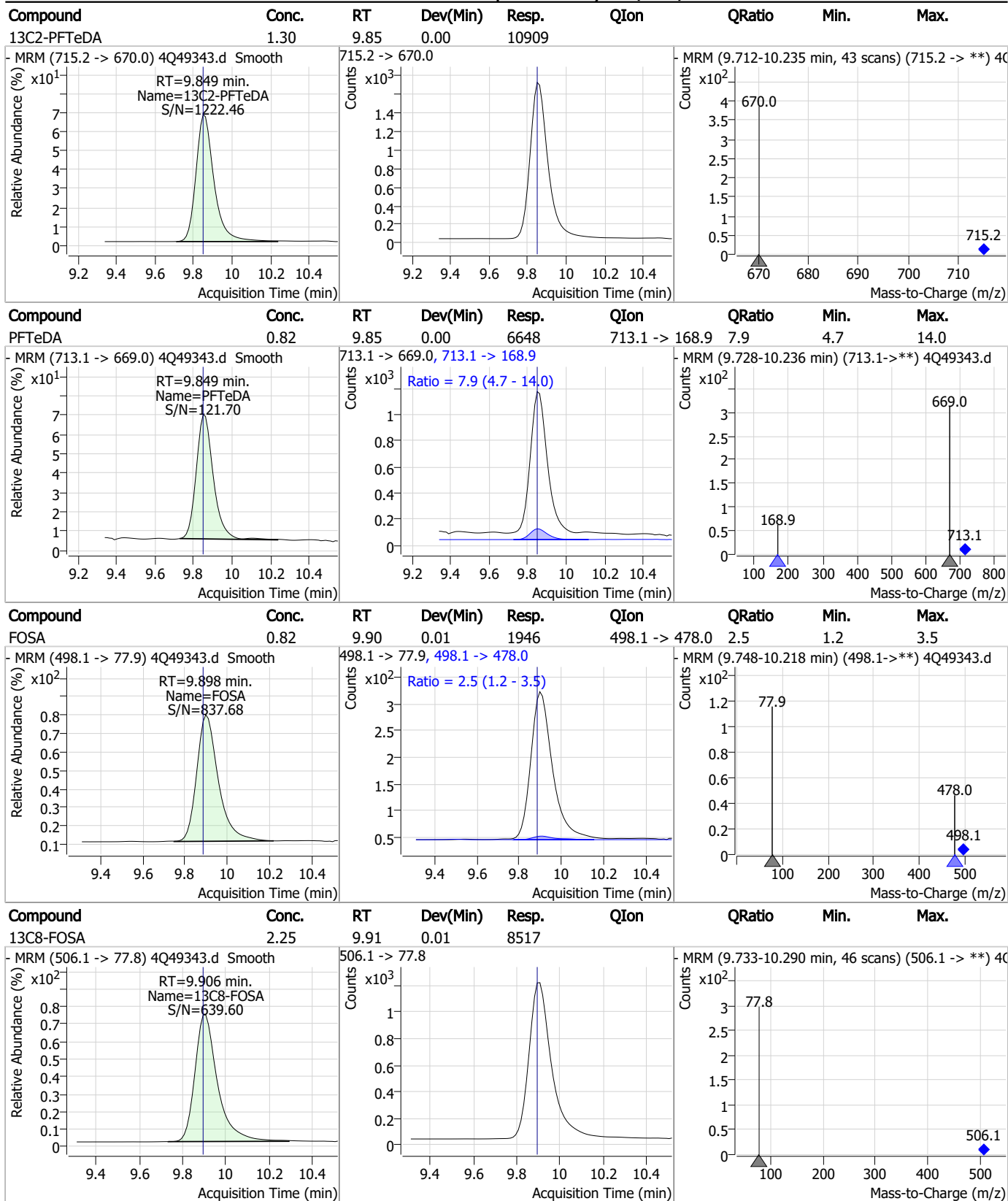


### Perfluorinated Compounds by LC/MS/MS



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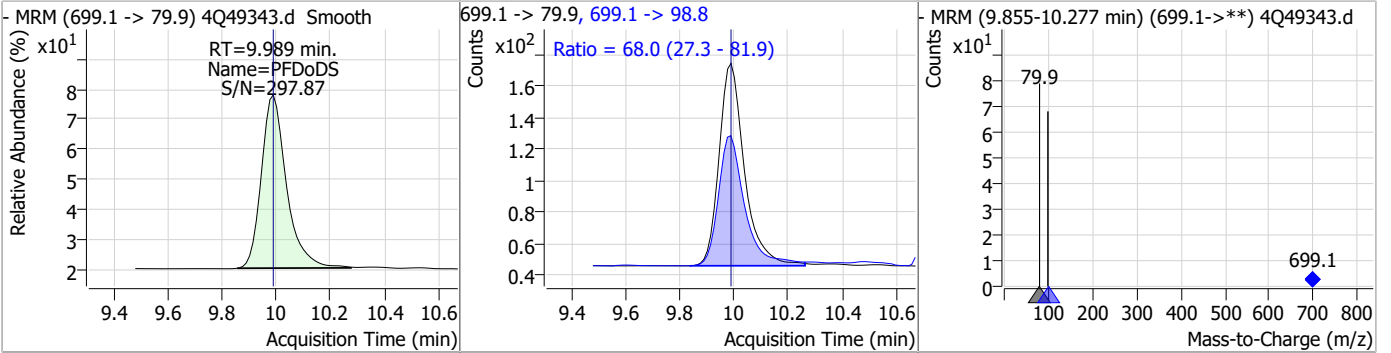
### Perfluorinated Compounds by LC/MS/MS



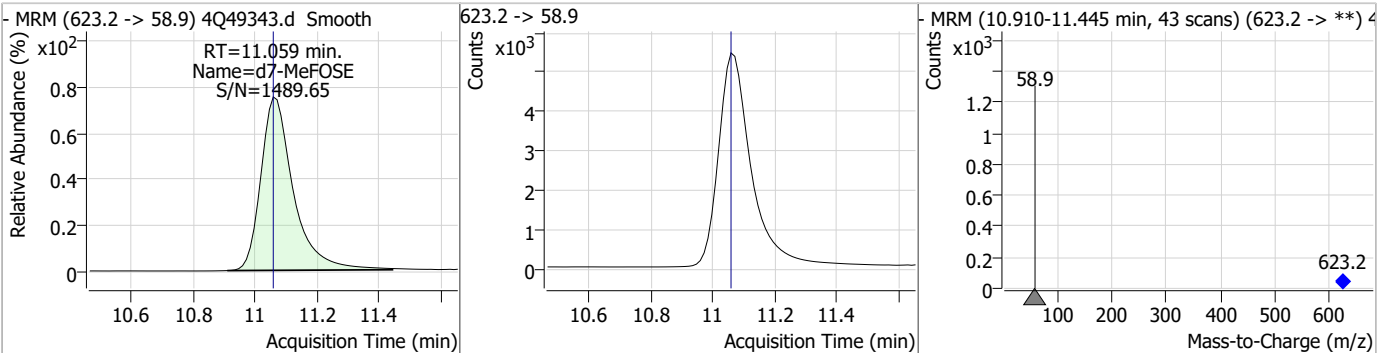
7.3.2  
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### Perfluorinated Compounds by LC/MS/MS

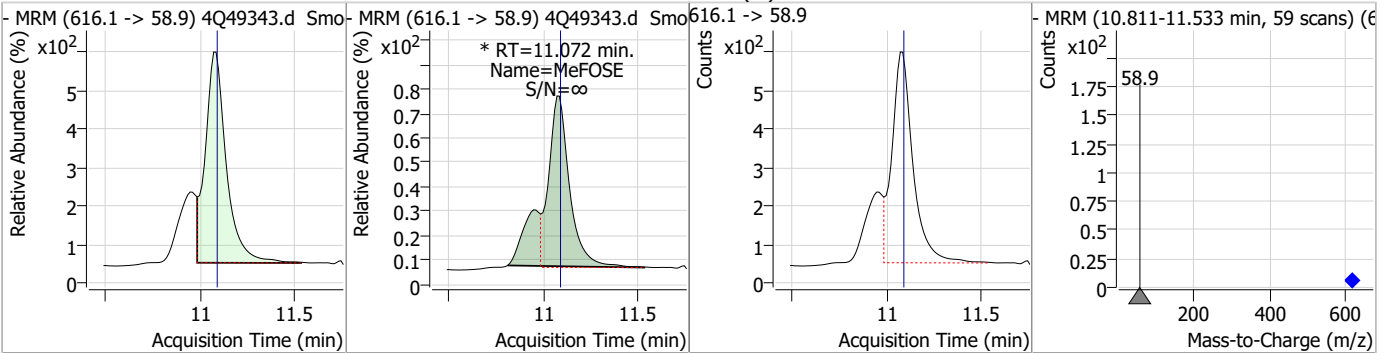
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PfDoDS	0.68	9.99	0.00	829	699.1 -> 98.8	68.0	27.3	81.9



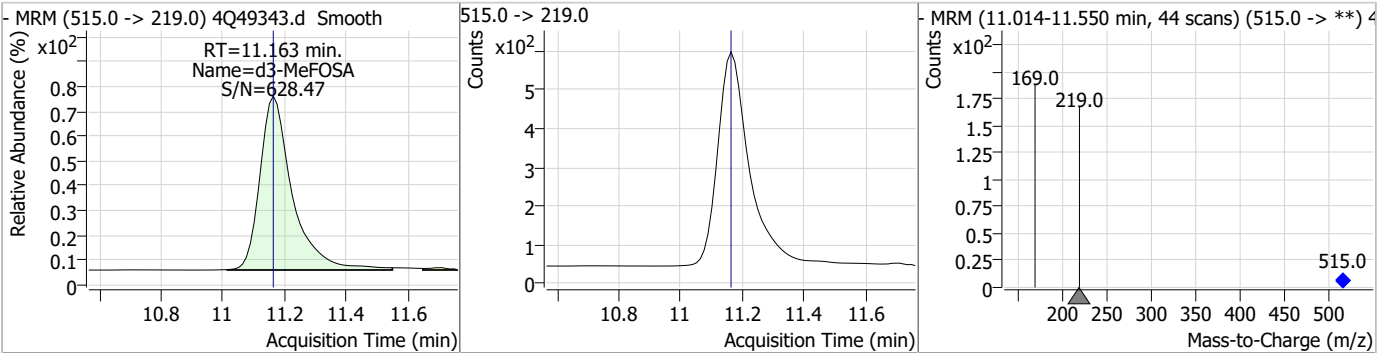
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.12	11.06	0.00	39644				



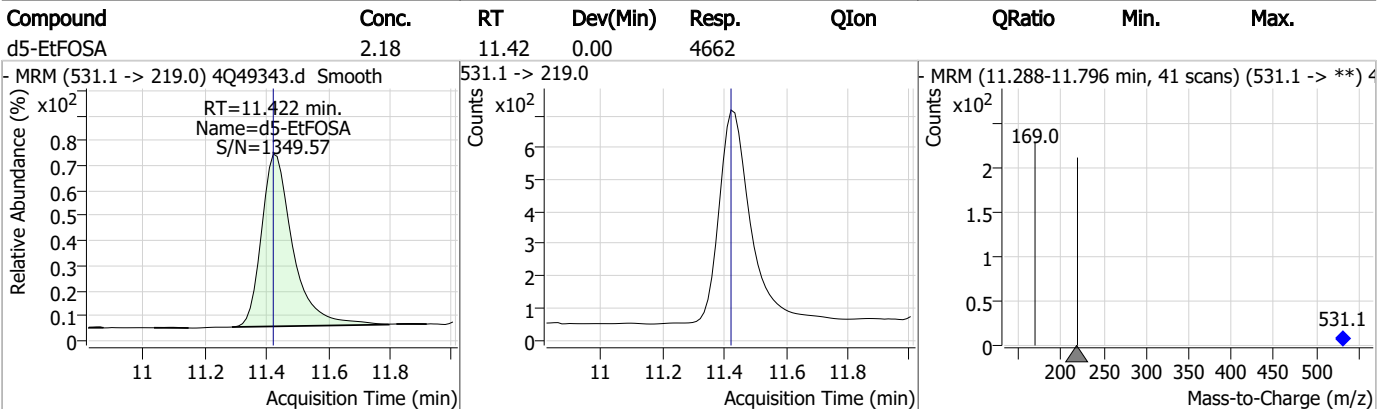
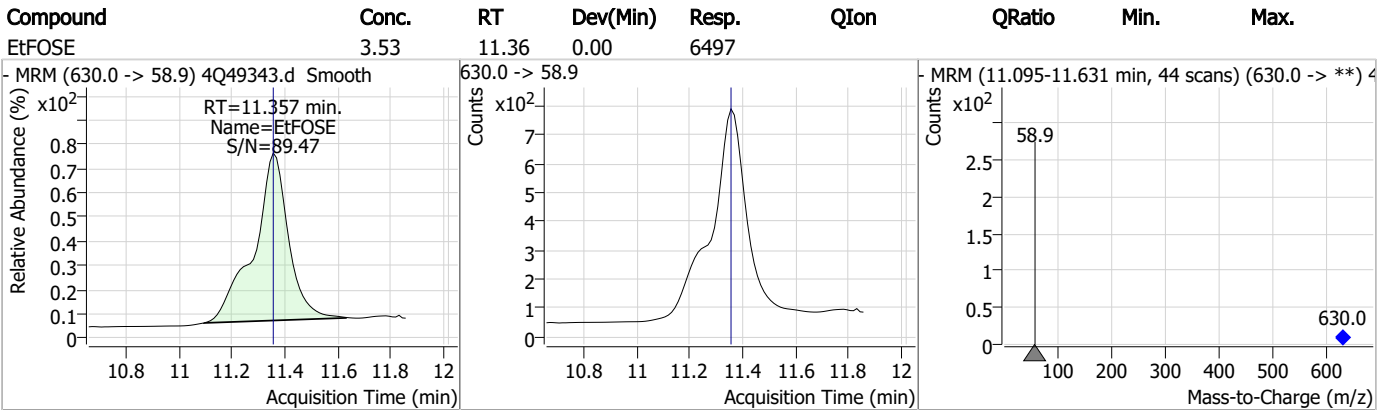
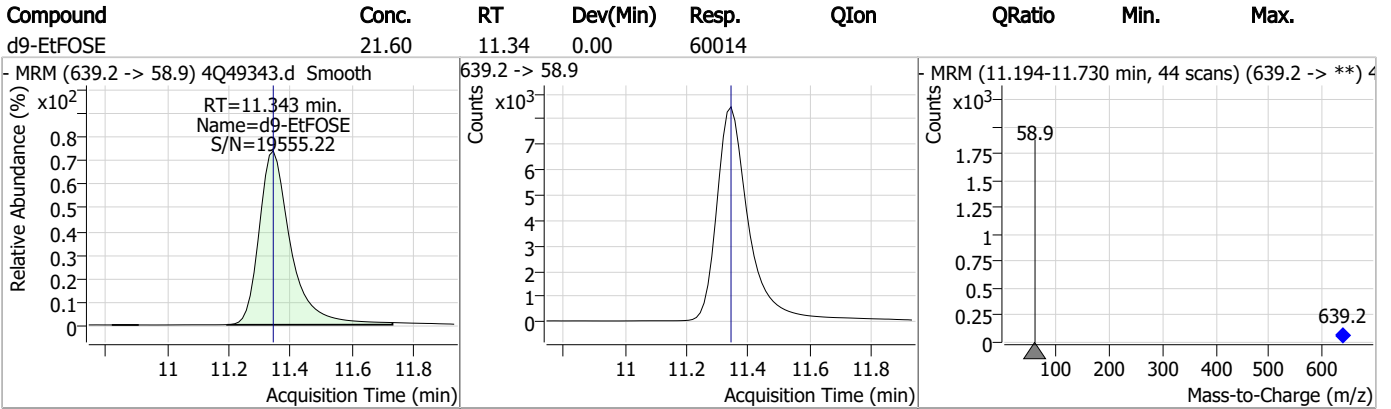
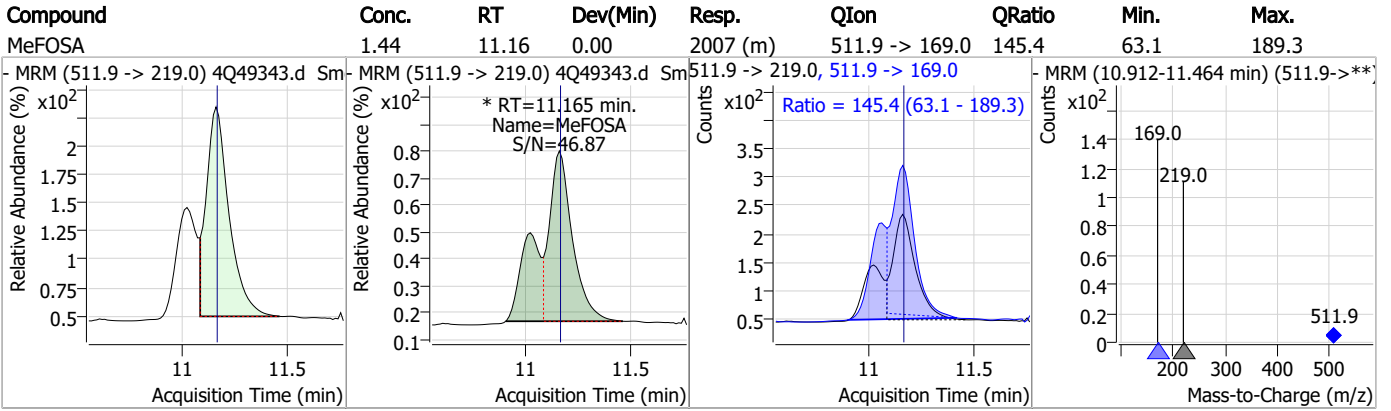
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	3.76	11.07	-0.01	5292 (m)				



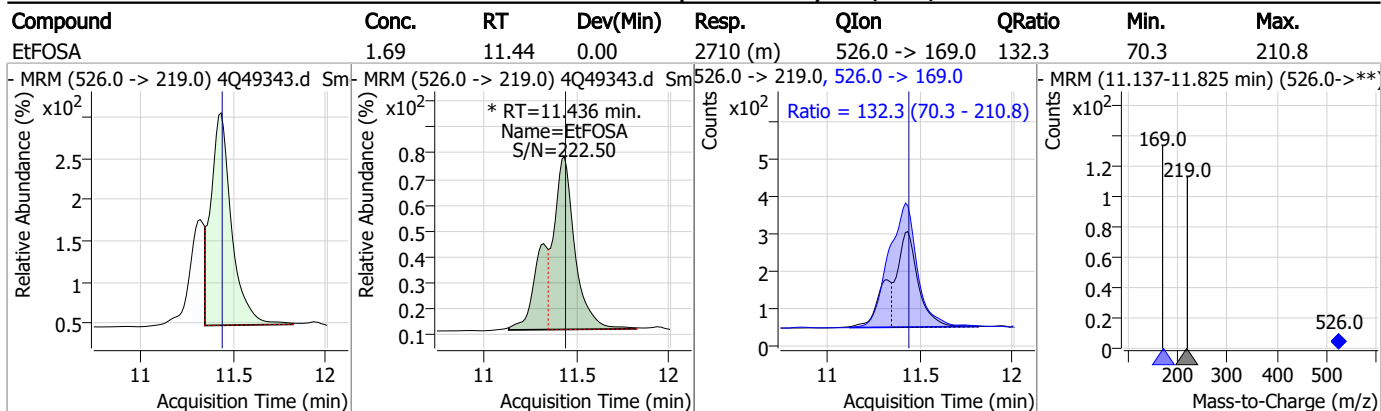
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.33	11.16	0.00	4029				



### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



7.3.2  
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# Manual Integration Approval Summary

Sample Number: OP98526-LLBS      Method: EPA DRAFT 1633  
Lab FileID: 4Q49343.D      Analyst approved: 08/24/23 14:08 Anna Ludwig  
Injection Time: 08/23/23 11:35      Supervisor approved: 08/24/23 16:15 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
MeFOSAA	2355-31-9		8.27	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.48	Split peak
MeFOSE	24448-09-7		11.07	Split peak
MeFOSA	31506-32-8		11.16	Split peak
EtFOSA	4151-50-2		11.44	Split peak

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

Data File : 4Q49350.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 8/23/2023 1:18:20 PM  
 Sample Name : OP98526-MS  
 Vial : P3-E9  
 DA Method File : 1633\_082223\_S4Q722.quantmethod.xml  
 Batch Name : s4q723.batch.bin  
 Sample Information : OP98526,S4Q723,540,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.874	216.8 -> 171.9	54947	10.00 µg/L	0.062
M5-PFPeA	4.337	268.3 -> 223.0	56724	5.00 µg/L	0.025
M5-PFHxA	5.522	318.0 -> 273.0	39633	2.50 µg/L	0.012
M4-PFHpA	6.479	367.1 -> 322.0	26324	2.50 µg/L	0.012
M8-PFOA	7.161	421.1 -> 376.0	40650	2.50 µg/L	0.012
M9-PFNA	7.708	472.1 -> 427.0	14961	1.25 µg/L	0.012
M6-PFDA	8.191	519.1 -> 474.1	11485	1.25 µg/L	0.000
M7-PFUnDA	8.648	570.0 -> 525.1	14985	1.25 µg/L	0.000
M2-PFDoDA	9.080	615.1 -> 570.0	16359	1.25 µg/L	0.000
M2-PFTeDA	9.849	715.2 -> 670.0	9872	1.25 µg/L	0.000
M8-FOSA	9.894	506.1 -> 77.8	8317	2.50 µg/L	0.000
M3-PFBS	5.402	302.1 -> 79.9	10839	2.50 µg/L	0.011
M3-PFHxS	7.241	402.1 -> 79.9	6970	2.50 µg/L	0.025
M8-PFOS	8.329	507.1 -> 79.9	5796	2.50 µg/L	0.000
M2-4:2FTS	5.221	329.1 -> 80.9	1301	5.00 µg/L	0.012
M2-6:2FTS	6.936	429.1 -> 80.9	2070	5.00 µg/L	0.025
M2-8:2FTS	7.991	529.1 -> 80.9	2698	5.00 µg/L	0.000
M3-MeFOSAA	8.261	573.2 -> 419.0	10300	5.00 µg/L	0.000
M3-HFPO-DA	5.889	286.9 -> 168.9	27728	10.00 µg/L	0.012
M5-EtFOSAA	8.471	589.2 -> 419.0	9560	5.00 µg/L	0.000
M7-MeFOSE	11.059	623.2 -> 58.9	42951	25.00 µg/L	0.000
M9-EtFOSE	11.343	639.2 -> 58.9	59433	25.00 µg/L	0.000
M5-EtFOSA	11.434	531.1 -> 219.0	4632	2.50 µg/L	0.012
M3-MeFOSA	11.163	515.0 -> 219.0	4196	2.50 µg/L	0.000
13C4-PFOS	8.330	502.8 -> 79.9	5925	2.50 µg/L	0.000
13C3-PFBA	2.866	216.0 -> 172.0	53560	5.00 µg/L	0.062
18O2-PFHxS	7.240	403.0 -> 83.9	4670	2.50 µg/L	0.012
13C4-PFOA	7.161	417.1 -> 372.0	41513	2.50 µg/L	0.012
13C2-PFDA	8.192	515.1 -> 470.1	9112	1.25 µg/L	0.000
13C5-PFNA	7.708	468.0 -> 423.0	14948	1.25 µg/L	0.012
13C2-PFHxA	5.523	315.1 -> 270.0	31724	2.50 µg/L	0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.221	329.1 -> 80.9	1301	6.13 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 122.7%		
13C2-6:2FTS	6.936	429.1 -> 80.9	2070	6.87 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 137.4%		
13C2-8:2FTS	7.991	529.1 -> 80.9	2698	5.56 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.1%		
13C2-PFDoDA	9.080	615.1 -> 570.0	16359	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.8%		
13C2-PFTeDA	9.849	715.2 -> 670.0	9872	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C3-PFBS	5.402	302.1 -> 79.9	10839	3.00 µg/L	0.011
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 120.1%		
13C3-PFHxS	7.241	402.1 -> 79.9	6970	2.65 µg/L	0.025

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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 = 106.2%	
13C4-PFBA	2.874	216.8 -> 171.9	54947	5.77 µg/L	0.062
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 57.7%	
13C4-PFHpA	6.479	367.1 -> 322.0	26324	2.92 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 116.7%	
13C5-PFHxA	5.522	318.0 -> 273.0	39633	2.97 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 118.7%	
13C5-PFPeA	4.337	268.3 -> 223.0	56724	5.73 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 114.6%	
13C6-PFDA	8.191	519.1 -> 474.1	11485	1.48 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 118.0%	
13C7-PFUnDA	8.648	570.0 -> 525.1	14985	1.42 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.2%	
13C8-FOSA	9.894	506.1 -> 77.8	8317	2.08 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 83.4%	
13C8-PFOA	7.161	421.1 -> 376.0	40650	2.79 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.5%	
13C8-PFOS	8.329	507.1 -> 79.9	5796	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.3%	
13C9-PFNA	7.708	472.1 -> 427.0	14961	1.32 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.4%	
d3-MeFOSAA	8.261	573.2 -> 419.0	10300	4.97 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C3-HFPO-DA	5.889	286.9 -> 168.9	27728	10.83 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.3%	
d3-MeFOSA	11.163	515.0 -> 219.0	4196	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.9%	
d5-EtFOSAA	8.471	589.2 -> 419.0	9560	5.52 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.3%	
d7-MeFOSE	11.059	623.2 -> 58.9	42951	19.66 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 78.6%	
d9-EtFOSE	11.343	639.2 -> 58.9	59433	20.30 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 81.2%	
d5-EtFOSA	11.434	531.1 -> 219.0	4632	2.05 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 82.2%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.222	327.1 -> 307.0	16195	10.90 µg/L	97
		327.1 -> 80.9	7195		
6:2FTS	6.936	427.1 -> 407.0	15216	10.07 µg/L	99
		427.1 -> 80.9	6397		
8:2FTS	7.991	527.1 -> 507.0	13125	12.46 µg/L	99
		527.1 -> 80.8	6536		
EtFOSAA	8.484	584.2 -> 419.1	3578	2.63 µg/L	m 82
		584.2 -> 526.0	1770		
FOSA	9.898	498.1 -> 77.9	7001	3.01 µg/L	98
		498.1 -> 478.0	199		
MeFOSAA	8.274	570.1 -> 419.0	4096	2.78 µg/L	97
		570.1 -> 483.0	852		
PFBA	2.870	212.8 -> 168.9	19394	16.42 µg/L	100
PFBS	5.403	298.7 -> 79.9	8212	2.61 µg/L	95
		298.7 -> 98.8	3126		
PFDA	8.192	512.9 -> 469.0	18641	2.81 µg/L	97
		512.9 -> 219.0	3948		
PFDODA	9.081	613.1 -> 569.0	30372	3.11 µg/L	99
		613.1 -> 319.0	4656		
PFDS	9.232	599.0 -> 79.9	4125	2.96 µg/L	96

7.4.1  
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.480	599.0 -> 98.8	2127	2.88	µg/L	100
		363.1 -> 319.0	36823			
PFHpS	7.822	363.1 -> 169.0	6817	3.26	µg/L	98
		449.0 -> 79.9	6454			
PFHxA	5.525	449.0 -> 98.9	3292	2.97	µg/L	99
		313.0 -> 269.0	36158			
PFHxS	7.229	313.0 -> 118.9	1244	2.91	µg/L	m
		398.7 -> 79.9	5726			
PFNA	7.709	398.7 -> 98.9	2753	3.01	µg/L	98
		463.0 -> 419.0	22699			
PFNS	8.799	463.0 -> 219.0	5692	3.10	µg/L	94
		548.8 -> 79.9	3394			
PFOA	7.162	548.8 -> 98.9	1711	2.91	µg/L	97
		413.0 -> 369.0	44647			
PFOS	8.318	413.0 -> 169.0	9397	3.00	µg/L	m
		498.9 -> 79.9	6472			
PFPeA	4.339	498.9 -> 98.8	3383	8.27	µg/L	100
		263.0 -> 219.0	83184			
PFPeS	6.494	349.1 -> 79.9	5333	3.03	µg/L	94
		349.1 -> 98.9	2239			
PFTeDA	9.849	713.1 -> 669.0	20590	2.82	µg/L	98
		713.1 -> 168.9	1765			
PFTrDA	9.478	663.0 -> 619.0	31034	2.87	µg/L	98
		663.0 -> 168.9	3334			
PFUnDA	8.648	563.1 -> 519.0	21104	3.05	µg/L	97
		563.1 -> 269.1	3785			
11CI-PF3OUdS	9.518	630.9 -> 450.9	31018	5.05	µg/L	96
		632.9 -> 452.9	9107			
9CI-PF3ONS	8.662	530.8 -> 351.0	34746	5.27	µg/L	100
		532.8 -> 353.0	11284			
ADONA	6.743	376.9 -> 250.9	114239	5.83	µg/L	100
		376.9 -> 84.8	34826			
HFPO-DA	5.890	284.9 -> 168.9	12708	5.67	µg/L	100
		284.9 -> 184.9	1529			
3:3FTCA	3.842	241.0 -> 177.0	4503	17.45	µg/L	96
		241.0 -> 117.0	545			
5:3FTCA	6.244	341.0 -> 237.1	115745	66.77	µg/L	99
		341.0 -> 217.0	83514			
7:3FTCA	7.736	441.0 -> 316.9	54040	70.98	µg/L	98
		441.0 -> 336.9	125018			
EtFOSA	11.436	526.0 -> 219.0	9591	6.01	µg/L	m
		526.0 -> 169.0	13007			
EtFOSE	11.357	630.0 -> 58.9	25623	14.04	µg/L	100
		511.9 -> 219.0	7961			
MeFOSA	11.165	511.9 -> 169.0	11797	5.47	µg/L	m
		616.1 -> 58.9	21546			
MeFOSE	11.084	699.1 -> 79.9	2809	14.14	µg/L	m
		699.1 -> 98.8	1627			
PFDoDS	9.976	295.0 -> 201.0	4930	2.66	µg/L	95
		295.0 -> 84.9	1504			
NFDHA	5.403	279.0 -> 85.1	33774	5.13	µg/L	94
		229.0 -> 84.9	30891			
PFMBA	4.753	314.8 -> 134.9	51325	4.76	µg/L	100
		314.8 -> 82.9	1691			
PFMPA	3.478			4.85	µg/L	99
PFEESA	5.933					

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

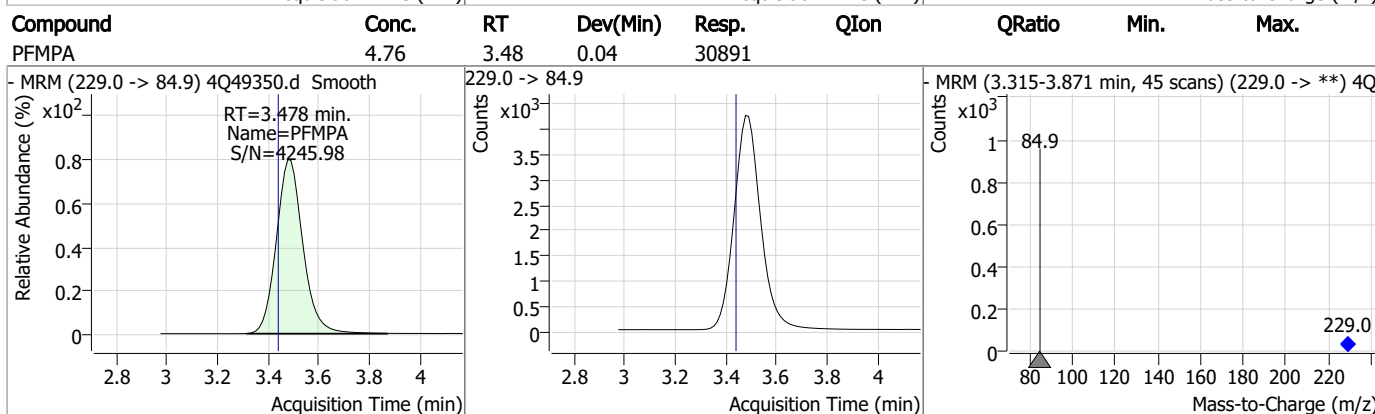
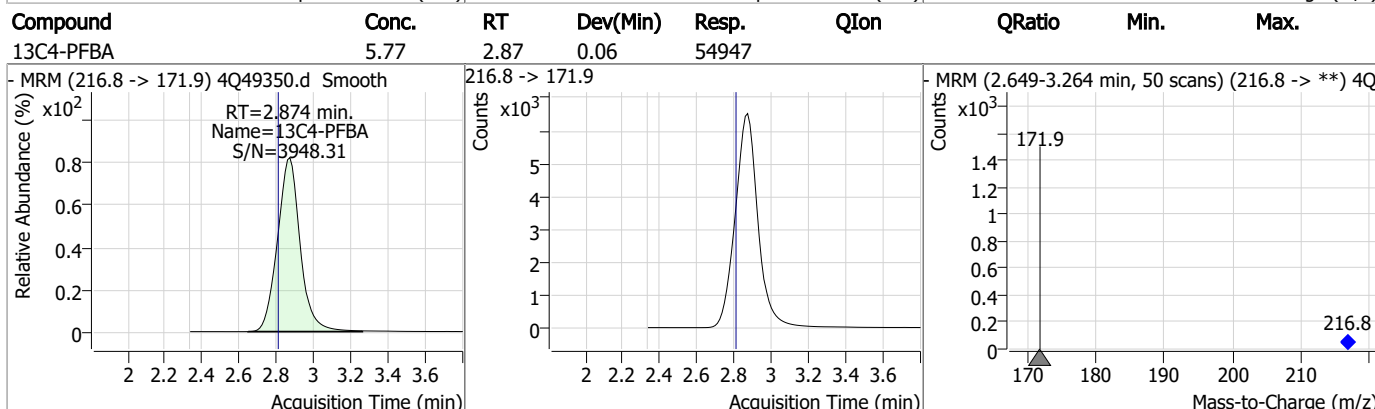
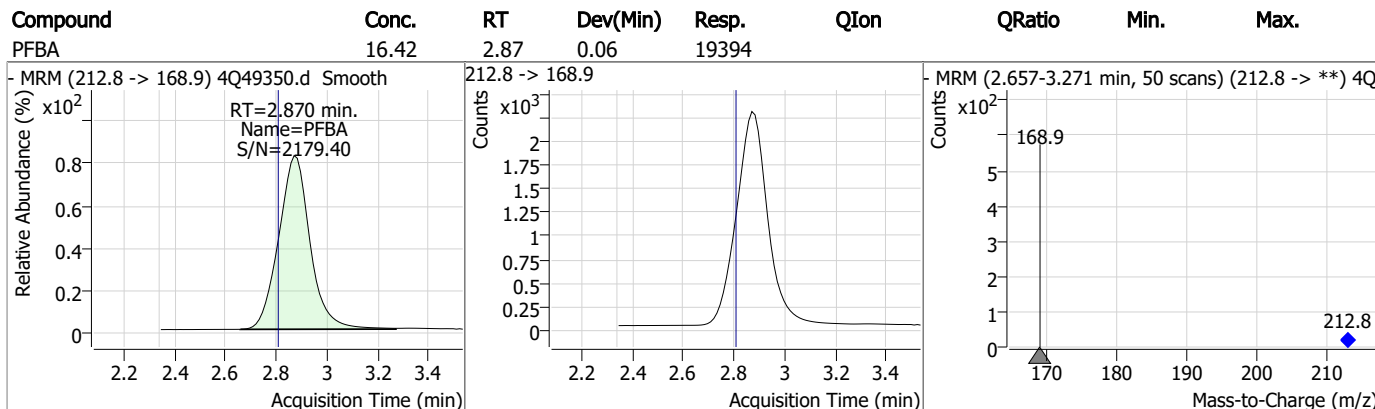
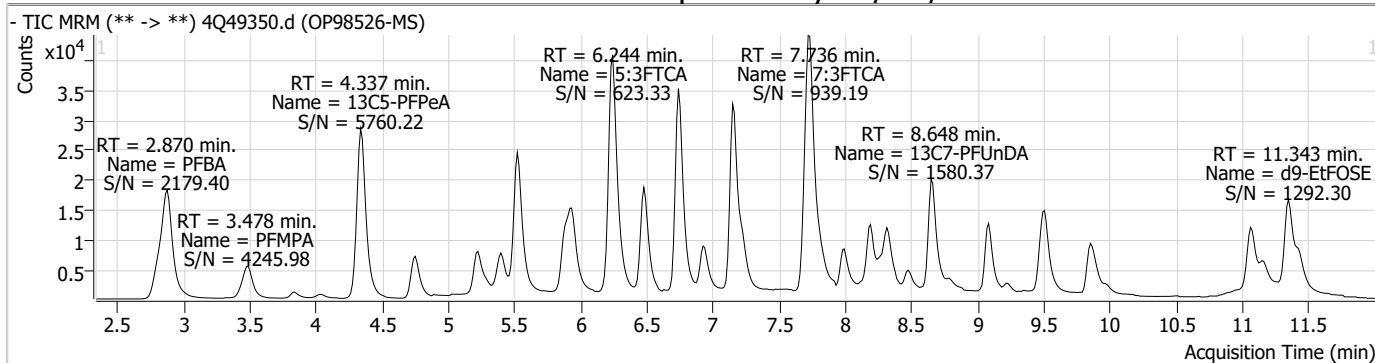
### Perfluorinated Compounds by LC/MS/MS

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

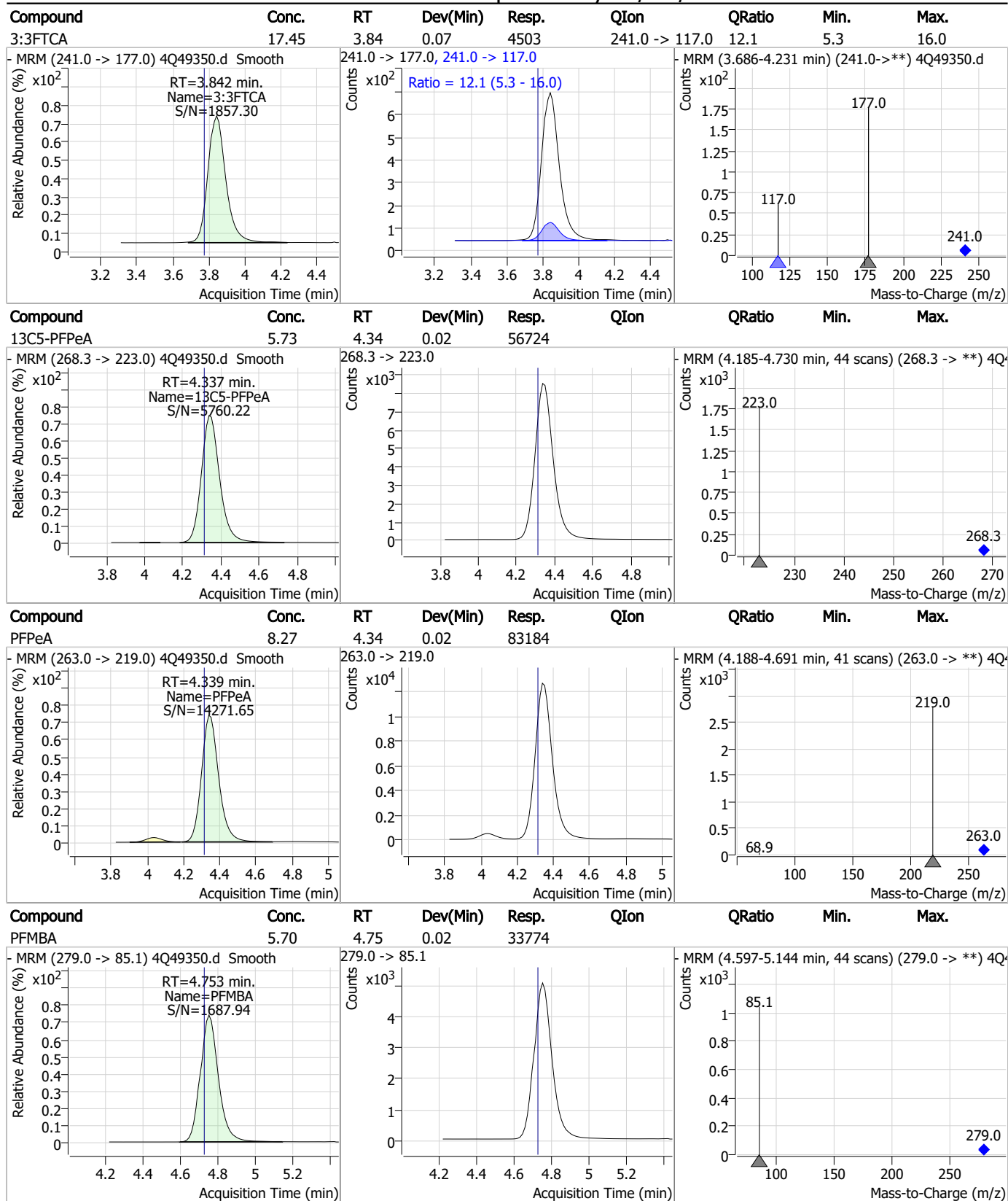
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### Perfluorinated Compounds by LC/MS/MS



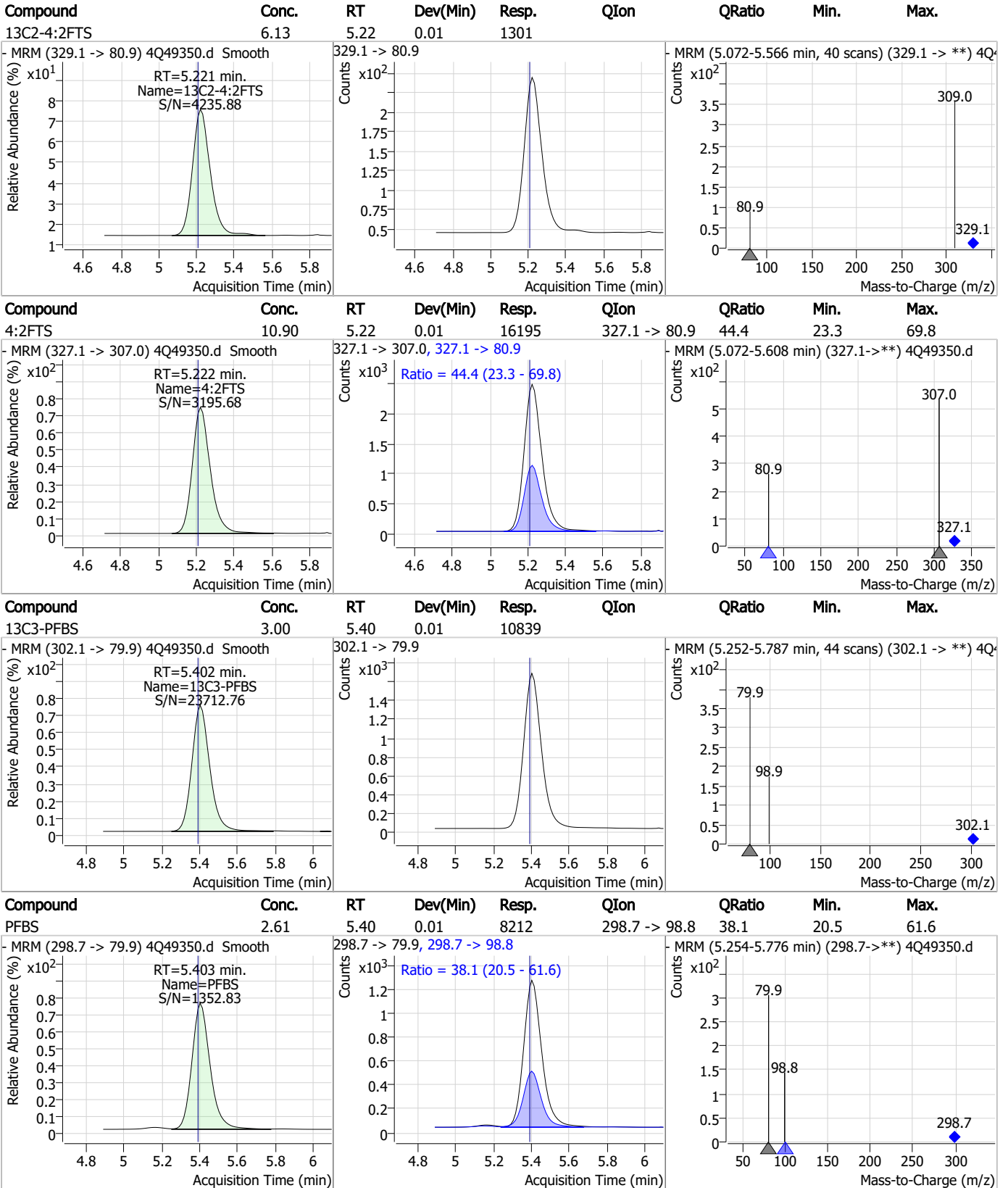
7.4.1  
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### Perfluorinated Compounds by LC/MS/MS



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

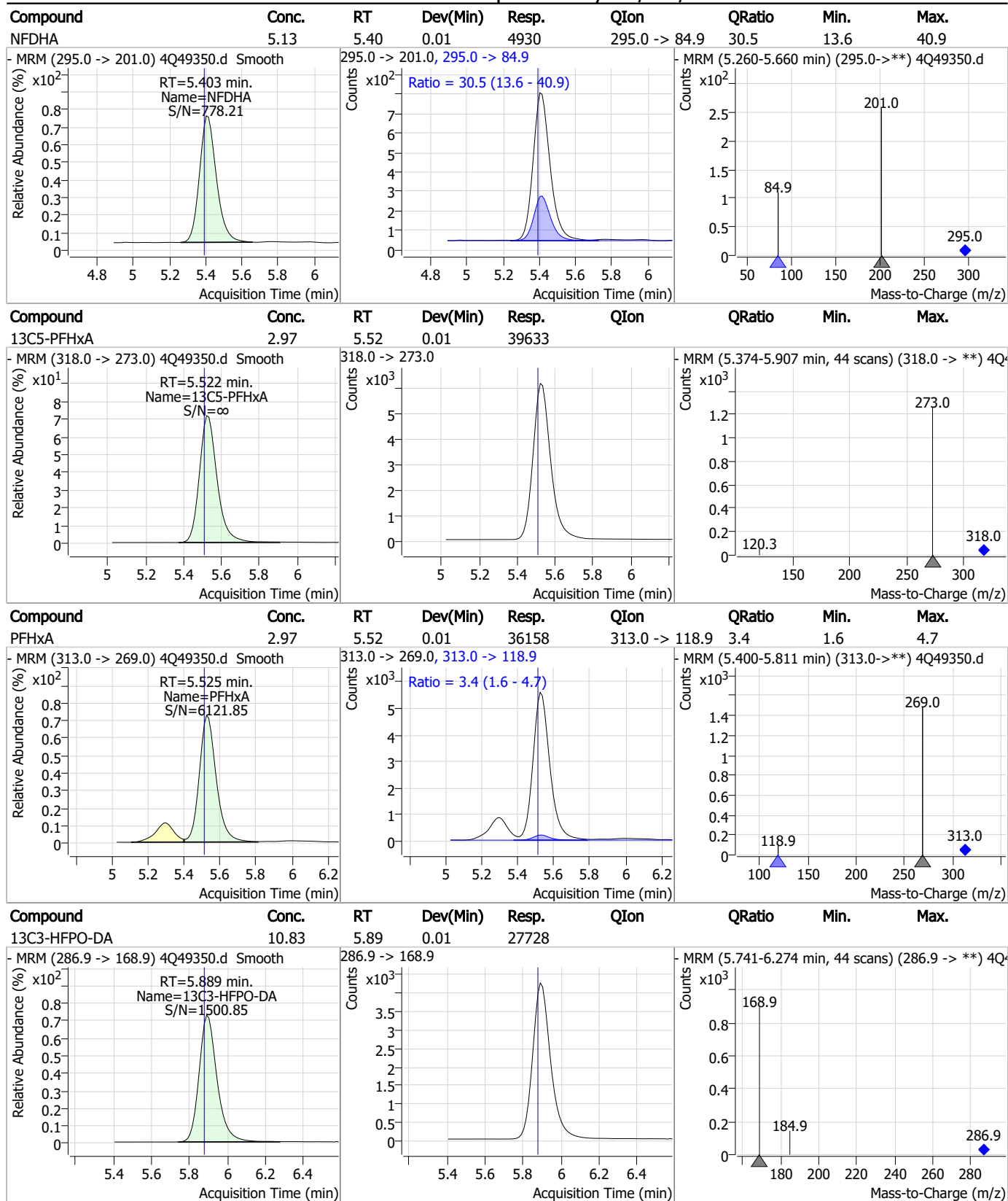


7.4.1

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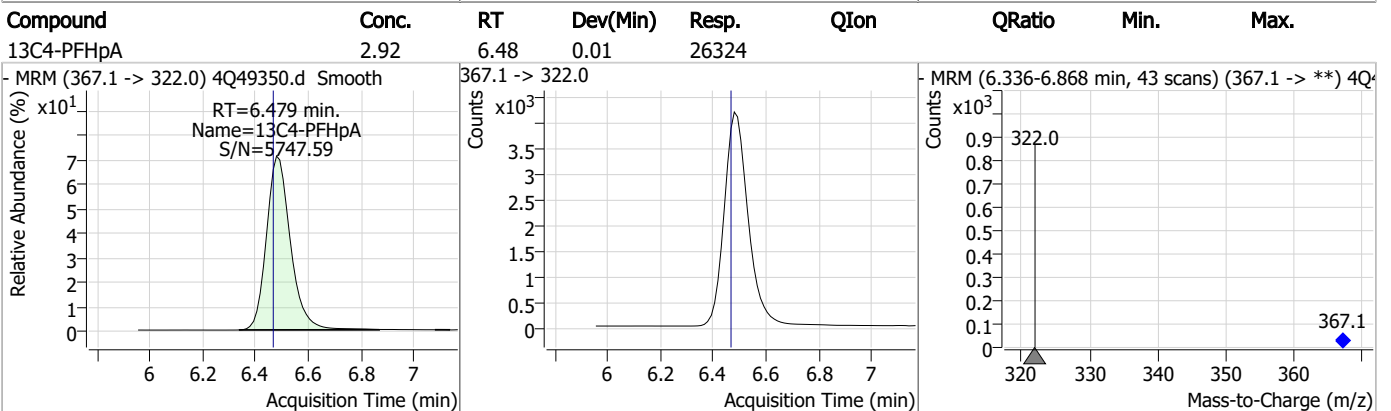
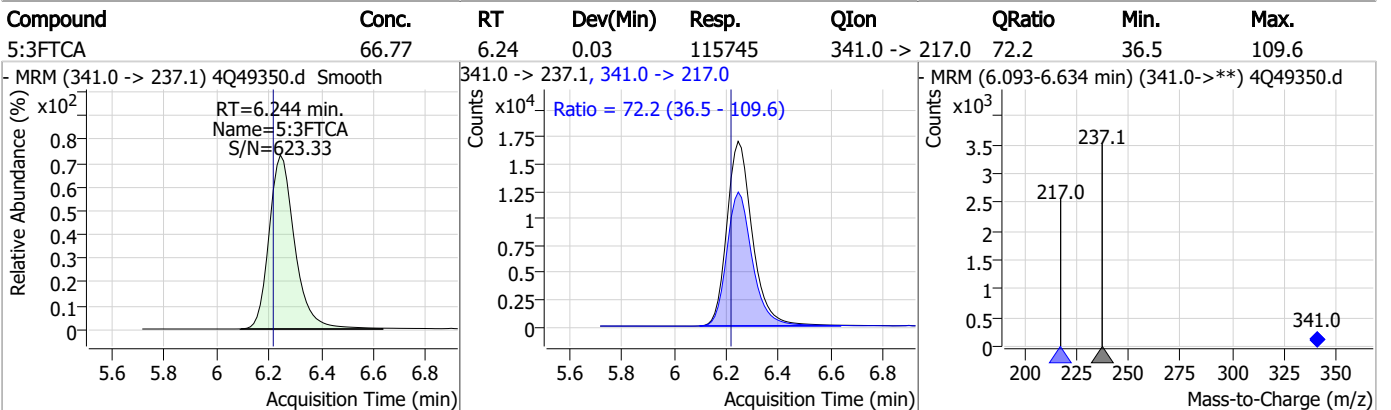
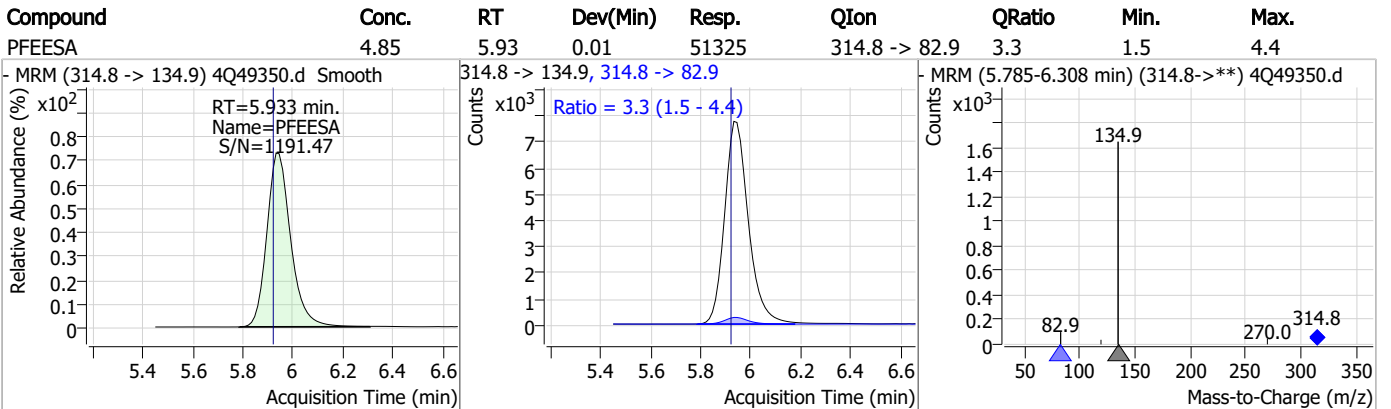
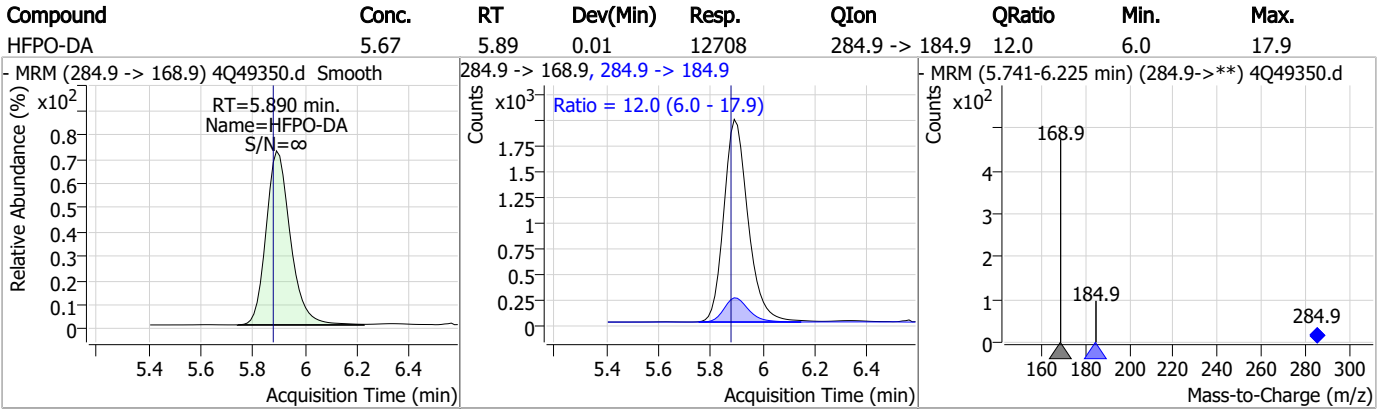


### Perfluorinated Compounds by LC/MS/MS



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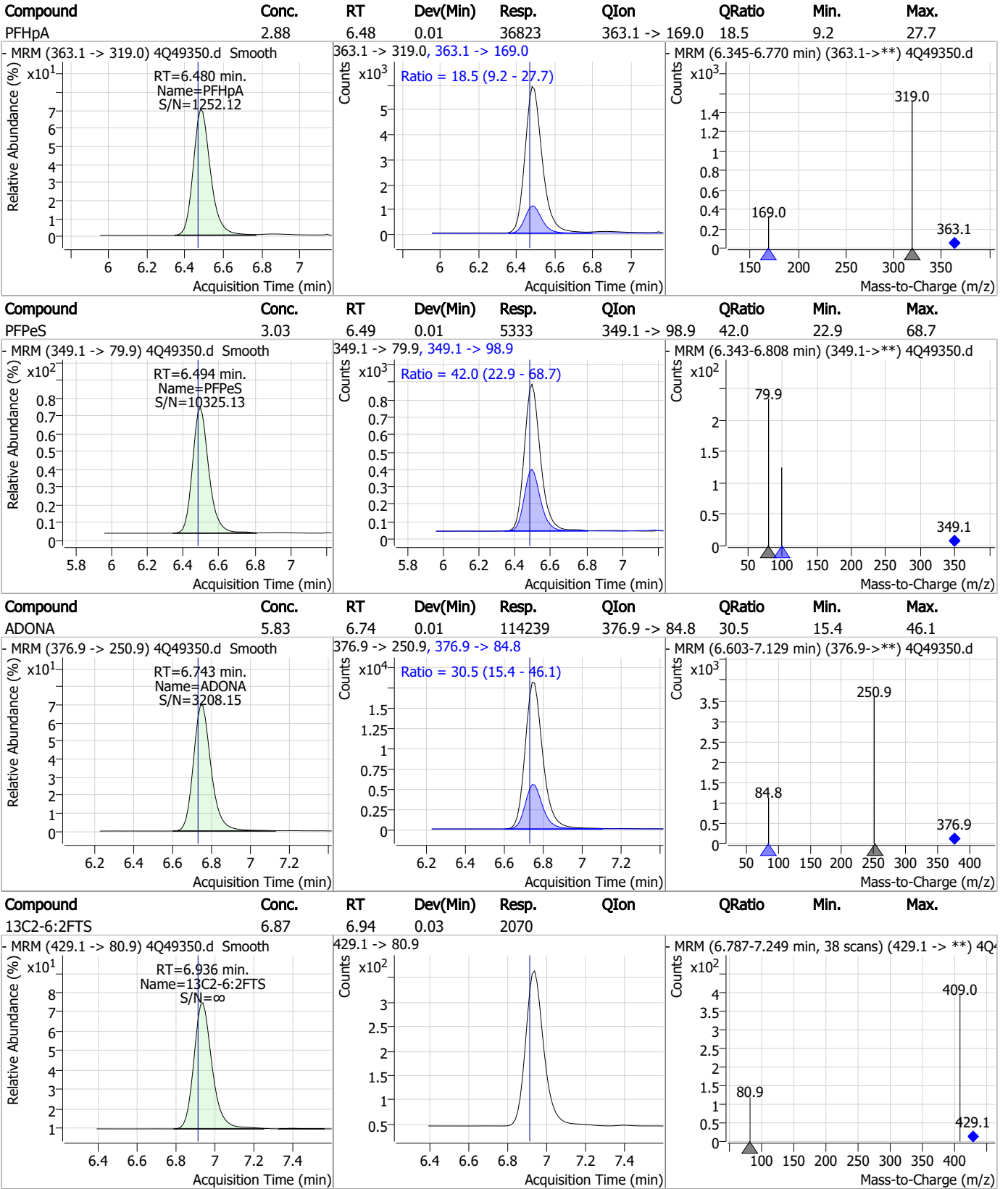
### Perfluorinated Compounds by LC/MS/MS



7.4.1

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### Perfluorinated Compounds by LC/MS/MS

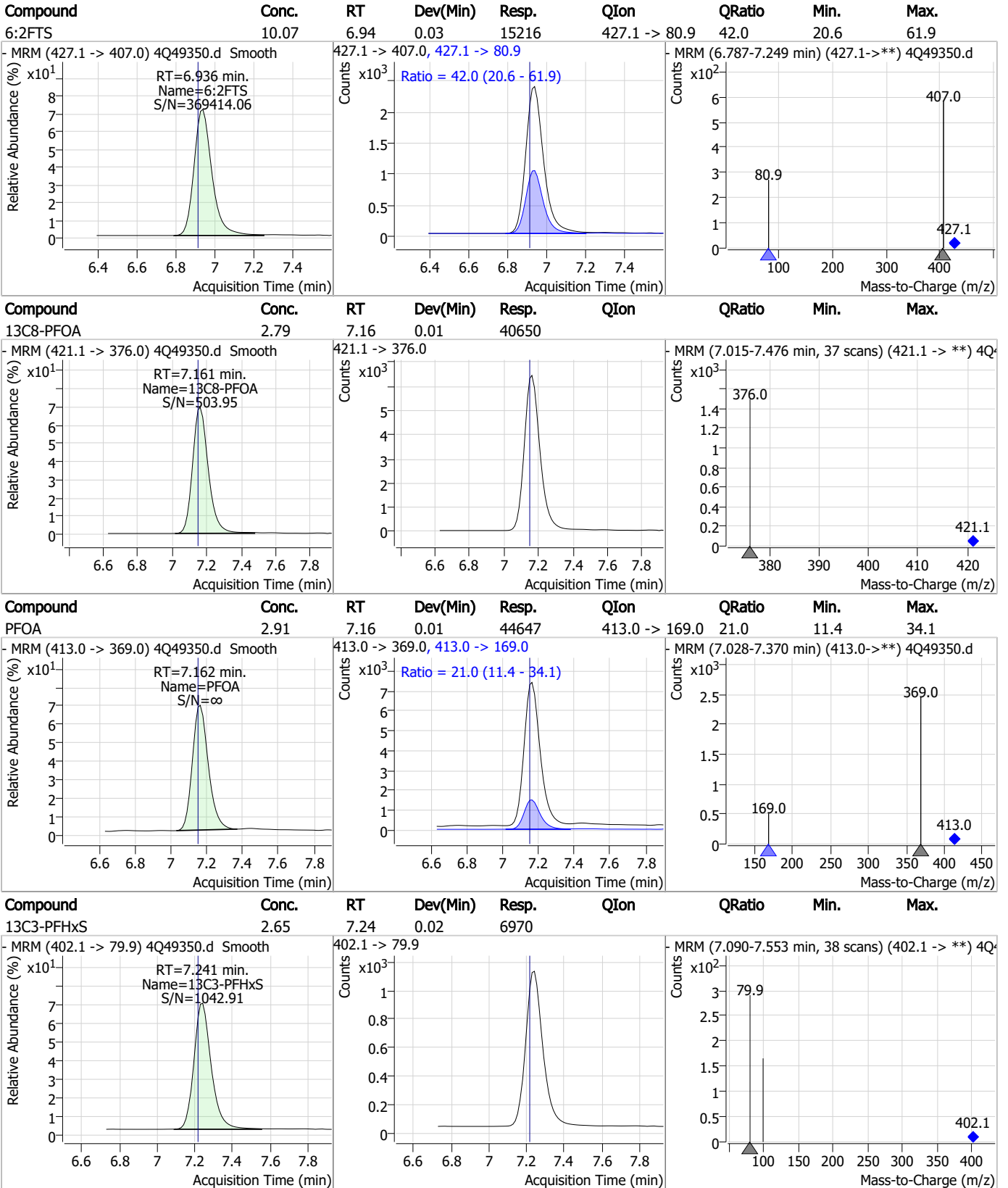


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### Perfluorinated Compounds by LC/MS/MS

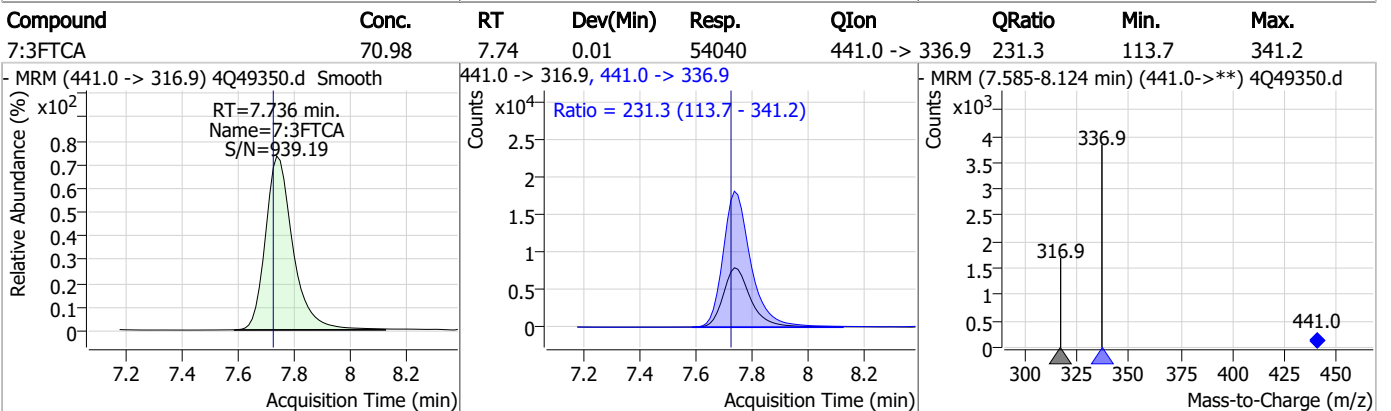
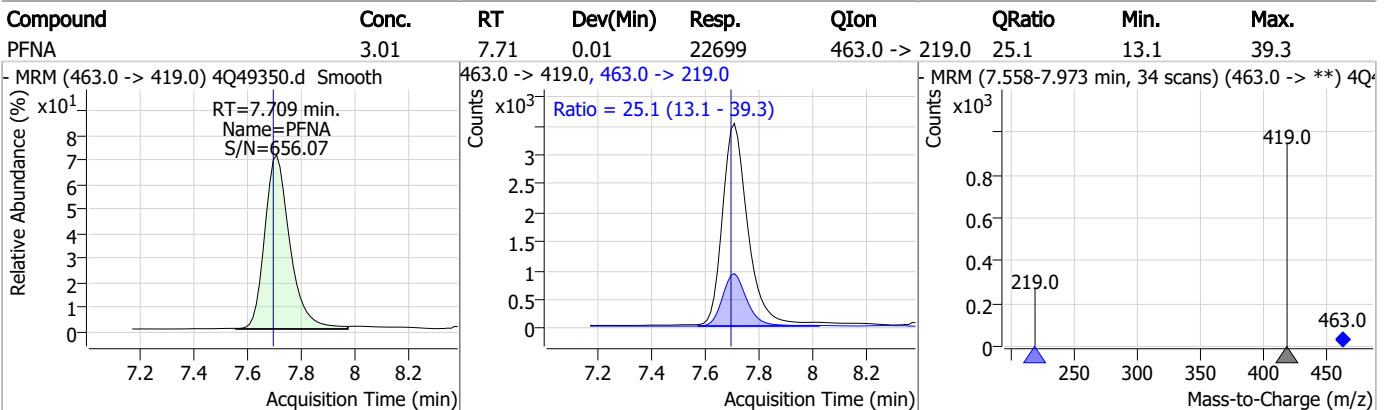
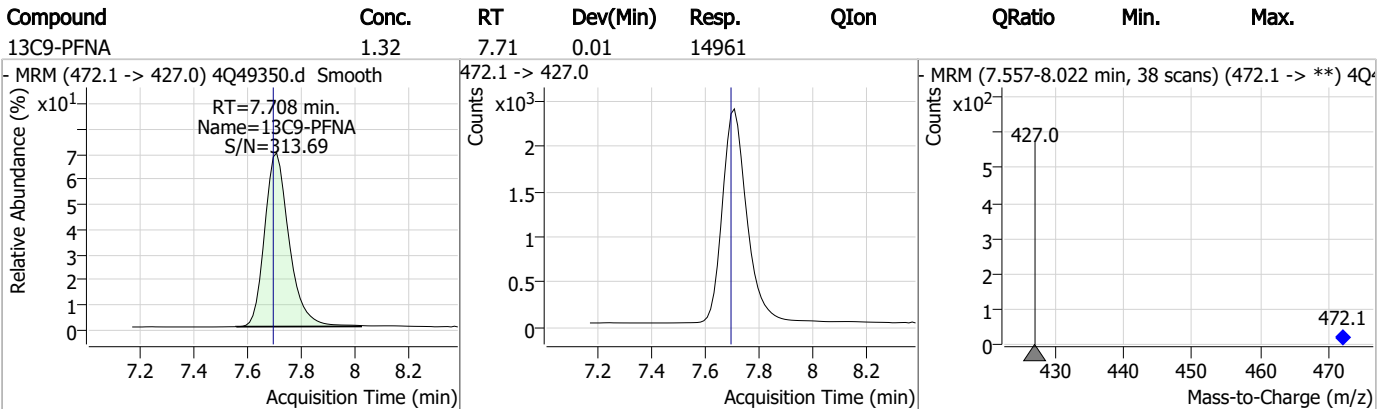
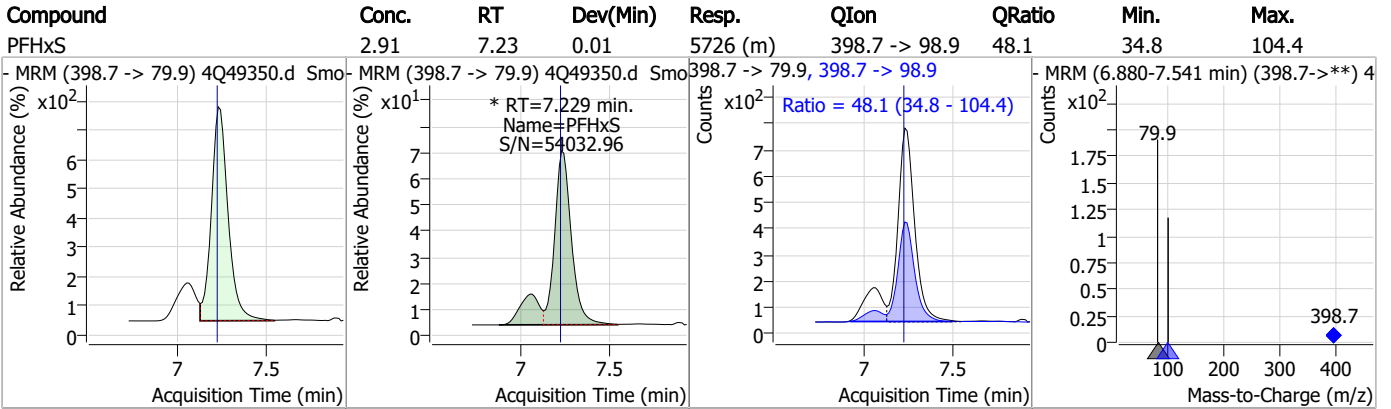


7.4.1

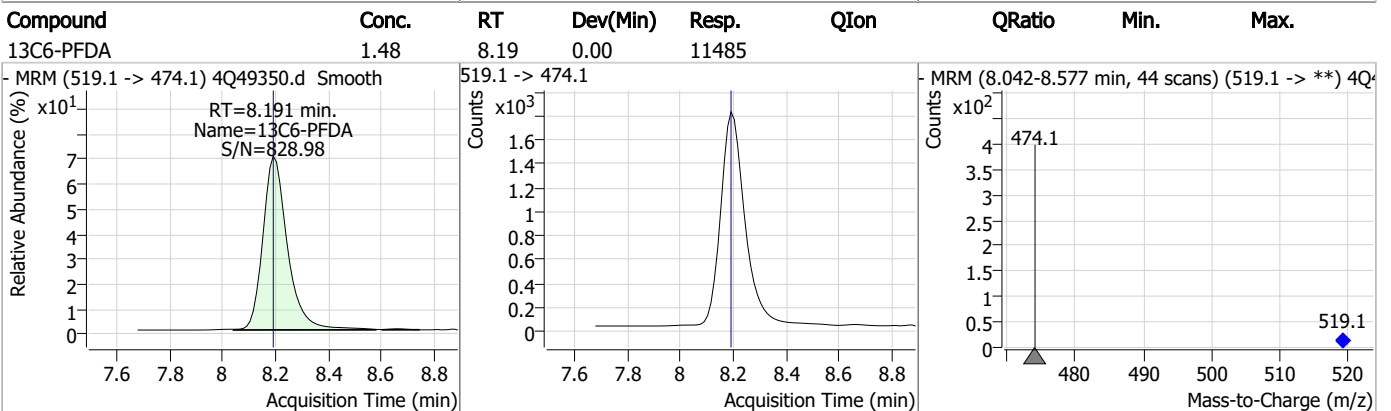
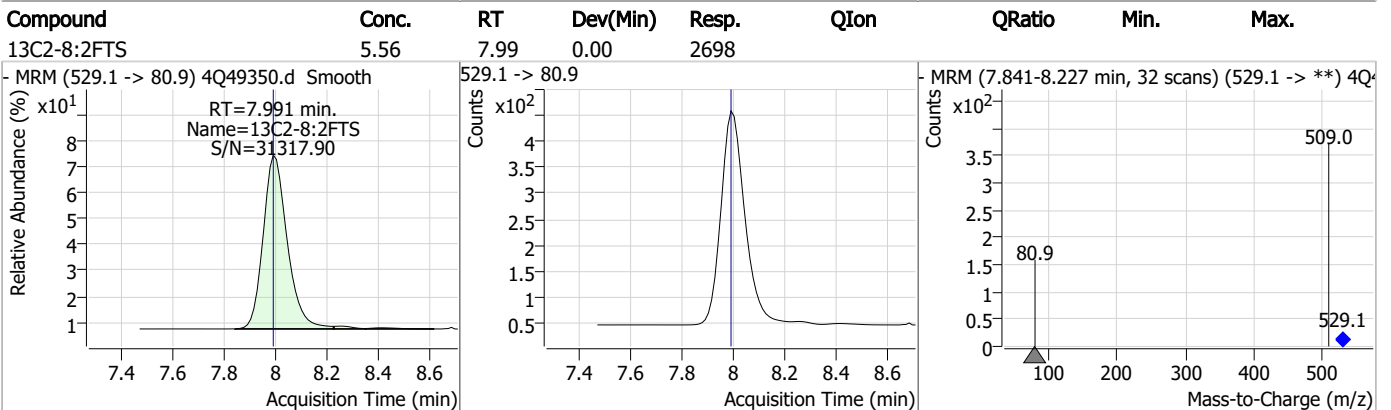
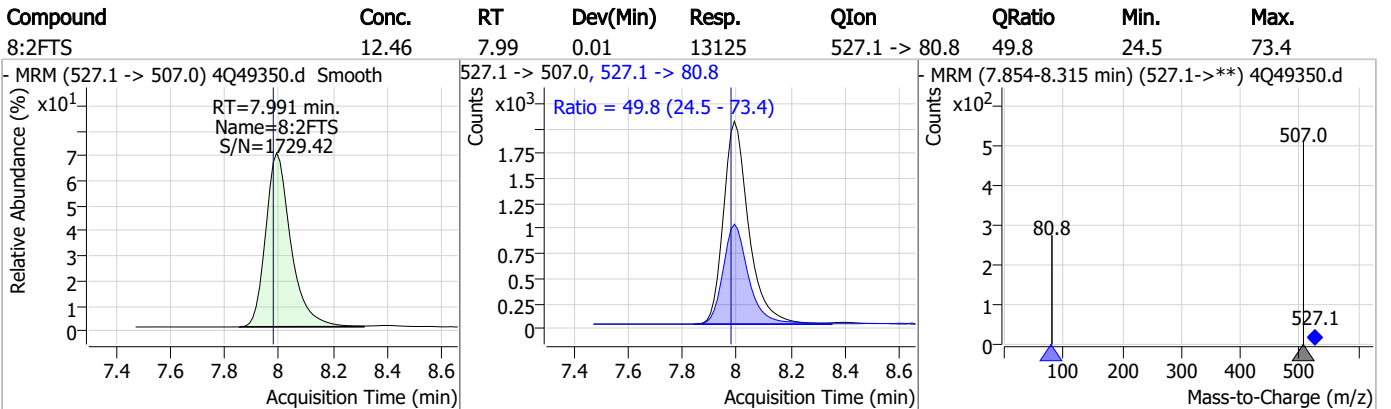
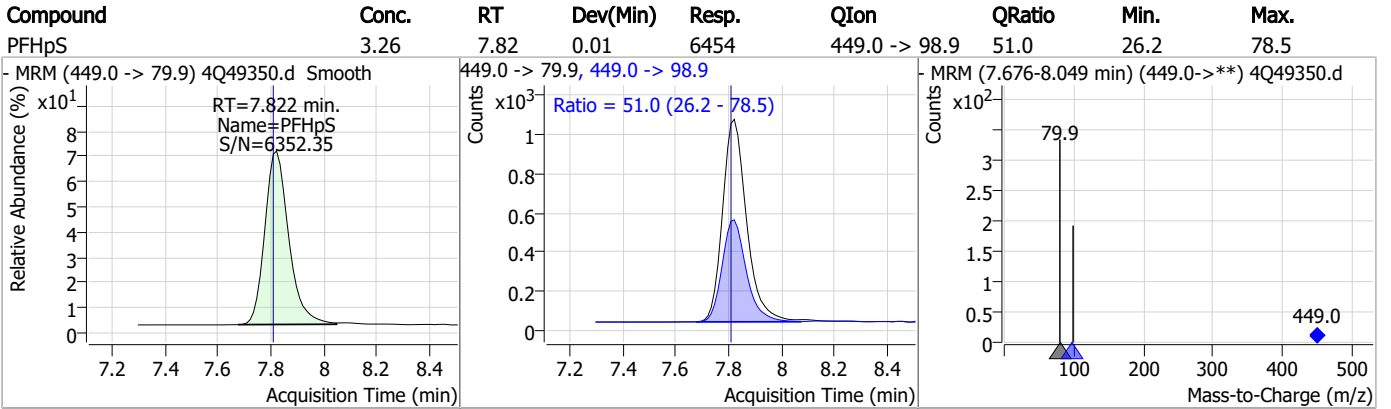
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### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

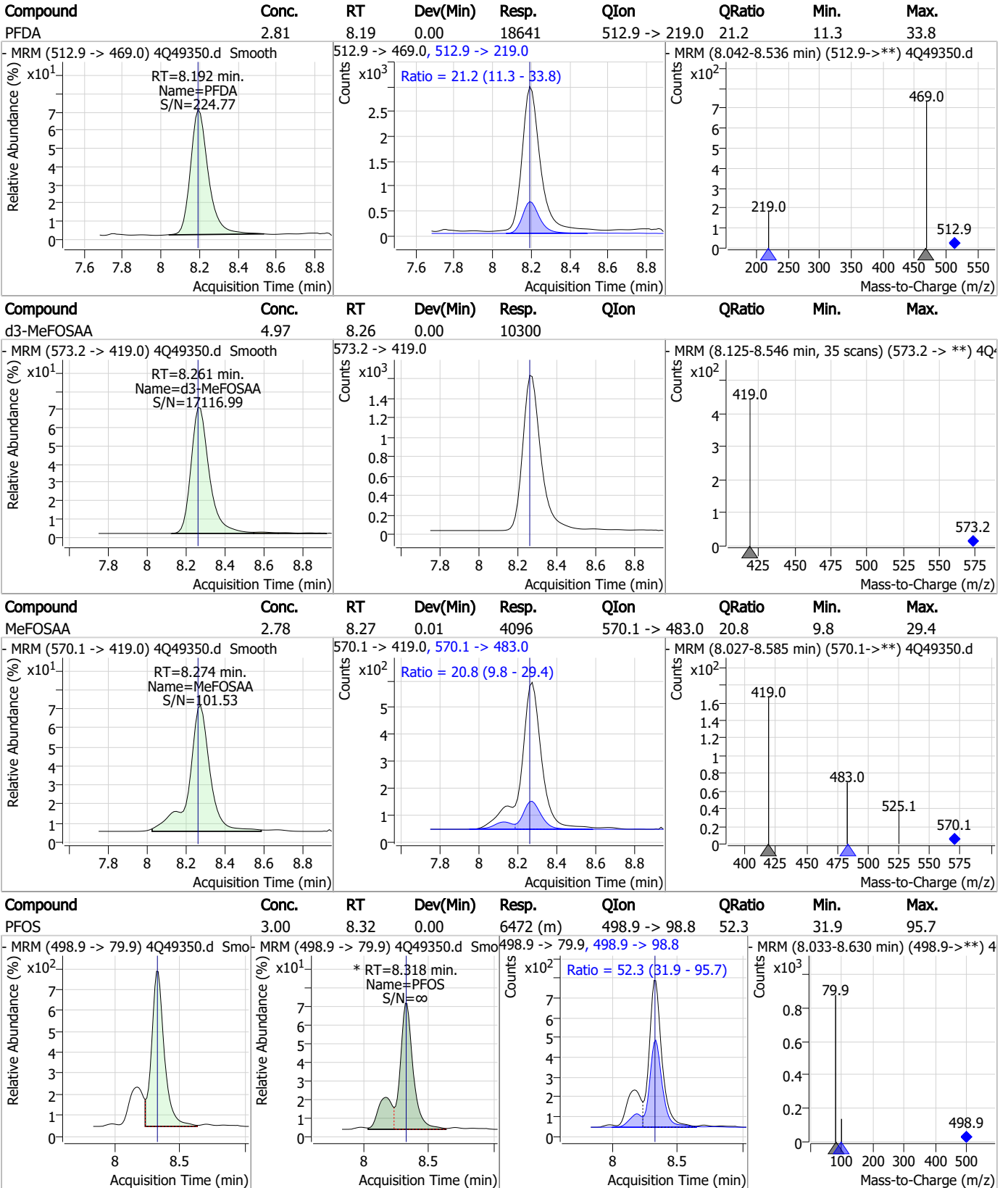


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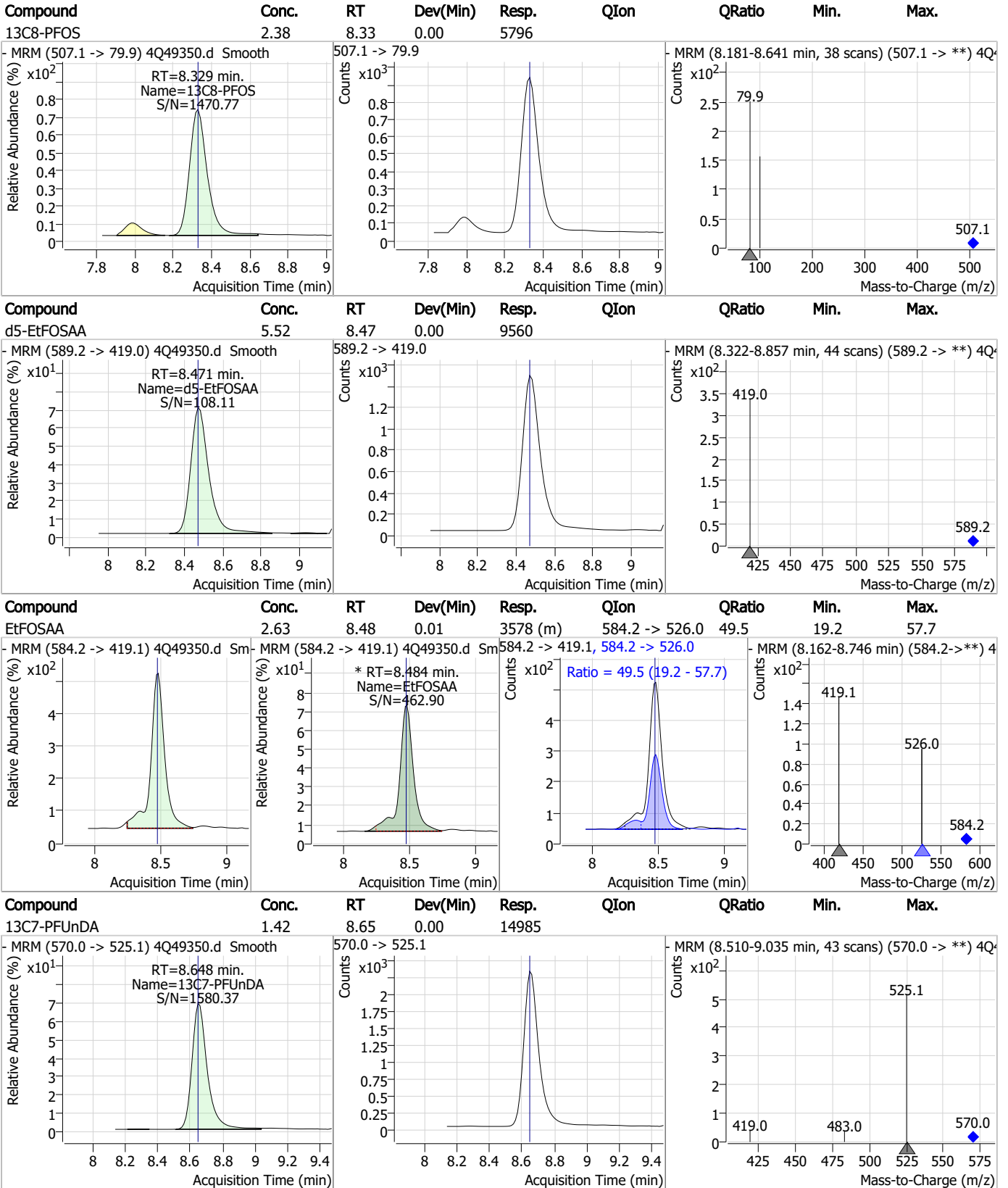
### Perfluorinated Compounds by LC/MS/MS



7.4.1

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### Perfluorinated Compounds by LC/MS/MS

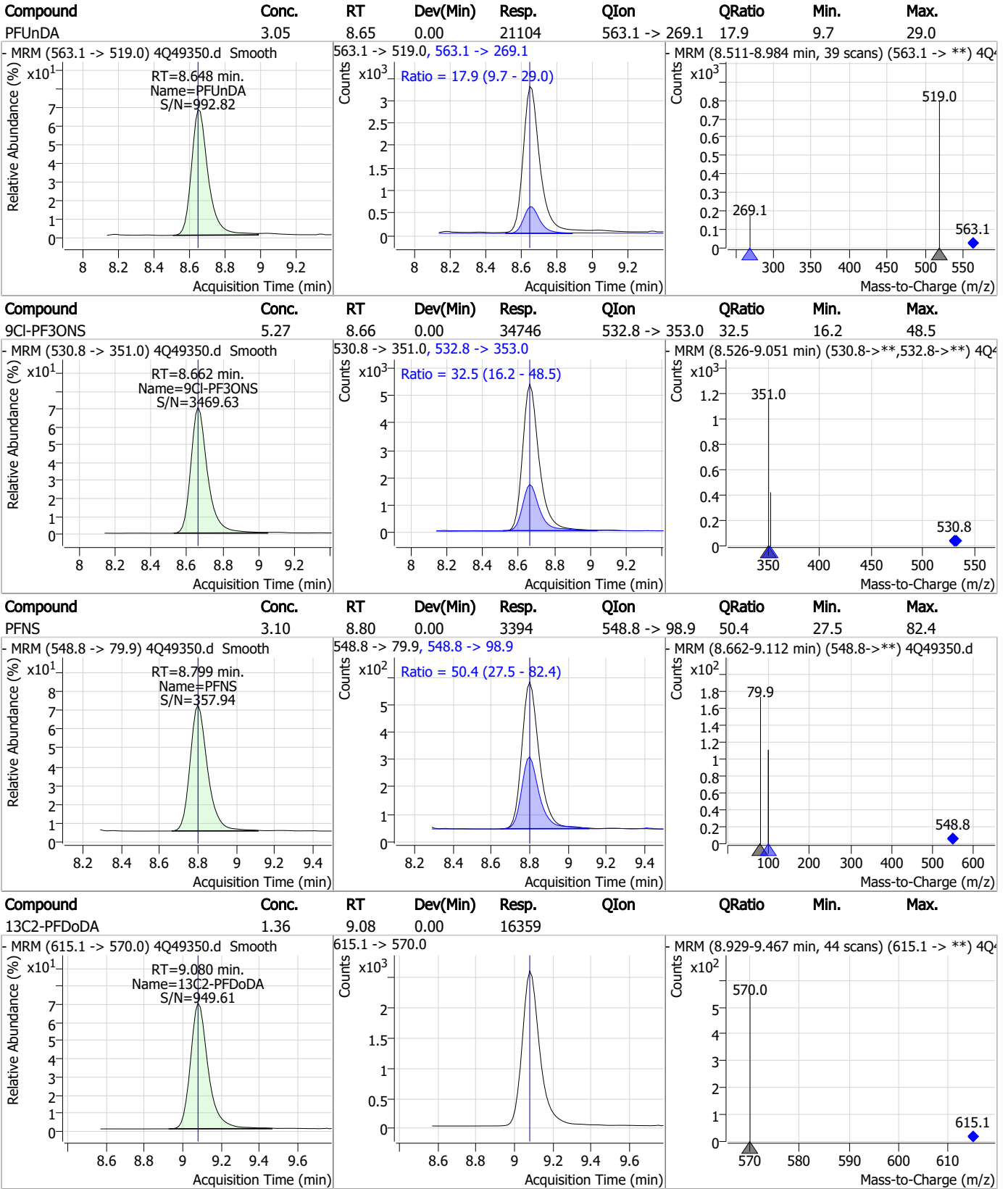


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### Perfluorinated Compounds by LC/MS/MS

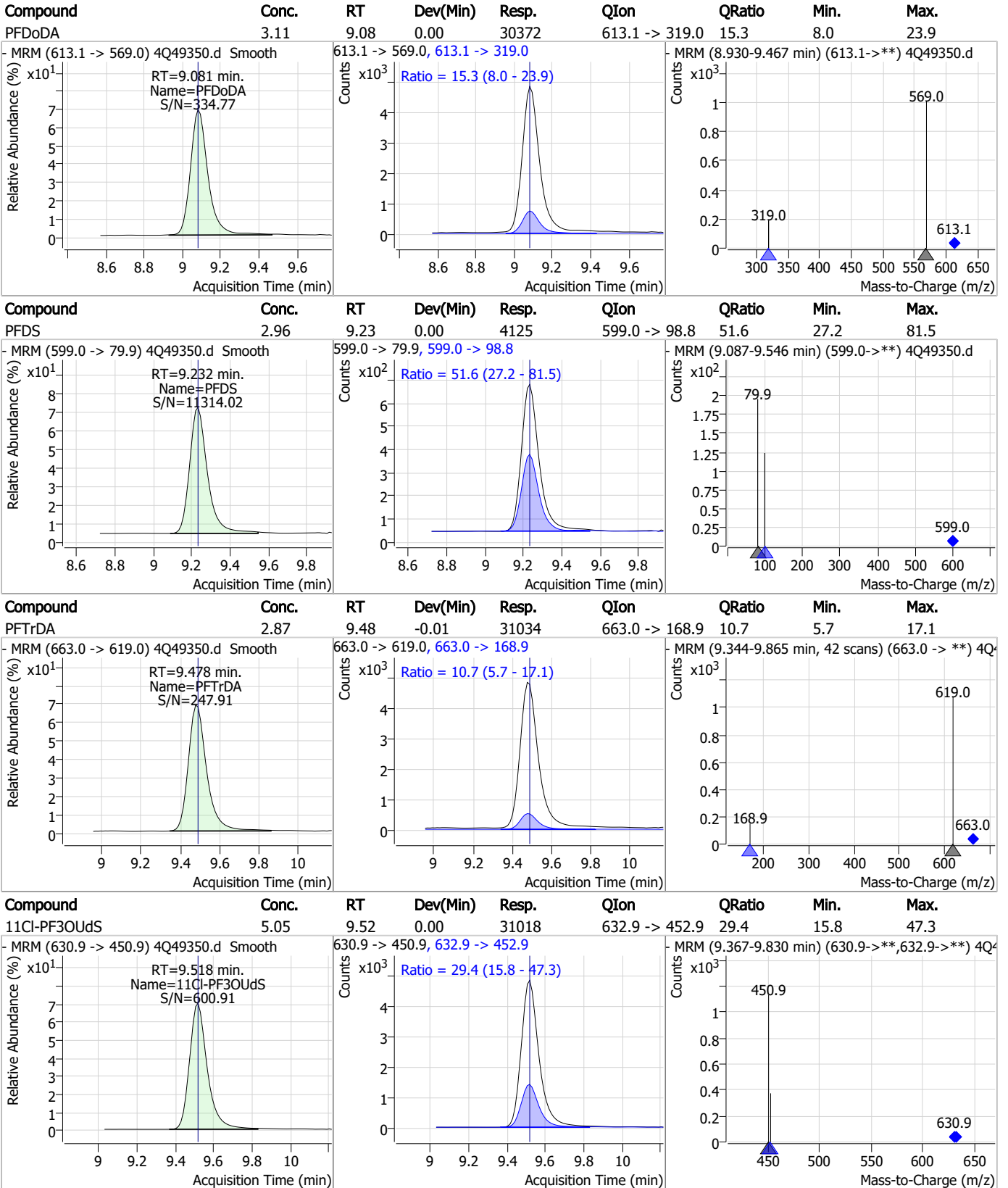


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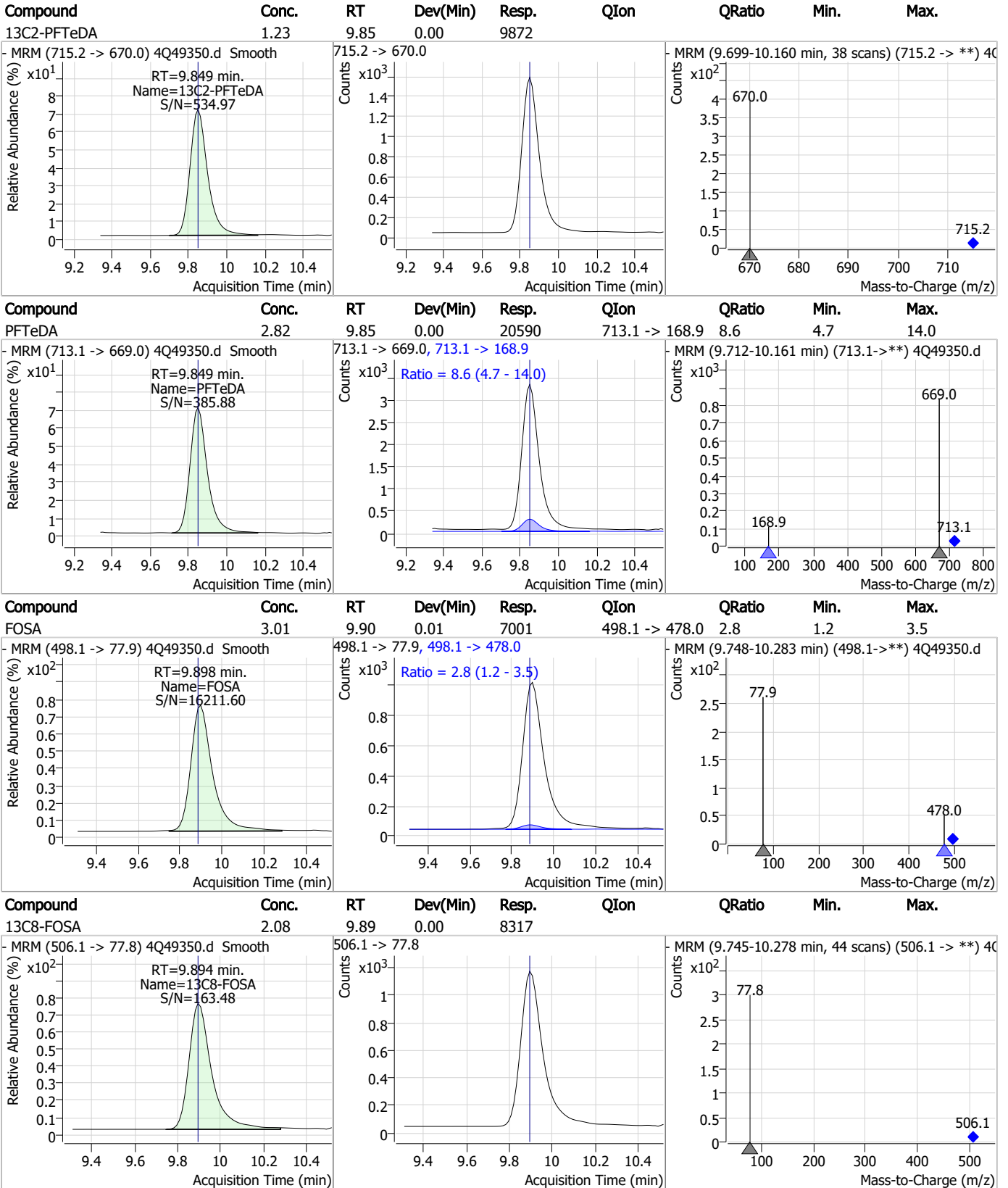
### Perfluorinated Compounds by LC/MS/MS



7.4.1

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### Perfluorinated Compounds by LC/MS/MS



7.4.1

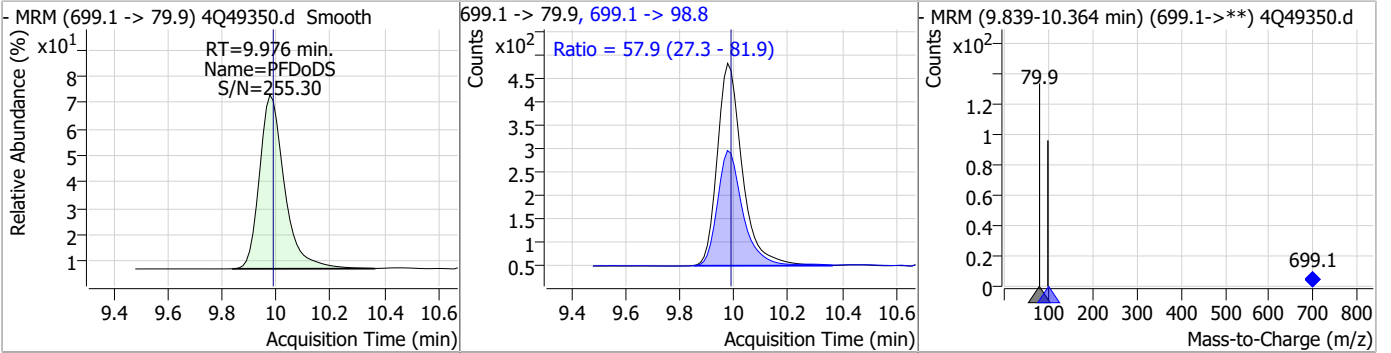
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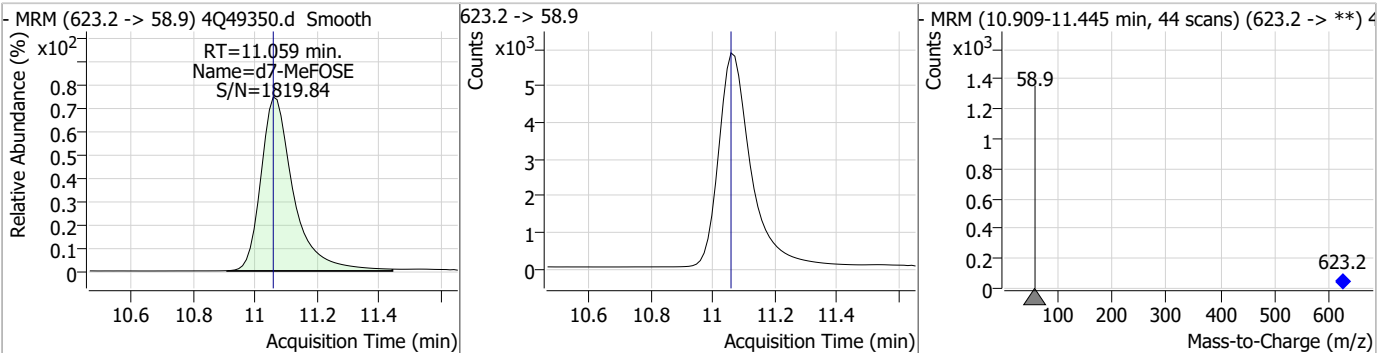


### Perfluorinated Compounds by LC/MS/MS

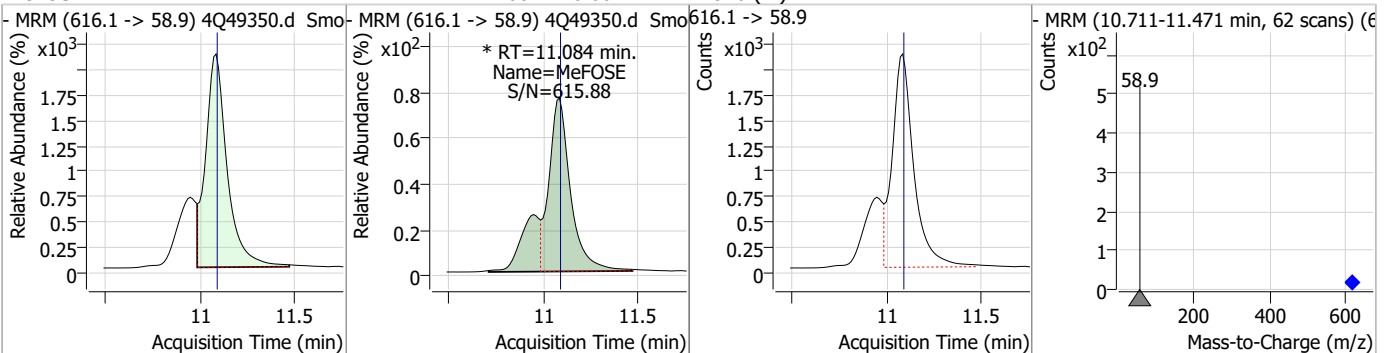
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	2.66	9.98	-0.01	2809	699.1 -> 98.8	57.9	27.3	81.9



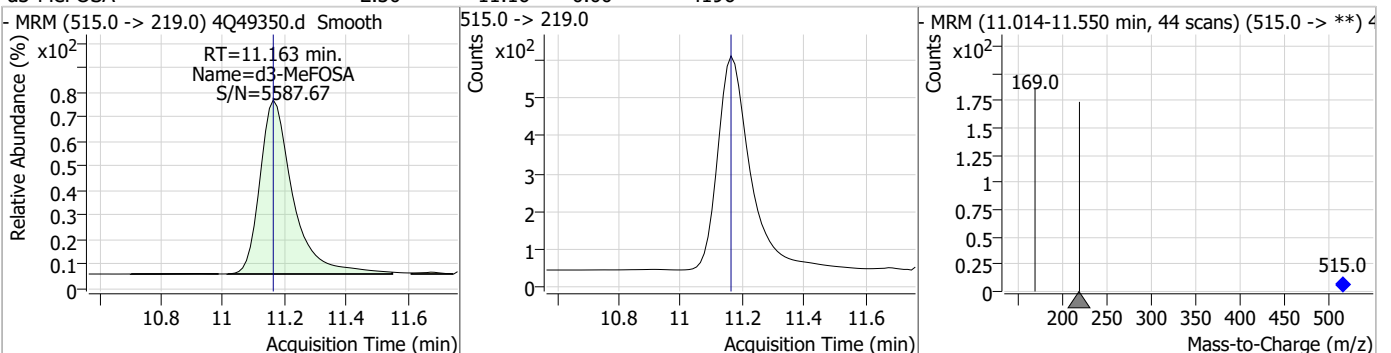
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.66	11.06	0.00	42951				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	14.14	11.08	0.00	21546 (m)				

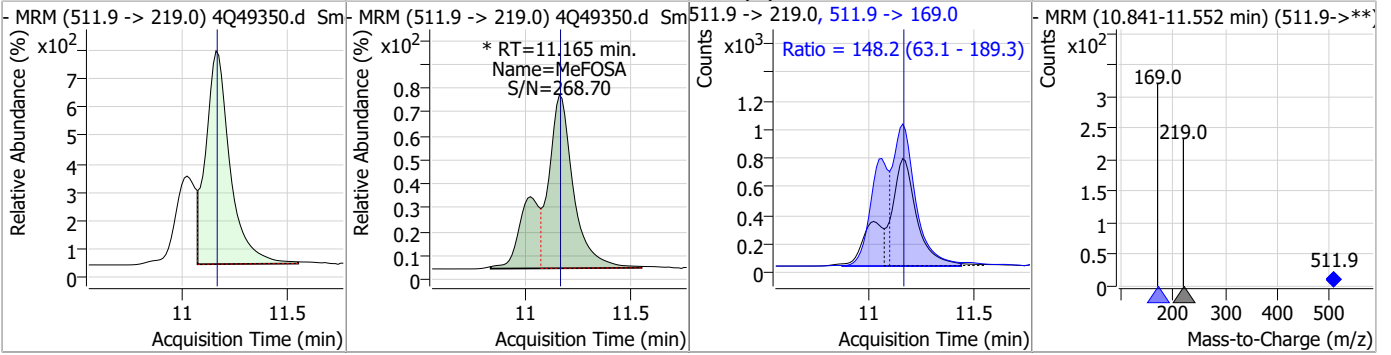


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.30	11.16	0.00	4196				

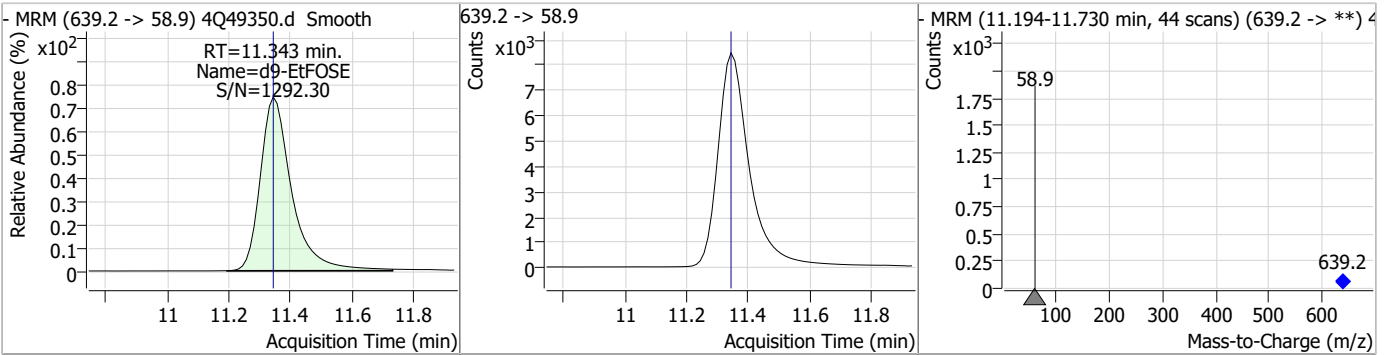


### Perfluorinated Compounds by LC/MS/MS

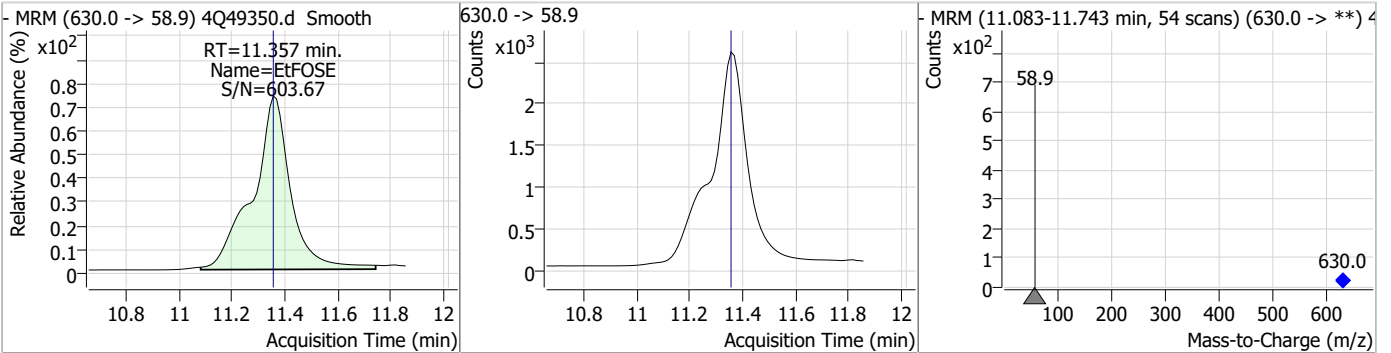
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.47	11.16	0.00	7961 (m)	511.9 -> 169.0	148.2	63.1	189.3



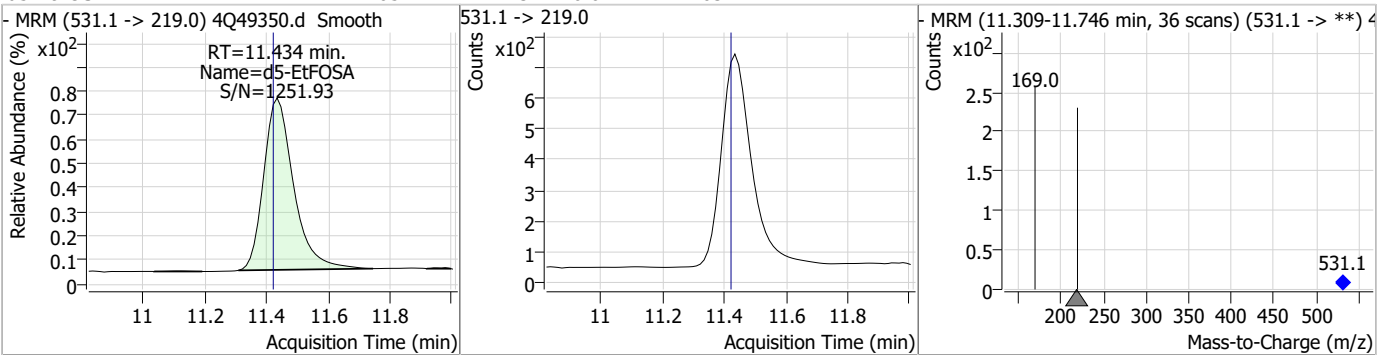
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	20.30	11.34	0.00	59433				



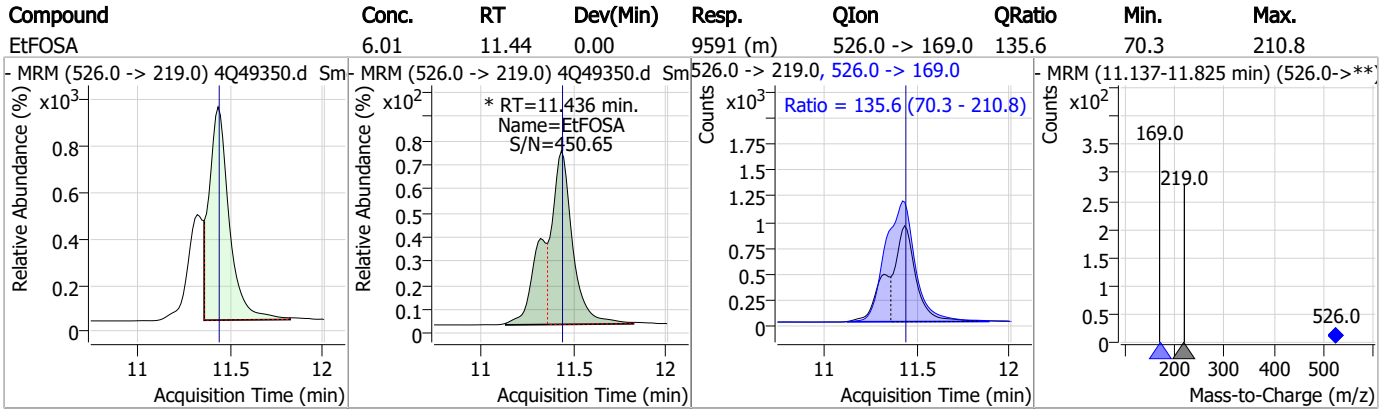
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	14.04	11.36	0.00	25623				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.05	11.43	0.01	4632				



### Perfluorinated Compounds by LC/MS/MS



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# Manual Integration Approval Summary

Sample Number: OP98526-MS                      Method: EPA DRAFT 1633  
Lab FileID: 4Q49350.D                      Analyst approved: 08/24/23 16:18 Natasha Gumtie  
Injection Time: 08/23/23 13:18                      Supervisor approved: 08/24/23 16:19 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.32	Split peak
EtFOSAA	2991-50-6		8.48	Split peak
MeFOSE	24448-09-7		11.08	Split peak
MeFOSA	31506-32-8		11.16	Split peak
EtFOSA	4151-50-2		11.44	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q49355.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 8/23/2023 2:32:11 PM  
 Sample Name : OP98526-DUP  
 Vial : P3-F2  
 DA Method File : 1633\_082223\_S4Q722.quantmethod.xml  
 Batch Name : s4q723.batch.bin  
 Sample Information : OP98526,S4Q723,540,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.874	216.8 -> 171.9	59423	10.00 µg/L	0.062
M5-PFPeA	4.337	268.3 -> 223.0	56523	5.00 µg/L	0.025
M5-PFHxA	5.534	318.0 -> 273.0	38481	2.50 µg/L	0.025
M4-PFHpA	6.504	367.1 -> 322.0	26734	2.50 µg/L	0.037
M8-PFOA	7.176	421.1 -> 376.0	40118	2.50 µg/L	0.027
M9-PFNA	7.708	472.1 -> 427.0	14970	1.25 µg/L	0.012
M6-PFDA	8.204	519.1 -> 474.1	11445	1.25 µg/L	0.012
M7-PFUnDA	8.660	570.0 -> 525.1	14932	1.25 µg/L	0.012
M2-PFDoDA	9.093	615.1 -> 570.0	15377	1.25 µg/L	0.012
M2-PFTeDA	9.861	715.2 -> 670.0	9709	1.25 µg/L	0.012
M8-FOSA	9.906	506.1 -> 77.8	7521	2.50 µg/L	0.012
M3-PFBS	5.414	302.1 -> 79.9	10736	2.50 µg/L	0.023
M3-PFHxS	7.241	402.1 -> 79.9	7252	2.50 µg/L	0.025
M8-PFOS	8.329	507.1 -> 79.9	6155	2.50 µg/L	0.000
M2-4:2FTS	5.233	329.1 -> 80.9	1344	5.00 µg/L	0.025
M2-6:2FTS	6.948	429.1 -> 80.9	2064	5.00 µg/L	0.037
M2-8:2FTS	8.003	529.1 -> 80.9	2879	5.00 µg/L	0.012
M3-MeFOSAA	8.274	573.2 -> 419.0	10257	5.00 µg/L	0.012
M3-HFPO-DA	5.914	286.9 -> 168.9	26940	10.00 µg/L	0.037
M5-EtFOSAA	8.483	589.2 -> 419.0	9177	5.00 µg/L	0.012
M7-MeFOSE	11.071	623.2 -> 58.9	42301	25.00 µg/L	0.012
M9-EtFOSE	11.343	639.2 -> 58.9	59455	25.00 µg/L	0.000
M5-EtFOSA	11.434	531.1 -> 219.0	4883	2.50 µg/L	0.012
M3-MeFOSA	11.163	515.0 -> 219.0	3828	2.50 µg/L	0.000
13C4-PFOS	8.330	502.8 -> 79.9	6062	2.50 µg/L	0.000
13C3-PFBA	2.866	216.0 -> 172.0	53788	5.00 µg/L	0.062
18O2-PFHxS	7.240	403.0 -> 83.9	4860	2.50 µg/L	0.012
13C4-PFOA	7.176	417.1 -> 372.0	40743	2.50 µg/L	0.027
13C2-PFDA	8.204	515.1 -> 470.1	9312	1.25 µg/L	0.012
13C5-PFNA	7.708	468.0 -> 423.0	14426	1.25 µg/L	0.012
13C2-PFHxA	5.535	315.1 -> 270.0	31759	2.50 µg/L	0.025
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.233	329.1 -> 80.9	1344	6.09 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.8%		
13C2-6:2FTS	6.948	429.1 -> 80.9	2064	6.58 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 131.7%		
13C2-8:2FTS	8.003	529.1 -> 80.9	2879	5.70 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.9%		
13C2-PFDoDA	9.093	615.1 -> 570.0	15377	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C2-PFTeDA	9.861	715.2 -> 670.0	9709	1.18 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.5%		
13C3-PFBS	5.414	302.1 -> 79.9	10736	2.86 µg/L	0.023
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 114.3%		
13C3-PFHxS	7.241	402.1 -> 79.9	7252	2.65 µg/L	0.025

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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	2.874	216.8 -> 171.9	59423	6.21 µg/L	0.062
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 62.1%	
13C4-PFHpA	6.504	367.1 -> 322.0	26734	2.96 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 118.4%	
13C5-PFHxA	5.534	318.0 -> 273.0	38481	2.88 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.2%	
13C5-PFPeA	4.337	268.3 -> 223.0	56523	5.71 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 114.1%	
13C6-PFDA	8.204	519.1 -> 474.1	11445	1.44 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 115.1%	
13C7-PFUnDA	8.660	570.0 -> 525.1	14932	1.38 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.4%	
13C8-FOSA	9.906	506.1 -> 77.8	7521	1.84 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 73.7%	
13C8-PFOA	7.176	421.1 -> 376.0	40118	2.80 µg/L	0.027
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.1%	
13C8-PFOS	8.329	507.1 -> 79.9	6155	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C9-PFNA	7.708	472.1 -> 427.0	14970	1.37 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.3%	
d3-MeFOSAA	8.274	573.2 -> 419.0	10257	4.84 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C3-HFPO-DA	5.914	286.9 -> 168.9	26940	10.51 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.1%	
d3-MeFOSA	11.163	515.0 -> 219.0	3828	2.05 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 82.0%	
d5-EtFOSAA	8.483	589.2 -> 419.0	9177	5.18 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
d7-MeFOSE	11.071	623.2 -> 58.9	42301	18.92 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 75.7%	
d9-EtFOSE	11.343	639.2 -> 58.9	59455	19.84 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.4%	
d5-EtFOSA	11.434	531.1 -> 219.0	4883	2.12 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.6%	

7.5.1  
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Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	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	2.870	212.8 -> 168.9	6137	4.81 µg/L	100
PFBS	5.415	298.7 -> 79.9	350	0.11 µg/L	m 91
		298.7 -> 98.8	163		
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
		599.0 -> 98.8			
PFHpA	-	363.1 -> 319.0	-	N.D.	
		363.1 -> 169.0			
PFHpS	-	449.0 -> 79.9	-	N.D.	
		449.0 -> 98.9			
PFHxA	5.537	313.0 -> 269.0	4938	0.42 µg/L	98
		313.0 -> 118.9	122		
PFHxS	-	398.7 -> 79.9	-	N.D.	
		398.7 -> 98.9			
PFNA	-	463.0 -> 419.0	-	N.D.	
		463.0 -> 219.0			
PFNS	-	548.8 -> 79.9	-	N.D.	
		548.8 -> 98.9			
PFOA	-	413.0 -> 369.0	-	N.D.	
		413.0 -> 169.0			
PFOS	-	498.9 -> 79.9	-	N.D.	
		498.9 -> 98.8			
PFPeA	4.339	263.0 -> 219.0	15723	1.57 µg/L	100
PFPeS	-	349.1 -> 79.9	-	N.D.	
		349.1 -> 98.9			
PFTeDA	-	713.1 -> 669.0	-	N.D.	
		713.1 -> 168.9			
PFTTrDA	-	663.0 -> 619.0	-	N.D.	
		663.0 -> 168.9			
PFUnDA	-	563.1 -> 519.0	-	N.D.	
		563.1 -> 269.1			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.	
		632.9 -> 452.9			
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.	
		532.8 -> 353.0			
ADONA	-	376.9 -> 250.9	-	N.D.	
		376.9 -> 84.8			
HFPO-DA	-	284.9 -> 168.9	-	N.D.	
		284.9 -> 184.9			
3:3FTCA	-	241.0 -> 177.0	-	N.D.	
		241.0 -> 117.0			
5:3FTCA	-	341.0 -> 237.1	-	N.D.	
		341.0 -> 217.0			
7:3FTCA	-	441.0 -> 316.9	-	N.D.	
		441.0 -> 336.9			
EtFOSA	-	526.0 -> 219.0	-	N.D.	
		526.0 -> 169.0			
EtFOSE	-	630.0 -> 58.9	-	N.D.	
MeFOSA	-	511.9 -> 219.0	-	N.D.	
		511.9 -> 169.0			
MeFOSE	-	616.1 -> 58.9	-	N.D.	
PFDoDS	-	699.1 -> 79.9	-	N.D.	
		699.1 -> 98.8			
NFDHA	-	295.0 -> 201.0	-	N.D.	
		295.0 -> 84.9			
PFMBA	-	279.0 -> 85.1	-	N.D.	
PFMPA	-	229.0 -> 84.9	-	N.D.	
PFEESA	-	314.8 -> 134.9	-	N.D.	
		314.8 -> 82.9			

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

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

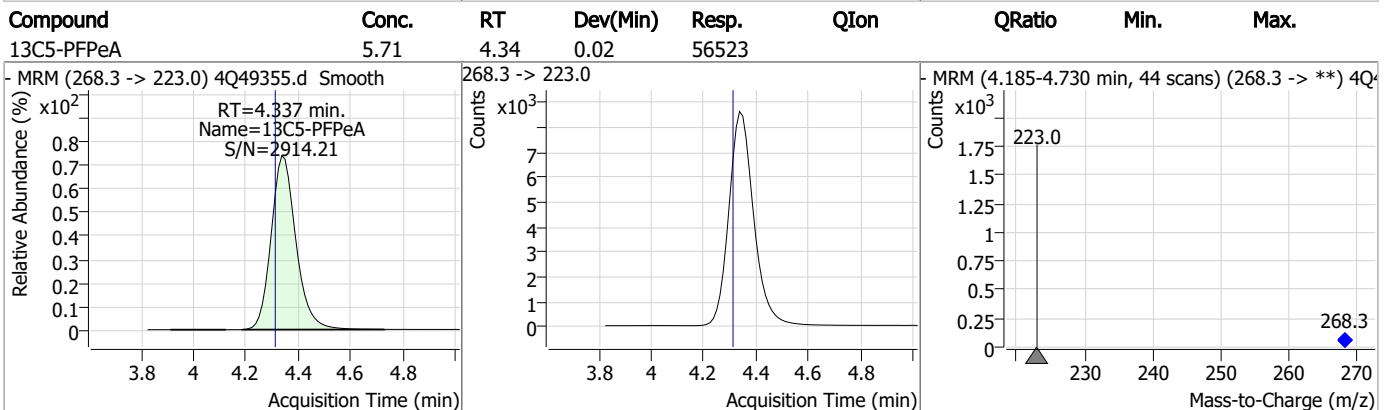
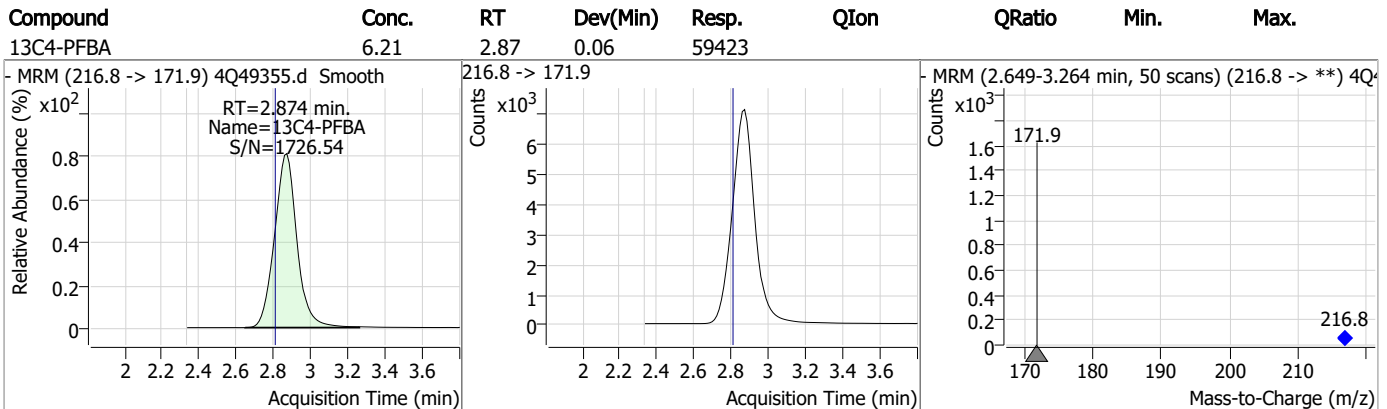
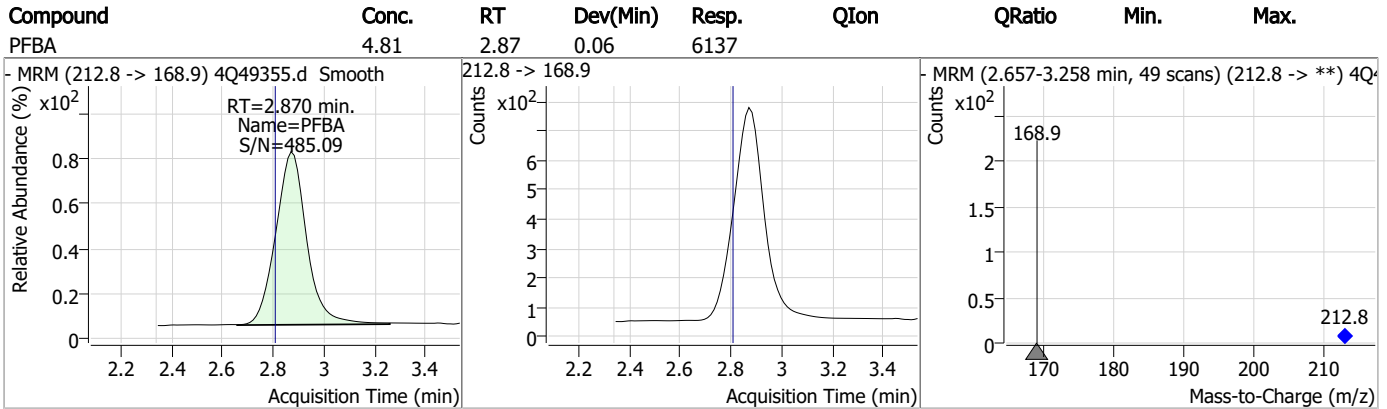
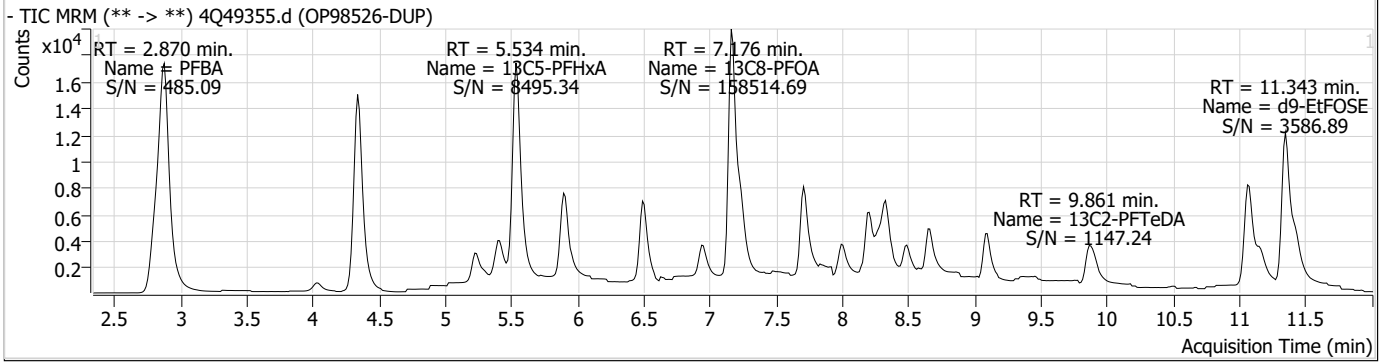
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.5.1

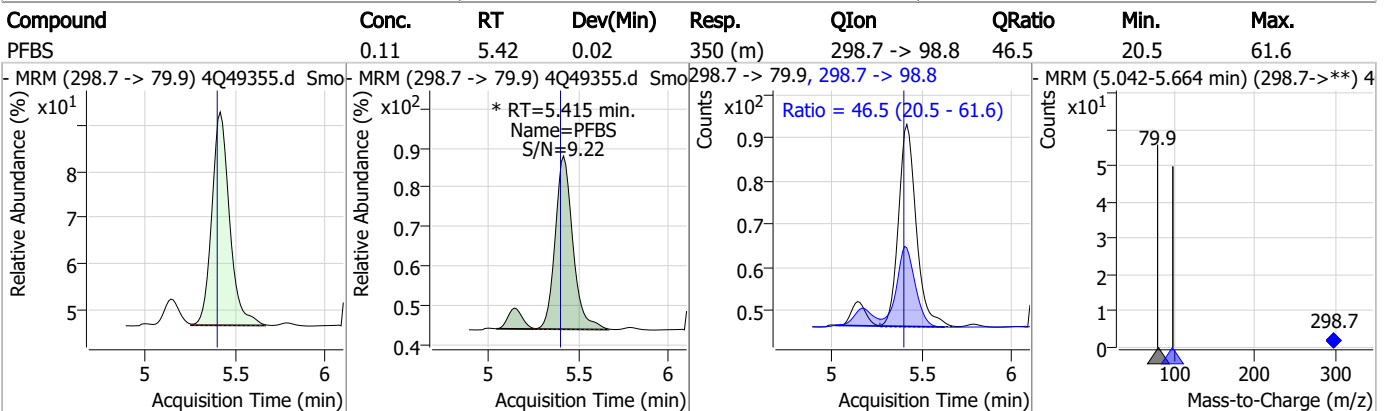
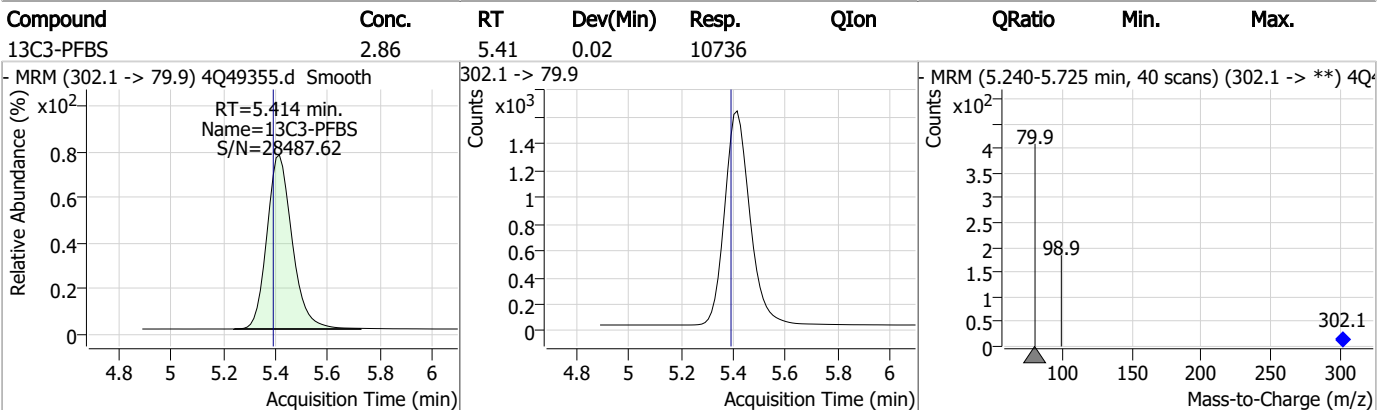
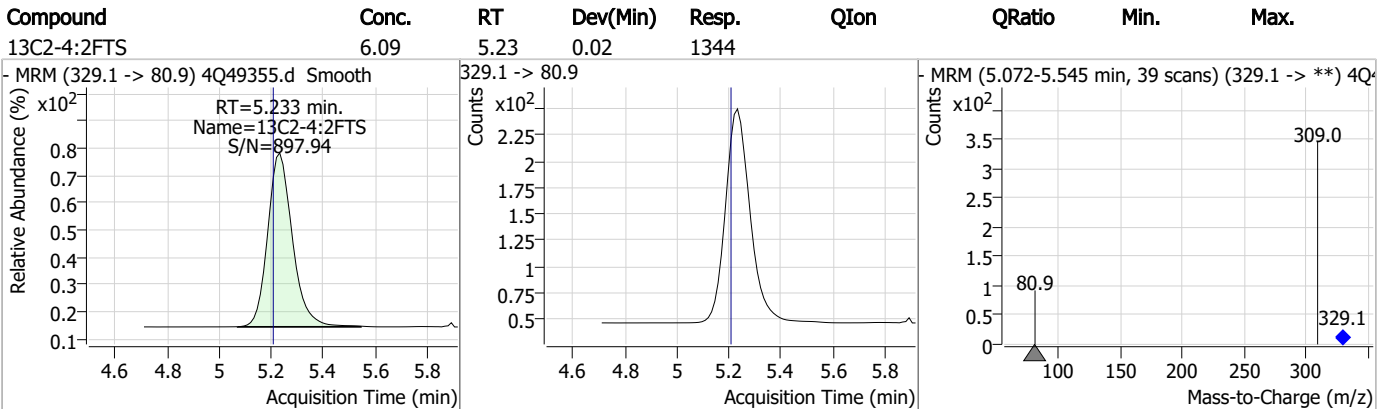
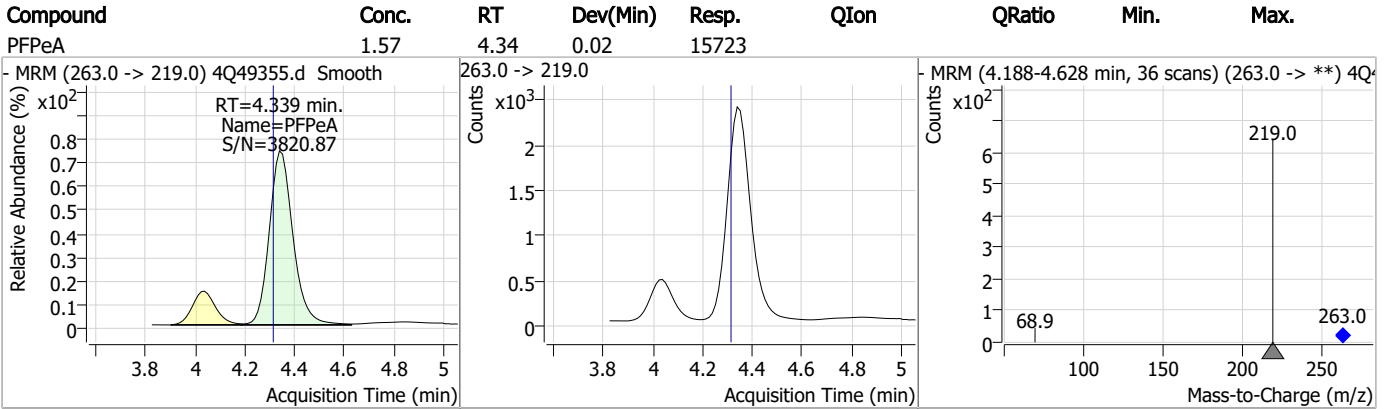
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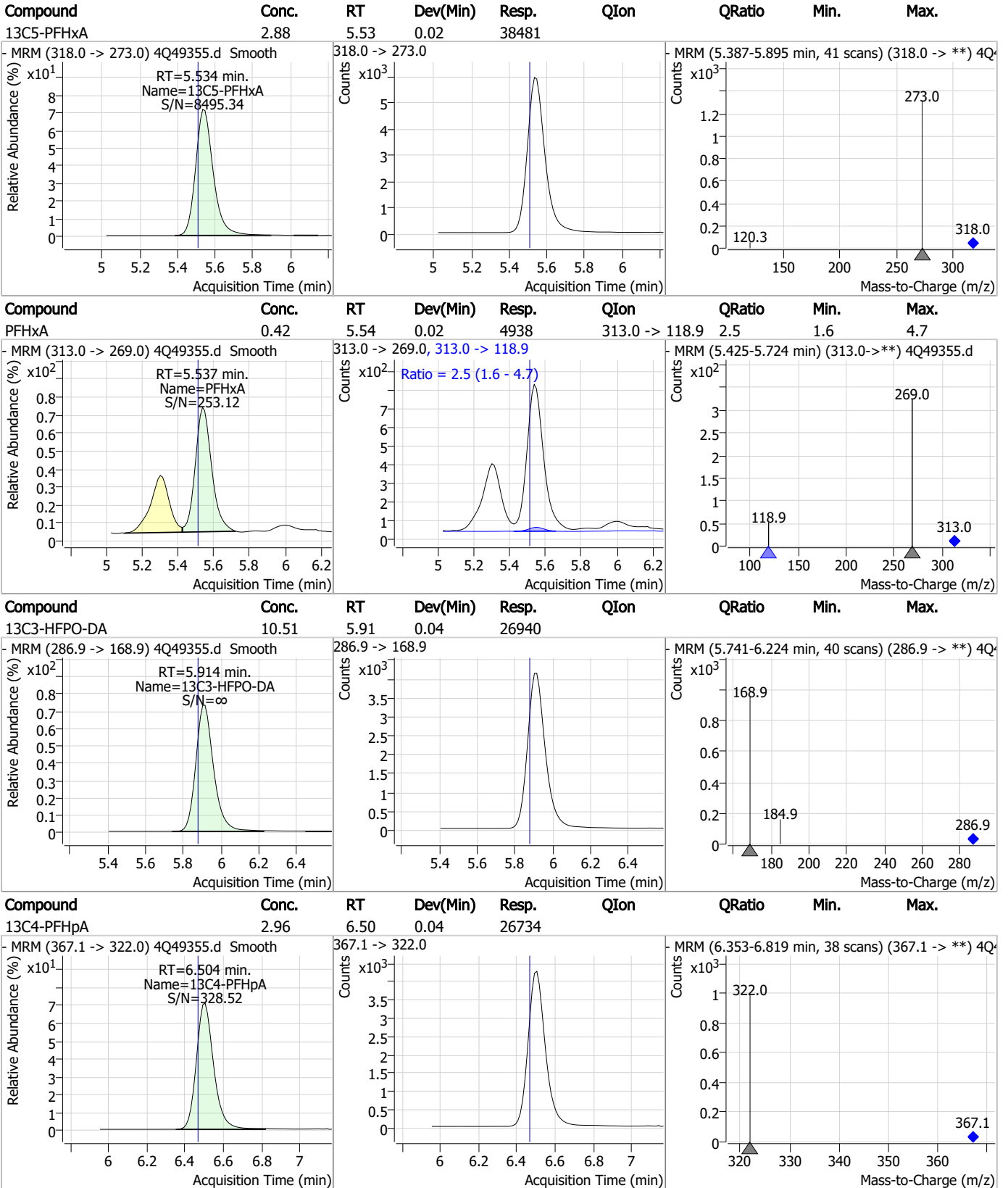
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



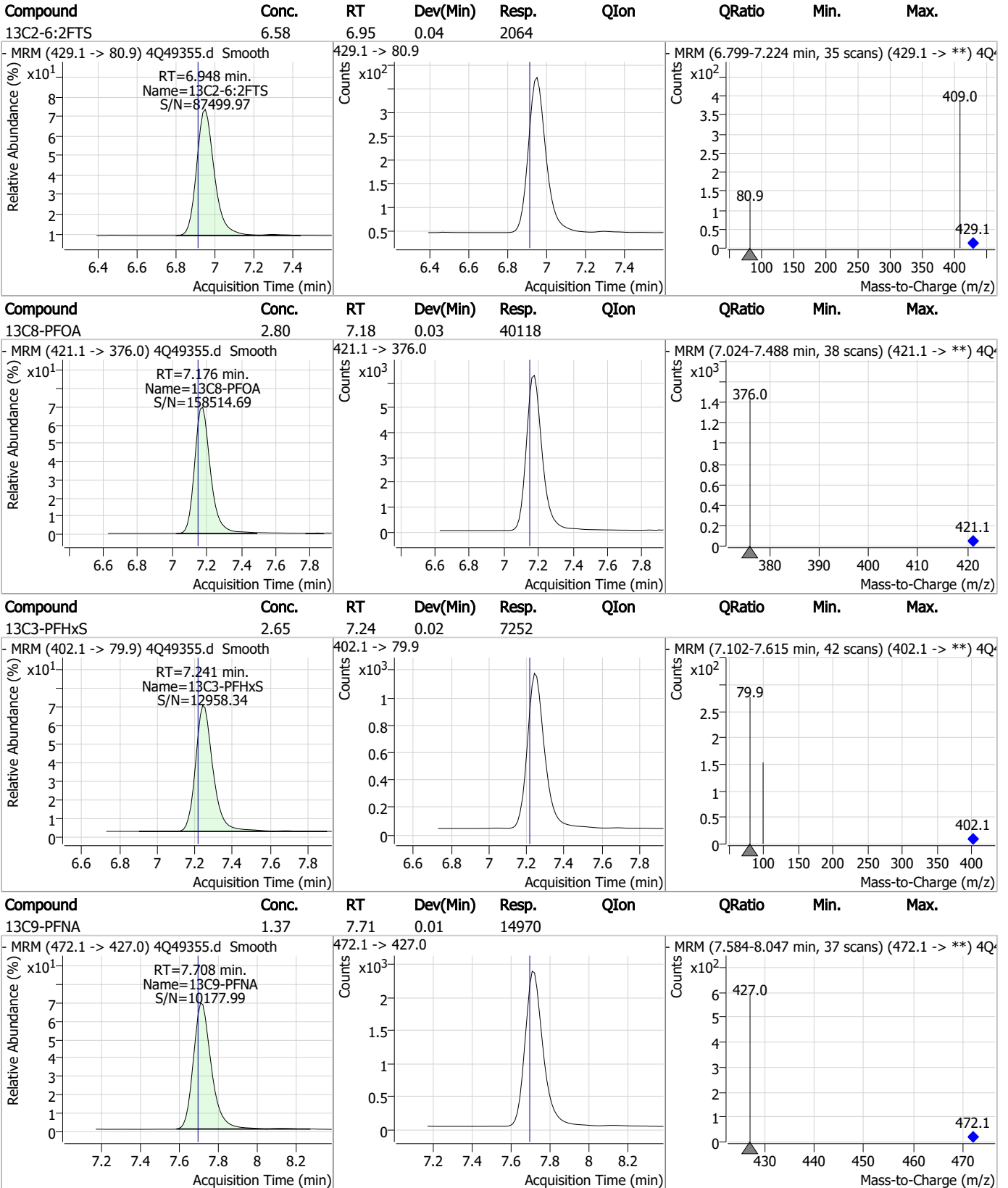
### Perfluorinated Compounds by LC/MS/MS



7.5.1

7

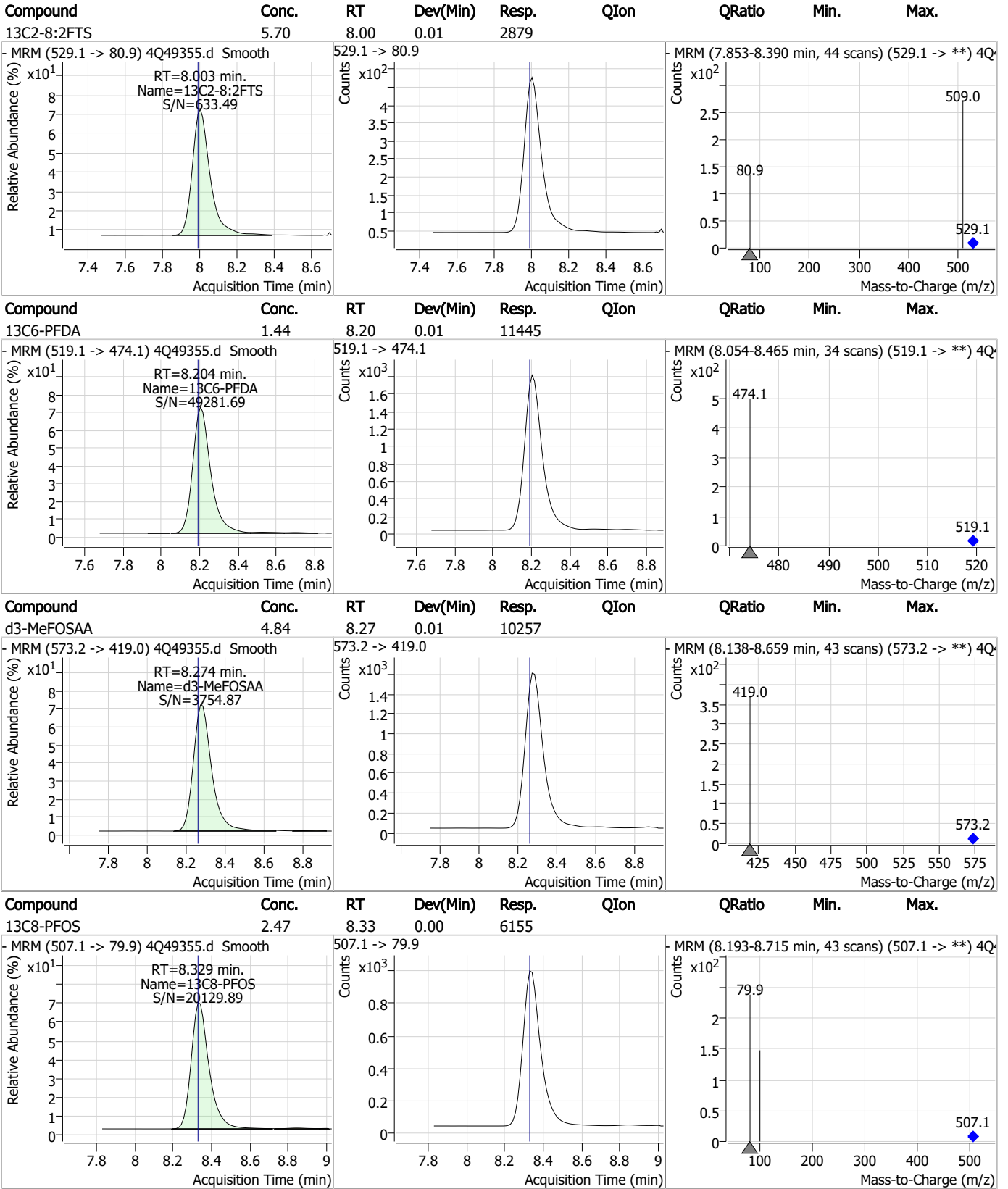
### Perfluorinated Compounds by LC/MS/MS



7.5.1

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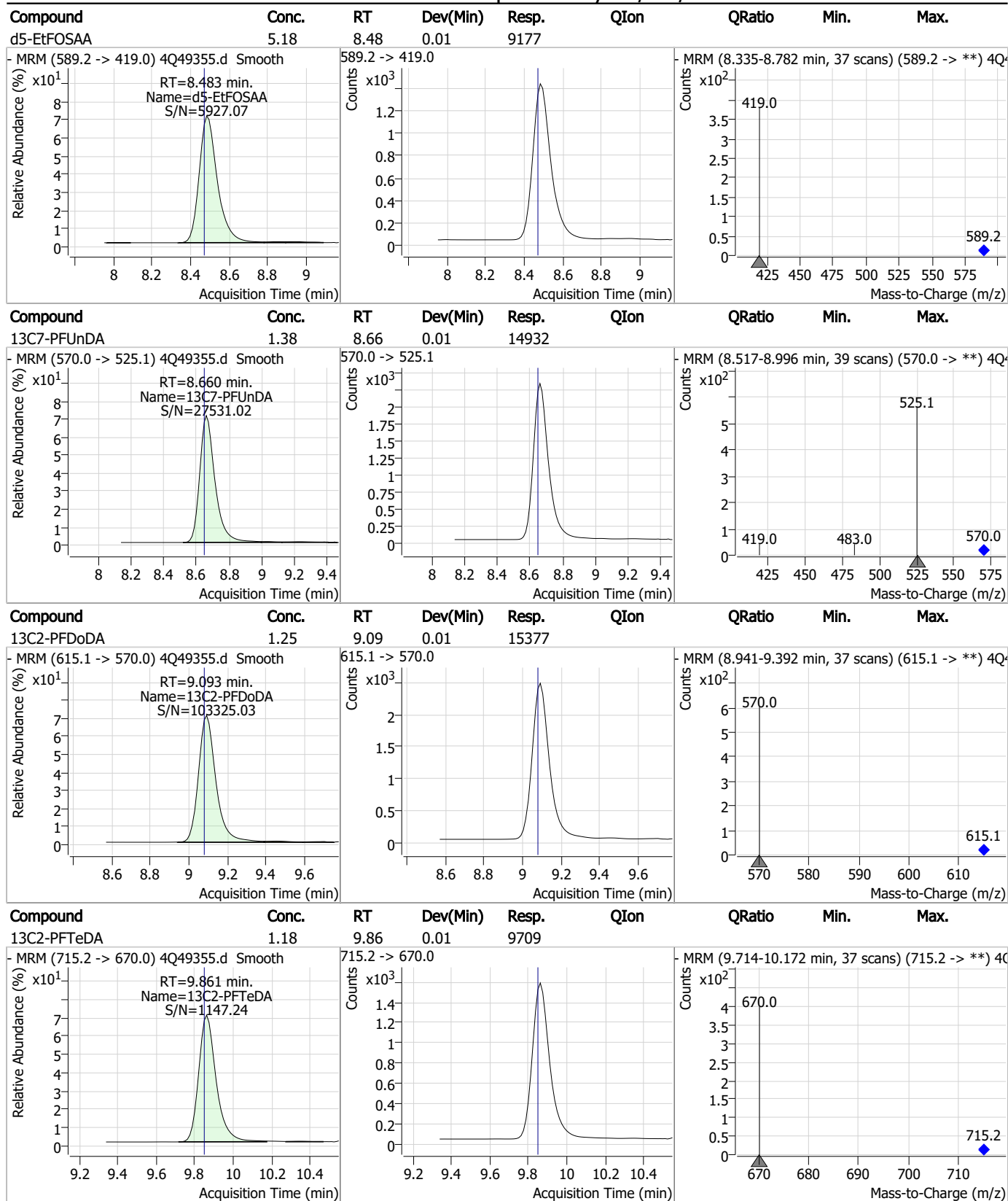
### Perfluorinated Compounds by LC/MS/MS



7.5.1

7

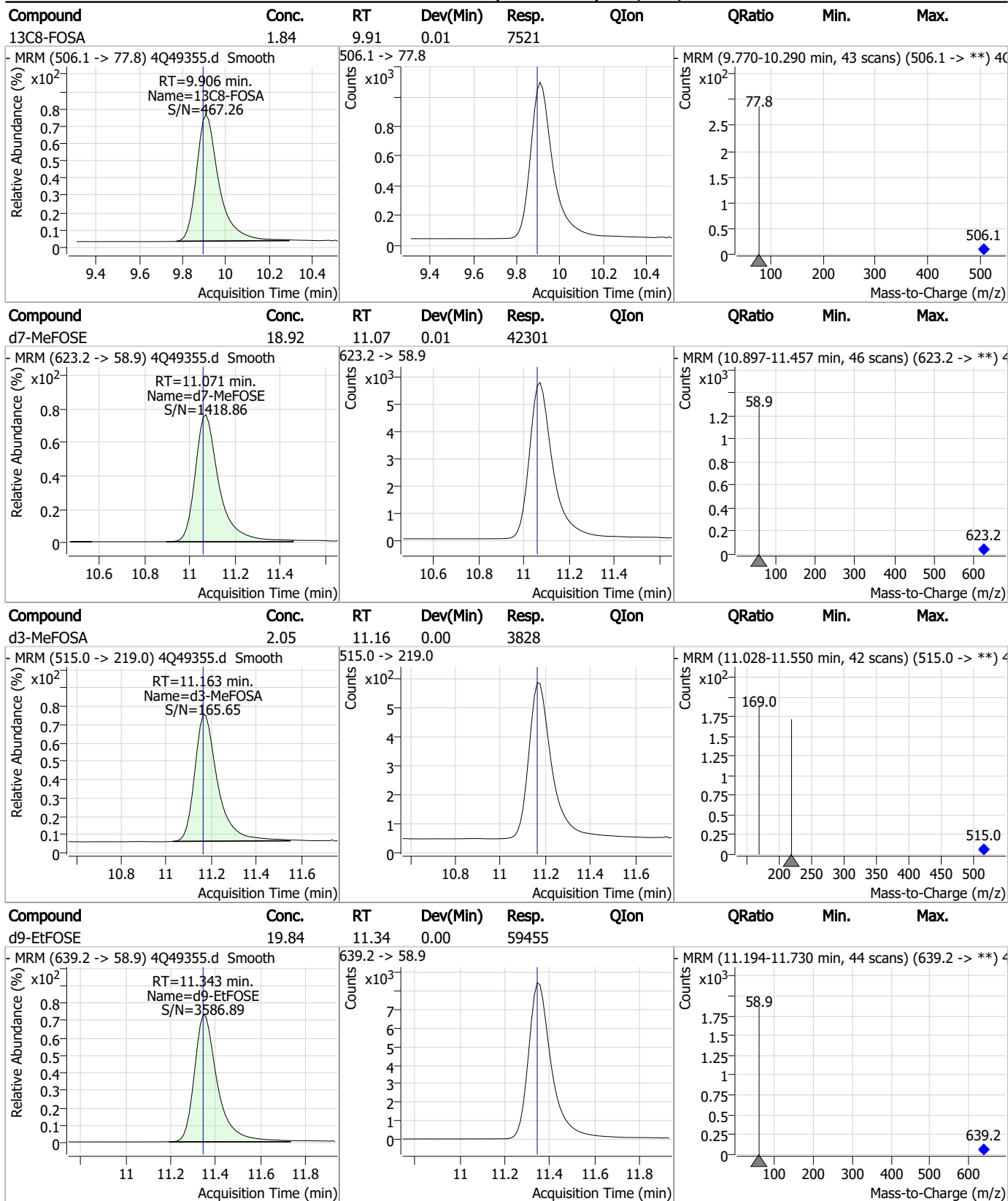
### Perfluorinated Compounds by LC/MS/MS



7.5.1

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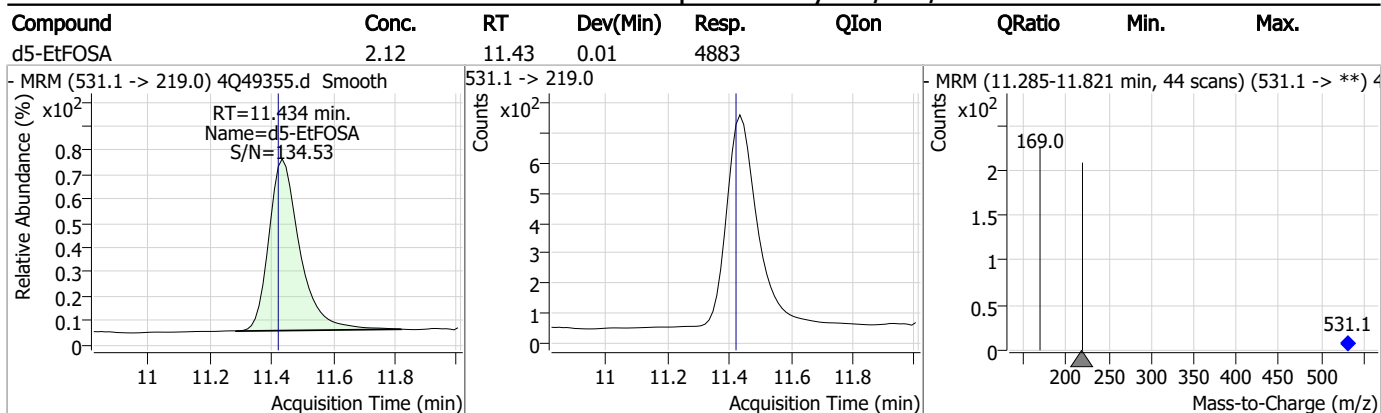
### Perfluorinated Compounds by LC/MS/MS



7.5.1  
7



### Perfluorinated Compounds by LC/MS/MS



7.5.1  
7



# Manual Integration Approval Summary

Sample Number: OP98526-DUP                      Method: EPA DRAFT 1633  
Lab FileID: 4Q49355.D                      Analyst approved: 08/24/23 16:18 Natasha Gumtie  
Injection Time: 08/23/23 14:32                      Supervisor approved: 08/24/23 16:19 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorobutanesulfonic acid	375-73-5		5.42	Split peak

7.5.1.1

7

Manual Integrations  
**APPROVED**  
 (compounds with "m" flag)  
 Natasha Gumtie  
 08/23/23 15:25

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q49278.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 8/22/2023 10:05:51 AM  
 Sample Name : RT TDCA  
 Vial : P1-B1  
 DA Method File : TDCA.quantmethod.xml  
 Batch Name : s4q722\_TDCA.batch.bin  
 Sample Information : OP98180,S4Q722,500,,,5.0,1,water

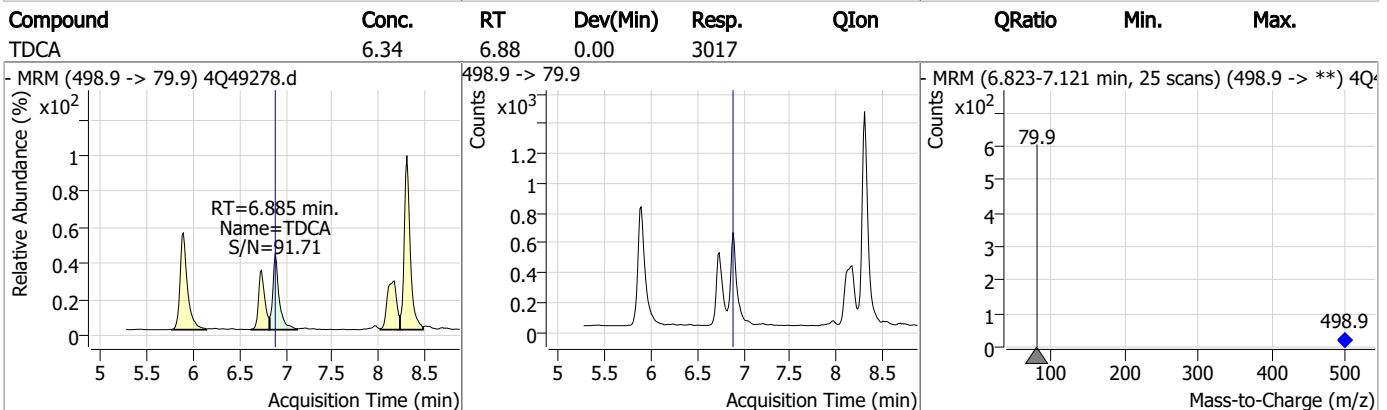
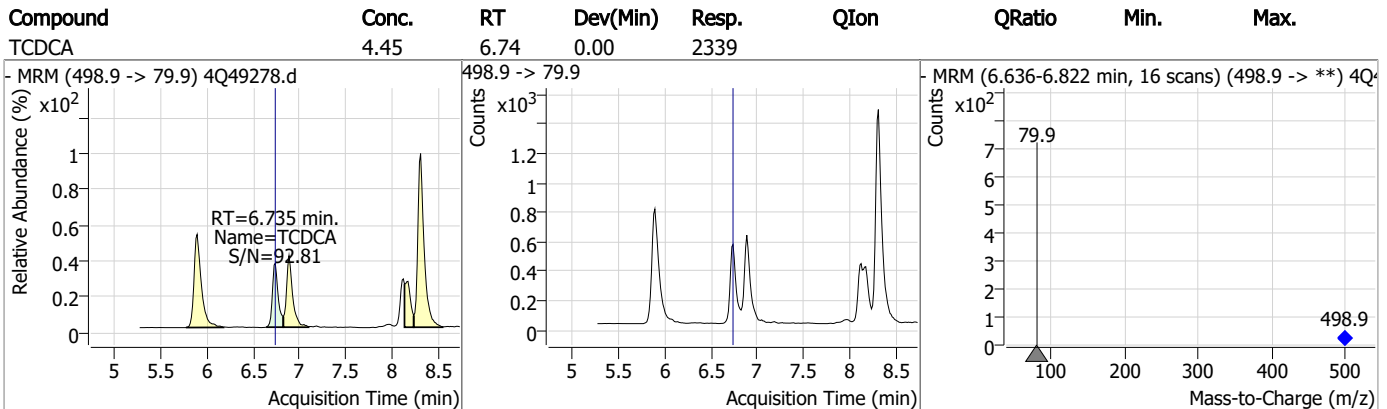
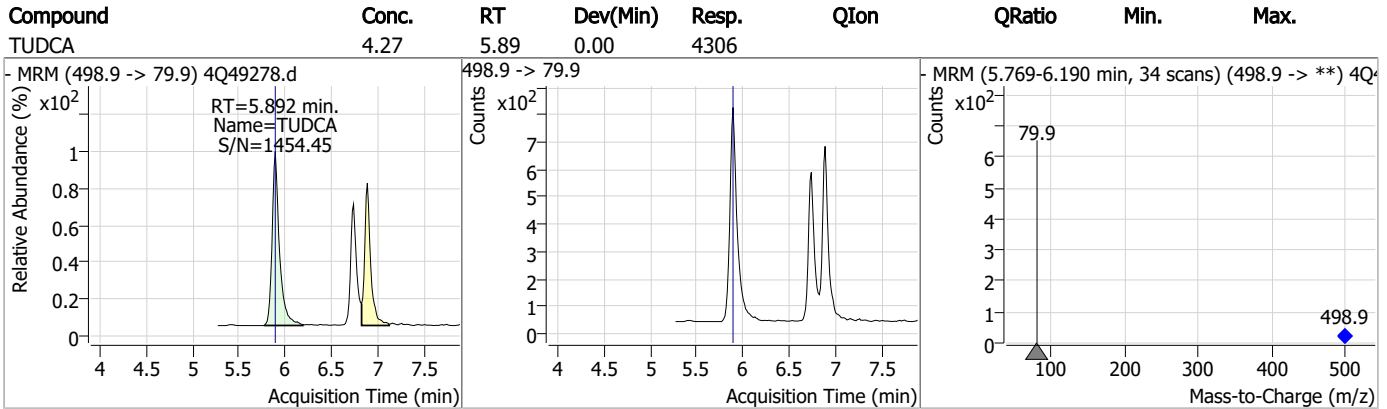
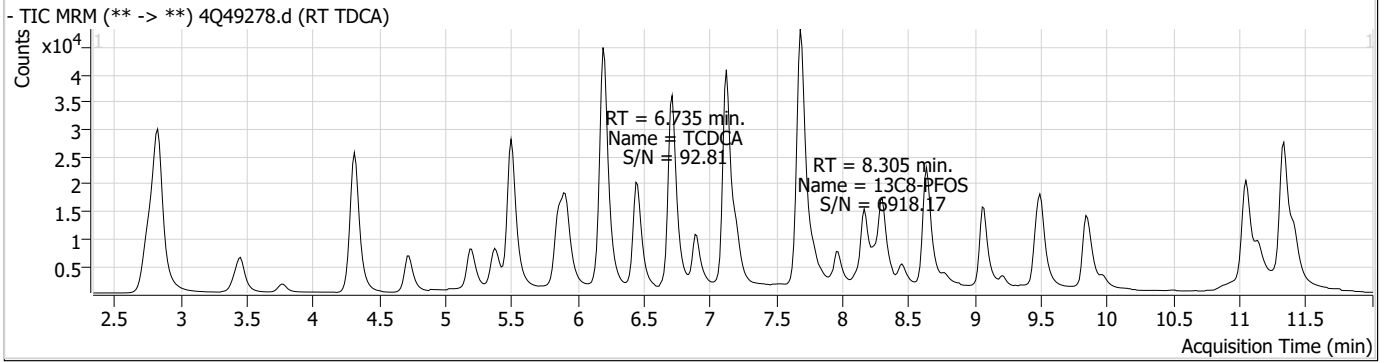
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
<b>Internal Standards</b>							
M8-PFOS	8.305	507.1 -> 79.9	11384	2.50	µg/L	0.000	
13C4-PFOS	8.305	502.8 -> 79.9	10924	2.50	µg/L	0.000	
<b>System Monitoring Compounds</b>							
13C8-PFOS	8.305	507.1 -> 79.9	11384	2.64	µg/L	0.000	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.7%				
<b>Target Compounds</b>							
PFOS	8.306	498.9 -> 79.9 498.9 -> 98.8	8624 4335	2.22	µg/L m		84
TCDCa	6.735	498.9 -> 79.9	2339	4.45	ng/ml		100
TDCA	6.885	498.9 -> 79.9	3017	6.34	ng/ml		100
TUDCA	5.892	498.9 -> 79.9	4306	4.27	ng/ml		100

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

7.6.1

7

### Perfluorinated Compounds by LC/MS/MS

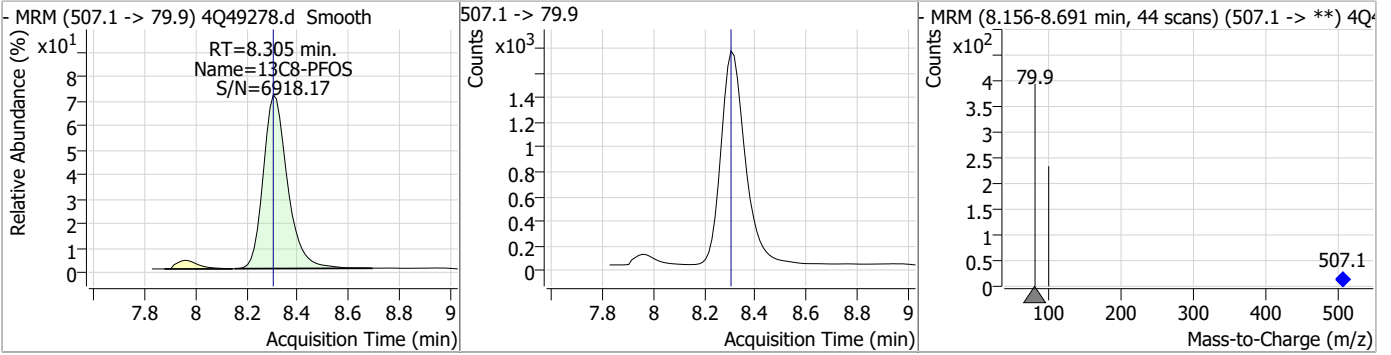


7.6.1

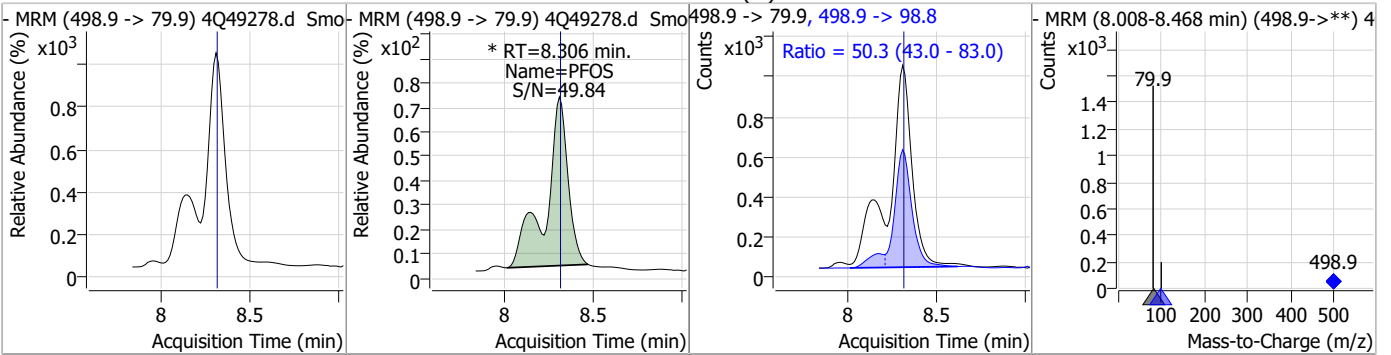
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### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.64	8.30	0.00	11384				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.22	8.31	0.00	8624 (m)	498.9 -> 98.8	50.3	43.0	83.0



7.6.1

7

# Manual Integration Approval Summary

Sample Number: S4Q722-RT                      Method: EPA DRAFT 1633  
Lab FileID: 4Q49278.D                      Analyst approved: 08/23/23 10:44 Martha Valls  
Injection Time: 08/22/23 10:05                      Supervisor approved: 08/23/23 15:25 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.31	Split peak

7.6.1.1

7

## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q49279.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 8/22/2023 10:20:35 AM  
 Sample Name : RT\_BR\_LN  
 Vial : P1-B2  
 DA Method File : 1633\_082223\_S4Q722.quantmethod.xml  
 Batch Name : s4q722.batch.bin  
 Sample Information : OP98180,S4Q722,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.811	216.8 -> 171.9	125054	10.00 µg/L	0.000
M5-PFPeA	4.312	268.3 -> 223.0	70316	5.00 µg/L	0.000
M5-PFHxA	5.510	318.0 -> 273.0	46447	2.50 µg/L	0.000
M4-PFHpA	6.455	367.1 -> 322.0	32648	2.50 µg/L	-0.012
M8-PFOA	7.136	421.1 -> 376.0	51526	2.50 µg/L	-0.012
M9-PFNA	7.683	472.1 -> 427.0	20355	1.25 µg/L	-0.012
M6-PFDA	8.179	519.1 -> 474.1	14811	1.25 µg/L	-0.012
M7-PFUnDA	8.635	570.0 -> 525.1	19733	1.25 µg/L	-0.012
M2-PFDoDA	9.068	615.1 -> 570.0	23639	1.25 µg/L	-0.012
M2-PFTeDA	9.836	715.2 -> 670.0	14607	1.25 µg/L	-0.012
M8-FOSA	9.882	506.1 -> 77.8	13379	2.50 µg/L	-0.012
M3-PFBS	5.378	302.1 -> 79.9	13220	2.50 µg/L	-0.012
M3-PFHxS	7.216	402.1 -> 79.9	9812	2.50 µg/L	0.000
M8-PFOS	8.317	507.1 -> 79.9	8392	2.50 µg/L	-0.012
M2-4:2FTS	5.196	329.1 -> 80.9	1331	5.00 µg/L	-0.012
M2-6:2FTS	6.898	429.1 -> 80.9	1962	5.00 µg/L	-0.012
M2-8:2FTS	7.978	529.1 -> 80.9	2564	5.00 µg/L	-0.012
M3-MeFOSAA	8.249	573.2 -> 419.0	12583	5.00 µg/L	-0.012
M3-HFPO-DA	5.865	286.9 -> 168.9	38818	10.00 µg/L	-0.012
M5-EtFOSAA	8.458	589.2 -> 419.0	10939	5.00 µg/L	-0.012
M7-MeFOSE	11.046	623.2 -> 58.9	70413	25.00 µg/L	-0.012
M9-EtFOSE	11.331	639.2 -> 58.9	89519	25.00 µg/L	-0.012
M5-EtFOSA	11.422	531.1 -> 219.0	7396	2.50 µg/L	0.000
M3-MeFOSA	11.151	515.0 -> 219.0	6215	2.50 µg/L	-0.012
13C4-PFOS	8.318	502.8 -> 79.9	7788	2.50 µg/L	-0.012
13C3-PFBA	2.816	216.0 -> 172.0	70893	5.00 µg/L	0.013
18O2-PFHxS	7.215	403.0 -> 83.9	6786	2.50 µg/L	-0.012
13C4-PFOA	7.137	417.1 -> 372.0	60625	2.50 µg/L	-0.012
13C2-PFDA	8.179	515.1 -> 470.1	13449	1.25 µg/L	-0.012
13C5-PFNA	7.684	468.0 -> 423.0	19325	1.25 µg/L	-0.012
13C2-PFHxA	5.511	315.1 -> 270.0	45666	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.196	329.1 -> 80.9	1331	4.32 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 86.3%		
13C2-6:2FTS	6.898	429.1 -> 80.9	1962	4.48 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.7%		
13C2-8:2FTS	7.978	529.1 -> 80.9	2564	3.63 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 72.7%		
13C2-PFDoDA	9.068	615.1 -> 570.0	23639	1.33 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.5%		
13C2-PFTeDA	9.836	715.2 -> 670.0	14607	1.23 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C3-PFBS	5.378	302.1 -> 79.9	13220	2.52 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C3-PFHxS	7.216	402.1 -> 79.9	9812	2.57 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 = 102.9%	
13C4-PFBA	2.811	216.8 -> 171.9	125054	9.92 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C4-PFHpA	6.455	367.1 -> 322.0	32648	2.51 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C5-PFHxA	5.510	318.0 -> 273.0	46447	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C5-PFPeA	4.312	268.3 -> 223.0	70316	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C6-PFDA	8.179	519.1 -> 474.1	14811	1.29 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C7-PFUnDA	8.635	570.0 -> 525.1	19733	1.26 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C8-FOSA	9.882	506.1 -> 77.8	13379	2.55 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C8-PFOA	7.136	421.1 -> 376.0	51526	2.42 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C8-PFOS	8.317	507.1 -> 79.9	8392	2.62 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C9-PFNA	7.683	472.1 -> 427.0	20355	1.39 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.9%	
d3-MeFOSAA	8.249	573.2 -> 419.0	12583	4.62 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.4%	
13C3-HFPO-DA	5.865	286.9 -> 168.9	38818	10.53 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.3%	
d3-MeFOSA	11.151	515.0 -> 219.0	6215	2.59 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%	
d5-EtFOSAA	8.458	589.2 -> 419.0	10939	4.80 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.0%	
d7-MeFOSE	11.046	623.2 -> 58.9	70413	24.52 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.1%	
d9-EtFOSE	11.331	639.2 -> 58.9	89519	23.26 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.0%	
d5-EtFOSA	11.422	531.1 -> 219.0	7396	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.197	327.1 -> 307.0	76889	50.58 µg/L	96
		327.1 -> 80.9	33469		
6:2FTS	6.911	427.1 -> 407.0	69019	48.19 µg/L	100
		427.1 -> 80.9	28452		
8:2FTS	7.967	527.1 -> 507.0	54761	56.09 µg/L	100
		527.1 -> 80.8	26988		
EtFOSAA	8.459	584.2 -> 419.1	19292	12.39 µg/L	m 87
		584.2 -> 526.0	8949		
FOSA	9.885	498.1 -> 77.9	121736	32.59 µg/L	m 98
		498.1 -> 478.0	3565		
MeFOSAA	8.250	570.1 -> 419.0	23907	13.26 µg/L	100
		570.1 -> 483.0	4651		
PFBA	2.820	212.8 -> 168.9	142718	53.10 µg/L	100
PFBS	5.379	298.7 -> 79.9	41406	10.79 µg/L	97
		298.7 -> 98.8	16225		
PFDA	8.180	512.9 -> 469.0	105190	12.31 µg/L	96
		512.9 -> 219.0	21665		
PFDoDA	9.069	613.1 -> 569.0	184534	13.07 µg/L	99
		613.1 -> 319.0	28432		
PFDS	9.220	599.0 -> 79.9	26324	13.03 µg/L	93

7.6.2  
7



## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.455	599.0 -> 98.8	13058	13.44	µg/L	100
		363.1 -> 319.0	213215			
PFHpS	7.797	363.1 -> 169.0	39439	12.70	µg/L	100
		449.0 -> 79.9	36381			
PFHxA	5.500	449.0 -> 98.9	19082	13.15	µg/L	99
		313.0 -> 269.0	187757			
PFHxS	7.217	313.0 -> 118.9	6713	10.66	µg/L	m
		398.7 -> 79.9	29504			
PFNA	7.546	398.7 -> 98.9	15388	25.69	µg/L	m
		463.0 -> 419.0	263919			
PFNS	8.786	463.0 -> 219.0	71633	11.67	µg/L	95
		548.8 -> 79.9	18530			
PFOA	7.138	548.8 -> 98.9	9538	26.85	µg/L	m
		413.0 -> 369.0	522630			
PFOS	8.318	413.0 -> 169.0	123572	10.66	µg/L	m
		498.9 -> 79.9	33305			
PFPeA	4.314	498.9 -> 98.8	18140	26.09	µg/L	100
		263.0 -> 219.0	325462			
PFPeS	6.469	349.1 -> 79.9	29336	11.83	µg/L	96
		349.1 -> 98.9	12743			
PFTeDA	9.837	713.1 -> 669.0	149312	13.83	µg/L	98
		713.1 -> 168.9	12995			
PFTrDA	9.478	663.0 -> 619.0	187513	12.00	µg/L	99
		663.0 -> 168.9	20981			
PFUnDA	8.636	563.1 -> 519.0	125459	13.78	µg/L	98
		563.1 -> 269.1	23346			
11CI-PF3OUdS	9.506	630.9 -> 450.9	203601	23.69	µg/L	100
		632.9 -> 452.9	64238			
9CI-PF3ONS	8.650	530.8 -> 351.0	202266	21.92	µg/L	97
		532.8 -> 353.0	62274			
ADONA	6.718	376.9 -> 250.9	638498	23.29	µg/L	99
		376.9 -> 84.8	199521			
HFPO-DA	5.865	284.9 -> 168.9	78343	24.99	µg/L	100
		284.9 -> 184.9	9468			
3:3FTCA	3.773	241.0 -> 177.0	40659	69.22	µg/L	99
		241.0 -> 117.0	4162			
5:3FTCA	6.205	341.0 -> 237.1	680520	334.99	µg/L	98
		341.0 -> 217.0	507346			
7:3FTCA	7.711	441.0 -> 316.9	288974	323.85	µg/L	100
		441.0 -> 336.9	655442			
EtFOSA	11.424	526.0 -> 219.0	112979	44.35	µg/L	100
		526.0 -> 169.0	158803			
EtFOSE	11.344	630.0 -> 58.9	230255	83.79	µg/L	100
		511.9 -> 219.0	92766			
MeFOSA	11.153	511.9 -> 169.0	138935	43.02	µg/L	m
		616.1 -> 58.9	206099			
MeFOSE	11.072	699.1 -> 79.9	19646	82.48	µg/L	m
		699.1 -> 98.8	11557			
PFDoDS	9.976	295.0 -> 201.0	30119	12.86	µg/L	94
		295.0 -> 84.9	8603			
NFDHA	5.392	279.0 -> 85.1	187339	26.75	µg/L	98
		229.0 -> 84.9	210109			
PFMBA	4.728	314.8 -> 134.9	296612	25.51	µg/L	100
		314.8 -> 82.9	9725			
PFMPA	3.440			26.10	µg/L	100
PFEESA	5.921			23.92	µg/L	99

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



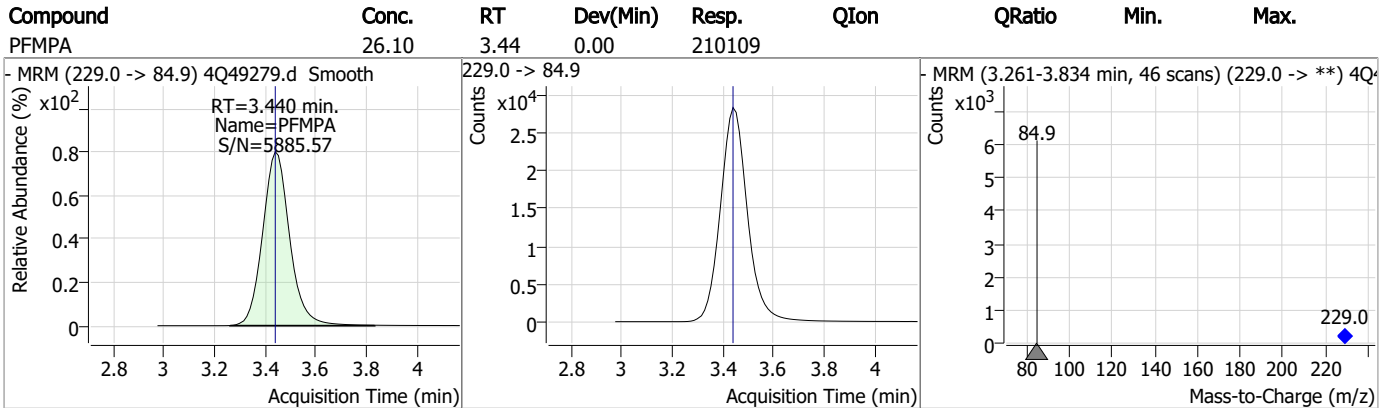
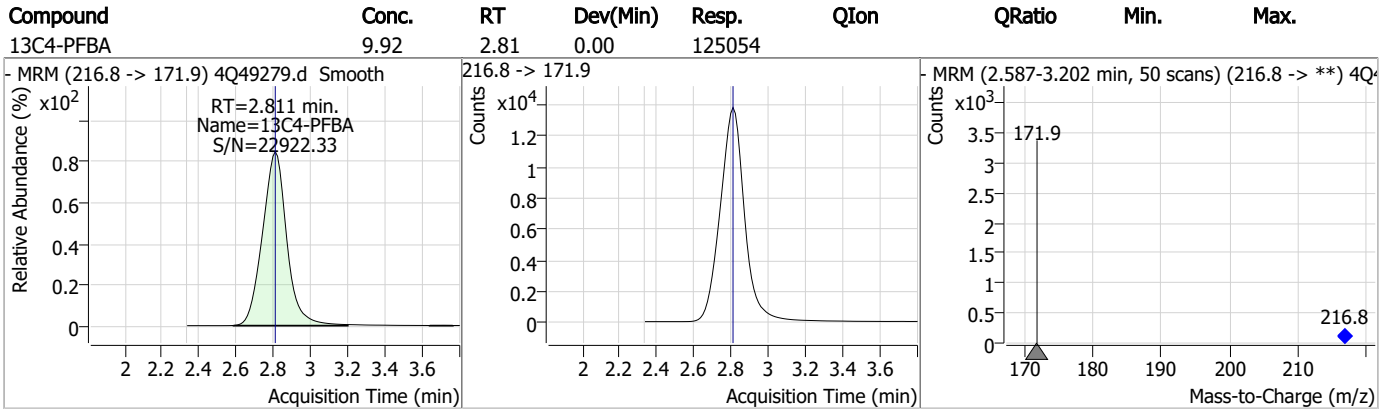
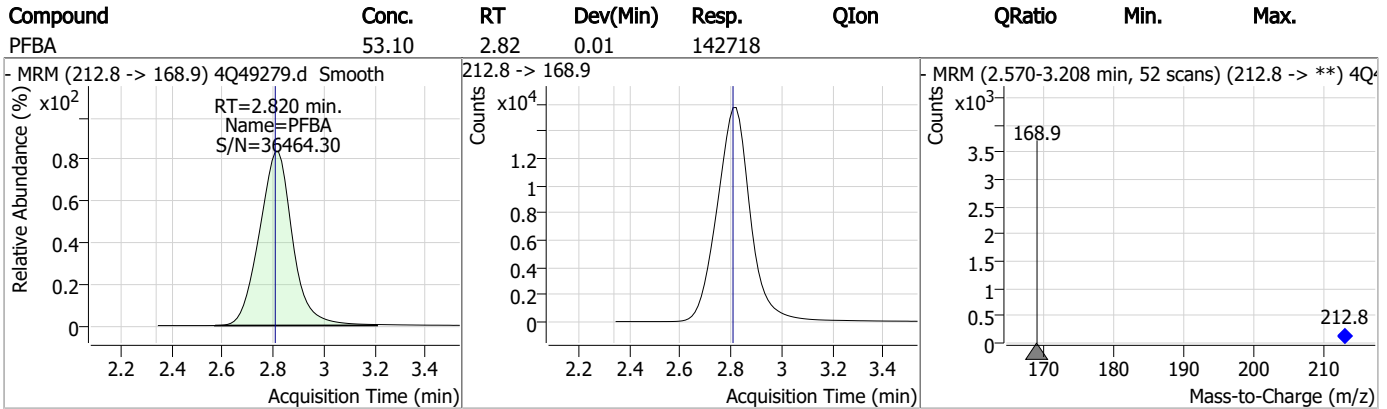
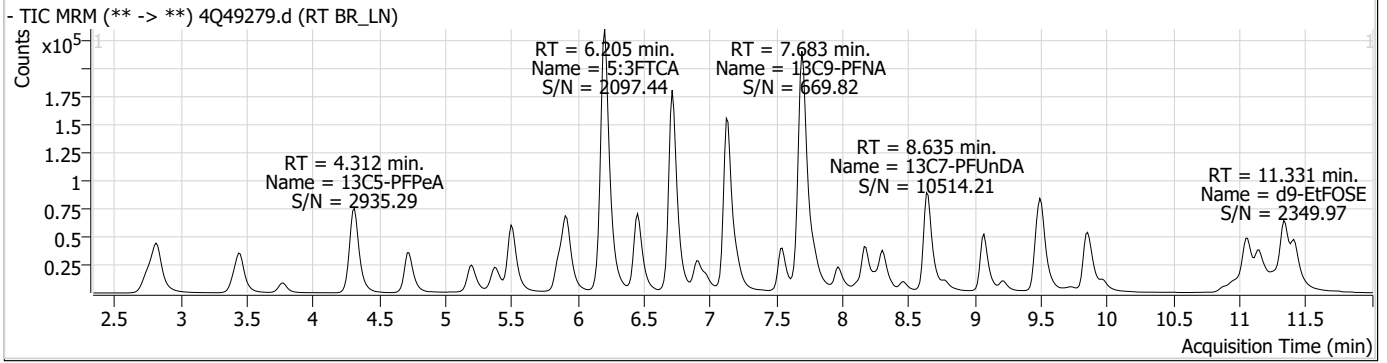
# Perfluorinated Compounds by LC/MS/MS

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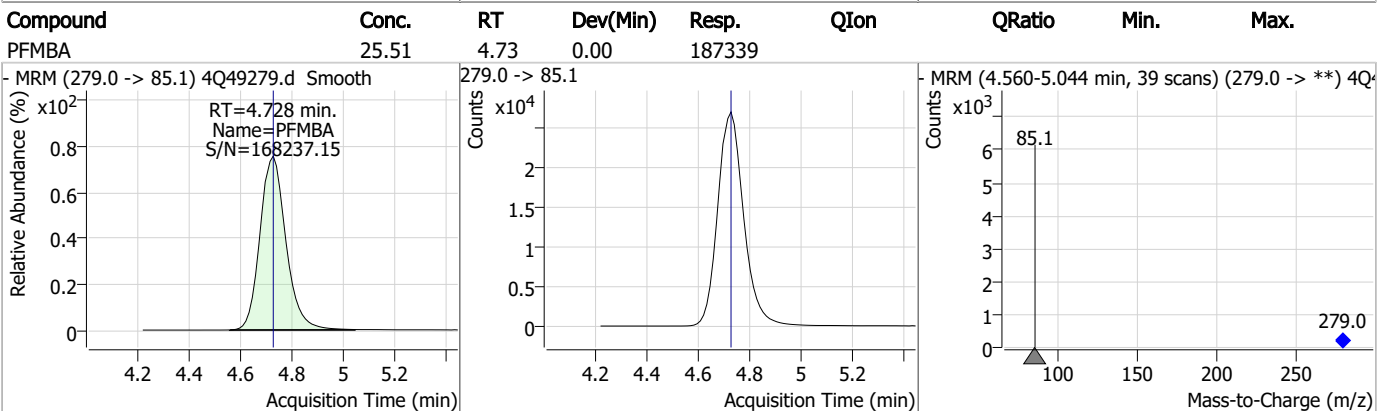
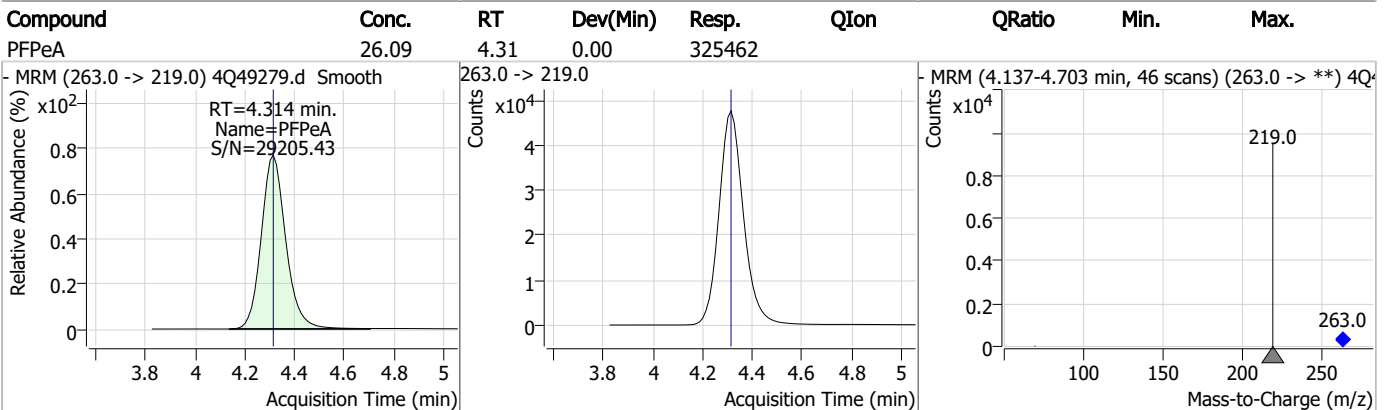
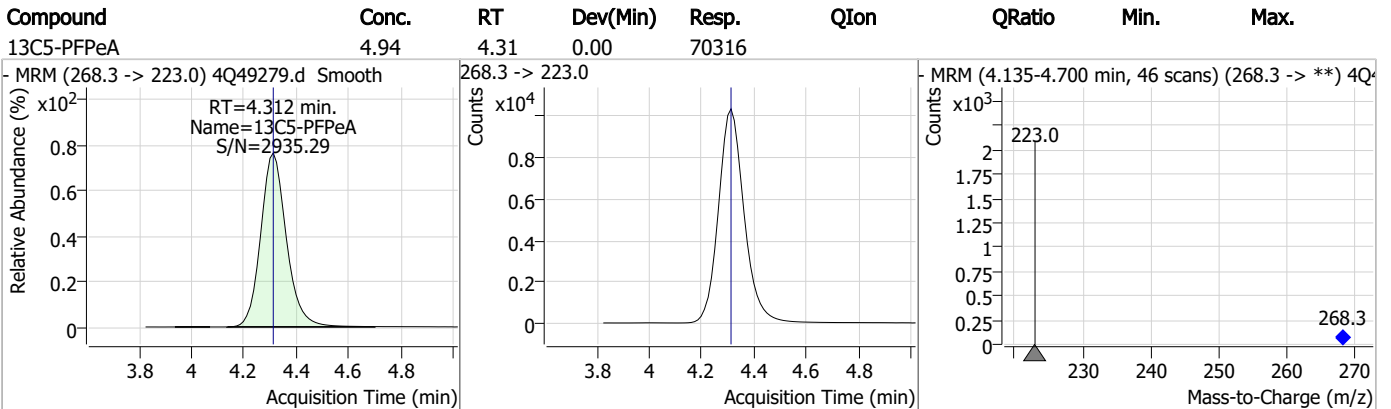
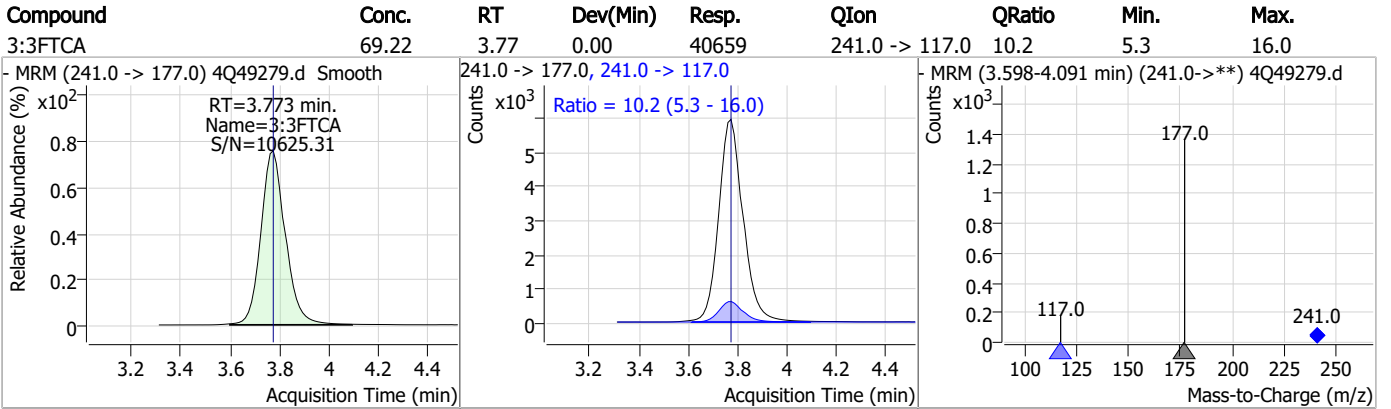
7.6.2

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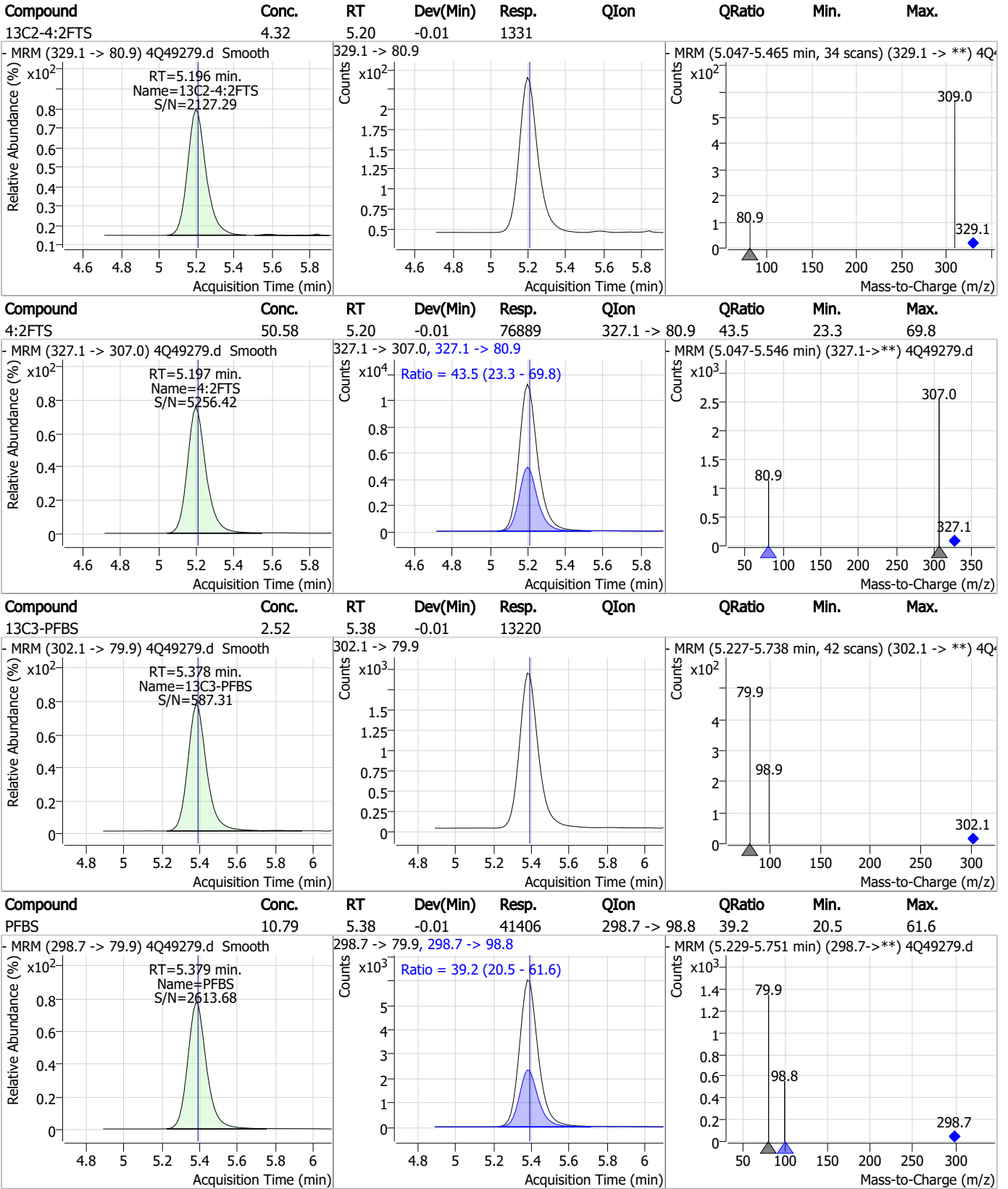
# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS



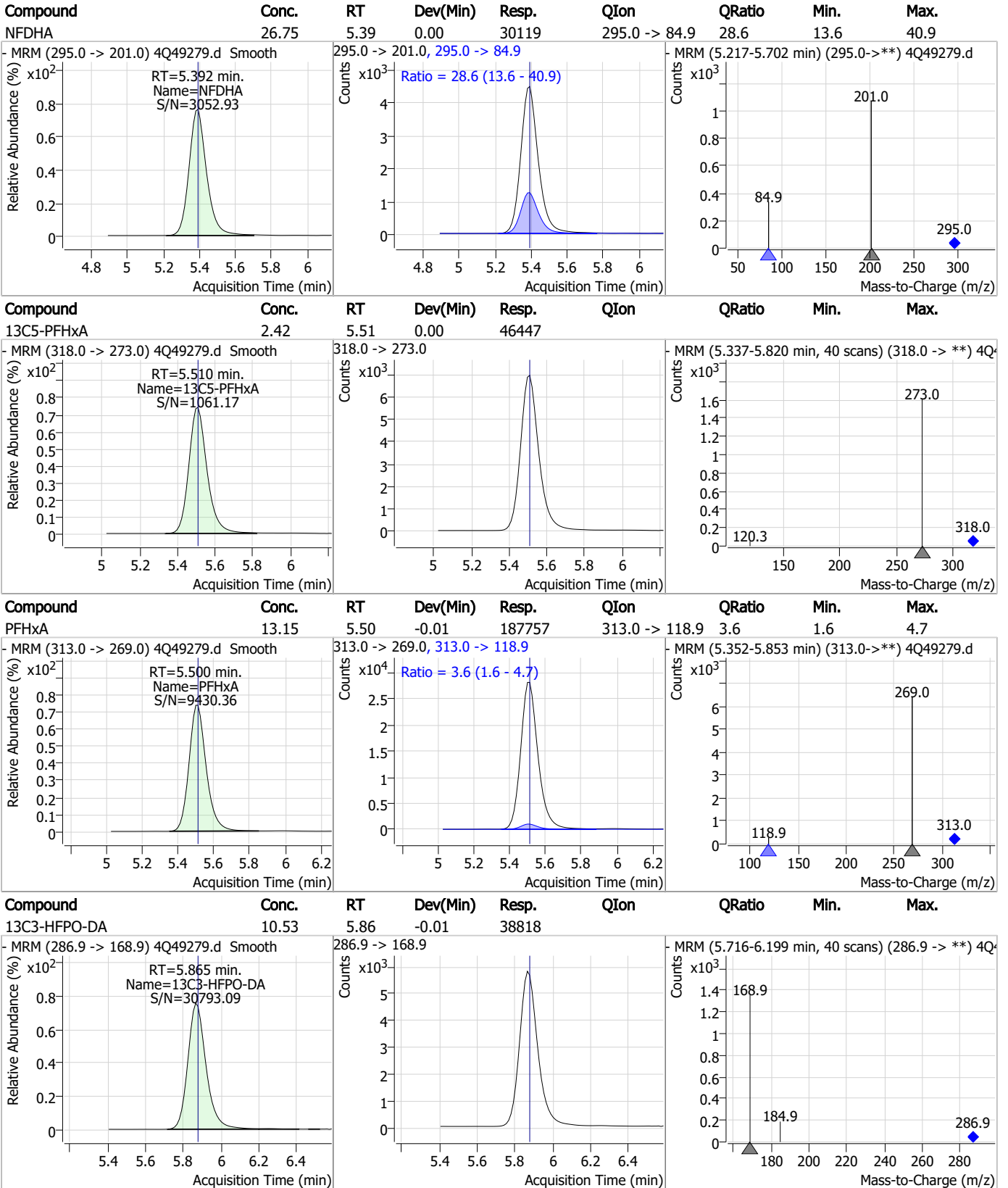
# Perfluorinated Compounds by LC/MS/MS



7.6.2

7

# Perfluorinated Compounds by LC/MS/MS

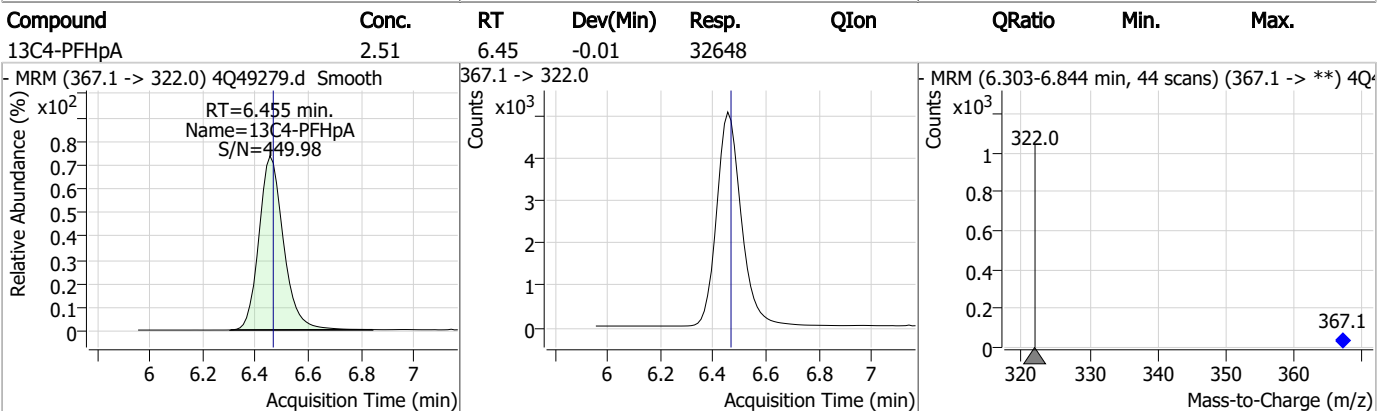
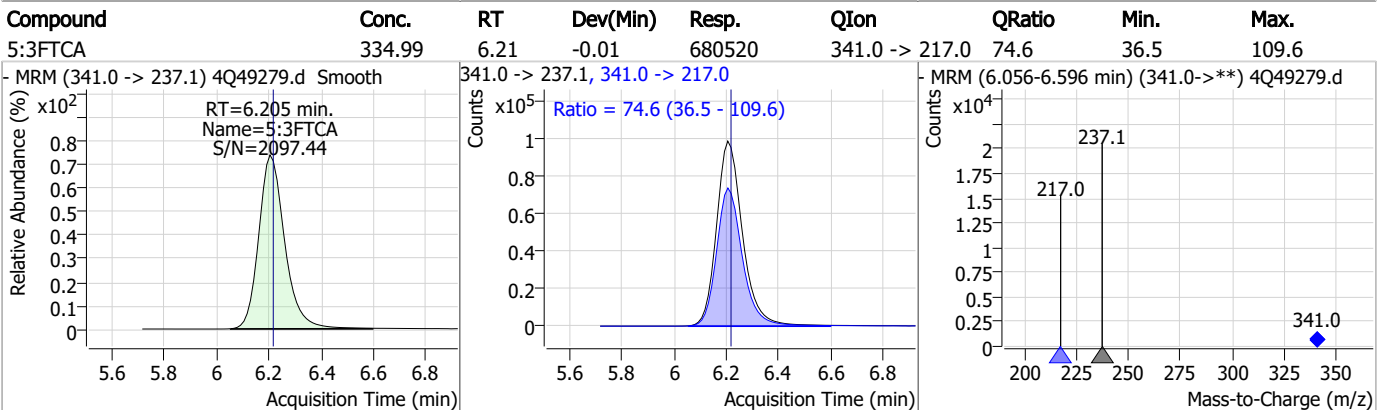
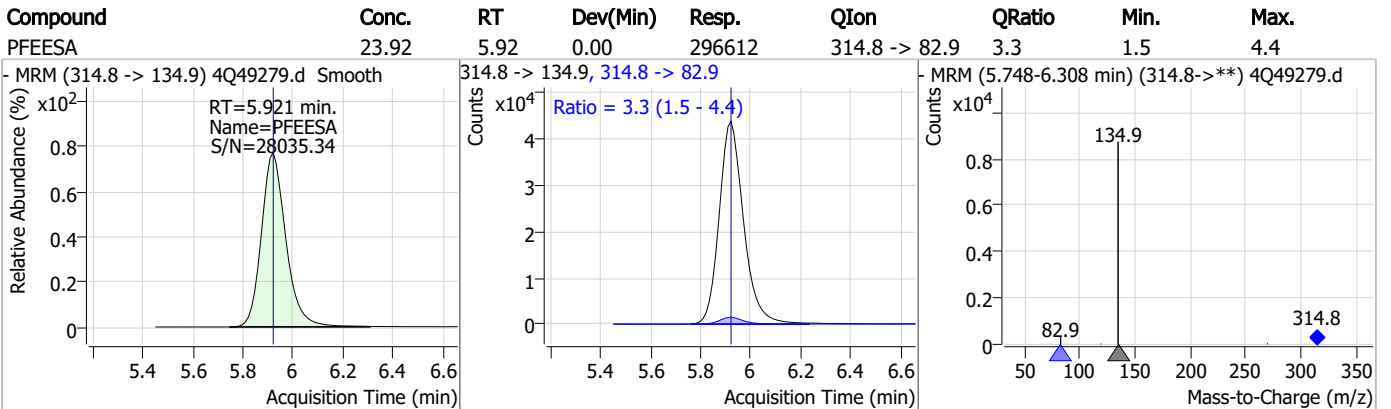
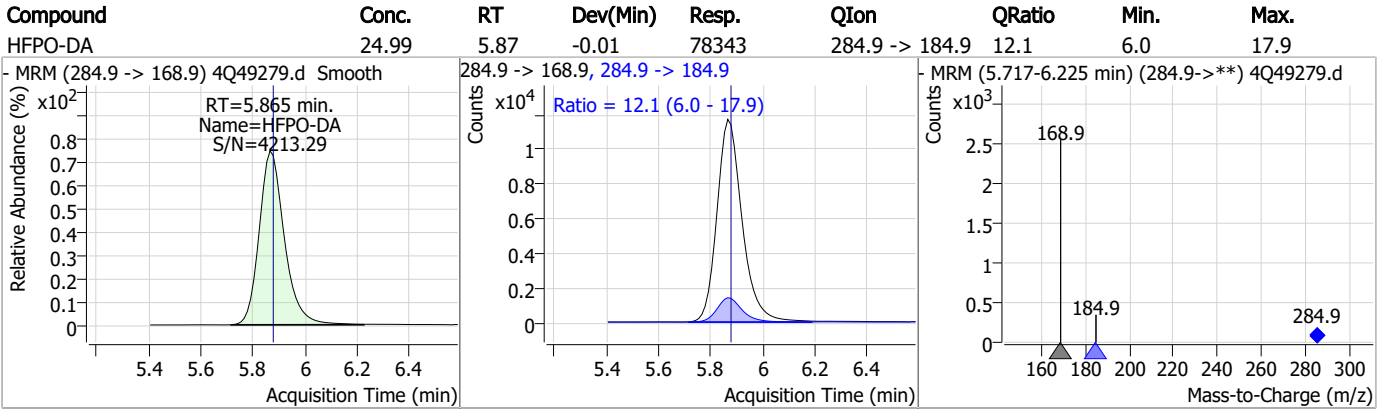


7.6.2

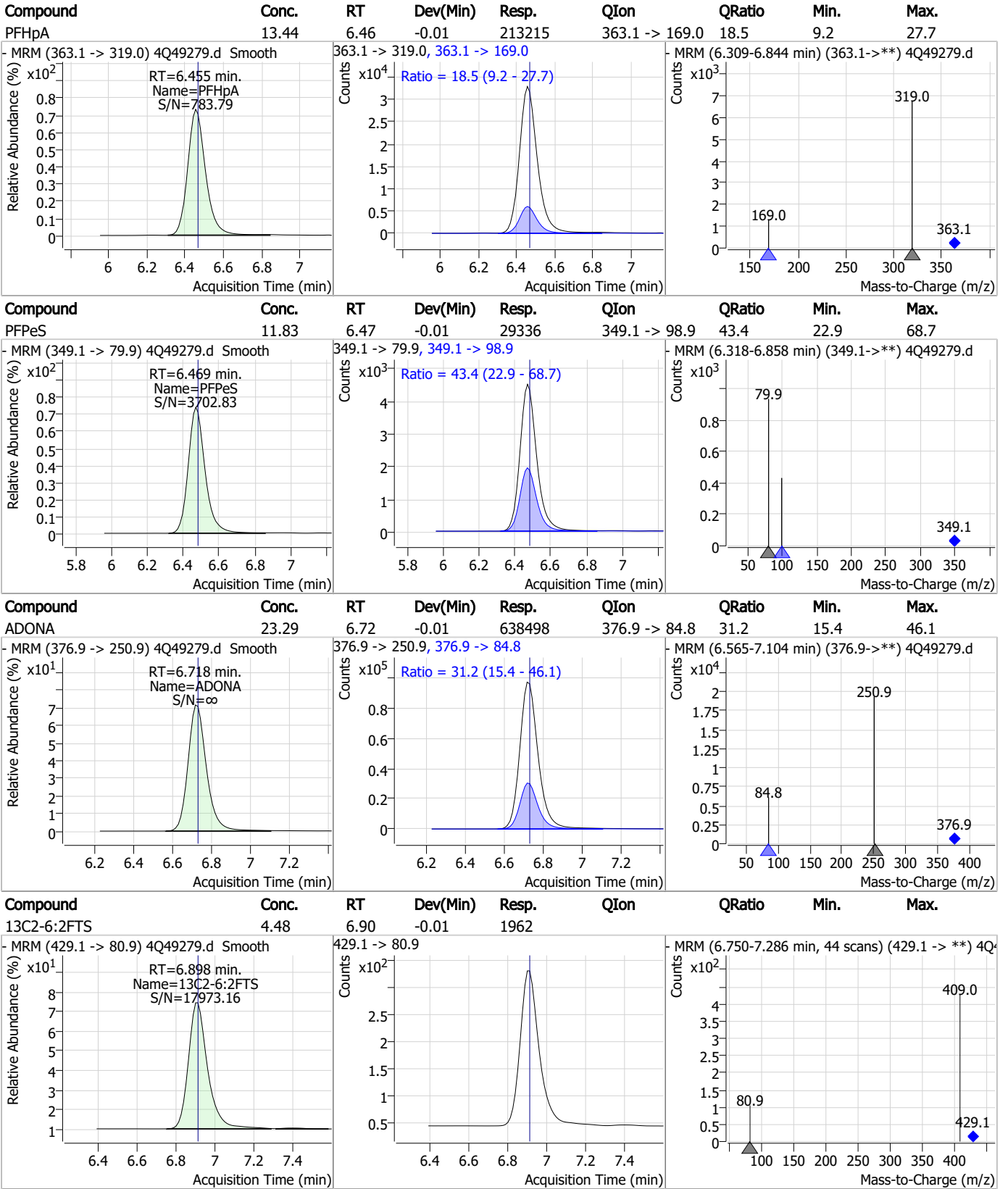
7



# Perfluorinated Compounds by LC/MS/MS



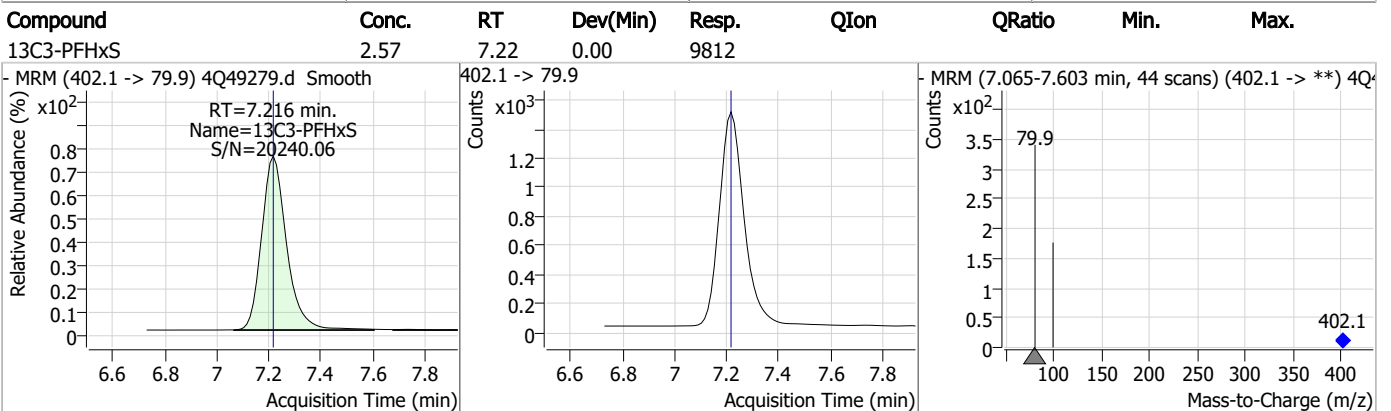
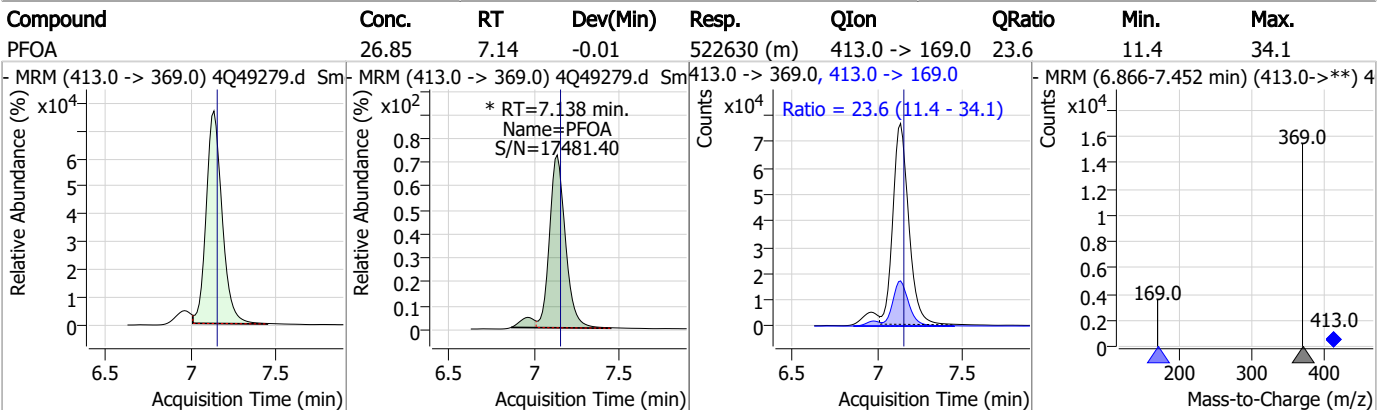
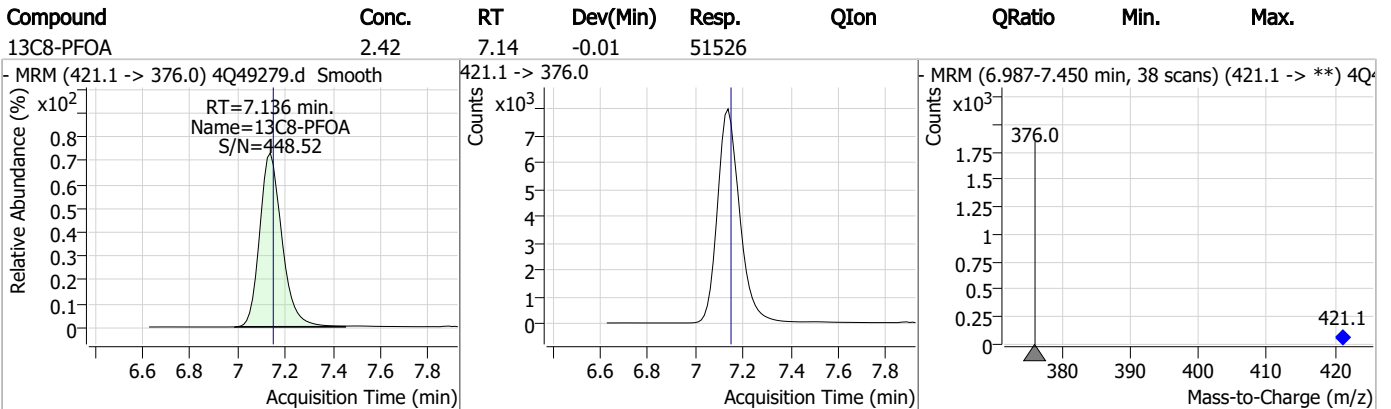
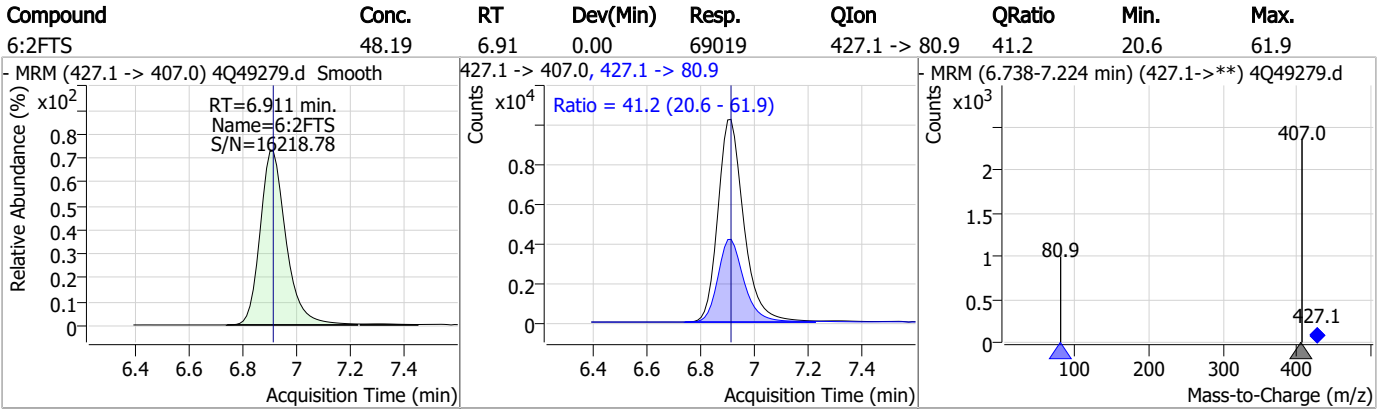
# Perfluorinated Compounds by LC/MS/MS



7.6.2

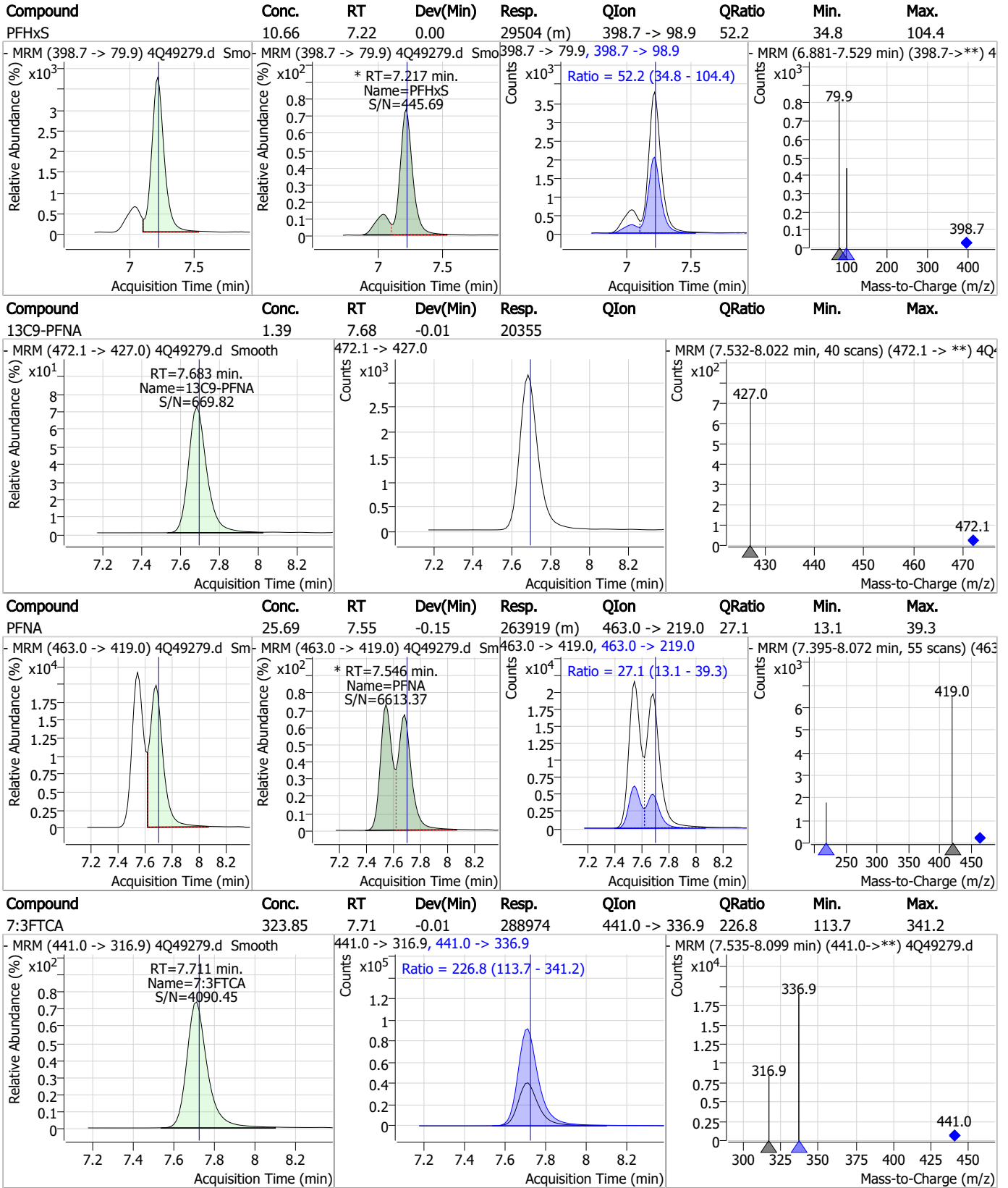
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# Perfluorinated Compounds by LC/MS/MS





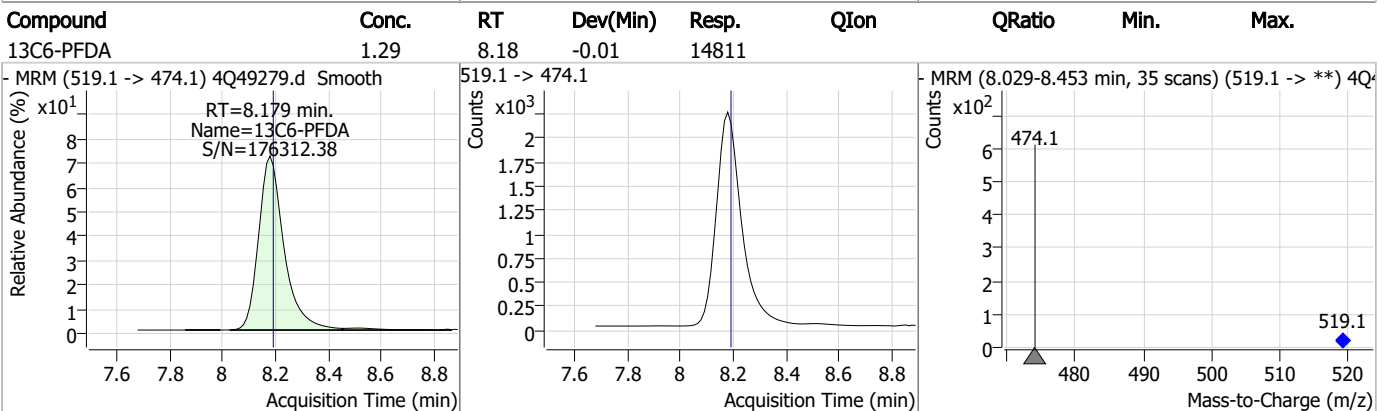
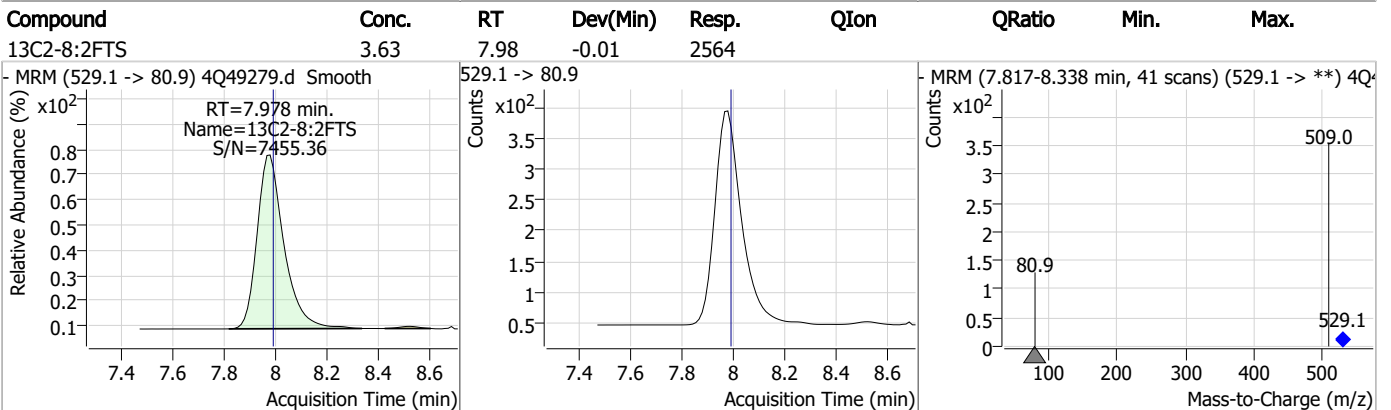
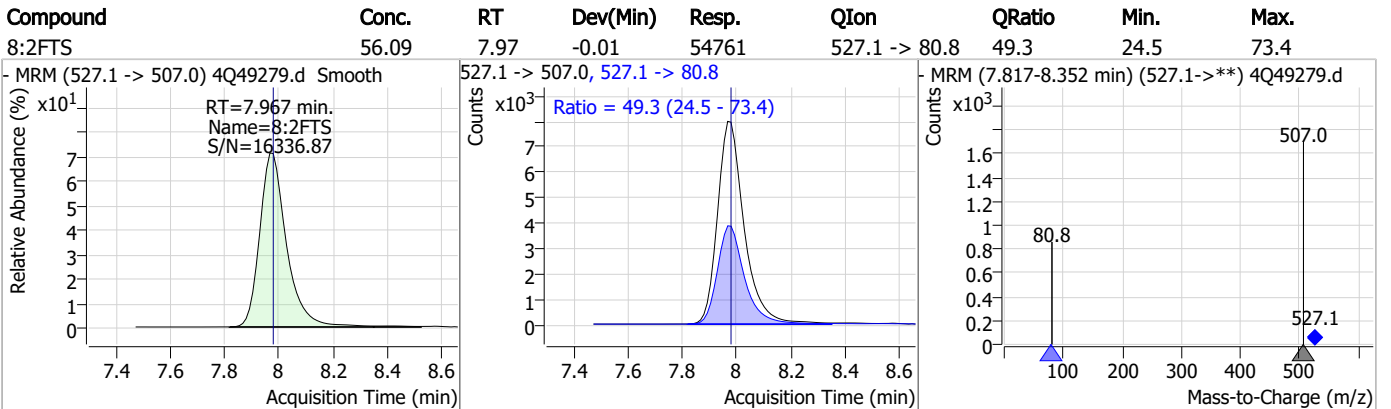
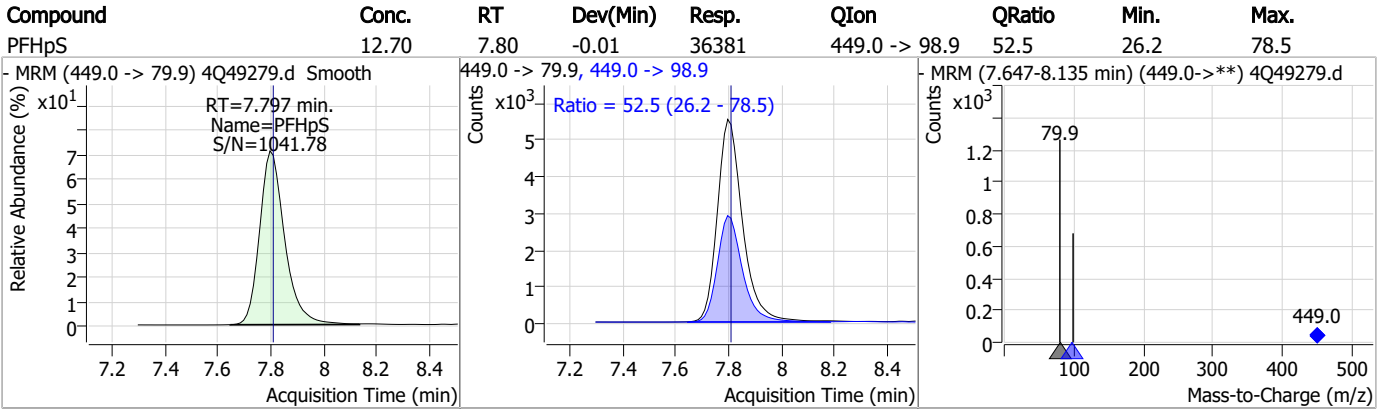
# Perfluorinated Compounds by LC/MS/MS



7.6.2

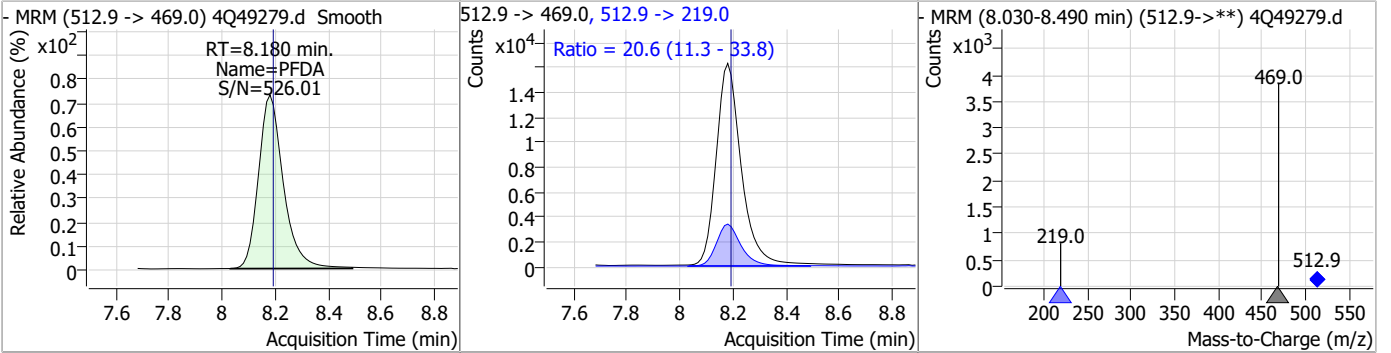
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# Perfluorinated Compounds by LC/MS/MS

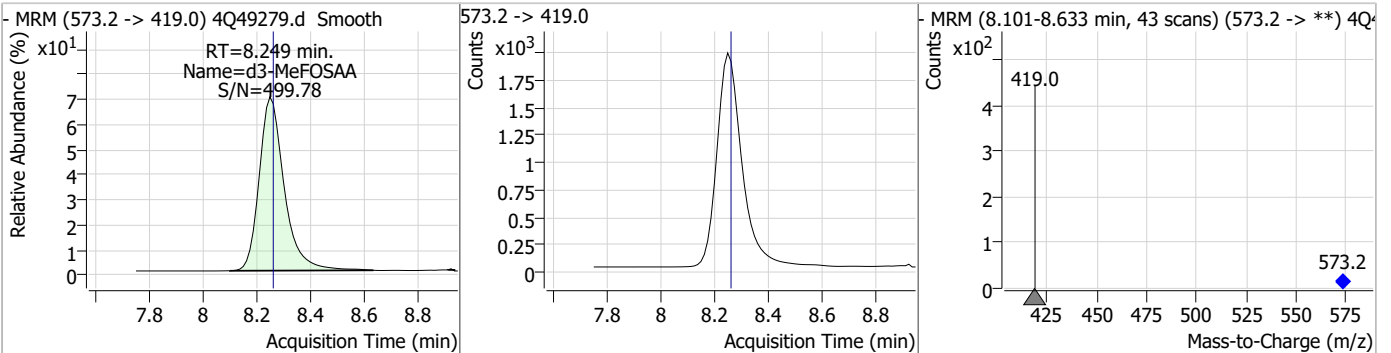


# Perfluorinated Compounds by LC/MS/MS

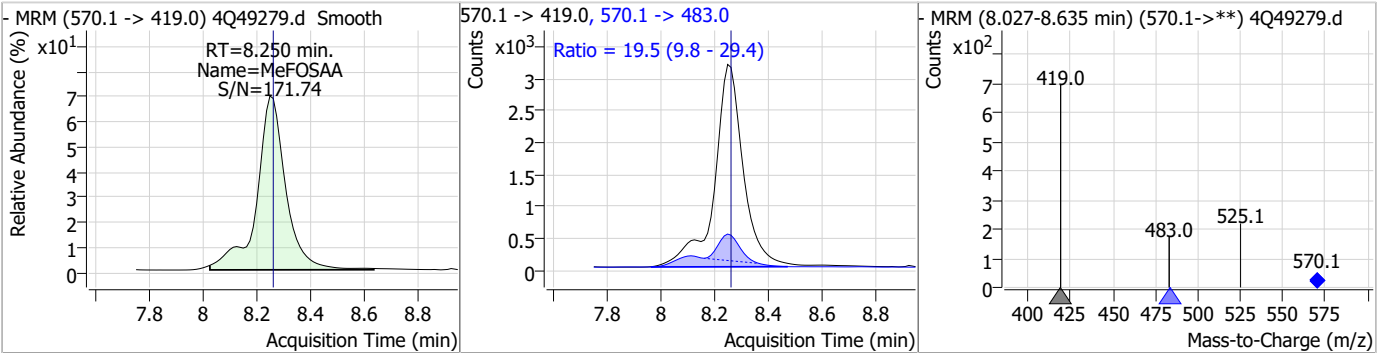
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	12.31	8.18	-0.01	105190	512.9 -> 219.0	20.6	11.3	33.8



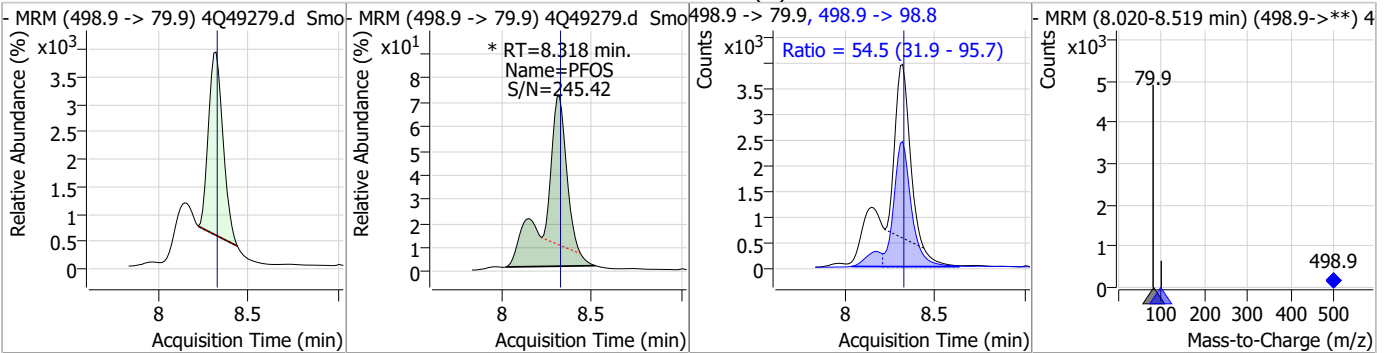
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.62	8.25	-0.01	12583				



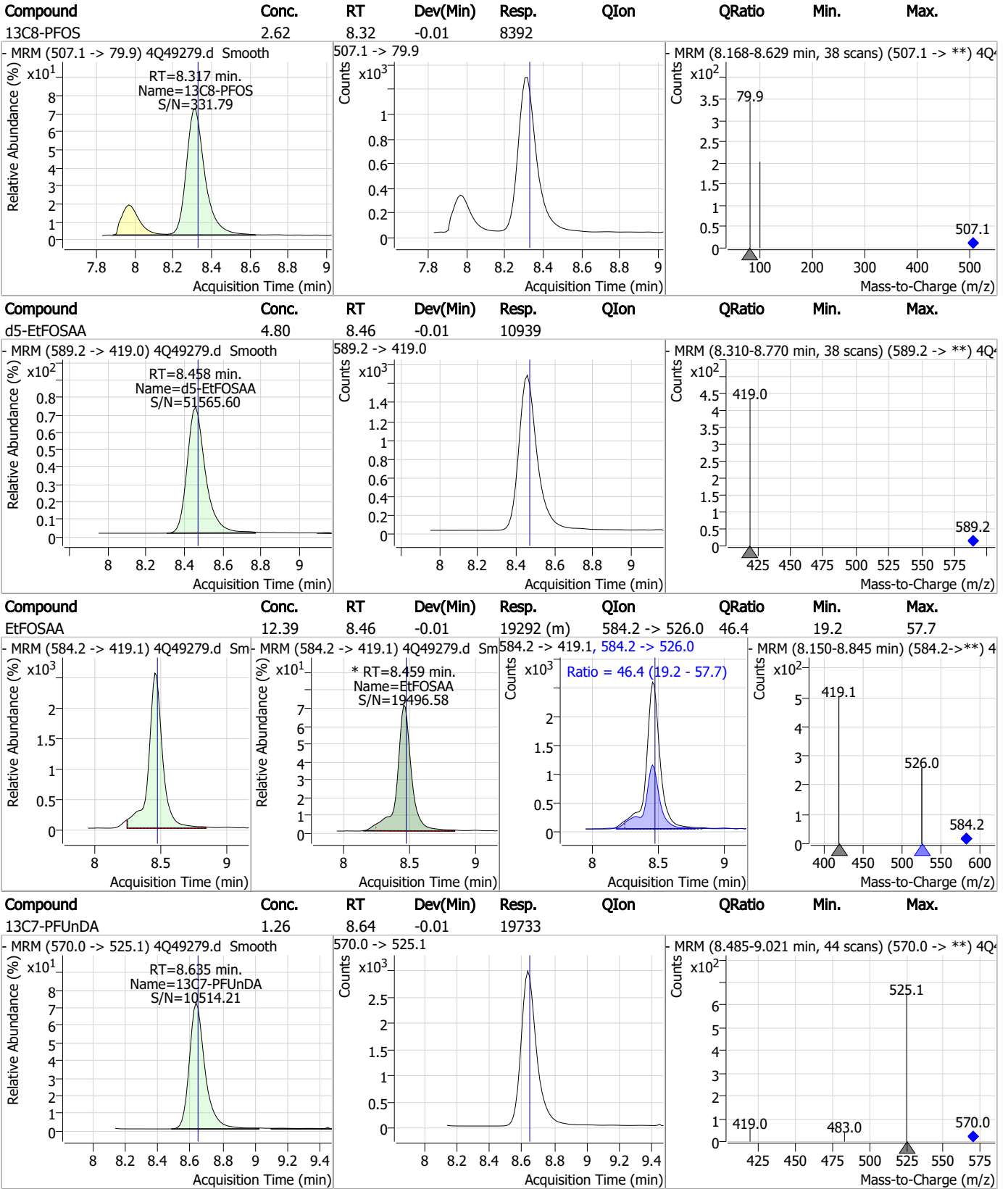
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	13.26	8.25	-0.01	23907	570.1 -> 483.0	19.5	9.8	29.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	10.66	8.32	0.00	33305 (m)	498.9 -> 98.8	54.5	31.9	95.7



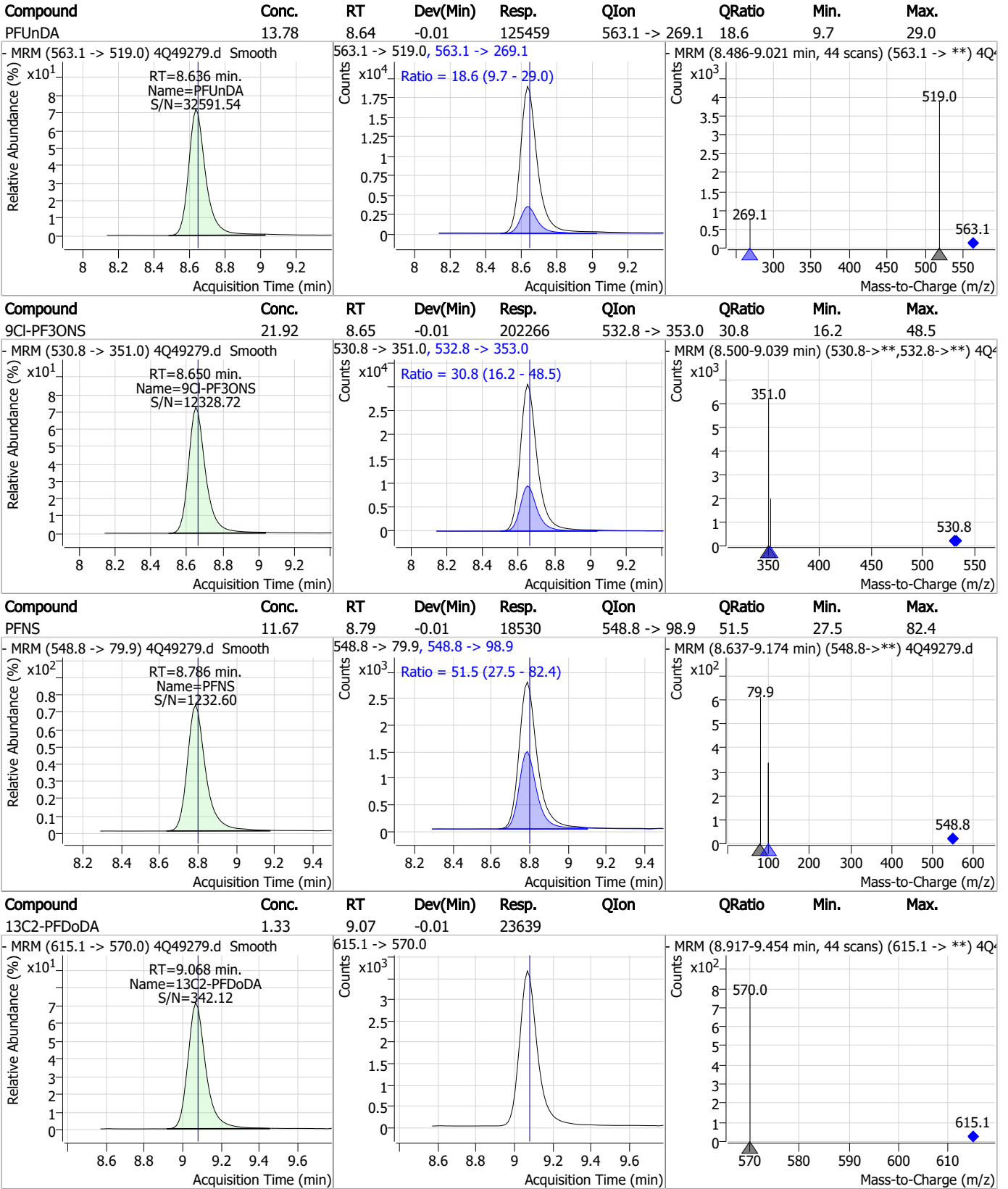
# Perfluorinated Compounds by LC/MS/MS



7.6.2

7

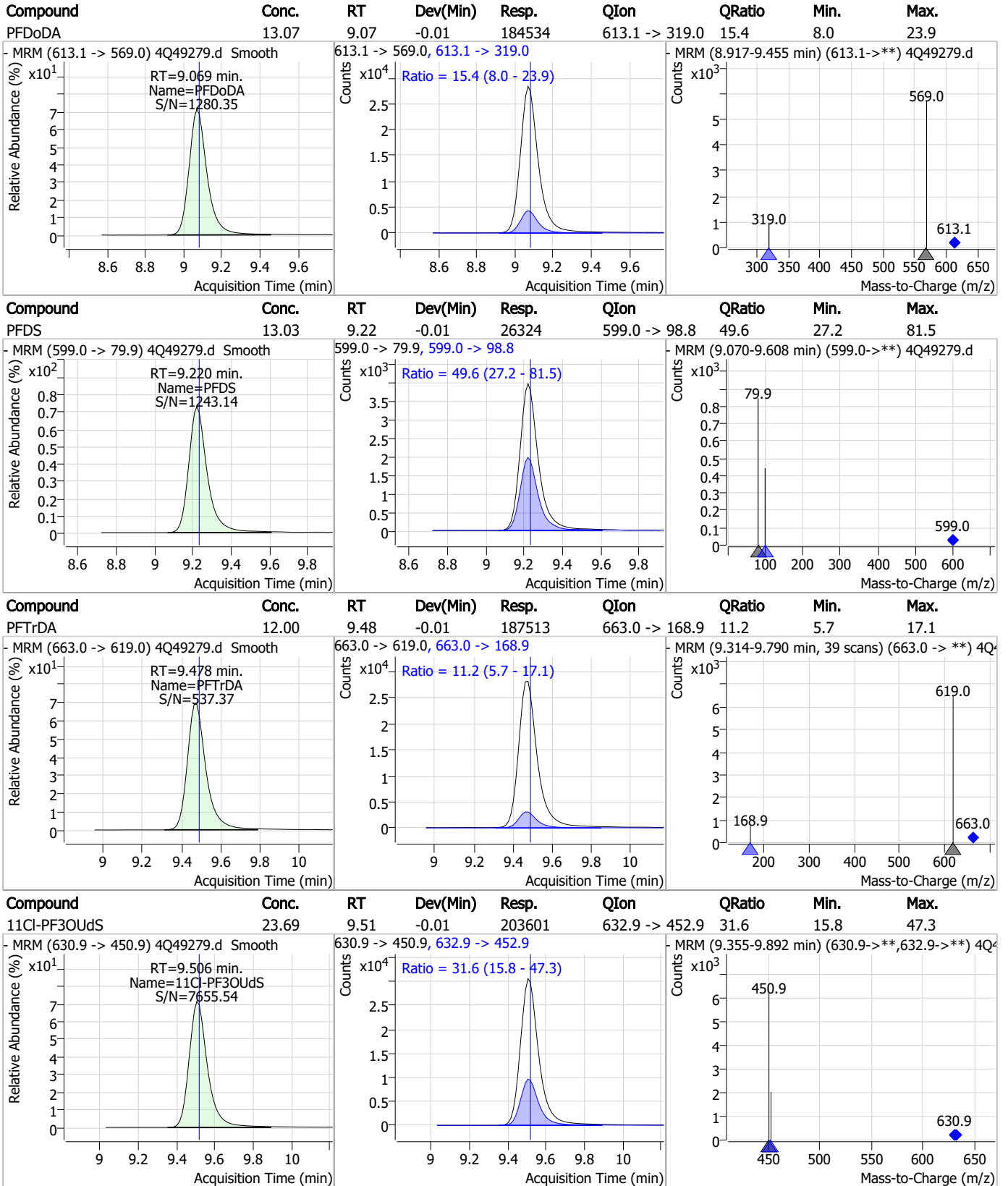
# Perfluorinated Compounds by LC/MS/MS



7.6.2

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# Perfluorinated Compounds by LC/MS/MS



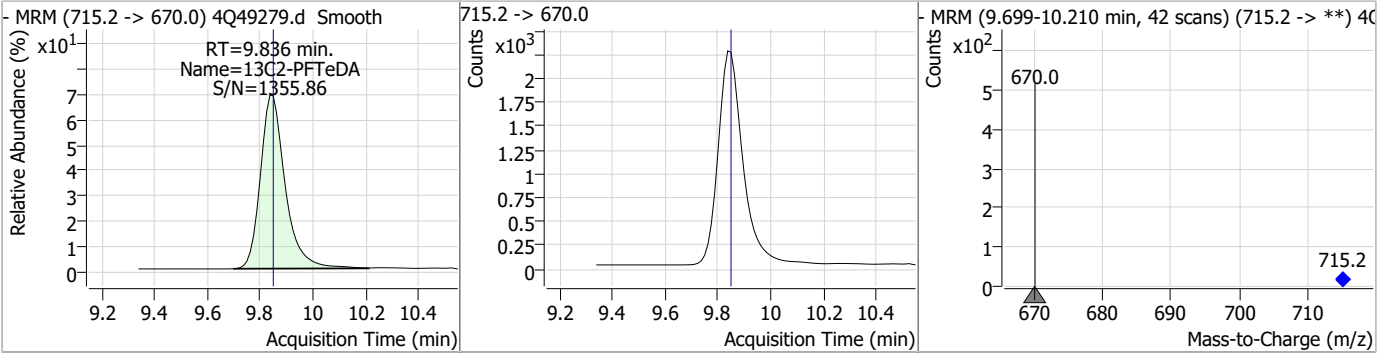
7.6.2

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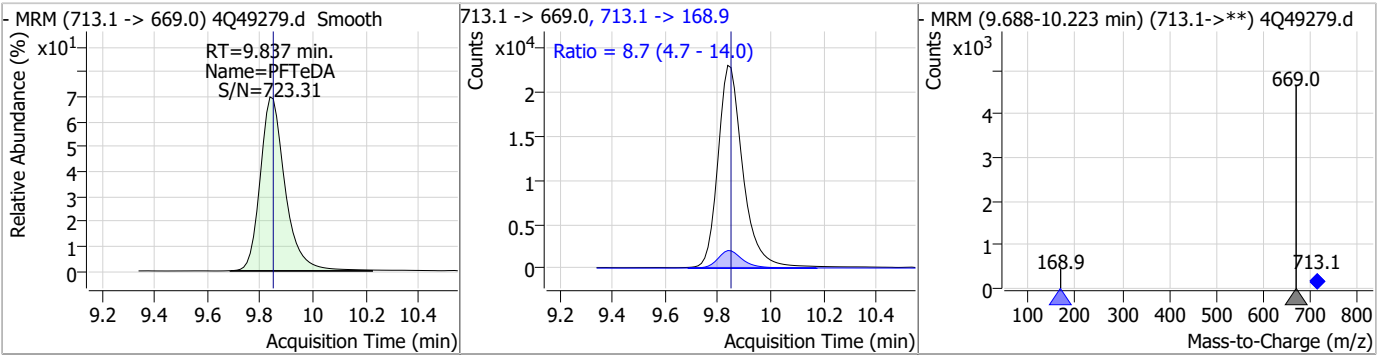


# Perfluorinated Compounds by LC/MS/MS

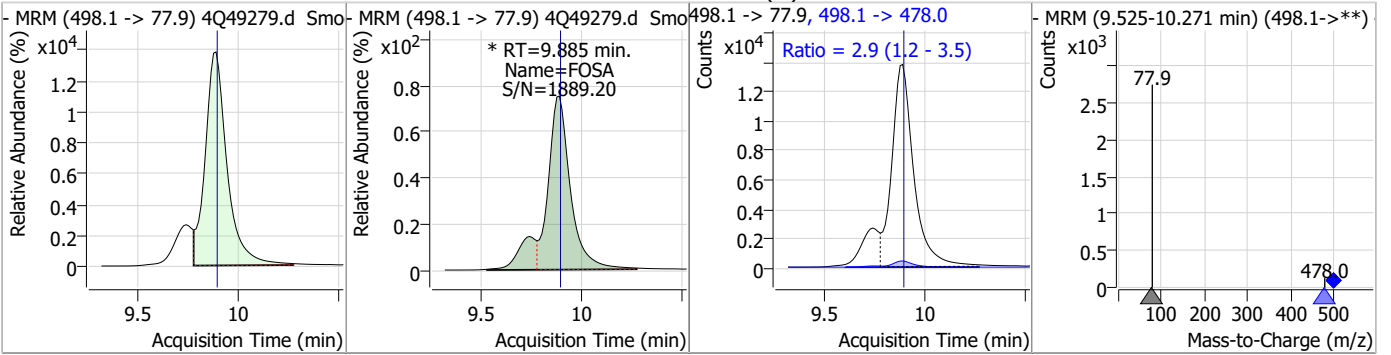
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.23	9.84	-0.01	14607				



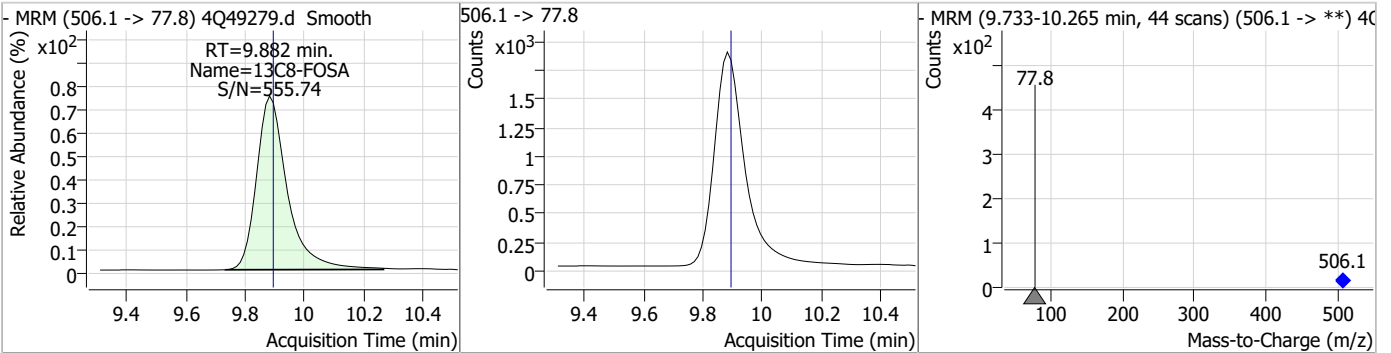
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	13.83	9.84	-0.01	149312	713.1 -> 168.9	8.7	4.7	14.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	32.59	9.89	0.00	121736 (m)	498.1 -> 478.0	2.9	1.2	3.5

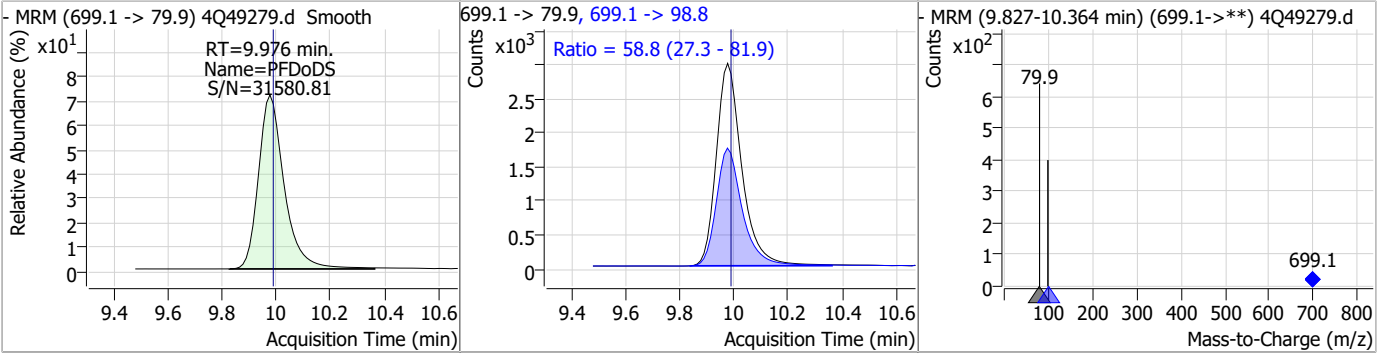


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.55	9.88	-0.01	13379				

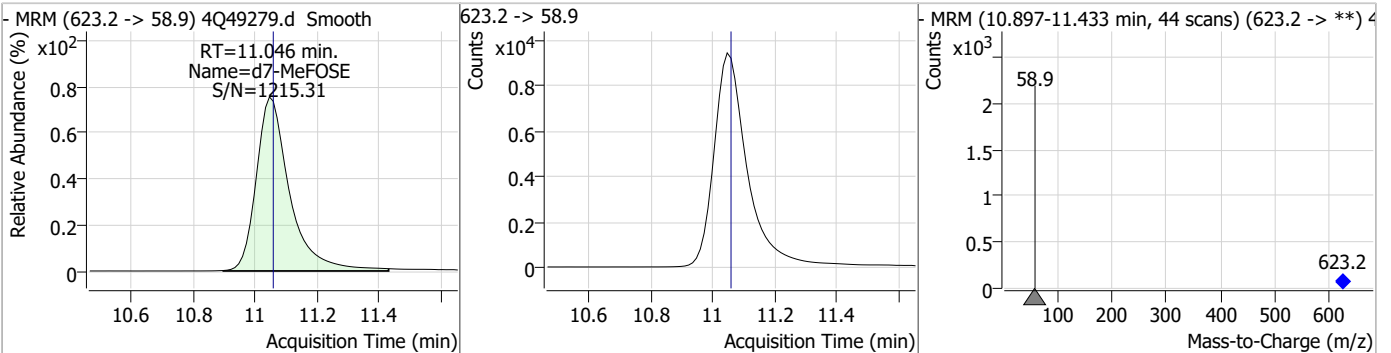


# Perfluorinated Compounds by LC/MS/MS

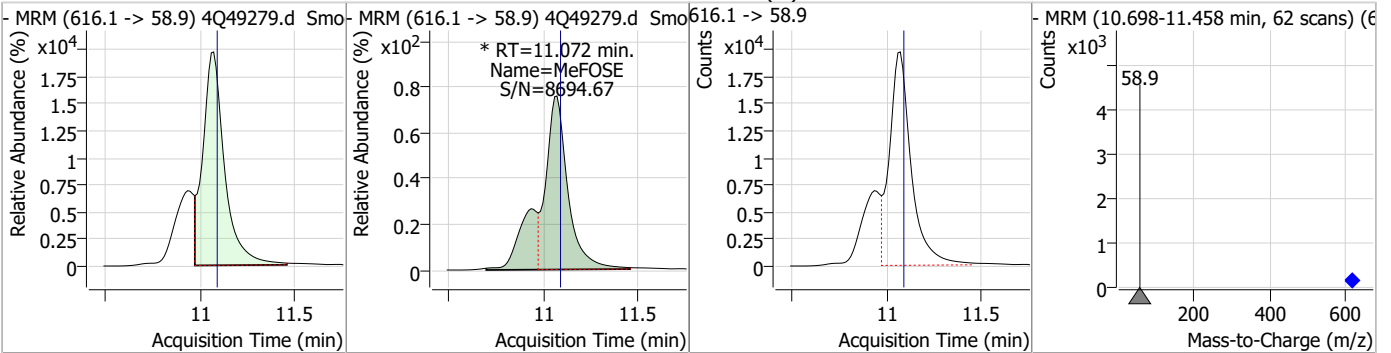
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PfDoDS	12.86	9.98	-0.01	19646	699.1 -> 98.8	58.8	27.3	81.9



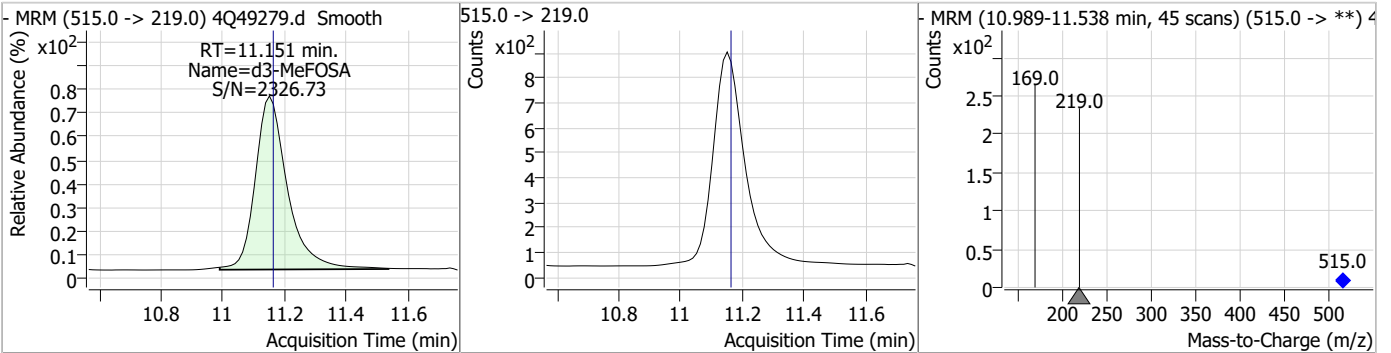
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.52	11.05	-0.01	70413				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	82.48	11.07	-0.01	206099 (m)				



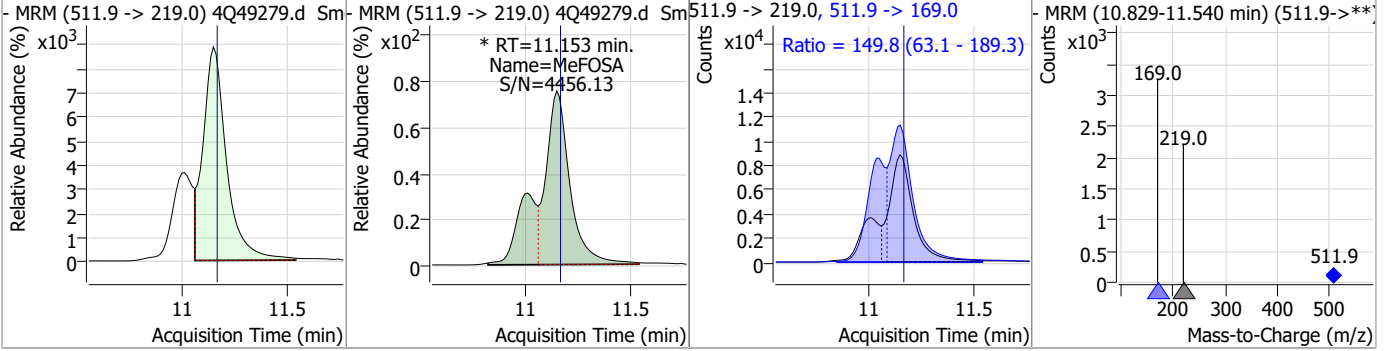
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.59	11.15	-0.01	6215				



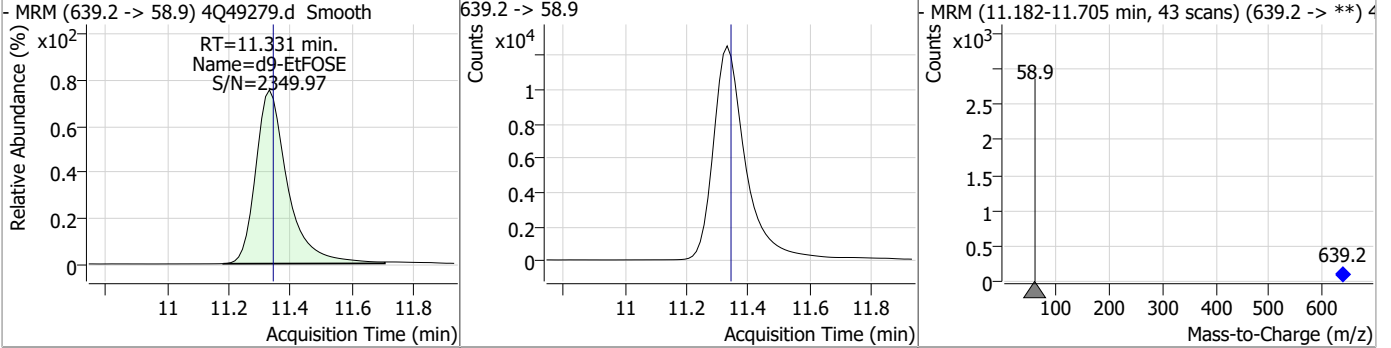


# Perfluorinated Compounds by LC/MS/MS

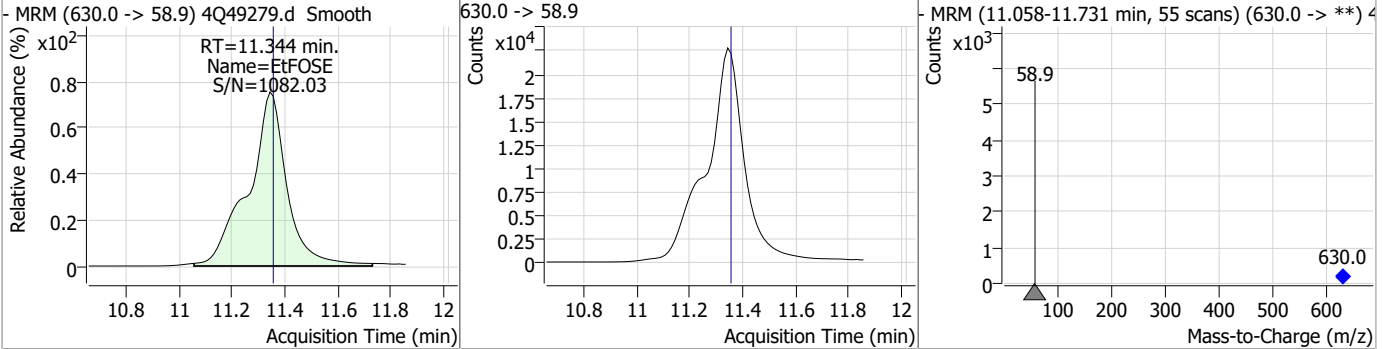
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	43.02	11.15	-0.01	92766 (m)	511.9 -> 169.0	149.8	63.1	189.3



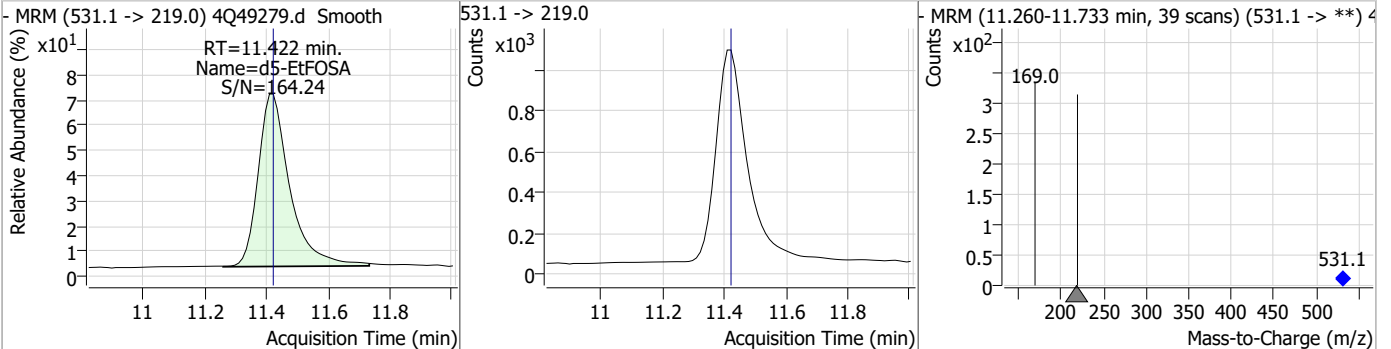
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.26	11.33	-0.01	89519				



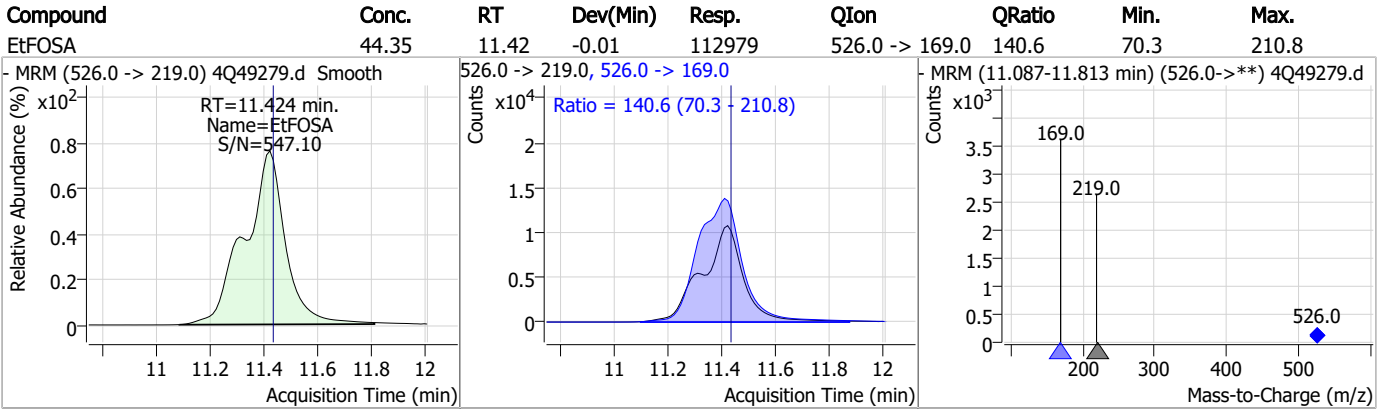
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	83.79	11.34	-0.01	230255				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.49	11.42	0.00	7396				



# Perfluorinated Compounds by LC/MS/MS



7.6.2

7

# Manual Integration Approval Summary

**Sample Number:** S4Q722-RT                      **Method:** EPA DRAFT 1633  
**Lab FileID:** 4Q49279.D                      **Analyst approved:** 08/23/23 10:44 Martha Valls  
**Injection Time:** 08/22/23 10:20              **Supervisor approved:** 08/23/23 15:25 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.14	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.22	Split peak
Perfluorononanoic acid	375-95-1		7.55	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.32	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
PFOSA	754-91-6		9.88	Split peak
MeFOSE	24448-09-7		11.07	Split peak
MeFOSA	31506-32-8		11.15	Split peak

7.6.2.1  
7

Manual Integrations  
**APPROVED**  
 (compounds with "m" flag)  
 Natasha Gumtie  
 08/24/23 16:08

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q49336.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 8/23/2023 9:50:06 AM  
 Sample Name : RT TDCA  
 Vial : P1-B1  
 DA Method File : TDCA.quantmethod.xml  
 Batch Name : s4q723 TDCA.batch.bin  
 Sample Information : OP98456,S4Q723,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
<b>Internal Standards</b>							
M8-PFOS	8.317	507.1 -> 79.9	9600	2.50	µg/L	0.012	
13C4-PFOS	8.305	502.8 -> 79.9	9462	2.50	µg/L	0.000	
<b>System Monitoring Compounds</b>							
13C8-PFOS	8.317	507.1 -> 79.9	9600	2.57	µg/L	0.012	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.9%				
<b>Target Compounds</b>							
PFOS	8.306	498.9 -> 79.9 498.9 -> 98.8	7580 3875	2.31	µg/L	m	85
TCDCa	6.735	498.9 -> 79.9	2156	4.87	ng/ml		100
TDCA	6.885	498.9 -> 79.9	2435	6.07	ng/ml		100
TUDCA	5.892	498.9 -> 79.9	4023	4.73	ng/ml		100

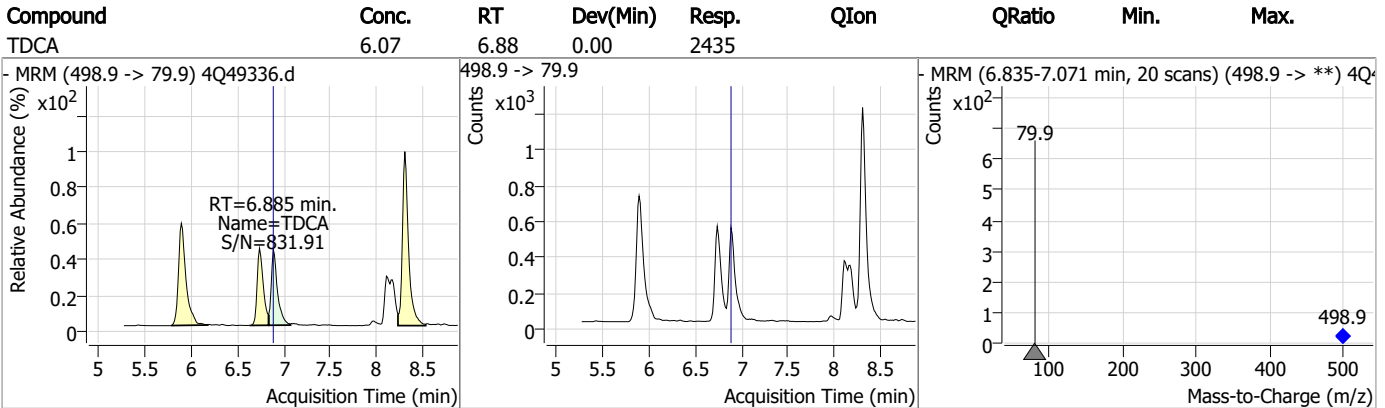
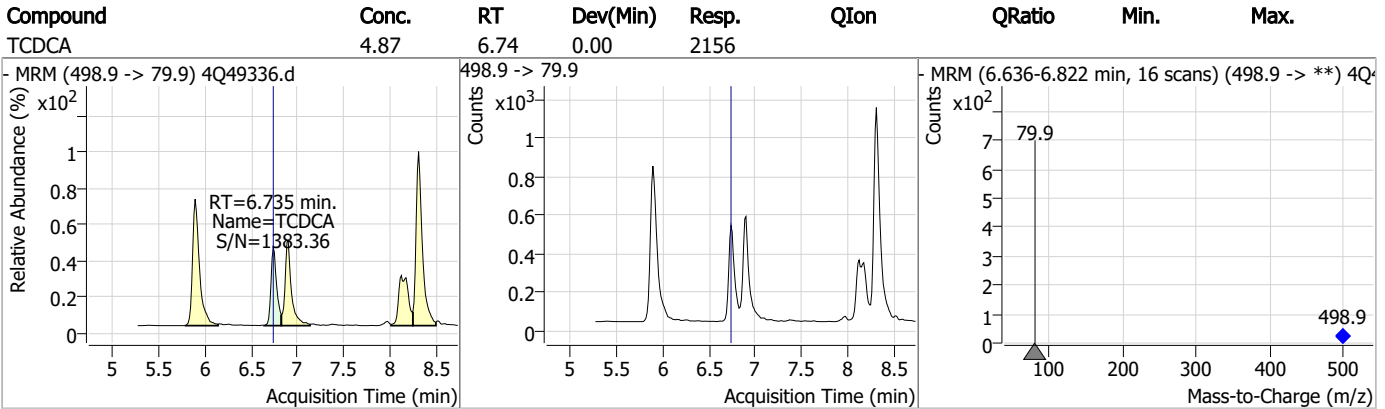
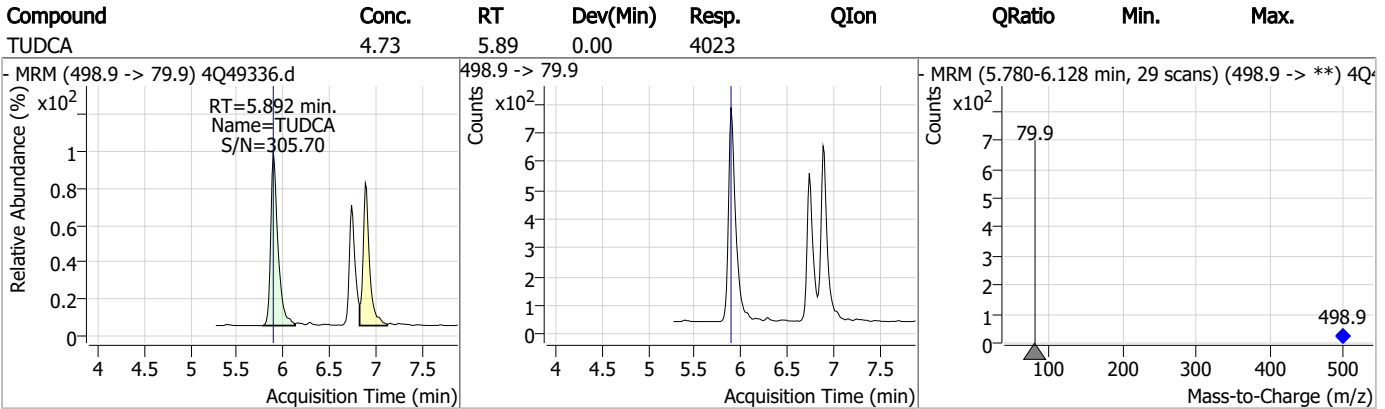
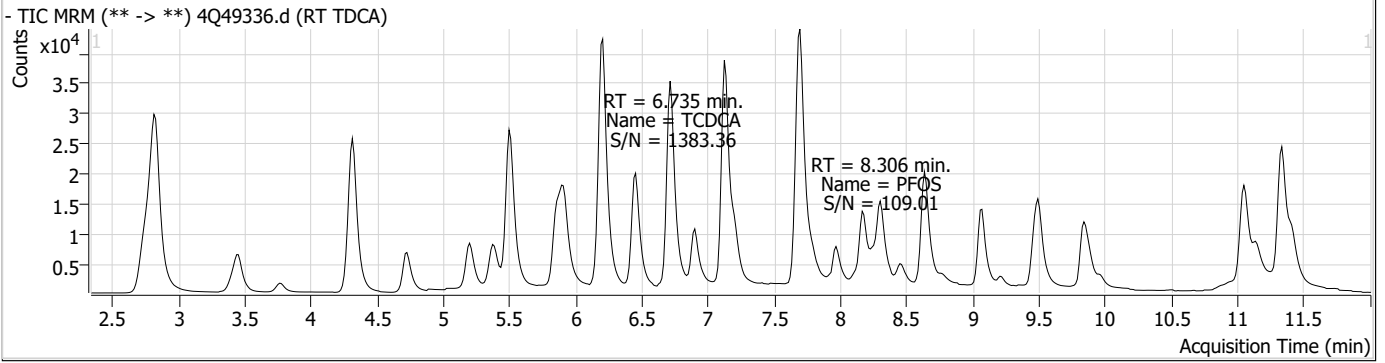
# = Qualifier out of range, m = manually integrated, + = Area summed

7.6.3

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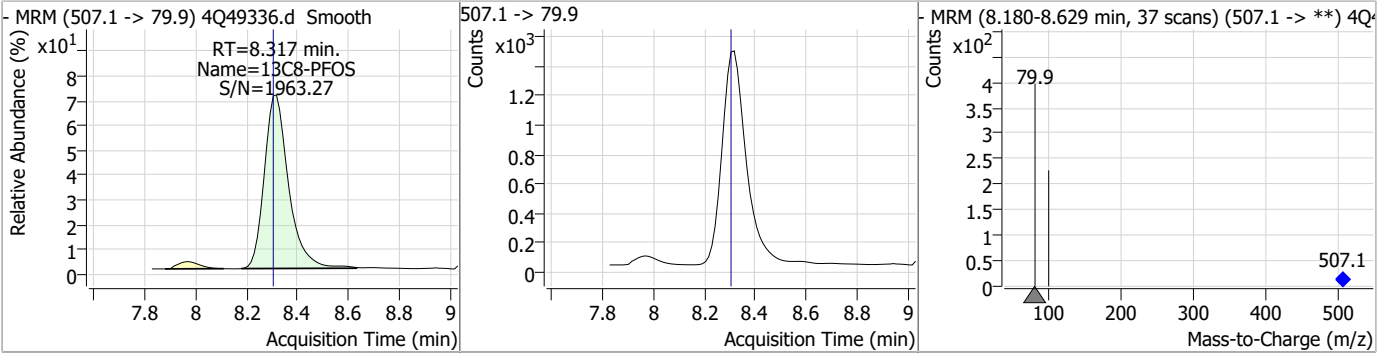


### Perfluorinated Compounds by LC/MS/MS

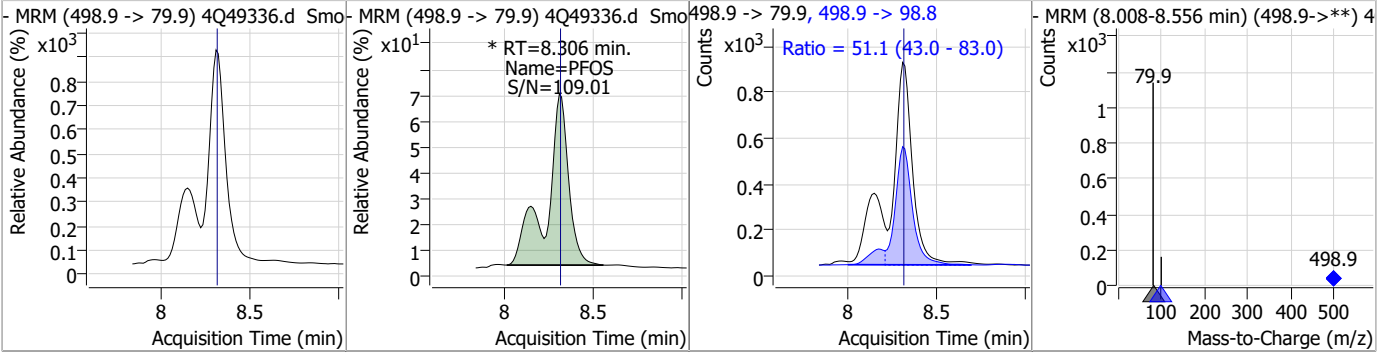


### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.57	8.32	0.01	9600				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.31	8.31	0.00	7580 (m)	498.9 -> 98.8	51.1	43.0	83.0



7.6.3

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# Manual Integration Approval Summary

Sample Number: S4Q723-RT                      Method: EPA DRAFT 1633  
Lab FileID: 4Q49336.D                      Analyst approved: 08/24/23 14:08 Anna Ludwig  
Injection Time: 08/23/23 09:50                      Supervisor approved: 08/24/23 16:08 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.31	Split peak

7.6.3.1

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## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q49337.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 8/23/2023 10:04:52 AM  
 Sample Name : RT\_BR\_LN  
 Vial : P1-B2  
 DA Method File : 1633\_082223\_S4Q722.quantmethod.xml  
 Batch Name : s4q723.batch.bin  
 Sample Information : OP98456,S4Q723,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.811	216.8 -> 171.9	123523	10.00 µg/L	0.000
M5-PFPeA	4.312	268.3 -> 223.0	68627	5.00 µg/L	0.000
M5-PFHxA	5.497	318.0 -> 273.0	46637	2.50 µg/L	-0.012
M4-PFHpA	6.455	367.1 -> 322.0	31106	2.50 µg/L	-0.012
M8-PFOA	7.136	421.1 -> 376.0	53050	2.50 µg/L	-0.012
M9-PFNA	7.683	472.1 -> 427.0	18997	1.25 µg/L	-0.012
M6-PFDA	8.179	519.1 -> 474.1	14972	1.25 µg/L	-0.012
M7-PFUnDA	8.635	570.0 -> 525.1	17619	1.25 µg/L	-0.012
M2-PFDoDA	9.068	615.1 -> 570.0	22565	1.25 µg/L	-0.012
M2-PFTeDA	9.836	715.2 -> 670.0	14343	1.25 µg/L	-0.012
M8-FOSA	9.882	506.1 -> 77.8	13505	2.50 µg/L	-0.012
M3-PFBS	5.378	302.1 -> 79.9	12909	2.50 µg/L	-0.012
M3-PFHxS	7.204	402.1 -> 79.9	9258	2.50 µg/L	-0.012
M8-PFOS	8.317	507.1 -> 79.9	7880	2.50 µg/L	-0.012
M2-4:2FTS	5.196	329.1 -> 80.9	1383	5.00 µg/L	-0.012
M2-6:2FTS	6.898	429.1 -> 80.9	1704	5.00 µg/L	-0.012
M2-8:2FTS	7.966	529.1 -> 80.9	2636	5.00 µg/L	-0.025
M3-MeFOSAA	8.249	573.2 -> 419.0	12920	5.00 µg/L	-0.012
M3-HFPO-DA	5.865	286.9 -> 168.9	36476	10.00 µg/L	-0.012
M5-EtFOSAA	8.458	589.2 -> 419.0	10631	5.00 µg/L	-0.012
M7-MeFOSE	11.046	623.2 -> 58.9	68435	25.00 µg/L	-0.012
M9-EtFOSE	11.331	639.2 -> 58.9	87305	25.00 µg/L	-0.012
M5-EtFOSA	11.422	531.1 -> 219.0	7123	2.50 µg/L	0.000
M3-MeFOSA	11.151	515.0 -> 219.0	6003	2.50 µg/L	-0.012
13C4-PFOS	8.318	502.8 -> 79.9	7235	2.50 µg/L	-0.012
13C3-PFBA	2.816	216.0 -> 172.0	70191	5.00 µg/L	0.013
18O2-PFHxS	7.215	403.0 -> 83.9	6889	2.50 µg/L	-0.012
13C4-PFOA	7.124	417.1 -> 372.0	59348	2.50 µg/L	-0.025
13C2-PFDA	8.179	515.1 -> 470.1	13301	1.25 µg/L	-0.012
13C5-PFNA	7.684	468.0 -> 423.0	18690	1.25 µg/L	-0.012
13C2-PFHxA	5.498	315.1 -> 270.0	45184	2.50 µg/L	-0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.196	329.1 -> 80.9	1383	4.42 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 88.4%		
13C2-6:2FTS	6.898	429.1 -> 80.9	1704	3.84 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 76.7%		
13C2-8:2FTS	7.966	529.1 -> 80.9	2636	3.68 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 73.6%		
13C2-PFDoDA	9.068	615.1 -> 570.0	22565	1.28 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C2-PFTeDA	9.836	715.2 -> 670.0	14343	1.22 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C3-PFBS	5.378	302.1 -> 79.9	12909	2.42 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C3-PFHxS	7.204	402.1 -> 79.9	9258	2.39 µg/L	-0.012

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 = 95.6%	
13C4-PFBA	2.811	216.8 -> 171.9	123523	9.90 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C4-PFHpA	6.455	367.1 -> 322.0	31106	2.42 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C5-PFHxA	5.497	318.0 -> 273.0	46637	2.45 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C5-PFPeA	4.312	268.3 -> 223.0	68627	4.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C6-PFDA	8.179	519.1 -> 474.1	14972	1.32 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C7-PFUnDA	8.635	570.0 -> 525.1	17619	1.14 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.2%	
13C8-FOSA	9.882	506.1 -> 77.8	13505	2.77 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.8%	
13C8-PFOA	7.136	421.1 -> 376.0	53050	2.54 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C8-PFOS	8.317	507.1 -> 79.9	7880	2.65 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C9-PFNA	7.683	472.1 -> 427.0	18997	1.34 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.0%	
d3-MeFOSAA	8.249	573.2 -> 419.0	12920	5.11 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C3-HFPO-DA	5.865	286.9 -> 168.9	36476	10.00 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
d3-MeFOSA	11.151	515.0 -> 219.0	6003	2.69 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.7%	
d5-EtFOSAA	8.458	589.2 -> 419.0	10631	5.02 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
d7-MeFOSE	11.046	623.2 -> 58.9	68435	25.65 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
d9-EtFOSE	11.331	639.2 -> 58.9	87305	24.41 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.7%	
d5-EtFOSA	11.422	531.1 -> 219.0	7123	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.5%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.197	327.1 -> 307.0	78949	49.97 µg/L	94
		327.1 -> 80.9	33489		
6:2FTS	6.899	427.1 -> 407.0	68421	55.00 µg/L	100
		427.1 -> 80.9	28315		
8:2FTS	7.967	527.1 -> 507.0	53964	53.68 µg/L	99
		527.1 -> 80.8	26095		
EtFOSAA	8.459	584.2 -> 419.1	19271	12.73 µg/L	m 92
		584.2 -> 526.0	8406		
FOSA	9.885	498.1 -> 77.9	121556	32.24 µg/L	m 99
		498.1 -> 478.0	3273		
MeFOSAA	8.250	570.1 -> 419.0	25224	13.63 µg/L	m 97
		570.1 -> 483.0	4636		
PFBA	2.820	212.8 -> 168.9	140326	52.86 µg/L	100
PFBS	5.379	298.7 -> 79.9	40271	10.75 µg/L	97
		298.7 -> 98.8	15714		
PFDA	8.180	512.9 -> 469.0	101614	11.76 µg/L	95
		512.9 -> 219.0	20257		
PFDoDA	9.069	613.1 -> 569.0	178640	13.26 µg/L	98
		613.1 -> 319.0	27124		
PFDS	9.220	599.0 -> 79.9	24539	12.94 µg/L	96

7.6.4  
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## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	12572			
PFHpA	6.455	363.1 -> 319.0	211918	14.02	µg/L	98
		363.1 -> 169.0	37719			
PFHpS	7.797	449.0 -> 79.9	34203	12.71	µg/L	96
		449.0 -> 98.9	18751			
PFHxA	5.500	313.0 -> 269.0	187878	13.10	µg/L	100
		313.0 -> 118.9	6270			
PFHxS	7.217	398.7 -> 79.9	28497	10.91	µg/L	m 78
		398.7 -> 98.9	14818			
PFNA	7.546	463.0 -> 419.0	254981	26.60	µg/L	m 98
		463.0 -> 219.0	69690			
PFNS	8.786	548.8 -> 79.9	16962	11.38	µg/L	96
		548.8 -> 98.9	8827			
PFOA	7.138	413.0 -> 369.0	526691	26.28	µg/L	m 100
		413.0 -> 169.0	118411			
PFOS	8.306	498.9 -> 79.9	32834	11.20	µg/L	m 83
		498.9 -> 98.8	16553			
PFPeA	4.314	263.0 -> 219.0	320588	26.33	µg/L	100
PFPeS	6.469	349.1 -> 79.9	28520	12.19	µg/L	97
		349.1 -> 98.9	12417			
PFTeDA	9.837	713.1 -> 669.0	143411	13.53	µg/L	99
		713.1 -> 168.9	12726			
PFTrDA	9.478	663.0 -> 619.0	181067	12.14	µg/L	99
		663.0 -> 168.9	19935			
PFUnDA	8.636	563.1 -> 519.0	117807	14.49	µg/L	99
		563.1 -> 269.1	22441			
11CI-PF3OUdS	9.506	630.9 -> 450.9	194182	24.05	µg/L	99
		632.9 -> 452.9	60487			
9CI-PF3ONS	8.650	530.8 -> 351.0	187993	21.68	µg/L	99
		532.8 -> 353.0	59603			
ADONA	6.718	376.9 -> 250.9	630801	24.49	µg/L	100
		376.9 -> 84.8	193133			
HFPO-DA	5.865	284.9 -> 168.9	74962	25.44	µg/L	98
		284.9 -> 184.9	8536			
3:3FTCA	3.773	241.0 -> 177.0	39475	68.03	µg/L	99
		241.0 -> 117.0	4019			
5:3FTCA	6.205	341.0 -> 237.1	677847	332.30	µg/L	99
		341.0 -> 217.0	500923			
7:3FTCA	7.711	441.0 -> 316.9	285190	318.31	µg/L	100
		441.0 -> 336.9	650078			
EtFOSA	11.424	526.0 -> 219.0	107816	43.94	µg/L	99
		526.0 -> 169.0	152573			
EtFOSE	11.344	630.0 -> 58.9	223251	83.30	µg/L	100
MeFOSA	11.153	511.9 -> 219.0	89363	42.91	µg/L	m 81
		511.9 -> 169.0	132183			
MeFOSE	11.072	616.1 -> 58.9	200212	82.44	µg/L	m 100
PFDoS	9.976	699.1 -> 79.9	18641	13.00	µg/L	95
		699.1 -> 98.8	10883			
NFDHA	5.380	295.0 -> 201.0	28548	25.25	µg/L	98
		295.0 -> 84.9	8164			
PFMBA	4.728	279.0 -> 85.1	183196	25.56	µg/L	100
PFMPA	3.440	229.0 -> 84.9	207693	26.44	µg/L	100
PFEESA	5.921	314.8 -> 134.9	293421	23.57	µg/L	99
		314.8 -> 82.9	9660			

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

7.6.4  
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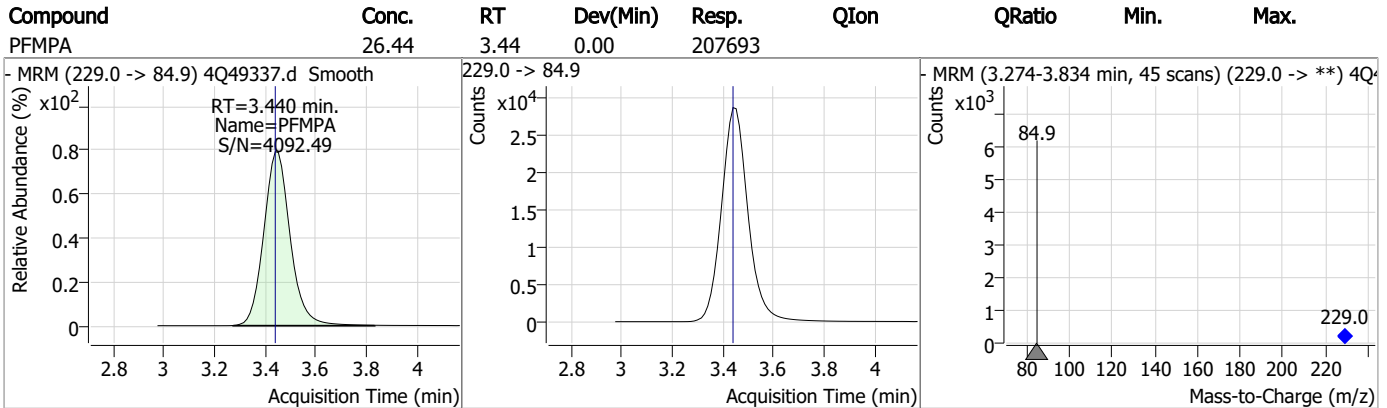
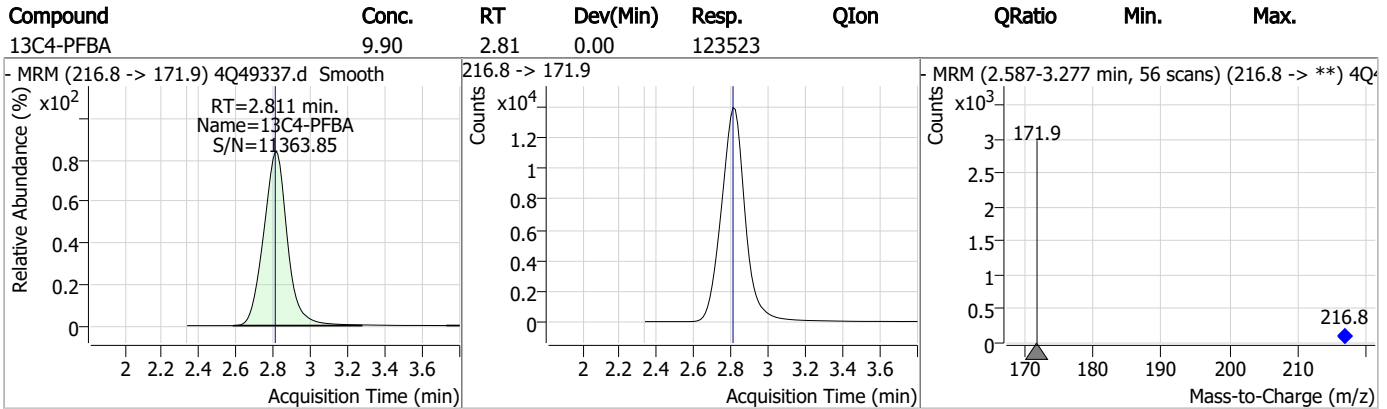
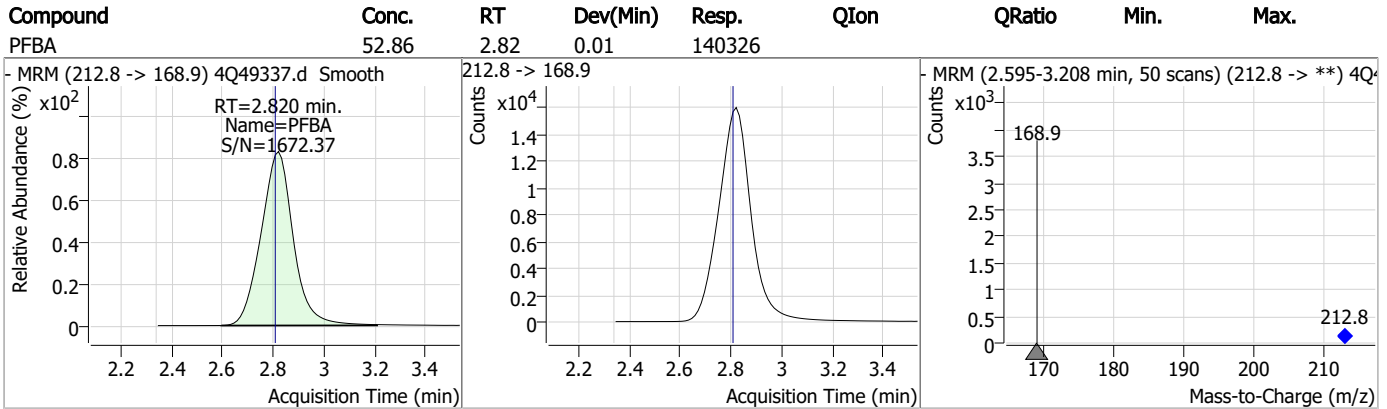
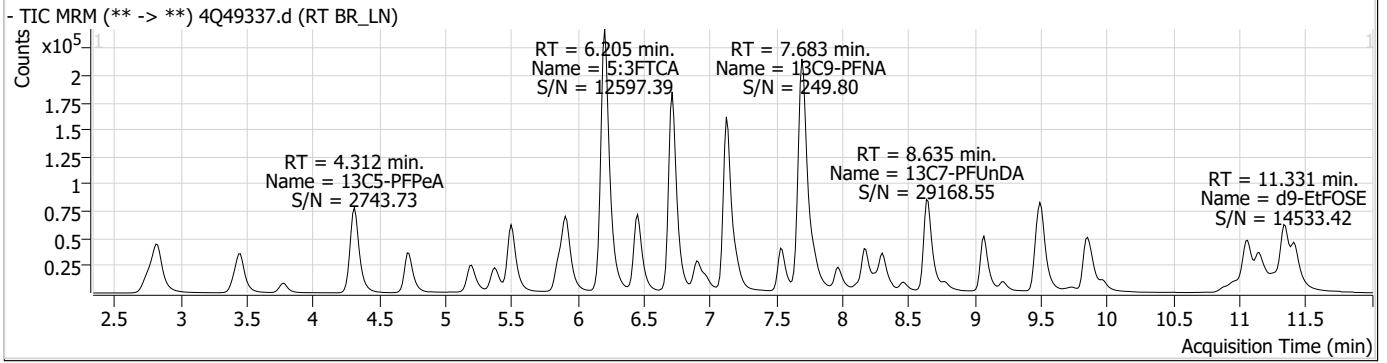
# Perfluorinated Compounds by LC/MS/MS

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

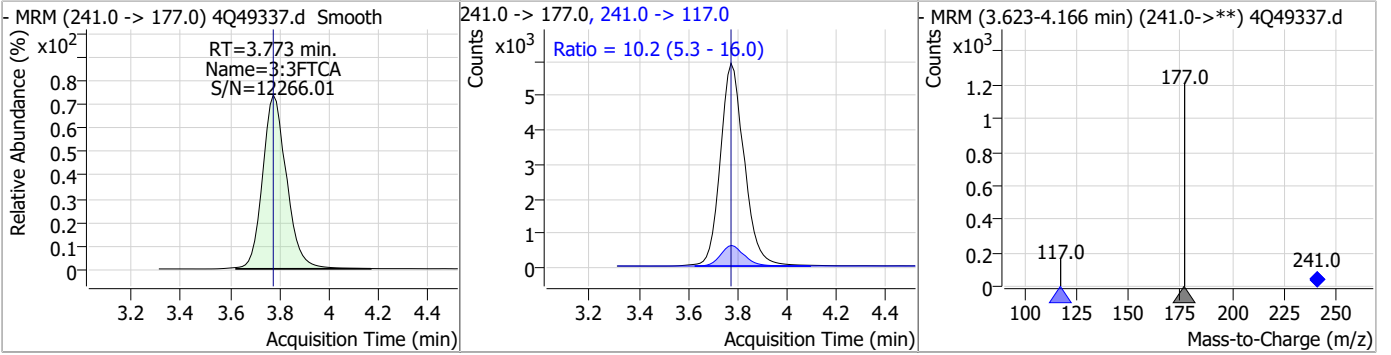
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# Perfluorinated Compounds by LC/MS/MS

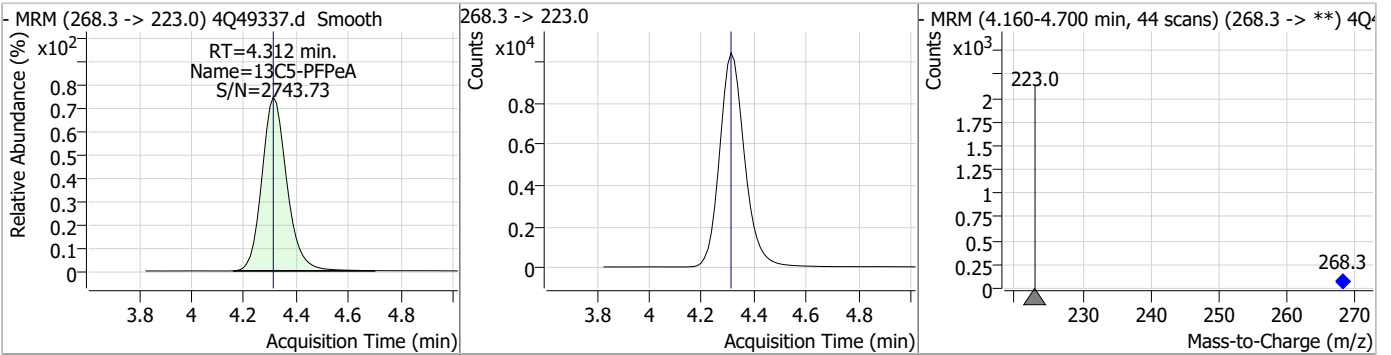


# Perfluorinated Compounds by LC/MS/MS

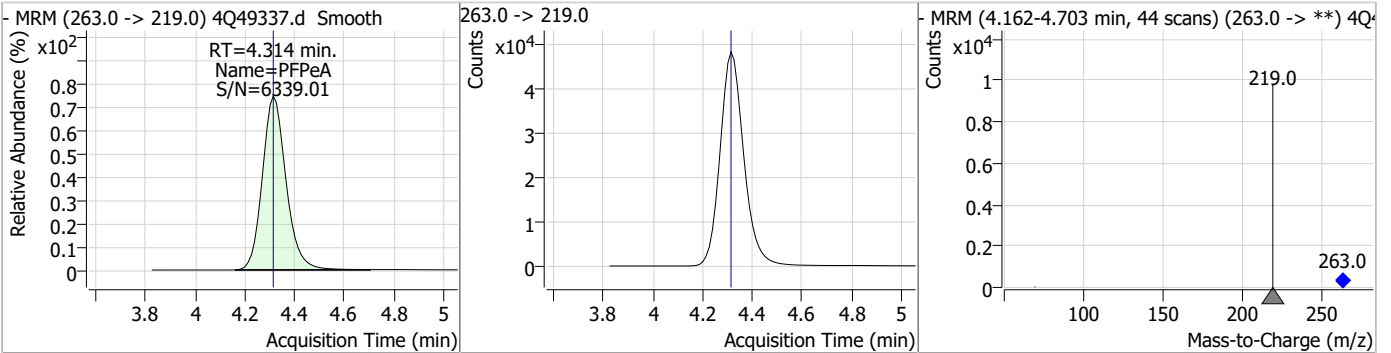
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	68.03	3.77	0.00	39475	241.0 -> 117.0	10.2	5.3	16.0



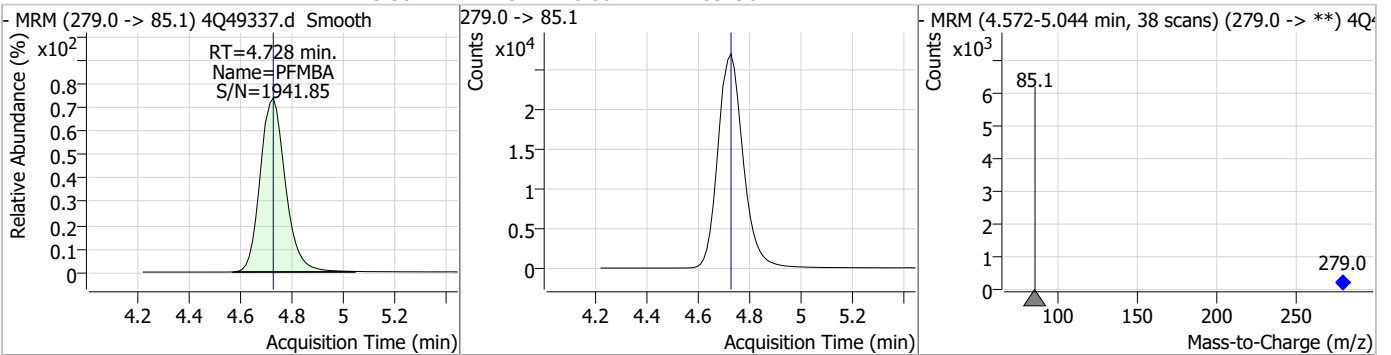
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.87	4.31	0.00	68627				



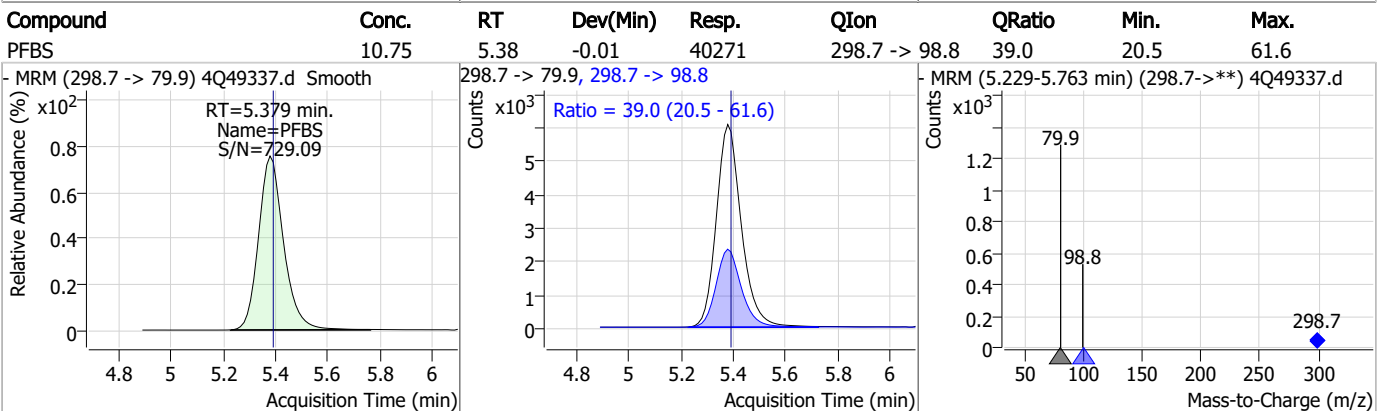
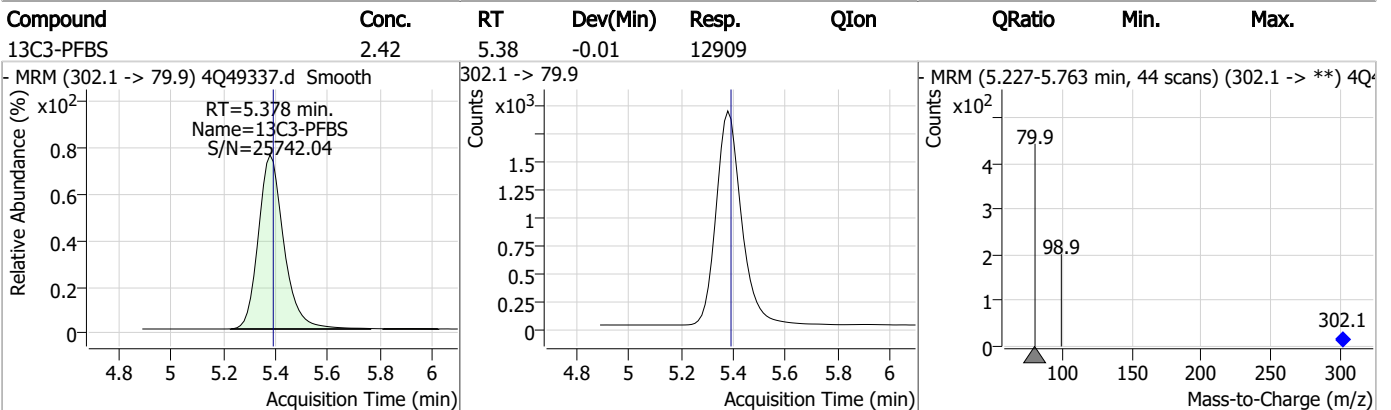
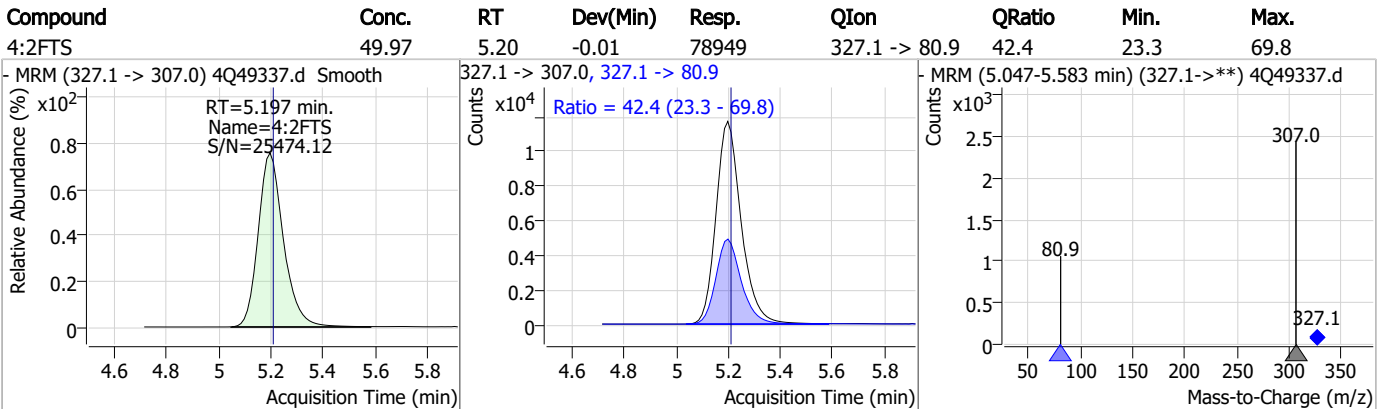
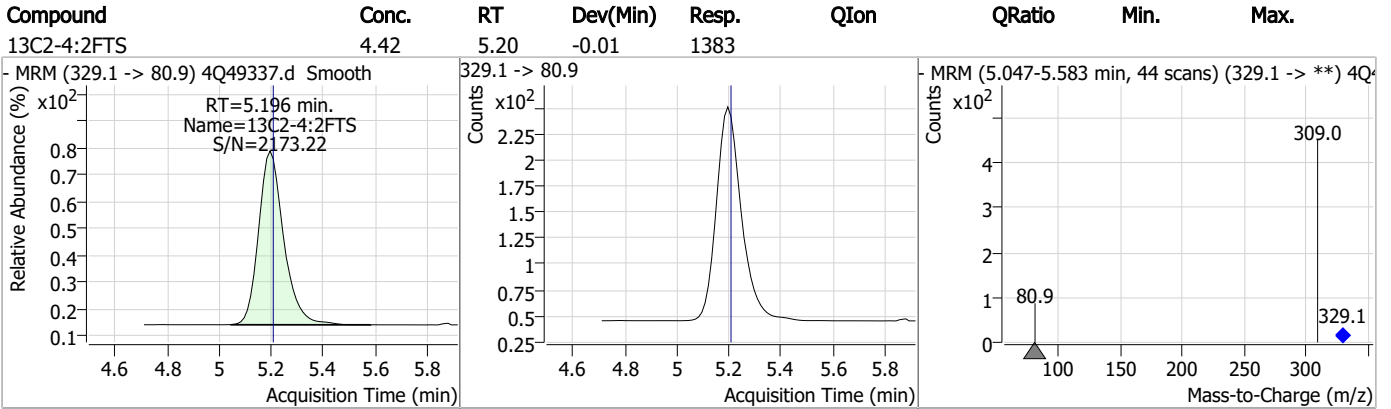
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	26.33	4.31	0.00	320588				



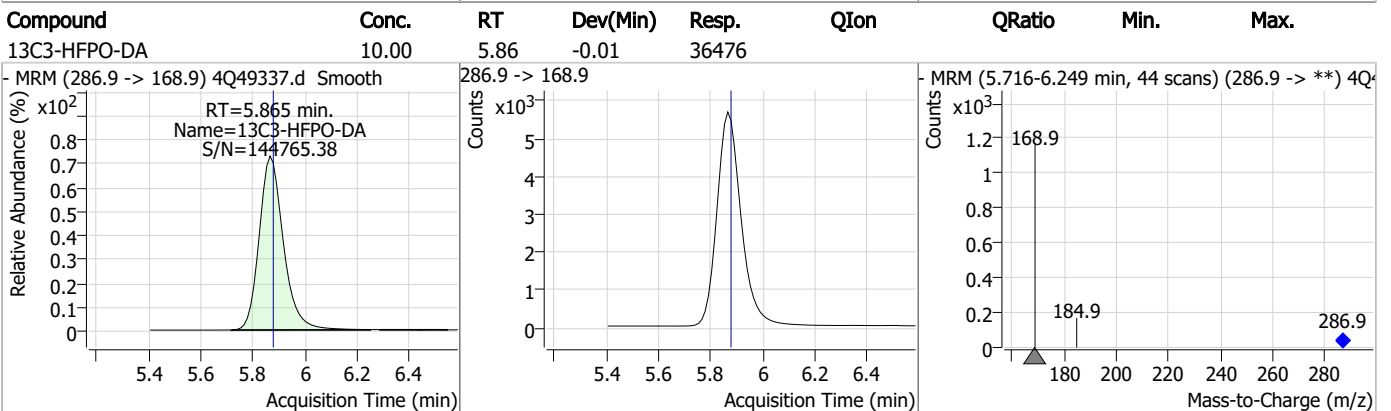
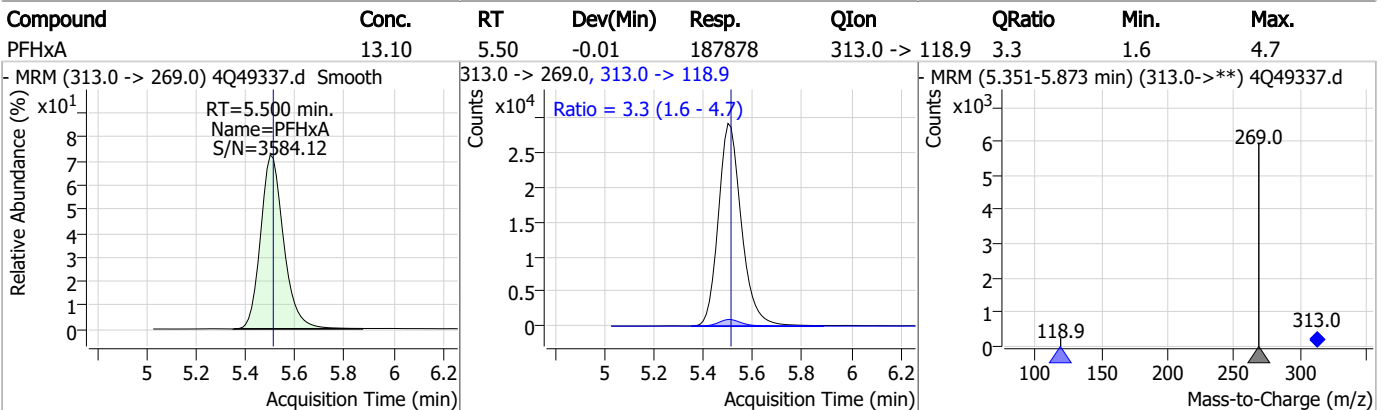
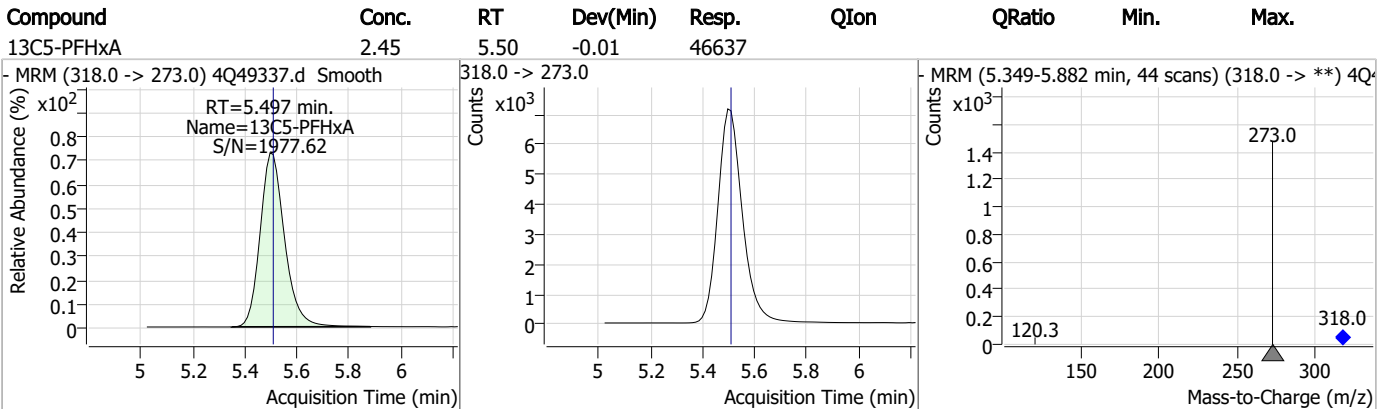
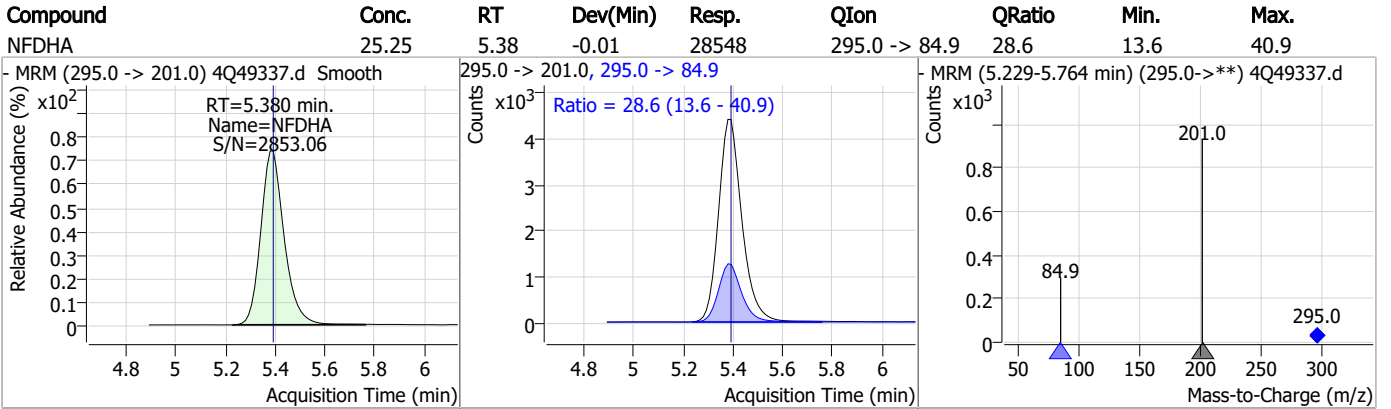
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	25.56	4.73	0.00	183196				



# Perfluorinated Compounds by LC/MS/MS

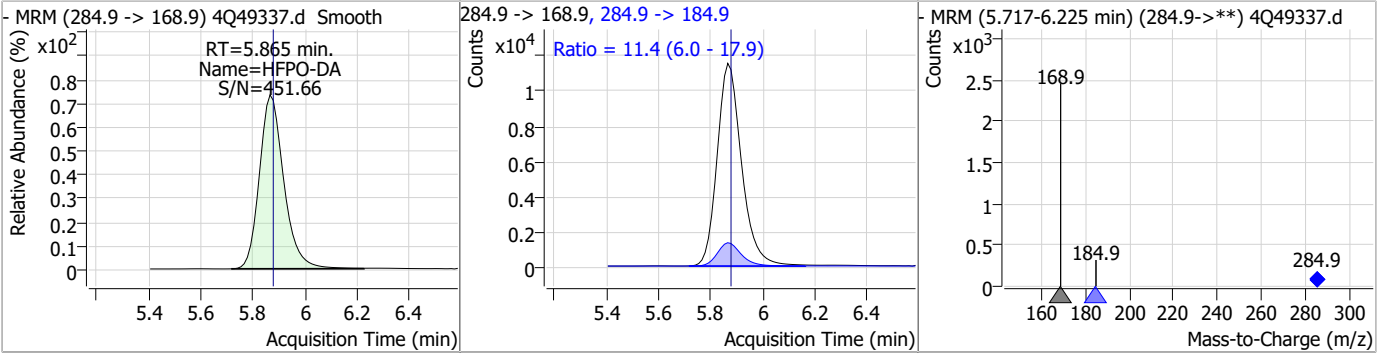


# Perfluorinated Compounds by LC/MS/MS

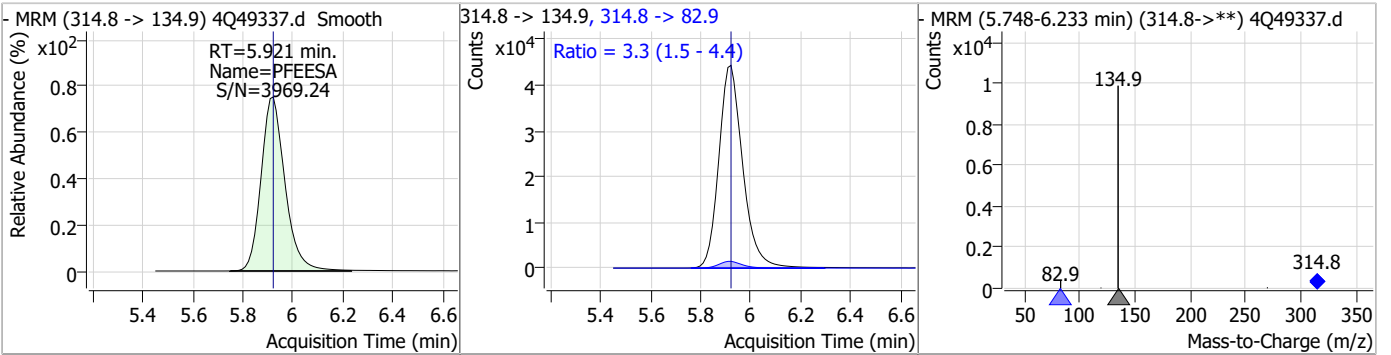


# Perfluorinated Compounds by LC/MS/MS

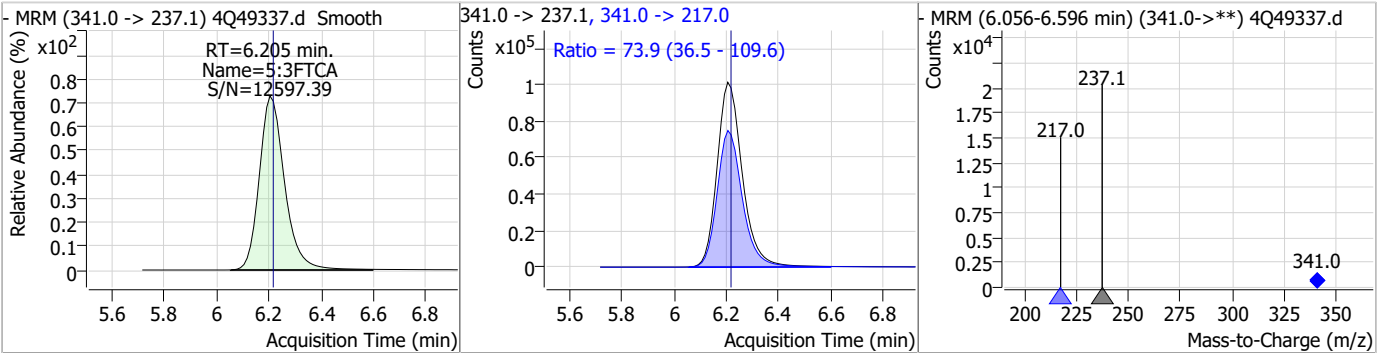
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	25.44	5.87	-0.01	74962	284.9 -> 184.9	11.4	6.0	17.9



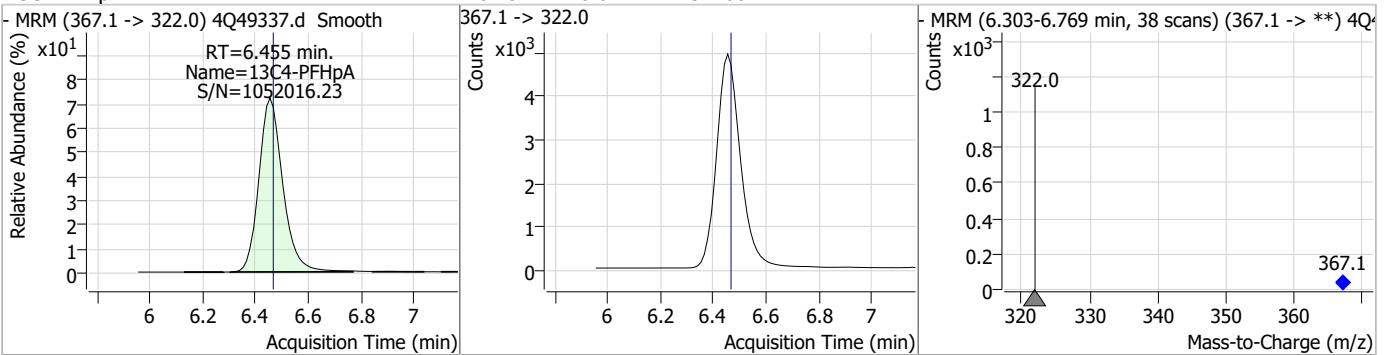
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	23.57	5.92	0.00	293421	314.8 -> 82.9	3.3	1.5	4.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	332.30	6.21	-0.01	677847	341.0 -> 217.0	73.9	36.5	109.6

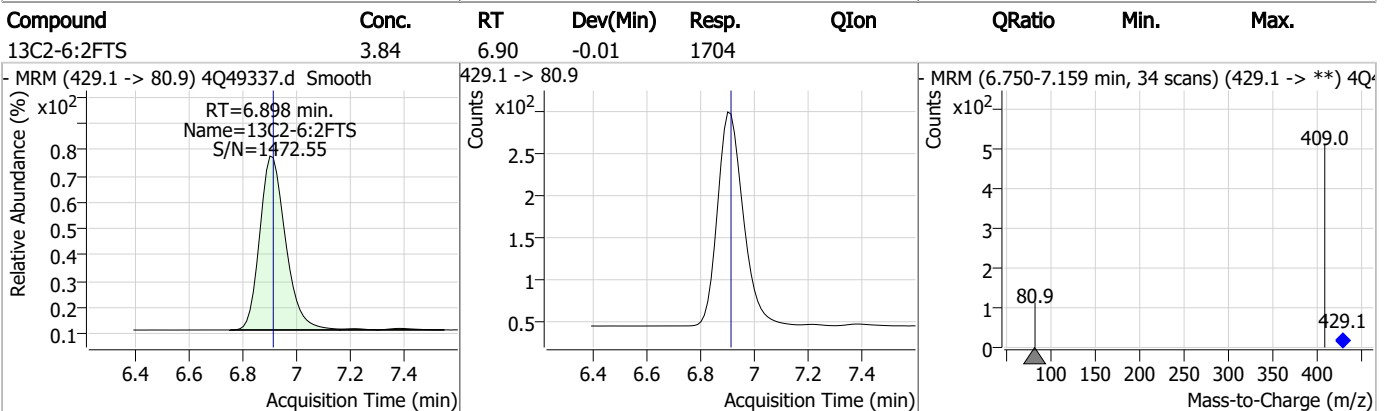
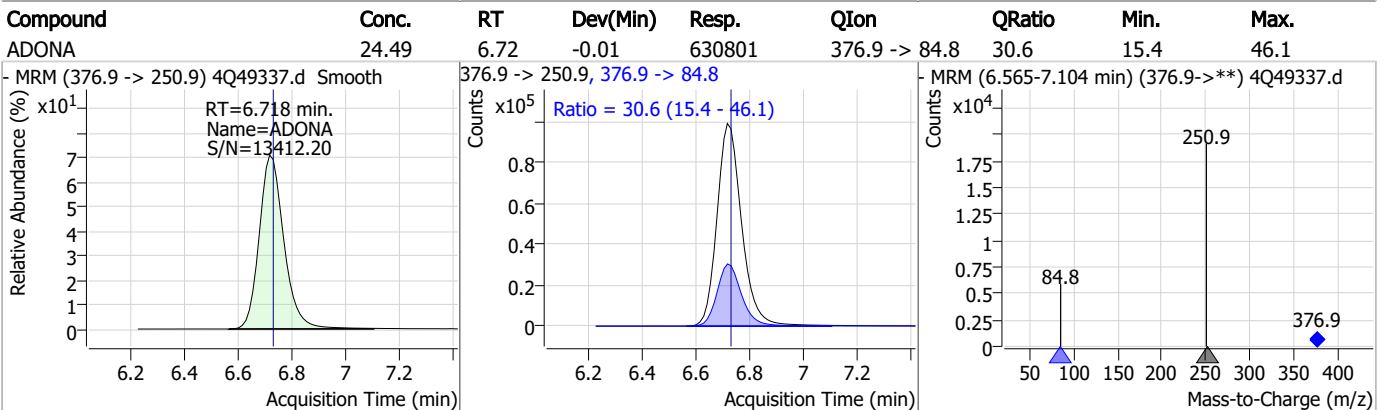
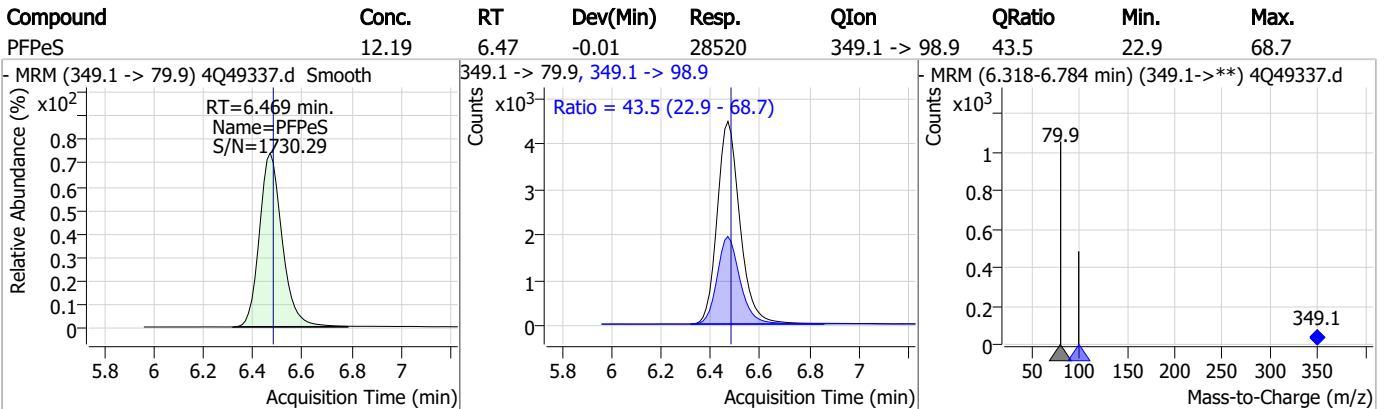
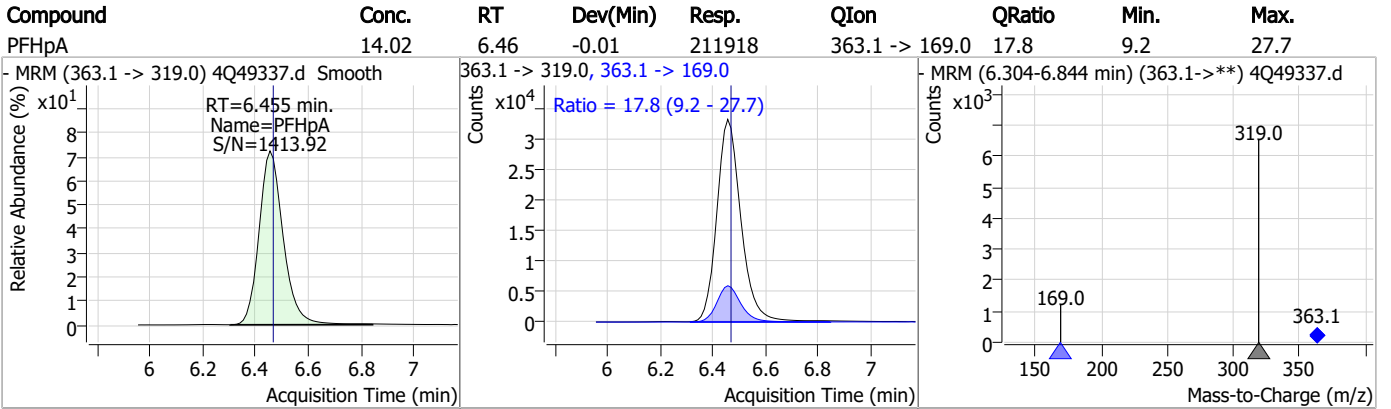


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.42	6.45	-0.01	31106				

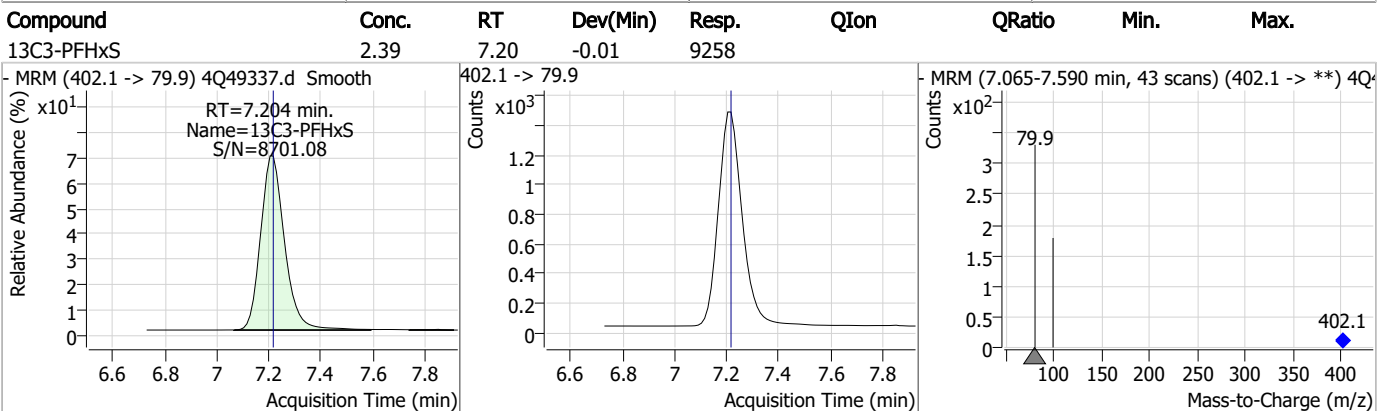
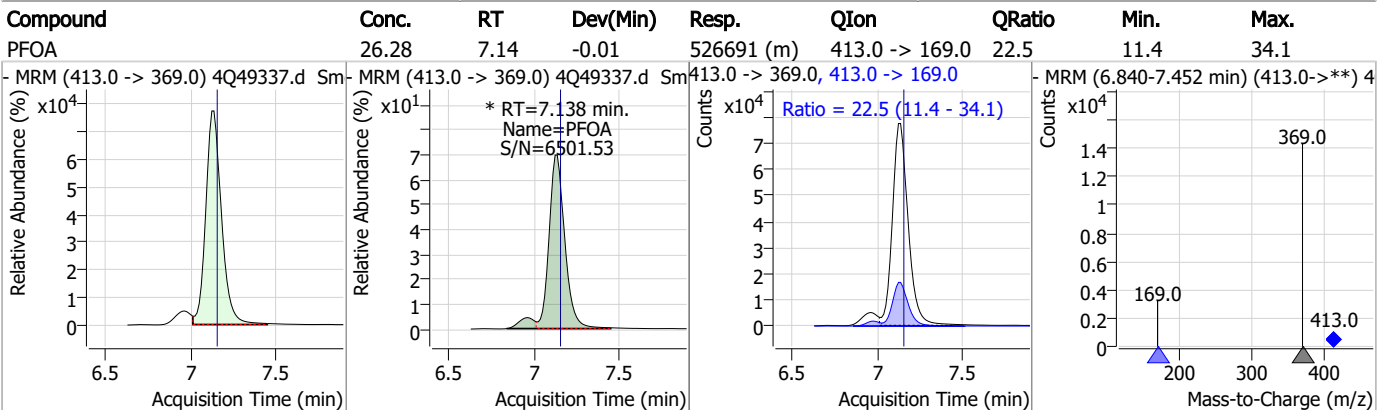
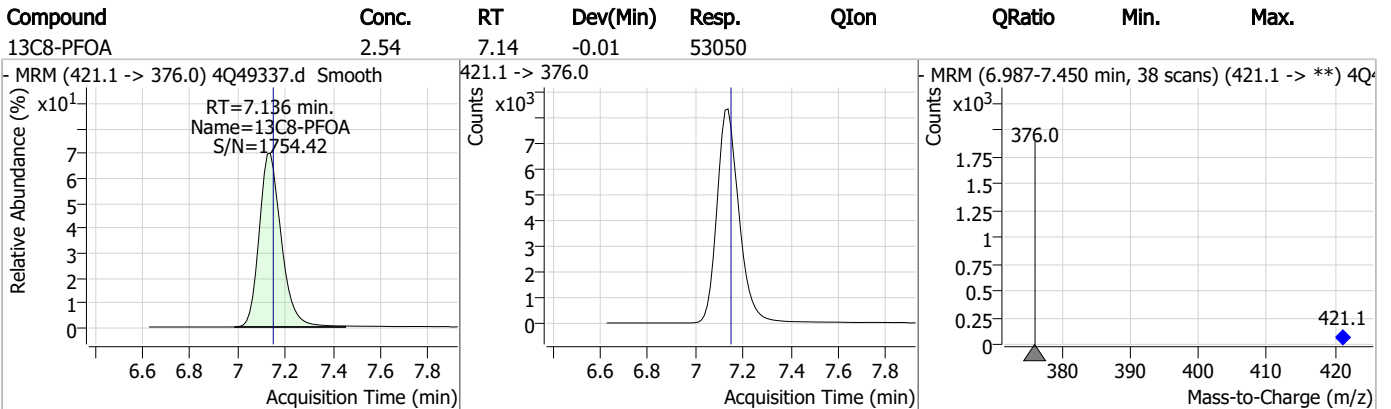
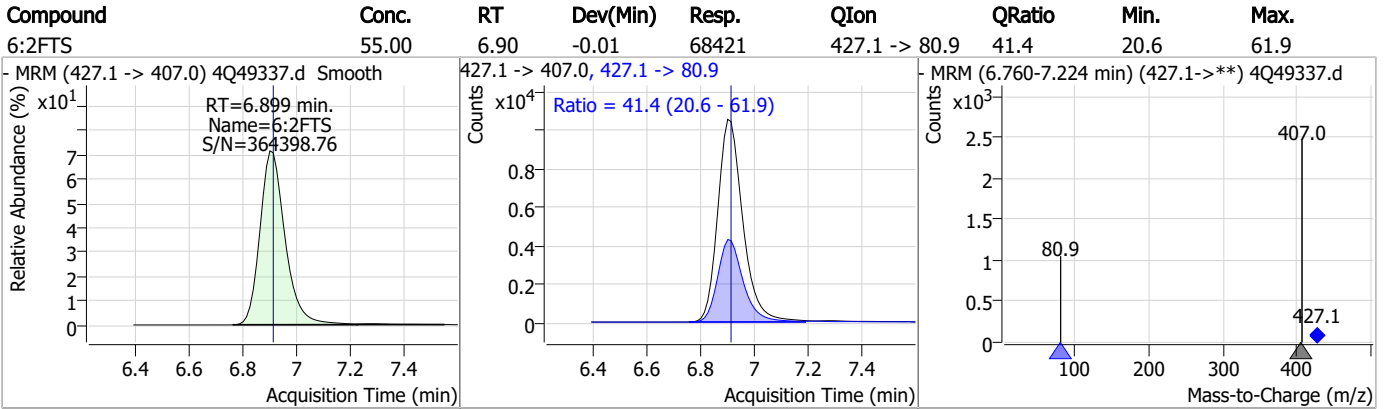




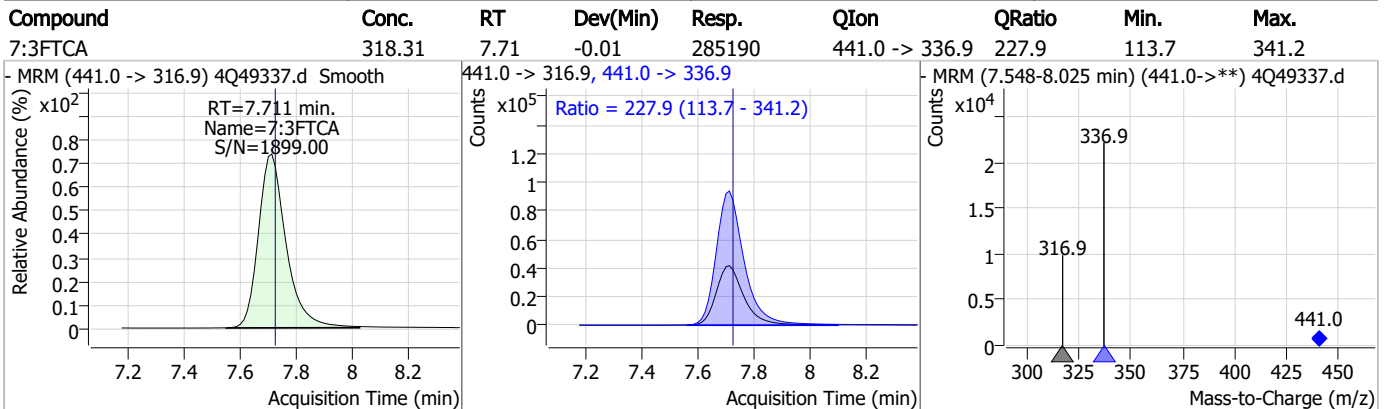
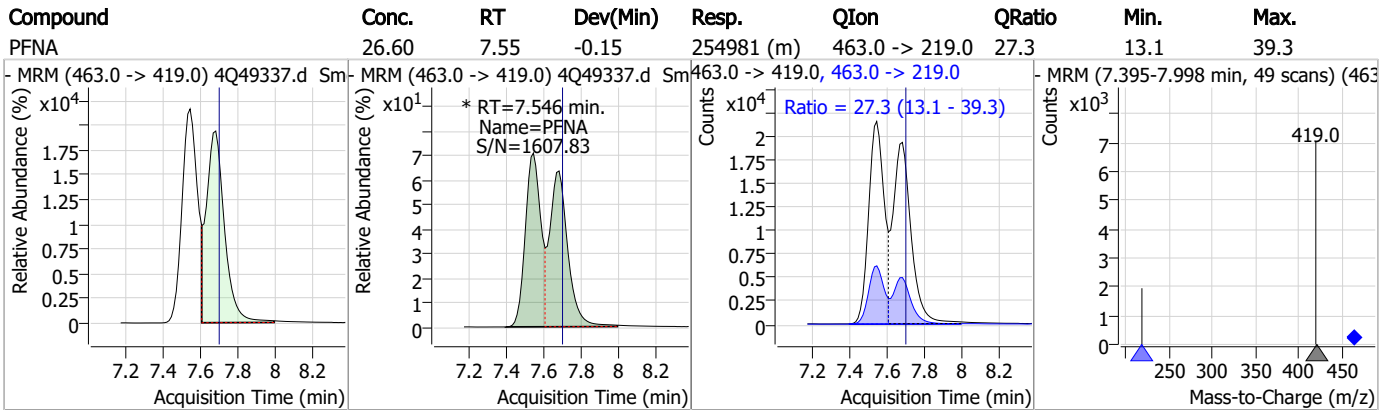
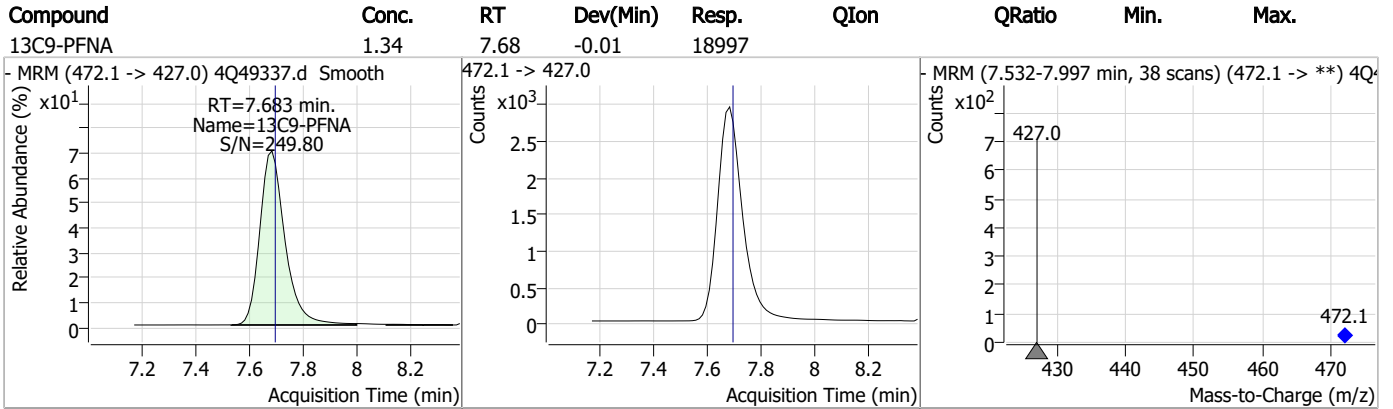
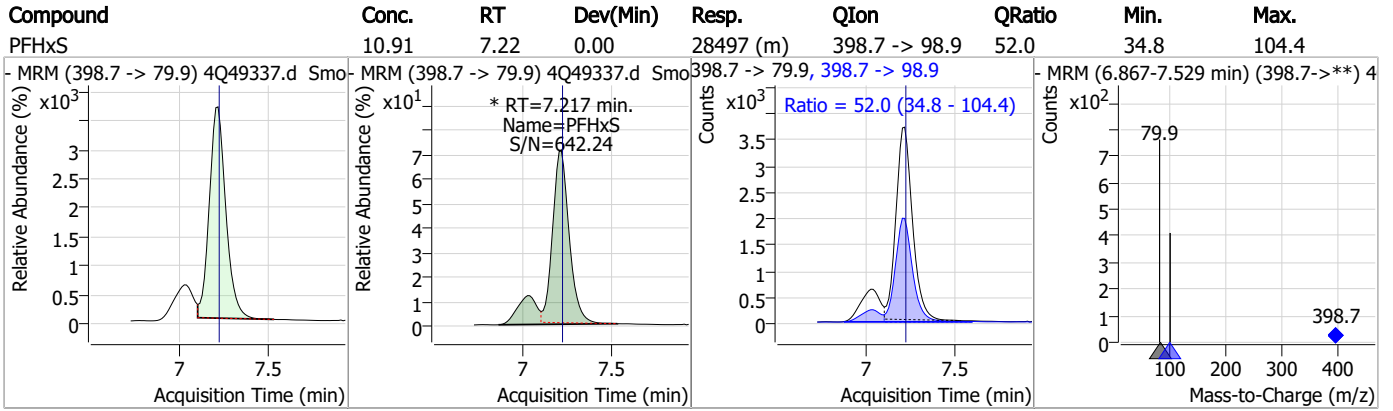
# Perfluorinated Compounds by LC/MS/MS



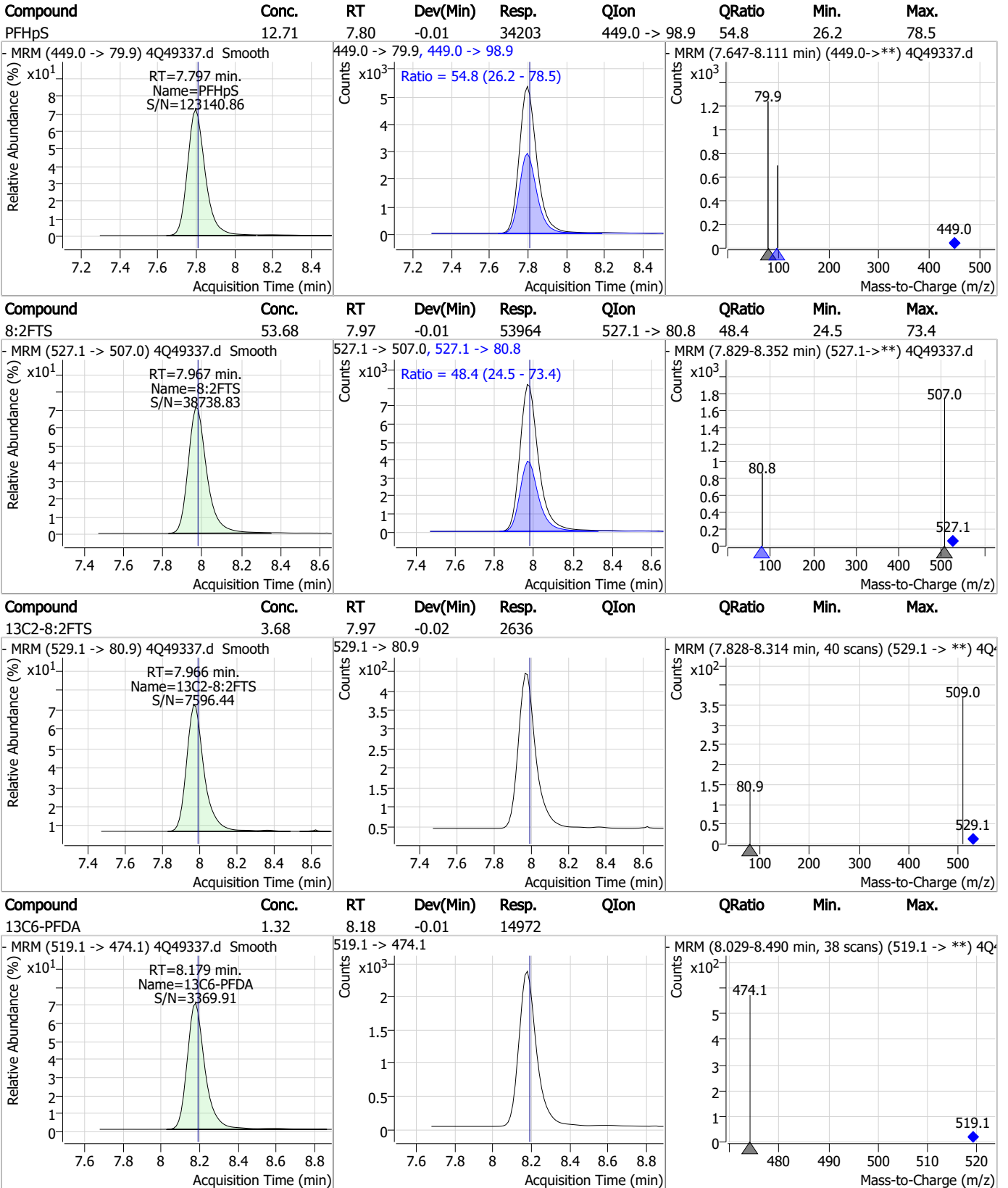
# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS



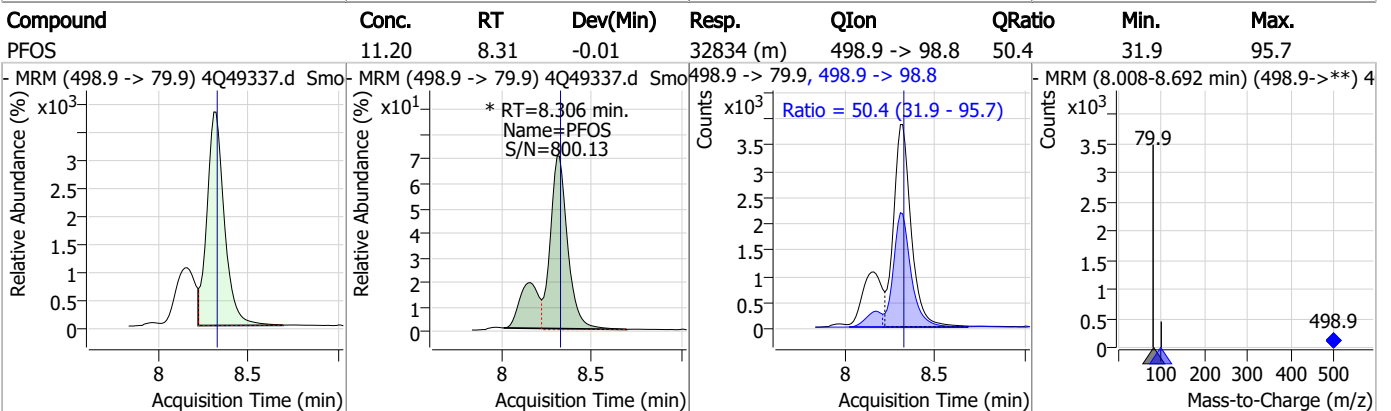
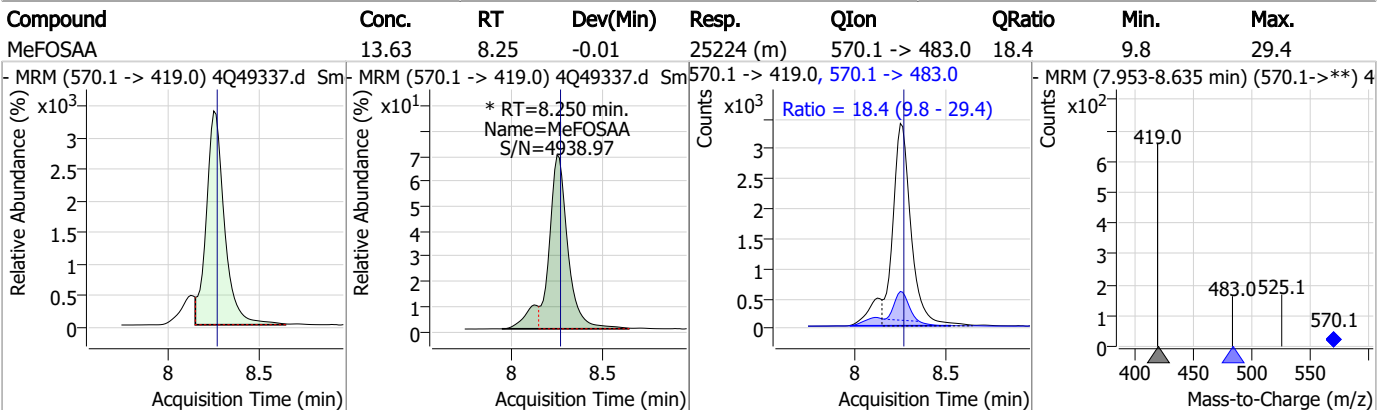
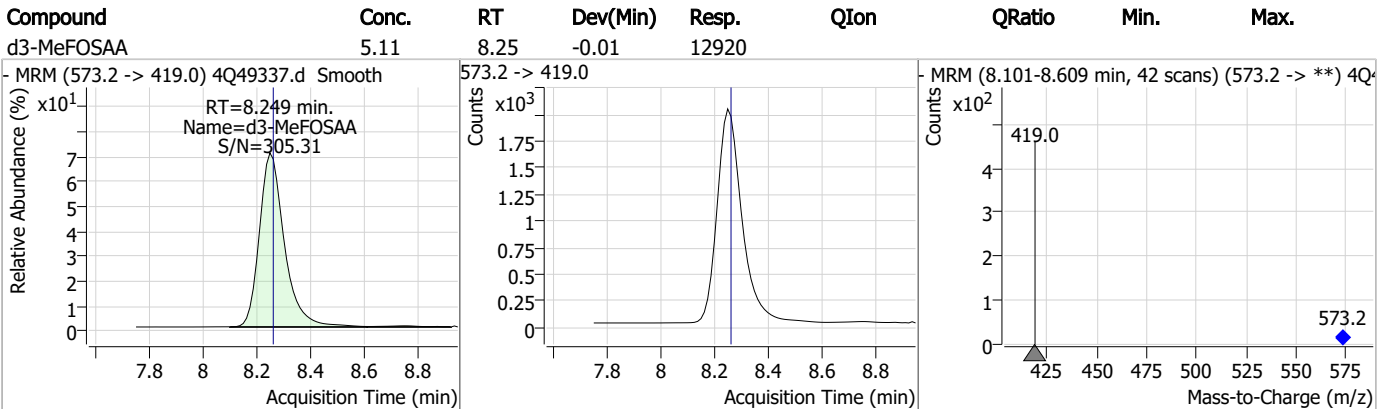
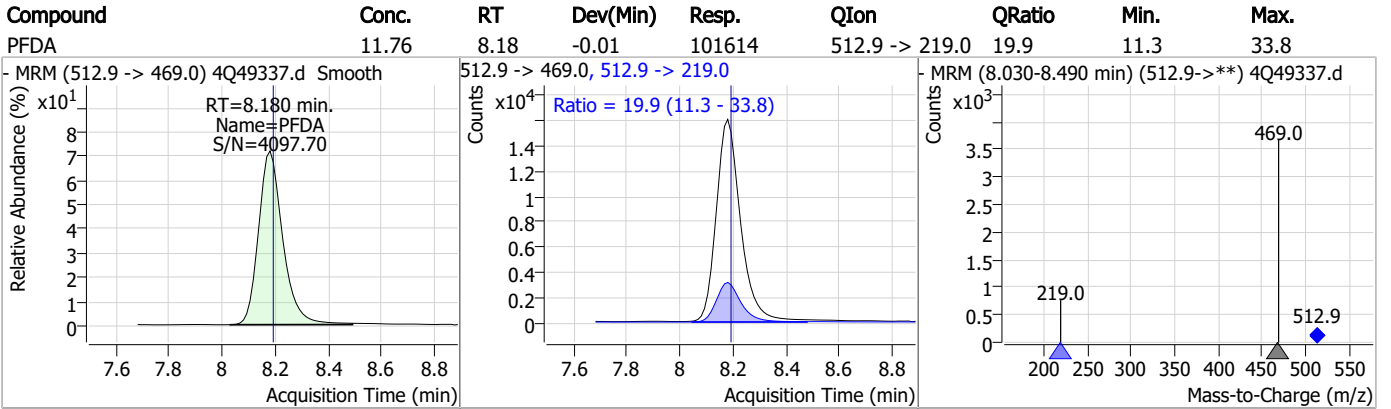
# Perfluorinated Compounds by LC/MS/MS



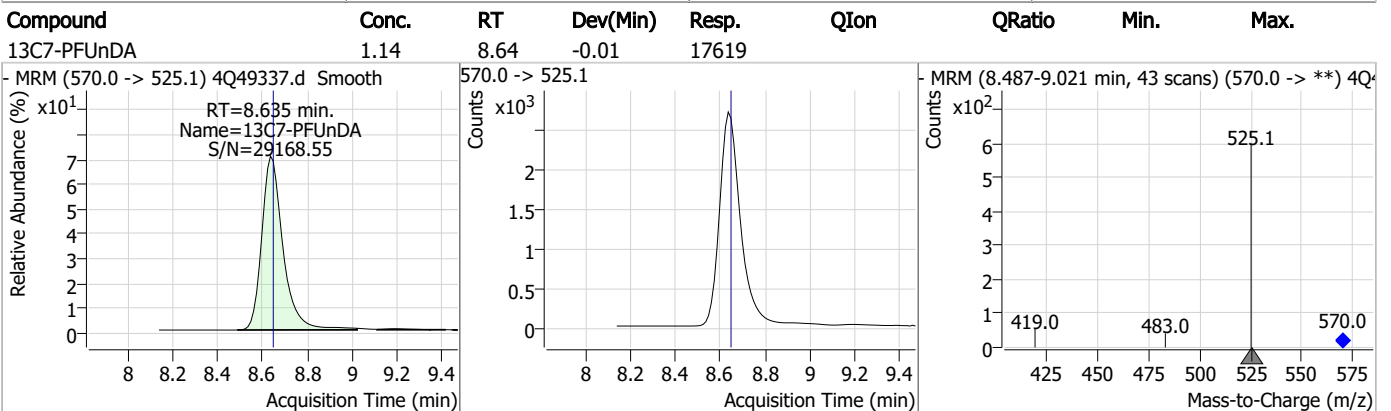
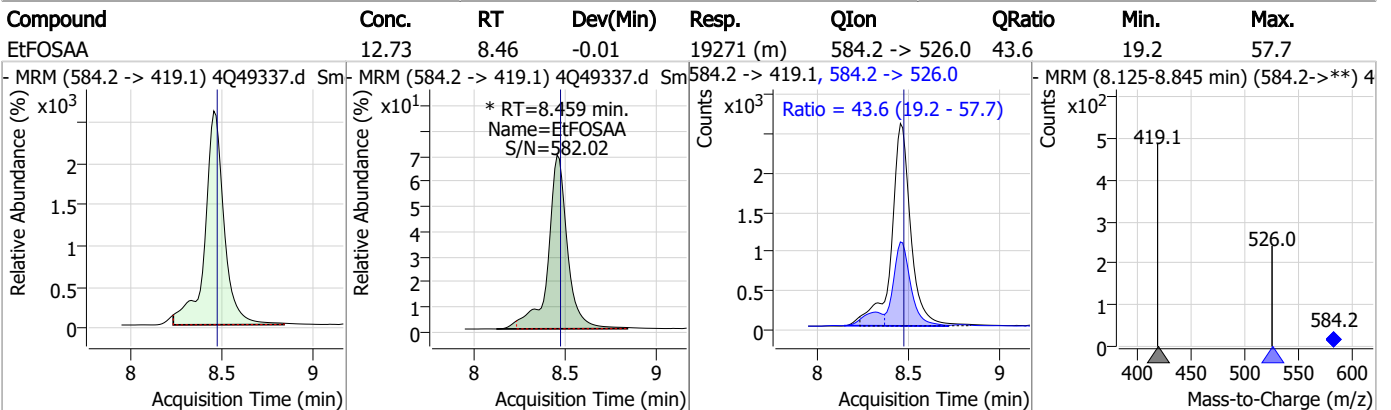
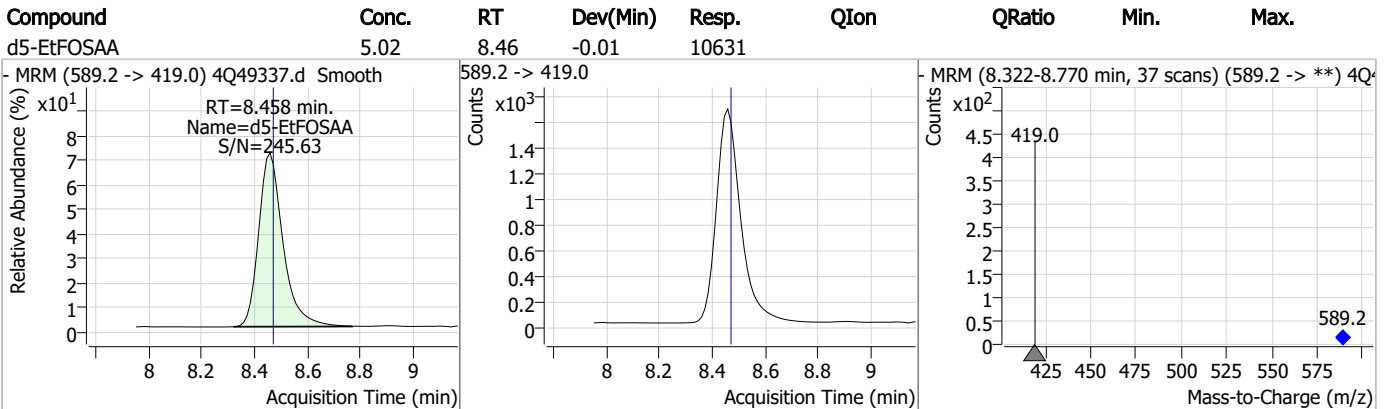
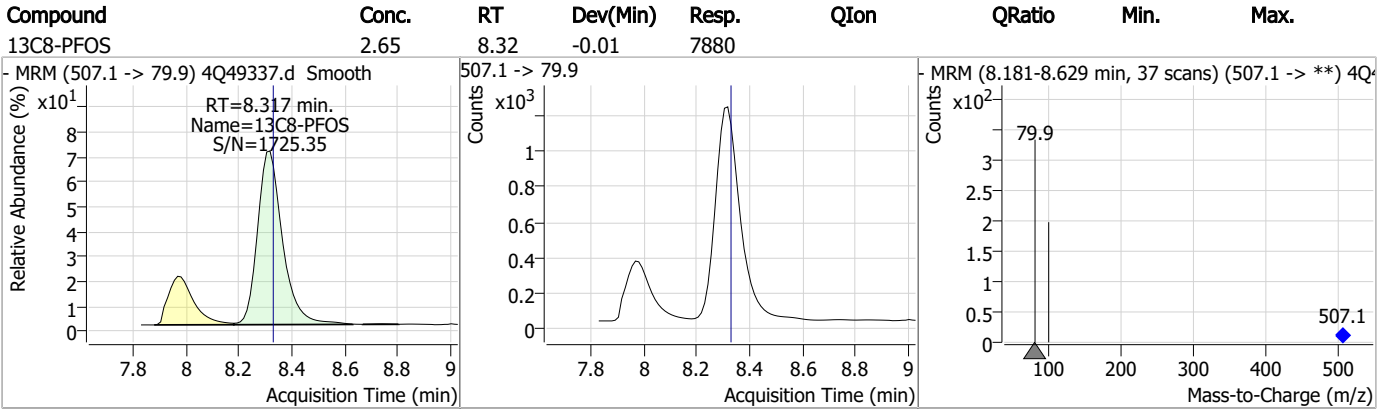
7.6.4

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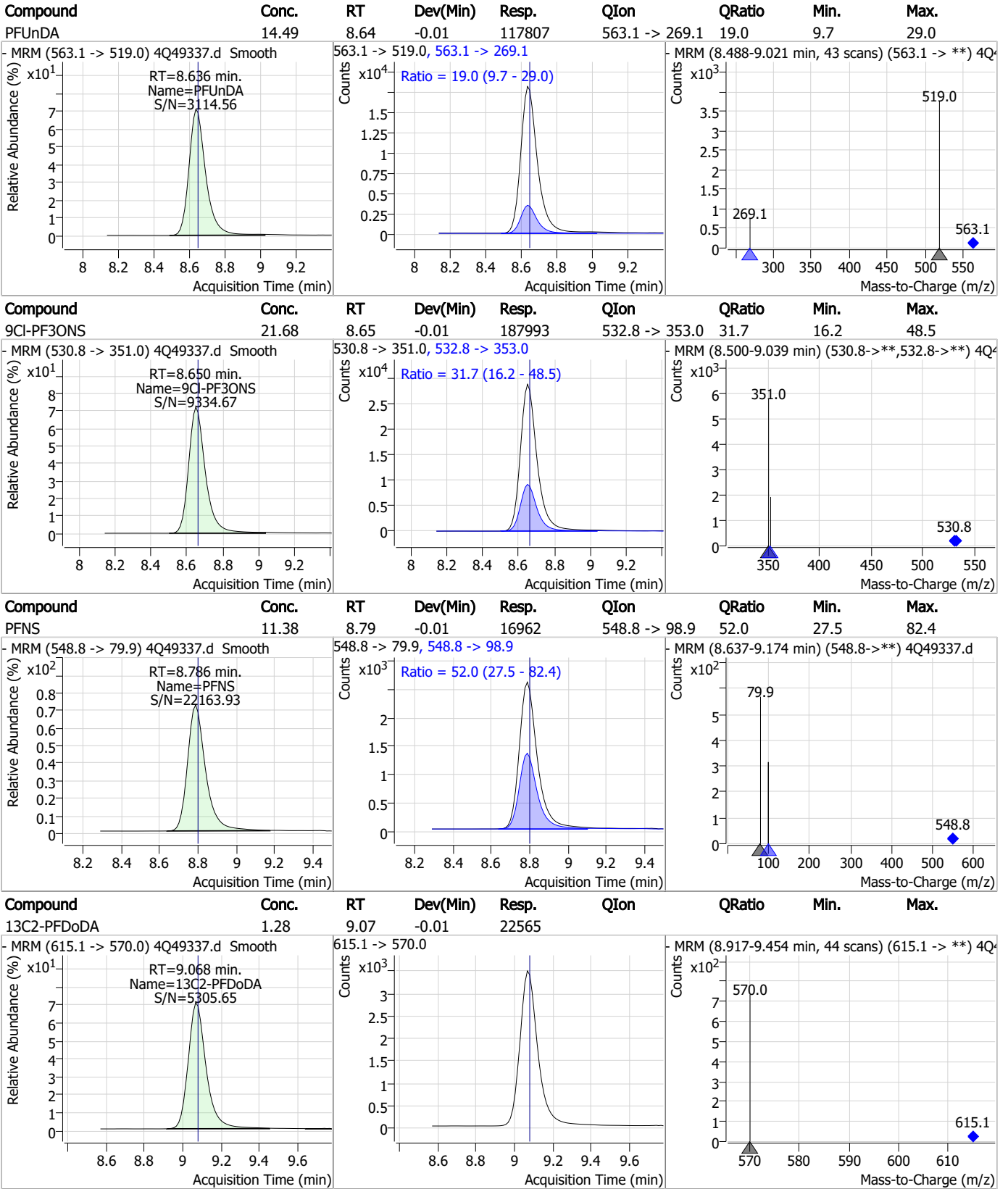
# Perfluorinated Compounds by LC/MS/MS



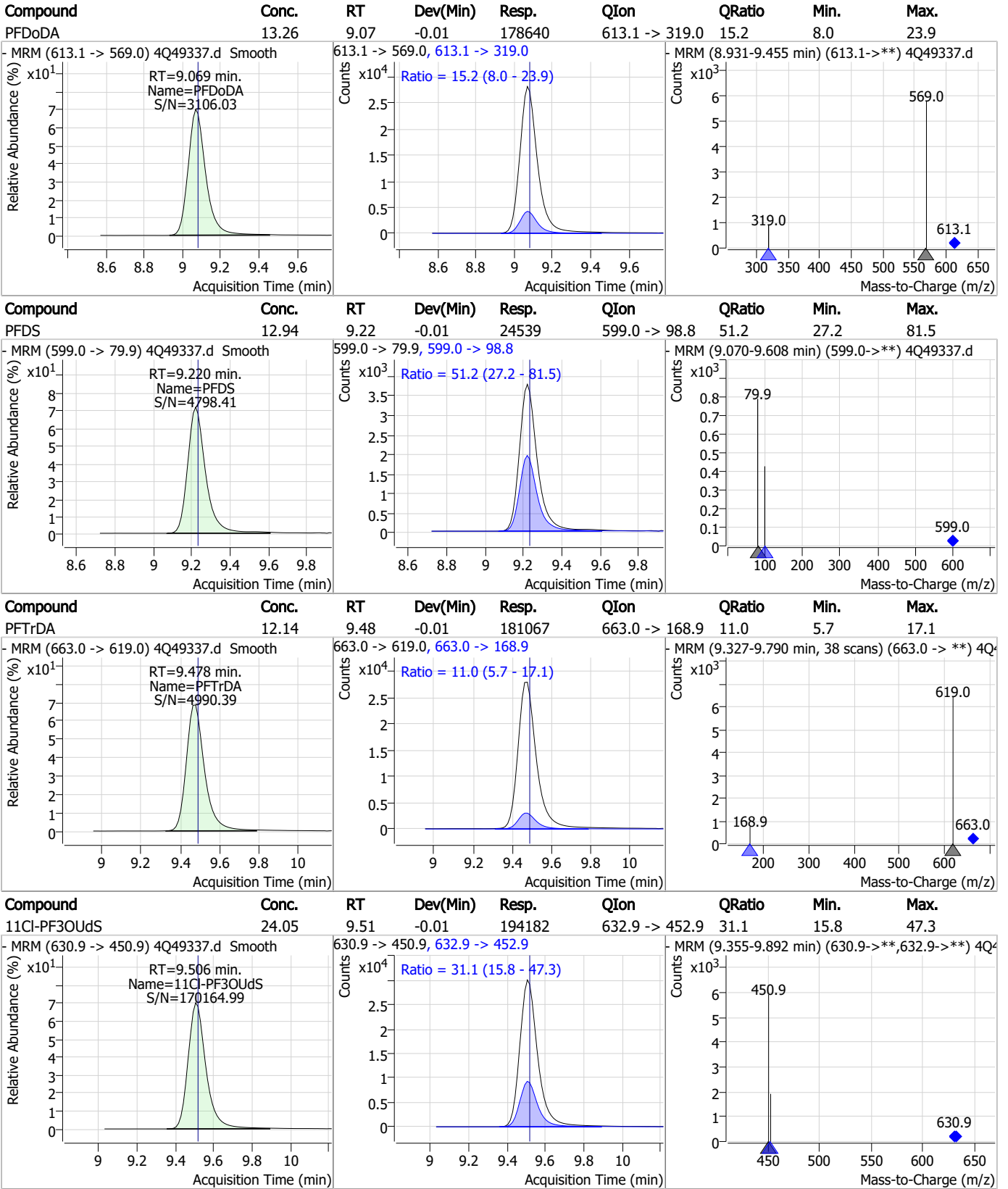
# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS



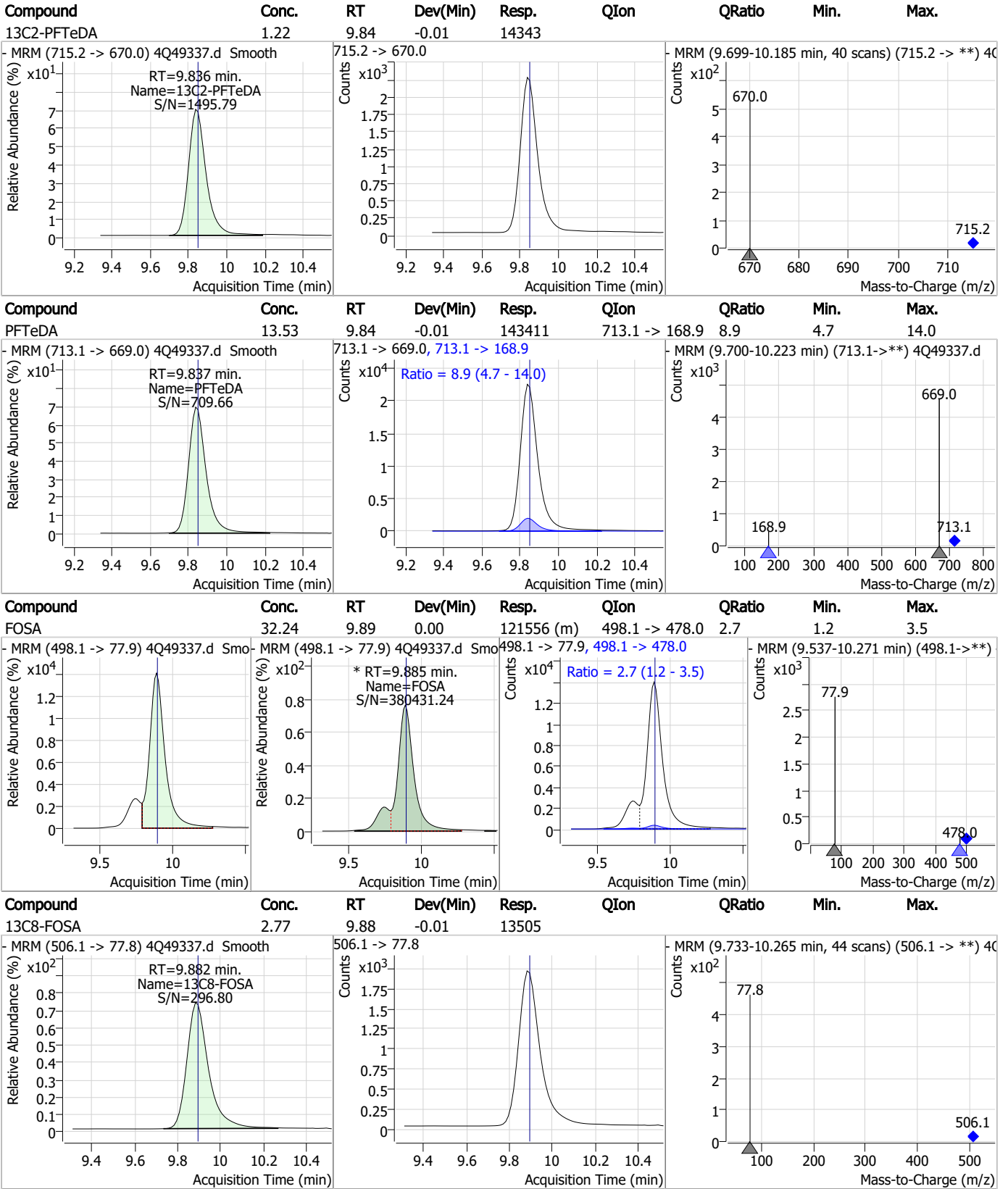
7.6.4

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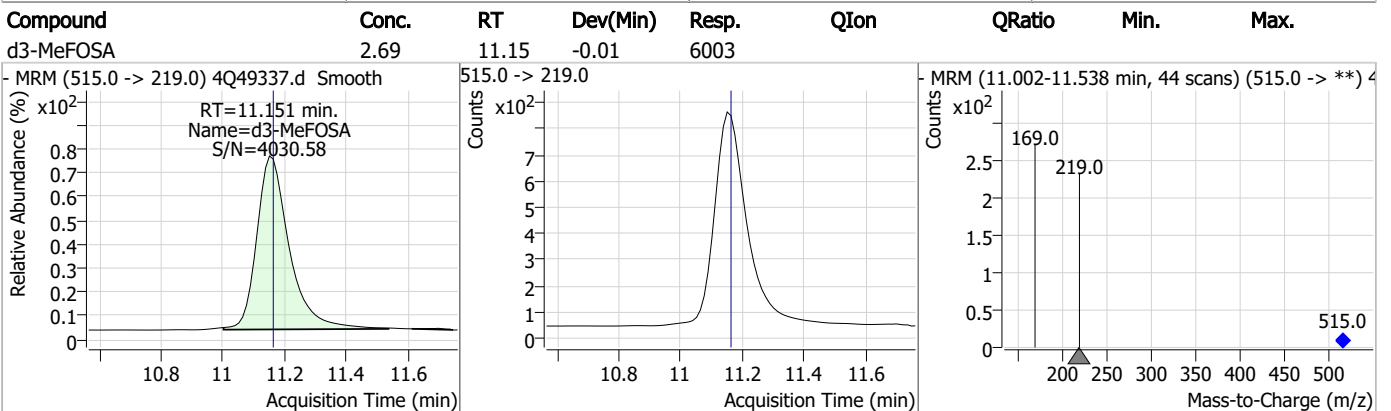
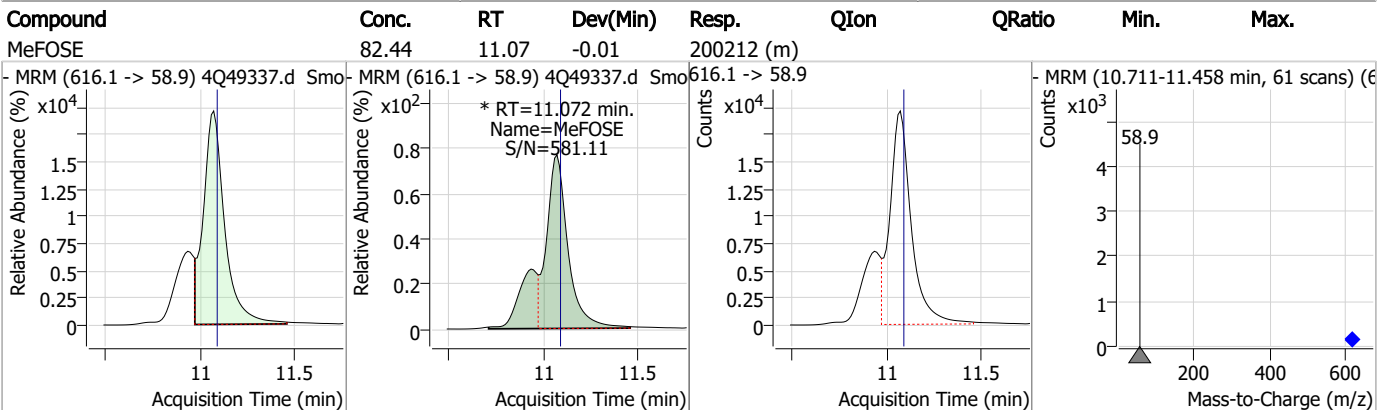
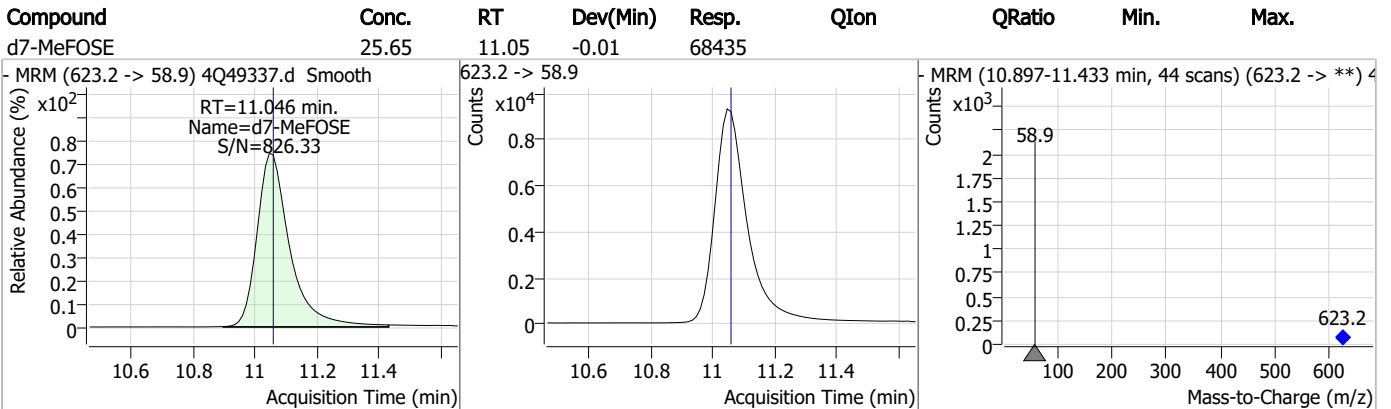
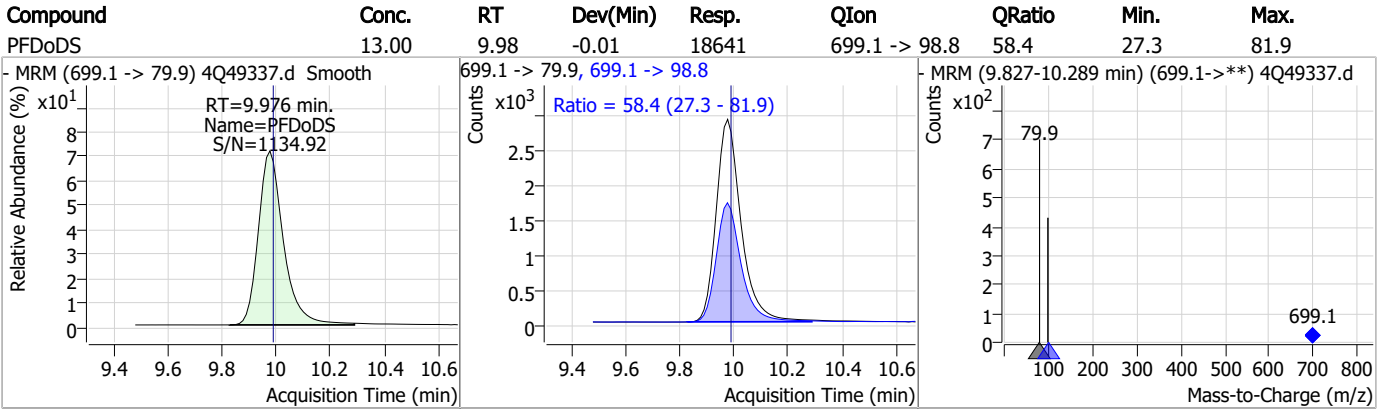
# Perfluorinated Compounds by LC/MS/MS



7.6.4

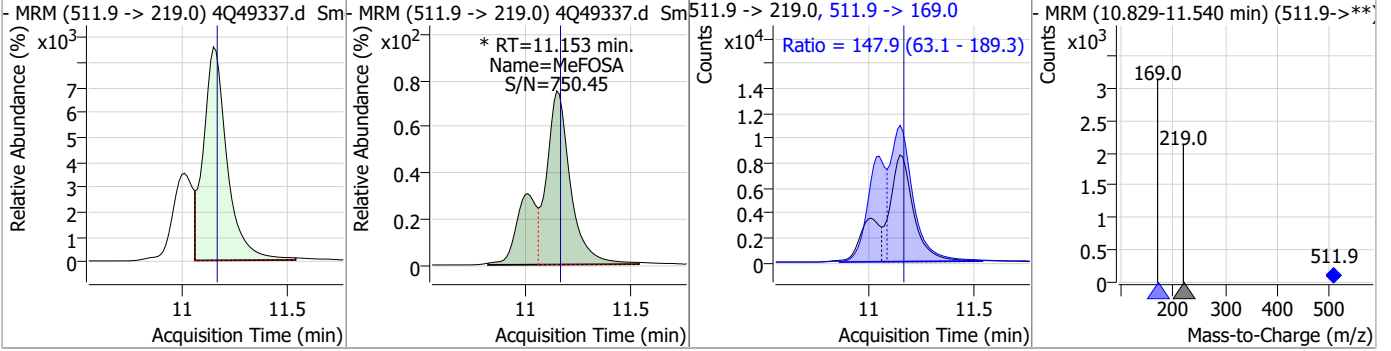
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# Perfluorinated Compounds by LC/MS/MS

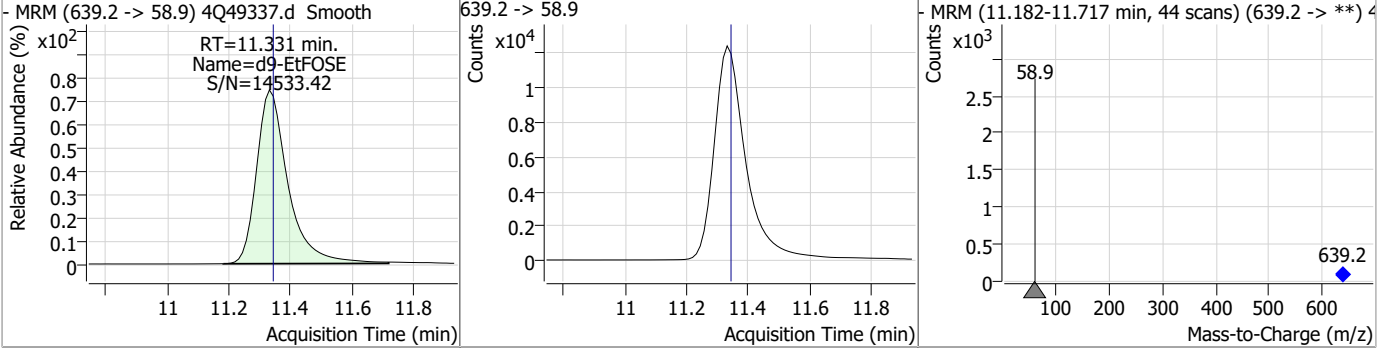


# Perfluorinated Compounds by LC/MS/MS

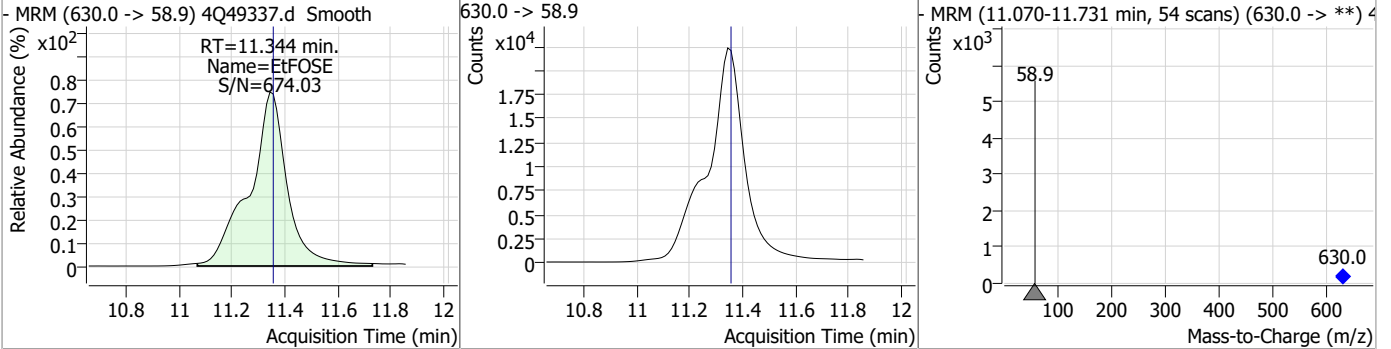
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	42.91	11.15	-0.01	89363 (m)	511.9 -> 169.0	147.9	63.1	189.3



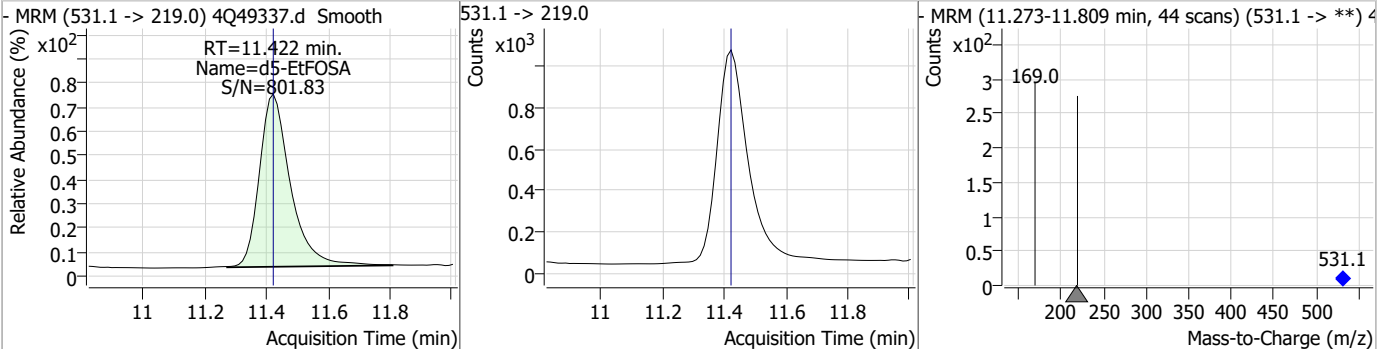
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.41	11.33	-0.01	87305				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	83.30	11.34	-0.01	223251				

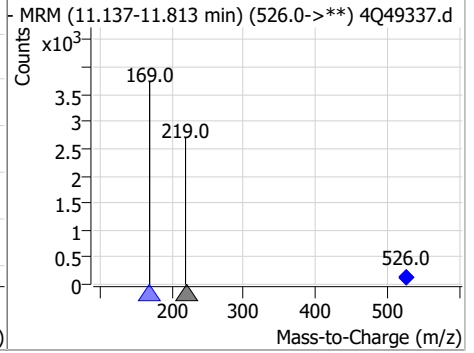
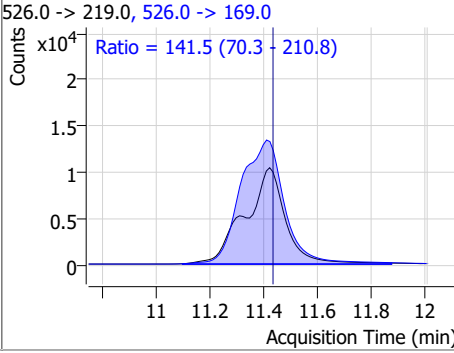
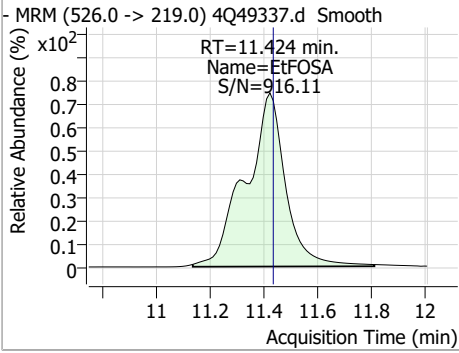


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.59	11.42	0.00	7123				



# Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	43.94	11.42	-0.01	107816	526.0 -> 169.0	141.5	70.3	210.8



7.6.4

7

# Manual Integration Approval Summary

Sample Number: S4Q723-RT                      Method: EPA DRAFT 1633  
Lab FileID: 4Q49337.D                      Analyst approved: 08/24/23 14:08 Anna Ludwig  
Injection Time: 08/23/23 10:04                      Supervisor approved: 08/24/23 16:08 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.14	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.22	Split peak
Perfluorononanoic acid	375-95-1		7.55	Split peak
MeFOSAA	2355-31-9		8.25	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.31	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
PFOSA	754-91-6		9.88	Split peak
MeFOSE	24448-09-7		11.07	Split peak
MeFOSA	31506-32-8		11.15	Split peak

7.6.4.1  
7

## 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** 19 August 2023 10:54:02  
**Data Path** D:\MassHunter\Tune\QQQ\G6470A\atunes.TUNE.XML  
**Ion Source** AJS ESI  
**Ionization Mode** AJS ESI  
**Tuned Resolution** All  
**Vacuum Pressure** 1.66E+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

### 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	113.02	0.03	Pass	0.70	0.68	-0.02	Pass	197021
302.00	302.08	0.08	Pass	0.70	0.68	-0.02	Pass	105354
601.98	602.06	0.08	Pass	0.70	0.63	-0.07	Pass	199164
1033.99	1034.07	0.08	Pass	0.70	0.62	-0.08	Pass	386874
1633.95	1634.00	0.05	Pass	0.70	0.64	-0.06	Pass	748795
2233.91	2234.00	0.09	Pass	0.70	0.63	-0.07	Pass	324894

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

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.02	0.02	Pass	0.70	0.70	0.00	Pass	49046
112.99	112.90	-0.09	Pass	0.70	0.77	0.07	Pass	169249
302.00	302.05	0.05	Pass	0.70	0.66	-0.04	Pass	131217
601.98	602.00	0.02	Pass	0.70	0.69	-0.01	Pass	186260
1033.99	1033.94	-0.05	Pass	0.70	0.67	-0.03	Pass	381978
1633.95	1633.93	-0.02	Pass	0.70	0.70	0.00	Pass	717634
2233.91	2233.74	-0.17	Pass	0.70	0.79	0.09	Pass	726348

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

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.99	0.00	Pass	1.20	1.15	-0.05	Pass	227346
302.00	302.12	0.12	Pass	1.20	1.19	-0.01	Pass	142387
601.98	602.07	0.09	Pass	1.20	1.40	0.20	Pass	343283
1033.99	1033.96	-0.03	Pass	1.20	1.48	0.28	Pass	813462
1633.95	1634.00	0.05	Pass	1.20	1.44	0.24	Pass	2137972
2233.91	2233.83	-0.08	Pass	1.20	1.38	0.18	Pass	1577040

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

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.07	0.07	Pass	1.20	1.17	-0.03	Pass	64016
112.99	112.99	0.00	Pass	1.20	1.30	0.10	Pass	183957
302.00	302.14	0.14	Pass	1.20	1.43	0.23	Pass	193572
601.98	602.07	0.09	Pass	1.20	1.60	0.40	Pass	367740
1033.99	1033.90	-0.09	Pass	1.20	1.60	0.40	Pass	889856
1633.95	1634.09	0.14	Pass	1.20	1.44	0.24	Pass	2584298
2233.91	2233.66	-0.25	Pass	1.20	1.62	0.42	Pass	1928380

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

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.88	-0.11	Pass	2.50	2.50	0.00	Pass	287895
302.00	302.06	0.06	Pass	2.50	2.53	0.03	Pass	199356
601.98	601.81	-0.17	Pass	2.50	2.74	0.24	Pass	457592
1033.99	1033.86	-0.13	Pass	2.50	2.65	0.15	Pass	1364657
1633.95	1633.92	-0.03	Pass	2.50	2.59	0.09	Pass	4013287
2233.91	2233.59	-0.32	Pass	2.50	2.70	0.20	Pass	3252453

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

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.37	0.37	Pass	2.50	2.78	0.28	Pass	87238
112.99	113.21	0.22	Pass	2.50	2.96	0.46	Pass	259645
302.00	302.00	0.00	Pass	2.50	3.10	0.60	Pass	257641
601.98	602.04	0.06	Pass	2.50	2.84	0.34	Pass	542161
1033.99	1033.87	-0.12	Pass	2.50	2.73	0.23	Pass	1252818
1633.95	1633.87	-0.08	Pass	2.50	2.34	-0.16	Pass	3962886
2233.91	2233.57	-0.34	Pass	2.50	2.22	-0.28	Pass	3222444

7.7.1  
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q49281.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 8/22/2023 10:50:07 AM  
 Sample Name : ic722-1  
 Vial : P1-A2  
 DA Method File : 1633\_082223\_S4Q722.quantmethod.xml  
 Batch Name : s4q722.batch.bin  
 Sample Information : OP98180,S4Q722,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.811	216.8 -> 171.9	114003	10.00 µg/L	0.000
M5-PFPeA	4.312	268.3 -> 223.0	63107	5.00 µg/L	0.000
M5-PFHxA	5.510	318.0 -> 273.0	40738	2.50 µg/L	0.000
M4-PFHpA	6.455	367.1 -> 322.0	30486	2.50 µg/L	-0.012
M8-PFOA	7.136	421.1 -> 376.0	47327	2.50 µg/L	-0.012
M9-PFNA	7.683	472.1 -> 427.0	17720	1.25 µg/L	-0.012
M6-PFDA	8.179	519.1 -> 474.1	14468	1.25 µg/L	-0.012
M7-PFUnDA	8.635	570.0 -> 525.1	19215	1.25 µg/L	-0.012
M2-PFDoDA	9.068	615.1 -> 570.0	21595	1.25 µg/L	-0.012
M2-PFTeDA	9.849	715.2 -> 670.0	15676	1.25 µg/L	0.000
M8-FOSA	9.882	506.1 -> 77.8	12892	2.50 µg/L	-0.012
M3-PFBS	5.378	302.1 -> 79.9	11971	2.50 µg/L	-0.012
M3-PFHxS	7.216	402.1 -> 79.9	8652	2.50 µg/L	0.000
M8-PFOS	8.317	507.1 -> 79.9	8100	2.50 µg/L	-0.012
M2-4:2FTS	5.196	329.1 -> 80.9	1494	5.00 µg/L	-0.012
M2-6:2FTS	6.911	429.1 -> 80.9	1993	5.00 µg/L	0.000
M2-8:2FTS	7.978	529.1 -> 80.9	3004	5.00 µg/L	-0.012
M3-MeFOSAA	8.249	573.2 -> 419.0	12796	5.00 µg/L	-0.012
M3-HFPO-DA	5.865	286.9 -> 168.9	33197	10.00 µg/L	-0.012
M5-EtFOSAA	8.458	589.2 -> 419.0	10494	5.00 µg/L	-0.012
M7-MeFOSE	11.059	623.2 -> 58.9	80988	25.00 µg/L	0.000
M9-EtFOSE	11.343	639.2 -> 58.9	110120	25.00 µg/L	0.000
M5-EtFOSA	11.422	531.1 -> 219.0	7640	2.50 µg/L	0.000
M3-MeFOSA	11.163	515.0 -> 219.0	5724	2.50 µg/L	0.000
13C4-PFOS	8.318	502.8 -> 79.9	7093	2.50 µg/L	-0.012
13C3-PFBA	2.816	216.0 -> 172.0	65222	5.00 µg/L	0.013
18O2-PFHxS	7.215	403.0 -> 83.9	5904	2.50 µg/L	-0.012
13C4-PFOA	7.137	417.1 -> 372.0	53882	2.50 µg/L	-0.012
13C2-PFDA	8.179	515.1 -> 470.1	13129	1.25 µg/L	-0.012
13C5-PFNA	7.684	468.0 -> 423.0	17882	1.25 µg/L	-0.012
13C2-PFHxA	5.511	315.1 -> 270.0	39876	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.196	329.1 -> 80.9	1494	5.57 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.4%		
13C2-6:2FTS	6.911	429.1 -> 80.9	1993	5.23 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C2-8:2FTS	7.978	529.1 -> 80.9	3004	4.89 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.9%		
13C2-PFDoDA	9.068	615.1 -> 570.0	21595	1.25 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C2-PFTeDA	9.849	715.2 -> 670.0	15676	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.3%		
13C3-PFBS	5.378	302.1 -> 79.9	11971	2.62 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.0%		
13C3-PFHxS	7.216	402.1 -> 79.9	8652	2.61 µg/L	0.000

7.7.2  
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 = 104.2%	
13C4-PFBA	2.811	216.8 -> 171.9	114003	9.83 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C4-PFHpA	6.455	367.1 -> 322.0	30486	2.69 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.5%	
13C5-PFHxA	5.510	318.0 -> 273.0	40738	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C5-PFPeA	4.312	268.3 -> 223.0	63107	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C6-PFDA	8.179	519.1 -> 474.1	14468	1.29 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C7-PFUnDA	8.635	570.0 -> 525.1	19215	1.26 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C8-FOSA	9.882	506.1 -> 77.8	12892	2.70 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.9%	
13C8-PFOA	7.136	421.1 -> 376.0	47327	2.50 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C8-PFOS	8.317	507.1 -> 79.9	8100	2.78 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.2%	
13C9-PFNA	7.683	472.1 -> 427.0	17720	1.30 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.3%	
d3-MeFOSAA	8.249	573.2 -> 419.0	12796	5.16 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C3-HFPO-DA	5.865	286.9 -> 168.9	33197	10.31 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.1%	
d3-MeFOSA	11.163	515.0 -> 219.0	5724	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.8%	
d5-EtFOSAA	8.458	589.2 -> 419.0	10494	5.06 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
d7-MeFOSE	11.059	623.2 -> 58.9	80988	30.97 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 123.9%	
d9-EtFOSE	11.343	639.2 -> 58.9	110120	31.41 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 125.7%	
d5-EtFOSA	11.422	531.1 -> 219.0	7640	2.83 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.2%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.197	327.1 -> 307.0	1097	0.64 µg/L	95
		327.1 -> 80.9	476		
6:2FTS	6.911	427.1 -> 407.0	1020	0.70 µg/L	94
		427.1 -> 80.9	458		
8:2FTS	7.967	527.1 -> 507.0	755	0.64 µg/L	100
		527.1 -> 80.8	371		
EtFOSAA	8.459	584.2 -> 419.1	282	0.19 µg/L	#m 63
		584.2 -> 526.0	172		
FOSA	9.885	498.1 -> 77.9	697	0.19 µg/L	98
		498.1 -> 478.0	22		
MeFOSAA	8.250	570.1 -> 419.0	275	0.15 µg/L	m 85
		570.1 -> 483.0	35		
PFBA	2.807	212.8 -> 168.9	1801	0.74 µg/L	100
PFBS	5.392	298.7 -> 79.9	538	0.15 µg/L	98
		298.7 -> 98.8	229		
PFDA	8.180	512.9 -> 469.0	1322	0.16 µg/L	99
		512.9 -> 219.0	307		
PFDODA	9.081	613.1 -> 569.0	2405	0.19 µg/L	95
		613.1 -> 319.0	436		
PFDS	9.220	599.0 -> 79.9	297	0.15 µg/L	94

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	175			
PFHpA	6.455	363.1 -> 319.0	2570	0.17	µg/L	99
		363.1 -> 169.0	491			
PFHpS	7.797	449.0 -> 79.9	428	0.15	µg/L	100
		449.0 -> 98.9	224			
PFHxA	5.500	313.0 -> 269.0	2192	0.17	µg/L	97
		313.0 -> 118.9	45			
PFHxS	7.217	398.7 -> 79.9	425	0.17	µg/L	m 70
		398.7 -> 98.9	192			
PFNA	7.684	463.0 -> 419.0	1453	0.16	µg/L	93
		463.0 -> 219.0	326			
PFNS	8.799	548.8 -> 79.9	276	0.18	µg/L	86
		548.8 -> 98.9	124			
PFOA	7.138	413.0 -> 369.0	3900	0.22	µg/L	85
		413.0 -> 169.0	595			
PFOS	8.318	498.9 -> 79.9	475	0.16	µg/L	m 80
		498.9 -> 98.8	228			
PFPeA	4.314	263.0 -> 219.0	3979	0.36	µg/L	100
PFPeS	6.469	349.1 -> 79.9	404	0.18	µg/L	88
		349.1 -> 98.9	154			
PFTeDA	9.849	713.1 -> 669.0	2343	0.20	µg/L	99
		713.1 -> 168.9	227			
PFTrDA	9.478	663.0 -> 619.0	2806	0.20	µg/L	96
		663.0 -> 168.9	277			
PFUnDA	8.636	563.1 -> 519.0	1427	0.16	µg/L	92
		563.1 -> 269.1	327			
11Cl-PF3OUdS	9.518	630.9 -> 450.9	2491	0.34	µg/L	95
		632.9 -> 452.9	712			
9Cl-PF3ONS	8.650	530.8 -> 351.0	2735	0.35	µg/L	88
		532.8 -> 353.0	698			
ADONA	6.718	376.9 -> 250.9	7458	0.32	µg/L	96
		376.9 -> 84.8	2458			
HFPO-DA	5.865	284.9 -> 168.9	980	0.37	µg/L	89
		284.9 -> 184.9	76			
3:3FTCA	3.773	241.0 -> 177.0	463	0.86	µg/L	94
		241.0 -> 117.0	40			
5:3FTCA	6.205	341.0 -> 237.1	8002	4.49	µg/L	97
		341.0 -> 217.0	5628			
7:3FTCA	7.711	441.0 -> 316.9	3474	4.44	µg/L	99
		441.0 -> 336.9	7831			
EtFOSA	11.424	526.0 -> 219.0	891	0.34	µg/L	93
		526.0 -> 169.0	1331			
EtFOSE	11.357	630.0 -> 58.9	3012	0.89	µg/L	100
MeFOSA	11.165	511.9 -> 219.0	710	0.36	µg/L	m 68
		511.9 -> 169.0	1156			
MeFOSE	11.072	616.1 -> 58.9	2476	0.86	µg/L	100
PFDoDS	9.976	699.1 -> 79.9	268	0.18	µg/L	99
		699.1 -> 98.8	148			
NFDHA	5.380	295.0 -> 201.0	410	0.42	µg/L	86
		295.0 -> 84.9	82			
PFMBA	4.728	279.0 -> 85.1	2301	0.35	µg/L	100
PFMPA	3.440	229.0 -> 84.9	2527	0.35	µg/L	100
PFEESA	5.921	314.8 -> 134.9	3669	0.34	µg/L	97
		314.8 -> 82.9	150			

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

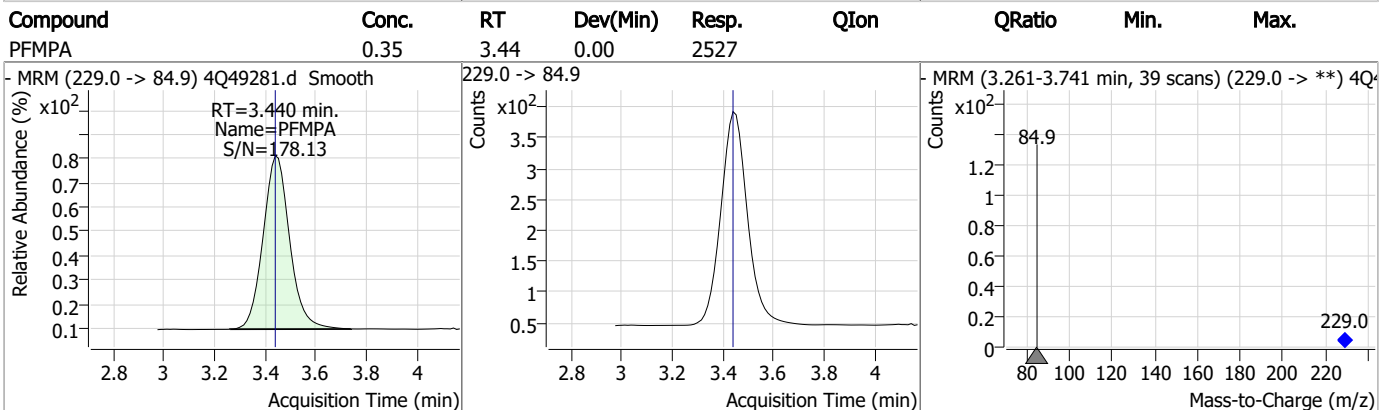
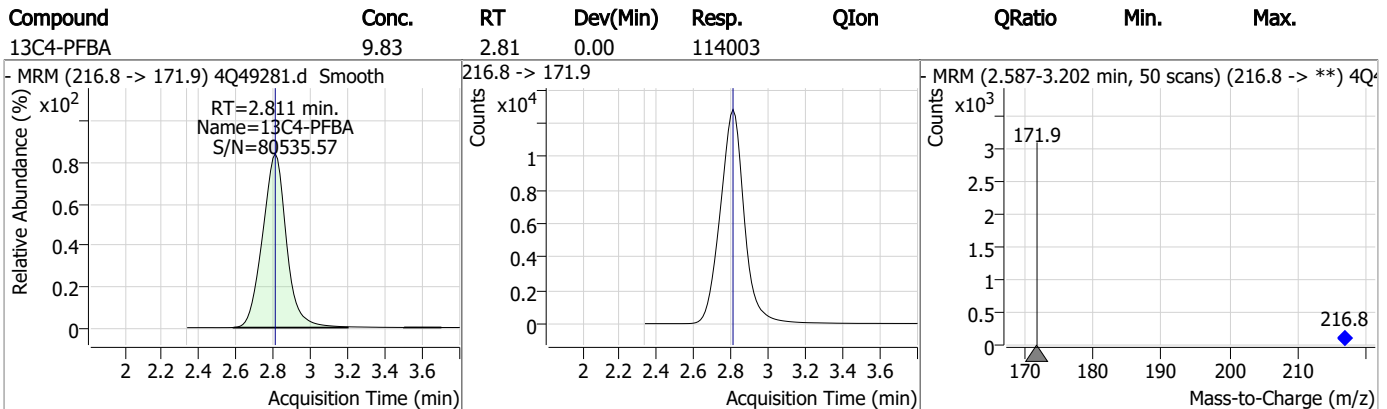
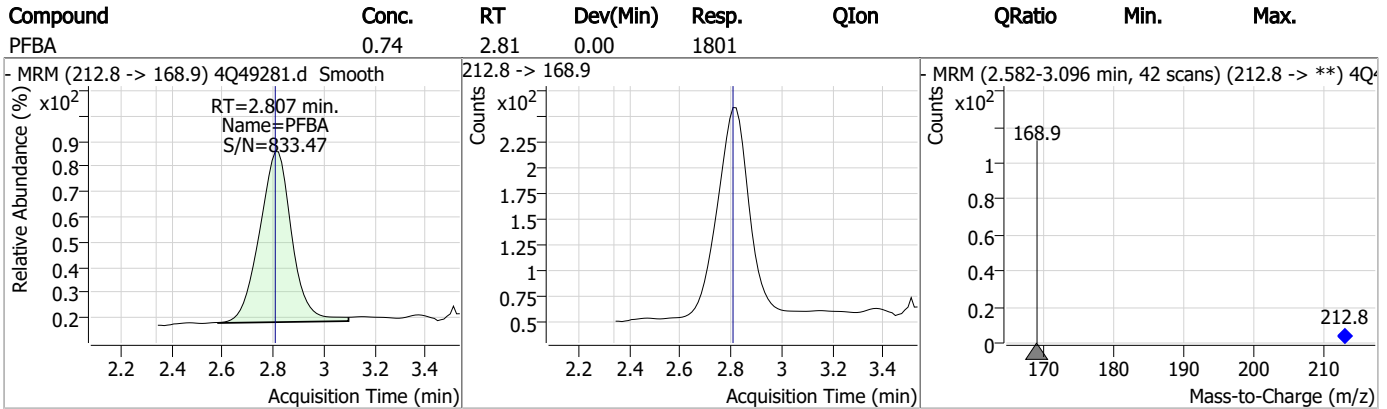
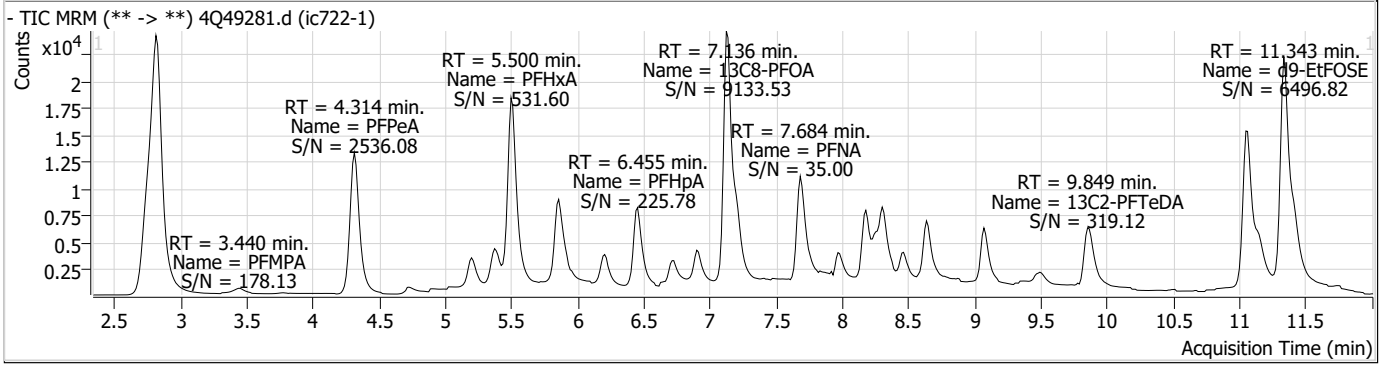
### Perfluorinated Compounds by LC/MS/MS

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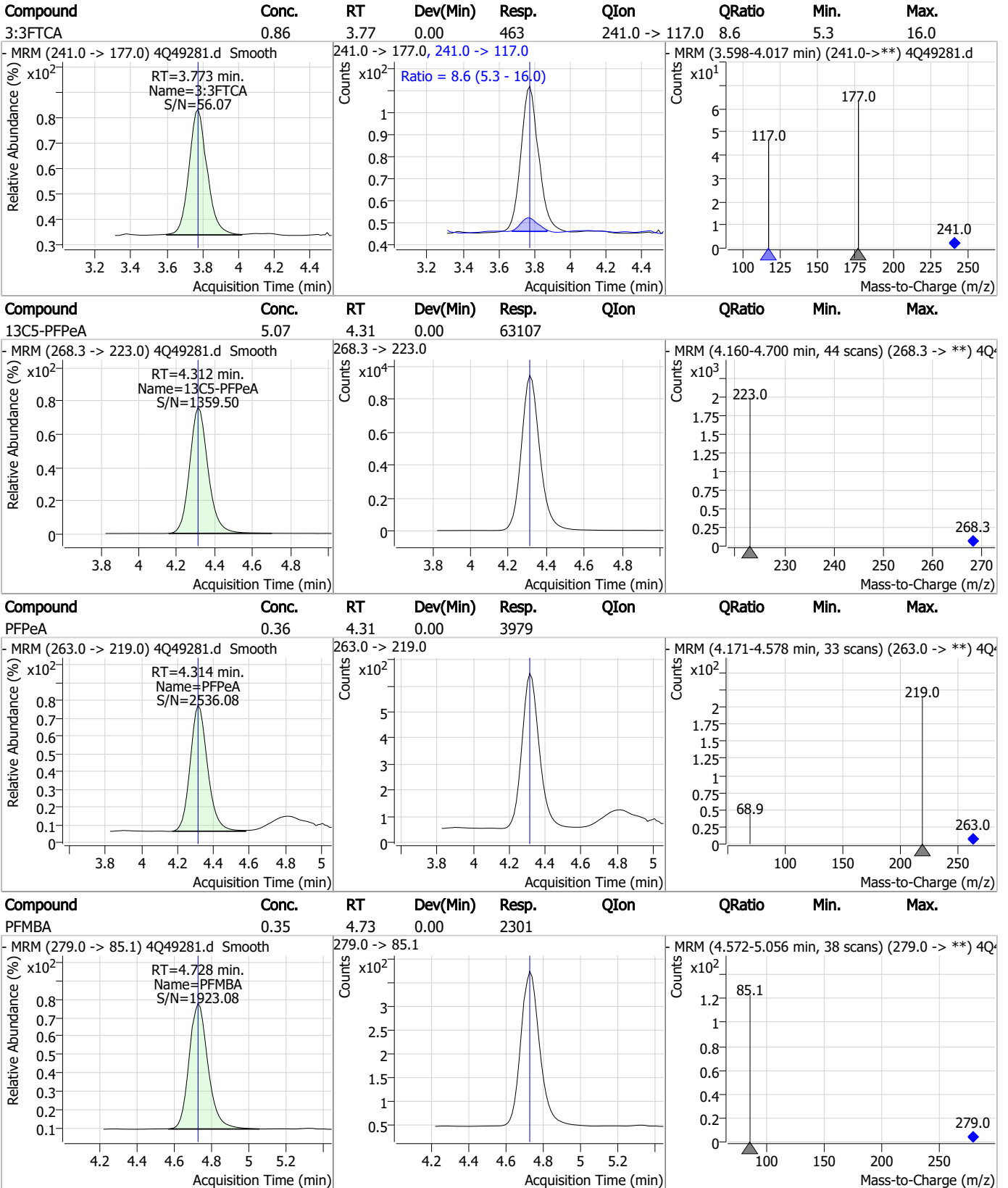
### Perfluorinated Compounds by LC/MS/MS



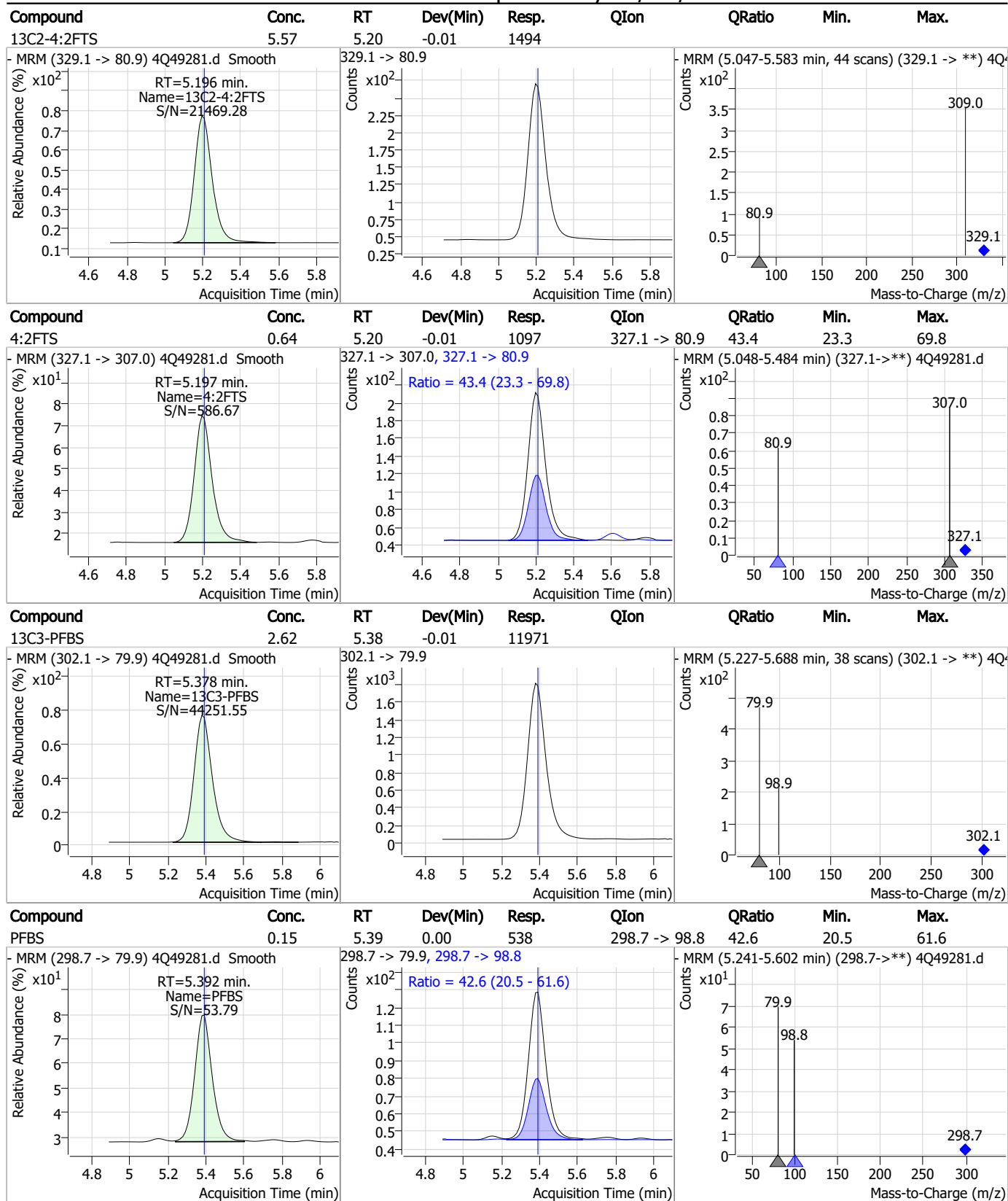
7.7.2

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Perfluorinated Compounds by LC/MS/MS

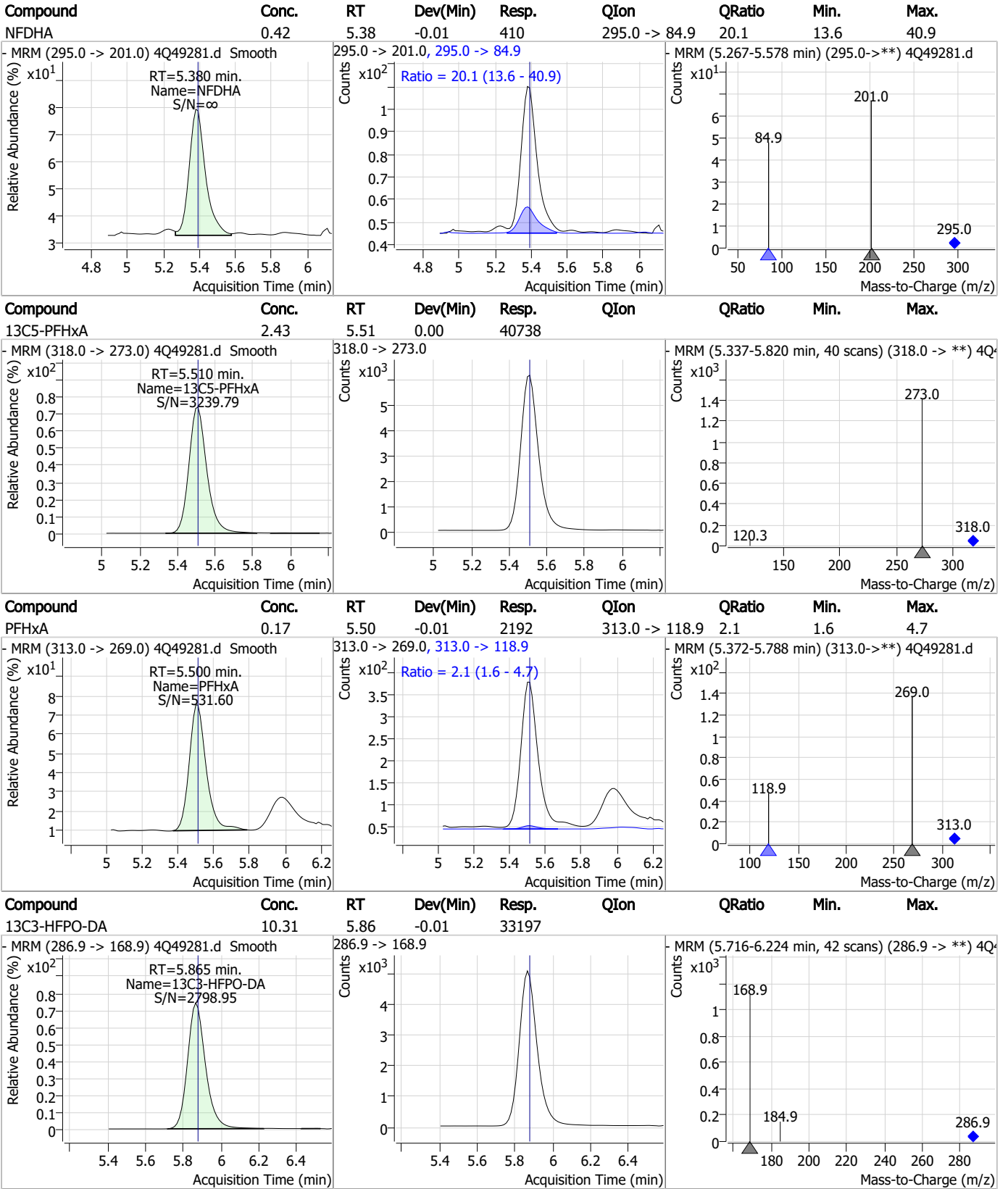


### Perfluorinated Compounds by LC/MS/MS

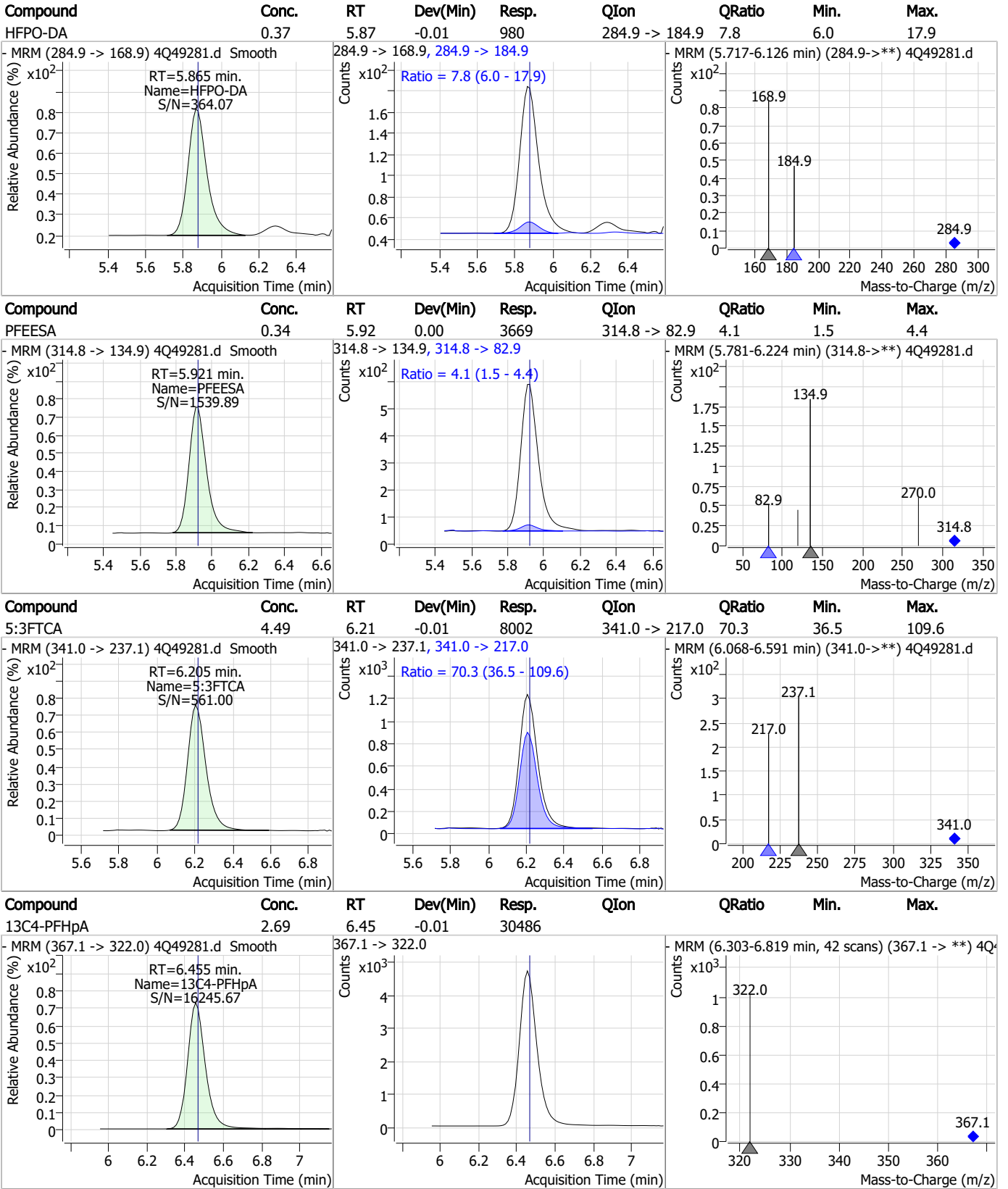


7.7.2  
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### Perfluorinated Compounds by LC/MS/MS

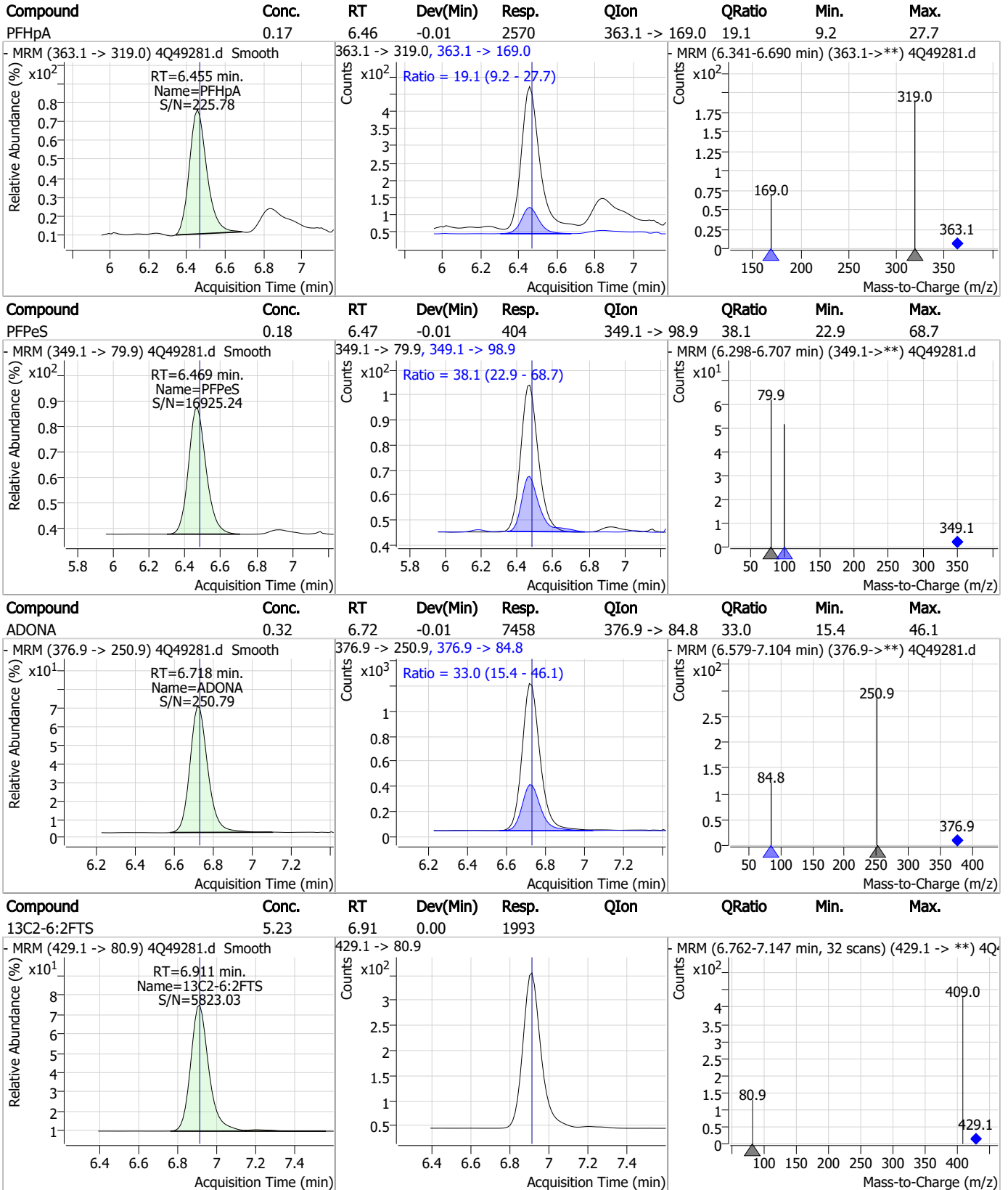


### Perfluorinated Compounds by LC/MS/MS





### Perfluorinated Compounds by LC/MS/MS

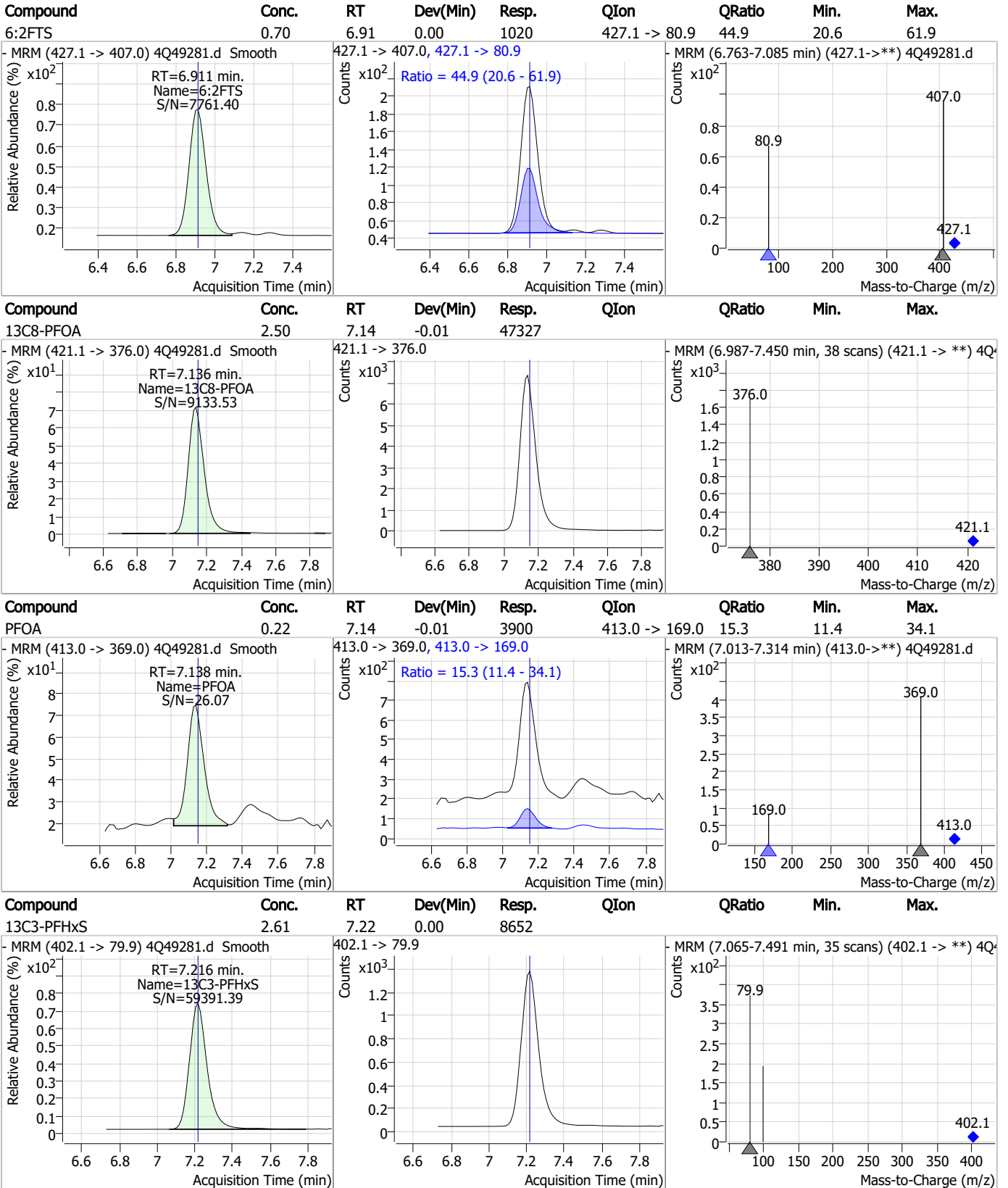


7.7.2

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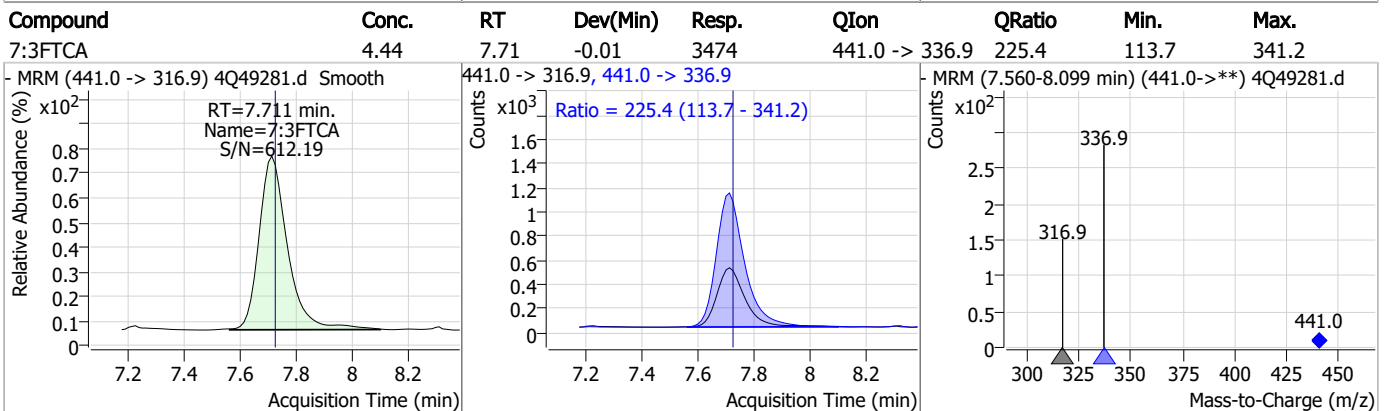
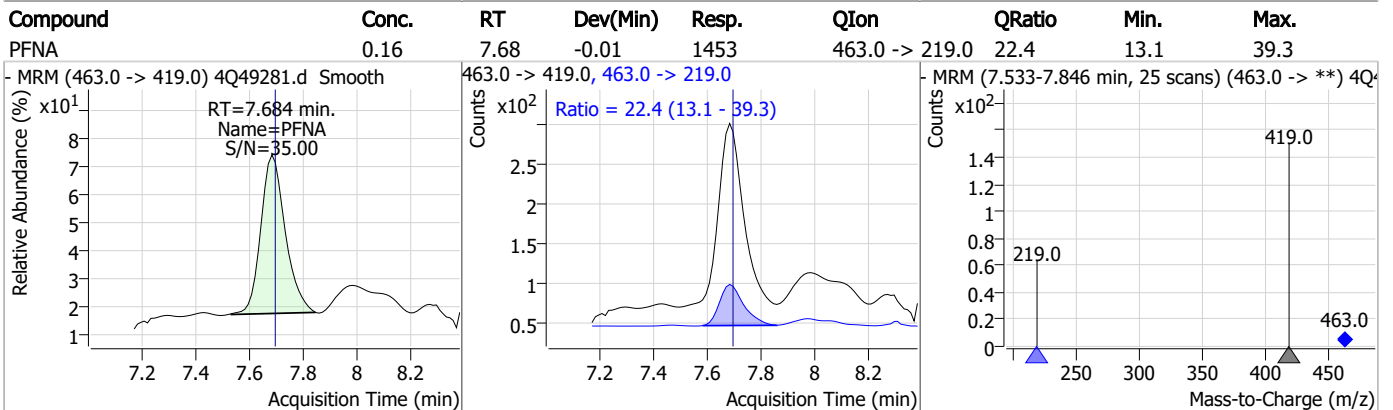
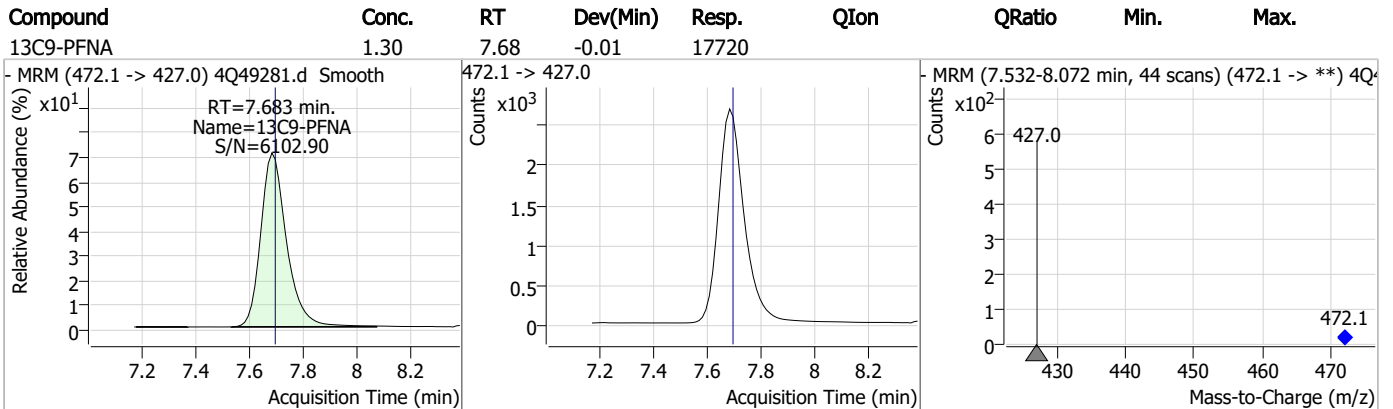
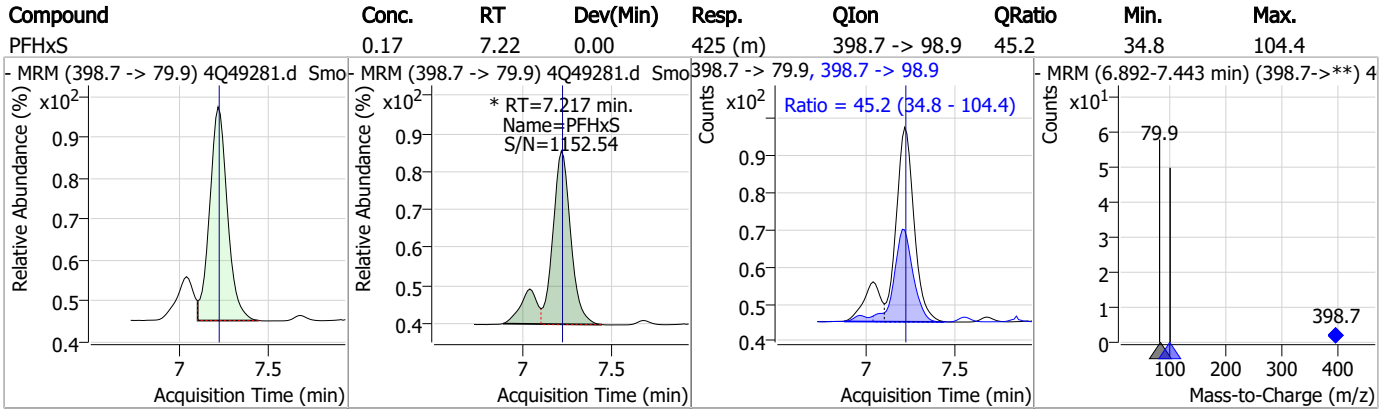
### Perfluorinated Compounds by LC/MS/MS



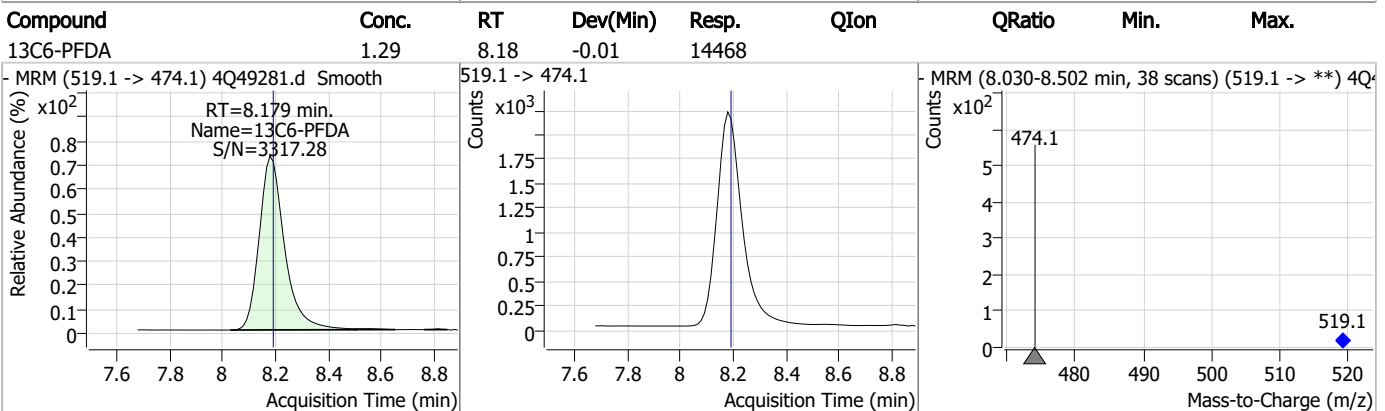
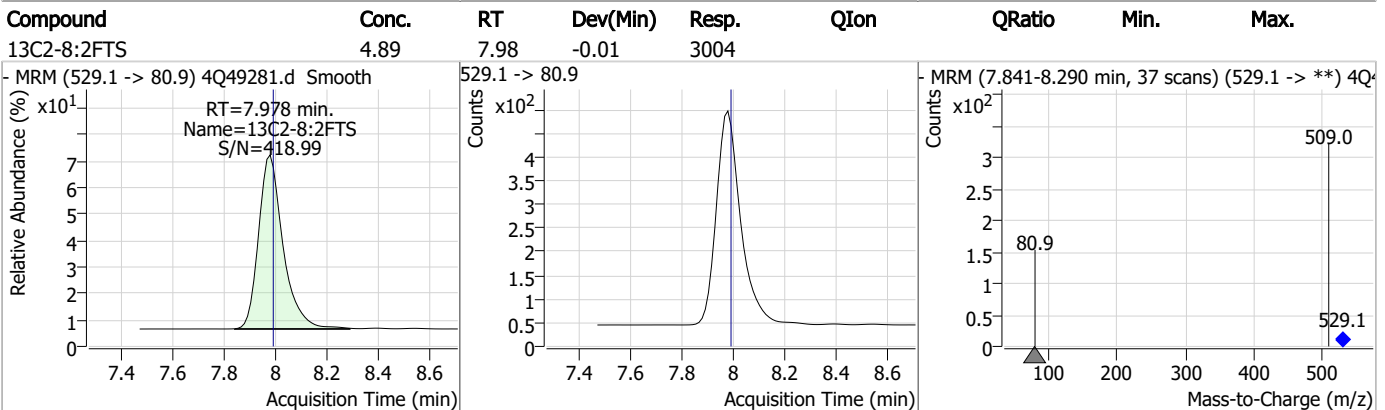
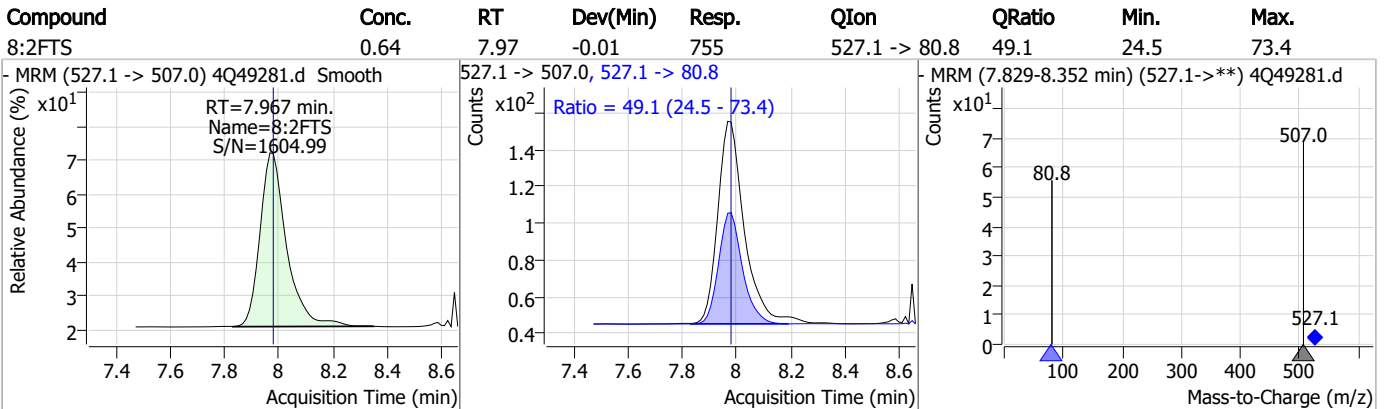
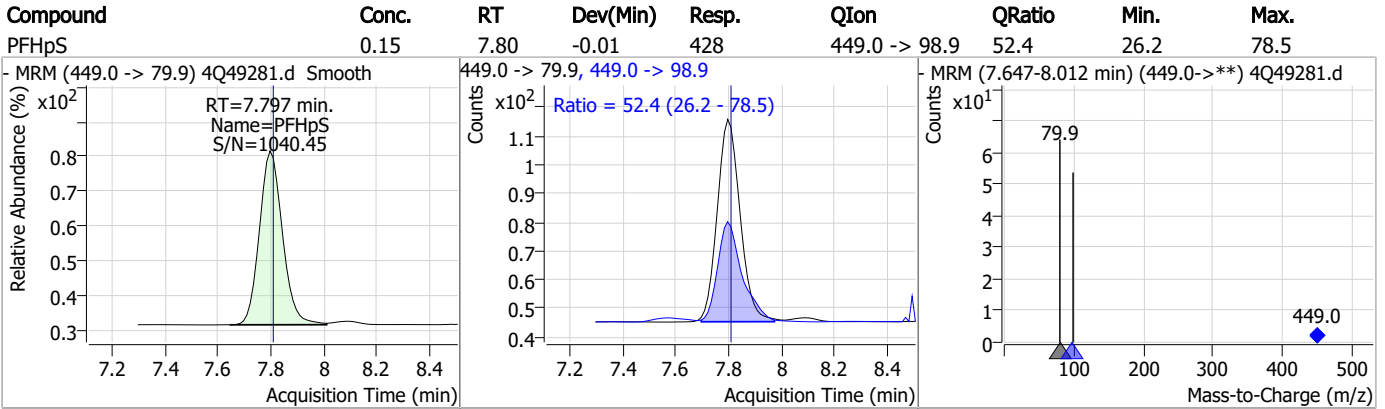
7.7.2

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### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

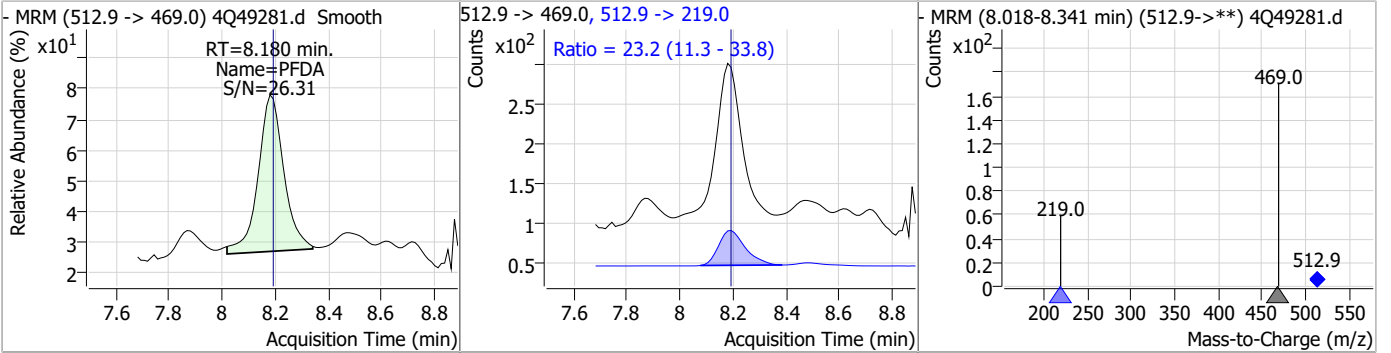


7.7.2

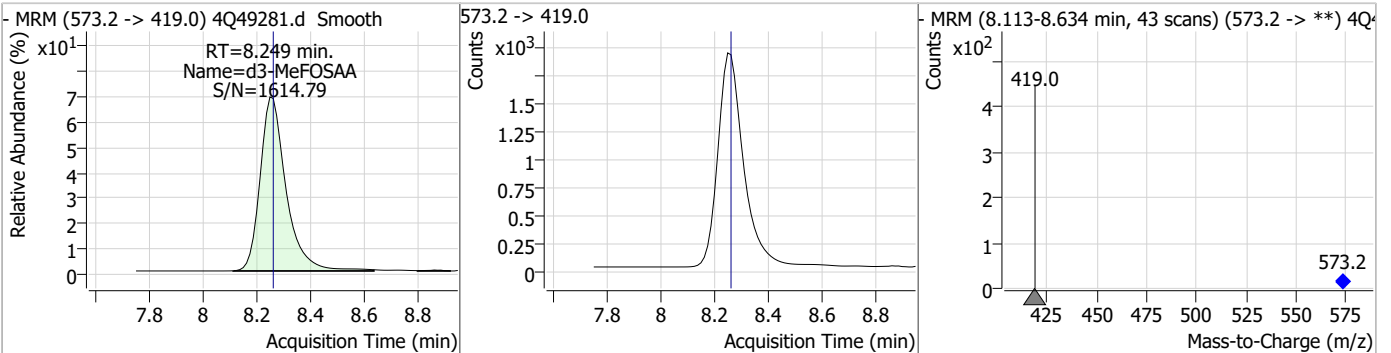
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### Perfluorinated Compounds by LC/MS/MS

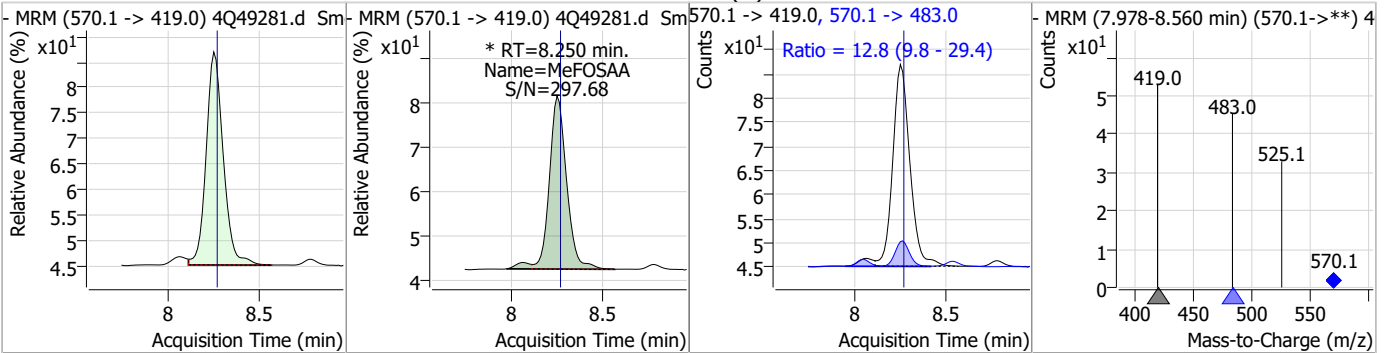
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.16	8.18	-0.01	1322	512.9 -> 219.0	23.2	11.3	33.8



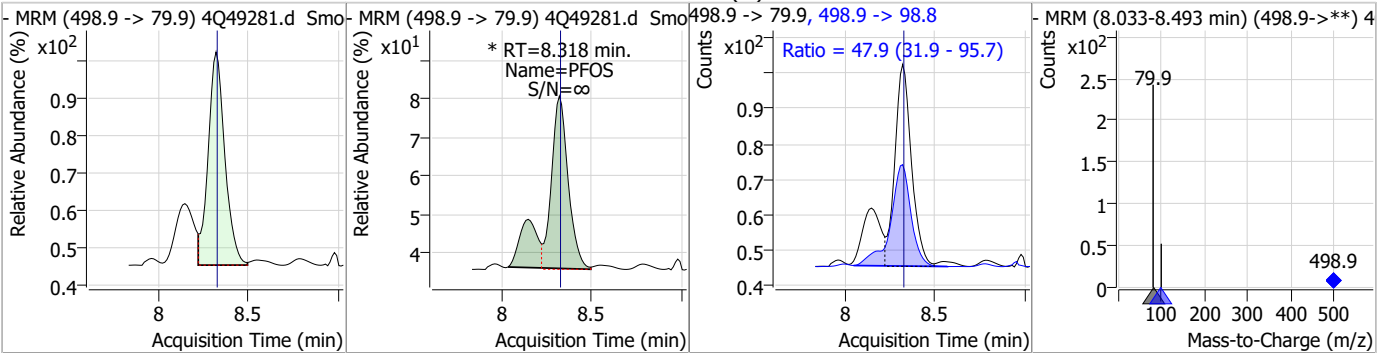
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.16	8.25	-0.01	12796				



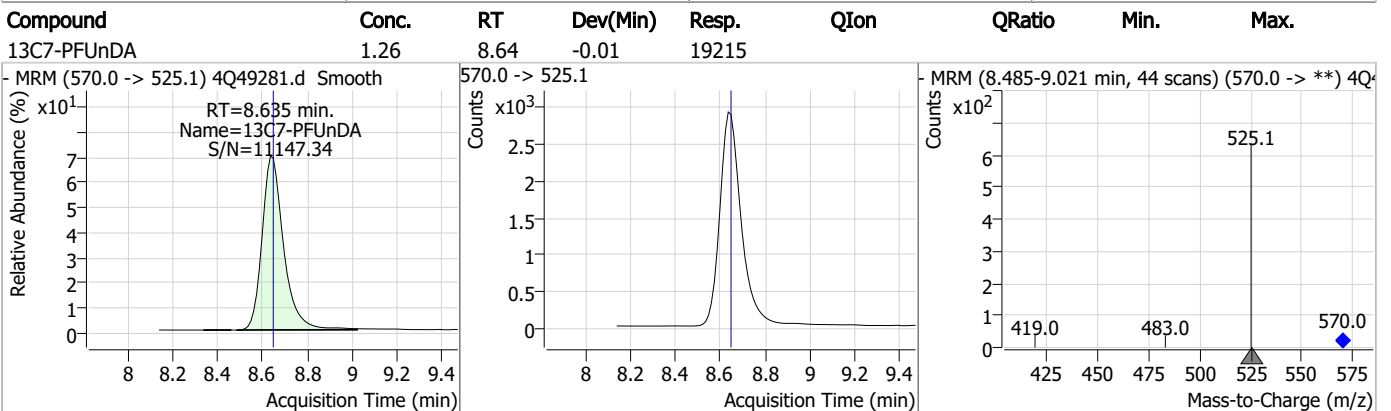
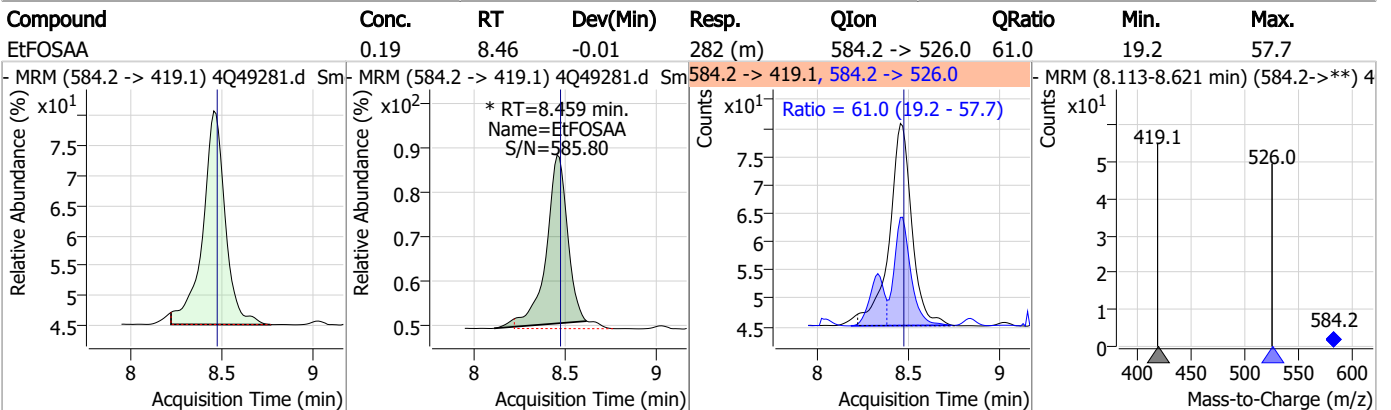
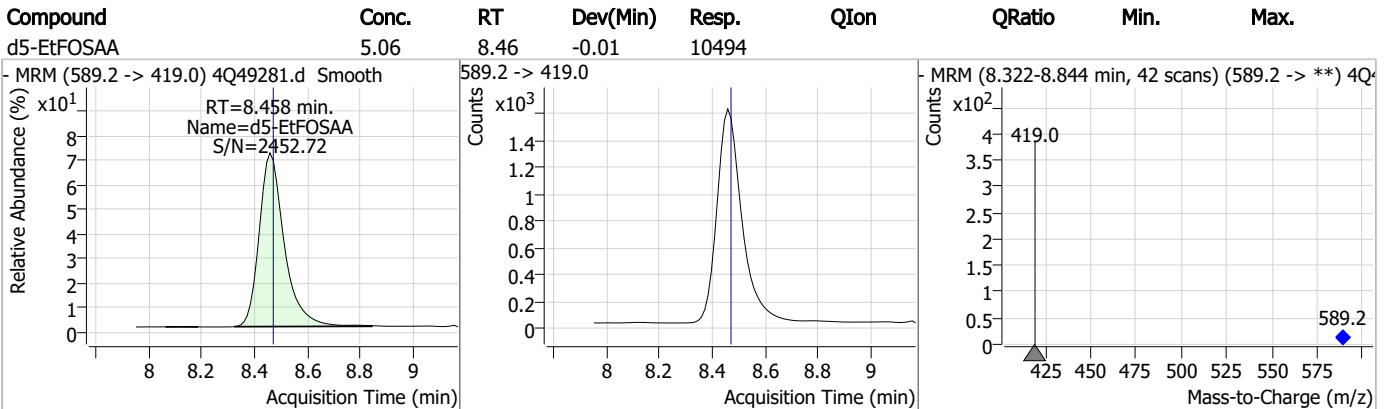
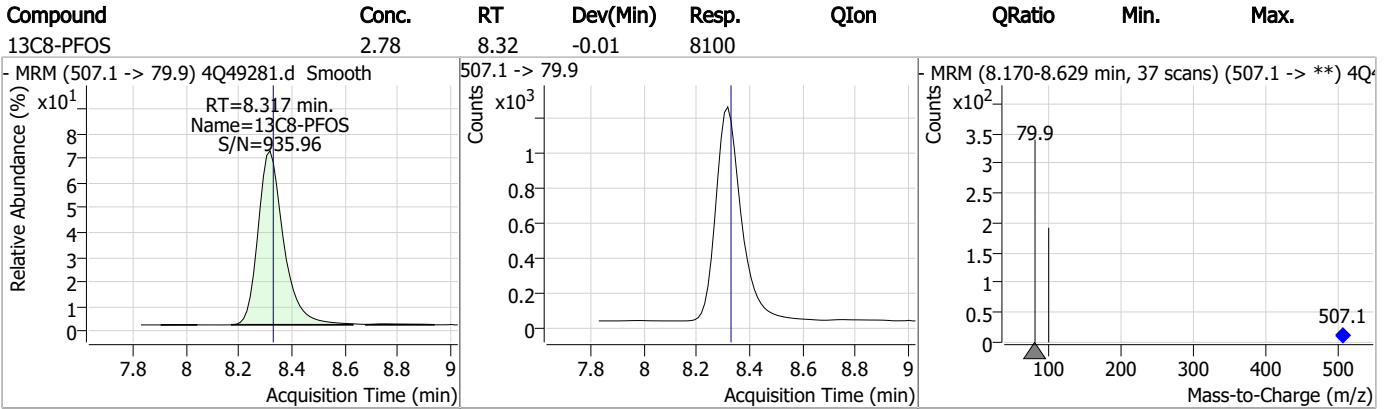
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.15	8.25	-0.01	275 (m)	570.1 -> 483.0	12.8	9.8	29.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.16	8.32	0.00	475 (m)	498.9 -> 98.8	47.9	31.9	95.7



### Perfluorinated Compounds by LC/MS/MS

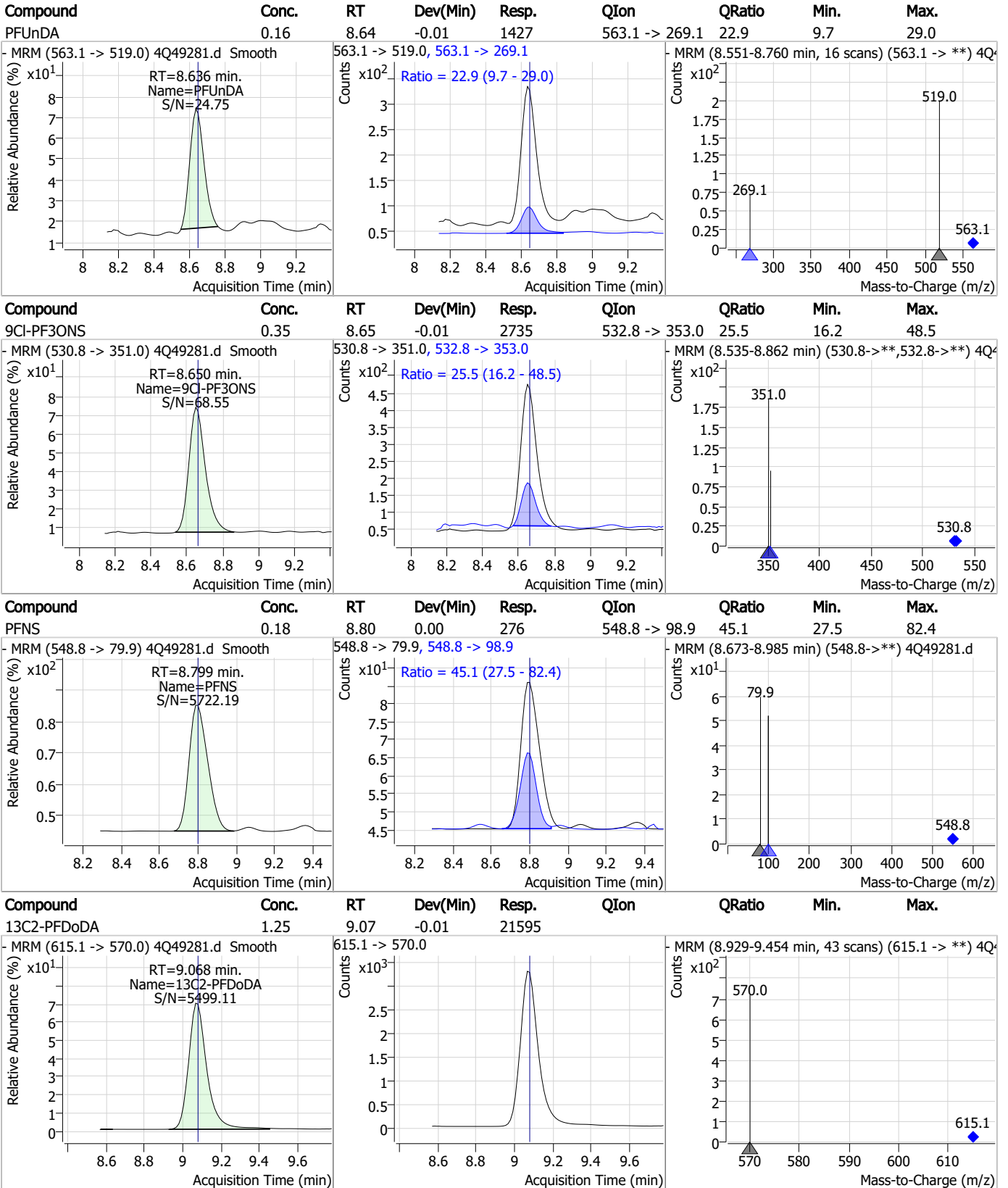


7.7.2

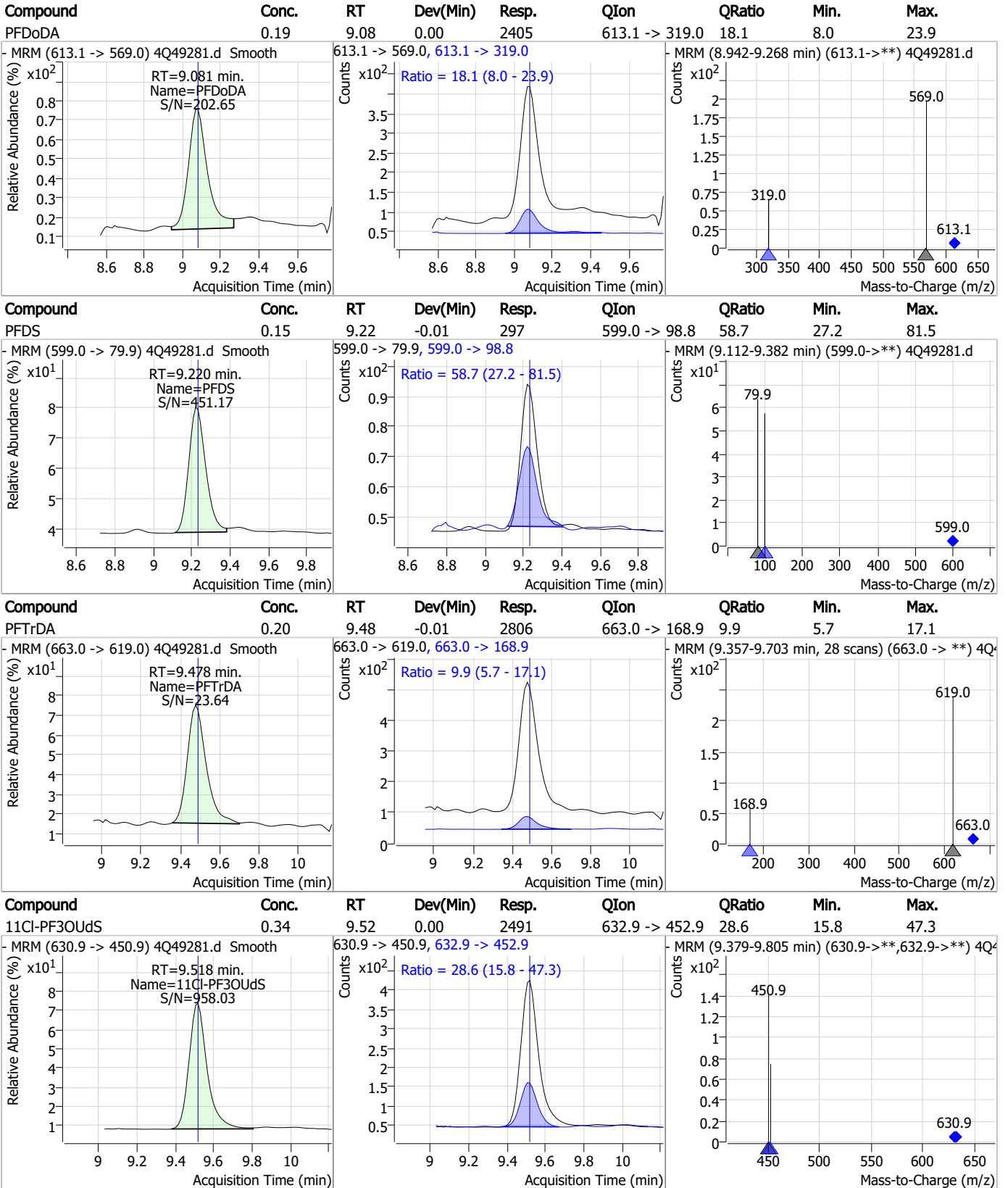
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### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



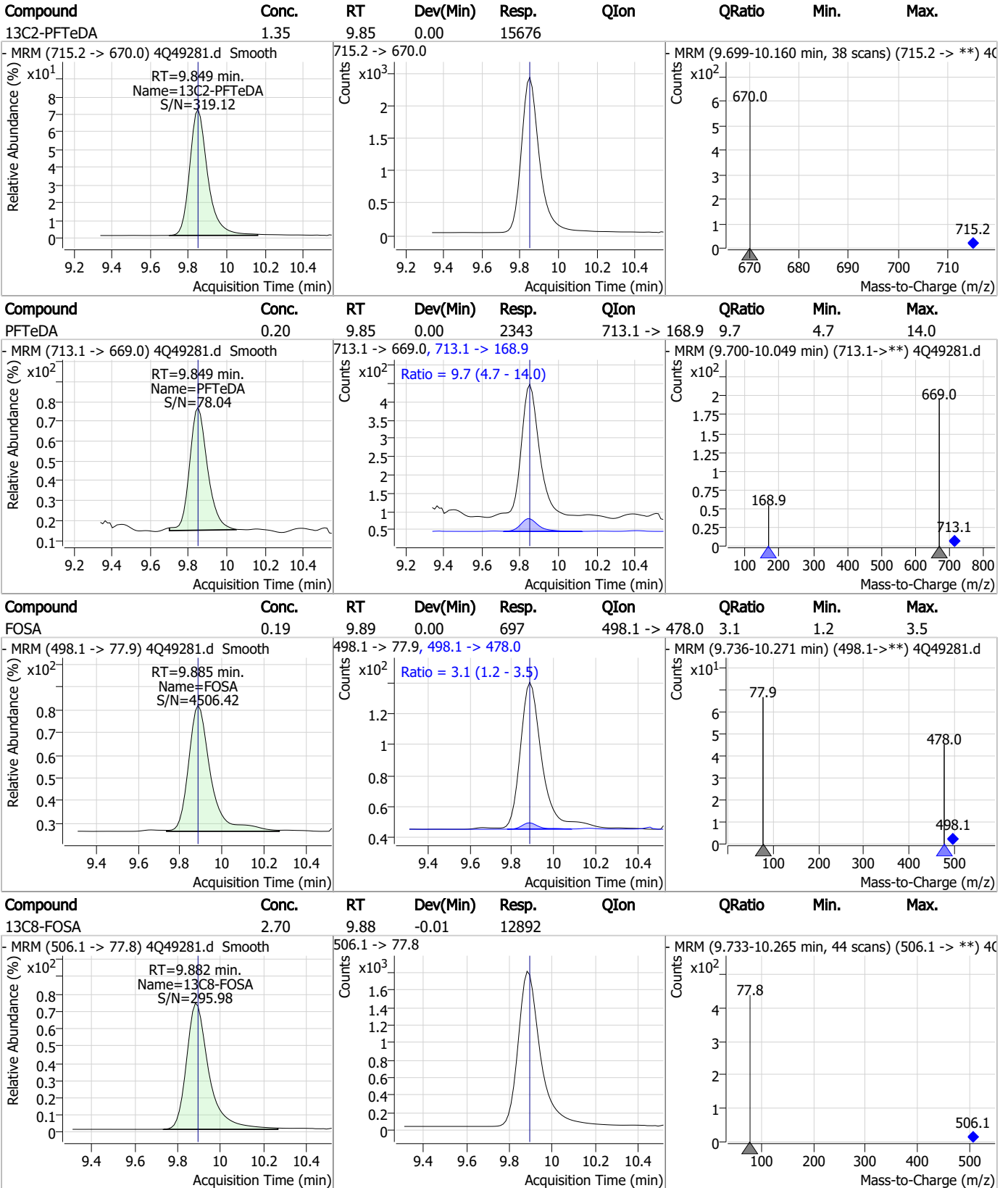
7.7.2

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### Perfluorinated Compounds by LC/MS/MS

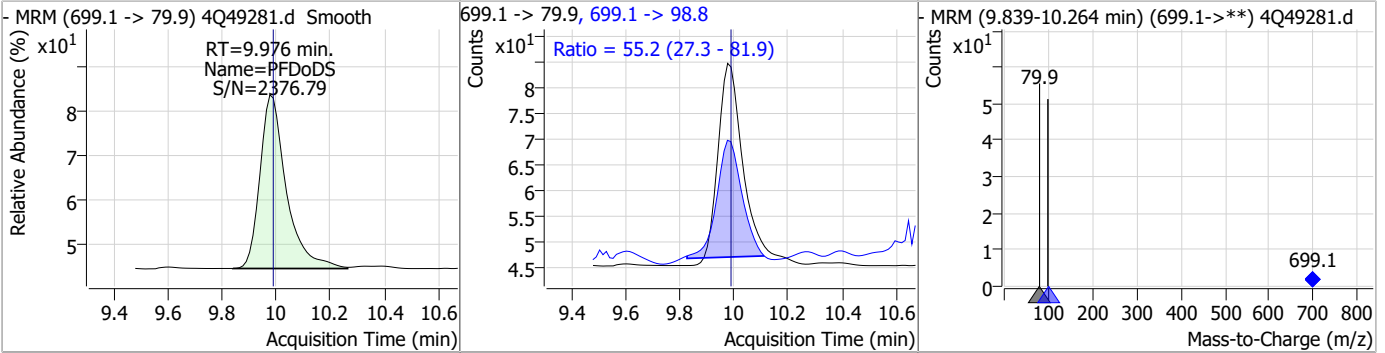


7.7.2

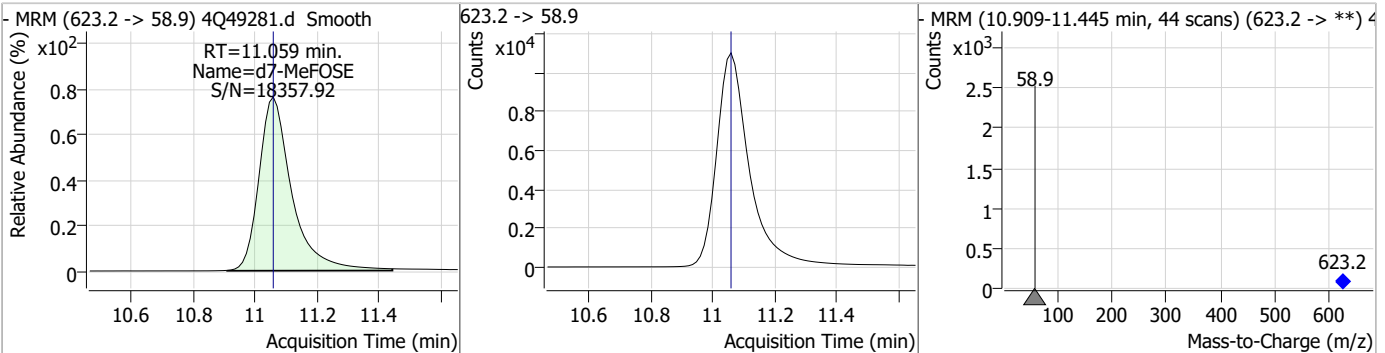
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### Perfluorinated Compounds by LC/MS/MS

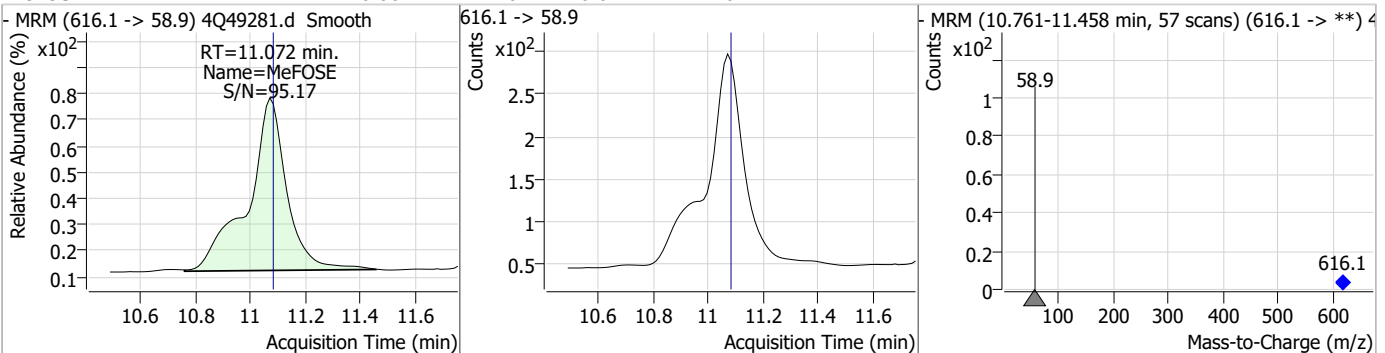
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	0.18	9.98	-0.01	268	699.1 -> 98.8	55.2	27.3	81.9



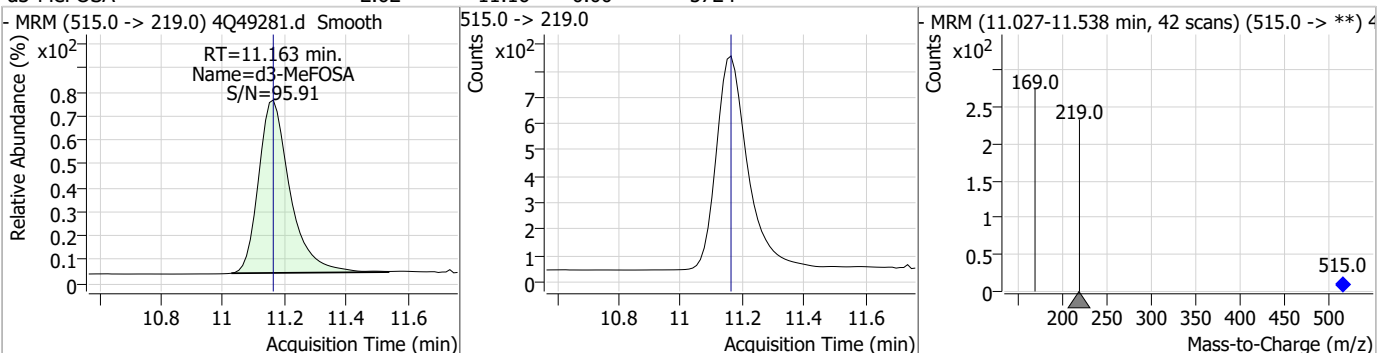
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	30.97	11.06	0.00	80988				



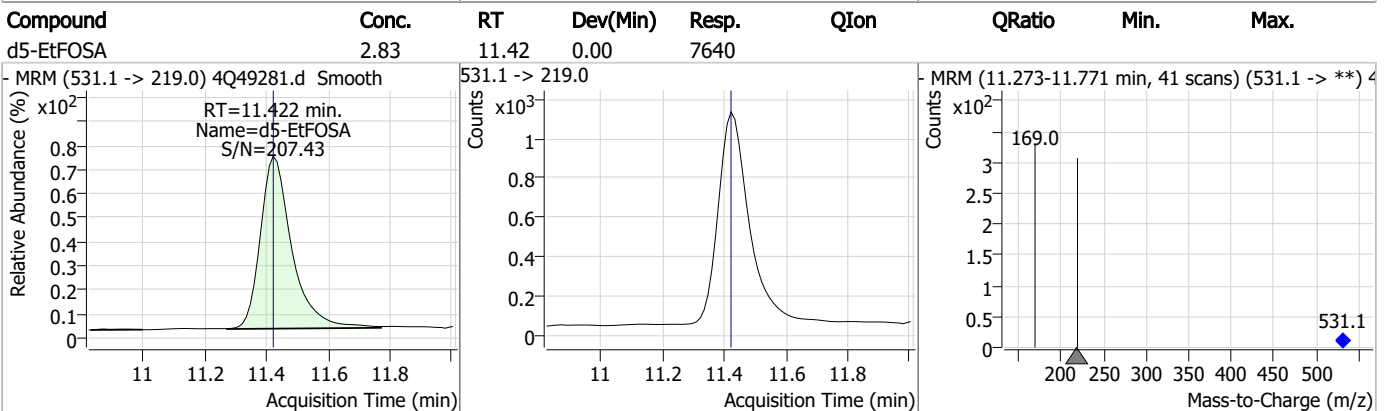
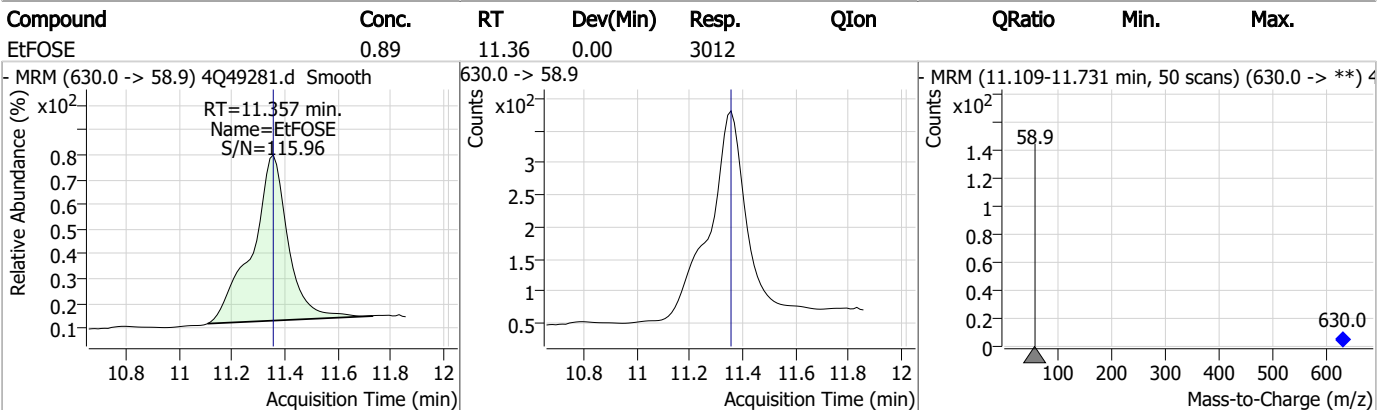
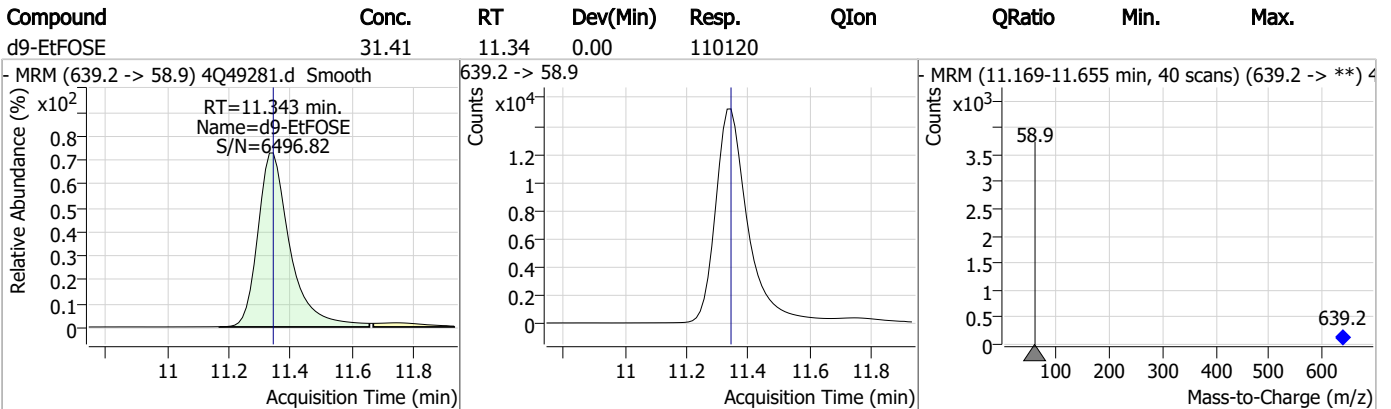
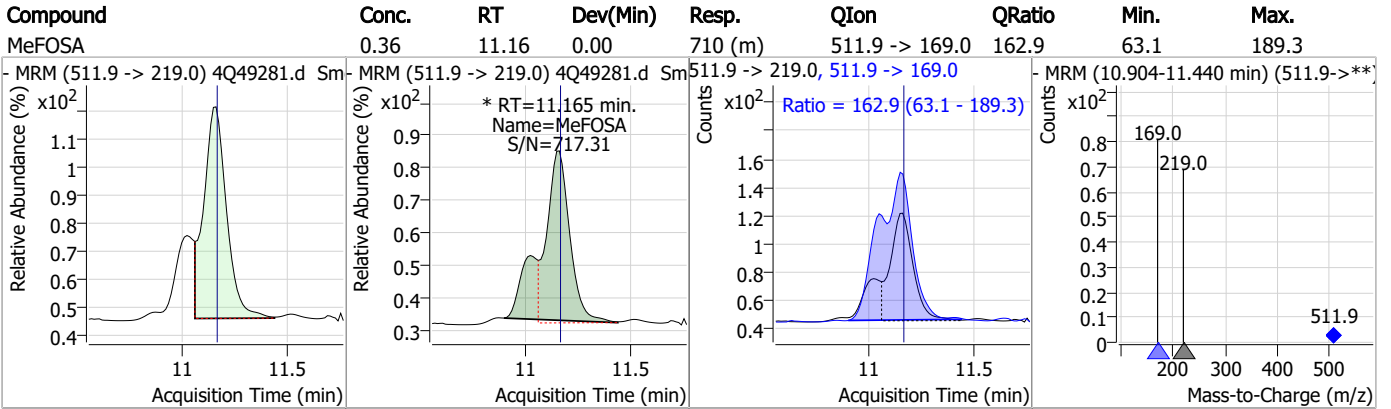
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	0.86	11.07	-0.01	2476				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.62	11.16	0.00	5724				



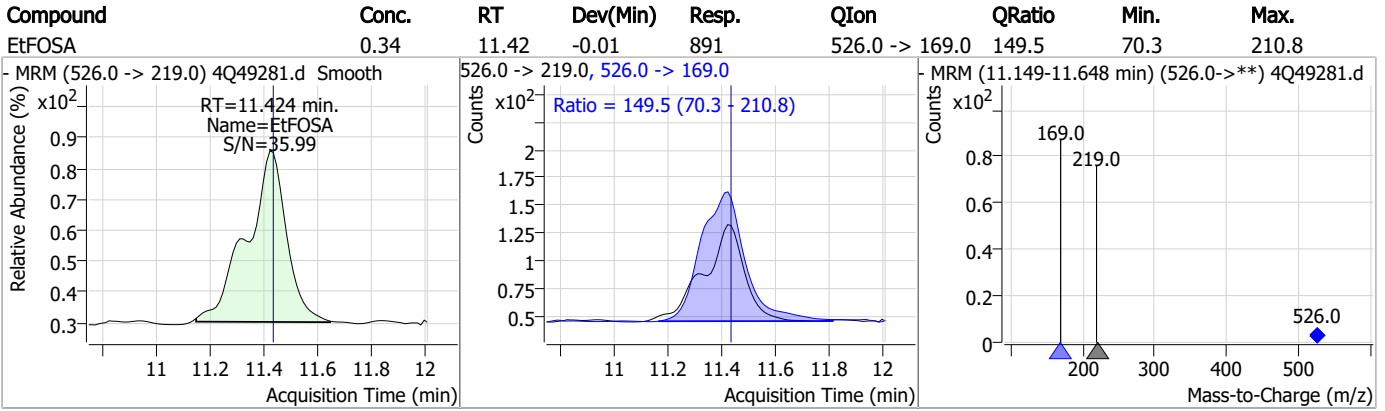
### Perfluorinated Compounds by LC/MS/MS



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: S4Q722-IC722      Method: EPA DRAFT 1633  
Lab FileID: 4Q49281.D      Analyst approved: 08/23/23 10:44 Martha Valls  
Injection Time: 08/22/23 10:50      Supervisor approved: 08/23/23 15:25 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.22	Split peak
MeFOSAA	2355-31-9		8.25	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.32	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSA	31506-32-8		11.16	Split peak

7.7.2.1  
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## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q49282.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 8/22/2023 11:04:52 AM  
 Sample Name : ic722-2  
 Vial : P1-A3  
 DA Method File : 1633\_082223\_S4Q722.quantmethod.xml  
 Batch Name : s4q722.batch.bin  
 Sample Information : OP98180,S4Q722,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.799	216.8 -> 171.9	114384	10.00 µg/L	-0.013
M5-PFPeA	4.312	268.3 -> 223.0	61798	5.00 µg/L	0.000
M5-PFHxA	5.510	318.0 -> 273.0	40591	2.50 µg/L	0.000
M4-PFHpA	6.467	367.1 -> 322.0	28560	2.50 µg/L	0.000
M8-PFOA	7.136	421.1 -> 376.0	45032	2.50 µg/L	-0.012
M9-PFNA	7.695	472.1 -> 427.0	16836	1.25 µg/L	0.000
M6-PFDA	8.191	519.1 -> 474.1	13508	1.25 µg/L	0.000
M7-PFUnDA	8.648	570.0 -> 525.1	18961	1.25 µg/L	0.000
M2-PFDoDA	9.080	615.1 -> 570.0	20716	1.25 µg/L	0.000
M2-PFTeDA	9.849	715.2 -> 670.0	14304	1.25 µg/L	0.000
M8-FOSA	9.882	506.1 -> 77.8	12202	2.50 µg/L	-0.012
M3-PFBS	5.391	302.1 -> 79.9	11054	2.50 µg/L	0.000
M3-PFHxS	7.216	402.1 -> 79.9	8248	2.50 µg/L	0.000
M8-PFOS	8.317	507.1 -> 79.9	7201	2.50 µg/L	-0.012
M2-4:2FTS	5.208	329.1 -> 80.9	1440	5.00 µg/L	0.000
M2-6:2FTS	6.911	429.1 -> 80.9	1986	5.00 µg/L	0.000
M2-8:2FTS	7.978	529.1 -> 80.9	3096	5.00 µg/L	-0.012
M3-MeFOSAA	8.261	573.2 -> 419.0	12009	5.00 µg/L	0.000
M3-HFPO-DA	5.877	286.9 -> 168.9	32446	10.00 µg/L	0.000
M5-EtFOSAA	8.458	589.2 -> 419.0	10449	5.00 µg/L	-0.012
M7-MeFOSE	11.059	623.2 -> 58.9	71685	25.00 µg/L	0.000
M9-EtFOSE	11.331	639.2 -> 58.9	100055	25.00 µg/L	-0.012
M5-EtFOSA	11.422	531.1 -> 219.0	7029	2.50 µg/L	0.000
M3-MeFOSA	11.151	515.0 -> 219.0	5645	2.50 µg/L	-0.012
13C4-PFOS	8.318	502.8 -> 79.9	6923	2.50 µg/L	-0.012
13C3-PFBA	2.803	216.0 -> 172.0	63705	5.00 µg/L	0.000
18O2-PFHxS	7.215	403.0 -> 83.9	5518	2.50 µg/L	-0.012
13C4-PFOA	7.137	417.1 -> 372.0	50789	2.50 µg/L	-0.012
13C2-PFDA	8.192	515.1 -> 470.1	11566	1.25 µg/L	0.000
13C5-PFNA	7.696	468.0 -> 423.0	17366	1.25 µg/L	0.000
13C2-PFHxA	5.511	315.1 -> 270.0	38062	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.208	329.1 -> 80.9	1440	5.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.9%		
13C2-6:2FTS	6.911	429.1 -> 80.9	1986	5.58 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.6%		
13C2-8:2FTS	7.978	529.1 -> 80.9	3096	5.40 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.9%		
13C2-PFDoDA	9.080	615.1 -> 570.0	20716	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.5%		
13C2-PFTeDA	9.849	715.2 -> 670.0	14304	1.40 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 112.1%		
13C3-PFBS	5.391	302.1 -> 79.9	11054	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.7%		
13C3-PFHxS	7.216	402.1 -> 79.9	8248	2.66 µg/L	0.000

### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.3%	
13C4-PFBA	2.799	216.8 -> 171.9	114384	10.10 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C4-PFHpA	6.467	367.1 -> 322.0	28560	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C5-PFHxA	5.510	318.0 -> 273.0	40591	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C5-PFPeA	4.312	268.3 -> 223.0	61798	5.20 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.1%	
13C6-PFDA	8.191	519.1 -> 474.1	13508	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.4%	
13C7-PFUnDA	8.648	570.0 -> 525.1	18961	1.41 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 112.9%	
13C8-FOSA	9.882	506.1 -> 77.8	12202	2.62 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.7%	
13C8-PFOA	7.136	421.1 -> 376.0	45032	2.52 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C8-PFOS	8.317	507.1 -> 79.9	7201	2.53 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C9-PFNA	7.695	472.1 -> 427.0	16836	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.1%	
d3-MeFOSAA	8.261	573.2 -> 419.0	12009	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C3-HFPO-DA	5.877	286.9 -> 168.9	32446	10.56 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.6%	
d3-MeFOSA	11.151	515.0 -> 219.0	5645	2.65 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.9%	
d5-EtFOSAA	8.458	589.2 -> 419.0	10449	5.16 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.2%	
d7-MeFOSE	11.059	623.2 -> 58.9	71685	28.08 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 112.3%	
d9-EtFOSE	11.331	639.2 -> 58.9	100055	29.24 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 117.0%	
d5-EtFOSA	11.422	531.1 -> 219.0	7029	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	5.197	327.1 -> 307.0	2246	1.36 µg/L	98
		327.1 -> 80.9	1011		
6:2FTS	6.911	427.1 -> 407.0	2000	1.38 µg/L	90
		427.1 -> 80.9	953		
8:2FTS	7.979	527.1 -> 507.0	1654	1.36 µg/L	91
		527.1 -> 80.8	908		
EtFOSAA	8.471	584.2 -> 419.1	602	0.40 µg/L	92
		584.2 -> 526.0	262		
FOSA	9.885	498.1 -> 77.9	1284	0.38 µg/L	# 95
		498.1 -> 478.0	9		
MeFOSAA	8.262	570.1 -> 419.0	594	0.35 µg/L	m 90
		570.1 -> 483.0	144		
PFBA	2.807	212.8 -> 168.9	3662	1.49 µg/L	100
PFBS	5.392	298.7 -> 79.9	1123	0.35 µg/L	96
		298.7 -> 98.8	437		
PFDA	8.192	512.9 -> 469.0	2770	0.36 µg/L	93
		512.9 -> 219.0	533		
PFDODA	9.081	613.1 -> 569.0	5031	0.41 µg/L	96
		613.1 -> 319.0	718		
PFDS	9.220	599.0 -> 79.9	673	0.39 µg/L	94

7.7.3  
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## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	336			
PFHpA	6.468	363.1 -> 319.0	4795	0.35	µg/L	98
		363.1 -> 169.0	924			
PFHpS	7.810	449.0 -> 79.9	788	0.32	µg/L	73
		449.0 -> 98.9	564			
PFHxA	5.513	313.0 -> 269.0	4845	0.39	µg/L	98
		313.0 -> 118.9	182			
PFHxS	7.217	398.7 -> 79.9	814	0.35	µg/L	m 88
		398.7 -> 98.9	487			
PFNA	7.696	463.0 -> 419.0	3418	0.40	µg/L	94
		463.0 -> 219.0	789			
PFNS	8.799	548.8 -> 79.9	453	0.33	µg/L	79
		548.8 -> 98.9	318			
PFOA	7.138	413.0 -> 369.0	6445	0.38	µg/L	96
		413.0 -> 169.0	1326			
PFOS	8.318	498.9 -> 79.9	1073	0.40	µg/L	m 74
		498.9 -> 98.8	467			
PFPeA	4.314	263.0 -> 219.0	8098	0.74	µg/L	100
PFPeS	6.469	349.1 -> 79.9	672	0.32	µg/L	84
		349.1 -> 98.9	378			
PFTeDA	9.849	713.1 -> 669.0	3826	0.36	µg/L	98
		713.1 -> 168.9	382			
PFTrDA	9.478	663.0 -> 619.0	5162	0.38	µg/L	99
		663.0 -> 168.9	607			
PFUnDA	8.648	563.1 -> 519.0	3176	0.36	µg/L	98
		563.1 -> 269.1	641			
11CI-PF3OUdS	9.518	630.9 -> 450.9	5006	0.70	µg/L	99
		632.9 -> 452.9	1547			
9CI-PF3ONS	8.662	530.8 -> 351.0	5747	0.75	µg/L	93
		532.8 -> 353.0	1627			
ADONA	6.731	376.9 -> 250.9	16121	0.70	µg/L	98
		376.9 -> 84.8	5115			
HFPO-DA	5.865	284.9 -> 168.9	2050	0.78	µg/L	95
		284.9 -> 184.9	287			
3:3FTCA	3.761	241.0 -> 177.0	973	1.81	µg/L	99
		241.0 -> 117.0	100			
5:3FTCA	6.218	341.0 -> 237.1	15931	8.97	µg/L	98
		341.0 -> 217.0	11959			
7:3FTCA	7.711	441.0 -> 316.9	7367	9.45	µg/L	91
		441.0 -> 336.9	15677			
EtFOSA	11.424	526.0 -> 219.0	1803	0.74	µg/L	93
		526.0 -> 169.0	2683			
EtFOSE	11.357	630.0 -> 58.9	5659	1.84	µg/L	100
MeFOSA	11.153	511.9 -> 219.0	1423	0.73	µg/L	m 76
		511.9 -> 169.0	2184			
MeFOSE	11.072	616.1 -> 58.9	4485	1.76	µg/L	m 100
PFDoDS	9.976	699.1 -> 79.9	506	0.39	µg/L	92
		699.1 -> 98.8	305			
NFDHA	5.392	295.0 -> 201.0	875	0.89	µg/L	97
		295.0 -> 84.9	226			
PFMBA	4.728	279.0 -> 85.1	4792	0.74	µg/L	100
PFMPA	3.440	229.0 -> 84.9	5364	0.76	µg/L	100
PFEESA	5.921	314.8 -> 134.9	7171	0.66	µg/L	99
		314.8 -> 82.9	232			

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



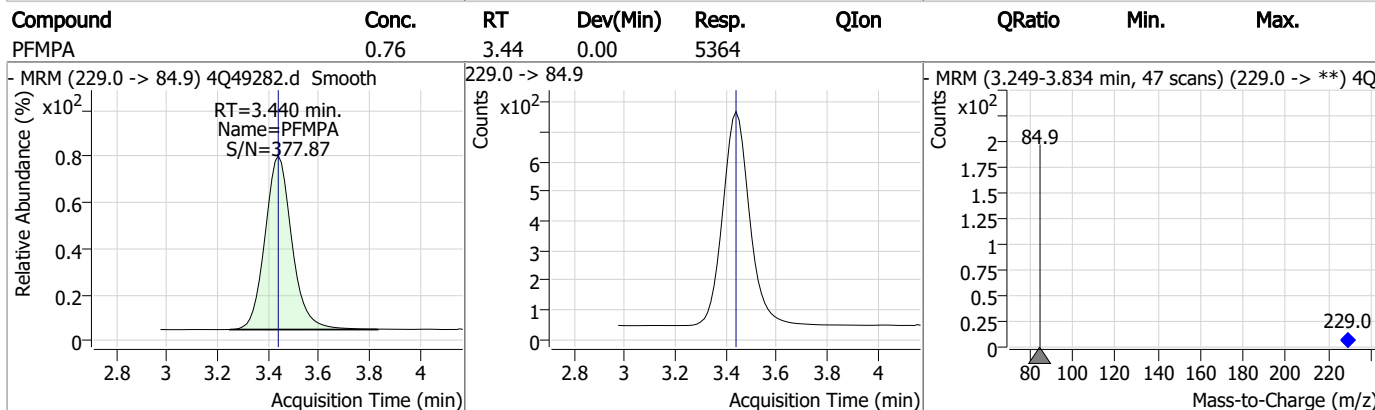
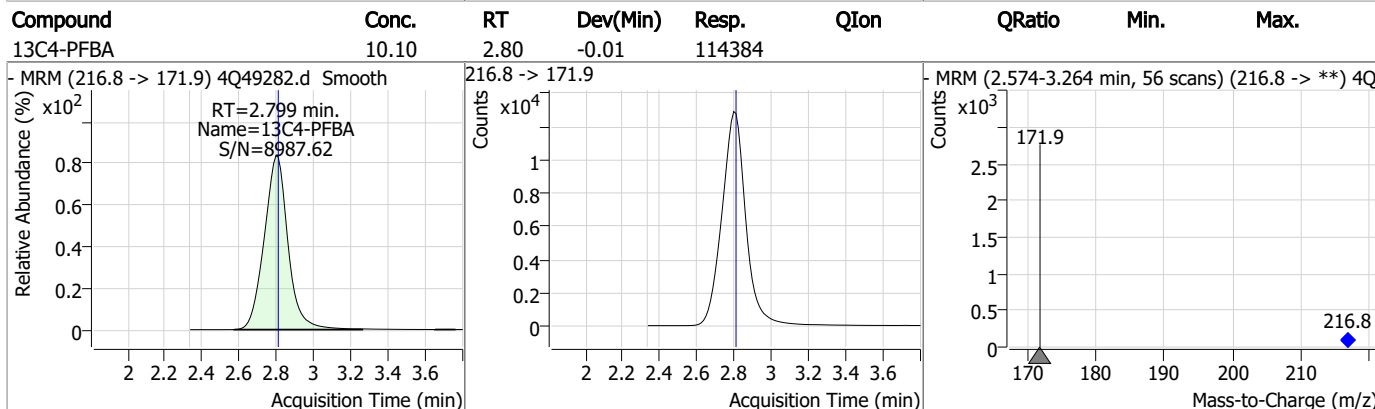
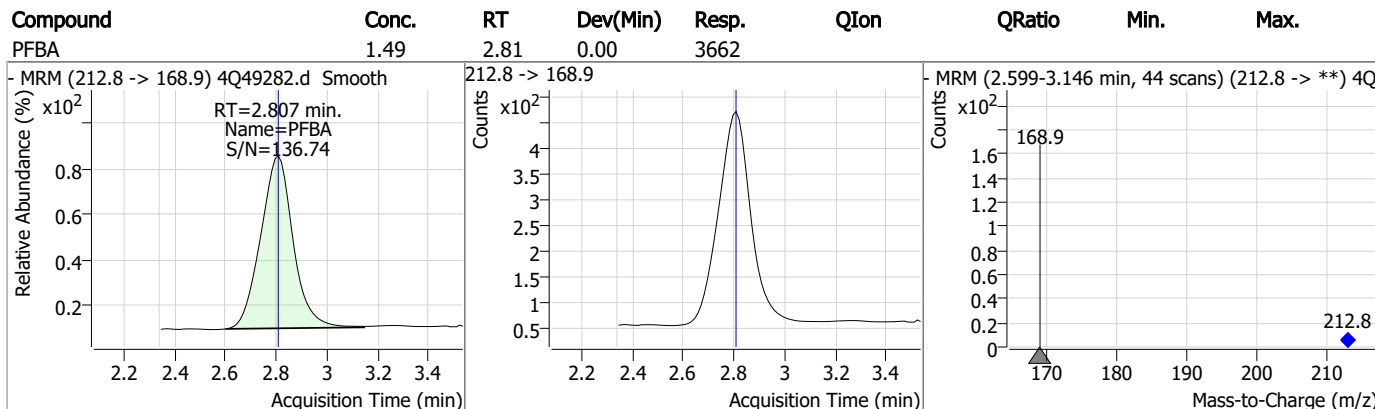
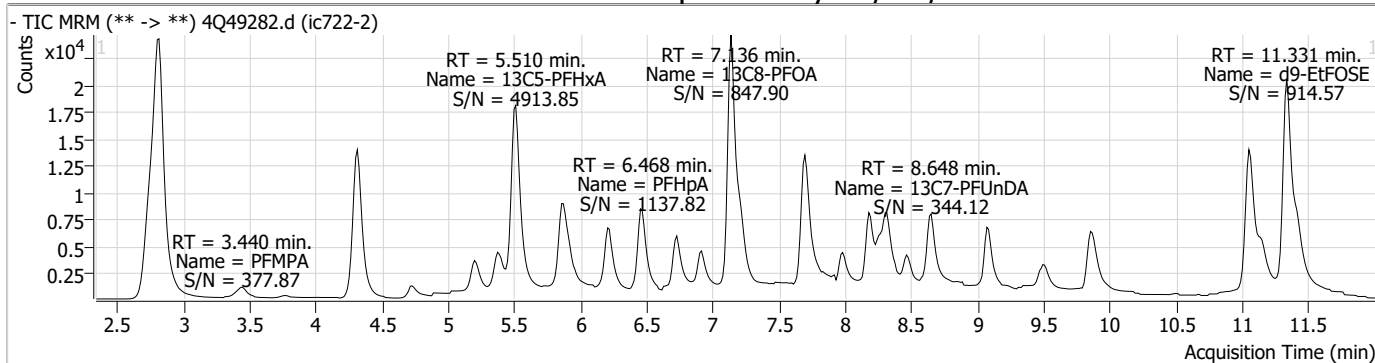
### Perfluorinated Compounds by LC/MS/MS

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

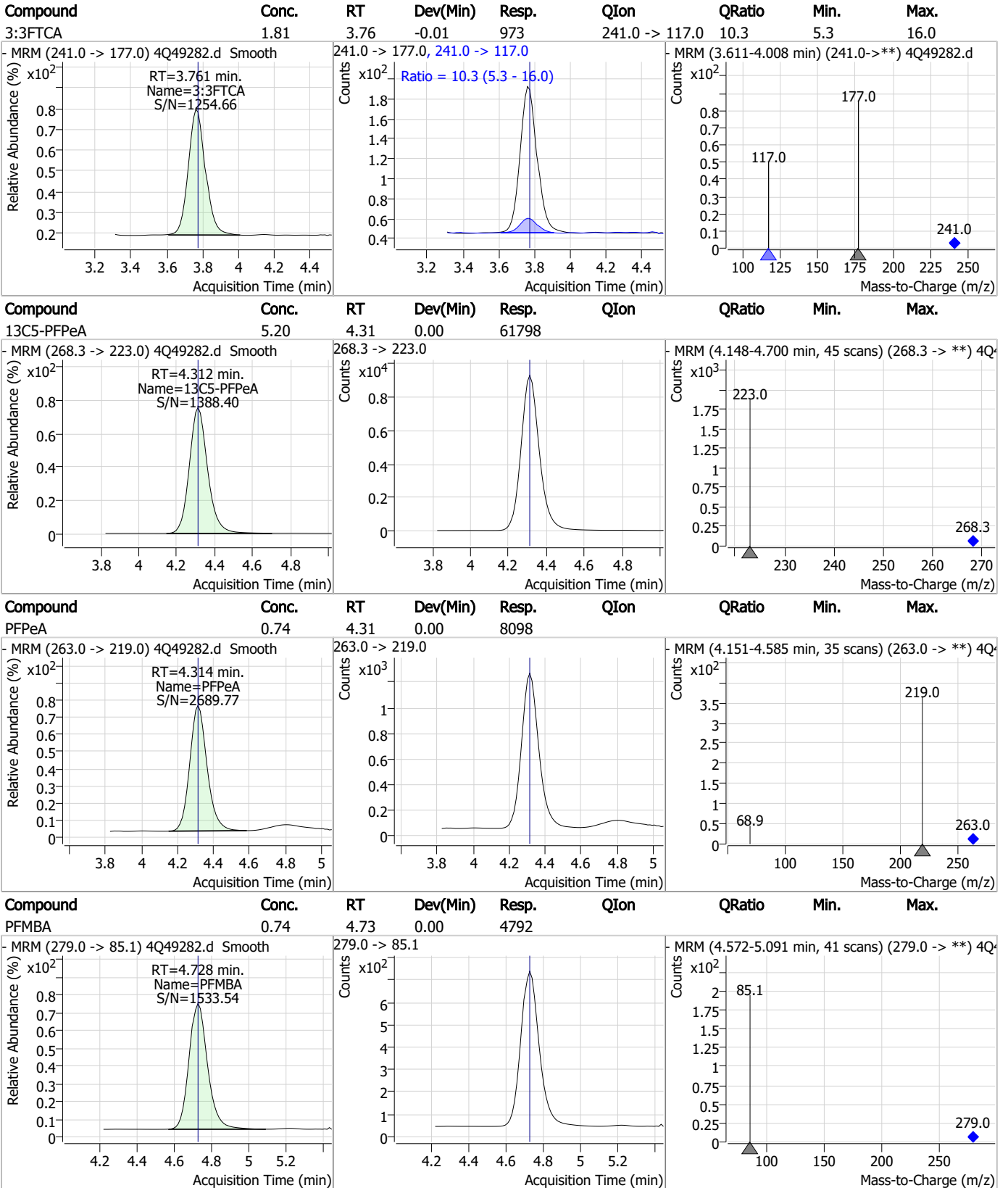
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### Perfluorinated Compounds by LC/MS/MS

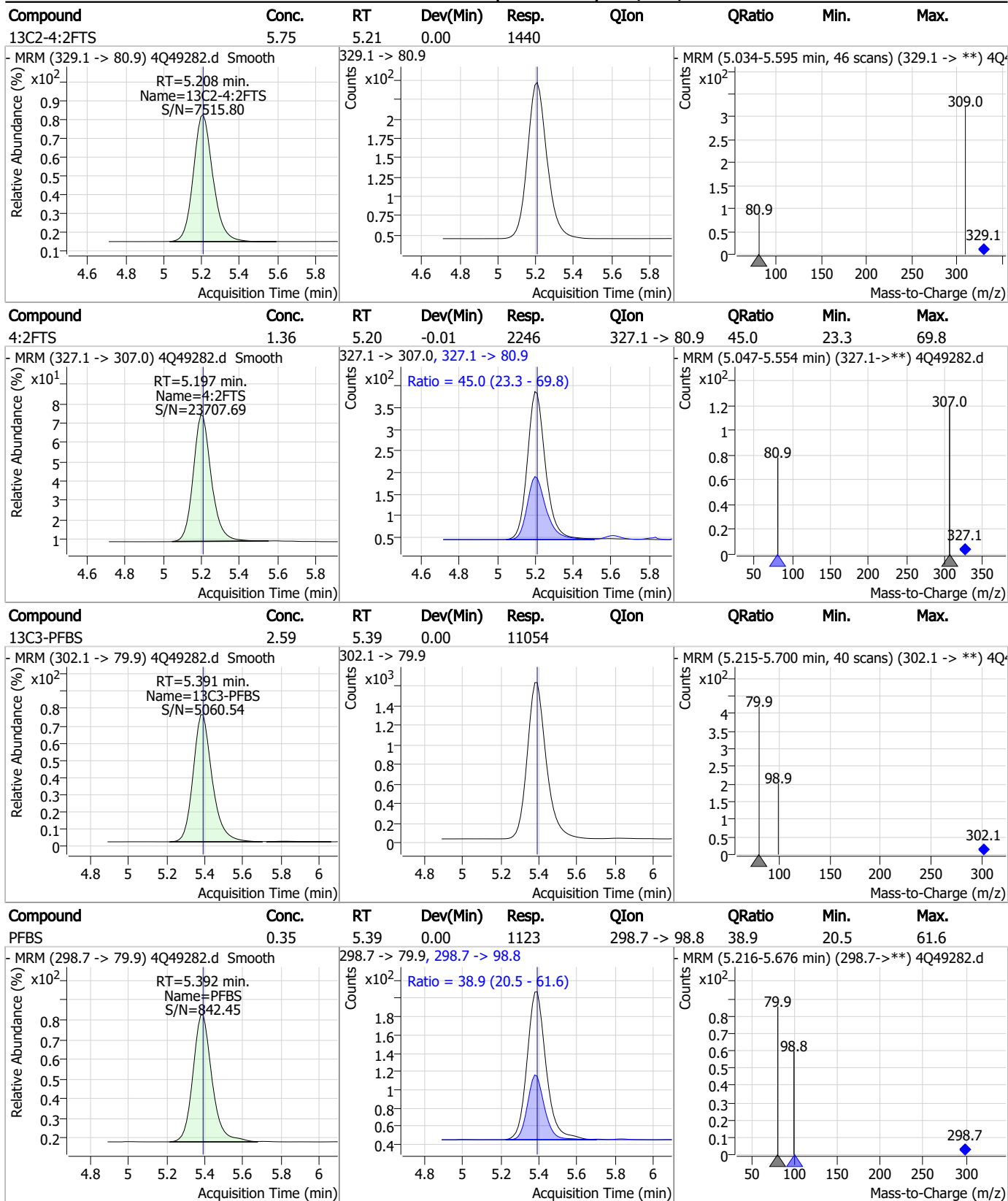


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### Perfluorinated Compounds by LC/MS/MS



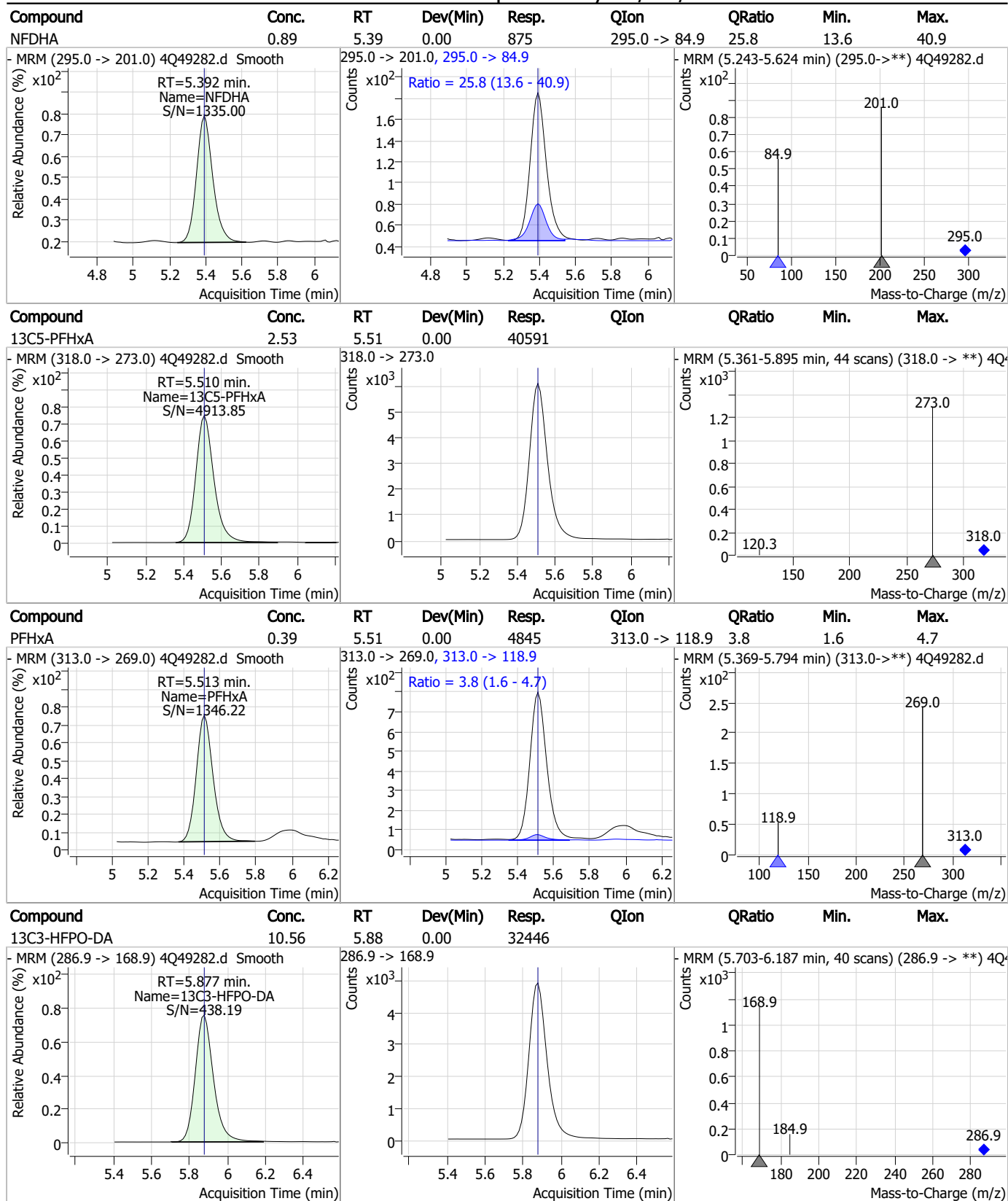
### Perfluorinated Compounds by LC/MS/MS



7.7.3

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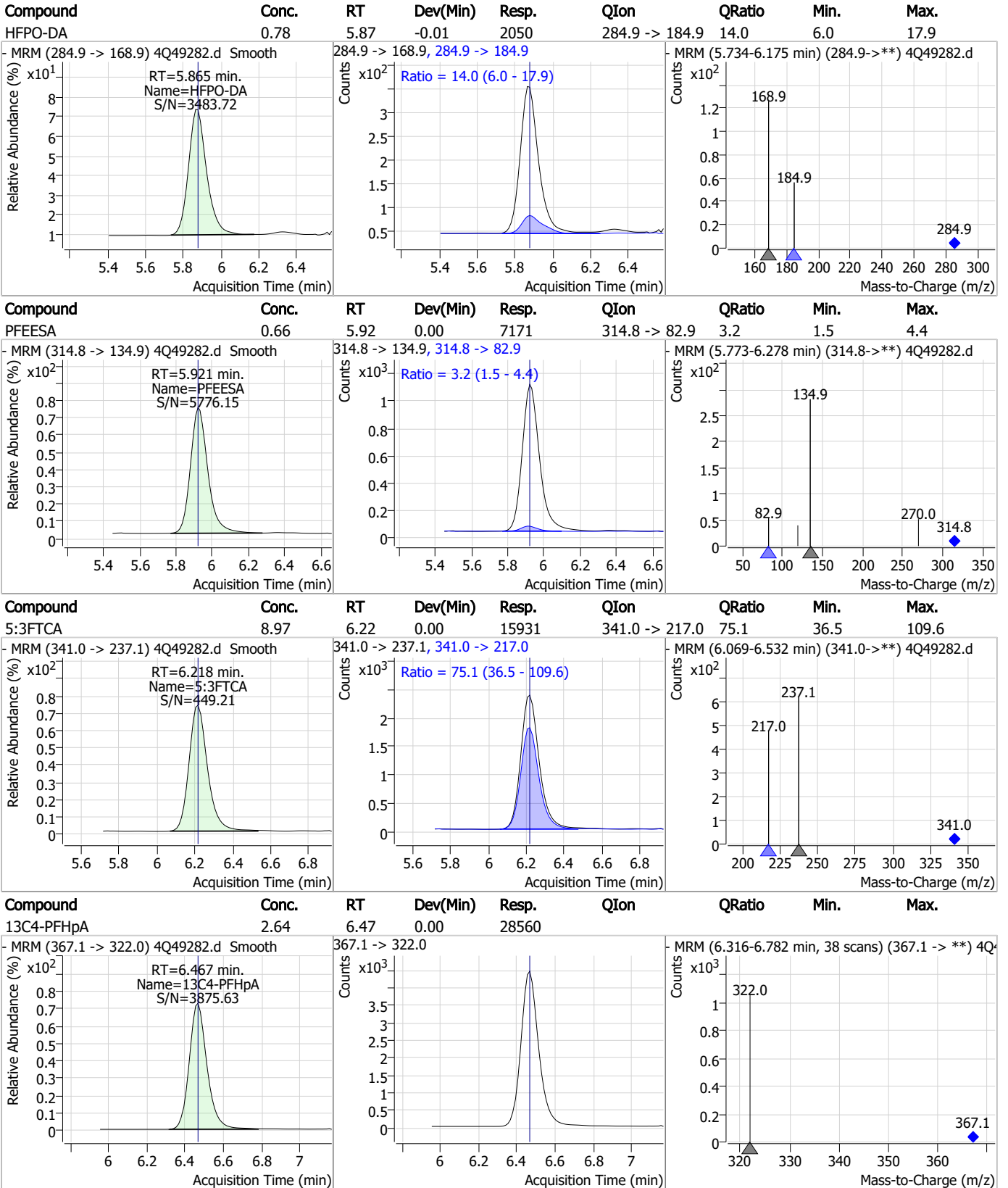
### Perfluorinated Compounds by LC/MS/MS



7.7.3

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### Perfluorinated Compounds by LC/MS/MS

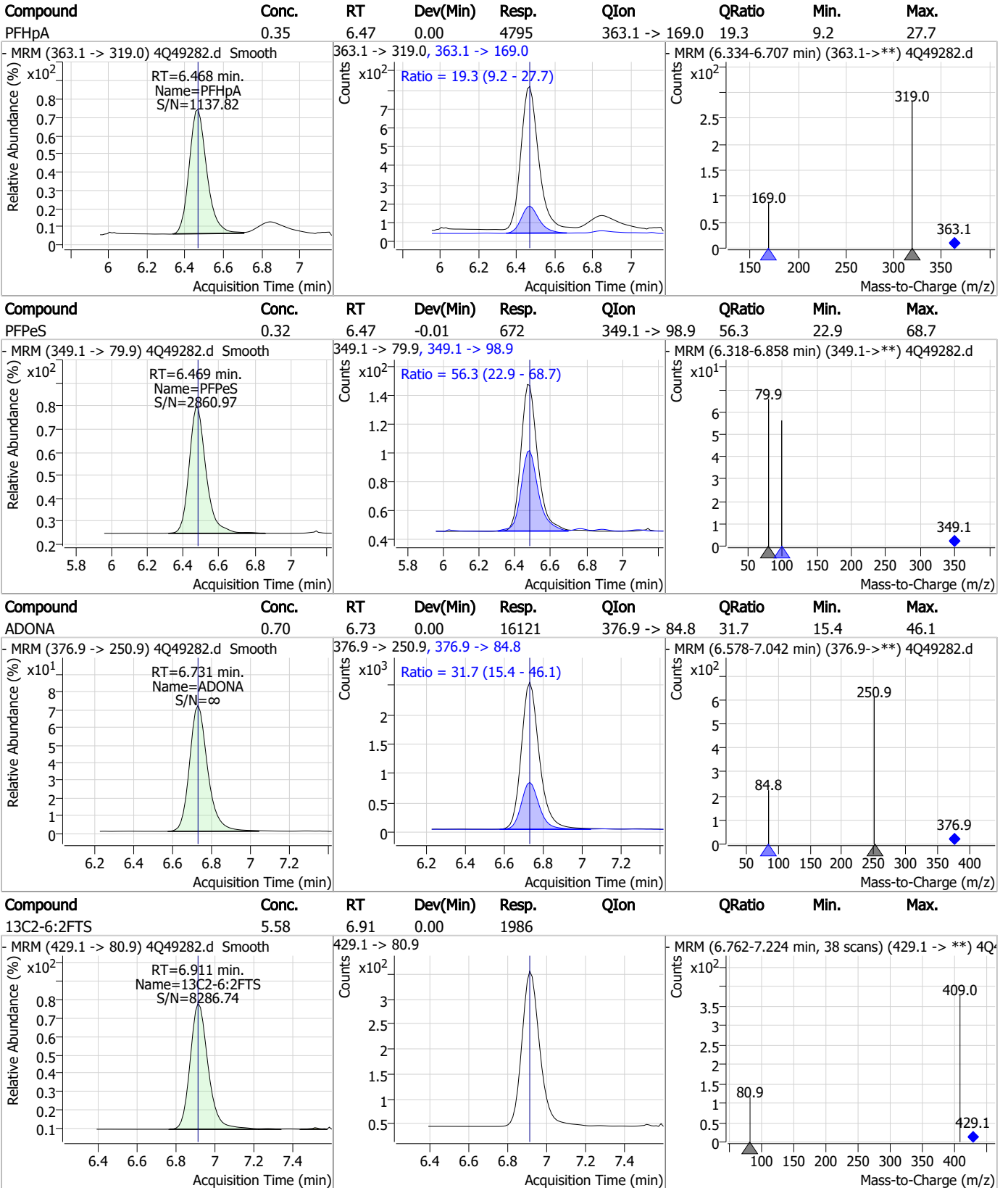


7.7.3

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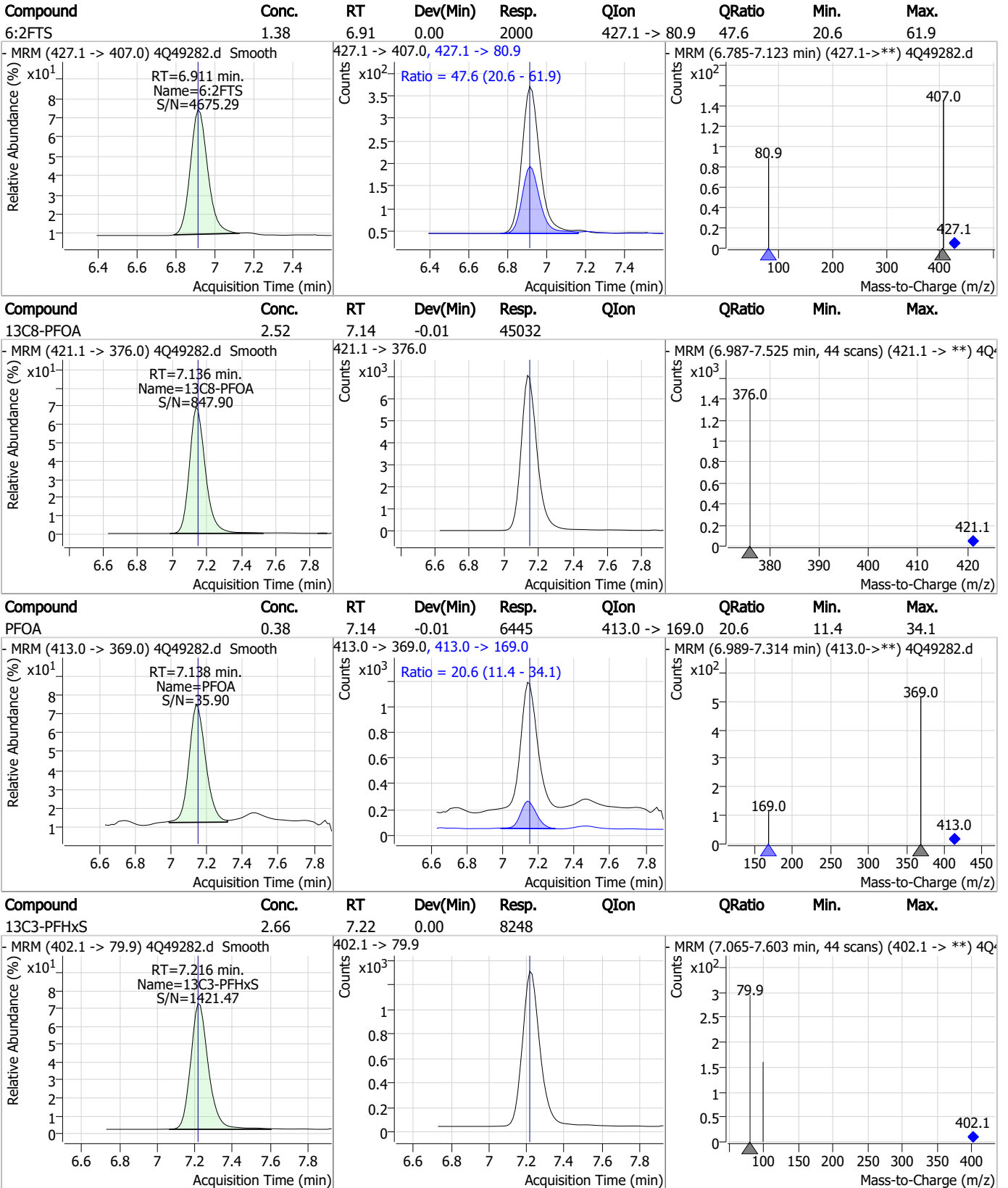
### Perfluorinated Compounds by LC/MS/MS



7.7.3

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### Perfluorinated Compounds by LC/MS/MS

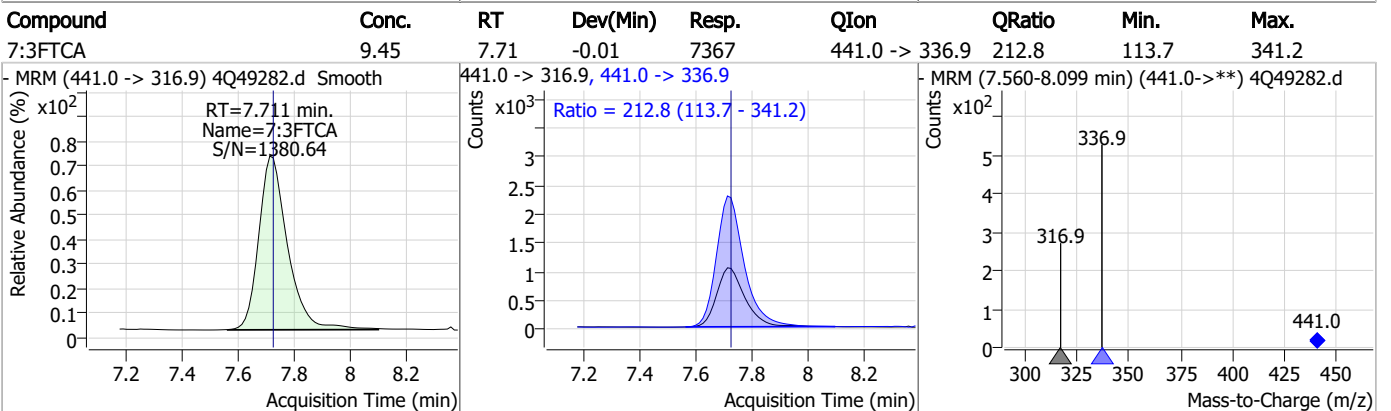
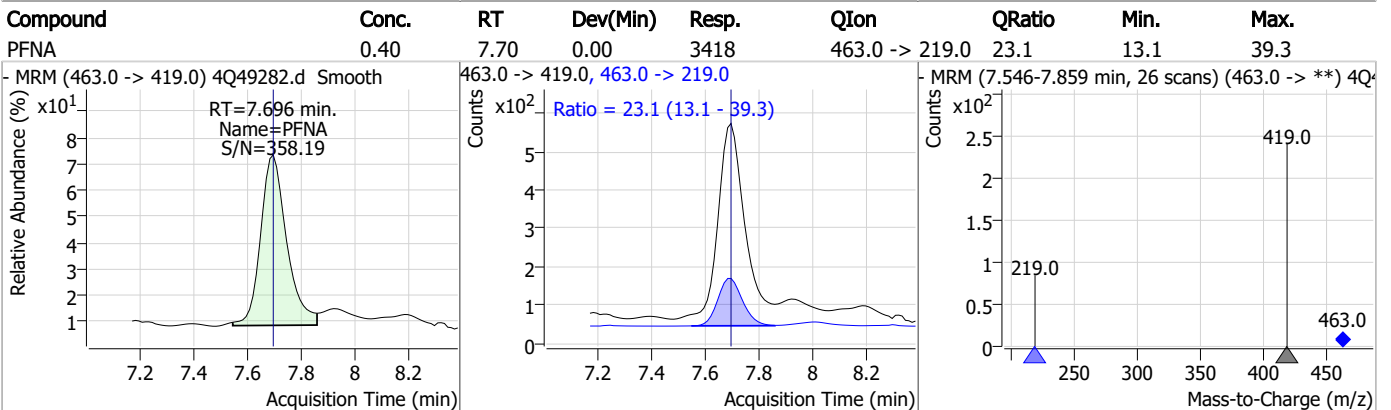
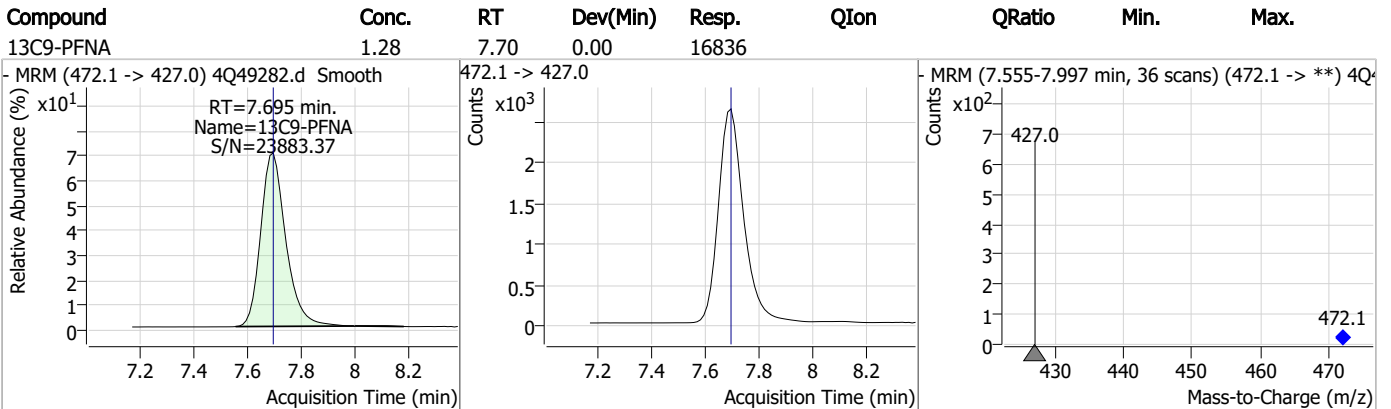
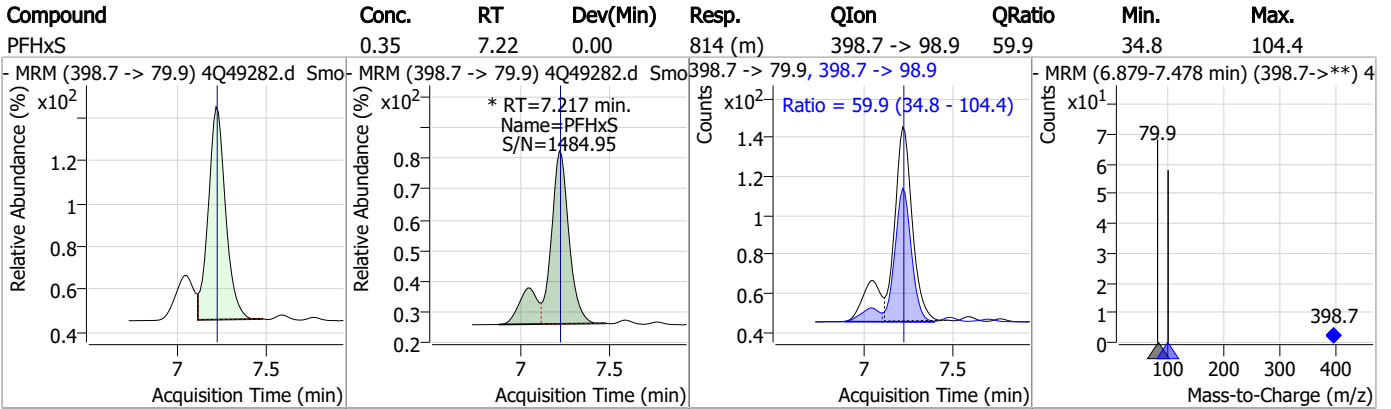


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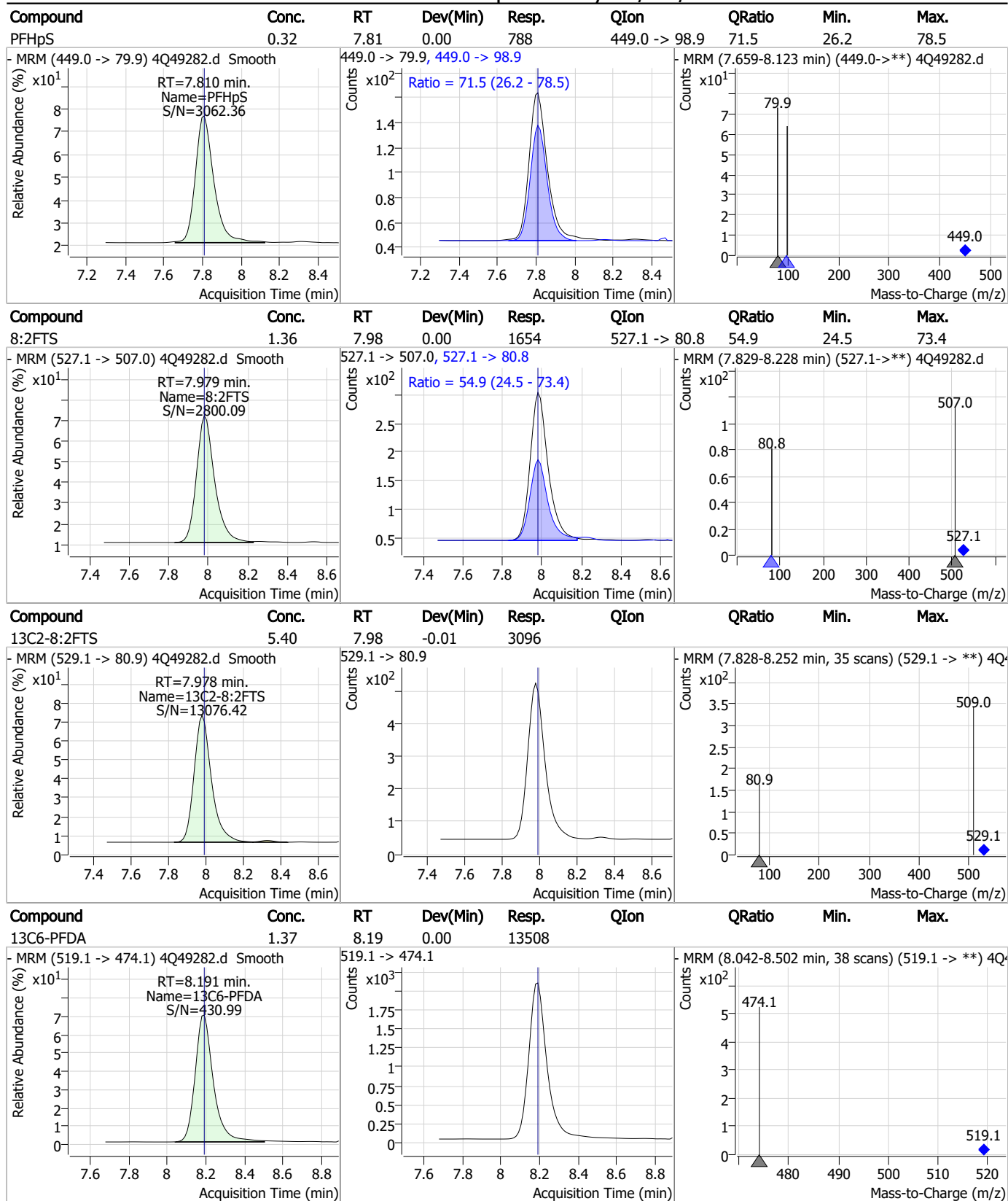
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### Perfluorinated Compounds by LC/MS/MS



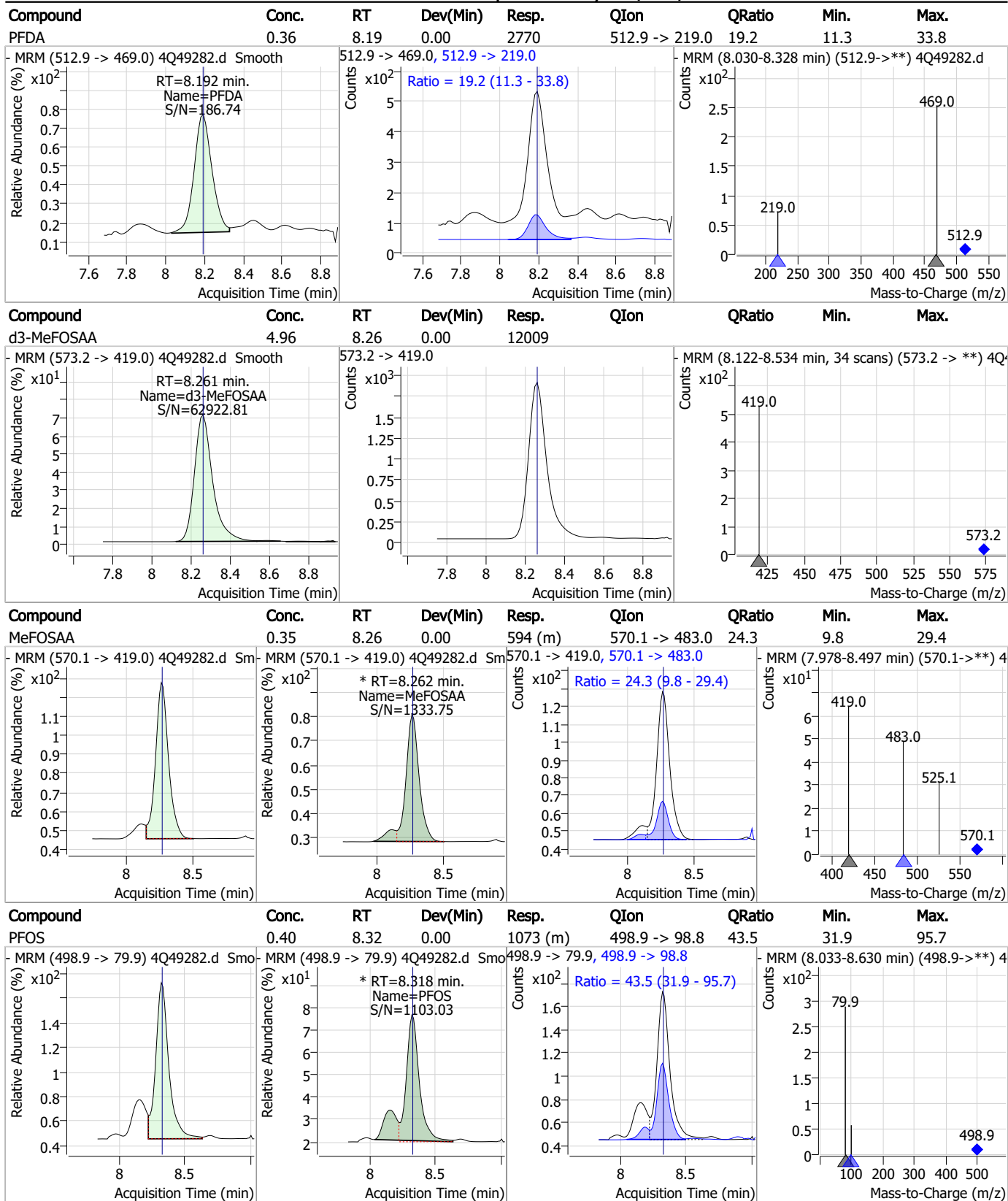
### Perfluorinated Compounds by LC/MS/MS



7.7.3  
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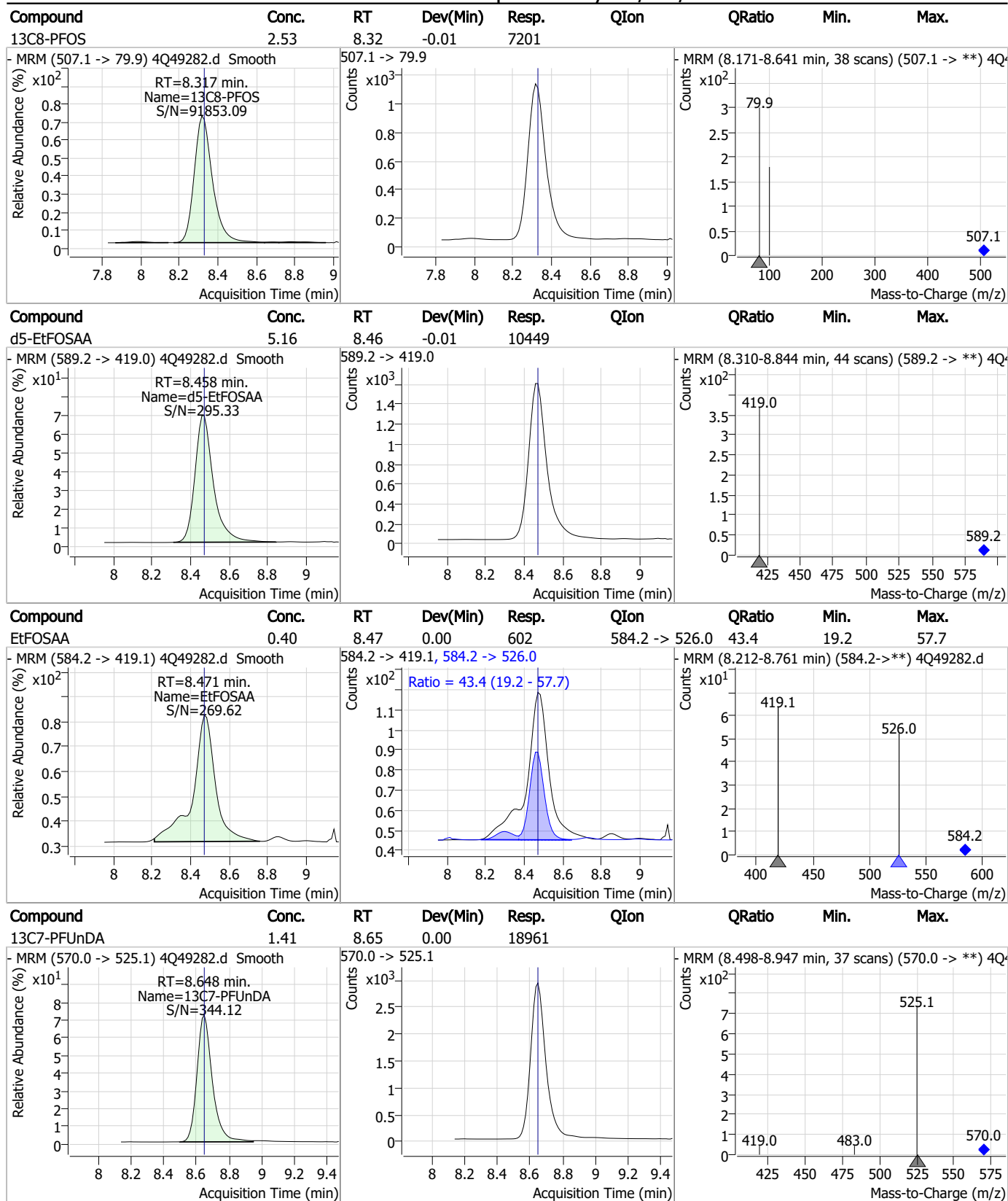


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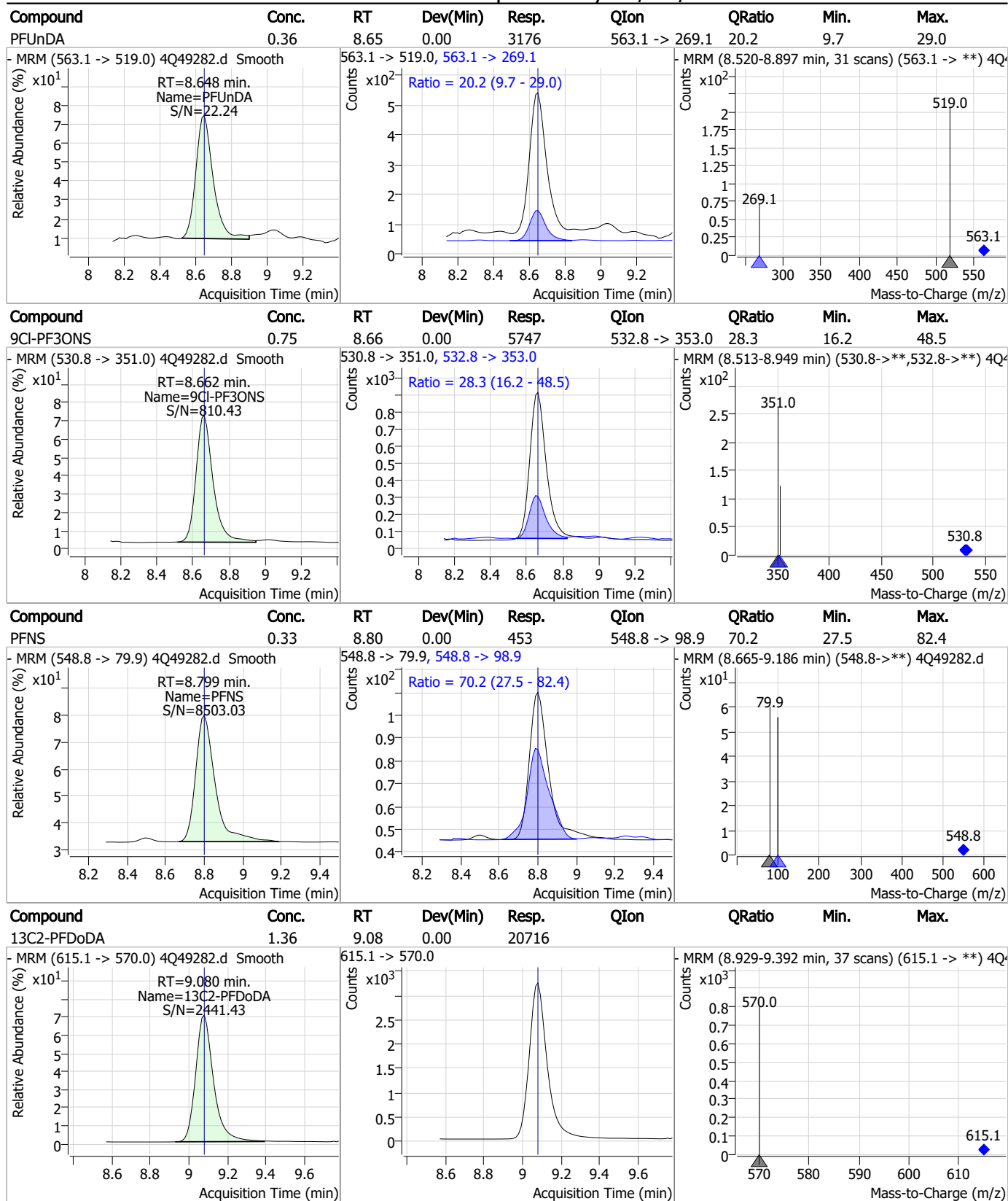
7.7.3  
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### Perfluorinated Compounds by LC/MS/MS



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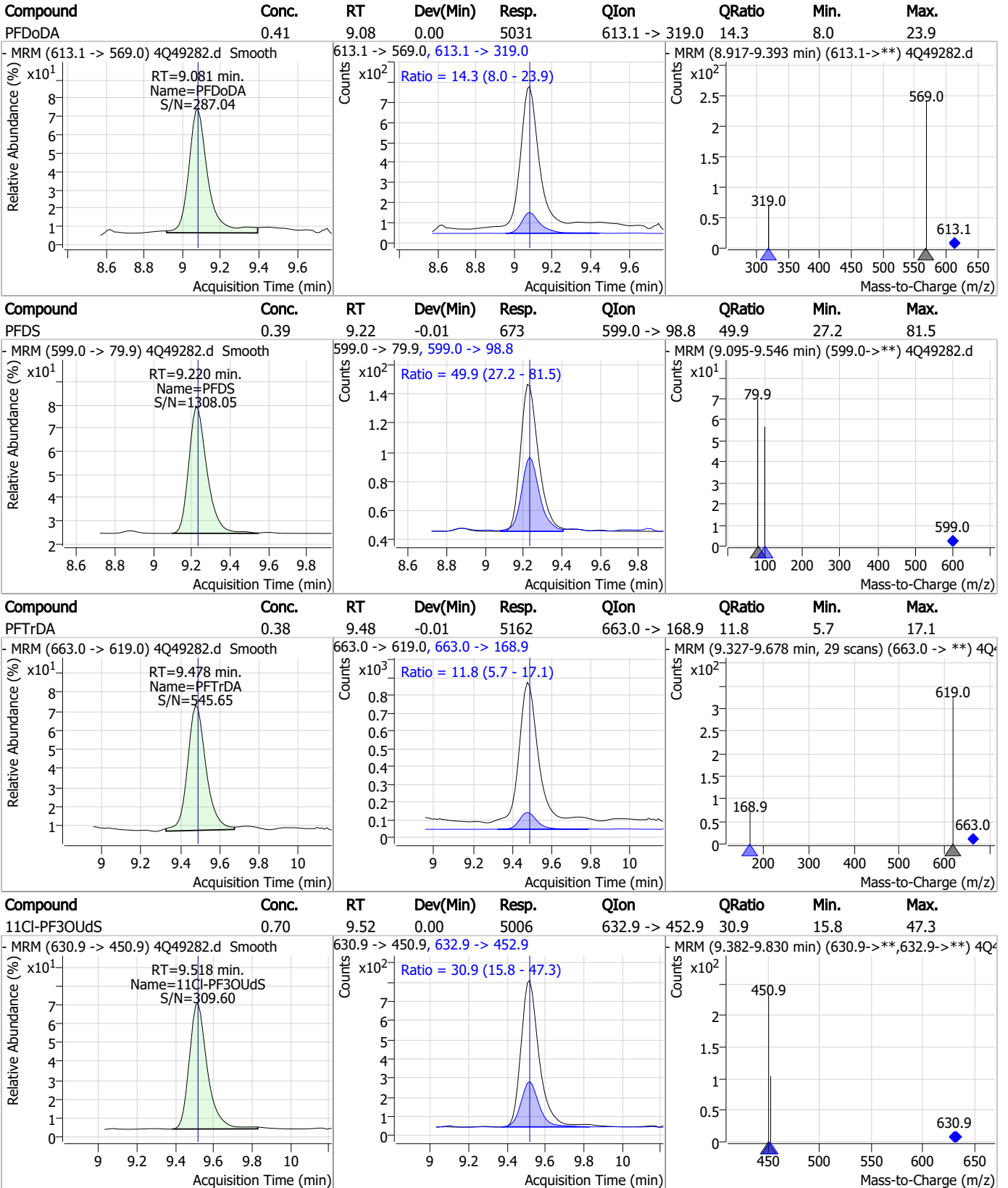
### Perfluorinated Compounds by LC/MS/MS



7.7.3

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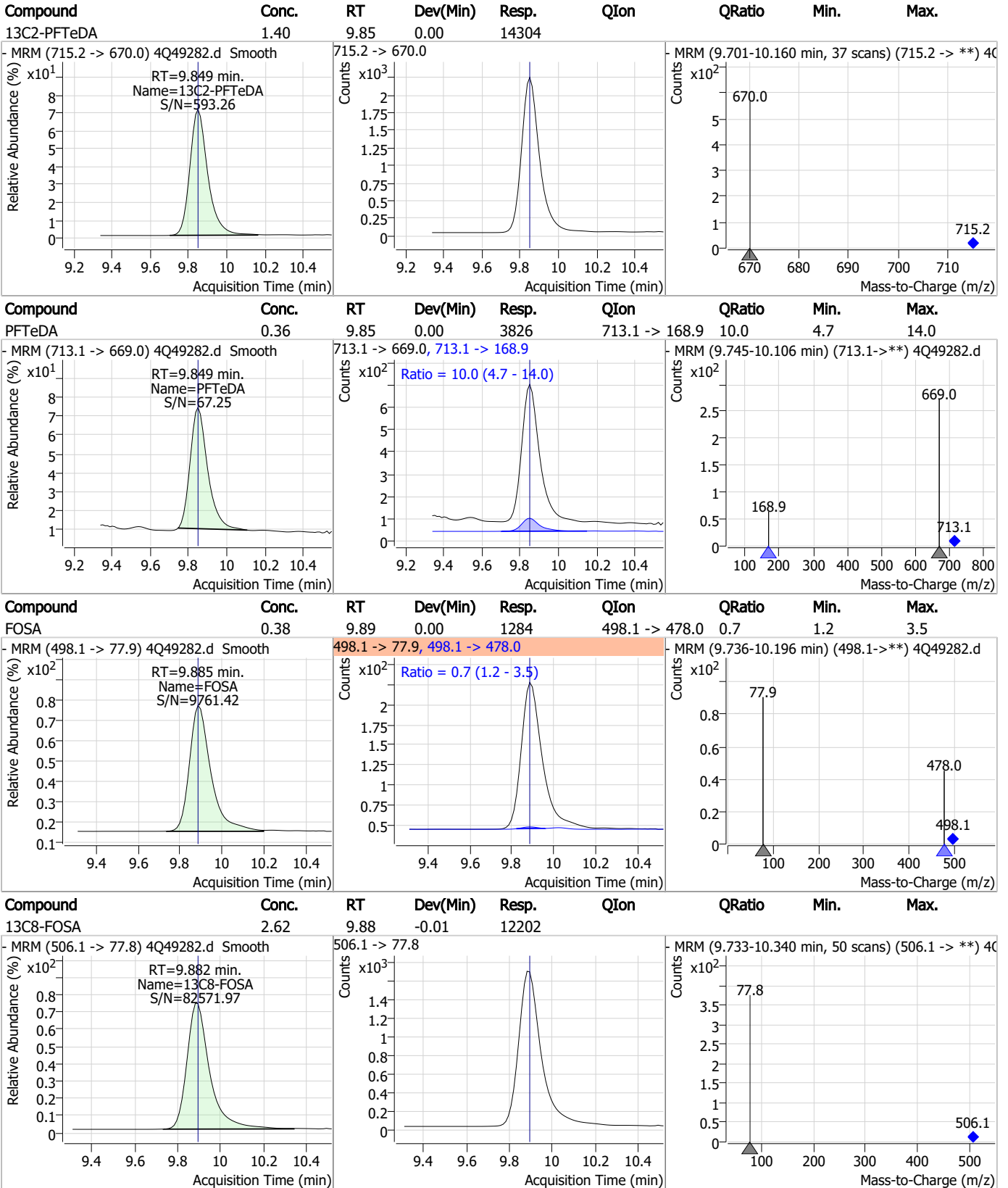
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS



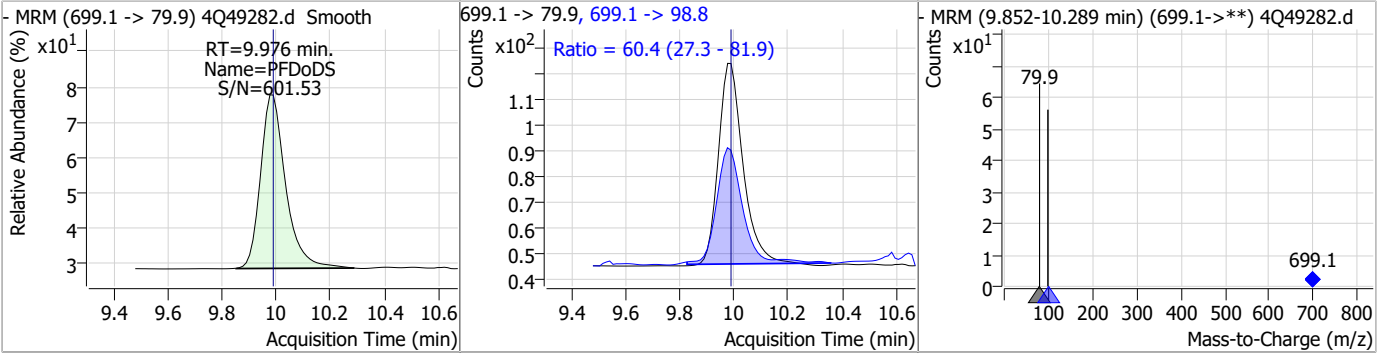
7.7.3

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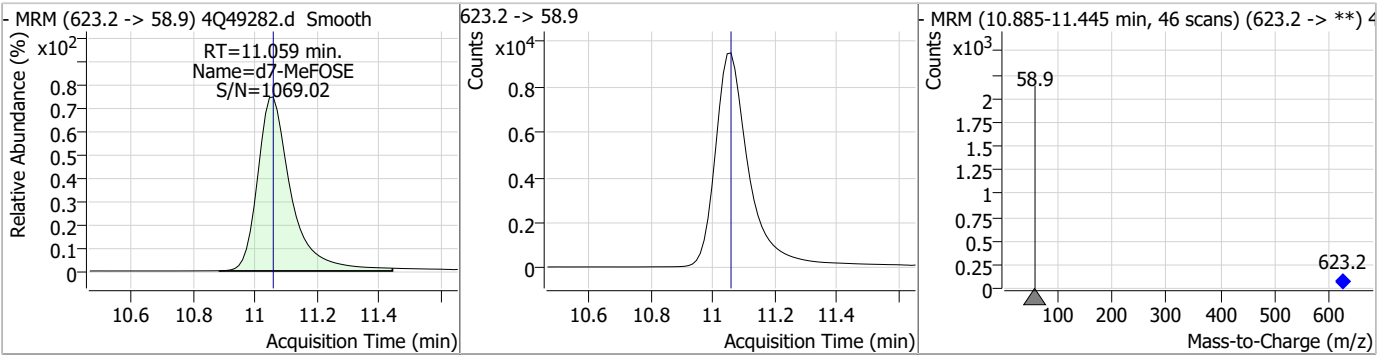


### Perfluorinated Compounds by LC/MS/MS

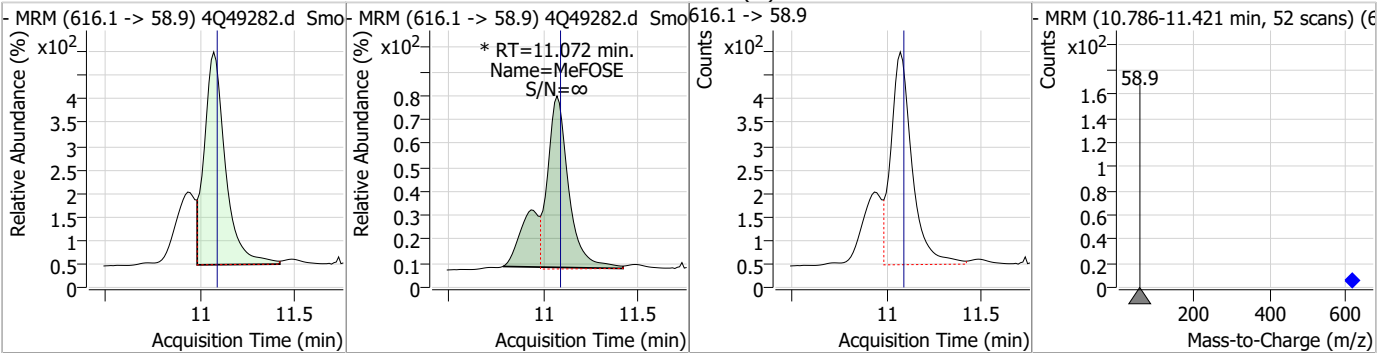
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PfDoDS	0.39	9.98	-0.01	506	699.1 -> 98.8	60.4	27.3	81.9



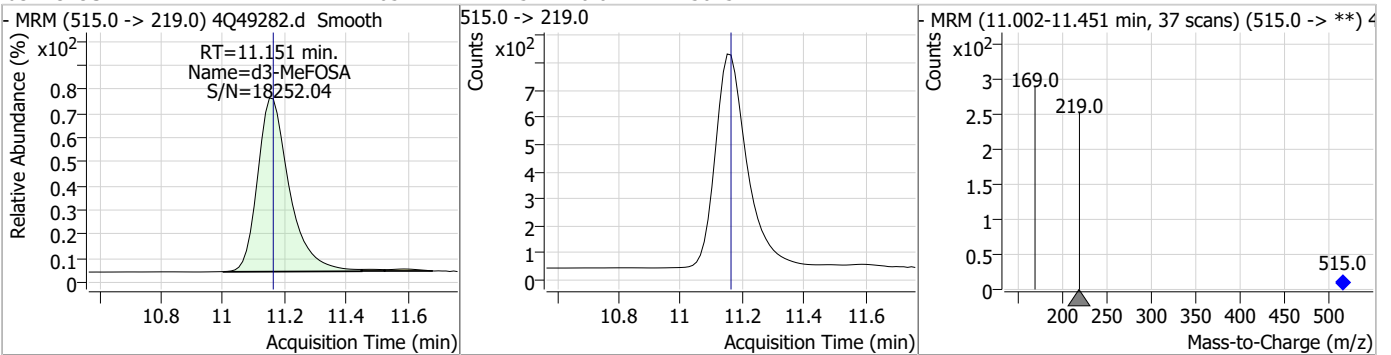
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	28.08	11.06	0.00	71685				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	1.76	11.07	-0.01	4485 (m)				

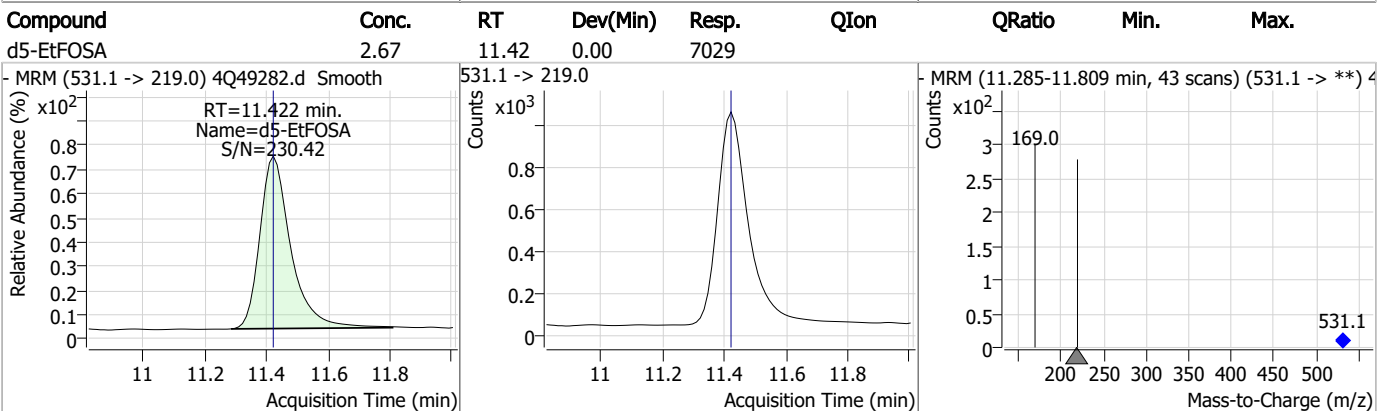
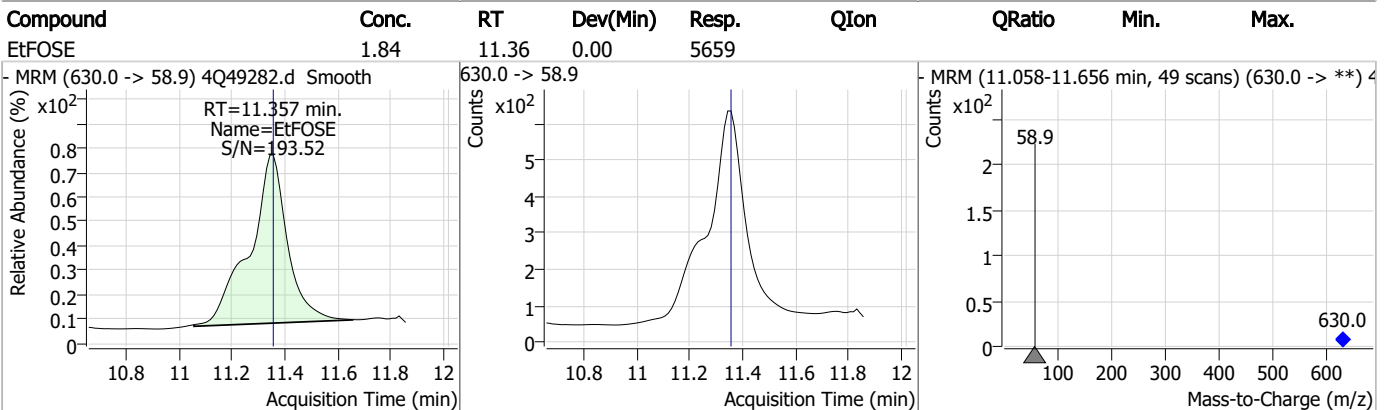
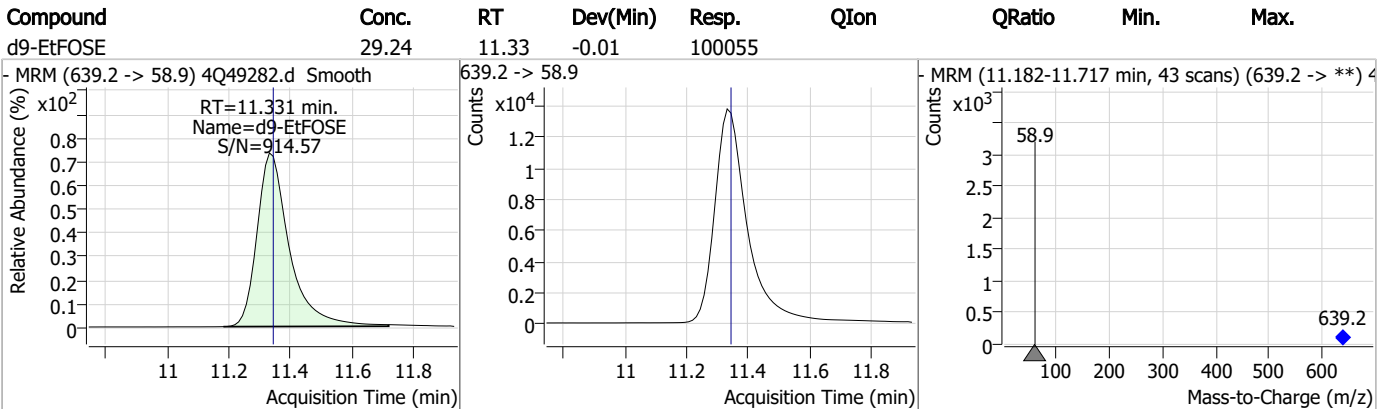
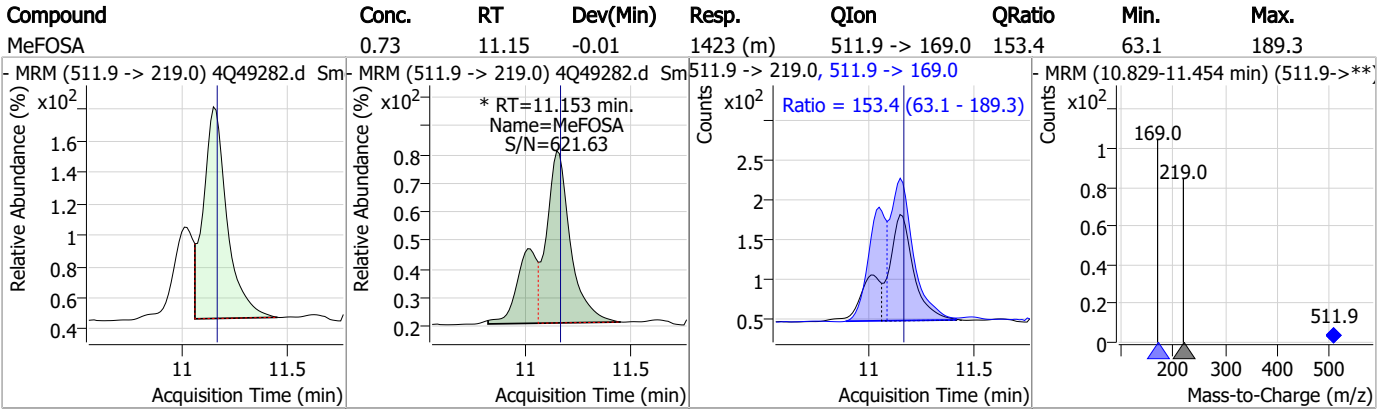


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.65	11.15	-0.01	5645				





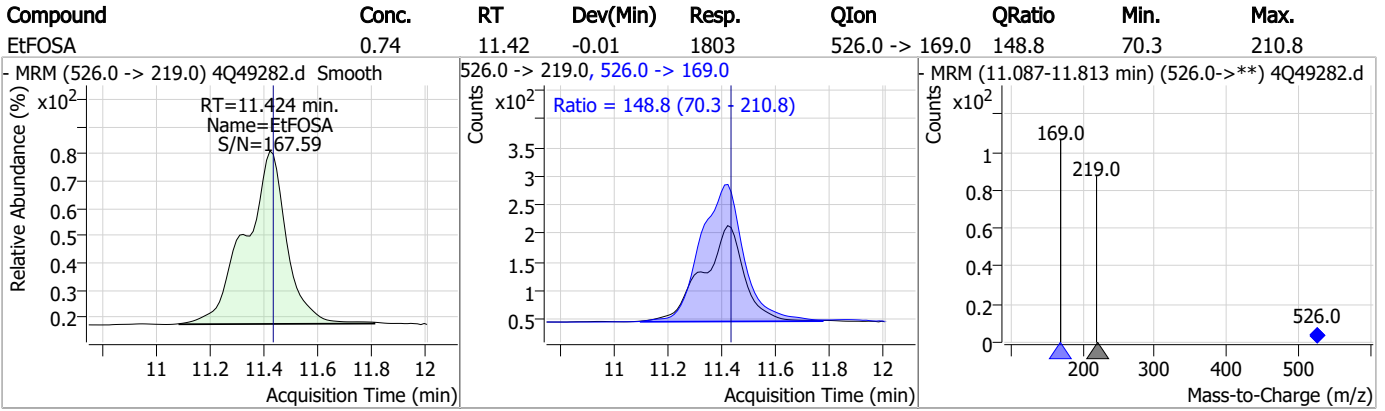
### Perfluorinated Compounds by LC/MS/MS



7.7.3

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### Perfluorinated Compounds by LC/MS/MS



7.7.3

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# Manual Integration Approval Summary

Sample Number: S4Q722-IC722      Method: EPA DRAFT 1633  
Lab FileID: 4Q49282.D      Analyst approved: 08/23/23 10:44 Martha Valls  
Injection Time: 08/22/23 11:04      Supervisor approved: 08/23/23 15:25 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.22	Split peak
MeFOSAA	2355-31-9		8.26	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.32	Split peak
MeFOSE	24448-09-7		11.07	Split peak
MeFOSA	31506-32-8		11.15	Split peak

7.7.3.1

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### Perfluorinated Compounds by LC/MS/MS

Data File : 4Q49283.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 8/22/2023 11:19:39 AM  
 Sample Name : ic722-3  
 Vial : P1-A4  
 DA Method File : 1633\_082223\_S4Q722.quantmethod.xml  
 Batch Name : s4q722.batch.bin  
 Sample Information : OP98180,S4Q722,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.811	216.8 -> 171.9	134385	10.00 µg/L	0.000
M5-PFPeA	4.312	268.3 -> 223.0	72452	5.00 µg/L	0.000
M5-PFHxA	5.510	318.0 -> 273.0	47973	2.50 µg/L	0.000
M4-PFHpA	6.467	367.1 -> 322.0	32563	2.50 µg/L	0.000
M8-PFOA	7.136	421.1 -> 376.0	52357	2.50 µg/L	-0.012
M9-PFNA	7.695	472.1 -> 427.0	19984	1.25 µg/L	0.000
M6-PFDA	8.179	519.1 -> 474.1	15523	1.25 µg/L	-0.012
M7-PFUnDA	8.648	570.0 -> 525.1	20998	1.25 µg/L	0.000
M2-PFDoDA	9.080	615.1 -> 570.0	23181	1.25 µg/L	0.000
M2-PFTeDA	9.849	715.2 -> 670.0	14466	1.25 µg/L	0.000
M8-FOSA	9.882	506.1 -> 77.8	13318	2.50 µg/L	-0.012
M3-PFBS	5.391	302.1 -> 79.9	13424	2.50 µg/L	0.000
M3-PFHxS	7.216	402.1 -> 79.9	9217	2.50 µg/L	0.000
M8-PFOS	8.317	507.1 -> 79.9	8157	2.50 µg/L	-0.012
M2-4:2FTS	5.208	329.1 -> 80.9	1618	5.00 µg/L	0.000
M2-6:2FTS	6.911	429.1 -> 80.9	2184	5.00 µg/L	0.000
M2-8:2FTS	7.978	529.1 -> 80.9	3693	5.00 µg/L	-0.012
M3-MeFOSAA	8.261	573.2 -> 419.0	14054	5.00 µg/L	0.000
M3-HFPO-DA	5.877	286.9 -> 168.9	37108	10.00 µg/L	0.000
M5-EtFOSAA	8.458	589.2 -> 419.0	11766	5.00 µg/L	-0.012
M7-MeFOSE	11.059	623.2 -> 58.9	73601	25.00 µg/L	0.000
M9-EtFOSE	11.331	639.2 -> 58.9	98060	25.00 µg/L	-0.012
M5-EtFOSA	11.422	531.1 -> 219.0	7652	2.50 µg/L	0.000
M3-MeFOSA	11.163	515.0 -> 219.0	5920	2.50 µg/L	0.000
13C4-PFOS	8.318	502.8 -> 79.9	8135	2.50 µg/L	-0.012
13C3-PFBA	2.816	216.0 -> 172.0	76292	5.00 µg/L	0.013
18O2-PFHxS	7.215	403.0 -> 83.9	6584	2.50 µg/L	-0.012
13C4-PFOA	7.137	417.1 -> 372.0	59690	2.50 µg/L	-0.012
13C2-PFDA	8.179	515.1 -> 470.1	14318	1.25 µg/L	-0.012
13C5-PFNA	7.696	468.0 -> 423.0	19986	1.25 µg/L	0.000
13C2-PFHxA	5.511	315.1 -> 270.0	46365	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.208	329.1 -> 80.9	1618	5.41 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.2%		
13C2-6:2FTS	6.911	429.1 -> 80.9	2184	5.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C2-8:2FTS	7.978	529.1 -> 80.9	3693	5.39 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.9%		
13C2-PFDoDA	9.080	615.1 -> 570.0	23181	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C2-PFTeDA	9.849	715.2 -> 670.0	14466	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.6%		
13C3-PFBS	5.391	302.1 -> 79.9	13424	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.5%		
13C3-PFHxS	7.216	402.1 -> 79.9	9217	2.49 µg/L	0.000

7.7.4  
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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 = 99.6%	
13C4-PFBA	2.811	216.8 -> 171.9	134385	9.91 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C4-PFHpA	6.467	367.1 -> 322.0	32563	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C5-PFHxA	5.510	318.0 -> 273.0	47973	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C5-PFPeA	4.312	268.3 -> 223.0	72452	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C6-PFDA	8.179	519.1 -> 474.1	15523	1.27 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C7-PFUnDA	8.648	570.0 -> 525.1	20998	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C8-FOSA	9.882	506.1 -> 77.8	13318	2.43 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C8-PFOA	7.136	421.1 -> 376.0	52357	2.50 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C8-PFOS	8.317	507.1 -> 79.9	8157	2.44 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C9-PFNA	7.695	472.1 -> 427.0	19984	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.3%	
d3-MeFOSAA	8.261	573.2 -> 419.0	14054	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C3-HFPO-DA	5.877	286.9 -> 168.9	37108	9.92 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
d3-MeFOSA	11.163	515.0 -> 219.0	5920	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.5%	
d5-EtFOSAA	8.458	589.2 -> 419.0	11766	4.95 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
d7-MeFOSE	11.059	623.2 -> 58.9	73601	24.54 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.1%	
d9-EtFOSE	11.331	639.2 -> 58.9	98060	24.39 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.6%	
d5-EtFOSA	11.422	531.1 -> 219.0	7652	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.209	327.1 -> 307.0	8960	4.85 µg/L	96
		327.1 -> 80.9	3924		
6:2FTS	6.911	427.1 -> 407.0	7793	4.89 µg/L	99
		427.1 -> 80.9	3186		
8:2FTS	7.979	527.1 -> 507.0	6473	4.47 µg/L	97
		527.1 -> 80.8	3316		
EtFOSAA	8.471	584.2 -> 419.1	1994	1.19 µg/L	#m 60
		584.2 -> 526.0	1247		
FOSA	9.885	498.1 -> 77.9	4603	1.24 µg/L	97
		498.1 -> 478.0	147		
MeFOSAA	8.262	570.1 -> 419.0	2404	1.19 µg/L	100
		570.1 -> 483.0	468		
PFBA	2.820	212.8 -> 168.9	14031	4.86 µg/L	100
PFBS	5.392	298.7 -> 79.9	3975	1.02 µg/L	99
		298.7 -> 98.8	1647		
PFDA	8.180	512.9 -> 469.0	10780	1.20 µg/L	95
		512.9 -> 219.0	2160		
PFDODA	9.081	613.1 -> 569.0	16148	1.17 µg/L	98
		613.1 -> 319.0	2714		
PFDS	9.232	599.0 -> 79.9	2410	1.23 µg/L	92

7.7.4  
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## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	1451			
PFHpA	6.468	363.1 -> 319.0	19342	1.22	µg/L	100
		363.1 -> 169.0	3536			
PFHpS	7.810	449.0 -> 79.9	3530	1.27	µg/L	92
		449.0 -> 98.9	1654			
PFHxA	5.513	313.0 -> 269.0	18242	1.24	µg/L	100
		313.0 -> 118.9	608			
PFHxS	7.217	398.7 -> 79.9	2846	1.09	µg/L	m 85
		398.7 -> 98.9	1621			
PFNA	7.684	463.0 -> 419.0	12283	1.22	µg/L	95
		463.0 -> 219.0	2878			
PFNS	8.786	548.8 -> 79.9	2160	1.40	µg/L	93
		548.8 -> 98.9	1083			
PFOA	7.138	413.0 -> 369.0	23188	1.17	µg/L	99
		413.0 -> 169.0	5369			
PFOS	8.318	498.9 -> 79.9	3619	1.19	µg/L	m 77
		498.9 -> 98.8	1649			
PFPeA	4.314	263.0 -> 219.0	31349	2.44	µg/L	100
PFPeS	6.469	349.1 -> 79.9	2885	1.24	µg/L	90
		349.1 -> 98.9	1137			
PFTeDA	9.849	713.1 -> 669.0	13249	1.24	µg/L	98
		713.1 -> 168.9	1337			
PFTrDA	9.478	663.0 -> 619.0	18059	1.18	µg/L	99
		663.0 -> 168.9	1990			
PFUnDA	8.648	563.1 -> 519.0	12135	1.25	µg/L	99
		563.1 -> 269.1	2281			
11CI-PF3OUdS	9.518	630.9 -> 450.9	19154	2.33	µg/L	98
		632.9 -> 452.9	5778			
9CI-PF3ONS	8.650	530.8 -> 351.0	21034	2.38	µg/L	97
		532.8 -> 353.0	6416			
ADONA	6.731	376.9 -> 250.9	62555	2.39	µg/L	98
		376.9 -> 84.8	18532			
HFPO-DA	5.878	284.9 -> 168.9	7616	2.54	µg/L	97
		284.9 -> 184.9	812			
3:3FTCA	3.773	241.0 -> 177.0	3816	6.05	µg/L	100
		241.0 -> 117.0	414			
5:3FTCA	6.218	341.0 -> 237.1	63974	30.49	µg/L	99
		341.0 -> 217.0	47233			
7:3FTCA	7.711	441.0 -> 316.9	27978	30.36	µg/L	97
		441.0 -> 336.9	62217			
EtFOSA	11.424	526.0 -> 219.0	6065	2.30	µg/L	m 88
		526.0 -> 169.0	9374			
EtFOSE	11.357	630.0 -> 58.9	17983	5.97	µg/L	100
MeFOSA	11.165	511.9 -> 219.0	5482	2.67	µg/L	m 85
		511.9 -> 169.0	7850			
MeFOSE	11.072	616.1 -> 58.9	16047	6.14	µg/L	m 100
PFDoDS	9.976	699.1 -> 79.9	1772	1.19	µg/L	88
		699.1 -> 98.8	1125			
NFDHA	5.392	295.0 -> 201.0	3249	2.79	µg/L	95
		295.0 -> 84.9	968			
PFMBA	4.728	279.0 -> 85.1	18714	2.47	µg/L	100
PFMPA	3.440	229.0 -> 84.9	20098	2.42	µg/L	100
PFEESA	5.921	314.8 -> 134.9	29151	2.28	µg/L	100
		314.8 -> 82.9	845			

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

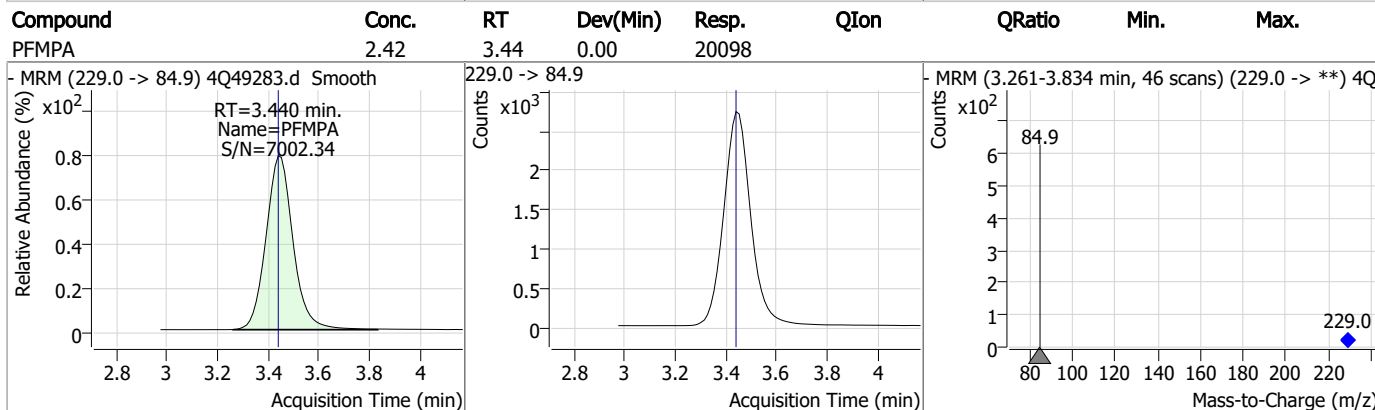
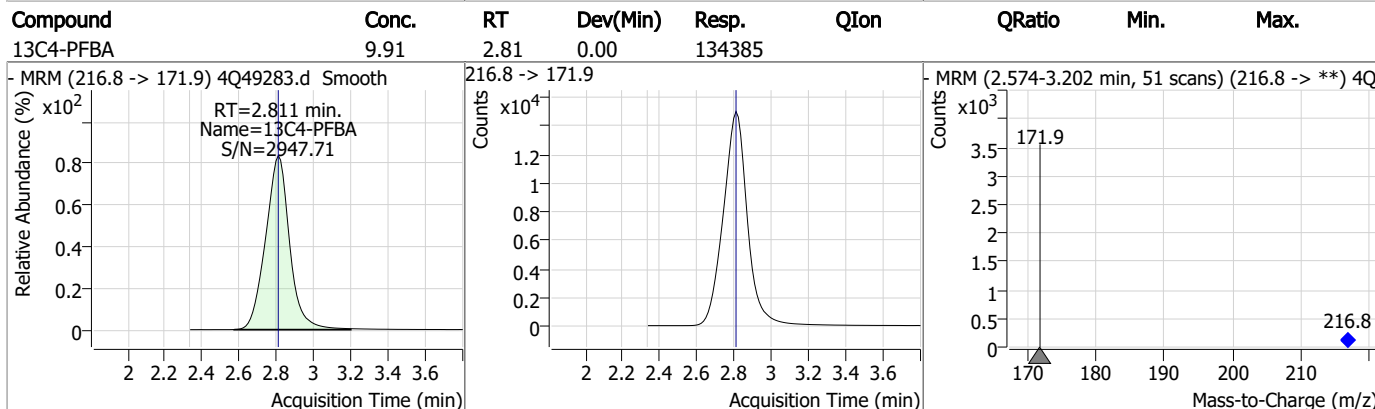
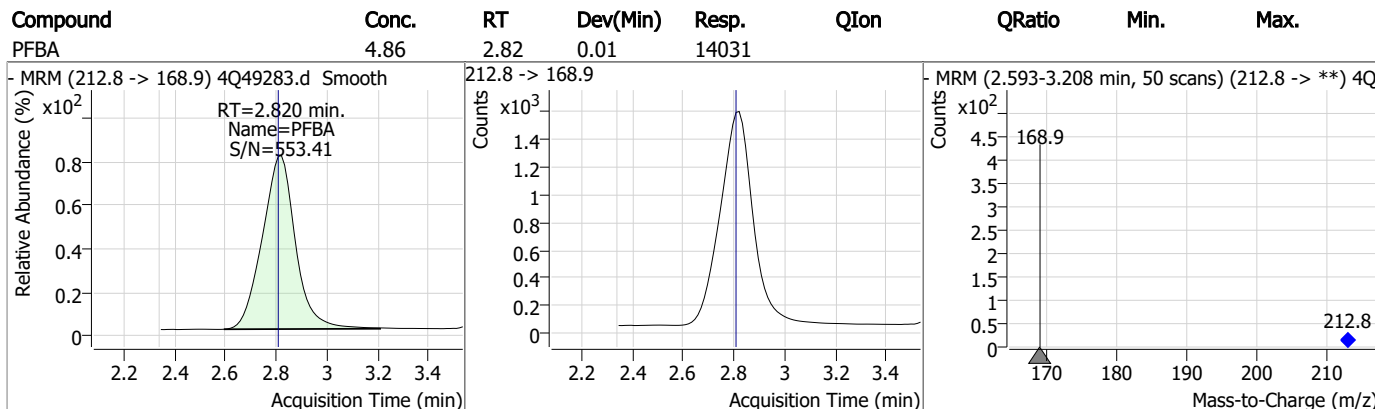
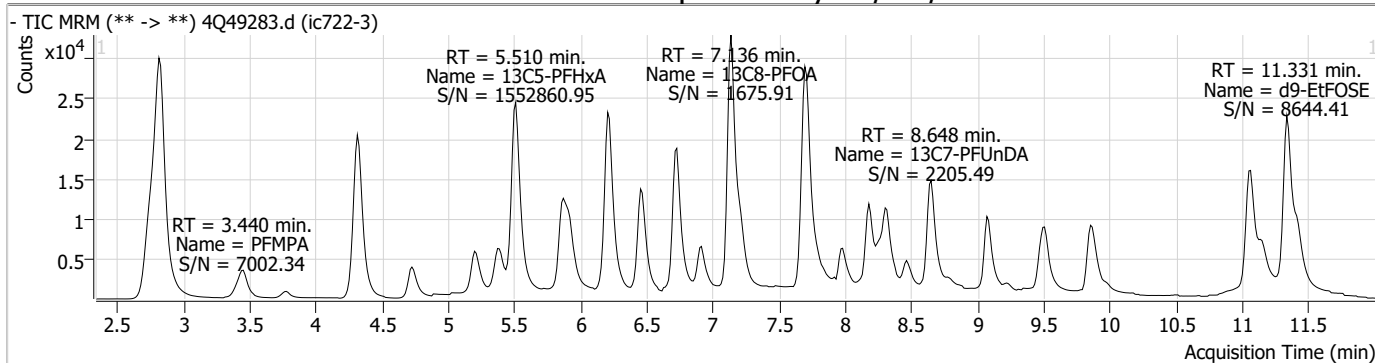
### Perfluorinated Compounds by LC/MS/MS

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

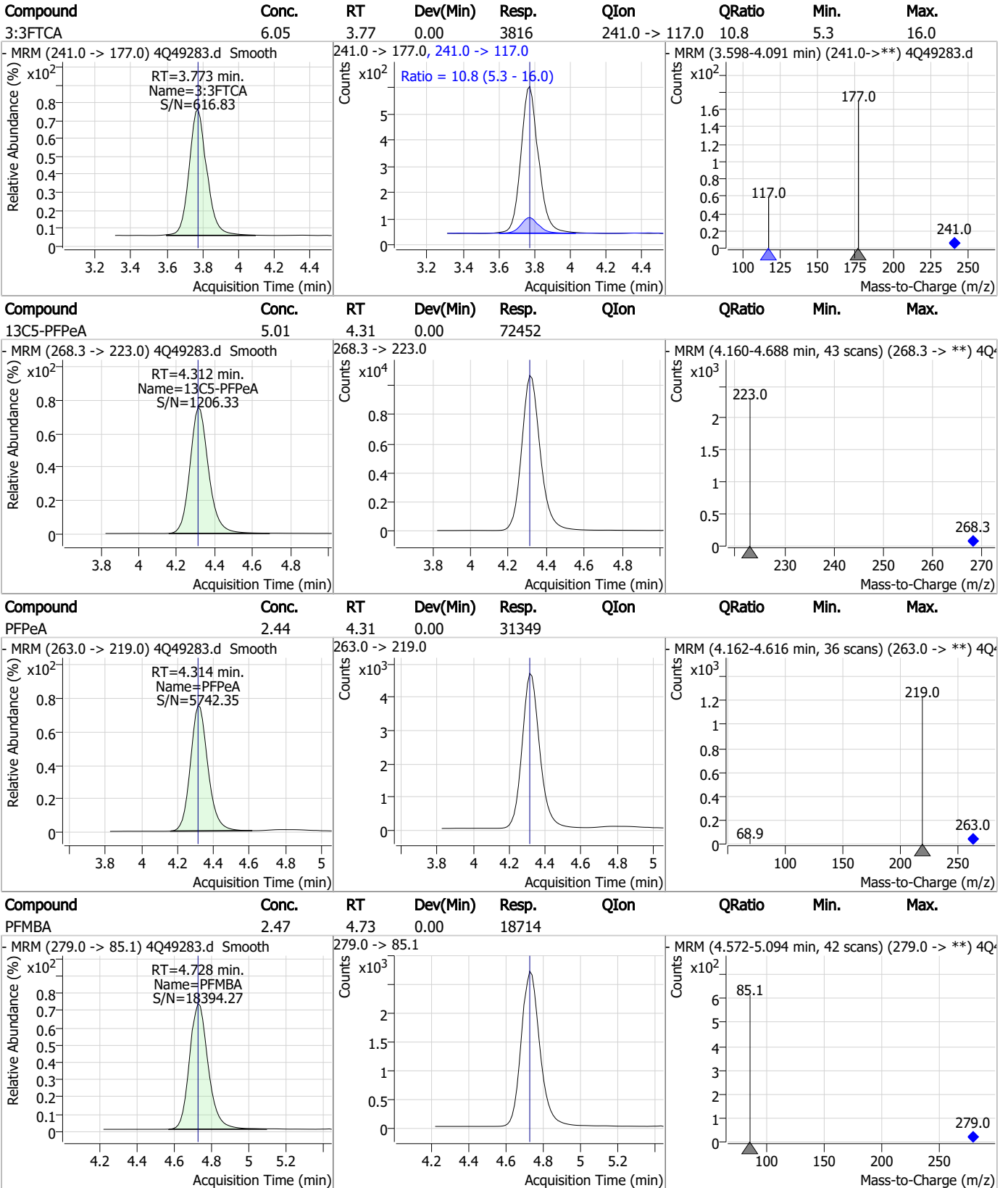
7

### Perfluorinated Compounds by LC/MS/MS





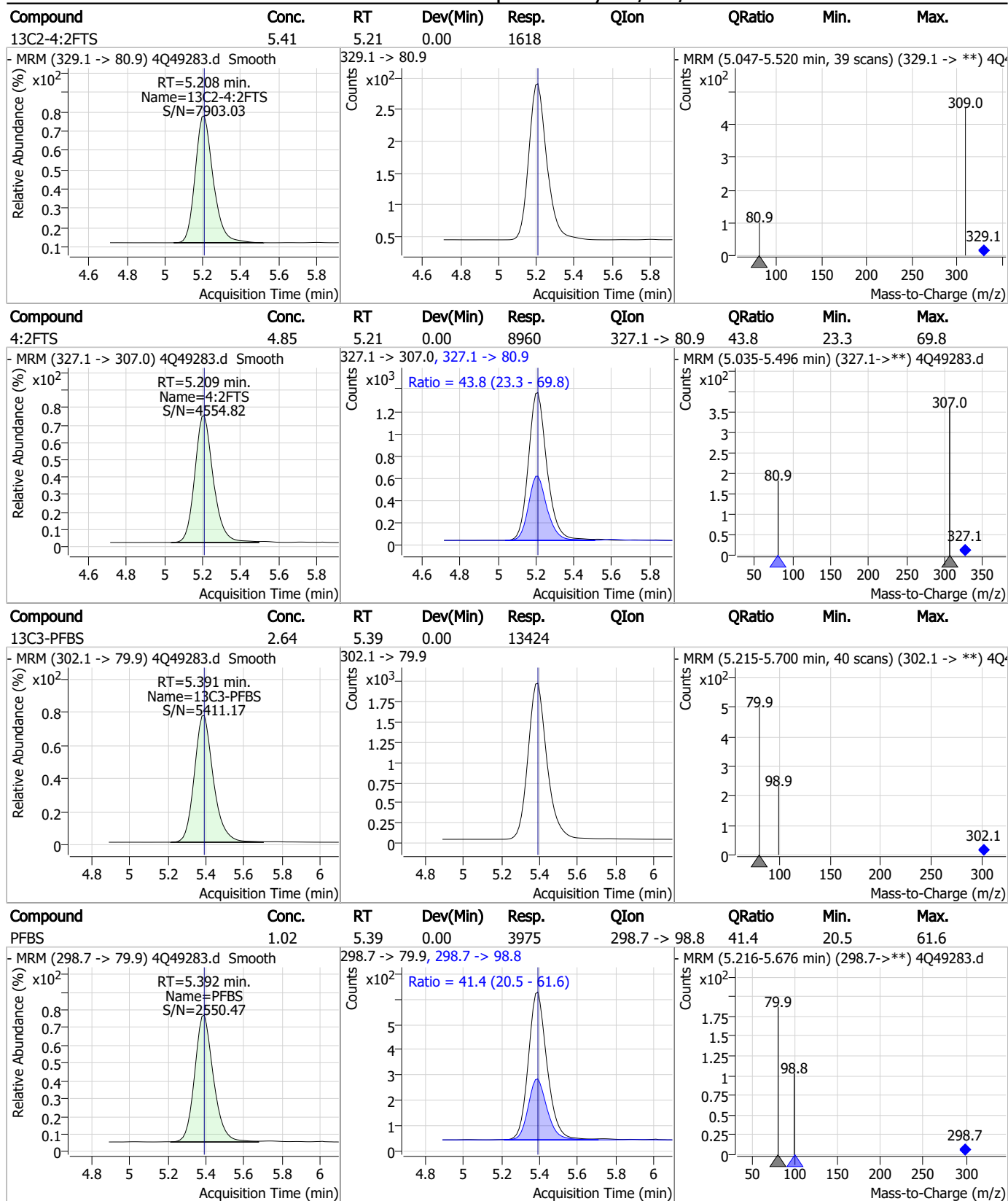
### Perfluorinated Compounds by LC/MS/MS



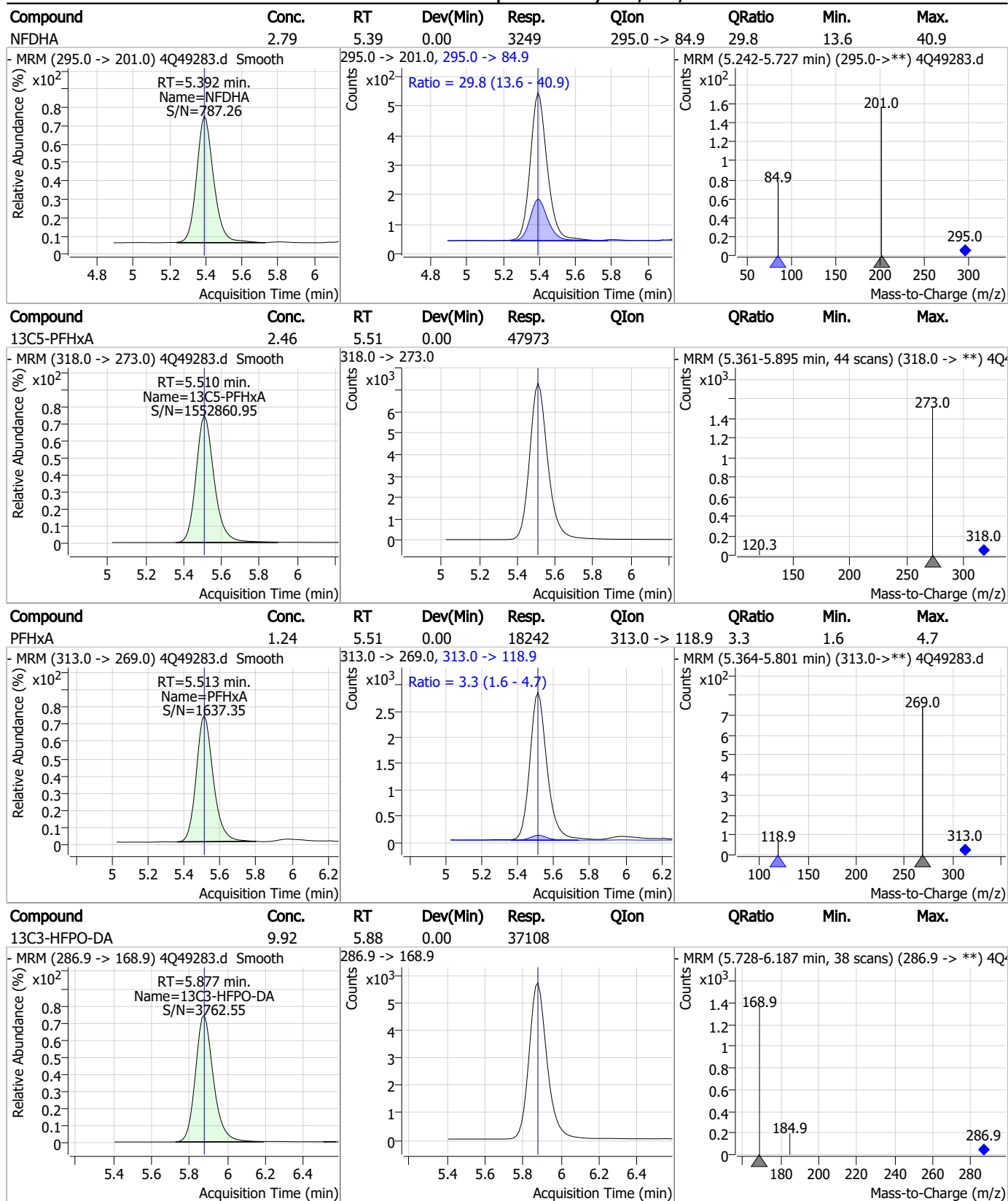
7.7.4

7

### Perfluorinated Compounds by LC/MS/MS

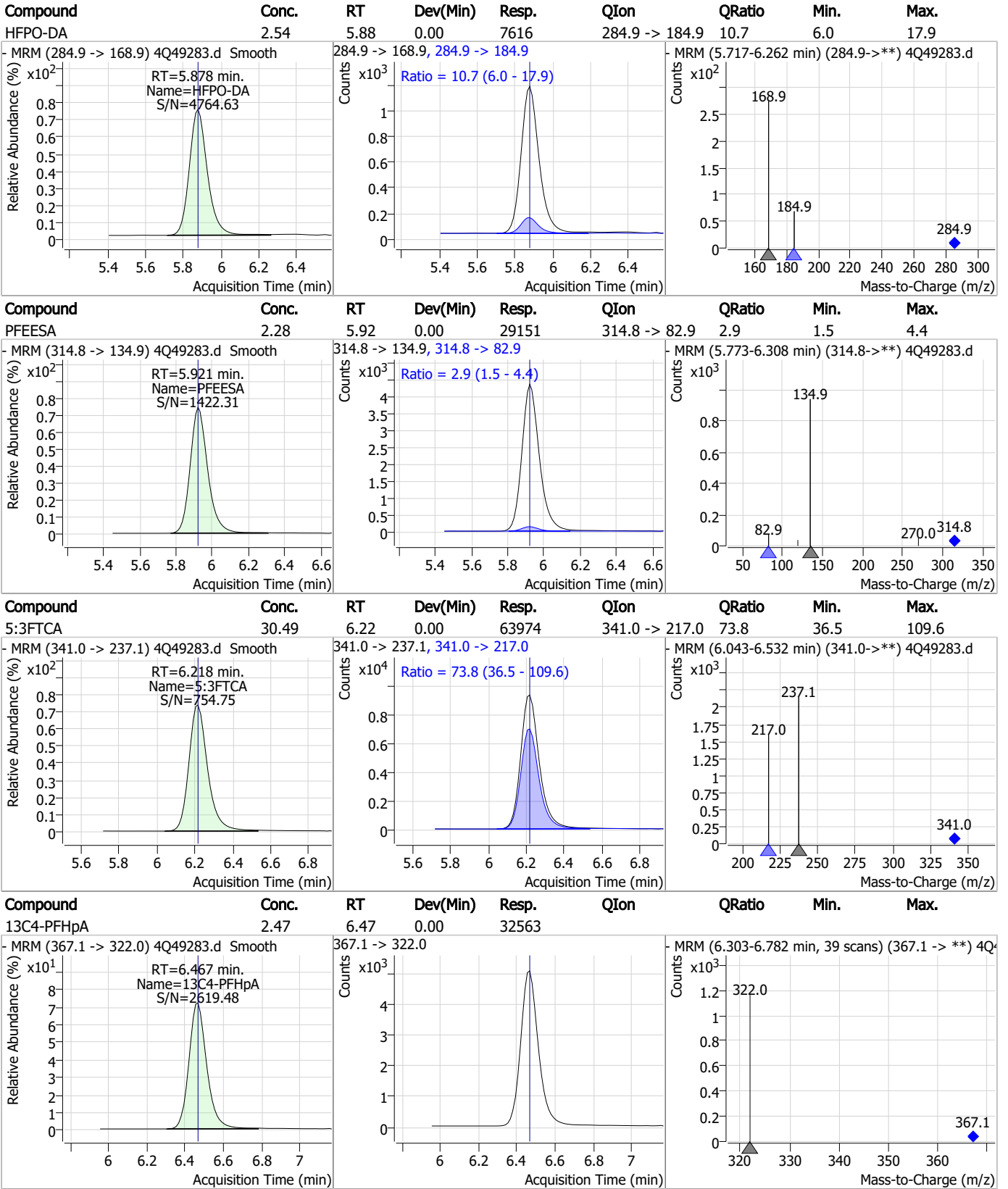


### Perfluorinated Compounds by LC/MS/MS



7.7.4  
7

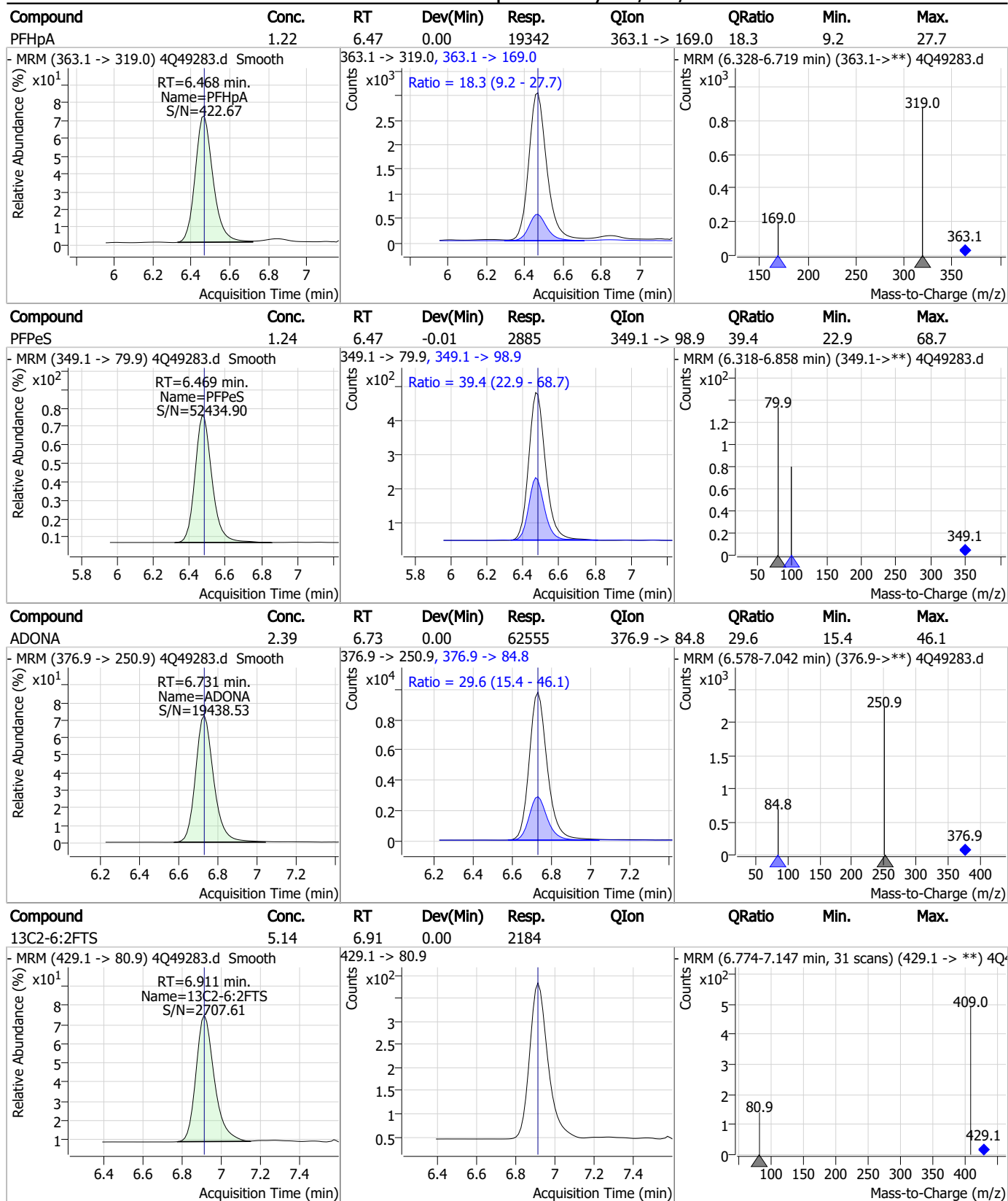
### Perfluorinated Compounds by LC/MS/MS



7.7.4

7

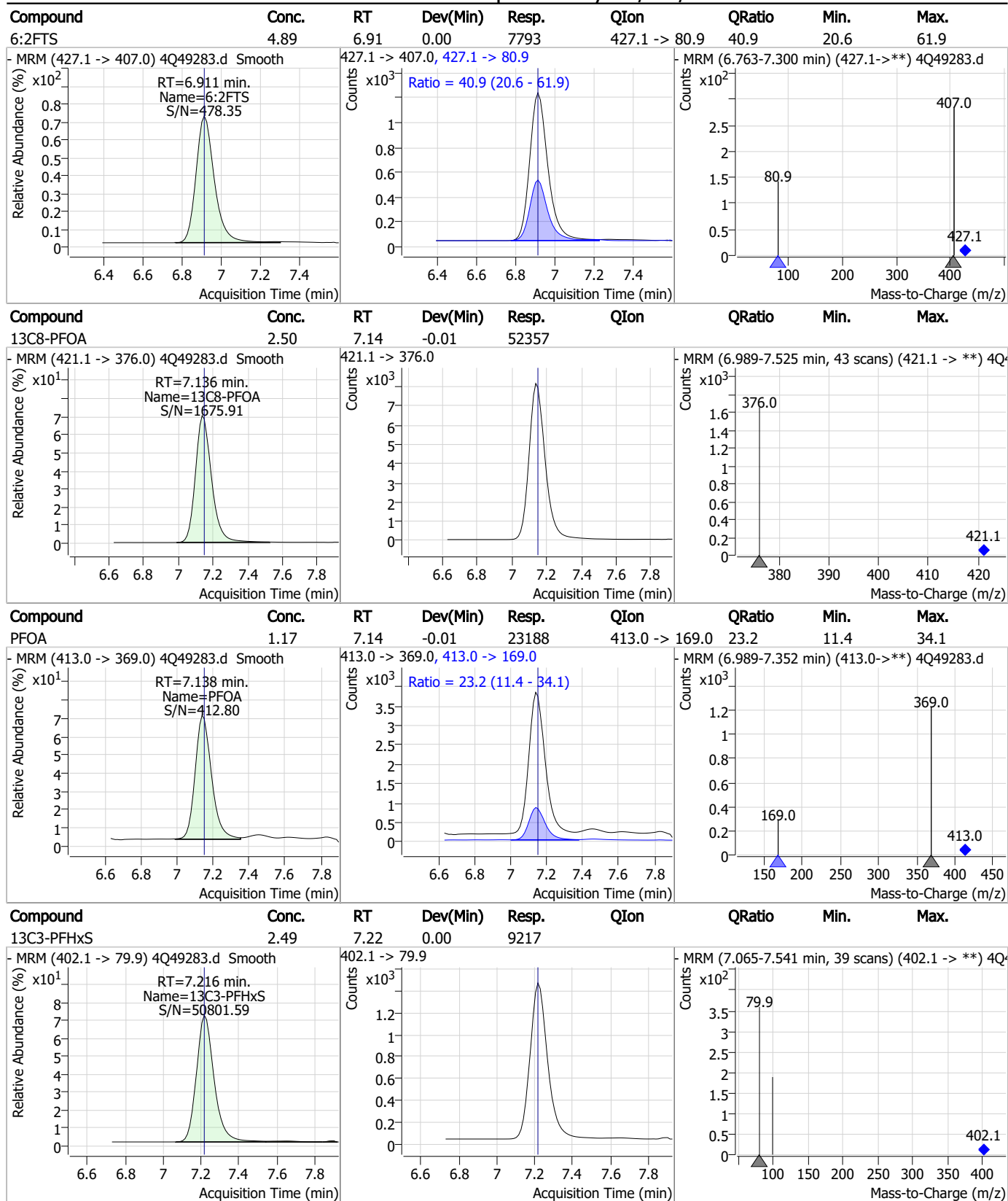
### Perfluorinated Compounds by LC/MS/MS



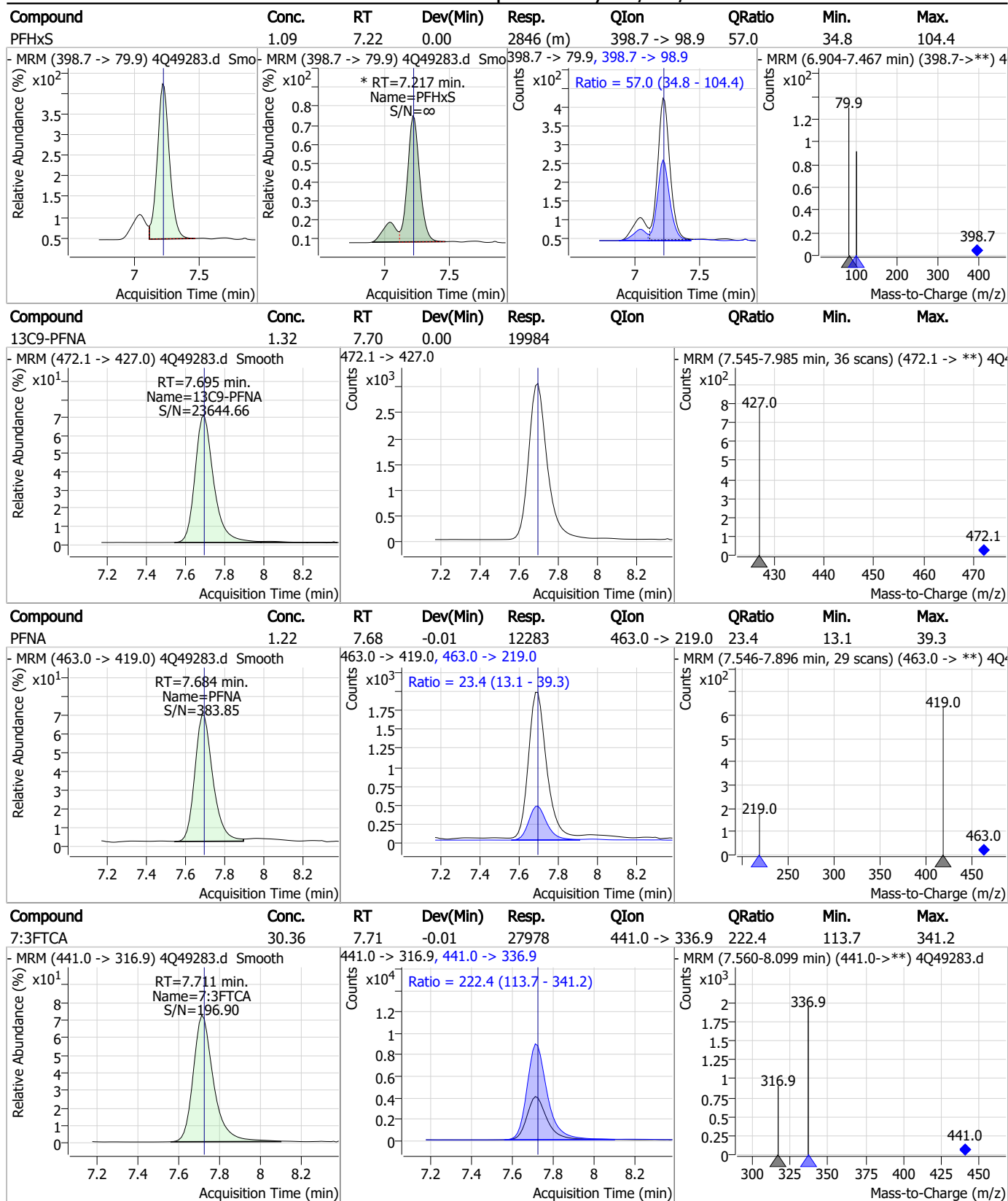
7.7.4

7

### Perfluorinated Compounds by LC/MS/MS

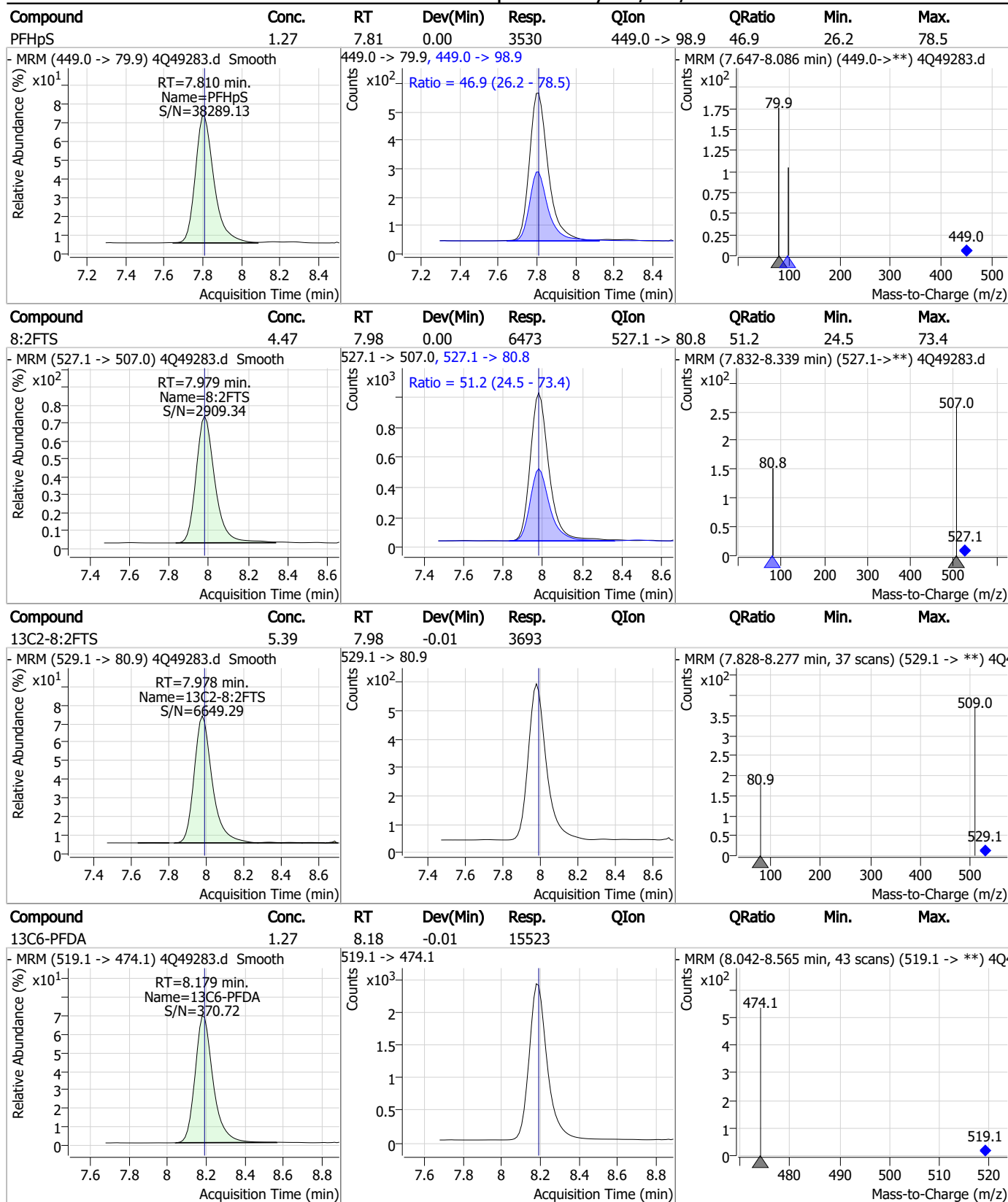


### Perfluorinated Compounds by LC/MS/MS



7.7.4  
7

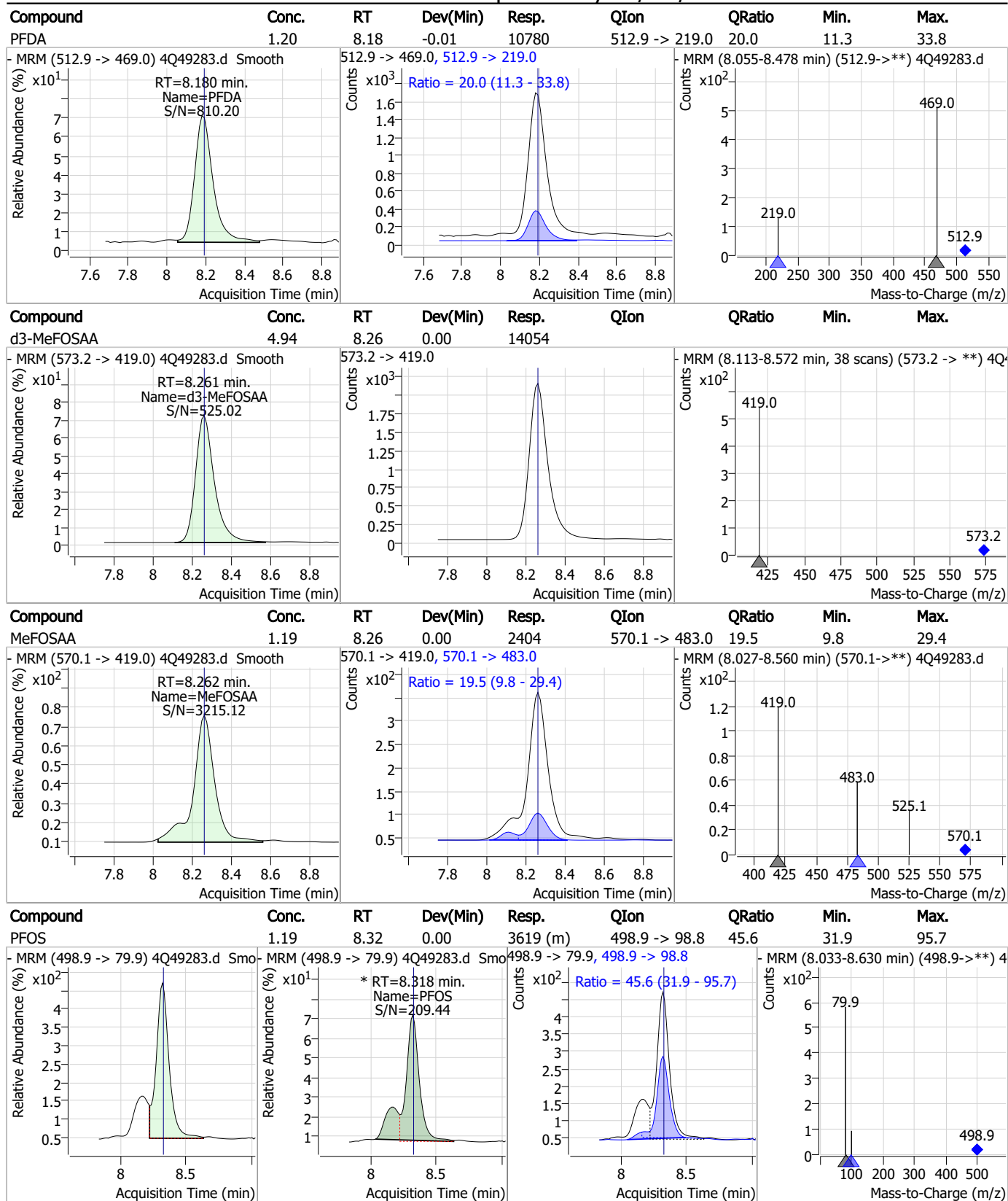
### Perfluorinated Compounds by LC/MS/MS



7.7.4  
7

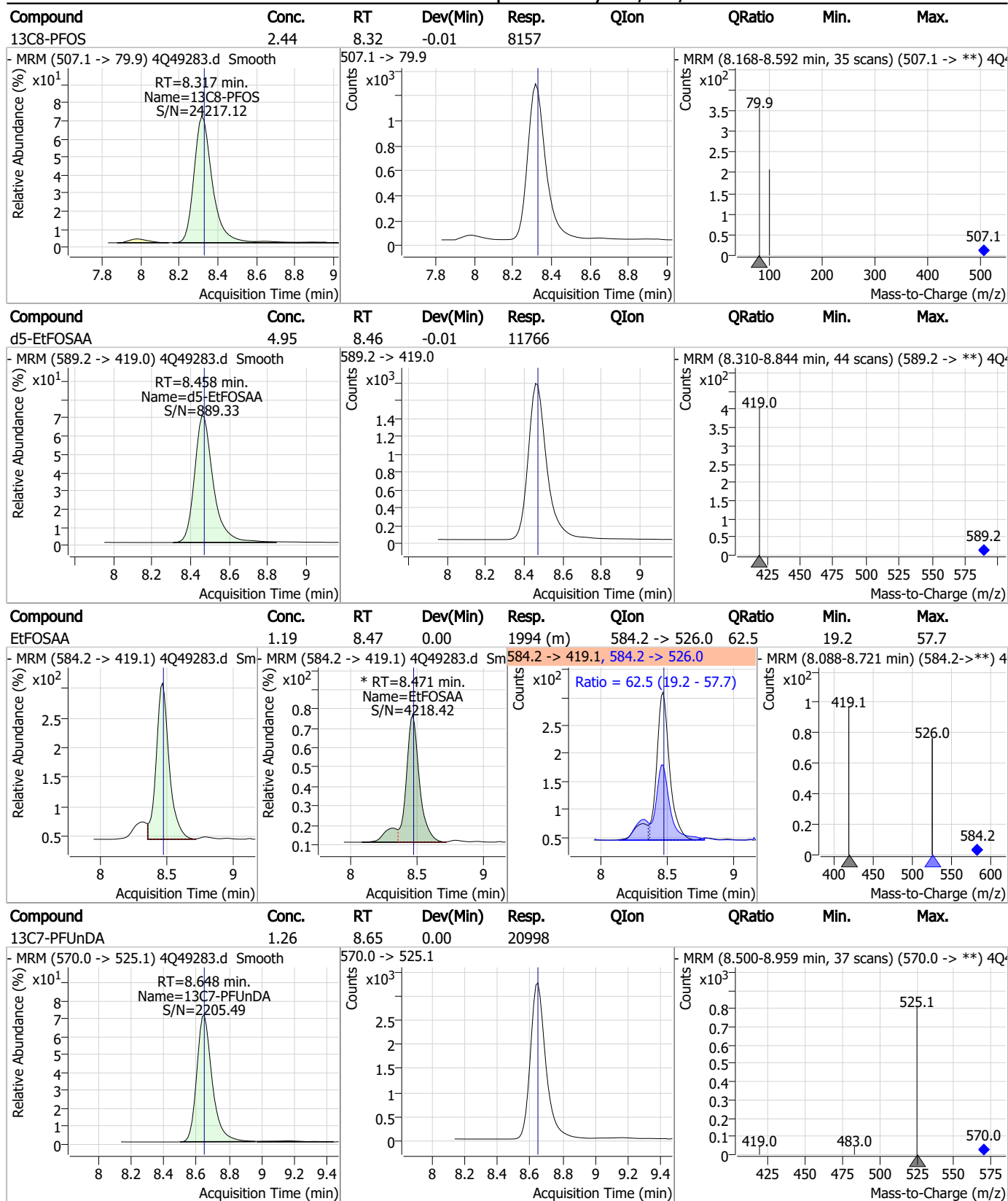


### Perfluorinated Compounds by LC/MS/MS



7.7.4  
7

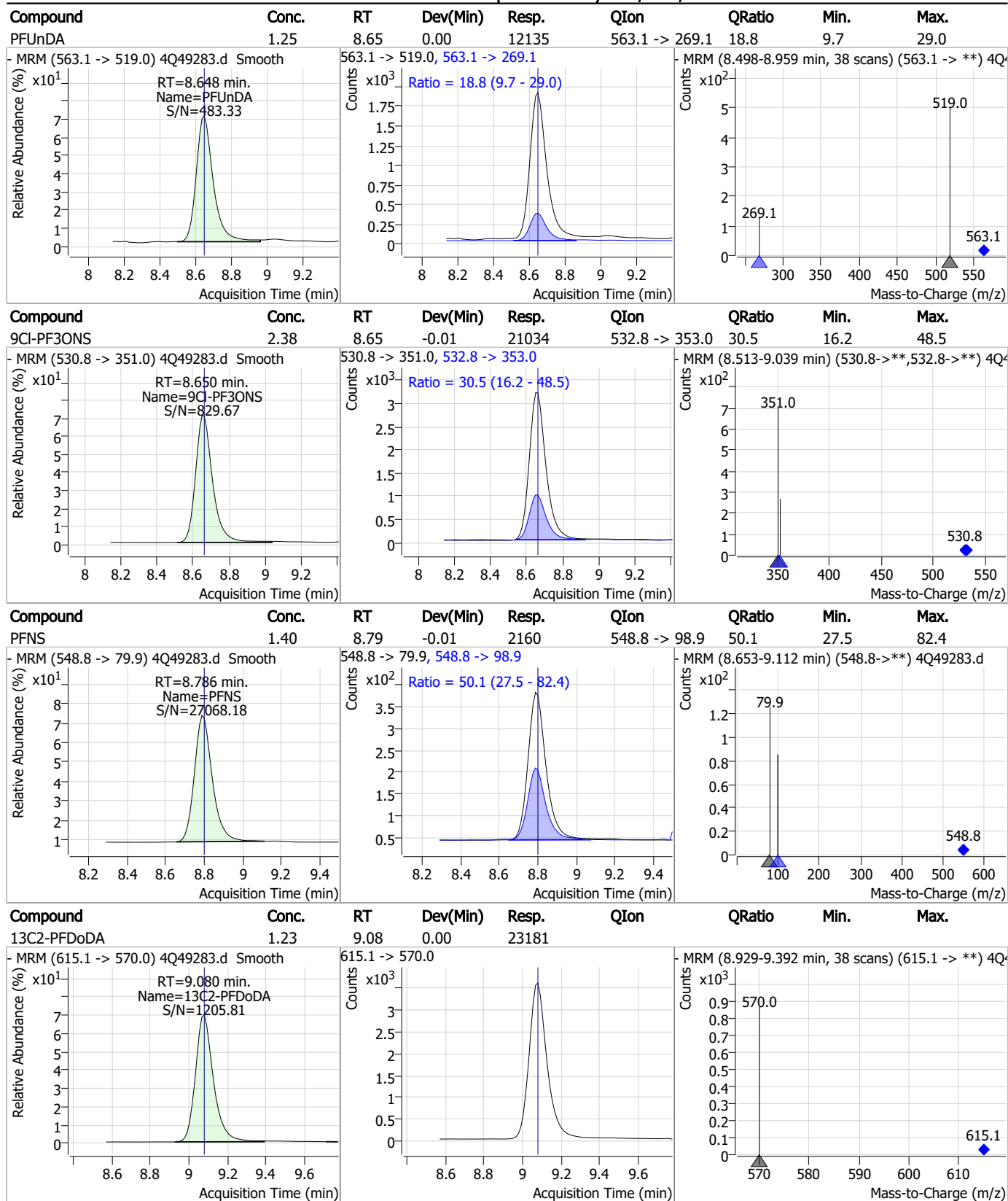
### Perfluorinated Compounds by LC/MS/MS



7.7.4  
7



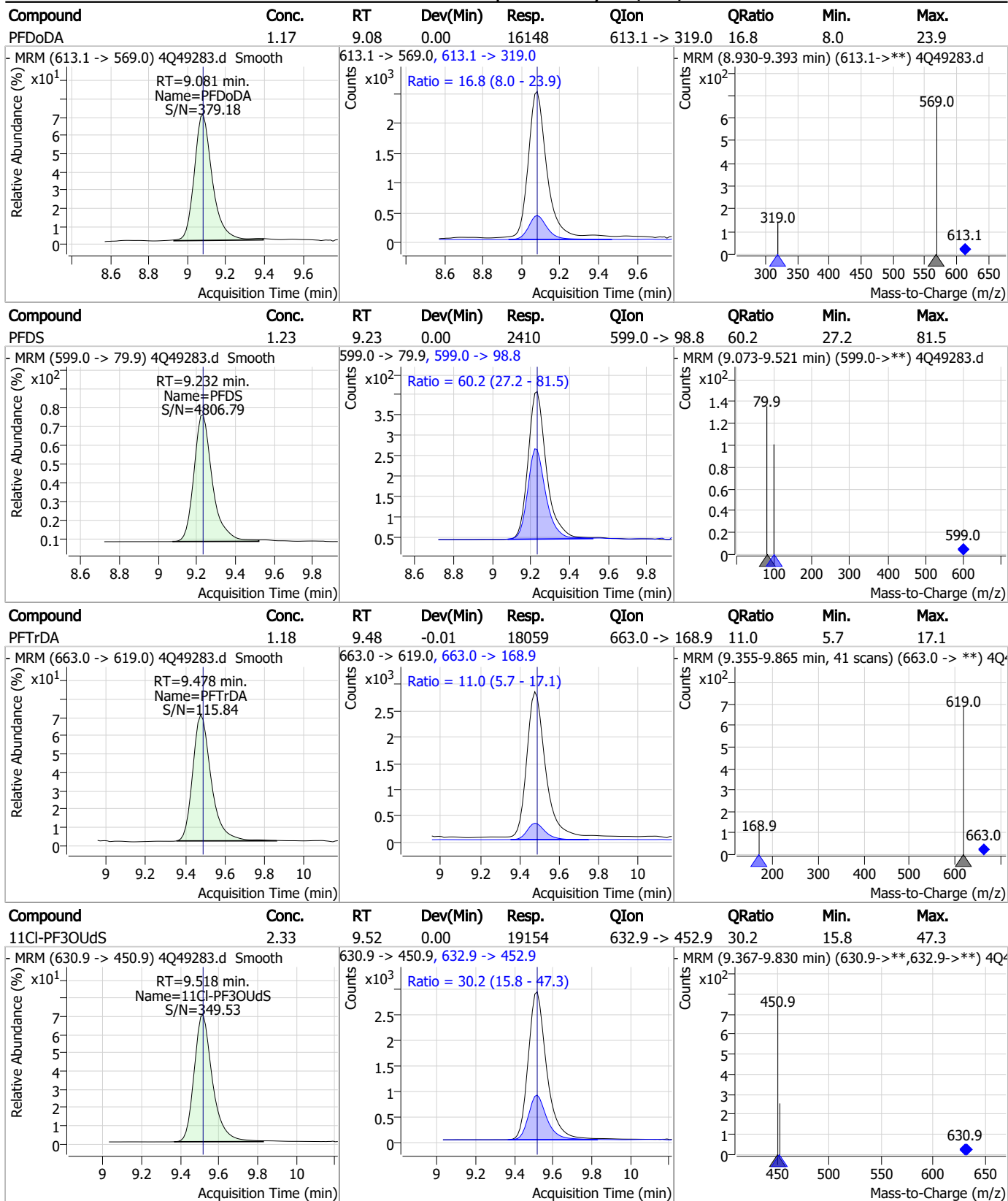
### Perfluorinated Compounds by LC/MS/MS



7.7.4

7

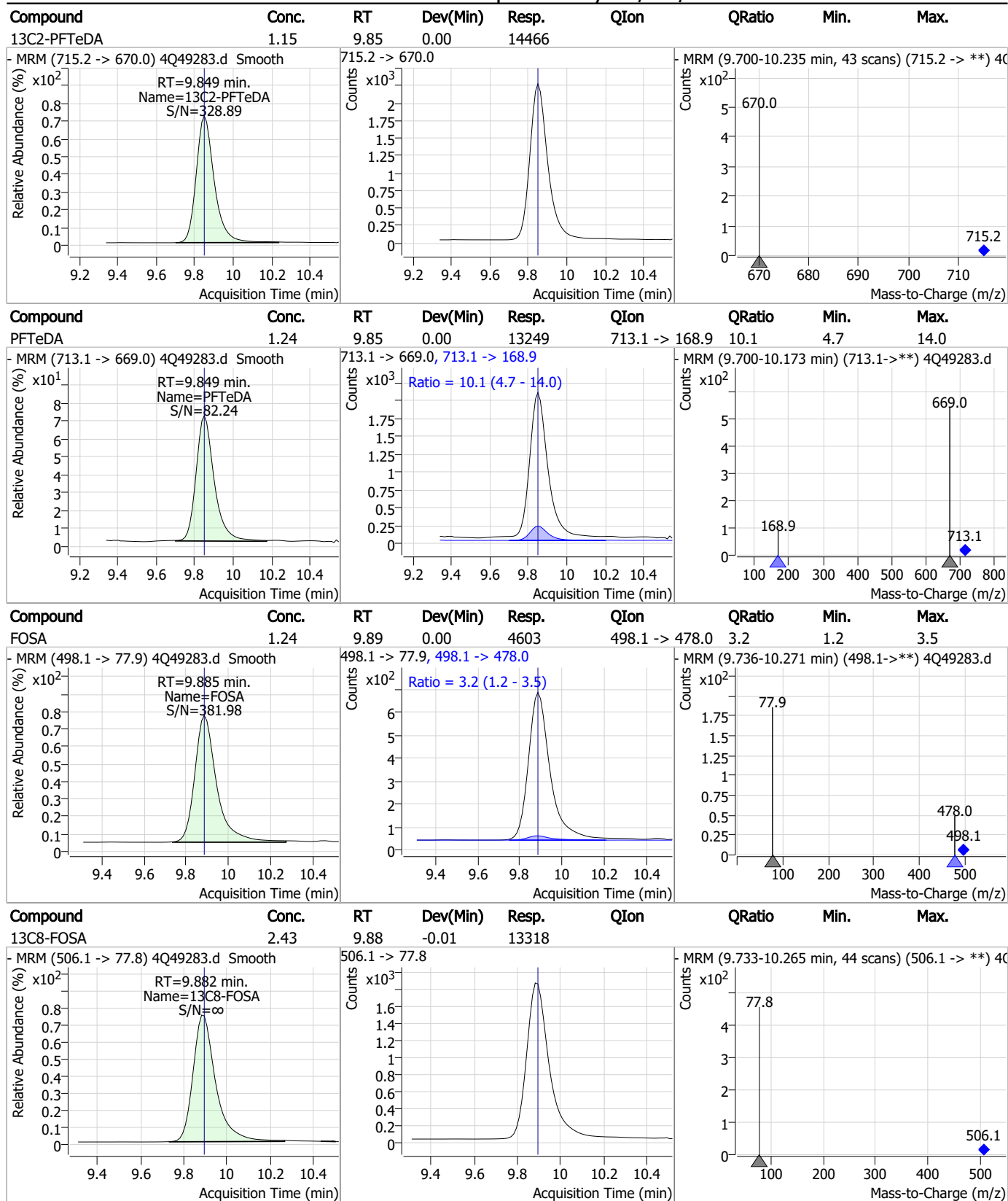
### Perfluorinated Compounds by LC/MS/MS



7.7.4

7

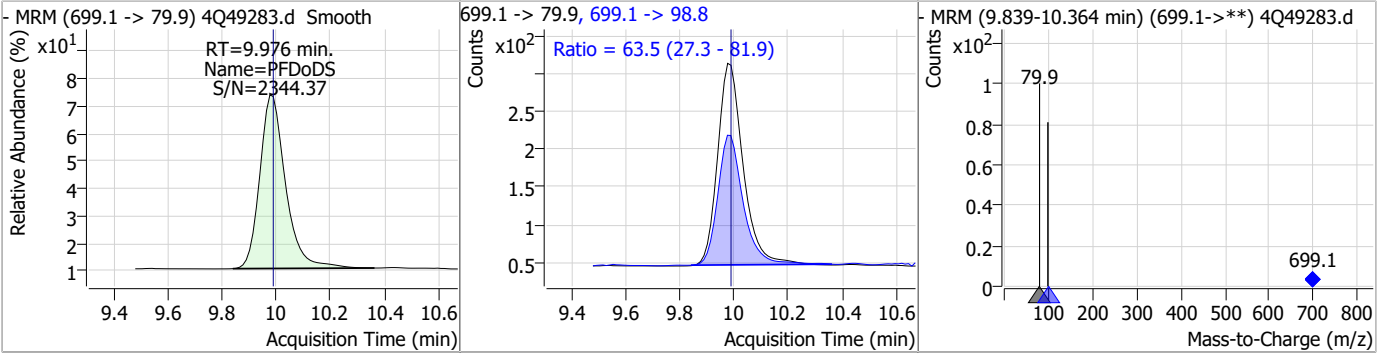
### Perfluorinated Compounds by LC/MS/MS



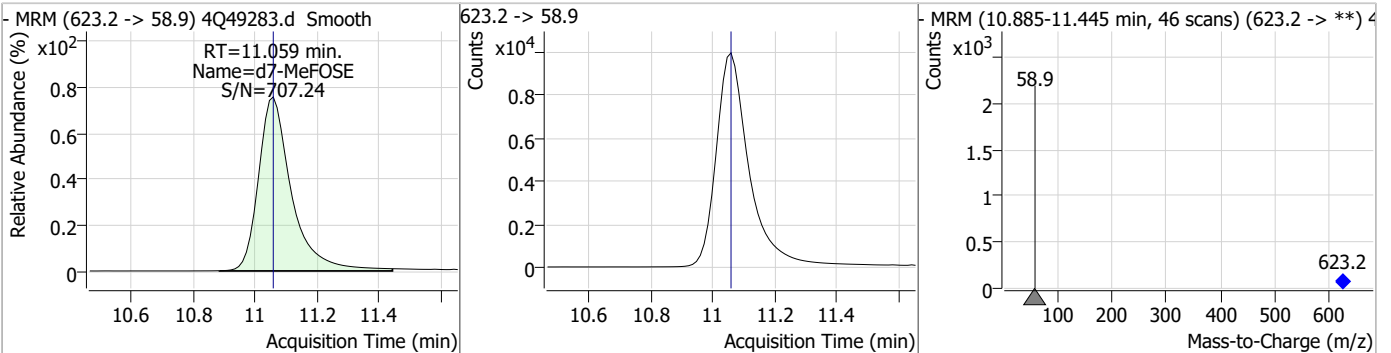
7.7.4  
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### Perfluorinated Compounds by LC/MS/MS

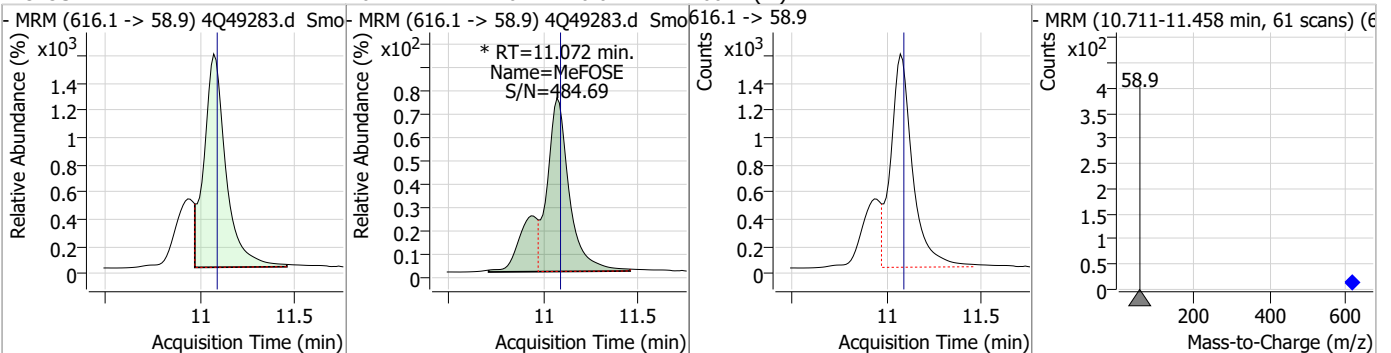
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PfDoDS	1.19	9.98	-0.01	1772	699.1 -> 98.8	63.5	27.3	81.9



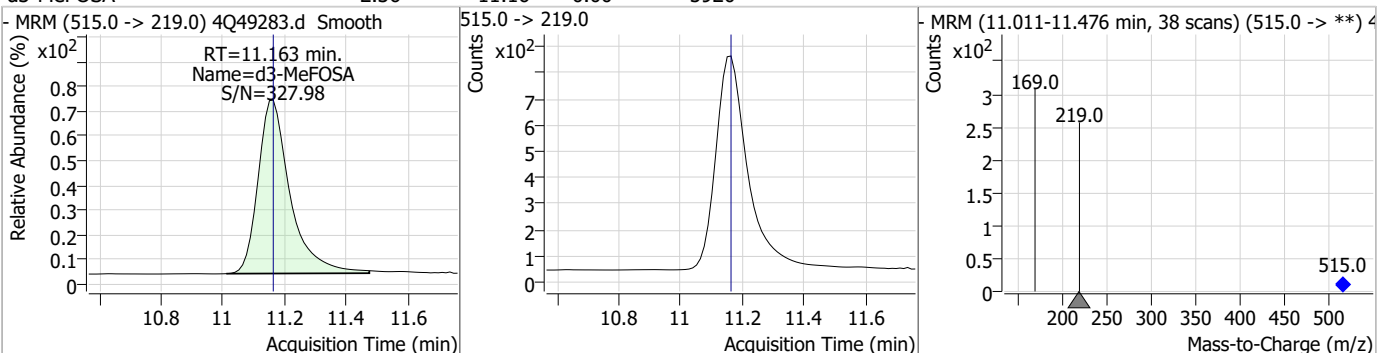
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.54	11.06	0.00	73601				



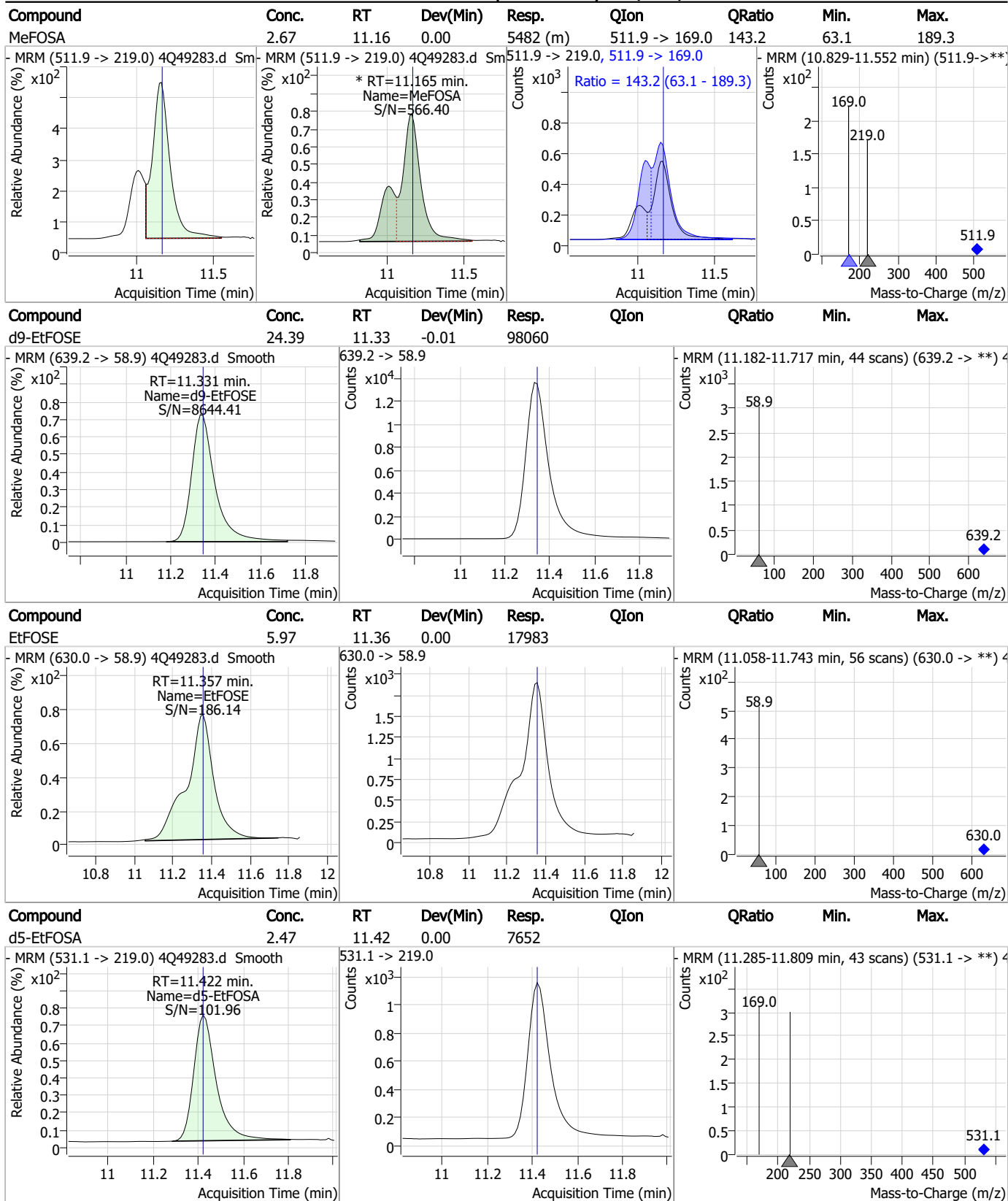
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	6.14	11.07	-0.01	16047 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.36	11.16	0.00	5920				

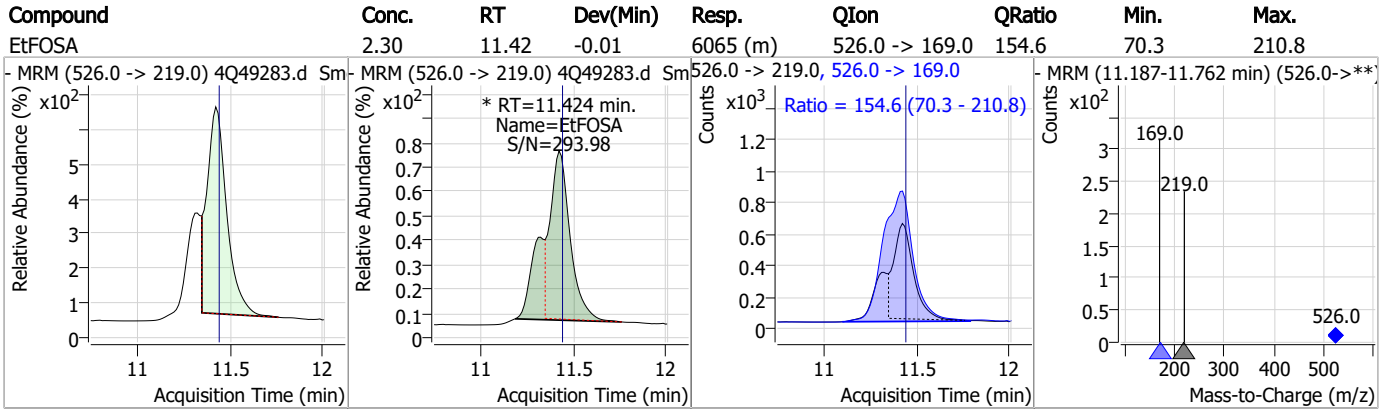


### Perfluorinated Compounds by LC/MS/MS



7.7.4  
7

### Perfluorinated Compounds by LC/MS/MS



7.7.4

7



# Manual Integration Approval Summary

Sample Number: S4Q722-IC722      Method: EPA DRAFT 1633  
Lab FileID: 4Q49283.D      Analyst approved: 08/23/23 10:44 Martha Valls  
Injection Time: 08/22/23 11:19      Supervisor approved: 08/23/23 15:25 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.32	Split peak
EtFOSAA	2991-50-6		8.47	Split peak
MeFOSE	24448-09-7		11.07	Split peak
MeFOSA	31506-32-8		11.16	Split peak
EtFOSA	4151-50-2		11.42	Split peak

7.7.4.1  
7

## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q49284.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 8/22/2023 11:34:24 AM  
 Sample Name : icc722-4  
 Vial : P1-A5  
 DA Method File : 1633\_082223\_S4Q722.quantmethod.xml  
 Batch Name : s4q722.batch.bin  
 Sample Information : OP98180,S4Q722,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.811	216.8 -> 171.9	141537	10.00 µg/L	0.000
M5-PFPeA	4.312	268.3 -> 223.0	75428	5.00 µg/L	0.000
M5-PFHxA	5.510	318.0 -> 273.0	50815	2.50 µg/L	0.000
M4-PFHpA	6.467	367.1 -> 322.0	34740	2.50 µg/L	0.000
M8-PFOA	7.148	421.1 -> 376.0	54732	2.50 µg/L	0.000
M9-PFNA	7.695	472.1 -> 427.0	20688	1.25 µg/L	0.000
M6-PFDA	8.191	519.1 -> 474.1	11485	1.25 µg/L	0.000
M7-PFUnDA	8.648	570.0 -> 525.1	22020	1.25 µg/L	0.000
M2-PFDoDA	9.080	615.1 -> 570.0	23446	1.25 µg/L	0.000
M2-PFTeDA	9.849	715.2 -> 670.0	15033	1.25 µg/L	0.000
M8-FOSA	9.894	506.1 -> 77.8	14261	2.50 µg/L	0.000
M3-PFBS	5.391	302.1 -> 79.9	14062	2.50 µg/L	0.000
M3-PFHxS	7.216	402.1 -> 79.9	9842	2.50 µg/L	0.000
M8-PFOS	8.329	507.1 -> 79.9	9029	2.50 µg/L	0.000
M2-4:2FTS	5.208	329.1 -> 80.9	1596	5.00 µg/L	0.000
M2-6:2FTS	6.911	429.1 -> 80.9	2481	5.00 µg/L	0.000
M2-8:2FTS	7.991	529.1 -> 80.9	3803	5.00 µg/L	0.000
M3-MeFOSAA	8.261	573.2 -> 419.0	14308	5.00 µg/L	0.000
M3-HFPO-DA	5.877	286.9 -> 168.9	38910	10.00 µg/L	0.000
M5-EtFOSAA	8.471	589.2 -> 419.0	12995	5.00 µg/L	0.000
M7-MeFOSE	11.059	623.2 -> 58.9	73705	25.00 µg/L	0.000
M9-EtFOSE	11.343	639.2 -> 58.9	104254	25.00 µg/L	0.000
M5-EtFOSA	11.422	531.1 -> 219.0	7614	2.50 µg/L	0.000
M3-MeFOSA	11.163	515.0 -> 219.0	6055	2.50 µg/L	0.000
13C4-PFOS	8.330	502.8 -> 79.9	9074	2.50 µg/L	0.000
13C3-PFBA	2.803	216.0 -> 172.0	80113	5.00 µg/L	0.000
18O2-PFHxS	7.228	403.0 -> 83.9	7145	2.50 µg/L	0.000
13C4-PFOA	7.149	417.1 -> 372.0	63793	2.50 µg/L	0.000
13C2-PFDA	8.192	515.1 -> 470.1	14572	1.25 µg/L	0.000
13C5-PFNA	7.696	468.0 -> 423.0	22242	1.25 µg/L	0.000
13C2-PFHxA	5.511	315.1 -> 270.0	48720	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.208	329.1 -> 80.9	1596	4.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.4%		
13C2-6:2FTS	6.911	429.1 -> 80.9	2481	5.38 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.7%		
13C2-8:2FTS	7.991	529.1 -> 80.9	3803	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.4%		
13C2-PFDoDA	9.080	615.1 -> 570.0	23446	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C2-PFTeDA	9.849	715.2 -> 670.0	15033	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.5%		
13C3-PFBS	5.391	302.1 -> 79.9	14062	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C3-PFHxS	7.216	402.1 -> 79.9	9842	2.45 µg/L	0.000

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C4-PFBA	2.811	216.8 -> 171.9	141537	9.94 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C4-PFHpA	6.467	367.1 -> 322.0	34740	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C5-PFHxA	5.510	318.0 -> 273.0	50815	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C5-PFPeA	4.312	268.3 -> 223.0	75428	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C6-PFDA	8.191	519.1 -> 474.1	11485	0.92 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 73.8%	
13C7-PFUnDA	8.648	570.0 -> 525.1	22020	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C8-FOSA	9.894	506.1 -> 77.8	14261	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.3%	
13C8-PFOA	7.148	421.1 -> 376.0	54732	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C8-PFOS	8.329	507.1 -> 79.9	9029	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%	
13C9-PFNA	7.695	472.1 -> 427.0	20688	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.9%	
d3-MeFOSAA	8.261	573.2 -> 419.0	14308	4.51 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 90.2%	
13C3-HFPO-DA	5.877	286.9 -> 168.9	38910	9.89 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
d3-MeFOSA	11.163	515.0 -> 219.0	6055	2.17 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.6%	
d5-EtFOSAA	8.471	589.2 -> 419.0	12995	4.90 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.9%	
d7-MeFOSE	11.059	623.2 -> 58.9	73705	22.03 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 88.1%	
d9-EtFOSE	11.343	639.2 -> 58.9	104254	23.25 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.0%	
d5-EtFOSA	11.422	531.1 -> 219.0	7614	2.20 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.2%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.209	327.1 -> 307.0	16207	8.89 µg/L	100
		327.1 -> 80.9	7538		
6:2FTS	6.911	427.1 -> 407.0	15137	8.36 µg/L	100
		427.1 -> 80.9	6250		
8:2FTS	7.979	527.1 -> 507.0	12985	8.72 µg/L	100
		527.1 -> 80.8	6358		
EtFOSAA	8.471	584.2 -> 419.1	3990	2.16 µg/L	m 94
		584.2 -> 526.0	1673		
FOSA	9.885	498.1 -> 77.9	8654	2.17 µg/L	100
		498.1 -> 478.0	201		
MeFOSAA	8.262	570.1 -> 419.0	4467	2.18 µg/L	m 98
		570.1 -> 483.0	910		
PFBA	2.807	212.8 -> 168.9	26804	8.81 µg/L	100
PFBS	5.392	298.7 -> 79.9	7957	1.95 µg/L	100
		298.7 -> 98.8	3268		
PFDA	8.192	512.9 -> 469.0	19827	2.99 µg/L	100
		512.9 -> 219.0	4463		
PFDODA	9.081	613.1 -> 569.0	31797	2.27 µg/L	100
		613.1 -> 319.0	5068		
PFDS	9.232	599.0 -> 79.9	4500	2.07 µg/L	100

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2445			
PFHpA	6.468	363.1 -> 319.0	37750	2.24	µg/L	100
		363.1 -> 169.0	6984			
PFHpS	7.810	449.0 -> 79.9	6731	2.18	µg/L	100
		449.0 -> 98.9	3521			
PFHxA	5.513	313.0 -> 269.0	34021	2.18	µg/L	100
		313.0 -> 118.9	1075			
PFHxS	7.217	398.7 -> 79.9	5612	2.02	µg/L	m 85
		398.7 -> 98.9	3208			
PFNA	7.696	463.0 -> 419.0	22803	2.18	µg/L	100
		463.0 -> 219.0	5970			
PFNS	8.799	548.8 -> 79.9	3705	2.17	µg/L	100
		548.8 -> 98.9	2034			
PFOA	7.150	413.0 -> 369.0	44206	2.14	µg/L	100
		413.0 -> 169.0	10044			
PFOS	8.318	498.9 -> 79.9	6851	2.04	µg/L	m 84
		498.9 -> 98.8	3493			
PFPeA	4.314	263.0 -> 219.0	59748	4.46	µg/L	100
PFPeS	6.482	349.1 -> 79.9	5297	2.13	µg/L	100
		349.1 -> 98.9	2425			
PFTeDA	9.849	713.1 -> 669.0	25427	2.29	µg/L	100
		713.1 -> 168.9	2375			
PFTrDA	9.491	663.0 -> 619.0	34093	2.20	µg/L	100
		663.0 -> 168.9	3889			
PFUnDA	8.648	563.1 -> 519.0	23116	2.27	µg/L	100
		563.1 -> 269.1	4468			
11CI-PF3OUdS	9.518	630.9 -> 450.9	36642	4.25	µg/L	100
		632.9 -> 452.9	11551			
9CI-PF3ONS	8.662	530.8 -> 351.0	39729	4.30	µg/L	100
		532.8 -> 353.0	12853			
ADONA	6.731	376.9 -> 250.9	117872	4.29	µg/L	100
		376.9 -> 84.8	36201			
HFPO-DA	5.878	284.9 -> 168.9	13970	4.44	µg/L	100
		284.9 -> 184.9	1670			
3:3FTCA	3.773	241.0 -> 177.0	7099	10.68	µg/L	100
		241.0 -> 117.0	757			
5:3FTCA	6.218	341.0 -> 237.1	123753	55.68	µg/L	100
		341.0 -> 217.0	90421			
7:3FTCA	7.723	441.0 -> 316.9	52807	54.09	µg/L	100
		441.0 -> 336.9	120125			
EtFOSA	11.436	526.0 -> 219.0	12794	4.88	µg/L	100
		526.0 -> 169.0	17981			
EtFOSE	11.357	630.0 -> 58.9	35888	11.21	µg/L	100
MeFOSA	11.165	511.9 -> 219.0	10104	4.81	µg/L	m 81
		511.9 -> 169.0	14988			
MeFOSE	11.084	616.1 -> 58.9	30521	11.67	µg/L	100
PFDoDS	9.989	699.1 -> 79.9	3530	2.15	µg/L	100
		699.1 -> 98.8	1927			
NFDHA	5.392	295.0 -> 201.0	5920	4.81	µg/L	100
		295.0 -> 84.9	1615			
PFMBA	4.728	279.0 -> 85.1	35169	4.47	µg/L	100
PFMPA	3.440	229.0 -> 84.9	37951	4.39	µg/L	100
PFEESA	5.921	314.8 -> 134.9	54606	4.03	µg/L	100
		314.8 -> 82.9	1619			

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

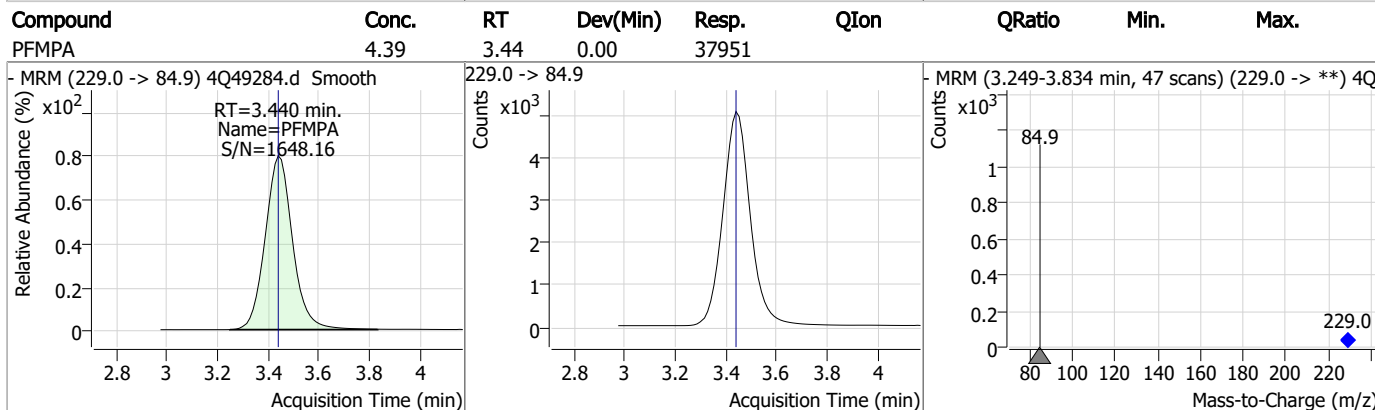
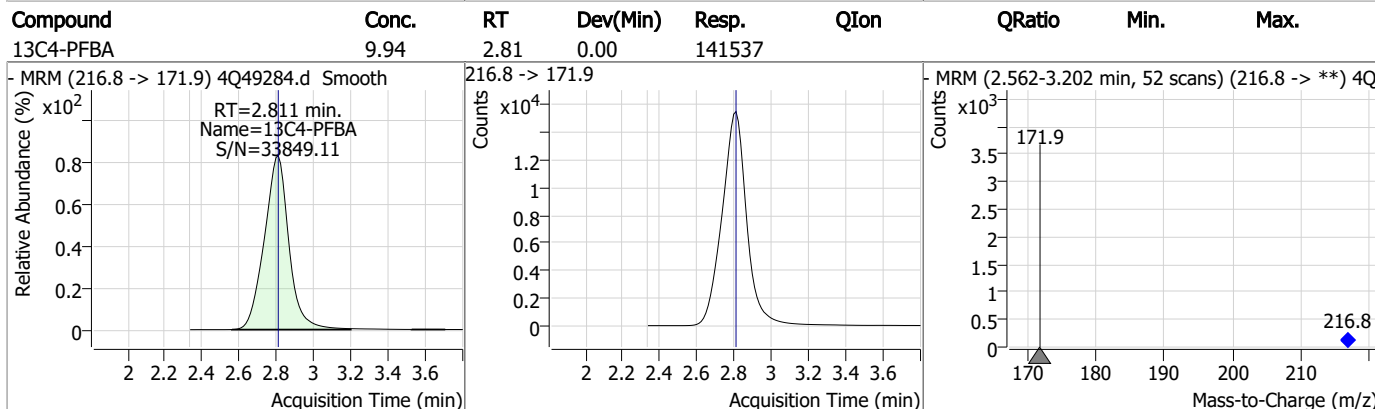
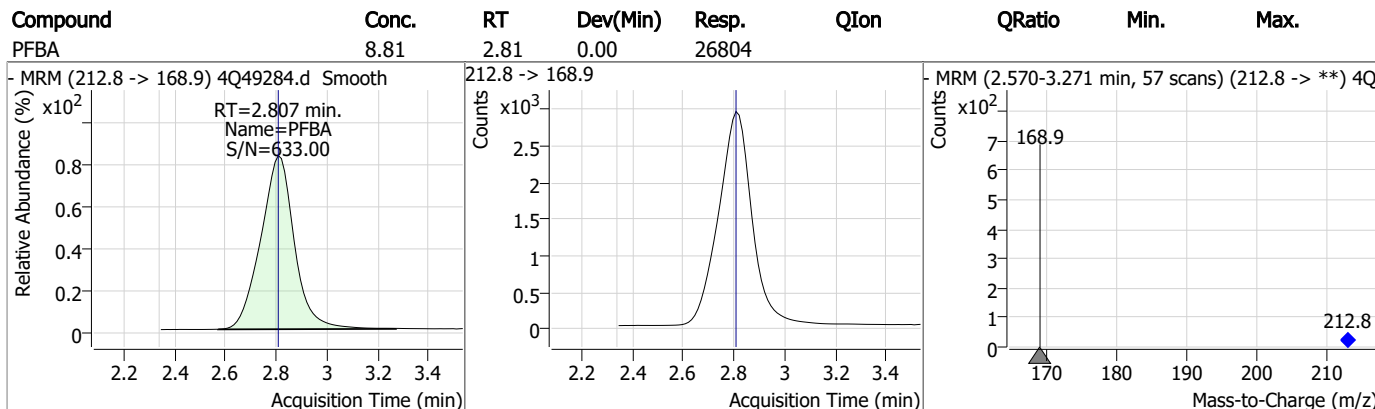
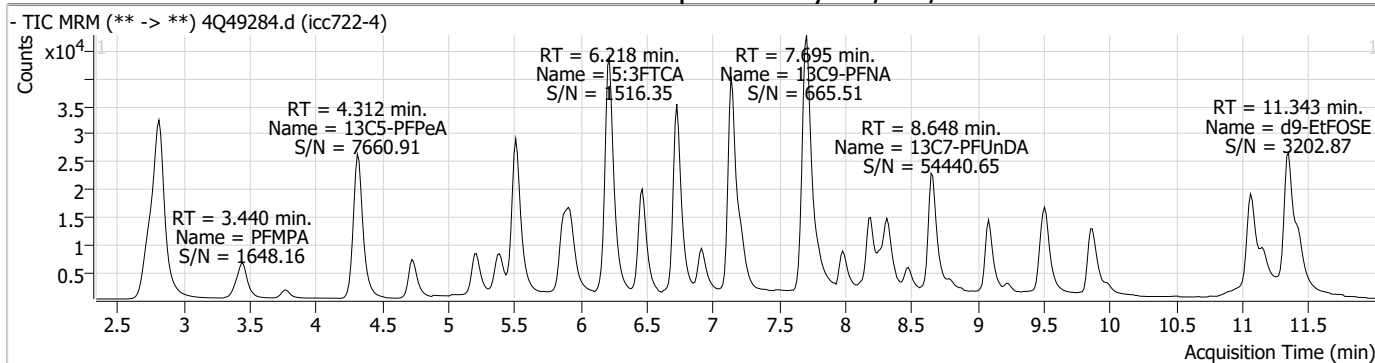
### Perfluorinated Compounds by LC/MS/MS

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

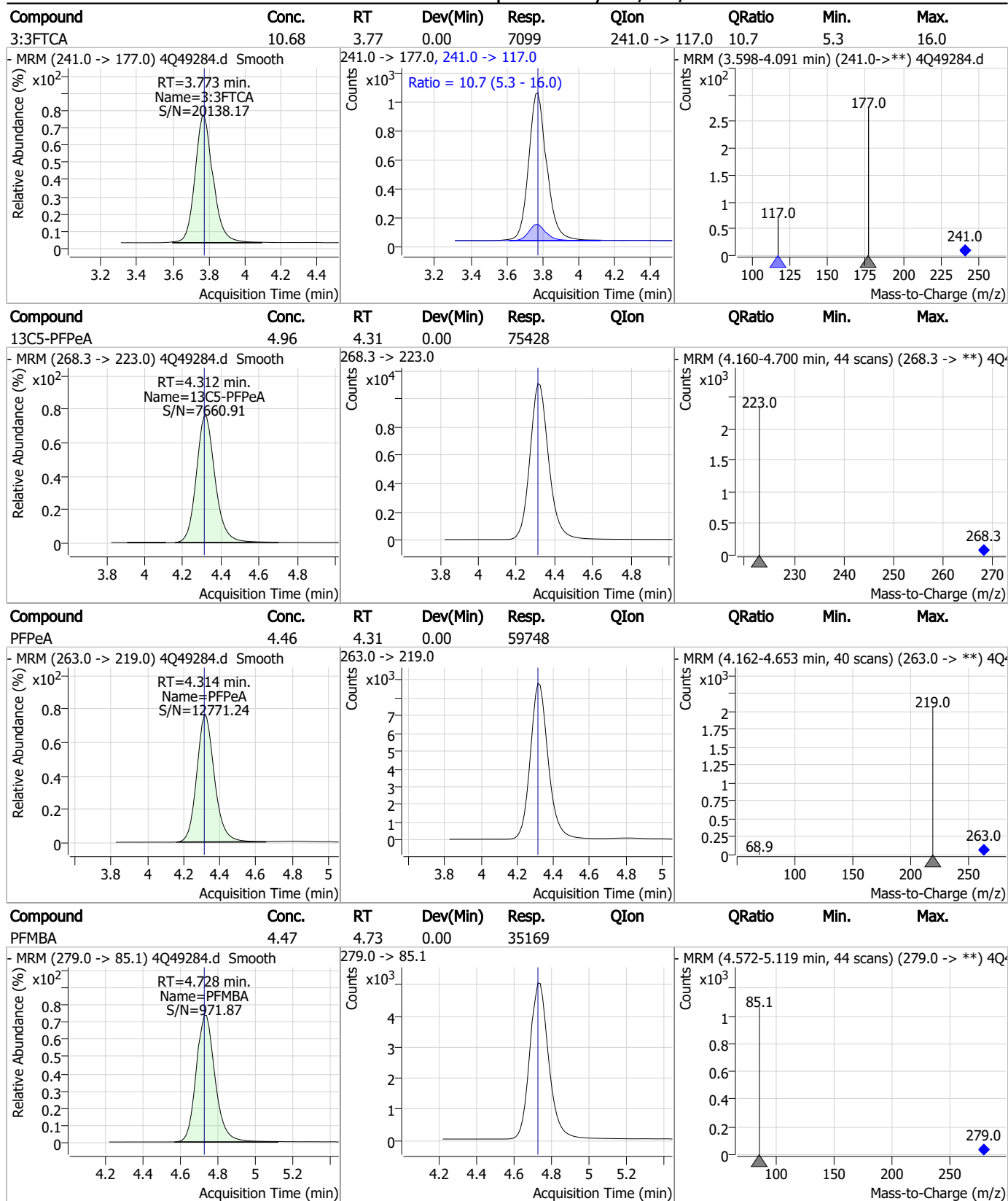
7

### Perfluorinated Compounds by LC/MS/MS



7.7.5  
7

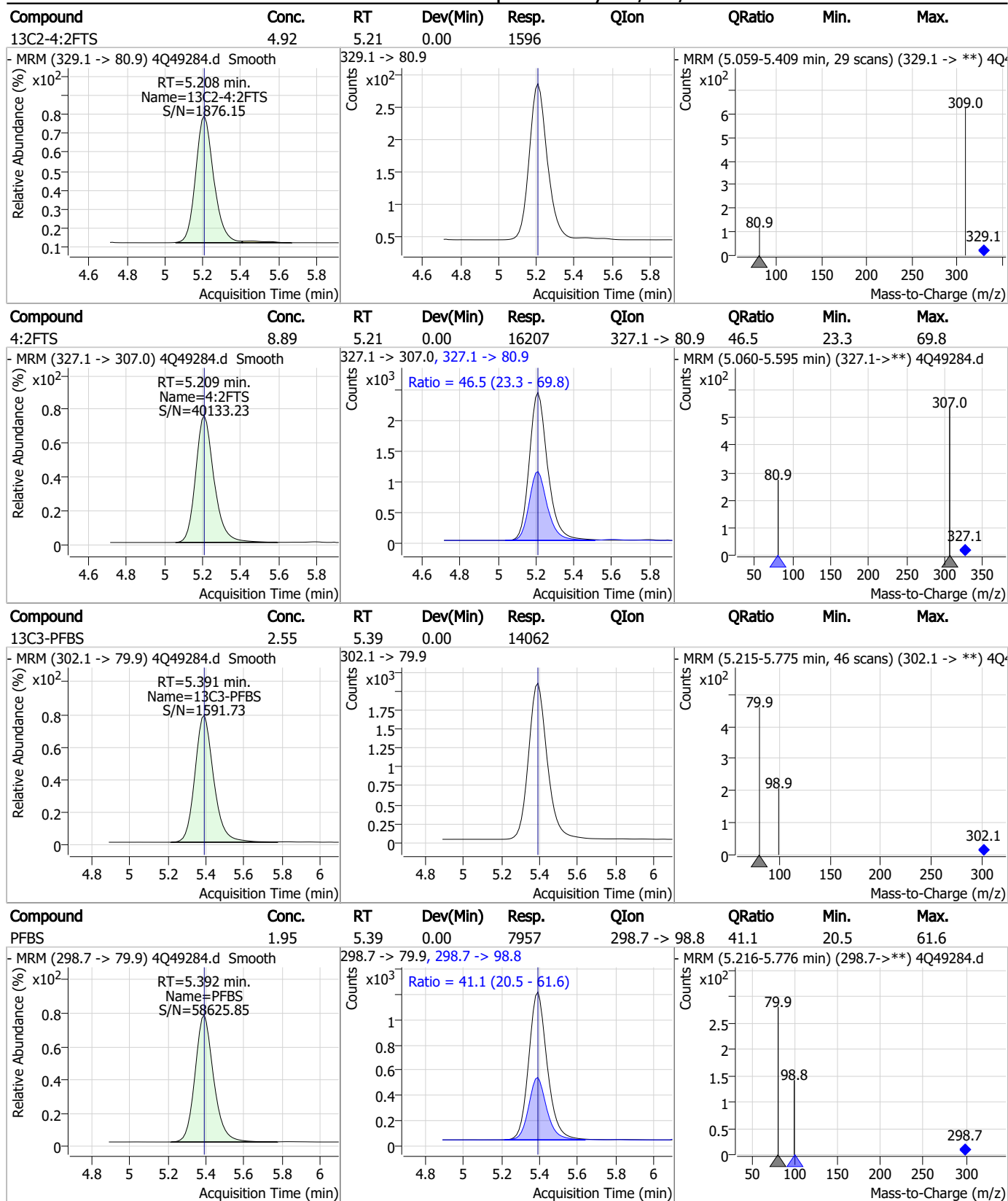
### Perfluorinated Compounds by LC/MS/MS



7.7.5

7

### Perfluorinated Compounds by LC/MS/MS

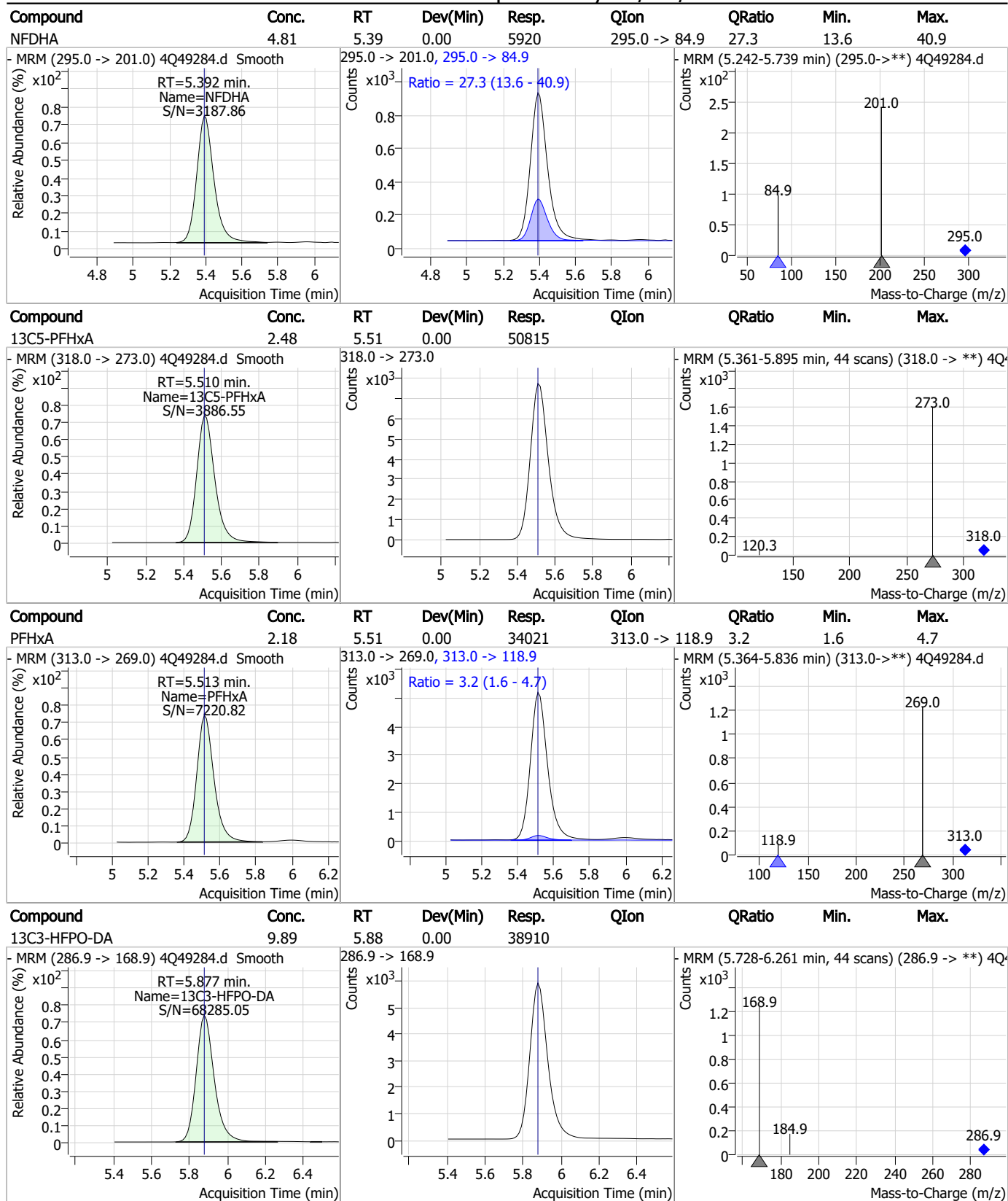


7.7.5

7

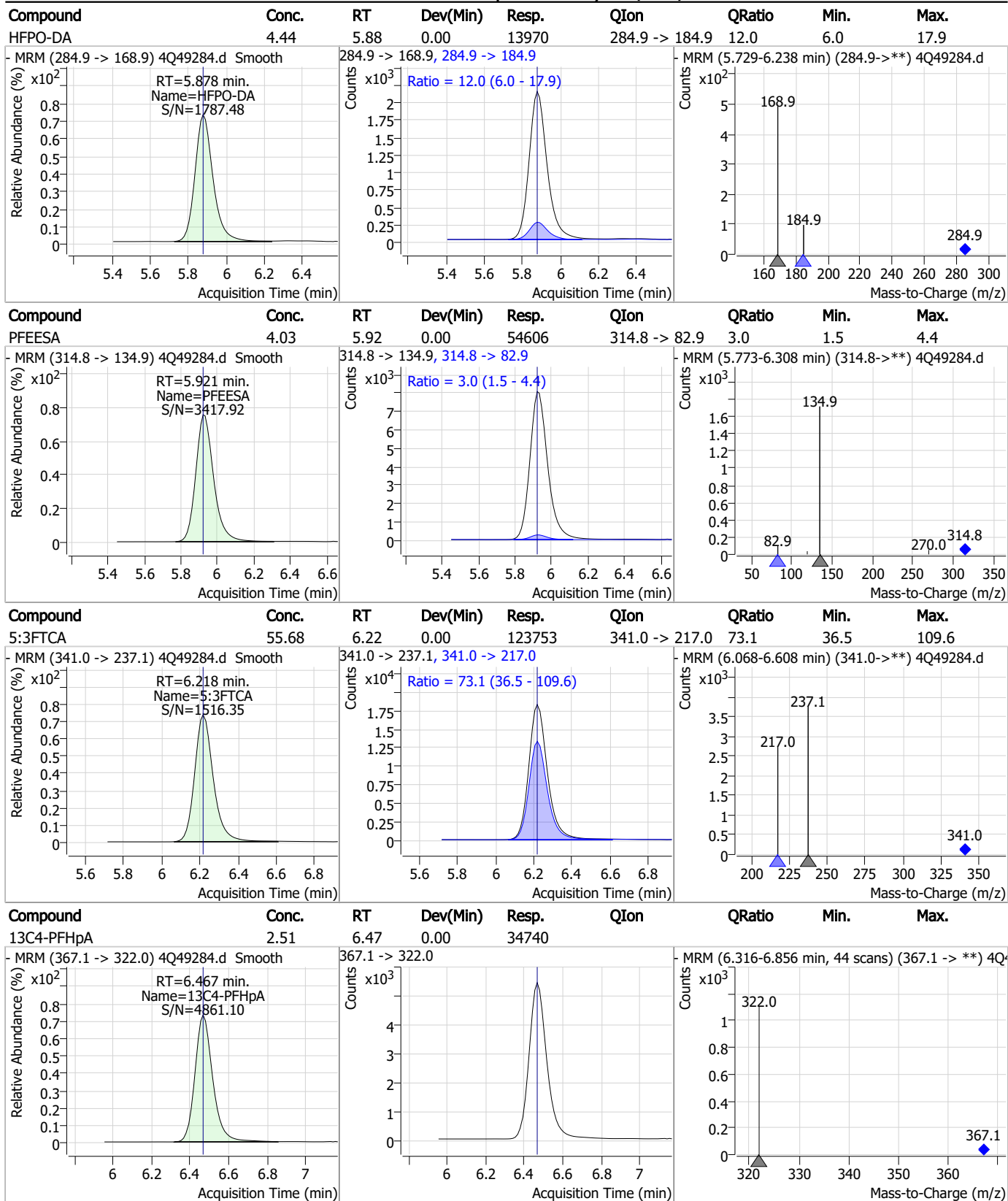


### Perfluorinated Compounds by LC/MS/MS



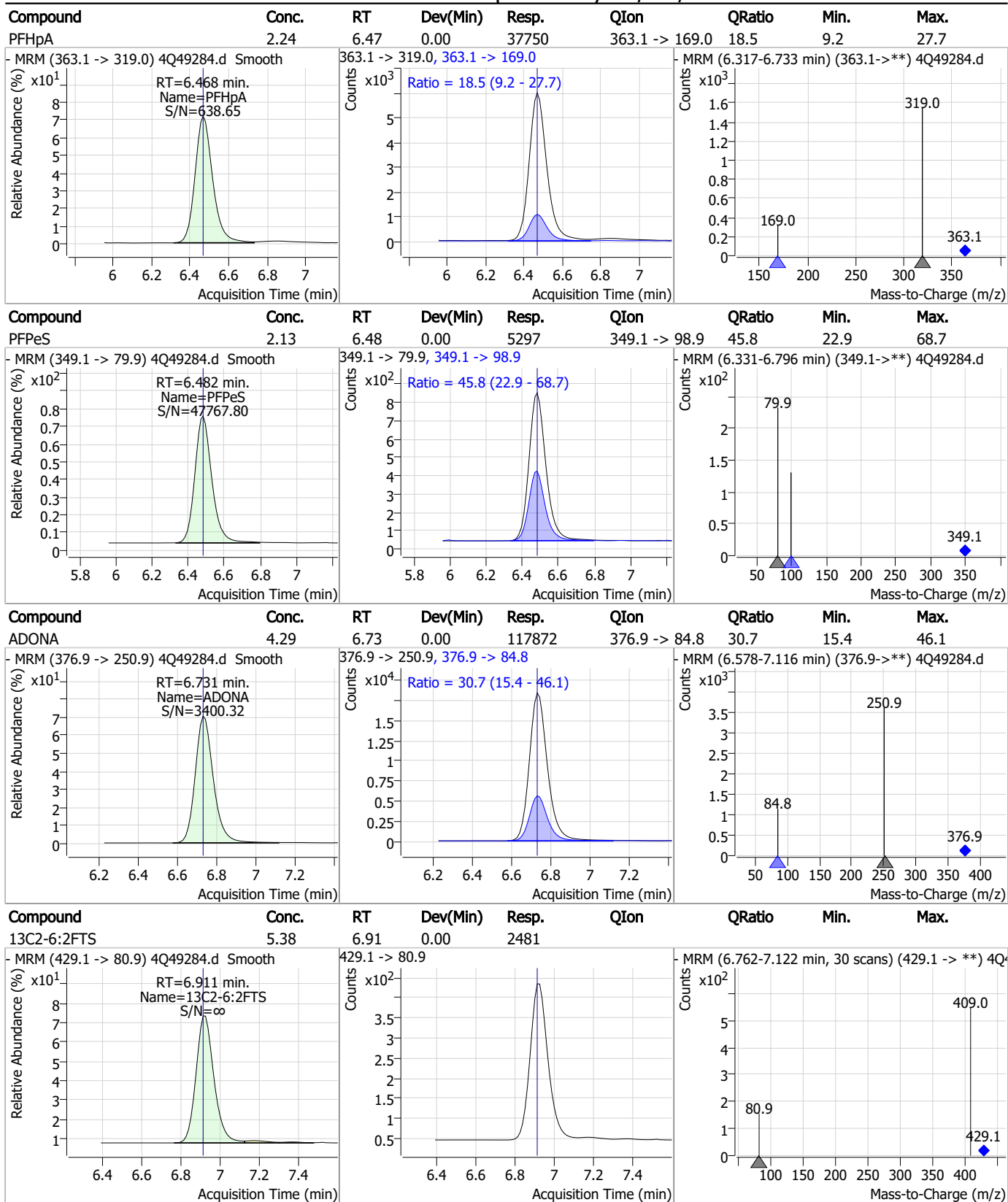
7.7.5  
7

### Perfluorinated Compounds by LC/MS/MS



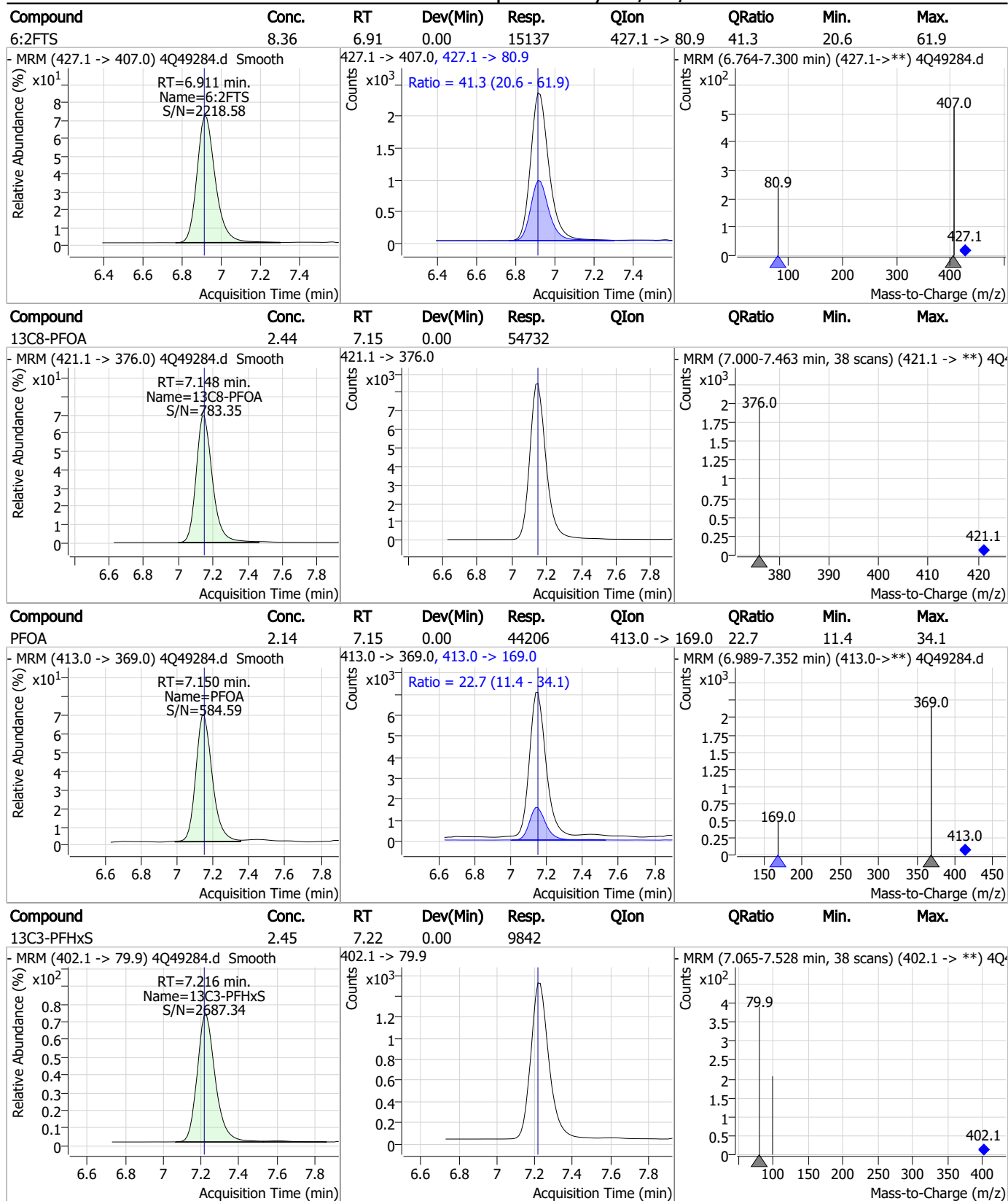
7.7.5  
7

### Perfluorinated Compounds by LC/MS/MS



7.7.5  
7

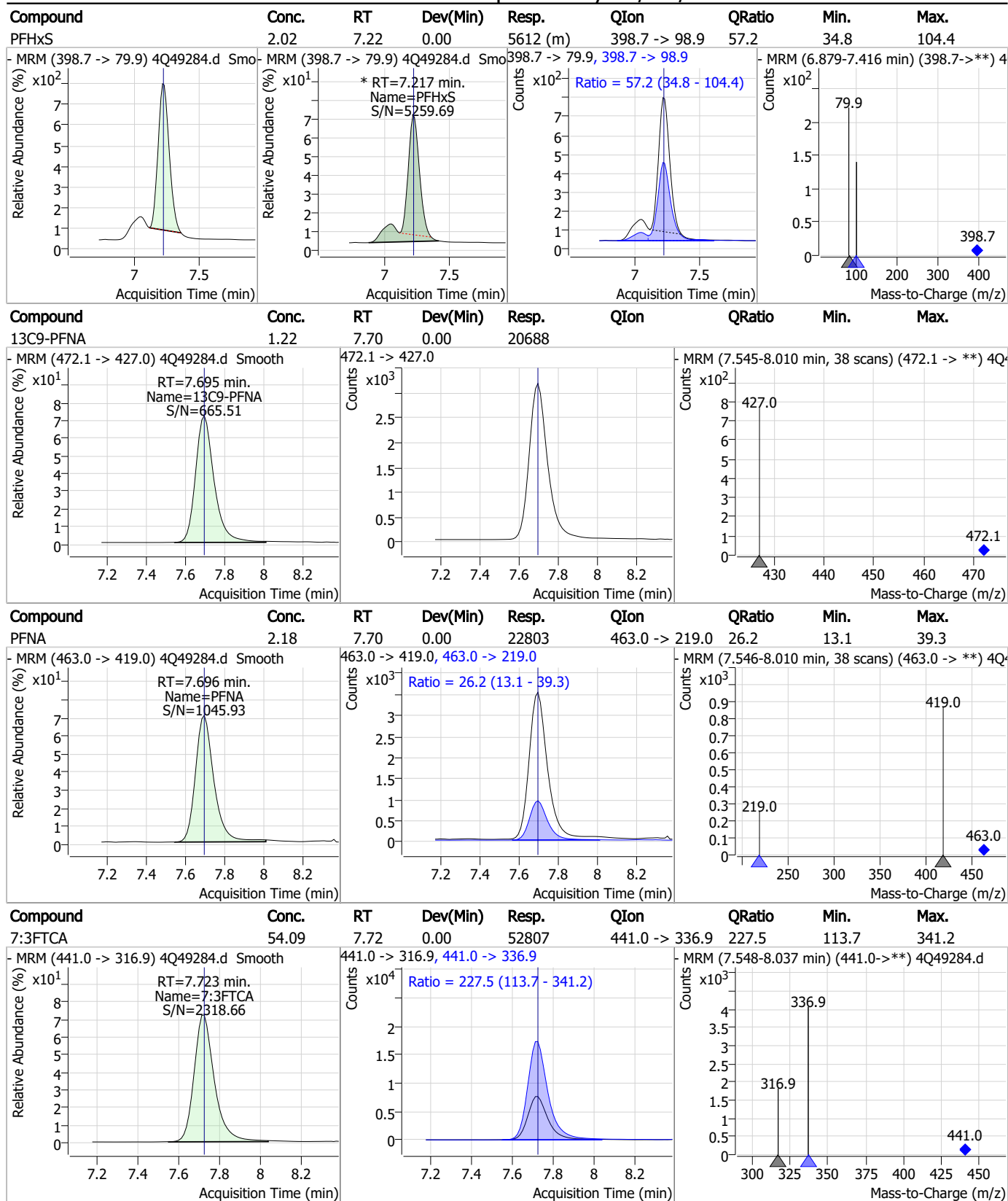
### Perfluorinated Compounds by LC/MS/MS



7.7.5

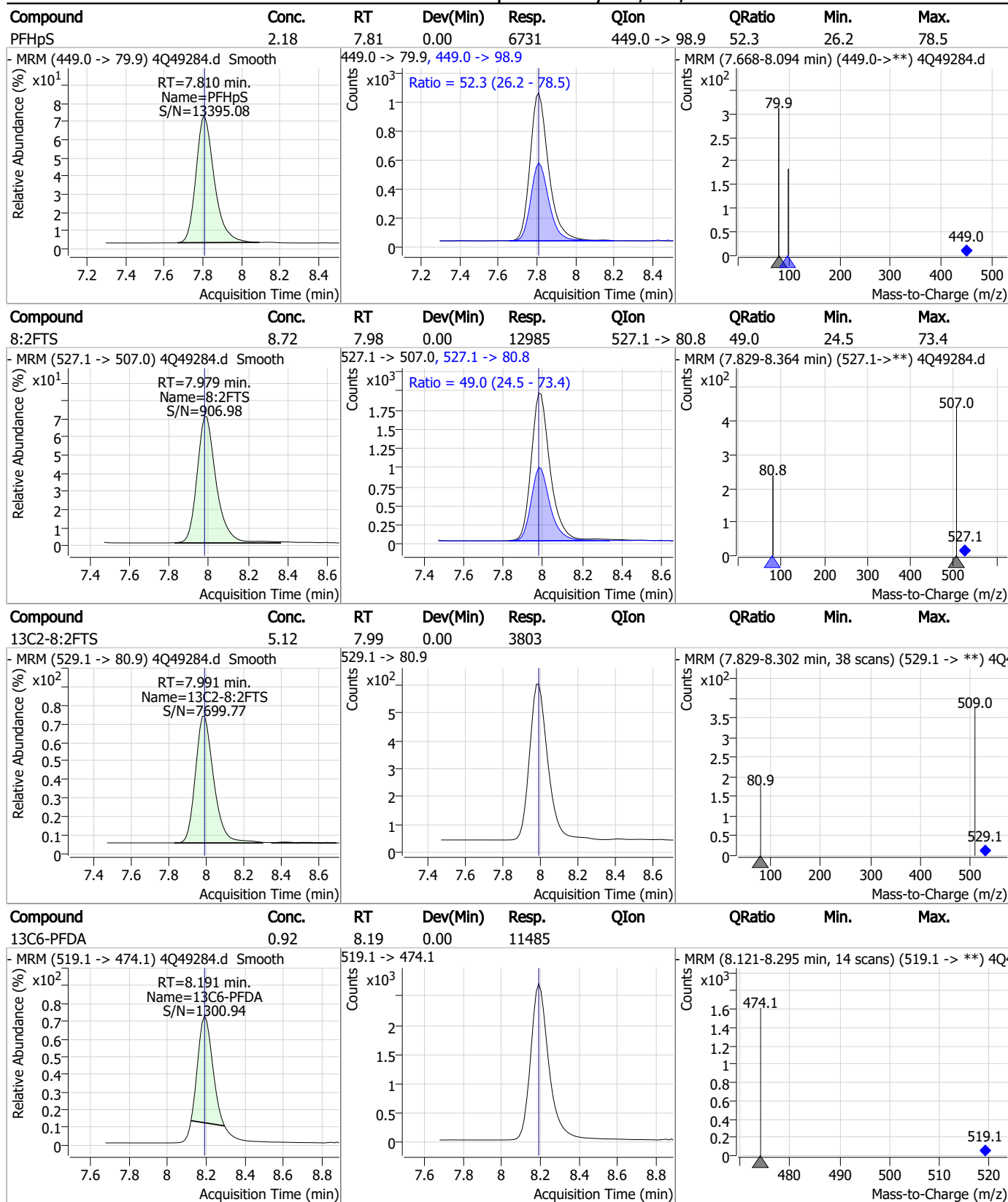
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### Perfluorinated Compounds by LC/MS/MS



7.7.5  
7

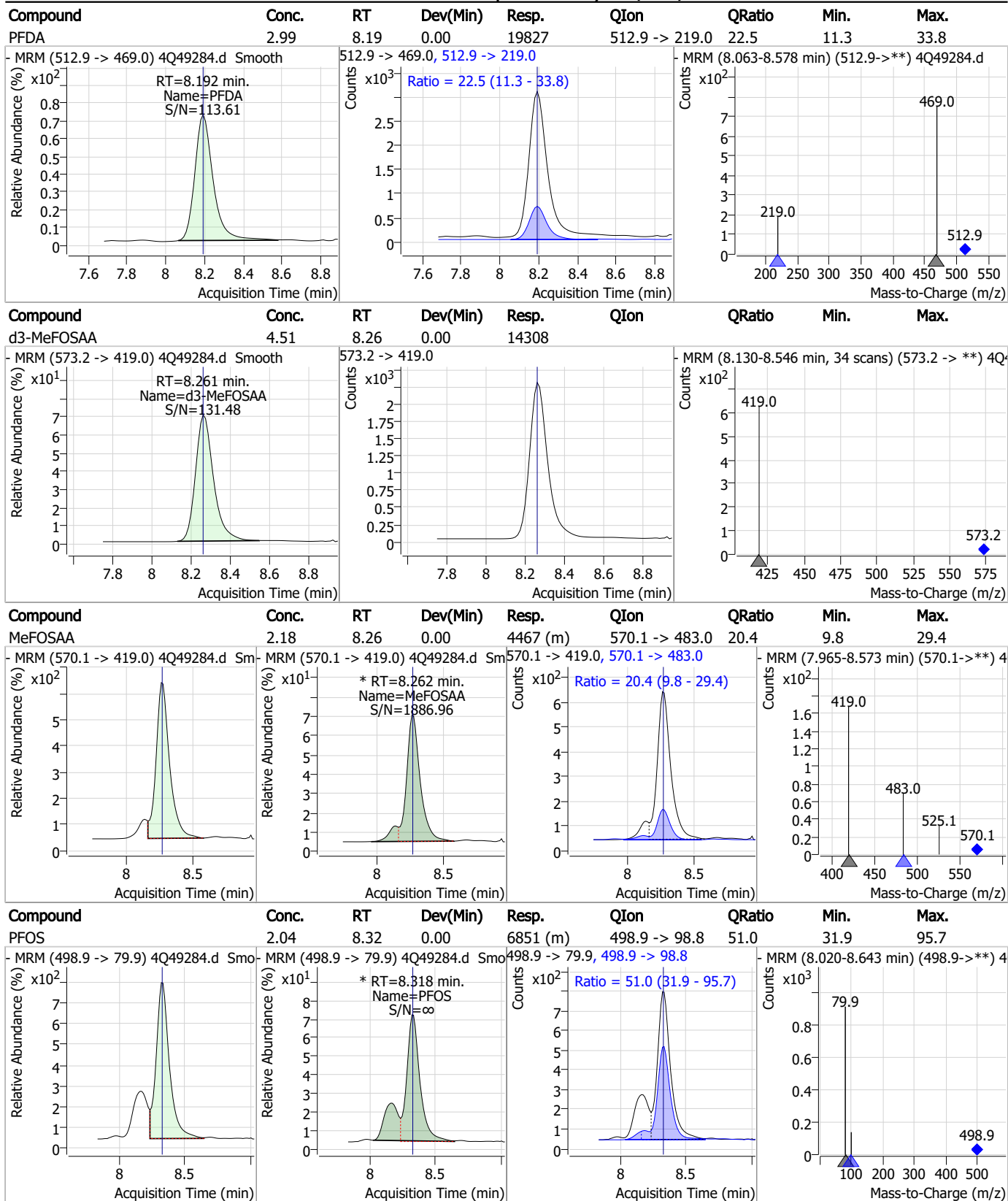
### Perfluorinated Compounds by LC/MS/MS



7.7.5

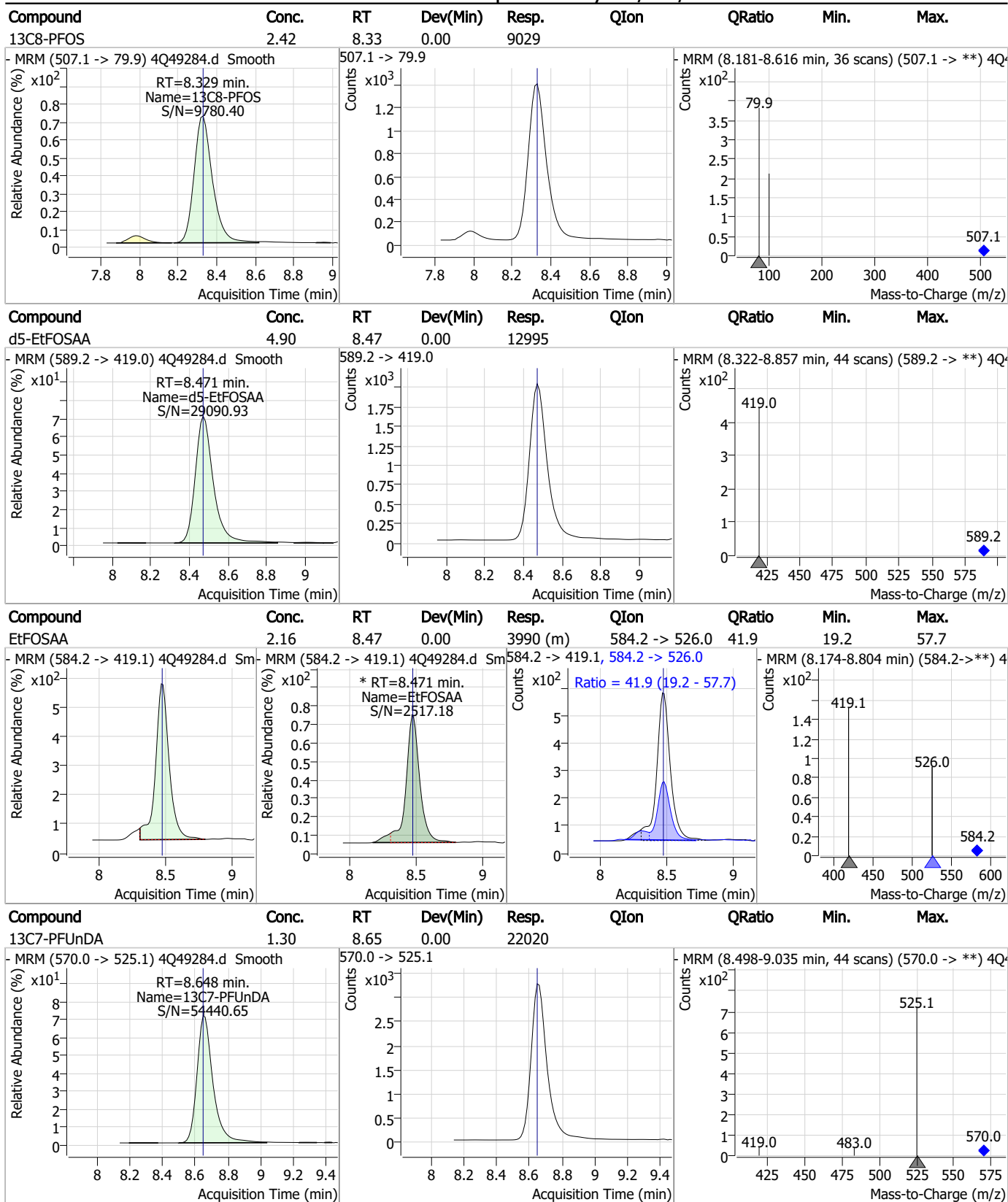
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### Perfluorinated Compounds by LC/MS/MS



7.7.5  
7

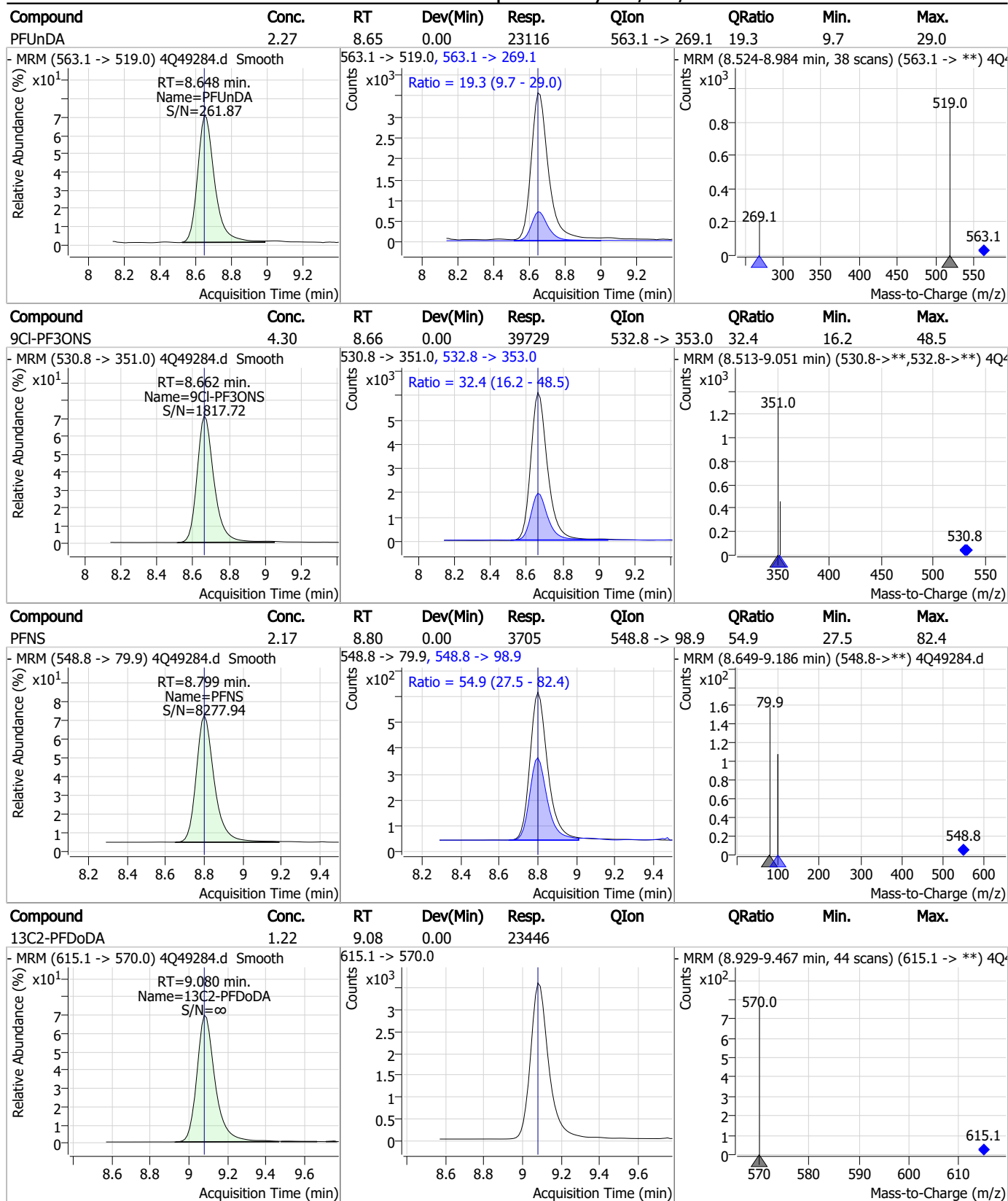
### Perfluorinated Compounds by LC/MS/MS



7.7.5  
7



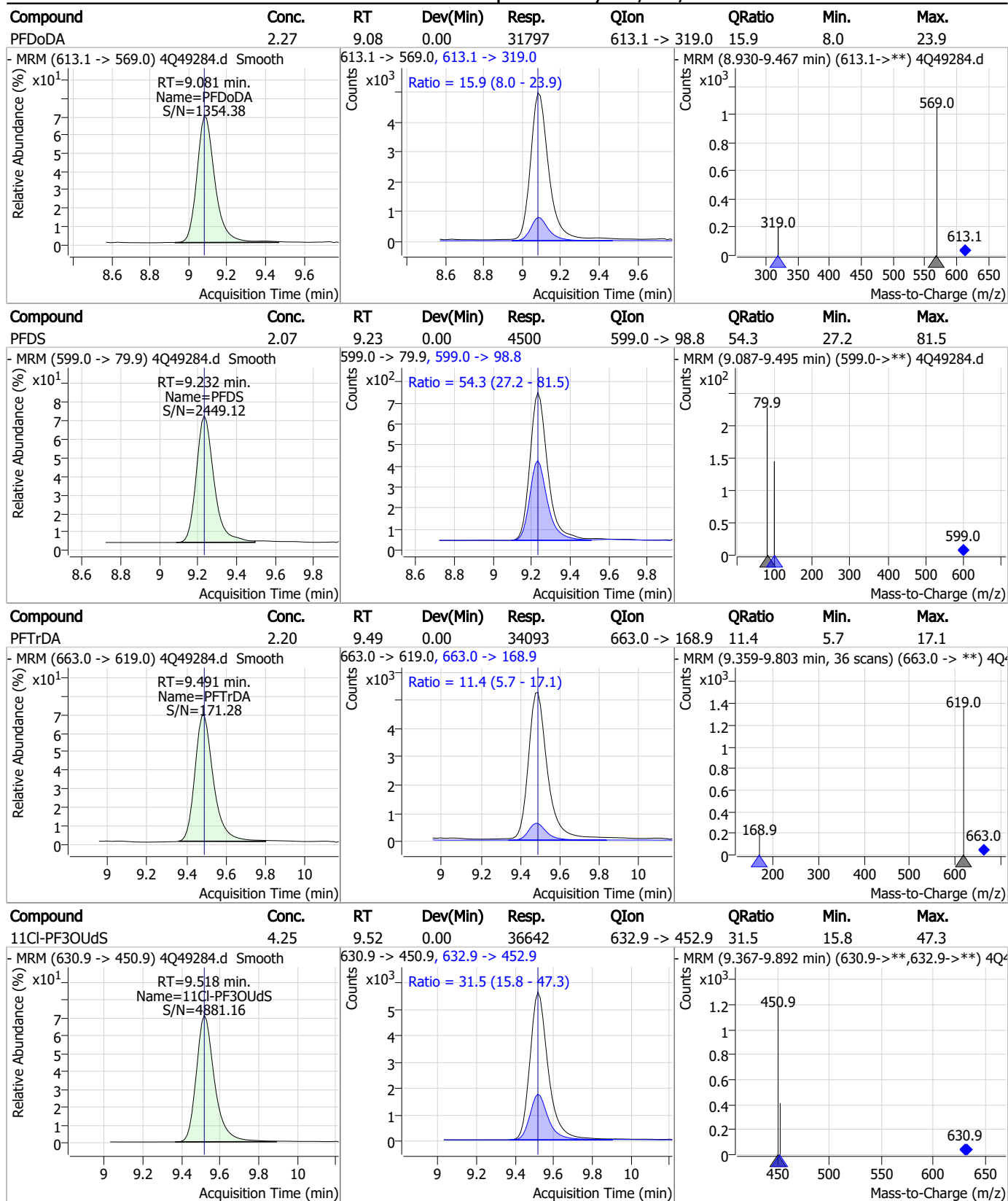
### Perfluorinated Compounds by LC/MS/MS



7.7.5

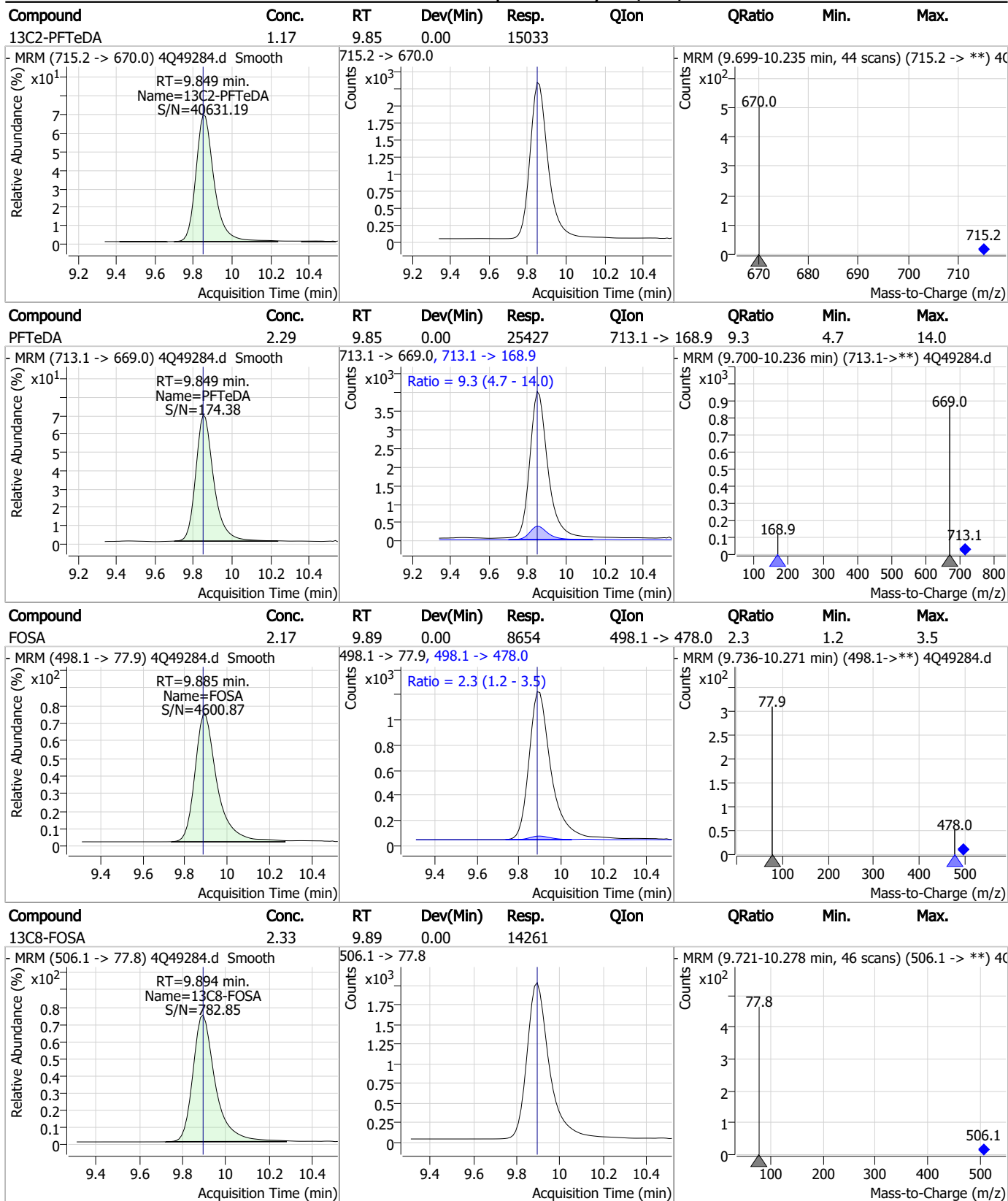
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### Perfluorinated Compounds by LC/MS/MS



7.7.5  
7

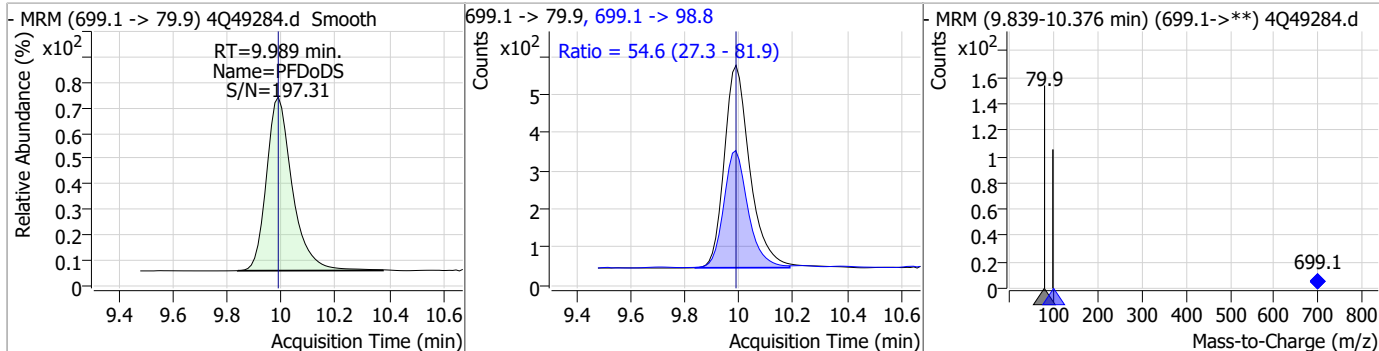
### Perfluorinated Compounds by LC/MS/MS



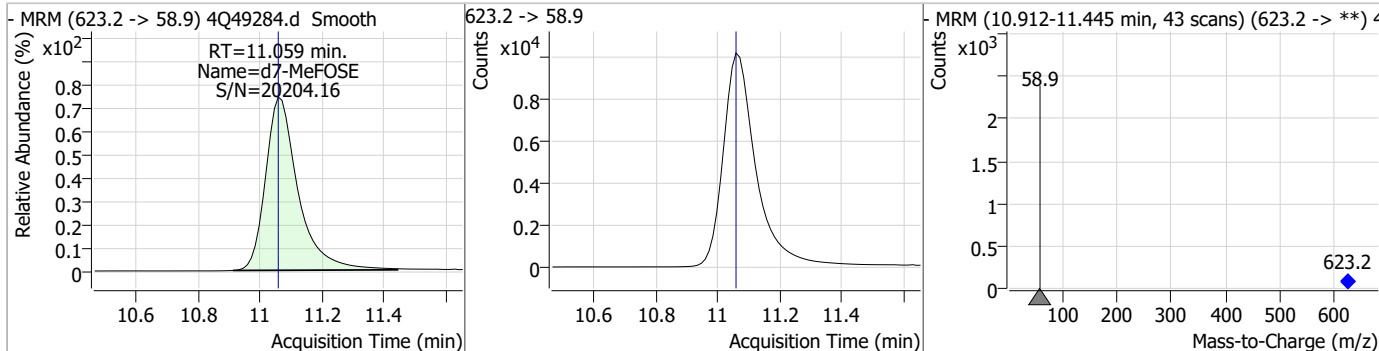
7.7.5  
7

### Perfluorinated Compounds by LC/MS/MS

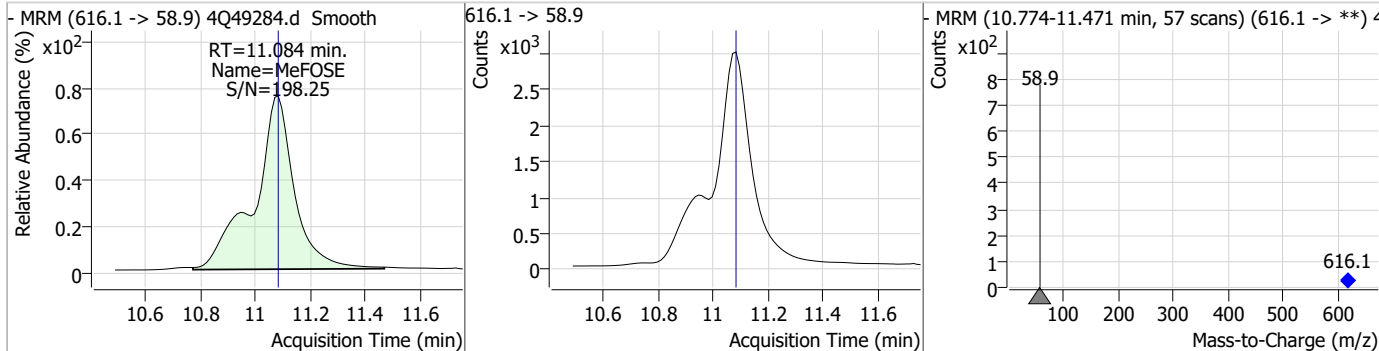
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	2.15	9.99	0.00	3530	699.1 -> 98.8	54.6	27.3	81.9



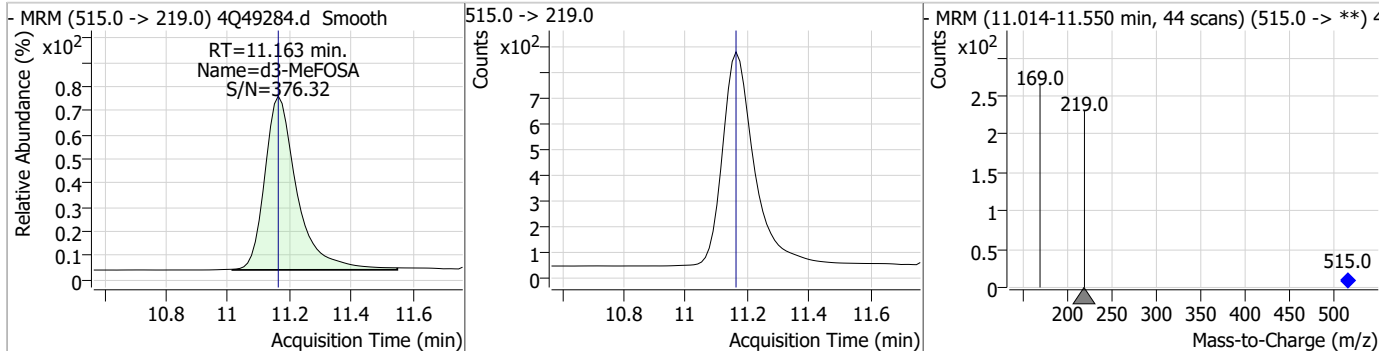
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	22.03	11.06	0.00	73705				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.67	11.08	0.00	30521				



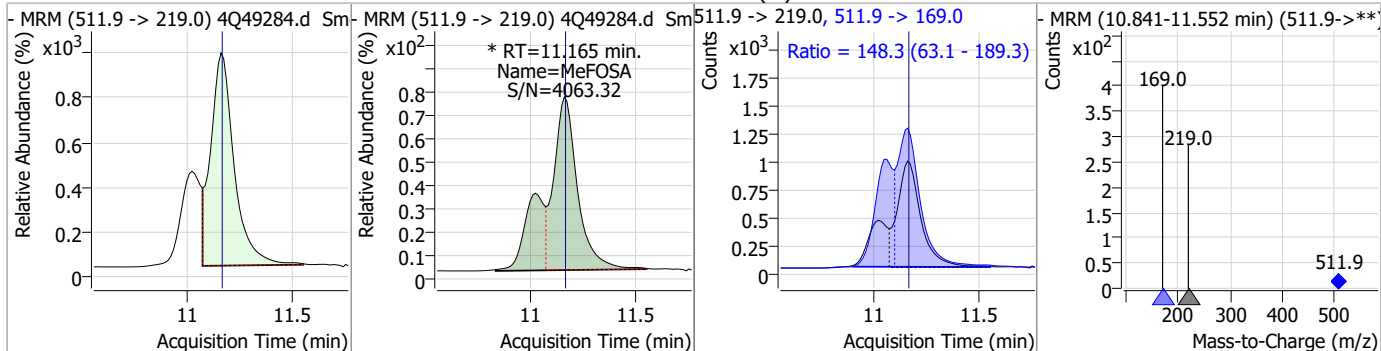
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.17	11.16	0.00	6055				



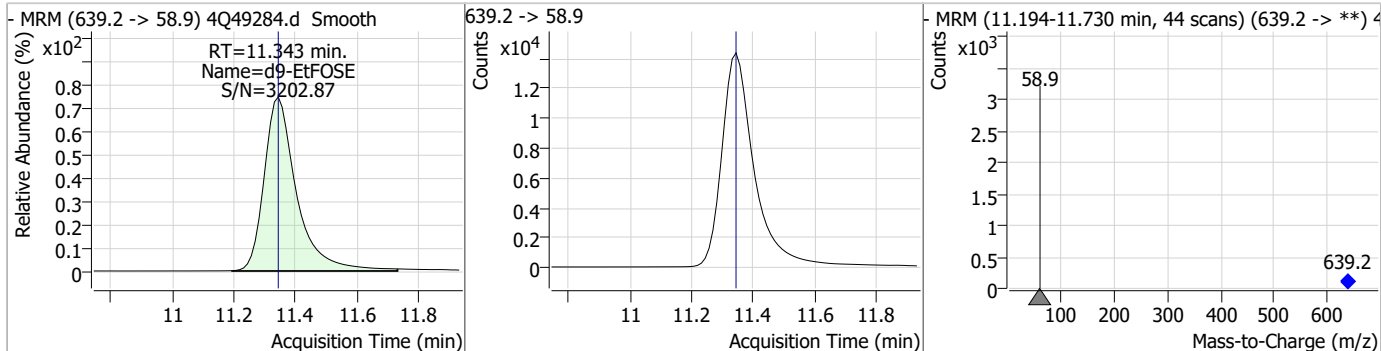
7.7.5  
7

### Perfluorinated Compounds by LC/MS/MS

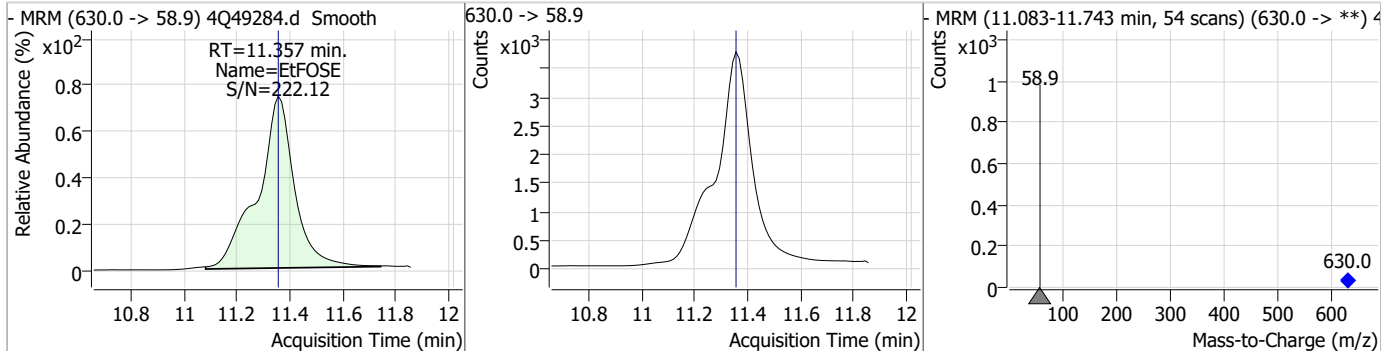
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	4.81	11.16	0.00	10104 (m)	511.9 -> 169.0	148.3	63.1	189.3



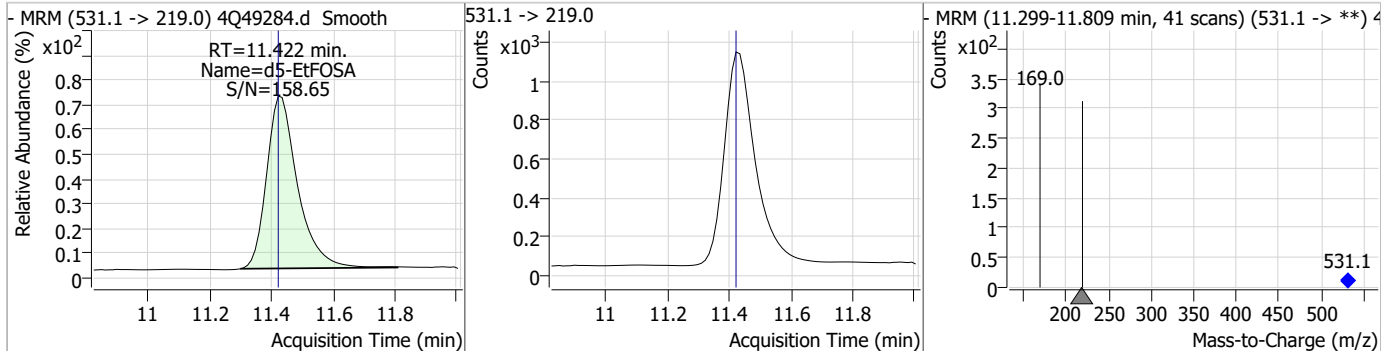
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.25	11.34	0.00	104254				



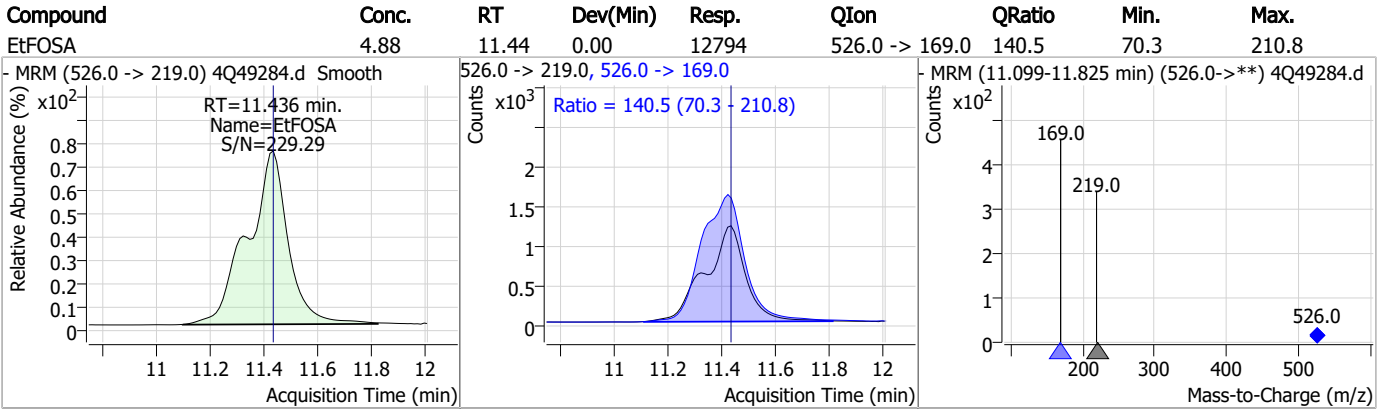
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	11.21	11.36	0.00	35888				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.20	11.42	0.00	7614				



### Perfluorinated Compounds by LC/MS/MS



7.7.5

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# Manual Integration Approval Summary

Sample Number: S4Q722-ICC722      Method: EPA DRAFT 1633  
Lab FileID: 4Q49284.D      Analyst approved: 08/23/23 10:44 Martha Valls  
Injection Time: 08/22/23 11:34      Supervisor approved: 08/23/23 15:25 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.22	Split peak
MeFOSAA	2355-31-9		8.26	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.32	Split peak
EtFOSAA	2991-50-6		8.47	Split peak
MeFOSA	31506-32-8		11.16	Split peak

7.7.5.1  
7

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

Natasha Gumtje  
 08/23/23 15:25

### Perfluorinated Compounds by LC/MS/MS

Data File : 4Q49285.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 8/22/2023 11:49:12 AM  
 Sample Name : ic722-5  
 Vial : P1-A6  
 DA Method File : 1633\_082223\_S4Q722.quantmethod.xml  
 Batch Name : s4q722.batch.bin  
 Sample Information : OP98180,S4Q722,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.811	216.8 -> 171.9	114138	10.00 µg/L	0.000
M5-PFPeA	4.325	268.3 -> 223.0	61096	5.00 µg/L	0.012
M5-PFHxA	5.510	318.0 -> 273.0	41737	2.50 µg/L	0.000
M4-PFHpA	6.467	367.1 -> 322.0	27132	2.50 µg/L	0.000
M8-PFOA	7.148	421.1 -> 376.0	45320	2.50 µg/L	0.000
M9-PFNA	7.695	472.1 -> 427.0	16122	1.25 µg/L	0.000
M6-PFDA	8.191	519.1 -> 474.1	13299	1.25 µg/L	0.000
M7-PFUnDA	8.648	570.0 -> 525.1	17599	1.25 µg/L	0.000
M2-PFDoDA	9.080	615.1 -> 570.0	19211	1.25 µg/L	0.000
M2-PFTeDA	9.861	715.2 -> 670.0	12814	1.25 µg/L	0.012
M8-FOSA	9.894	506.1 -> 77.8	11482	2.50 µg/L	0.000
M3-PFBS	5.391	302.1 -> 79.9	11260	2.50 µg/L	0.000
M3-PFHxS	7.229	402.1 -> 79.9	8102	2.50 µg/L	0.012
M8-PFOS	8.317	507.1 -> 79.9	7561	2.50 µg/L	-0.012
M2-4:2FTS	5.208	329.1 -> 80.9	1363	5.00 µg/L	0.000
M2-6:2FTS	6.924	429.1 -> 80.9	1867	5.00 µg/L	0.013
M2-8:2FTS	7.991	529.1 -> 80.9	3038	5.00 µg/L	0.000
M3-MeFOSAA	8.261	573.2 -> 419.0	12257	5.00 µg/L	0.000
M3-HFPO-DA	5.877	286.9 -> 168.9	30421	10.00 µg/L	0.000
M5-EtFOSAA	8.471	589.2 -> 419.0	10275	5.00 µg/L	0.000
M7-MeFOSE	11.059	623.2 -> 58.9	60339	25.00 µg/L	0.000
M9-EtFOSE	11.343	639.2 -> 58.9	85295	25.00 µg/L	0.000
M5-EtFOSA	11.422	531.1 -> 219.0	6708	2.50 µg/L	0.000
M3-MeFOSA	11.163	515.0 -> 219.0	5343	2.50 µg/L	0.000
13C4-PFOS	8.318	502.8 -> 79.9	6708	2.50 µg/L	-0.012
13C3-PFBA	2.816	216.0 -> 172.0	64109	5.00 µg/L	0.013
18O2-PFHxS	7.228	403.0 -> 83.9	6012	2.50 µg/L	0.000
13C4-PFOA	7.149	417.1 -> 372.0	50453	2.50 µg/L	0.000
13C2-PFDA	8.192	515.1 -> 470.1	11843	1.25 µg/L	0.000
13C5-PFNA	7.696	468.0 -> 423.0	18090	1.25 µg/L	0.000
13C2-PFHxA	5.511	315.1 -> 270.0	39406	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.208	329.1 -> 80.9	1363	4.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C2-6:2FTS	6.924	429.1 -> 80.9	1867	4.81 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C2-8:2FTS	7.991	529.1 -> 80.9	3038	4.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.2%		
13C2-PFDoDA	9.080	615.1 -> 570.0	19211	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C2-PFTeDA	9.861	715.2 -> 670.0	12814	1.23 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C3-PFBS	5.391	302.1 -> 79.9	11260	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C3-PFHxS	7.229	402.1 -> 79.9	8102	2.40 µg/L	0.012

7.7.6  
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## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.9%	
13C4-PFBA	2.811	216.8 -> 171.9	114138	10.01 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.467	367.1 -> 322.0	27132	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C5-PFHxA	5.510	318.0 -> 273.0	41737	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C5-PFPeA	4.325	268.3 -> 223.0	61096	4.97 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C6-PFDA	8.191	519.1 -> 474.1	13299	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.2%	
13C7-PFUnDA	8.648	570.0 -> 525.1	17599	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C8-FOSA	9.894	506.1 -> 77.8	11482	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C8-PFOA	7.148	421.1 -> 376.0	45320	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C8-PFOS	8.317	507.1 -> 79.9	7561	2.75 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.8%	
13C9-PFNA	7.695	472.1 -> 427.0	16122	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.8%	
d3-MeFOSAA	8.261	573.2 -> 419.0	12257	5.22 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C3-HFPO-DA	5.877	286.9 -> 168.9	30421	9.56 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.6%	
d3-MeFOSA	11.163	515.0 -> 219.0	5343	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.4%	
d5-EtFOSAA	8.471	589.2 -> 419.0	10275	5.24 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.7%	
d7-MeFOSE	11.059	623.2 -> 58.9	60339	24.39 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.6%	
d9-EtFOSE	11.343	639.2 -> 58.9	85295	25.73 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
d5-EtFOSA	11.422	531.1 -> 219.0	6708	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.1%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.209	327.1 -> 307.0	33456	21.48 µg/L	95
		327.1 -> 80.9	14337		
6:2FTS	6.924	427.1 -> 407.0	30340	22.26 µg/L	99
		427.1 -> 80.9	12757		
8:2FTS	7.991	527.1 -> 507.0	24457	20.71 µg/L	96
		527.1 -> 80.8	12734		
EtFOSAA	8.471	584.2 -> 419.1	7773	5.31 µg/L	m 86
		584.2 -> 526.0	3637		
FOSA	9.898	498.1 -> 77.9	17990	5.61 µg/L	97
		498.1 -> 478.0	586		
MeFOSAA	8.262	570.1 -> 419.0	9060	5.16 µg/L	m 97
		570.1 -> 483.0	1913		
PFBA	2.820	212.8 -> 168.9	54902	22.38 µg/L	100
PFBS	5.392	298.7 -> 79.9	16408	5.02 µg/L	99
		298.7 -> 98.8	6619		
PFDA	8.192	512.9 -> 469.0	41954	5.47 µg/L	95
		512.9 -> 219.0	8485		
PFDODA	9.081	613.1 -> 569.0	63329	5.52 µg/L	100
		613.1 -> 319.0	9985		
PFDS	9.232	599.0 -> 79.9	9551	5.25 µg/L	95

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.468	599.0 -> 98.8	4822	5.77	µg/L	100
		363.1 -> 319.0	76072			
PFHpS	7.810	363.1 -> 169.0	14207	5.00	µg/L	100
		449.0 -> 79.9	12910			
PFHxA	5.513	449.0 -> 98.9	6716	5.54	µg/L	99
		313.0 -> 269.0	71044			
PFHxS	7.229	313.0 -> 118.9	2446	5.00	µg/L	m
		398.7 -> 79.9	11425			
PFNA	7.696	398.7 -> 98.9	5606	5.77	µg/L	100
		463.0 -> 419.0	46922			
PFNS	8.799	463.0 -> 219.0	12265	5.25	µg/L	95
		548.8 -> 79.9	7509			
PFOA	7.150	548.8 -> 98.9	3852	5.38	µg/L	99
		413.0 -> 369.0	92046			
PFOS	8.318	413.0 -> 169.0	20543	4.74	µg/L	m
		498.9 -> 79.9	13337			
PFPeA	4.327	498.9 -> 98.8	6871	11.39	µg/L	100
		263.0 -> 219.0	123457			
PFPeS	6.482	349.1 -> 79.9	10634	5.20	µg/L	99
		349.1 -> 98.9	4812			
PFTeDA	9.849	713.1 -> 669.0	51597	5.45	µg/L	99
		713.1 -> 168.9	4633			
PFTrDA	9.491	663.0 -> 619.0	72200	5.68	µg/L	100
		663.0 -> 168.9	8145			
PFUnDA	8.648	563.1 -> 519.0	45305	5.58	µg/L	100
		563.1 -> 269.1	8802			
11Cl-PF3OUdS	9.518	630.9 -> 450.9	74467	11.06	µg/L	98
		632.9 -> 452.9	22495			
9Cl-PF3ONS	8.662	530.8 -> 351.0	81111	11.22	µg/L	95
		532.8 -> 353.0	23946			
ADONA	6.731	376.9 -> 250.9	237123	11.04	µg/L	99
		376.9 -> 84.8	73644			
HFPO-DA	5.878	284.9 -> 168.9	28037	11.41	µg/L	98
		284.9 -> 184.9	3169			
3:3FTCA	3.773	241.0 -> 177.0	14474	27.00	µg/L	100
		241.0 -> 117.0	1539			
5:3FTCA	6.218	341.0 -> 237.1	253317	138.76	µg/L	100
		341.0 -> 217.0	184539			
7:3FTCA	7.723	441.0 -> 316.9	108875	135.78	µg/L	99
		441.0 -> 336.9	249619			
EtFOSA	11.424	526.0 -> 219.0	25493	11.03	µg/L	100
		526.0 -> 169.0	35901			
EtFOSE	11.357	630.0 -> 58.9	72397	27.65	µg/L	100
		511.9 -> 219.0	20553			
MeFOSA	11.165	511.9 -> 169.0	30469	11.09	µg/L	m
		616.1 -> 58.9	61602			
MeFOSE	11.072	699.1 -> 79.9	6881	28.77	µg/L	m
		699.1 -> 98.8	4165			
PFDoDS	9.989	295.0 -> 201.0	11193	5.00	µg/L	92
		295.0 -> 84.9	3210			
NFDHA	5.392	279.0 -> 85.1	72092	11.30	µg/L	100
		229.0 -> 84.9	79061			
PFMBA	4.741	314.8 -> 134.9	111513	11.30	µg/L	100
		314.8 -> 82.9	3856			
PFMPA	3.453			10.01	µg/L	99
PFEESA	5.921					

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

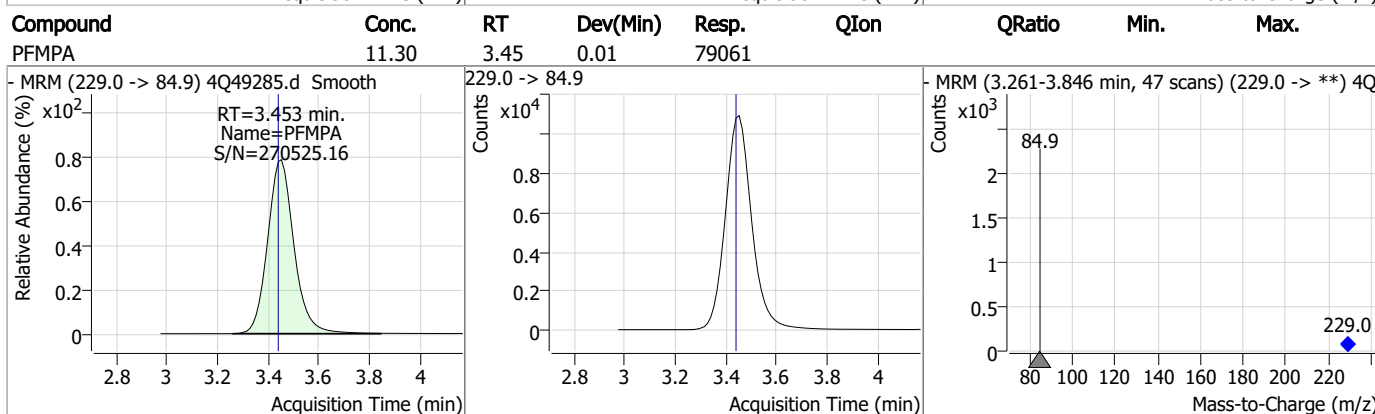
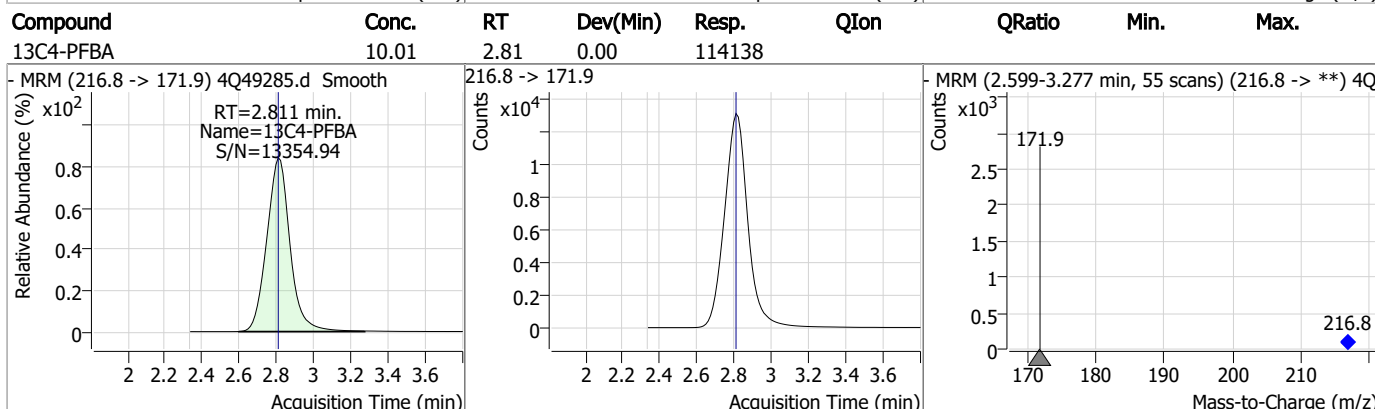
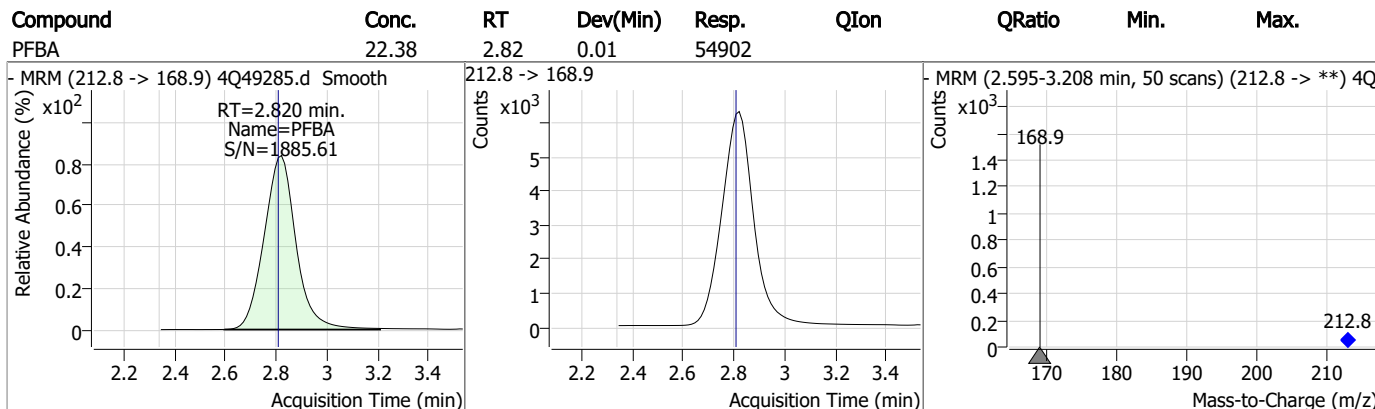
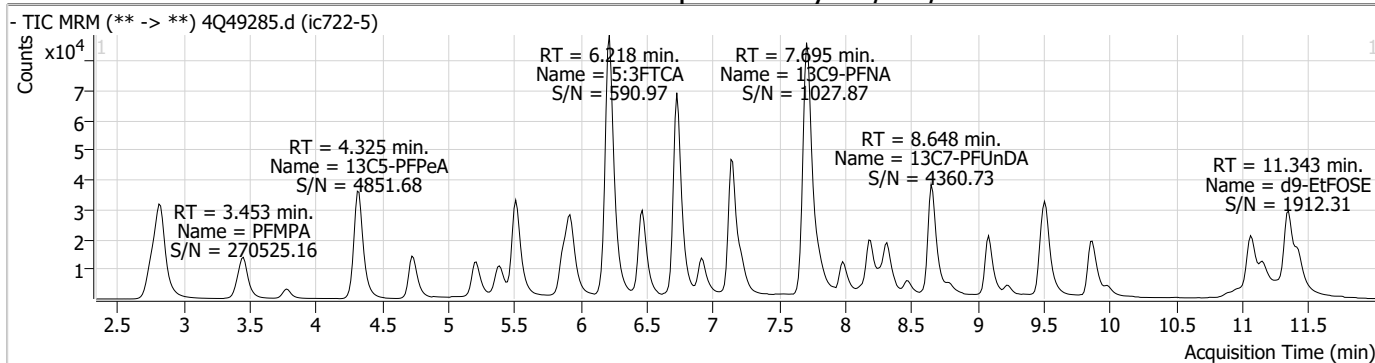
### Perfluorinated Compounds by LC/MS/MS

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

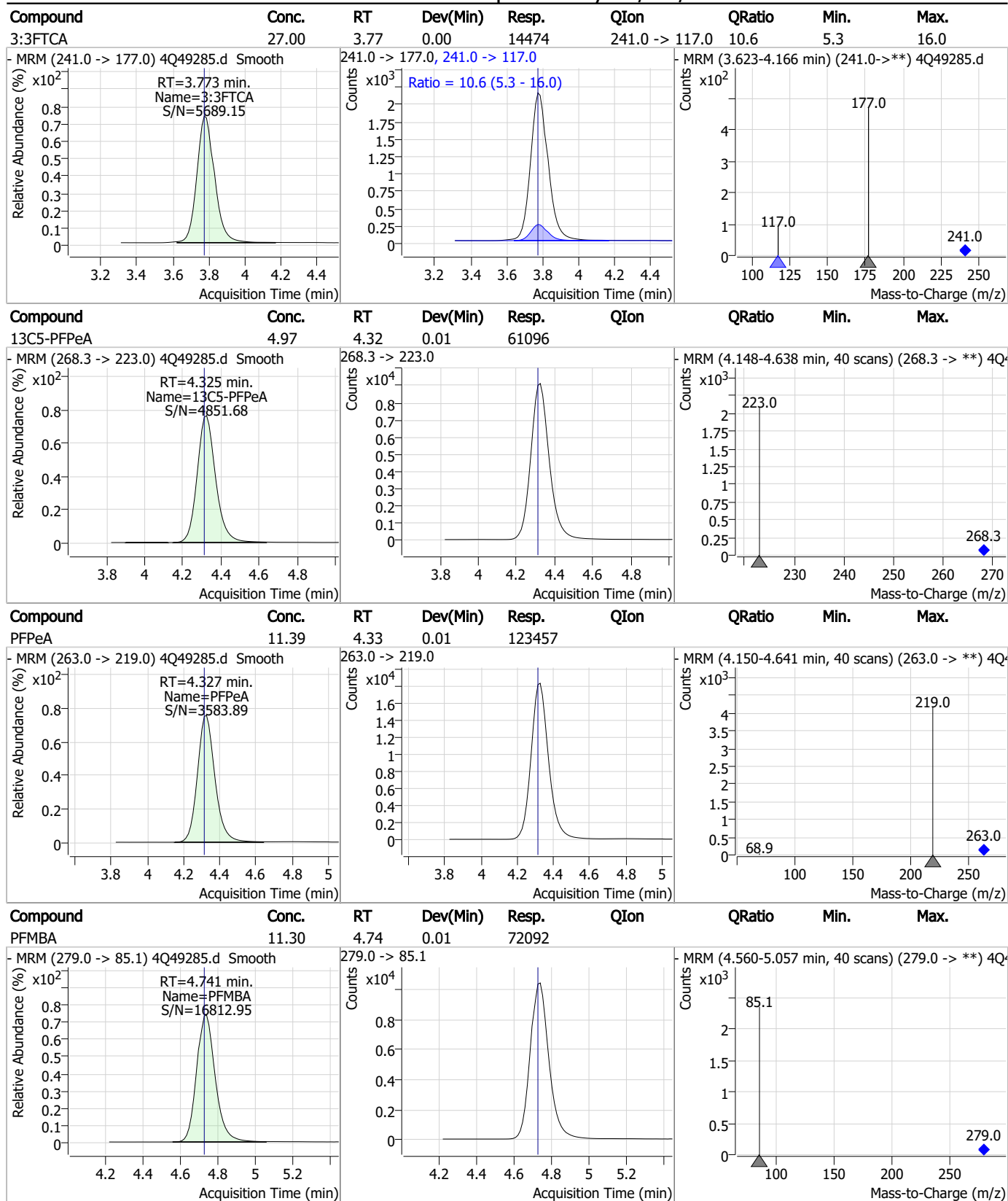
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### Perfluorinated Compounds by LC/MS/MS



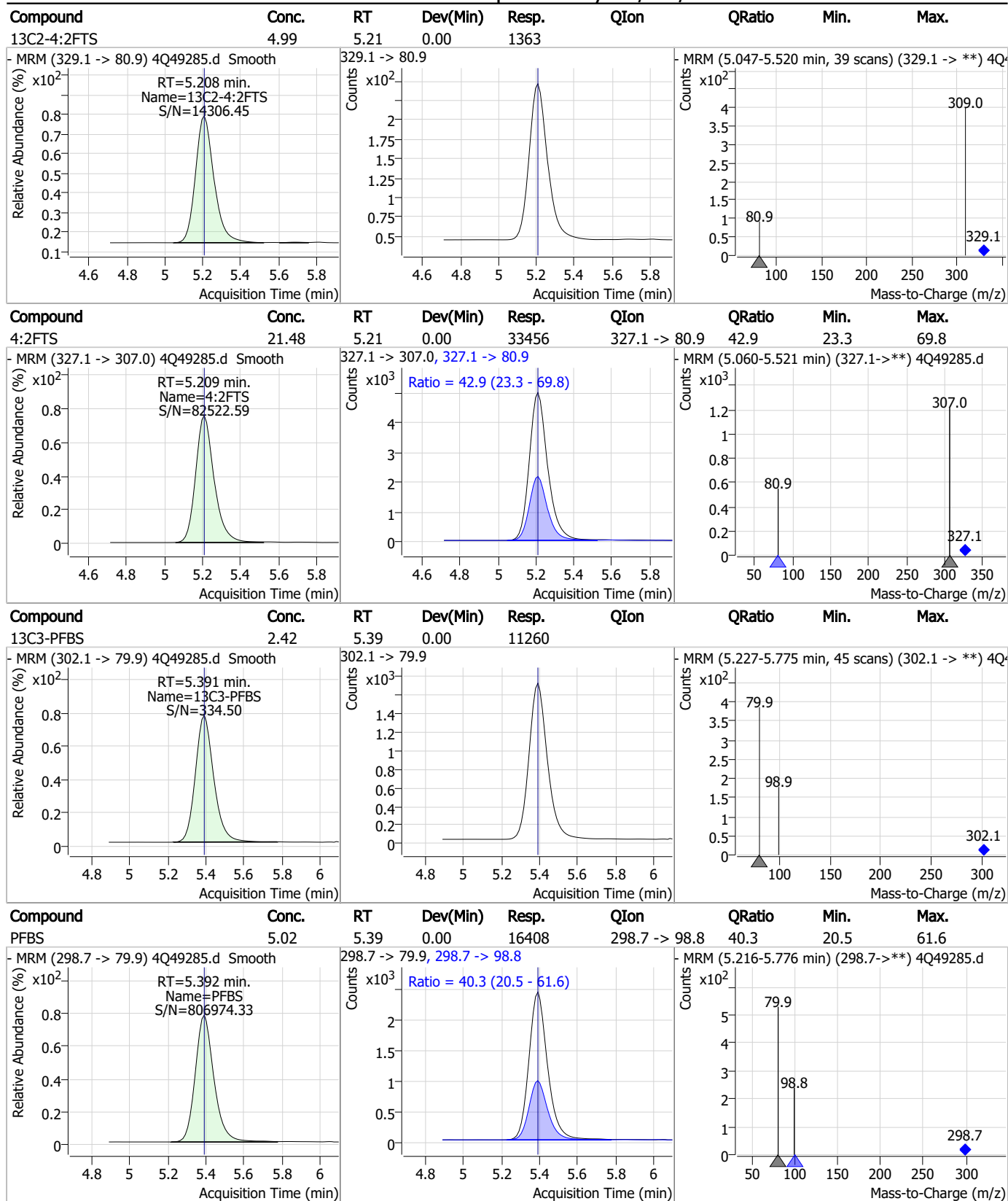
7.7.6  
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### Perfluorinated Compounds by LC/MS/MS



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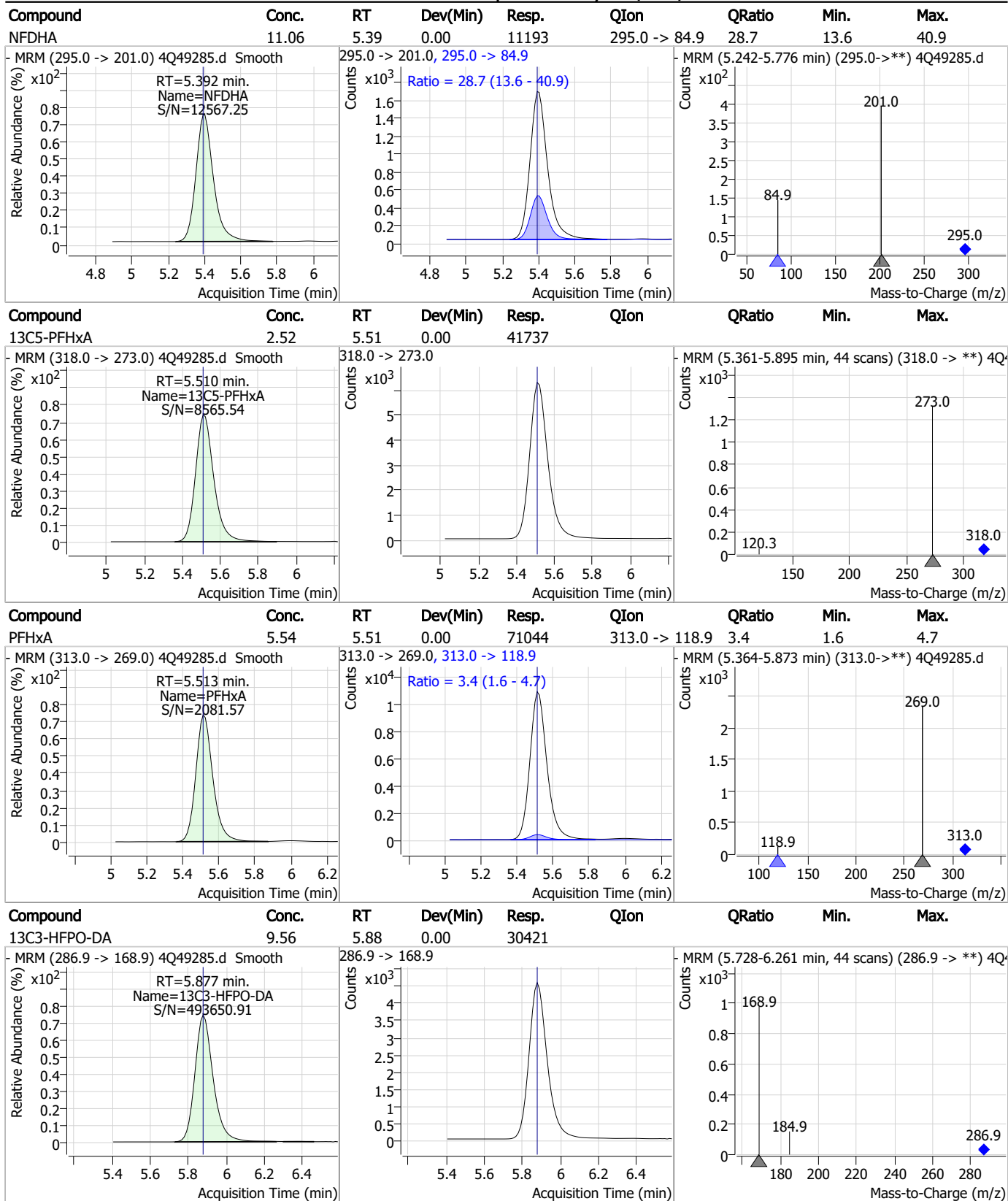
### Perfluorinated Compounds by LC/MS/MS



7.7.6

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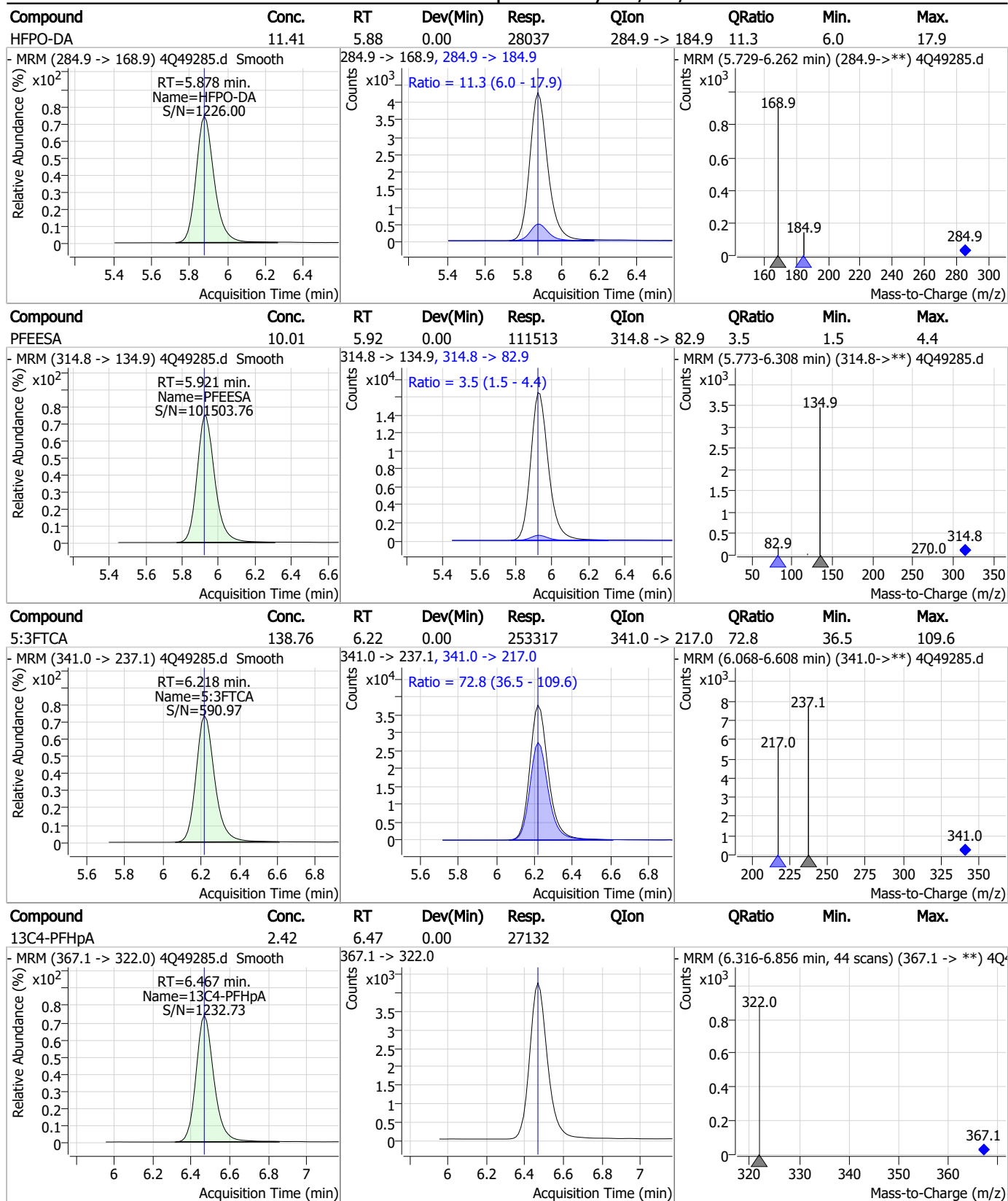
### Perfluorinated Compounds by LC/MS/MS



7.7.6

7

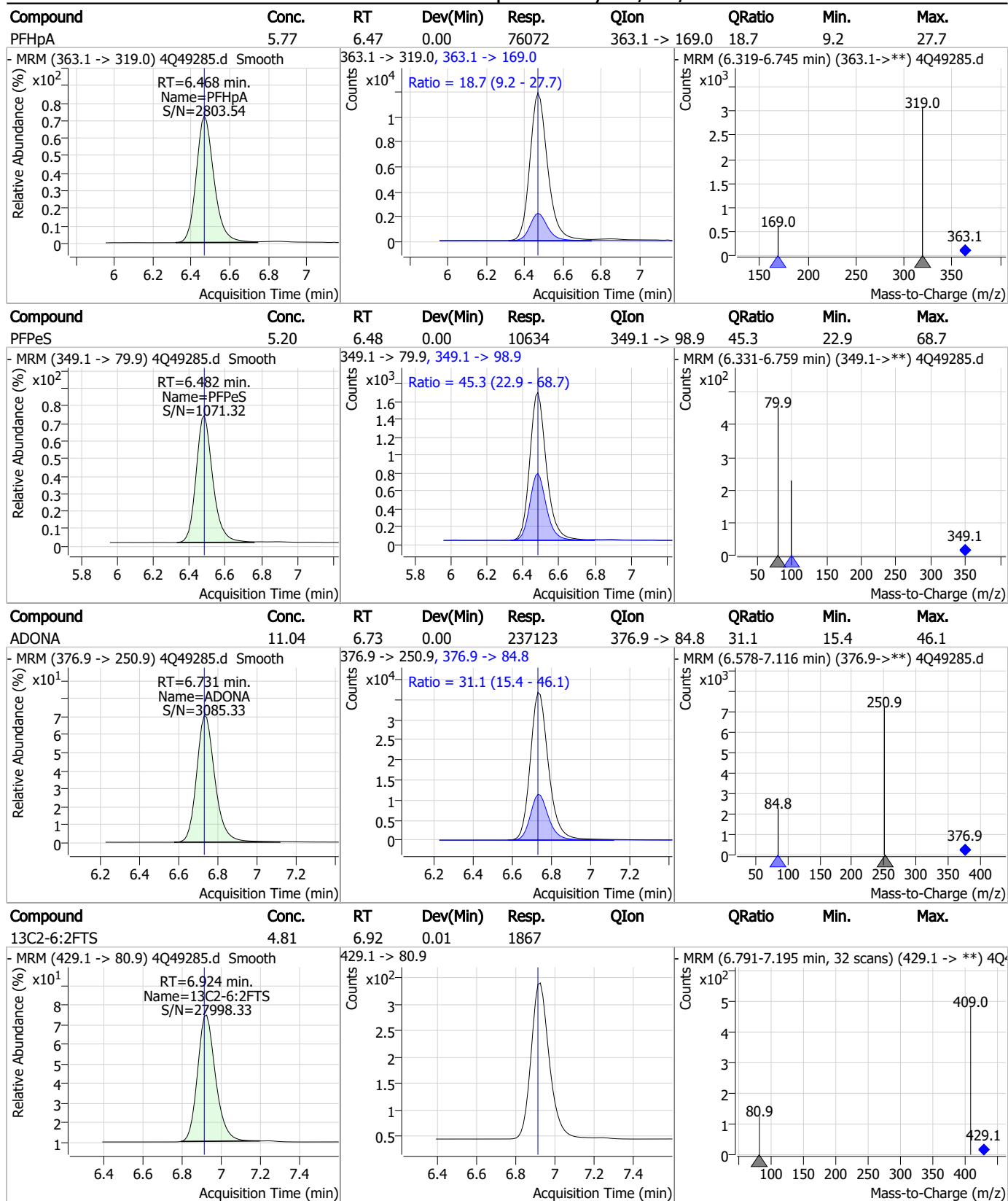
### Perfluorinated Compounds by LC/MS/MS



7.7.6  
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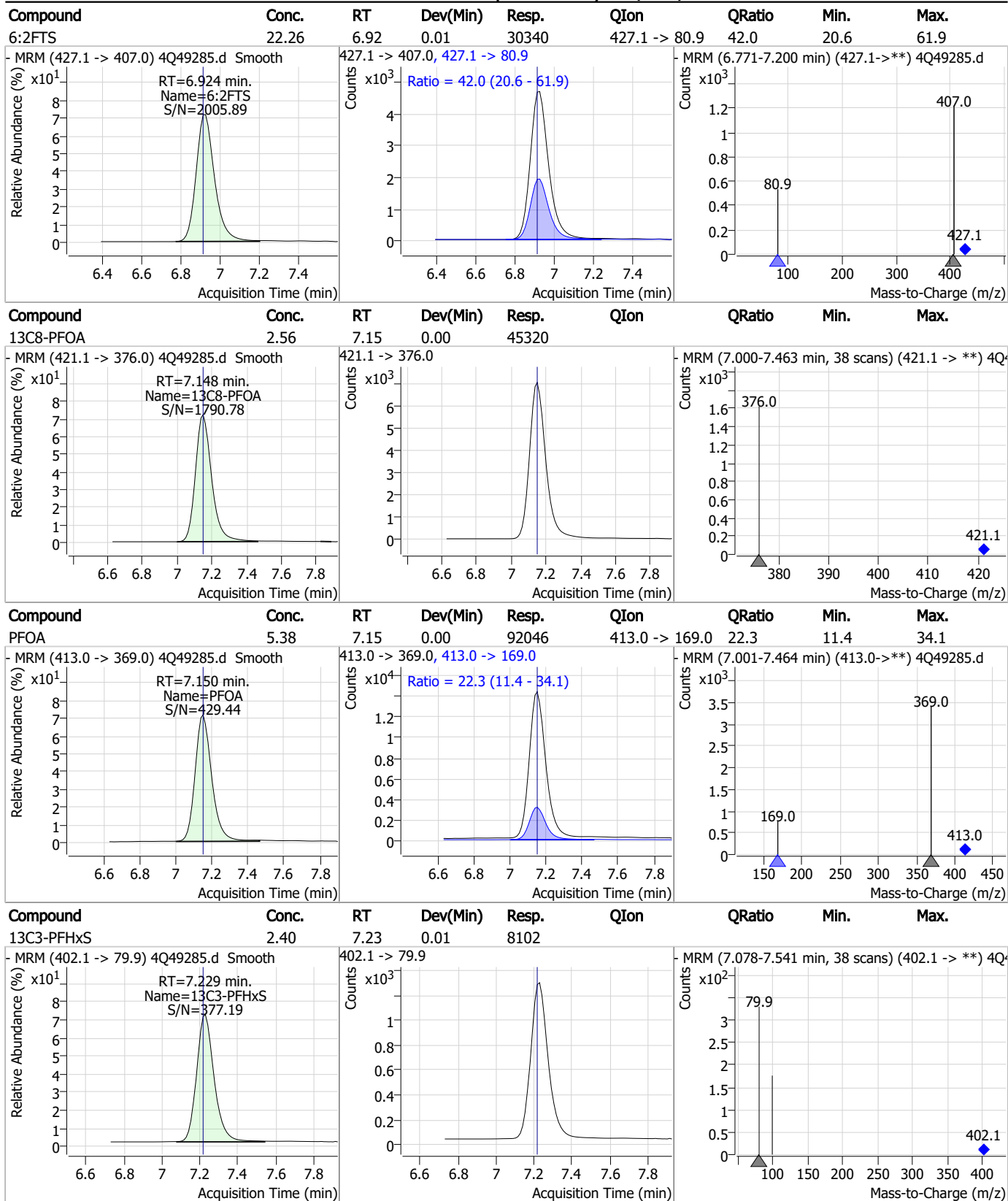


### Perfluorinated Compounds by LC/MS/MS



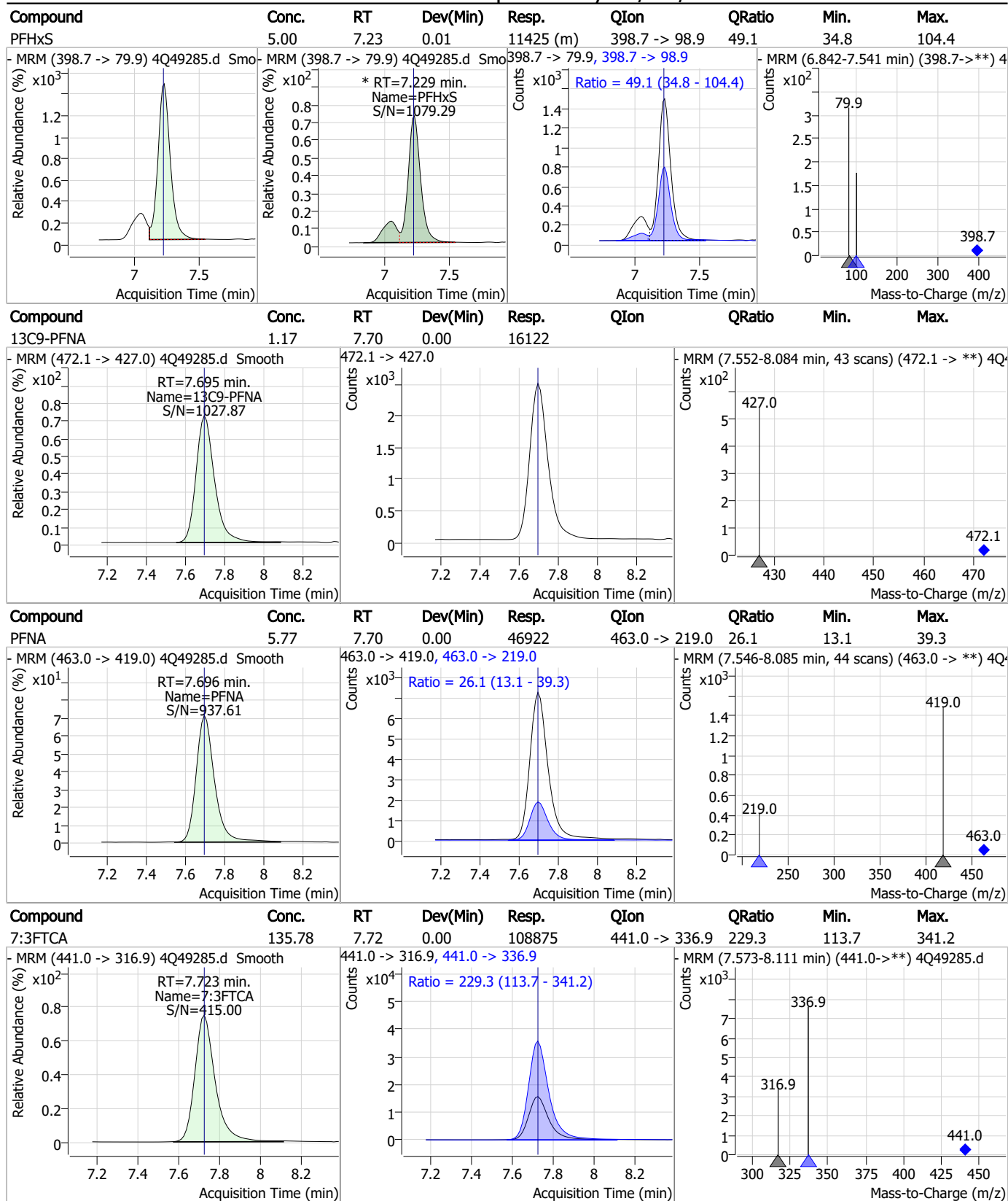
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### Perfluorinated Compounds by LC/MS/MS



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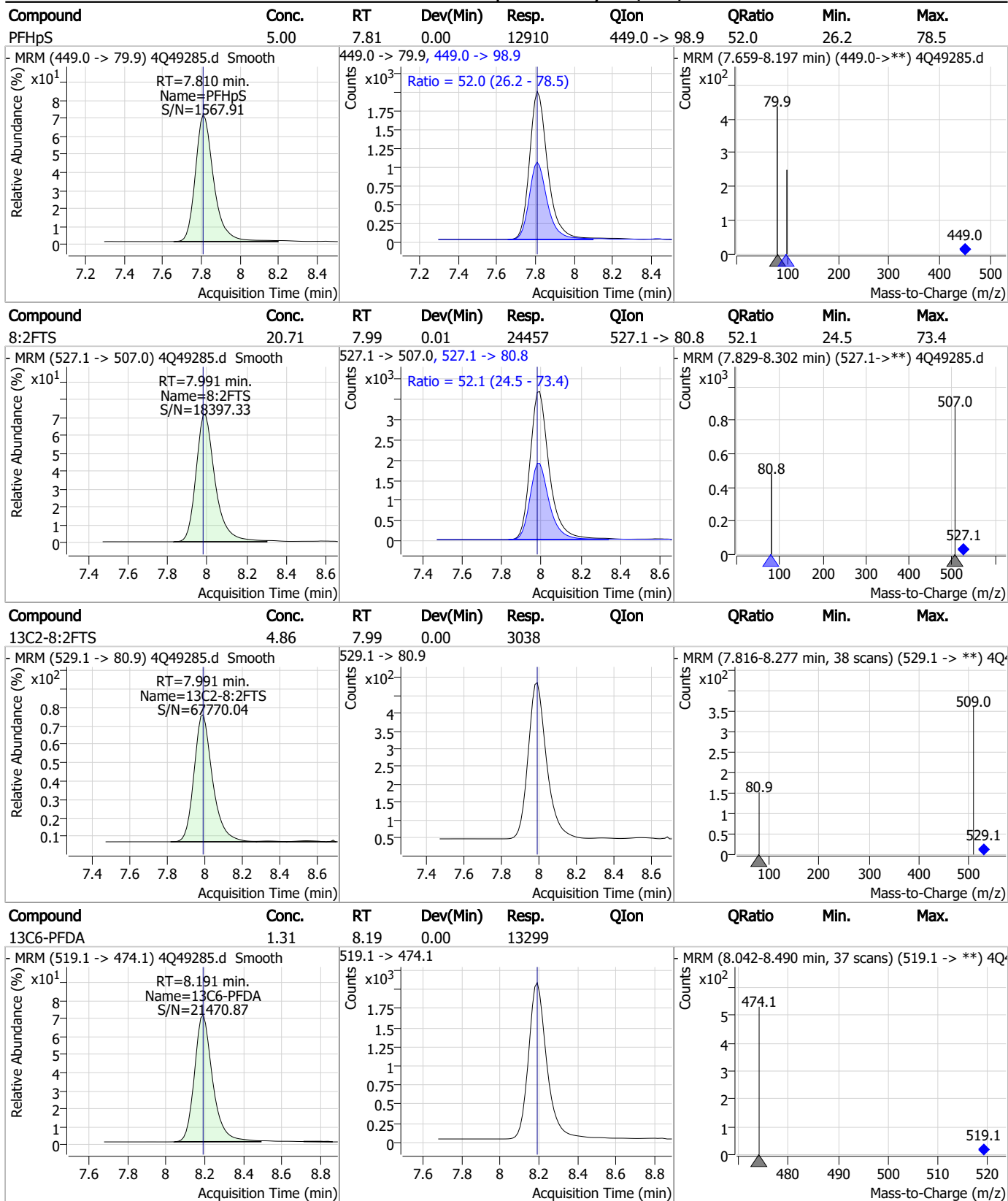
### Perfluorinated Compounds by LC/MS/MS



7.7.6  
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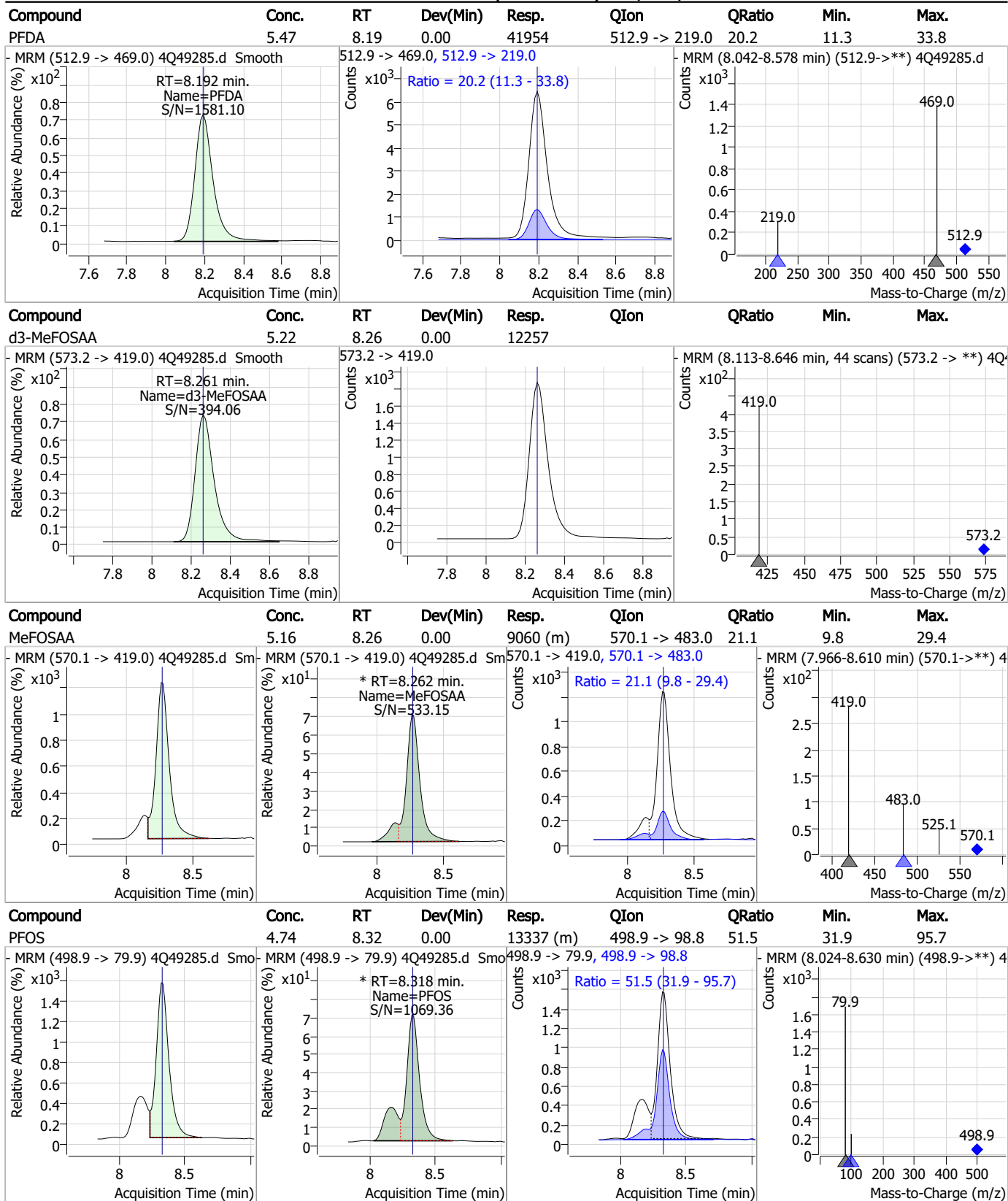


### Perfluorinated Compounds by LC/MS/MS



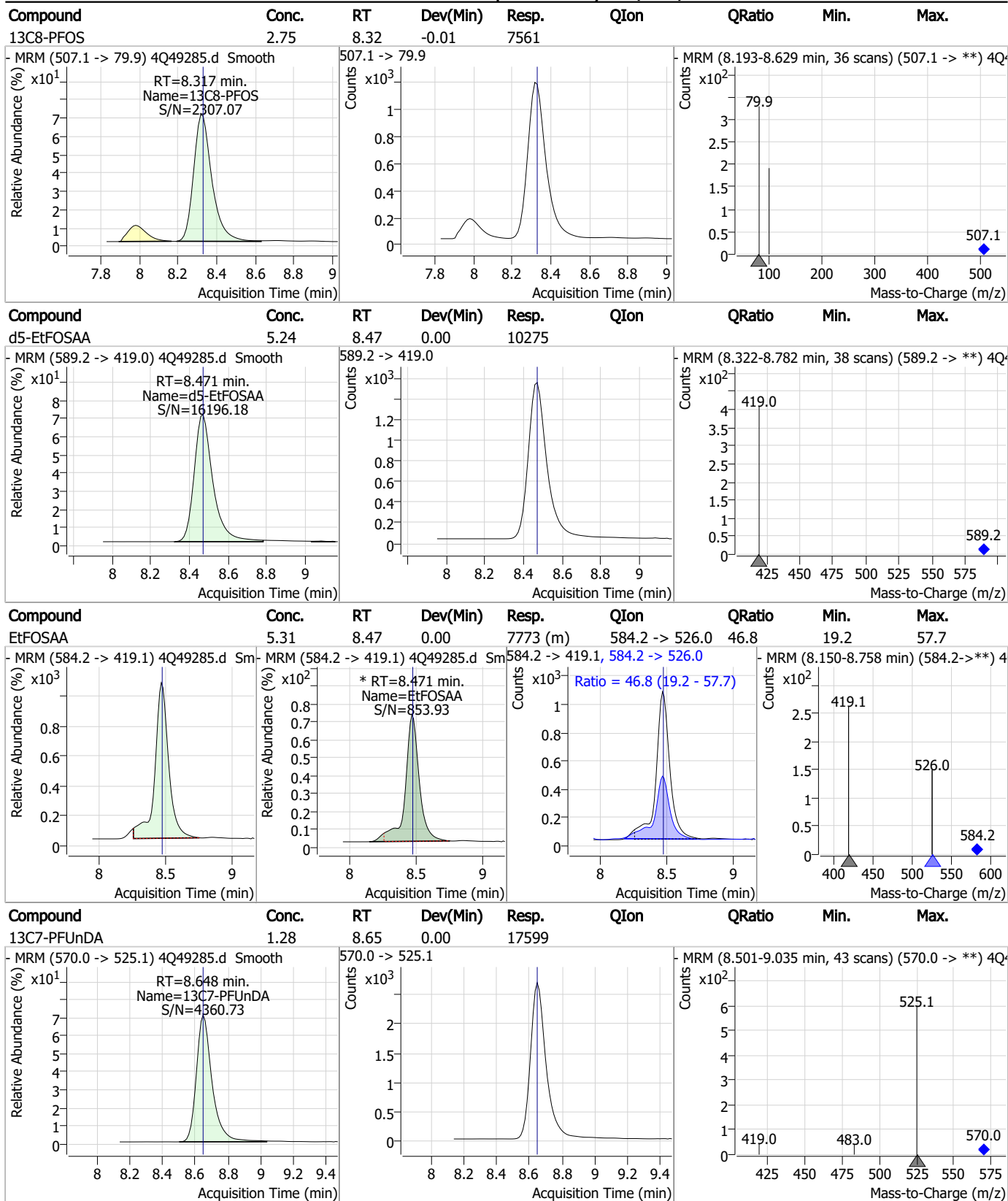
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### Perfluorinated Compounds by LC/MS/MS



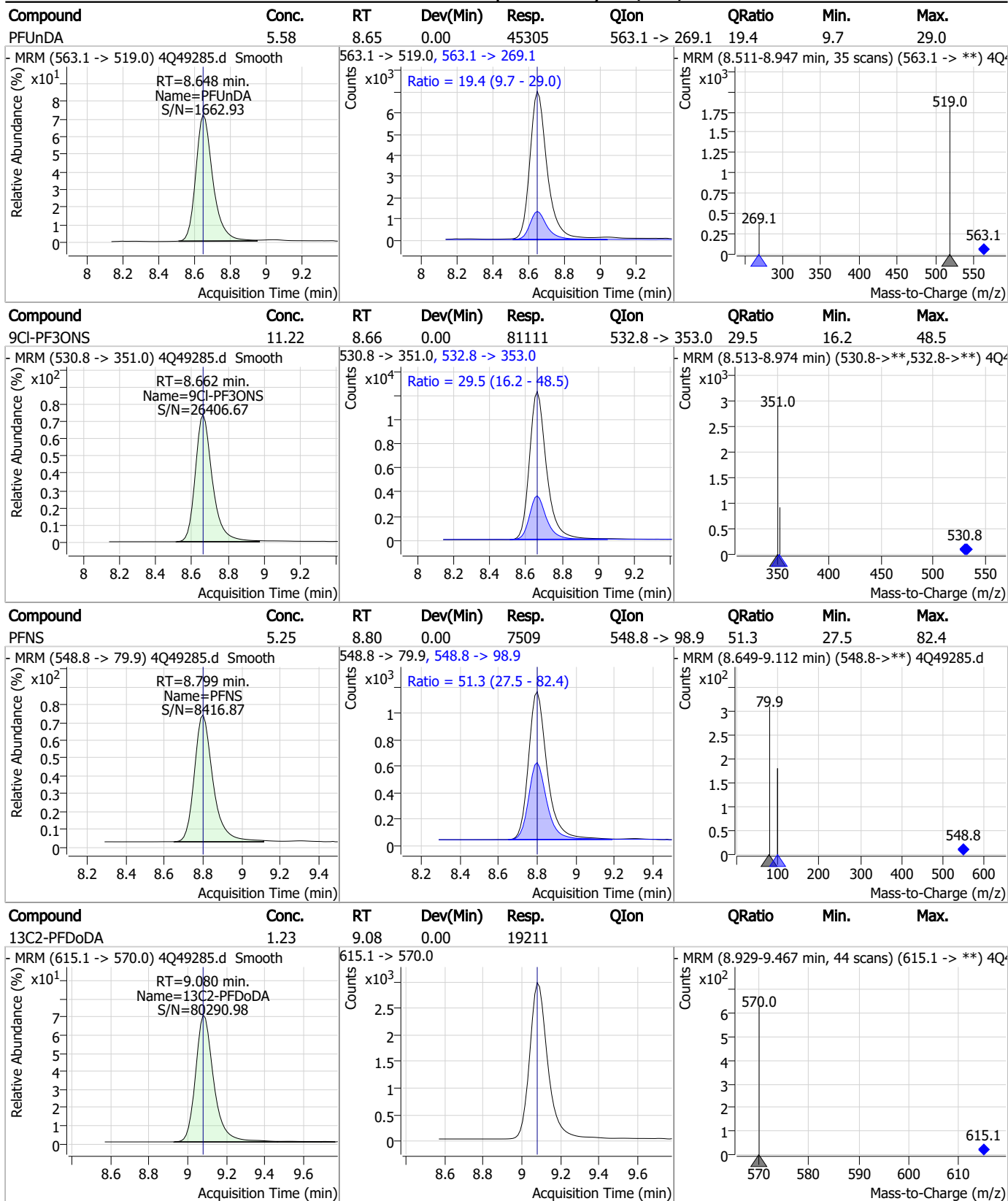
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### Perfluorinated Compounds by LC/MS/MS



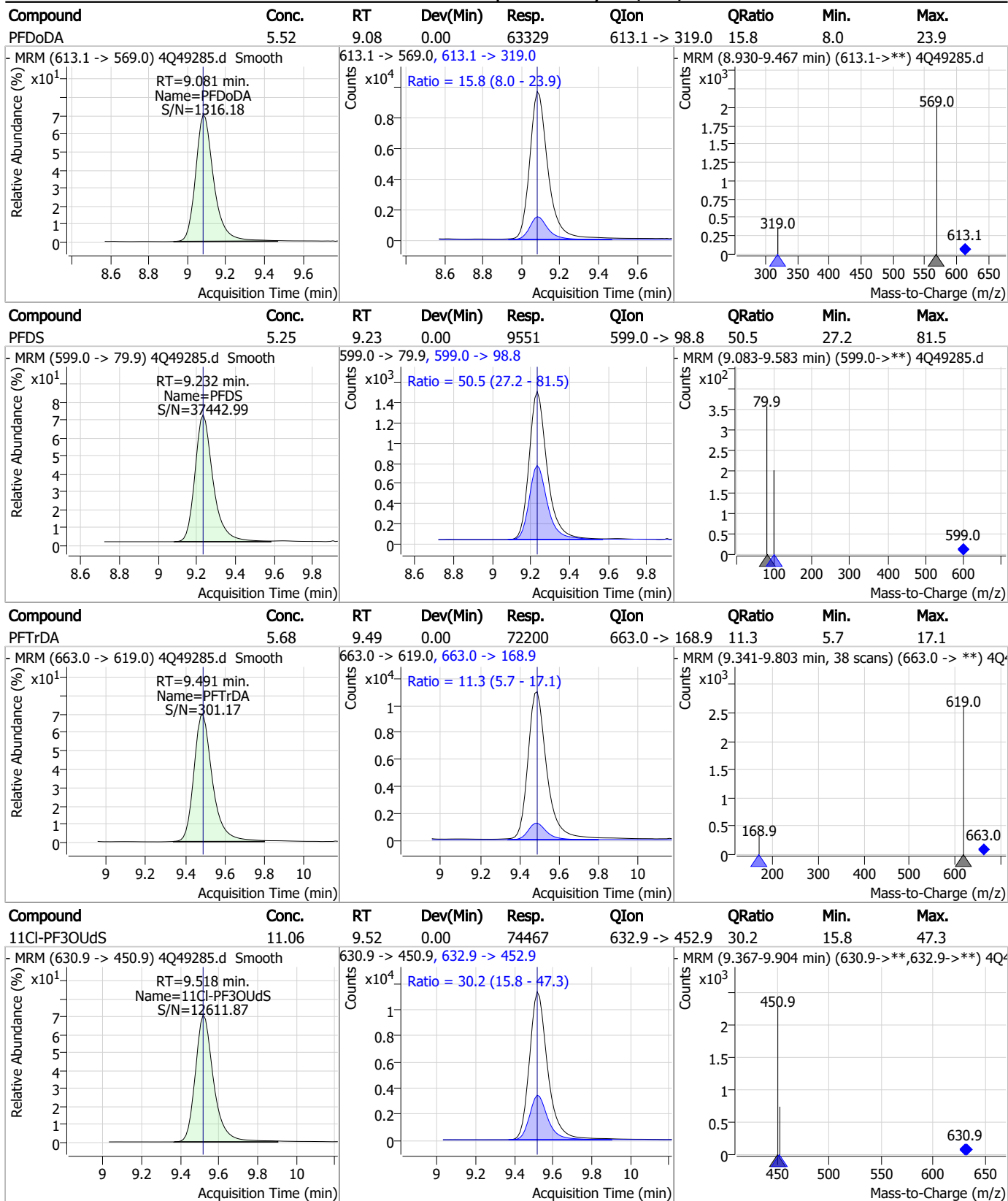
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### Perfluorinated Compounds by LC/MS/MS



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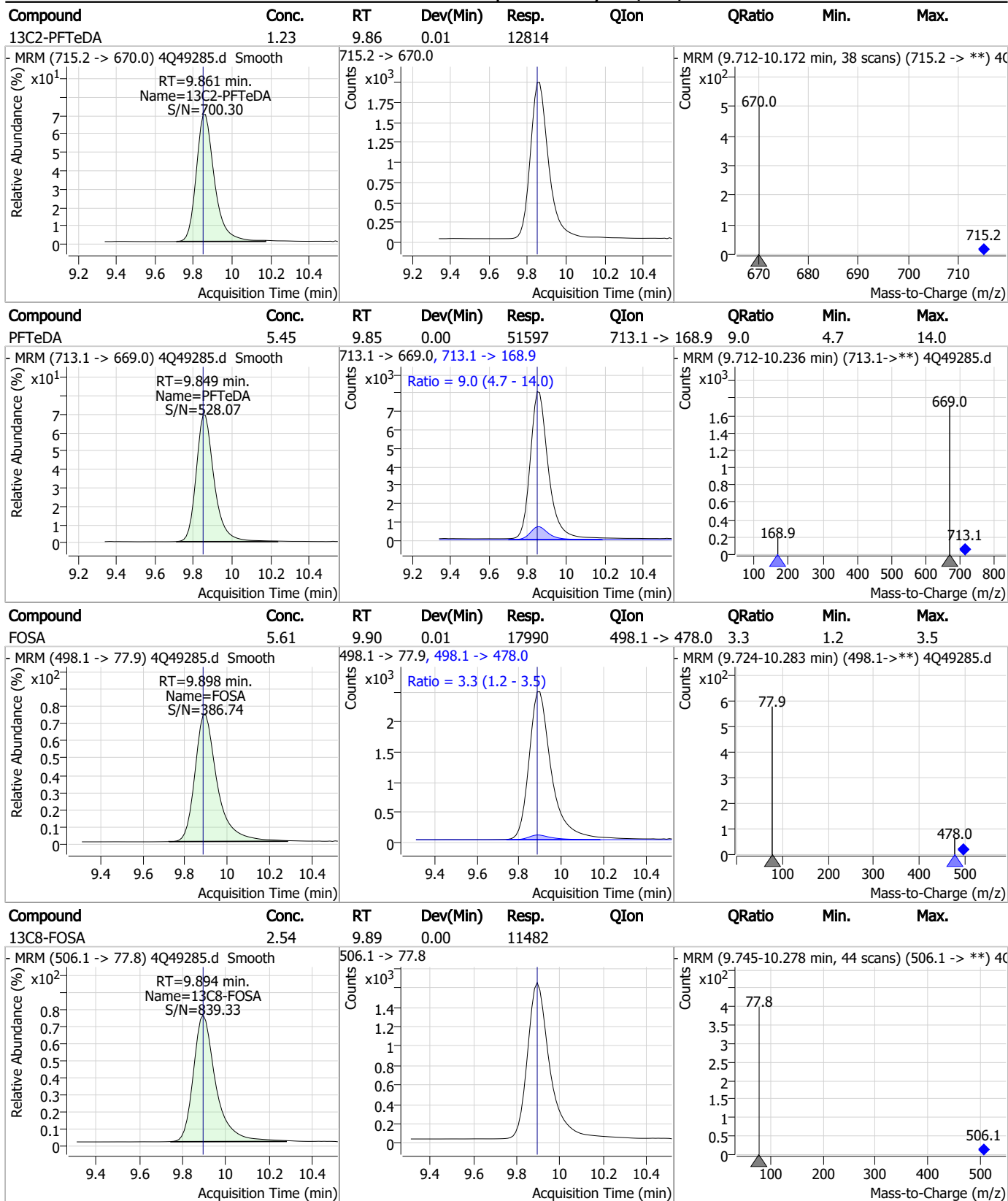
### Perfluorinated Compounds by LC/MS/MS



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

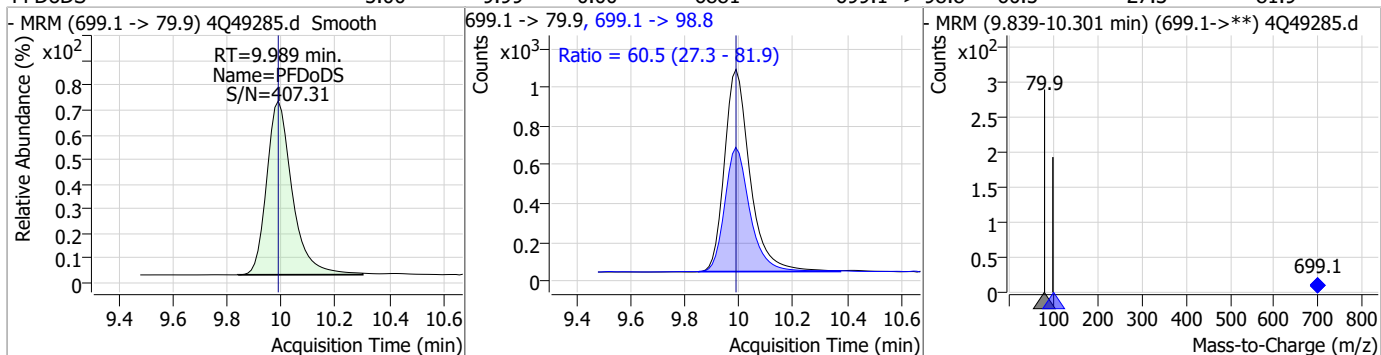


7.7.6  
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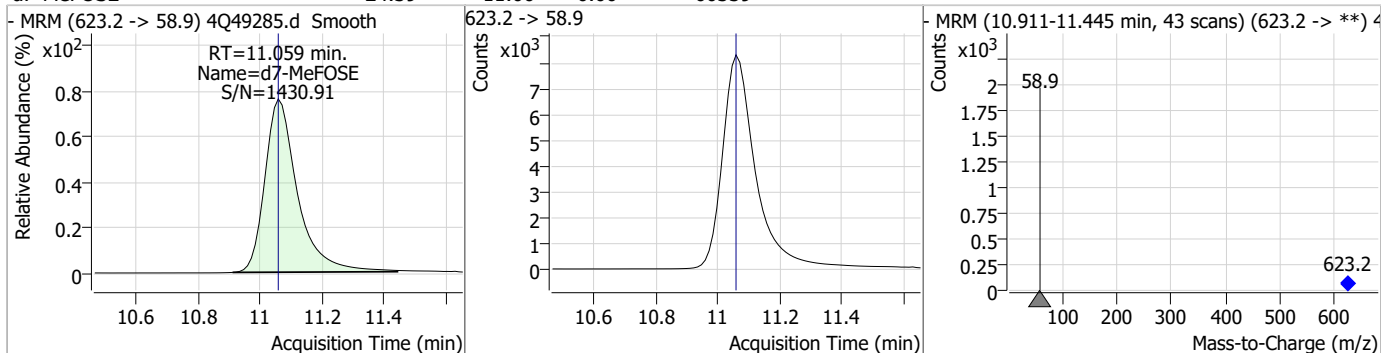


### Perfluorinated Compounds by LC/MS/MS

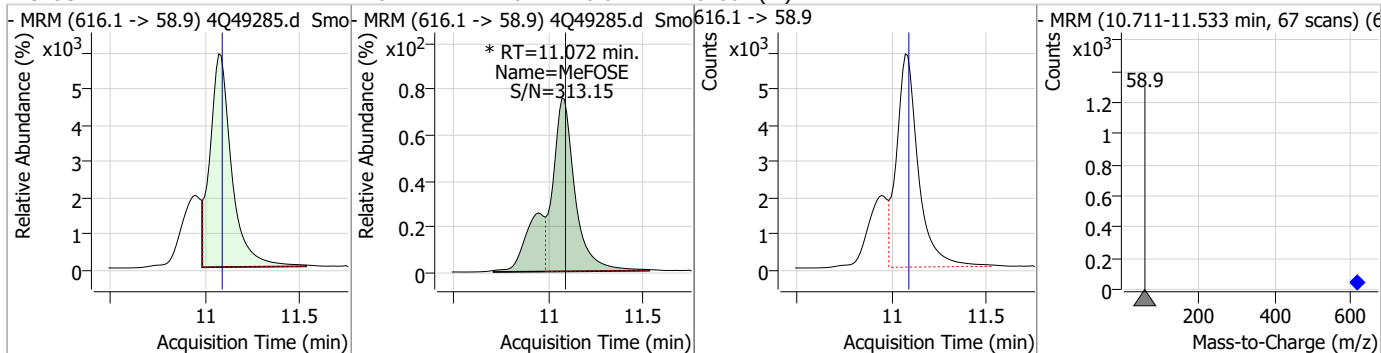
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	5.00	9.99	0.00	6881	699.1 -> 98.8	60.5	27.3	81.9



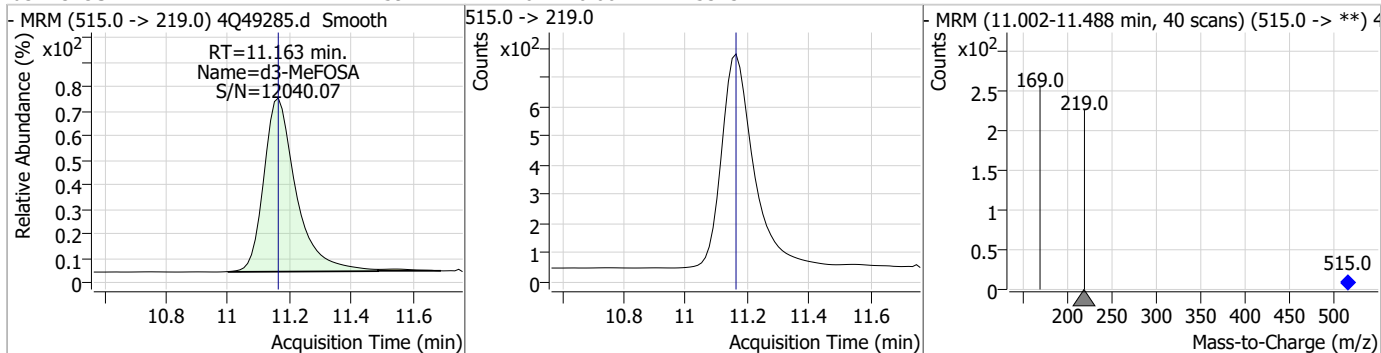
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.39	11.06	0.00	60339				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	28.77	11.07	-0.01	61602 (m)				



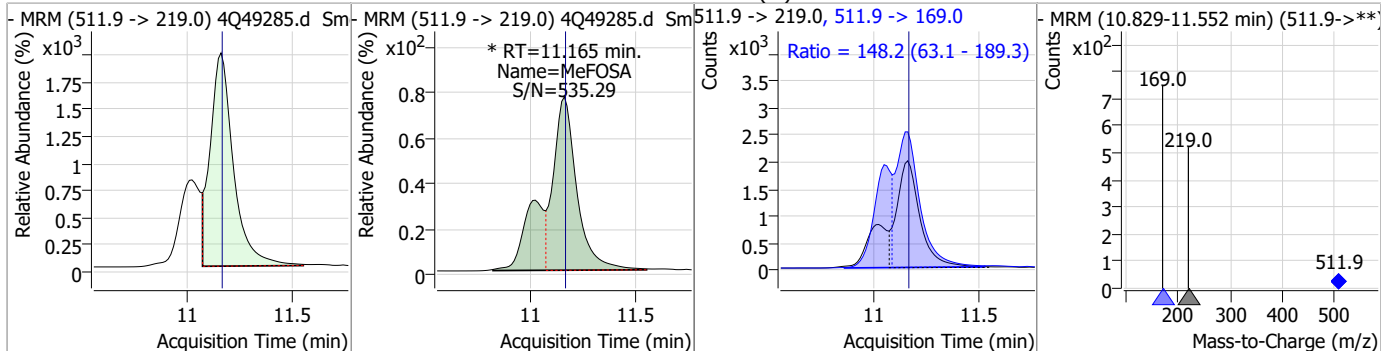
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.59	11.16	0.00	5343				



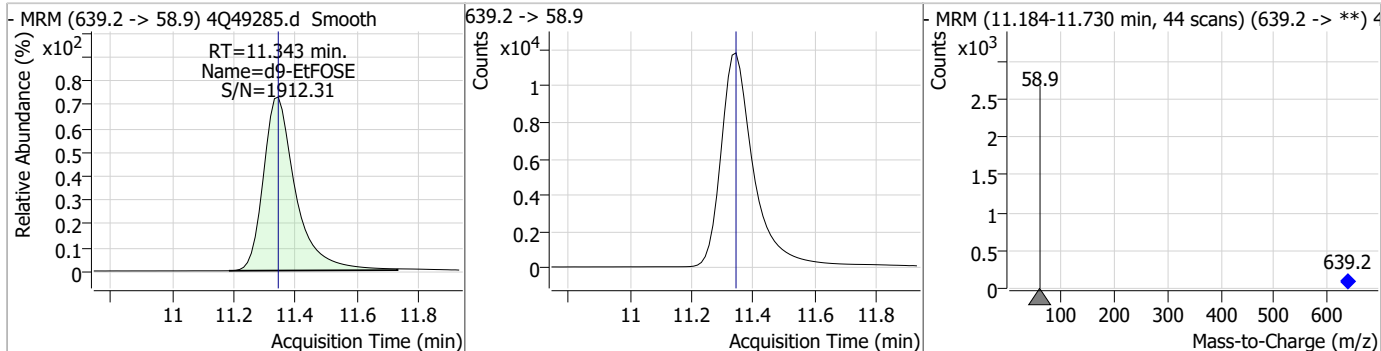
7.7.6  
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### Perfluorinated Compounds by LC/MS/MS

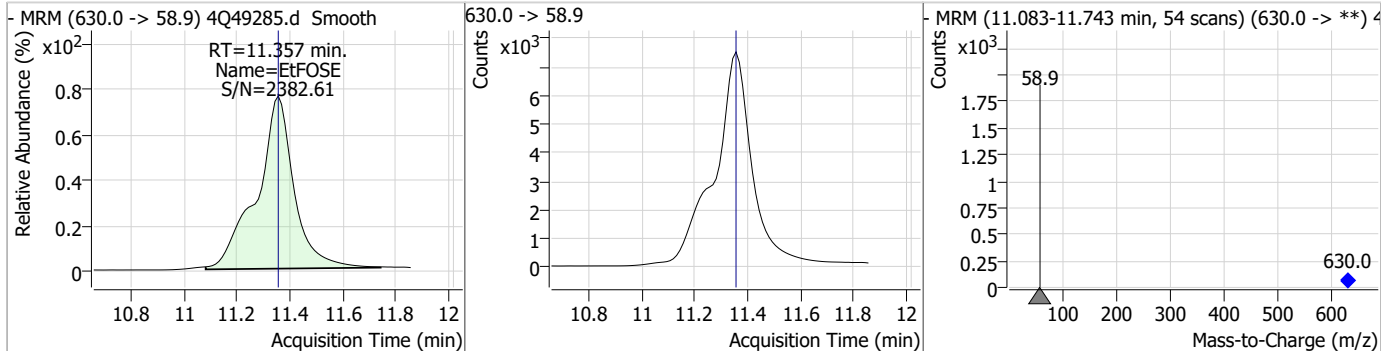
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	11.09	11.16	0.00	20553 (m)	511.9 -> 169.0	148.2	63.1	189.3



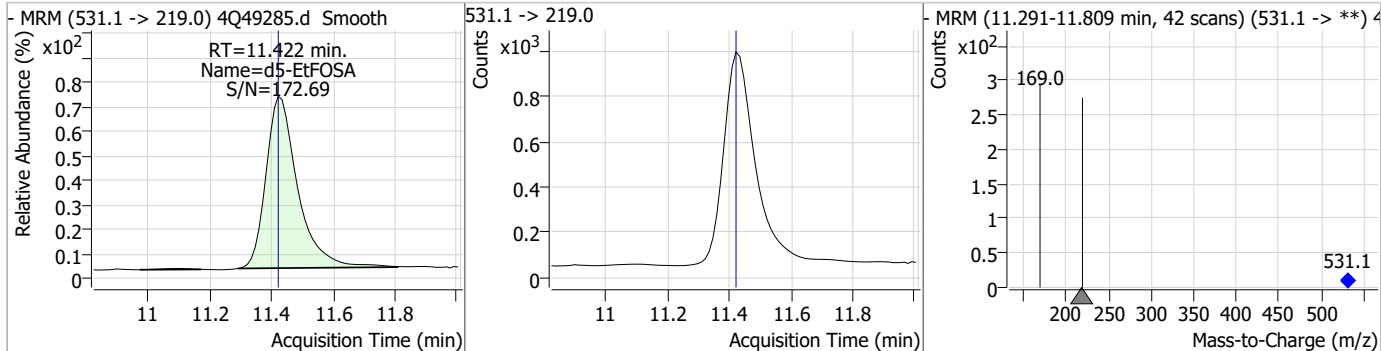
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.73	11.34	0.00	85295				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	27.65	11.36	0.00	72397				

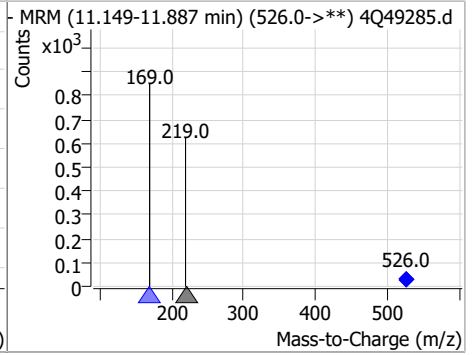
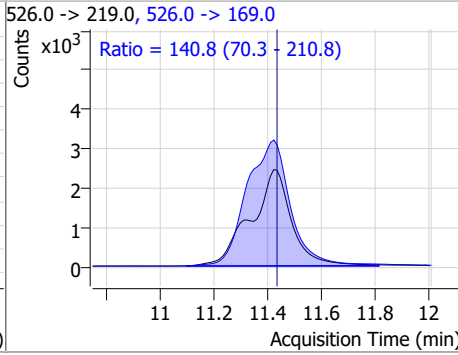
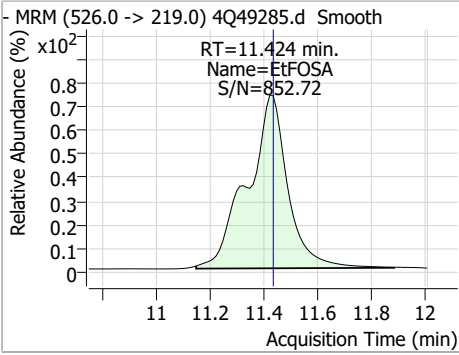


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.63	11.42	0.00	6708				



### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	11.03	11.42	-0.01	25493	526.0 -> 169.0	140.8	70.3	210.8



7.7.6

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# Manual Integration Approval Summary

Sample Number: S4Q722-IC722  
Lab FileID: 4Q49285.D  
Injection Time: 08/22/23 11:49

Method: EPA DRAFT 1633  
Analyst approved: 08/23/23 10:44 Martha Valls  
Supervisor approved: 08/23/23 15:25 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
MeFOSAA	2355-31-9		8.26	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.32	Split peak
EtFOSAA	2991-50-6		8.47	Split peak
MeFOSE	24448-09-7		11.07	Split peak
MeFOSA	31506-32-8		11.16	Split peak

7.7.6.1

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

Natasha Gumtje  
 08/23/23 15:25

## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q49286.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 8/22/2023 12:03:59 PM  
 Sample Name : ic722-6  
 Vial : P1-A7  
 DA Method File : 1633\_082223\_S4Q722.quantmethod.xml  
 Batch Name : s4q722.batch.bin  
 Sample Information : OP98180,S4Q722,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.811	216.8 -> 171.9	128433	10.00 µg/L	0.000
M5-PFPeA	4.312	268.3 -> 223.0	69049	5.00 µg/L	0.000
M5-PFHxA	5.510	318.0 -> 273.0	46332	2.50 µg/L	0.000
M4-PFHpA	6.467	367.1 -> 322.0	31576	2.50 µg/L	0.000
M8-PFOA	7.148	421.1 -> 376.0	51256	2.50 µg/L	0.000
M9-PFNA	7.695	472.1 -> 427.0	19448	1.25 µg/L	0.000
M6-PFDA	8.191	519.1 -> 474.1	14769	1.25 µg/L	0.000
M7-PFUnDA	8.648	570.0 -> 525.1	19421	1.25 µg/L	0.000
M2-PFDoDA	9.080	615.1 -> 570.0	21573	1.25 µg/L	0.000
M2-PFTeDA	9.849	715.2 -> 670.0	14025	1.25 µg/L	0.000
M8-FOSA	9.894	506.1 -> 77.8	13084	2.50 µg/L	0.000
M3-PFBS	5.391	302.1 -> 79.9	12671	2.50 µg/L	0.000
M3-PFHxS	7.229	402.1 -> 79.9	9190	2.50 µg/L	0.012
M8-PFOS	8.329	507.1 -> 79.9	7628	2.50 µg/L	0.000
M2-4:2FTS	5.208	329.1 -> 80.9	1365	5.00 µg/L	0.000
M2-6:2FTS	6.924	429.1 -> 80.9	2011	5.00 µg/L	0.013
M2-8:2FTS	7.991	529.1 -> 80.9	3384	5.00 µg/L	0.000
M3-MeFOSAA	8.261	573.2 -> 419.0	14024	5.00 µg/L	0.000
M3-HFPO-DA	5.877	286.9 -> 168.9	35081	10.00 µg/L	0.000
M5-EtFOSAA	8.471	589.2 -> 419.0	11654	5.00 µg/L	0.000
M7-MeFOSE	11.059	623.2 -> 58.9	70496	25.00 µg/L	0.000
M9-EtFOSE	11.343	639.2 -> 58.9	90980	25.00 µg/L	0.000
M5-EtFOSA	11.434	531.1 -> 219.0	7131	2.50 µg/L	0.012
M3-MeFOSA	11.163	515.0 -> 219.0	5971	2.50 µg/L	0.000
13C4-PFOS	8.330	502.8 -> 79.9	8312	2.50 µg/L	0.000
13C3-PFBA	2.816	216.0 -> 172.0	71347	5.00 µg/L	0.013
18O2-PFHxS	7.228	403.0 -> 83.9	6387	2.50 µg/L	0.000
13C4-PFOA	7.149	417.1 -> 372.0	57099	2.50 µg/L	0.000
13C2-PFDA	8.192	515.1 -> 470.1	13363	1.25 µg/L	0.000
13C5-PFNA	7.696	468.0 -> 423.0	20069	1.25 µg/L	0.000
13C2-PFHxA	5.511	315.1 -> 270.0	43249	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.208	329.1 -> 80.9	1365	4.70 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.1%		
13C2-6:2FTS	6.924	429.1 -> 80.9	2011	4.88 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.6%		
13C2-8:2FTS	7.991	529.1 -> 80.9	3384	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C2-PFDoDA	9.080	615.1 -> 570.0	21573	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C2-PFTeDA	9.849	715.2 -> 670.0	14025	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.2%		
13C3-PFBS	5.391	302.1 -> 79.9	12671	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C3-PFHxS	7.229	402.1 -> 79.9	9190	2.56 µg/L	0.012

7.7.7  
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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 = 102.3%		
13C4-PFBA	2.811	216.8 -> 171.9	128433	10.12 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C4-PFHpA	6.467	367.1 -> 322.0	31576	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C5-PFHxA	5.510	318.0 -> 273.0	46332	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C5-PFPeA	4.312	268.3 -> 223.0	69049	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.4%		
13C6-PFDA	8.191	519.1 -> 474.1	14769	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.5%		
13C7-PFUnDA	8.648	570.0 -> 525.1	19421	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C8-FOSA	9.894	506.1 -> 77.8	13084	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.5%		
13C8-PFOA	7.148	421.1 -> 376.0	51256	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C8-PFOS	8.329	507.1 -> 79.9	7628	2.23 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 89.4%		
13C9-PFNA	7.695	472.1 -> 427.0	19448	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.0%		
d3-MeFOSAA	8.261	573.2 -> 419.0	14024	4.82 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.5%		
13C3-HFPO-DA	5.877	286.9 -> 168.9	35081	10.05 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.5%		
d3-MeFOSA	11.163	515.0 -> 219.0	5971	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.3%		
d5-EtFOSAA	8.471	589.2 -> 419.0	11654	4.79 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.9%		
d7-MeFOSE	11.059	623.2 -> 58.9	70496	23.00 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 92.0%		
d9-EtFOSE	11.343	639.2 -> 58.9	90980	22.15 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 88.6%		
d5-EtFOSA	11.434	531.1 -> 219.0	7131	2.25 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 90.2%		
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.209	327.1 -> 307.0	79611	51.05 µg/L	96
		327.1 -> 80.9	34756		
6:2FTS	6.924	427.1 -> 407.0	74499	50.75 µg/L	99
		427.1 -> 80.9	30526		
8:2FTS	7.991	527.1 -> 507.0	62735	48.46 µg/L	100
		527.1 -> 80.8	30733		
EtFOSAA	8.484	584.2 -> 419.1	21259	12.81 µg/L	m 90
		584.2 -> 526.0	9486		
FOSA	9.885	498.1 -> 77.9	47627	13.04 µg/L	100
		498.1 -> 478.0	1169		
MeFOSAA	8.274	570.1 -> 419.0	25228	12.56 µg/L	m 98
		570.1 -> 483.0	5170		
PFBA	2.807	212.8 -> 168.9	145412	52.68 µg/L	100
PFBS	5.392	298.7 -> 79.9	41846	11.38 µg/L	97
		298.7 -> 98.8	16409		
PFDA	8.192	512.9 -> 469.0	109004	12.79 µg/L	94
		512.9 -> 219.0	21562		
PFDoDA	9.081	613.1 -> 569.0	169433	13.15 µg/L	98
		613.1 -> 319.0	25153		
PFDS	9.232	599.0 -> 79.9	24956	13.59 µg/L	94

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	12539			
PFHpA	6.480	363.1 -> 319.0	202904	13.23	µg/L	100
		363.1 -> 169.0	37389			
PFHpS	7.810	449.0 -> 79.9	34254	13.15	µg/L	99
		449.0 -> 98.9	18232			
PFHxA	5.513	313.0 -> 269.0	189936	13.33	µg/L	100
		313.0 -> 118.9	6232			
PFHxS	7.229	398.7 -> 79.9	29778	11.48	µg/L	m 76
		398.7 -> 98.9	14908			
PFNA	7.696	463.0 -> 419.0	126147	12.85	µg/L	96
		463.0 -> 219.0	30627			
PFNS	8.799	548.8 -> 79.9	18375	12.73	µg/L	95
		548.8 -> 98.9	9387			
PFOA	7.150	413.0 -> 369.0	244236	12.61	µg/L	98
		413.0 -> 169.0	53244			
PFOS	8.331	498.9 -> 79.9	35303	12.44	µg/L	m 85
		498.9 -> 98.8	18485			
PFPeA	4.314	263.0 -> 219.0	323395	26.40	µg/L	100
PFPeS	6.482	349.1 -> 79.9	27899	12.02	µg/L	96
		349.1 -> 98.9	12100			
PFTeDA	9.849	713.1 -> 669.0	138672	13.38	µg/L	99
		713.1 -> 168.9	12438			
PFTrDA	9.491	663.0 -> 619.0	188328	13.20	µg/L	99
		663.0 -> 168.9	20686			
PFUnDA	8.648	563.1 -> 519.0	118882	13.26	µg/L	99
		563.1 -> 269.1	22218			
11CI-PF3OUdS	9.518	630.9 -> 450.9	197785	25.47	µg/L	98
		632.9 -> 452.9	60547			
9CI-PF3ONS	8.662	530.8 -> 351.0	202052	24.23	µg/L	97
		532.8 -> 353.0	61758			
ADONA	6.743	376.9 -> 250.9	623453	25.16	µg/L	99
		376.9 -> 84.8	193714			
HFPO-DA	5.878	284.9 -> 168.9	73333	25.88	µg/L	99
		284.9 -> 184.9	8456			
3:3FTCA	3.773	241.0 -> 177.0	39095	64.81	µg/L	99
		241.0 -> 117.0	3966			
5:3FTCA	6.218	341.0 -> 237.1	673673	332.43	µg/L	99
		341.0 -> 217.0	495904			
7:3FTCA	7.723	441.0 -> 316.9	295351	331.82	µg/L	100
		441.0 -> 336.9	669558			
EtFOSA	11.436	526.0 -> 219.0	66332	27.00	µg/L	98
		526.0 -> 169.0	91668			
EtFOSE	11.357	630.0 -> 58.9	186111	66.64	µg/L	100
MeFOSA	11.165	511.9 -> 219.0	53666	25.90	µg/L	m 79
		511.9 -> 169.0	80724			
MeFOSE	11.084	616.1 -> 58.9	162465	64.94	µg/L	m 100
PFDoS	9.989	699.1 -> 79.9	18522	13.34	µg/L	97
		699.1 -> 98.8	10550			
NFDHA	5.392	295.0 -> 201.0	27978	24.91	µg/L	96
		295.0 -> 84.9	8173			
PFMBA	4.728	279.0 -> 85.1	189975	26.35	µg/L	100
PFMPA	3.440	229.0 -> 84.9	207858	26.30	µg/L	100
PFEESA	5.933	314.8 -> 134.9	291648	23.58	µg/L	99
		314.8 -> 82.9	9681			

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

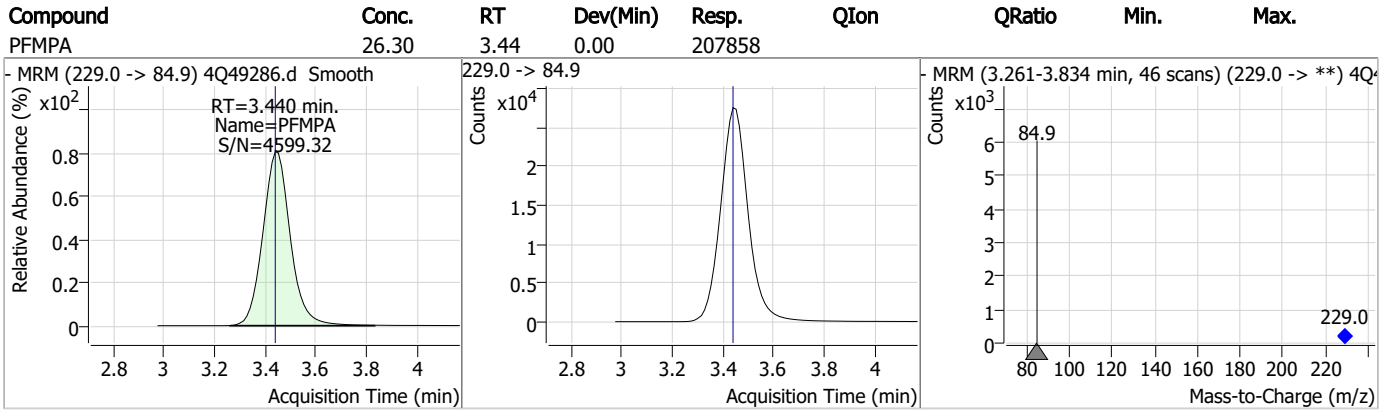
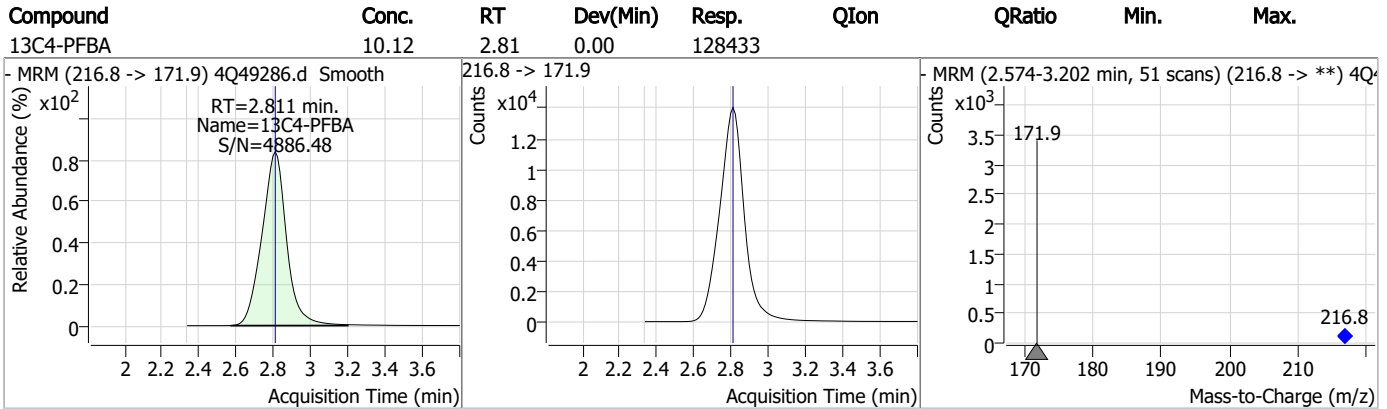
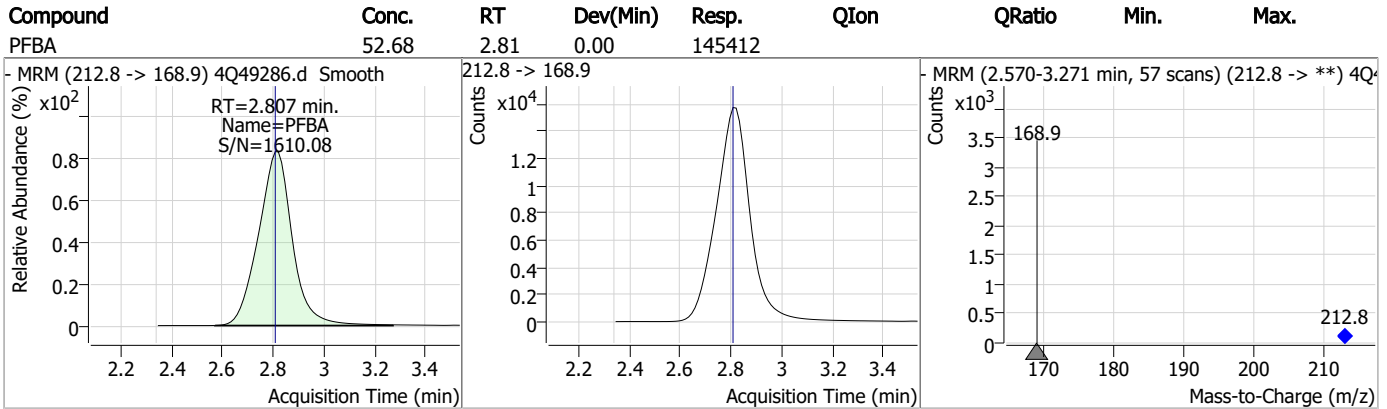
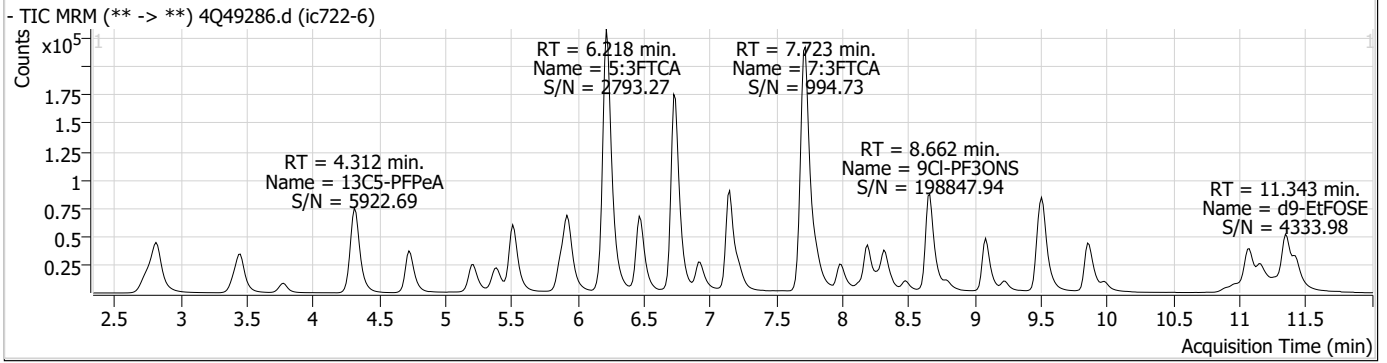


### Perfluorinated Compounds by LC/MS/MS

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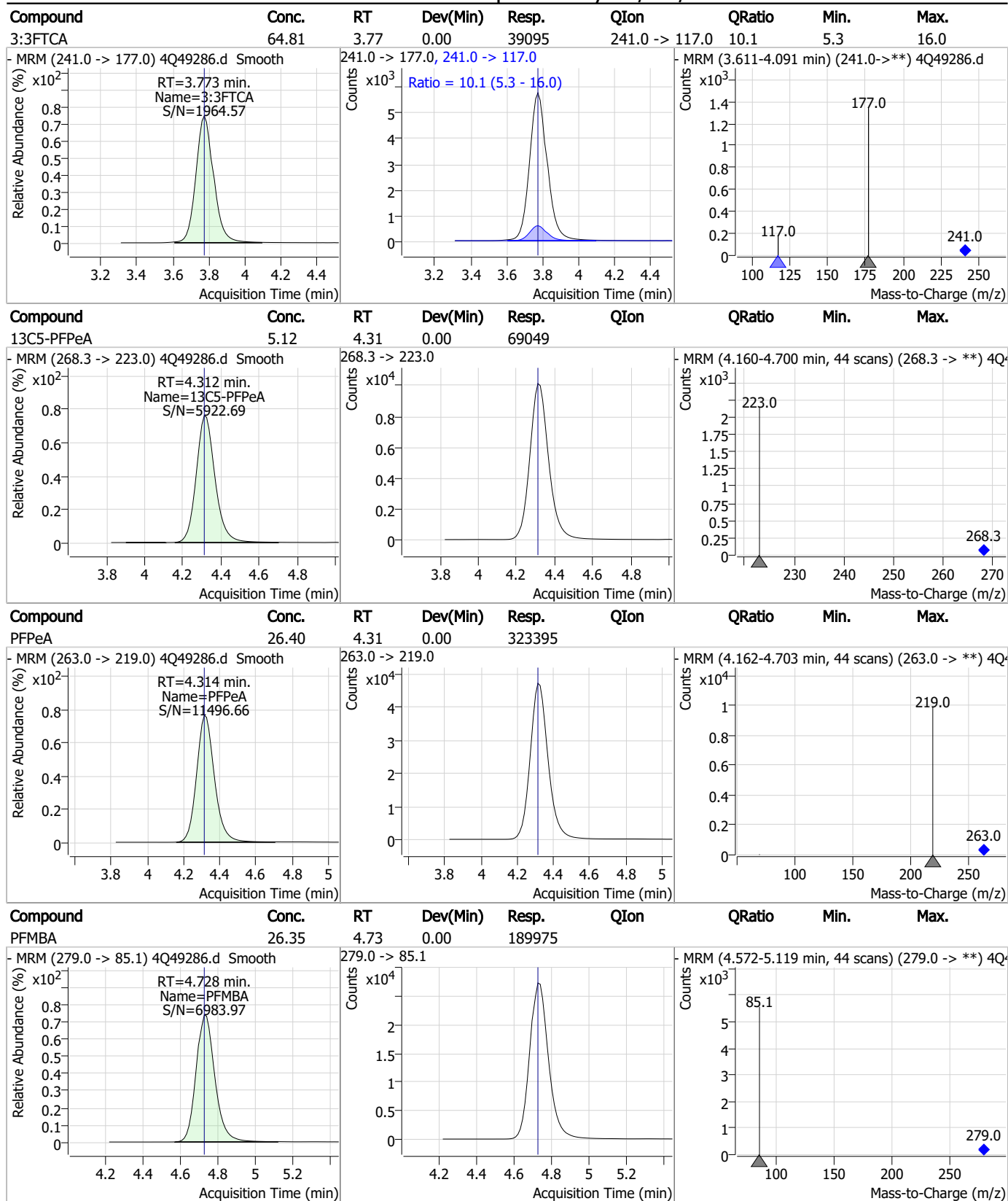
7.7.7  
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### Perfluorinated Compounds by LC/MS/MS



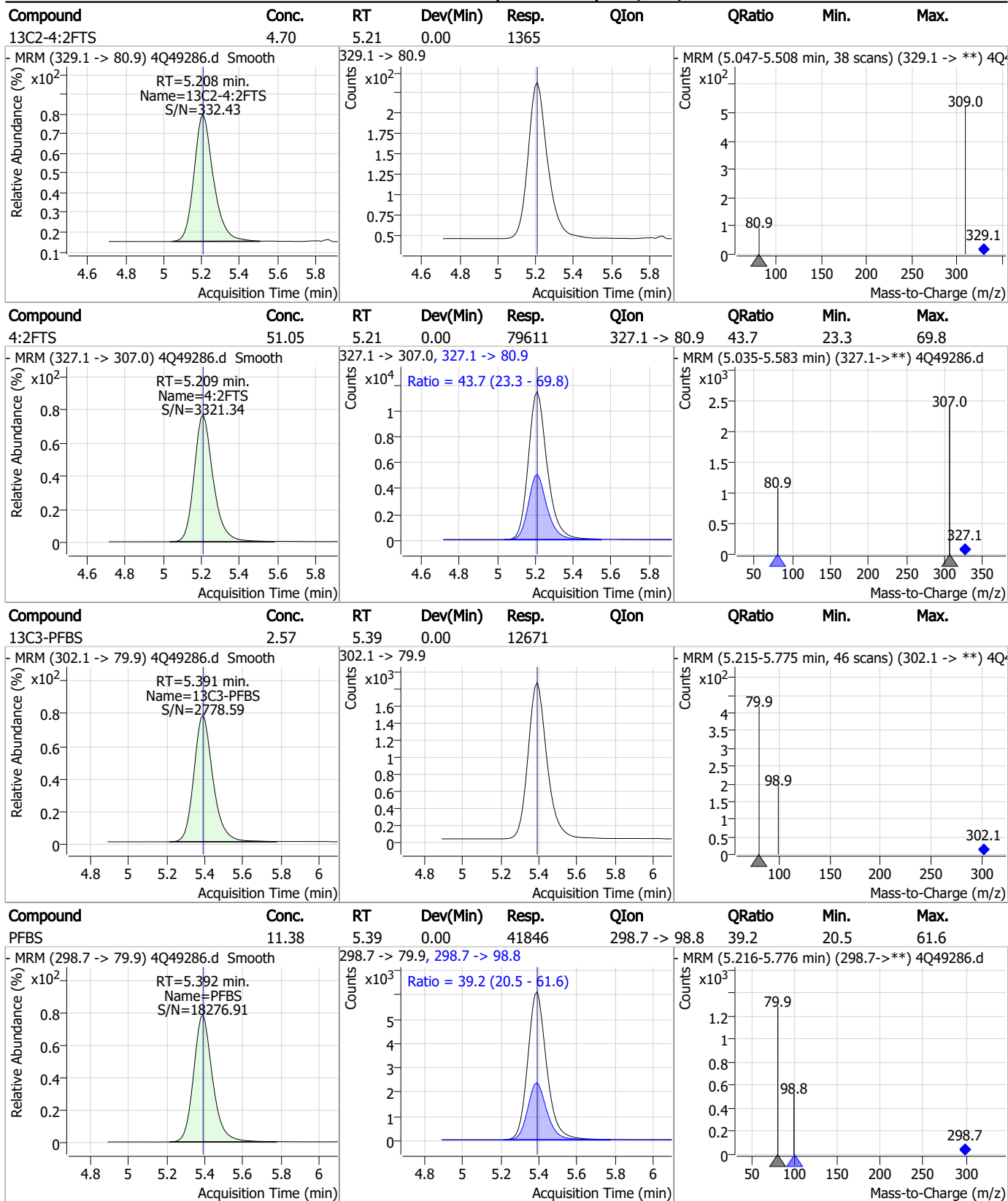
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### Perfluorinated Compounds by LC/MS/MS



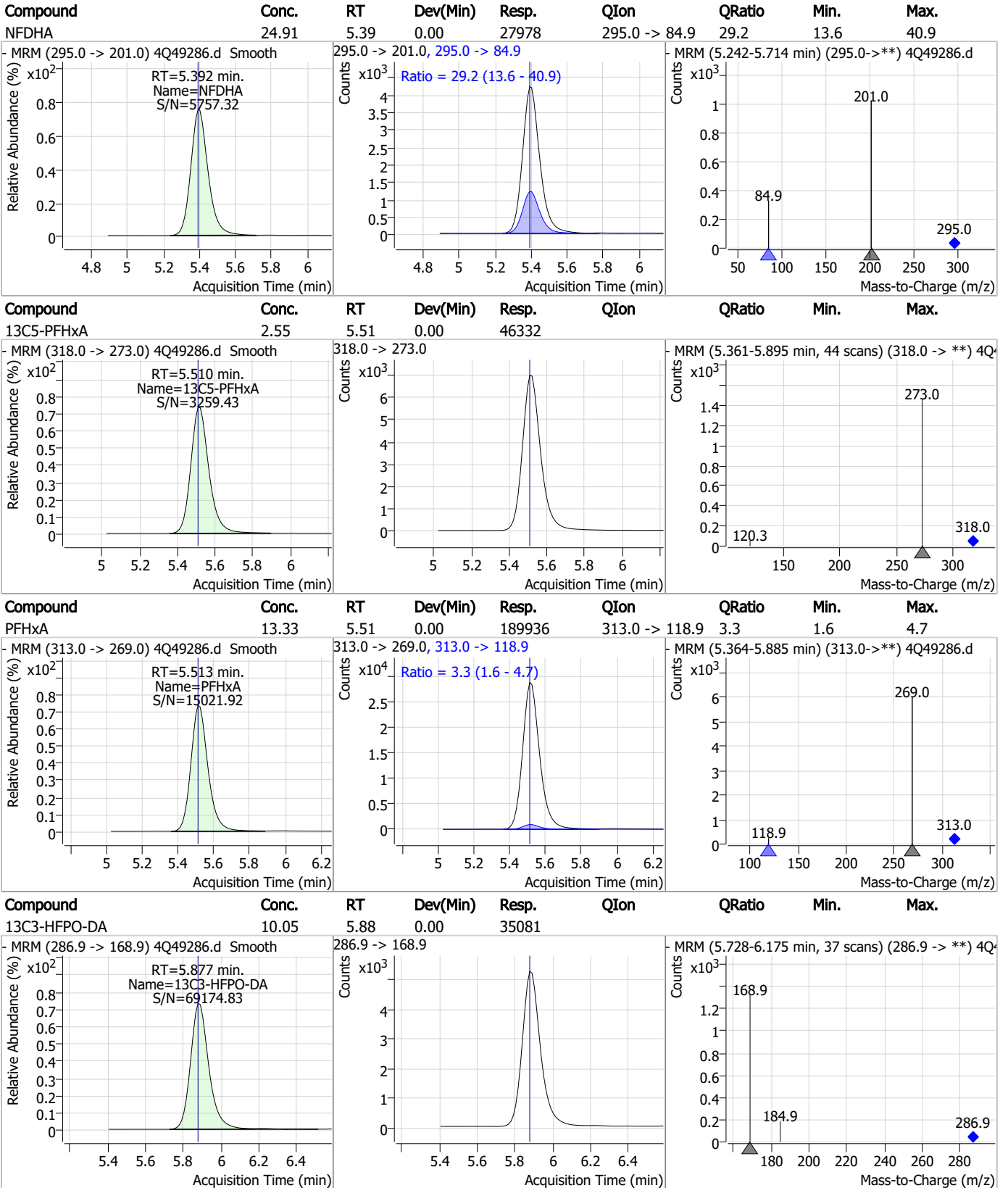
7.7.7  
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### Perfluorinated Compounds by LC/MS/MS



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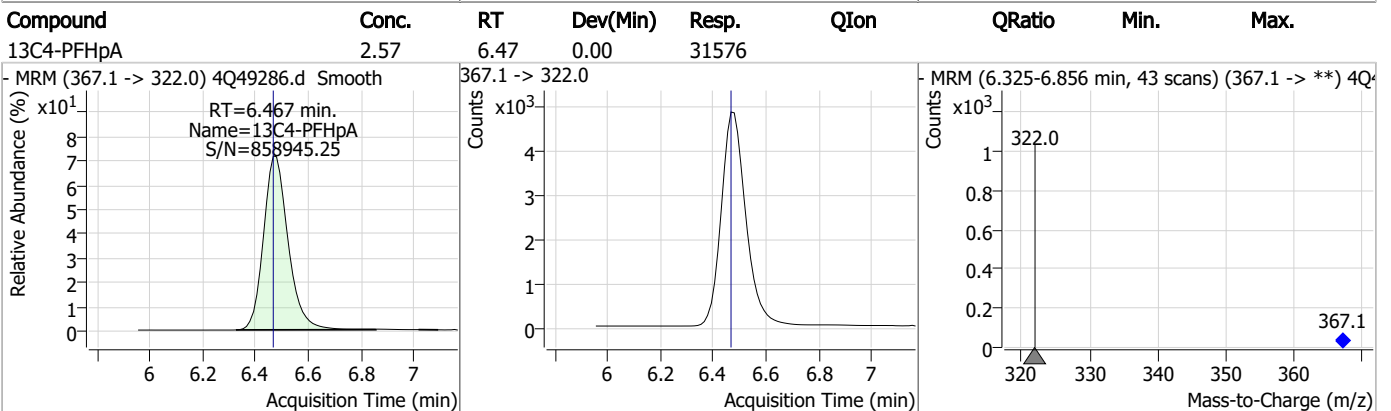
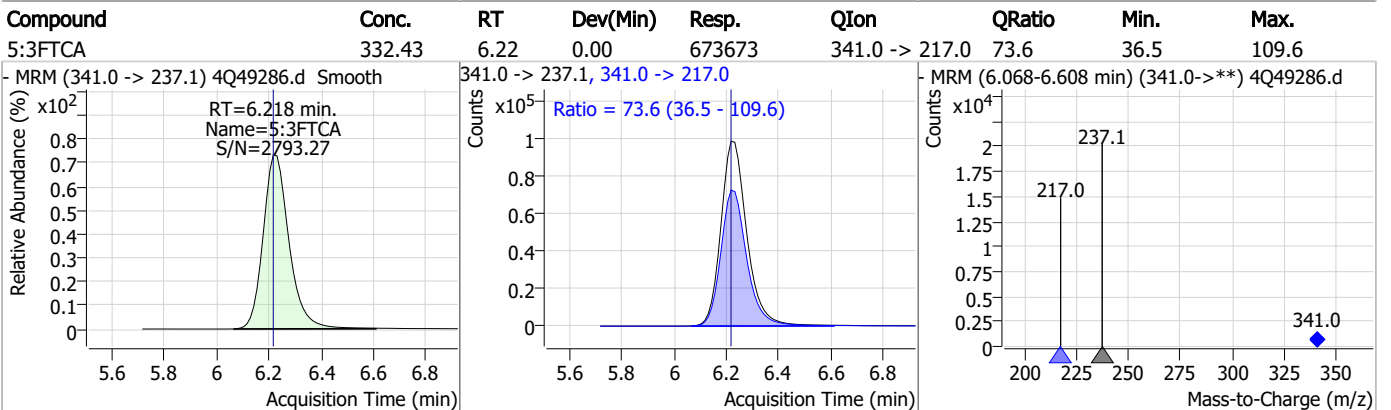
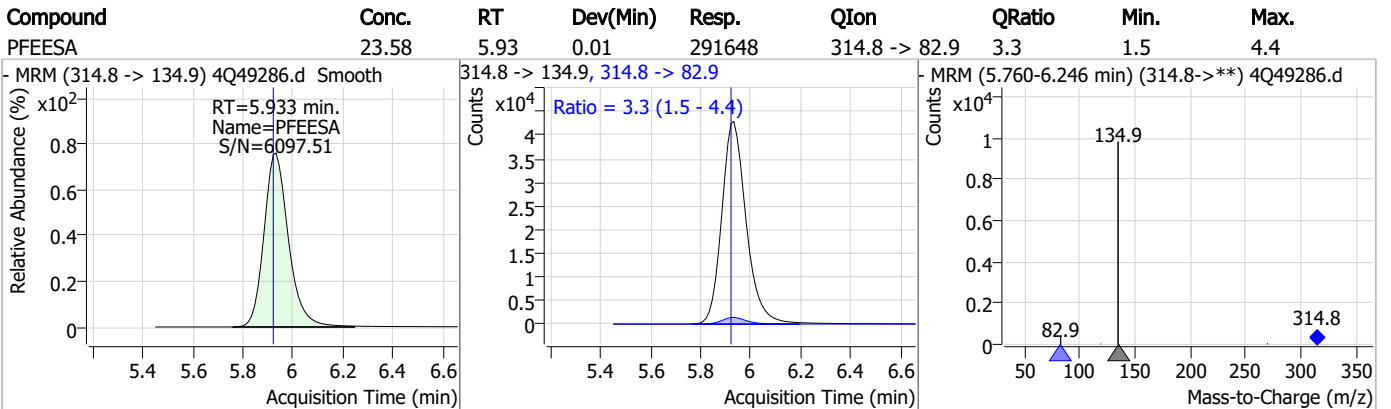
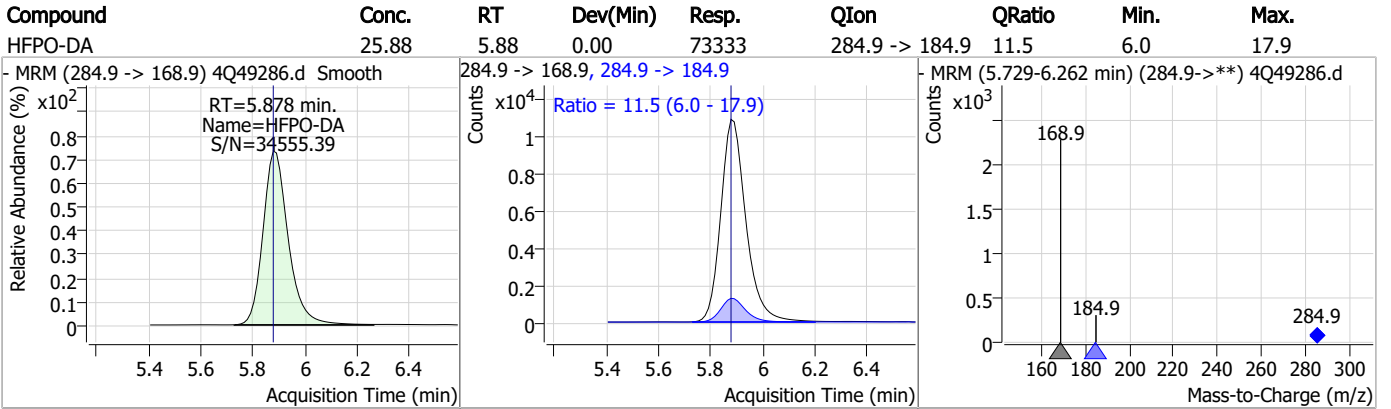
### Perfluorinated Compounds by LC/MS/MS



7.7.7

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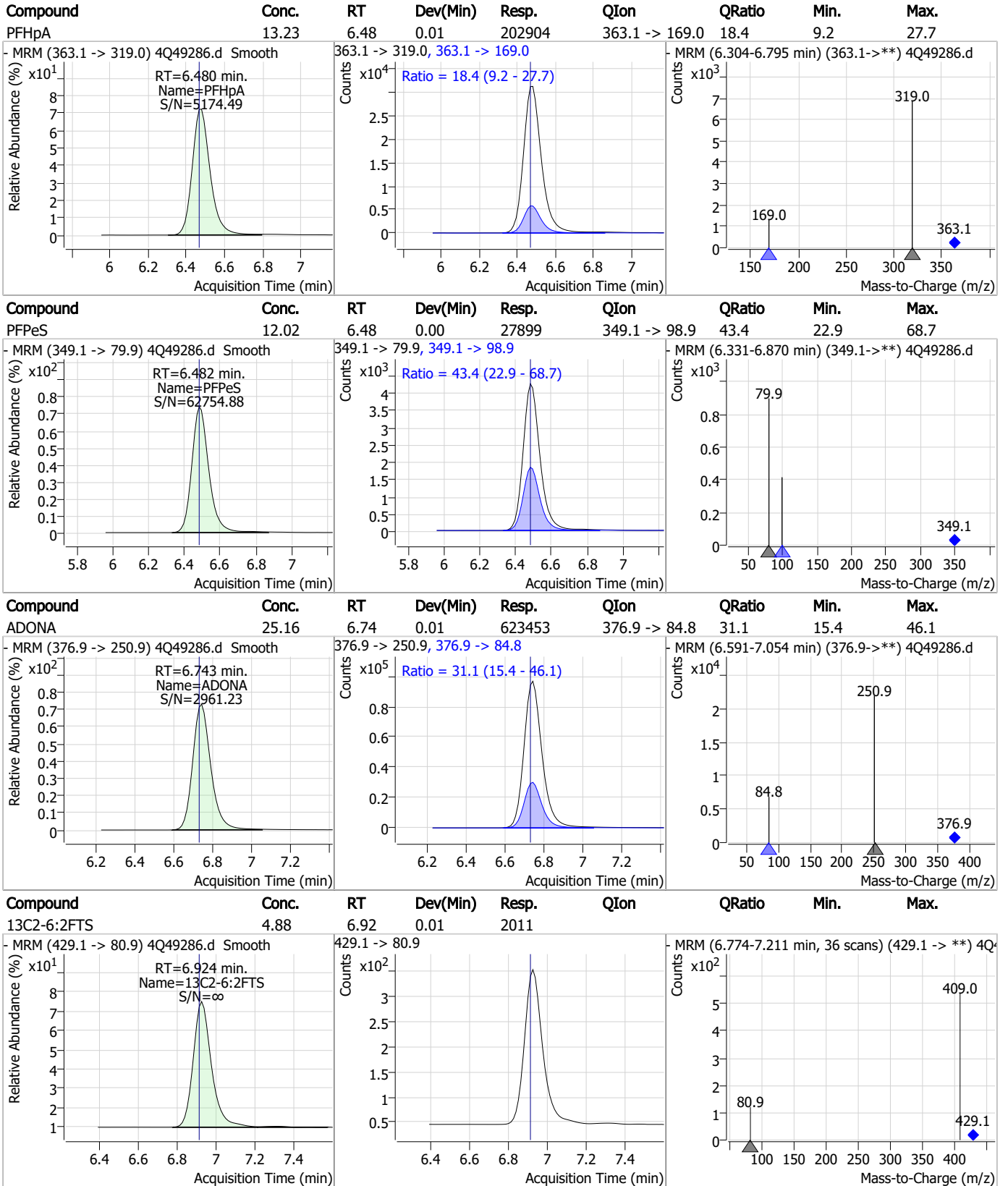
### Perfluorinated Compounds by LC/MS/MS



7.7.7

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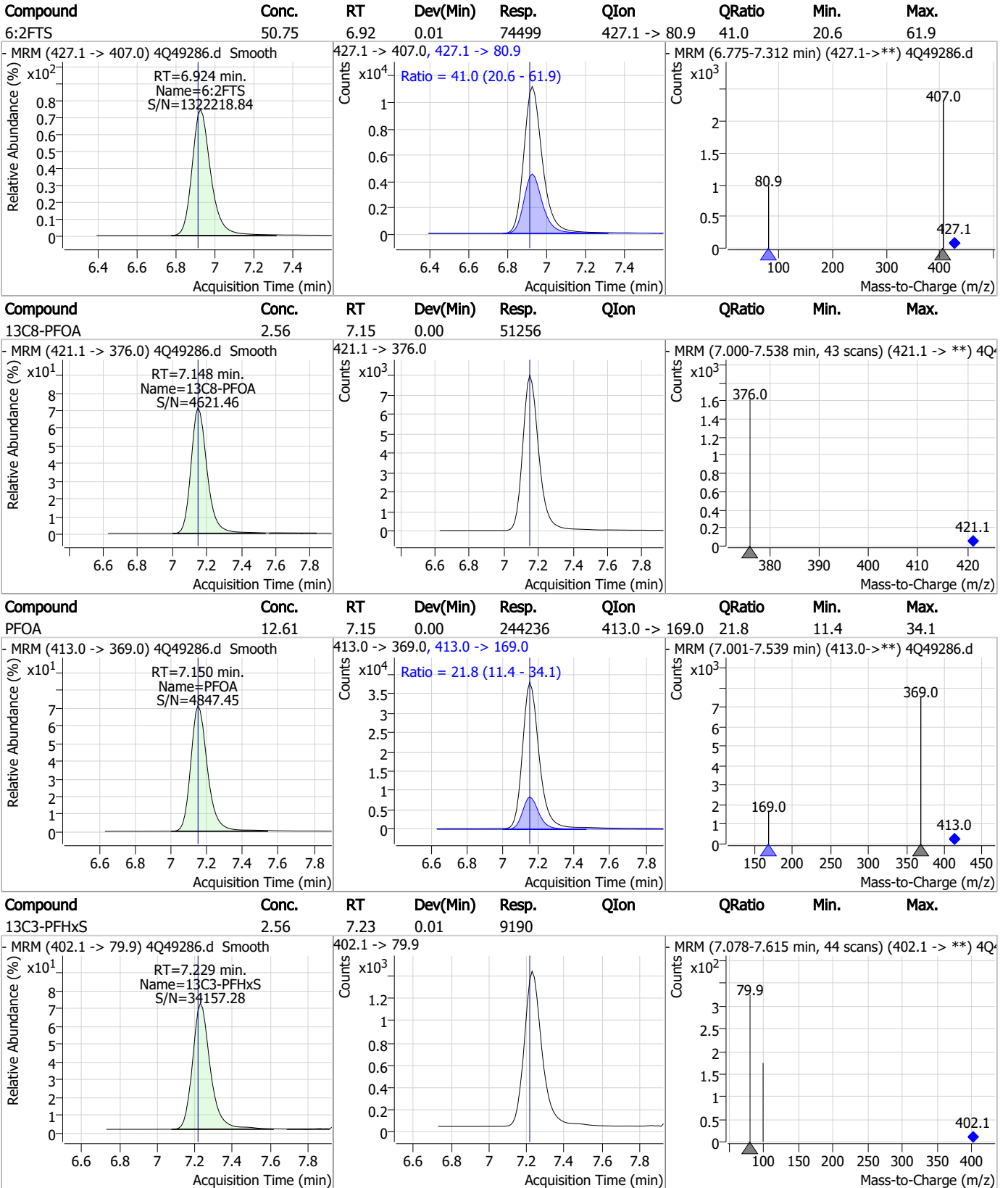
### Perfluorinated Compounds by LC/MS/MS



7.7.7

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### Perfluorinated Compounds by LC/MS/MS

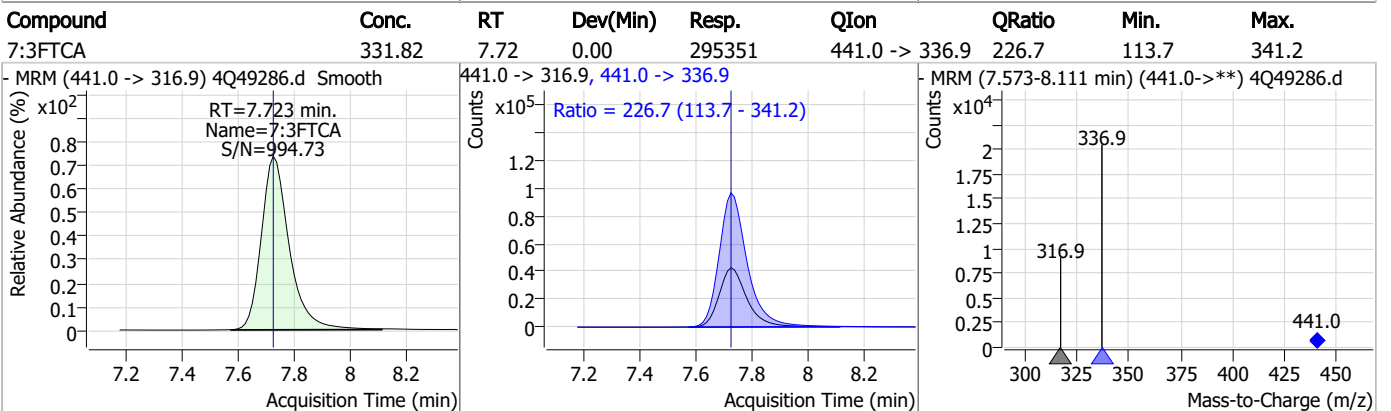
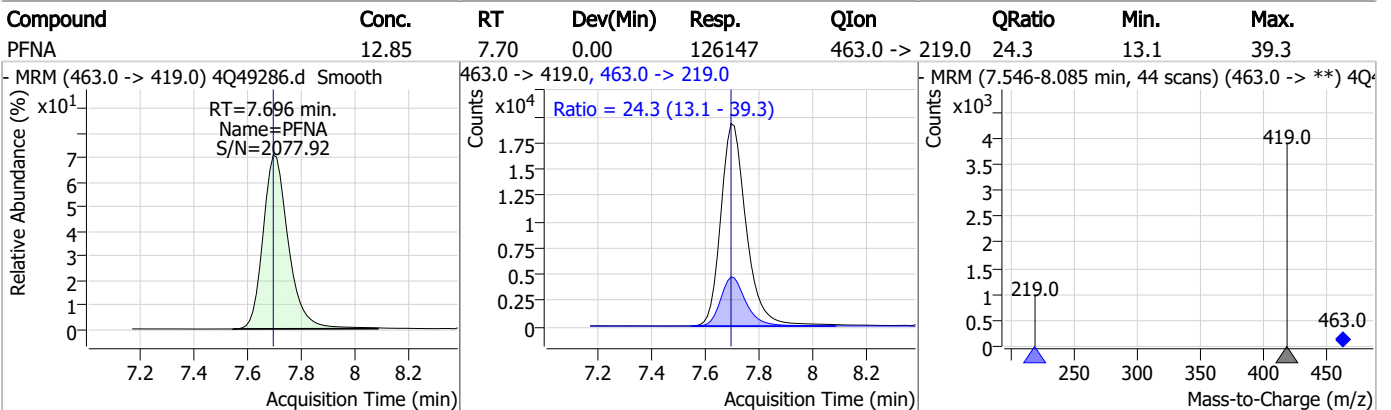
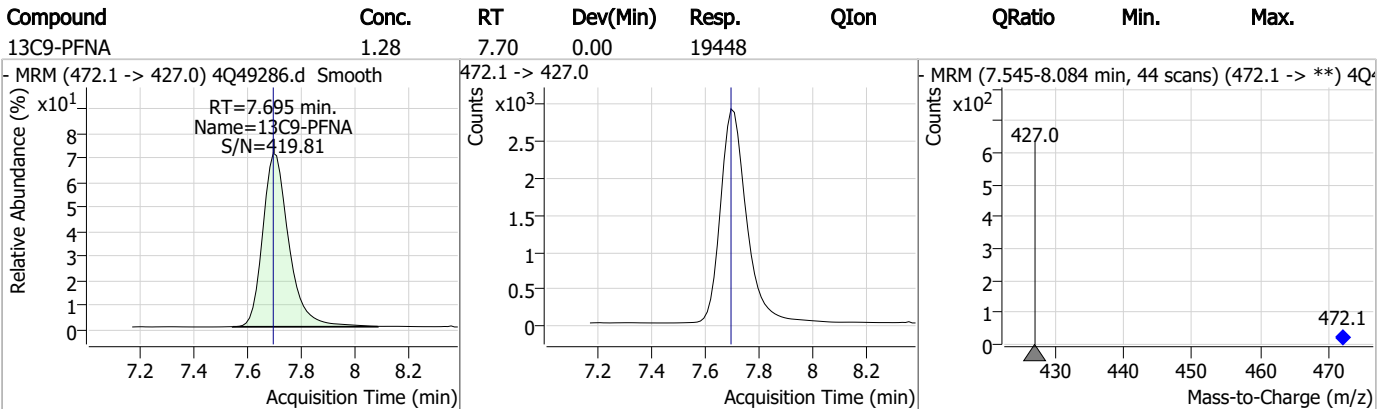
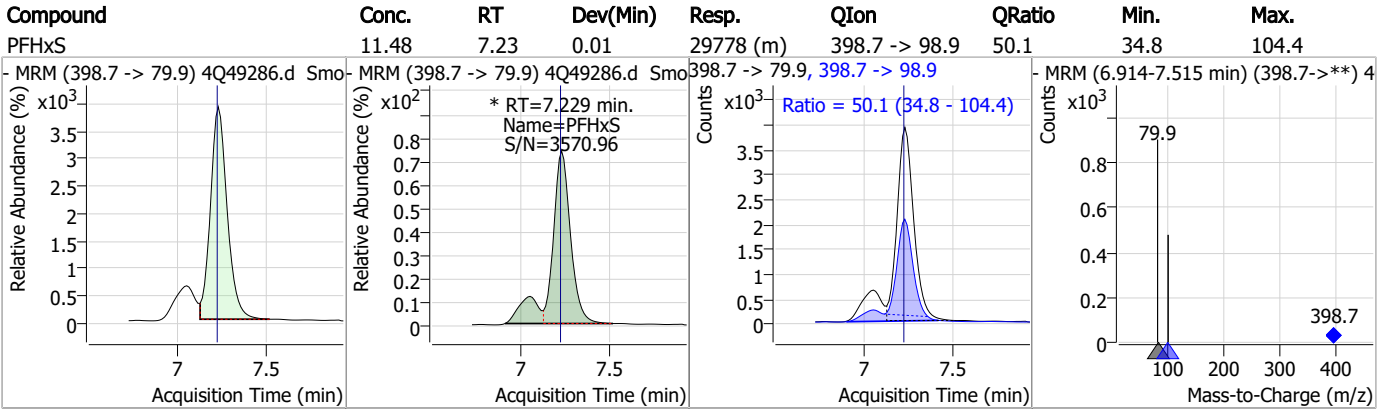


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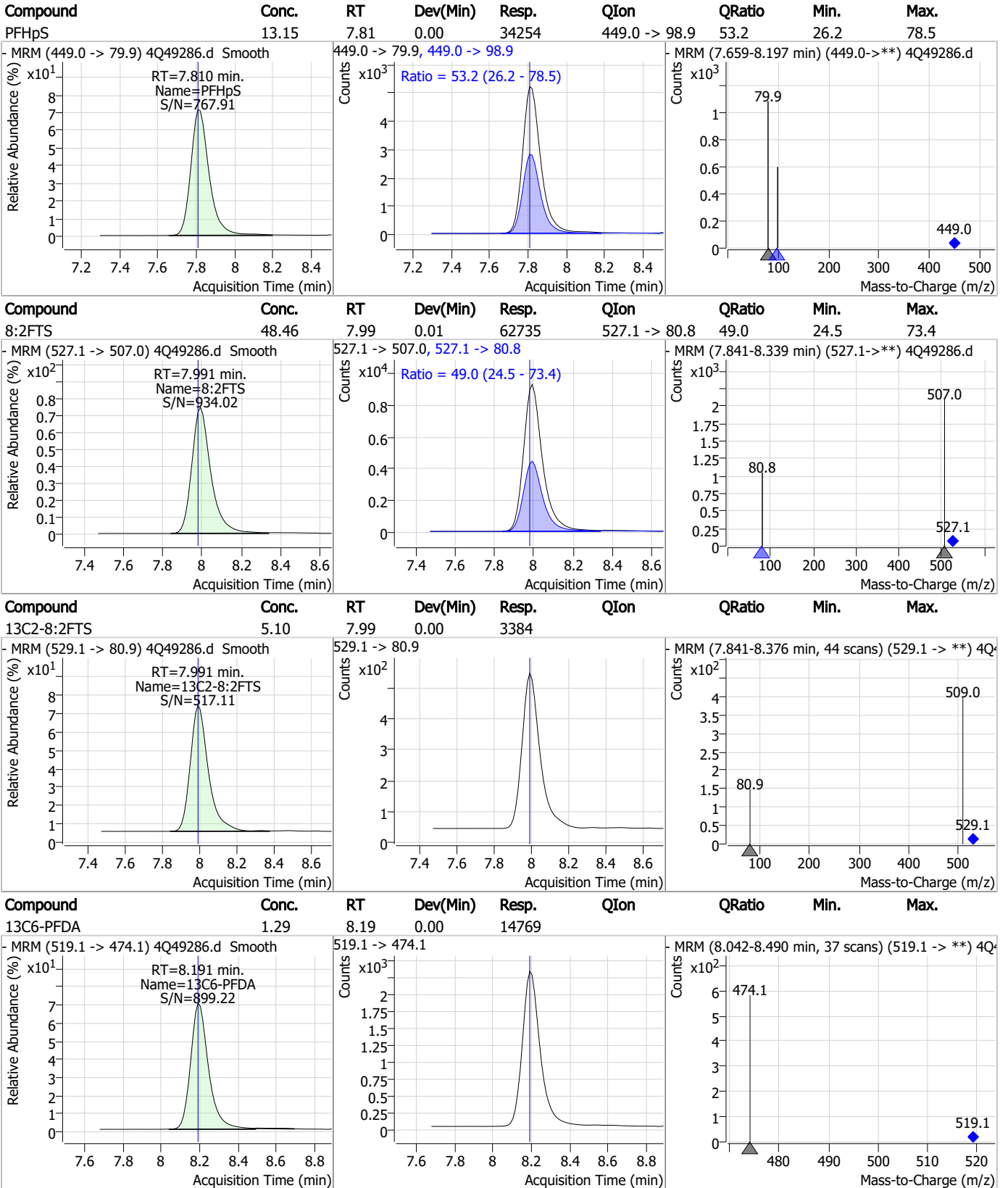
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### Perfluorinated Compounds by LC/MS/MS



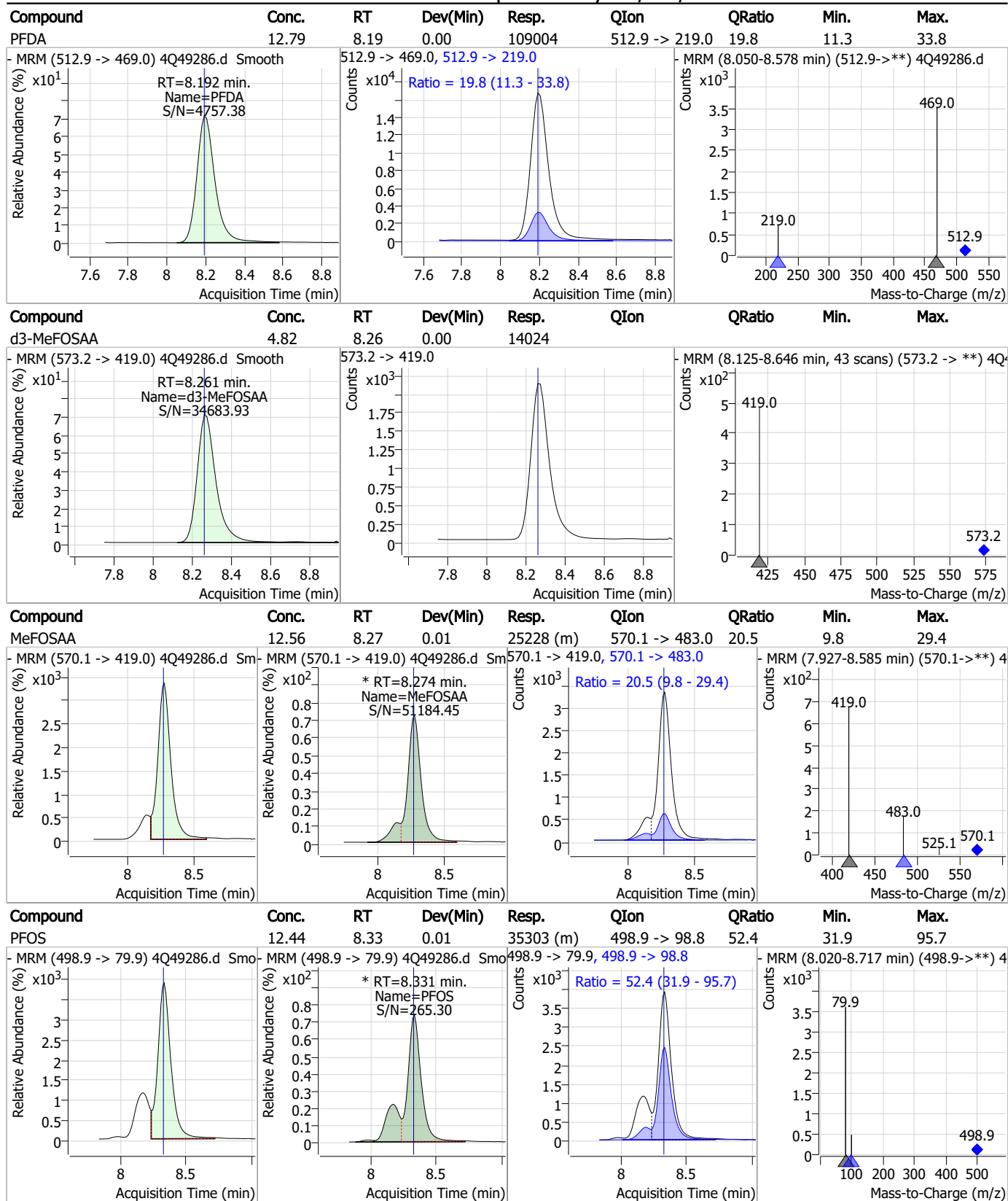
### Perfluorinated Compounds by LC/MS/MS



7.7.7

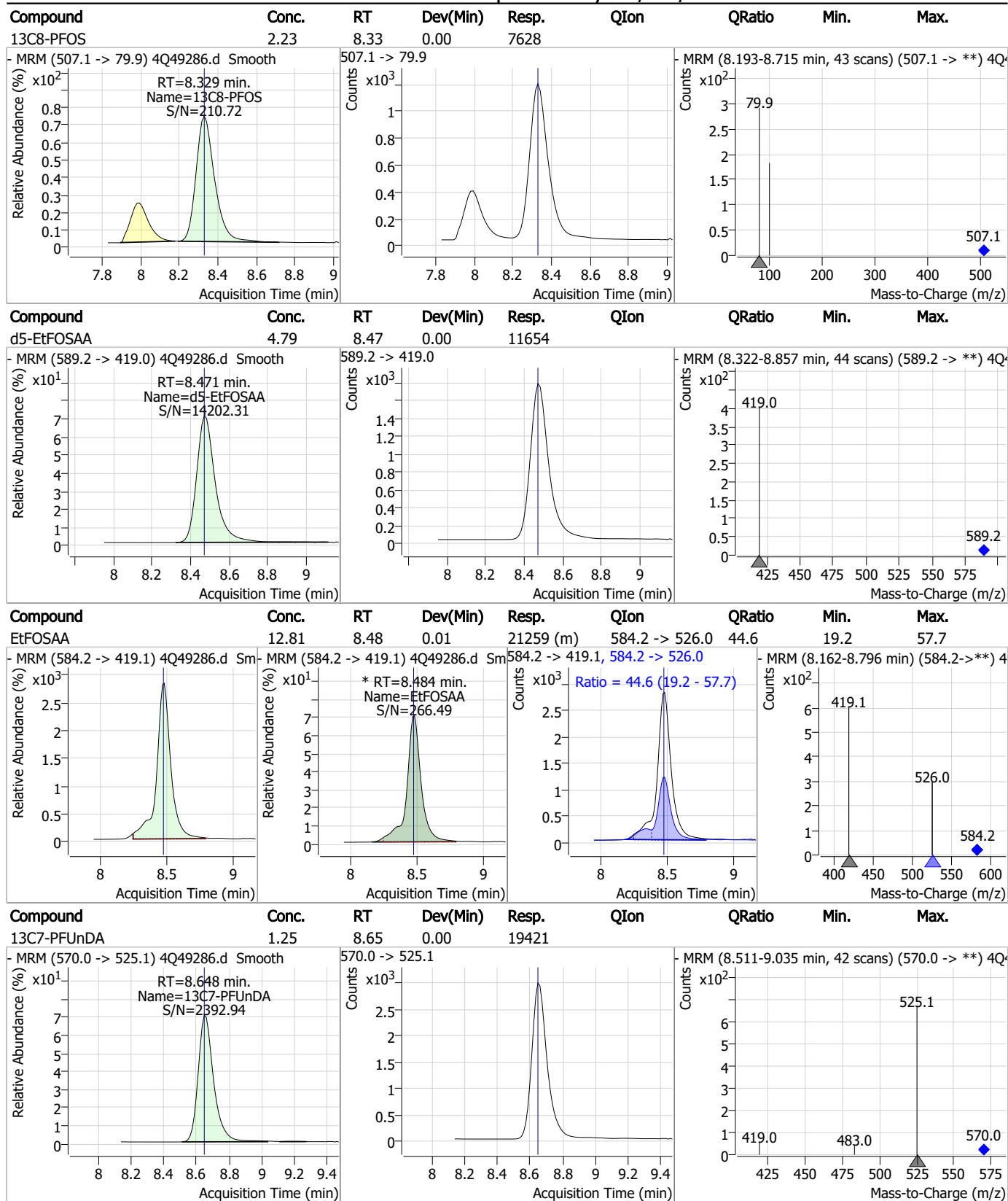
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### Perfluorinated Compounds by LC/MS/MS



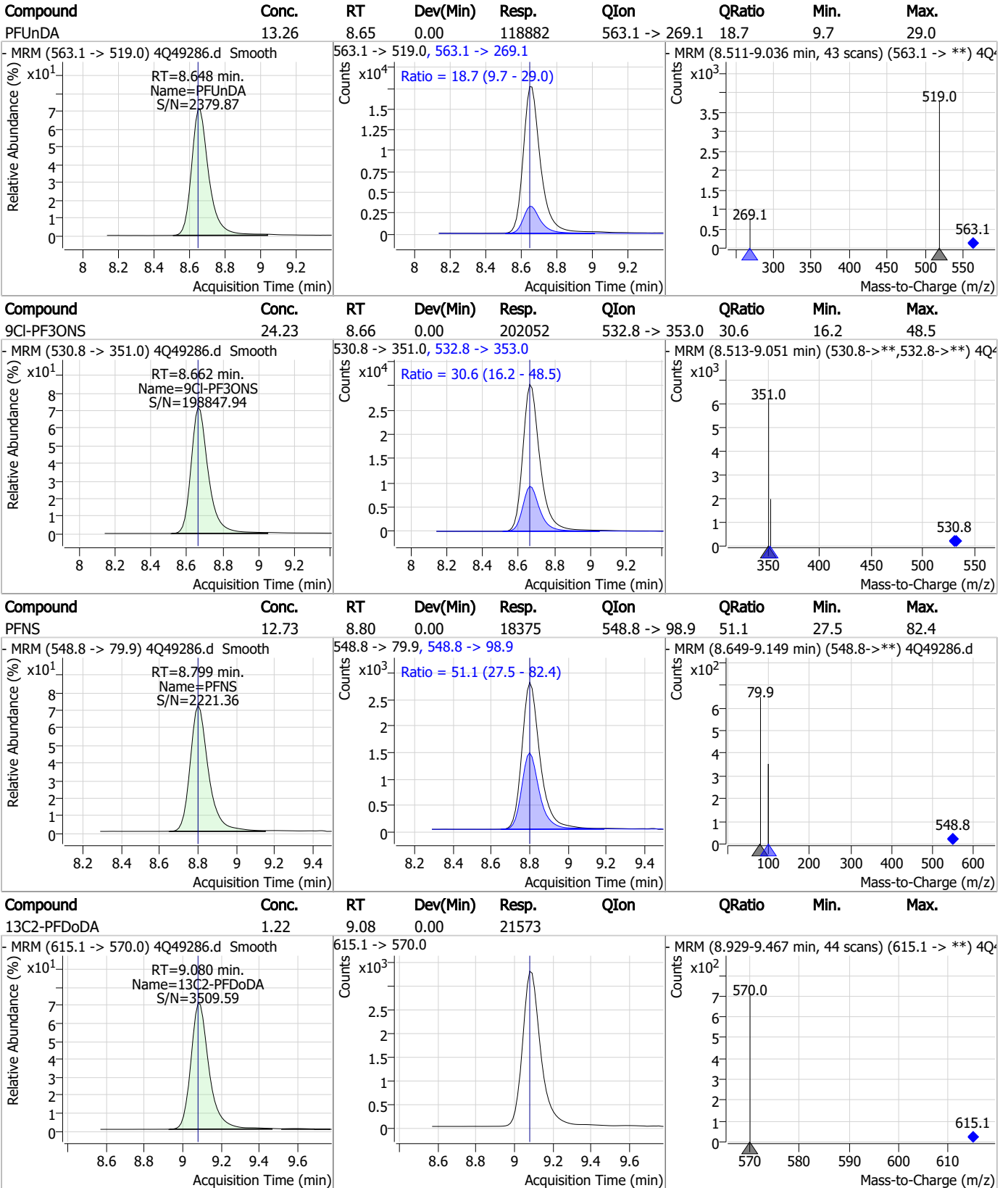
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### Perfluorinated Compounds by LC/MS/MS



7.7.7

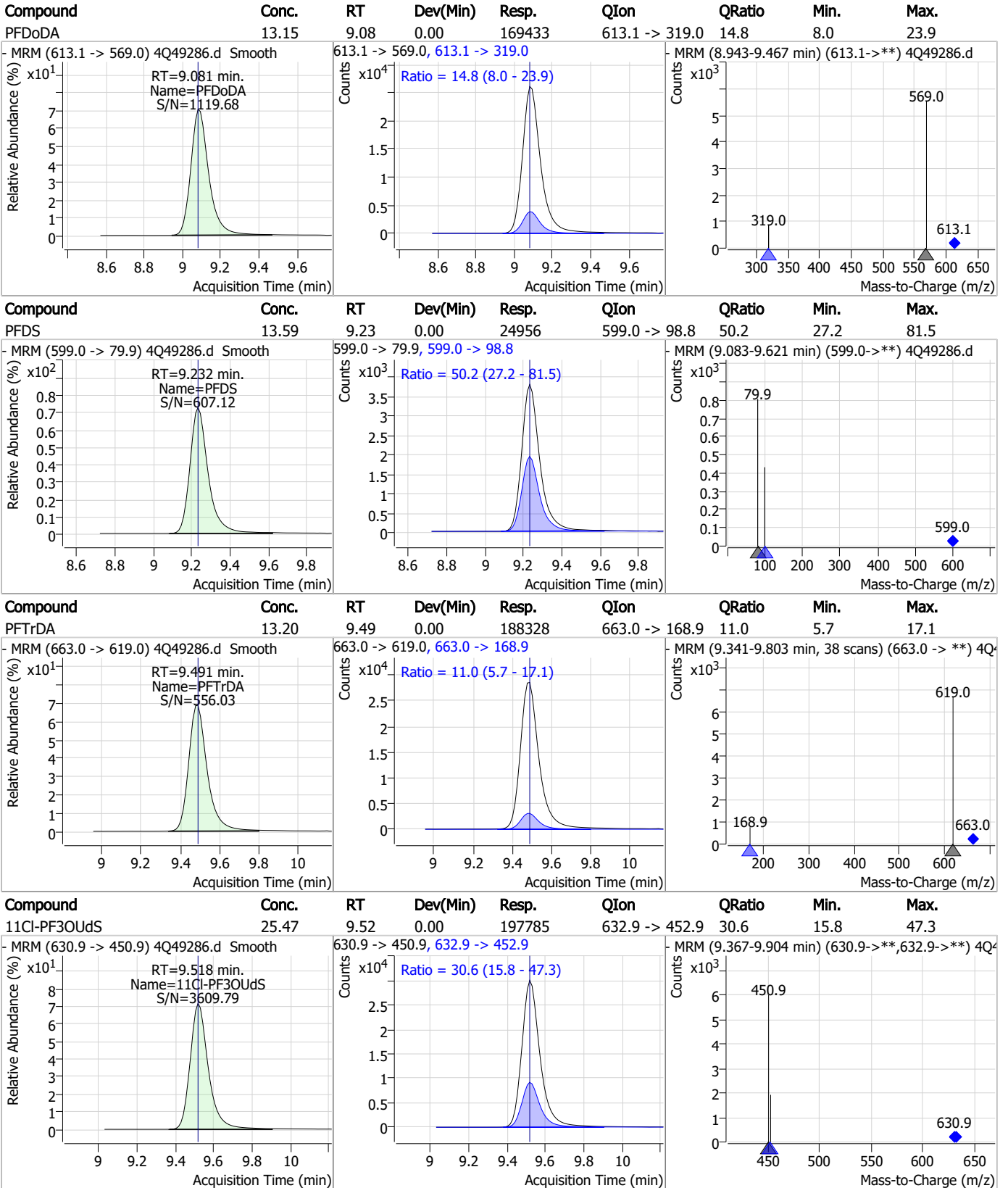
### Perfluorinated Compounds by LC/MS/MS



7.7.7

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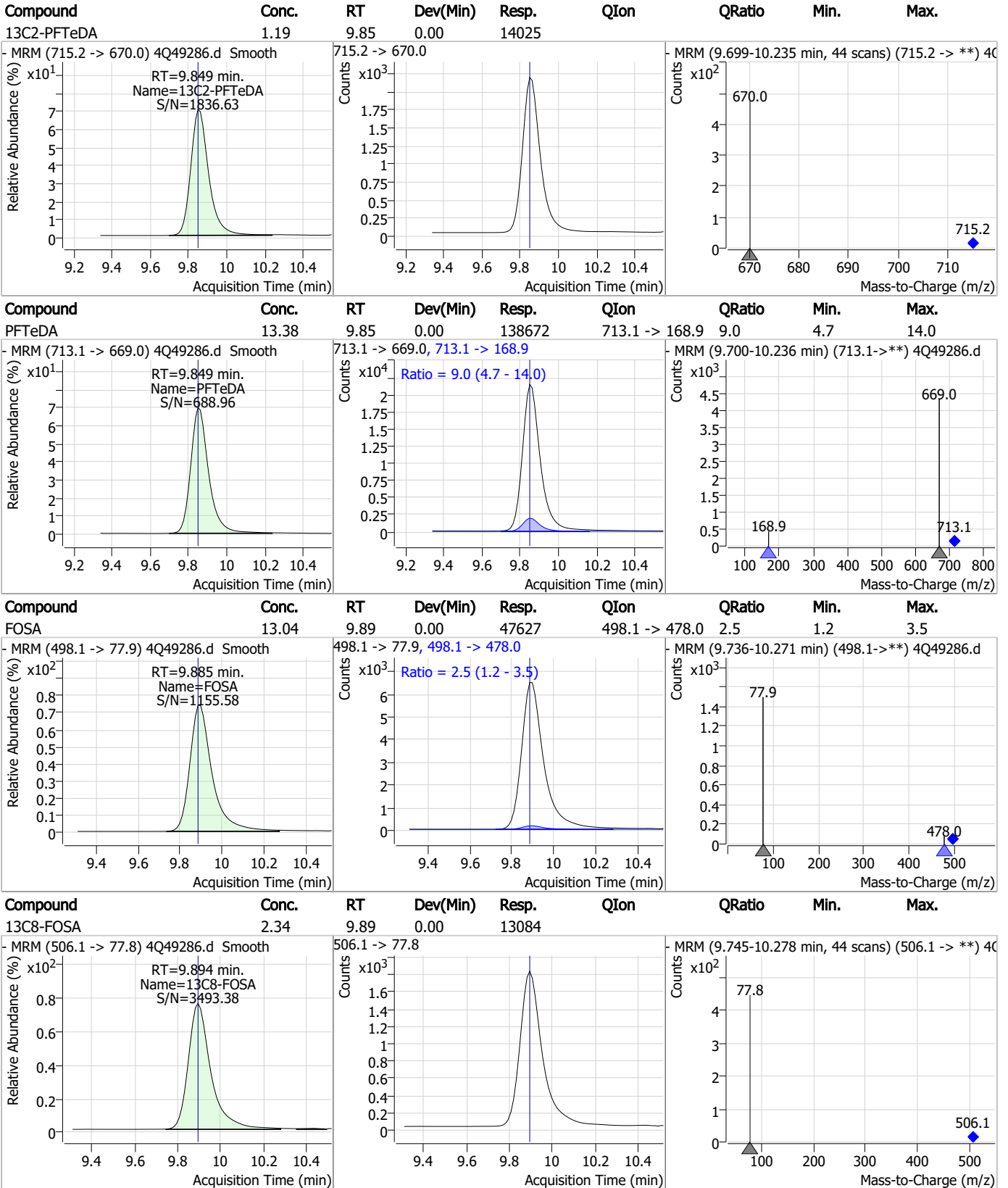
### Perfluorinated Compounds by LC/MS/MS



7.7.7

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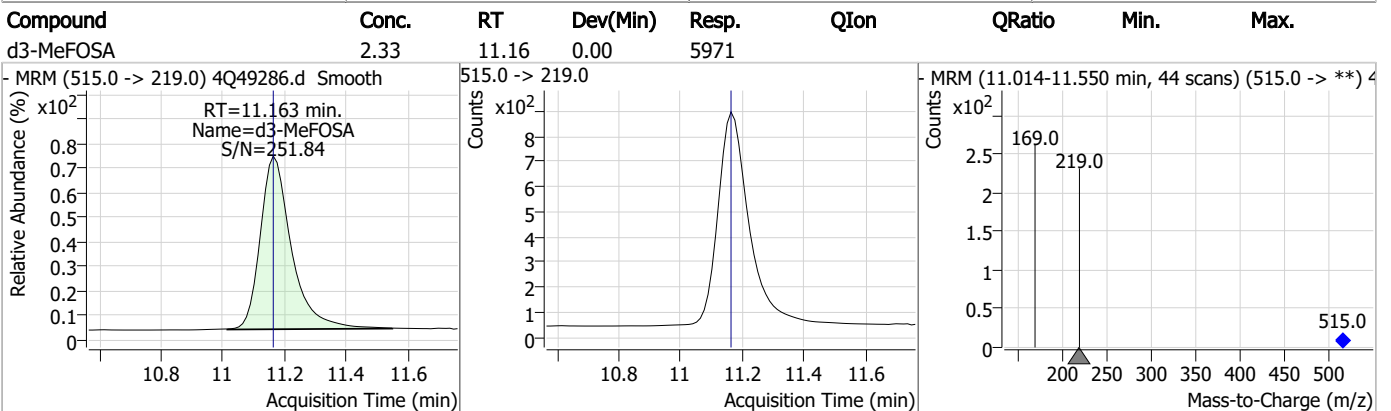
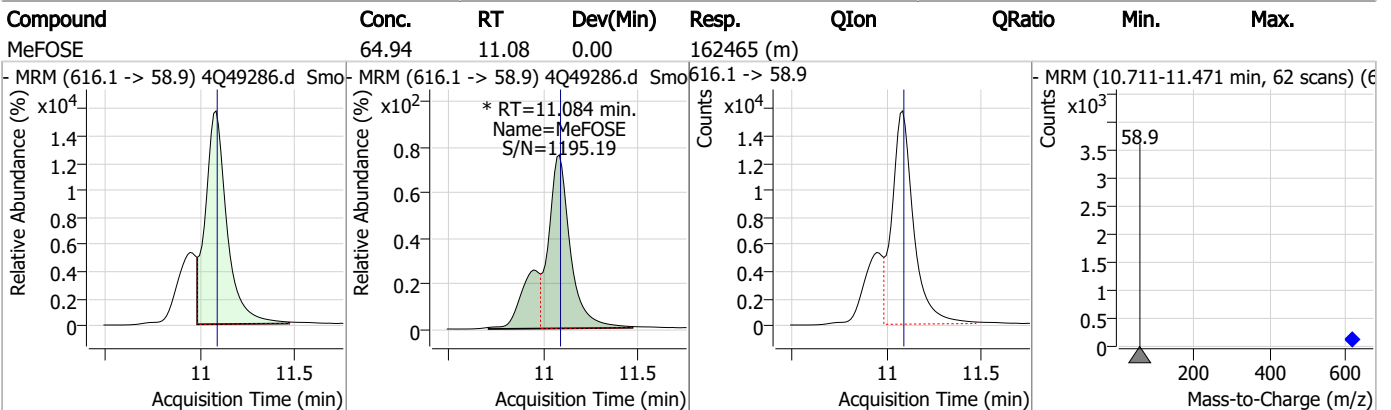
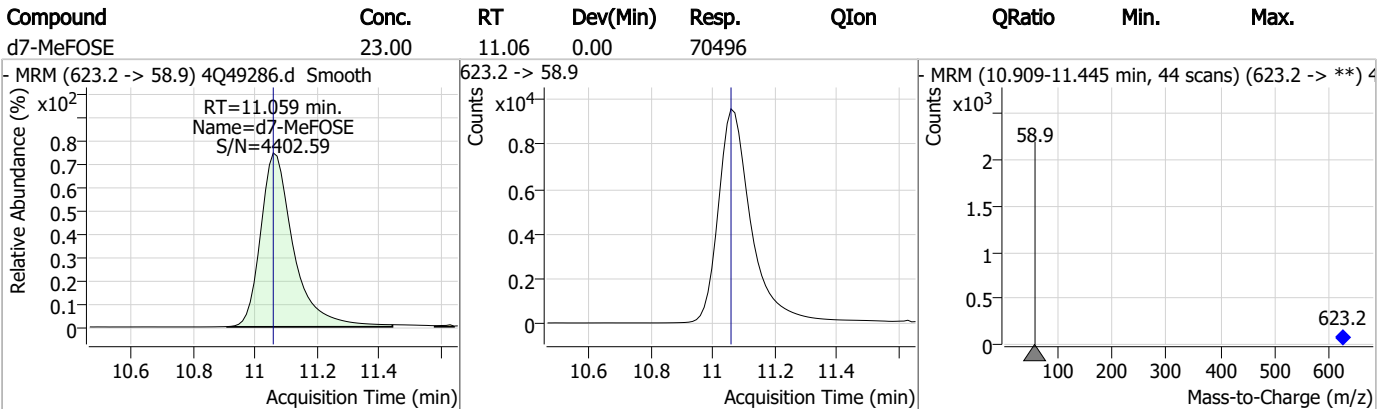
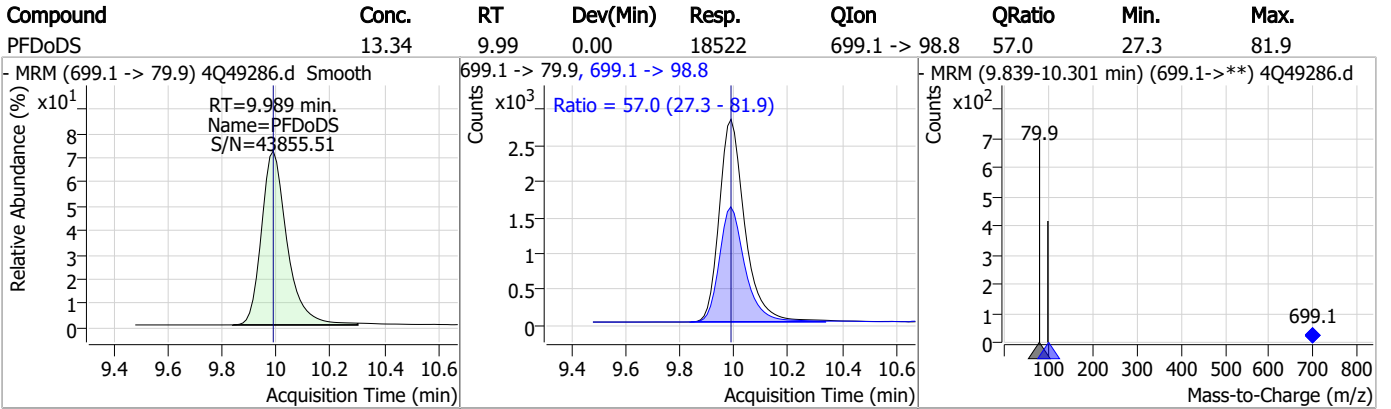
### Perfluorinated Compounds by LC/MS/MS



7.7.7

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### Perfluorinated Compounds by LC/MS/MS



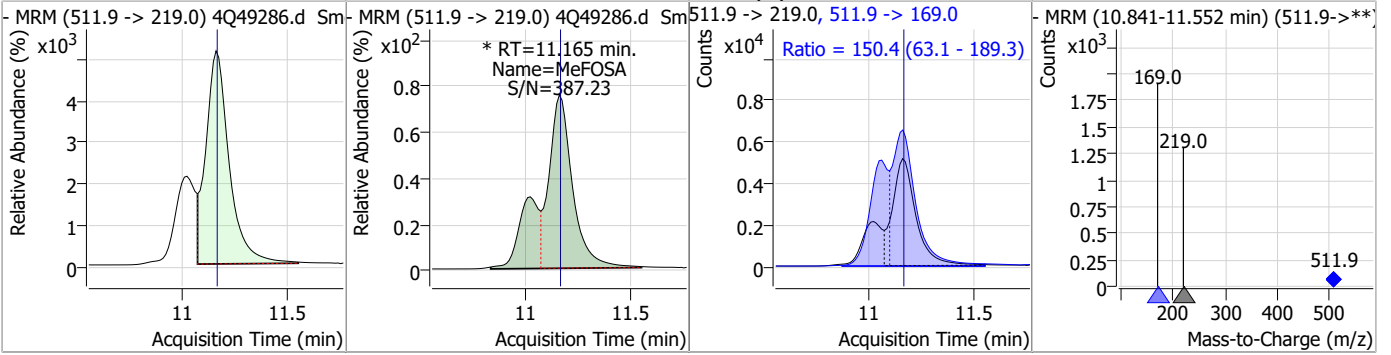
7.7.7

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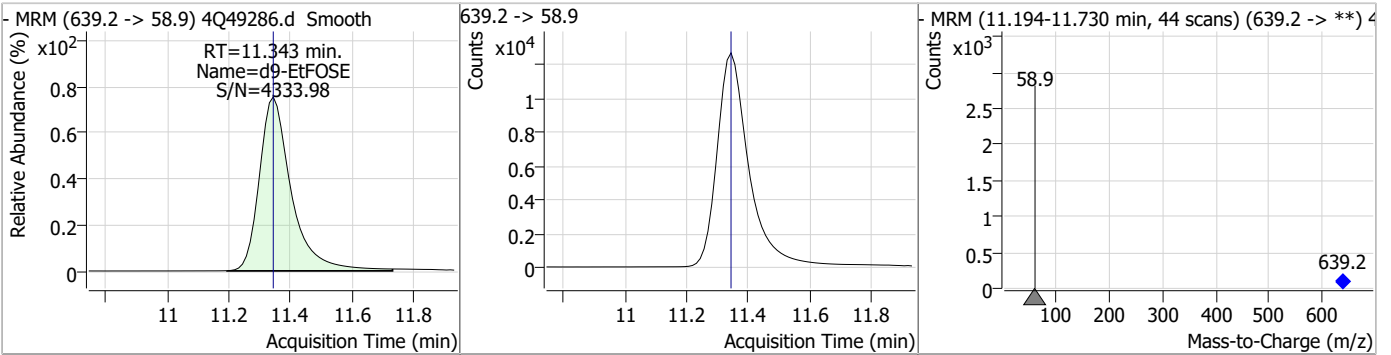


### Perfluorinated Compounds by LC/MS/MS

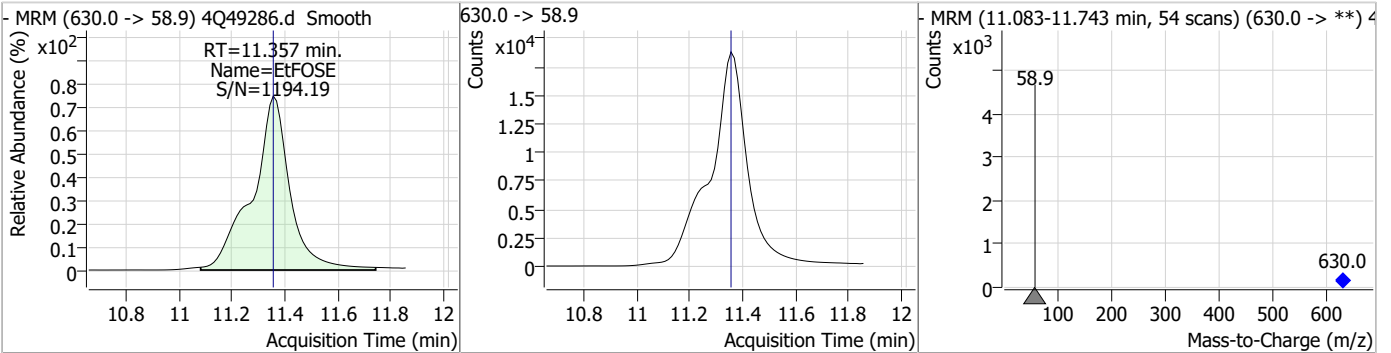
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	25.90	11.16	0.00	53666 (m)	511.9 -> 169.0	150.4	63.1	189.3



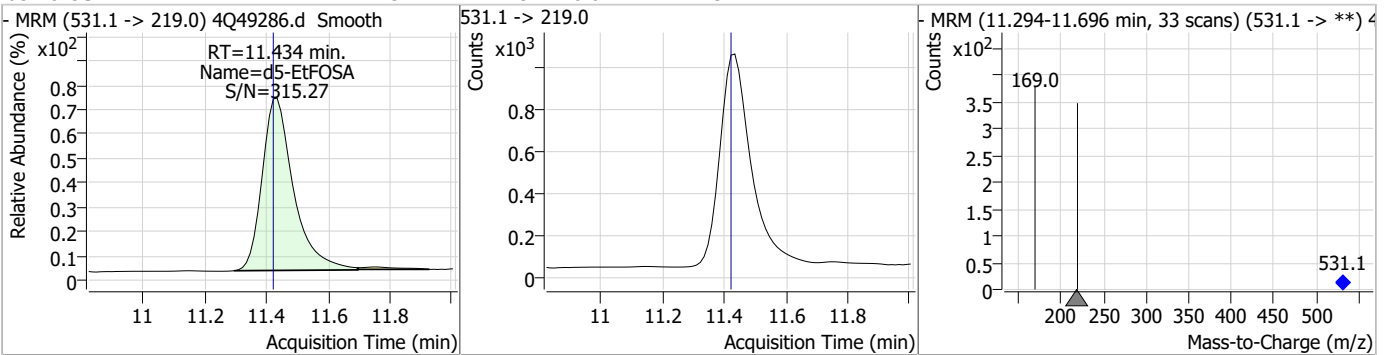
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	22.15	11.34	0.00	90980				



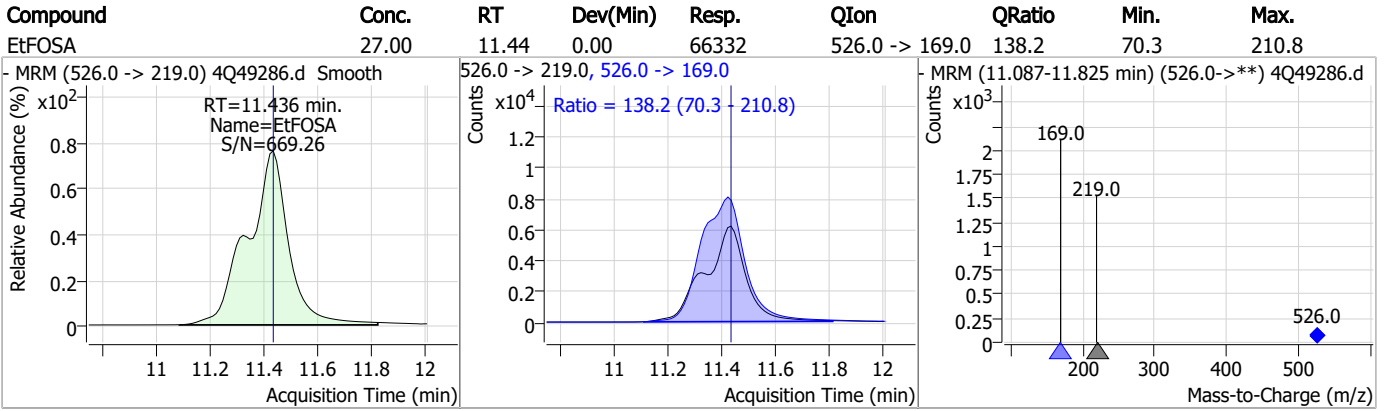
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	66.64	11.36	0.00	186111				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.25	11.43	0.01	7131				



### Perfluorinated Compounds by LC/MS/MS



7.7.7

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# Manual Integration Approval Summary

Sample Number: S4Q722-IC722      Method: EPA DRAFT 1633  
Lab FileID: 4Q49286.D      Analyst approved: 08/23/23 10:44 Martha Valls  
Injection Time: 08/22/23 12:03      Supervisor approved: 08/23/23 15:25 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
MeFOSAA	2355-31-9		8.27	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.48	Split peak
MeFOSE	24448-09-7		11.08	Split peak
MeFOSA	31506-32-8		11.16	Split peak

7.7.7.1  
7

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

Natasha Gumtje  
 08/23/23 15:25

### Perfluorinated Compounds by LC/MS/MS

Data File : 4Q49287.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 8/22/2023 12:18:45 PM  
 Sample Name : ic722-7  
 Vial : P1-A8  
 DA Method File : 1633\_082223\_S4Q722.quantmethod.xml  
 Batch Name : s4q722.batch.bin  
 Sample Information : OP98180,S4Q722,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.811	216.8 -> 171.9	122745	10.00 µg/L	0.000
M5-PFPeA	4.325	268.3 -> 223.0	66452	5.00 µg/L	0.012
M5-PFHxA	5.522	318.0 -> 273.0	45071	2.50 µg/L	0.012
M4-PFHpA	6.467	367.1 -> 322.0	30092	2.50 µg/L	0.000
M8-PFOA	7.148	421.1 -> 376.0	50159	2.50 µg/L	0.000
M9-PFNA	7.695	472.1 -> 427.0	18530	1.25 µg/L	0.000
M6-PFDA	8.191	519.1 -> 474.1	13748	1.25 µg/L	0.000
M7-PFUnDA	8.648	570.0 -> 525.1	17691	1.25 µg/L	0.000
M2-PFDoDA	9.080	615.1 -> 570.0	21269	1.25 µg/L	0.000
M2-PFTeDA	9.861	715.2 -> 670.0	14180	1.25 µg/L	0.012
M8-FOSA	9.894	506.1 -> 77.8	12492	2.50 µg/L	0.000
M3-PFBS	5.391	302.1 -> 79.9	11830	2.50 µg/L	0.000
M3-PFHxS	7.229	402.1 -> 79.9	8665	2.50 µg/L	0.012
M8-PFOS	8.329	507.1 -> 79.9	7740	2.50 µg/L	0.000
M2-4:2FTS	5.208	329.1 -> 80.9	1380	5.00 µg/L	0.000
M2-6:2FTS	6.924	429.1 -> 80.9	1870	5.00 µg/L	0.013
M2-8:2FTS	7.991	529.1 -> 80.9	3202	5.00 µg/L	0.000
M3-MeFOSAA	8.261	573.2 -> 419.0	13896	5.00 µg/L	0.000
M3-HFPO-DA	5.877	286.9 -> 168.9	34589	10.00 µg/L	0.000
M5-EtFOSAA	8.471	589.2 -> 419.0	11256	5.00 µg/L	0.000
M7-MeFOSE	11.059	623.2 -> 58.9	67427	25.00 µg/L	0.000
M9-EtFOSE	11.343	639.2 -> 58.9	84247	25.00 µg/L	0.000
M5-EtFOSA	11.422	531.1 -> 219.0	6850	2.50 µg/L	0.000
M3-MeFOSA	11.163	515.0 -> 219.0	5854	2.50 µg/L	0.000
13C4-PFOS	8.330	502.8 -> 79.9	7747	2.50 µg/L	0.000
13C3-PFBA	2.816	216.0 -> 172.0	68534	5.00 µg/L	0.013
18O2-PFHxS	7.228	403.0 -> 83.9	6281	2.50 µg/L	0.000
13C4-PFOA	7.149	417.1 -> 372.0	58178	2.50 µg/L	0.000
13C2-PFDA	8.192	515.1 -> 470.1	13425	1.25 µg/L	0.000
13C5-PFNA	7.696	468.0 -> 423.0	19840	1.25 µg/L	0.000
13C2-PFHxA	5.511	315.1 -> 270.0	42940	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.208	329.1 -> 80.9	1380	4.84 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C2-6:2FTS	6.924	429.1 -> 80.9	1870	4.62 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.4%		
13C2-8:2FTS	7.991	529.1 -> 80.9	3202	4.90 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C2-PFDoDA	9.080	615.1 -> 570.0	21269	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.0%		
13C2-PFTeDA	9.861	715.2 -> 670.0	14180	1.20 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.8%		
13C3-PFBS	5.391	302.1 -> 79.9	11830	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C3-PFHxS	7.229	402.1 -> 79.9	8665	2.45 µg/L	0.012

7.7.8  
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## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C4-PFBA	2.811	216.8 -> 171.9	122745	10.07 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C4-PFHpA	6.467	367.1 -> 322.0	30092	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C5-PFHxA	5.522	318.0 -> 273.0	45071	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C5-PFPeA	4.325	268.3 -> 223.0	66452	4.96 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C6-PFDA	8.191	519.1 -> 474.1	13748	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.9%	
13C7-PFUnDA	8.648	570.0 -> 525.1	17691	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.7%	
13C8-FOSA	9.894	506.1 -> 77.8	12492	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.7%	
13C8-PFOA	7.148	421.1 -> 376.0	50159	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C8-PFOS	8.329	507.1 -> 79.9	7740	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C9-PFNA	7.695	472.1 -> 427.0	18530	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.3%	
d3-MeFOSAA	8.261	573.2 -> 419.0	13896	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C3-HFPO-DA	5.877	286.9 -> 168.9	34589	9.98 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
d3-MeFOSA	11.163	515.0 -> 219.0	5854	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.1%	
d5-EtFOSAA	8.471	589.2 -> 419.0	11256	4.97 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.3%	
d7-MeFOSE	11.059	623.2 -> 58.9	67427	23.60 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.4%	
d9-EtFOSE	11.343	639.2 -> 58.9	84247	22.00 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 88.0%	
d5-EtFOSA	11.422	531.1 -> 219.0	6850	2.32 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.9%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.209	327.1 -> 307.0	144036	91.40 µg/L	95
		327.1 -> 80.9	61834		
6:2FTS	6.924	427.1 -> 407.0	136603	100.04 µg/L	98
		427.1 -> 80.9	54700		
8:2FTS	7.991	527.1 -> 507.0	113831	95.54 µg/L	95
		527.1 -> 80.8	51911		
EtFOSAA	8.484	584.2 -> 419.1	40833	25.48 µg/L	m 84
		584.2 -> 526.0	19714		
FOSA	9.898	498.1 -> 77.9	90662	26.00 µg/L	99
		498.1 -> 478.0	2390		
MeFOSAA	8.274	570.1 -> 419.0	47903	24.07 µg/L	100
		570.1 -> 483.0	9308		
PFBA	2.820	212.8 -> 168.9	276449	104.80 µg/L	100
PFBS	5.392	298.7 -> 79.9	79254	23.08 µg/L	97
		298.7 -> 98.8	30911		
PFDA	8.192	512.9 -> 469.0	208482	26.27 µg/L	96
		512.9 -> 219.0	42860		
PFDoDA	9.081	613.1 -> 569.0	326866	25.73 µg/L	99
		613.1 -> 319.0	50238		
PFDS	9.232	599.0 -> 79.9	47377	25.43 µg/L	97

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	24555			
PFHpA	6.468	363.1 -> 319.0	387938	26.54	µg/L	100
		363.1 -> 169.0	71642			
PFHpS	7.810	449.0 -> 79.9	67737	25.63	µg/L	100
		449.0 -> 98.9	35506			
PFHxA	5.513	313.0 -> 269.0	369133	26.64	µg/L	99
		313.0 -> 118.9	12449			
PFHxS	7.229	398.7 -> 79.9	58033	23.74	µg/L	m 80
		398.7 -> 98.9	31100			
PFNA	7.696	463.0 -> 419.0	244487	26.15	µg/L	98
		463.0 -> 219.0	61590			
PFNS	8.799	548.8 -> 79.9	34638	23.66	µg/L	97
		548.8 -> 98.9	18310			
PFOA	7.150	413.0 -> 369.0	486237	25.66	µg/L	97
		413.0 -> 169.0	103971			
PFOS	8.331	498.9 -> 79.9	67985	23.60	µg/L	m 84
		498.9 -> 98.8	34892			
PFPeA	4.327	263.0 -> 219.0	619556	52.55	µg/L	100
PFPeS	6.482	349.1 -> 79.9	53407	24.40	µg/L	98
		349.1 -> 98.9	23800			
PFTeDA	9.862	713.1 -> 669.0	263718	25.17	µg/L	98
		713.1 -> 168.9	22495			
PFTrDA	9.491	663.0 -> 619.0	366890	26.09	µg/L	98
		663.0 -> 168.9	39607			
PFUnDA	8.648	563.1 -> 519.0	224381	27.48	µg/L	99
		563.1 -> 269.1	42005			
11CI-PF3OUdS	9.518	630.9 -> 450.9	376693	49.19	µg/L	99
		632.9 -> 452.9	115985			
9CI-PF3ONS	8.662	530.8 -> 351.0	377034	45.86	µg/L	97
		532.8 -> 353.0	115343			
ADONA	6.743	376.9 -> 250.9	1198026	49.04	µg/L	100
		376.9 -> 84.8	370894			
HFPO-DA	5.878	284.9 -> 168.9	142454	50.99	µg/L	99
		284.9 -> 184.9	16742			
3:3FTCA	3.773	241.0 -> 177.0	77602	134.60	µg/L	99
		241.0 -> 117.0	7881			
5:3FTCA	6.218	341.0 -> 237.1	1324808	672.04	µg/L	99
		341.0 -> 217.0	980955			
7:3FTCA	7.723	441.0 -> 316.9	580550	670.49	µg/L	100
		441.0 -> 336.9	1316552			
EtFOSA	11.436	526.0 -> 219.0	127786	54.16	µg/L	99
		526.0 -> 169.0	177315			
EtFOSE	11.357	630.0 -> 58.9	350096	135.37	µg/L	100
MeFOSA	11.165	511.9 -> 219.0	105203	51.79	µg/L	m 80
		511.9 -> 169.0	156994			
MeFOSE	11.084	616.1 -> 58.9	311300	130.10	µg/L	m 100
PFDoDS	9.989	699.1 -> 79.9	34658	24.60	µg/L	94
		699.1 -> 98.8	20299			
NFDHA	5.403	295.0 -> 201.0	50407	46.14	µg/L	98
		295.0 -> 84.9	14299			
PFMBA	4.741	279.0 -> 85.1	362863	52.29	µg/L	100
PFMPA	3.453	229.0 -> 84.9	401829	52.82	µg/L	100
PFEESA	5.933	314.8 -> 134.9	554512	46.09	µg/L	100
		314.8 -> 82.9	17543			

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

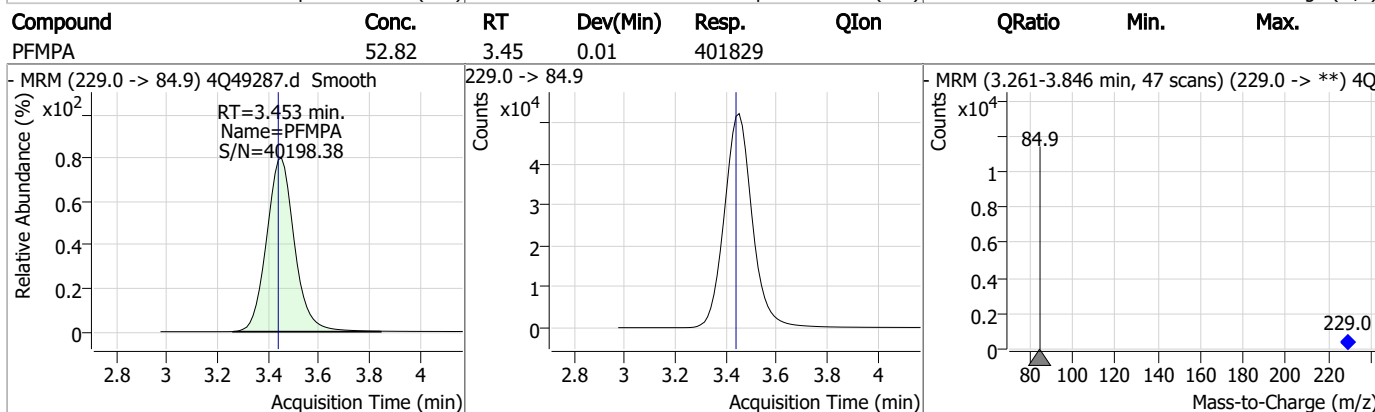
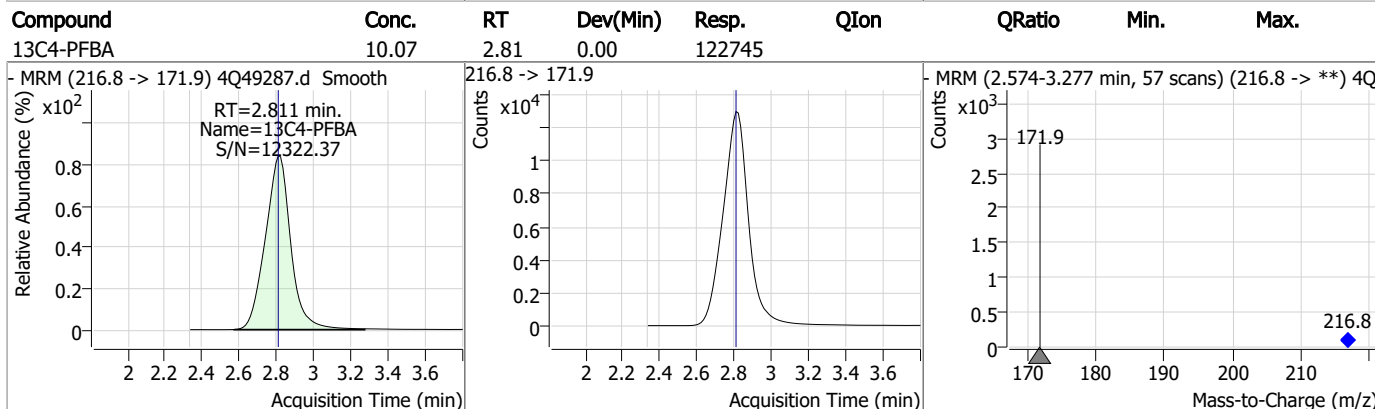
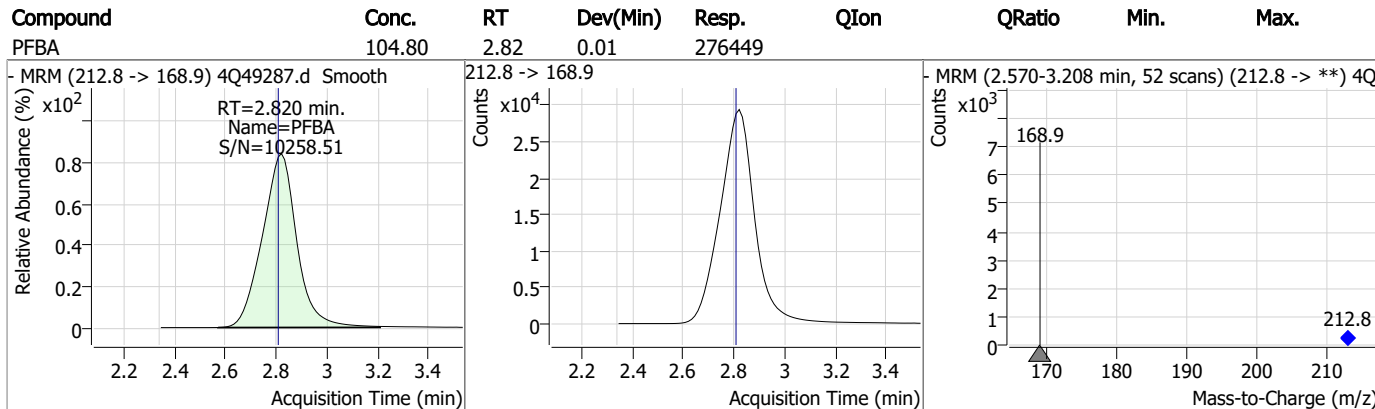
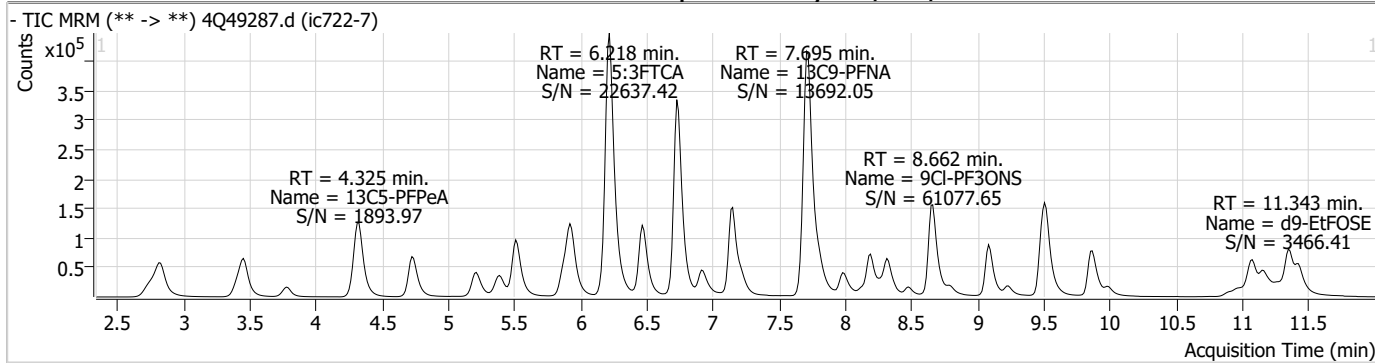
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.8

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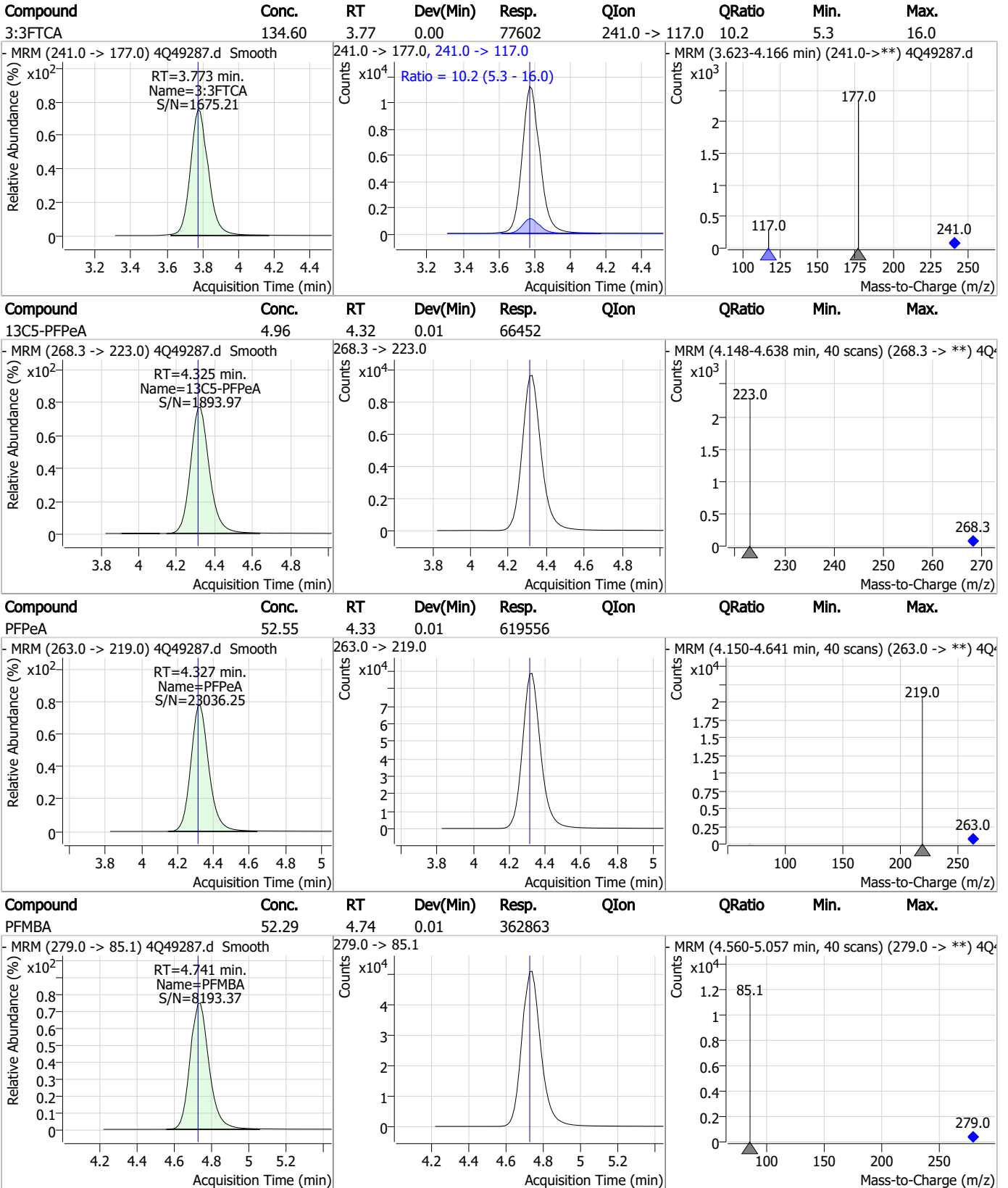
### Perfluorinated Compounds by LC/MS/MS



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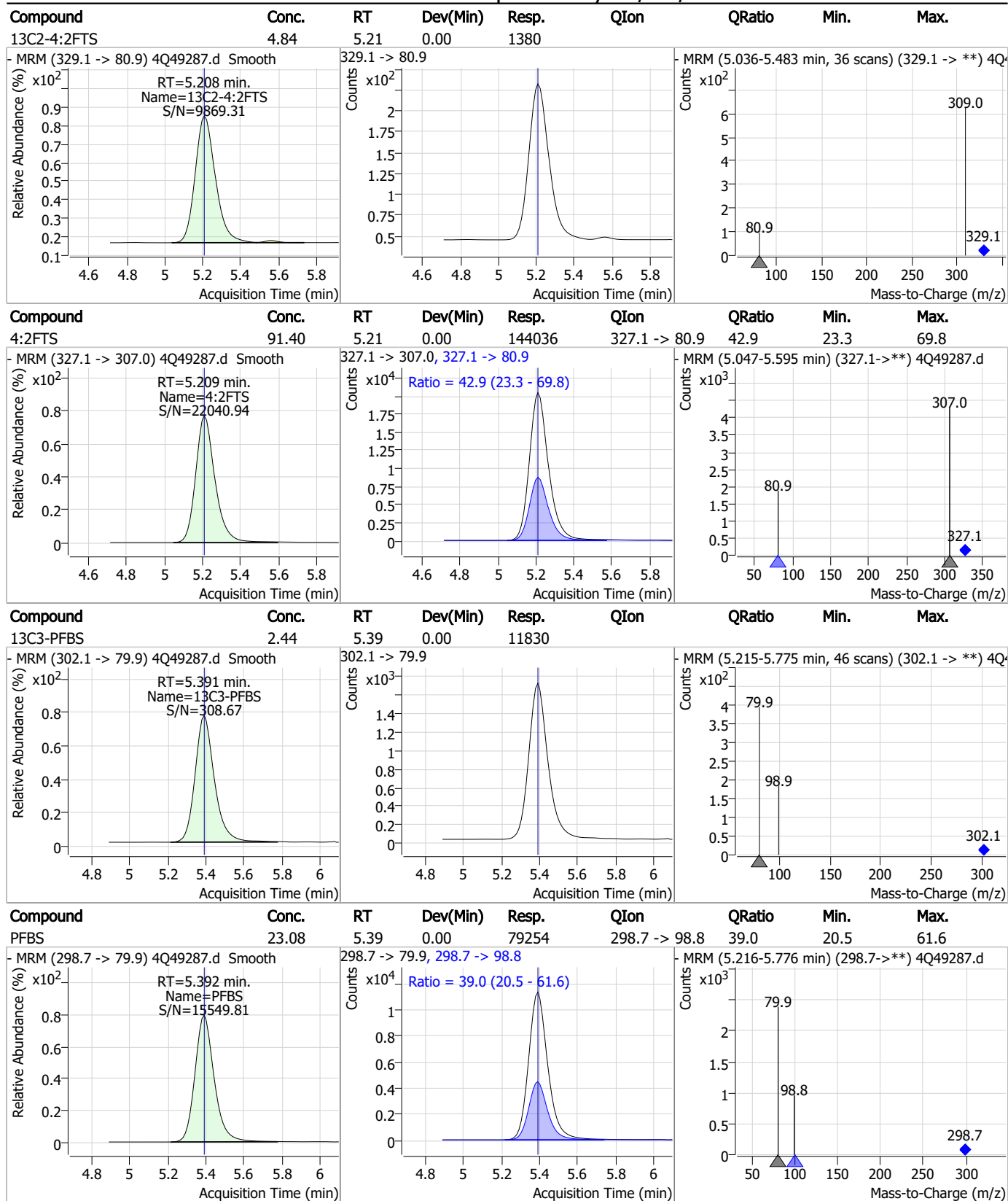
### Perfluorinated Compounds by LC/MS/MS



7.7.8

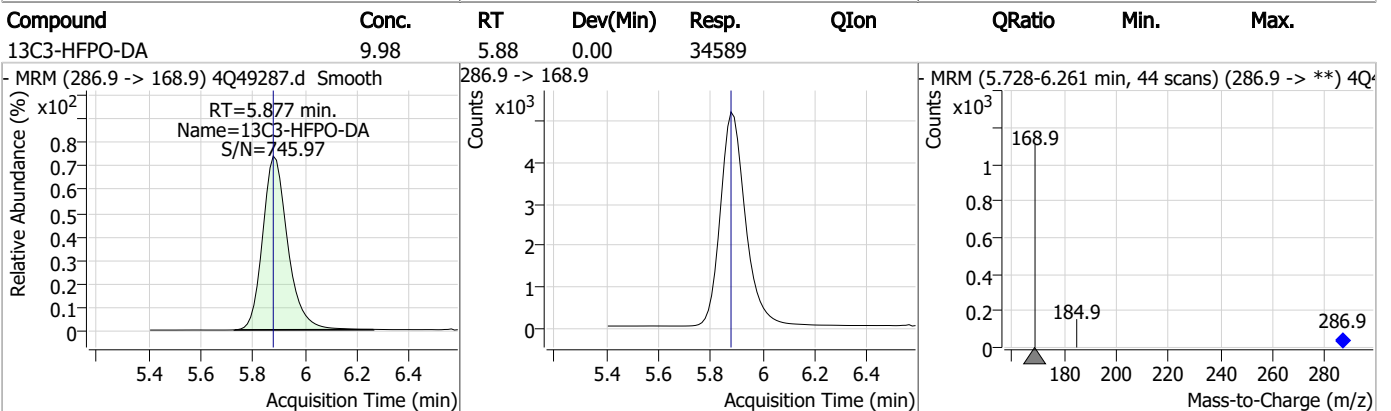
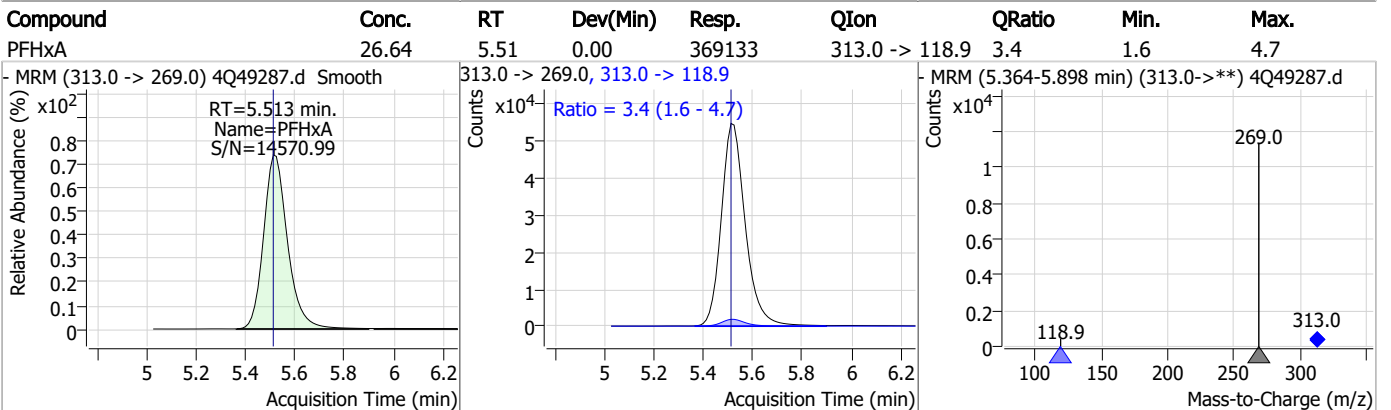
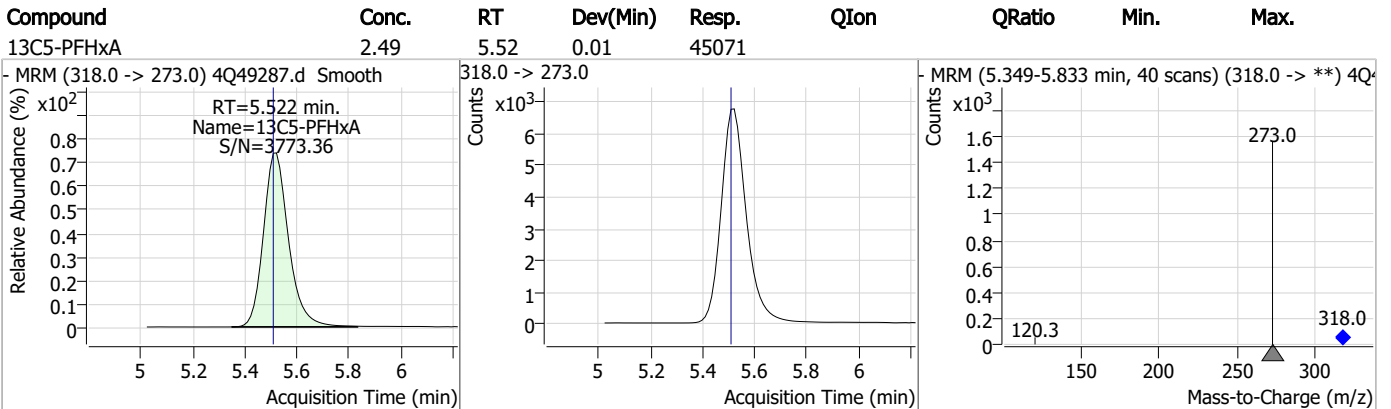
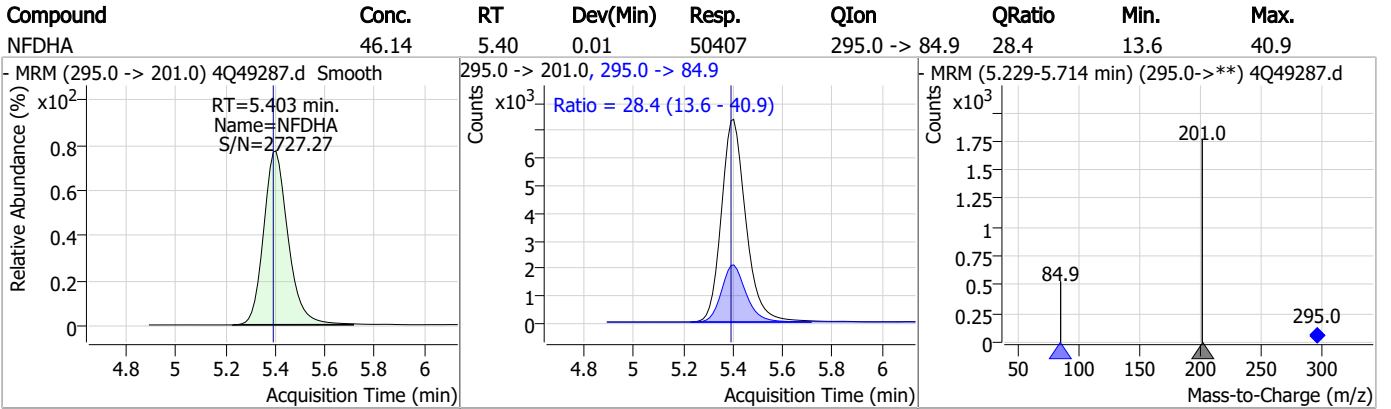
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### Perfluorinated Compounds by LC/MS/MS



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

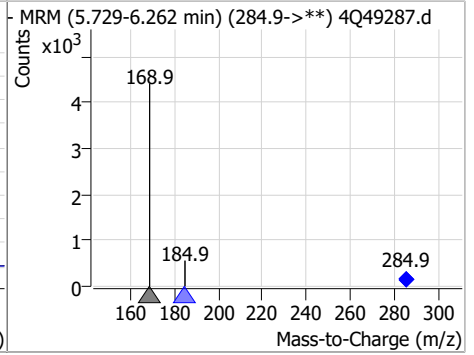
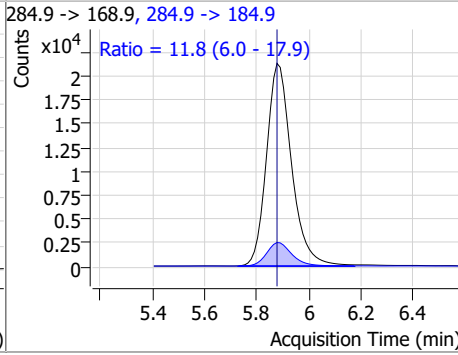
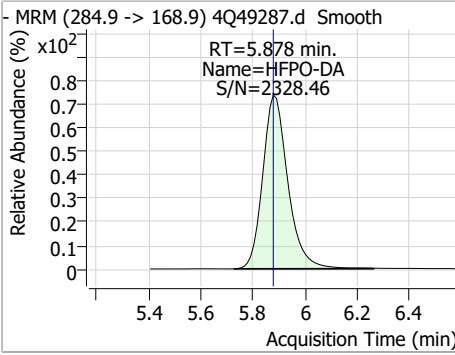


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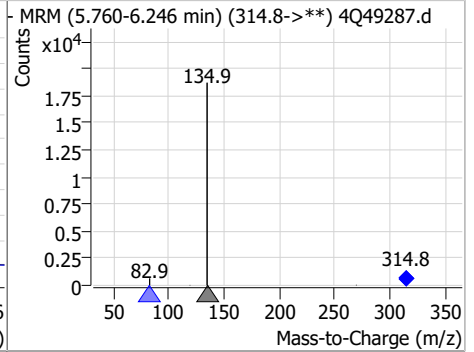
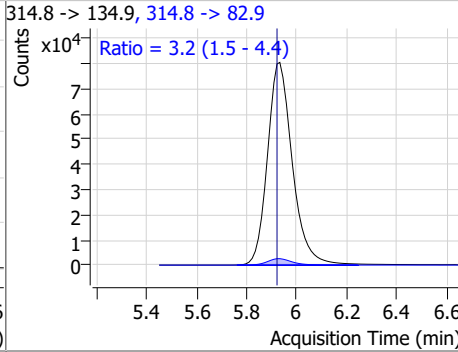
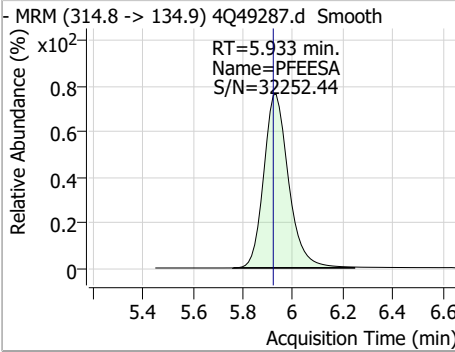
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### Perfluorinated Compounds by LC/MS/MS

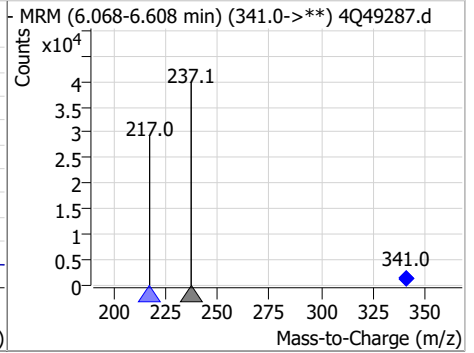
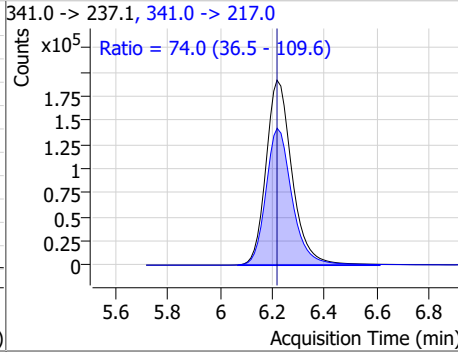
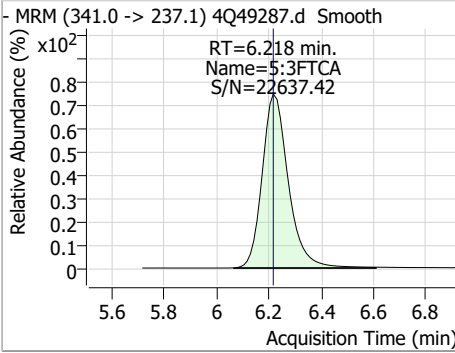
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	50.99	5.88	0.00	142454	284.9 -> 184.9	11.8	6.0	17.9



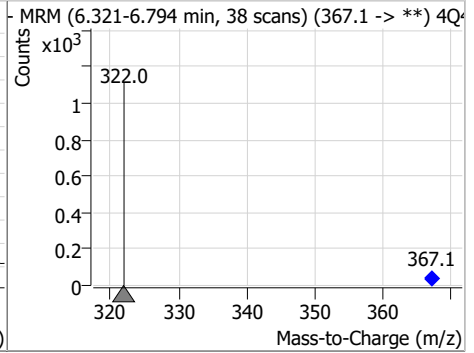
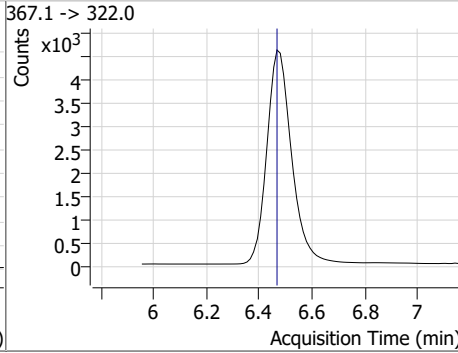
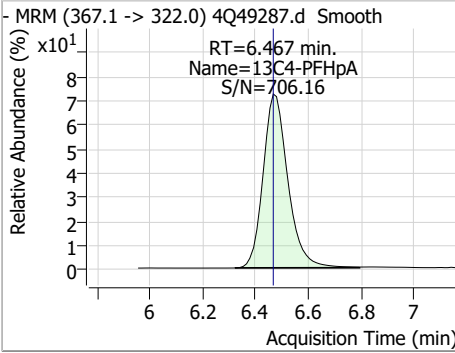
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	46.09	5.93	0.01	554512	314.8 -> 82.9	3.2	1.5	4.4



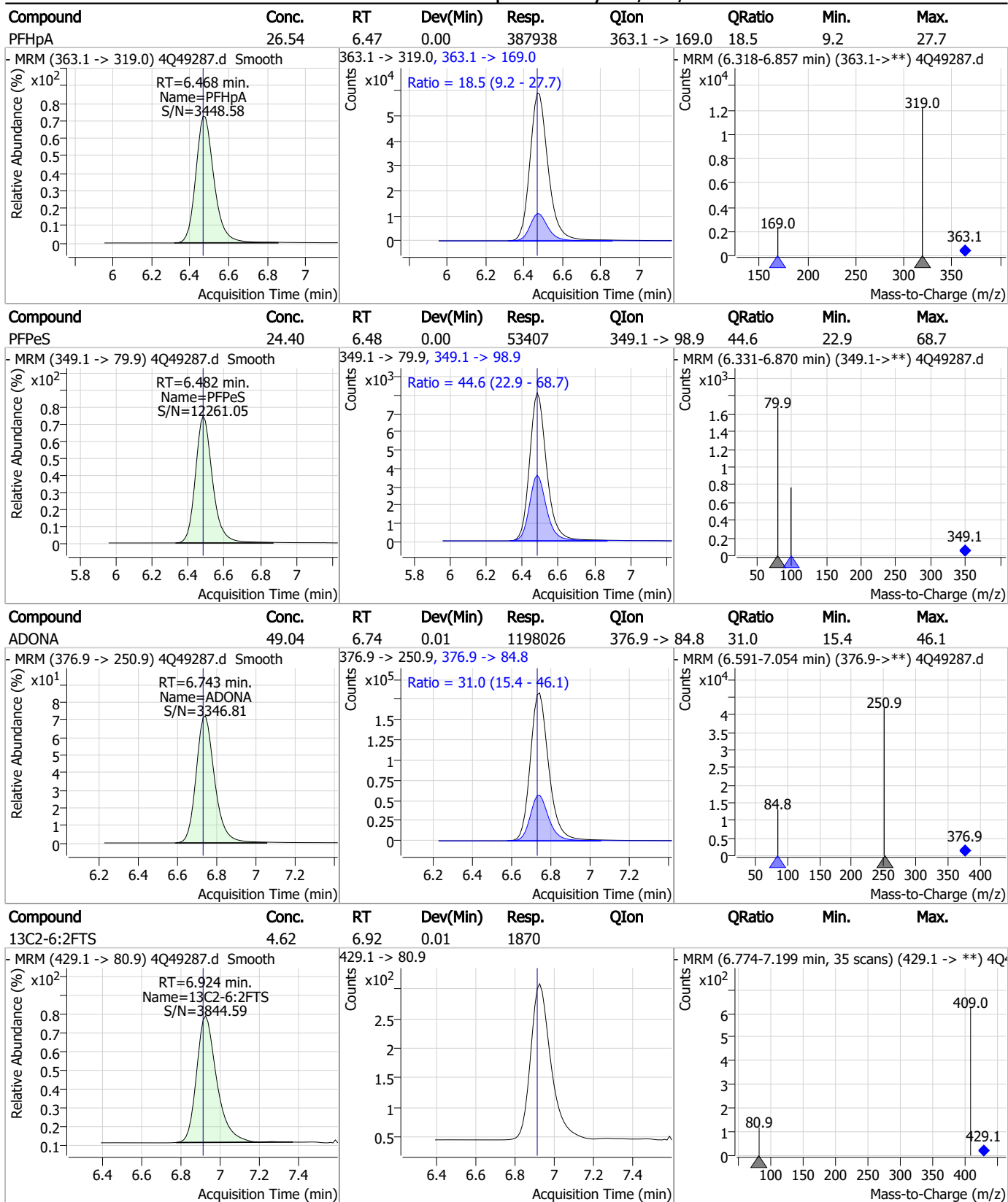
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	672.04	6.22	0.00	1324808	341.0 -> 217.0	74.0	36.5	109.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.46	6.47	0.00	30092	367.1 -> 322.0			

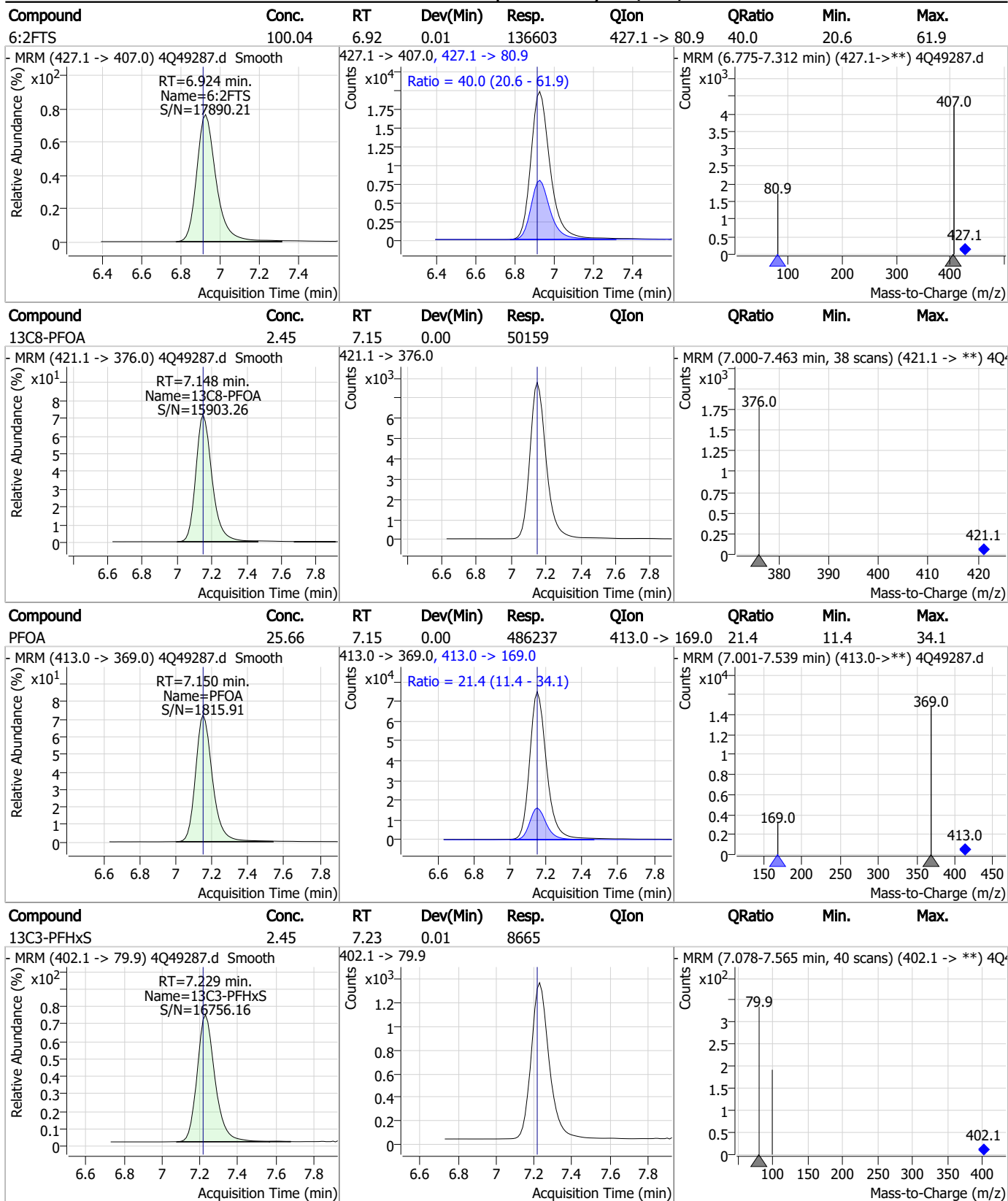


### Perfluorinated Compounds by LC/MS/MS



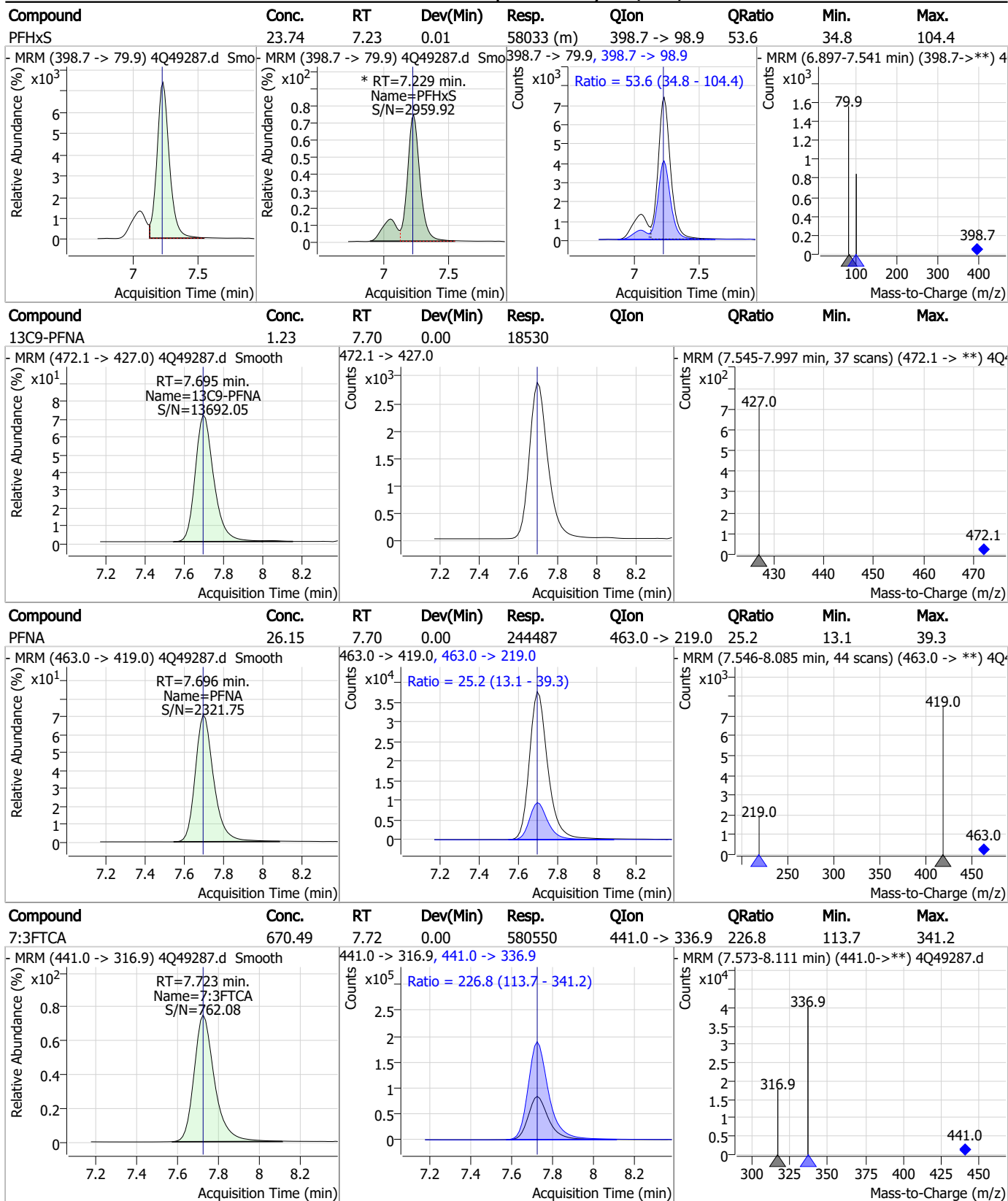
7.7.8  
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### Perfluorinated Compounds by LC/MS/MS



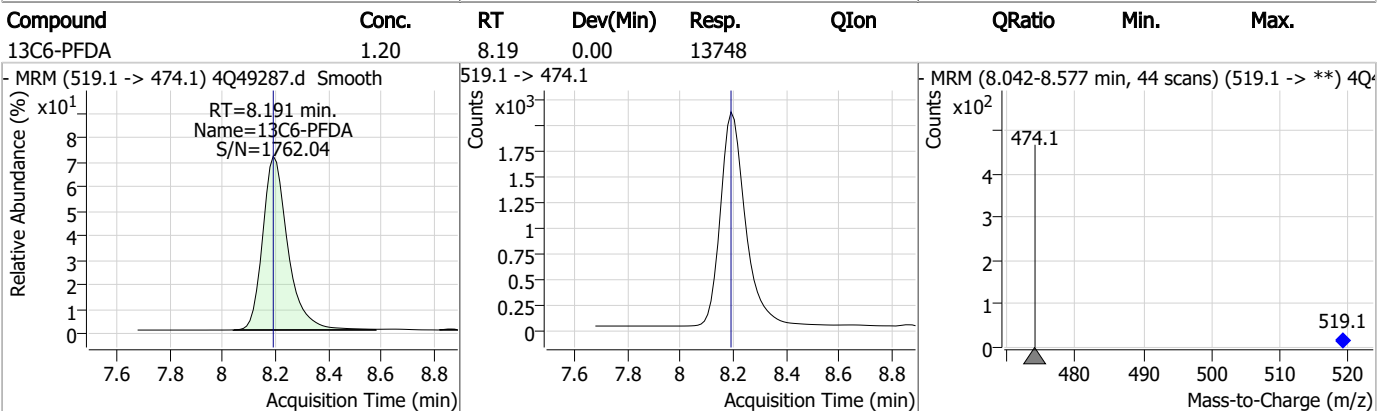
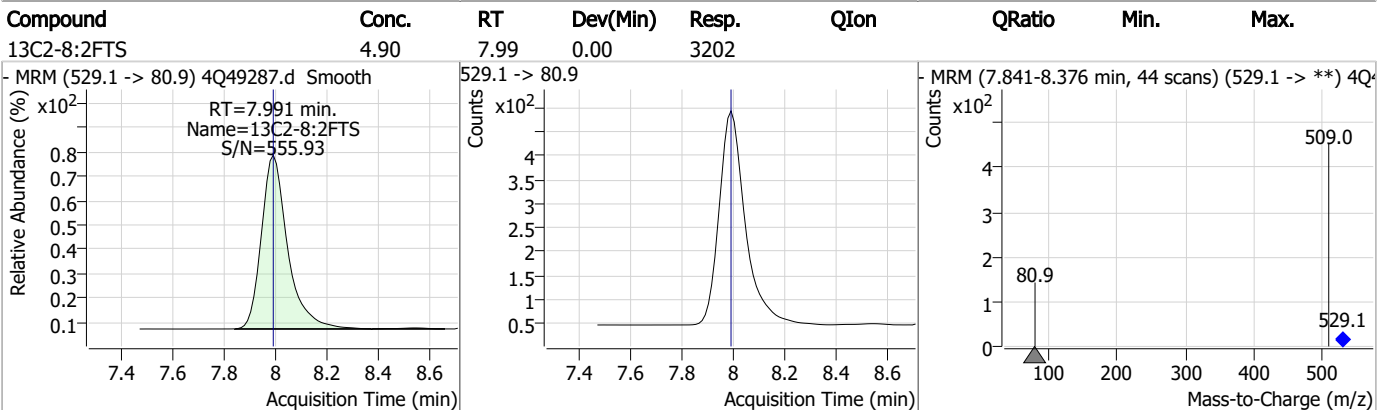
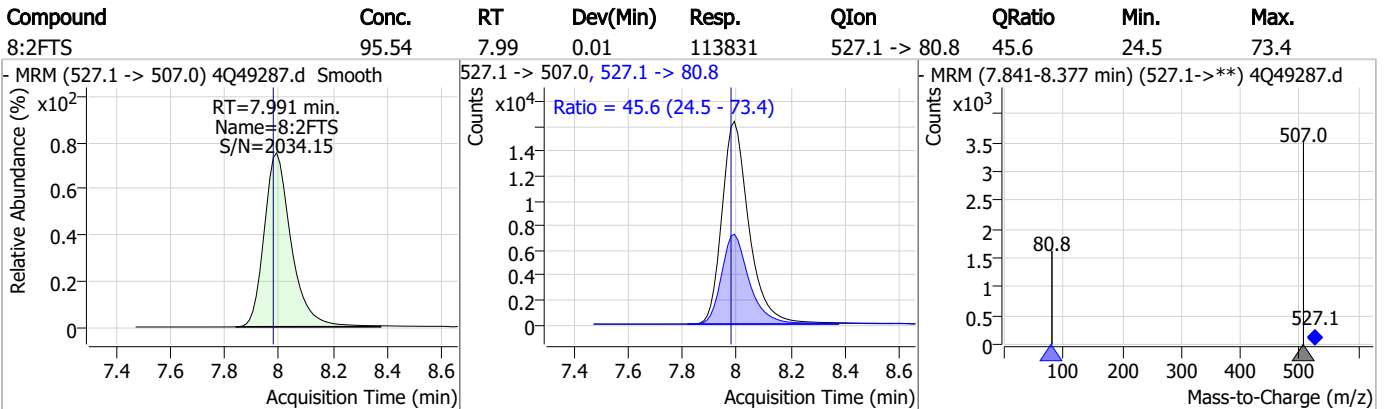
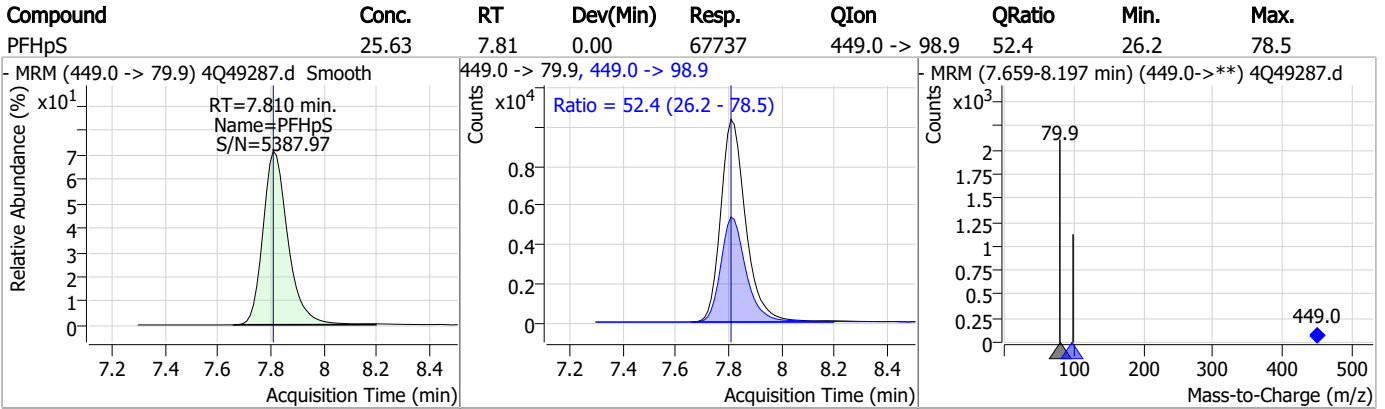
7.7.8  
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### Perfluorinated Compounds by LC/MS/MS



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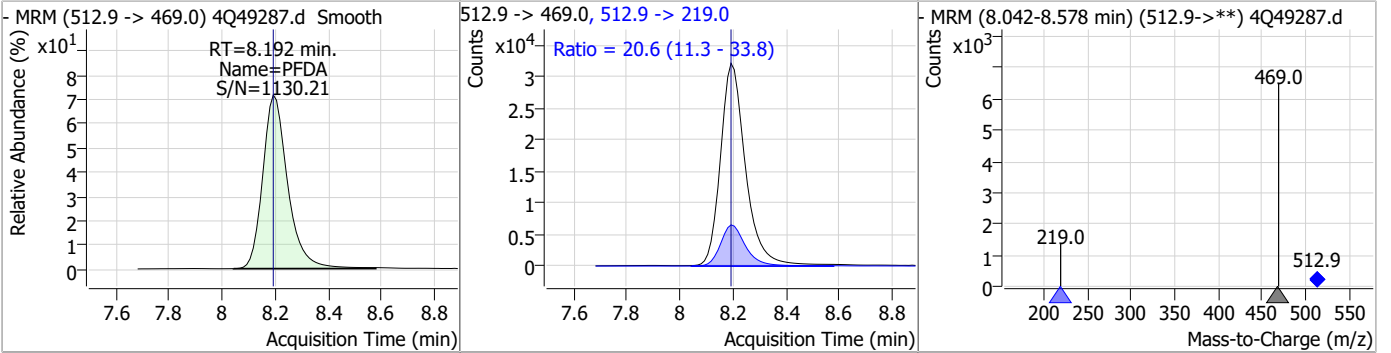
### Perfluorinated Compounds by LC/MS/MS



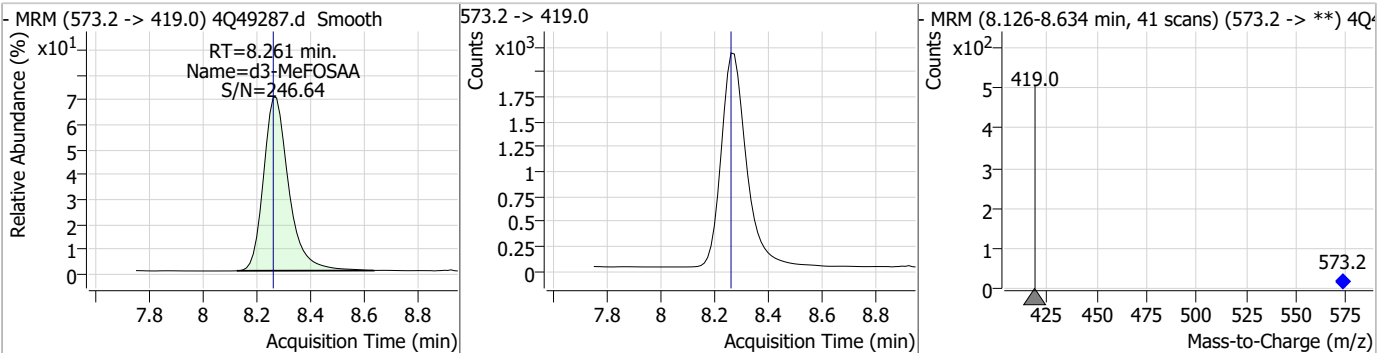


### Perfluorinated Compounds by LC/MS/MS

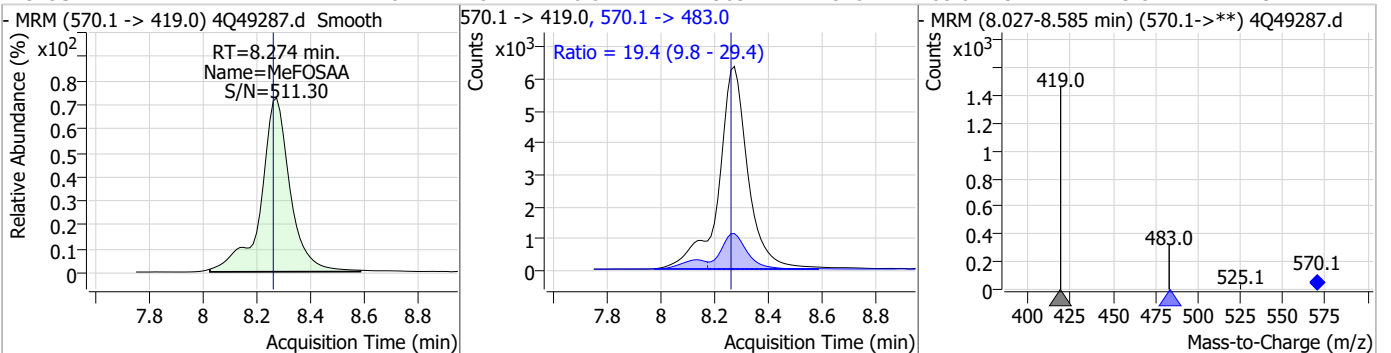
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	26.27	8.19	0.00	208482	512.9 -> 219.0	20.6	11.3	33.8



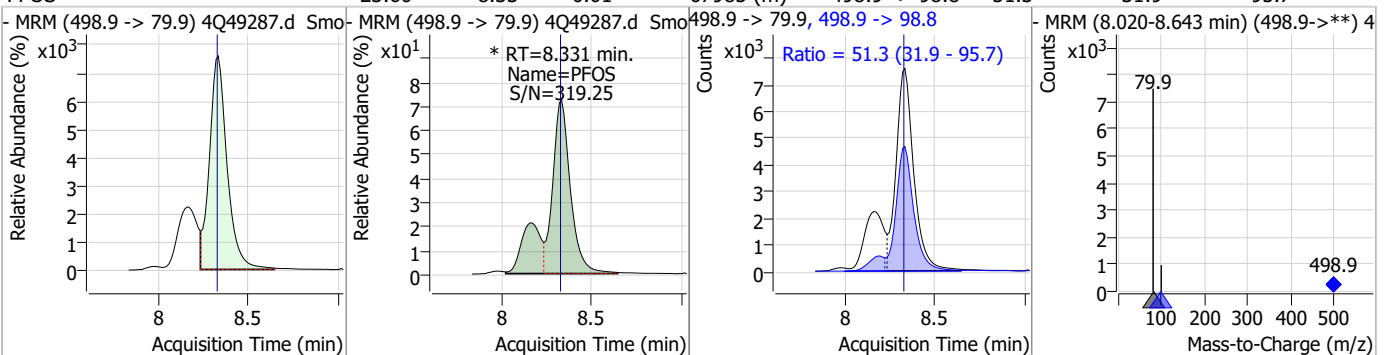
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.13	8.26	0.00	13896				



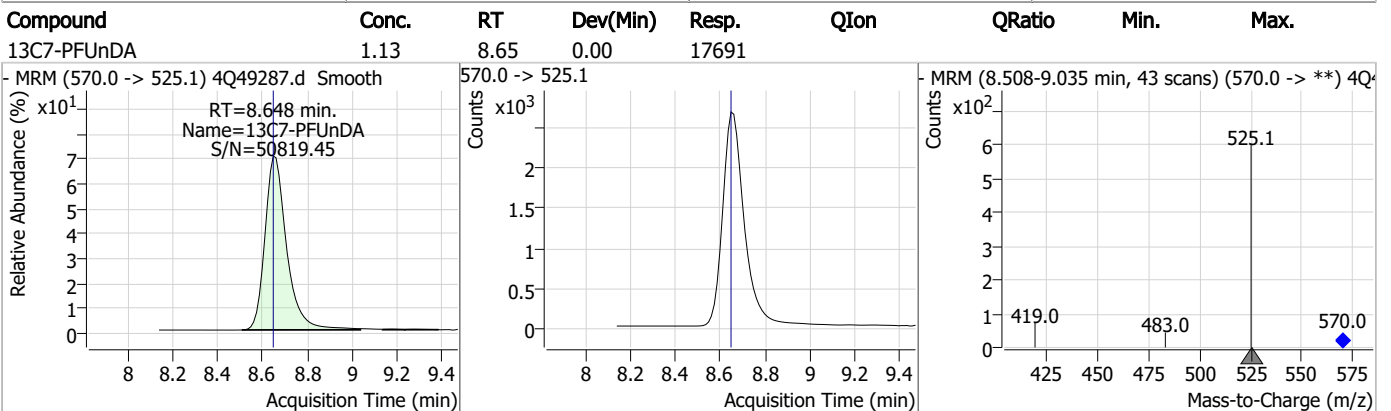
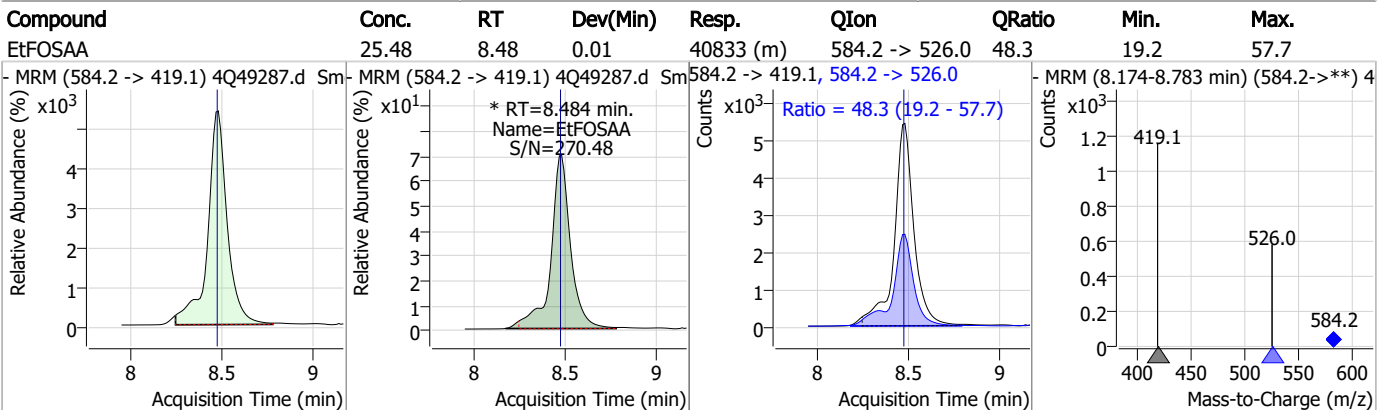
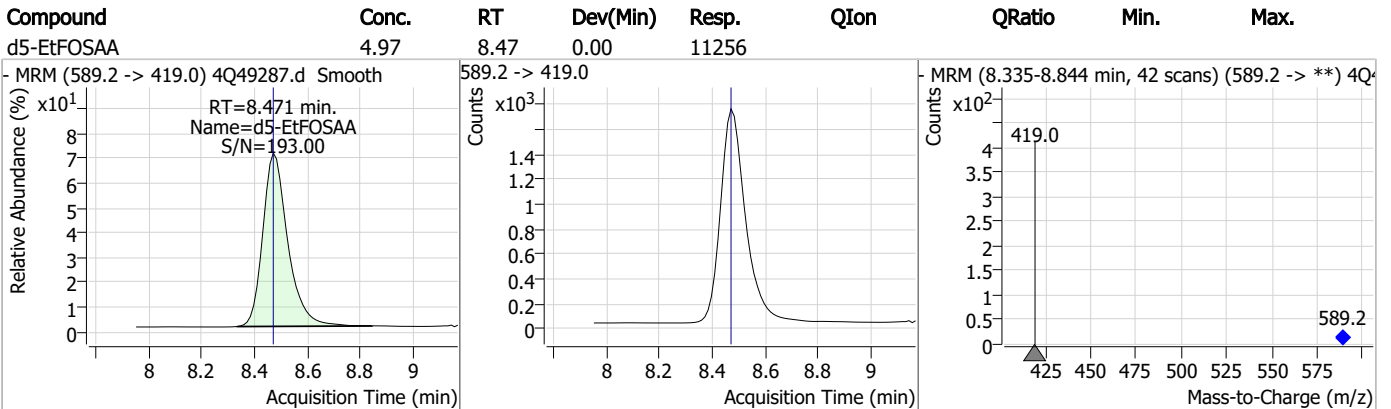
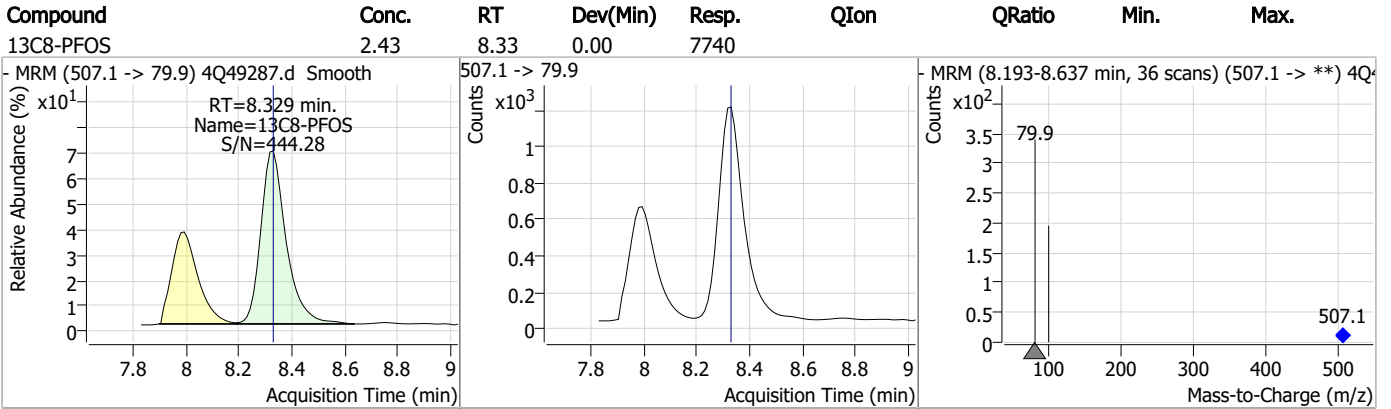
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	24.07	8.27	0.01	47903	570.1 -> 483.0	19.4	9.8	29.4



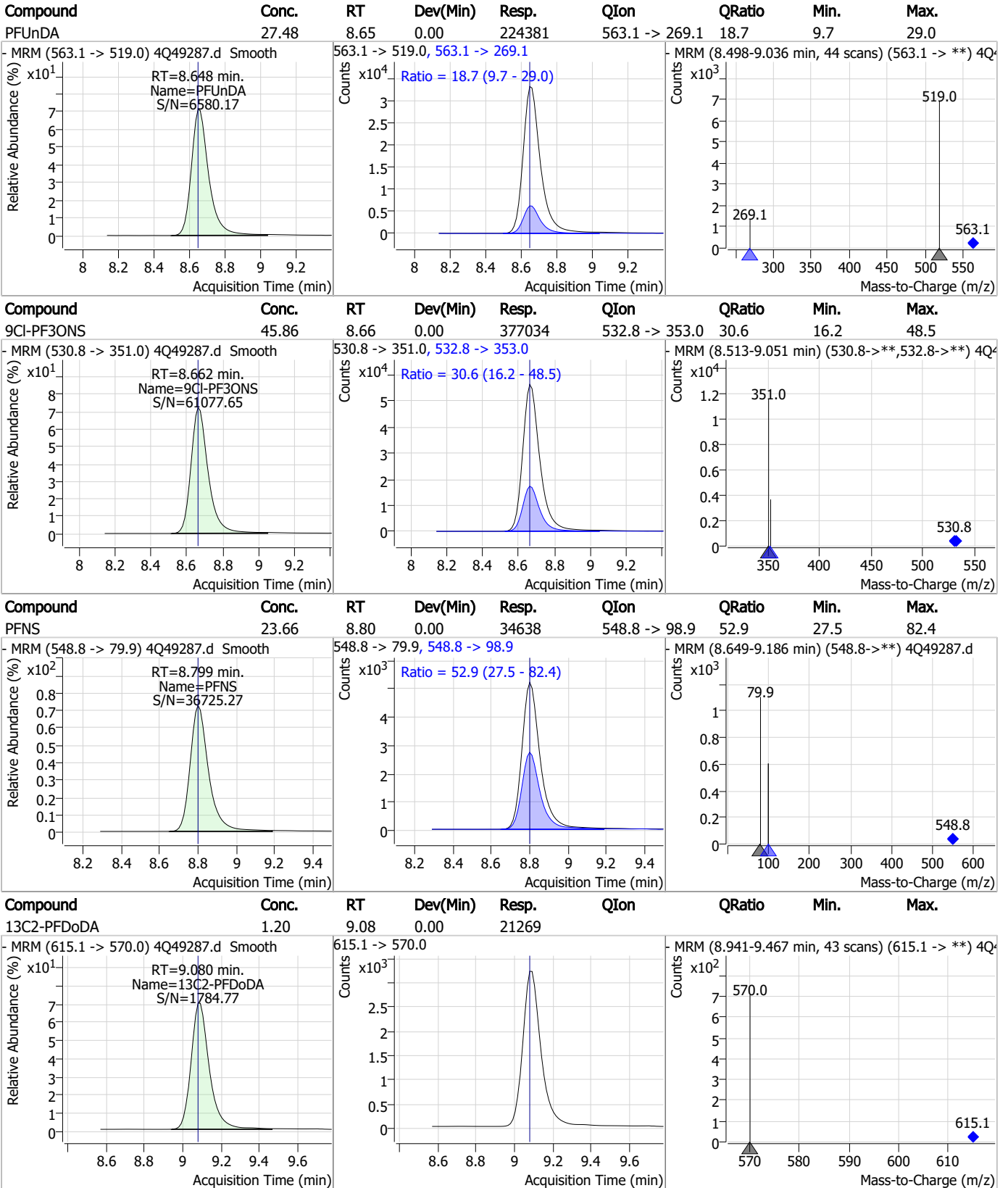
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	23.60	8.33	0.01	67985 (m)	498.9 -> 98.8	51.3	31.9	95.7



### Perfluorinated Compounds by LC/MS/MS



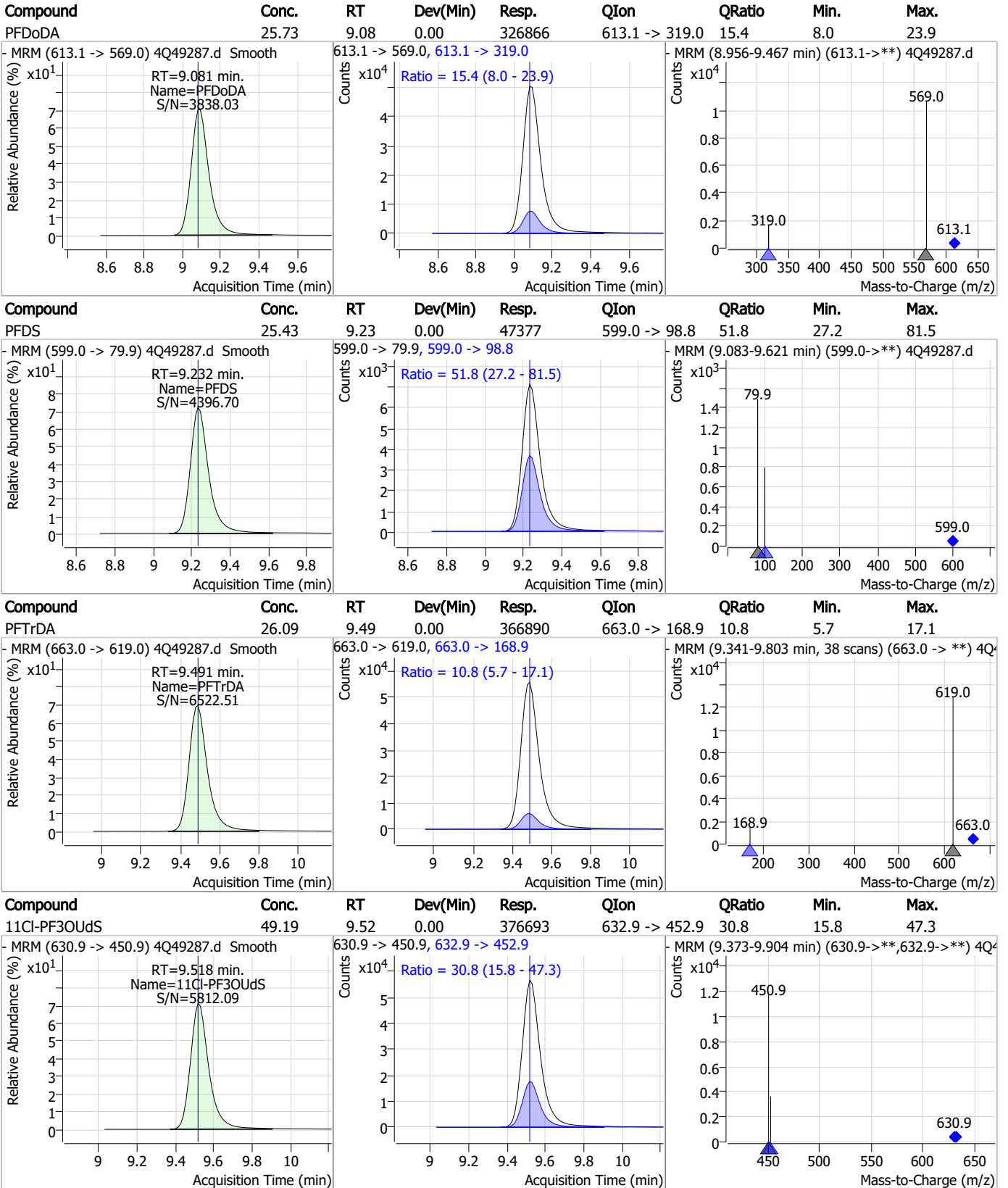
### Perfluorinated Compounds by LC/MS/MS



7.7.8

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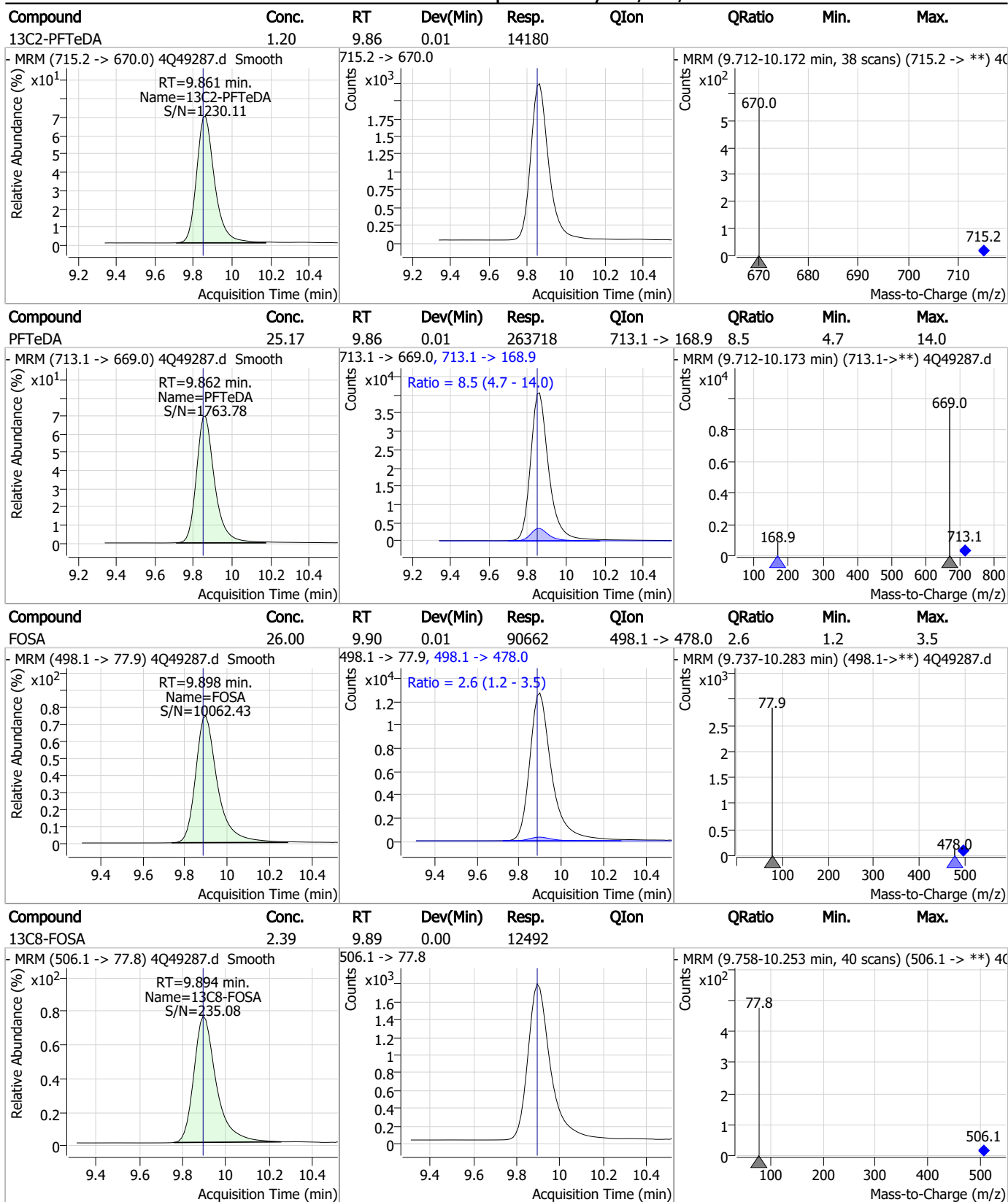
### Perfluorinated Compounds by LC/MS/MS



7.7.8

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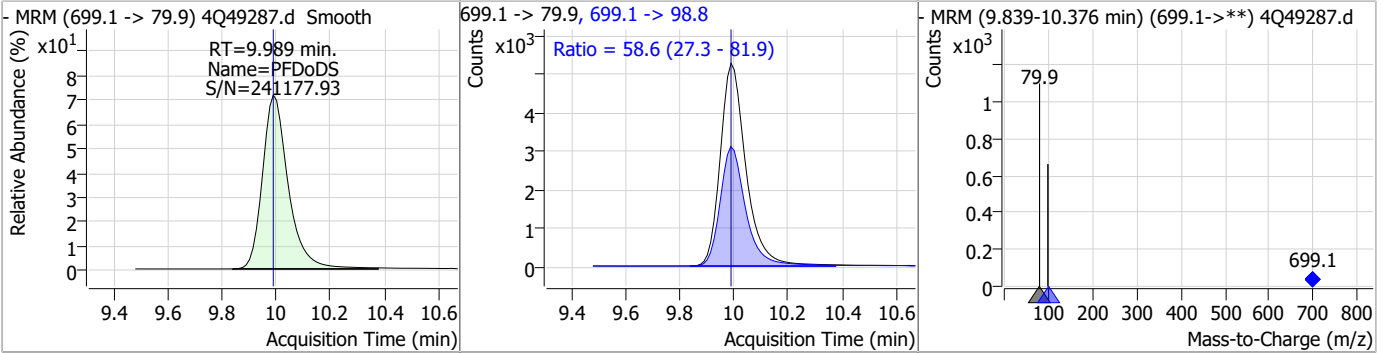
### Perfluorinated Compounds by LC/MS/MS



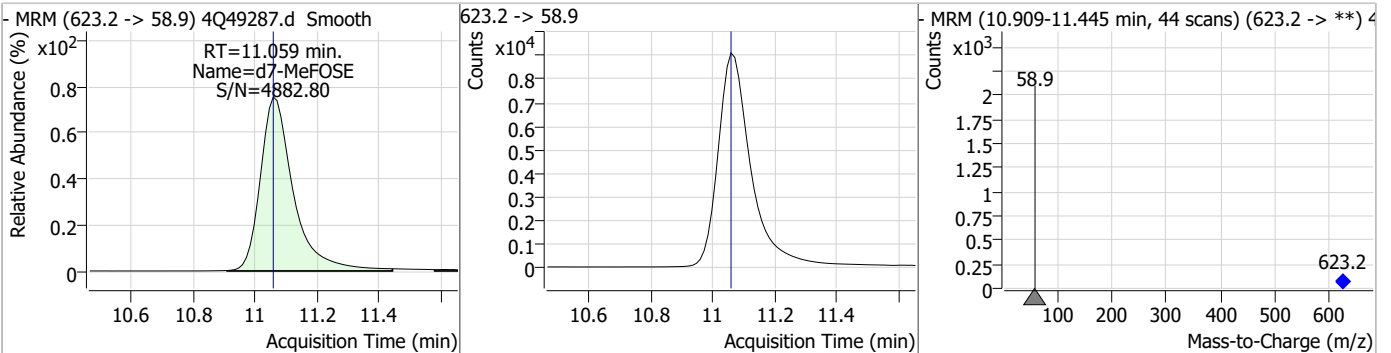
7.7.8  
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### Perfluorinated Compounds by LC/MS/MS

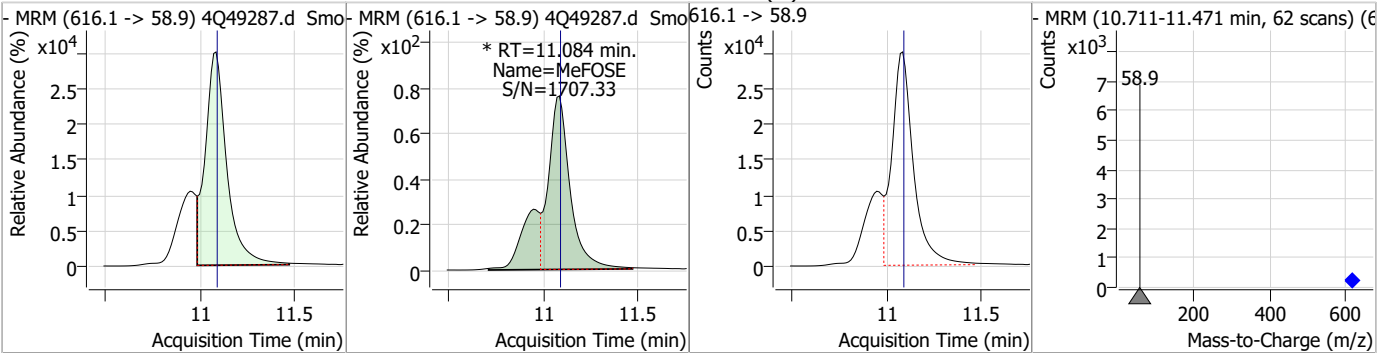
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	24.60	9.99	0.00	34658	699.1 -> 98.8	58.6	27.3	81.9



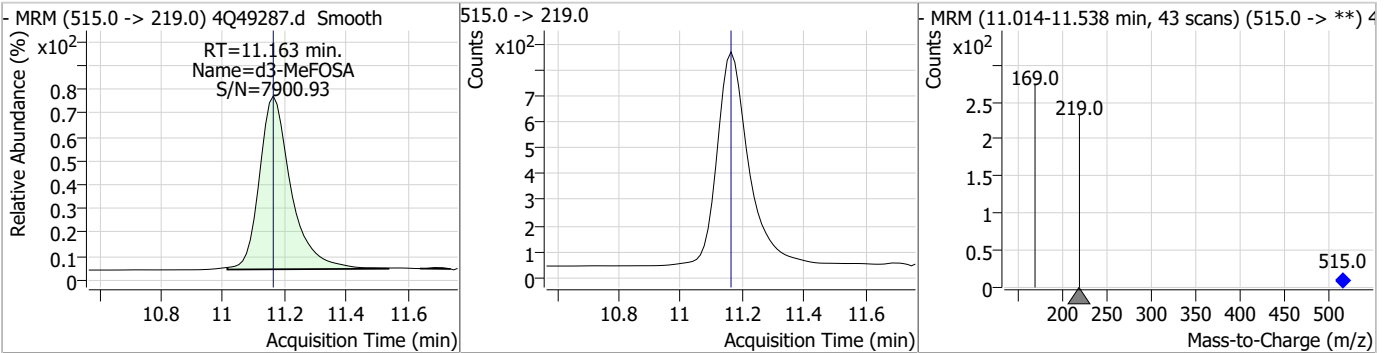
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.60	11.06	0.00	67427				



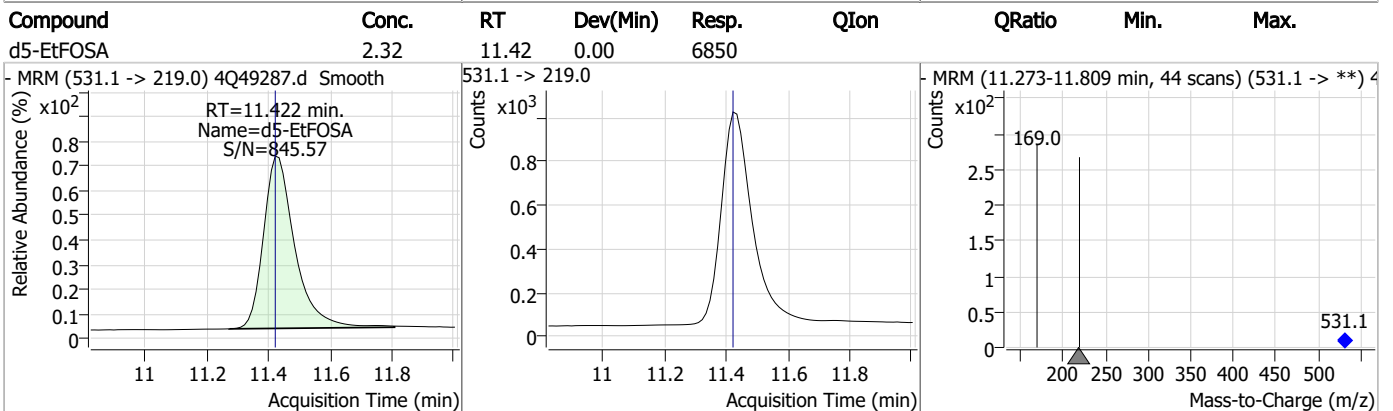
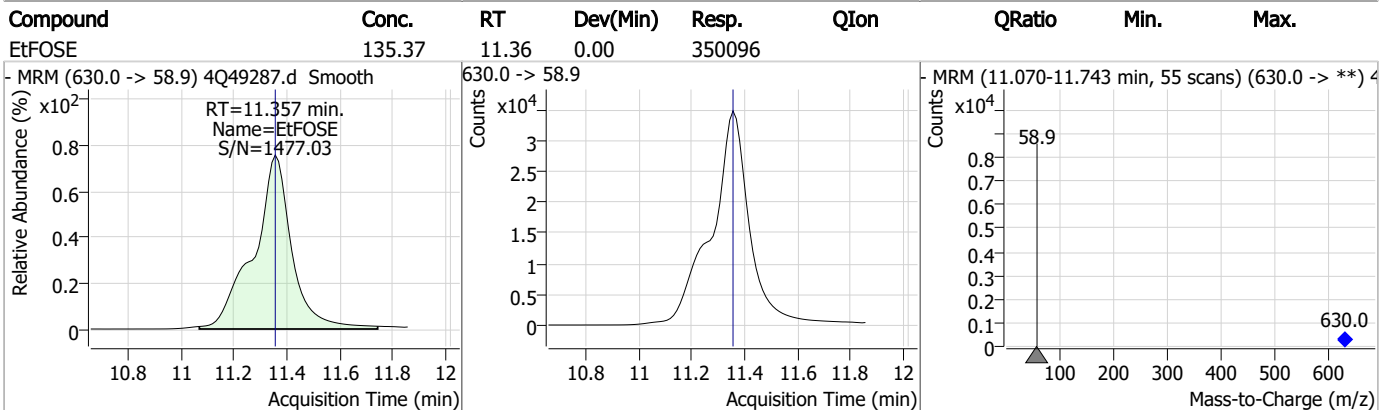
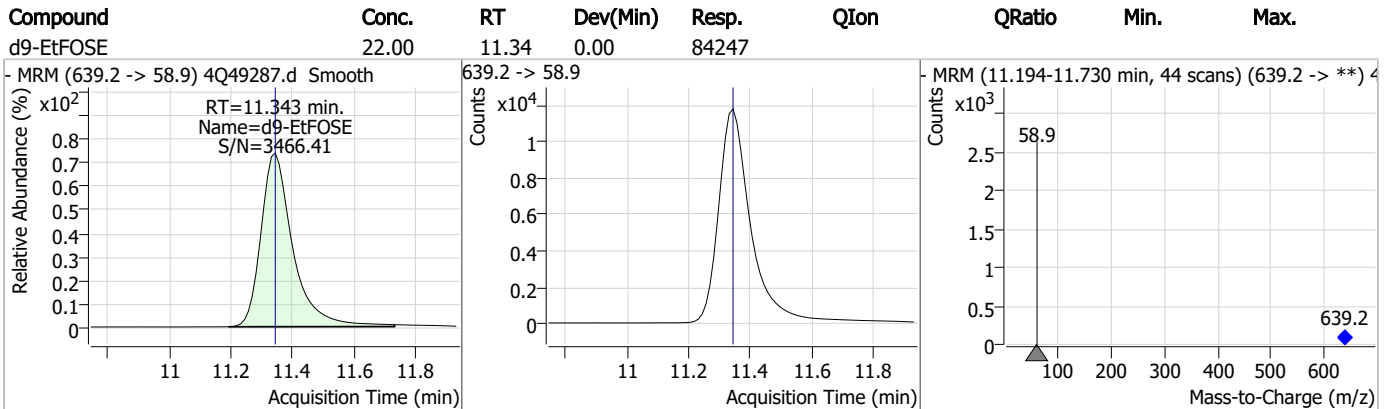
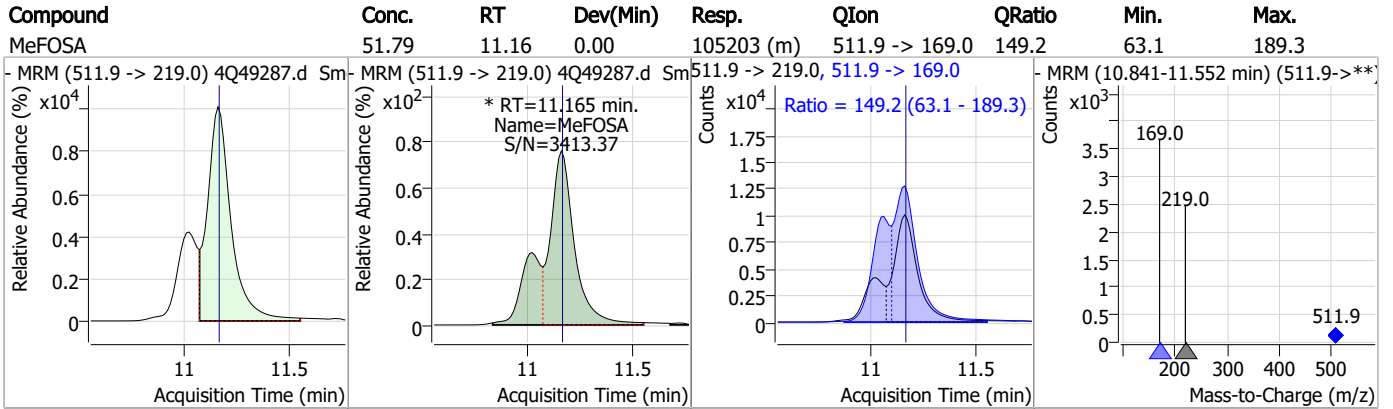
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	130.10	11.08	0.00	311300 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.45	11.16	0.00	5854				



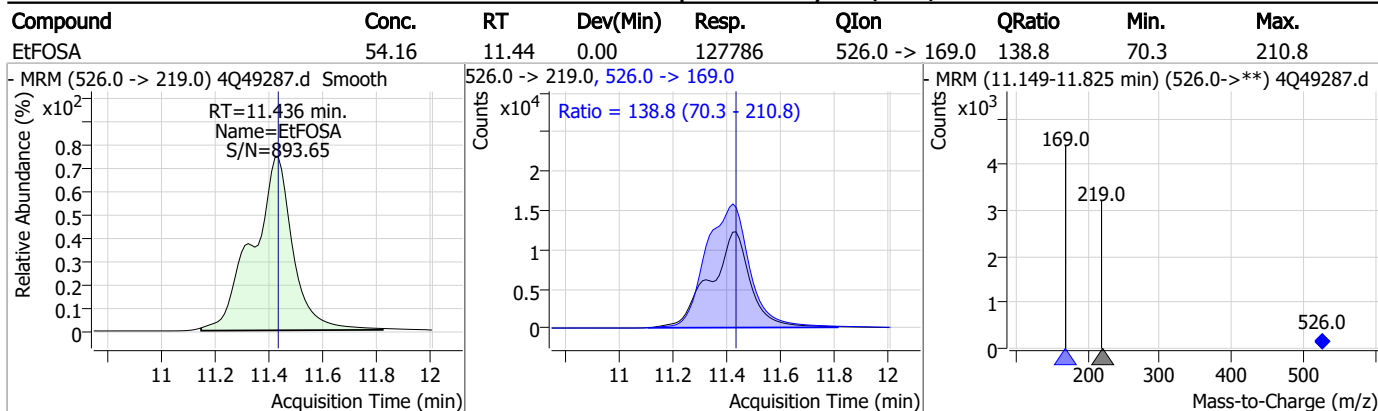
### Perfluorinated Compounds by LC/MS/MS



7.7.8

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### Perfluorinated Compounds by LC/MS/MS



7.7.8  
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# Manual Integration Approval Summary

Sample Number: S4Q722-IC722      Method: EPA DRAFT 1633  
Lab FileID: 4Q49287.D      Analyst approved: 08/23/23 10:44 Martha Valls  
Injection Time: 08/22/23 12:18      Supervisor approved: 08/23/23 15:25 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.48	Split peak
MeFOSE	24448-09-7		11.08	Split peak
MeFOSA	31506-32-8		11.16	Split peak

7.7.8.1  
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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q49288.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 8/22/2023 12:33:31 PM  
 Sample Name : ic722-8  
 Vial : P1-A9  
 DA Method File : 1633\_082223\_S4Q722.quantmethod.xml  
 Batch Name : s4q722.batch.bin  
 Sample Information : OP98180,S4Q722,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.849	216.8 -> 171.9	112118	10.00 µg/L	0.037
M5-PFPeA	4.325	268.3 -> 223.0	61928	5.00 µg/L	0.012
M5-PFHxA	5.522	318.0 -> 273.0	45242	2.50 µg/L	0.012
M4-PFHpA	6.479	367.1 -> 322.0	27037	2.50 µg/L	0.012
M8-PFOA	7.148	421.1 -> 376.0	46283	2.50 µg/L	0.000
M9-PFNA	7.695	472.1 -> 427.0	17188	1.25 µg/L	0.000
M6-PFDA	8.191	519.1 -> 474.1	13636	1.25 µg/L	0.000
M7-PFUnDA	8.660	570.0 -> 525.1	15227	1.25 µg/L	0.012
M2-PFDoDA	9.093	615.1 -> 570.0	20414	1.25 µg/L	0.012
M2-PFTeDA	9.861	715.2 -> 670.0	13792	1.25 µg/L	0.012
M8-FOSA	9.906	506.1 -> 77.8	12851	2.50 µg/L	0.012
M3-PFBS	5.402	302.1 -> 79.9	10240	2.50 µg/L	0.011
M3-PFHxS	7.229	402.1 -> 79.9	8208	2.50 µg/L	0.012
M8-PFOS	8.329	507.1 -> 79.9	7117	2.50 µg/L	0.000
M2-4:2FTS	5.221	329.1 -> 80.9	1061	5.00 µg/L	0.012
M2-6:2FTS	6.936	429.1 -> 80.9	1711	5.00 µg/L	0.025
M2-8:2FTS	7.991	529.1 -> 80.9	2756	5.00 µg/L	0.000
M3-MeFOSAA	8.274	573.2 -> 419.0	13248	5.00 µg/L	0.012
M3-HFPO-DA	5.889	286.9 -> 168.9	33124	10.00 µg/L	0.012
M5-EtFOSAA	8.483	589.2 -> 419.0	10404	5.00 µg/L	0.012
M7-MeFOSE	11.071	623.2 -> 58.9	62091	25.00 µg/L	0.012
M9-EtFOSE	11.343	639.2 -> 58.9	77671	25.00 µg/L	0.000
M5-EtFOSA	11.434	531.1 -> 219.0	7184	2.50 µg/L	0.012
M3-MeFOSA	11.163	515.0 -> 219.0	6288	2.50 µg/L	0.000
13C4-PFOS	8.330	502.8 -> 79.9	7197	2.50 µg/L	0.000
13C3-PFBA	2.853	216.0 -> 172.0	62912	5.00 µg/L	0.050
18O2-PFHxS	7.228	403.0 -> 83.9	6109	2.50 µg/L	0.000
13C4-PFOA	7.149	417.1 -> 372.0	53354	2.50 µg/L	0.000
13C2-PFDA	8.192	515.1 -> 470.1	11864	1.25 µg/L	0.000
13C5-PFNA	7.696	468.0 -> 423.0	18812	1.25 µg/L	0.000
13C2-PFHxA	5.523	315.1 -> 270.0	42217	2.50 µg/L	0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.221	329.1 -> 80.9	1061	3.82 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 76.5%		
13C2-6:2FTS	6.936	429.1 -> 80.9	1711	4.34 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 86.9%		
13C2-8:2FTS	7.991	529.1 -> 80.9	2756	4.34 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 86.8%		
13C2-PFDoDA	9.093	615.1 -> 570.0	20414	1.30 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C2-PFTeDA	9.861	715.2 -> 670.0	13792	1.32 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.4%		
13C3-PFBS	5.402	302.1 -> 79.9	10240	2.17 µg/L	0.011
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 86.8%		
13C3-PFHxS	7.229	402.1 -> 79.9	8208	2.39 µg/L	0.012

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

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.6%	
13C4-PFBA	2.849	216.8 -> 171.9	112118	10.02 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C4-PFHpA	6.479	367.1 -> 322.0	27037	2.25 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.0%	
13C5-PFHxA	5.522	318.0 -> 273.0	45242	2.55 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C5-PFPeA	4.325	268.3 -> 223.0	61928	4.70 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.0%	
13C6-PFDA	8.191	519.1 -> 474.1	13636	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.6%	
13C7-PFUnDA	8.660	570.0 -> 525.1	15227	1.10 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 88.4%	
13C8-FOSA	9.906	506.1 -> 77.8	12851	2.65 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.0%	
13C8-PFOA	7.148	421.1 -> 376.0	46283	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C8-PFOS	8.329	507.1 -> 79.9	7117	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.3%	
13C9-PFNA	7.695	472.1 -> 427.0	17188	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.2%	
d3-MeFOSAA	8.274	573.2 -> 419.0	13248	5.26 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.3%	
13C3-HFPO-DA	5.889	286.9 -> 168.9	33124	9.72 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.2%	
d3-MeFOSA	11.163	515.0 -> 219.0	6288	2.84 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.4%	
d5-EtFOSAA	8.483	589.2 -> 419.0	10404	4.94 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.8%	
d7-MeFOSE	11.071	623.2 -> 58.9	62091	23.40 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.6%	
d9-EtFOSE	11.343	639.2 -> 58.9	77671	21.84 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 87.3%	
d5-EtFOSA	11.434	531.1 -> 219.0	7184	2.62 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.9%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.222	327.1 -> 307.0	295904	244.08 µg/L	95
		327.1 -> 80.9	128551		
6:2FTS	6.924	427.1 -> 407.0	287401	230.03 µg/L	99
		427.1 -> 80.9	117477		
8:2FTS	7.991	527.1 -> 507.0	236209	254.80 µg/L	95
		527.1 -> 80.8	107092		
EtFOSAA	8.484	584.2 -> 419.1	103816	70.08 µg/L	m 91
		584.2 -> 526.0	45435		
FOSA	9.898	498.1 -> 77.9	229854	64.06 µg/L	99
		498.1 -> 478.0	6245		
MeFOSAA	8.274	570.1 -> 419.0	121136	63.84 µg/L	m 98
		570.1 -> 483.0	22748		
PFBA	2.857	212.8 -> 168.9	648236	269.03 µg/L	100
PFBS	5.403	298.7 -> 79.9	188011	63.26 µg/L	97
		298.7 -> 98.8	73292		
PFDA	8.192	512.9 -> 469.0	489037	62.14 µg/L	97
		512.9 -> 219.0	102550		
PFDoDA	9.093	613.1 -> 569.0	780648	64.03 µg/L	98
		613.1 -> 319.0	118355		
PFDS	9.245	599.0 -> 79.9	109486	63.91 µg/L	96

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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.480	599.0 -> 98.8	56642	70.07	µg/L	99
		363.1 -> 319.0	920278			
PFHpS	7.810	363.1 -> 169.0	167677	67.79	µg/L	99
		449.0 -> 79.9	164689			
PFHxA	5.525	449.0 -> 98.9	86984	65.92	µg/L	99
		313.0 -> 269.0	916943			
PFHxS	7.229	313.0 -> 118.9	30979	63.70	µg/L	m
		398.7 -> 79.9	147514			
PFNA	7.696	398.7 -> 98.9	76761	69.13	µg/L	97
		463.0 -> 419.0	599638			
PFNS	8.799	463.0 -> 219.0	149400	60.11	µg/L	95
		548.8 -> 79.9	80919			
PFOA	7.150	548.8 -> 98.9	41231	66.15	µg/L	98
		413.0 -> 369.0	1156589			
PFOS	8.331	413.0 -> 169.0	250459	61.19	µg/L	m
		498.9 -> 79.9	162058			
PFPeA	4.327	498.9 -> 98.8	82827	134.28	µg/L	100
		263.0 -> 219.0	1475390			
PFPeS	6.494	349.1 -> 79.9	126546	61.03	µg/L	96
		349.1 -> 98.9	54704			
PFTeDA	9.862	713.1 -> 669.0	643130	63.10	µg/L	98
		713.1 -> 168.9	55699			
PFTrDA	9.491	663.0 -> 619.0	858074	63.57	µg/L	99
		663.0 -> 168.9	93310			
PFUnDA	8.660	563.1 -> 519.0	483026	68.74	µg/L	99
		563.1 -> 269.1	90828			
11Cl-PF3OUdS	9.530	630.9 -> 450.9	871123	118.79	µg/L	99
		632.9 -> 452.9	267452			
9Cl-PF3ONS	8.675	530.8 -> 351.0	847918	107.69	µg/L	97
		532.8 -> 353.0	258876			
ADONA	6.743	376.9 -> 250.9	2871294	122.73	µg/L	100
		376.9 -> 84.8	889191			
HFPO-DA	5.890	284.9 -> 168.9	336877	125.91	µg/L	99
		284.9 -> 184.9	39460			
3:3FTCA	3.811	241.0 -> 177.0	197841	375.67	µg/L	98
		241.0 -> 117.0	19802			
5:3FTCA	6.232	341.0 -> 237.1	3308790	1672.11	µg/L	99
		341.0 -> 217.0	2434581			
7:3FTCA	7.736	441.0 -> 316.9	1481186	1704.16	µg/L	99
		441.0 -> 336.9	3350597			
EtFOSA	11.436	526.0 -> 219.0	327904	132.52	µg/L	98
		526.0 -> 169.0	453579			
EtFOSE	11.357	630.0 -> 58.9	804416	337.37	µg/L	100
		511.9 -> 219.0	269363			
MeFOSA	11.165	511.9 -> 169.0	396976	123.47	µg/L	m
		616.1 -> 58.9	763871			
MeFOSE	11.084	699.1 -> 79.9	82712	346.69	µg/L	m
		699.1 -> 98.8	47242			
PFDoDS	9.989	295.0 -> 201.0	102233	63.85	µg/L	97
		295.0 -> 84.9	28651			
NFDHA	5.403	279.0 -> 85.1	878115	93.22	µg/L	99
		229.0 -> 84.9	966878			
PFMBA	4.741	314.8 -> 134.9	1309637	136.38	µg/L	100
		314.8 -> 82.9	41826			
PFMPA	3.465			108.44	µg/L	99
PFEESA	5.933					

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

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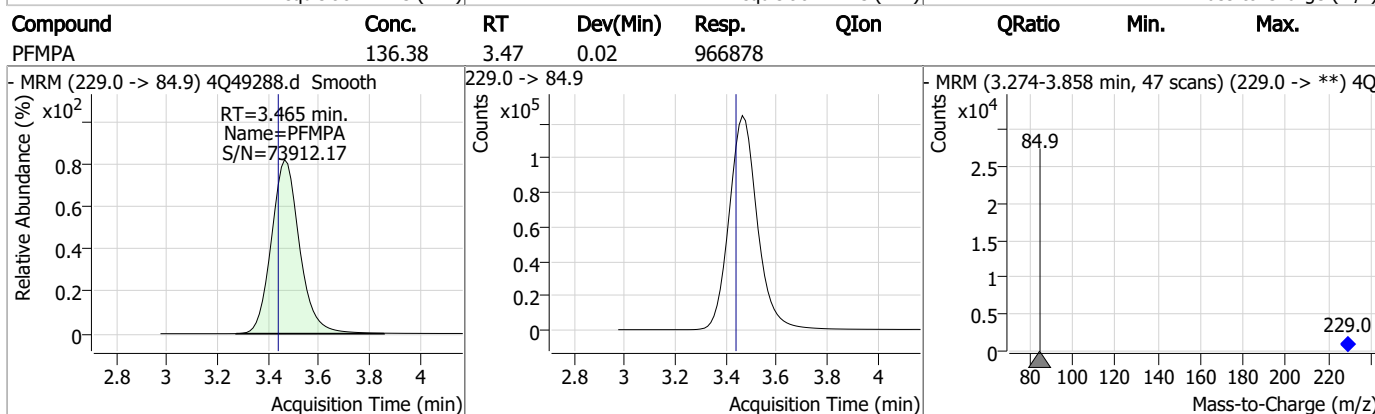
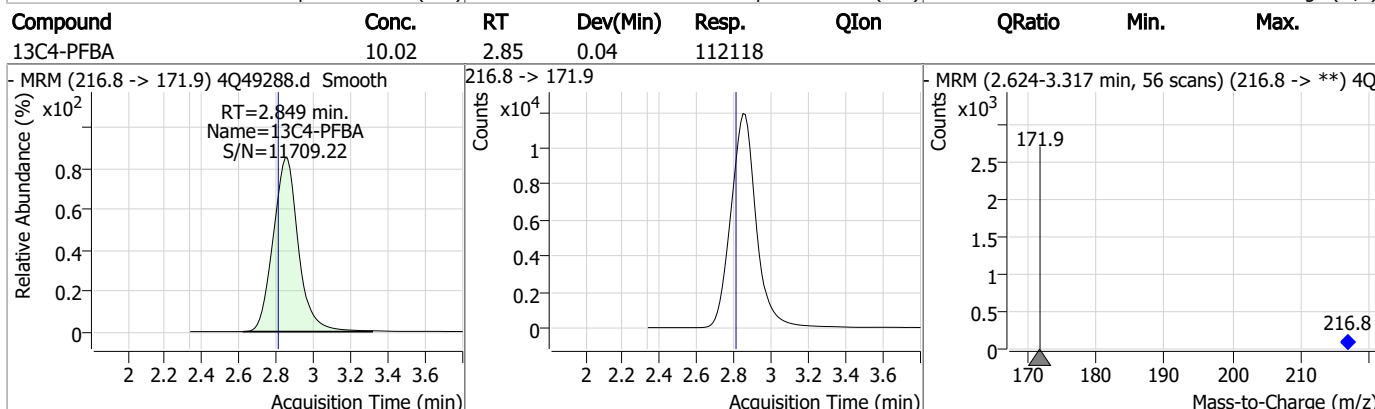
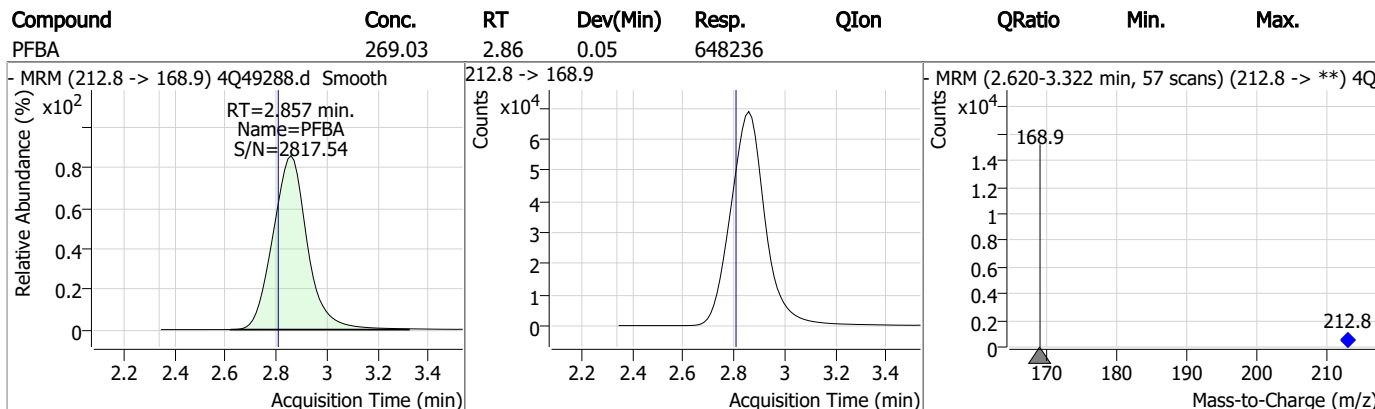
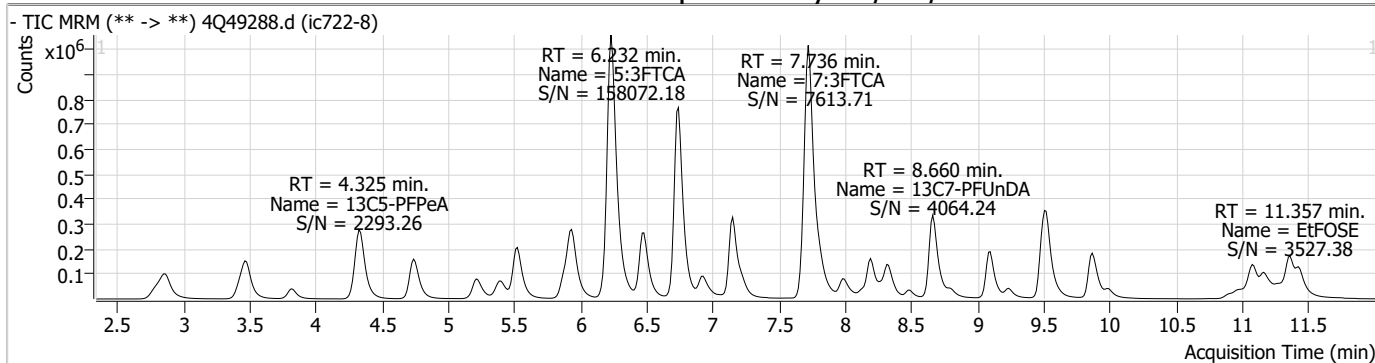
### Perfluorinated Compounds by LC/MS/MS

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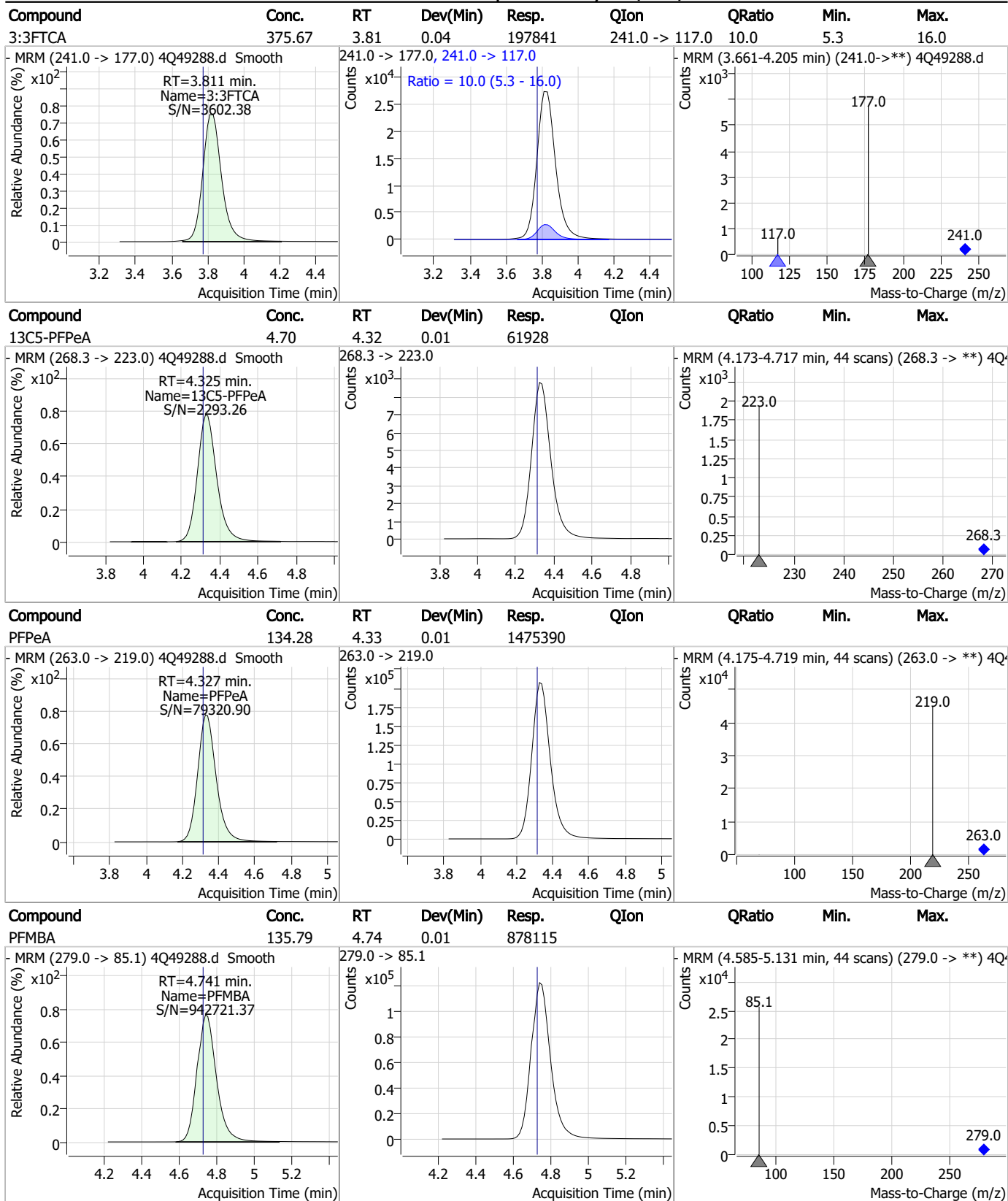
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### Perfluorinated Compounds by LC/MS/MS

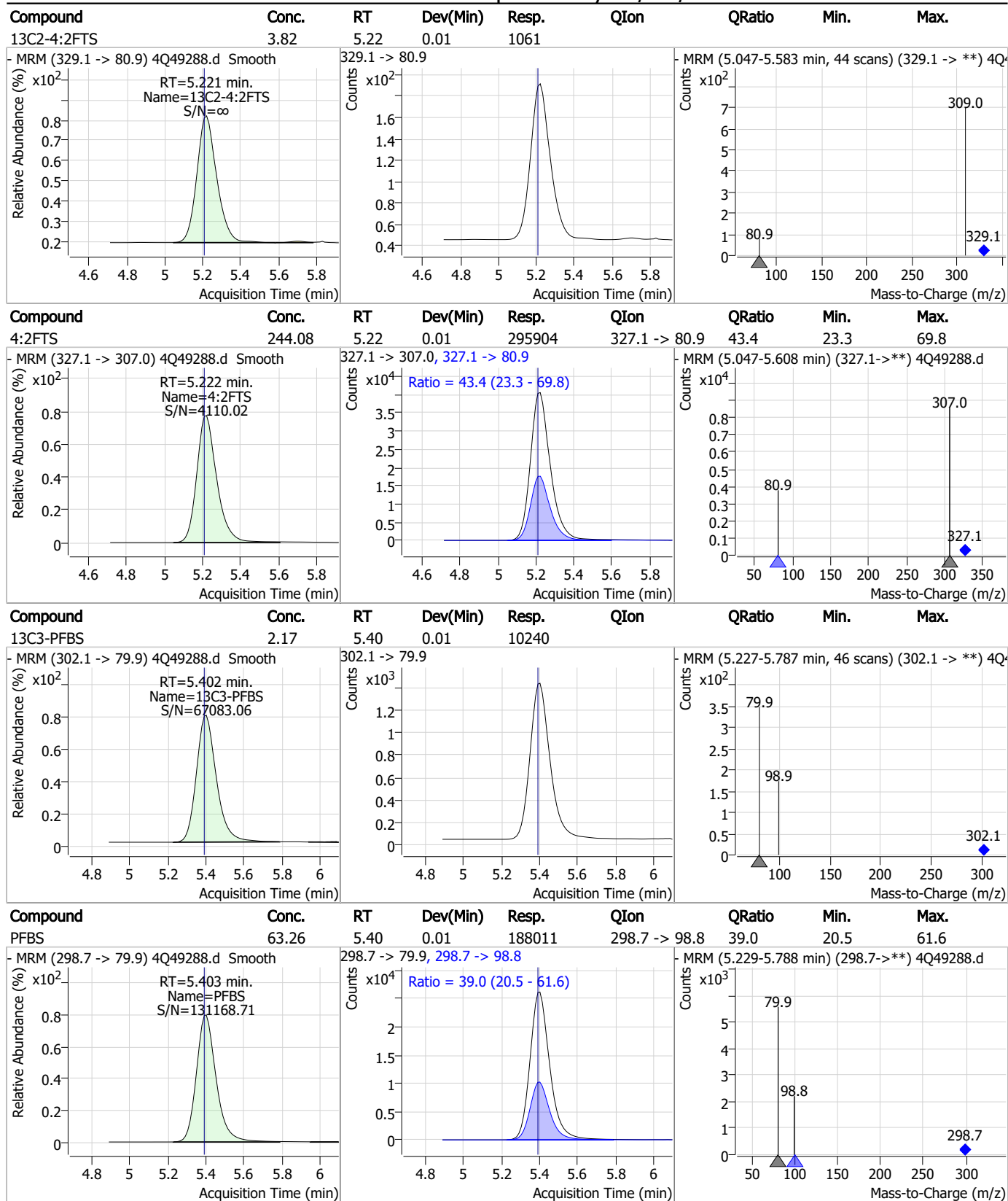


### Perfluorinated Compounds by LC/MS/MS



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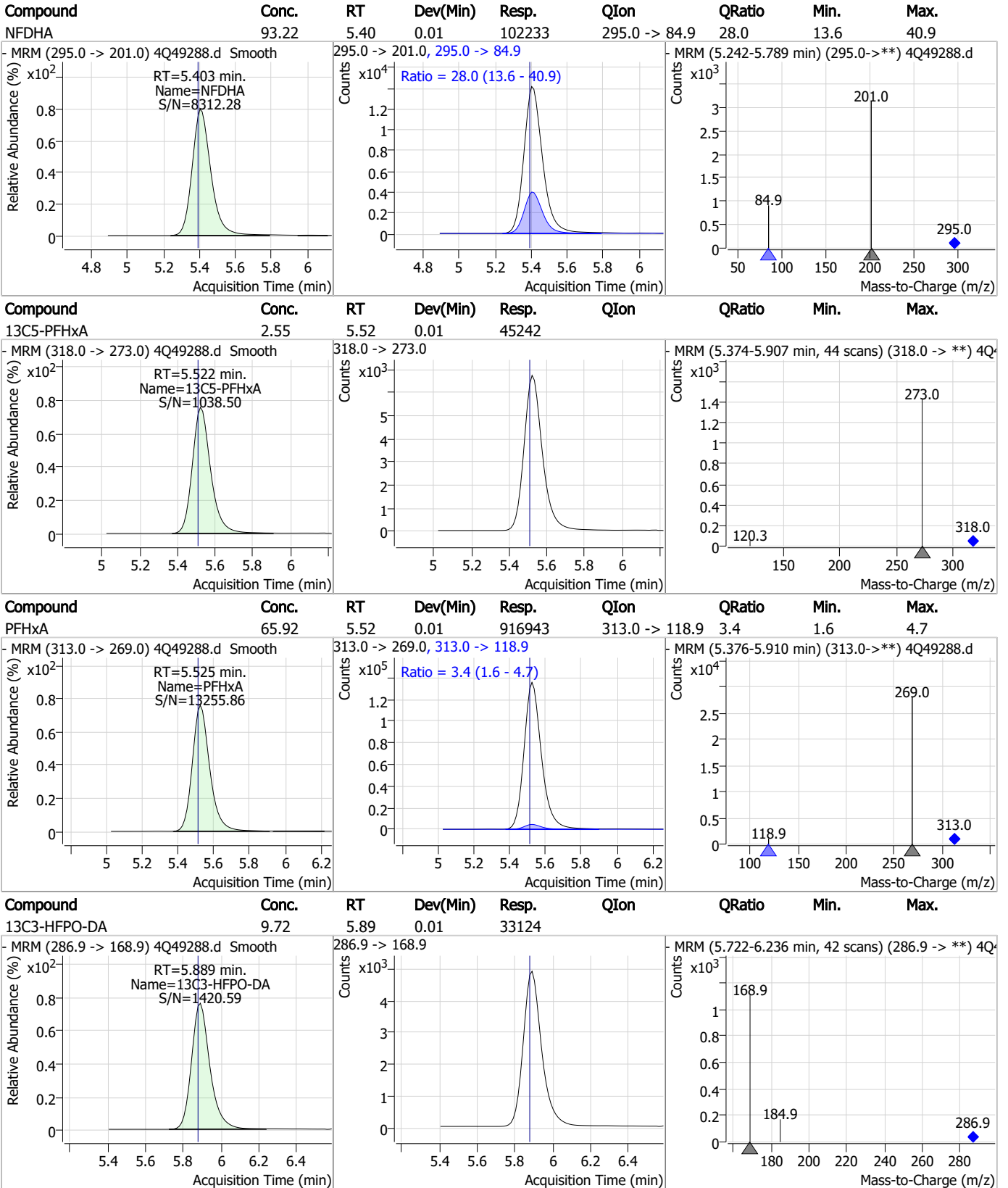
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS



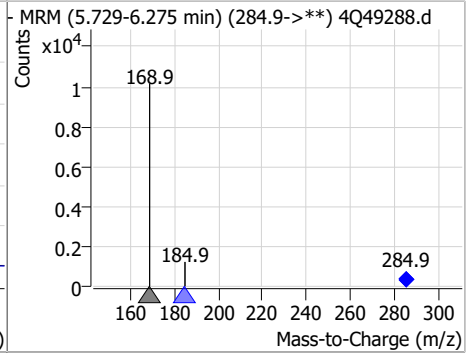
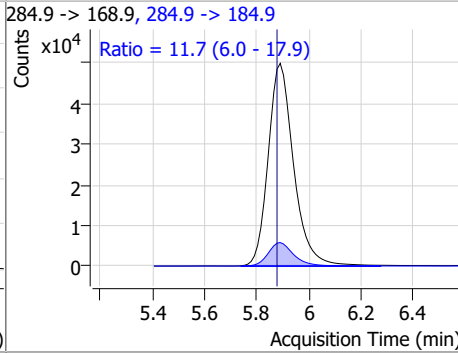
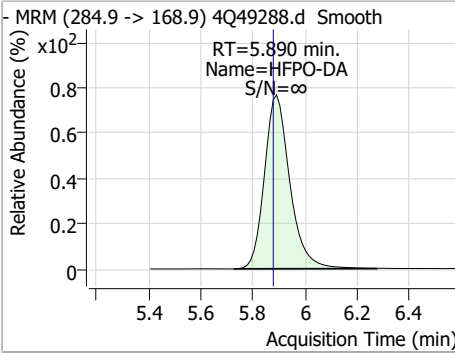
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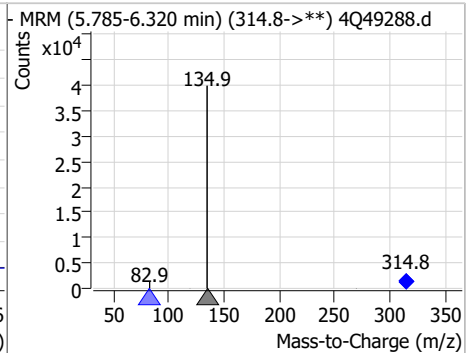
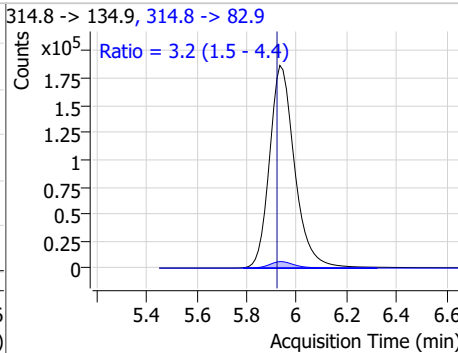
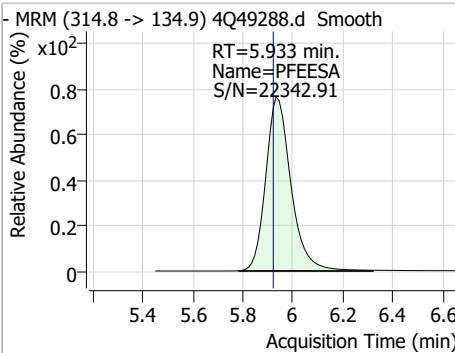


### Perfluorinated Compounds by LC/MS/MS

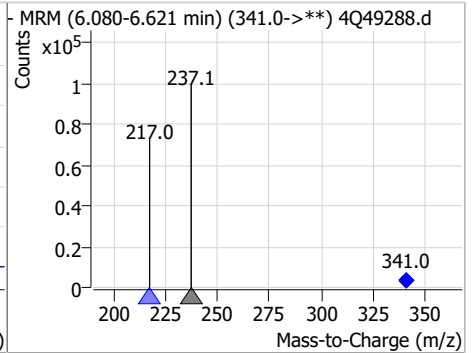
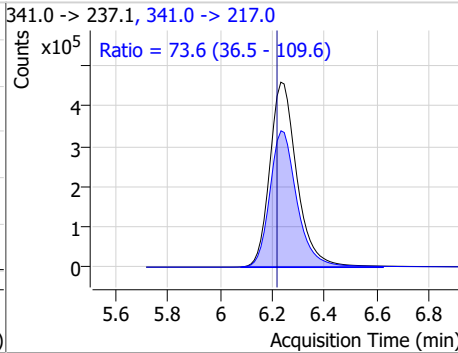
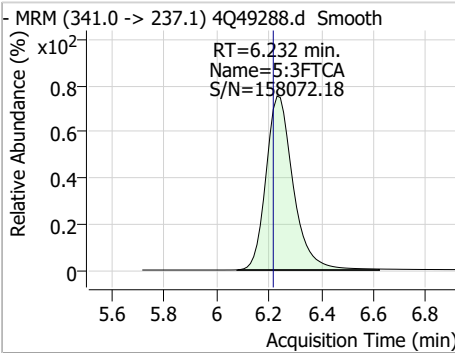
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	125.91	5.89	0.01	336877	284.9 -> 184.9	11.7	6.0	17.9



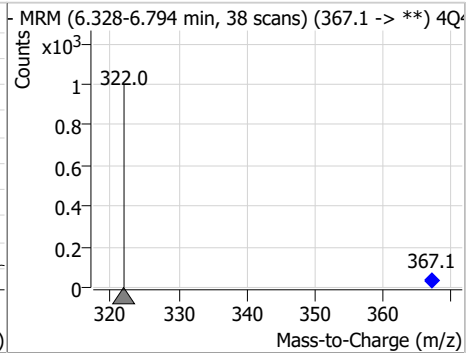
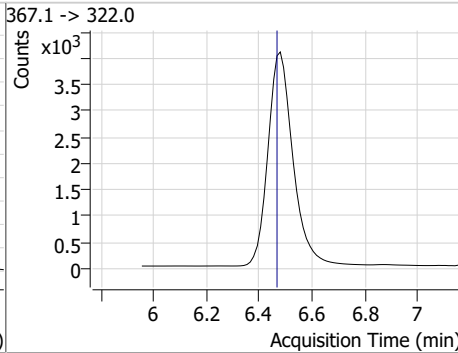
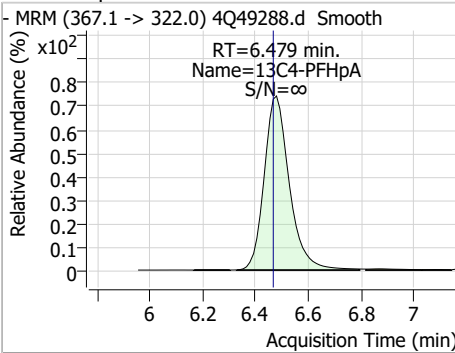
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	108.44	5.93	0.01	1309637	314.8 -> 82.9	3.2	1.5	4.4



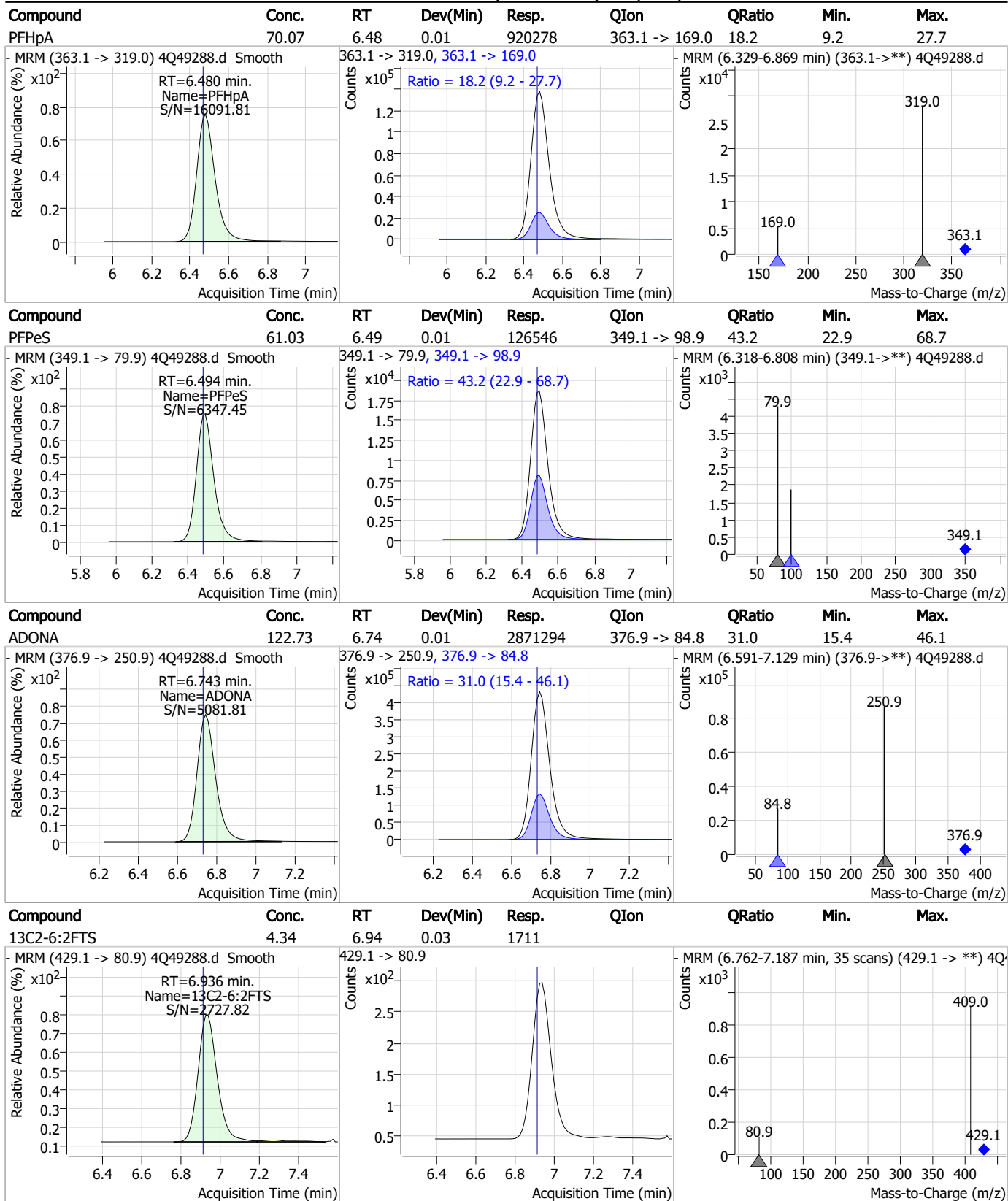
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	1672.11	6.23	0.01	3308790	341.0 -> 217.0	73.6	36.5	109.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.25	6.48	0.01	27037				

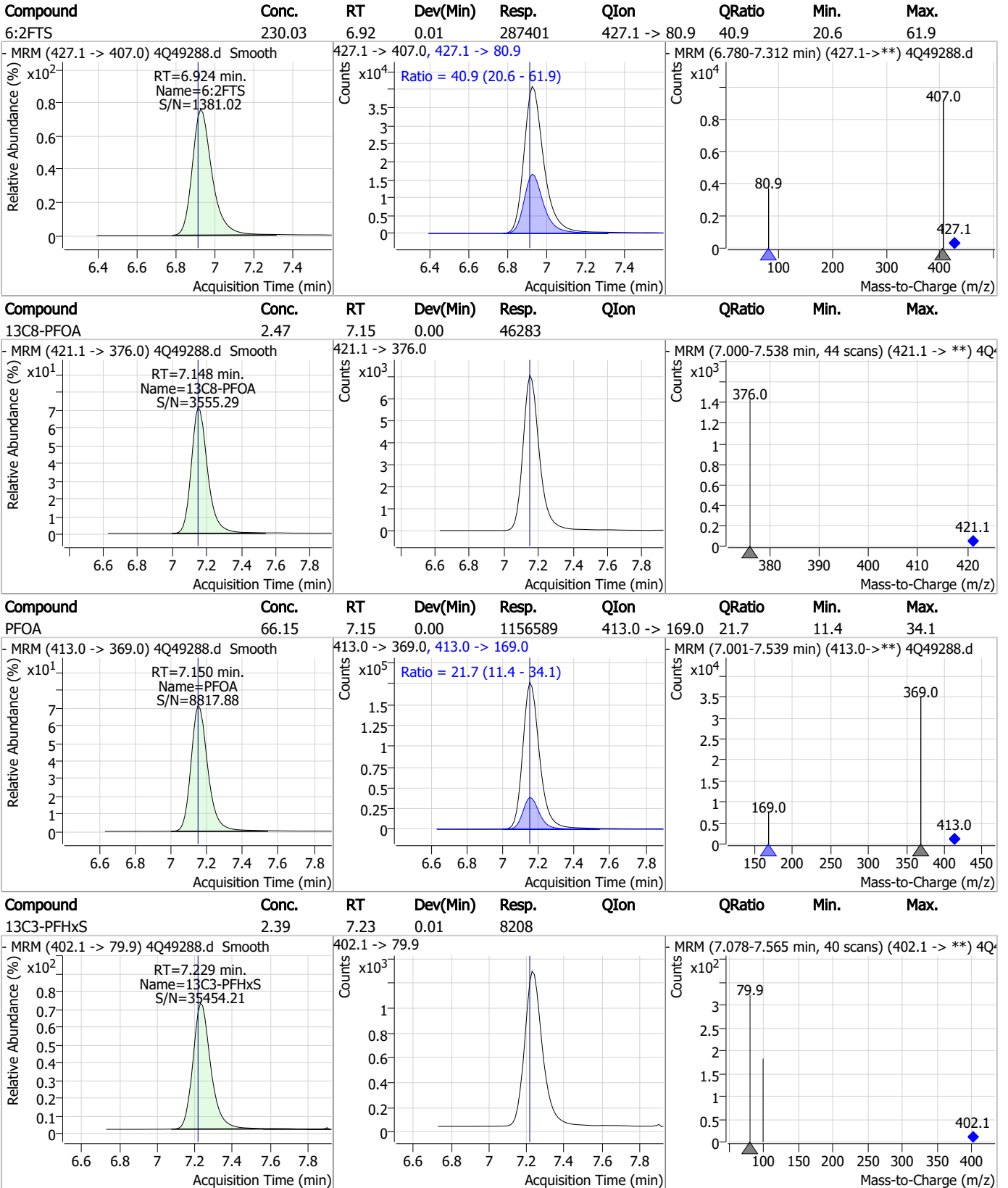


### Perfluorinated Compounds by LC/MS/MS



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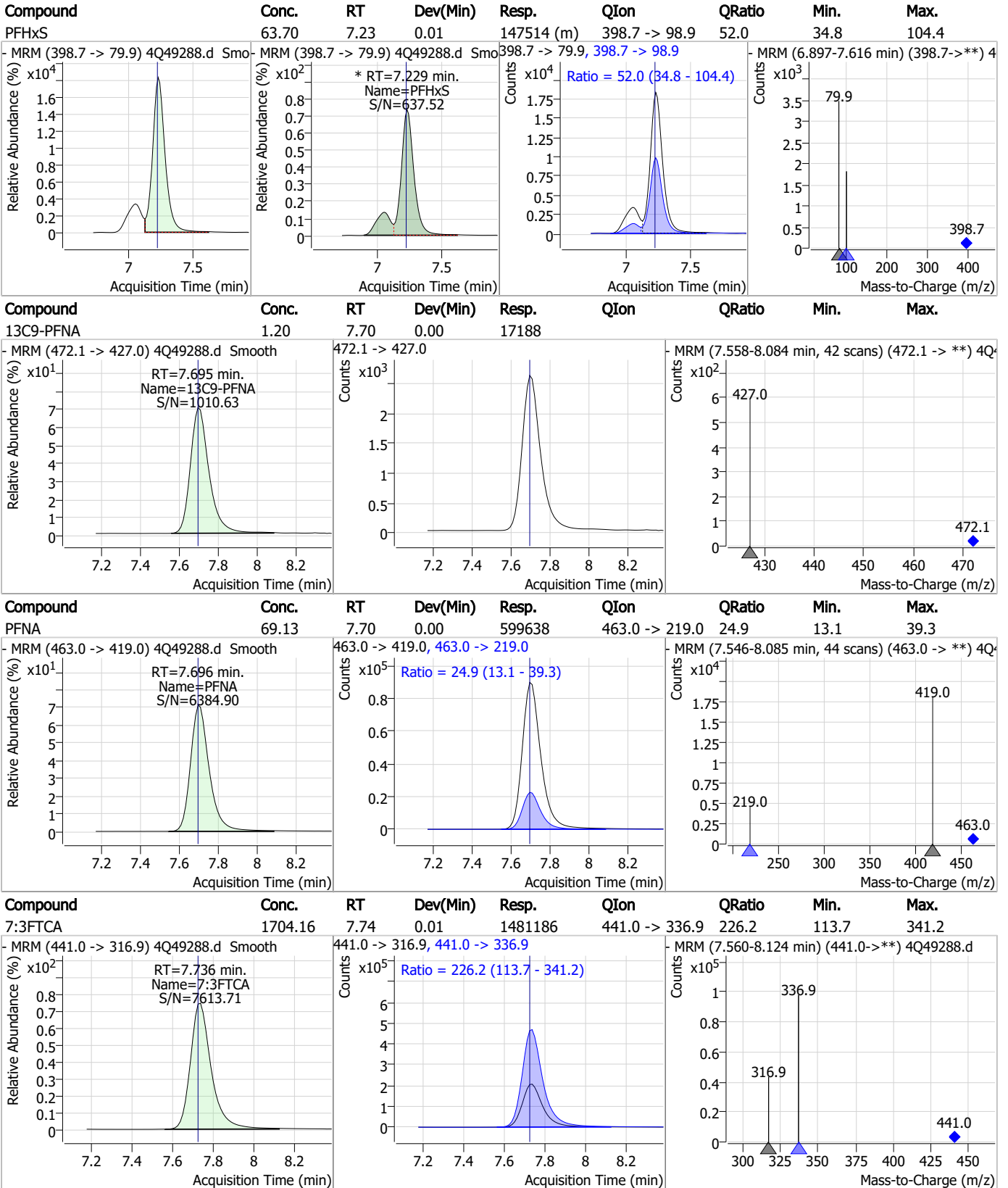
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

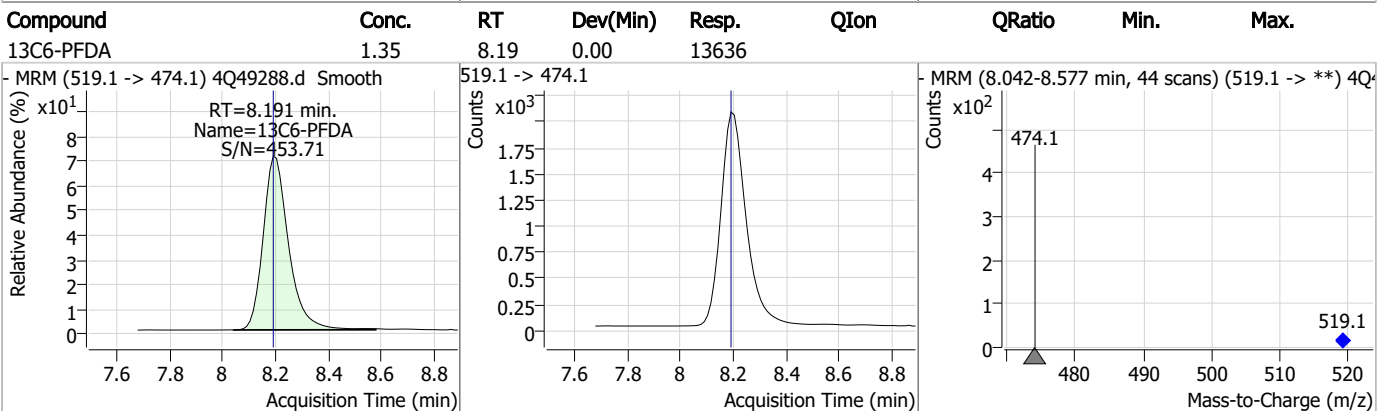
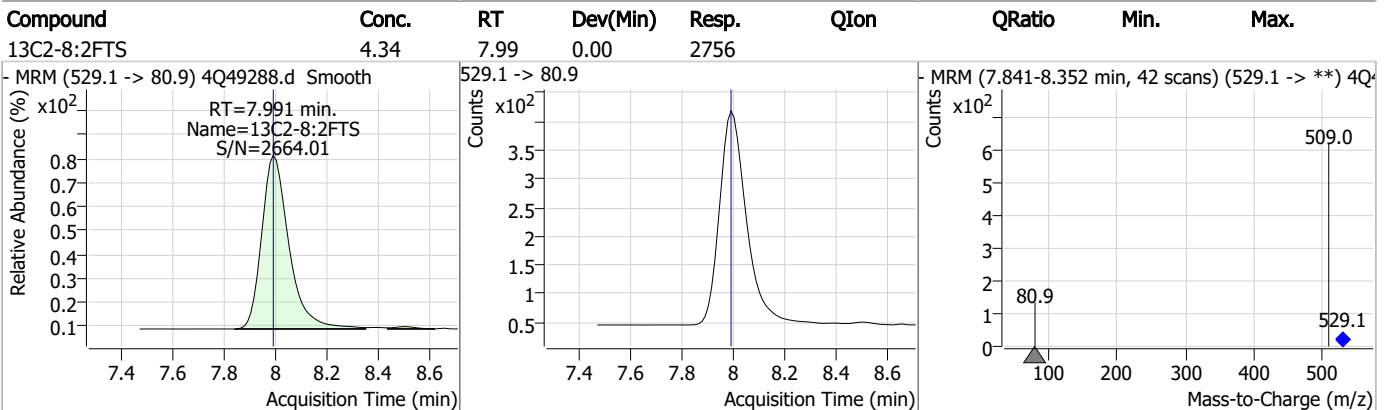
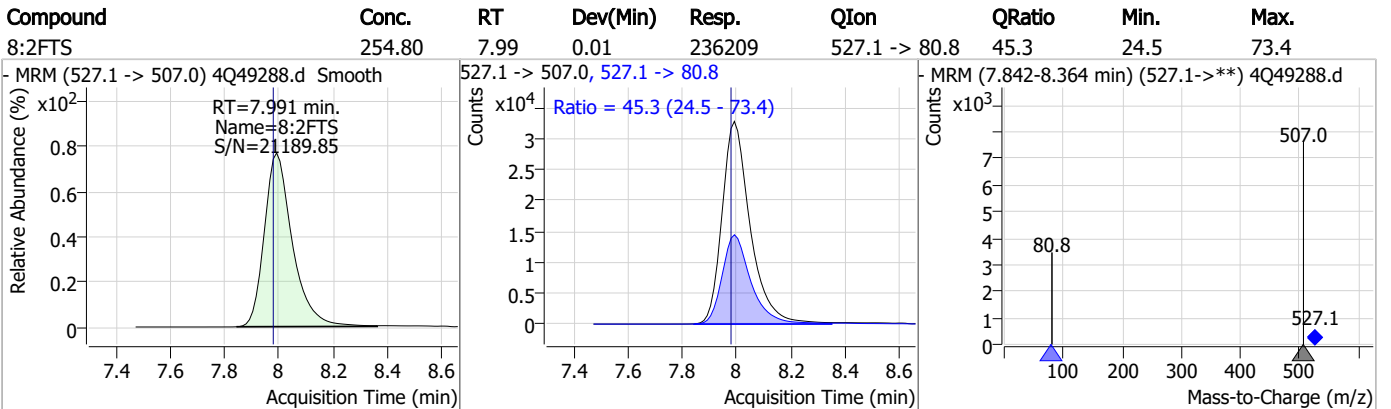
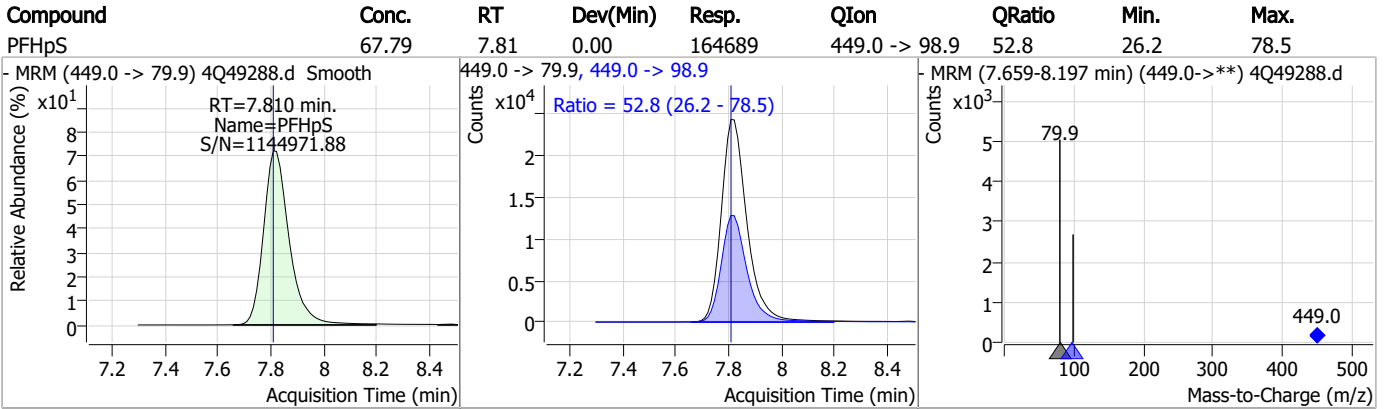


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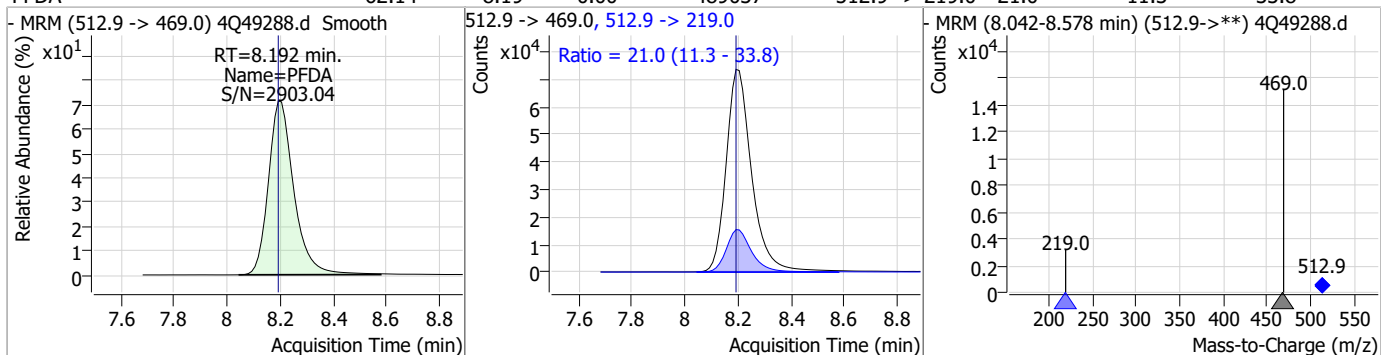


### Perfluorinated Compounds by LC/MS/MS

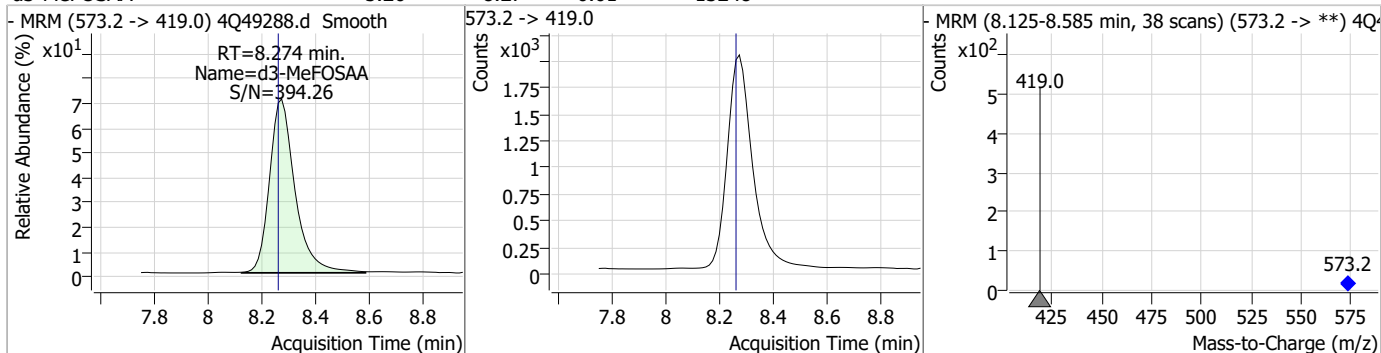


### Perfluorinated Compounds by LC/MS/MS

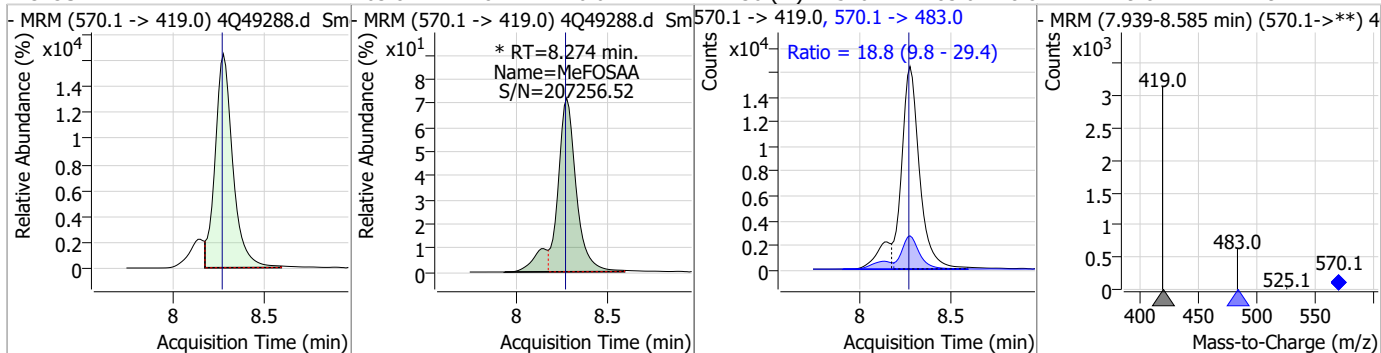
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	62.14	8.19	0.00	489037	512.9 -> 219.0	21.0	11.3	33.8



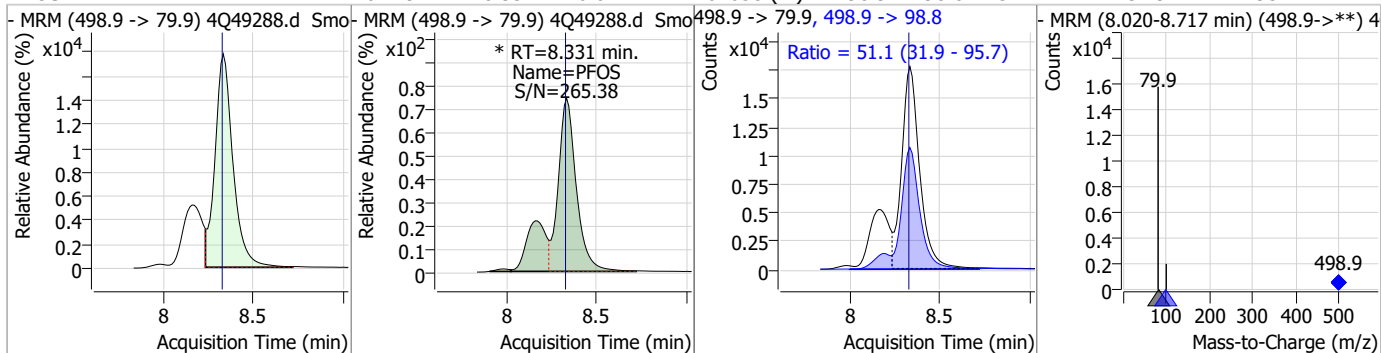
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.26	8.27	0.01	13248				



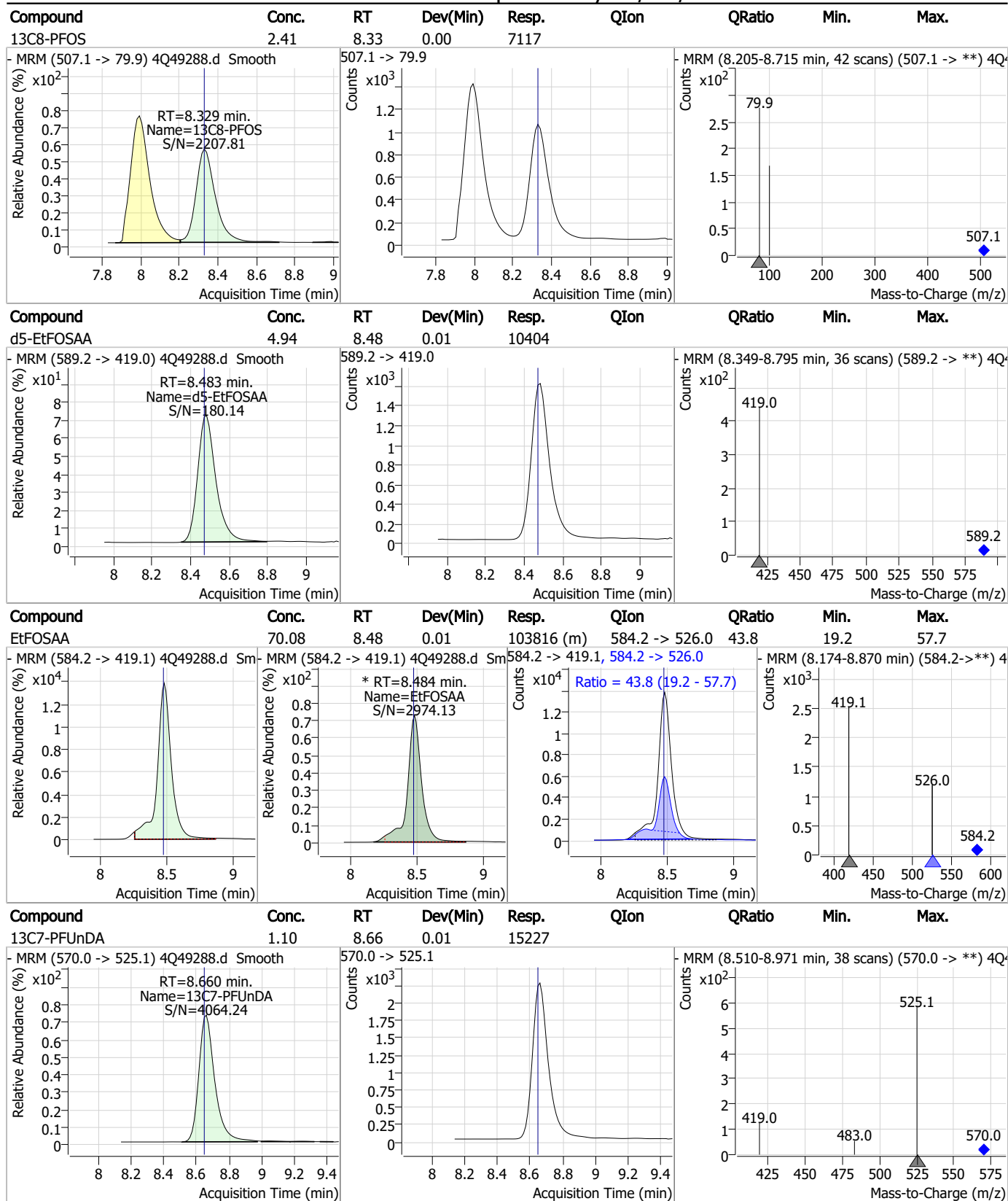
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	63.84	8.27	0.01	121136 (m)	570.1 -> 483.0	18.8	9.8	29.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	61.19	8.33	0.01	162058 (m)	498.9 -> 98.8	51.1	31.9	95.7



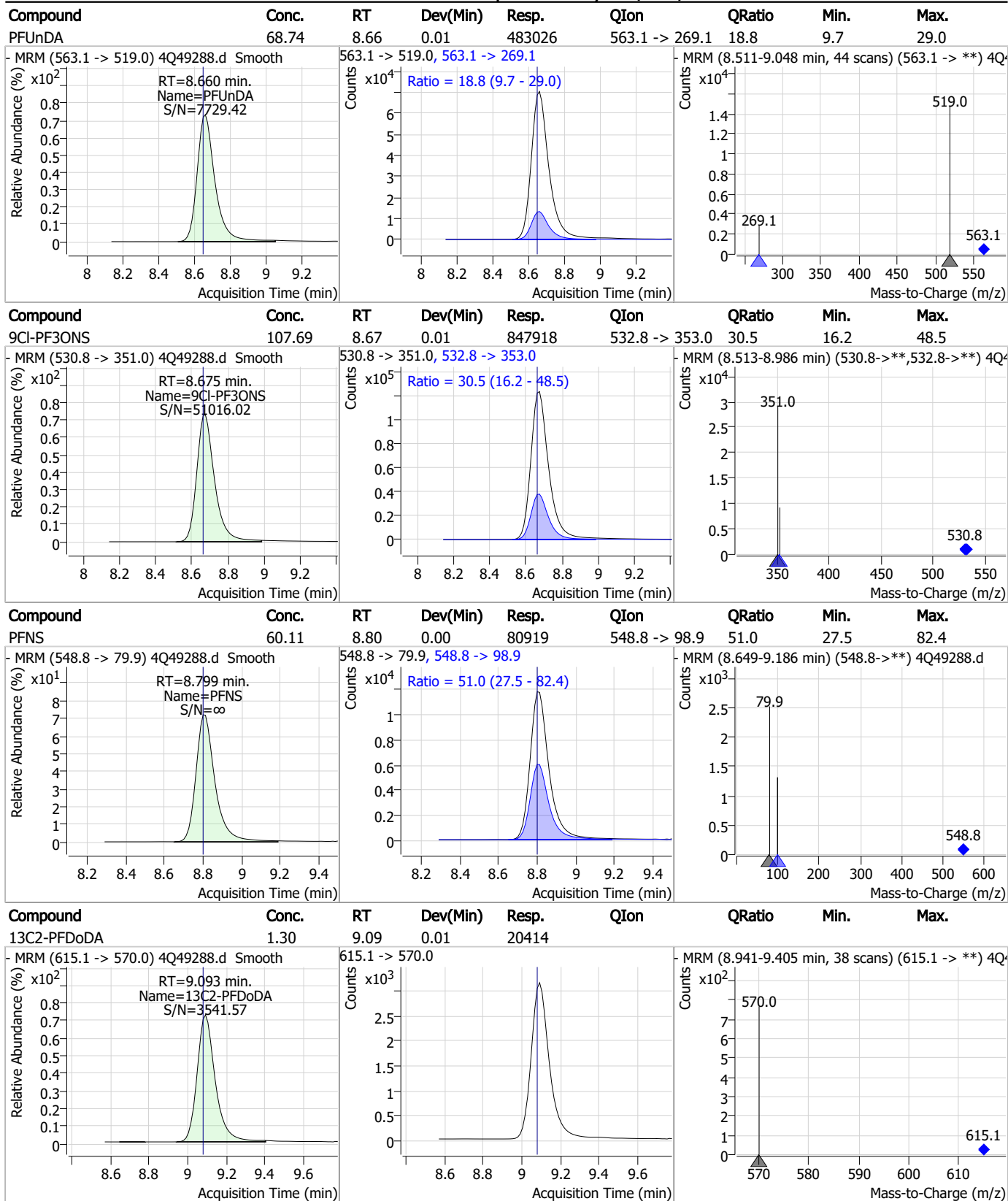
### Perfluorinated Compounds by LC/MS/MS



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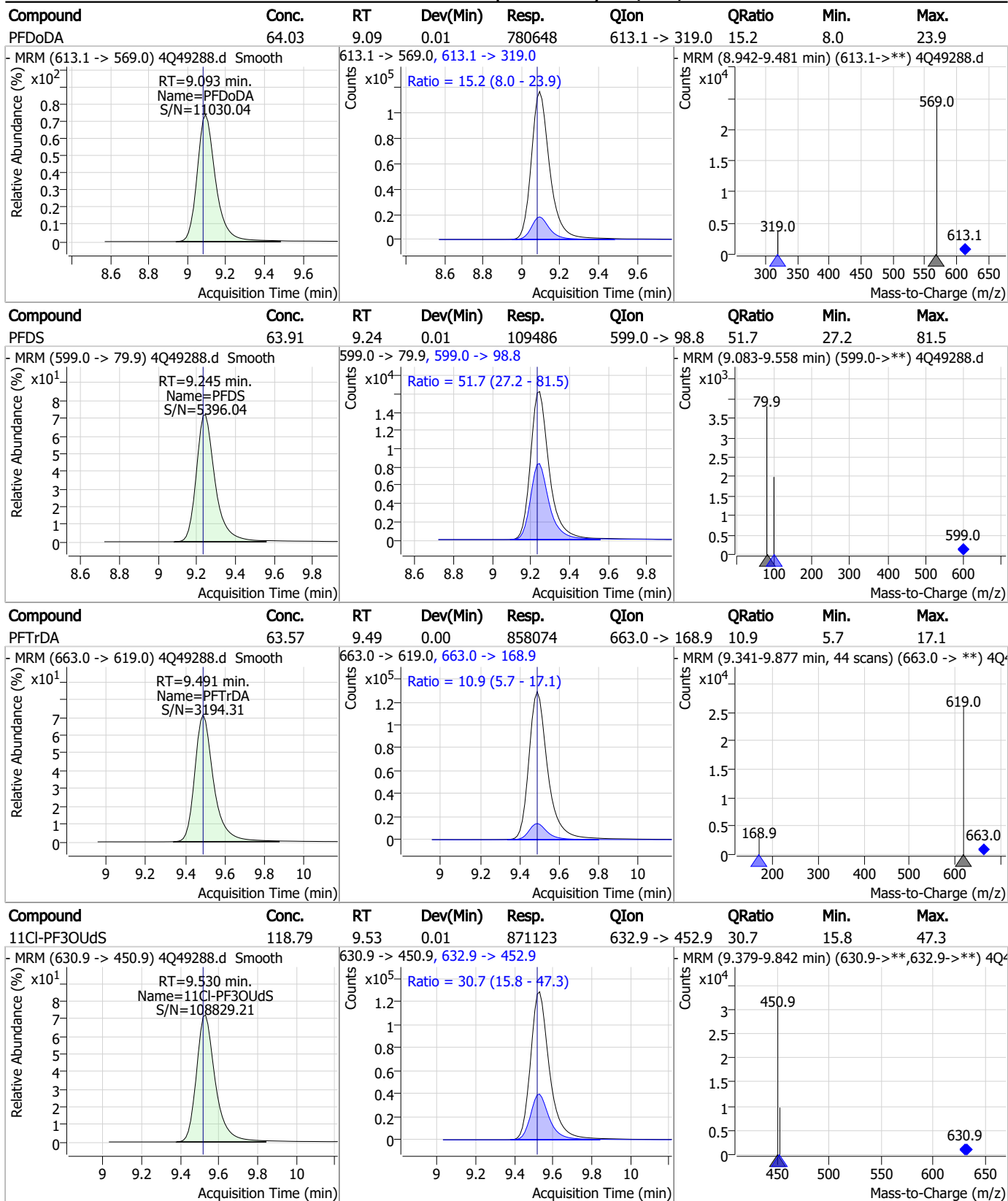
### Perfluorinated Compounds by LC/MS/MS



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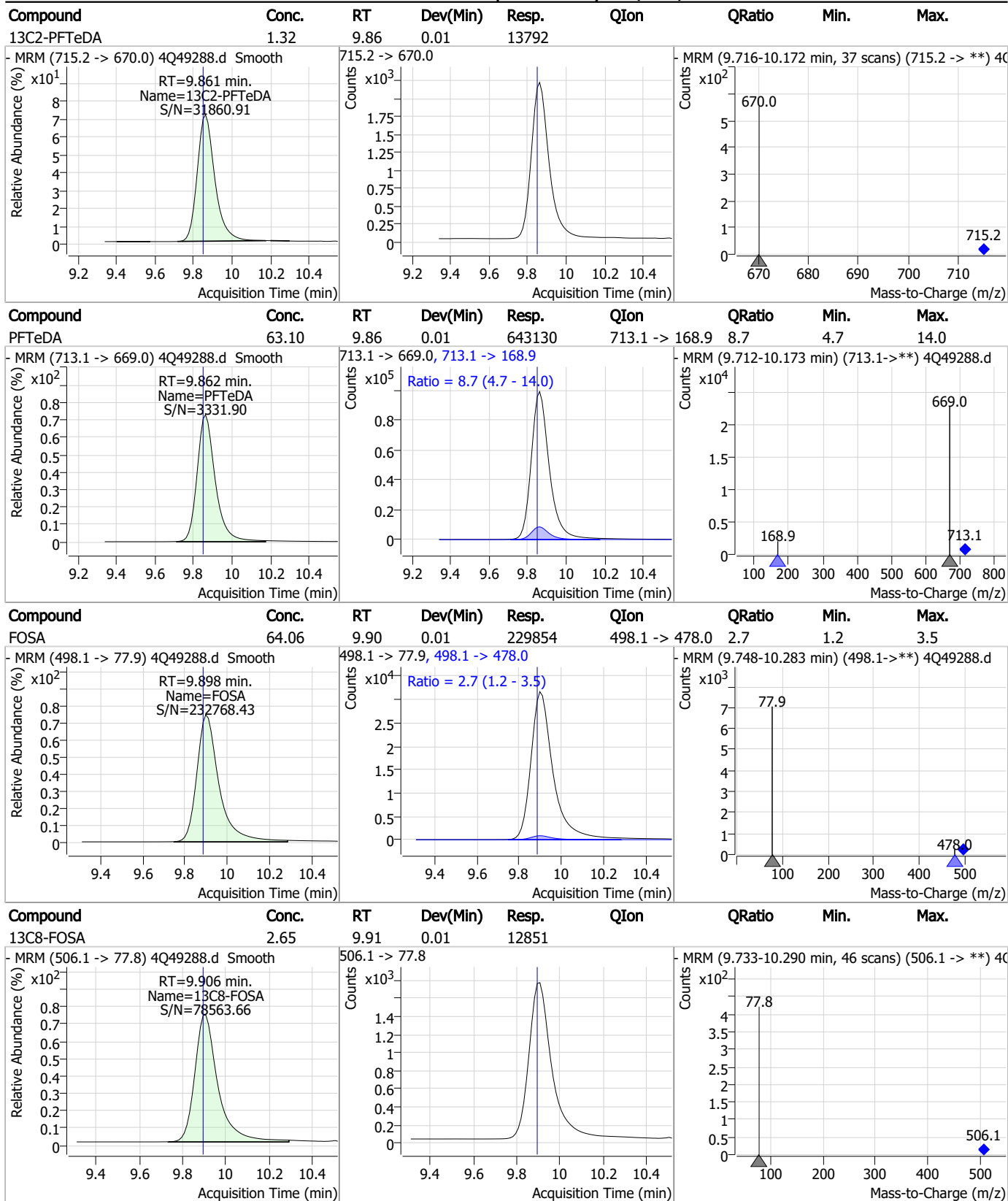
### Perfluorinated Compounds by LC/MS/MS



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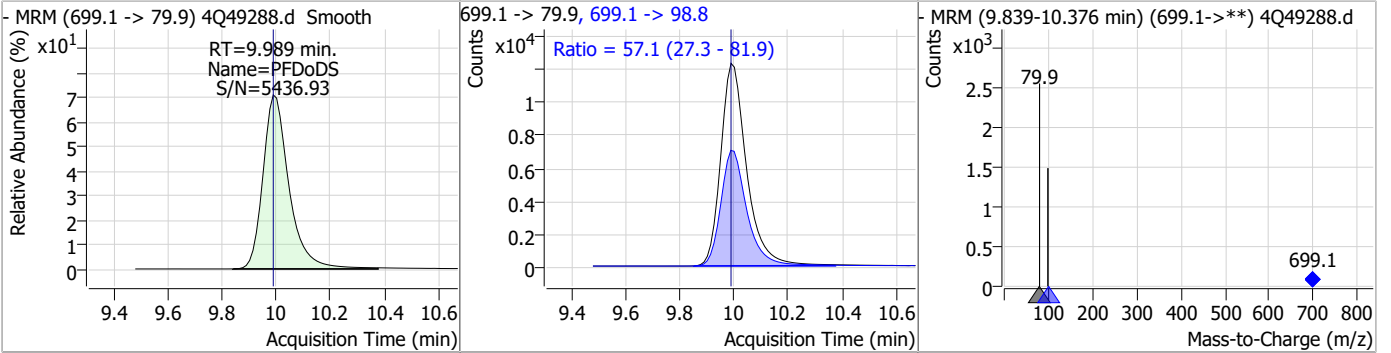
### Perfluorinated Compounds by LC/MS/MS



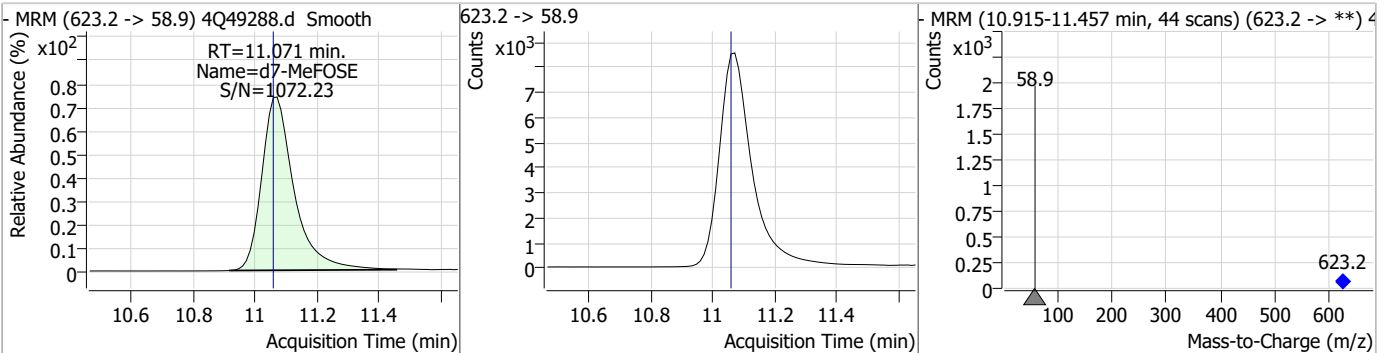
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### Perfluorinated Compounds by LC/MS/MS

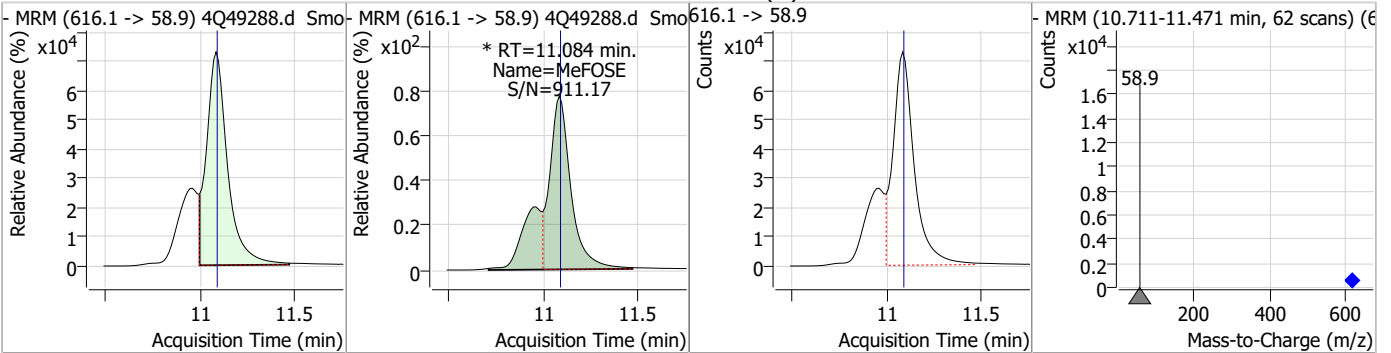
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	63.85	9.99	0.00	82712	699.1 -> 98.8	57.1	27.3	81.9



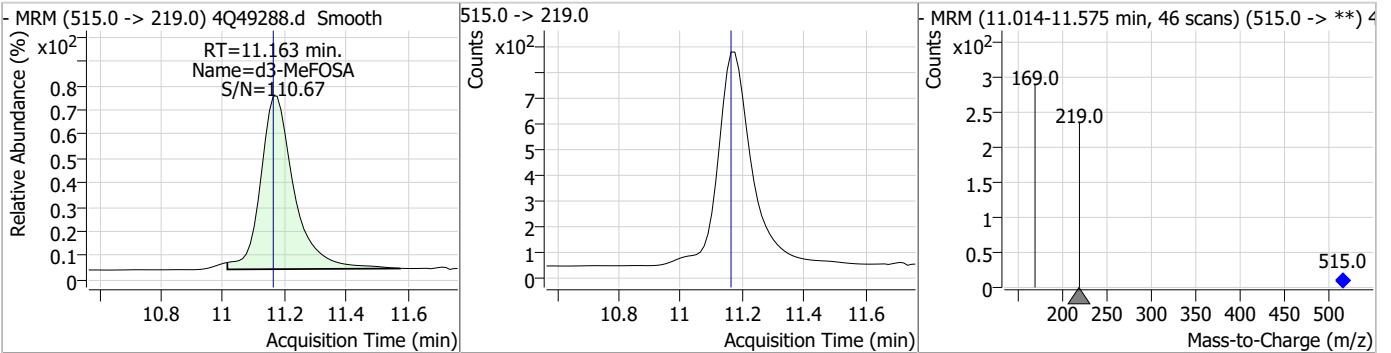
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.40	11.07	0.01	62091				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	346.69	11.08	0.00	763871 (m)				

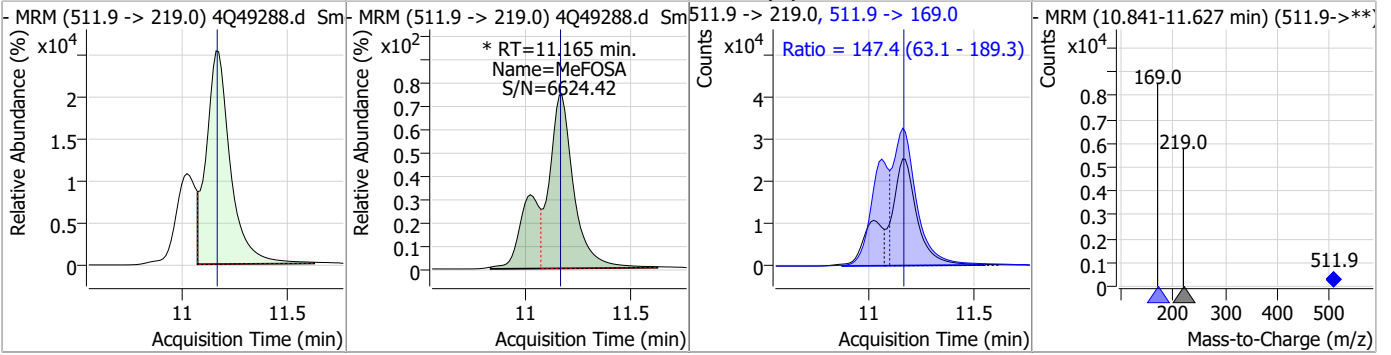


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.84	11.16	0.00	6288				

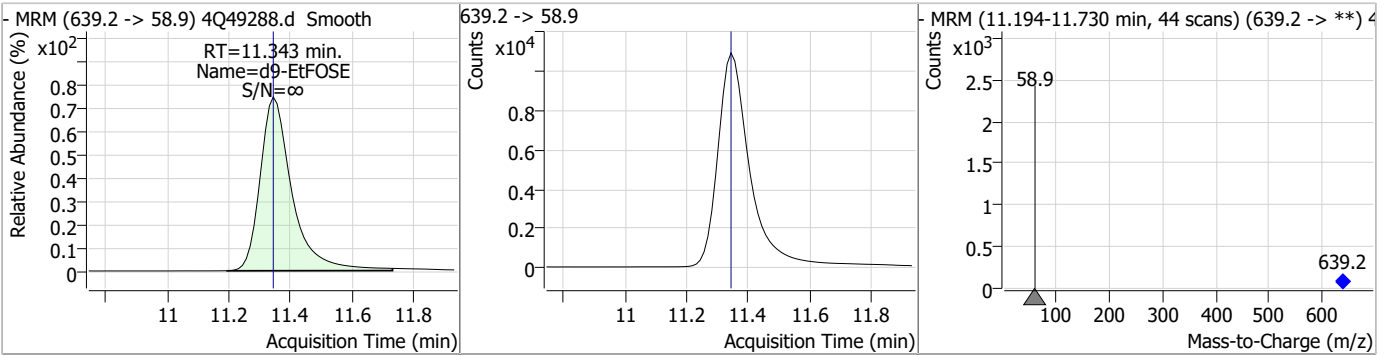


### Perfluorinated Compounds by LC/MS/MS

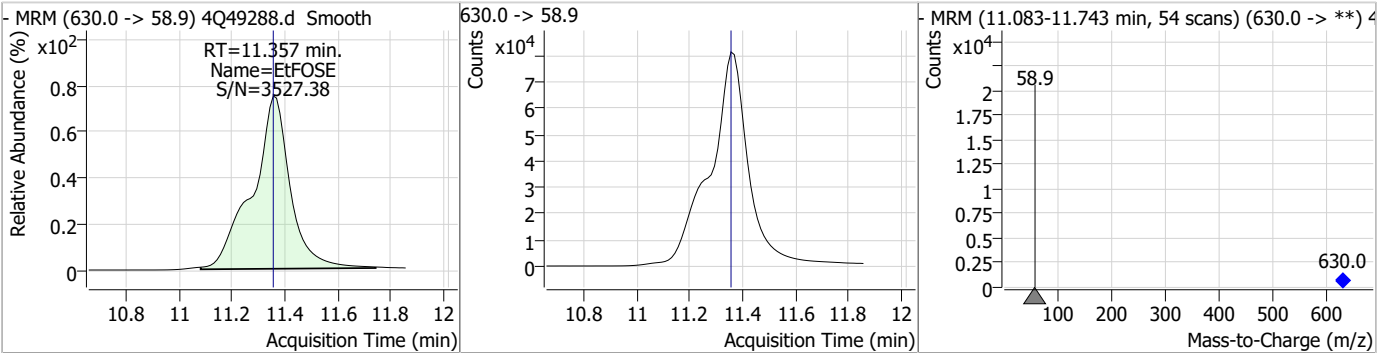
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	123.47	11.16	0.00	269363 (m)	511.9 -> 169.0	147.4	63.1	189.3



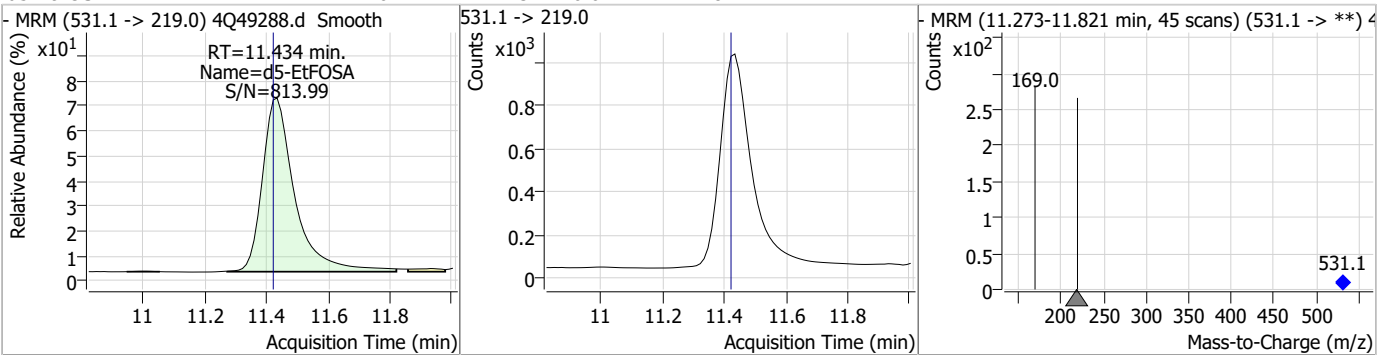
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	21.84	11.34	0.00	77671				



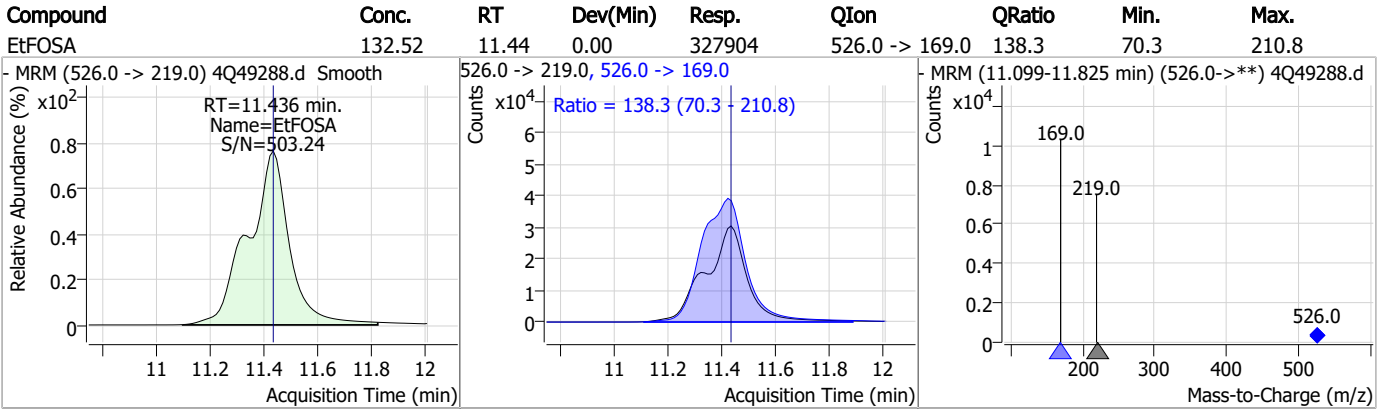
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	337.37	11.36	0.00	804416				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.62	11.43	0.01	7184				



### Perfluorinated Compounds by LC/MS/MS



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# Manual Integration Approval Summary

Sample Number: S4Q722-IC722      Method: EPA DRAFT 1633  
Lab FileID: 4Q49288.D      Analyst approved: 08/23/23 10:44 Martha Valls  
Injection Time: 08/22/23 12:33      Supervisor approved: 08/23/23 15:25 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
MeFOSAA	2355-31-9		8.27	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.48	Split peak
MeFOSE	24448-09-7		11.08	Split peak
MeFOSA	31506-32-8		11.16	Split peak

7.7.9.1  
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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q49290.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 8/22/2023 1:03:00 PM  
 Sample Name : icv722-4  
 Vial : P1-B3  
 DA Method File : 1633\_082223\_S4Q722.quantmethod.xml  
 Batch Name : s4q722.batch.bin  
 Sample Information : OP98180,S4Q722,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.811	216.8 -> 171.9	123752	10.00 µg/L	0.000
M5-PFPeA	4.325	268.3 -> 223.0	65316	5.00 µg/L	0.012
M5-PFHxA	5.522	318.0 -> 273.0	44457	2.50 µg/L	0.012
M4-PFHpA	6.479	367.1 -> 322.0	29758	2.50 µg/L	0.012
M8-PFOA	7.148	421.1 -> 376.0	46036	2.50 µg/L	0.000
M9-PFNA	7.708	472.1 -> 427.0	18143	1.25 µg/L	0.012
M6-PFDA	8.204	519.1 -> 474.1	14236	1.25 µg/L	0.012
M7-PFUnDA	8.660	570.0 -> 525.1	19904	1.25 µg/L	0.012
M2-PFDoDA	9.093	615.1 -> 570.0	20681	1.25 µg/L	0.012
M2-PFTeDA	9.861	715.2 -> 670.0	13477	1.25 µg/L	0.012
M8-FOSA	9.894	506.1 -> 77.8	12389	2.50 µg/L	0.000
M3-PFBS	5.391	302.1 -> 79.9	11706	2.50 µg/L	0.000
M3-PFHxS	7.229	402.1 -> 79.9	8273	2.50 µg/L	0.012
M8-PFOS	8.329	507.1 -> 79.9	7990	2.50 µg/L	0.000
M2-4:2FTS	5.208	329.1 -> 80.9	1531	5.00 µg/L	0.000
M2-6:2FTS	6.924	429.1 -> 80.9	2374	5.00 µg/L	0.013
M2-8:2FTS	7.991	529.1 -> 80.9	3184	5.00 µg/L	0.000
M3-MeFOSAA	8.274	573.2 -> 419.0	13108	5.00 µg/L	0.012
M3-HFPO-DA	5.889	286.9 -> 168.9	32820	10.00 µg/L	0.012
M5-EtFOSAA	8.471	589.2 -> 419.0	12202	5.00 µg/L	0.000
M7-MeFOSE	11.071	623.2 -> 58.9	60967	25.00 µg/L	0.012
M9-EtFOSE	11.343	639.2 -> 58.9	83472	25.00 µg/L	0.000
M5-EtFOSA	11.434	531.1 -> 219.0	6619	2.50 µg/L	0.012
M3-MeFOSA	11.163	515.0 -> 219.0	5574	2.50 µg/L	0.000
13C4-PFOS	8.330	502.8 -> 79.9	7574	2.50 µg/L	0.000
13C3-PFBA	2.803	216.0 -> 172.0	69215	5.00 µg/L	0.000
18O2-PFHxS	7.228	403.0 -> 83.9	6176	2.50 µg/L	0.000
13C4-PFOA	7.149	417.1 -> 372.0	53004	2.50 µg/L	0.000
13C2-PFDA	8.204	515.1 -> 470.1	12796	1.25 µg/L	0.012
13C5-PFNA	7.708	468.0 -> 423.0	18352	1.25 µg/L	0.012
13C2-PFHxA	5.523	315.1 -> 270.0	40921	2.50 µg/L	0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.208	329.1 -> 80.9	1531	5.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.1%		
13C2-6:2FTS	6.924	429.1 -> 80.9	2374	5.96 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.2%		
13C2-8:2FTS	7.991	529.1 -> 80.9	3184	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.2%		
13C2-PFDoDA	9.093	615.1 -> 570.0	20681	1.22 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.9%		
13C2-PFTeDA	9.861	715.2 -> 670.0	13477	1.19 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.5%		
13C3-PFBS	5.391	302.1 -> 79.9	11706	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C3-PFHxS	7.229	402.1 -> 79.9	8273	2.38 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 = 95.3%	
13C4-PFBA	2.811	216.8 -> 171.9	123752	10.06 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C4-PFHpA	6.479	367.1 -> 322.0	29758	2.56 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C5-PFHxA	5.522	318.0 -> 273.0	44457	2.58 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C5-PFPeA	4.325	268.3 -> 223.0	65316	5.12 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C6-PFDA	8.204	519.1 -> 474.1	14236	1.30 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C7-PFUnDA	8.660	570.0 -> 525.1	19904	1.34 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.1%	
13C8-FOSA	9.894	506.1 -> 77.8	12389	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C8-PFOA	7.148	421.1 -> 376.0	46036	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C8-PFOS	8.329	507.1 -> 79.9	7990	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C9-PFNA	7.708	472.1 -> 427.0	18143	1.30 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.1%	
d3-MeFOSAA	8.274	573.2 -> 419.0	13108	4.95 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C3-HFPO-DA	5.889	286.9 -> 168.9	32820	9.94 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
d3-MeFOSA	11.163	515.0 -> 219.0	5574	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.5%	
d5-EtFOSAA	8.471	589.2 -> 419.0	12202	5.51 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.2%	
d7-MeFOSE	11.071	623.2 -> 58.9	60967	21.83 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 87.3%	
d9-EtFOSE	11.343	639.2 -> 58.9	83472	22.30 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.2%	
d5-EtFOSA	11.434	531.1 -> 219.0	6619	2.30 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.8%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.209	327.1 -> 307.0	19094	10.92 µg/L	97
		327.1 -> 80.9	8535		
6:2FTS	6.924	427.1 -> 407.0	17893	10.32 µg/L	100
		427.1 -> 80.9	7404		
8:2FTS	7.991	527.1 -> 507.0	15509	12.47 µg/L	99
		527.1 -> 80.8	7452		
EtFOSAA	8.484	584.2 -> 419.1	4586	2.64 µg/L	m 83
		584.2 -> 526.0	2245		
FOSA	9.898	498.1 -> 77.9	9475	2.74 µg/L	98
		498.1 -> 478.0	279		
MeFOSAA	8.274	570.1 -> 419.0	5700	3.04 µg/L	99
		570.1 -> 483.0	1101		
PFBA	2.807	212.8 -> 168.9	30011	11.28 µg/L	100
PFBS	5.392	298.7 -> 79.9	8846	2.60 µg/L	97
		298.7 -> 98.8	3472		
PFDA	8.204	512.9 -> 469.0	22070	2.69 µg/L	98
		512.9 -> 219.0	4729		
PFDODA	9.093	613.1 -> 569.0	35097	2.84 µg/L	100
		613.1 -> 319.0	5567		
PFDS	9.232	599.0 -> 79.9	5341	2.78 µg/L	90

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2529			
PFHpA	6.480	363.1 -> 319.0	41151	2.85	µg/L	99
		363.1 -> 169.0	7720			
PFHpS	7.822	449.0 -> 79.9	7145	2.62	µg/L	100
		449.0 -> 98.9	3717			
PFHxA	5.525	313.0 -> 269.0	37959	2.78	µg/L	99
		313.0 -> 118.9	1398			
PFHxS	7.229	398.7 -> 79.9	6487	2.78	µg/L	m 77
		398.7 -> 98.9	3301			
PFNA	7.709	463.0 -> 419.0	26313	2.87	µg/L	97
		463.0 -> 219.0	6555			
PFNS	8.799	548.8 -> 79.9	4169	2.76	µg/L	98
		548.8 -> 98.9	2235			
PFOA	7.150	413.0 -> 369.0	50292	2.89	µg/L	97
		413.0 -> 169.0	10734			
PFOS	8.331	498.9 -> 79.9	7321	2.46	µg/L	m 89
		498.9 -> 98.8	4052			
PFPeA	4.327	263.0 -> 219.0	66173	5.71	µg/L	100
PFPeS	6.494	349.1 -> 79.9	5748	2.75	µg/L	100
		349.1 -> 98.9	2644			
PFTeDA	9.862	713.1 -> 669.0	28062	2.82	µg/L	98
		713.1 -> 168.9	2430			
PFTrDA	9.491	663.0 -> 619.0	40128	2.93	µg/L	99
		663.0 -> 168.9	4469			
PFUnDA	8.660	563.1 -> 519.0	25557	2.78	µg/L	99
		563.1 -> 269.1	5004			
11CI-PF3OUdS	9.530	630.9 -> 450.9	40677	5.60	µg/L	99
		632.9 -> 452.9	12631			
9CI-PF3ONS	8.675	530.8 -> 351.0	43472	5.57	µg/L	98
		532.8 -> 353.0	13663			
ADONA	6.743	376.9 -> 250.9	131725	5.68	µg/L	100
		376.9 -> 84.8	40221			
HFPO-DA	5.890	284.9 -> 168.9	15256	5.75	µg/L	98
		284.9 -> 184.9	1688			
3:3FTCA	3.773	241.0 -> 177.0	7838	13.48	µg/L	99
		241.0 -> 117.0	821			
5:3FTCA	6.232	341.0 -> 237.1	138533	71.24	µg/L	100
		341.0 -> 217.0	101701			
7:3FTCA	7.723	441.0 -> 316.9	58800	68.85	µg/L	98
		441.0 -> 336.9	135885			
EtFOSA	11.436	526.0 -> 219.0	13274	5.82	µg/L	98
		526.0 -> 169.0	19017			
EtFOSE	11.357	630.0 -> 58.9	38100	14.87	µg/L	100
MeFOSA	11.165	511.9 -> 219.0	11283	5.83	µg/L	m 82
		511.9 -> 169.0	16528			
MeFOSE	11.084	616.1 -> 58.9	30320	14.01	µg/L	m 100
PFDoDS	9.989	699.1 -> 79.9	3929	2.70	µg/L	99
		699.1 -> 98.8	2114			
NFDHA	5.403	295.0 -> 201.0	6209	5.76	µg/L	98
		295.0 -> 84.9	1764			
PFMBA	4.741	279.0 -> 85.1	39929	5.85	µg/L	100
PFMPA	3.440	229.0 -> 84.9	42147	5.64	µg/L	100
PFEESA	5.933	314.8 -> 134.9	60730	5.12	µg/L	99
		314.8 -> 82.9	1940			

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

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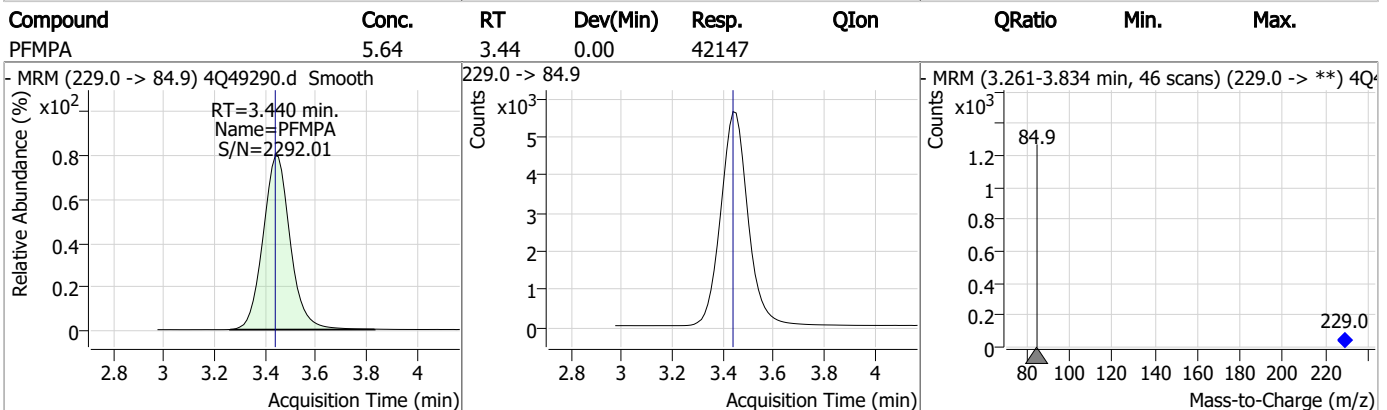
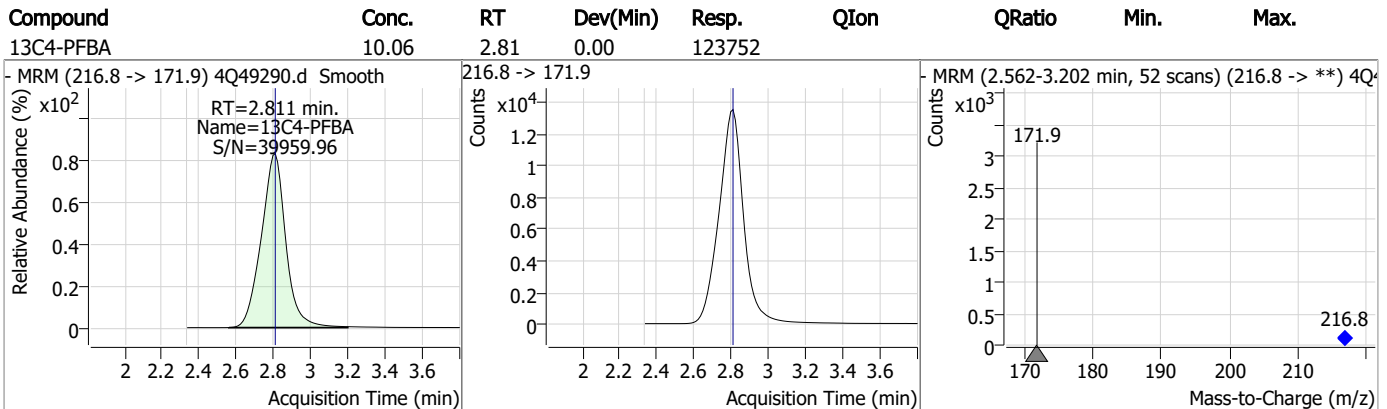
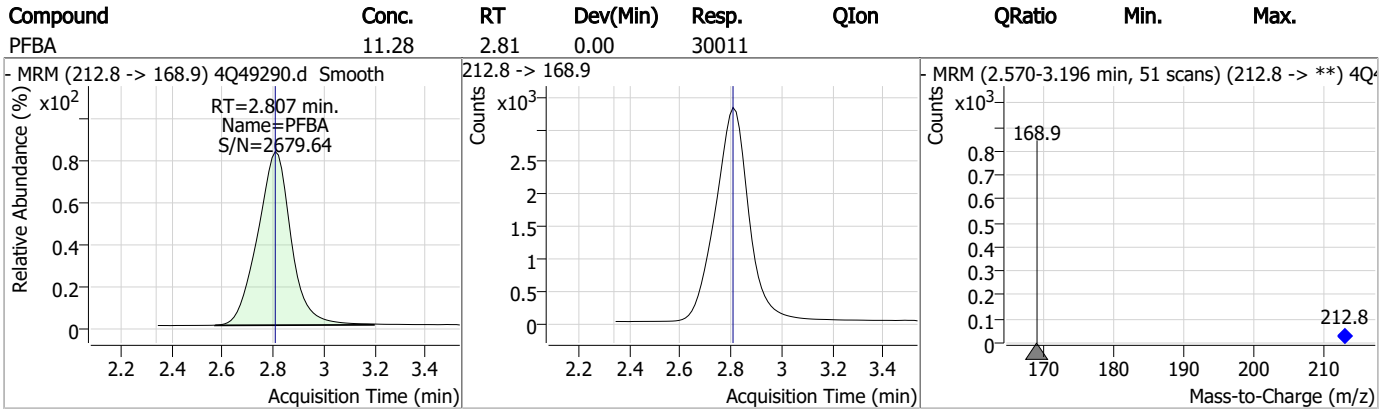
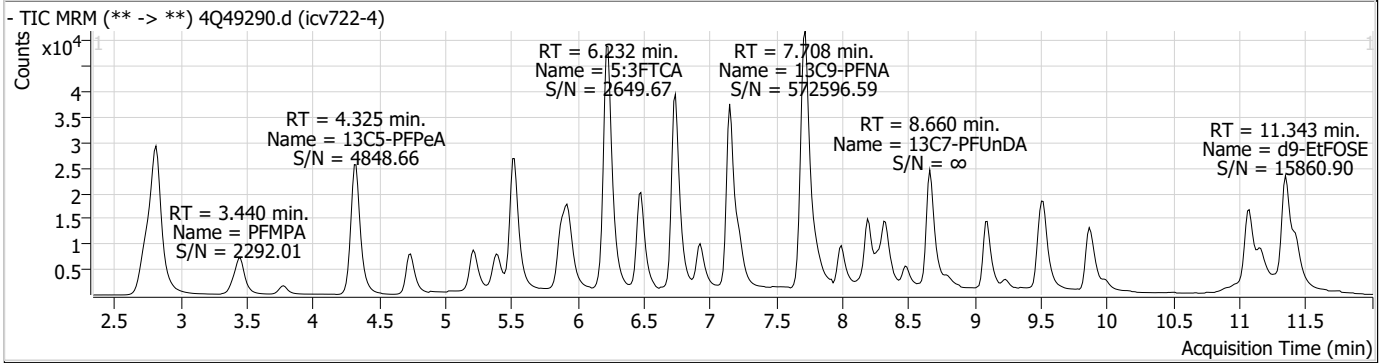
### Perfluorinated Compounds by LC/MS/MS

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

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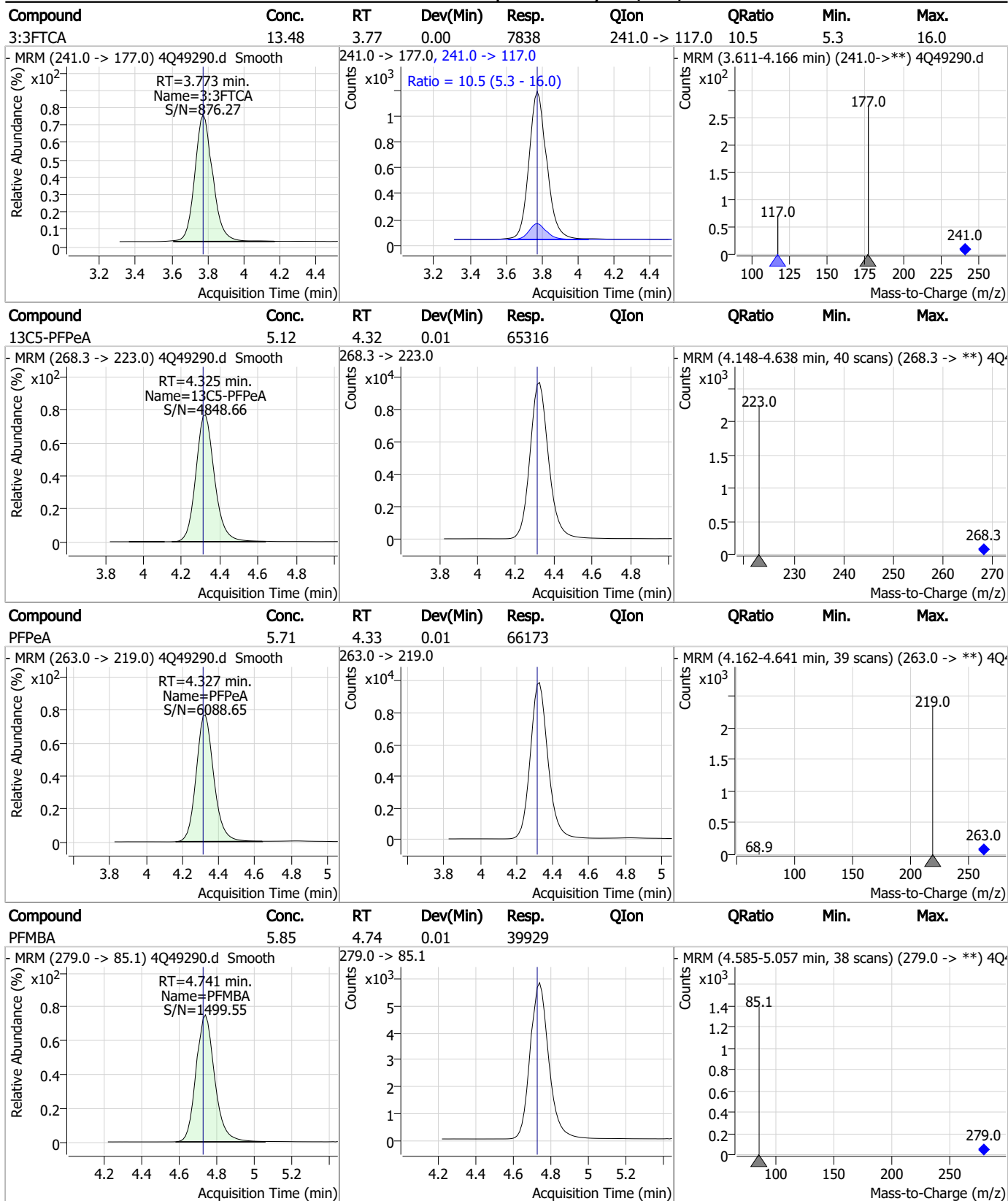
### Perfluorinated Compounds by LC/MS/MS



7.7.10 7

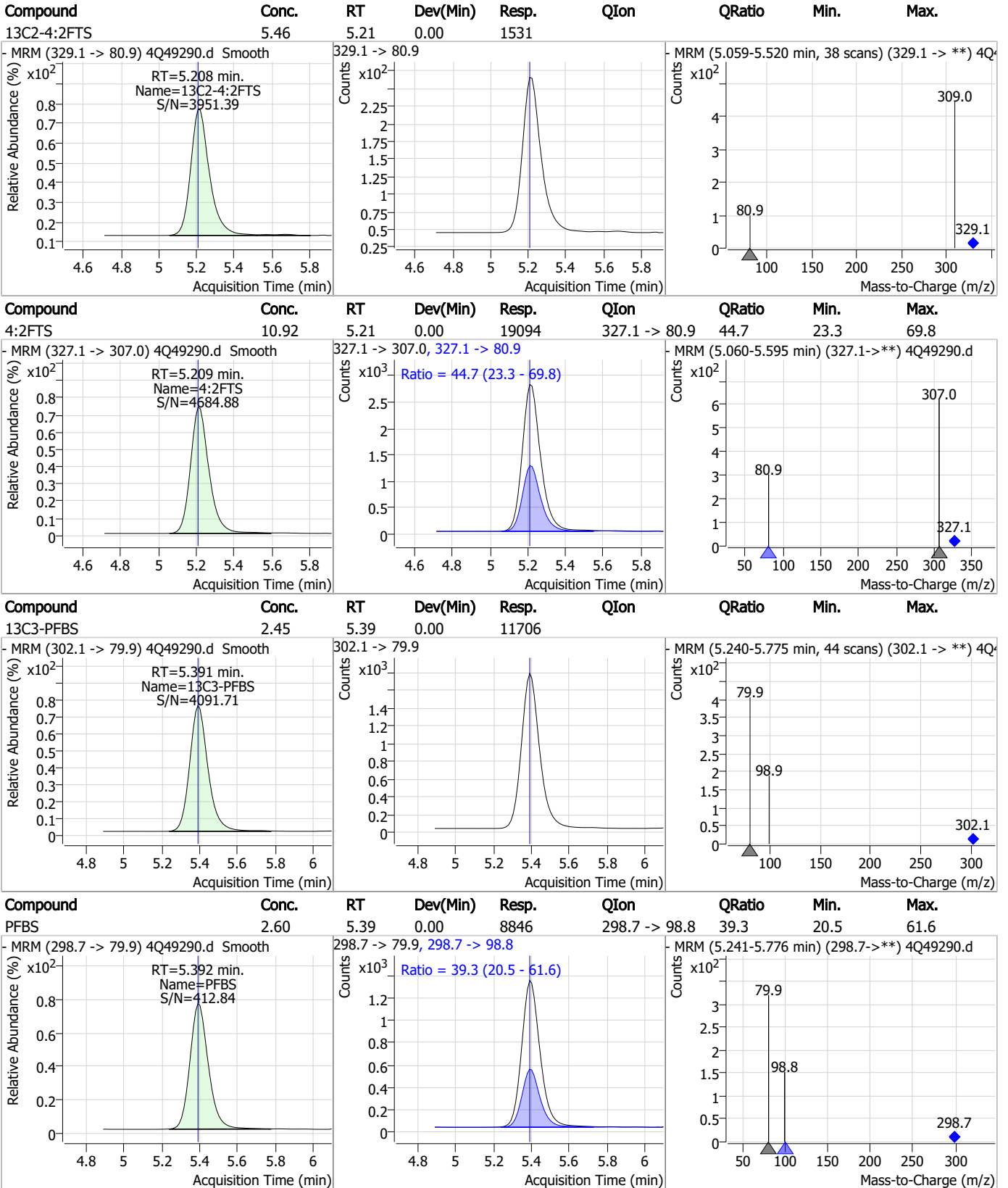


### Perfluorinated Compounds by LC/MS/MS



7.7.10 7

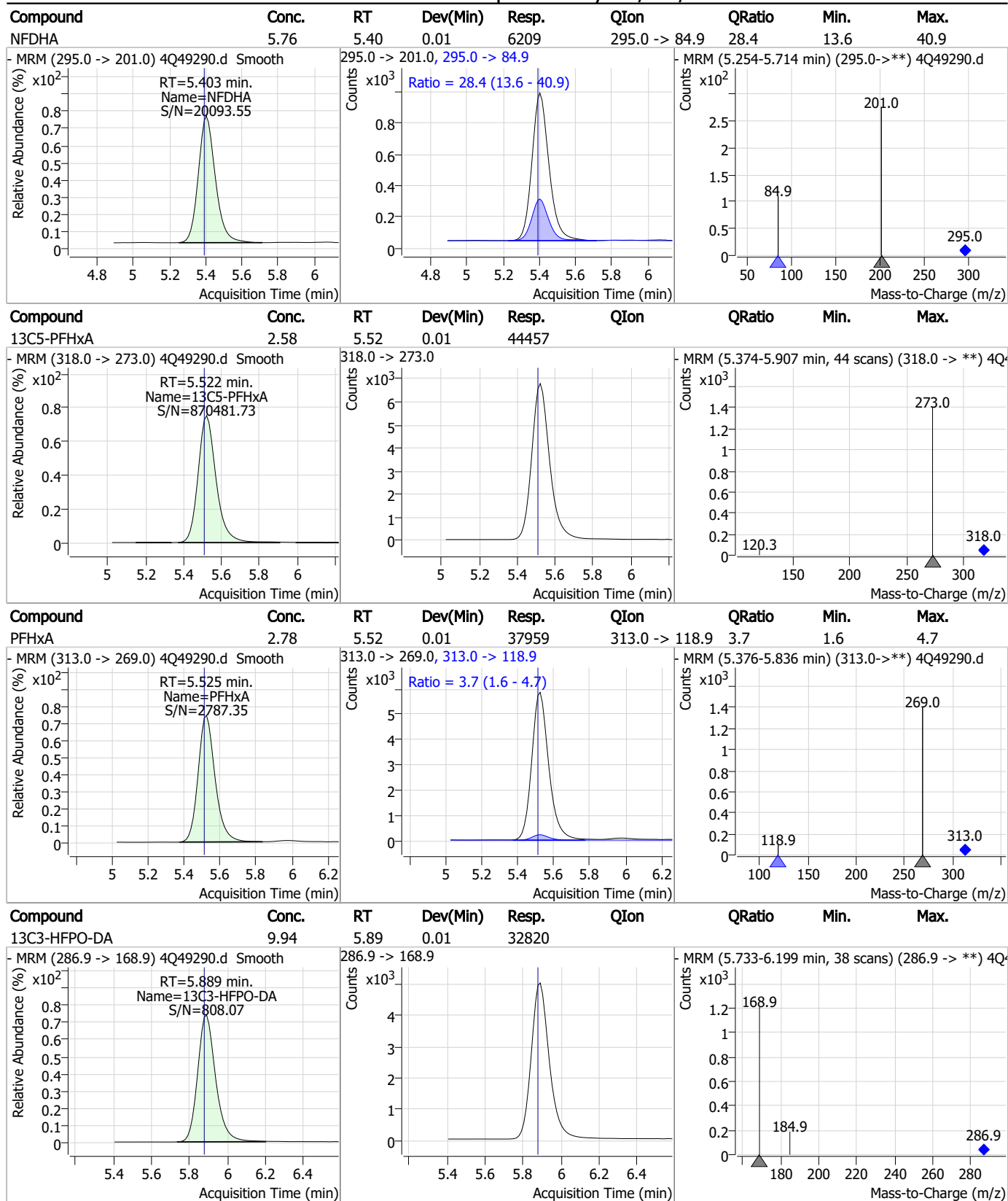
### Perfluorinated Compounds by LC/MS/MS



7.7.10 7

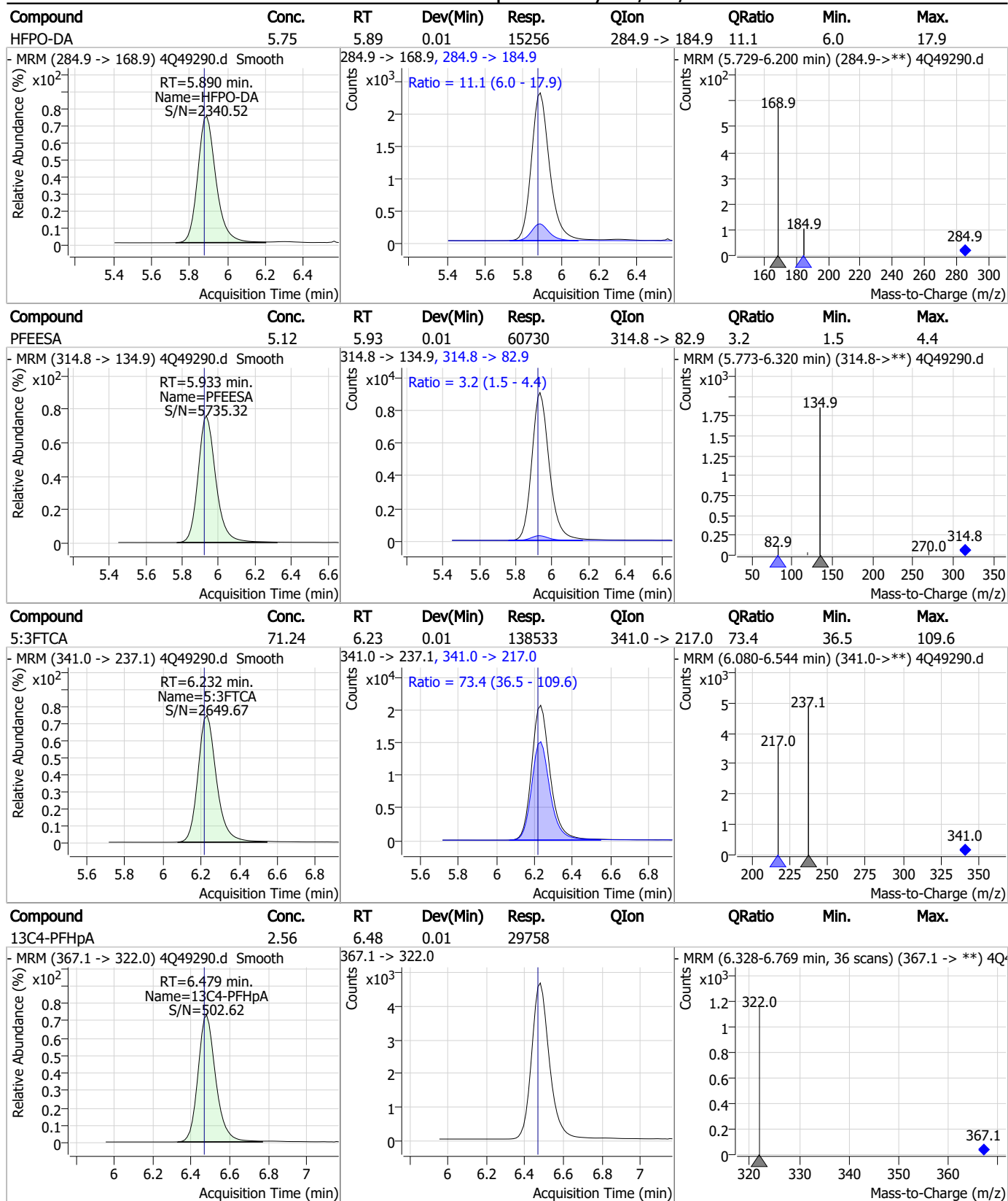


### Perfluorinated Compounds by LC/MS/MS



7.7.10 7

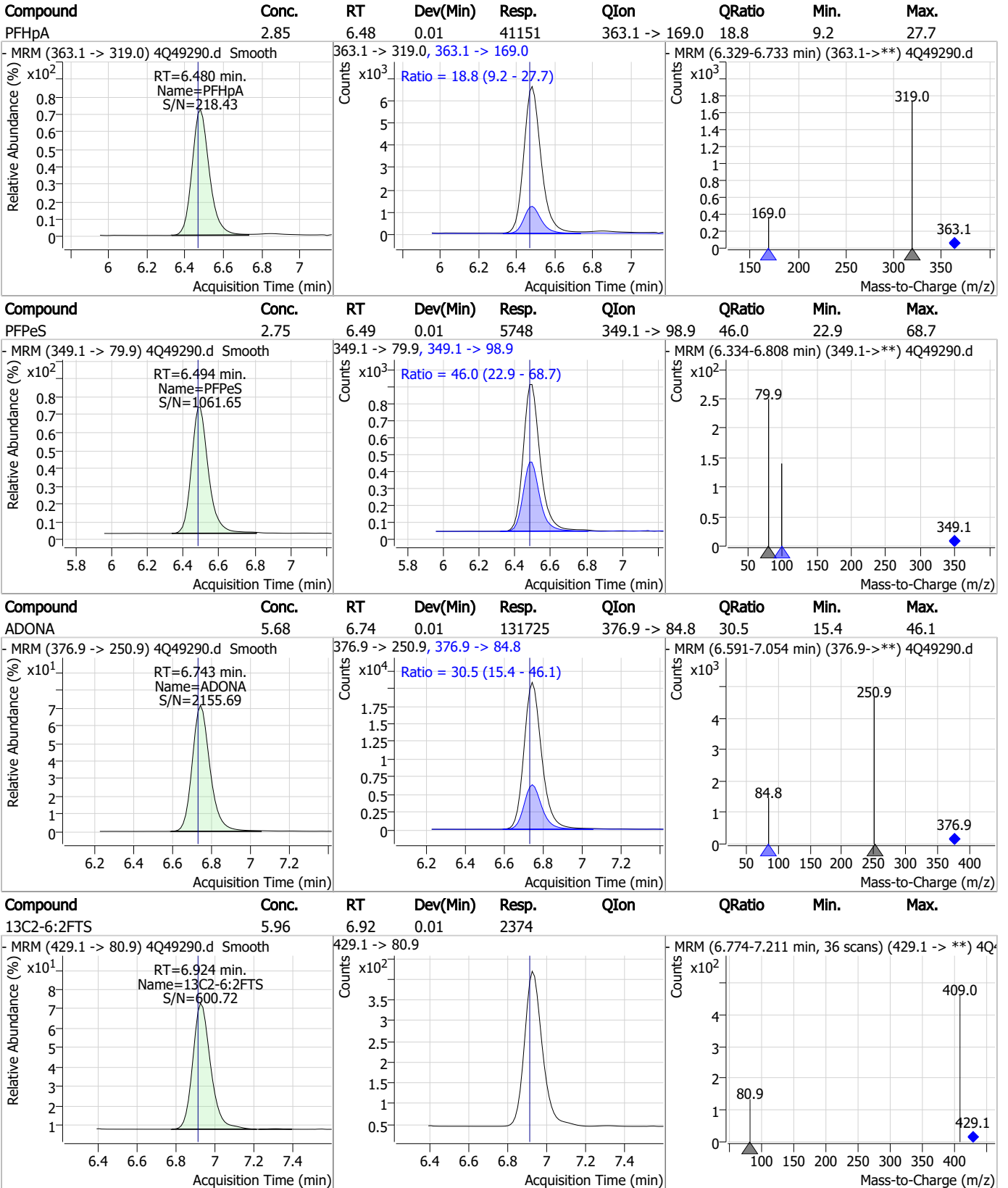
### Perfluorinated Compounds by LC/MS/MS



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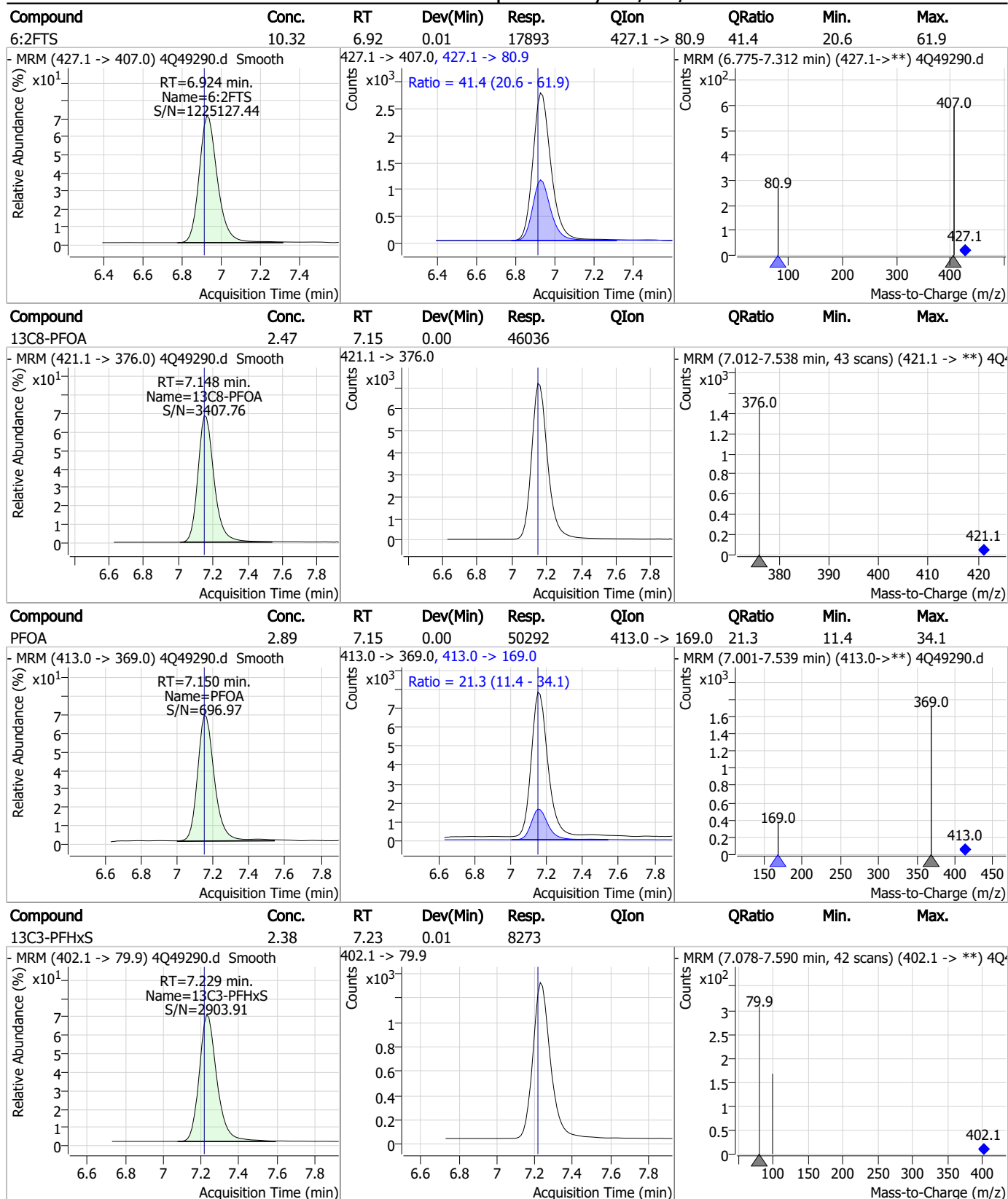
### Perfluorinated Compounds by LC/MS/MS



7.7.10 7

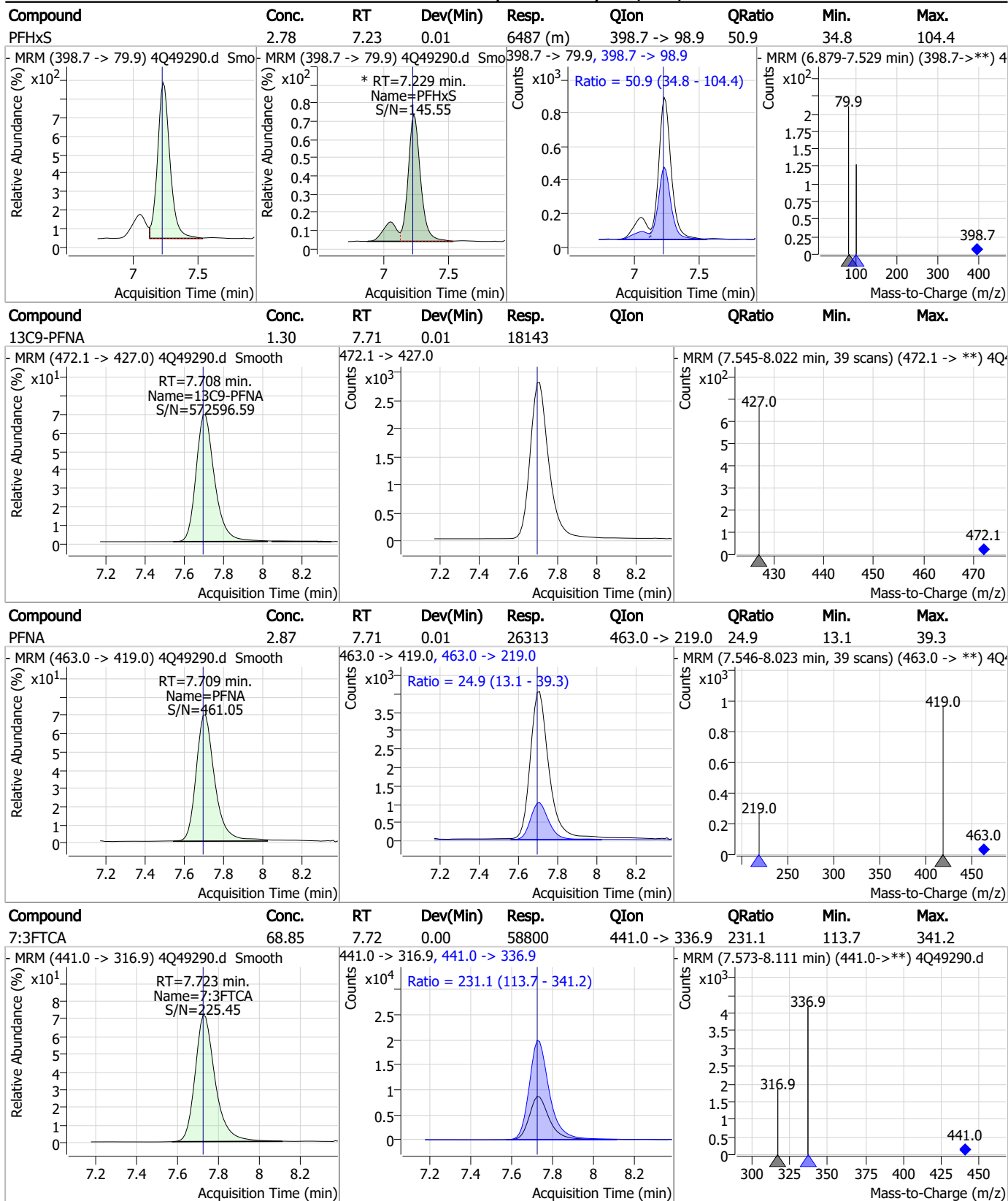


### Perfluorinated Compounds by LC/MS/MS



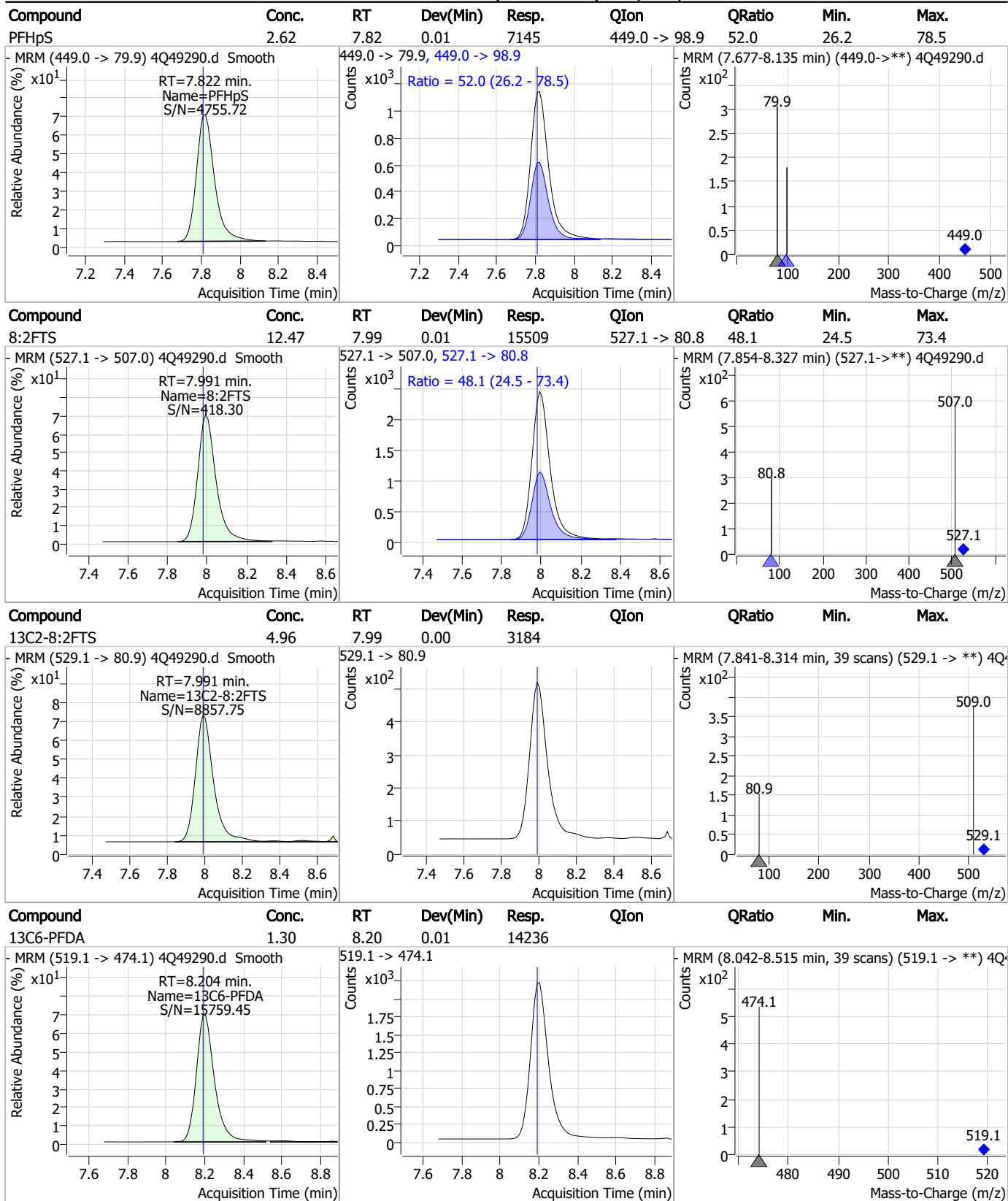
7.7.10 7

### Perfluorinated Compounds by LC/MS/MS



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

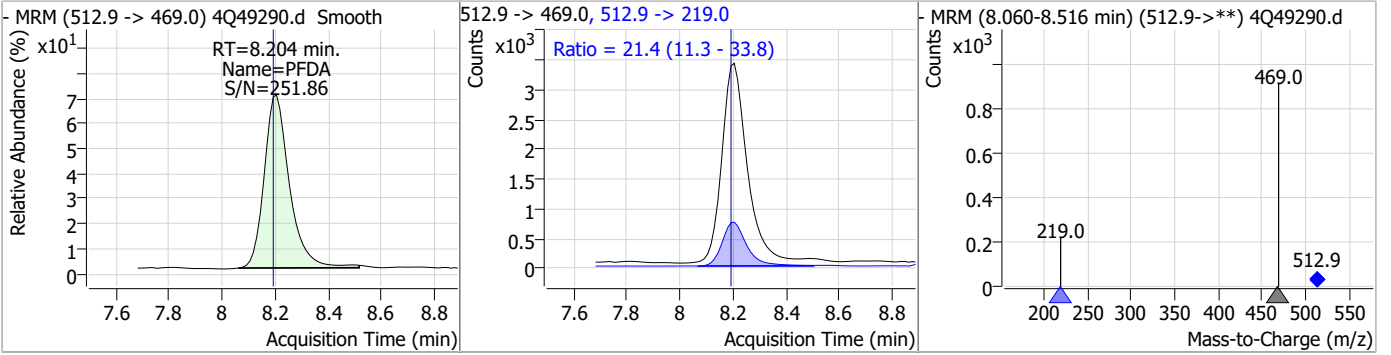


7.7.10 7

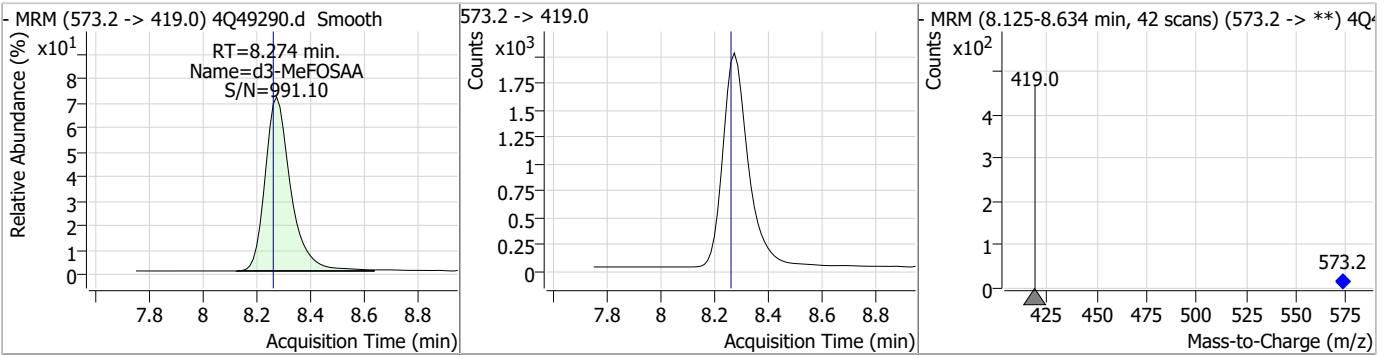


### Perfluorinated Compounds by LC/MS/MS

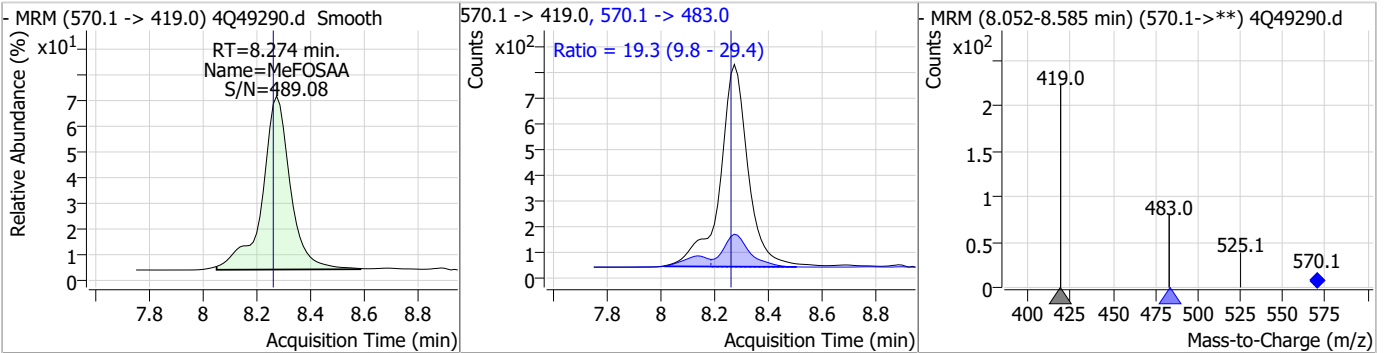
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.69	8.20	0.01	22070	512.9 -> 219.0	21.4	11.3	33.8



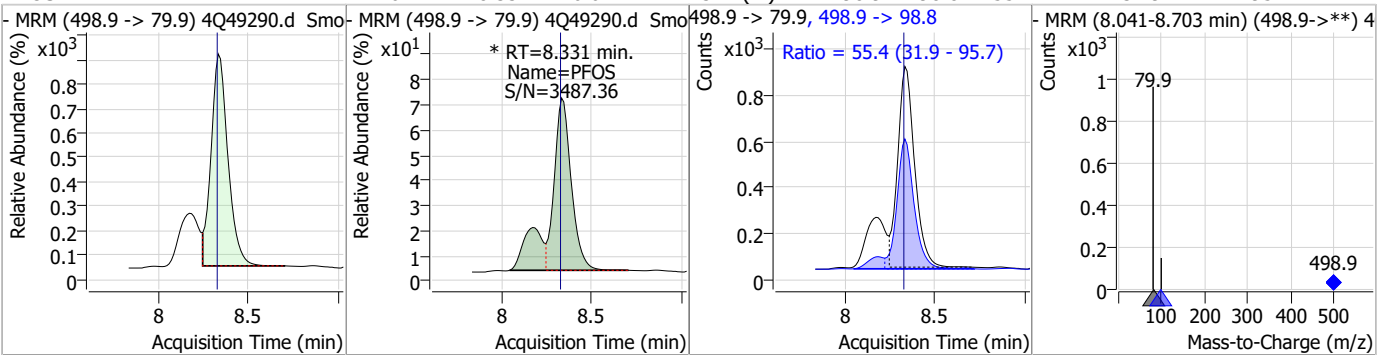
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.95	8.27	0.01	13108				



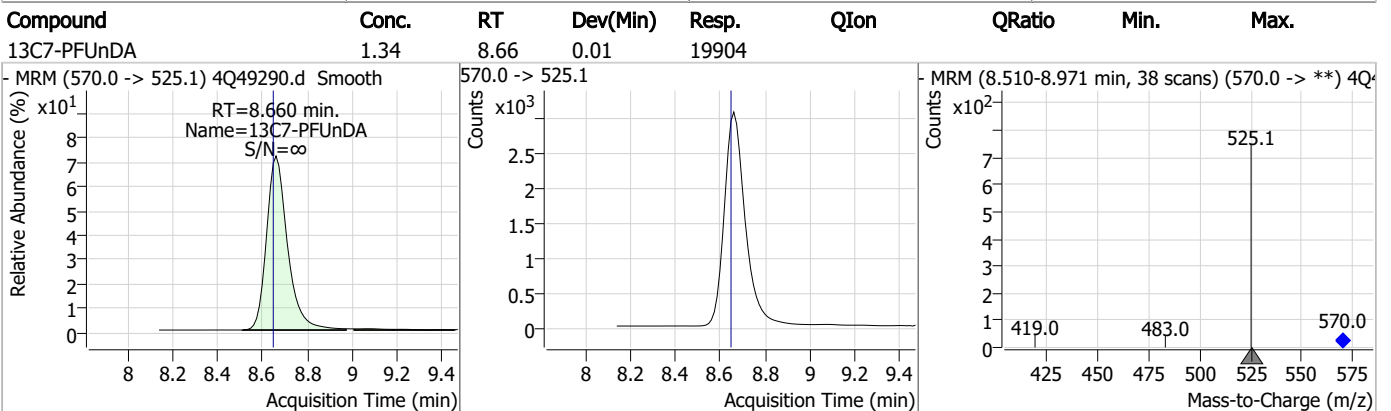
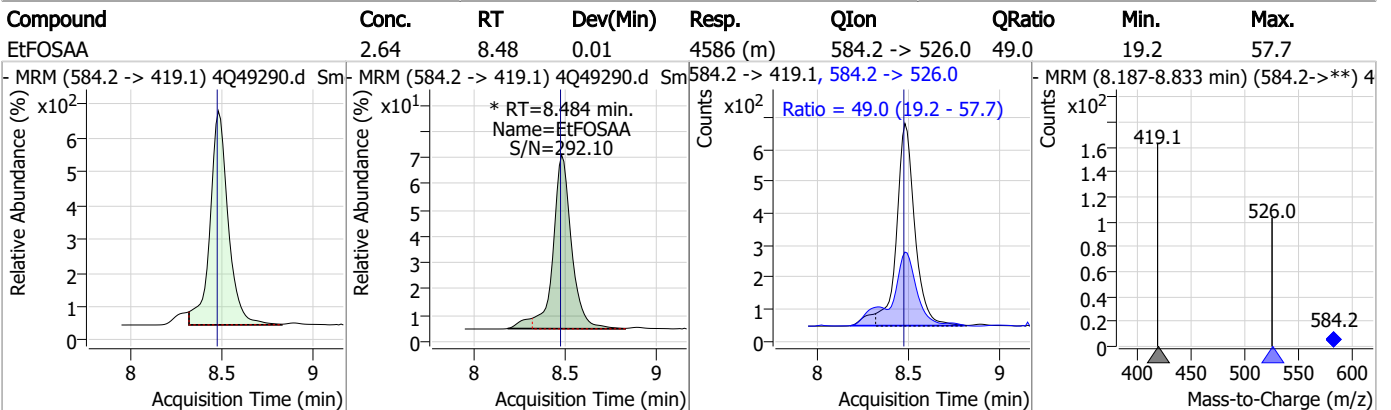
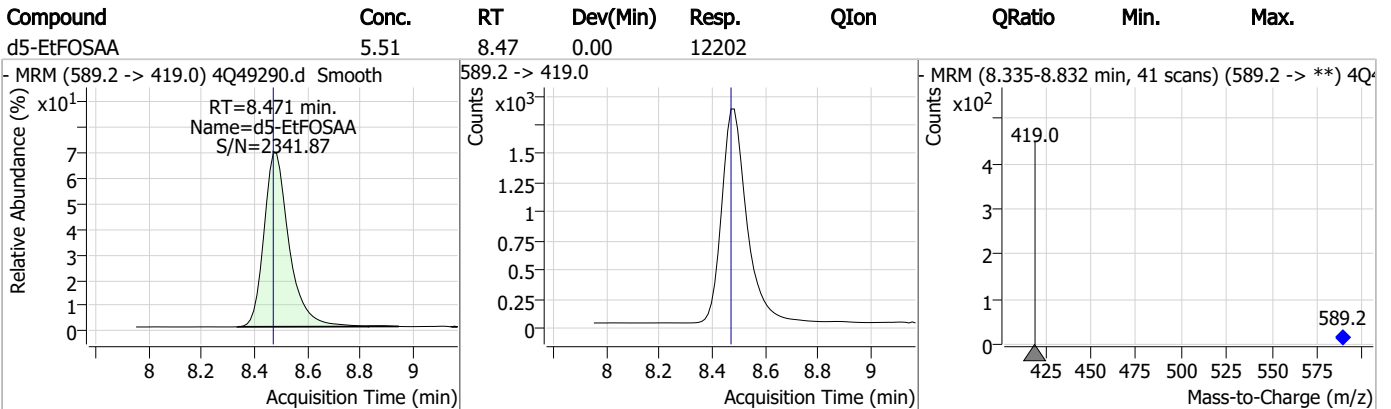
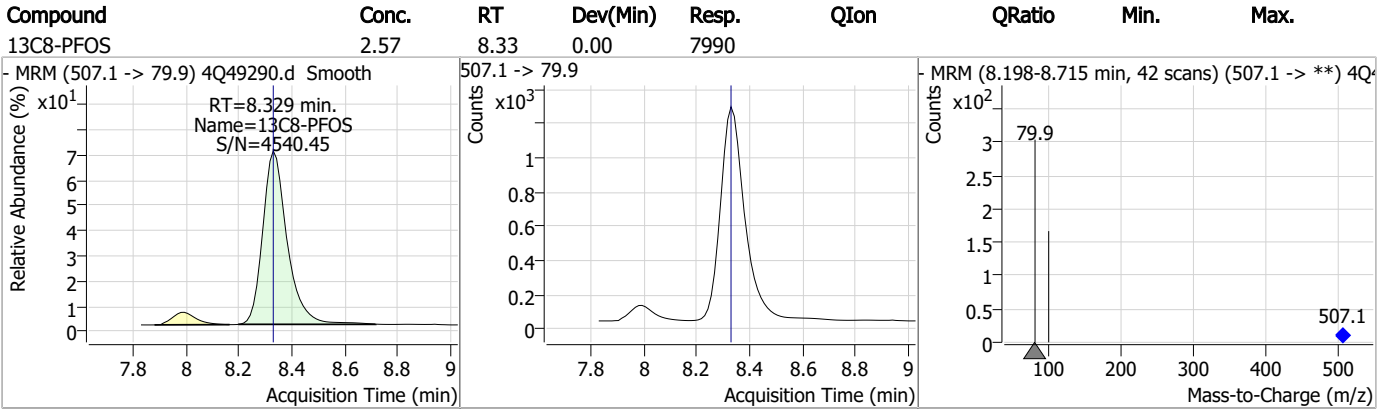
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	3.04	8.27	0.01	5700	570.1 -> 483.0	19.3	9.8	29.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.46	8.33	0.01	7321 (m)	498.9 -> 98.8	55.4	31.9	95.7

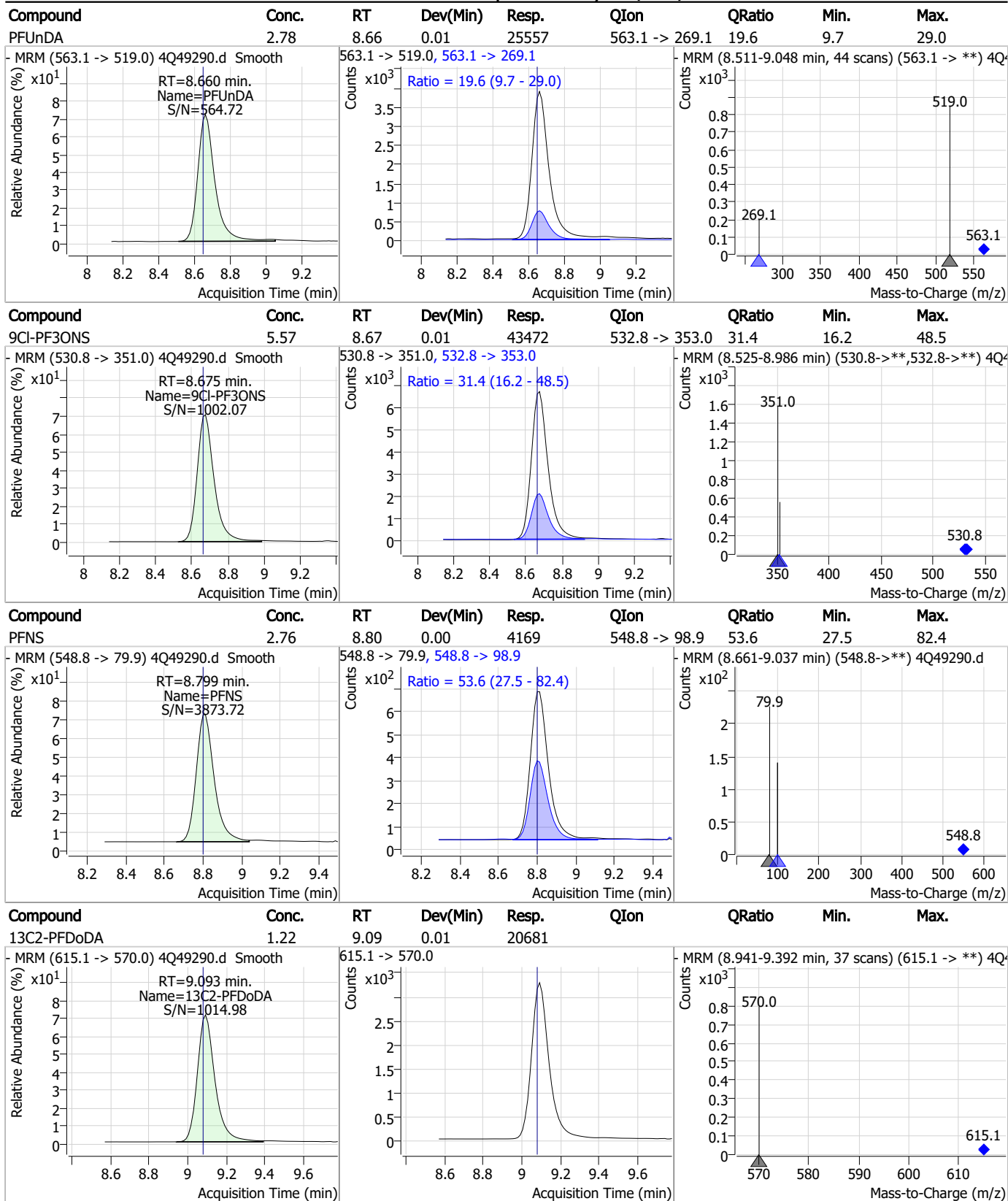


### Perfluorinated Compounds by LC/MS/MS



7.7.10 7

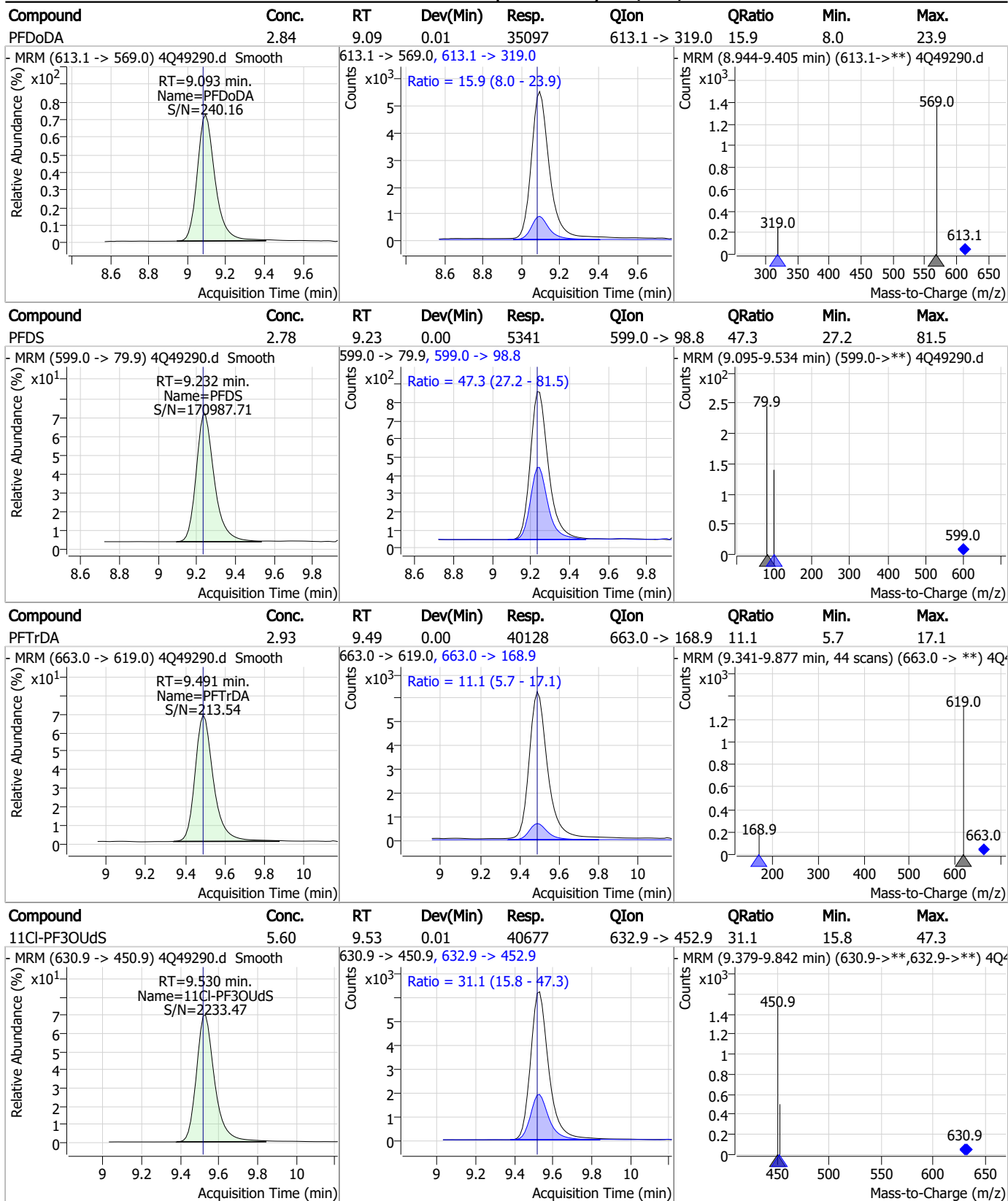
### Perfluorinated Compounds by LC/MS/MS



7.7.10 7



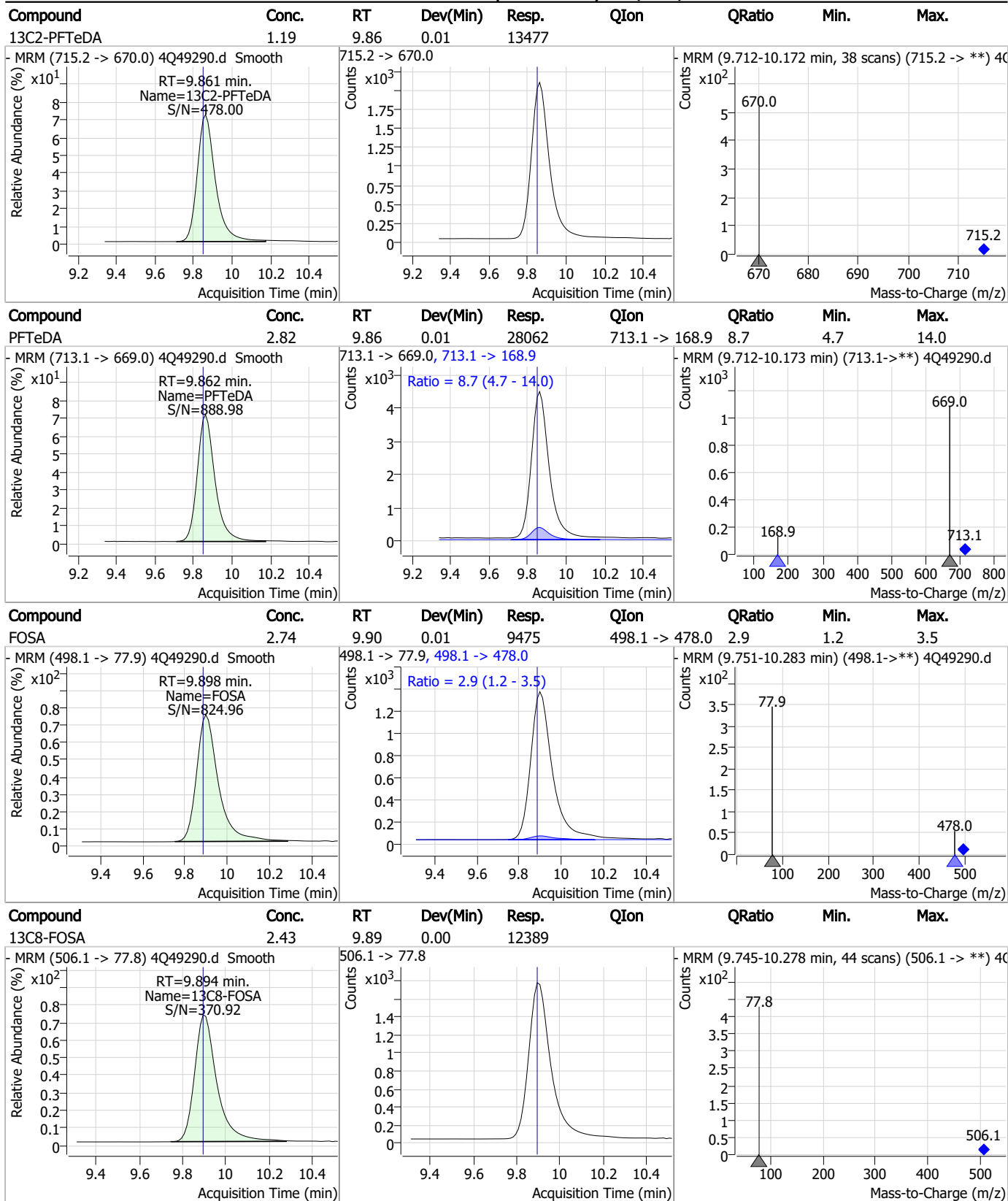
### Perfluorinated Compounds by LC/MS/MS



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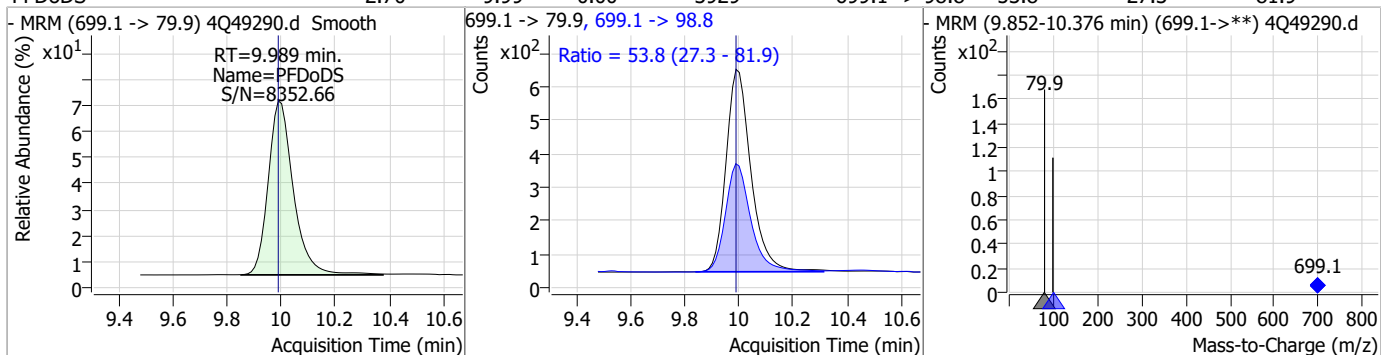
### Perfluorinated Compounds by LC/MS/MS



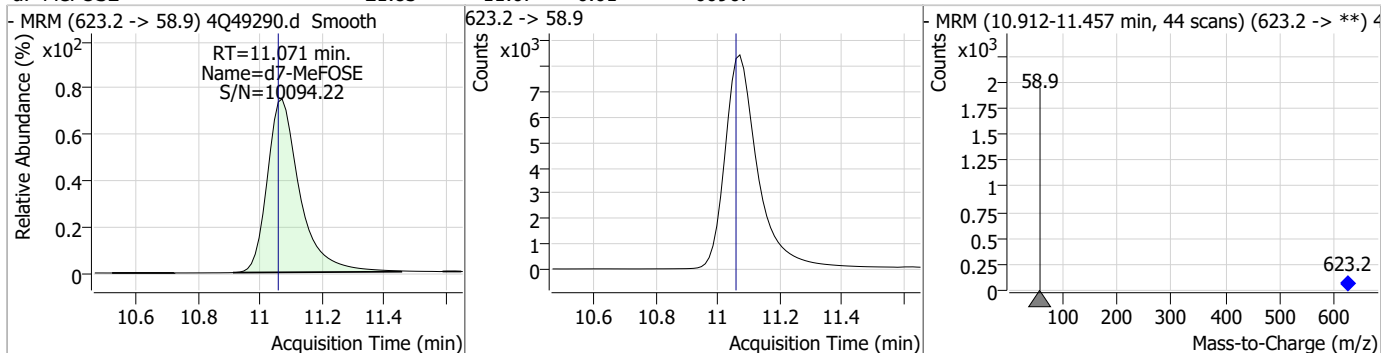
7.7.10  
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### Perfluorinated Compounds by LC/MS/MS

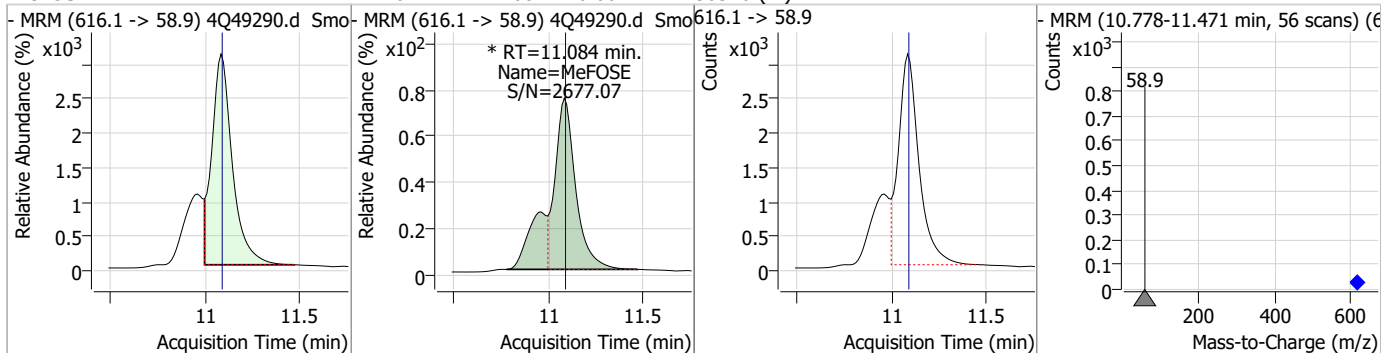
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	2.70	9.99	0.00	3929	699.1 -> 98.8	53.8	27.3	81.9



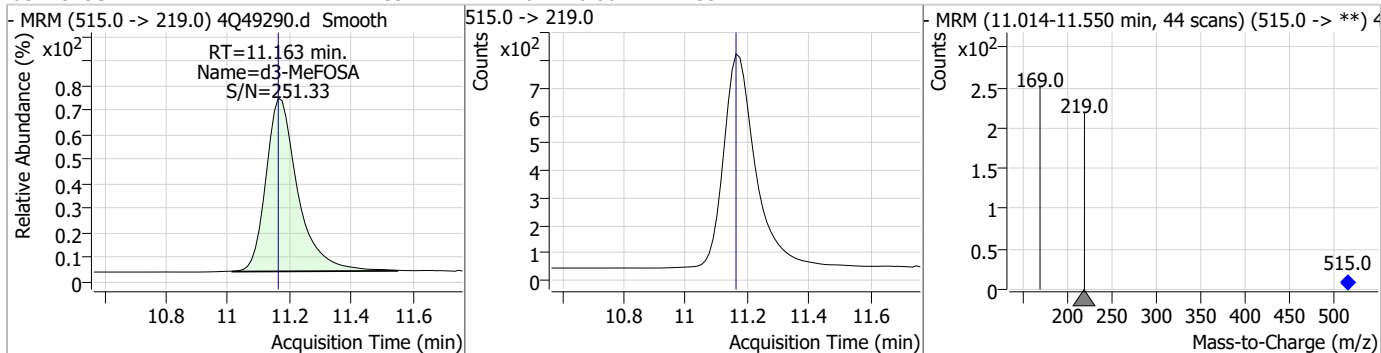
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	21.83	11.07	0.01	60967				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	14.01	11.08	0.00	30320 (m)				

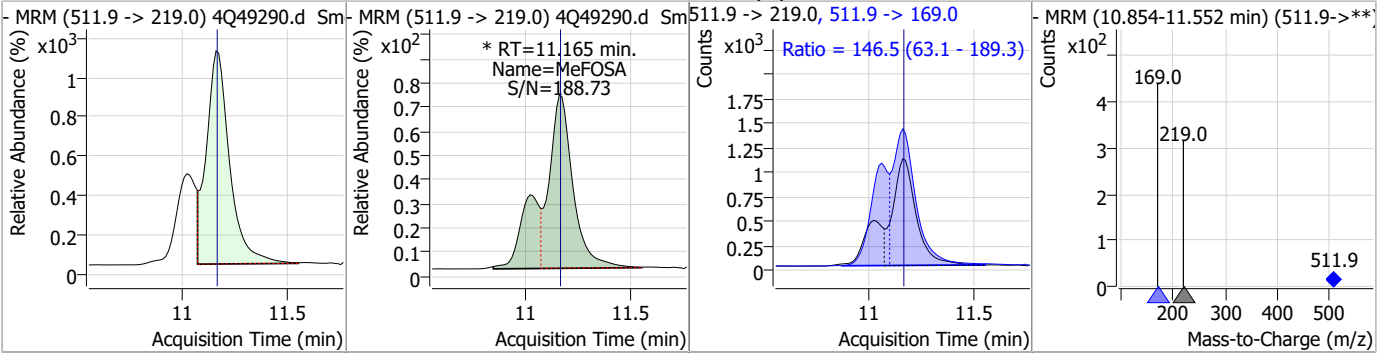


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.39	11.16	0.00	5574				

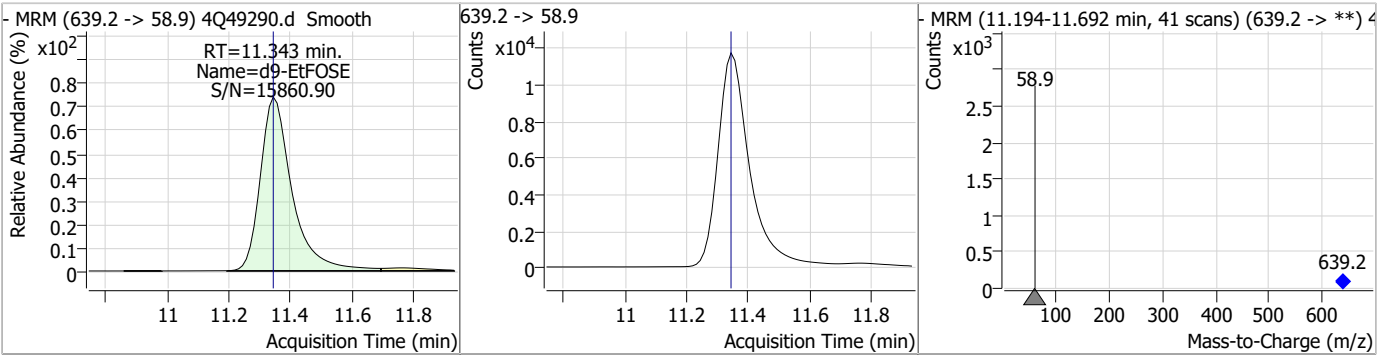


### Perfluorinated Compounds by LC/MS/MS

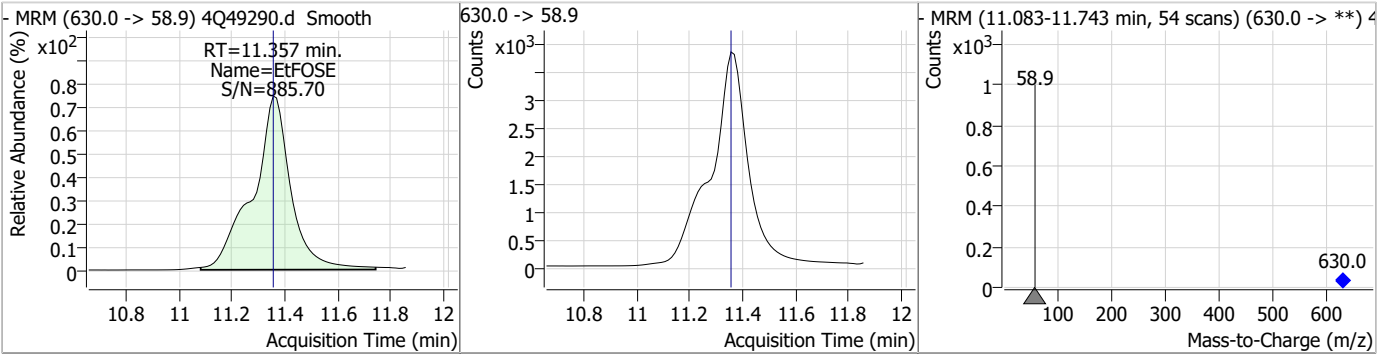
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.83	11.16	0.00	11283 (m)	511.9 -> 169.0	146.5	63.1	189.3



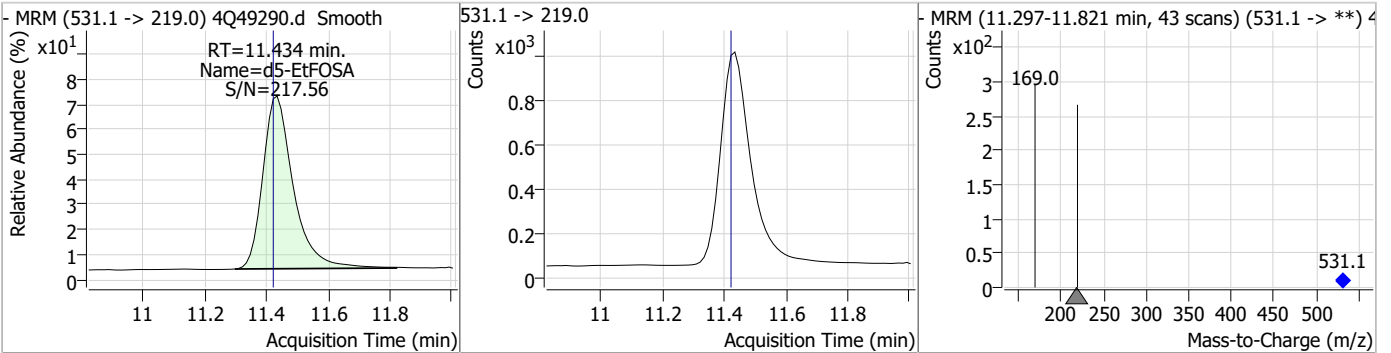
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	22.30	11.34	0.00	83472				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	14.87	11.36	0.00	38100				



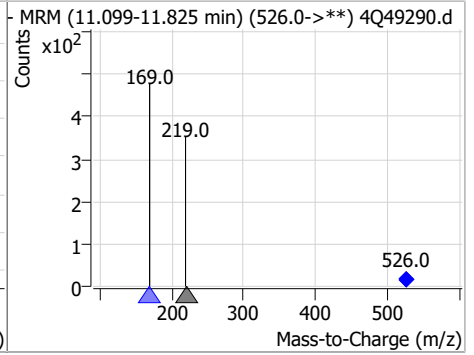
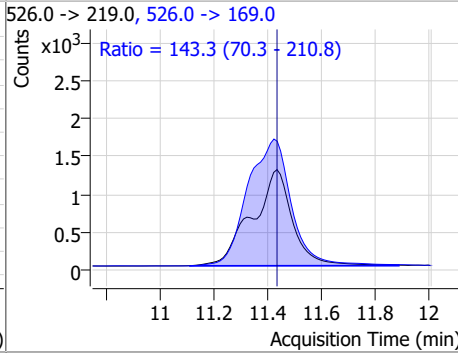
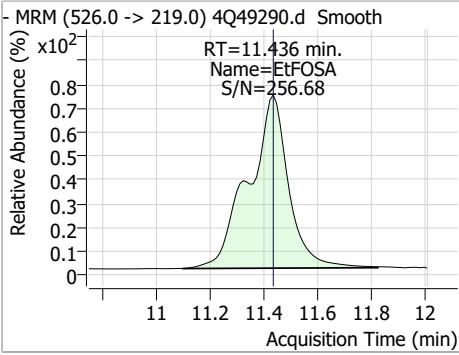
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.30	11.43	0.01	6619				



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

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	5.82	11.44	0.00	13274	526.0 -> 169.0	143.3	70.3	210.8



7.7.10  
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# Manual Integration Approval Summary

Sample Number: S4Q722-ICV722      Method: EPA DRAFT 1633  
Lab FileID: 4Q49290.D      Analyst approved: 08/23/23 10:44 Martha Valls  
Injection Time: 08/22/23 13:03      Supervisor approved: 08/23/23 15:25 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.48	Split peak
MeFOSE	24448-09-7		11.08	Split peak
MeFOSA	31506-32-8		11.16	Split peak

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7

Manual Integrations  
**APPROVED**  
 (compounds with "m" flag)  
 Natasha Gumtie  
 08/23/23 15:25

## Perfluorinated Compounds by LC/MS/MS

Data File : 4Q49291.d  
 Operator : annal  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 8/22/2023 1:17:44 PM  
 Sample Name : icv722-20  
 Vial : P1-B4  
 DA Method File : 1633\_082223\_S4Q722.quantmethod.xml  
 Batch Name : s4q722.batch.bin  
 Sample Information : OP98180,S4Q722,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.811	216.8 -> 171.9	143657	10.00 µg/L	0.000
M5-PFPeA	4.325	268.3 -> 223.0	74884	5.00 µg/L	0.012
M5-PFHxA	5.522	318.0 -> 273.0	49702	2.50 µg/L	0.012
M4-PFHpA	6.479	367.1 -> 322.0	32023	2.50 µg/L	0.012
M8-PFOA	7.148	421.1 -> 376.0	53119	2.50 µg/L	0.000
M9-PFNA	7.708	472.1 -> 427.0	19647	1.25 µg/L	0.012
M6-PFDA	8.204	519.1 -> 474.1	15082	1.25 µg/L	0.012
M7-PFUnDA	8.660	570.0 -> 525.1	20921	1.25 µg/L	0.012
M2-PFDoDA	9.093	615.1 -> 570.0	23437	1.25 µg/L	0.012
M2-PFTeDA	9.861	715.2 -> 670.0	15227	1.25 µg/L	0.012
M8-FOSA	9.906	506.1 -> 77.8	14048	2.50 µg/L	0.012
M3-PFBS	5.391	302.1 -> 79.9	13549	2.50 µg/L	0.000
M3-PFHxS	7.229	402.1 -> 79.9	9024	2.50 µg/L	0.012
M8-PFOS	8.329	507.1 -> 79.9	8720	2.50 µg/L	0.000
M2-4:2FTS	5.208	329.1 -> 80.9	1643	5.00 µg/L	0.000
M2-6:2FTS	6.924	429.1 -> 80.9	2488	5.00 µg/L	0.013
M2-8:2FTS	7.991	529.1 -> 80.9	3509	5.00 µg/L	0.000
M3-MeFOSAA	8.274	573.2 -> 419.0	14949	5.00 µg/L	0.012
M3-HFPO-DA	5.889	286.9 -> 168.9	38293	10.00 µg/L	0.012
M5-EtFOSAA	8.483	589.2 -> 419.0	12672	5.00 µg/L	0.012
M7-MeFOSE	11.071	623.2 -> 58.9	72092	25.00 µg/L	0.012
M9-EtFOSE	11.343	639.2 -> 58.9	94726	25.00 µg/L	0.000
M5-EtFOSA	11.434	531.1 -> 219.0	7864	2.50 µg/L	0.012
M3-MeFOSA	11.176	515.0 -> 219.0	6526	2.50 µg/L	0.012
13C4-PFOS	8.330	502.8 -> 79.9	8495	2.50 µg/L	0.000
13C3-PFBA	2.803	216.0 -> 172.0	79203	5.00 µg/L	0.000
18O2-PFHxS	7.228	403.0 -> 83.9	6874	2.50 µg/L	0.000
13C4-PFOA	7.149	417.1 -> 372.0	59168	2.50 µg/L	0.000
13C2-PFDA	8.204	515.1 -> 470.1	14139	1.25 µg/L	0.012
13C5-PFNA	7.708	468.0 -> 423.0	20549	1.25 µg/L	0.012
13C2-PFHxA	5.523	315.1 -> 270.0	46327	2.50 µg/L	0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.208	329.1 -> 80.9	1643	5.26 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.2%		
13C2-6:2FTS	6.924	429.1 -> 80.9	2488	5.61 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.3%		
13C2-8:2FTS	7.991	529.1 -> 80.9	3509	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C2-PFDoDA	9.093	615.1 -> 570.0	23437	1.26 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C2-PFTeDA	9.861	715.2 -> 670.0	15227	1.22 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C3-PFBS	5.391	302.1 -> 79.9	13549	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C3-PFHxS	7.229	402.1 -> 79.9	9024	2.33 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 = 93.4%	
13C4-PFBA	2.811	216.8 -> 171.9	143657	10.20 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C4-PFHpA	6.479	367.1 -> 322.0	32023	2.43 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C5-PFHxA	5.522	318.0 -> 273.0	49702	2.55 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C5-PFPeA	4.325	268.3 -> 223.0	74884	5.18 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C6-PFDA	8.204	519.1 -> 474.1	15082	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C7-PFUnDA	8.660	570.0 -> 525.1	20921	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C8-FOSA	9.906	506.1 -> 77.8	14048	2.45 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C8-PFOA	7.148	421.1 -> 376.0	53119	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C8-PFOS	8.329	507.1 -> 79.9	8720	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C9-PFNA	7.708	472.1 -> 427.0	19647	1.26 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.7%	
d3-MeFOSAA	8.274	573.2 -> 419.0	14949	5.03 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C3-HFPO-DA	5.889	286.9 -> 168.9	38293	10.24 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
d3-MeFOSA	11.176	515.0 -> 219.0	6526	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
d5-EtFOSAA	8.483	589.2 -> 419.0	12672	5.10 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
d7-MeFOSE	11.071	623.2 -> 58.9	72092	23.01 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 92.1%	
d9-EtFOSE	11.343	639.2 -> 58.9	94726	22.56 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 90.2%	
d5-EtFOSA	11.434	531.1 -> 219.0	7864	2.43 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.3%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.209	327.1 -> 307.0	42691	22.74 µg/L	96
		327.1 -> 80.9	18696		
6:2FTS	6.924	427.1 -> 407.0	37508	20.65 µg/L	97
		427.1 -> 80.9	16153		
8:2FTS	7.991	527.1 -> 507.0	31645	23.23 µg/L	99
		527.1 -> 80.8	15212		
EtFOSAA	8.484	584.2 -> 419.1	37333	20.69 µg/L	m 95
		584.2 -> 526.0	15593		
FOSA	9.898	498.1 -> 77.9	78754	20.08 µg/L	99
		498.1 -> 478.0	2200		
MeFOSAA	8.274	570.1 -> 419.0	43074	20.12 µg/L	99
		570.1 -> 483.0	8544		
PFBA	2.807	212.8 -> 168.9	62310	20.18 µg/L	100
PFBS	5.392	298.7 -> 79.9	84653	21.52 µg/L	97
		298.7 -> 98.8	33374		
PFDA	8.204	512.9 -> 469.0	184341	21.18 µg/L	96
		512.9 -> 219.0	38323		
PFDoDA	9.093	613.1 -> 569.0	271605	19.40 µg/L	98
		613.1 -> 319.0	41125		
PFDS	9.245	599.0 -> 79.9	43362	20.66 µg/L	94

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.480	599.0 -> 98.8	21750	21.68	µg/L	100
		363.1 -> 319.0	337281			
PFHpS	7.822	363.1 -> 169.0	61692	20.72	µg/L	99
		449.0 -> 79.9	61697			
PFHxA	5.525	449.0 -> 98.9	31661	21.49	µg/L	100
		313.0 -> 269.0	328419			
PFHxS	7.229	313.0 -> 118.9	10731	23.75	µg/L	m
		398.7 -> 79.9	60479			
PFNA	7.709	398.7 -> 98.9	29541	22.40	µg/L	97
		463.0 -> 419.0	222103			
PFNS	8.811	463.0 -> 219.0	54277	20.12	µg/L	97
		548.8 -> 79.9	33191			
PFOA	7.150	548.8 -> 98.9	17462	20.05	µg/L	98
		413.0 -> 369.0	402350			
PFOS	8.331	413.0 -> 169.0	87796	18.77	µg/L	m
		498.9 -> 79.9	60898			
PFPeA	4.327	498.9 -> 98.8	28929	21.63	µg/L	100
		263.0 -> 219.0	287339			
PFPeS	6.482	349.1 -> 79.9	51884	22.76	µg/L	96
		349.1 -> 98.9	22242			
PFTeDA	9.862	713.1 -> 669.0	244289	21.71	µg/L	98
		713.1 -> 168.9	21303			
PFTrDA	9.491	663.0 -> 619.0	287584	18.56	µg/L	99
		663.0 -> 168.9	31691			
PFUnDA	8.660	563.1 -> 519.0	198233	20.53	µg/L	98
		563.1 -> 269.1	36873			
11Cl-PF3OUdS	9.530	630.9 -> 450.9	171122	20.18	µg/L	100
		632.9 -> 452.9	53523			
9Cl-PF3ONS	8.675	530.8 -> 351.0	180660	19.85	µg/L	96
		532.8 -> 353.0	54511			
ADONA	6.743	376.9 -> 250.9	495518	18.32	µg/L	98
		376.9 -> 84.8	156655			
HFPO-DA	5.890	284.9 -> 168.9	58656	18.96	µg/L	99
		284.9 -> 184.9	6843			
3:3FTCA	3.773	241.0 -> 177.0	13316	19.73	µg/L	98
		241.0 -> 117.0	1344			
5:3FTCA	6.232	341.0 -> 237.1	46435	21.36	µg/L	99
		341.0 -> 217.0	34266			
7:3FTCA	7.723	441.0 -> 316.9	18619	19.50	µg/L	98
		441.0 -> 336.9	41748			
EtFOSA	11.436	526.0 -> 219.0	52128	19.25	µg/L	76
		526.0 -> 169.0	58197			
EtFOSE	11.369	630.0 -> 58.9	316726	108.92	µg/L	100
		511.9 -> 219.0	42102			
MeFOSA	11.177	511.9 -> 169.0	48924	18.60	µg/L	91
		616.1 -> 58.9	282568			
MeFOSE	11.084	699.1 -> 79.9	30457	110.45	µg/L	100
		699.1 -> 98.8	17923			
PFDoDS	10.001	295.0 -> 201.0	22872	19.19	µg/L	94
		295.0 -> 84.9	6849			
NFDHA	5.403	279.0 -> 85.1	163546	18.98	µg/L	95
		229.0 -> 84.9	179289			
PFMBA	4.741	314.8 -> 134.9	246871	20.92	µg/L	100
		314.8 -> 82.9	7872			
PFMPA	3.440			20.91	µg/L	100
PFEESA	5.933			18.61	µg/L	99

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





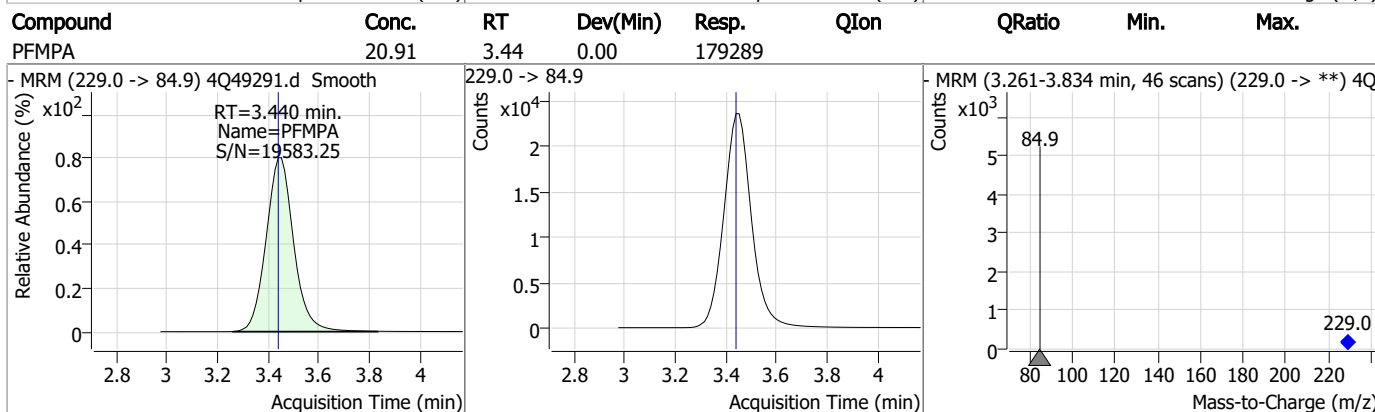
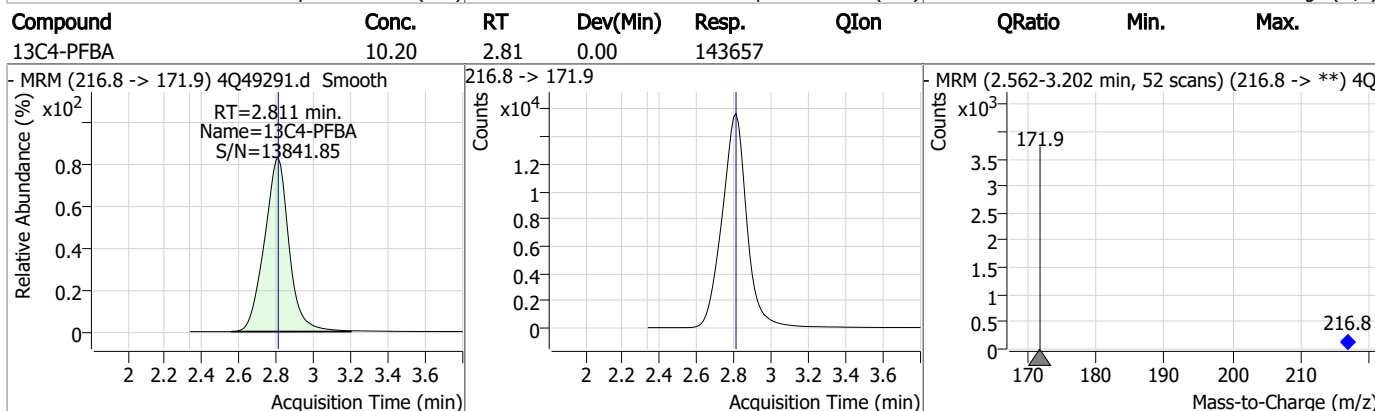
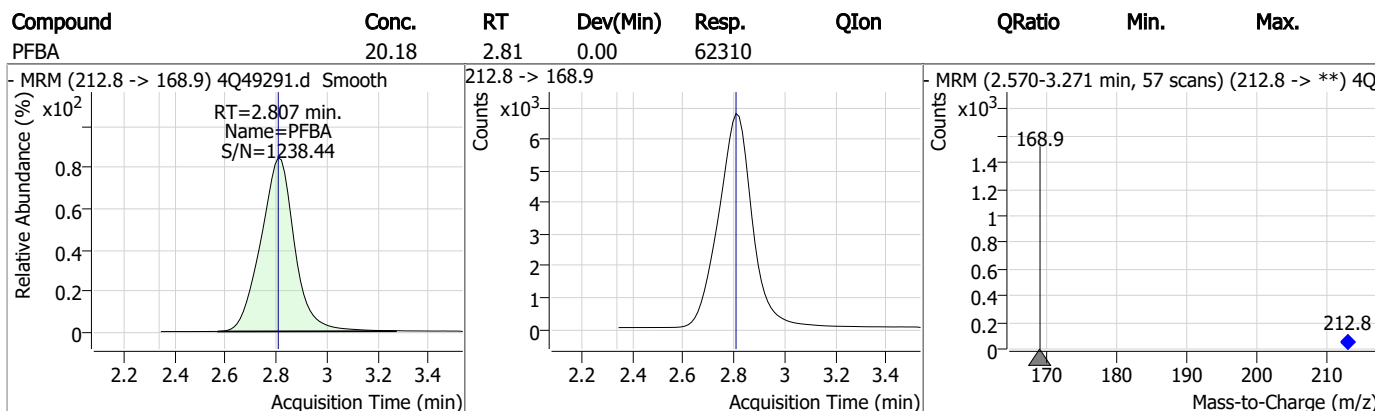
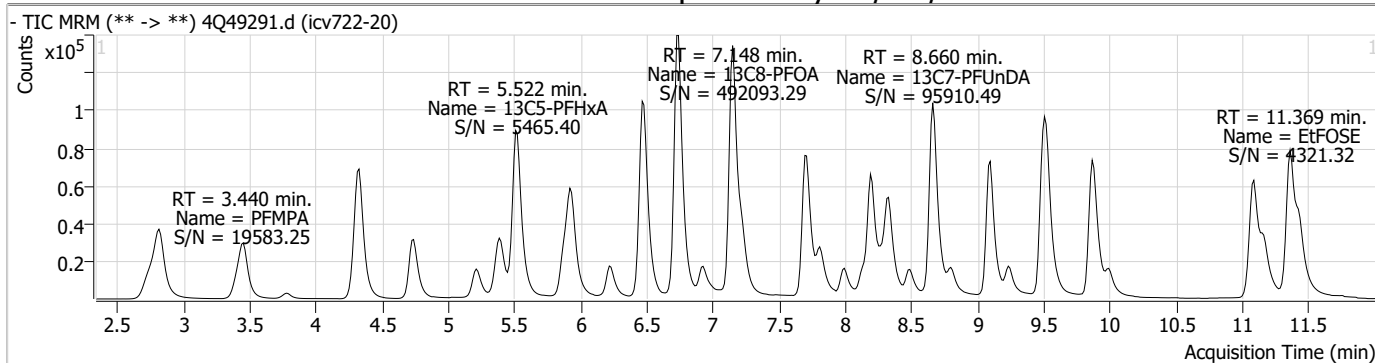
### Perfluorinated Compounds by LC/MS/MS

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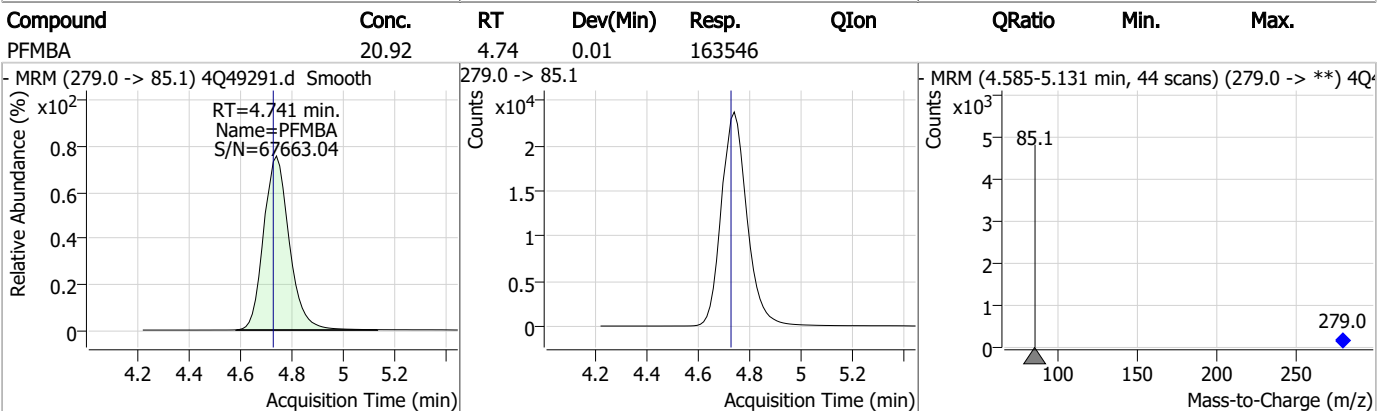
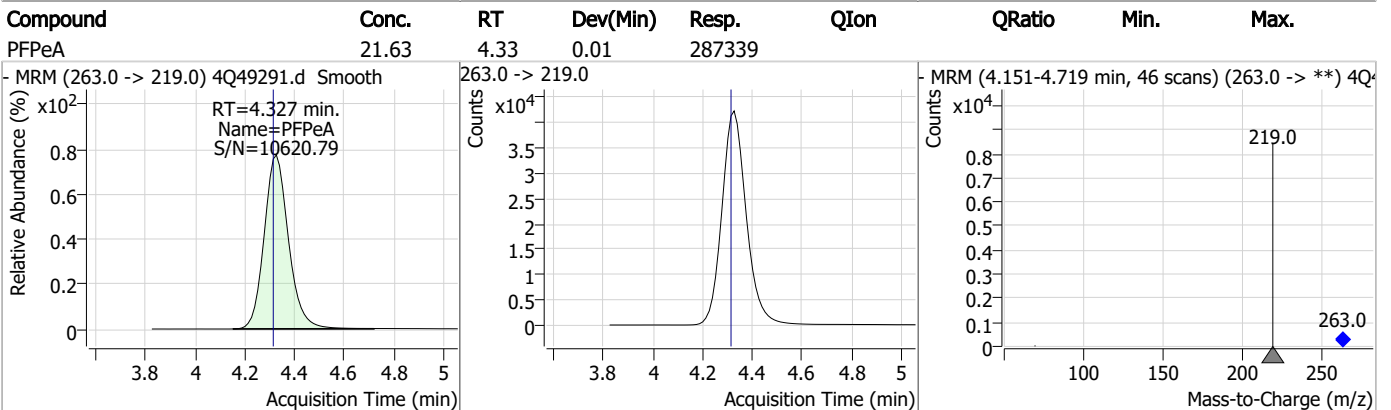
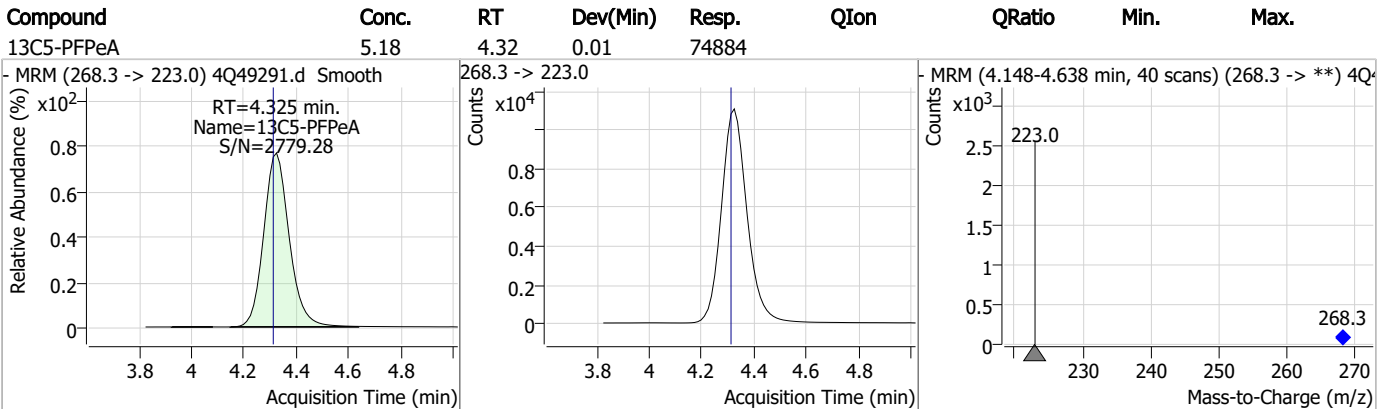
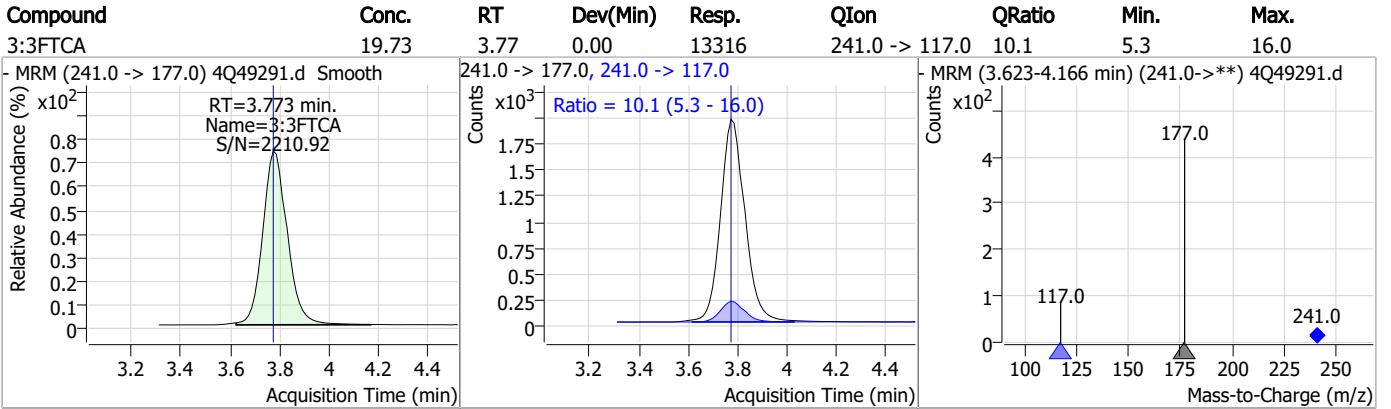
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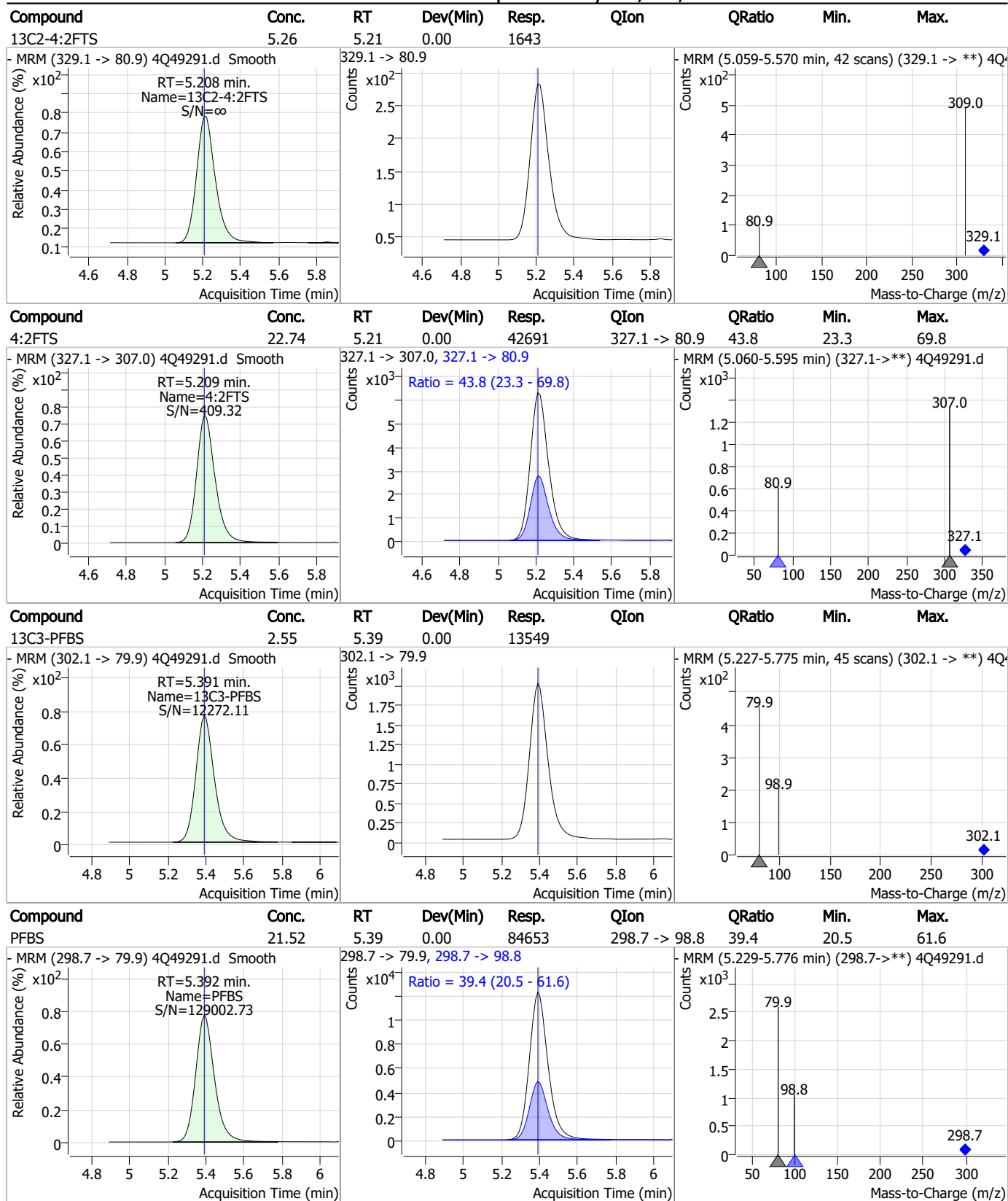
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



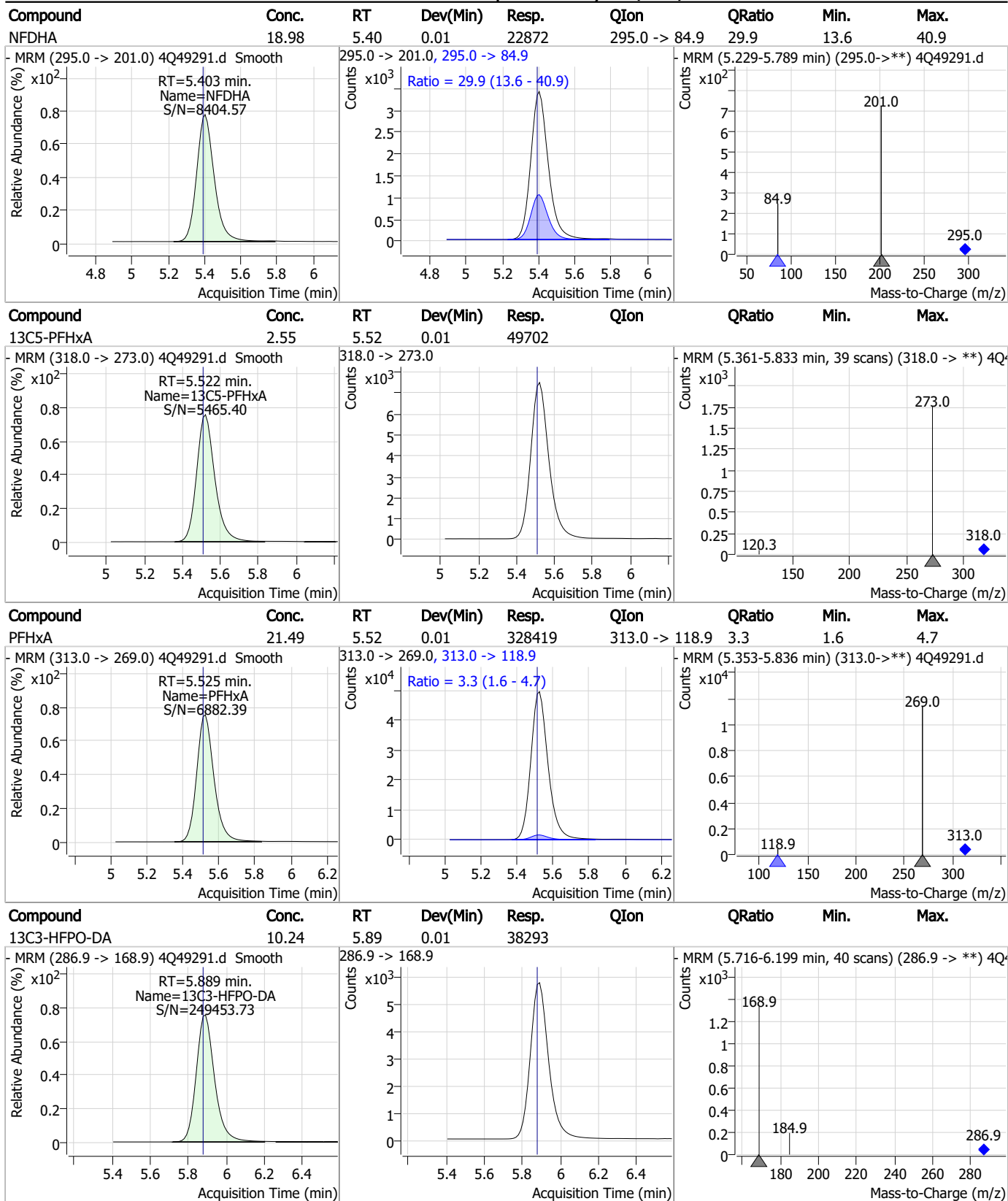
### Perfluorinated Compounds by LC/MS/MS



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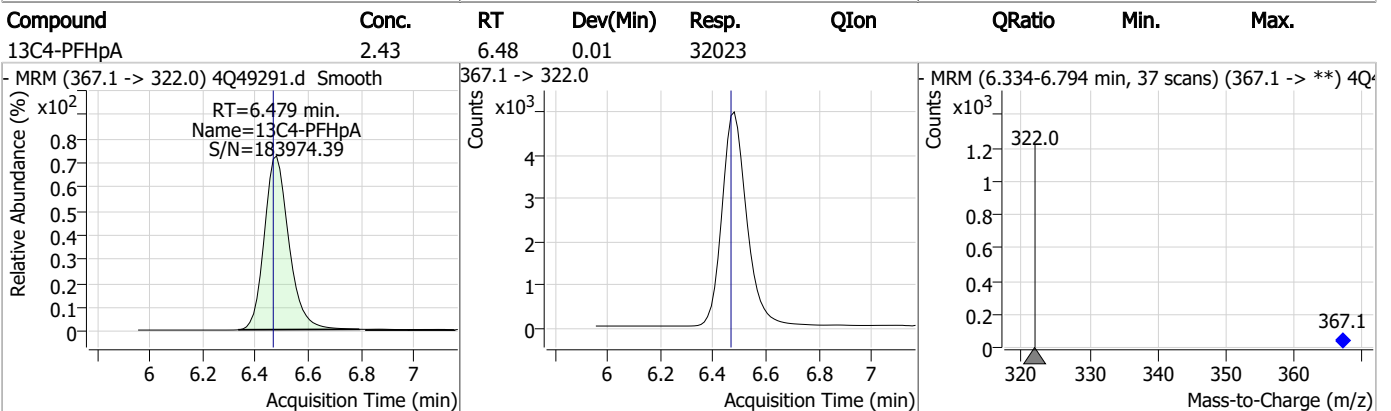
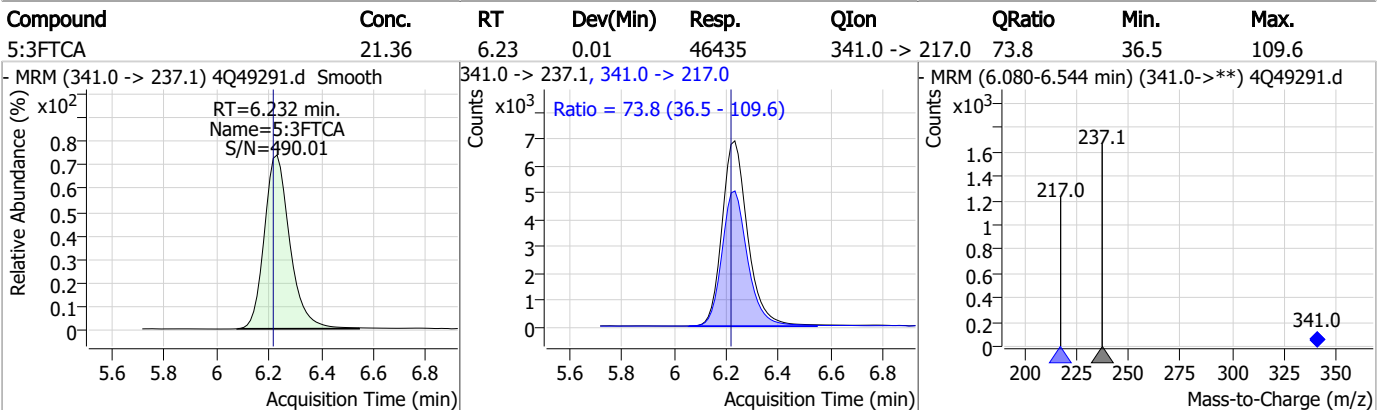
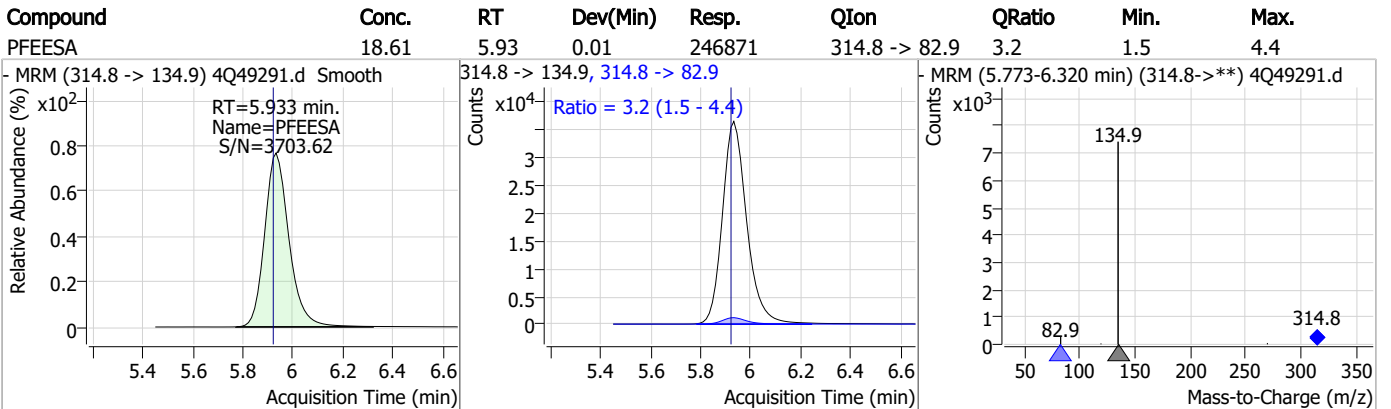
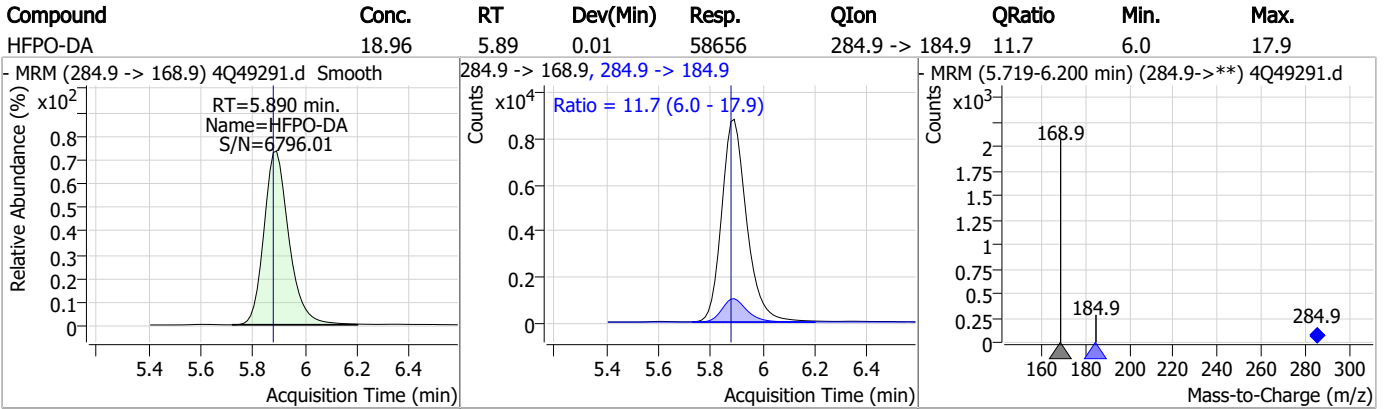


### Perfluorinated Compounds by LC/MS/MS

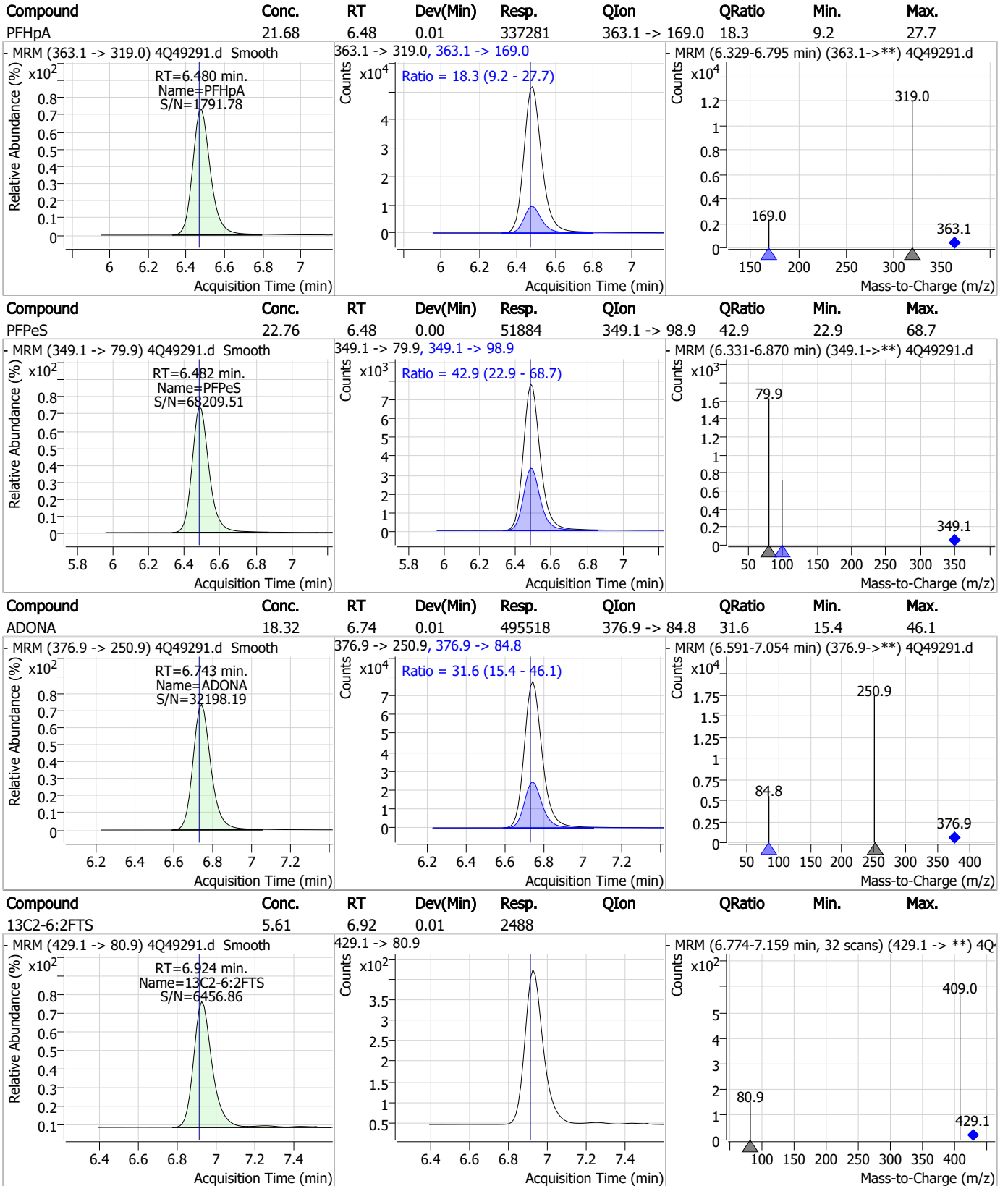


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### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

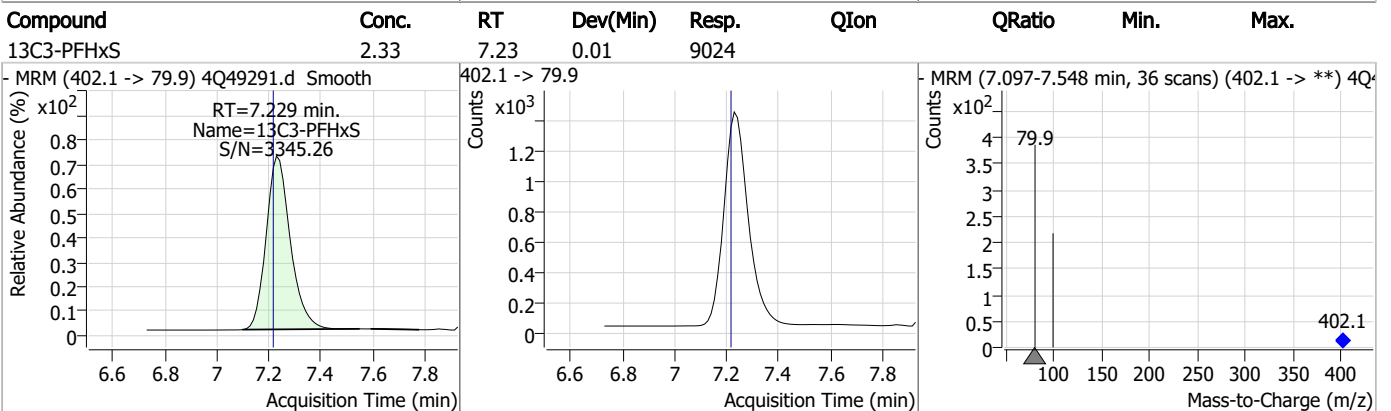
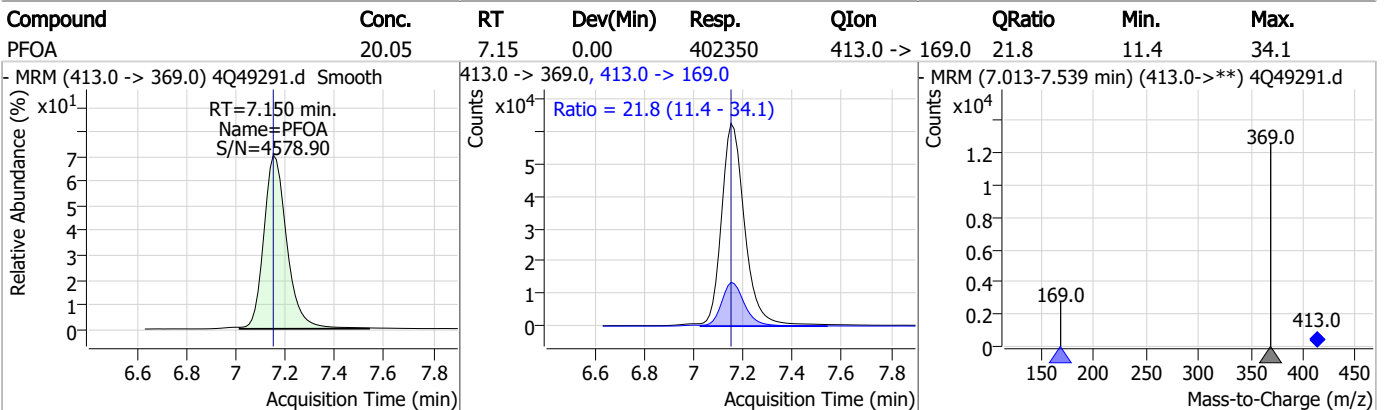
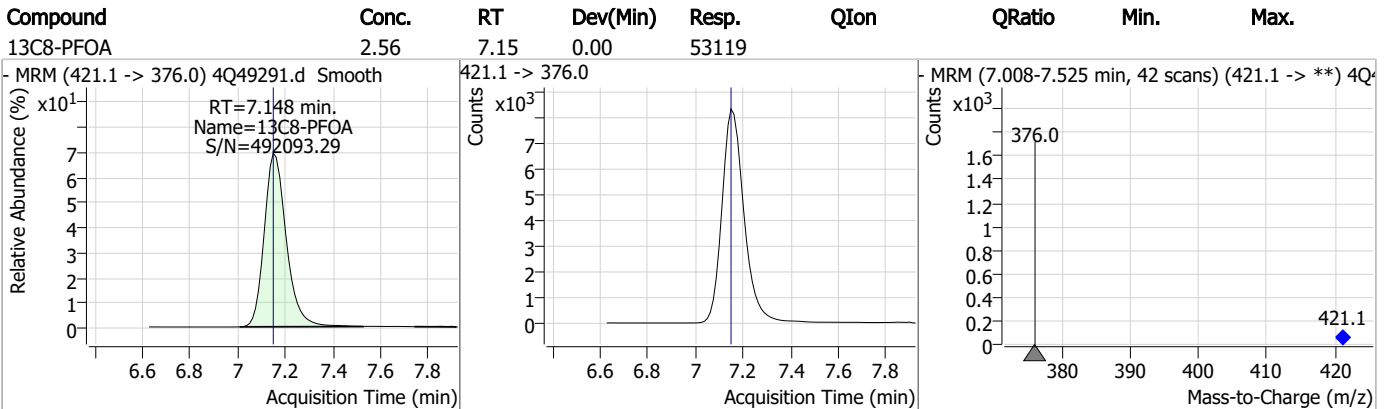
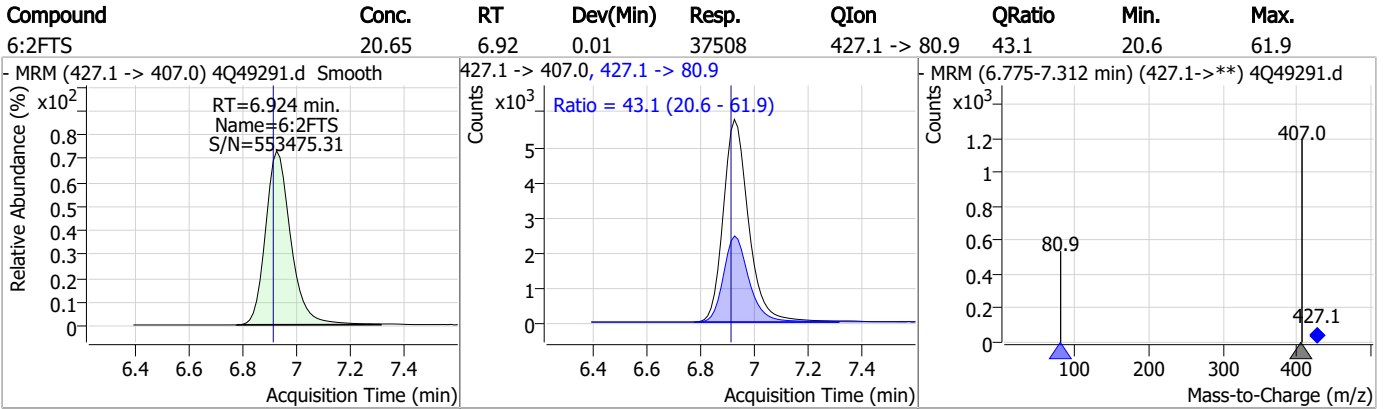


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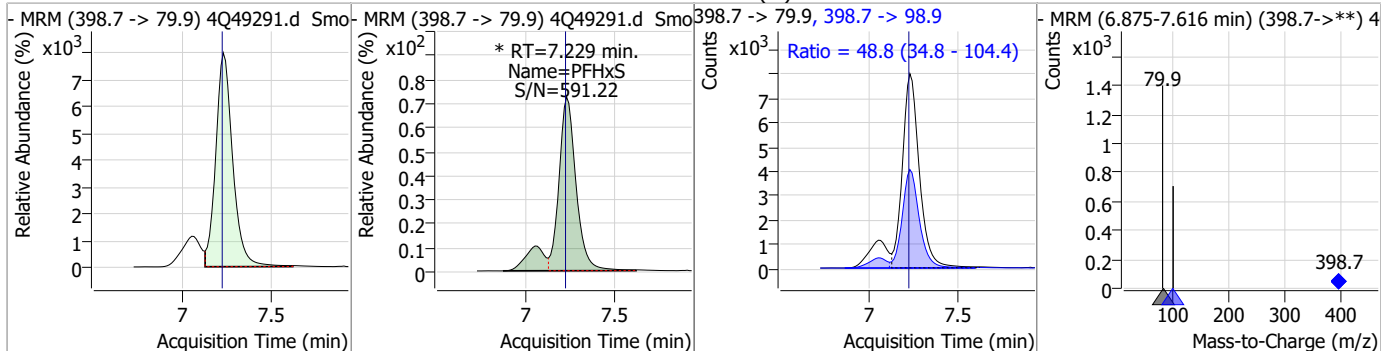
### Perfluorinated Compounds by LC/MS/MS



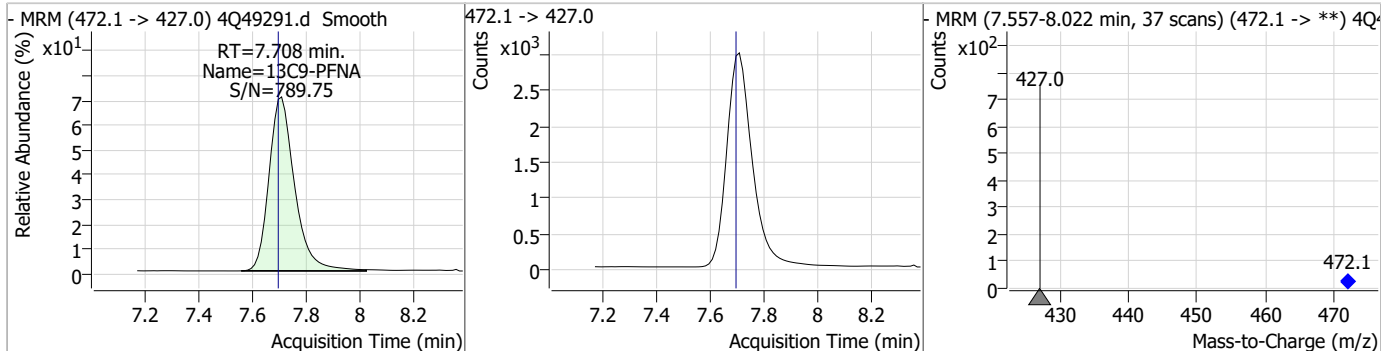


### Perfluorinated Compounds by LC/MS/MS

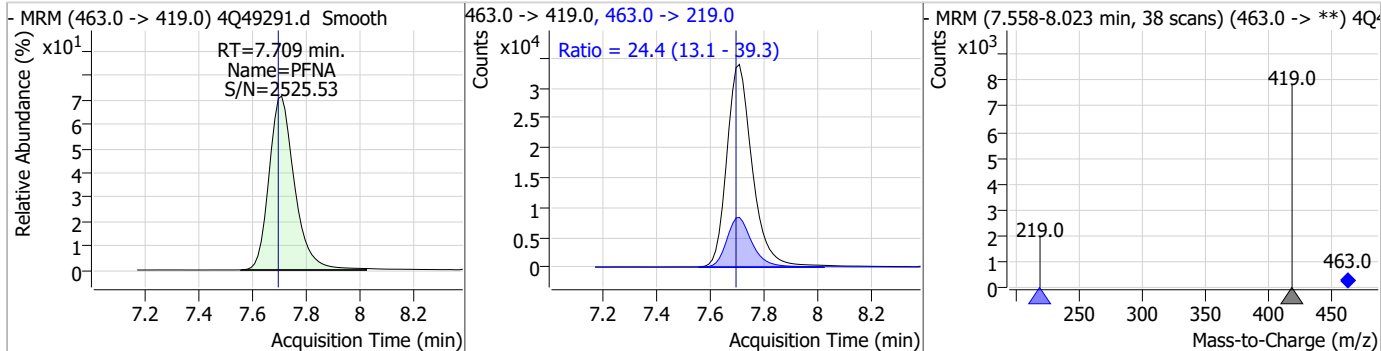
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	23.75	7.23	0.01	60479 (m)	398.7 -> 98.9	48.8	34.8	104.4



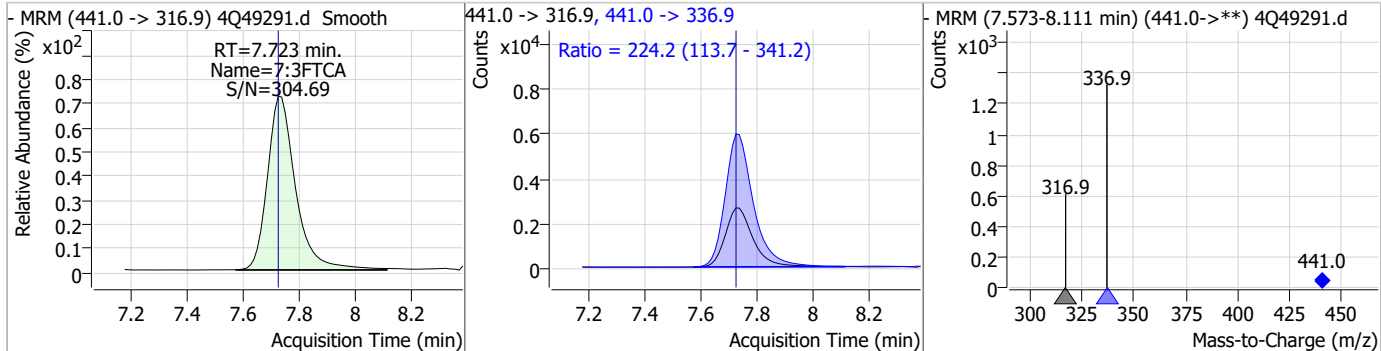
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.26	7.71	0.01	19647				



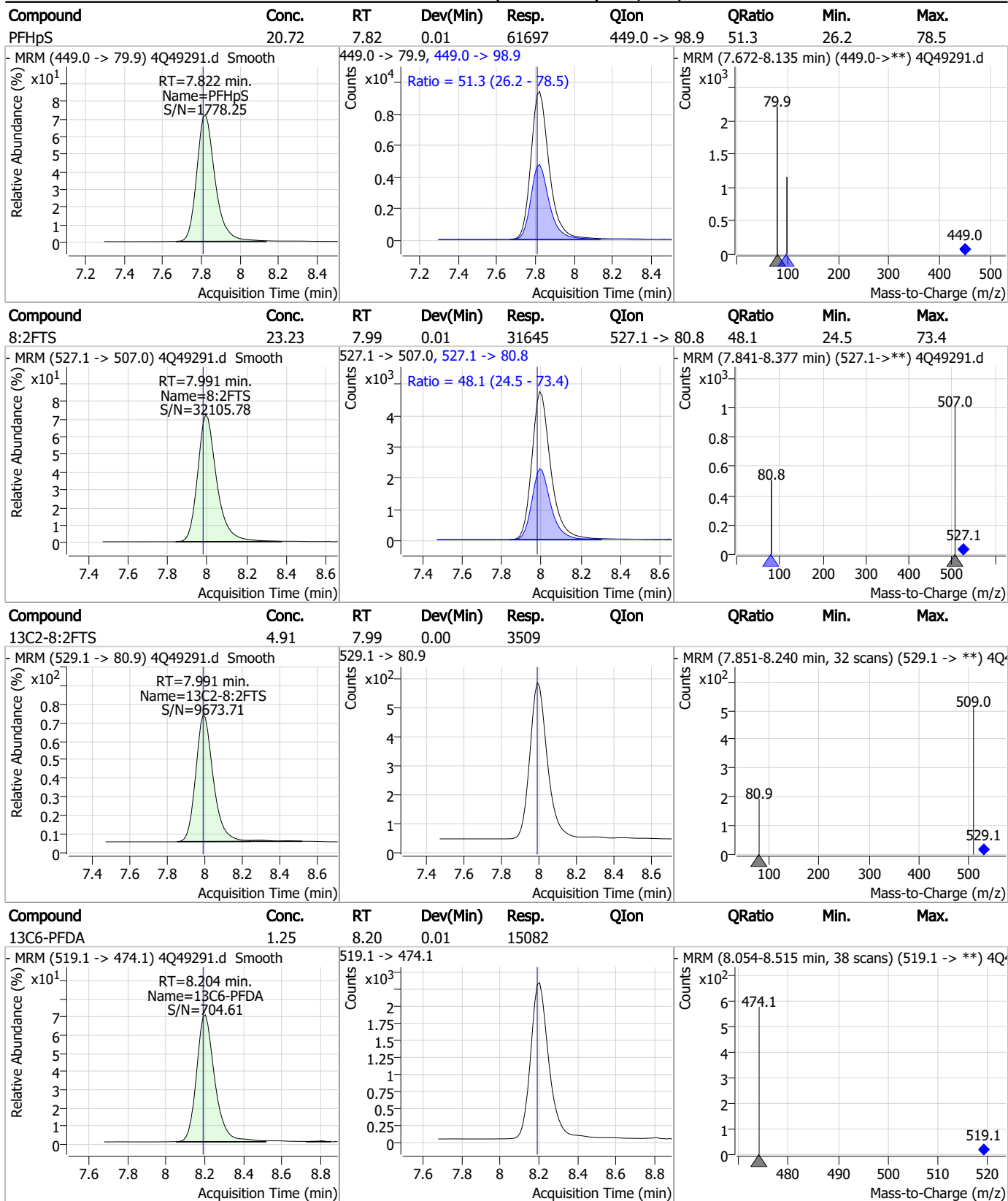
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	22.40	7.71	0.01	222103	463.0 -> 219.0	24.4	13.1	39.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	19.50	7.72	0.00	18619	441.0 -> 336.9	224.2	113.7	341.2

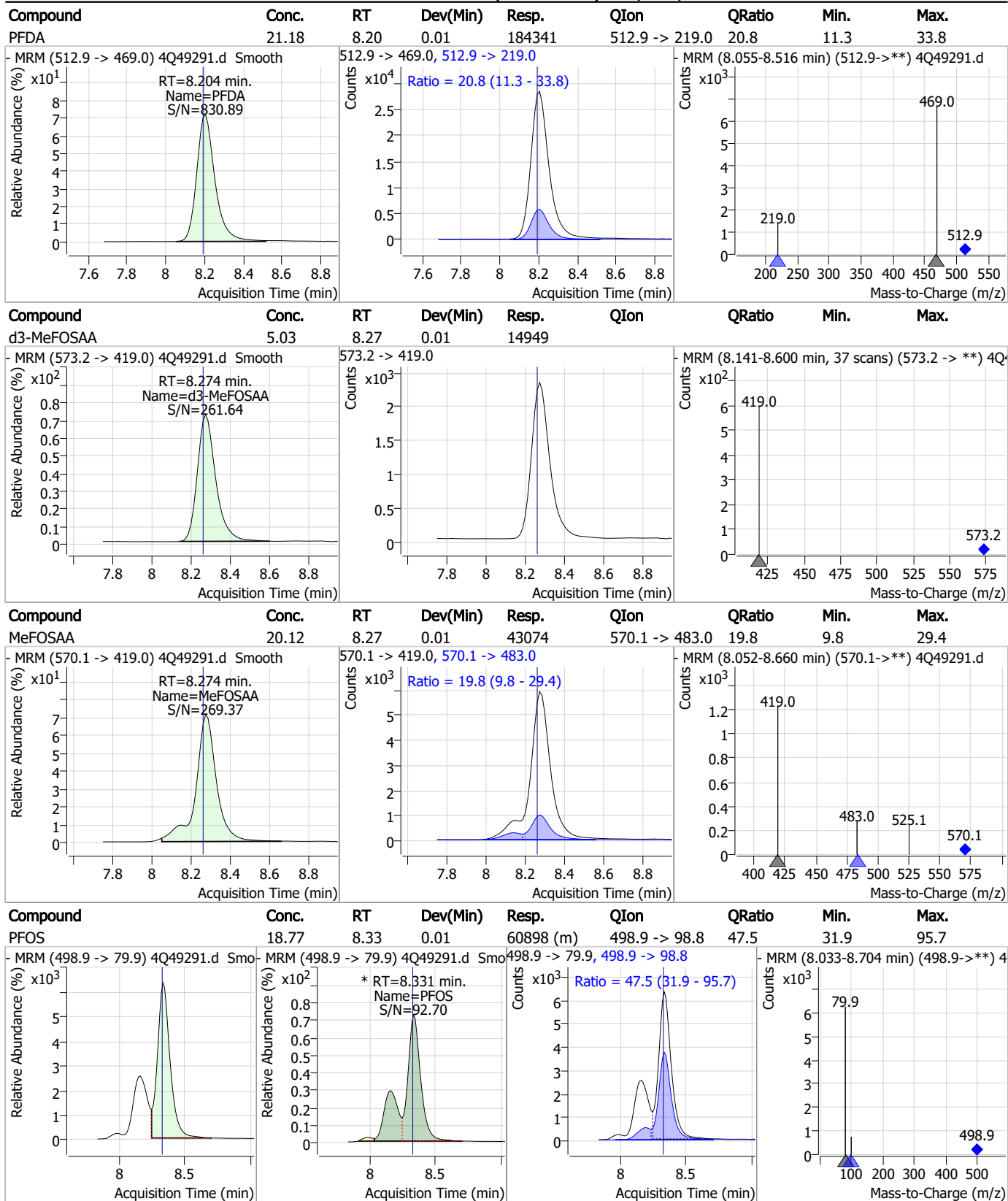


### Perfluorinated Compounds by LC/MS/MS



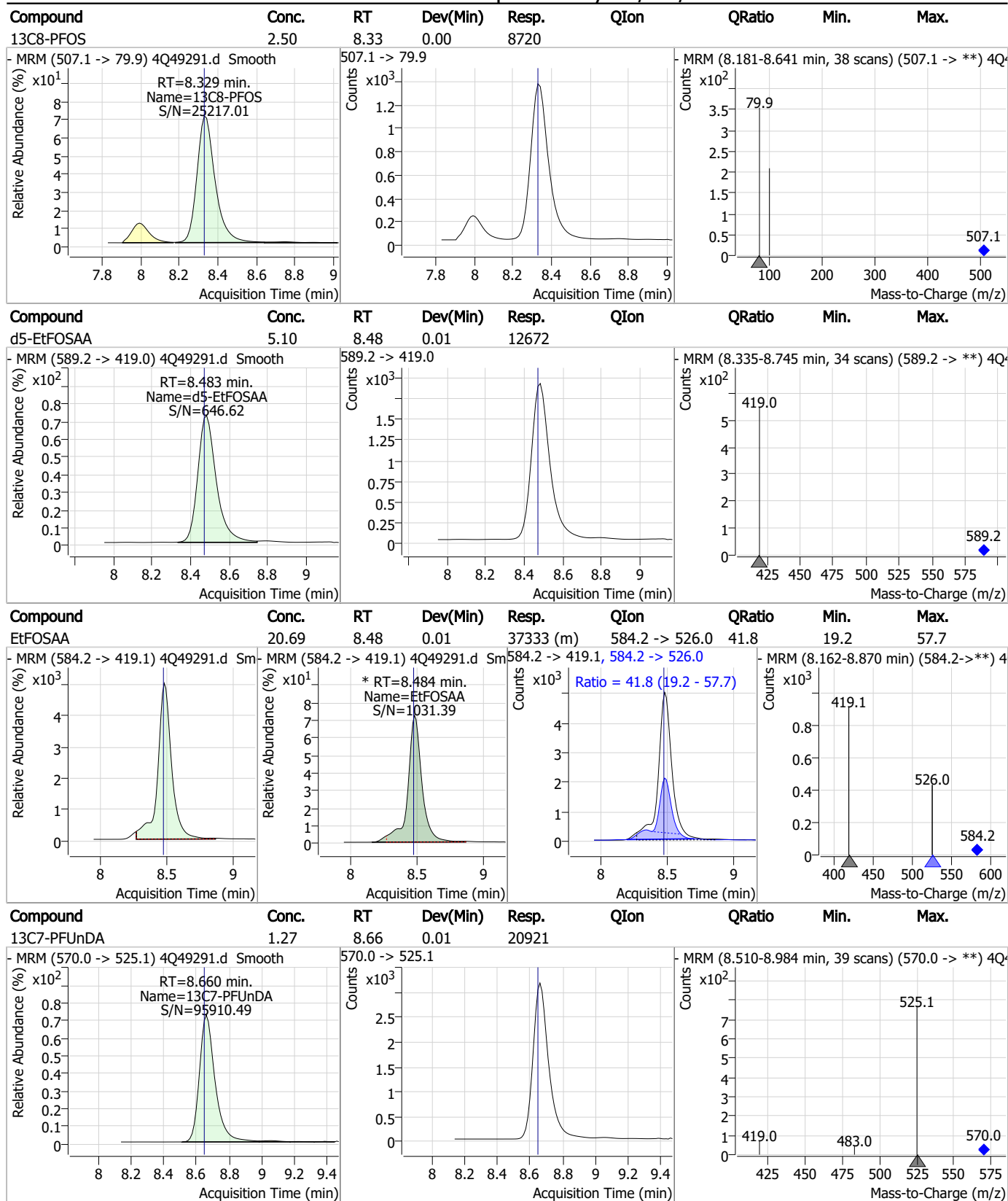
7.7.11  
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### Perfluorinated Compounds by LC/MS/MS



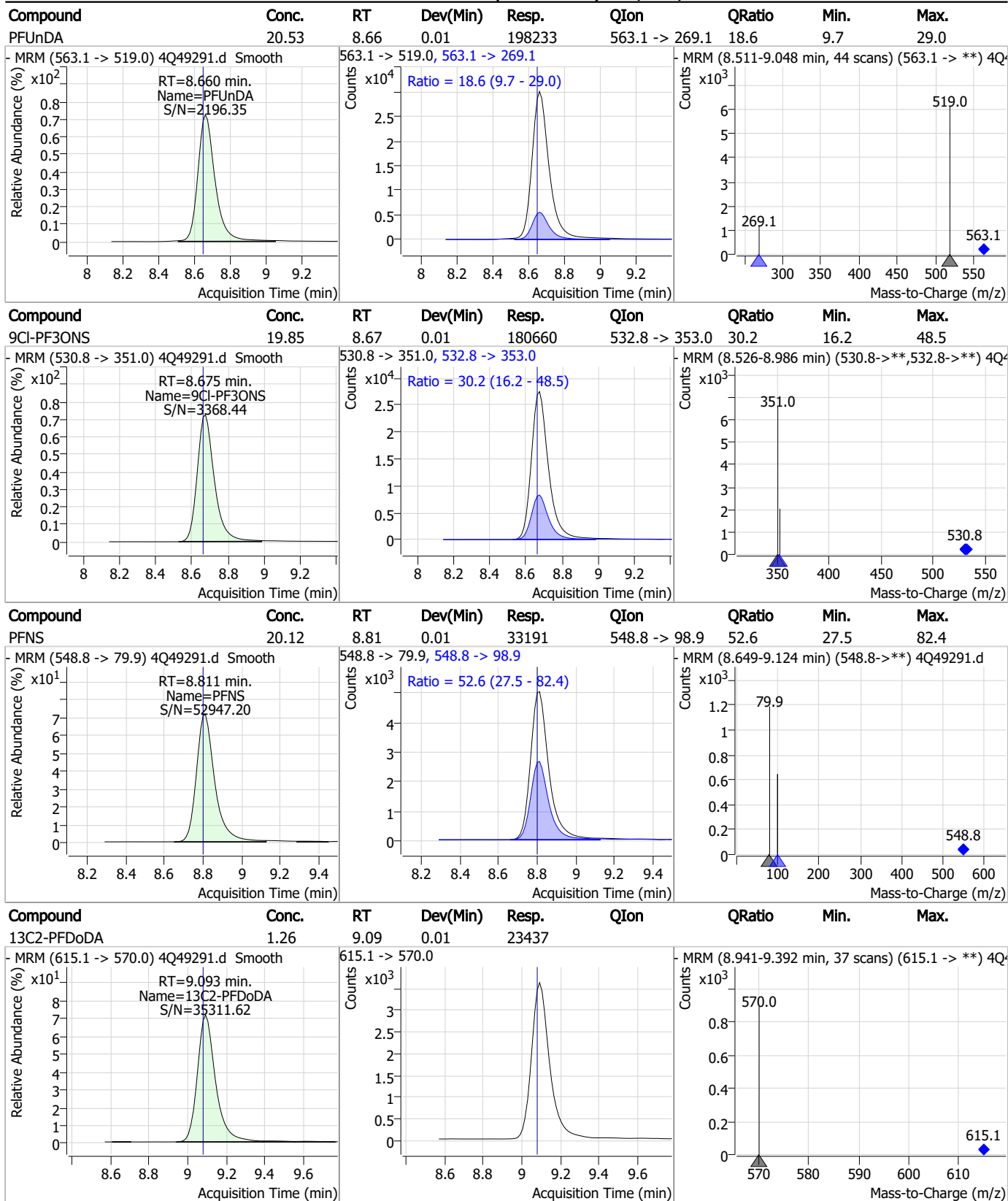
7.7.11  
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### Perfluorinated Compounds by LC/MS/MS



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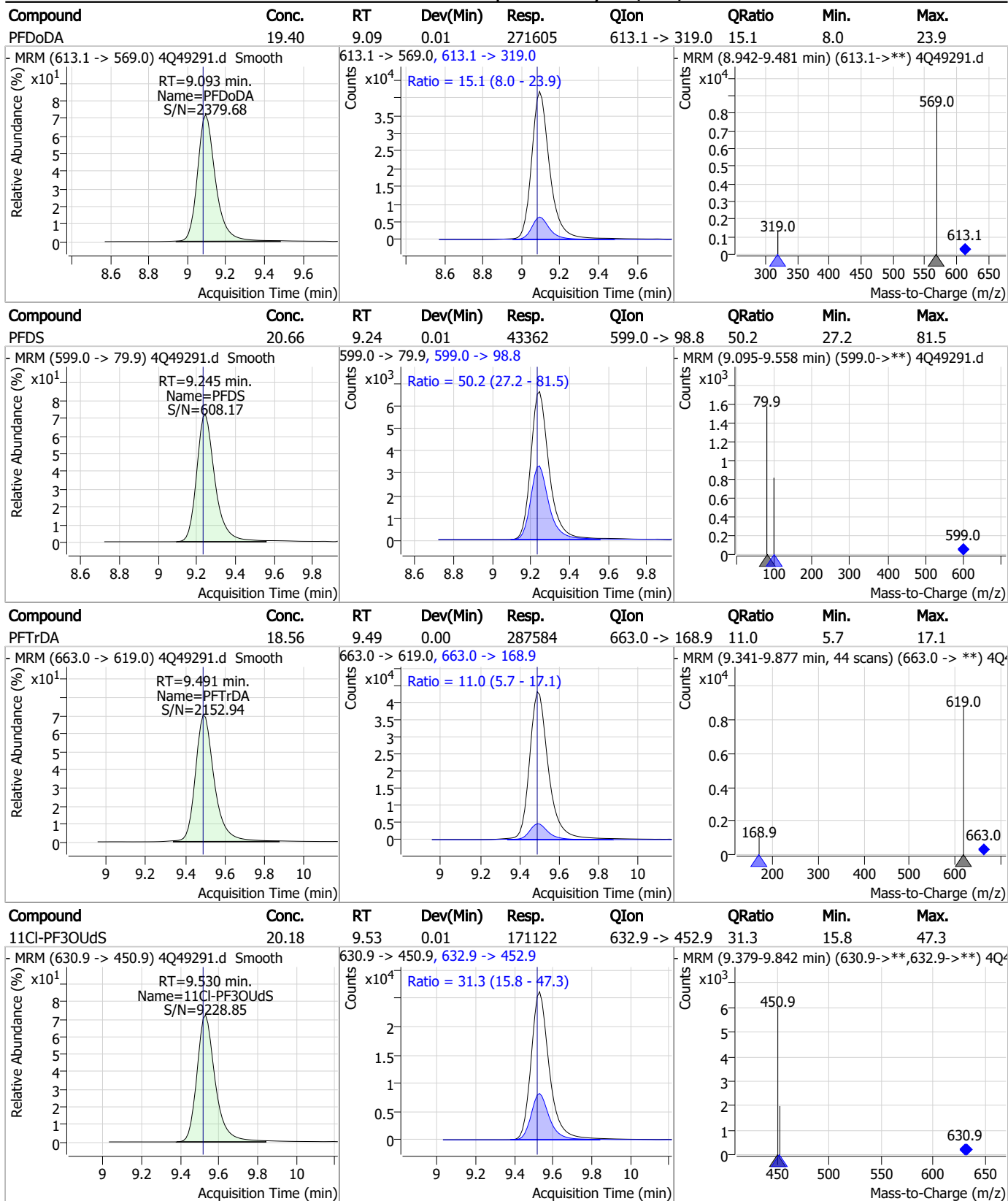
### Perfluorinated Compounds by LC/MS/MS



7.7.11

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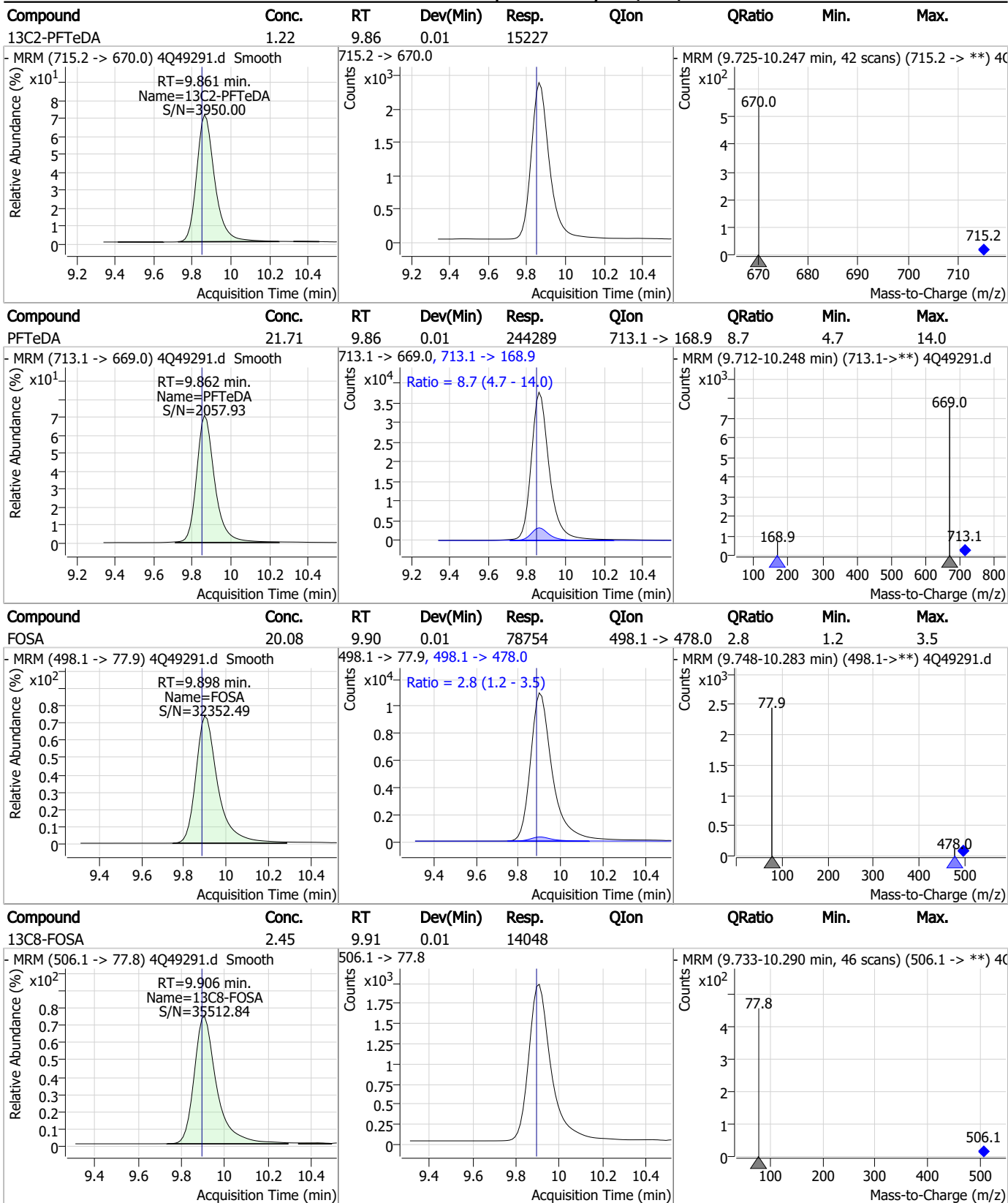
### Perfluorinated Compounds by LC/MS/MS



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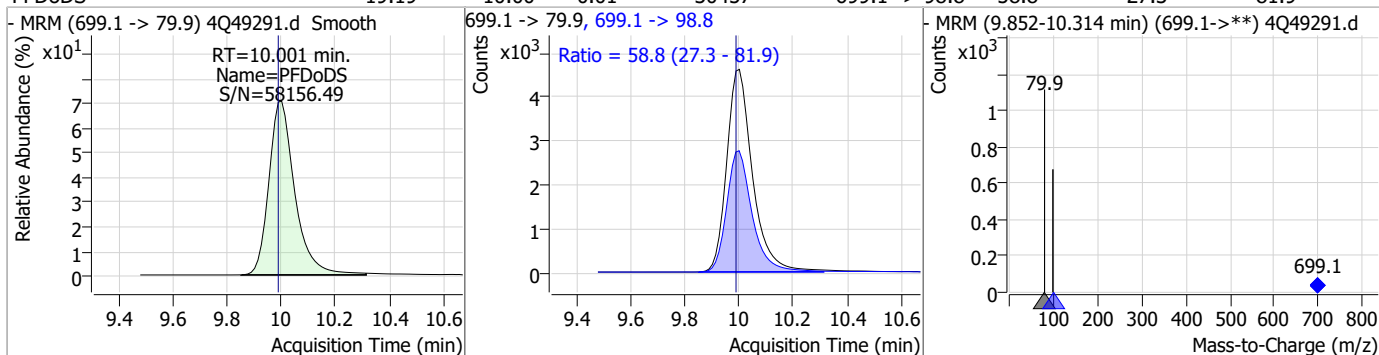
### Perfluorinated Compounds by LC/MS/MS



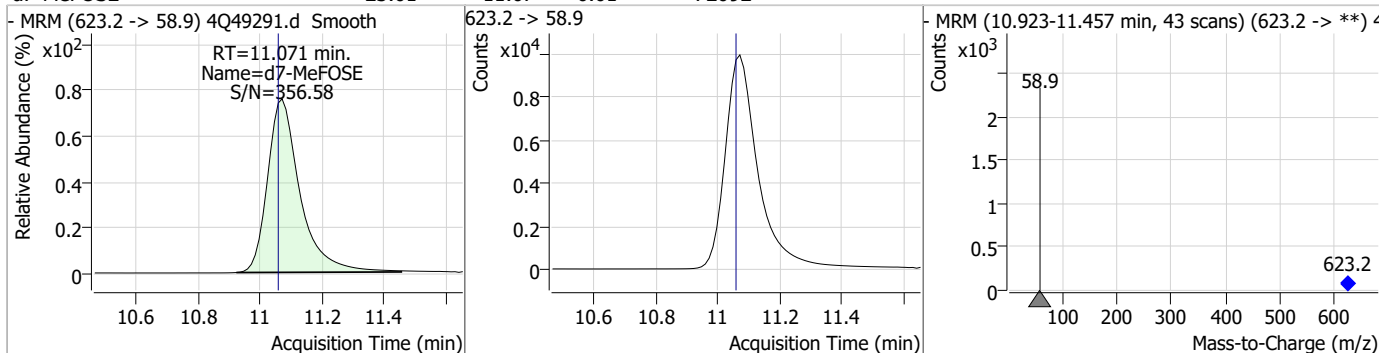
7.7.11  
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### Perfluorinated Compounds by LC/MS/MS

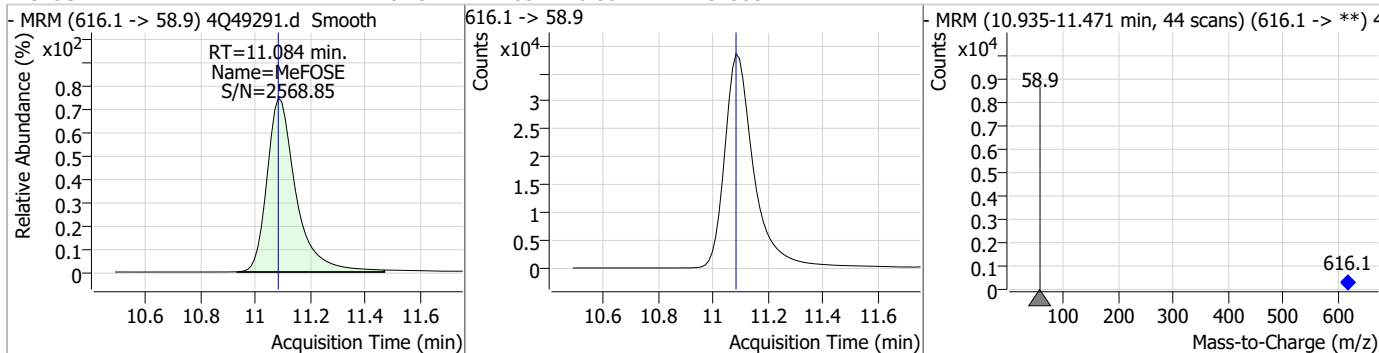
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	19.19	10.00	0.01	30457	699.1 -> 98.8	58.8	27.3	81.9



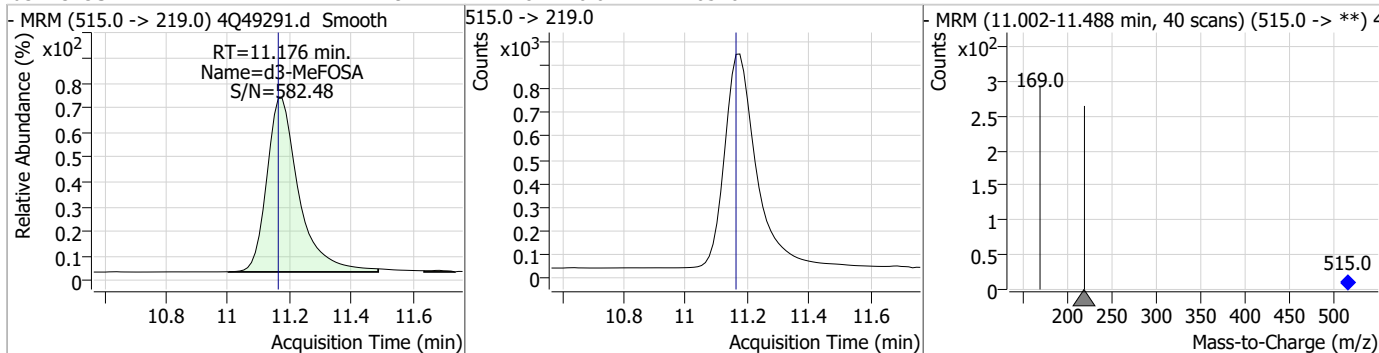
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.01	11.07	0.01	72092	623.2 -> 58.9			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	110.45	11.08	0.00	282568	616.1 -> 58.9			

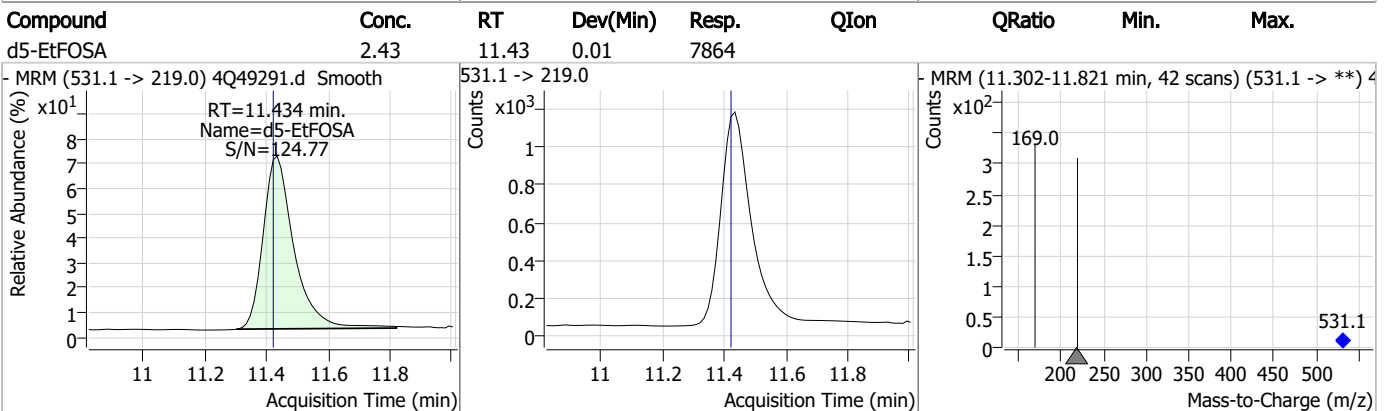
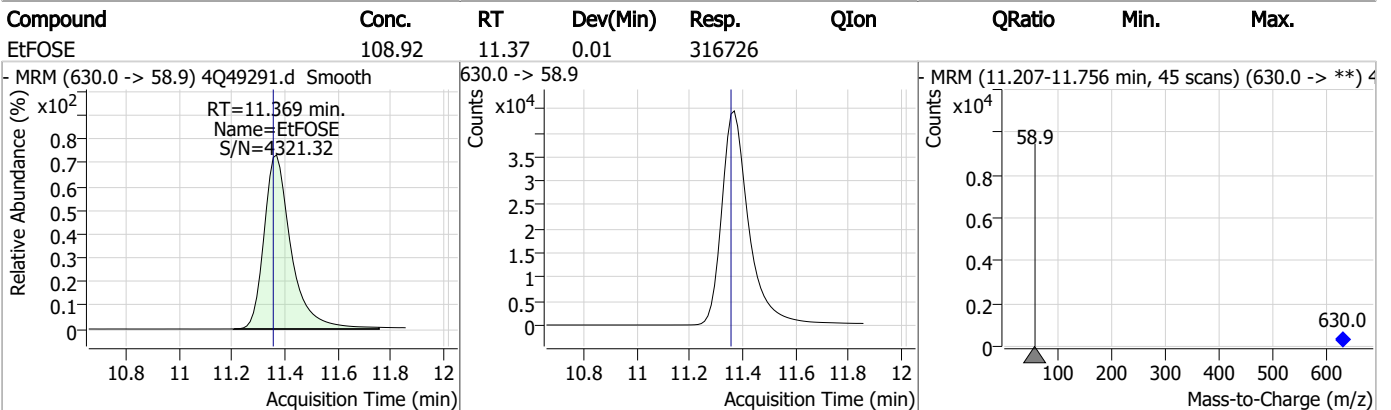
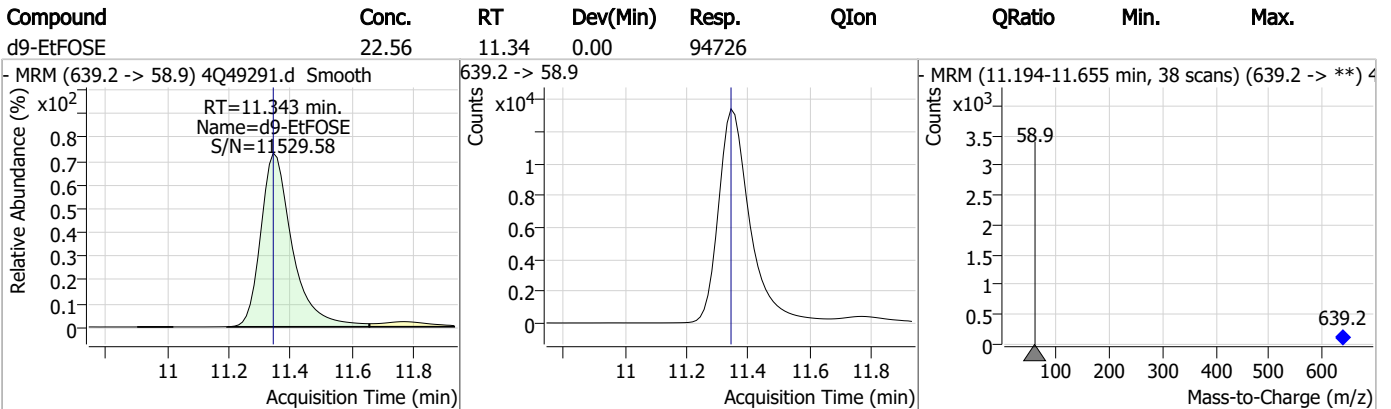
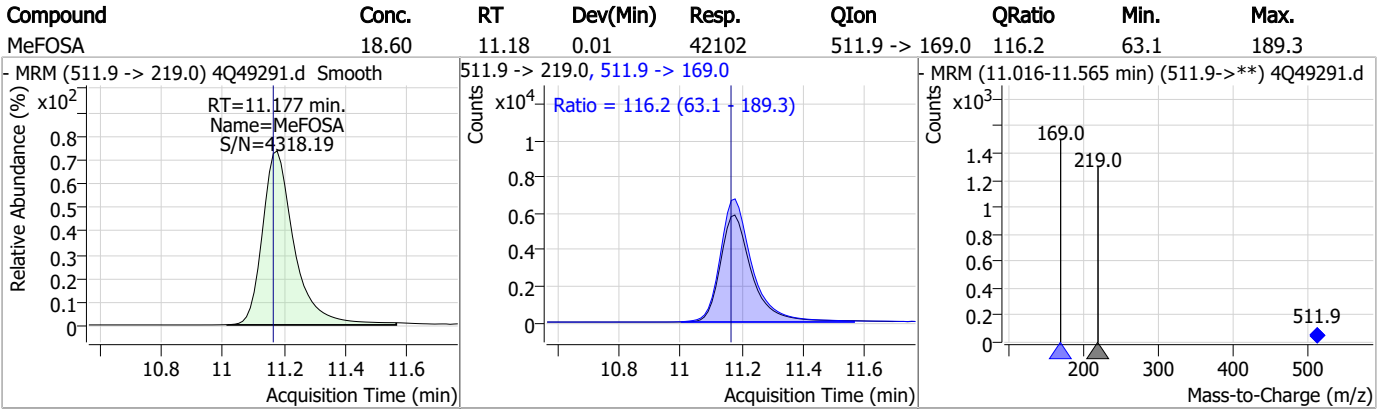


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.49	11.18	0.01	6526	515.0 -> 169.0			





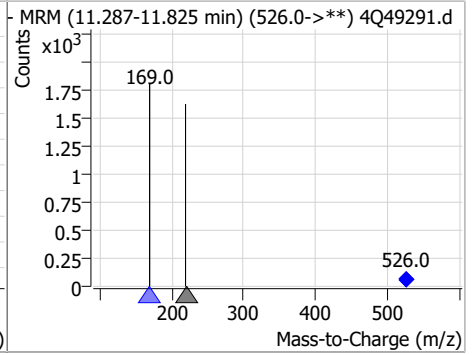
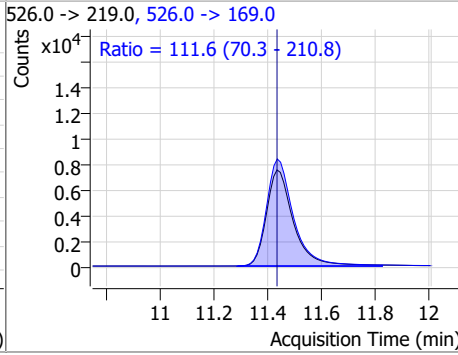
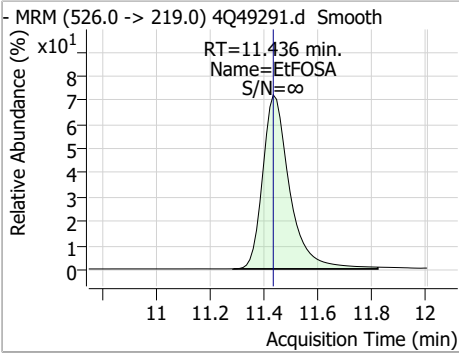
### Perfluorinated Compounds by LC/MS/MS



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

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	19.25	11.44	0.00	52128	526.0 -> 169.0	111.6	70.3	210.8



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# Manual Integration Approval Summary

Sample Number: S4Q722-ICV722      Method: EPA DRAFT 1633  
Lab FileID: 4Q49291.D      Analyst approved: 08/23/23 10:44 Martha Valls  
Injection Time: 08/22/23 13:17      Supervisor approved: 08/23/23 15:25 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.48	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q49340.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 8/23/2023 10:49:06 AM  
 Sample Name : cc722-4  
 Vial : P1-A5  
 DA Method File : 1633\_082223\_S4Q722.quantmethod.xml  
 Batch Name : s4q723.batch.bin  
 Sample Information : OP98456,S4Q723,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.811	216.8 -> 171.9	137099	10.00 µg/L	0.000
M5-PFPeA	4.312	268.3 -> 223.0	74610	5.00 µg/L	0.000
M5-PFHxA	5.510	318.0 -> 273.0	49280	2.50 µg/L	0.000
M4-PFHpA	6.467	367.1 -> 322.0	34976	2.50 µg/L	0.000
M8-PFOA	7.136	421.1 -> 376.0	55836	2.50 µg/L	-0.012
M9-PFNA	7.695	472.1 -> 427.0	20513	1.25 µg/L	0.000
M6-PFDA	8.191	519.1 -> 474.1	16226	1.25 µg/L	0.000
M7-PFUnDA	8.648	570.0 -> 525.1	22167	1.25 µg/L	0.000
M2-PFDoDA	9.080	615.1 -> 570.0	25002	1.25 µg/L	0.000
M2-PFTeDA	9.849	715.2 -> 670.0	17787	1.25 µg/L	0.000
M8-FOSA	9.894	506.1 -> 77.8	15458	2.50 µg/L	0.000
M3-PFBS	5.378	302.1 -> 79.9	13862	2.50 µg/L	-0.012
M3-PFHxS	7.216	402.1 -> 79.9	9867	2.50 µg/L	0.000
M8-PFOS	8.317	507.1 -> 79.9	8324	2.50 µg/L	-0.012
M2-4:2FTS	5.208	329.1 -> 80.9	1585	5.00 µg/L	0.000
M2-6:2FTS	6.911	429.1 -> 80.9	2314	5.00 µg/L	0.000
M2-8:2FTS	7.978	529.1 -> 80.9	3649	5.00 µg/L	-0.012
M3-MeFOSAA	8.261	573.2 -> 419.0	14615	5.00 µg/L	0.000
M3-HFPO-DA	5.877	286.9 -> 168.9	38290	10.00 µg/L	0.000
M5-EtFOSAA	8.471	589.2 -> 419.0	12281	5.00 µg/L	0.000
M7-MeFOSE	11.059	623.2 -> 58.9	85849	25.00 µg/L	0.000
M9-EtFOSE	11.343	639.2 -> 58.9	122168	25.00 µg/L	0.000
M5-EtFOSA	11.422	531.1 -> 219.0	8159	2.50 µg/L	0.000
M3-MeFOSA	11.163	515.0 -> 219.0	6289	2.50 µg/L	0.000
13C4-PFOS	8.318	502.8 -> 79.9	8266	2.50 µg/L	-0.012
13C3-PFBA	2.816	216.0 -> 172.0	79207	5.00 µg/L	0.013
18O2-PFHxS	7.215	403.0 -> 83.9	7384	2.50 µg/L	-0.012
13C4-PFOA	7.137	417.1 -> 372.0	64680	2.50 µg/L	-0.012
13C2-PFDA	8.192	515.1 -> 470.1	14487	1.25 µg/L	0.000
13C5-PFNA	7.696	468.0 -> 423.0	21410	1.25 µg/L	0.000
13C2-PFHxA	5.511	315.1 -> 270.0	47867	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.208	329.1 -> 80.9	1585	4.73 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.5%		
13C2-6:2FTS	6.911	429.1 -> 80.9	2314	4.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.2%		
13C2-8:2FTS	7.978	529.1 -> 80.9	3649	4.75 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.0%		
13C2-PFDoDA	9.080	615.1 -> 570.0	25002	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.6%		
13C2-PFTeDA	9.849	715.2 -> 670.0	17787	1.39 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 111.3%		
13C3-PFBS	5.378	302.1 -> 79.9	13862	2.43 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.2%		
13C3-PFHxS	7.216	402.1 -> 79.9	9867	2.38 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.0%		
13C4-PFBA	2.811	216.8 -> 171.9	137099	9.73 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 97.3%		
13C4-PFHpA	6.467	367.1 -> 322.0	34976	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C5-PFHxA	5.510	318.0 -> 273.0	49280	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C5-PFPeA	4.312	268.3 -> 223.0	74610	5.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C6-PFDA	8.191	519.1 -> 474.1	16226	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.9%		
13C7-PFUnDA	8.648	570.0 -> 525.1	22167	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.3%		
13C8-FOSA	9.894	506.1 -> 77.8	15458	2.78 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.0%		
13C8-PFOA	7.136	421.1 -> 376.0	55836	2.46 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C8-PFOS	8.317	507.1 -> 79.9	8324	2.45 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C9-PFNA	7.695	472.1 -> 427.0	20513	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.9%		
d3-MeFOSAA	8.261	573.2 -> 419.0	14615	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.1%		
13C3-HFPO-DA	5.877	286.9 -> 168.9	38290	9.91 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.1%		
d3-MeFOSA	11.163	515.0 -> 219.0	6289	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.8%		
d5-EtFOSAA	8.471	589.2 -> 419.0	12281	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.6%		
d7-MeFOSE	11.059	623.2 -> 58.9	85849	28.16 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 112.7%		
d9-EtFOSE	11.343	639.2 -> 58.9	122168	29.90 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 119.6%		
d5-EtFOSA	11.422	531.1 -> 219.0	8159	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.7%		
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.209	327.1 -> 307.0	16278	8.99 µg/L	99
		327.1 -> 80.9	7436		
6:2FTS	6.911	427.1 -> 407.0	15029	8.89 µg/L	100
		427.1 -> 80.9	6214		
8:2FTS	7.979	527.1 -> 507.0	12008	8.40 µg/L	95
		527.1 -> 80.8	6306		
EtFOSAA	8.471	584.2 -> 419.1	3891	2.23 µg/L	m 82
		584.2 -> 526.0	1917		
FOSA	9.885	498.1 -> 77.9	9174	2.13 µg/L	98
		498.1 -> 478.0	259		
MeFOSAA	8.262	570.1 -> 419.0	4368	2.09 µg/L	m 97
		570.1 -> 483.0	923		
PFBA	2.807	212.8 -> 168.9	26463	8.98 µg/L	100
PFBS	5.392	298.7 -> 79.9	7580	1.88 µg/L	96
		298.7 -> 98.8	2947		
PFDA	8.192	512.9 -> 469.0	19822	2.12 µg/L	97
		512.9 -> 219.0	4133		
PFDoDA	9.081	613.1 -> 569.0	34293	2.30 µg/L	98
		613.1 -> 319.0	5103		
PFDS	9.220	599.0 -> 79.9	4647	2.32 µg/L	96

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2390			
PFHpA	6.468	363.1 -> 319.0	36916	2.17	µg/L	97
		363.1 -> 169.0	7281			
PFHpS	7.810	449.0 -> 79.9	6843	2.41	µg/L	93
		449.0 -> 98.9	3239			
PFHxA	5.513	313.0 -> 269.0	32977	2.18	µg/L	99
		313.0 -> 118.9	1211			
PFHxS	7.217	398.7 -> 79.9	5823	2.09	µg/L	m 76
		398.7 -> 98.9	2903			
PFNA	7.696	463.0 -> 419.0	22378	2.16	µg/L	97
		463.0 -> 219.0	5563			
PFNS	8.786	548.8 -> 79.9	3521	2.24	µg/L	99
		548.8 -> 98.9	1920			
PFOA	7.138	413.0 -> 369.0	43825	2.08	µg/L	96
		413.0 -> 169.0	9097			
PFOS	8.318	498.9 -> 79.9	6127	1.98	µg/L	m 90
		498.9 -> 98.8	3421			
PFPeA	4.314	263.0 -> 219.0	57653	4.36	µg/L	100
PFPeS	6.482	349.1 -> 79.9	5326	2.14	µg/L	96
		349.1 -> 98.9	2302			
PFTeDA	9.849	713.1 -> 669.0	30075	2.29	µg/L	99
		713.1 -> 168.9	2682			
PFTrDA	9.478	663.0 -> 619.0	38675	2.34	µg/L	99
		663.0 -> 168.9	4253			
PFUnDA	8.648	563.1 -> 519.0	23840	2.33	µg/L	97
		563.1 -> 269.1	4248			
11CI-PF3OUdS	9.518	630.9 -> 450.9	38045	4.49	µg/L	99
		632.9 -> 452.9	11719			
9CI-PF3ONS	8.662	530.8 -> 351.0	37197	4.09	µg/L	91
		532.8 -> 353.0	10257			
ADONA	6.731	376.9 -> 250.9	117899	4.36	µg/L	99
		376.9 -> 84.8	35289			
HFPO-DA	5.878	284.9 -> 168.9	13022	4.21	µg/L	99
		284.9 -> 184.9	1634			
3:3FTCA	3.773	241.0 -> 177.0	7096	11.02	µg/L	100
		241.0 -> 117.0	759			
5:3FTCA	6.218	341.0 -> 237.1	120032	55.69	µg/L	99
		341.0 -> 217.0	88933			
7:3FTCA	7.723	441.0 -> 316.9	51509	54.41	µg/L	97
		441.0 -> 336.9	119788			
EtFOSA	11.424	526.0 -> 219.0	13285	4.73	µg/L	99
		526.0 -> 169.0	18456			
EtFOSE	11.357	630.0 -> 58.9	41137	10.97	µg/L	100
MeFOSA	11.165	511.9 -> 219.0	10519	4.82	µg/L	m 82
		511.9 -> 169.0	15436			
MeFOSE	11.072	616.1 -> 58.9	31923	10.48	µg/L	m 100
PFDoDS	9.976	699.1 -> 79.9	3982	2.63	µg/L	97
		699.1 -> 98.8	2250			
NFDHA	5.392	295.0 -> 201.0	5484	4.59	µg/L	96
		295.0 -> 84.9	1612			
PFMBA	4.728	279.0 -> 85.1	34374	4.41	µg/L	100
PFMPA	3.440	229.0 -> 84.9	37610	4.40	µg/L	100
PFEESA	5.921	314.8 -> 134.9	53941	4.10	µg/L	99
		314.8 -> 82.9	1788			

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

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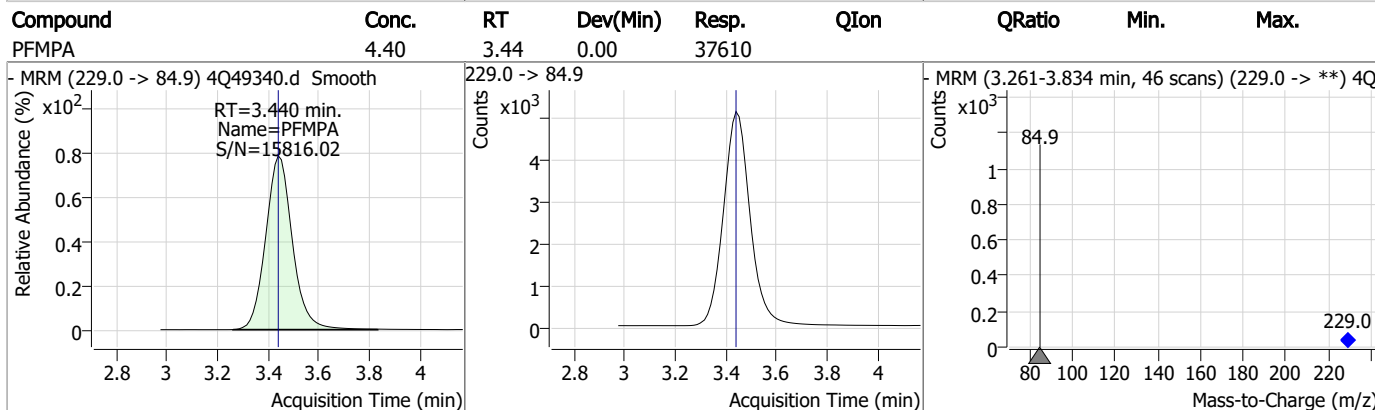
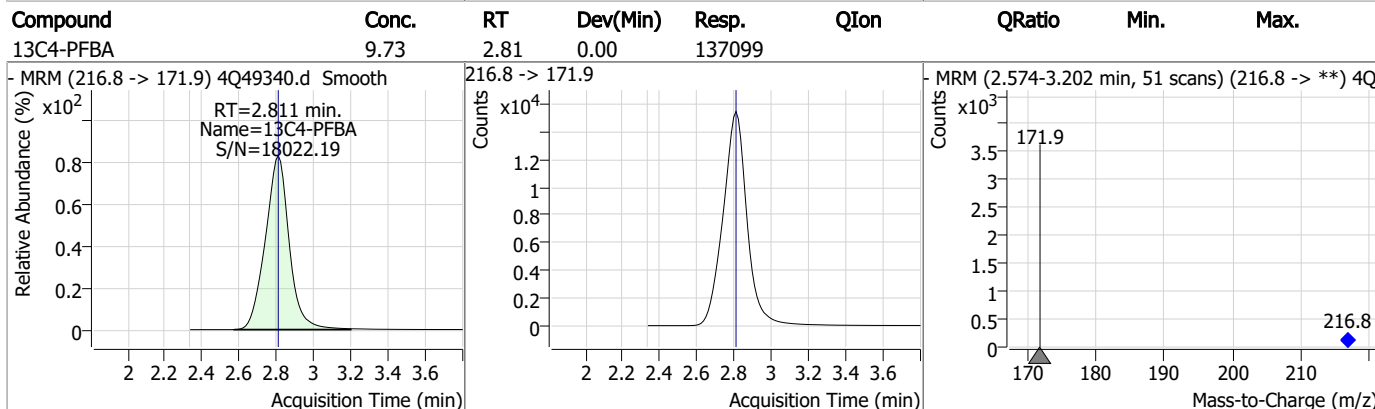
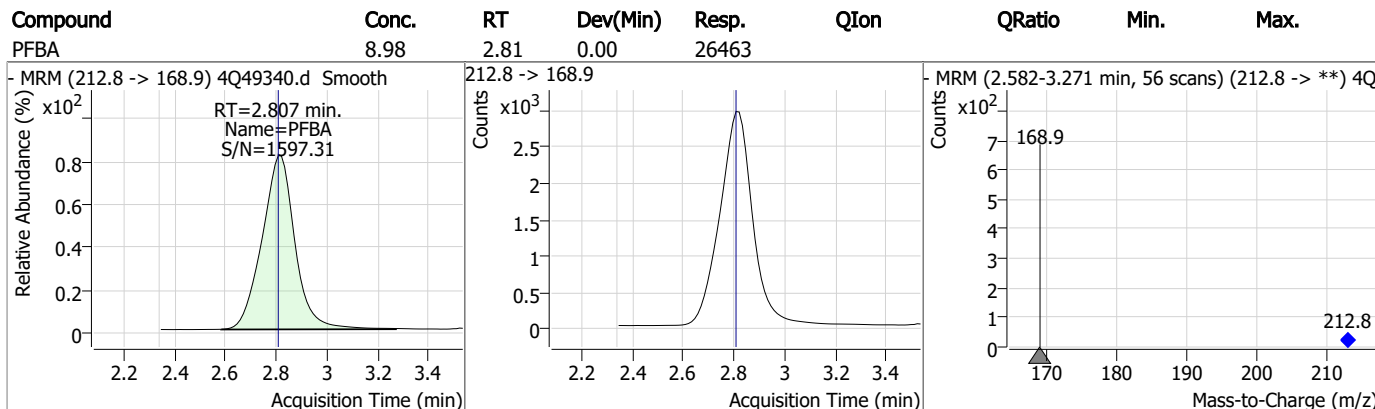
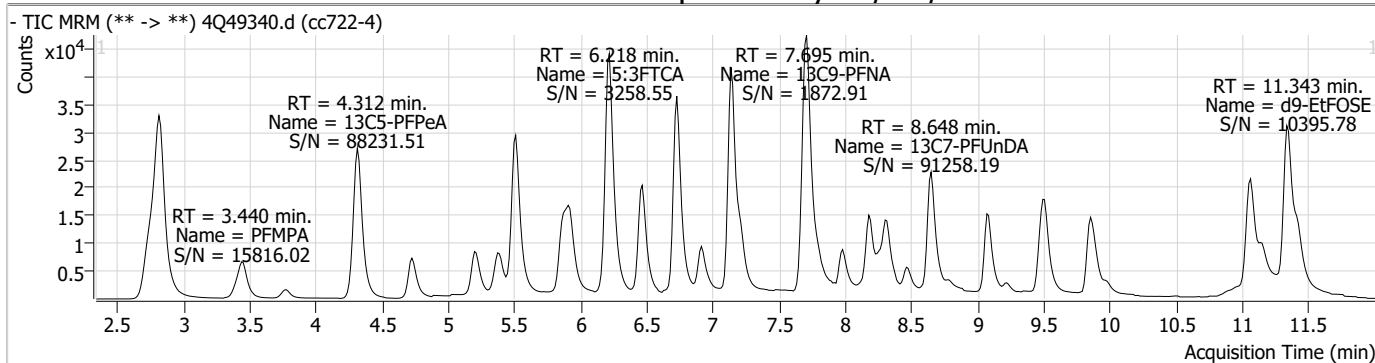
### Perfluorinated Compounds by LC/MS/MS

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

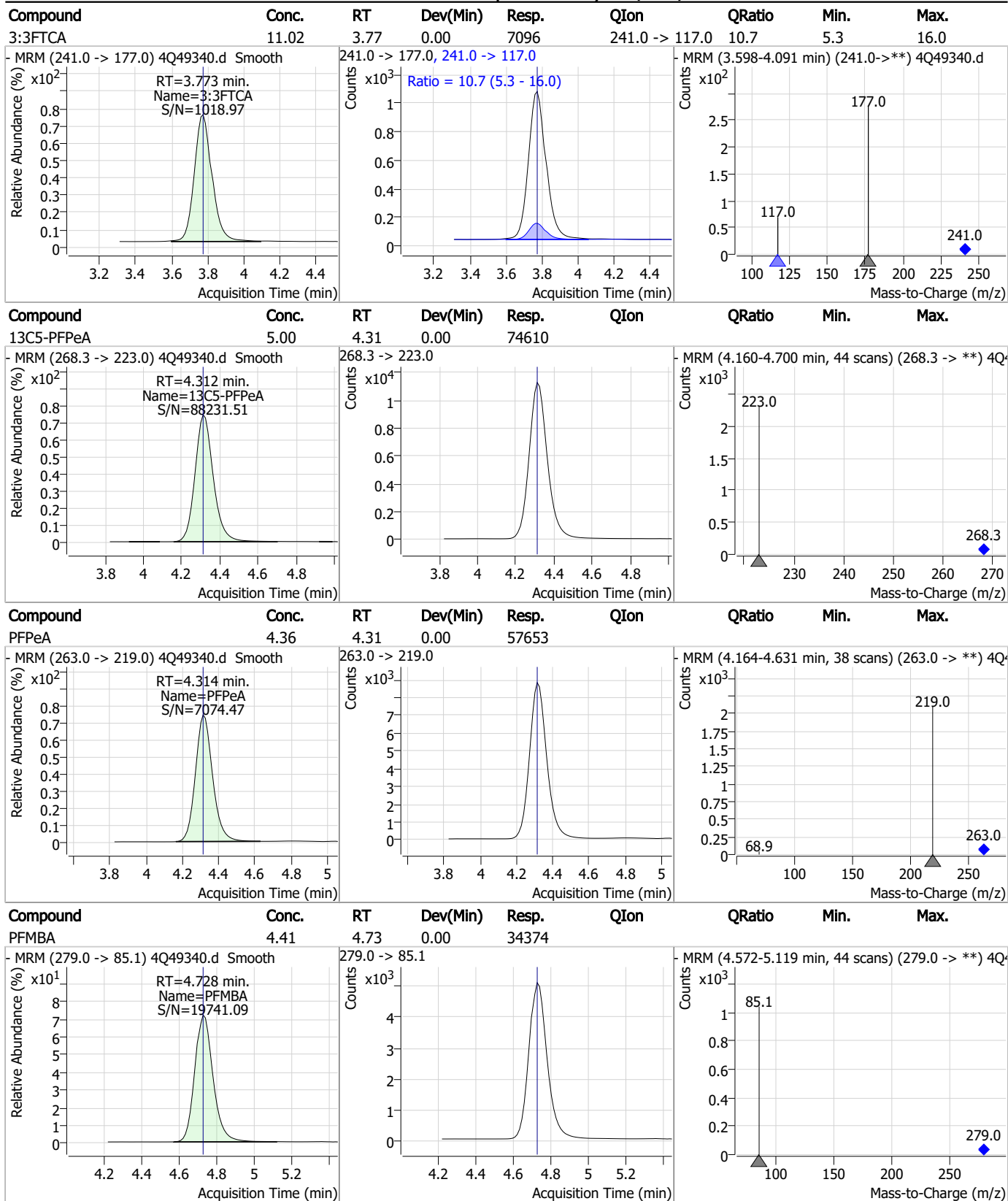
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### Perfluorinated Compounds by LC/MS/MS



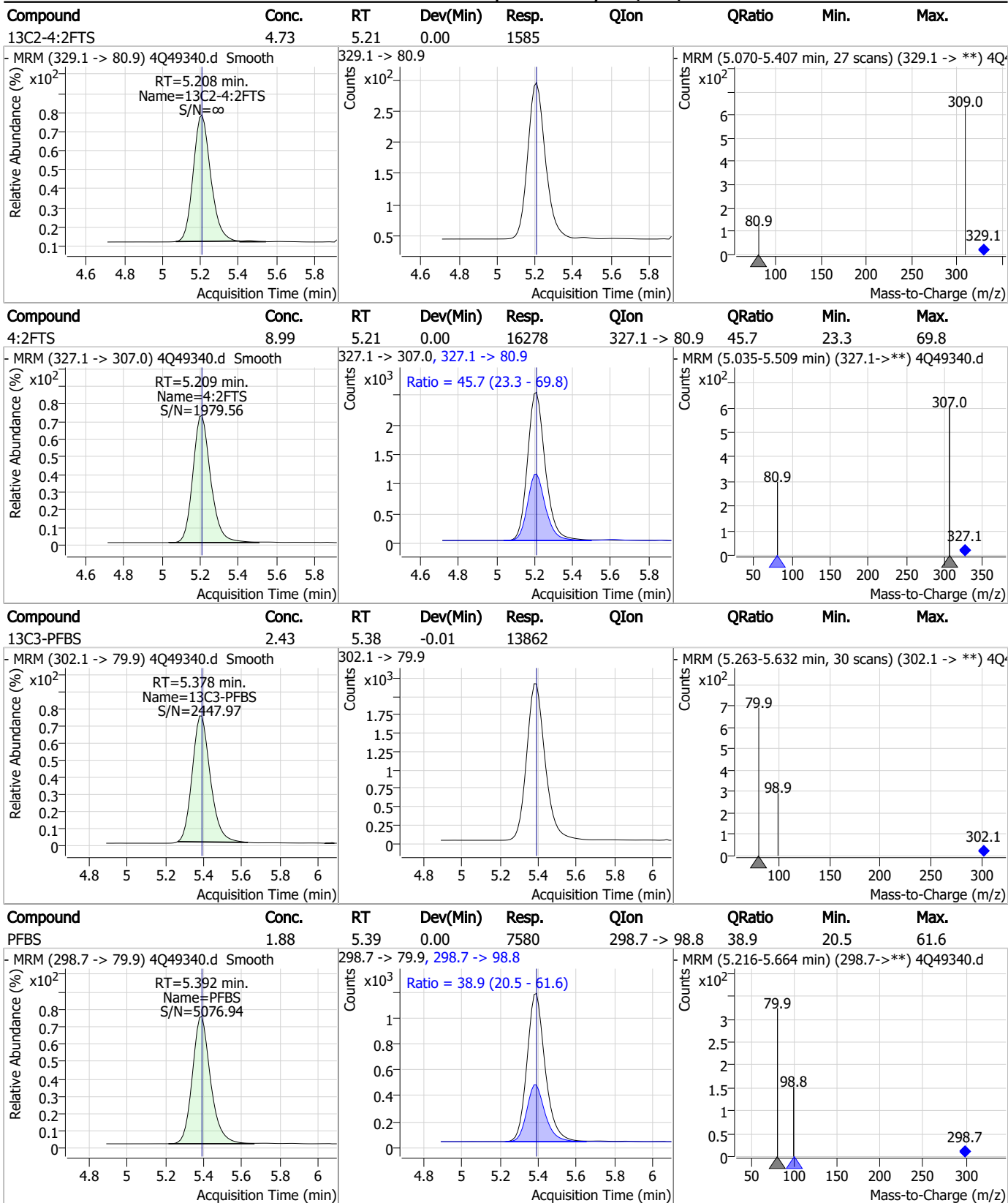


### Perfluorinated Compounds by LC/MS/MS



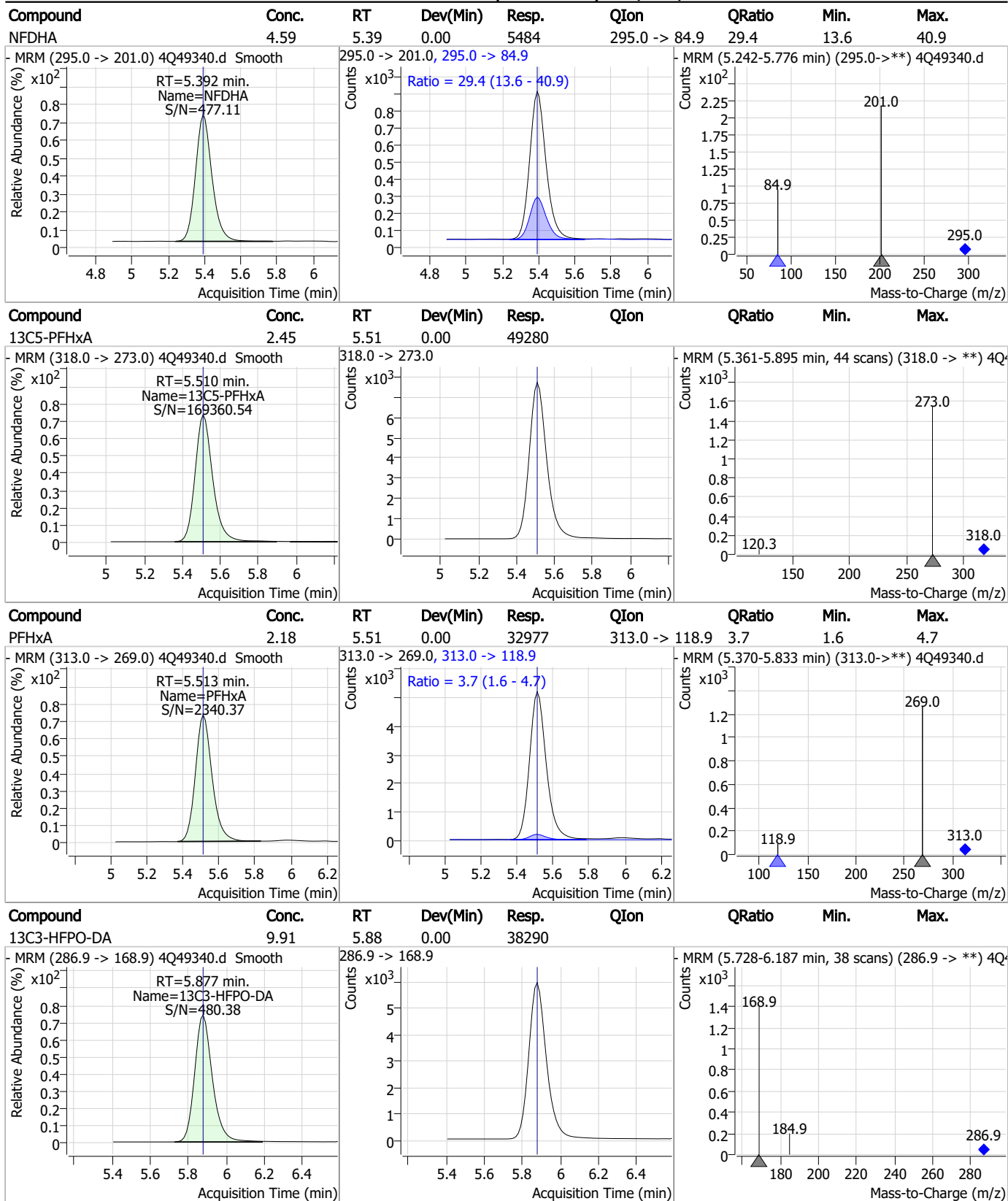
7.7.12  
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### Perfluorinated Compounds by LC/MS/MS



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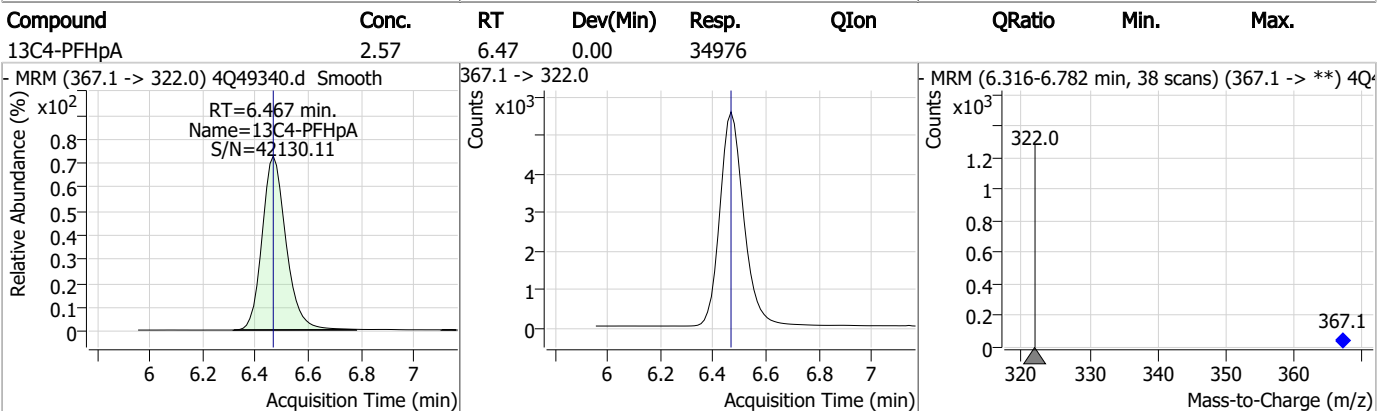
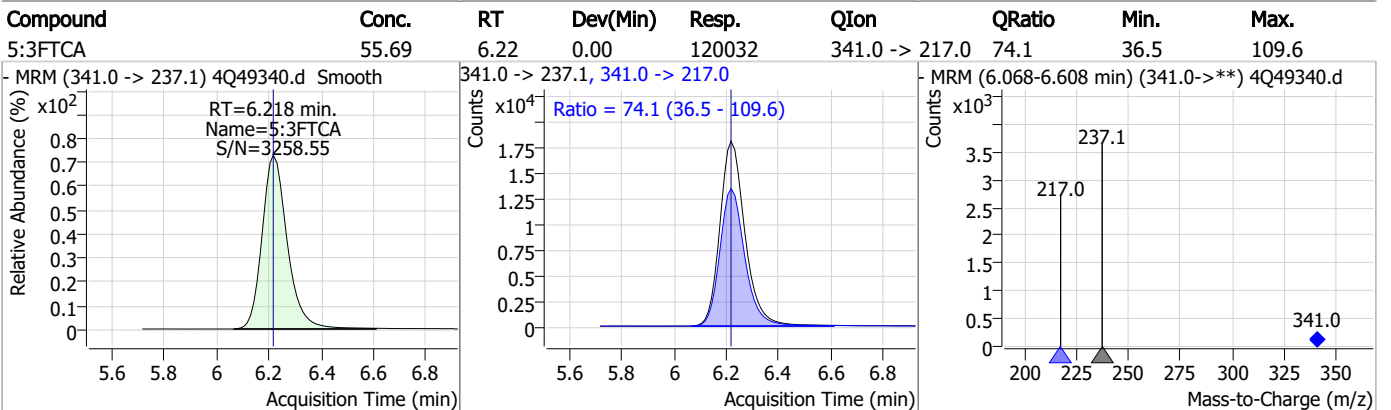
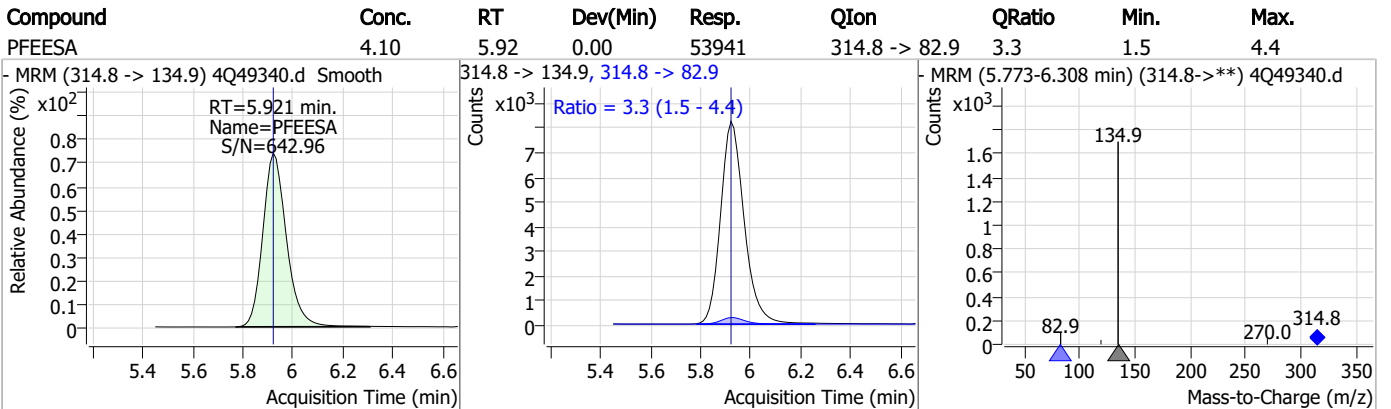
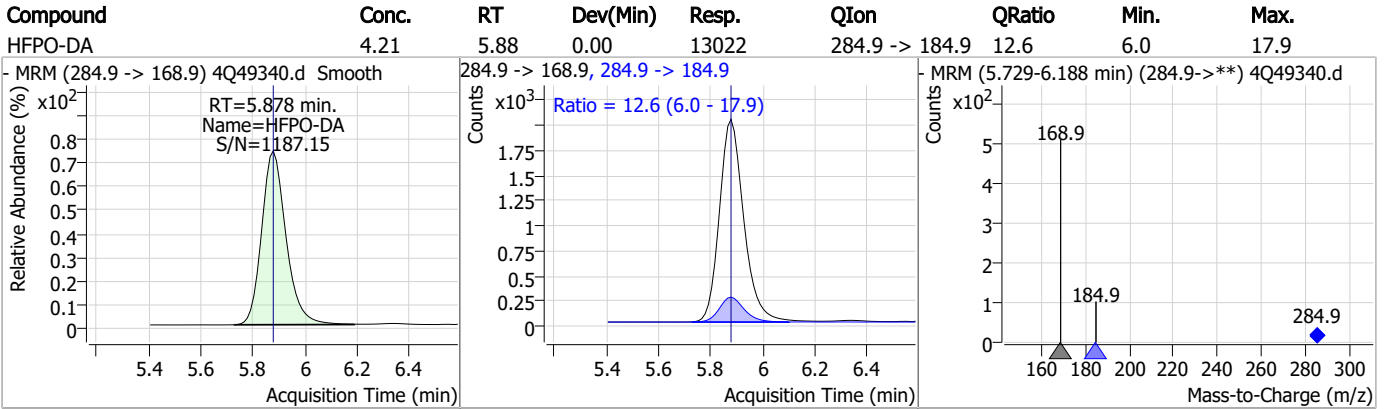
### Perfluorinated Compounds by LC/MS/MS



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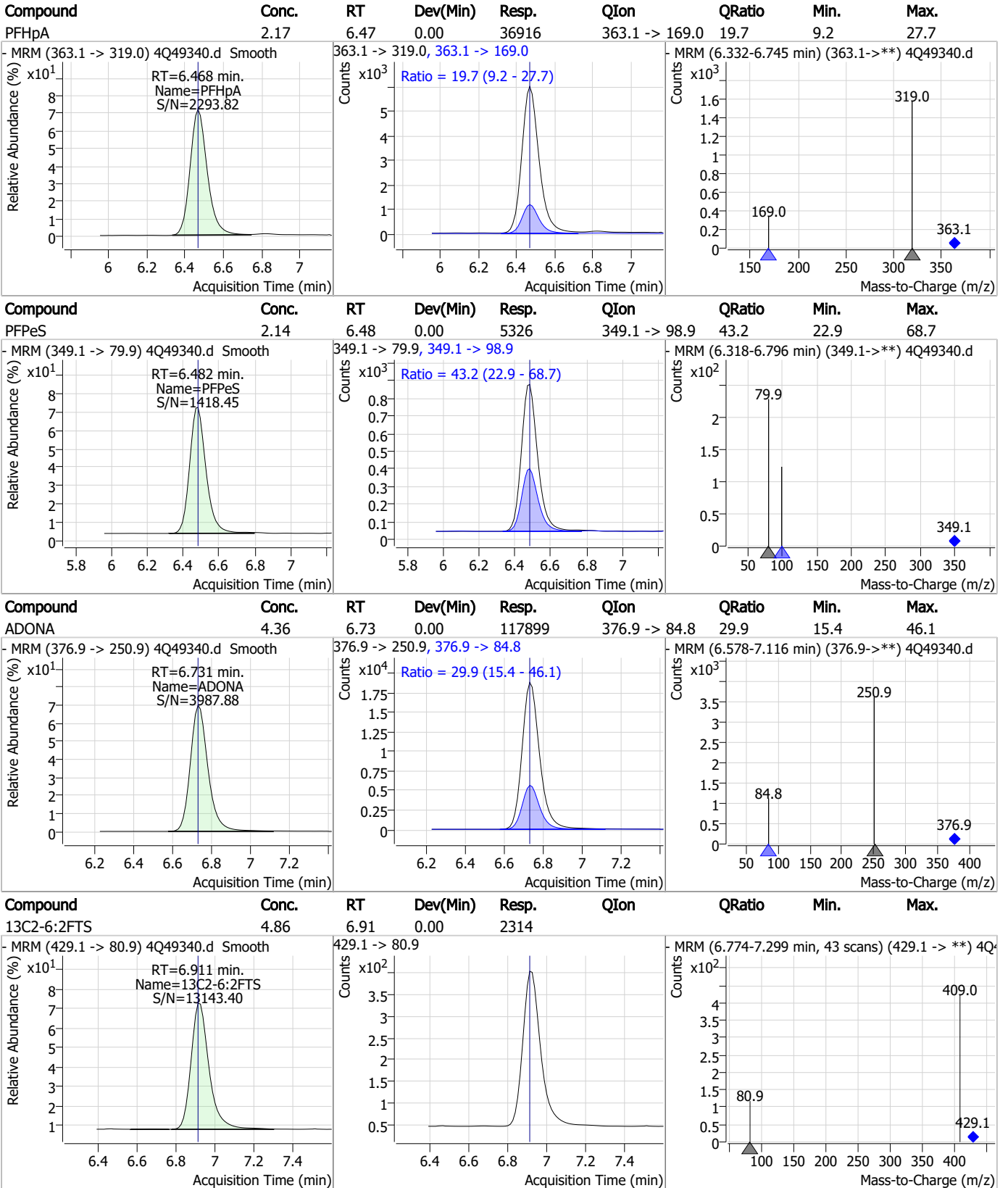
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### Perfluorinated Compounds by LC/MS/MS



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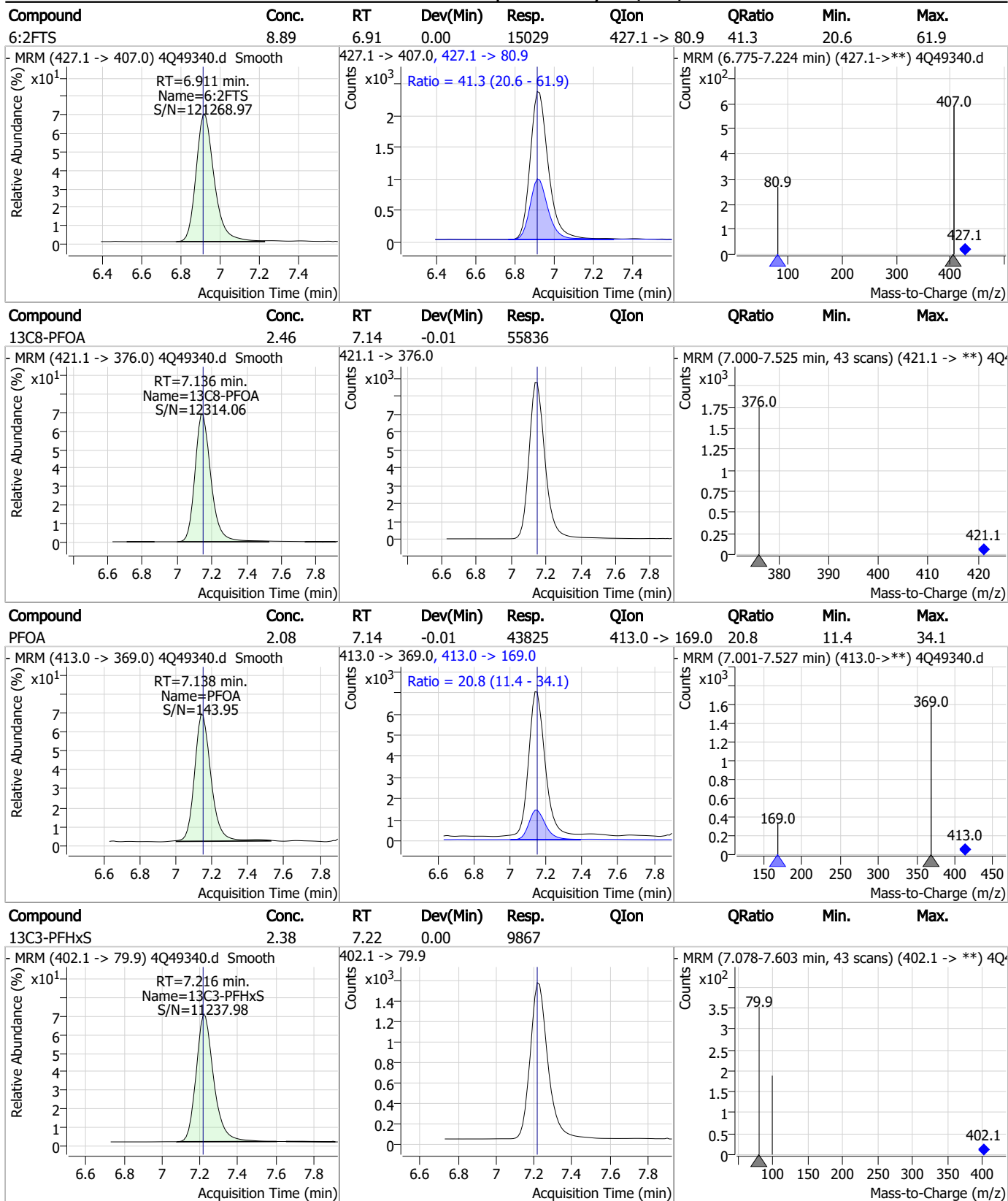
### Perfluorinated Compounds by LC/MS/MS



7.7.12  
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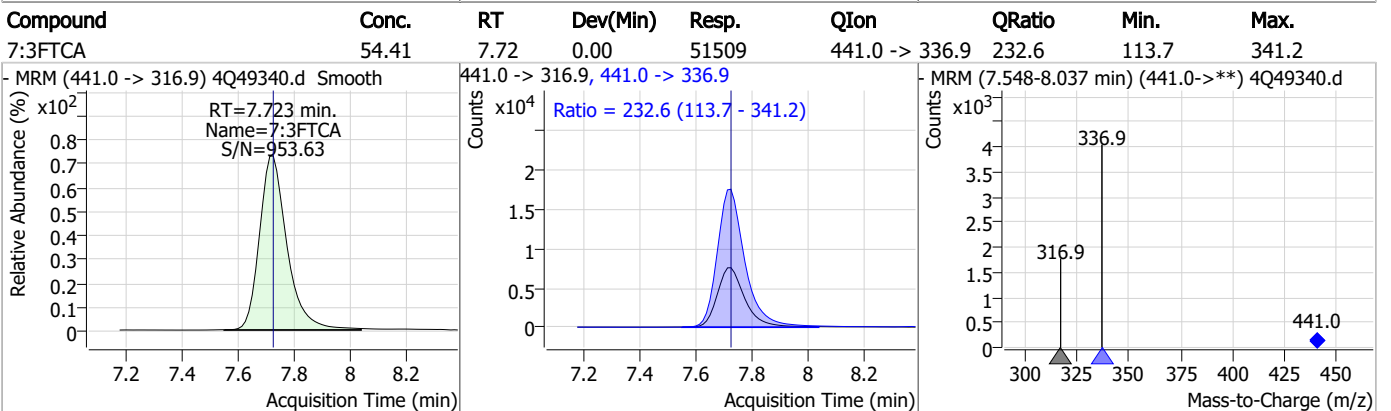
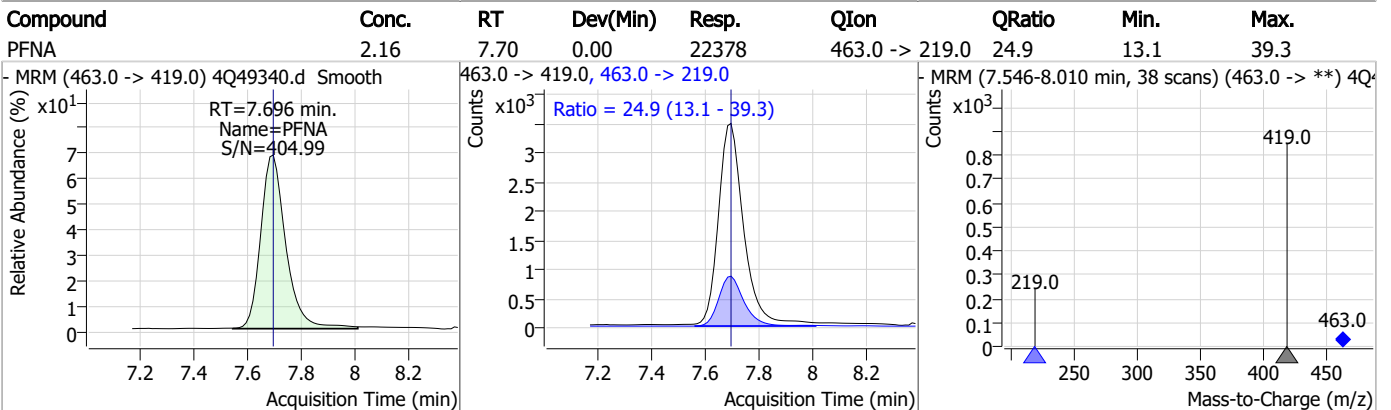
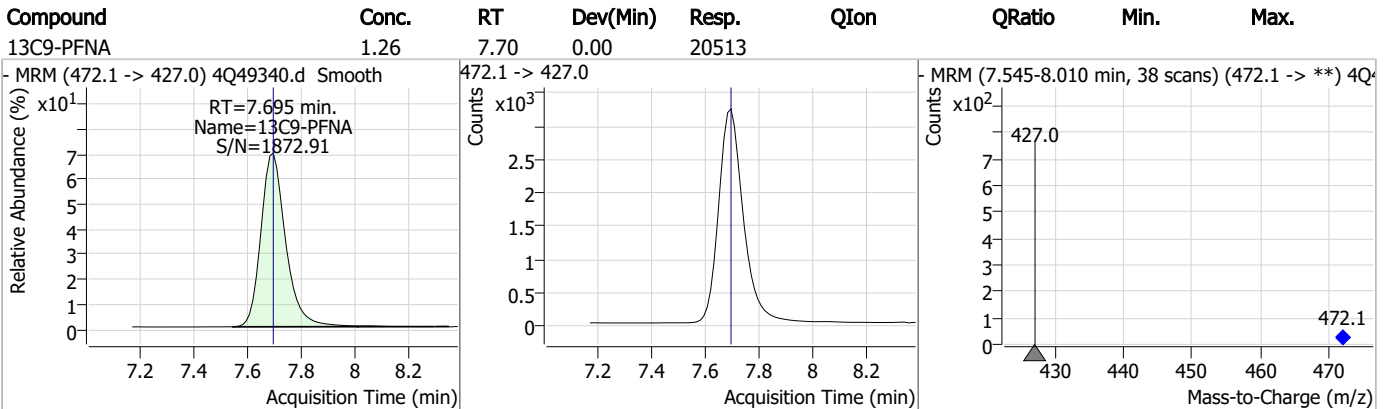
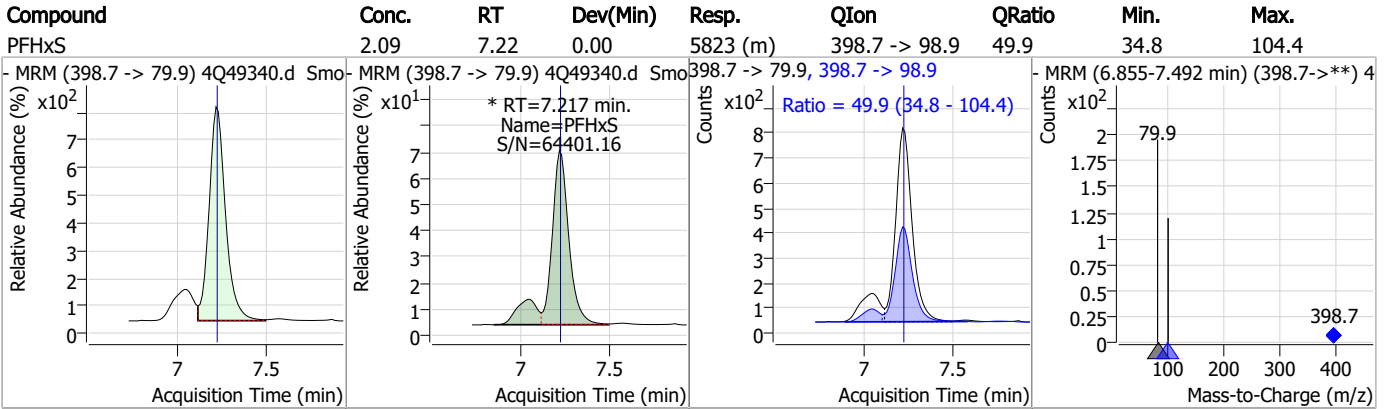


### Perfluorinated Compounds by LC/MS/MS

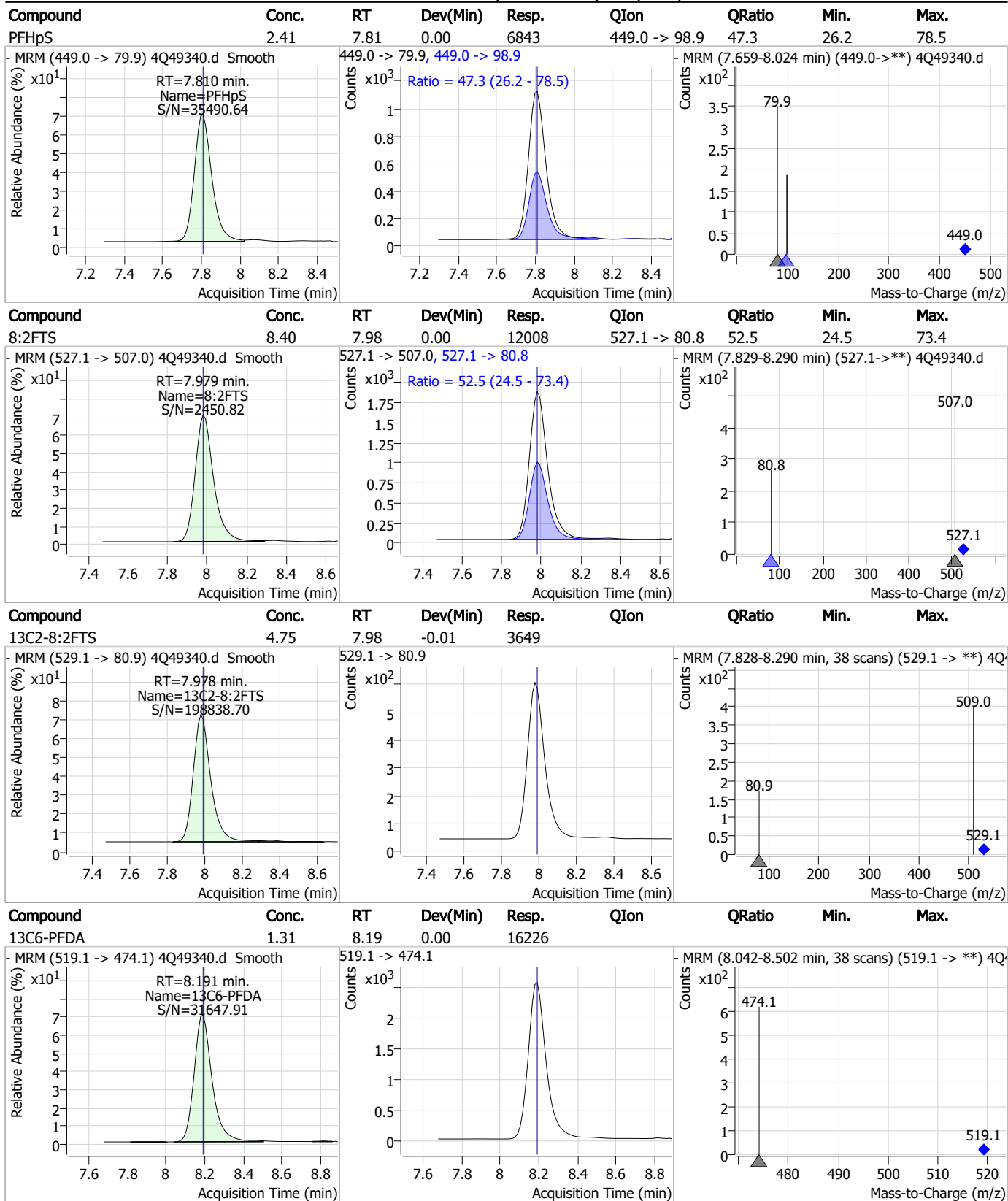


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### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

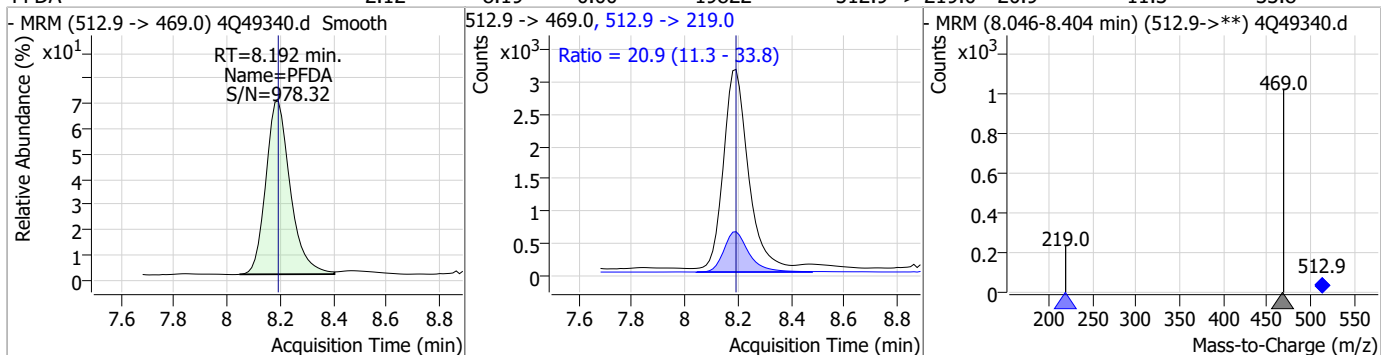


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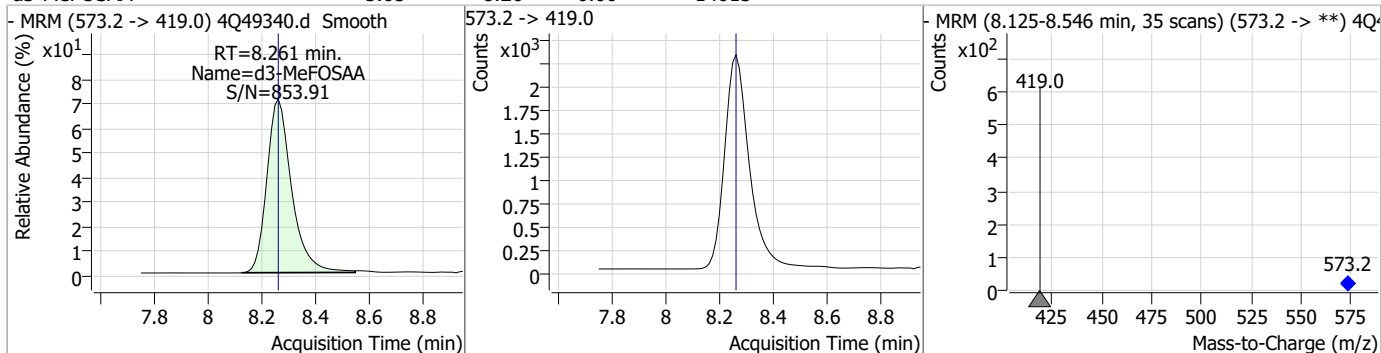


### Perfluorinated Compounds by LC/MS/MS

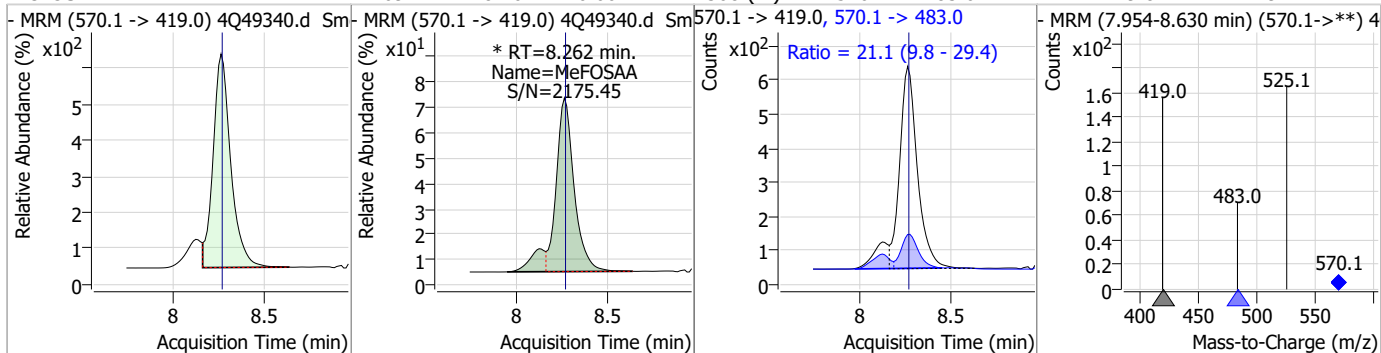
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.12	8.19	0.00	19822	512.9 -> 219.0	20.9	11.3	33.8



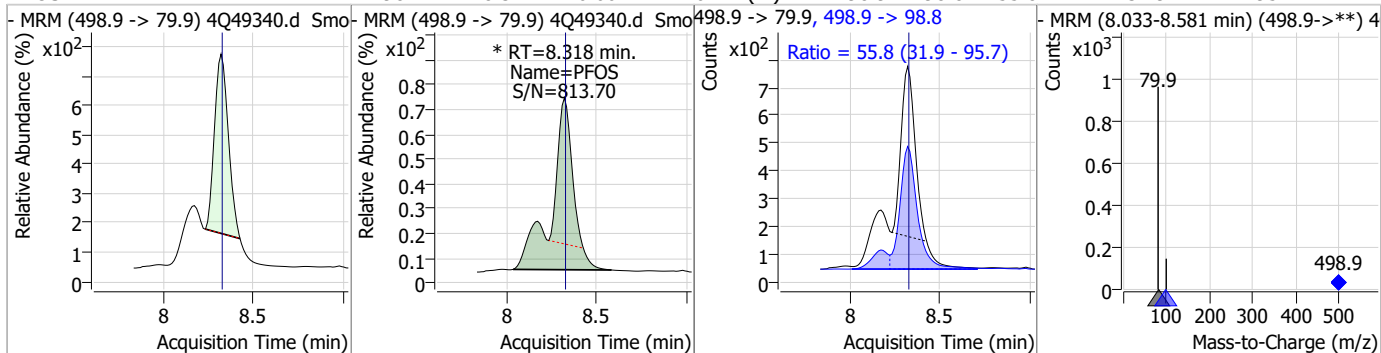
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.05	8.26	0.00	14615				



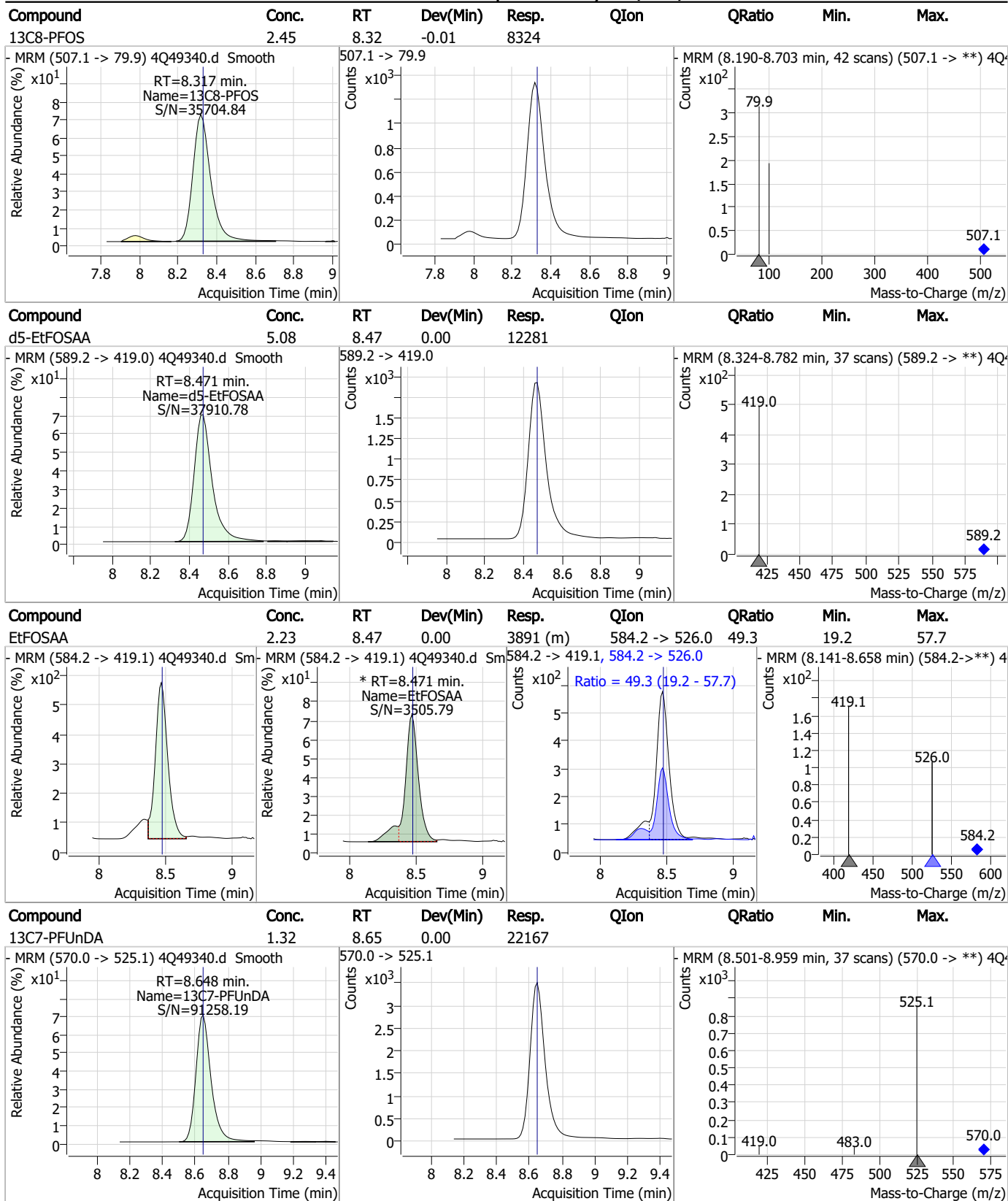
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.09	8.26	0.00	4368 (m)	570.1 -> 483.0	21.1	9.8	29.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.98	8.32	0.00	6127 (m)	498.9 -> 98.8	55.8	31.9	95.7

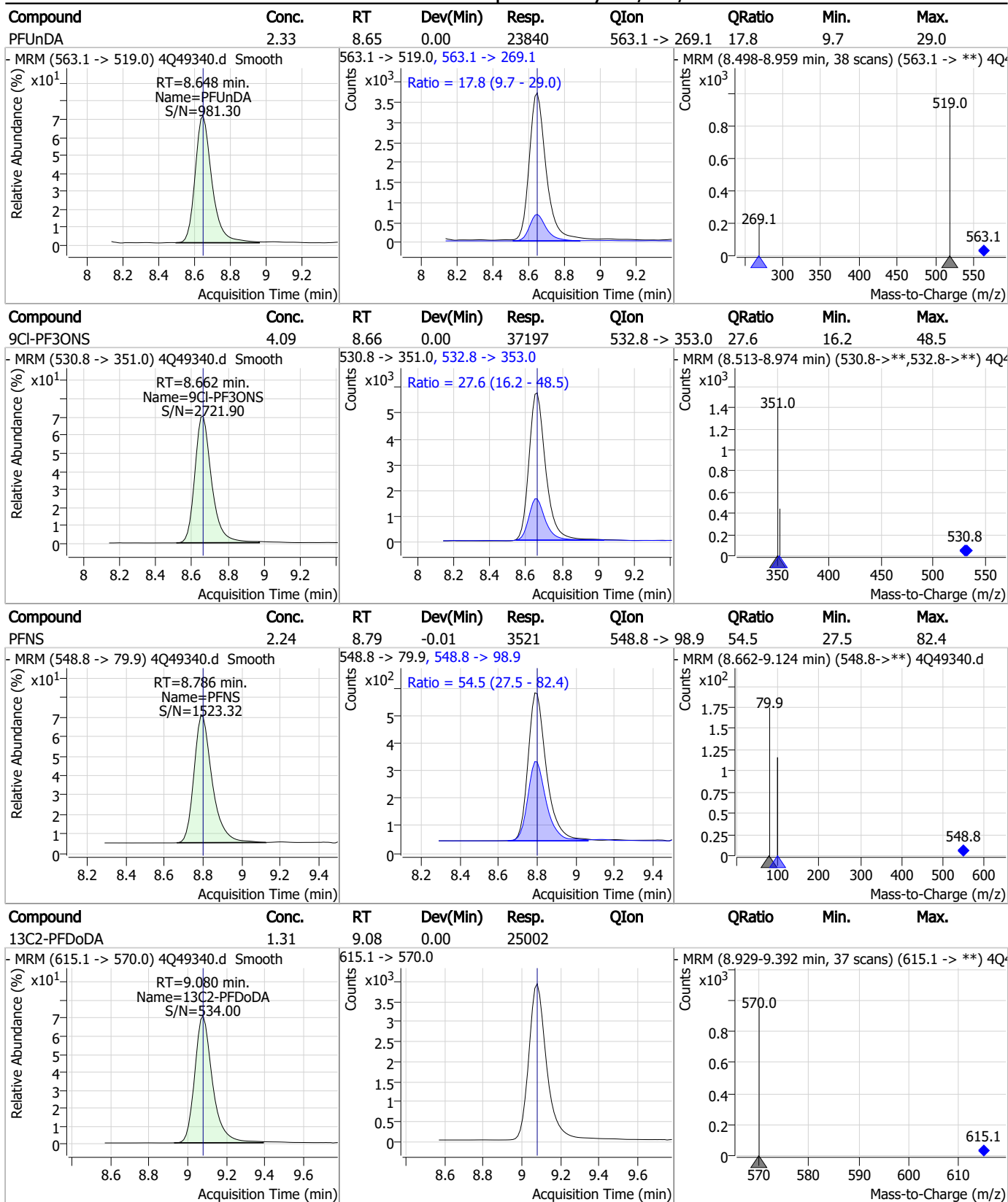


### Perfluorinated Compounds by LC/MS/MS



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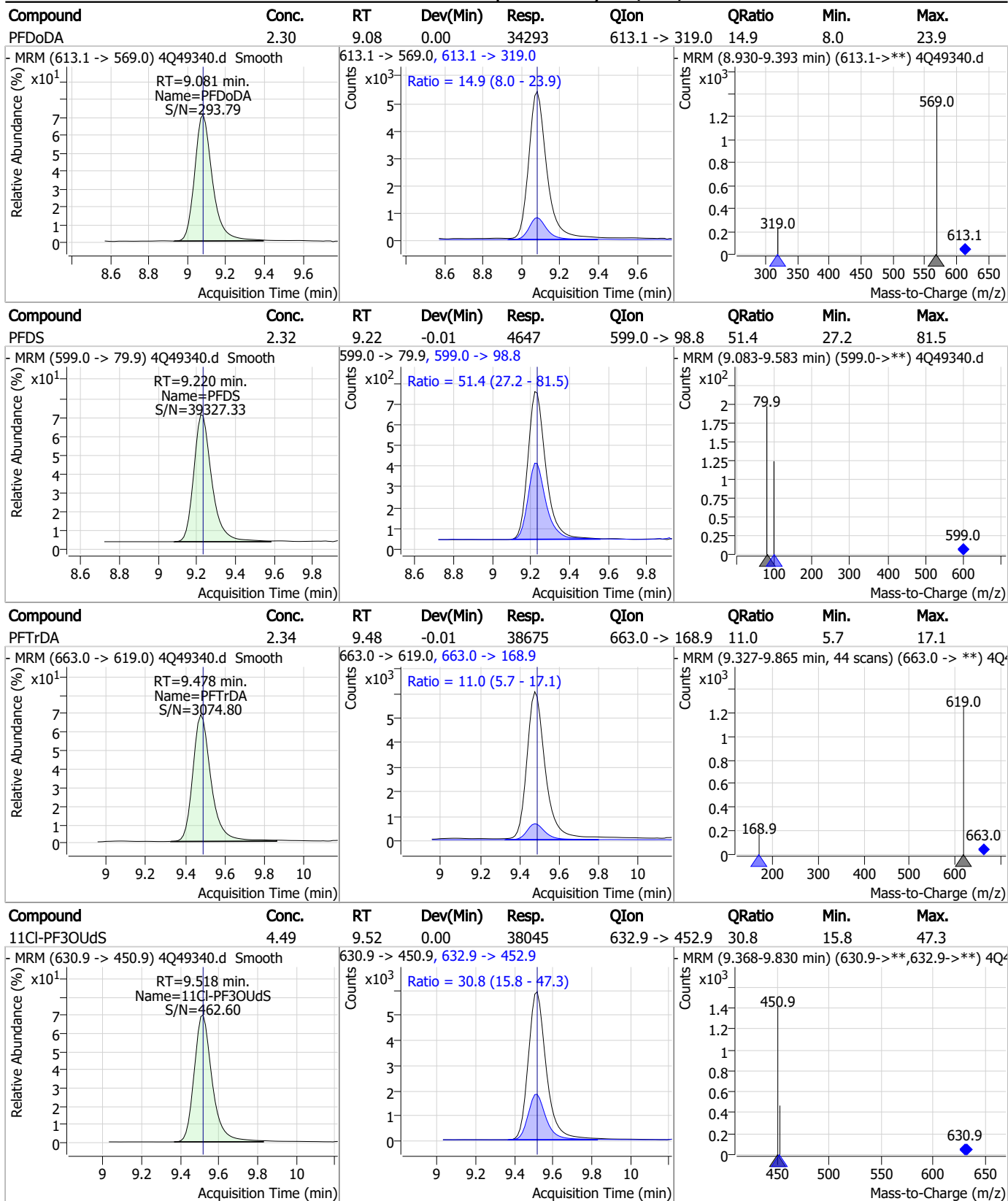
### Perfluorinated Compounds by LC/MS/MS



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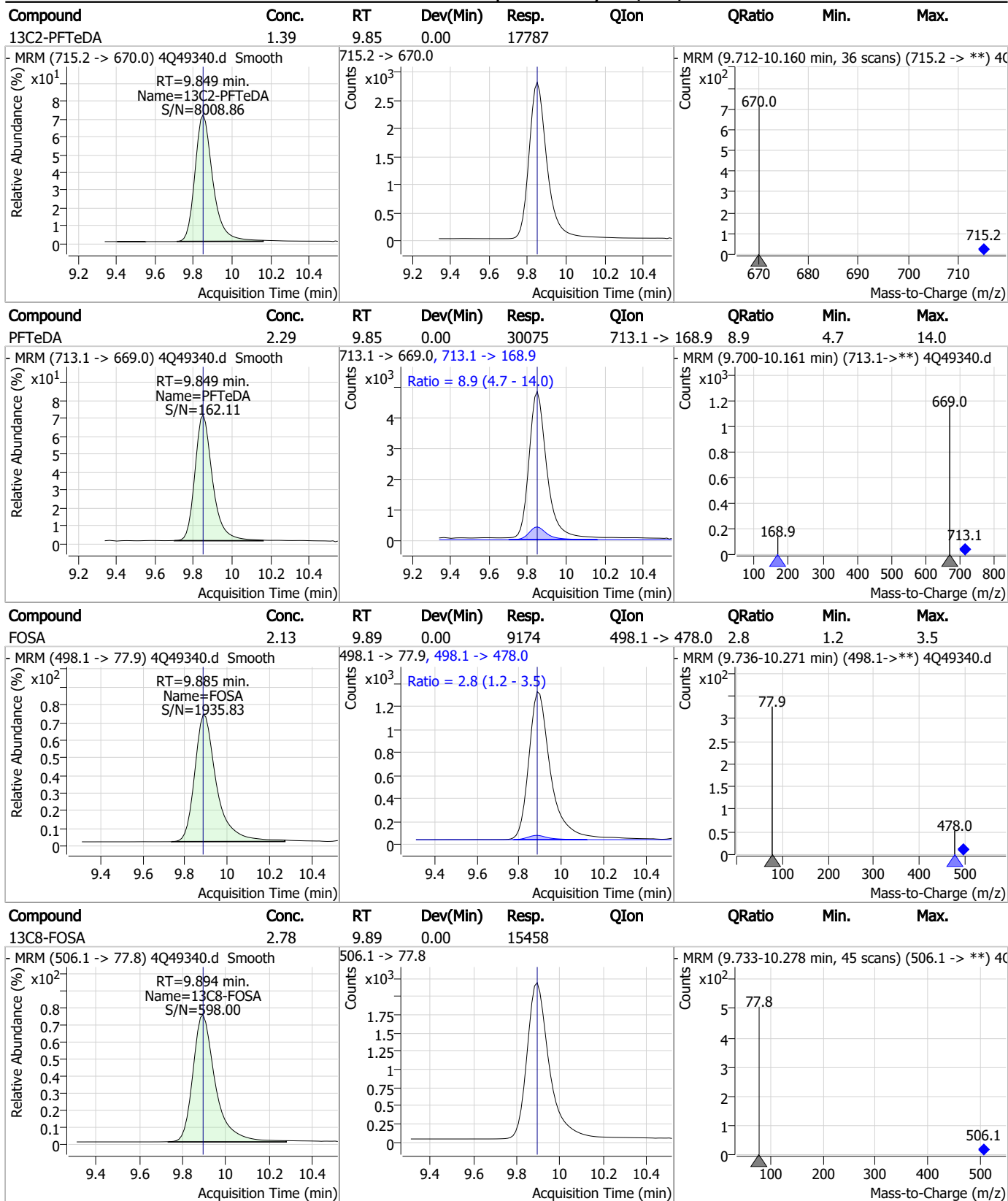
### Perfluorinated Compounds by LC/MS/MS



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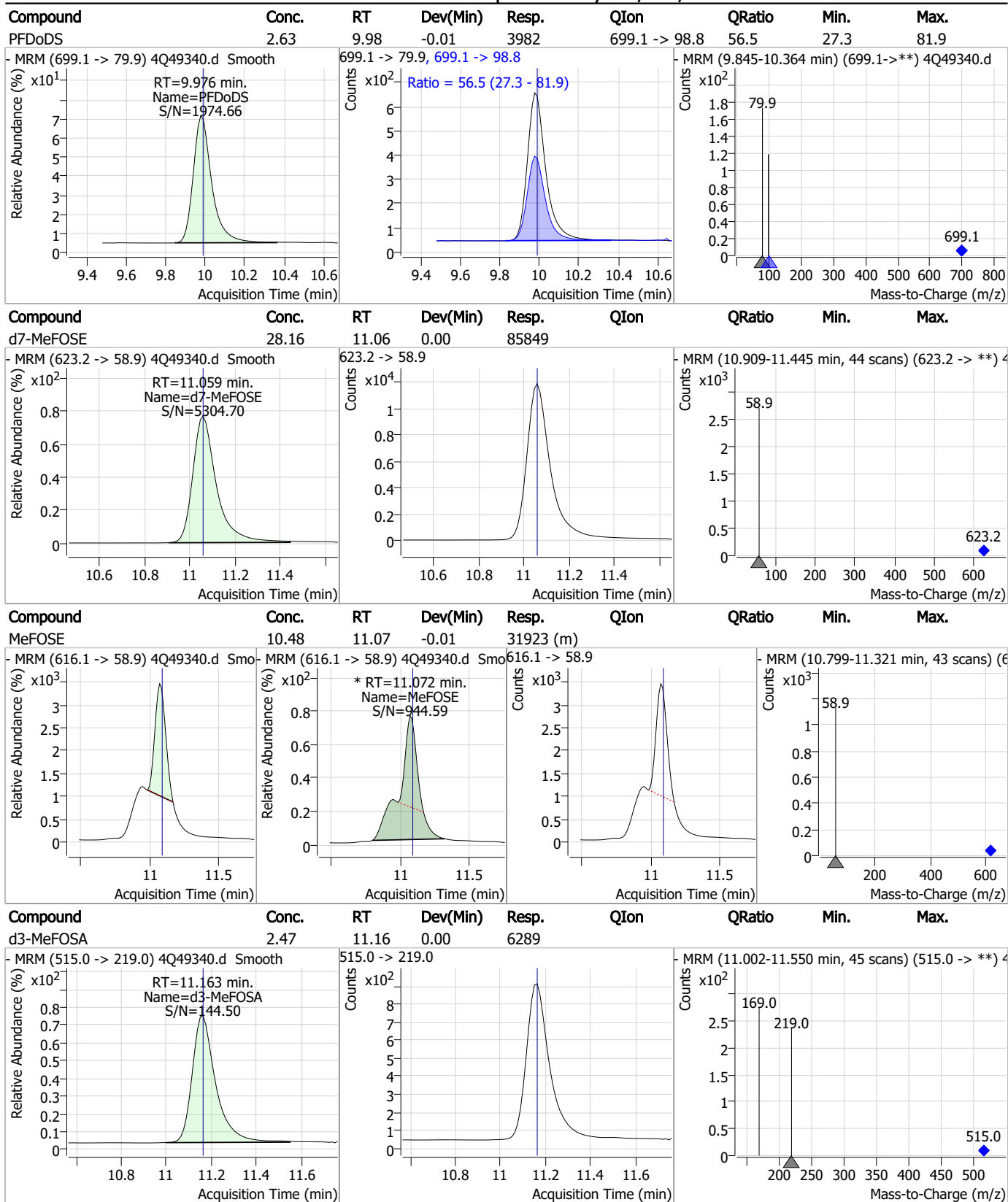


### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

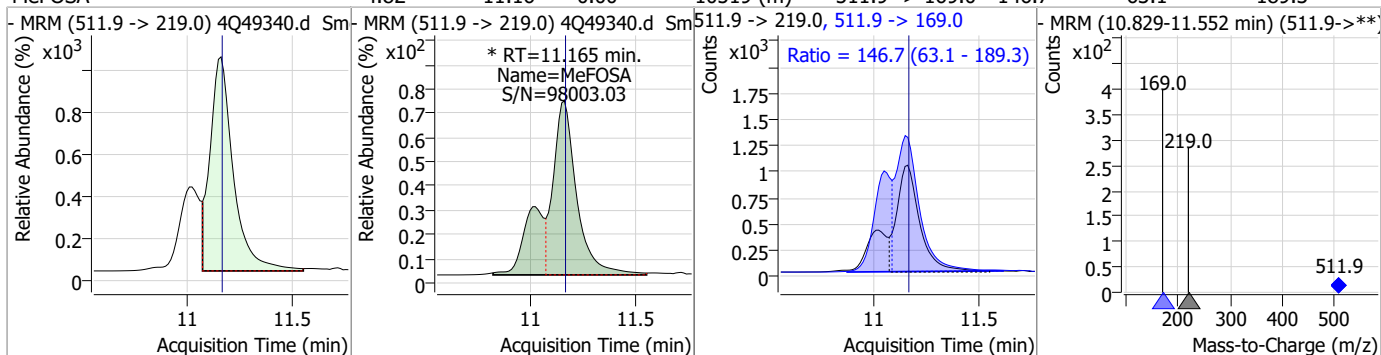


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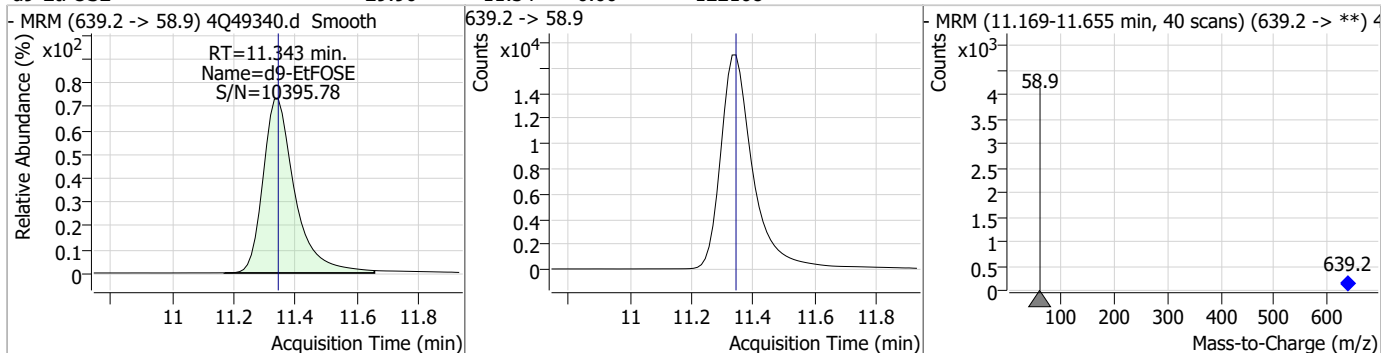


### Perfluorinated Compounds by LC/MS/MS

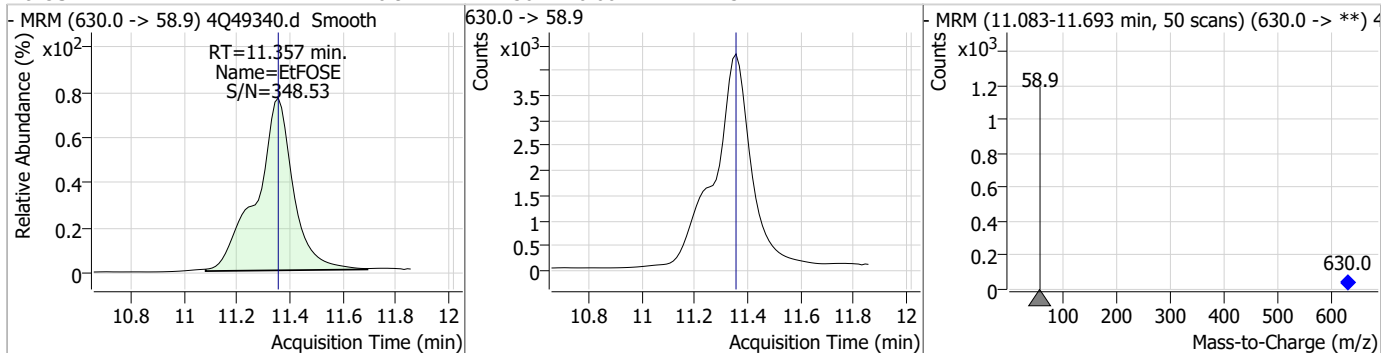
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	4.82	11.16	0.00	10519 (m)	511.9 -> 169.0	146.7	63.1	189.3



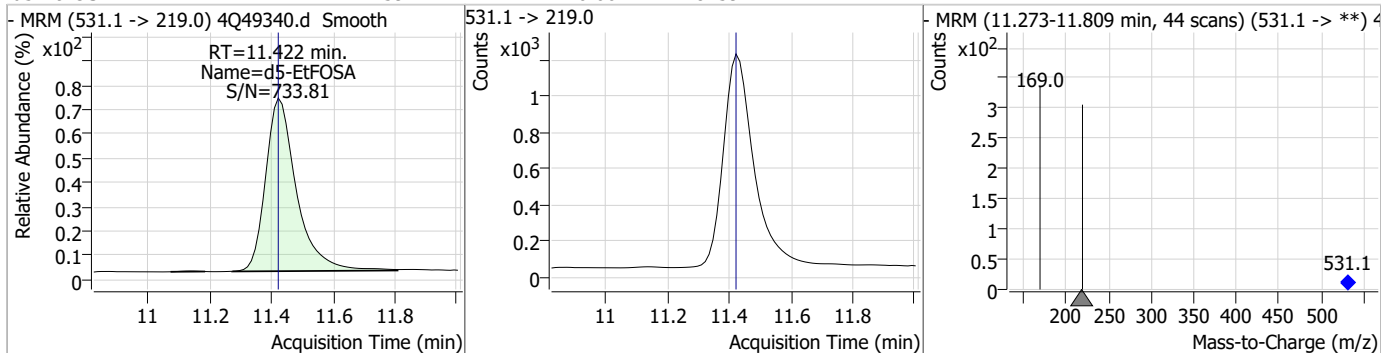
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	29.90	11.34	0.00	122168				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	10.97	11.36	0.00	41137				



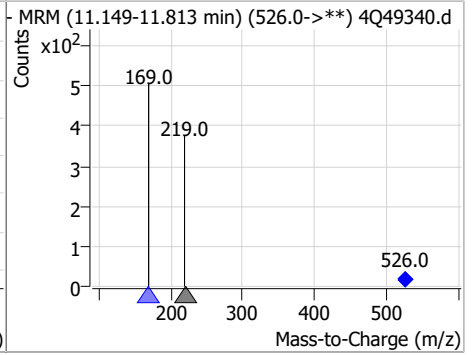
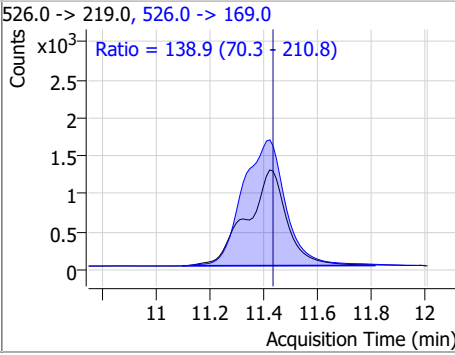
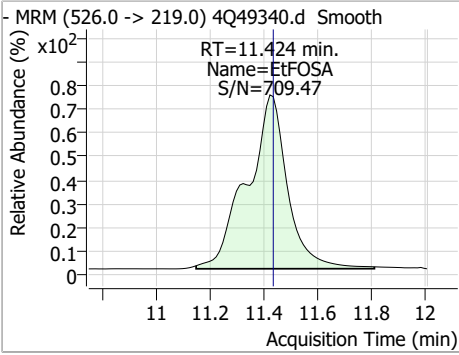
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.59	11.42	0.00	8159				



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### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	4.73	11.42	-0.01	13285	526.0 -> 169.0	138.9	70.3	210.8



7.7.12  
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# Manual Integration Approval Summary

Sample Number: S4Q723-CC722      Method: EPA DRAFT 1633  
Lab FileID: 4Q49340.D      Analyst approved: 08/24/23 14:08 Anna Ludwig  
Injection Time: 08/23/23 10:49      Supervisor approved: 08/24/23 16:08 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.22	Split peak
MeFOSAA	2355-31-9		8.26	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.32	Split peak
EtFOSAA	2991-50-6		8.47	Split peak
MeFOSE	24448-09-7		11.07	Split peak
MeFOSA	31506-32-8		11.16	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q49341.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 8/23/2023 11:05:41 AM  
 Sample Name : cc722-1.0LL  
 Vial : P1-A2  
 DA Method File : 1633\_082223\_S4Q722.quantmethod.xml  
 Batch Name : s4q723.batch.bin  
 Sample Information : OP98456,S4Q723,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.849	216.8 -> 171.9	115654	10.00 µg/L	0.037
M5-PFPeA	4.337	268.3 -> 223.0	62896	5.00 µg/L	0.025
M5-PFHxA	5.522	318.0 -> 273.0	40924	2.50 µg/L	0.012
M4-PFHpA	6.467	367.1 -> 322.0	28478	2.50 µg/L	0.000
M8-PFOA	7.148	421.1 -> 376.0	45363	2.50 µg/L	0.000
M9-PFNA	7.695	472.1 -> 427.0	17482	1.25 µg/L	0.000
M6-PFDA	8.191	519.1 -> 474.1	12650	1.25 µg/L	0.000
M7-PFUnDA	8.648	570.0 -> 525.1	17568	1.25 µg/L	0.000
M2-PFDoDA	9.080	615.1 -> 570.0	20191	1.25 µg/L	0.000
M2-PFTeDA	9.849	715.2 -> 670.0	13094	1.25 µg/L	0.000
M8-FOSA	9.894	506.1 -> 77.8	12161	2.50 µg/L	0.000
M3-PFBS	5.402	302.1 -> 79.9	11447	2.50 µg/L	0.011
M3-PFHxS	7.216	402.1 -> 79.9	8212	2.50 µg/L	0.000
M8-PFOS	8.317	507.1 -> 79.9	6720	2.50 µg/L	-0.012
M2-4:2FTS	5.221	329.1 -> 80.9	1344	5.00 µg/L	0.012
M2-6:2FTS	6.911	429.1 -> 80.9	2090	5.00 µg/L	0.000
M2-8:2FTS	7.991	529.1 -> 80.9	2965	5.00 µg/L	0.000
M3-MeFOSAA	8.261	573.2 -> 419.0	11215	5.00 µg/L	0.000
M3-HFPO-DA	5.877	286.9 -> 168.9	32206	10.00 µg/L	0.000
M5-EtFOSAA	8.471	589.2 -> 419.0	9923	5.00 µg/L	0.000
M7-MeFOSE	11.059	623.2 -> 58.9	63636	25.00 µg/L	0.000
M9-EtFOSE	11.343	639.2 -> 58.9	86430	25.00 µg/L	0.000
M5-EtFOSA	11.434	531.1 -> 219.0	6737	2.50 µg/L	0.012
M3-MeFOSA	11.163	515.0 -> 219.0	5370	2.50 µg/L	0.000
13C4-PFOS	8.330	502.8 -> 79.9	6598	2.50 µg/L	0.000
13C3-PFBA	2.853	216.0 -> 172.0	65641	5.00 µg/L	0.050
18O2-PFHxS	7.228	403.0 -> 83.9	5757	2.50 µg/L	0.000
13C4-PFOA	7.137	417.1 -> 372.0	52418	2.50 µg/L	-0.012
13C2-PFDA	8.192	515.1 -> 470.1	11108	1.25 µg/L	0.000
13C5-PFNA	7.696	468.0 -> 423.0	17391	1.25 µg/L	0.000
13C2-PFHxA	5.523	315.1 -> 270.0	39713	2.50 µg/L	0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.221	329.1 -> 80.9	1344	5.14 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C2-6:2FTS	6.911	429.1 -> 80.9	2090	5.63 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.6%		
13C2-8:2FTS	7.991	529.1 -> 80.9	2965	4.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C2-PFDoDA	9.080	615.1 -> 570.0	20191	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 110.1%		
13C2-PFTeDA	9.849	715.2 -> 670.0	13094	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.9%		
13C3-PFBS	5.402	302.1 -> 79.9	11447	2.57 µg/L	0.011
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C3-PFHxS	7.216	402.1 -> 79.9	8212	2.54 µg/L	0.000

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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C4-PFBA	2.849	216.8 -> 171.9	115654	9.91 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C4-PFHpA	6.467	367.1 -> 322.0	28478	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C5-PFHxA	5.522	318.0 -> 273.0	40924	2.45 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.9%	
13C5-PFPeA	4.337	268.3 -> 223.0	62896	5.08 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C6-PFDA	8.191	519.1 -> 474.1	12650	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.6%	
13C7-PFUnDA	8.648	570.0 -> 525.1	17568	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.9%	
13C8-FOSA	9.894	506.1 -> 77.8	12161	2.74 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.4%	
13C8-PFOA	7.148	421.1 -> 376.0	45363	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C8-PFOS	8.317	507.1 -> 79.9	6720	2.48 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C9-PFNA	7.695	472.1 -> 427.0	17482	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.8%	
d3-MeFOSAA	8.261	573.2 -> 419.0	11215	4.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C3-HFPO-DA	5.877	286.9 -> 168.9	32206	10.05 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
d3-MeFOSA	11.163	515.0 -> 219.0	5370	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.7%	
d5-EtFOSAA	8.471	589.2 -> 419.0	9923	5.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.8%	
d7-MeFOSE	11.059	623.2 -> 58.9	63636	26.15 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.6%	
d9-EtFOSE	11.343	639.2 -> 58.9	86430	26.50 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 106.0%	
d5-EtFOSA	11.434	531.1 -> 219.0	6737	2.68 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.3%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.222	327.1 -> 307.0	1197	0.78 µg/L	92
		327.1 -> 80.9	492		
6:2FTS	6.911	427.1 -> 407.0	856	0.56 µg/L	91
		427.1 -> 80.9	401		
8:2FTS	7.979	527.1 -> 507.0	885	0.76 µg/L	90
		527.1 -> 80.8	497		
EtFOSAA	8.471	584.2 -> 419.1	280	0.20 µg/L	#m 49
		584.2 -> 526.0	194		
FOSA	9.898	498.1 -> 77.9	663	0.20 µg/L	97
		498.1 -> 478.0	23		
MeFOSAA	8.274	570.1 -> 419.0	274	0.17 µg/L	m 90
		570.1 -> 483.0	66		
PFBA	2.845	212.8 -> 168.9	1816	0.73 µg/L	100
PFBS	5.403	298.7 -> 79.9	502	0.15 µg/L	98
		298.7 -> 98.8	199		
PFDA	8.192	512.9 -> 469.0	1248	0.17 µg/L	92
		512.9 -> 219.0	234		
PFDODA	9.081	613.1 -> 569.0	2458	0.20 µg/L	90
		613.1 -> 319.0	285		
PFDS	9.232	599.0 -> 79.9	308	0.19 µg/L	94

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.468	599.0 -> 98.8	181	0.18	µg/L	98
		363.1 -> 319.0	2544			
PFHpS	7.810	363.1 -> 169.0	449	0.17	µg/L	65
		449.0 -> 79.9	381			
PFHxA	5.525	449.0 -> 98.9	294	0.18	µg/L	96
		313.0 -> 269.0	2314			
PFHxS	7.217	313.0 -> 118.9	105	0.19	µg/L	m
		398.7 -> 79.9	450			
PFNA	7.696	398.7 -> 98.9	269	0.18	µg/L	94
		463.0 -> 419.0	1629			
PFNS	8.799	463.0 -> 219.0	377	0.20	µg/L	99
		548.8 -> 79.9	249			
PFOA	7.138	548.8 -> 98.9	135	0.17	µg/L	m
		413.0 -> 369.0	2867			
PFOS	8.318	413.0 -> 169.0	693	0.18	µg/L	m
		498.9 -> 79.9	448			
PFPeA	4.339	498.9 -> 98.8	260	0.34	µg/L	100
		263.0 -> 219.0	3808			
PFPeS	6.482	349.1 -> 79.9	358	0.17	µg/L	98
		349.1 -> 98.9	168			
PFTeDA	9.849	713.1 -> 669.0	1572	0.16	µg/L	97
		713.1 -> 168.9	164			
PFTrDA	9.491	663.0 -> 619.0	2540	0.19	µg/L	m
		663.0 -> 168.9	221			
PFUnDA	8.648	563.1 -> 519.0	1545	0.19	µg/L	87
		563.1 -> 269.1	207			
11Cl-PF3OUdS	9.518	630.9 -> 450.9	2392	0.34	µg/L	95
		632.9 -> 452.9	819			
9Cl-PF3ONS	8.662	530.8 -> 351.0	2522	0.33	µg/L	99
		532.8 -> 353.0	802			
ADONA	6.731	376.9 -> 250.9	7597	0.33	µg/L	97
		376.9 -> 84.8	2452			
HFPO-DA	5.878	284.9 -> 168.9	1002	0.39	µg/L	87
		284.9 -> 184.9	70			
3:3FTCA	3.811	241.0 -> 177.0	466	0.86	µg/L	97
		241.0 -> 117.0	54			
5:3FTCA	6.232	341.0 -> 237.1	7826	4.37	µg/L	98
		341.0 -> 217.0	5829			
7:3FTCA	7.723	441.0 -> 316.9	3389	4.31	µg/L	99
		441.0 -> 336.9	7631			
EtFOSA	11.436	526.0 -> 219.0	1004	0.43	µg/L	89
		526.0 -> 169.0	1277			
EtFOSE	11.357	630.0 -> 58.9	2256	0.85	µg/L	100
		511.9 -> 219.0	693			
MeFOSA	11.165	511.9 -> 169.0	930	0.37	µg/L	93
		616.1 -> 58.9	1993			
MeFOSE	11.072	699.1 -> 79.9	219	0.88	µg/L	100
		699.1 -> 98.8	163			
PFDoDS	9.989	295.0 -> 201.0	405	0.18	µg/L	73
		295.0 -> 84.9	111			
NFDHA	5.403	279.0 -> 85.1	2403	0.41	µg/L	100
		229.0 -> 84.9	2577			
PFMBA	4.753	314.8 -> 134.9	3478	0.36	µg/L	100
		314.8 -> 82.9	109			
PFMPA	3.465			0.32	µg/L	100
PFEESA	5.933			0.32	µg/L	100

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

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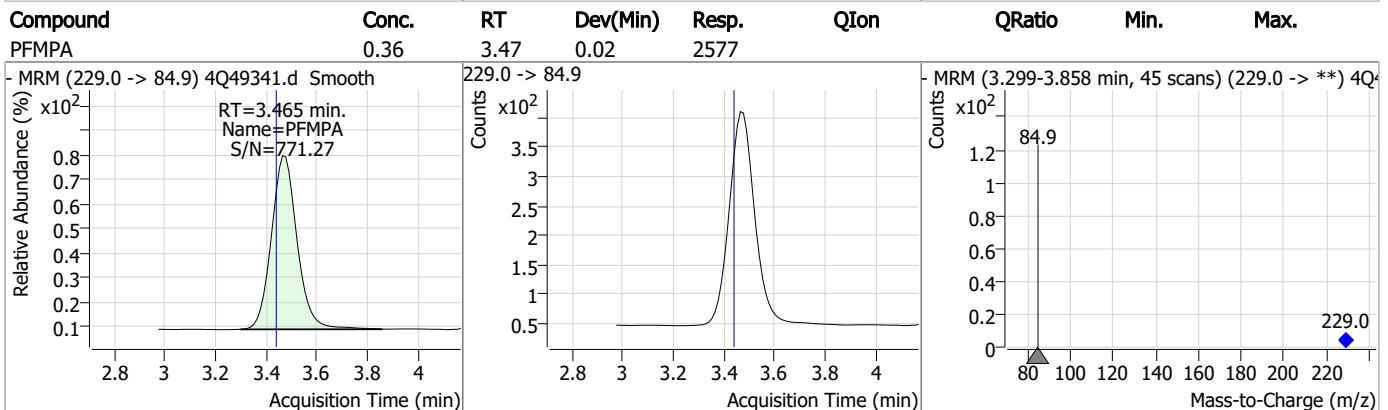
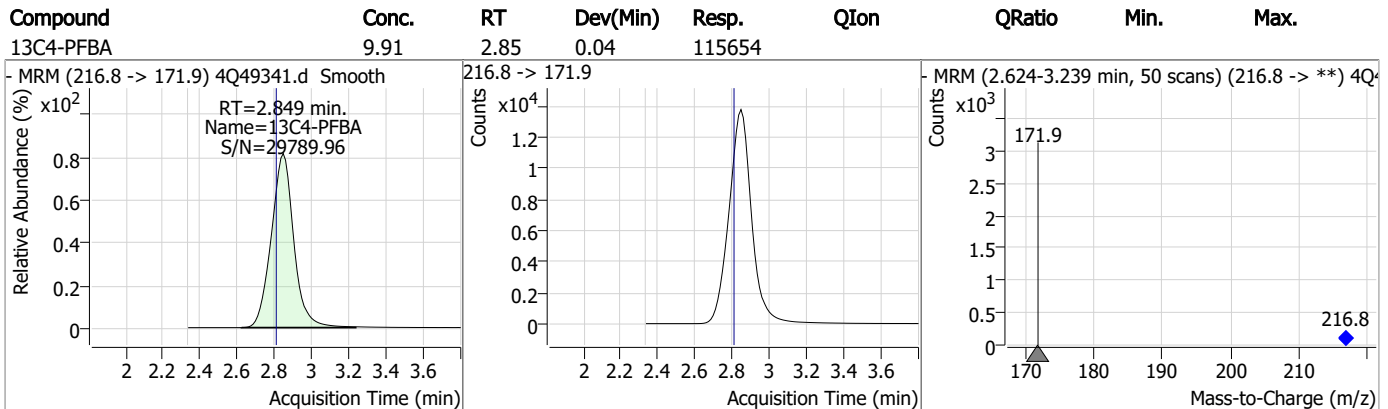
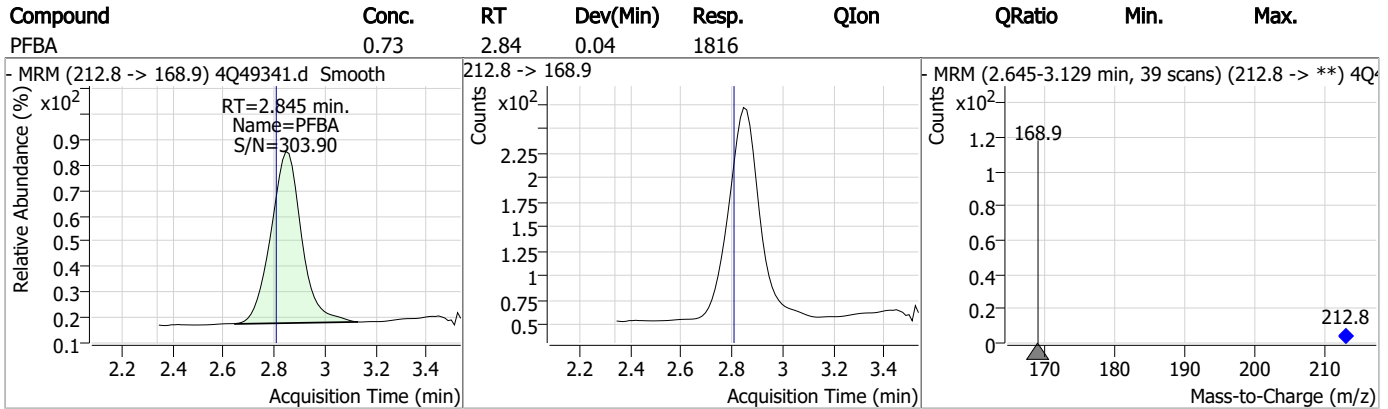
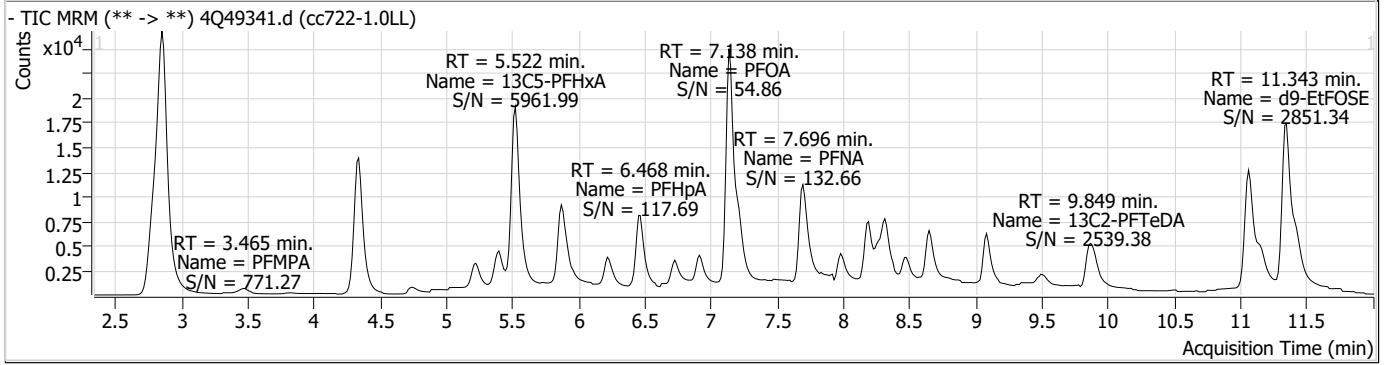
### Perfluorinated Compounds by LC/MS/MS

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

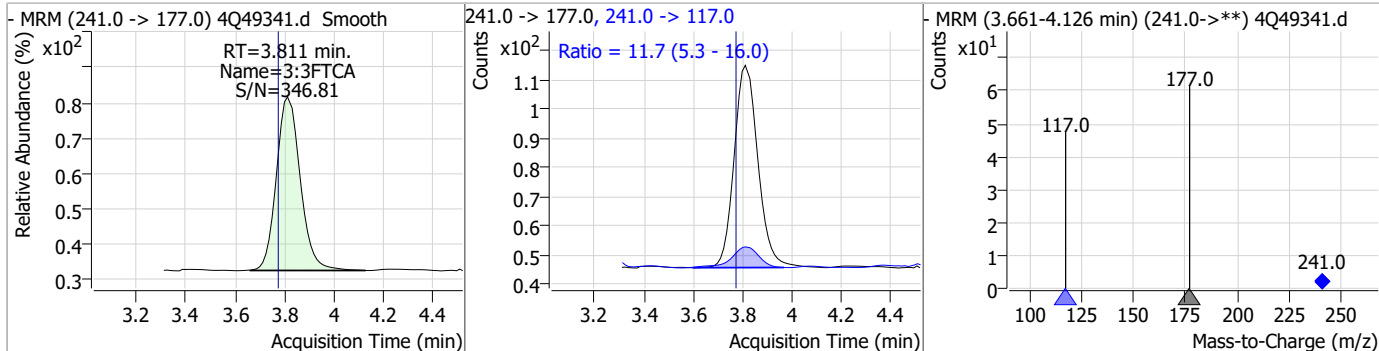
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### Perfluorinated Compounds by LC/MS/MS

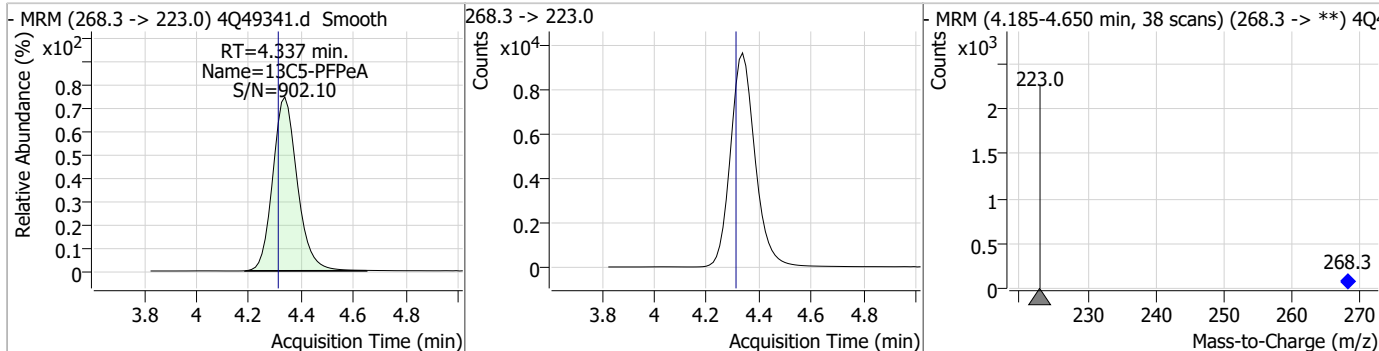


### Perfluorinated Compounds by LC/MS/MS

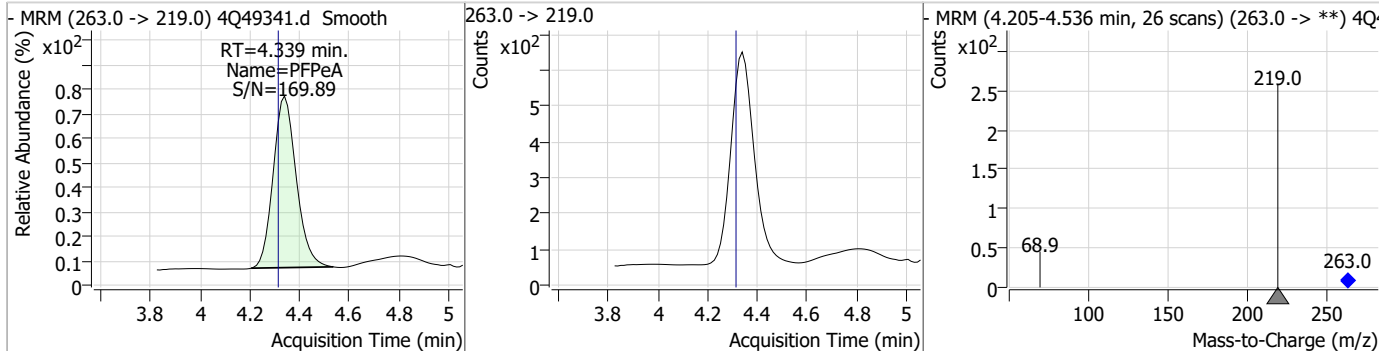
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	0.86	3.81	0.04	466	241.0 -> 117.0	11.7	5.3	16.0



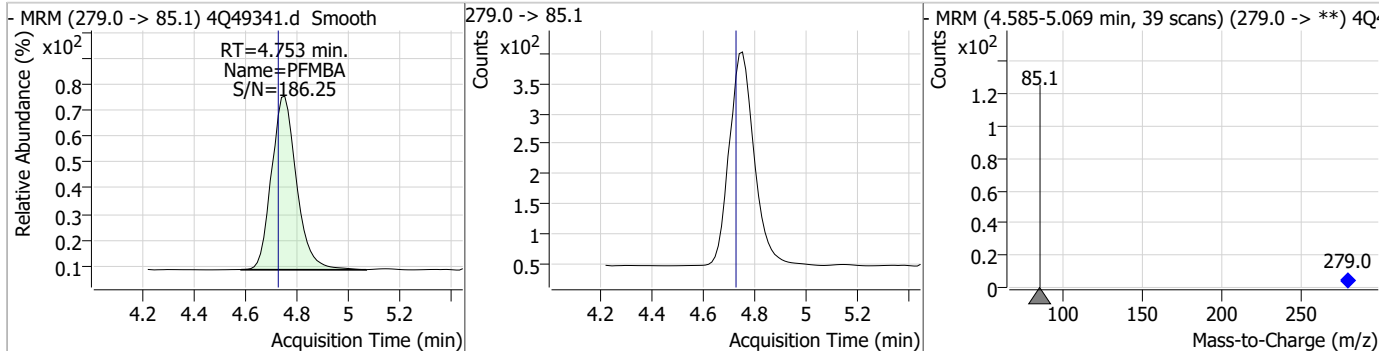
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.08	4.34	0.02	62896				



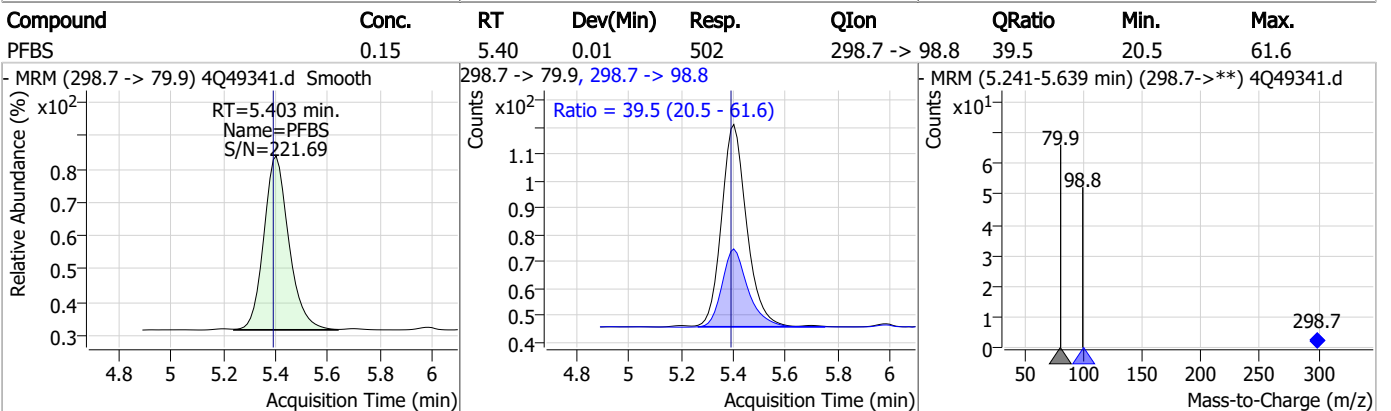
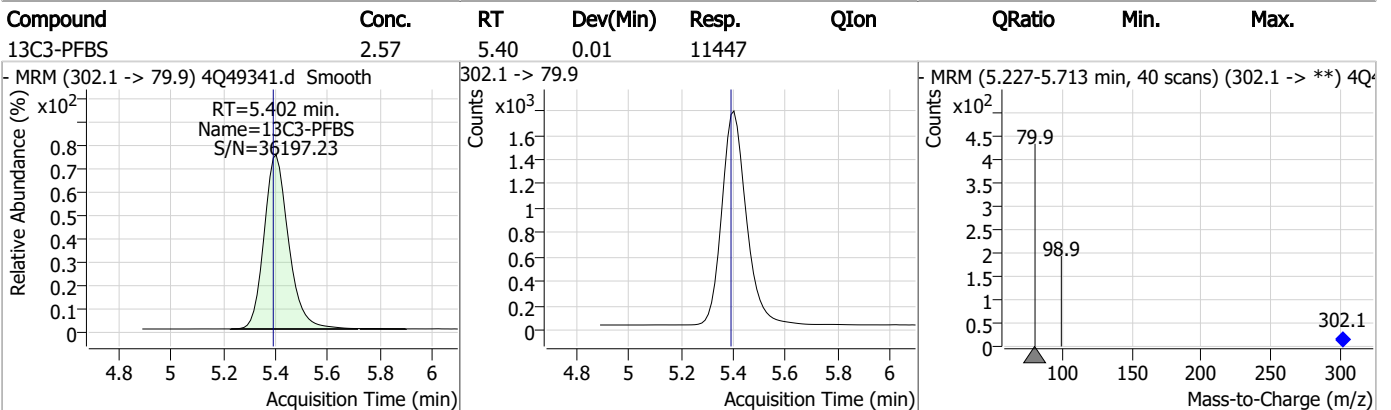
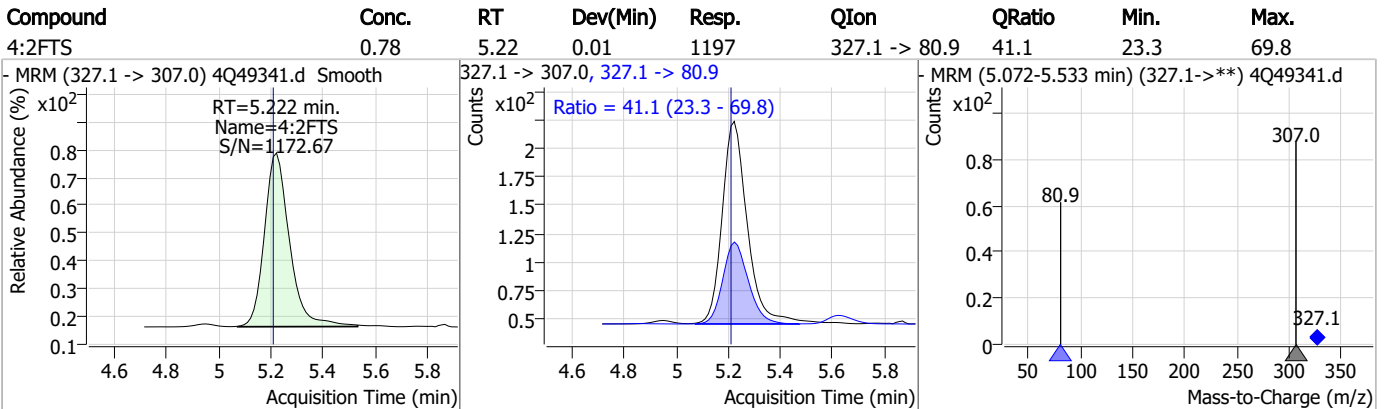
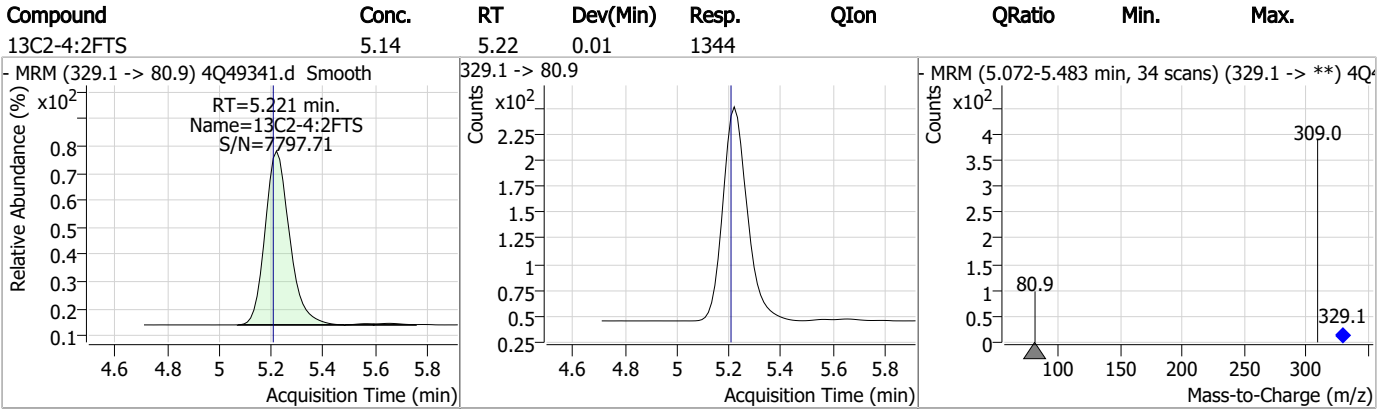
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.34	4.34	0.02	3808				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.37	4.75	0.02	2403				

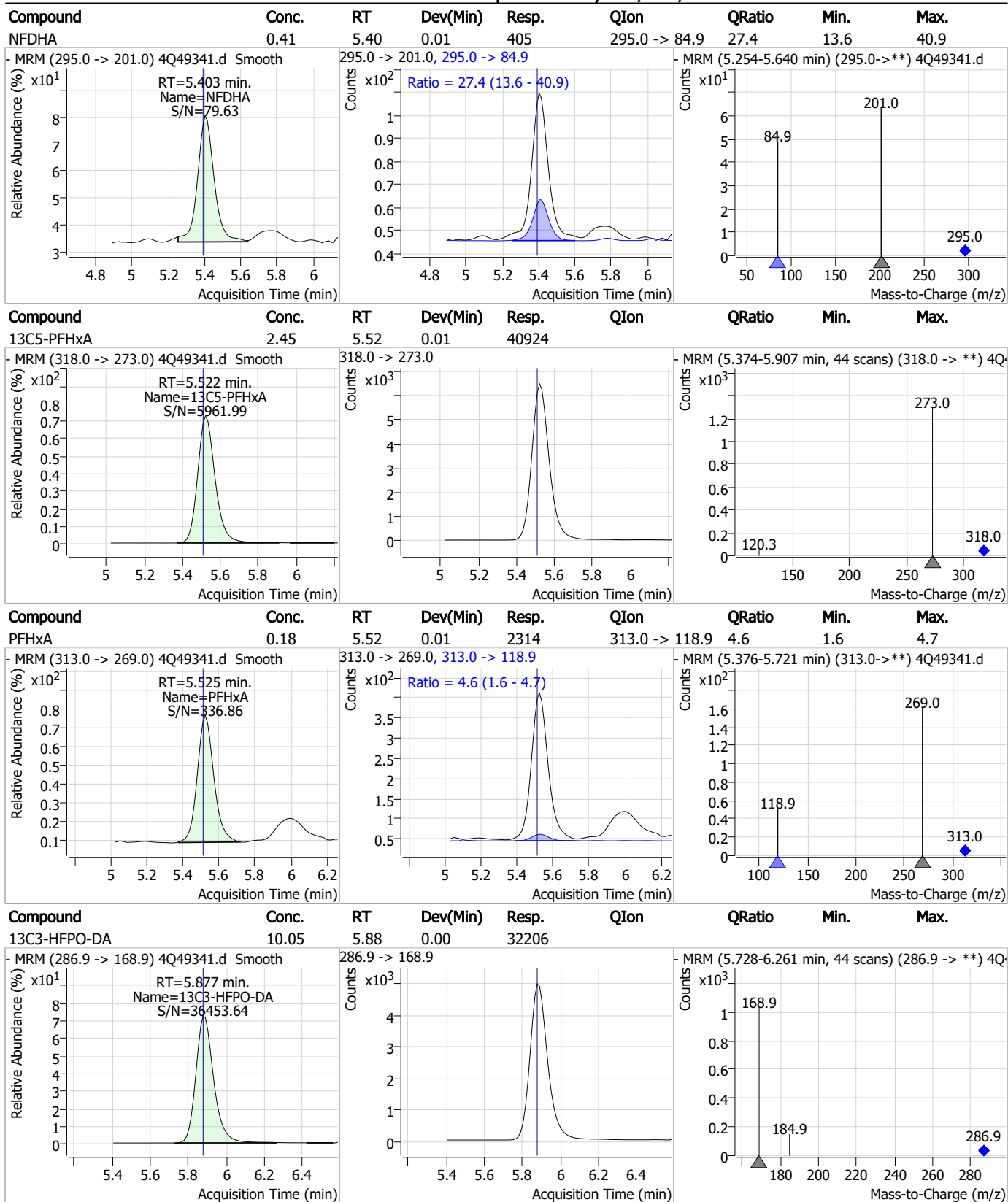


### Perfluorinated Compounds by LC/MS/MS



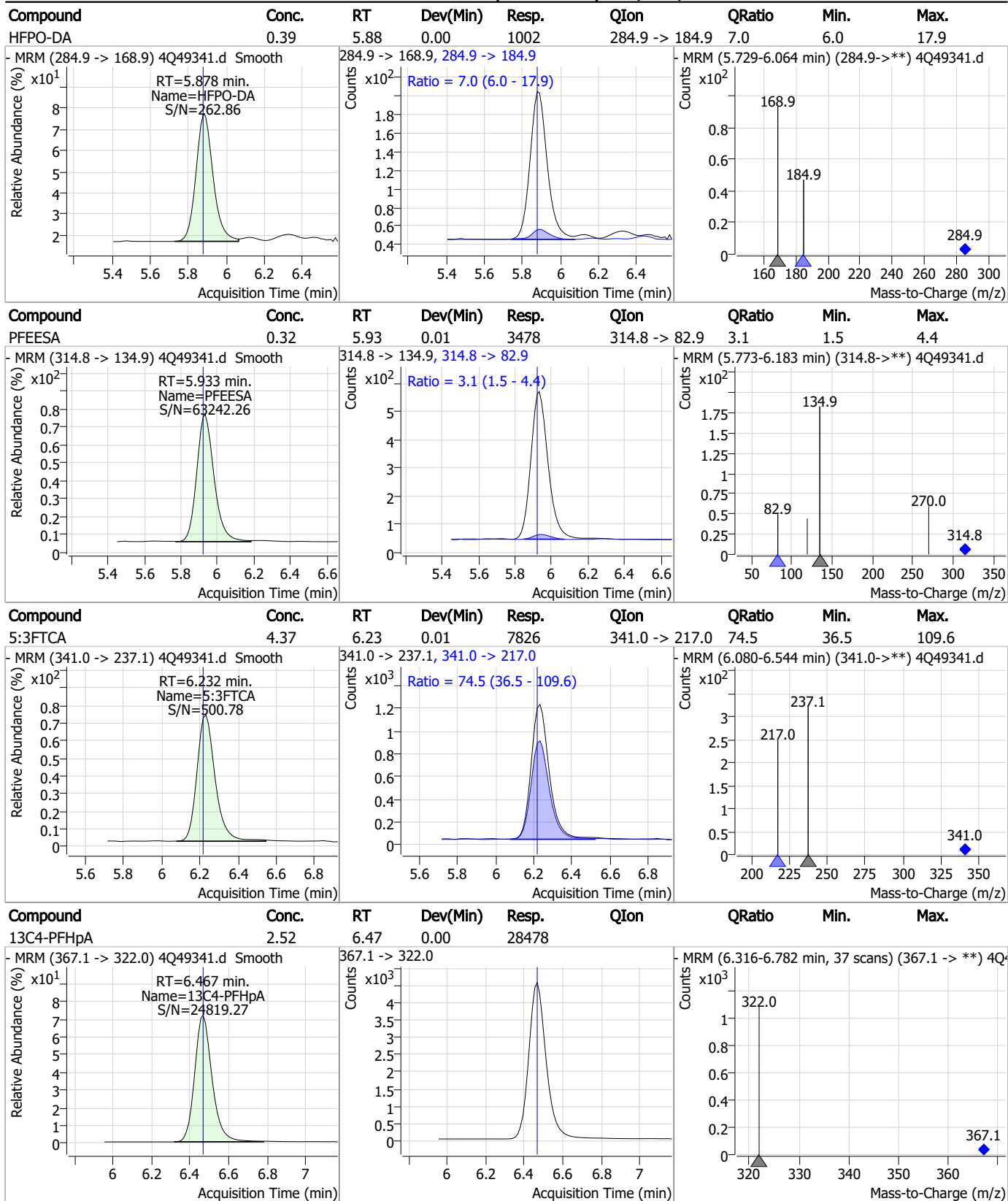


### Perfluorinated Compounds by LC/MS/MS



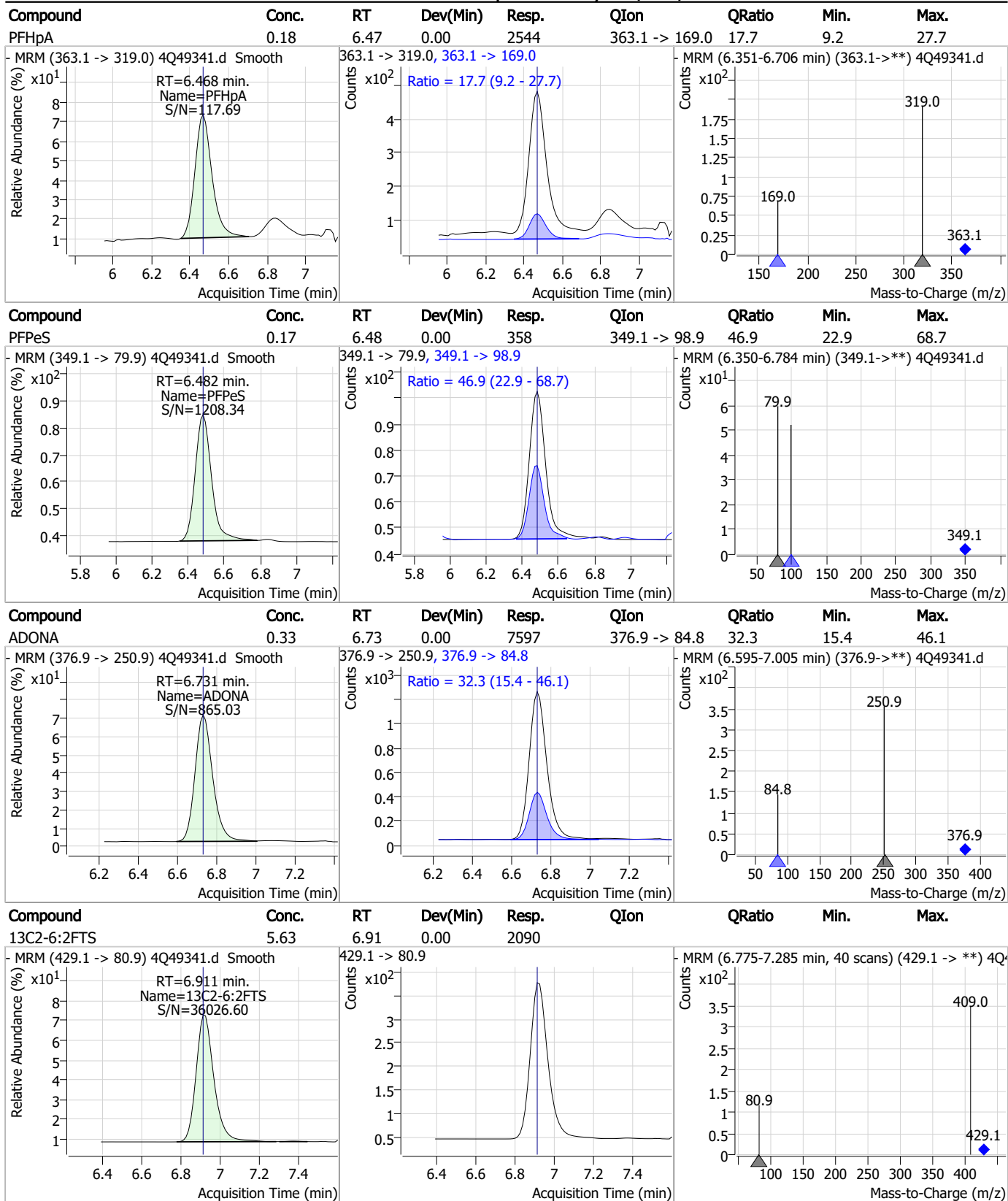
7.7.13  
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### Perfluorinated Compounds by LC/MS/MS



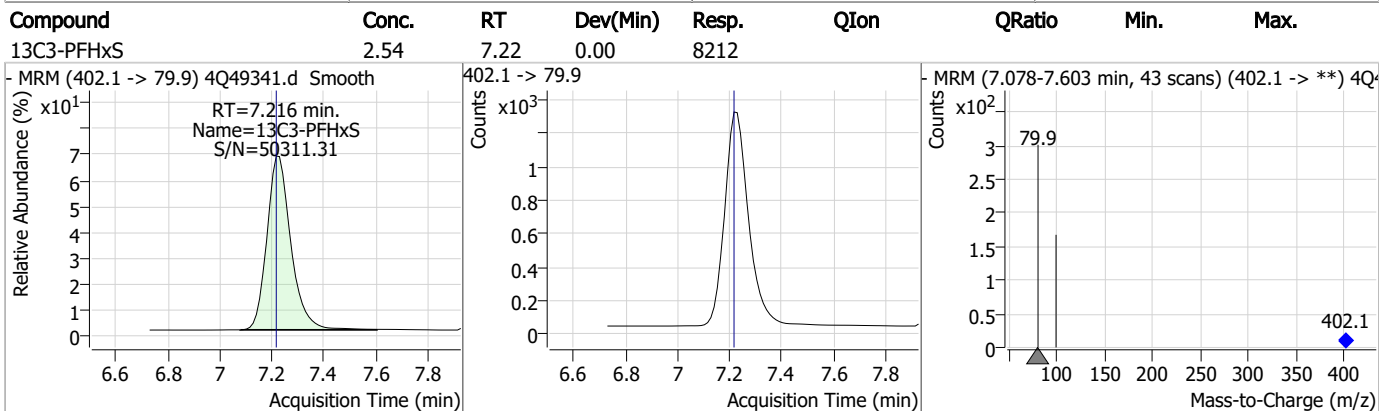
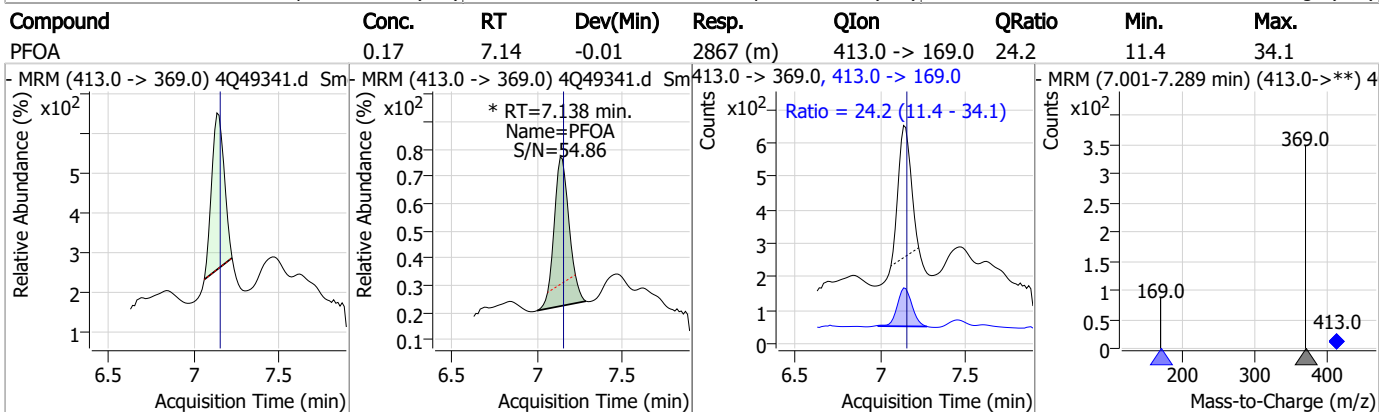
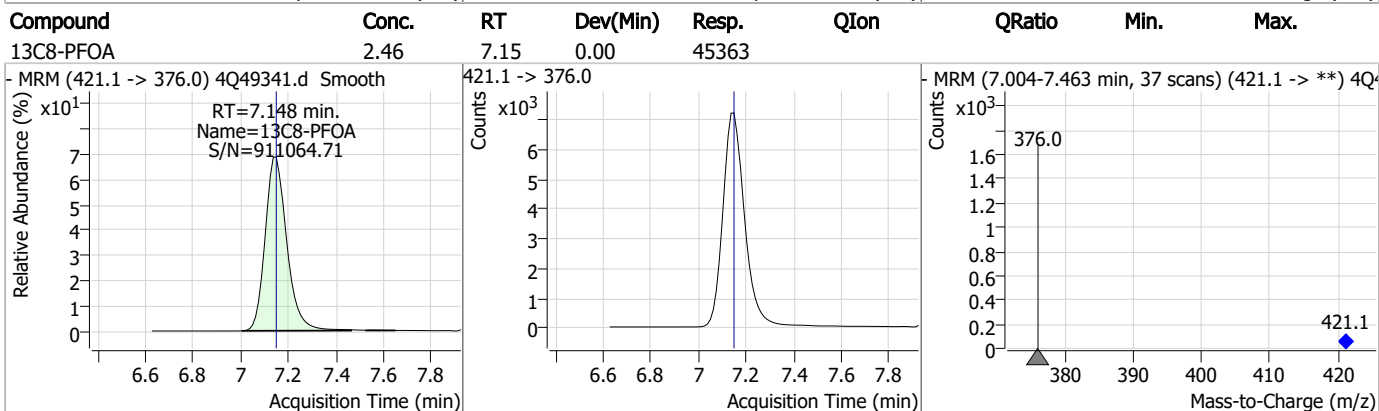
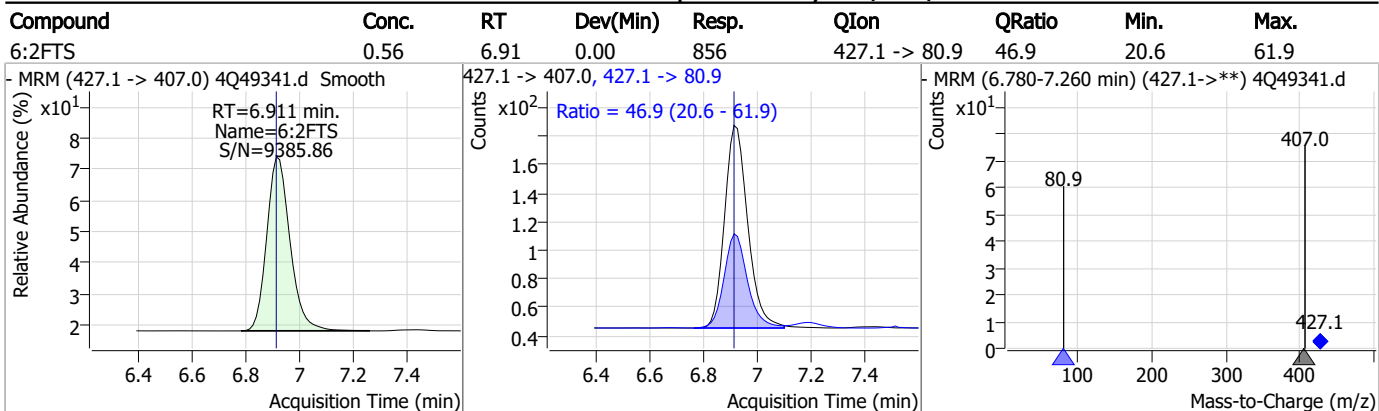
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### Perfluorinated Compounds by LC/MS/MS



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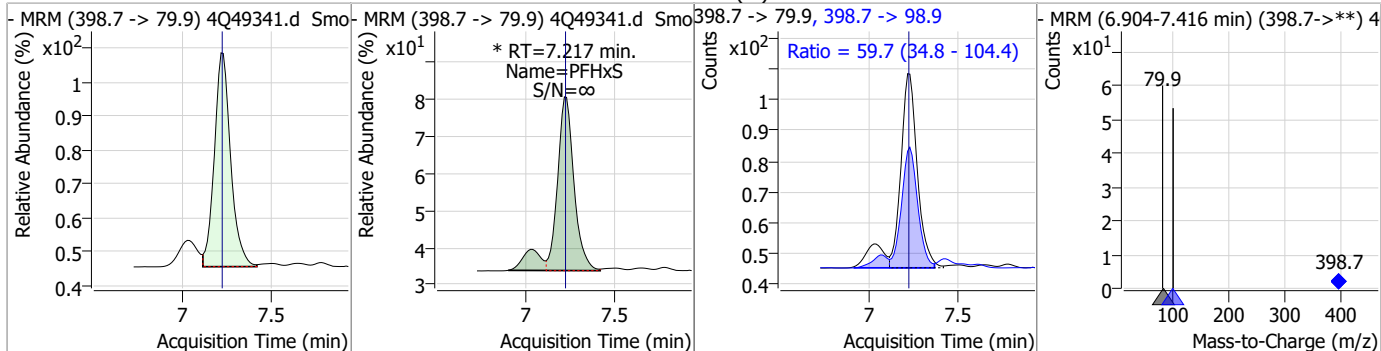
### Perfluorinated Compounds by LC/MS/MS



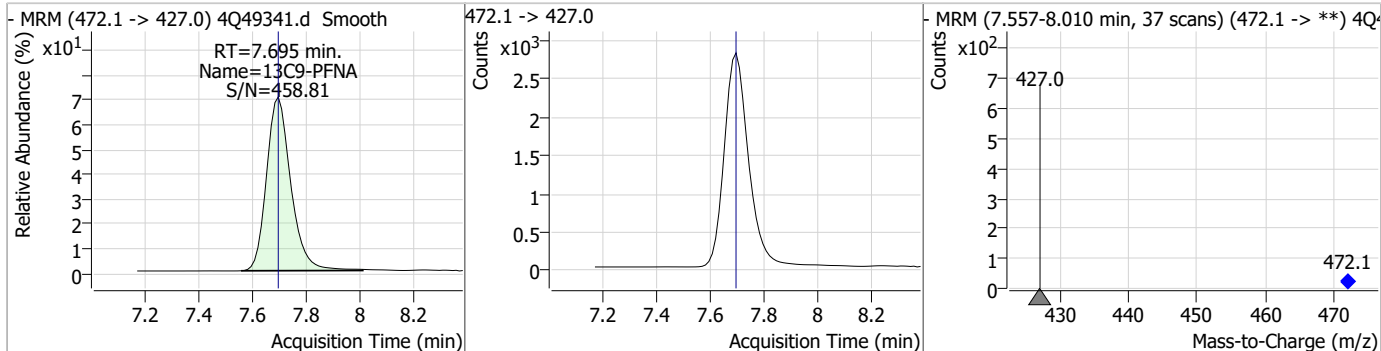
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### Perfluorinated Compounds by LC/MS/MS

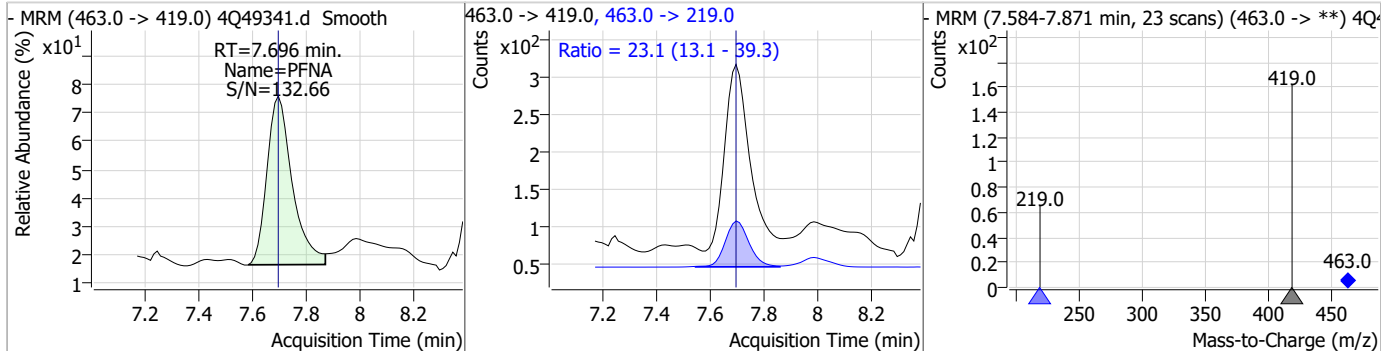
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.19	7.22	0.00	450 (m)	398.7 -> 98.9	59.7	34.8	104.4



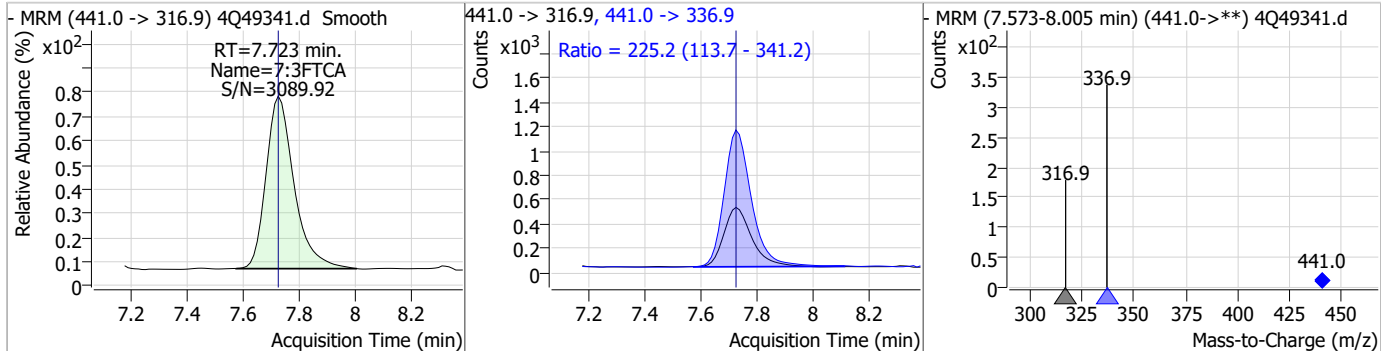
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.32	7.70	0.00	17482				



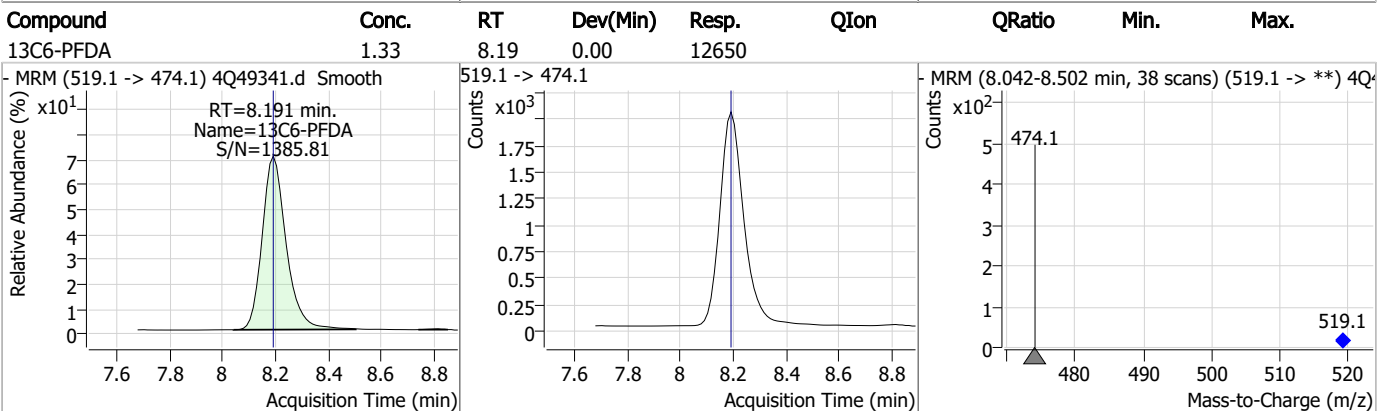
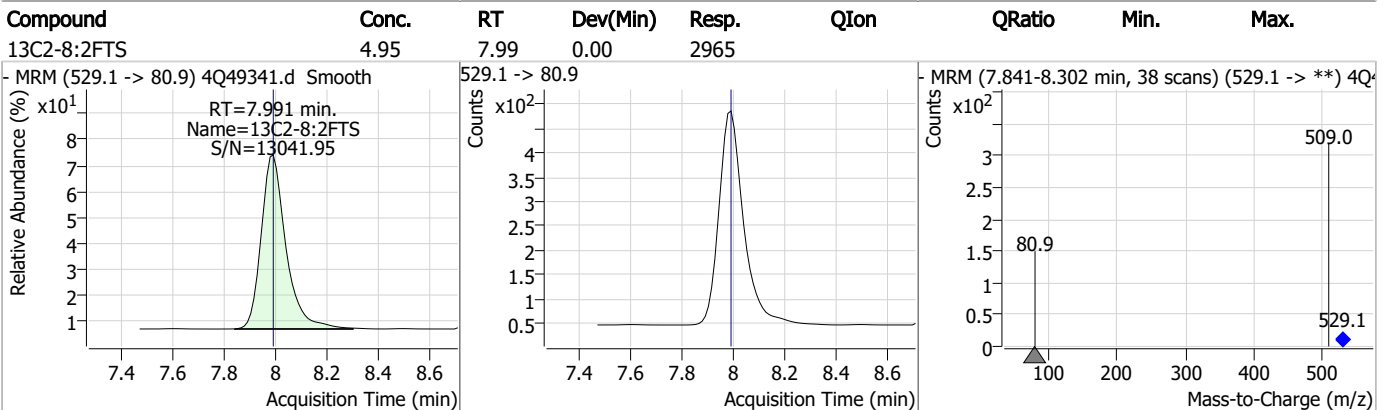
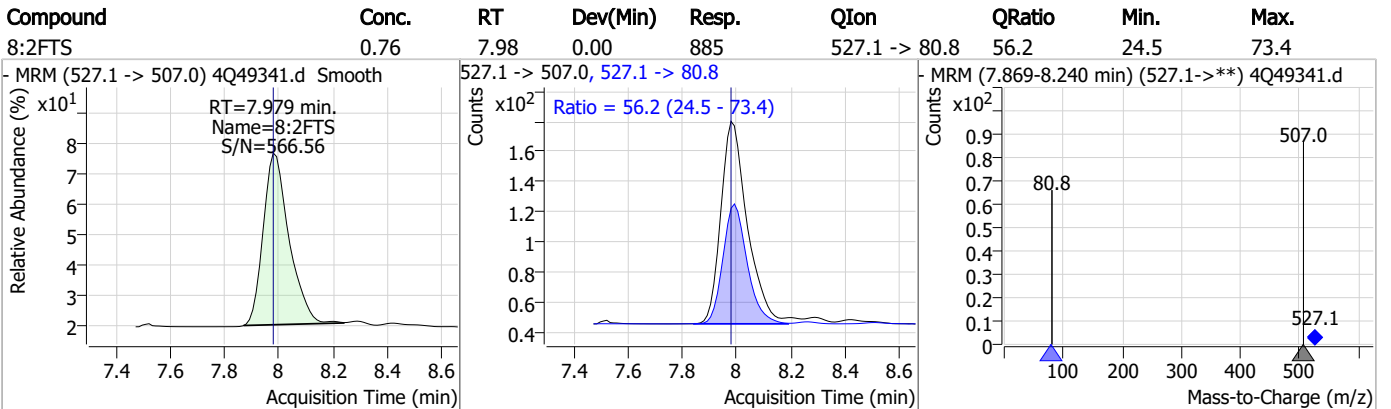
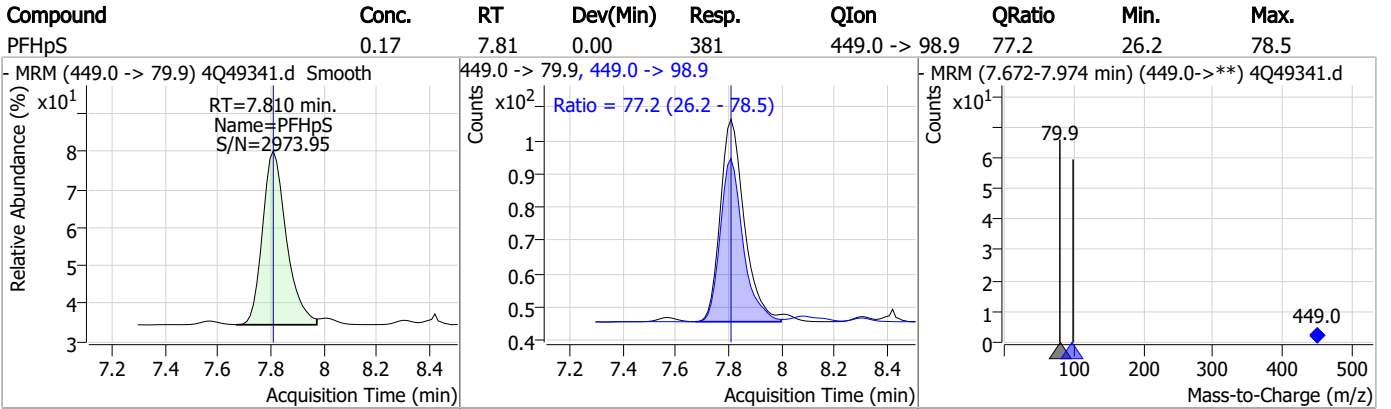
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.18	7.70	0.00	1629	463.0 -> 219.0	23.1	13.1	39.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	4.31	7.72	0.00	3389	441.0 -> 336.9	225.2	113.7	341.2

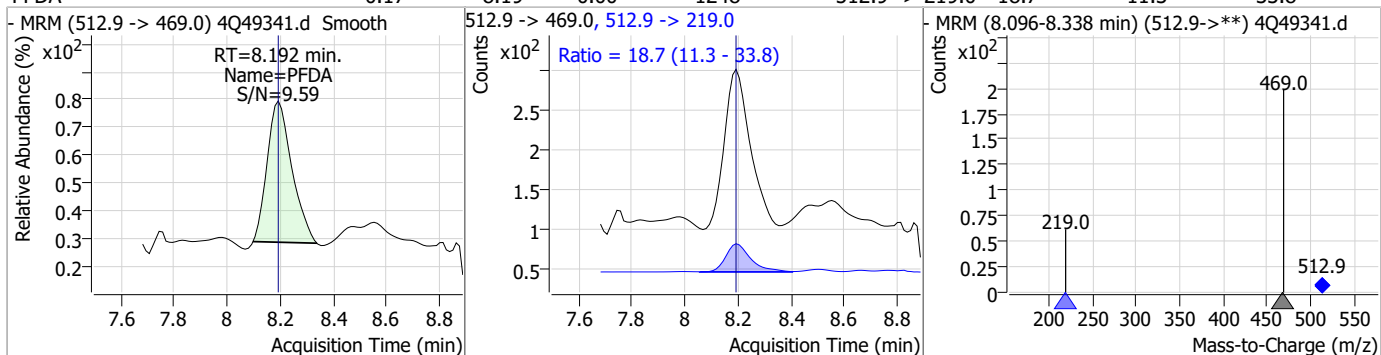


### Perfluorinated Compounds by LC/MS/MS

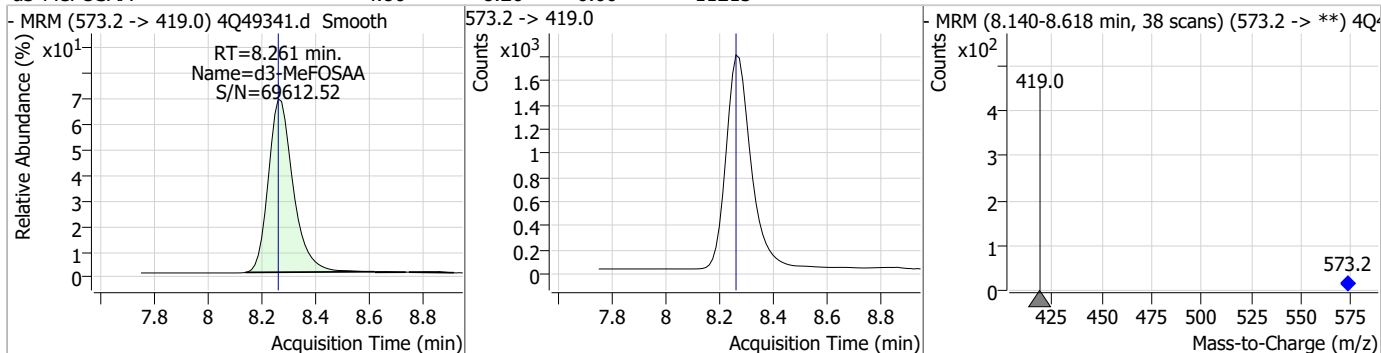


### Perfluorinated Compounds by LC/MS/MS

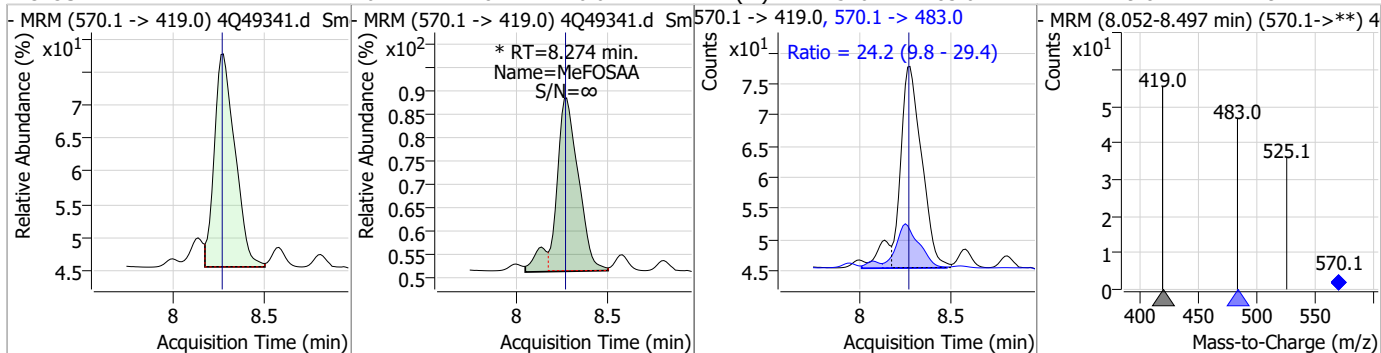
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.17	8.19	0.00	1248	512.9 -> 219.0	18.7	11.3	33.8



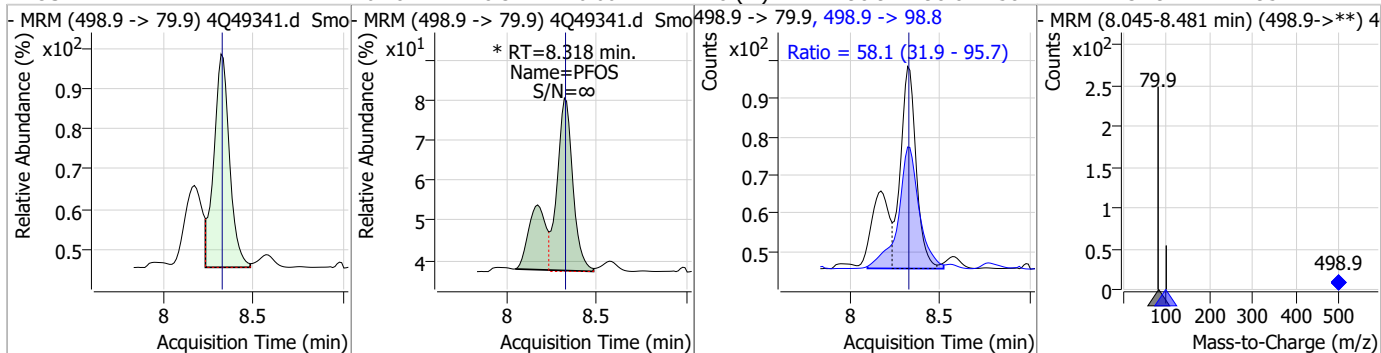
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.86	8.26	0.00	11215				



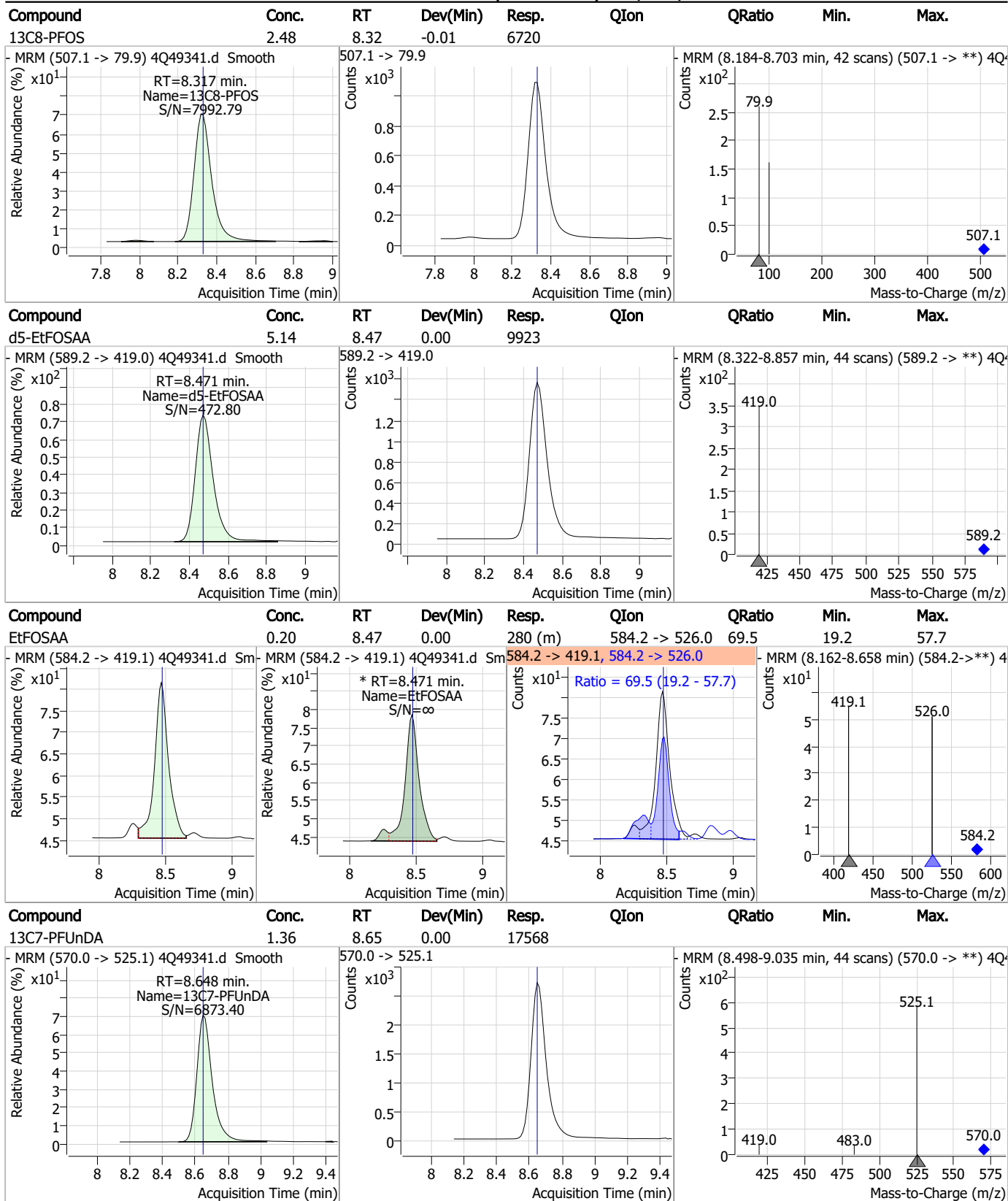
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.17	8.27	0.01	274 (m)	570.1 -> 483.0	24.2	9.8	29.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.18	8.32	0.00	448 (m)	498.9 -> 98.8	58.1	31.9	95.7



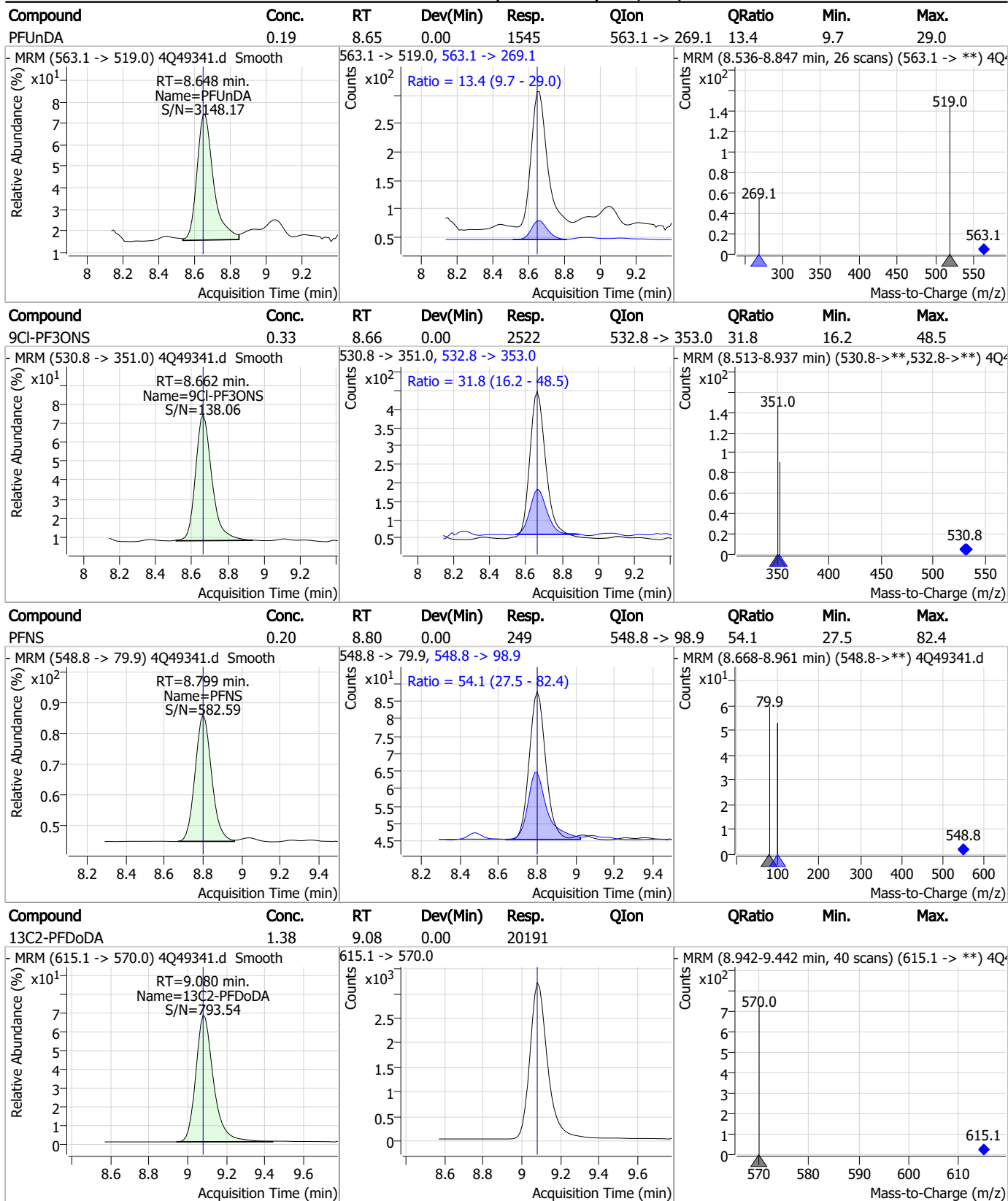
### Perfluorinated Compounds by LC/MS/MS



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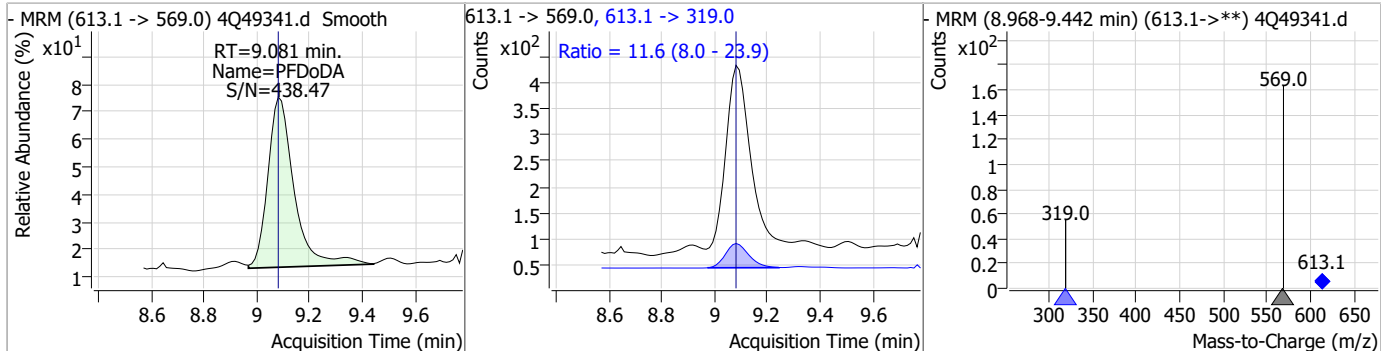
### Perfluorinated Compounds by LC/MS/MS



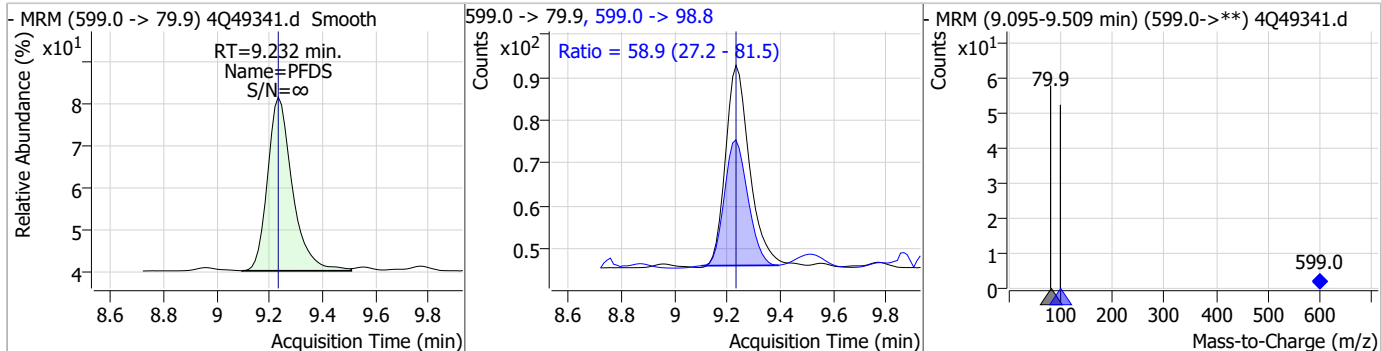
7.7.13  
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### Perfluorinated Compounds by LC/MS/MS

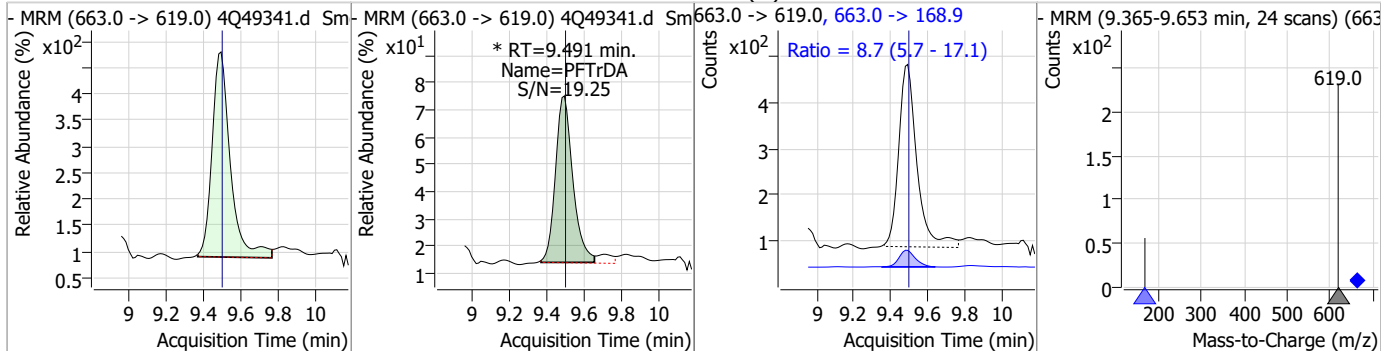
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.20	9.08	0.00	2458	613.1 -> 319.0	11.6	8.0	23.9



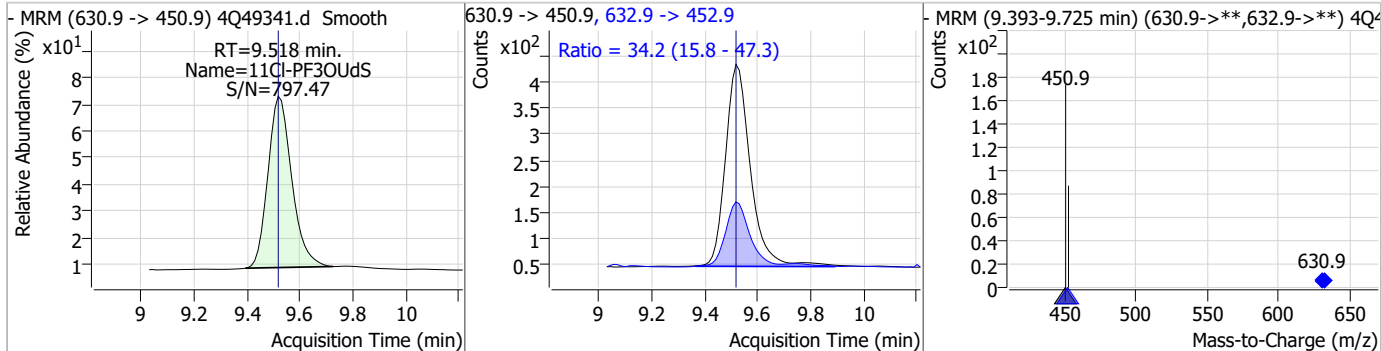
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	0.19	9.23	0.00	308	599.0 -> 98.8	58.9	27.2	81.5



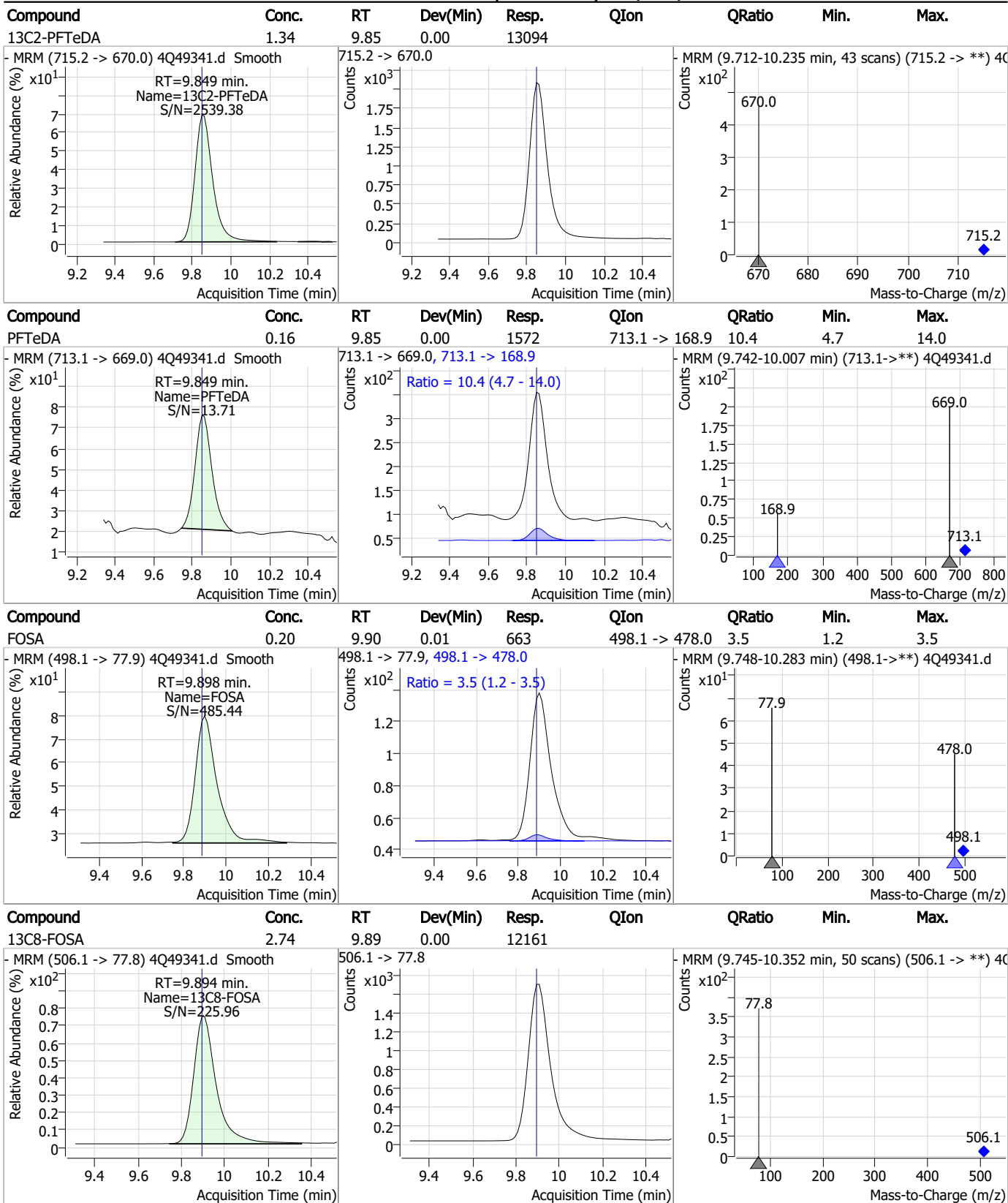
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTTrDA	0.19	9.49	0.00	2540 (m)	663.0 -> 168.9	8.7	5.7	17.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.34	9.52	0.00	2392	632.9 -> 452.9	34.2	15.8	47.3



### Perfluorinated Compounds by LC/MS/MS

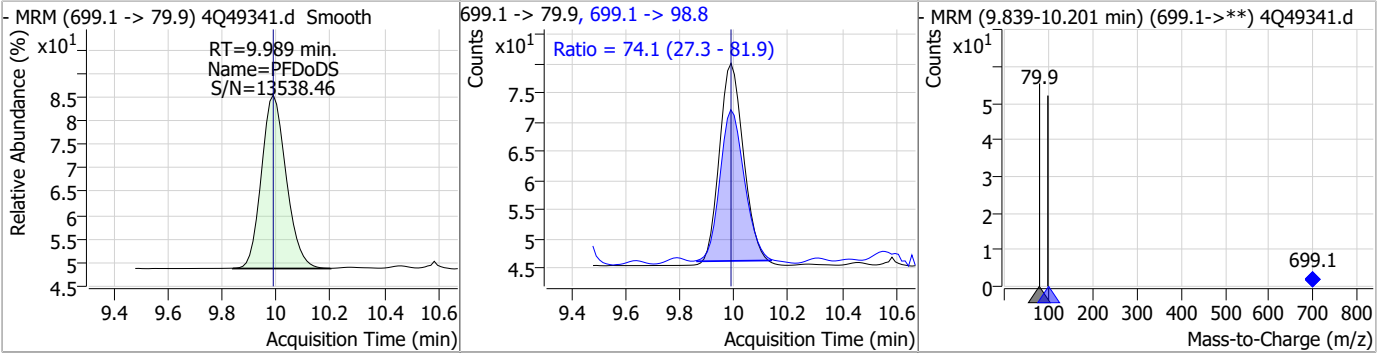


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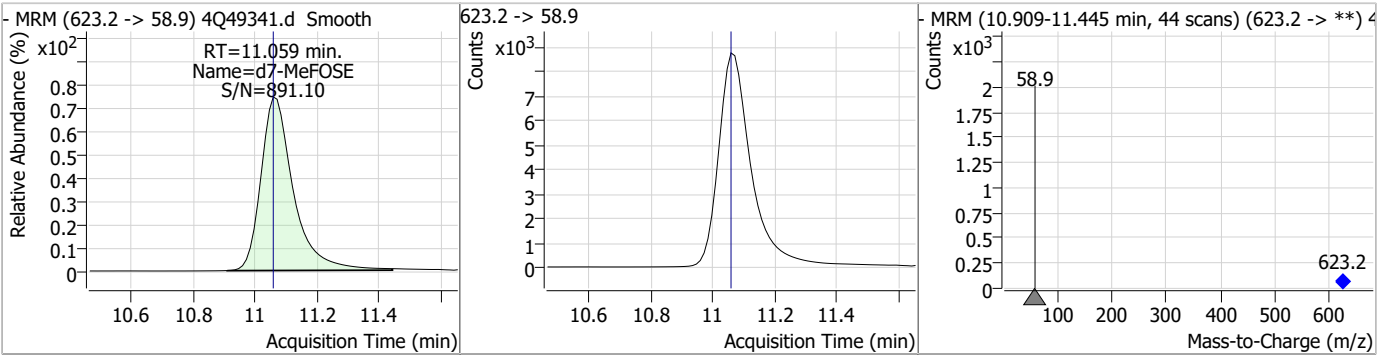


### Perfluorinated Compounds by LC/MS/MS

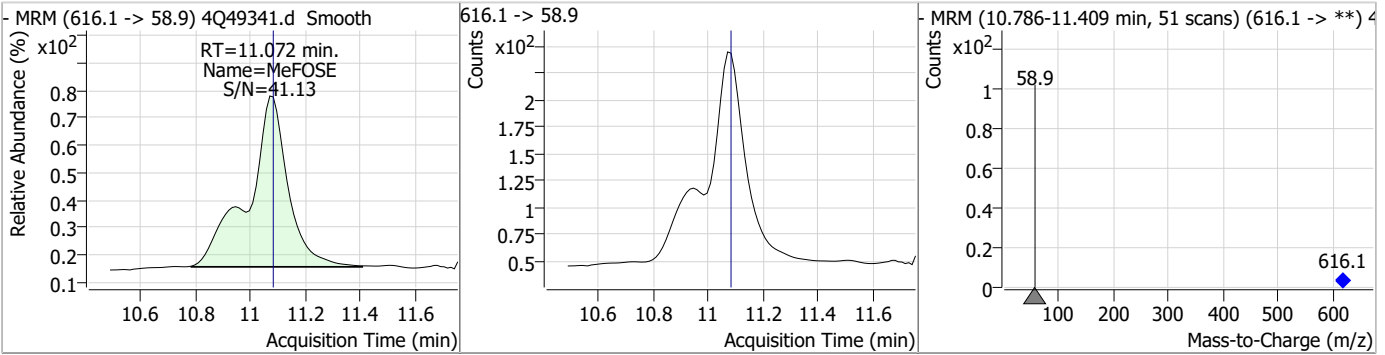
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	0.18	9.99	0.00	219	699.1 -> 98.8	74.1	27.3	81.9



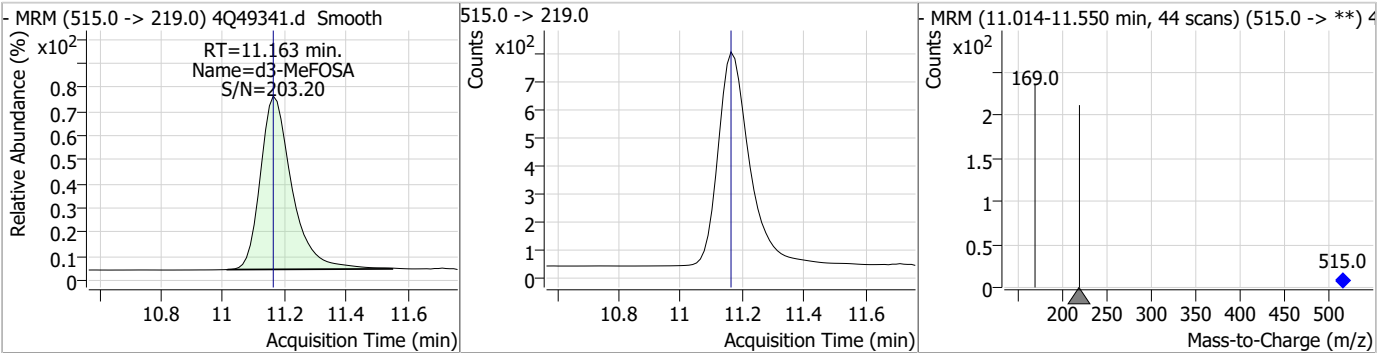
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.15	11.06	0.00	63636				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	0.88	11.07	-0.01	1993				

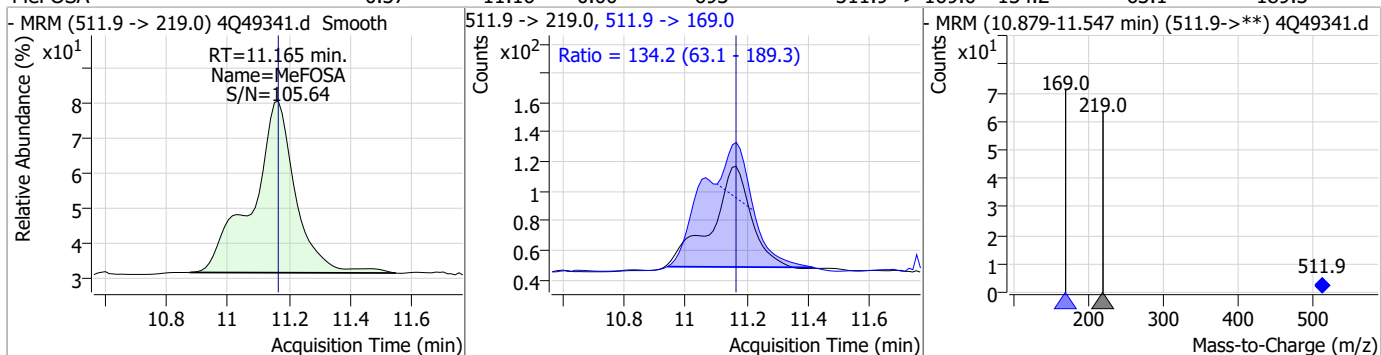


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.64	11.16	0.00	5370				

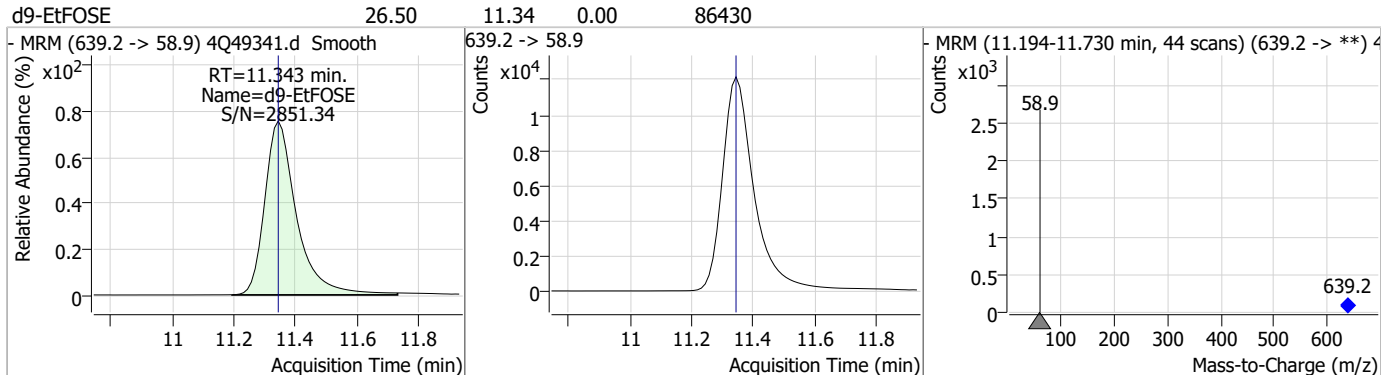


### Perfluorinated Compounds by LC/MS/MS

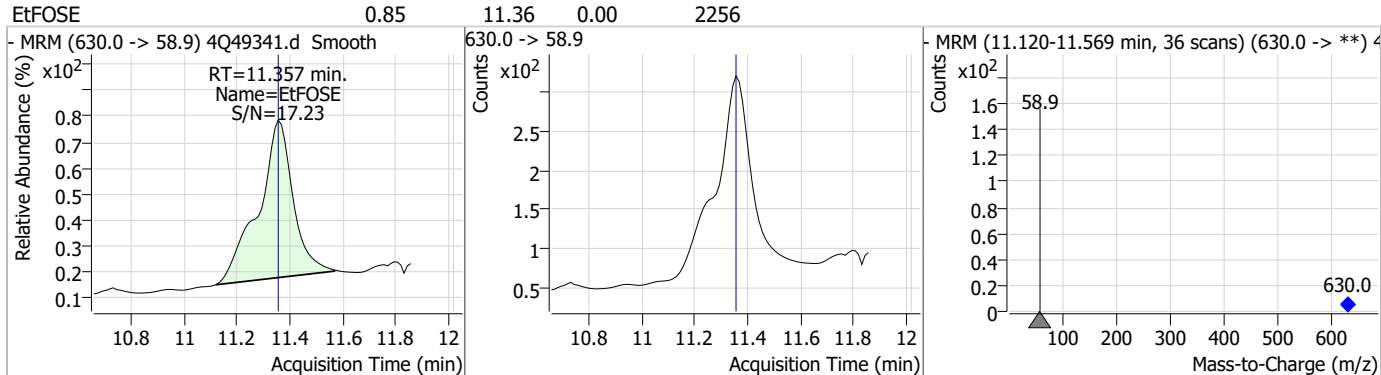
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.37	11.16	0.00	693	511.9 -> 169.0	134.2	63.1	189.3



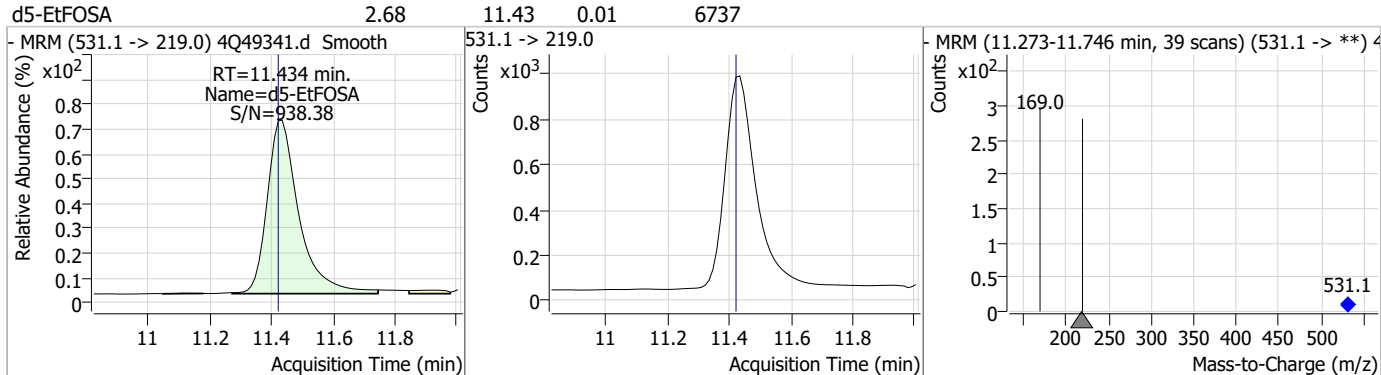
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.50	11.34	0.00	86430				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	0.85	11.36	0.00	2256				

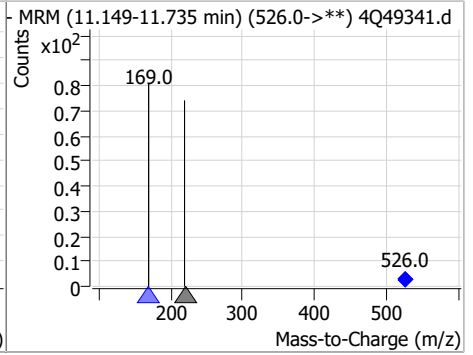
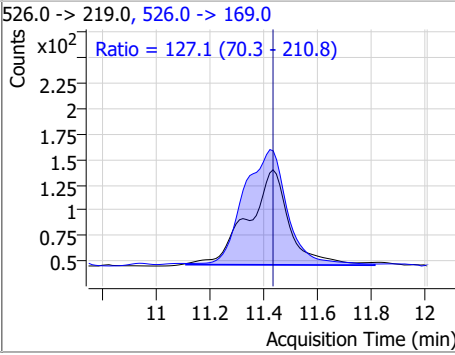
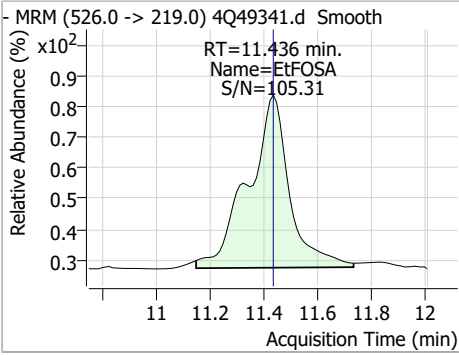


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.68	11.43	0.01	6737				



### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	0.43	11.44	0.00	1004	526.0 -> 169.0	127.1	70.3	210.8



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# Manual Integration Approval Summary

Sample Number: S4Q723-CC722      Method: EPA DRAFT 1633  
Lab FileID: 4Q49341.D      Analyst approved: 08/24/23 14:08 Anna Ludwig  
Injection Time: 08/23/23 11:05      Supervisor approved: 08/24/23 16:08 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.14	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.22	Split peak
MeFOSAA	2355-31-9		8.27	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.32	Split peak
EtFOSAA	2991-50-6		8.47	Split peak
Perfluorotridecanoic acid	72629-94-8		9.49	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q49352.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 8/23/2023 1:47:54 PM  
 Sample Name : cc722-4  
 Vial : P1-A5  
 DA Method File : 1633\_082223\_S4Q722.quantmethod.xml  
 Batch Name : s4q723.batch.bin  
 Sample Information : OP98456,S4Q723,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.811	216.8 -> 171.9	141234	10.00 µg/L	0.000
M5-PFPeA	4.325	268.3 -> 223.0	76817	5.00 µg/L	0.012
M5-PFHxA	5.534	318.0 -> 273.0	50394	2.50 µg/L	0.025
M4-PFHpA	6.492	367.1 -> 322.0	35399	2.50 µg/L	0.025
M8-PFOA	7.161	421.1 -> 376.0	53896	2.50 µg/L	0.012
M9-PFNA	7.708	472.1 -> 427.0	20875	1.25 µg/L	0.012
M6-PFDA	8.204	519.1 -> 474.1	16510	1.25 µg/L	0.012
M7-PFUnDA	8.660	570.0 -> 525.1	21170	1.25 µg/L	0.012
M2-PFDoDA	9.093	615.1 -> 570.0	23907	1.25 µg/L	0.012
M2-PFTeDA	9.861	715.2 -> 670.0	15501	1.25 µg/L	0.012
M8-FOSA	9.906	506.1 -> 77.8	14245	2.50 µg/L	0.012
M3-PFBS	5.402	302.1 -> 79.9	13943	2.50 µg/L	0.011
M3-PFHxS	7.241	402.1 -> 79.9	9990	2.50 µg/L	0.025
M8-PFOS	8.329	507.1 -> 79.9	8812	2.50 µg/L	0.000
M2-4:2FTS	5.221	329.1 -> 80.9	1826	5.00 µg/L	0.012
M2-6:2FTS	6.936	429.1 -> 80.9	2767	5.00 µg/L	0.025
M2-8:2FTS	8.003	529.1 -> 80.9	3958	5.00 µg/L	0.012
M3-MeFOSAA	8.274	573.2 -> 419.0	14595	5.00 µg/L	0.012
M3-HFPO-DA	5.902	286.9 -> 168.9	37732	10.00 µg/L	0.025
M5-EtFOSAA	8.483	589.2 -> 419.0	13295	5.00 µg/L	0.012
M7-MeFOSE	11.071	623.2 -> 58.9	74336	25.00 µg/L	0.012
M9-EtFOSE	11.343	639.2 -> 58.9	94750	25.00 µg/L	0.000
M5-EtFOSA	11.434	531.1 -> 219.0	7113	2.50 µg/L	0.012
M3-MeFOSA	11.163	515.0 -> 219.0	6062	2.50 µg/L	0.000
13C4-PFOS	8.330	502.8 -> 79.9	8536	2.50 µg/L	0.000
13C3-PFBA	2.816	216.0 -> 172.0	80692	5.00 µg/L	0.013
18O2-PFHxS	7.240	403.0 -> 83.9	6994	2.50 µg/L	0.012
13C4-PFOA	7.161	417.1 -> 372.0	63648	2.50 µg/L	0.012
13C2-PFDA	8.204	515.1 -> 470.1	14983	1.25 µg/L	0.012
13C5-PFNA	7.708	468.0 -> 423.0	22104	1.25 µg/L	0.012
13C2-PFHxA	5.535	315.1 -> 270.0	49193	2.50 µg/L	0.025
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.221	329.1 -> 80.9	1826	5.75 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.9%		
13C2-6:2FTS	6.936	429.1 -> 80.9	2767	6.13 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 122.7%		
13C2-8:2FTS	8.003	529.1 -> 80.9	3958	5.44 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.8%		
13C2-PFDoDA	9.093	615.1 -> 570.0	23907	1.21 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C2-PFTeDA	9.861	715.2 -> 670.0	15501	1.17 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.8%		
13C3-PFBS	5.402	302.1 -> 79.9	13943	2.58 µg/L	0.011
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C3-PFHxS	7.241	402.1 -> 79.9	9990	2.54 µg/L	0.025

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C4-PFBA	2.811	216.8 -> 171.9	141234	9.84 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C4-PFHpA	6.492	367.1 -> 322.0	35399	2.53 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C5-PFHxA	5.534	318.0 -> 273.0	50394	2.43 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C5-PFPeA	4.325	268.3 -> 223.0	76817	5.01 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C6-PFDA	8.204	519.1 -> 474.1	16510	1.29 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C7-PFUnDA	8.660	570.0 -> 525.1	21170	1.22 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C8-FOSA	9.906	506.1 -> 77.8	14245	2.48 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C8-PFOA	7.161	421.1 -> 376.0	53896	2.41 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.4%	
13C8-PFOS	8.329	507.1 -> 79.9	8812	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C9-PFNA	7.708	472.1 -> 427.0	20875	1.24 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.4%	
d3-MeFOSAA	8.274	573.2 -> 419.0	14595	4.89 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C3-HFPO-DA	5.902	286.9 -> 168.9	37732	9.50 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.0%	
d3-MeFOSA	11.163	515.0 -> 219.0	6062	2.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.2%	
d5-EtFOSAA	8.483	589.2 -> 419.0	13295	5.33 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.5%	
d7-MeFOSE	11.071	623.2 -> 58.9	74336	23.62 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.5%	
d9-EtFOSE	11.343	639.2 -> 58.9	94750	22.46 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.8%	
d5-EtFOSA	11.434	531.1 -> 219.0	7113	2.19 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.6%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.222	327.1 -> 307.0	17482	8.38 µg/L	96
		327.1 -> 80.9	7699		
6:2FTS	6.936	427.1 -> 407.0	16161	8.00 µg/L	98
		427.1 -> 80.9	6495		
8:2FTS	8.004	527.1 -> 507.0	13026	8.41 µg/L	97
		527.1 -> 80.8	6654		
EtFOSAA	8.496	584.2 -> 419.1	4159	2.20 µg/L	m 93
		584.2 -> 526.0	1789		
FOSA	9.910	498.1 -> 77.9	9042	2.27 µg/L	# 96
		498.1 -> 478.0	320		
MeFOSAA	8.287	570.1 -> 419.0	4357	2.08 µg/L	m 94
		570.1 -> 483.0	977		
PFBA	2.820	212.8 -> 168.9	27032	8.91 µg/L	100
PFBS	5.403	298.7 -> 79.9	7306	1.81 µg/L	99
		298.7 -> 98.8	3061		
PFDA	8.204	512.9 -> 469.0	20273	2.13 µg/L	94
		512.9 -> 219.0	4016		
PFDODA	9.093	613.1 -> 569.0	31165	2.18 µg/L	99
		613.1 -> 319.0	5075		
PFDS	9.245	599.0 -> 79.9	4644	2.19 µg/L	94

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.492	599.0 -> 98.8	2312	2.21	µg/L	100
		363.1 -> 319.0	38021			
PFHpS	7.822	363.1 -> 169.0	7043	2.17	µg/L	99
		449.0 -> 79.9	6531			
PFHxA	5.525	449.0 -> 98.9	3381	2.20	µg/L	99
		313.0 -> 269.0	34098			
PFHxS	7.242	313.0 -> 118.9	1157	2.01	µg/L	m
		398.7 -> 79.9	5669			
PFNA	7.709	398.7 -> 98.9	2838	2.20	µg/L	100
		463.0 -> 419.0	23195			
PFNS	8.811	463.0 -> 219.0	6036	2.26	µg/L	92
		548.8 -> 79.9	3759			
PFOA	7.162	548.8 -> 98.9	1835	2.15	µg/L	97
		413.0 -> 369.0	43780			
PFOS	8.331	413.0 -> 169.0	9278	2.01	µg/L	m
		498.9 -> 79.9	6607			
PFPeA	4.327	498.9 -> 98.8	3298	4.34	µg/L	100
		263.0 -> 219.0	59085			
PFPeS	6.494	349.1 -> 79.9	5181	2.05	µg/L	98
		349.1 -> 98.9	2320			
PFTeDA	9.862	713.1 -> 669.0	26116	2.28	µg/L	100
		713.1 -> 168.9	2416			
PFTrDA	9.504	663.0 -> 619.0	36263	2.29	µg/L	99
		663.0 -> 168.9	4021			
PFUnDA	8.660	563.1 -> 519.0	22871	2.34	µg/L	100
		563.1 -> 269.1	4412			
11CI-PF3OUdS	9.530	630.9 -> 450.9	36698	4.39	µg/L	100
		632.9 -> 452.9	11511			
9CI-PF3ONS	8.675	530.8 -> 351.0	37683	4.20	µg/L	100
		532.8 -> 353.0	12114			
ADONA	6.756	376.9 -> 250.9	116746	4.38	µg/L	99
		376.9 -> 84.8	36390			
HFPO-DA	5.903	284.9 -> 168.9	13218	4.34	µg/L	98
		284.9 -> 184.9	1496			
3:3FTCA	3.786	241.0 -> 177.0	7145	10.77	µg/L	100
		241.0 -> 117.0	768			
5:3FTCA	6.244	341.0 -> 237.1	125915	57.13	µg/L	100
		341.0 -> 217.0	92183			
7:3FTCA	7.736	441.0 -> 316.9	53032	54.78	µg/L	95
		441.0 -> 336.9	125287			
EtFOSA	11.436	526.0 -> 219.0	12203	4.98	µg/L	m
		526.0 -> 169.0	16300			
EtFOSE	11.369	630.0 -> 58.9	32670	11.23	µg/L	100
		511.9 -> 219.0	9759			
MeFOSA	11.177	511.9 -> 169.0	14729	4.64	µg/L	m
		616.1 -> 58.9	30287			
MeFOSE	11.084	699.1 -> 79.9	3458	11.48	µg/L	m
		699.1 -> 98.8	2106			
PFDoDS	10.001	295.0 -> 201.0	5450	2.16	µg/L	91
		295.0 -> 84.9	1659			
NFDHA	5.416	279.0 -> 85.1	35496	4.43	µg/L	100
		229.0 -> 84.9	38640			
PFMBA	4.753	314.8 -> 134.9	52463	3.90	µg/L	98
		314.8 -> 82.9	1903			

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



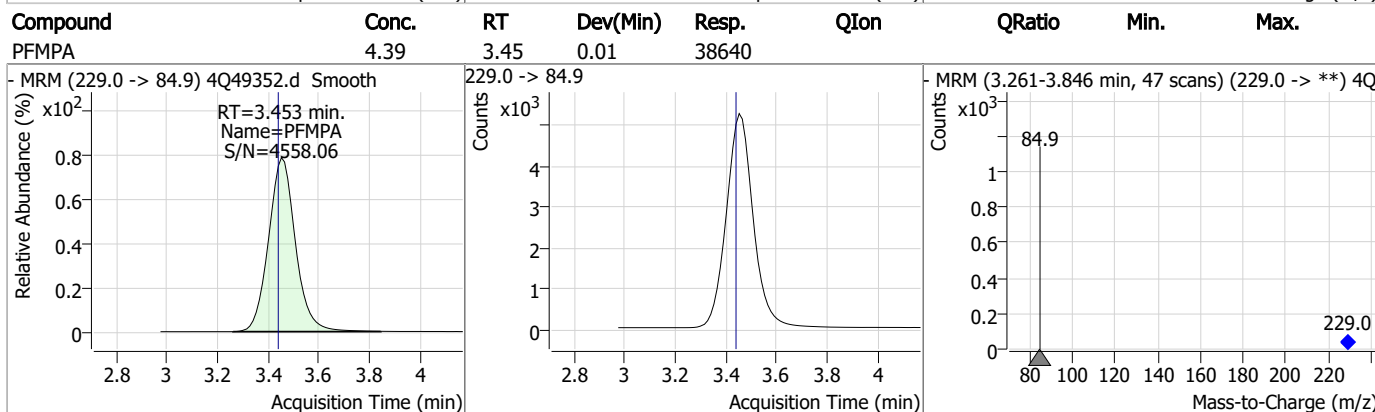
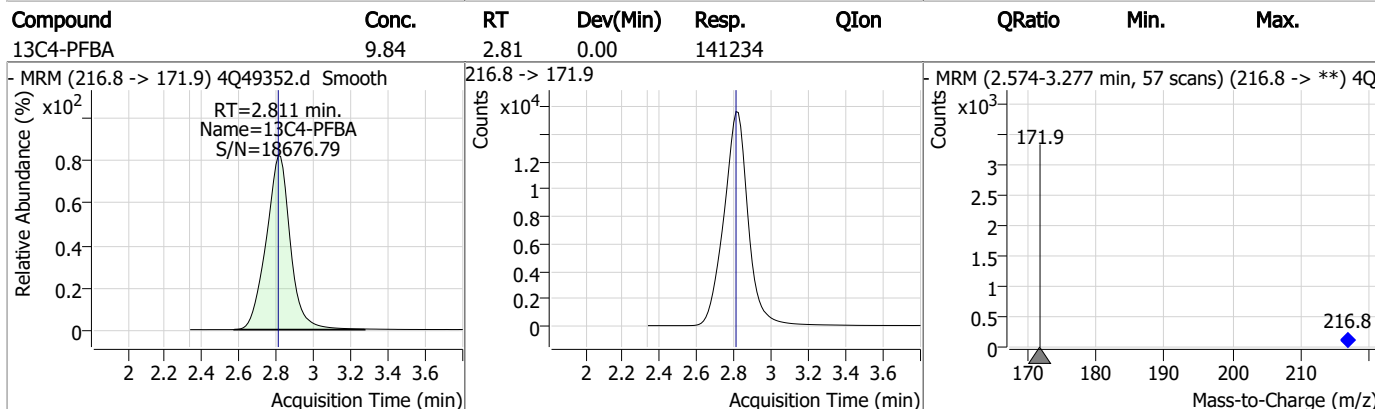
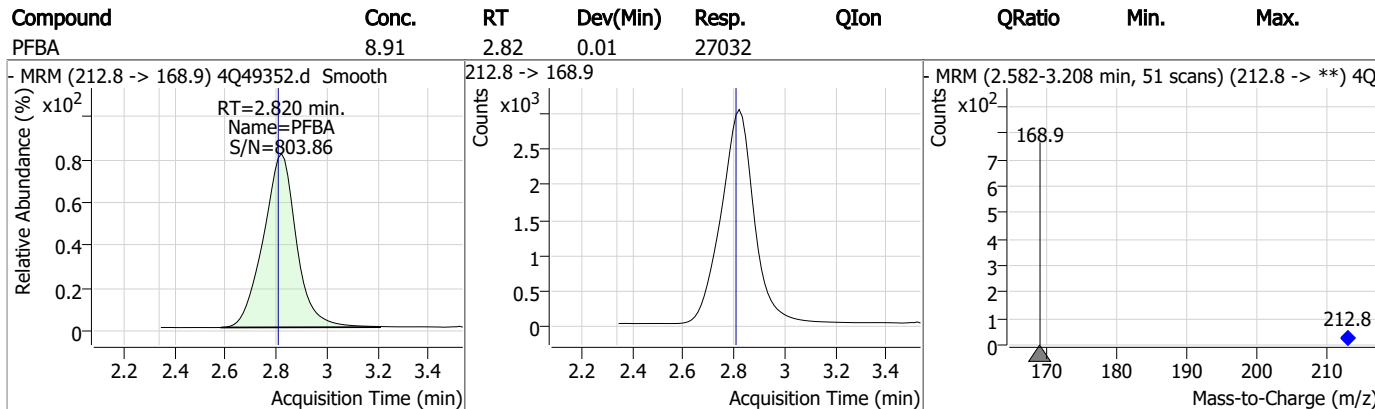
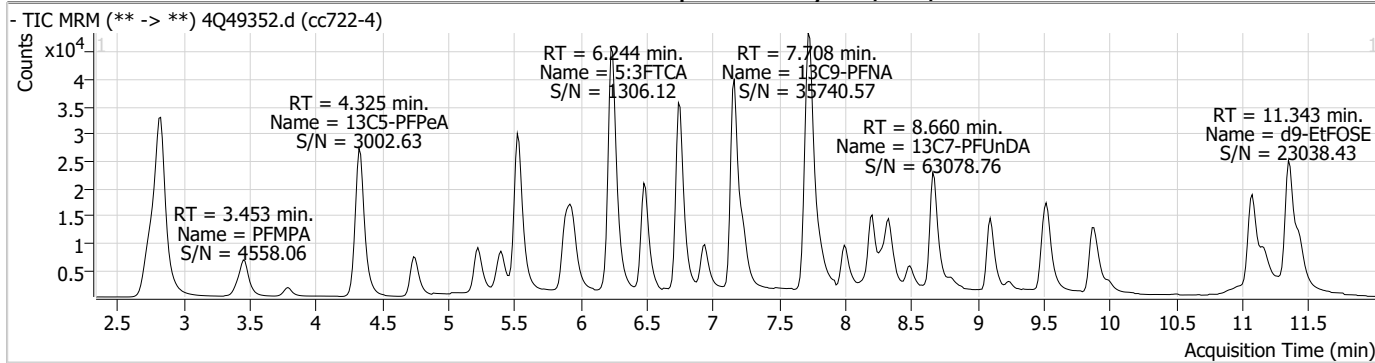
### Perfluorinated Compounds by LC/MS/MS

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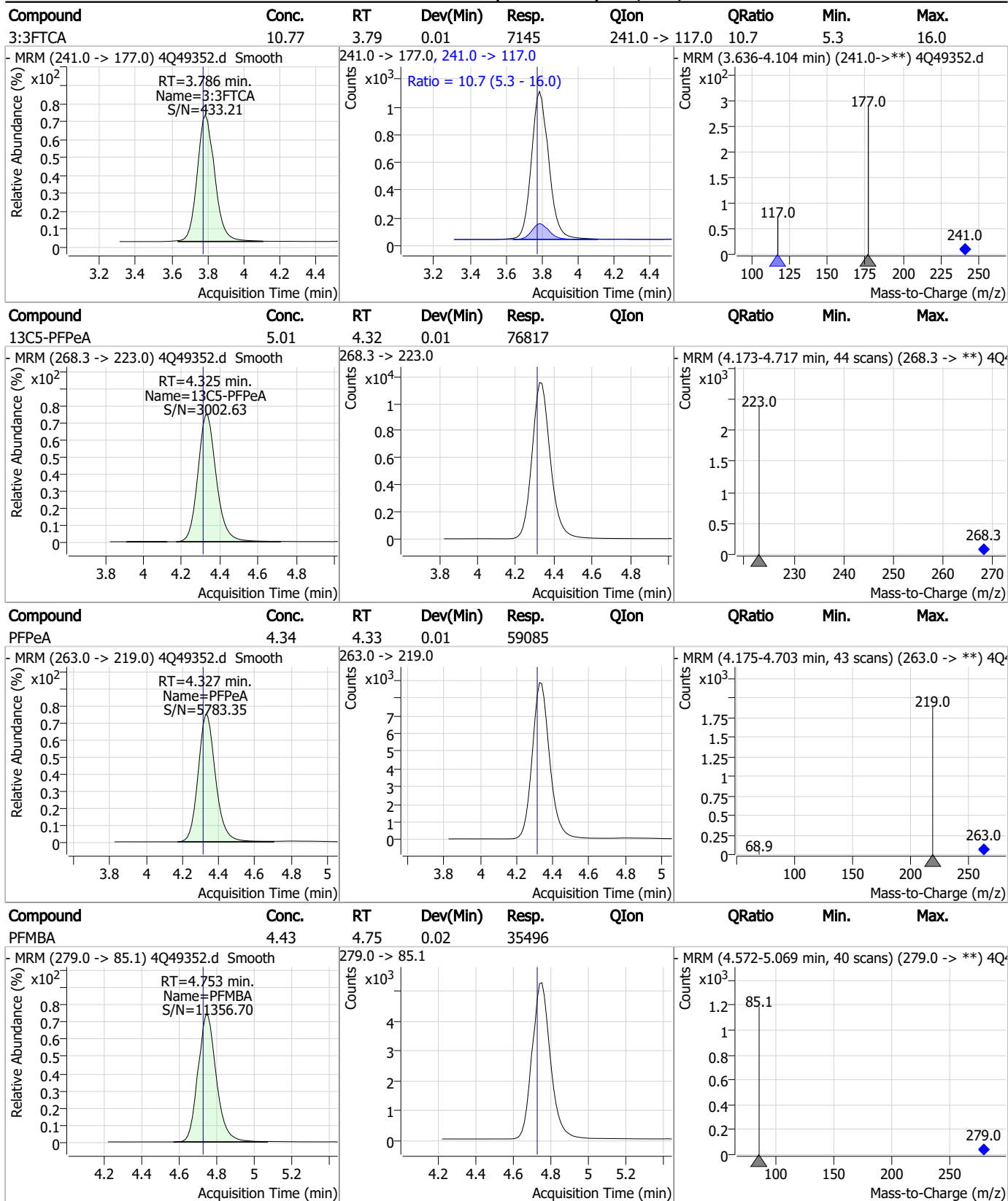
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### Perfluorinated Compounds by LC/MS/MS



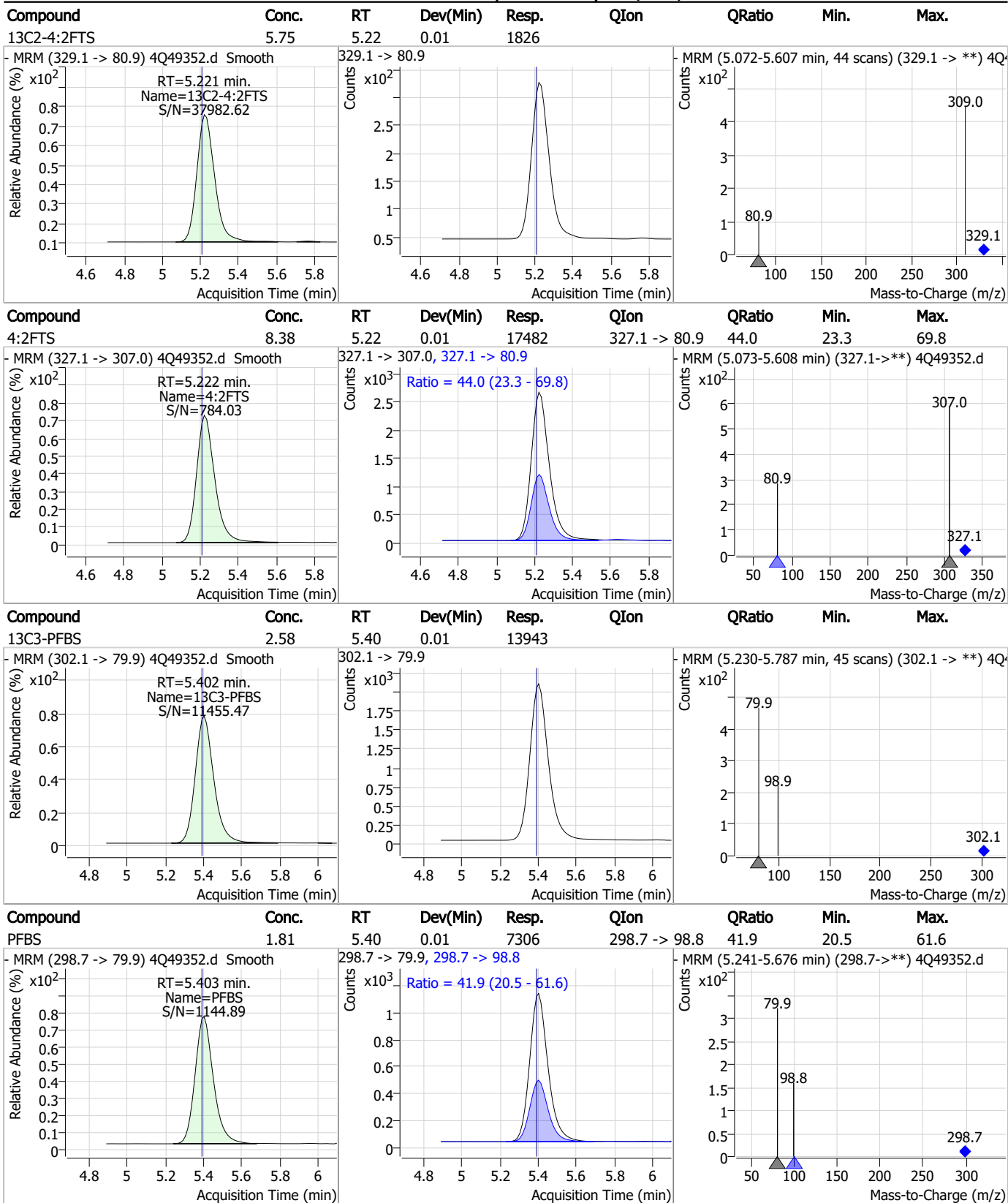
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### Perfluorinated Compounds by LC/MS/MS



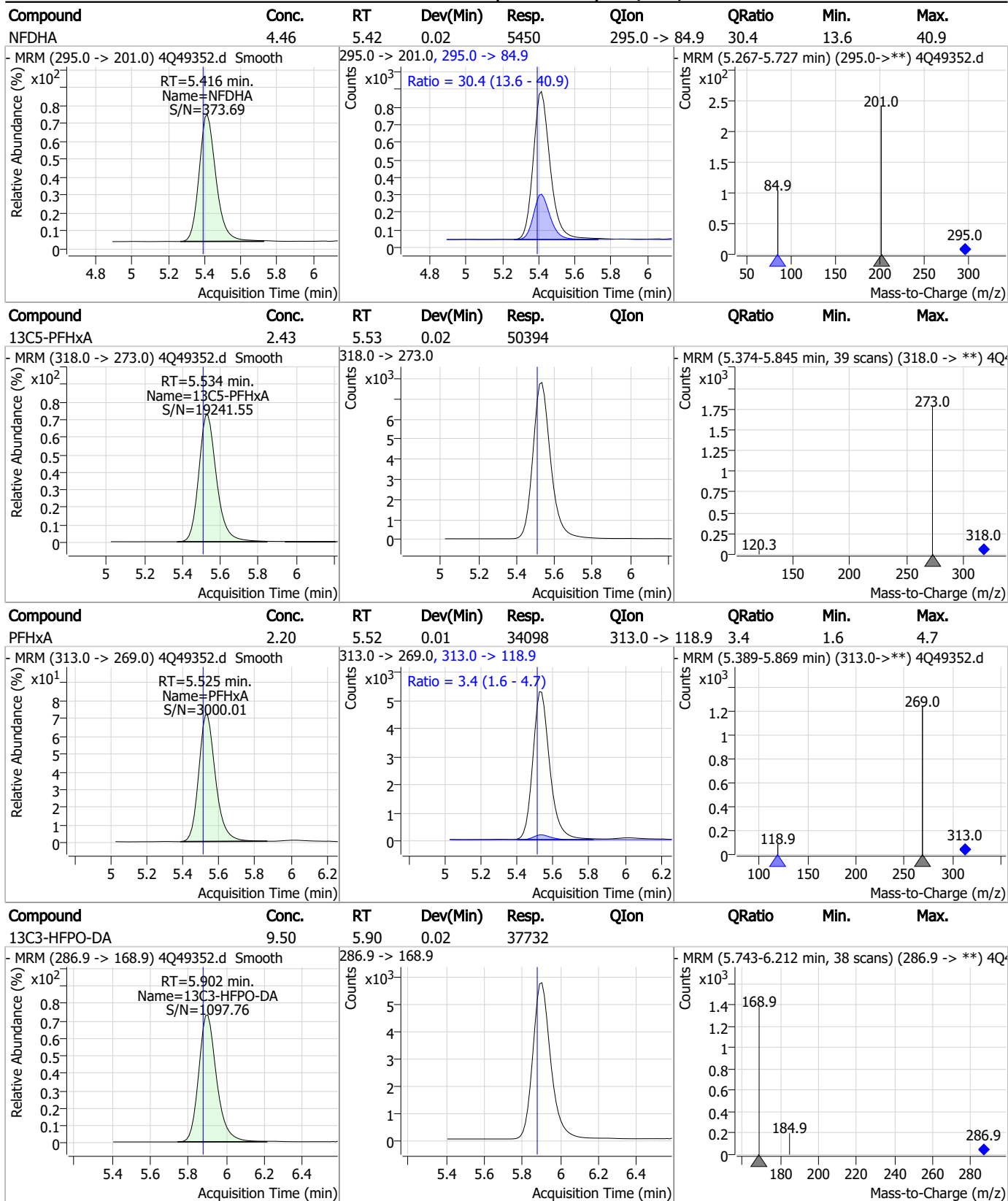
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### Perfluorinated Compounds by LC/MS/MS



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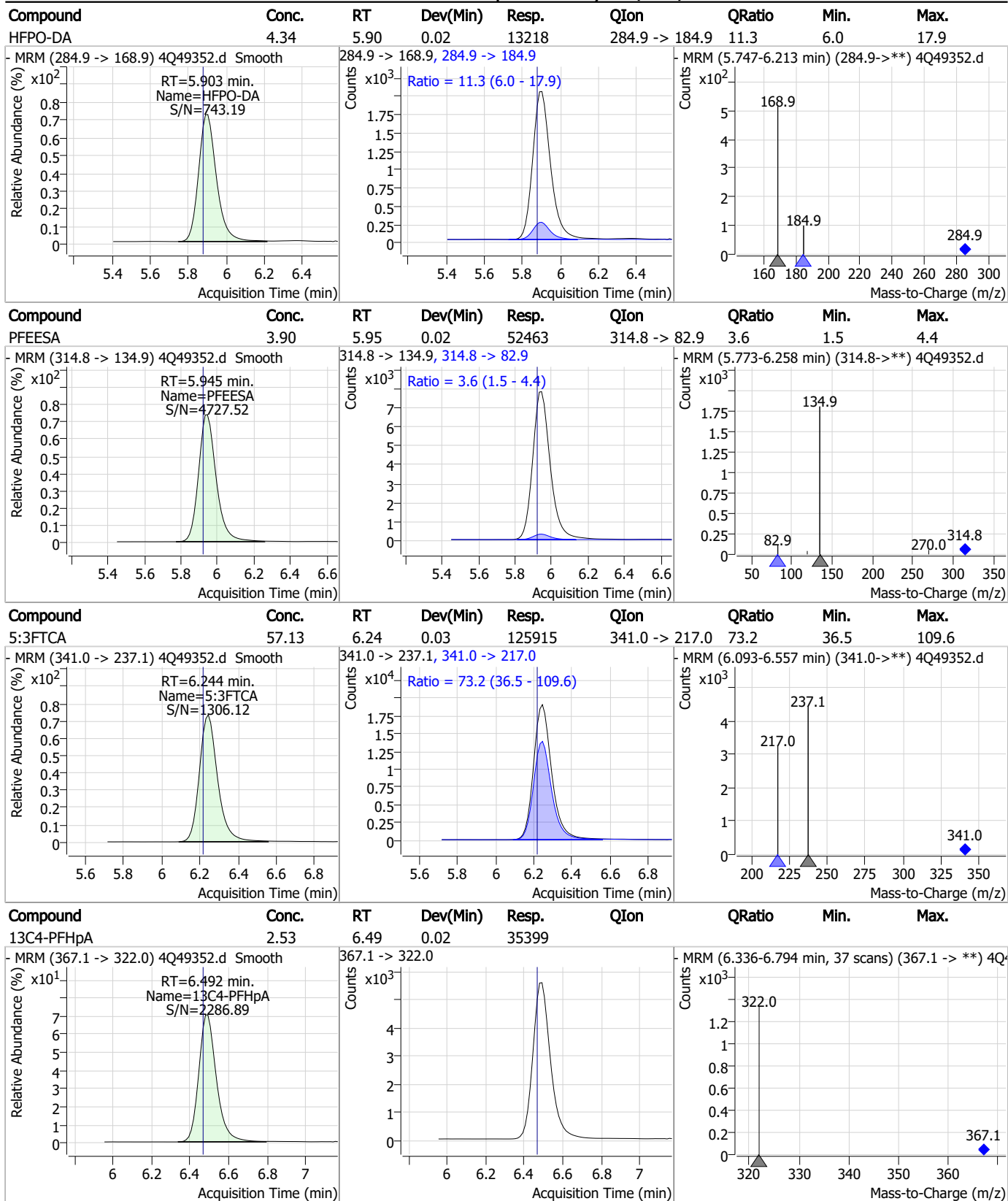
### Perfluorinated Compounds by LC/MS/MS



7.7.14



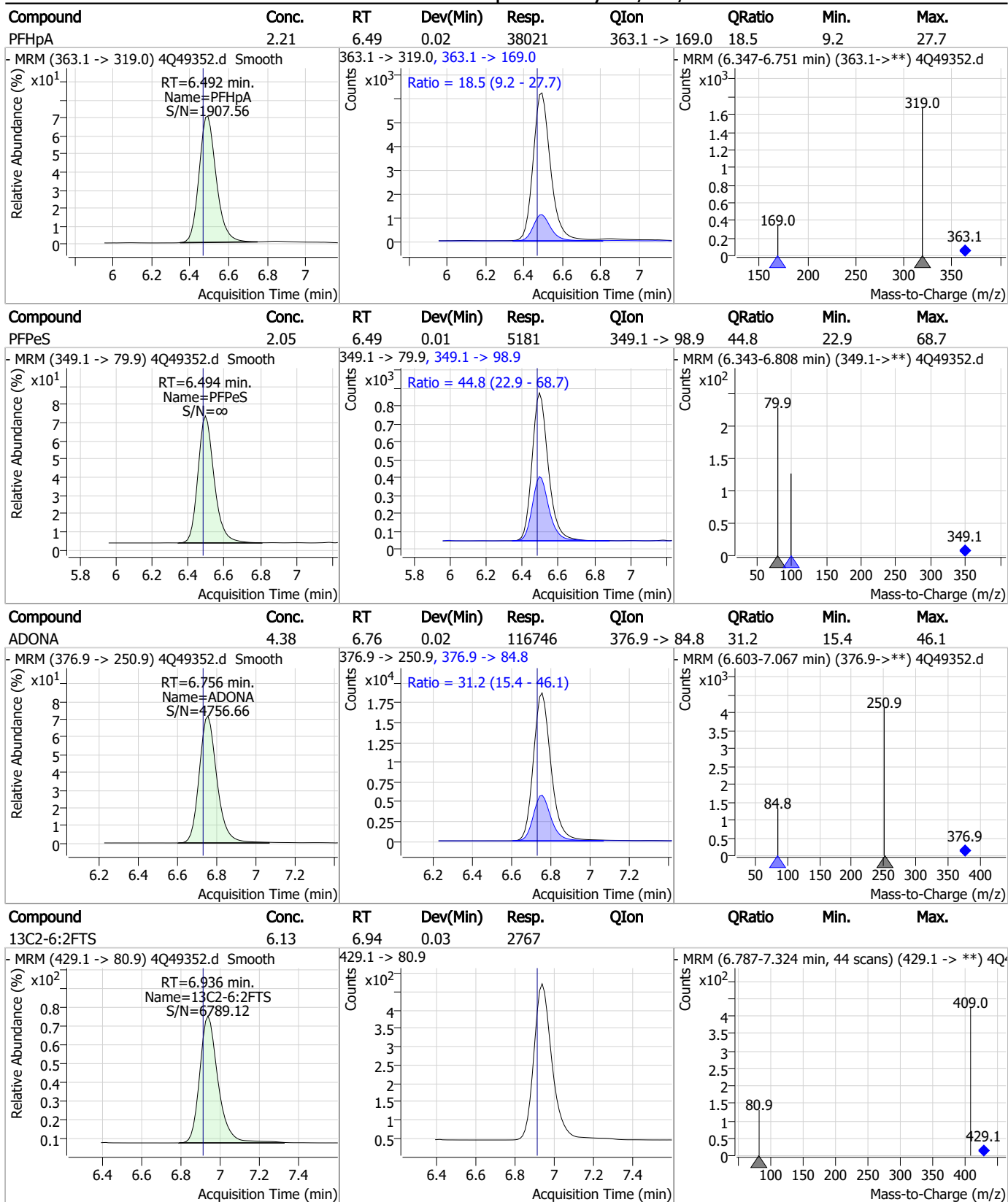
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7.7.14  
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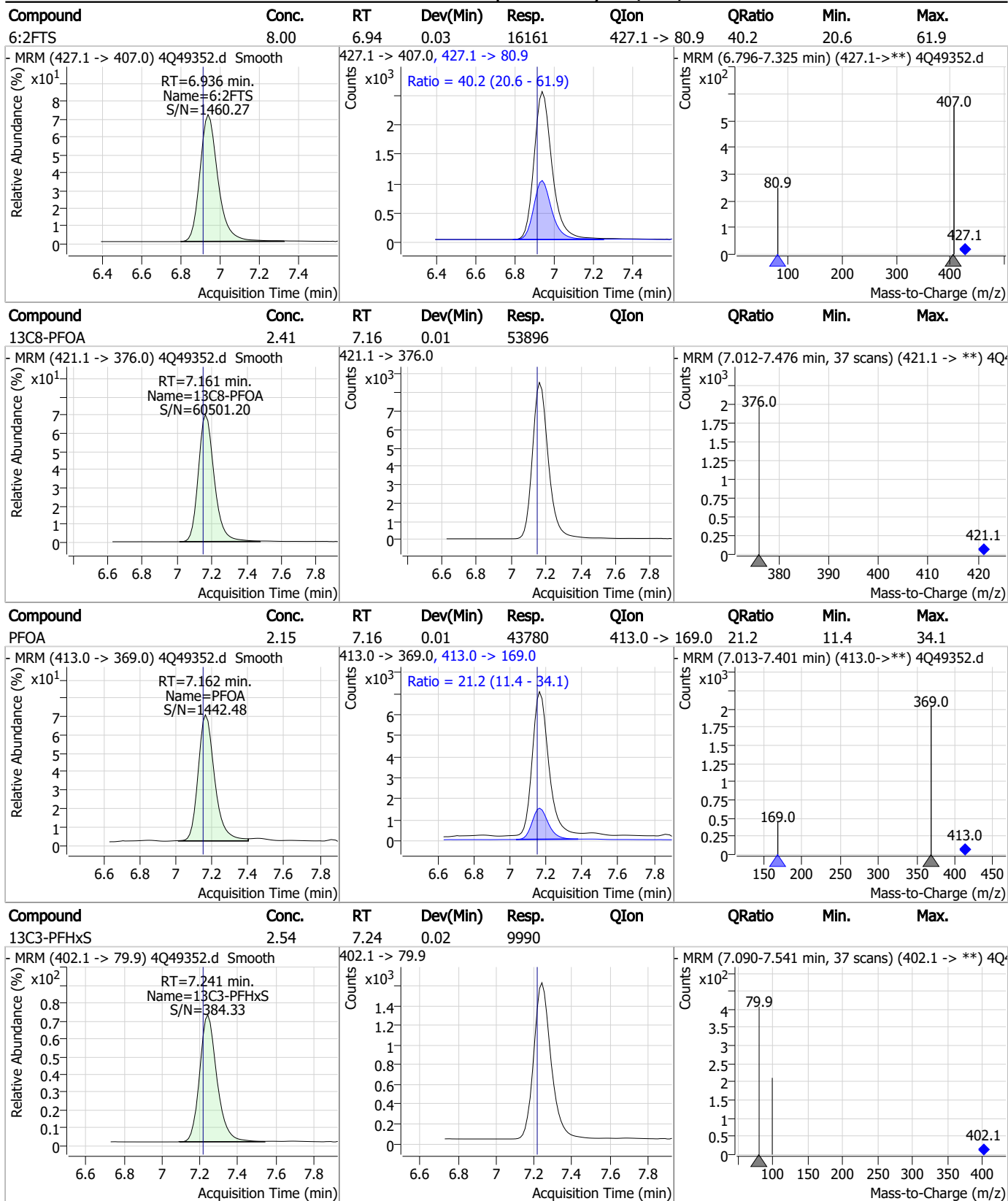


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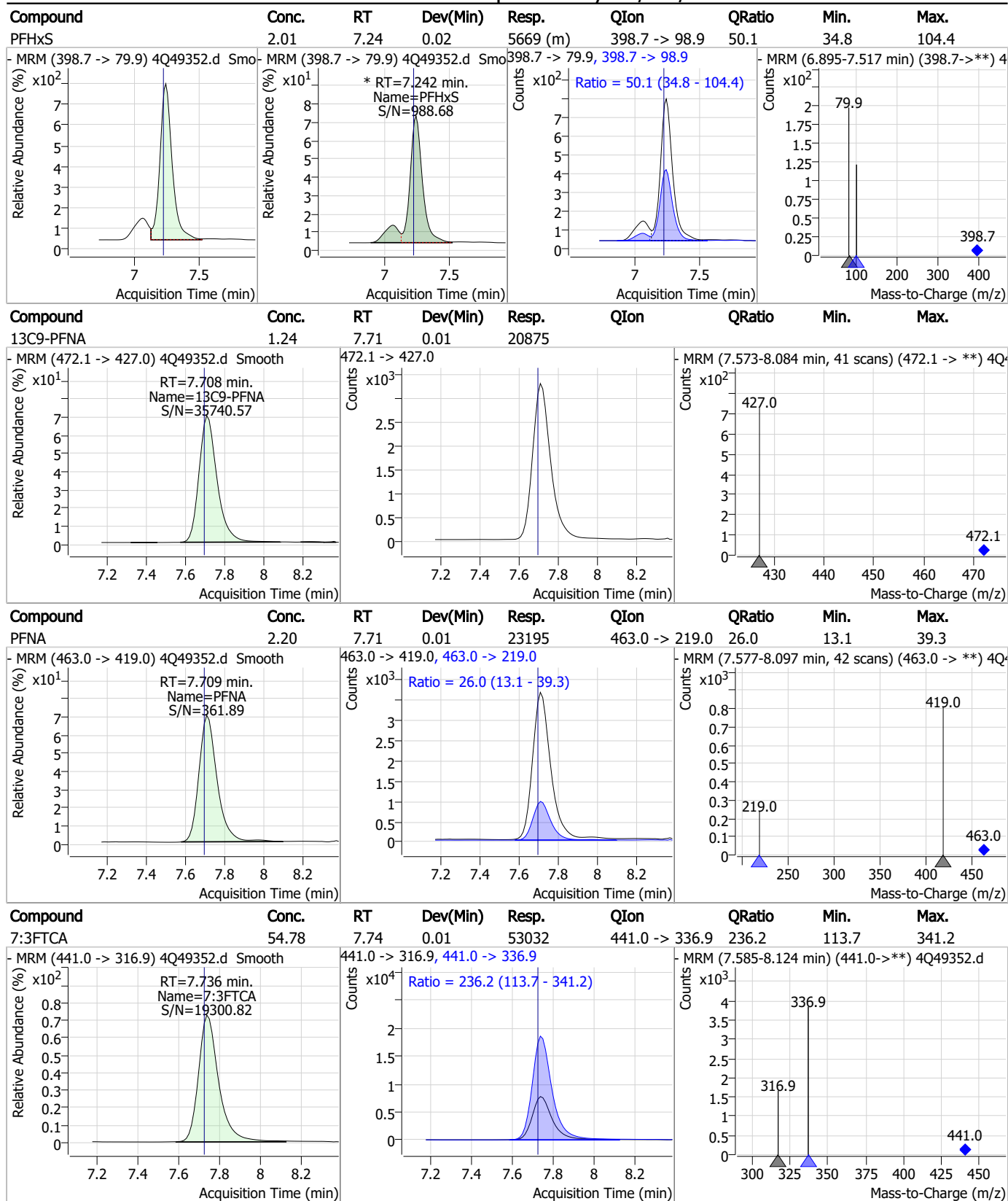
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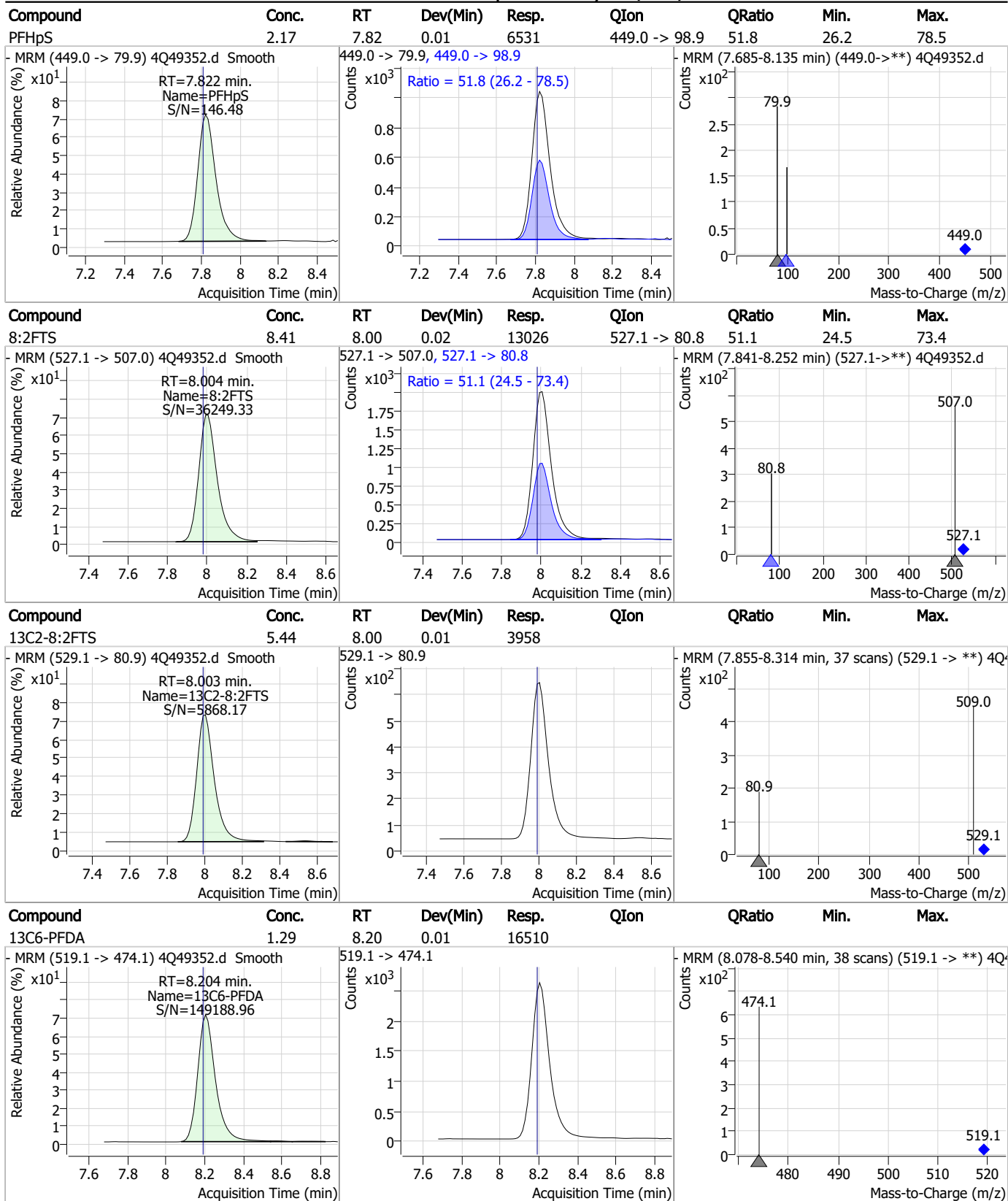


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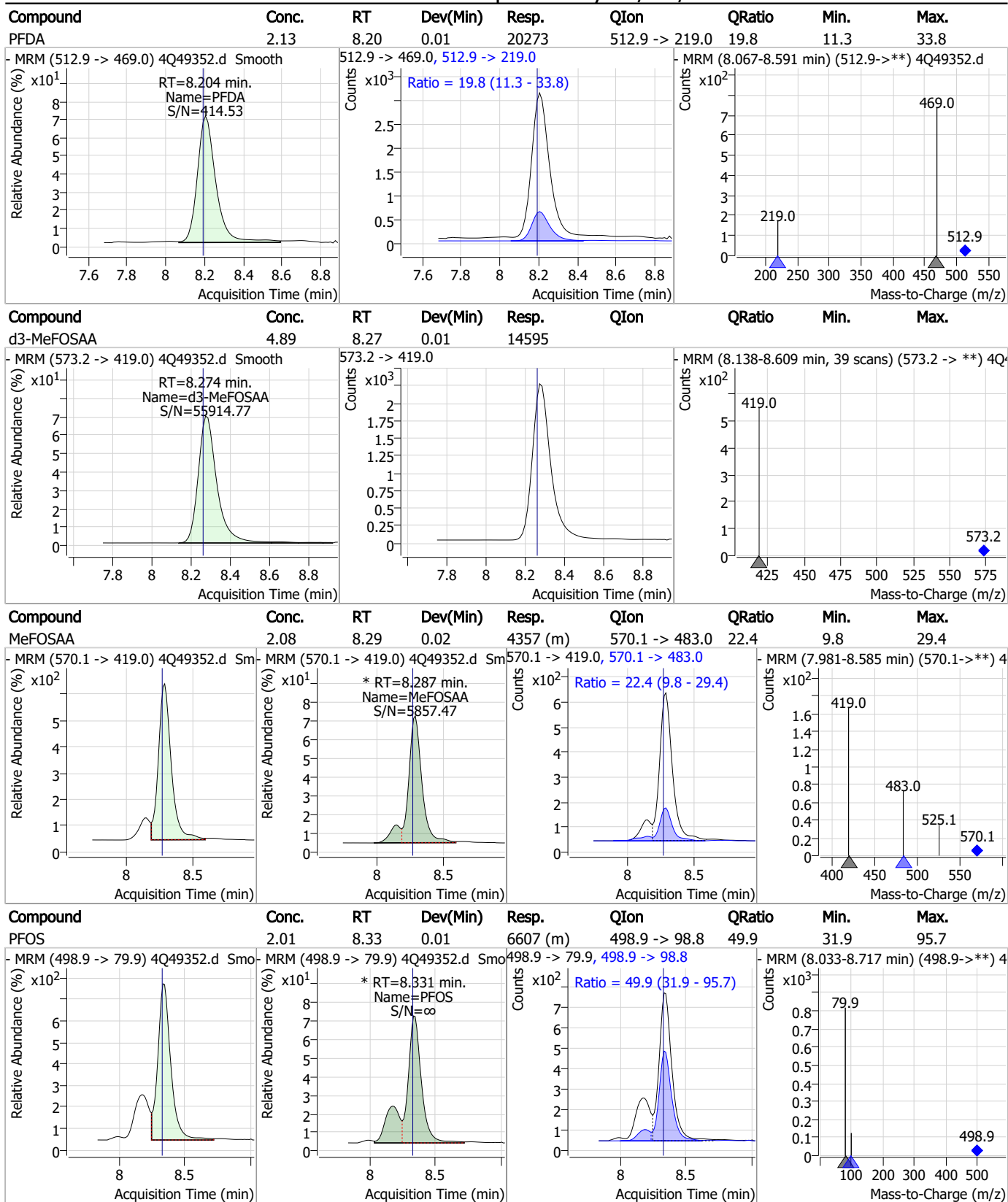
### Perfluorinated Compounds by LC/MS/MS



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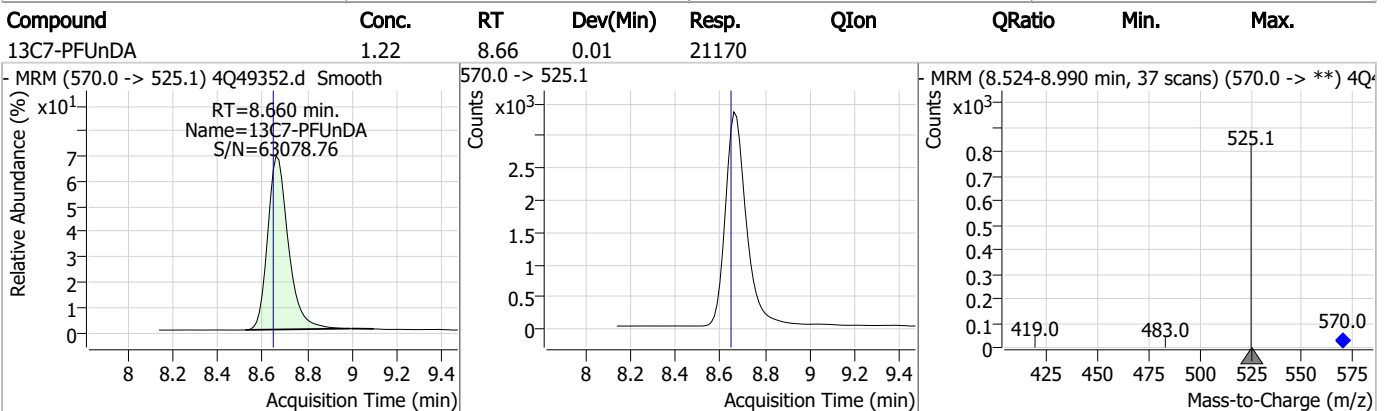
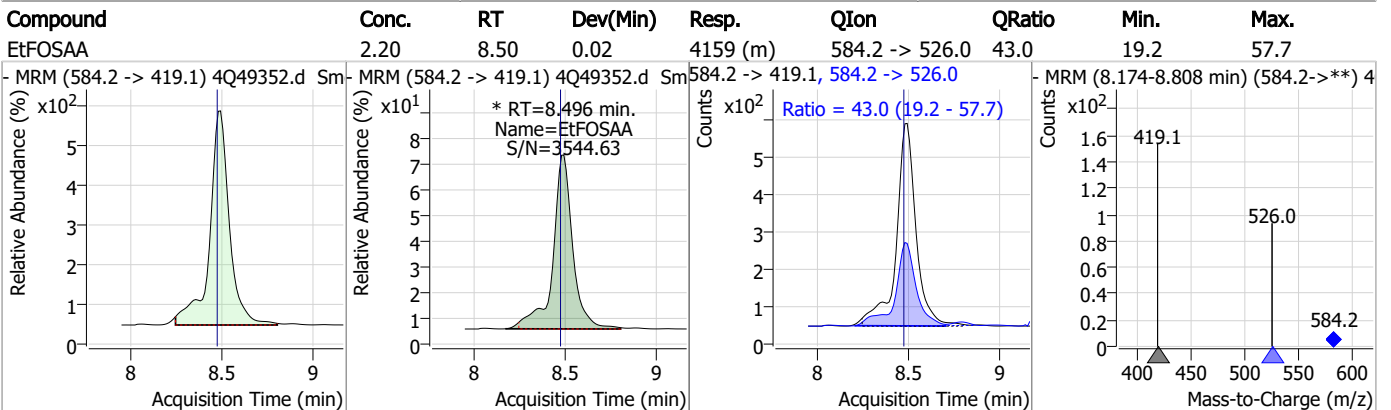
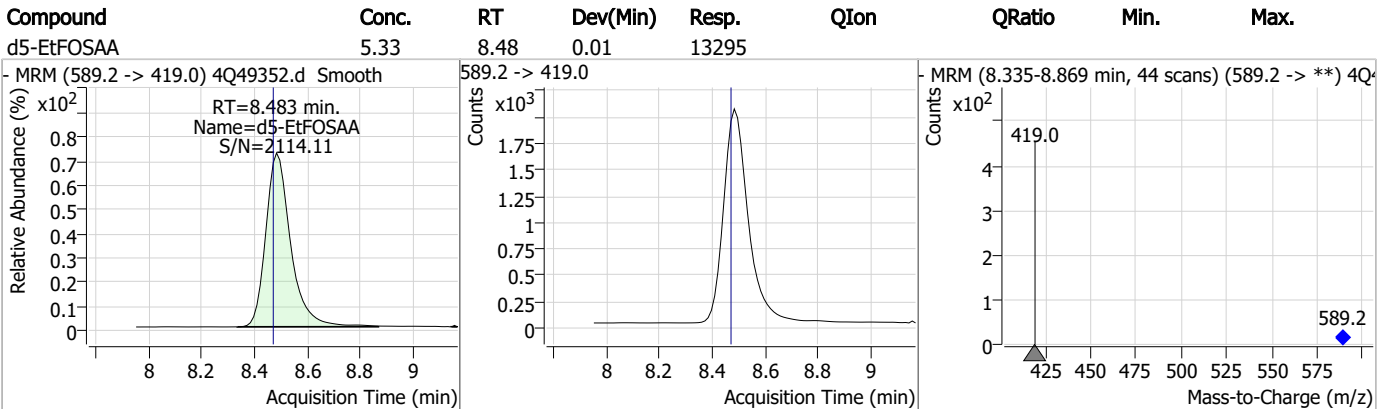
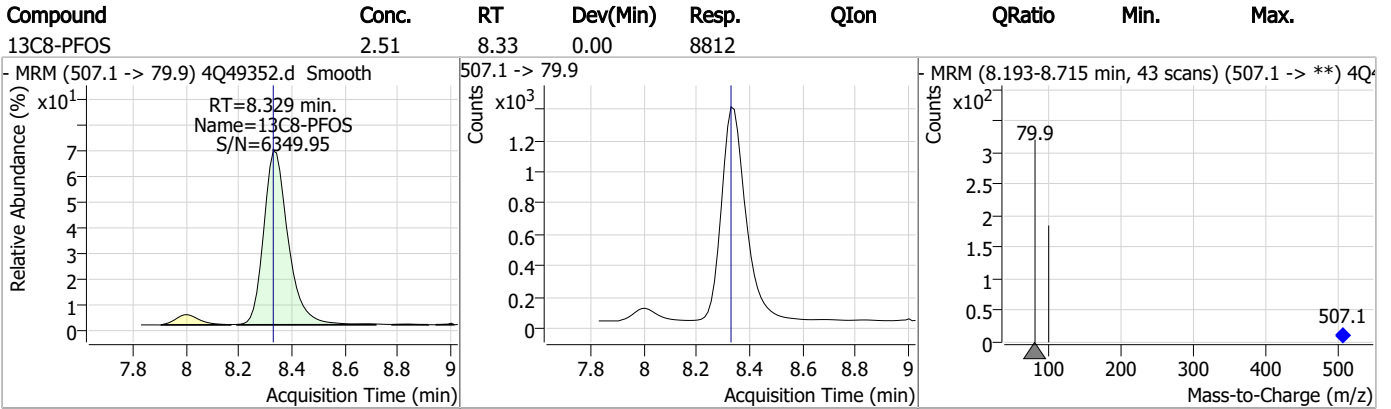
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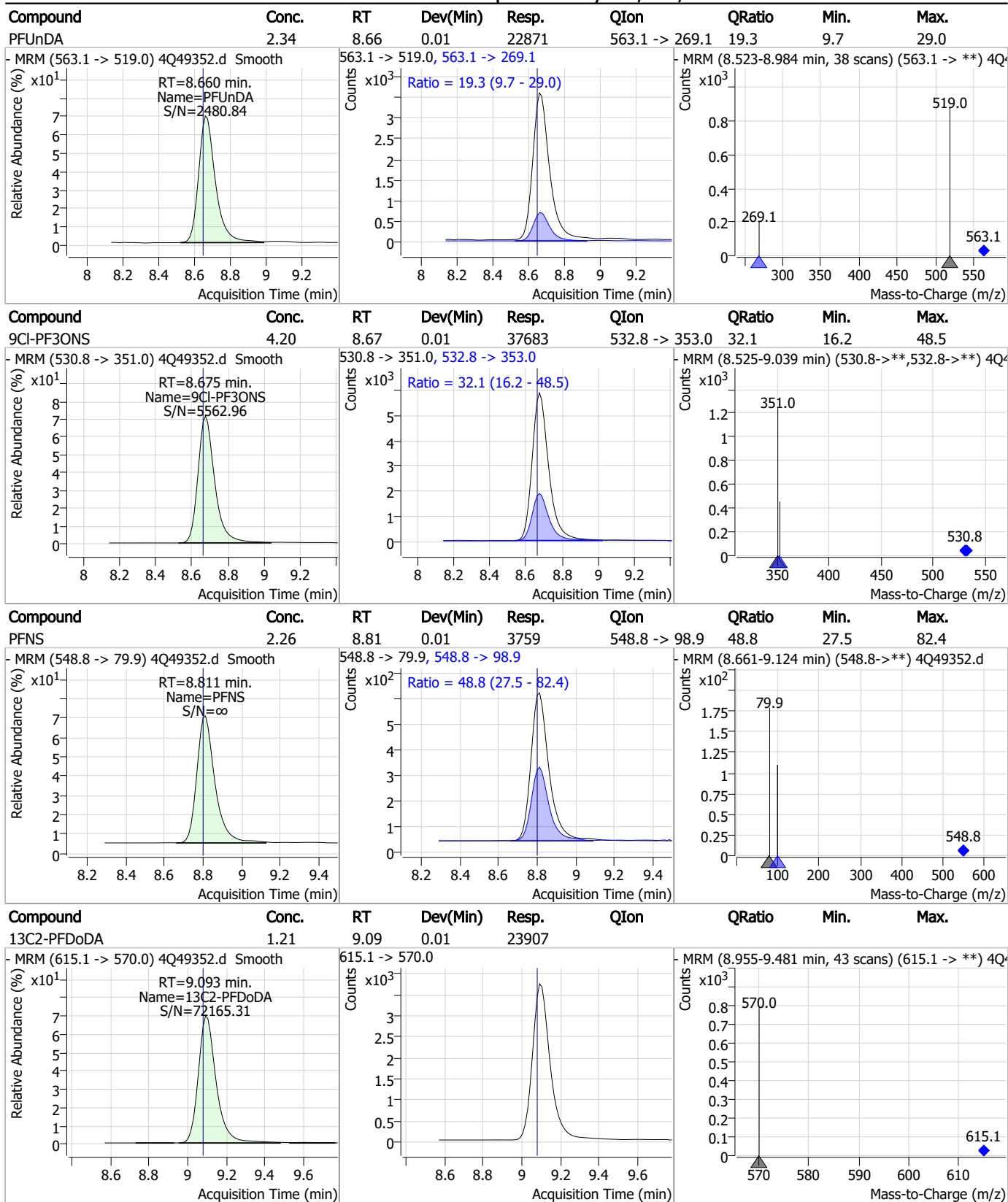


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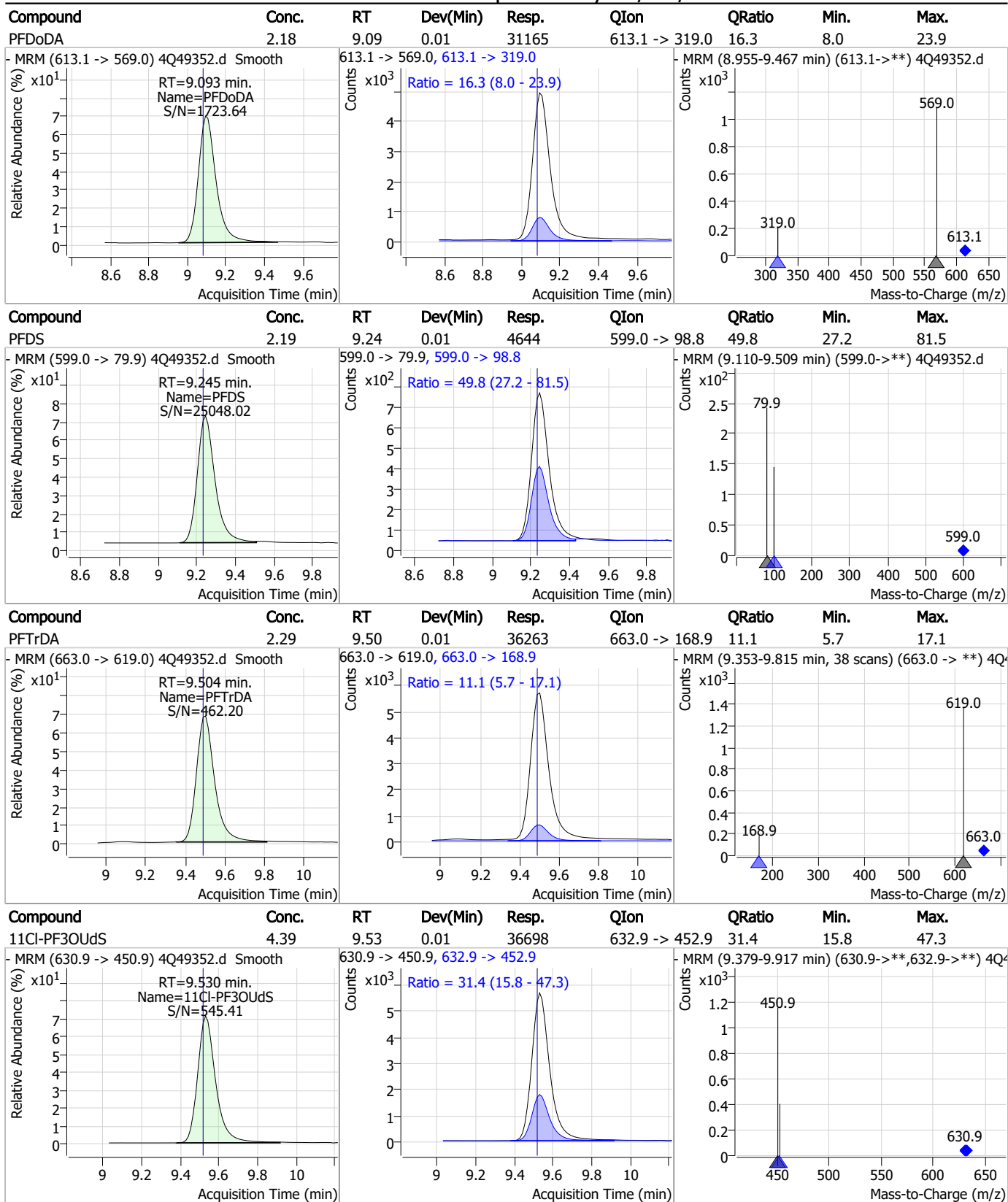


### Perfluorinated Compounds by LC/MS/MS



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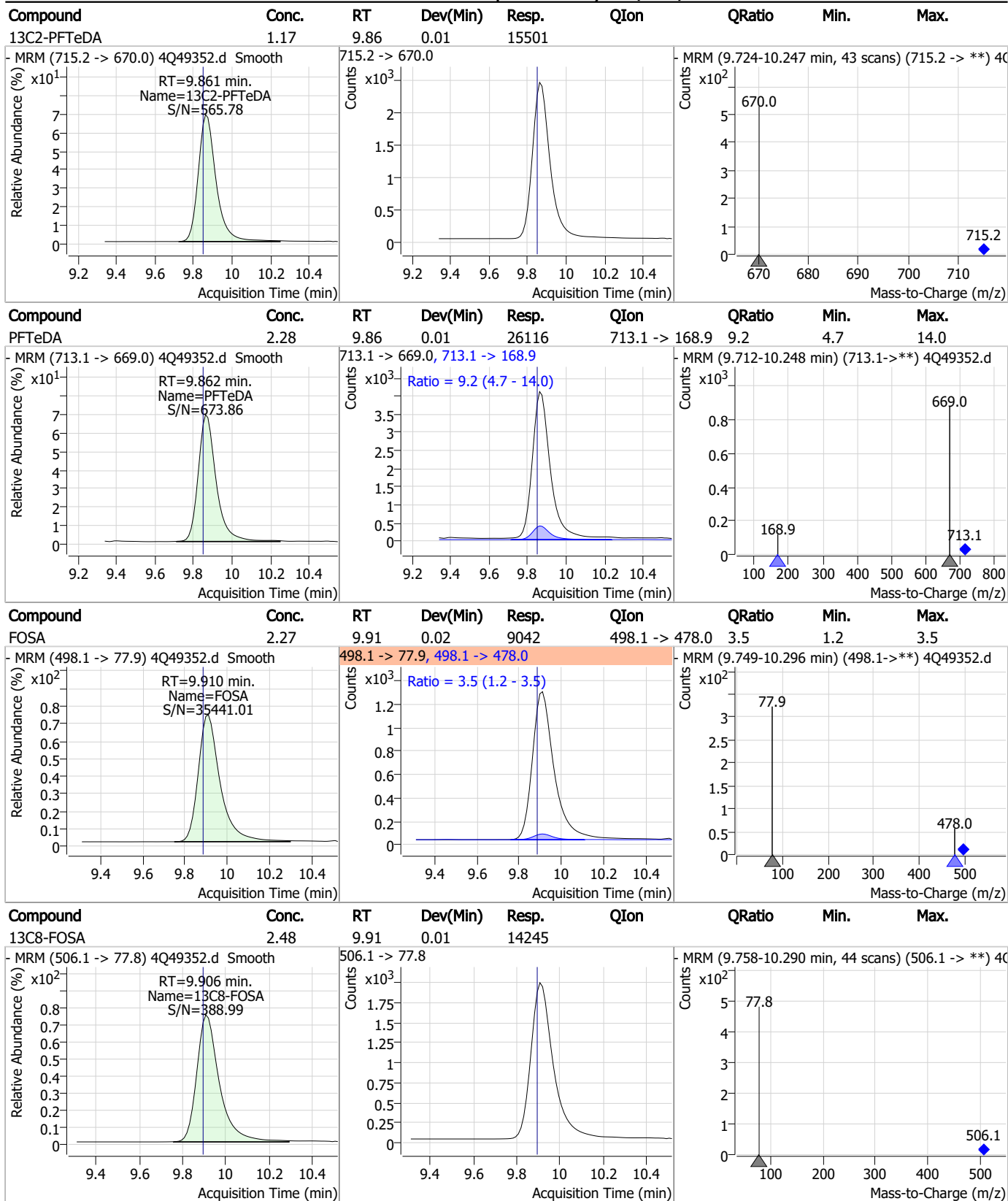
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7.7.14

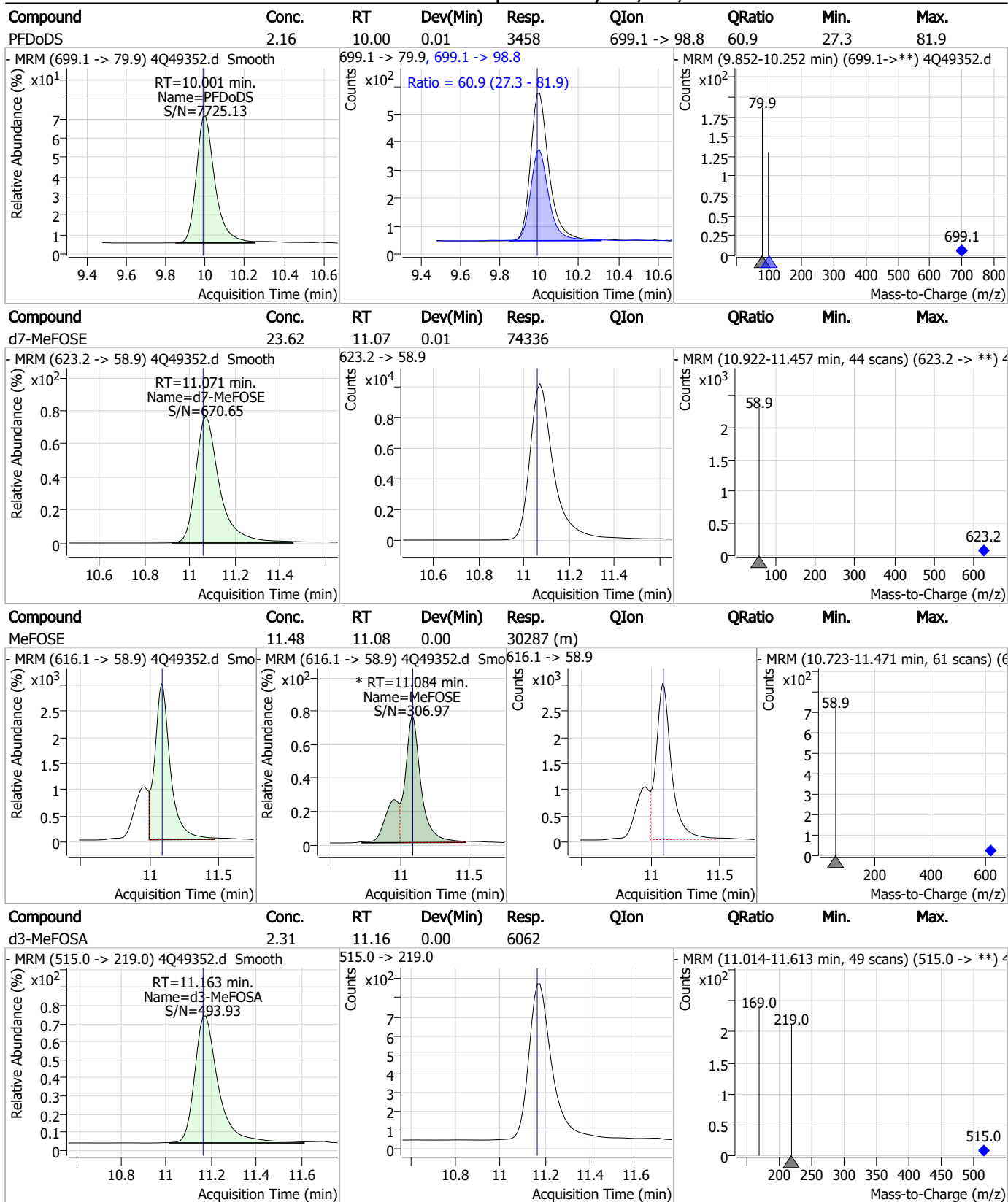


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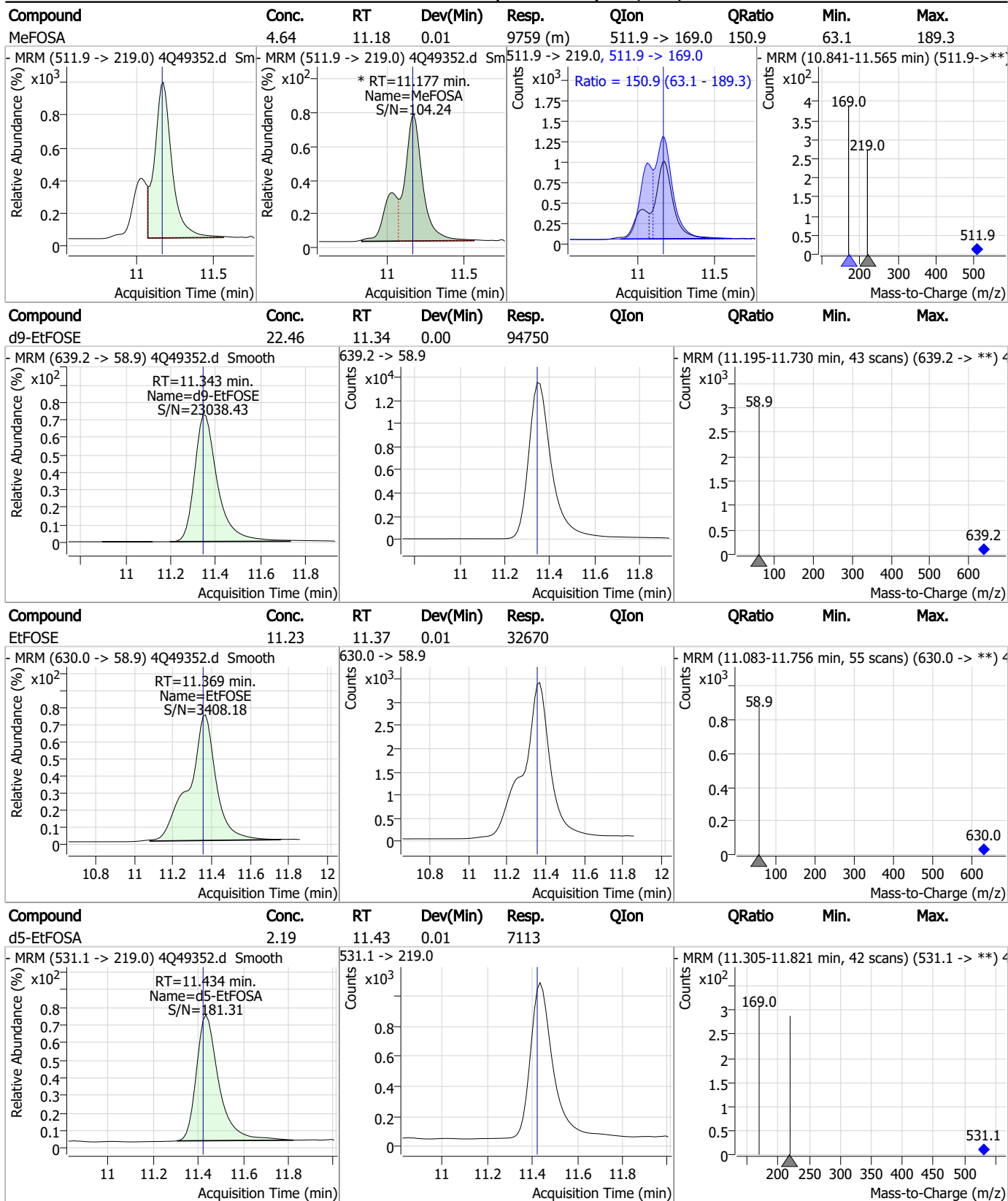
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### Perfluorinated Compounds by LC/MS/MS



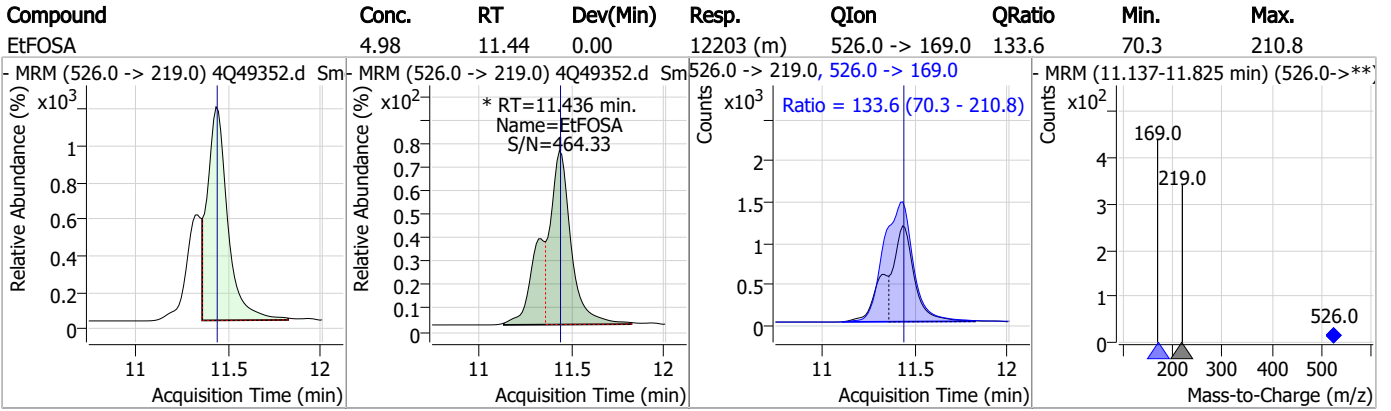
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### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS



7.7.14  
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# Manual Integration Approval Summary

Sample Number: S4Q723-CC722      Method: EPA DRAFT 1633  
Lab FileID: 4Q49352.D      Analyst approved: 08/24/23 14:08 Anna Ludwig  
Injection Time: 08/23/23 13:47      Supervisor approved: 08/24/23 16:08 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
MeFOSAA	2355-31-9		8.29	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.50	Split peak
MeFOSE	24448-09-7		11.08	Split peak
MeFOSA	31506-32-8		11.18	Split peak
EtFOSA	4151-50-2		11.44	Split peak

7.7.14.1  
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### Perfluorinated Compounds by LC/MS/MS

Data File : 4Q49364.d  
 Operator : marthav  
 Acq. Method : 1633full\_4Q.m  
 Acq. Date-Time : 8/23/2023 4:44:48 PM  
 Sample Name : cc722-4  
 Vial : P1-A5  
 DA Method File : 1633\_082223\_S4Q722.quantmethod.xml  
 Batch Name : s4q723.batch.bin  
 Sample Information : OP98456,S4Q723,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.811	216.8 -> 171.9	143786	10.00 µg/L	0.000
M5-PFPeA	4.337	268.3 -> 223.0	78139	5.00 µg/L	0.025
M5-PFHxA	5.534	318.0 -> 273.0	51903	2.50 µg/L	0.025
M4-PFHpA	6.504	367.1 -> 322.0	35020	2.50 µg/L	0.037
M8-PFOA	7.176	421.1 -> 376.0	55529	2.50 µg/L	0.027
M9-PFNA	7.720	472.1 -> 427.0	21270	1.25 µg/L	0.025
M6-PFDA	8.216	519.1 -> 474.1	16536	1.25 µg/L	0.025
M7-PFUnDA	8.685	570.0 -> 525.1	20586	1.25 µg/L	0.037
M2-PFDoDA	9.105	615.1 -> 570.0	23783	1.25 µg/L	0.025
M2-PFTeDA	9.874	715.2 -> 670.0	15543	1.25 µg/L	0.025
M8-FOSA	9.919	506.1 -> 77.8	14443	2.50 µg/L	0.025
M3-PFBS	5.402	302.1 -> 79.9	13806	2.50 µg/L	0.011
M3-PFHxS	7.253	402.1 -> 79.9	9859	2.50 µg/L	0.037
M8-PFOS	8.354	507.1 -> 79.9	8756	2.50 µg/L	0.025
M2-4:2FTS	5.233	329.1 -> 80.9	1726	5.00 µg/L	0.025
M2-6:2FTS	6.948	429.1 -> 80.9	2404	5.00 µg/L	0.037
M2-8:2FTS	8.016	529.1 -> 80.9	4032	5.00 µg/L	0.025
M3-MeFOSAA	8.298	573.2 -> 419.0	15622	5.00 µg/L	0.037
M3-HFPO-DA	5.902	286.9 -> 168.9	36497	10.00 µg/L	0.025
M5-EtFOSAA	8.495	589.2 -> 419.0	12524	5.00 µg/L	0.025
M7-MeFOSE	11.084	623.2 -> 58.9	74563	25.00 µg/L	0.025
M9-EtFOSE	11.356	639.2 -> 58.9	98495	25.00 µg/L	0.012
M5-EtFOSA	11.447	531.1 -> 219.0	7285	2.50 µg/L	0.025
M3-MeFOSA	11.188	515.0 -> 219.0	6086	2.50 µg/L	0.025
13C4-PFOS	8.355	502.8 -> 79.9	8252	2.50 µg/L	0.025
13C3-PFBA	2.816	216.0 -> 172.0	81567	5.00 µg/L	0.013
18O2-PFHxS	7.252	403.0 -> 83.9	7491	2.50 µg/L	0.025
13C4-PFOA	7.176	417.1 -> 372.0	64542	2.50 µg/L	0.027
13C2-PFDA	8.216	515.1 -> 470.1	13593	1.25 µg/L	0.025
13C5-PFNA	7.721	468.0 -> 423.0	22274	1.25 µg/L	0.025
13C2-PFHxA	5.535	315.1 -> 270.0	50284	2.50 µg/L	0.025
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.233	329.1 -> 80.9	1726	5.07 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.4%		
13C2-6:2FTS	6.948	429.1 -> 80.9	2404	4.98 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C2-8:2FTS	8.016	529.1 -> 80.9	4032	5.18 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.5%		
13C2-PFDoDA	9.105	615.1 -> 570.0	23783	1.32 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C2-PFTeDA	9.874	715.2 -> 670.0	15543	1.30 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.7%		
13C3-PFBS	5.402	302.1 -> 79.9	13806	2.39 µg/L	0.011
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.4%		
13C3-PFHxS	7.253	402.1 -> 79.9	9859	2.34 µg/L	0.037

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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.6%	
13C4-PFBA	2.811	216.8 -> 171.9	143786	9.91 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C4-PFHpA	6.504	367.1 -> 322.0	35020	2.45 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.9%	
13C5-PFHxA	5.534	318.0 -> 273.0	51903	2.45 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C5-PFPeA	4.337	268.3 -> 223.0	78139	4.98 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C6-PFDA	8.216	519.1 -> 474.1	16536	1.42 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.9%	
13C7-PFUnDA	8.685	570.0 -> 525.1	20586	1.30 µg/L	0.037
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C8-FOSA	9.919	506.1 -> 77.8	14443	2.60 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C8-PFOA	7.176	421.1 -> 376.0	55529	2.45 µg/L	0.027
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C8-PFOS	8.354	507.1 -> 79.9	8756	2.58 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C9-PFNA	7.720	472.1 -> 427.0	21270	1.26 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.5%	
d3-MeFOSAA	8.298	573.2 -> 419.0	15622	5.41 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.2%	
13C3-HFPO-DA	5.902	286.9 -> 168.9	36497	8.99 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 89.9%	
d3-MeFOSA	11.188	515.0 -> 219.0	6086	2.39 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%	
d5-EtFOSAA	8.495	589.2 -> 419.0	12524	5.19 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.8%	
d7-MeFOSE	11.084	623.2 -> 58.9	74563	24.50 µg/L	0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
d9-EtFOSE	11.356	639.2 -> 58.9	98495	24.15 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.6%	
d5-EtFOSA	11.447	531.1 -> 219.0	7285	2.32 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.8%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.234	327.1 -> 307.0	16907	8.58 µg/L	97
		327.1 -> 80.9	7484		
6:2FTS	6.949	427.1 -> 407.0	16584	9.45 µg/L	98
		427.1 -> 80.9	7043		
8:2FTS	8.016	527.1 -> 507.0	12121	7.67 µg/L	99
		527.1 -> 80.8	5999		
EtFOSAA	8.509	584.2 -> 419.1	3900	2.19 µg/L	m 87
		584.2 -> 526.0	1802		
FOSA	9.923	498.1 -> 77.9	9288	2.30 µg/L	98
		498.1 -> 478.0	284		
MeFOSAA	8.299	570.1 -> 419.0	4243	1.90 µg/L	93
		570.1 -> 483.0	970		
PFBA	2.807	212.8 -> 168.9	27163	8.79 µg/L	100
PFBS	5.403	298.7 -> 79.9	7481	1.87 µg/L	97
		298.7 -> 98.8	2921		
PFDA	8.217	512.9 -> 469.0	19463	2.04 µg/L	96
		512.9 -> 219.0	3959		
PFDoDA	9.118	613.1 -> 569.0	31239	2.20 µg/L	99
		613.1 -> 319.0	4898		
PFDS	9.257	599.0 -> 79.9	4603	2.18 µg/L	94

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2314			
PFHpA	6.505	363.1 -> 319.0	38260	2.25	µg/L	98
		363.1 -> 169.0	6714			
PFHpS	7.835	449.0 -> 79.9	6615	2.21	µg/L	94
		449.0 -> 98.9	3727			
PFHxA	5.537	313.0 -> 269.0	33560	2.10	µg/L	98
		313.0 -> 118.9	1246			
PFHxS	7.254	398.7 -> 79.9	5997	2.16	µg/L	m 76
		398.7 -> 98.9	2998			
PFNA	7.721	463.0 -> 419.0	23531	2.19	µg/L	97
		463.0 -> 219.0	5756			
PFNS	8.824	548.8 -> 79.9	3657	2.21	µg/L	97
		548.8 -> 98.9	1927			
PFOA	7.177	413.0 -> 369.0	46251	2.20	µg/L	95
		413.0 -> 169.0	9451			
PFOS	8.355	498.9 -> 79.9	6761	2.08	µg/L	m 85
		498.9 -> 98.8	3510			
PFPeA	4.339	263.0 -> 219.0	60090	4.33	µg/L	100
PFPeS	6.507	349.1 -> 79.9	5500	2.21	µg/L	97
		349.1 -> 98.9	2398			
PFTeDA	9.874	713.1 -> 669.0	25297	2.20	µg/L	99
		713.1 -> 168.9	2222			
PFTrDA	9.516	663.0 -> 619.0	35864	2.28	µg/L	100
		663.0 -> 168.9	4104			
PFUnDA	8.685	563.1 -> 519.0	23993	2.53	µg/L	97
		563.1 -> 269.1	4359			
11CI-PF3OUdS	9.543	630.9 -> 450.9	35992	4.45	µg/L	99
		632.9 -> 452.9	11218			
9CI-PF3ONS	8.687	530.8 -> 351.0	38628	4.45	µg/L	99
		532.8 -> 353.0	12357			
ADONA	6.768	376.9 -> 250.9	116368	4.51	µg/L	100
		376.9 -> 84.8	35581			
HFPO-DA	5.903	284.9 -> 168.9	12877	4.37	µg/L	99
		284.9 -> 184.9	1505			
3:3FTCA	3.786	241.0 -> 177.0	6995	10.36	µg/L	98
		241.0 -> 117.0	810			
5:3FTCA	6.257	341.0 -> 237.1	129294	56.95	µg/L	100
		341.0 -> 217.0	94756			
7:3FTCA	7.748	441.0 -> 316.9	55854	56.01	µg/L	99
		441.0 -> 336.9	126451			
EtFOSA	11.449	526.0 -> 219.0	11822	4.71	µg/L	m 97
		526.0 -> 169.0	17098			
EtFOSE	11.369	630.0 -> 58.9	35195	11.64	µg/L	100
MeFOSA	11.190	511.9 -> 219.0	10095	4.78	µg/L	m 78
		511.9 -> 169.0	15305			
MeFOSE	11.097	616.1 -> 58.9	30449	11.51	µg/L	m 100
PFDoDS	10.014	699.1 -> 79.9	3534	2.22	µg/L	94
		699.1 -> 98.8	2074			
NFDHA	5.416	295.0 -> 201.0	5114	4.06	µg/L	95
		295.0 -> 84.9	1539			
PFMBA	4.753	279.0 -> 85.1	35714	4.38	µg/L	100
PFMPA	3.453	229.0 -> 84.9	38359	4.29	µg/L	100
PFEESA	5.945	314.8 -> 134.9	54386	3.93	µg/L	99
		314.8 -> 82.9	1762			

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

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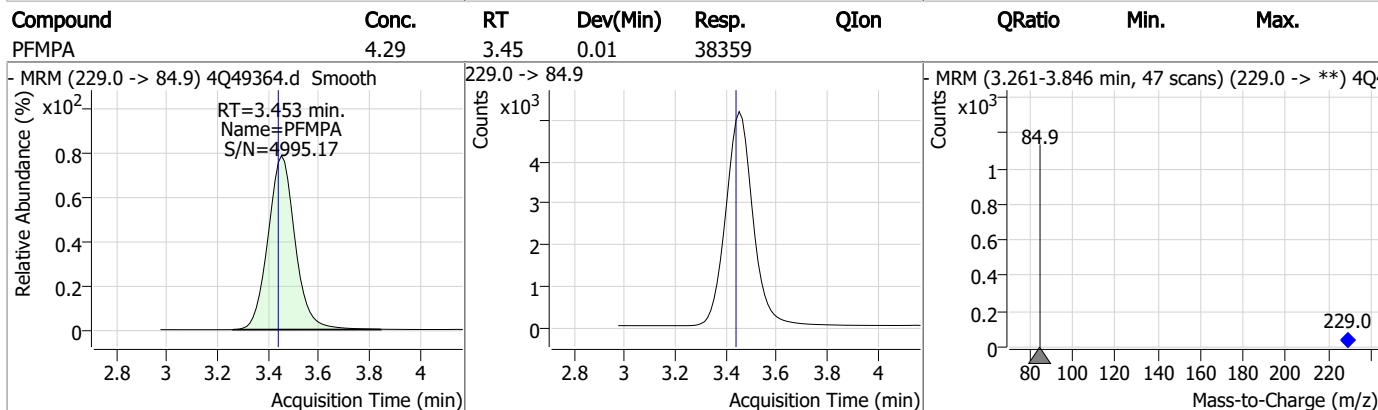
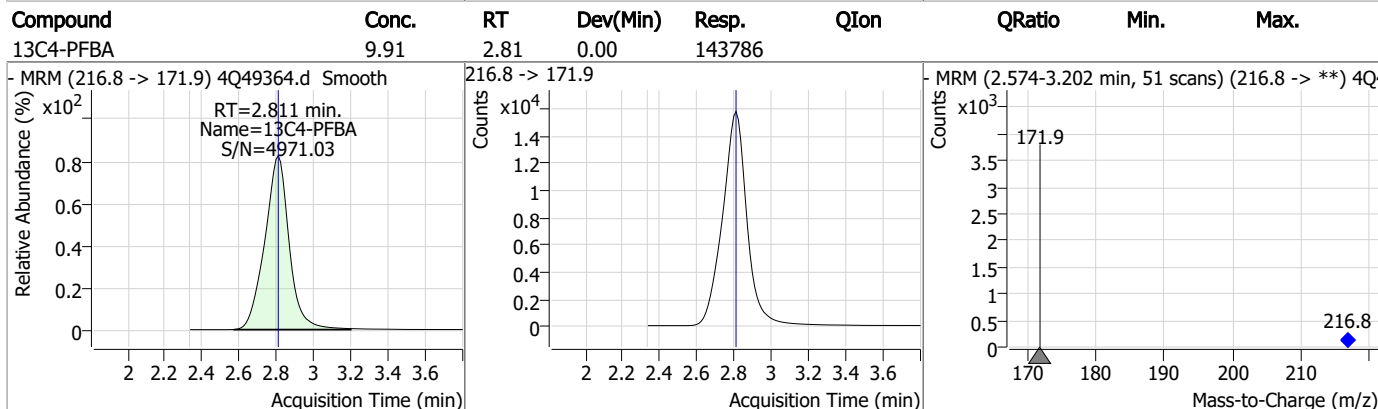
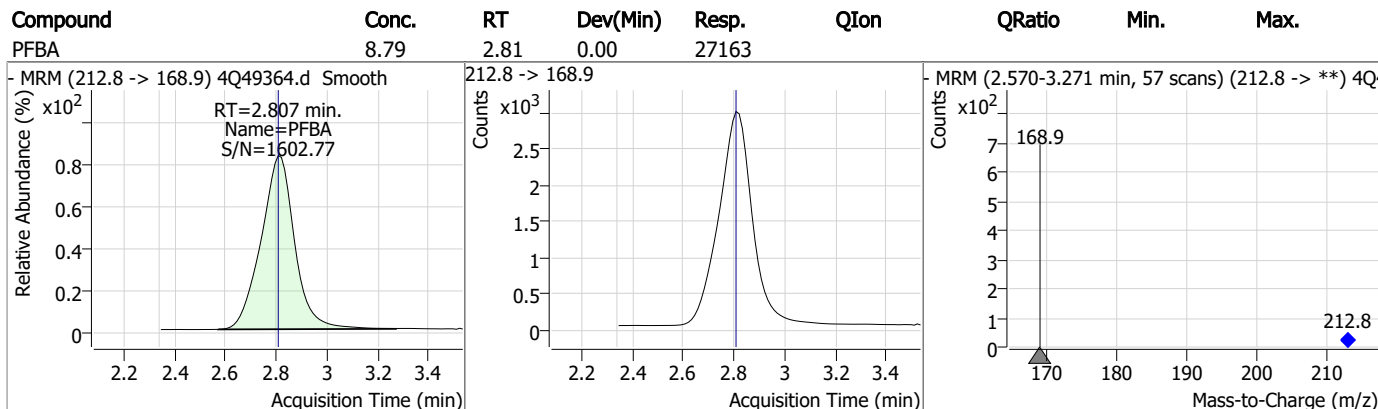
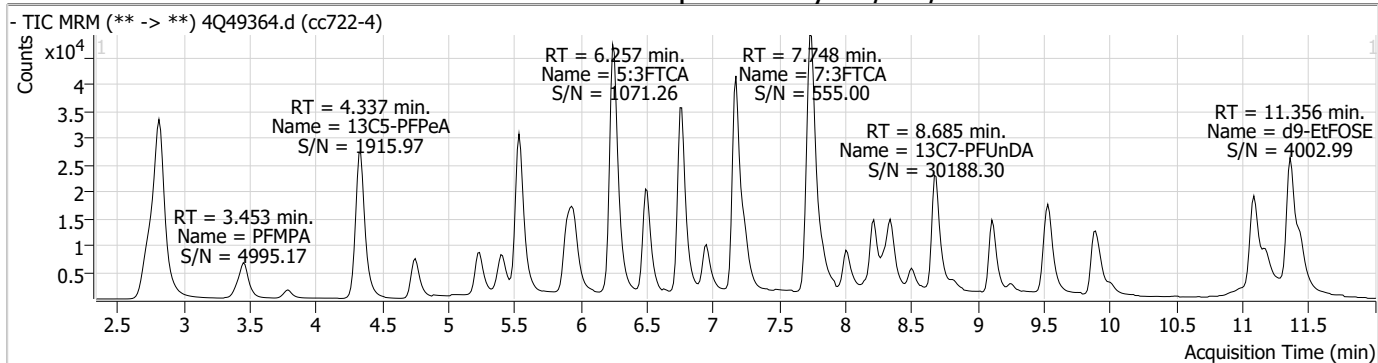
### Perfluorinated Compounds by LC/MS/MS

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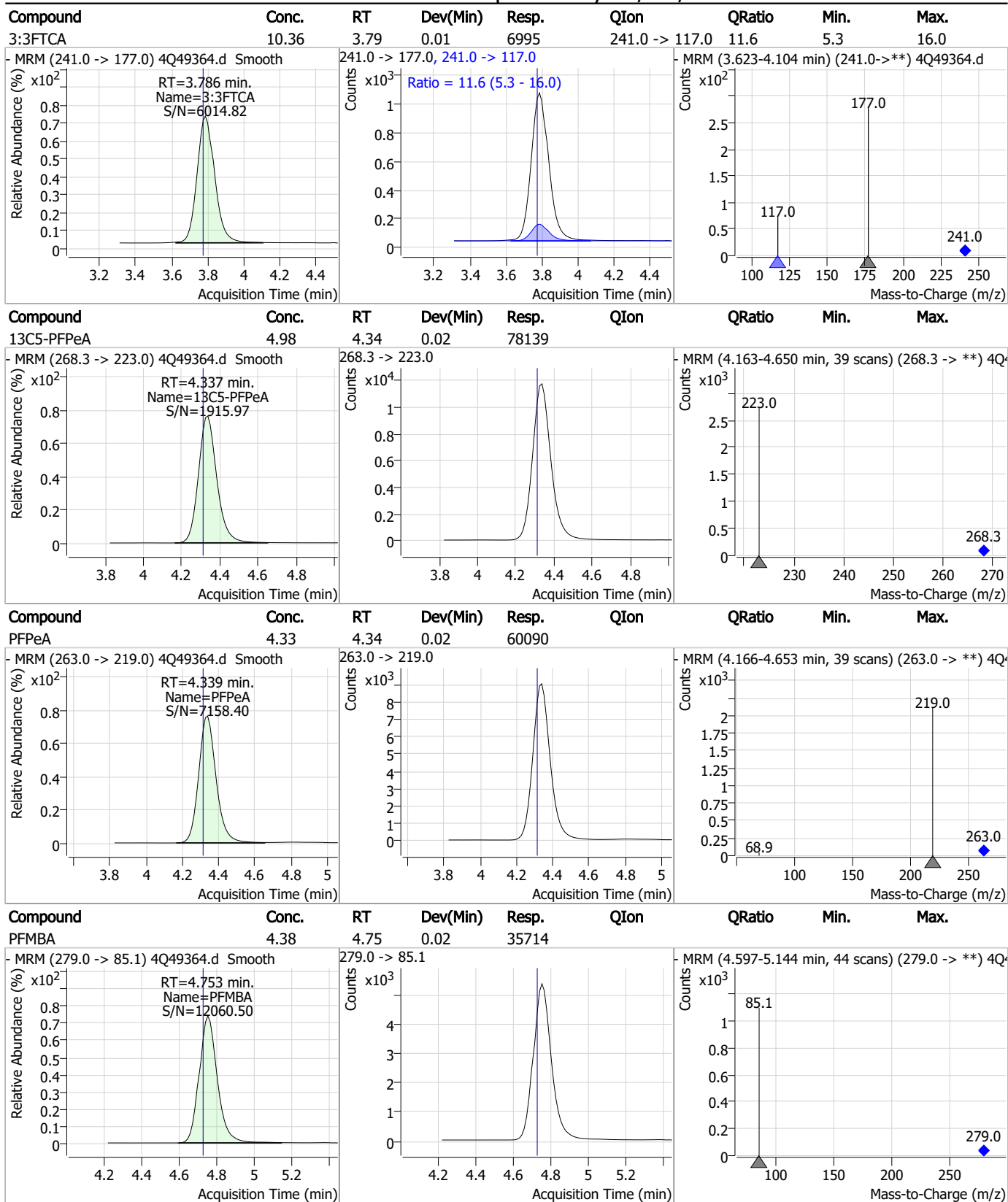
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### Perfluorinated Compounds by LC/MS/MS



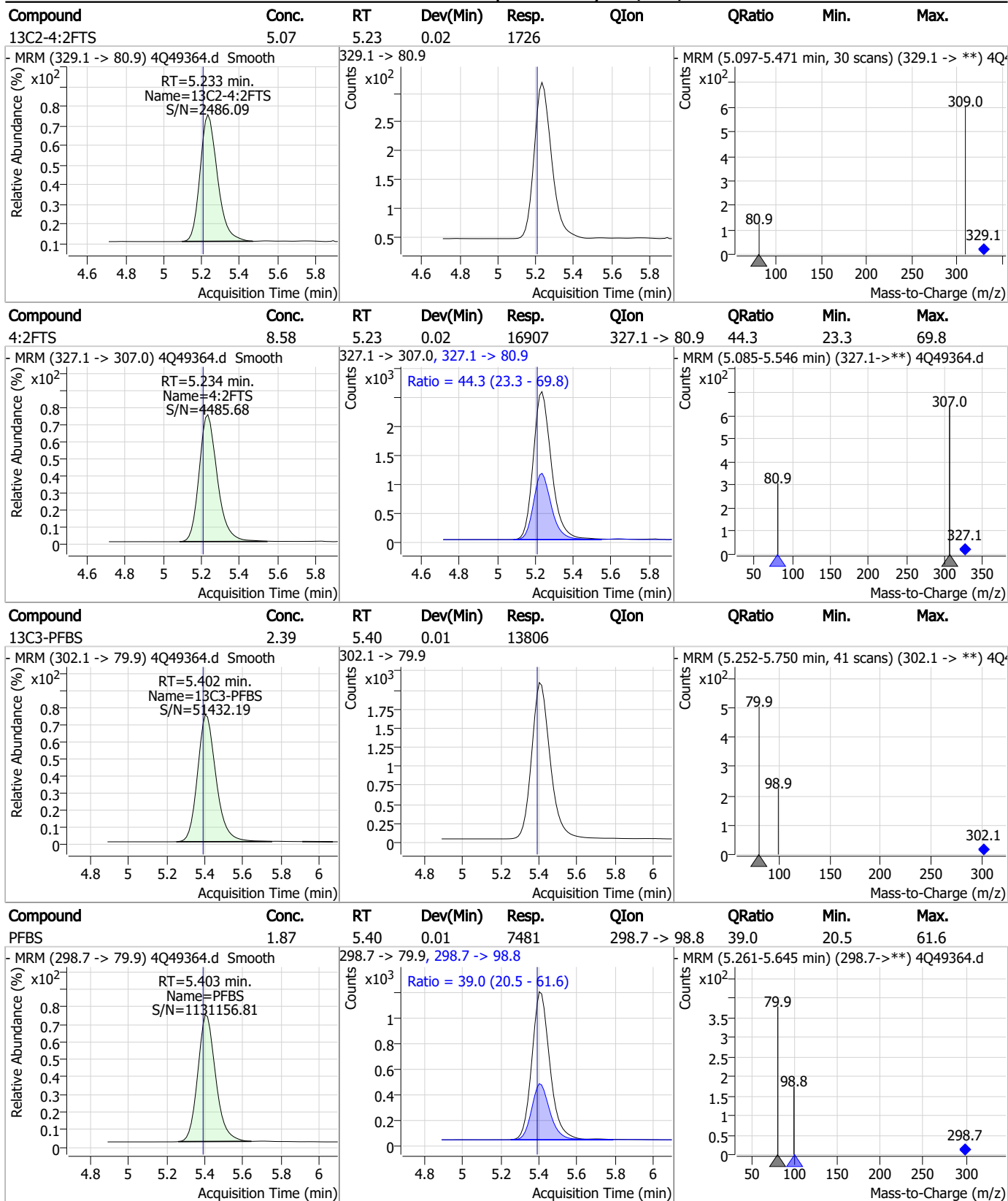
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### Perfluorinated Compounds by LC/MS/MS



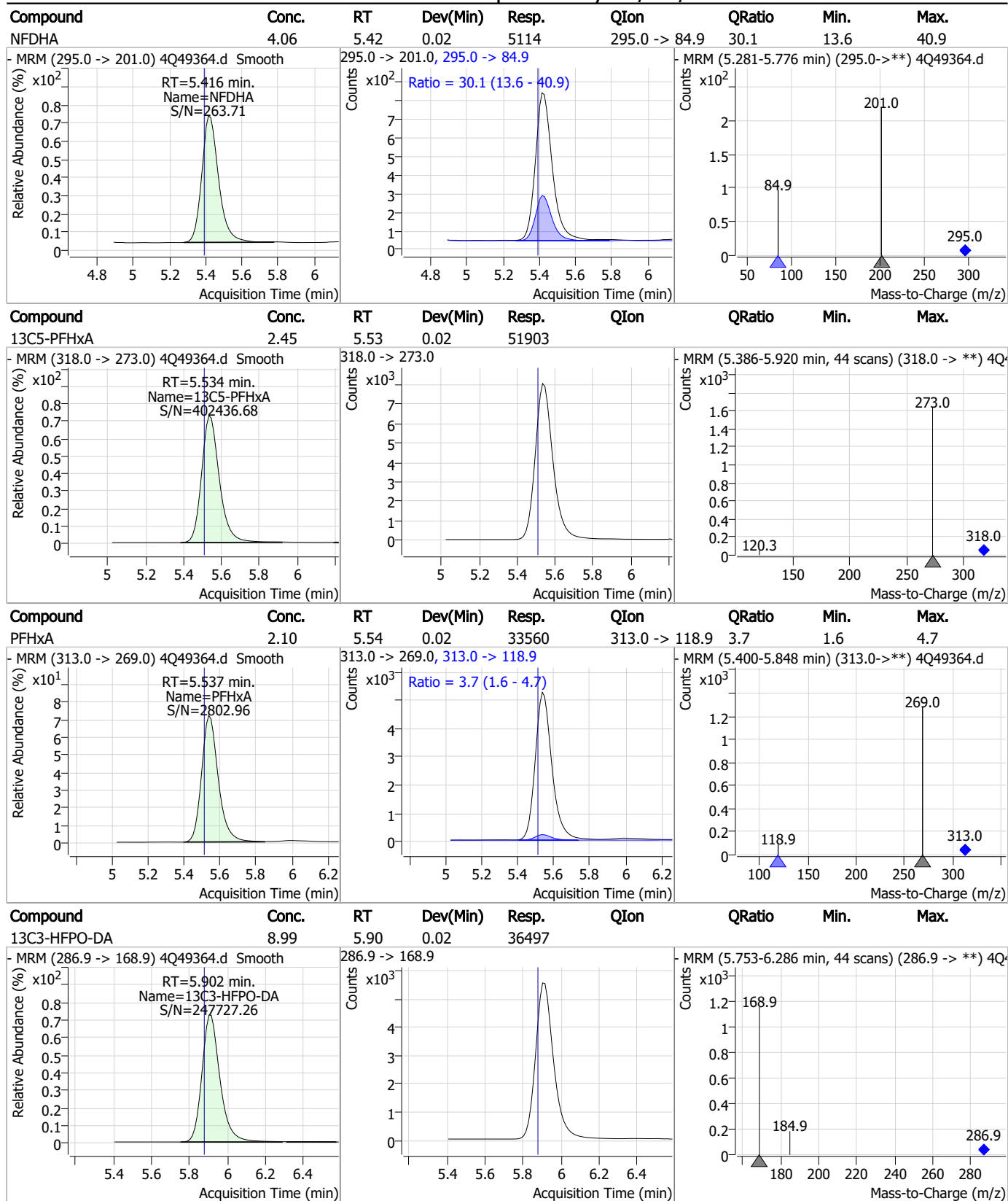
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### Perfluorinated Compounds by LC/MS/MS



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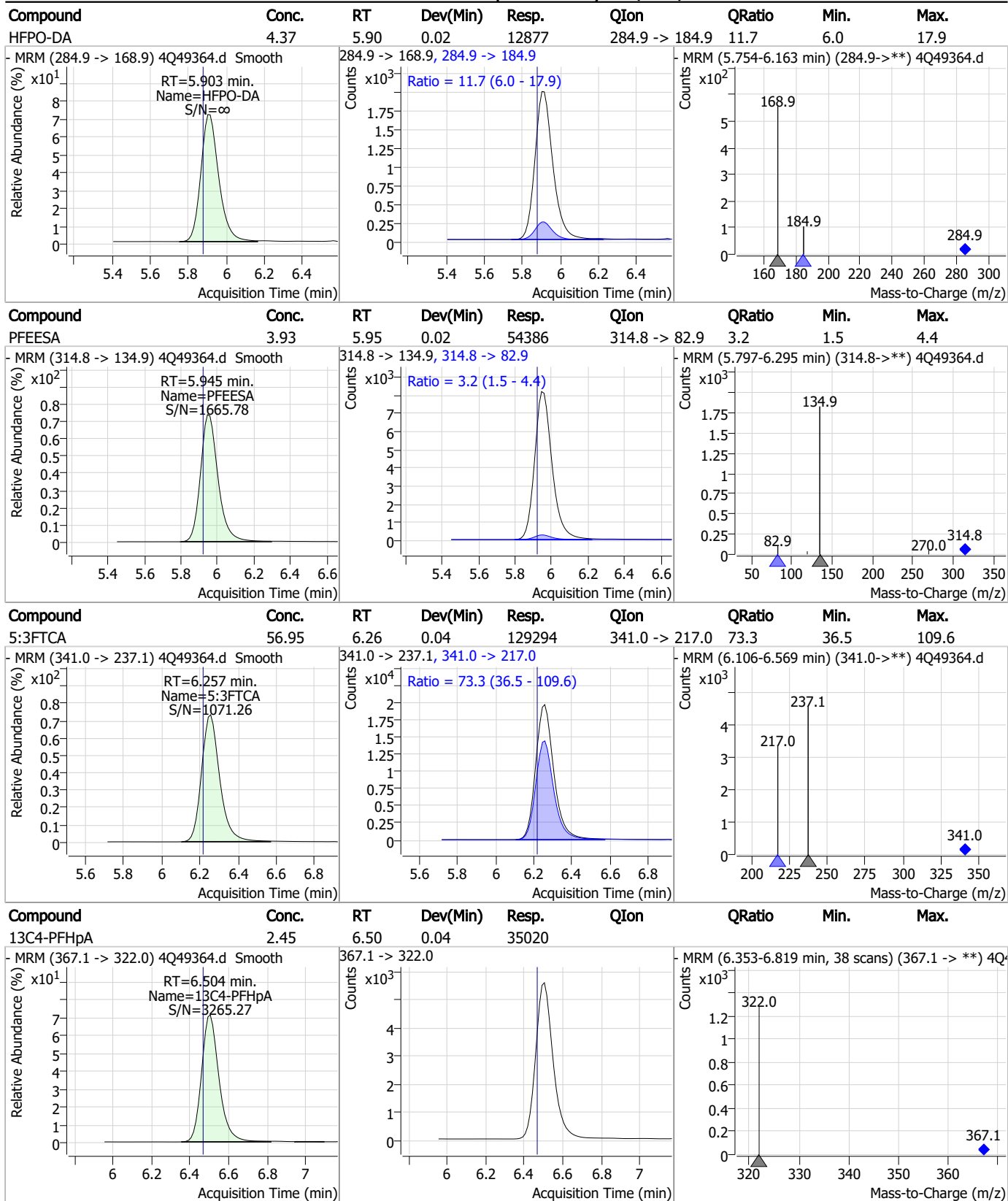
### Perfluorinated Compounds by LC/MS/MS



7.7.15  
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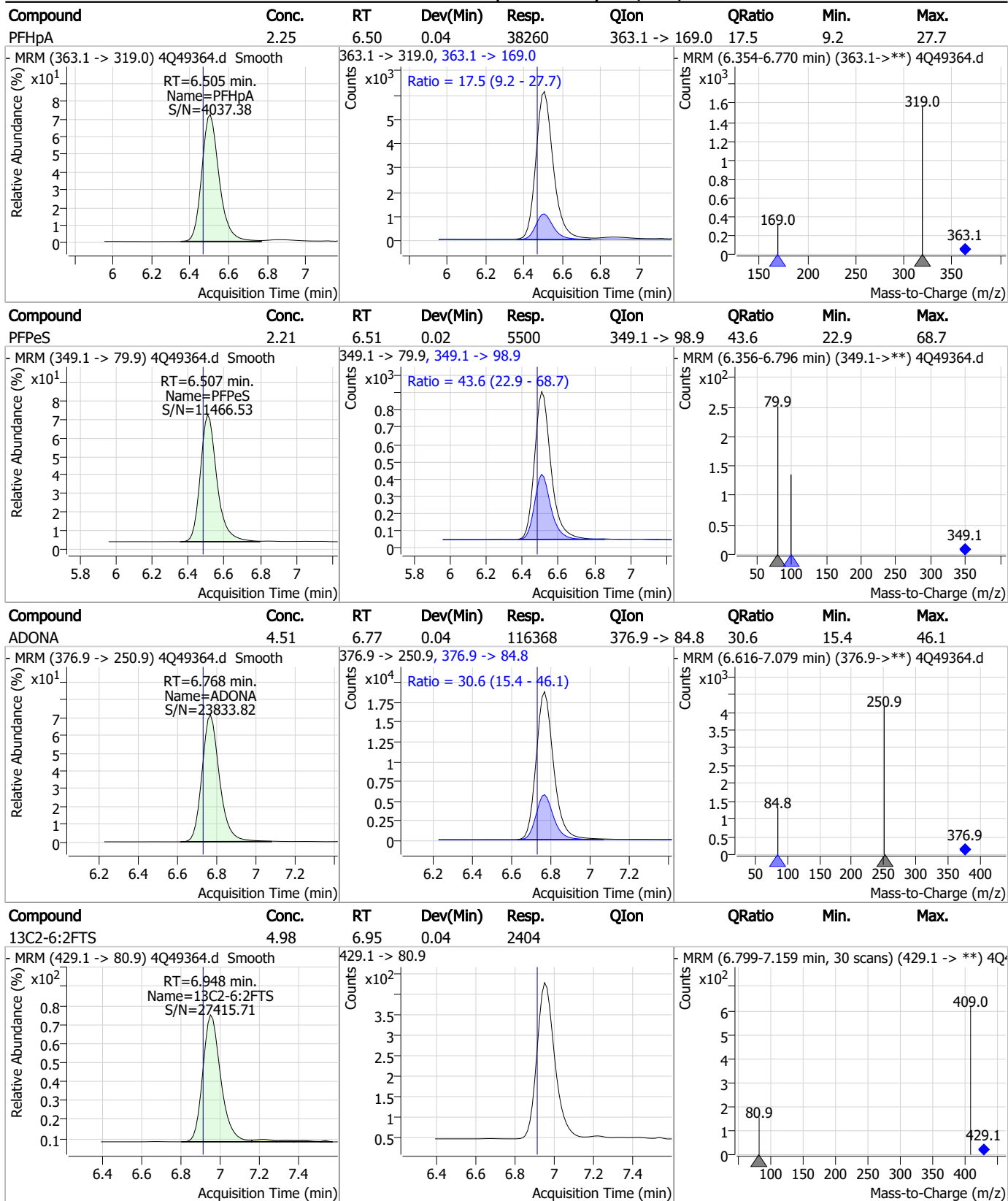


### Perfluorinated Compounds by LC/MS/MS



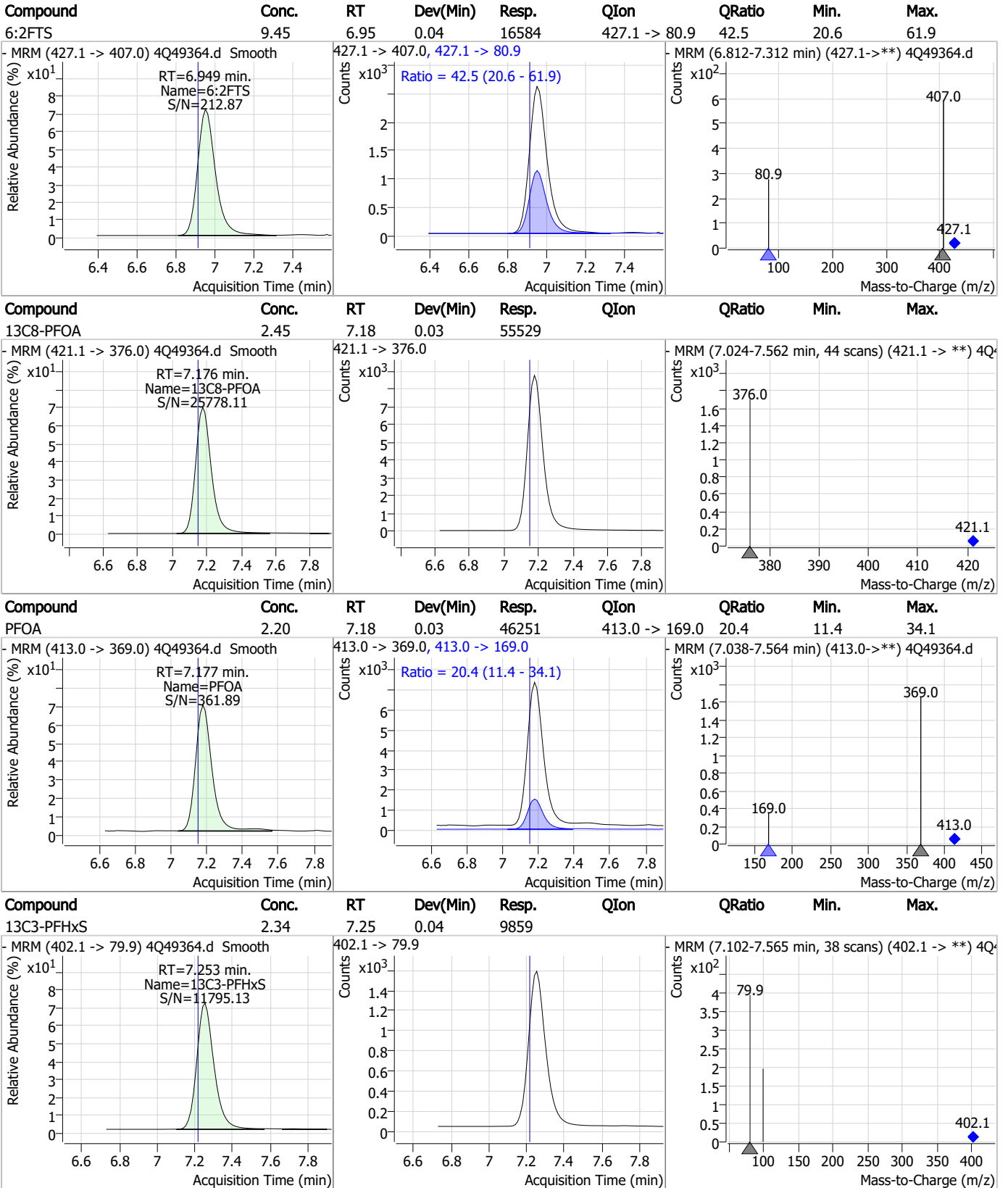
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### Perfluorinated Compounds by LC/MS/MS



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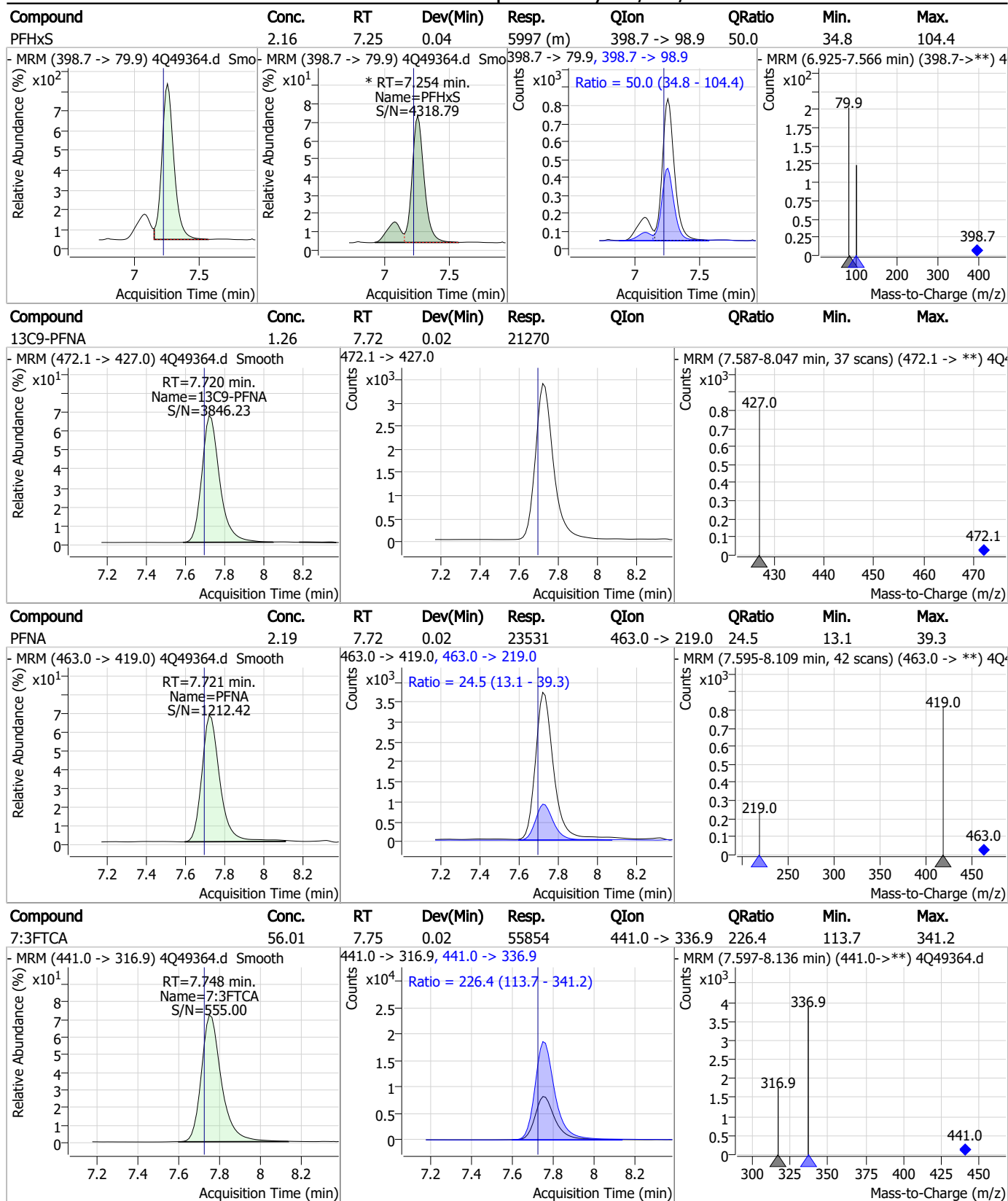
### Perfluorinated Compounds by LC/MS/MS



7.7.15

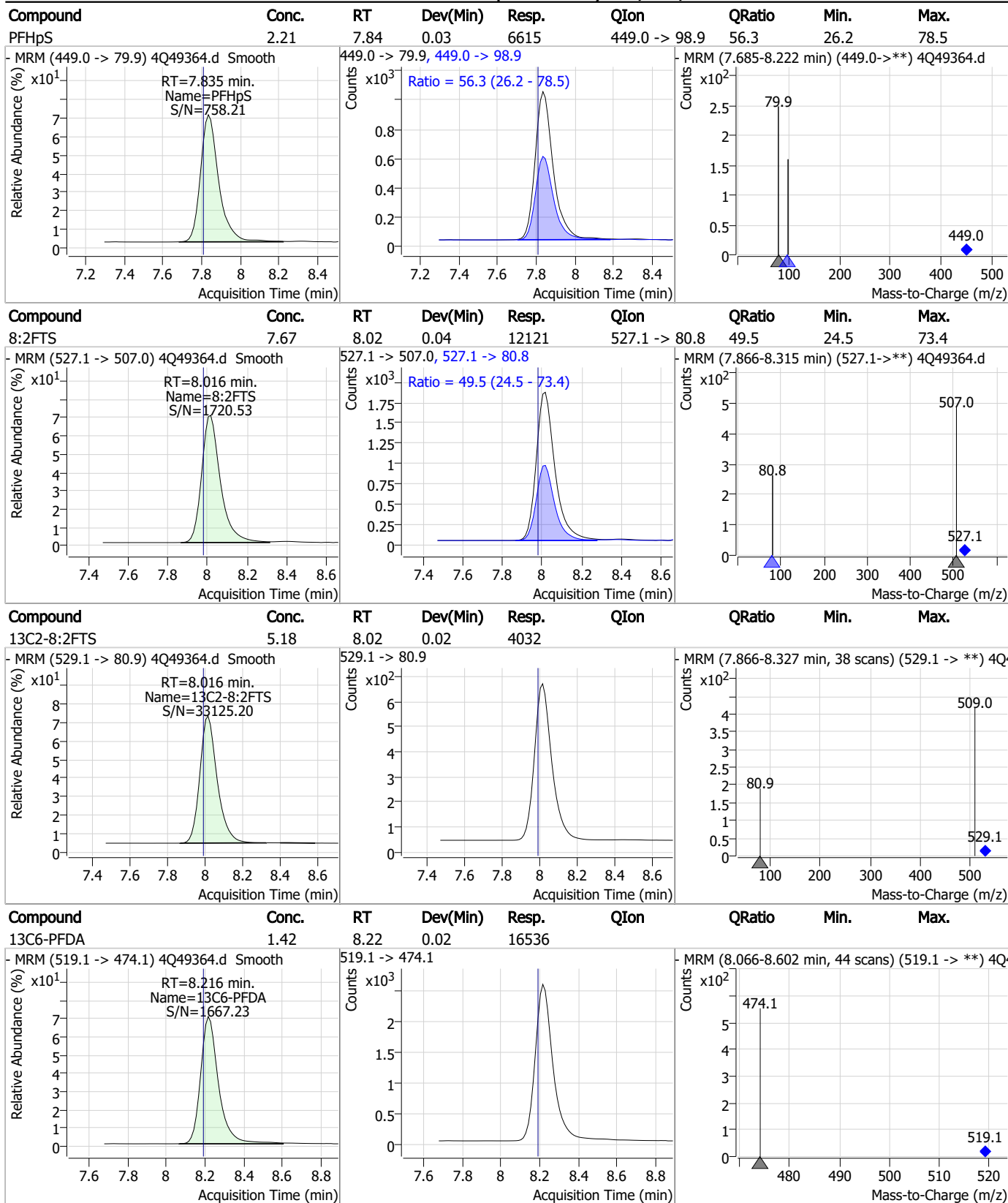


### Perfluorinated Compounds by LC/MS/MS



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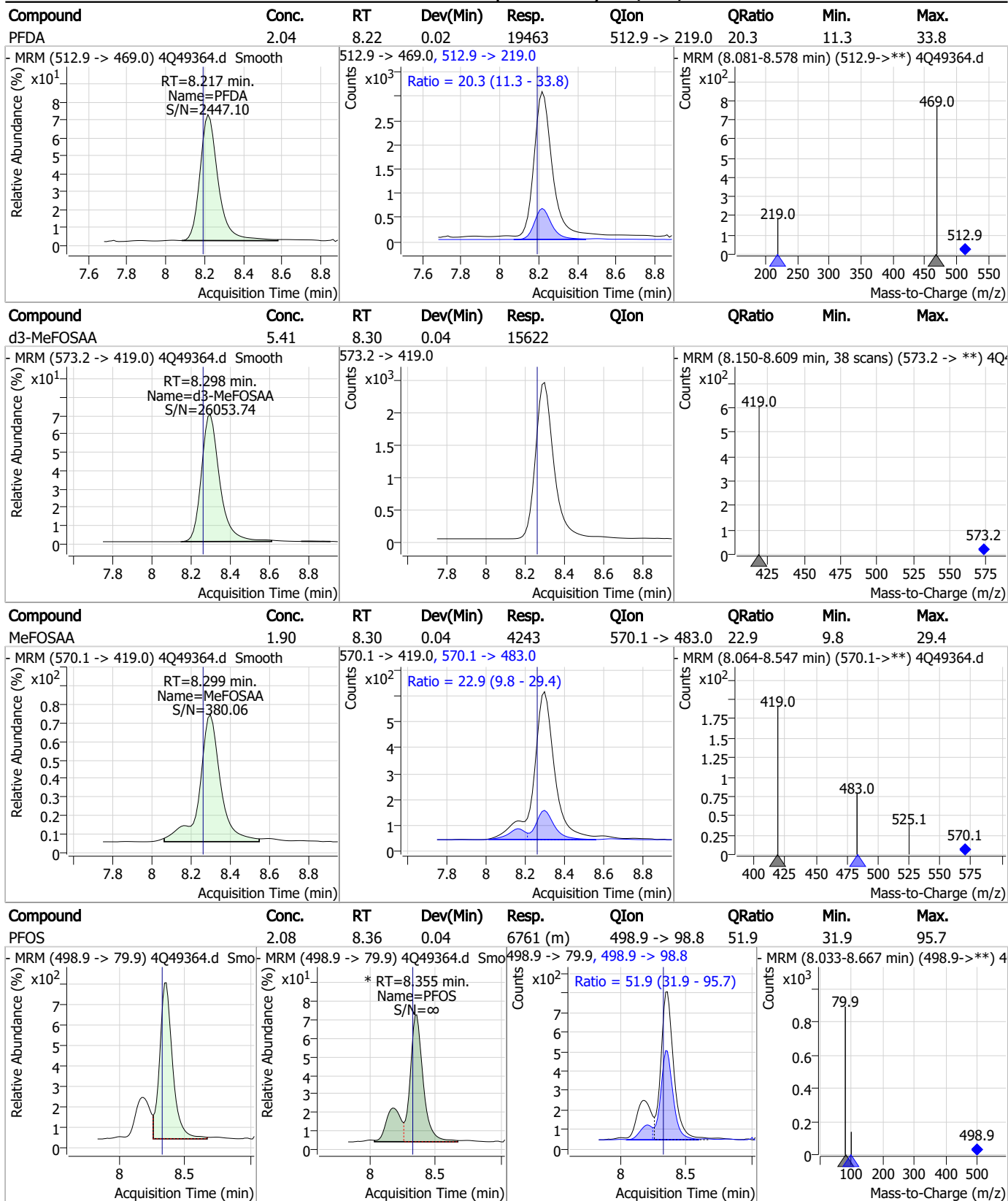
### Perfluorinated Compounds by LC/MS/MS



7.7.15

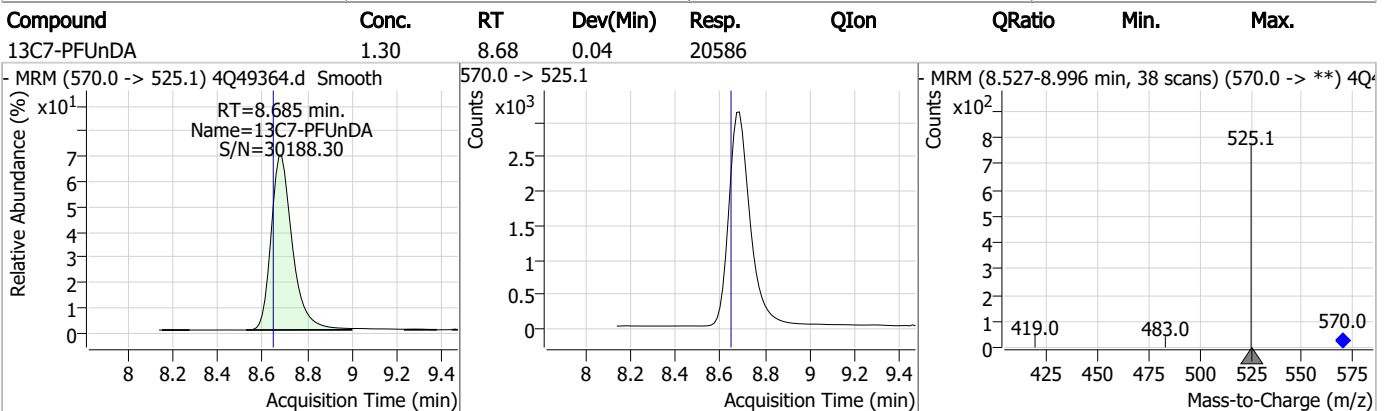
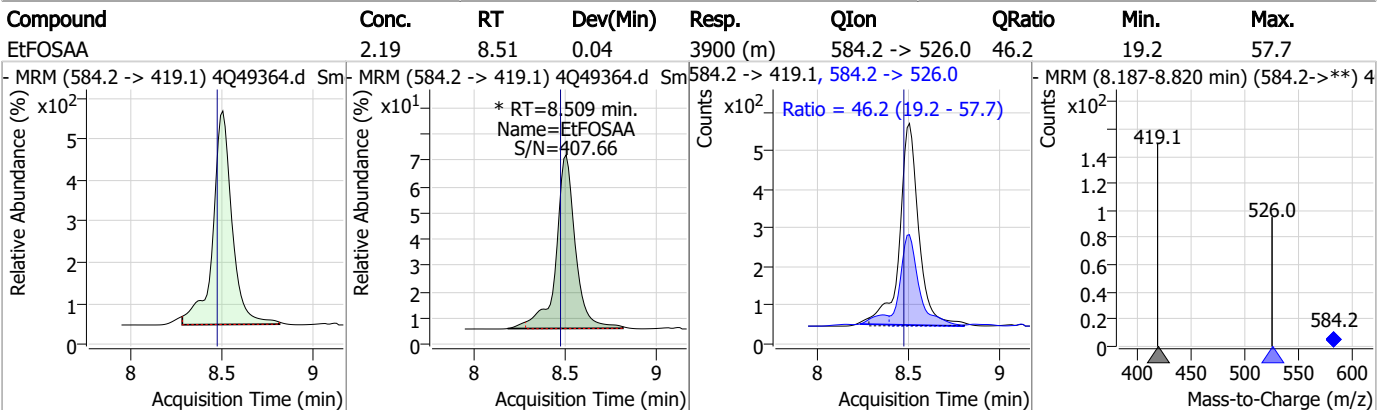
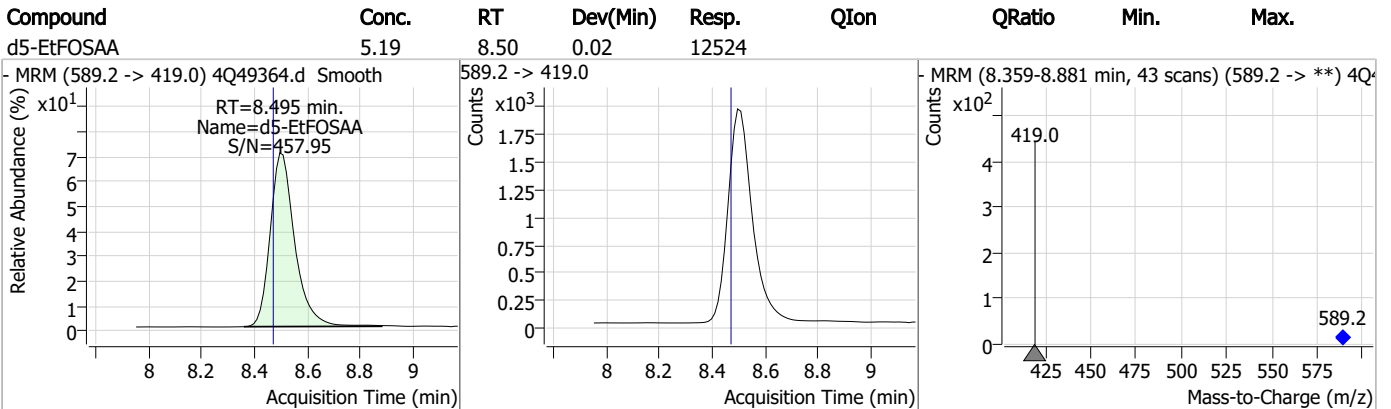
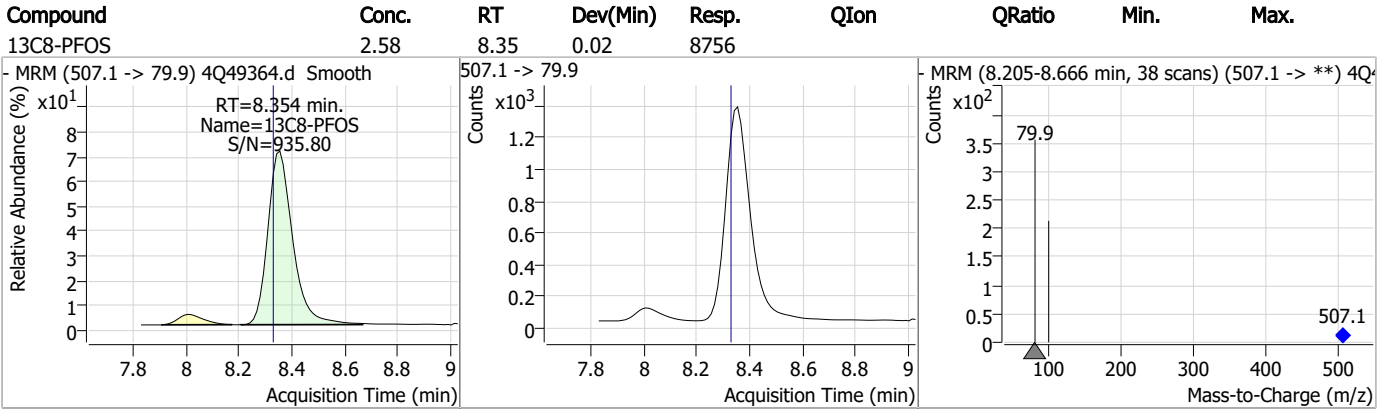
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### Perfluorinated Compounds by LC/MS/MS



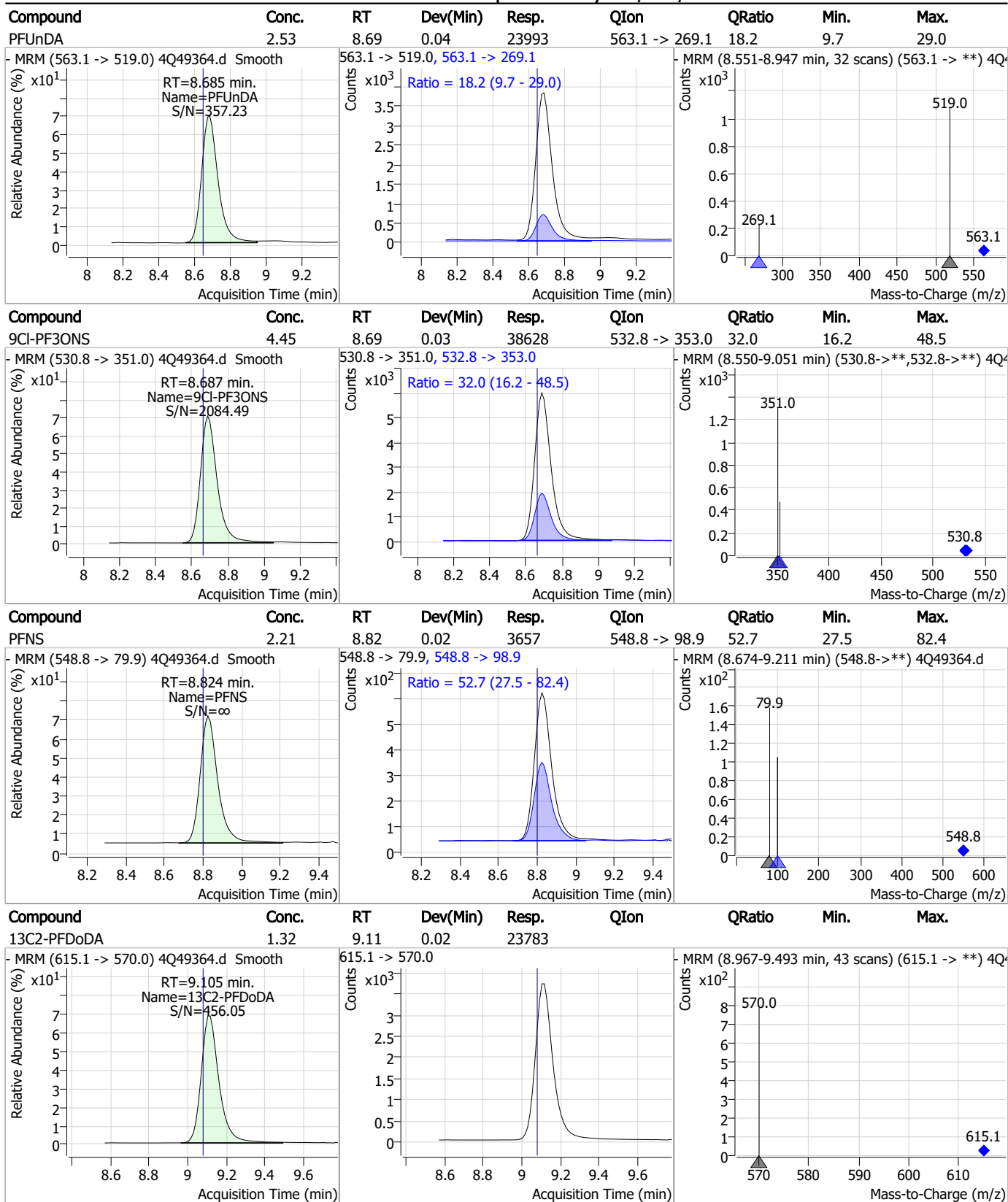
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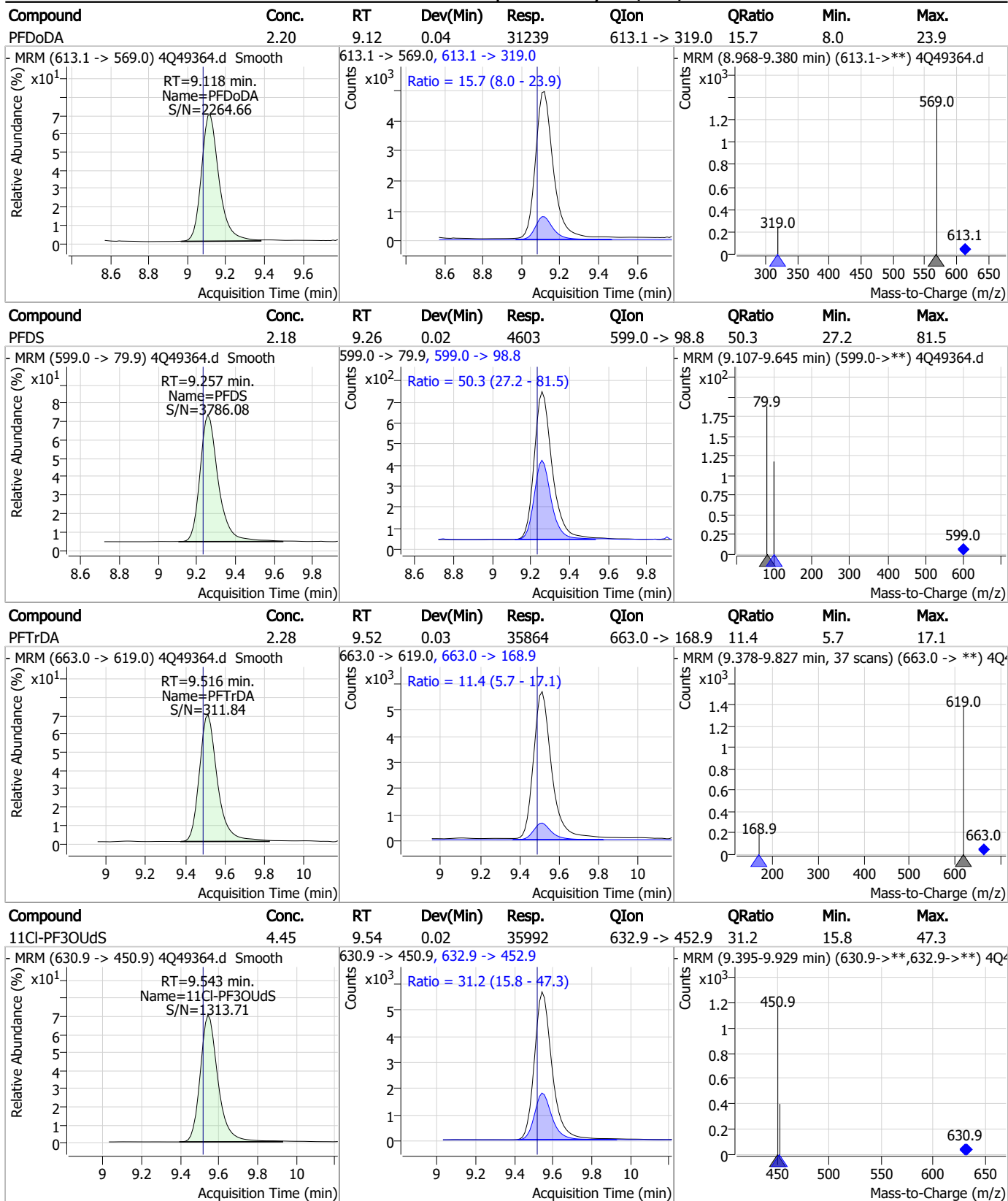
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### Perfluorinated Compounds by LC/MS/MS



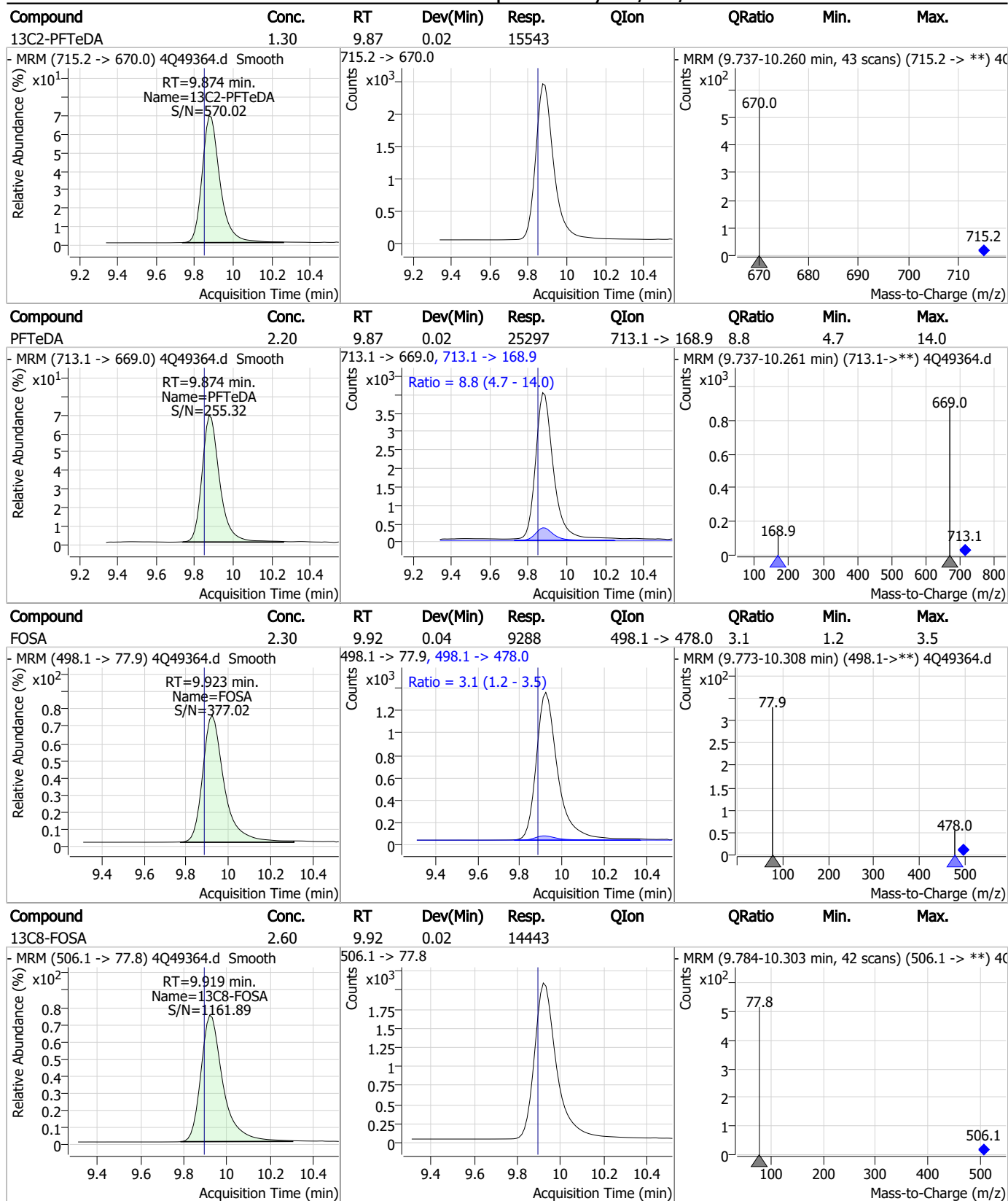
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### Perfluorinated Compounds by LC/MS/MS



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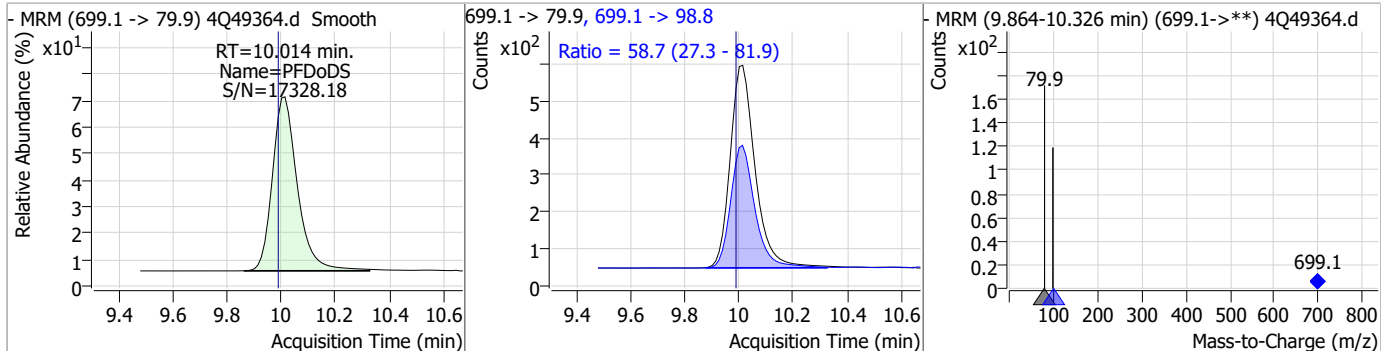
### Perfluorinated Compounds by LC/MS/MS



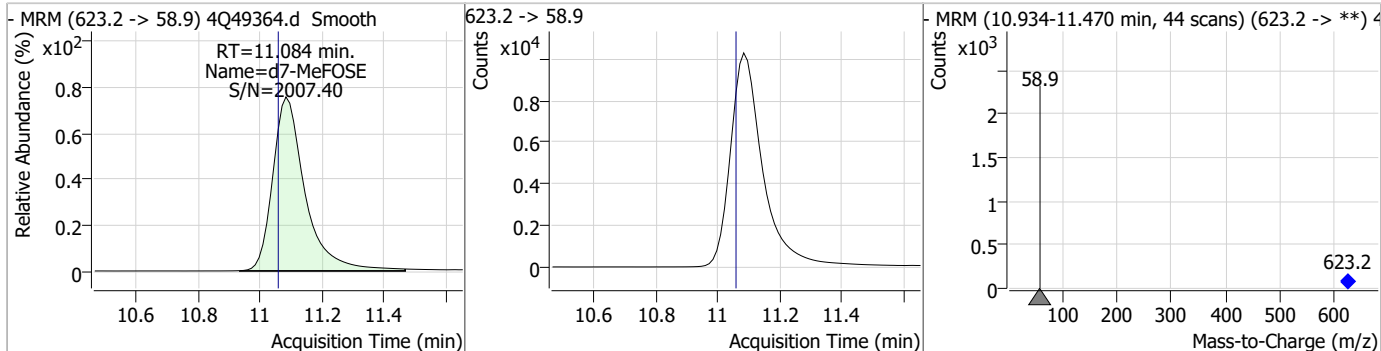
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### Perfluorinated Compounds by LC/MS/MS

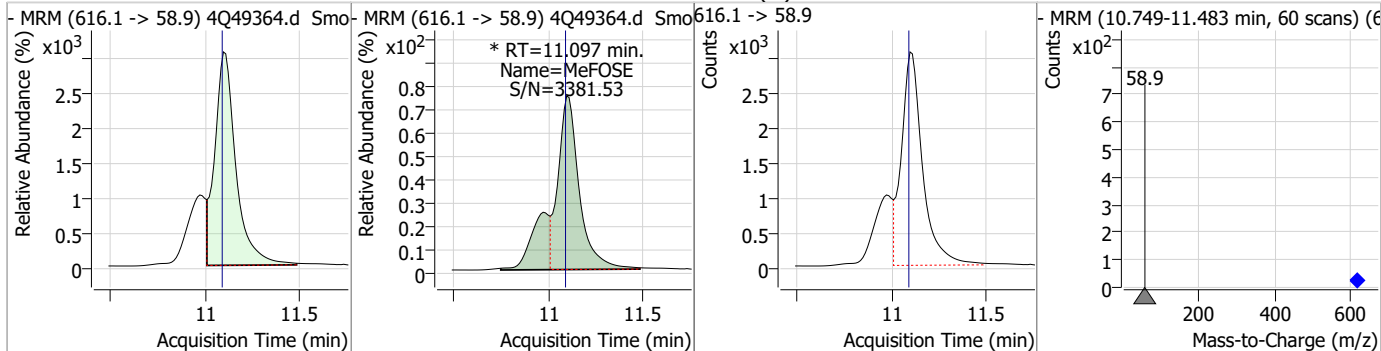
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD <sub>o</sub> DS	2.22	10.01	0.02	3534	699.1 -> 98.8	58.7	27.3	81.9



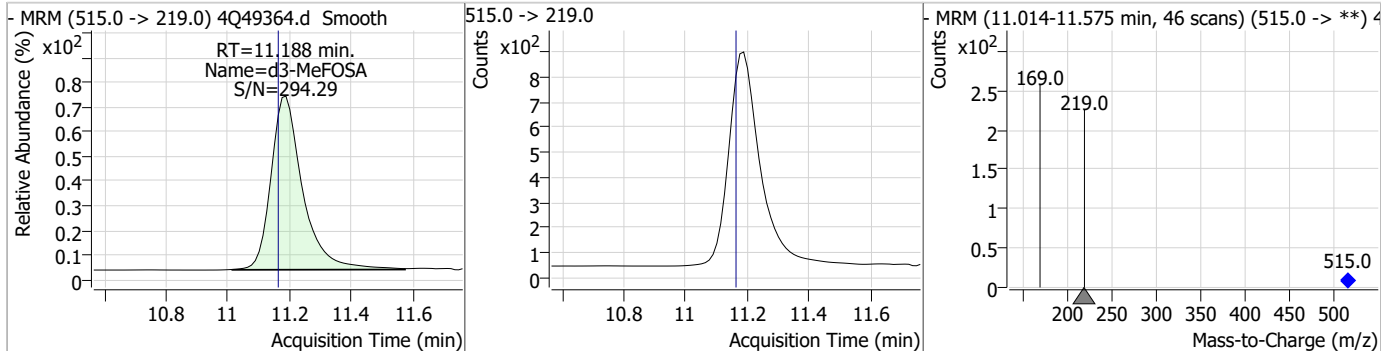
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.50	11.08	0.02	74563				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.51	11.10	0.01	30449 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.39	11.19	0.02	6086				

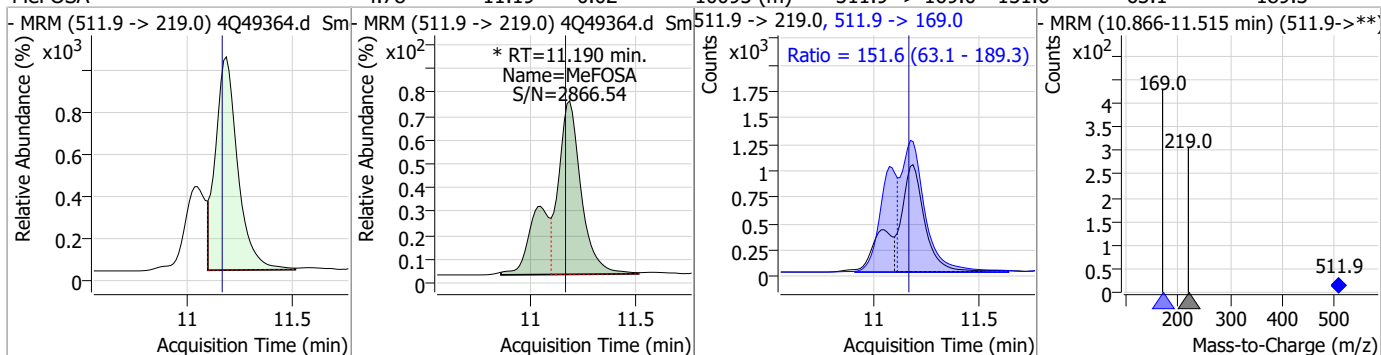


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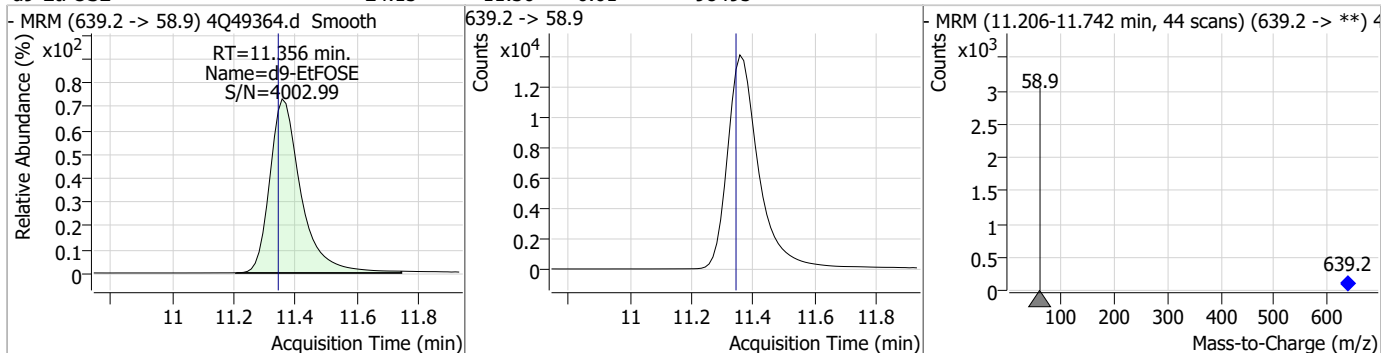


### Perfluorinated Compounds by LC/MS/MS

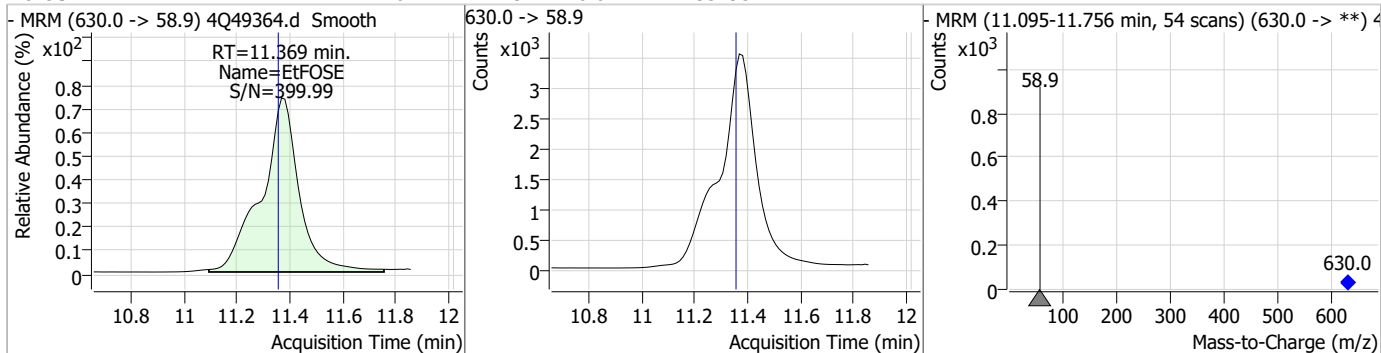
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	4.78	11.19	0.02	10095 (m)	511.9 -> 169.0	151.6	63.1	189.3



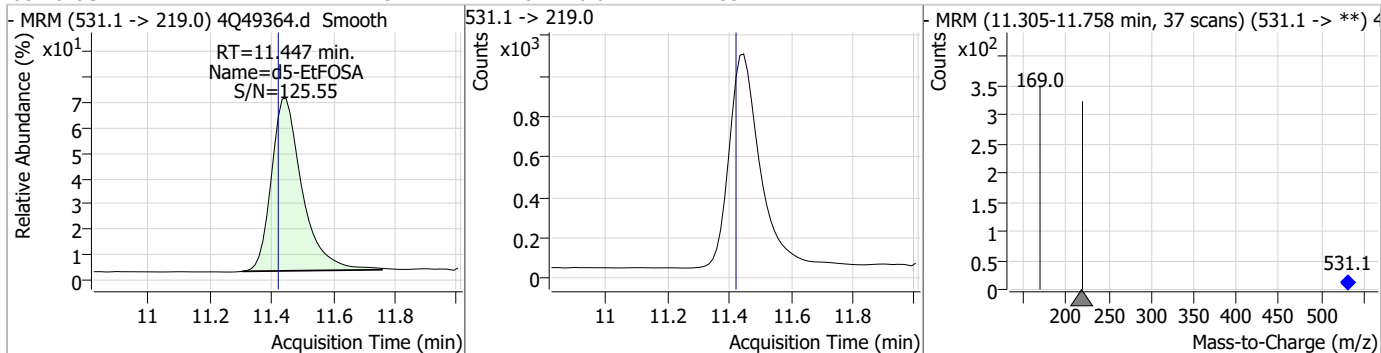
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.15	11.36	0.01	98495				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	11.64	11.37	0.01	35195				

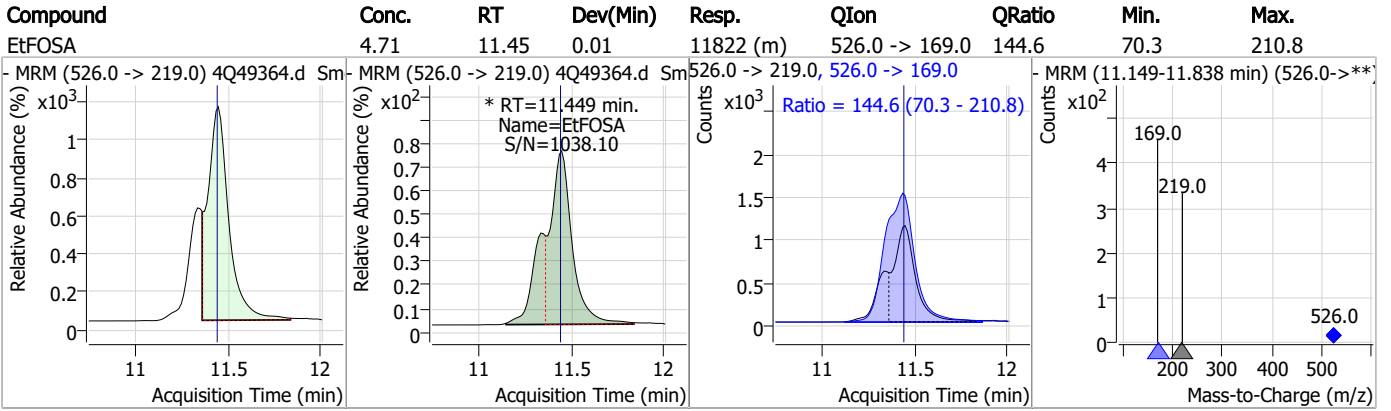


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.32	11.45	0.02	7285				



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### Perfluorinated Compounds by LC/MS/MS



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# Manual Integration Approval Summary

Sample Number: S4Q723-CC722  
Lab FileID: 4Q49364.D  
Injection Time: 08/23/23 16:44

Method: EPA DRAFT 1633  
Analyst approved: 08/24/23 14:08 Anna Ludwig  
Supervisor approved: 08/24/23 16:08 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.25	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak
EtFOSAA	2991-50-6		8.51	Split peak
MeFOSE	24448-09-7		11.10	Split peak
MeFOSA	31506-32-8		11.19	Split peak
EtFOSA	4151-50-2		11.45	Split peak

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SGS ORLANDO

DATE:	08/22/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	6 ul
INSTRUMENT:	LCMS4-4Q

LCMS4-4Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_082223_S4Q722
CAL DATE:	08/22/23
ANALYST:	AL M.Valls
RUN BATCH:	S4Q722

ELUENT A LOT #:	224863 W5%ACN 220228 2mMAMAC.11387
ELUENT B LOT #:	ACN 220228
IC/CC STD LOT #:	LCMS 2146A
ICV STD LOT #:	LCMS 2146A/2125A
ISTD/ID STD LOT #:	11850/11851

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	4Q49276.d	P1-B9	CCB	1633full_4Q.m	Sample		OP98180,S4Q722:500,,,5.0,1.,water	nd
2	4Q49277.d	P1-B9	CCB	1633full_4Q.m	Sample		OP98180,S4Q722:500,,,5.0,1.,water	nd
3	4Q49278.d	P1-B1	RT TDCA	1633full_4Q.m	Sample		OP98180,S4Q722:500,,,5.0,1.,water	pass
4	4Q49279.d	P1-B2	RT BR_LN	1633full_4Q.m	Sample		OP98180,S4Q722:500,,,5.0,1.,water	pass
5	4Q49280.d	P1-A1	ic722-0	1633full_4Q.m	Sample		OP98180,S4Q722:500,,,5.0,1.,water	check tune file
6	4Q49281.d	P1-A2	ic722-1	1633full_4Q.m	Calibration	1.6/500	OP98180,S4Q722:500,,,5.0,1.,water	pass
7	4Q49282.d	P1-A3	ic722-2	1633full_4Q.m	Calibration	3.2/500	OP98180,S4Q722:500,,,5.0,1.,water	pass
8	4Q49283.d	P1-A4	ic722-3	1633full_4Q.m	Calibration	10/500	OP98180,S4Q722:500,,,5.0,1.,water	pass
9	4Q49284.d	P1-A5	icc722-4	1633full_4Q.m	Calibration	20/500	OP98180,S4Q722:500,,,5.0,1.,water	pass
10	4Q49285.d	P1-A6	ic722-5	1633full_4Q.m	Calibration	40/500	OP98180,S4Q722:500,,,5.0,1.,water	pass
11	4Q49286.d	P1-A7	ic722-6	1633full_4Q.m	Calibration	100/500	OP98180,S4Q722:500,,,5.0,1.,water	pass
12	4Q49287.d	P1-A8	ic722-7	1633full_4Q.m	Calibration	200/500	OP98180,S4Q722:500,,,5.0,1.,water	pass
13	4Q49288.d	P1-A9	ic722-8	1633full_4Q.m	Calibration	1x	OP98180,S4Q722:500,,,5.0,1.,water	drop 8.2 - pass
14	4Q49289.d	P1-A1	IBLK	1633full_4Q.m	Sample		OP98180,S4Q722:500,,,5.0,1.,water	nd
15	4Q49290.d	P1-B3	icv722-4	1633full_4Q.m	QC	20/500	OP98180,S4Q722:500,,,5.0,1.,water	pass
16	4Q49291.d	P1-B4	icv722-20	1633full_4Q.m	QC	100/500	OP98180,S4Q722:500,,,5.0,1.,water	pass
17	4Q49292.d	P1-A5	cc722-4	1633full_4Q.m	QC	20/500	OP98180,S4Q722:500,,,5.0,1.,water	pass
18	4Q49293.d	P1-A2	cc722-1.0LL	1633full_4Q.m	QC	1.6/500	OP98180,S4Q722:500,,,5.0,1.,water	pass
19	4Q49294.d	P2-F3	fc8159-7	1633full_4Q.m	Sample	100/500	OP98458,S4Q722:540,,,5.0,5.,water	✓
20	4Q49295.d	P2-F4	fc8159-8	1633full_4Q.m	Sample	50/500	OP98458,S4Q722:540,,,5.0,10.,water	✓
21	4Q49296.d	P2-A6	fc8159-12	1633full_4Q.m	Sample		OP98458,S4Q722:520,,,5.0,1.,water	double EIS
22	4Q49297.d	P2-F5	fc8159-14	1633full_4Q.m	Sample	100/500	OP98458,S4Q722:540,,,5.0,5.,water	✓
23	4Q49298.d	P2-F6	jd70499-1A	1633full_4Q.m	Sample	50/500	OP98332,S4Q722:5.01,,,5.0,10.,soil	RR under ID method
24	4Q49299.d	P2-B5	op98460-bs	1633full_4Q.m	Sample		OP98460,S4Q722:500,,,5.0,1.,water	✓
25	4Q49300.d	P2-B6	op98460-llbs:3	1633full_4Q.m	Sample		OP98460,S4Q722:500,,,5.0,1.,water	✓
26	4Q49301.d	P2-B7	op98460-mb	1633full_4Q.m	Sample		OP98460,S4Q722:500,,,5.0,1.,water	✓
27	4Q49302.d	P2-B8	fc8160-1	1633full_4Q.m	Sample		OP98460,S4Q722:545,,,5.0,1.,water	IST Fail low
28	4Q49303.d	P2-B9	fc8160-2	1633full_4Q.m	Sample		OP98460,S4Q722:520,,,5.0,1.,water	IST Fail low
29	4Q49304.d	P1-A5	cc722-4	1633full_4Q.m	QC	20/500	OP98180,S4Q722:500,,,5.0,1.,water	✓
30	4Q49305.d	P1-A1	iccb	1633full_4Q.m	Sample		OP98180,S4Q722:500,,,5.0,1.,water	✓
31	4Q49306.d	P2-C1	fc8160-3	1633full_4Q.m	Sample		OP98460,S4Q722:525,,,5.0,1.,water	✓
32	4Q49307.d	P2-C2	fc8160-4	1633full_4Q.m	Sample		OP98460,S4Q722:520,,,5.0,1.,water	✓
33	4Q49308.d	P2-C3	fc8160-5	1633full_4Q.m	Sample		OP98460,S4Q722:515,,,5.0,1.,water	IST Fail low
34	4Q49309.d	P2-C4	fc8160-6	1633full_4Q.m	Sample		OP98460,S4Q722:520,,,5.0,1.,water	✓
35	4Q49310.d	P2-C5	fc8160-7	1633full_4Q.m	Sample		OP98460,S4Q722:515,,,5.0,1.,water	✓

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LCMS4-4Q ANALYSIS LOG

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36	4Q49311.d	P2-C6	fc8160-8	1633full_4Q.m	Sample	OP98460,S4Q722,525,,,5.0,1,water	✓
37	4Q49312.d	P2-C7	fc8160-9	1633full_4Q.m	Sample	OP98460,S4Q722,525,,,5.0,1,water	✓ + rr2x HxS
38	4Q49313.d	P2-C8	op98460-ms	1633full_4Q.m	Sample	OP98460,S4Q722,500,,,5.0,1,water	rr2x HxS
39	4Q49314.d	P2-C9	fc8160-10	1633full_4Q.m	Sample	OP98460,S4Q722,510,,,5.0,1,water	✓
40	4Q49315.d	P2-D1	op98460-dup	1633full_4Q.m	Sample	OP98460,S4Q722,510,,,5.0,1,water	✓
41	4Q49316.d	P1-A5	cc722-4	1633full_4Q.m	QC	OP98180,S4Q722,500,,,5.0,1,water	✓
42	4Q49317.d	P1-A1	iccb	1633full_4Q.m	Sample	OP98180,S4Q722,500,,,5.0,1,water	✓
43	4Q49318.d	P2-D2	fc8160-11	1633full_4Q.m	Sample	OP98460,S4Q722,515,,,5.0,1,water	✓
44	4Q49319.d	P2-D3	fc8160-12	1633full_4Q.m	Sample	OP98460,S4Q722,530,,,5.0,1,water	✓
45	4Q49320.d	P2-D4	fc8160-13	1633full_4Q.m	Sample	OP98460,S4Q722,515,,,5.0,1,water	✓ + rr2x HxS
46	4Q49321.d	P2-D5	fc8160-14	1633full_4Q.m	Sample	OP98460,S4Q722,520,,,5.0,1,water	✓ + rr2x HxS
47	4Q49322.d	P2-D6	fc8160-15	1633full_4Q.m	Sample	OP98460,S4Q722,525,,,5.0,1,water	✓
48	4Q49323.d	P2-D7	fc8160-16	1633full_4Q.m	Sample	OP98460,S4Q722,515,,,5.0,1,water	✓
49	4Q49324.d	P2-D8	fc8160-17	1633full_4Q.m	Sample	OP98460,S4Q722,510,,,5.0,1,water	✓
50	4Q49325.d	P2-D9	fc8160-18	1633full_4Q.m	Sample	OP98460,S4Q722,520,,,5.0,1,water	✓ + rr5x HxS
51	4Q49326.d	P1-A5	cc722-4	1633full_4Q.m	QC	OP98180,S4Q722,500,,,5.0,1,water	✓
52	4Q49327.d	P1-A1	iccb	1633full_4Q.m	Sample	OP98180,S4Q722,500,,,5.0,1,water	✓
53	4Q49328.d	P1-F1	FC8249-1	1633full_4Q.m	Sample	OP98501,S4Q722,505,,,5.0,2,water	✓
54	4Q49329.d	P1-F2	FC8249-2	1633full_4Q.m	Sample	OP98501,S4Q722,520,,,5.0,2,water	✓
55	4Q49330.d	P1-F3	op98501-ms	1633full_4Q.m	Sample	OP98501,S4Q722,515,,,5.0,2,water	✓
56	4Q49331.d	P1-F4	op98501-msd	1633full_4Q.m	Sample	OP98501,S4Q722,505,,,5.0,2,water	✓
57	4Q49332.d	P1-A5	ecc722-4	1633full_4Q.m	QC	OP98180,S4Q722,500,,,5.0,1,water	✓
58	4Q49333.d	P1-A1	iccb	1633full_4Q.m	Sample	OP98180,S4Q722,500,,,5.0,1,water	✓

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DATE:	08/23/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	6 ul
INSTRUMENT:	LCMS4-4Q

LCMS4-4Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_082223_S4Q722
CAL DATE:	08/22/23
ANALYST:	AL M.Valls
RUN BATCH:	S4Q723

ELUENT A LOT #:	224863 W5%ACN 220228 2mMAMAC.11387
ELUENT B LOT #:	ACN 220228
IC/CC STD LOT #:	LCMS 2146A
ICV STD LOT #:	LCMS 2146A/2125A
ISTD/ID STD LOT #:	11850/11851

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	4Q49334.d	P1-B9	CCB	1633full_4Q.m	Sample		OP98456.S4Q723.500,,,5.0,1,water	nd
2	4Q49335.d	P1-B9	CCB	1633full_4Q.m	Sample		OP98456.S4Q723.500,,,5.0,1,water	nd
3	4Q49336.d	P1-B1	RT TDCA	1633full_4Q.m	Sample		OP98456.S4Q723.500,,,5.0,1,water	pass
4	4Q49337.d	P1-B2	RT BR_LN	1633full_4Q.m	Sample		OP98456.S4Q723.500,,,5.0,1,water	pass
5	4Q49338.d	P1-A9	HIGH STD	1633full_4Q.m	Sample		OP98456.S4Q723.500,,,5.0,1,water	pass
6	4Q49339.d	P1-A1	IBLK	1633full_4Q.m	Sample		OP98456.S4Q723.500,,,5.0,1,water	nd
7	4Q49340.d	P1-A5	cc722-4	1633full_4Q.m	QC	20/500	OP98456.S4Q723.500,,,5.0,1,water	pass
8	4Q49341.d	P1-A2	cc722-1.0LL	1633full_4Q.m	QC	1.6/500	OP98456.S4Q723.500,,,5.0,1,water	pass
9	4Q49342.d	P3-E1	OP98526-BS	1633full_4Q.m	Sample		OP98526.S4Q723.500,,,5.0,1,water	3:3 high, samples ND - pass
10	4Q49343.d	P3-E2	OP98526-LLBS:3	1633full_4Q.m	Sample		OP98526.S4Q723.500,,,5.0,1,water	pass
11	4Q49344.d	P3-E3	OP98526-MB	1633full_4Q.m	Sample		OP98526.S4Q723.500,,,5.0,1,water	nd
12	4Q49345.d	P3-E4	FC8731-1	1633full_4Q.m	Sample		OP98526.S4Q723.570,,,5.0,1,water	✓
13	4Q49346.d	P3-E5	FC7904-6	1633full_4Q.m	Sample		OP98526.S4Q723.540,,,5.0,1,water	✓
14	4Q49347.d	P3-E6	FC8070-6	1633full_4Q.m	Sample		OP98526.S4Q723.530,,,5.0,1,water	✓
15	4Q49348.d	P3-E7	FC8240-6	1633full_4Q.m	Sample		OP98526.S4Q723.530,,,5.0,1,water	✓
16	4Q49349.d	P3-E8	FC8240-7	1633full_4Q.m	Sample		OP98526.S4Q723.540,,,5.0,1,water	✓
17	4Q49350.d	P3-E9	OP98526-MS	1633full_4Q.m	Sample		OP98526.S4Q723.540,,,5.0,1,water	✓
18	4Q49351.d	P2-E7	FC8160-14	1633full_4Q.m	Sample	250/500	OP98460.S4Q723.520,,,5.0,2,water	✓
19	4Q49352.d	P1-A5	cc722-4	1633full_4Q.m	QC	20/500	OP98456.S4Q723.500,,,5.0,1,water	pass
20	4Q49353.d	P1-A1	iccb	1633full_4Q.m	Sample		OP98456.S4Q723.500,,,5.0,1,water	nd
21	4Q49354.d	P3-F1	FC8240-8	1633full_4Q.m	Sample		OP98526.S4Q723.540,,,5.0,1,water	✓
22	4Q49355.d	P3-F2	OP98526-DUP	1633full_4Q.m	Sample		OP98526.S4Q723.540,,,5.0,1,water	✓
23	4Q49356.d	P3-F3	FC8240-9	1633full_4Q.m	Sample		OP98526.S4Q723.540,,,5.0,1,water	✓
24	4Q49357.d	P3-F4	FC8240-10	1633full_4Q.m	Sample		OP98526.S4Q723.540,,,5.0,1,water	✓
25	4Q49358.d	P3-F5	FC8240-11	1633full_4Q.m	Sample		OP98526.S4Q723.540,,,5.0,1,water	✓
26	4Q49359.d	P3-F6	FC8240-12	1633full_4Q.m	Sample		OP98526.S4Q723.540,,,5.0,1,water	✓
27	4Q49360.d	P3-F7	FC8240-13	1633full_4Q.m	Sample		OP98526.S4Q723.540,,,5.0,1,water	rr 5x e flag
28	4Q49361.d	P3-F8	FC8160-9	1633full_4Q.m	Sample	250/500	OP98460.S4Q723.525,,,5.0,2,water	✓
29	4Q49362.d	P3-F9	OP98460-MS	1633full_4Q.m	Sample	250/500	OP98460.S4Q723.500,,,5.0,2,water	✓
30	4Q49363.d	P2-E6	FC8160-13	1633full_4Q.m	Sample	250/500	OP98460.S4Q723.515,,,5.0,2,water	✓
31	4Q49364.d	P1-A5	cc722-4	1633full_4Q.m	QC	20/500	OP98456.S4Q723.500,,,5.0,1,water	pass
32	4Q49365.d	P1-A1	iccb	1633full_4Q.m	Sample		OP98456.S4Q723.500,,,5.0,1,water	nd
33	4Q49366.d	P2-A1	OP98456-BS	1633full_4Q.m	Sample		OP98456.S4Q723.500,,,5.0,1,water	✓
34	4Q49367.d	P2-A2	OP98456-LLBS:3	1633full_4Q.m	Sample		OP98456.S4Q723.500,,,5.0,1,water	✓
35	4Q49368.d	P2-A3	OP98456-MB	1633full_4Q.m	Sample		OP98456.S4Q723.500,,,5.0,1,water	✓

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LCMS4-4Q ANALYSIS LOG

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36	4Q49369.d	P2-A4	FC8158-1	1633full_4Q.m	Sample	OP98456.S4Q723.540,,,5.0,1,water	✓
37	4Q49370.d	P2-A5	FC8158-2	1633full_4Q.m	Sample	OP98456.S4Q723.540,,,5.0,1,water	✓
38	4Q49371.d	P2-A6	FC8158-3	1633full_4Q.m	Sample	OP98456.S4Q723.530,,,5.0,1,water	✓
39	4Q49372.d	P2-A7	FC8158-4	1633full_4Q.m	Sample	OP98456.S4Q723.540,,,5.0,1,water	rr 1x
40	4Q49373.d	P2-A8	FC8158-5	1633full_4Q.m	Sample	OP98456.S4Q723.540,,,5.0,1,water	rr 1x
41	4Q49374.d	P2-A9	FC8158-6	1633full_4Q.m	Sample	OP98456.S4Q723.540,,,5.0,1,water	✓
42	4Q49375.d	P2-B1	FC8158-7	1633full_4Q.m	Sample	OP98456.S4Q723.540,,,5.0,1,water	✓
43	4Q49376.d	P1-A5	cc722-4	1633full_4Q.m	QC	OP98456.S4Q723.500,,,5.0,1,water	pass
44	4Q49377.d	P1-A1	iccb	1633full_4Q.m	Sample	OP98456.S4Q723.540,,,5.0,1,water	nd
45	4Q49378.d	P2-B2	FC8158-8	1633full_4Q.m	Sample	OP98456.S4Q723.540,,,5.0,1,water	✓
46	4Q49379.d	P2-B3	FC8158-9	1633full_4Q.m	Sample	OP98456.S4Q723.540,,,5.0,1,water	✓
47	4Q49380.d	P2-B4	FC8158-10	1633full_4Q.m	Sample	OP98456.S4Q723.540,,,5.0,1,water	✓
48	4Q49381.d	P2-B5	FC8158-11	1633full_4Q.m	Sample	OP98456.S4Q723.540,,,5.0,1,water	✓
49	4Q49382.d	P2-B6	OP98456-MS	1633full_4Q.m	Sample	OP98456.S4Q723.500,,,5.0,1,water	✓
50	4Q49383.d	P2-B7	OP98456-MSD	1633full_4Q.m	Sample	OP98456.S4Q723.500,,,5.0,1,water	✓
51	4Q49384.d	P2-B8	FC8158-12	1633full_4Q.m	Sample	OP98456.S4Q723.540,,,5.0,1,water	✓
52	4Q49385.d	P2-B9	FC8158-13	1633full_4Q.m	Sample	OP98456.S4Q723.540,,,5.0,1,water	✓
53	4Q49386.d	P2-C1	FC8158-14	1633full_4Q.m	Sample	OP98456.S4Q723.540,,,5.0,1,water	rr 1x
54	4Q49387.d	P2-C2	FC8158-15	1633full_4Q.m	Sample	OP98456.S4Q723.540,,,5.0,1,water	✓
55	4Q49388.d	P1-A5	cc722-4	1633full_4Q.m	QC	OP98456.S4Q723.500,,,5.0,1,water	pass
56	4Q49389.d	P1-A1	iccb	1633full_4Q.m	Sample	OP98456.S4Q723.540,,,5.0,1,water	nd
57	4Q49390.d	P2-C3	FC8158-16	1633full_4Q.m	Sample	OP98456.S4Q723.540,,,5.0,1,water	✓
58	4Q49391.d	P2-C4	FC8158-17	1633full_4Q.m	Sample	OP98456.S4Q723.530,,,5.0,1,water	✓
59	4Q49392.d	P2-C5	FC8158-18	1633full_4Q.m	Sample	OP98456.S4Q723.540,,,5.0,1,water	rr 1x; 2x e flag
60	4Q49393.d	P2-E8	FC8160-18	1633full_4Q.m	Sample	OP98460.S4Q723.520,,,5.0,5,water	✓
61	4Q49394.d	P2-C6	OP98462-BS	1633full_4Q.m	Sample	OP98462.S4Q723.500,,,5.0,1,water	✓
62	4Q49395.d	P2-C7	OP98462-L LBS;3	1633full_4Q.m	Sample	OP98462.S4Q723.500,,,5.0,1,water	✓
63	4Q49396.d	P2-C8	OP98462-MB	1633full_4Q.m	Sample	OP98462.S4Q723.500,,,5.0,1,water	✓
64	4Q49397.d	P2-D1	FC8179-2	1633full_4Q.m	Sample	OP98462.S4Q723.550,,,5.0,1,water	✓
65	4Q49398.d	P2-D2	OP98462-MS	1633full_4Q.m	Sample	OP98462.S4Q723.525,,,5.0,1,water	✓
66	4Q49399.d	P2-D3	OP98462-MSD	1633full_4Q.m	Sample	OP98462.S4Q723.525,,,5.0,1,water	✓
67	4Q49400.d	P1-A5	cc722-4	1633full_4Q.m	QC	OP98456.S4Q723.500,,,5.0,1,water	pass
68	4Q49401.d	P1-A1	iccb	1633full_4Q.m	Sample	OP98456.S4Q723.500,,,5.0,1,water	nd
69	4Q49402.d	P2-C9	FC8179-1	1633full_4Q.m	Sample	OP98462.S4Q723.550,,,5.0,1,water	✓
70	4Q49403.d	P2-D4	FC8179-3	1633full_4Q.m	Sample	OP98462.S4Q723.550,,,5.0,1,water	rr 1x, 5x
71	4Q49404.d	P2-D5	FC8179-4	1633full_4Q.m	Sample	OP98462.S4Q723.550,,,5.0,1,water	rr 5x e flag
72	4Q49405.d	P2-D6	FC8179-5	1633full_4Q.m	Sample	OP98462.S4Q723.550,,,5.0,1,water	✓
73	4Q49406.d	P2-D7	FC8179-6	1633full_4Q.m	Sample	OP98462.S4Q723.550,,,5.0,1,water	✓
74	4Q49407.d	P2-D8	FC8179-7	1633full_4Q.m	Sample	OP98462.S4Q723.550,,,5.0,1,water	✓
75	4Q49408.d	P2-D9	FC8179-8	1633full_4Q.m	Sample	OP98462.S4Q723.550,,,5.0,1,water	✓
76	4Q49409.d	P2-E1	FC8179-9	1633full_4Q.m	Sample	OP98462.S4Q723.550,,,5.0,1,water	✓
77	4Q49410.d	P2-E2	FC8179-10	1633full_4Q.m	Sample	OP98462.S4Q723.550,,,5.0,1,water	✓
78	4Q49411.d	P2-E3	FC8179-11	1633full_4Q.m	Sample	OP98462.S4Q723.550,,,5.0,1,water	✓

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SGS ORLANDO LCMS4-4Q ANALYSIS LOG

79	4Q49412.d	P1-A5	cc722-4	1633full_4Q.m	QC	20/500	OP98456.S4Q723.500,,,5.0,1,water	pass
80	4Q49413.d	P1-A1	iccb	1633full_4Q.m	Sample		OP98456.S4Q723.500,,,5.0,1,water	nd
81	4Q49414.d	P2-E4	FC8179-12	1633full_4Q.m	Sample		OP98462.S4Q723.550,,,5.0,1,water	✓
82	4Q49415.d	P2-E5	FC8179-13	1633full_4Q.m	Sample		OP98462.S4Q723.550,,,5.0,1,water	✓
83	4Q49416.d	P2-F1	FC8161-10	1633full_4Q.m	Sample		OP98435.S4Q723.505,,,5.0,1,water	✓
84	4Q49417.d	P2-F2	FC8161-11	1633full_4Q.m	Sample		OP98435.S4Q723.510,,,5.0,1,water	rr 5x
85	4Q49418.d	P2-F3	OP98435-MS	1633full_4Q.m	Sample		OP98435.S4Q723.510,,,5.0,1,water	✓
86	4Q49419.d	P2-F4	FC8161-12	1633full_4Q.m	Sample		OP98435.S4Q723.510,,,5.0,1,water	✓
87	4Q49420.d	P2-F5	OP98435-DUP	1633full_4Q.m	Sample		OP98435.S4Q723.515,,,5.0,1,water	✓
88	4Q49421.d	P1-A5	Ecc722-4	1633full_4Q.m	QC	20/500	OP98456.S4Q723.500,,,5.0,1,water	pass
89	4Q49422.d	P1-A1	iccb	1633full_4Q.m	Sample		OP98456.S4Q723.500,,,5.0,1,water	nd
90	4Q49423.d	P3-D4	LCMS2166-A	1633full_4Q.m	Sample		OP98456.S4Q723.500,,,5.0,1,water	ok
91	4Q49424.d	P3-D5	LCMS2166-B	1633full_4Q.m	Sample		OP98456.S4Q723.500,,,5.0,1,water	ok
92	4Q49425.d	P3-D6	LCMS2166-C	1633full_4Q.m	Sample		OP98456.S4Q723.500,,,5.0,1,water	ok
93	4Q49426.d	P3-D7	LCMS2166-D	1633full_4Q.m	Sample		OP98456.S4Q723.500,,,5.0,1,water	ok
94	4Q49427.d	P3-D8	LCMS2166-E	1633full_4Q.m	Sample		OP98456.S4Q723.500,,,5.0,1,water	ok

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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 2145	Full List 40 Spike (cal std)	11849	PF0A 28 Comp	Absolute	3/13/28	6/21/24	1.0 ppm	400 uL	4.0 mL	100 ppb	95% MeOH 5% H <sub>2</sub> O	7/17/23	8/23/23	NW
		LCMS 2067	402157 Field on #1	Sgs std		8/23/23	1.0 ppm	400 uL			(2x400ml)			
		LCMS 2117	402157 Field on #2			11/8/23	1.0 ppm	400 uL						
		LCMS 2107	F05E std.			9/19/23	5.0 ppm	400 uL		500 ppb				
LCMS 2146 AE	1633 copike Cal. std.	LCMS 2140	Br-LV Et-me	SGS Labs.	NA	12/28/23	2 ppm	250 uL	4 mL	125	1033 (111K 2.686uL)	7/18/23	12/28/23	NW
		11802	PFAC	Wellington	4-19-28	7-10-24	1-4 ppm			62.5				
		11890	MxH			7-19-24				250 ppb				
		11891	PFAC			7-10-24				125 ppb				
		11900	Mx F		3-24-26	7-19-24	2 ppm							
		11804	PFAC			7-19-24				125 ppb				
		11892	Mx G		12-1-27	7-19-24	2 ppm							
		11805	PFAC		3-28-28	7-10-24	4-20 ppm			312				
		11893	Mx J			7-19-24				1100 ppb				
LCMS 2147	PFC ID Std	11849	PF0A-000 (28 comp)	Absolute	4/21/24	3/13/24	1 mg/mL	400 uL	4.0 mL	100 PPB	95% MeOH 5% H <sub>2</sub> O	07/21/23 01/21/24		NW
		11432	N-HexSA	Wellington Labs	02/28/27	3/13/24	50 mg/mL	8 mL						
		11513	FOSA-1		11/10/26	4/18/24								RL
		11514	FHfSA-1		12/29/26	4/18/24								RL
		11332	PFECMS		3/28/27	4/18/24								RL
														RL

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

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

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2139	1033 RT BR-LN	11496	br-Fosa	Wellington LABS	10/7/27	12/28/23	50ppm	5uL	2.5mL	100ppb	1033 mix	6/28/23	12/28/23	MU
		11497	br-N-MeFosa		8/23/27									
		11498	br-N-EtFosa		10/7/27									
		11494	br-N-MeFosa		10/7/27									
		11495	br-N-EtFosa		10/7/27									
		11502	T-PFOA		01/27/27									
		11527	IP PFNA		01/10/27									
LCMS 2140	1033 BR-LN Me + Et	11497	br-N MeFosa	Wellington LABS	8/23/27	12/28/23	50ppm	200mL	5mL	2ppm	1033 mix (3000mL)	6/28/23	12/28/23	MU
		11498	br-N EtFosa		10/7/27	12/28/23		200mL		2ppm				
		11795	br-N MeFosa		10/7/27	6/28/24		500mL		5ppm				
		11796	br-N EtFosa		10/7/27	6/28/24		500mL		5ppm				
LCMS 2141	List 40 SUN ADD-ON Isotope	11523	br-N-MeFosa	Wellington LABS	12/7/27	5/9/24	50ppm	400mL	4mL	5ppm	956meom 500H2O	7/11/23	01/11/24	MU
		11537	br-N EtFosa		11/27/27	6/11/24		400mL		5ppm				
		11334	M2-PFHDA		11/23/26	6/11/24		80mL		1ppm				
		11335	br-N-EtFosa		3/7/27	6/11/24		80mL		1ppm				
						PR 7/12/23								

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

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

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
<del>LCMS 2125A-B</del>	<del>Full List 40 spike (Cal Std)</del>	11750	PF0A 28 Comp.	Absolute	3/13/28	5/16/24	1.0ppm	400uL	4.0mL	100ppb	951MEKH 581H2O (2,400mL)	5/22/23	8/23/23	MW
		2067	40 List Add on #1	Sgs std.		8/23/23	1.0ppm	400uL						
		2117	40 List Add on #2			11/8/23	1.0ppm	400uL						
		2101	F0SE Std.			7/19/23 7/24/23	5.0ppm	400uL 400uL		500ppb				
<del>LCMS 2126A-J</del>	<del>PFC ID SURT (10 ppb)</del>	11804	MPAC-2UES	Wellington Labs	01/18/28	05/23/24	1.0ppm	1.2mL 2.5mL	~2.5mL	0.5ppm	951MEKH 5% H2O	05/23/23	11/23/23	NG
		11635A	M3HFO-DA		11/08/25	01/24/24	50ppm	24uL						NG
		11431	d-N-NERSAM		05/06/27	10/31/24	50ppm	24uL						NG
<del>LCMS 2127A-E</del>	<del>1633 spike Cal Std.</del>	11799B	PFAC MxH	Wellington	4/17/28	5/22/24 5/24/24	1.4 ppm	250uL	4mL	62.5 250ppb	1033 111V	5/24/23	10/28/23	MW
		LCMS 2097AB	BL IN EL ME	Sgs Labs	MA	10/28/23	2 ppm			125 312-5ppb	(2088mL)			
		11801B	PFAC MxH	Wellington	3/24/26	5/22/24 5/24/24	2 ppm			125ppb				
		11807	PFAC MxH		12/1/27	5/22/24 5/24/24	2 ppm			125ppb				
		11802B	PFAC MxG		3/28/28	5/22/24 5/24/24	4-70 ppm	3/2uL		312 1100ppb				
		11809	PFAC MxG											
		11810	PFAC MxJ											
<del>LCMS 2128A-J</del>	<del>PFC ID SURT (10 ppb)</del>	F-3 11819	MPAC-2UES	Wellington Labs	01/18/28	06/10/24	1.0ppm	1.2mL	~2.5mL	0.5ppm	951MEKH 5% H2O	06/12/23	12/12/23	NG
		11635A	M3HFO-DA		11/08/25	01/24/24	50ppm	24uL						NG
		11584	d-N-NERSAM		11/11/27	06/10/24	50ppm	24uL						NG
						NG 06/10/24								

\* 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	FTS	Wellington	3/3/26	3/21/23	50 ppm	80 uL	4.0 mL	1 ppm	95% mech 5% H2O	2/8/23	3/21/23	MV
		10840	L- PFDOS		7/9/26	10/18/23							8/23/23	
		10829	N- McFOSA		8/3/26	8/23/23								
		10837	N- EtFOSA		8/3/26	8/23/23								
		10842	PFAHDA		9/3/26	10/18/23								
		10841	PFOA		5/7/26	10/18/23								
		1116B	3-3FCA PFR-PA		2/3/27	2/8/24								
		10685A	5-3FCA PFR-PA		11/11/25	8/23/23								
		1116A	7-3FCA FHPA		11/12/25	2/8/24								
		11332	PFECHS		3/2/27	10/18/23								
		10762B	PFEESA		5/13/25	10/18/23								
		10763B	PFMBA PF50HA		3/31/25	10/18/23								
		10764	PFMFA PF406A		3/31/25	2/8/24								
		10765B	NFHDA 3.6-OPFA		3/31/25	10/18/23								
					NG 021023									

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

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

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2115	List 40 Spikes Add-on 1500 ml	11523	D-N- Melrose	Wellington	1/27/27	5/9/24	50ppm	200NL	2ml	5ppm	95% MeOH + 5% H2O	5/9/23	8/23/23	MU
↓	↓	11460	D-N- Etfose	↓	1/27/27	12/6/23	↓	200NL	↓	5ppm	↓	↓	↓	↓
↓	↓	11115	M2- PFHXDA	↓	11/23/28	8/23/23	↓	40NL	↓	1ppm	↓	↓	↓	↓
↓	↓	10836	D-N- Etfose	↓	12/30/25	8/23/23	↓	40NL	↓	1ppm	↓	↓	↓	↓
LCMS 2116	Full List (40) Spike (cal. old)	11053	PFDA 208 Comp.	Absolute	11/9/27	4/18/24	1.0ppm	400NL	4.0ml	100ppb	95% MeOH + 5% H2O	5/9/23	8/23/23	MU
↓	↓	2067	40 List Add on #1	Egs old.	---	8/23/23	1.0ppm	400NL	↓	↓	(2.480ml)	↓	↓	↓
↓	↓	2117	40 List Add on #2	↓	---	5/18/23	1.0ppm	400NL	↓	↓	↓	↓	↓	↓
↓	↓	2054	Fose Std.	↓	---	7/24/23	5.0ppm	400NL	↓	500ppb	↓	↓	↓	↓
LCMS 2117	40 List Add on #2	11250	FBSA-1	Wellington	11/10/26	11/8/23	50ppm	80NL	4.0ml	1ppm	95% MeOH + 5% H2O	5/9/23	11/8/23	MU
↓	↓	11249	FHXSA-1	↓	2/29/26	11/3/23	50ppm	80NL	↓	↓	↓	↓	↓	↓
↓	↓	111408	L-PARS	↓	7/12/26	5/9/24	50ppm	80NL	↓	↓	↓	↓	↓	↓
LCMS 2118 A	PFC ID Sum (10ppb)	11775A	MPFAC 24ES	Wellington	1/18/28	5/10/24	1.0ppm	2.4ml	5.0ml	0.5ppm	95% MeOH + 5% H2O	5/10/23	11/10/23	MU
↓	↓	1635A	M3 HPO DA	↓	11/8/25	4/24/24	50ppm	48NL	↓	↓	↓	↓	↓	↓
↓	↓	11431	d-1 Metosam	↓	5/6/27	3/13/24	50ppm	48NL	↓	↓	↓	↓	↓	↓
UG 05 112123														

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

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

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2098A	1033 OPike Cal std.	11672B	MXH	Wellingtom	8/18/27	3/23/24	1-4 ppm	250uL	4mL	0.25 1.25 250ppb	1033 MIX	4/6/23	10/6/23	MW
		LCMS 2097	61-10 Et, Mc	SGS Labo	n/a	10/28/23	2 ppm	250uL		125ppb				
		11674B	PFAC MXF	Wellingtom	11/1/25	3/30/24	2 ppm	250uL		350ppb				
		11675	PFAC MXG		12/1/27	3/30/24	2 ppm	250uL		125ppb				
		11672B	PFAC MXJ		9/14/26	3/23/24	4-20 ppm	312uL		312/1100 ppb				
LCMS 2099	537.1 Duw. Std. (Interim)	11070	M3FF-PEA	Wellingtom Labs	07/06/25	04/06/24	50ppm	80uL	4mL	1.0ppm	AG 1166A 41. H2O	04/06/23	06/15/23	NG
		10436A	MA6.2 FTS		11/05/25	04/06/24		80uL		10ppm				NG
		10522B	D3-N-NEOSAA		10/22/25	05/15/23		160uL		2.0ppm				NG
		10496A	MPTOS		11/02/25	03/22/24		80uL		1.0ppm				NG
		11069	MARFA		12/01/26	03/22/24		80uL		1.0ppm				NG
LCMS 2100	Full List (40) List 40 spike (Std)	11026	PF0A DP 28 Comp.	Absolute	11/17/27	4/11/24	1.0ppm	400uL	4.0mL	100ppb	75% MeOH 5% H2O (2.14023)	4/11/23	7/24/23	MU
		LCMS 2067	40 List ADD FN #1	SGS add.		8/23/23	1.0ppm	400uL						
		LCMS 2070	40 List ADD FN #2			5/12/23	1.0ppm	400uL						
		LCMS 2054	F05E Std.			7/24/23	5.0ppm	400uL		500ppb				
LCMS 2101	F05E std.	11336	N- et F05E	Wellingtom	5/13/27	9/19/23	50ppm	200uL	2.0mL	5ppm	95% MeOH 5% H2O	9/11/23	9/19/23	MW
		11338	N- et F05E		5/13/27	9/19/23	50ppm	200uL						

(11000)

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

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

AF 100 7.1B  
\* tested & used on 11/17/23  
re normal

LCMS 100 7.1B  
\* tested & used on 11/17/23



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# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

FPePA

**LOT NUMBER:**

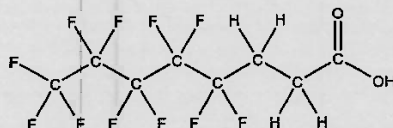
FPePA1120

**COMPOUND:**

3-Perfluoropentyl propanoic acid

**STRUCTURE:****CAS #:**

914637-49-3

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

342.11

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

Methanol

**CHEMICAL PURITY:**

&gt;98%

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

11/11/2020

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

11/11/2025

**RECOMMENDED STORAGE:**

Refrigerate ampoule

**DOCUMENTATION/ DATA ATTACHED:**

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

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

**ADDITIONAL INFORMATION:**

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

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

Certified By:

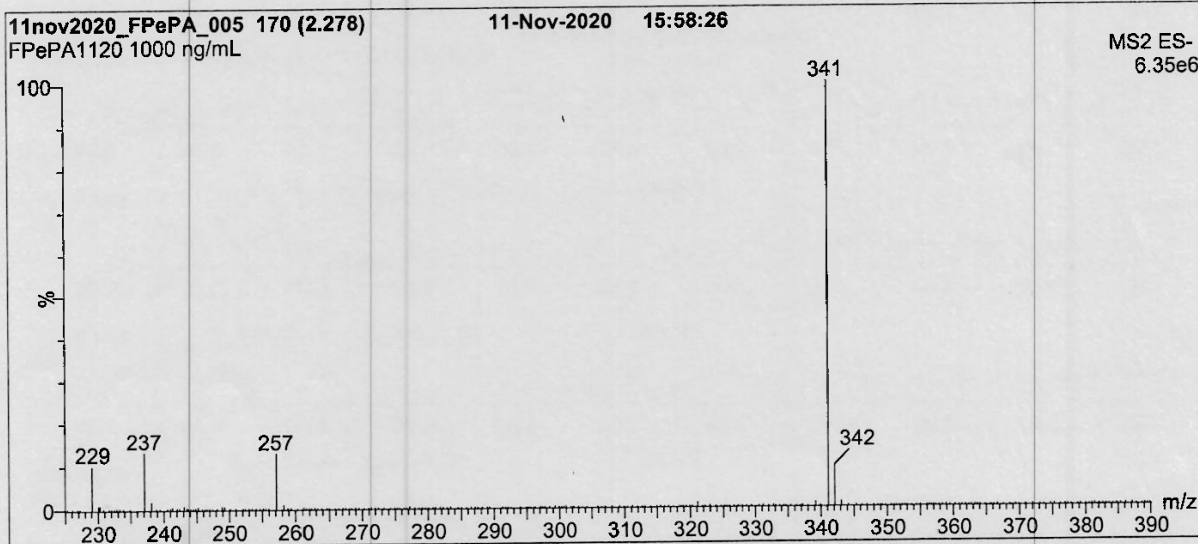
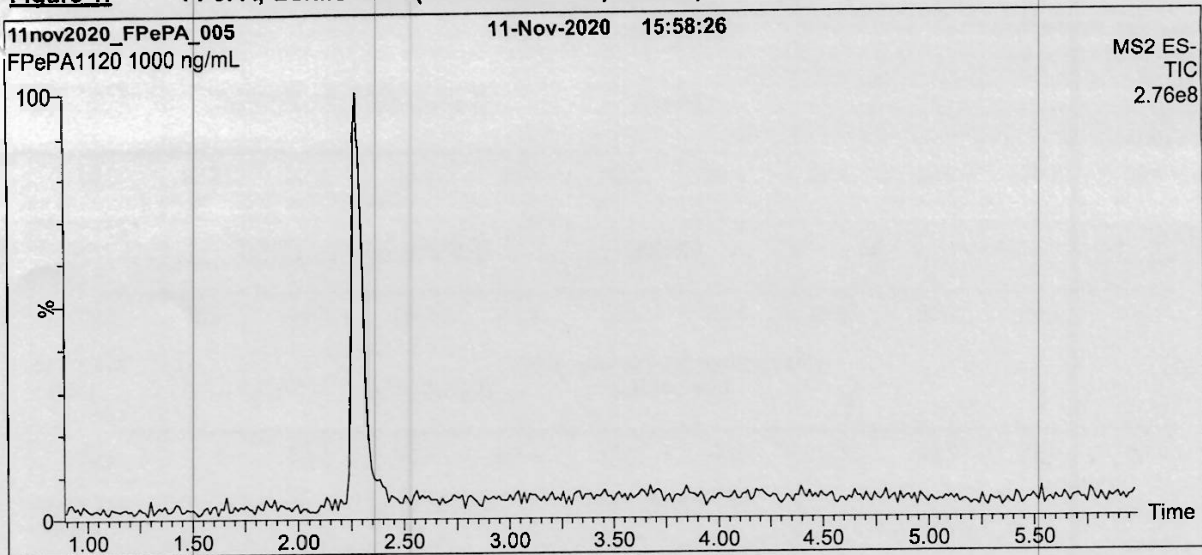
  
B.G. Chittim, General Manager

Date: 11/27/2020

(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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



**Conditions for Figure 1:**

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

**Chromatographic Conditions:**

Column: Acquity UPLC BEH Shield RP<sub>1a</sub>  
1.7  $\mu$ m, 2.1 x 100 mm

Mobile phase: Gradient  
Start: 45% H<sub>2</sub>O / 55% (80:20 MeOH:ACN)  
(both with 10 mM NH<sub>4</sub>OAc buffer)  
Ramp to 90% organic over 8 min and hold for  
2 min before returning to initial conditions in 0.75 min.  
Time: 12 min

Flow: 300  $\mu$ L/min

**MS Parameters:**

Experiment: Full Scan (225 - 850 amu)

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



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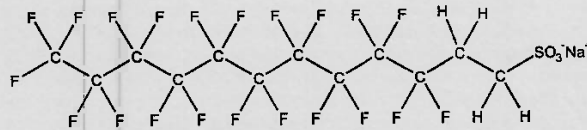


# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

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

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



**MOLECULAR FORMULA:** C<sub>12</sub>H<sub>4</sub>F<sub>21</sub>SO<sub>3</sub>Na **MOLECULAR WEIGHT:** 650.18  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL (Na salt) **SOLVENT(S):** Methanol  
48.3 ± 2.4 µg/mL (10:2FTS acid)  
48.2 ± 2.4 µg/mL (10:2FTS anion)  
**CHEMICAL PURITY:** >98%  
**LAST TESTED:** (mm/dd/yyyy) 03/03/2021  
**EXPIRY DATE:** (mm/dd/yyyy) 03/03/2026  
**RECOMMENDED STORAGE:** Refrigerate ampoule

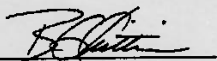
**DOCUMENTATION/ DATA ATTACHED:**

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

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

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

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

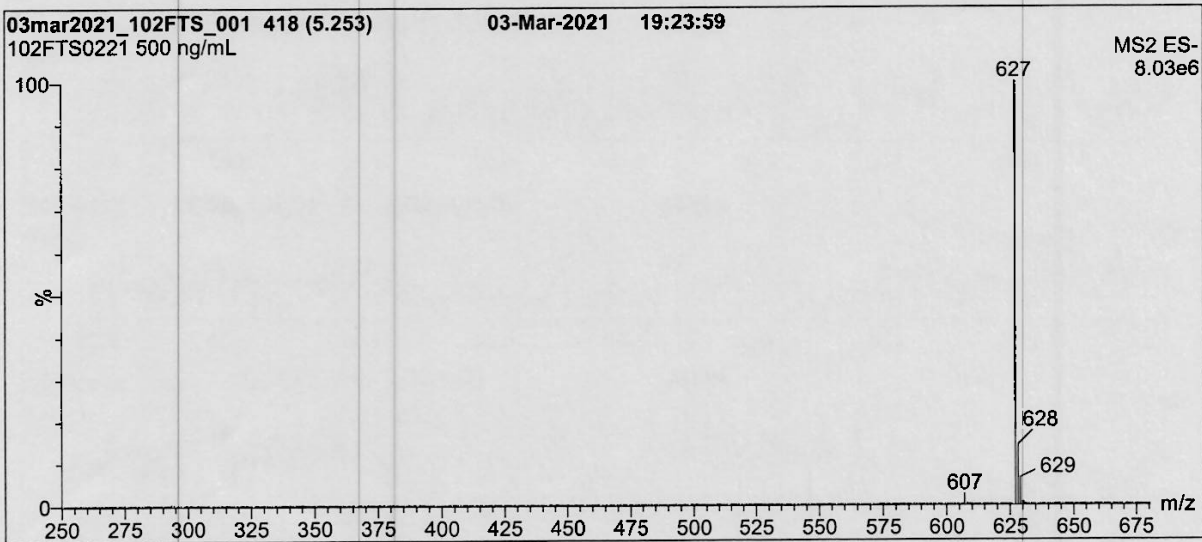
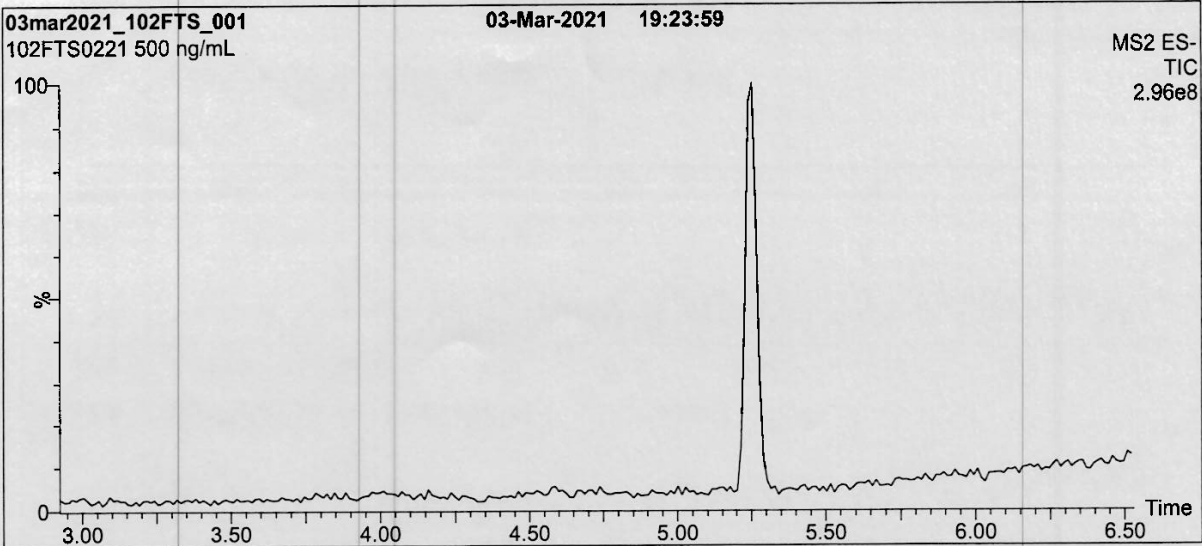
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Form#: 27, Issued 2004-11-10  
Revision#: 9, Revised 2020-12-23

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



**Conditions for Figure 1:**

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

**Chromatographic Conditions:**

Column: Acquity UPLC BEH Shield RP<sub>18</sub>  
1.7  $\mu$ m, 2.1 x 100 mm

Mobile phase: Gradient  
Start: 40% H<sub>2</sub>O / 60% (80:20 MeOH:ACN)  
(both with 10 mM NH<sub>4</sub>OAc buffer)  
Ramp to 90% organic over 7 min and hold for 3 min  
before returning to initial conditions in 0.75 min.  
Time: 12 min

Flow: 300  $\mu$ L/min

**MS Parameters:**

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

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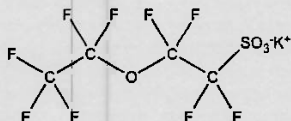


# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

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

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



**MOLECULAR FORMULA:** 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

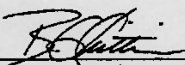
**DOCUMENTATION/ DATA ATTACHED:**

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

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

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# WELLINGTON LABORATORIES

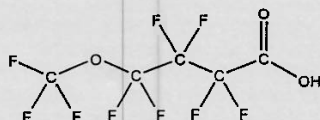
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**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

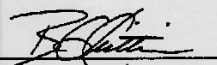
**DOCUMENTATION/ DATA ATTACHED:**

- 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

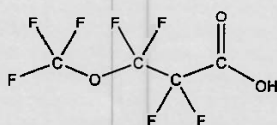
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**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

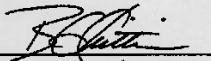
### DOCUMENTATION/ DATA ATTACHED:

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

PF4OPeA0320 (1 of 4)  
rev1

7.9.1

7

10765 A-13



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

3,6-OPFHpA

*rec'd  
WPH  
8/20/21*

**LOT NUMBER:**

36OPFHpA0320

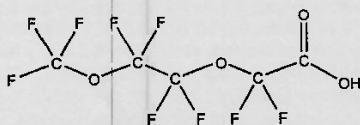
**COMPOUND:**

Perfluoro-3,6-dioxaheptanoic acid

**STRUCTURE:**

**CAS #:**

151772-58-6



**MOLECULAR FORMULA:**

C<sub>6</sub>HF<sub>9</sub>O<sub>4</sub>

**MOLECULAR WEIGHT:**

296.04

**CONCENTRATION:**

50.0 ± 2.5 µg/ml

**SOLVENT(S):**

Methanol  
Water (<1%)

**CHEMICAL PURITY:**

>98%

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

03/31/2020

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

03/31/2025

**RECOMMENDED STORAGE:**

Store ampoule in a cool, dark place

**DOCUMENTATION/ DATA ATTACHED:**

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

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

**ADDITIONAL INFORMATION:**

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

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

**Certified By:**

B.G. Chittim, General Manager

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

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10829



# WELLINGTON LABORATORIES

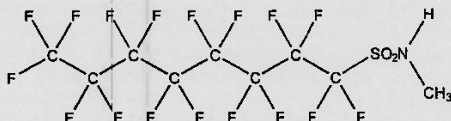
## CERTIFICATE OF ANALYSIS DOCUMENTATION

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

**LOT NUMBER:** NMeFOSA0721M

**STRUCTURE:**

**CAS #:** 31506-32-8



rec'd  
WPA  
10/5/21

**MOLECULAR FORMULA:** C<sub>9</sub>H<sub>4</sub>F<sub>17</sub>NO<sub>2</sub>S  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL  
**CHEMICAL PURITY:** >98%  
**LAST TESTED:** (mm/dd/yyyy) 08/03/2021  
**EXPIRY DATE:** (mm/dd/yyyy) 08/03/2026  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

**MOLECULAR WEIGHT:** 513.17  
**SOLVENT(S):** Methanol

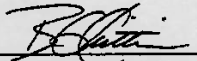
**DOCUMENTATION/ DATA ATTACHED:**

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

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

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

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

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

NMeFOSA0721M (1 of 4)  
rev0

7.9.1

7



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## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

N-EtFOSA-M

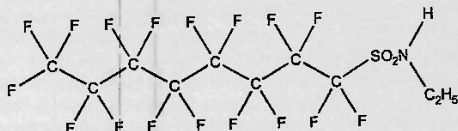
10837

**LOT NUMBER:** NEtFOSA0821M

**COMPOUND:**

N-ethylperfluoro-1-octanesulfonamide

**STRUCTURE:**



**CAS #:** 4151-50-2

**MOLECULAR FORMULA:**

C<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)

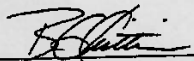
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**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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## CERTIFICATE OF ANALYSIS DOCUMENTATION

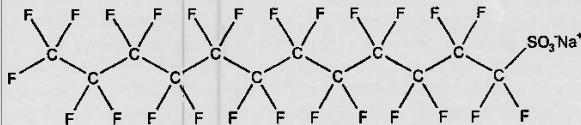
10840

**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

**PRODUCT CODE:**

PFODA

10847 NS 01/18/23

**LOT NUMBER:**

PFODA0821

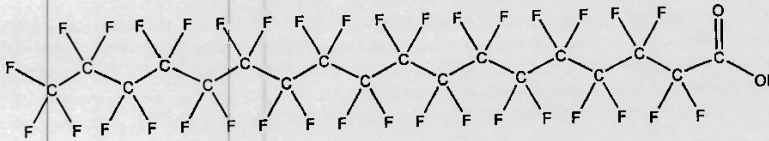
**COMPOUND:**

Perfluoro-n-octadecanoic acid

**STRUCTURE:**

**CAS #:**

16517-11-6



**MOLECULAR FORMULA:**

C<sub>18</sub>H<sub>35</sub>O<sub>2</sub>

**MOLECULAR WEIGHT:**

914.14

**CONCENTRATION:**

50.0 ± 2.5 µg/mL

**SOLVENT(S):**

Methanol  
Water (<1%)

**CHEMICAL PURITY:**

>98%

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

09/03/2021

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

09/03/2026

**RECOMMENDED STORAGE:**

Store ampoule at ambient temperature in a dark place

### DOCUMENTATION/ DATA ATTACHED:

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

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

### ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- The solubility of this product in methanol is very sensitive to storage conditions and solvent composition. The stated validity period applies to the sealed ampoules stored at ambient temperature.

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

**Certified By:**

B.G. Chittim, General Manager

**Date:** 09/28/2021

(mm/dd/yyyy)

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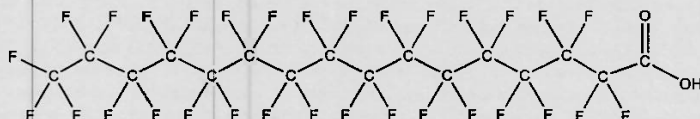


**WELLINGTON**  
LABORATORIES

**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

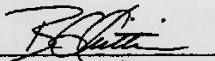
**DOCUMENTATION/ DATA ATTACHED:**

- 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)

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

PFHxDA0421 (1 of 4)  
 rev0

7.9.1

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1116 A.B NW

1116B on the back NW



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

FHpPA

**LOT NUMBER:**

FHpPA1020

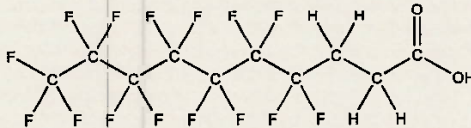
**COMPOUND:**

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

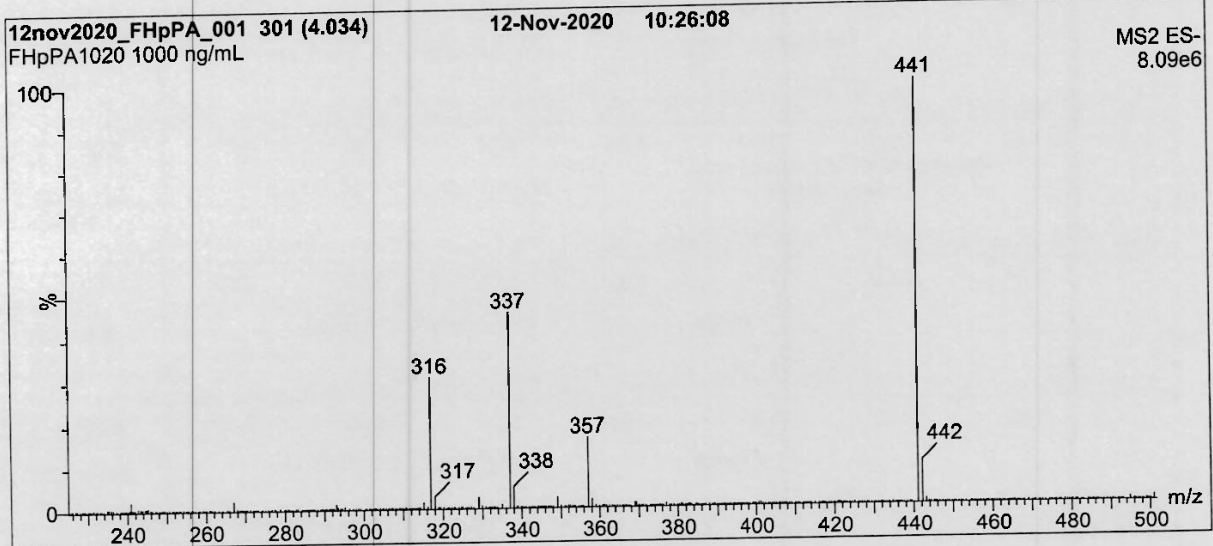
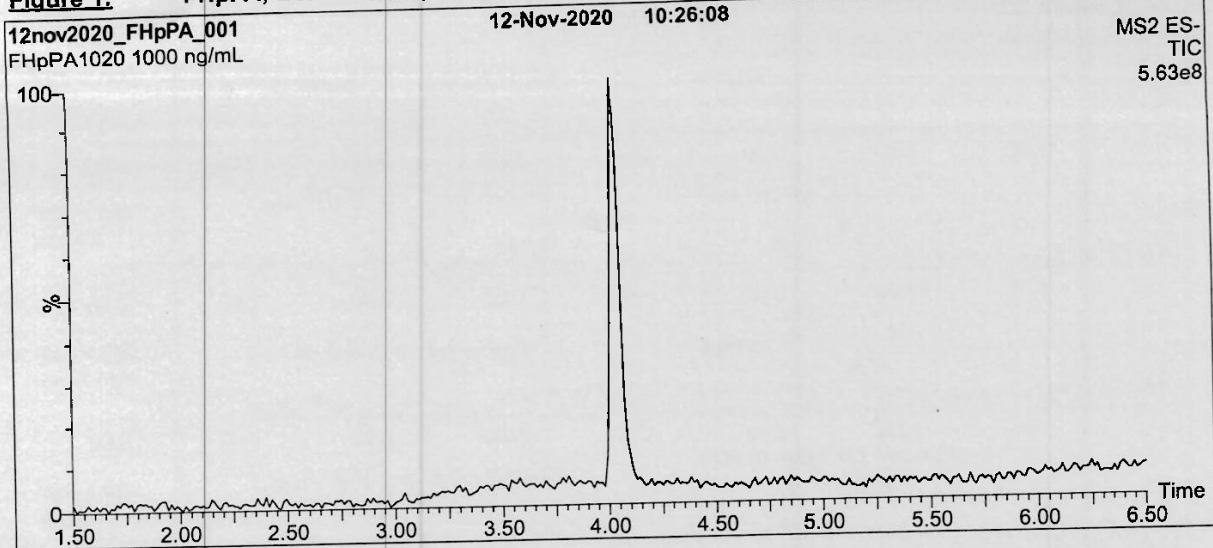
**Date:** 11/27/2020

(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



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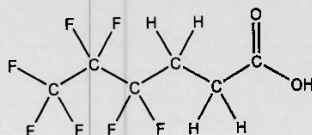
**CERTIFICATE OF ANALYSIS**  
DOCUMENTATION

**PRODUCT CODE:** FPrPA  
**COMPOUND:** 3-Perfluoropropyl propanoic acid

**LOT NUMBER:** FPrPA0122

**STRUCTURE:**

**CAS #:** 356-02-5



**MOLECULAR FORMULA:** C<sub>6</sub>H<sub>5</sub>F<sub>7</sub>O<sub>2</sub>  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL  
**CHEMICAL PURITY:** >98%  
**LAST TESTED:** (mm/dd/yyyy) 02/03/2022  
**EXPIRY DATE:** (mm/dd/yyyy) 02/03/2027  
**RECOMMENDED STORAGE:** Refrigerate ampoule

**MOLECULAR WEIGHT:** 242.09  
**SOLVENT(S):** Methanol

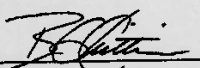
**DOCUMENTATION/ DATA ATTACHED:**

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 <1% of the unsaturated 3:3 telomer acid (C<sub>6</sub>H<sub>3</sub>F<sub>7</sub>O<sub>2</sub>) as an impurity determined by <sup>19</sup>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

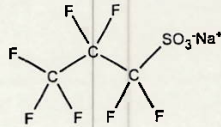
**COMPOUND:**

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.

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

Certified By:

B.G. Chittim, General Manager

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

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11252 11249  
7/1/22 KA



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

FHxSA-I

**LOT NUMBER:**

FHxSA12211

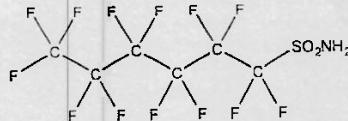
**COMPOUND:**

Perfluoro-1-hexanesulfonamide

**STRUCTURE:**

**CAS #:**

41997-13-1



**MOLECULAR FORMULA:**

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:**

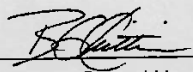
- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

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

Certified By:

  
B.G. Chittim, General Manager

Date: 01/10/2022

(mm/dd/yyyy)

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11250 Lx 7/1122



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

FBSA-I

**LOT NUMBER:**

FBSA11211

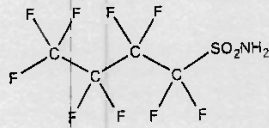
**COMPOUND:**

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.

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

**Certified By:**

B.G. Chittim, General Manager

**Date:** 11/10/2021

(mm/dd/yyyy)

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11332



# WELLINGTON LABORATORIES

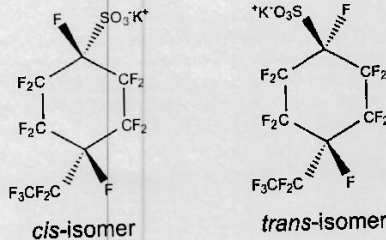
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**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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11336



# WELLINGTON LABORATORIES

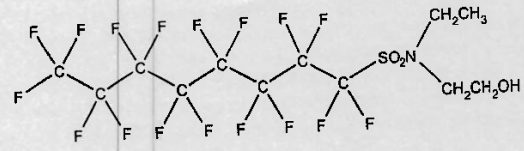
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**  
**COMPOUND:**  
**STRUCTURE:**

N-EtFOSE-M  
2-(N-ethylperfluoro-1-octanesulfonamido)ethanol

**LOT NUMBER:** NEtFOSE0622M

**CAS #:** 1691-99-2



**MOLECULAR FORMULA:**  
**CONCENTRATION:**  
**CHEMICAL PURITY:**  
**LAST TESTED:** (mm/dd/yyyy)  
**EXPIRY DATE:** (mm/dd/yyyy)  
**RECOMMENDED STORAGE:**

C<sub>12</sub>H<sub>10</sub>F<sub>17</sub>NO<sub>3</sub>S  
50.0 ± 2.5 µg/mL  
>98%  
05/13/2022 (HRGC/LRMS)  
05/13/2022 (LC/MS)  
05/13/2027  
Store ampoule in a cool, dark place

**MOLECULAR WEIGHT:** 571.25  
**SOLVENT(S):** Methanol

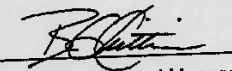
**DOCUMENTATION/ DATA ATTACHED:**

- Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 3: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- In order to see the molecular ion (adduct free), the LC mobile phase should be free of ammonium acetate buffer.

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Certified By:   
B.G. Chittim, General Manager

Date: 07/13/2022  
(mm/dd/yyyy)

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

NEtFOSE0622M (1 of 5)  
rev0



11338



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

N-MeFOSE-M

**LOT NUMBER:**

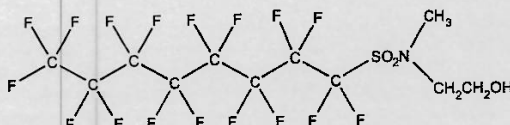
NMeFOSE0522M

**COMPOUND:**

2-(N-methylperfluoro-1-octanesulfonamido)ethanol

**STRUCTURE:****CAS #:**

24448-09-7

**MOLECULAR FORMULA:**C<sub>11</sub>H<sub>8</sub>F<sub>17</sub>NO<sub>3</sub>S**MOLECULAR WEIGHT:**

557.22

**CONCENTRATION:**

50.0 ± 2.5 µg/mL

**SOLVENT(S):**

Methanol

**CHEMICAL PURITY:**

&gt;98%

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

05/13/2022 (HRGC/LRMS)

05/13/2022 (LC/MS)

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

05/13/2027

**RECOMMENDED STORAGE:**

Store ampoule in a cool, dark place

**DOCUMENTATION/ DATA ATTACHED:**

Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)

Figure 2: LC/MS Data (Full Scan and Mass Spectrum)

Figure 3: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- In order to see the molecular ion (adduct free), the LC mobile phase should be free of ammonium acetate buffer.

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Certified By:

  
B.G. Chittim, General Manager
Date: 06/14/2022  
(mm/dd/yyyy)

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11497



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### br-NMeFOSA

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

<b><u>PRODUCT CODE:</u></b>	br-NMeFOSA
<b><u>LOT NUMBER:</u></b>	brNMeFOSA0822
<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)	08/18/2022
<b><u>LAST TESTED:</u></b> (mm/dd/yyyy)	08/23/2022
<b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)	08/23/2027
<b><u>RECOMMENDED STORAGE:</u></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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Form#:13, Issued 2004-11-10  
Revision#:9, Revised 2020-12-23

brNMeFOSA0822 (1 of 6)  
rev1

7.9.1

7

11498



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### br-NEtFOSA

#### N-Ethylperfluorooctanesulfonamide Isomeric Mix

<b><u>PRODUCT CODE:</u></b>	br-NEtFOSA
<b><u>LOT NUMBER:</u></b>	brNEtFOSA0922
<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)	08/23/2022
<b><u>LAST TESTED:</u></b> (mm/dd/yyyy)	10/07/2022
<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% 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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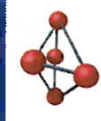
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Form#:13, Issued 2004-11-10  
Revision#:9, Revised 2020-12-23

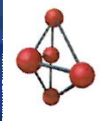
brNEtFOSA0922 (1 of 6)  
rev1

7.9.1

7



Certified Reference Material CRM



11750  
rec'd: 04/17/23

Part Number:	031323	Lot:	32500	Formulated By:	Priyash Chauhan	QI1323
Lot Number:	031323	Solvent(s):	Methanol (1 mL) KOH	Reviewed By:	Patric L. Harris	QI1323
Description:	28 components	2-Propanol	32500 (2%)			
Expiration Date:	03/15/28	Balance Uncertainty	0.001			
Recommended Storage:	1.0	Peak Uncertainty	0.001			
Minimil Concentration (µg/mL):	0.015					

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

Compound	Part Number	Lot Number	Dilution Factor	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Initial	Final	Expanded Uncertainty	SDS Information
				(µg/mL)	(µg/mL)	(ppm)	(ppm)	(ppm)	(Government CAS# / OSHA PEL (TWA) / D050)
Perfluoro-n-butanoic acid (PFNA)	99542	110422	0.02	2.00	0.017	50.1	1.00	0.02	375-22-4 N/A
Perfluoro-n-pentanoic acid (PFPeA)	99543	011723	0.02	2.00	0.017	50.3	1.01	0.02	2705-90-3 N/A
Perfluoro-n-hexanoic acid (PFHxA)	99199	071122	0.02	2.00	0.017	50.2	1.00	0.02	307-24-4 N/A
Perfluoro-n-heptanoic acid (PFHpA)	99197	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-85-9 N/A
Perfluorooctanoic acid (PFPOA)*	99202	090522	0.02	2.00	0.017	50.2	1.00	0.02	335-87-1 (L) N/A
Perfluorononanoic acid (PFNA)	99200	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-95-1 N/A
Perfluorodecanoic acid (PFDA)	99195	110922	0.02	2.00	0.017	50.2	1.00	0.02	2059-94-8 N/A
Perfluoroundecanoic acid (PFUdA)	99205	071522	0.02	2.00	0.017	50.1	1.00	0.02	307-55-1 N/A
Perfluorododecanoic acid (PFDDA)	99196	071522	0.02	2.00	0.017	50.1	1.00	0.02	74609-84-8 N/A
Perfluorotridecanoic acid (PFTDA)	99204	110922	0.02	2.00	0.017	50.1	1.00	0.02	376-06-7 N/A
Perfluorotetradecanoic acid (PFTDA)	99203	033022	0.02	2.00	0.017	50.1	1.00	0.02	754-91-6 N/A
Perfluoro-1-iodooctanoic acid (PFIOA)*	3677	FOSA0321	0.02	2.00	0.017	50.0	1.00	0.05	2955-31-9 (L) N/A
N-Ethylperfluorooctanesulfonamide acid (N-NEFOSA)*	4162	BNMFOA042	0.02	2.00	0.017	50.0	1.00	0.05	2991-50-6 (L) N/A
N-Ethylperfluorodecane sulfonamide acid (N-NEFOSA)*	4163	BNMFOA1121	0.02	2.00	0.017	50.0	1.00	0.05	375-73-5 N/A
Perfluorobutanesulfonic acid (PFBS)	99194	060522	0.02	2.00	0.017	50.2	1.00	0.02	2706-91-4 N/A
Perfluoropentanesulfonic acid (PFPS)	99544	091522	0.02	2.00	0.017	50.1	1.00	0.02	355-46-4 (L) N/A
Perfluorohexanesulfonic acid (PFHxS)	99198	030923	0.02	2.00	0.017	47.8	1.00	0.05	375-95-8 N/A
Perfluoroheptanesulfonic acid (PFHpS)	3672	LPFH0822	0.02	2.10	0.017	47.1	1.00	0.02	1783-23-1 (L) N/A
Perfluorooctanesulfonic acid (PFOS)*	99201	030923	0.02	2.10	0.017	48.0	1.01	0.05	68259-12-1 N/A
Perfluorononanesulfonic acid (PFNS)	3987	LPFN0122	0.02	2.10	0.017	48.2	1.01	0.05	335-77-3 N/A
Perfluorodecane sulfonic acid (PFDS)	3671	LPFD0122	0.02	2.10	0.017	50.2	1.00	0.05	279124-72-4 N/A
Perfluoroundecane sulfonic acid (PFUS)	6871	060522	0.02	2.00	0.017	50.2	1.00	0.05	93109-34-4 N/A
Perfluorododecane sulfonic acid (PFDS)	6872	031023	0.02	2.10	0.017	47.9	1.01	0.02	3205-13-6 N/A
Perfluorotridecane sulfonic acid (PFTS)	3662	8F150822	0.02	2.10	0.017	47.1	1.00	0.05	754026-36-1 N/A
Perfluorotetradecane sulfonic acid (PFTS)	99598	060522	0.02	2.10	0.017	47.1	1.00	0.05	919005-14-4 N/A
Perfluoropentadecane sulfonic acid (PFPS)	4166	11CF-S05022	0.02	2.12	0.017	47.1	1.00	0.05	N/A
Perfluorohexadecane sulfonic acid (PFHxS)	4165	8CF-S051022	0.02	2.14	0.017	46.8	1.00	0.05	N/A
Perfluorooctadecane sulfonic acid (PFOS)	4164	8CF-S051022	0.02	2.12	0.017	47.1	1.00	0.05	N/A
Perfluorooctadecanoic acid (PFODAA)	4163	NAD040622	0.02	2.12	0.017	47.1	1.00	0.05	N/A
Perfluorooctanoic acid (linear)*	99202	060622	0.02	2.00	0.004	49.6	0.99	0.010	335-87-1 (L) N/A
Perfluorodecanoic acid (branched isomer)*	99202	060622	0.02	2.00	0.004	0.6	0.01	0.001	335-87-1 (L) N/A
Perfluoroundecanoic acid (linear)*	99198	030923	0.02	2.00	0.017	44.0	0.88	0.02	355-46-4 (L) N/A
Perfluorodecane sulfonic acid (branched isomer)*	99198	030923	0.02	2.00	0.017	8.0	0.12	0.0020	355-46-4 (L) N/A
Perfluoroundecane sulfonic acid (linear)*	99201	030923	0.02	2.00	0.017	38.1	0.76	0.02	1783-23-1 (L) N/A
Perfluorodecane sulfonic acid (branched isomer)*	99201	030923	0.02	2.00	0.017	7.5	0.15	0.005	1783-23-1 (L) N/A
Perfluoroundecane sulfonic acid (branched isomer)*	99201	030923	0.02	2.00	0.017	4.0	0.08	0.002	1783-23-1 (L) N/A
Perfluorodecane sulfonic acid (branched isomer)*	99201	030923	0.02	2.00	0.017	0.5	0.010	0.0002	1783-23-1 (L) N/A
Perfluoroundecane sulfonic acid (branched isomer)*	99201	030923	0.02	2.00	0.017	36.0	0.72	0.04	2955-31-9 (L) N/A
N-Ethylperfluorooctanesulfonamide acid (linear)*	4162	BNMFOA042	0.02	2.00	0.017	6.5	0.13	0.011	2955-31-9 (L) N/A
N-Ethylperfluorodecane sulfonamide acid (branched)*	4162	BNMFOA042	0.02	2.00	0.017	5.0	0.10	0.005	2955-31-9 (L) N/A
N-Ethylperfluorodecane sulfonamide acid (branched)*	4162	BNMFOA042	0.02	2.00	0.017	2.5	0.05	0.0009	2955-31-9 (L) N/A
N-Ethylperfluoroundecane sulfonamide acid (branched)*	4163	BNMFOA1121	0.02	2.00	0.017	36.6	0.73	0.04	2991-50-6 (L) N/A
N-Ethylperfluoroundecane sulfonamide acid (branched)*	4163	BNMFOA1121	0.02	2.00	0.017	7.7	0.15	0.009	2991-50-6 (L) N/A
N-Ethylperfluoroundecane sulfonamide acid (branched)*	4163	BNMFOA1121	0.02	2.00	0.017	5.3	0.11	0.005	2991-50-6 (L) N/A
N-Ethylperfluoroundecane sulfonamide acid (branched)*	4163	BNMFOA1121	0.02	2.00	0.017	0.4	0.007	0.0006	2991-50-6 (L) N/A

\*Qualitative standard (Sect. 3.13) 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. Subsequent PFOA analysis must be done using a quantitative standard (Sect. 12.2) and 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 under atmospheric conditions. All standards are certified to 0.5% of the stated value, unless otherwise noted. All standards, after opening ampule, should be stored with cap tightly and under appropriate laboratory conditions. For more information, please contact Absolute Standards, Inc. or visit our website at www.absolutestandards.com. NIST Technical Note 1871, U.S. Government Printing Office, Washington, DC, (1994).

11795  
rec'd 10/15/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### br-NMeFOSE

2-(N-Methylperfluorooctanesulfonamido)ethanol  
Isomeric Mix

**PRODUCT CODE:** br-NMeFOSE  
**LOT NUMBER:** brNMeFOSE0922  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL  
**SOLVENT(S):** Methanol  
**DATE PREPARED:** (mm/dd/yyyy) 09/02/2022  
**LAST TESTED:** (mm/dd/yyyy) 09/07/2022 (HRGC/LRMS)  
 10/07/2022 (LC/MS)  
**EXPIRY DATE:** (mm/dd/yyyy) 10/07/2027  
**RECOMMENDED STORAGE:** 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  
7





11796  
rec'd: 05/15/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### br-NEtFOSE

2-(N-Ethylperfluorooctanesulfonamido)ethanol  
Isomeric Mix

<b>PRODUCT CODE:</b>	br-NEtFOSE
<b>LOT NUMBER:</b>	brNEtFOSE1022
<b>CONCENTRATION:</b>	50.0 ± 2.5 µg/mL
<b>SOLVENT(S):</b>	Methanol
<b>DATE PREPARED:</b> (mm/dd/yyyy)	09/12/2022
<b>LAST TESTED:</b> (mm/dd/yyyy)	09/12/2022 (HRGC/LRMS) 10/07/2022 (LC/MS)
<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% 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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Form#: 13, Issued 2004-11-10  
Revision#: 9, Revised 2020-12-23

brNEtFOSE1022 (1 of 7)  
rev1

7.9.1

7

11850 A-J  
rec'd: 06/01/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### MPFAC-HIF-ES

Mass-Labelled PFAS Extraction  
Standard Solution/Mixture

<b>PRODUCT CODE:</b>	MPFAC-HIF-ES
<b>LOT NUMBER:</b>	MPFACHIFES1022
<b>SOLVENT(S):</b>	Methanol/Isopropanol (1%)/Water (<1%)
<b>DATE PREPARED:</b> (mm/dd/yyyy)	10/28/2022
<b>LAST TESTED:</b> (mm/dd/yyyy)	11/23/2022
<b>EXPIRY DATE:</b> (mm/dd/yyyy)	11/23/2025
<b>RECOMMENDED STORAGE:</b>	Refrigerate ampoule

#### DESCRIPTION:

MPFAC-HIF-ES is a solution/mixture of ten mass-labelled (<sup>13</sup>C) perfluoroalkylcarboxylic acids (C<sub>4</sub>-C<sub>12</sub>, C<sub>14</sub>), three mass-labelled (<sup>13</sup>C) perfluoroalkanesulfonates (C<sub>4</sub>, C<sub>6</sub>, and C<sub>8</sub>), three mass-labelled (one <sup>13</sup>C and two <sup>2</sup>H) perfluoro-1-octanesulfonamides, three mass-labelled (<sup>13</sup>C) fluorotelomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (<sup>2</sup>H) perfluorooctanesulfonamidoacetic acids, two mass-labelled (<sup>2</sup>H) perfluorooctane-sulfonamidoethanols, and mass-labelled (<sup>13</sup>C) hexafluoropropylene oxide dimer acid (GenX, M3HFPO-DA). The components and their concentrations are given in Table A.

The individual <sup>13</sup>C-labelled components all have chemical purities >98% and isotopic purities of ≥99%. The individual <sup>2</sup>H-labelled components all have chemical purities >98% and isotopic purities of ≥98%.

#### DOCUMENTATION/ DATA ATTACHED:

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

#### ADDITIONAL INFORMATION:

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

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

MPFACHIFES1022 (1 of 7)  
rev0

7.9.1  
7

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

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-( <sup>13</sup> C <sub>4</sub> )butanoic acid	MPFBA	2000		1
Perfluoro-n-( <sup>13</sup> C <sub>5</sub> )pentanoic acid	M5PFPeA	1000		2
Perfluoro-n-(1,2,3,4,6- <sup>13</sup> C <sub>5</sub> )hexanoic acid	M5PFHxA	500		5
Perfluoro-n-(1,2,3,4- <sup>13</sup> C <sub>6</sub> )heptanoic acid	M4PFHpA	500		7
Perfluoro-n-( <sup>13</sup> C <sub>8</sub> )octanoic acid	M8PFOA	500		10
Perfluoro-n-( <sup>13</sup> C <sub>9</sub> )nonanoic acid	M9PFNA	250		11
Perfluoro-n-(1,2,3,4,5,6- <sup>13</sup> C <sub>10</sub> )decanoic acid	M6PFDA	250		14
Perfluoro-n-(1,2,3,4,5,6,7- <sup>13</sup> C <sub>11</sub> )undecanoic acid	M7PFUdA	250		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>3</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>3</sub> -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000		16
2-(N-methyl-d <sub>3</sub> -perfluoro-1-octanesulfonamido)ethan-d <sub>4</sub> -ol	d7-N-MeFOSE	5000		20
2-(N-ethyl-d <sub>3</sub> -perfluoro-1-octanesulfonamido)ethan-d <sub>4</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)

11851 A-J  
REC'D: 06/01/23



# 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 (<sup>13</sup>C) perfluoroalkylcarboxylic acids (C<sub>4</sub>, C<sub>6</sub>, C<sub>8</sub>-C<sub>10</sub>) and two mass-labelled (<sup>18</sup>O and <sup>13</sup>C) perfluoroalkanesulfonates (C<sub>6</sub> and C<sub>8</sub>). The components and their concentrations are given in Table A.

The individual mass-labelled perfluoroalkylcarboxylic acids and mass-labelled perfluoroalkanesulfonates all have chemical purities of >98% and isotopic purities of ≥99% per <sup>13</sup>C or >94% per <sup>18</sup>O.

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

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

#### **ADDITIONAL INFORMATION:**

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

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

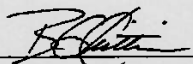
MPFACHIFIS1122 (1 of 5)  
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7.9.1  
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**Table A: MPFAC-HIF-IS; Components and Concentrations (ng/mL, ± 5% in methanol/water (<1%))**

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-(2,3,4- <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)

11862  
rec'd: 06/09/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXH

Native PFAS  
Solution/Mixture

<b><u>PRODUCT CODE:</u></b>	PFAC-MXH
<b><u>LOT NUMBER:</u></b>	PFACMXH0423
<b><u>SOLVENT(S):</u></b>	Methanol/Isopropanol (2%)/Water (<1%)
<b><u>DATE PREPARED:</u></b> (mm/dd/yyyy)	04/06/2023
<b><u>LAST TESTED:</u></b> (mm/dd/yyyy)	04/19/2023
<b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)	04/19/2028
<b><u>RECOMMENDED STORAGE:</u></b>	Refrigerate ampoule

### DESCRIPTION:

PFAC-MXH is a solution/mixture of 11 native linear perfluoroalkylcarboxylic acids (C<sub>4</sub>-C<sub>14</sub>), eight native perfluoroalkanesulfonates (C<sub>4</sub>, C<sub>5</sub>, C<sub>7</sub>, C<sub>8</sub>, C<sub>10</sub> and C<sub>12</sub> linear; C<sub>8</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. The components and their concentrations are given in Table A.

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

### DOCUMENTATION/ DATA ATTACHED:

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

### ADDITIONAL INFORMATION:

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

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

PFACMXH0423 (1 of 11)  
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7.9.1  
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**Table A:**

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

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
				1
				2
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		23
Perfluoro-n-dodecanoic acid	PFDoA	1000		26
Perfluoro-n-tridecanoic acid	PFTrDA	1000		27
Perfluoro-n-tetradecanoic acid	PFTeDA	1000		29
Perfluoro-1-octanesulfonamide	FOSA	1000		24
N-Methylperfluorooctanesulfonamidoacetic acid <sup>a</sup>	N-MeFOSAA: linear isomer	760		20
	N-MeFOSAA: Σ branched isomers	240		17
N-Ethylperfluorooctanesulfonamidoacetic acid <sup>b</sup>	N-EtFOSAA: linear isomer	775		22
	N-EtFOSAA: Σ 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: Σ 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: Σ 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: 05/11/2023  
(mm/dd/yyyy)

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11864  
rec'd: 06/09/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXG

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

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

**DESCRIPTION:**

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

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

**DOCUMENTATION/ DATA ATTACHED:**

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

**ADDITIONAL INFORMATION:**

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

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

PFACMXG1122 (1 of 5)  
rev0

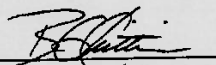
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**Table A:** PFAC-MXG; Components and Concentrations (ng/mL;  $\pm 5\%$  in methanol/water (<1%))

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

\* Concentrations have been rounded to three significant figures.

Certified By:   
 B.G. Chittim, General Manager

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

11865  
rec'd: 06/09/23



# 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>	PFACMXJ0323
<b><u>SOLVENT(S):</u></b>	Methanol
<b><u>DATE PREPARED:</u></b> (mm/dd/yyyy)	03/27/2023
<b><u>LAST TESTED:</u></b> (mm/dd/yyyy)	03/28/2023
<b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)	03/28/2028
<b><u>RECOMMENDED STORAGE:</u></b>	Refrigerate ampoule

#### DESCRIPTION:

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

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

#### DOCUMENTATION/ DATA ATTACHED:

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

#### ADDITIONAL INFORMATION:

- See page 2 for further details.

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

PFACMXJ0323 (1 of 5)  
rev0

7.9.1

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**Table A: PFAC-MXJ; Components and Concentrations (µg/mL; ± 5% in methanol)**

Compound	Acronym	Concentration (µg/mL)
3-Perfluoropropyl propanoic acid	FPrPA	4.00
3-Perfluoropentyl propanoic acid	FPePA	20.0
3-Perfluoroheptyl propanoic acid	FHpPA	20.0

Certified By:   
 B.G. Chittim, General Manager

Date: 04/12/2023  
(mm/dd/yyyy)

11890  
rec'd: 06/29/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXH

Native PFAS  
Solution/Mixture

**PRODUCT CODE:** PFAC-MXH  
**LOT NUMBER:** PFACMXH0423  
**SOLVENT(S):** Methanol/Isopropanol (2%)/Water (<1%)  
**DATE PREPARED:** (mm/dd/yyyy) 04/06/2023  
**LAST TESTED:** (mm/dd/yyyy) 04/19/2023  
**EXPIRY DATE:** (mm/dd/yyyy) 04/19/2028  
**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. 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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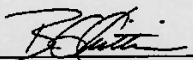
e A:

**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		23
Perfluoro-n-dodecanoic acid	PFDoA	1000		26
Perfluoro-n-tridecanoic acid	PFTrDA	1000		27
Perfluoro-n-tetradecanoic acid	PFTeDA	1000		29
Perfluoro-1-octanesulfonamide	FOSA	1000		24
N-Methylperfluorooctanesulfonamidoacetic acid <sup>a</sup>	N-MeFOSAA: linear isomer	760		20
	N-MeFOSAA: ∑ branched isomers	240		17
N-Ethylperfluorooctanesulfonamidoacetic acid <sup>b</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: 05/11/2023  
(mm/dd/yyyy)

11891  
rec'd: 06/29/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXF

#### Native Replacement PFAS Solution/Mixture

**PRODUCT CODE:** PFAC-MXF  
**LOT NUMBER:** PFACMXF0323  
**SOLVENT(S):** Methanol / Water (<1%)  
**DATE PREPARED:** (mm/dd/yyyy) 03/23/2023  
**LAST TESTED:** (mm/dd/yyyy) 03/24/2023  
**EXPIRY DATE:** (mm/dd/yyyy) 03/24/2026  
**RECOMMENDED STORAGE:** Refrigerate ampoule

### DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonoate (NaDONA), the major and minor components of F-53B (9Cl-PF3ONS and 11Cl-PF3OUdS), and hexafluoropropylene oxide dimer acid (GenX, HFPO-DA). 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
- 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.

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

**Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA**  
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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

PFACMXF0323 (1 of 5)  
rev0

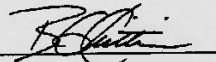
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e A:

**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-chloroicosadecafluoro-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: 03/29/2023  
(mm/dd/yyyy)

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11892  
rec'd: 06/09/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXG

Native Perfluoroalkyl Ether Carboxylic  
Acids and Sulfonate Solution/Mixture

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

### DESCRIPTION:

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

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

### DOCUMENTATION/ DATA ATTACHED:

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

### ADDITIONAL INFORMATION:

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

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

PFACMXG1122 (1 of 5)  
rev0

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Table A:

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

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

\* Concentrations have been rounded to three significant figures.

Certified By:   
B.G. Chittim, General Manager

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

11893  
rec'd: 06/29/23



# 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>	PFACMXJ0323
<b><u>SOLVENT(S):</u></b>	Methanol
<b><u>DATE PREPARED:</u></b> (mm/dd/yyyy)	03/27/2023
<b><u>LAST TESTED:</u></b> (mm/dd/yyyy)	03/28/2023
<b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)	03/28/2028
<b><u>RECOMMENDED STORAGE:</u></b>	Refrigerate ampoule

### DESCRIPTION:

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

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

### DOCUMENTATION/ DATA ATTACHED:

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

### ADDITIONAL INFORMATION:

- See page 2 for further details.

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

PFACMXJ0323 (1 of 5)  
rev0

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Table A:

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

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

Certified By:   
B.G. Chittim, General Manager

Date: 04/12/2023  
(mm/dd/yyyy)

11900  
rec'd: 07/11/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXF

#### Native Replacement PFAS Solution/Mixture

**PRODUCT CODE:** PFAC-MXF  
**LOT NUMBER:** PFACMXF0323  
**SOLVENT(S):** Methanol / Water (<1%)  
**DATE PREPARED:** (mm/dd/yyyy) 03/23/2023  
**LAST TESTED:** (mm/dd/yyyy) 03/24/2023  
**EXPIRY DATE:** (mm/dd/yyyy) 03/24/2026  
**RECOMMENDED STORAGE:** Refrigerate ampoule

#### DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonanoate (NaDONA), the major and minor components of F-53B (9Cl-PF3ONS and 11Cl-PF3OUdS), and hexafluoropropylene oxide dimer acid (GenX, HFPO-DA). 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
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

#### ADDITIONAL INFORMATION:

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

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Form#:13, Issued 2004-11-10  
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PFACMXF0323 (1 of 5)  
rev0

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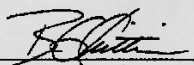
Table A:

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

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

\* Concentrations have been rounded to three significant figures.

Certified By:

  
B.G. Chittim, General Manager

Date: 03/29/2023

(mm/dd/yyyy)

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 08/19/23 08:40  
Started (mm/dd/yyyy 24 00)

Method: EPA 1633 Draft (QSM)

Date/Time: 8/22/23 13:01  
Finished (mm/dd/yyyy 24 00)

Balance ID: \_\_\_\_\_

Batch#: OP 98526 Ext. By: GH

Conc. By: \_\_\_\_\_ Viald By: \_\_\_\_\_

GH  
08/14/23

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount (ul)	Spike Amount (ul)	Final Volume (ml)	Manifold ID	Comments
OP 98526 MB		500	7.6	N/A	25		5	A4	
OP 98526 BS		500	7.6	N/A		200			
OP 98526 LLBS		500	6.6	N/A		60			
FC 7904-6 Re	2	540	6	N/A					
FC 8070-6 Re	2	530							
FC 8240-6	1	530							
7	1	540							
8	1	540							
9	1	540							
10	1	540						V	
11	1	540						A4	
12	1	540						A6	
13	1	540							
FC 8731-1	2	510	6	N/A	25		5	A6	
<del>GH 08/19/23</del>									
OP FC 8240-7 MS	2	540	6	N/A	25	200	5	A4	
OP MSD									
OP FC 82408 DUP	2	540	6	N/A	25		5	A4	

Comments:

EIS (SURR) ID: 119456-T Conc: 250-5000ng/mL Exp. Date: 08/15/24 Inj. By: GH Ver. By: JCR  
 SPIKE.1 ID: LCMS2158E Conc: VARIED Exp. Date: 12/28/23 Inj. By: GH Ver. By: JCR  
 SPIKE.2 ID: \_\_\_\_\_ Conc: \_\_\_\_\_ Exp. Date: \_\_\_\_\_ Inj. By: \_\_\_\_\_ Ver. By: \_\_\_\_\_  
 NIS (ISTD) ID: 119448-F Conc: 250-1000ng/mL Exp. Date: 8/14/23 Inj. By: MW Ver. By: NG

TurboVap Temp (Therm ID): \_\_\_\_\_ N-Evap Temp (Therm ID): \_\_\_\_\_  
 Observed Temp °C: \_\_\_\_\_ Carr. Temp °C: \_\_\_\_\_ Observed Temp °C: \_\_\_\_\_ Corr. Temp °C: \_\_\_\_\_

Methanol Lot# 230922 1% NH4OH MeOH PF550 SPE Lot# 6748887-01  
 Water Lot# DI H2O 0.3M Formic Acid PF522 Syringe filter Lot#  
 Acetic Acid# 194003 3% NH4OH Sol pH paper Lot# 205423  
 0.1M Formic PF544 5% Formic Acid Carbon Lot# 99687

Relinquished By: Gabriella Galus  
 Accepted By: M. Walls

Date: 08/19/23  
 Date: 8/22/23

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