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Automated Report

Technical Report for

AECOM, INC.

N6274223F0104 RH Fire Suppression System

60697810

SGS Job Number: FC9720

Sampling Date: 09/18/23



Report to:

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ATTN: Katie Abbott

Total number of pages in report: 748



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.

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: FC9720

N6274223F0104 RH Fire Suppression System
Project No: 60697810

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FC9720-1	09/18/23	13:35	AYCP 09/20/23	AQ	Ground Water	AF-RHP05-WGN01LF-2309
FC9720-2	09/18/23	14:55	JVCW 09/20/23	AQ	Ground Water	AF-NMW32-WGN01LF-2309

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM, INC.

Job No: FC9720

Site: N6274223F0104 RH Fire Suppression System

Report Date: 9/26/2023 4:25:11 PM

On 09/20/2023, 2 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS North America Inc - Orlando. at a maximum corrected temperature of 2 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC9720 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: OP99128

Sample(s) FC9720-1MS, FC9720-2DUP were used as the QC samples indicated.

RPD(s) for Duplicate for Perfluorononanoic acid are outside control limits for sample OP99128-DUP. Probable cause is due to sample non-homogeneity.

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

Narrative prepared by:

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

Summary of Hits

Job Number: FC9720
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 09/18/23



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
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FC9720-1 AF-RHP05-WGN01LF-2309

Perfluorohexanoic acid	1.2 J	3.8	1.9	ng/l	EPA DRAFT 1633
Perfluoroheptanoic acid	1.2 J	3.8	1.9	ng/l	EPA DRAFT 1633
Perfluorooctanoic acid	2.3 J	3.8	0.94	ng/l	EPA DRAFT 1633
Perfluorobutanesulfonic acid	1.1 J	3.8	1.9	ng/l	EPA DRAFT 1633
Perfluorohexanesulfonic acid	5.2	3.8	1.9	ng/l	EPA DRAFT 1633
Perfluorooctanesulfonic acid	3.6 J	3.8	1.9	ng/l	EPA DRAFT 1633

FC9720-2 AF-NMW32-WGN01LF-2309

Perfluorobutanoic acid	4.2 J	15	3.8	ng/l	EPA DRAFT 1633
Perfluoropentanoic acid	5.2 J	7.7	1.9	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	4.5	3.8	1.9	ng/l	EPA DRAFT 1633
Perfluoroheptanoic acid	3.3 J	3.8	1.9	ng/l	EPA DRAFT 1633
Perfluorooctanoic acid	5.9	3.8	0.96	ng/l	EPA DRAFT 1633
Perfluorobutanesulfonic acid	3.9	3.8	1.9	ng/l	EPA DRAFT 1633
Perfluoropentanesulfonic acid	1.7 J	4.8	3.8	ng/l	EPA DRAFT 1633
Perfluorohexanesulfonic acid	9.7	3.8	1.9	ng/l	EPA DRAFT 1633
Perfluorooctanesulfonic acid	14.7	3.8	1.9	ng/l	EPA DRAFT 1633

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

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Client Sample ID:	AF-RHP05-WGN01LF-2309		
Lab Sample ID:	FC9720-1	Date Sampled:	09/18/23
Matrix:	AQ - Ground Water	Date Received:	09/20/23
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	6Q24975.D	1	09/25/23 04:21	MV	09/21/23 09:40	OP99128	S6Q356
Run #2							

Run #	Initial Volume	Final Volume
Run #1	530 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.8 U	15	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	7.5	1.9	0.89	ng/l	
307-24-4	Perfluorohexanoic acid	1.2	3.8	1.9	0.47	ng/l	J
375-85-9	Perfluoroheptanoic acid	1.2	3.8	1.9	0.47	ng/l	J
335-67-1	Perfluorooctanoic acid	2.3	3.8	0.94	0.47	ng/l	J
375-95-1	Perfluorononanoic acid	1.9 U	3.8	1.9	0.58	ng/l	
335-76-2	Perfluorodecanoic acid	1.9 U	3.8	1.9	0.47	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	3.8	1.9	0.57	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	3.8	1.9	0.57	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	3.8	1.9	0.79	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.9 U	3.8	1.9	0.47	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	1.1	3.8	1.9	0.47	ng/l	J
2706-91-4	Perfluoropentanesulfonic acid	3.8 U	4.7	3.8	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	5.2	3.8	1.9	0.66	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.9 U	3.8	1.9	0.47	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	3.6	3.8	1.9	0.51	ng/l	J
68259-12-1	Perfluorononanesulfonic acid	1.9 U	3.8	1.9	0.54	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	3.8	1.9	0.60	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.8 U	4.7	3.8	1.1	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.0	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.3	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.9	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.9 U	3.8	1.9	0.63	ng/l	
31506-32-8	MeFOSA	3.8 U	7.5	3.8	0.94	ng/l	
4151-50-2	EtFOSA	3.8 U	7.5	3.8	0.94	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-RHP05-WGN01LF-2309		
Lab Sample ID:	FC9720-1	Date Sampled:	09/18/23
Matrix:	AQ - Ground Water	Date Received:	09/20/23
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	3.8 U	4.7	3.8	0.94	ng/l	
2991-50-6	EtFOSAA	3.8 U	4.7	3.8	1.3	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	19 U	38	19	4.1	ng/l	
1691-99-2	EtFOSE	19 U	38	19	7.0	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.9 U	3.8	1.9	0.94	ng/l	
919005-14-4	ADONA	3.8 U	7.5	3.8	1.8	ng/l	
377-73-1	PFMPA	1.9 U	7.5	1.9	0.94	ng/l	
863090-89-5	PFMBA	3.8 U	7.5	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	7.5	3.8	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.8 U	7.5	3.8	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.8 U	7.5	3.8	1.7	ng/l	
113507-82-7	PFEESA	1.9 U	7.5	1.9	0.74	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.4 U	19	9.4	4.3	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	94	19	8.2	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	94	19	7.4	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	111%		20-150%
	13C5-PFPeA	123%		20-150%
	13C5-PFHxA	127%		20-150%
	13C4-PFHpA	121%		20-150%
	13C8-PFOA	116%		20-150%
	13C9-PFNA	102%		20-150%
	13C6-PFDA	104%		20-150%
	13C7-PFUnDA	103%		20-150%
	13C2-PFDoDA	102%		20-150%
	13C2-PFTeDA	92%		20-150%
	13C3-PFBS	121%		20-150%
	13C3-PFHxS	120%		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

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Report of Analysis

Client Sample ID:	AF-RHP05-WGN01LF-2309		
Lab Sample ID:	FC9720-1	Date Sampled:	09/18/23
Matrix:	AQ - Ground Water	Date Received:	09/20/23
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	103%		20-150%
	13C8-FOSA	89%		20-150%
	d3-MeFOSA	90%		20-150%
	d5-EtFOSA	93%		20-150%
	d3-MeFOSAA	108%		20-150%
	d5-EtFOSAA	101%		20-150%
	d7-MeFOSE	89%		20-150%
	d9-EtFOSE	85%		20-150%
	13C2-4:2FTS	136%		20-180%
	13C2-6:2FTS	119%		20-180%
	13C2-8:2FTS	115%		20-180%
	13C3-HFPO-DA	115%		20-150%

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

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Client Sample ID:	AF-NMW32-WGN01LF-2309		
Lab Sample ID:	FC9720-2	Date Sampled:	09/18/23
Matrix:	AQ - Ground Water	Date Received:	09/20/23
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	6Q24977.D	1	09/25/23 04:50	MV	09/21/23 09:40	OP99128	S6Q356
Run #2							

Run #	Initial Volume	Final Volume
Run #1	520 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	4.2	15	3.8	1.8	ng/l	J
2706-90-3	Perfluoropentanoic acid	5.2	7.7	1.9	0.90	ng/l	J
307-24-4	Perfluorohexanoic acid	4.5	3.8	1.9	0.48	ng/l	
375-85-9	Perfluoroheptanoic acid	3.3	3.8	1.9	0.48	ng/l	J
335-67-1	Perfluorooctanoic acid	5.9	3.8	0.96	0.48	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	3.8	1.9	0.59	ng/l	
335-76-2	Perfluorodecanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	3.8	1.9	0.58	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	3.8	1.9	0.58	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	3.8	1.9	0.81	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	3.9	3.8	1.9	0.48	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	1.7	4.8	3.8	1.1	ng/l	J
355-46-4	Perfluorohexanesulfonic acid	9.7	3.8	1.9	0.67	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.9 U	3.8	1.9	0.48	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	14.7	3.8	1.9	0.52	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	3.8	1.9	0.55	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	3.8	1.9	0.62	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.8 U	4.8	3.8	1.1	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.7 U	19	7.7	3.1	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.7 U	19	7.7	3.3	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.7 U	19	7.7	4.0	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.9 U	3.8	1.9	0.64	ng/l	
31506-32-8	MeFOSA	3.8 U	7.7	3.8	0.96	ng/l	
4151-50-2	EtFOSA	3.8 U	7.7	3.8	0.96	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-NMW32-WGN01LF-2309		Date Sampled:	09/18/23
Lab Sample ID:	FC9720-2		Date Received:	09/20/23
Matrix:	AQ - Ground Water		Percent Solids:	n/a
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

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

2355-31-9	MeFOSAA	3.8 U	4.8	3.8	0.96	ng/l	
2991-50-6	EtFOSAA	3.8 U	4.8	3.8	1.3	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	19 U	38	19	4.2	ng/l	
1691-99-2	EtFOSE	19 U	38	19	7.1	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.9 U	3.8	1.9	0.96	ng/l	
919005-14-4	ADONA	3.8 U	7.7	3.8	1.8	ng/l	
377-73-1	PFMPA	1.9 U	7.7	1.9	0.96	ng/l	
863090-89-5	PFMBA	3.8 U	7.7	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	7.7	3.8	1.2	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.8 U	7.7	3.8	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.8 U	7.7	3.8	1.7	ng/l	
113507-82-7	PFEESA	1.9 U	7.7	1.9	0.75	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.6 U	19	9.6	4.3	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	96	19	8.4	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	96	19	7.5	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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13C4-PFBA	95%		20-150%
13C5-PFPeA	121%		20-150%
13C5-PFHxA	123%		20-150%
13C4-PFHpA	127%		20-150%
13C8-PFOA	114%		20-150%
13C9-PFNA	121%		20-150%
13C6-PFDA	120%		20-150%
13C7-PFUnDA	121%		20-150%
13C2-PFDoDA	107%		20-150%
13C2-PFTeDA	95%		20-150%
13C3-PFBS	117%		20-150%
13C3-PFHxS	109%		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

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Report of Analysis

Client Sample ID:	AF-NMW32-WGN01LF-2309	
Lab Sample ID:	FC9720-2	Date Sampled: 09/18/23
Matrix:	AQ - Ground Water	Date Received: 09/20/23
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	103%		20-150%
	13C8-FOSA	95%		20-150%
	d3-MeFOSA	90%		20-150%
	d5-EtFOSA	90%		20-150%
	d3-MeFOSAA	132%		20-150%
	d5-EtFOSAA	132%		20-150%
	d7-MeFOSE	86%		20-150%
	d9-EtFOSE	88%		20-150%
	13C2-4:2FTS	115%		20-180%
	13C2-6:2FTS	111%		20-180%
	13C2-8:2FTS	110%		20-180%
	13C3-HFPO-DA	111%		20-150%

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

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

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



SGS North America Inc - Orlando

Chain of Custody

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

FC9720

COC #: 2309AFSG27

SGS - ORLANDO JOB #:

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Client / Reporting Information			Project Information			Analytical Information		Matrix Codes											
Company Name: AECOM			Project Name: N6274223F0104 RH Fire Suppression System			<div style="border: 1px solid black; padding: 5px;"> <p>PFAS EPA Draft 1633</p> </div>		<p>DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe</p>											
Address: 1001 Bishop St. ste 1600			Street																
City: Honolulu State: HI Zip: 96813			City Honolulu State Hawaii																
Project Contact: Katie Abbott Email: katie.abbott@aecom.com			Project # 23F0104 - 60697810																
Project Manager: Watson Tanji Email: watson.tanji@aecom.com			Fax #																
Sampler(s) Name(s) (Printed) Sampler 1: Andy Young Sampler 2: Cristian Pérez			Client Purchase Order # 151253																
SGS Orlando Sample #	COLLECTION			CONTAINER INFORMATION								LAB USE ONLY							
	Field ID / Point of Collection	DATE	TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	PCU	NIOSH	NIH3		PERGA	NAOH-ZNAC	DI WATER	NIOSH			
1	AF-RHP05-WGN01LF-2309	9/18/23	1335	AY, CP	GW	3		X											
<div style="border: 1px solid black; padding: 10px; width: fit-content; margin: 0 auto;"> <p style="font-size: 2em; font-weight: bold;">9/18/23</p> </div>										<p>INITIAL ASSESSMENT <u>ZIS</u></p> <p>LABEL VERIFICATION <u>ZIS</u></p>									
Turnaround Time (Business days)				Data Deliverable Information				Comments / Remarks											
<p>10 Day (Business) Approved By: / Date: _____</p> <p>7 Day _____</p> <p>5 Day <input checked="" type="checkbox"/></p> <p>3 Day RUSH _____</p> <p>2 Day RUSH _____</p> <p>1 Day RUSH _____</p> <p>Other _____</p> <p>Rush T/A Data Available VIA Email or Lablink</p>				<p><input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY)</p> <p><input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC)</p> <p><input type="checkbox"/> REDT1 (EPA LEVEL 3)</p> <p><input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4)</p> <p><input checked="" type="checkbox"/> EDD'S</p>				<p>EDMS upload database: JBPHE</p> <p>EDMS Coverage: AFFF Assessment Sampling GW</p>											
Relinquished by Sampler/Affiliation		Date Time		Received By/Affiliation		Date Time		Received By/Affiliation											
1 Andy Young / AECOM		9/18/23 / 11:00		2 Alex Edmonds / AECOM		9/19/23 / 0830		4 SPFX / UC											
5 UC				6 [Signature] / 09/20/23		7		8 SP											

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SA, 2.2 IR #1

FC9720: Chain of Custody

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SGS North America Inc - Orlando

Chain of Custody

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

FC9720

COC #: 2309AFSG33

SGS - ORLANDO JOB #:

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Client / Reporting Information		Project Information		Analytical Information		Matrix Codes											
Company Name: AECOM		Project Name: N6274223F0104 RH Fire Suppression System		<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">JED 09/18/23</p> </div>		<p>DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe</p>											
Address: 1001 Bishop St. Ste 1600		Street															
City: Honolulu State: HI Zip: 96813		City Honolulu State Hawaii															
Project Contact: Katie Abbott Email: katie.abbott@aecom.com		Project # 23FO104 - 60697810															
Project Manager: Watson Tanji Email: watson.tanji@aecom.com		Fax #															
Phone #: 303-796-4624 / 808-954-4512		Client Purchase Order # 151253		PFAS EPA Draft 1633		LAB USE ONLY											
Sampler(s) Name(s) (Printed) Sampler 1: <u>JV CW MY</u> Sampler 2:		COLLECTION		CONTAINER INFORMATION													
SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	OTHER	INONE	ICI	NICH	INCO3	PGSO4	MAOH-ZNAC	DI WATER	MEDH		
2	AF-NMW32-WGN01LF-2309	9/18/23	1455	JV CW MY	GW	3		X									
Turnaround Time (Business days)		Data Deliverable Information				Comments / Remarks											
10 Day (Business) Approved By: / Date: 7 Day <input checked="" type="checkbox"/> 5 Day 3 Day RUSH 2 Day RUSH 1 Day RUSH Other		<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S				EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW											
Rush T/A Data Available VIA Email or Lablink		Sample Custody must be documented below each time samples change possession, including courier delivery.															
1 Relinquished by Sampler/Affiliation <u>JV CW MY AECOM</u>	Date Time: <u>9/18/23 1655</u>	2 Received By/Affiliation <u>Alex Edwards</u>	Date Time: <u>9/19/23 0830</u>	3 Relinquished By/Affiliation <u>Alex Edwards</u>	Date Time: <u>9/19/23 0830</u>	4 Received By/Affiliation <u>JC</u>											
5 Relinquished By/Affiliation <u>JC</u>	Date Time: <u>9/19/23 0830</u>	6 Received By/Affiliation <u>JC</u>	Date Time: <u>9/19/23 0830</u>	7 Relinquished By/Affiliation <u>JC</u>	Date Time: <u>9/19/23 0830</u>	8 Received By/Affiliation <u>JC</u>											

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FC9720: Chain of Custody

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QC Evaluation: DOD QSM5.x Limits

Job Number: FC9720
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 09/18/23

QC Sample ID	CAS#	Analyte	Sample Result Type	Result Type	Units	Limits
--------------	------	---------	--------------------	-------------	-------	--------

No DOD QSM5.x Limits found for methods in this job.

* Sample used for QC is not from job FC9720

5.2
5

MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

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

Instrument Blank

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q356-IBLK	6Q24927.D	1	09/24/23	MV	n/a	n/a	S6Q356

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9720-1, FC9720-2

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

Instrument Blank

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q356-IBLK	6Q24927.D	1	09/24/23	MV	n/a	n/a	S6Q356

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9720-1, FC9720-2

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	100% 20-150%
	13C5-PFHxA	99% 20-150%
	13C4-PFHpA	104% 20-150%
	13C8-PFOA	101% 20-150%
	13C9-PFNA	91% 20-150%
	13C6-PFDA	104% 20-150%
	13C7-PFUnDA	101% 20-150%
	13C2-PFDoDA	99% 20-150%
	13C2-PFTeDA	97% 20-150%
	13C3-PFBS	97% 20-150%
	13C3-PFHxS	100% 20-150%
	13C8-PFOS	99% 20-150%
	13C8-FOSA	96% 20-150%
	d3-MeFOSAA	92% 20-150%
	d5-EtFOSAA	96% 20-150%
	13C2-4:2FTS	106% 20-180%
	13C2-6:2FTS	106% 20-180%
	13C2-8:2FTS	102% 20-180%

6.1.1
6

Instrument Blank

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q356-IBLK	6Q25023.D	1	09/25/23	MV	n/a	n/a	S6Q356

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9720-1, FC9720-2

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

Instrument Blank

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q356-IBLK	6Q25023.D	1	09/25/23	MV	n/a	n/a	S6Q356

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9720-1, FC9720-2

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	99% 20-150%
	13C5-PFHxA	96% 20-150%
	13C4-PFHpA	102% 20-150%
	13C8-PFOA	94% 20-150%
	13C9-PFNA	99% 20-150%
	13C6-PFDA	101% 20-150%
	13C7-PFUnDA	110% 20-150%
	13C2-PFDoDA	99% 20-150%
	13C2-PFTeDA	102% 20-150%
	13C3-PFBS	98% 20-150%
	13C3-PFHxS	103% 20-150%
	13C8-PFOS	99% 20-150%
	13C8-FOSA	96% 20-150%
	d3-MeFOSAA	102% 20-150%
	d5-EtFOSAA	96% 20-150%
	13C2-4:2FTS	103% 20-180%
	13C2-6:2FTS	106% 20-180%
	13C2-8:2FTS	99% 20-180%

Continuing Calibration Blank

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q356-ICCB	6Q24970.D	1	09/25/23	MV	n/a	n/a	S6Q356

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9720-1, FC9720-2

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: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q356-ICCB	6Q24970.D	1	09/25/23	MV	n/a	n/a	S6Q356

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9720-1, FC9720-2

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	106% 20-150%
	13C5-PFHxA	105% 20-150%
	13C4-PFHpA	105% 20-150%
	13C8-PFOA	97% 20-150%
	13C9-PFNA	95% 20-150%
	13C6-PFDA	93% 20-150%
	13C7-PFUnDA	92% 20-150%
	13C2-PFDoDA	91% 20-150%
	13C2-PFTeDA	88% 20-150%
	13C3-PFBS	107% 20-150%
	13C3-PFHxS	103% 20-150%
	13C8-PFOS	105% 20-150%
	13C8-FOSA	99% 20-150%
	d3-MeFOSAA	98% 20-150%
	d5-EtFOSAA	99% 20-150%
	13C2-4:2FTS	111% 20-180%
	13C2-6:2FTS	105% 20-180%
	13C2-8:2FTS	109% 20-180%

Method Blank Summary

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99128-MB	6Q24973.D	1	09/25/23	MV	09/21/23	OP99128	S6Q356

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9720-1, FC9720-2

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: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99128-MB	6Q24973.D	1	09/25/23	MV	09/21/23	OP99128	S6Q356

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9720-1, FC9720-2

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	111% 20-150%
	13C5-PFPeA	115% 20-150%
	13C5-PFHxA	113% 20-150%
	13C4-PFHpA	115% 20-150%
	13C8-PFOA	110% 20-150%
	13C9-PFNA	105% 20-150%
	13C6-PFDA	114% 20-150%
	13C7-PFUnDA	110% 20-150%
	13C2-PFDoDA	110% 20-150%
	13C2-PFTeDA	112% 20-150%
	13C3-PFBS	119% 20-150%
	13C3-PFHxS	115% 20-150%
	13C8-PFOS	117% 20-150%
	13C8-FOSA	70% 20-150%
	d3-MeFOSA	78% 20-150%
	d5-EtFOSA	79% 20-150%
	d3-MeFOSAA	113% 20-150%
	d5-EtFOSAA	104% 20-150%
	d7-MeFOSE	68% 20-150%
	d9-EtFOSE	75% 20-150%
	13C2-4:2FTS	117% 20-180%
	13C2-6:2FTS	123% 20-180%
	13C2-8:2FTS	117% 20-180%
	13C3-HFPO-DA	109% 20-150%

6.1.4

6

Continuing Calibration Blank

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q356-ICCB	6Q25015.D	1	09/25/23	MV	n/a	n/a	S6Q356

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

S6Q356-IBLK

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: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q356-ICCB	6Q25015.D	1	09/25/23	MV	n/a	n/a	S6Q356

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

S6Q356-IBLK

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	106% 20-150%
	13C5-PFHxA	107% 20-150%
	13C4-PFHpA	108% 20-150%
	13C8-PFOA	97% 20-150%
	13C9-PFNA	102% 20-150%
	13C6-PFDA	96% 20-150%
	13C7-PFUnDA	102% 20-150%
	13C2-PFDoDA	96% 20-150%
	13C2-PFTeDA	95% 20-150%
	13C3-PFBS	102% 20-150%
	13C3-PFHxS	108% 20-150%
	13C8-PFOS	91% 20-150%
	13C8-FOSA	97% 20-150%
	d3-MeFOSAA	95% 20-150%
	d5-EtFOSAA	94% 20-150%
	13C2-4:2FTS	109% 20-180%
	13C2-6:2FTS	113% 20-180%
	13C2-8:2FTS	103% 20-180%

Blank Spike Summary

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99128-LLBS	6Q24972.D	1	09/25/23	MV	09/21/23	OP99128	S6Q356

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9720-1, FC9720-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.03	0.0277	92	40-150
2706-90-3	Perfluoropentanoic acid	0.015	0.0135	90	40-150
307-24-4	Perfluorohexanoic acid	0.0075	0.0069	92	40-150
375-85-9	Perfluoroheptanoic acid	0.0075	0.0069	92	40-150
335-67-1	Perfluorooctanoic acid	0.0075	0.0068	91	40-150
375-95-1	Perfluorononanoic acid	0.0075	0.0072	96	40-150
335-76-2	Perfluorodecanoic acid	0.0075	0.0069	92	40-150
2058-94-8	Perfluoroundecanoic acid	0.0075	0.0065	87	40-150
307-55-1	Perfluorododecanoic acid	0.0075	0.0072	96	40-150
72629-94-8	Perfluorotridecanoic acid	0.0075	0.0072	96	40-150
376-06-7	Perfluorotetradecanoic acid	0.0075	0.0073	97	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00665	0.0058	87	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00706	0.0064	91	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00686	0.0061	89	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00715	0.0064	90	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00696	0.0059	85	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00722	0.0064	89	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00724	0.0064	88	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.00728	0.0065	89	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0281	0.0300	107	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.0285	0.0262	92	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0288	0.0267	93	40-150
754-91-6	PFOSA	0.0075	0.0069	92	40-150
31506-32-8	MeFOSA	0.015	0.0144	96	40-150
4151-50-2	EtFOSA	0.015	0.0130	87	40-150
2355-31-9	MeFOSAA	0.0075	0.0076	101	40-150
2991-50-6	EtFOSAA	0.0075	0.0065	87	40-150
24448-09-7	MeFOSE	0.0375	0.0341	91	40-150
1691-99-2	EtFOSE	0.0375	0.0337	90	40-150
13252-13-6	HFPO-DA (GenX)	0.015	0.0144	96	40-150
919005-14-4	ADONA	0.0142	0.0146	103	40-150
377-73-1	PFMPA	0.015	0.0133	89	40-150
863090-89-5	PFMBA	0.015	0.0135	90	40-150
151772-58-6	NFDHA	0.015	0.0137	91	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.014	0.0152	108	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0142	0.0136	96	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99128-LLBS	6Q24972.D	1	09/25/23	MV	09/21/23	OP99128	S6Q356

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9720-1, FC9720-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0134	0.0120	90	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.0375	0.0237	63	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.188	0.155	83	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.188	0.172	92	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	119%	20-150%
	13C5-PFPeA	126%	20-150%
	13C5-PFHxA	126%	20-150%
	13C4-PFHpA	126%	20-150%
	13C8-PFOA	109%	20-150%
	13C9-PFNA	117%	20-150%
	13C6-PFDA	117%	20-150%
	13C7-PFUnDA	115%	20-150%
	13C2-PFDoDA	106%	20-150%
	13C2-PFTeDA	100%	20-150%
	13C3-PFBS	120%	20-150%
	13C3-PFHxS	120%	20-150%
	13C8-PFOS	129%	20-150%
	13C8-FOSA	91%	20-150%
	d3-MeFOSA	90%	20-150%
	d5-EtFOSA	95%	20-150%
	d3-MeFOSAA	119%	20-150%
	d5-EtFOSAA	130%	20-150%
	d7-MeFOSE	80%	20-150%
	d9-EtFOSE	91%	20-150%
	13C2-4:2FTS	123%	20-180%
	13C2-6:2FTS	132%	20-180%
	13C2-8:2FTS	120%	20-180%
	13C3-HFPO-DA	115%	20-150%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99128-BS	6Q24971.D	1	09/25/23	MV	09/21/23	OP99128	S6Q356

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9720-1, FC9720-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.0950	95	40-150
2706-90-3	Perfluoropentanoic acid	0.05	0.0463	93	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0232	93	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0235	94	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0232	93	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0237	95	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0213	85	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0237	95	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0231	92	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0240	96	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0223	89	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0209	94	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0222	94	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0219	96	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0230	97	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0222	96	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0233	97	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0240	99	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0238	98	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0938	0.0892	95	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.0932	98	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.0826	86	40-150
754-91-6	PFOSA	0.025	0.0222	89	40-150
31506-32-8	MeFOSA	0.05	0.0471	94	40-150
4151-50-2	EtFOSA	0.05	0.0473	95	40-150
2355-31-9	MeFOSAA	0.025	0.0207	83	40-150
2991-50-6	EtFOSAA	0.025	0.0212	85	40-150
24448-09-7	MeFOSE	0.125	0.111	89	40-150
1691-99-2	EtFOSE	0.125	0.116	93	40-150
13252-13-6	HFPO-DA (GenX)	0.05	0.0468	94	40-150
919005-14-4	ADONA	0.0473	0.0492	104	40-150
377-73-1	PFMPA	0.05	0.0397	79	40-150
863090-89-5	PFMBA	0.05	0.0453	91	40-150
151772-58-6	NFDHA	0.05	0.0468	94	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0468	0.0473	101	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0473	0.0483	102	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99128-BS	6Q24971.D	1	09/25/23	MV	09/21/23	OP99128	S6Q356

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9720-1, FC9720-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0435	98	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.112	90	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.625	0.530	85	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.588	94	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	61%	20-150%
	13C5-PFPeA	121%	20-150%
	13C5-PFHxA	119%	20-150%
	13C4-PFHpA	124%	20-150%
	13C8-PFOA	122%	20-150%
	13C9-PFNA	107%	20-150%
	13C6-PFDA	130%	20-150%
	13C7-PFUnDA	126%	20-150%
	13C2-PFDoDA	124%	20-150%
	13C2-PFTeDA	116%	20-150%
	13C3-PFBS	115%	20-150%
	13C3-PFHxS	115%	20-150%
	13C8-PFOS	106%	20-150%
	13C8-FOSA	85%	20-150%
	d3-MeFOSA	88%	20-150%
	d5-EtFOSA	88%	20-150%
	d3-MeFOSAA	114%	20-150%
	d5-EtFOSAA	118%	20-150%
	d7-MeFOSE	72%	20-150%
	d9-EtFOSE	81%	20-150%
	13C2-4:2FTS	128%	20-180%
	13C2-6:2FTS	120%	20-180%
	13C2-8:2FTS	126%	20-180%
	13C3-HFPO-DA	112%	20-150%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99128-MS	6Q24976.D	1	09/25/23	MV	09/21/23	OP99128	S6Q356
FC9720-1	6Q24975.D	1	09/25/23	MV	09/21/23	OP99128	S6Q356

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9720-1, FC9720-2

CAS No.	Compound	FC9720-1 ug/l	Spike Q	MS ug/l	MS %	Limits	
375-22-4	Perfluorobutanoic acid	0.015 U		0.0962	0.0921	96	40-150
2706-90-3	Perfluoropentanoic acid	0.0075 U		0.0481	0.0454	94	40-150
307-24-4	Perfluorohexanoic acid	0.0012 J		0.024	0.0235	93	40-150
375-85-9	Perfluoroheptanoic acid	0.0012 J		0.024	0.0246	97	40-150
335-67-1	Perfluorooctanoic acid	0.0023 J		0.024	0.0260	99	40-150
375-95-1	Perfluorononanoic acid	0.0038 U		0.024	0.0219	91	40-150
335-76-2	Perfluorodecanoic acid	0.0038 U		0.024	0.0209	87	40-150
2058-94-8	Perfluoroundecanoic acid	0.0038 U		0.024	0.0226	94	40-150
307-55-1	Perfluorododecanoic acid	0.0038 U		0.024	0.0233	97	40-150
72629-94-8	Perfluorotridecanoic acid	0.0038 U		0.024	0.0233	97	40-150
376-06-7	Perfluorotetradecanoic acid	0.0038 U		0.024	0.0240	100	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0011 J		0.0213	0.0208	92	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0047 U		0.0226	0.0211	93	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0052		0.022	0.0263	96	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0038 U		0.0229	0.0217	95	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0036 J		0.0223	0.0262	101	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0038 U		0.0231	0.0215	93	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0038 U		0.0232	0.0208	90	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0047 U		0.0233	0.0206	88	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.019 U		0.0901	0.0896	99	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.019 U		0.0913	0.0890	97	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.019 U		0.0923	0.0895	97	40-150
754-91-6	PFOSA	0.0038 U		0.024	0.0217	90	40-150
31506-32-8	MeFOSA	0.0075 U		0.0481	0.0463	96	40-150
4151-50-2	EtFOSA	0.0075 U		0.0481	0.0441	92	40-150
2355-31-9	MeFOSAA	0.0047 U		0.024	0.0199	83	40-150
2991-50-6	EtFOSAA	0.0047 U		0.024	0.0219	91	40-150
24448-09-7	MeFOSE	0.038 U		0.12	0.104	87	40-150
1691-99-2	EtFOSE	0.038 U		0.12	0.114	95	40-150
13252-13-6	HFPO-DA (GenX)	0.0038 U		0.0481	0.0479	100	40-150
919005-14-4	ADONA	0.0075 U		0.0454	0.0494	109	40-150
377-73-1	PFMPA	0.0075 U		0.0481	0.0425	88	40-150
863090-89-5	PFMBA	0.0075 U		0.0481	0.0428	89	40-150
151772-58-6	NFDHA	0.0075 U		0.0481	0.0450	94	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0075 U		0.045	0.0447	99	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0075 U		0.0454	0.0428	94	40-150

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99128-MS	6Q24976.D	1	09/25/23	MV	09/21/23	OP99128	S6Q356
FC9720-1	6Q24975.D	1	09/25/23	MV	09/21/23	OP99128	S6Q356

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9720-1, FC9720-2

CAS No.	Compound	FC9720-1 ug/l	Spike Q	MS ug/l	MS %	Limits
113507-82-7	PFEESA	0.0075 U	0.0428	0.0411	96	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.019 U	0.12	0.0921	77	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.094 U	0.601	0.523	87	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.094 U	0.601	0.538	90	40-150

CAS No.	ID Standard Recoveries	MS	FC9720-1	Limits
	13C4-PFBA	98%	111%	20-150%
	13C5-PFPeA	118%	123%	20-150%
	13C5-PFHxA	115%	127%	20-150%
	13C4-PFHpA	113%	121%	20-150%
	13C8-PFOA	108%	116%	20-150%
	13C9-PFNA	106%	102%	20-150%
	13C6-PFDA	108%	104%	20-150%
	13C7-PFUnDA	108%	103%	20-150%
	13C2-PFDoDA	100%	102%	20-150%
	13C2-PFTeDA	89%	92%	20-150%
	13C3-PFBS	106%	121%	20-150%
	13C3-PFHxS	108%	120%	20-150%
	13C8-PFOS	115%	103%	20-150%
	13C8-FOSA	97%	89%	20-150%
	d3-MeFOSA	93%	90%	20-150%
	d5-EtFOSA	98%	93%	20-150%
	d3-MeFOSAA	130%	108%	20-150%
	d5-EtFOSAA	117%	101%	20-150%
	d7-MeFOSE	90%	89%	20-150%
	d9-EtFOSE	95%	85%	20-150%
	13C2-4:2FTS	108%	136%	20-180%
	13C2-6:2FTS	109%	119%	20-180%
	13C2-8:2FTS	110%	115%	20-180%
	13C3-HFPO-DA	106%	115%	20-150%

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99128-DUP	6Q24978.D	1	09/25/23	MV	09/21/23	OP99128	S6Q356
FC9720-2	6Q24977.D	1	09/25/23	MV	09/21/23	OP99128	S6Q356

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9720-1, FC9720-2

CAS No.	Compound	FC9720-2		DUP		Q	RPD	Limits
		ug/l	Q	ug/l	Q			
375-22-4	Perfluorobutanoic acid	0.0042	J	0.0041	J	2		30
2706-90-3	Perfluoropentanoic acid	0.0052	J	0.0055	J	6		30
307-24-4	Perfluorohexanoic acid	0.0045		0.0049		9		30
375-85-9	Perfluoroheptanoic acid	0.0033	J	0.0037		11		30
335-67-1	Perfluorooctanoic acid	0.0059		0.0062		5		30
375-95-1	Perfluorononanoic acid	0.0038	U	0.00060	J	200*		30
335-76-2	Perfluorodecanoic acid	0.0038	U	ND		nc		30
2058-94-8	Perfluoroundecanoic acid	0.0038	U	ND		nc		30
307-55-1	Perfluorododecanoic acid	0.0038	U	ND		nc		30
72629-94-8	Perfluorotridecanoic acid	0.0038	U	ND		nc		30
376-06-7	Perfluorotetradecanoic acid	0.0038	U	ND		nc		30
375-73-5	Perfluorobutanesulfonic acid	0.0039		0.0039		0		30
2706-91-4	Perfluoropentanesulfonic acid	0.0017	J	0.0017	J	0		30
355-46-4	Perfluorohexanesulfonic acid	0.0097		0.0095		2		30
375-92-8	Perfluoroheptanesulfonic acid	0.0038	U	ND		nc		30
1763-23-1	Perfluorooctanesulfonic acid	0.0147		0.0125		16		30
68259-12-1	Perfluorononanesulfonic acid	0.0038	U	ND		nc		30
335-77-3	Perfluorodecanesulfonic acid	0.0038	U	ND		nc		30
79780-39-5	Perfluorododecanesulfonic aci	0.0048	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	0.0038	U	ND		nc		30
31506-32-8	MeFOSA	0.0077	U	ND		nc		30
4151-50-2	EtFOSA	0.0077	U	ND		nc		30
2355-31-9	MeFOSAA	0.0048	U	ND		nc		30
2991-50-6	EtFOSAA	0.0048	U	ND		nc		30
24448-09-7	MeFOSE	0.038	U	ND		nc		30
1691-99-2	EtFOSE	0.038	U	ND		nc		30
13252-13-6	HFPO-DA (GenX)	0.0038	U	ND		nc		30
919005-14-4	ADONA	0.0077	U	ND		nc		30
377-73-1	PFMPA	0.0077	U	ND		nc		30
863090-89-5	PFMBA	0.0077	U	ND		nc		30
151772-58-6	NFDHA	0.0077	U	ND		nc		30
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0077	U	ND		nc		30
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0077	U	ND		nc		30

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99128-DUP	6Q24978.D	1	09/25/23	MV	09/21/23	OP99128	S6Q356
FC9720-2	6Q24977.D	1	09/25/23	MV	09/21/23	OP99128	S6Q356

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9720-1, FC9720-2

CAS No.	Compound	FC9720-2 ug/l	DUP Q ug/l	Q RPD	Limits
113507-82-7	PFEESA	0.0077 U	ND	nc	30
356-02-5	3:3 Fluorotelomer carboxylate	0.019 U	ND	nc	30
914637-49-35:3	Fluorotelomer carboxylate	0.096 U	ND	nc	30
812-70-4	7:3 Fluorotelomer carboxylate	0.096 U	ND	nc	30

CAS No.	ID Standard Recoveries	DUP	FC9720-2	Limits
	13C4-PFBA	93%	95%	20-150%
	13C5-PFPeA	117%	121%	20-150%
	13C5-PFHxA	119%	123%	20-150%
	13C4-PFHpA	117%	127%	20-150%
	13C8-PFOA	106%	114%	20-150%
	13C9-PFNA	95%	121%	20-150%
	13C6-PFDA	114%	120%	20-150%
	13C7-PFUnDA	107%	121%	20-150%
	13C2-PFDoDA	100%	107%	20-150%
	13C2-PFTeDA	90%	95%	20-150%
	13C3-PFBS	113%	117%	20-150%
	13C3-PFHxS	110%	109%	20-150%
	13C8-PFOS	122%	103%	20-150%
	13C8-FOSA	99%	95%	20-150%
	d3-MeFOSA	92%	90%	20-150%
	d5-EtFOSA	90%	90%	20-150%
	d3-MeFOSAA	128%	132%	20-150%
	d5-EtFOSAA	128%	132%	20-150%
	d7-MeFOSE	89%	86%	20-150%
	d9-EtFOSE	86%	88%	20-150%
	13C2-4:2FTS	106%	115%	20-180%
	13C2-6:2FTS	107%	111%	20-180%
	13C2-8:2FTS	111%	110%	20-180%
	13C3-HFPO-DA	113%	111%	20-150%

* = Outside of Control Limits.

Injection Standard Area Summary

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q356-CC356	Injection Date:	09/25/23
Lab File ID:	6Q24969.D	Injection Time:	02:56
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal ^b	73551	2.98	61266	5.63	96461	7.20	34740	7.72	32415	8.20
Check Std ^c	74036	2.98	62696	5.63	100639	7.19	37693	7.71	33302	8.19
Upper Limit ^d	147102	3.38	122532	6.03	192922	7.59	69480	8.11	64830	8.59
Lower Limit ^e	29420	2.58	24506	5.23	38584	6.79	13896	7.31	12966	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 ^a
S6Q356-ICCB	76259	2.98	61841	5.63	100939	7.20	37462	7.72	35969	8.19	1
OP99128-BS	70597	3.00	55569	5.64	86130	7.20	33901	7.72	28308	8.20	1
OP99128-LLBS	71070	3.00	55963	5.63	94995	7.20	32077	7.72	31561	8.20	1
OP99128-MB	72270	3.00	57972	5.64	93390	7.20	33262	7.72	30532	8.20	1
ZZZZZZ	71035	3.00	59478	5.64	89924	7.20	34569	7.72	28706	8.19	1
FC9720-1	72895	3.00	58122	5.64	92035	7.20	37435	7.72	33045	8.20	1
OP99128-MS	71870	3.00	56403	5.63	93061	7.19	33315	7.72	30338	8.20	1
FC9720-2	67649	3.00	53756	5.63	89934	7.19	31492	7.72	30166	8.19	1
OP99128-DUP	70273	3.00	53829	5.64	95217	7.20	36380	7.72	31001	8.19	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q356-ICC356 6Q24922.D 09/24/23 15:42. 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: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q356-CC356	Injection Date:	09/25/23
Lab File ID:	6Q24969.D	Injection Time:	02:56
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	10589	7.30	14551	8.35
Check Std ^c	10269	7.30	15204	8.34
Upper Limit ^d	21178	7.70	29102	8.74
Lower Limit ^e	4236	6.90	5820	7.94

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S6Q356-ICCB	10421	7.30	15141	8.34	1
OP99128-BS	9653	7.30	13771	8.35	1
OP99128-LLBS	9945	7.30	12747	8.35	1
OP99128-MB	9528	7.30	13152	8.35	1
ZZZZZZ	9725	7.30	13930	8.35	1
FC9720-1	9753	7.30	14769	8.35	1
OP99128-MS	10263	7.30	12286	8.34	1
FC9720-2	9515	7.30	12909	8.34	1
OP99128-DUP	9725	7.30	12853	8.34	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q356-ICC356 6Q24922.D 09/24/23 15:42. 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

TDCA Retention Time Check

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q356-RT	Injection Date:	09/24/23
Lab File ID:	6Q24916.D	Injection Time:	14:17
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.350	--	--
TDCA	6.923	1.427	1.000
TCDCA	6.774	1.576	1.000
TUDCA	5.947	2.403	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
S6Q356-IC356	6Q24918.D	09/24/23	14:45	00:28	Mass Calibration Verification
S6Q356-IC356	6Q24919.D	09/24/23	15:00	00:43	Initial cal 1
S6Q356-IC356	6Q24920.D	09/24/23	15:14	00:57	Initial cal 2
S6Q356-IC356	6Q24921.D	09/24/23	15:28	01:11	Initial cal 3
S6Q356-ICC356	6Q24922.D	09/24/23	15:42	01:25	Initial cal 4
S6Q356-IC356	6Q24923.D	09/24/23	15:57	01:40	Initial cal 5
S6Q356-IC356	6Q24924.D	09/24/23	16:11	01:54	Initial cal 6
S6Q356-IC356	6Q24925.D	09/24/23	16:26	02:09	Initial cal 7
S6Q356-IC356	6Q24926.D	09/24/23	16:40	02:23	Initial cal 8
S6Q356-IBLK	6Q24927.D	09/24/23	16:54	02:37	Instrument Blank
S6Q356-IBLK	6Q24927.D	09/24/23	16:54	02:37	Instrument Blank
S6Q356-ICV356	6Q24928.D	09/24/23	17:09	02:52	Initial cal verification 4
S6Q356-ICV356	6Q24929.D	09/24/23	17:23	03:06	Initial cal verification 20
S6Q356-CC356	6Q24930.D	09/24/23	17:37	03:20	Continuing cal 4
S6Q356-CC356	6Q24931.D	09/24/23	17:51	03:34	Continuing cal 1.0LL
ZZZZZZ	6Q24932.D	09/24/23	18:06	03:49	(unrelated sample)
ZZZZZZ	6Q24933.D	09/24/23	18:20	04:03	(unrelated sample)
ZZZZZZ	6Q24934.D	09/24/23	18:34	04:17	(unrelated sample)
ZZZZZZ	6Q24935.D	09/24/23	18:49	04:32	(unrelated sample)
FC9580-3	6Q24936.D	09/24/23	19:03	04:46	(used for QC only; not part of job FC9720)
OP99102-DUP	6Q24937.D	09/24/23	19:17	05:00	Duplicate
S6Q356-CC356	6Q24938.D	09/24/23	19:32	05:15	Continuing cal 4
S6Q356-ICCB	6Q24939.D	09/24/23	19:46	05:29	Continuing Calibration Blank
S6Q356-ICCB	6Q24939.D	09/24/23	19:46	05:29	Continuing Calibration Blank
OP99134-BS	6Q24940.D	09/24/23	20:00	05:43	Blank Spike
OP99134-LLBS	6Q24941.D	09/24/23	20:15	05:58	Blank Spike
OP99134-MB	6Q24942.D	09/24/23	20:29	06:12	Method Blank
ZZZZZZ	6Q24949.D	09/24/23	22:09	07:52	(unrelated sample)
S6Q356-CC356	6Q24950.D	09/24/23	22:24	08:07	Continuing cal 4
S6Q356-ICCB	6Q24951.D	09/24/23	22:38	08:21	Continuing Calibration Blank
S6Q356-ICCB	6Q24951.D	09/24/23	22:38	08:21	Continuing Calibration Blank
OP99155-BS	6Q24952.D	09/24/23	22:52	08:35	Blank Spike
OP99155-LLBS	6Q24953.D	09/24/23	23:06	08:49	Blank Spike
OP99155-MB	6Q24954.D	09/24/23	23:21	09:04	Method Blank

TDCA Retention Time Check

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q356-RT	Injection Date:	09/24/23
Lab File ID:	6Q24916.D	Injection Time:	14:17
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	6Q24955.D	09/24/23	23:35	09:18	(unrelated sample)
ZZZZZZ	6Q24956.D	09/24/23	23:49	09:32	(unrelated sample)
ZZZZZZ	6Q24957.D	09/25/23	00:04	09:47	(unrelated sample)
ZZZZZZ	6Q24958.D	09/25/23	00:18	10:01	(unrelated sample)
ZZZZZZ	6Q24959.D	09/25/23	00:32	10:15	(unrelated sample)
ZZZZZZ	6Q24960.D	09/25/23	00:47	10:30	(unrelated sample)
S6Q356-CC356	6Q24961.D	09/25/23	01:01	10:44	Continuing cal 4
S6Q356-ICCB	6Q24962.D	09/25/23	01:15	10:58	Continuing Calibration Blank
ZZZZZZ	6Q24963.D	09/25/23	01:30	11:13	(unrelated sample)
ZZZZZZ	6Q24964.D	09/25/23	01:44	11:27	(unrelated sample)
ZZZZZZ	6Q24965.D	09/25/23	01:58	11:41	(unrelated sample)
ZZZZZZ	6Q24967.D	09/25/23	02:27	12:10	(unrelated sample)
ZZZZZZ	6Q24968.D	09/25/23	02:41	12:24	(unrelated sample)
S6Q356-CC356	6Q24969.D	09/25/23	02:56	12:39	Continuing cal 4
S6Q356-ICCB	6Q24970.D	09/25/23	03:10	12:53	Continuing Calibration Blank
OP99128-BS	6Q24971.D	09/25/23	03:24	13:07	Blank Spike
OP99128-LLBS	6Q24972.D	09/25/23	03:38	13:21	Blank Spike
OP99128-MB	6Q24973.D	09/25/23	03:53	13:36	Method Blank
ZZZZZZ	6Q24974.D	09/25/23	04:07	13:50	(unrelated sample)
FC9720-1	6Q24975.D	09/25/23	04:21	14:04	AF-RHP05-WGN01LF-2309
OP99128-MS	6Q24976.D	09/25/23	04:36	14:19	Matrix Spike
FC9720-2	6Q24977.D	09/25/23	04:50	14:33	AF-NMW32-WGN01LF-2309
OP99128-DUP	6Q24978.D	09/25/23	05:04	14:47	Duplicate
S6Q356-CC356	6Q24979.D	09/25/23	05:19	15:02	Continuing cal 4
S6Q356-ICCB	6Q24980.D	09/25/23	05:33	15:16	Continuing Calibration Blank
OP99106-BS	6Q24981.D	09/25/23	05:47	15:30	Blank Spike
OP99106-LLBS	6Q24982.D	09/25/23	06:02	15:45	Blank Spike
OP99106-MB	6Q24983.D	09/25/23	06:16	15:59	Method Blank
ZZZZZZ	6Q24984.D	09/25/23	06:30	16:13	(unrelated sample)
ZZZZZZ	6Q24985.D	09/25/23	06:45	16:28	(unrelated sample)
ZZZZZZ	6Q24986.D	09/25/23	06:59	16:42	(unrelated sample)
ZZZZZZ	6Q24988.D	09/25/23	07:28	17:11	(unrelated sample)
ZZZZZZ	6Q24989.D	09/25/23	07:42	17:25	(unrelated sample)
S6Q356-CC356	6Q24990.D	09/25/23	07:56	17:39	Continuing cal 4
S6Q356-ICCB	6Q24991.D	09/25/23	08:11	17:54	Continuing Calibration Blank
ZZZZZZ	6Q24992.D	09/25/23	08:25	18:08	(unrelated sample)
ZZZZZZ	6Q24993.D	09/25/23	08:39	18:22	(unrelated sample)
ZZZZZZ	6Q24994.D	09/25/23	08:54	18:37	(unrelated sample)
ZZZZZZ	6Q24995.D	09/25/23	09:08	18:51	(unrelated sample)
FC9639-5	6Q24996.D	09/25/23	09:22	19:05	(used for QC only; not part of job FC9720)
FC9639-5	6Q24997.D	09/25/23	09:37	19:20	(used for QC only; not part of job FC9720)
OP99106-MS	6Q24998.D	09/25/23	09:51	19:34	Matrix Spike
OP99106-MSD	6Q24999.D	09/25/23	10:05	19:48	Matrix Spike Duplicate
ZZZZZZ	6Q25000.D	09/25/23	10:19	20:02	(unrelated sample)

TDCA Retention Time Check

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q356-RT	Injection Date:	09/24/23
Lab File ID:	6Q24916.D	Injection Time:	14:17
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	6Q25001.D	09/25/23	10:34	20:17	(unrelated sample)
S6Q356-CC356	6Q25002.D	09/25/23	10:48	20:31	Continuing cal 4
S6Q356-ICCB	6Q25003.D	09/25/23	11:02	20:45	Continuing Calibration Blank
S6Q356-ICCB	6Q25003.D	09/25/23	11:02	20:45	Continuing Calibration Blank
OP99084-BS	6Q25004.D	09/25/23	11:17	21:00	Blank Spike
OP99084-LLBS	6Q25005.D	09/25/23	11:31	21:14	Blank Spike
OP99084-MB	6Q25006.D	09/25/23	11:45	21:28	Method Blank
ZZZZZZ	6Q25007.D	09/25/23	12:00	21:43	(unrelated sample)
ZZZZZZ	6Q25008.D	09/25/23	12:14	21:57	(unrelated sample)
ZZZZZZ	6Q25009.D	09/25/23	12:28	22:11	(unrelated sample)
FC9462-4	6Q25010.D	09/25/23	12:43	22:26	(used for QC only; not part of job FC9720)
OP99084-MS	6Q25011.D	09/25/23	12:57	22:40	Matrix Spike
OP99084-MSD	6Q25012.D	09/25/23	13:11	22:54	Matrix Spike Duplicate
ZZZZZZ	6Q25013.D	09/25/23	13:26	23:09	(unrelated sample)
S6Q356-CC356	6Q25014.D	09/25/23	13:40	23:23	Continuing cal 4
S6Q356-ICCB	6Q25015.D	09/25/23	13:54	23:37	Continuing Calibration Blank
S6Q356-ICCB	6Q25015.D	09/25/23	13:54	23:37	Continuing Calibration Blank

6.6.1

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TDCA Retention Time Check

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q356-RT	Injection Date:	09/25/23
Lab File ID:	6Q25020.D	Injection Time:	15:10
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.350	--	--
TDCA	6.923	1.427	1.000
TCDCA	6.762	1.588	1.000
TUDCA	5.947	2.403	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
S6Q356-IBLK	6Q25023.D	09/25/23	15:53	00:43	Instrument Blank
S6Q356-IBLK	6Q25023.D	09/25/23	15:53	00:43	Instrument Blank
S6Q356-CC356	6Q25024.D	09/25/23	16:07	00:57	Continuing cal 4
S6Q356-CC356	6Q25025.D	09/25/23	16:21	01:11	Continuing cal 1.0LL
FC9131-8	6Q25026.D	09/25/23	16:36	01:26	(used for QC only; not part of job FC9720)
OP99134-MS	6Q25027.D	09/25/23	16:50	01:40	Matrix Spike
OP99134-MSD	6Q25028.D	09/25/23	17:04	01:54	Matrix Spike Duplicate
ZZZZZZ	6Q25029.D	09/25/23	17:19	02:09	(unrelated sample)
ZZZZZZ	6Q25030.D	09/25/23	17:33	02:23	(unrelated sample)
ZZZZZZ	6Q25034.D	09/25/23	18:18	03:08	(unrelated sample)
ZZZZZZ	6Q25035.D	09/25/23	18:32	03:22	(unrelated sample)
S6Q356-ECC356	6Q25036.D	09/25/23	18:46	03:36	Ending cal 4
S6Q356-ICCB	6Q25037.D	09/25/23	19:01	03:51	Continuing Calibration Blank
S6Q356-ICCB	6Q25037.D	09/25/23	19:01	03:51	Continuing Calibration Blank

Ion Ratio Summary

Job Number: FC9720
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q356 Method: EPA DRAFT 1633

Lab Sample ID	Lab File ID	Ion Ratios (Set 1)		PFHxA	PFHpA	PFOA	PFBS	PFPeS
		PFBA	PFPeA					
S6Q356-ICC356	6Q24922.D	0	0	4.9	14.3	18.1	37.2	43.8
FC9720-1	6Q24975.D			4.8	13.1	18.6	35	
FC9720-2	6Q24977.D	0	0	5.1	15.4	18.2	34.1	19.9

6.7.1

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Ion Ratio Summary

Job Number: FC9720
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q356	Method: EPA DRAFT 1633
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Lab Sample ID	Lab File ID	Ion Ratios (Set 2)	
		PFHxS	PFOS
S6Q356-ICC356	6Q24922.D	45.7	54.1
FC9720-1	6Q24975.D	48.5	37
FC9720-2	6Q24977.D	45.2	33.4

Isotope Dilution Standard Recovery Summary

Job Number: FC9720
 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
FC9720-1	6Q24975.D	111	123	127	121	116	102	104	103
FC9720-2	6Q24977.D	95	121	123	127	114	121	120	121
OP99128-BS	6Q24971.D	61	121	119	124	122	107	130	126
OP99128-DUP	6Q24978.D	93	117	119	117	106	95	114	107
OP99128-LLBS	6Q24972.D	119	126	126	126	109	117	117	115
OP99128-MB	6Q24973.D	111	115	113	115	110	105	114	110
OP99128-MS	6Q24976.D	98	118	115	113	108	106	108	108
S6Q356-IBLK	6Q24927.D	100	100	99	104	101	91	104	101
S6Q356-IBLK	6Q25023.D	100	99	96	102	94	99	101	110
S6Q356-ICCB	6Q24970.D	100	106	105	105	97	95	93	92
S6Q356-ICCB	6Q25015.D	100	106	107	108	97	102	96	102

Isotope Dilution Standards

Recovery Limits

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

Isotope Dilution Standard Recovery Summary

Job Number: FC9720
 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
FC9720-1	6Q24975.D	102	92	121	120	103	89	90	93
FC9720-2	6Q24977.D	107	95	117	109	103	95	90	90
OP99128-BS	6Q24971.D	124	116	115	115	106	85	88	88
OP99128-DUP	6Q24978.D	100	90	113	110	122	99	92	90
OP99128-LLBS	6Q24972.D	106	100	120	120	129	91	90	95
OP99128-MB	6Q24973.D	110	112	119	115	117	70	78	79
OP99128-MS	6Q24976.D	100	89	106	108	115	97	93	98
S6Q356-IBLK	6Q24927.D	99	97	97	100	99	96		
S6Q356-IBLK	6Q25023.D	99	102	98	103	99	96		
S6Q356-ICCB	6Q24970.D	91	88	107	103	105	99		
S6Q356-ICCB	6Q25015.D	96	95	102	108	91	97		

Isotope Dilution Standards

Recovery Limits

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

6.8.1

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Isotope Dilution Standard Recovery Summary

Job Number: FC9720
 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
FC9720-1	6Q24975.D	108	101	89	85	136	119	115	115
FC9720-2	6Q24977.D	132	132	86	88	115	111	110	111
OP99128-BS	6Q24971.D	114	118	72	81	128	120	126	112
OP99128-DUP	6Q24978.D	128	128	89	86	106	107	111	113
OP99128-LLBS	6Q24972.D	119	130	80	91	123	132	120	115
OP99128-MB	6Q24973.D	113	104	68	75	117	123	117	109
OP99128-MS	6Q24976.D	130	117	90	95	108	109	110	106
S6Q356-IBLK	6Q24927.D	92	96			106	106	102	
S6Q356-IBLK	6Q25023.D	102	96			103	106	99	
S6Q356-ICCB	6Q24970.D	98	99			111	105	109	
S6Q356-ICCB	6Q25015.D	95	94			109	113	103	

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%

6.8.1

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Initial Calibration Summary

Job Number: FC9720
 Account: AECOM/CD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q356-ICC356
 Lab FileID: 6Q24922.D

Initial Calibration Report

Method Path	D:\MassHunter\Methods											
Method File	1633_092423_S6Q356.quantmethod.xml											
Batch Name	D:\MassHunter\Data\092423_1633_S6Q356\QuantResults\6q356.batch.bin											
Last Calib Update	9/25/2023 10:49:48 AM											
Level Name	Calibration Files	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
1	D:\MassHunter\Data\092423_1633_S6Q356\6Q24919.d											
2	D:\MassHunter\Data\092423_1633_S6Q356\6Q24920.d											
3	D:\MassHunter\Data\092423_1633_S6Q356\6Q24921.d											
4	D:\MassHunter\Data\092423_1633_S6Q356\6Q24922.d											
5	D:\MassHunter\Data\092423_1633_S6Q356\6Q24923.d											
6	D:\MassHunter\Data\092423_1633_S6Q356\6Q24924.d											
7	D:\MassHunter\Data\092423_1633_S6Q356\6Q24925.d											
8	D:\MassHunter\Data\092423_1633_S6Q356\6Q24926.d											
Compound		Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M4-PFBA		Avg RF	0.3272	0.3715	0.3485	0.3663	0.3414	0.3706	0.3672	0.3633	0.3570	4.532
T PFBA		Avg RF	0.0540	0.0595	0.0549	0.0571	0.0545	0.0590	0.0598	0.0650	0.0580	6.328
T 3:3FTCA												
I M5-PFPeA		Avg RF	0.5370	0.6337	0.5813	0.6098	0.5799	0.6199	0.6247	0.6185	0.6006	5.375
T PFMPA		Avg RF	0.9124	1.0605	0.9685	1.0309	0.9732	1.0503	1.0372	1.0189	1.0065	5.029
T PFPeA		Avg RF	0.7414	0.8554	0.7814	0.8222	0.7815	0.8361	0.8334	0.8189	0.8088	4.637
T PFMBA												
I M5-PFHxA		Avg RF	0.1250	0.1288	0.1092	0.1164	0.1078	0.1162	0.1128	0.1059	0.1153	7.075
T NFDHA		Avg RF	0.8264	0.9601	0.8713	0.9322	0.8552	0.9088	0.9136	0.9121	0.8975	4.848
T PFHxA		Avg RF	1.0681	1.1730	1.0887	1.1475	1.0711	1.1241	1.1366	1.1180	1.1159	3.351
T PFEEA		Avg RF	0.1625	0.1852	0.1604	0.1734	0.1635	0.1648	0.1680	0.1718	0.1687	4.768
T 5:3FTCA		Avg RF	0.0854	0.1036	0.0906	0.1014	0.0951	0.0933	0.0969	0.0982	0.0956	6.126
T 7:3FTCA												
I M4-PFHpA		Avg RF	1.2809	1.4291	1.2550	1.3741	1.2600	1.4316	1.3783	1.4380	1.3559	5.824
T PFHpA												
I M8-PFOA		Avg RF	1.0089	1.1114	0.9932	1.1078	1.0239	1.1360	1.1407	1.0626	1.0731	5.484
T PFOA												
I M9-PFNA		Avg RF	0.7434	0.8590	0.7442	0.9368	0.7788	0.8379	0.8085	0.7626	0.8089	8.258
T PFNA												
I M6-PFDA		Avg RF	0.9201	1.0148	0.9586	0.9176	0.9580	1.0209	0.9952	1.1059	0.9864	6.304
T PFDA												
I M7-PFUnDA		Avg RF	0.7382	0.8806	0.7836	0.8306	0.8092	0.8766	0.8408	0.8629	0.8278	5.936
T PFUnDA												
I M2-PFDdA												

Initial Calibration Summary

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q356-ICC356
 Lab FileID: 6Q24922.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	0.8902	0.9085	0.8915	0.9600	0.8618	0.9502	0.9747	0.8579	0.9106	5.011
T PFTIDA	Avg RF	0.7388	0.8323	0.8101	0.8980	0.7353	0.7886	0.8335	0.7444	0.7976	7.181
I M2-PFTeDA	Avg RF	1.3642	1.5308	1.4732	1.5966	1.4520	1.4936	1.4319	1.4780	1.4775	4.637
T PFTeDA	Avg RF										
I M8-FOSA	Avg RF	0.8873	0.9693	0.9992	0.9408	0.9192	0.9648	0.9580	0.9649	0.9505	3.614
T FOSA	Avg RF										
I M3-PFBS	Avg RF	0.7654	0.8796	0.8047	0.8259	0.7594	0.8238	0.8307	0.8340	0.8154	4.780
T PFBS	Avg RF										
I M3-PFHxS	Avg RF	1.2494	1.4296	1.3610	1.4382	1.2278	1.3473	1.3927	1.3984	1.3555	5.796
T PFPeS	Avg RF	0.8654	0.9973	0.9817	1.0277	0.9175	0.9919	0.9475	1.0539	0.9729	6.248
T PFHxS	Avg RF										
I M8-PFOS	Avg RF	0.9411	1.1215	1.0723	1.2317	1.0944	1.1648	1.1403	1.0535	1.1024	7.801
T PFHpS	Avg RF	1.0442	1.1216	1.0063	1.1150	1.0752	1.1011	1.0580	1.1052	1.0783	3.715
T PFOS	Avg RF	0.8257	0.8788	0.8666	0.9051	0.8523	0.8839	0.8922	0.8586	0.8704	2.884
T PFNS	Avg RF	0.5453	0.6238	0.5765	0.6455	0.6094	0.6225	0.6070	0.6048	0.6043	5.118
T PFDS	Avg RF	0.3587	0.3719	0.3245	0.3897	0.3717	0.3689	0.3572	0.3429	0.3607	5.546
T PFDoDS	Avg RF										
I M2-4:2FTS	Avg RF	7.0568	8.6624	7.9696	8.5609	7.9274	8.4746	8.4133	8.3914	8.1820	6.423
T 4:2FTS	Avg RF										
I M2-6:2FTS	Avg RF	4.2187	4.7054	4.0871	4.0979	4.2274	4.5866	4.3293	4.2151	4.3084	5.205
T 6:2FTS	Avg RF										
I M2-8:2FTS	Avg RF	2.7361	3.3709	3.0574	3.3526	3.3476	3.1565	3.3525	3.1265	3.1875	6.905
T 8:2FTS	Avg RF										
I M3-MeFOSAA	Avg RF	0.8593	0.9778	0.8397	0.8873	0.8110	0.8816	0.8682	0.8764	0.8752	5.530
T MeFOSAA	Avg RF										
I M3-HFO-DA	Avg RF	0.9834	1.0334	0.9844	0.9794	0.9049	0.9620	0.9989	1.0267	0.9841	4.074
T HFO-DA	Avg RF	10.92	13.18	12.25	12.13	11.64	12.52	12.61	13.08	12.29	6.068
T ADONA	Avg RF	3.9099	4.4764	4.7185	4.8111	4.1954	4.6166	4.3753	4.4122	4.4394	6.559
T 9CH-PF3ONS	Avg RF	2.4316	2.8131	2.7129	2.6265	2.4811	2.5509	2.6868	2.6267	2.6162	4.791
T 11CH-PF3OUds	Avg RF										
I M5-EFOSAA	Avg RF	0.7816	0.9706	0.7830	0.8409	0.7777	0.8199	0.8801	0.8052	0.8324	7.912
T EFOSAA	Avg RF										
I M7-MeFOSE	Avg RF	0.9697	1.1539	1.0685	1.0985	1.0787	1.2434	1.1181	1.1315	1.1078	7.051
T MeFOSE	Avg RF										
I M9-EFOSE	Avg RF	0.9472	1.0311	0.9893	1.0465	0.9422	1.0285	1.0236	1.0220	1.0038	3.969
T EFOSE	Avg RF										

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Generated at 10:50 AM on 9/25/2023

Initial Calibration Summary

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q356-ICC356
 Lab FileID: 6Q24922.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-EFOSA		1.0971	1.3210	1.2329	1.2697	1.1595	1.2987	1.2422	1.3167	1.2422	6.360
T EFOSA											
I M3-MeFOSA		1.0922	1.2002	1.1756	1.1011	1.0905	1.1525	1.1290	1.0599	1.1251	4.256
T MeFOSA											
I 13C4-PFOS		1.2218	1.1695	1.1747	1.1904	1.2597	1.1981	1.1560	1.1070	1.1846	3.830
S d3-MeFOSAA		1.0796	1.1131	1.0891	1.0836	1.0448	1.0819	1.0546	1.0896	1.0795	1.971
S 13C8-PFOS		0.9555	0.8792	0.9095	0.9362	0.9443	0.9485	0.8569	0.9339	0.9205	3.868
S d5-EFOSAA		2.1197	2.1317	2.0163	2.1684	2.0979	2.1617	2.0814	2.1358	2.1141	2.325
S 13C8-FOSA		0.7836	0.7366	0.7707	0.7723	0.7420	0.7227	0.7200	0.7517	0.7500	3.165
S d7-MeFOSE		0.6375	0.6113	0.5935	0.6570	0.6174	0.6329	0.6366	0.7007	0.6359	5.114
S d3-MeFOSA		0.9413	0.9109	0.9073	0.9311	0.9268	0.9136	0.8715	0.8975	0.9125	2.385
S d9-EFOSE		0.6993	0.6832	0.6607	0.6664	0.6644	0.6755	0.6470	0.6542	0.6688	2.503
S d5-EFOSA											
I 13C3-PFBA		1.2187	1.2162	1.2082	1.2226	1.2101	1.2053	1.1994	1.1861	1.2083	0.969
S 13C4-PFBA											
I 18O2-PFHKS		0.1417	0.1322	0.1373	0.1393	0.1339	0.1236	0.1129	0.1019	0.1279	10.994
S 13C2-4:2FTS		2.6558	2.6302	2.6973	2.7107	2.7607	2.6796	2.4505	2.4353	2.6275	4.579
S 13C3-PFBS		0.2062	0.2141	0.2197	0.2371	0.2106	0.1915	0.1813	0.1657	0.2033	11.201
S 13C2-6:2FTS		1.6118	1.5516	1.5187	1.6364	1.6593	1.6186	1.5663	1.4940	1.5821	3.708
S 13C3-PFHKS		0.2051	0.1978	0.1976	0.2136	0.1937	0.1916	0.1756	0.1722	0.1934	7.188
S 13C2-8:2FTS											
I 13C4-PFOA		0.8712	0.8301	0.9085	0.8382	0.9114	0.8182	0.8398	0.9148	0.8665	4.637
S 13C8-PFOA											
I 13C2-PFDA		1.0639	1.0372	1.0764	1.1563	1.0199	1.0863	0.9436	1.0186	1.0503	5.900
S 13C6-PFDA		1.1963	1.2043	1.2375	1.2444	1.1902	1.1923	1.0584	1.0776	1.1751	5.900
S 13C7-PFUnDA		1.1589	1.1926	1.1759	1.2261	1.2191	1.2576	1.0496	1.2861	1.1957	6.045
S 13C2-PFDODA		0.5022	0.5023	0.4985	0.5167	0.4893	0.5337	0.4680	0.5411	0.5065	4.672
S 13C2-PFTeDA											
I 13C5-PFNA		1.0108	1.0448	0.9990	0.9382	1.0091	0.9850	1.0254	1.0271	1.0049	3.241
S 13C9-PFNA											
I 13C2-PFHXA		0.5910	0.6068	0.5879	0.6093	0.6002	0.6010	0.5765	0.5625	0.5919	2.705
S 13C5-PPFA		1.0303	1.0455	1.0516	1.0857	1.0695	1.0784	1.0345	1.0106	1.0508	2.455
S 13C5-PFHXA		0.1824	0.1917	0.1814	0.1950	0.1951	0.1947	0.1856	0.1814	0.1884	3.348
S 13C3-HFPO-DA		0.9919	1.0525	1.0423	1.0527	1.0218	1.0215	1.0034	0.9762	1.0203	2.775
S 13C4-PFHpA											

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

Initial Calibration Verification

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q356-ICV356
 Lab FileID: 6Q24928.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\092423_1633_S6Q356\s6q356.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\092423_1633_S6Q356\6Q24919.d
 2:D:\MassHunter\Data\092423_1633_S6Q356\6Q24920.d
 3:D:\MassHunter\Data\092423_1633_S6Q356\6Q24921.d
 4:D:\MassHunter\Data\092423_1633_S6Q356\6Q24922.d
 5:D:\MassHunter\Data\092423_1633_S6Q356\6Q24923.d
 6:D:\MassHunter\Data\092423_1633_S6Q356\6Q24924.d
 7:D:\MassHunter\Data\092423_1633_S6Q356\6Q24925.d
 8:D:\MassHunter\Data\092423_1633_S6Q356\6Q24926.d

Data File: 6Q24928
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.138	2.8	102.8
13C2-6:2FTS	5.000	5.251	5.0	105.0
13C2-8:2FTS	5.000	4.926	-1.5	98.5
13C2-PFDoDA	1.250	1.297	3.7	103.7
13C2-PFTeDA	1.250	1.244	-0.5	99.5
13C3-PFBS	2.500	2.484	-0.6	99.4
13C3-PFHxS	2.500	2.567	2.7	102.7
13C4-PFBA	10.000	10.062	0.6	100.6
13C4-PFHpA	2.500	2.513	0.5	100.5
13C5-PFHxA	2.500	2.418	-3.3	96.7
13C5-PFPeA	5.000	4.801	-4.0	96.0
13C6-PFDA	1.250	1.268	1.4	101.4
13C7-PFUnDA	1.250	1.244	-0.4	99.6
13C8-FOSA	2.500	2.455	-1.8	98.2
13C8-PFOA	2.500	2.403	-3.9	96.1
13C8-PFOS	2.500	2.440	-2.4	97.6
13C9-PFNA	1.250	1.243	-0.6	99.4
4:2FTS	9.375	9.815	4.7	104.7
6:2FTS	9.500	9.775	2.9	102.9
8:2FTS	9.600	10.419	8.5	108.5
d3-MeFOSAA	5.000	4.921	-1.6	98.4
EtFOSAA	2.500	2.499	0.0	100.0
FOSA	2.500	2.442	-2.3	97.7
MeFOSAA	2.500	2.596	3.8	103.8
PFBA	10.000	10.100	1.0	101.0
PFBS	2.218	2.339	5.4	105.4
PFDA	2.500	2.555	2.2	102.2
PFDoDA	2.500	2.673	6.9	106.9
PFDS	2.413	2.517	4.3	104.3
PFHpA	2.500	2.357	-5.7	94.3
PFHpS	2.383	2.417	1.4	101.4
PFHxA	2.500	2.497	-0.1	99.9
PFHxS	2.285	2.275	-0.4	99.6
PFNA	2.500	2.422	-3.1	96.9
PFNS	2.405	2.460	2.3	102.3
PFOA	2.500	2.339	-6.4	93.6
PFOS	2.320	2.386	2.8	102.8

Initial Calibration Verification

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q356-ICV356
 Lab FileID: 6Q24928.D

PFPeA	5.000	5.141	2.8	102.8
PFPeS	2.353	2.333	-0.9	99.1
PFTeDA	2.500	2.580	3.2	103.2
PFTTrDA	2.500	2.680	7.2	107.2
PFUnDA	2.500	2.727	9.1	109.1
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDODA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.988	5.6	105.6
13C3-HFPO-DA	10.000	9.330	-6.7	93.3
9C1-PF3ONS	4.675	5.185	10.9	110.9
ADONA	4.725	5.086	7.6	107.6
HFPO-DA	5.000	5.256	5.1	105.1
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.142	-2.7	97.3
5:3FTCA	62.400	63.338	1.5	101.5
7:3FTCA	62.400	62.121	-0.4	99.6
d3-MeFOSA	2.500	2.427	-2.9	97.1
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.217	4.3	104.3
EtFOSE	12.500	12.292	-1.7	98.3
MeFOSA	5.000	5.026	0.5	100.5
MeFOSE	12.500	13.444	7.6	107.6
PFDODS	2.425	2.578	6.3	106.3
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.612	-7.8	92.2
d7-MeFOSE	25.000	22.962	-8.2	91.8
d9-EtFOSE	25.000	24.476	-2.1	97.9
d5-EtFOSA	2.500	2.377	-4.9	95.1
NFDHA	5.000	5.042	0.8	100.8
PFMBA	5.000	5.088	1.8	101.8
PFMPA	5.000	5.070	1.4	101.4
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.376	-1.7	98.3

CC Criteria: +/- 30%

Initial Calibration Verification

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q356-ICV356
 Lab FileID: 6Q24929.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\092423_1633_S6Q356\s6q356.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\092423_1633_S6Q356\6Q24919.d
 2:D:\MassHunter\Data\092423_1633_S6Q356\6Q24920.d
 3:D:\MassHunter\Data\092423_1633_S6Q356\6Q24921.d
 4:D:\MassHunter\Data\092423_1633_S6Q356\6Q24922.d
 5:D:\MassHunter\Data\092423_1633_S6Q356\6Q24923.d
 6:D:\MassHunter\Data\092423_1633_S6Q356\6Q24924.d
 7:D:\MassHunter\Data\092423_1633_S6Q356\6Q24925.d
 8:D:\MassHunter\Data\092423_1633_S6Q356\6Q24926.d

Data File: 6Q24929
 Type : QC
 Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.145	2.9	102.9
13C2-6:2FTS	5.000	5.175	3.5	103.5
13C2-8:2FTS	5.000	5.160	3.2	103.2
13C2-PFDoDA	1.250	1.150	-8.0	92.0
13C2-PFTeDA	1.250	1.218	-2.5	97.5
13C3-PFBS	2.500	2.457	-1.7	98.3
13C3-PFHxS	2.500	2.545	1.8	101.8
13C4-PFBA	10.000	9.907	-0.9	99.1
13C4-PFHpA	2.500	2.519	0.8	100.8
13C5-PFHxA	2.500	2.574	3.0	103.0
13C5-PFPeA	5.000	5.135	2.7	102.7
13C6-PFDA	1.250	1.211	-3.2	96.8
13C7-PFUnDA	1.250	1.199	-4.0	96.0
13C8-FOSA	2.500	2.458	-1.7	98.3
13C8-PFOA	2.500	2.438	-2.5	97.5
13C8-PFOS	2.500	2.548	1.9	101.9
13C9-PFNA	1.250	1.270	1.6	101.6
4:2FTS	20.000	20.194	1.0	101.0
6:2FTS	20.000	20.732	3.7	103.7
8:2FTS	20.000	19.203	-4.0	96.0
d3-MeFOSAA	5.000	5.033	0.7	100.7
EtFOSAA	20.000	17.681	-11.6	88.4
FOSA	20.000	18.865	-5.7	94.3
MeFOSAA	20.000	19.413	-2.9	97.1
PFBA	20.000	18.526	-7.4	92.6
PFBS	20.000	19.301	-3.5	96.5
PFDA	20.000	17.751	-11.2	88.8
PFDoDA	20.000	18.368	-8.2	91.8
PFDS	20.000	19.838	-0.8	99.2
PFHpA	20.000	19.494	-2.5	97.5
PFHpS	20.000	18.864	-5.7	94.3
PFHxA	20.000	19.179	-4.1	95.9
PFHxS	20.000	18.927	-5.4	94.6
PFNA	20.000	19.918	-0.4	99.6
PFNS	20.000	19.007	-5.0	95.0
PFOA	20.000	18.902	-5.5	94.5
PFOS	20.000	18.463	-7.7	92.3

Initial Calibration Verification

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q356-ICV356
 Lab FileID: 6Q24929.D

PFPeA	20.000	19.627	-1.9	98.1
PFPeS	20.000	19.016	-4.9	95.1
PFTeDA	20.000	18.752	-6.2	93.8
PFTTrDA	20.000	17.623	-11.9	88.1
PFUnDA	20.000	19.118	-4.4	95.6
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	20.000	20.171	0.9	100.9
13C3-HFPO-DA	10.000	10.186	1.9	101.9
9C1-PF3ONS	20.000	19.913	-0.4	99.6
ADONA	20.000	17.373	-13.1	86.9
HFPO-DA	20.000	17.459	-12.7	87.3
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	18.211	-8.9	91.1
5:3FTCA	20.000	19.423	-2.9	97.1
7:3FTCA	20.000	18.138	-9.3	90.7
d3-MeFOSA	2.500	2.587	3.5	103.5
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	16.908	-15.5	84.5
EtFOSE	100.000	104.111	4.1	104.1
MeFOSA	20.000	16.989	-15.1	84.9
MeFOSE	100.000	99.270	-0.7	99.3
PFDoDS	20.000	18.200	-9.0	91.0
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.179	3.6	103.6
d7-MeFOSE	25.000	25.040	0.2	100.2
d9-EtFOSE	25.000	24.766	-0.9	99.1
d5-EtFOSA	2.500	2.513	0.5	100.5
NFDHA	20.000	18.623	-6.9	93.1
PFMBA	20.000	18.091	-9.5	90.5
PFMPA	20.000	18.181	-9.1	90.9
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	20.000	16.895	-15.5	84.5

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q356-CC356
 Lab FileID: 6Q24930.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\092423_1633_S6Q356\s6q356.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\092423_1633_S6Q356\6Q24919.d
 2:D:\MassHunter\Data\092423_1633_S6Q356\6Q24920.d
 3:D:\MassHunter\Data\092423_1633_S6Q356\6Q24921.d
 4:D:\MassHunter\Data\092423_1633_S6Q356\6Q24922.d
 5:D:\MassHunter\Data\092423_1633_S6Q356\6Q24923.d
 6:D:\MassHunter\Data\092423_1633_S6Q356\6Q24924.d
 7:D:\MassHunter\Data\092423_1633_S6Q356\6Q24925.d
 8:D:\MassHunter\Data\092423_1633_S6Q356\6Q24926.d

Data File: 6Q24930
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.806	16.1	116.1
13C2-6:2FTS	5.000	5.947	18.9	118.9
13C2-8:2FTS	5.000	5.486	9.7	109.7
13C2-PFDoDA	1.250	1.257	0.6	100.6
13C2-PFTeDA	1.250	1.253	0.2	100.2
13C3-PFBS	2.500	2.653	6.1	106.1
13C3-PFHxS	2.500	2.868	14.7	114.7
13C4-PFBA	10.000	9.971	-0.3	99.7
13C4-PFHpA	2.500	2.611	4.4	104.4
13C5-PFHxA	2.500	2.454	-1.8	98.2
13C5-PFPeA	5.000	5.137	2.7	102.7
13C6-PFDA	1.250	1.279	2.3	102.3
13C7-PFUnDA	1.250	1.219	-2.5	97.5
13C8-FOSA	2.500	2.414	-3.5	96.5
13C8-PFOA	2.500	2.530	1.2	101.2
13C8-PFOS	2.500	2.265	-9.4	90.6
13C9-PFNA	1.250	1.172	-6.3	93.7
4:2FTS	9.375	9.454	0.8	100.8
6:2FTS	9.500	9.603	1.1	101.1
8:2FTS	9.600	10.600	10.4	110.4
d3-MeFOSAA	5.000	4.846	-3.1	96.9
EtFOSAA	2.500	2.644	5.7	105.7
FOSA	2.500	2.491	-0.4	99.6
MeFOSAA	2.500	2.574	2.9	102.9
PFBA	10.000	10.342	3.4	103.4
PFBS	2.218	2.313	4.3	104.3
PFDA	2.500	2.580	3.2	103.2
PFDoDA	2.500	2.596	3.8	103.8
PFDS	2.413	2.680	11.1	111.1
PFHpA	2.500	2.428	-2.9	97.1
PFHpS	2.383	2.576	8.1	108.1
PFHxA	2.500	2.658	6.3	106.3
PFHxS	2.285	2.202	-3.6	96.4
PFNA	2.500	2.492	-0.3	99.7
PFNS	2.405	2.620	8.9	108.9
PFOA	2.500	2.486	-0.6	99.4
PFOS	2.320	2.540	9.5	109.5

Continuing Calibration Summary

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q356-CC356
 Lab FileID: 6Q24930.D

PFPeA	5.000	5.040	0.8	100.8
PFPeS	2.353	2.363	0.4	100.4
PFTeDA	2.500	2.553	2.1	102.1
PFTTrDA	2.500	2.591	3.6	103.6
PFUnDA	2.500	2.806	12.2	112.2
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	4.983	5.5	105.5
13C3-HFPO-DA	10.000	9.730	-2.7	97.3
9C1-PF3ONS	4.675	4.952	5.9	105.9
ADONA	4.725	5.167	9.4	109.4
HFPO-DA	5.000	5.064	1.3	101.3
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.434	-0.4	99.6
5:3FTCA	62.400	64.850	3.9	103.9
7:3FTCA	62.400	63.659	2.0	102.0
d3-MeFOSA	2.500	2.294	-8.2	91.8
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.224	4.5	104.5
EtFOSE	12.500	12.714	1.7	101.7
MeFOSA	5.000	5.145	2.9	102.9
MeFOSE	12.500	12.603	0.8	100.8
PFDODS	2.425	2.560	5.6	105.6
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.643	-7.1	92.9
d7-MeFOSE	25.000	23.464	-6.1	93.9
d9-EtFOSE	25.000	23.446	-6.2	93.8
d5-EtFOSA	2.500	2.272	-9.1	90.9
NFDHA	5.000	5.108	2.2	102.2
PFMBA	5.000	5.012	0.2	100.2
PFMPA	5.000	5.019	0.4	100.4
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.617	3.8	103.8

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q356-CC356
 Lab FileID: 6Q24931.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\092423_1633_S6Q356\s6q356.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\092423_1633_S6Q356\6Q24919.d
 2:D:\MassHunter\Data\092423_1633_S6Q356\6Q24920.d
 3:D:\MassHunter\Data\092423_1633_S6Q356\6Q24921.d
 4:D:\MassHunter\Data\092423_1633_S6Q356\6Q24922.d
 5:D:\MassHunter\Data\092423_1633_S6Q356\6Q24923.d
 6:D:\MassHunter\Data\092423_1633_S6Q356\6Q24924.d
 7:D:\MassHunter\Data\092423_1633_S6Q356\6Q24925.d
 8:D:\MassHunter\Data\092423_1633_S6Q356\6Q24926.d

Data File: 6Q24931
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.491	9.8	109.8
13C2-6:2FTS	5.000	5.064	1.3	101.3
13C2-8:2FTS	5.000	4.976	-0.5	99.5
13C2-PFDoDA	1.250	1.243	-0.6	99.4
13C2-PFTeDA	1.250	1.209	-3.3	96.7
13C3-PFBS	2.500	2.601	4.1	104.1
13C3-PFHxS	2.500	2.455	-1.8	98.2
13C4-PFBA	10.000	10.064	0.6	100.6
13C4-PFHpA	2.500	2.564	2.6	102.6
13C5-PFHxA	2.500	2.594	3.8	103.8
13C5-PFPeA	5.000	5.145	2.9	102.9
13C6-PFDA	1.250	1.299	3.9	103.9
13C7-PFUnDA	1.250	1.402	12.2	112.2
13C8-FOSA	2.500	2.374	-5.1	94.9
13C8-PFOA	2.500	2.720	8.8	108.8
13C8-PFOS	2.500	2.452	-1.9	98.1
13C9-PFNA	1.250	1.199	-4.1	95.9
4:2FTS	0.750	0.677	-9.7	90.3
6:2FTS	0.760	0.772	1.6	101.6
8:2FTS	0.768	0.747	-2.7	97.3
d3-MeFOSAA	5.000	4.656	-6.9	93.1
EtFOSAA	0.200	0.192	-3.8	96.2
FOSA	0.200	0.179	-10.6	89.4
MeFOSAA	0.200	0.188	-6.0	94.0
PFBA	0.800	0.703	-12.2	87.8
PFBS	0.177	0.153	-13.5	86.5
PFDA	0.200	0.186	-6.8	93.2
PFDoDA	0.200	0.202	1.0	101.0
PFDS	0.193	0.194	0.4	100.4
PFHpA	0.200	0.177	-11.5	88.5
PFHpS	0.191	0.172	-9.9	90.1
PFHxA	0.200	0.180	-10.0	90.0
PFHxS	0.183	0.186	1.9	101.9
PFNA	0.200	0.187	-6.5	93.5
PFNS	0.192	0.174	-9.2	90.8
PFOA	0.200	0.198	-1.0	99.0
PFOS	0.186	0.170	-8.5	91.5

Continuing Calibration Summary

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q356-CC356
 Lab FileID: 6Q24931.D

PFPeA	0.400	0.362	-9.5	90.5
PFPeS	0.188	0.162	-13.7	86.3
PFTeDA	0.200	0.195	-2.7	97.3
PFTTrDA	0.200	0.178	-10.9	89.1
PFUnDA	0.200	0.183	-8.6	91.4
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	0.378	0.362	-4.2	95.8
13C3-HFPO-DA	10.000	9.917	-0.8	99.2
9C1-PF3ONS	0.374	0.368	-1.5	98.5
ADONA	0.378	0.353	-6.6	93.4
HFPO-DA	0.400	0.360	-9.9	90.1
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	0.908	-9.0	91.0
5:3FTCA	4.992	4.507	-9.7	90.3
7:3FTCA	4.992	4.295	-14.0	86.0
d3-MeFOSA	2.500	2.385	-4.6	95.4
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.353	-11.8	88.2
EtFOSE	1.000	0.876	-12.4	87.6
MeFOSA	0.400	0.361	-9.8	90.2
MeFOSE	1.000	0.938	-6.2	93.8
PFDoDS	0.194	0.152	-21.5	78.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.743	-5.1	94.9
d7-MeFOSE	25.000	23.207	-7.2	92.8
d9-EtFOSE	25.000	23.394	-6.4	93.6
d5-EtFOSA	2.500	2.313	-7.5	92.5
NFDHA	0.400	0.357	-10.8	89.2
PFMBA	0.400	0.361	-9.7	90.3
PFMPA	0.400	0.355	-11.3	88.7
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	0.356	0.311	-12.6	87.4

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q356-CC356
 Lab FileID: 6Q24938.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\092423_1633_S6Q356\s6q356.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\092423_1633_S6Q356\6Q24919.d
 2:D:\MassHunter\Data\092423_1633_S6Q356\6Q24920.d
 3:D:\MassHunter\Data\092423_1633_S6Q356\6Q24921.d
 4:D:\MassHunter\Data\092423_1633_S6Q356\6Q24922.d
 5:D:\MassHunter\Data\092423_1633_S6Q356\6Q24923.d
 6:D:\MassHunter\Data\092423_1633_S6Q356\6Q24924.d
 7:D:\MassHunter\Data\092423_1633_S6Q356\6Q24925.d
 8:D:\MassHunter\Data\092423_1633_S6Q356\6Q24926.d

Data File: 6Q24938
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.233	4.7	104.7
13C2-6:2FTS	5.000	4.924	-1.5	98.5
13C2-8:2FTS	5.000	5.251	5.0	105.0
13C2-PFDoDA	1.250	1.209	-3.3	96.7
13C2-PFTeDA	1.250	1.213	-2.9	97.1
13C3-PFBS	2.500	2.545	1.8	101.8
13C3-PFHxS	2.500	2.569	2.8	102.8
13C4-PFBA	10.000	9.943	-0.6	99.4
13C4-PFHpA	2.500	2.579	3.2	103.2
13C5-PFHxA	2.500	2.559	2.4	102.4
13C5-PFPeA	5.000	5.279	5.6	105.6
13C6-PFDA	1.250	1.310	4.8	104.8
13C7-PFUnDA	1.250	1.273	1.8	101.8
13C8-FOSA	2.500	2.557	2.3	102.3
13C8-PFOA	2.500	2.466	-1.3	98.7
13C8-PFOS	2.500	2.596	3.8	103.8
13C9-PFNA	1.250	1.222	-2.2	97.8
4:2FTS	9.375	9.934	6.0	106.0
6:2FTS	9.500	10.580	11.4	111.4
8:2FTS	9.600	10.003	4.2	104.2
d3-MeFOSAA	5.000	4.913	-1.7	98.3
EtFOSAA	2.500	2.636	5.4	105.4
FOSA	2.500	2.528	1.1	101.1
MeFOSAA	2.500	2.778	11.1	111.1
PFBA	10.000	10.300	3.0	103.0
PFBS	2.218	2.269	2.3	102.3
PFDA	2.500	2.486	-0.6	99.4
PFDoDA	2.500	2.704	8.2	108.2
PFDS	2.413	2.486	3.0	103.0
PFHpA	2.500	2.603	4.1	104.1
PFHpS	2.383	2.402	0.8	100.8
PFHxA	2.500	2.526	1.0	101.0
PFHxS	2.285	2.429	6.3	106.3
PFNA	2.500	2.738	9.5	109.5
PFNS	2.405	2.291	-4.8	95.2
PFOA	2.500	2.671	6.9	106.9
PFOS	2.320	2.395	3.2	103.2

Continuing Calibration Summary

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q356-CC356
 Lab FileID: 6Q24938.D

PFPeA	5.000	5.044	0.9	100.9
PFPeS	2.353	2.501	6.3	106.3
PFTeDA	2.500	2.601	4.0	104.0
PFTTrDA	2.500	2.739	9.6	109.6
PFUnDA	2.500	2.553	2.1	102.1
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	5.318	12.5	112.5
13C3-HFPO-DA	10.000	9.981	-0.2	99.8
9C1-PF3ONS	4.675	5.031	7.6	107.6
ADONA	4.725	5.385	14.0	114.0
HFPO-DA	5.000	5.120	2.4	102.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.472	-0.1	99.9
5:3FTCA	62.400	63.128	1.2	101.2
7:3FTCA	62.400	66.973	7.3	107.3
d3-MeFOSA	2.500	2.524	1.0	101.0
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.155	3.1	103.1
EtFOSE	12.500	12.602	0.8	100.8
MeFOSA	5.000	4.992	-0.2	99.8
MeFOSE	12.500	12.600	0.8	100.8
PFDoDS	2.425	2.388	-1.5	98.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.905	-1.9	98.1
d7-MeFOSE	25.000	24.418	-2.3	97.7
d9-EtFOSE	25.000	24.554	-1.8	98.2
d5-EtFOSA	2.500	2.463	-1.5	98.5
NFDHA	5.000	5.287	5.7	105.7
PFMBA	5.000	5.045	0.9	100.9
PFMPA	5.000	5.045	0.9	100.9
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.701	5.6	105.6

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q356-CC356
 Lab FileID: 6Q24969.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\092423_1633_S6Q356\s6q356.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\092423_1633_S6Q356\6Q24919.d
 2:D:\MassHunter\Data\092423_1633_S6Q356\6Q24920.d
 3:D:\MassHunter\Data\092423_1633_S6Q356\6Q24921.d
 4:D:\MassHunter\Data\092423_1633_S6Q356\6Q24922.d
 5:D:\MassHunter\Data\092423_1633_S6Q356\6Q24923.d
 6:D:\MassHunter\Data\092423_1633_S6Q356\6Q24924.d
 7:D:\MassHunter\Data\092423_1633_S6Q356\6Q24925.d
 8:D:\MassHunter\Data\092423_1633_S6Q356\6Q24926.d

Data File: 6Q24969
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.195	3.9	103.9
13C2-6:2FTS	5.000	5.168	3.4	103.4
13C2-8:2FTS	5.000	4.897	-2.1	97.9
13C2-PFDoDA	1.250	1.221	-2.3	97.7
13C2-PFTeDA	1.250	1.174	-6.1	93.9
13C3-PFBS	2.500	2.551	2.1	102.1
13C3-PFHxS	2.500	2.530	1.2	101.2
13C4-PFBA	10.000	9.950	-0.5	99.5
13C4-PFHpA	2.500	2.560	2.4	102.4
13C5-PFHxA	2.500	2.428	-2.9	97.1
13C5-PFPeA	5.000	4.838	-3.2	96.8
13C6-PFDA	1.250	1.175	-6.0	94.0
13C7-PFUnDA	1.250	1.259	0.7	100.7
13C8-FOSA	2.500	2.291	-8.4	91.6
13C8-PFOA	2.500	2.290	-8.4	91.6
13C8-PFOS	2.500	2.330	-6.8	93.2
13C9-PFNA	1.250	1.134	-9.3	90.7
4:2FTS	9.375	10.040	7.1	107.1
6:2FTS	9.500	11.018	16.0	116.0
8:2FTS	9.600	10.509	9.5	109.5
d3-MeFOSAA	5.000	4.597	-8.1	91.9
EtFOSAA	2.500	2.703	8.1	108.1
FOSA	2.500	2.651	6.0	106.0
MeFOSAA	2.500	2.699	8.0	108.0
PFBA	10.000	10.353	3.5	103.5
PFBS	2.218	2.351	6.0	106.0
PFDA	2.500	2.595	3.8	103.8
PFDoDA	2.500	2.529	1.1	101.1
PFDS	2.413	2.510	4.0	104.0
PFHpA	2.500	2.405	-3.8	96.2
PFHpS	2.383	2.495	4.7	104.7
PFHxA	2.500	2.606	4.3	104.3
PFHxS	2.285	2.391	4.7	104.7
PFNA	2.500	2.590	3.6	103.6
PFNS	2.405	2.507	4.2	104.2
PFOA	2.500	2.935	17.4	117.4
PFOS	2.320	2.379	2.5	102.5

Continuing Calibration Summary

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q356-CC356
 Lab FileID: 6Q24969.D

PFPeA	5.000	5.145	2.9	102.9
PFPeS	2.353	2.367	0.6	100.6
PFTeDA	2.500	2.829	13.2	113.2
PFTTrDA	2.500	2.762	10.5	110.5
PFUnDA	2.500	2.498	-0.1	99.9
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	5.197	10.0	110.0
13C3-HFPO-DA	10.000	9.338	-6.6	93.4
9C1-PF3ONS	4.675	5.192	11.1	111.1
ADONA	4.725	5.085	7.6	107.6
HFPO-DA	5.000	4.972	-0.6	99.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.550	0.6	100.6
5:3FTCA	62.400	63.925	2.4	102.4
7:3FTCA	62.400	65.952	5.7	105.7
d3-MeFOSA	2.500	2.303	-7.9	92.1
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.417	8.3	108.3
EtFOSE	12.500	13.130	5.0	105.0
MeFOSA	5.000	5.235	4.7	104.7
MeFOSE	12.500	13.203	5.6	105.6
PFDoDS	2.425	2.548	5.1	105.1
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.651	-7.0	93.0
d7-MeFOSE	25.000	22.385	-10.5	89.5
d9-EtFOSE	25.000	21.988	-12.0	88.0
d5-EtFOSA	2.500	2.202	-11.9	88.1
NFDHA	5.000	5.176	3.5	103.5
PFMBA	5.000	4.989	-0.2	99.8
PFMPA	5.000	5.119	2.4	102.4
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.626	4.0	104.0

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q356-CC356
 Lab FileID: 6Q24979.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\092423_1633_S6Q356\s6q356.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\092423_1633_S6Q356\6Q24919.d
 2:D:\MassHunter\Data\092423_1633_S6Q356\6Q24920.d
 3:D:\MassHunter\Data\092423_1633_S6Q356\6Q24921.d
 4:D:\MassHunter\Data\092423_1633_S6Q356\6Q24922.d
 5:D:\MassHunter\Data\092423_1633_S6Q356\6Q24923.d
 6:D:\MassHunter\Data\092423_1633_S6Q356\6Q24924.d
 7:D:\MassHunter\Data\092423_1633_S6Q356\6Q24925.d
 8:D:\MassHunter\Data\092423_1633_S6Q356\6Q24926.d

Data File: 6Q24979
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.411	8.2	108.2
13C2-6:2FTS	5.000	5.104	2.1	102.1
13C2-8:2FTS	5.000	5.253	5.1	105.1
13C2-PFDoDA	1.250	1.305	4.4	104.4
13C2-PFTeDA	1.250	1.213	-3.0	97.0
13C3-PFBS	2.500	2.406	-3.7	96.3
13C3-PFHxS	2.500	2.408	-3.7	96.3
13C4-PFBA	10.000	9.920	-0.8	99.2
13C4-PFHpA	2.500	2.530	1.2	101.2
13C5-PFHxA	2.500	2.507	0.3	100.3
13C5-PFPeA	5.000	5.060	1.2	101.2
13C6-PFDA	1.250	1.285	2.8	102.8
13C7-PFUnDA	1.250	1.373	9.8	109.8
13C8-FOSA	2.500	2.375	-5.0	95.0
13C8-PFOA	2.500	2.495	-0.2	99.8
13C8-PFOS	2.500	2.313	-7.5	92.5
13C9-PFNA	1.250	1.163	-7.0	93.0
4:2FTS	9.375	9.409	0.4	100.4
6:2FTS	9.500	10.372	9.2	109.2
8:2FTS	9.600	10.172	6.0	106.0
d3-MeFOSAA	5.000	4.818	-3.6	96.4
EtFOSAA	2.500	2.724	8.9	108.9
FOSA	2.500	2.530	1.2	101.2
MeFOSAA	2.500	2.599	3.9	103.9
PFBA	10.000	10.323	3.2	103.2
PFBS	2.218	2.311	4.2	104.2
PFDA	2.500	2.552	2.1	102.1
PFDoDA	2.500	2.557	2.3	102.3
PFDS	2.413	2.589	7.3	107.3
PFHpA	2.500	2.533	1.3	101.3
PFHpS	2.383	2.564	7.6	107.6
PFHxA	2.500	2.574	3.0	103.0
PFHxS	2.285	2.478	8.4	108.4
PFNA	2.500	2.713	8.5	108.5
PFNS	2.405	2.436	1.3	101.3
PFOA	2.500	2.724	9.0	109.0
PFOS	2.320	2.647	14.1	114.1

Continuing Calibration Summary

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q356-CC356
 Lab FileID: 6Q24979.D

PFPeA	5.000	5.015	0.3	100.3
PFPeS	2.353	2.365	0.5	100.5
PFTeDA	2.500	2.906	16.2	116.2
PFTTrDA	2.500	2.622	4.9	104.9
PFUnDA	2.500	2.353	-5.9	94.1
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDODA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	5.205	10.2	110.2
13C3-HFPO-DA	10.000	9.674	-3.3	96.7
9C1-PF3ONS	4.675	4.904	4.9	104.9
ADONA	4.725	5.139	8.8	108.8
HFPO-DA	5.000	4.951	-1.0	99.0
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.429	-0.4	99.6
5:3FTCA	62.400	61.710	-1.1	98.9
7:3FTCA	62.400	62.484	0.1	100.1
d3-MeFOSA	2.500	2.385	-4.6	95.4
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.275	5.5	105.5
EtFOSE	12.500	12.818	2.5	102.5
MeFOSA	5.000	5.183	3.7	103.7
MeFOSE	12.500	12.725	1.8	101.8
PFDODS	2.425	2.657	9.5	109.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.657	-6.9	93.1
d7-MeFOSE	25.000	23.208	-7.2	92.8
d9-EtFOSE	25.000	22.810	-8.8	91.2
d5-EtFOSA	2.500	2.317	-7.3	92.7
NFDHA	5.000	4.894	-2.1	97.9
PFMBA	5.000	4.949	-1.0	99.0
PFMPA	5.000	4.920	-1.6	98.4
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.392	-1.3	98.7

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q356-CC356
 Lab FileID: 6Q25014.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\092423_1633_S6Q356\s6q356.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\092423_1633_S6Q356\6Q24919.d
 2:D:\MassHunter\Data\092423_1633_S6Q356\6Q24920.d
 3:D:\MassHunter\Data\092423_1633_S6Q356\6Q24921.d
 4:D:\MassHunter\Data\092423_1633_S6Q356\6Q24922.d
 5:D:\MassHunter\Data\092423_1633_S6Q356\6Q24923.d
 6:D:\MassHunter\Data\092423_1633_S6Q356\6Q24924.d
 7:D:\MassHunter\Data\092423_1633_S6Q356\6Q24925.d
 8:D:\MassHunter\Data\092423_1633_S6Q356\6Q24926.d

Data File: 6Q25014
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.148	3.0	103.0
13C2-6:2FTS	5.000	4.659	-6.8	93.2
13C2-8:2FTS	5.000	5.264	5.3	105.3
13C2-PFDoDA	1.250	1.200	-4.0	96.0
13C2-PFTeDA	1.250	1.190	-4.8	95.2
13C3-PFBS	2.500	2.488	-0.5	99.5
13C3-PFHxS	2.500	2.455	-1.8	98.2
13C4-PFBA	10.000	9.972	-0.3	99.7
13C4-PFHpA	2.500	2.473	-1.1	98.9
13C5-PFHxA	2.500	2.585	3.4	103.4
13C5-PFPeA	5.000	5.050	1.0	101.0
13C6-PFDA	1.250	1.241	-0.7	99.3
13C7-PFUnDA	1.250	1.206	-3.5	96.5
13C8-FOSA	2.500	2.492	-0.3	99.7
13C8-PFOA	2.500	2.384	-4.6	95.4
13C8-PFOS	2.500	2.653	6.1	106.1
13C9-PFNA	1.250	1.219	-2.5	97.5
4:2FTS	9.375	10.204	8.8	108.8
6:2FTS	9.500	10.752	13.2	113.2
8:2FTS	9.600	10.037	4.6	104.6
d3-MeFOSAA	5.000	5.454	9.1	109.1
EtFOSAA	2.500	2.581	3.2	103.2
FOSA	2.500	2.660	6.4	106.4
MeFOSAA	2.500	2.622	4.9	104.9
PFBA	10.000	10.272	2.7	102.7
PFBS	2.218	2.212	-0.2	99.8
PFDA	2.500	2.378	-4.9	95.1
PFDoDA	2.500	2.678	7.1	107.1
PFDS	2.413	2.578	6.8	106.8
PFHpA	2.500	2.672	6.9	106.9
PFHpS	2.383	2.450	2.8	102.8
PFHxA	2.500	2.472	-1.1	98.9
PFHxS	2.285	2.339	2.4	102.4
PFNA	2.500	2.566	2.6	102.6
PFNS	2.405	2.357	-2.0	98.0
PFOA	2.500	2.674	6.9	106.9
PFOS	2.320	2.276	-1.9	98.1

Continuing Calibration Summary

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q356-CC356
 Lab FileID: 6Q25014.D

PFPeA	5.000	5.034	0.7	100.7
PFPeS	2.353	2.353	0.0	100.0
PFTeDA	2.500	2.582	3.3	103.3
PFTTrDA	2.500	2.723	8.9	108.9
PFUnDA	2.500	2.514	0.5	100.5
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	5.315	12.5	112.5
13C3-HFPO-DA	10.000	9.615	-3.8	96.2
9C1-PF3ONS	4.675	5.396	15.4	115.4
ADONA	4.725	5.055	7.0	107.0
HFPO-DA	5.000	5.134	2.7	102.7
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.328	-1.2	98.8
5:3FTCA	62.400	59.322	-4.9	95.1
7:3FTCA	62.400	63.968	2.5	102.5
d3-MeFOSA	2.500	2.546	1.8	101.8
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.259	5.2	105.2
EtFOSE	12.500	12.774	2.2	102.2
MeFOSA	5.000	5.152	3.0	103.0
MeFOSE	12.500	12.395	-0.8	99.2
PFDoDS	2.425	2.417	-0.3	99.7
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.406	8.1	108.1
d7-MeFOSE	25.000	24.970	-0.1	99.9
d9-EtFOSE	25.000	24.273	-2.9	97.1
d5-EtFOSA	2.500	2.498	-0.1	99.9
NFDHA	5.000	4.905	-1.9	98.1
PFMBA	5.000	4.949	-1.0	99.0
PFMPA	5.000	4.917	-1.7	98.3
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.384	-1.5	98.5

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q356-CC356
 Lab FileID: 6Q25024.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\092423_1633_S6Q356\s6q356.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\092423_1633_S6Q356\6Q24919.d
 2:D:\MassHunter\Data\092423_1633_S6Q356\6Q24920.d
 3:D:\MassHunter\Data\092423_1633_S6Q356\6Q24921.d
 4:D:\MassHunter\Data\092423_1633_S6Q356\6Q24922.d
 5:D:\MassHunter\Data\092423_1633_S6Q356\6Q24923.d
 6:D:\MassHunter\Data\092423_1633_S6Q356\6Q24924.d
 7:D:\MassHunter\Data\092423_1633_S6Q356\6Q24925.d
 8:D:\MassHunter\Data\092423_1633_S6Q356\6Q24926.d

Data File: 6Q25024
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.303	6.1	106.1
13C2-6:2FTS	5.000	5.036	0.7	100.7
13C2-8:2FTS	5.000	4.911	-1.8	98.2
13C2-PFDoDA	1.250	1.335	6.8	106.8
13C2-PFTeDA	1.250	1.197	-4.2	95.8
13C3-PFBS	2.500	2.410	-3.6	96.4
13C3-PFHxS	2.500	2.419	-3.3	96.7
13C4-PFBA	10.000	9.803	-2.0	98.0
13C4-PFHpA	2.500	2.475	-1.0	99.0
13C5-PFHxA	2.500	2.369	-5.3	94.7
13C5-PFPeA	5.000	4.833	-3.3	96.7
13C6-PFDA	1.250	1.433	14.6	114.6
13C7-PFUnDA	1.250	1.342	7.4	107.4
13C8-FOSA	2.500	2.549	2.0	102.0
13C8-PFOA	2.500	2.397	-4.1	95.9
13C8-PFOS	2.500	2.624	5.0	105.0
13C9-PFNA	1.250	1.229	-1.7	98.3
4:2FTS	9.375	10.142	8.2	108.2
6:2FTS	9.500	10.174	7.1	107.1
8:2FTS	9.600	10.505	9.4	109.4
d3-MeFOSAA	5.000	5.206	4.1	104.1
EtFOSAA	2.500	2.619	4.7	104.7
FOSA	2.500	2.579	3.2	103.2
MeFOSAA	2.500	2.620	4.8	104.8
PFBA	10.000	10.456	4.6	104.6
PFBS	2.218	2.296	3.5	103.5
PFDA	2.500	2.348	-6.1	93.9
PFDoDA	2.500	2.497	-0.1	99.9
PFDS	2.413	2.465	2.1	102.1
PFHpA	2.500	2.506	0.2	100.2
PFHpS	2.383	2.325	-2.4	97.6
PFHxA	2.500	2.634	5.4	105.4
PFHxS	2.285	2.469	8.0	108.0
PFNA	2.500	2.513	0.5	100.5
PFNS	2.405	2.391	-0.6	99.4
PFOA	2.500	2.679	7.2	107.2
PFOS	2.320	2.433	4.9	104.9

Continuing Calibration Summary

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q356-CC356
 Lab FileID: 6Q25024.D

PFPeA	5.000	5.102	2.0	102.0
PFPeS	2.353	2.414	2.6	102.6
PFTeDA	2.500	2.866	14.7	114.7
PFTTrDA	2.500	2.630	5.2	105.2
PFUnDA	2.500	2.504	0.1	100.1
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	5.226	10.6	110.6
13C3-HFPO-DA	10.000	9.370	-6.3	93.7
9C1-PF3ONS	4.675	5.328	14.0	114.0
ADONA	4.725	5.035	6.6	106.6
HFPO-DA	5.000	4.892	-2.2	97.8
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.394	-0.7	99.3
5:3FTCA	62.400	65.154	4.4	104.4
7:3FTCA	62.400	65.522	5.0	105.0
d3-MeFOSA	2.500	2.566	2.6	102.6
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.051	1.0	101.0
EtFOSE	12.500	12.766	2.1	102.1
MeFOSA	5.000	5.152	3.0	103.0
MeFOSE	12.500	12.458	-0.3	99.7
PFDoDS	2.425	2.308	-4.8	95.2
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.215	4.3	104.3
d7-MeFOSE	25.000	24.633	-1.5	98.5
d9-EtFOSE	25.000	23.964	-4.1	95.9
d5-EtFOSA	2.500	2.541	1.6	101.6
NFDHA	5.000	5.204	4.1	104.1
PFMBA	5.000	4.923	-1.5	98.5
PFMPA	5.000	4.938	-1.2	98.8
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.608	3.6	103.6

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q356-CC356
 Lab FileID: 6Q25025.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\092423_1633_S6Q356\s6q356.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\092423_1633_S6Q356\6Q24919.d
 2:D:\MassHunter\Data\092423_1633_S6Q356\6Q24920.d
 3:D:\MassHunter\Data\092423_1633_S6Q356\6Q24921.d
 4:D:\MassHunter\Data\092423_1633_S6Q356\6Q24922.d
 5:D:\MassHunter\Data\092423_1633_S6Q356\6Q24923.d
 6:D:\MassHunter\Data\092423_1633_S6Q356\6Q24924.d
 7:D:\MassHunter\Data\092423_1633_S6Q356\6Q24925.d
 8:D:\MassHunter\Data\092423_1633_S6Q356\6Q24926.d

Data File: 6Q25025
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.614	12.3	112.3
13C2-6:2FTS	5.000	5.624	12.5	112.5
13C2-8:2FTS	5.000	5.418	8.4	108.4
13C2-PFDoDA	1.250	1.275	2.0	102.0
13C2-PFTeDA	1.250	1.229	-1.7	98.3
13C3-PFBS	2.500	2.606	4.3	104.3
13C3-PFHxS	2.500	2.587	3.5	103.5
13C4-PFBA	10.000	9.891	-1.1	98.9
13C4-PFHpA	2.500	2.483	-0.7	99.3
13C5-PFHxA	2.500	2.530	1.2	101.2
13C5-PFPeA	5.000	4.958	-0.8	99.2
13C6-PFDA	1.250	1.283	2.6	102.6
13C7-PFUnDA	1.250	1.270	1.6	101.6
13C8-FOSA	2.500	2.450	-2.0	98.0
13C8-PFOA	2.500	2.536	1.4	101.4
13C8-PFOS	2.500	2.725	9.0	109.0
13C9-PFNA	1.250	1.140	-8.8	91.2
4:2FTS	0.750	0.736	-1.9	98.1
6:2FTS	0.760	0.688	-9.5	90.5
8:2FTS	0.768	0.718	-6.5	93.5
d3-MeFOSAA	5.000	5.336	6.7	106.7
EtFOSAA	0.200	0.181	-9.7	90.3
FOSA	0.200	0.193	-3.3	96.7
MeFOSAA	0.200	0.184	-8.0	92.0
PFBA	0.800	0.732	-8.5	91.5
PFBS	0.177	0.169	-4.7	95.3
PFDA	0.200	0.181	-9.3	90.7
PFDoDA	0.200	0.176	-12.0	88.0
PFDS	0.193	0.202	4.6	104.6
PFHpA	0.200	0.180	-10.0	90.0
PFHpS	0.191	0.156	-18.4	81.6
PFHxA	0.200	0.182	-9.0	91.0
PFHxS	0.183	0.179	-2.0	98.0
PFNA	0.200	0.191	-4.7	95.3
PFNS	0.192	0.172	-10.3	89.7
PFOA	0.200	0.171	-14.3	85.7
PFOS	0.186	0.178	-4.5	95.5

Continuing Calibration Summary

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q356-CC356
 Lab FileID: 6Q25025.D

PFPeA	0.400	0.358	-10.5	89.5
PFPeS	0.188	0.183	-2.5	97.5
PFTeDA	0.200	0.193	-3.5	96.5
PFTTrDA	0.200	0.173	-13.4	86.6
PFUnDA	0.200	0.171	-14.4	85.6
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDODA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	0.378	0.380	0.4	100.4
13C3-HFPO-DA	10.000	9.057	-9.4	90.6
9C1-PF3ONS	0.374	0.401	7.2	107.2
ADONA	0.378	0.376	-0.7	99.3
HFPO-DA	0.400	0.362	-9.6	90.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	0.898	-10.0	90.0
5:3FTCA	4.992	4.632	-7.2	92.8
7:3FTCA	4.992	4.677	-6.3	93.7
d3-MeFOSA	2.500	2.530	1.2	101.2
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.340	-15.1	84.9
EtFOSE	1.000	0.938	-6.2	93.8
MeFOSA	0.400	0.364	-9.0	91.0
MeFOSE	1.000	0.901	-9.9	90.1
PFDODS	0.194	0.201	3.6	103.6
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.339	6.8	106.8
d7-MeFOSE	25.000	24.994	0.0	100.0
d9-EtFOSE	25.000	24.875	-0.5	99.5
d5-EtFOSA	2.500	2.638	5.5	105.5
NFDHA	0.400	0.341	-14.8	85.2
PFMBA	0.400	0.343	-14.4	85.6
PFMPA	0.400	0.345	-13.7	86.3
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	0.356	0.301	-15.5	84.5

CC Criteria: +/- 30%

Run Sequence Report

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q356	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q		
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S6Q356-RT	6Q24916.D	09/24/23 14:17	n/a	Retention Time Marker
S6Q356-RT	6Q24917.D	09/24/23 14:31	n/a	Retention Time Marker
S6Q356-IC356	6Q24918.D	09/24/23 14:45	n/a	Mass Calibration Verification
S6Q356-IC356	6Q24919.D	09/24/23 15:00	n/a	Initial cal 1
S6Q356-IC356	6Q24920.D	09/24/23 15:14	n/a	Initial cal 2
S6Q356-IC356	6Q24921.D	09/24/23 15:28	n/a	Initial cal 3
S6Q356-ICC356	6Q24922.D	09/24/23 15:42	n/a	Initial cal 4
S6Q356-IC356	6Q24923.D	09/24/23 15:57	n/a	Initial cal 5
S6Q356-IC356	6Q24924.D	09/24/23 16:11	n/a	Initial cal 6
S6Q356-IC356	6Q24925.D	09/24/23 16:26	n/a	Initial cal 7
S6Q356-IC356	6Q24926.D	09/24/23 16:40	n/a	Initial cal 8
S6Q356-IBLK	6Q24927.D	09/24/23 16:54	n/a	Instrument Blank
S6Q356-IBLK	6Q24927.D	09/24/23 16:54	n/a	Instrument Blank
S6Q356-ICV356	6Q24928.D	09/24/23 17:09	n/a	Initial cal verification 4
S6Q356-ICV356	6Q24929.D	09/24/23 17:23	n/a	Initial cal verification 20
S6Q356-CC356	6Q24930.D	09/24/23 17:37	n/a	Continuing cal 4
S6Q356-CC356	6Q24931.D	09/24/23 17:51	n/a	Continuing cal 1.0LL
ZZZZZZ	6Q24932.D	09/24/23 18:06	OP99102	(unrelated sample)
ZZZZZZ	6Q24933.D	09/24/23 18:20	OP99102	(unrelated sample)
ZZZZZZ	6Q24934.D	09/24/23 18:34	OP99102	(unrelated sample)
ZZZZZZ	6Q24935.D	09/24/23 18:49	OP99102	(unrelated sample)
FC9580-3	6Q24936.D	09/24/23 19:03	OP99102	(used for QC only; not part of job FC9720)
OP99102-DUP	6Q24937.D	09/24/23 19:17	OP99102	Duplicate
S6Q356-CC356	6Q24938.D	09/24/23 19:32	n/a	Continuing cal 4
S6Q356-ICCB	6Q24939.D	09/24/23 19:46	n/a	Continuing Calibration Blank
S6Q356-ICCB	6Q24939.D	09/24/23 19:46	n/a	Continuing Calibration Blank
OP99134-BS	6Q24940.D	09/24/23 20:00	OP99134	Blank Spike
OP99134-LLBS	6Q24941.D	09/24/23 20:15	OP99134	Blank Spike
OP99134-MB	6Q24942.D	09/24/23 20:29	OP99134	Method Blank
ZZZZZZ	6Q24949.D	09/24/23 22:09	OP99134	(unrelated sample)
S6Q356-CC356	6Q24950.D	09/24/23 22:24	n/a	Continuing cal 4
S6Q356-ICCB	6Q24951.D	09/24/23 22:38	n/a	Continuing Calibration Blank
S6Q356-ICCB	6Q24951.D	09/24/23 22:38	n/a	Continuing Calibration Blank
OP99155-BS	6Q24952.D	09/24/23 22:52	OP99155	Blank Spike
OP99155-LLBS	6Q24953.D	09/24/23 23:06	OP99155	Blank Spike
OP99155-MB	6Q24954.D	09/24/23 23:21	OP99155	Method Blank
ZZZZZZ	6Q24955.D	09/24/23 23:35	OP99155	(unrelated sample)
ZZZZZZ	6Q24956.D	09/24/23 23:49	OP99155	(unrelated sample)
ZZZZZZ	6Q24957.D	09/25/23 00:04	OP99155	(unrelated sample)
ZZZZZZ	6Q24958.D	09/25/23 00:18	OP99155	(unrelated sample)
ZZZZZZ	6Q24959.D	09/25/23 00:32	OP99155	(unrelated sample)
ZZZZZZ	6Q24960.D	09/25/23 00:47	OP99155	(unrelated sample)
S6Q356-CC356	6Q24961.D	09/25/23 01:01	n/a	Continuing cal 4
S6Q356-ICCB	6Q24962.D	09/25/23 01:15	n/a	Continuing Calibration Blank
ZZZZZZ	6Q24963.D	09/25/23 01:30	OP99155	(unrelated sample)
ZZZZZZ	6Q24964.D	09/25/23 01:44	OP99155	(unrelated sample)

Run Sequence Report

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q356	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
ZZZZZZ	6Q24965.D	09/25/23 01:58	OP99155	(unrelated sample)
ZZZZZZ	6Q24967.D	09/25/23 02:27	OP99155	(unrelated sample)
ZZZZZZ	6Q24968.D	09/25/23 02:41	OP99155	(unrelated sample)
S6Q356-CC356	6Q24969.D	09/25/23 02:56	n/a	Continuing cal 4
S6Q356-ICCB	6Q24970.D	09/25/23 03:10	n/a	Continuing Calibration Blank
OP99128-BS	6Q24971.D	09/25/23 03:24	OP99128	Blank Spike
OP99128-LLBS	6Q24972.D	09/25/23 03:38	OP99128	Blank Spike
OP99128-MB	6Q24973.D	09/25/23 03:53	OP99128	Method Blank
ZZZZZZ	6Q24974.D	09/25/23 04:07	OP99128	(unrelated sample)
FC9720-1	6Q24975.D	09/25/23 04:21	OP99128	AF-RHP05-WGN01LF-2309
OP99128-MS	6Q24976.D	09/25/23 04:36	OP99128	Matrix Spike
FC9720-2	6Q24977.D	09/25/23 04:50	OP99128	AF-NMW32-WGN01LF-2309
OP99128-DUP	6Q24978.D	09/25/23 05:04	OP99128	Duplicate
S6Q356-CC356	6Q24979.D	09/25/23 05:19	n/a	Continuing cal 4
S6Q356-ICCB	6Q24980.D	09/25/23 05:33	n/a	Continuing Calibration Blank
OP99106-BS	6Q24981.D	09/25/23 05:47	OP99106	Blank Spike
OP99106-LLBS	6Q24982.D	09/25/23 06:02	OP99106	Blank Spike
OP99106-MB	6Q24983.D	09/25/23 06:16	OP99106	Method Blank
ZZZZZZ	6Q24984.D	09/25/23 06:30	OP99106	(unrelated sample)
ZZZZZZ	6Q24985.D	09/25/23 06:45	OP99106	(unrelated sample)
ZZZZZZ	6Q24986.D	09/25/23 06:59	OP99106	(unrelated sample)
ZZZZZZ	6Q24988.D	09/25/23 07:28	OP99106	(unrelated sample)
ZZZZZZ	6Q24989.D	09/25/23 07:42	OP99106	(unrelated sample)
S6Q356-CC356	6Q24990.D	09/25/23 07:56	n/a	Continuing cal 4
S6Q356-ICCB	6Q24991.D	09/25/23 08:11	n/a	Continuing Calibration Blank
ZZZZZZ	6Q24992.D	09/25/23 08:25	OP99106	(unrelated sample)
ZZZZZZ	6Q24993.D	09/25/23 08:39	OP99106	(unrelated sample)
ZZZZZZ	6Q24994.D	09/25/23 08:54	OP99106	(unrelated sample)
ZZZZZZ	6Q24995.D	09/25/23 09:08	OP99106	(unrelated sample)
FC9639-5	6Q24996.D	09/25/23 09:22	OP99106	(used for QC only; not part of job FC9720)
FC9639-5	6Q24997.D	09/25/23 09:37	OP99106	(used for QC only; not part of job FC9720)
OP99106-MS	6Q24998.D	09/25/23 09:51	OP99106	Matrix Spike
OP99106-MSD	6Q24999.D	09/25/23 10:05	OP99106	Matrix Spike Duplicate
ZZZZZZ	6Q25000.D	09/25/23 10:19	OP99106	(unrelated sample)
ZZZZZZ	6Q25001.D	09/25/23 10:34	OP99106	(unrelated sample)
S6Q356-CC356	6Q25002.D	09/25/23 10:48	n/a	Continuing cal 4
S6Q356-ICCB	6Q25003.D	09/25/23 11:02	n/a	Continuing Calibration Blank
S6Q356-ICCB	6Q25003.D	09/25/23 11:02	n/a	Continuing Calibration Blank
OP99084-BS	6Q25004.D	09/25/23 11:17	OP99084	Blank Spike
OP99084-LLBS	6Q25005.D	09/25/23 11:31	OP99084	Blank Spike
OP99084-MB	6Q25006.D	09/25/23 11:45	OP99084	Method Blank
ZZZZZZ	6Q25007.D	09/25/23 12:00	OP99084	(unrelated sample)
ZZZZZZ	6Q25008.D	09/25/23 12:14	OP99084	(unrelated sample)
ZZZZZZ	6Q25009.D	09/25/23 12:28	OP99084	(unrelated sample)
FC9462-4	6Q25010.D	09/25/23 12:43	OP99084	(used for QC only; not part of job FC9720)
OP99084-MS	6Q25011.D	09/25/23 12:57	OP99084	Matrix Spike

6-10-1

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Run Sequence Report

Job Number: FC9720
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q356	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
OP99084-MSD	6Q25012.D	09/25/23 13:11	OP99084	Matrix Spike Duplicate
ZZZZZZ	6Q25013.D	09/25/23 13:26	OP99084	(unrelated sample)
S6Q356-CC356	6Q25014.D	09/25/23 13:40	n/a	Continuing cal 4
S6Q356-ICCB	6Q25015.D	09/25/23 13:54	n/a	Continuing Calibration Blank
S6Q356-ICCB	6Q25015.D	09/25/23 13:54	n/a	Continuing Calibration Blank
S6Q356-RT	6Q25020.D	09/25/23 15:10	n/a	Retention Time Marker
S6Q356-RT	6Q25021.D	09/25/23 15:24	n/a	Retention Time Marker
S6Q356-IBLK	6Q25023.D	09/25/23 15:53	n/a	Instrument Blank
S6Q356-IBLK	6Q25023.D	09/25/23 15:53	n/a	Instrument Blank
S6Q356-CC356	6Q25024.D	09/25/23 16:07	n/a	Continuing cal 4
S6Q356-CC356	6Q25025.D	09/25/23 16:21	n/a	Continuing cal 1.0LL
FC9131-8	6Q25026.D	09/25/23 16:36	OP99134	(used for QC only; not part of job FC9720)
OP99134-MS	6Q25027.D	09/25/23 16:50	OP99134	Matrix Spike
OP99134-MSD	6Q25028.D	09/25/23 17:04	OP99134	Matrix Spike Duplicate
ZZZZZZ	6Q25029.D	09/25/23 17:19	OP99134	(unrelated sample)
ZZZZZZ	6Q25030.D	09/25/23 17:33	OP99134	(unrelated sample)
ZZZZZZ	6Q25034.D	09/25/23 18:18	OP99155	(unrelated sample)
ZZZZZZ	6Q25035.D	09/25/23 18:32	OP99155	(unrelated sample)
S6Q356-ECC356	6Q25036.D	09/25/23 18:46	n/a	Ending cal 4
S6Q356-ICCB	6Q25037.D	09/25/23 19:01	n/a	Continuing Calibration Blank
S6Q356-ICCB	6Q25037.D	09/25/23 19:01	n/a	Continuing Calibration Blank

6.10.1

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MS Semi-volatiles

Raw Data

Manual Integrations
APPROVED
(compounds with "m" flag)
Natasha Gumtje
09/26/23 14:29

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24975.d
Operator : marthav
Acq. Method : 1633full.m
Acq. Date-Time : 9/25/2023 4:21:59 AM
Sample Name : FC9720-1
Vial : P3-F7
DA Method File : 1633_092423_S6Q356.quantmethod.xml
Batch Name : s6q356.batch.bin
Sample Information : OP99128,S6Q356,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.010	216.8 -> 171.9	196065	10.00 µg/L	0.037
M5-PFPeA	4.422	268.3 -> 223.0	84633	5.00 µg/L	0.012
M5-PFHxA	5.641	318.0 -> 273.0	77693	2.50 µg/L	0.012
M4-PFHpA	6.569	367.1 -> 322.0	72032	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	92565	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	38272	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	36100	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	40164	1.25 µg/L	0.000
M2-PFDoDA	9.067	615.1 -> 570.0	40300	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	15446	1.25 µg/L	0.000
M8-FOSA	9.682	506.1 -> 77.8	27788	2.50 µg/L	0.012
M3-PFBS	5.559	302.1 -> 79.9	31036	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	18541	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	16413	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	3381	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4733	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	4349	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	37871	5.00 µg/L	0.012
M3-HFPO-DA	6.007	286.9 -> 168.9	50564	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	27581	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	99127	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	114359	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	9234	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	8458	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	14769	2.50 µg/L	0.000
13C3-PFBA	3.001	216.0 -> 172.0	72895	5.00 µg/L	0.025
18O2-PFHxS	7.300	403.0 -> 83.9	9753	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	92035	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	33045	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	37435	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	58122	2.50 µg/L	0.012

System Monitoring Compounds

13C2-4:2FTS	5.304	329.1 -> 80.9	3381	6.78 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 135.6%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4733	5.97 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.4%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4349	5.76 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.3%		
13C2-PFDoDA	9.067	615.1 -> 570.0	40300	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C2-PFTeDA	9.772	715.2 -> 670.0	15446	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.3%		
13C3-PFBS	5.559	302.1 -> 79.9	31036	3.03 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 121.1%		
13C3-PFHxS	7.301	402.1 -> 79.9	18541	3.00 µg/L	0.000

7.1.1
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 120.2%	
13C4-PFBA	3.010	216.8 -> 171.9	196065	11.13 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 111.3%	
13C4-PFHpA	6.569	367.1 -> 322.0	72032	3.04 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 121.5%	
13C5-PFHxA	5.641	318.0 -> 273.0	77693	3.18 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 127.2%	
13C5-PFPeA	4.422	268.3 -> 223.0	84633	6.15 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 123.0%	
13C6-PFDA	8.198	519.1 -> 474.1	36100	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C7-PFUnDA	8.651	570.0 -> 525.1	40164	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C8-FOSA	9.682	506.1 -> 77.8	27788	2.22 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.0%	
13C8-PFOA	7.198	421.1 -> 376.0	92565	2.90 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 116.1%	
13C8-PFOS	8.348	507.1 -> 79.9	16413	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C9-PFNA	7.717	472.1 -> 427.0	38272	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.7%	
d3-MeFOSAA	8.256	573.2 -> 419.0	37871	5.41 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.2%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	50564	11.54 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 115.4%	
d3-MeFOSA	10.757	515.0 -> 219.0	8458	2.25 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.1%	
d5-EtFOSAA	8.452	589.2 -> 419.0	27581	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
d7-MeFOSE	10.678	623.2 -> 58.9	99127	22.37 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.5%	
d9-EtFOSE	10.923	639.2 -> 58.9	114359	21.21 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 84.9%	
d5-EtFOSA	10.989	531.1 -> 219.0	9234	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.5%	

Target Compounds

QValue

4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.	
6:2FTS	-	427.1 -> 407.0 427.1 -> 80.9	-	N.D.	
8:2FTS	-	527.1 -> 507.0 527.1 -> 80.8	-	N.D.	
EtFOSAA	-	584.2 -> 419.1 584.2 -> 526.0	-	N.D.	
FOSA	-	498.1 -> 77.9 498.1 -> 478.0	-	N.D.	
MeFOSAA	-	570.1 -> 419.0 570.1 -> 483.0	-	N.D.	
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	5.560	298.7 -> 79.9 298.7 -> 98.8	1135 398	0.11 µg/L	96
PFDA	8.593	512.9 -> 469.0 512.9 -> 219.0	0 0	µg/L m	1
PFDODA	-	613.1 -> 569.0 613.1 -> 319.0	-	N.D.	
PFDS	-	599.0 -> 79.9	-	N.D.	



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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.569	599.0 -> 98.8				
		363.1 -> 319.0	4912	0.13 µg/L	m	97
PFHpS	-	363.1 -> 169.0	644			
		449.0 -> 79.9	-	N.D.		
PFHxA	5.631	449.0 -> 98.9				
		313.0 -> 269.0	3654	0.13 µg/L		100
PFHxS	7.302	313.0 -> 118.9	174			
		398.7 -> 79.9	3966	0.55 µg/L	m	100
PFNA	7.717	398.7 -> 98.9	1923			
		463.0 -> 419.0	1387	0.06 µg/L	m	96
PFNS	-	463.0 -> 219.0	316			
		548.8 -> 79.9	-	N.D.		
PFOA	7.200	548.8 -> 98.9				
		413.0 -> 369.0	9645	0.24 µg/L	m	99
PFOS	8.176	413.0 -> 169.0	1791			
		498.9 -> 79.9	2736	0.39 µg/L	m	57
PFPeA	-	498.9 -> 98.8	1014			
		263.0 -> 219.0	-	N.D.		
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	9.047	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1	0			
11CI-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9CI-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0	-	N.D.		
MeFOSA	-	511.9 -> 169.0				
		616.1 -> 58.9	-	N.D.		
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9	-	N.D.		
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9	-	N.D.		
PFMPA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				
PFEESA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9	-	N.D.		

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

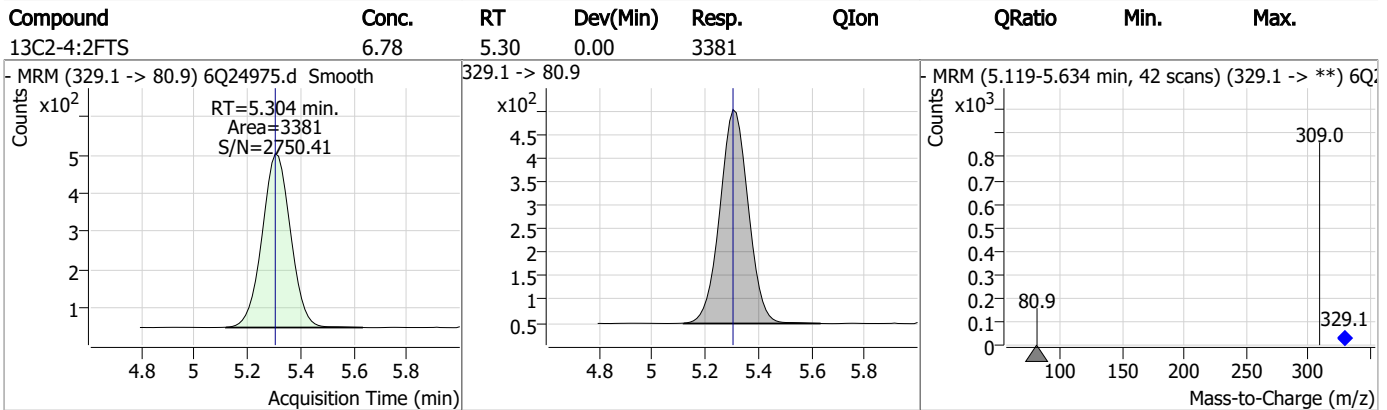
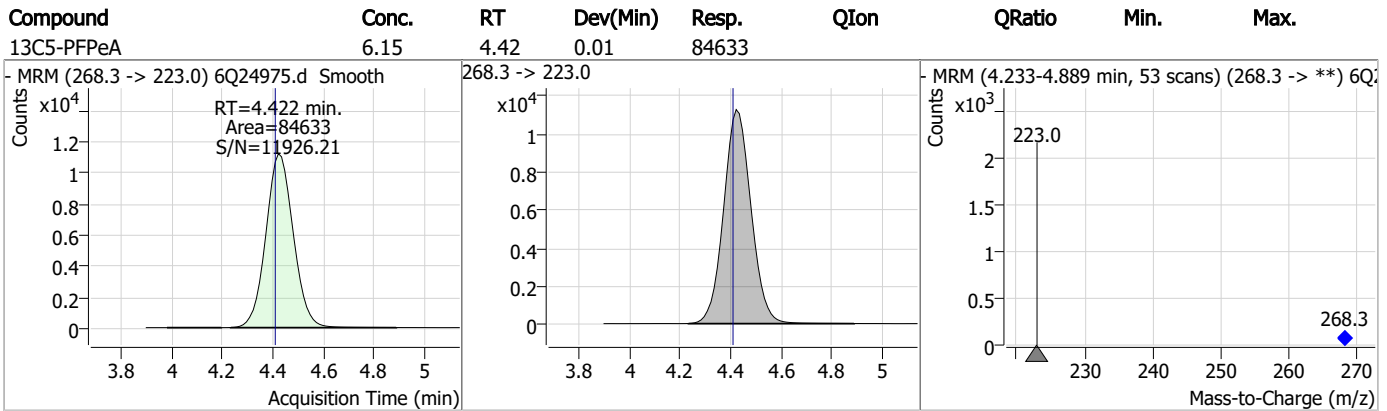
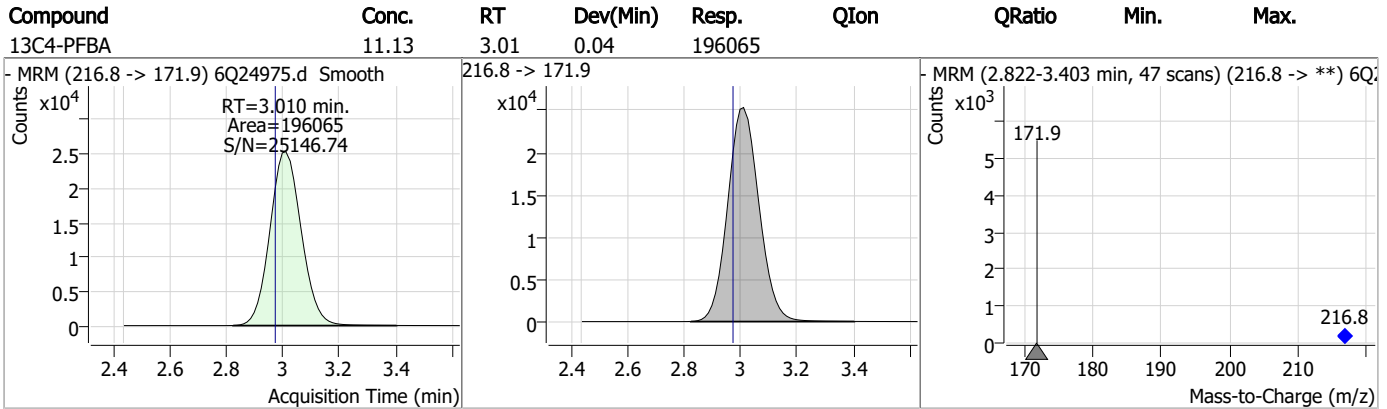
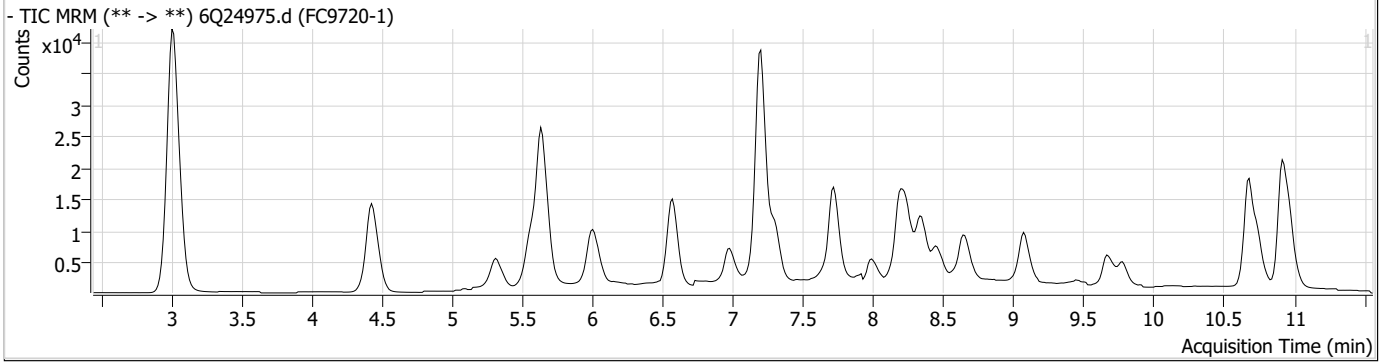
Perfluorinated Compounds by LC/MS/MS

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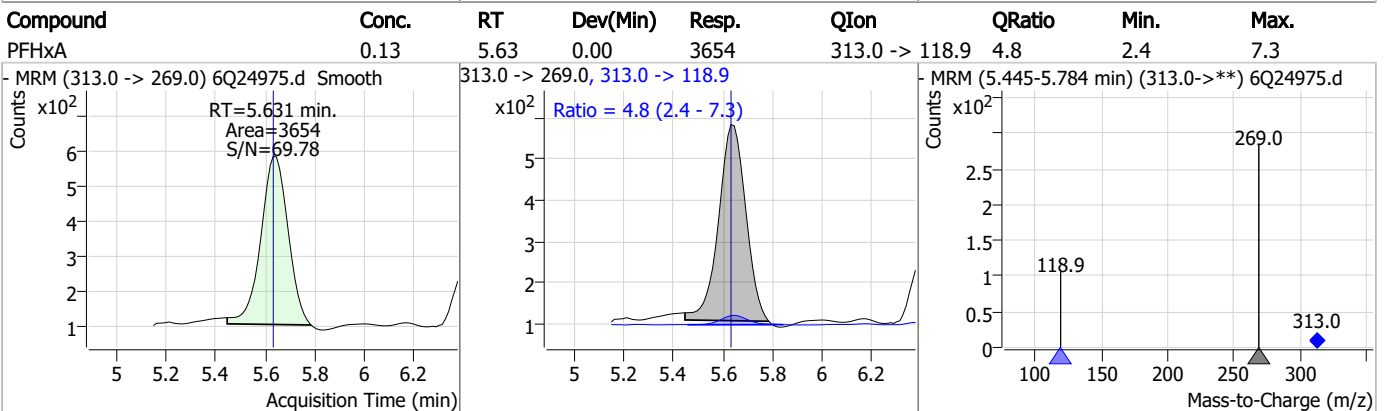
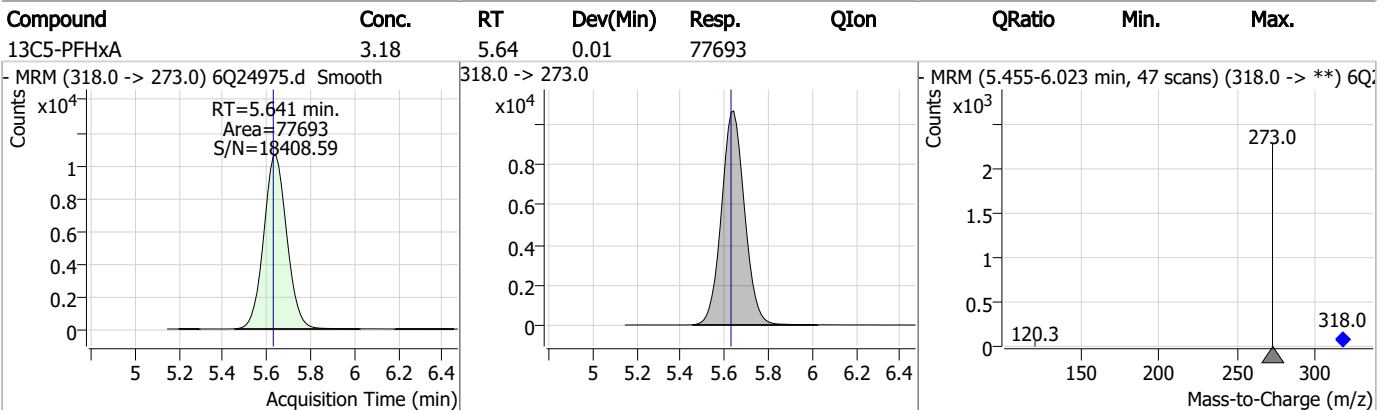
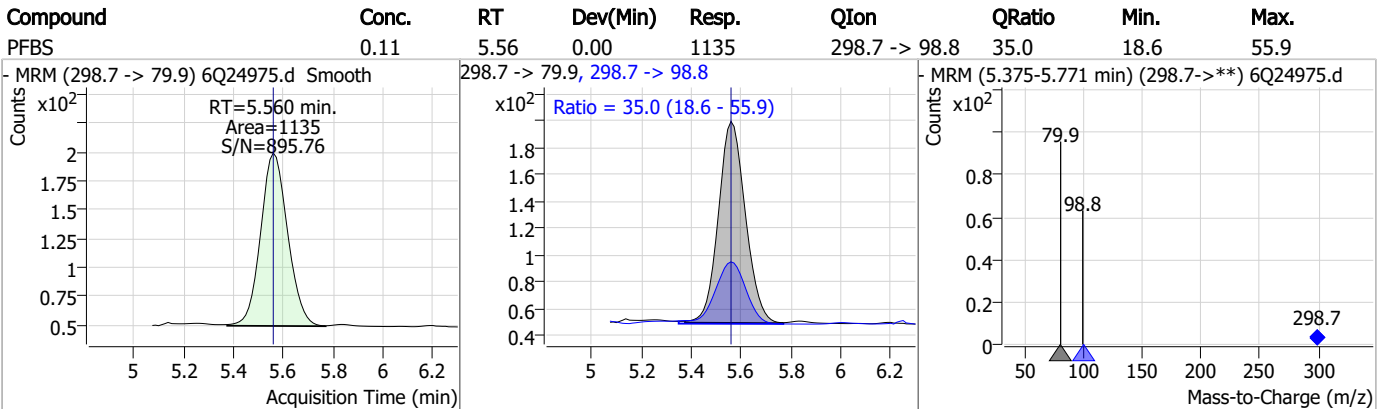
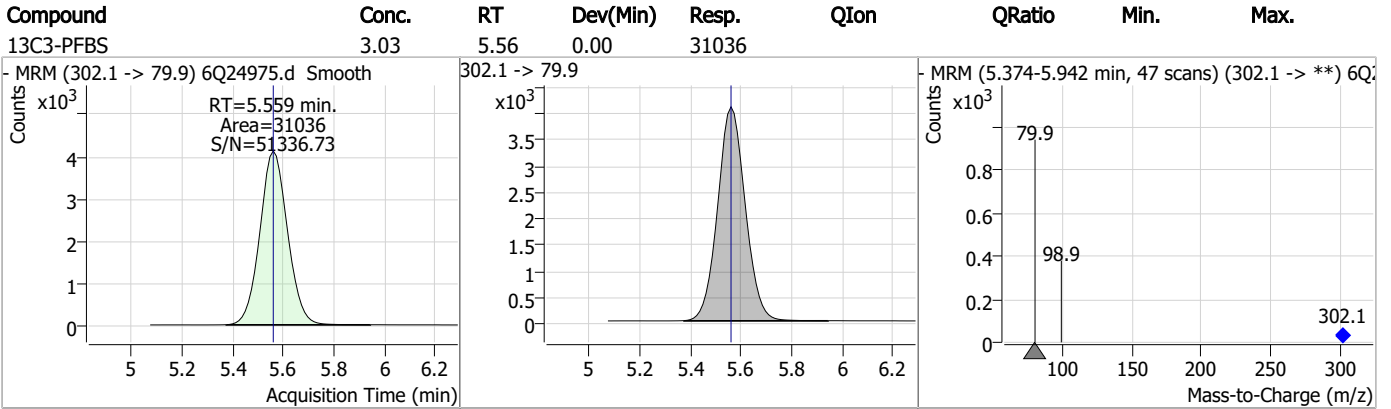
7.1.1
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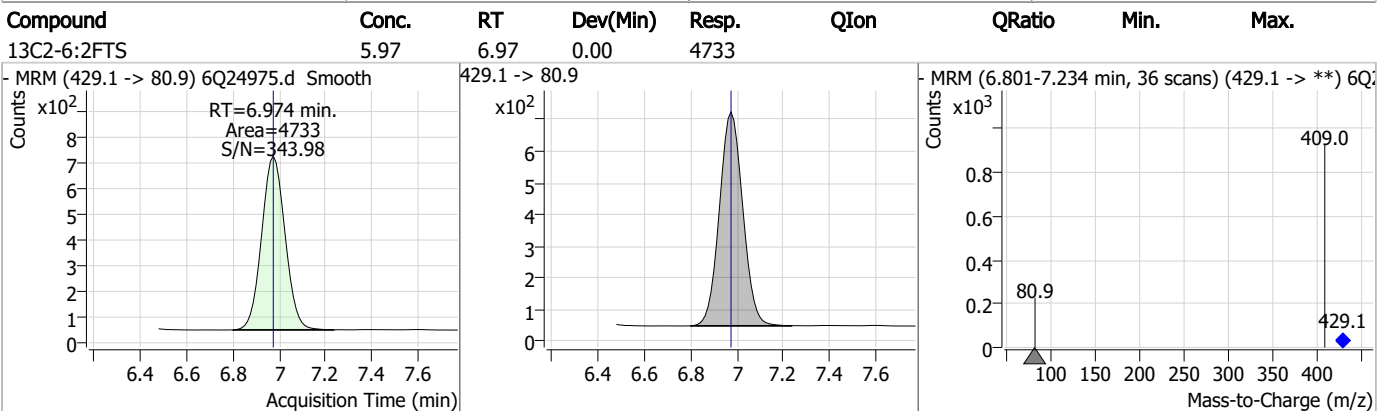
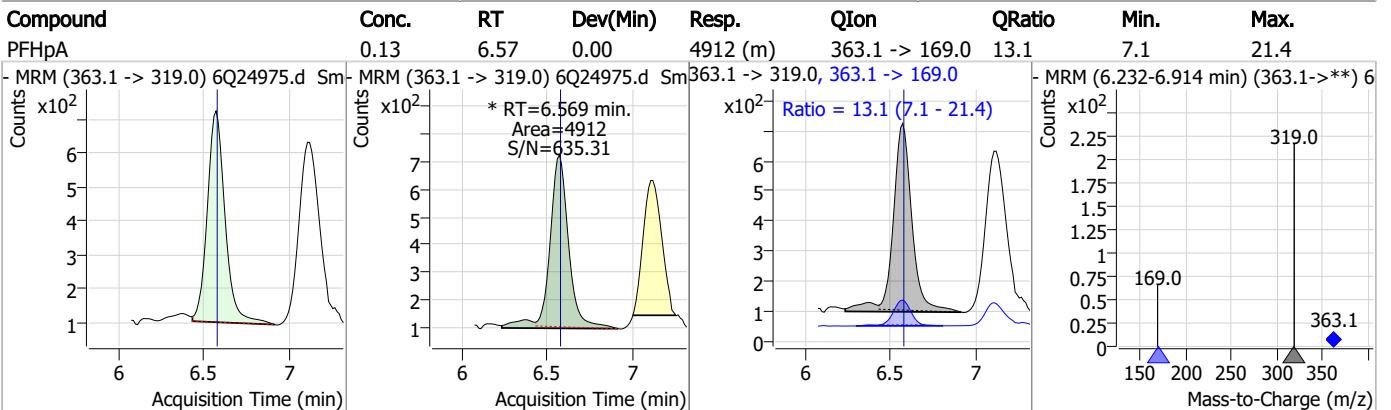
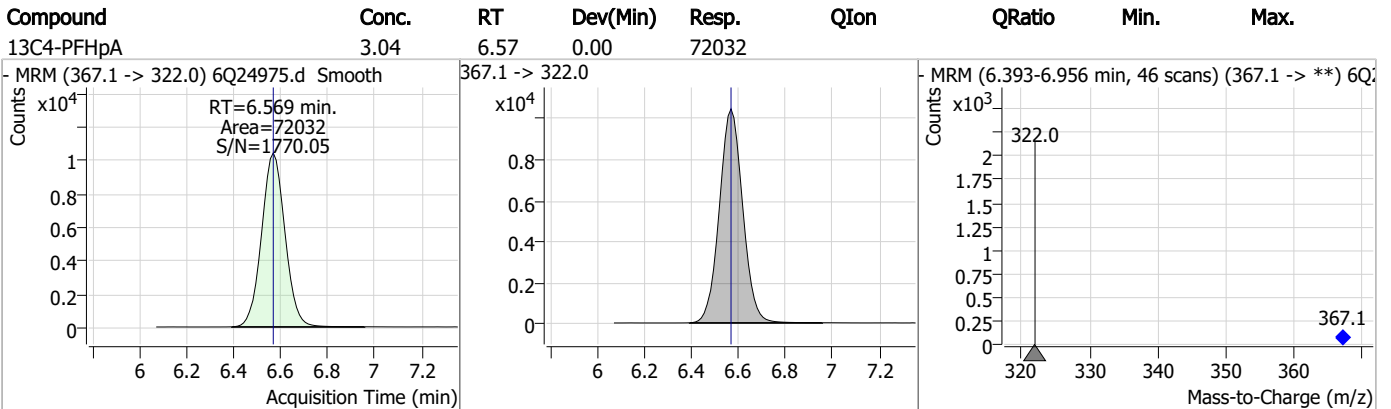
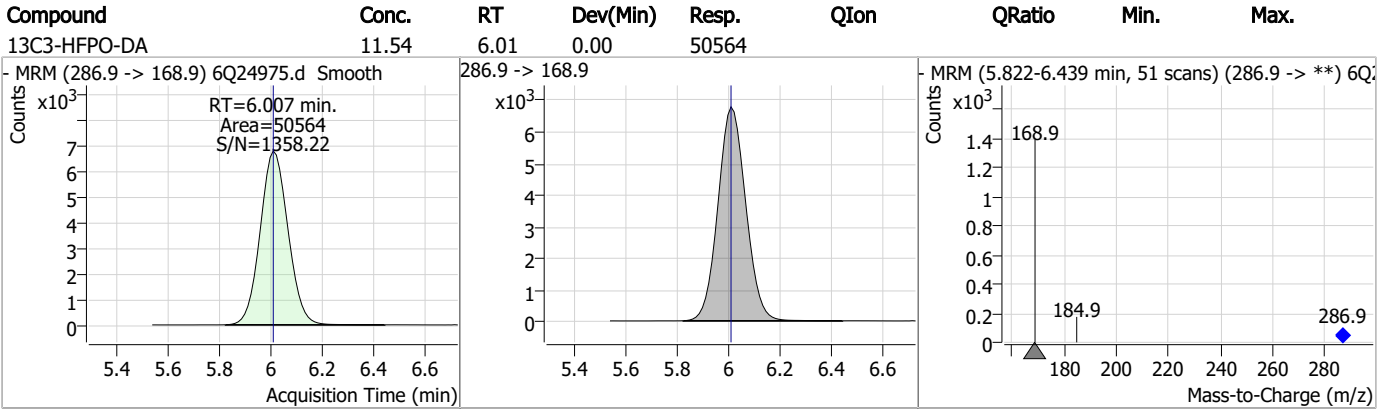
Perfluorinated Compounds by LC/MS/MS



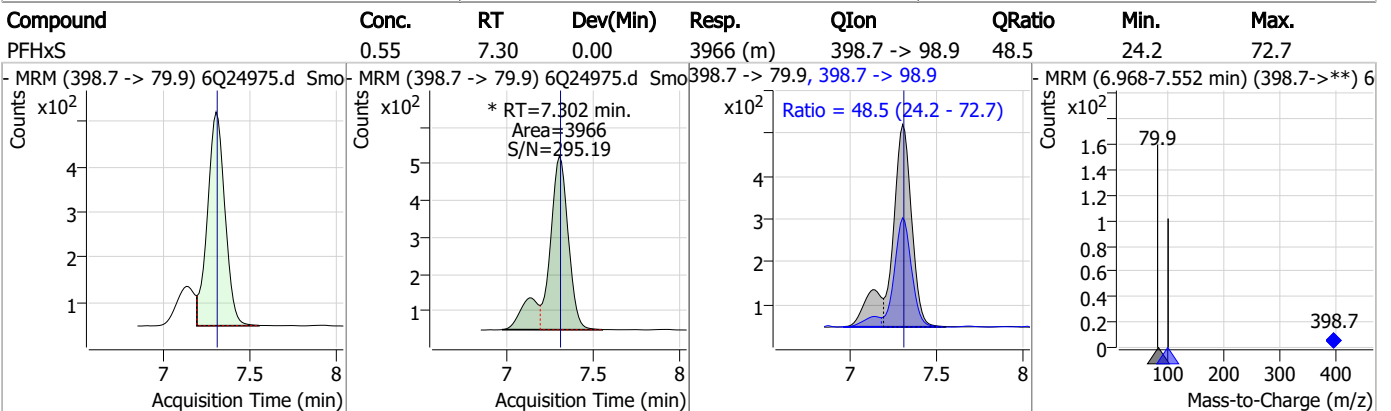
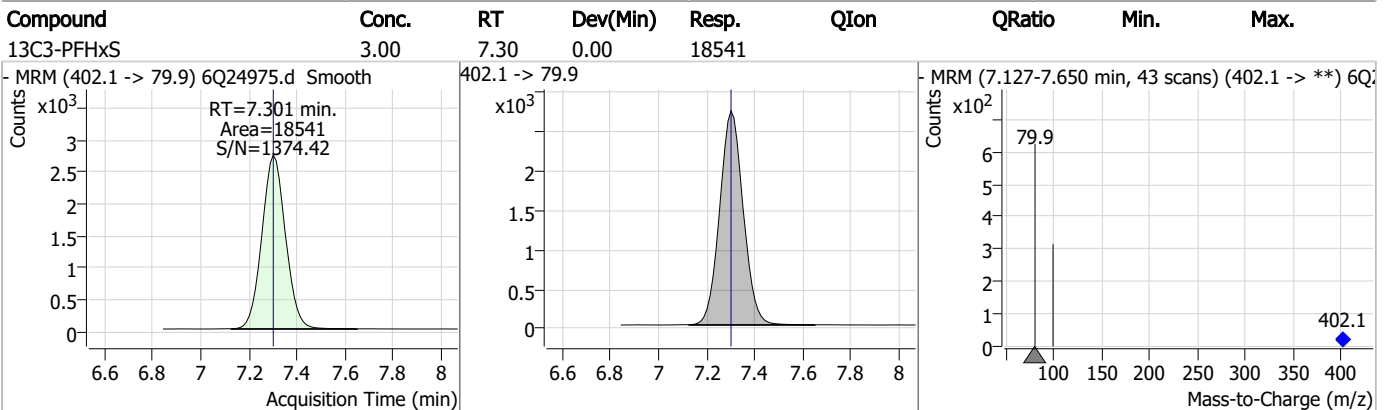
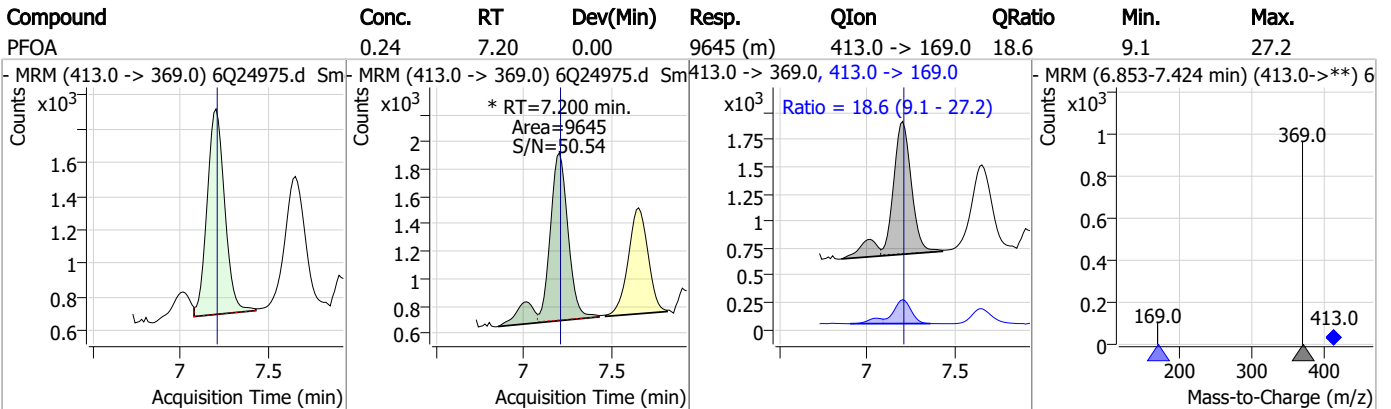
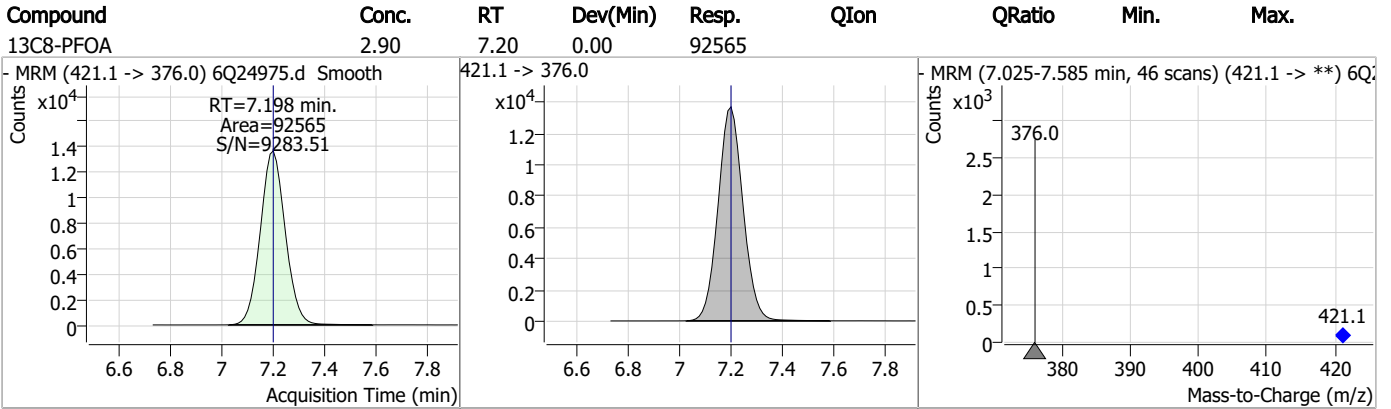
Perfluorinated Compounds by LC/MS/MS



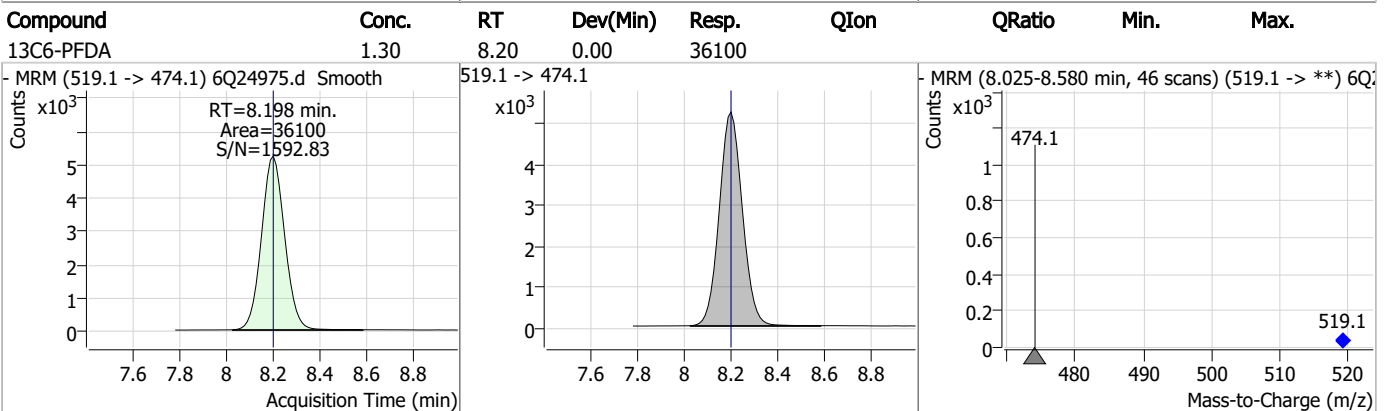
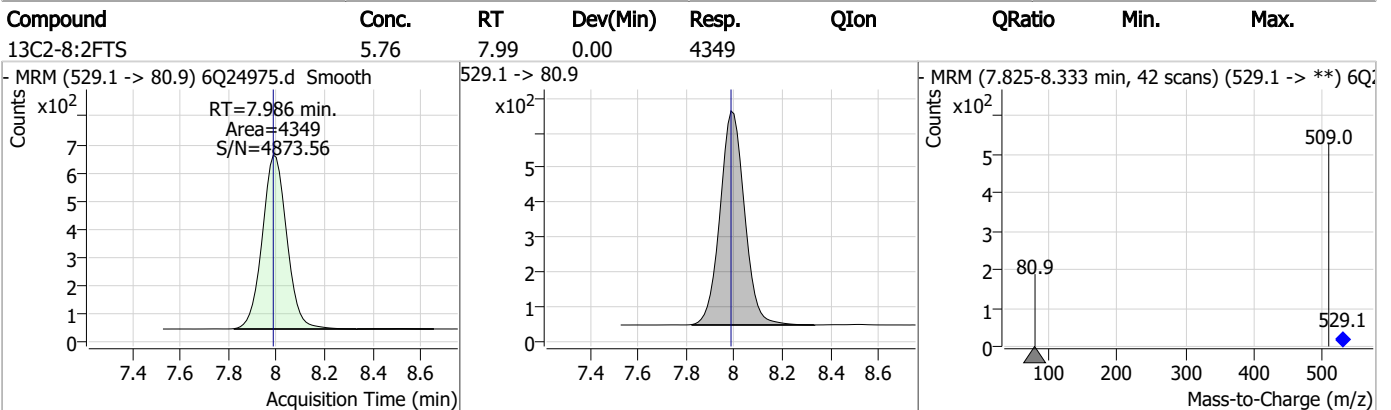
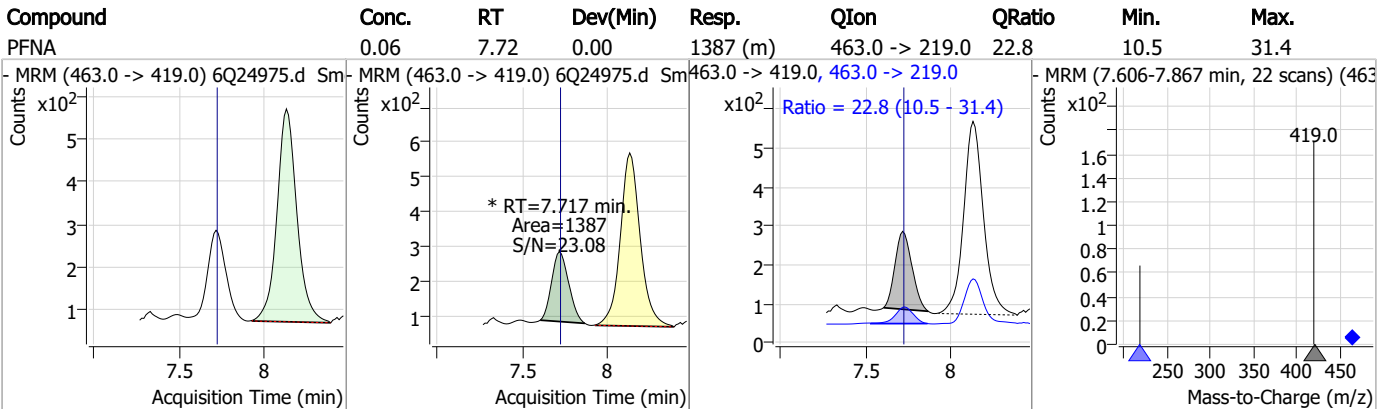
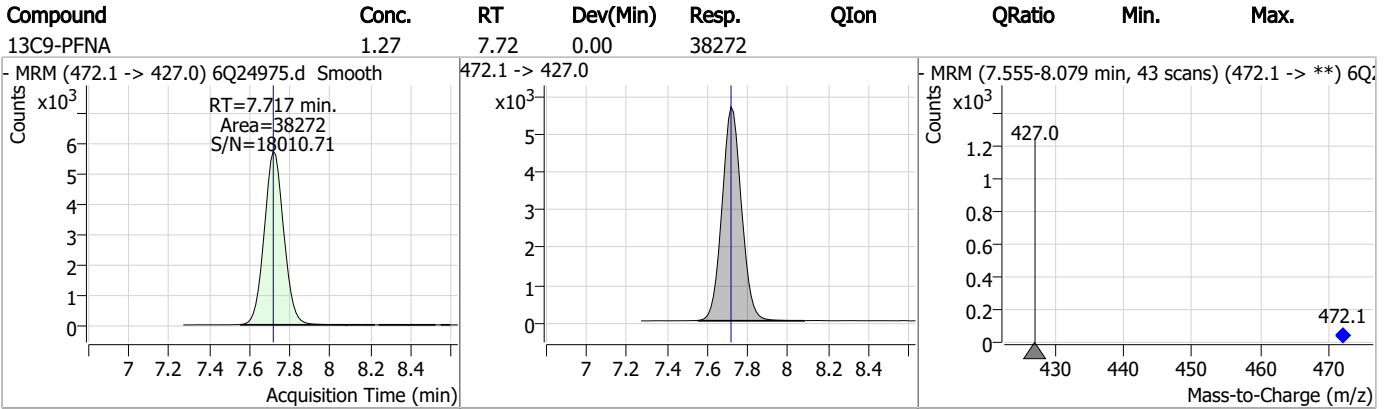
Perfluorinated Compounds by LC/MS/MS



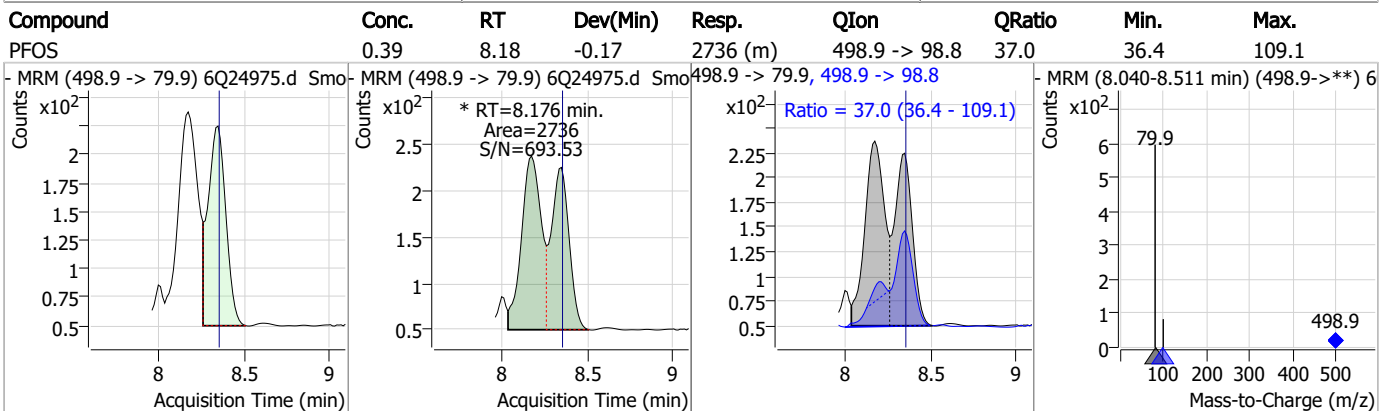
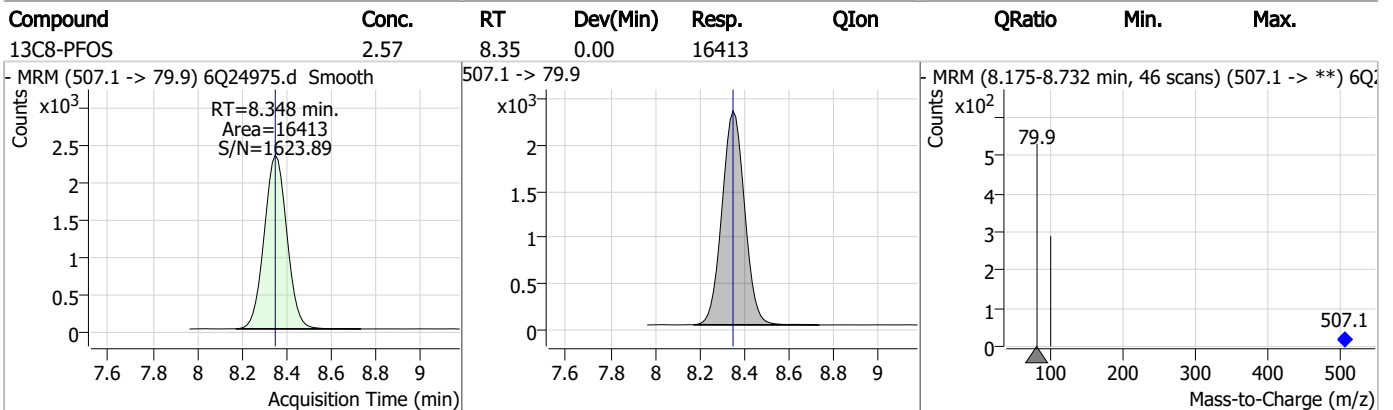
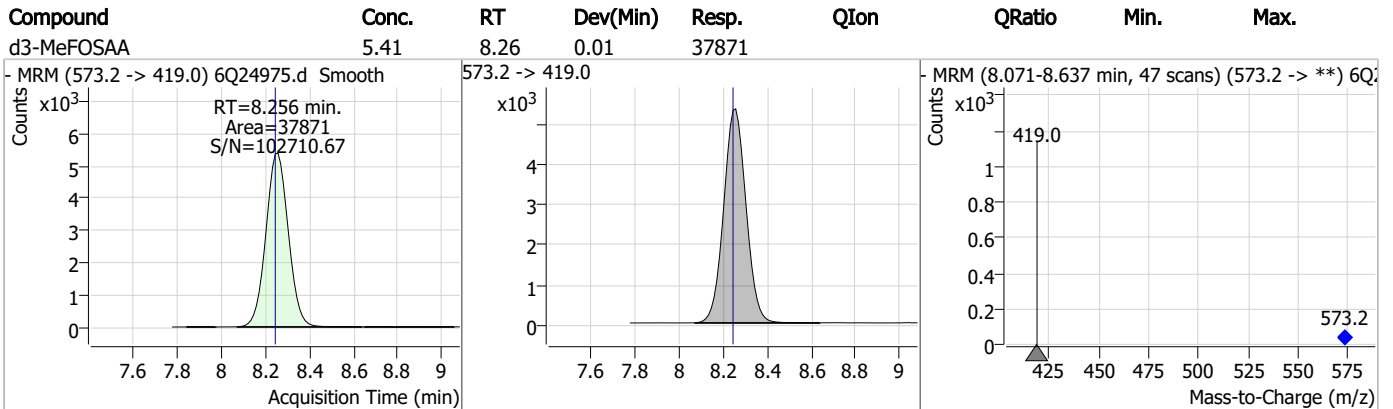
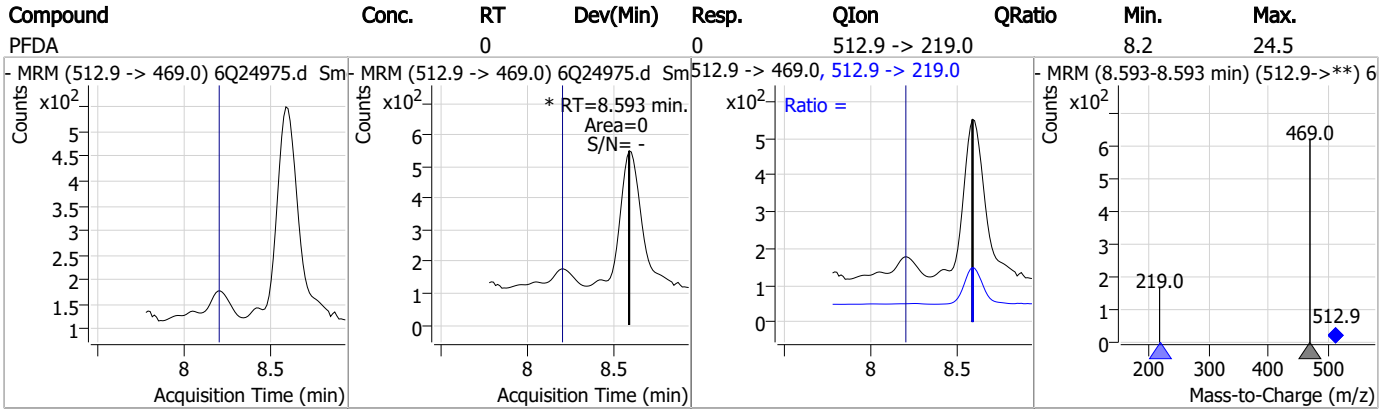
Perfluorinated Compounds by LC/MS/MS



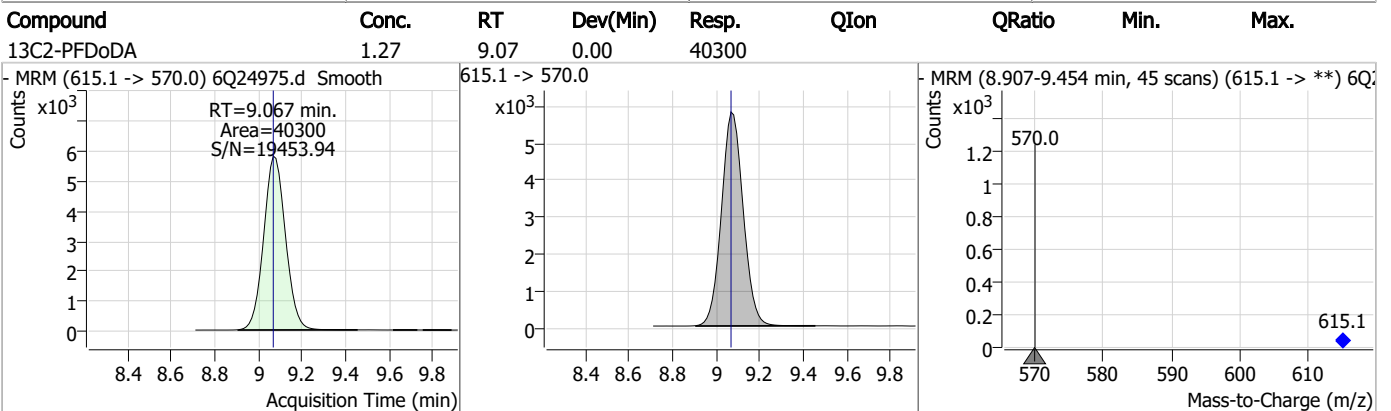
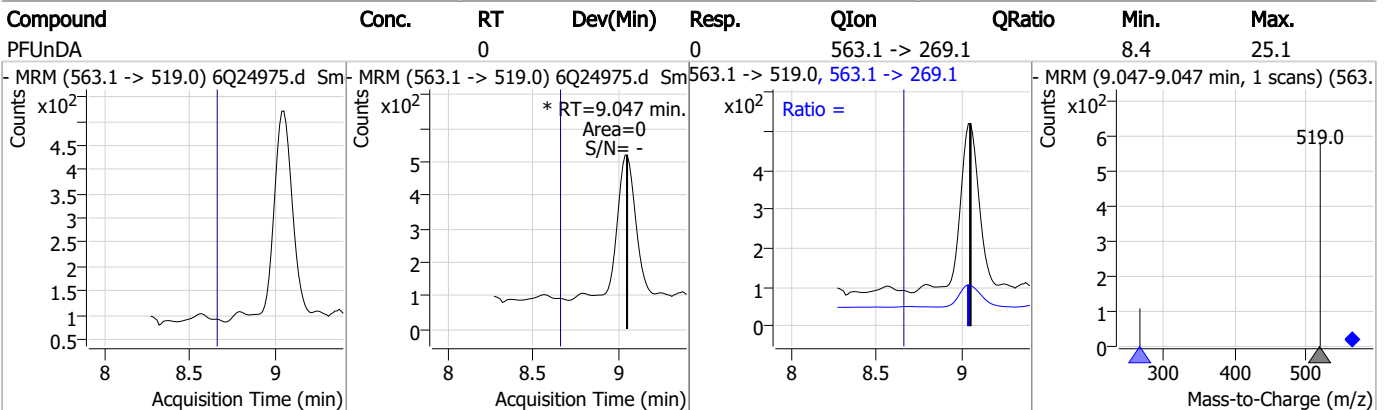
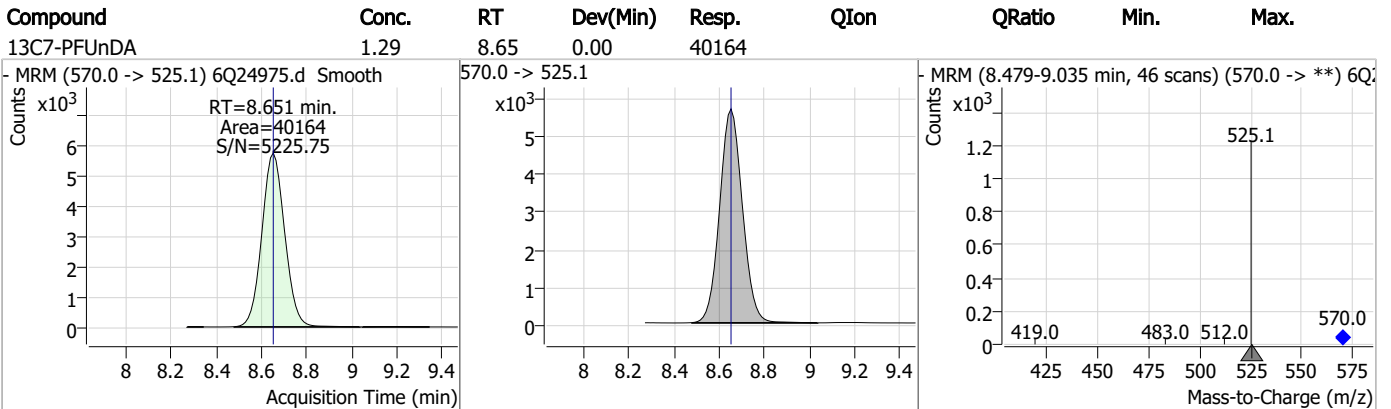
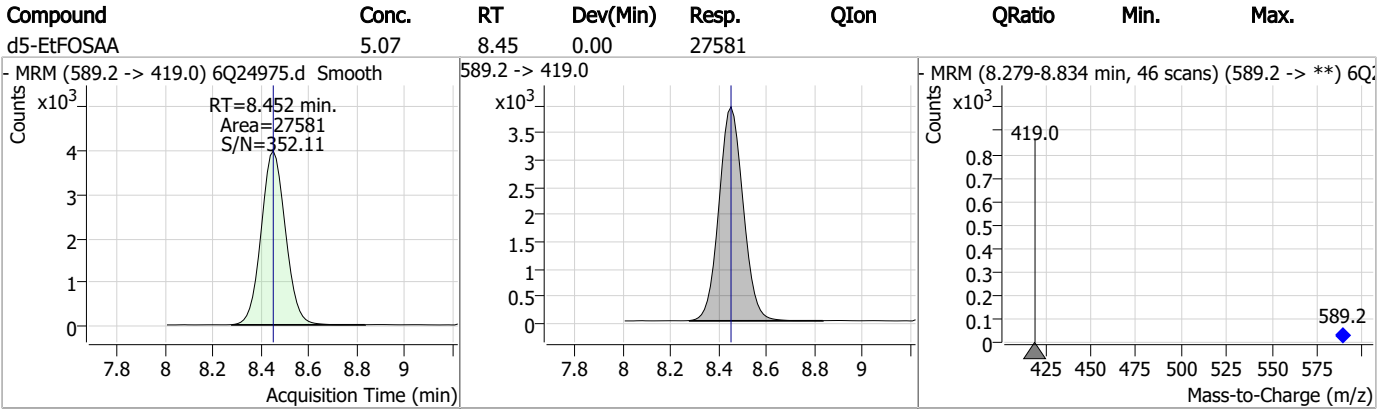
Perfluorinated Compounds by LC/MS/MS



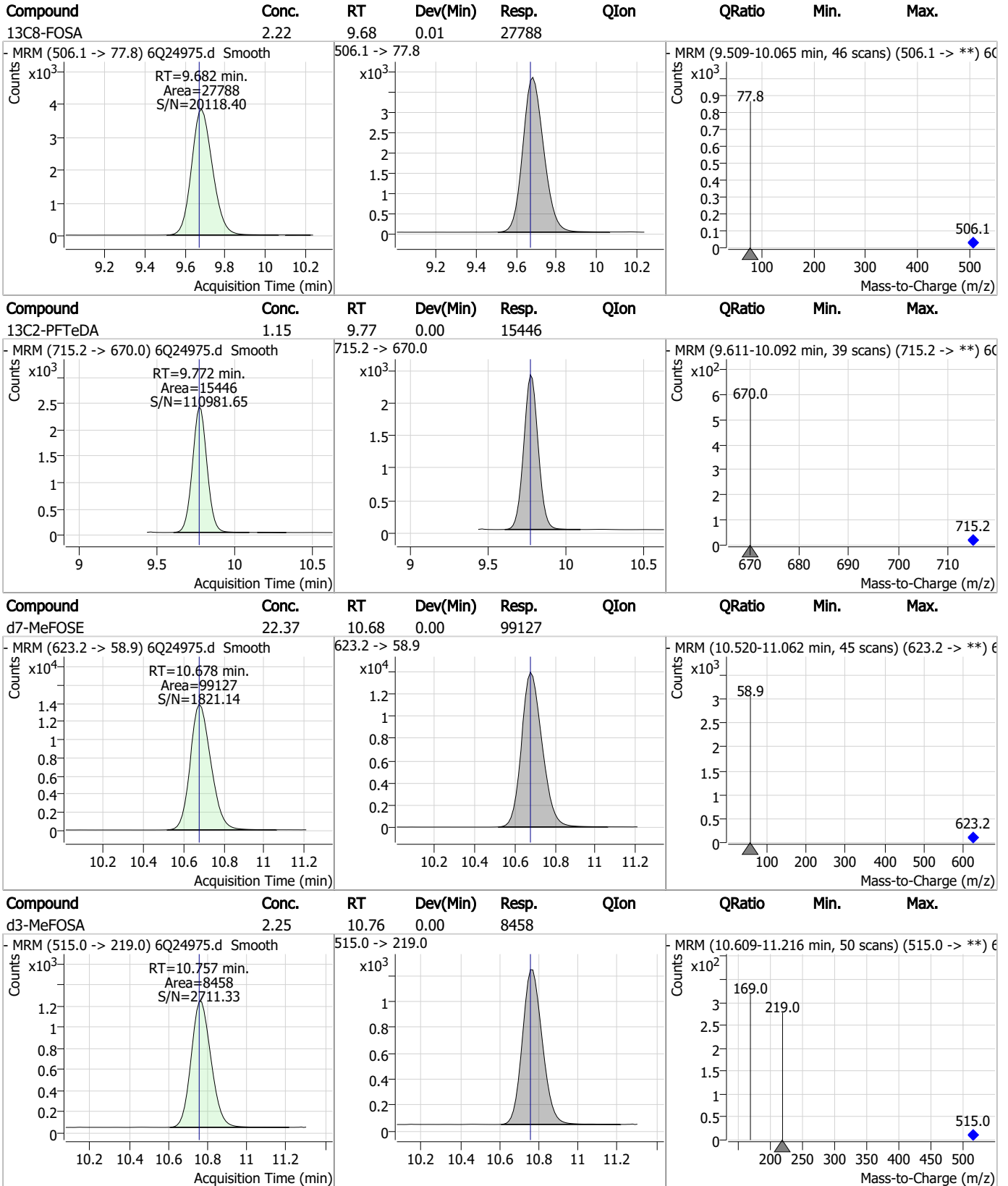
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

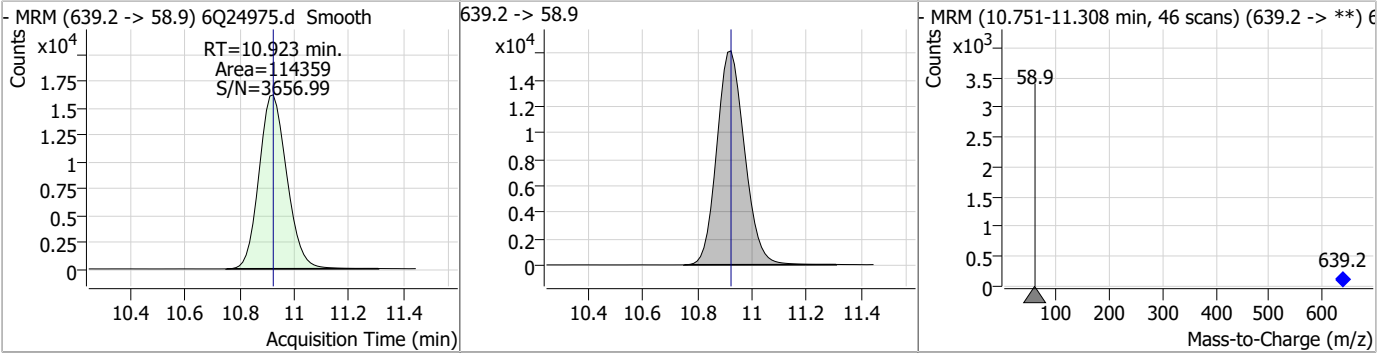


Perfluorinated Compounds by LC/MS/MS

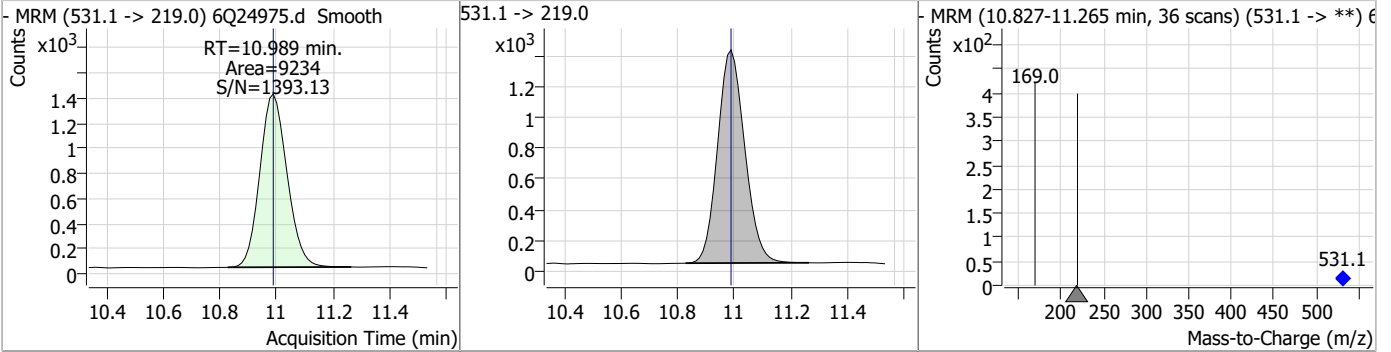


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	21.21	10.92	0.00	114359				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	2.34	10.99	0.00	9234				



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Manual Integration Approval Summary

Sample Number: FC9720-1 Method: EPA DRAFT 1633
Lab FileID: 6Q24975.D Analyst approved: 09/25/23 15:49 Martha Valls
Injection Time: 09/25/23 04:21 Supervisor approved: 09/26/23 14:29 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluoroheptanoic acid	375-85-9		6.57	Split peak
Perfluorooctanoic acid	335-67-1		7.20	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorononanoic acid	375-95-1		7.72	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.18	Split peak

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Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtje
 09/26/23 14:29

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24977.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/25/2023 4:50:36 AM
 Sample Name : FC9720-2
 Vial : P3-F9
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99128,S6Q356,520,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.010	216.8 -> 171.9	155982	10.00 µg/L	0.037
M5-PFPeA	4.422	268.3 -> 223.0	77166	5.00 µg/L	0.012
M5-PFHxA	5.629	318.0 -> 273.0	69371	2.50 µg/L	0.000
M4-PFHpA	6.556	367.1 -> 322.0	69430	2.50 µg/L	-0.012
M8-PFOA	7.186	421.1 -> 376.0	88757	2.50 µg/L	-0.012
M9-PFNA	7.717	472.1 -> 427.0	38273	1.25 µg/L	0.000
M6-PFDA	8.185	519.1 -> 474.1	38161	1.25 µg/L	-0.012
M7-PFUnDA	8.639	570.0 -> 525.1	42946	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	38646	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	14471	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	25960	2.50 µg/L	0.000
M3-PFBS	5.559	302.1 -> 79.9	29189	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	16396	2.50 µg/L	0.000
M8-PFOS	8.336	507.1 -> 79.9	14358	2.50 µg/L	-0.013
M2-4:2FTS	5.304	329.1 -> 80.9	2803	5.00 µg/L	0.000
M2-6:2FTS	6.961	429.1 -> 80.9	4282	5.00 µg/L	-0.012
M2-8:2FTS	7.986	529.1 -> 80.9	4054	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	40361	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	44857	10.00 µg/L	0.000
M5-EtFOSAA	8.439	589.2 -> 419.0	31315	5.00 µg/L	-0.012
M7-MeFOSE	10.678	623.2 -> 58.9	83397	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	103648	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	7799	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	7424	2.50 µg/L	0.000
13C4-PFOS	8.336	502.8 -> 79.9	12909	2.50 µg/L	-0.013
13C3-PFBA	3.001	216.0 -> 172.0	67649	5.00 µg/L	0.025
18O2-PFHxS	7.300	403.0 -> 83.9	9515	2.50 µg/L	0.000
13C4-PFOA	7.187	417.1 -> 372.0	89934	2.50 µg/L	-0.012
13C2-PFDA	8.186	515.1 -> 470.1	30166	1.25 µg/L	-0.012
13C5-PFNA	7.717	468.0 -> 423.0	31492	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	53756	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2803	5.76 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.2%		
13C2-6:2FTS	6.961	429.1 -> 80.9	4282	5.53 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.7%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4054	5.51 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.2%		
13C2-PFDoDA	9.067	615.1 -> 570.0	38646	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.1%		
13C2-PFTeDA	9.772	715.2 -> 670.0	14471	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.7%		
13C3-PFBS	5.559	302.1 -> 79.9	29189	2.92 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 116.8%		
13C3-PFHxS	7.301	402.1 -> 79.9	16396	2.72 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.9%	
13C4-PFBA	3.010	216.8 -> 171.9	155982	9.54 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.4%	
13C4-PFHpA	6.556	367.1 -> 322.0	69430	3.16 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 126.6%	
13C5-PFHxA	5.629	318.0 -> 273.0	69371	3.07 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 122.8%	
13C5-PFPeA	4.422	268.3 -> 223.0	77166	6.06 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 121.3%	
13C6-PFDA	8.185	519.1 -> 474.1	38161	1.51 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 120.4%	
13C7-PFUnDA	8.639	570.0 -> 525.1	42946	1.51 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 121.2%	
13C8-FOSA	9.670	506.1 -> 77.8	25960	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C8-PFOA	7.186	421.1 -> 376.0	88757	2.85 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.9%	
13C8-PFOS	8.336	507.1 -> 79.9	14358	2.58 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C9-PFNA	7.717	472.1 -> 427.0	38273	1.51 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 120.9%	
d3-MeFOSAA	8.244	573.2 -> 419.0	40361	6.60 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 132.0%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	44857	11.07 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 110.7%	
d3-MeFOSA	10.757	515.0 -> 219.0	7424	2.26 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.4%	
d5-EtFOSAA	8.439	589.2 -> 419.0	31315	6.59 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 131.8%	
d7-MeFOSE	10.678	623.2 -> 58.9	83397	21.54 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 86.1%	
d9-EtFOSE	10.923	639.2 -> 58.9	103648	22.00 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 88.0%	
d5-EtFOSA	10.989	531.1 -> 219.0	7799	2.26 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.3%	

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	3.006	212.8 -> 168.9	2452	0.44 µg/L	100
PFBS	5.560	298.7 -> 79.9	3906	0.41 µg/L	m 95
		298.7 -> 98.8	1331		
PFDA	8.593	512.9 -> 469.0	0	µg/L	m 1
		512.9 -> 219.0	0		
PFDODA	9.443	613.1 -> 569.0	0	µg/L	m 1
		613.1 -> 319.0	0		
PFDS	-	599.0 -> 79.9	-	N.D.	



7.12
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8				
PFHpA	6.569	363.1 -> 319.0	12962	0.34	µg/L	m 97
		363.1 -> 169.0	2000			
PFHpS	8.303	449.0 -> 79.9	0		µg/L	m 1
		449.0 -> 98.9	0			
PFHxA	5.631	313.0 -> 269.0	11700	0.47	µg/L	99
		313.0 -> 118.9	595			
PFHxS	7.302	398.7 -> 79.9	6461	1.01	µg/L	m 95
		398.7 -> 98.9	2920			
PFNA	7.717	463.0 -> 419.0	1517	0.06	µg/L	m 92
		463.0 -> 219.0	377			
PFNS	8.888	548.8 -> 79.9	0		µg/L	m 1
		548.8 -> 98.9	0			
PFOA	7.187	413.0 -> 369.0	23380	0.61	µg/L	100
		413.0 -> 169.0	4260			
PFOS	8.164	498.9 -> 79.9	9466	1.53	µg/L	#m 53
		498.9 -> 98.8	3159			
PFPeA	4.424	263.0 -> 219.0	8431	0.54	µg/L	100
PFPeS	6.608	349.1 -> 79.9	1539	0.17	µg/L	#m 63
		349.1 -> 98.9	307			
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	9.035	563.1 -> 519.0	0		µg/L	m 1
		563.1 -> 269.1	0			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

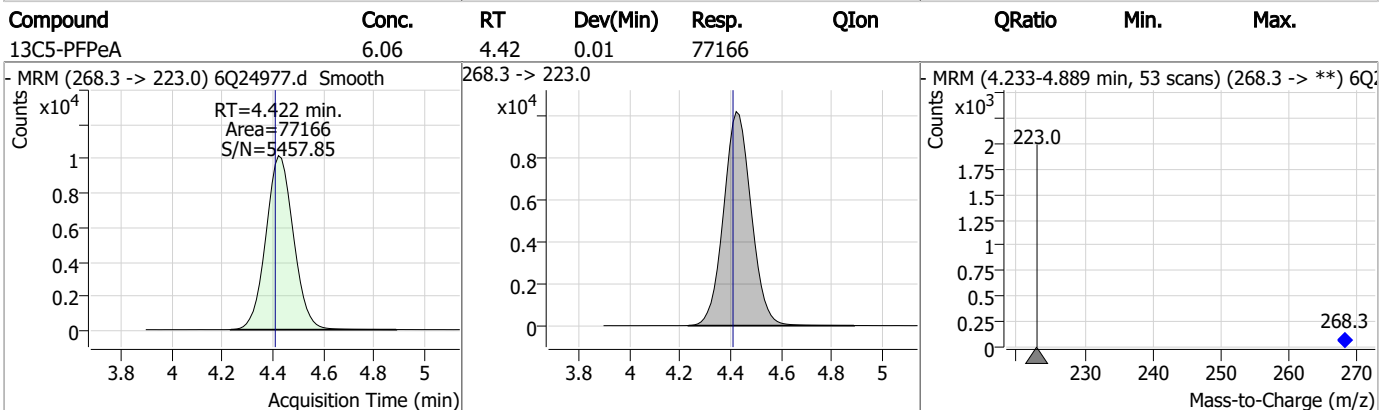
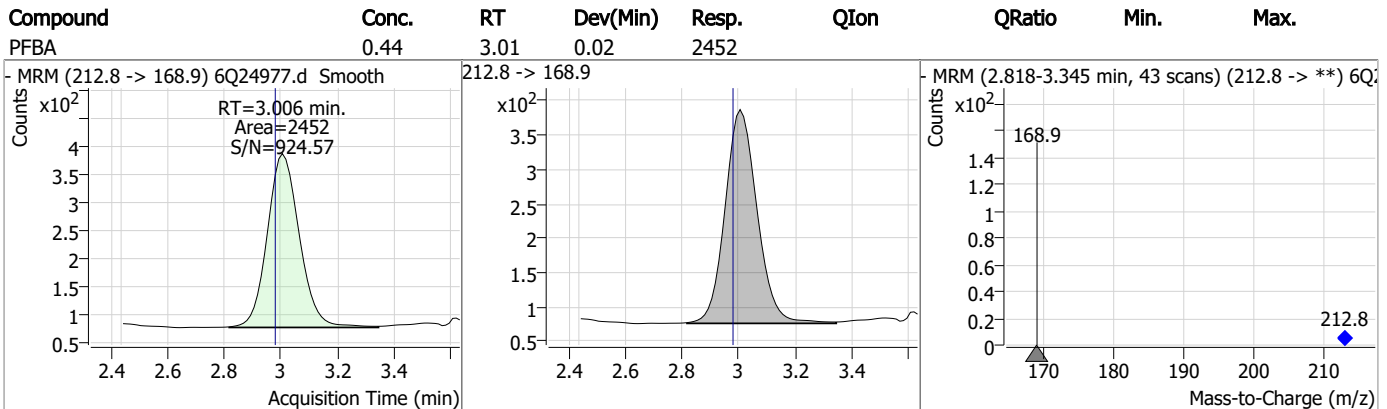
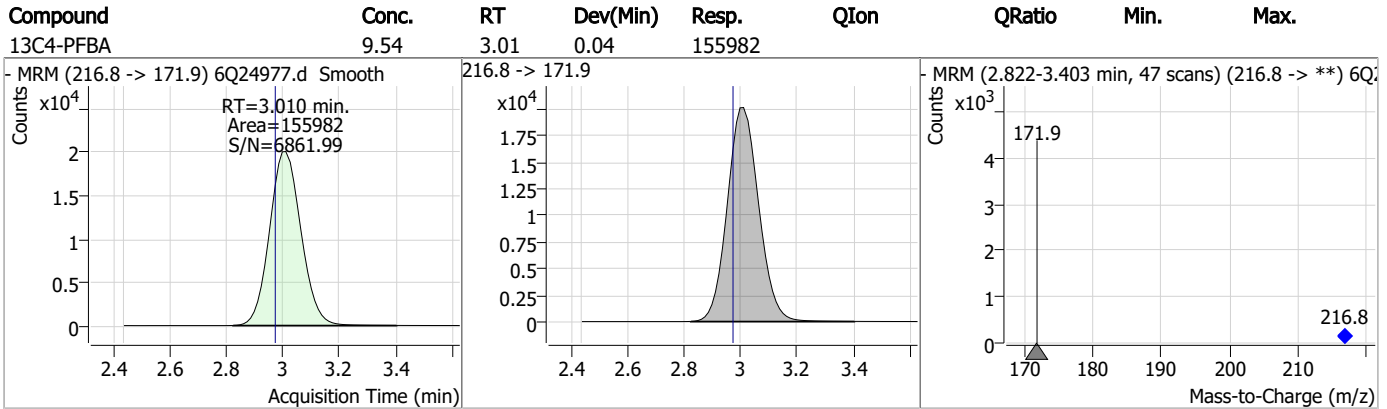
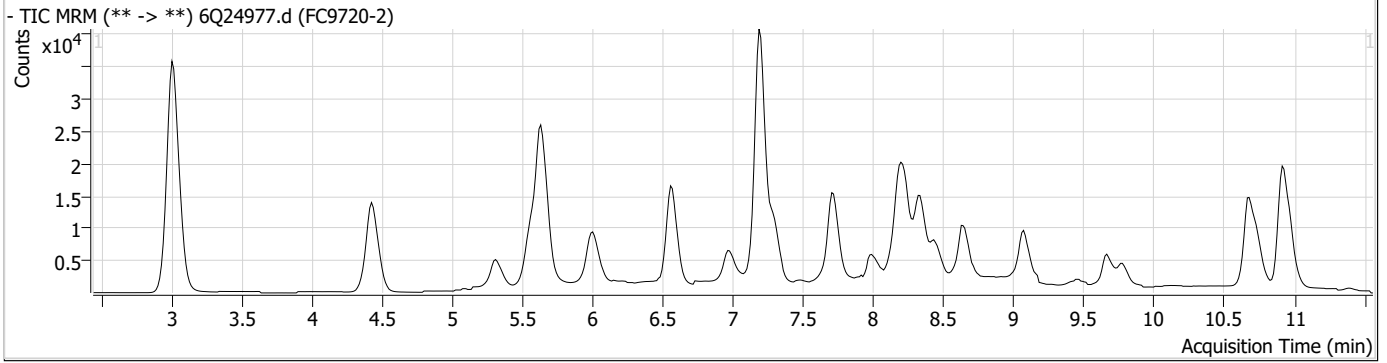
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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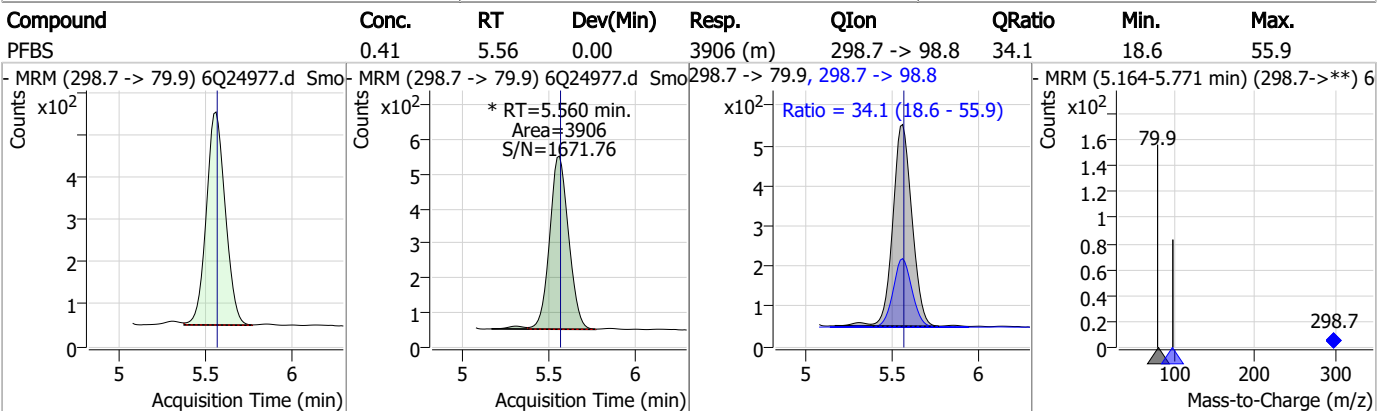
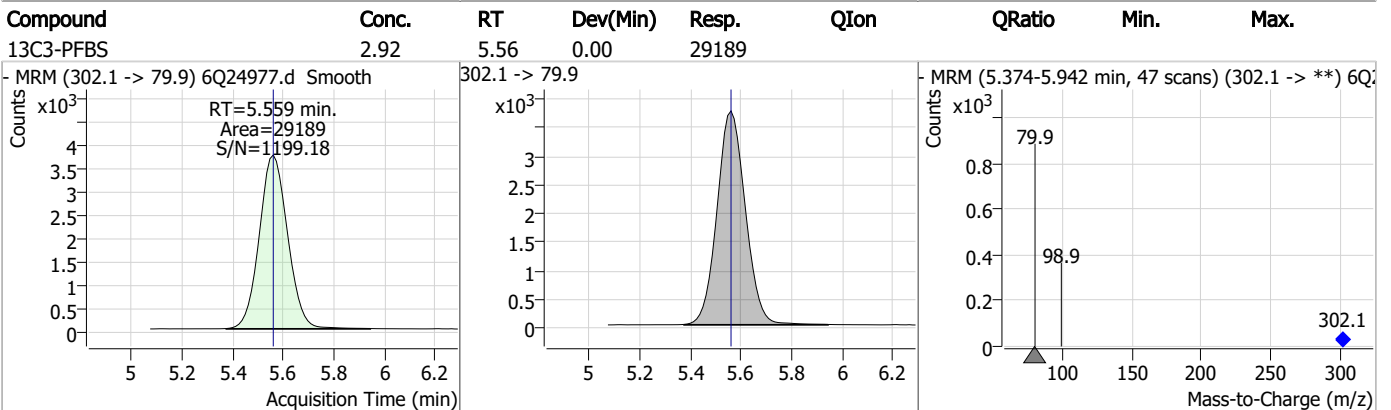
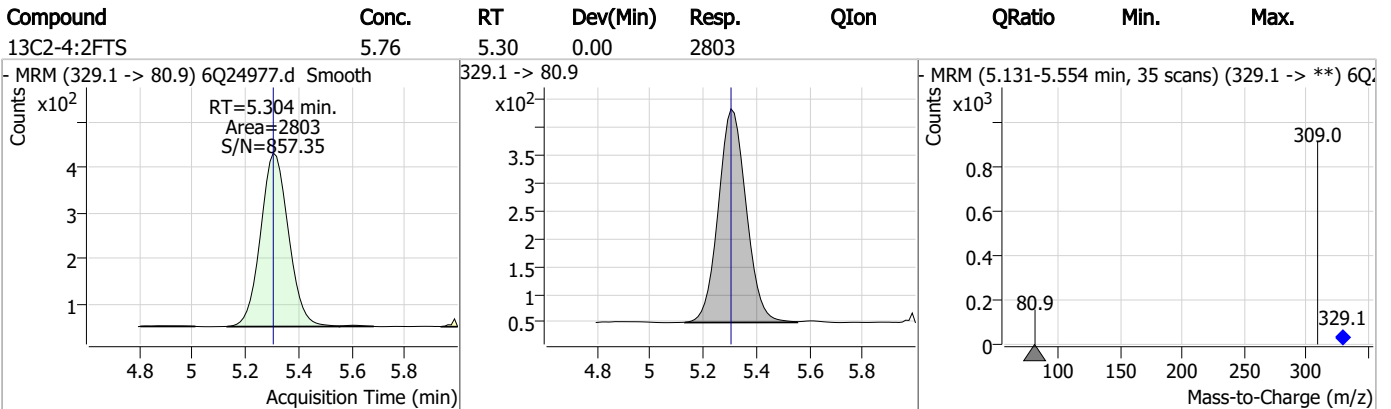
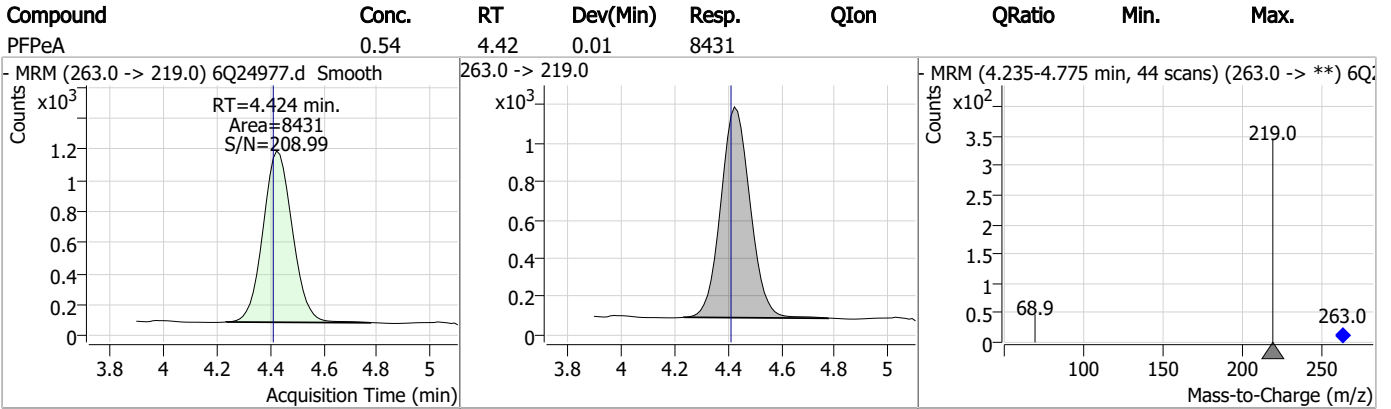
7.1.2
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Perfluorinated Compounds by LC/MS/MS



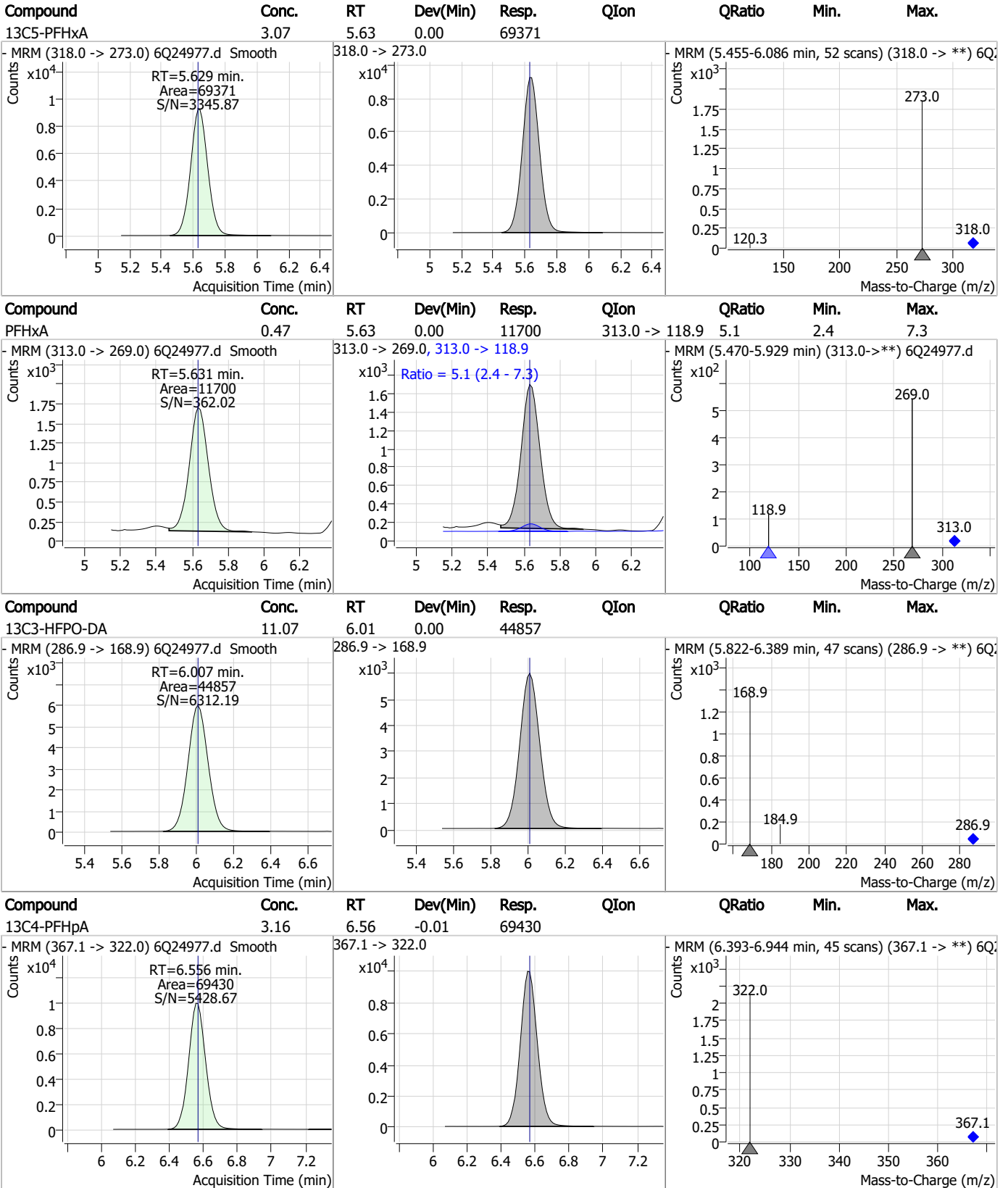
Perfluorinated Compounds by LC/MS/MS



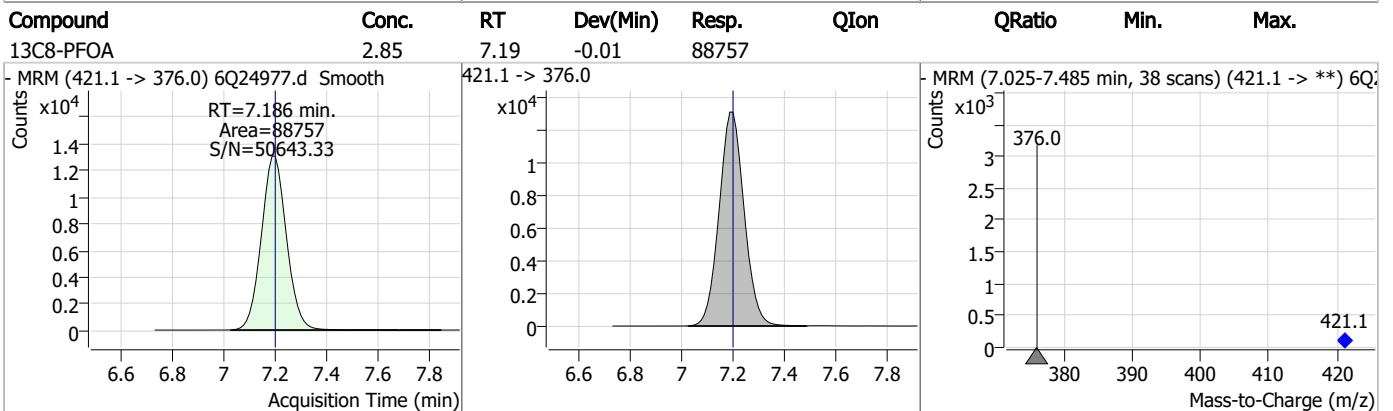
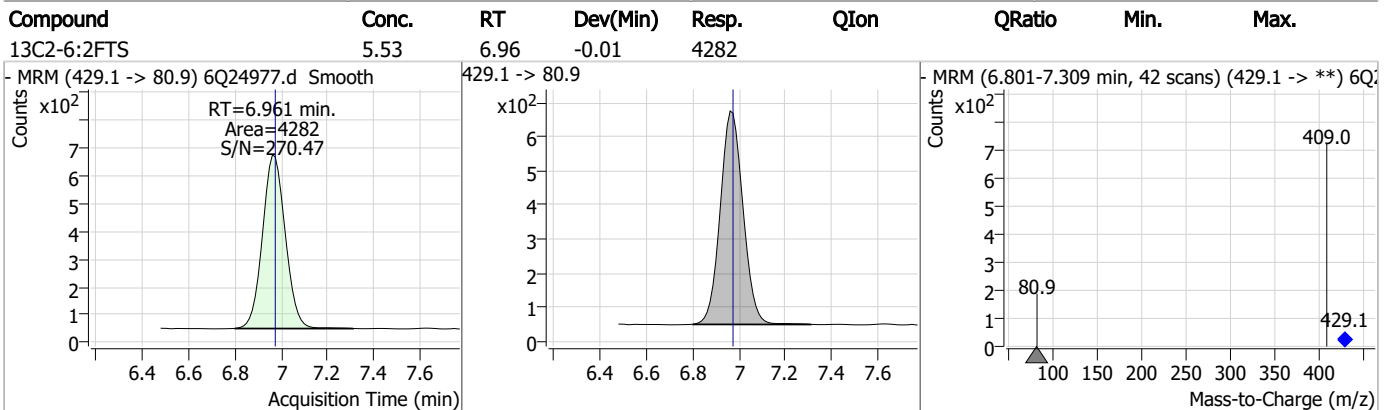
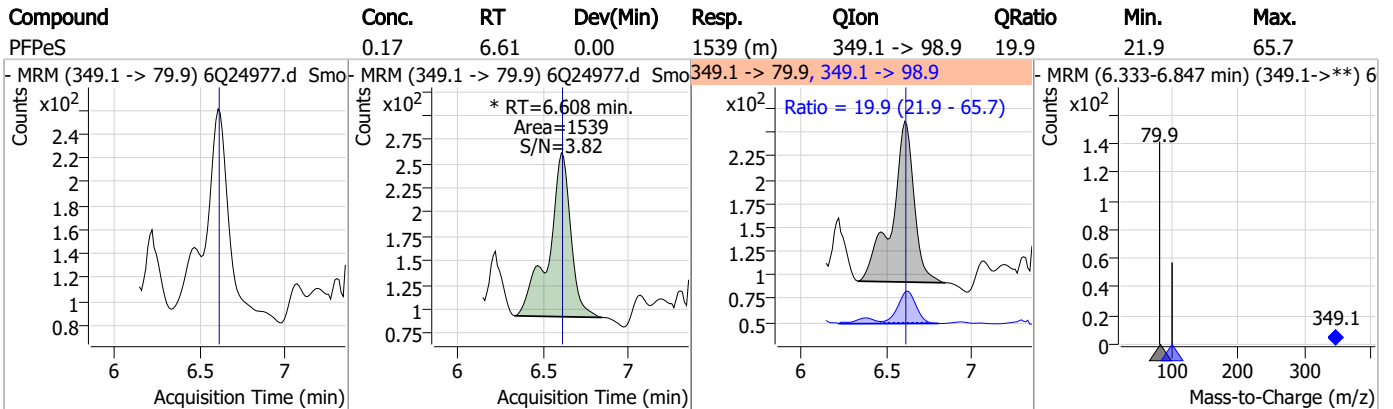
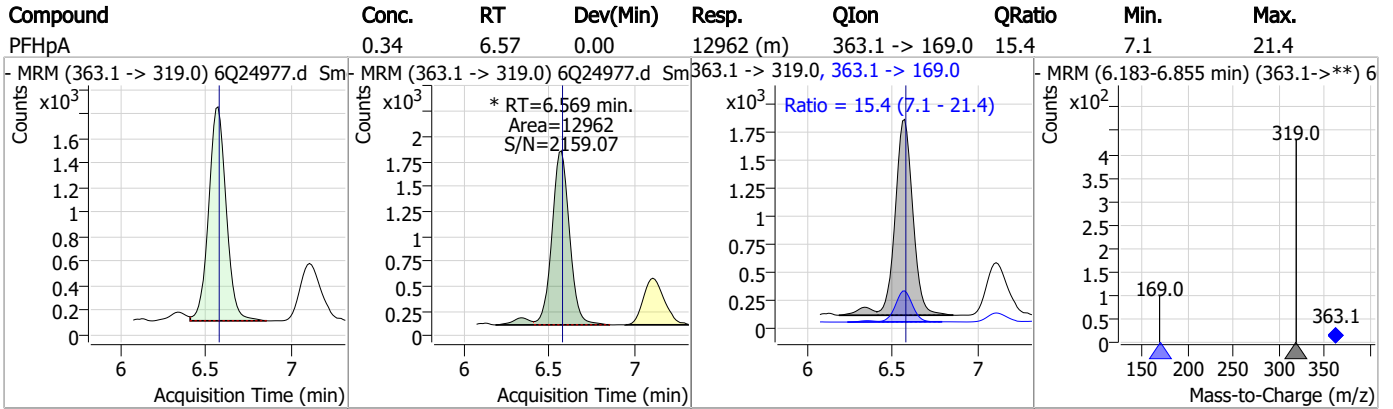
7.1.2

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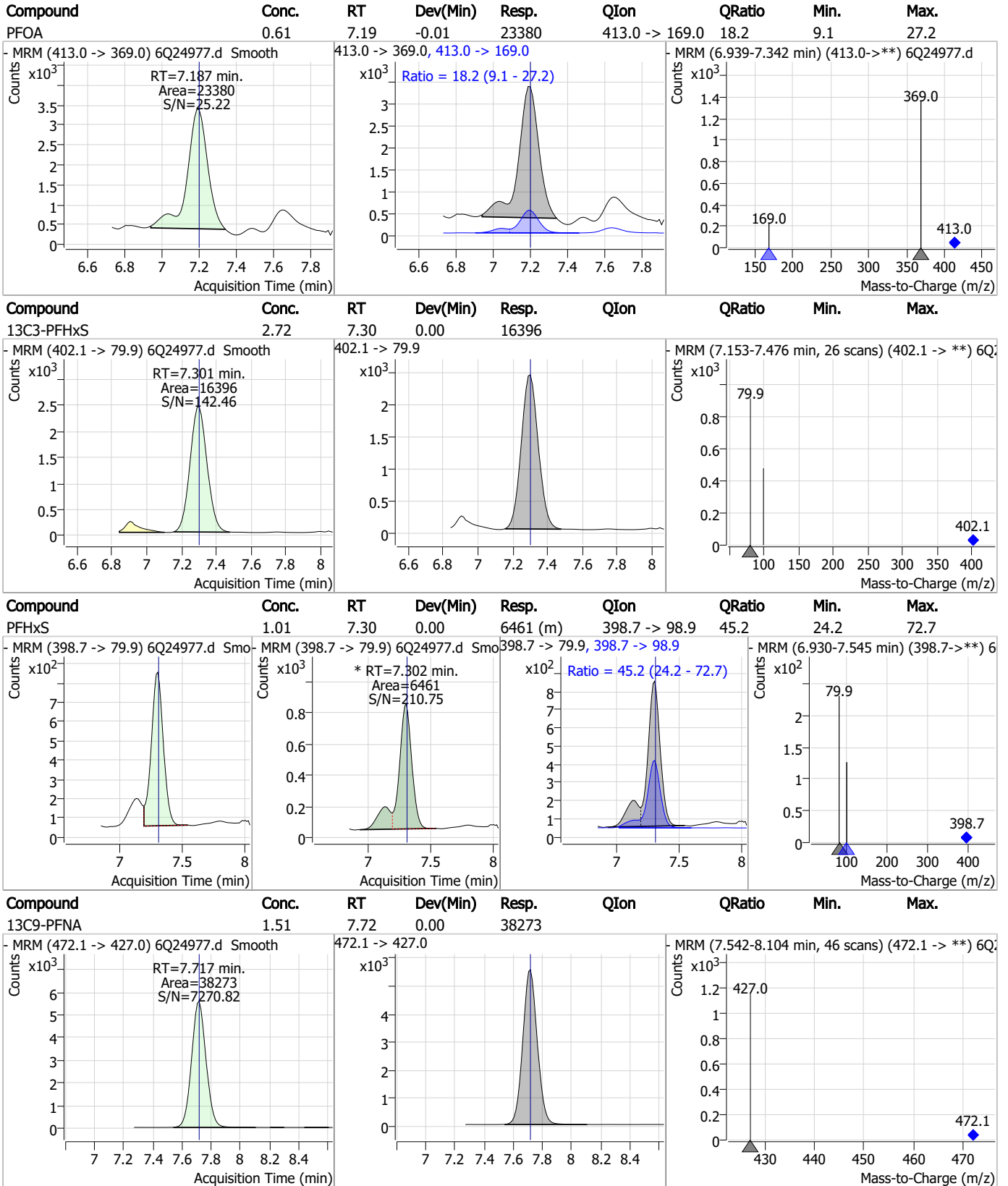
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



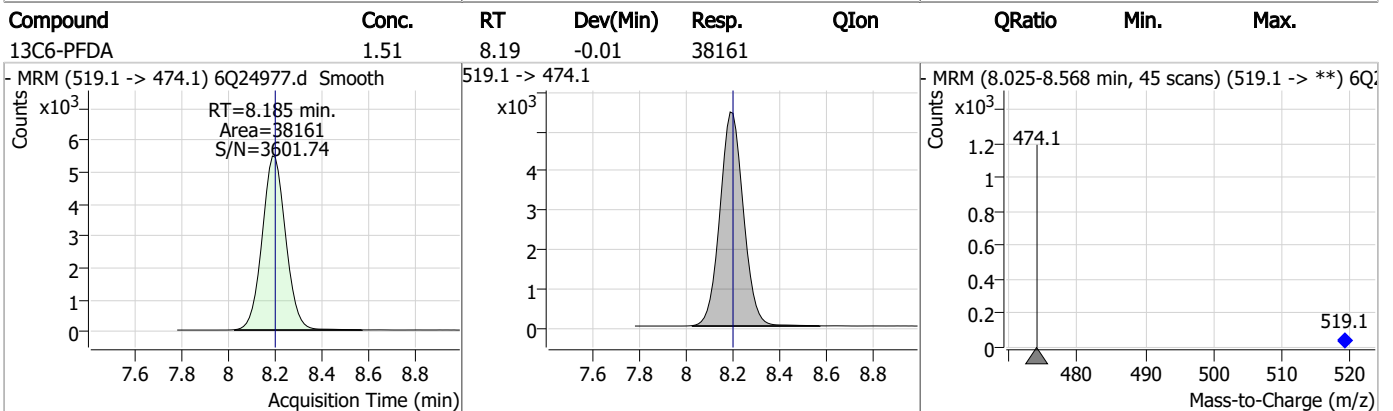
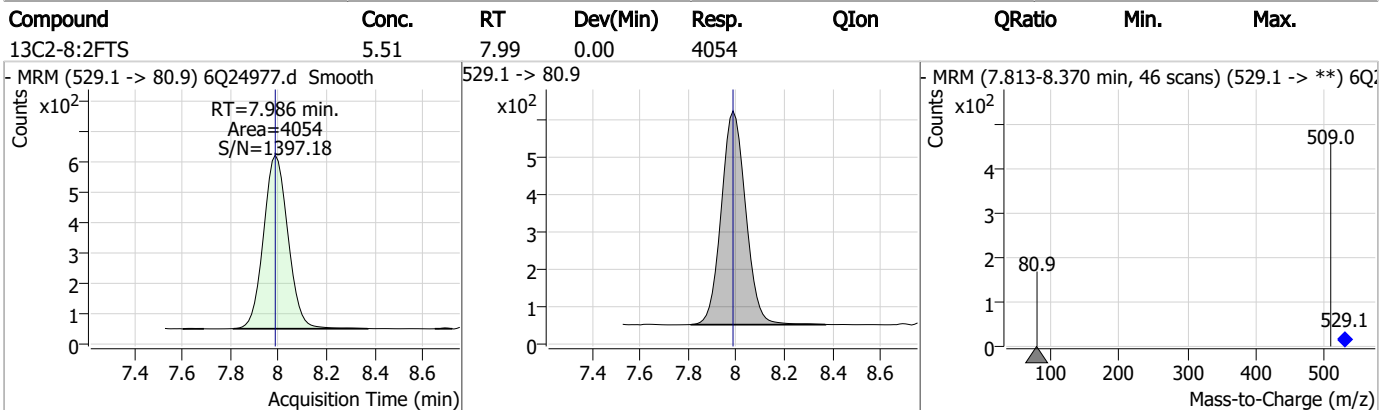
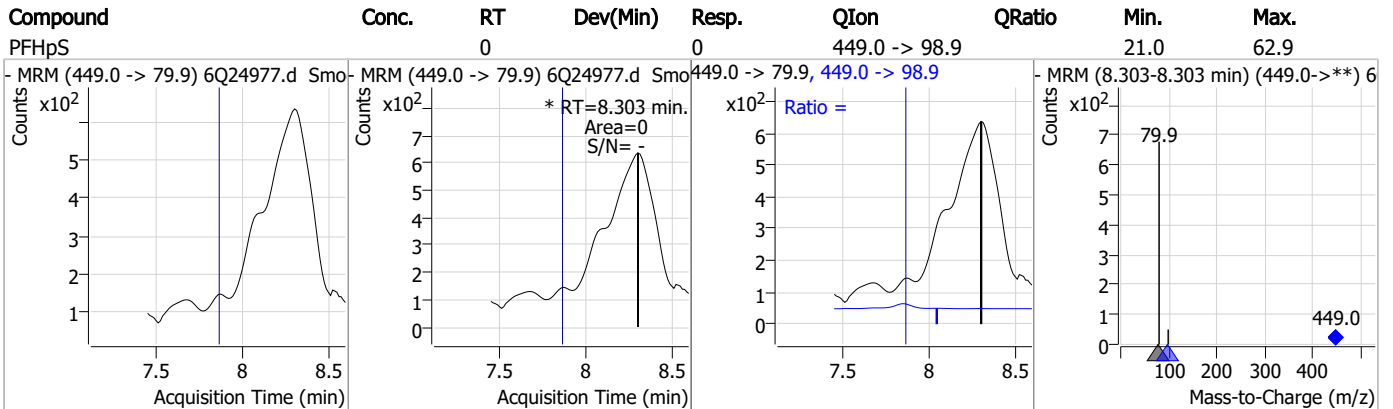
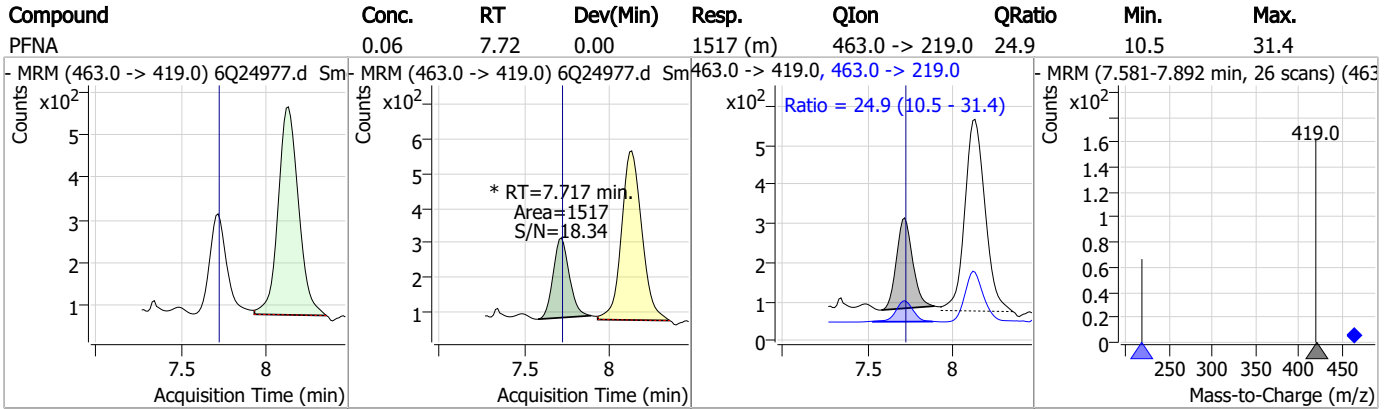
Perfluorinated Compounds by LC/MS/MS



7.1.2

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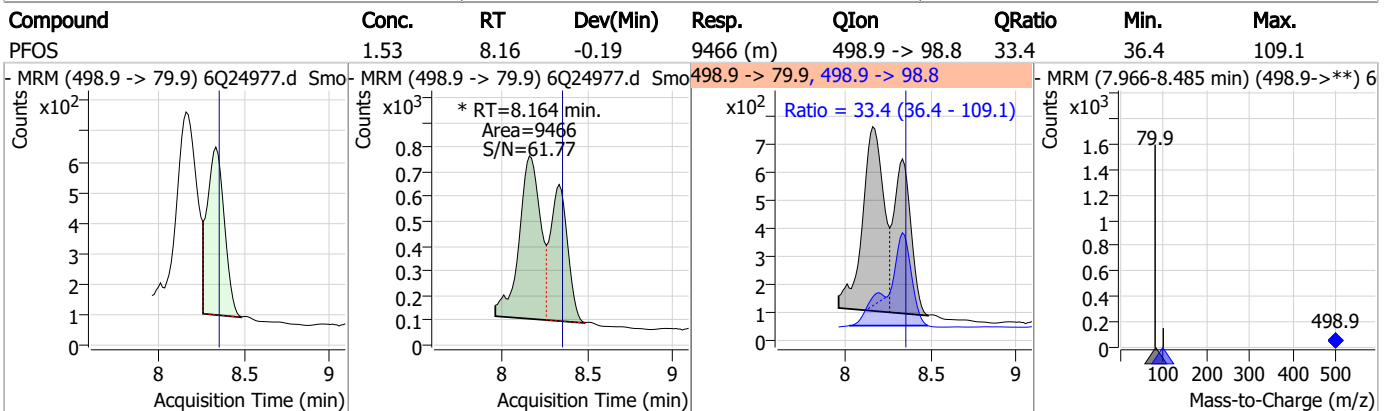
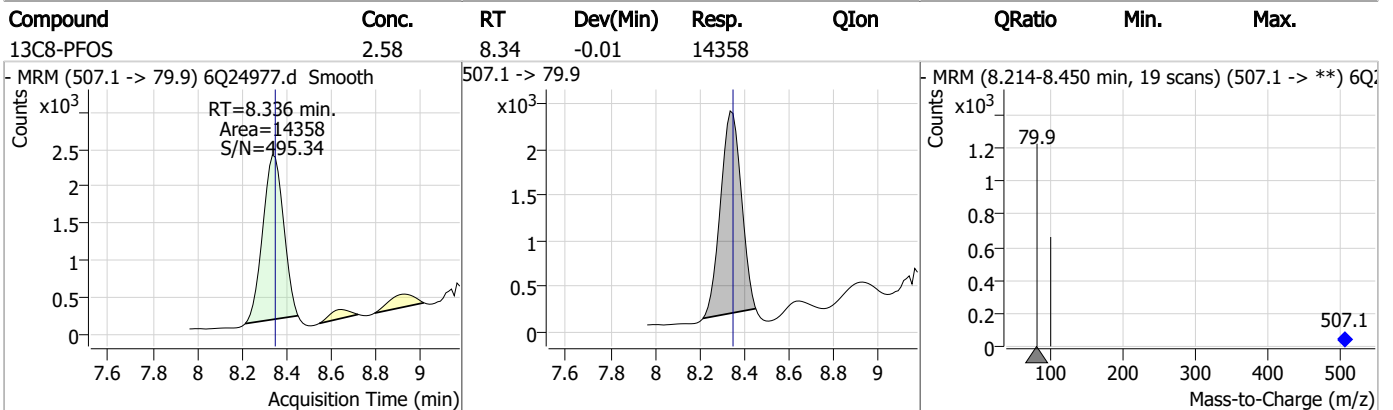
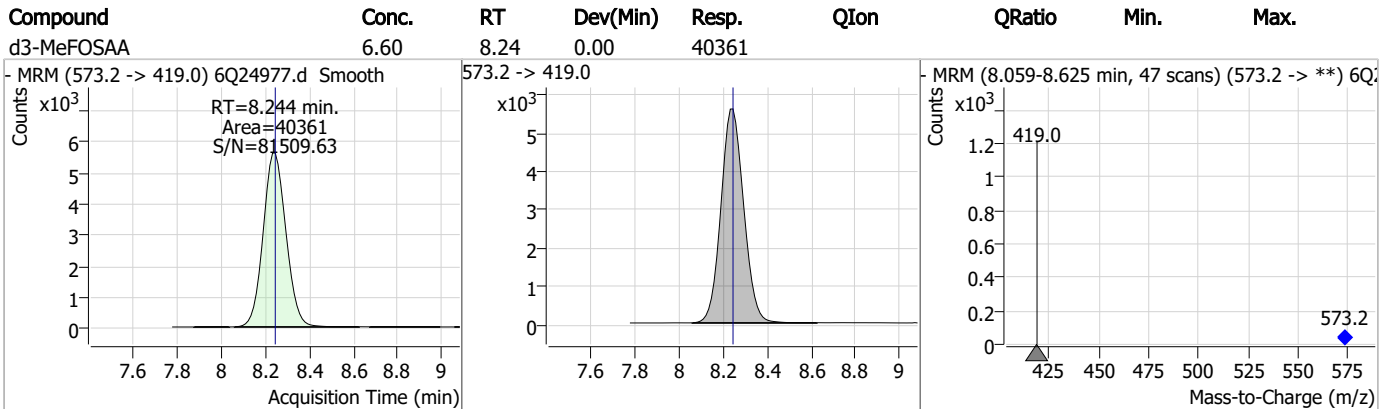
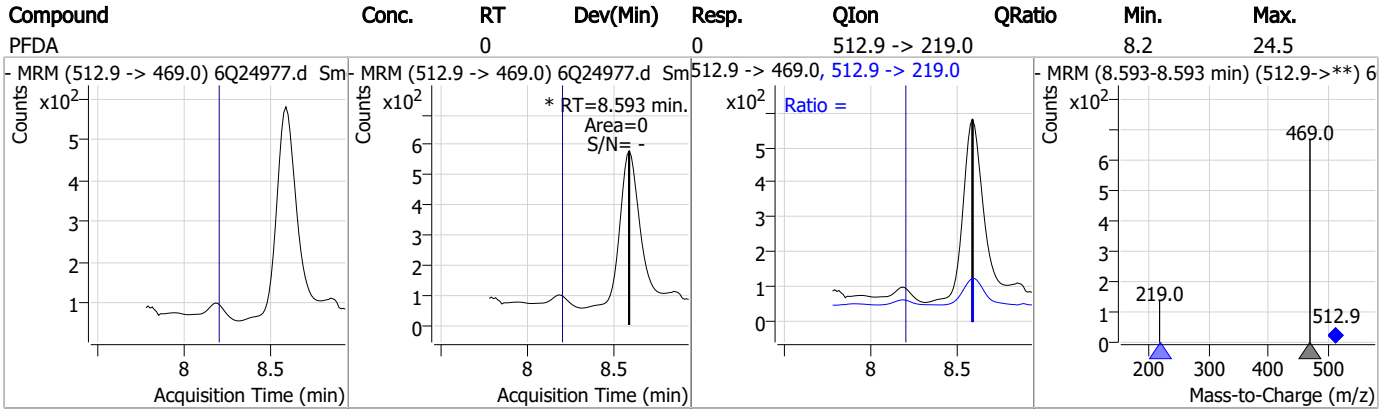
Perfluorinated Compounds by LC/MS/MS



7.12
7



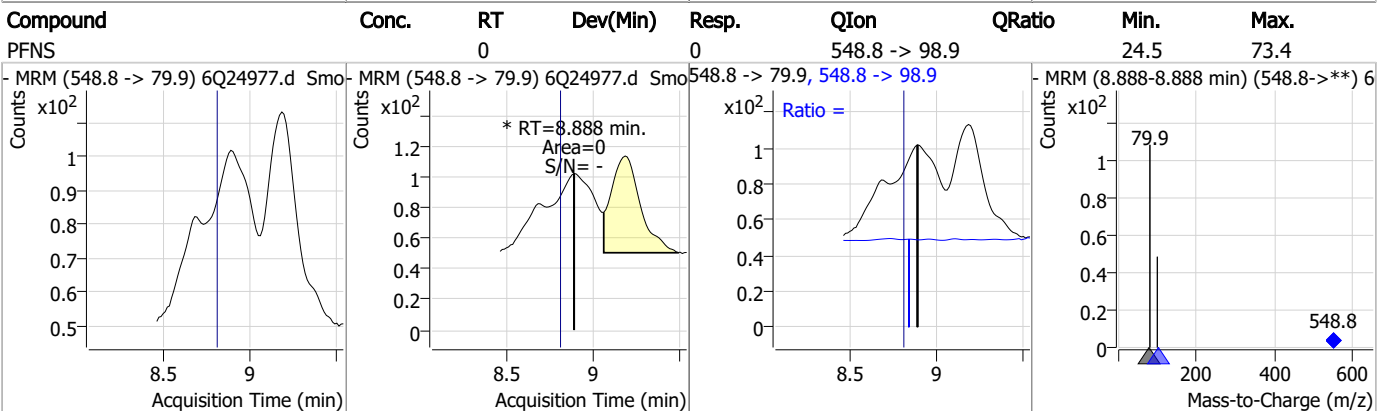
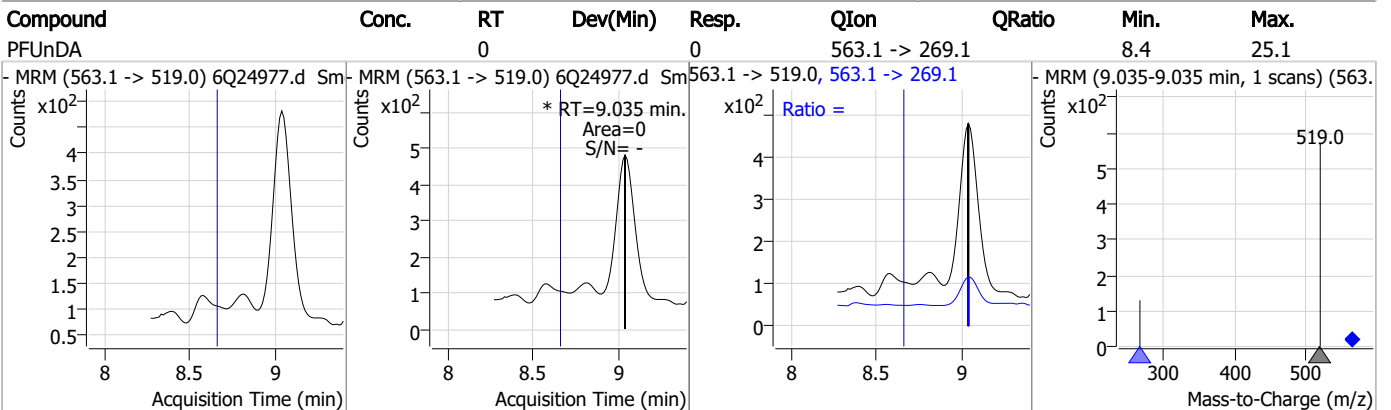
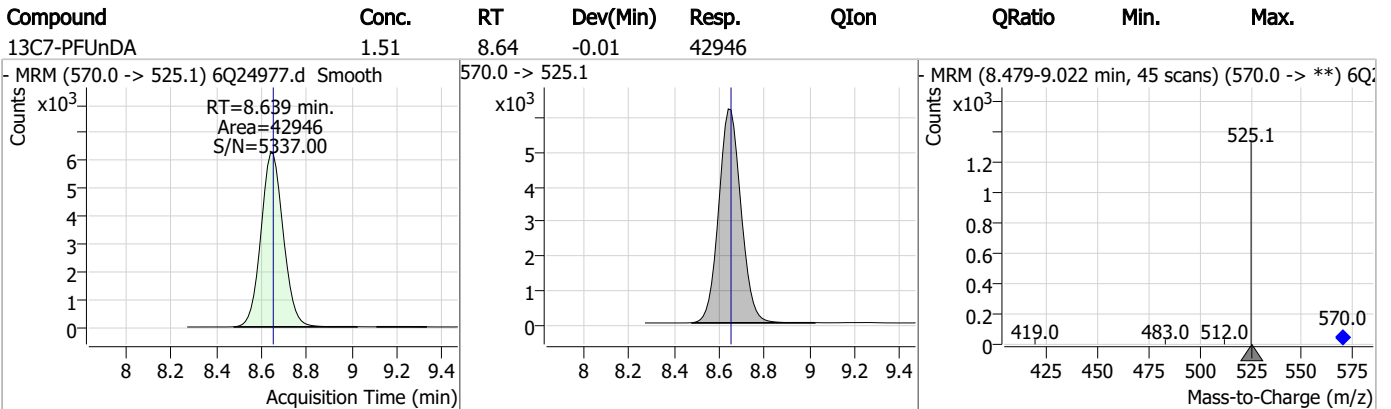
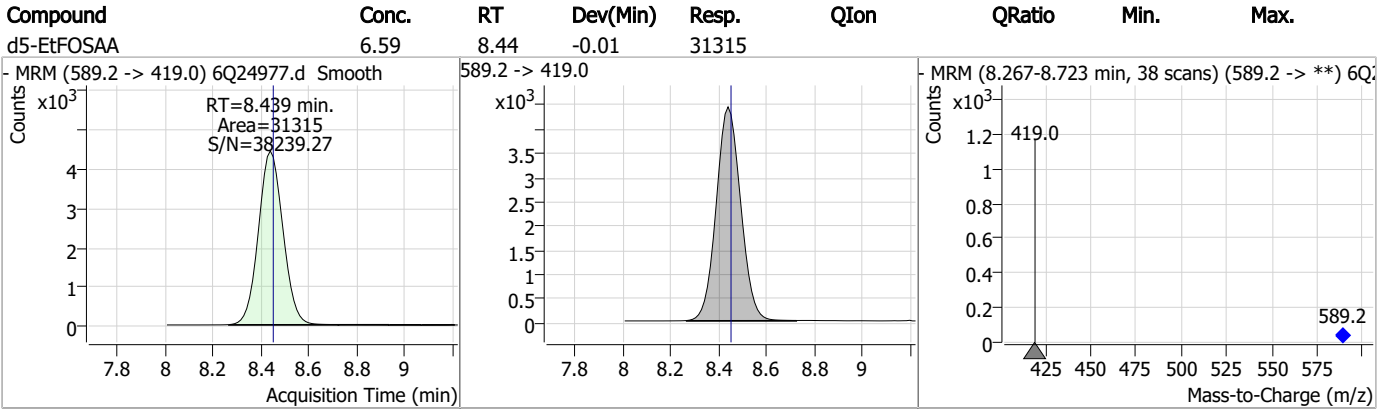
Perfluorinated Compounds by LC/MS/MS



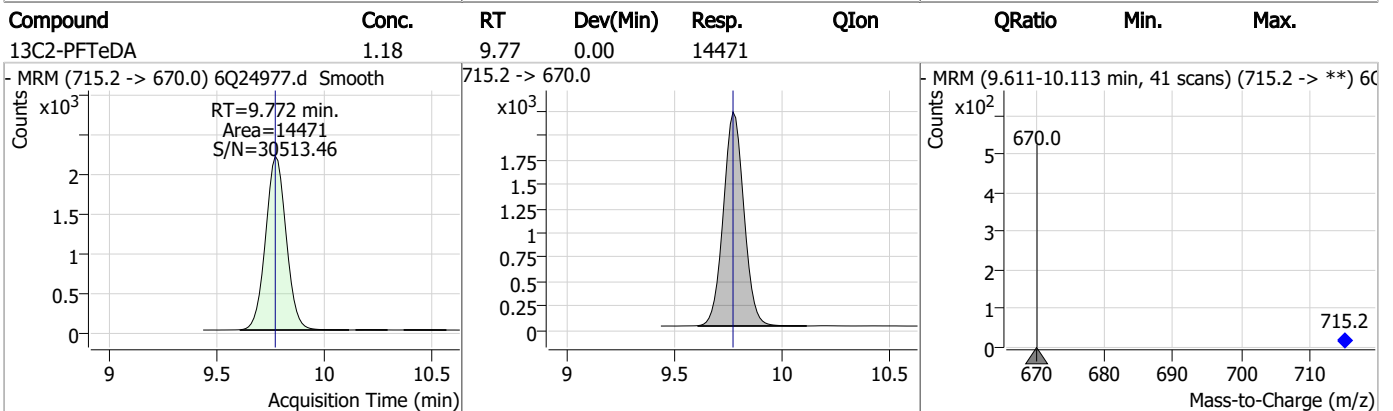
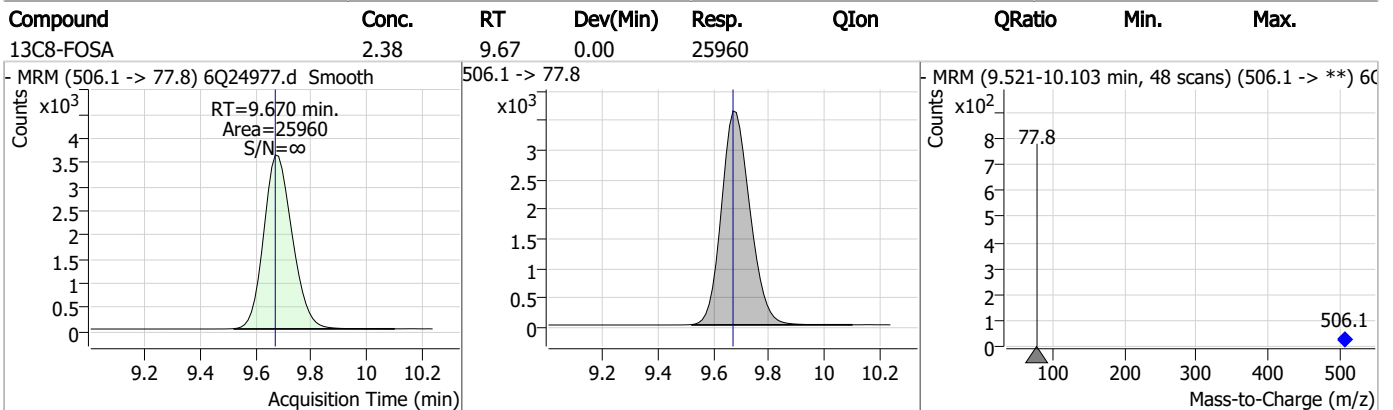
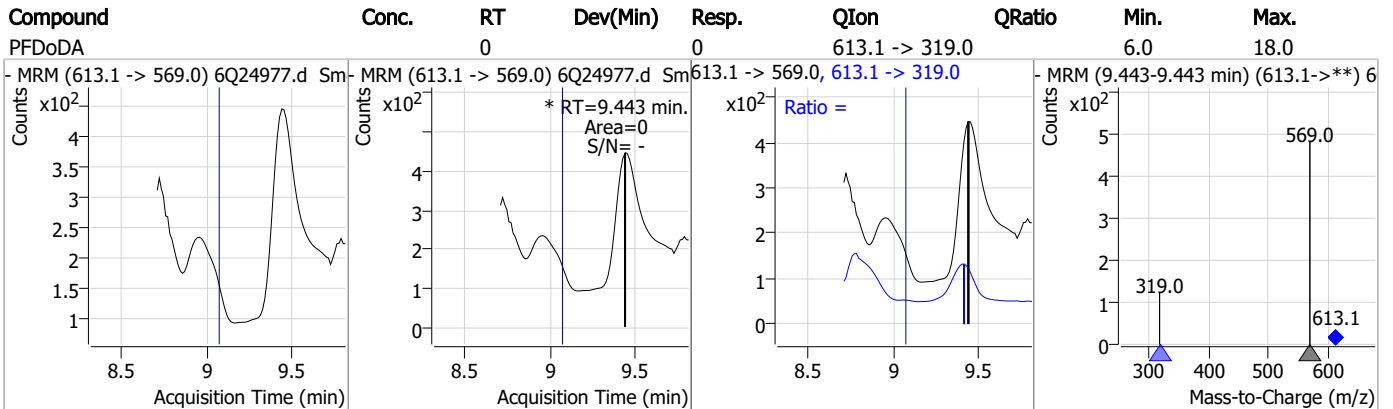
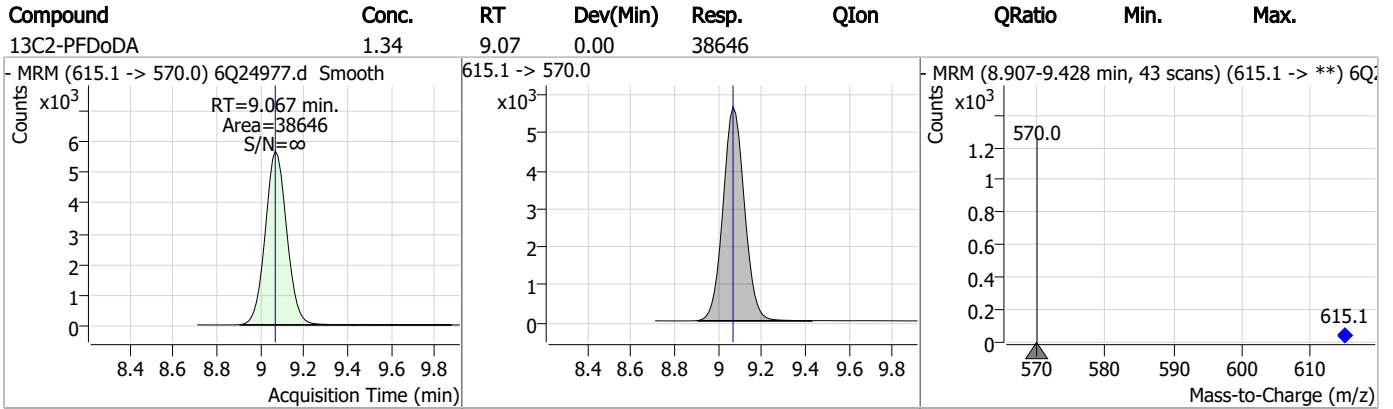
7.1.2

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Perfluorinated Compounds by LC/MS/MS

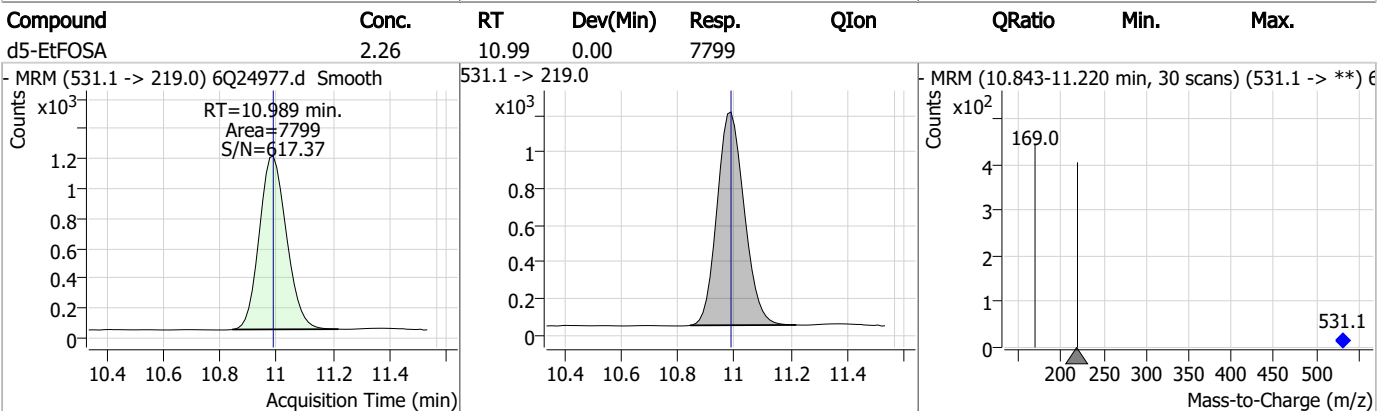
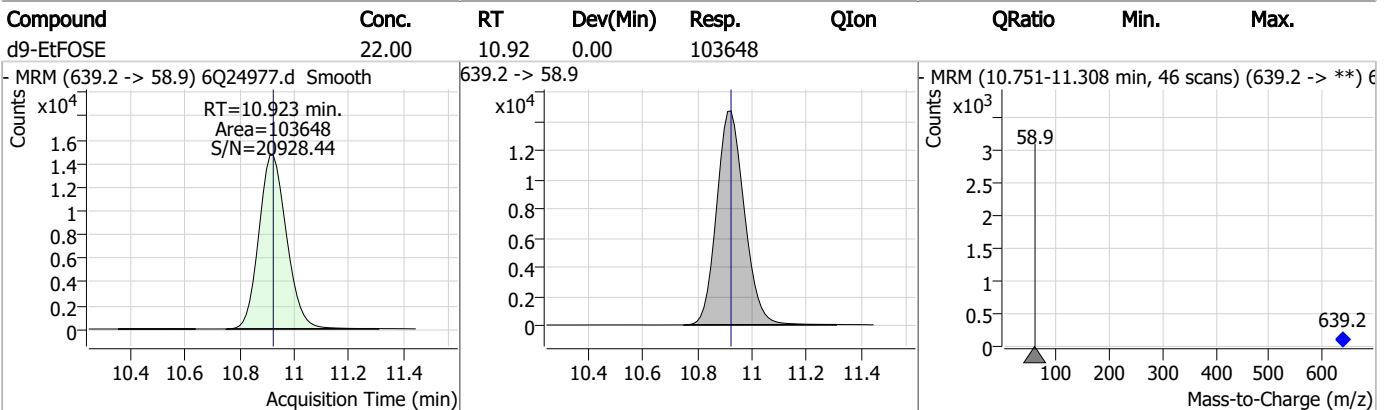
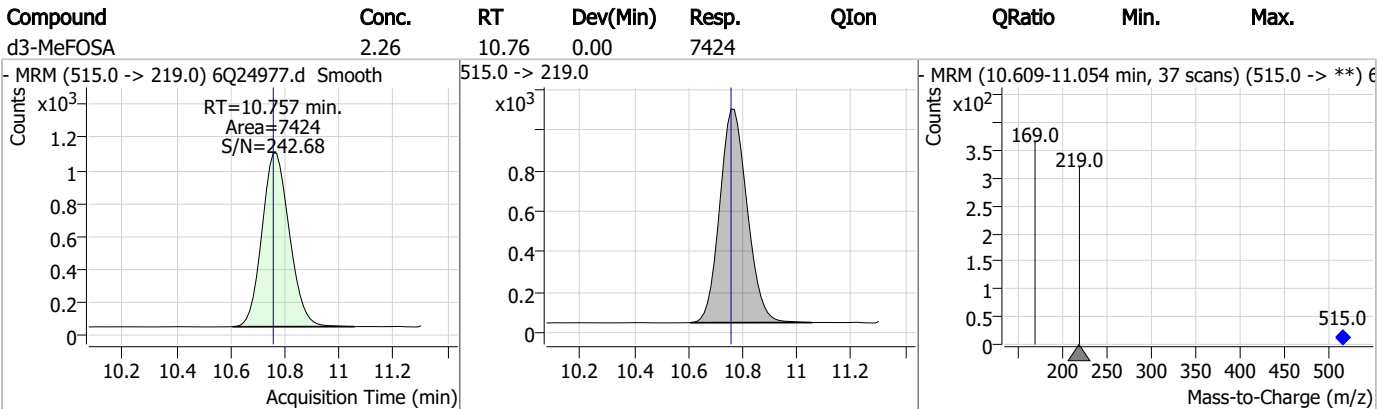
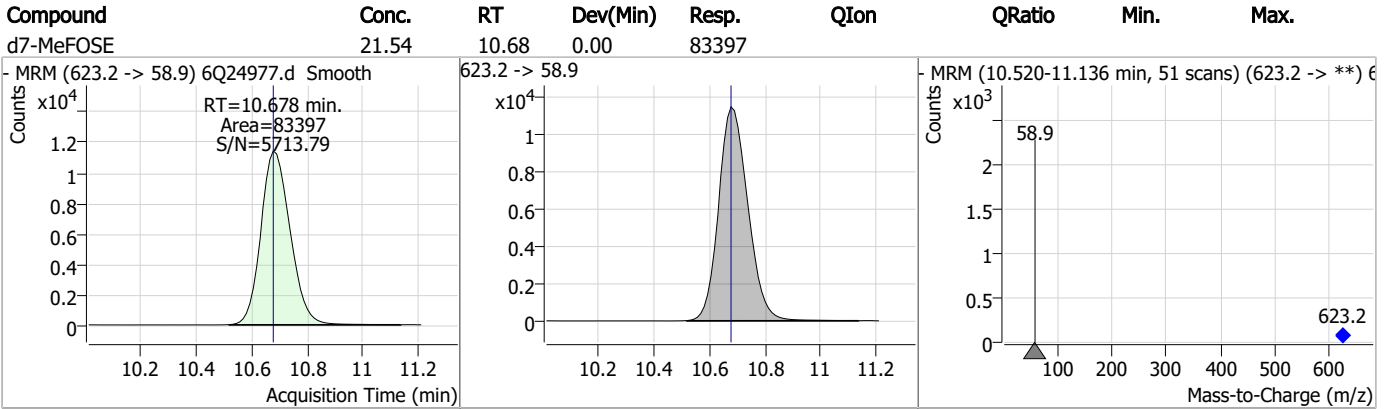


Perfluorinated Compounds by LC/MS/MS



7.12
7

Perfluorinated Compounds by LC/MS/MS



Manual Integration Approval Summary

Sample Number: FC9720-2
Lab FileID: 6Q24977.D
Injection Time: 09/25/23 04:50

Method: EPA DRAFT 1633
Analyst approved: 09/25/23 16:02 Martha Valls
Supervisor approved: 09/26/23 14:29 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorobutanesulfonic acid	375-73-5		5.56	Split peak
Perfluoroheptanoic acid	375-85-9		6.57	Split peak
Perfluoropentanesulfonic acid	2706-91-4		6.61	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorononanoic acid	375-95-1		7.72	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.16	Split peak

7.1.2.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24973.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/25/2023 3:53:18 AM
 Sample Name : OP99128-MB
 Vial : P3-F5
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99128,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.010	216.8 -> 171.9	193080	10.00 µg/L	0.037
M5-PFPeA	4.422	268.3 -> 223.0	78871	5.00 µg/L	0.012
M5-PFHxA	5.641	318.0 -> 273.0	68980	2.50 µg/L	0.012
M4-PFHpA	6.569	367.1 -> 322.0	67955	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	88839	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	35149	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	36430	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	39416	1.25 µg/L	0.000
M2-PFDoDA	9.067	615.1 -> 570.0	40054	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	17380	1.25 µg/L	0.000
M8-FOSA	9.682	506.1 -> 77.8	19529	2.50 µg/L	0.012
M3-PFBS	5.559	302.1 -> 79.9	29746	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	17375	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	16621	2.50 µg/L	0.000
M2-4:2FTS	5.317	329.1 -> 80.9	2857	5.00 µg/L	0.012
M2-6:2FTS	6.974	429.1 -> 80.9	4754	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	4302	5.00 µg/L	0.012
M3-MeFOSAA	8.256	573.2 -> 419.0	35212	5.00 µg/L	0.012
M3-HFPO-DA	6.007	286.9 -> 168.9	47779	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	25261	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	66637	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	90493	25.00 µg/L	-0.012
M5-EtFOSA	10.989	531.1 -> 219.0	6935	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	6536	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	13152	2.50 µg/L	0.000
13C3-PFBA	3.001	216.0 -> 172.0	72270	5.00 µg/L	0.025
18O2-PFHxS	7.300	403.0 -> 83.9	9528	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	93390	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	30532	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	33262	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	57972	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2857	5.86 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.3%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4754	6.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 122.7%		
13C2-8:2FTS	7.998	529.1 -> 80.9	4302	5.84 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.7%		
13C2-PFDoDA	9.067	615.1 -> 570.0	40054	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 109.7%		
13C2-PFTeDA	9.772	715.2 -> 670.0	17380	1.40 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 112.4%		
13C3-PFBS	5.559	302.1 -> 79.9	29746	2.97 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 118.8%		
13C3-PFHxS	7.301	402.1 -> 79.9	17375	2.88 µg/L	0.000

7.2.1
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.3%	
13C4-PFBA	3.010	216.8 -> 171.9	193080	11.05 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 110.5%	
13C4-PFHpA	6.569	367.1 -> 322.0	67955	2.87 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.9%	
13C5-PFHxA	5.641	318.0 -> 273.0	68980	2.83 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.2%	
13C5-PFPeA	4.422	268.3 -> 223.0	78871	5.75 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 114.9%	
13C6-PFDA	8.198	519.1 -> 474.1	36430	1.42 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.6%	
13C7-PFUnDA	8.651	570.0 -> 525.1	39416	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.9%	
13C8-FOSA	9.682	506.1 -> 77.8	19529	1.76 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 70.2%	
13C8-PFOA	7.198	421.1 -> 376.0	88839	2.74 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.8%	
13C8-PFOS	8.348	507.1 -> 79.9	16621	2.93 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 117.1%	
13C9-PFNA	7.717	472.1 -> 427.0	35149	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.2%	
d3-MeFOSAA	8.256	573.2 -> 419.0	35212	5.65 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 113.0%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	47779	10.94 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 109.4%	
d3-MeFOSA	10.757	515.0 -> 219.0	6536	1.95 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 78.2%	
d5-EtFOSAA	8.452	589.2 -> 419.0	25261	5.22 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.3%	
d7-MeFOSE	10.678	623.2 -> 58.9	66637	16.89 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 67.6%	
d9-EtFOSE	10.911	639.2 -> 58.9	90493	18.85 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 75.4%	
d5-EtFOSA	10.989	531.1 -> 219.0	6935	1.97 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 78.8%	

7.2.1
7

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	8.593	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	0		
PFDODA	9.443	613.1 -> 569.0	0	µg/L m	1
		613.1 -> 319.0	0		
PFDS	-	599.0 -> 79.9	-	N.D.	



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	7.118	599.0 -> 98.8				
		363.1 -> 319.0	0	µg/L	m	1
PFHpS	-	363.1 -> 169.0	0			
		449.0 -> 79.9	-	N.D.		
PFHxA	-	449.0 -> 98.9				
		313.0 -> 269.0	-	N.D.		
PFHxS	-	313.0 -> 118.9				
		398.7 -> 79.9	-	N.D.		
PFNA	8.129	398.7 -> 98.9				
		463.0 -> 419.0	0	µg/L	m	1
PFNS	-	463.0 -> 219.0	0			
		548.8 -> 79.9	-	N.D.		
PFOA	7.648	548.8 -> 98.9				
		413.0 -> 369.0	0	µg/L	m	1
PFOS	-	413.0 -> 169.0	0			
		498.9 -> 79.9	-	N.D.		
PFPeA	-	498.9 -> 98.8				
		263.0 -> 219.0	-	N.D.		
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	9.035	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1	0			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0	-	N.D.		
MeFOSA	-	511.9 -> 169.0				
		616.1 -> 58.9	-	N.D.		
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9	-	N.D.		
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				
PFMPA	-					
PFEESA	-					

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

7.2.1
7

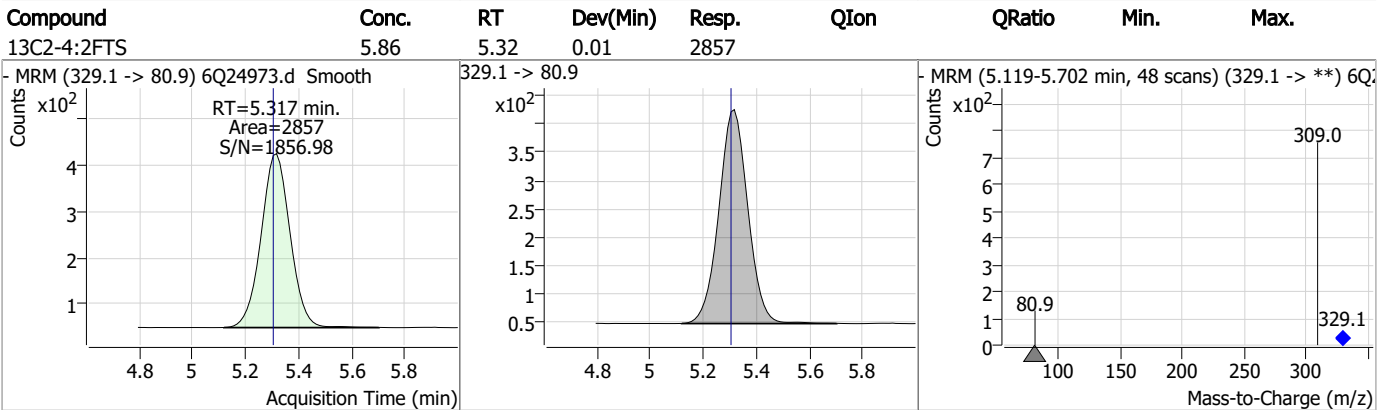
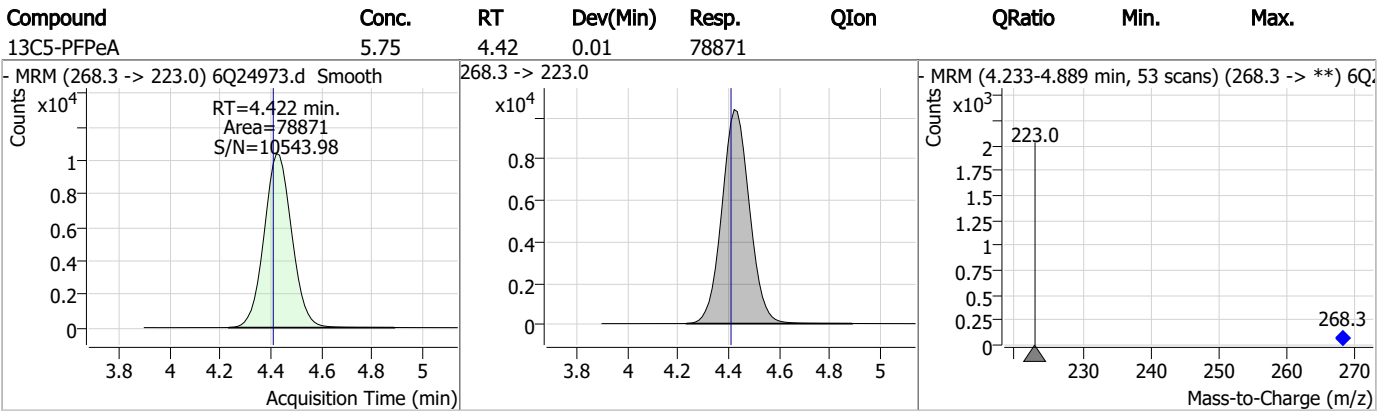
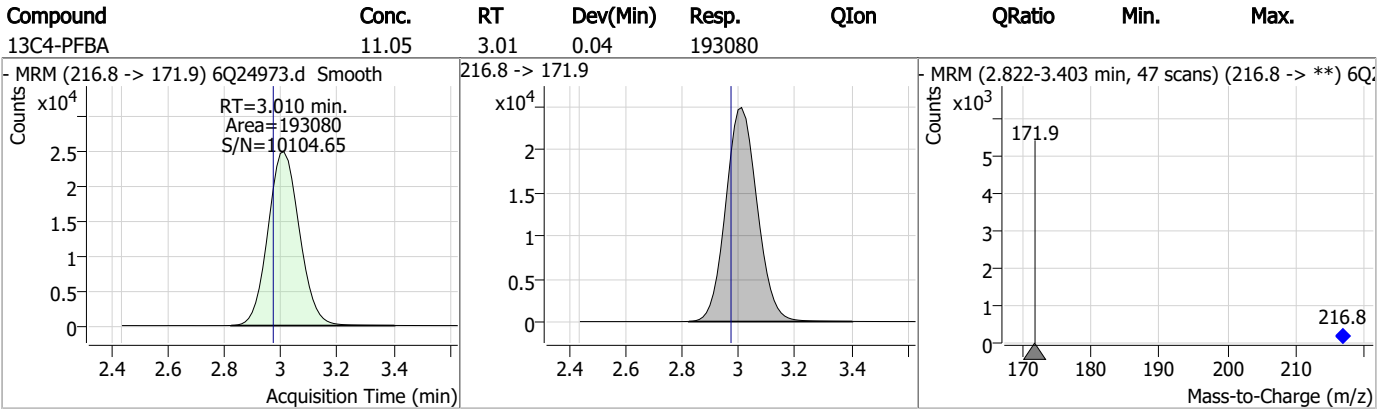
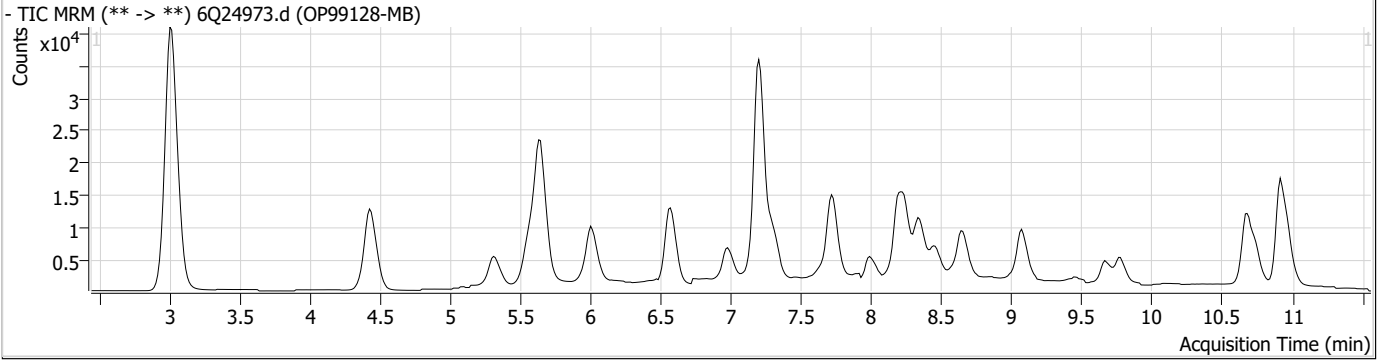
Perfluorinated Compounds by LC/MS/MS

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

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Perfluorinated Compounds by LC/MS/MS

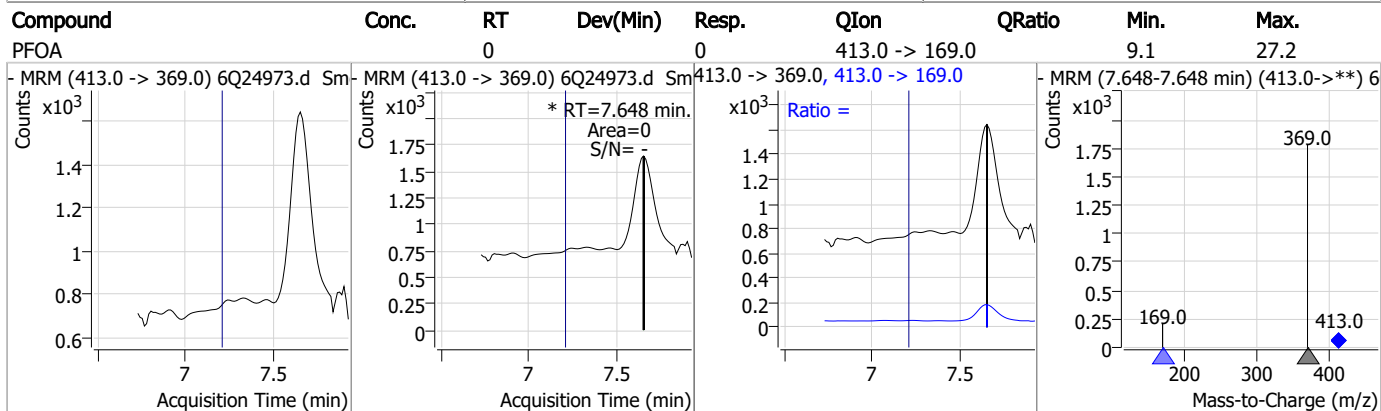
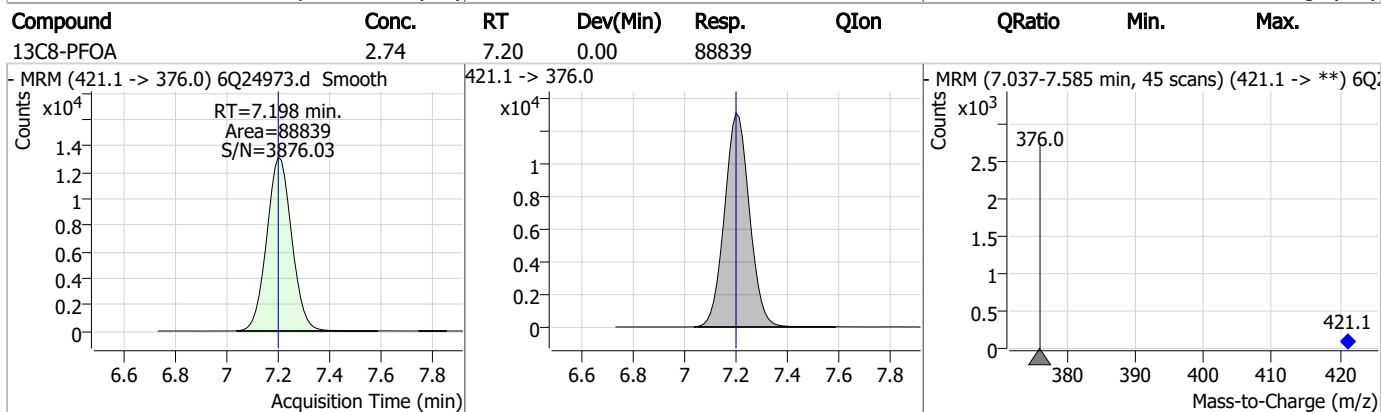
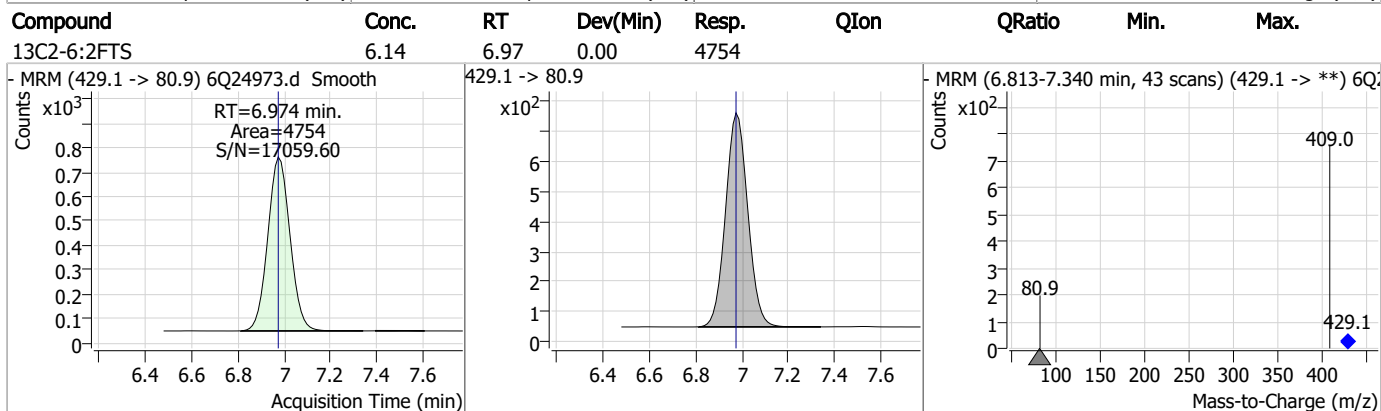
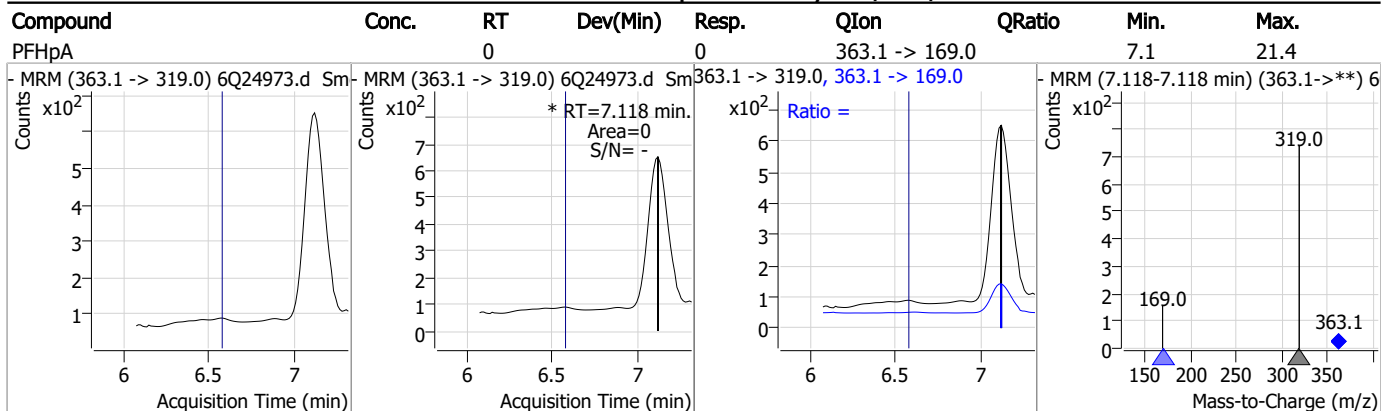


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.97	5.56	0.00	29746				
13C5-PFHxA	2.83	5.64	0.01	68980				
13C3-HFPO-DA	10.94	6.01	0.00	47779				
13C4-PFHpA	2.87	6.57	0.00	67955				

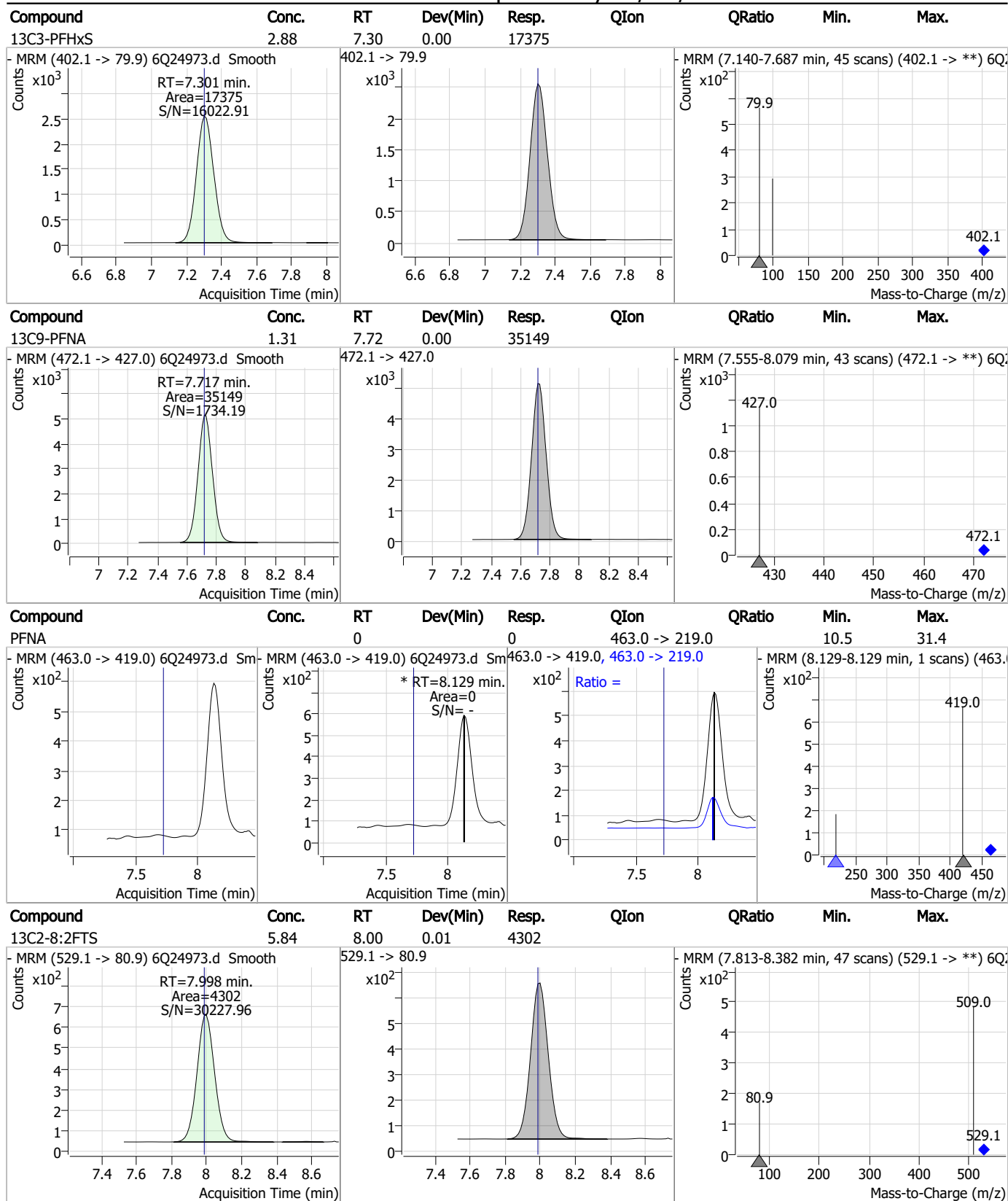
7.2.1
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Perfluorinated Compounds by LC/MS/MS



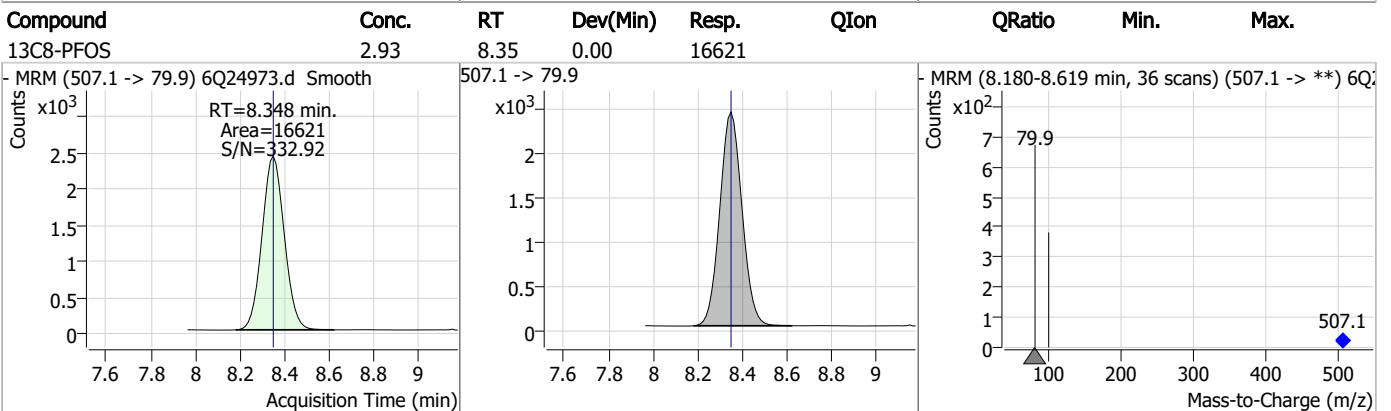
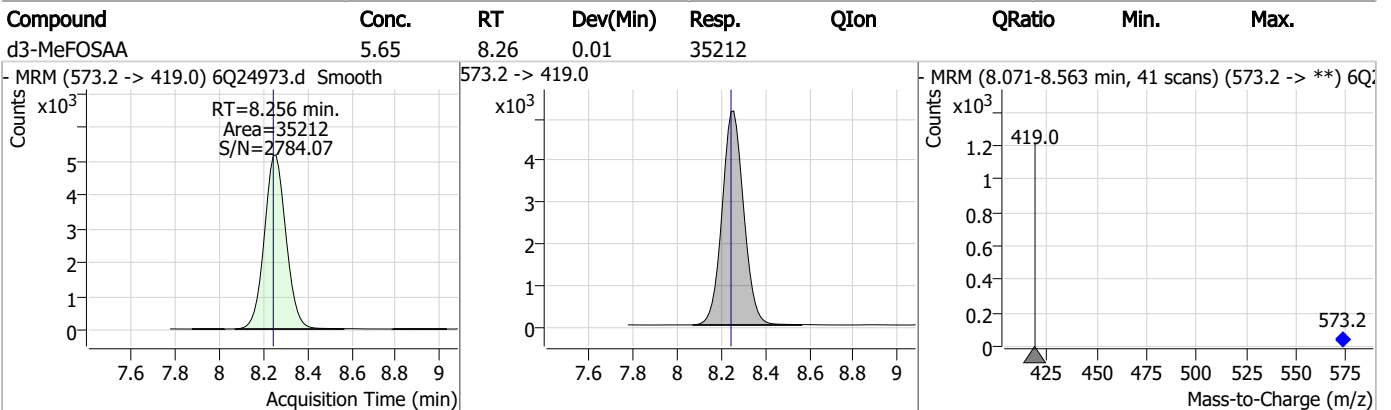
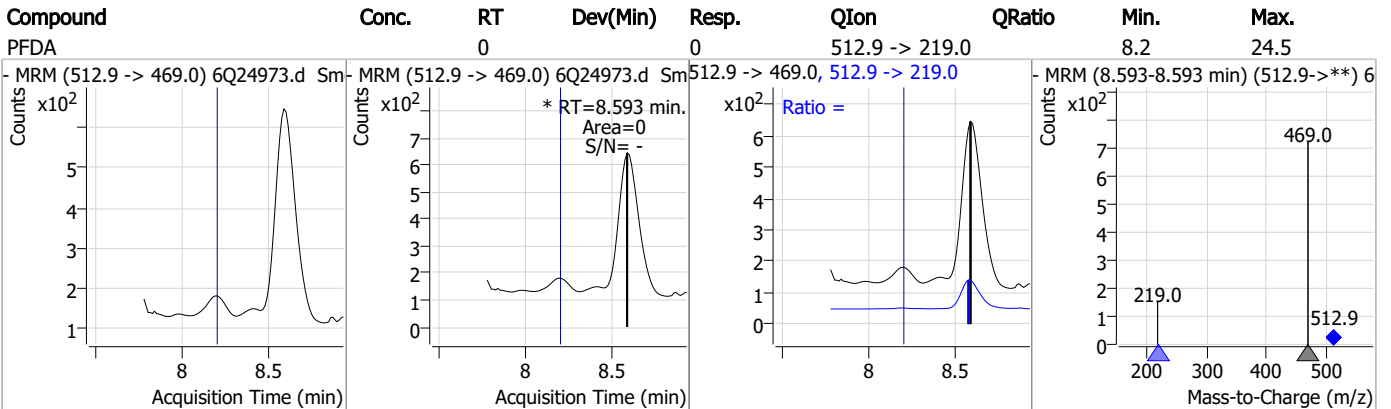
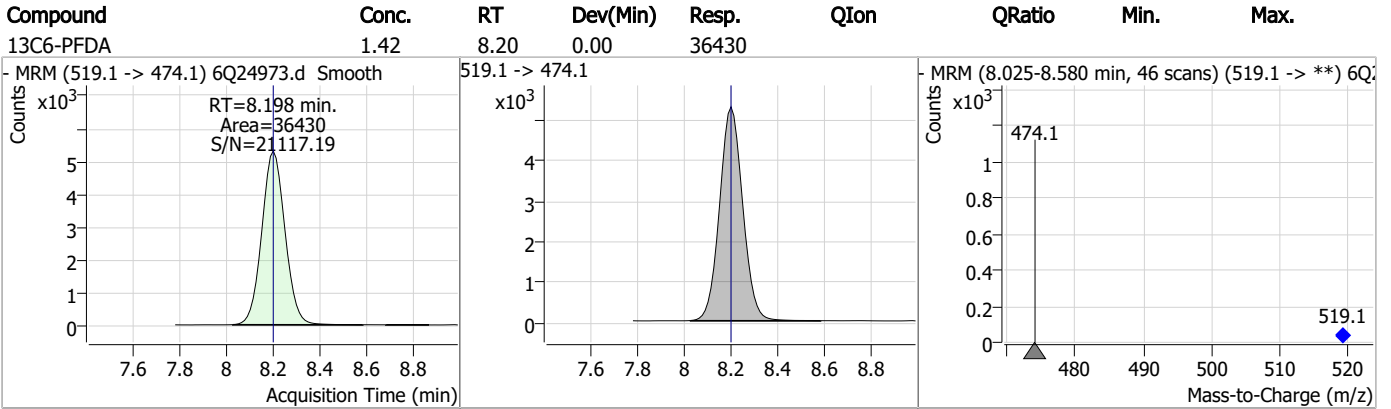
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Perfluorinated Compounds by LC/MS/MS

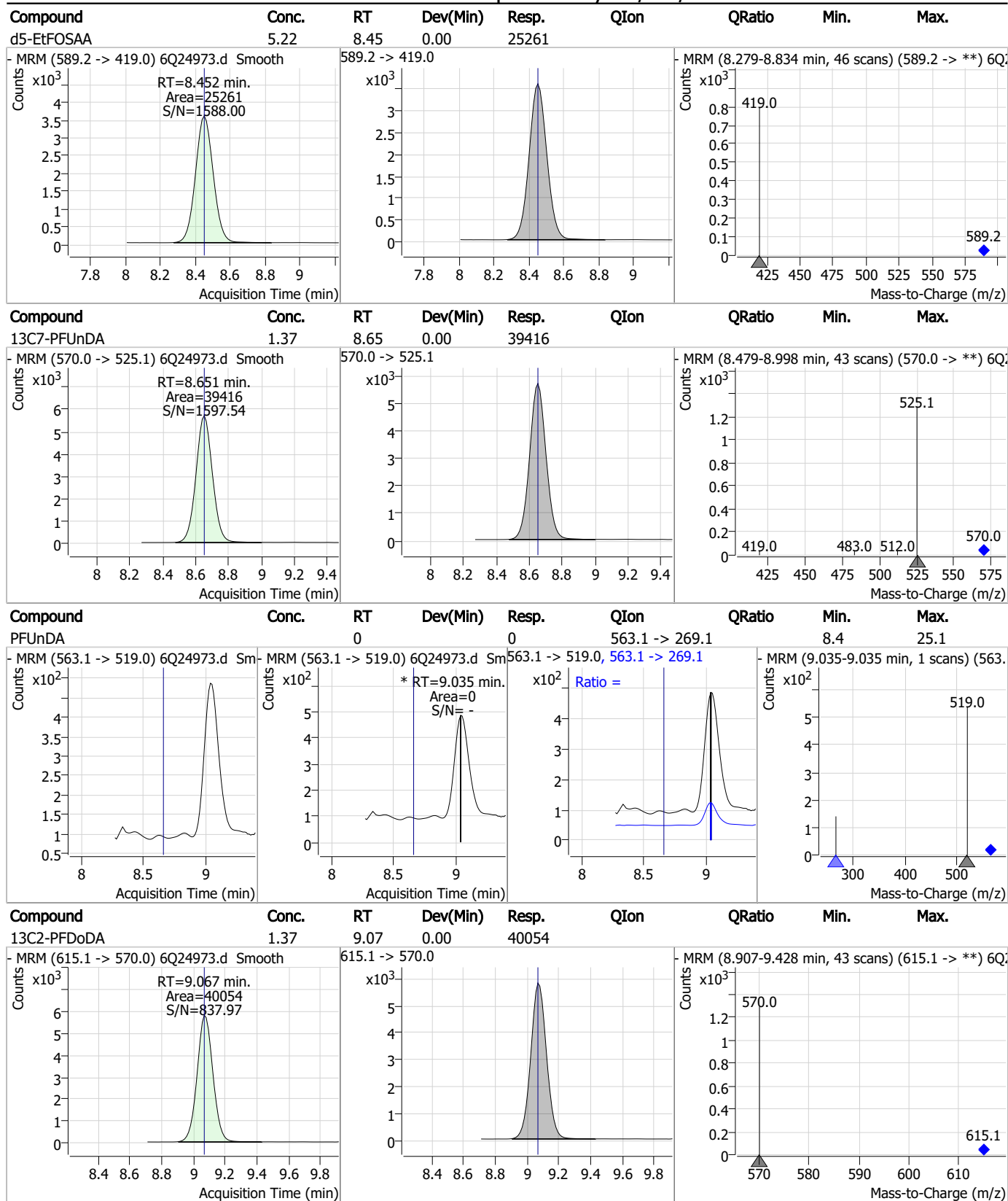


7.2.1
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Perfluorinated Compounds by LC/MS/MS

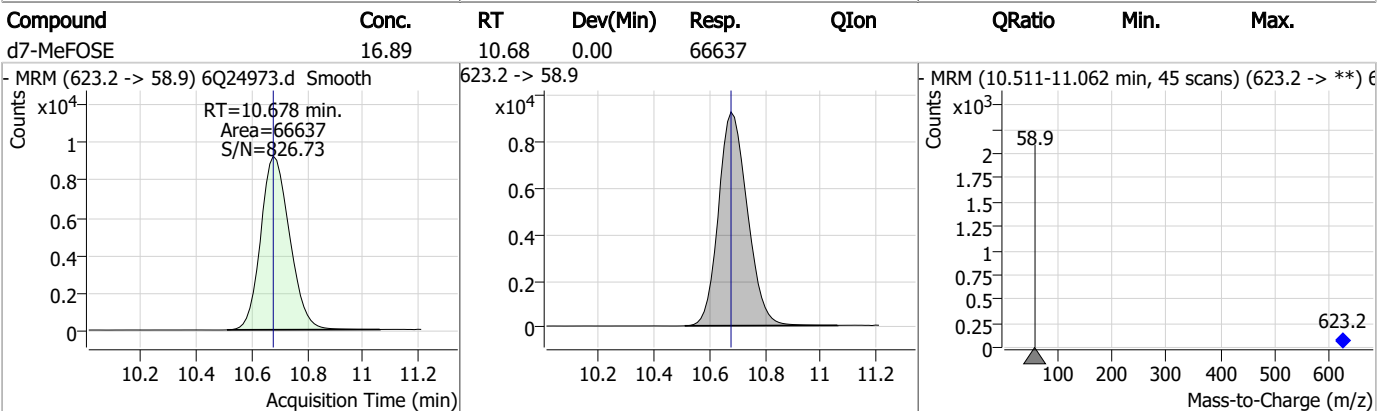
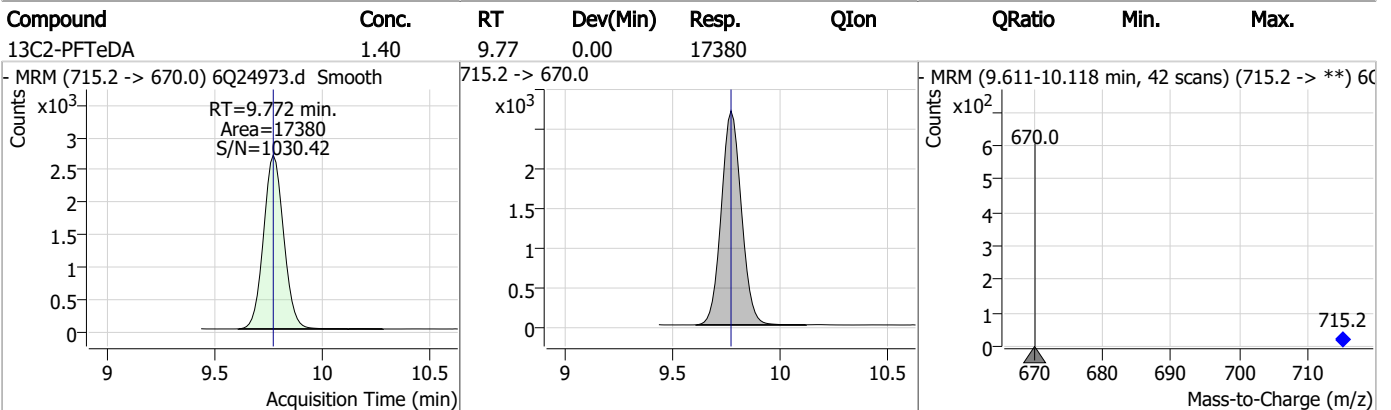
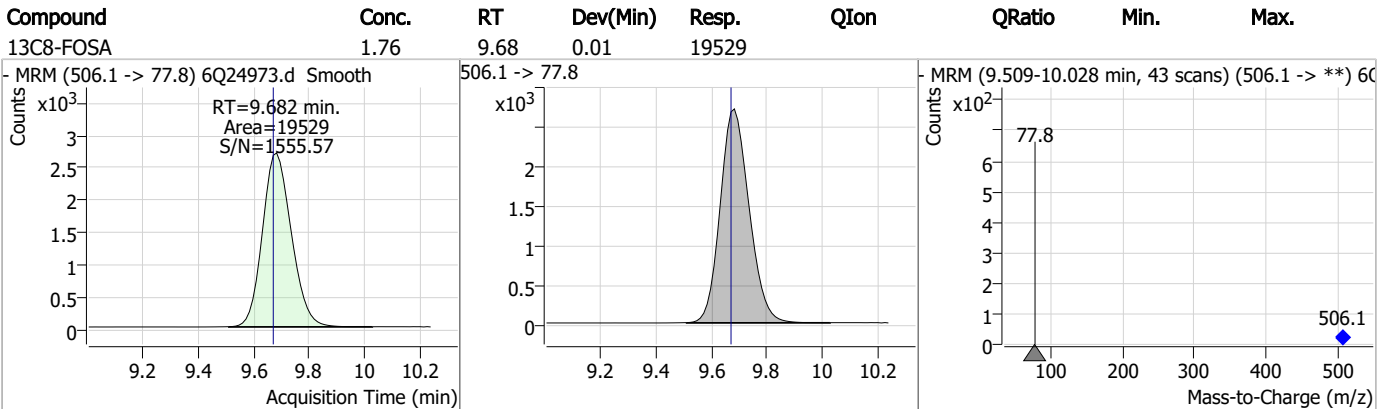
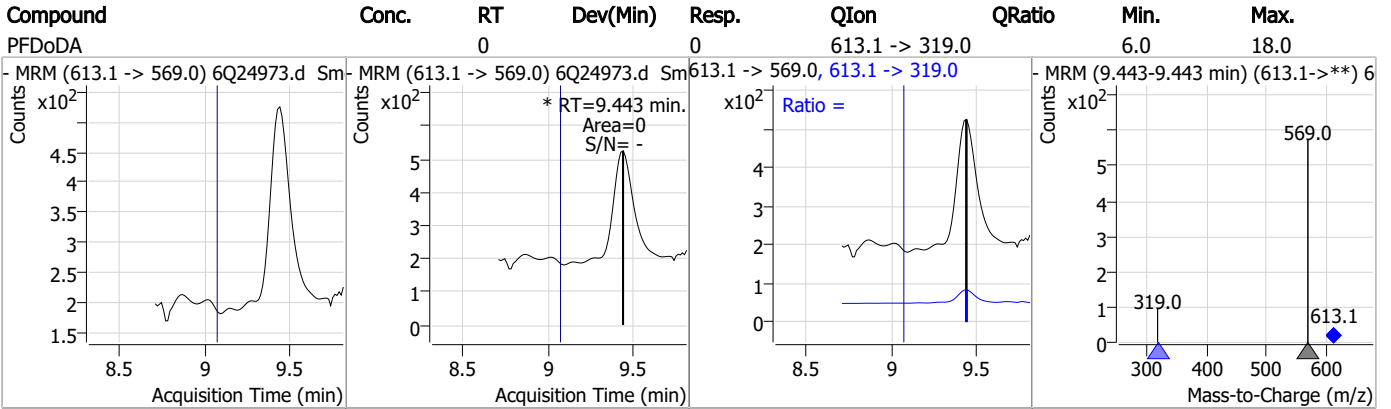


Perfluorinated Compounds by LC/MS/MS



7.2.1
7

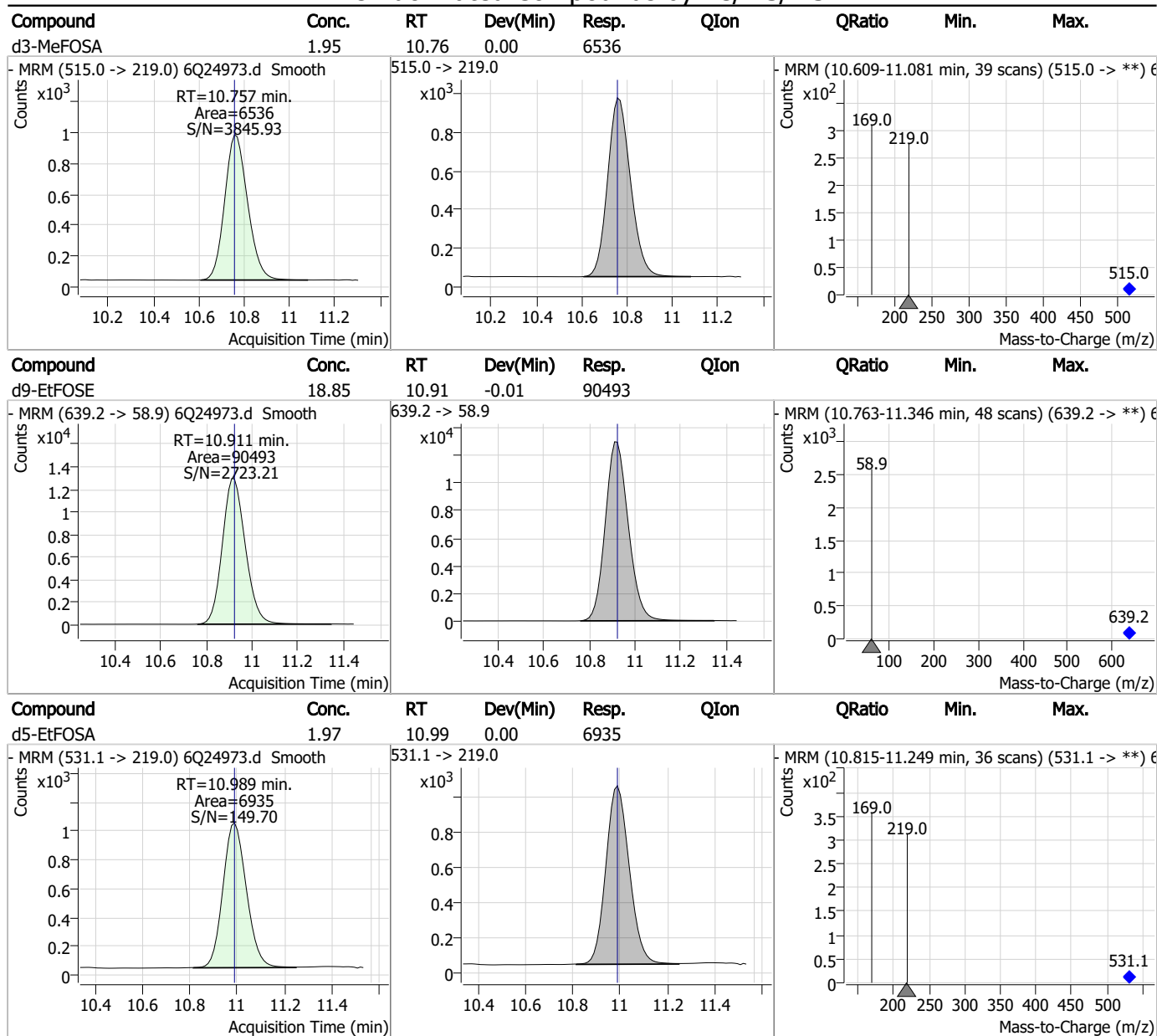
Perfluorinated Compounds by LC/MS/MS



7.2.1

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Perfluorinated Compounds by LC/MS/MS



7.2.1
7



Perfluorinated Compounds by LC/MS/MS

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 Acq. Method : 1633full.m
 Acq. Date-Time : 9/24/2023 4:54:41 PM
 Sample Name : IBLK
 Vial : P1-A1
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	178842	10.00 µg/L	0.000
M5-PFPeA	4.422	268.3 -> 223.0	72872	5.00 µg/L	0.012
M5-PFHxA	5.629	318.0 -> 273.0	64087	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	64998	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	84825	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	34186	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	35331	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	38346	1.25 µg/L	0.000
M2-PFDoDA	9.067	615.1 -> 570.0	38149	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	15808	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	30626	2.50 µg/L	0.000
M3-PFBS	5.559	302.1 -> 79.9	26959	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	16819	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	16072	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	2886	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4586	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	4198	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	32653	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	45391	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	26685	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	106702	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	133196	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	9520	2.50 µg/L	0.000
M3-MeFOSA	10.769	515.0 -> 219.0	9183	2.50 µg/L	0.012
13C4-PFOS	8.349	502.8 -> 79.9	15036	2.50 µg/L	0.000
13C3-PFBA	2.976	216.0 -> 172.0	74208	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	10610	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	96748	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	32319	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	37444	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	61317	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2886	5.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.4%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4586	5.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.3%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4198	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.3%		
13C2-PFDoDA	9.067	615.1 -> 570.0	38149	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C2-PFTeDA	9.772	715.2 -> 670.0	15808	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C3-PFBS	5.559	302.1 -> 79.9	26959	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C3-PFHxS	7.301	402.1 -> 79.9	16819	2.50 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%		
13C4-PFBA	2.972	216.8 -> 171.9	178842	9.97	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.7%		
13C4-PFHpA	6.569	367.1 -> 322.0	64998	2.60	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.9%		
13C5-PFHxA	5.629	318.0 -> 273.0	64087	2.49	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%		
13C5-PFPeA	4.422	268.3 -> 223.0	72872	5.02	µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.4%		
13C6-PFDA	8.198	519.1 -> 474.1	35331	1.30	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.1%		
13C7-PFUnDA	8.651	570.0 -> 525.1	38346	1.26	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.0%		
13C8-FOSA	9.670	506.1 -> 77.8	30626	2.41	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.3%		
13C8-PFOA	7.198	421.1 -> 376.0	84825	2.53	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%		
13C8-PFOS	8.348	507.1 -> 79.9	16072	2.48	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.0%		
13C9-PFNA	7.717	472.1 -> 427.0	34186	1.14	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.9%		
d3-MeFOSAA	8.244	573.2 -> 419.0	32653	4.58	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 91.7%		
13C3-HFPO-DA	6.007	286.9 -> 168.9	45391	9.82	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.2%		
d3-MeFOSA	10.769	515.0 -> 219.0	9183	2.40	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.0%		
d5-EtFOSAA	8.452	589.2 -> 419.0	26685	4.82	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.4%		
d7-MeFOSE	10.678	623.2 -> 58.9	106702	23.66	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.6%		
d9-EtFOSE	10.923	639.2 -> 58.9	133196	24.27	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.1%		
d5-EtFOSA	10.989	531.1 -> 219.0	9520	2.37	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.7%		

Target Compounds	RT	Transition	Response	Conc.	Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.		
		327.1 -> 80.9				
6:2FTS	-	427.1 -> 407.0	-	N.D.		
		427.1 -> 80.9				
8:2FTS	-	527.1 -> 507.0	-	N.D.		
		527.1 -> 80.8				
EtFOSAA	-	584.2 -> 419.1	-	N.D.		
		584.2 -> 526.0				
FOSA	-	498.1 -> 77.9	-	N.D.		
		498.1 -> 478.0				
MeFOSAA	-	570.1 -> 419.0	-	N.D.		
		570.1 -> 483.0				
PFBA	-	212.8 -> 168.9	-	N.D.		
PFBS	-	298.7 -> 79.9	-	N.D.		
		298.7 -> 98.8				
PFDA	8.593	512.9 -> 469.0	0	µg/L	m	1
		512.9 -> 219.0	0			
PFDODA	9.443	613.1 -> 569.0	0	µg/L	m	1
		613.1 -> 319.0	0			
PFDS	-	599.0 -> 79.9	-	N.D.		

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	7.106	599.0 -> 98.8				
		363.1 -> 319.0	0	µg/L	m	1
PFHpS	-	363.1 -> 169.0	0			
		449.0 -> 79.9	-	N.D.		
PFHxA	-	449.0 -> 98.9				
		313.0 -> 269.0	-	N.D.		
PFHxS	-	313.0 -> 118.9				
		398.7 -> 79.9	-	N.D.		
PFNA	8.129	398.7 -> 98.9				
		463.0 -> 419.0	0	µg/L	m	1
PFNS	-	463.0 -> 219.0	0			
		548.8 -> 79.9	-	N.D.		
PFOA	7.648	548.8 -> 98.9				
		413.0 -> 369.0	0	µg/L	m	1
PFOS	-	413.0 -> 169.0	0			
		498.9 -> 79.9	-	N.D.		
PFPeA	-	498.9 -> 98.8				
		263.0 -> 219.0	-	N.D.		
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	9.035	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1	0			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0	-	N.D.		
MeFOSA	-	511.9 -> 169.0				
		616.1 -> 58.9	-	N.D.		
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9	-	N.D.		
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				
PFEESA	-					

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

7.2.2
7

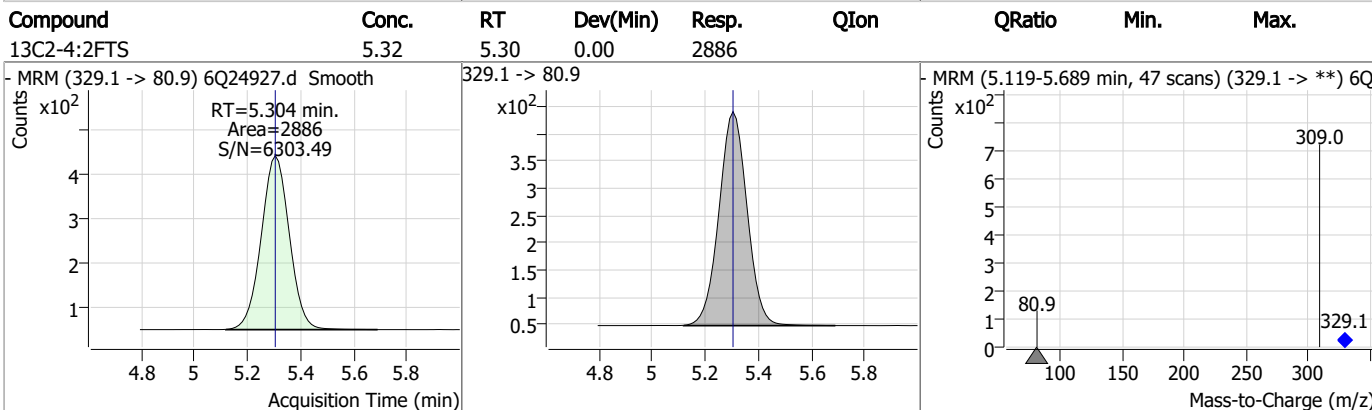
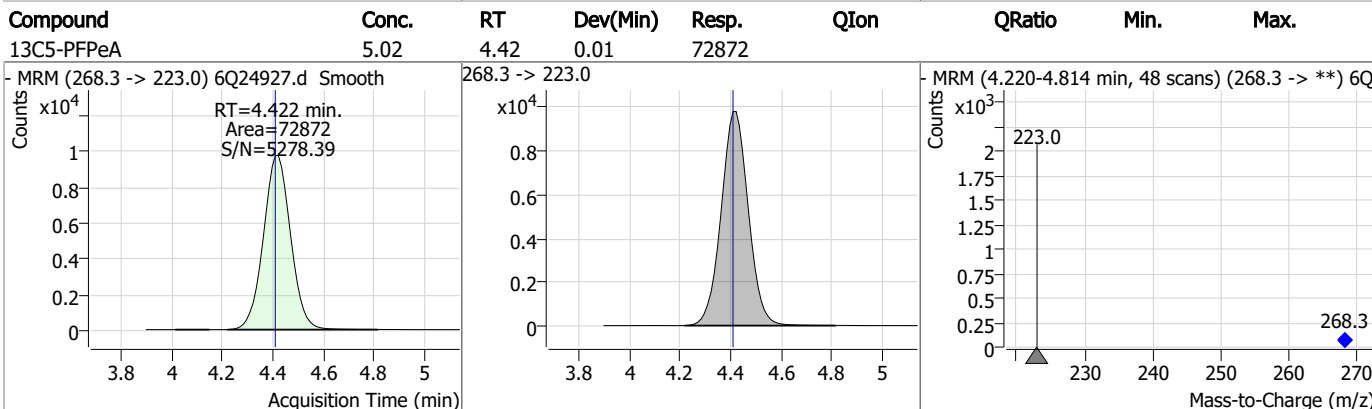
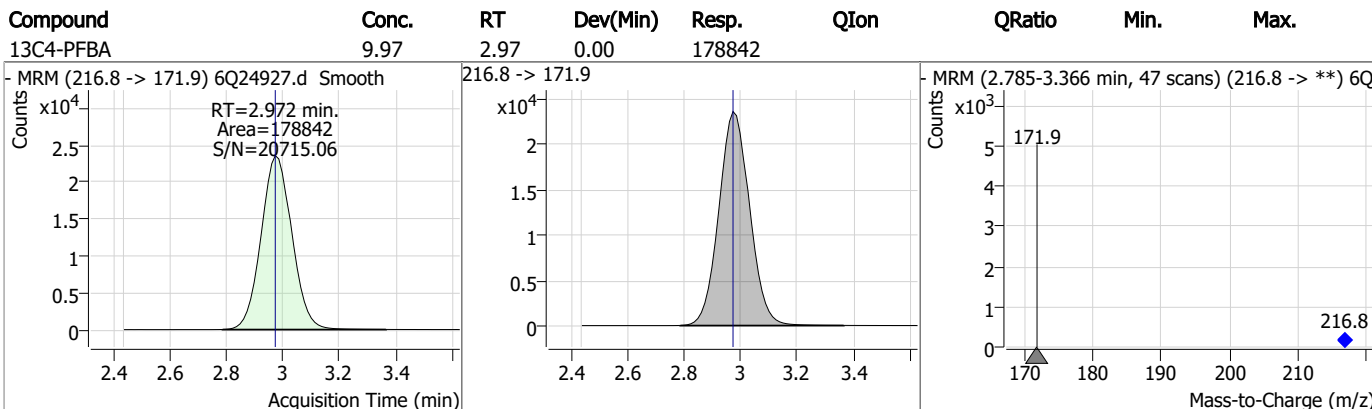
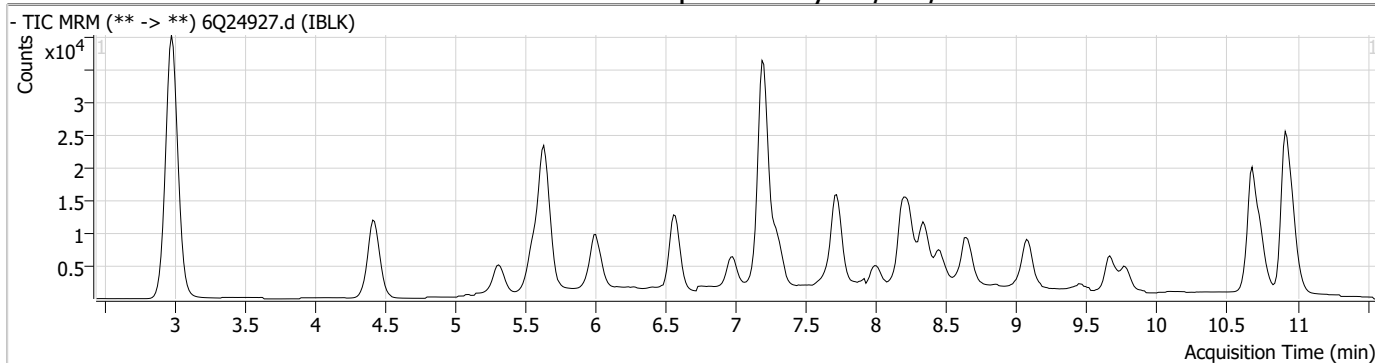
Perfluorinated Compounds by LC/MS/MS

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

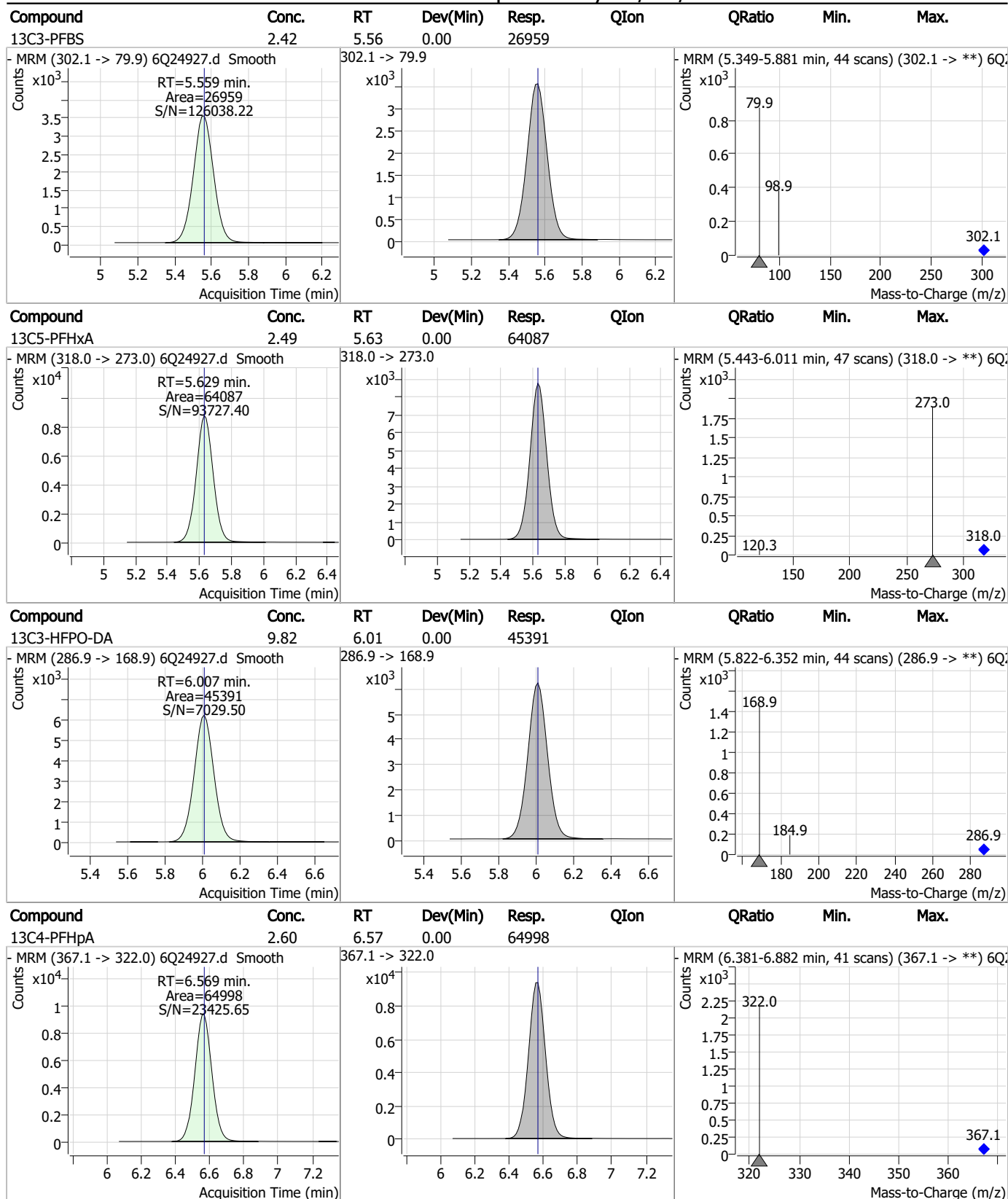
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Perfluorinated Compounds by LC/MS/MS



7.2.2
7

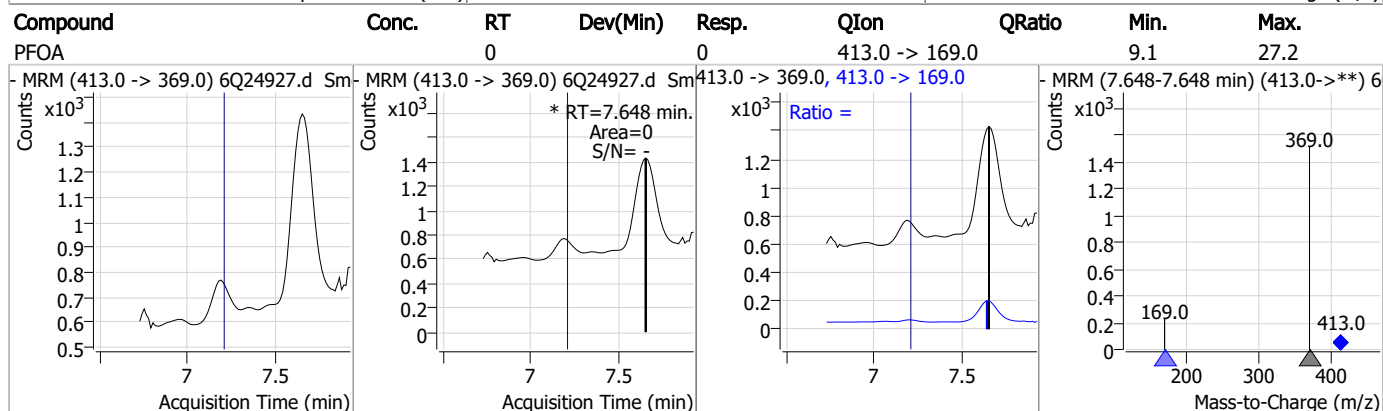
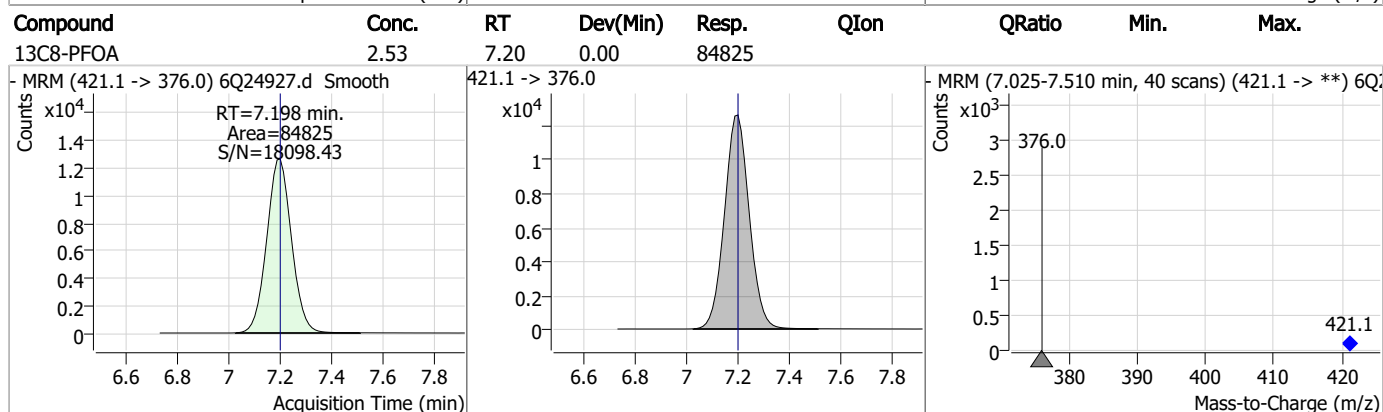
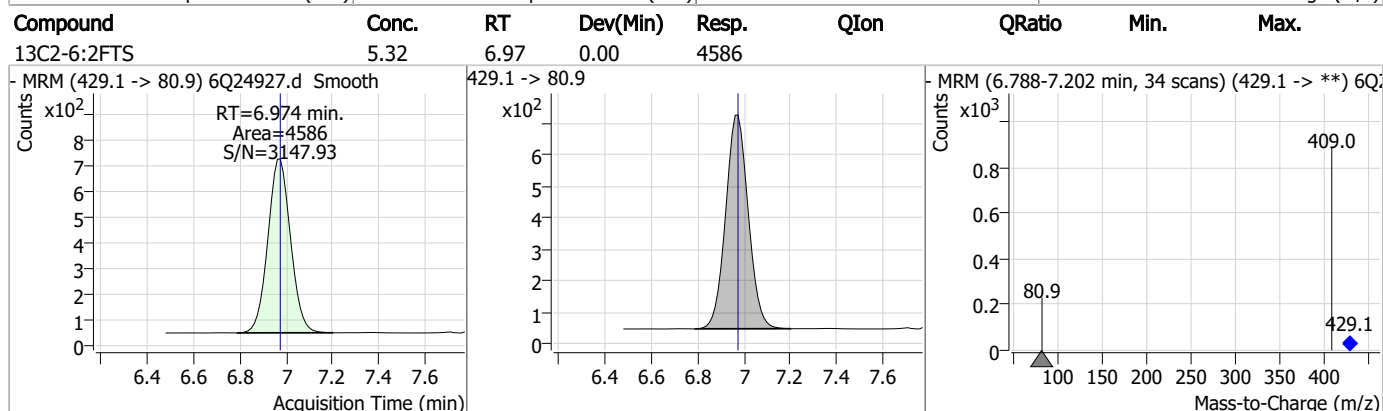
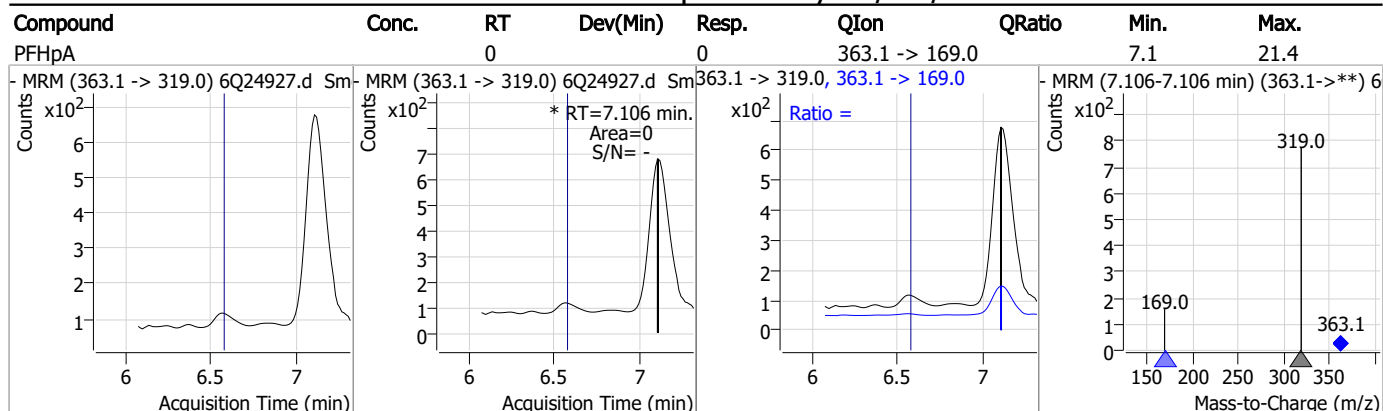
Perfluorinated Compounds by LC/MS/MS



7.22
7

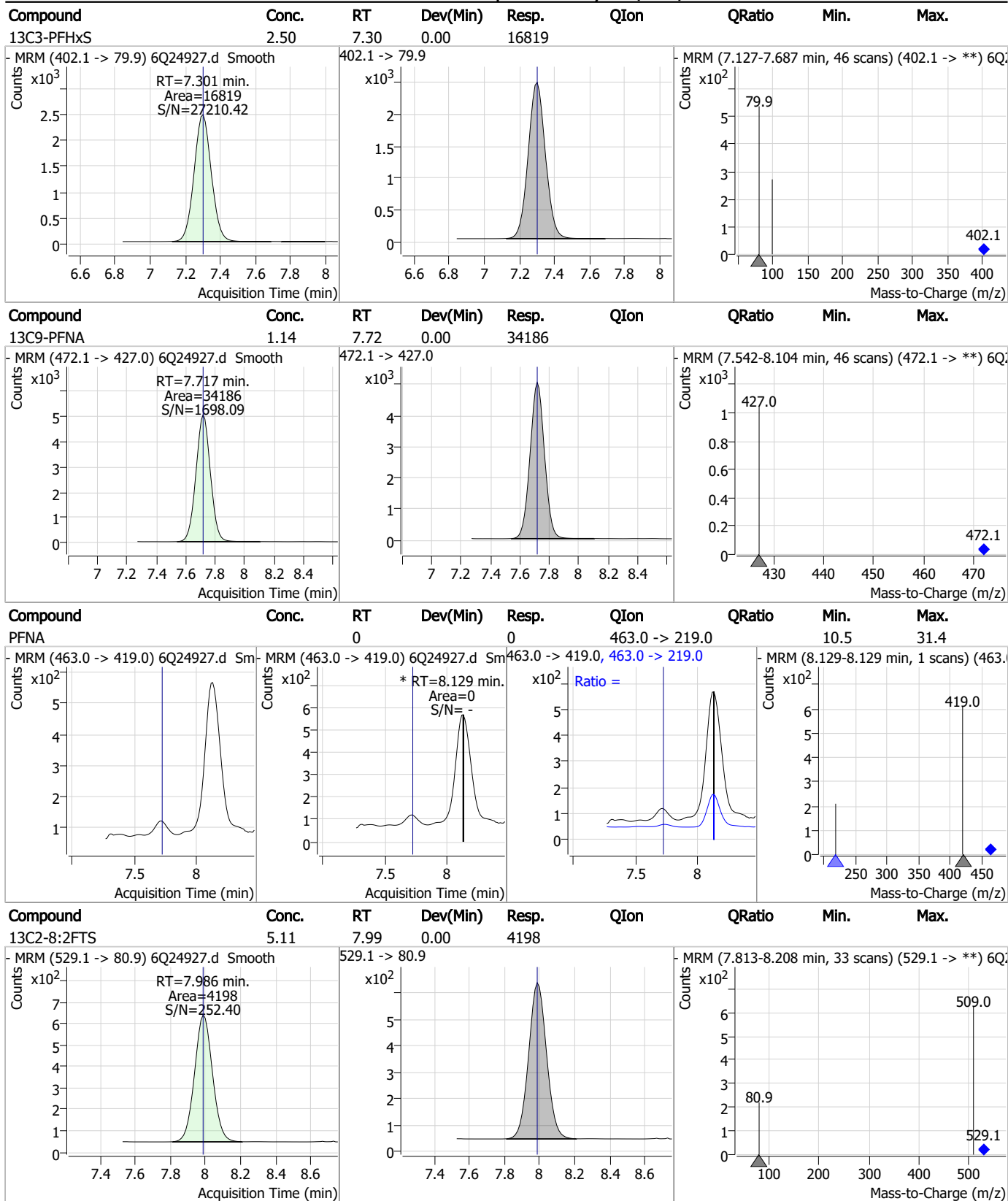


Perfluorinated Compounds by LC/MS/MS



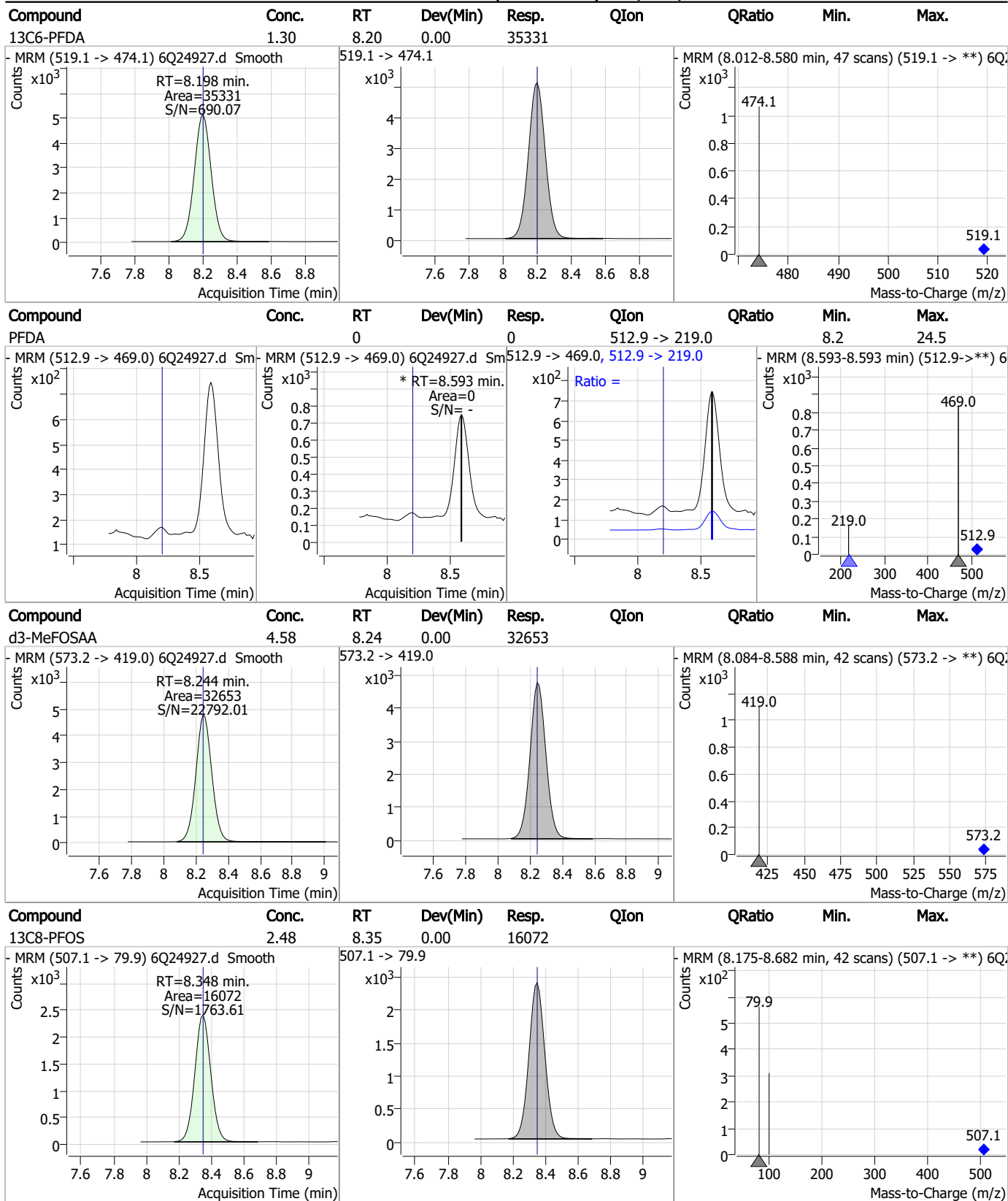
7.2.2
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Perfluorinated Compounds by LC/MS/MS



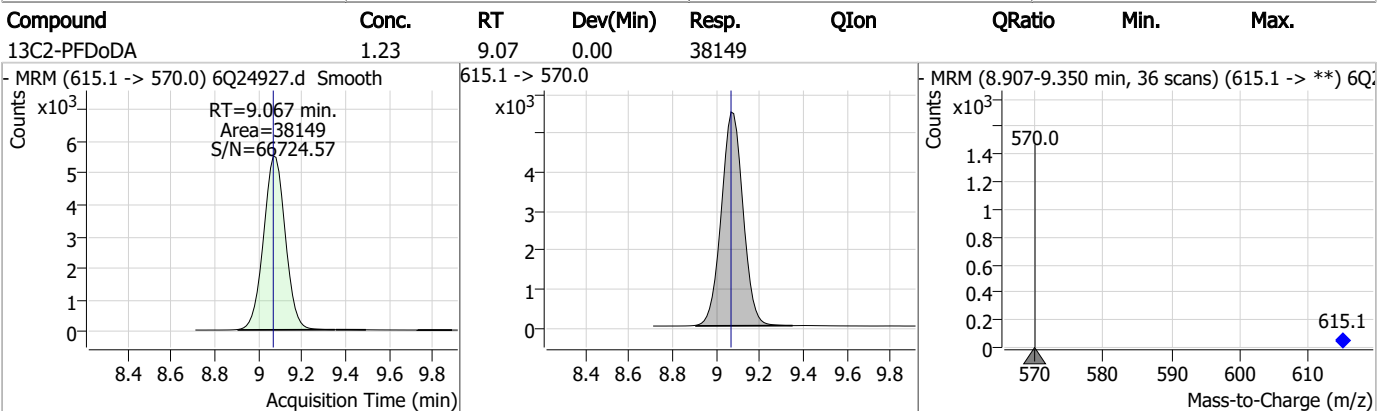
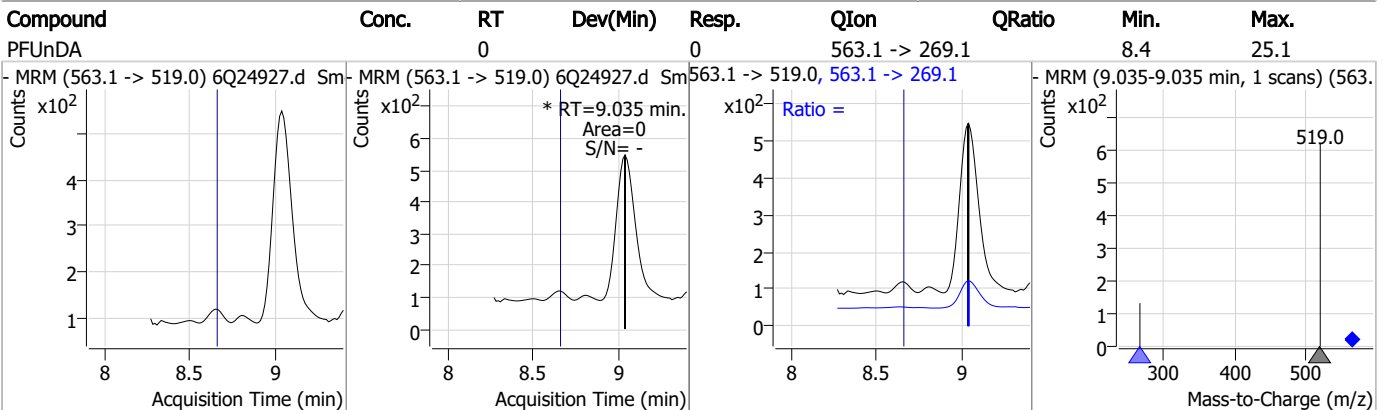
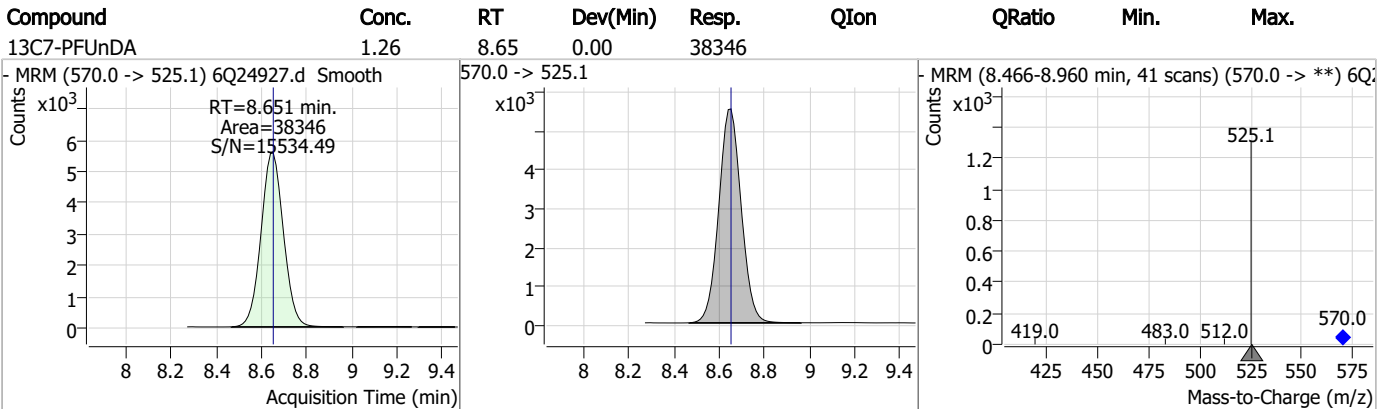
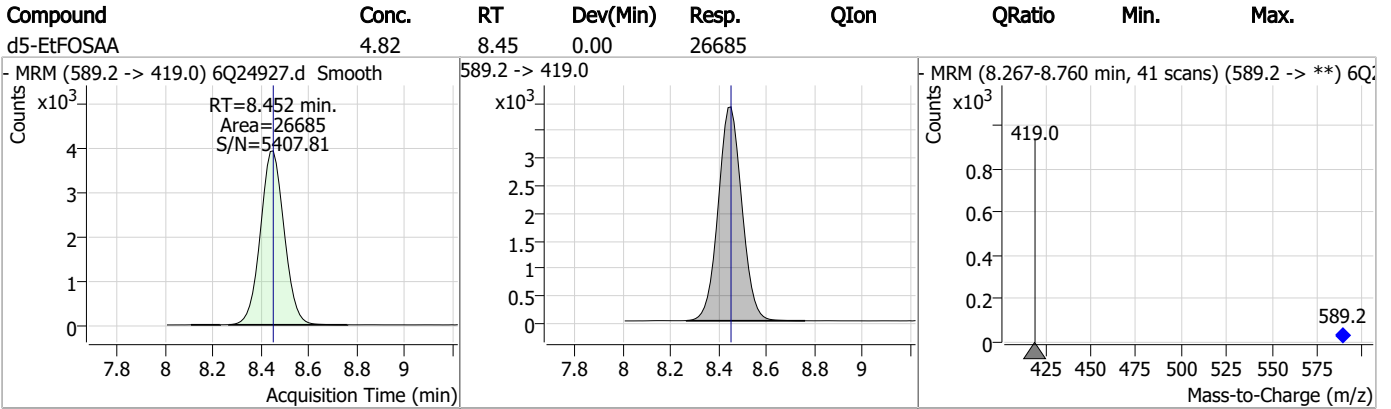
7.22
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Perfluorinated Compounds by LC/MS/MS



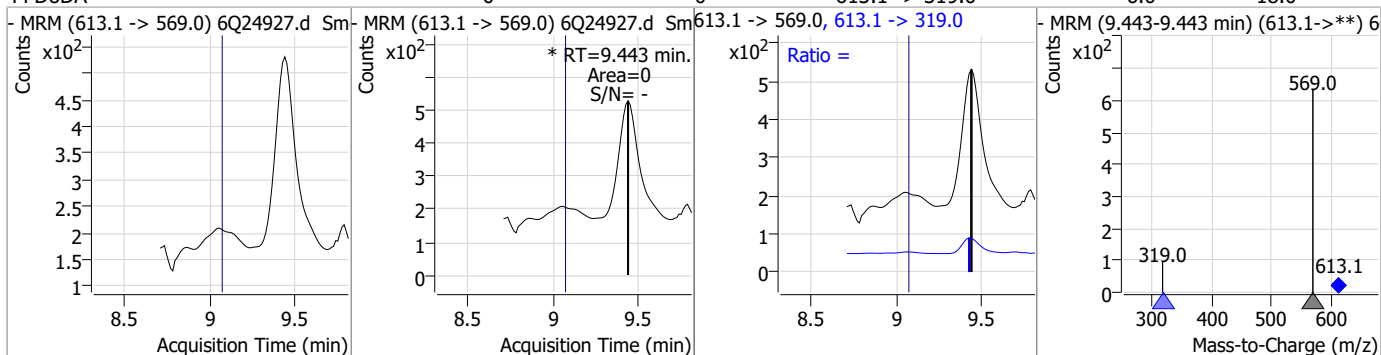
7.2.2
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Perfluorinated Compounds by LC/MS/MS

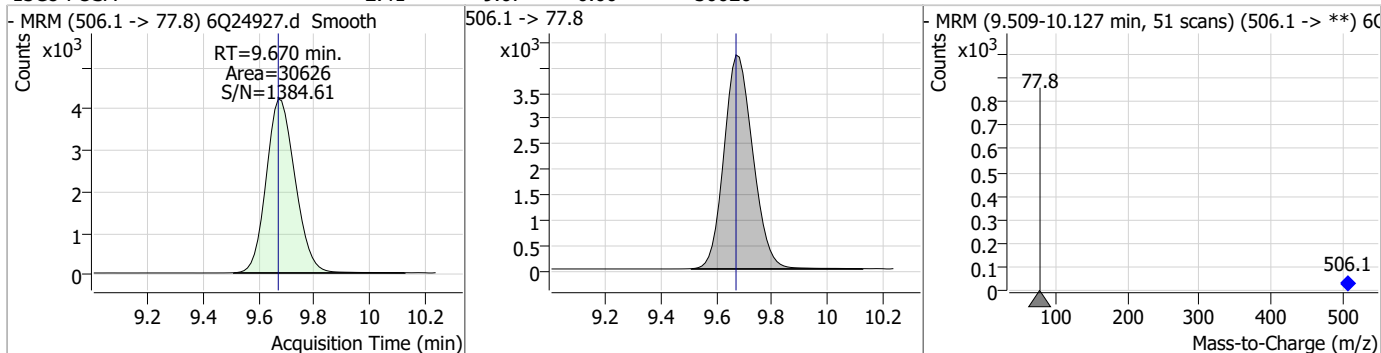


Perfluorinated Compounds by LC/MS/MS

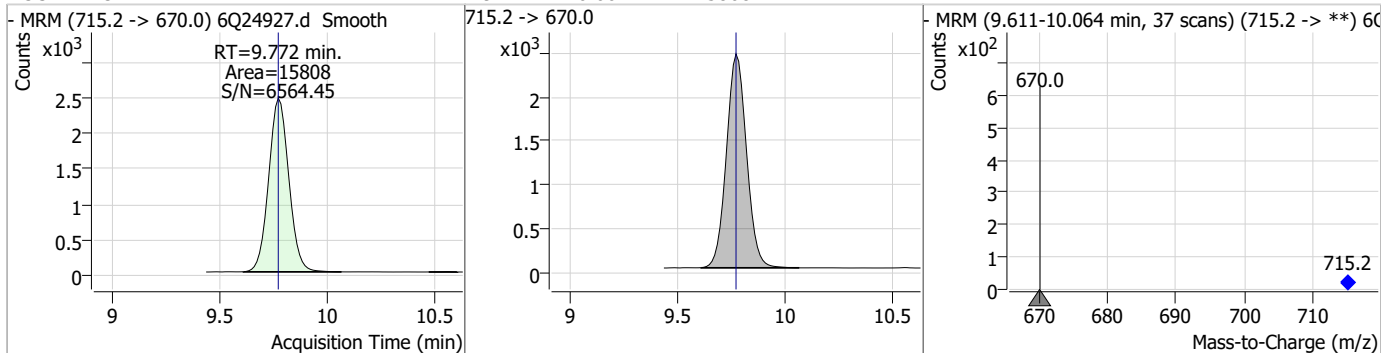
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDODA	0	0		0	613.1 -> 319.0		6.0	18.0



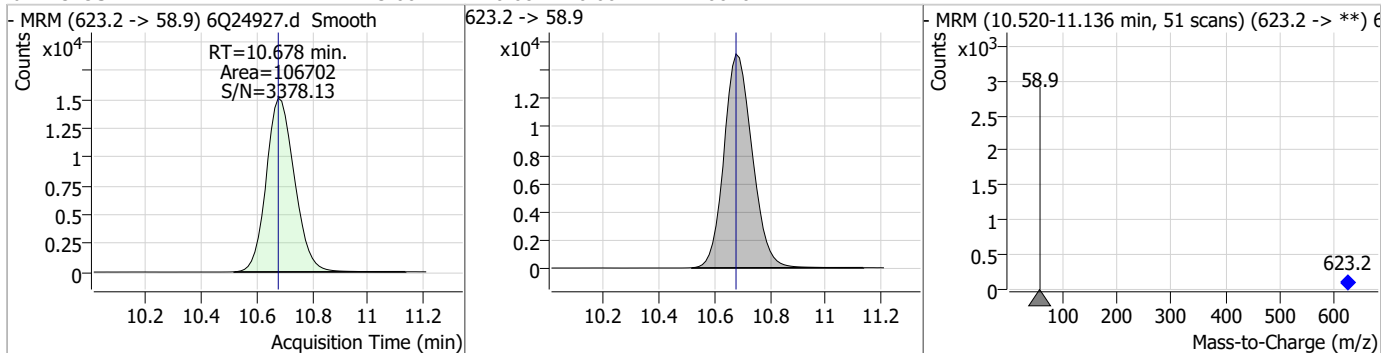
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.41	9.67	0.00	30626				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.21	9.77	0.00	15808				

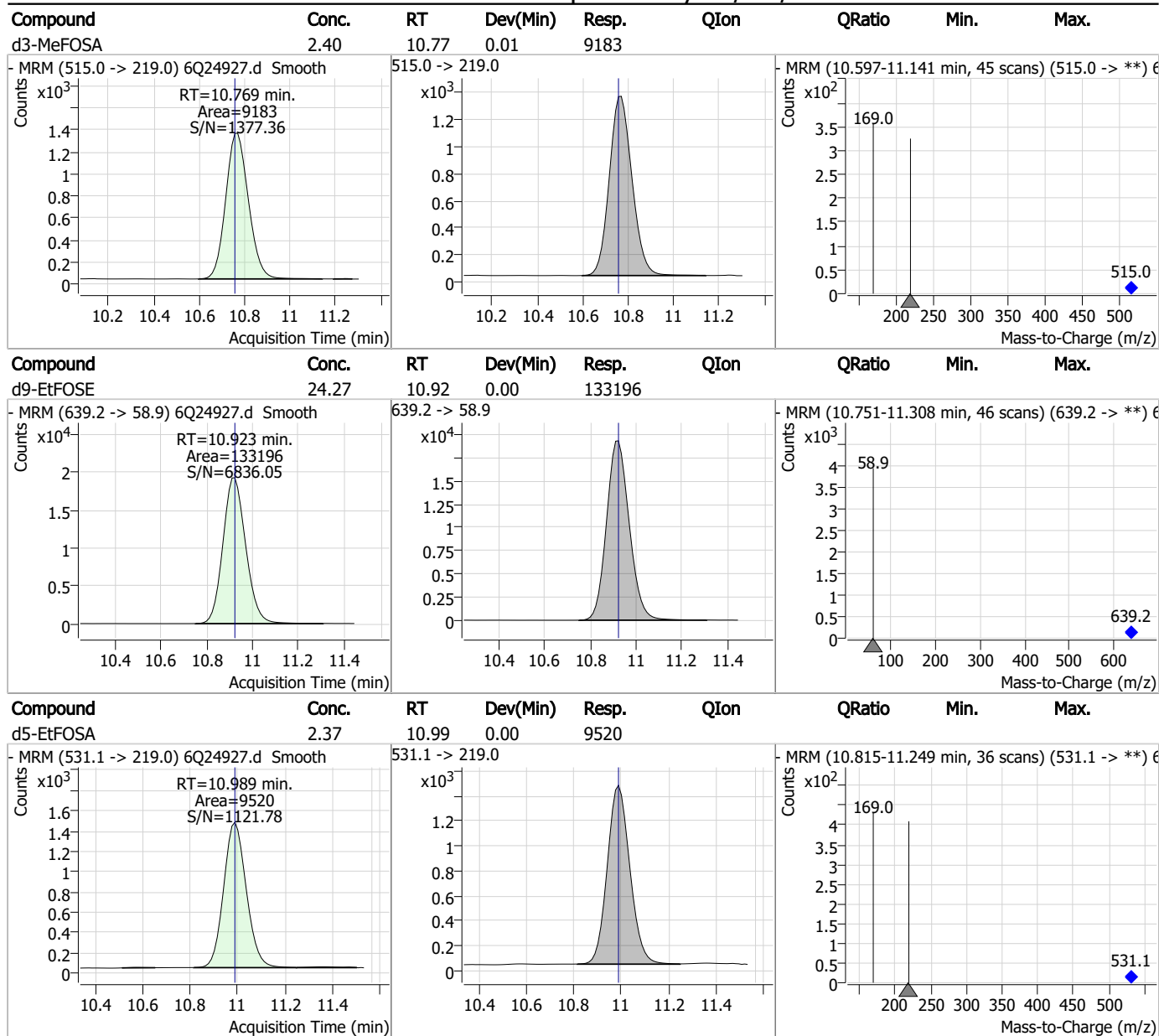


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.66	10.68	0.00	106702				



7.2.2
7

Perfluorinated Compounds by LC/MS/MS



7.2.2
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24970.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/25/2023 3:10:22 AM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	184757	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	77731	5.00 µg/L	0.000
M5-PFHxA	5.629	318.0 -> 273.0	68367	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	66497	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	84671	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	35582	1.25 µg/L	0.000
M6-PFDA	8.185	519.1 -> 474.1	35161	1.25 µg/L	-0.012
M7-PFUnDA	8.639	570.0 -> 525.1	38926	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	39298	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	16012	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	31597	2.50 µg/L	0.000
M3-PFBS	5.559	302.1 -> 79.9	29406	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	17035	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	17126	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	2970	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4441	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	4409	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	34997	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	46722	10.00 µg/L	0.000
M5-EtFOSAA	8.439	589.2 -> 419.0	27612	5.00 µg/L	-0.012
M7-MeFOSE	10.678	623.2 -> 58.9	109287	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	128326	25.00 µg/L	-0.012
M5-EtFOSA	10.989	531.1 -> 219.0	9603	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9180	2.50 µg/L	0.000
13C4-PFOS	8.336	502.8 -> 79.9	15141	2.50 µg/L	-0.013
13C3-PFBA	2.976	216.0 -> 172.0	76259	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	10421	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	100939	2.50 µg/L	0.000
13C2-PFDA	8.186	515.1 -> 470.1	35969	1.25 µg/L	-0.012
13C5-PFNA	7.717	468.0 -> 423.0	37462	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	61841	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2970	5.57 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.4%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4441	5.24 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.8%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4409	5.47 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.4%		
13C2-PFDoDA	9.067	615.1 -> 570.0	39298	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.4%		
13C2-PFTeDA	9.772	715.2 -> 670.0	16012	1.10 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.9%		
13C3-PFBS	5.559	302.1 -> 79.9	29406	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.4%		
13C3-PFHxS	7.301	402.1 -> 79.9	17035	2.58 µg/L	0.000

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 = 103.3%	
13C4-PFBA	2.972	216.8 -> 171.9	184757	10.03 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C4-PFHpA	6.569	367.1 -> 322.0	66497	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C5-PFHxA	5.629	318.0 -> 273.0	68367	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.2%	
13C5-PFPeA	4.409	268.3 -> 223.0	77731	5.31 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.2%	
13C6-PFDA	8.185	519.1 -> 474.1	35161	1.16 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.1%	
13C7-PFUnDA	8.639	570.0 -> 525.1	38926	1.15 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.1%	
13C8-FOSA	9.670	506.1 -> 77.8	31597	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C8-PFOA	7.198	421.1 -> 376.0	84671	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C8-PFOS	8.348	507.1 -> 79.9	17126	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C9-PFNA	7.717	472.1 -> 427.0	35582	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.5%	
d3-MeFOSAA	8.244	573.2 -> 419.0	34997	4.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	46722	10.02 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
d3-MeFOSA	10.757	515.0 -> 219.0	9180	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.3%	
d5-EtFOSAA	8.439	589.2 -> 419.0	27612	4.95 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
d7-MeFOSE	10.678	623.2 -> 58.9	109287	24.06 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.2%	
d9-EtFOSE	10.911	639.2 -> 58.9	128326	23.22 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 92.9%	
d5-EtFOSA	10.989	531.1 -> 219.0	9603	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.8%	

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	8.581	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	0		
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

7.2.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	7.106	599.0 -> 98.8				
		363.1 -> 319.0	0	µg/L	m	1
PFHpS	-	363.1 -> 169.0	0			
		449.0 -> 79.9	-	N.D.		
PFHxA	-	449.0 -> 98.9				
		313.0 -> 269.0	-	N.D.		
PFHxS	-	313.0 -> 118.9				
		398.7 -> 79.9	-	N.D.		
PFNA	8.117	398.7 -> 98.9				
		463.0 -> 419.0	0	µg/L	m	1
PFNS	-	463.0 -> 219.0	0			
		548.8 -> 79.9	-	N.D.		
PFOA	7.636	548.8 -> 98.9				
		413.0 -> 369.0	0	µg/L	m	1
PFOS	-	413.0 -> 169.0	0			
		498.9 -> 79.9	-	N.D.		
PFPeA	-	498.9 -> 98.8				
		263.0 -> 219.0	-	N.D.		
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	9.035	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1	0			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0	-	N.D.		
MeFOSA	-	511.9 -> 169.0				
		616.1 -> 58.9	-	N.D.		
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9	-	N.D.		
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.2.3
7

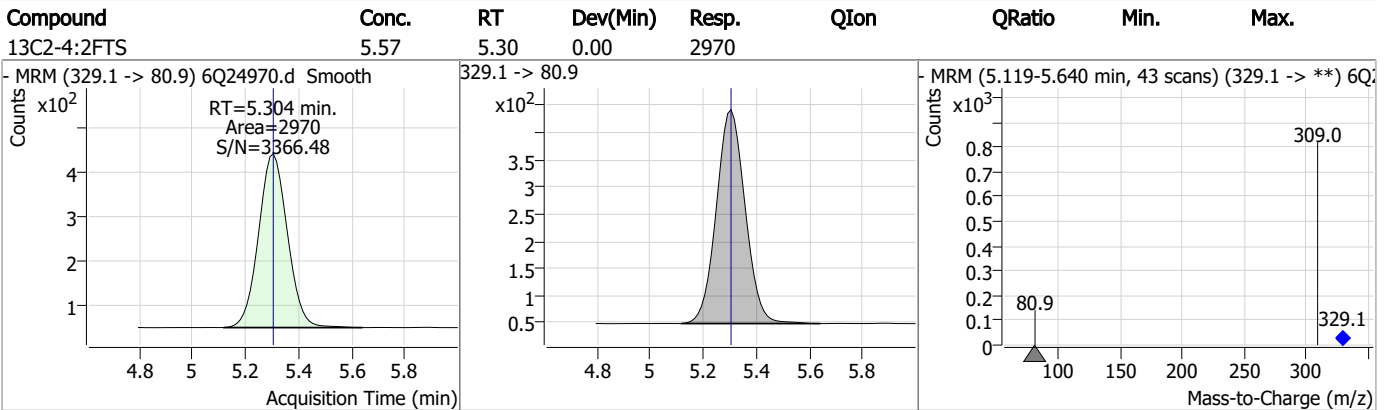
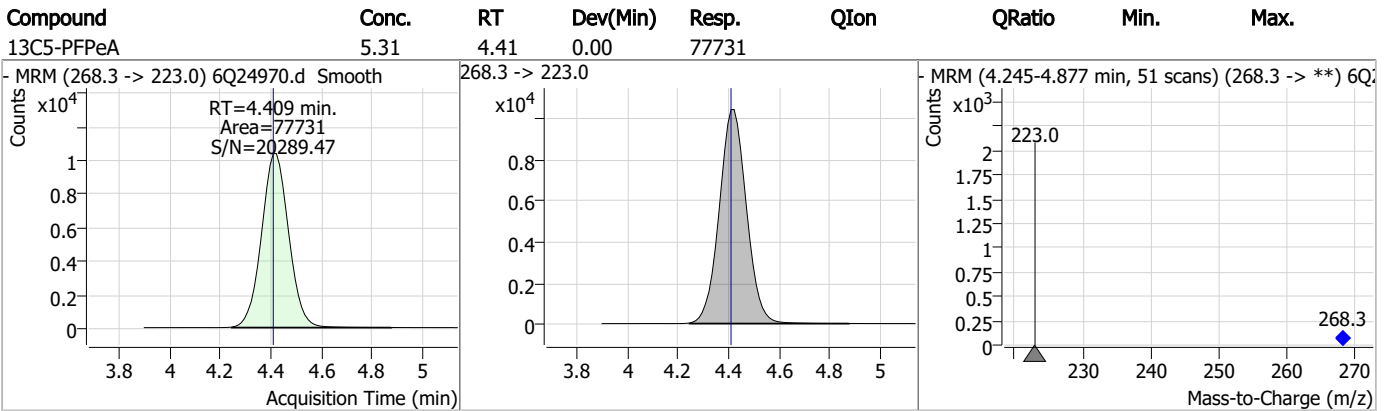
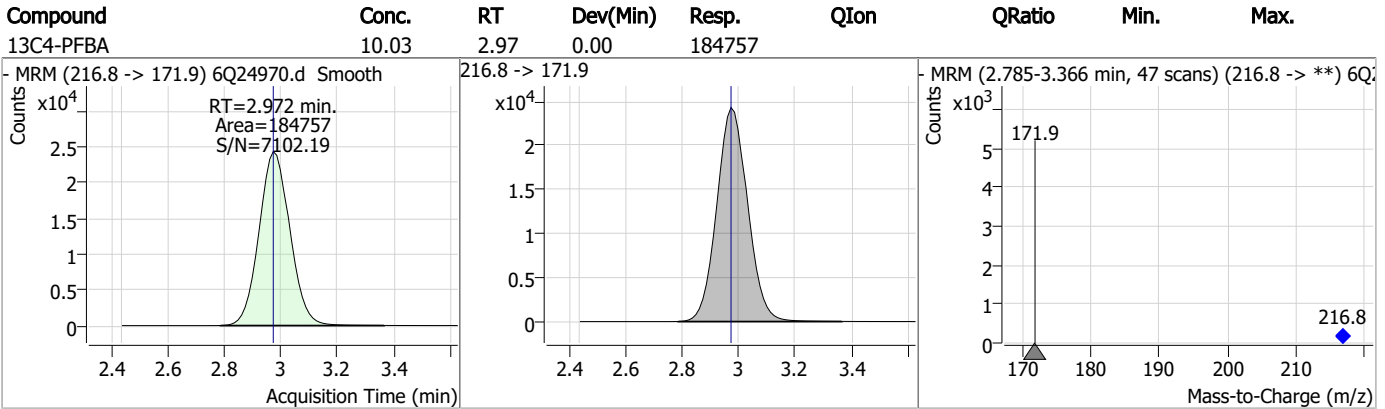
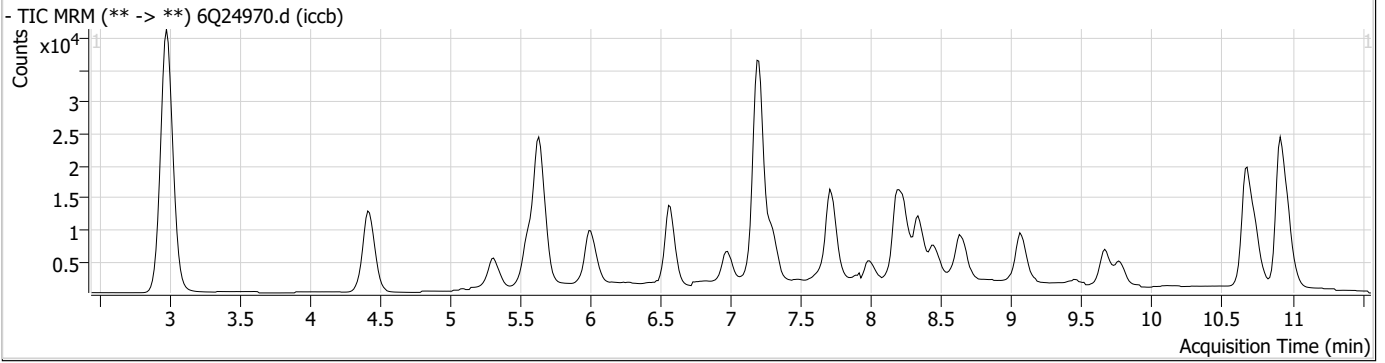
Perfluorinated Compounds by LC/MS/MS

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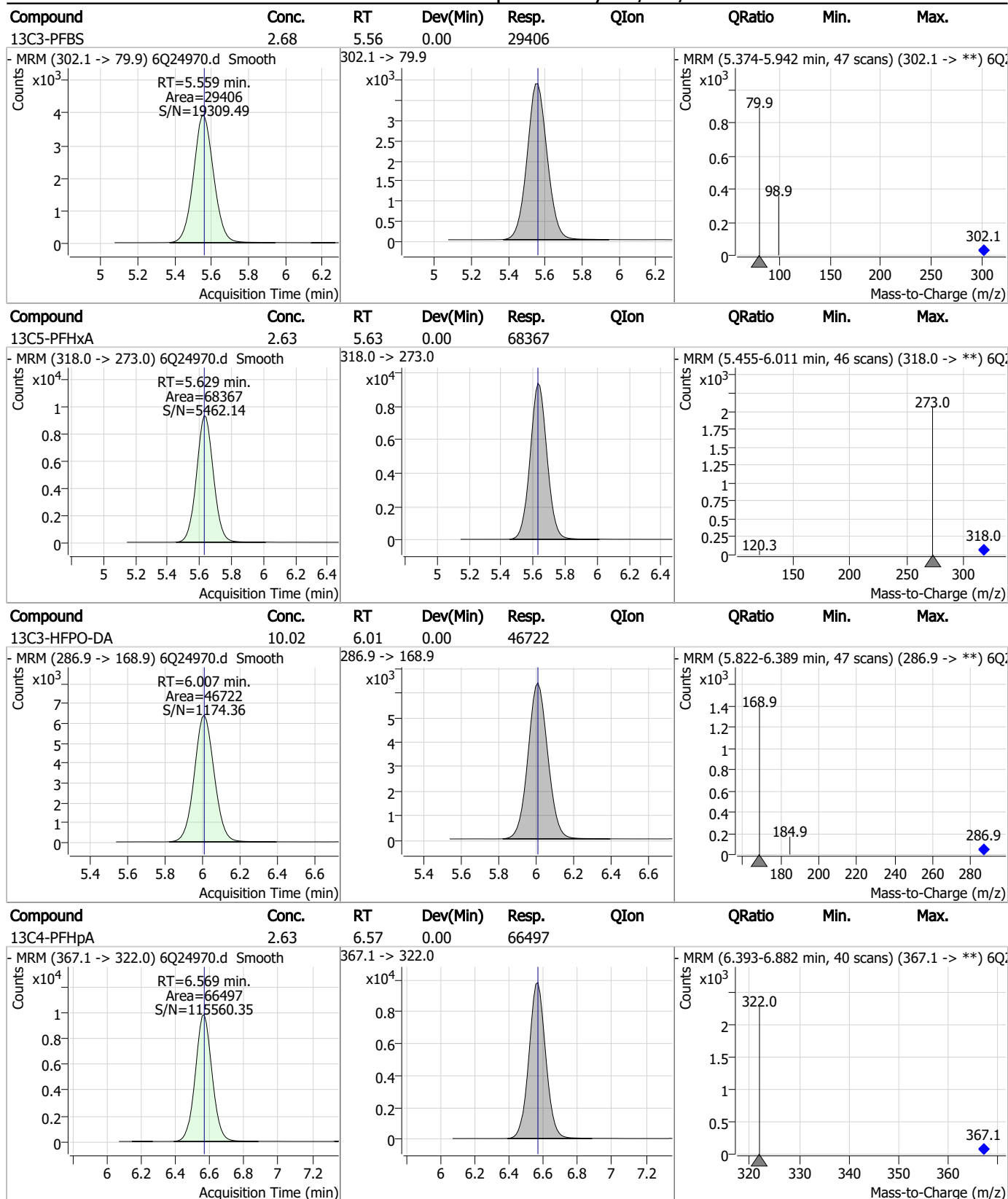
7.2.3

7

Perfluorinated Compounds by LC/MS/MS

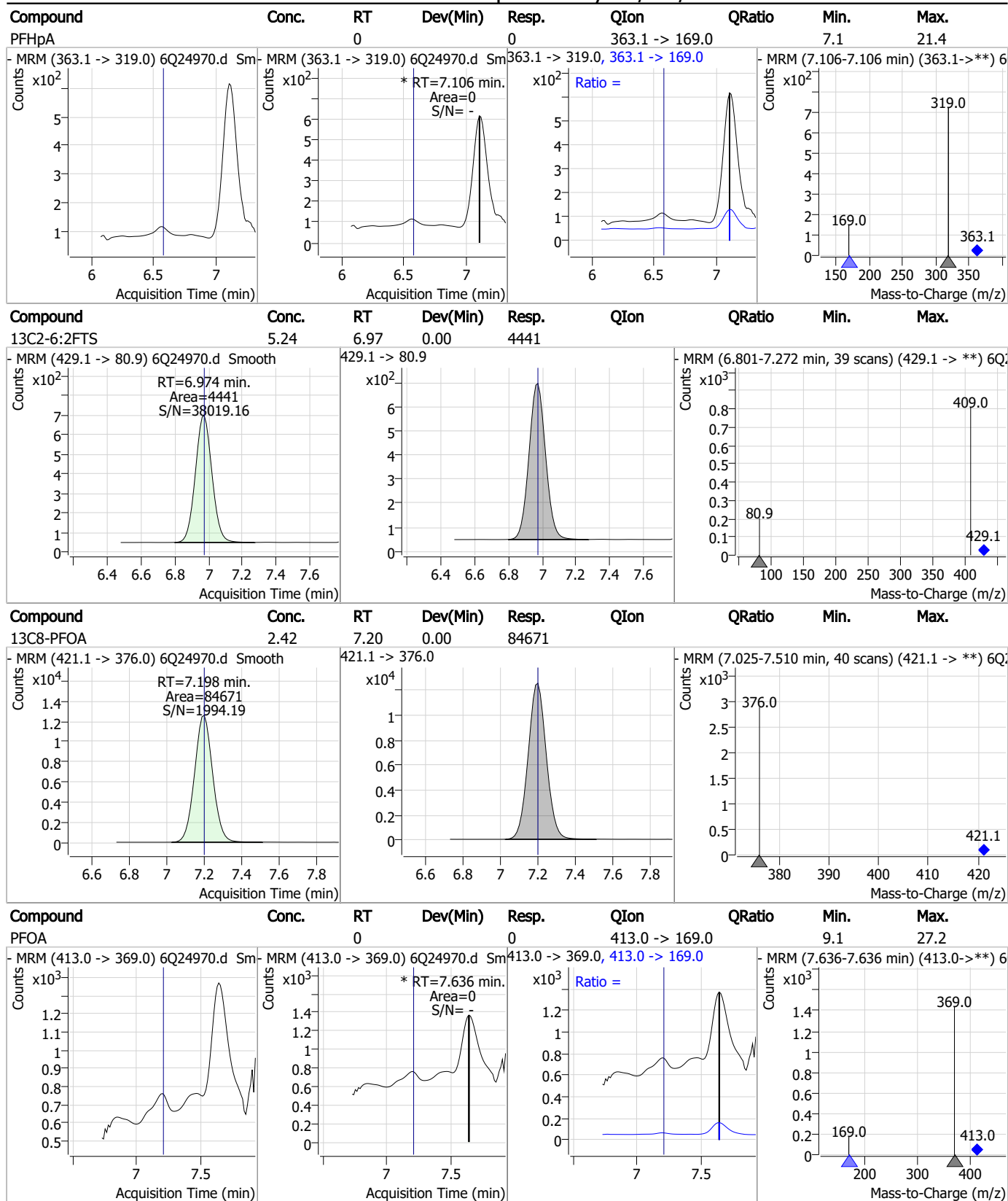


Perfluorinated Compounds by LC/MS/MS



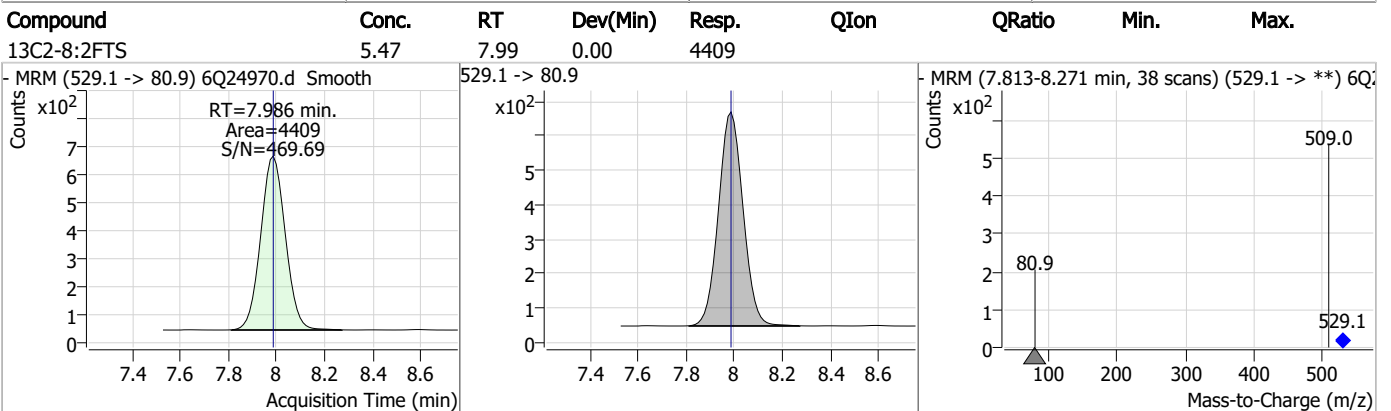
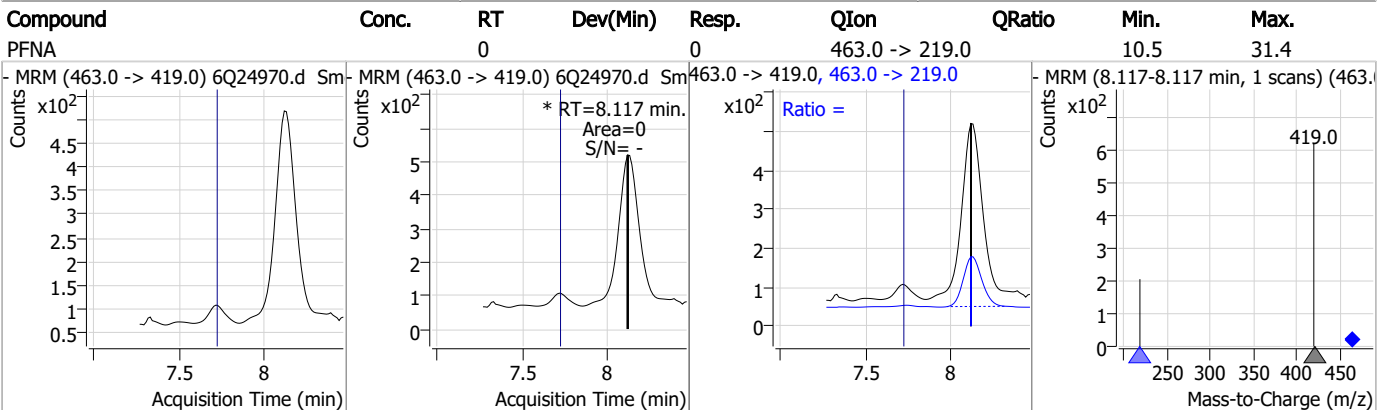
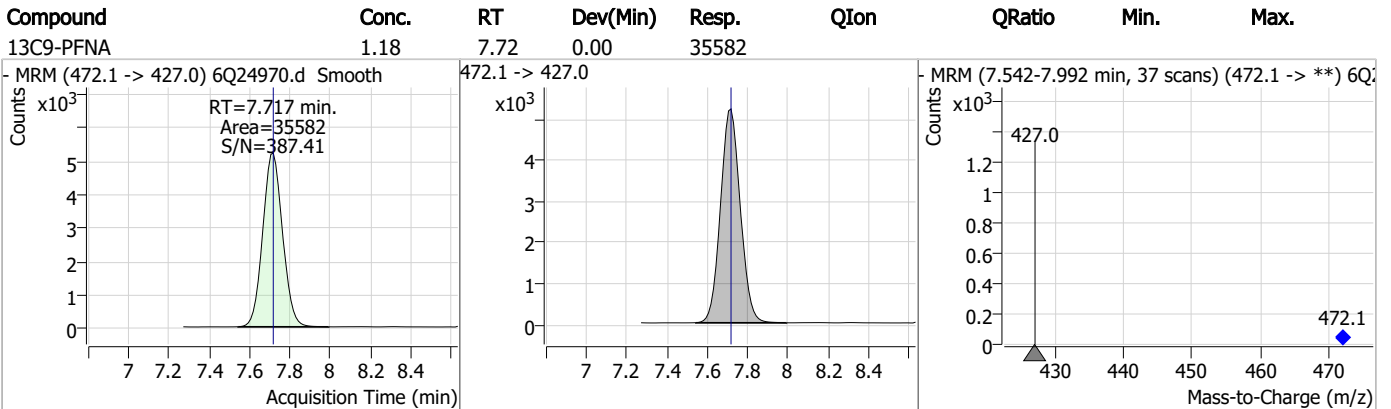
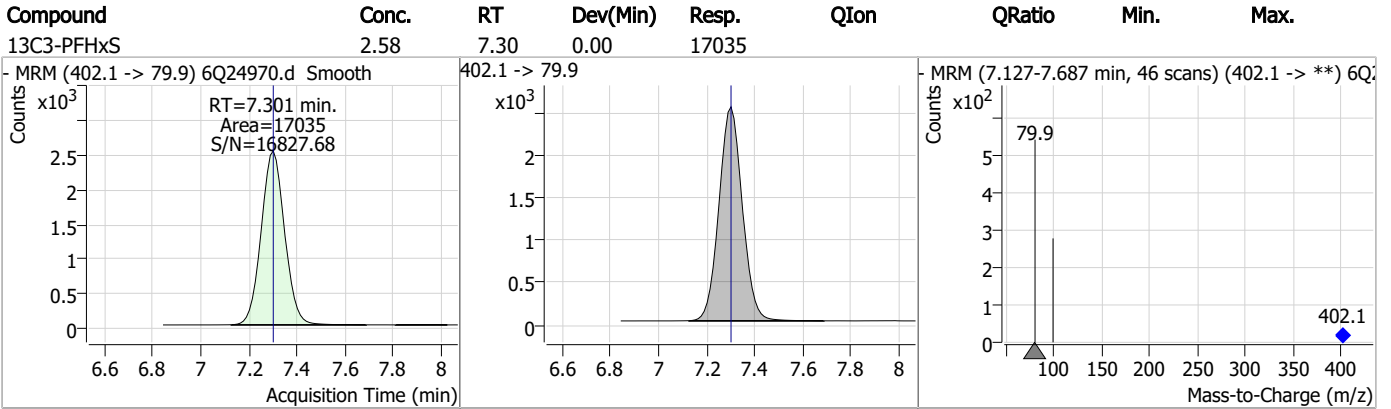
7.2.3
7

Perfluorinated Compounds by LC/MS/MS

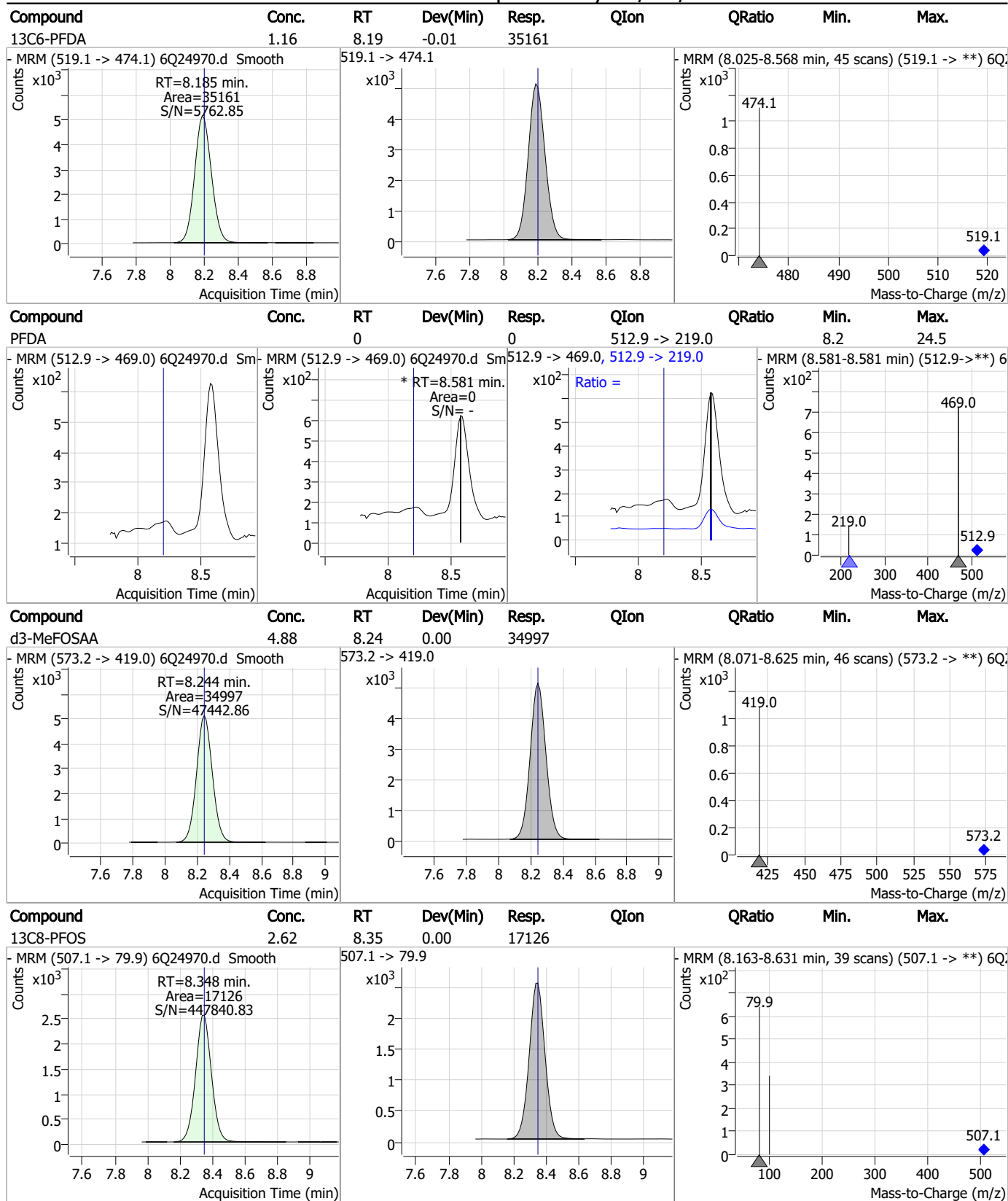


7.2.3
7

Perfluorinated Compounds by LC/MS/MS



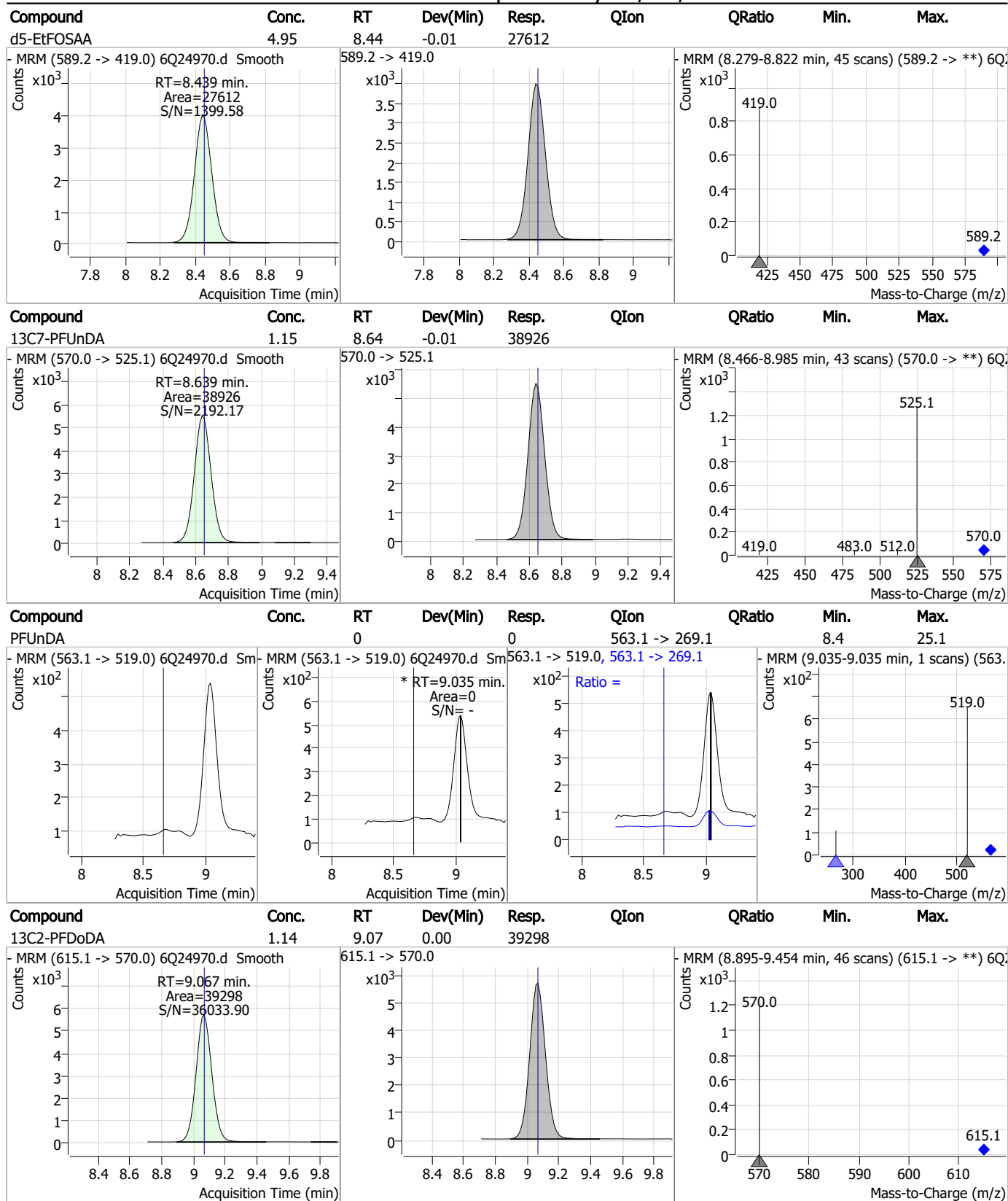
Perfluorinated Compounds by LC/MS/MS



7.2.3
7

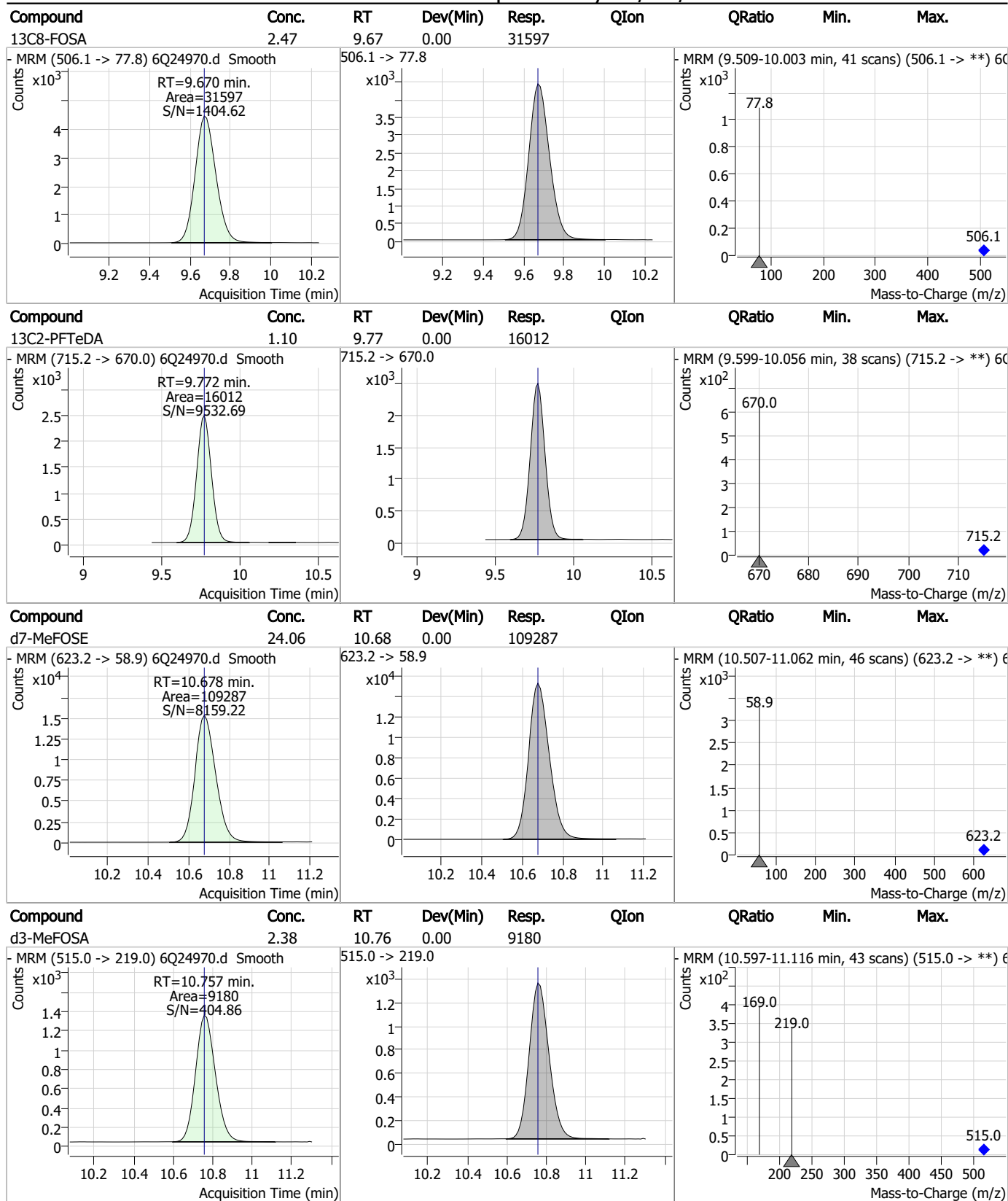


Perfluorinated Compounds by LC/MS/MS



7.2.3
7

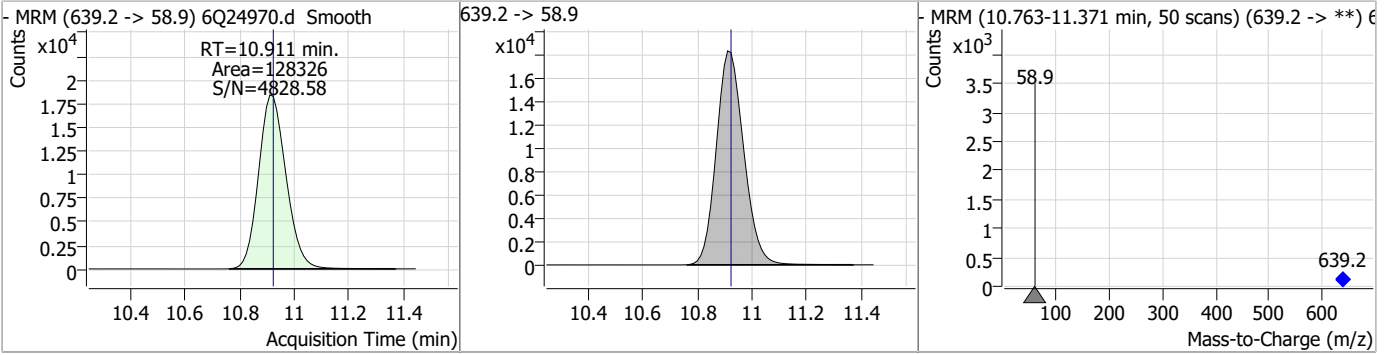
Perfluorinated Compounds by LC/MS/MS



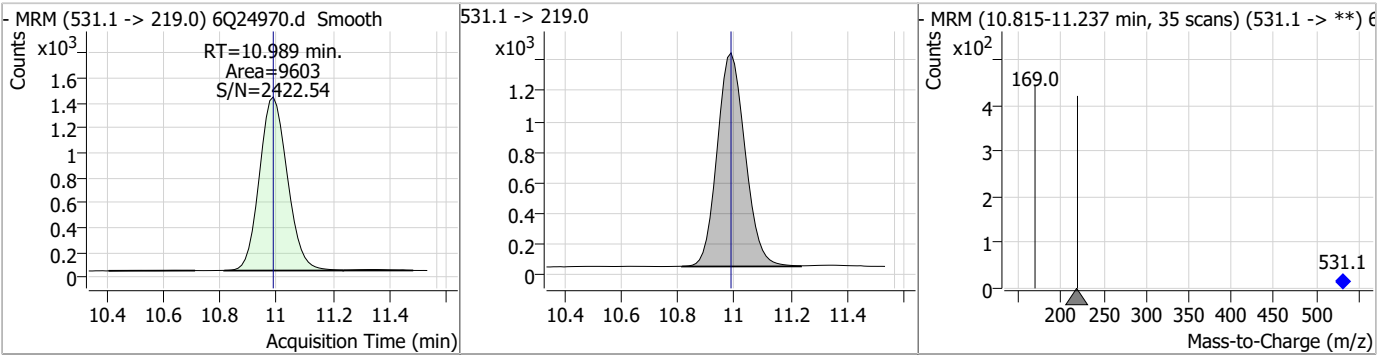
7.2.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.22	10.91	-0.01	128326				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.37	10.99	0.00	9603				



7.2.3

7



Perfluorinated Compounds by LC/MS/MS

Data File : 6Q25023.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/25/2023 3:53:12 PM
 Sample Name : IBLK
 Vial : P1-A1
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	185129	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	77349	5.00 µg/L	0.000
M5-PFHxA	5.629	318.0 -> 273.0	66952	2.50 µg/L	0.000
M4-PFHpA	6.556	367.1 -> 322.0	68627	2.50 µg/L	-0.012
M8-PFOA	7.186	421.1 -> 376.0	85815	2.50 µg/L	-0.012
M9-PFNA	7.704	472.1 -> 427.0	37982	1.25 µg/L	-0.012
M6-PFDA	8.185	519.1 -> 474.1	35913	1.25 µg/L	-0.012
M7-PFUnDA	8.639	570.0 -> 525.1	43642	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	40037	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	17544	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	31284	2.50 µg/L	0.000
M3-PFBS	5.546	302.1 -> 79.9	27947	2.50 µg/L	-0.013
M3-PFHxS	7.289	402.1 -> 79.9	17665	2.50 µg/L	-0.012
M8-PFOS	8.336	507.1 -> 79.9	16421	2.50 µg/L	-0.013
M2-4:2FTS	5.304	329.1 -> 80.9	2862	5.00 µg/L	0.000
M2-6:2FTS	6.961	429.1 -> 80.9	4661	5.00 µg/L	-0.012
M2-8:2FTS	7.974	529.1 -> 80.9	4155	5.00 µg/L	-0.012
M3-MeFOSAA	8.244	573.2 -> 419.0	37183	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	47496	10.00 µg/L	0.000
M5-EtFOSAA	8.439	589.2 -> 419.0	27237	5.00 µg/L	-0.012
M7-MeFOSE	10.678	623.2 -> 58.9	103828	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	126880	25.00 µg/L	-0.012
M5-EtFOSA	10.989	531.1 -> 219.0	10037	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9383	2.50 µg/L	0.000
13C4-PFOS	8.336	502.8 -> 79.9	15364	2.50 µg/L	-0.013
13C3-PFBA	2.976	216.0 -> 172.0	76784	5.00 µg/L	0.000
18O2-PFHxS	7.288	403.0 -> 83.9	10841	2.50 µg/L	-0.012
13C4-PFOA	7.187	417.1 -> 372.0	105871	2.50 µg/L	-0.012
13C2-PFDA	8.186	515.1 -> 470.1	33843	1.25 µg/L	-0.012
13C5-PFNA	7.705	468.0 -> 423.0	38316	1.25 µg/L	-0.012
13C2-PFHxA	5.630	315.1 -> 270.0	66092	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2862	5.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C2-6:2FTS	6.961	429.1 -> 80.9	4661	5.29 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.7%		
13C2-8:2FTS	7.974	529.1 -> 80.9	4155	4.96 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C2-PFDoDA	9.067	615.1 -> 570.0	40037	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C2-PFTeDA	9.772	715.2 -> 670.0	17544	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.4%		
13C3-PFBS	5.546	302.1 -> 79.9	27947	2.45 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C3-PFHxS	7.289	402.1 -> 79.9	17665	2.57 µg/L	-0.012

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C4-PFBA	2.972	216.8 -> 171.9	185129	9.98 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C4-PFHpA	6.556	367.1 -> 322.0	68627	2.54 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C5-PFHxA	5.629	318.0 -> 273.0	66952	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.4%	
13C5-PFPeA	4.409	268.3 -> 223.0	77349	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C6-PFDA	8.185	519.1 -> 474.1	35913	1.26 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C7-PFUnDA	8.639	570.0 -> 525.1	43642	1.37 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.7%	
13C8-FOSA	9.670	506.1 -> 77.8	31284	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.3%	
13C8-PFOA	7.186	421.1 -> 376.0	85815	2.34 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.5%	
13C8-PFOS	8.336	507.1 -> 79.9	16421	2.48 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C9-PFNA	7.704	472.1 -> 427.0	37982	1.23 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.6%	
d3-MeFOSAA	8.244	573.2 -> 419.0	37183	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	47496	9.54 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.4%	
d3-MeFOSA	10.757	515.0 -> 219.0	9383	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	
d5-EtFOSAA	8.439	589.2 -> 419.0	27237	4.81 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
d7-MeFOSE	10.678	623.2 -> 58.9	103828	22.53 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 90.1%	
d9-EtFOSE	10.911	639.2 -> 58.9	126880	22.63 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 90.5%	
d5-EtFOSA	10.989	531.1 -> 219.0	10037	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.7%	

7.2.4
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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	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	8.581	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	0		
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	8.117	398.7 -> 98.9	0	µg/L	m	1
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	7.636	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	9.035	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.24
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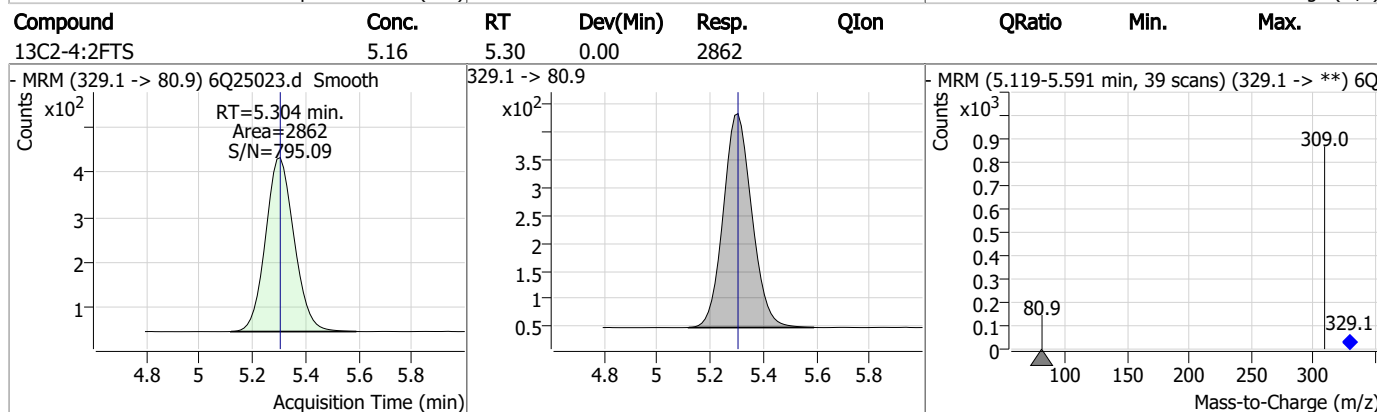
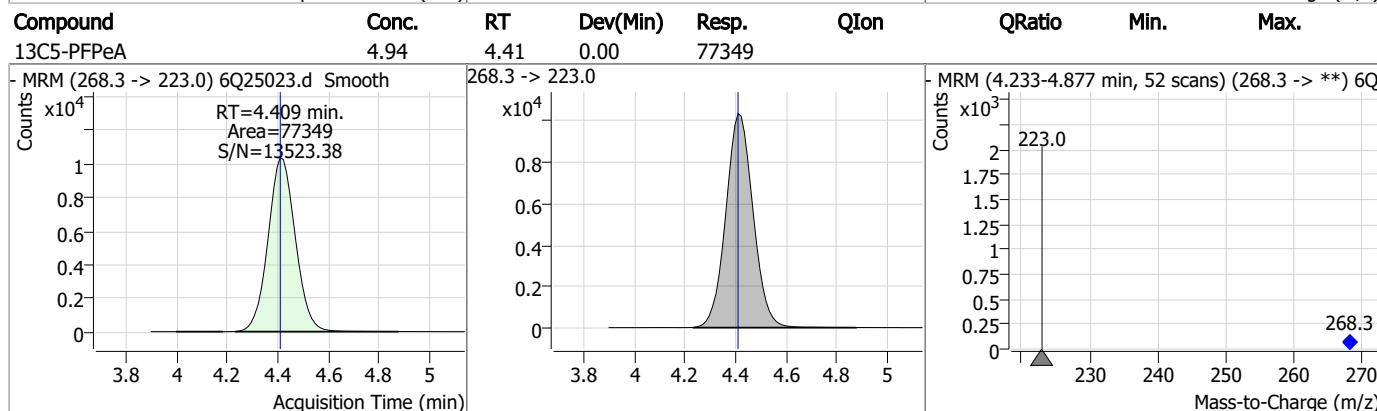
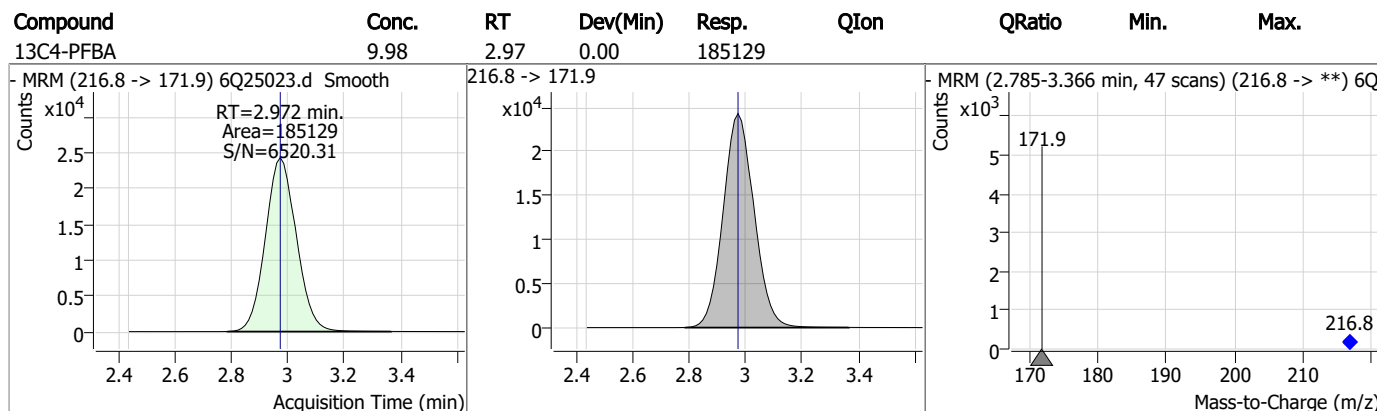
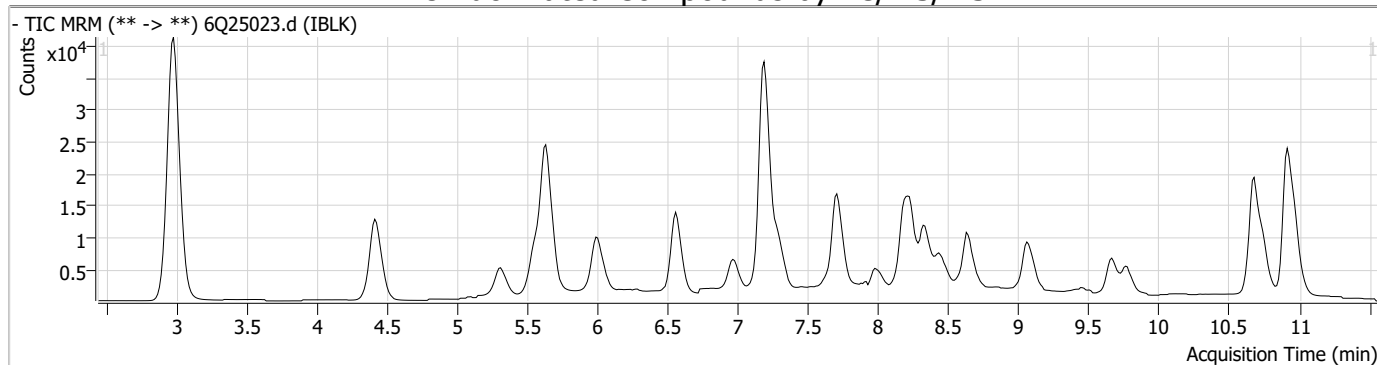
Perfluorinated Compounds by LC/MS/MS

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

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Perfluorinated Compounds by LC/MS/MS

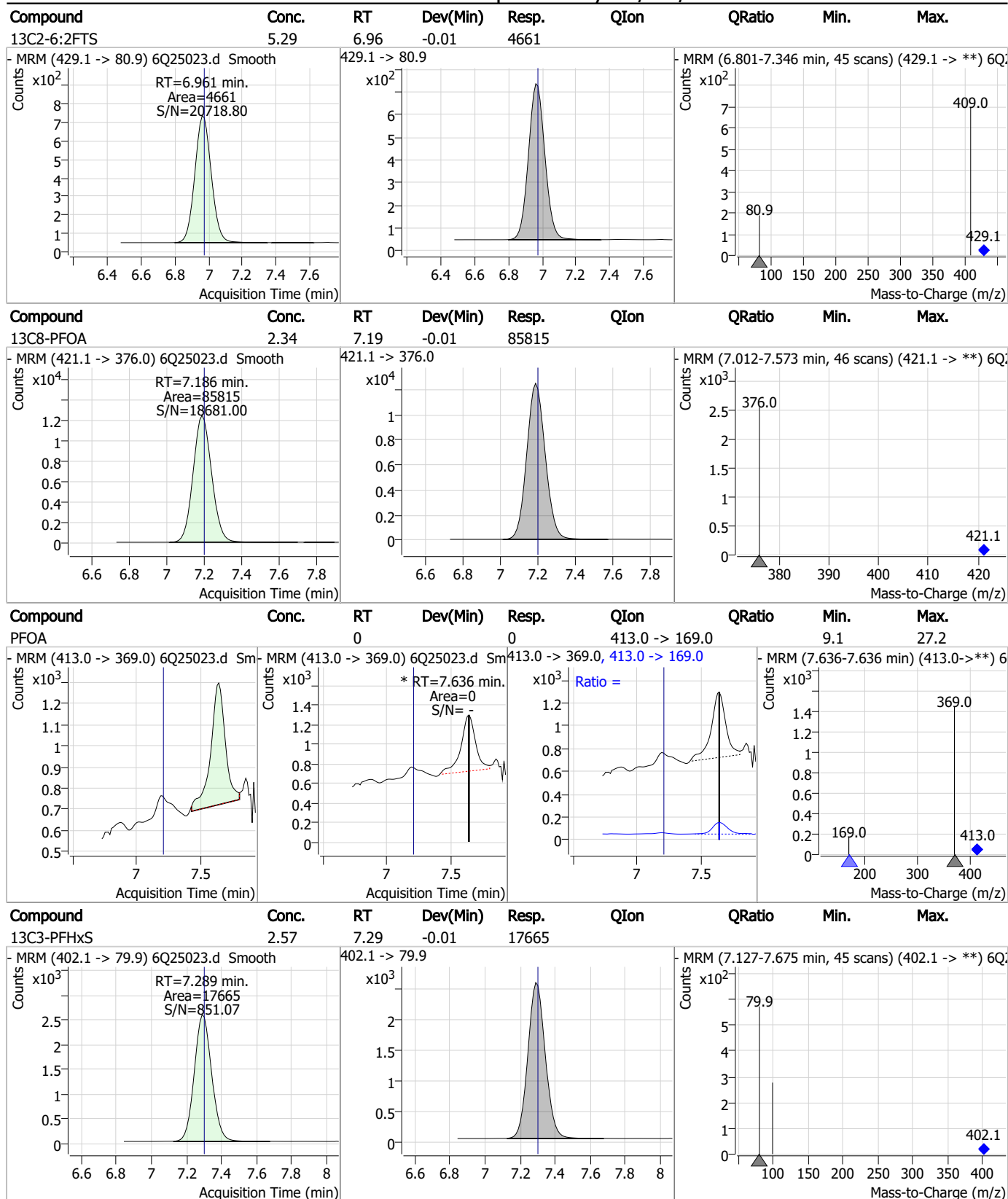


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.45	5.55	-0.01	27947				
13C5-PFHxA	2.41	5.63	0.00	66952				
13C3-HFPO-DA	9.54	6.01	0.00	47496				
13C4-PFHpA	2.54	6.56	-0.01	68627				

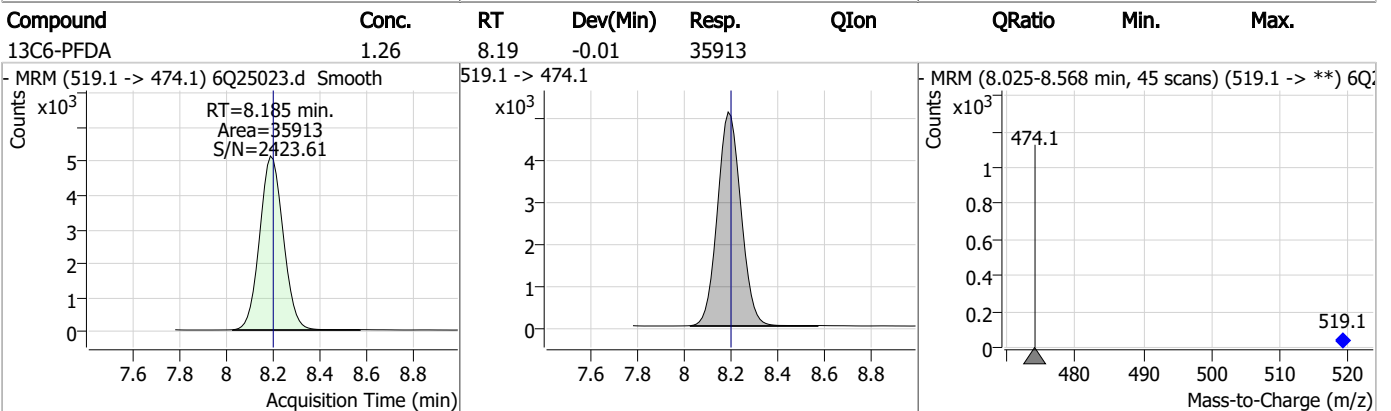
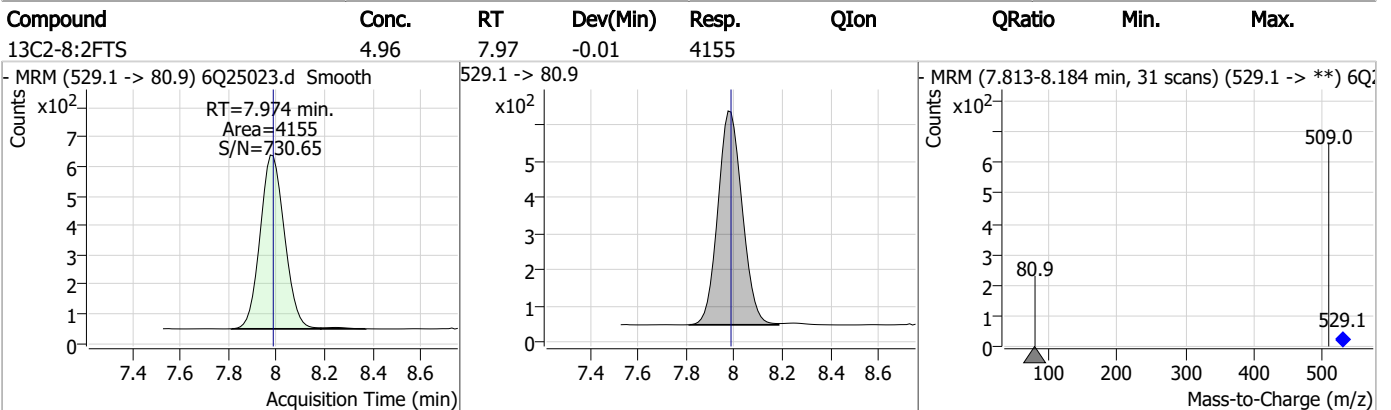
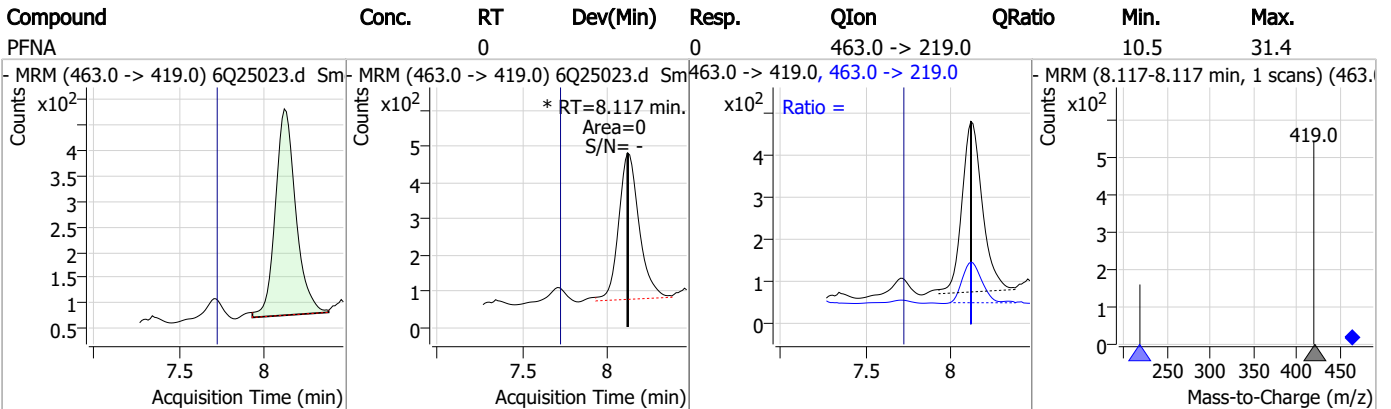
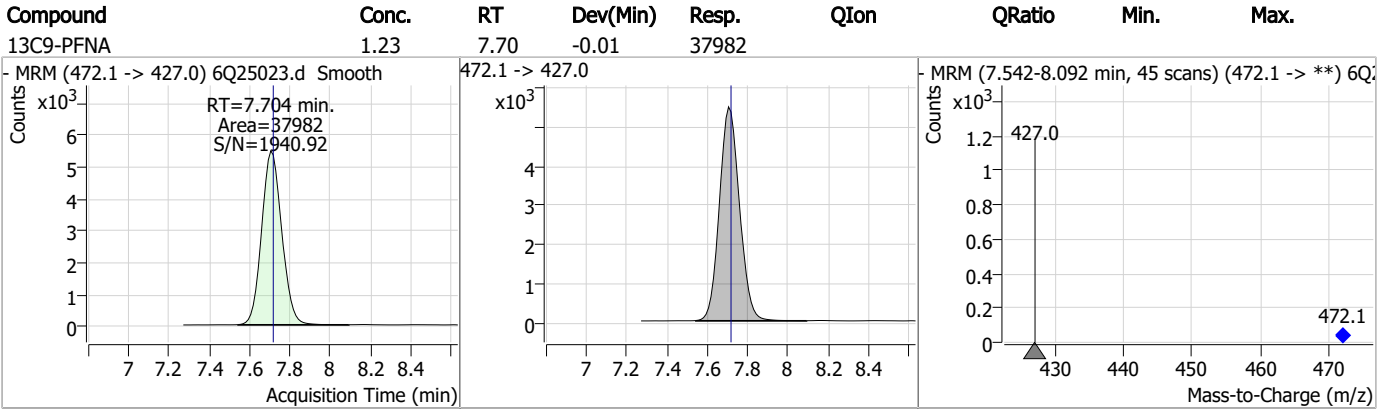
7.2.4
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Perfluorinated Compounds by LC/MS/MS



7.2.4
7

Perfluorinated Compounds by LC/MS/MS

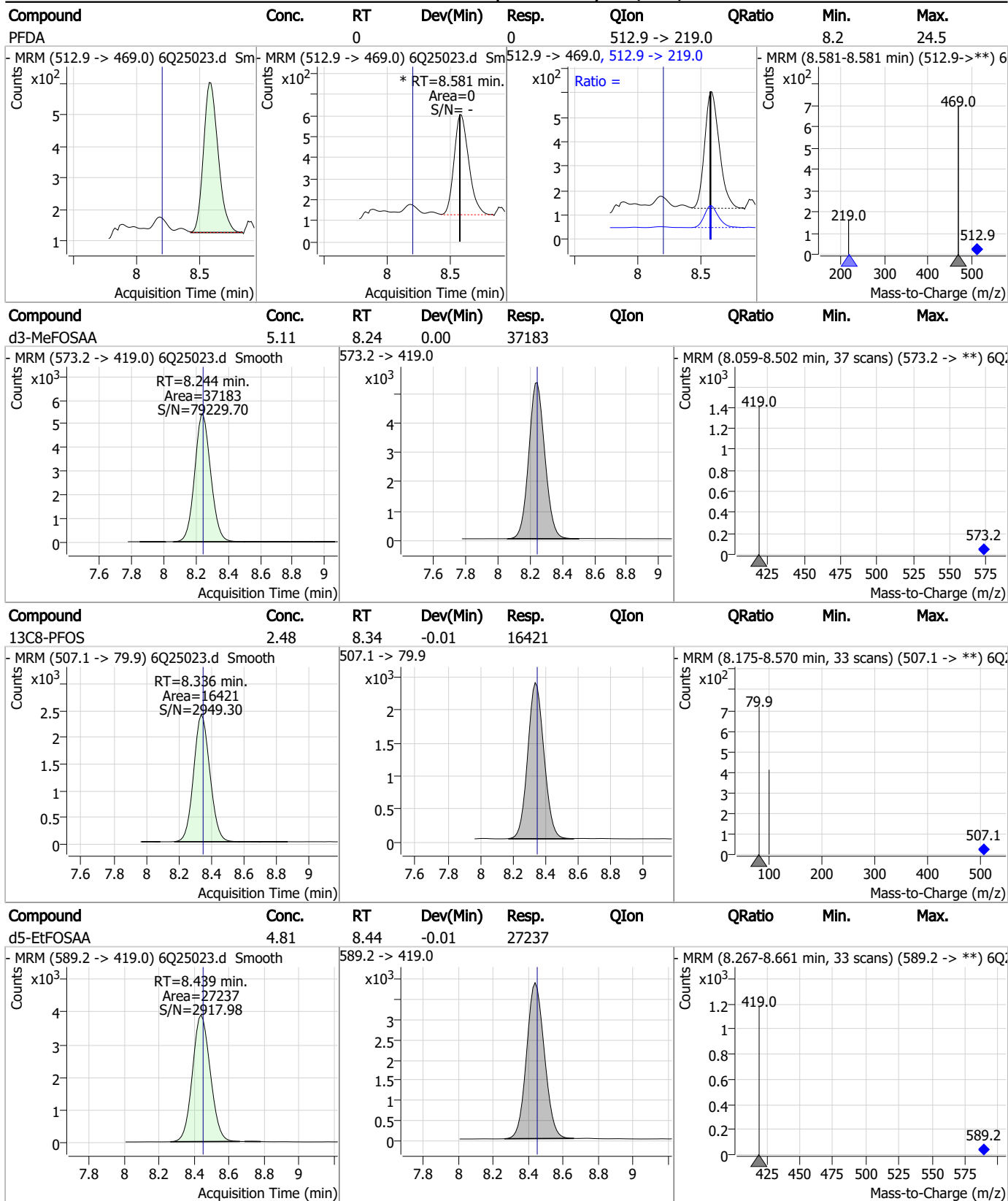


7.2.4

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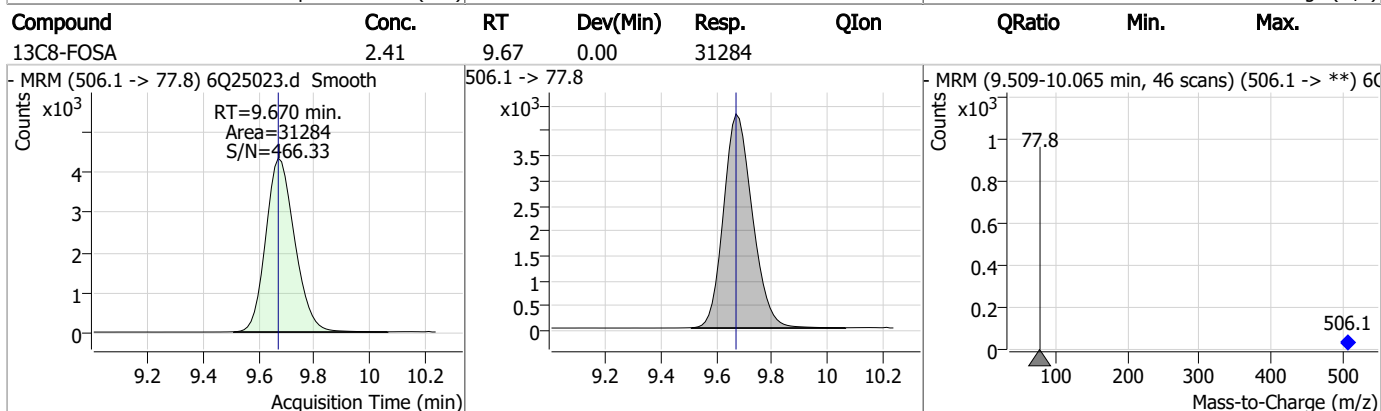
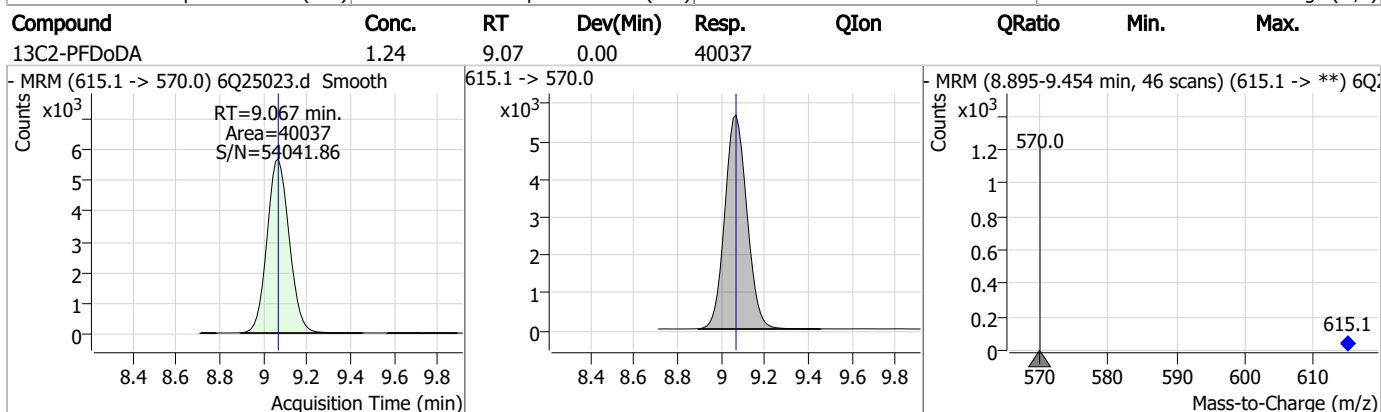
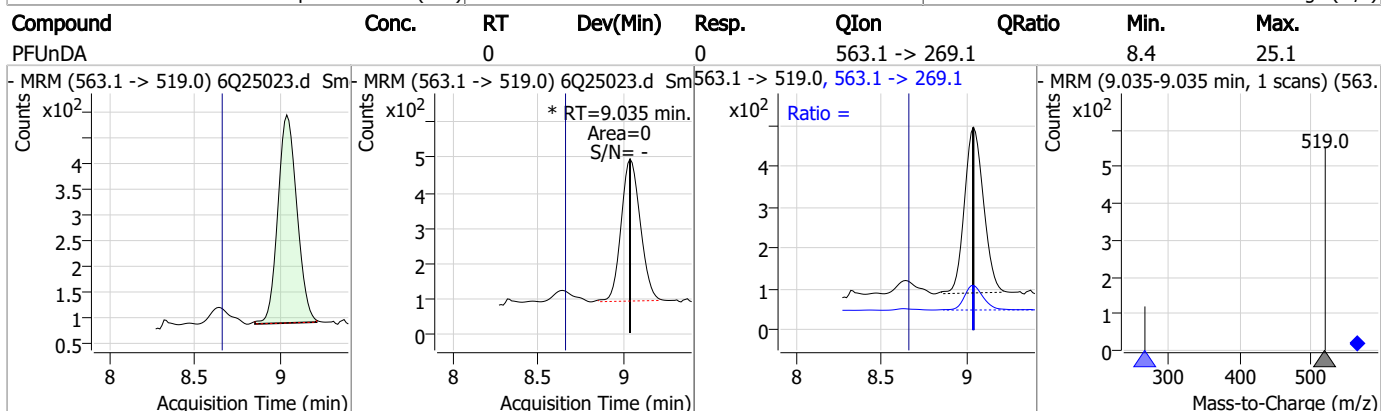
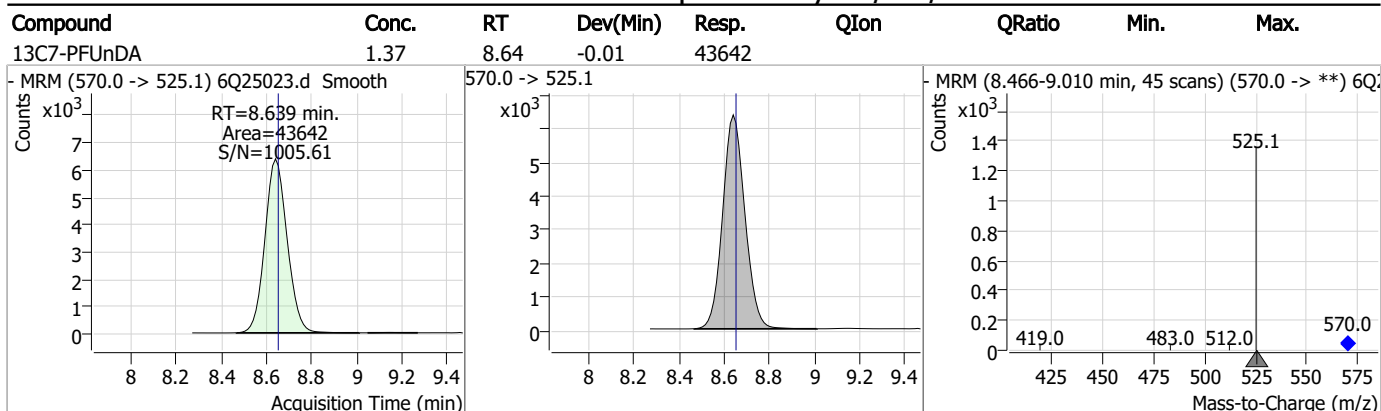
Perfluorinated Compounds by LC/MS/MS



7.2.4

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Perfluorinated Compounds by LC/MS/MS



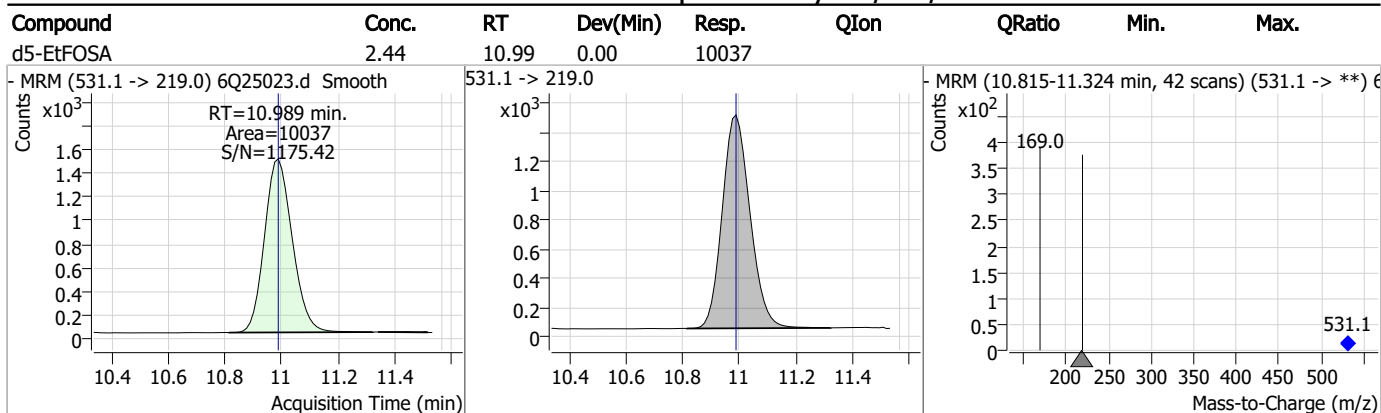
7.2.4
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.28	9.77	0.00	17544				
d7-MeFOSE	22.53	10.68	0.00	103828				
d3-MeFOSA	2.40	10.76	0.00	9383				
d9-EtFOSE	22.63	10.91	-0.01	126880				

7.2.4
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Perfluorinated Compounds by LC/MS/MS



7.2.4
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q25015.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/25/2023 1:54:48 PM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	187272	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	78538	5.00 µg/L	0.000
M5-PFHxA	5.629	318.0 -> 273.0	70607	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	68938	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	88398	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	38028	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	34802	1.25 µg/L	0.000
M7-PFUnDA	8.639	570.0 -> 525.1	41581	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	39697	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	16637	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	32131	2.50 µg/L	0.000
M3-PFBS	5.559	302.1 -> 79.9	27630	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	17657	2.50 µg/L	0.000
M8-PFOS	8.336	507.1 -> 79.9	15318	2.50 µg/L	-0.013
M2-4:2FTS	5.304	329.1 -> 80.9	2889	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4760	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	4126	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	35044	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	46983	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	26992	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	109231	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	128466	25.00 µg/L	-0.012
M5-EtFOSA	10.989	531.1 -> 219.0	9818	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9834	2.50 µg/L	0.000
13C4-PFOS	8.336	502.8 -> 79.9	15594	2.50 µg/L	-0.013
13C3-PFBA	2.976	216.0 -> 172.0	77754	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	10352	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	105128	2.50 µg/L	0.000
13C2-PFDA	8.186	515.1 -> 470.1	34672	1.25 µg/L	-0.012
13C5-PFNA	7.717	468.0 -> 423.0	37086	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	62598	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2889	5.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.1%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4760	5.65 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.1%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4126	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C2-PFDoDA	9.067	615.1 -> 570.0	39697	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.7%		
13C2-PFTeDA	9.772	715.2 -> 670.0	16637	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.7%		
13C3-PFBS	5.559	302.1 -> 79.9	27630	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C3-PFHxS	7.301	402.1 -> 79.9	17657	2.70 µg/L	0.000

7.2.5
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.8%	
13C4-PFBA	2.972	216.8 -> 171.9	187272	9.97 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C4-PFHpA	6.569	367.1 -> 322.0	68938	2.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.9%	
13C5-PFHxA	5.629	318.0 -> 273.0	70607	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.3%	
13C5-PFPeA	4.409	268.3 -> 223.0	78538	5.30 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.0%	
13C6-PFDA	8.198	519.1 -> 474.1	34802	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.6%	
13C7-PFUnDA	8.639	570.0 -> 525.1	41581	1.28 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C8-FOSA	9.670	506.1 -> 77.8	32131	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C8-PFOA	7.198	421.1 -> 376.0	88398	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C8-PFOS	8.336	507.1 -> 79.9	15318	2.27 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.0%	
13C9-PFNA	7.717	472.1 -> 427.0	38028	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.0%	
d3-MeFOSAA	8.244	573.2 -> 419.0	35044	4.74 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.9%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	46983	9.96 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
d3-MeFOSA	10.757	515.0 -> 219.0	9834	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
d5-EtFOSAA	8.452	589.2 -> 419.0	26992	4.70 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.0%	
d7-MeFOSE	10.678	623.2 -> 58.9	109231	23.35 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.4%	
d9-EtFOSE	10.911	639.2 -> 58.9	128466	22.57 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 90.3%	
d5-EtFOSA	10.989	531.1 -> 219.0	9818	2.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.1%	

7.25
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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	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	8.593	512.9 -> 469.0	0	0.00 µg/L m	
		512.9 -> 219.0	0		
PFDODA	9.429	613.1 -> 569.0	0	0.00 µg/L m	
		613.1 -> 319.0	0		
PFDS	-	599.0 -> 79.9	-	N.D.	



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	8.117	398.7 -> 98.9	0	0.00	µg/L	m
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	-	548.8 -> 98.9	-	N.D.		
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	9.035	563.1 -> 519.0	0	0.00	µg/L	m
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.2.5
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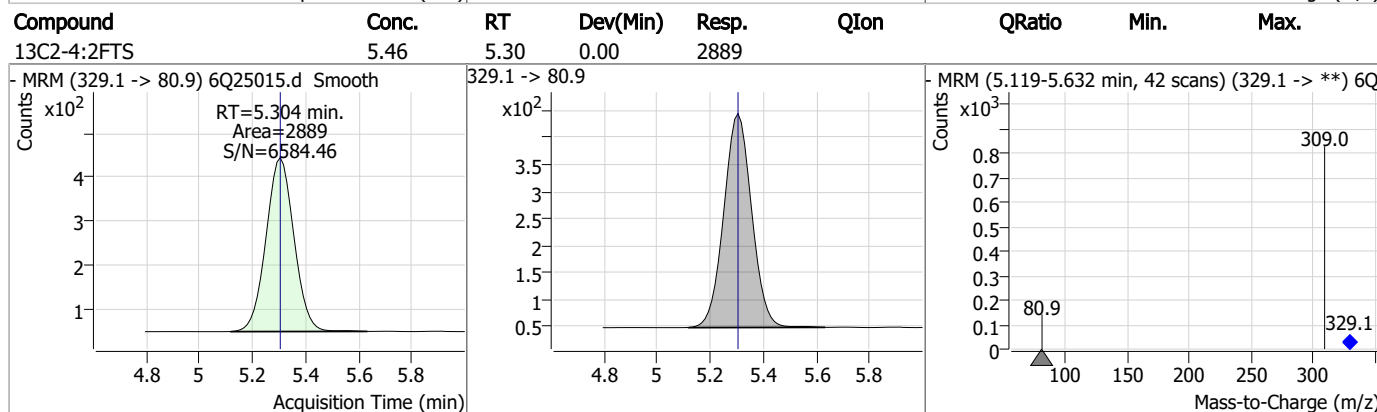
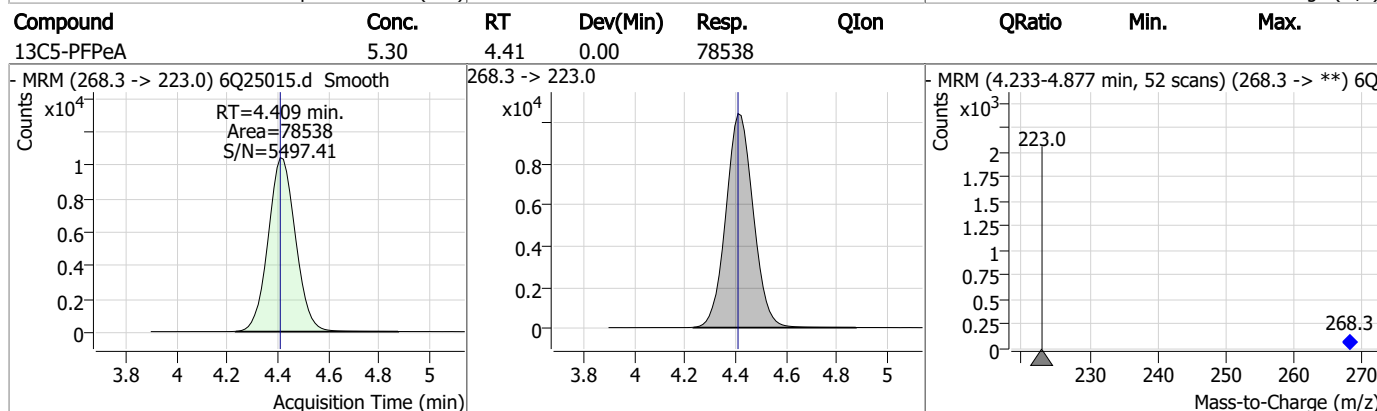
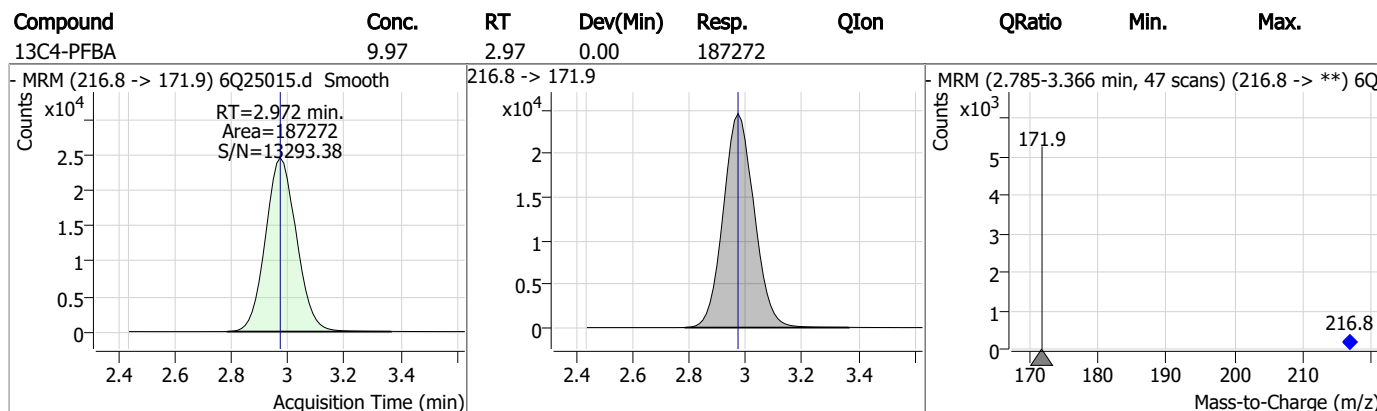
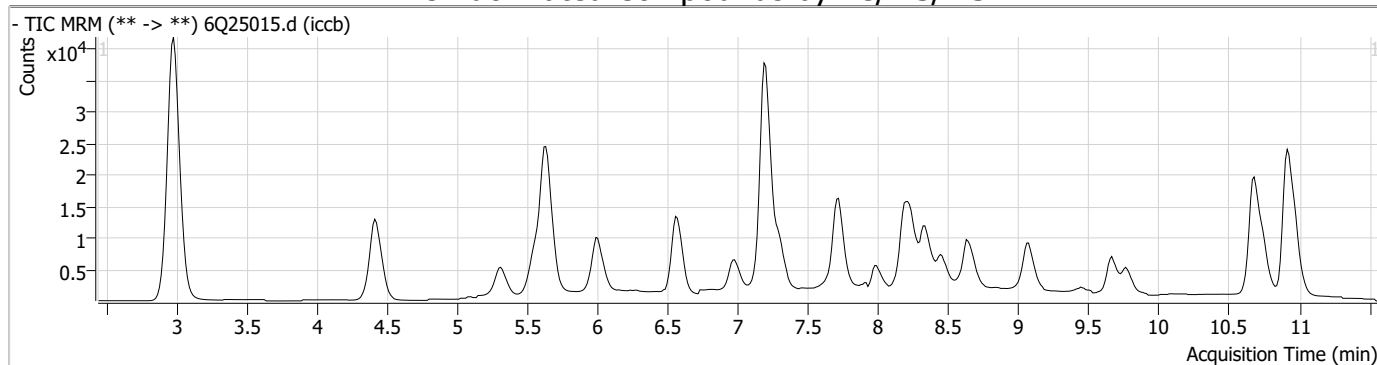
Perfluorinated Compounds by LC/MS/MS

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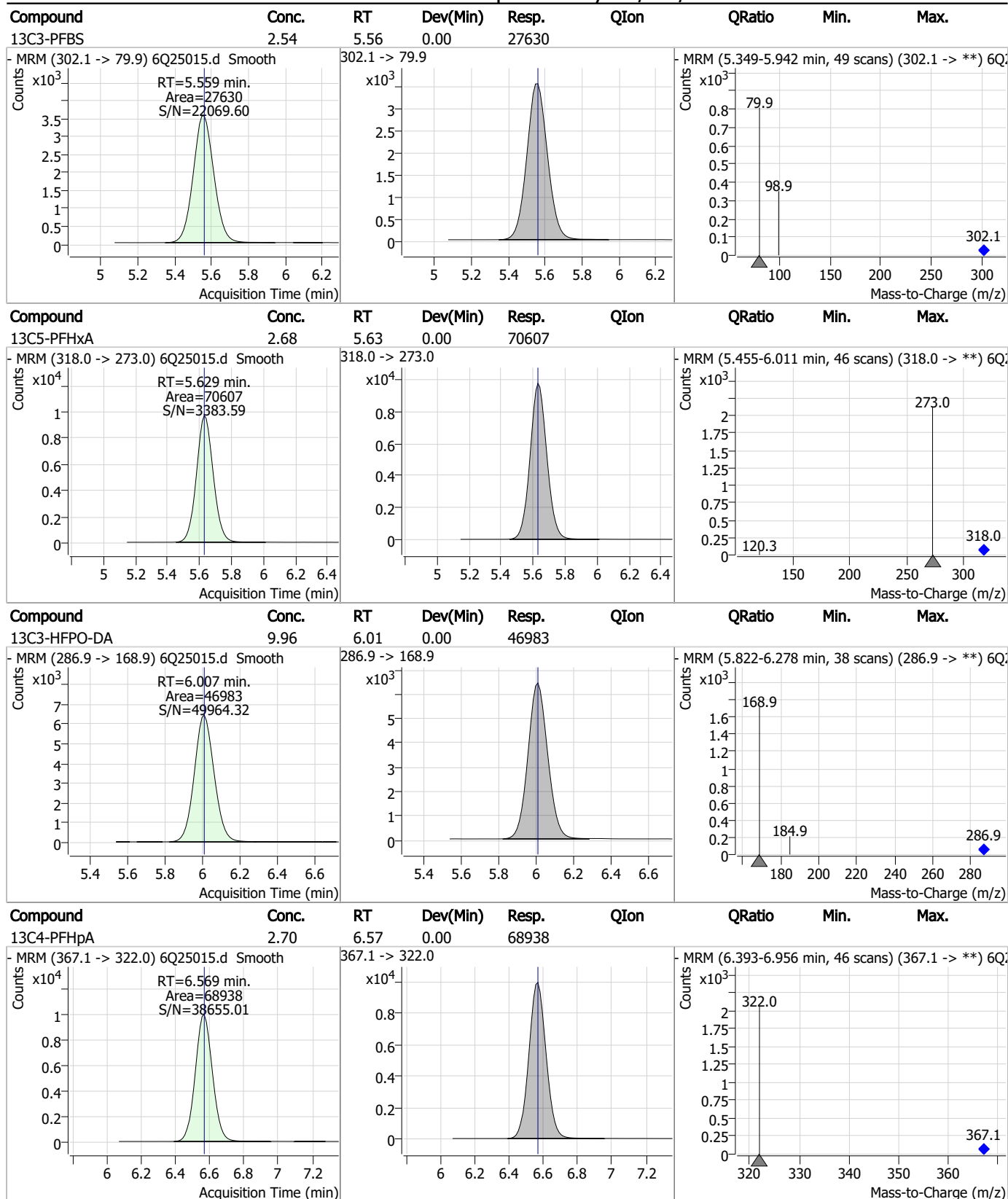
7.2.5

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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.25
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.65	6.97	0.00	4760				
13C8-PFOA	2.43	7.20	0.00	88398				
13C3-PFHxS	2.70	7.30	0.00	17657				
13C9-PFNA	1.28	7.72	0.00	38028				

7.2.5

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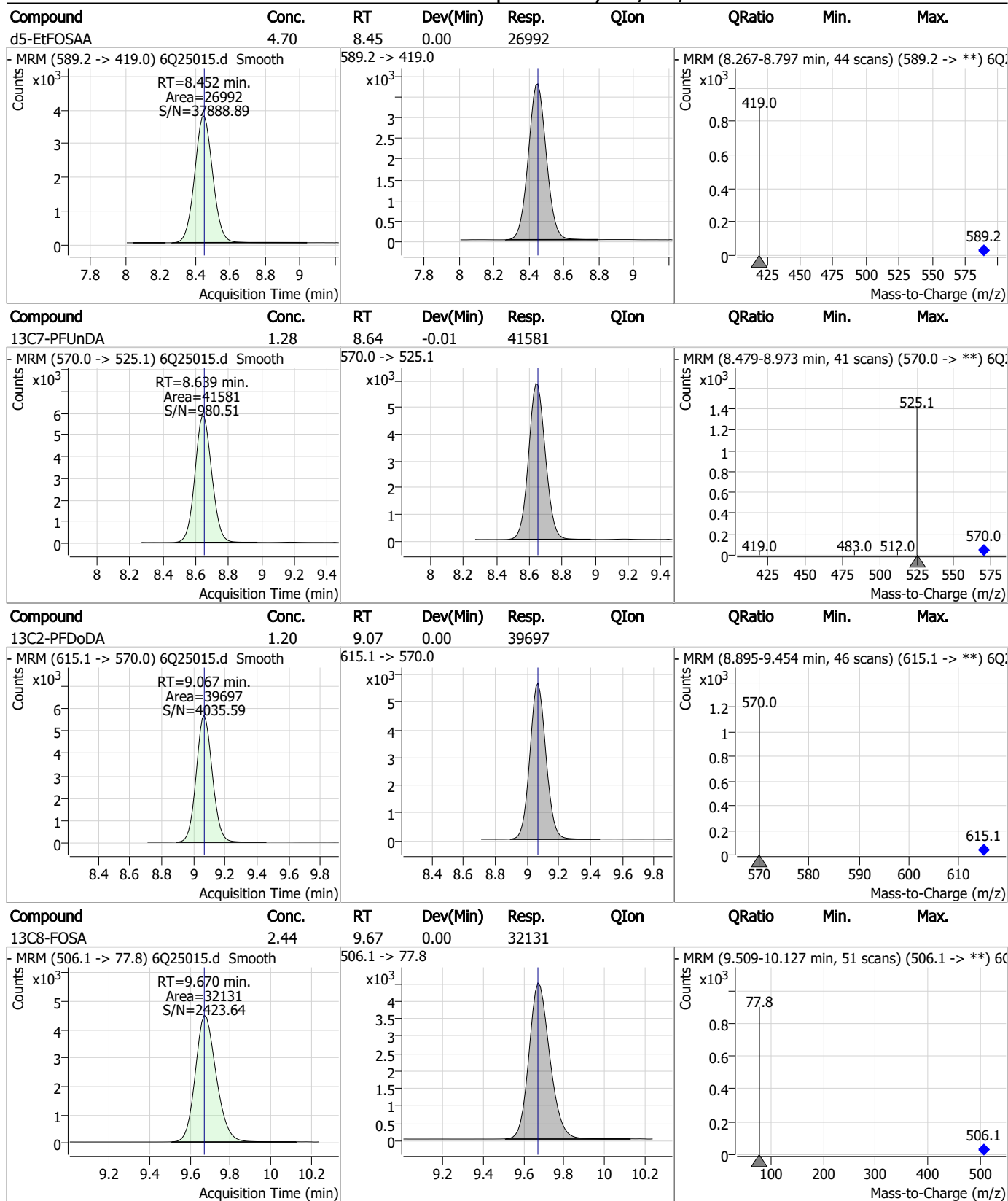


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.15	7.99	0.00	4126				
13C6-PFDA	1.19	8.20	0.00	34802				
d3-MeFOSAA	4.74	8.24	0.00	35044				
13C8-PFOS	2.27	8.34	-0.01	15318				

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Perfluorinated Compounds by LC/MS/MS



7.25
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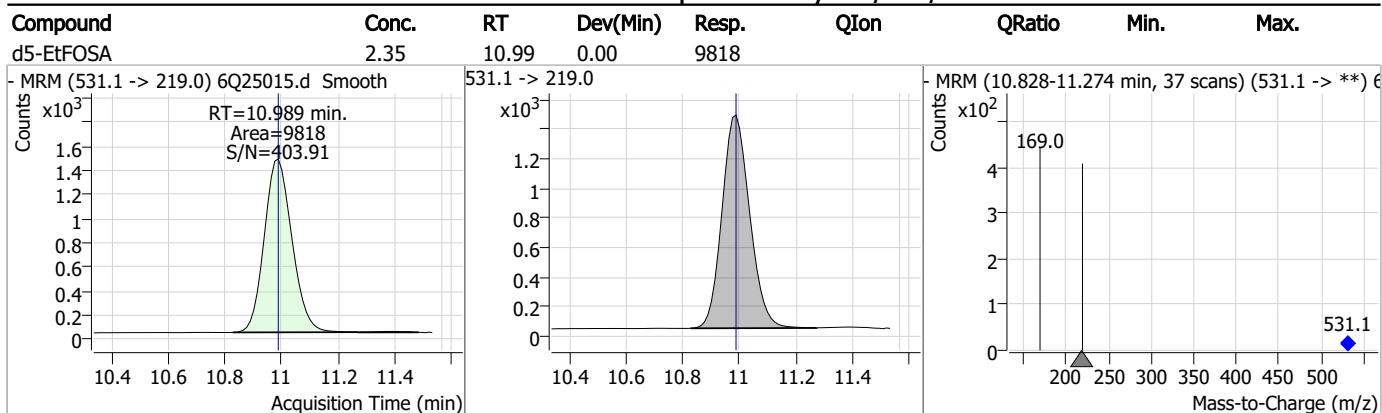
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.18	9.77	0.00	16637				
d7-MeFOSE	23.35	10.68	0.00	109231				
d3-MeFOSA	2.48	10.76	0.00	9834				
d9-EtFOSE	22.57	10.91	-0.01	128466				

7.25
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Perfluorinated Compounds by LC/MS/MS



7.2.5
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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24971.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/25/2023 3:24:41 AM
 Sample Name : OP99128-BS
 Vial : P3-F3
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99128,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.010	216.8 -> 171.9	104191	10.00 µg/L	0.037
M5-PFPeA	4.434	268.3 -> 223.0	79433	5.00 µg/L	0.025
M5-PFHxA	5.641	318.0 -> 273.0	69408	2.50 µg/L	0.012
M4-PFHpA	6.569	367.1 -> 322.0	70175	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	91040	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	36372	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	38702	1.25 µg/L	0.000
M7-PFUnDA	8.639	570.0 -> 525.1	41875	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	42016	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	16586	1.25 µg/L	0.000
M8-FOSA	9.682	506.1 -> 77.8	24808	2.50 µg/L	0.012
M3-PFBS	5.559	302.1 -> 79.9	29163	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	17594	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	15776	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	3169	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4697	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	4713	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	37267	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	46731	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	29920	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	74597	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	101495	25.00 µg/L	-0.012
M5-EtFOSA	10.989	531.1 -> 219.0	8147	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	7728	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	13771	2.50 µg/L	0.000
13C3-PFBA	3.001	216.0 -> 172.0	70597	5.00 µg/L	0.025
18O2-PFHxS	7.300	403.0 -> 83.9	9653	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	86130	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	28308	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	33901	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	55569	2.50 µg/L	0.012

System Monitoring Compounds

13C2-4:2FTS	5.304	329.1 -> 80.9	3169	6.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 128.4%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4697	5.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.7%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4713	6.31 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 126.2%		
13C2-PFDoDA	9.067	615.1 -> 570.0	42016	1.55 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 124.1%		
13C2-PFTeDA	9.772	715.2 -> 670.0	16586	1.45 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 115.7%		
13C3-PFBS	5.559	302.1 -> 79.9	29163	2.87 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 115.0%		
13C3-PFHxS	7.301	402.1 -> 79.9	17594	2.88 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 = 115.2%	
13C4-PFBA	3.010	216.8 -> 171.9	104191	6.11 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 61.1%	
13C4-PFHpA	6.569	367.1 -> 322.0	70175	3.09 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 123.8%	
13C5-PFHxA	5.641	318.0 -> 273.0	69408	2.97 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 118.9%	
13C5-PFPeA	4.434	268.3 -> 223.0	79433	6.04 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 120.8%	
13C6-PFDA	8.198	519.1 -> 474.1	38702	1.63 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 130.2%	
13C7-PFUnDA	8.639	570.0 -> 525.1	41875	1.57 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 125.9%	
13C8-FOSA	9.682	506.1 -> 77.8	24808	2.13 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 85.2%	
13C8-PFOA	7.198	421.1 -> 376.0	91040	3.05 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 122.0%	
13C8-PFOS	8.348	507.1 -> 79.9	15776	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C9-PFNA	7.717	472.1 -> 427.0	36372	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.8%	
d3-MeFOSAA	8.244	573.2 -> 419.0	37267	5.71 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 114.2%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	46731	11.16 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 111.6%	
d3-MeFOSA	10.757	515.0 -> 219.0	7728	2.21 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.3%	
d5-EtFOSAA	8.452	589.2 -> 419.0	29920	5.90 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 118.0%	
d7-MeFOSE	10.678	623.2 -> 58.9	74597	18.06 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 72.2%	
d9-EtFOSE	10.911	639.2 -> 58.9	101495	20.19 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 80.8%	
d5-EtFOSA	10.989	531.1 -> 219.0	8147	2.21 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.5%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	46275	8.92 µg/L	97
		327.1 -> 80.9	19157		
6:2FTS	6.974	427.1 -> 407.0	37736	9.32 µg/L	96
		427.1 -> 80.9	15465		
8:2FTS	7.987	527.1 -> 507.0	24815	8.26 µg/L	89
		527.1 -> 80.8	10352		
EtFOSAA	8.452	584.2 -> 419.1	10568	2.12 µg/L	93
		584.2 -> 526.0	6885		
FOSA	9.672	498.1 -> 77.9	20979	2.22 µg/L	99
		498.1 -> 478.0	602		
MeFOSAA	8.257	570.1 -> 419.0	13515	2.07 µg/L	100
		570.1 -> 483.0	3200		
PFBA	3.006	212.8 -> 168.9	35342	9.50 µg/L	100
PFBS	5.560	298.7 -> 79.9	19904	2.09 µg/L	99
		298.7 -> 98.8	7231		
PFDA	8.198	512.9 -> 469.0	64957	2.13 µg/L	100
		512.9 -> 219.0	10627		
PFDODA	9.068	613.1 -> 569.0	70753	2.31 µg/L	99
		613.1 -> 319.0	8712		
PFDS	9.220	599.0 -> 79.9	9153	2.40 µg/L	95

7.3.1
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.569	599.0 -> 98.8	4608	2.35	µg/L	100
		363.1 -> 319.0	89420			
PFHpS	7.856	363.1 -> 169.0	12795	2.30	µg/L	88
		449.0 -> 79.9	16019			
PFHxA	5.644	449.0 -> 98.9	7968	2.32	µg/L	100
		313.0 -> 269.0	57732			
PFHxS	7.302	313.0 -> 118.9	2834	2.19	µg/L	m
		398.7 -> 79.9	14963			
PFNA	7.717	398.7 -> 98.9	6754	2.37	µg/L	96
		463.0 -> 419.0	55890			
PFNS	8.802	463.0 -> 219.0	12792	2.33	µg/L	98
		548.8 -> 79.9	12819			
PFOA	7.200	548.8 -> 98.9	6457	2.32	µg/L	99
		413.0 -> 369.0	90803			
PFOS	8.350	413.0 -> 169.0	15972	2.22	µg/L	m
		498.9 -> 79.9	15117			
PFPeA	4.424	498.9 -> 98.8	7727	4.63	µg/L	100
		263.0 -> 219.0	74017			
PFPeS	6.620	349.1 -> 79.9	21207	2.22	µg/L	99
		349.1 -> 98.9	9413			
PFTeDA	9.772	713.1 -> 669.0	43656	2.23	µg/L	99
		713.1 -> 168.9	3449			
PFTrDA	9.440	663.0 -> 619.0	64411	2.40	µg/L	99
		663.0 -> 168.9	4940			
PFUnDA	8.652	563.1 -> 519.0	65647	2.37	µg/L	96
		563.1 -> 269.1	9824			
11Cl-PF3OUdS	9.479	630.9 -> 450.9	59077	4.83	µg/L	98
		632.9 -> 452.9	18561			
9Cl-PF3ONS	8.678	530.8 -> 351.0	98111	4.73	µg/L	100
		532.8 -> 353.0	31287			
ADONA	6.817	376.9 -> 250.9	282576	4.92	µg/L	94
		376.9 -> 84.8	73319			
HFPO-DA	6.020	284.9 -> 168.9	21513	4.68	µg/L	98
		284.9 -> 184.9	2133			
3:3FTCA	3.902	241.0 -> 177.0	6784	11.23	µg/L	99
		241.0 -> 117.0	773			
5:3FTCA	6.283	341.0 -> 237.1	248247	53.00	µg/L	98
		341.0 -> 217.0	168188			
7:3FTCA	7.669	441.0 -> 316.9	155906	58.76	µg/L	99
		441.0 -> 336.9	311306			
EtFOSA	10.978	526.0 -> 219.0	19136	4.73	µg/L	93
		526.0 -> 169.0	23125			
EtFOSE	10.924	630.0 -> 58.9	47091	11.56	µg/L	100
		511.9 -> 219.0	16388			
MeFOSA	10.758	511.9 -> 169.0	22435	4.71	µg/L	96
		616.1 -> 58.9	36689			
MeFOSE	10.691	699.1 -> 79.9	5426	11.10	µg/L	100
		699.1 -> 98.8	2713			
PFDoDS	9.886	295.0 -> 201.0	14966	2.38	µg/L	97
		295.0 -> 84.9	3918			
NFDHA	5.524	279.0 -> 85.1	58201	4.68	µg/L	99
		229.0 -> 84.9	37873			
PFMBA	4.850	314.8 -> 134.9	134707	4.53	µg/L	100
		314.8 -> 82.9	4961			
PFMPA	3.563			3.97	µg/L	100
PFEESA	6.100			4.35	µg/L	100

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

7.3.1
7

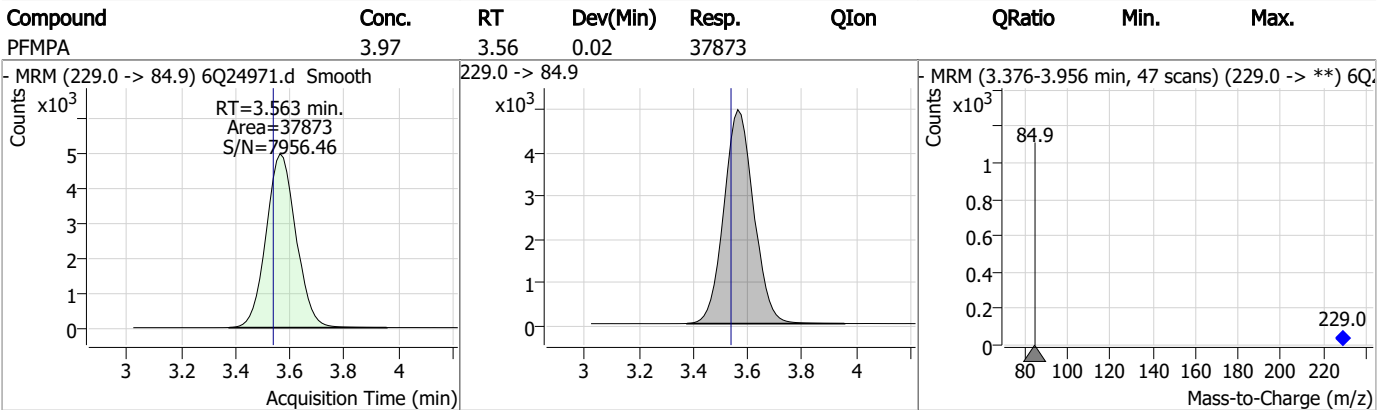
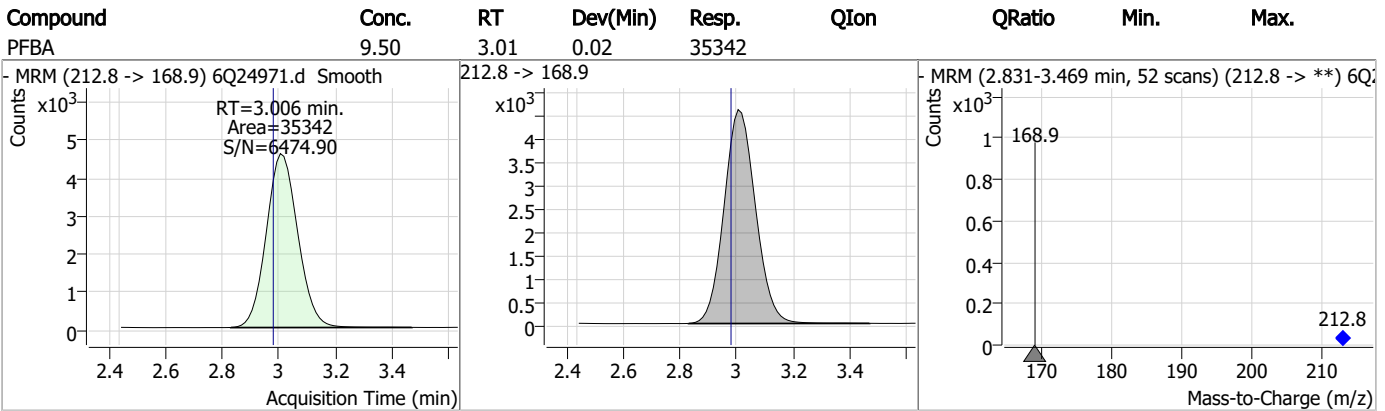
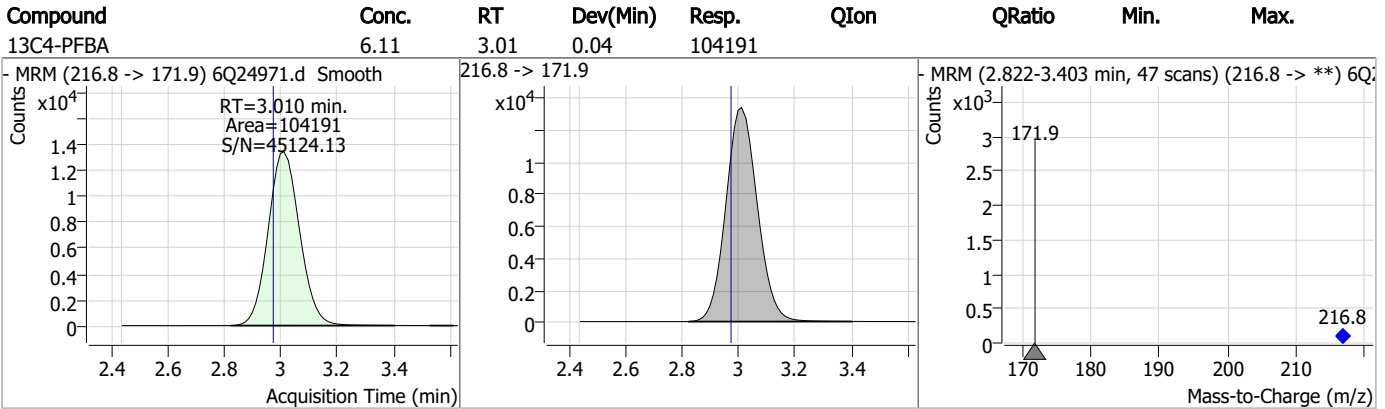
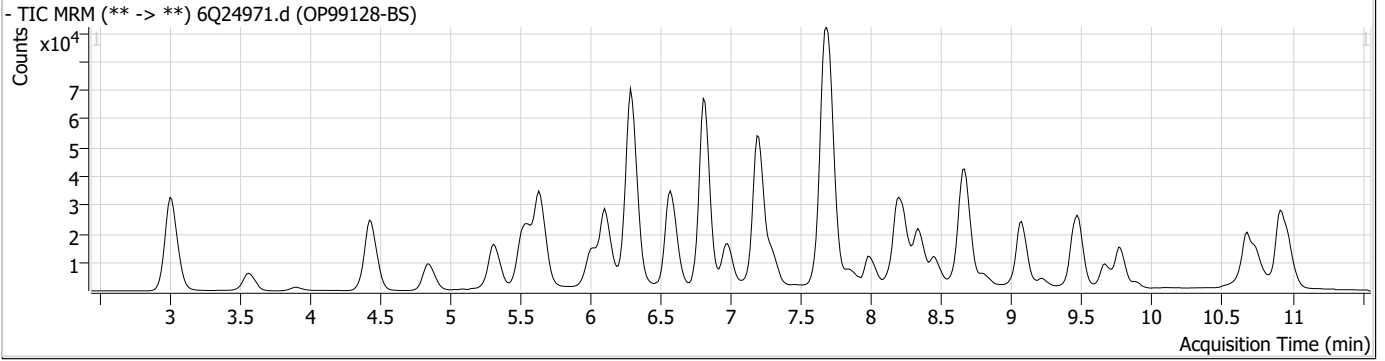
Perfluorinated Compounds by LC/MS/MS

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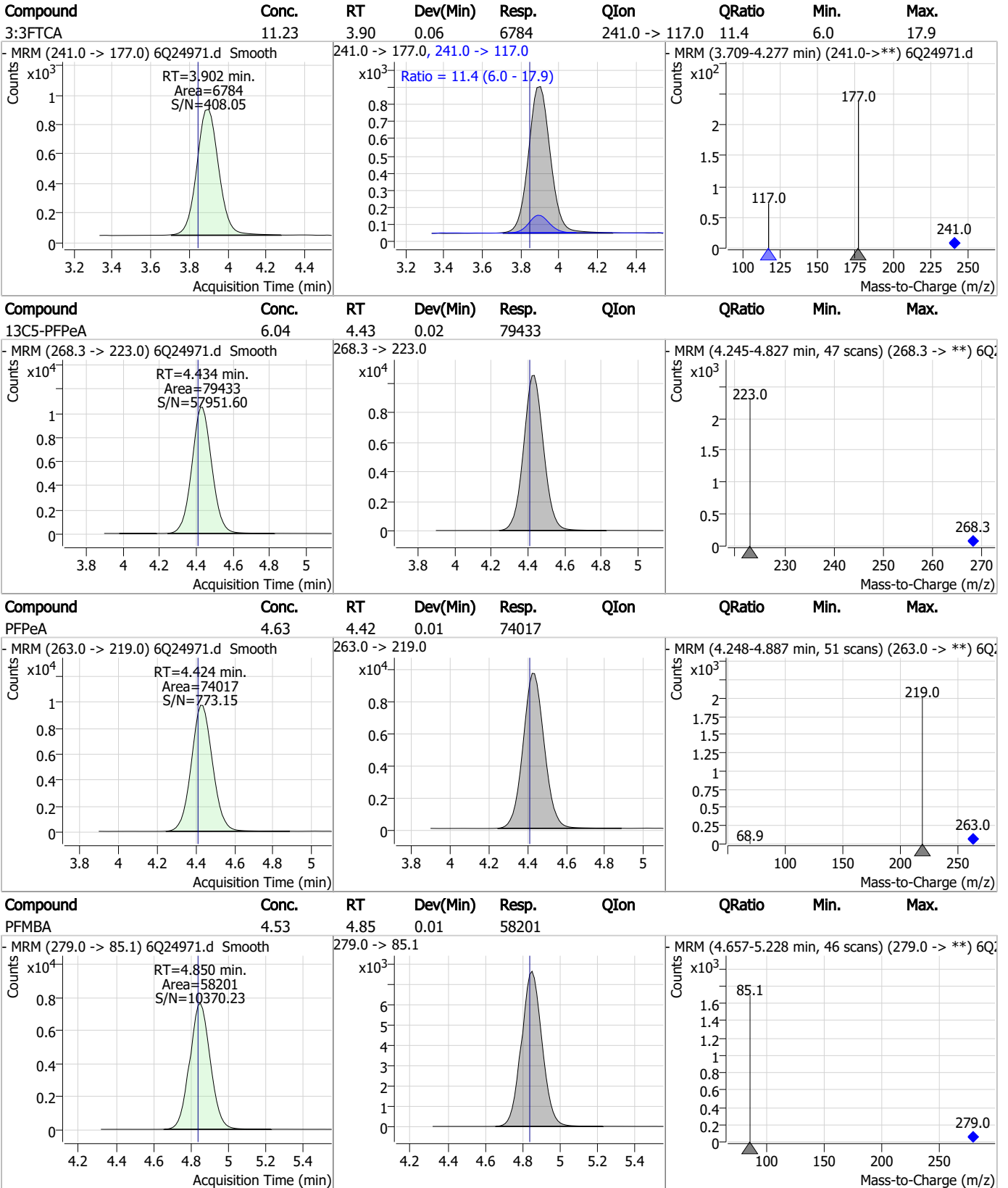
7.3.1

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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

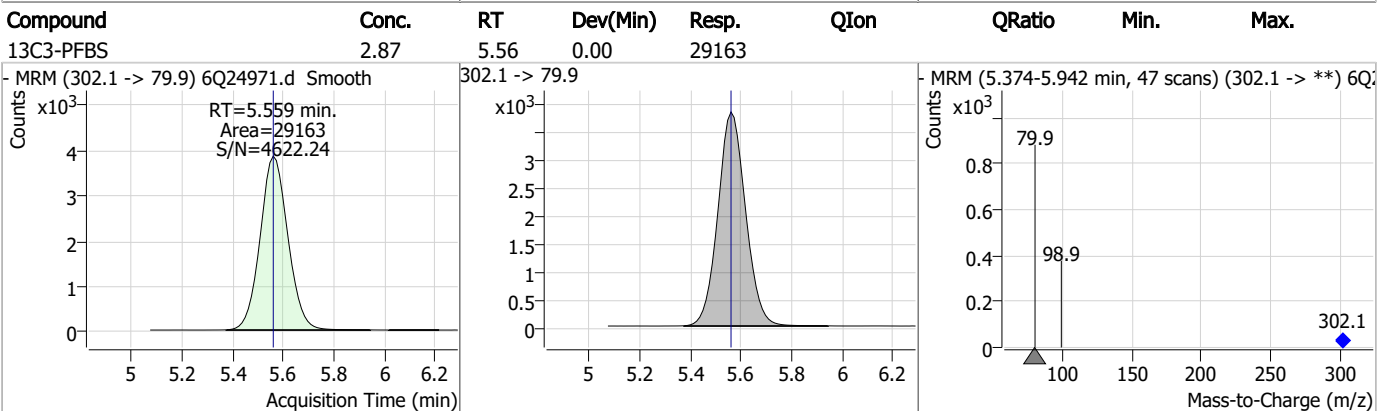
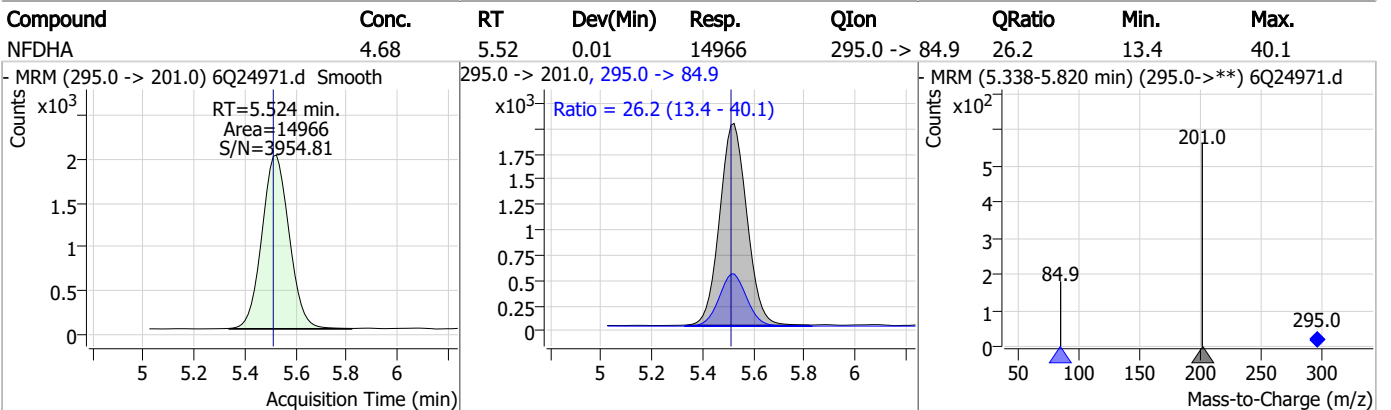
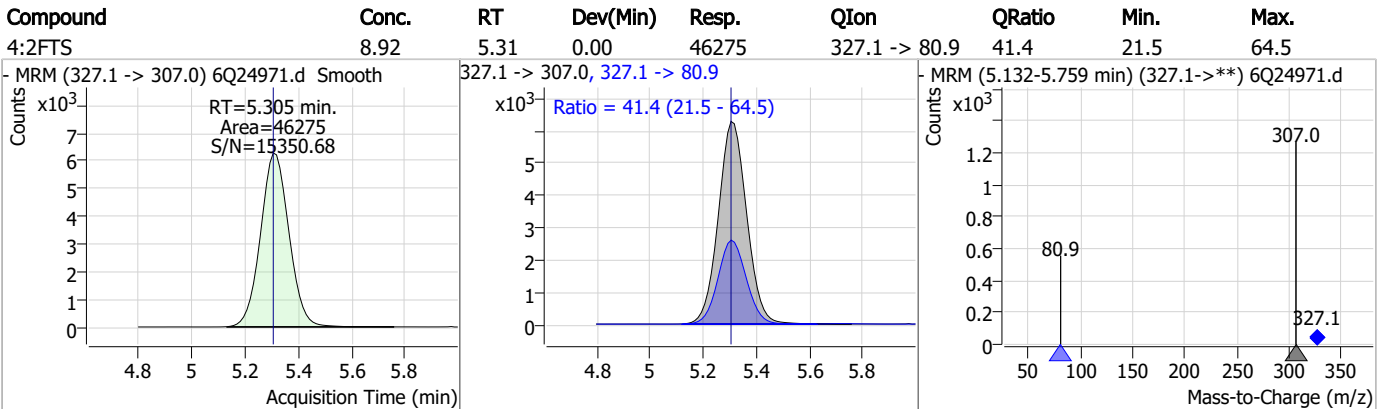
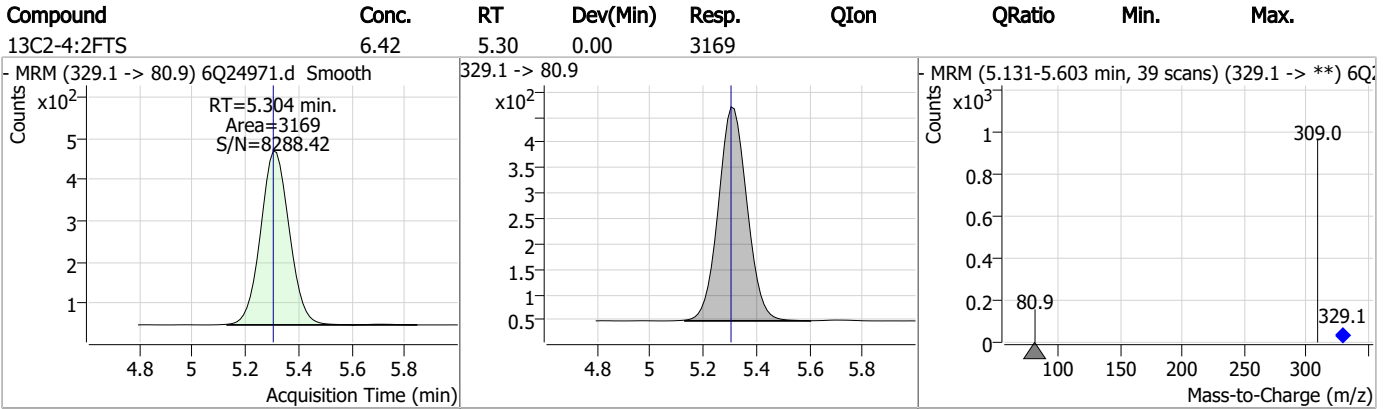


7.3.1

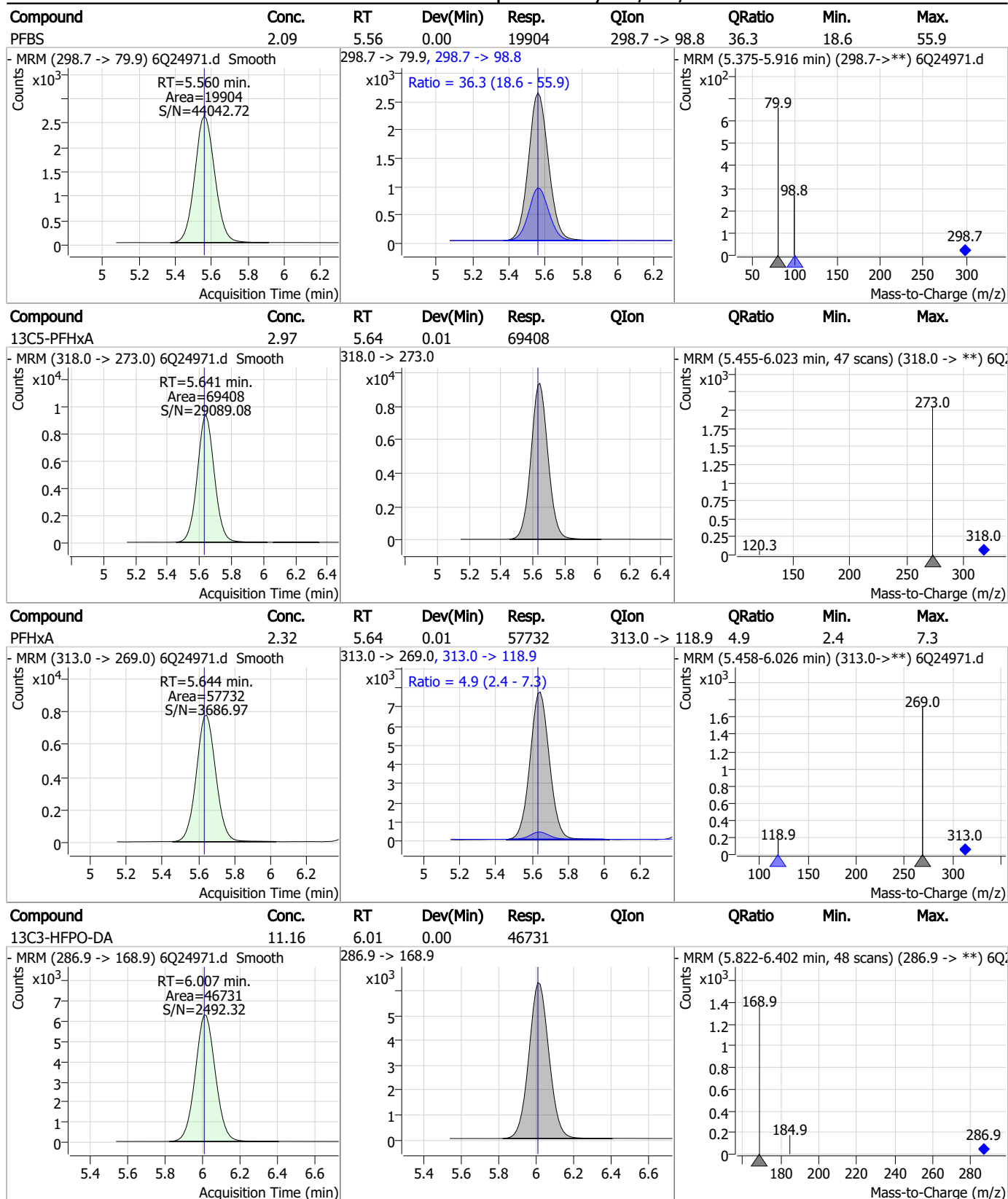
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Perfluorinated Compounds by LC/MS/MS

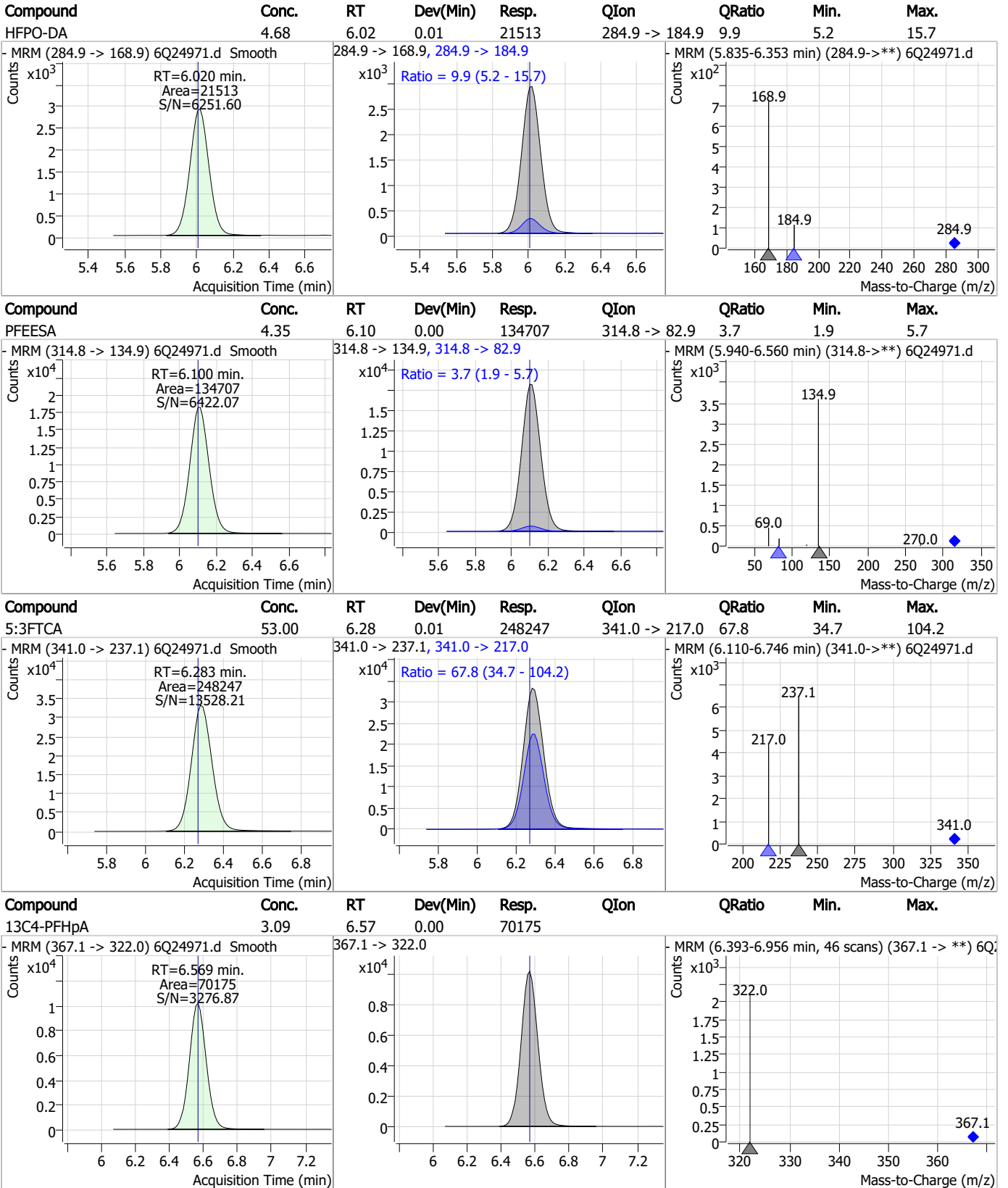


Perfluorinated Compounds by LC/MS/MS



7.3.1
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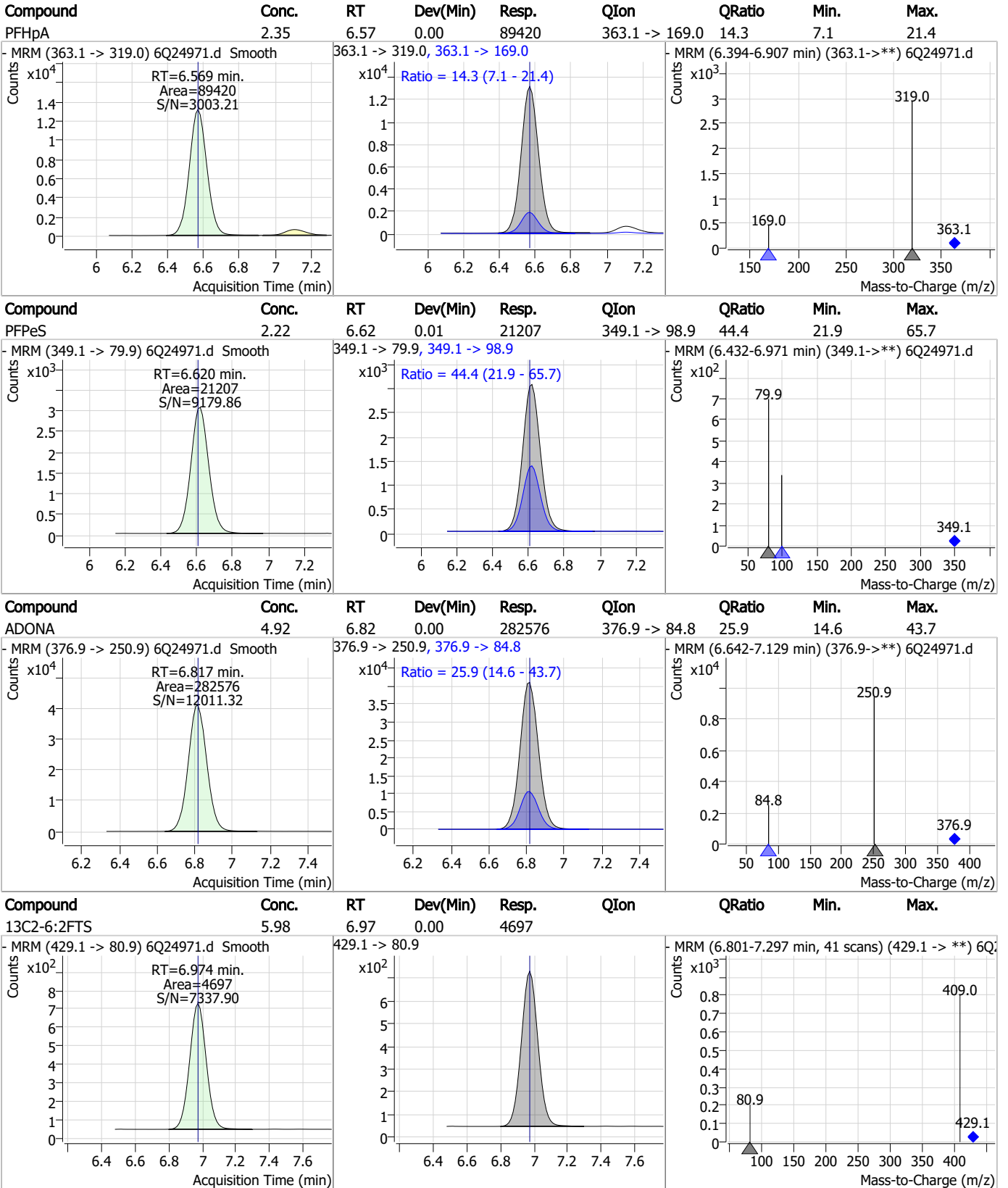
Perfluorinated Compounds by LC/MS/MS



7.3.1

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Perfluorinated Compounds by LC/MS/MS

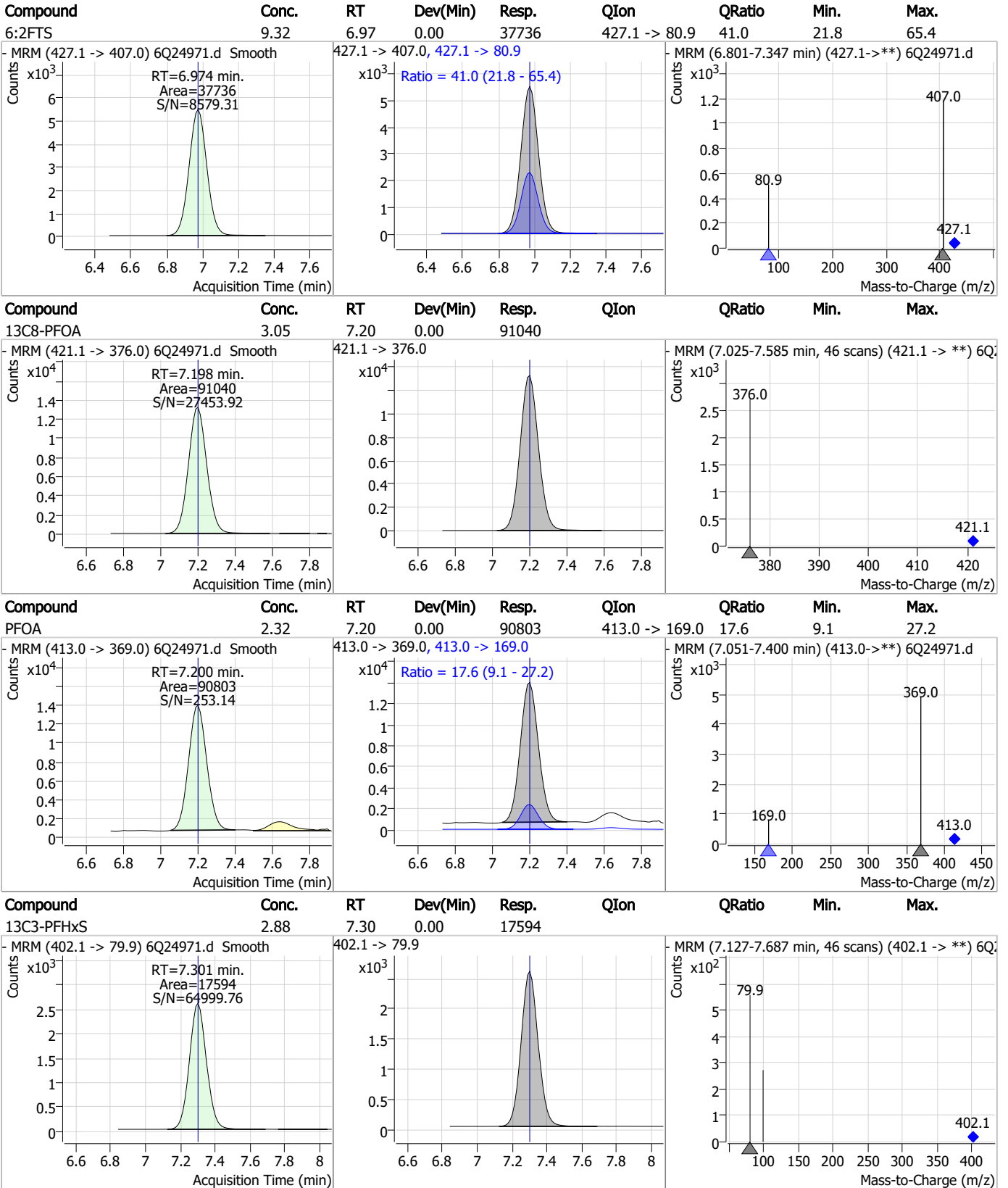


7.3.1

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Perfluorinated Compounds by LC/MS/MS

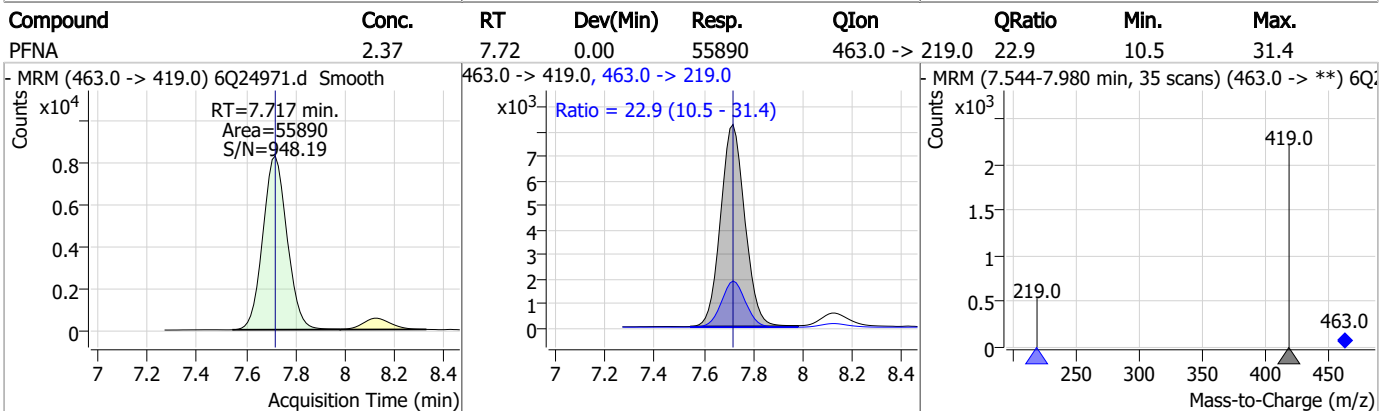
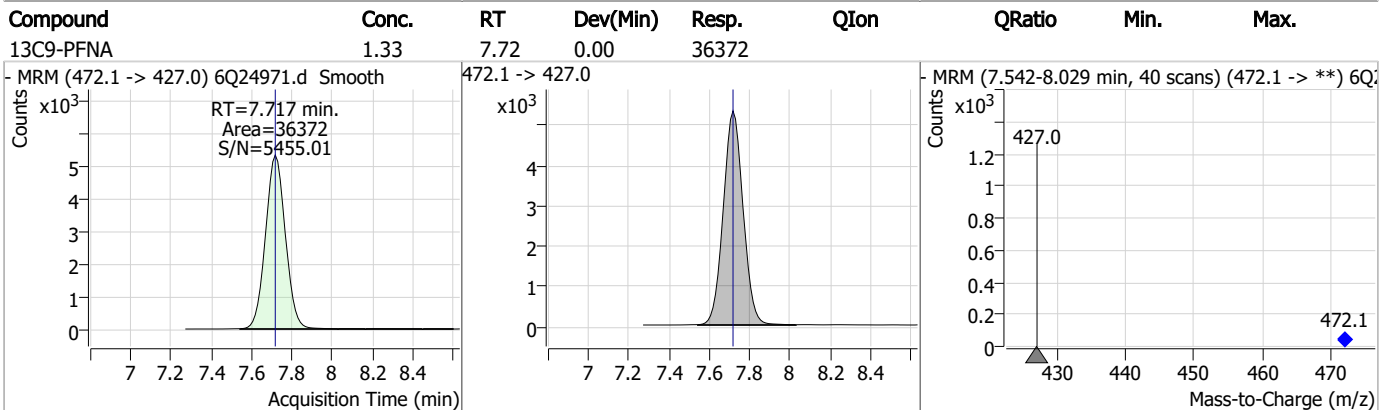
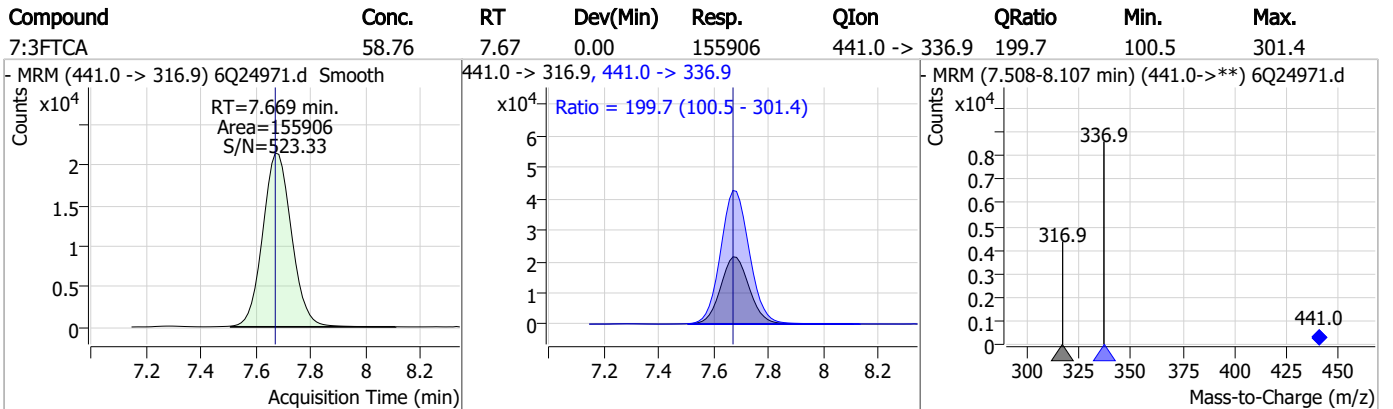
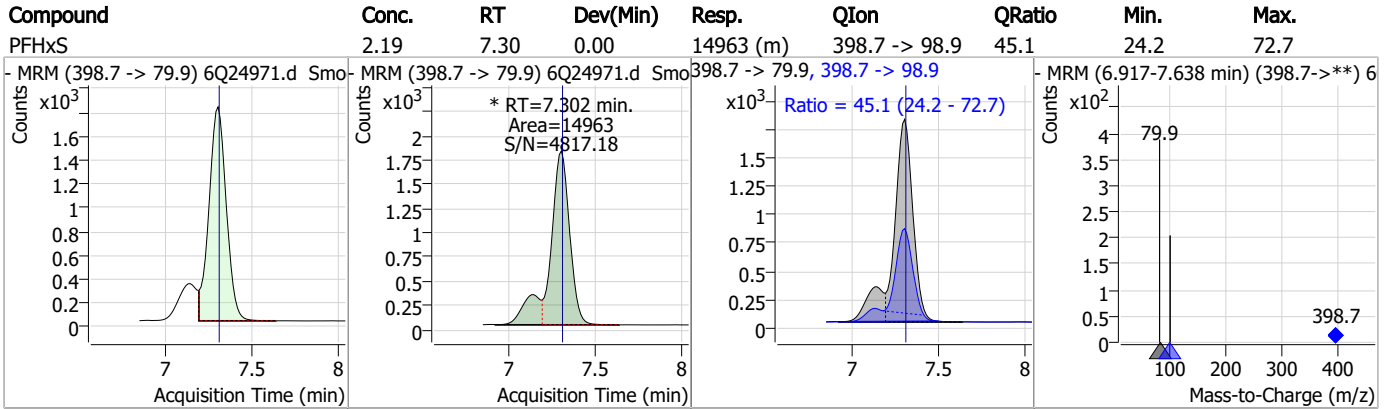


7.3.1

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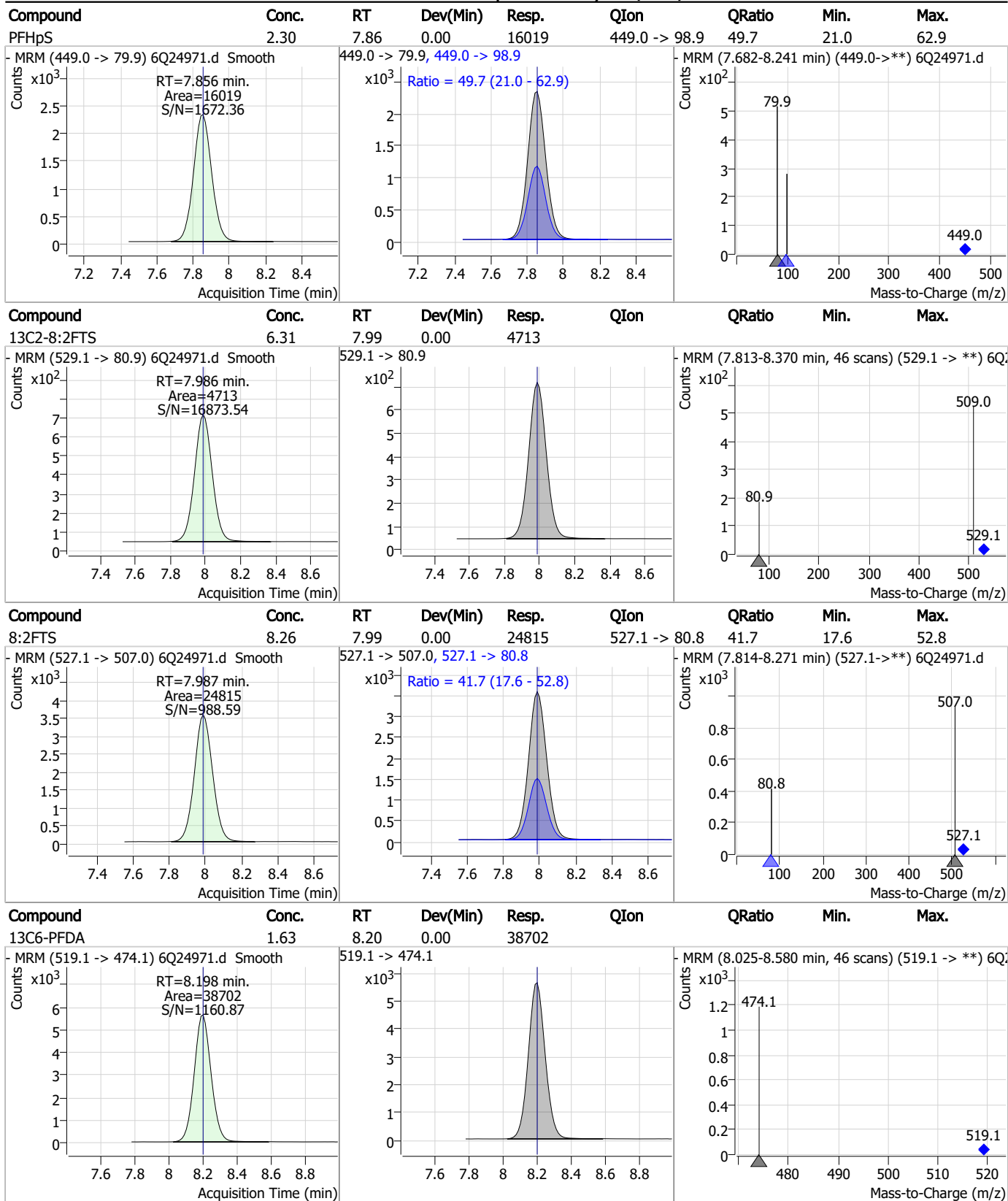
Perfluorinated Compounds by LC/MS/MS



7.3.1

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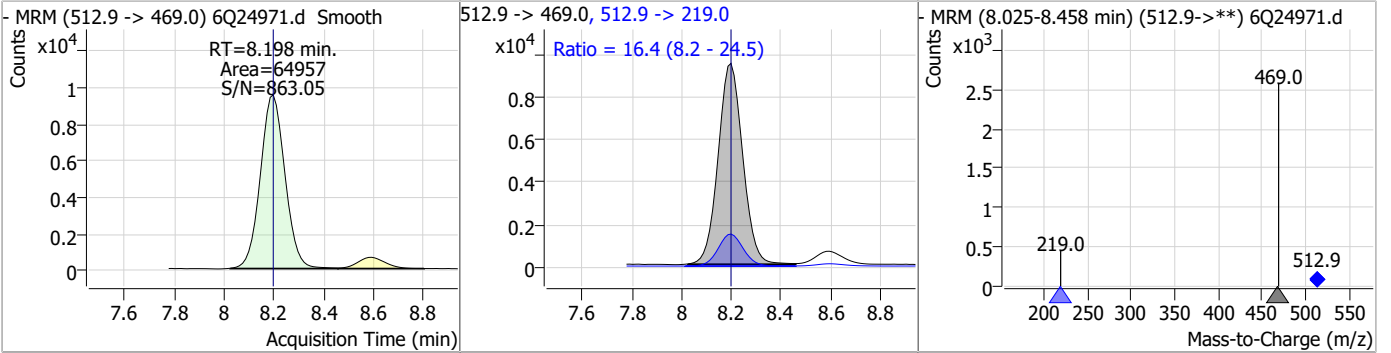
Perfluorinated Compounds by LC/MS/MS



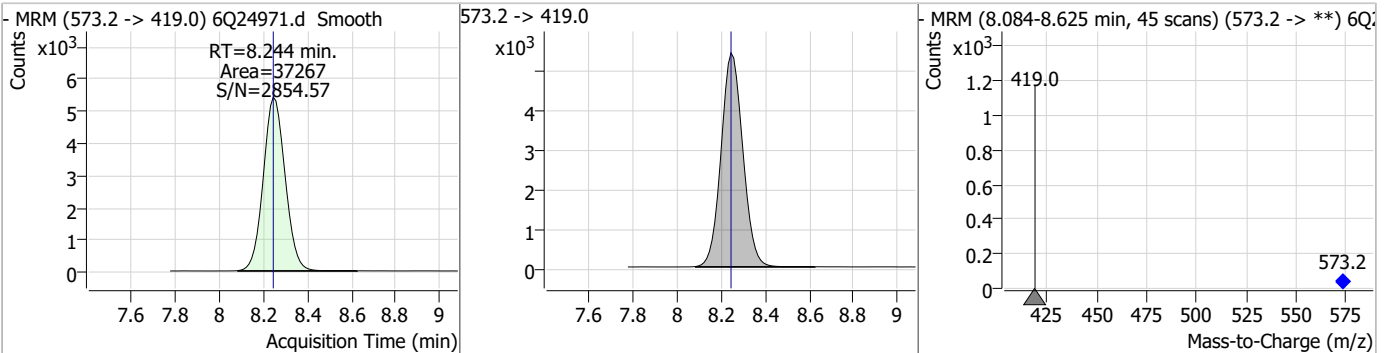
7.3.1
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Perfluorinated Compounds by LC/MS/MS

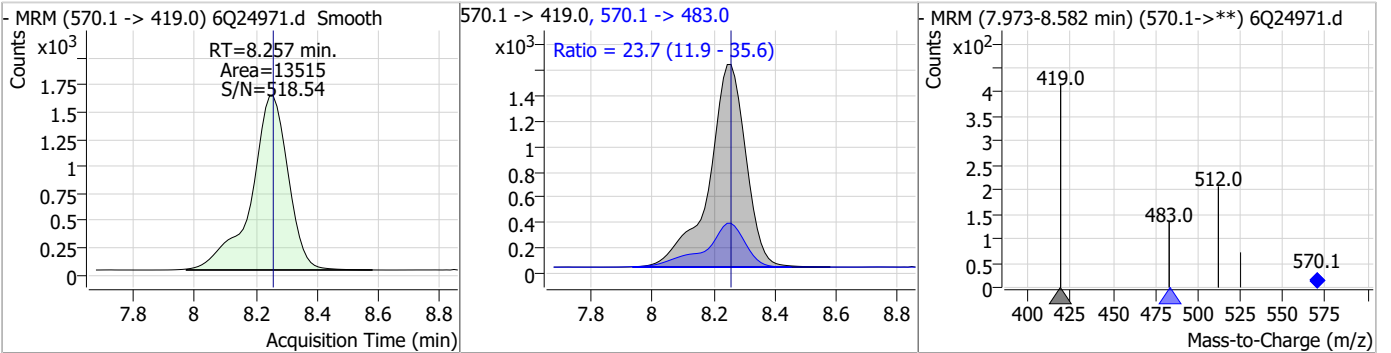
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.13	8.20	0.00	64957	512.9 -> 219.0	16.4	8.2	24.5



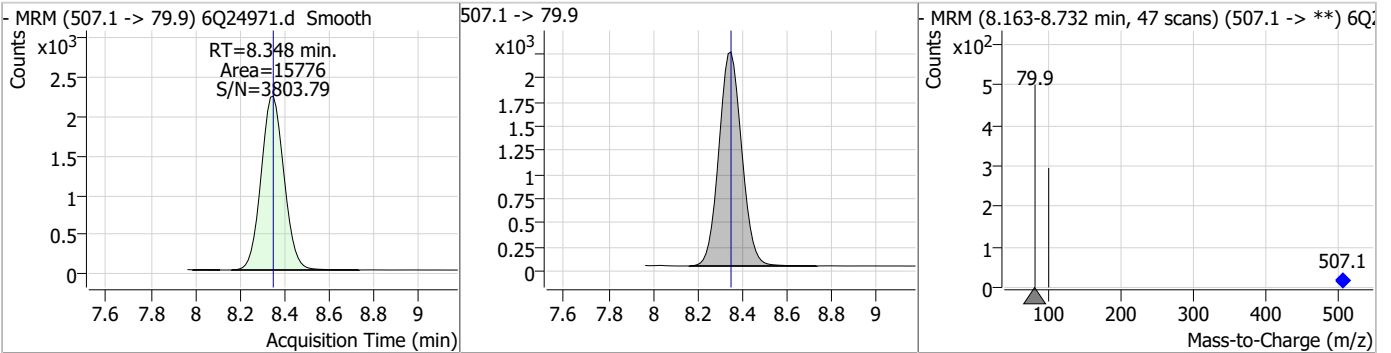
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.71	8.24	0.00	37267				



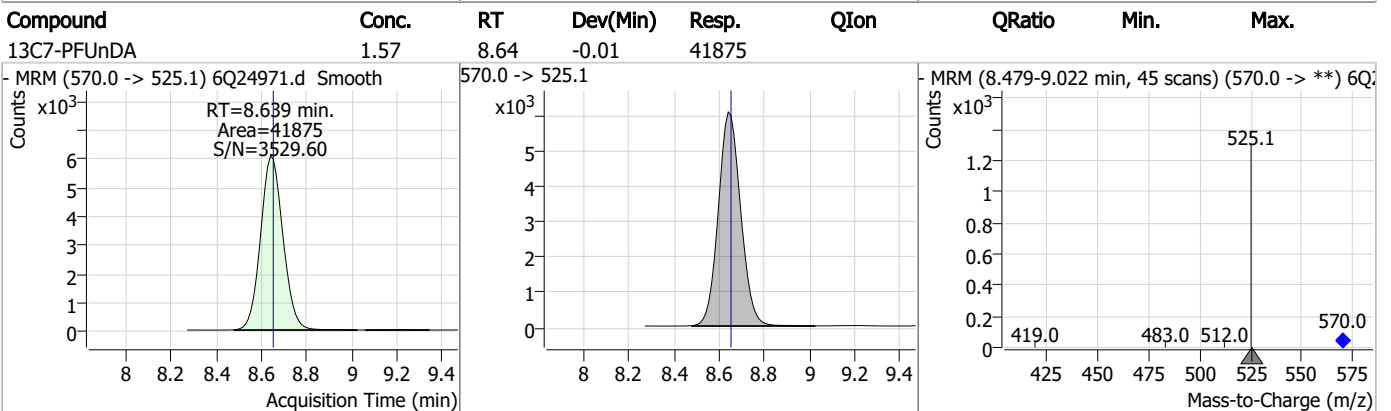
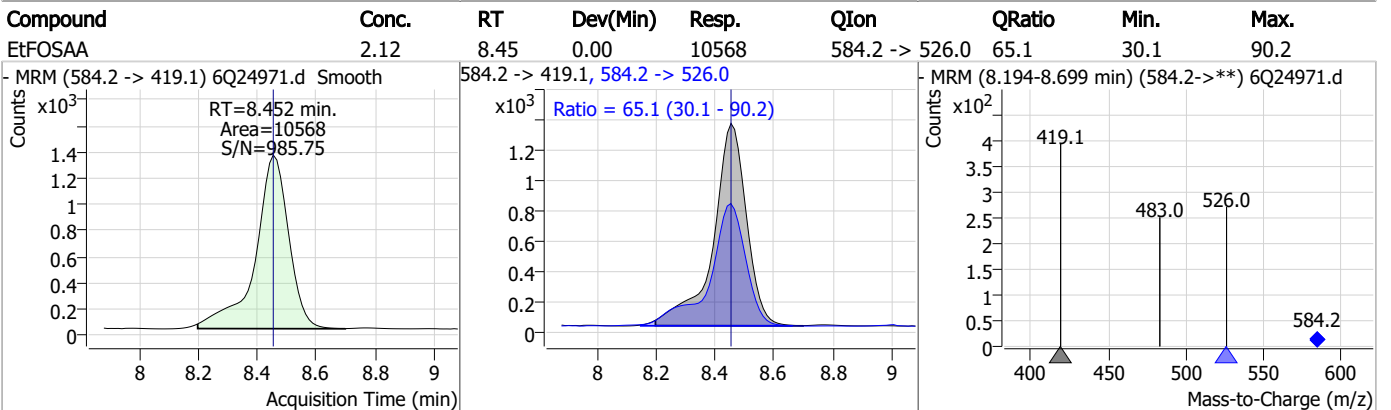
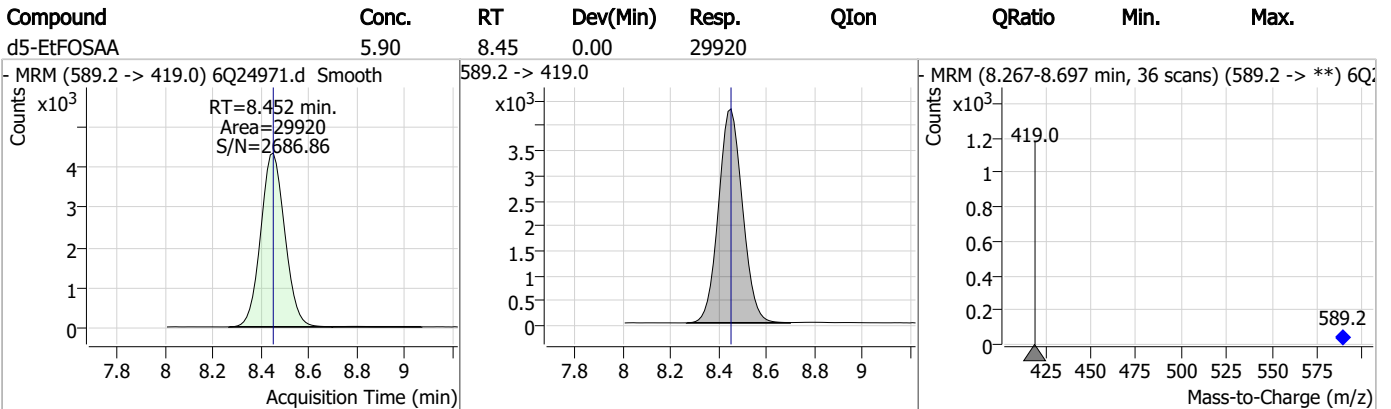
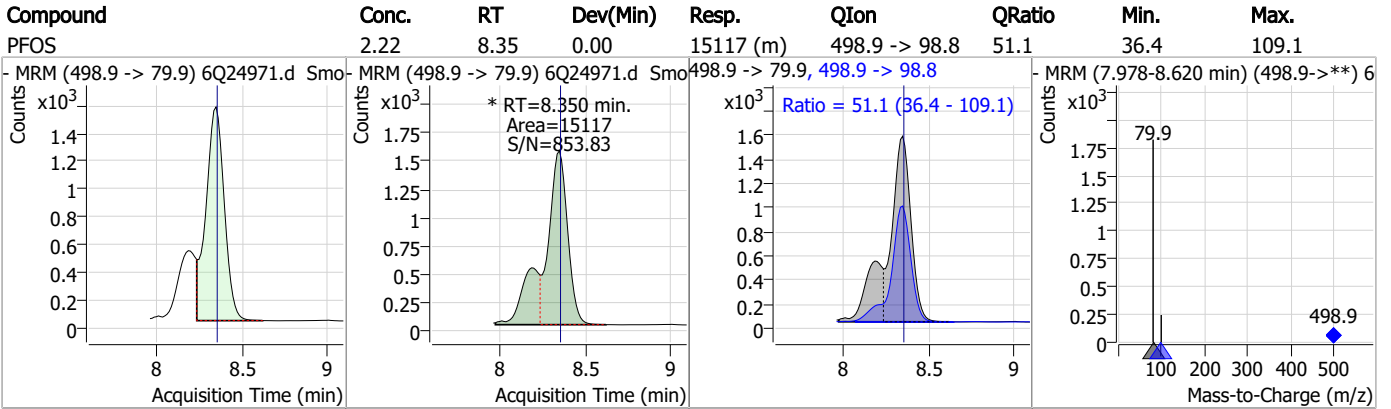
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.07	8.26	0.00	13515	570.1 -> 483.0	23.7	11.9	35.6



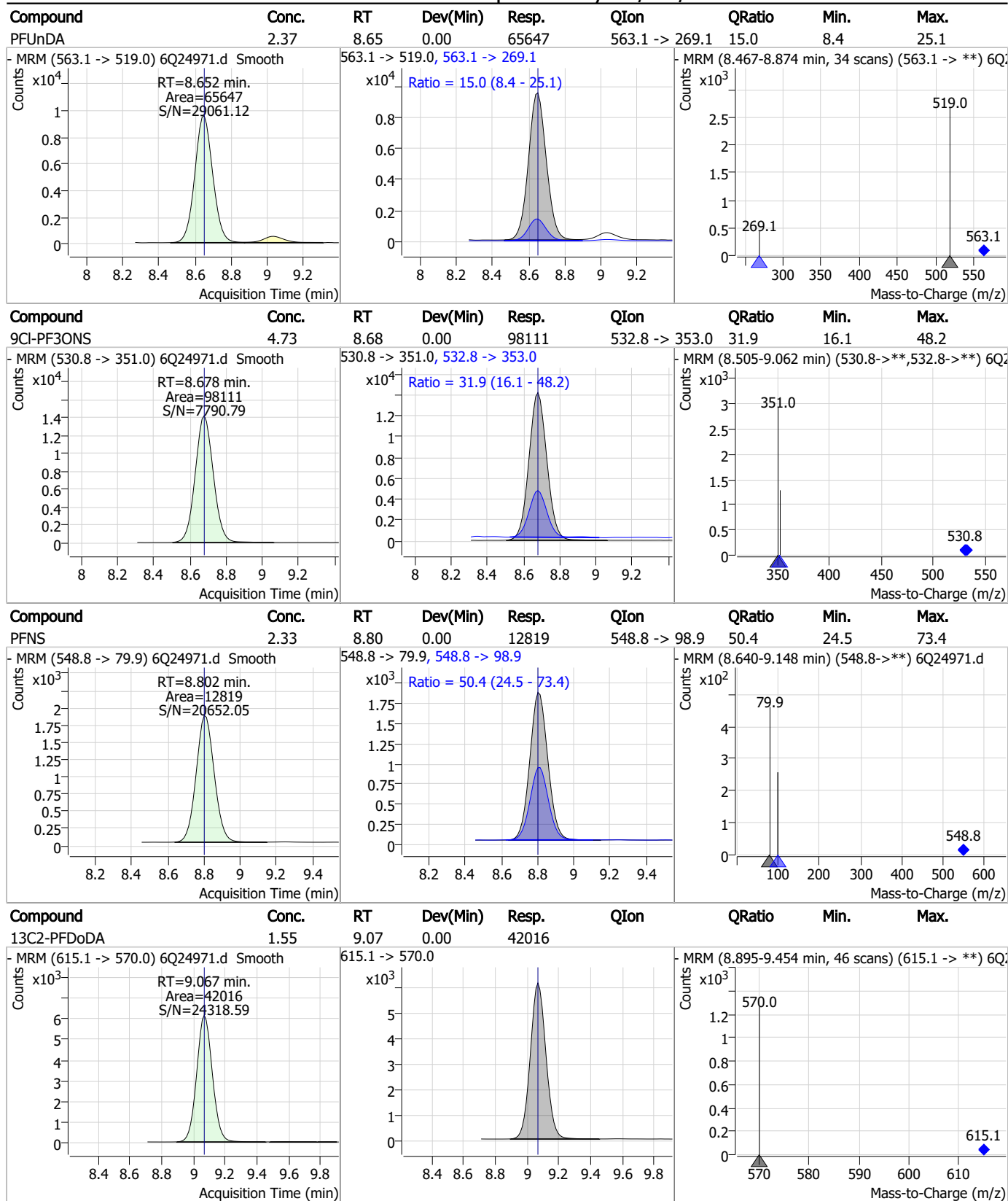
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.65	8.35	0.00	15776				



Perfluorinated Compounds by LC/MS/MS



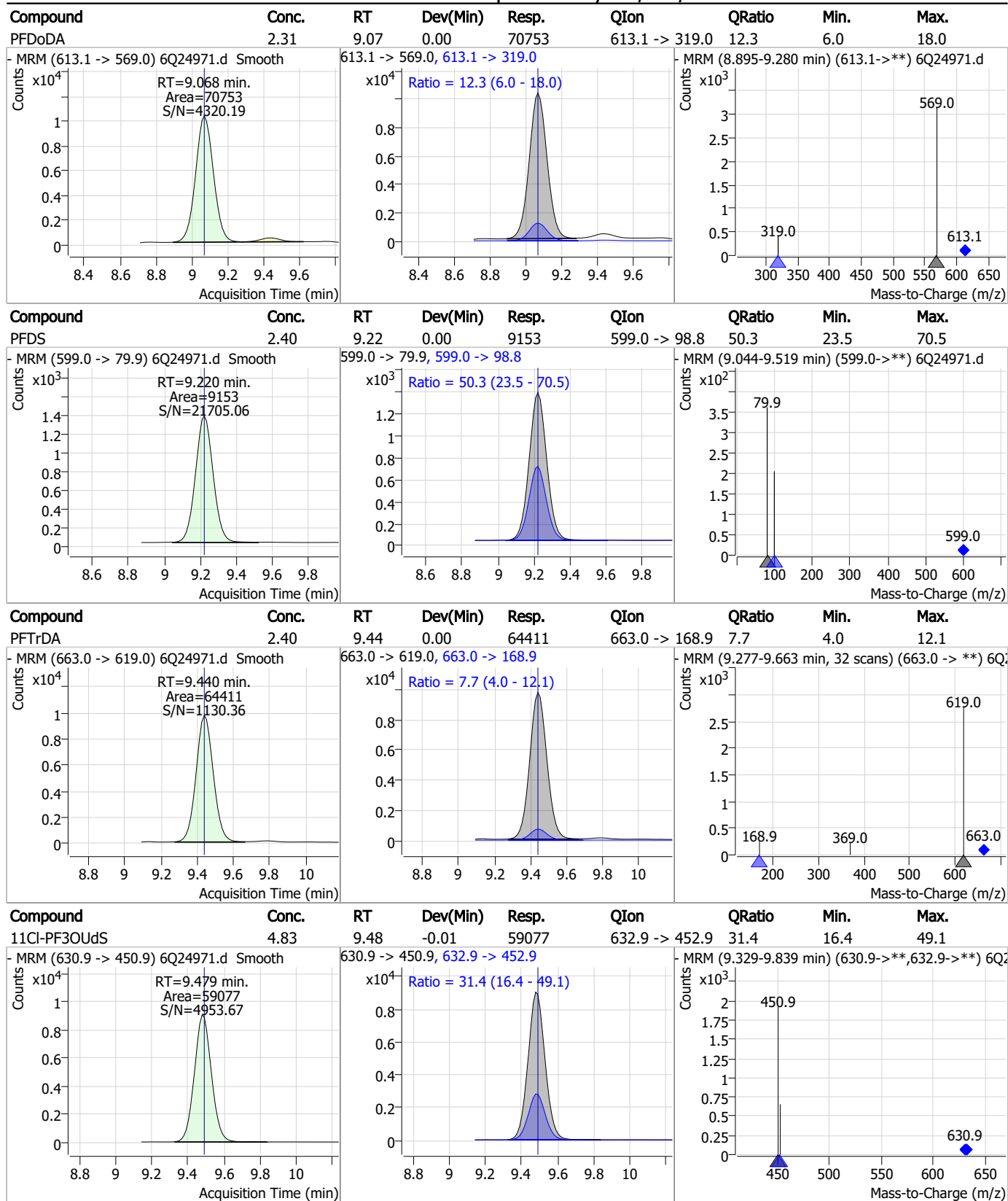
Perfluorinated Compounds by LC/MS/MS



7.3.1

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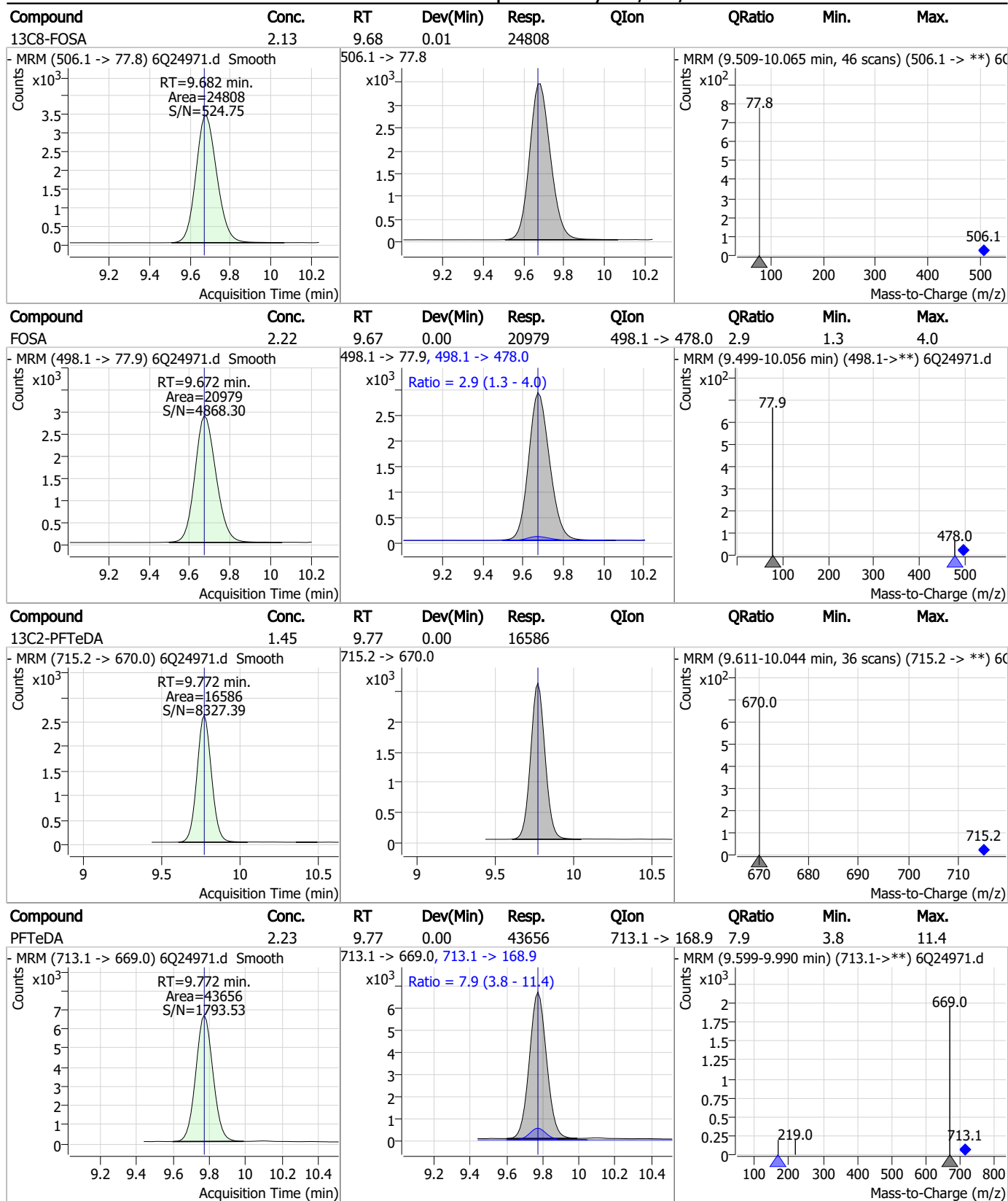
Perfluorinated Compounds by LC/MS/MS



7.3.1

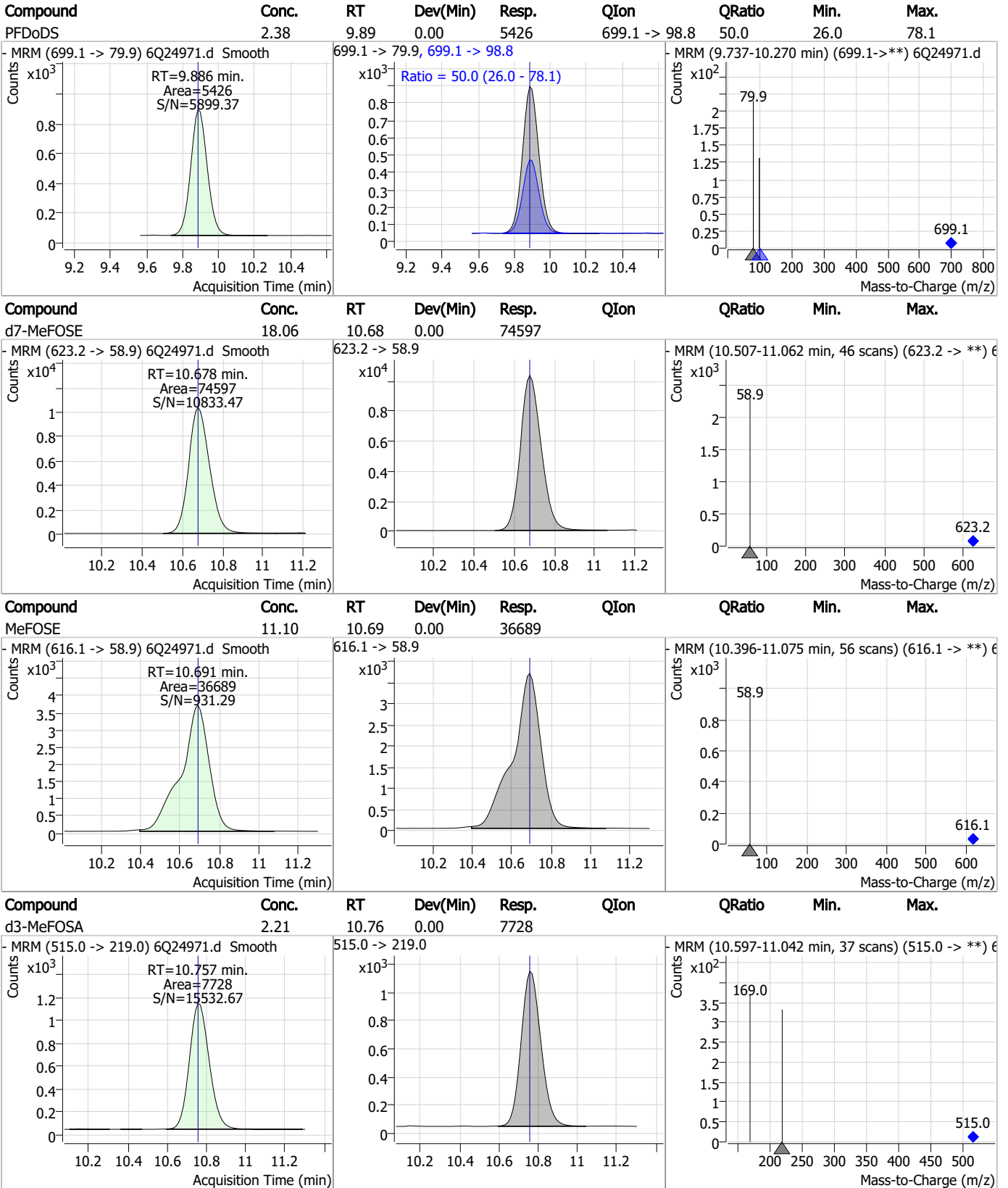
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Perfluorinated Compounds by LC/MS/MS



7.3.1
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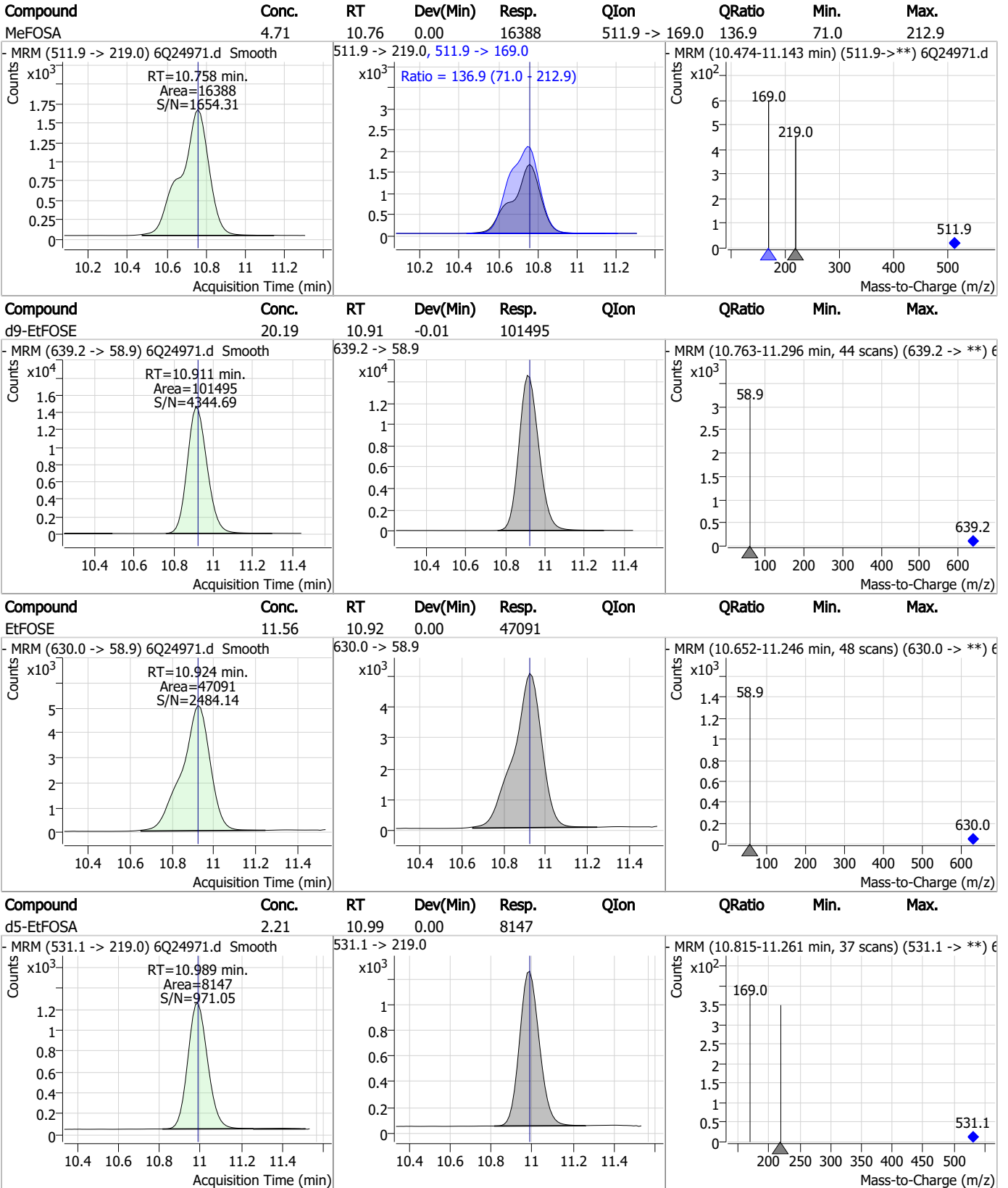
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

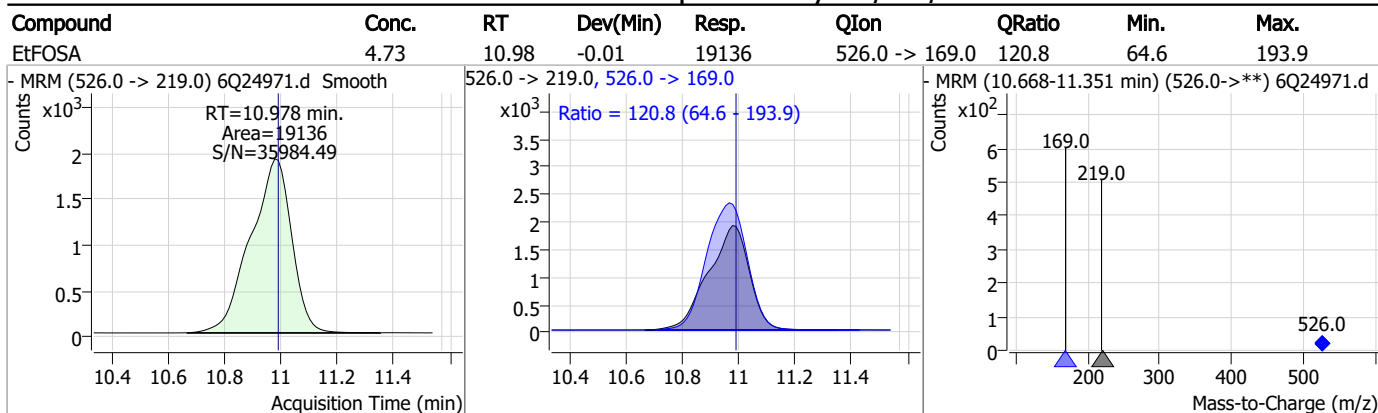


7.3.1

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Perfluorinated Compounds by LC/MS/MS



7.3.1
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Manual Integration Approval Summary

Sample Number: OP99128-BS Method: EPA DRAFT 1633
Lab FileID: 6Q24971.D Analyst approved: 09/25/23 14:50 Martha Valls
Injection Time: 09/25/23 03:24 Supervisor approved: 09/26/23 14:29 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

7.3.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24972.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/25/2023 3:38:59 AM
 Sample Name : OP99128-LLBS:3
 Vial : P3-F4
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99128,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.010	216.8 -> 171.9	203528	10.00 µg/L	0.037
M5-PFPeA	4.422	268.3 -> 223.0	83576	5.00 µg/L	0.012
M5-PFHxA	5.641	318.0 -> 273.0	74169	2.50 µg/L	0.012
M4-PFHpA	6.569	367.1 -> 322.0	71879	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	89843	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	37715	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	38939	1.25 µg/L	0.000
M7-PFUnDA	8.639	570.0 -> 525.1	42753	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	40054	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	15981	1.25 µg/L	0.000
M8-FOSA	9.682	506.1 -> 77.8	24594	2.50 µg/L	0.012
M3-PFBS	5.559	302.1 -> 79.9	31324	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	18834	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	17808	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	3120	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	5345	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	4621	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	35998	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	48327	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	30607	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	76822	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	105856	25.00 µg/L	-0.012
M5-EtFOSA	10.989	531.1 -> 219.0	8109	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	7273	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	12747	2.50 µg/L	0.000
13C3-PFBA	3.001	216.0 -> 172.0	71070	5.00 µg/L	0.025
18O2-PFHxS	7.300	403.0 -> 83.9	9945	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	94995	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	31561	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	32077	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	55963	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	3120	6.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 122.7%		
13C2-6:2FTS	6.974	429.1 -> 80.9	5345	6.61 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 132.2%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4621	6.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.1%		
13C2-PFDoDA	9.067	615.1 -> 570.0	40054	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.1%		
13C2-PFTeDA	9.772	715.2 -> 670.0	15981	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C3-PFBS	5.559	302.1 -> 79.9	31324	3.00 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 119.9%		
13C3-PFHxS	7.301	402.1 -> 79.9	18834	2.99 µg/L	0.000

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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 = 119.7%	
13C4-PFBA	3.010	216.8 -> 171.9	203528	11.85 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 118.5%	
13C4-PFHpA	6.569	367.1 -> 322.0	71879	3.15 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 125.9%	
13C5-PFHxA	5.641	318.0 -> 273.0	74169	3.15 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 126.1%	
13C5-PFPeA	4.422	268.3 -> 223.0	83576	6.31 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 126.2%	
13C6-PFDA	8.198	519.1 -> 474.1	38939	1.47 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 117.5%	
13C7-PFUnDA	8.639	570.0 -> 525.1	42753	1.44 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 115.3%	
13C8-FOSA	9.682	506.1 -> 77.8	24594	2.28 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.3%	
13C8-PFOA	7.198	421.1 -> 376.0	89843	2.73 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.1%	
13C8-PFOS	8.348	507.1 -> 79.9	17808	3.24 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 129.4%	
13C9-PFNA	7.717	472.1 -> 427.0	37715	1.46 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 117.0%	
d3-MeFOSAA	8.244	573.2 -> 419.0	35998	5.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 119.2%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	48327	11.46 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 114.6%	
d3-MeFOSA	10.757	515.0 -> 219.0	7273	2.24 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.7%	
d5-EtFOSAA	8.452	589.2 -> 419.0	30607	6.52 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 130.4%	
d7-MeFOSE	10.678	623.2 -> 58.9	76822	20.09 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 80.4%	
d9-EtFOSE	10.911	639.2 -> 58.9	105856	22.75 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 91.0%	
d5-EtFOSA	10.989	531.1 -> 219.0	8109	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.1%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	15315	3.00 µg/L	95
		327.1 -> 80.9	6082		
6:2FTS	6.974	427.1 -> 407.0	12076	2.62 µg/L	99
		427.1 -> 80.9	5156		
8:2FTS	7.987	527.1 -> 507.0	7860	2.67 µg/L	88
		527.1 -> 80.8	3315		
EtFOSAA	8.452	584.2 -> 419.1	3330	0.65 µg/L	m 97
		584.2 -> 526.0	2065		
FOSA	9.672	498.1 -> 77.9	6407	0.69 µg/L	99
		498.1 -> 478.0	160		
MeFOSAA	8.245	570.1 -> 419.0	4800	0.76 µg/L	96
		570.1 -> 483.0	1040		
PFBA	3.006	212.8 -> 168.9	20140	2.77 µg/L	100
PFBS	5.560	298.7 -> 79.9	5927	0.58 µg/L	99
		298.7 -> 98.8	2236		
PFDA	8.198	512.9 -> 469.0	21291	0.69 µg/L	100
		512.9 -> 219.0	3475		
PFDODA	9.068	613.1 -> 569.0	20897	0.72 µg/L	99
		613.1 -> 319.0	2602		
PFDS	9.220	599.0 -> 79.9	2773	0.64 µg/L	92

7.3.2
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.569	599.0 -> 98.8	1460	0.69	µg/L	99
		363.1 -> 319.0	26789			
PFHpS	7.856	363.1 -> 169.0	3947	0.64	µg/L	90
		449.0 -> 79.9	5021			
PFHxA	5.644	449.0 -> 98.9	2425	0.69	µg/L	98
		313.0 -> 269.0	18366			
PFHxS	7.302	313.0 -> 118.9	1005	0.61	µg/L	98
		398.7 -> 79.9	4505			
PFNA	7.717	398.7 -> 98.9	2239	0.72	µg/L	97
		463.0 -> 419.0	17635			
PFNS	8.802	463.0 -> 219.0	3964	0.64	µg/L	88
		548.8 -> 79.9	3990			
PFOA	7.200	548.8 -> 98.9	2273	0.68	µg/L	98
		413.0 -> 369.0	26208			
PFOS	8.350	413.0 -> 169.0	4934	0.59	µg/L	75
		498.9 -> 79.9	4557			
PFPeA	4.424	498.9 -> 98.8	2349	1.35	µg/L	100
		263.0 -> 219.0	22713			
PFPeS	6.620	349.1 -> 79.9	6498	0.64	µg/L	95
		349.1 -> 98.9	3068			
PFTeDA	9.772	713.1 -> 669.0	13857	0.73	µg/L	100
		713.1 -> 168.9	1075			
PFTrDA	9.440	663.0 -> 619.0	18371	0.72	µg/L	99
		663.0 -> 168.9	1572			
PFUnDA	8.652	563.1 -> 519.0	18372	0.65	µg/L	100
		563.1 -> 269.1	3098			
11Cl-PF3OUdS	9.479	630.9 -> 450.9	17143	1.36	µg/L	98
		632.9 -> 452.9	5398			
9Cl-PF3ONS	8.678	530.8 -> 351.0	32541	1.52	µg/L	90
		532.8 -> 353.0	8698			
ADONA	6.817	376.9 -> 250.9	86530	1.46	µg/L	96
		376.9 -> 84.8	23320			
HFPO-DA	6.007	284.9 -> 168.9	6834	1.44	µg/L	99
		284.9 -> 184.9	753			
3:3FTCA	3.902	241.0 -> 177.0	2792	2.37	µg/L	98
		241.0 -> 117.0	315			
5:3FTCA	6.283	341.0 -> 237.1	77467	15.48	µg/L	99
		341.0 -> 217.0	53180			
7:3FTCA	7.669	441.0 -> 316.9	48633	17.15	µg/L	98
		441.0 -> 336.9	99254			
EtFOSA	10.978	526.0 -> 219.0	5250	1.30	µg/L	98
		526.0 -> 169.0	6909			
EtFOSE	10.924	630.0 -> 58.9	14342	3.37	µg/L	100
		511.9 -> 219.0	4712			
MeFOSA	10.758	511.9 -> 169.0	6402	1.44	µg/L	95
		616.1 -> 58.9	11622			
MeFOSE	10.691	699.1 -> 79.9	1661	3.41	µg/L	100
		699.1 -> 98.8	868			
PFDoDS	9.886	295.0 -> 201.0	4692	0.65	µg/L	100
		295.0 -> 84.9	1343			
NFDHA	5.512	279.0 -> 85.1	18237	1.37	µg/L	96
		229.0 -> 84.9	13323			
PFMBA	4.850	314.8 -> 134.9	39823	1.33	µg/L	100
		314.8 -> 82.9	1418			
PFMPA	3.563			1.20	µg/L	99
PFEESA	6.100					

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

7.3.2
7

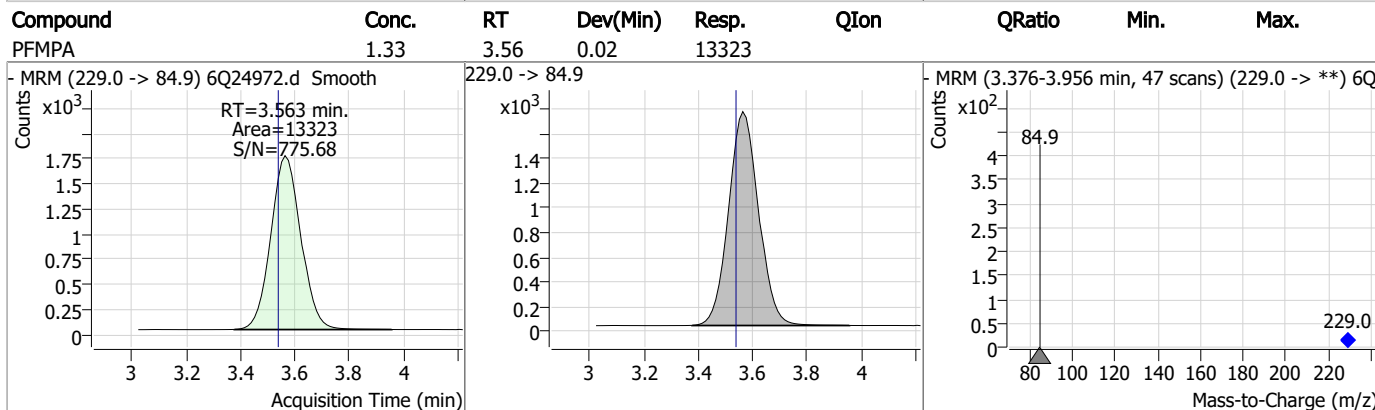
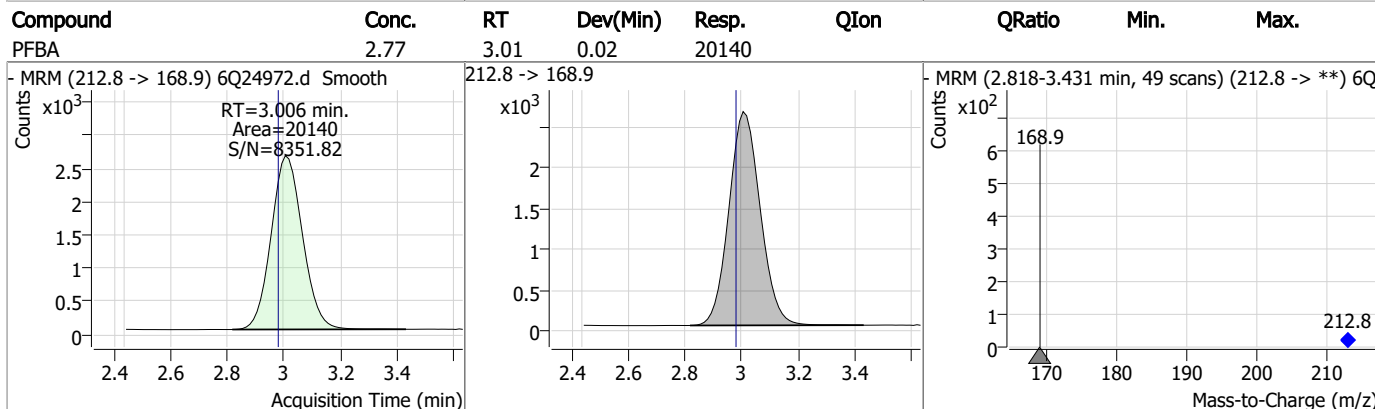
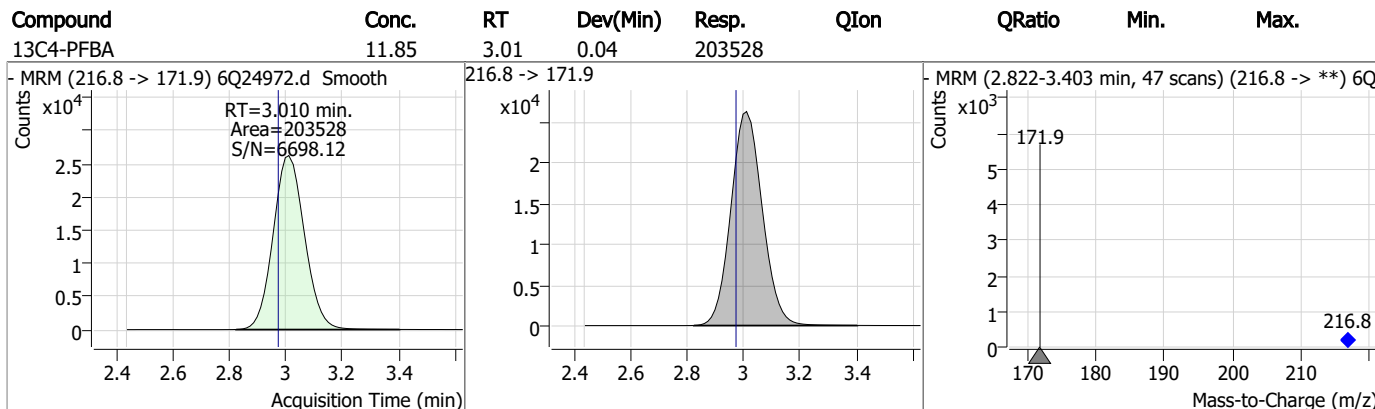
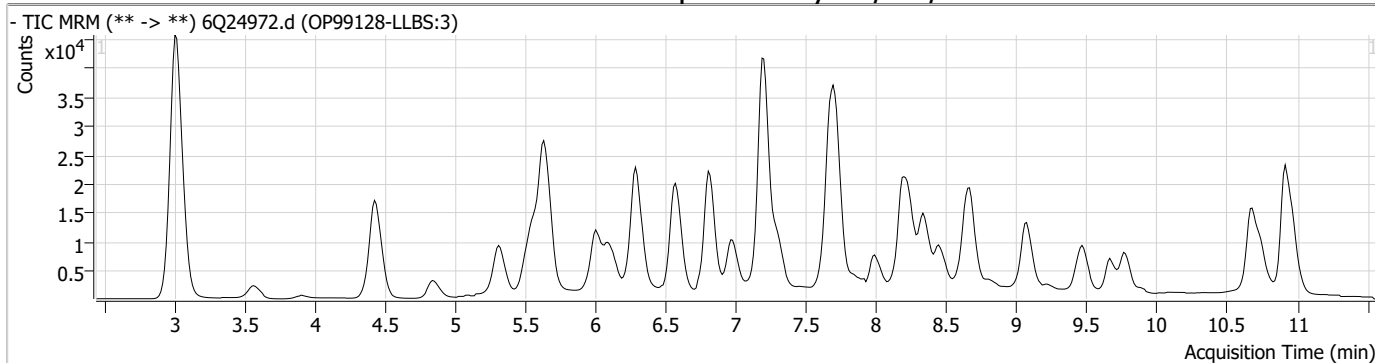
Perfluorinated Compounds by LC/MS/MS

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

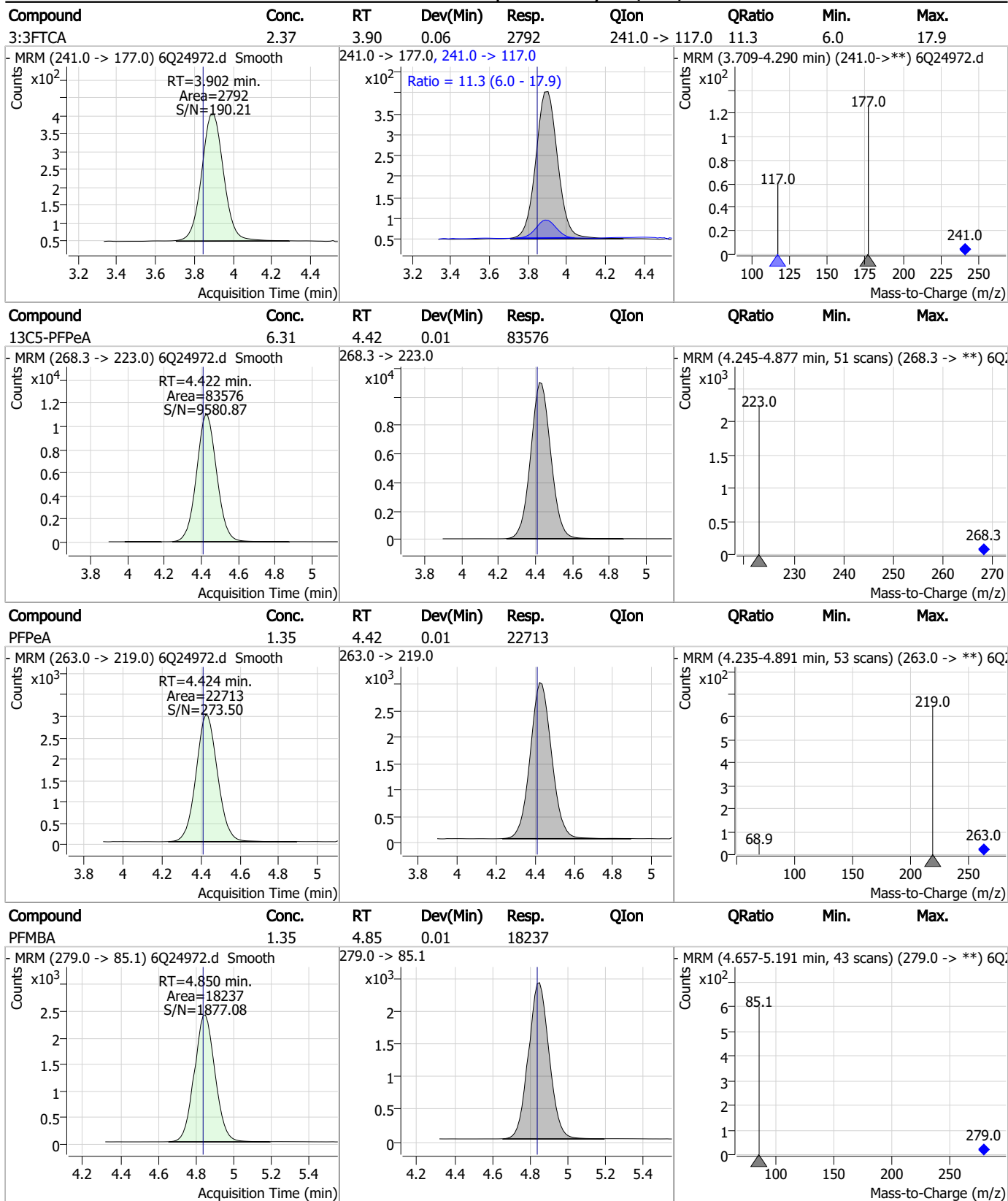
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Perfluorinated Compounds by LC/MS/MS



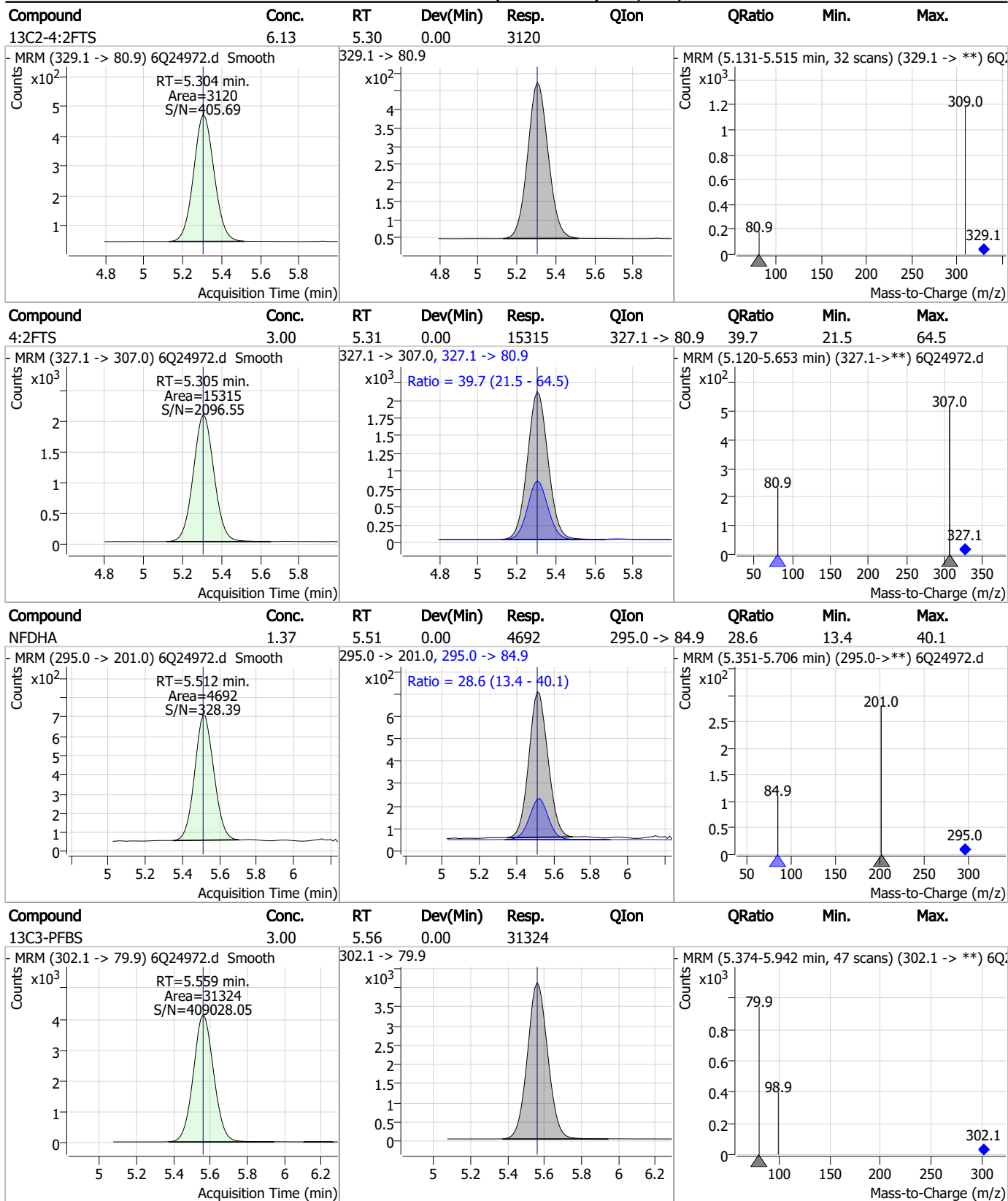
7.3.2
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Perfluorinated Compounds by LC/MS/MS



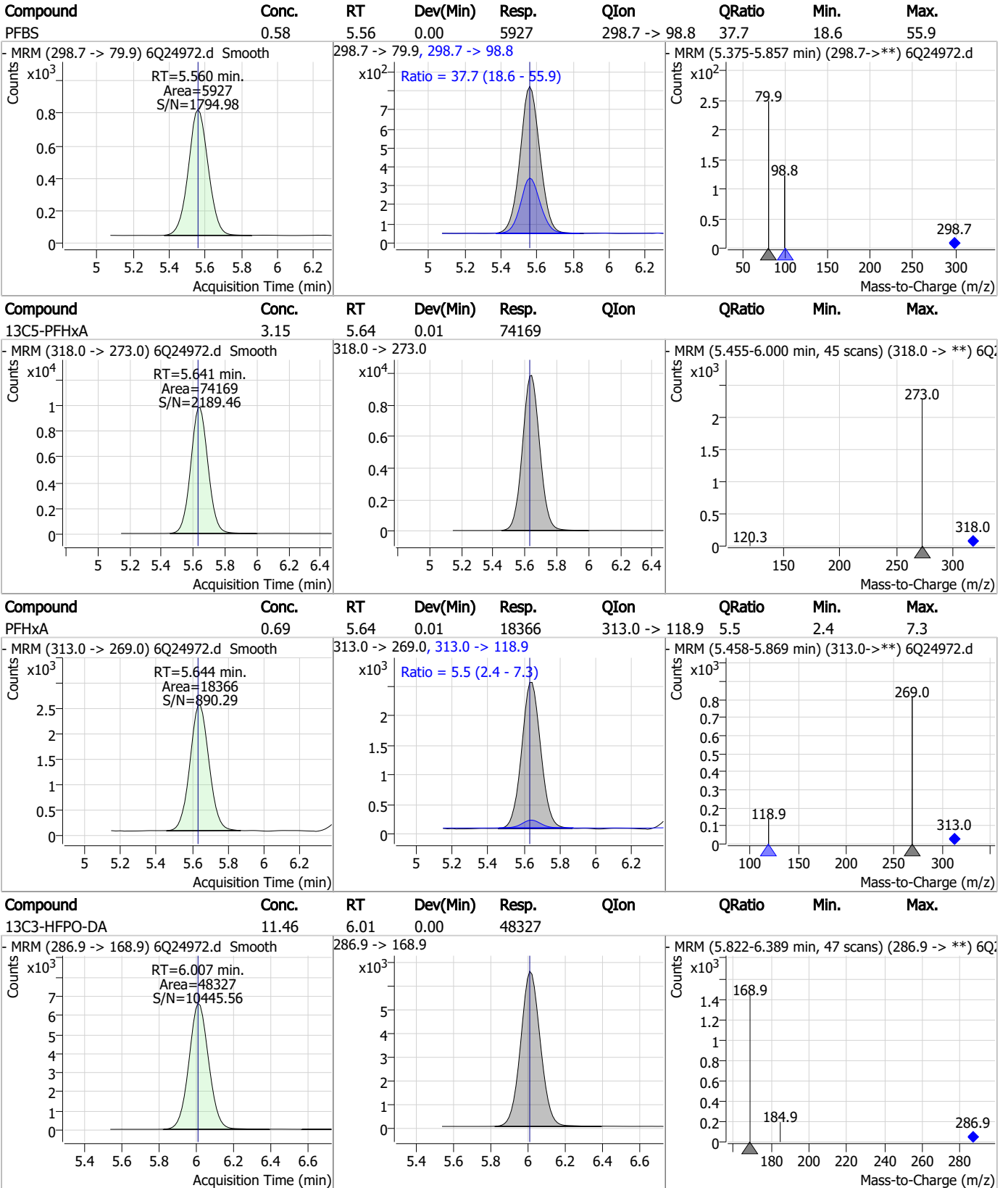
7.3.2
7

Perfluorinated Compounds by LC/MS/MS



7.3.2
7

Perfluorinated Compounds by LC/MS/MS

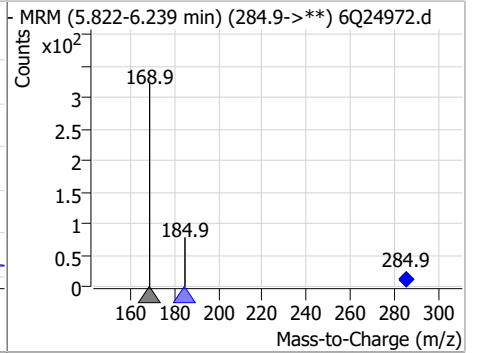
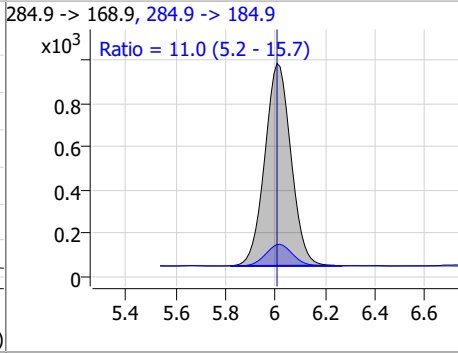
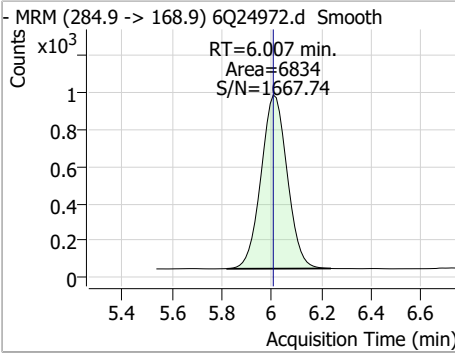


7.3.2

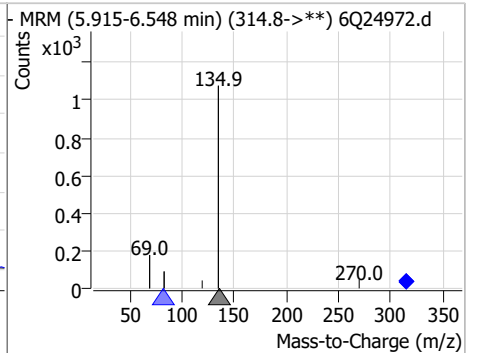
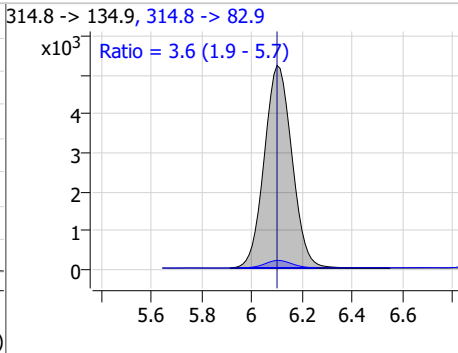
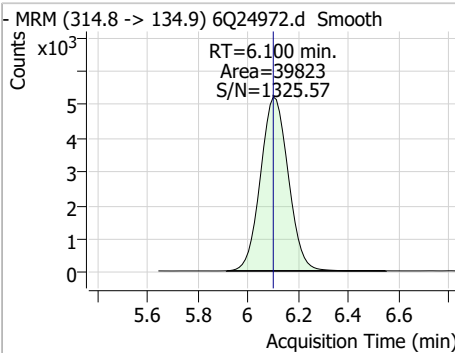
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Perfluorinated Compounds by LC/MS/MS

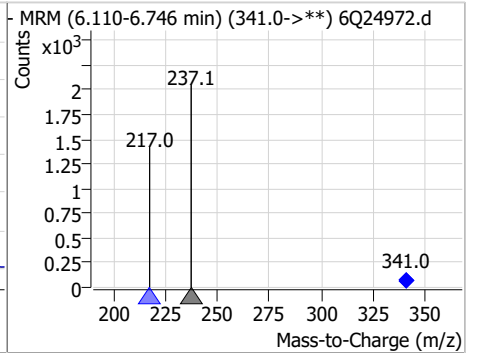
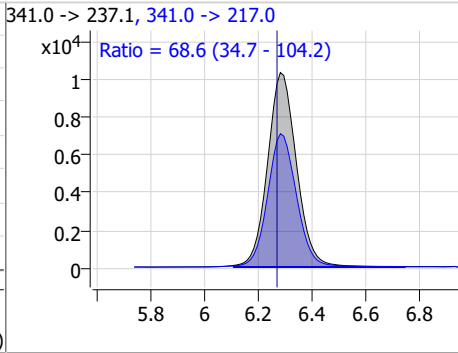
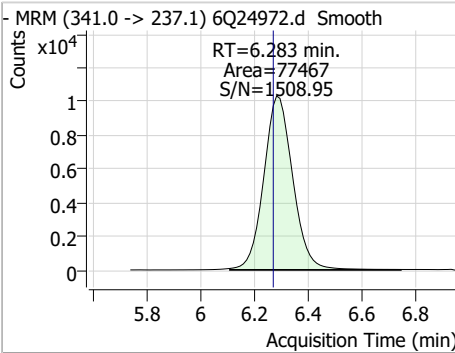
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	1.44	6.01	0.00	6834	284.9 -> 184.9	11.0	5.2	15.7



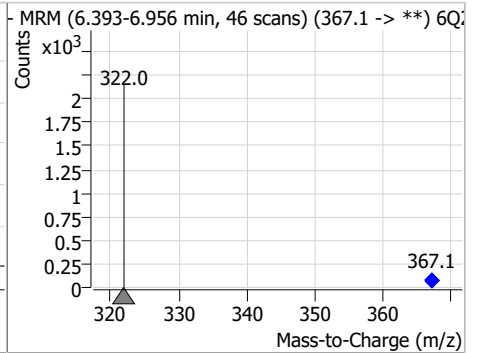
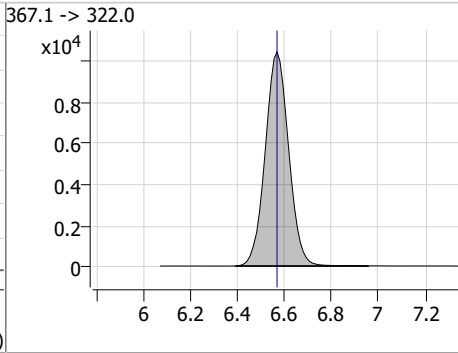
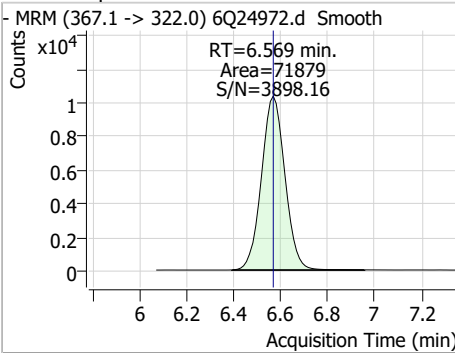
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	1.20	6.10	0.00	39823	314.8 -> 82.9	3.6	1.9	5.7



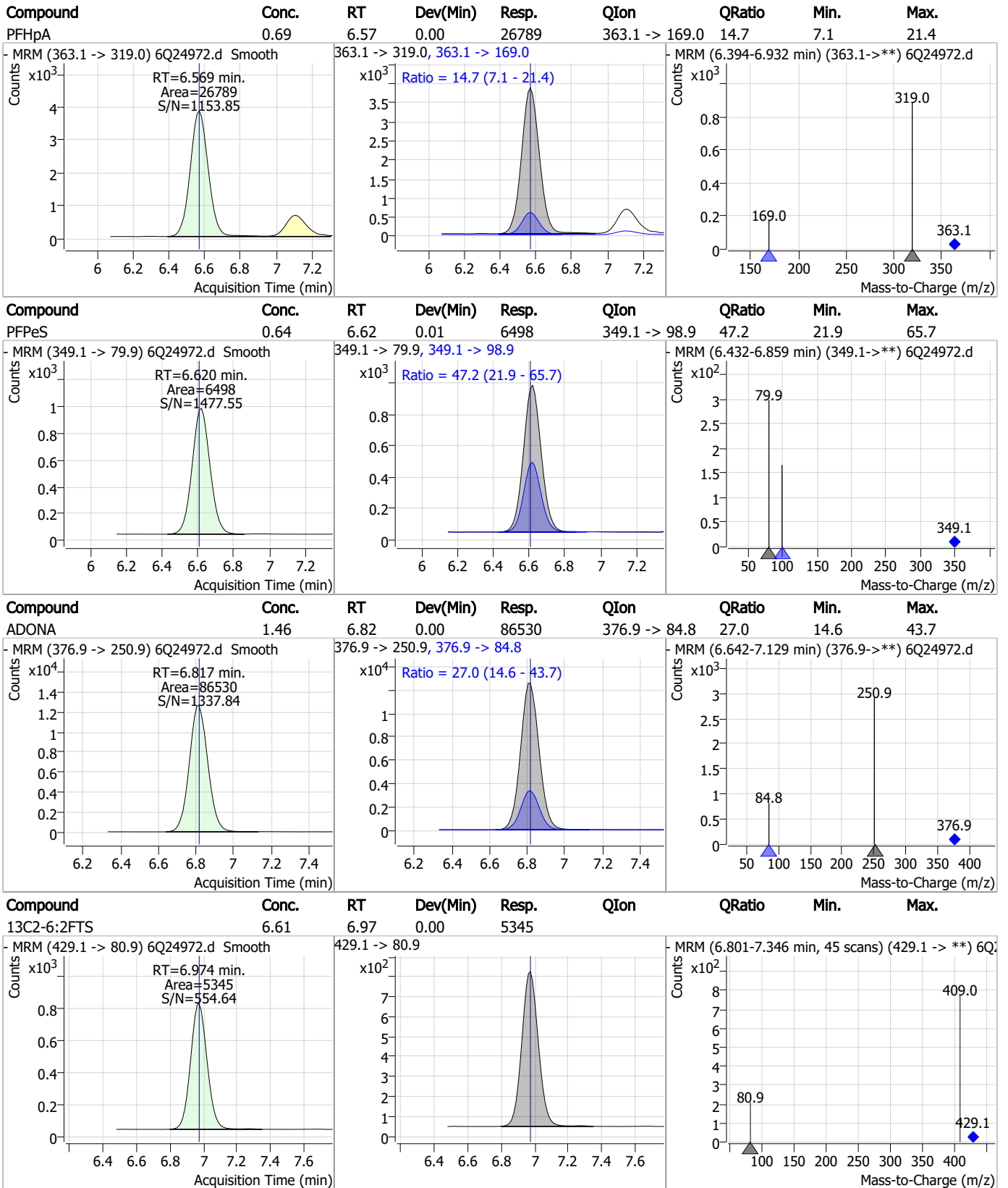
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	15.48	6.28	0.01	77467	341.0 -> 217.0	68.6	34.7	104.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	3.15	6.57	0.00	71879	367.1 -> 322.0			



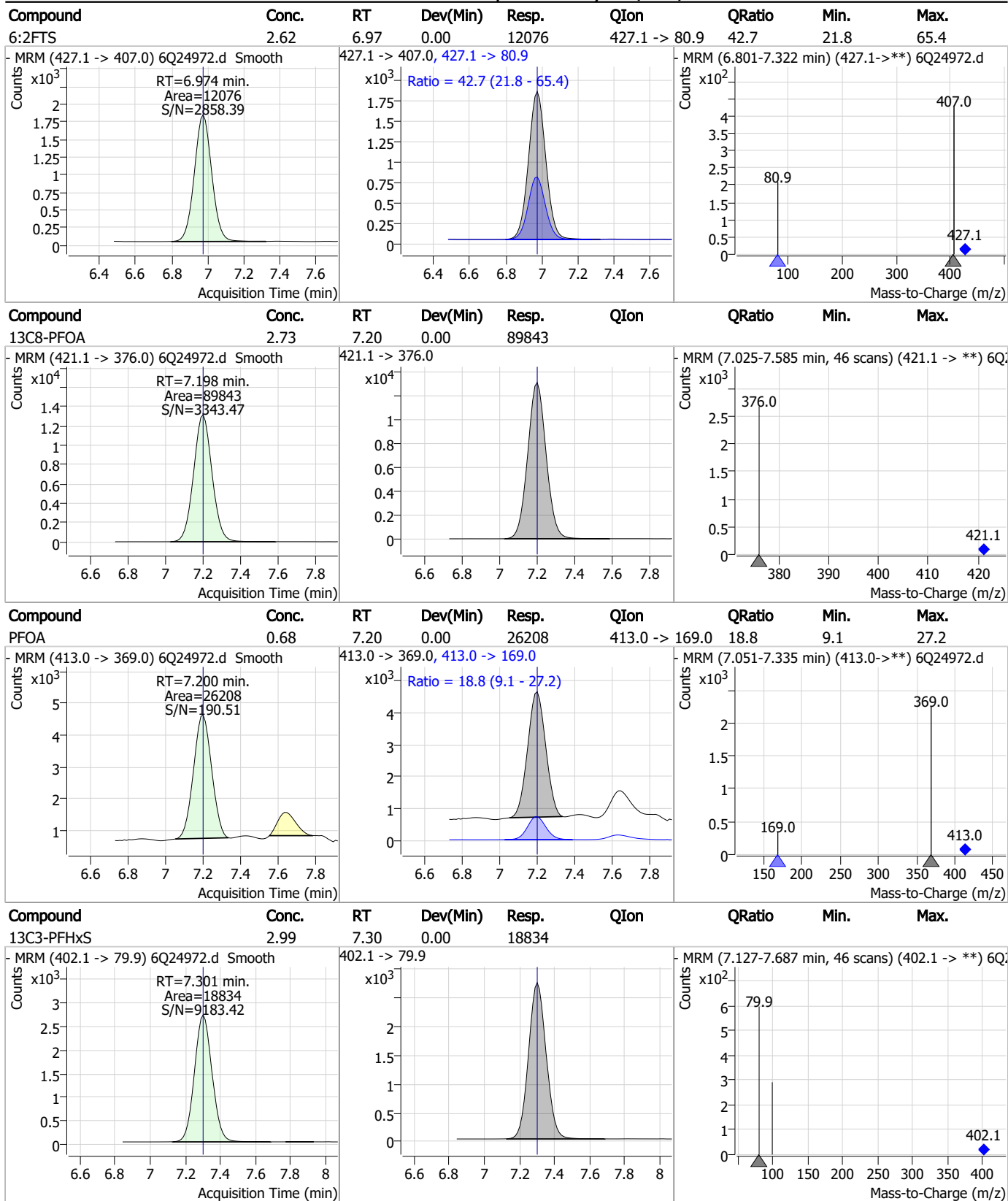
Perfluorinated Compounds by LC/MS/MS



7.3.2

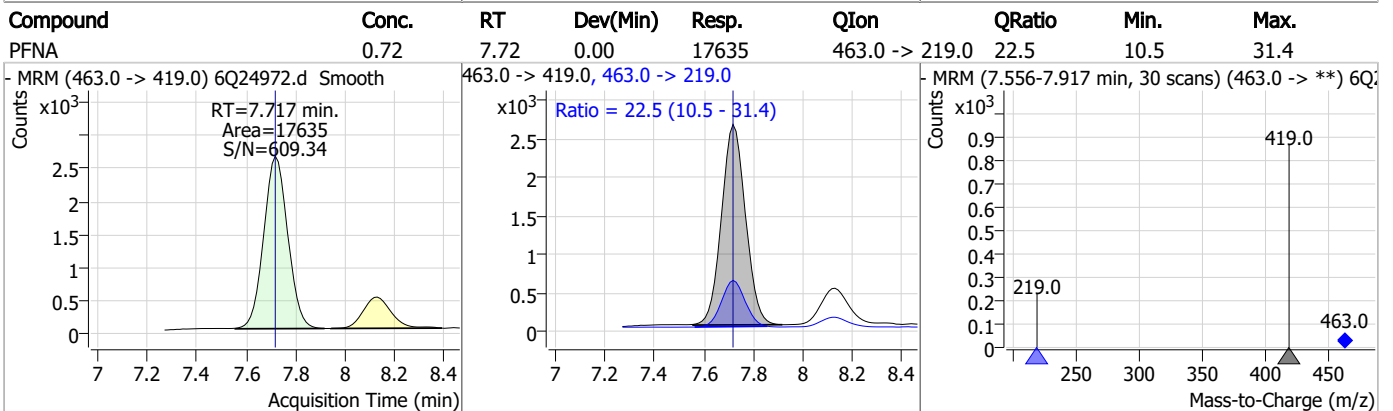
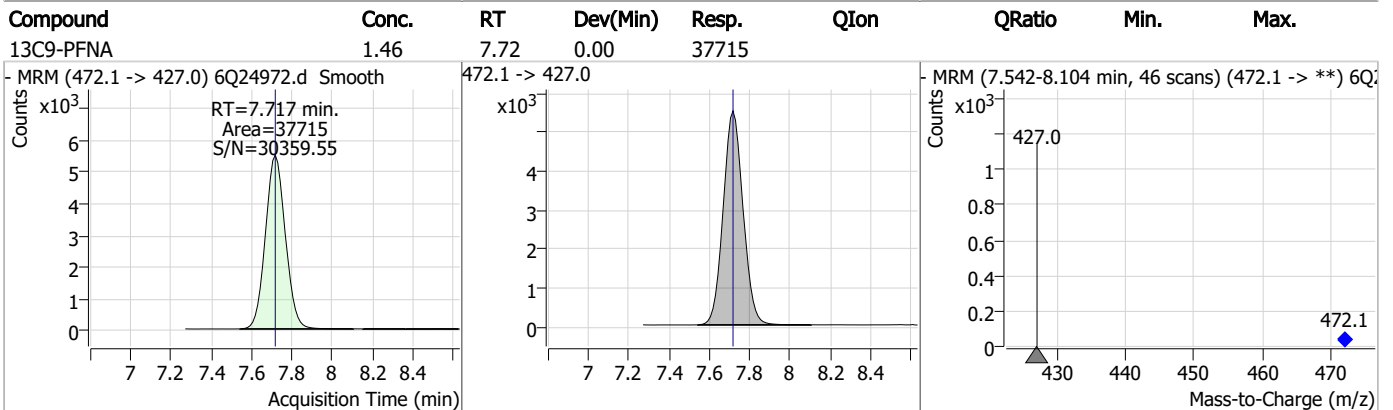
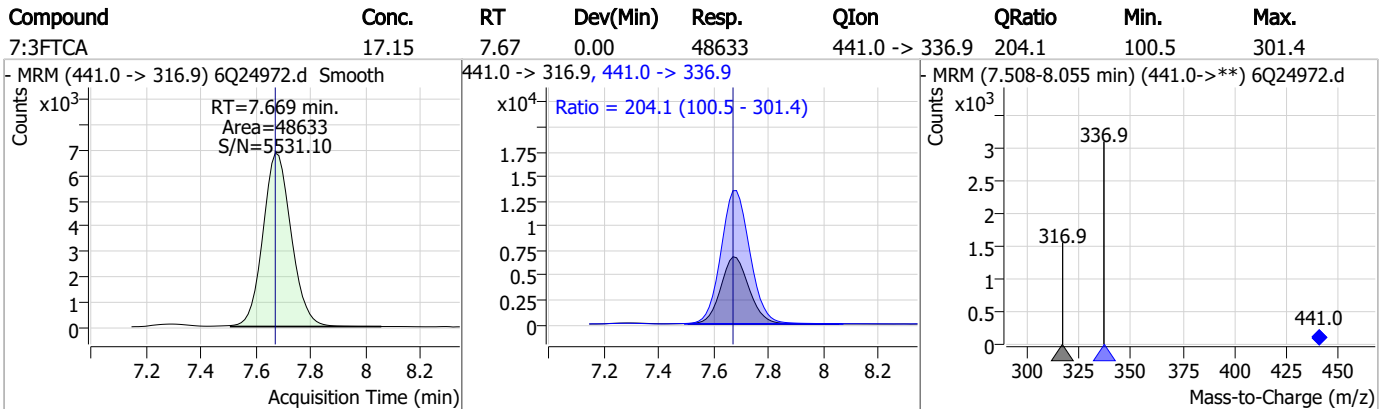
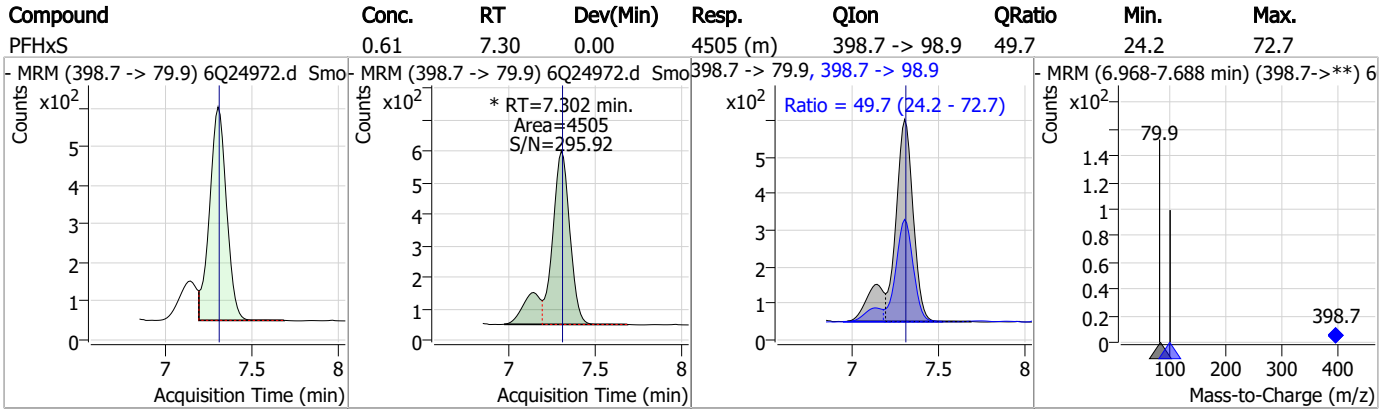
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Perfluorinated Compounds by LC/MS/MS



7.3.2
7

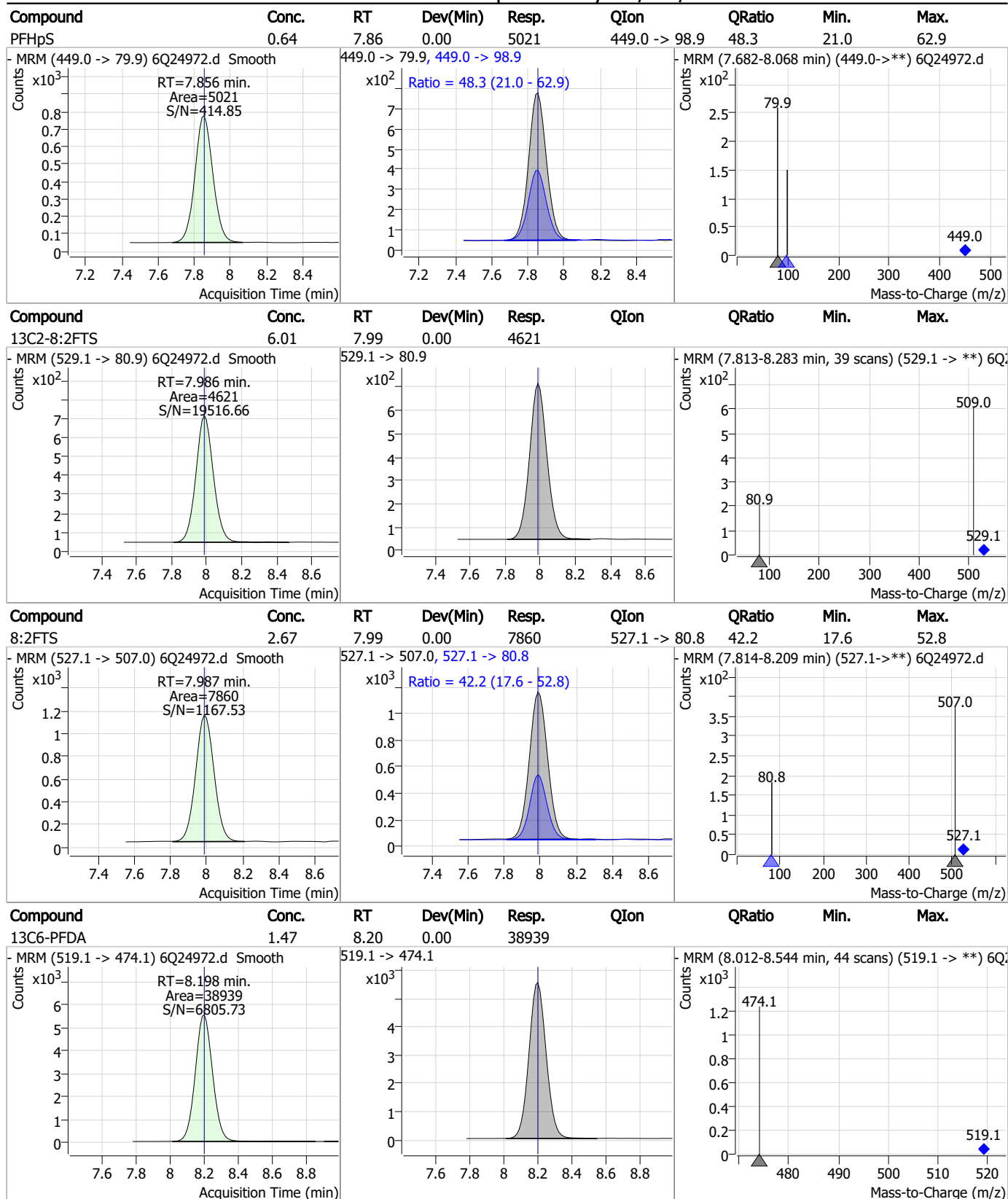
Perfluorinated Compounds by LC/MS/MS



7.3.2

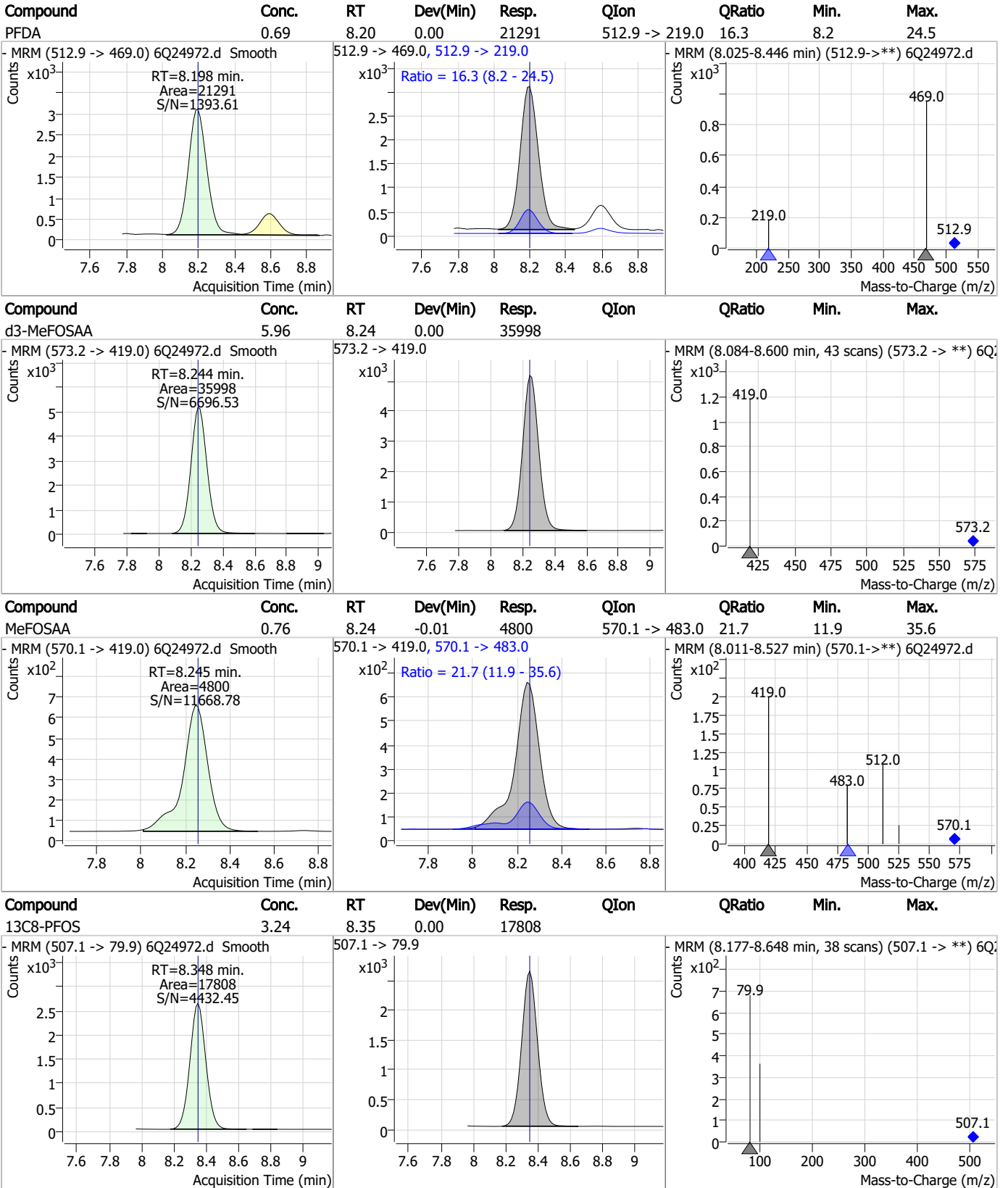
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Perfluorinated Compounds by LC/MS/MS



7.3.2
7

Perfluorinated Compounds by LC/MS/MS

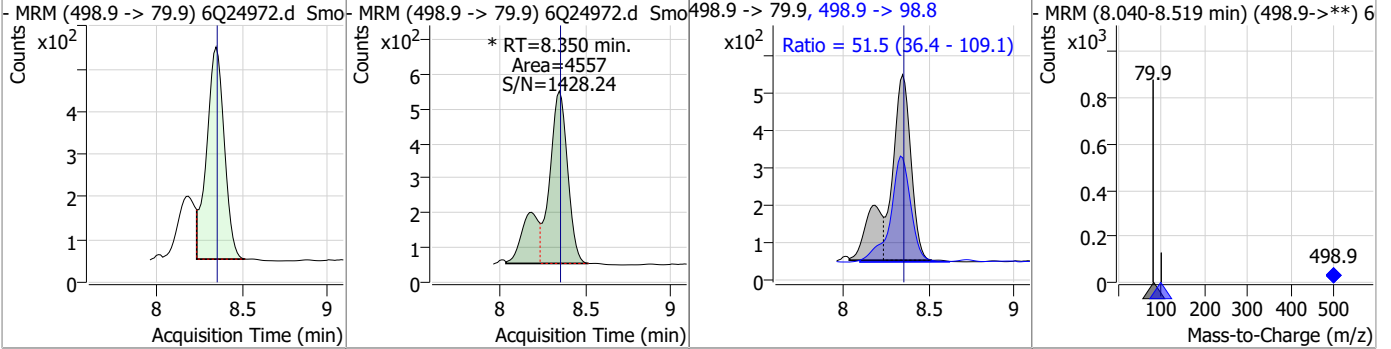


7.3.2

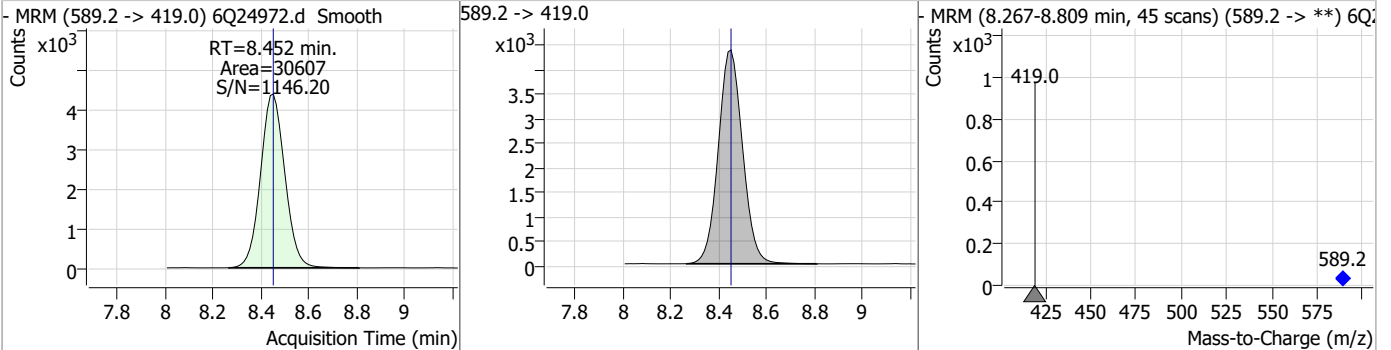
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Perfluorinated Compounds by LC/MS/MS

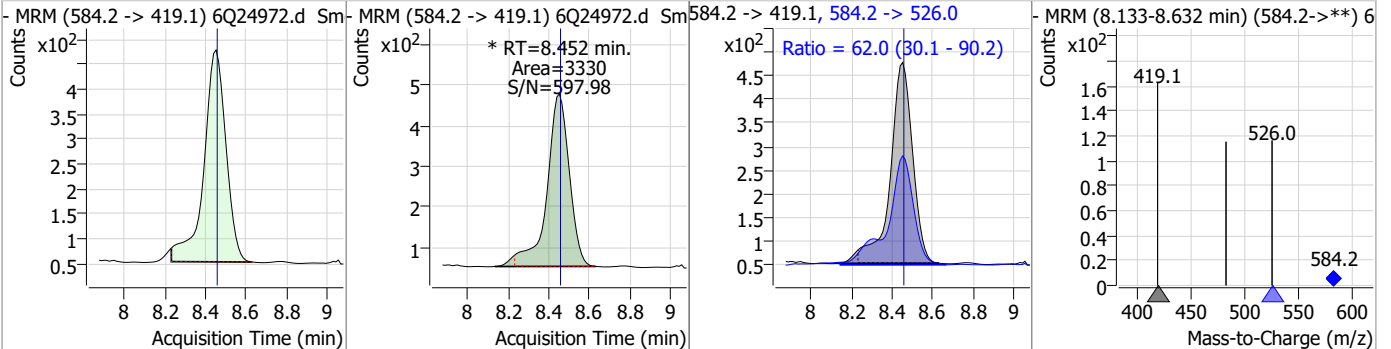
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.59	8.35	0.00	4557 (m)	498.9 -> 98.8	51.5	36.4	109.1



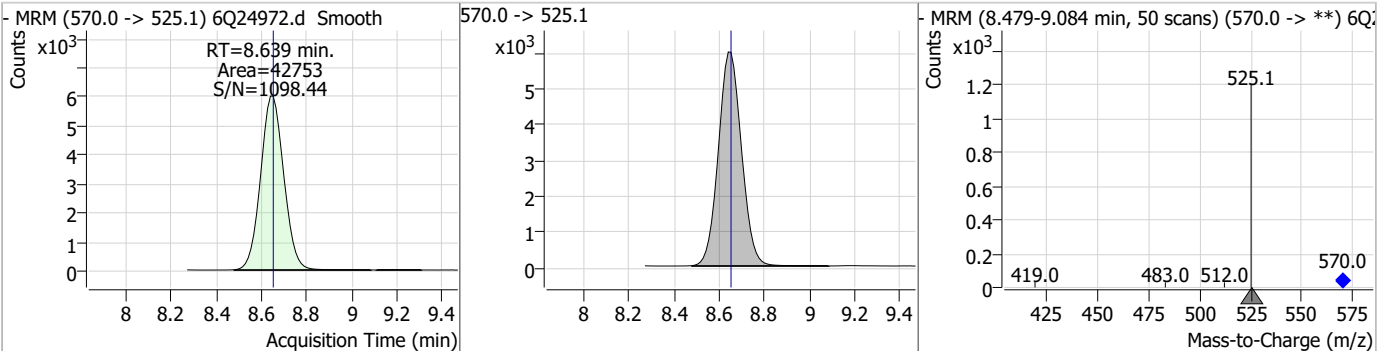
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	6.52	8.45	0.00	30607				



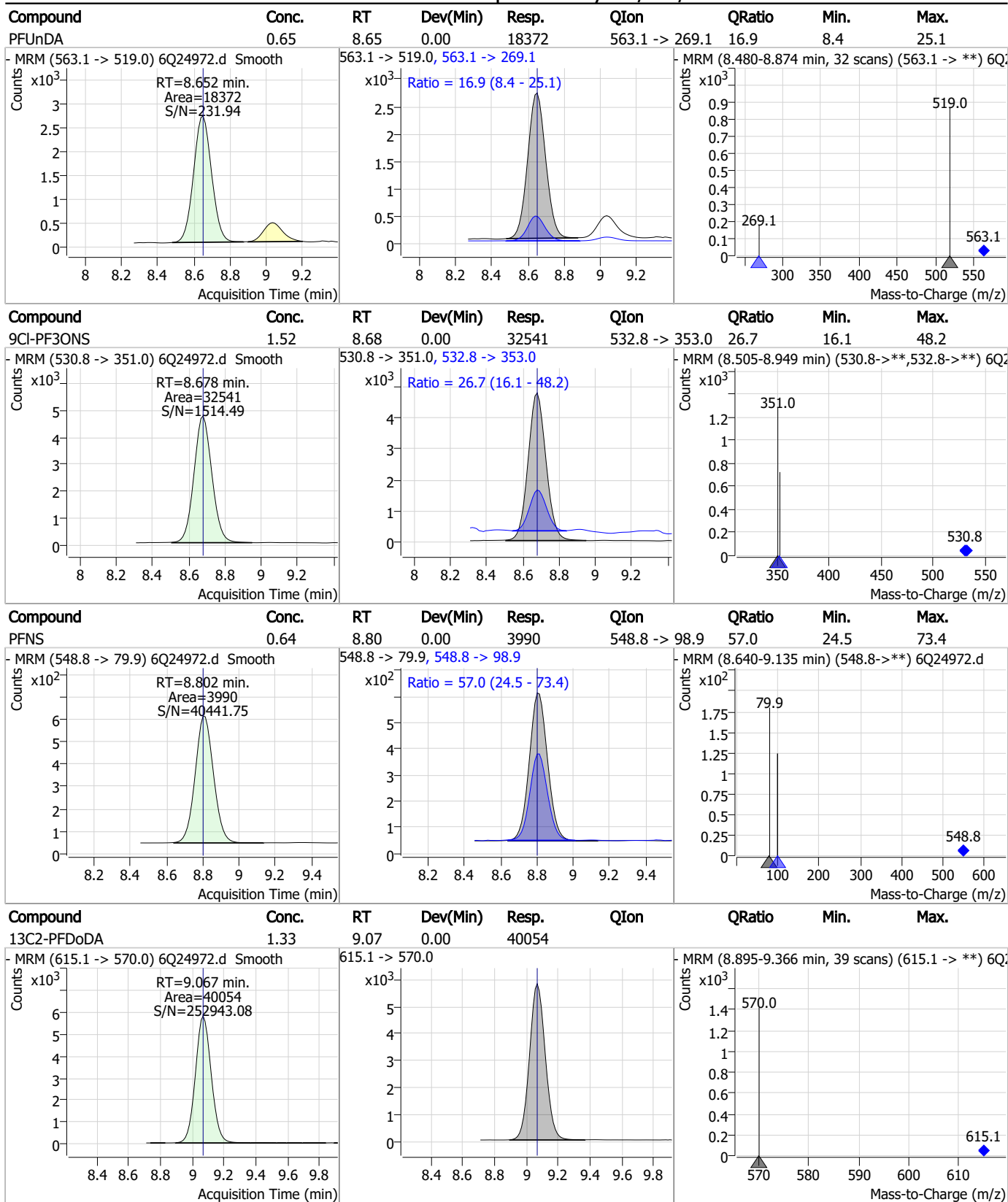
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.65	8.45	0.00	3330 (m)	584.2 -> 526.0	62.0	30.1	90.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.44	8.64	-0.01	42753				

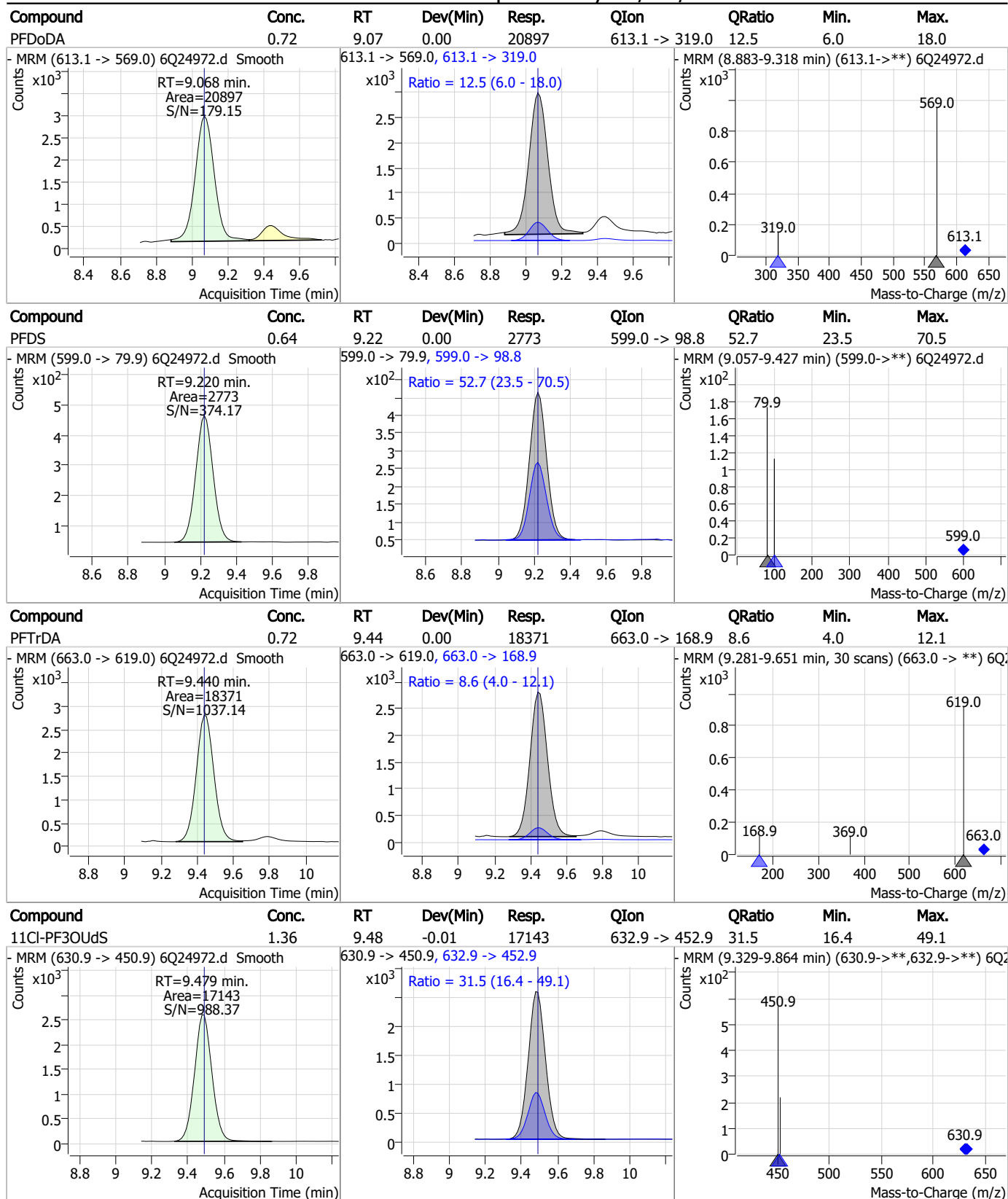


Perfluorinated Compounds by LC/MS/MS



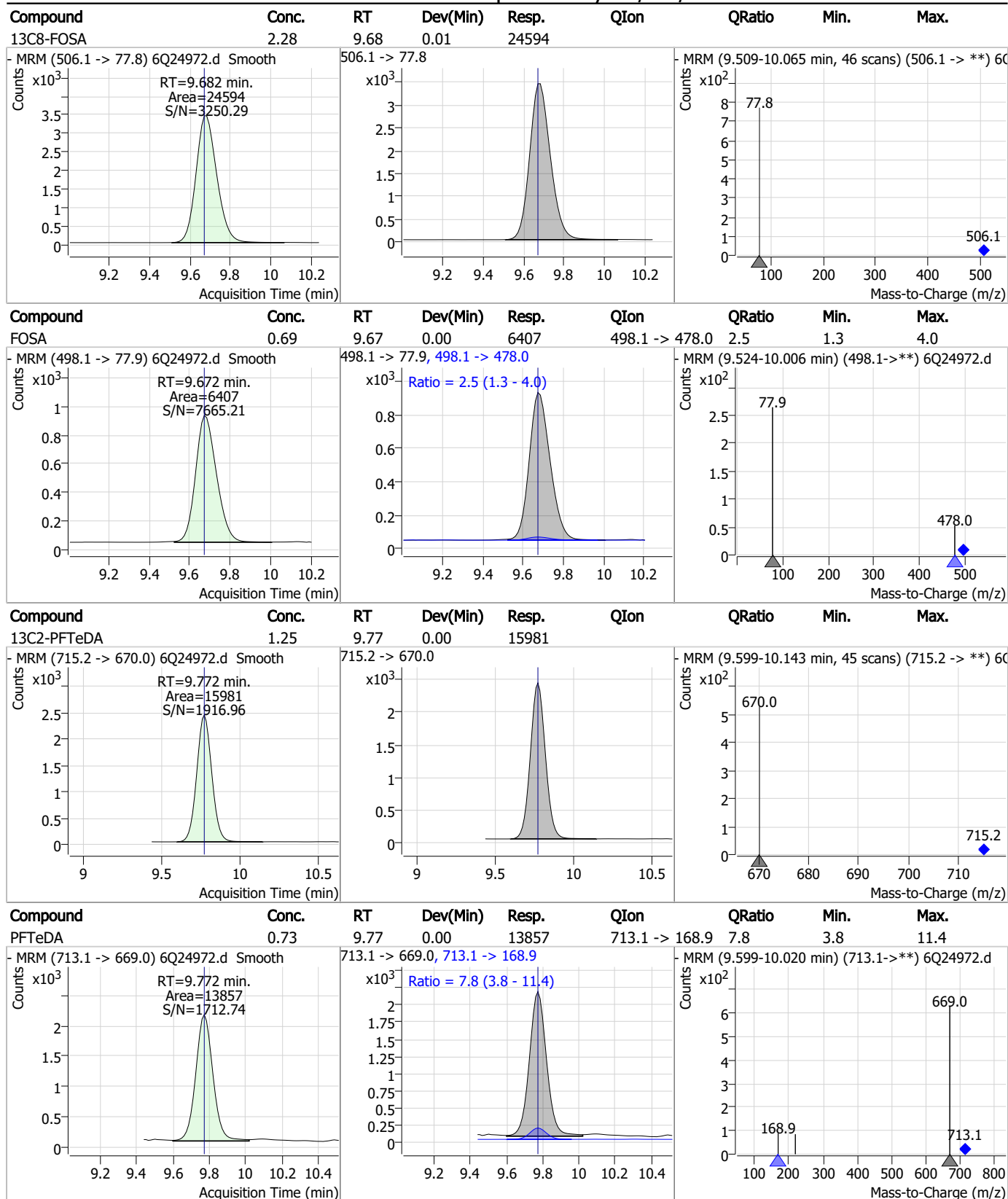
7.3.2
7

Perfluorinated Compounds by LC/MS/MS



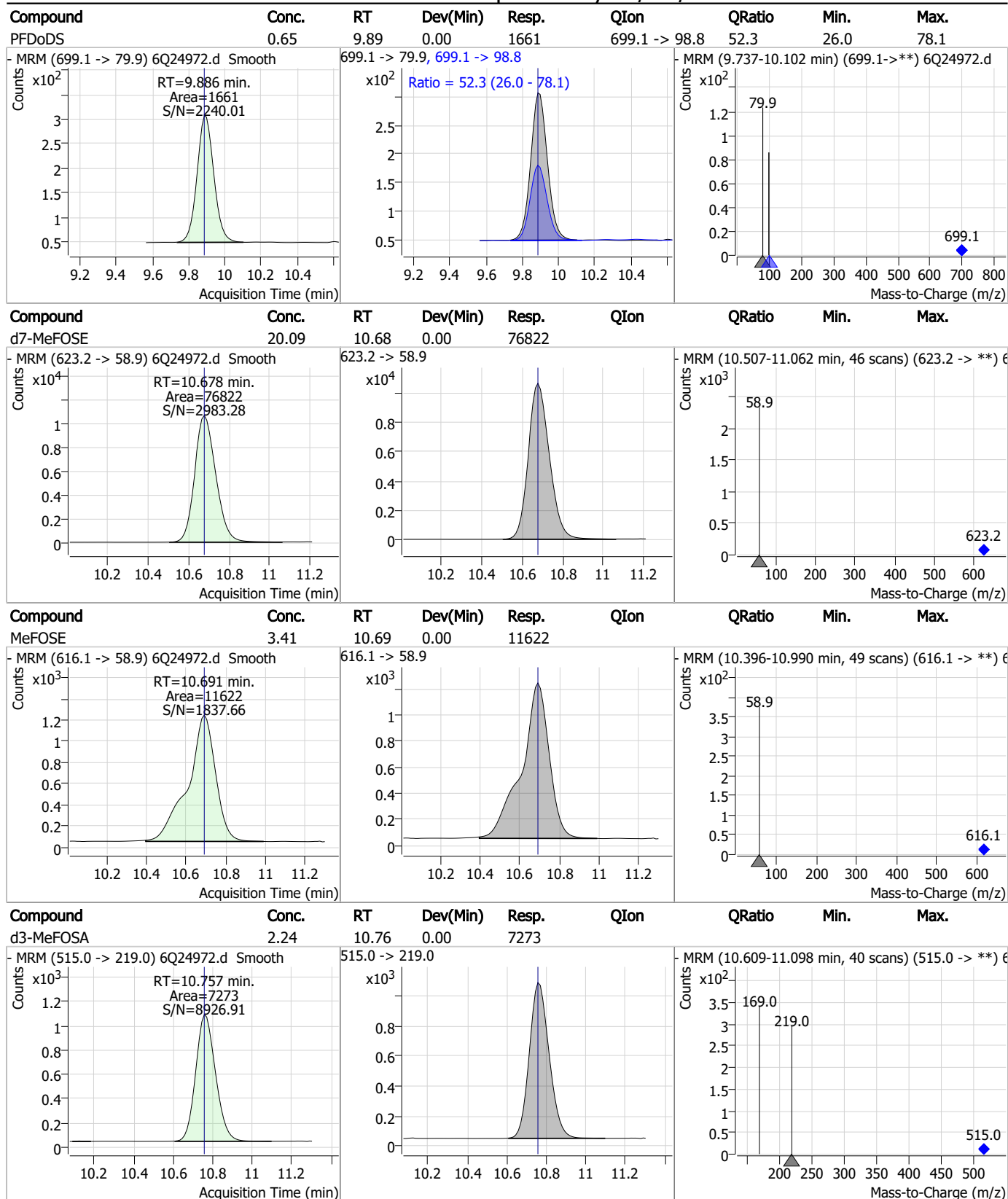
7.32
7

Perfluorinated Compounds by LC/MS/MS



7.3.2
7

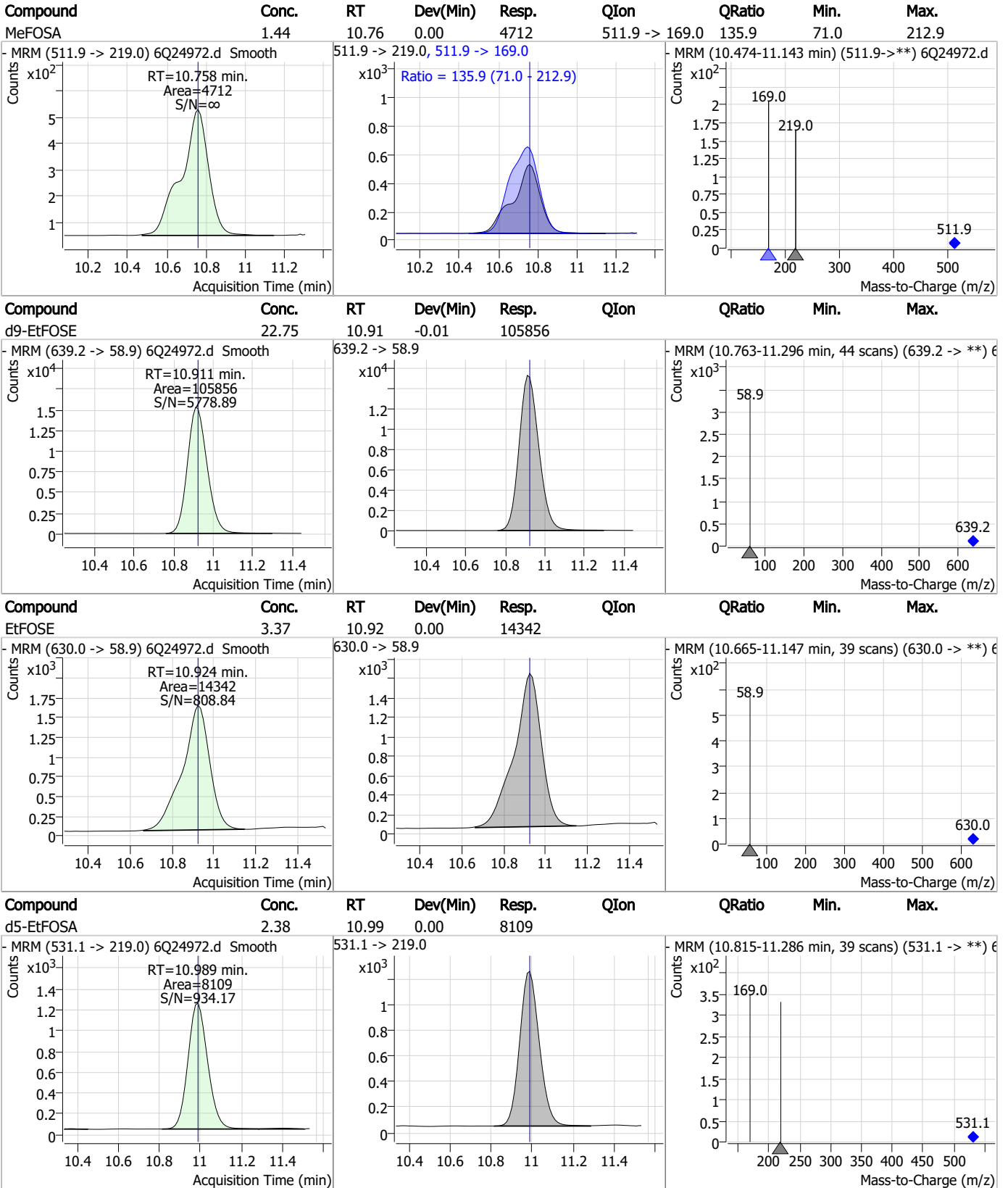
Perfluorinated Compounds by LC/MS/MS



7.3.2
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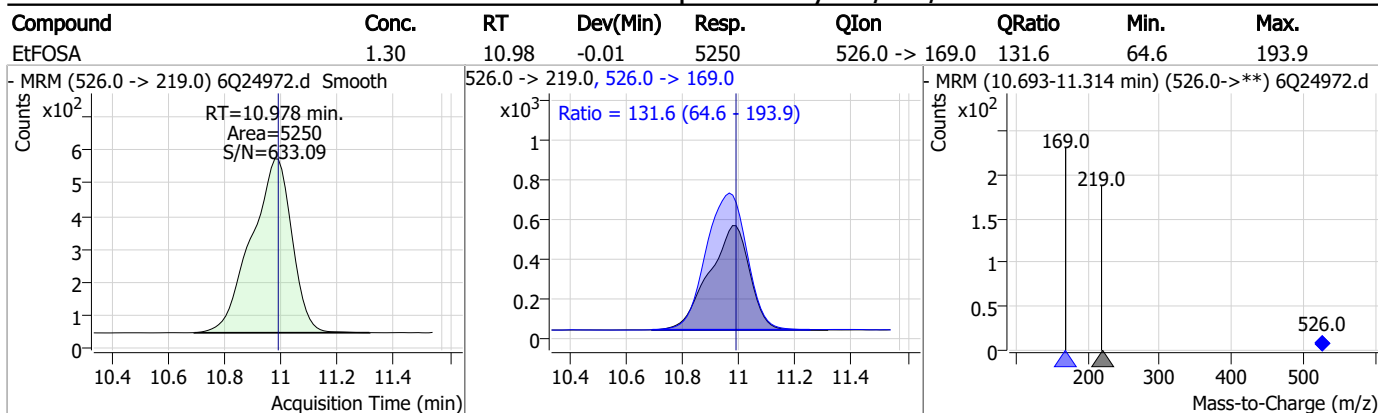


Perfluorinated Compounds by LC/MS/MS



7.3.2
7

Perfluorinated Compounds by LC/MS/MS



7.3.2
7

Manual Integration Approval Summary

Sample Number: OP99128-LLBS Method: EPA DRAFT 1633
Lab FileID: 6Q24972.D Analyst approved: 09/25/23 14:50 Martha Valls
Injection Time: 09/25/23 03:38 Supervisor approved: 09/26/23 14:29 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.45	Split peak

7.3.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24976.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/25/2023 4:36:18 AM
 Sample Name : OP99128-MS
 Vial : P3-F8
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99128,S6Q356,520,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.010	216.8 -> 171.9	171007	10.00 µg/L	0.037
M5-PFPeA	4.422	268.3 -> 223.0	78860	5.00 µg/L	0.012
M5-PFHxA	5.629	318.0 -> 273.0	68131	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	65228	2.50 µg/L	0.000
M8-PFOA	7.186	421.1 -> 376.0	86715	2.50 µg/L	-0.012
M9-PFNA	7.717	472.1 -> 427.0	35432	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	34539	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	38460	1.25 µg/L	0.000
M2-PFDoDA	9.067	615.1 -> 570.0	36198	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	13681	1.25 µg/L	0.000
M8-FOSA	9.682	506.1 -> 77.8	25173	2.50 µg/L	0.012
M3-PFBS	5.559	302.1 -> 79.9	28488	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	17501	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	15298	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	2841	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4534	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	4353	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	37901	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	45255	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	26551	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	82597	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	106264	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	8023	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	7246	2.50 µg/L	0.000
13C4-PFOS	8.336	502.8 -> 79.9	12286	2.50 µg/L	-0.013
13C3-PFBA	3.001	216.0 -> 172.0	71870	5.00 µg/L	0.025
18O2-PFHxS	7.300	403.0 -> 83.9	10263	2.50 µg/L	0.000
13C4-PFOA	7.187	417.1 -> 372.0	93061	2.50 µg/L	-0.012
13C2-PFDA	8.198	515.1 -> 470.1	30338	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	33315	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	56403	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2841	5.41 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.2%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4534	5.43 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.7%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4353	5.48 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.7%		
13C2-PFDoDA	9.067	615.1 -> 570.0	36198	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C2-PFTeDA	9.772	715.2 -> 670.0	13681	1.11 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.0%		
13C3-PFBS	5.559	302.1 -> 79.9	28488	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.6%		
13C3-PFHxS	7.301	402.1 -> 79.9	17501	2.69 µg/L	0.000

7.4.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.8%	
13C4-PFBA	3.010	216.8 -> 171.9	171007	9.85 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C4-PFHpA	6.569	367.1 -> 322.0	65228	2.83 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.3%	
13C5-PFHxA	5.629	318.0 -> 273.0	68131	2.87 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.0%	
13C5-PFPeA	4.422	268.3 -> 223.0	78860	5.91 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 118.1%	
13C6-PFDA	8.198	519.1 -> 474.1	34539	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.4%	
13C7-PFUnDA	8.651	570.0 -> 525.1	38460	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.9%	
13C8-FOSA	9.682	506.1 -> 77.8	25173	2.42 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%	
13C8-PFOA	7.186	421.1 -> 376.0	86715	2.69 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.5%	
13C8-PFOS	8.348	507.1 -> 79.9	15298	2.88 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.3%	
13C9-PFNA	7.717	472.1 -> 427.0	35432	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.8%	
d3-MeFOSAA	8.244	573.2 -> 419.0	37901	6.51 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 130.2%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	45255	10.65 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.5%	
d3-MeFOSA	10.757	515.0 -> 219.0	7246	2.32 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.8%	
d5-EtFOSAA	8.452	589.2 -> 419.0	26551	5.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 117.4%	
d7-MeFOSE	10.678	623.2 -> 58.9	82597	22.41 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.6%	
d9-EtFOSE	10.923	639.2 -> 58.9	106264	23.70 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.8%	
d5-EtFOSA	10.989	531.1 -> 219.0	8023	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	43318	9.32 µg/L	96
		327.1 -> 80.9	17571		
6:2FTS	6.962	427.1 -> 407.0	36174	9.26 µg/L	100
		427.1 -> 80.9	15812		
8:2FTS	7.987	527.1 -> 507.0	25817	9.30 µg/L	99
		527.1 -> 80.8	8892		
EtFOSAA	8.452	584.2 -> 419.1	10065	2.28 µg/L	97
		584.2 -> 526.0	6279		
FOSA	9.685	498.1 -> 77.9	21577	2.25 µg/L	99
		498.1 -> 478.0	639		
MeFOSAA	8.257	570.1 -> 419.0	13703	2.07 µg/L	99
		570.1 -> 483.0	3345		
PFBA	3.006	212.8 -> 168.9	58491	9.58 µg/L	100
PFBS	5.560	298.7 -> 79.9	20112	2.16 µg/L	99
		298.7 -> 98.8	7374		
PFDA	8.198	512.9 -> 469.0	59344	2.18 µg/L	94
		512.9 -> 219.0	11165		
PFDODA	9.068	613.1 -> 569.0	63863	2.42 µg/L	97
		613.1 -> 319.0	8301		
PFDS	9.220	599.0 -> 79.9	8002	2.16 µg/L	98

7.4.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3856			
PFHpA	6.569	363.1 -> 319.0	90489	2.56	µg/L	99
		363.1 -> 169.0	12606			
PFHpS	7.856	449.0 -> 79.9	15199	2.25	µg/L	85
		449.0 -> 98.9	7806			
PFHxA	5.631	313.0 -> 269.0	59730	2.44	µg/L	100
		313.0 -> 118.9	2834			
PFHxS	7.302	398.7 -> 79.9	18603	2.73	µg/L	m 98
		398.7 -> 98.9	8773			
PFNA	7.717	463.0 -> 419.0	52297	2.28	µg/L	92
		463.0 -> 219.0	12933			
PFNS	8.802	548.8 -> 79.9	11933	2.24	µg/L	94
		548.8 -> 98.9	6310			
PFOA	7.187	413.0 -> 369.0	100505	2.70	µg/L	98
		413.0 -> 169.0	17219			
PFOS	8.350	498.9 -> 79.9	17986	2.73	µg/L	m 70
		498.9 -> 98.8	8617			
PFPeA	4.424	263.0 -> 219.0	75021	4.73	µg/L	100
PFPeS	6.608	349.1 -> 79.9	20849	2.20	µg/L	96
		349.1 -> 98.9	9622			
PFTeDA	9.772	713.1 -> 669.0	40386	2.50	µg/L	99
		713.1 -> 168.9	3225			
PFTrDA	9.452	663.0 -> 619.0	55960	2.42	µg/L	99
		663.0 -> 168.9	4697			
PFUnDA	8.652	563.1 -> 519.0	59771	2.35	µg/L	99
		563.1 -> 269.1	9628			
11CI-PF3OUdS	9.491	630.9 -> 450.9	52759	4.46	µg/L	96
		632.9 -> 452.9	15960			
9CI-PF3ONS	8.678	530.8 -> 351.0	93405	4.65	µg/L	100
		532.8 -> 353.0	30219			
ADONA	6.804	376.9 -> 250.9	285493	5.13	µg/L	94
		376.9 -> 84.8	74657			
HFPO-DA	6.007	284.9 -> 168.9	22184	4.98	µg/L	99
		284.9 -> 184.9	2400			
3:3FTCA	3.902	241.0 -> 177.0	9497	9.58	µg/L	99
		241.0 -> 117.0	1089			
5:3FTCA	6.283	341.0 -> 237.1	249886	54.35	µg/L	96
		341.0 -> 217.0	165318			
7:3FTCA	7.669	441.0 -> 316.9	145853	56.00	µg/L	89
		441.0 -> 336.9	316544			
EtFOSA	10.990	526.0 -> 219.0	18285	4.59	µg/L	97
		526.0 -> 169.0	22962			
EtFOSE	10.924	630.0 -> 58.9	50489	11.83	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	15712	4.82	µg/L	97
		511.9 -> 169.0	21696			
MeFOSE	10.691	616.1 -> 58.9	39765	10.86	µg/L	100
PFDoDS	9.898	699.1 -> 79.9	4739	2.15	µg/L	97
		699.1 -> 98.8	2558			
NFDHA	5.512	295.0 -> 201.0	14693	4.68	µg/L	97
		295.0 -> 84.9	4155			
PFMBA	4.850	279.0 -> 85.1	56743	4.45	µg/L	100
PFMPA	3.563	229.0 -> 84.9	41878	4.42	µg/L	100
PFEESA	6.100	314.8 -> 134.9	129988	4.27	µg/L	100
		314.8 -> 82.9	4806			

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

7.4.1
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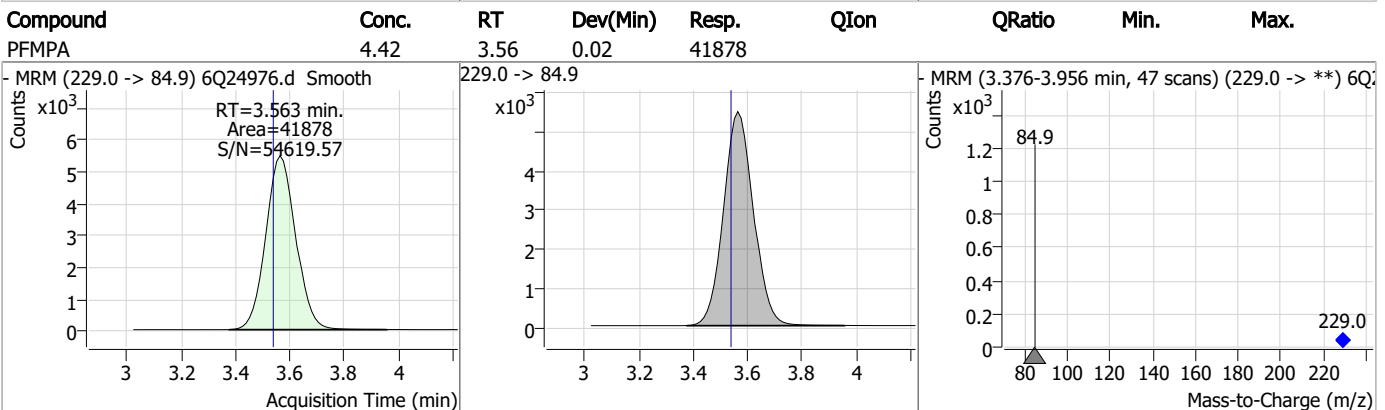
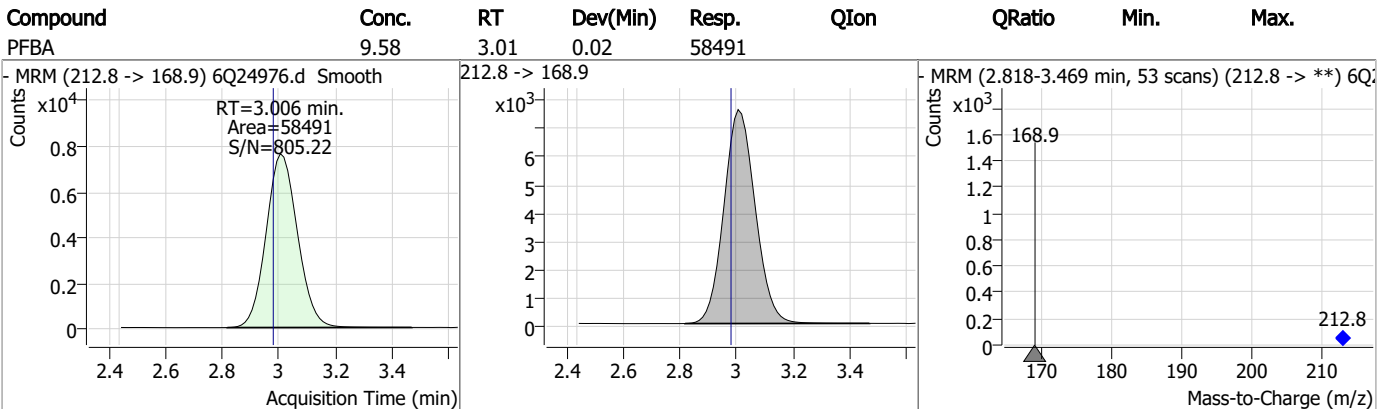
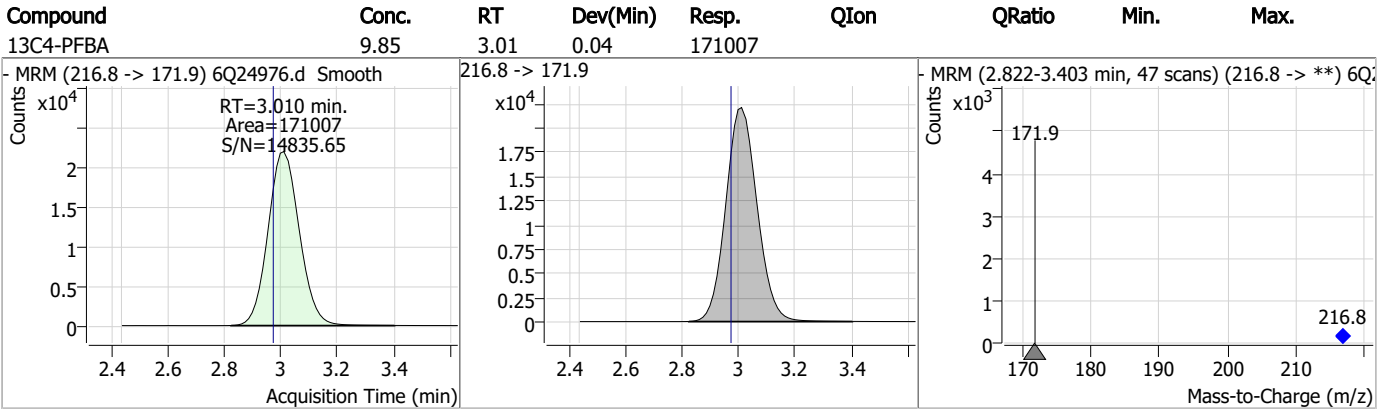
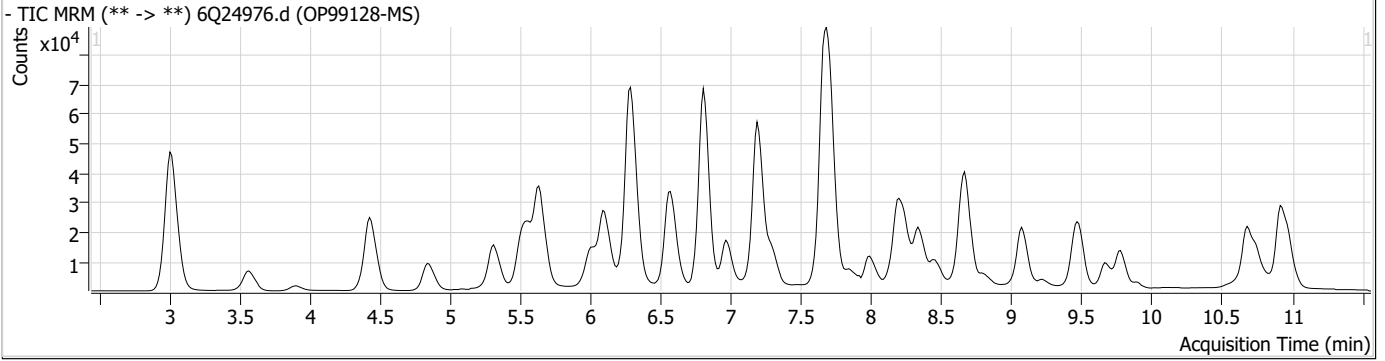
Perfluorinated Compounds by LC/MS/MS

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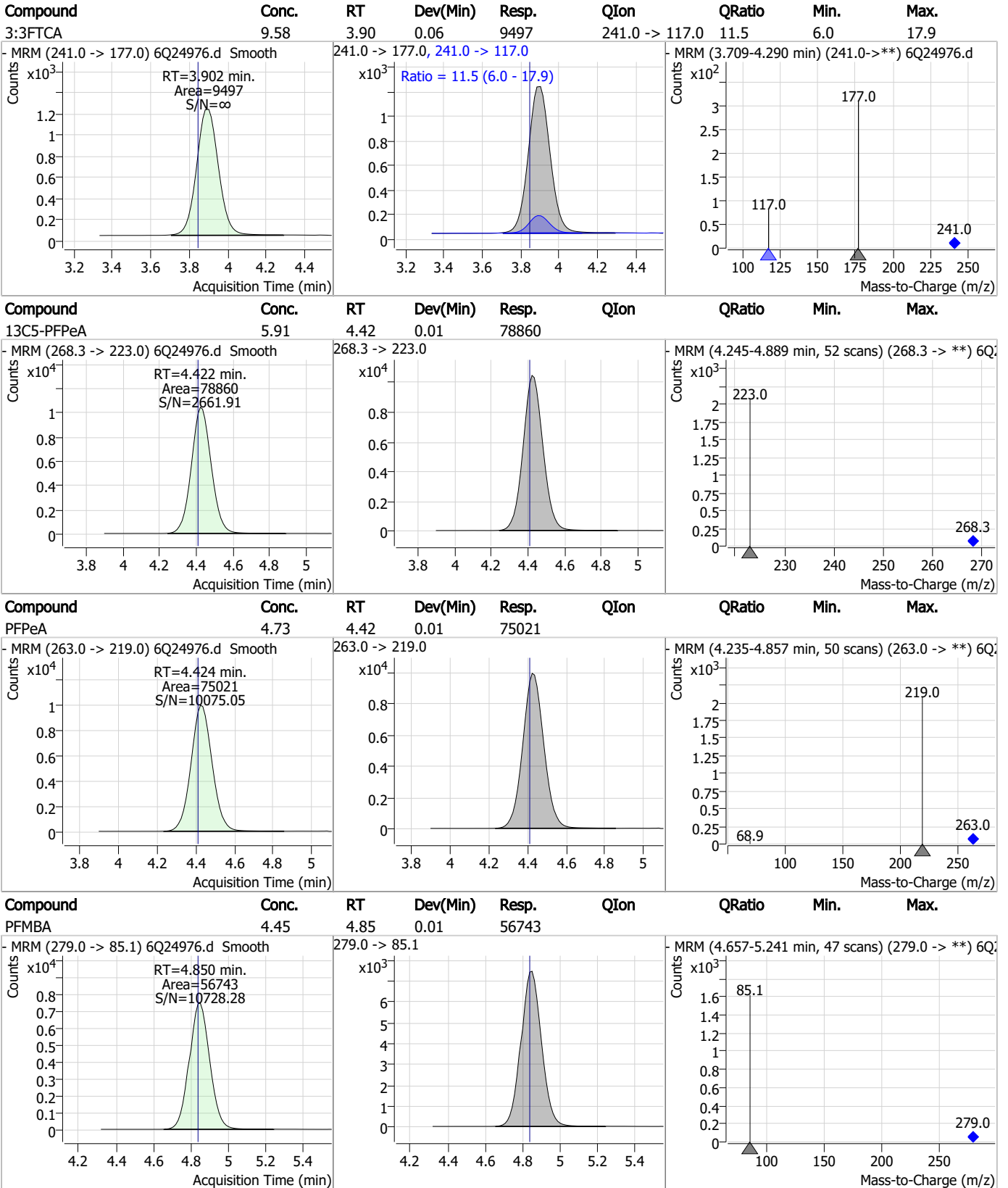
7.4.1

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Perfluorinated Compounds by LC/MS/MS



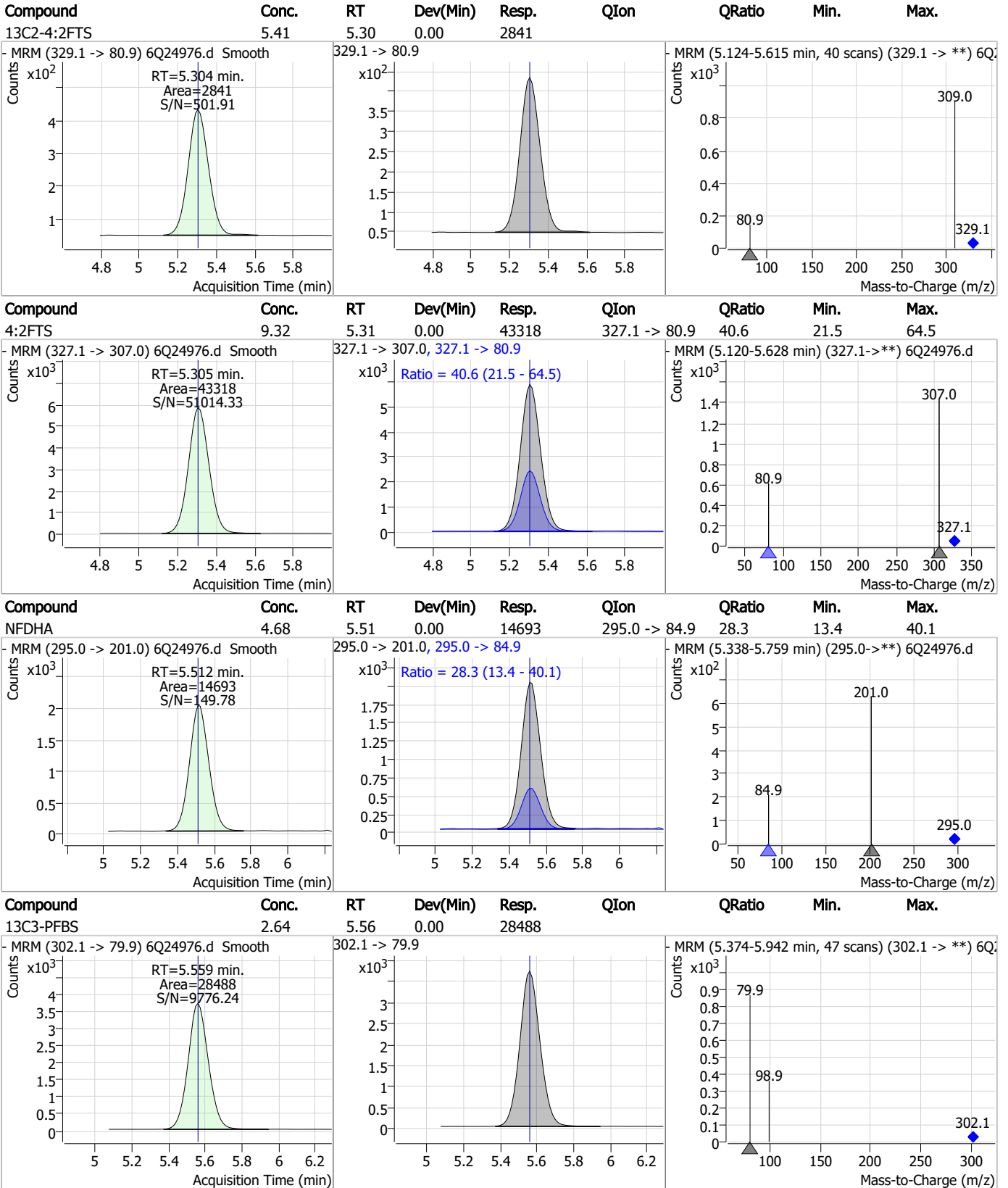
Perfluorinated Compounds by LC/MS/MS



7.4.1

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Perfluorinated Compounds by LC/MS/MS



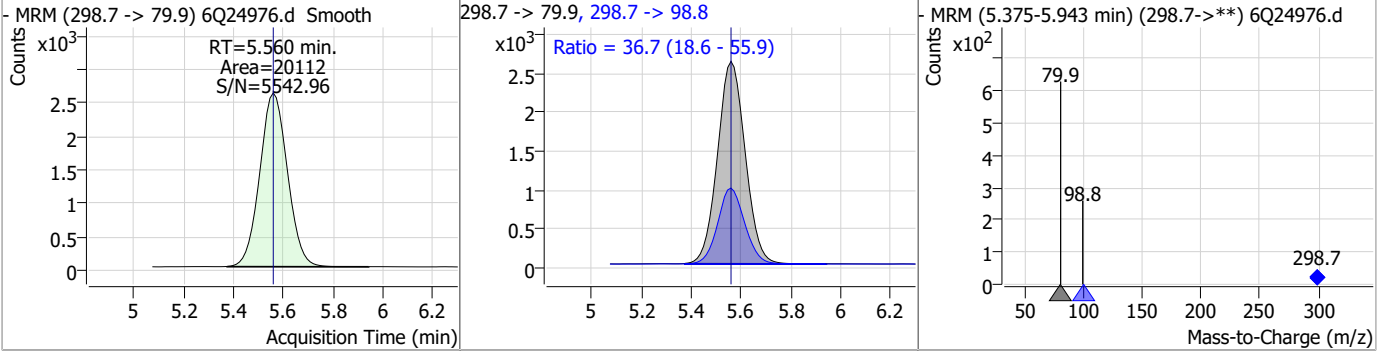
7.4.1

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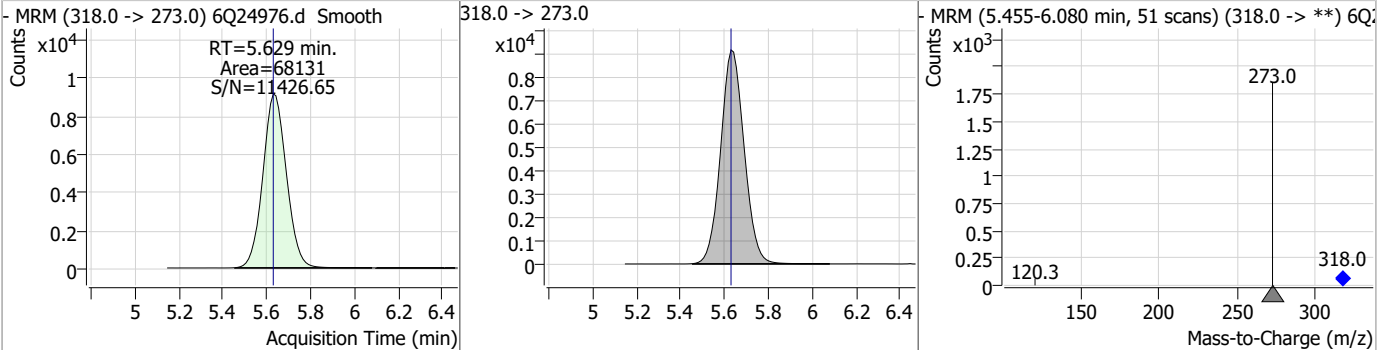


Perfluorinated Compounds by LC/MS/MS

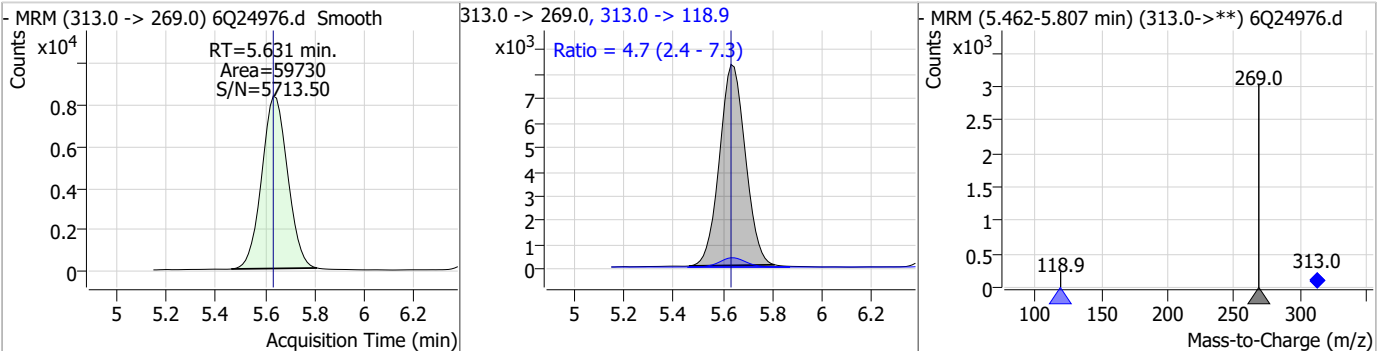
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.16	5.56	0.00	20112	298.7 -> 98.8	36.7	18.6	55.9



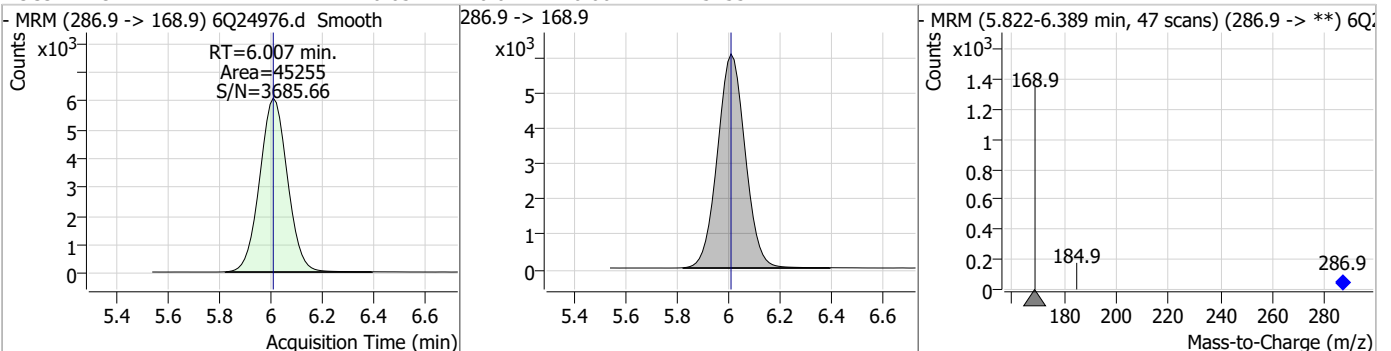
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.87	5.63	0.00	68131				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.44	5.63	0.00	59730	313.0 -> 118.9	4.7	2.4	7.3

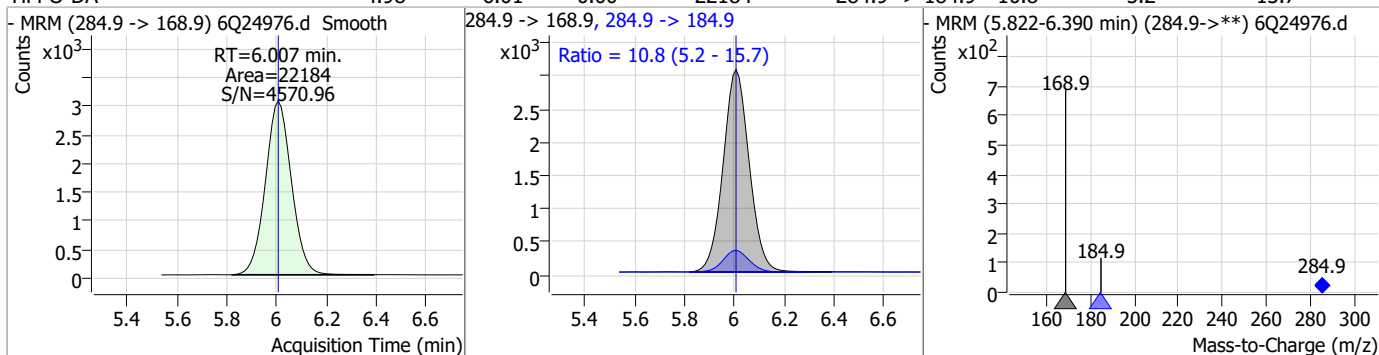


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.65	6.01	0.00	45255				

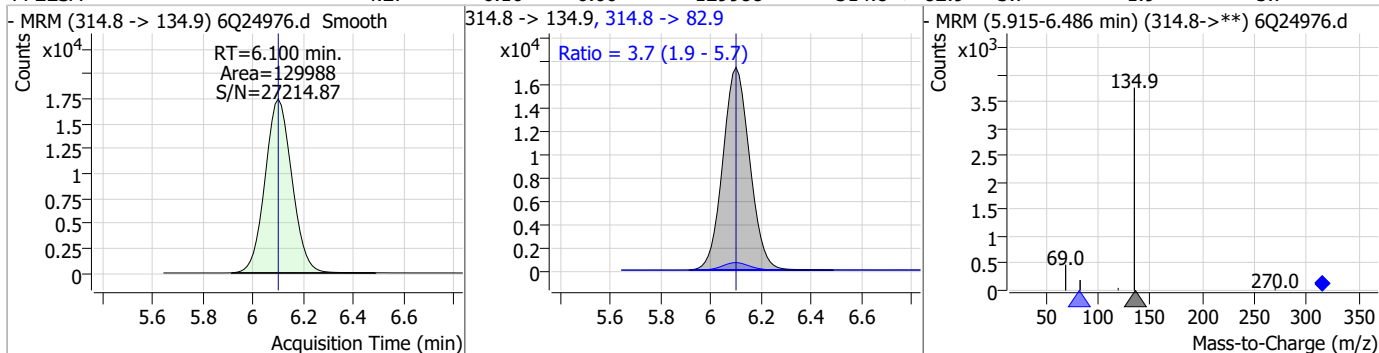


Perfluorinated Compounds by LC/MS/MS

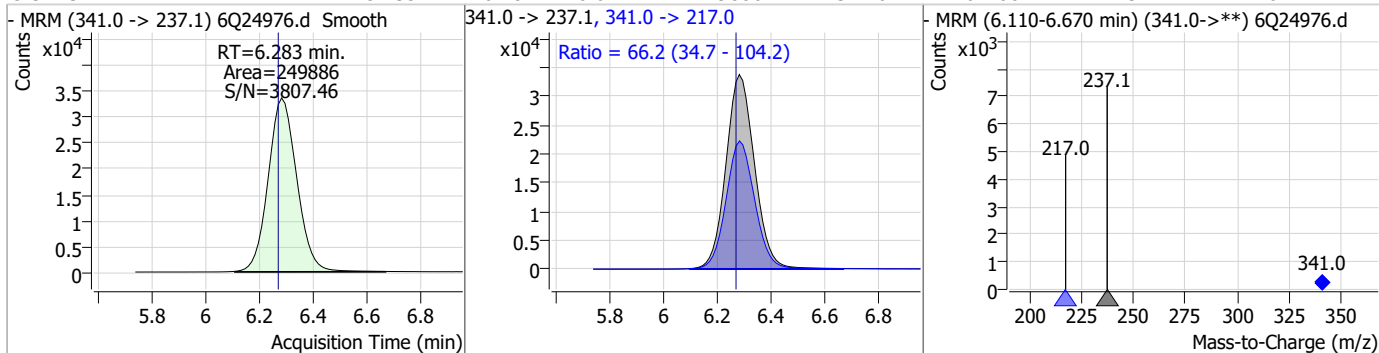
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.98	6.01	0.00	22184	284.9 -> 184.9	10.8	5.2	15.7



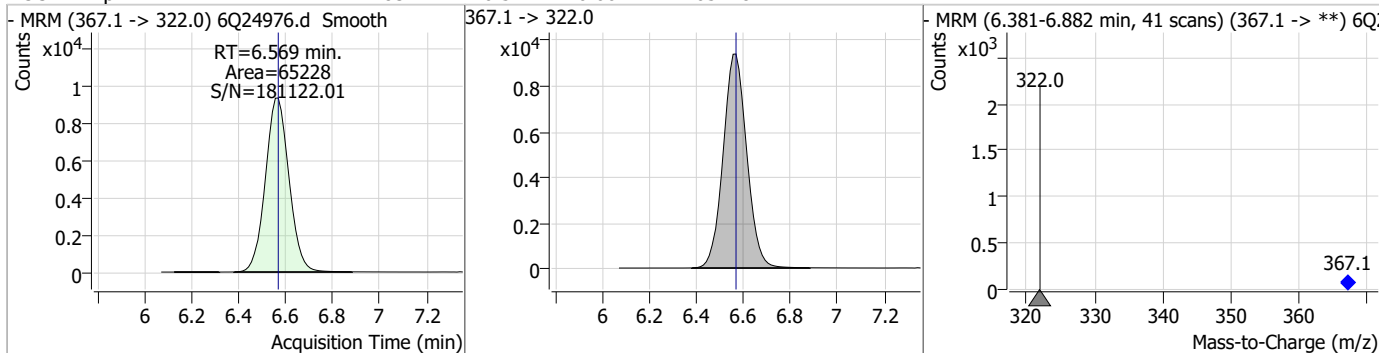
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.27	6.10	0.00	129988	314.8 -> 82.9	3.7	1.9	5.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	54.35	6.28	0.01	249886	341.0 -> 217.0	66.2	34.7	104.2



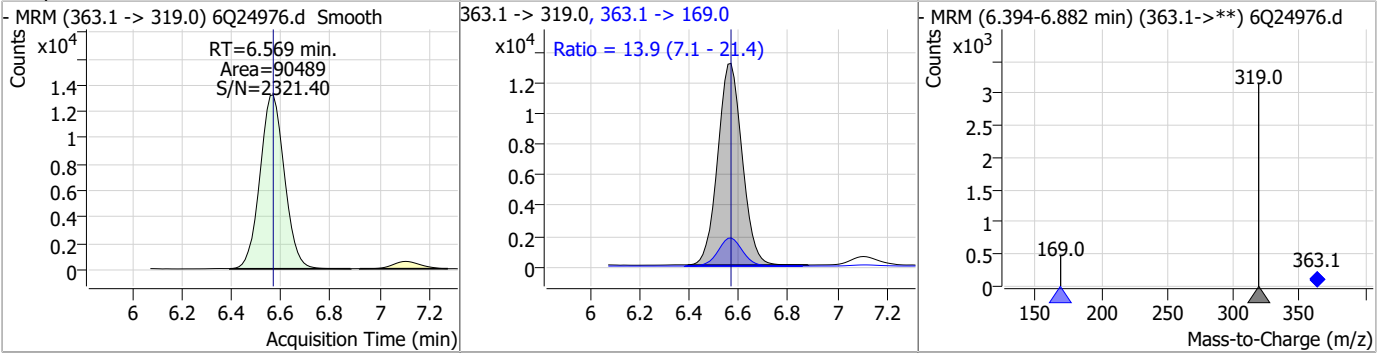
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.83	6.57	0.00	65228	367.1 -> 322.0			



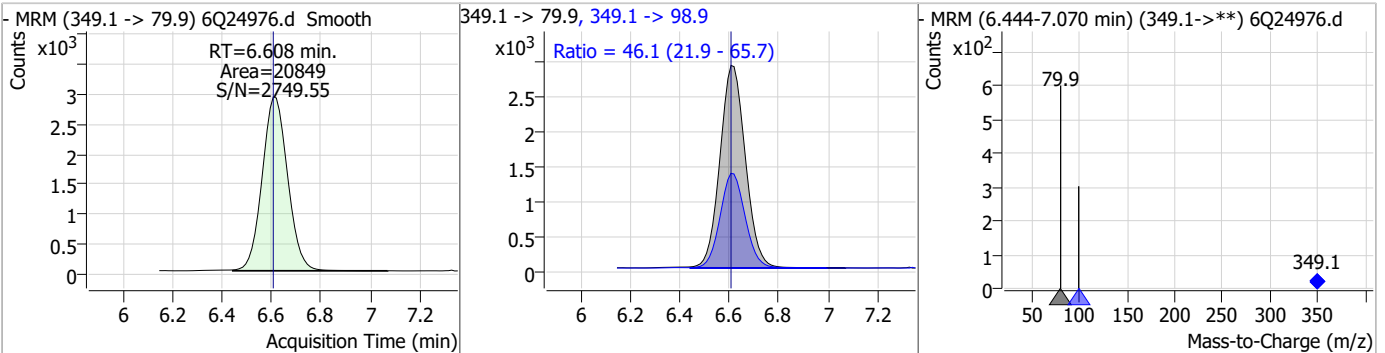
7.4.1
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Perfluorinated Compounds by LC/MS/MS

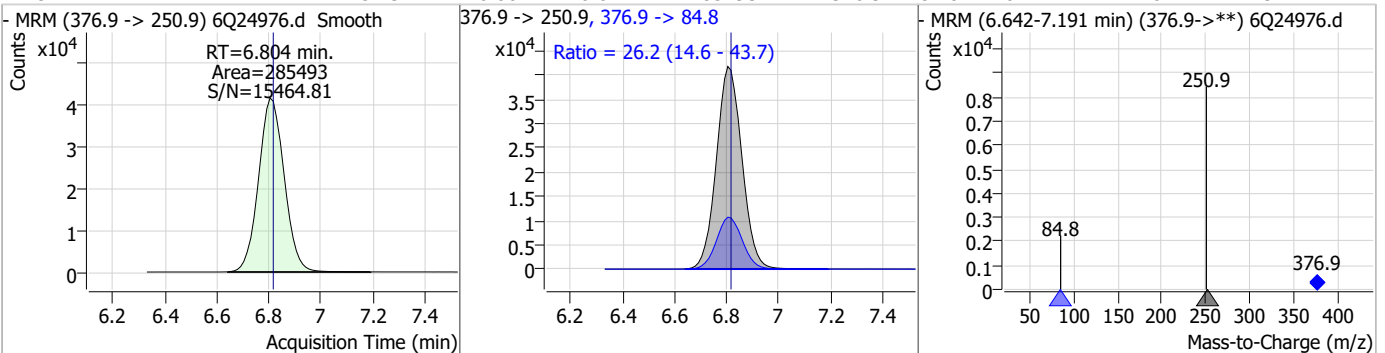
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.56	6.57	0.00	90489	363.1 -> 169.0	13.9	7.1	21.4



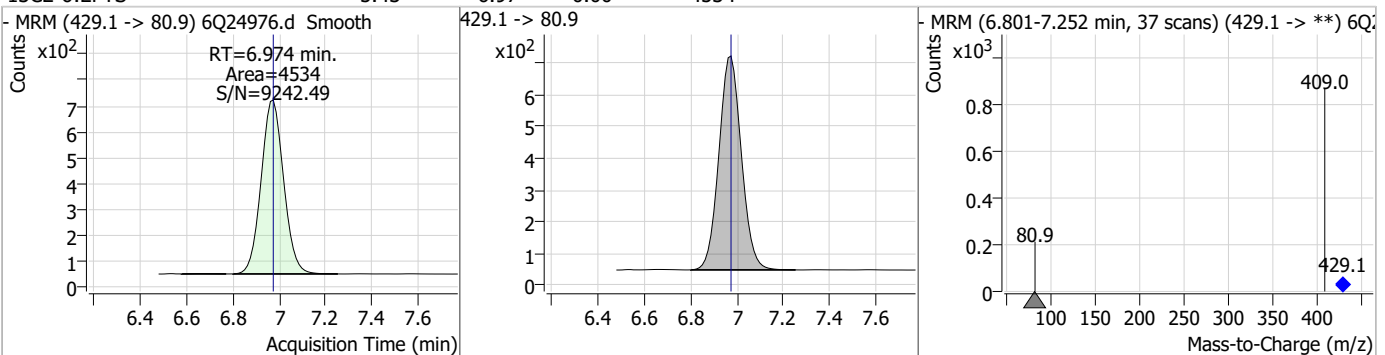
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.20	6.61	0.00	20849	349.1 -> 98.9	46.1	21.9	65.7



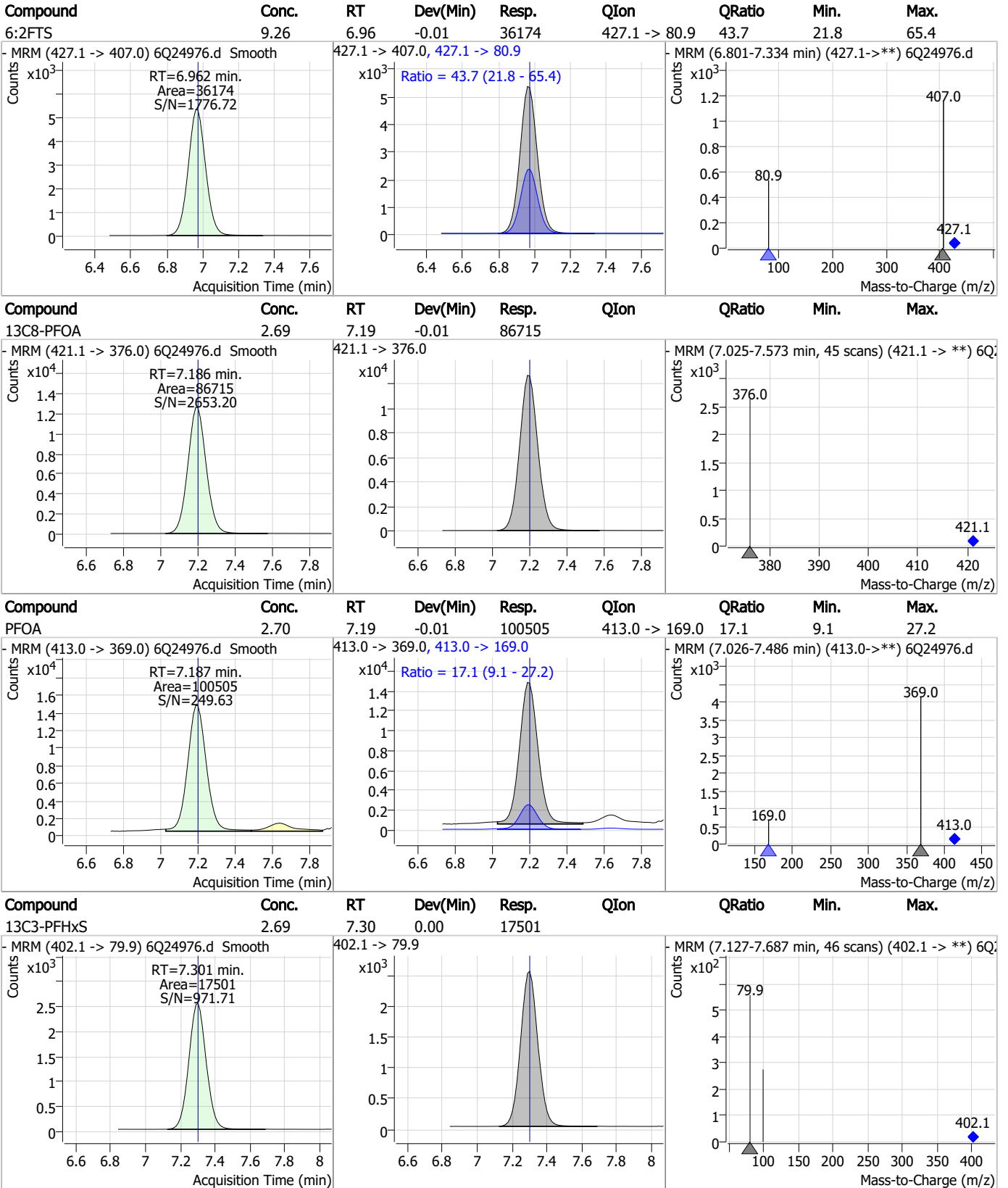
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	5.13	6.80	-0.01	285493	376.9 -> 84.8	26.2	14.6	43.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.43	6.97	0.00	4534	429.1 -> 80.9			



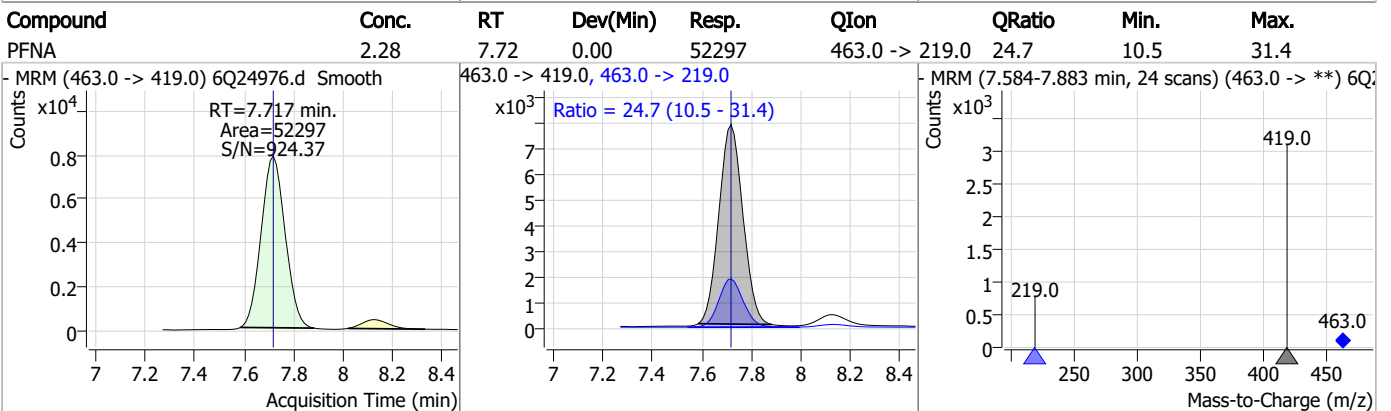
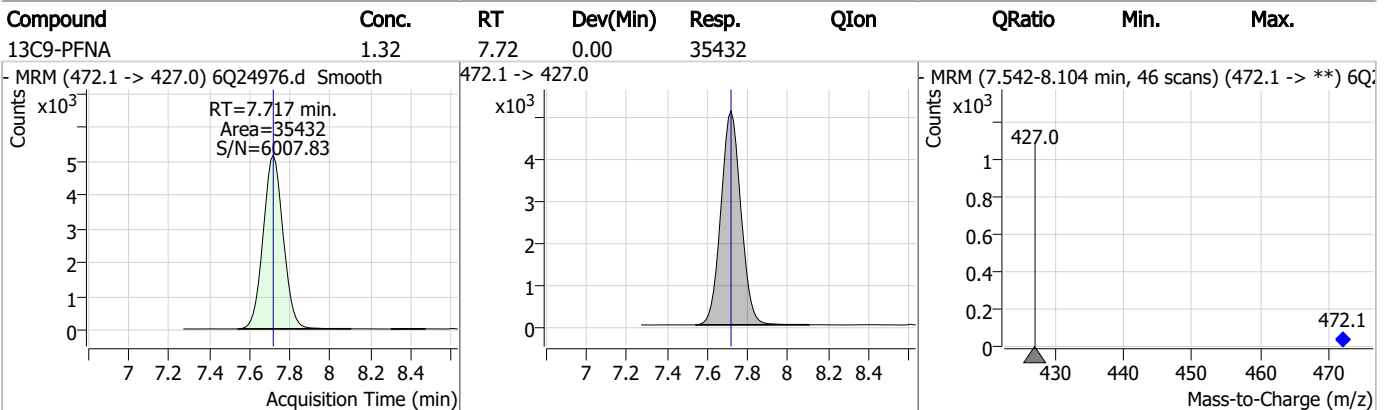
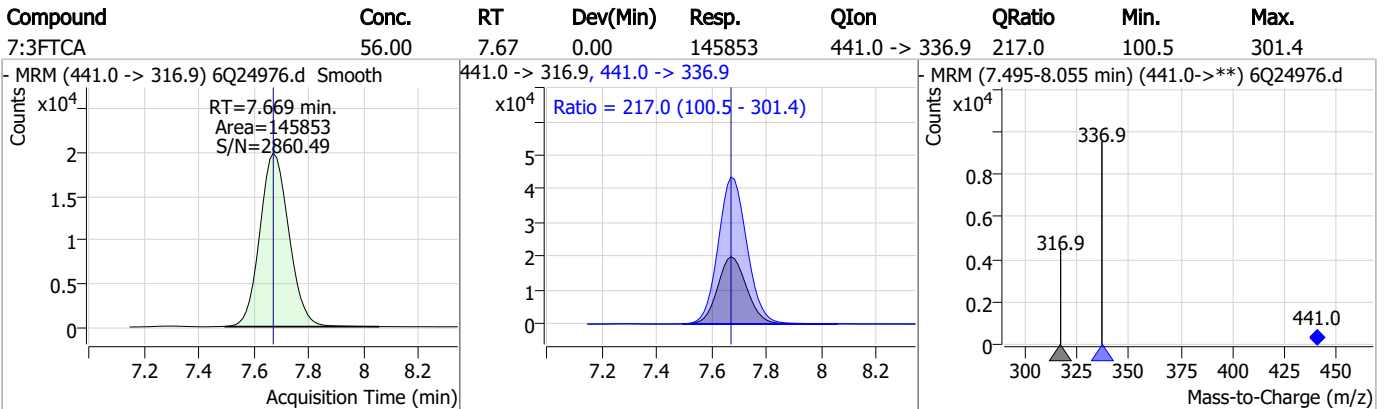
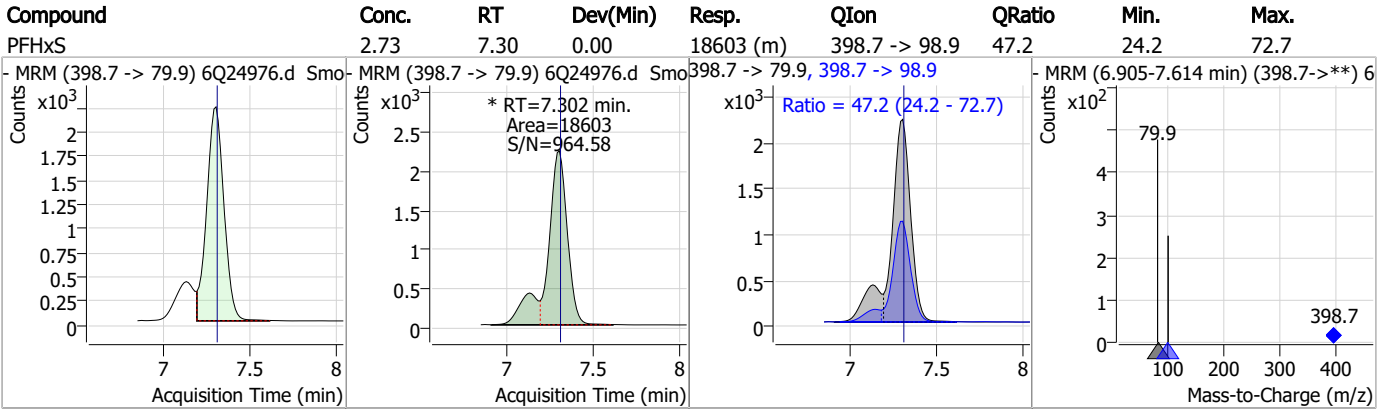
Perfluorinated Compounds by LC/MS/MS



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

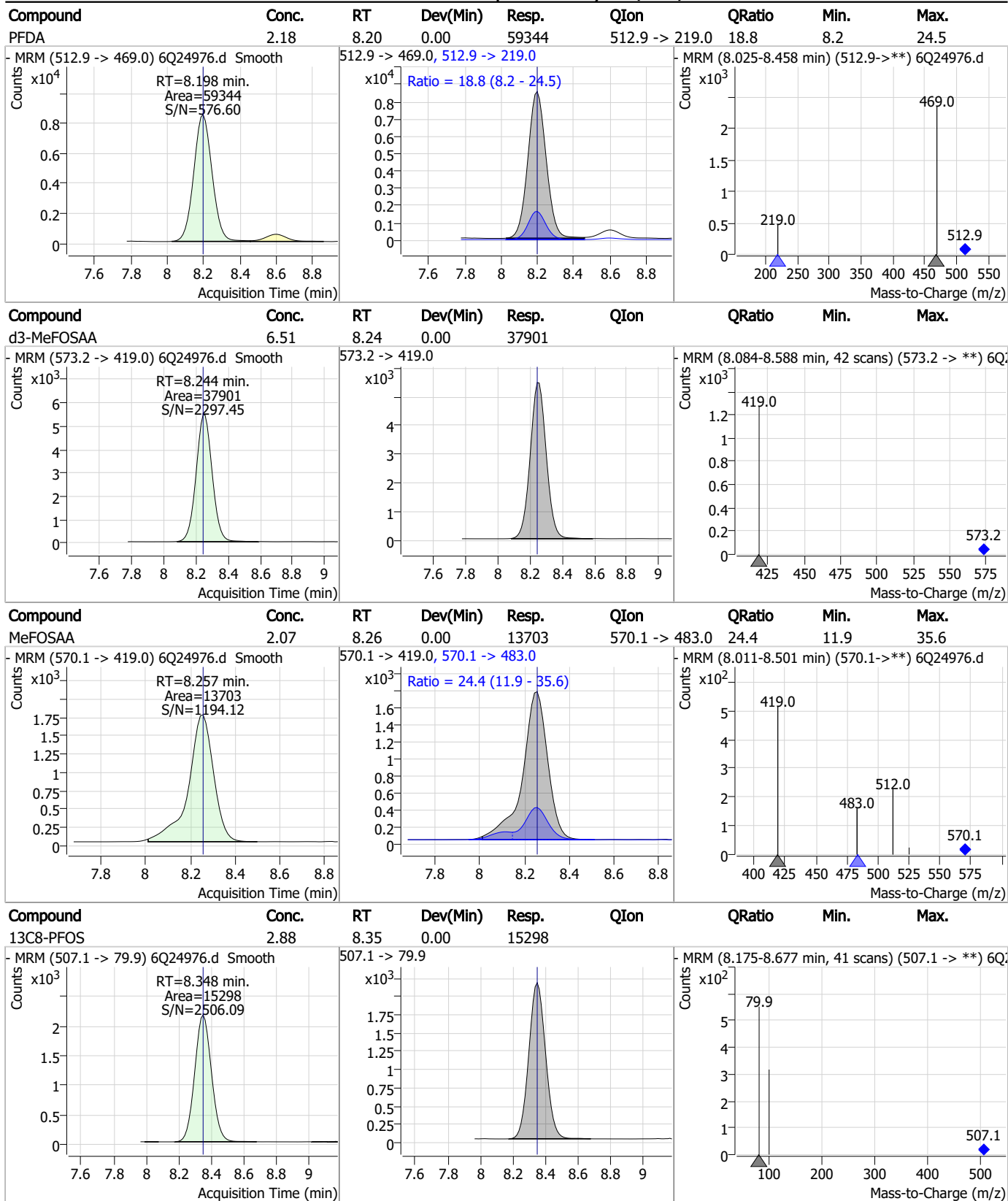
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.25	7.86	0.00	15199	449.0 -> 98.9	51.4	21.0	62.9
13C2-8:2FTS	5.48	7.99	0.00	4353	529.1 -> 80.9			
8:2FTS	9.30	7.99	0.00	25817	527.1 -> 80.8	34.4	17.6	52.8
13C6-PFDA	1.35	8.20	0.00	34539	519.1 -> 474.1			

7.4.1

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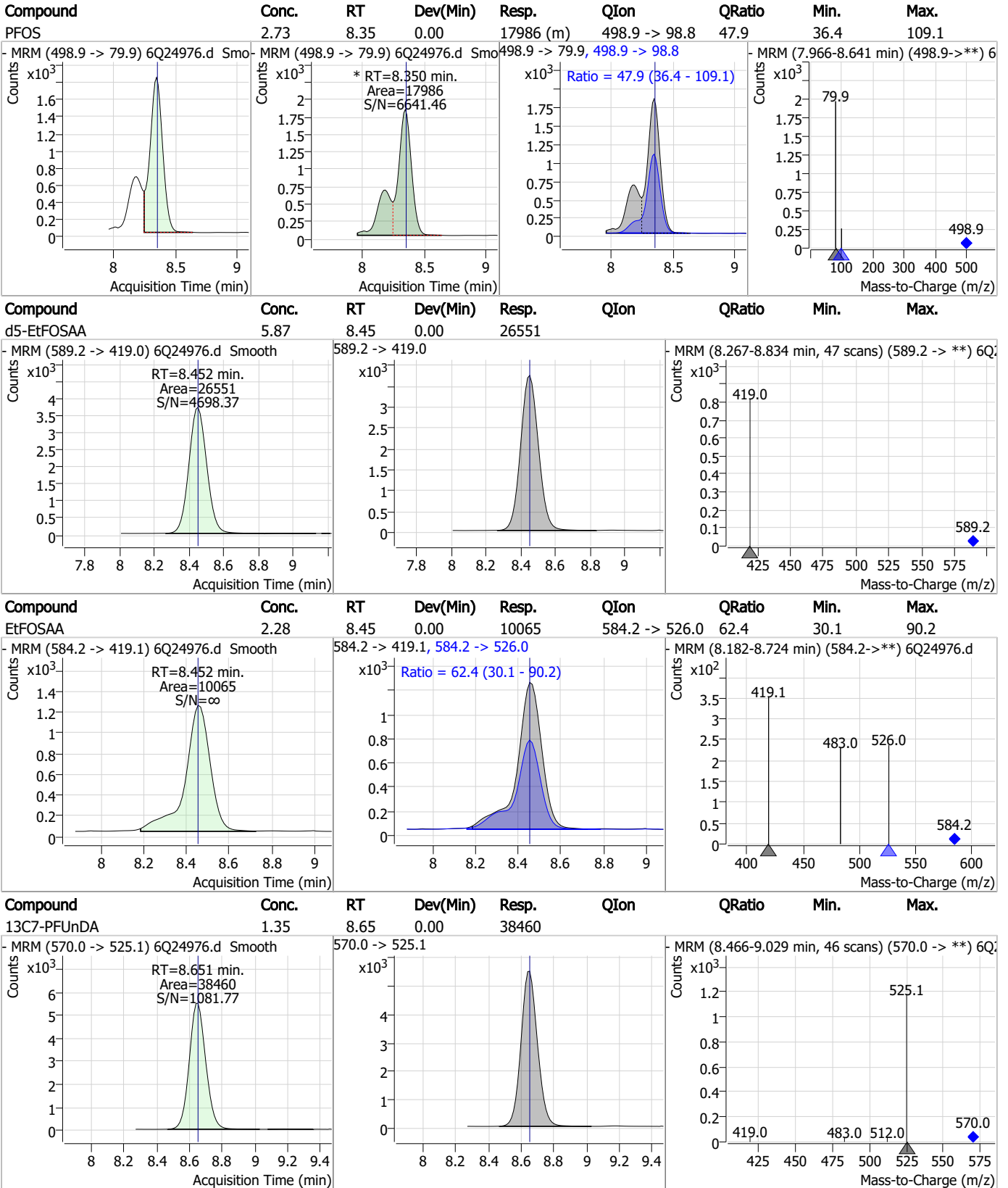


Perfluorinated Compounds by LC/MS/MS



7.4.1
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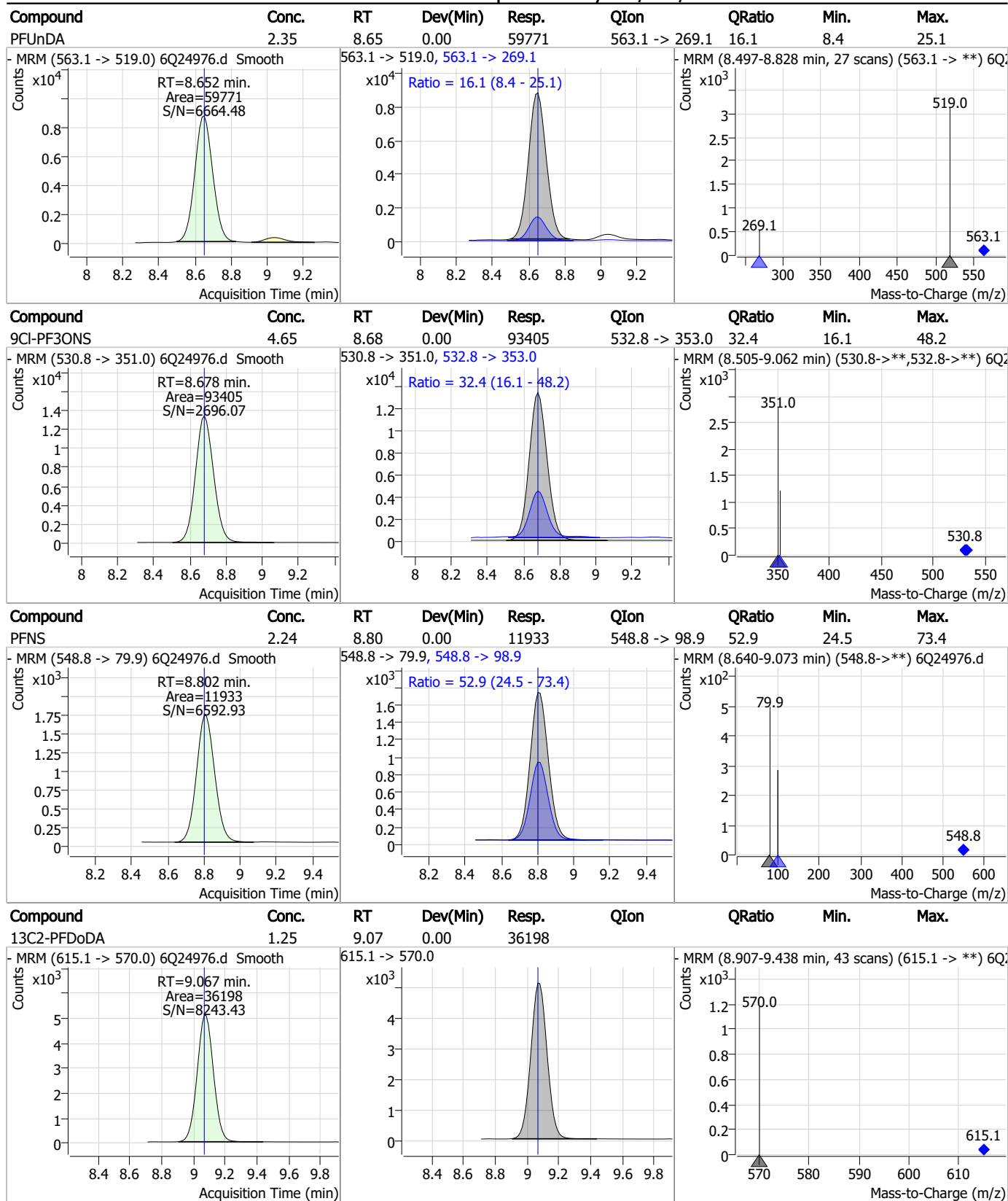
Perfluorinated Compounds by LC/MS/MS



7.4.1

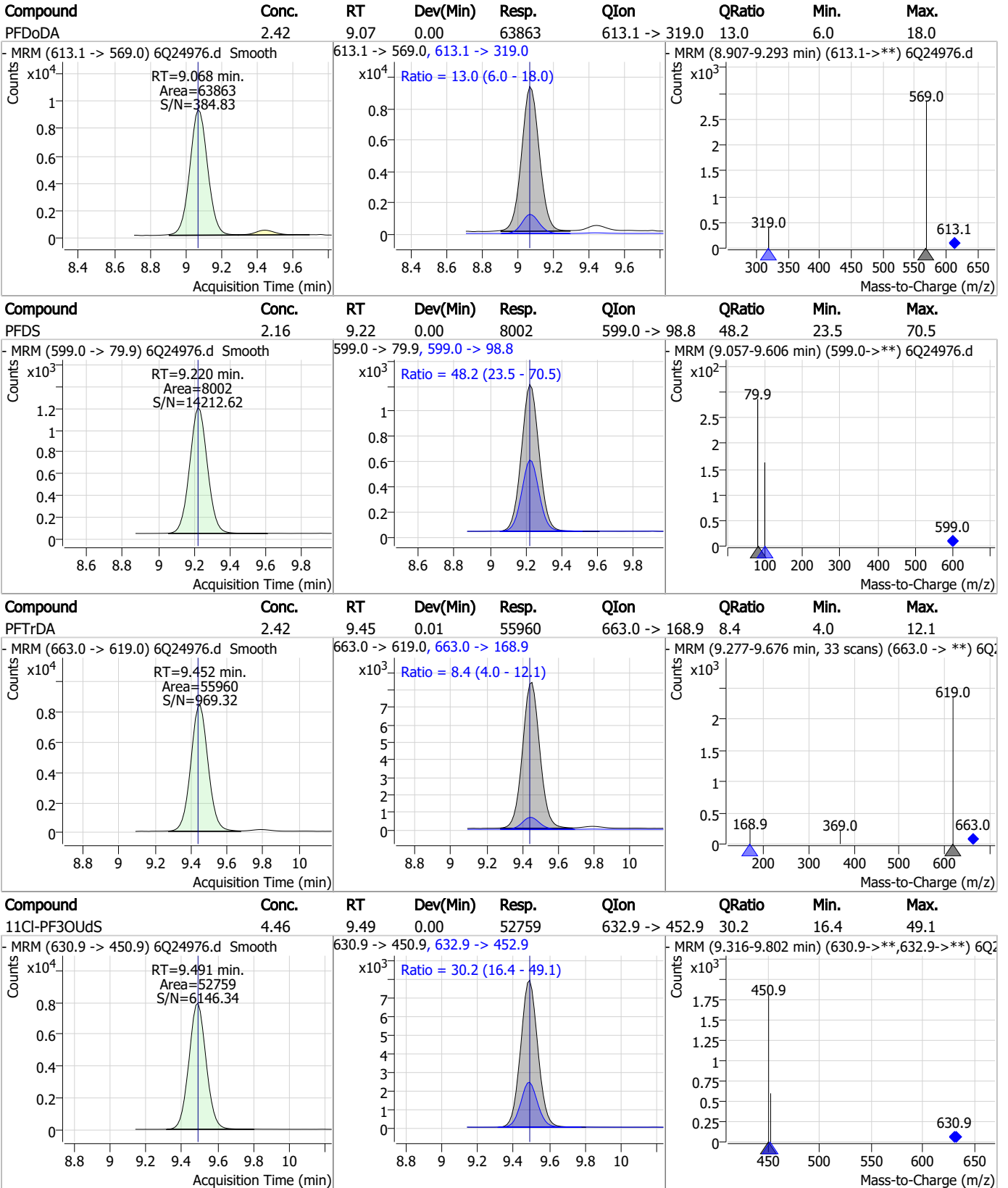
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Perfluorinated Compounds by LC/MS/MS



7.4.1
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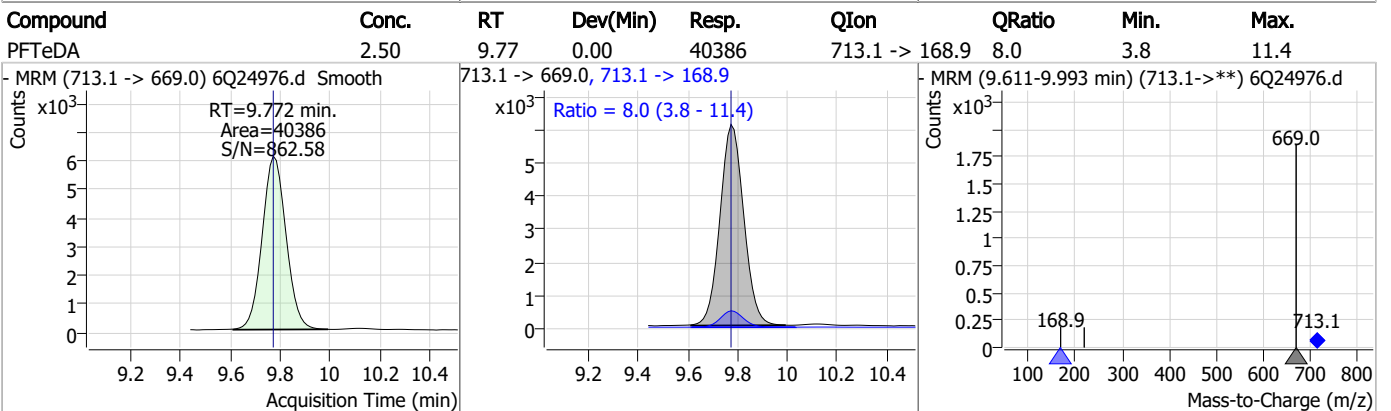
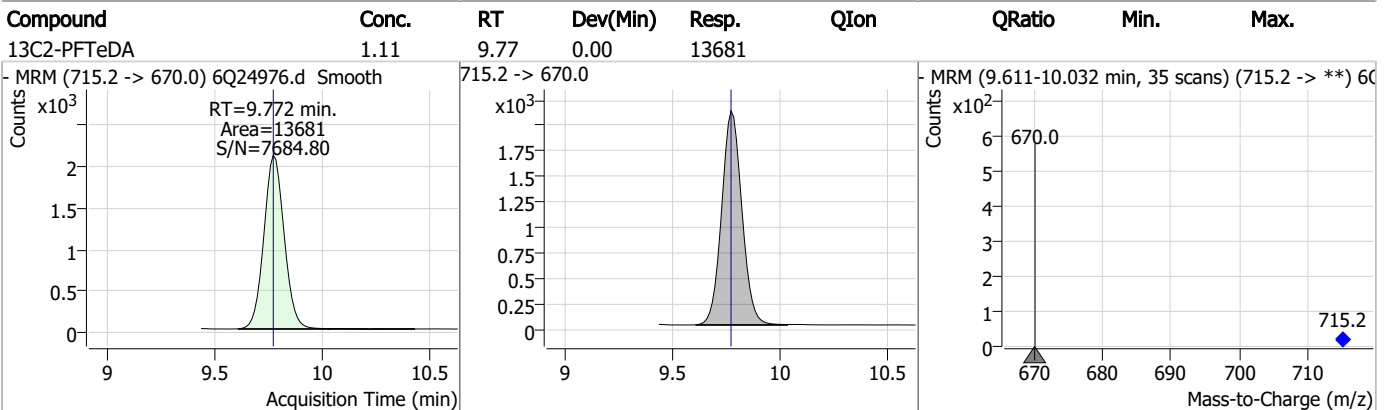
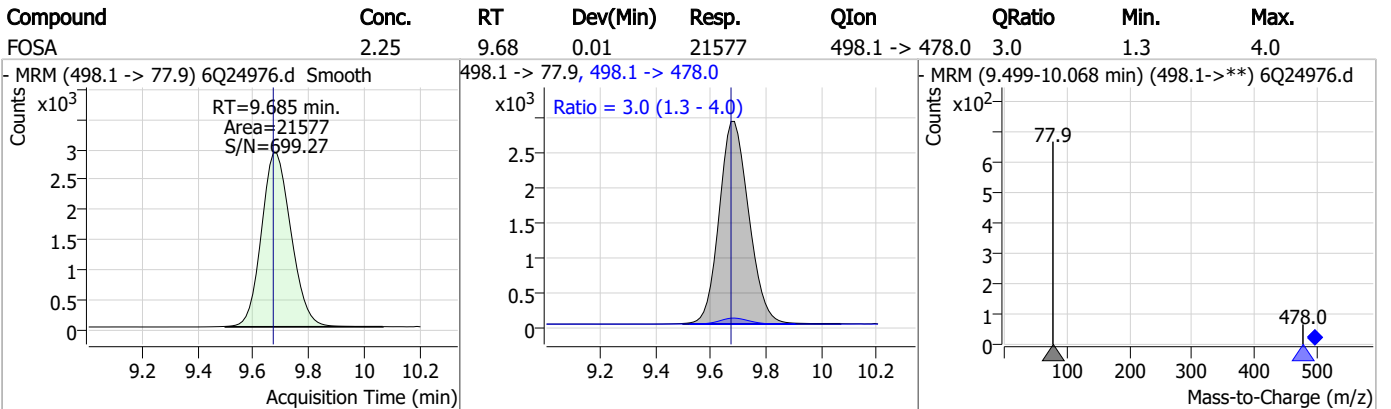
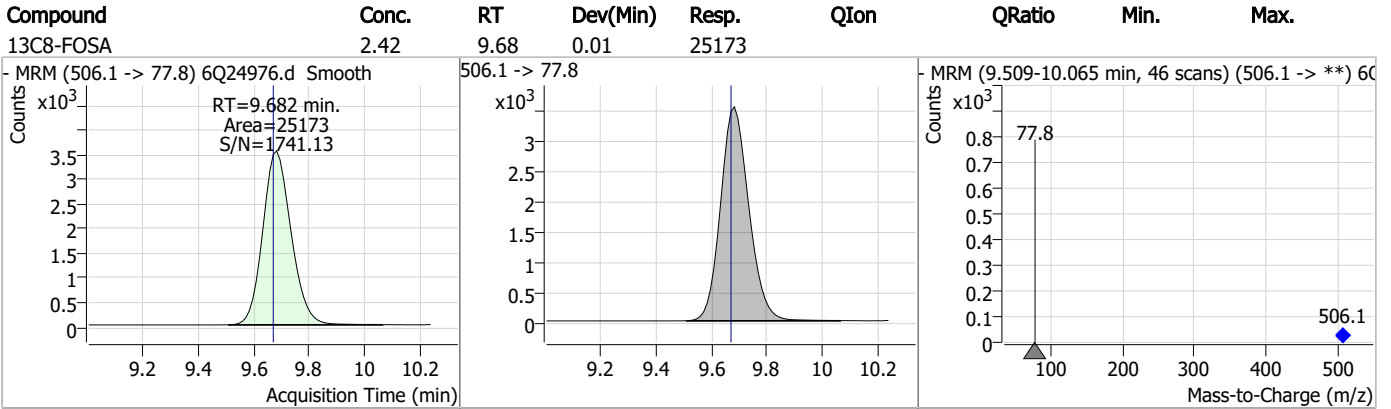
Perfluorinated Compounds by LC/MS/MS



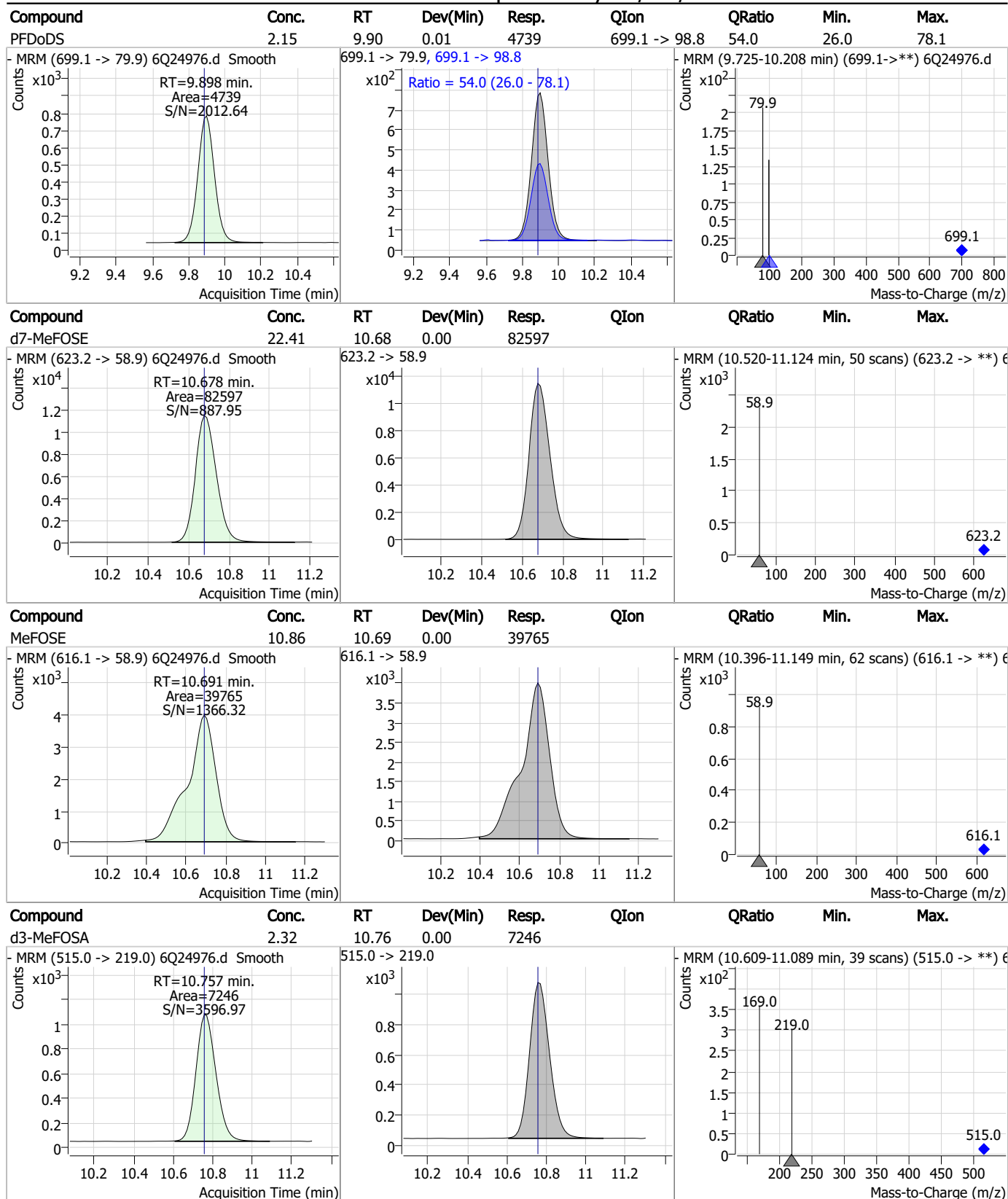
7.4.1

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Perfluorinated Compounds by LC/MS/MS

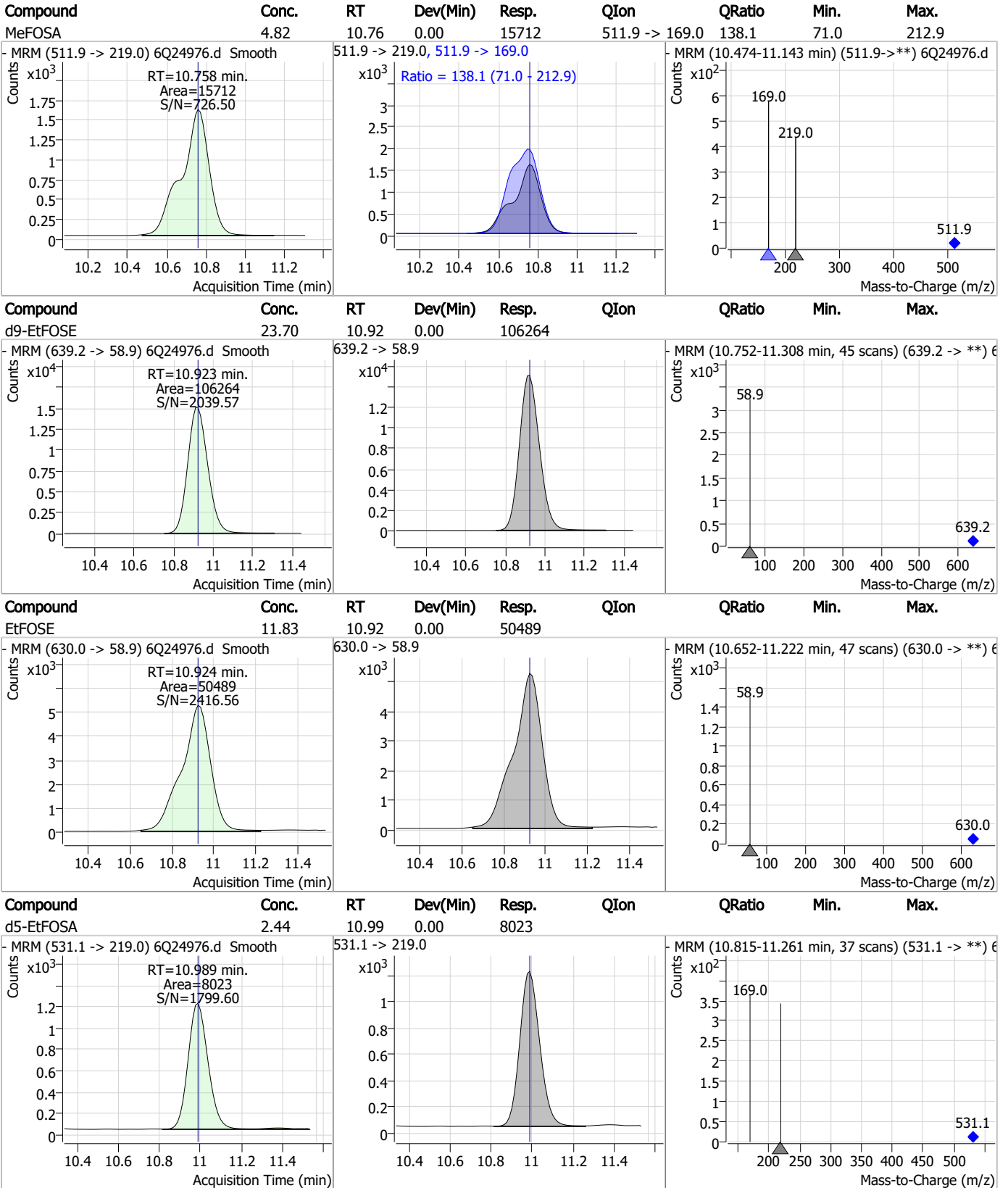


Perfluorinated Compounds by LC/MS/MS



7.4.1
7

Perfluorinated Compounds by LC/MS/MS

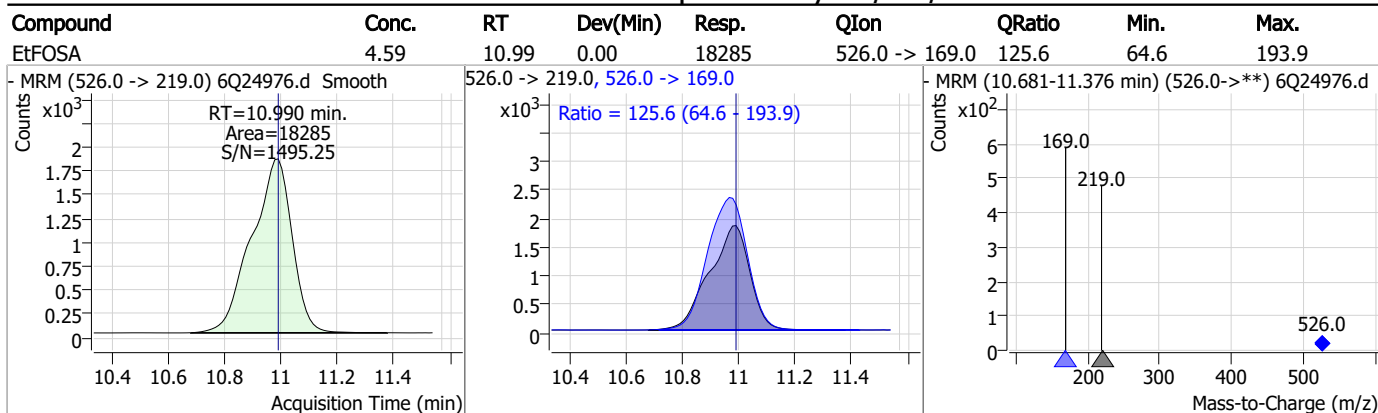


7.4.1

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Perfluorinated Compounds by LC/MS/MS



7.4.1

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Manual Integration Approval Summary

Sample Number: OP99128-MS Method: EPA DRAFT 1633
Lab FileID: 6Q24976.D Analyst approved: 09/25/23 15:49 Martha Valls
Injection Time: 09/25/23 04:36 Supervisor approved: 09/26/23 14:29 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

7.4.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24978.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/25/2023 5:04:55 AM
 Sample Name : OP99128-DUP
 Vial : P4-A1
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99128,S6Q356,560,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.010	216.8 -> 171.9	158503	10.00 µg/L	0.037
M5-PFPeA	4.422	268.3 -> 223.0	74342	5.00 µg/L	0.012
M5-PFHxA	5.641	318.0 -> 273.0	67259	2.50 µg/L	0.012
M4-PFHpA	6.569	367.1 -> 322.0	64099	2.50 µg/L	0.000
M8-PFOA	7.186	421.1 -> 376.0	87071	2.50 µg/L	-0.012
M9-PFNA	7.717	472.1 -> 427.0	34794	1.25 µg/L	0.000
M6-PFDA	8.185	519.1 -> 474.1	37103	1.25 µg/L	-0.012
M7-PFUnDA	8.639	570.0 -> 525.1	39083	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	37108	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	14195	1.25 µg/L	0.000
M8-FOSA	9.682	506.1 -> 77.8	26851	2.50 µg/L	0.012
M3-PFBS	5.559	302.1 -> 79.9	28927	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	16967	2.50 µg/L	0.000
M8-PFOS	8.336	507.1 -> 79.9	16894	2.50 µg/L	-0.013
M2-4:2FTS	5.304	329.1 -> 80.9	2636	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4239	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	4179	5.00 µg/L	0.000
M3-MeFOSAA	8.231	573.2 -> 419.0	38841	5.00 µg/L	-0.012
M3-HFPO-DA	6.007	286.9 -> 168.9	45654	10.00 µg/L	0.000
M5-EtFOSAA	8.439	589.2 -> 419.0	30286	5.00 µg/L	-0.012
M7-MeFOSE	10.678	623.2 -> 58.9	85713	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	101324	25.00 µg/L	-0.012
M5-EtFOSA	10.989	531.1 -> 219.0	7720	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	7506	2.50 µg/L	0.000
13C4-PFOS	8.336	502.8 -> 79.9	12853	2.50 µg/L	-0.013
13C3-PFBA	3.001	216.0 -> 172.0	70273	5.00 µg/L	0.025
18O2-PFHxS	7.300	403.0 -> 83.9	9725	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	95217	2.50 µg/L	0.000
13C2-PFDA	8.186	515.1 -> 470.1	31001	1.25 µg/L	-0.012
13C5-PFNA	7.717	468.0 -> 423.0	36380	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	53829	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2636	5.30 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4239	5.36 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.2%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4179	5.55 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.1%		
13C2-PFDoDA	9.067	615.1 -> 570.0	37108	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C2-PFTeDA	9.772	715.2 -> 670.0	14195	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.4%		
13C3-PFBS	5.559	302.1 -> 79.9	28927	2.83 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 113.2%		
13C3-PFHxS	7.301	402.1 -> 79.9	16967	2.76 µg/L	0.000

7.5.1
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.3%	
13C4-PFBA	3.010	216.8 -> 171.9	158503	9.33 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.3%	
13C4-PFHpA	6.569	367.1 -> 322.0	64099	2.92 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 116.7%	
13C5-PFHxA	5.641	318.0 -> 273.0	67259	2.97 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 118.9%	
13C5-PFPeA	4.422	268.3 -> 223.0	74342	5.83 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 116.7%	
13C6-PFDA	8.185	519.1 -> 474.1	37103	1.42 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 114.0%	
13C7-PFUnDA	8.639	570.0 -> 525.1	39083	1.34 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.3%	
13C8-FOSA	9.682	506.1 -> 77.8	26851	2.47 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C8-PFOA	7.186	421.1 -> 376.0	87071	2.64 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C8-PFOS	8.336	507.1 -> 79.9	16894	3.04 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 121.8%	
13C9-PFNA	7.717	472.1 -> 427.0	34794	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.2%	
d3-MeFOSAA	8.231	573.2 -> 419.0	38841	6.38 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 127.5%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	45654	11.25 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 112.5%	
d3-MeFOSA	10.757	515.0 -> 219.0	7506	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.8%	
d5-EtFOSAA	8.439	589.2 -> 419.0	30286	6.40 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 128.0%	
d7-MeFOSE	10.678	623.2 -> 58.9	85713	22.23 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 88.9%	
d9-EtFOSE	10.911	639.2 -> 58.9	101324	21.60 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 86.4%	
d5-EtFOSA	10.989	531.1 -> 219.0	7720	2.25 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.8%	
Target Compounds					QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	3.006	212.8 -> 168.9	2609	0.46 µg/L	100
PFBS	5.560	298.7 -> 79.9	4153	0.44 µg/L	m 99
		298.7 -> 98.8	1581		
PFDA	8.593	512.9 -> 469.0	0	µg/L	m 1
		512.9 -> 219.0	0		
PFDODA	9.443	613.1 -> 569.0	0	µg/L	m 1
		613.1 -> 319.0	0		
PFDS	9.195	599.0 -> 79.9	0	µg/L	m 1

7.5.1
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	0			
PFHpA	6.569	363.1 -> 319.0	14473	0.42	µg/L	m
		363.1 -> 169.0	2203			
PFHpS	8.303	449.0 -> 79.9	0		µg/L	m
		449.0 -> 98.9	0			
PFHxA	5.631	313.0 -> 269.0	13198	0.55	µg/L	
		313.0 -> 118.9	619			
PFHxS	7.302	398.7 -> 79.9	7050	1.07	µg/L	m
		398.7 -> 98.9	2864			
PFNA	7.717	463.0 -> 419.0	1523	0.07	µg/L	m
		463.0 -> 219.0	445			
PFNS	8.937	548.8 -> 79.9	0		µg/L	m
		548.8 -> 98.9	0			
PFOA	7.200	413.0 -> 369.0	25960	0.69	µg/L	
		413.0 -> 169.0	4575			
PFOS	8.337	498.9 -> 79.9	10173	1.40	µg/L	#m
		498.9 -> 98.8	3578			
PFPeA	4.424	263.0 -> 219.0	9146	0.61	µg/L	
PFPeS	6.608	349.1 -> 79.9	1750	0.19	µg/L	#
		349.1 -> 98.9	311			
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	9.035	563.1 -> 519.0	0		µg/L	m
		563.1 -> 269.1	0			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
PFDoS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.5.1
7

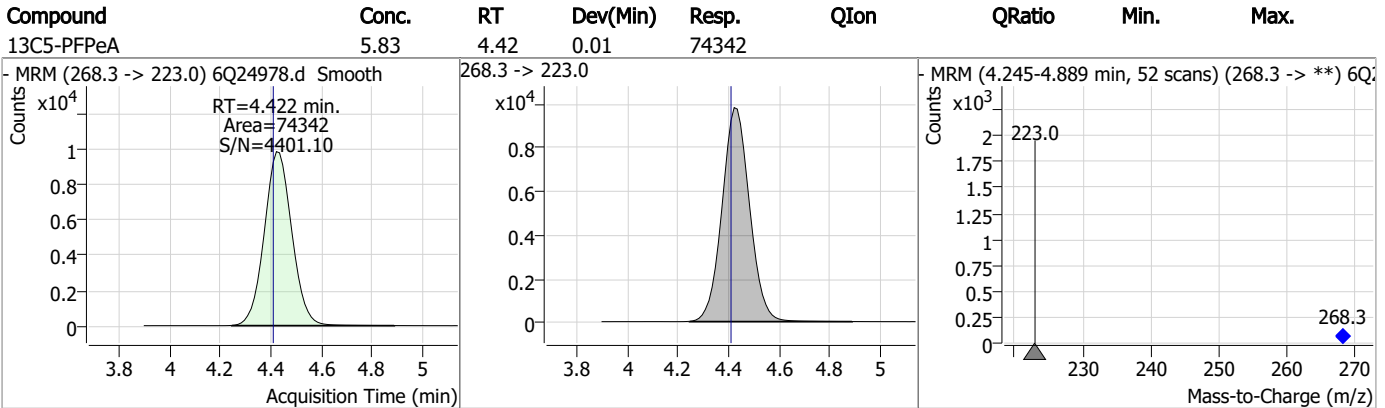
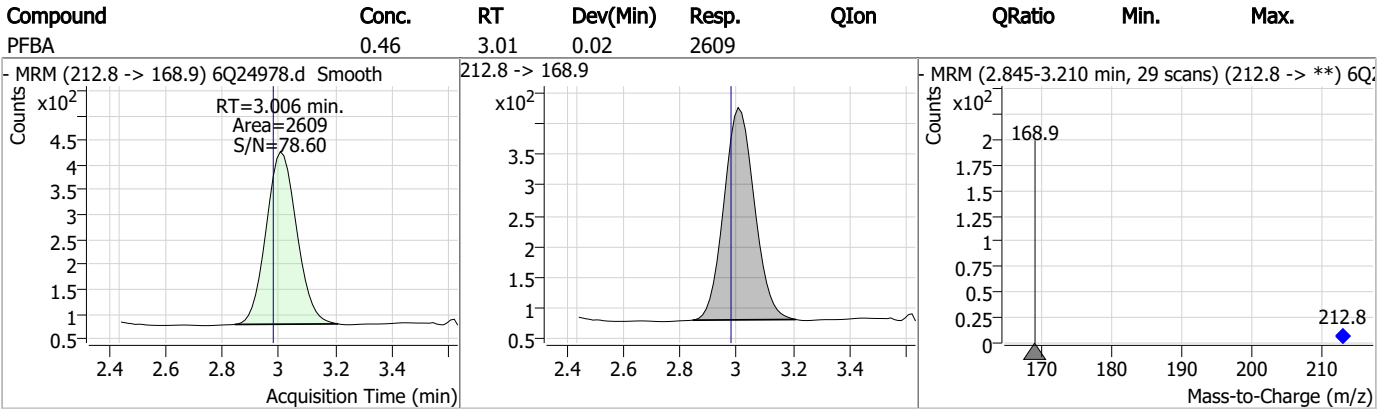
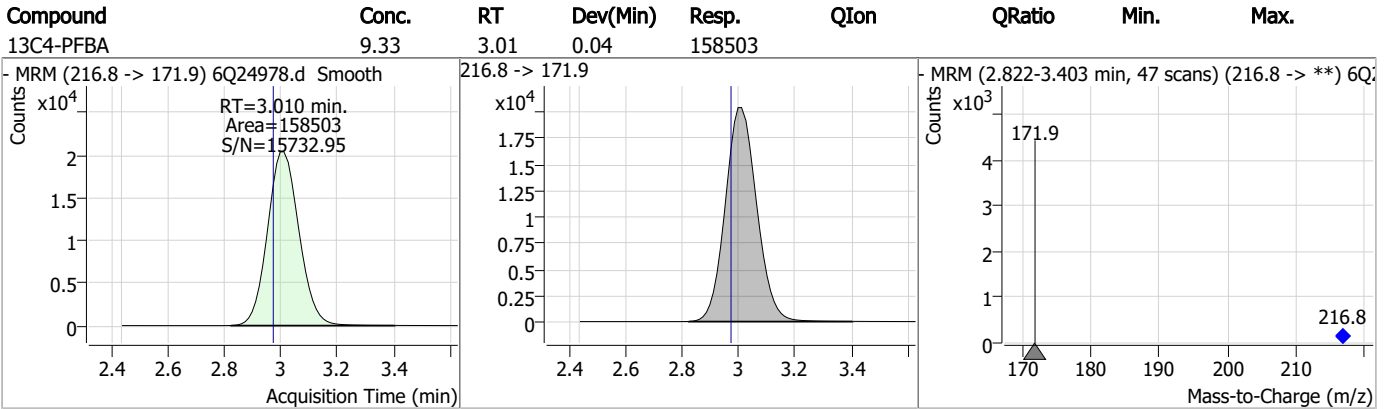
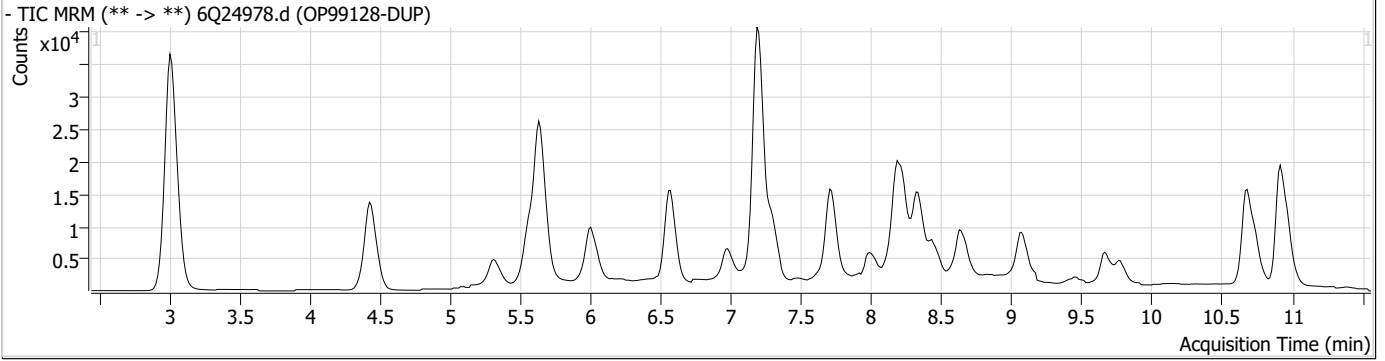
Perfluorinated Compounds by LC/MS/MS

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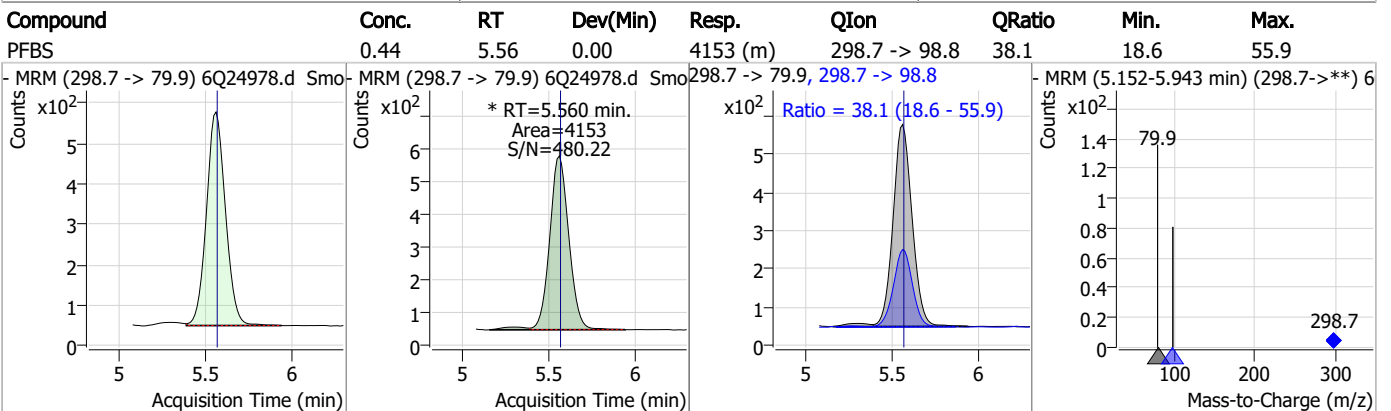
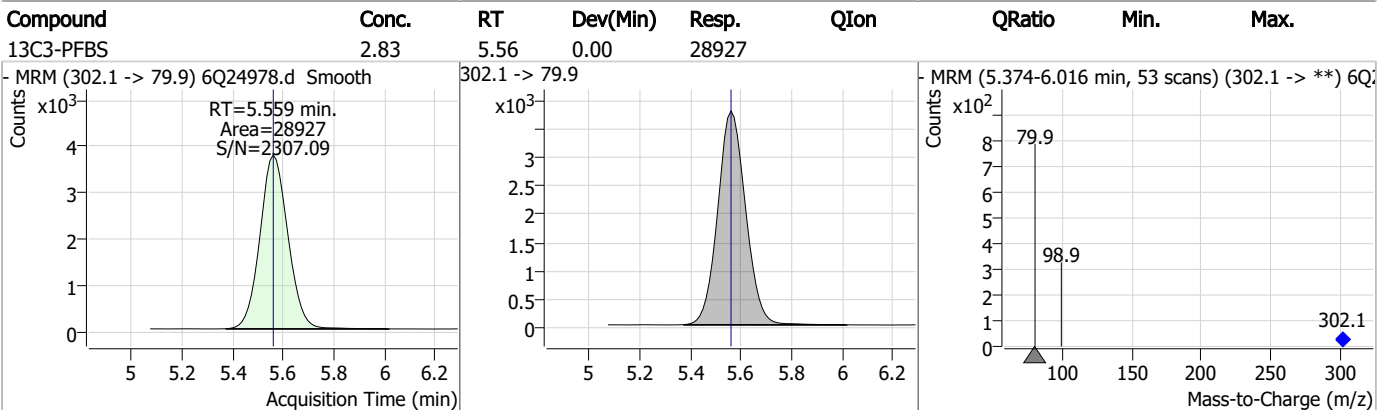
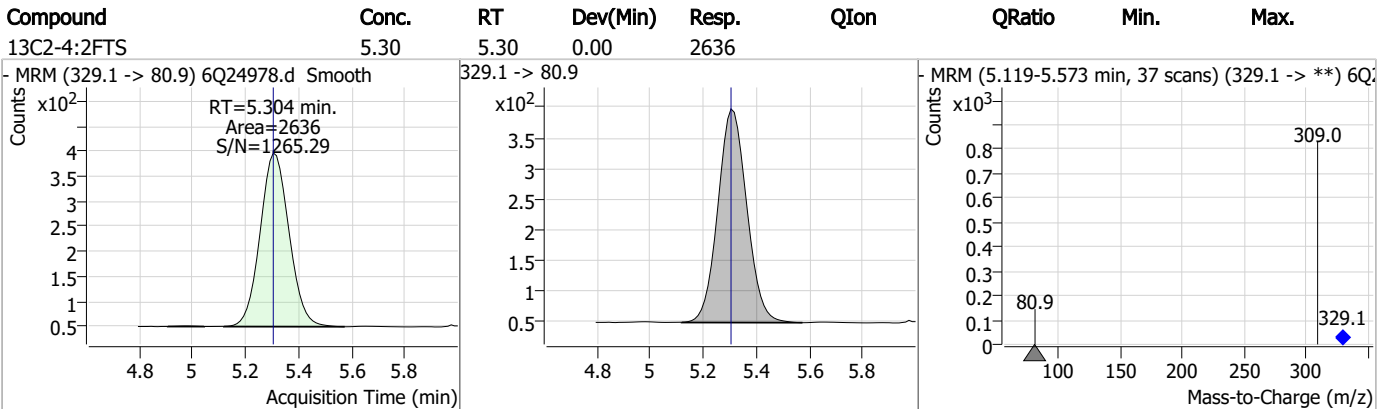
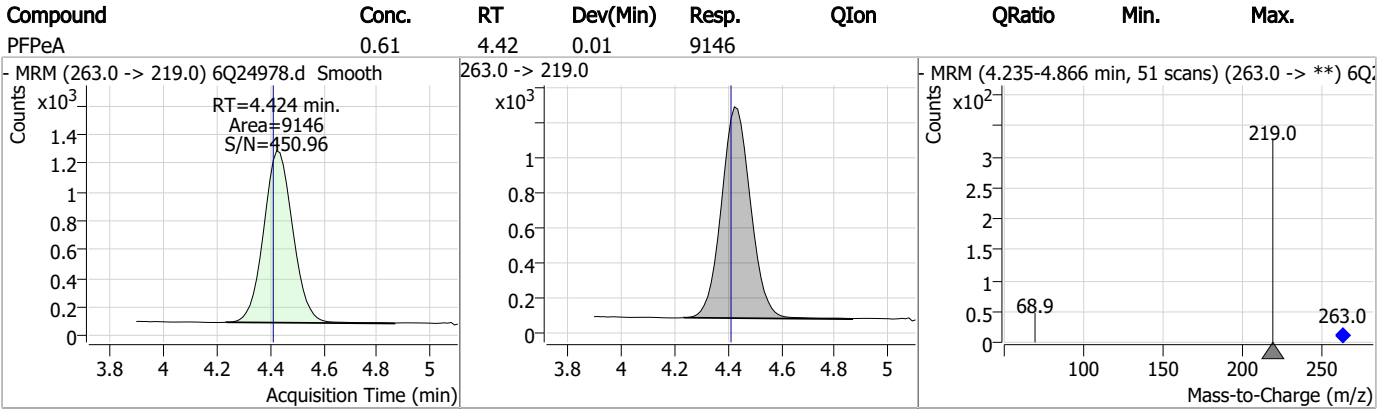
7.5.1

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Perfluorinated Compounds by LC/MS/MS



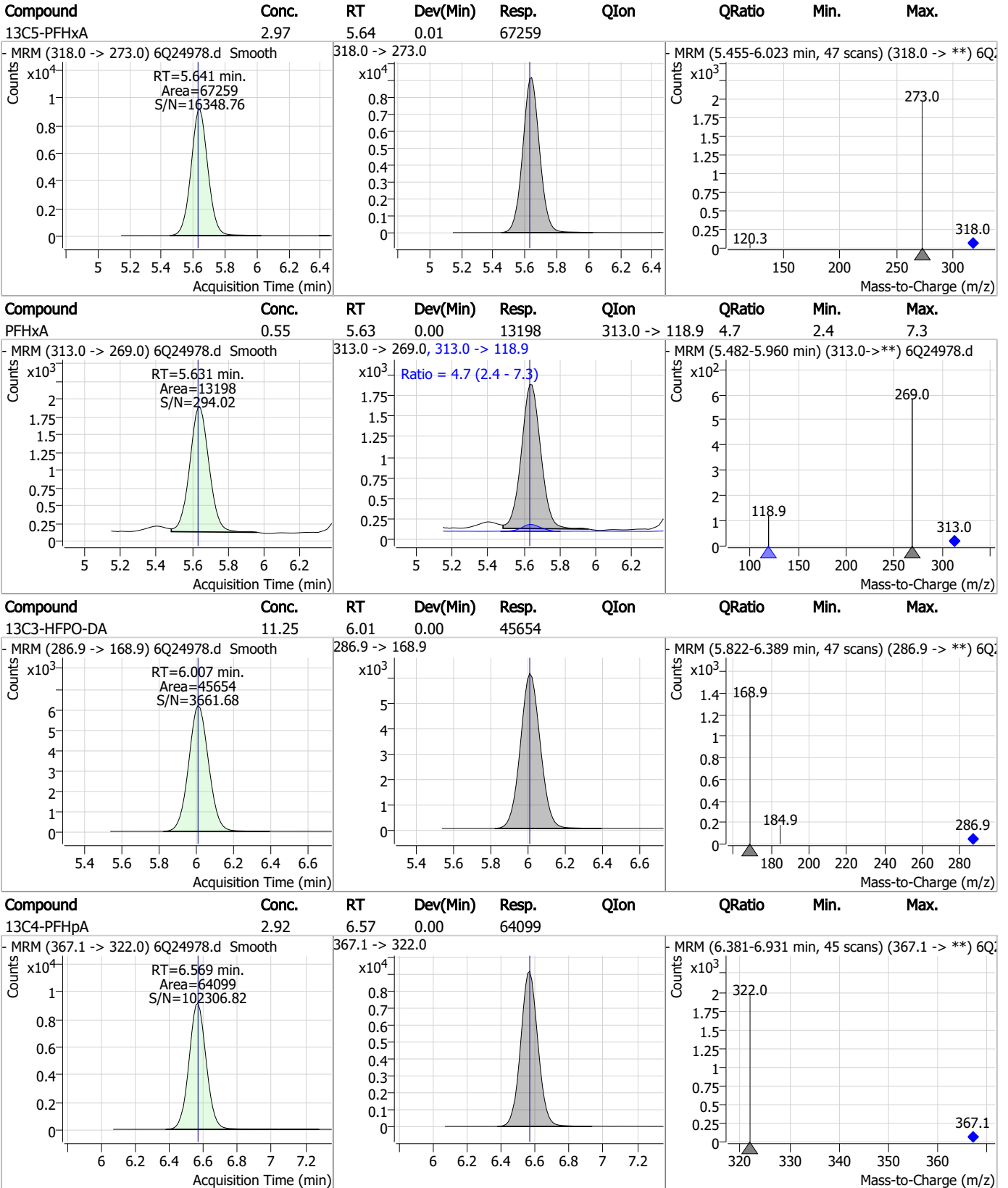
Perfluorinated Compounds by LC/MS/MS



7.5.1

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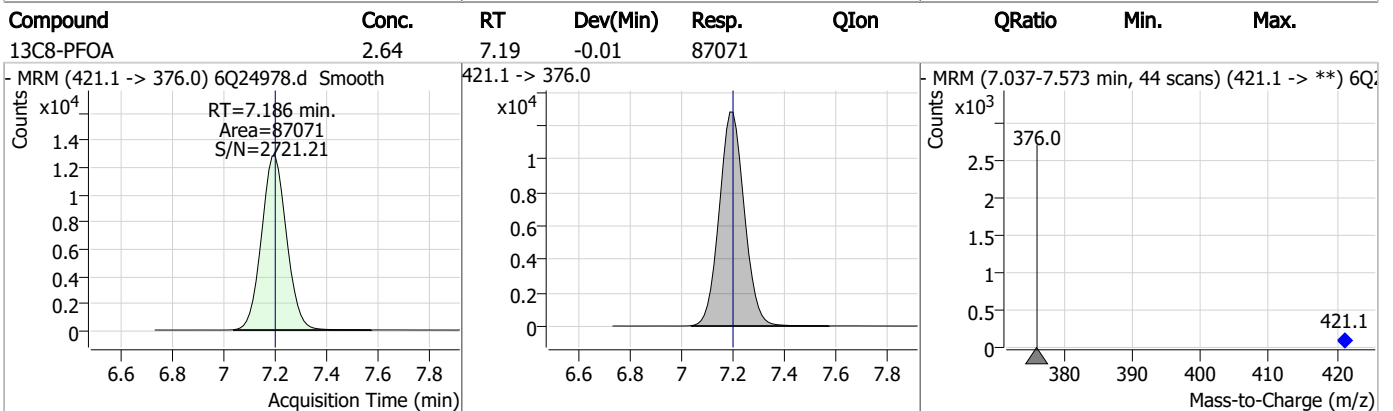
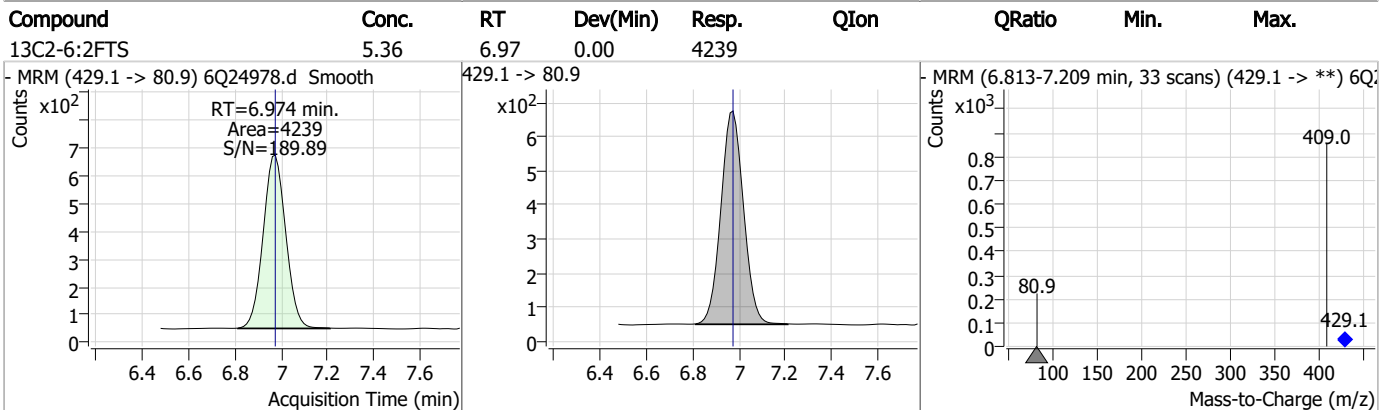
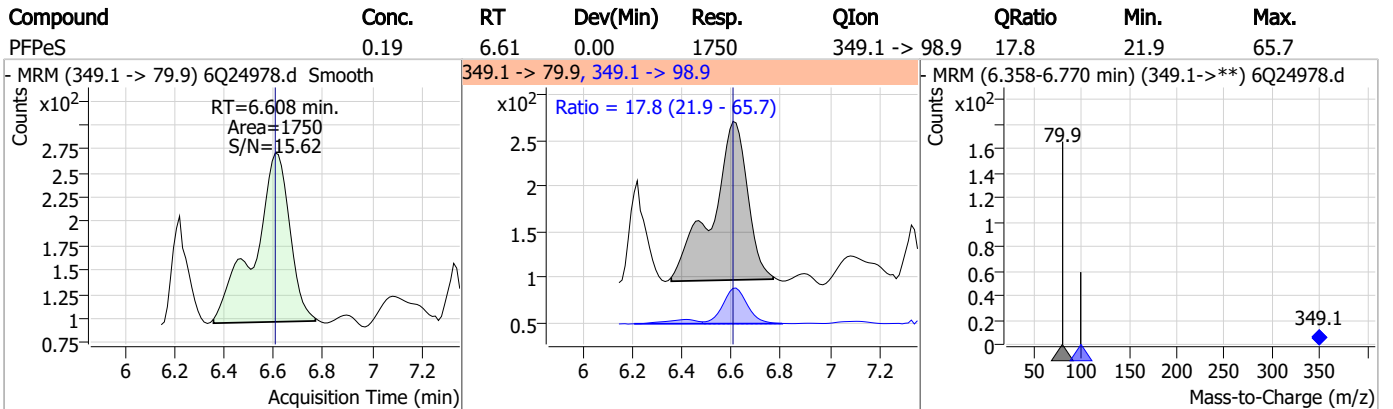
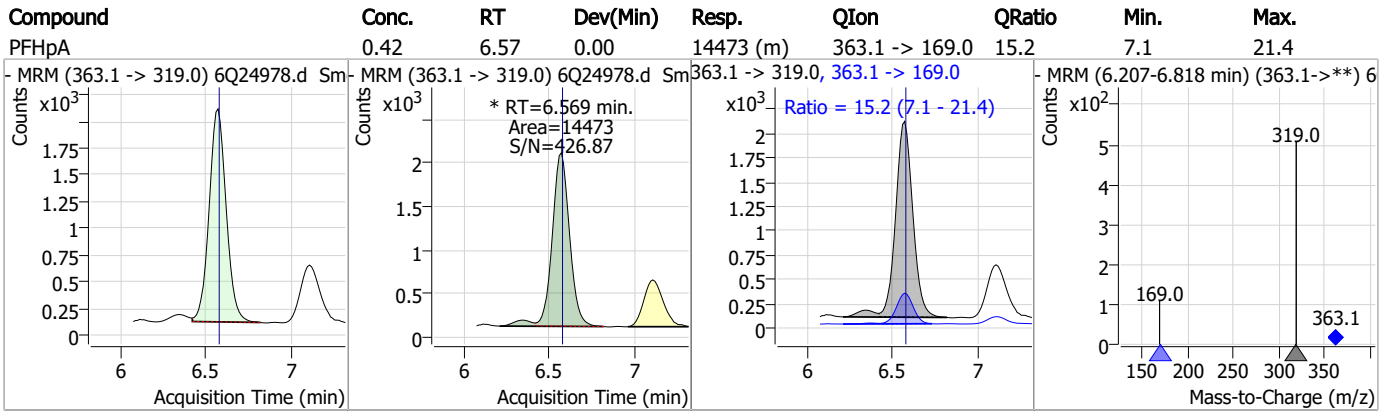
Perfluorinated Compounds by LC/MS/MS



7.5.1

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Perfluorinated Compounds by LC/MS/MS

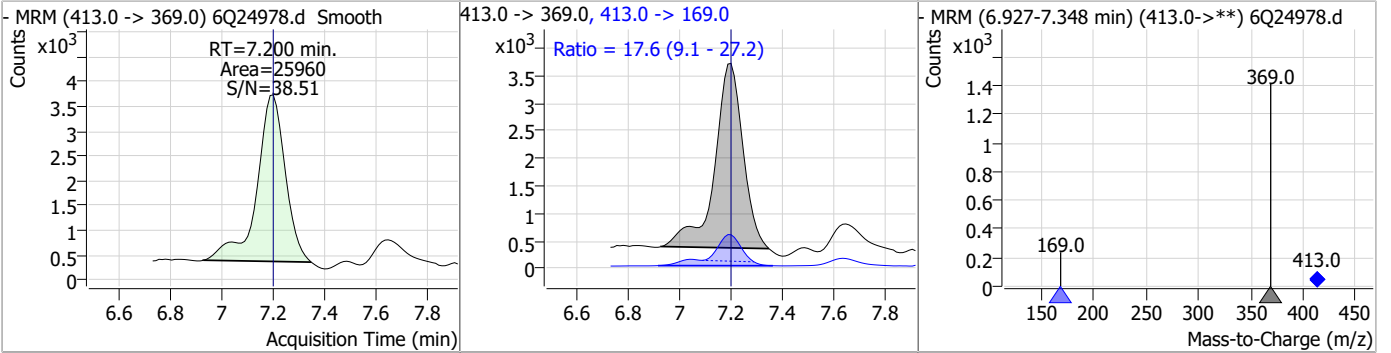


7.5.1

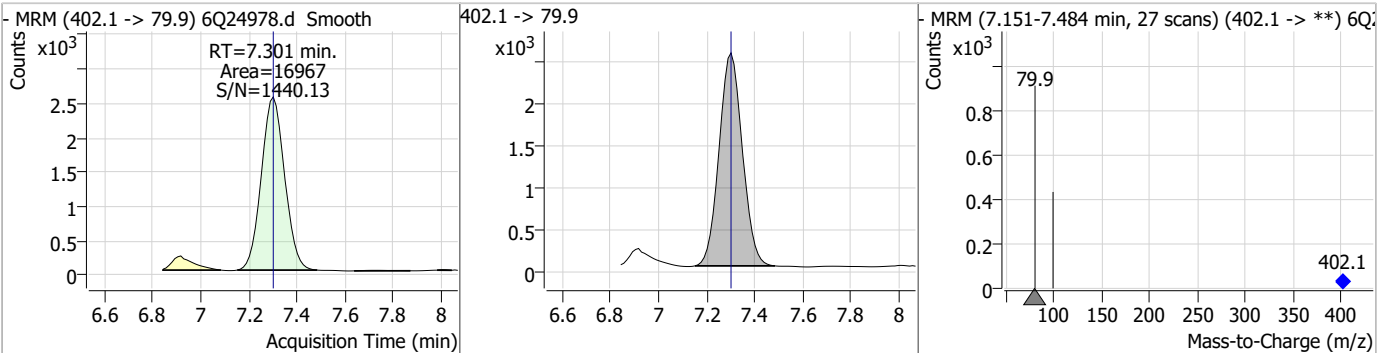
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Perfluorinated Compounds by LC/MS/MS

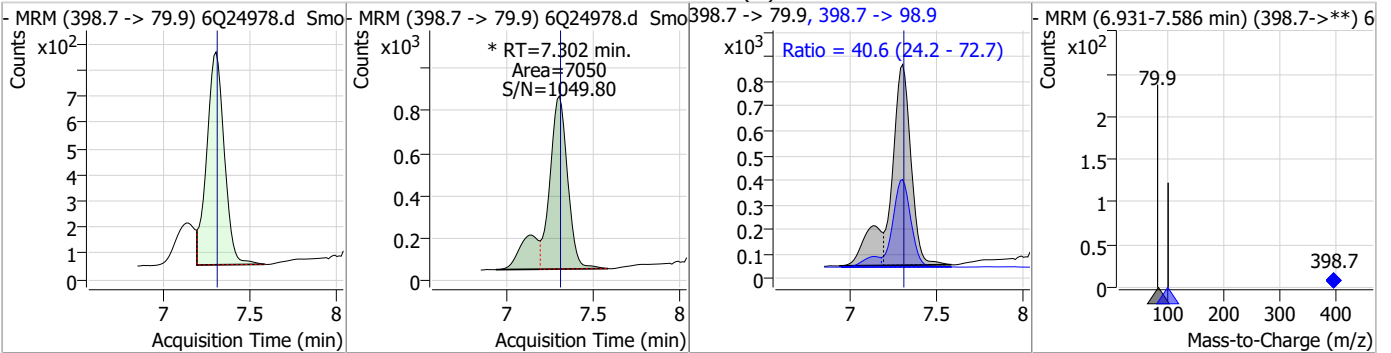
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.69	7.20	0.00	25960	413.0 -> 169.0	17.6	9.1	27.2



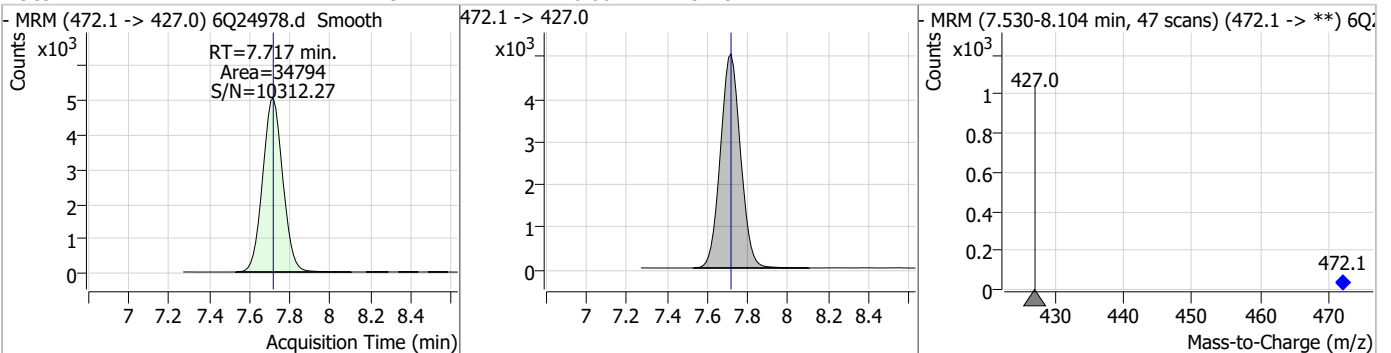
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.76	7.30	0.00	16967				



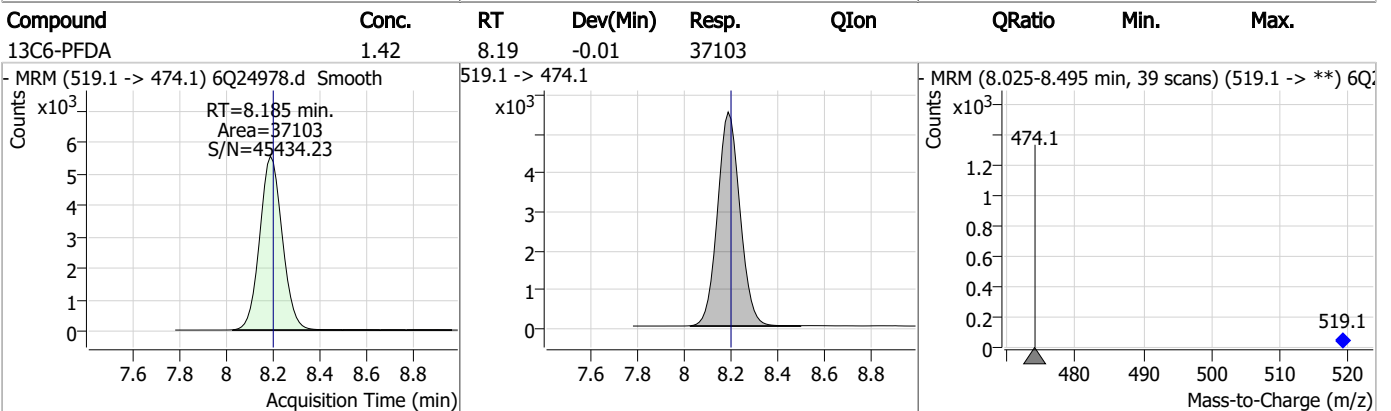
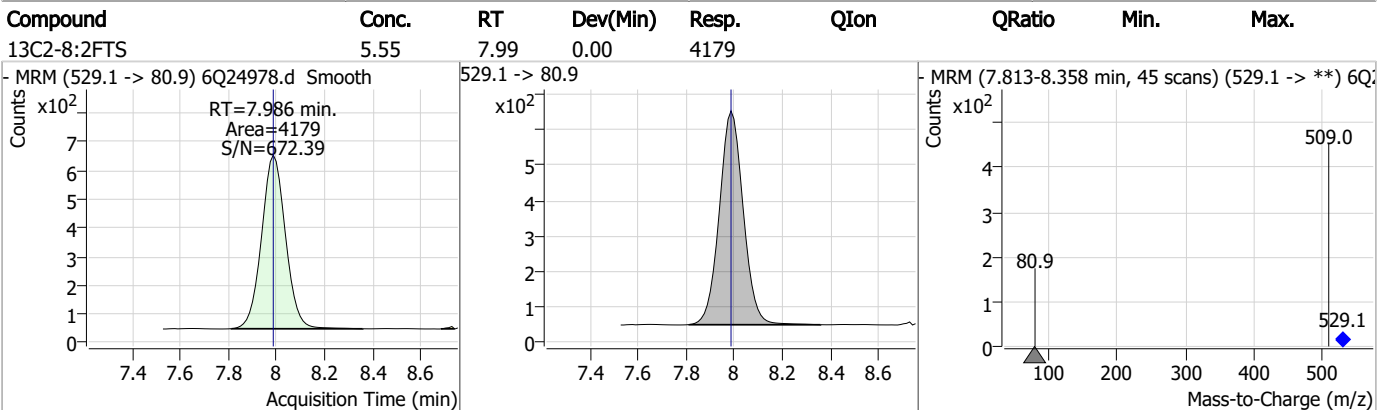
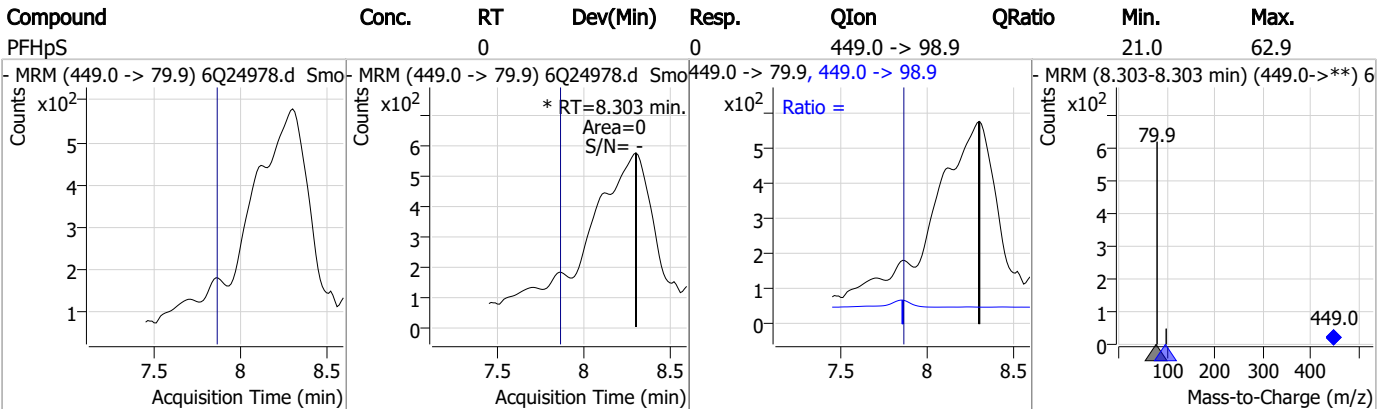
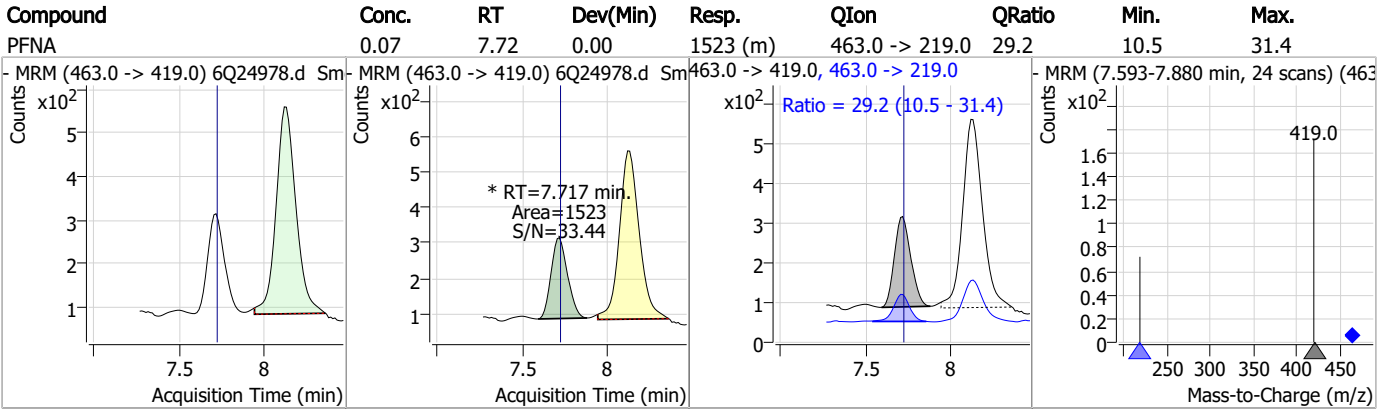
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.07	7.30	0.00	7050 (m)	398.7 -> 98.9	40.6	24.2	72.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.19	7.72	0.00	34794				



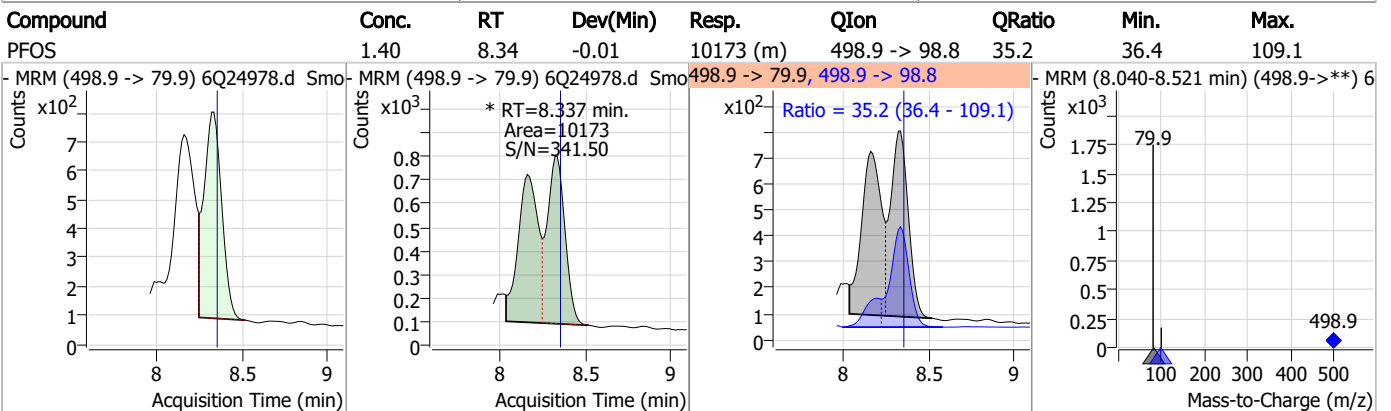
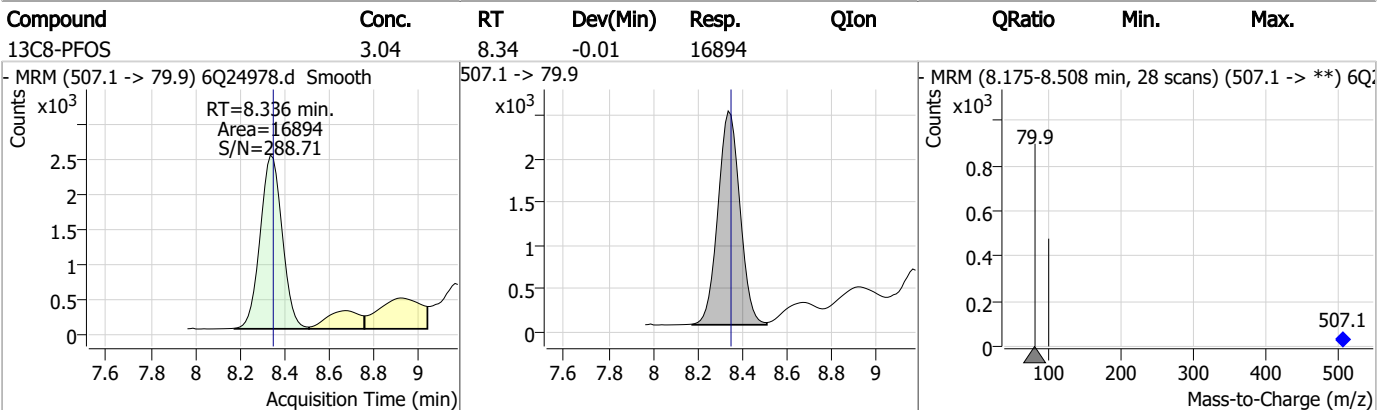
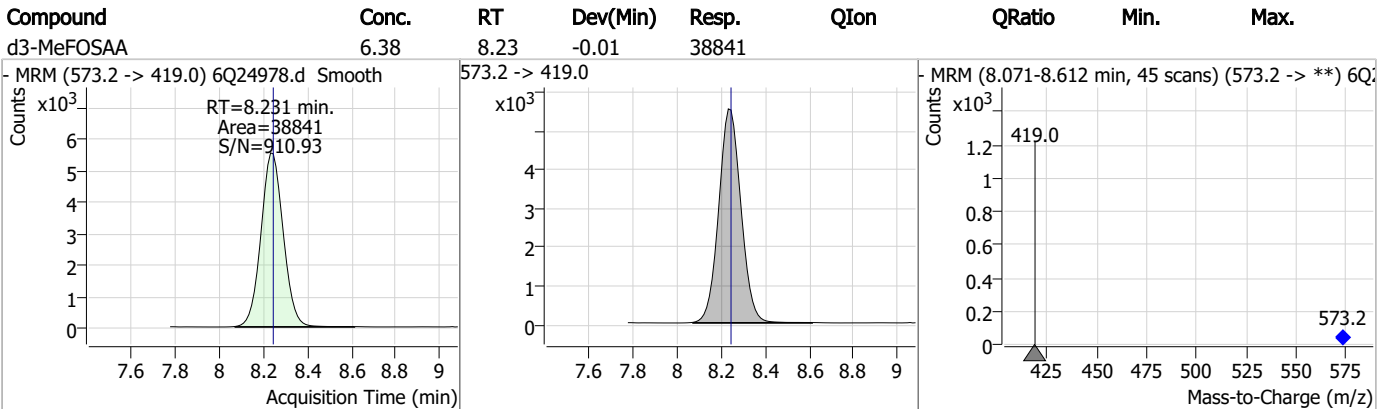
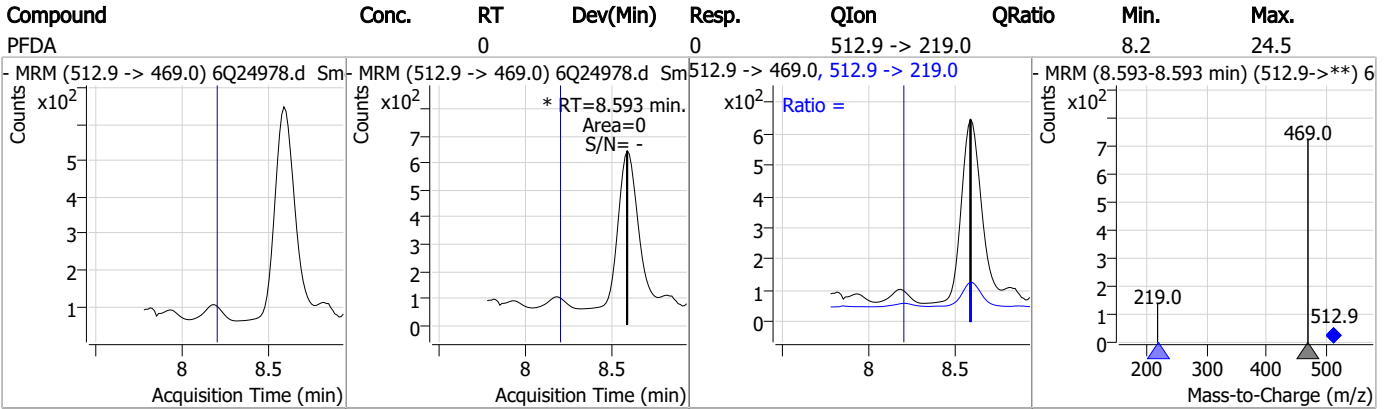
Perfluorinated Compounds by LC/MS/MS



7.5.1

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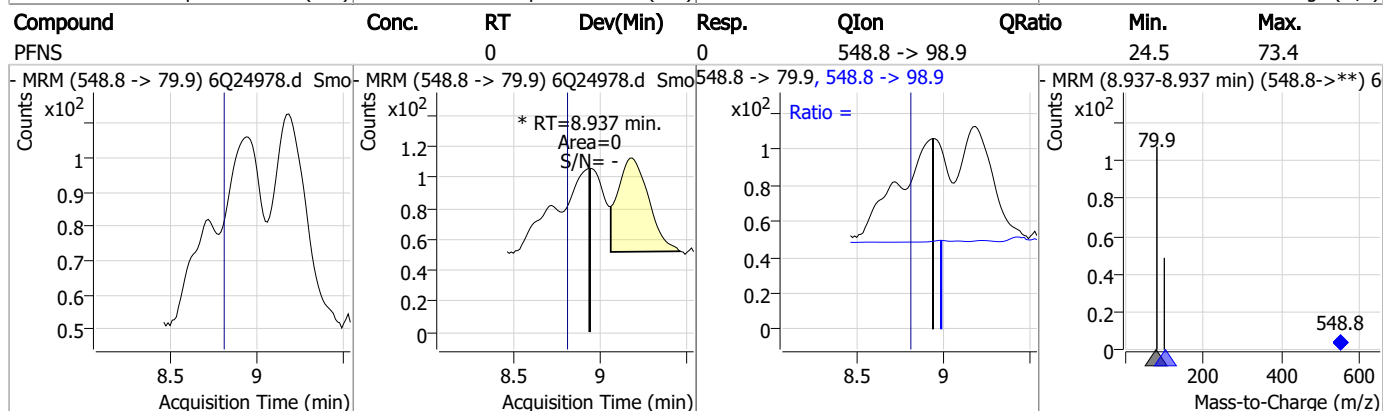
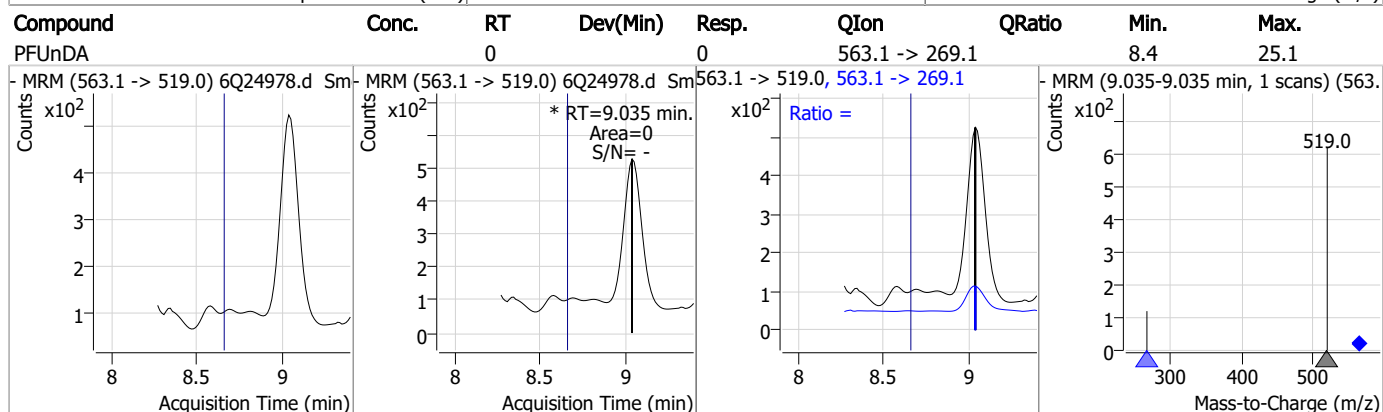
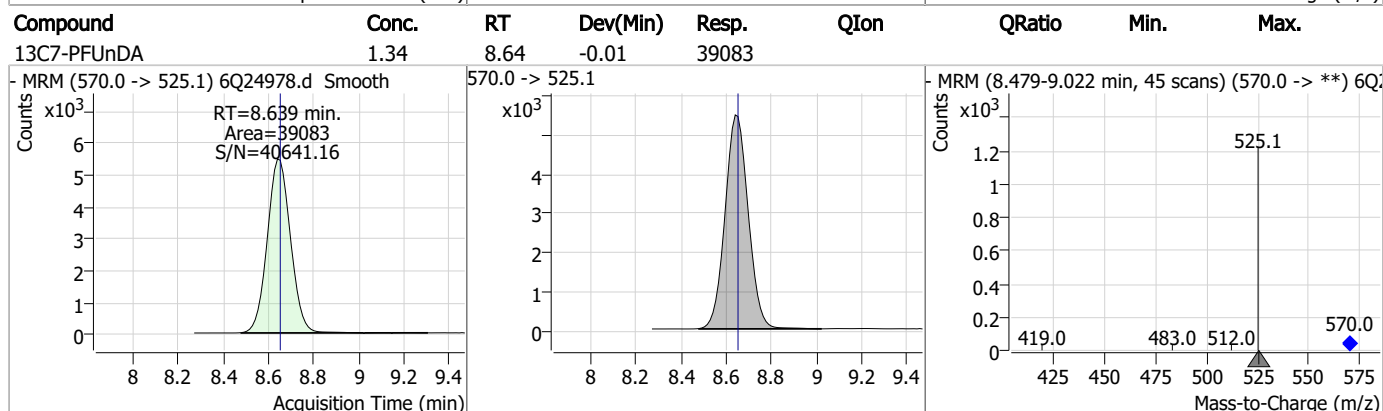
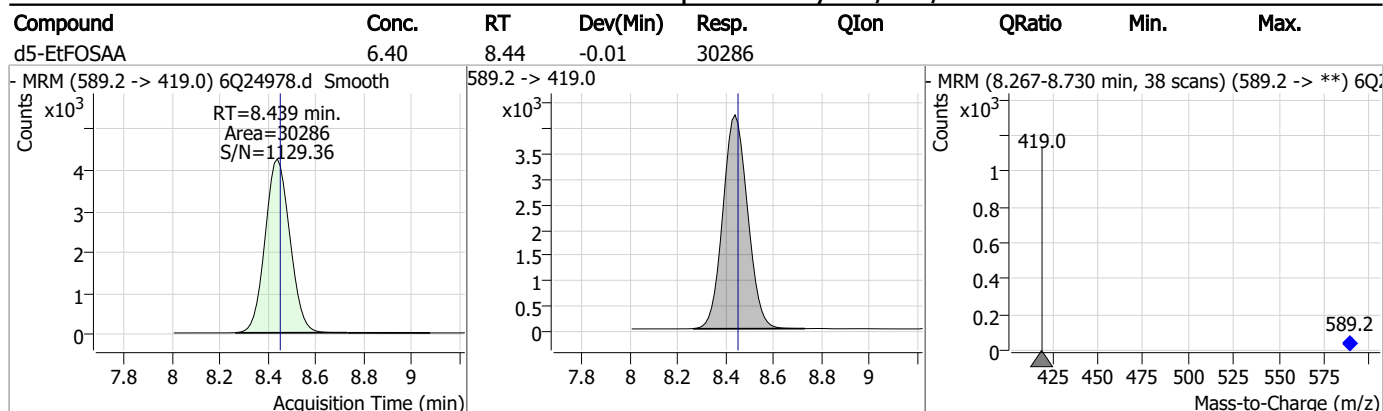
Perfluorinated Compounds by LC/MS/MS



7.5.1

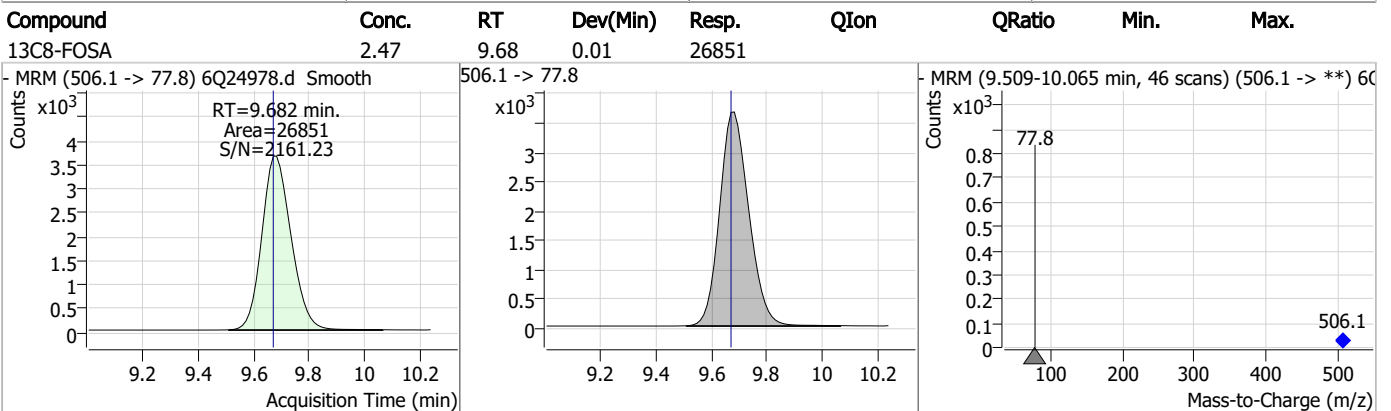
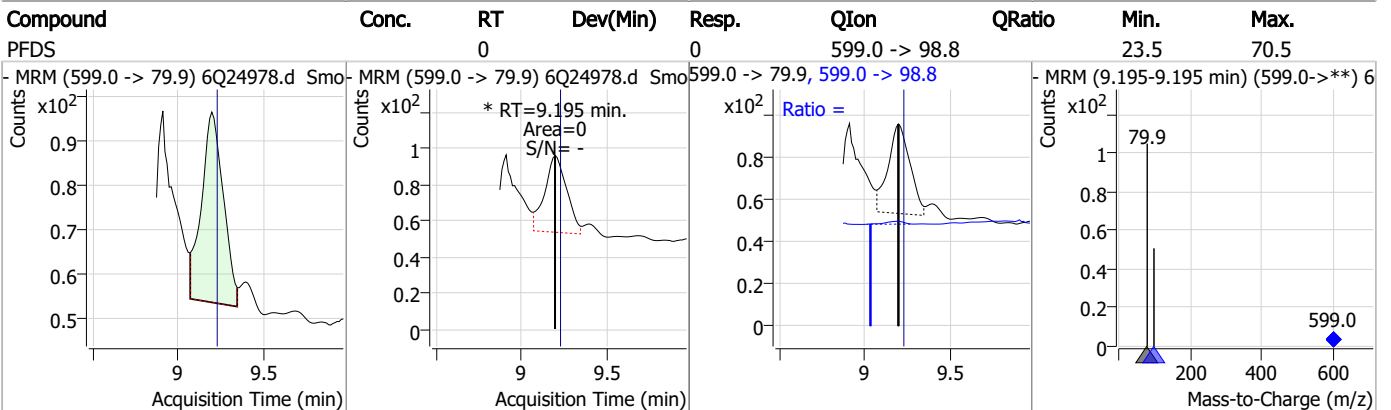
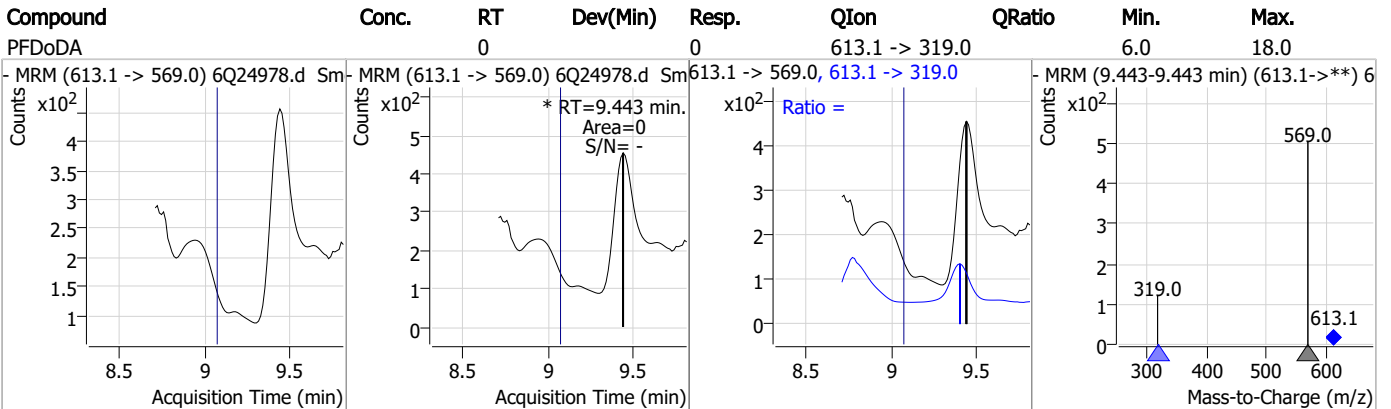
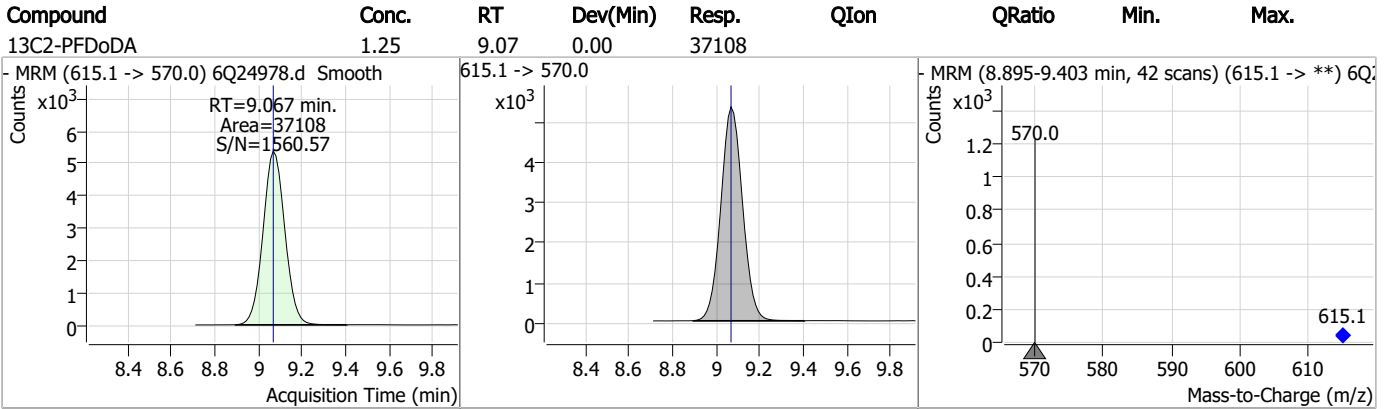
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Perfluorinated Compounds by LC/MS/MS



7.5.1
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Perfluorinated Compounds by LC/MS/MS



7.5.1

7

Perfluorinated Compounds by LC/MS/MS

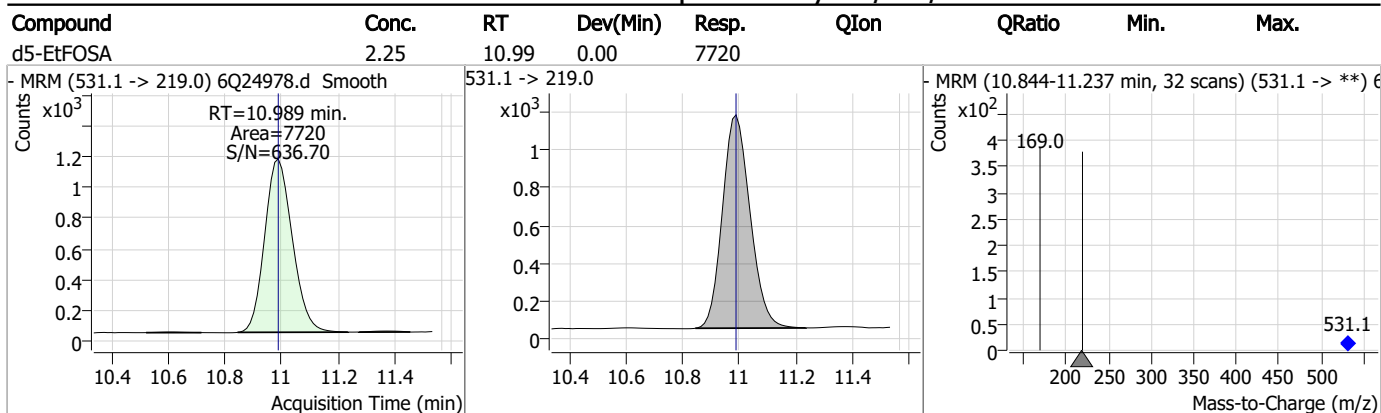
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.13	9.77	0.00	14195				
- MRM (715.2 -> 670.0) 6Q24978.d Smooth Counts x10 ³ RT=9.772 min. Area=14195 S/N=361.83 Acquisition Time (min)			715.2 -> 670.0 Counts x10 ³ Acquisition Time (min)			- MRM (9.611-10.093 min, 40 scans) (715.2 -> **) 6Q24978.d Smooth Counts x10 ² Mass-to-Charge (m/z)		
d7-MeFOSE	22.23	10.68	0.00	85713				
- MRM (623.2 -> 58.9) 6Q24978.d Smooth Counts x10 ⁴ RT=10.678 min. Area=85713 S/N=3008.78 Acquisition Time (min)			623.2 -> 58.9 Counts x10 ⁴ Acquisition Time (min)			- MRM (10.507-11.062 min, 46 scans) (623.2 -> **) 6Q24978.d Smooth Counts x10 ³ Mass-to-Charge (m/z)		
d3-MeFOSA	2.30	10.76	0.00	7506				
- MRM (515.0 -> 219.0) 6Q24978.d Smooth Counts x10 ³ RT=10.757 min. Area=7506 S/N=88098.65 Acquisition Time (min)			515.0 -> 219.0 Counts x10 ³ Acquisition Time (min)			- MRM (10.609-11.017 min, 34 scans) (515.0 -> **) 6Q24978.d Smooth Counts x10 ² Mass-to-Charge (m/z)		
d9-EtFOSE	21.60	10.91	-0.01	101324				
- MRM (639.2 -> 58.9) 6Q24978.d Smooth Counts x10 ⁴ RT=10.911 min. Area=101324 S/N=5844.32 Acquisition Time (min)			639.2 -> 58.9 Counts x10 ⁴ Acquisition Time (min)			- MRM (10.763-11.371 min, 50 scans) (639.2 -> **) 6Q24978.d Smooth Counts x10 ³ Mass-to-Charge (m/z)		

7.5.1

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Perfluorinated Compounds by LC/MS/MS



7.5.1
7

Manual Integration Approval Summary

Sample Number: OP99128-DUP Method: EPA DRAFT 1633
Lab FileID: 6Q24978.D Analyst approved: 09/25/23 16:02 Martha Valls
Injection Time: 09/25/23 05:04 Supervisor approved: 09/26/23 14:29 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorobutanesulfonic acid	375-73-5		5.56	Split peak
Perfluoroheptanoic acid	375-85-9		6.57	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorononanoic acid	375-95-1		7.72	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.34	Split peak

7.5.1.1
7

Manual Integrations
APPROVED
 (compounds with "m" flag)
 Natasha Gumtie
 09/26/23 16:05

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24916.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/24/2023 2:17:05 PM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : S6Q356 TDCA.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

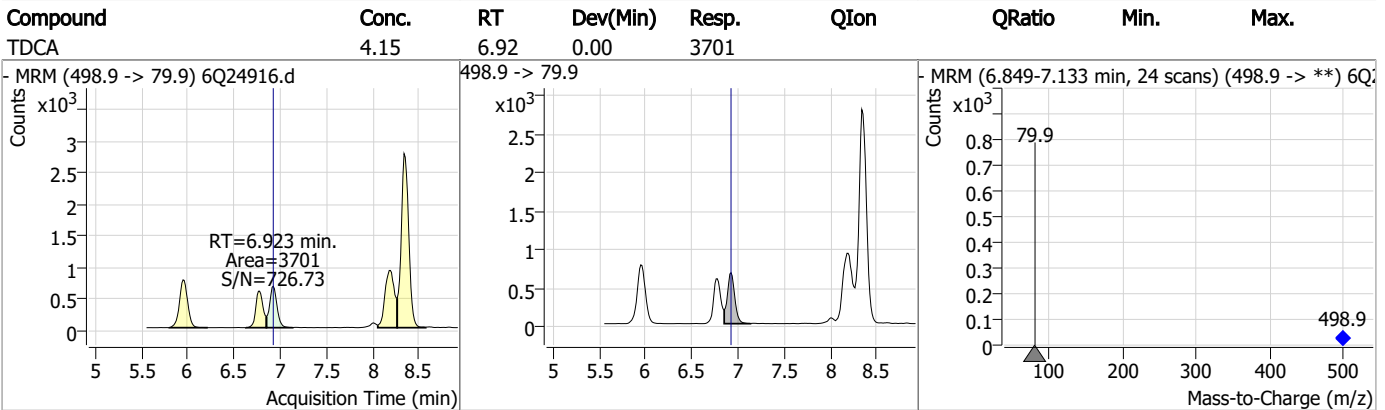
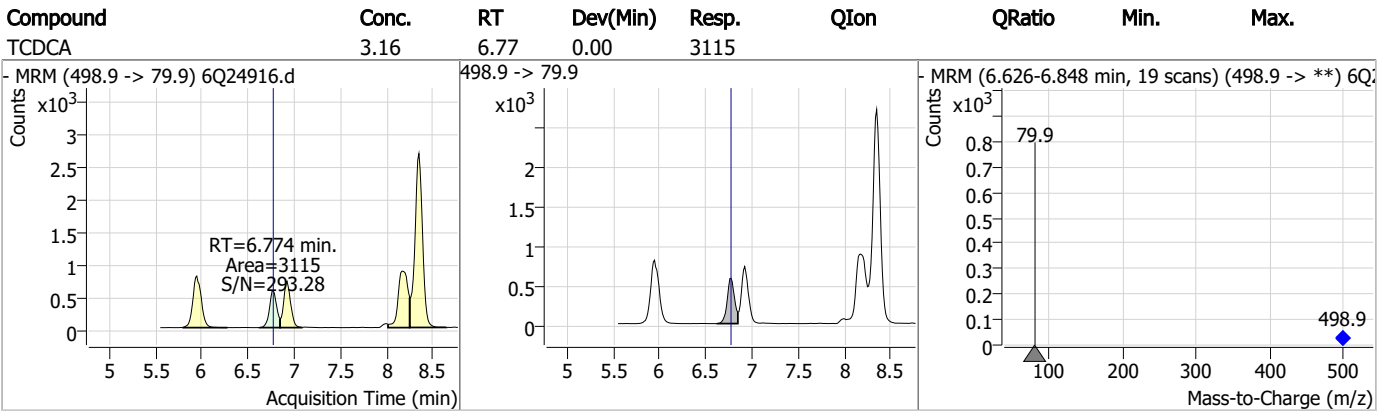
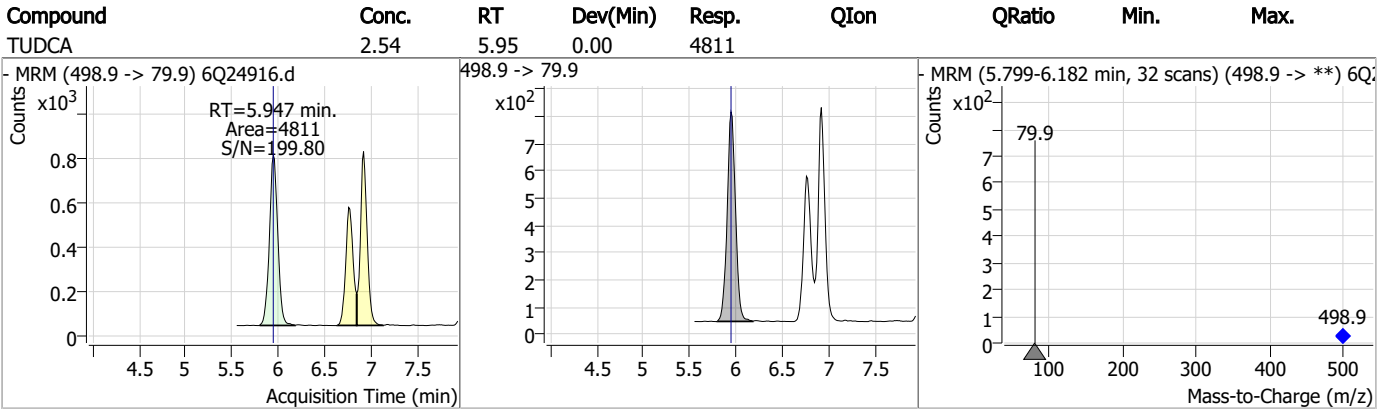
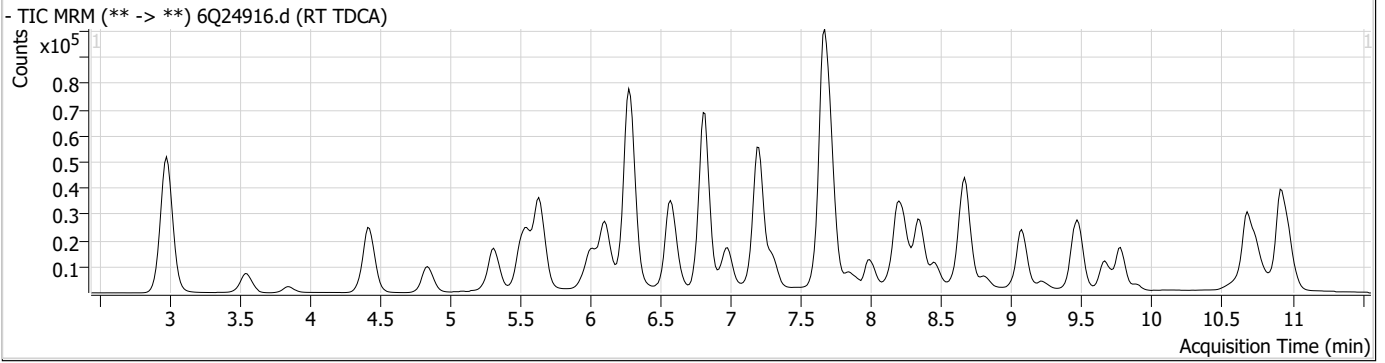
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.348	507.1 -> 79.9	21348	2.50	µg/L	-0.025	
13C4-PFOS	8.349	502.8 -> 79.9	21408	2.50	µg/L	-0.025	
System Monitoring Compounds							
13C8-PFOS	8.348	507.1 -> 79.9	21348	2.53	µg/L	-0.025	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.2%				
Target Compounds							
PFOS	8.350	498.9 -> 79.9 498.9 -> 98.8	23319 9709	3.20	µg/L	m	95
TCDCa	6.774	498.9 -> 79.9	3115	3.16	ng/ml		100
TDCA	6.923	498.9 -> 79.9	3701	4.15	ng/ml		100
TUDCA	5.947	498.9 -> 79.9	4811	2.54	ng/ml		100

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

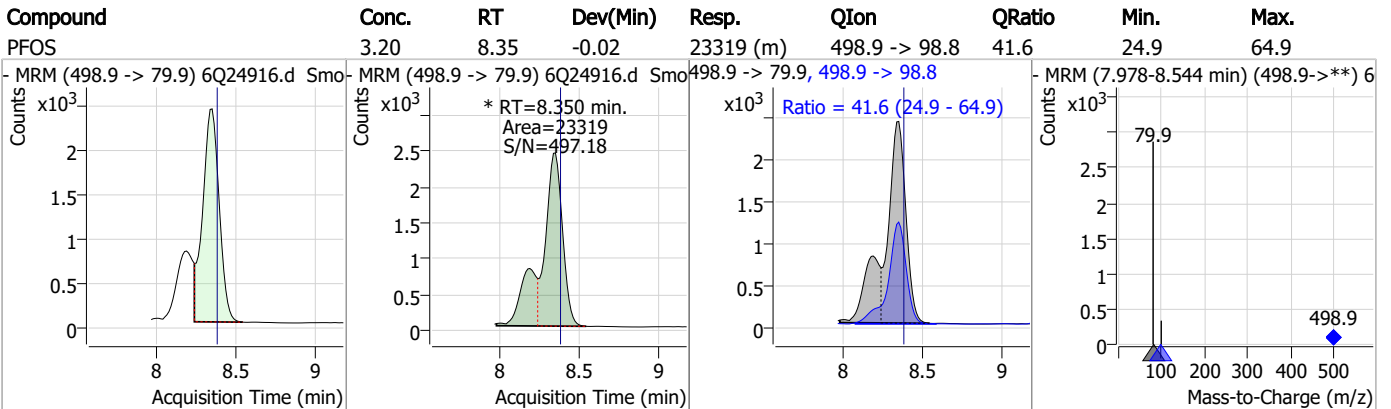
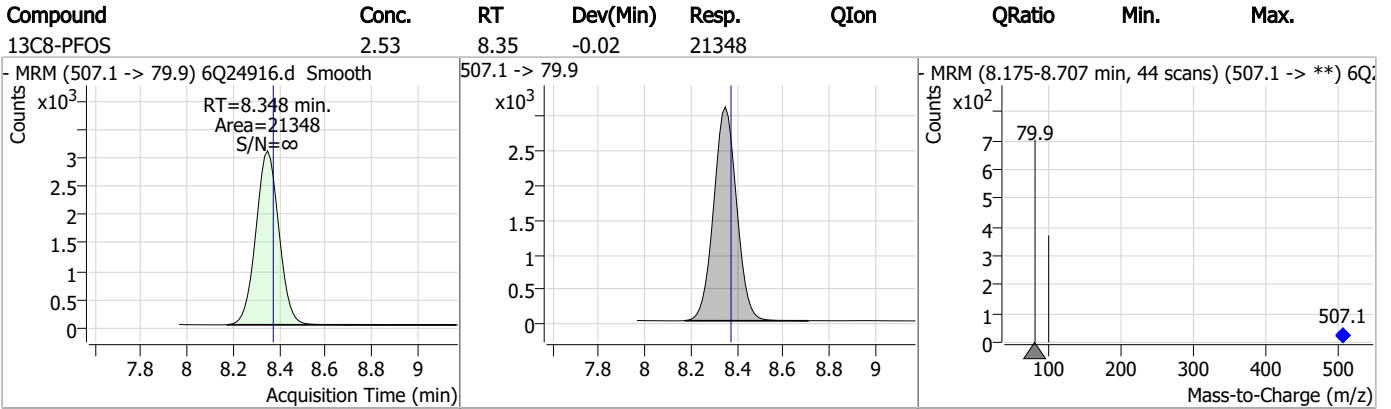
7.6.1
7



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.1

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Manual Integration Approval Summary

Sample Number: S6Q356-RT Method: EPA DRAFT 1633
Lab FileID: 6Q24916.D Analyst approved: 09/26/23 15:37 Martha Valls
Injection Time: 09/24/23 14:17 Supervisor approved: 09/26/23 16:05 Natasha Gumtie

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

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24917.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/24/2023 2:31:23 PM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	173329	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	68810	5.00 µg/L	0.000
M5-PFHxA	5.629	318.0 -> 273.0	64457	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	60850	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	77626	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	34071	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	32826	1.25 µg/L	0.000
M7-PFUnDA	8.639	570.0 -> 525.1	36635	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	37495	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	15886	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	30491	2.50 µg/L	0.000
M3-PFBS	5.546	302.1 -> 79.9	27312	2.50 µg/L	-0.013
M3-PFHxS	7.301	402.1 -> 79.9	15817	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	15228	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	2574	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4023	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	4007	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	32733	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	45039	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	24502	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	104466	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	126260	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	9227	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	8894	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	13503	2.50 µg/L	0.000
13C3-PFBA	2.976	216.0 -> 172.0	71425	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	10320	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	91868	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	31703	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	35506	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	58968	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2574	4.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4023	4.79 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.9%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4007	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C2-PFDoDA	9.067	615.1 -> 570.0	37495	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C2-PFTeDA	9.772	715.2 -> 670.0	15886	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C3-PFBS	5.546	302.1 -> 79.9	27312	2.52 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C3-PFHxS	7.301	402.1 -> 79.9	15817	2.42 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 = 96.9%	
13C4-PFBA	2.972	216.8 -> 171.9	173329	10.04 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C4-PFHpA	6.569	367.1 -> 322.0	60850	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C5-PFHxA	5.629	318.0 -> 273.0	64457	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C5-PFPeA	4.409	268.3 -> 223.0	68810	4.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C6-PFDA	8.198	519.1 -> 474.1	32826	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C7-PFUnDA	8.639	570.0 -> 525.1	36635	1.23 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C8-FOSA	9.670	506.1 -> 77.8	30491	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.8%	
13C8-PFOA	7.198	421.1 -> 376.0	77626	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C8-PFOS	8.348	507.1 -> 79.9	15228	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C9-PFNA	7.717	472.1 -> 427.0	34071	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.5%	
d3-MeFOSAA	8.244	573.2 -> 419.0	32733	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	45039	10.13 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
d3-MeFOSA	10.757	515.0 -> 219.0	8894	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%	
d5-EtFOSAA	8.452	589.2 -> 419.0	24502	4.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.6%	
d7-MeFOSE	10.678	623.2 -> 58.9	104466	25.79 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.2%	
d9-EtFOSE	10.923	639.2 -> 58.9	126260	25.62 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.5%	
d5-EtFOSA	10.989	531.1 -> 219.0	9227	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.2%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	213403	50.67 µg/L	97
		327.1 -> 80.9	87141		
6:2FTS	6.974	427.1 -> 407.0	181546	52.37 µg/L	94
		427.1 -> 80.9	71878		
8:2FTS	7.987	527.1 -> 507.0	125312	49.05 µg/L	90
		527.1 -> 80.8	51686		
EtFOSAA	8.452	584.2 -> 419.1	56810	13.93 µg/L	95
		584.2 -> 526.0	36189		
FOSA	9.672	498.1 -> 77.9	361395	31.18 µg/L	100
		498.1 -> 478.0	9478		
MeFOSAA	8.245	570.1 -> 419.0	74819	13.06 µg/L	97
		570.1 -> 483.0	16759		
PFBA	2.968	212.8 -> 168.9	330764	53.45 µg/L	100
PFBS	5.560	298.7 -> 79.9	102535	11.51 µg/L	99
		298.7 -> 98.8	38478		
PFDA	8.198	512.9 -> 469.0	346347	13.37 µg/L	100
		512.9 -> 219.0	56844		
PFDoDA	9.068	613.1 -> 569.0	362032	13.25 µg/L	98
		613.1 -> 319.0	45807		
PFDS	9.220	599.0 -> 79.9	47322	12.85 µg/L	98

7.6.2
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	22885			
PFHpA	6.569	363.1 -> 319.0	451254	13.67	µg/L	99
		363.1 -> 169.0	67289			
PFHpS	7.856	449.0 -> 79.9	88093	13.12	µg/L	93
		449.0 -> 98.9	40669			
PFHxA	5.631	313.0 -> 269.0	301815	13.04	µg/L	99
		313.0 -> 118.9	14113			
PFHxS	7.302	398.7 -> 79.9	76476	12.42	µg/L	m 100
		398.7 -> 98.9	36990			
PFNA	7.593	463.0 -> 419.0	612239	27.77	µg/L	m 87
		463.0 -> 219.0	164304			
PFNS	8.802	548.8 -> 79.9	68715	12.96	µg/L	98
		548.8 -> 98.9	34576			
PFOA	7.200	413.0 -> 369.0	1064607	31.95	µg/L	m 99
		413.0 -> 169.0	195539			
PFOS	8.350	498.9 -> 79.9	83793	12.76	µg/L	m 68
		498.9 -> 98.8	38725			
PFPeA	4.411	263.0 -> 219.0	376877	27.21	µg/L	100
PFPeS	6.620	349.1 -> 79.9	113319	13.21	µg/L	97
		349.1 -> 98.9	47249			
PFTeDA	9.772	713.1 -> 669.0	252280	13.43	µg/L	98
		713.1 -> 168.9	20607			
PFTrDA	9.440	663.0 -> 619.0	348623	14.57	µg/L	100
		663.0 -> 168.9	27953			
PFUnDA	8.652	563.1 -> 519.0	324762	13.39	µg/L	99
		563.1 -> 269.1	52529			
11CI-PF3OUdS	9.491	630.9 -> 450.9	295901	25.11	µg/L	99
		632.9 -> 452.9	95208			
9CI-PF3ONS	8.678	530.8 -> 351.0	500919	25.05	µg/L	99
		532.8 -> 353.0	157598			
ADONA	6.817	376.9 -> 250.9	1402939	25.35	µg/L	98
		376.9 -> 84.8	395153			
HFPO-DA	6.007	284.9 -> 168.9	117806	26.58	µg/L	98
		284.9 -> 184.9	11399			
3:3FTCA	3.846	241.0 -> 177.0	65568	65.26	µg/L	100
		241.0 -> 117.0	7726			
5:3FTCA	6.271	341.0 -> 237.1	1361762	313.08	µg/L	100
		341.0 -> 217.0	946567			
7:3FTCA	7.669	441.0 -> 316.9	795233	322.73	µg/L	98
		441.0 -> 336.9	1617620			
EtFOSA	10.978	526.0 -> 219.0	215038	46.90	µg/L	95
		526.0 -> 169.0	289299			
EtFOSE	10.924	630.0 -> 58.9	450520	88.87	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	188062	46.98	µg/L	96
		511.9 -> 169.0	257357			
MeFOSE	10.691	616.1 -> 58.9	429156	92.71	µg/L	100
PFDoDS	9.898	699.1 -> 79.9	27777	12.64	µg/L	97
		699.1 -> 98.8	15150			
NFDHA	5.512	295.0 -> 201.0	74385	25.03	µg/L	99
		295.0 -> 84.9	20410			
PFMBA	4.838	279.0 -> 85.1	303601	27.28	µg/L	100
PFMPA	3.538	229.0 -> 84.9	227483	27.52	µg/L	100
PFEESA	6.100	314.8 -> 134.9	668192	23.22	µg/L	100
		314.8 -> 82.9	25853			

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

7.6.2
7

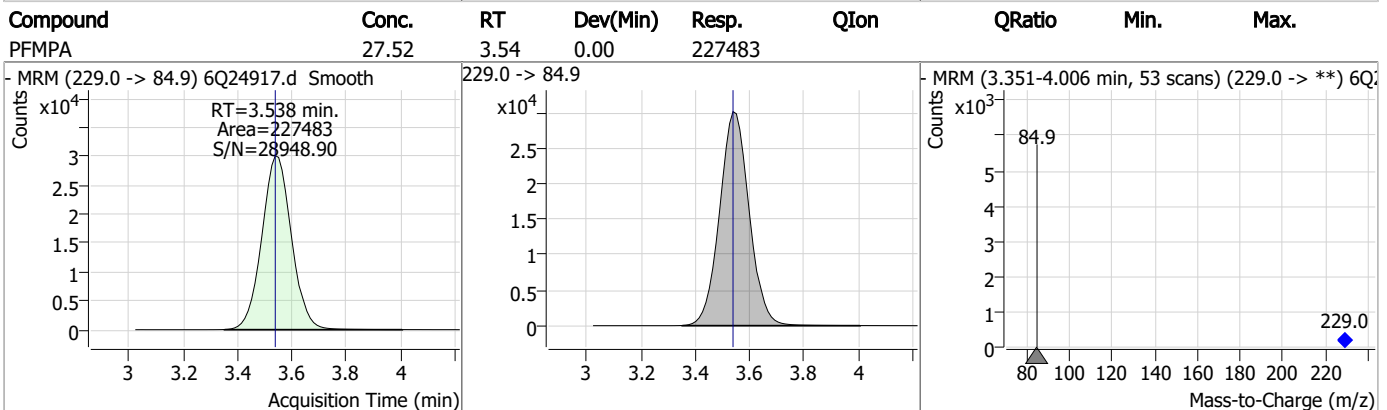
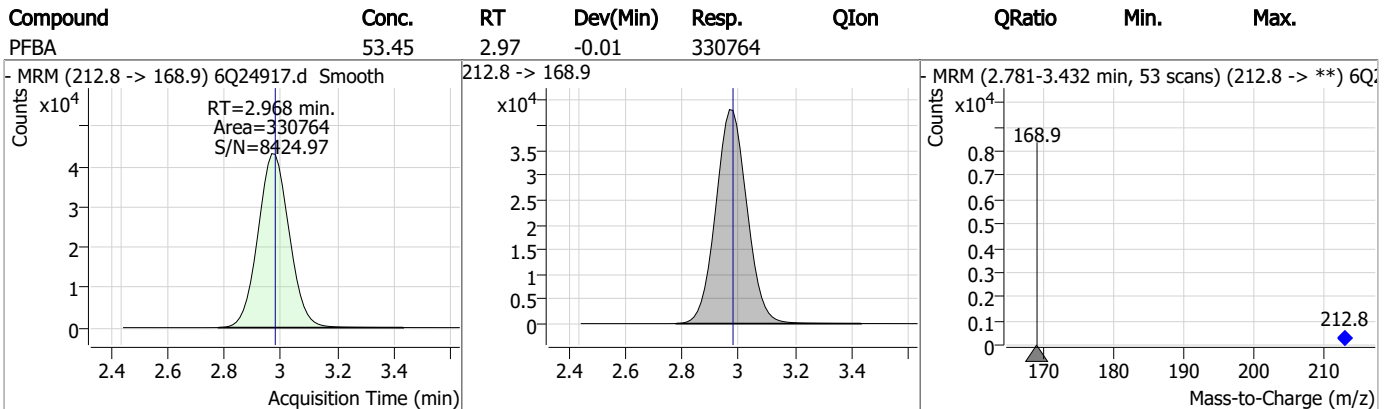
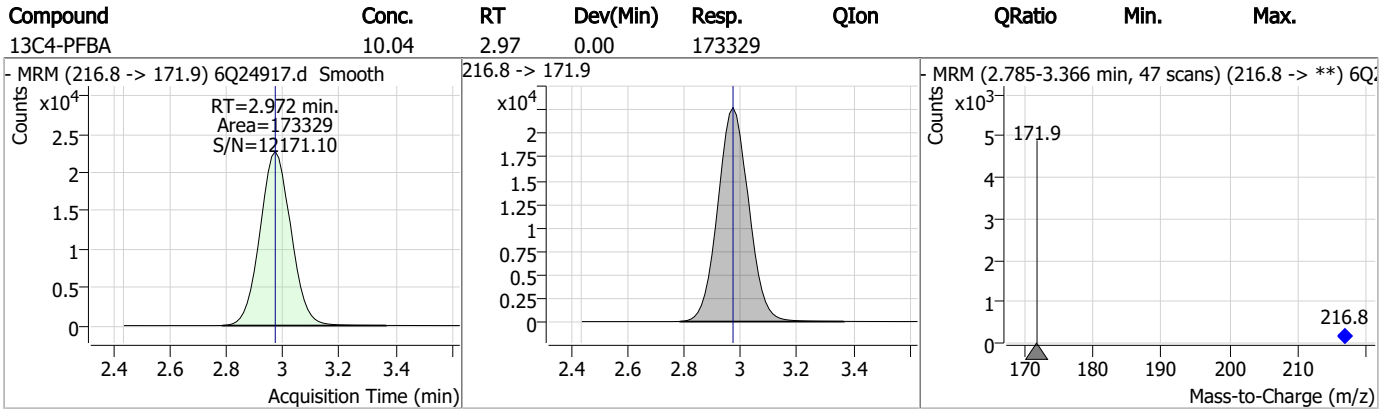
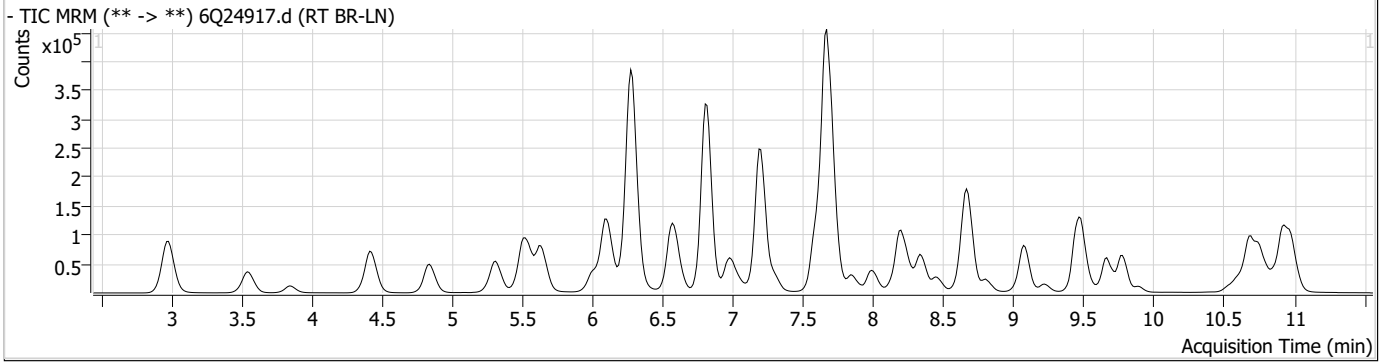
Perfluorinated Compounds by LC/MS/MS

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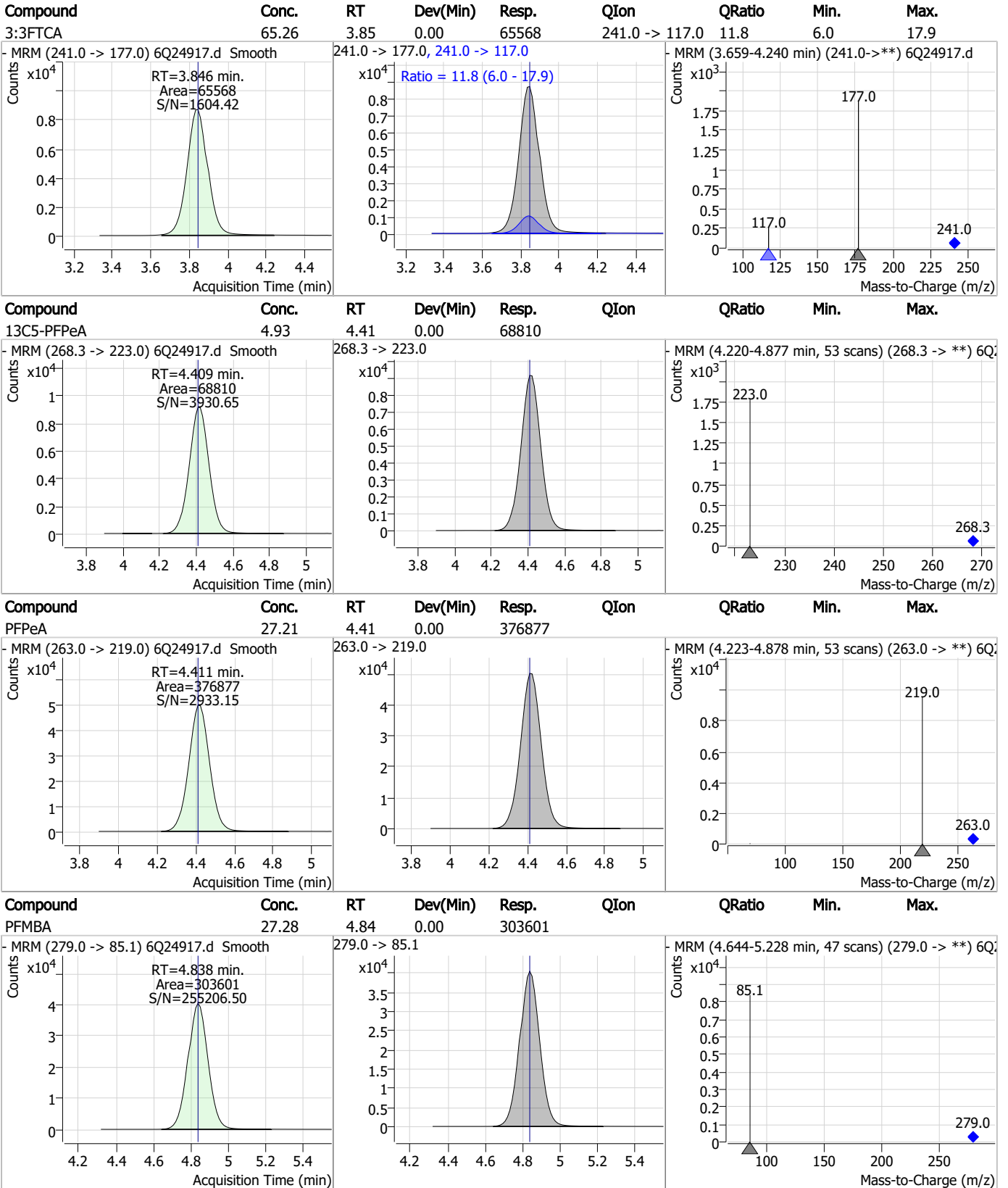
7.6.2

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Perfluorinated Compounds by LC/MS/MS



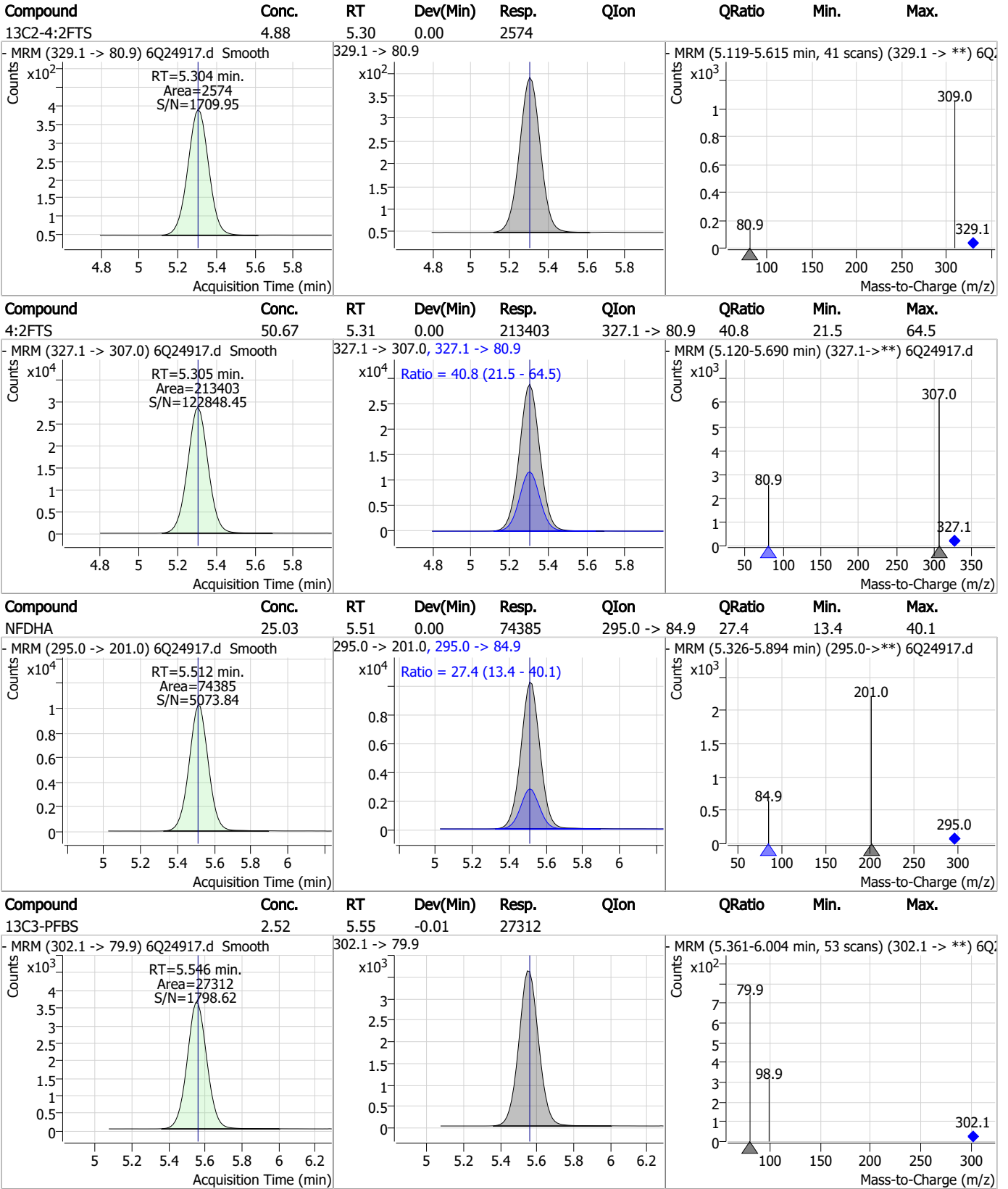
Perfluorinated Compounds by LC/MS/MS



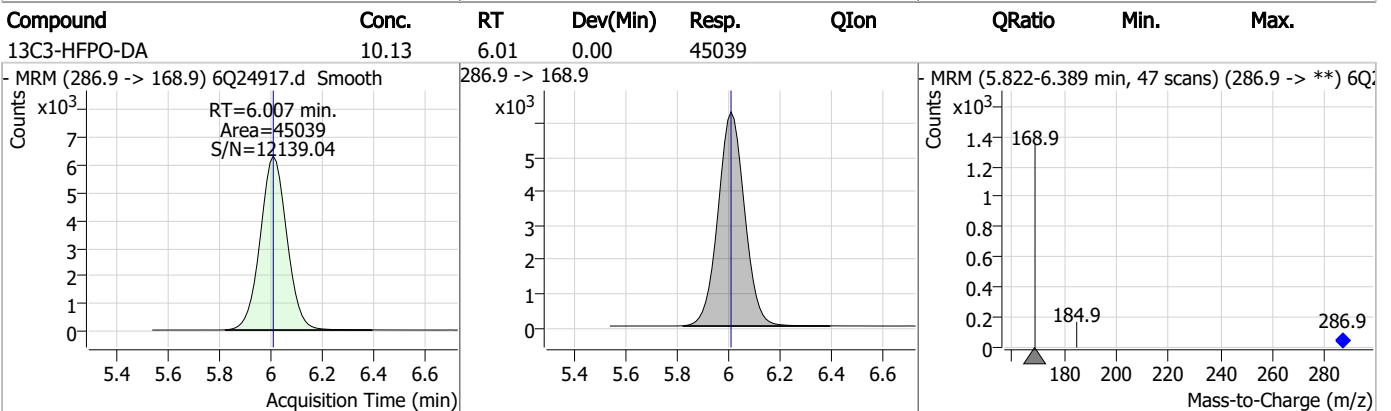
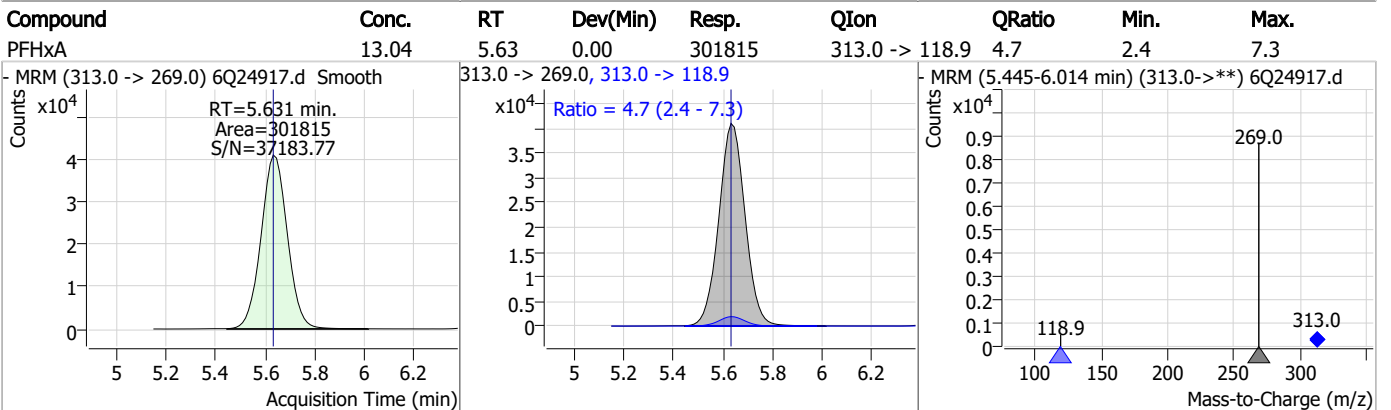
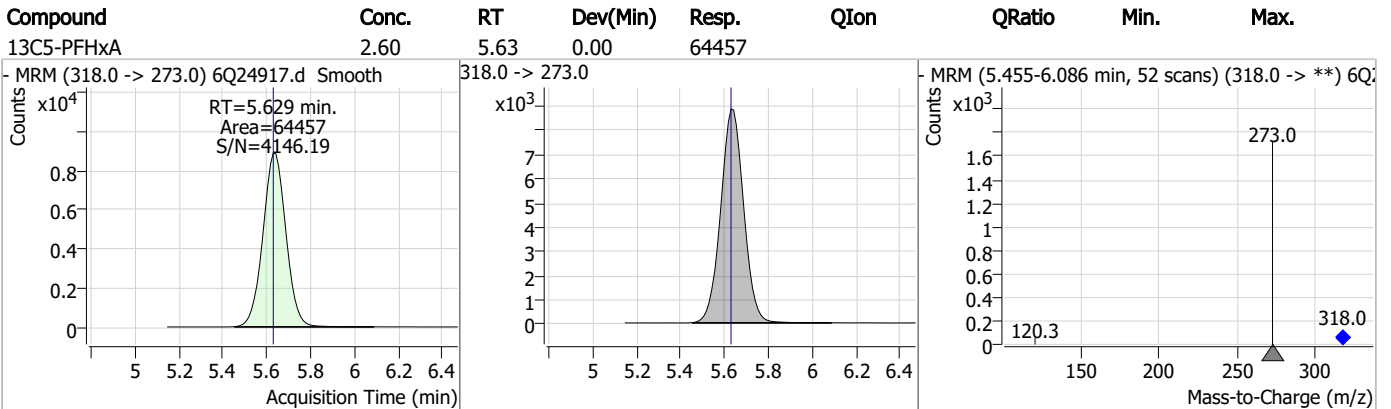
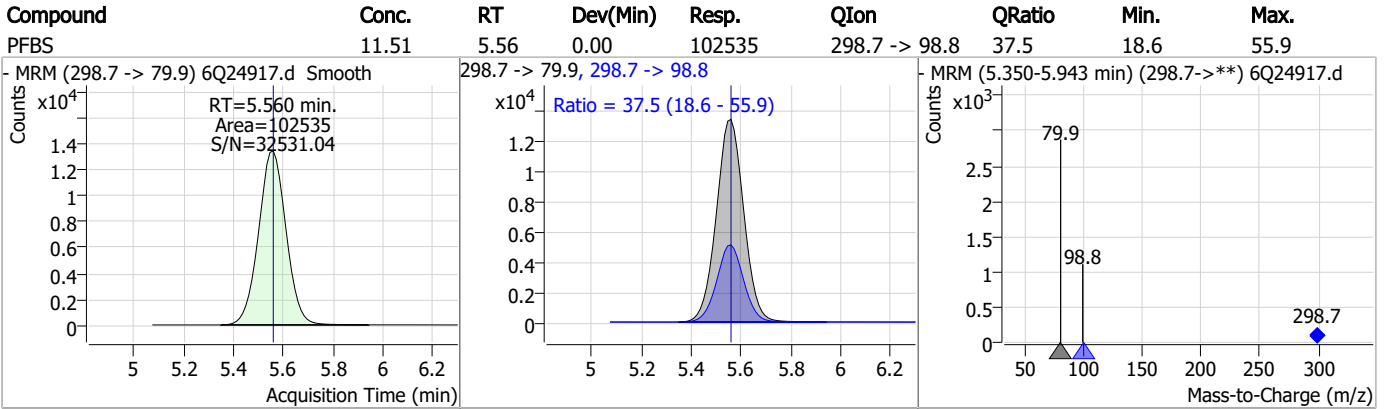
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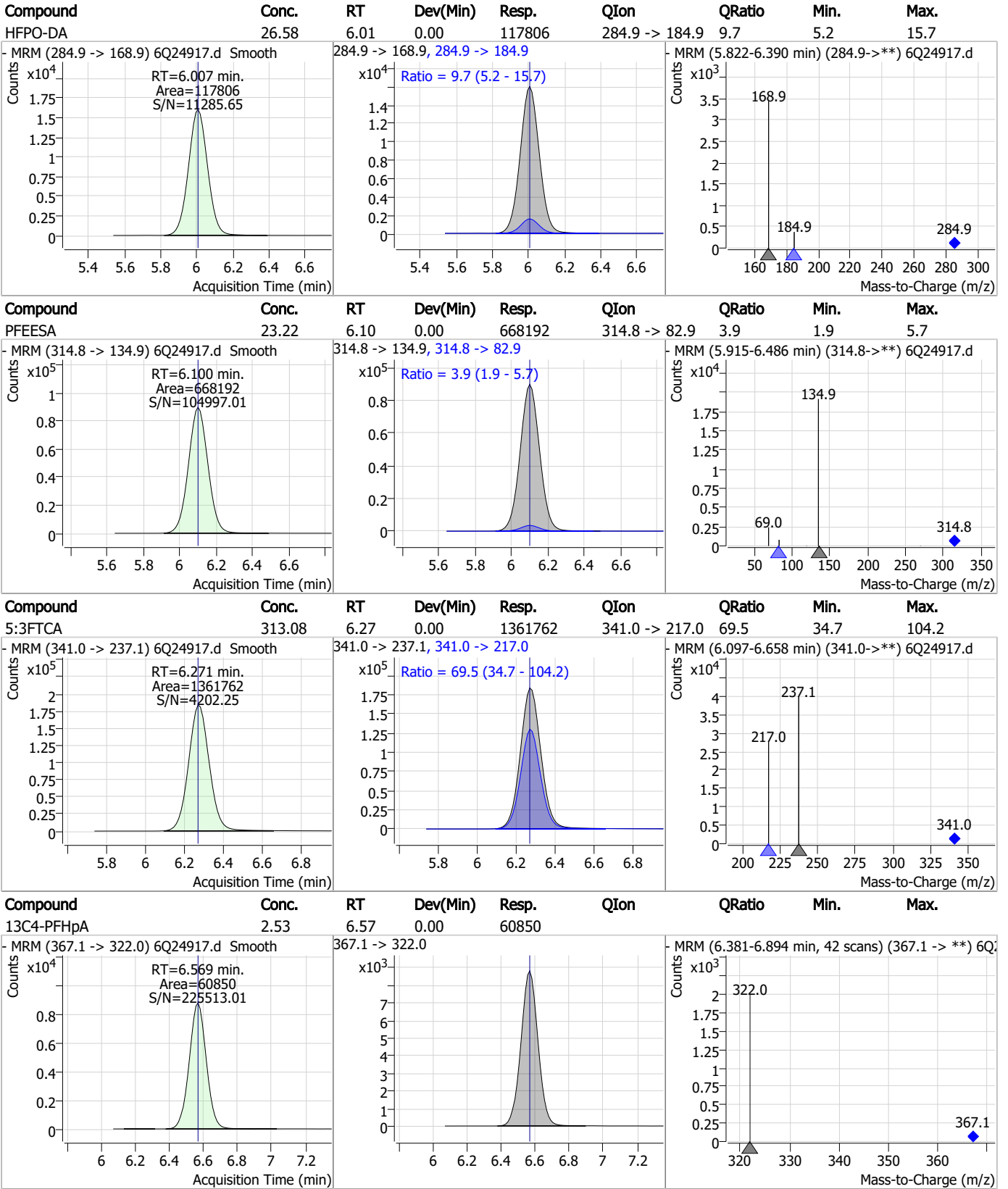
Perfluorinated Compounds by LC/MS/MS



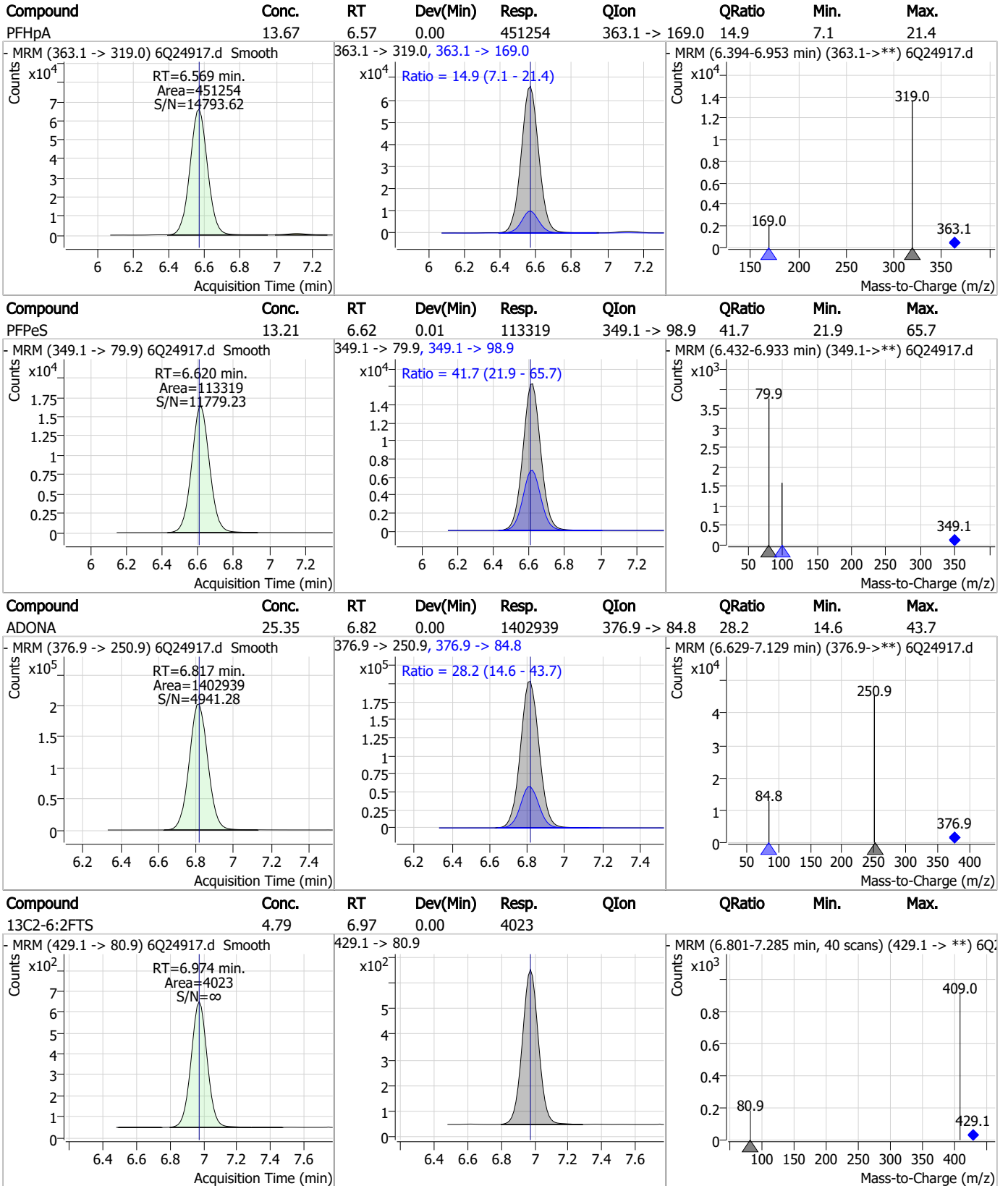
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

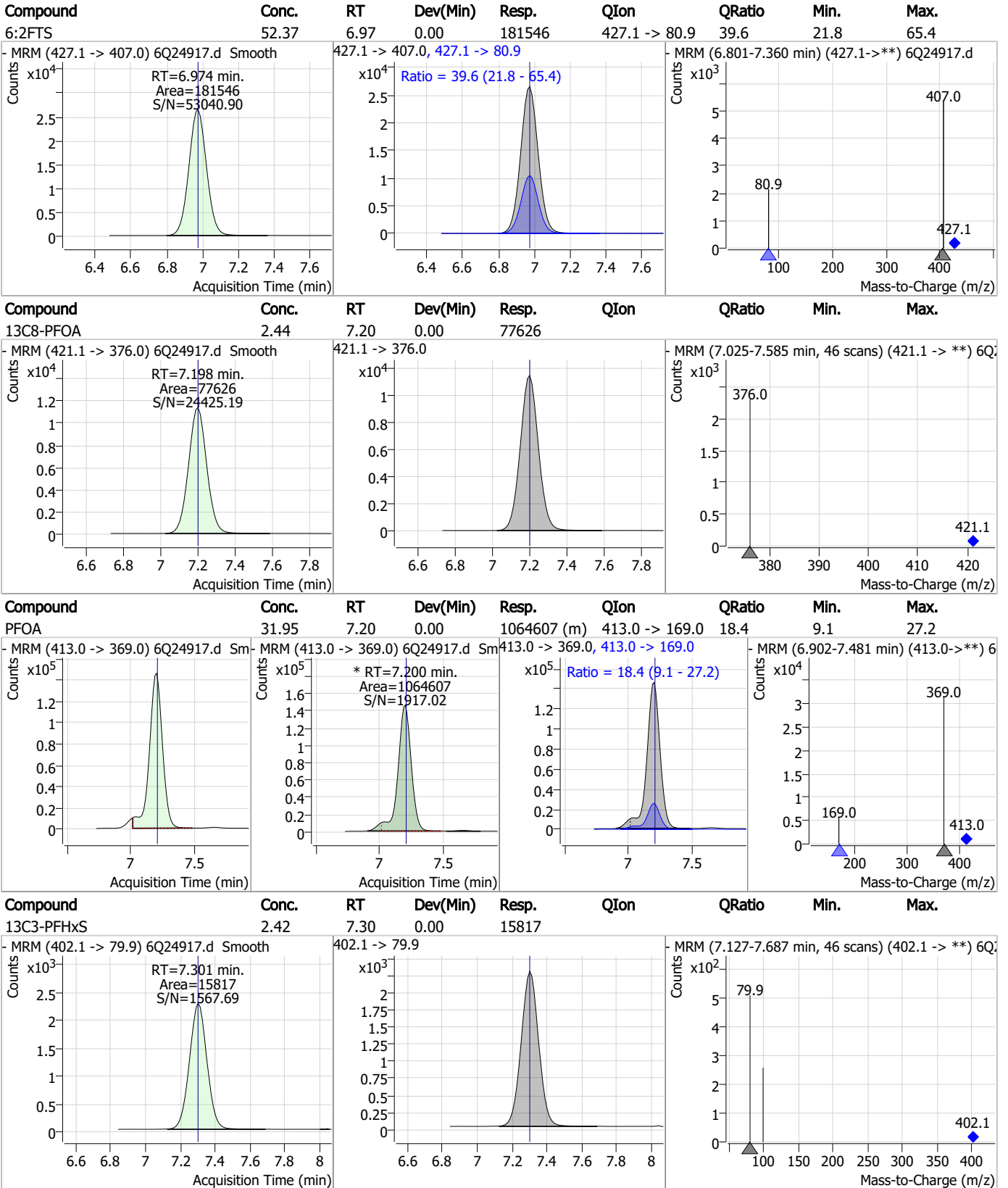


7.6.2

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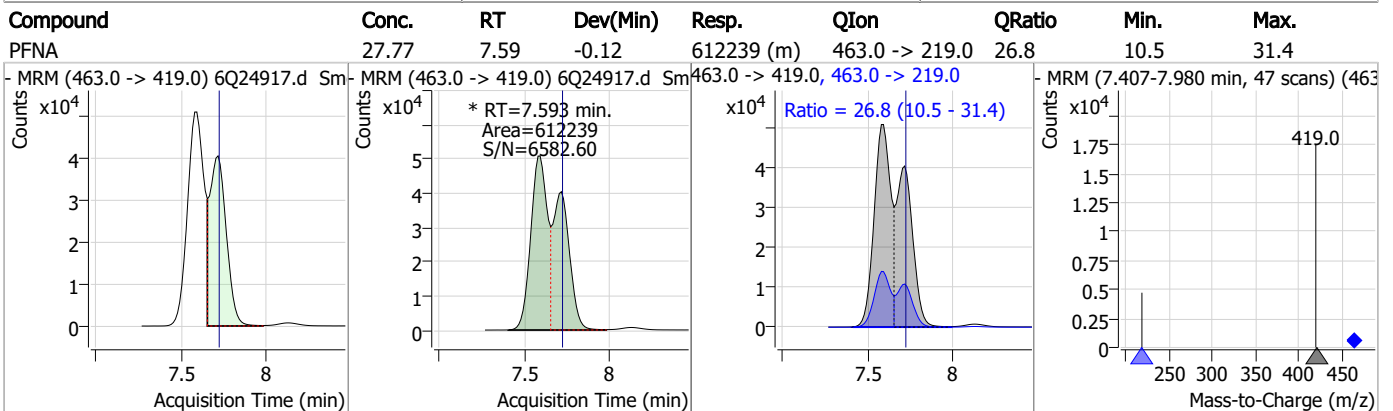
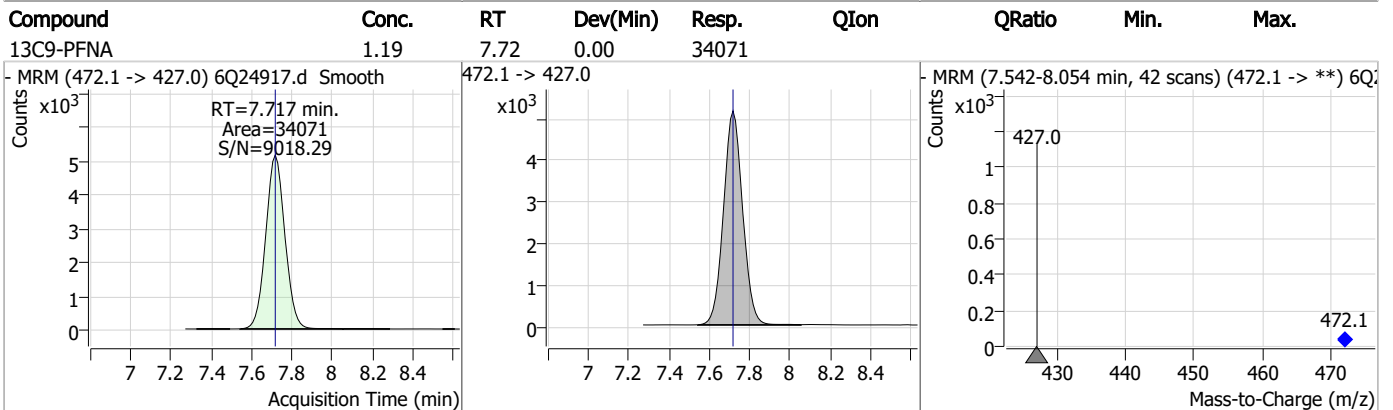
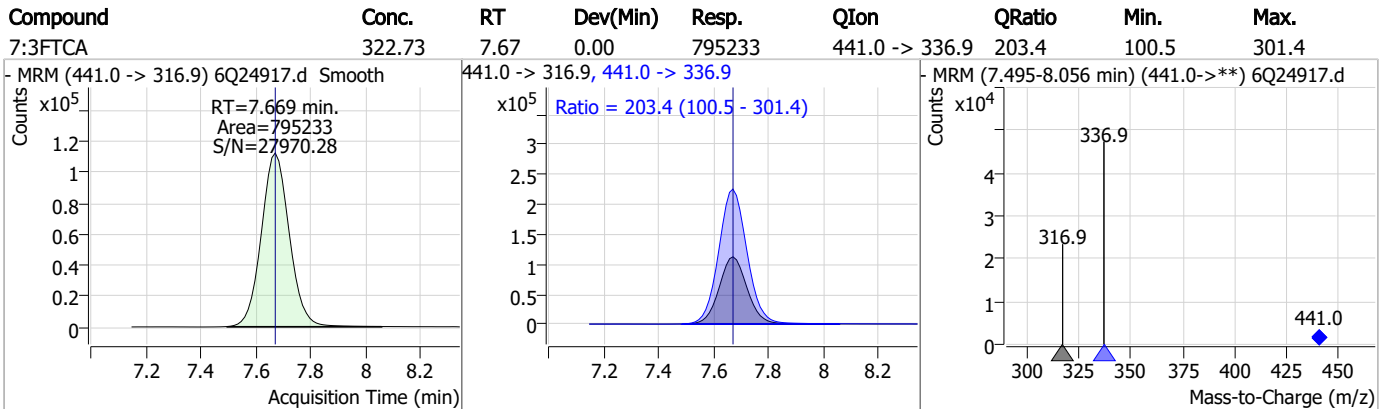
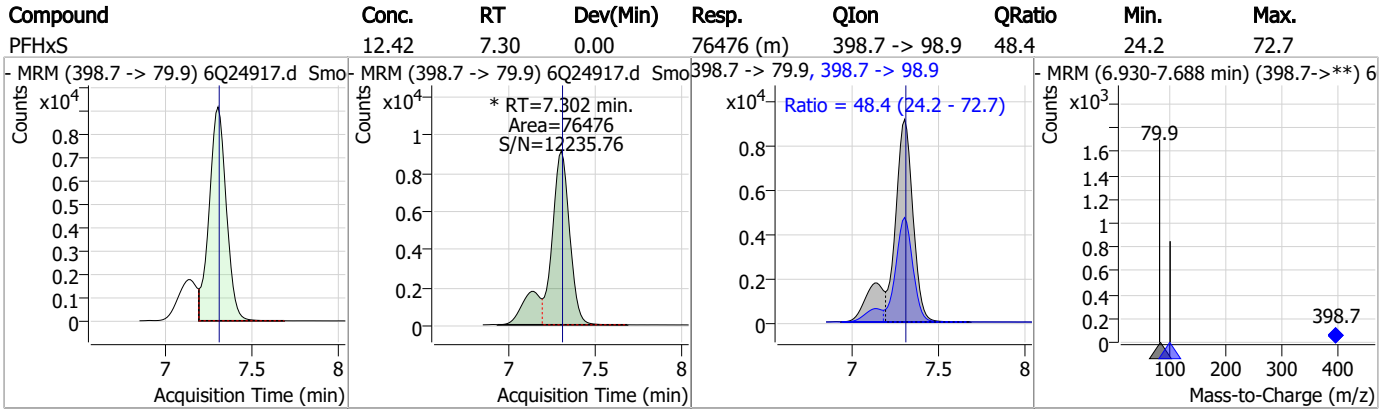
Perfluorinated Compounds by LC/MS/MS



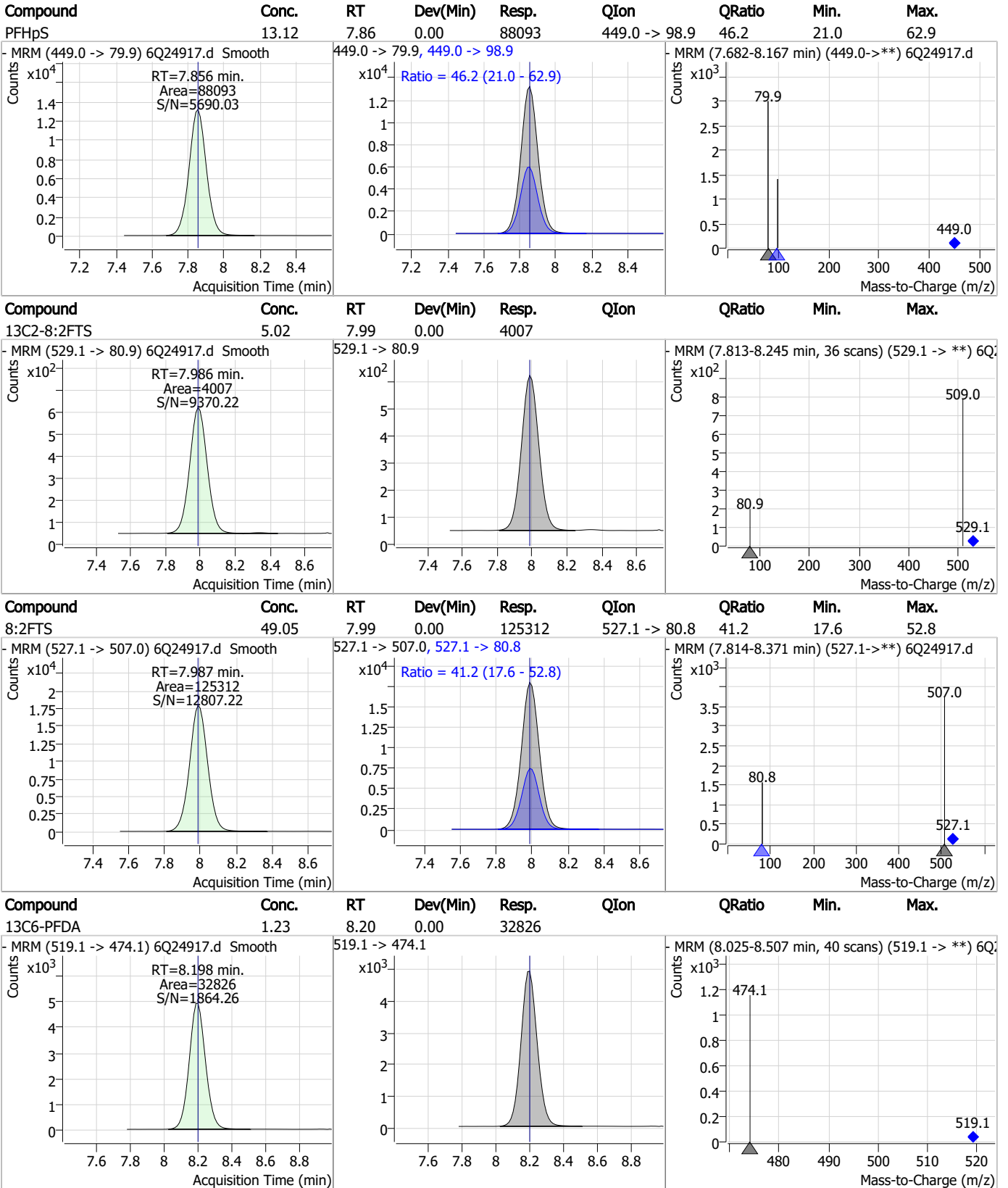
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Perfluorinated Compounds by LC/MS/MS



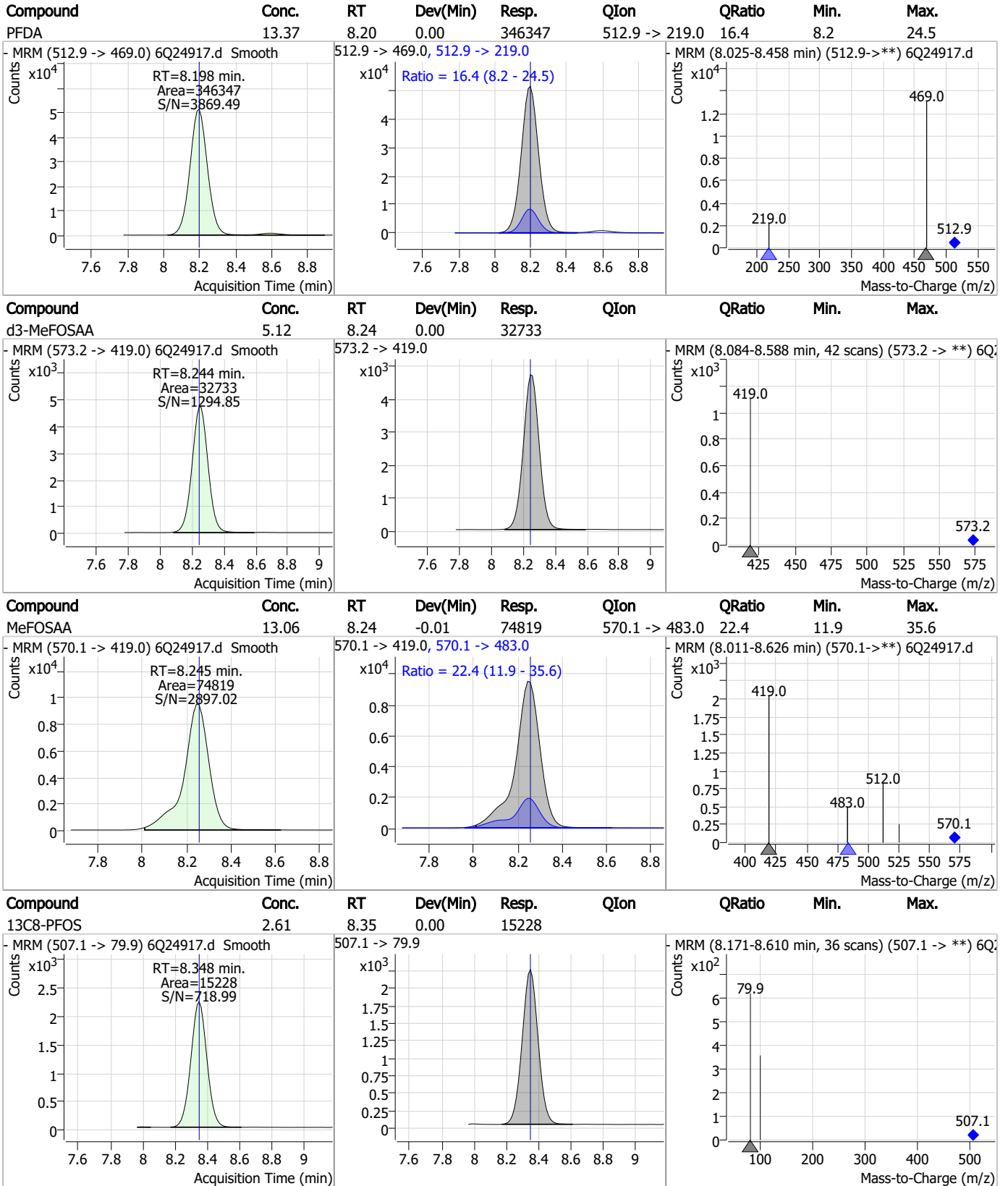
Perfluorinated Compounds by LC/MS/MS



7.6.2

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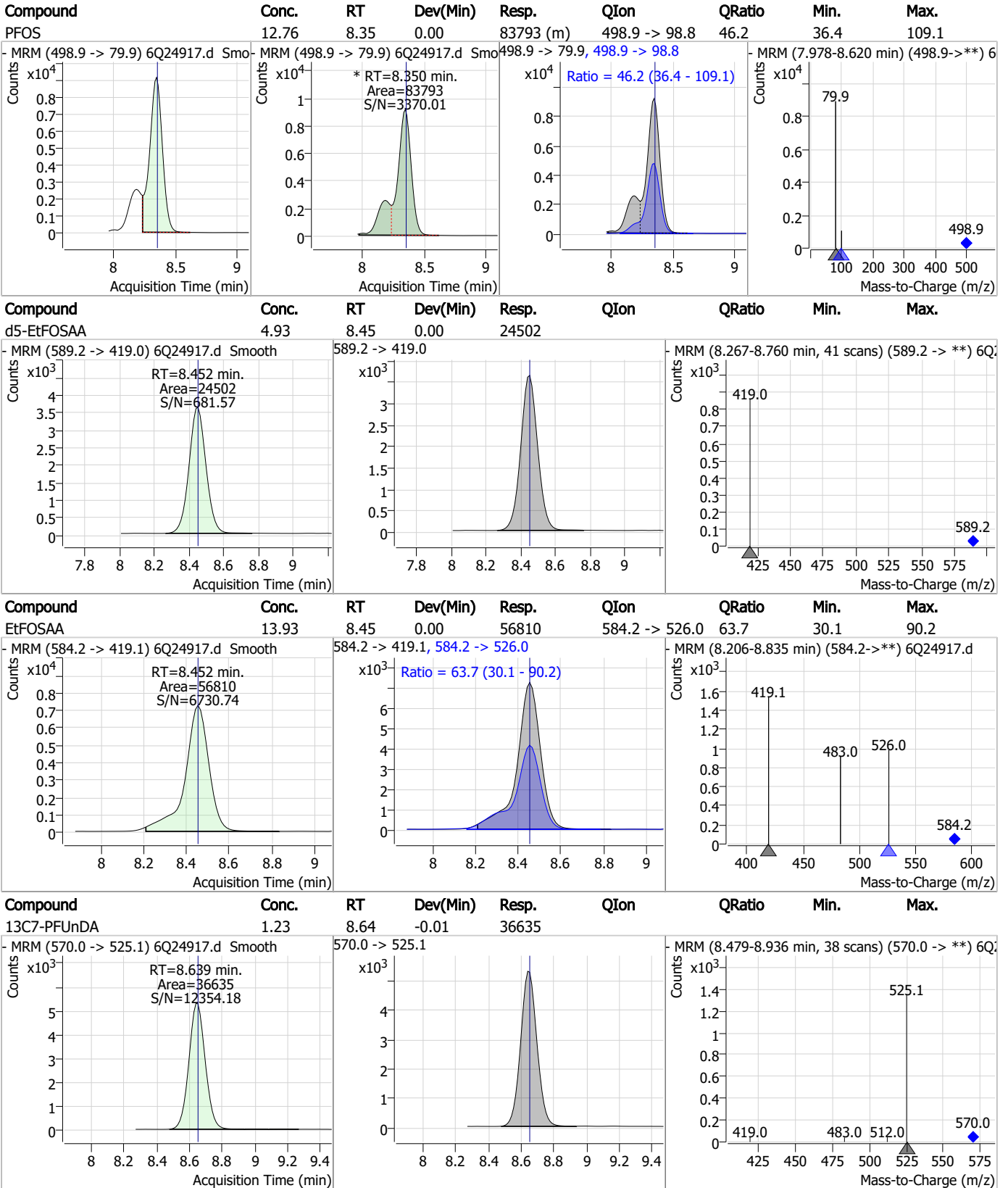
Perfluorinated Compounds by LC/MS/MS



7.6.2

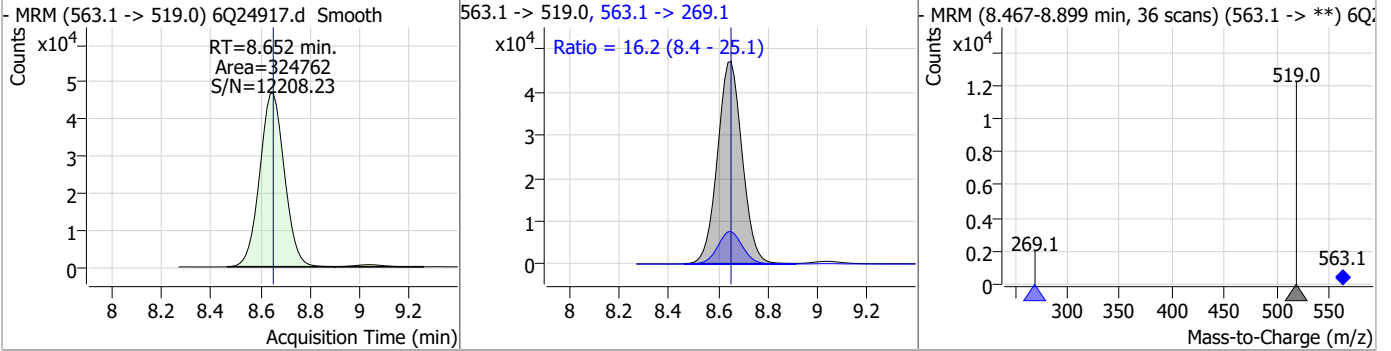
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Perfluorinated Compounds by LC/MS/MS

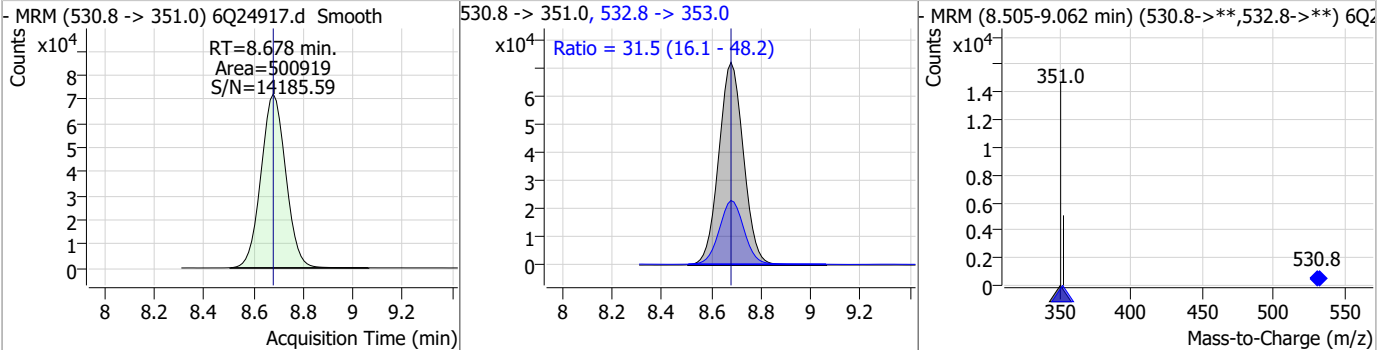


Perfluorinated Compounds by LC/MS/MS

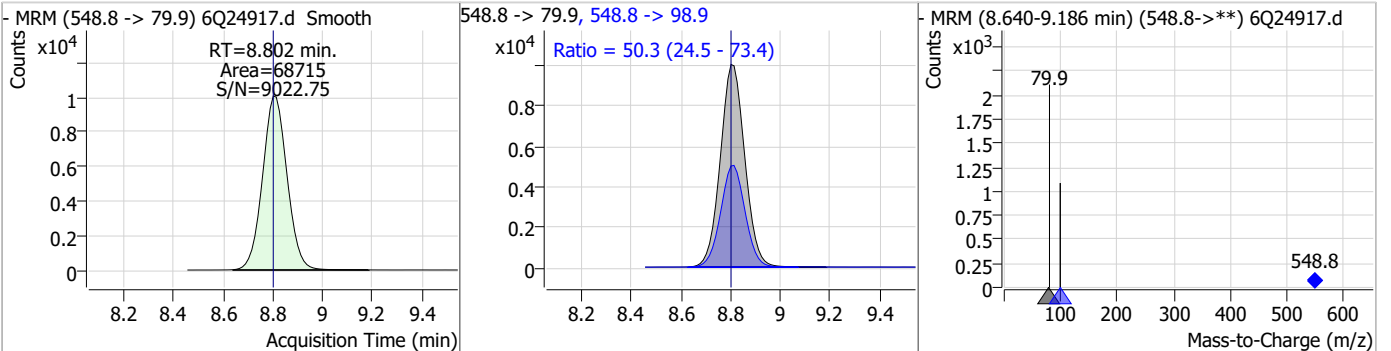
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	13.39	8.65	0.00	324762	563.1 -> 269.1	16.2	8.4	25.1



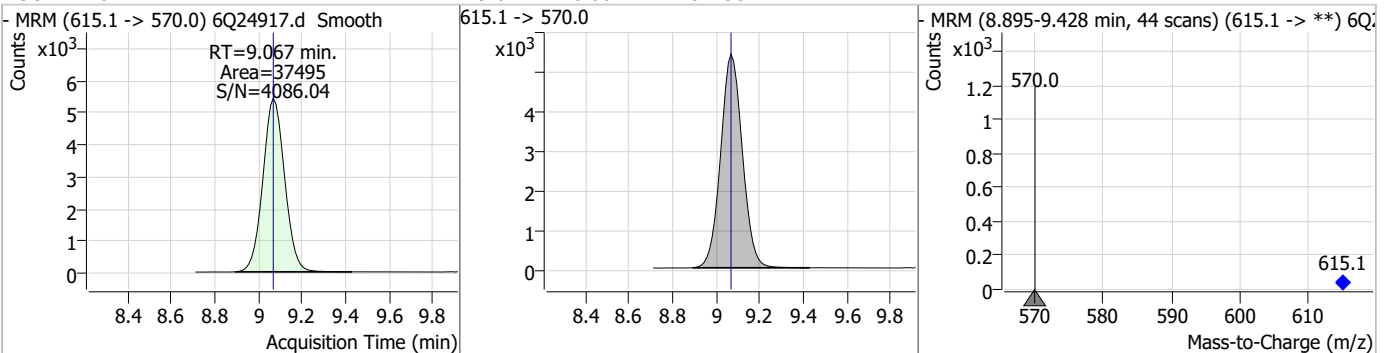
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	25.05	8.68	0.00	500919	532.8 -> 353.0	31.5	16.1	48.2



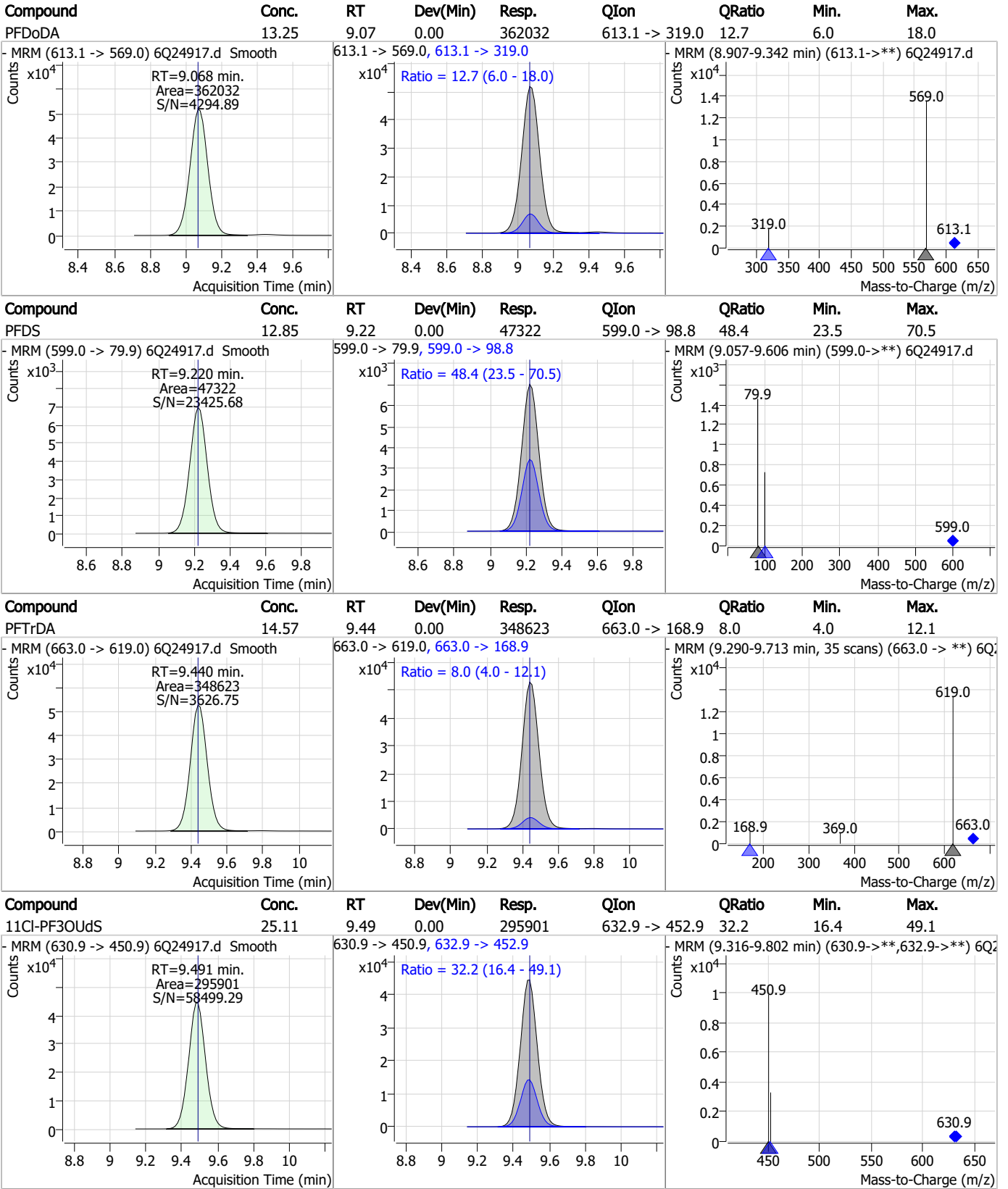
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	12.96	8.80	0.00	68715	548.8 -> 98.9	50.3	24.5	73.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.24	9.07	0.00	37495	615.1 -> 570.0			



Perfluorinated Compounds by LC/MS/MS

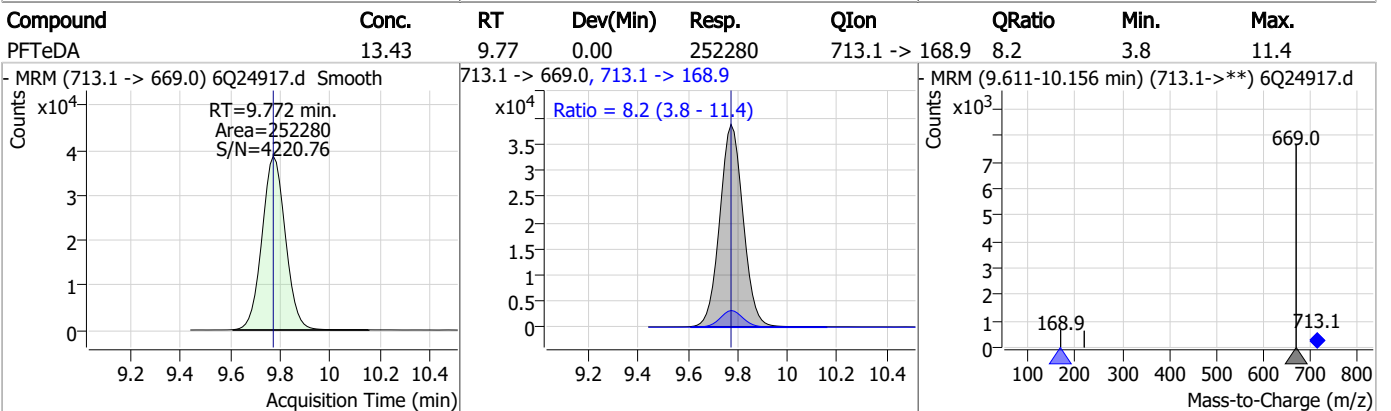
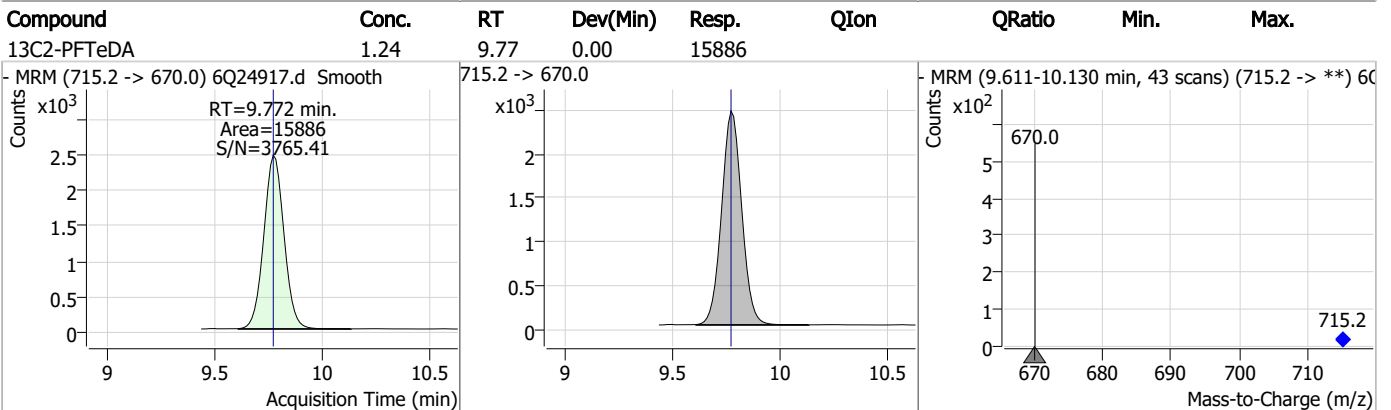
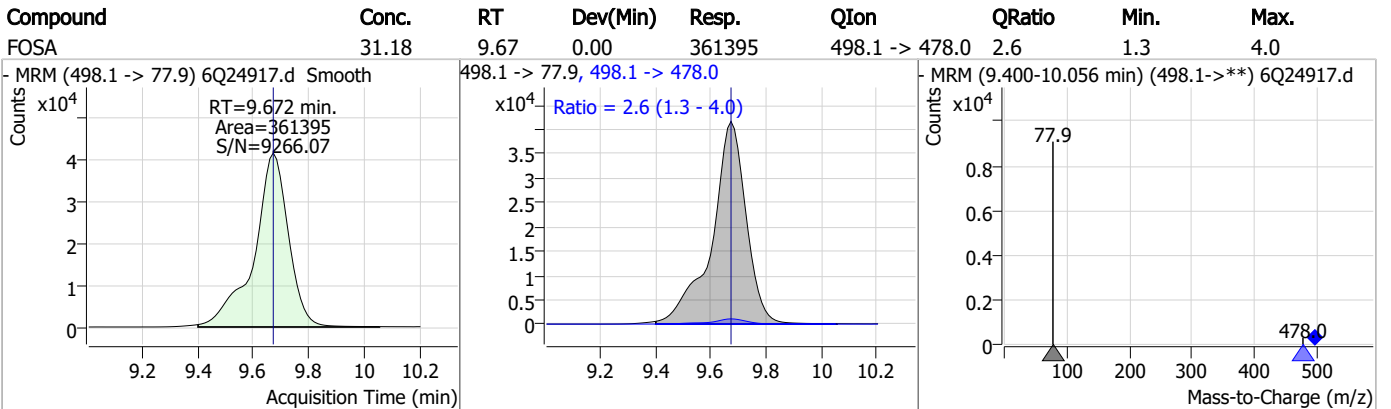
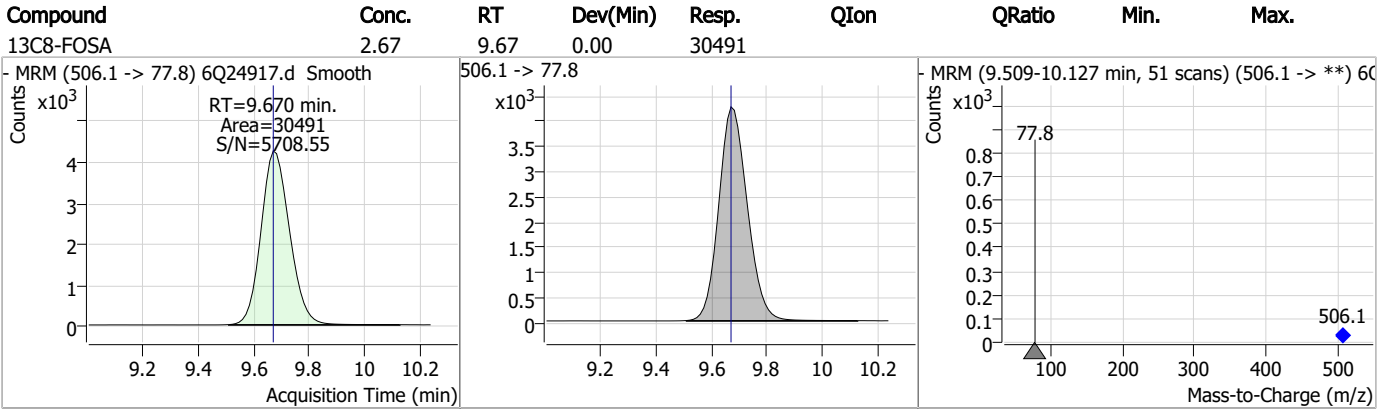


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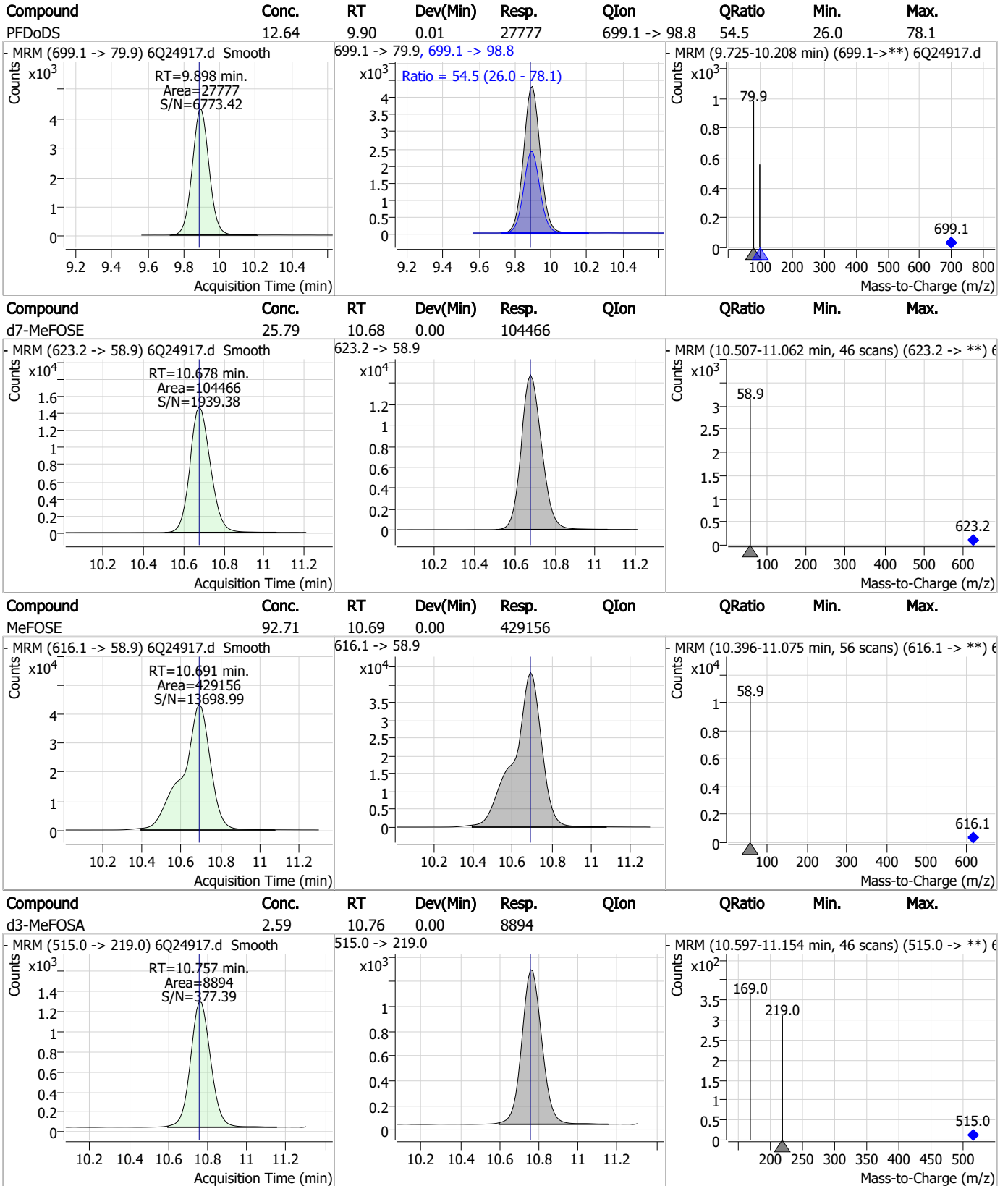
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

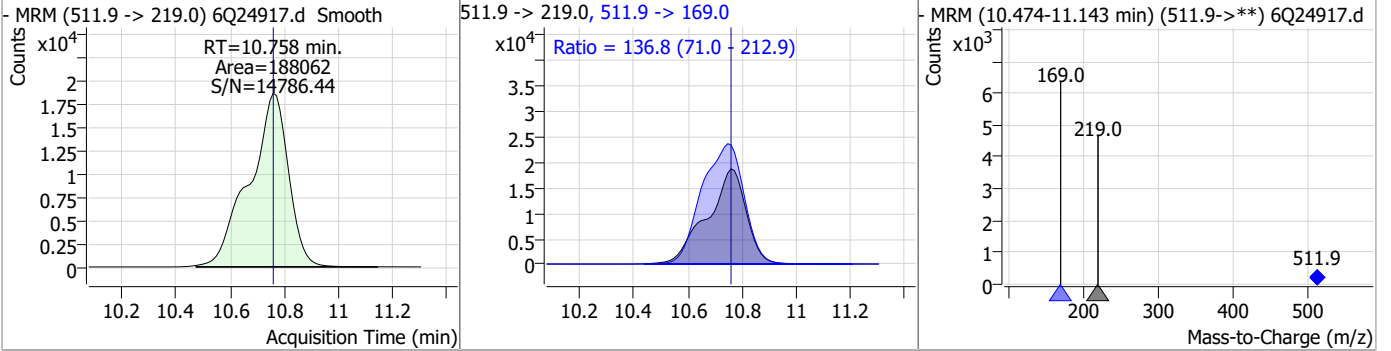


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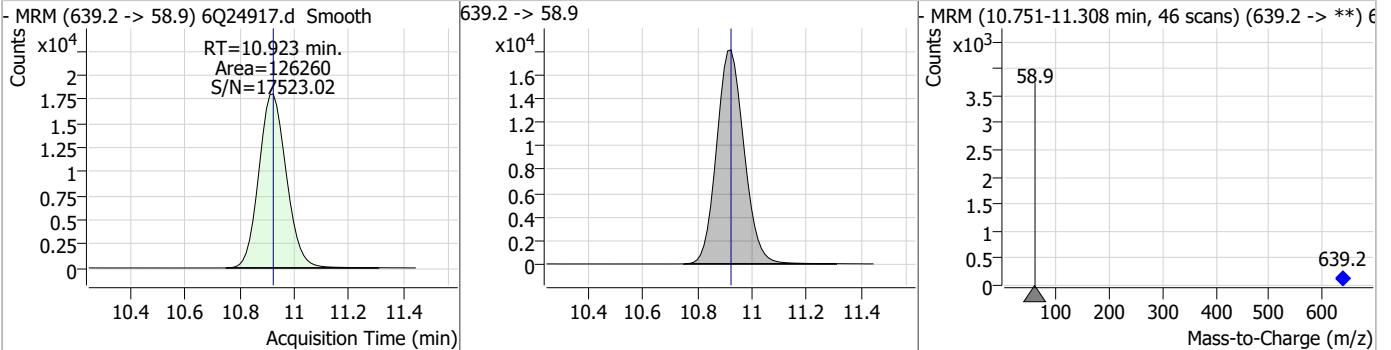
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Perfluorinated Compounds by LC/MS/MS

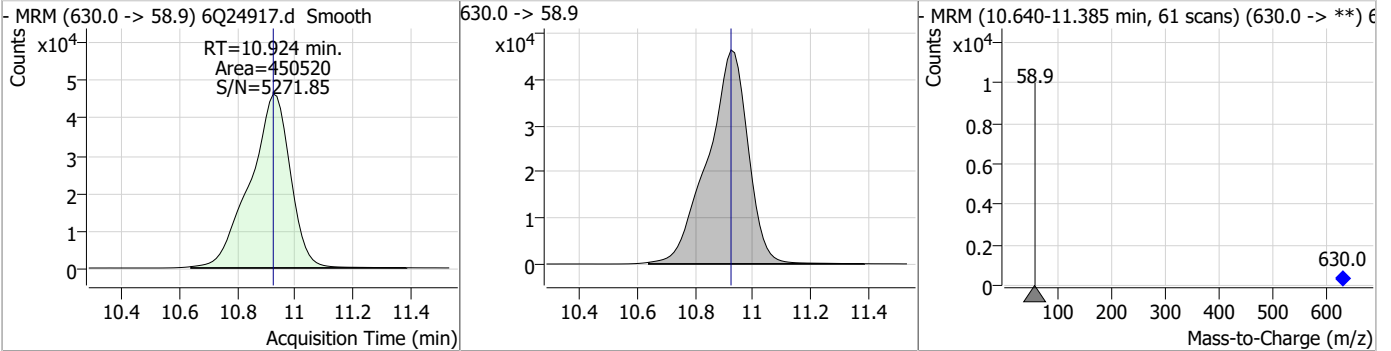
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	46.98	10.76	0.00	188062	511.9 -> 169.0	136.8	71.0	212.9



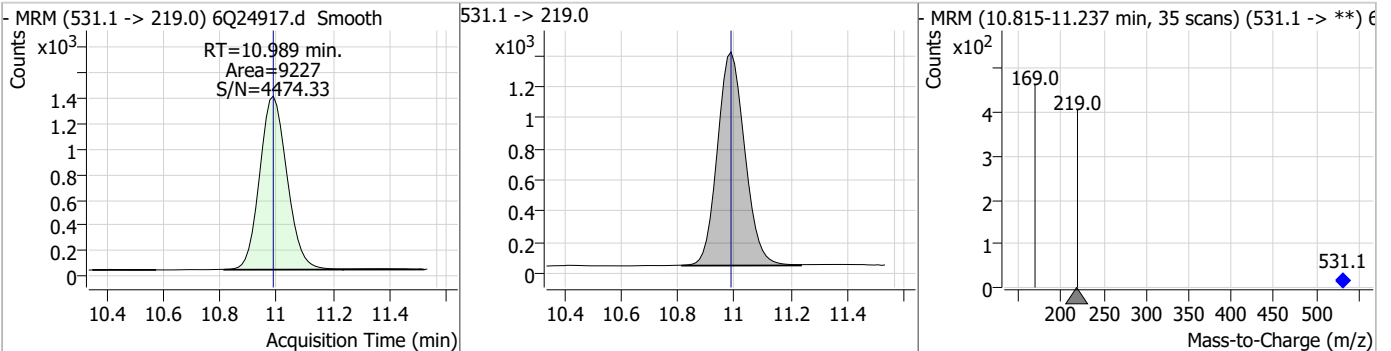
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.62	10.92	0.00	126260				



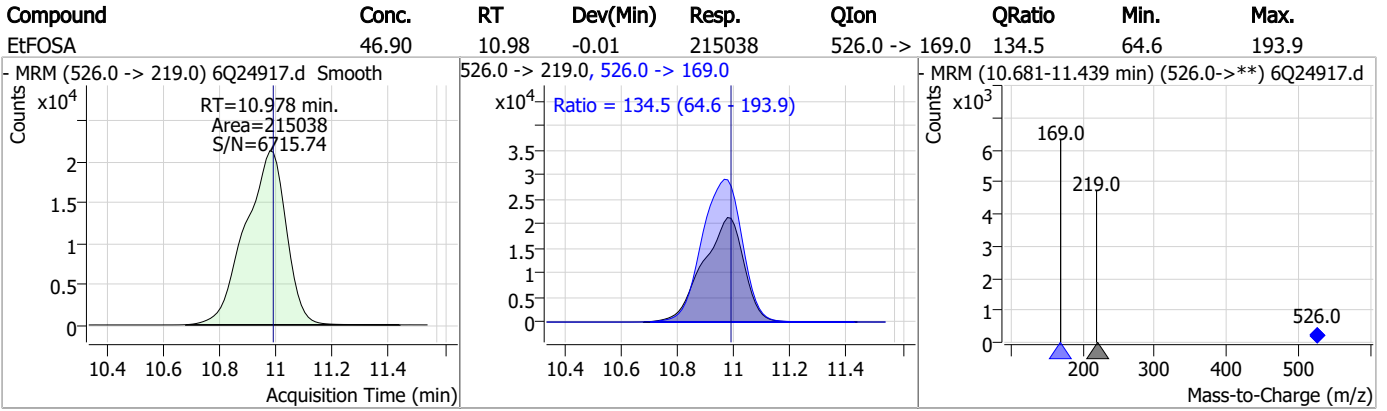
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	88.87	10.92	0.00	450520				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.55	10.99	0.00	9227				



Perfluorinated Compounds by LC/MS/MS



7.6.2

7

Manual Integration Approval Summary

Sample Number: S6Q356-RT Method: EPA DRAFT 1633
Lab FileID: 6Q24917.D Analyst approved: 09/25/23 14:50 Martha Valls
Injection Time: 09/24/23 14:31 Supervisor approved: 09/26/23 13:54 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.20	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorononanoic acid	375-95-1		7.59	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

7.6.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q25020.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/25/2023 3:10:15 PM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : S6Q356 TDCA.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

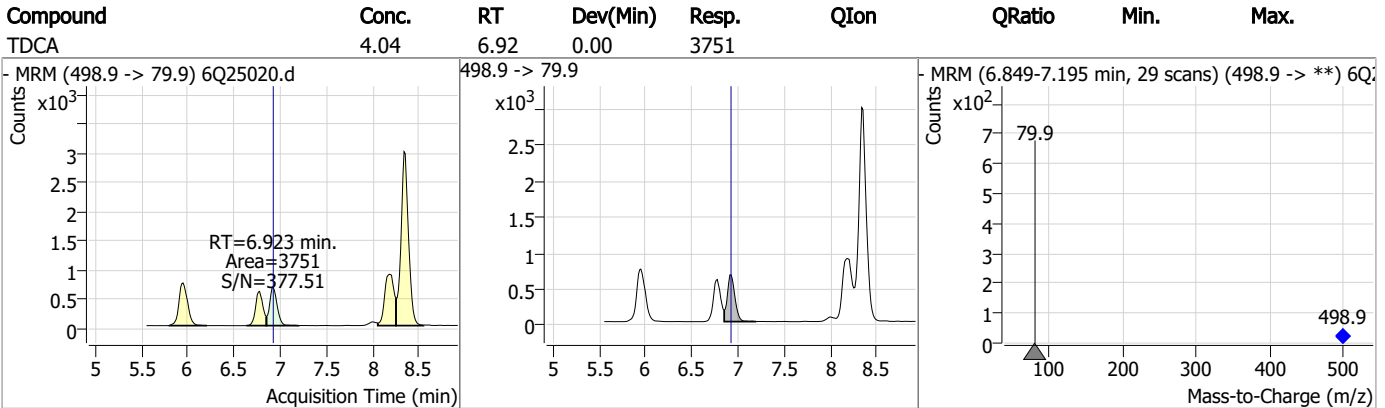
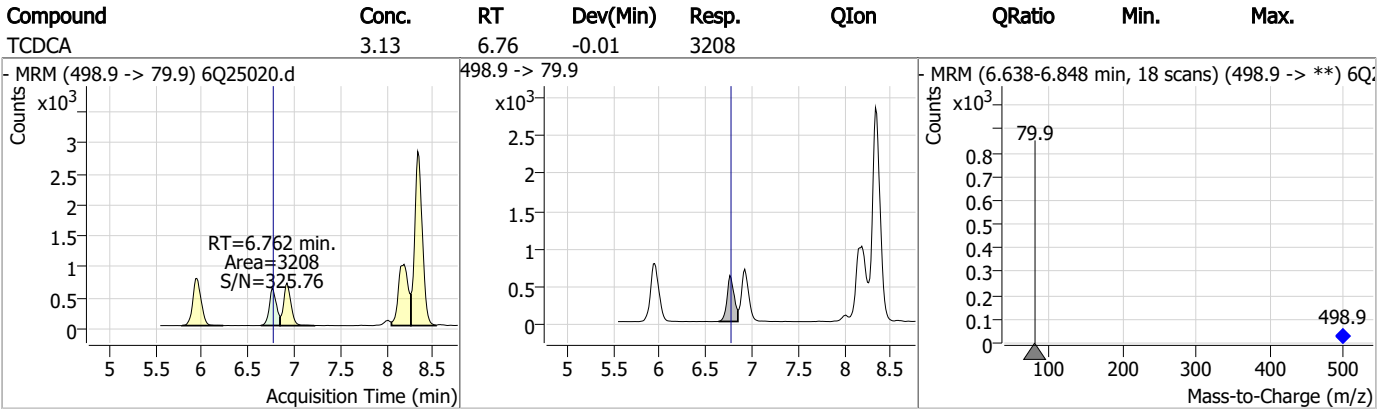
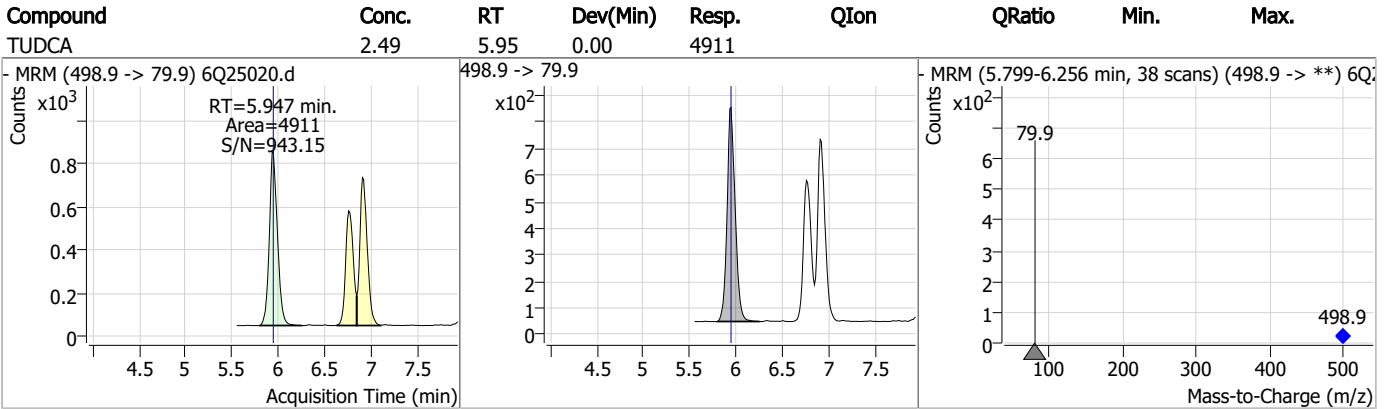
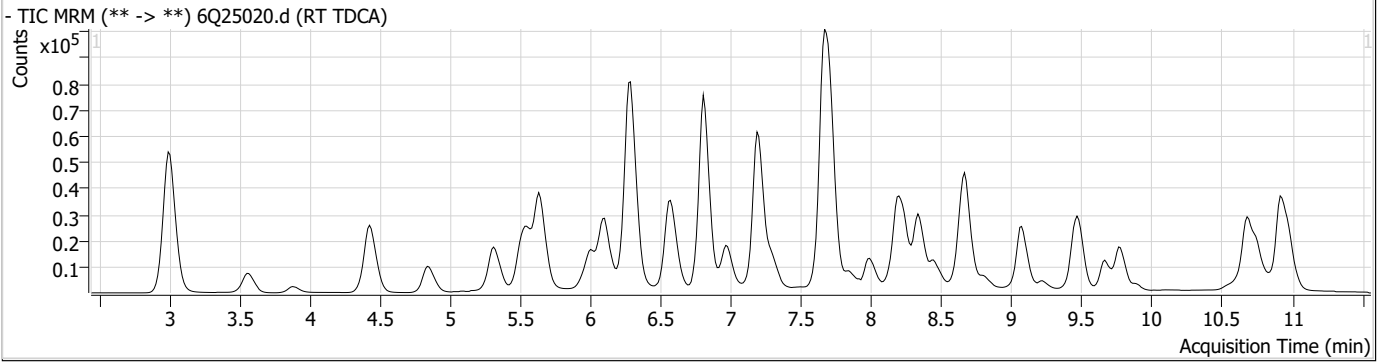
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.348	507.1 -> 79.9	22202	2.50	µg/L	-0.025	
13C4-PFOS	8.349	502.8 -> 79.9	23001	2.50	µg/L	-0.025	
System Monitoring Compounds							
13C8-PFOS	8.348	507.1 -> 79.9	22202	2.45	µg/L	-0.025	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.9%				
Target Compounds							
PFOS	8.350	498.9 -> 79.9	22369	2.95	µg/L	m	100
		498.9 -> 98.8	10074				
TCDCa	6.762	498.9 -> 79.9	3208	3.13	ng/ml		100
TDCA	6.923	498.9 -> 79.9	3751	4.04	ng/ml		100
TUDCA	5.947	498.9 -> 79.9	4911	2.49	ng/ml		100

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

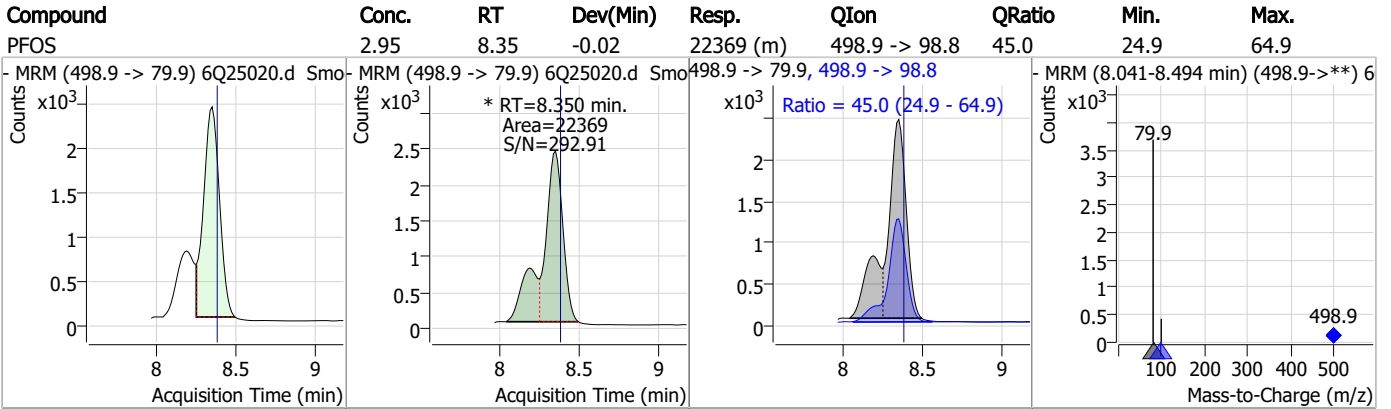
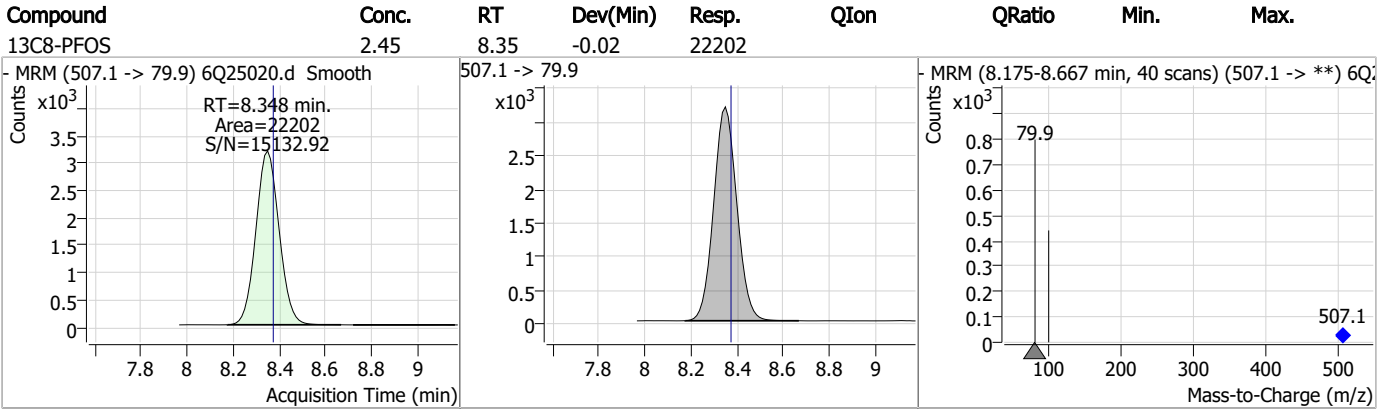
7.6.3

7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.3

7



Manual Integration Approval Summary

Sample Number: S6Q356-RT Method: EPA DRAFT 1633
Lab FileID: 6Q25020.D Analyst approved: 09/26/23 10:09 Martha Valls
Injection Time: 09/25/23 15:10 Supervisor approved: 09/26/23 13:54 Natasha Gumtie

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

7.6.3.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q25021.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/25/2023 3:24:33 PM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	180703	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	78518	5.00 µg/L	0.000
M5-PFHxA	5.629	318.0 -> 273.0	68403	2.50 µg/L	0.000
M4-PFHpA	6.556	367.1 -> 322.0	65435	2.50 µg/L	-0.012
M8-PFOA	7.186	421.1 -> 376.0	83393	2.50 µg/L	-0.012
M9-PFNA	7.717	472.1 -> 427.0	33417	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	36762	1.25 µg/L	0.000
M7-PFUnDA	8.639	570.0 -> 525.1	39588	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	38303	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	16817	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	30575	2.50 µg/L	0.000
M3-PFBS	5.546	302.1 -> 79.9	27743	2.50 µg/L	-0.013
M3-PFHxS	7.301	402.1 -> 79.9	15941	2.50 µg/L	0.000
M8-PFOS	8.336	507.1 -> 79.9	15364	2.50 µg/L	-0.013
M2-4:2FTS	5.292	329.1 -> 80.9	2546	5.00 µg/L	-0.012
M2-6:2FTS	6.974	429.1 -> 80.9	4022	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	4348	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	37188	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	46608	10.00 µg/L	0.000
M5-EtFOSAA	8.439	589.2 -> 419.0	27986	5.00 µg/L	-0.012
M7-MeFOSE	10.678	623.2 -> 58.9	101785	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	123105	25.00 µg/L	-0.012
M5-EtFOSA	10.989	531.1 -> 219.0	9795	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9406	2.50 µg/L	0.000
13C4-PFOS	8.336	502.8 -> 79.9	14853	2.50 µg/L	-0.013
13C3-PFBA	2.976	216.0 -> 172.0	76010	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	10648	2.50 µg/L	0.000
13C4-PFOA	7.187	417.1 -> 372.0	101937	2.50 µg/L	-0.012
13C2-PFDA	8.186	515.1 -> 470.1	35011	1.25 µg/L	-0.012
13C5-PFNA	7.717	468.0 -> 423.0	36073	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	62588	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.292	329.1 -> 80.9	2546	4.68 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.5%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4022	4.65 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.9%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4348	5.28 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.6%		
13C2-PFDoDA	9.067	615.1 -> 570.0	38303	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.5%		
13C2-PFTeDA	9.772	715.2 -> 670.0	16817	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.8%		
13C3-PFBS	5.546	302.1 -> 79.9	27743	2.48 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.2%		
13C3-PFHxS	7.301	402.1 -> 79.9	15941	2.37 µg/L	0.000

7.6.4
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.6%	
13C4-PFBA	2.972	216.8 -> 171.9	180703	9.84 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C4-PFHpA	6.556	367.1 -> 322.0	65435	2.56 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C5-PFHxA	5.629	318.0 -> 273.0	68403	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C5-PFPeA	4.409	268.3 -> 223.0	78518	5.30 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.0%	
13C6-PFDA	8.198	519.1 -> 474.1	36762	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C7-PFUnDA	8.639	570.0 -> 525.1	39588	1.20 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C8-FOSA	9.670	506.1 -> 77.8	30575	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C8-PFOA	7.186	421.1 -> 376.0	83393	2.36 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.4%	
13C8-PFOS	8.336	507.1 -> 79.9	15364	2.40 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C9-PFNA	7.717	472.1 -> 427.0	33417	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.2%	
d3-MeFOSAA	8.244	573.2 -> 419.0	37188	5.28 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.7%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	46608	9.88 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.8%	
d3-MeFOSA	10.757	515.0 -> 219.0	9406	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
d5-EtFOSAA	8.439	589.2 -> 419.0	27986	5.12 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.3%	
d7-MeFOSE	10.678	623.2 -> 58.9	101785	22.84 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 91.4%	
d9-EtFOSE	10.911	639.2 -> 58.9	123105	22.71 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 90.8%	
d5-EtFOSA	10.989	531.1 -> 219.0	9795	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	225481	54.12 µg/L	97
		327.1 -> 80.9	92019		
6:2FTS	6.974	427.1 -> 407.0	186136	53.71 µg/L	100
		427.1 -> 80.9	80714		
8:2FTS	7.987	527.1 -> 507.0	132661	47.86 µg/L	99
		527.1 -> 80.8	47540		
EtFOSAA	8.452	584.2 -> 419.1	59910	12.86 µg/L	91
		584.2 -> 526.0	40015		
FOSA	9.672	498.1 -> 77.9	373070	32.09 µg/L	100
		498.1 -> 478.0	10568		
MeFOSAA	8.245	570.1 -> 419.0	83706	12.86 µg/L	92
		570.1 -> 483.0	16686		
PFBA	2.968	212.8 -> 168.9	349642	54.20 µg/L	100
PFBS	5.547	298.7 -> 79.9	104406	11.54 µg/L	98
		298.7 -> 98.8	37873		
PFDA	8.198	512.9 -> 469.0	360662	12.43 µg/L	98
		512.9 -> 219.0	61485		
PFDoDA	9.068	613.1 -> 569.0	395817	14.19 µg/L	97
		613.1 -> 319.0	51593		
PFDS	9.220	599.0 -> 79.9	50006	13.46 µg/L	96

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	24737			
PFHpA	6.557	363.1 -> 319.0	473769	13.35	µg/L	99
		363.1 -> 169.0	70203			
PFHpS	7.843	449.0 -> 79.9	87709	12.95	µg/L	87
		449.0 -> 98.9	43914			
PFHxA	5.631	313.0 -> 269.0	327887	13.35	µg/L	99
		313.0 -> 118.9	14935			
PFHxS	7.302	398.7 -> 79.9	74655	12.03	µg/L	m 94
		398.7 -> 98.9	39018			
PFNA	7.581	463.0 -> 419.0	666037	30.80	µg/L	m 89
		463.0 -> 219.0	172761			
PFNS	8.802	548.8 -> 79.9	67231	12.57	µg/L	95
		548.8 -> 98.9	35034			
PFOA	7.187	413.0 -> 369.0	1148047	32.07	µg/L	m 100
		413.0 -> 169.0	208283			
PFOS	8.337	498.9 -> 79.9	86616	13.07	µg/L	m 69
		498.9 -> 98.8	40789			
PFPeA	4.411	263.0 -> 219.0	398747	25.23	µg/L	100
PFPeS	6.608	349.1 -> 79.9	114134	13.20	µg/L	98
		349.1 -> 98.9	51394			
PFTeDA	9.772	713.1 -> 669.0	267105	13.44	µg/L	98
		713.1 -> 168.9	21763			
PFTrDA	9.440	663.0 -> 619.0	341976	13.99	µg/L	100
		663.0 -> 168.9	27796			
PFUnDA	8.639	563.1 -> 519.0	354497	13.52	µg/L	98
		563.1 -> 269.1	56319			
11CI-PF3OUdS	9.479	630.9 -> 450.9	323606	26.54	µg/L	95
		632.9 -> 452.9	96545			
9CI-PF3ONS	8.678	530.8 -> 351.0	534529	25.83	µg/L	100
		532.8 -> 353.0	171277			
ADONA	6.804	376.9 -> 250.9	1461630	25.52	µg/L	96
		376.9 -> 84.8	392175			
HFPO-DA	6.007	284.9 -> 168.9	113330	24.71	µg/L	100
		284.9 -> 184.9	11817			
3:3FTCA	3.846	241.0 -> 177.0	69906	66.74	µg/L	98
		241.0 -> 117.0	7904			
5:3FTCA	6.271	341.0 -> 237.1	1489939	322.79	µg/L	95
		341.0 -> 217.0	970621			
7:3FTCA	7.669	441.0 -> 316.9	877883	335.72	µg/L	96
		441.0 -> 336.9	1706903			
EtFOSA	10.978	526.0 -> 219.0	224142	46.05	µg/L	97
		526.0 -> 169.0	298691			
EtFOSE	10.924	630.0 -> 58.9	453738	91.80	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	189093	44.67	µg/L	98
		511.9 -> 169.0	272298			
MeFOSE	10.691	616.1 -> 58.9	408430	90.56	µg/L	100
PFDoS	9.898	699.1 -> 79.9	29612	13.36	µg/L	99
		699.1 -> 98.8	15694			
NFDHA	5.512	295.0 -> 201.0	79223	25.12	µg/L	98
		295.0 -> 84.9	20229			
PFMBA	4.838	279.0 -> 85.1	311174	24.50	µg/L	100
PFMPA	3.538	229.0 -> 84.9	232384	24.64	µg/L	100
PFEESA	6.088	314.8 -> 134.9	684914	22.43	µg/L	100
		314.8 -> 82.9	25562			

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

7.6.4
7

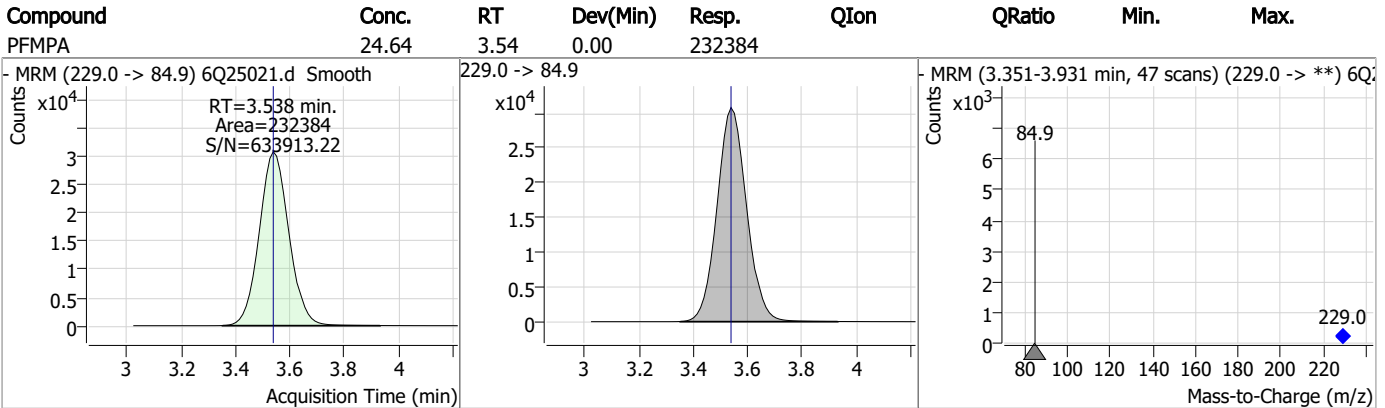
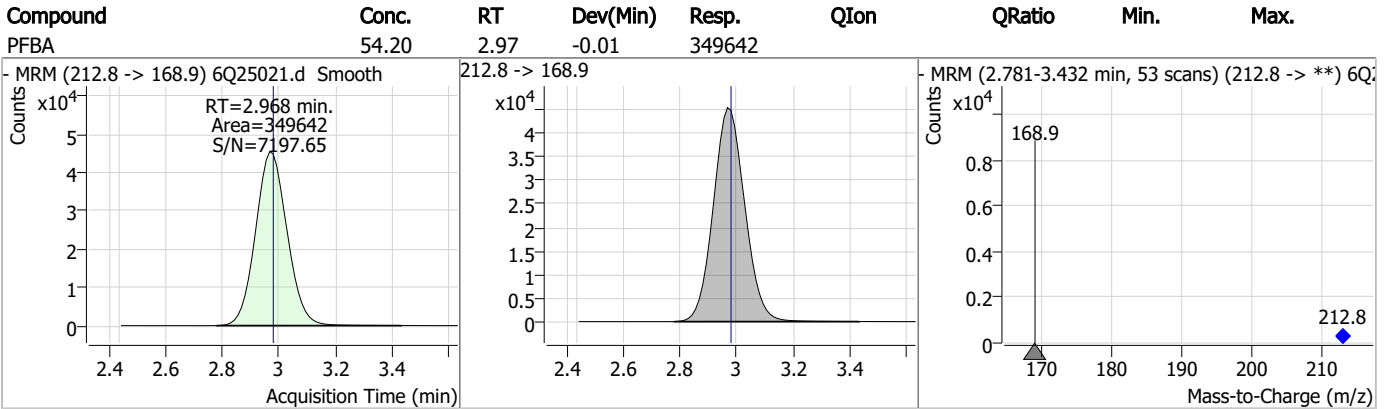
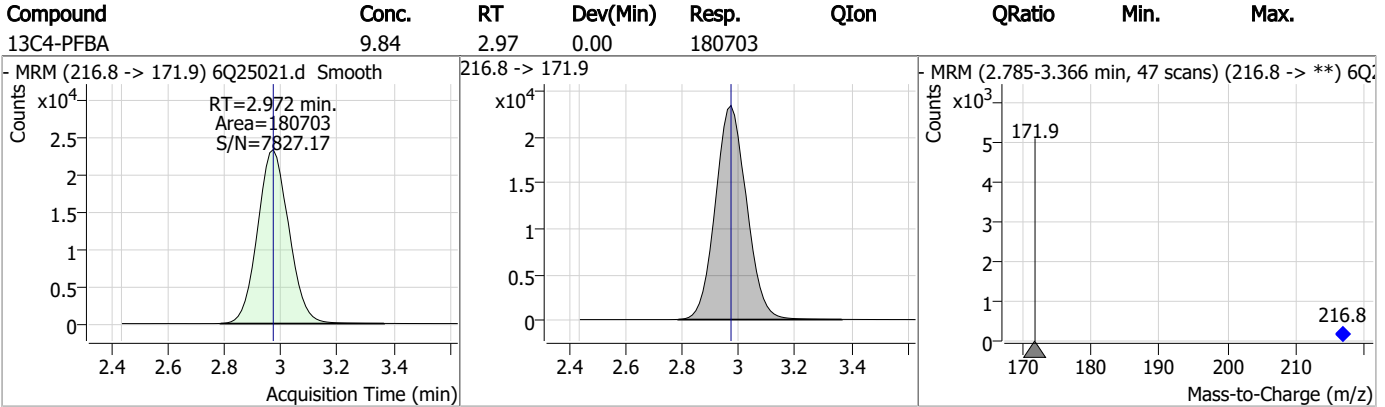
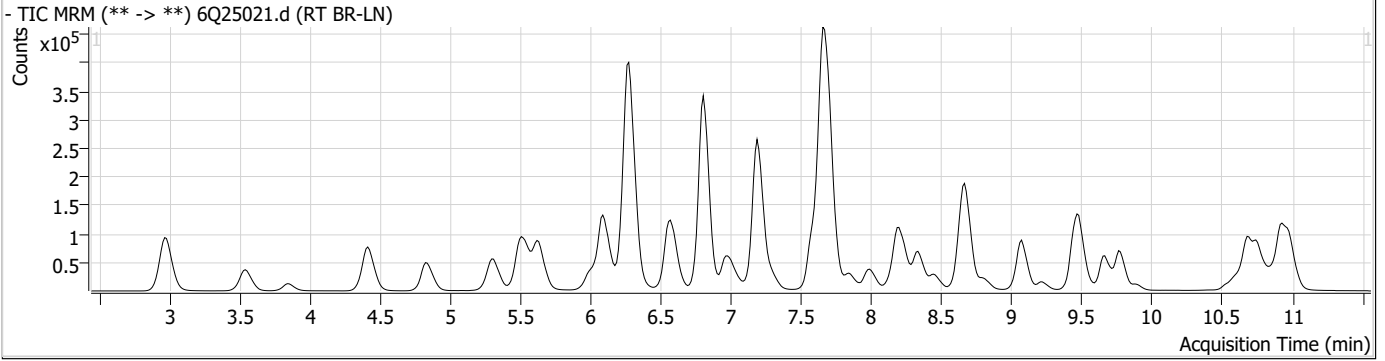
Perfluorinated Compounds by LC/MS/MS

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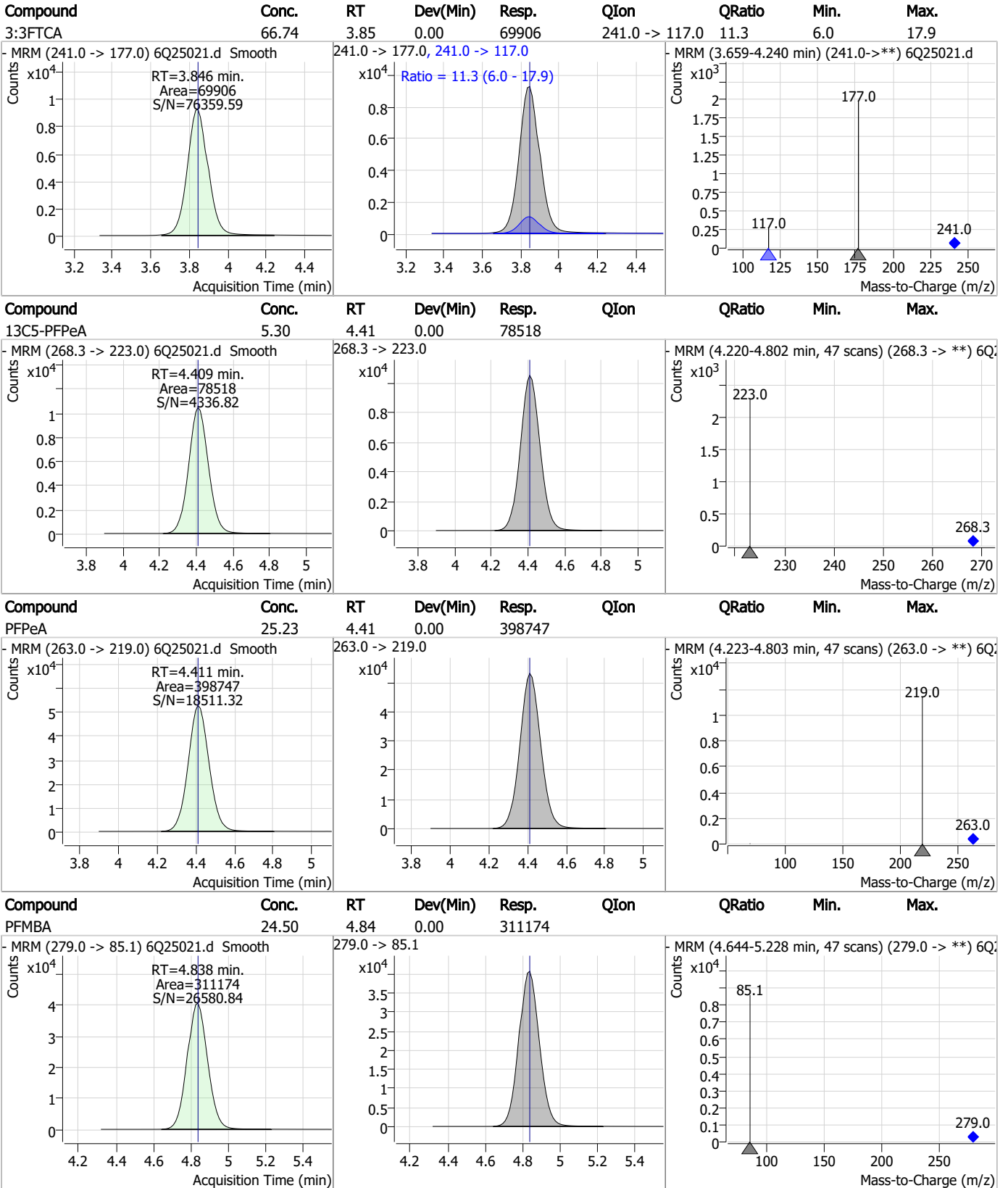
7.6.4

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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

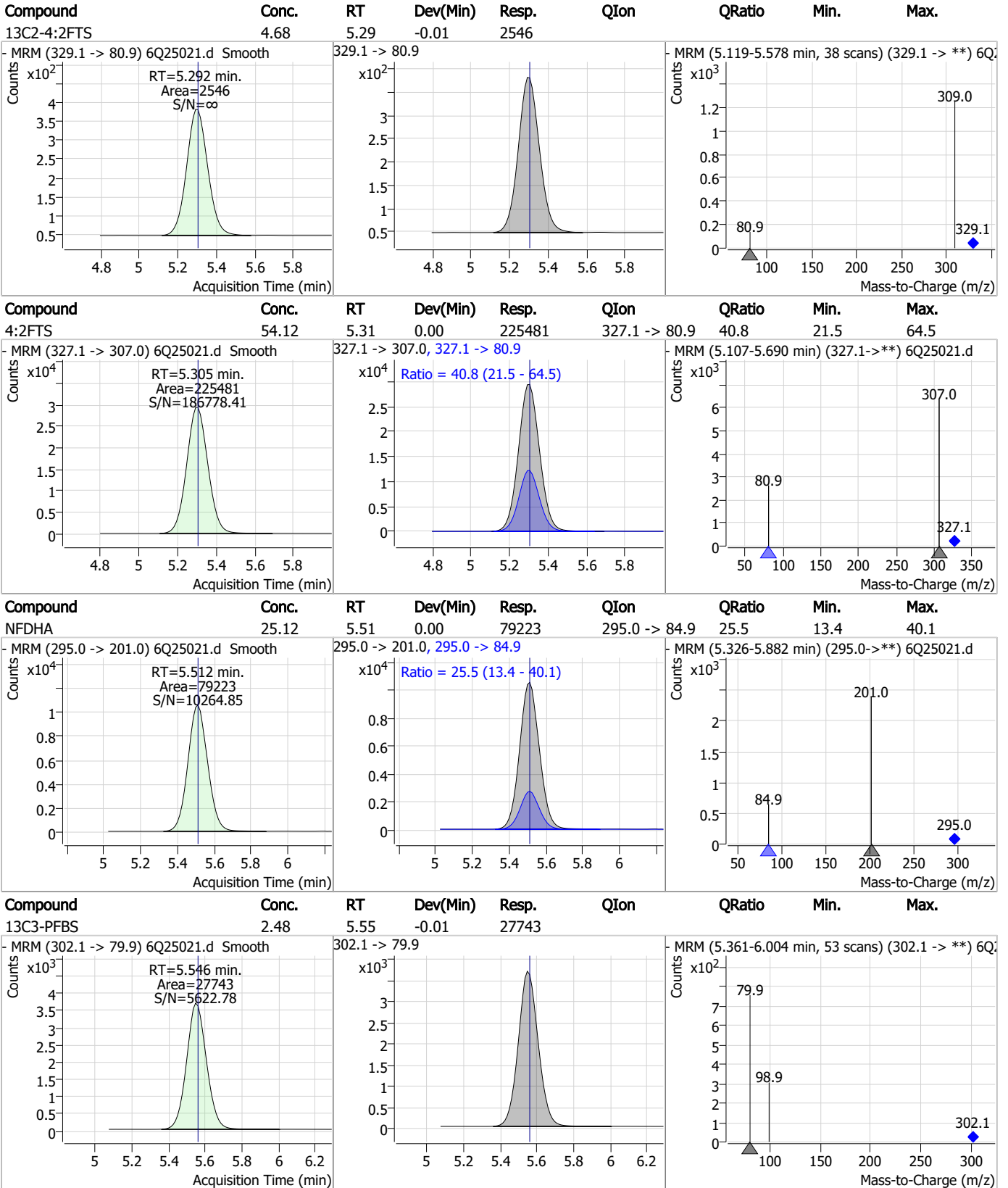


7.6.4

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Perfluorinated Compounds by LC/MS/MS

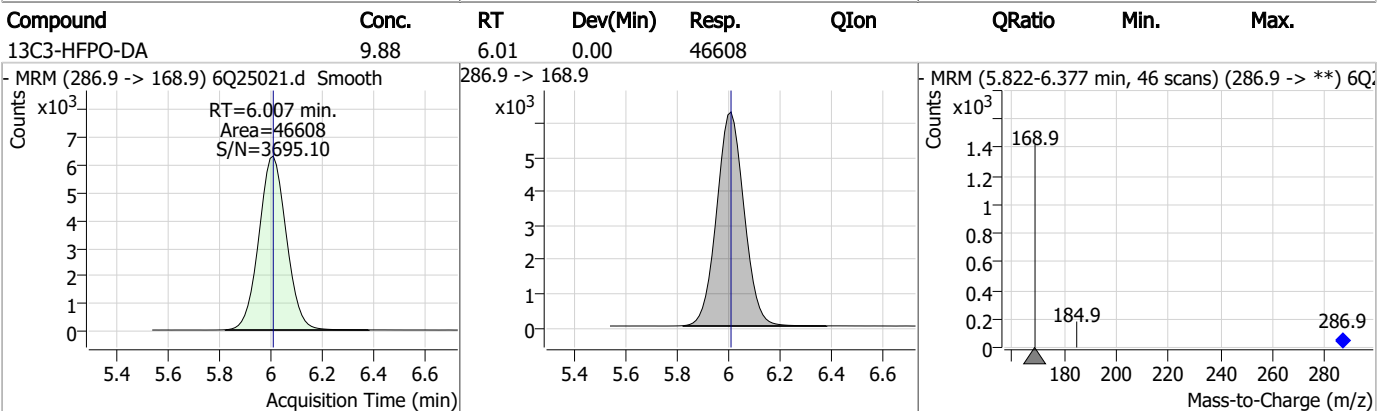
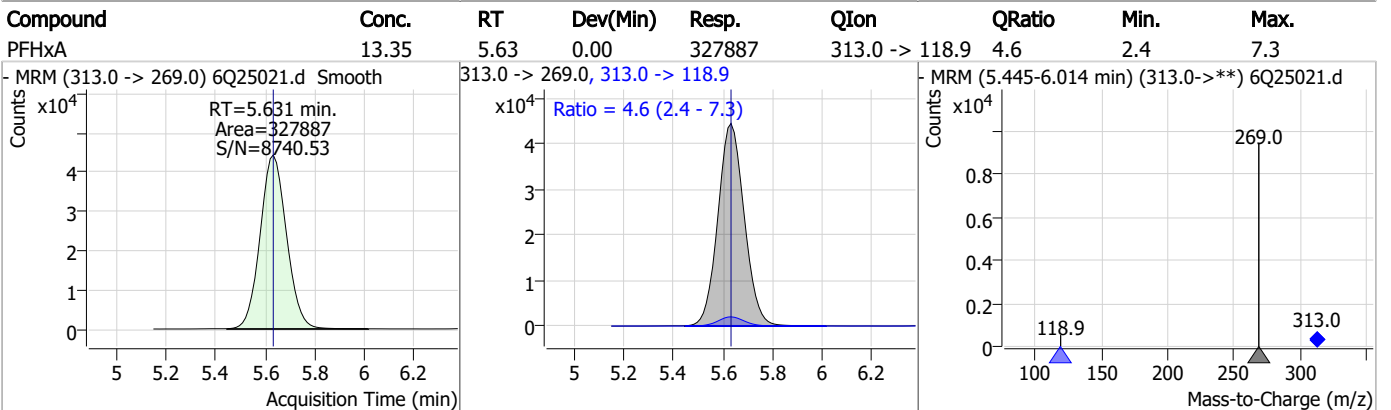
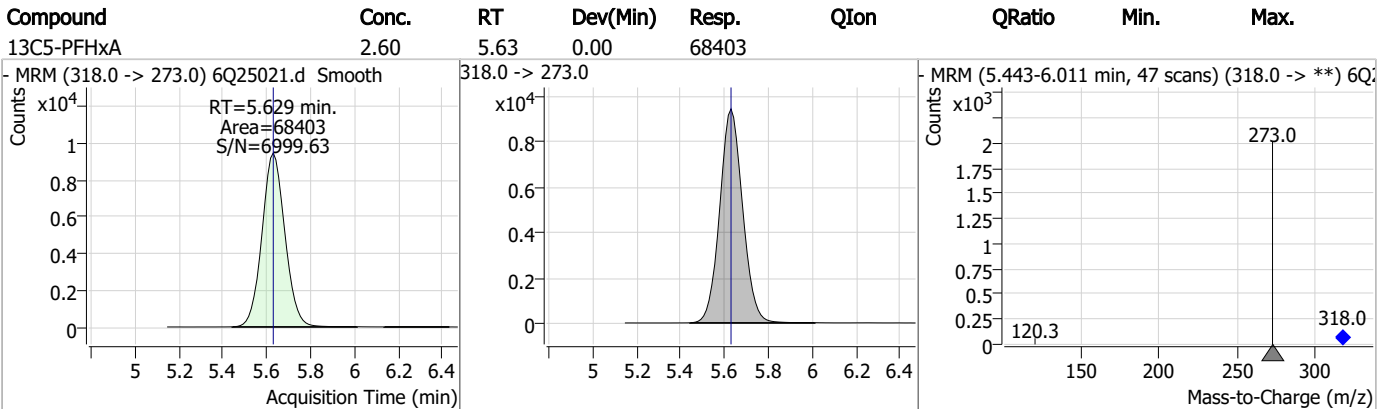
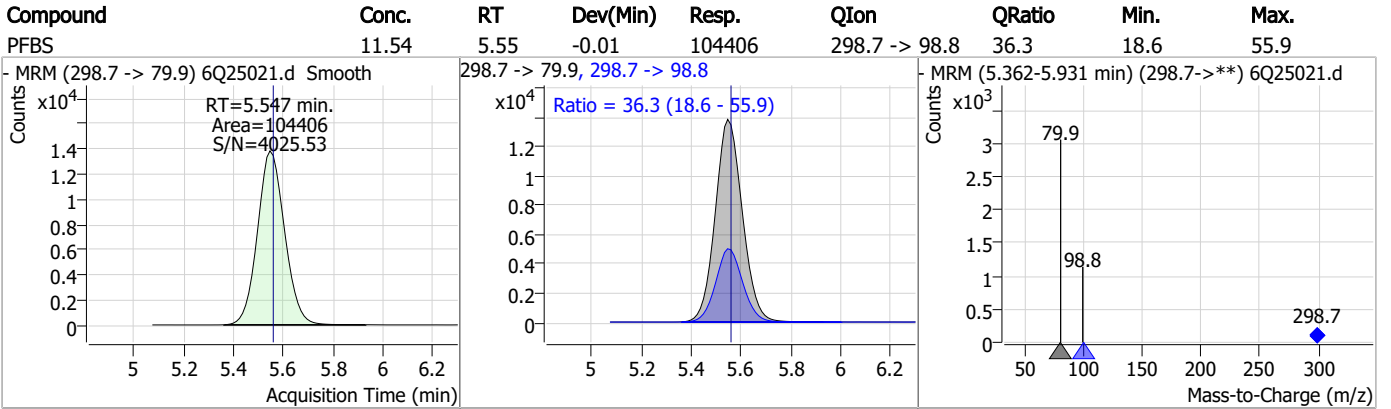


7.6.4

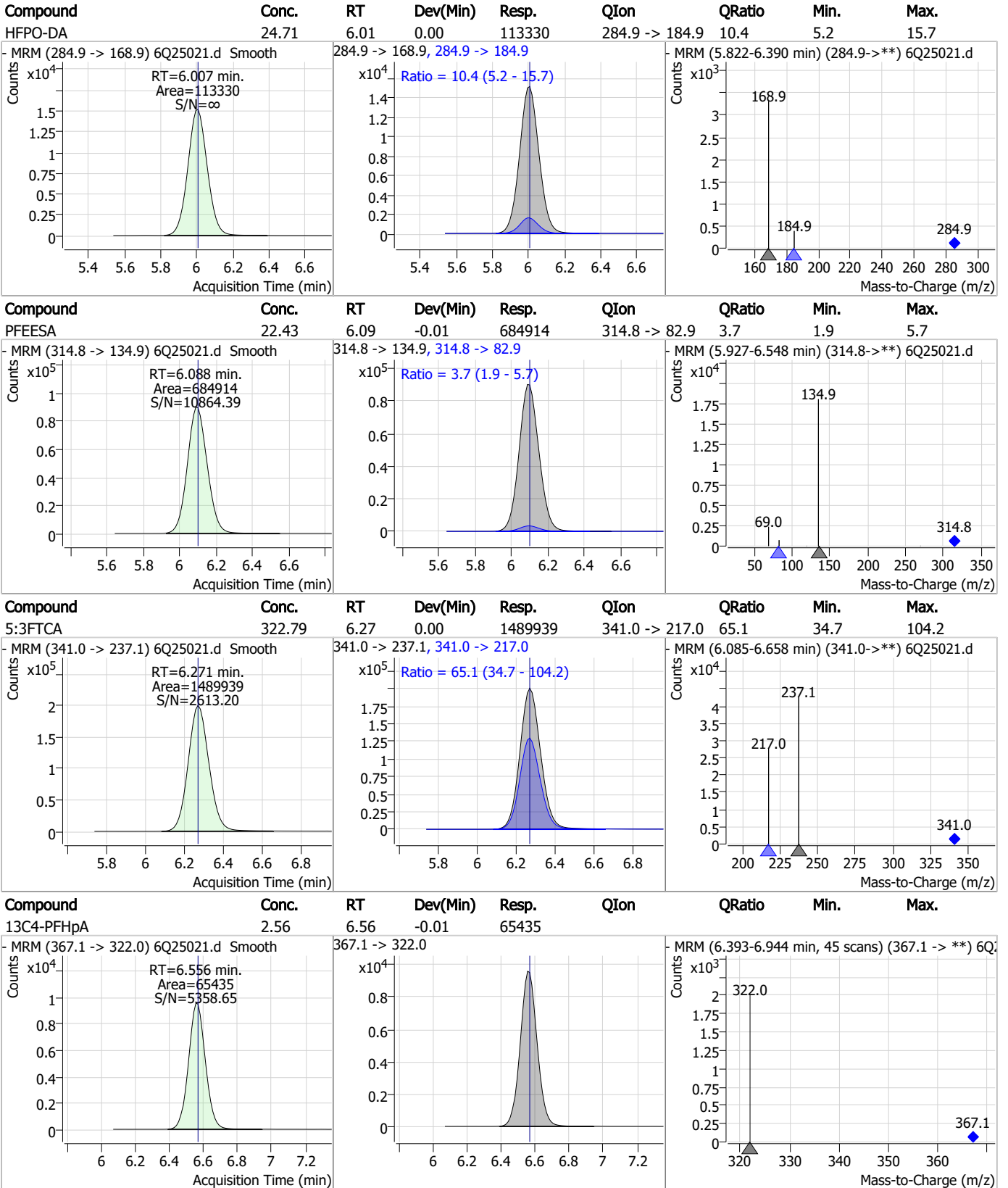
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Perfluorinated Compounds by LC/MS/MS



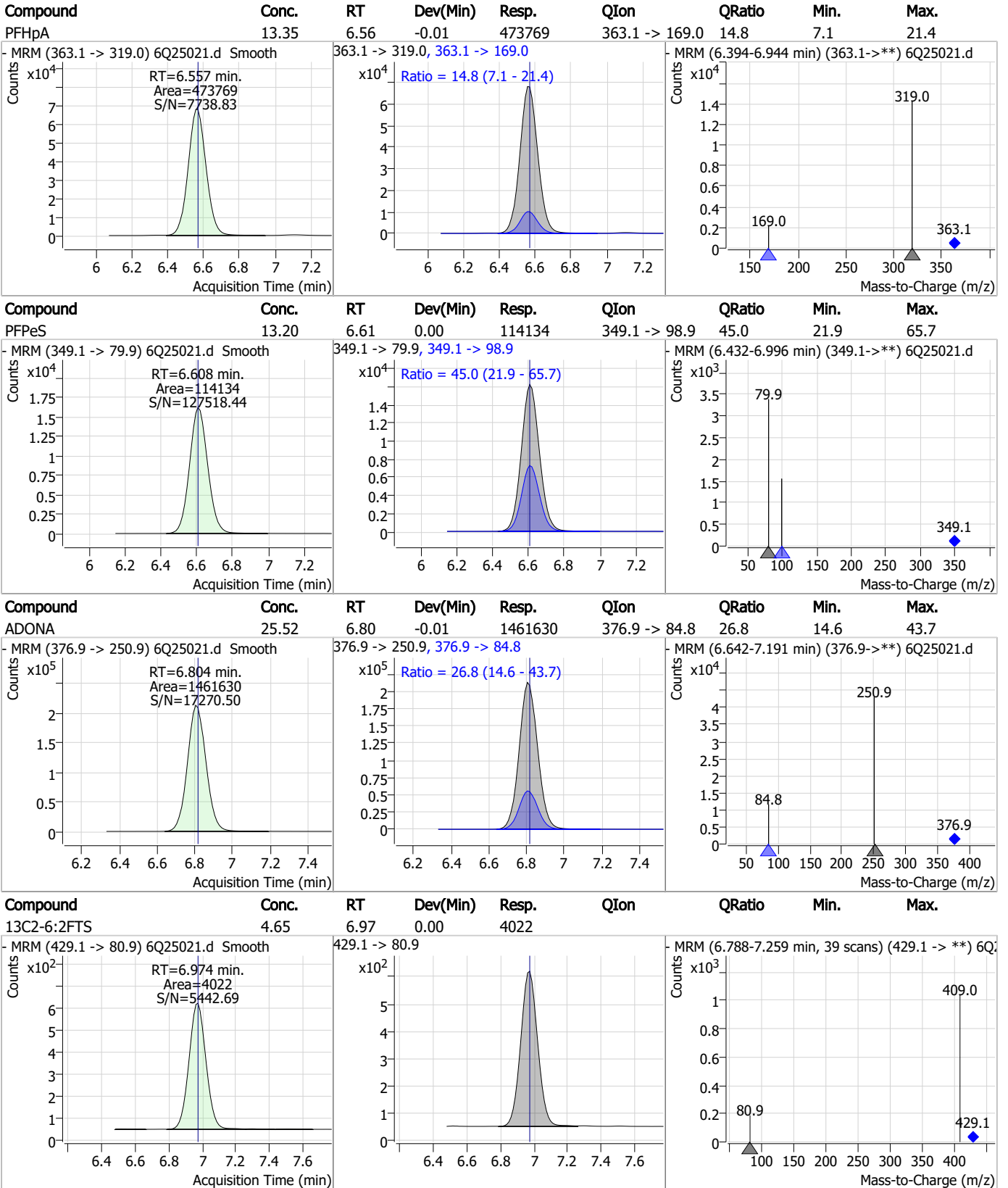
Perfluorinated Compounds by LC/MS/MS



7.6.4

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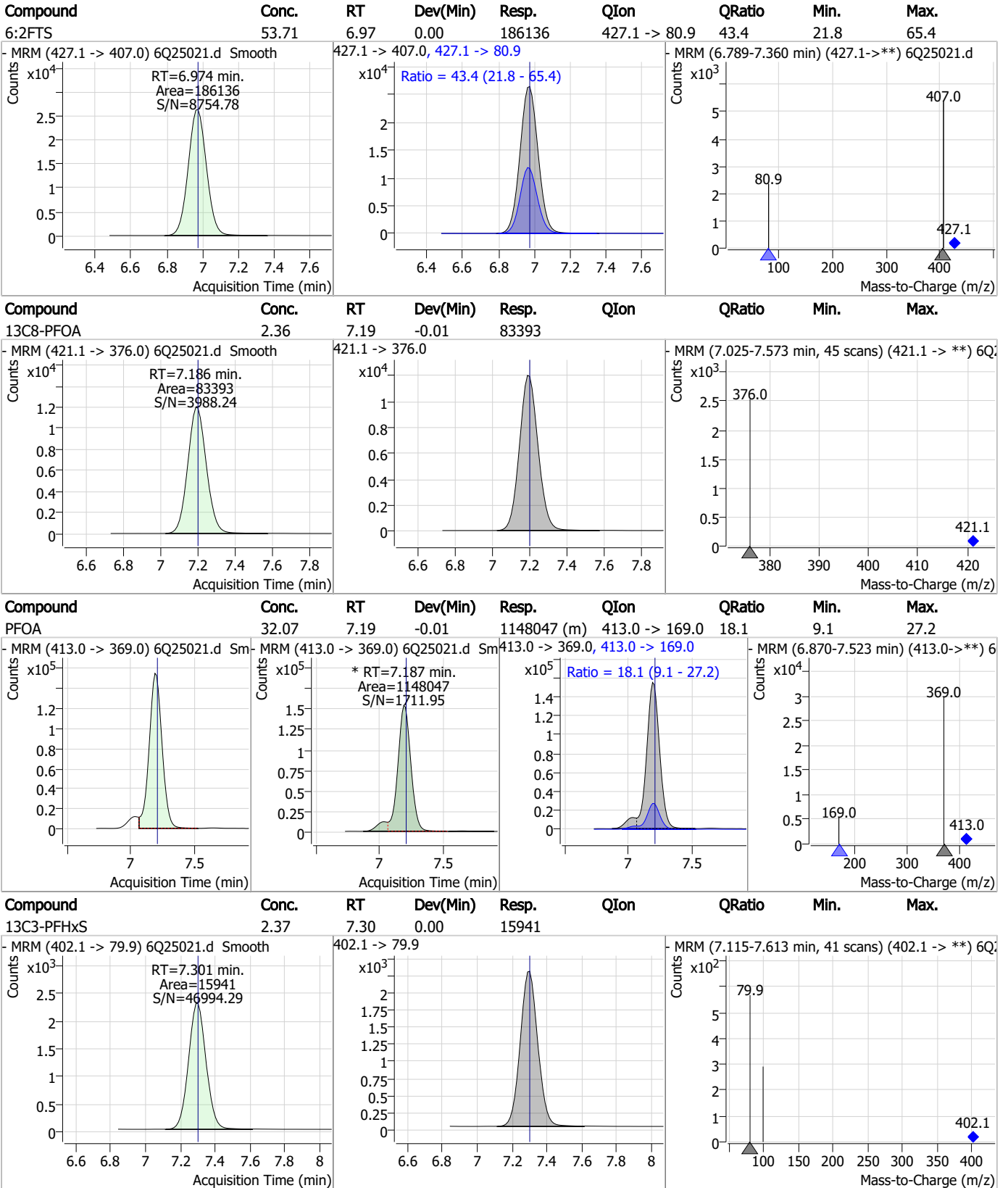
Perfluorinated Compounds by LC/MS/MS



7.6.4

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Perfluorinated Compounds by LC/MS/MS

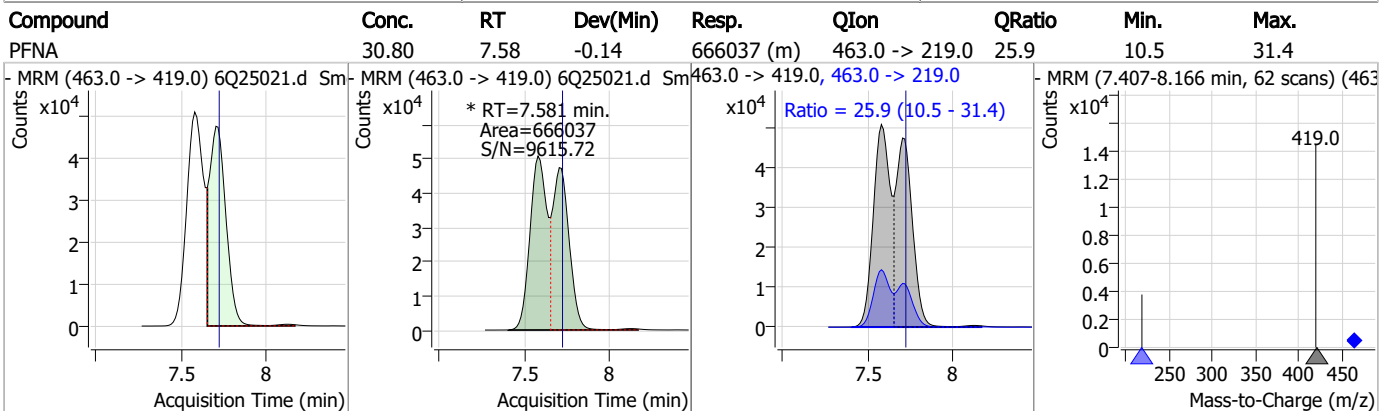
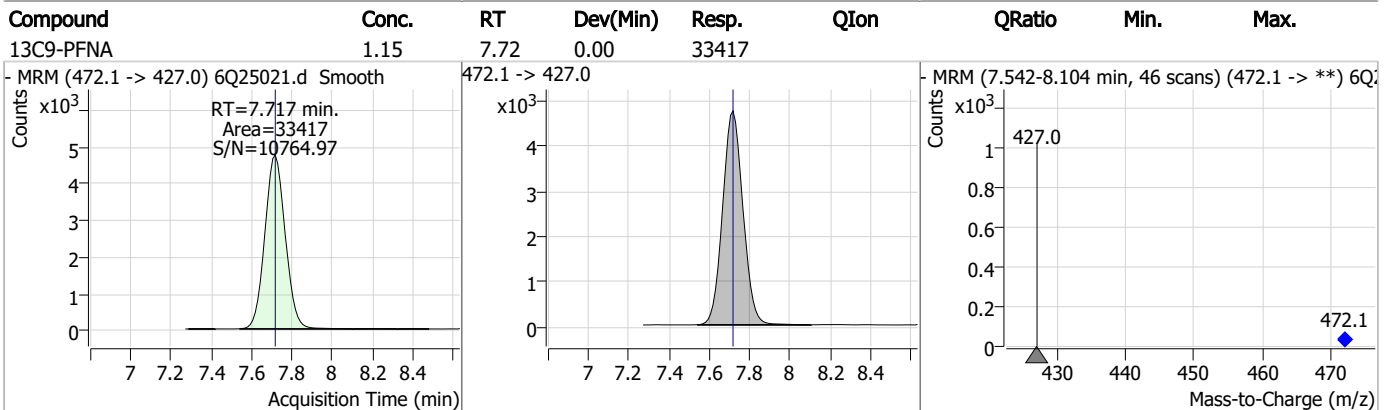
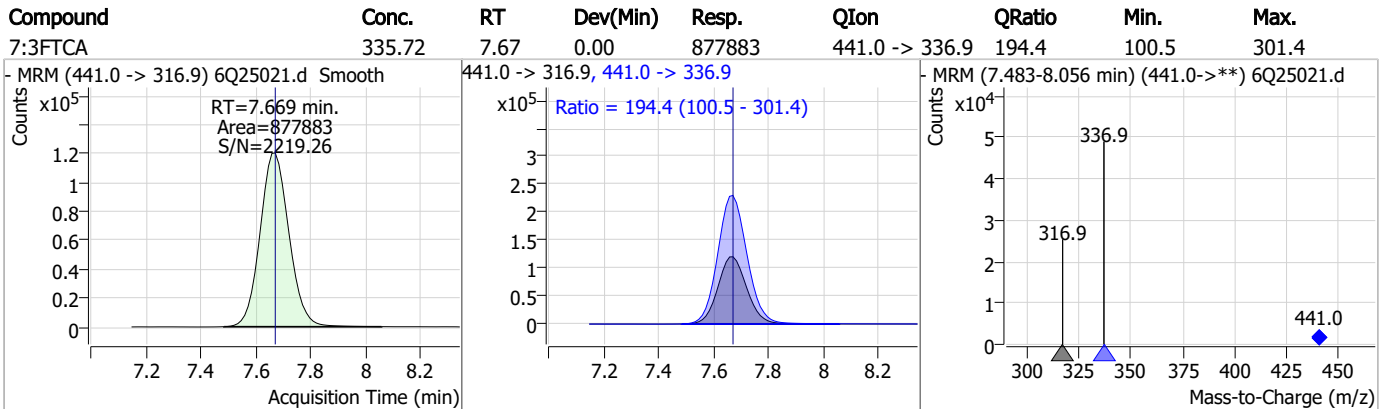
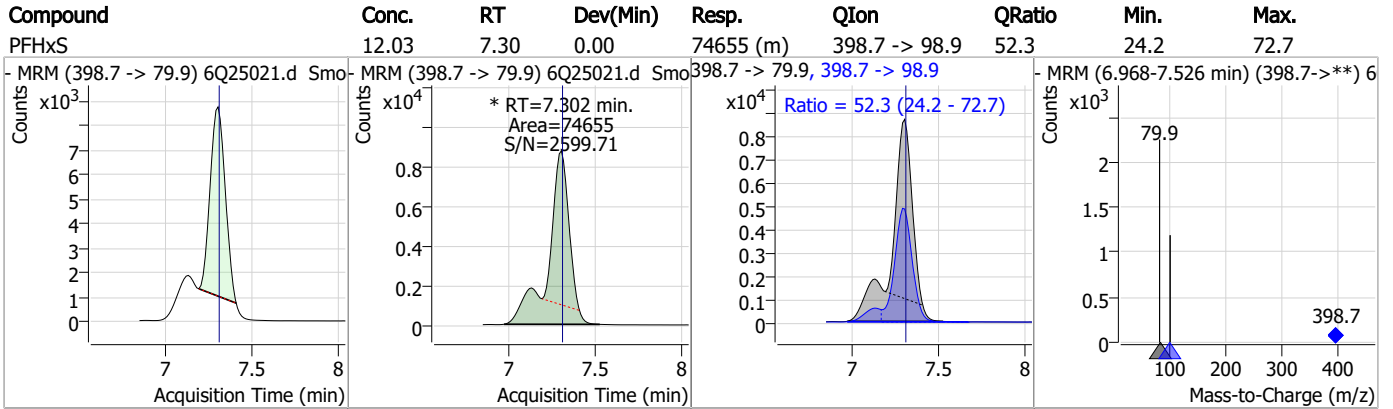


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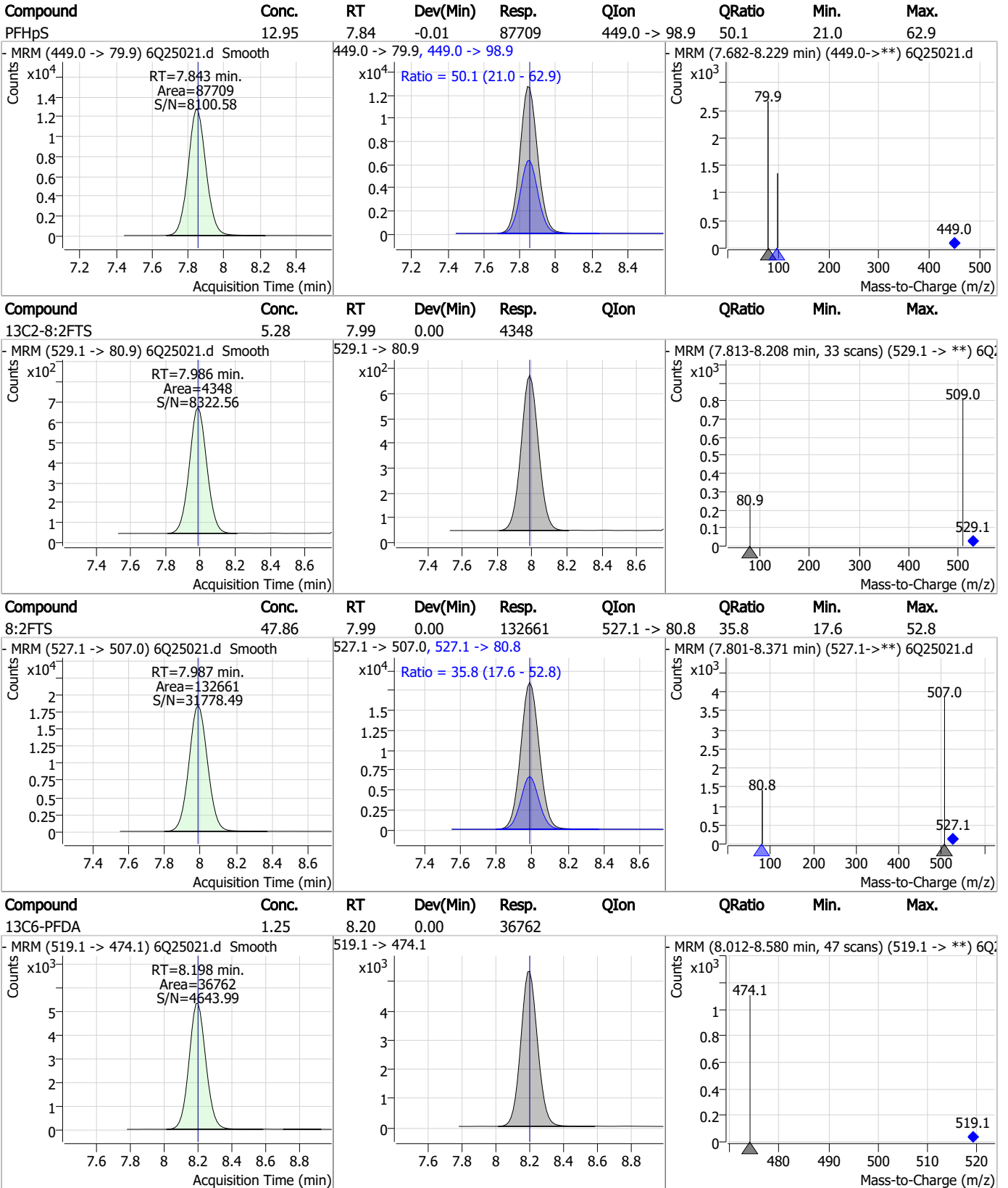
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Perfluorinated Compounds by LC/MS/MS



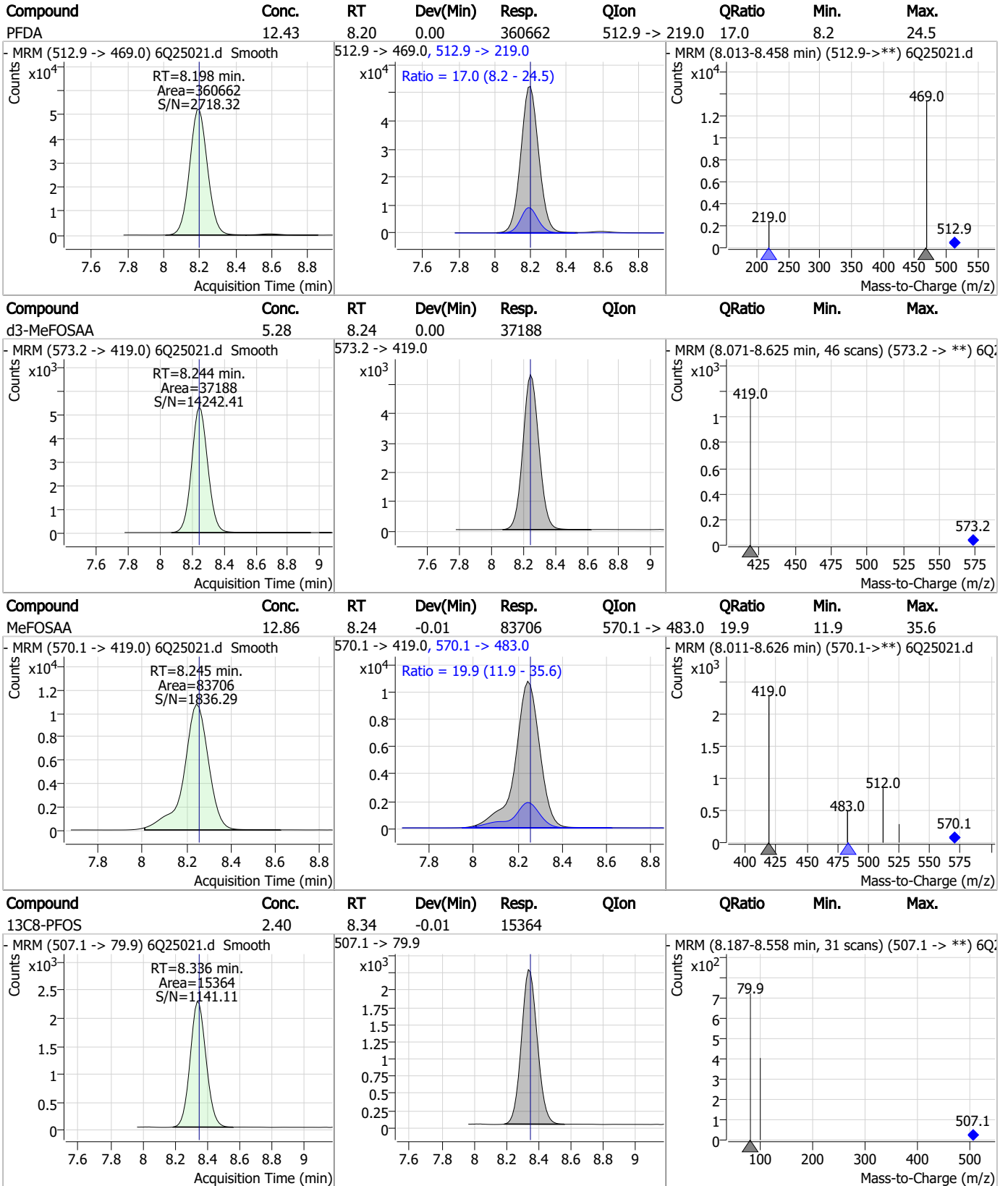
Perfluorinated Compounds by LC/MS/MS



7.6.4

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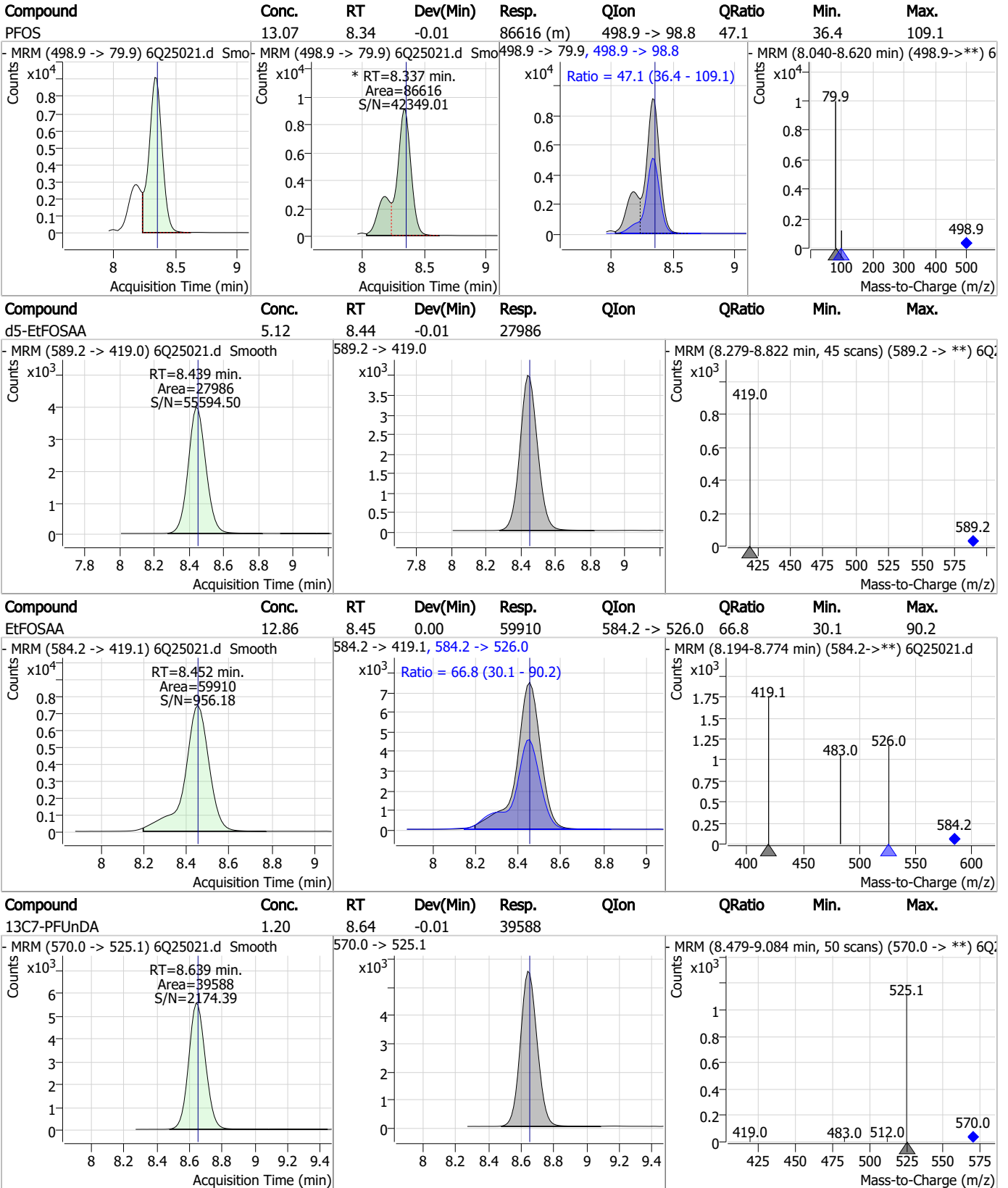
Perfluorinated Compounds by LC/MS/MS



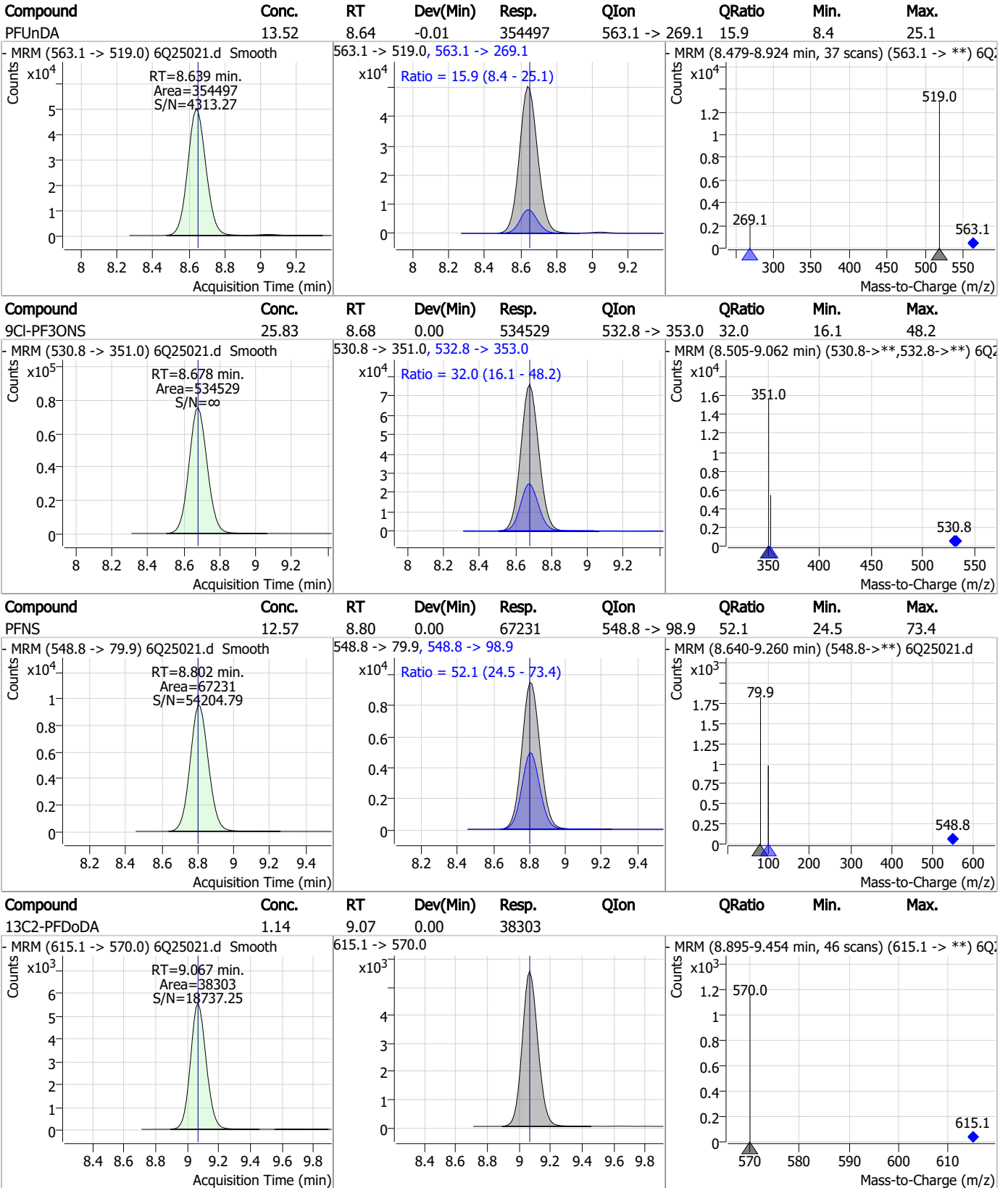
7.6.4

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Perfluorinated Compounds by LC/MS/MS



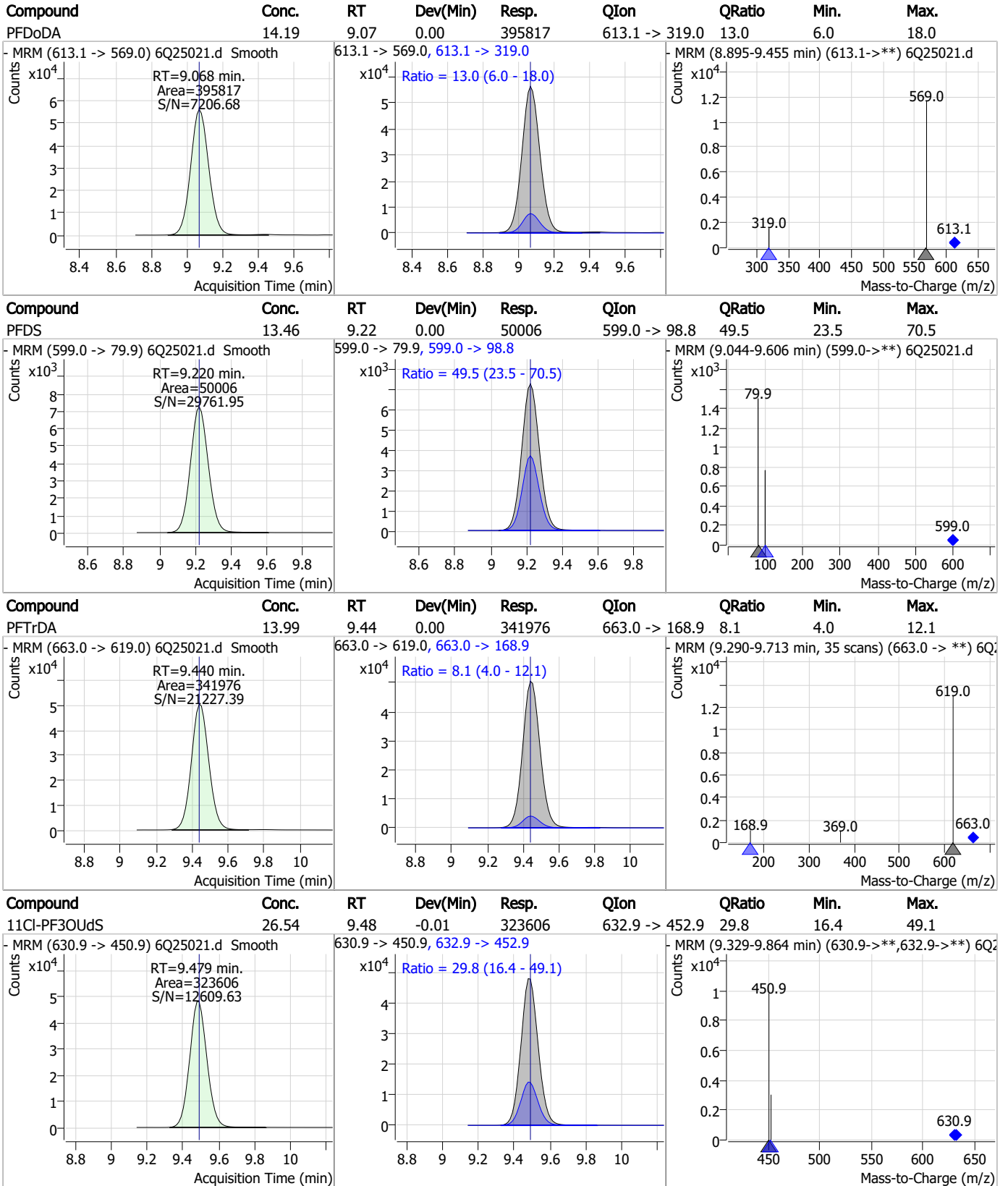
Perfluorinated Compounds by LC/MS/MS



7.6.4

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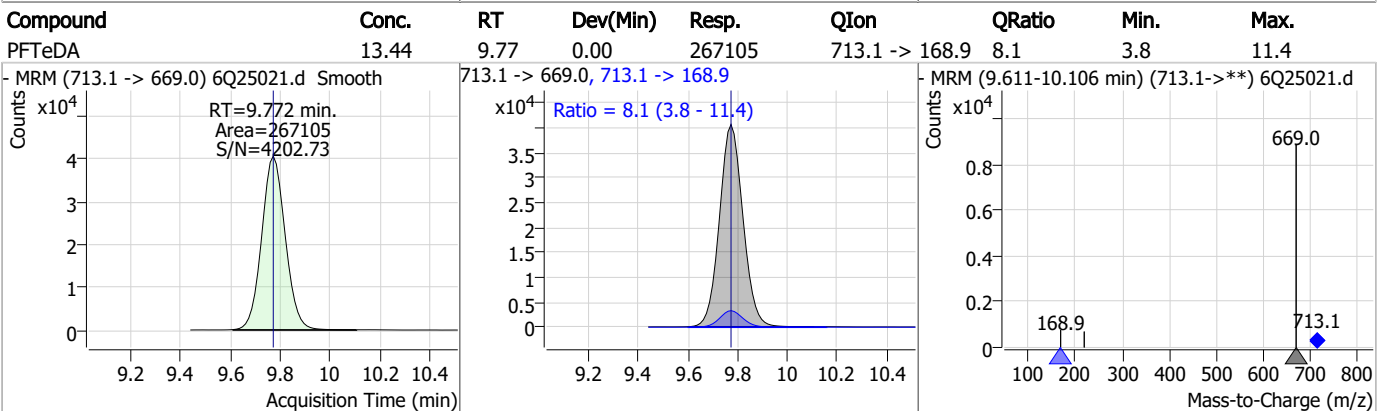
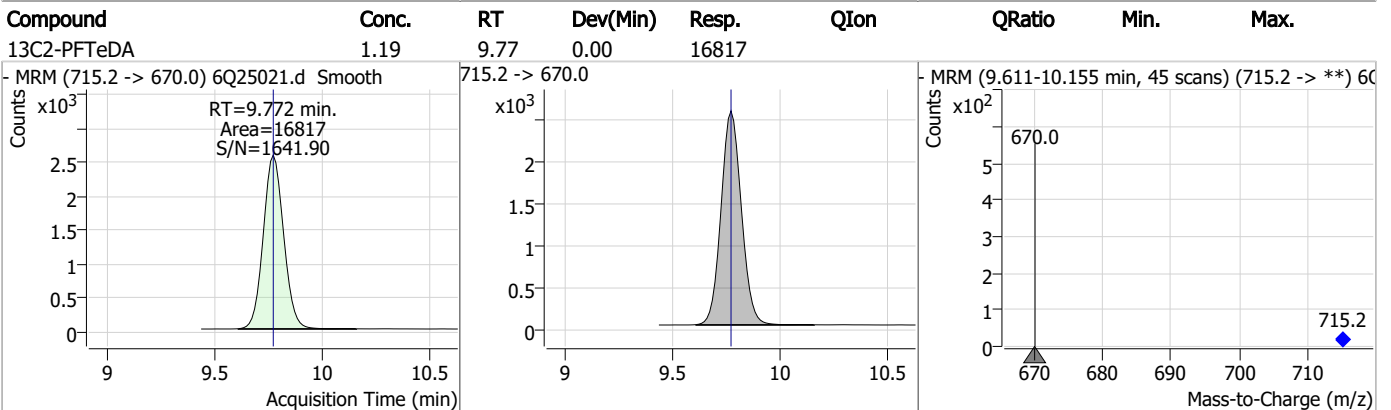
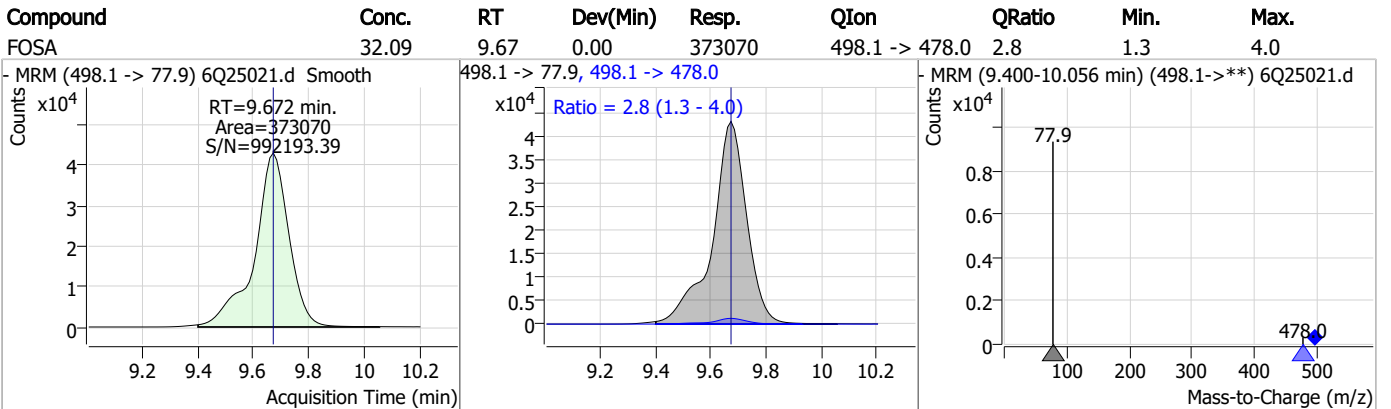
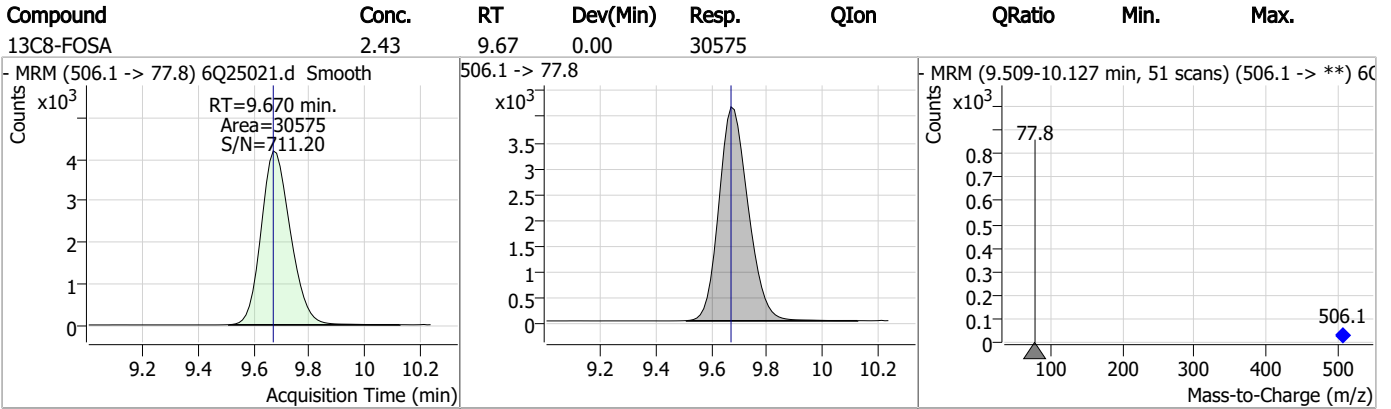
Perfluorinated Compounds by LC/MS/MS



7.6.4

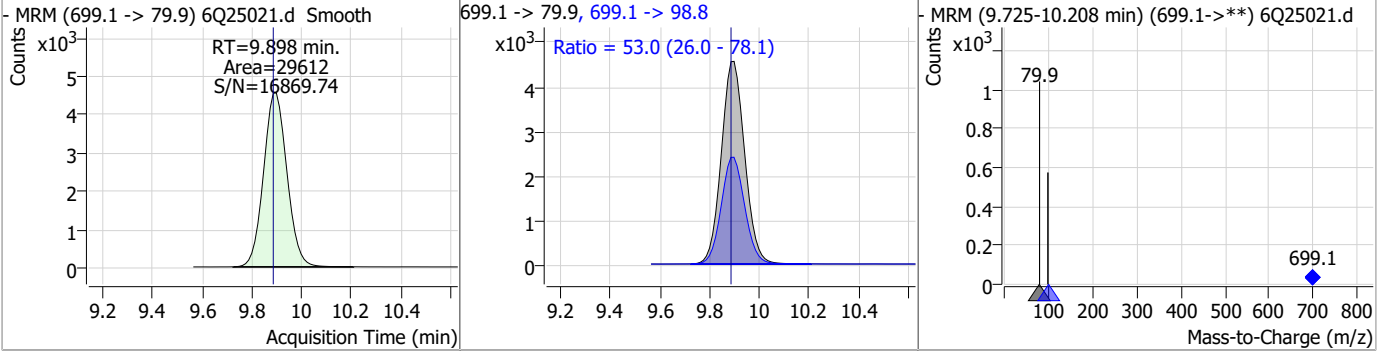
7

Perfluorinated Compounds by LC/MS/MS

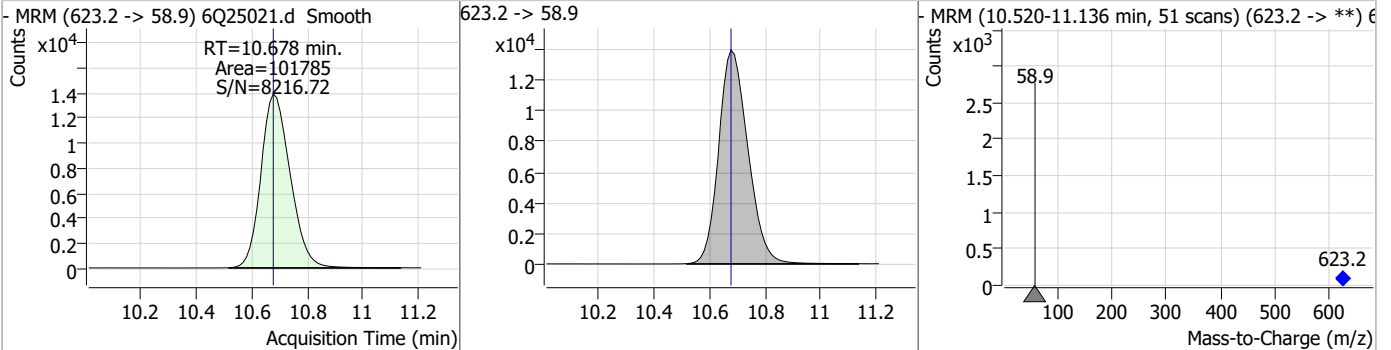


Perfluorinated Compounds by LC/MS/MS

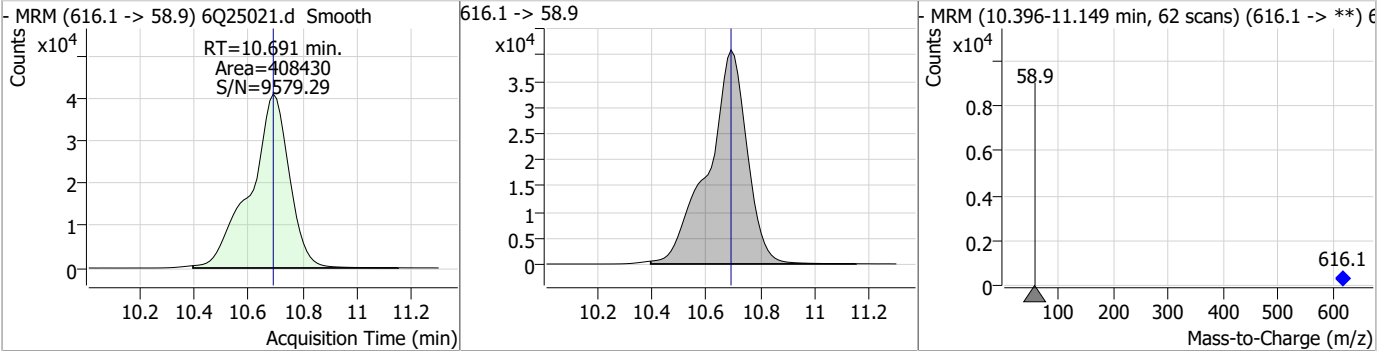
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	13.36	9.90	0.01	29612	699.1 -> 98.8	53.0	26.0	78.1



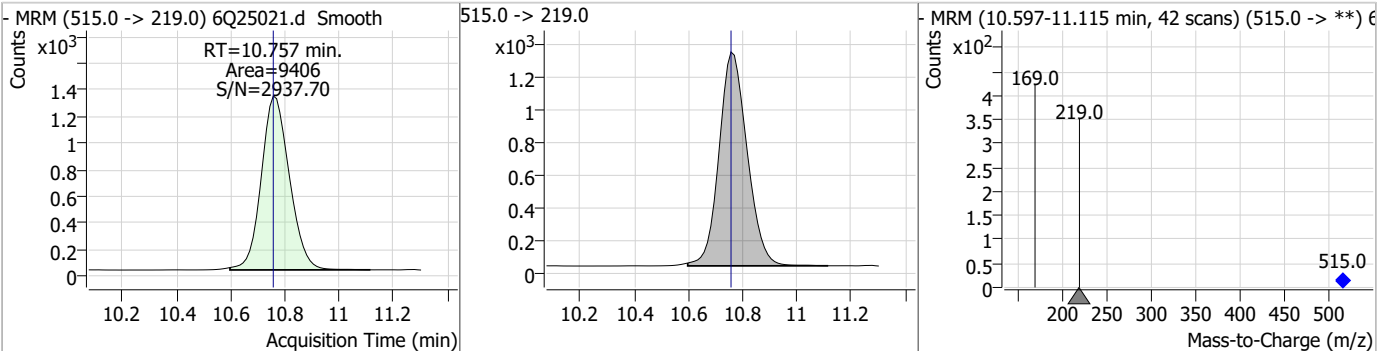
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	22.84	10.68	0.00	101785				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	90.56	10.69	0.00	408430				

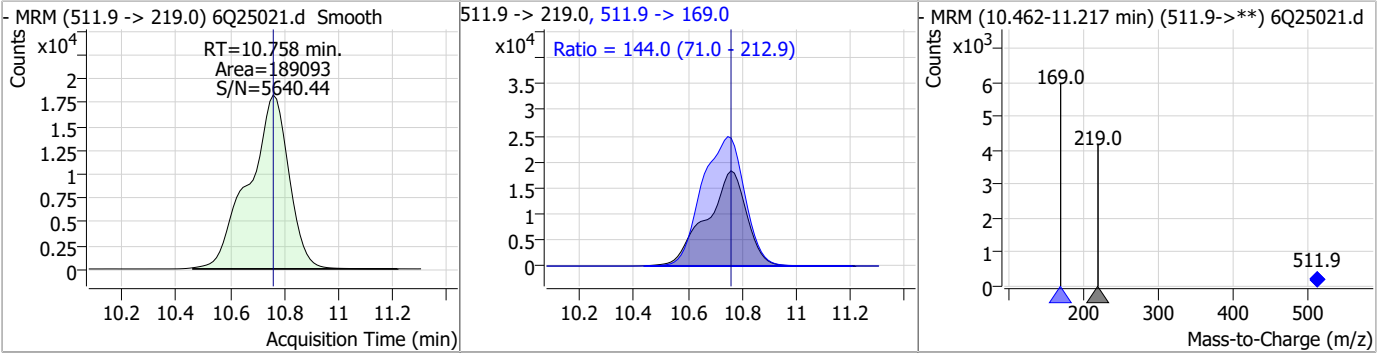


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.49	10.76	0.00	9406				

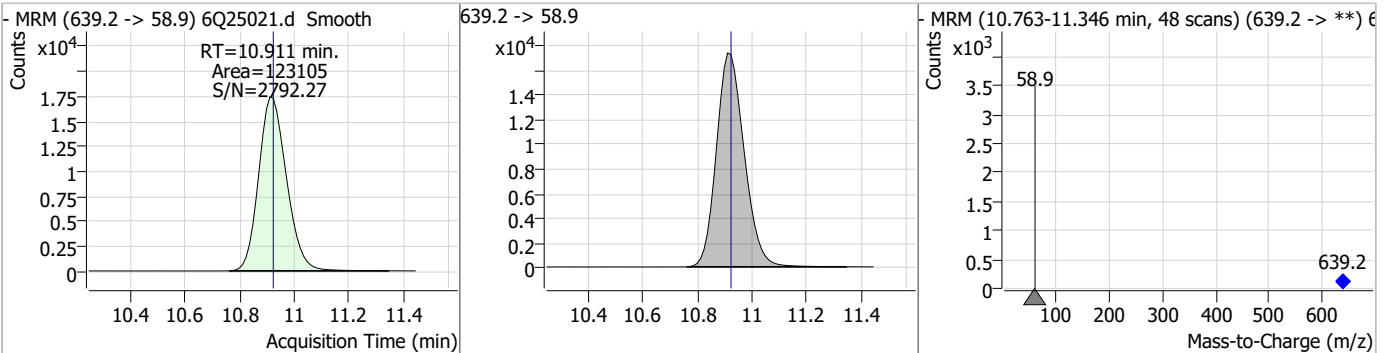


Perfluorinated Compounds by LC/MS/MS

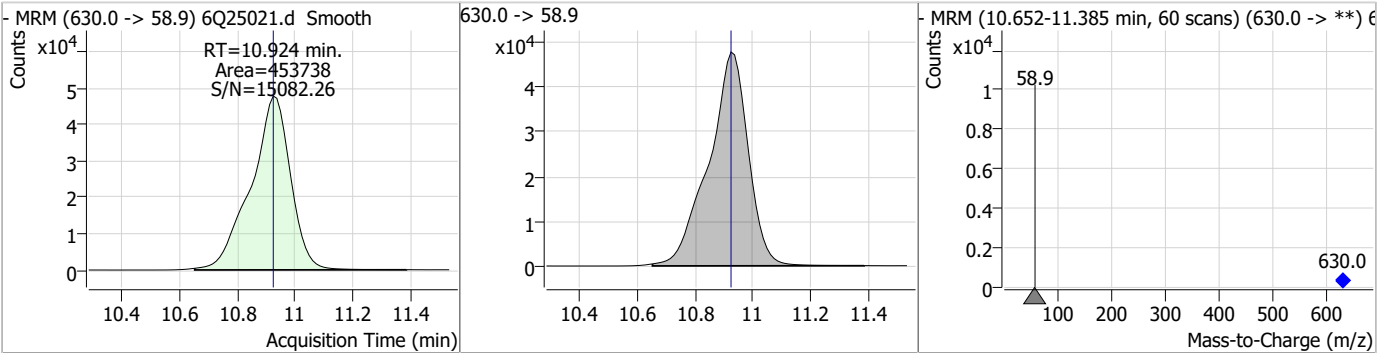
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	44.67	10.76	0.00	189093	511.9 -> 169.0	144.0	71.0	212.9



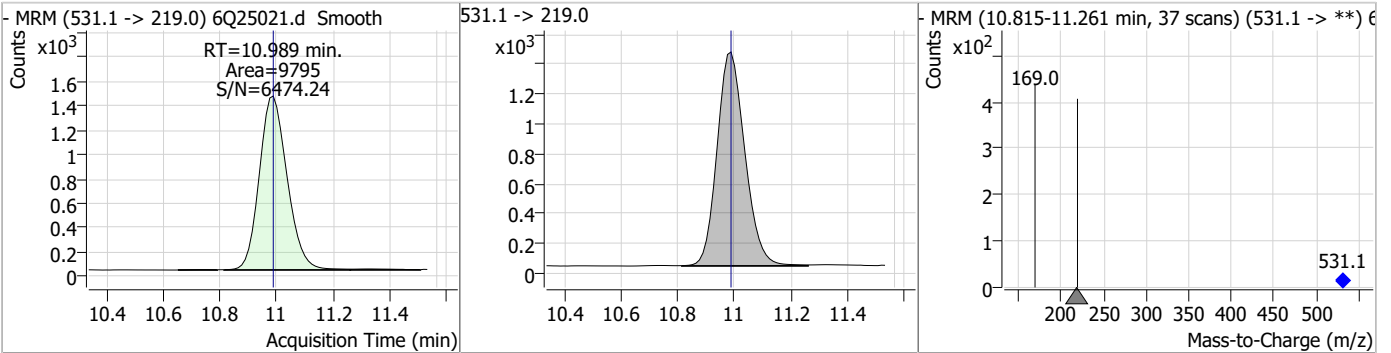
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	22.71	10.91	-0.01	123105				



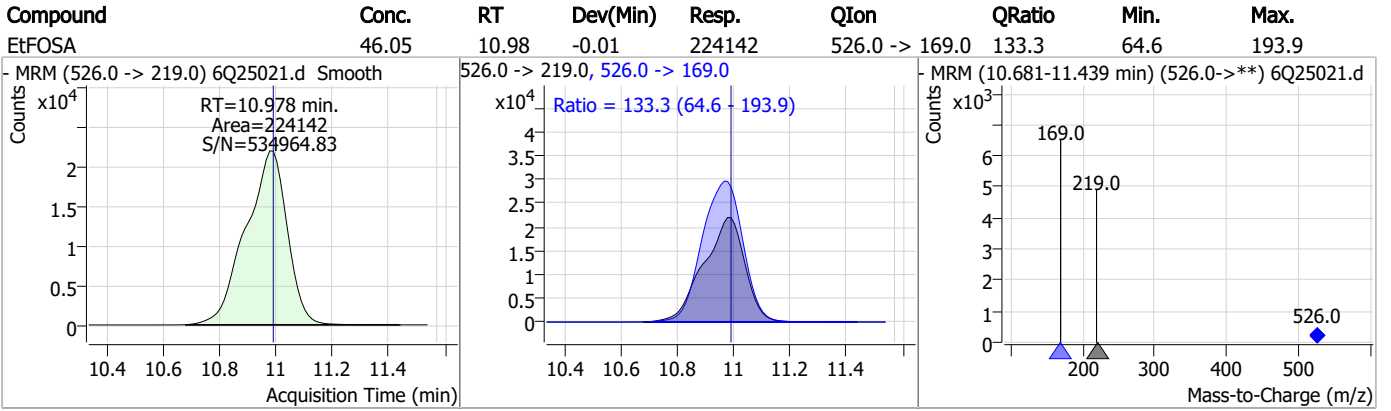
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	91.80	10.92	0.00	453738				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.46	10.99	0.00	9795				



Perfluorinated Compounds by LC/MS/MS



7.6.4

7

Manual Integration Approval Summary

Sample Number: S6Q356-RT Method: EPA DRAFT 1633
Lab FileID: 6Q25021.D Analyst approved: 09/26/23 10:09 Martha Valls
Injection Time: 09/25/23 15:24 Supervisor approved: 09/26/23 13:54 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.19	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorononanoic acid	375-95-1		7.58	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.34	Split peak

7.6.4.1
7

QQQ Check Tune Report



Instrument Name LCMS Q6
MS Model G6495B
MS Instrument Serial SG1752D103
Software_Firmware Version 10.1.67, FW: A.00.08.112
Tune Date & Time 24 September 2023 10:44:15
File Path D:\MassHunter\Tune\QQQ\G6495B\atunes.tune.xml
Ion Source AJS ESI
Ionization Mode AJS ESI
Tuned Resolution All
Vacuum Pressure 1.78E+0 [R] (Torr); 2.88E-5 [H] (Torr)

Source Parameters

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

7.7.1

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	112.99	0.00	Pass	0.70	0.72	0.02	Pass	489480
302.00	302.00	0.00	Pass	0.70	0.69	-0.01	Pass	1501108
601.98	602.00	0.02	Pass	0.70	0.67	-0.03	Pass	2835148
1033.99	1033.95	-0.04	Pass	0.70	0.63	-0.07	Pass	1893707
1633.95	1633.95	0.00	Pass	0.70	0.67	-0.03	Pass	1211147
2233.91	2233.86	-0.05	Pass	0.70	0.66	-0.04	Pass	453902

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.05	0.05	Pass	0.70	0.67	-0.03	Pass	161424
112.99	113.00	0.01	Pass	0.70	0.76	0.06	Pass	550950
302.00	302.02	0.02	Pass	0.70	0.71	0.01	Pass	1305620
601.98	602.05	0.07	Pass	0.70	0.75	0.05	Pass	2028879
1033.99	1034.06	0.07	Pass	0.70	0.59	-0.11	Pass	1219978
1633.95	1634.03	0.08	Pass	0.70	0.64	-0.06	Pass	724147
2233.91	2233.90	-0.01	Pass	0.70	0.66	-0.04	Pass	277349

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.91	-0.08	Pass	1.20	1.29	0.09	Pass	580171
302.00	301.72	-0.28	Pass	1.20	1.67	0.47	Pass	2034664
601.98	601.70	-0.28	Pass	1.20	1.77	0.57	Pass	3967155
1033.99	1033.77	-0.22	Pass	1.20	1.80	0.60	Pass	3284851
1633.95	1633.69	-0.26	Pass	1.20	1.70	0.50	Pass	2662869
2233.91	2233.55	-0.36	Pass	1.20	1.60	0.40	Pass	1360355

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	1.21	0.01	Pass	180274
112.99	112.98	-0.01	Pass	1.20	1.26	0.06	Pass	866182
302.00	301.89	-0.11	Pass	1.20	1.28	0.08	Pass	2075272
601.98	602.06	0.08	Pass	1.20	1.19	-0.01	Pass	3891138
1033.99	1033.96	-0.03	Pass	1.20	1.35	0.15	Pass	1959228
1633.95	1633.98	0.03	Pass	1.20	1.31	0.11	Pass	1576138
2233.91	2233.92	0.01	Pass	1.20	1.20	0.00	Pass	660842

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.82	-0.17	Pass	2.50	2.75	0.25	Pass	644803
302.00	301.77	-0.23	Pass	2.50	3.03	0.53	Pass	2136322
601.98	601.65	-0.33	Pass	2.50	3.12	0.62	Pass	4879731
1033.99	1033.67	-0.32	Pass	2.50	3.09	0.59	Pass	4254316
1633.95	1633.65	-0.30	Pass	2.50	3.14	0.64	Pass	4572286
2233.91	2233.60	-0.31	Pass	2.50	2.91	0.41	Pass	2908777

Analyzer: MS2 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.00	0.00	Pass	2.50	2.52	0.02	Pass	240245
112.99	113.00	0.01	Pass	2.50	2.53	0.03	Pass	1167022
302.00	301.86	-0.14	Pass	2.50	2.71	0.21	Pass	2365328
601.98	602.04	0.06	Pass	2.50	2.78	0.28	Pass	4621654
1033.99	1033.95	-0.04	Pass	2.50	2.86	0.36	Pass	2941626
1633.95	1633.97	0.02	Pass	2.50	2.70	0.20	Pass	3455931
2233.91	2233.90	-0.01	Pass	2.50	2.72	0.22	Pass	2199732

7.7.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24919.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/24/2023 3:00:01 PM
 Sample Name : ic356-1
 Vial : P1-A2
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	185123	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	75017	5.00 µg/L	0.000
M5-PFHxA	5.629	318.0 -> 273.0	65393	2.50 µg/L	0.000
M4-PFHpA	6.556	367.1 -> 322.0	62953	2.50 µg/L	-0.012
M8-PFOA	7.186	421.1 -> 376.0	87299	2.50 µg/L	-0.012
M9-PFNA	7.717	472.1 -> 427.0	35199	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	35287	1.25 µg/L	0.000
M7-PFUnDA	8.639	570.0 -> 525.1	39681	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	38439	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	16656	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	30694	2.50 µg/L	0.000
M3-PFBS	5.546	302.1 -> 79.9	29355	2.50 µg/L	-0.013
M3-PFHxS	7.289	402.1 -> 79.9	17816	2.50 µg/L	-0.012
M8-PFOS	8.348	507.1 -> 79.9	15633	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	3133	5.00 µg/L	0.000
M2-6:2FTS	6.961	429.1 -> 80.9	4559	5.00 µg/L	-0.012
M2-8:2FTS	7.986	529.1 -> 80.9	4534	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	35385	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	46307	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	27673	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	113467	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	136310	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	10127	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9231	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	14481	2.50 µg/L	0.000
13C3-PFBA	2.976	216.0 -> 172.0	75950	5.00 µg/L	0.000
18O2-PFHxS	7.288	403.0 -> 83.9	11053	2.50 µg/L	-0.012
13C4-PFOA	7.187	417.1 -> 372.0	100205	2.50 µg/L	-0.012
13C2-PFDA	8.198	515.1 -> 470.1	33169	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	34823	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	63468	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	3133	5.54 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.9%		
13C2-6:2FTS	6.961	429.1 -> 80.9	4559	5.07 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.4%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4534	5.30 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C2-PFDoDA	9.067	615.1 -> 570.0	38439	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C2-PFTeDA	9.772	715.2 -> 670.0	16656	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C3-PFBS	5.546	302.1 -> 79.9	29355	2.53 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.1%		
13C3-PFHxS	7.289	402.1 -> 79.9	17816	2.55 µg/L	-0.012

7.7.2
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C4-PFBA	2.972	216.8 -> 171.9	185123	10.09 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C4-PFHpA	6.556	367.1 -> 322.0	62953	2.43 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.2%		
13C5-PFHxA	5.629	318.0 -> 273.0	65393	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C5-PFPeA	4.409	268.3 -> 223.0	75017	4.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C6-PFDA	8.198	519.1 -> 474.1	35287	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C7-PFUnDA	8.639	570.0 -> 525.1	39681	1.27 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C8-FOSA	9.670	506.1 -> 77.8	30694	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C8-PFOA	7.186	421.1 -> 376.0	87299	2.51 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C8-PFOS	8.348	507.1 -> 79.9	15633	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C9-PFNA	7.717	472.1 -> 427.0	35199	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.6%		
d3-MeFOSAA	8.244	573.2 -> 419.0	35385	5.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C3-HFPO-DA	6.007	286.9 -> 168.9	46307	9.68 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 96.8%		
d3-MeFOSA	10.757	515.0 -> 219.0	9231	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.3%		
d5-EtFOSAA	8.452	589.2 -> 419.0	27673	5.19 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.8%		
d7-MeFOSE	10.678	623.2 -> 58.9	113467	26.12 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 104.5%		
d9-EtFOSE	10.923	639.2 -> 58.9	136310	25.79 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 103.2%		
d5-EtFOSA	10.989	531.1 -> 219.0	10127	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.6%		
Target Compounds					QValue
4:2FTS	5.293	327.1 -> 307.0	3317	0.65 µg/L	99
		327.1 -> 80.9	1407		
6:2FTS	6.962	427.1 -> 407.0	2923	0.74 µg/L	99
		427.1 -> 80.9	1300		
8:2FTS	7.987	527.1 -> 507.0	1905	0.66 µg/L	89
		527.1 -> 80.8	792		
EtFOSAA	8.452	584.2 -> 419.1	865	0.19 µg/L	m 86
		584.2 -> 526.0	614		
FOSA	9.672	498.1 -> 77.9	2179	0.19 µg/L	99
		498.1 -> 478.0	65		
MeFOSAA	8.245	570.1 -> 419.0	1216	0.20 µg/L	95
		570.1 -> 483.0	259		
PFBA	2.981	212.8 -> 168.9	4845	0.73 µg/L	100
PFBS	5.547	298.7 -> 79.9	1591	0.17 µg/L	93
		298.7 -> 98.8	527		
PFDA	8.186	512.9 -> 469.0	5195	0.19 µg/L	96
		512.9 -> 219.0	761		
PFDODA	9.068	613.1 -> 569.0	5414	0.19 µg/L	98
		613.1 -> 319.0	600		
PFDS	9.220	599.0 -> 79.9	658	0.17 µg/L	88

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	363			
PFHpA	6.569	363.1 -> 319.0	6451	0.19	µg/L	98
		363.1 -> 169.0	973			
PFHpS	7.843	449.0 -> 79.9	1124	0.16	µg/L	86
		449.0 -> 98.9	571			
PFHxA	5.631	313.0 -> 269.0	4323	0.18	µg/L	98
		313.0 -> 118.9	182			
PFHxS	7.290	398.7 -> 79.9	1129	0.16	µg/L	m 99
		398.7 -> 98.9	535			
PFNA	7.717	463.0 -> 419.0	4187	0.18	µg/L	89
		463.0 -> 219.0	1098			
PFNS	8.802	548.8 -> 79.9	991	0.18	µg/L	93
		548.8 -> 98.9	533			
PFOA	7.187	413.0 -> 369.0	7046	0.19	µg/L	97
		413.0 -> 169.0	1192			
PFOS	8.337	498.9 -> 79.9	1214	0.18	µg/L	m 67
		498.9 -> 98.8	549			
PFPeA	4.411	263.0 -> 219.0	5476	0.36	µg/L	100
PFPeS	6.608	349.1 -> 79.9	1674	0.17	µg/L	98
		349.1 -> 98.9	757			
PFTeDA	9.772	713.1 -> 669.0	3636	0.18	µg/L	99
		713.1 -> 168.9	293			
PFTrDA	9.440	663.0 -> 619.0	4544	0.19	µg/L	98
		663.0 -> 168.9	408			
PFUnDA	8.652	563.1 -> 519.0	4687	0.18	µg/L	95
		563.1 -> 269.1	685			
11Cl-PF3OUdS	9.479	630.9 -> 450.9	4256	0.35	µg/L	98
		632.9 -> 452.9	1337			
9Cl-PF3ONS	8.678	530.8 -> 351.0	6771	0.33	µg/L	82
		532.8 -> 353.0	1498			
ADONA	6.804	376.9 -> 250.9	19111	0.34	µg/L	97
		376.9 -> 84.8	5858			
HFPO-DA	6.007	284.9 -> 168.9	1821	0.40	µg/L	99
		284.9 -> 184.9	201			
3:3FTCA	3.846	241.0 -> 177.0	998	0.93	µg/L	98
		241.0 -> 117.0	112			
5:3FTCA	6.271	341.0 -> 237.1	21218	4.81	µg/L	99
		341.0 -> 217.0	14889			
7:3FTCA	7.669	441.0 -> 316.9	11151	4.46	µg/L	95
		441.0 -> 336.9	23287			
EtFOSA	10.990	526.0 -> 219.0	1778	0.35	µg/L	99
		526.0 -> 169.0	2276			
EtFOSE	10.924	630.0 -> 58.9	5164	0.94	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	1613	0.39	µg/L	90
		511.9 -> 169.0	2097			
MeFOSE	10.691	616.1 -> 58.9	4401	0.88	µg/L	100
PFDoDS	9.898	699.1 -> 79.9	435	0.19	µg/L	88
		699.1 -> 98.8	264			
NFDHA	5.512	295.0 -> 201.0	1308	0.43	µg/L	97
		295.0 -> 84.9	328			
PFMBA	4.838	279.0 -> 85.1	4449	0.37	µg/L	100
PFMPA	3.538	229.0 -> 84.9	3223	0.36	µg/L	100
PFEESA	6.100	314.8 -> 134.9	9946	0.34	µg/L	98
		314.8 -> 82.9	299			

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

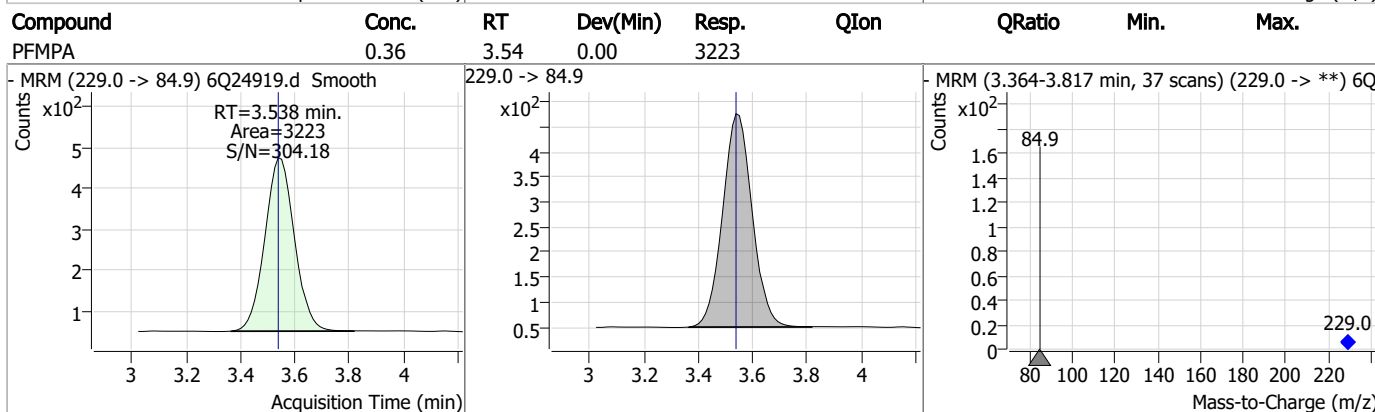
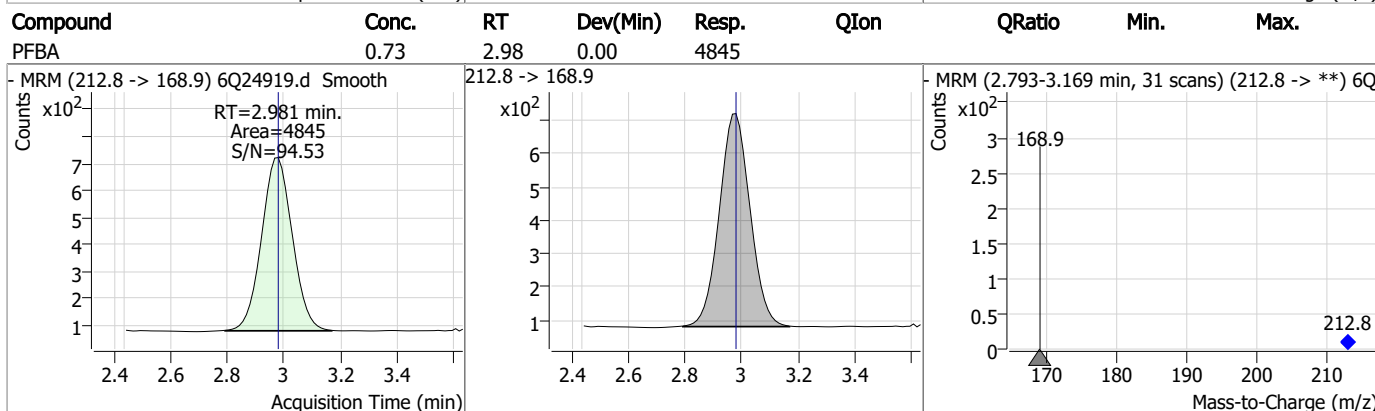
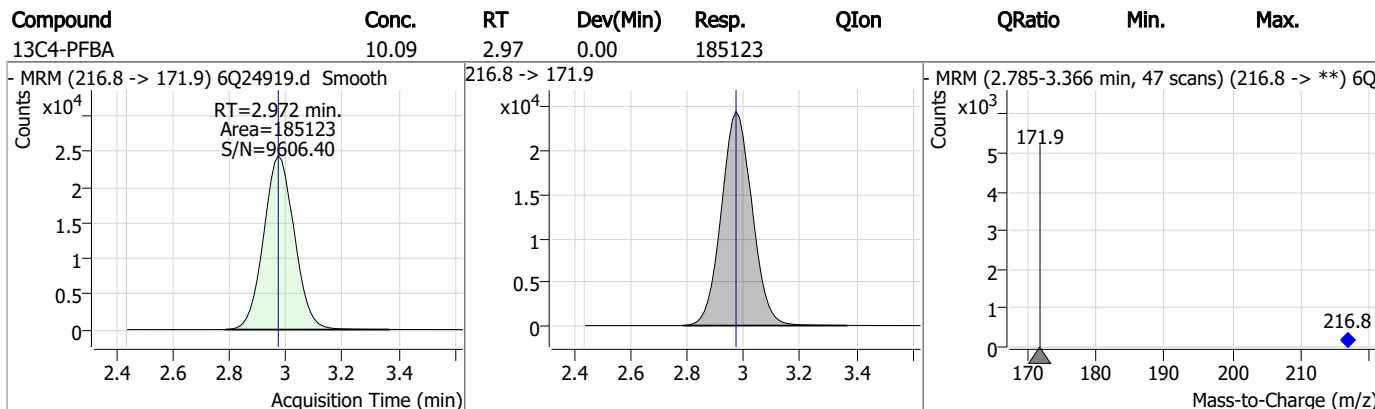
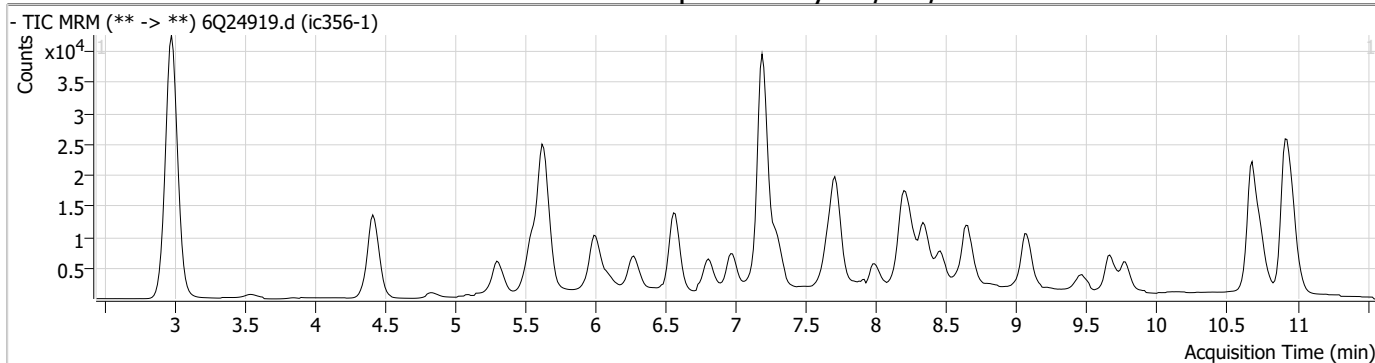
Perfluorinated Compounds by LC/MS/MS

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

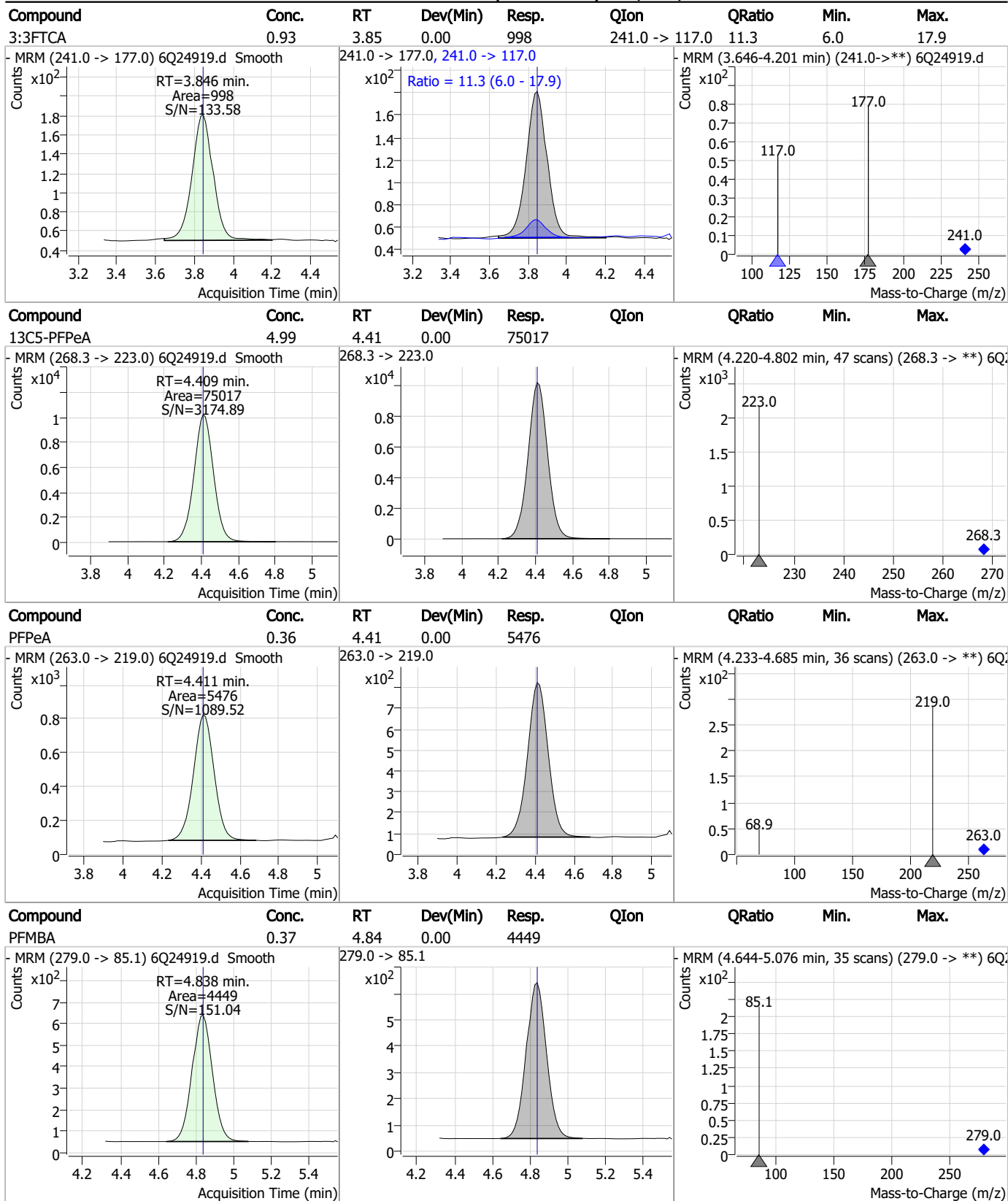


Perfluorinated Compounds by LC/MS/MS



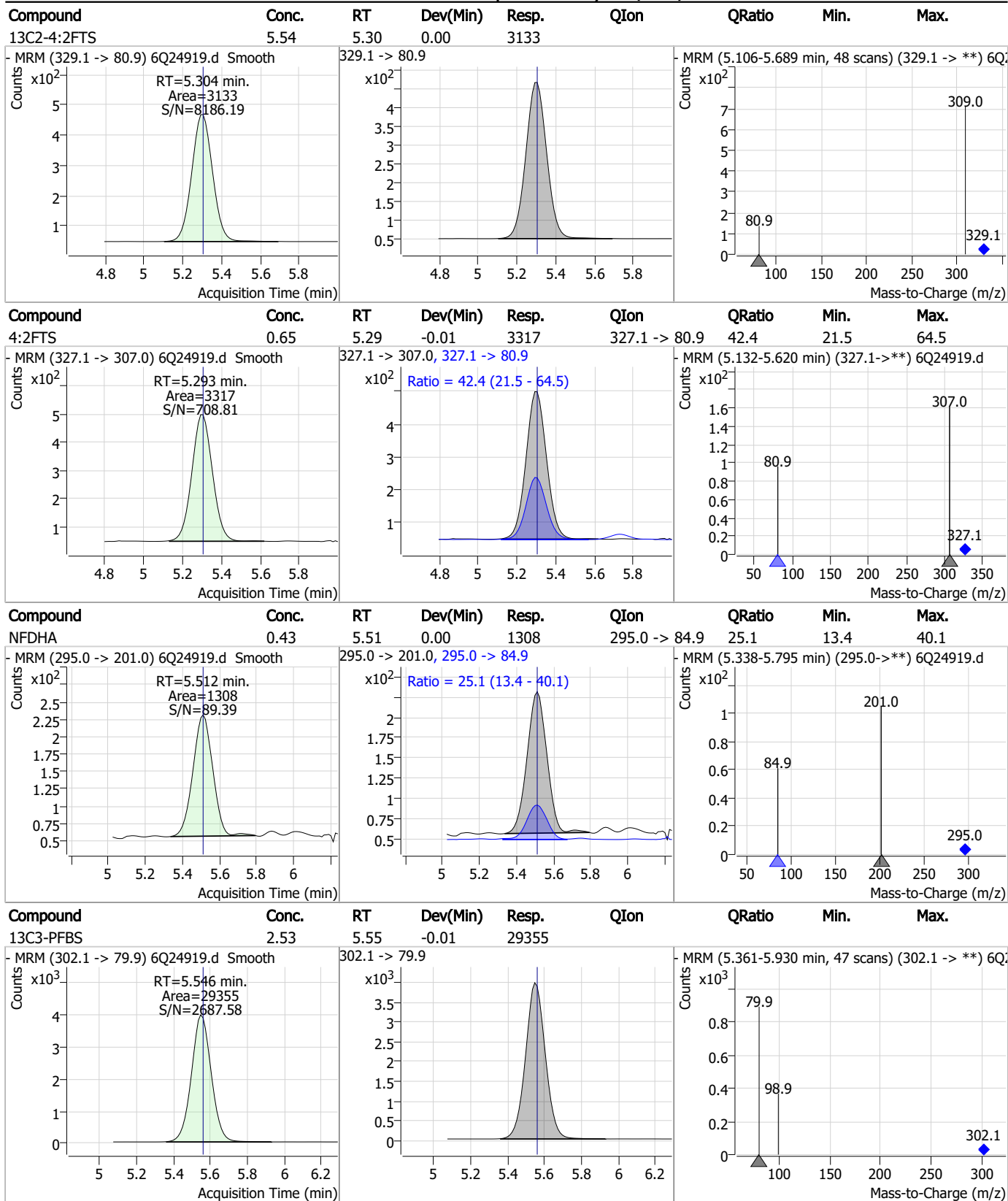
7.7.2
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Perfluorinated Compounds by LC/MS/MS



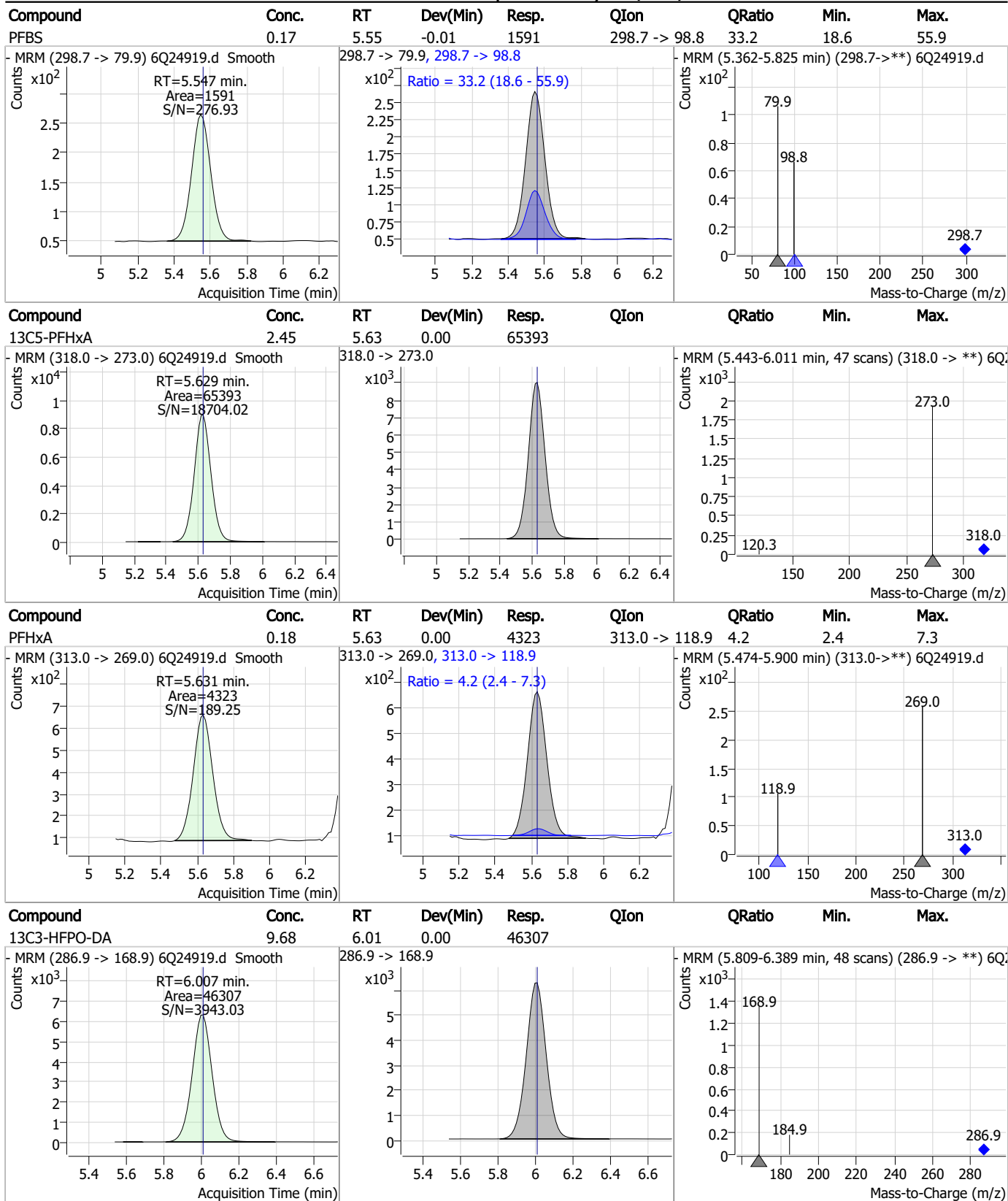
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Perfluorinated Compounds by LC/MS/MS



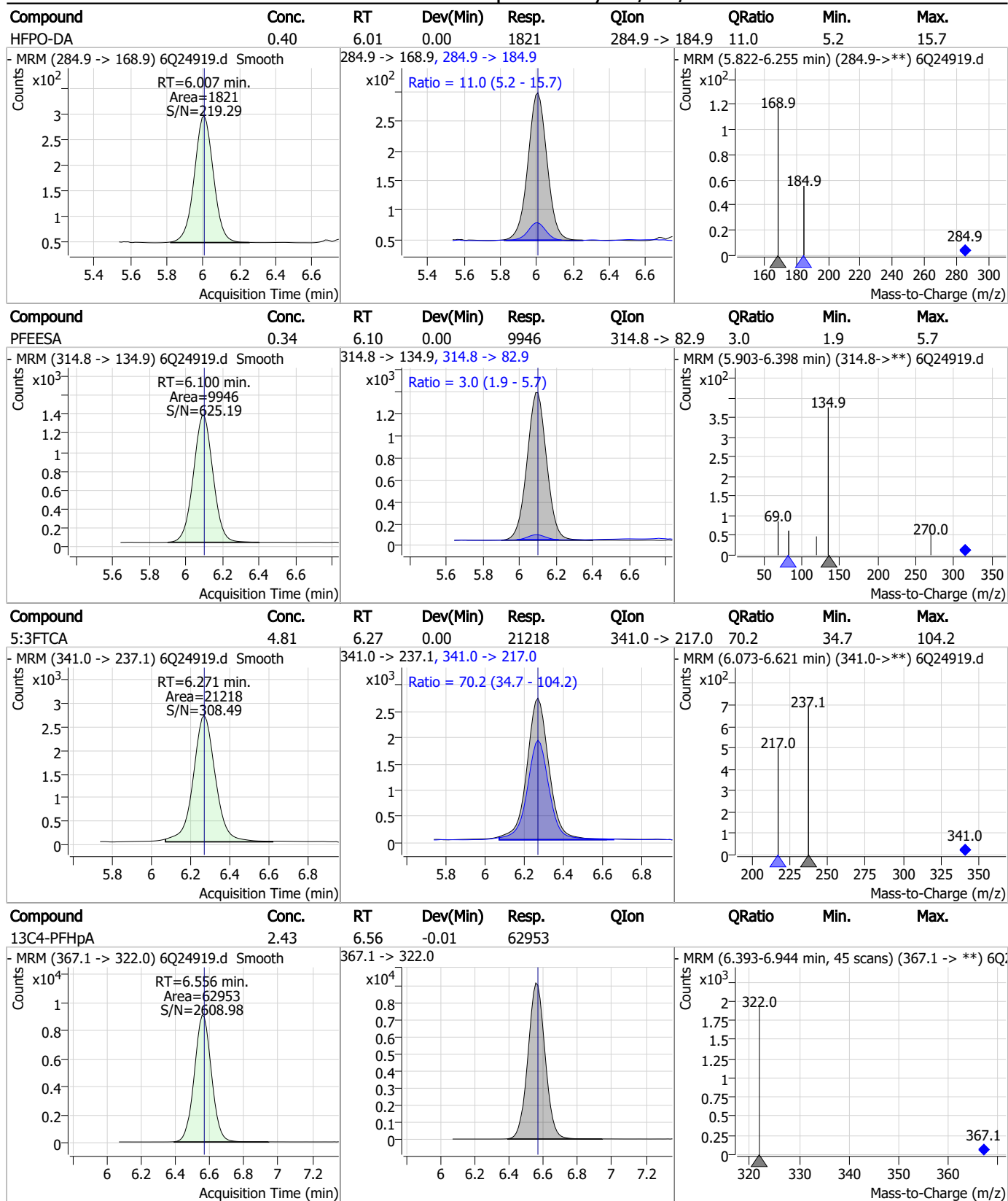
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Perfluorinated Compounds by LC/MS/MS



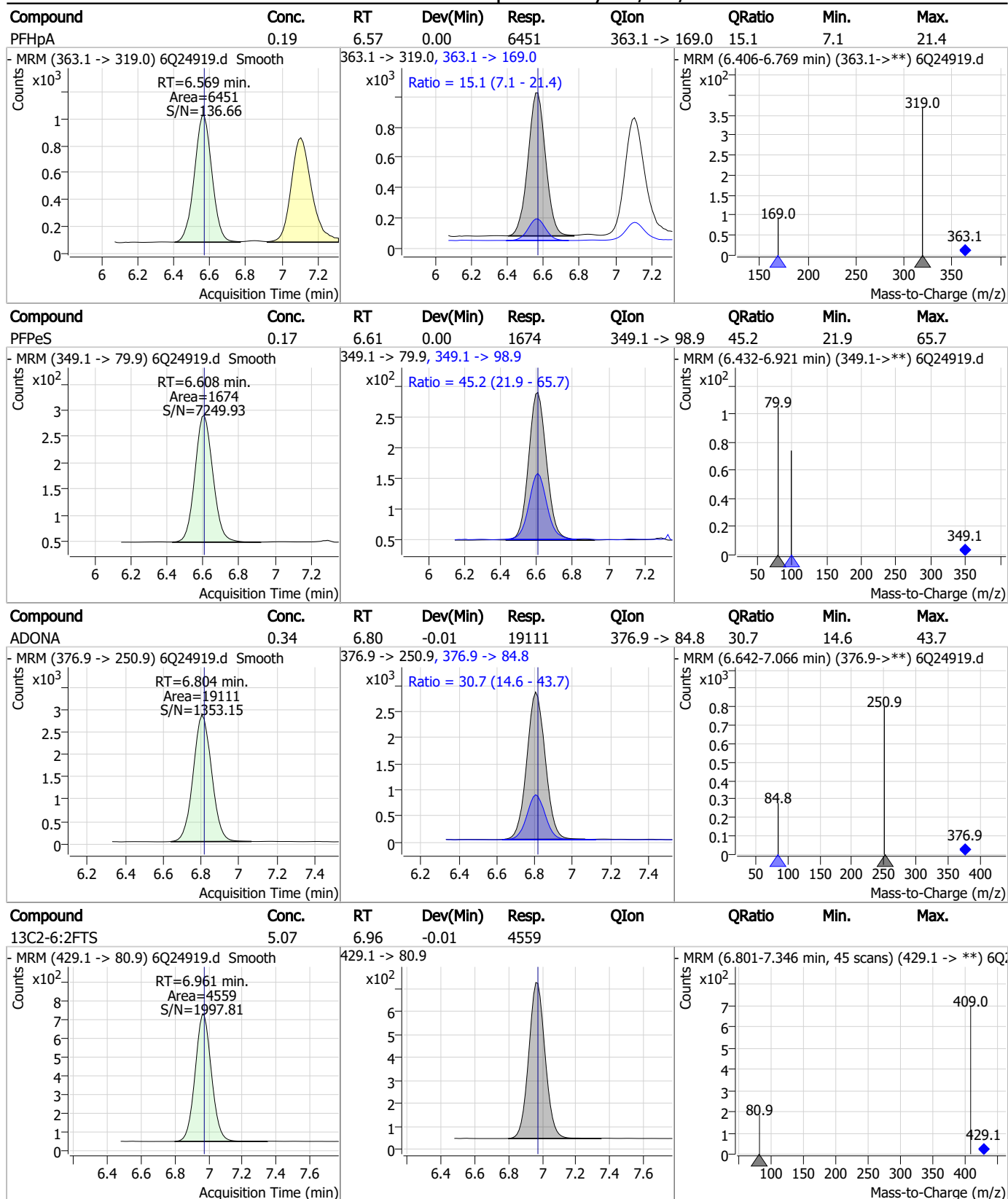
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Perfluorinated Compounds by LC/MS/MS



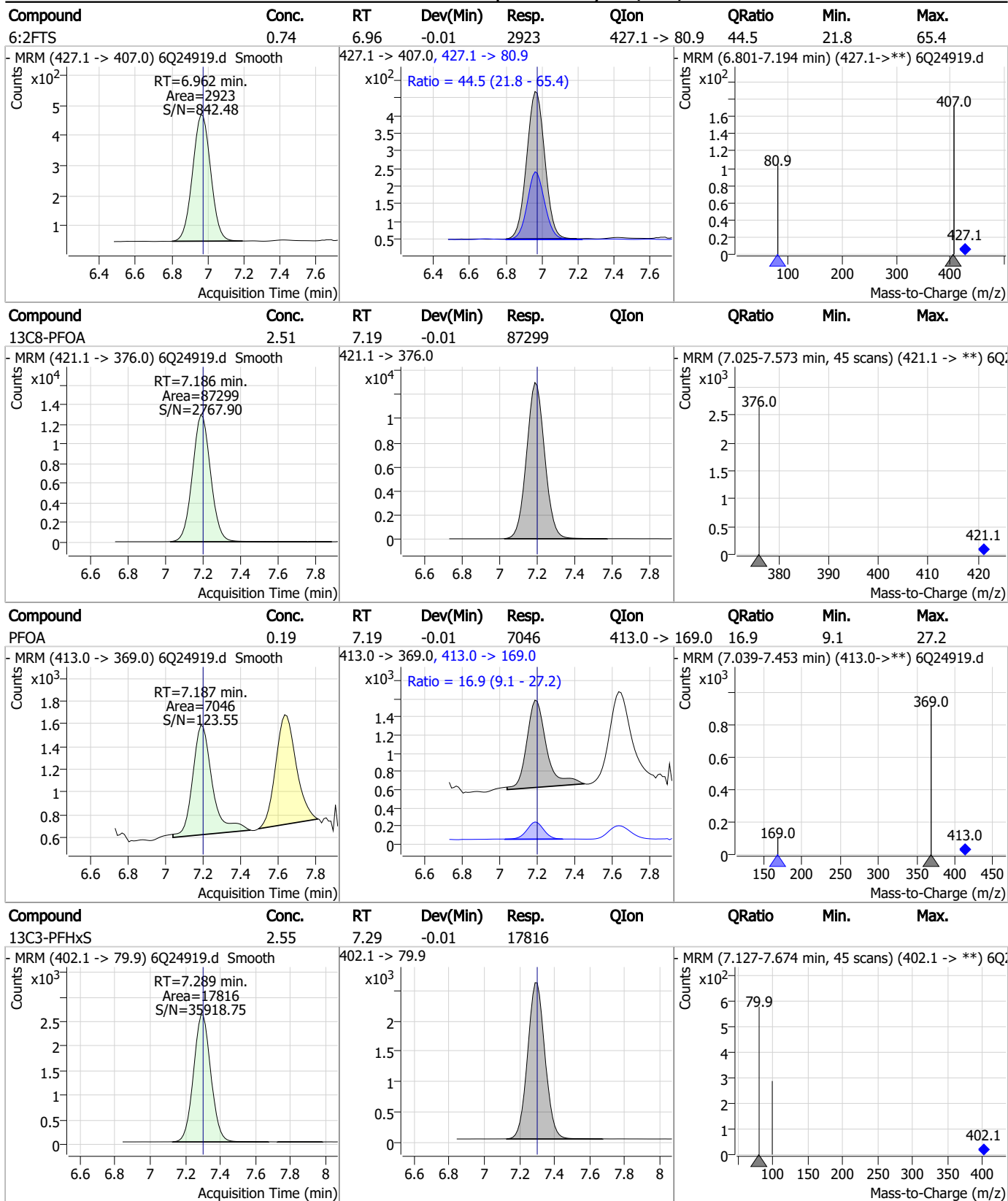
7.7.2
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Perfluorinated Compounds by LC/MS/MS



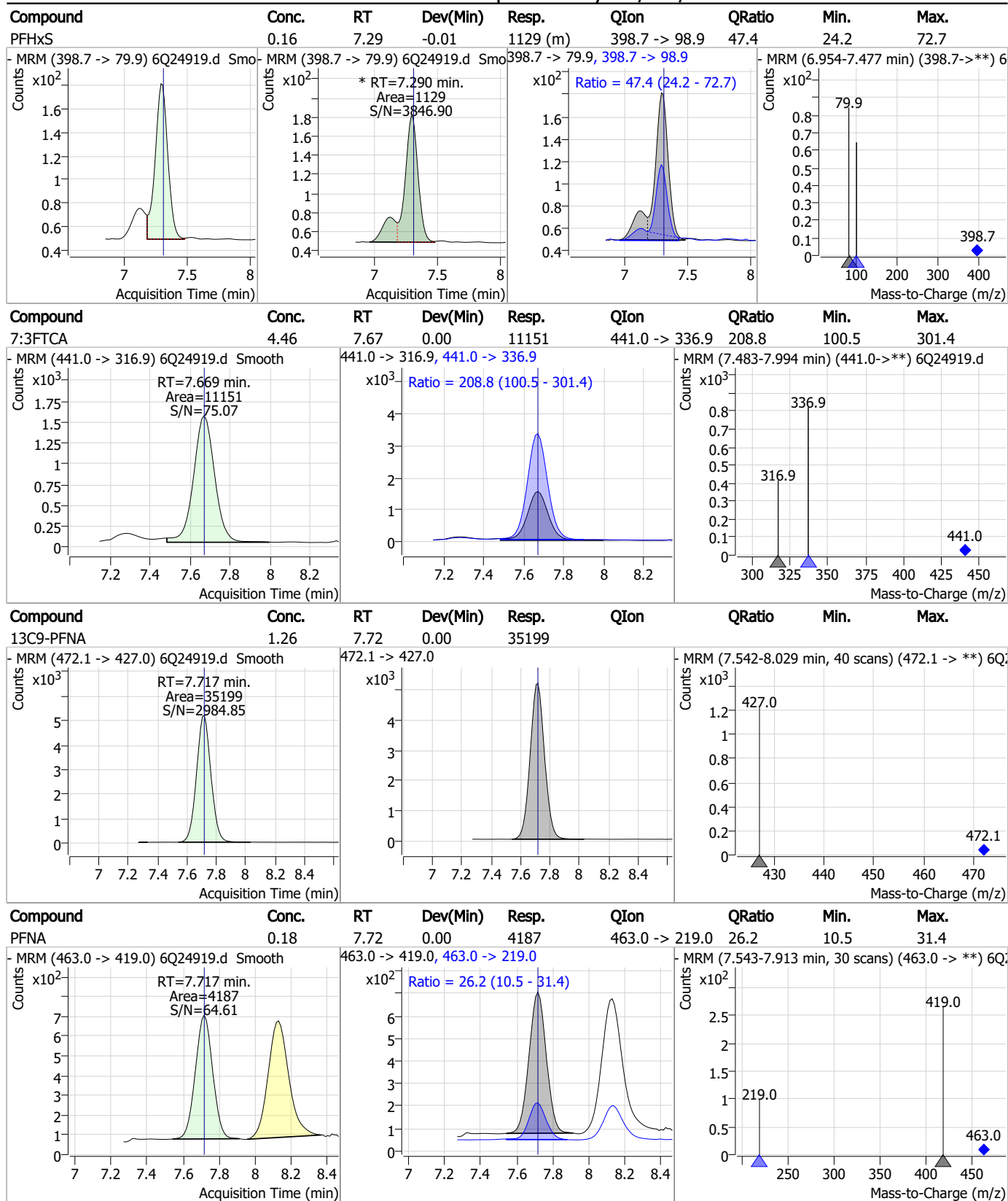
7.7.2
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Perfluorinated Compounds by LC/MS/MS



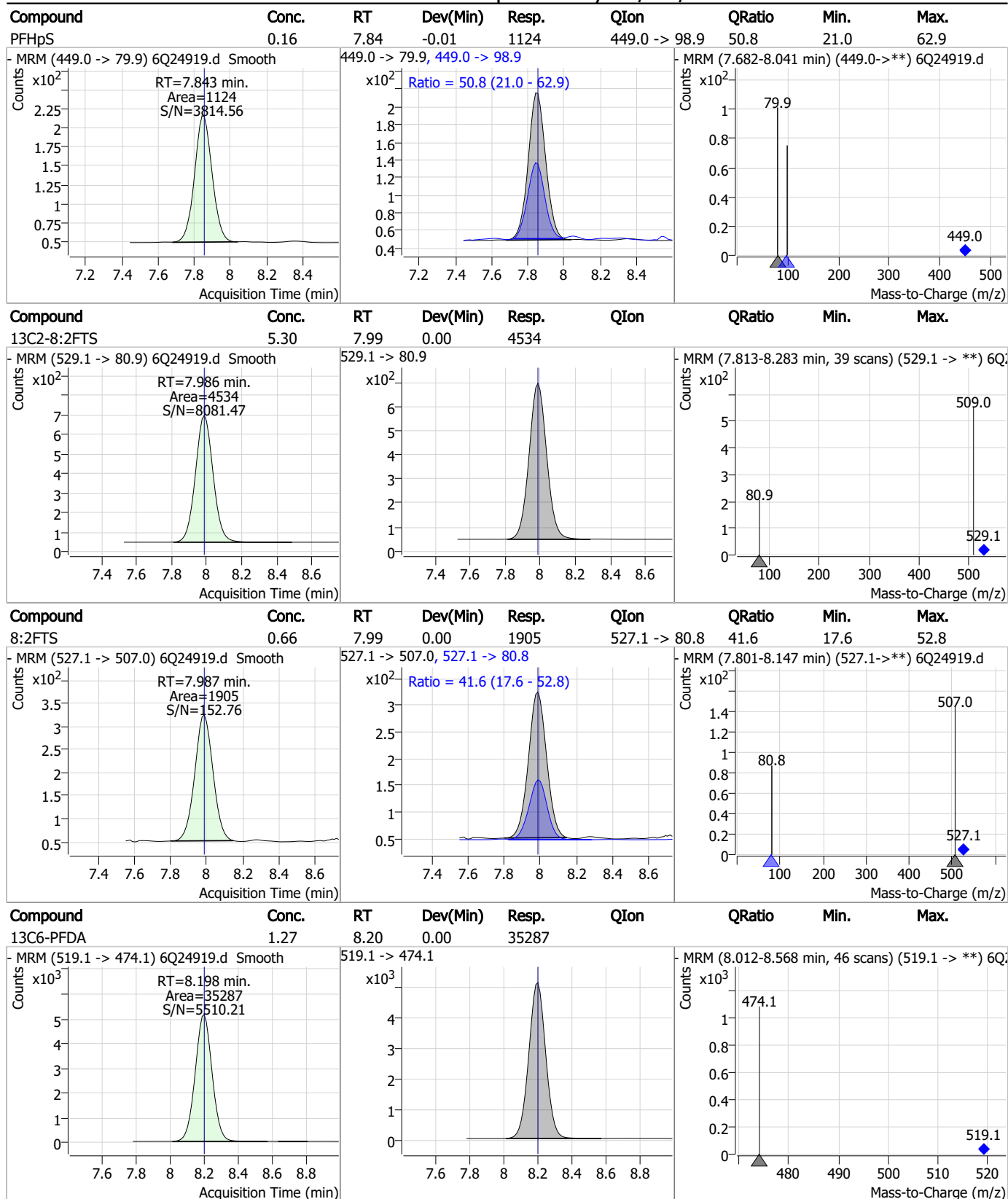
7.7.2
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Perfluorinated Compounds by LC/MS/MS



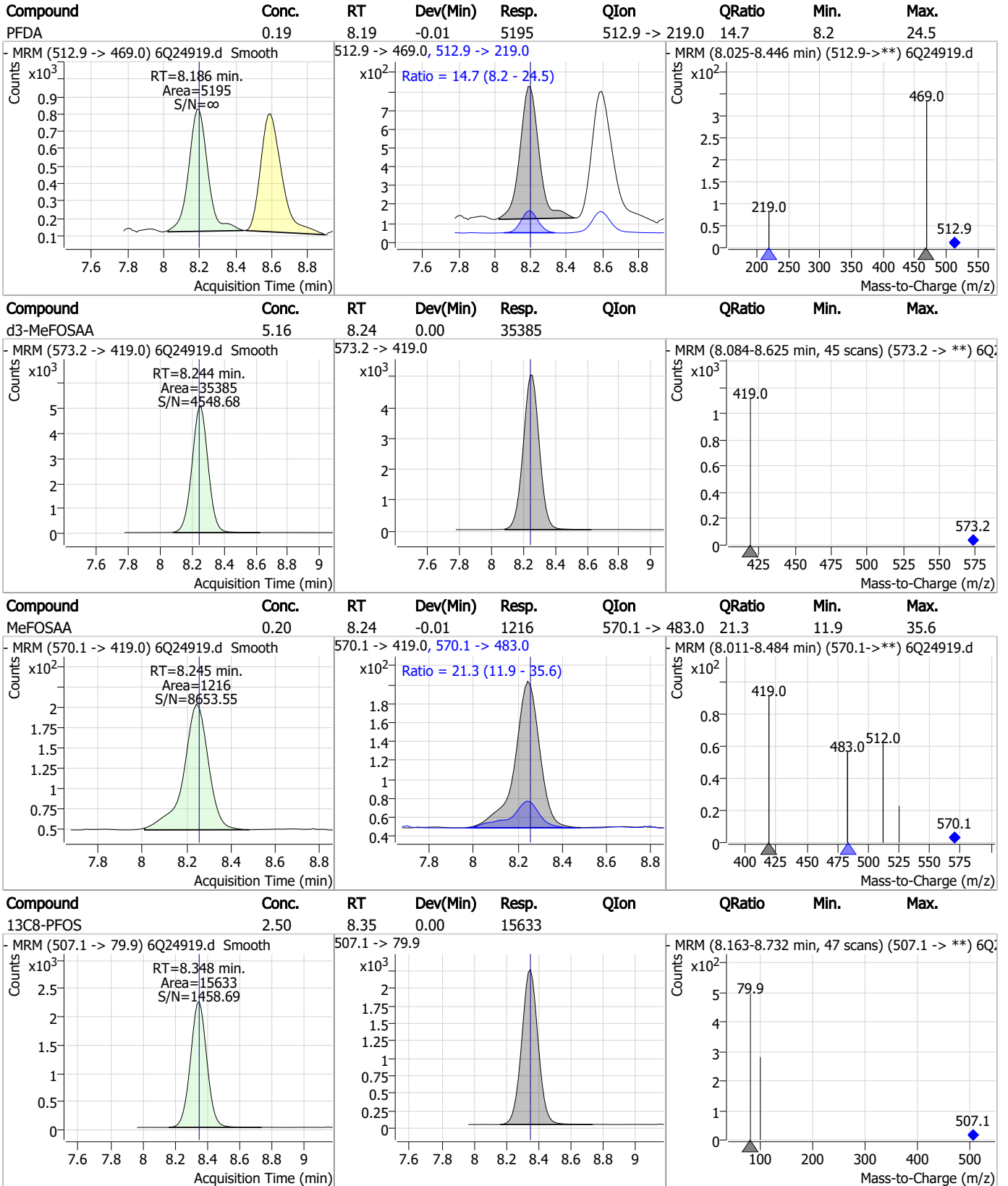
7.7.2
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Perfluorinated Compounds by LC/MS/MS



7.7.2
7

Perfluorinated Compounds by LC/MS/MS

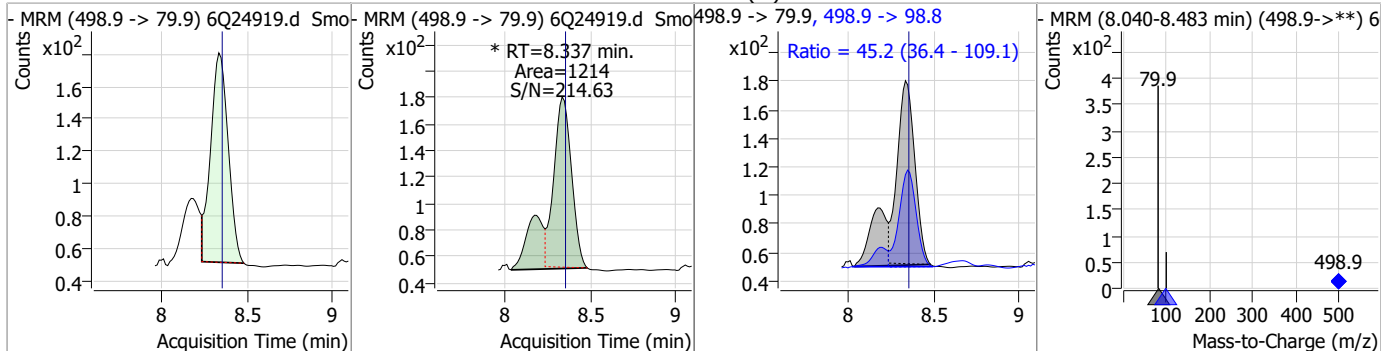


7.7.2

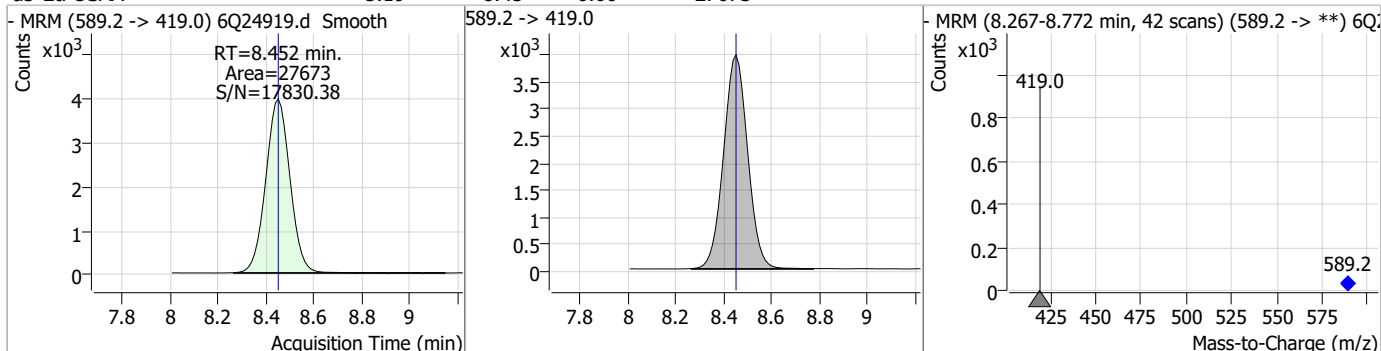
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Perfluorinated Compounds by LC/MS/MS

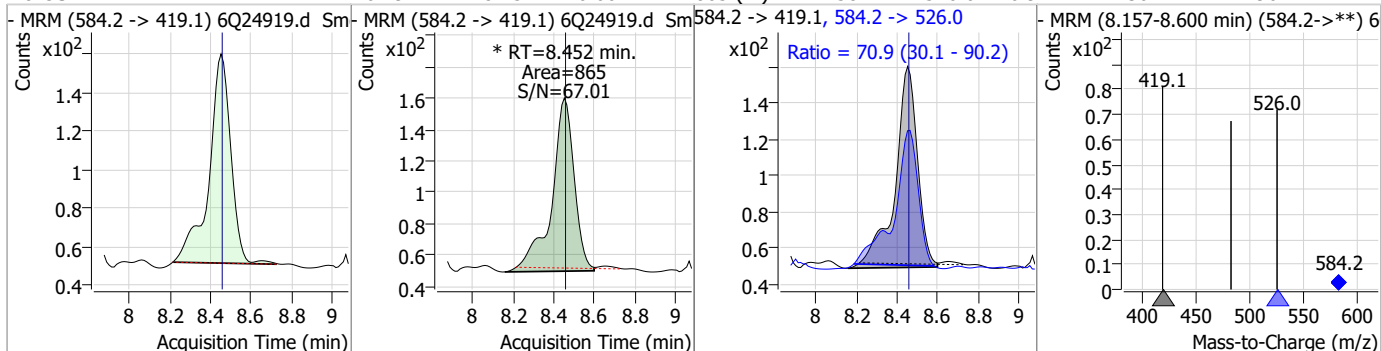
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.18	8.34	-0.01	1214 (m)	498.9 -> 98.8	45.2	36.4	109.1



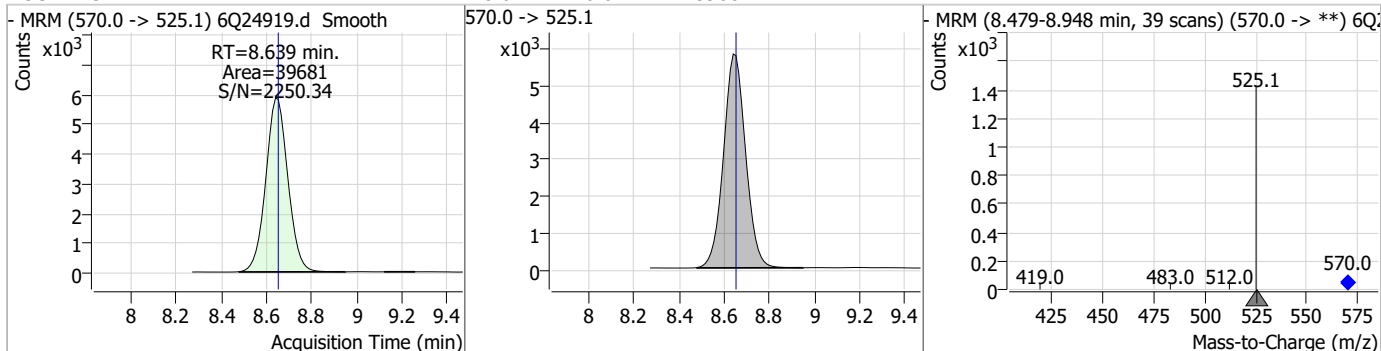
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.19	8.45	0.00	27673				



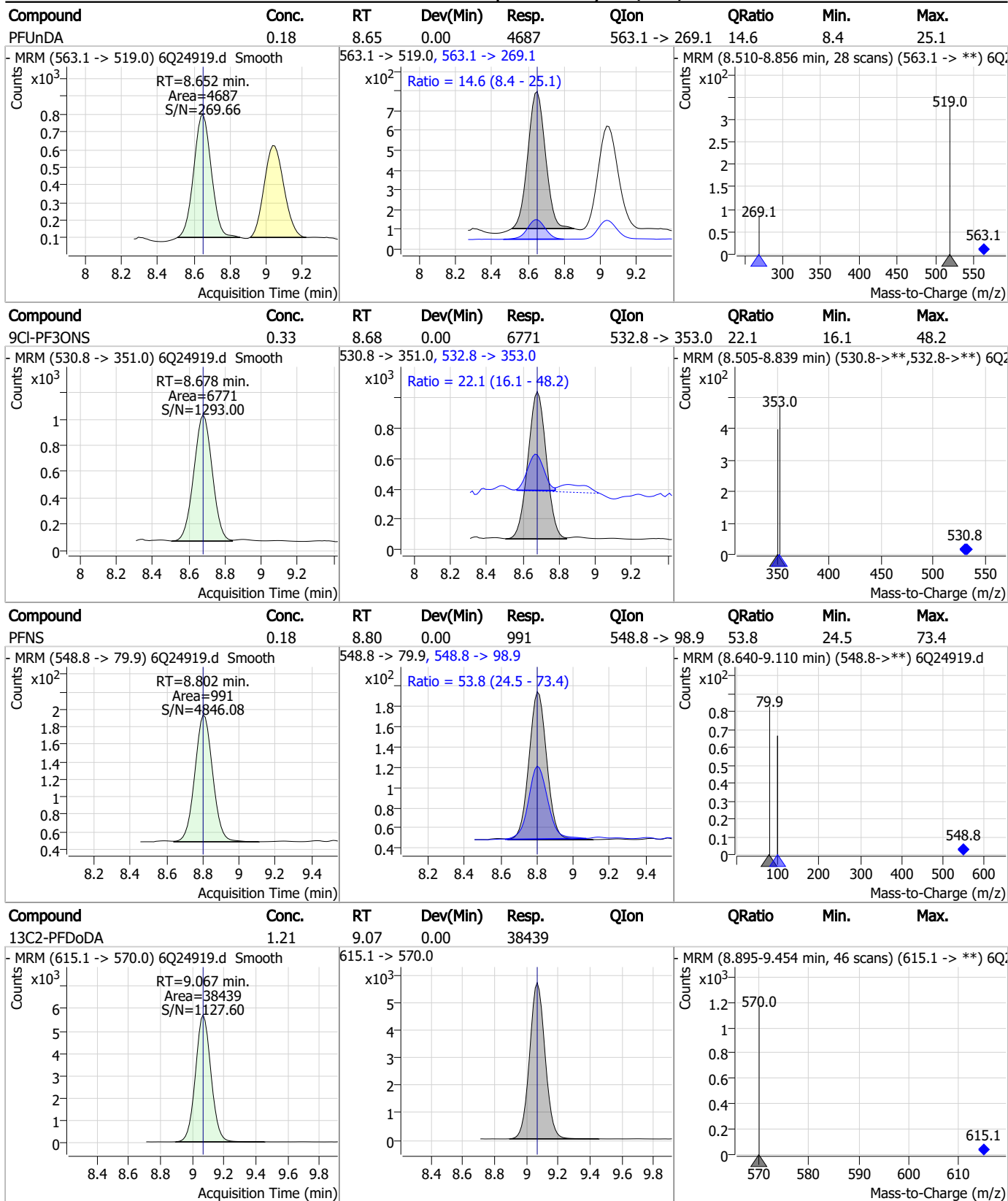
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.19	8.45	0.00	865 (m)	584.2 -> 526.0	70.9	30.1	90.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.27	8.64	-0.01	39681				



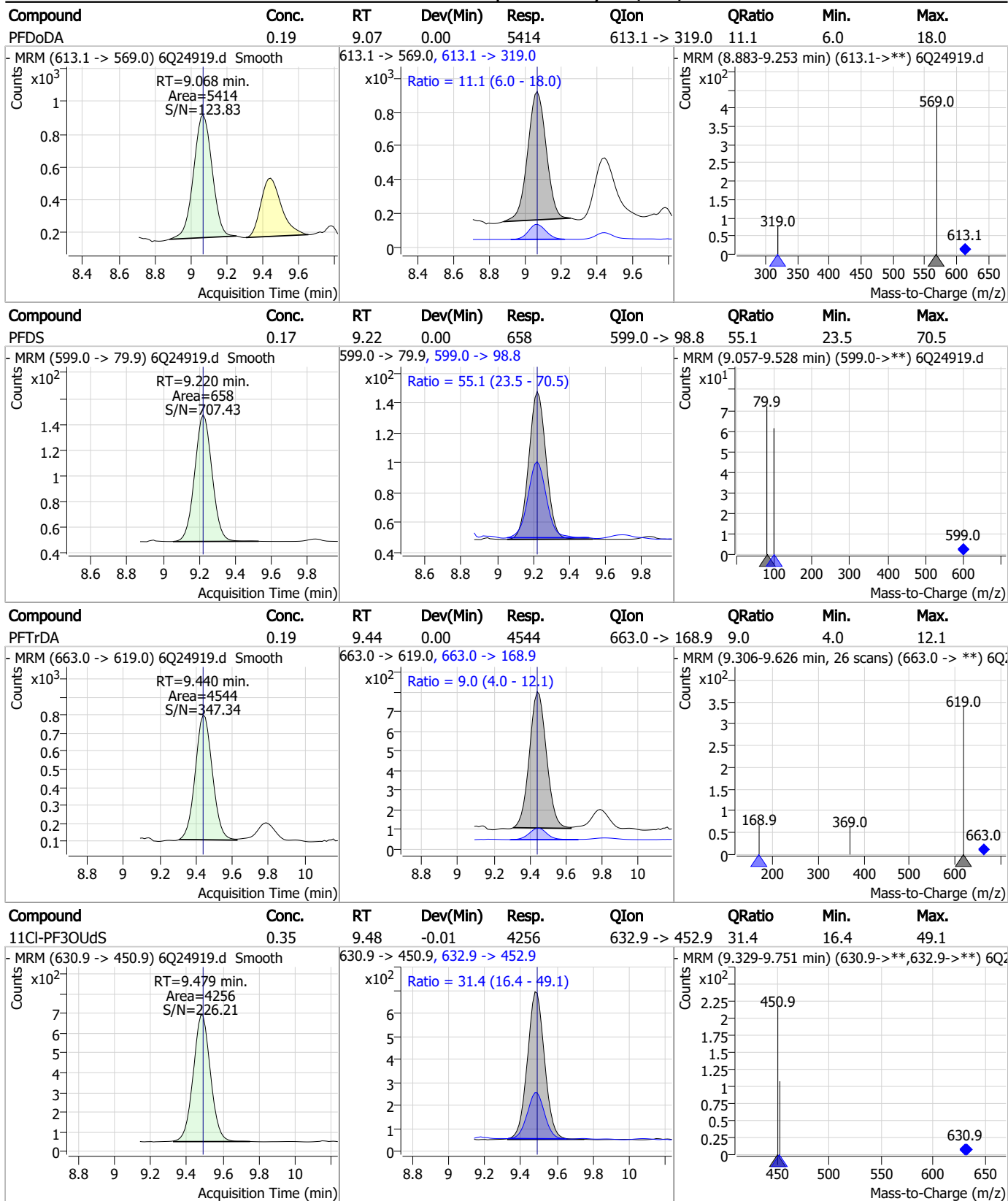
Perfluorinated Compounds by LC/MS/MS



7.7.2
7

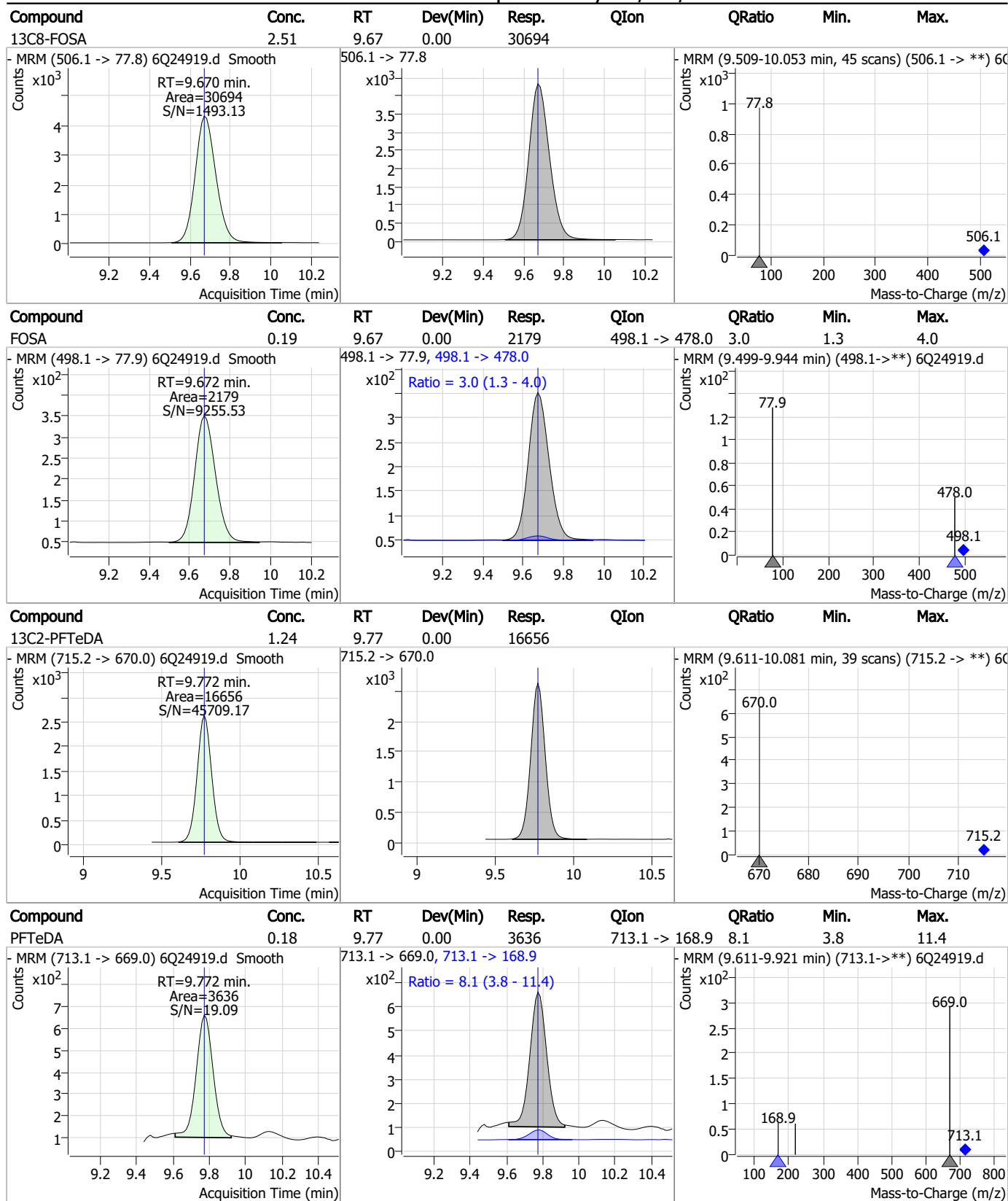


Perfluorinated Compounds by LC/MS/MS



7.7.2
7

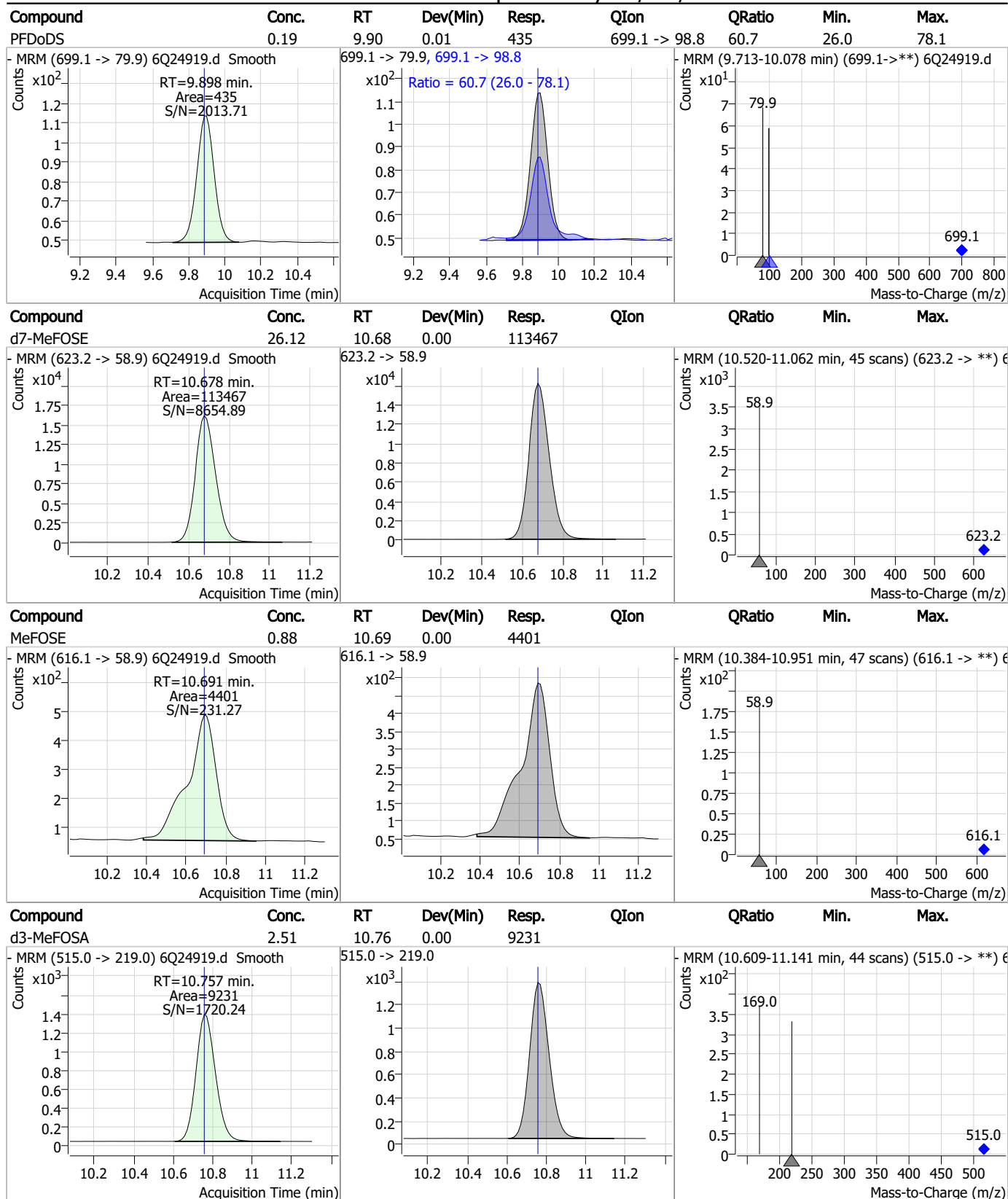
Perfluorinated Compounds by LC/MS/MS



7.7.2
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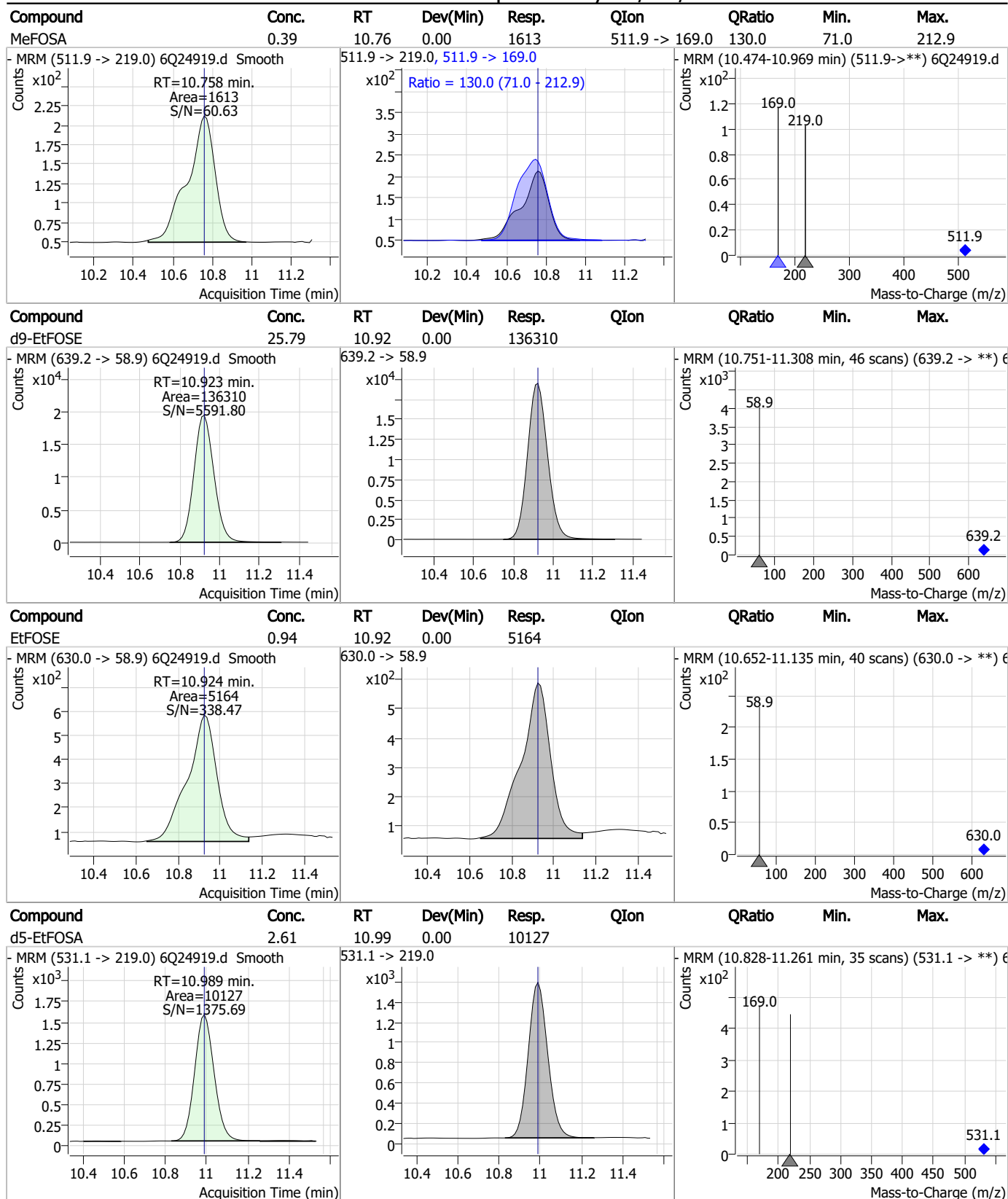
Perfluorinated Compounds by LC/MS/MS



7.7.2
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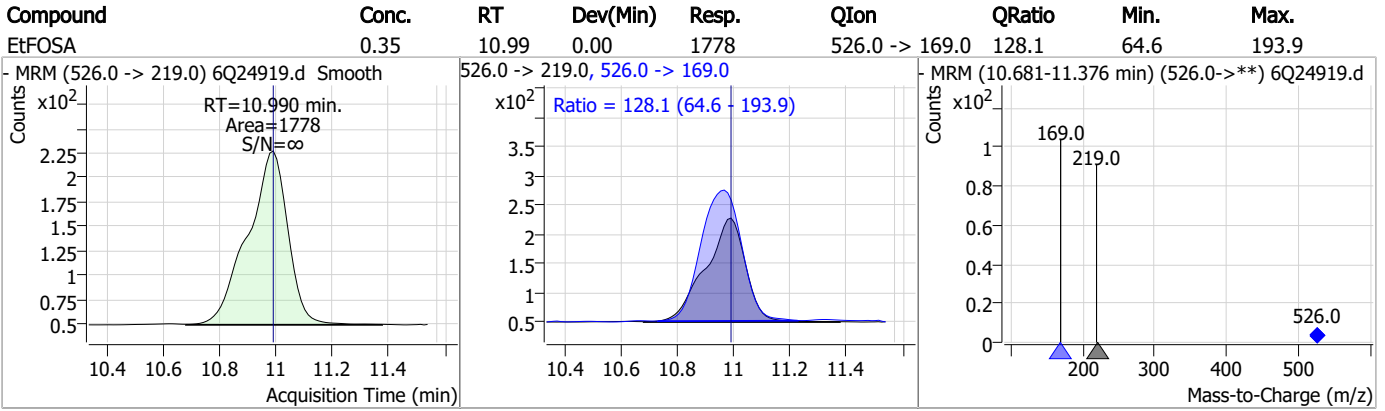
Perfluorinated Compounds by LC/MS/MS



7.7.2

7

Perfluorinated Compounds by LC/MS/MS



7.7.2

7

Manual Integration Approval Summary

Sample Number: S6Q356-IC356 Method: EPA DRAFT 1633
Lab FileID: 6Q24919.D Analyst approved: 09/25/23 14:50 Martha Valls
Injection Time: 09/24/23 15:00 Supervisor approved: 09/26/23 13:54 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.34	Split peak
EtFOSAA	2991-50-6		8.45	Split peak

7.7.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24920.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/24/2023 3:14:19 PM
 Sample Name : ic356-2
 Vial : P1-A3
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	188061	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	75200	5.00 µg/L	0.000
M5-PFHxA	5.629	318.0 -> 273.0	64784	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	65218	2.50 µg/L	0.000
M8-PFOA	7.186	421.1 -> 376.0	84522	2.50 µg/L	-0.012
M9-PFNA	7.717	472.1 -> 427.0	37341	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	34920	1.25 µg/L	0.000
M7-PFUnDA	8.639	570.0 -> 525.1	40545	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	40152	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	16910	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	32454	2.50 µg/L	0.000
M3-PFBS	5.546	302.1 -> 79.9	29016	2.50 µg/L	-0.013
M3-PFHxS	7.301	402.1 -> 79.9	17117	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	16946	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	2917	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4724	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	4365	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	35610	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	47512	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	26771	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	112149	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	138674	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	10401	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9307	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	15224	2.50 µg/L	0.000
13C3-PFBA	2.976	216.0 -> 172.0	77313	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	11032	2.50 µg/L	0.000
13C4-PFOA	7.187	417.1 -> 372.0	101823	2.50 µg/L	-0.012
13C2-PFDA	8.198	515.1 -> 470.1	33667	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	35742	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	61966	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2917	5.17 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.4%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4724	5.27 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.3%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4365	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.3%		
13C2-PFDoDA	9.067	615.1 -> 570.0	40152	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C2-PFTeDA	9.772	715.2 -> 670.0	16910	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.2%		
13C3-PFBS	5.546	302.1 -> 79.9	29016	2.50 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C3-PFHxS	7.301	402.1 -> 79.9	17117	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 = 98.1%	
13C4-PFBA	2.972	216.8 -> 171.9	188061	10.07 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C4-PFHpA	6.569	367.1 -> 322.0	65218	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C5-PFHxA	5.629	318.0 -> 273.0	64784	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C5-PFPeA	4.409	268.3 -> 223.0	75200	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C6-PFDA	8.198	519.1 -> 474.1	34920	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C7-PFUnDA	8.639	570.0 -> 525.1	40545	1.28 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C8-FOSA	9.670	506.1 -> 77.8	32454	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C8-PFOA	7.186	421.1 -> 376.0	84522	2.39 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C8-PFOS	8.348	507.1 -> 79.9	16946	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C9-PFNA	7.717	472.1 -> 427.0	37341	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.0%	
d3-MeFOSAA	8.244	573.2 -> 419.0	35610	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	47512	10.17 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.7%	
d3-MeFOSA	10.757	515.0 -> 219.0	9307	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	
d5-EtFOSAA	8.452	589.2 -> 419.0	26771	4.78 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.5%	
d7-MeFOSE	10.678	623.2 -> 58.9	112149	24.56 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
d9-EtFOSE	10.923	639.2 -> 58.9	138674	24.96 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
d5-EtFOSA	10.989	531.1 -> 219.0	10401	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%	
Target Compounds					QValue
4:2FTS	5.293	327.1 -> 307.0	7580	1.59 µg/L	98
		327.1 -> 80.9	3340		
6:2FTS	6.974	427.1 -> 407.0	6757	1.66 µg/L	97
		427.1 -> 80.9	2825		
8:2FTS	7.987	527.1 -> 507.0	4520	1.62 µg/L	84
		527.1 -> 80.8	2009		
EtFOSAA	8.452	584.2 -> 419.1	2079	0.47 µg/L	97
		584.2 -> 526.0	1300		
FOSA	9.672	498.1 -> 77.9	5033	0.41 µg/L	99
		498.1 -> 478.0	146		
MeFOSAA	8.257	570.1 -> 419.0	2785	0.45 µg/L	95
		570.1 -> 483.0	590		
PFBA	2.981	212.8 -> 168.9	11178	1.66 µg/L	100
PFBS	5.547	298.7 -> 79.9	3624	0.38 µg/L	96
		298.7 -> 98.8	1270		
PFDA	8.198	512.9 -> 469.0	11340	0.41 µg/L	97
		512.9 -> 219.0	2010		
PFDODA	9.068	613.1 -> 569.0	11674	0.40 µg/L	97
		613.1 -> 319.0	1514		
PFDS	9.220	599.0 -> 79.9	1632	0.40 µg/L	95

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	822			
PFHpA	6.557	363.1 -> 319.0	14913	0.42	µg/L	99
		363.1 -> 169.0	2101			
PFHpS	7.843	449.0 -> 79.9	2896	0.39	µg/L	92
		449.0 -> 98.9	1366			
PFHxA	5.631	313.0 -> 269.0	9951	0.43	µg/L	98
		313.0 -> 118.9	428			
PFHxS	7.302	398.7 -> 79.9	2499	0.38	µg/L	m 98
		398.7 -> 98.9	1250			
PFNA	7.717	463.0 -> 419.0	10265	0.42	µg/L	95
		463.0 -> 219.0	2370			
PFNS	8.814	548.8 -> 79.9	2293	0.39	µg/L	95
		548.8 -> 98.9	1204			
PFOA	7.187	413.0 -> 369.0	15031	0.41	µg/L	99
		413.0 -> 169.0	2634			
PFOS	8.350	498.9 -> 79.9	2821	0.39	µg/L	m 72
		498.9 -> 98.8	1399			
PFPeA	4.411	263.0 -> 219.0	12760	0.84	µg/L	100
PFPeS	6.608	349.1 -> 79.9	3680	0.40	µg/L	93
		349.1 -> 98.9	1778			
PFTeDA	9.772	713.1 -> 669.0	8284	0.41	µg/L	96
		713.1 -> 168.9	743			
PFTrDA	9.440	663.0 -> 619.0	10694	0.42	µg/L	98
		663.0 -> 168.9	952			
PFUnDA	8.639	563.1 -> 519.0	11425	0.43	µg/L	100
		563.1 -> 269.1	1915			
11Cl-PF3OUdS	9.479	630.9 -> 450.9	10104	0.81	µg/L	99
		632.9 -> 452.9	3354			
9Cl-PF3ONS	8.678	530.8 -> 351.0	15909	0.75	µg/L	88
		532.8 -> 353.0	6184			
ADONA	6.804	376.9 -> 250.9	47330	0.81	µg/L	99
		376.9 -> 84.8	13477			
HFPO-DA	6.007	284.9 -> 168.9	3928	0.84	µg/L	99
		284.9 -> 184.9	434			
3:3FTCA	3.846	241.0 -> 177.0	2234	2.05	µg/L	99
		241.0 -> 117.0	254			
5:3FTCA	6.271	341.0 -> 237.1	47597	10.89	µg/L	97
		341.0 -> 217.0	34315			
7:3FTCA	7.669	441.0 -> 316.9	26625	10.75	µg/L	85
		441.0 -> 336.9	59711			
EtFOSA	10.990	526.0 -> 219.0	4397	0.85	µg/L	94
		526.0 -> 169.0	5386			
EtFOSE	10.924	630.0 -> 58.9	11439	2.05	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	3575	0.85	µg/L	94
		511.9 -> 169.0	4812			
MeFOSE	10.691	616.1 -> 58.9	10352	2.08	µg/L	100
PFDoDS	9.898	699.1 -> 79.9	978	0.40	µg/L	95
		699.1 -> 98.8	542			
NFDHA	5.512	295.0 -> 201.0	2669	0.89	µg/L	97
		295.0 -> 84.9	748			
PFMBA	4.838	279.0 -> 85.1	10293	0.85	µg/L	100
PFMPA	3.551	229.0 -> 84.9	7624	0.84	µg/L	100
PFEESA	6.100	314.8 -> 134.9	21642	0.75	µg/L	99
		314.8 -> 82.9	784			

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

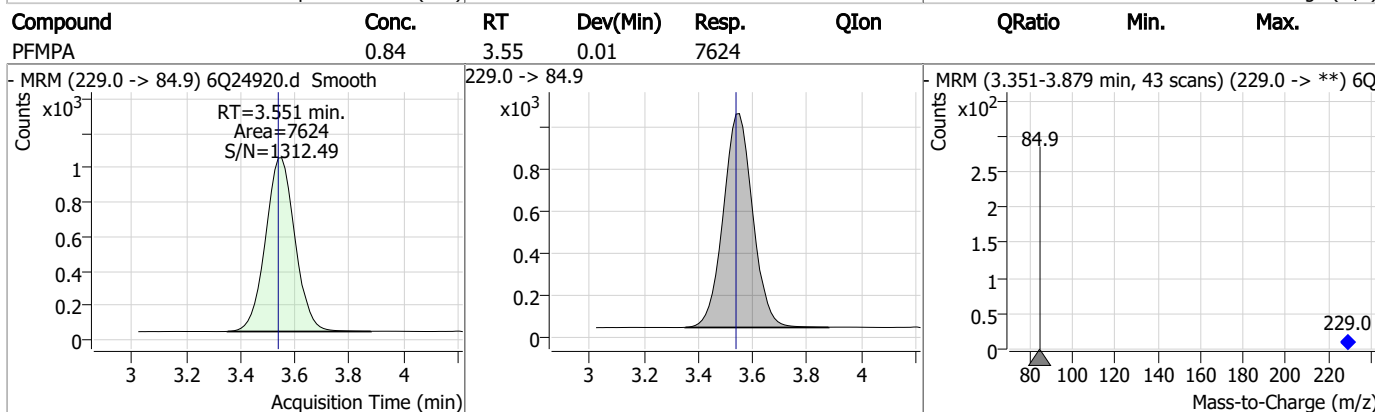
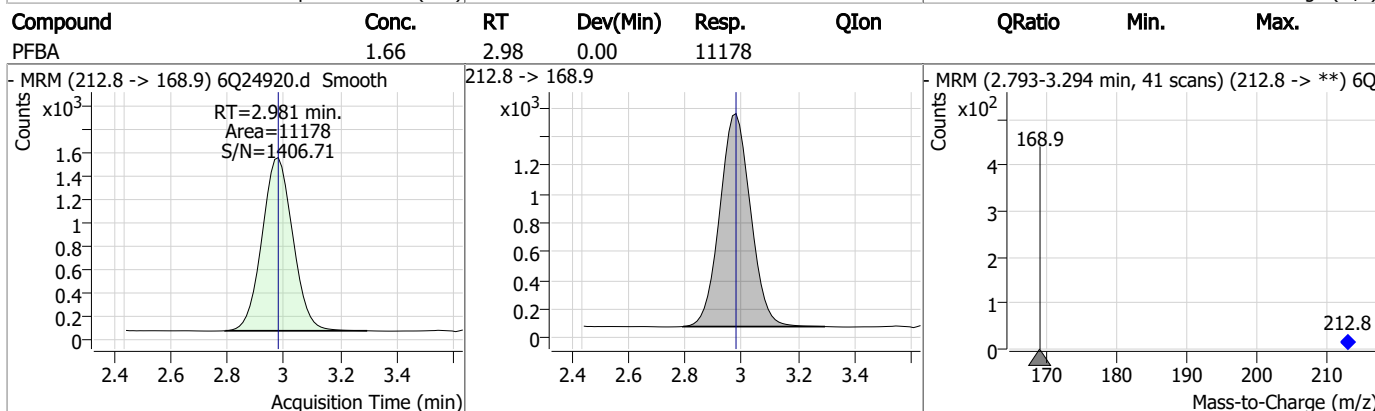
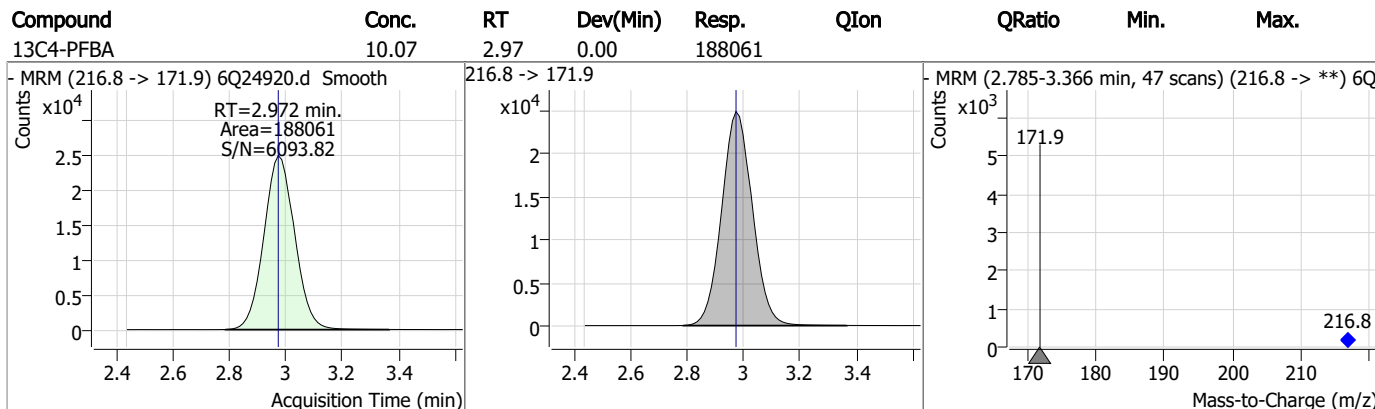
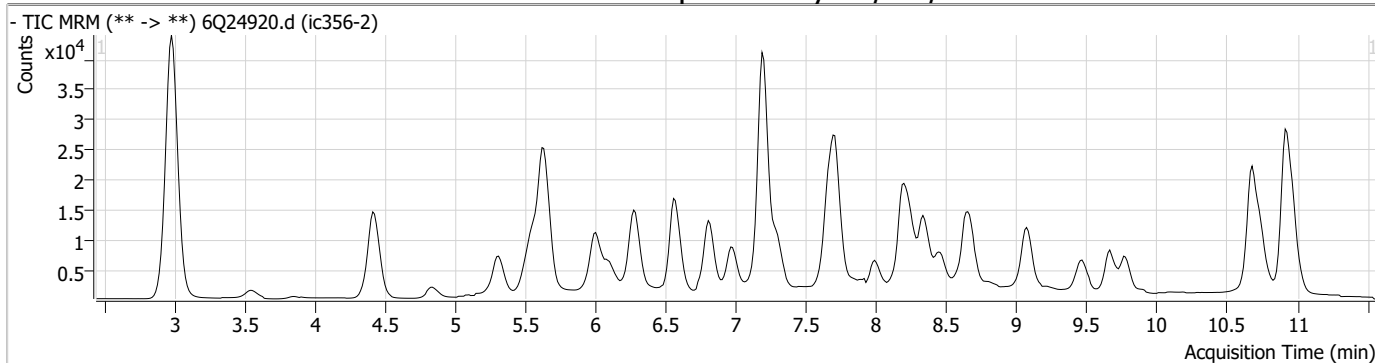
Perfluorinated Compounds by LC/MS/MS

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

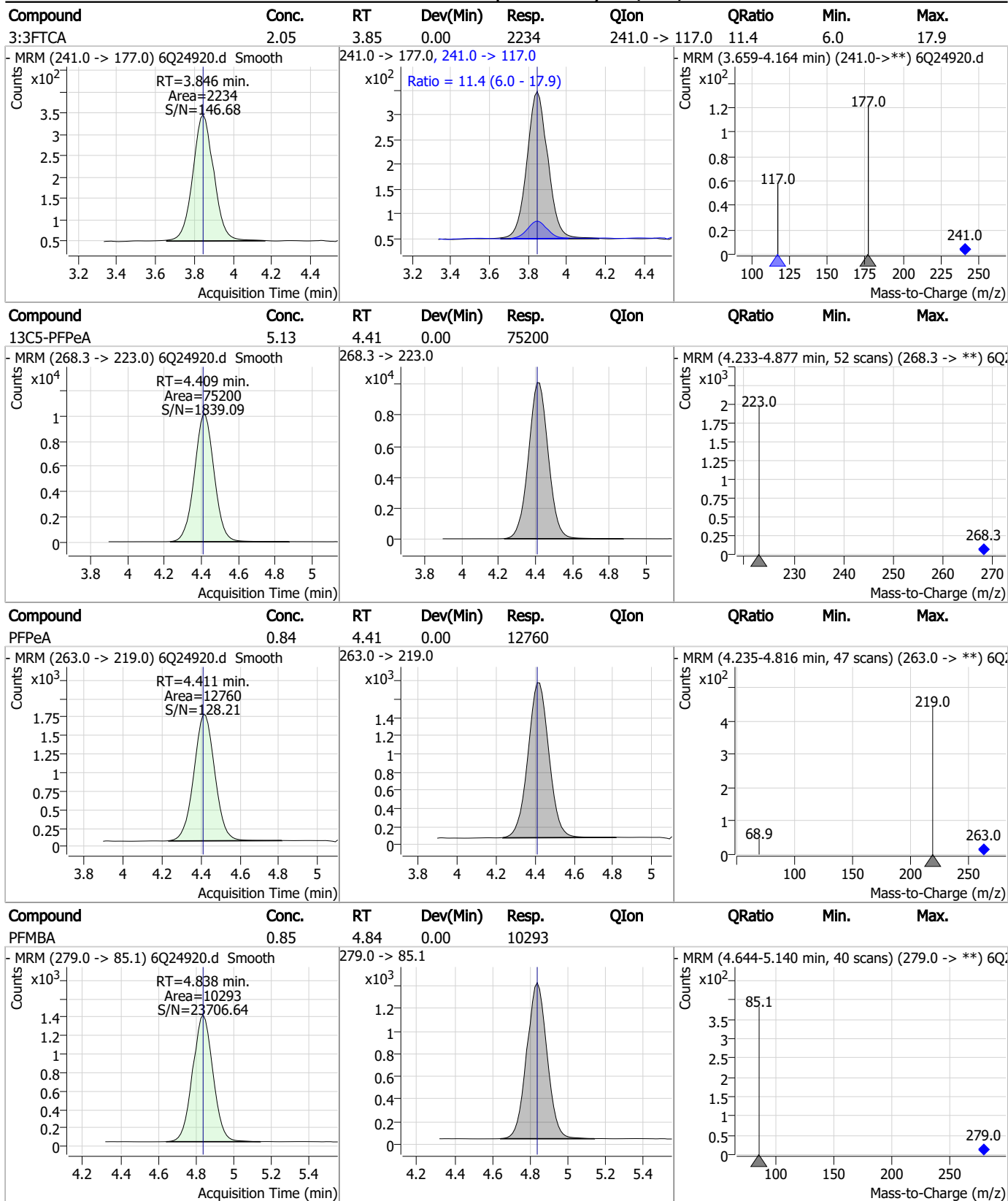
7

Perfluorinated Compounds by LC/MS/MS



7.7.3
7

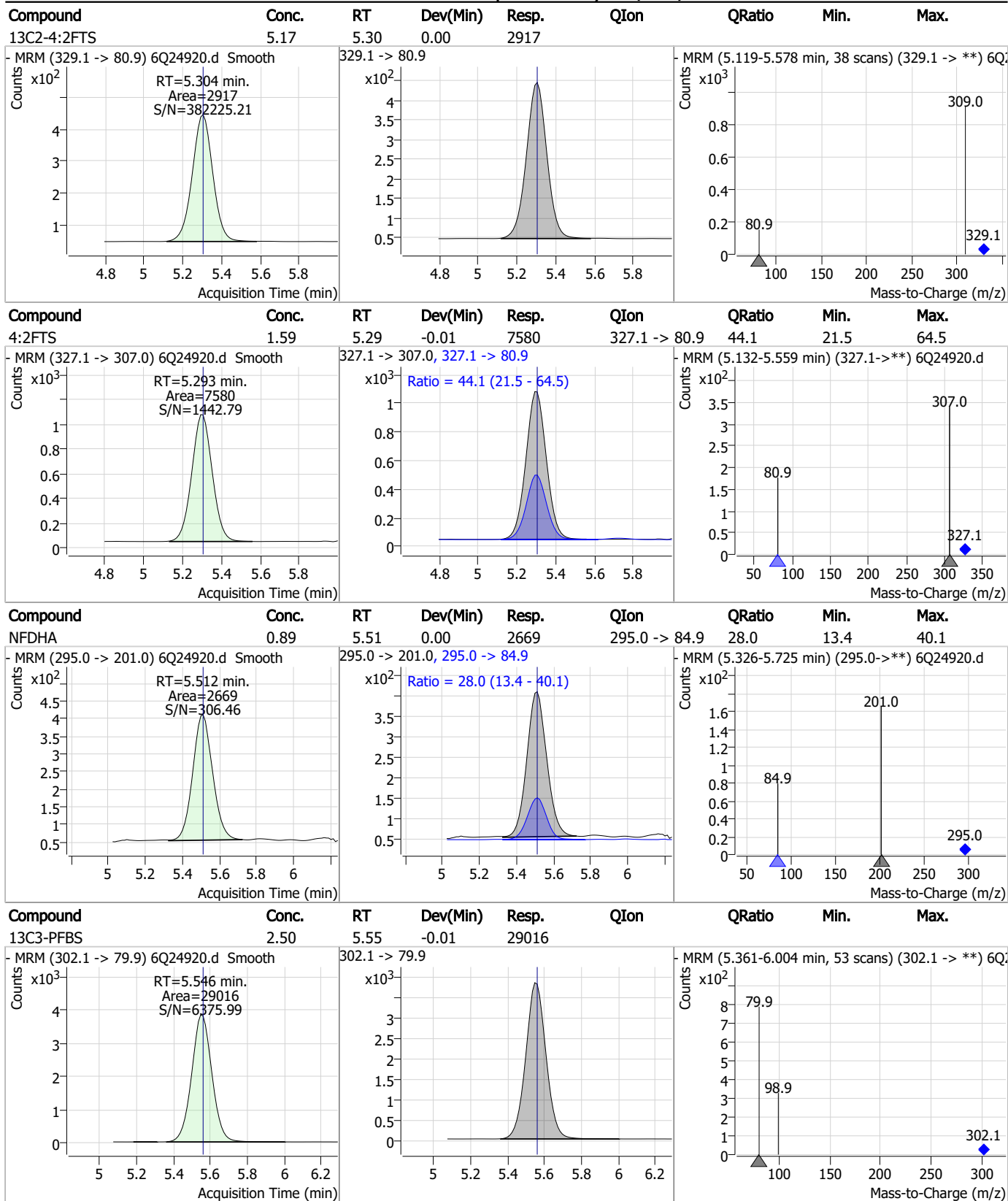
Perfluorinated Compounds by LC/MS/MS



7.7.3

7

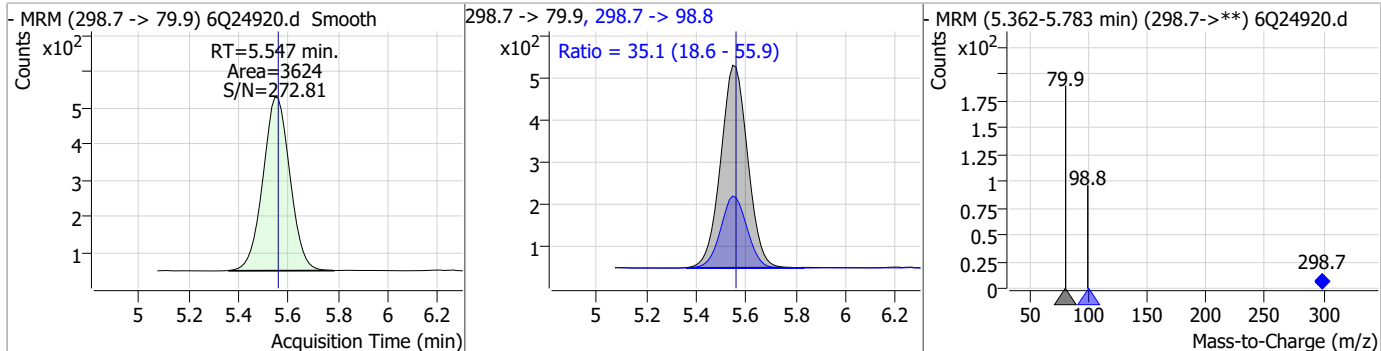
Perfluorinated Compounds by LC/MS/MS



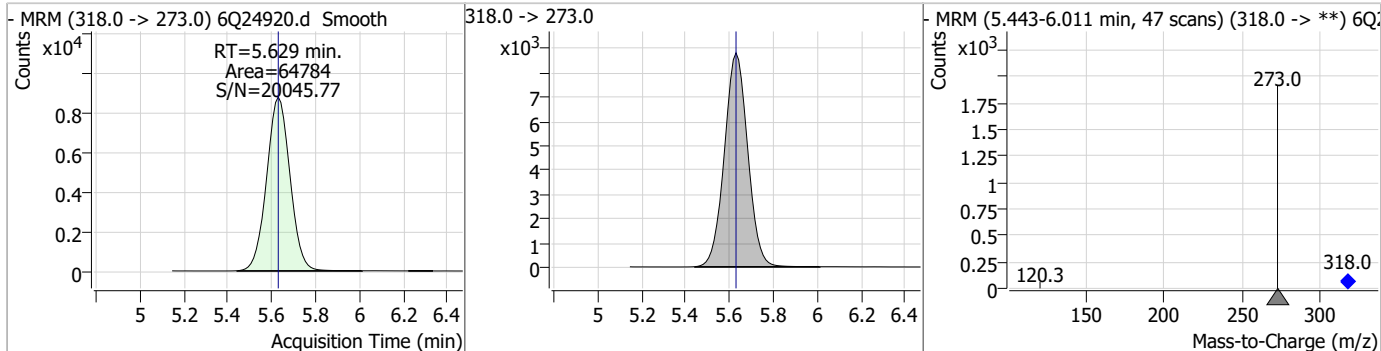
7.7.3
7

Perfluorinated Compounds by LC/MS/MS

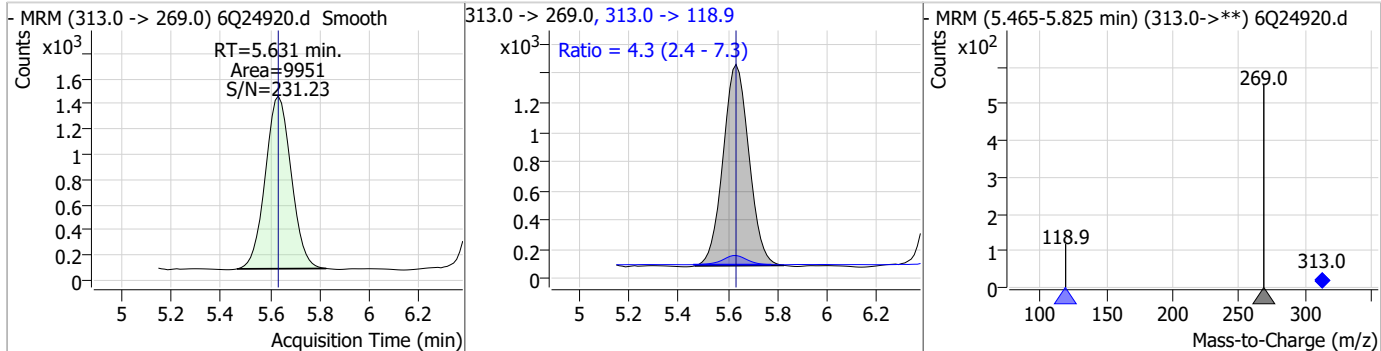
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.38	5.55	-0.01	3624	298.7 -> 98.8	35.1	18.6	55.9



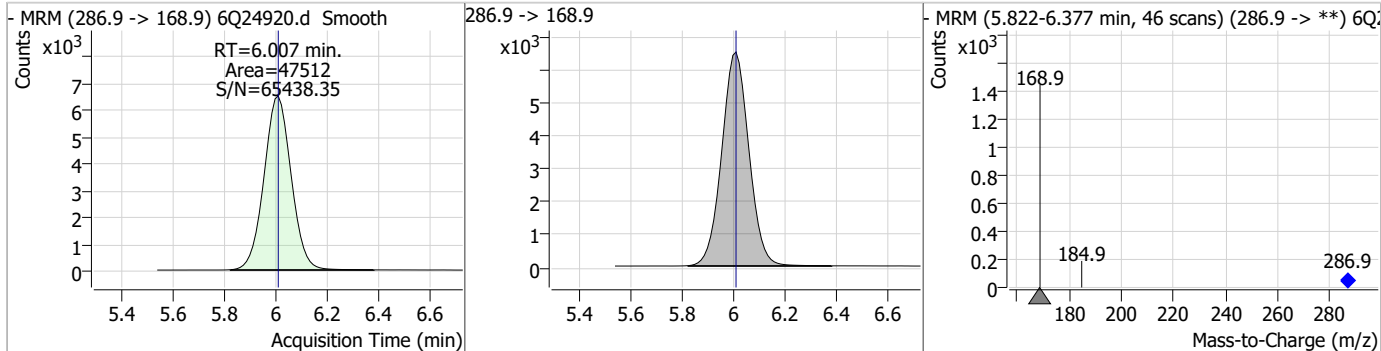
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.49	5.63	0.00	64784				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.43	5.63	0.00	9951	313.0 -> 118.9	4.3	2.4	7.3

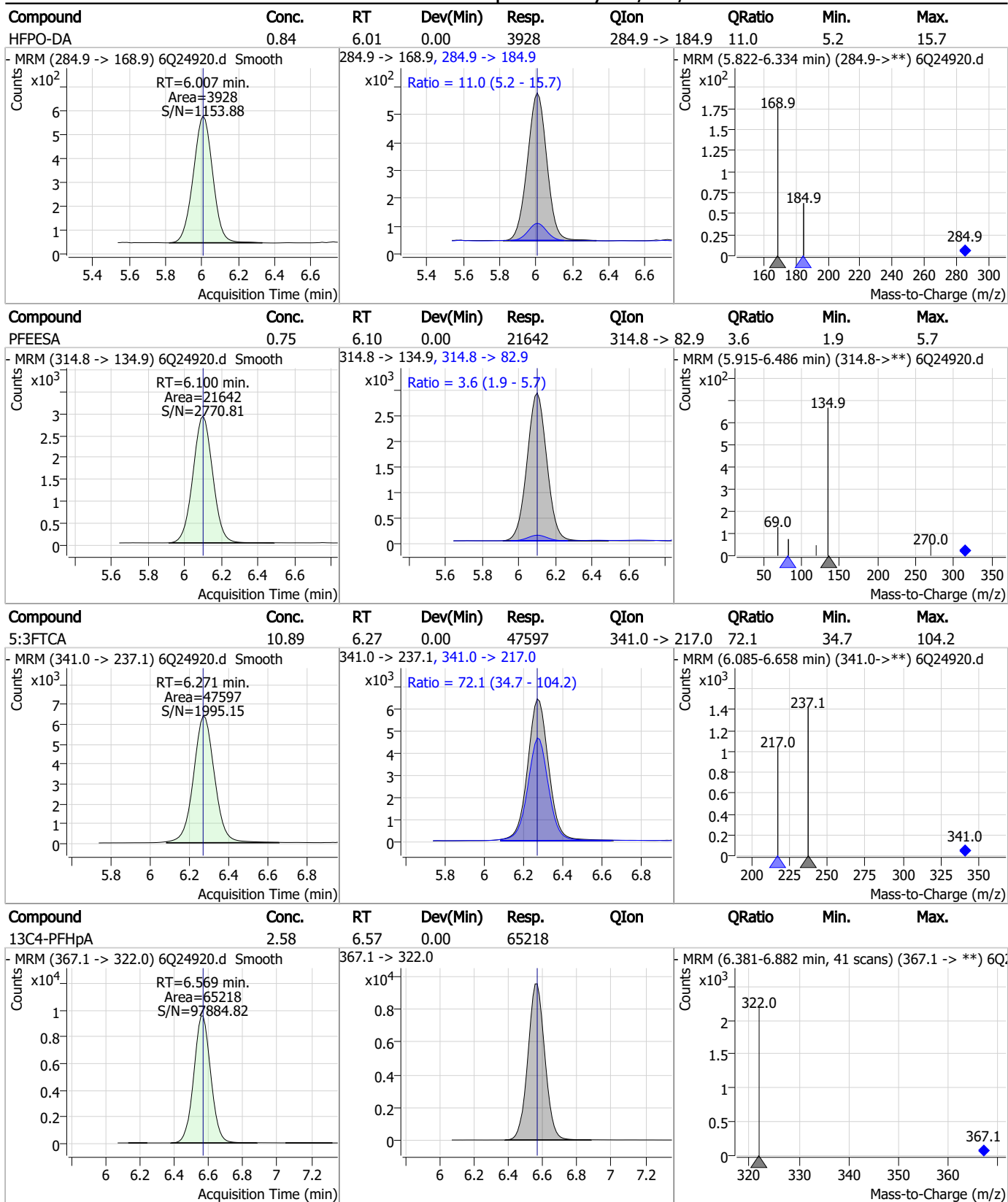


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.17	6.01	0.00	47512				



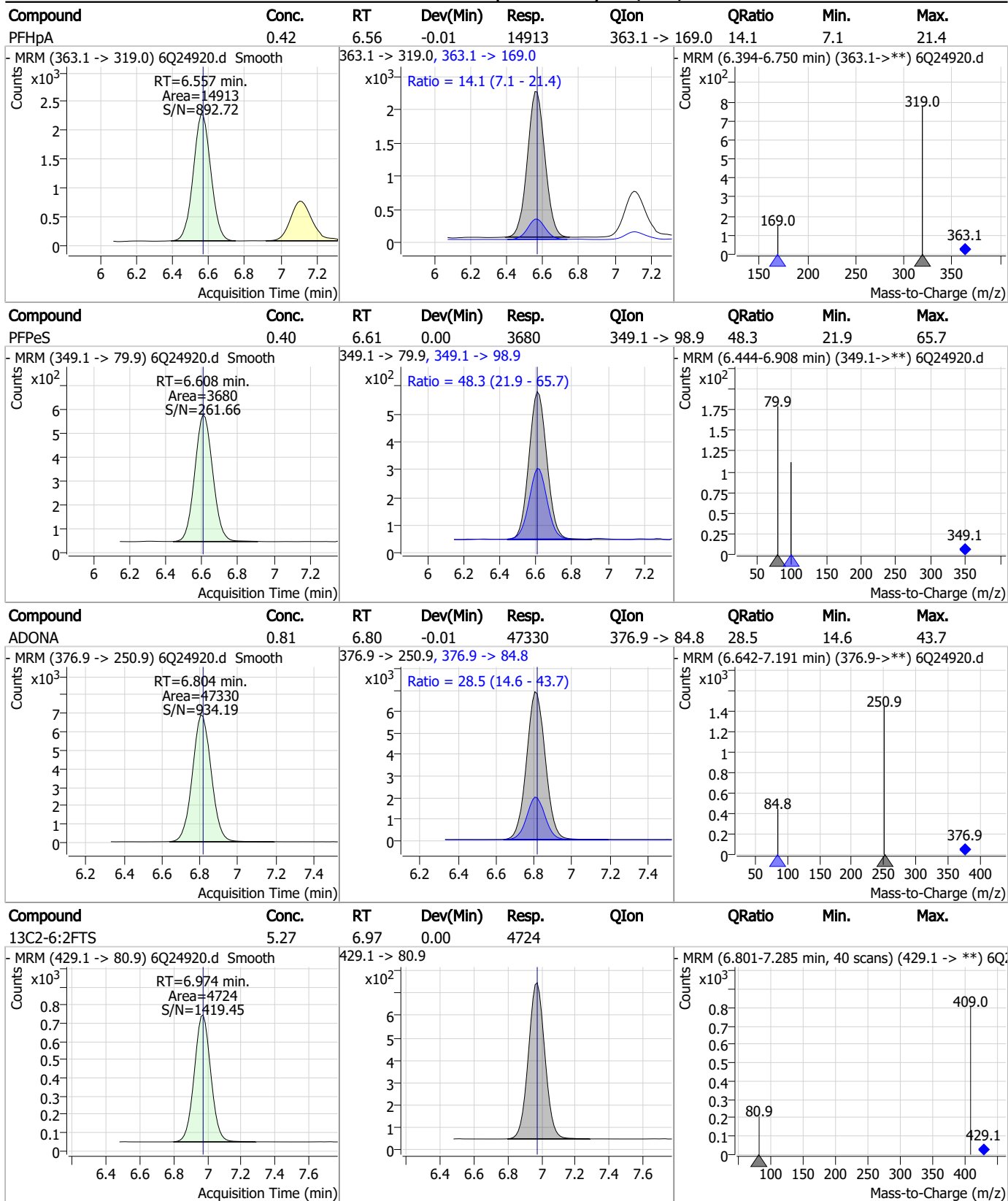
7.7.3
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Perfluorinated Compounds by LC/MS/MS



7.7.3
7

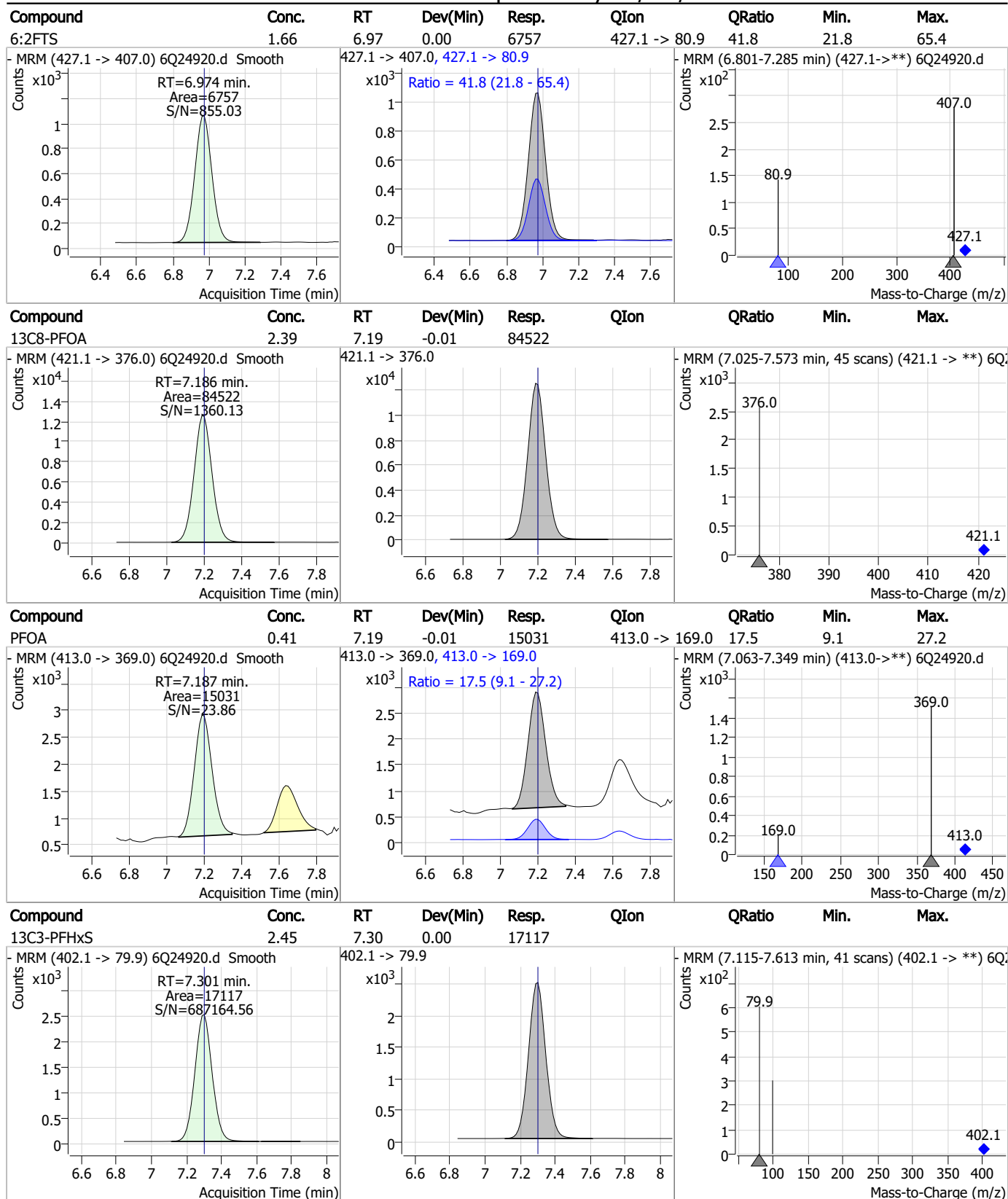
Perfluorinated Compounds by LC/MS/MS



7.7.3
7



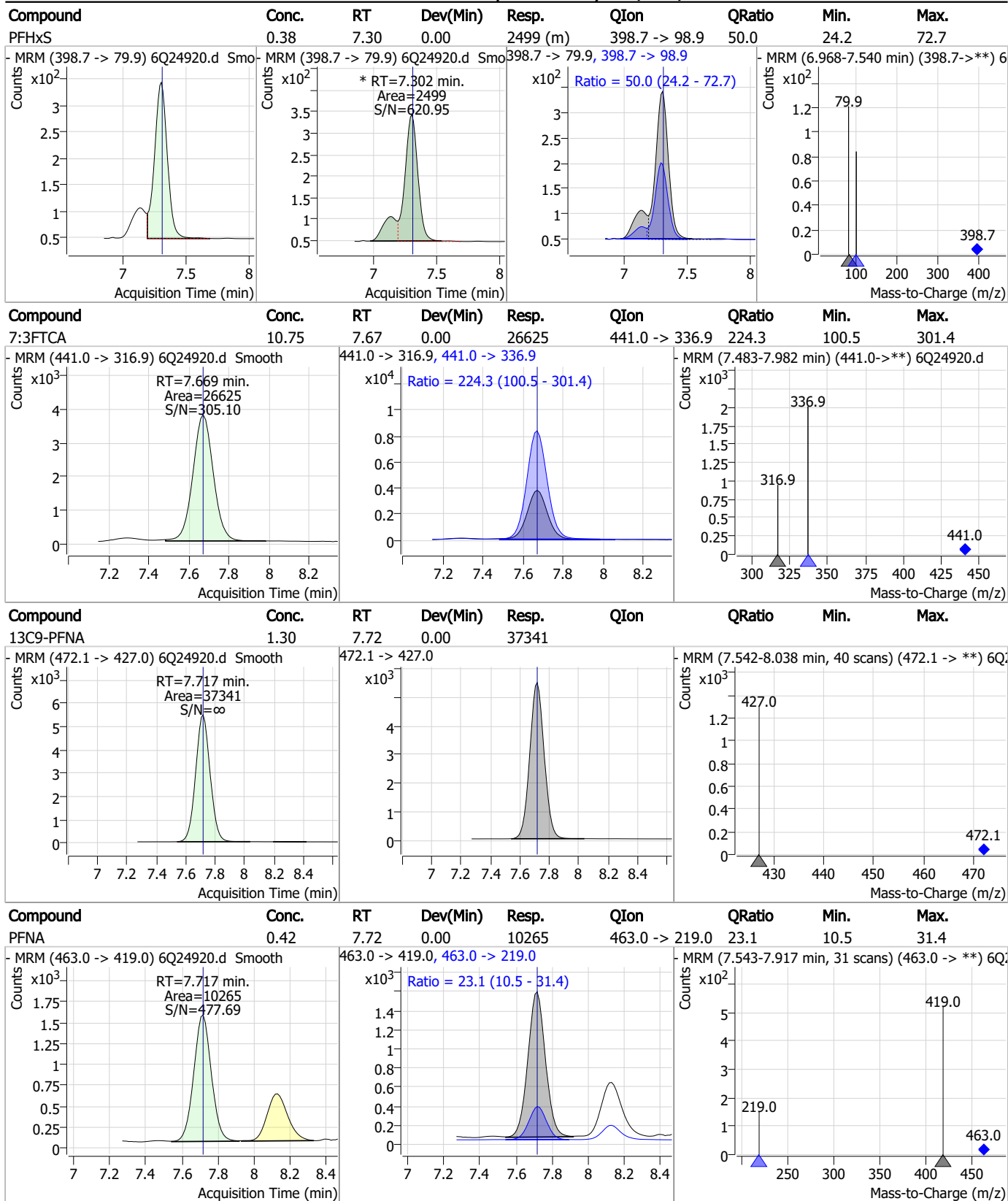
Perfluorinated Compounds by LC/MS/MS



7.7.3

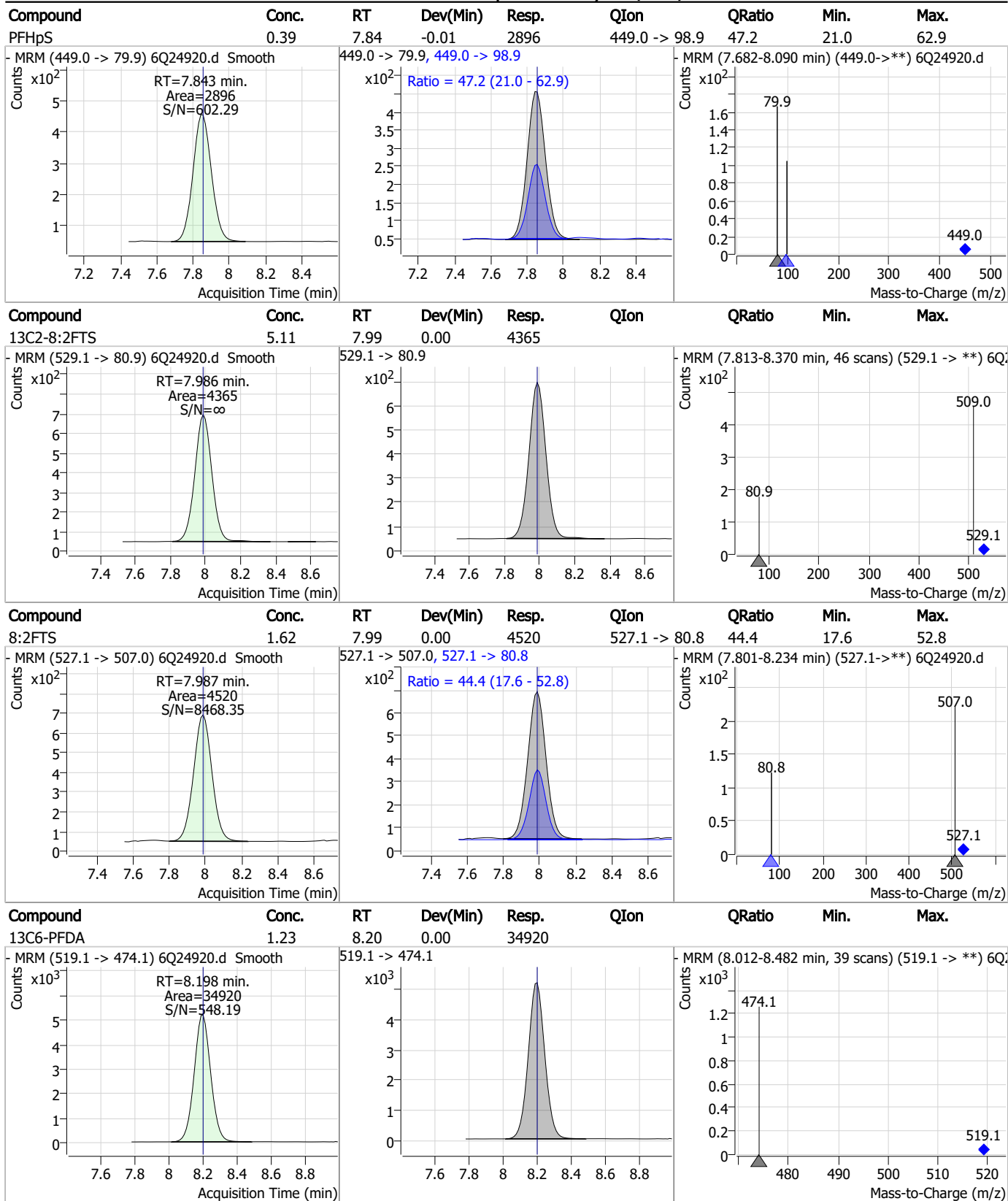
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Perfluorinated Compounds by LC/MS/MS



7.7.3
7

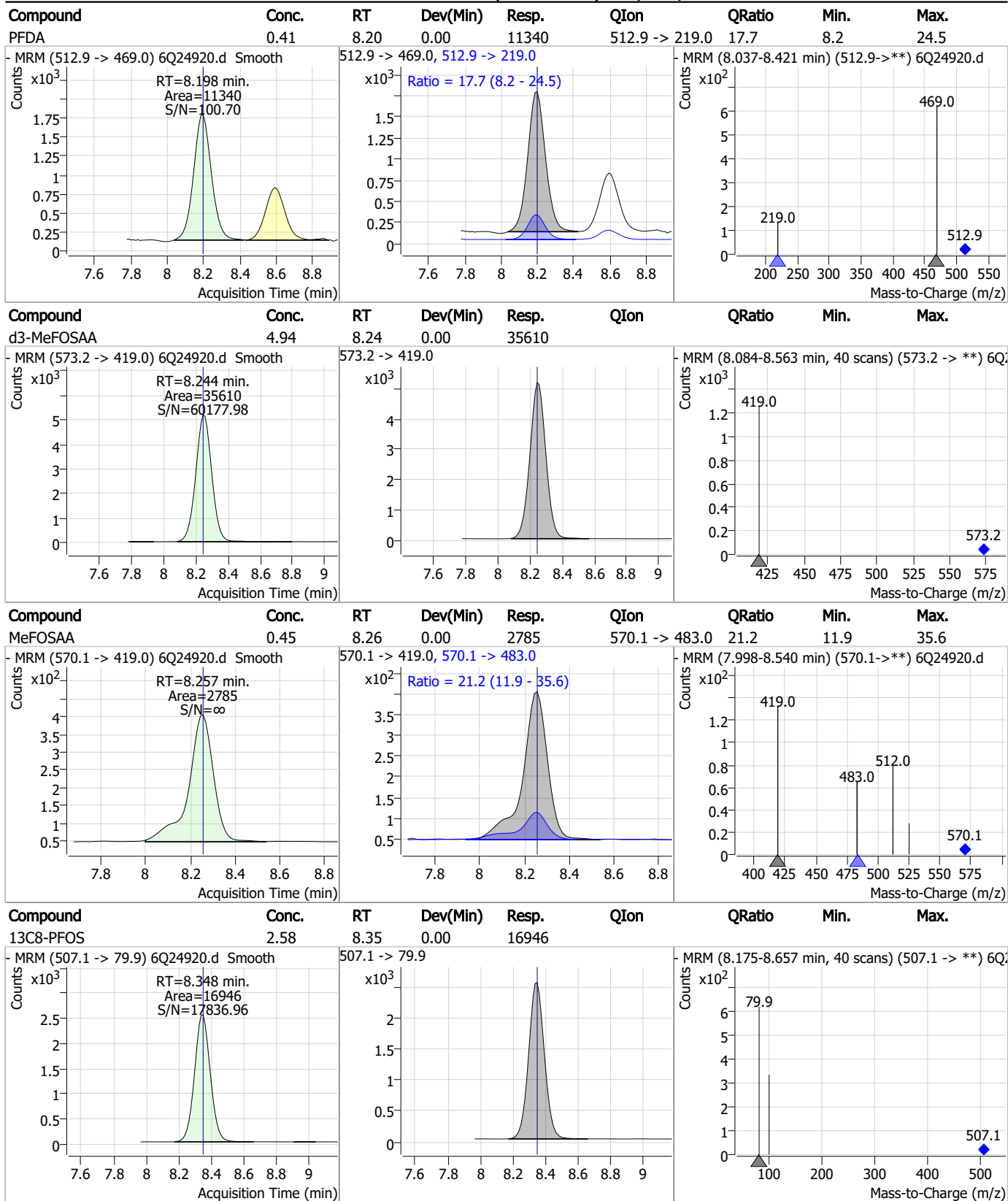
Perfluorinated Compounds by LC/MS/MS



7.7.3

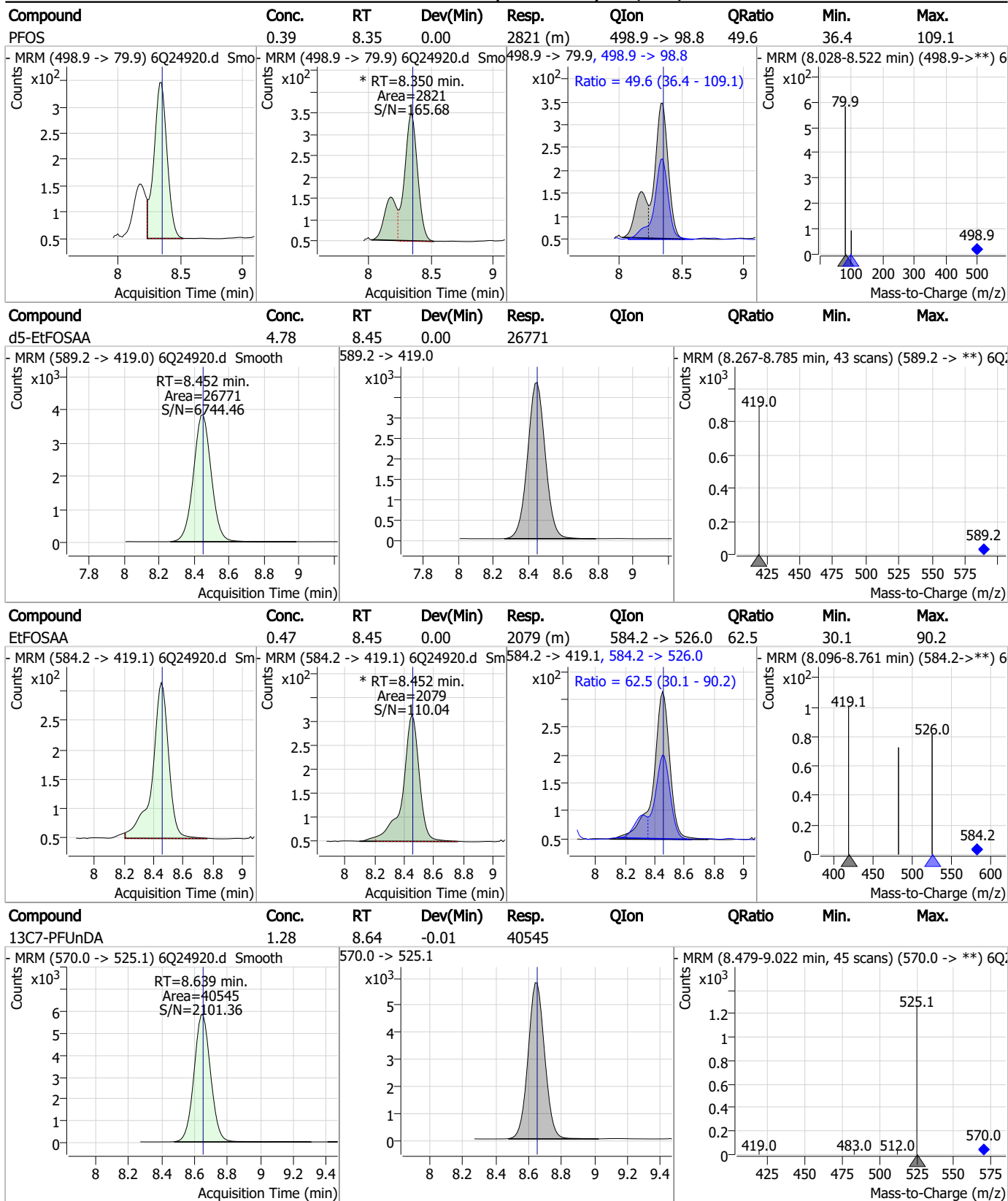
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Perfluorinated Compounds by LC/MS/MS



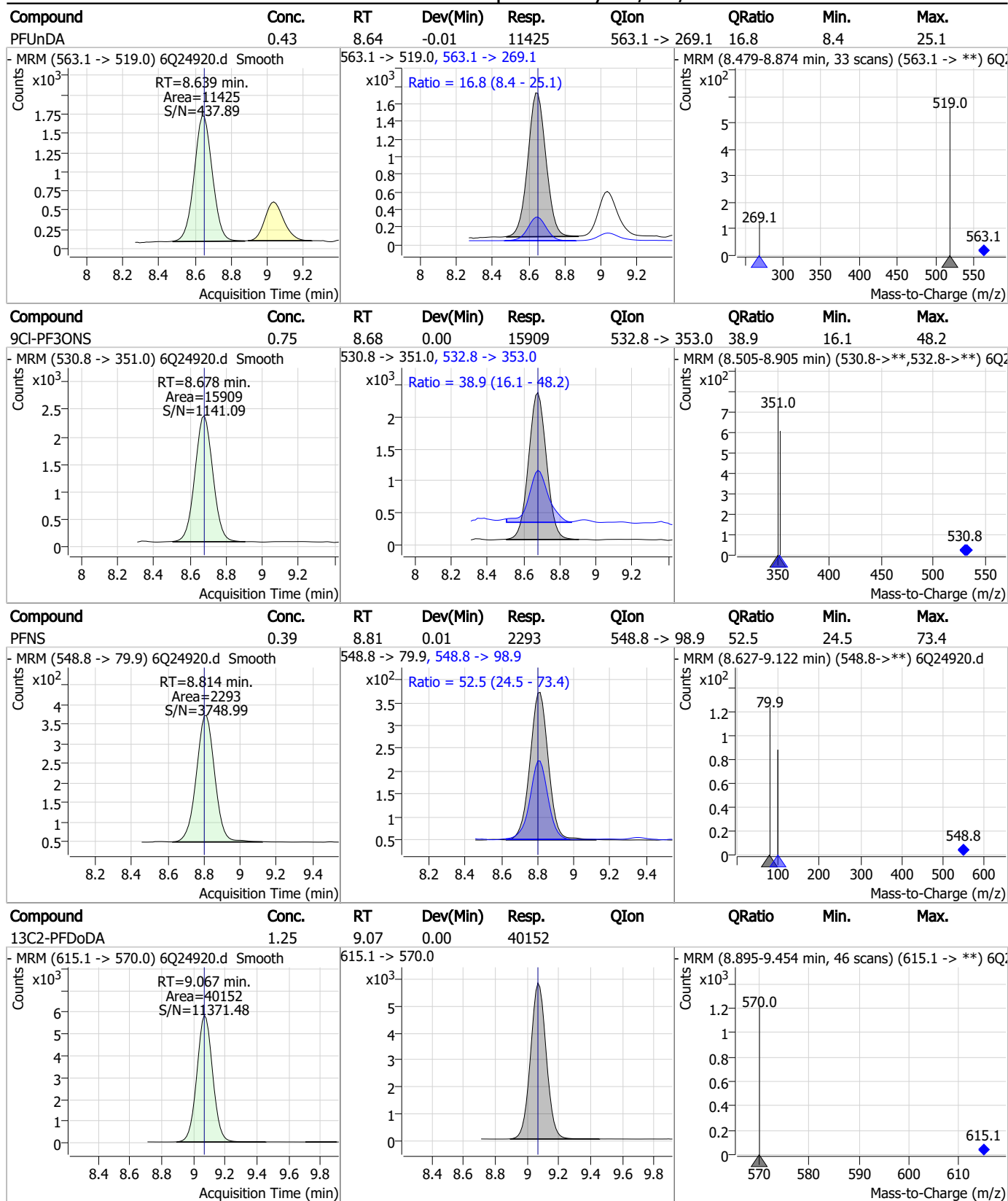
7.7.3
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Perfluorinated Compounds by LC/MS/MS



7.7.3
7

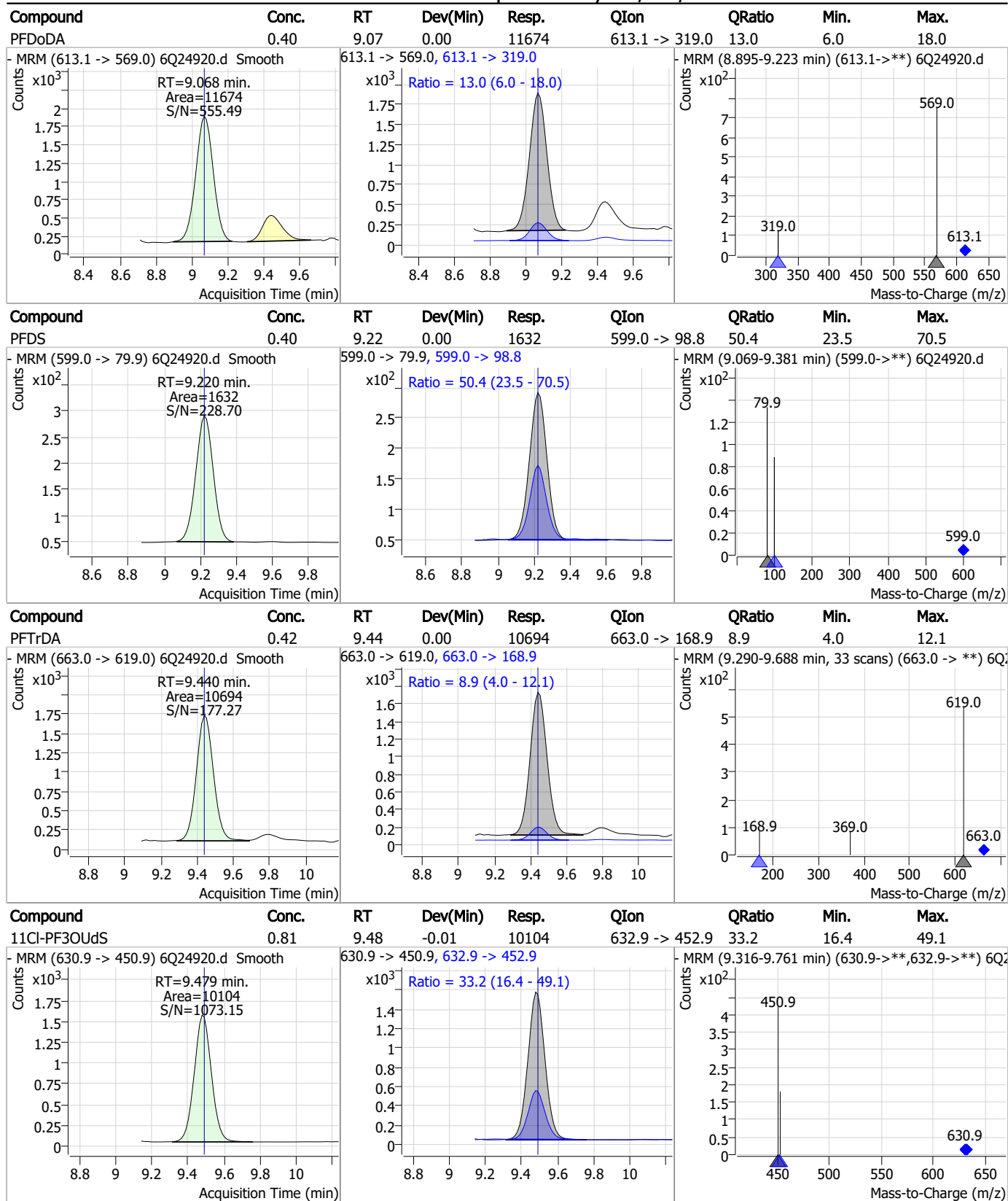
Perfluorinated Compounds by LC/MS/MS



7.7.3

7

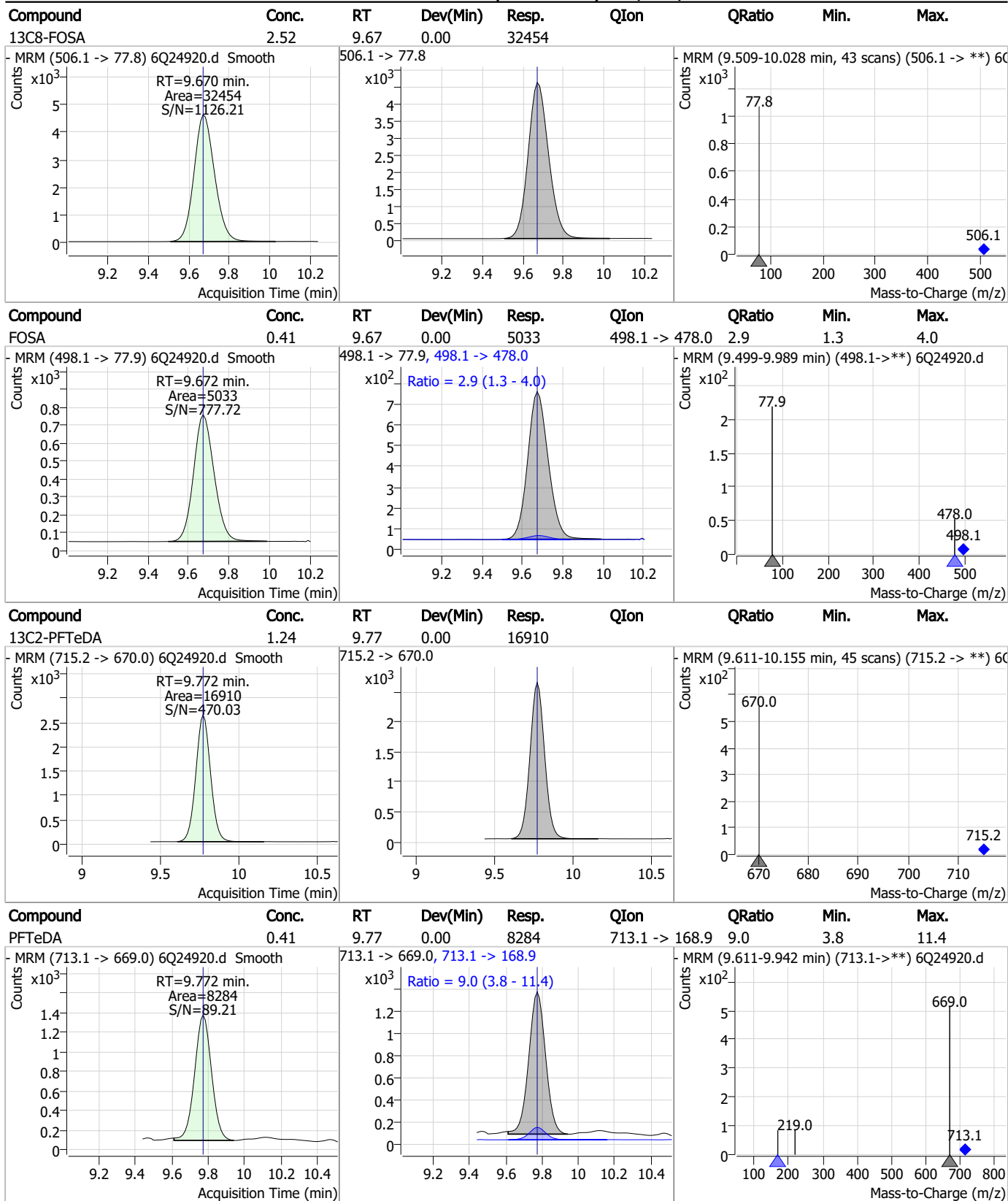
Perfluorinated Compounds by LC/MS/MS



7.7.3

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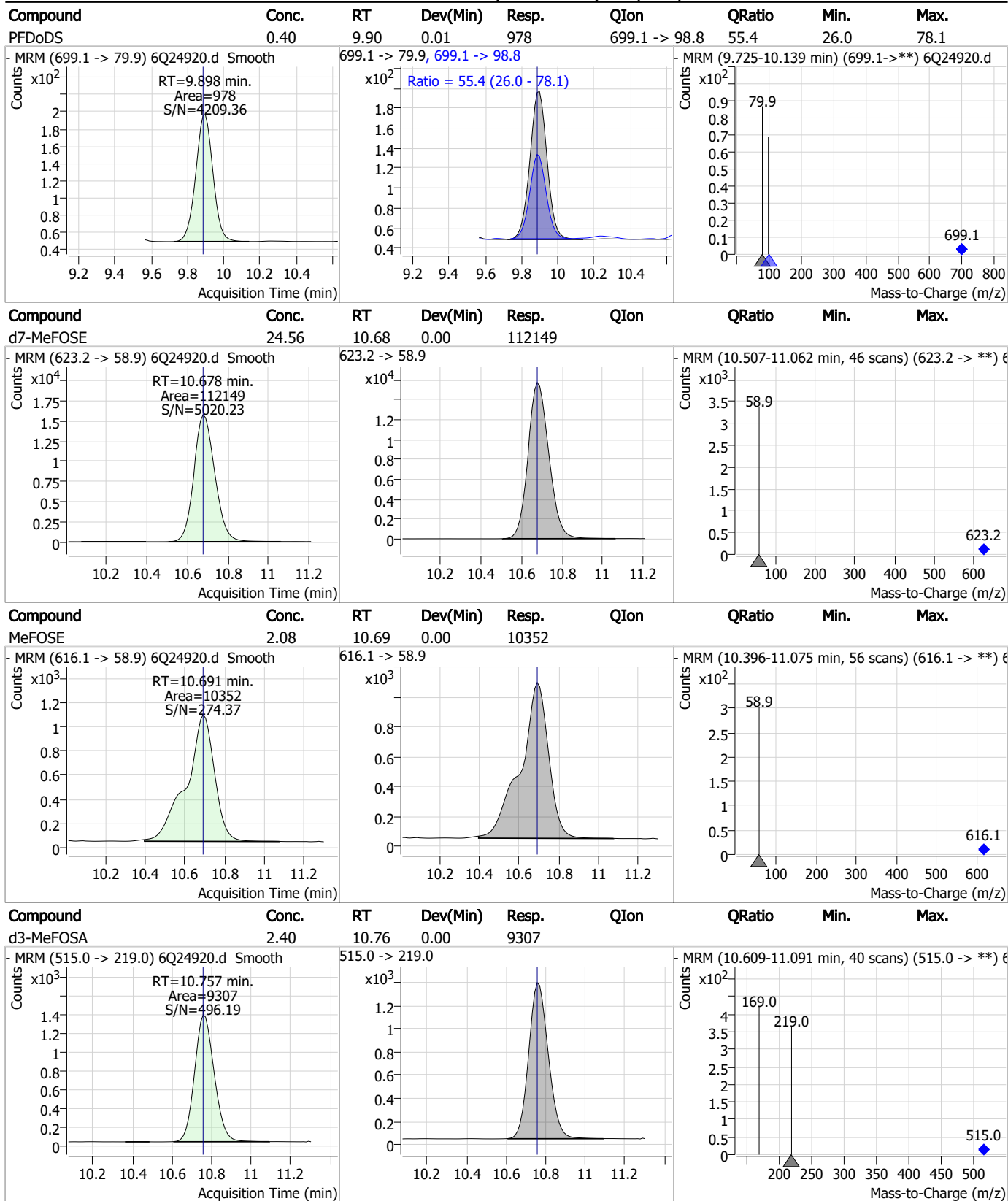
Perfluorinated Compounds by LC/MS/MS



7.7.3

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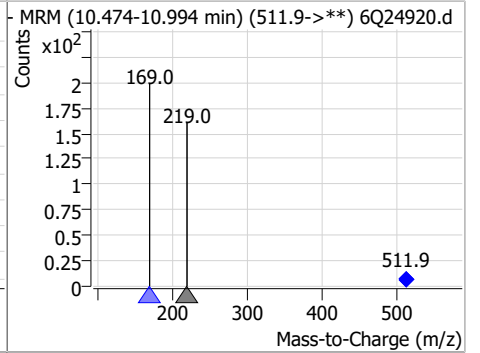
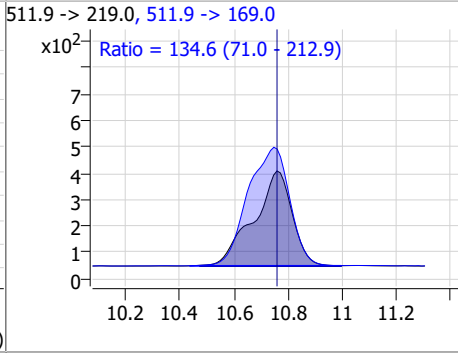
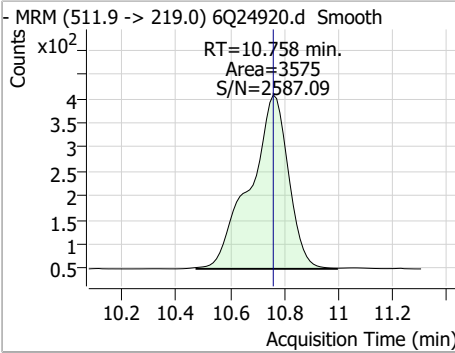
Perfluorinated Compounds by LC/MS/MS



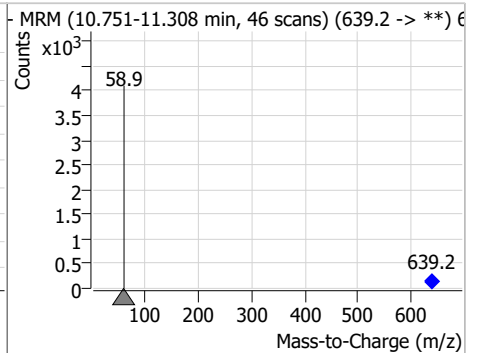
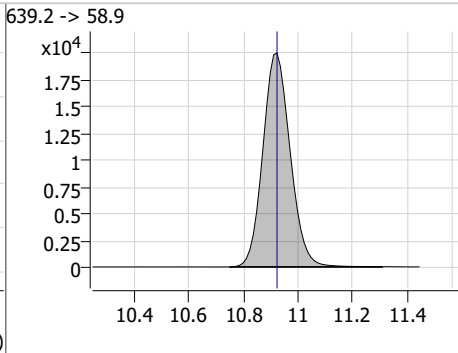
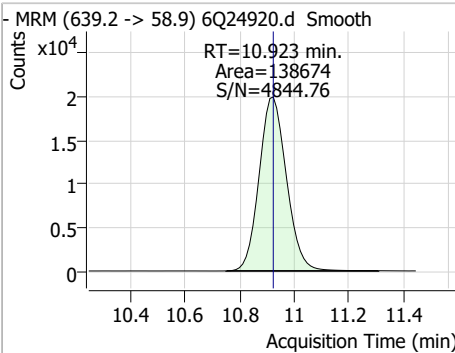
7.7.3
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Perfluorinated Compounds by LC/MS/MS

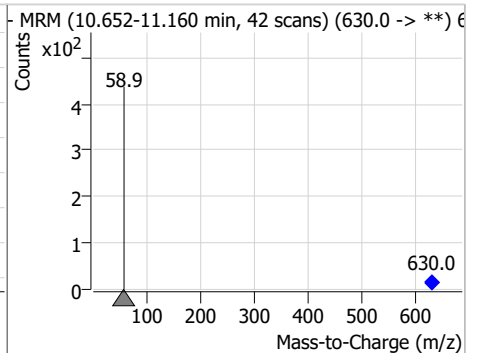
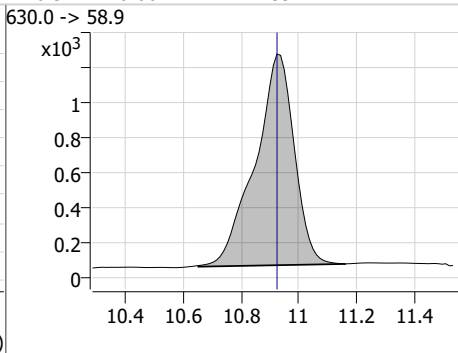
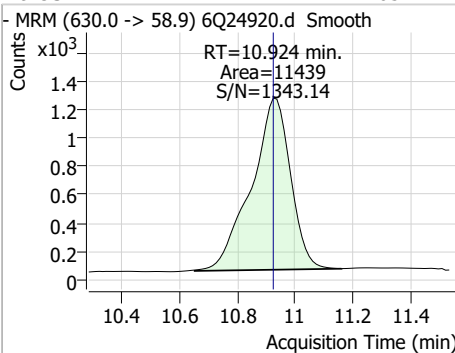
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.85	10.76	0.00	3575	511.9 -> 169.0	134.6	71.0	212.9



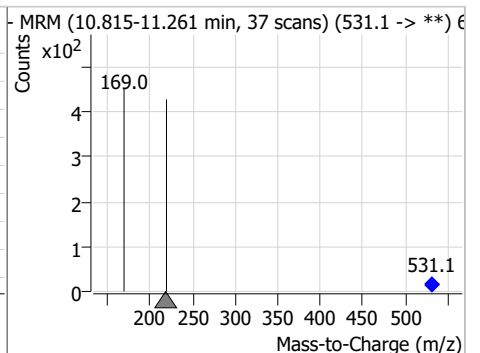
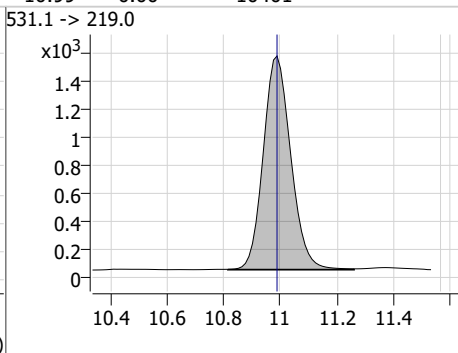
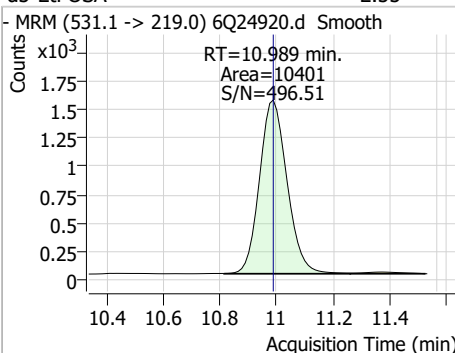
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.96	10.92	0.00	138674				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	2.05	10.92	0.00	11439				



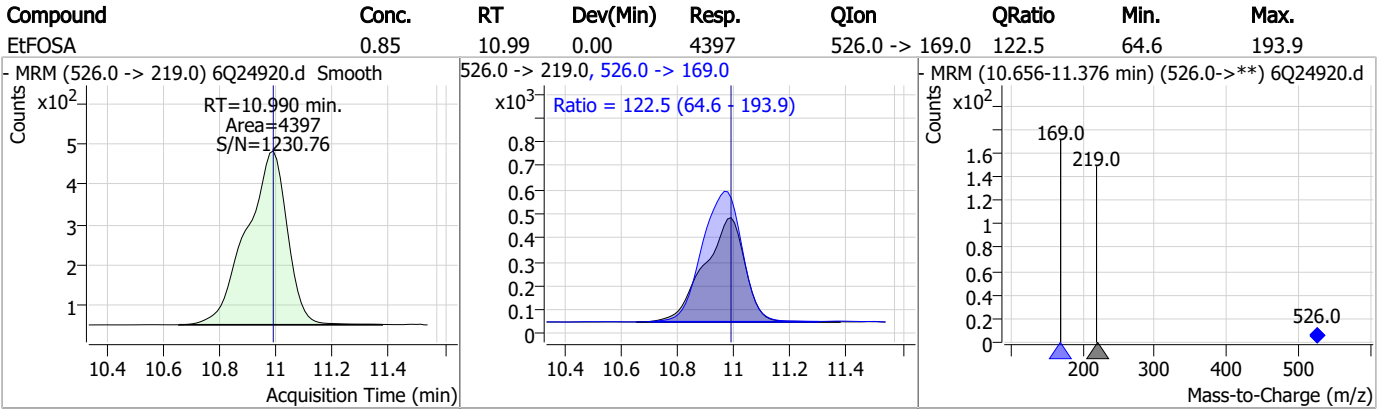
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.55	10.99	0.00	10401				



7.7.3

7

Perfluorinated Compounds by LC/MS/MS



7.7.3

7

Manual Integration Approval Summary

Sample Number: S6Q356-IC356 Method: EPA DRAFT 1633
Lab FileID: 6Q24920.D Analyst approved: 09/25/23 14:50 Martha Valls
Injection Time: 09/24/23 15:14 Supervisor approved: 09/26/23 13:54 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.45	Split peak

7.7.3.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24921.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/24/2023 3:28:39 PM
 Sample Name : ic356-3
 Vial : P1-A4
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	188036	10.00 µg/L	0.000
M5-PFPeA	4.422	268.3 -> 223.0	76441	5.00 µg/L	0.012
M5-PFHxA	5.629	318.0 -> 273.0	68366	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	67762	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	89449	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	37951	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	35928	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	41307	1.25 µg/L	0.000
M2-PFDoDA	9.067	615.1 -> 570.0	39250	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	16639	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	31051	2.50 µg/L	0.000
M3-PFBS	5.559	302.1 -> 79.9	29915	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	16843	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	16772	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	3045	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4874	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	4384	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	36178	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	47184	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	28013	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	118690	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	139717	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	10175	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9139	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	15400	2.50 µg/L	0.000
13C3-PFBA	2.976	216.0 -> 172.0	77816	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	11091	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	98462	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	33378	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	37987	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	65013	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	3045	5.37 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.4%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4874	5.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.1%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4384	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C2-PFDoDA	9.067	615.1 -> 570.0	39250	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C2-PFTeDA	9.772	715.2 -> 670.0	16639	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.4%		
13C3-PFBS	5.559	302.1 -> 79.9	29915	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C3-PFHxS	7.301	402.1 -> 79.9	16843	2.40 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.0%		
13C4-PFBA	2.972	216.8 -> 171.9	188036	10.00 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C4-PFHpA	6.569	367.1 -> 322.0	67762	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C5-PFHxA	5.629	318.0 -> 273.0	68366	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C5-PFPeA	4.422	268.3 -> 223.0	76441	4.97 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C6-PFDA	8.198	519.1 -> 474.1	35928	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C7-PFUnDA	8.651	570.0 -> 525.1	41307	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.3%		
13C8-FOSA	9.670	506.1 -> 77.8	31051	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.4%		
13C8-PFOA	7.198	421.1 -> 376.0	89449	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.8%		
13C8-PFOS	8.348	507.1 -> 79.9	16772	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C9-PFNA	7.717	472.1 -> 427.0	37951	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.4%		
d3-MeFOSAA	8.244	573.2 -> 419.0	36178	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.2%		
13C3-HFPO-DA	6.007	286.9 -> 168.9	47184	9.63 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 96.3%		
d3-MeFOSA	10.757	515.0 -> 219.0	9139	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.3%		
d5-EtFOSAA	8.452	589.2 -> 419.0	28013	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.8%		
d7-MeFOSE	10.678	623.2 -> 58.9	118690	25.69 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 102.8%		
d9-EtFOSE	10.923	639.2 -> 58.9	139717	24.86 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 99.4%		
d5-EtFOSA	10.989	531.1 -> 219.0	10175	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.8%		
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	22750	4.57 µg/L	99
		327.1 -> 80.9	9695		
6:2FTS	6.974	427.1 -> 407.0	18924	4.51 µg/L	96
		427.1 -> 80.9	8713		
8:2FTS	7.987	527.1 -> 507.0	12866	4.60 µg/L	90
		527.1 -> 80.8	5258		
EtFOSAA	8.453	584.2 -> 419.1	5483	1.18 µg/L	92
		584.2 -> 526.0	3626	m	
FOSA	9.672	498.1 -> 77.9	15513	1.31 µg/L	100
		498.1 -> 478.0	411		
MeFOSAA	8.245	570.1 -> 419.0	7595	1.20 µg/L	93
		570.1 -> 483.0	1544		
PFBA	2.981	212.8 -> 168.9	32764	4.88 µg/L	100
PFBS	5.560	298.7 -> 79.9	10678	1.09 µg/L	99
		298.7 -> 98.8	3914		
PFDA	8.198	512.9 -> 469.0	34440	1.21 µg/L	100
		512.9 -> 219.0	5631		
PFDODA	9.068	613.1 -> 569.0	34992	1.22 µg/L	95
		613.1 -> 319.0	4832		
PFDS	9.220	599.0 -> 79.9	4665	1.15 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2223			
PFHpA	6.569	363.1 -> 319.0	42522	1.16	µg/L	99
		363.1 -> 169.0	6247			
PFHpS	7.856	449.0 -> 79.9	8567	1.16	µg/L	88
		449.0 -> 98.9	4267			
PFHxA	5.631	313.0 -> 269.0	29784	1.21	µg/L	99
		313.0 -> 118.9	1355			
PFHxS	7.302	398.7 -> 79.9	7560	1.15	µg/L	m 97
		398.7 -> 98.9	3797			
PFNA	7.717	463.0 -> 419.0	28241	1.15	µg/L	91
		463.0 -> 219.0	7127			
PFNS	8.814	548.8 -> 79.9	6994	1.20	µg/L	99
		548.8 -> 98.9	3489			
PFOA	7.200	413.0 -> 369.0	44419	1.16	µg/L	99
		413.0 -> 169.0	8178			
PFOS	8.350	498.9 -> 79.9	7831	1.08	µg/L	m 73
		498.9 -> 98.8	3952			
PFPeA	4.424	263.0 -> 219.0	37017	2.41	µg/L	100
PFPeS	6.620	349.1 -> 79.9	10783	1.18	µg/L	94
		349.1 -> 98.9	5121			
PFTeDA	9.772	713.1 -> 669.0	24511	1.25	µg/L	100
		713.1 -> 168.9	1828			
PFTrDA	9.440	663.0 -> 619.0	31796	1.27	µg/L	99
		663.0 -> 168.9	2678			
PFUnDA	8.652	563.1 -> 519.0	32368	1.18	µg/L	97
		563.1 -> 269.1	4934			
11Cl-PF3OUdS	9.491	630.9 -> 450.9	30242	2.45	µg/L	100
		632.9 -> 452.9	9896			
9Cl-PF3ONS	8.678	530.8 -> 351.0	52042	2.48	µg/L	96
		532.8 -> 353.0	15497			
ADONA	6.804	376.9 -> 250.9	136534	2.35	µg/L	99
		376.9 -> 84.8	40192			
HFPO-DA	6.007	284.9 -> 168.9	11612	2.50	µg/L	98
		284.9 -> 184.9	1124			
3:3FTCA	3.846	241.0 -> 177.0	6440	5.91	µg/L	99
		241.0 -> 117.0	732			
5:3FTCA	6.271	341.0 -> 237.1	136831	29.66	µg/L	97
		341.0 -> 217.0	91803			
7:3FTCA	7.669	441.0 -> 316.9	77340	29.59	µg/L	92
		441.0 -> 336.9	164553			
EtFOSA	10.990	526.0 -> 219.0	12545	2.48	µg/L	95
		526.0 -> 169.0	15560			
EtFOSE	10.924	630.0 -> 58.9	34557	6.16	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	10744	2.61	µg/L	95
		511.9 -> 169.0	14532			
MeFOSE	10.691	616.1 -> 58.9	31704	6.03	µg/L	100
PFDoDS	9.898	699.1 -> 79.9	2640	1.09	µg/L	86
		699.1 -> 98.8	1627			
NFDHA	5.512	295.0 -> 201.0	7464	2.37	µg/L	96
		295.0 -> 84.9	2137			
PFMBA	4.838	279.0 -> 85.1	29864	2.42	µg/L	100
PFMPA	3.551	229.0 -> 84.9	22220	2.42	µg/L	100
PFEESA	6.100	314.8 -> 134.9	66241	2.17	µg/L	100
		314.8 -> 82.9	2579			

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

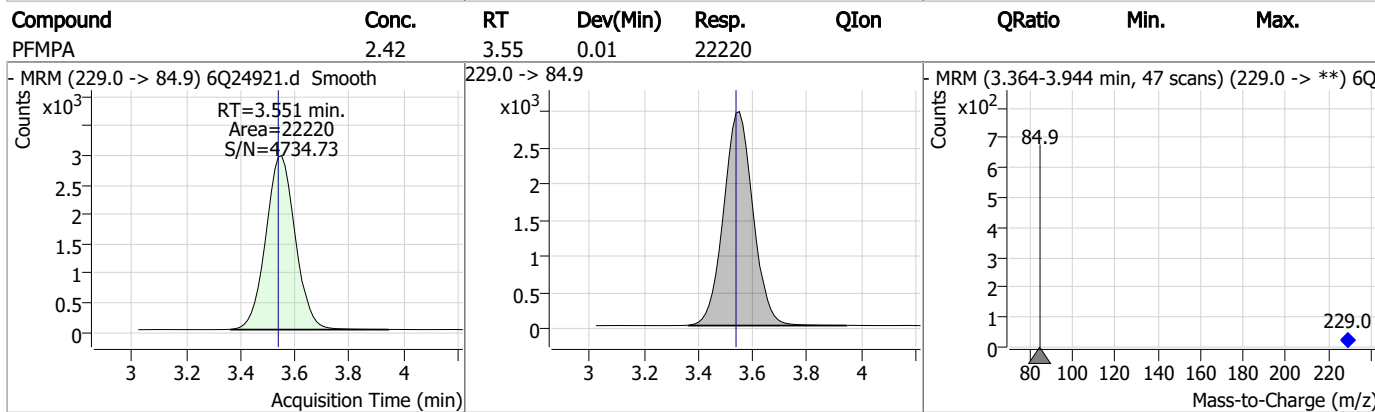
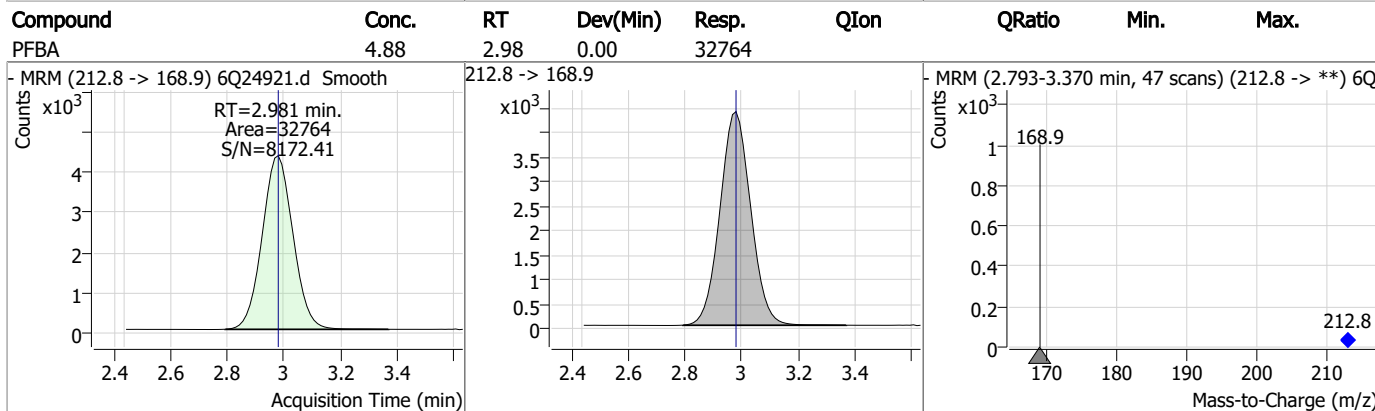
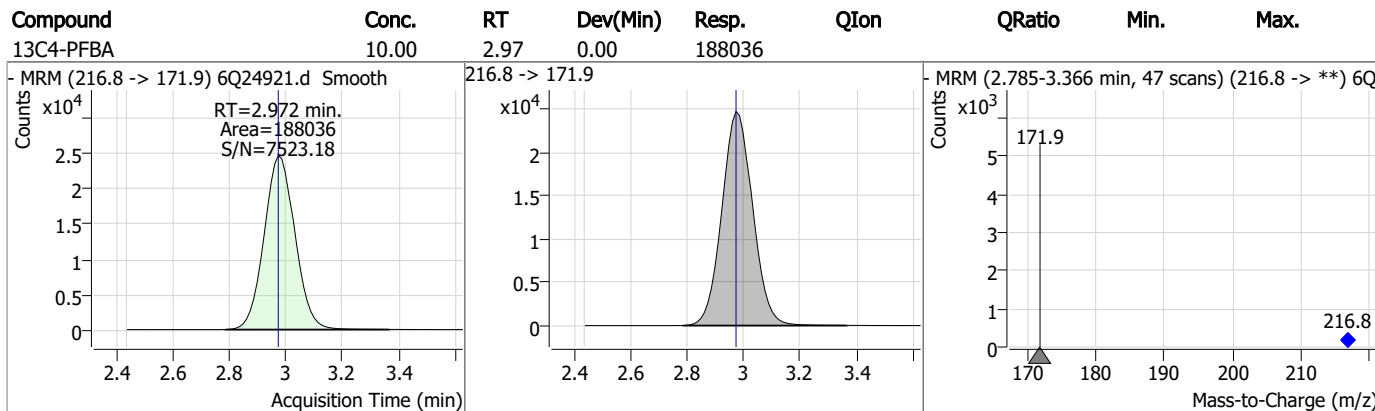
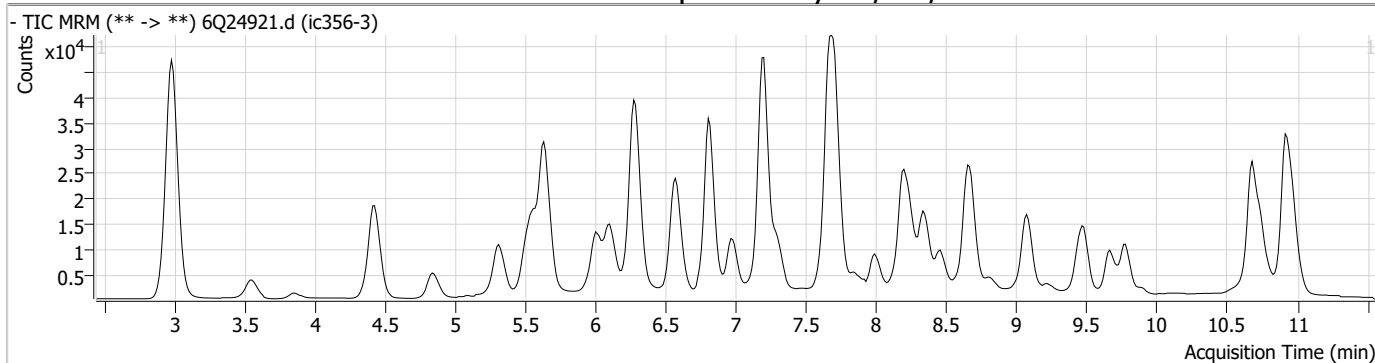
Perfluorinated Compounds by LC/MS/MS

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

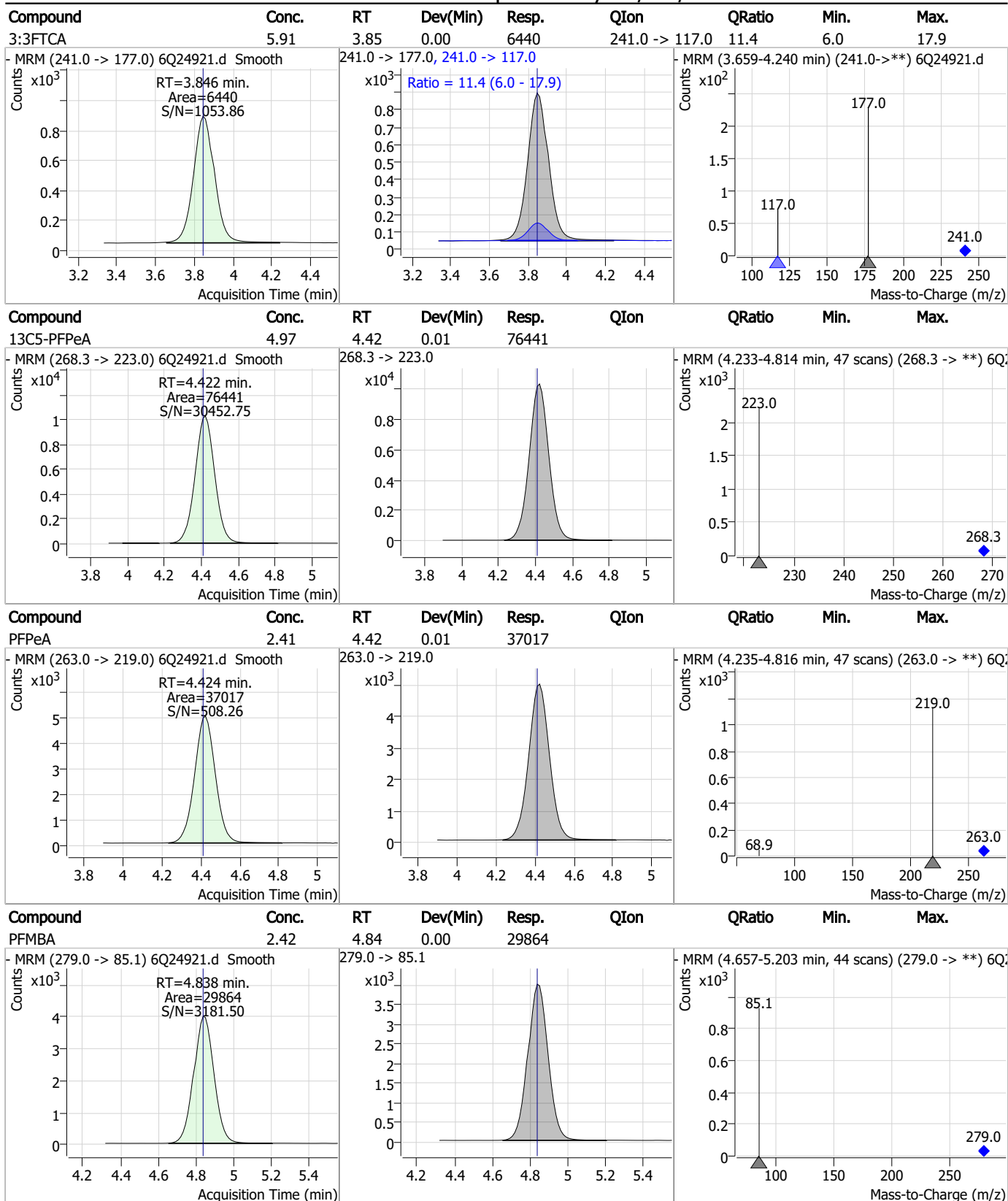
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Perfluorinated Compounds by LC/MS/MS



7.7.4
7

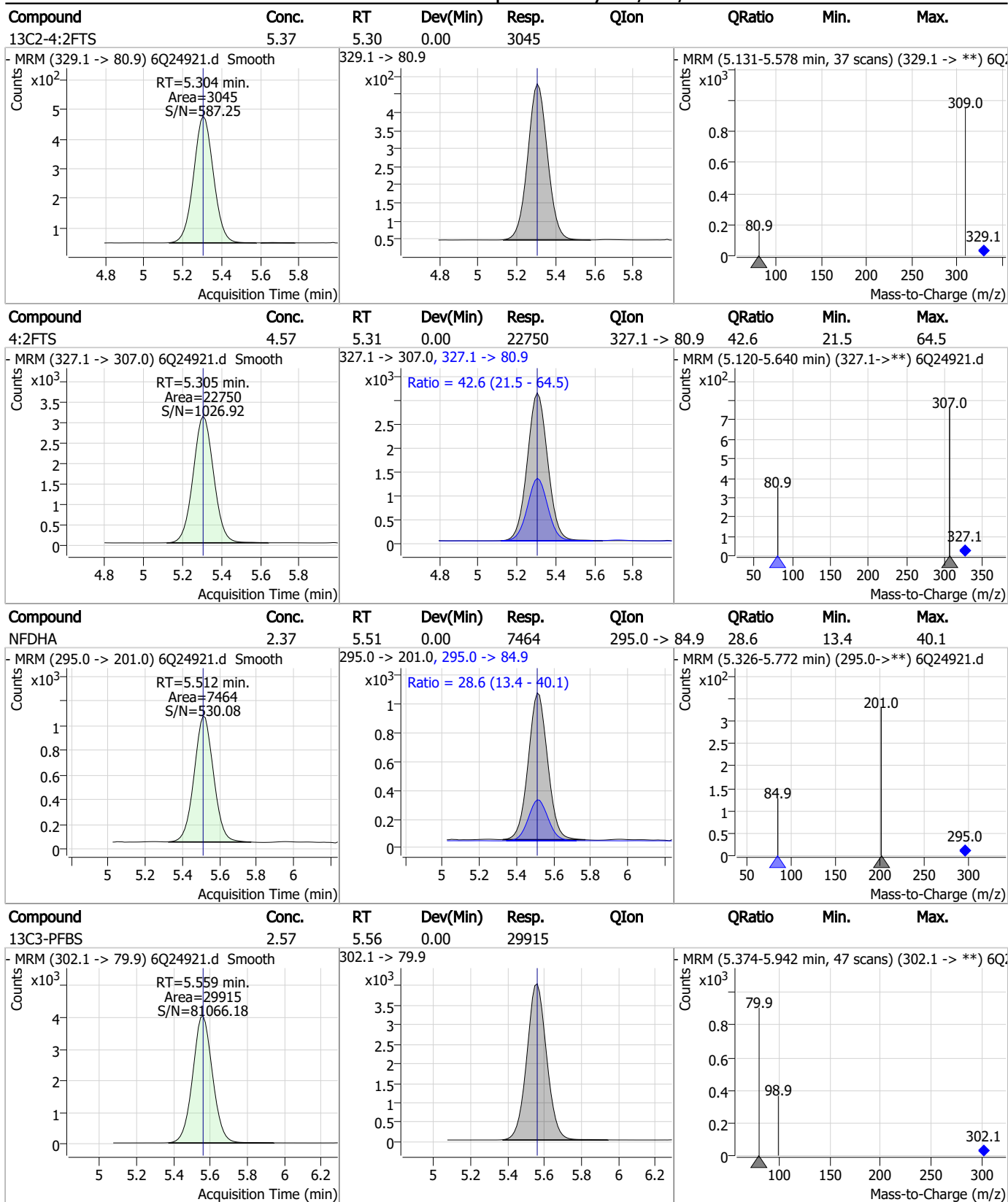
Perfluorinated Compounds by LC/MS/MS



7.7.4

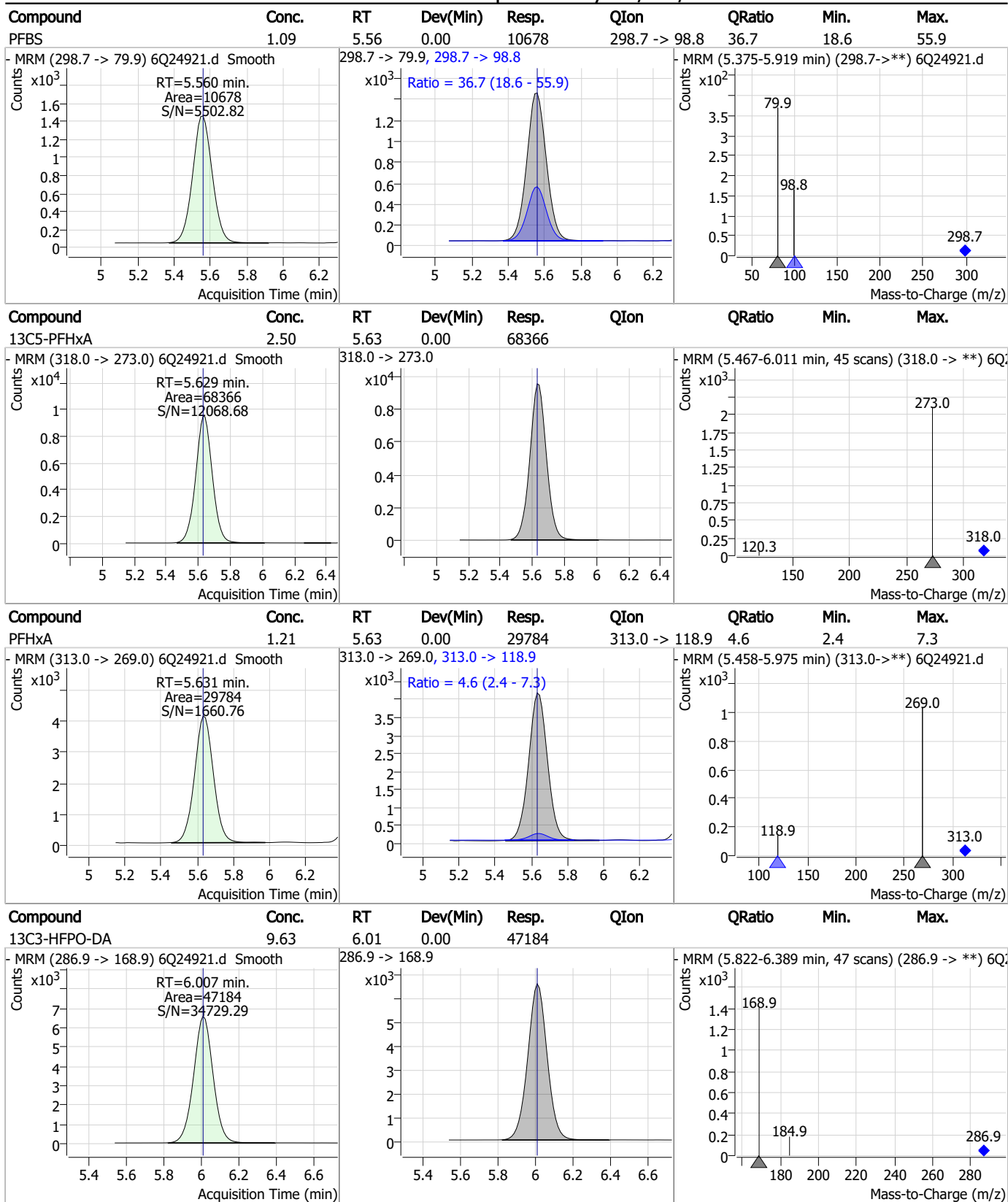
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Perfluorinated Compounds by LC/MS/MS



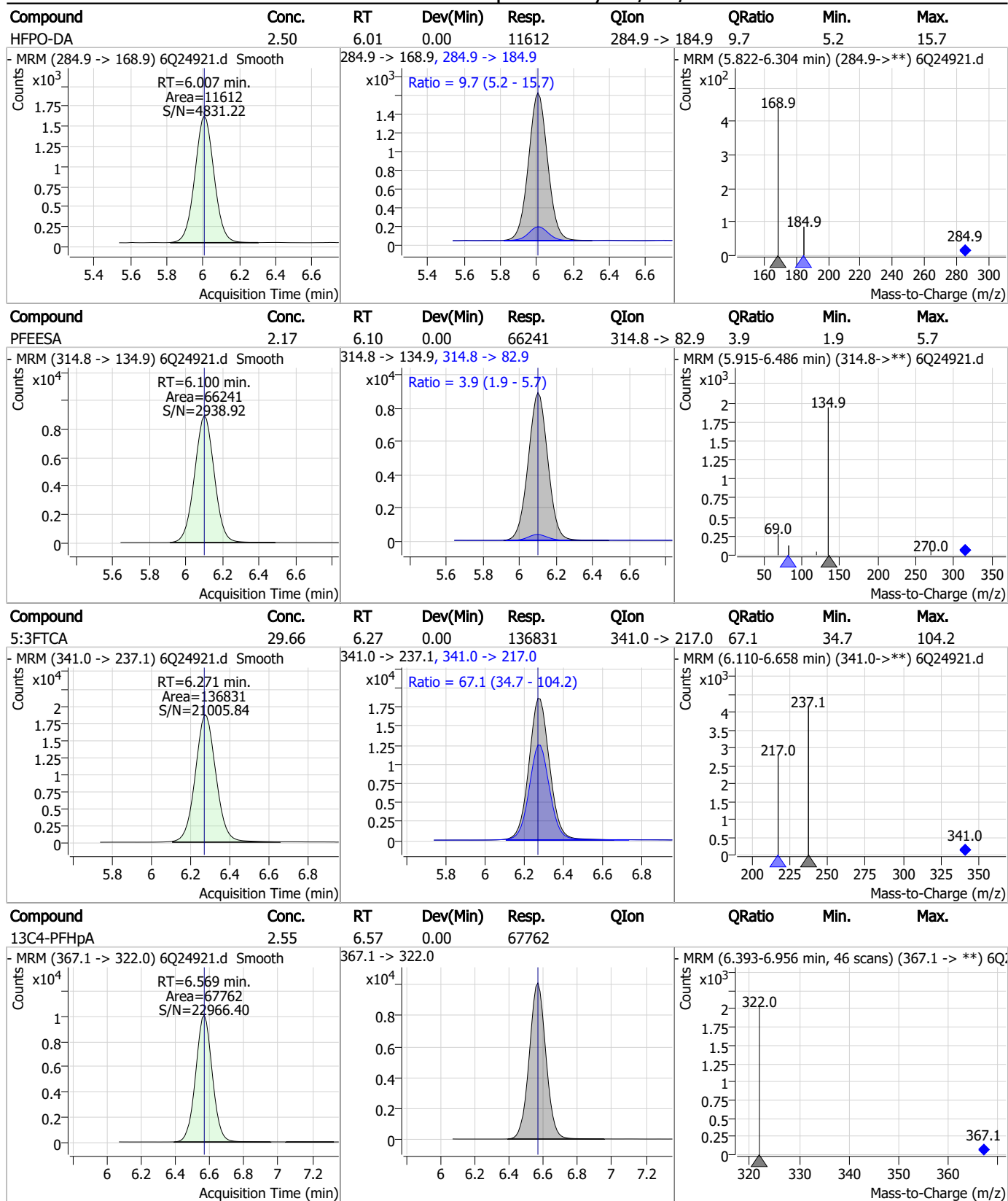
7.7.4
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Perfluorinated Compounds by LC/MS/MS



7.7.4
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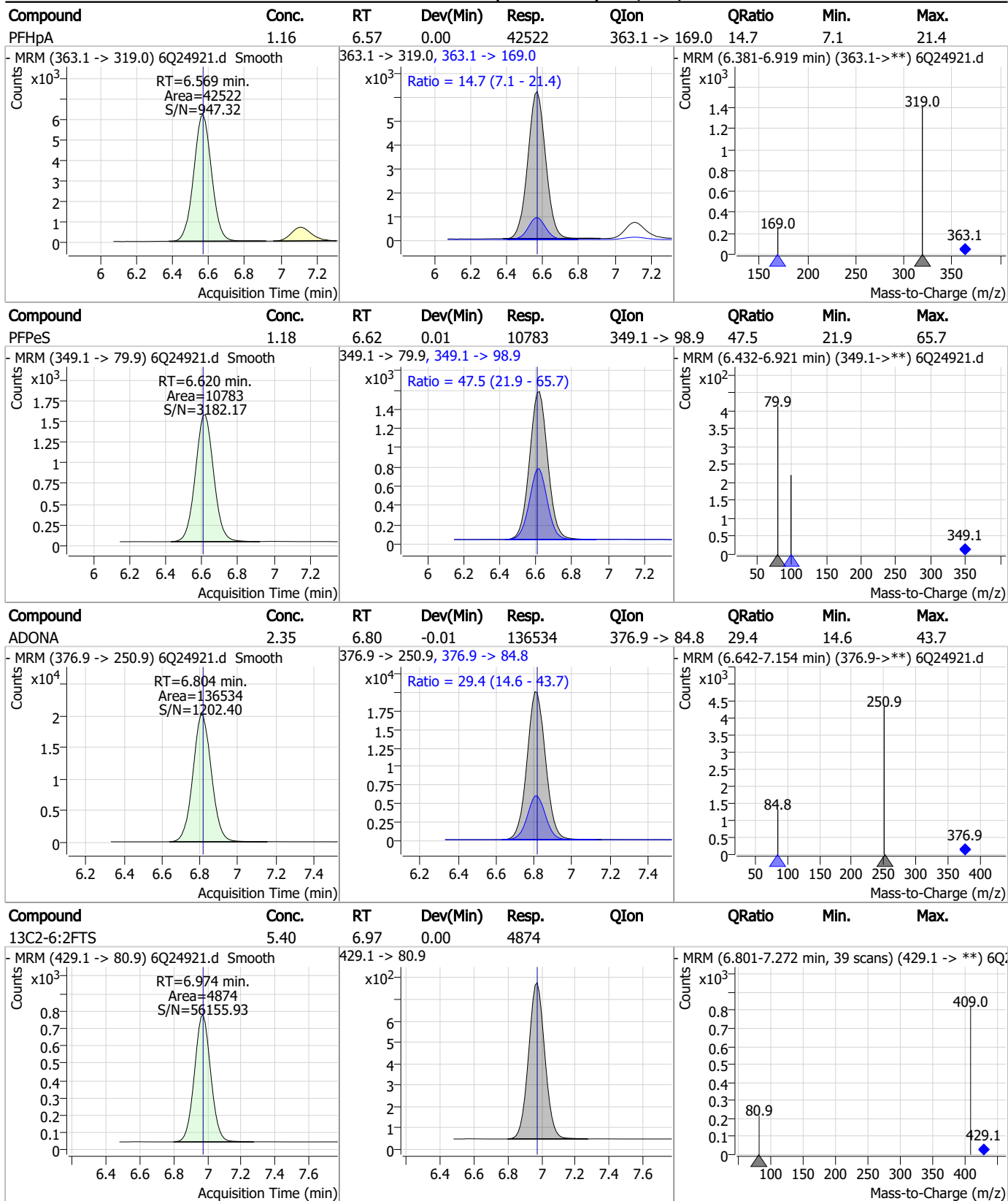
Perfluorinated Compounds by LC/MS/MS



7.7.4

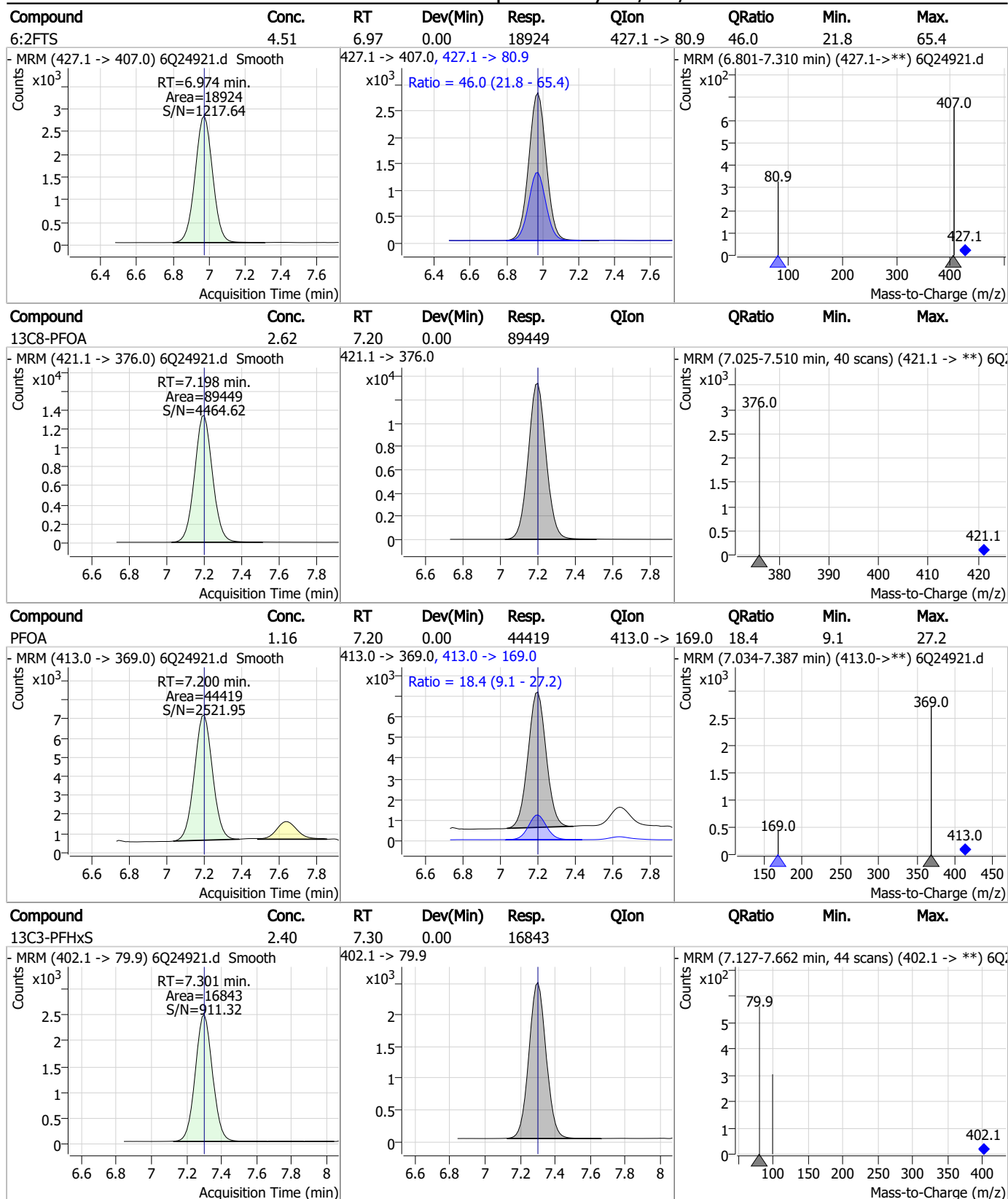
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Perfluorinated Compounds by LC/MS/MS



7.7.4
7

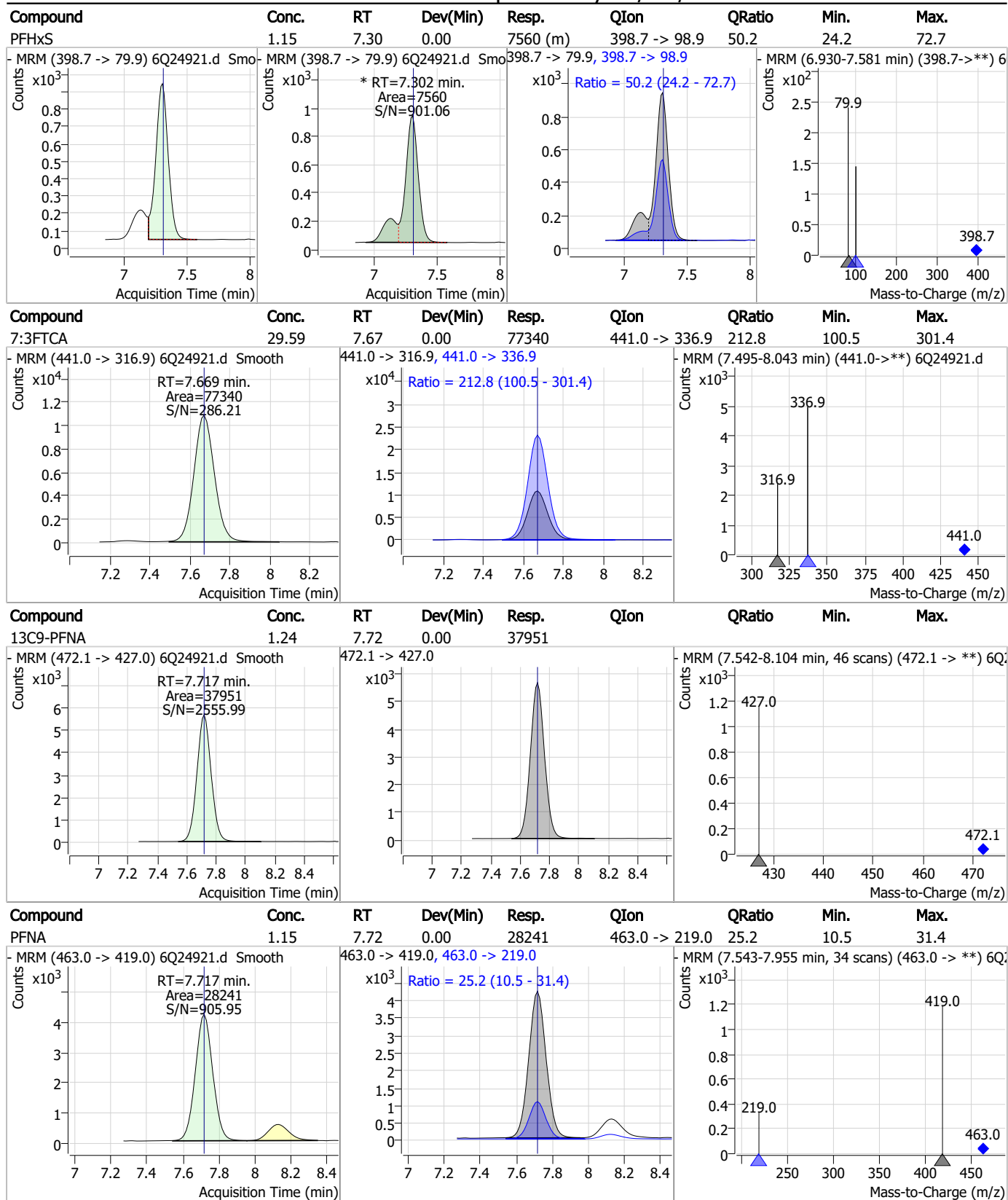
Perfluorinated Compounds by LC/MS/MS



7.7.4

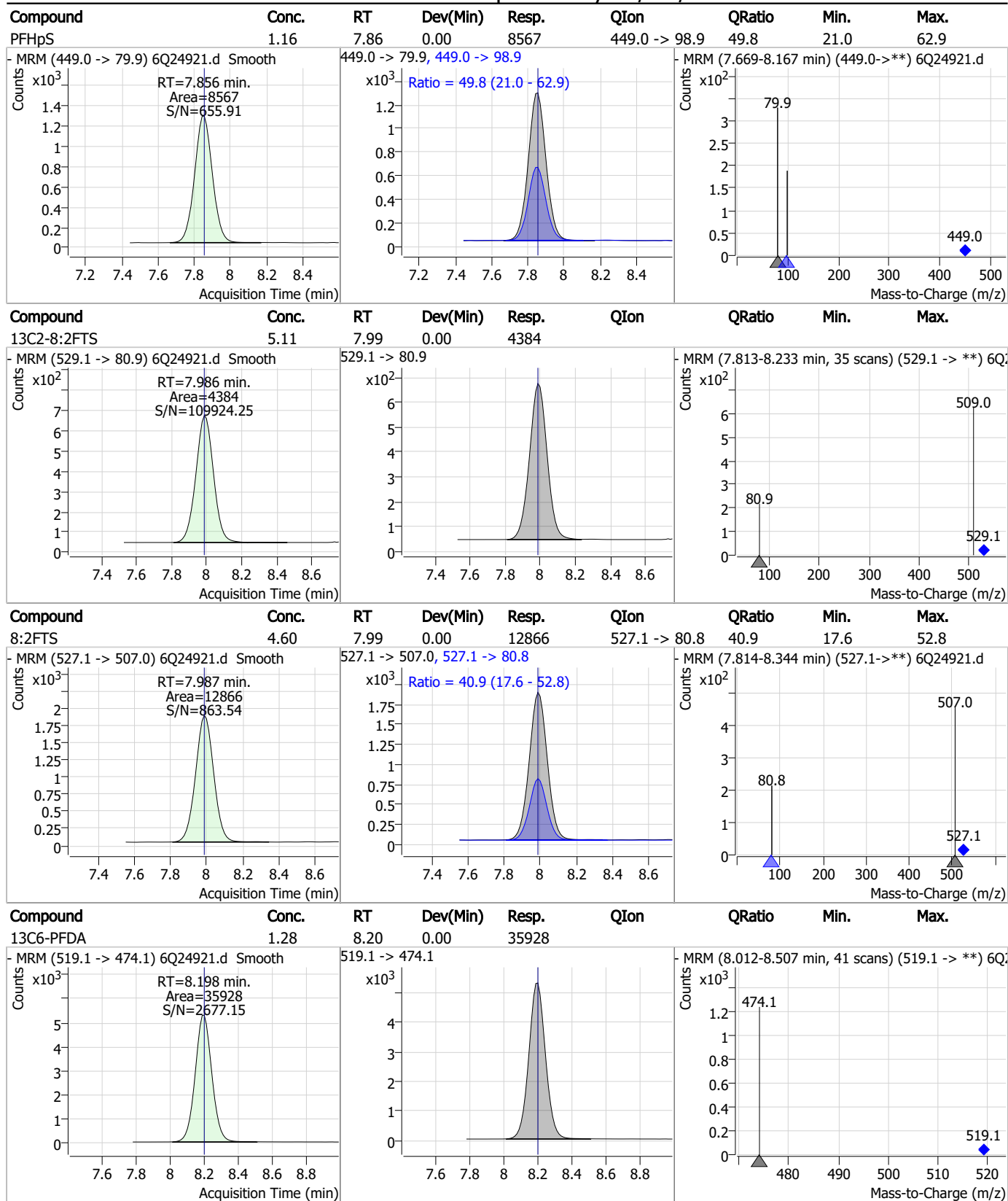
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Perfluorinated Compounds by LC/MS/MS



7.7.4
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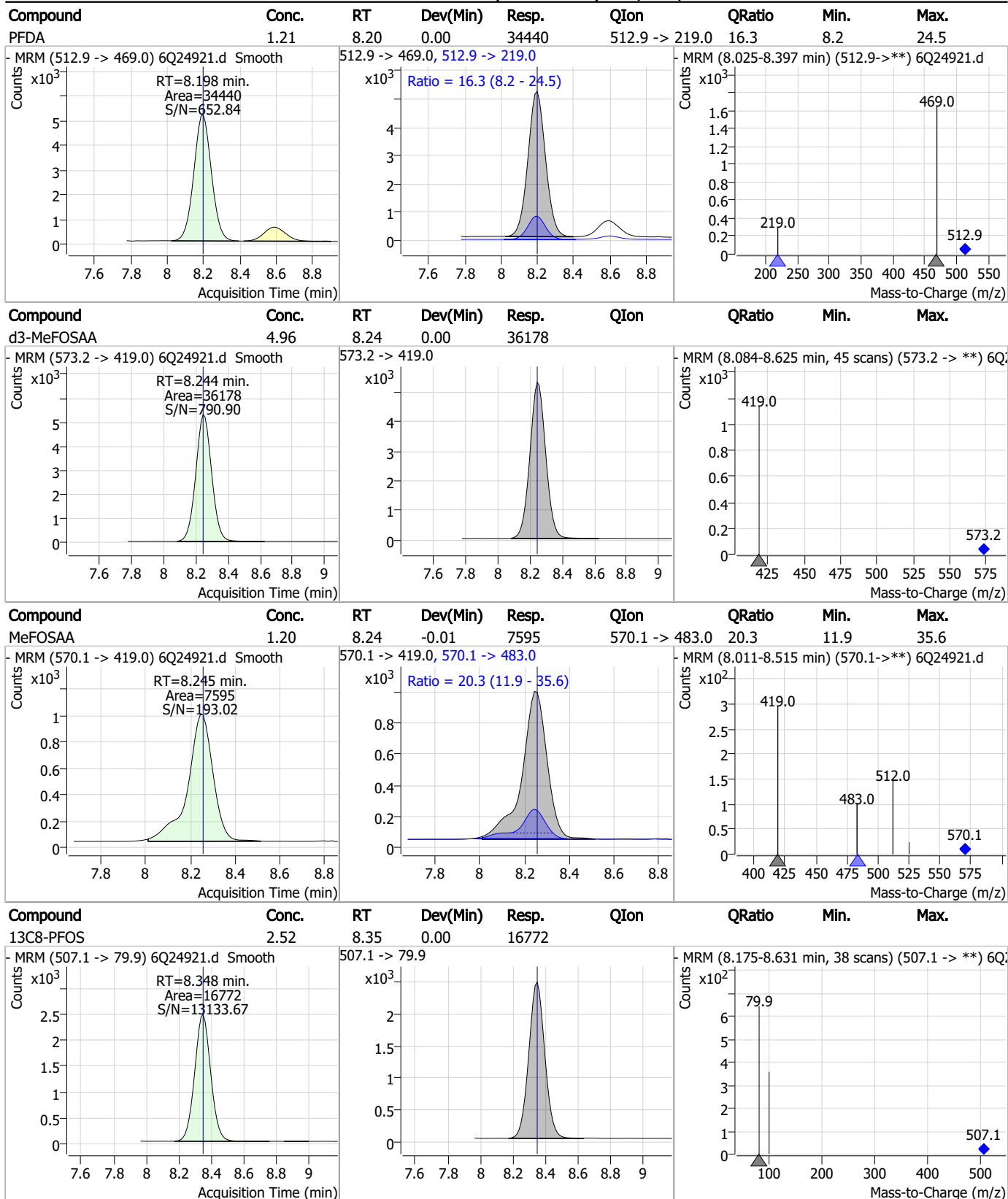
Perfluorinated Compounds by LC/MS/MS



7.7.4

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Perfluorinated Compounds by LC/MS/MS

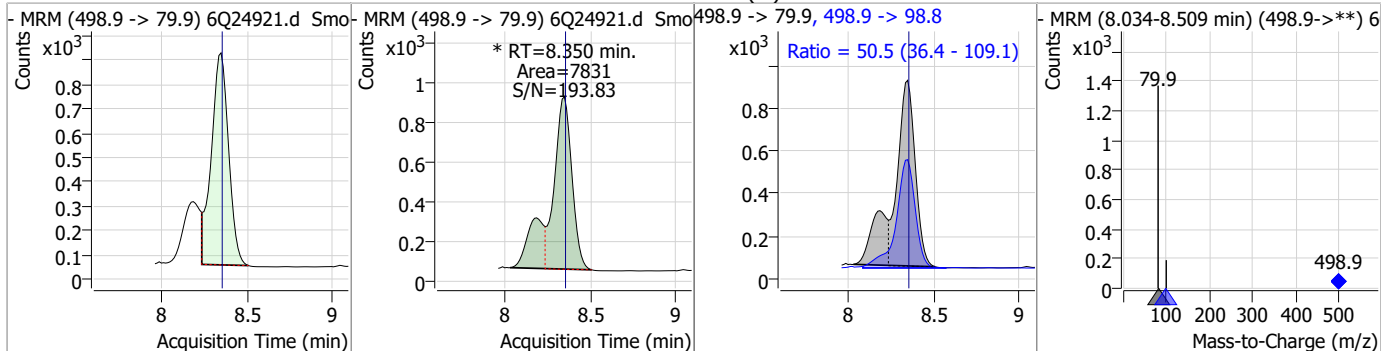


7.7.4

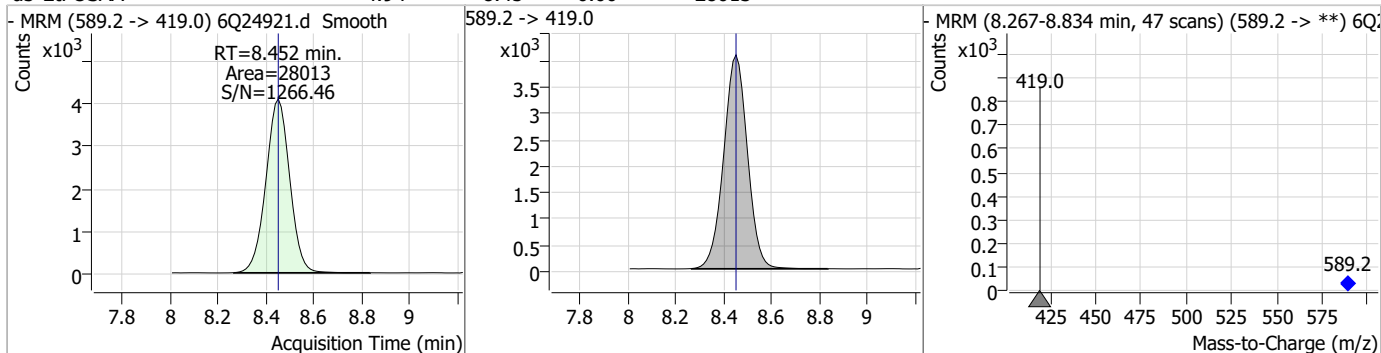
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Perfluorinated Compounds by LC/MS/MS

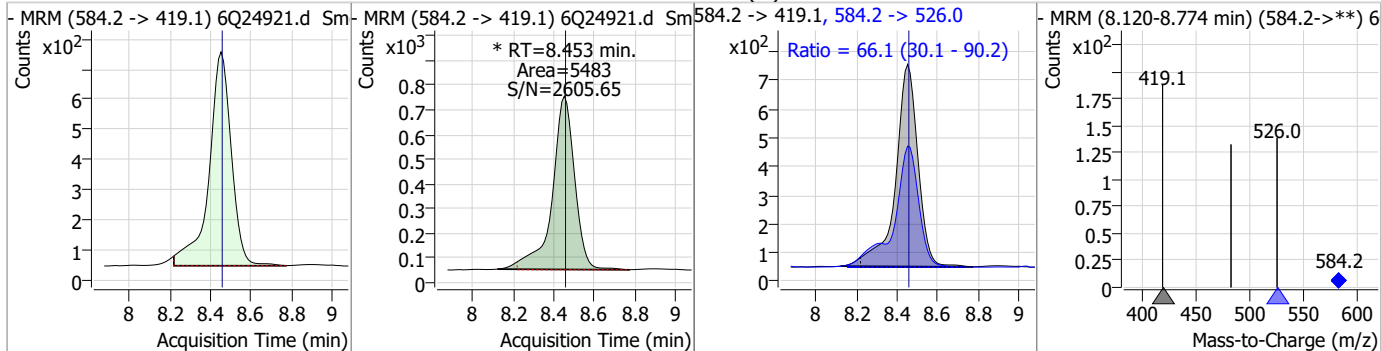
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.08	8.35	0.00	7831 (m)	498.9 -> 98.8	50.5	36.4	109.1



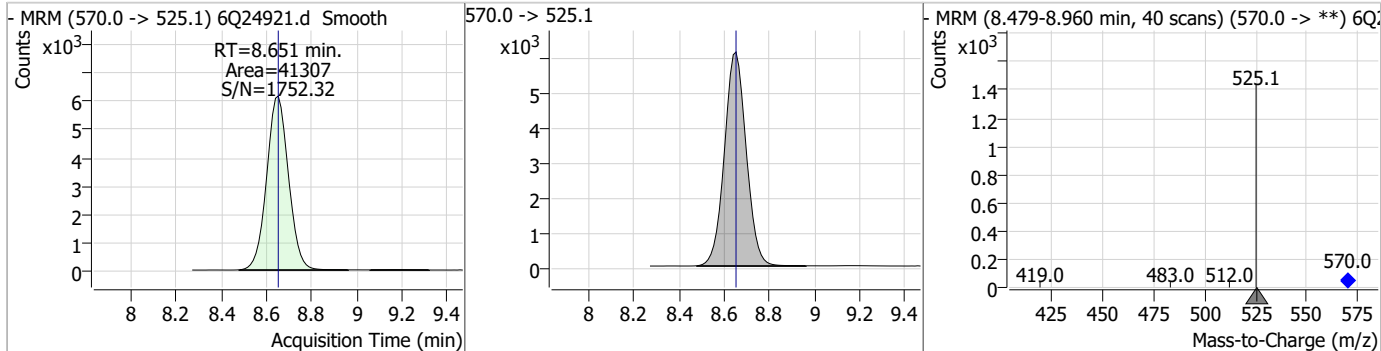
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.94	8.45	0.00	28013				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.18	8.45	0.00	5483 (m)	584.2 -> 526.0	66.1	30.1	90.2

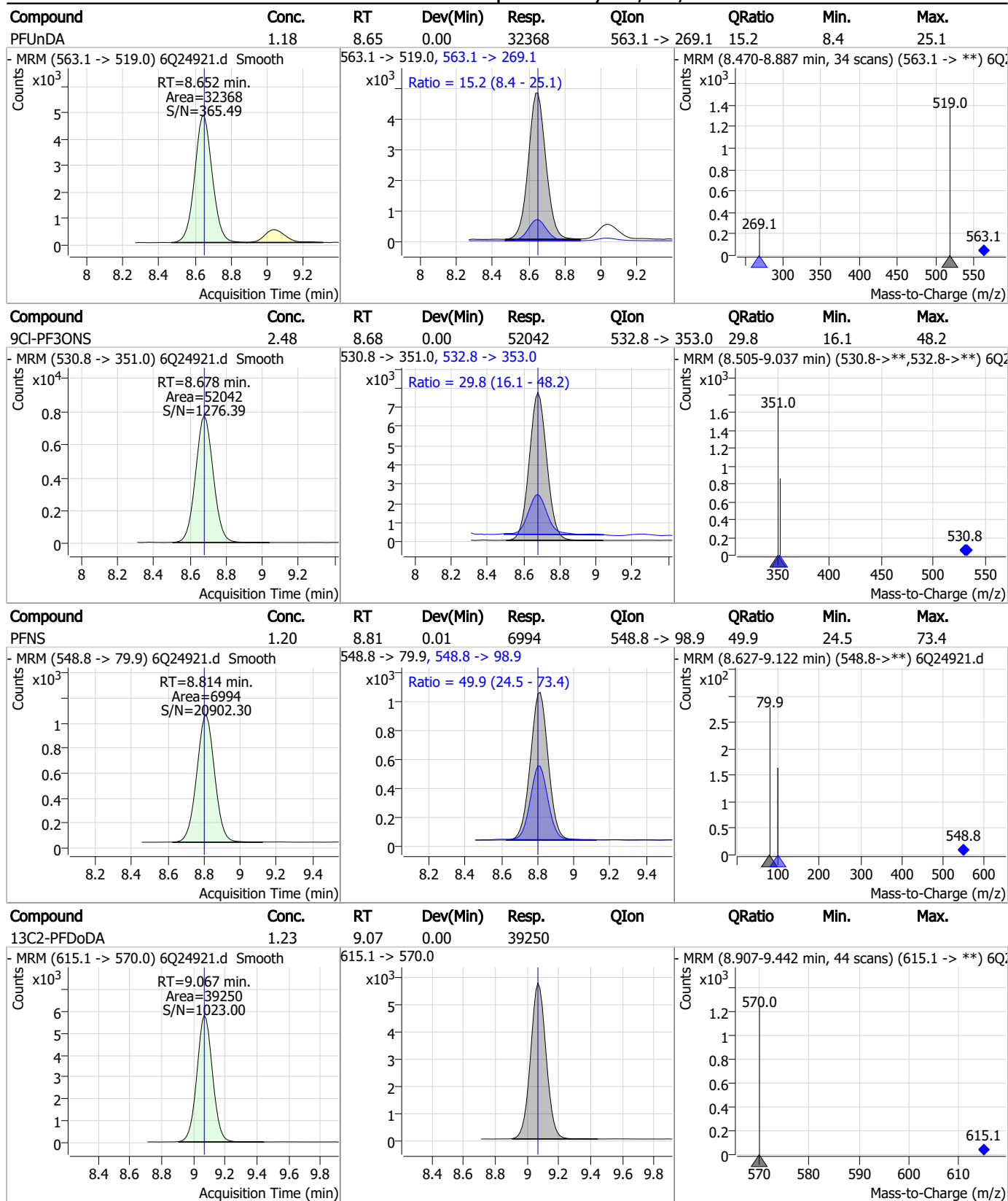


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.32	8.65	0.00	41307				



7.7.4
7

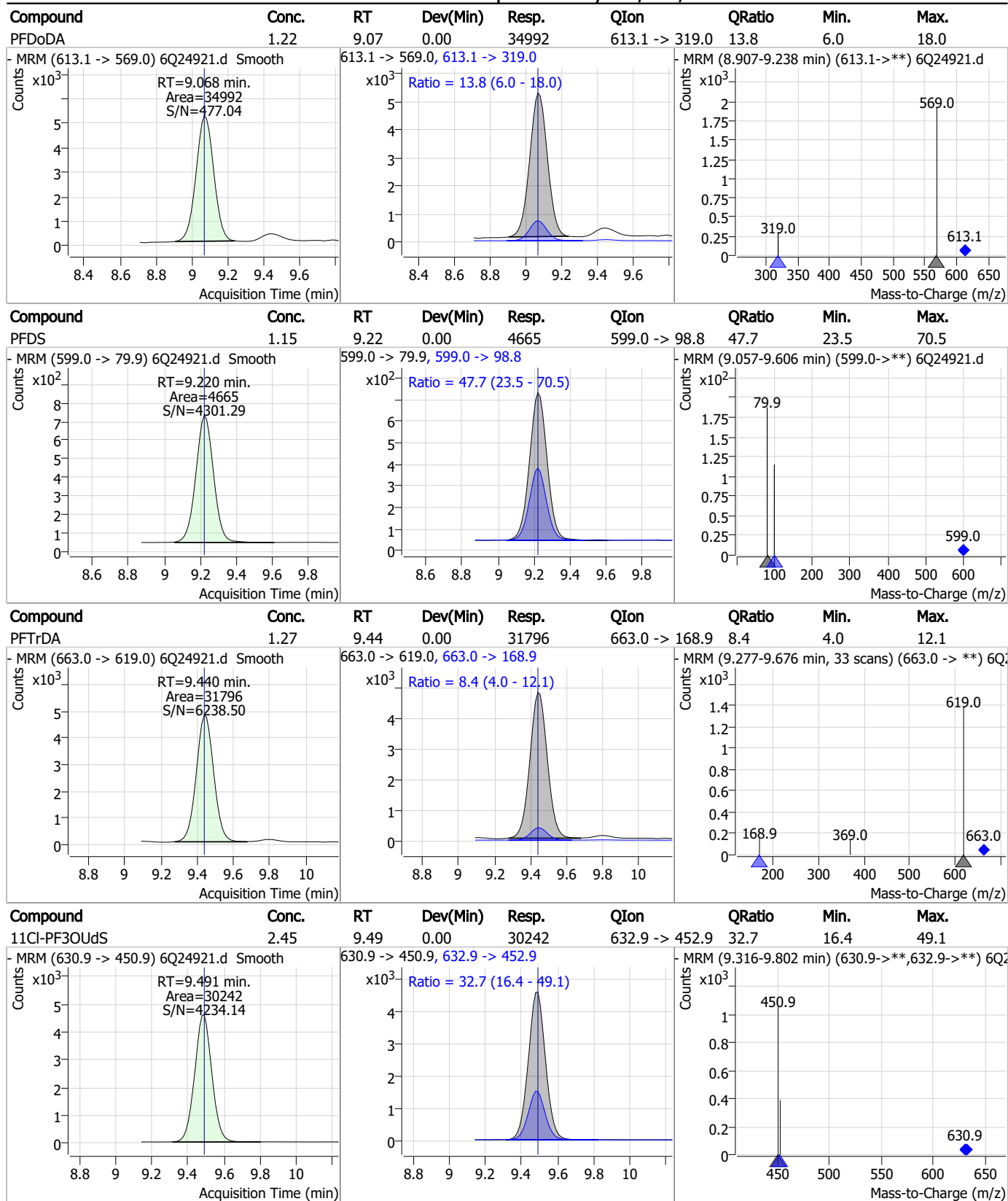
Perfluorinated Compounds by LC/MS/MS



7.7.4

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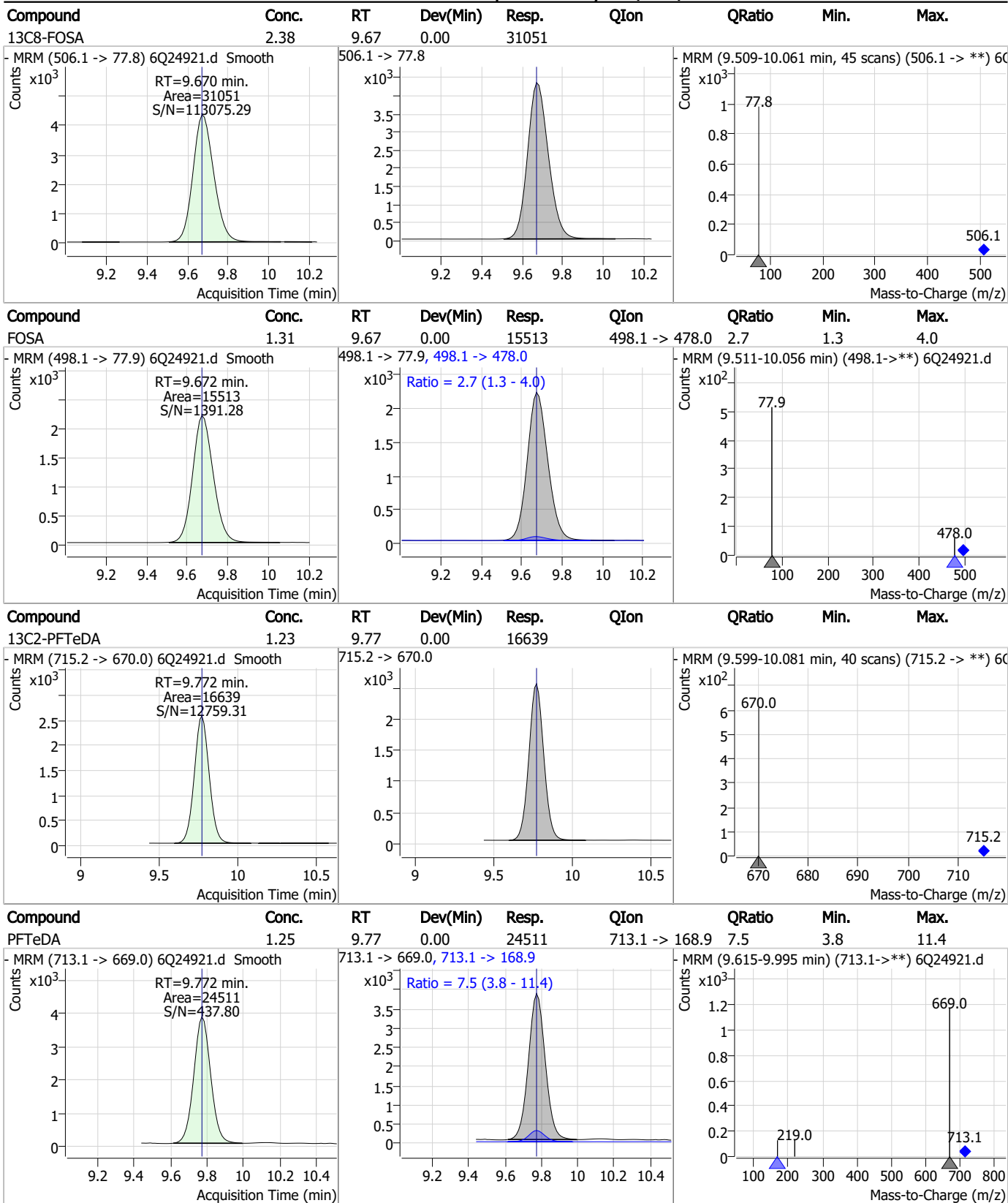
Perfluorinated Compounds by LC/MS/MS



7.7.4

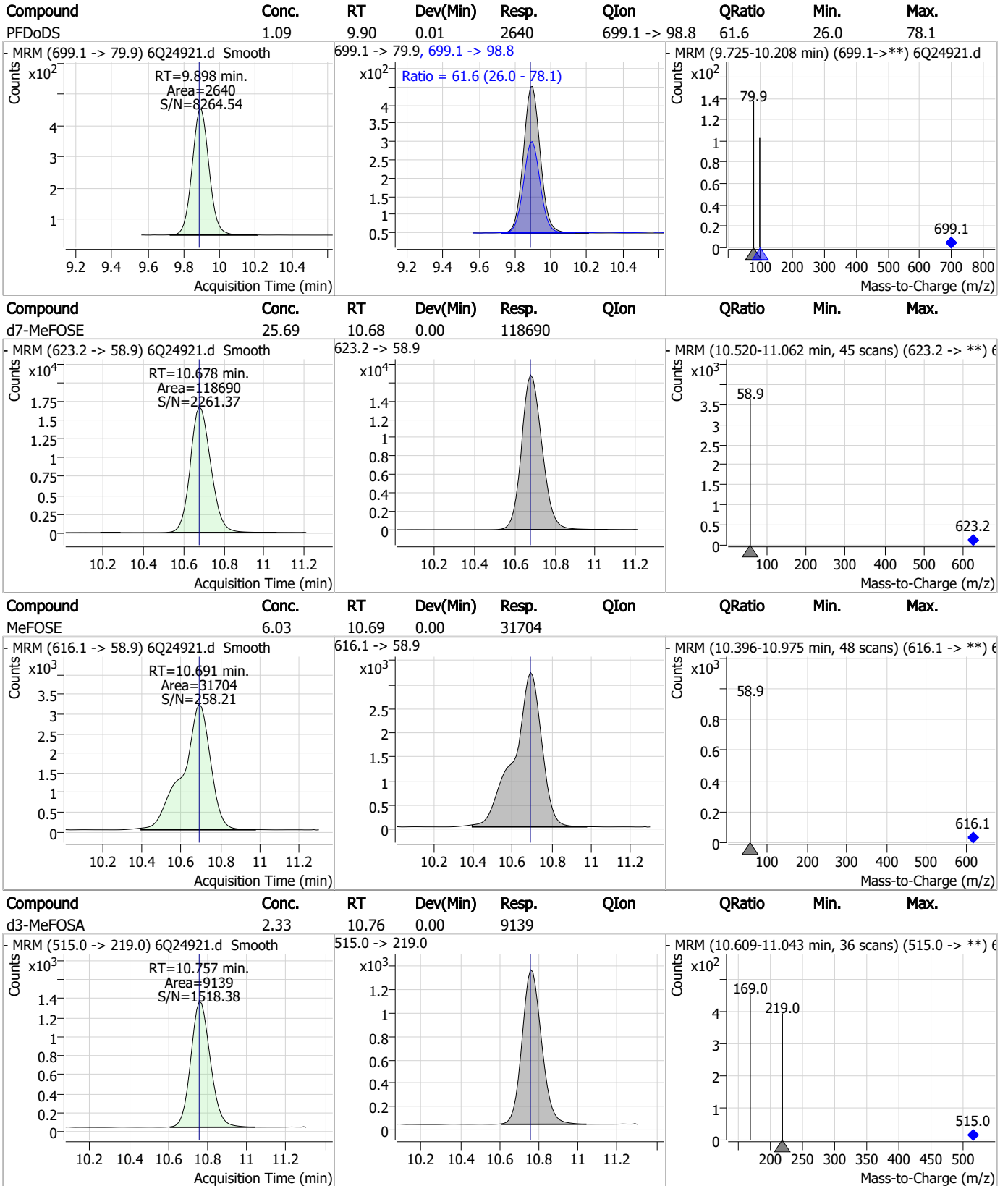
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Perfluorinated Compounds by LC/MS/MS



7.7.4
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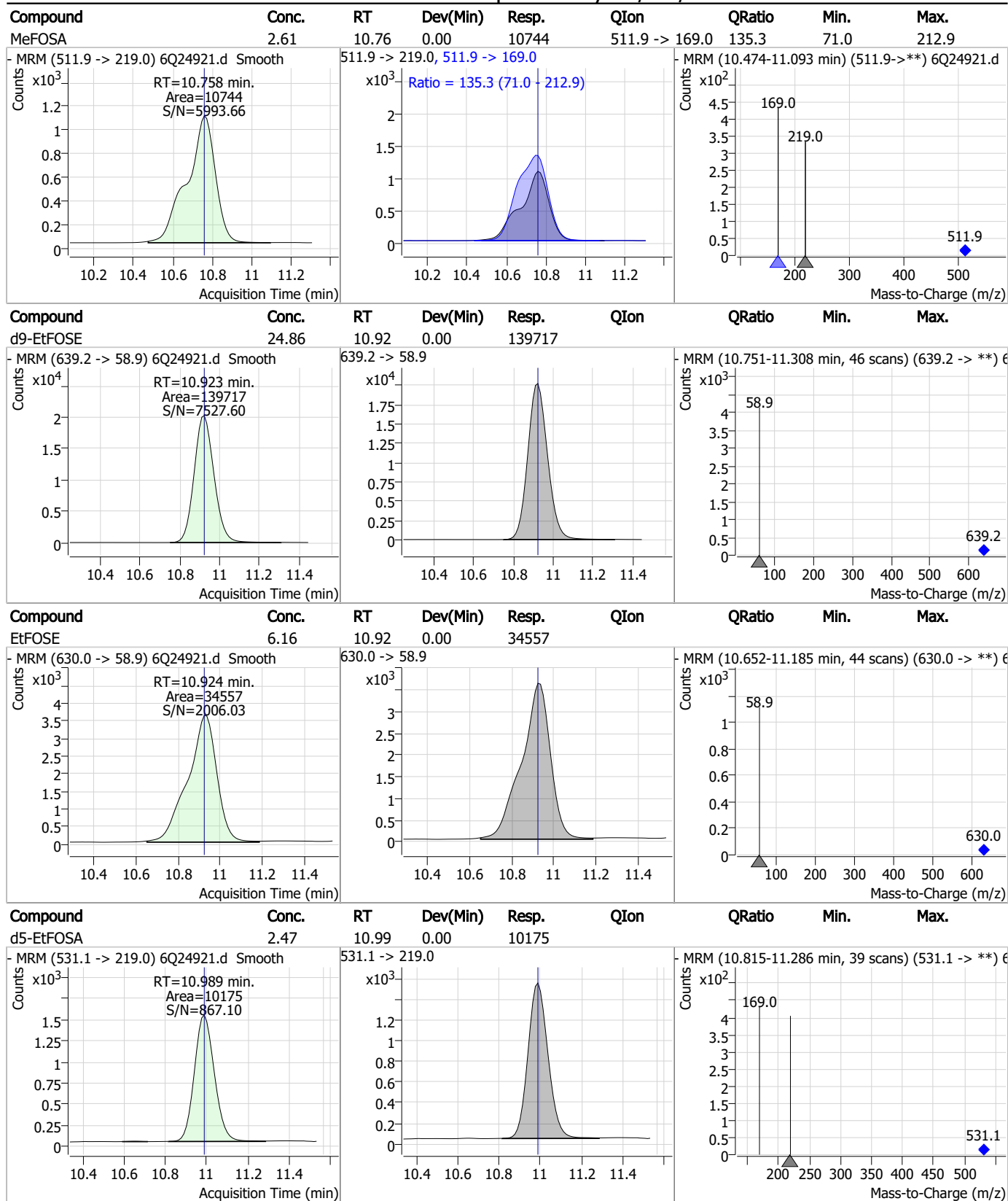
Perfluorinated Compounds by LC/MS/MS



7.7.4

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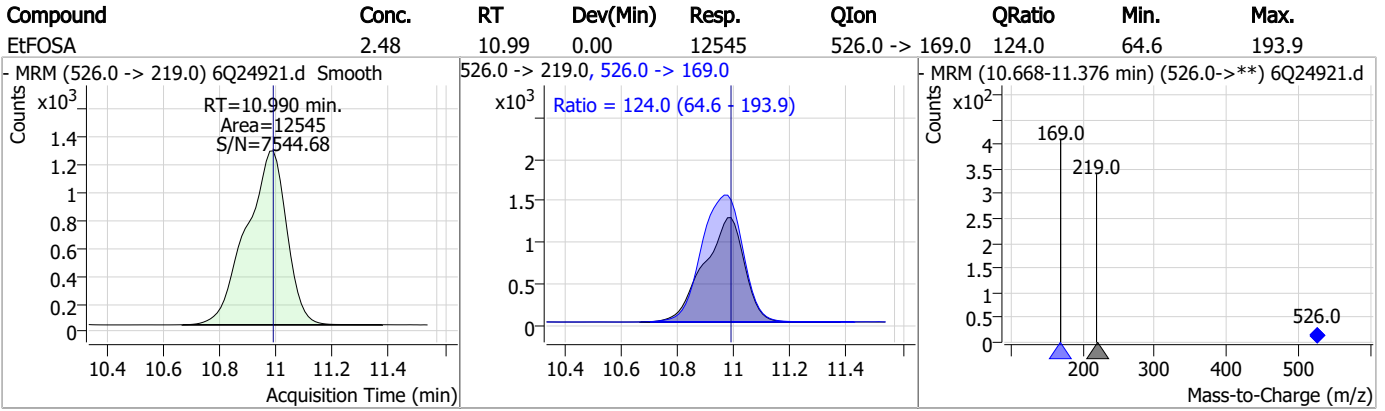
Perfluorinated Compounds by LC/MS/MS



7.7.4

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Perfluorinated Compounds by LC/MS/MS



7.7.4

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Manual Integration Approval Summary

Sample Number: S6Q356-IC356 Method: EPA DRAFT 1633
Lab FileID: 6Q24921.D Analyst approved: 09/25/23 14:50 Martha Valls
Injection Time: 09/24/23 15:28 Supervisor approved: 09/26/23 13:54 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.45	Split peak

7.7.4.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24922.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/24/2023 3:42:59 PM
 Sample Name : icc356-4
 Vial : P1-A5
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	175600	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	71040	5.00 µg/L	0.000
M5-PFHxA	5.629	318.0 -> 273.0	63293	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	61371	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	78709	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	31835	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	34630	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	37268	1.25 µg/L	0.000
M2-PFDoDA	9.067	615.1 -> 570.0	36721	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	15474	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	29995	2.50 µg/L	0.000
M3-PFBS	5.559	302.1 -> 79.9	26978	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	16287	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	14989	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	2773	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4720	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	4252	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	32933	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	45461	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	25900	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	106831	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	128792	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	9218	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9088	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	13833	2.50 µg/L	0.000
13C3-PFBA	2.976	216.0 -> 172.0	71814	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	9953	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	93900	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	29948	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	33930	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	58298	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2773	5.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.0%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4720	5.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.7%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4252	5.52 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.4%		
13C2-PFDoDA	9.067	615.1 -> 570.0	36721	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C2-PFTeDA	9.772	715.2 -> 670.0	15474	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C3-PFBS	5.559	302.1 -> 79.9	26978	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C3-PFHxS	7.301	402.1 -> 79.9	16287	2.59 µg/L	0.000

7.7.5
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C4-PFBA	2.972	216.8 -> 171.9	175600	10.12 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C4-PFHpA	6.569	367.1 -> 322.0	61371	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C5-PFHxA	5.629	318.0 -> 273.0	63293	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C5-PFPeA	4.409	268.3 -> 223.0	71040	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C6-PFDA	8.198	519.1 -> 474.1	34630	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.1%	
13C7-PFUnDA	8.651	570.0 -> 525.1	37268	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C8-FOSA	9.670	506.1 -> 77.8	29995	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C8-PFOA	7.198	421.1 -> 376.0	78709	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C8-PFOS	8.348	507.1 -> 79.9	14989	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C9-PFNA	7.717	472.1 -> 427.0	31835	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.4%	
d3-MeFOSAA	8.244	573.2 -> 419.0	32933	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	45461	10.35 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
d3-MeFOSA	10.757	515.0 -> 219.0	9088	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.3%	
d5-EtFOSAA	8.452	589.2 -> 419.0	25900	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.7%	
d7-MeFOSE	10.678	623.2 -> 58.9	106831	25.74 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.0%	
d9-EtFOSE	10.923	639.2 -> 58.9	128792	25.51 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
d5-EtFOSA	10.989	531.1 -> 219.0	9218	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	44517	9.81 µg/L	100
		327.1 -> 80.9	19133		
6:2FTS	6.974	427.1 -> 407.0	36752	9.04 µg/L	100
		427.1 -> 80.9	16030		
8:2FTS	7.987	527.1 -> 507.0	27367	10.10 µg/L	100
		527.1 -> 80.8	9624		
EtFOSAA	8.452	584.2 -> 419.1	10890	2.53 µg/L	100
		584.2 -> 526.0	6550		
FOSA	9.672	498.1 -> 77.9	28220	2.47 µg/L	100
		498.1 -> 478.0	753		
MeFOSAA	8.257	570.1 -> 419.0	14611	2.53 µg/L	100
		570.1 -> 483.0	3464		
PFBA	2.981	212.8 -> 168.9	64328	10.26 µg/L	100
PFBS	5.560	298.7 -> 79.9	19768	2.25 µg/L	100
		298.7 -> 98.8	7363		
PFDA	8.198	512.9 -> 469.0	63550	2.33 µg/L	100
		512.9 -> 219.0	10380		
PFDODA	9.068	613.1 -> 569.0	70507	2.64 µg/L	100
		613.1 -> 319.0	8478		
PFDS	9.220	599.0 -> 79.9	9338	2.58 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.569	599.0 -> 98.8	4389	2.53	µg/L	100
		363.1 -> 319.0	84327			
PFHpS	7.856	363.1 -> 169.0	12041	2.66	µg/L	100
		449.0 -> 79.9	17598			
PFHxA	5.631	449.0 -> 98.9	7383	2.60	µg/L	100
		313.0 -> 269.0	59004			
PFHxS	7.302	313.0 -> 118.9	2886	2.41	µg/L	96
		398.7 -> 79.9	15299			
PFNA	7.717	398.7 -> 98.9	6987	2.90	µg/L	100
		463.0 -> 419.0	59643			
PFNS	8.802	463.0 -> 219.0	12494	2.50	µg/L	100
		548.8 -> 79.9	13052			
PFOA	7.200	548.8 -> 98.9	6382	2.58	µg/L	100
		413.0 -> 369.0	87196			
PFOS	8.350	413.0 -> 169.0	15790	2.40	µg/L	78
		498.9 -> 79.9	15510			
PFPeA	4.411	498.9 -> 98.8	8390	5.12	µg/L	100
		263.0 -> 219.0	73236			
PFPeS	6.608	349.1 -> 79.9	22046	2.50	µg/L	100
		349.1 -> 98.9	9651			
PFTeDA	9.772	713.1 -> 669.0	49408	2.70	µg/L	100
		713.1 -> 168.9	3746			
PFTrDA	9.440	663.0 -> 619.0	65947	2.81	µg/L	100
		663.0 -> 168.9	5330			
PFUnDA	8.652	563.1 -> 519.0	61909	2.51	µg/L	100
		563.1 -> 269.1	10367			
11CI-PF3OUdS	9.491	630.9 -> 450.9	56419	4.74	µg/L	100
		632.9 -> 452.9	18460			
9CI-PF3ONS	8.678	530.8 -> 351.0	102250	5.07	µg/L	100
		532.8 -> 353.0	32841			
ADONA	6.817	376.9 -> 250.9	260625	4.66	µg/L	100
		376.9 -> 84.8	75874			
HFPO-DA	6.007	284.9 -> 168.9	22263	4.98	µg/L	100
		284.9 -> 184.9	2328			
3:3FTCA	3.846	241.0 -> 177.0	12513	12.29	µg/L	100
		241.0 -> 117.0	1491			
5:3FTCA	6.271	341.0 -> 237.1	273924	64.14	µg/L	100
		341.0 -> 217.0	190263			
7:3FTCA	7.669	441.0 -> 316.9	160221	66.22	µg/L	100
		441.0 -> 336.9	321908			
EtFOSA	10.990	526.0 -> 219.0	23407	5.11	µg/L	100
		526.0 -> 169.0	30263			
EtFOSE	10.924	630.0 -> 58.9	67389	13.03	µg/L	100
		511.9 -> 219.0	20015			
MeFOSA	10.758	511.9 -> 169.0	28404	4.89	µg/L	100
		616.1 -> 58.9	58675			
MeFOSE	10.691	699.1 -> 79.9	5666	12.40	µg/L	100
		699.1 -> 98.8	2952			
PFDoDS	9.886	295.0 -> 201.0	14735	2.62	µg/L	100
		295.0 -> 84.9	3935			
NFDHA	5.512	279.0 -> 85.1	58407	5.08	µg/L	100
		229.0 -> 84.9	43323			
PFMBA	3.538	314.8 -> 134.9	129274	5.08	µg/L	100
		314.8 -> 82.9	4927			
PFEESA	6.100			4.58	µg/L	100

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

7.7.5
7

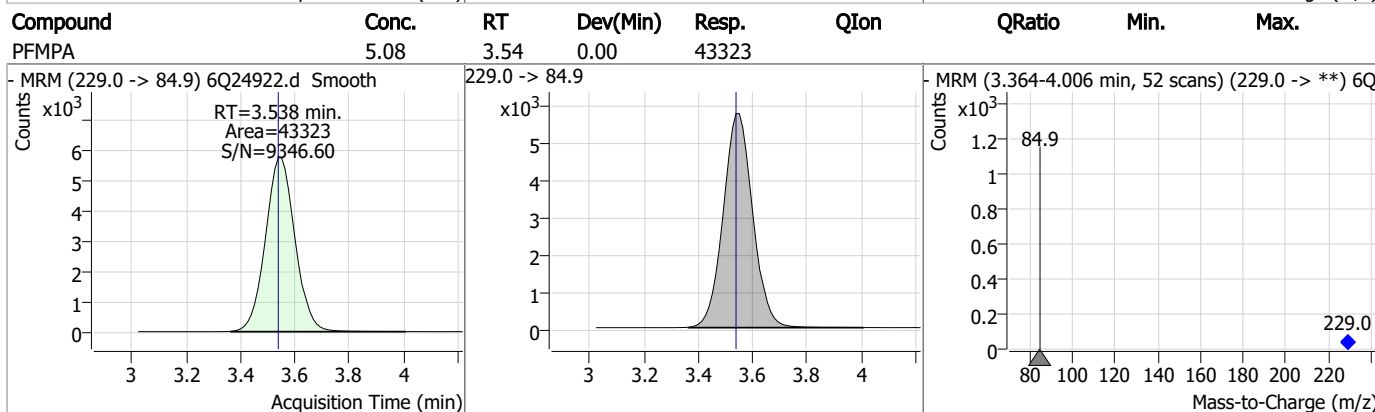
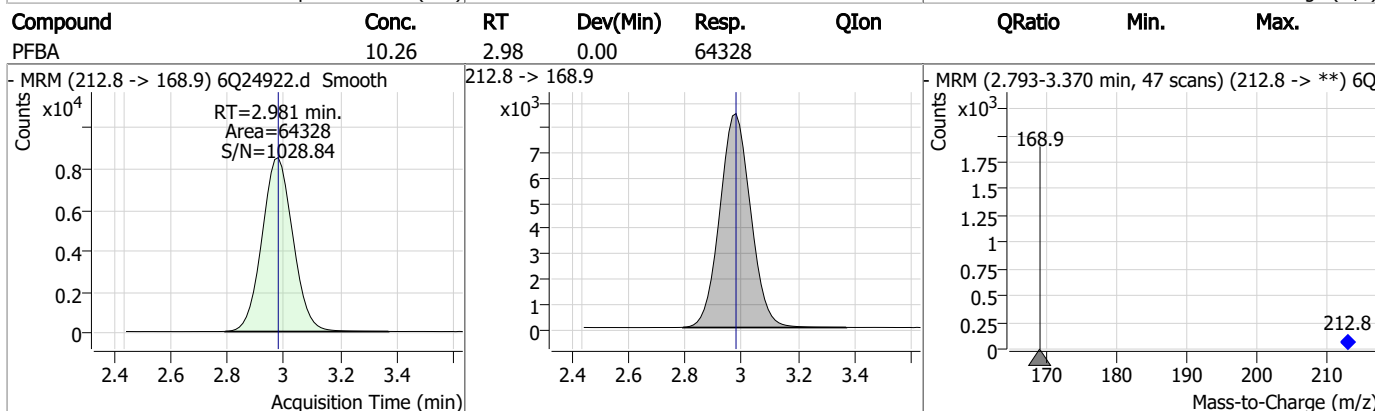
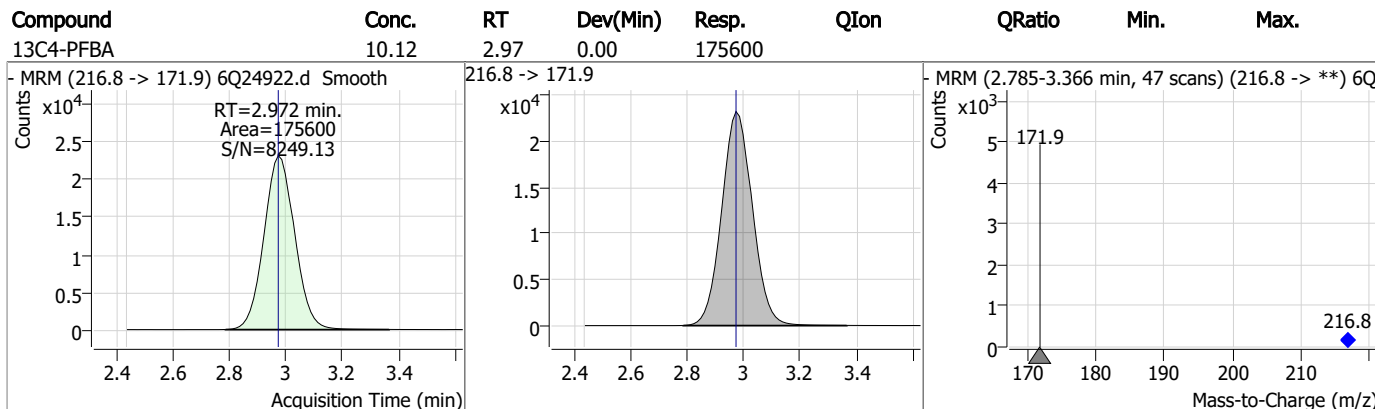
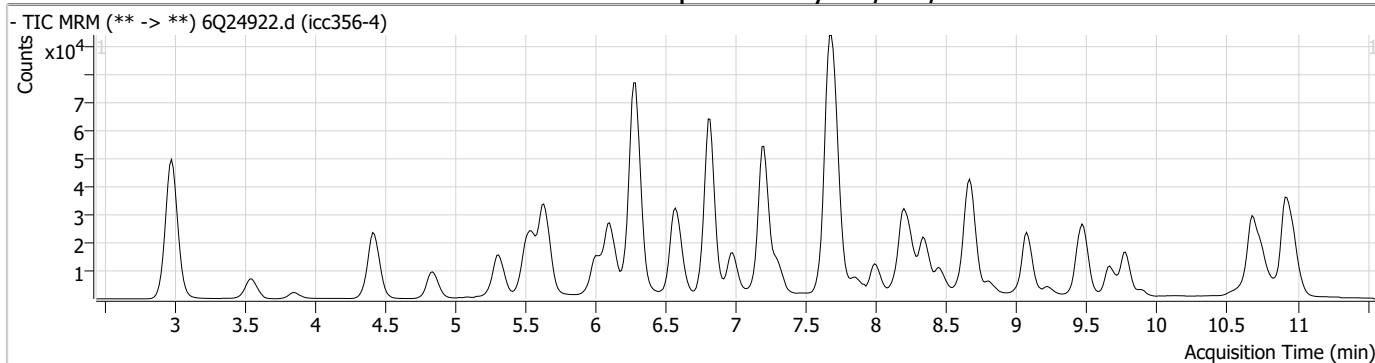
Perfluorinated Compounds by LC/MS/MS

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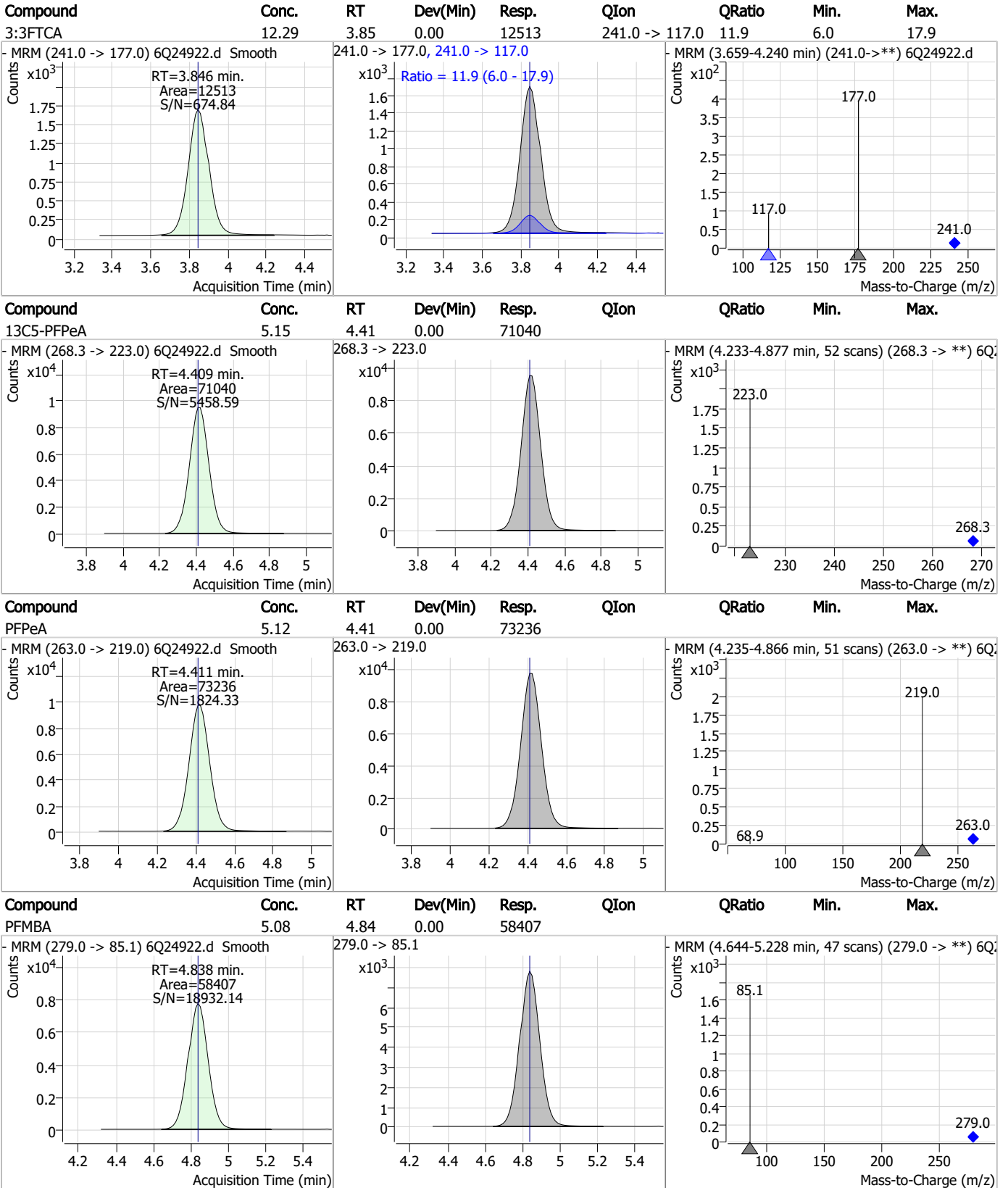
7.7.5
7



Perfluorinated Compounds by LC/MS/MS



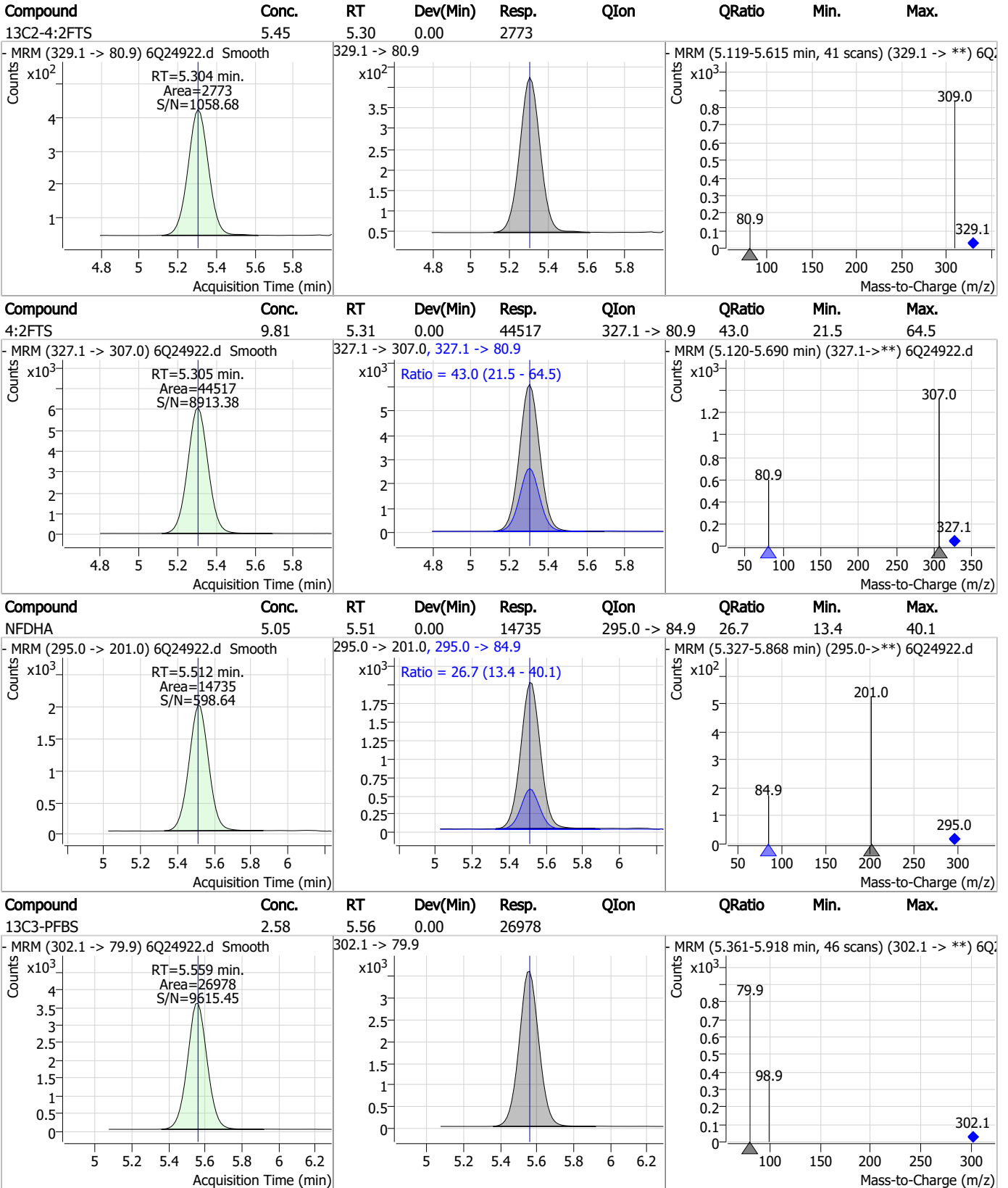
Perfluorinated Compounds by LC/MS/MS



7.7.5

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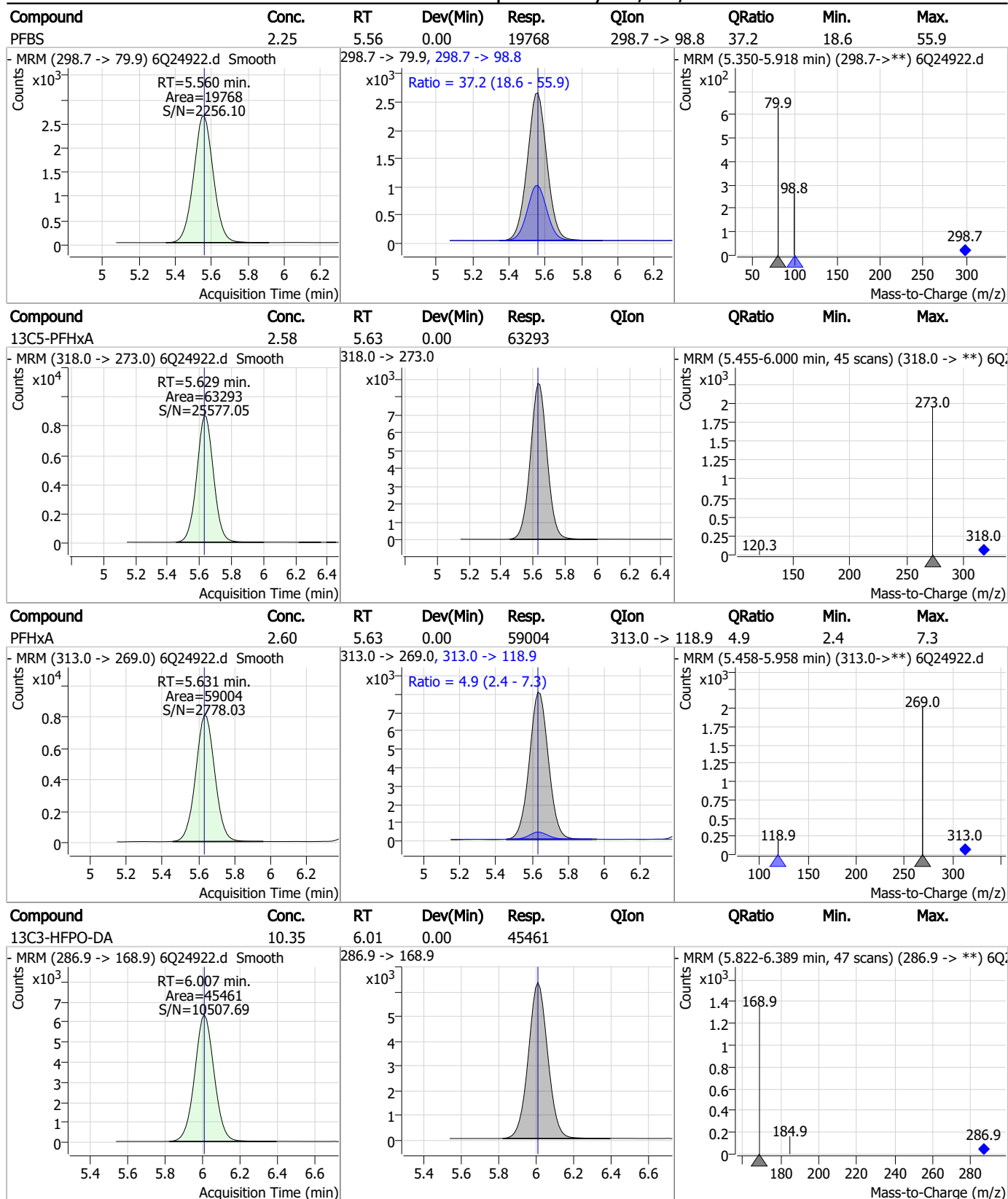
Perfluorinated Compounds by LC/MS/MS



7.7.5

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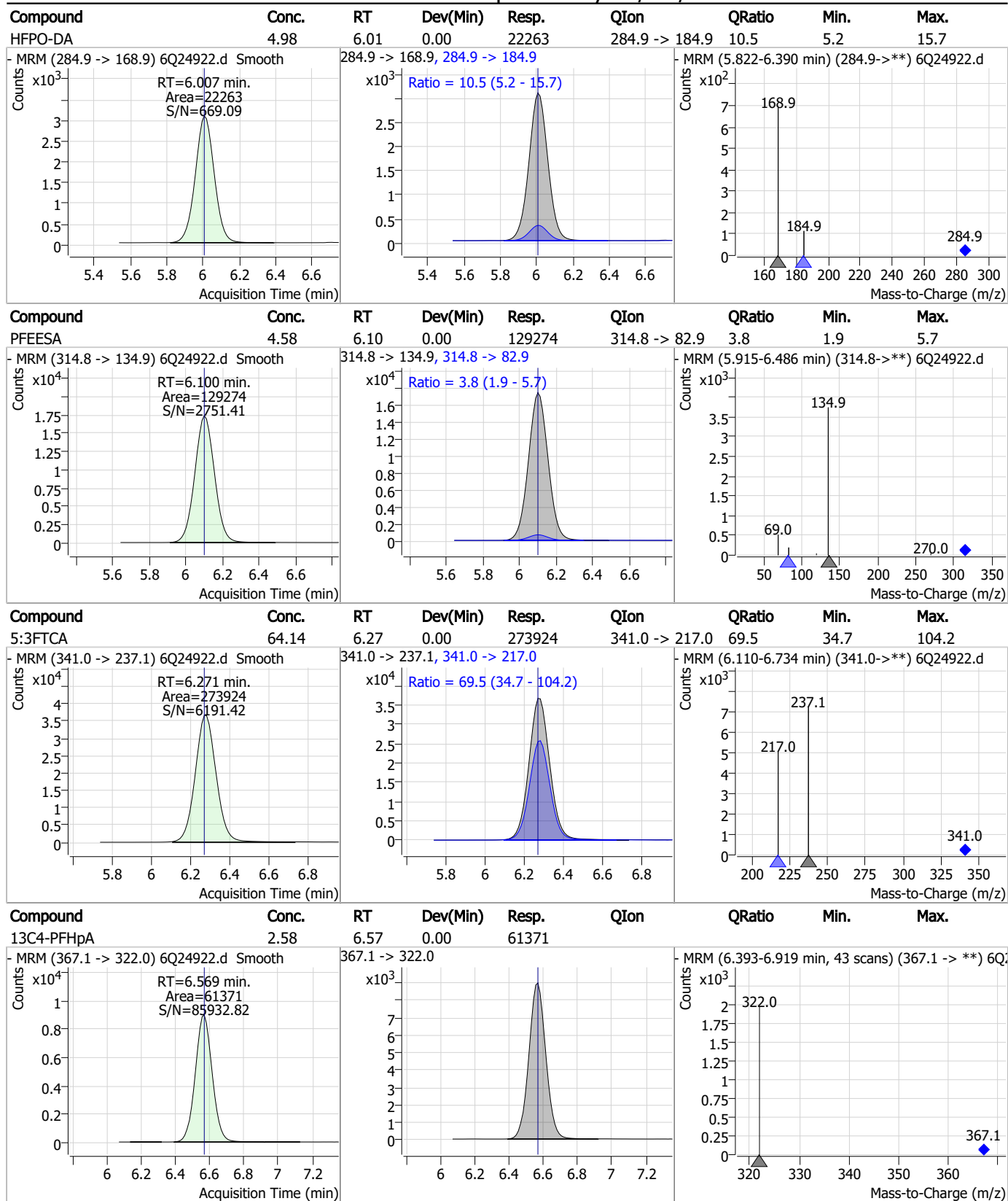
Perfluorinated Compounds by LC/MS/MS



7.7.5

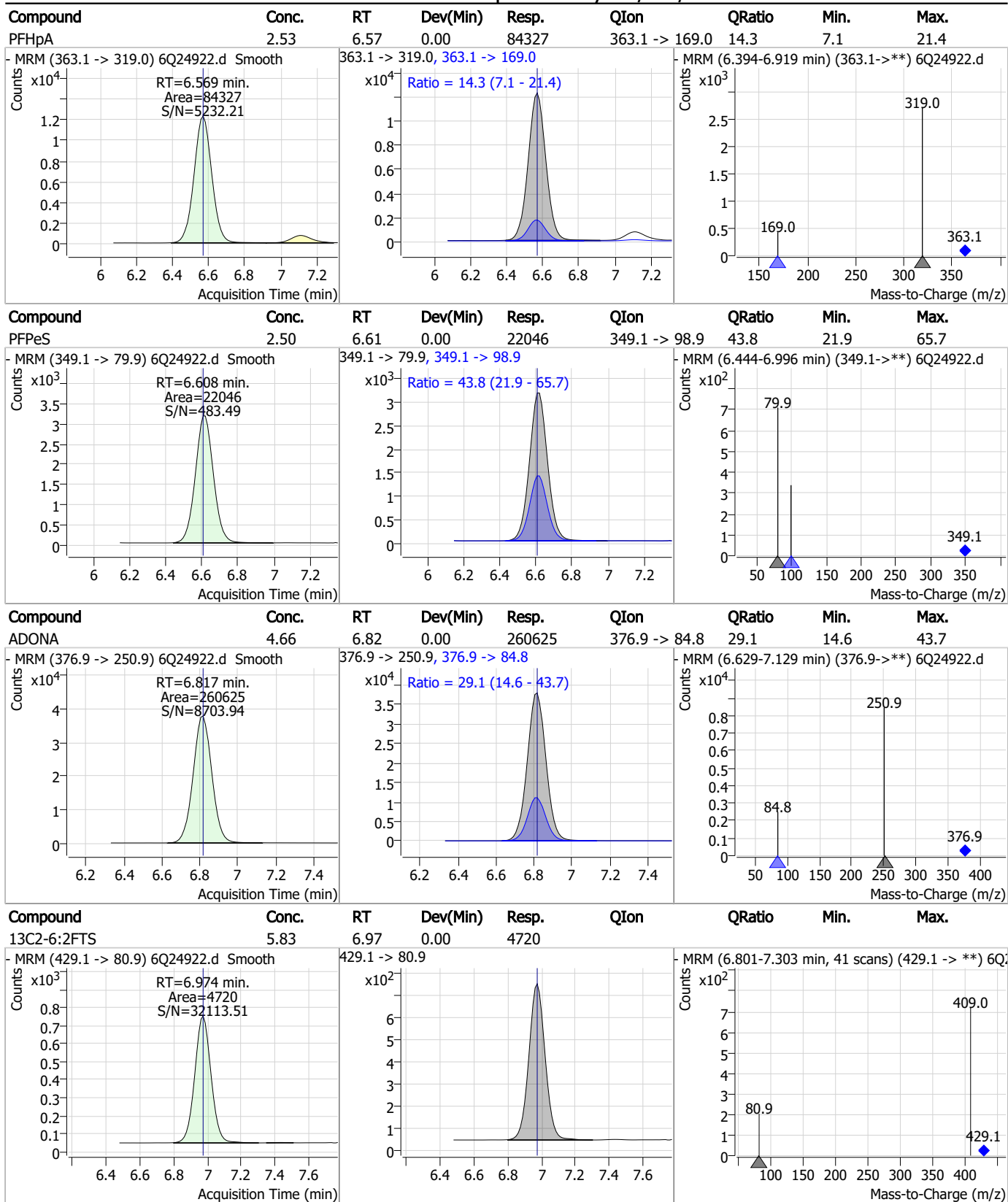
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Perfluorinated Compounds by LC/MS/MS



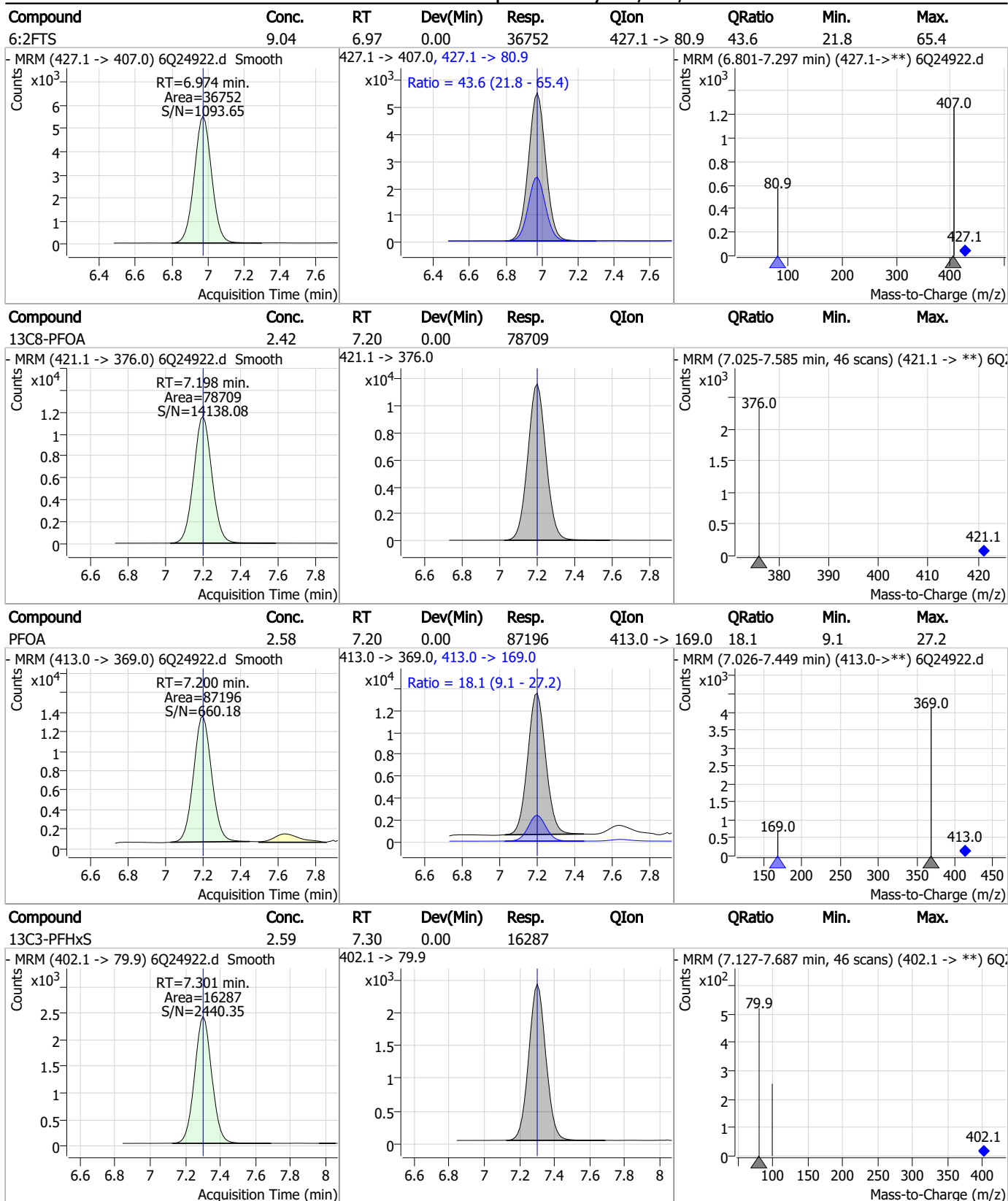
7.7.5
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Perfluorinated Compounds by LC/MS/MS



7.7.5
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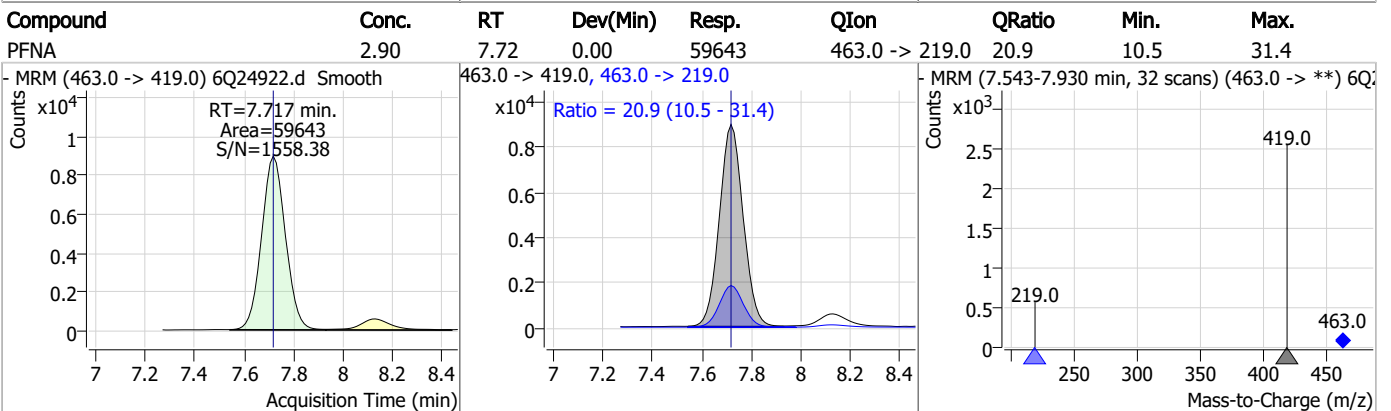
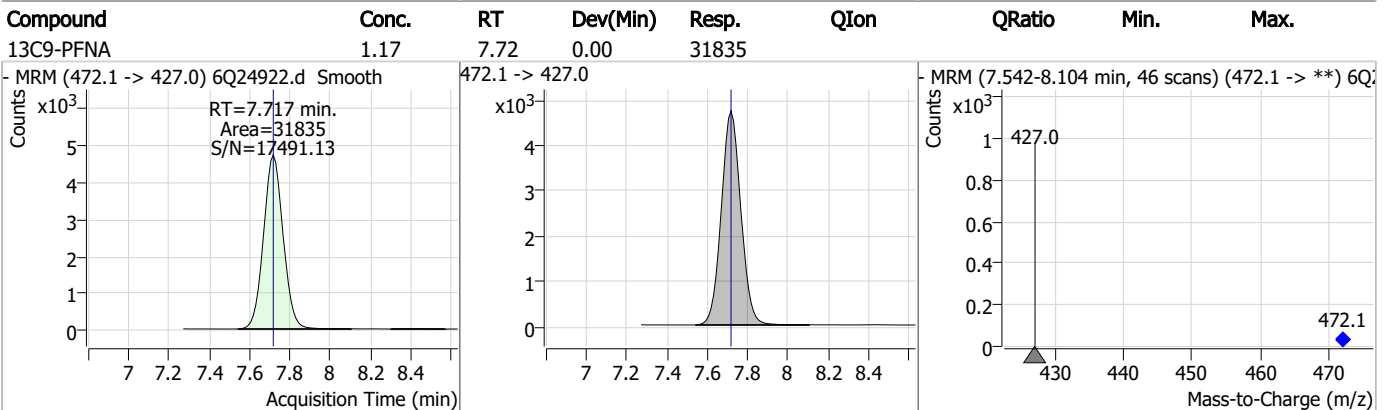
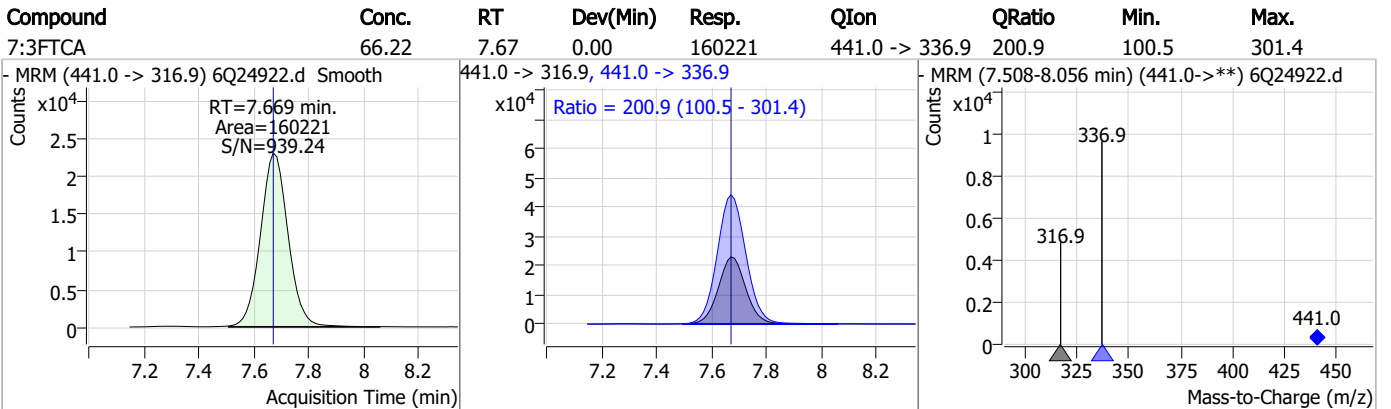
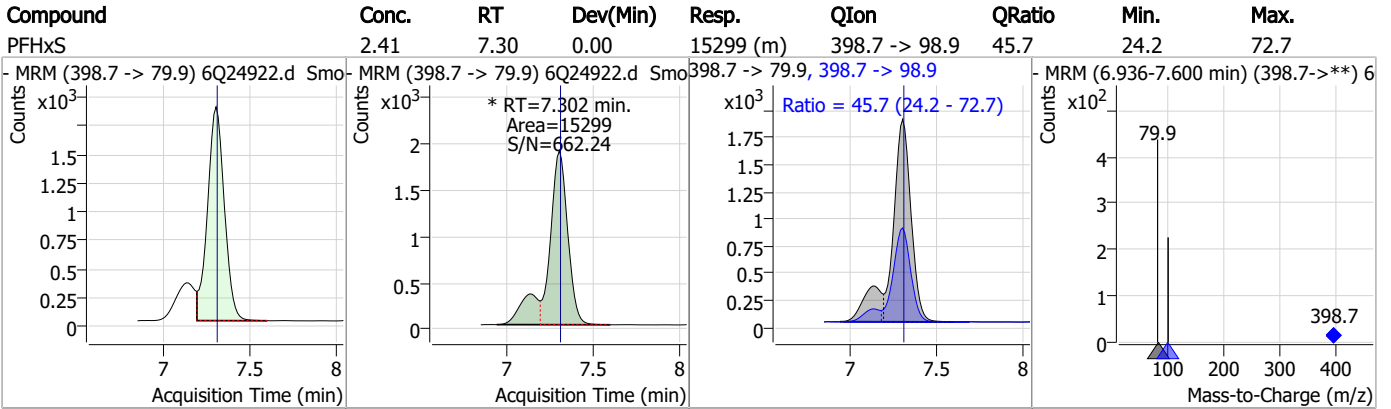
Perfluorinated Compounds by LC/MS/MS



7.7.5

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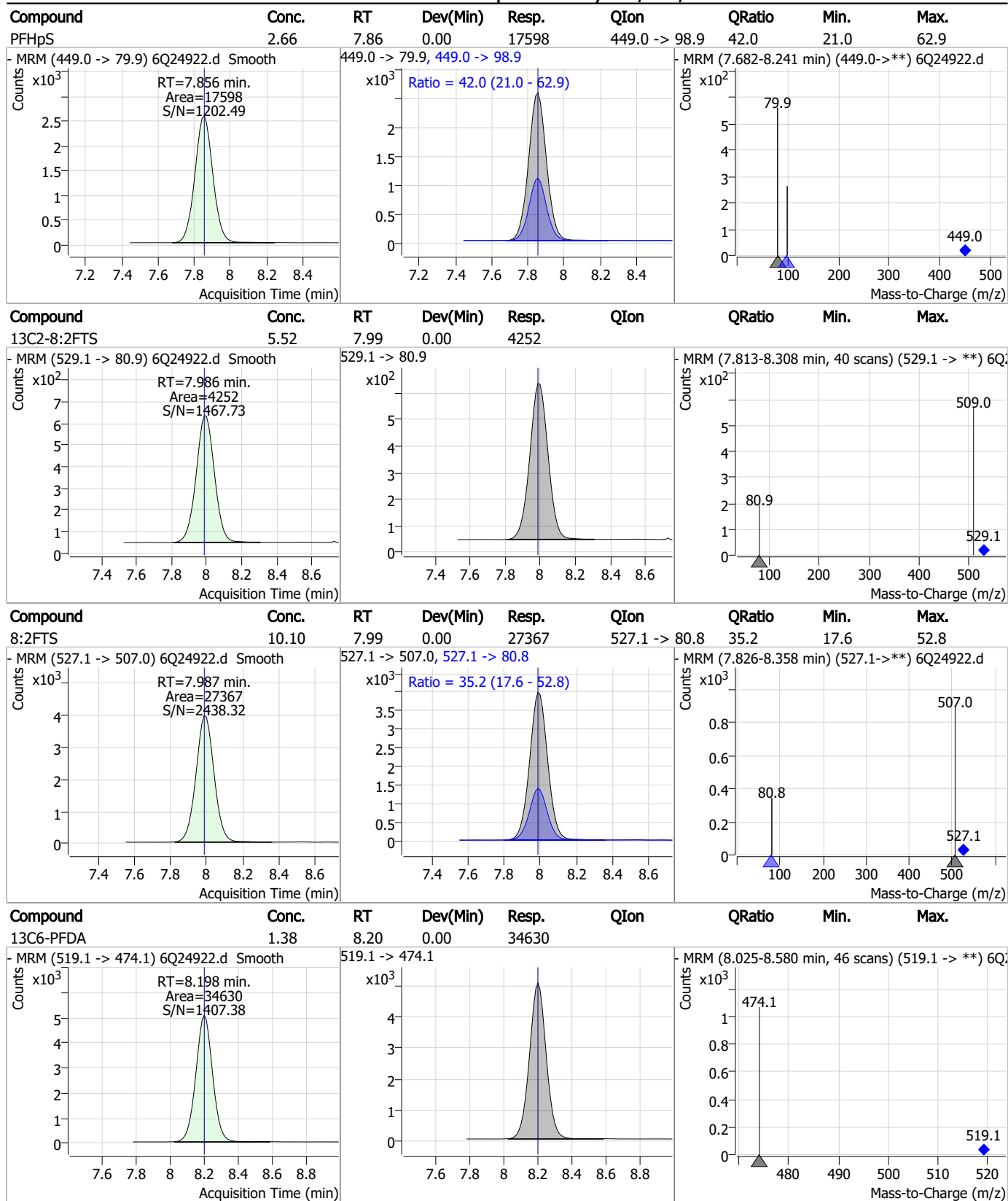
Perfluorinated Compounds by LC/MS/MS



7.7.5

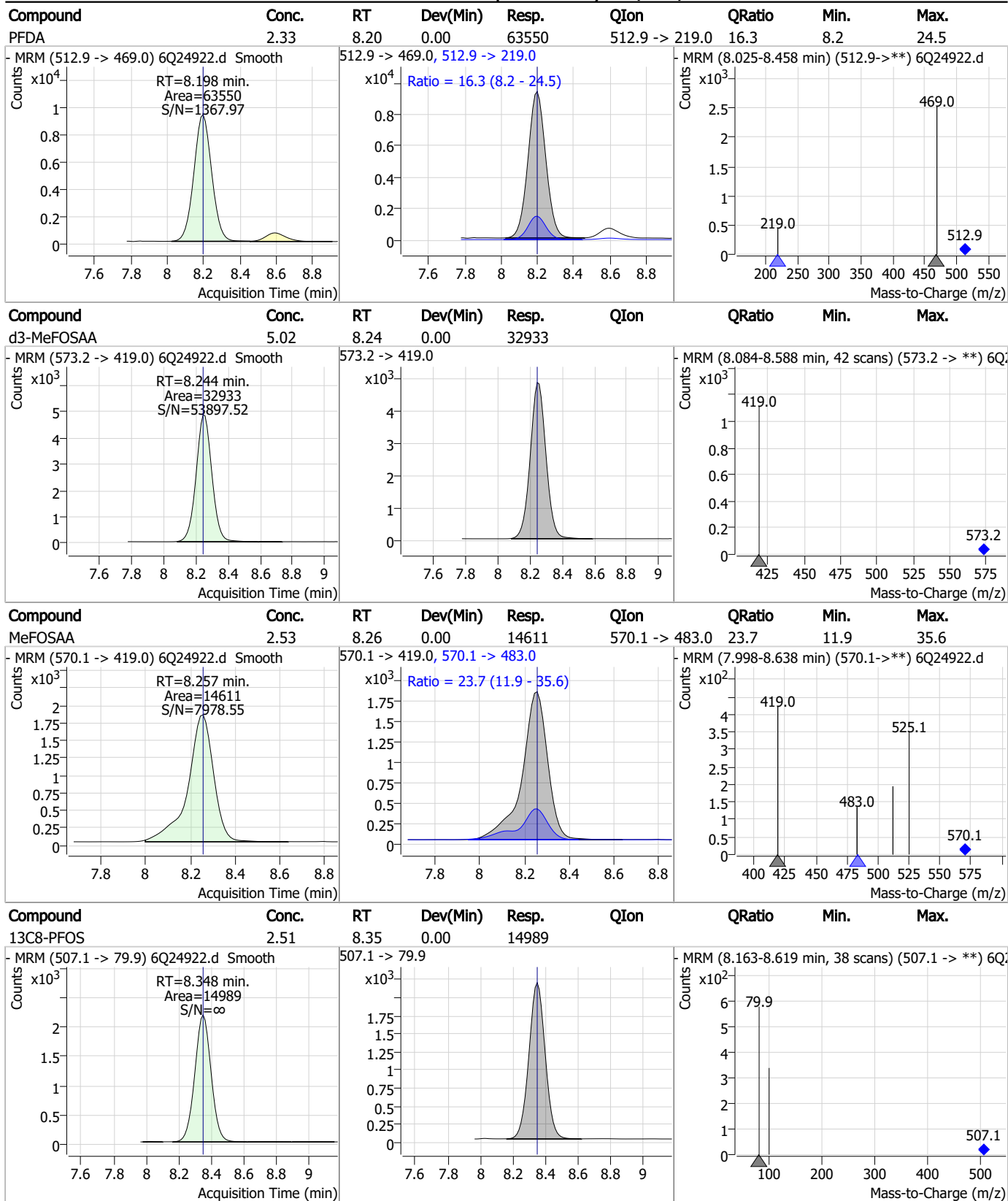
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Perfluorinated Compounds by LC/MS/MS



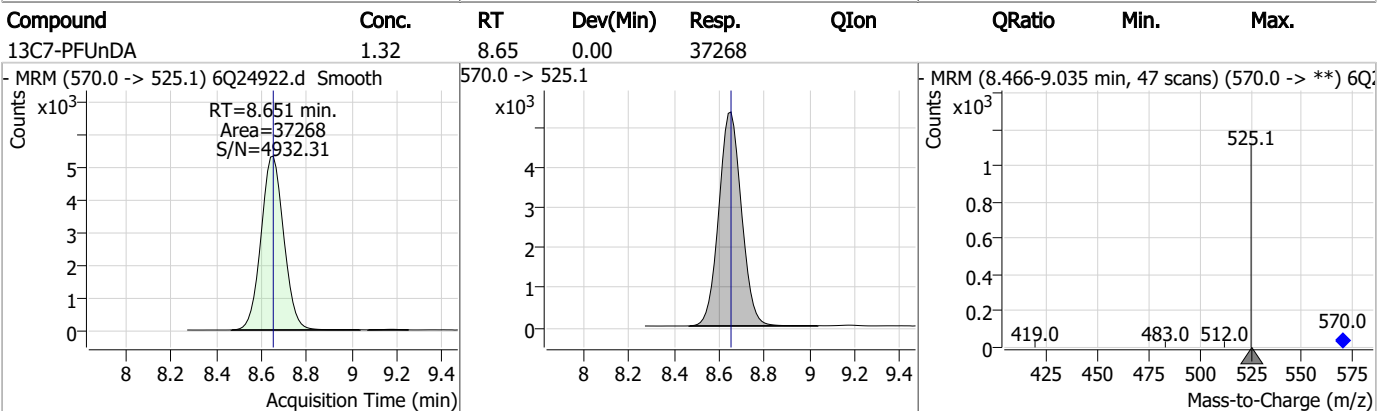
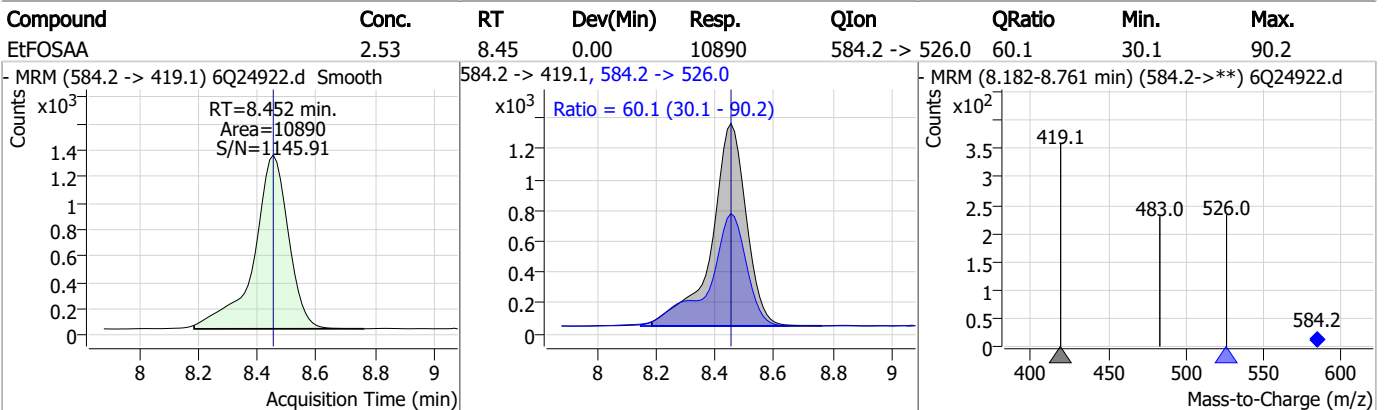
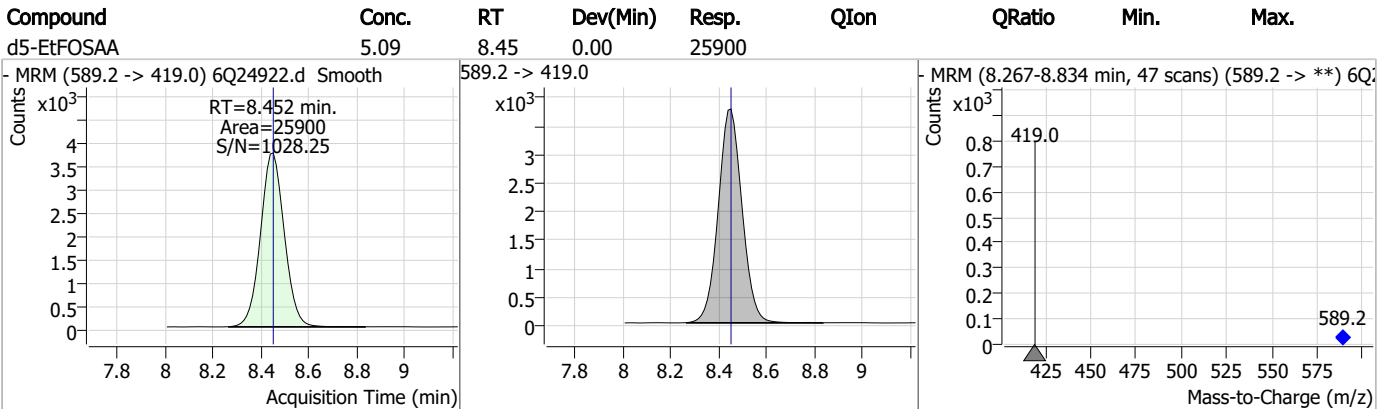
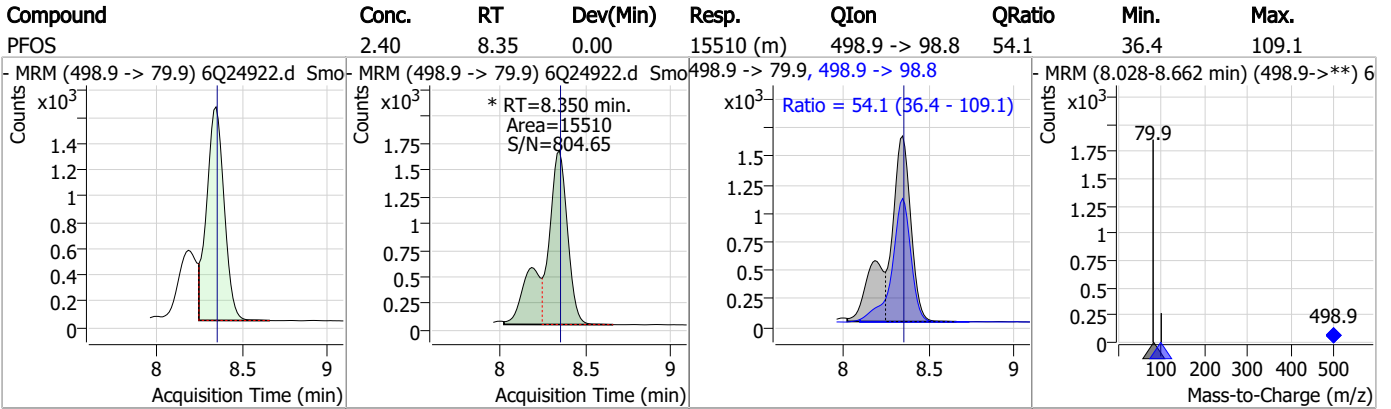
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Perfluorinated Compounds by LC/MS/MS



7.7.5
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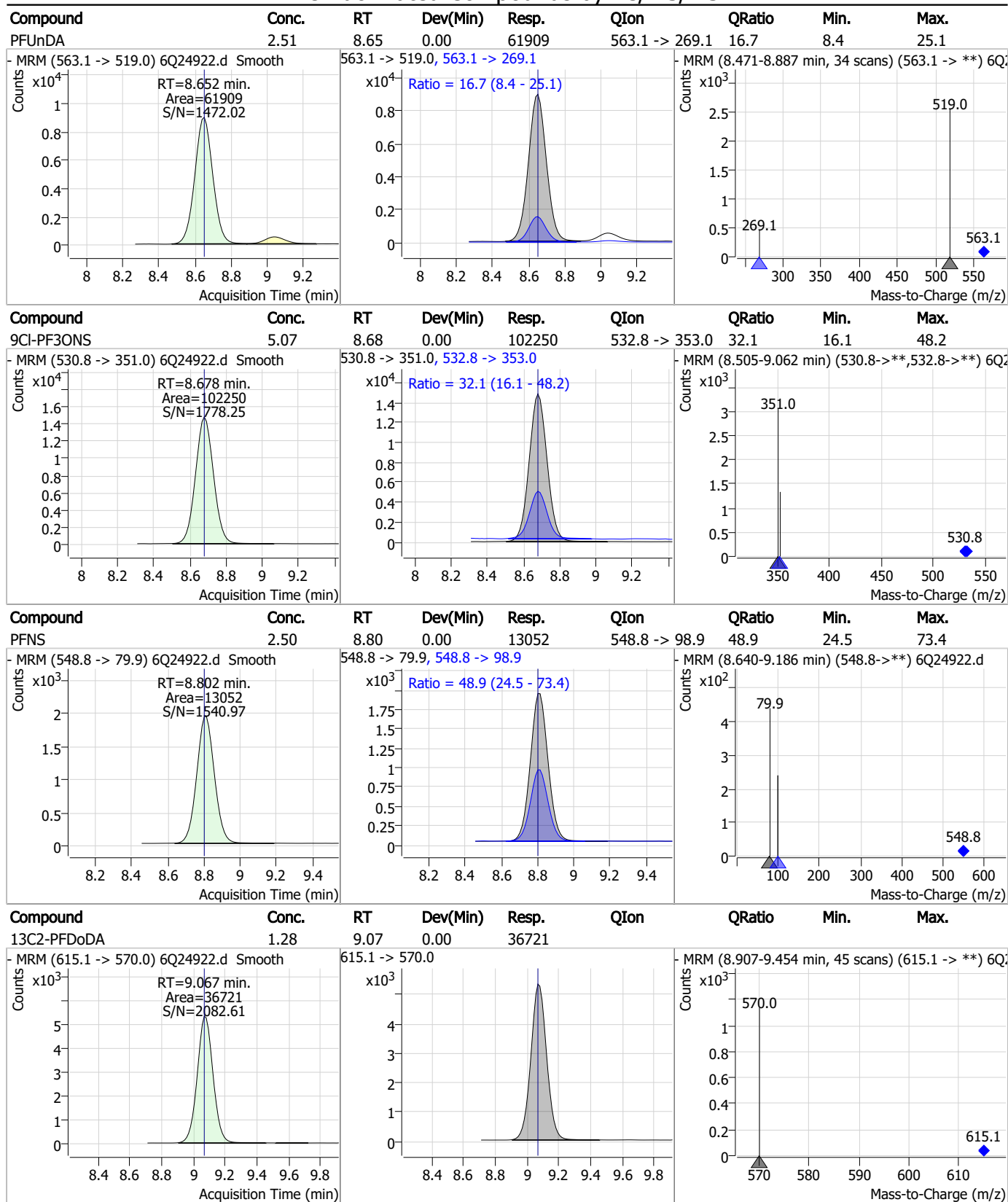
Perfluorinated Compounds by LC/MS/MS



7.7.5

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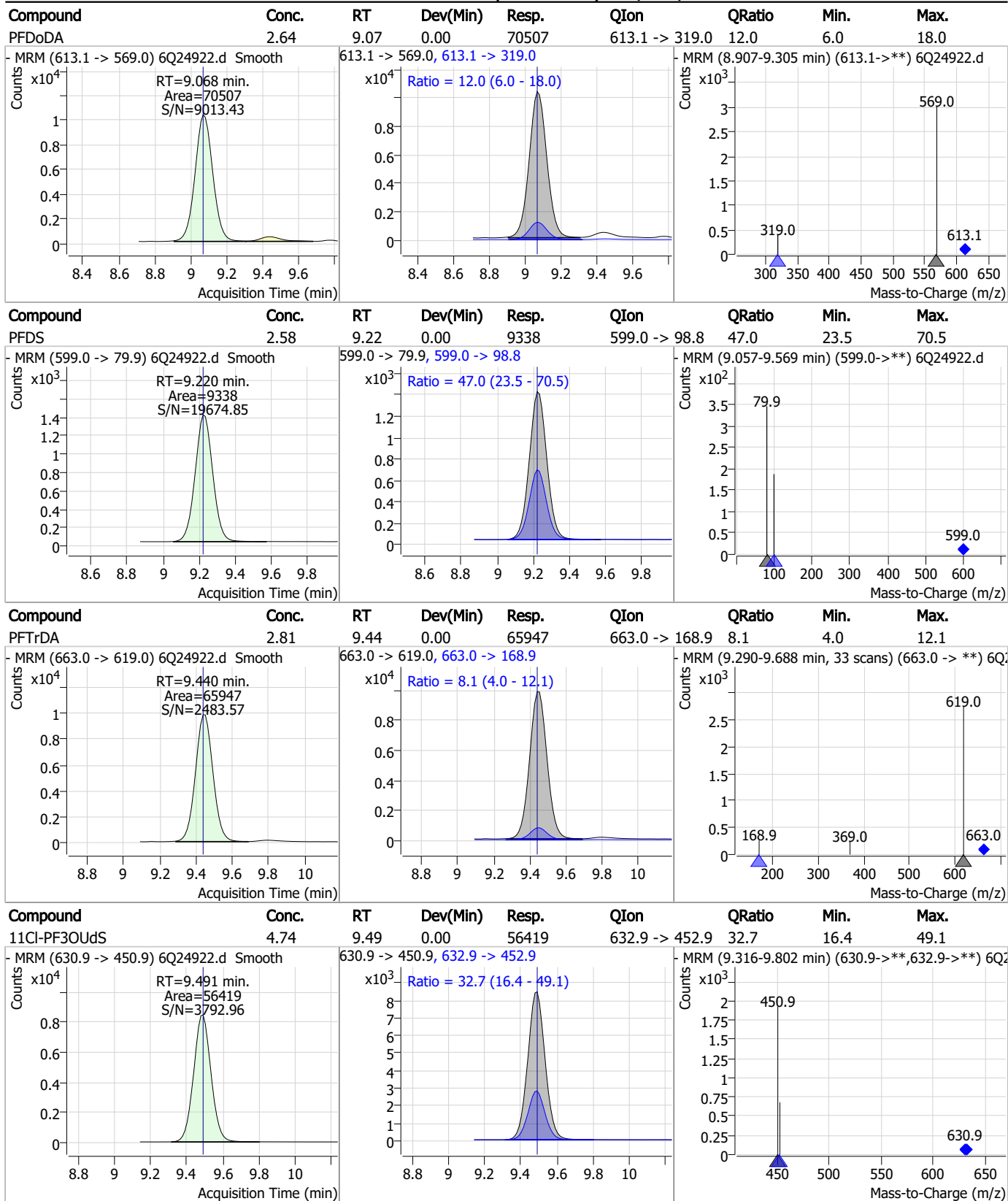
Perfluorinated Compounds by LC/MS/MS



7.7.5

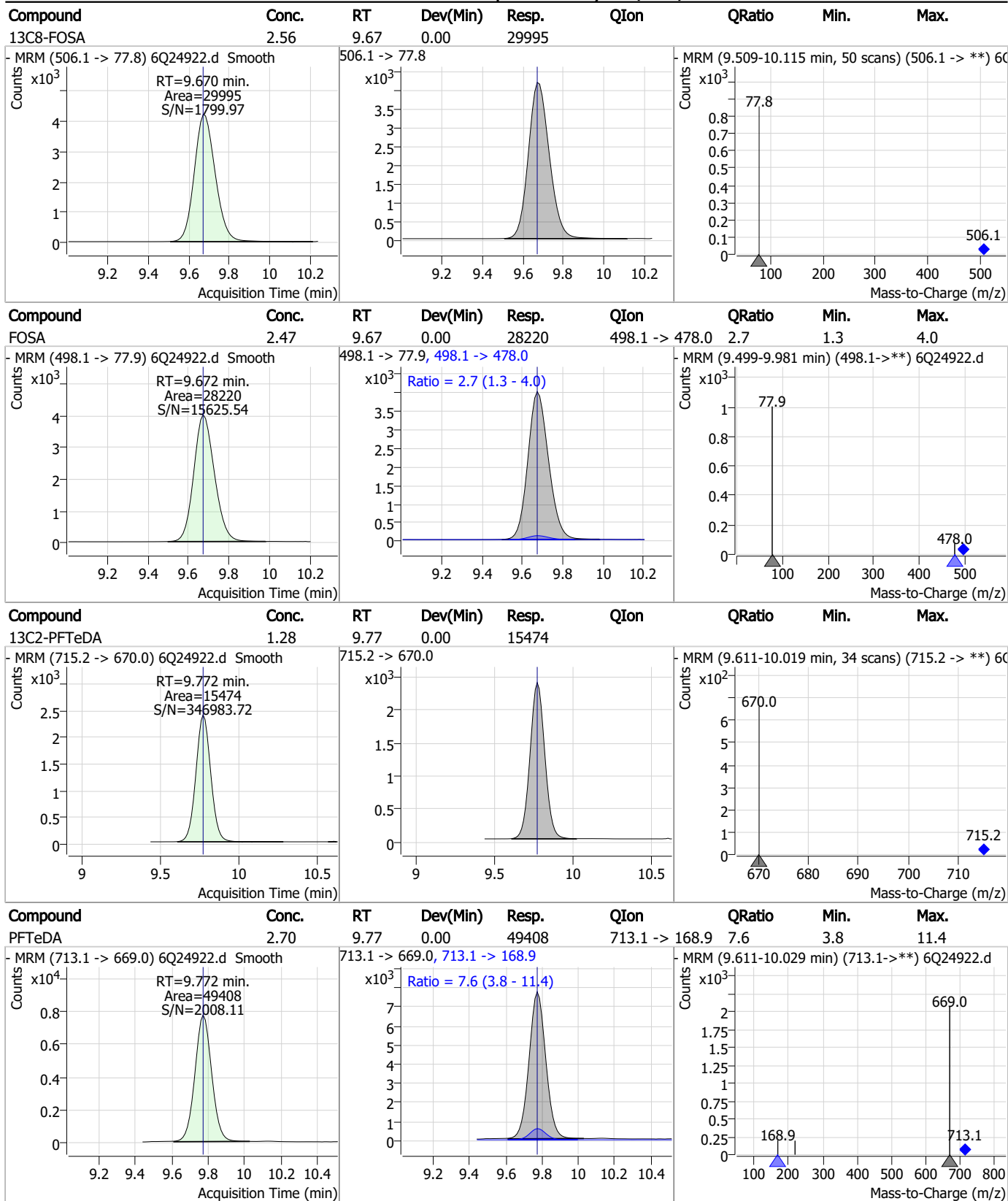
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Perfluorinated Compounds by LC/MS/MS



7.7.5
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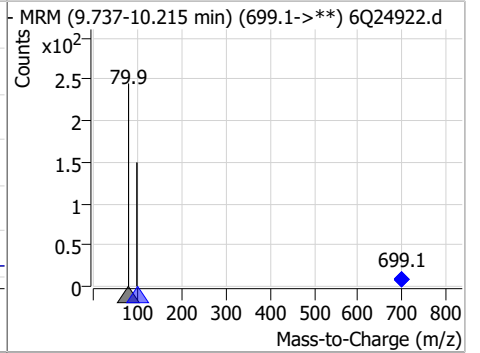
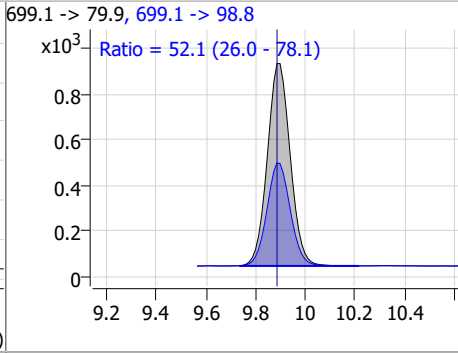
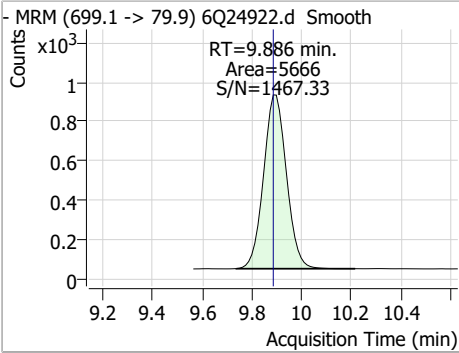
Perfluorinated Compounds by LC/MS/MS



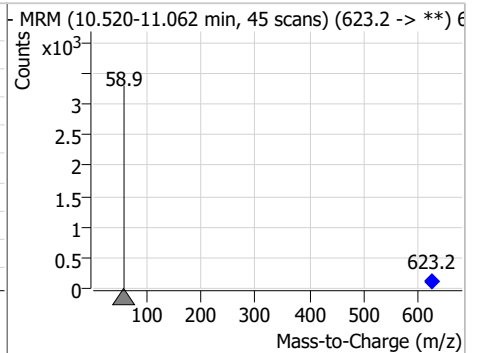
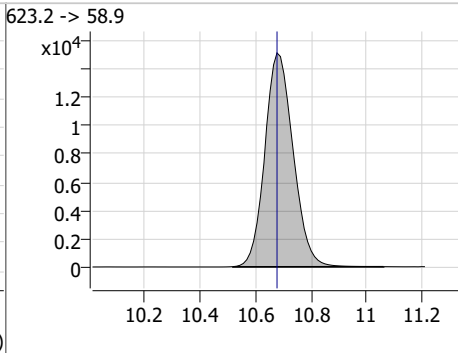
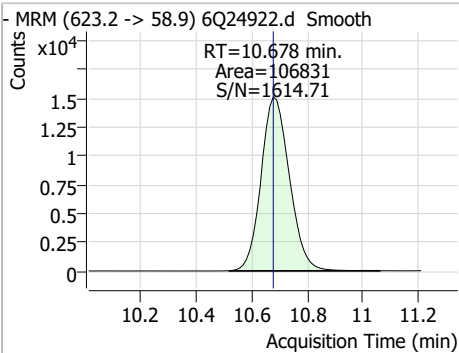
7.7.5
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Perfluorinated Compounds by LC/MS/MS

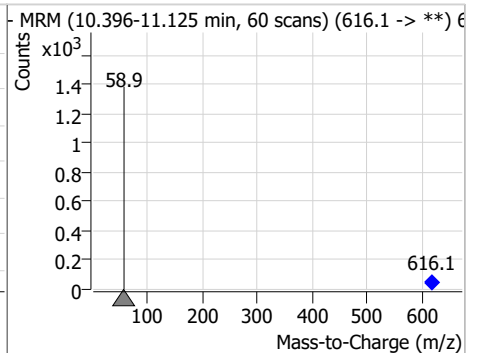
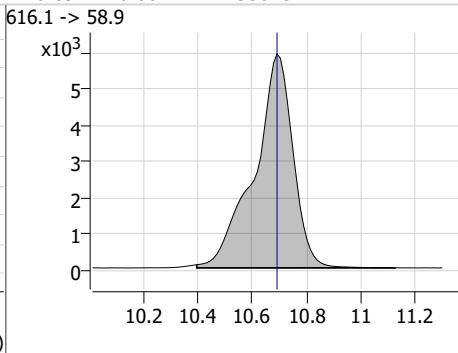
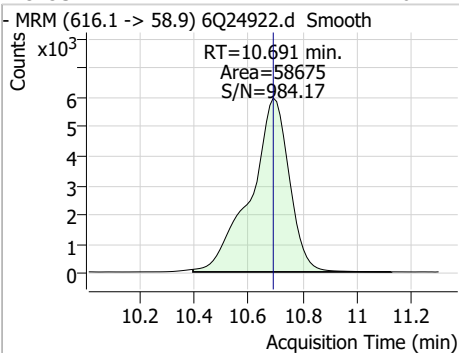
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.62	9.89	0.00	5666	699.1 -> 98.8	52.1	26.0	78.1



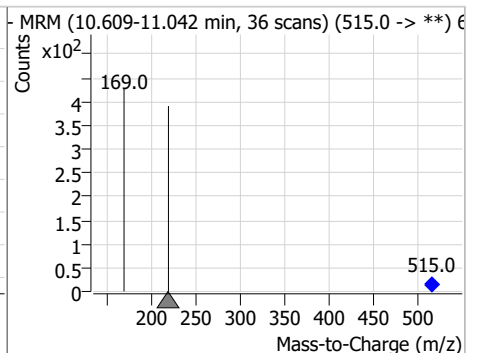
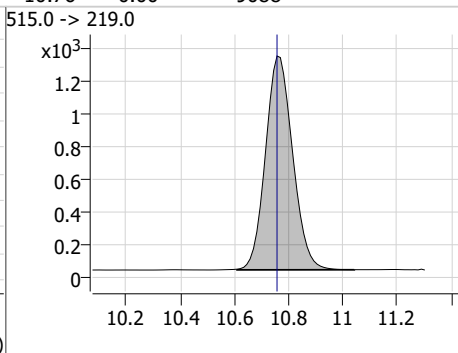
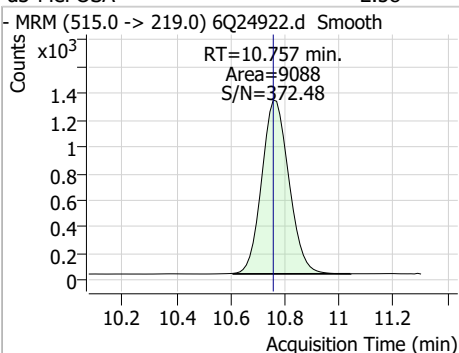
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.74	10.68	0.00	106831				



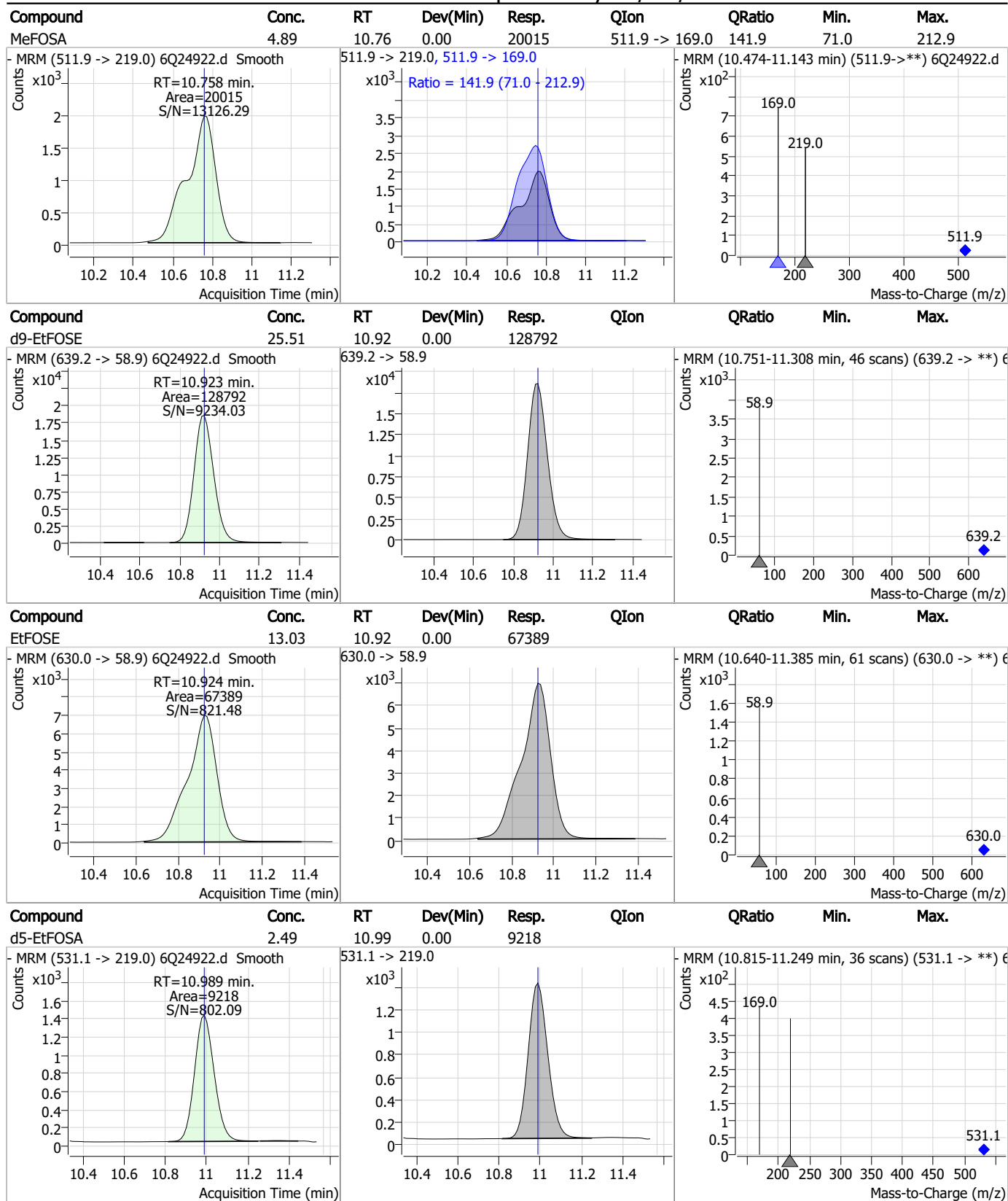
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.40	10.69	0.00	58675				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.58	10.76	0.00	9088				



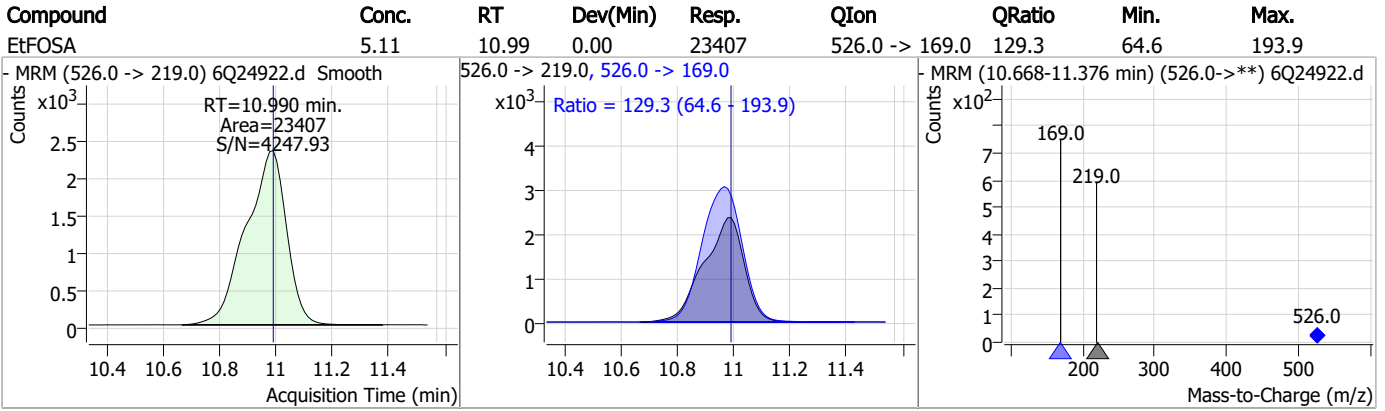
Perfluorinated Compounds by LC/MS/MS



7.7.5

7

Perfluorinated Compounds by LC/MS/MS



7.7.5

7

Manual Integration Approval Summary

Sample Number: S6Q356-ICC356 Method: EPA DRAFT 1633
Lab FileID: 6Q24922.D Analyst approved: 09/25/23 14:50 Martha Valls
Injection Time: 09/24/23 15:42 Supervisor approved: 09/26/23 13:54 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

7.7.5.1

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Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtie
 09/26/23 13:54

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24923.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/24/2023 3:57:18 PM
 Sample Name : ic356-5
 Vial : P1-A6
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	183537	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	74290	5.00 µg/L	0.000
M5-PFHxA	5.629	318.0 -> 273.0	66189	2.50 µg/L	0.000
M4-PFHpA	6.556	367.1 -> 322.0	63238	2.50 µg/L	-0.012
M8-PFOA	7.186	421.1 -> 376.0	86788	2.50 µg/L	-0.012
M9-PFNA	7.717	472.1 -> 427.0	35898	1.25 µg/L	0.000
M6-PFDA	8.185	519.1 -> 474.1	34048	1.25 µg/L	-0.012
M7-PFUnDA	8.639	570.0 -> 525.1	39731	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	40698	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	16334	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	30862	2.50 µg/L	0.000
M3-PFBS	5.546	302.1 -> 79.9	28915	2.50 µg/L	-0.013
M3-PFHxS	7.301	402.1 -> 79.9	17379	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	15369	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	2805	5.00 µg/L	0.000
M2-6:2FTS	6.961	429.1 -> 80.9	4411	5.00 µg/L	-0.012
M2-8:2FTS	7.986	529.1 -> 80.9	4057	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	37060	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	48289	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	27783	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	109153	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	136339	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	9774	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9082	2.50 µg/L	0.000
13C4-PFOS	8.336	502.8 -> 79.9	14710	2.50 µg/L	-0.013
13C3-PFBA	2.976	216.0 -> 172.0	75833	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	10474	2.50 µg/L	0.000
13C4-PFOA	7.187	417.1 -> 372.0	95228	2.50 µg/L	-0.012
13C2-PFDA	8.198	515.1 -> 470.1	33383	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	35576	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	61889	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2805	5.24 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C2-6:2FTS	6.961	429.1 -> 80.9	4411	5.18 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4057	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C2-PFDoDA	9.067	615.1 -> 570.0	40698	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C2-PFTeDA	9.772	715.2 -> 670.0	16334	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C3-PFBS	5.546	302.1 -> 79.9	28915	2.63 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.1%		
13C3-PFHxS	7.301	402.1 -> 79.9	17379	2.62 µg/L	0.000

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 = 104.9%	
13C4-PFBA	2.972	216.8 -> 171.9	183537	10.01 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.556	367.1 -> 322.0	63238	2.50 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C5-PFHxA	5.629	318.0 -> 273.0	66189	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C5-PFPeA	4.409	268.3 -> 223.0	74290	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C6-PFDA	8.185	519.1 -> 474.1	34048	1.21 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C7-PFUnDA	8.639	570.0 -> 525.1	39731	1.27 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C8-FOSA	9.670	506.1 -> 77.8	30862	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C8-PFOA	7.186	421.1 -> 376.0	86788	2.63 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.2%	
13C8-PFOS	8.348	507.1 -> 79.9	15369	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C9-PFNA	7.717	472.1 -> 427.0	35898	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.4%	
d3-MeFOSAA	8.244	573.2 -> 419.0	37060	5.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.3%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	48289	10.35 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
d3-MeFOSA	10.757	515.0 -> 219.0	9082	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.1%	
d5-EtFOSAA	8.452	589.2 -> 419.0	27783	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
d7-MeFOSE	10.678	623.2 -> 58.9	109153	24.73 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
d9-EtFOSE	10.923	639.2 -> 58.9	136339	25.39 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
d5-EtFOSA	10.989	531.1 -> 219.0	9774	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	83387	18.17 µg/L	100
		327.1 -> 80.9	35883		
6:2FTS	6.962	427.1 -> 407.0	70854	18.64 µg/L	100
		427.1 -> 80.9	30804		
8:2FTS	7.987	527.1 -> 507.0	52155	20.16 µg/L	96
		527.1 -> 80.8	19471		
EtFOSAA	8.452	584.2 -> 419.1	21608	4.67 µg/L	94
		584.2 -> 526.0	14028		
FOSA	9.672	498.1 -> 77.9	56738	4.84 µg/L	100
		498.1 -> 478.0	1541		
MeFOSAA	8.245	570.1 -> 419.0	30054	4.63 µg/L	95
		570.1 -> 483.0	6352		
PFBA	2.981	212.8 -> 168.9	125332	19.13 µg/L	100
PFBS	5.547	298.7 -> 79.9	38955	4.13 µg/L	99
		298.7 -> 98.8	14840		
PFDA	8.186	512.9 -> 469.0	130477	4.86 µg/L	99
		512.9 -> 219.0	20705		
PFDoDA	9.068	613.1 -> 569.0	140291	4.73 µg/L	99
		613.1 -> 319.0	17328		
PFDS	9.220	599.0 -> 79.9	18075	4.86 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	8446			
PFHpA	6.557	363.1 -> 319.0	159360	4.65	µg/L	97
		363.1 -> 169.0	24679			
PFHpS	7.843	449.0 -> 79.9	32060	4.73	µg/L	89
		449.0 -> 98.9	15747			
PFHxA	5.631	313.0 -> 269.0	113213	4.76	µg/L	100
		313.0 -> 118.9	5573			
PFHxS	7.290	398.7 -> 79.9	29148	4.31	µg/L	m 98
		398.7 -> 98.9	13712			
PFNA	7.717	463.0 -> 419.0	111825	4.81	µg/L	93
		463.0 -> 219.0	26953			
PFNS	8.802	548.8 -> 79.9	25202	4.71	µg/L	97
		548.8 -> 98.9	12919			
PFOA	7.187	413.0 -> 369.0	177723	4.77	µg/L	98
		413.0 -> 169.0	30694			
PFOS	8.337	498.9 -> 79.9	30671	4.63	µg/L	m 71
		498.9 -> 98.8	14907			
PFPeA	4.411	263.0 -> 219.0	144594	9.67	µg/L	100
PFPeS	6.608	349.1 -> 79.9	40159	4.26	µg/L	93
		349.1 -> 98.9	19396			
PFTeDA	9.772	713.1 -> 669.0	94871	4.91	µg/L	99
		713.1 -> 168.9	7426			
PFTrDA	9.440	663.0 -> 619.0	119698	4.61	µg/L	99
		663.0 -> 168.9	10107			
PFUnDA	8.639	563.1 -> 519.0	128595	4.89	µg/L	96
		563.1 -> 269.1	19131			
11CI-PF3OUdS	9.491	630.9 -> 450.9	113218	8.96	µg/L	97
		632.9 -> 452.9	35050			
9CI-PF3ONS	8.678	530.8 -> 351.0	189424	8.84	µg/L	97
		532.8 -> 353.0	58119			
ADONA	6.804	376.9 -> 250.9	530987	8.95	µg/L	100
		376.9 -> 84.8	154029			
HFPO-DA	6.007	284.9 -> 168.9	43697	9.19	µg/L	100
		284.9 -> 184.9	4593			
3:3FTCA	3.846	241.0 -> 177.0	24944	23.45	µg/L	99
		241.0 -> 117.0	2867			
5:3FTCA	6.271	341.0 -> 237.1	540294	120.97	µg/L	93
		341.0 -> 217.0	344256			
7:3FTCA	7.657	441.0 -> 316.9	314268	124.20	µg/L	98
		441.0 -> 336.9	640238			
EtFOSA	10.990	526.0 -> 219.0	45329	9.33	µg/L	95
		526.0 -> 169.0	61245			
EtFOSE	10.924	630.0 -> 58.9	128455	23.47	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	39614	9.69	µg/L	99
		511.9 -> 169.0	55675			
MeFOSE	10.691	616.1 -> 58.9	117742	24.34	µg/L	100
PFDoS	9.898	699.1 -> 79.9	11083	5.00	µg/L	99
		699.1 -> 98.8	5834			
NFDHA	5.512	295.0 -> 201.0	28530	9.35	µg/L	100
		295.0 -> 84.9	7639			
PFMBA	4.838	279.0 -> 85.1	116115	9.66	µg/L	100
PFMPA	3.538	229.0 -> 84.9	86160	9.65	µg/L	100
PFEESA	6.100	314.8 -> 134.9	252383	8.54	µg/L	100
		314.8 -> 82.9	9745			

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

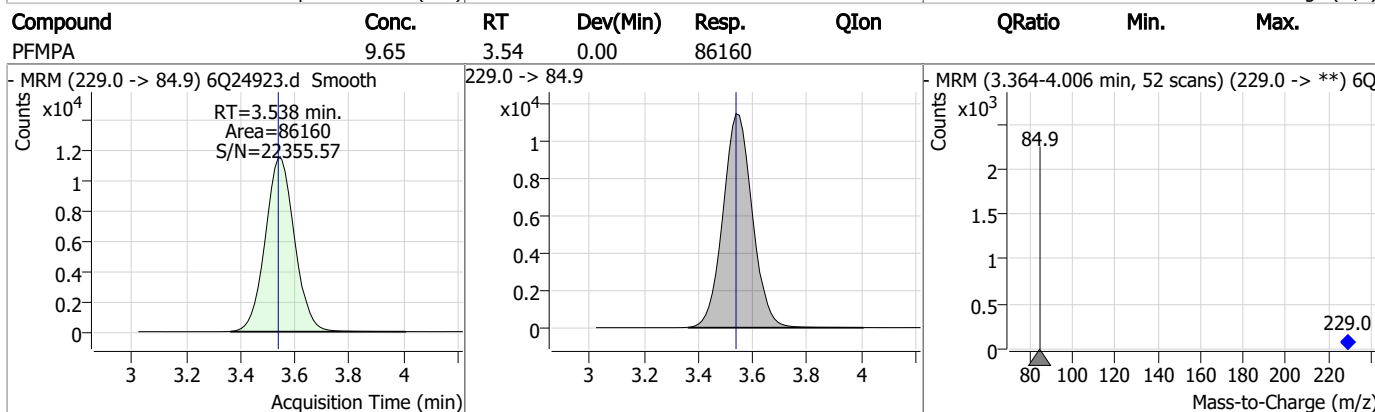
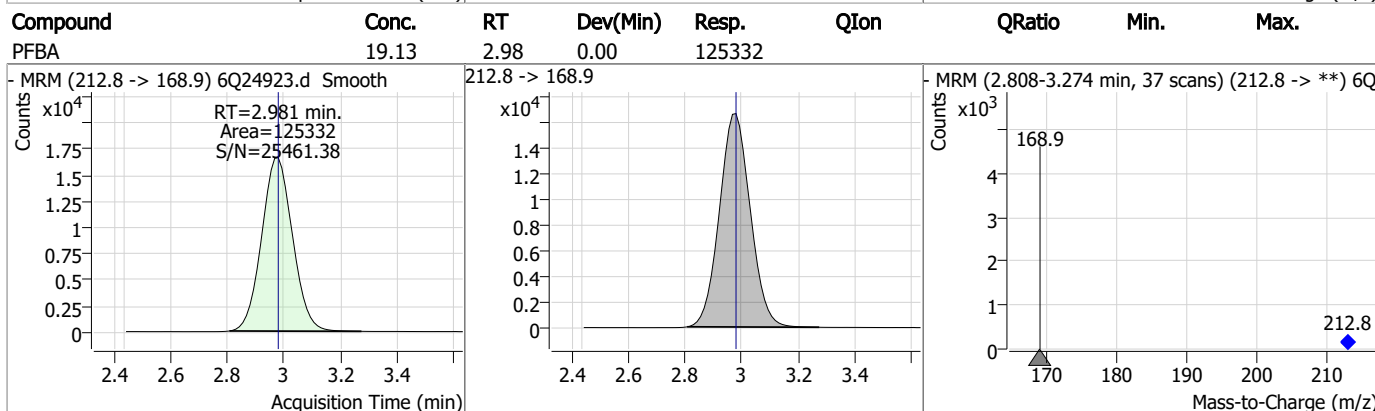
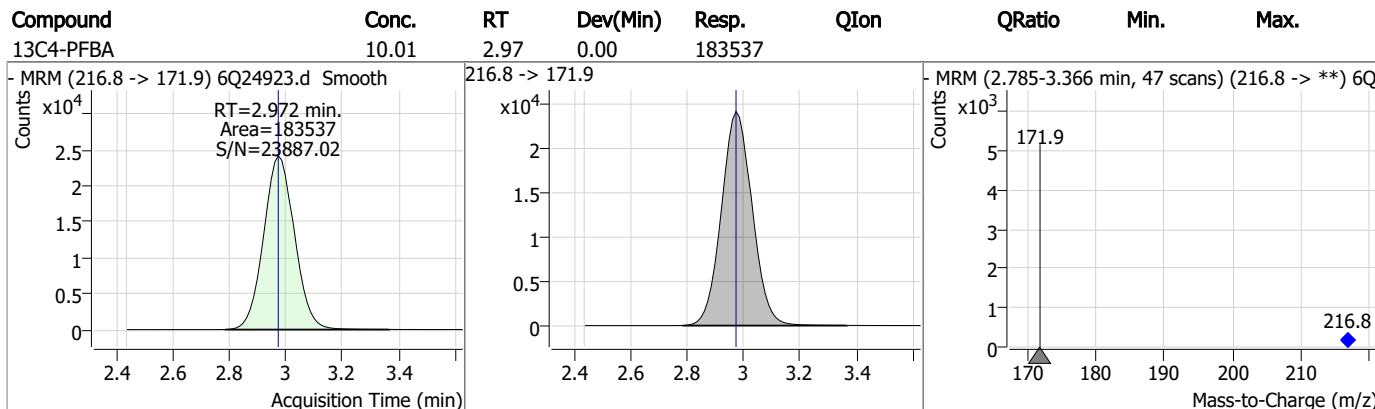
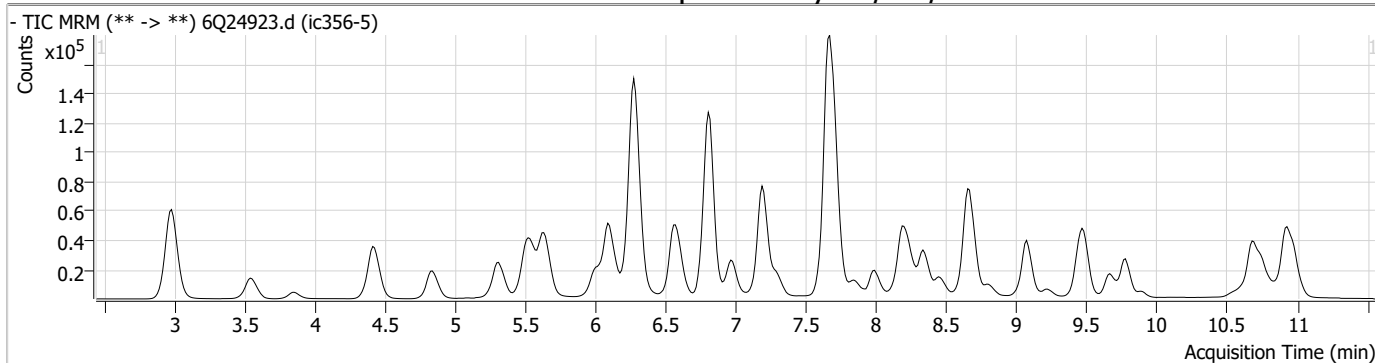
Perfluorinated Compounds by LC/MS/MS

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

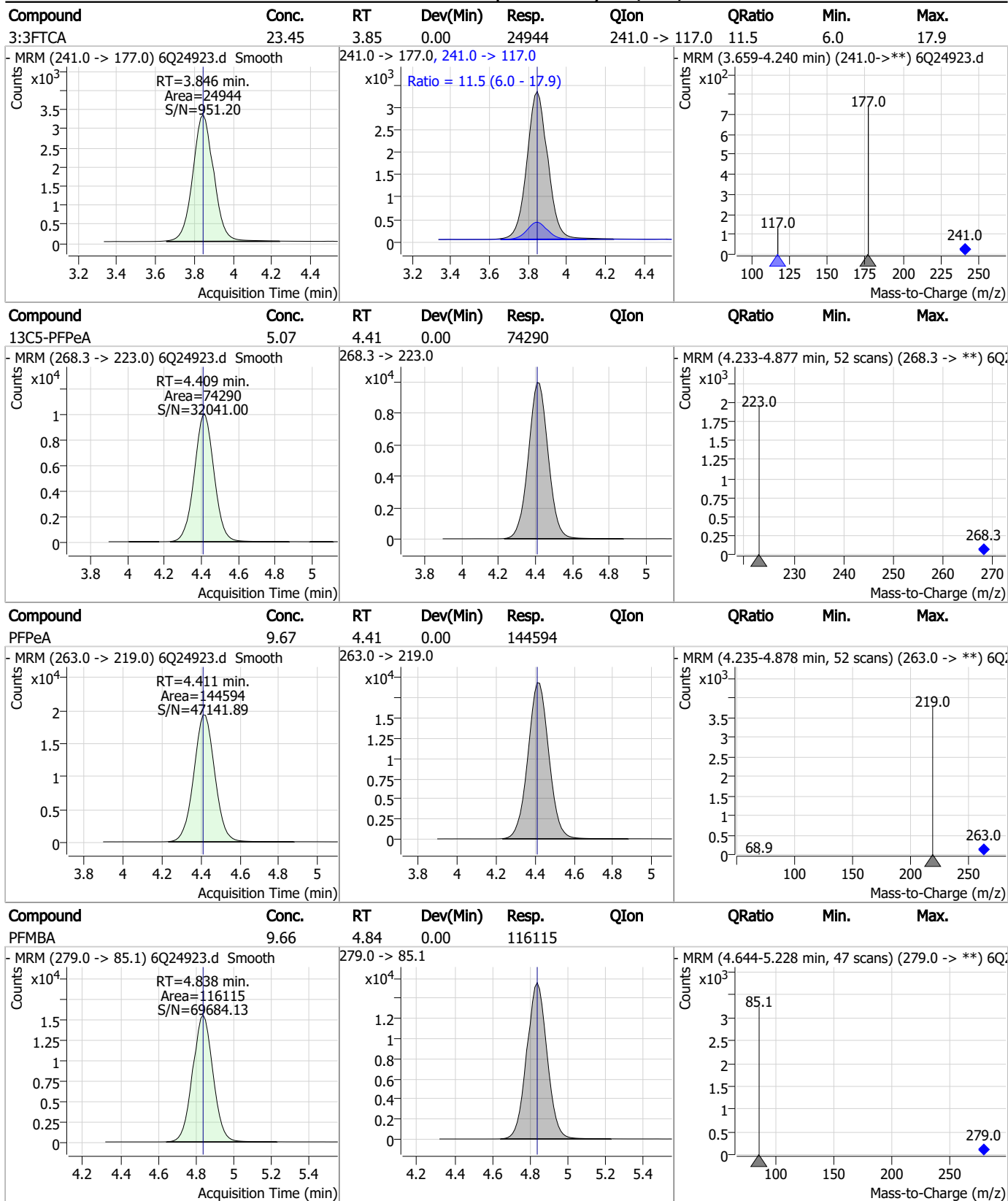
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Perfluorinated Compounds by LC/MS/MS



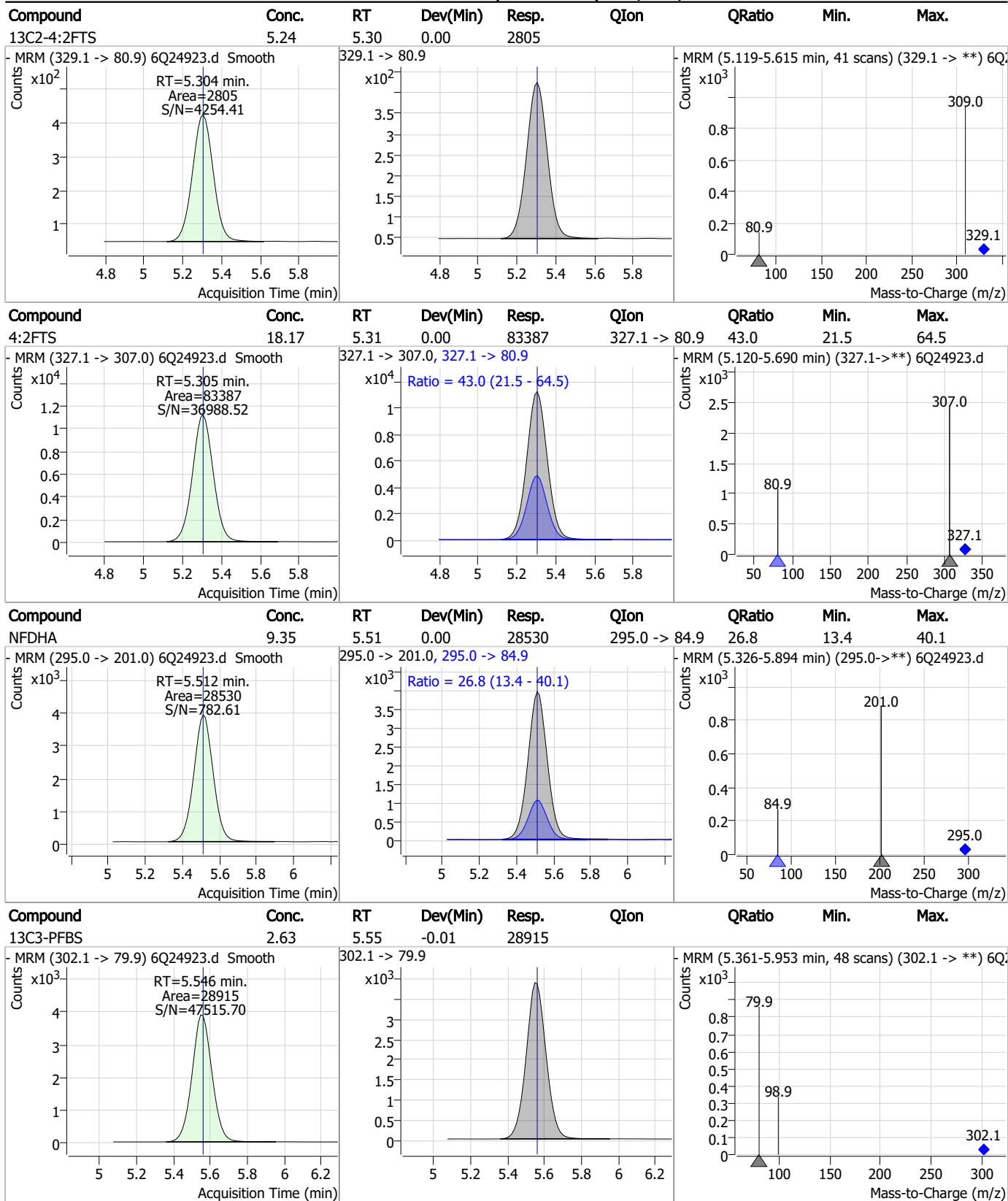
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Perfluorinated Compounds by LC/MS/MS



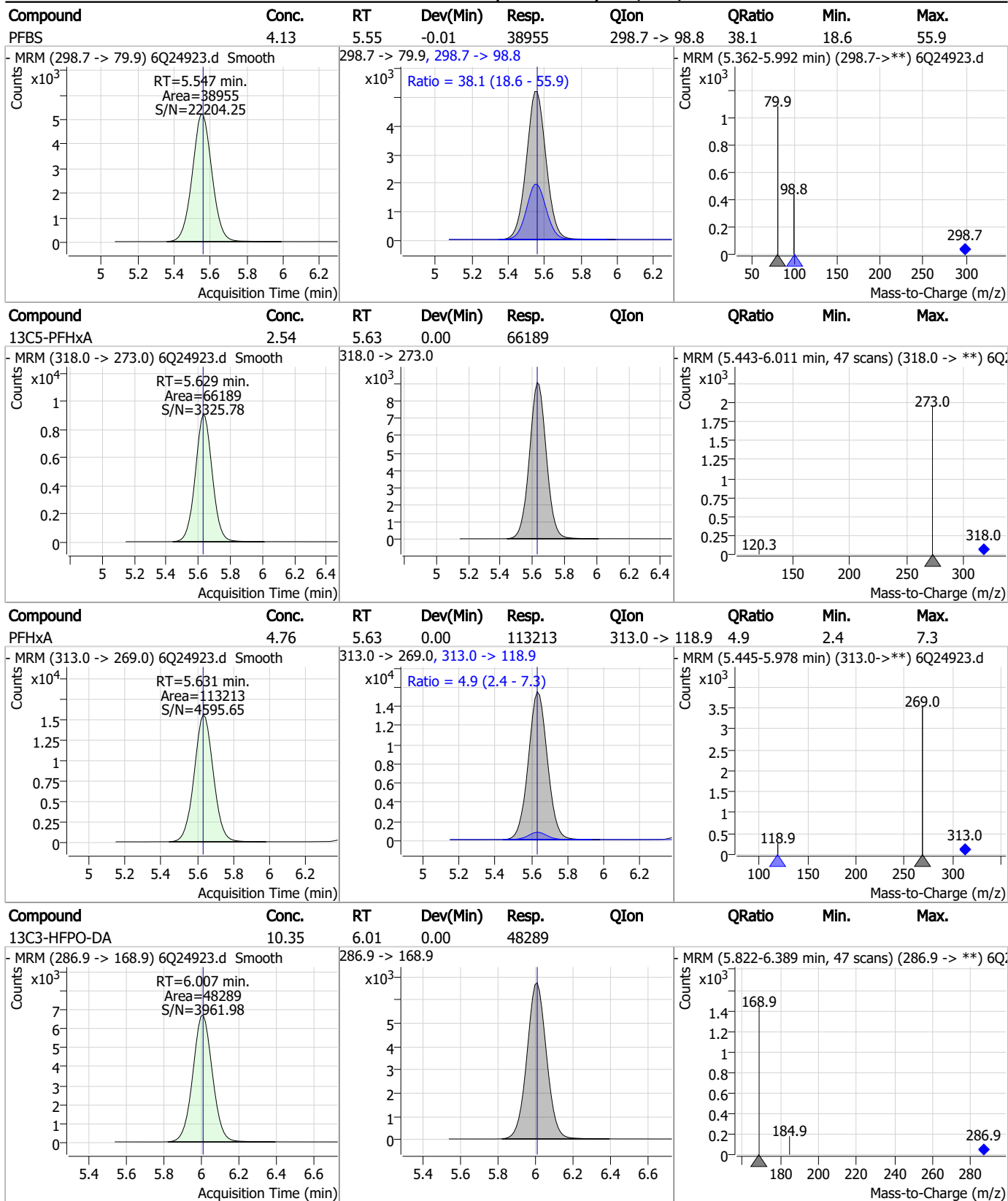
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Perfluorinated Compounds by LC/MS/MS



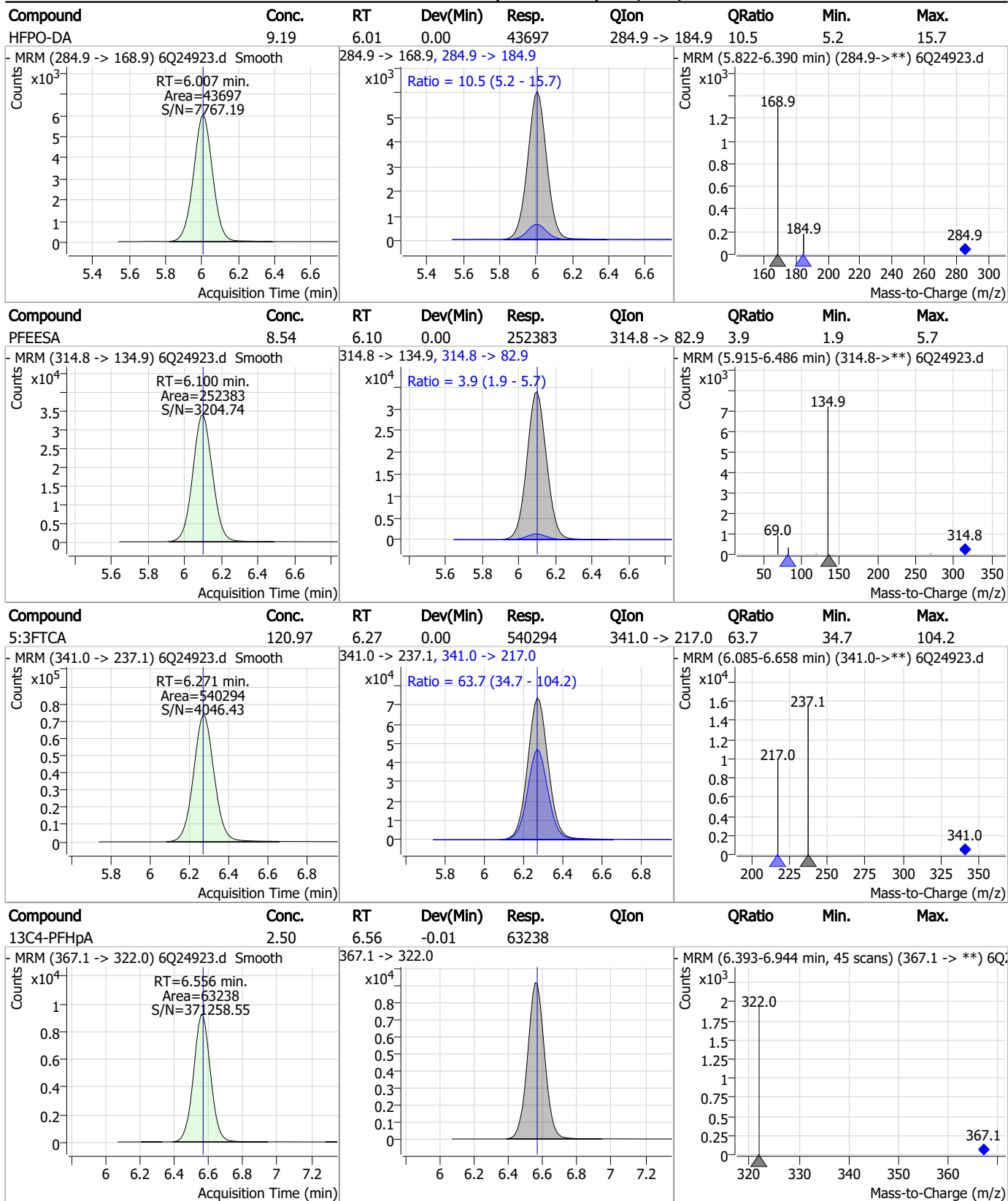
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Perfluorinated Compounds by LC/MS/MS



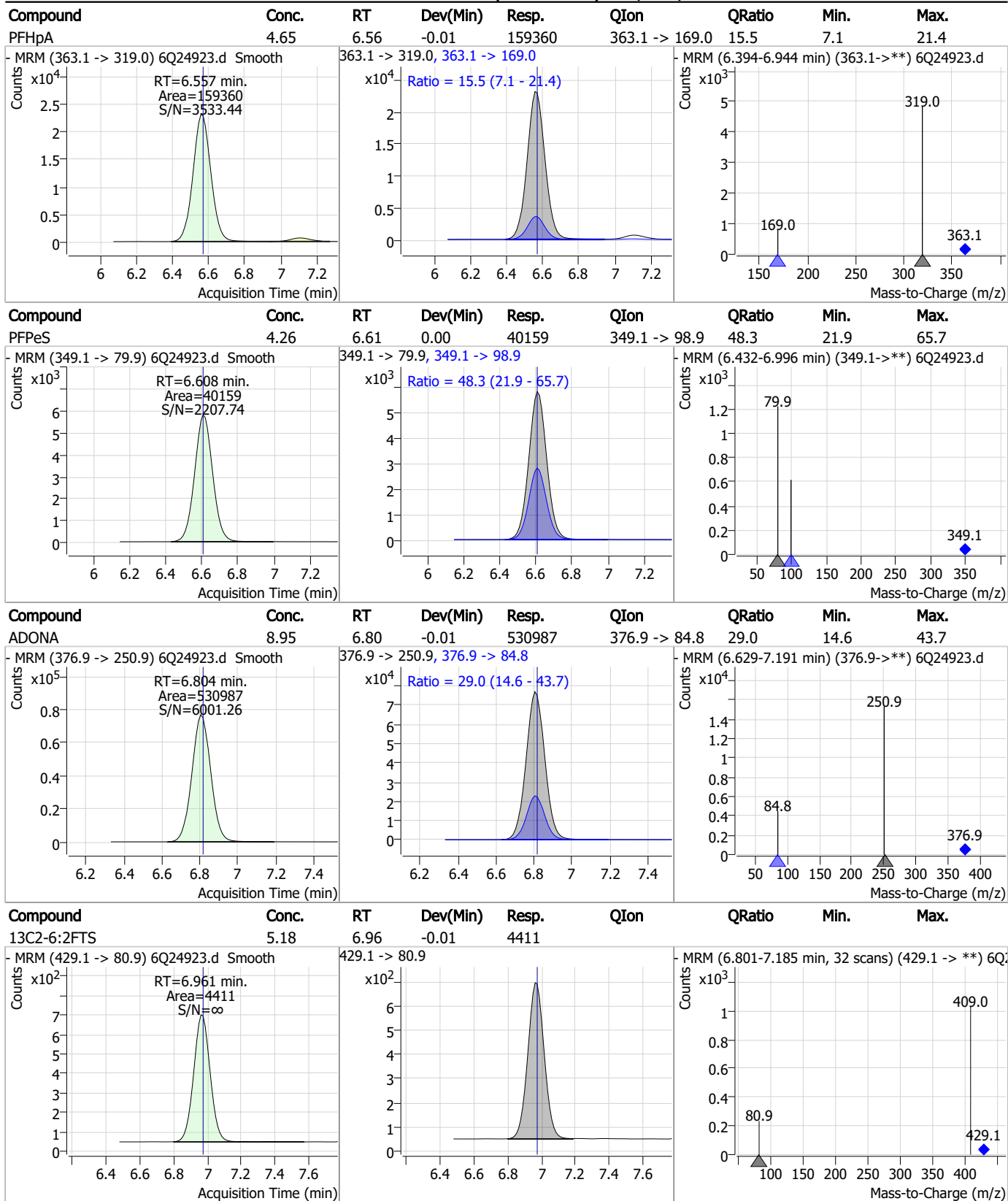
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Perfluorinated Compounds by LC/MS/MS



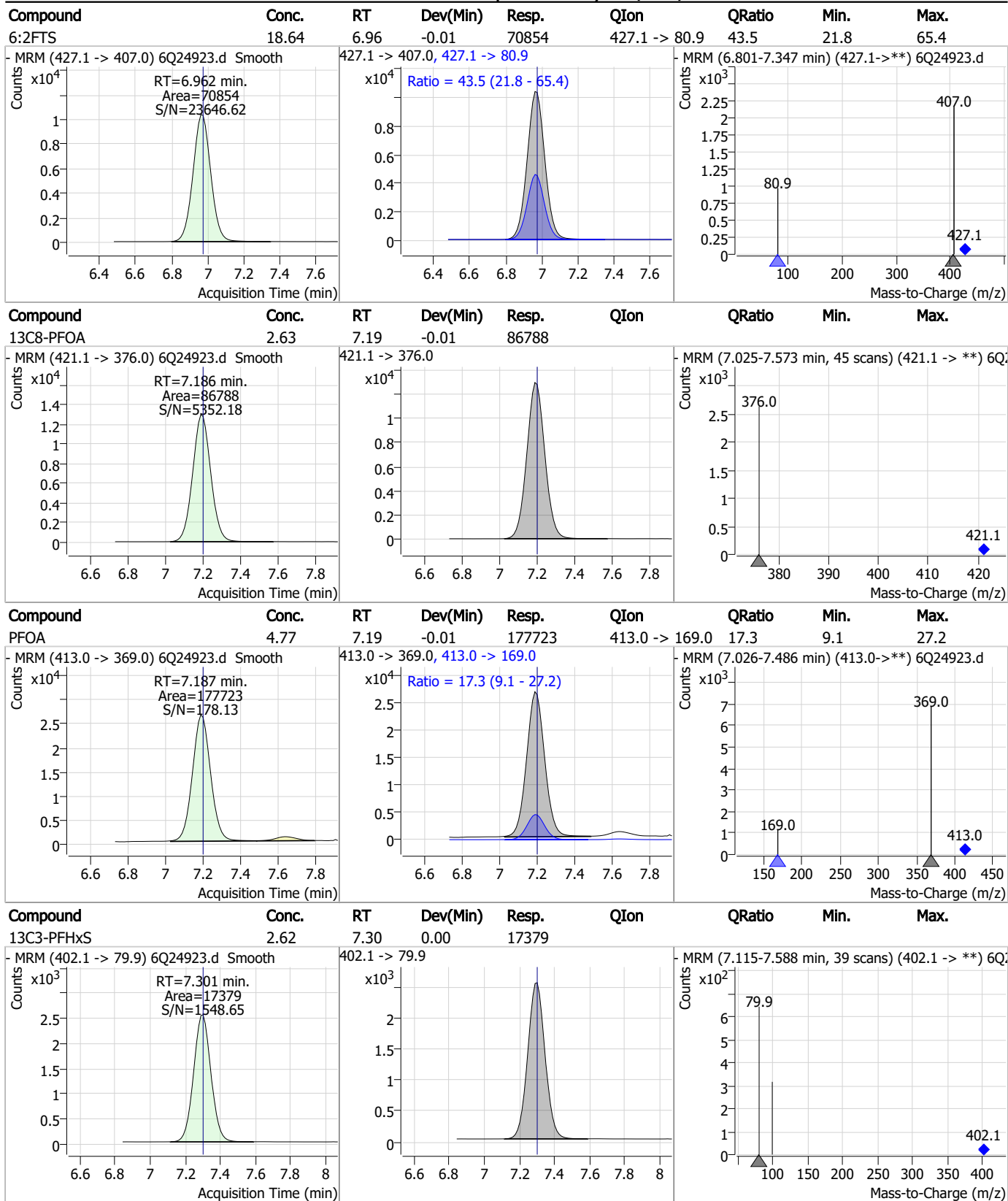
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Perfluorinated Compounds by LC/MS/MS



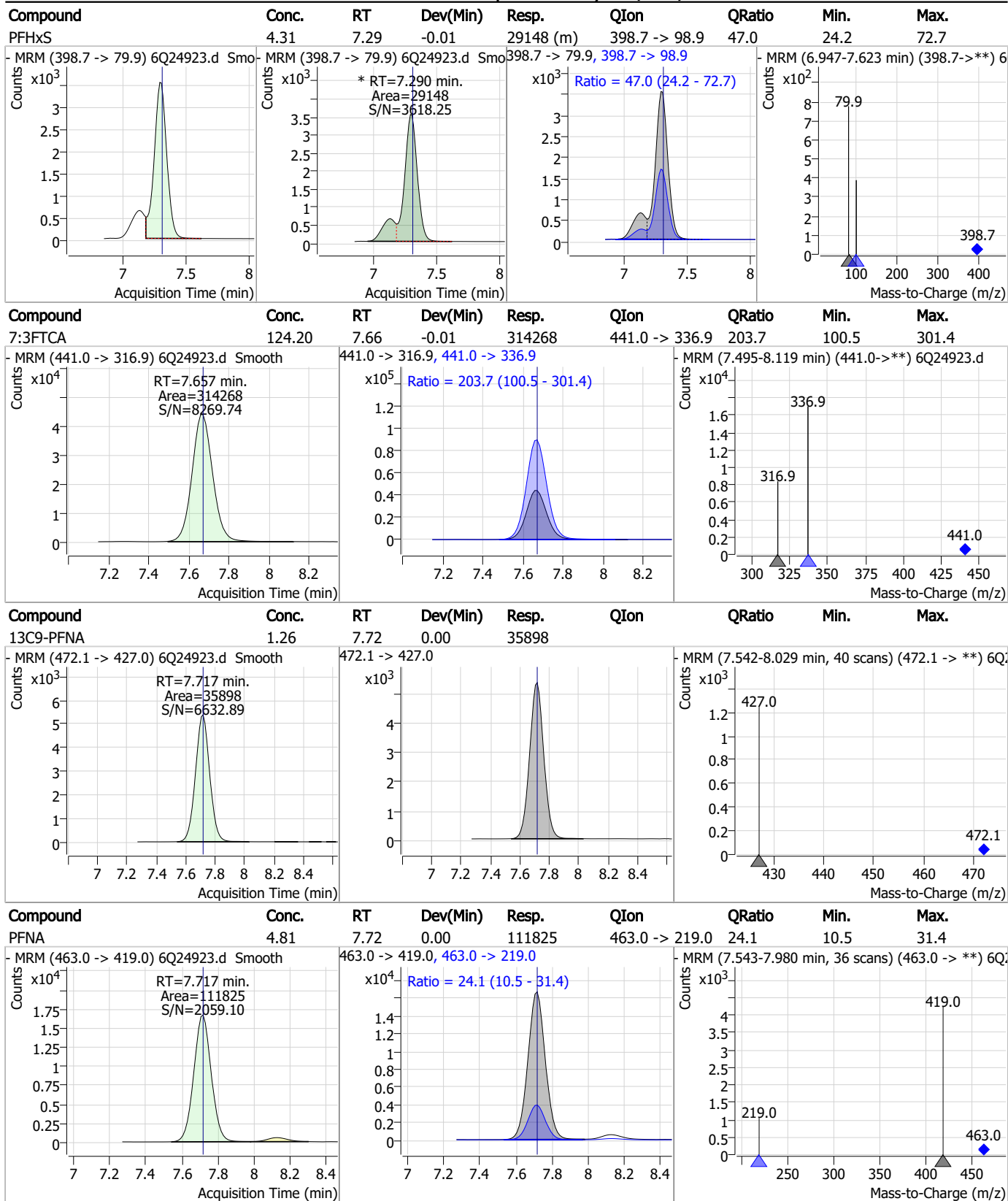
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Perfluorinated Compounds by LC/MS/MS



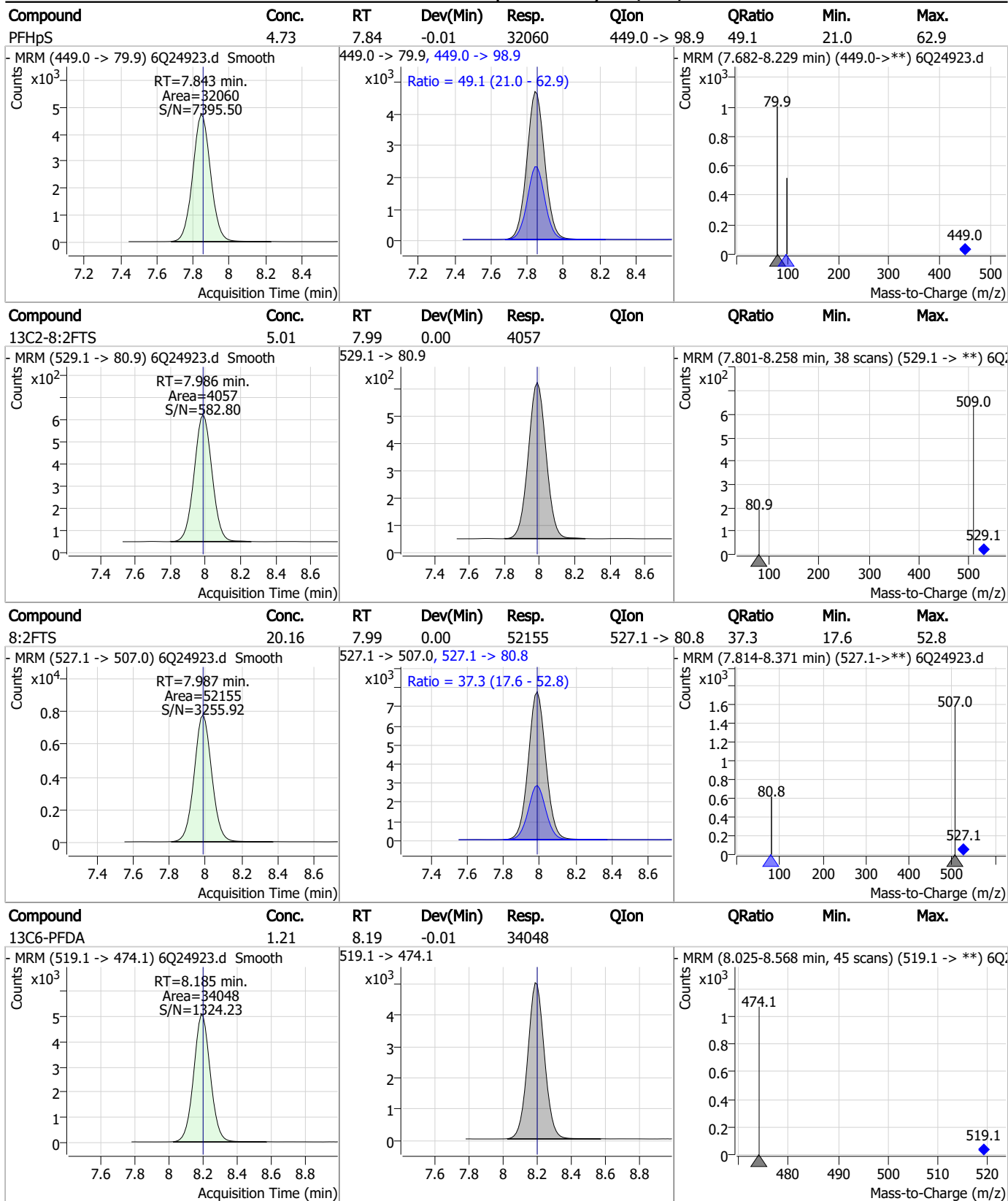
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Perfluorinated Compounds by LC/MS/MS



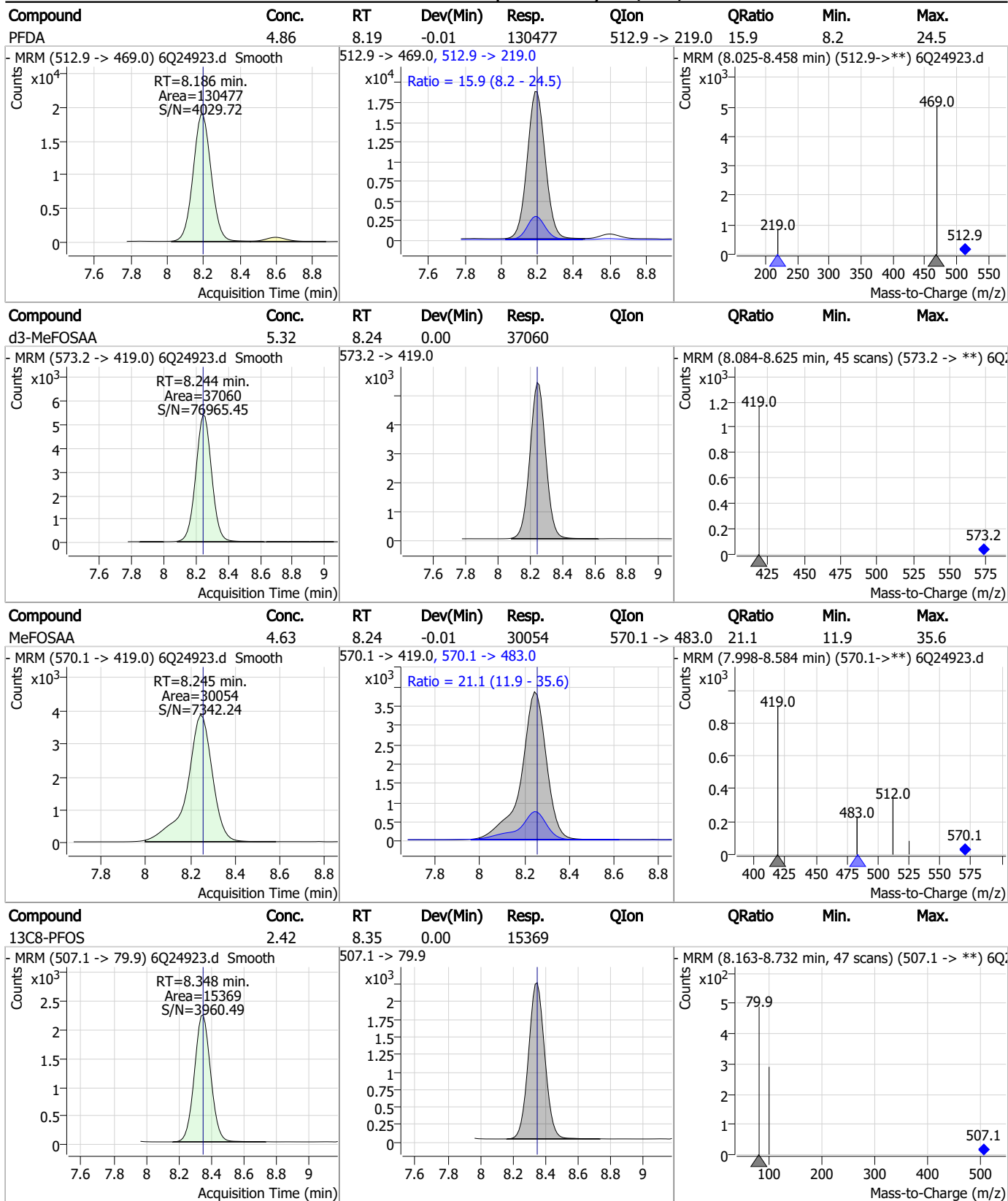
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Perfluorinated Compounds by LC/MS/MS



7.7.6
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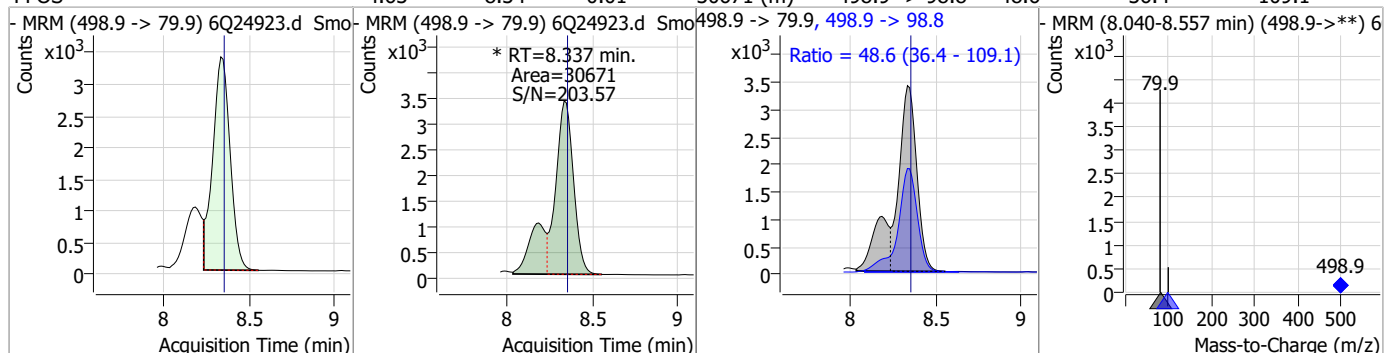
Perfluorinated Compounds by LC/MS/MS



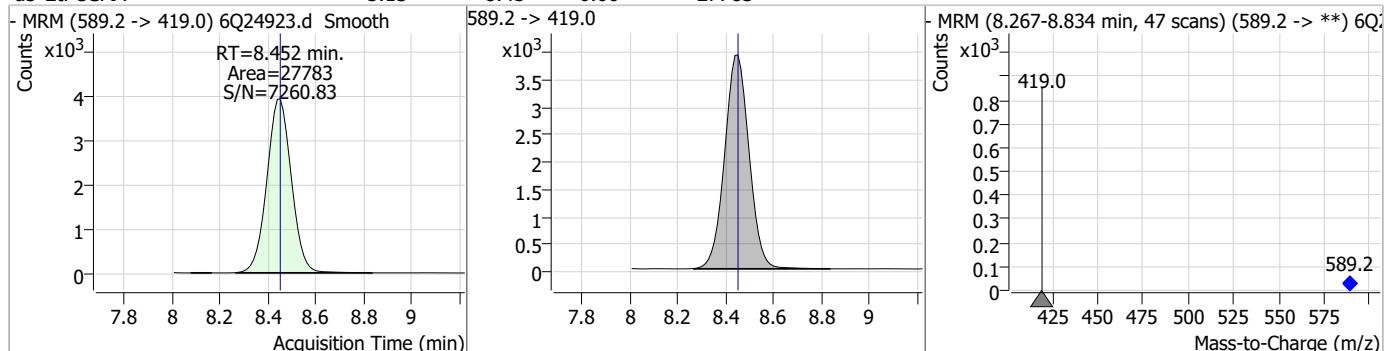
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Perfluorinated Compounds by LC/MS/MS

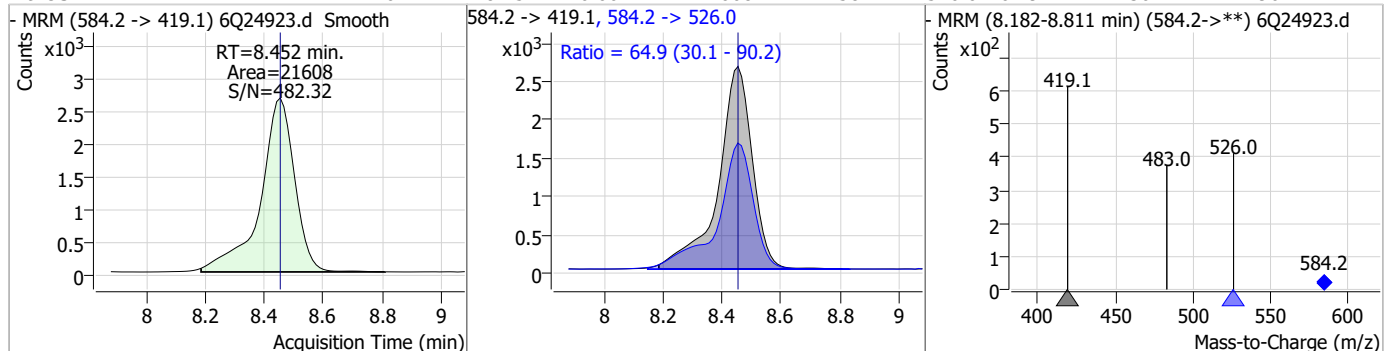
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	4.63	8.34	-0.01	30671 (m)	498.9 -> 98.8	48.6	36.4	109.1



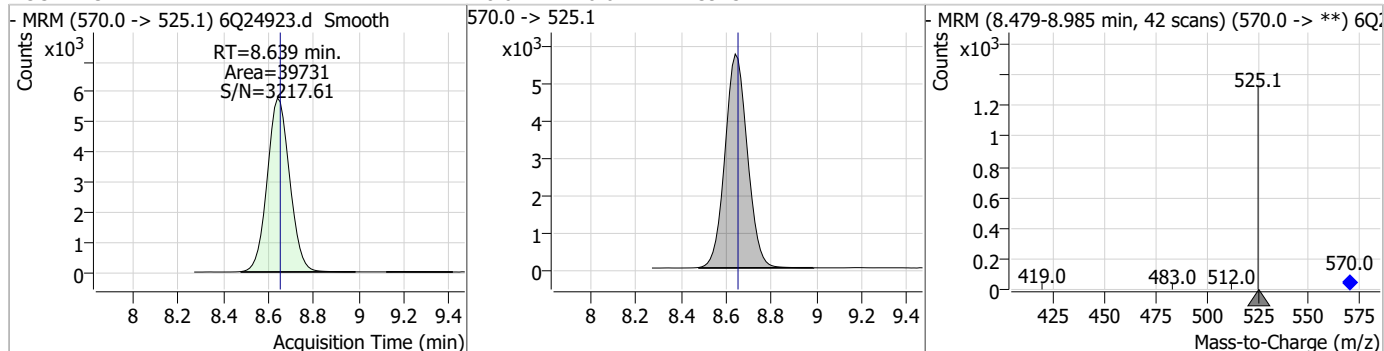
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.13	8.45	0.00	27783				



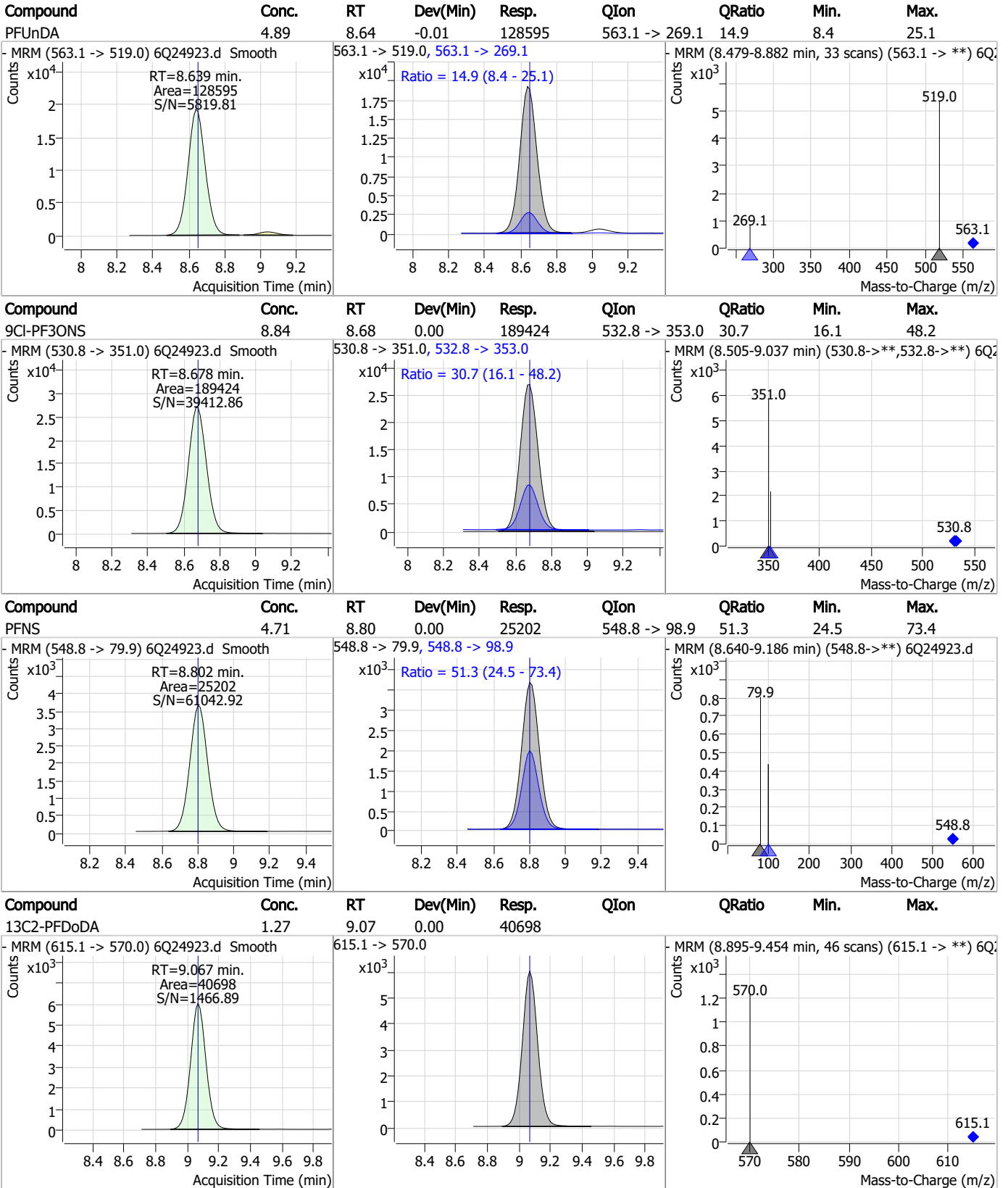
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	4.67	8.45	0.00	21608	584.2 -> 526.0	64.9	30.1	90.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.27	8.64	-0.01	39731				



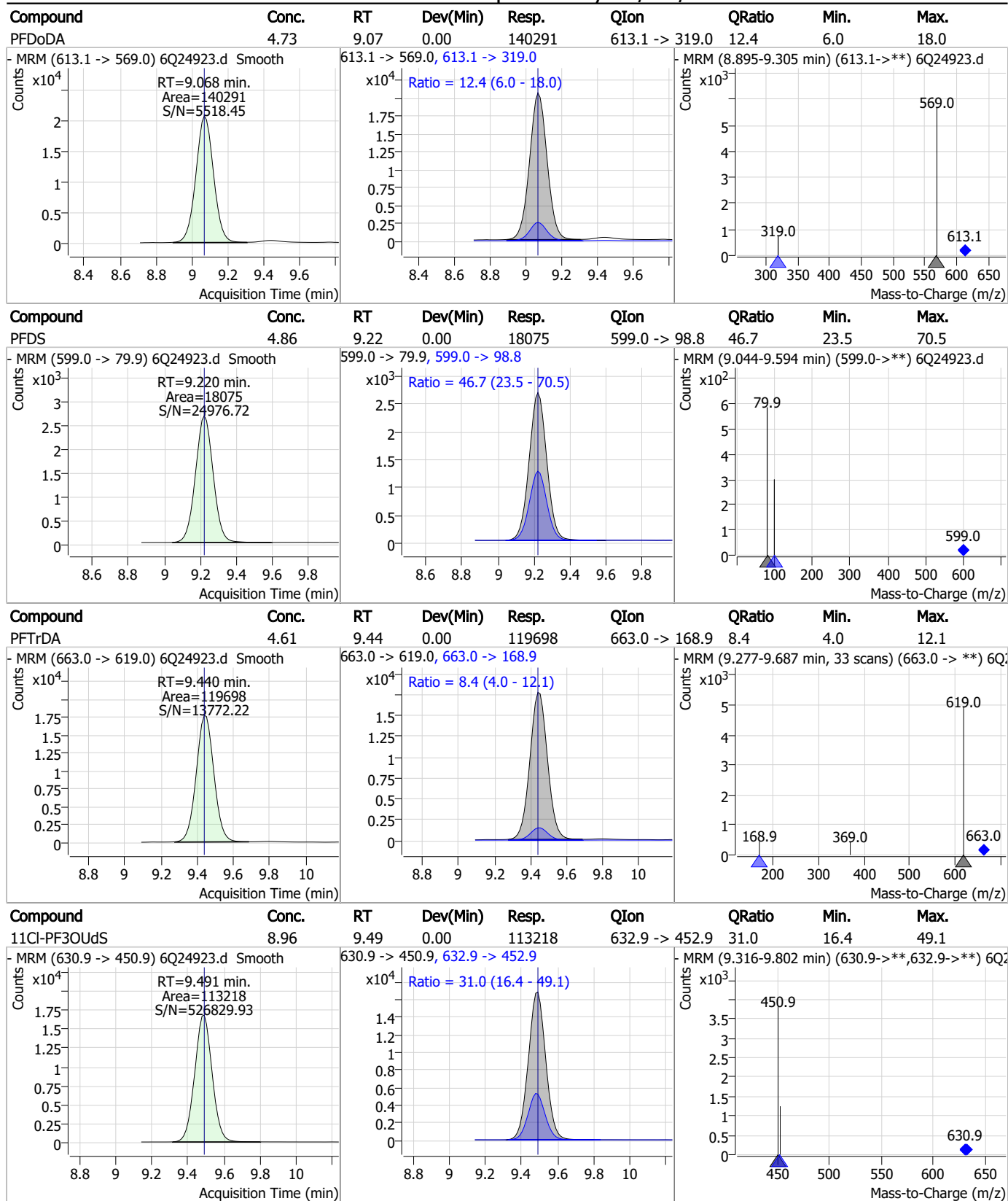
Perfluorinated Compounds by LC/MS/MS



7.7.6

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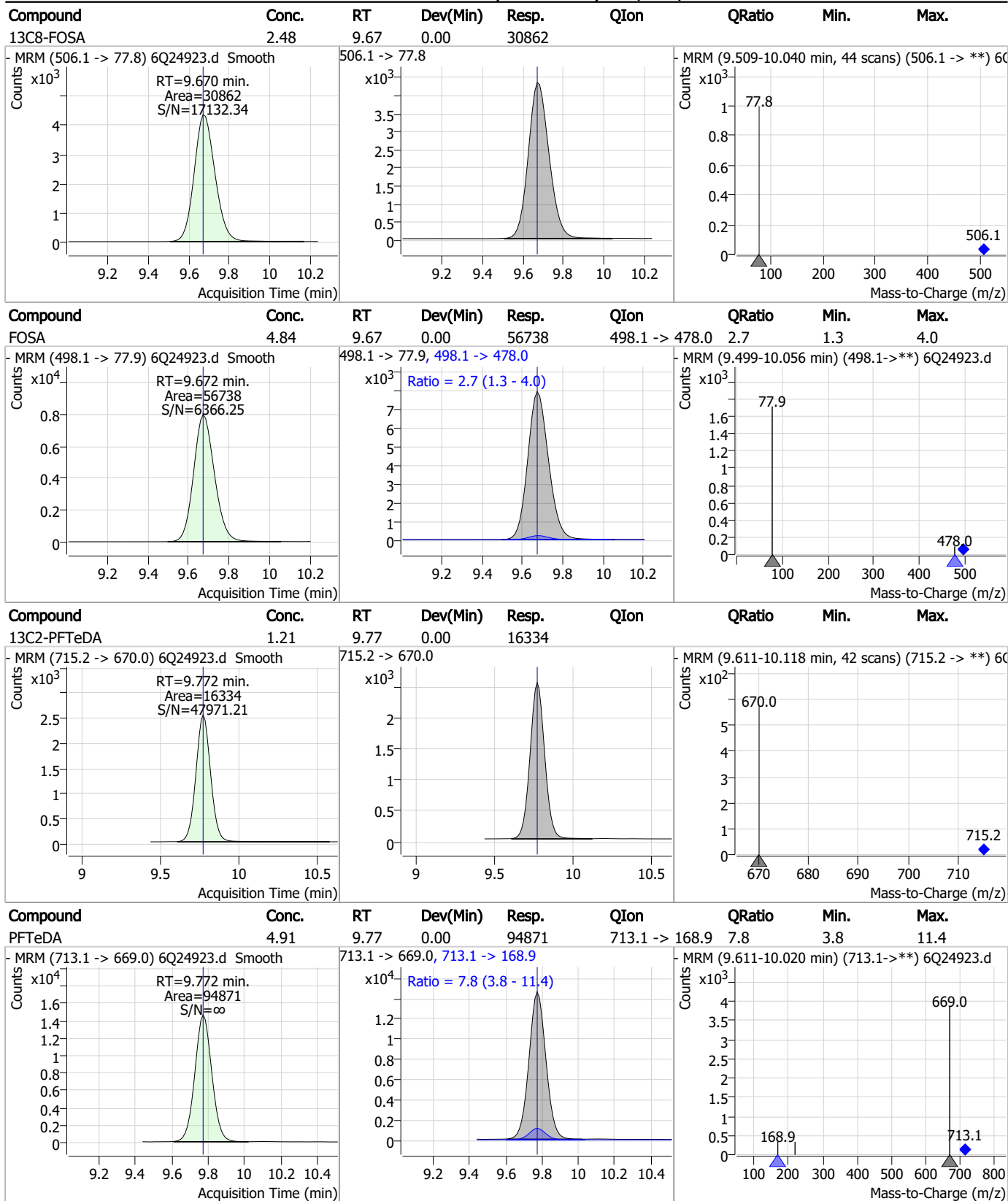
Perfluorinated Compounds by LC/MS/MS



7.7.6

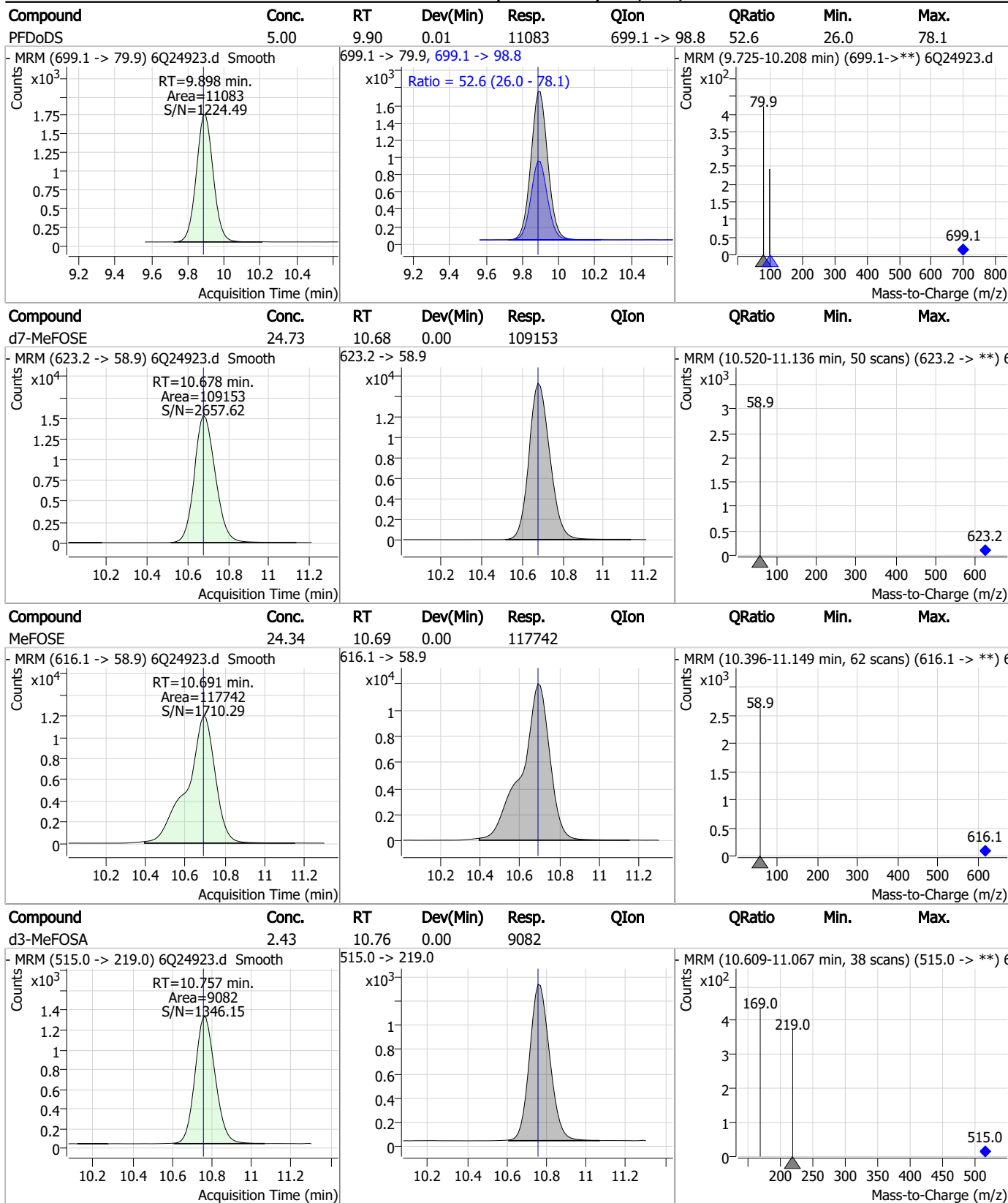
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Perfluorinated Compounds by LC/MS/MS



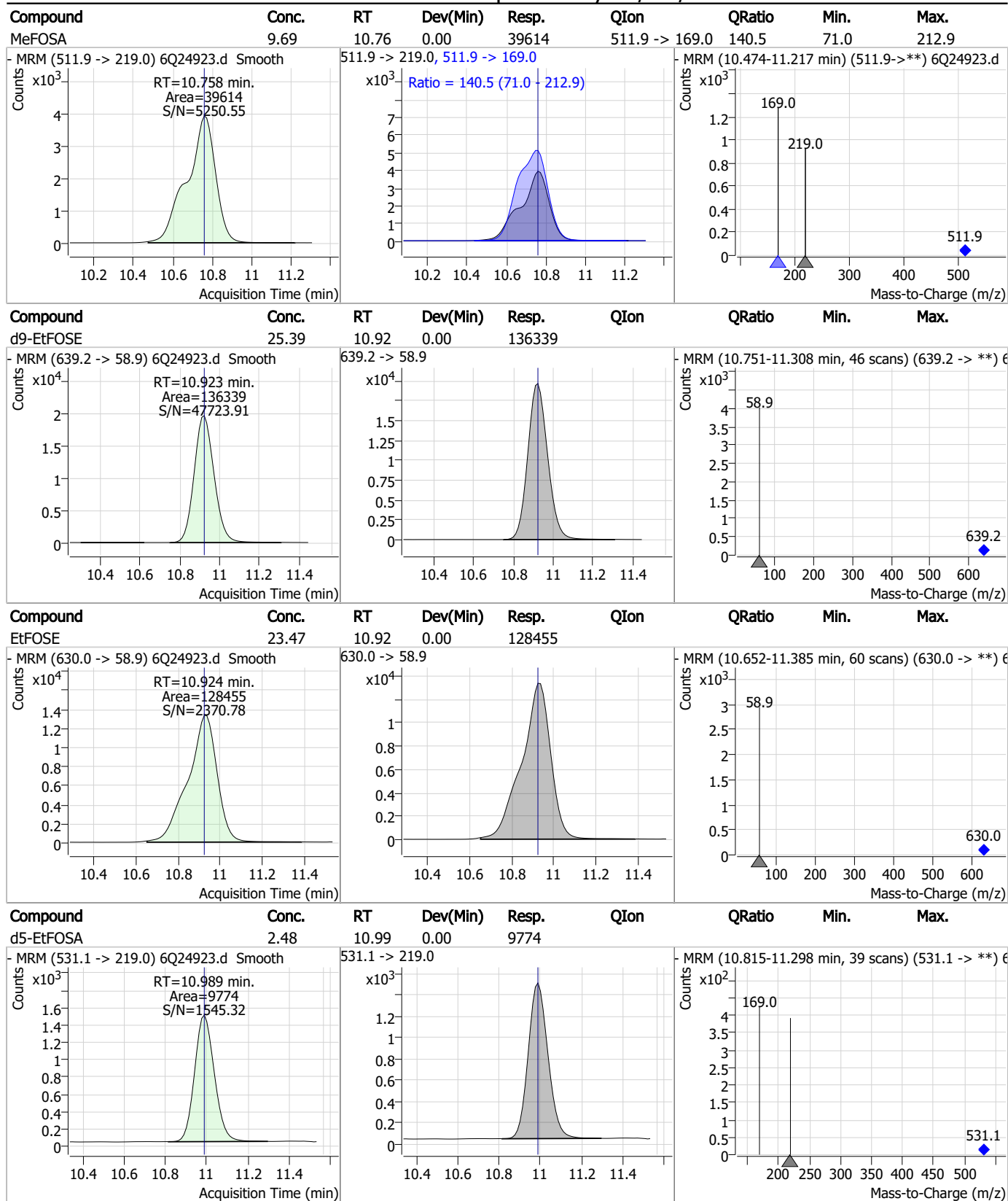
7.7.6
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Perfluorinated Compounds by LC/MS/MS



7.7.6
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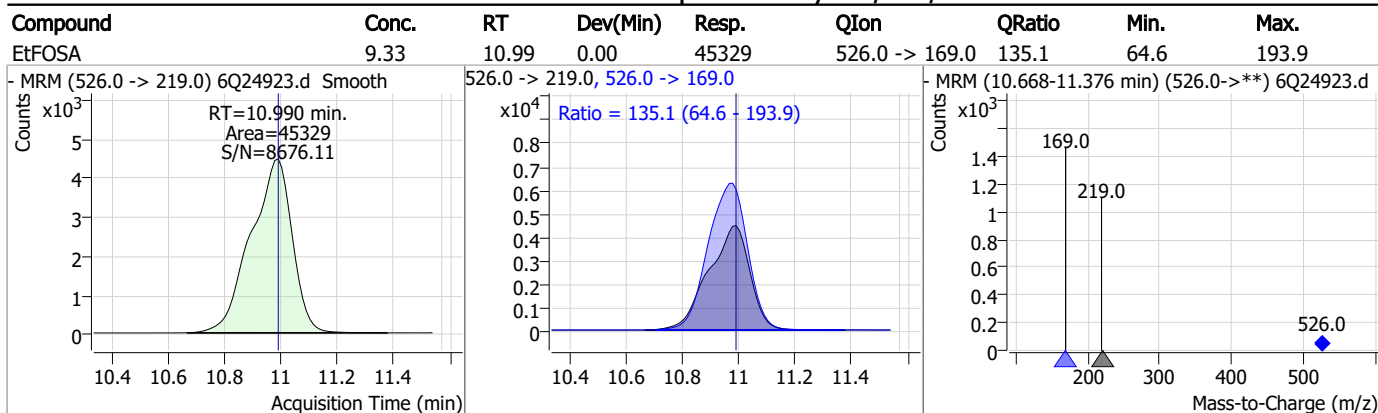
Perfluorinated Compounds by LC/MS/MS



7.7.6

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Perfluorinated Compounds by LC/MS/MS



7.7.6
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Manual Integration Approval Summary

Sample Number: S6Q356-IC356 Method: EPA DRAFT 1633
Lab FileID: 6Q24923.D Analyst approved: 09/25/23 14:50 Martha Valls
Injection Time: 09/24/23 15:57 Supervisor approved: 09/26/23 13:54 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.34	Split peak

7.7.6.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24924.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/24/2023 4:11:40 PM
 Sample Name : ic356-6
 Vial : P1-A7
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	176755	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	71933	5.00 µg/L	0.000
M5-PFHxA	5.629	318.0 -> 273.0	64537	2.50 µg/L	0.000
M4-PFHpA	6.556	367.1 -> 322.0	61131	2.50 µg/L	-0.012
M8-PFOA	7.186	421.1 -> 376.0	80540	2.50 µg/L	-0.012
M9-PFNA	7.717	472.1 -> 427.0	33842	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	33598	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	36876	1.25 µg/L	0.000
M2-PFDoDA	9.067	615.1 -> 570.0	38897	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	16507	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	30922	2.50 µg/L	0.000
M3-PFBS	5.546	302.1 -> 79.9	27910	2.50 µg/L	-0.013
M3-PFHxS	7.301	402.1 -> 79.9	16859	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	15476	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	2575	5.00 µg/L	0.000
M2-6:2FTS	6.961	429.1 -> 80.9	3988	5.00 µg/L	-0.012
M2-8:2FTS	7.986	529.1 -> 80.9	3991	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	34277	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	46608	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	27135	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	103371	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	130677	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	9662	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9054	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	14304	2.50 µg/L	0.000
13C3-PFBA	2.976	216.0 -> 172.0	73325	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	10416	2.50 µg/L	0.000
13C4-PFOA	7.187	417.1 -> 372.0	98430	2.50 µg/L	-0.012
13C2-PFDA	8.198	515.1 -> 470.1	30929	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	34356	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	59842	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2575	4.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C2-6:2FTS	6.961	429.1 -> 80.9	3988	4.71 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.2%		
13C2-8:2FTS	7.986	529.1 -> 80.9	3991	4.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C2-PFDoDA	9.067	615.1 -> 570.0	38897	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.2%		
13C2-PFTeDA	9.772	715.2 -> 670.0	16507	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.4%		
13C3-PFBS	5.546	302.1 -> 79.9	27910	2.55 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C3-PFHxS	7.301	402.1 -> 79.9	16859	2.56 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 = 102.3%	
13C4-PFBA	2.972	216.8 -> 171.9	176755	9.97 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C4-PFHpA	6.556	367.1 -> 322.0	61131	2.50 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C5-PFHxA	5.629	318.0 -> 273.0	64537	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C5-PFPeA	4.409	268.3 -> 223.0	71933	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C6-PFDA	8.198	519.1 -> 474.1	33598	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C7-PFUnDA	8.651	570.0 -> 525.1	36876	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C8-FOSA	9.670	506.1 -> 77.8	30922	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C8-PFOA	7.186	421.1 -> 376.0	80540	2.36 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.4%	
13C8-PFOS	8.348	507.1 -> 79.9	15476	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C9-PFNA	7.717	472.1 -> 427.0	33842	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.0%	
d3-MeFOSAA	8.244	573.2 -> 419.0	34277	5.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	46608	10.33 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.3%	
d3-MeFOSA	10.757	515.0 -> 219.0	9054	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%	
d5-EtFOSAA	8.452	589.2 -> 419.0	27135	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.0%	
d7-MeFOSE	10.678	623.2 -> 58.9	103371	24.09 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.4%	
d9-EtFOSE	10.923	639.2 -> 58.9	130677	25.03 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
d5-EtFOSA	10.989	531.1 -> 219.0	9662	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	204618	48.55 µg/L	98
		327.1 -> 80.9	84942		
6:2FTS	6.974	427.1 -> 407.0	173784	50.57 µg/L	99
		427.1 -> 80.9	74651		
8:2FTS	7.987	527.1 -> 507.0	120946	47.53 µg/L	91
		527.1 -> 80.8	48771		
EtFOSAA	8.452	584.2 -> 419.1	55618	12.31 µg/L	100
		584.2 -> 526.0	33279		
FOSA	9.672	498.1 -> 77.9	149164	12.69 µg/L	100
		498.1 -> 478.0	3884		
MeFOSAA	8.245	570.1 -> 419.0	75546	12.59 µg/L	95
		570.1 -> 483.0	15956		
PFBA	2.981	212.8 -> 168.9	327539	51.91 µg/L	100
PFBS	5.547	298.7 -> 79.9	101970	11.20 µg/L	98
		298.7 -> 98.8	36467		
PFDA	8.198	512.9 -> 469.0	342989	12.94 µg/L	99
		512.9 -> 219.0	56946		
PFDoDA	9.068	613.1 -> 569.0	369606	13.04 µg/L	99
		613.1 -> 319.0	45111		
PFDS	9.220	599.0 -> 79.9	46489	12.43 µg/L	98

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	22355			
PFHpA	6.569	363.1 -> 319.0	437578	13.20	µg/L	99
		363.1 -> 169.0	63631			
PFHpS	7.856	449.0 -> 79.9	85899	12.59	µg/L	92
		449.0 -> 98.9	40307			
PFHxA	5.631	313.0 -> 269.0	293245	12.66	µg/L	99
		313.0 -> 118.9	13686			
PFHxS	7.302	398.7 -> 79.9	76427	11.65	µg/L	m 98
		398.7 -> 98.9	35891			
PFNA	7.717	463.0 -> 419.0	283563	12.95	µg/L	94
		463.0 -> 219.0	67399			
PFNS	8.802	548.8 -> 79.9	65799	12.21	µg/L	95
		548.8 -> 98.9	34587			
PFOA	7.200	413.0 -> 369.0	457449	13.23	µg/L	99
		413.0 -> 169.0	80484			
PFOS	8.350	498.9 -> 79.9	79073	11.85	µg/L	m 73
		498.9 -> 98.8	39912			
PFPeA	4.411	263.0 -> 219.0	377770	26.09	µg/L	100
PFPeS	6.608	349.1 -> 79.9	106875	11.69	µg/L	96
		349.1 -> 98.9	49450			
PFTeDA	9.772	713.1 -> 669.0	246551	12.64	µg/L	99
		713.1 -> 168.9	19599			
PFTrDA	9.440	663.0 -> 619.0	306730	12.36	µg/L	98
		663.0 -> 168.9	27276			
PFUnDA	8.652	563.1 -> 519.0	323268	13.24	µg/L	97
		563.1 -> 269.1	49828			
11CI-PF3OUdS	9.491	630.9 -> 450.9	280880	23.04	µg/L	100
		632.9 -> 452.9	91900			
9CI-PF3ONS	8.678	530.8 -> 351.0	502959	24.31	µg/L	99
		532.8 -> 353.0	158251			
ADONA	6.804	376.9 -> 250.9	1378512	24.07	µg/L	100
		376.9 -> 84.8	398376			
HFPO-DA	6.007	284.9 -> 168.9	112090	24.44	µg/L	98
		284.9 -> 184.9	10870			
3:3FTCA	3.846	241.0 -> 177.0	65097	63.54	µg/L	99
		241.0 -> 117.0	7434			
5:3FTCA	6.271	341.0 -> 237.1	1327406	304.81	µg/L	96
		341.0 -> 217.0	965655			
7:3FTCA	7.669	441.0 -> 316.9	751707	304.69	µg/L	80
		441.0 -> 336.9	1740516			
EtFOSA	10.990	526.0 -> 219.0	125479	26.14	µg/L	97
		526.0 -> 169.0	157347			
EtFOSE	10.924	630.0 -> 58.9	335986	64.04	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	104343	25.61	µg/L	99
		511.9 -> 169.0	147364			
MeFOSE	10.691	616.1 -> 58.9	321320	70.15	µg/L	100
PFDoS	9.898	699.1 -> 79.9	27691	12.40	µg/L	95
		699.1 -> 98.8	15383			
NFDHA	5.512	295.0 -> 201.0	75022	25.21	µg/L	99
		295.0 -> 84.9	20239			
PFMBA	4.838	279.0 -> 85.1	300710	25.84	µg/L	100
PFMPA	3.538	229.0 -> 84.9	222964	25.80	µg/L	100
PFEESA	6.100	314.8 -> 134.9	645666	22.41	µg/L	100
		314.8 -> 82.9	24106			

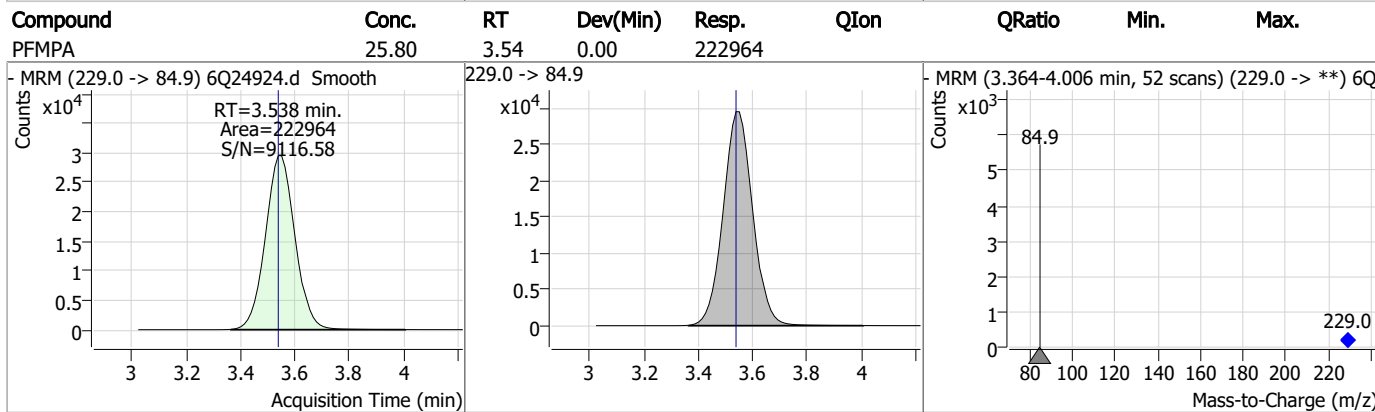
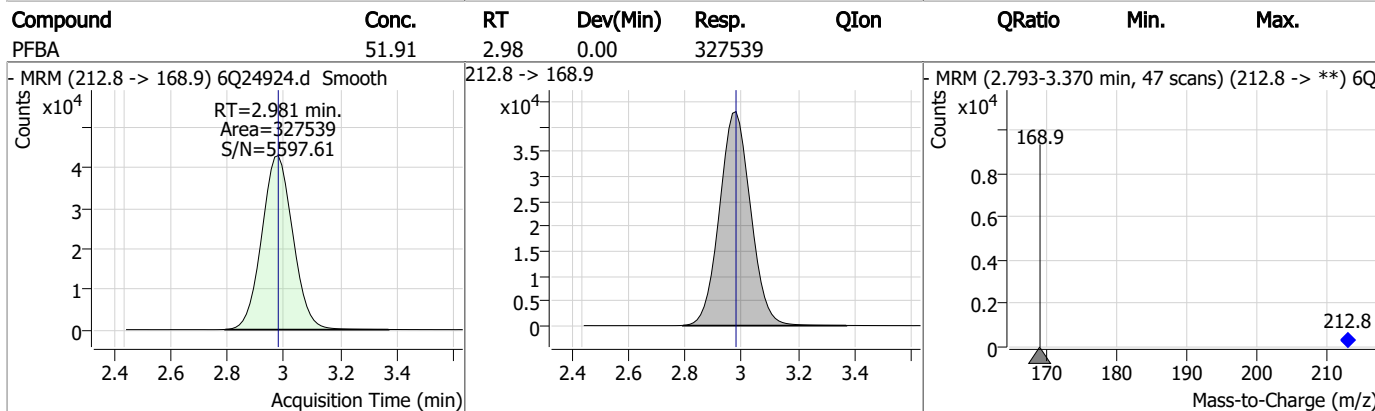
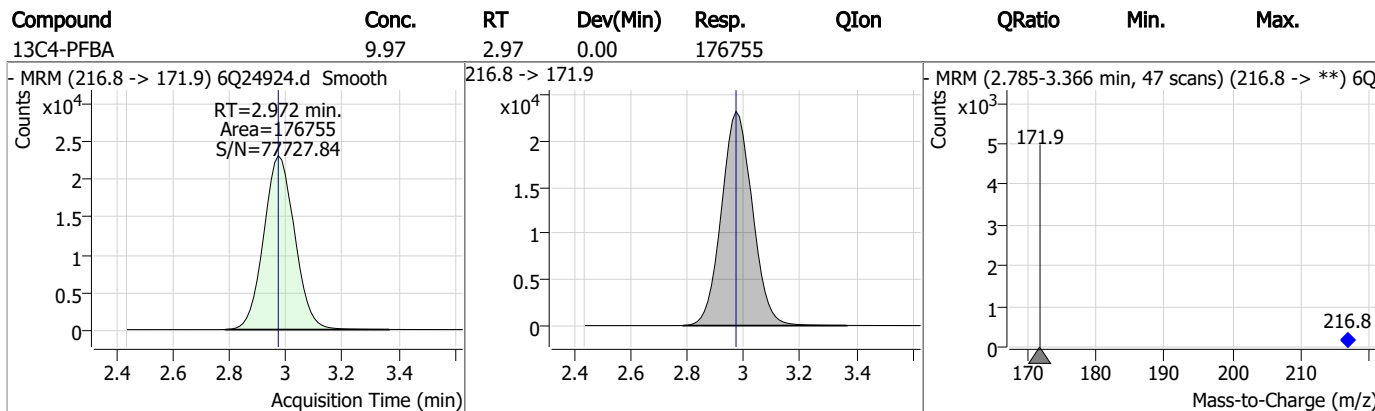
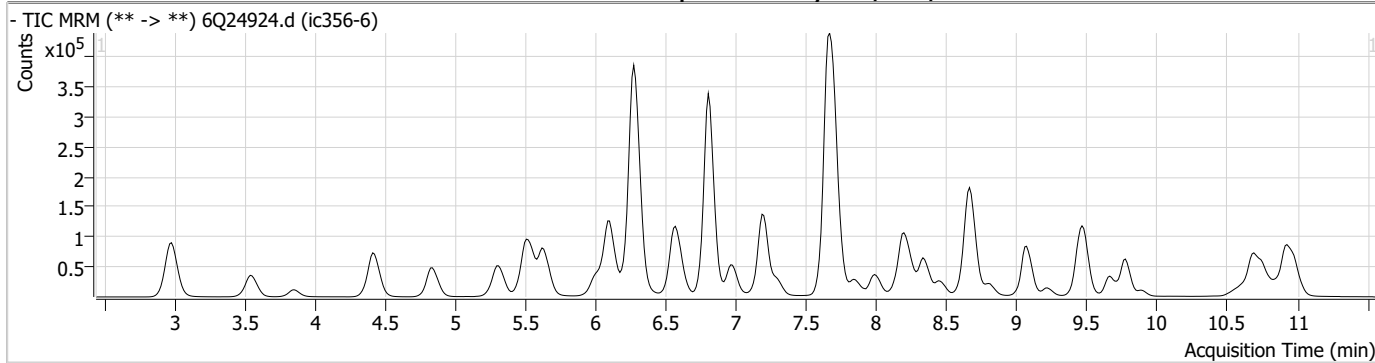
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

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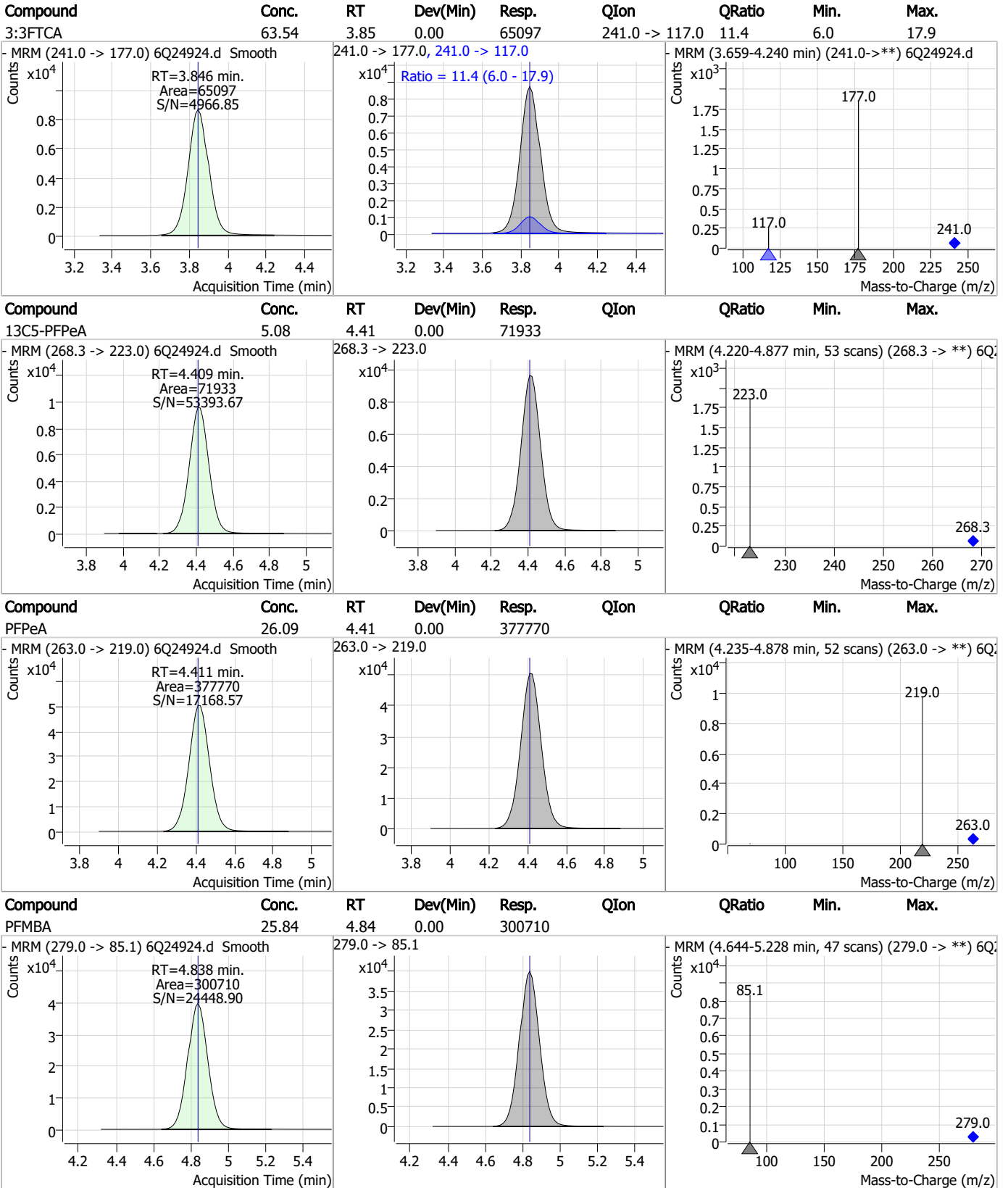
7.7.7
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Perfluorinated Compounds by LC/MS/MS



7.7.7
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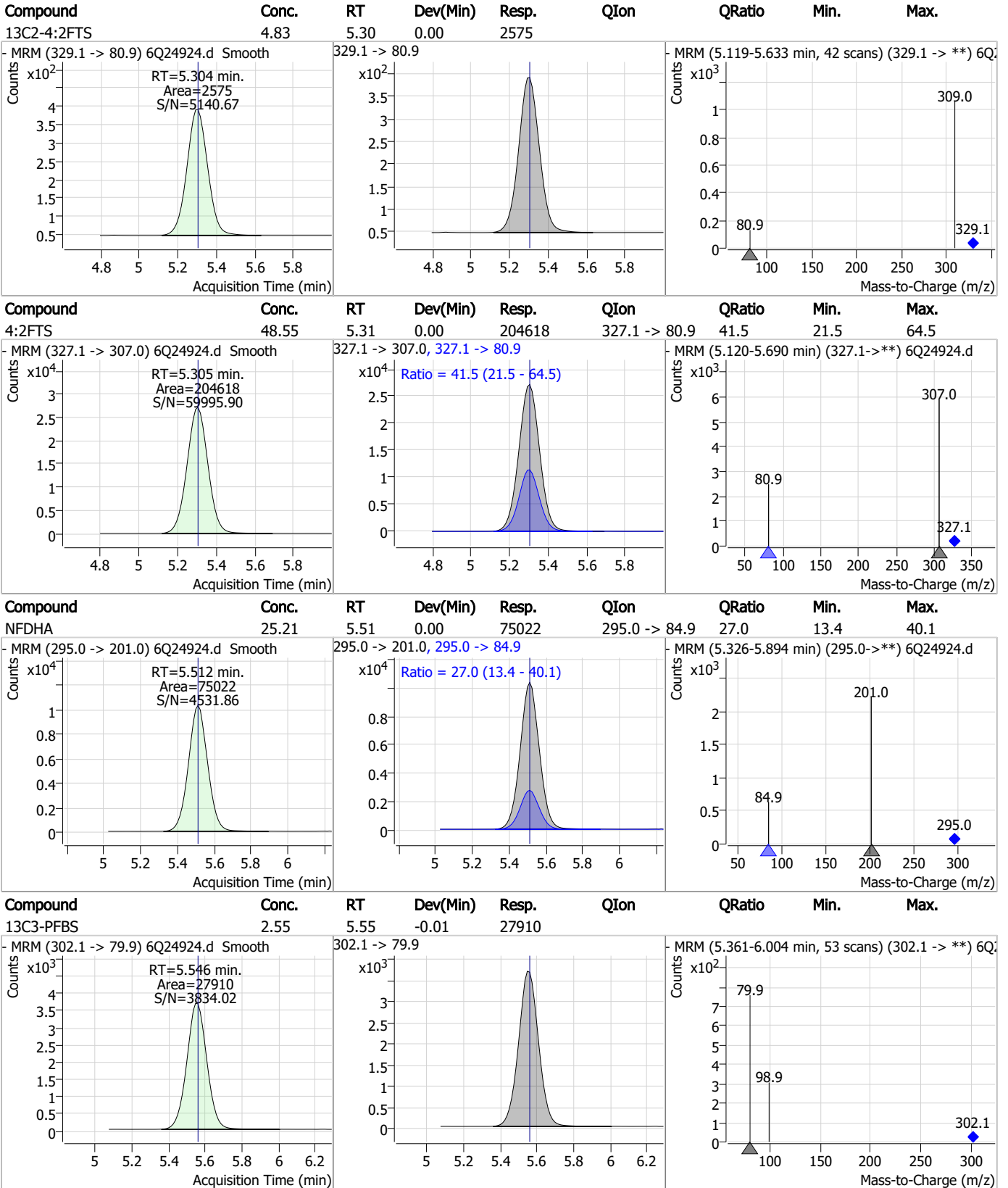
Perfluorinated Compounds by LC/MS/MS



7.7.7

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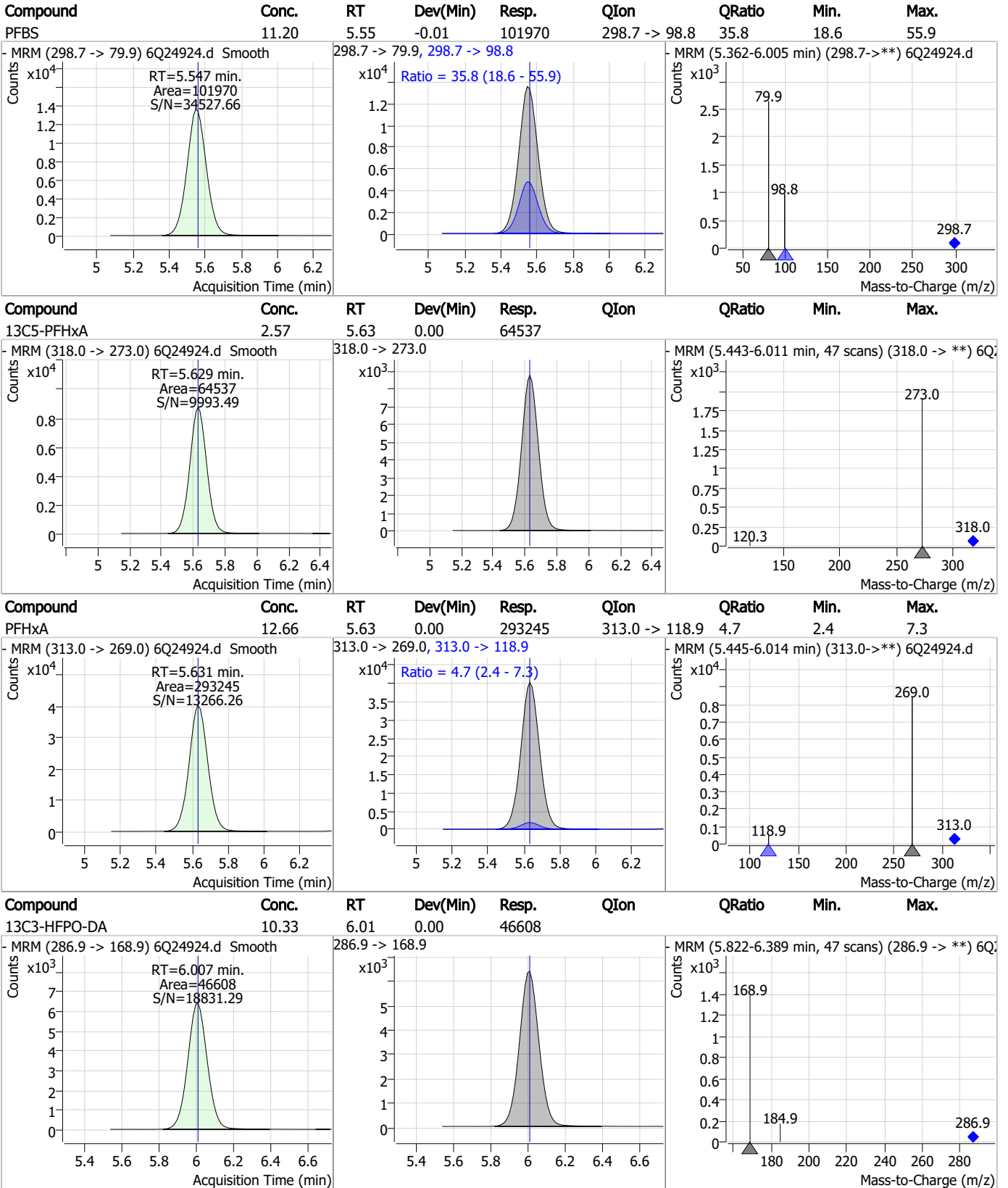
Perfluorinated Compounds by LC/MS/MS



7.7.7

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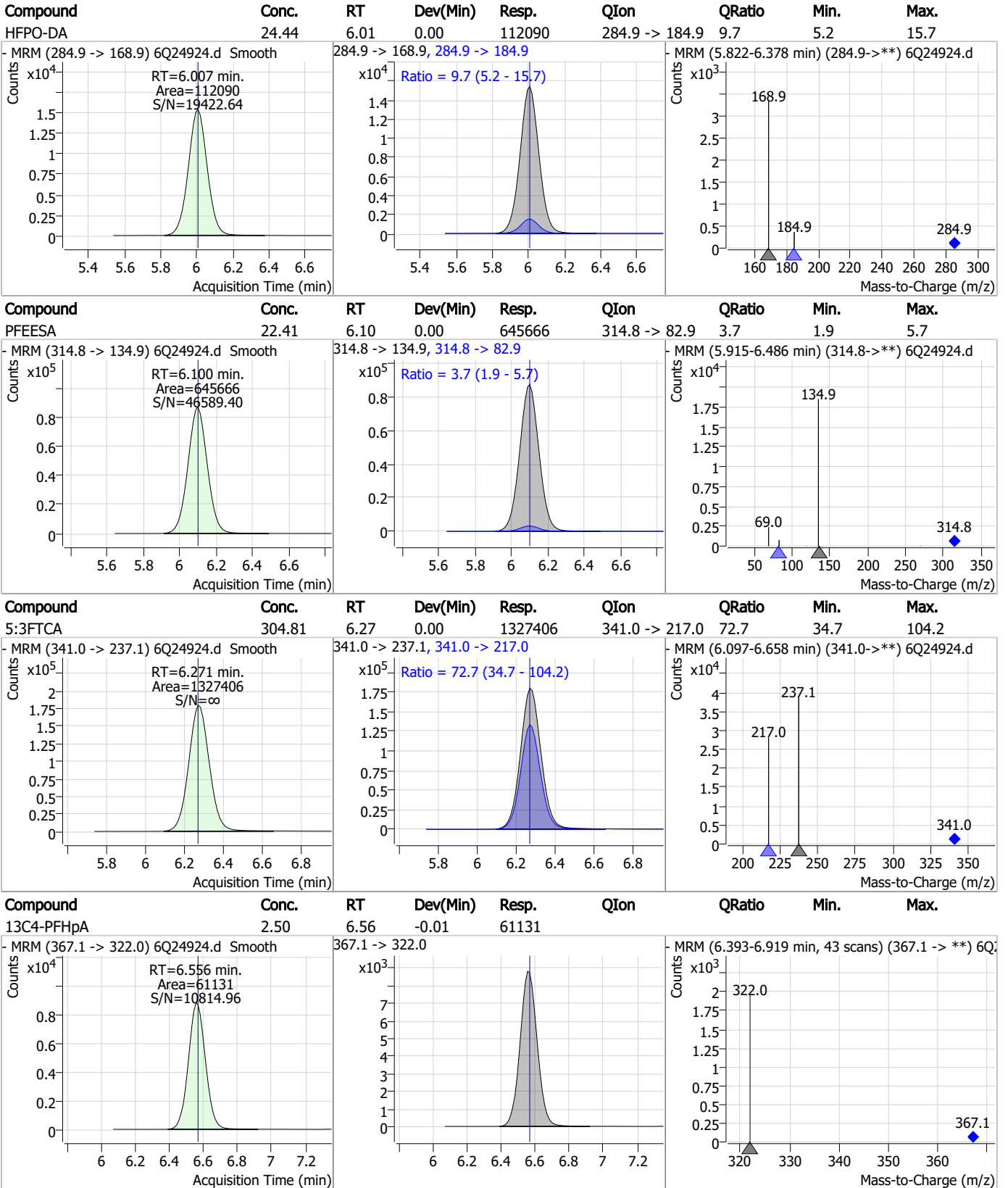
Perfluorinated Compounds by LC/MS/MS



7.7.7

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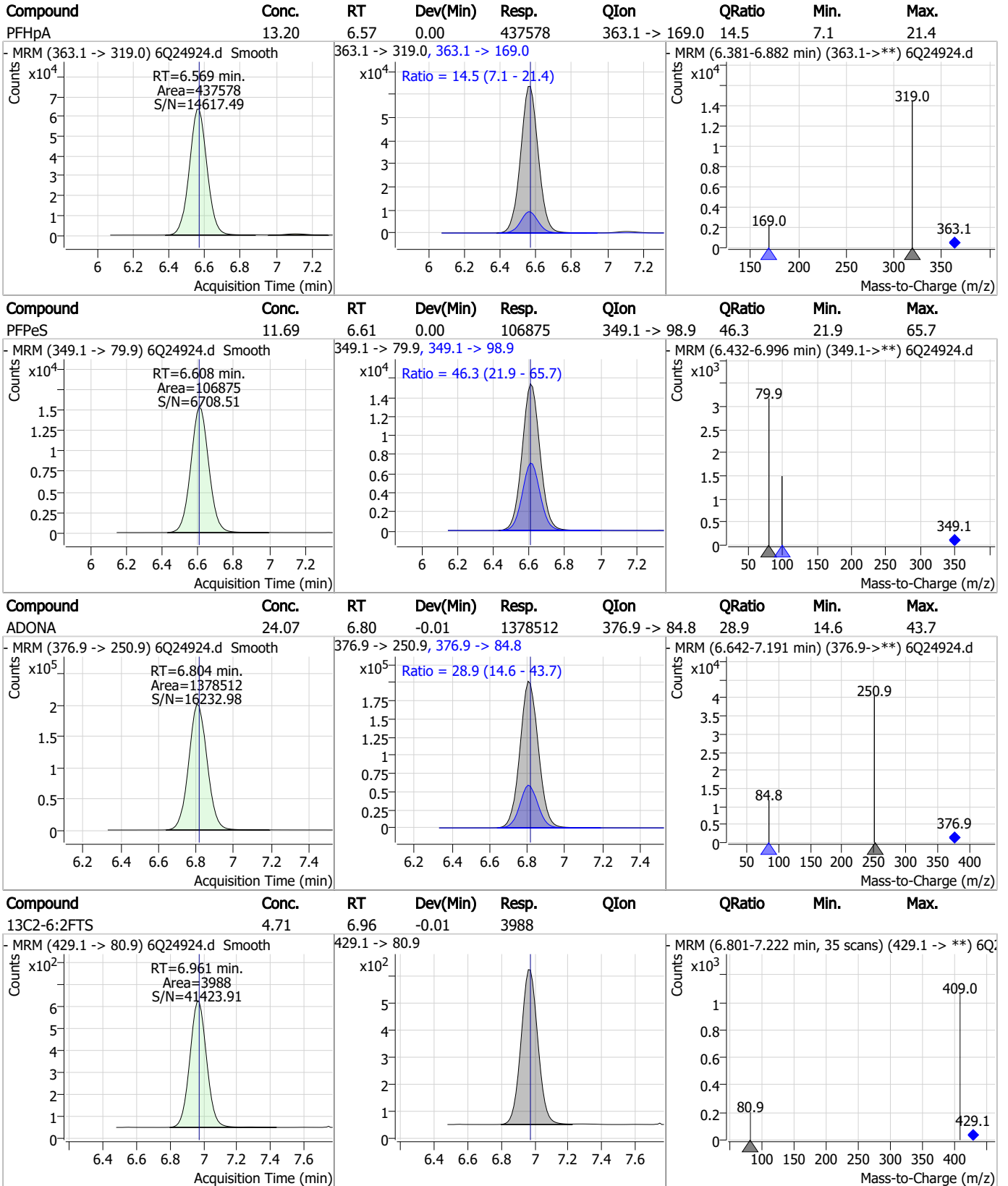
Perfluorinated Compounds by LC/MS/MS



7.7.7

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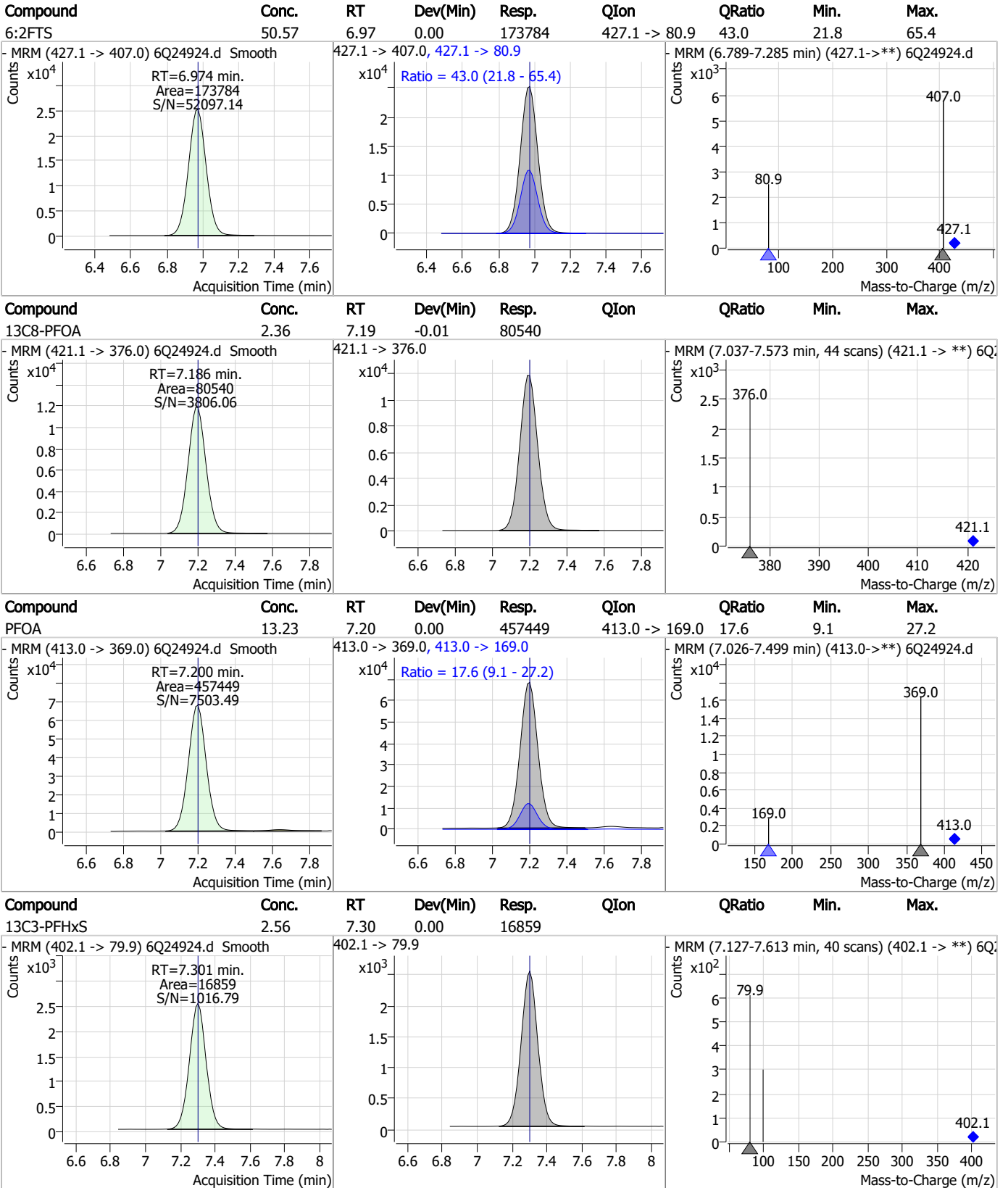
Perfluorinated Compounds by LC/MS/MS



7.7.7

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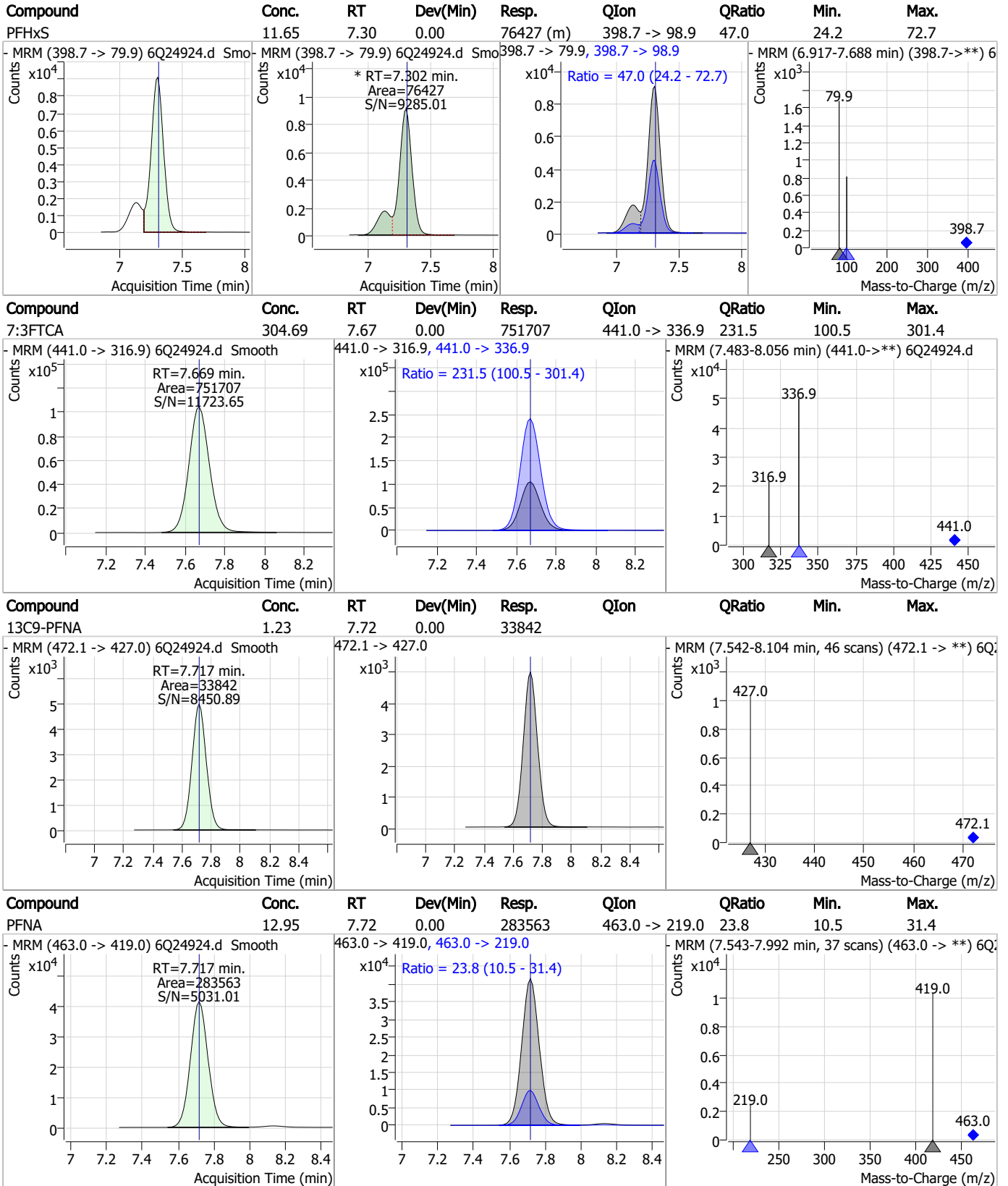
Perfluorinated Compounds by LC/MS/MS



7.7.7

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Perfluorinated Compounds by LC/MS/MS

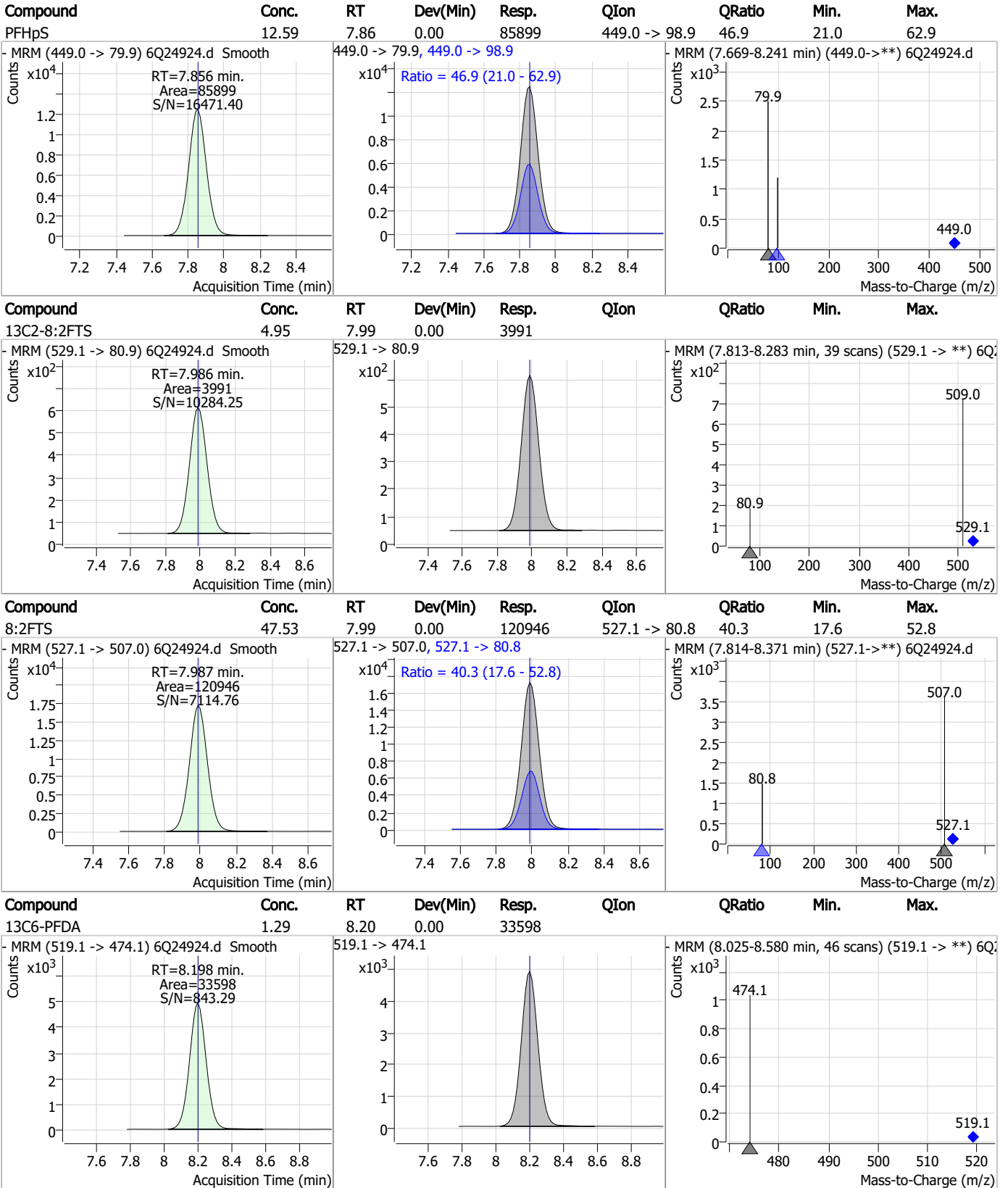


7.7.7

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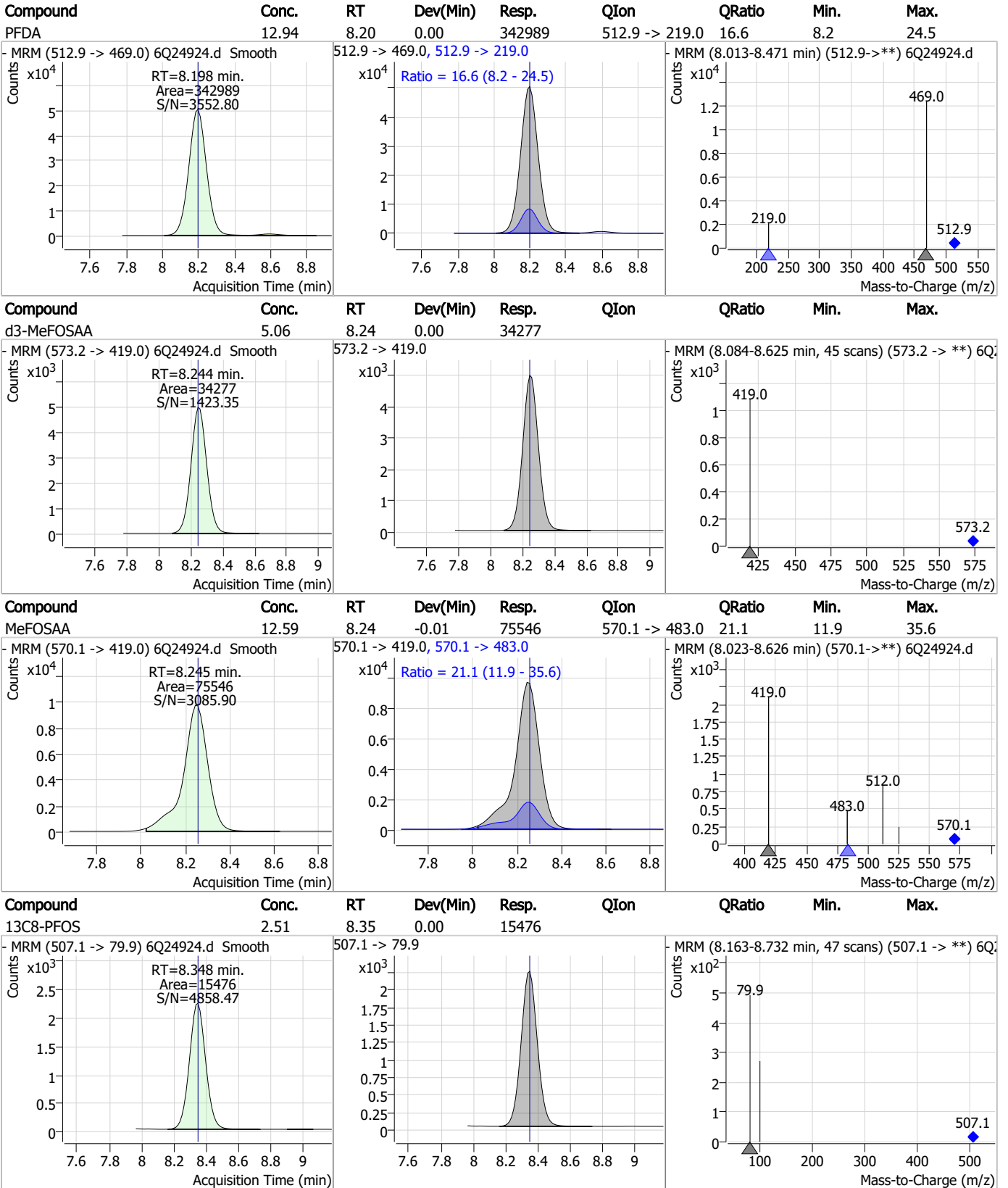
Perfluorinated Compounds by LC/MS/MS



7.7.7

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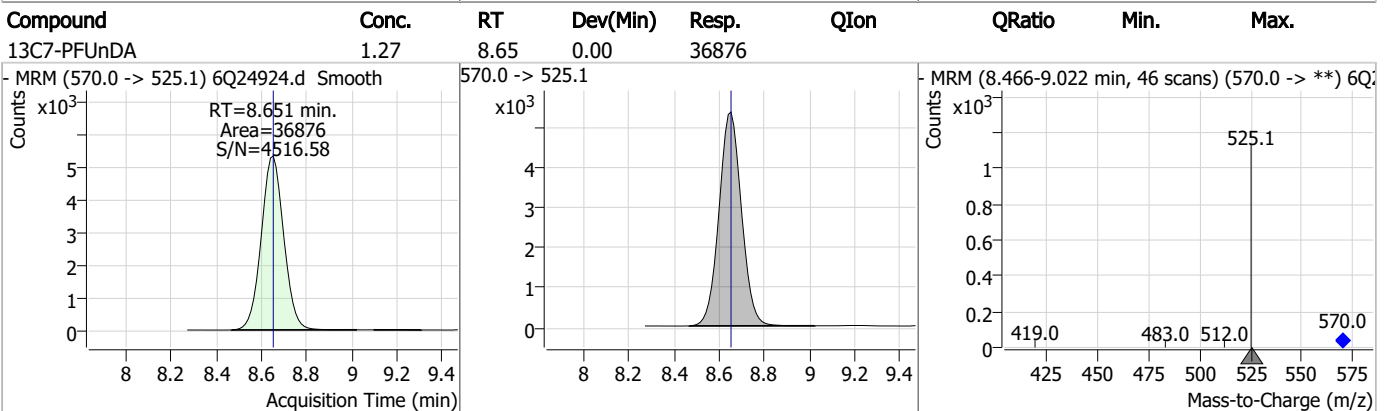
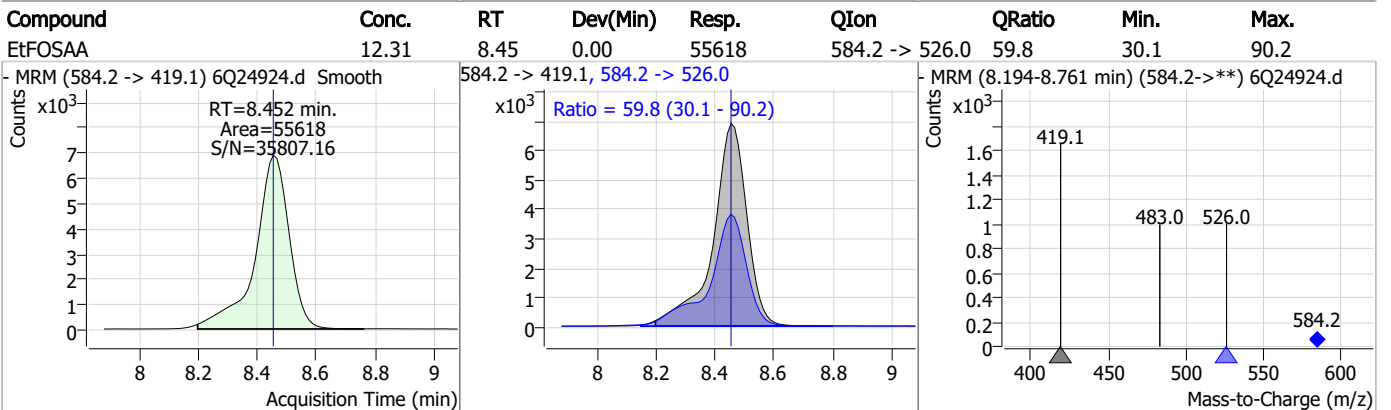
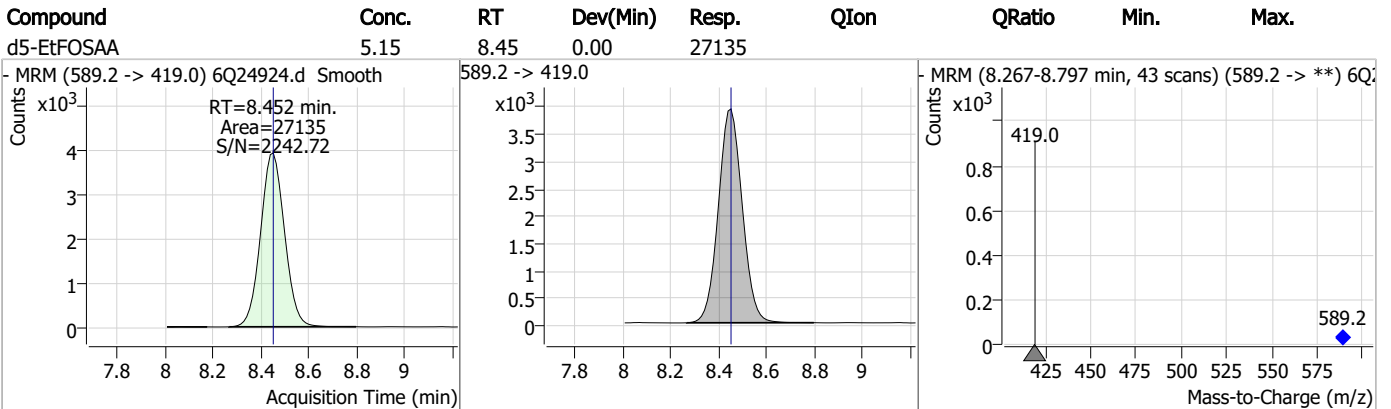
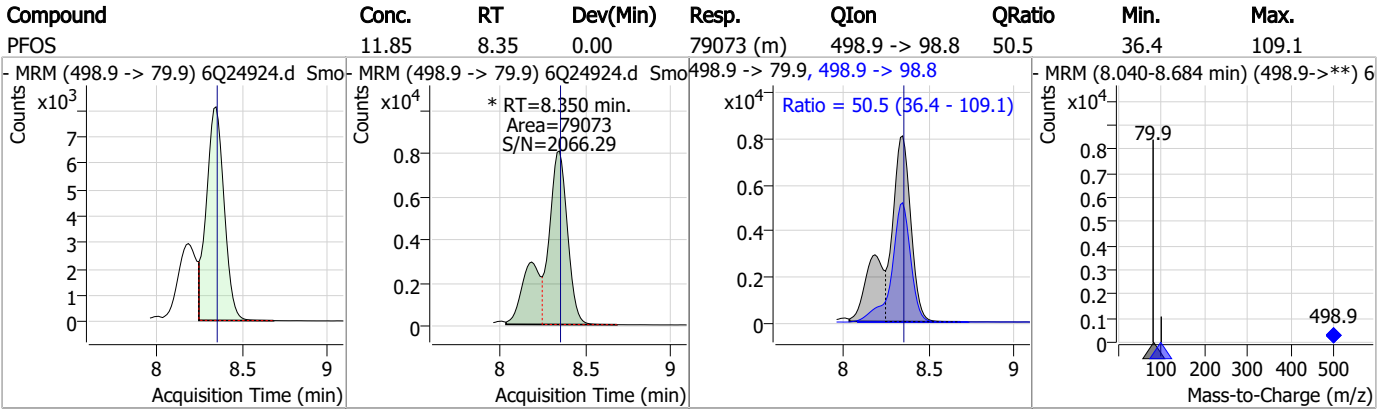
Perfluorinated Compounds by LC/MS/MS



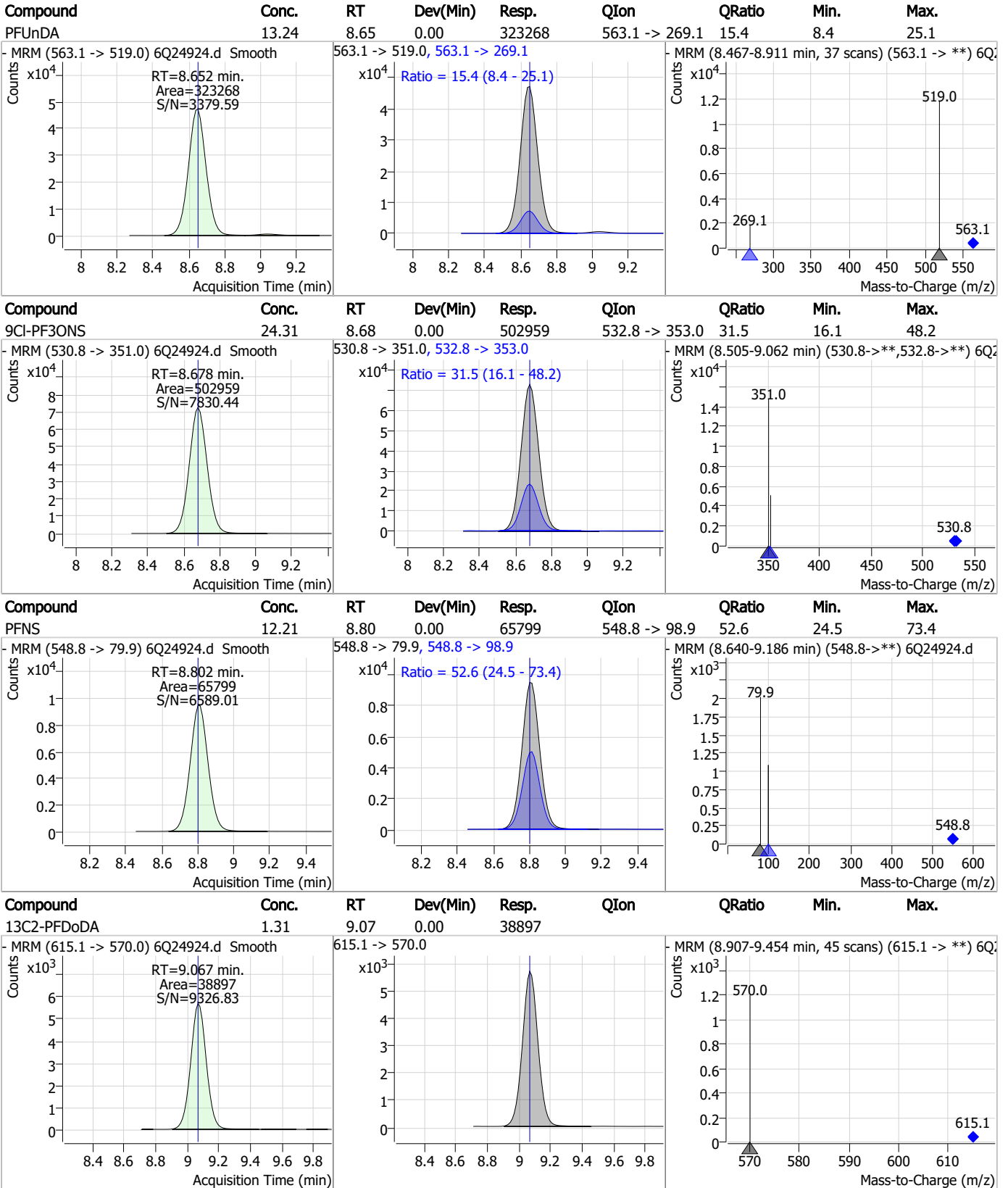
7.7.7

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Perfluorinated Compounds by LC/MS/MS



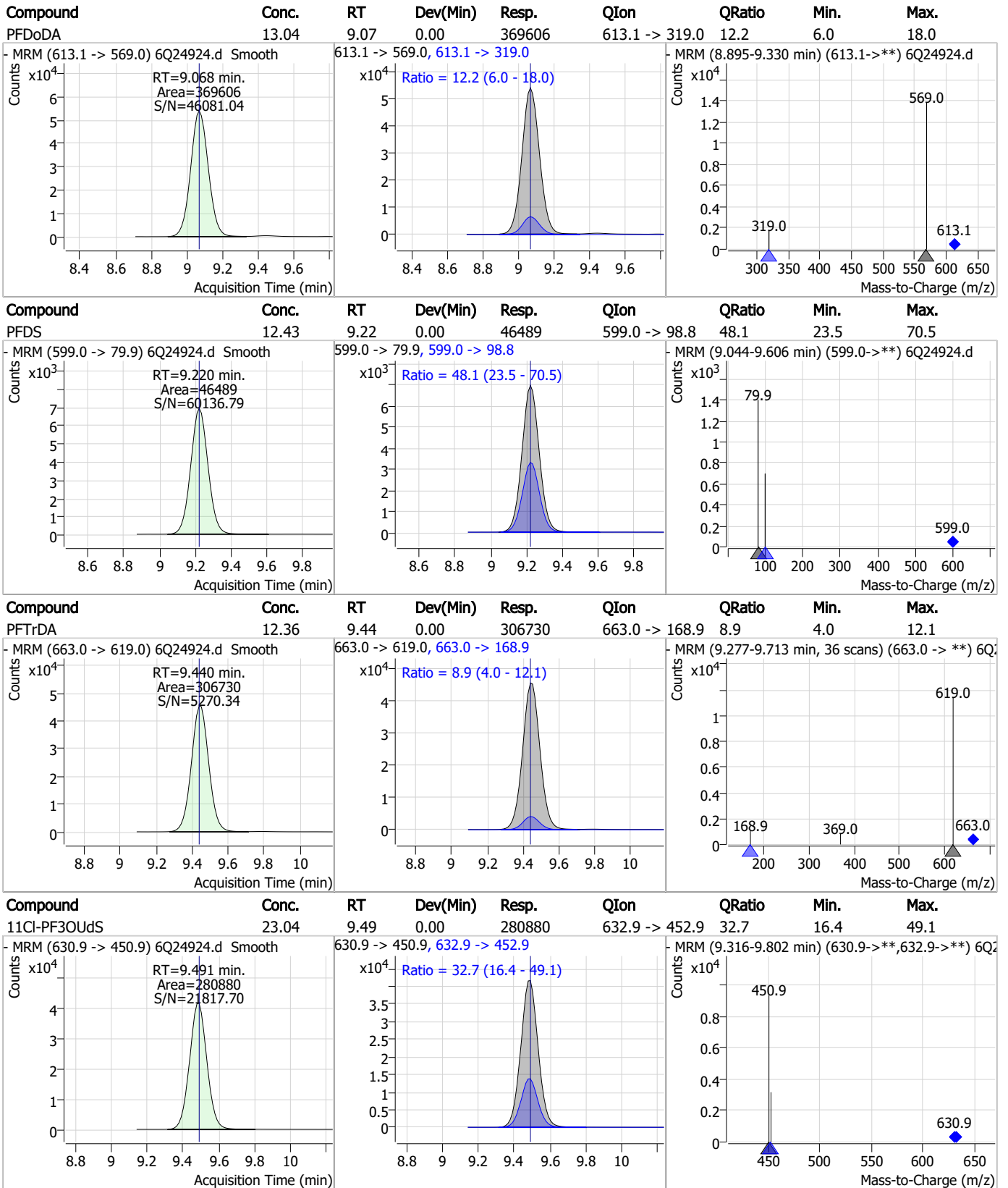
Perfluorinated Compounds by LC/MS/MS



7.7.7

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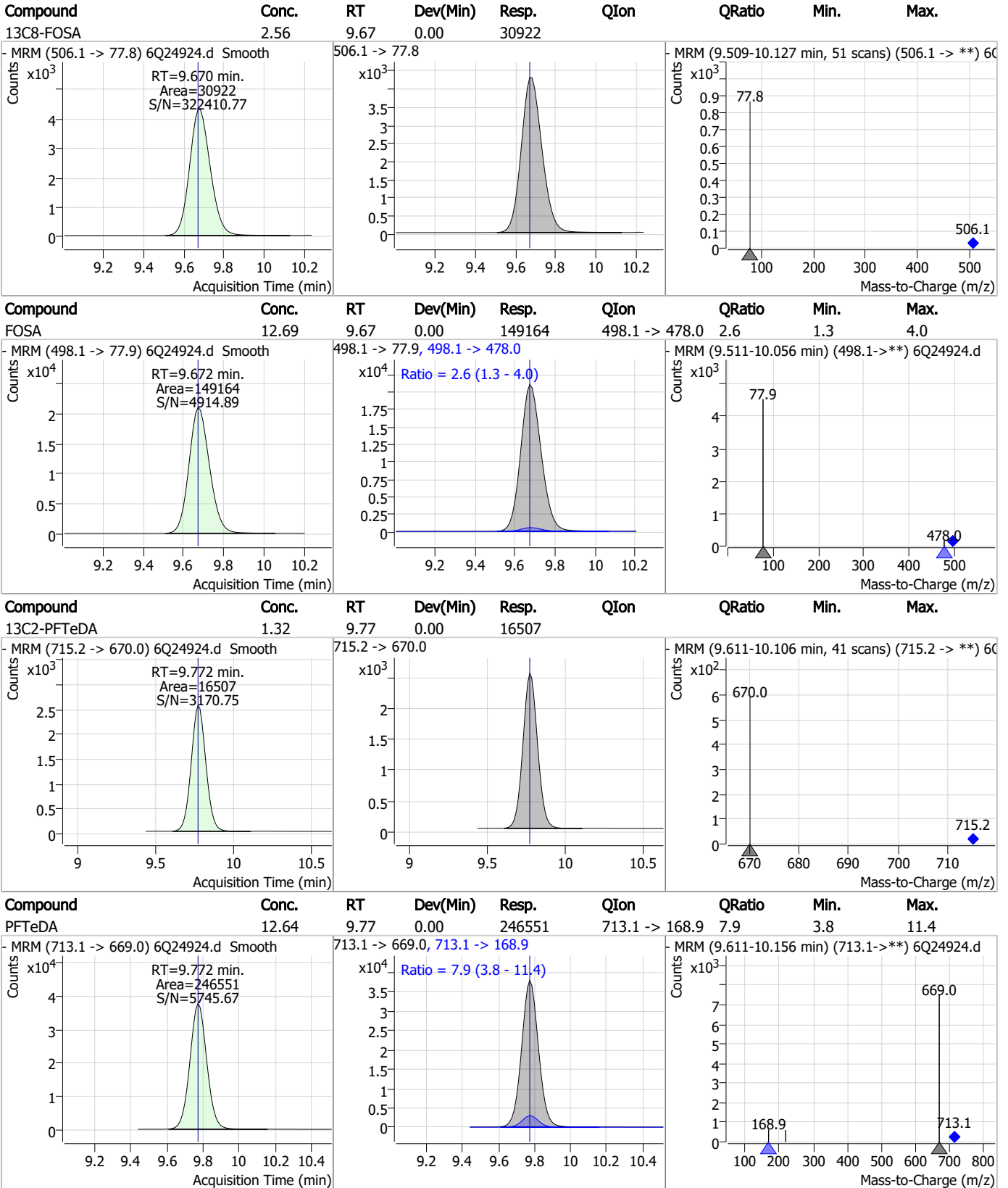
Perfluorinated Compounds by LC/MS/MS



7.7.7

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Perfluorinated Compounds by LC/MS/MS



7.7.7

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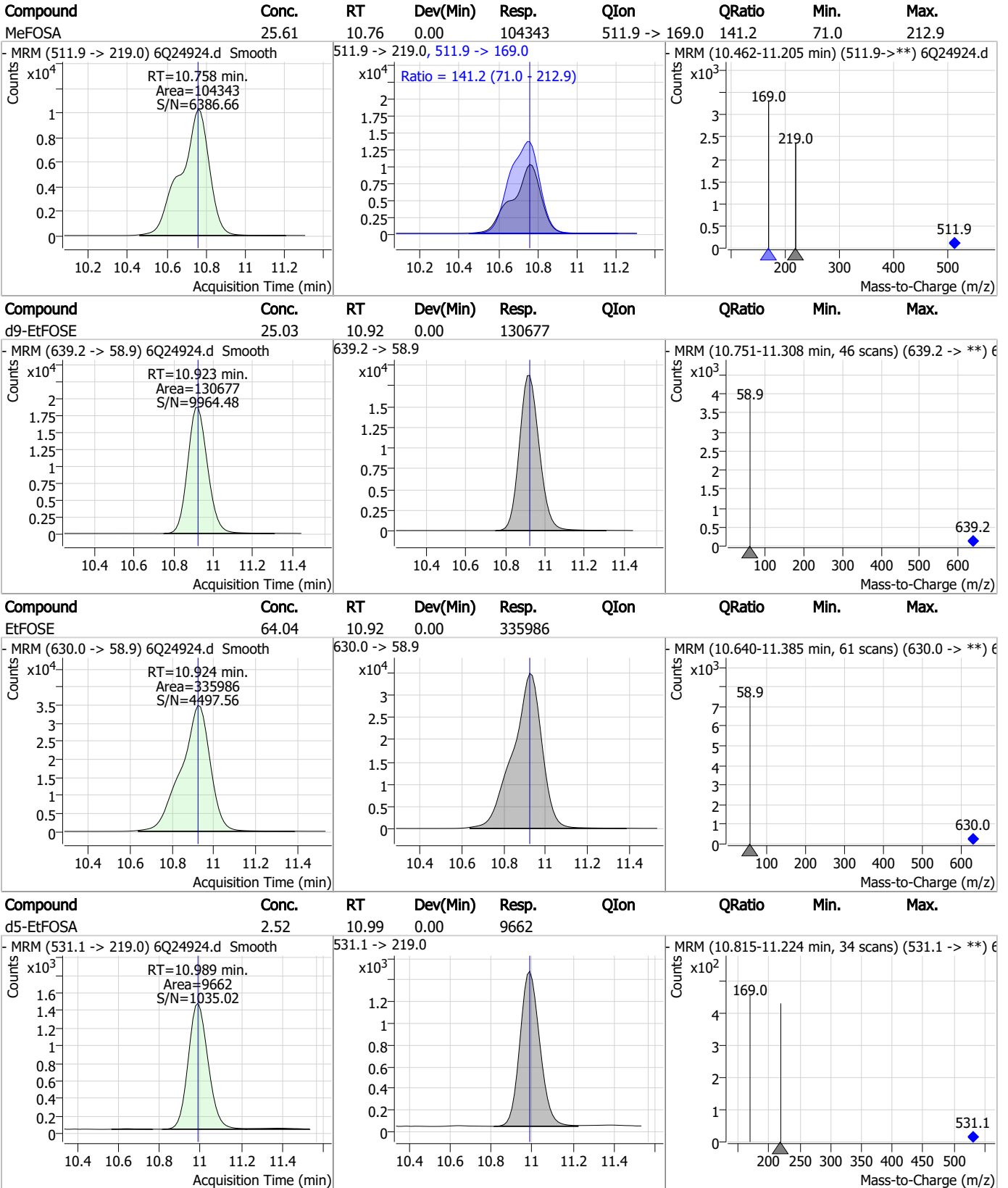
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	12.40	9.90	0.01	27691	699.1 -> 98.8	55.6	26.0	78.1
d7-MeFOSE	24.09	10.68	0.00	103371				
MeFOSE	70.15	10.69	0.00	321320				
d3-MeFOSA	2.49	10.76	0.00	9054				

7.7.7

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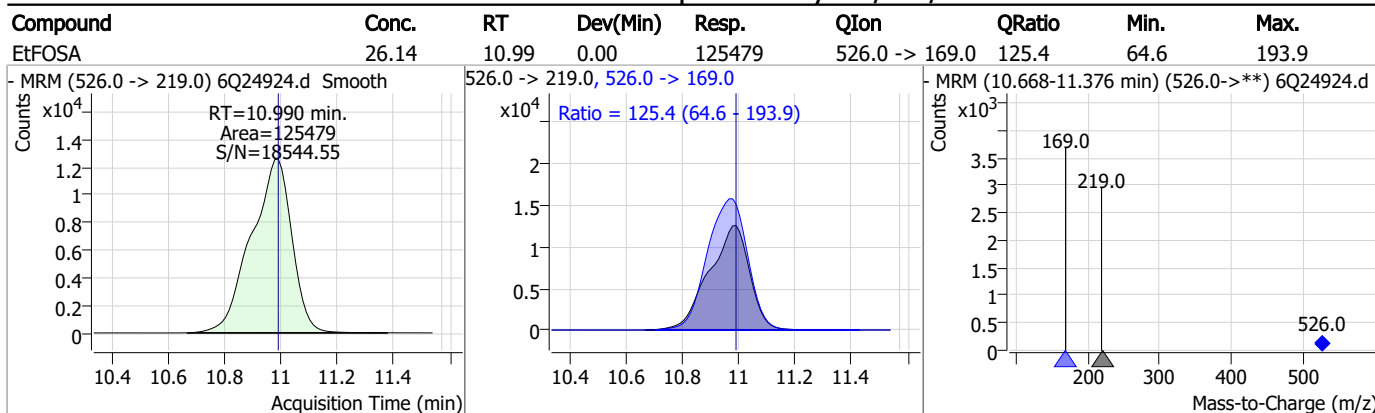
Perfluorinated Compounds by LC/MS/MS



7.7.7

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Perfluorinated Compounds by LC/MS/MS



7.7.7
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Manual Integration Approval Summary

Sample Number: S6Q356-IC356 Method: EPA DRAFT 1633
Lab FileID: 6Q24924.D Analyst approved: 09/25/23 14:50 Martha Valls
Injection Time: 09/24/23 16:11 Supervisor approved: 09/26/23 13:54 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

7.7.7.1

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Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtje
 09/26/23 13:54

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24925.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/24/2023 4:26:00 PM
 Sample Name : ic356-7
 Vial : P1-A8
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	171355	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	70089	5.00 µg/L	0.000
M5-PFHxA	5.629	318.0 -> 273.0	62892	2.50 µg/L	0.000
M4-PFHpA	6.556	367.1 -> 322.0	60997	2.50 µg/L	-0.012
M8-PFOA	7.186	421.1 -> 376.0	79562	2.50 µg/L	-0.012
M9-PFNA	7.717	472.1 -> 427.0	33918	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	32776	1.25 µg/L	0.000
M7-PFUnDA	8.639	570.0 -> 525.1	36764	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	36456	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	16256	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	30763	2.50 µg/L	0.000
M3-PFBS	5.559	302.1 -> 79.9	26018	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	16631	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	15587	2.50 µg/L	0.000
M2-4:2FTS	5.292	329.1 -> 80.9	2398	5.00 µg/L	-0.012
M2-6:2FTS	6.974	429.1 -> 80.9	3849	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	3728	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	34170	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	45134	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	25330	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	106425	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	128815	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	9563	2.50 µg/L	0.000
M3-MeFOSA	10.769	515.0 -> 219.0	9409	2.50 µg/L	0.012
13C4-PFOS	8.349	502.8 -> 79.9	14780	2.50 µg/L	0.000
13C3-PFBA	2.976	216.0 -> 172.0	71434	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	10618	2.50 µg/L	0.000
13C4-PFOA	7.187	417.1 -> 372.0	94741	2.50 µg/L	-0.012
13C2-PFDA	8.198	515.1 -> 470.1	34733	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	33077	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	60792	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.292	329.1 -> 80.9	2398	4.42 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 88.3%		
13C2-6:2FTS	6.974	429.1 -> 80.9	3849	4.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.2%		
13C2-8:2FTS	7.986	529.1 -> 80.9	3728	4.54 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.8%		
13C2-PFDoDA	9.067	615.1 -> 570.0	36456	1.10 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.8%		
13C2-PFTeDA	9.772	715.2 -> 670.0	16256	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.4%		
13C3-PFBS	5.559	302.1 -> 79.9	26018	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.3%		
13C3-PFHxS	7.301	402.1 -> 79.9	16631	2.48 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C4-PFBA	2.972	216.8 -> 171.9	171355	9.93 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C4-PFHpA	6.556	367.1 -> 322.0	60997	2.46 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C5-PFHxA	5.629	318.0 -> 273.0	62892	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C5-PFPeA	4.409	268.3 -> 223.0	70089	4.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C6-PFDA	8.198	519.1 -> 474.1	32776	1.12 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 89.8%	
13C7-PFUnDA	8.639	570.0 -> 525.1	36764	1.13 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.1%	
13C8-FOSA	9.670	506.1 -> 77.8	30763	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C8-PFOA	7.186	421.1 -> 376.0	79562	2.42 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%	
13C8-PFOS	8.348	507.1 -> 79.9	15587	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C9-PFNA	7.717	472.1 -> 427.0	33918	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.0%	
d3-MeFOSAA	8.244	573.2 -> 419.0	34170	4.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	45134	9.85 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.5%	
d3-MeFOSA	10.769	515.0 -> 219.0	9409	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
d5-EtFOSAA	8.452	589.2 -> 419.0	25330	4.65 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.1%	
d7-MeFOSE	10.678	623.2 -> 58.9	106425	24.00 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.0%	
d9-EtFOSE	10.923	639.2 -> 58.9	128815	23.88 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.5%	
d5-EtFOSA	10.989	531.1 -> 219.0	9563	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.7%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	378278	96.40 µg/L	98
		327.1 -> 80.9	158209		
6:2FTS	6.962	427.1 -> 407.0	316612	95.46 µg/L	98
		427.1 -> 80.9	134015		
8:2FTS	7.987	527.1 -> 507.0	239963	100.97 µg/L	93
		527.1 -> 80.8	94126		
EtFOSAA	8.453	584.2 -> 419.1	111461	26.43 µg/L	99
		584.2 -> 526.0	66528		
FOSA	9.672	498.1 -> 77.9	294719	25.20 µg/L	100
		498.1 -> 478.0	7956		
MeFOSAA	8.245	570.1 -> 419.0	148339	24.80 µg/L	93
		570.1 -> 483.0	30105		
PFBA	2.981	212.8 -> 168.9	629252	102.86 µg/L	100
PFBS	5.547	298.7 -> 79.9	191705	22.59 µg/L	100
		298.7 -> 98.8	71789		
PFDA	8.198	512.9 -> 469.0	652348	25.22 µg/L	100
		512.9 -> 219.0	105077		
PFDoDA	9.068	613.1 -> 569.0	710659	26.76 µg/L	98
		613.1 -> 319.0	89920		
PFDS	9.220	599.0 -> 79.9	91294	24.23 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	43261			
PFHpA	6.557	363.1 -> 319.0	840715	25.41	µg/L	99
		363.1 -> 169.0	124761			
PFHpS	7.856	449.0 -> 79.9	169378	24.64	µg/L	94
		449.0 -> 98.9	77635			
PFHxA	5.631	313.0 -> 269.0	574596	25.45	µg/L	100
		313.0 -> 118.9	27421			
PFHxS	7.302	398.7 -> 79.9	144027	22.25	µg/L	m 96
		398.7 -> 98.9	73886			
PFNA	7.717	463.0 -> 419.0	548428	24.99	µg/L	92
		463.0 -> 219.0	133895			
PFNS	8.802	548.8 -> 79.9	133787	24.65	µg/L	97
		548.8 -> 98.9	68335			
PFOA	7.187	413.0 -> 369.0	907528	26.57	µg/L	98
		413.0 -> 169.0	158044			
PFOS	8.350	498.9 -> 79.9	153034	22.76	µg/L	75
		498.9 -> 98.8	79961			
PFPeA	4.411	263.0 -> 219.0	726959	51.52	µg/L	100
PFPeS	6.608	349.1 -> 79.9	217945	24.17	µg/L	100
		349.1 -> 98.9	95616			
PFTeDA	9.772	713.1 -> 669.0	465555	24.23	µg/L	98
		713.1 -> 168.9	38257			
PFTrDA	9.440	663.0 -> 619.0	607711	26.12	µg/L	99
		663.0 -> 168.9	52361			
PFUnDA	8.652	563.1 -> 519.0	618232	25.39	µg/L	98
		563.1 -> 269.1	98554			
11Cl-PF3OUdS	9.479	630.9 -> 450.9	572987	48.53	µg/L	97
		632.9 -> 452.9	177871			
9Cl-PF3ONS	8.678	530.8 -> 351.0	923202	46.08	µg/L	100
		532.8 -> 353.0	298253			
ADONA	6.804	376.9 -> 250.9	2689204	48.48	µg/L	98
		376.9 -> 84.8	757721			
HFPO-DA	6.007	284.9 -> 168.9	225421	50.75	µg/L	98
		284.9 -> 184.9	22319			
3:3FTCA	3.846	241.0 -> 177.0	127912	128.79	µg/L	99
		241.0 -> 117.0	14925			
5:3FTCA	6.271	341.0 -> 237.1	2637546	621.49	µg/L	98
		341.0 -> 217.0	1800003			
7:3FTCA	7.669	441.0 -> 316.9	1520975	632.62	µg/L	88
		441.0 -> 336.9	3325535			
EtFOSA	10.990	526.0 -> 219.0	237589	50.00	µg/L	98
		526.0 -> 169.0	311588			
EtFOSE	10.924	630.0 -> 58.9	659242	127.46	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	212446	50.17	µg/L	97
		511.9 -> 169.0	292355			
MeFOSE	10.691	616.1 -> 58.9	594974	126.17	µg/L	100
PFDoDS	9.886	699.1 -> 79.9	54001	24.01	µg/L	98
		699.1 -> 98.8	28908			
NFDHA	5.512	295.0 -> 201.0	141888	48.93	µg/L	99
		295.0 -> 84.9	38835			
PFMBA	4.838	279.0 -> 85.1	584119	51.52	µg/L	100
PFMPA	3.538	229.0 -> 84.9	437878	52.01	µg/L	100
PFEESA	6.100	314.8 -> 134.9	1272367	45.33	µg/L	100
		314.8 -> 82.9	49832			

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

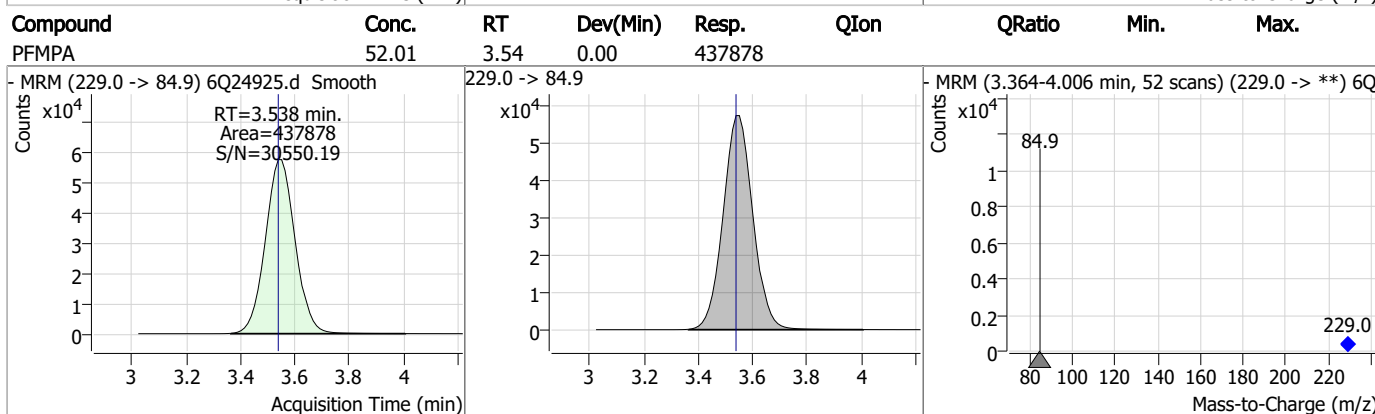
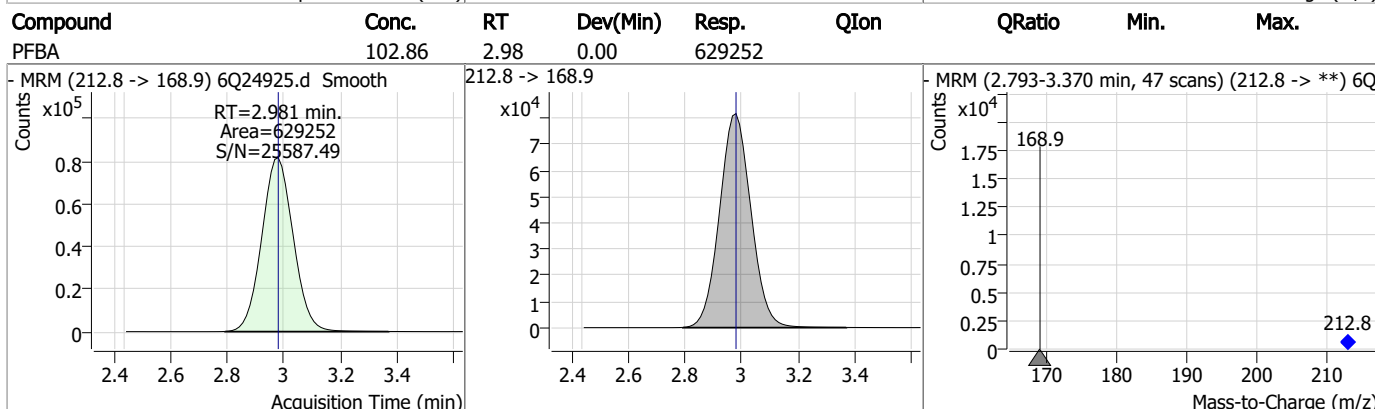
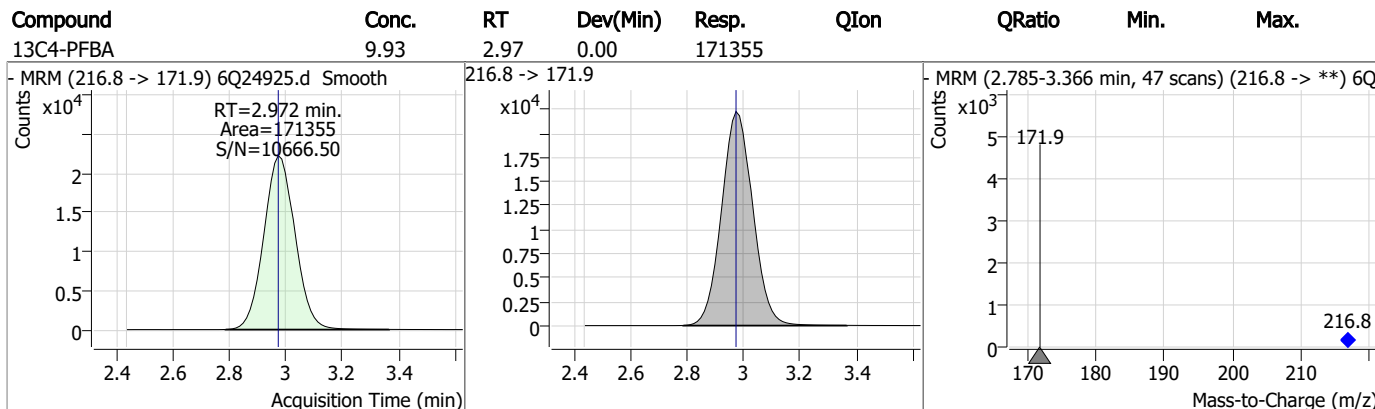
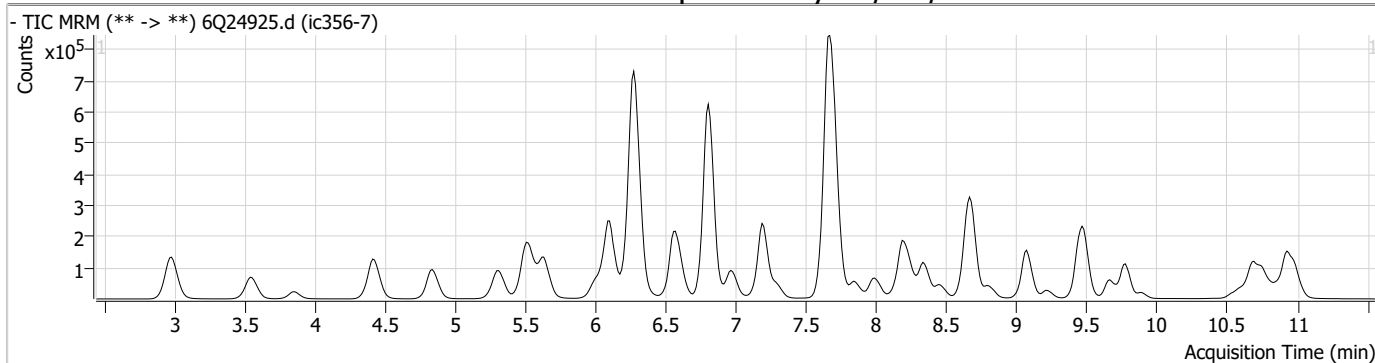
Perfluorinated Compounds by LC/MS/MS

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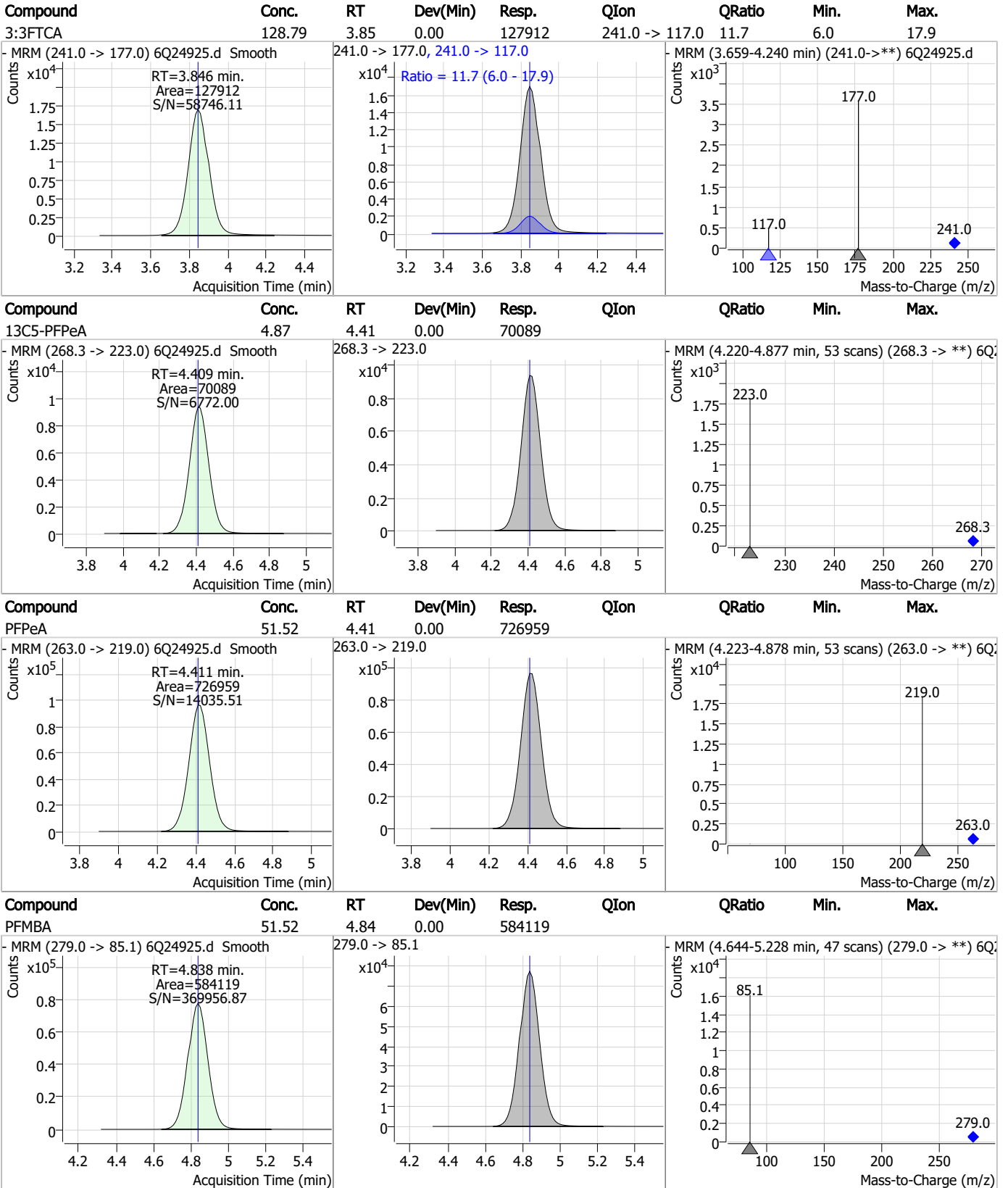
7.7.8
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

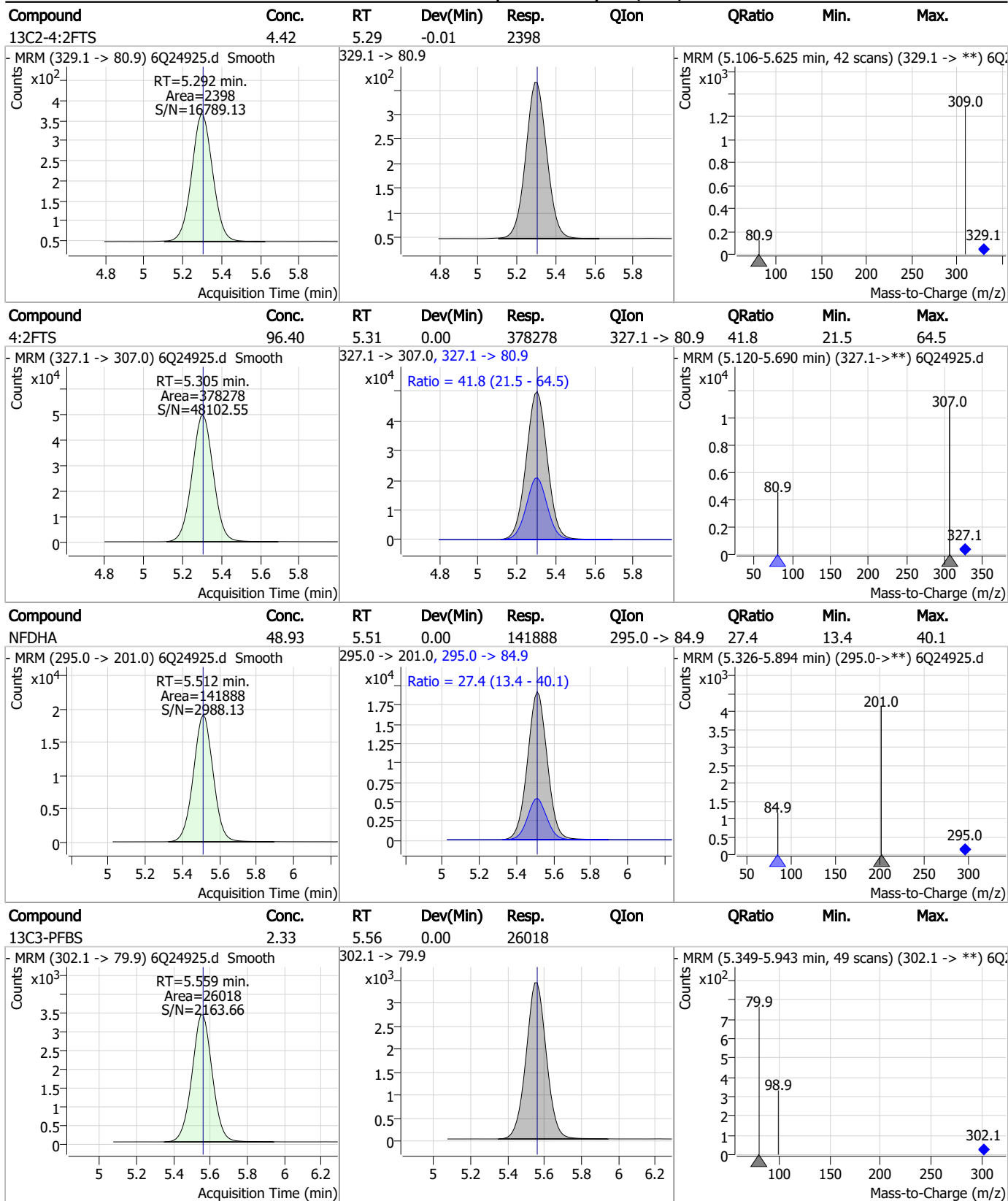


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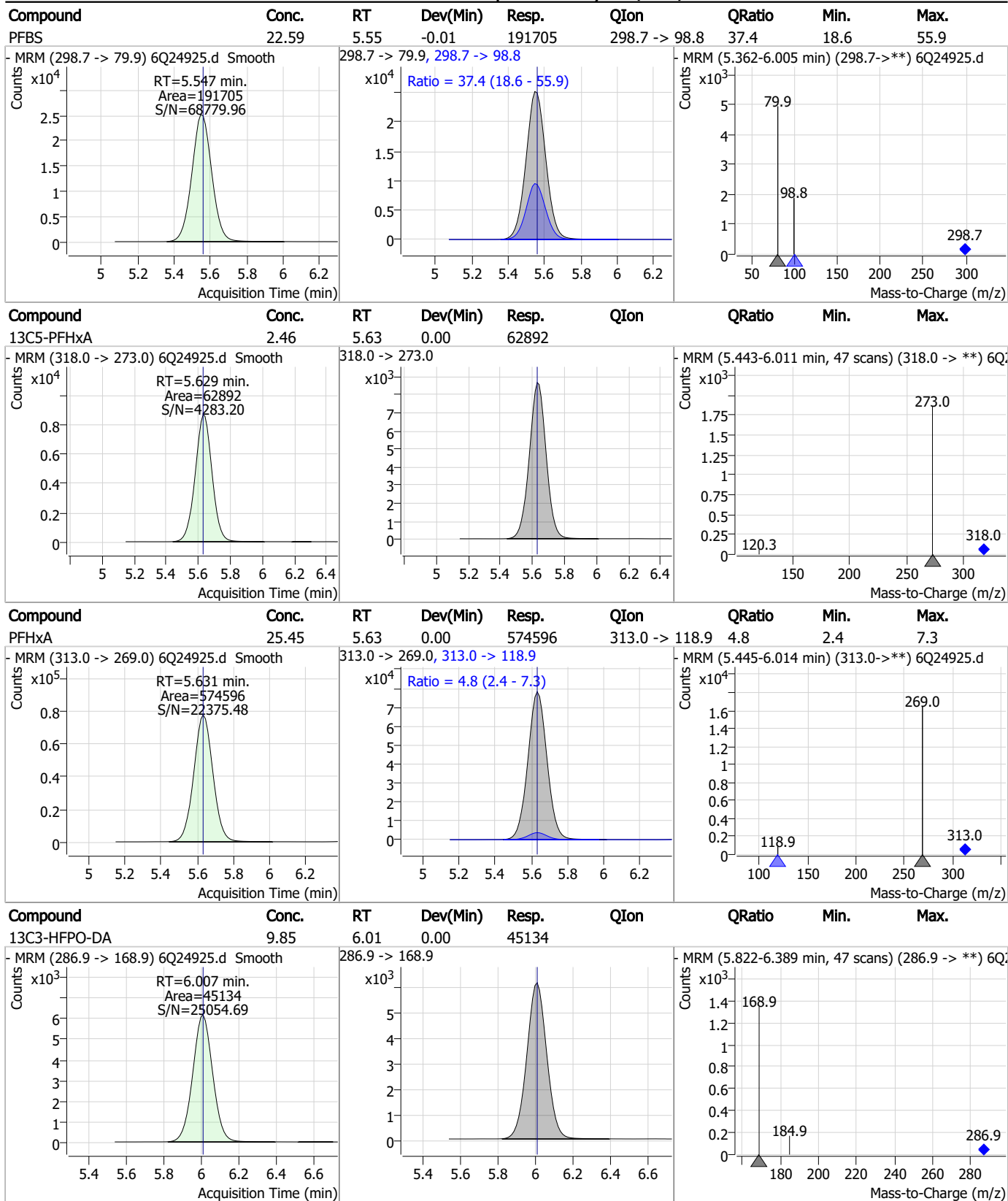


Perfluorinated Compounds by LC/MS/MS



7.7.8
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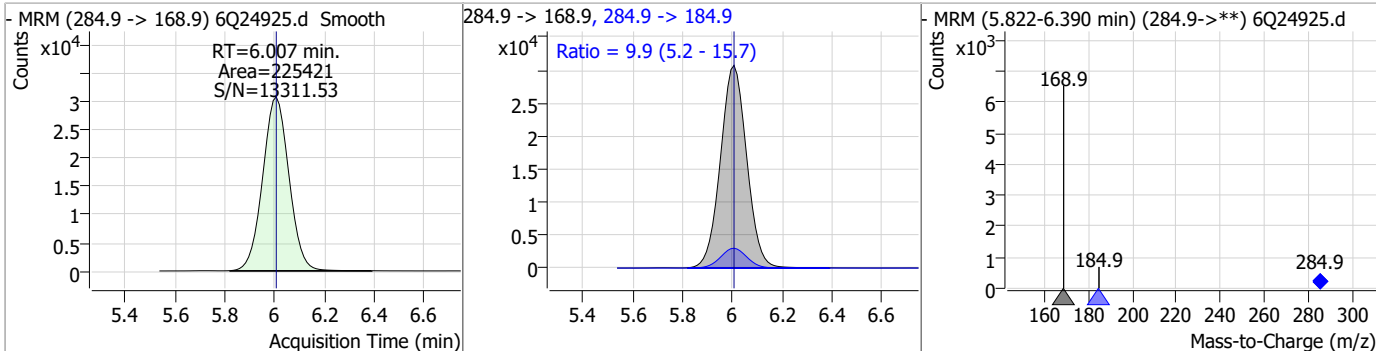
Perfluorinated Compounds by LC/MS/MS



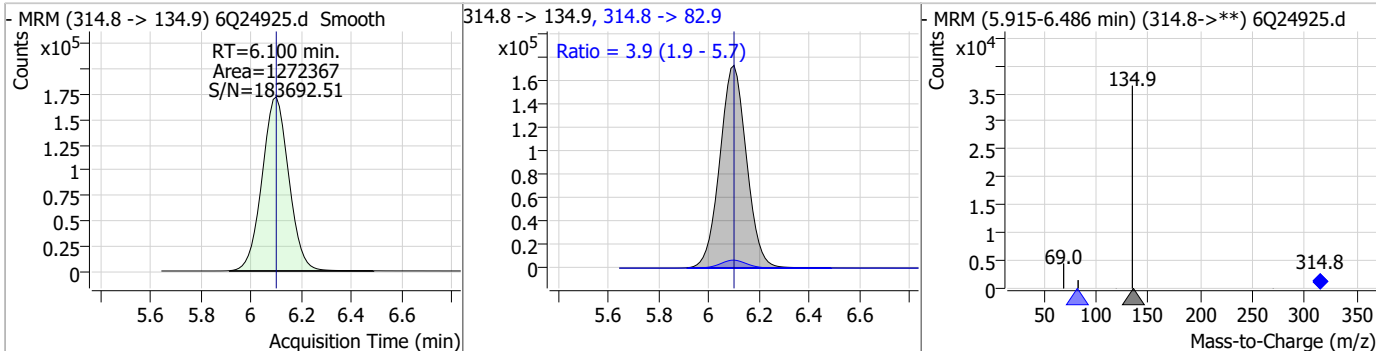
7.7.8
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Perfluorinated Compounds by LC/MS/MS

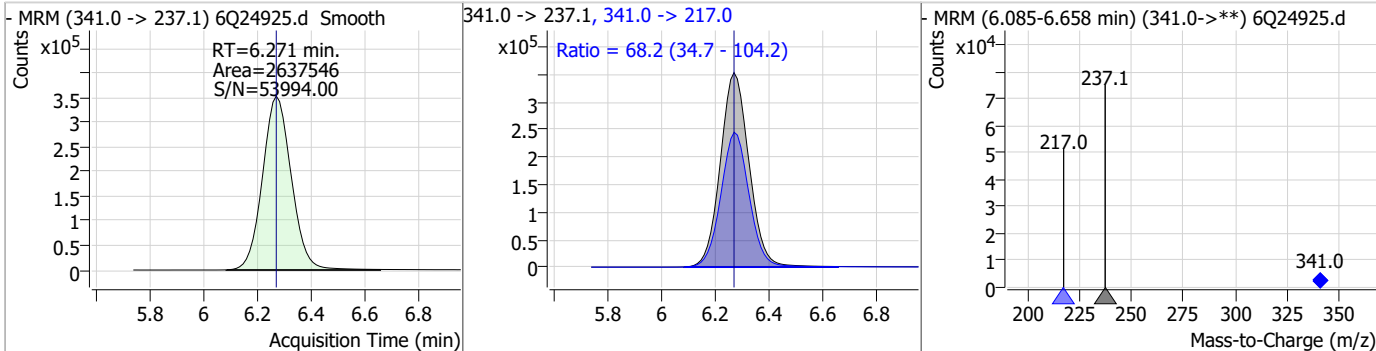
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	50.75	6.01	0.00	225421	284.9 -> 184.9	9.9	5.2	15.7



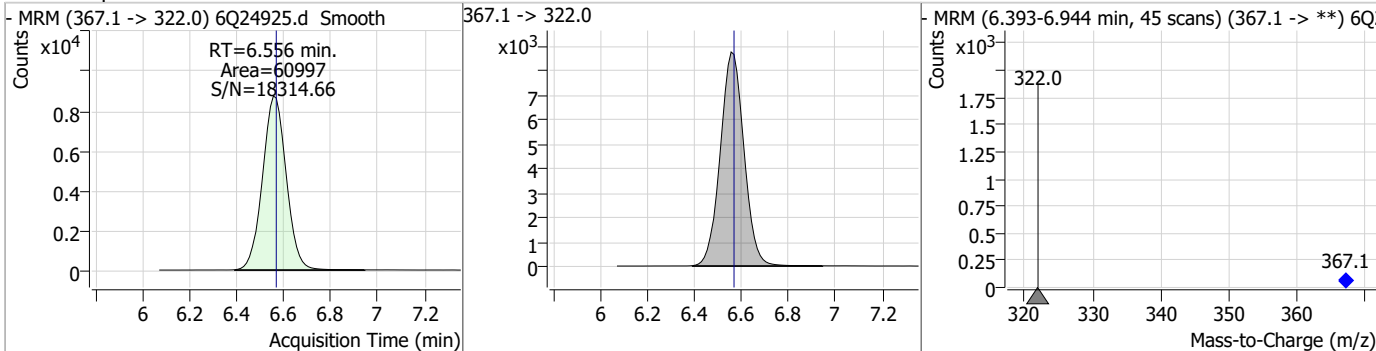
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	45.33	6.10	0.00	1272367	314.8 -> 82.9	3.9	1.9	5.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	621.49	6.27	0.00	2637546	341.0 -> 217.0	68.2	34.7	104.2

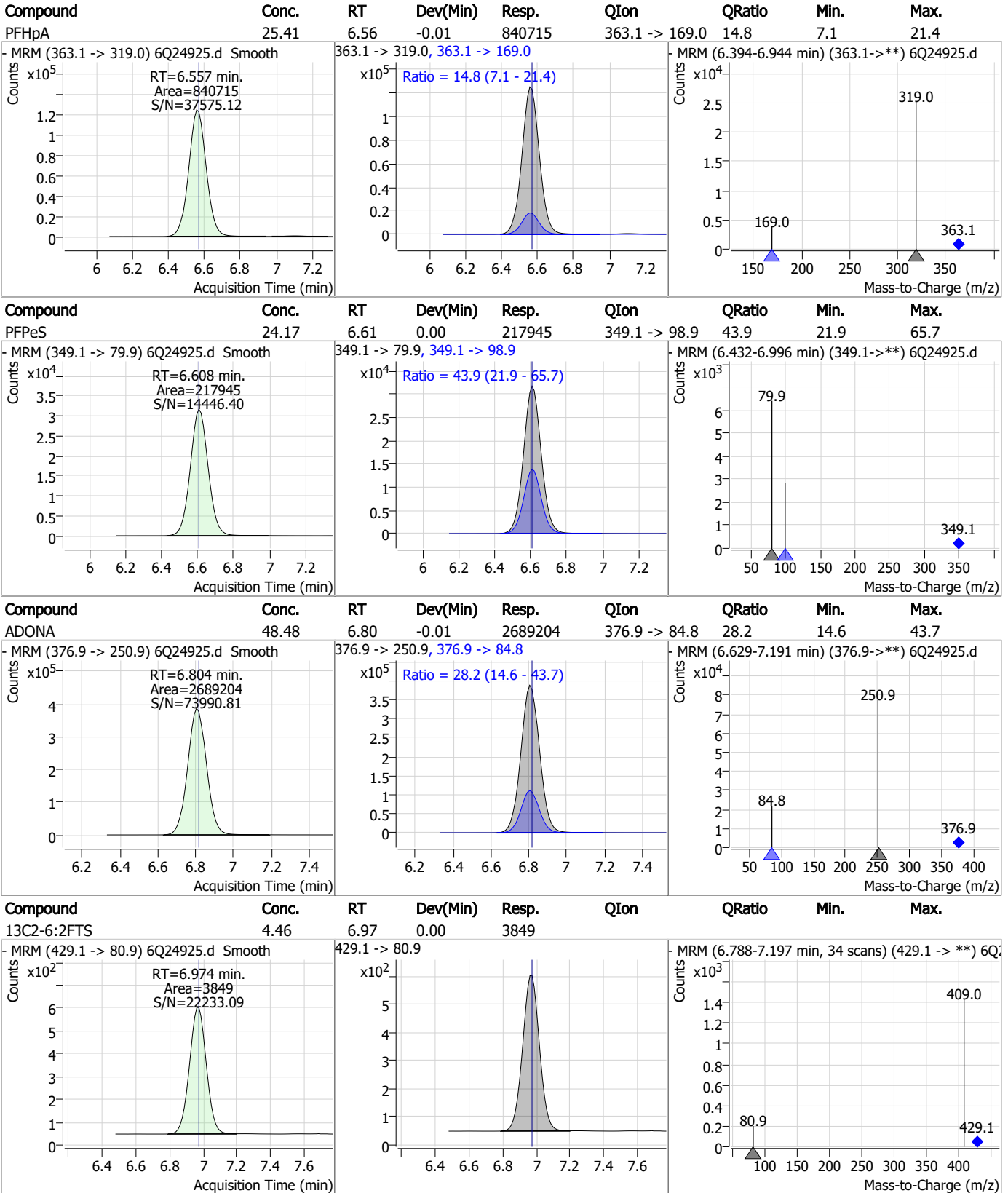


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.46	6.56	-0.01	60997	367.1 -> 322.0			



7.7.8
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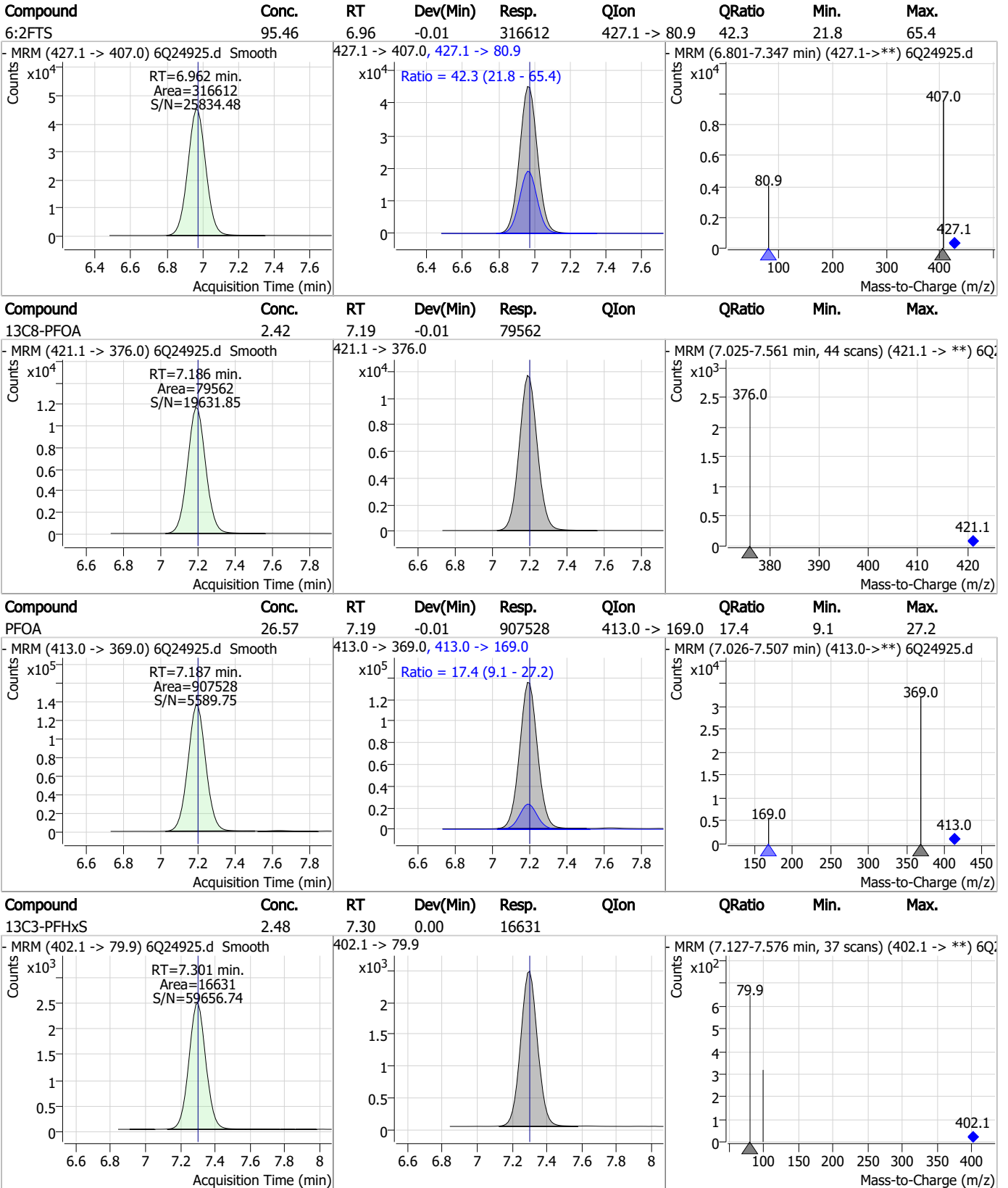
Perfluorinated Compounds by LC/MS/MS



7.7.8

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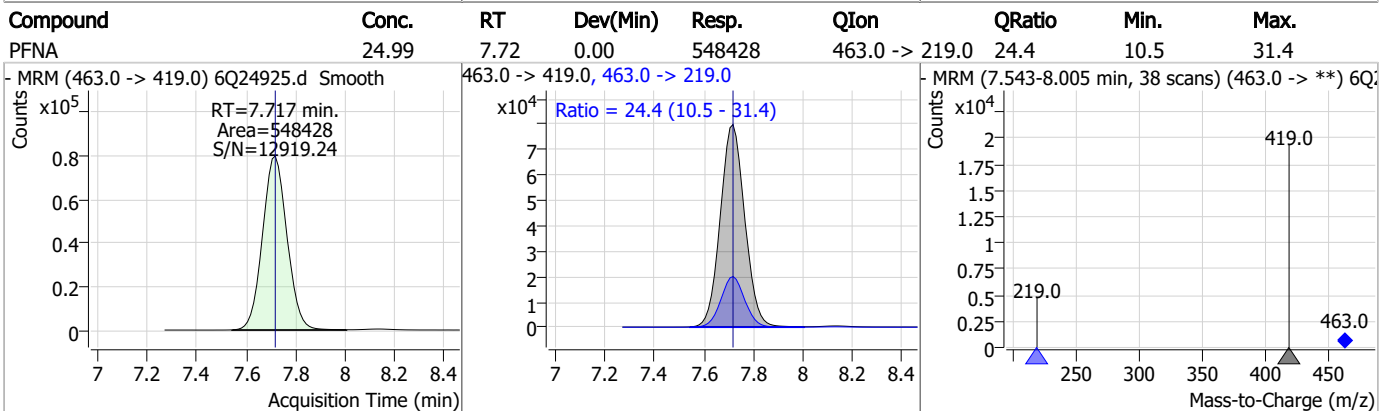
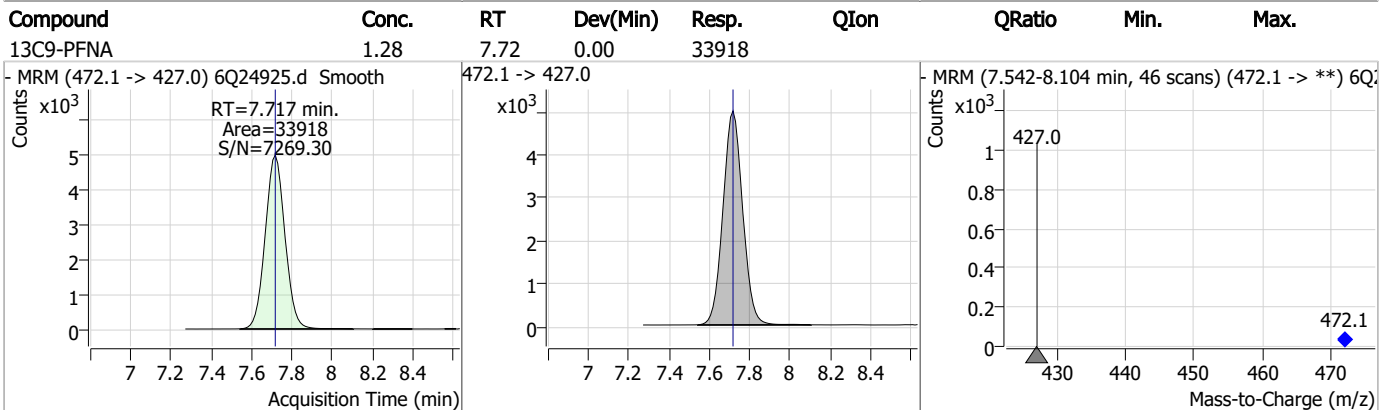
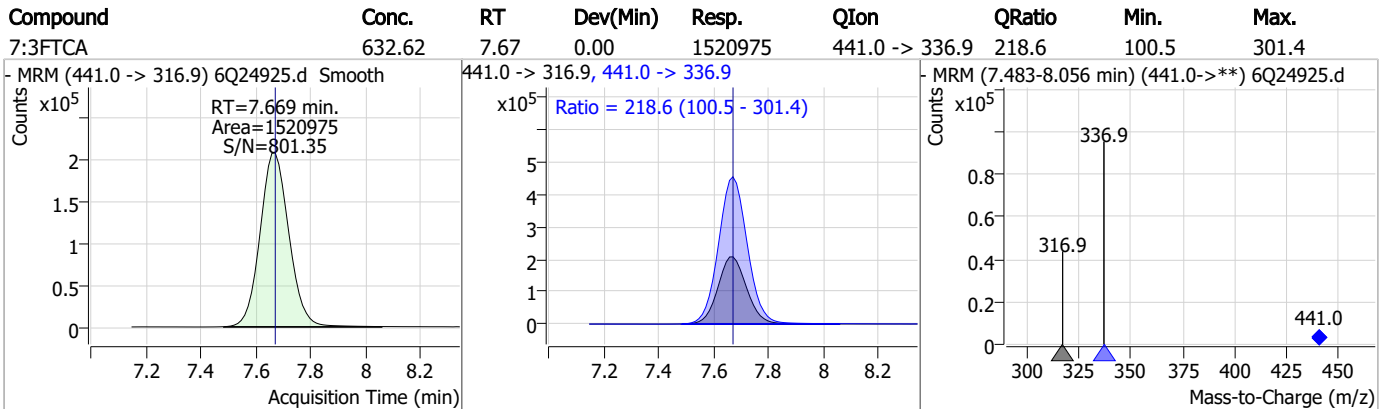
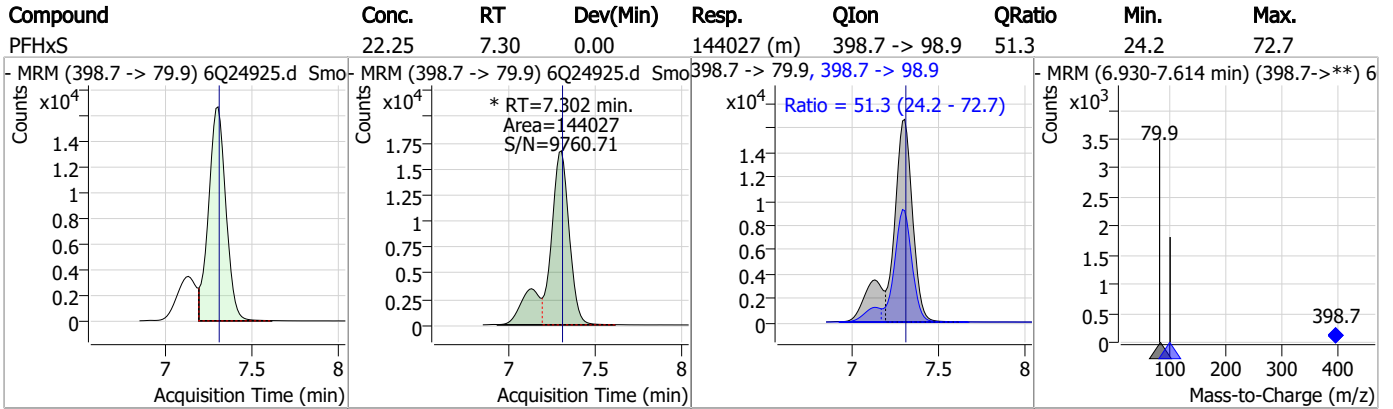
Perfluorinated Compounds by LC/MS/MS



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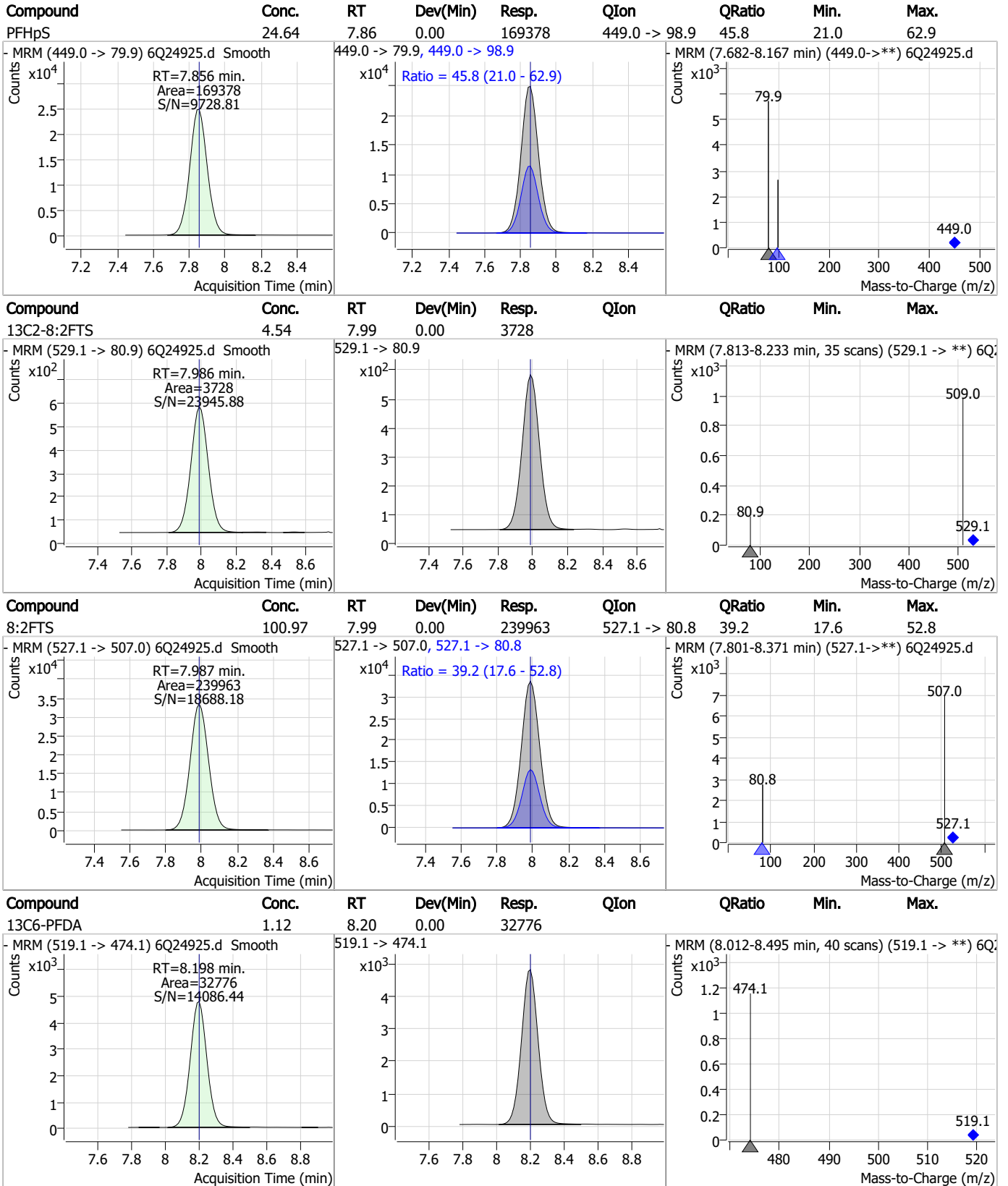
Perfluorinated Compounds by LC/MS/MS



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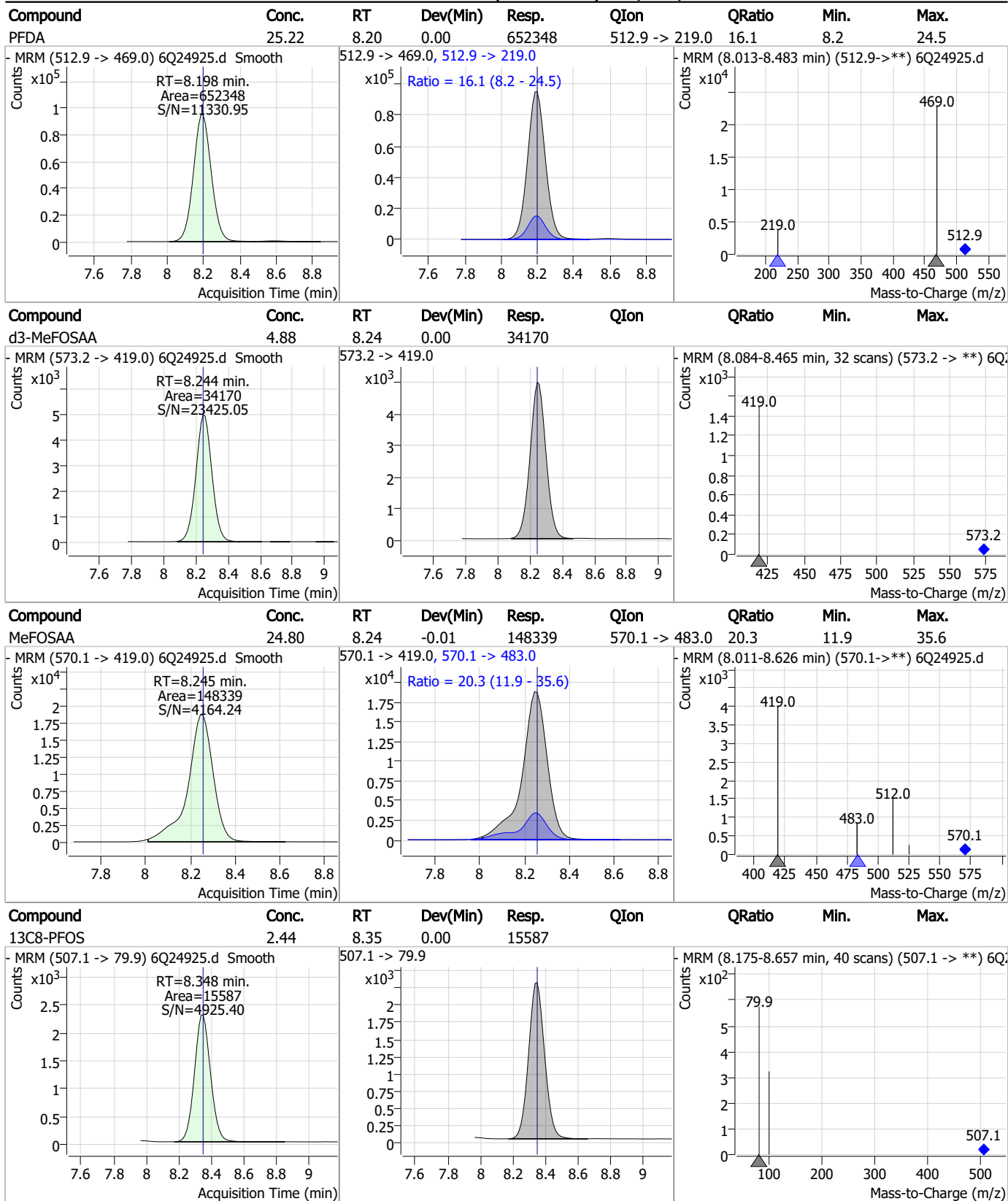
Perfluorinated Compounds by LC/MS/MS



7.7.8

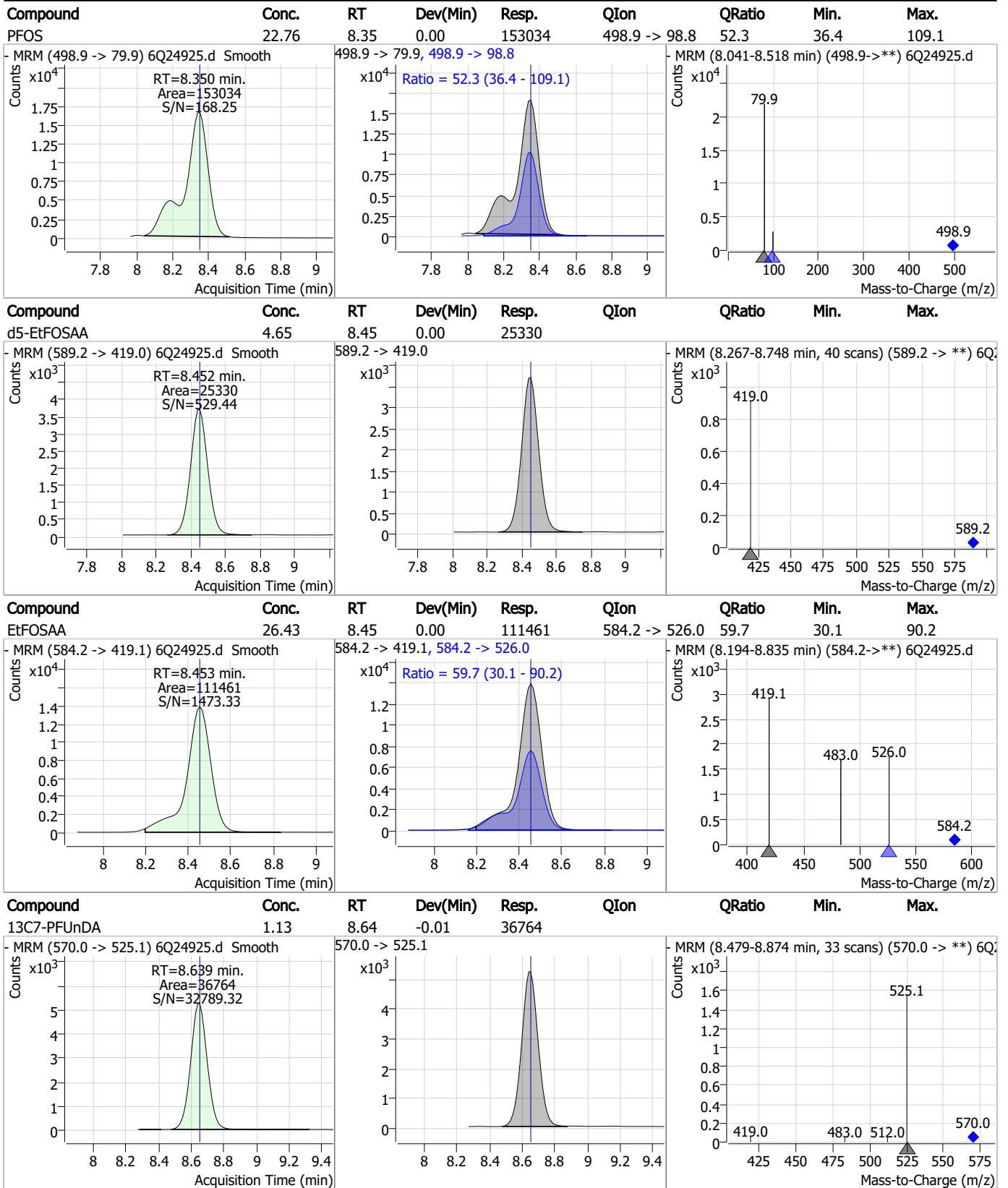
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Perfluorinated Compounds by LC/MS/MS



7.7.8
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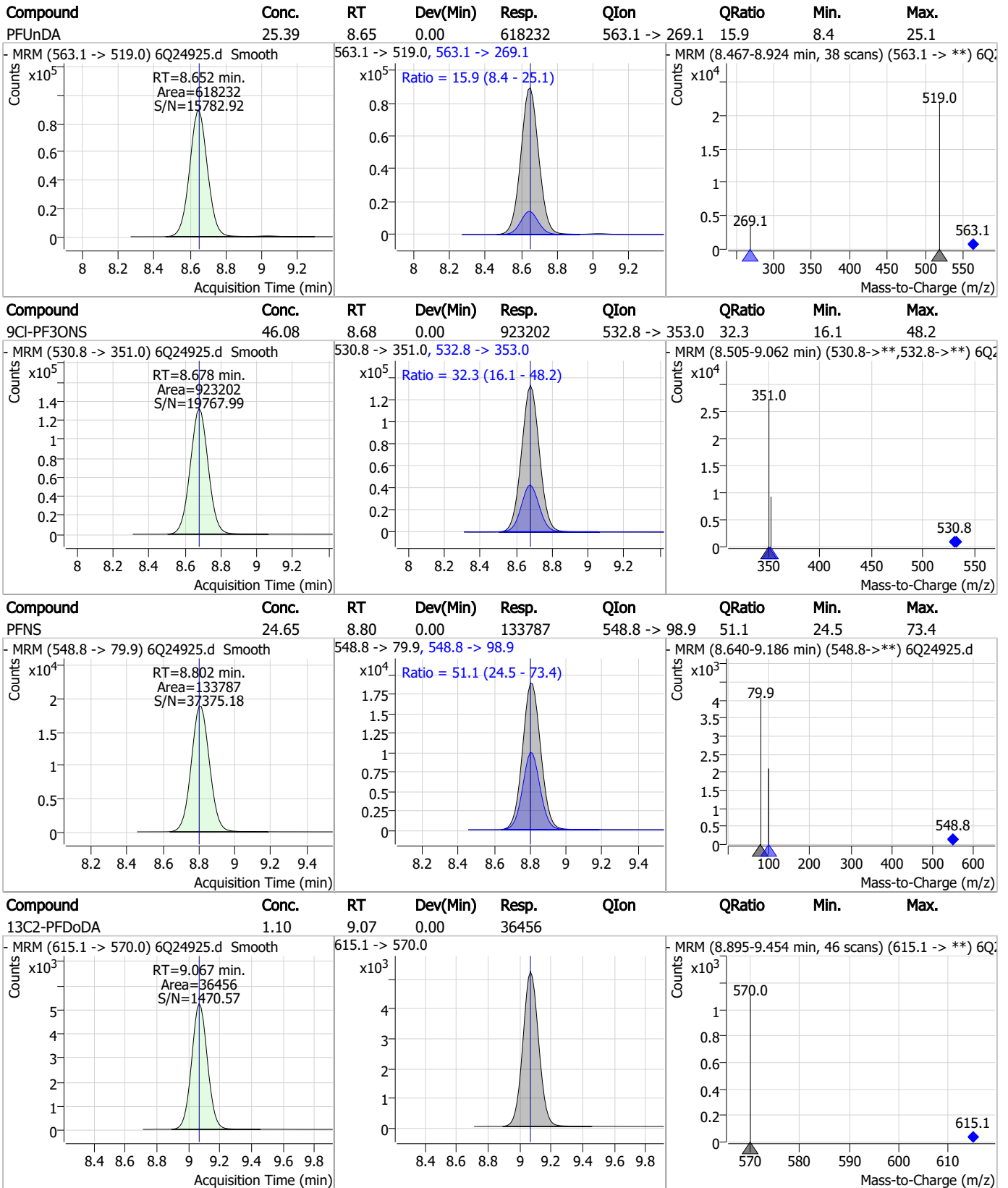
Perfluorinated Compounds by LC/MS/MS



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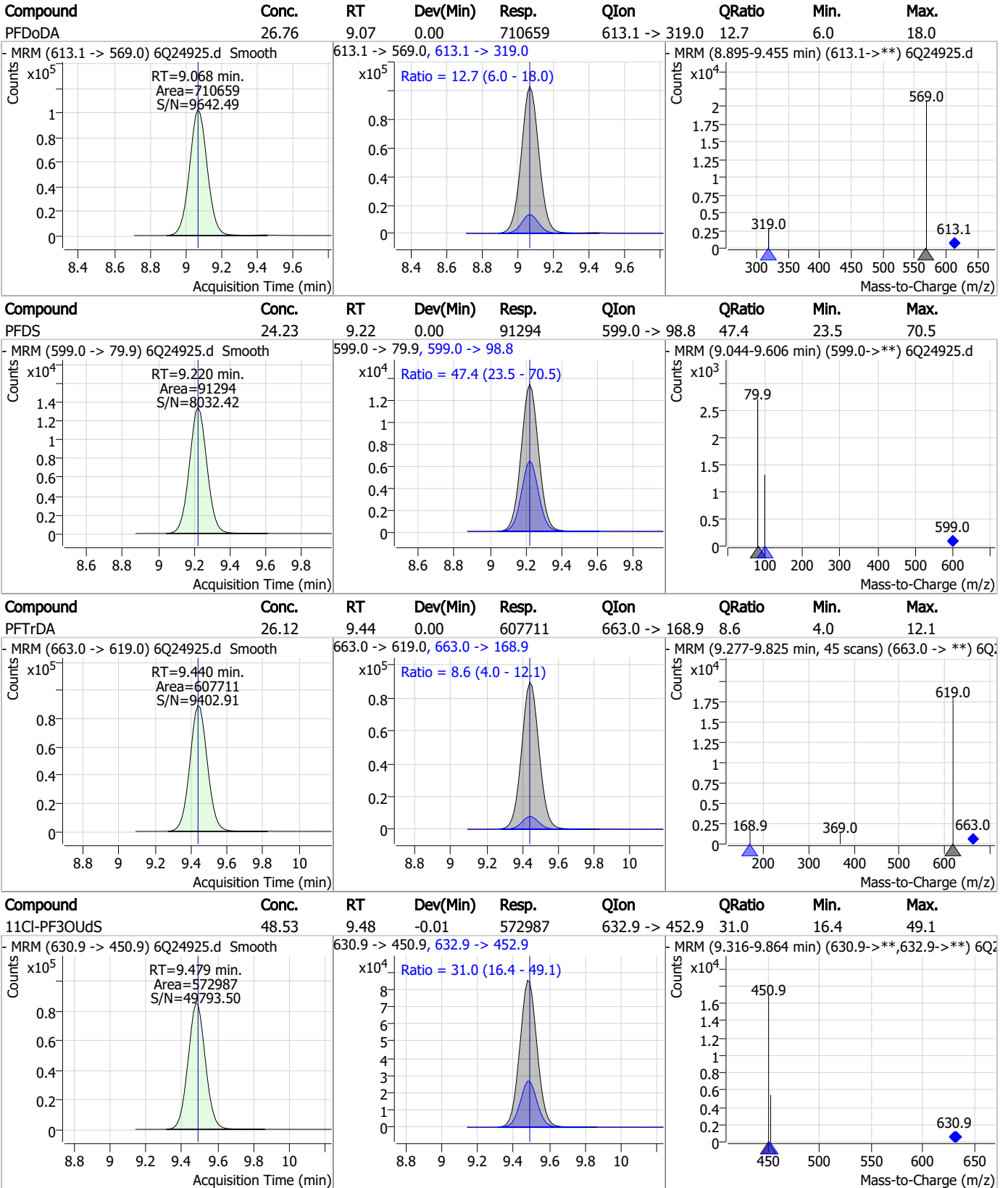
Perfluorinated Compounds by LC/MS/MS



7.7.8

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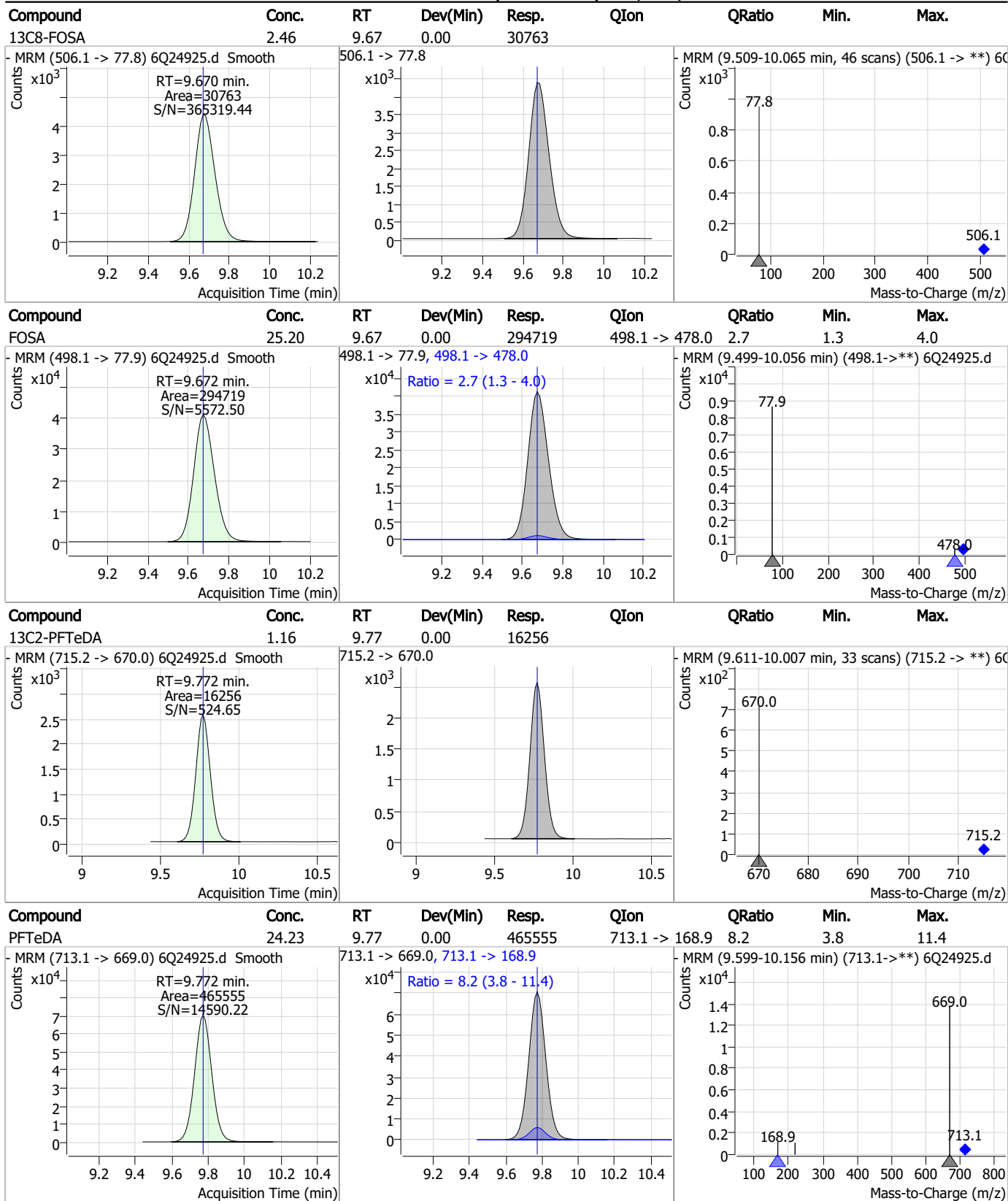
Perfluorinated Compounds by LC/MS/MS



7.7.8

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Perfluorinated Compounds by LC/MS/MS

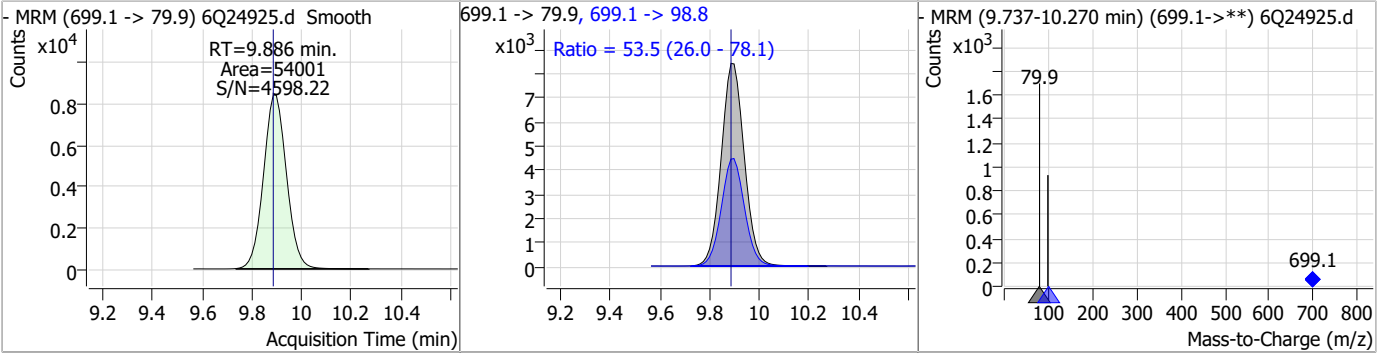


7.7.8
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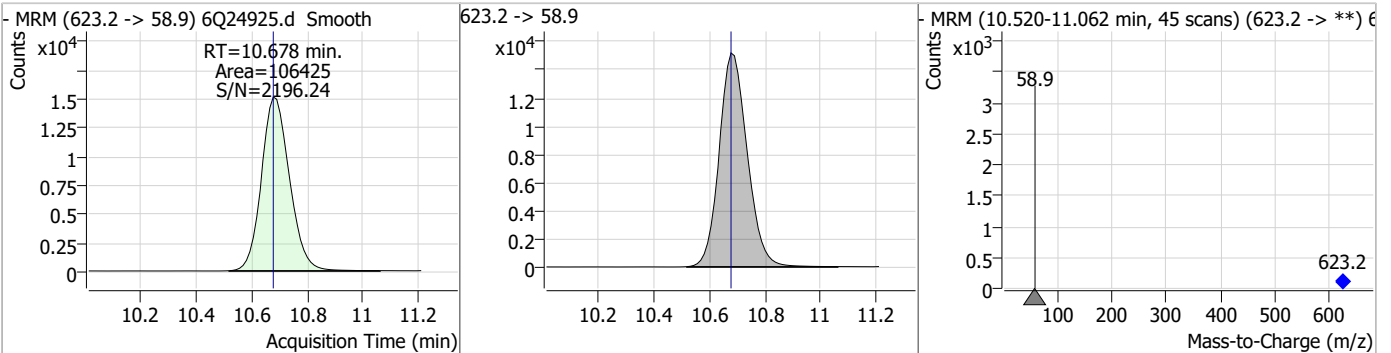


Perfluorinated Compounds by LC/MS/MS

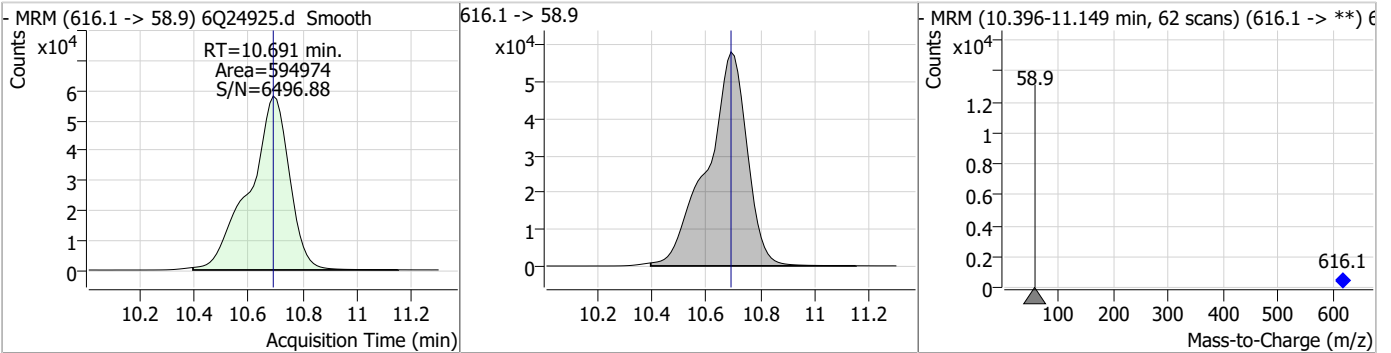
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	24.01	9.89	0.00	54001	699.1 -> 98.8	53.5	26.0	78.1



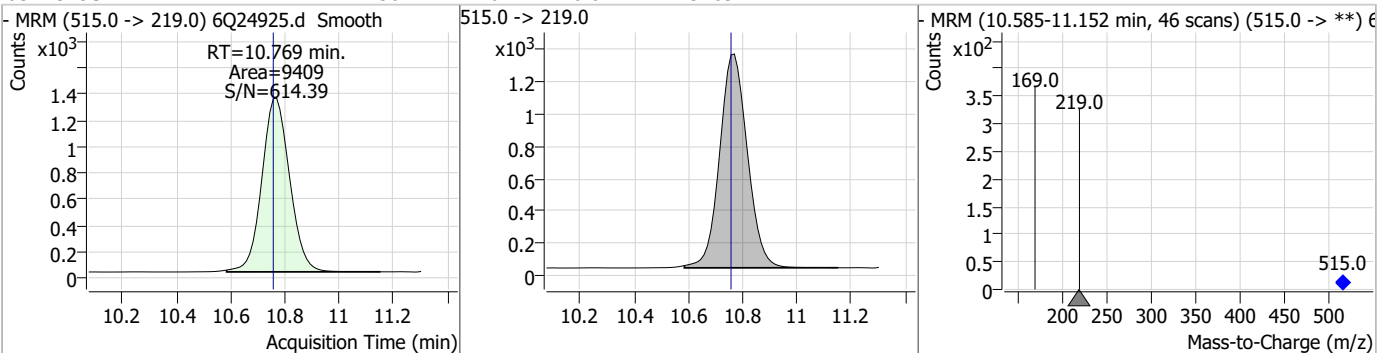
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.00	10.68	0.00	106425				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	126.17	10.69	0.00	594974				

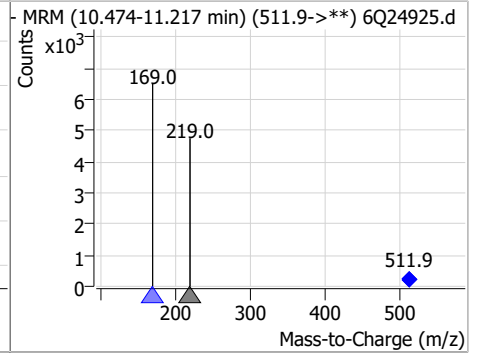
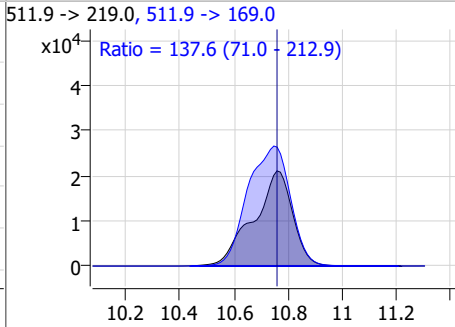
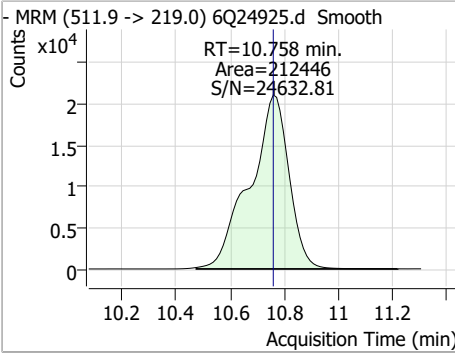


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.50	10.77	0.01	9409				

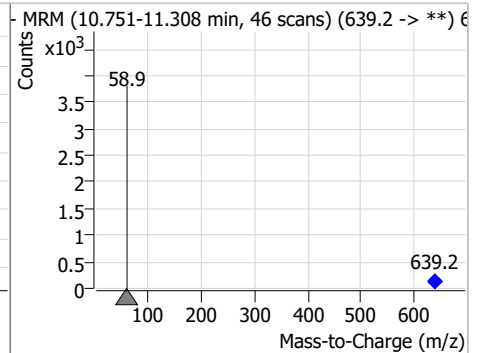
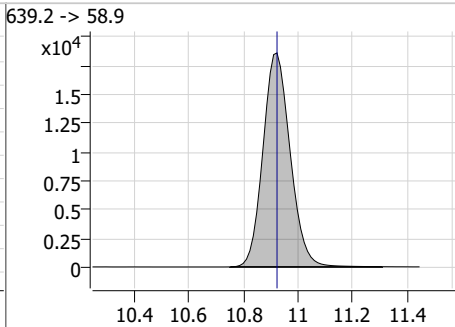
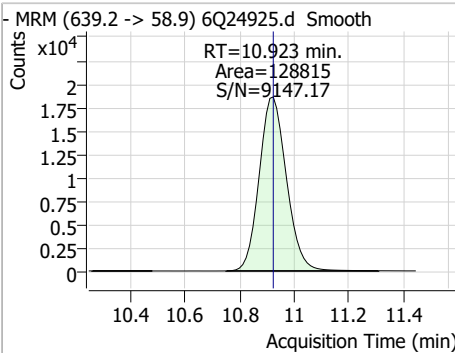


Perfluorinated Compounds by LC/MS/MS

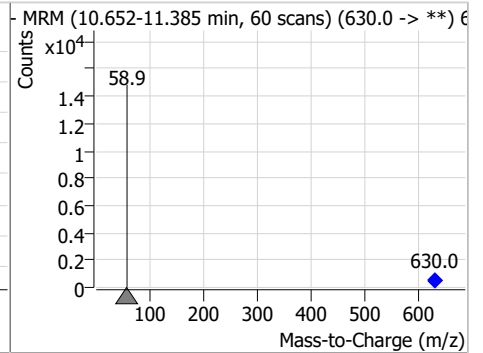
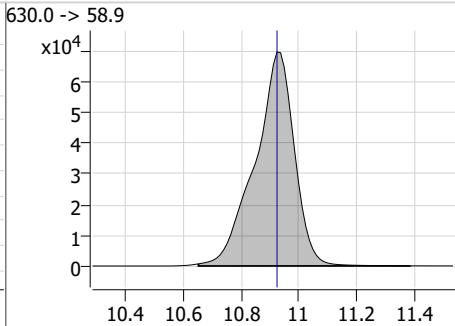
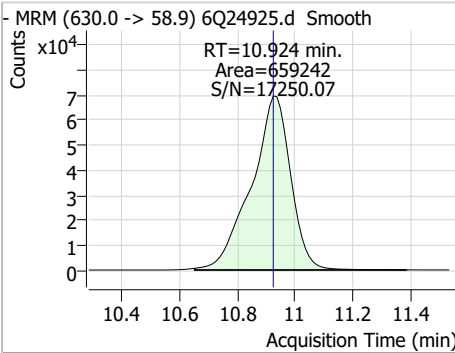
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	50.17	10.76	0.00	212446	511.9 -> 169.0	137.6	71.0	212.9



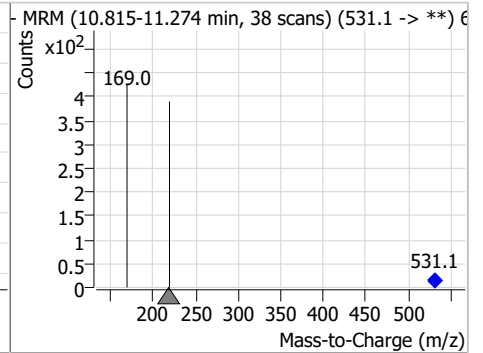
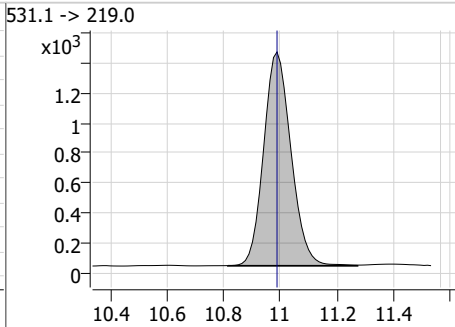
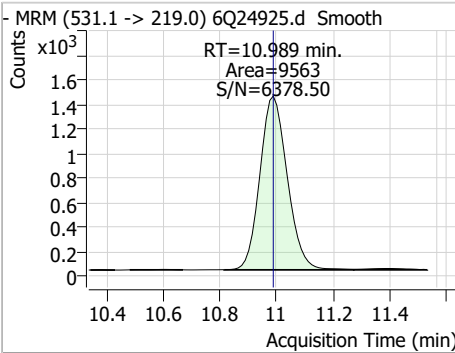
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.88	10.92	0.00	128815				



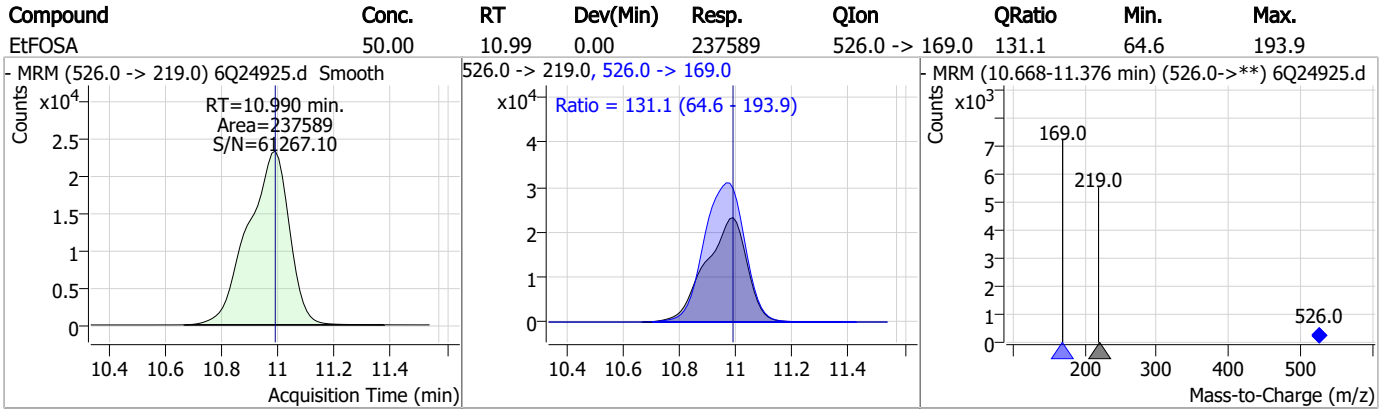
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	127.46	10.92	0.00	659242				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.42	10.99	0.00	9563				



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q356-IC356 Method: EPA DRAFT 1633
Lab FileID: 6Q24925.D Analyst approved: 09/25/23 14:50 Martha Valls
Injection Time: 09/24/23 16:26 Supervisor approved: 09/26/23 13:54 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24926.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/24/2023 4:40:21 PM
 Sample Name : ic356-8
 Vial : P1-A9
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	154014	10.00 µg/L	0.000
M5-PFPeA	4.422	268.3 -> 223.0	66216	5.00 µg/L	0.012
M5-PFHxA	5.629	318.0 -> 273.0	59482	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	57455	2.50 µg/L	0.000
M8-PFOA	7.186	421.1 -> 376.0	81331	2.50 µg/L	-0.012
M9-PFNA	7.717	472.1 -> 427.0	33311	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	30677	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	32452	1.25 µg/L	0.000
M2-PFDoDA	9.067	615.1 -> 570.0	38731	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	16296	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	29214	2.50 µg/L	0.000
M3-PFBS	5.559	302.1 -> 79.9	24525	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	15045	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	14903	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	2052	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	3338	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	3468	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	30282	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	42715	10.00 µg/L	0.000
M5-EtFOSAA	8.439	589.2 -> 419.0	25549	5.00 µg/L	-0.012
M7-MeFOSE	10.678	623.2 -> 58.9	102821	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	122759	25.00 µg/L	-0.012
M5-EtFOSA	10.989	531.1 -> 219.0	8948	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9584	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	13678	2.50 µg/L	0.000
13C3-PFBA	2.976	216.0 -> 172.0	64923	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	10071	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	88901	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	30116	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	32432	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	58856	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2052	3.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 79.7%		
13C2-6:2FTS	6.974	429.1 -> 80.9	3338	4.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 81.5%		
13C2-8:2FTS	7.986	529.1 -> 80.9	3468	4.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.0%		
13C2-PFDoDA	9.067	615.1 -> 570.0	38731	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.6%		
13C2-PFTeDA	9.772	715.2 -> 670.0	16296	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.8%		
13C3-PFBS	5.559	302.1 -> 79.9	24525	2.32 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.7%		
13C3-PFHxS	7.301	402.1 -> 79.9	15045	2.36 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 = 94.4%	
13C4-PFBA	2.972	216.8 -> 171.9	154014	9.82 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C4-PFHpA	6.569	367.1 -> 322.0	57455	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.7%	
13C5-PFHxA	5.629	318.0 -> 273.0	59482	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C5-PFPeA	4.422	268.3 -> 223.0	66216	4.75 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.0%	
13C6-PFDA	8.198	519.1 -> 474.1	30677	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C7-PFUnDA	8.651	570.0 -> 525.1	32452	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.7%	
13C8-FOSA	9.670	506.1 -> 77.8	29214	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C8-PFOA	7.186	421.1 -> 376.0	81331	2.64 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.6%	
13C8-PFOS	8.348	507.1 -> 79.9	14903	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C9-PFNA	7.717	472.1 -> 427.0	33311	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.2%	
d3-MeFOSAA	8.244	573.2 -> 419.0	30282	4.67 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.4%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	42715	9.63 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
d3-MeFOSA	10.757	515.0 -> 219.0	9584	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.2%	
d5-EtFOSAA	8.439	589.2 -> 419.0	25549	5.07 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
d7-MeFOSE	10.678	623.2 -> 58.9	102821	25.06 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
d9-EtFOSE	10.911	639.2 -> 58.9	122759	24.59 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.4%	
d5-EtFOSA	10.989	531.1 -> 219.0	8948	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	807234	240.37 µg/L	96
		327.1 -> 80.9	328131		
6:2FTS	6.974	427.1 -> 407.0	668375	232.36 µg/L	98
		427.1 -> 80.9	282799		
8:2FTS	7.987	527.1 -> 507.0	520493	235.41 µg/L	97
		527.1 -> 80.8	193784		
EtFOSAA	8.453	584.2 -> 419.1	257149	60.46 µg/L	92
		584.2 -> 526.0	170976		
FOSA	9.672	498.1 -> 77.9	704720	63.45 µg/L	100
		498.1 -> 478.0	18726		
MeFOSAA	8.245	570.1 -> 419.0	331732	62.59 µg/L	95
		570.1 -> 483.0	71227		
PFBA	2.981	212.8 -> 168.9	1398982	254.43 µg/L	100
PFBS	5.547	298.7 -> 79.9	453539	56.70 µg/L	99
		298.7 -> 98.8	166238		
PFDA	8.198	512.9 -> 469.0	1696339	70.07 µg/L	98
		512.9 -> 219.0	264826		
PFDoDA	9.068	613.1 -> 569.0	1661329	58.88 µg/L	98
		613.1 -> 319.0	213718		
PFDS	9.220	599.0 -> 79.9	217459	60.36 µg/L	97

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.569	599.0 -> 98.8	105956	66.29	µg/L	98
		363.1 -> 319.0	2065545			
PFHpS	7.843	363.1 -> 169.0	277750	56.92	µg/L	86
		449.0 -> 79.9	374057			
PFHxA	5.631	449.0 -> 98.9	189630	63.52	µg/L	100
		313.0 -> 269.0	1356288			
PFHxS	7.302	313.0 -> 118.9	65728	61.88	µg/L	98
		398.7 -> 79.9	362301			
PFNA	7.717	398.7 -> 98.9	170260	58.92	µg/L	93
		463.0 -> 419.0	1270143			
PFNS	8.802	463.0 -> 219.0	308239	59.31	µg/L	99
		548.8 -> 79.9	307722			
PFOA	7.200	548.8 -> 98.9	152177	61.89	µg/L	99
		413.0 -> 369.0	2160625			
PFOS	8.350	413.0 -> 169.0	380770	59.44	µg/L	69
		498.9 -> 79.9	382115			
PFPeA	4.424	498.9 -> 98.8	178478	126.55	µg/L	100
		263.0 -> 219.0	1686736			
PFPeS	6.608	349.1 -> 79.9	494936	60.67	µg/L	98
		349.1 -> 98.9	223053			
PFTeDA	9.772	713.1 -> 669.0	1204322	62.52	µg/L	99
		713.1 -> 168.9	94314			
PFTrDA	9.440	663.0 -> 619.0	1441507	58.33	µg/L	100
		663.0 -> 168.9	115798			
PFUnDA	8.639	563.1 -> 519.0	1400205	65.15	µg/L	99
		563.1 -> 269.1	225088			
11Cl-PF3OUdS	9.479	630.9 -> 450.9	1325351	118.60	µg/L	96
		632.9 -> 452.9	404235			
9Cl-PF3ONS	8.678	530.8 -> 351.0	2202726	116.16	µg/L	100
		532.8 -> 353.0	708549			
ADONA	6.804	376.9 -> 250.9	6597422	125.68	µg/L	95
		376.9 -> 84.8	1737369			
HFPO-DA	6.007	284.9 -> 168.9	548217	130.41	µg/L	97
		284.9 -> 184.9	51356			
3:3FTCA	3.846	241.0 -> 177.0	312126	349.64	µg/L	99
		241.0 -> 117.0	35930			
5:3FTCA	6.271	341.0 -> 237.1	6377507	1588.89	µg/L	96
		341.0 -> 217.0	4237852			
7:3FTCA	7.669	441.0 -> 316.9	3644598	1602.80	µg/L	87
		441.0 -> 336.9	8049394			
EtFOSA	10.990	526.0 -> 219.0	589112	132.50	µg/L	98
		526.0 -> 169.0	750146			
EtFOSE	10.924	630.0 -> 58.9	1568257	318.17	µg/L	100
		511.9 -> 219.0	507938			
MeFOSA	10.758	511.9 -> 169.0	695512	117.76	µg/L	96
		616.1 -> 58.9	1454213			
MeFOSE	10.691	699.1 -> 79.9	123926	319.18	µg/L	100
		699.1 -> 98.8	69366			
PFDoDS	9.886	295.0 -> 201.0	315087	57.64	µg/L	94
		295.0 -> 84.9	87096			
NFDHA	5.512	279.0 -> 85.1	1355603	114.89	µg/L	98
		229.0 -> 84.9	1023799			
PFMBA	4.838	314.8 -> 134.9	2959278	128.72	µg/L	100
		314.8 -> 82.9	115248			
PFMPA	3.551			111.46	µg/L	100
PFEESA	6.100					

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



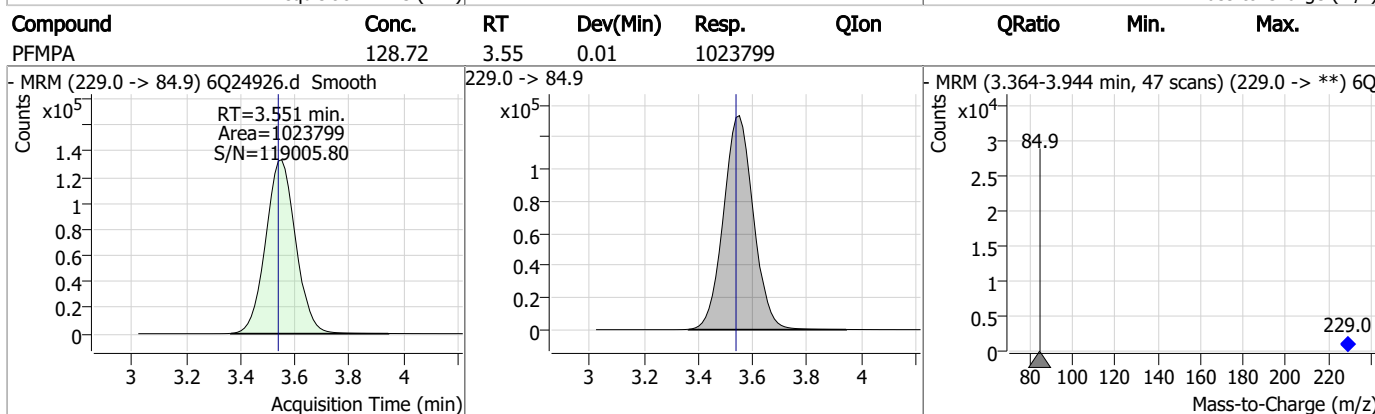
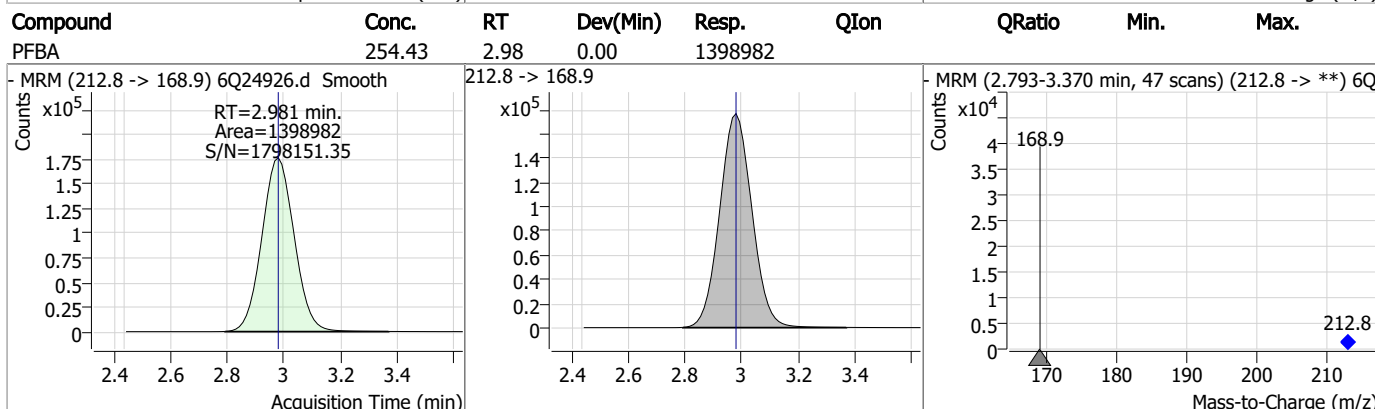
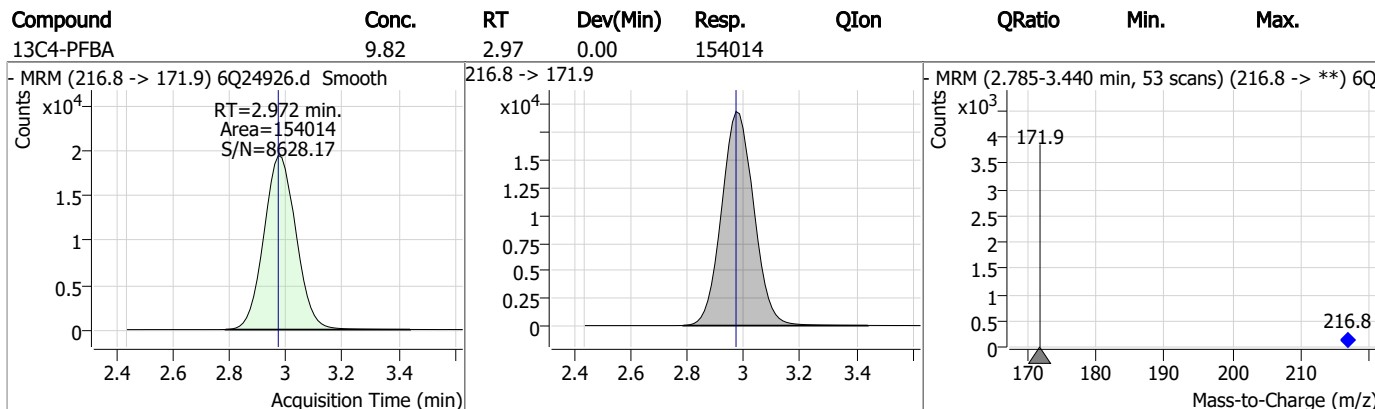
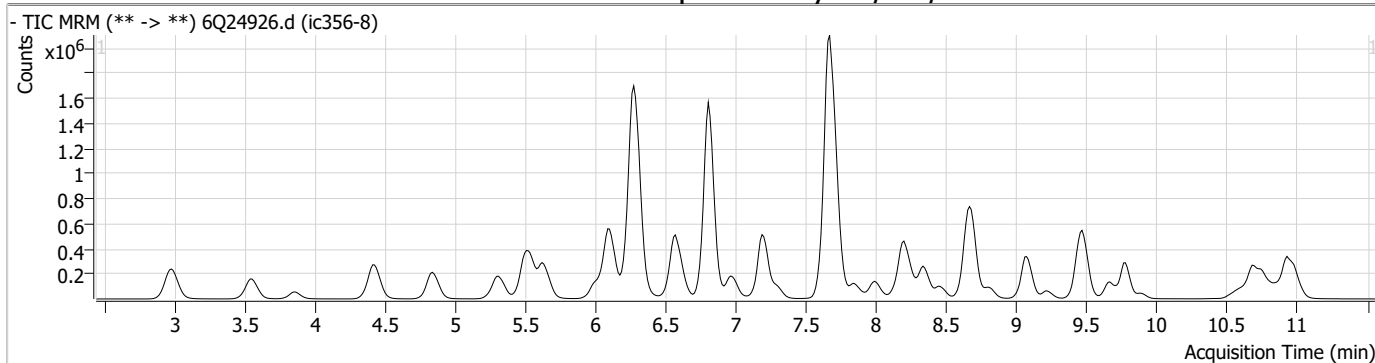
Perfluorinated Compounds by LC/MS/MS

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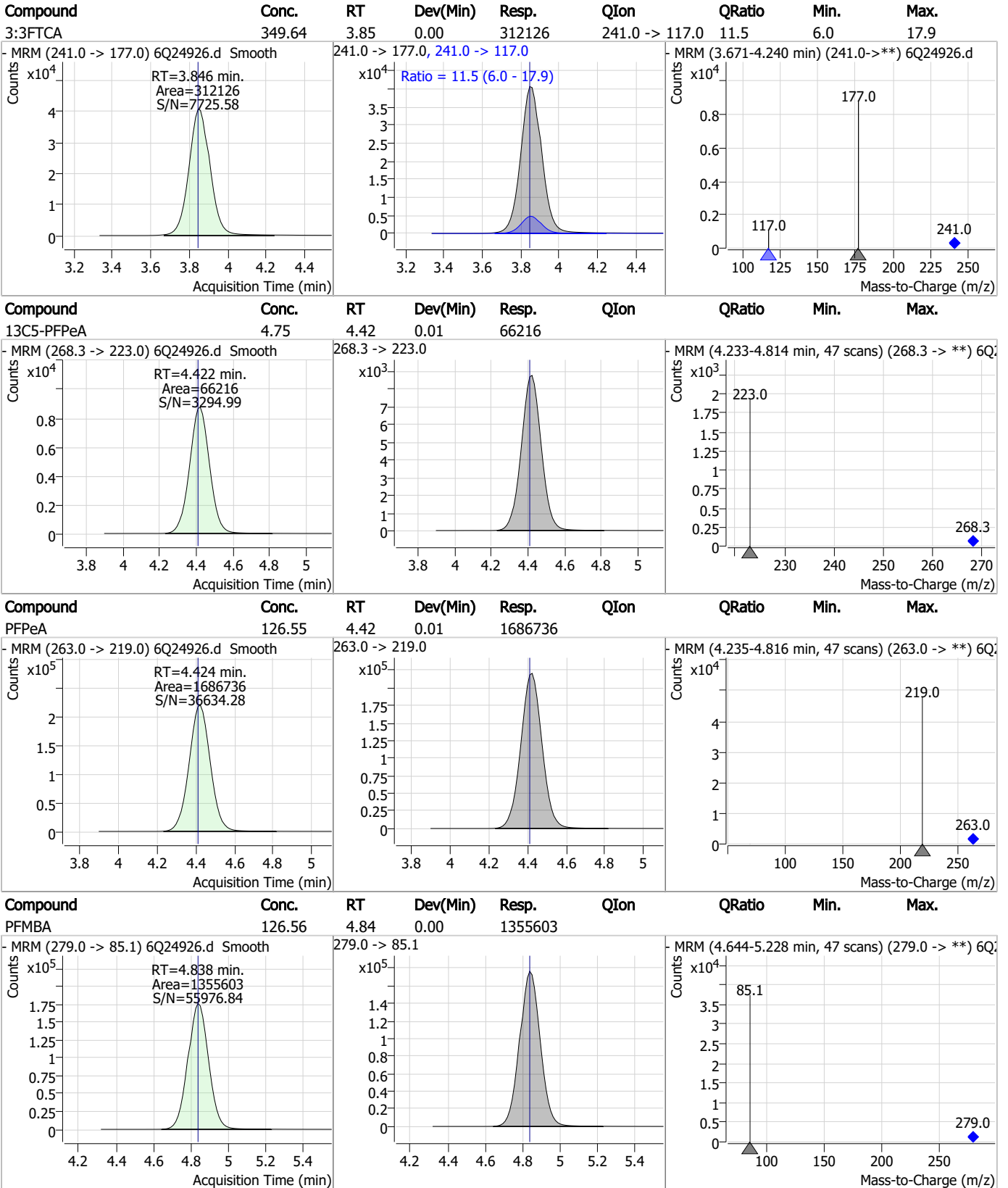
7.7.9

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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

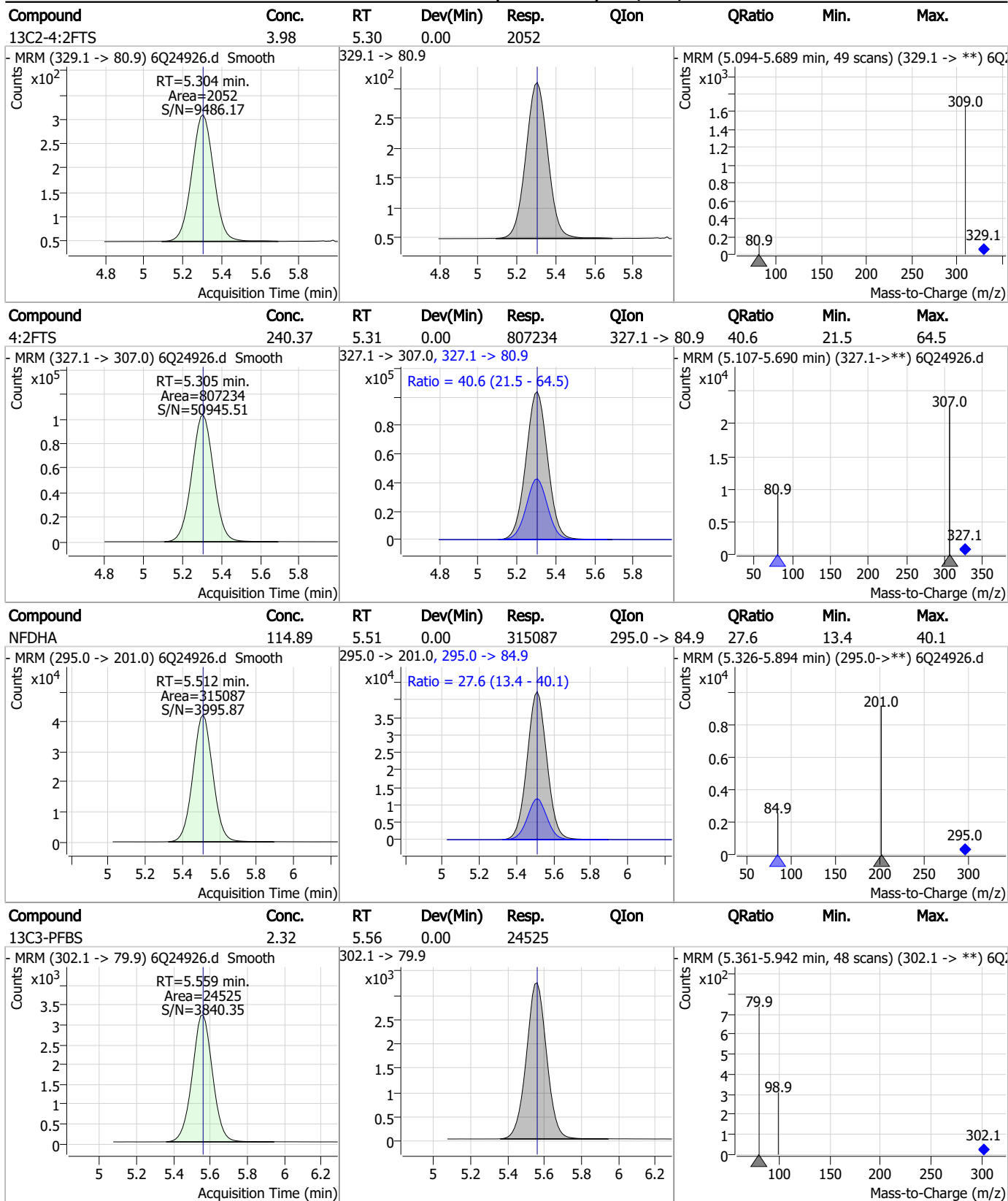


7.7.9

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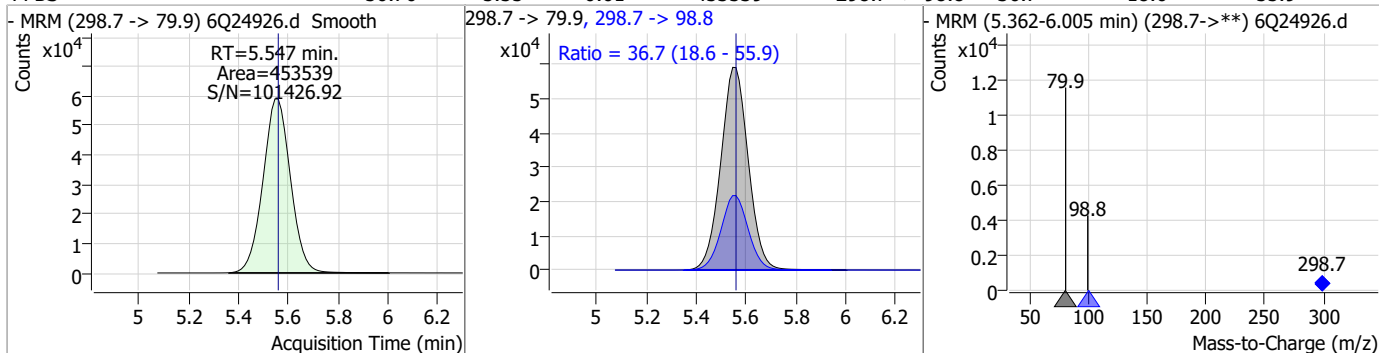
Perfluorinated Compounds by LC/MS/MS



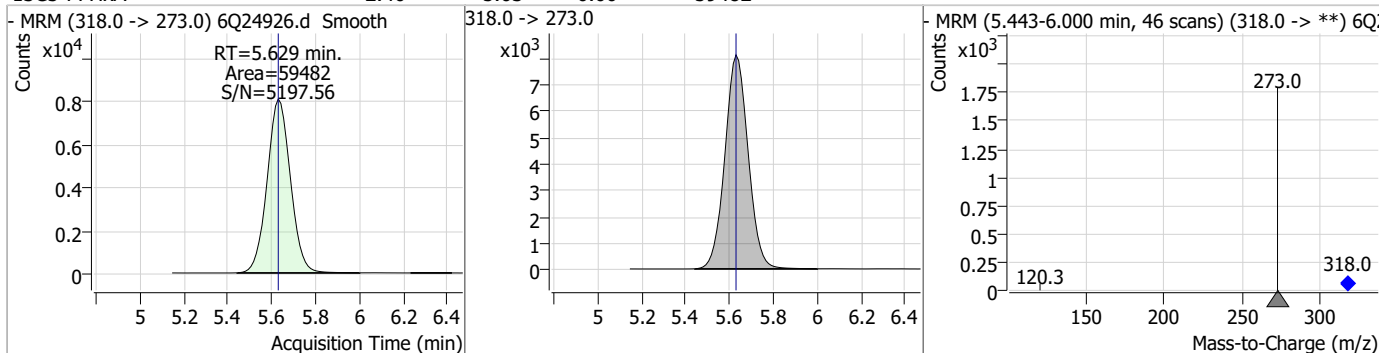
7.7.9
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Perfluorinated Compounds by LC/MS/MS

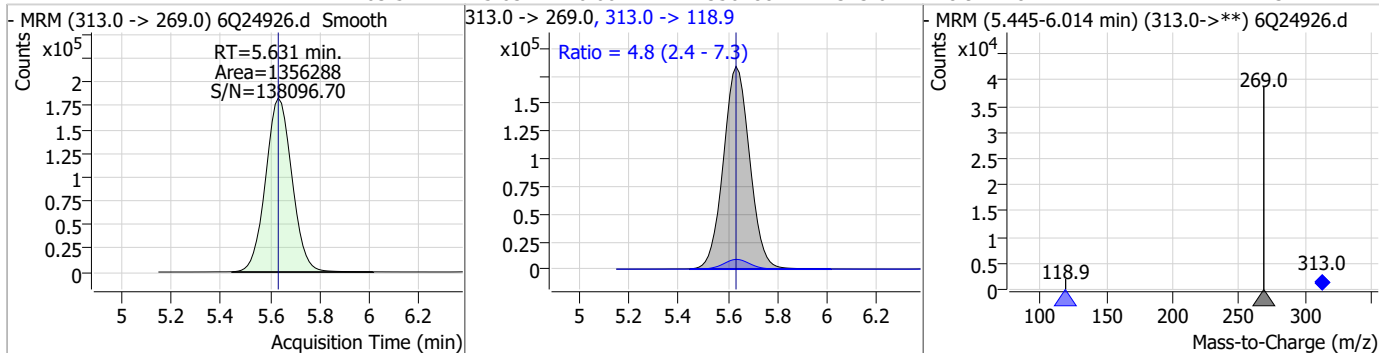
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	56.70	5.55	-0.01	453539	298.7 -> 98.8	36.7	18.6	55.9



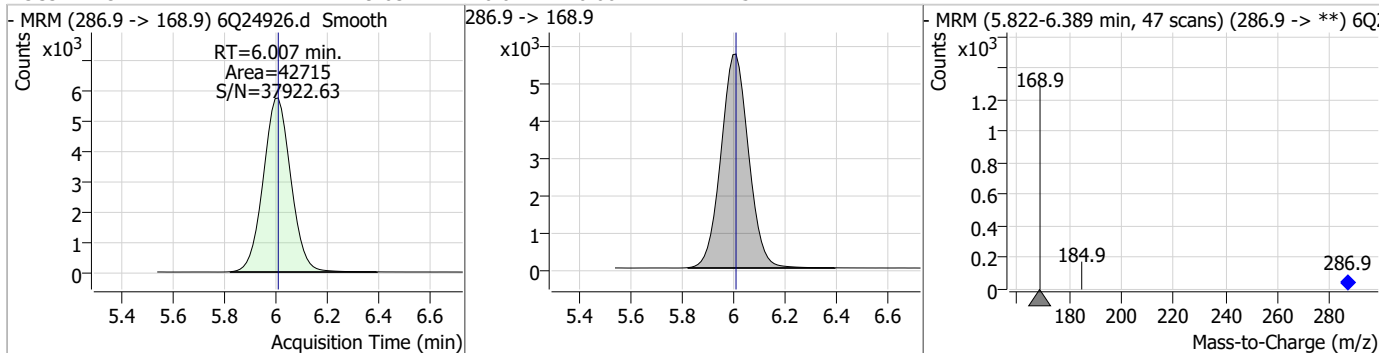
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.40	5.63	0.00	59482				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	63.52	5.63	0.00	1356288	313.0 -> 118.9	4.8	2.4	7.3

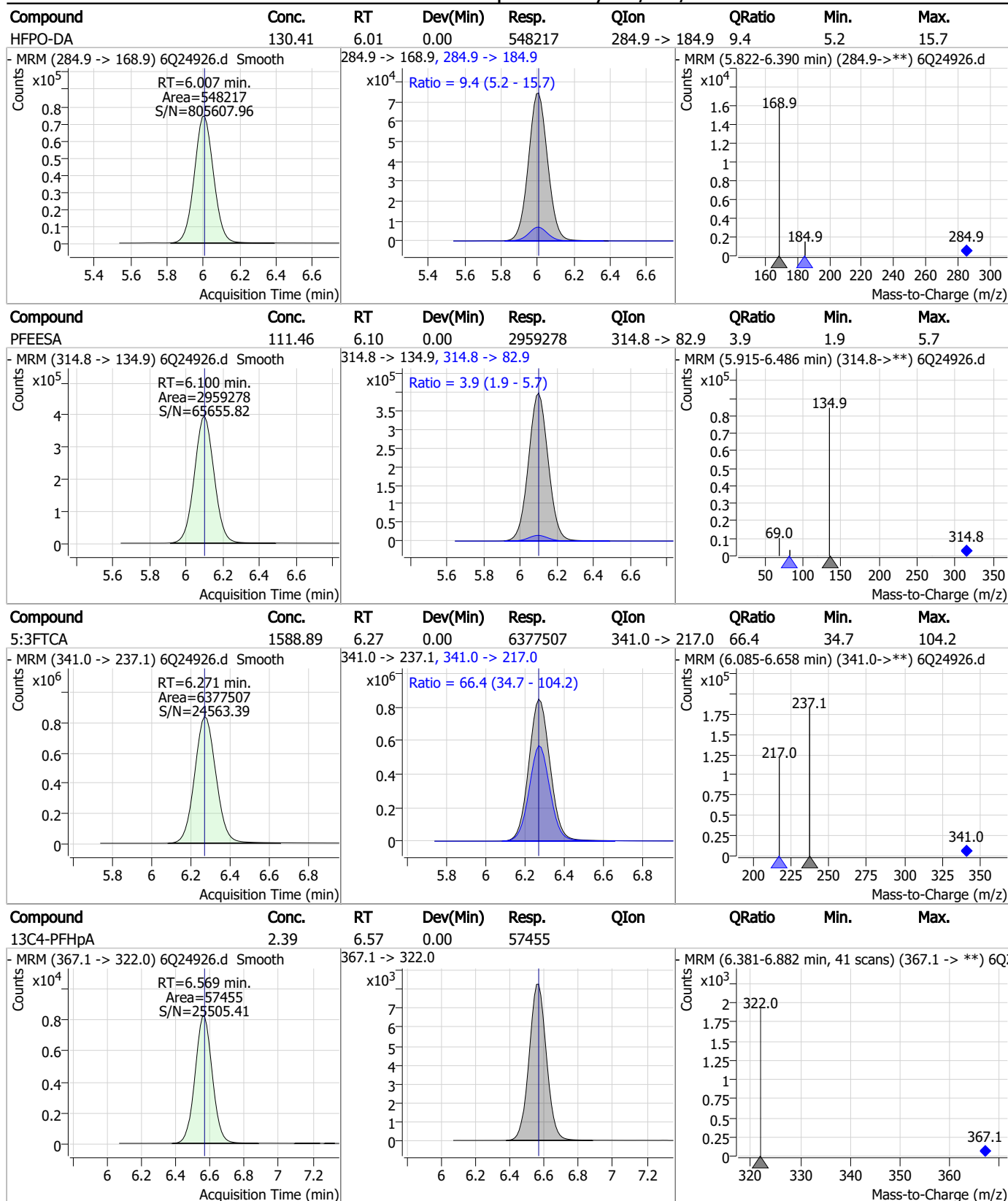


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.63	6.01	0.00	42715				



7.7.9
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Perfluorinated Compounds by LC/MS/MS



7.7.9
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Perfluorinated Compounds by LC/MS/MS

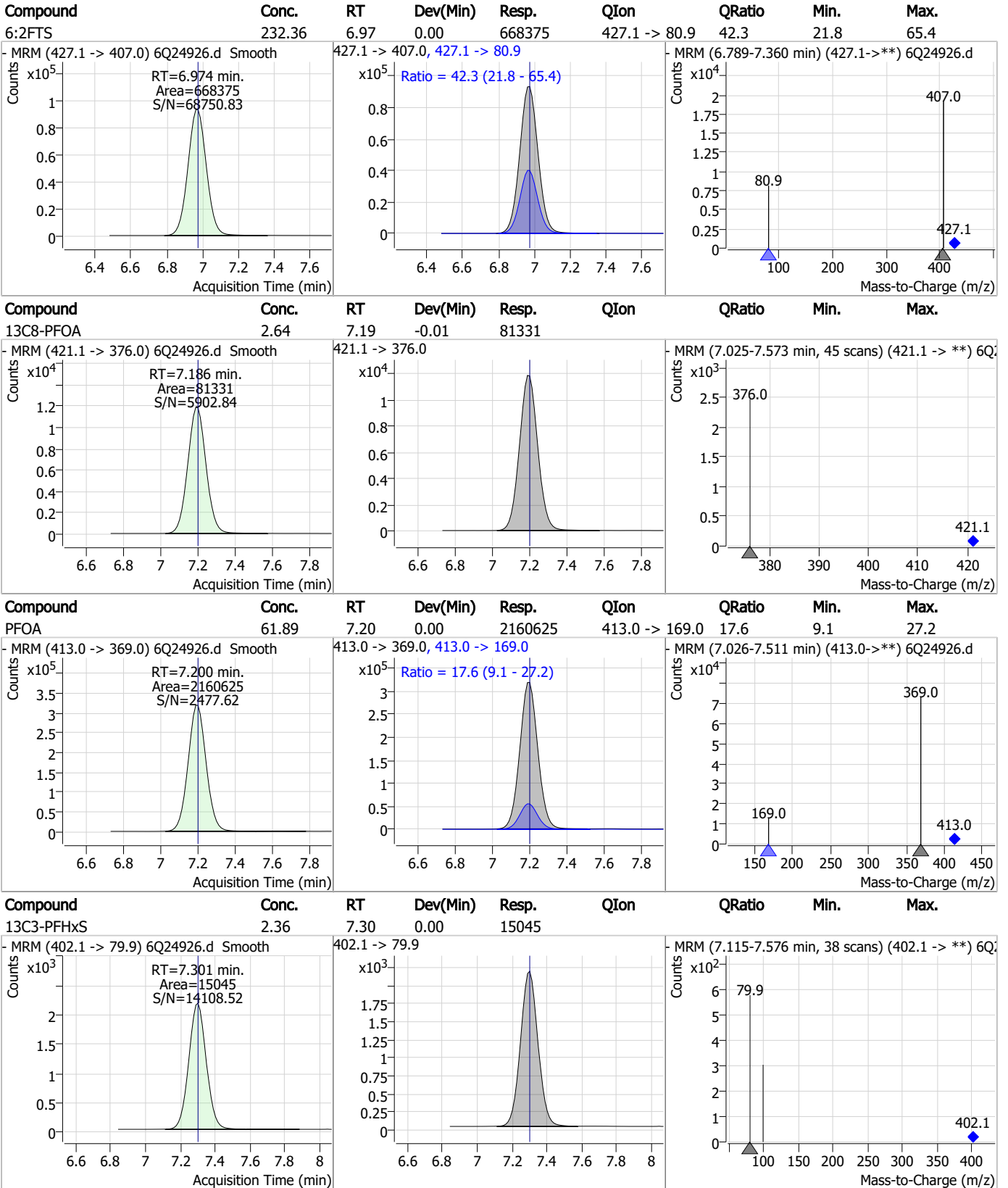
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	66.29	6.57	0.00	2065545	363.1 -> 169.0	13.4	7.1	21.4
PFPeS	60.67	6.61	0.00	494936	349.1 -> 98.9	45.1	21.9	65.7
ADONA	125.68	6.80	-0.01	6597422	376.9 -> 84.8	26.3	14.6	43.7
13C2-6-2FTS	4.08	6.97	0.00	3338	429.1 -> 80.9	-	-	-

7.7.9

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Perfluorinated Compounds by LC/MS/MS

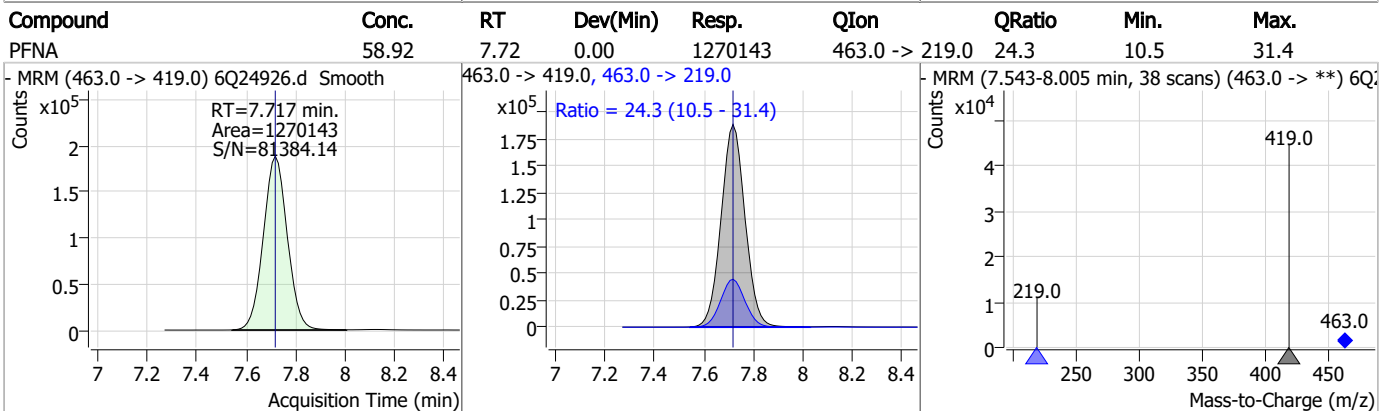
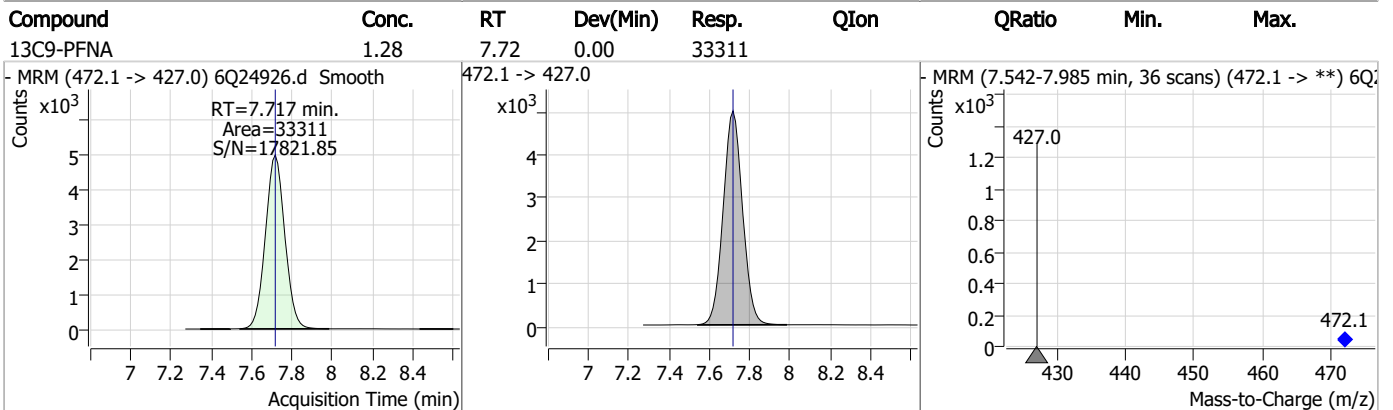
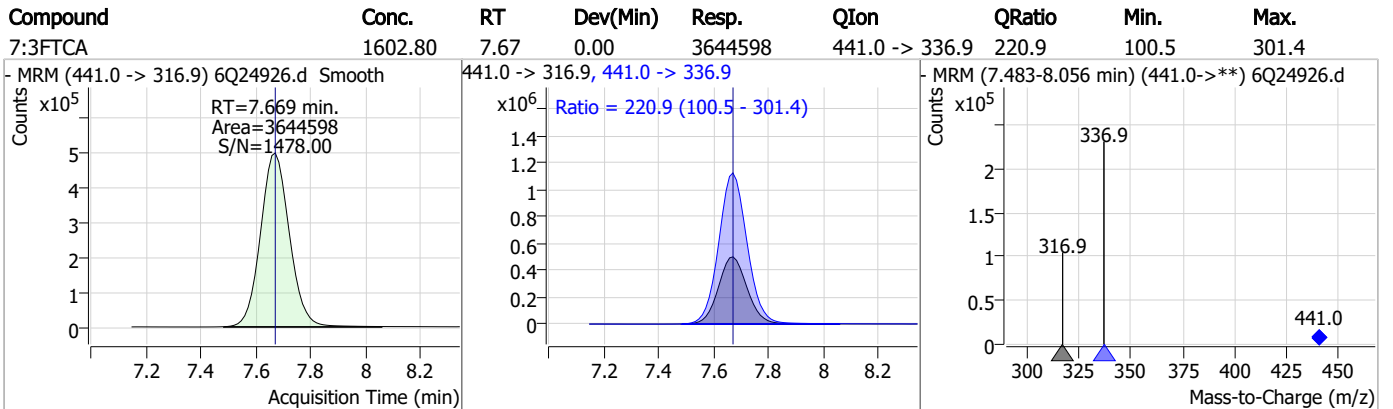
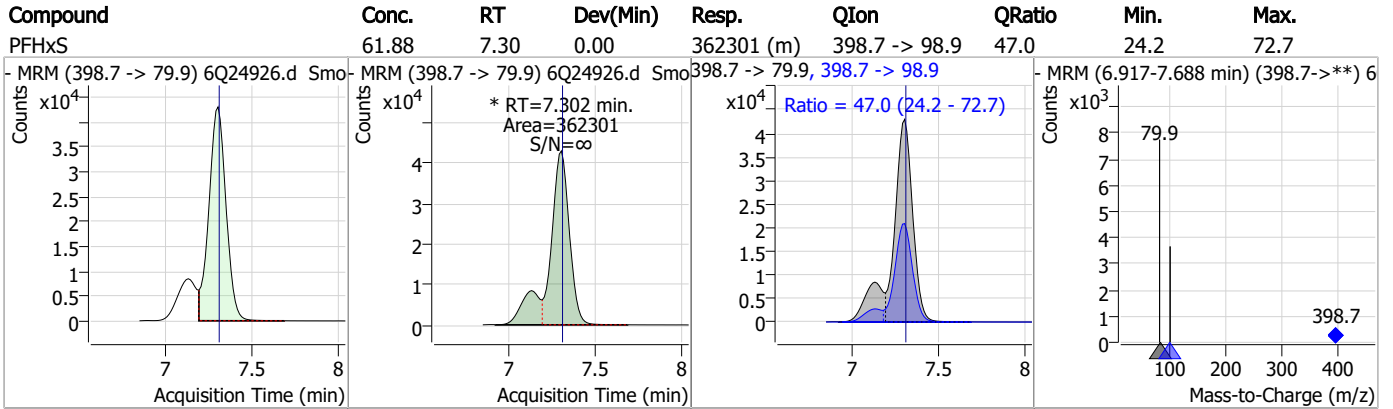


7.7.9

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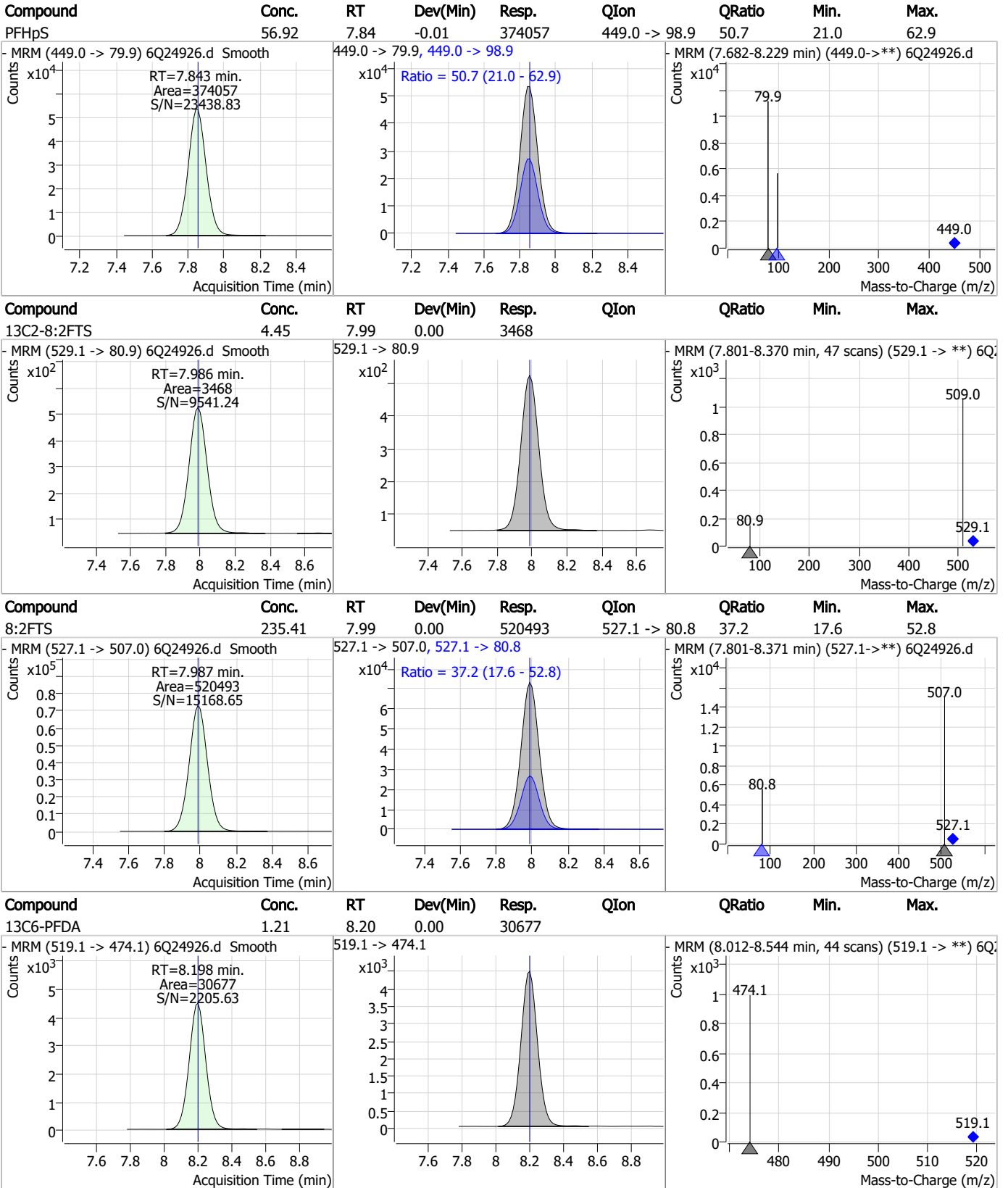
Perfluorinated Compounds by LC/MS/MS



7.7.9

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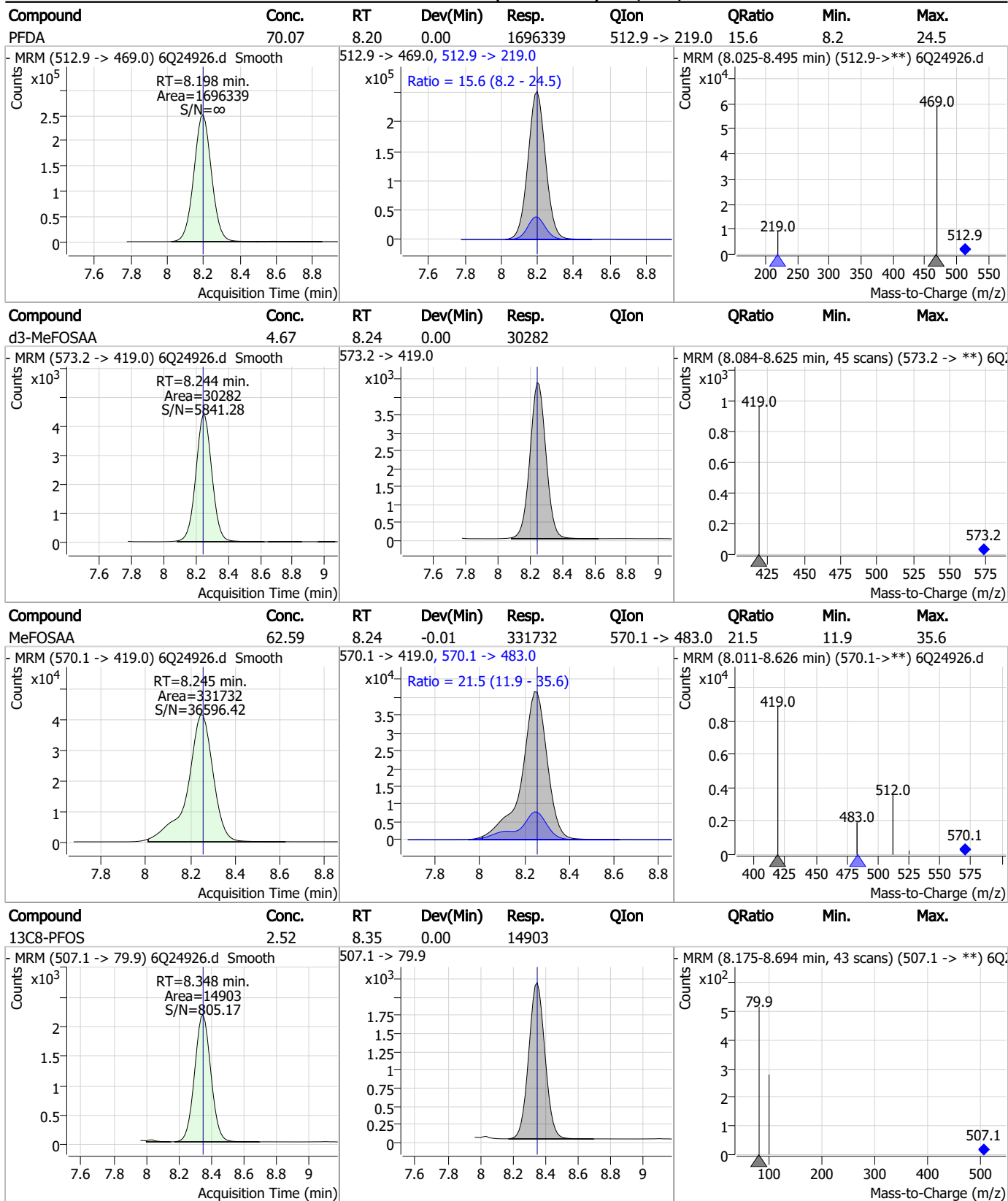
Perfluorinated Compounds by LC/MS/MS



7.7.9

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Perfluorinated Compounds by LC/MS/MS

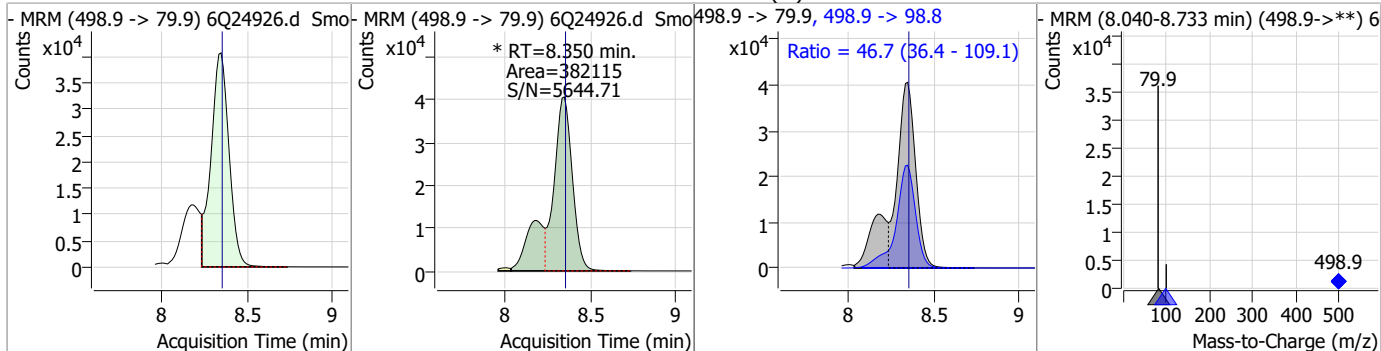


7.7.9

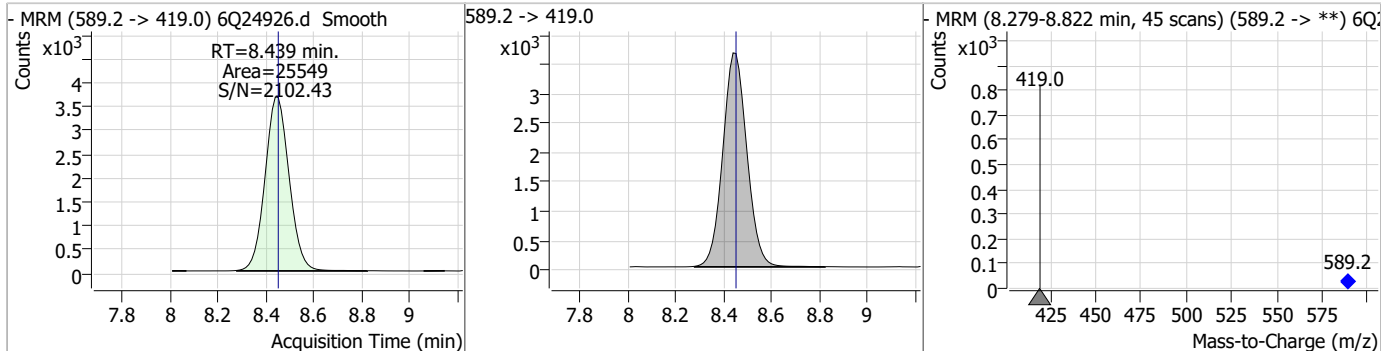
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Perfluorinated Compounds by LC/MS/MS

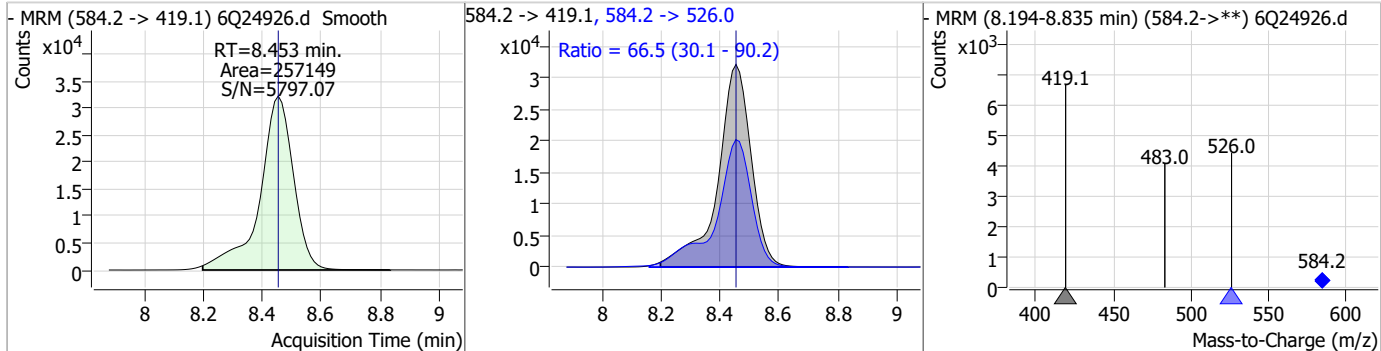
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	59.44	8.35	0.00	382115 (m)	498.9 -> 98.8	46.7	36.4	109.1



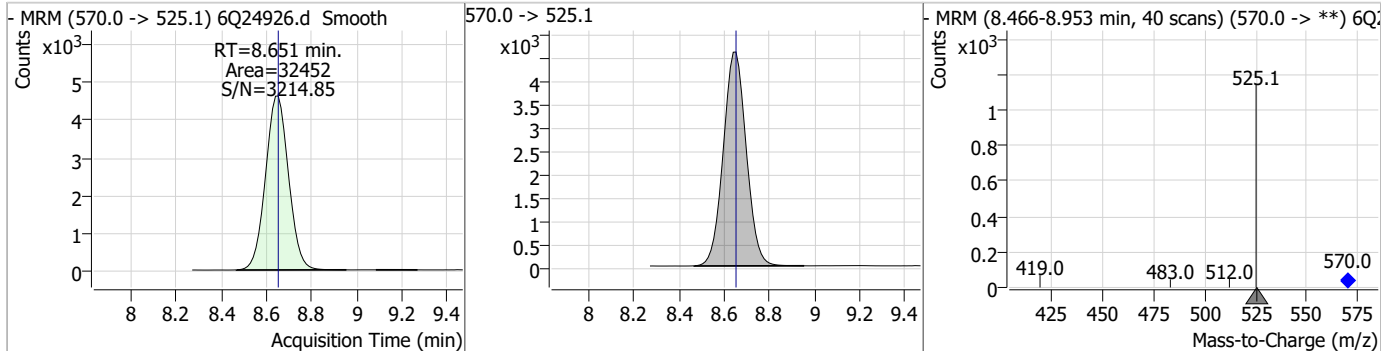
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.07	8.44	-0.01	25549				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	60.46	8.45	0.00	257149	584.2 -> 526.0	66.5	30.1	90.2

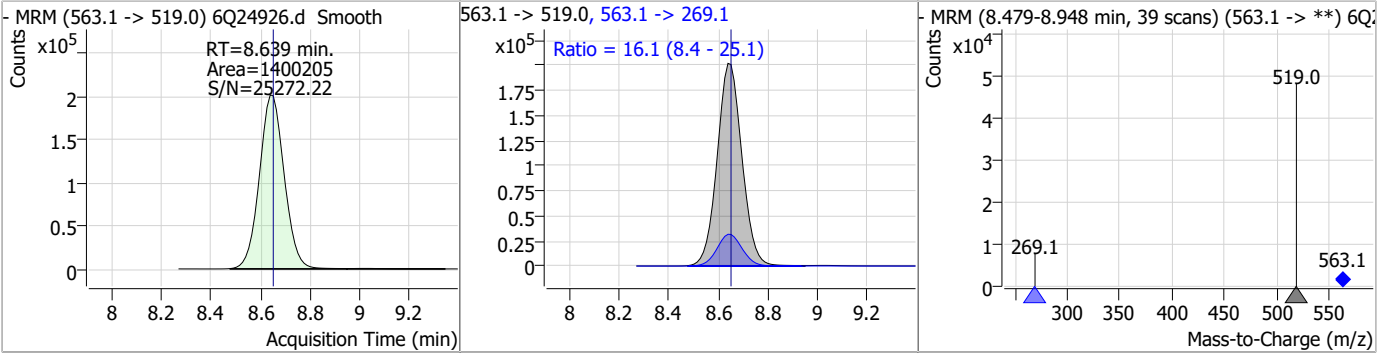


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.15	8.65	0.00	32452				

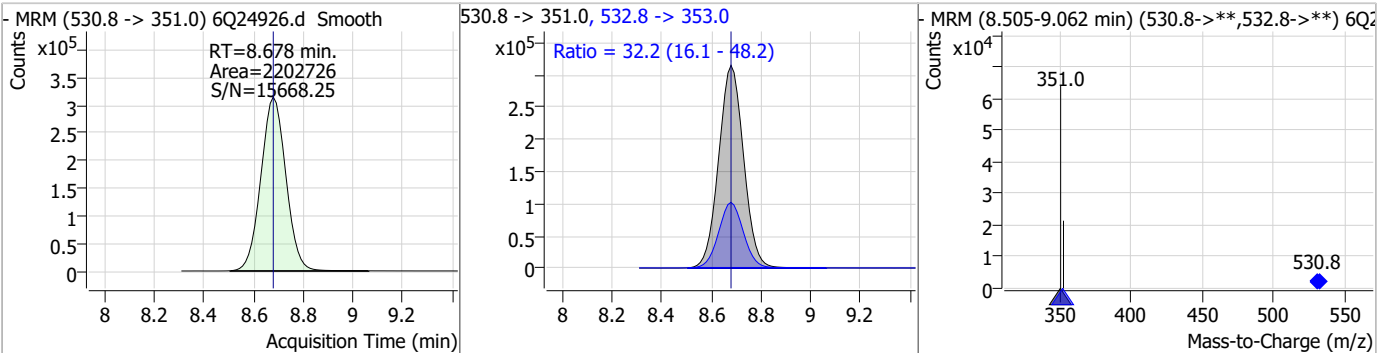


Perfluorinated Compounds by LC/MS/MS

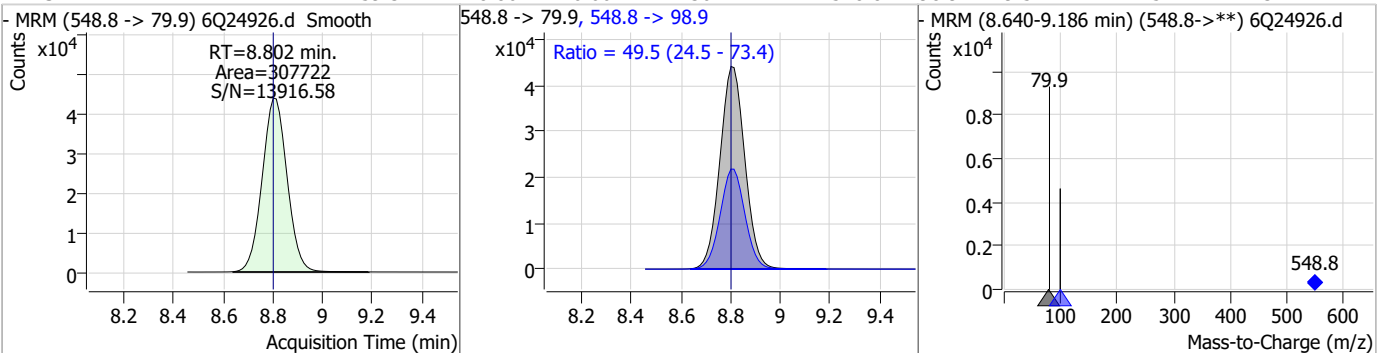
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	65.15	8.64	-0.01	1400205	563.1 -> 269.1	16.1	8.4	25.1



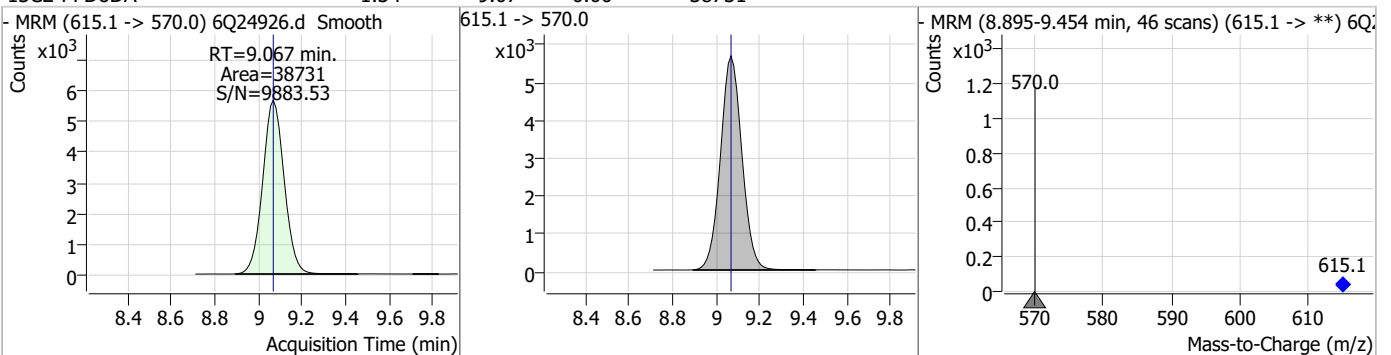
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	116.16	8.68	0.00	2202726	532.8 -> 353.0	32.2	16.1	48.2



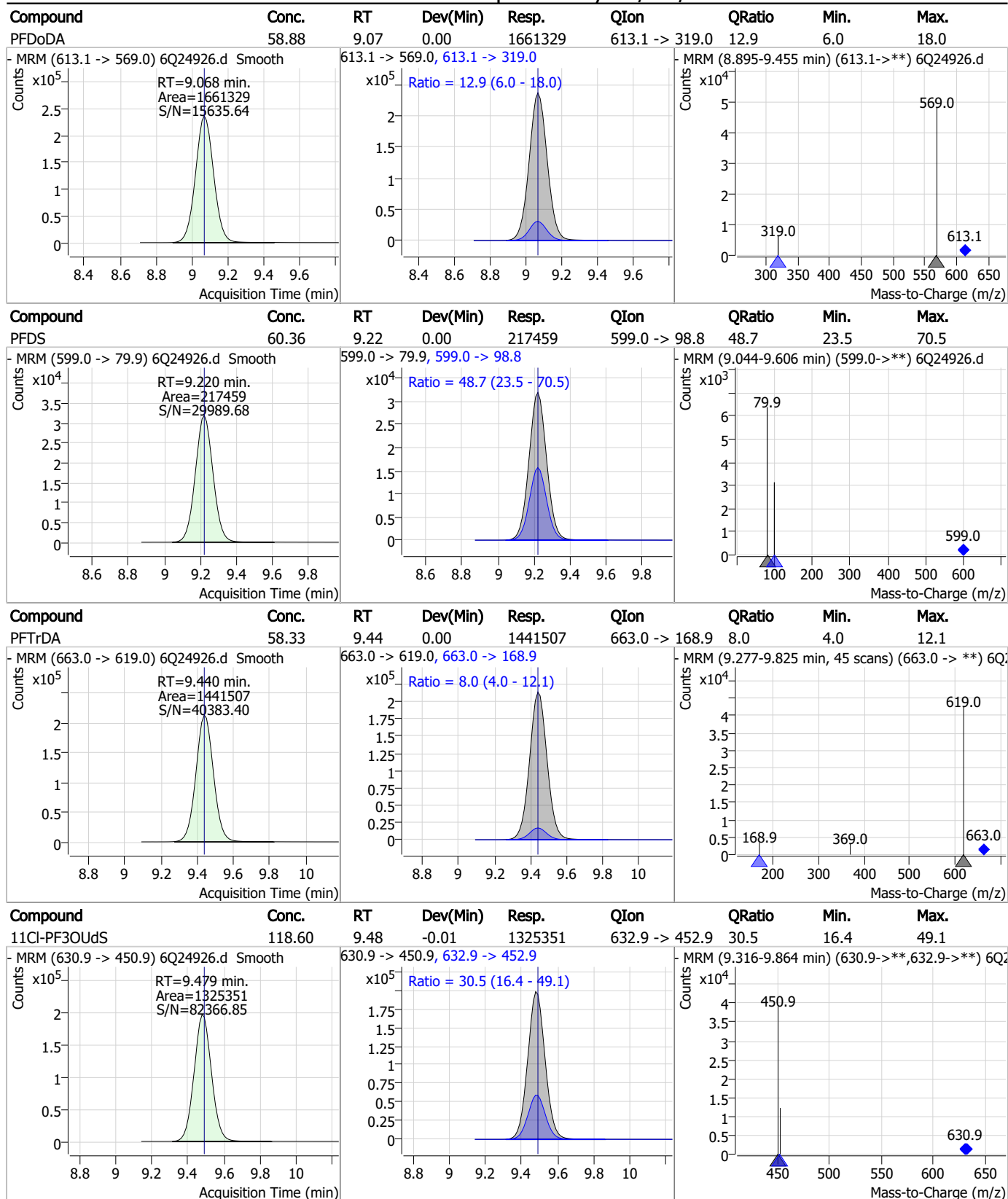
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	59.31	8.80	0.00	307722	548.8 -> 98.9	49.5	24.5	73.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.34	9.07	0.00	38731	615.1 -> 570.0	-	-	-

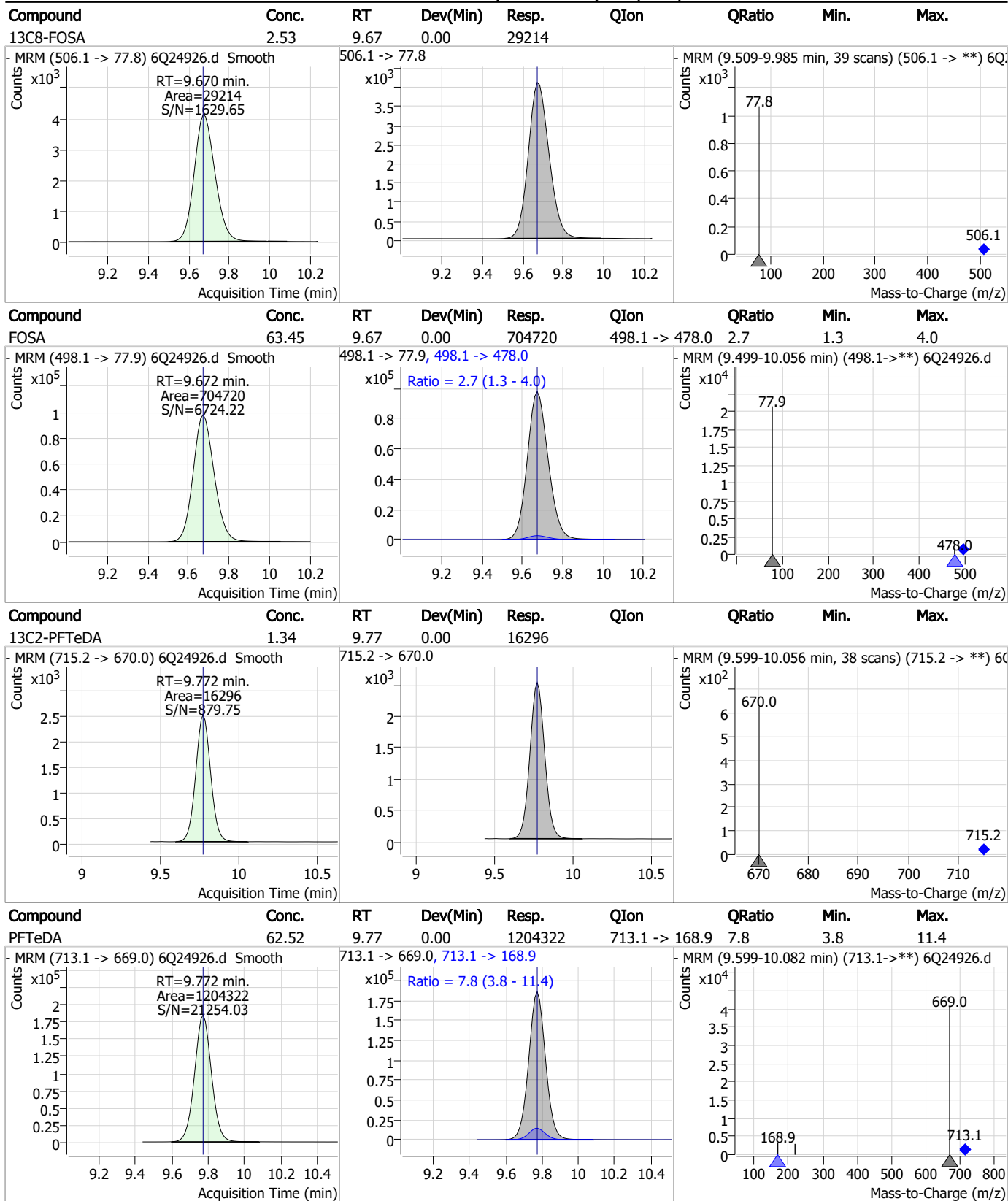


Perfluorinated Compounds by LC/MS/MS



7.7.9
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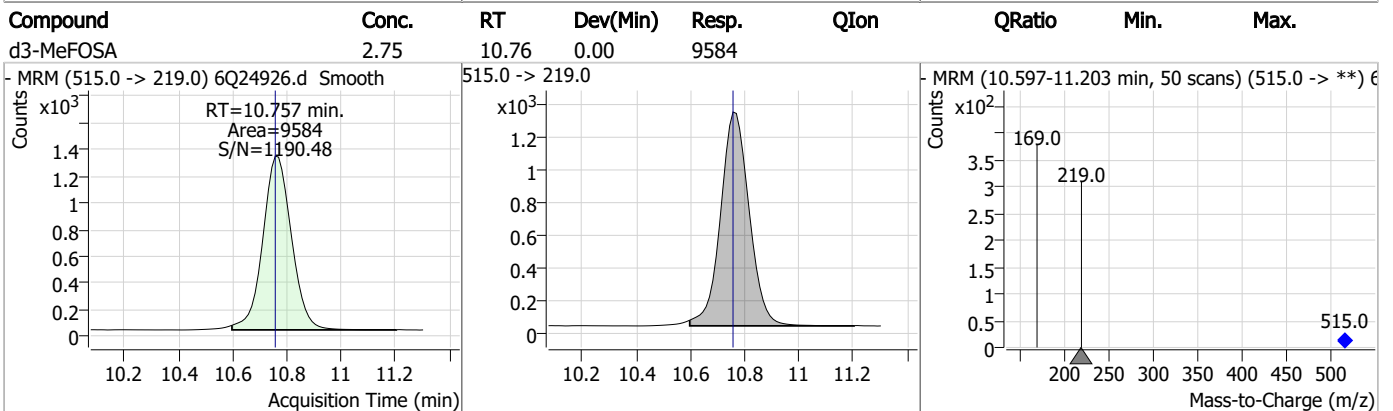
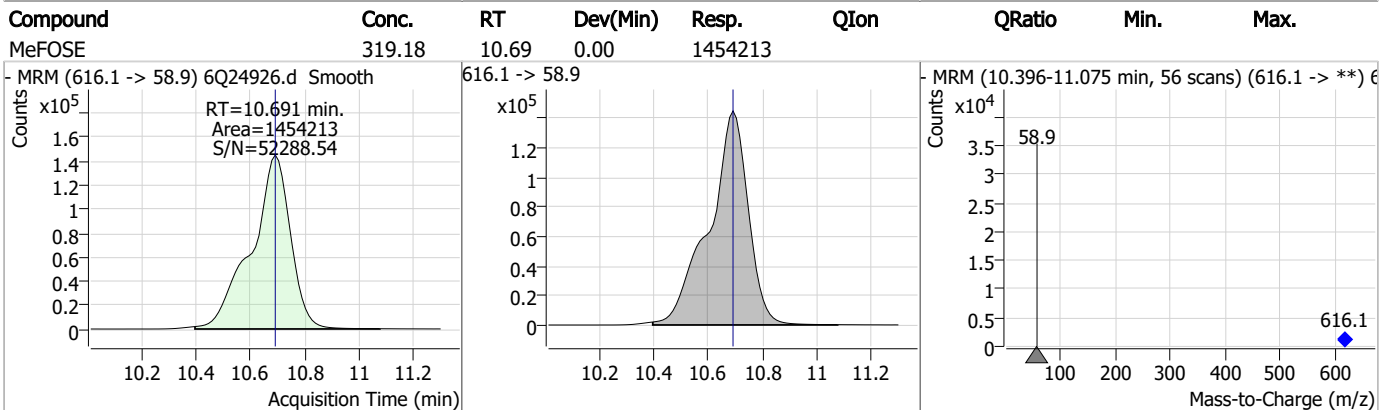
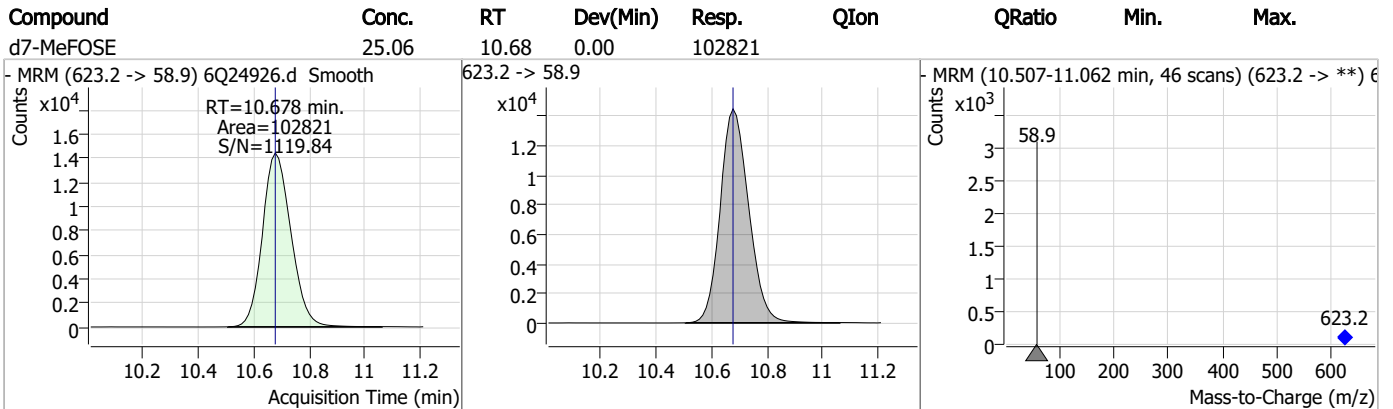
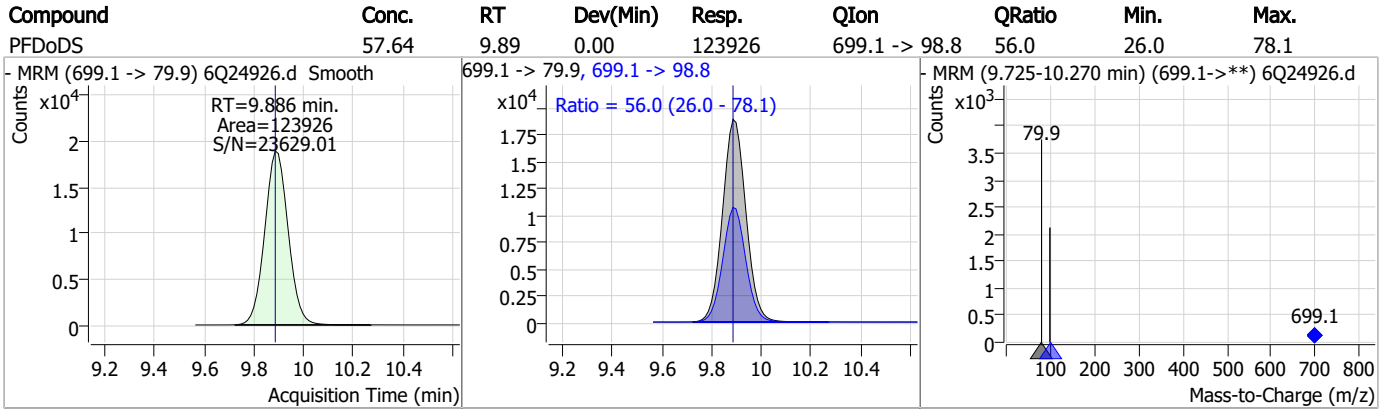
Perfluorinated Compounds by LC/MS/MS



7.7.9
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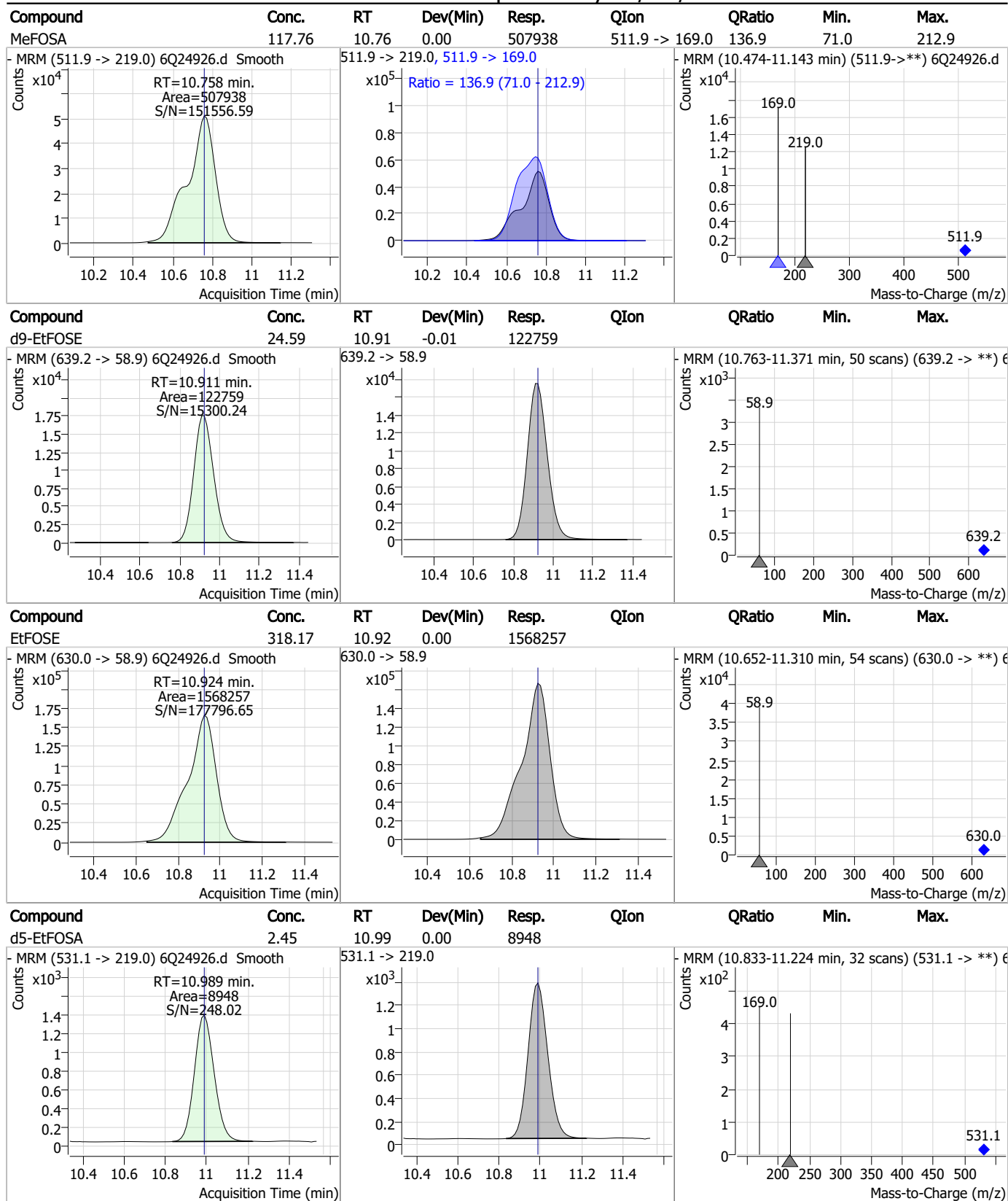
Perfluorinated Compounds by LC/MS/MS



7.7.9

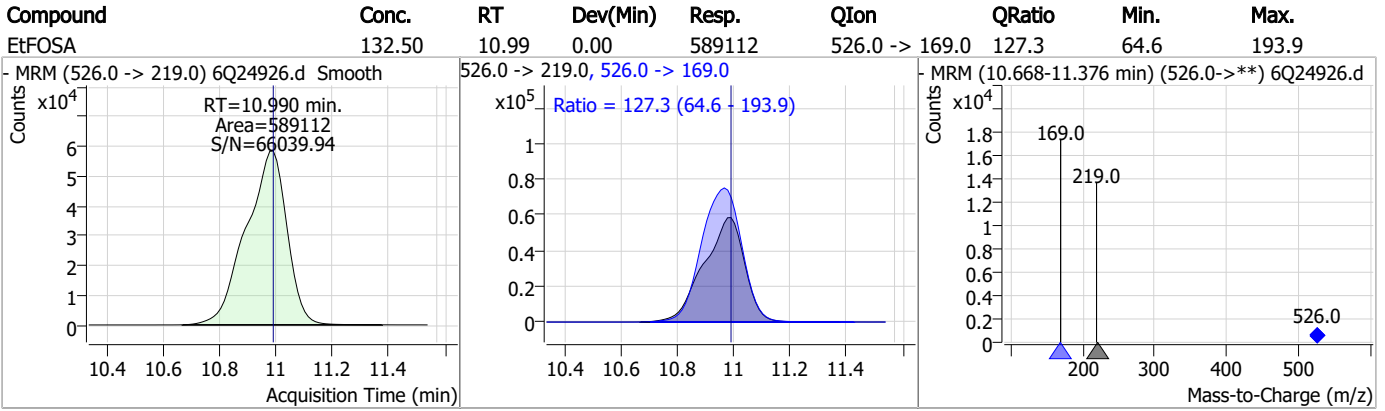
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Perfluorinated Compounds by LC/MS/MS



7.7.9
7

Perfluorinated Compounds by LC/MS/MS



7.7.9

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Manual Integration Approval Summary

Sample Number: S6Q356-IC356 Method: EPA DRAFT 1633
Lab FileID: 6Q24926.D Analyst approved: 09/25/23 14:50 Martha Valls
Injection Time: 09/24/23 16:40 Supervisor approved: 09/26/23 13:54 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

7.7.9.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24928.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/24/2023 5:09:01 PM
 Sample Name : icv356-4
 Vial : P1-B1
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	181593	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	72608	5.00 µg/L	0.000
M5-PFHxA	5.629	318.0 -> 273.0	64920	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	65517	2.50 µg/L	0.000
M8-PFOA	7.186	421.1 -> 376.0	84989	2.50 µg/L	-0.012
M9-PFNA	7.717	472.1 -> 427.0	34596	1.25 µg/L	0.000
M6-PFDA	8.185	519.1 -> 474.1	33955	1.25 µg/L	-0.012
M7-PFUnDA	8.639	570.0 -> 525.1	37298	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	39548	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	16068	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	30908	2.50 µg/L	0.000
M3-PFBS	5.546	302.1 -> 79.9	27640	2.50 µg/L	-0.013
M3-PFHxS	7.301	402.1 -> 79.9	17196	2.50 µg/L	0.000
M8-PFOS	8.336	507.1 -> 79.9	15687	2.50 µg/L	-0.013
M2-4:2FTS	5.304	329.1 -> 80.9	2782	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4520	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	4034	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	34715	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	44916	10.00 µg/L	0.000
M5-EtFOSAA	8.439	589.2 -> 419.0	25281	5.00 µg/L	-0.012
M7-MeFOSE	10.678	623.2 -> 58.9	102552	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	133002	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	9467	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9190	2.50 µg/L	0.000
13C4-PFOS	8.336	502.8 -> 79.9	14888	2.50 µg/L	-0.013
13C3-PFBA	2.976	216.0 -> 172.0	74677	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	10586	2.50 µg/L	0.000
13C4-PFOA	7.187	417.1 -> 372.0	102046	2.50 µg/L	-0.012
13C2-PFDA	8.186	515.1 -> 470.1	31882	1.25 µg/L	-0.012
13C5-PFNA	7.717	468.0 -> 423.0	34625	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	63877	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2782	5.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4520	5.25 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.0%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4034	4.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C2-PFDoDA	9.067	615.1 -> 570.0	39548	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.7%		
13C2-PFTeDA	9.772	715.2 -> 670.0	16068	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C3-PFBS	5.546	302.1 -> 79.9	27640	2.48 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C3-PFHxS	7.301	402.1 -> 79.9	17196	2.57 µg/L	0.000

7.7.10
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C4-PFBA	2.972	216.8 -> 171.9	181593	10.06 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C4-PFHpA	6.569	367.1 -> 322.0	65517	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C5-PFHxA	5.629	318.0 -> 273.0	64920	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C5-PFPeA	4.409	268.3 -> 223.0	72608	4.80 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C6-PFDA	8.185	519.1 -> 474.1	33955	1.27 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C7-PFUnDA	8.639	570.0 -> 525.1	37298	1.24 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C8-FOSA	9.670	506.1 -> 77.8	30908	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C8-PFOA	7.186	421.1 -> 376.0	84989	2.40 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C8-PFOS	8.336	507.1 -> 79.9	15687	2.44 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C9-PFNA	7.717	472.1 -> 427.0	34596	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.4%	
d3-MeFOSAA	8.244	573.2 -> 419.0	34715	4.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	44916	9.33 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.3%	
d3-MeFOSA	10.757	515.0 -> 219.0	9190	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.1%	
d5-EtFOSAA	8.439	589.2 -> 419.0	25281	4.61 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.2%	
d7-MeFOSE	10.678	623.2 -> 58.9	102552	22.96 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 91.8%	
d9-EtFOSE	10.923	639.2 -> 58.9	133002	24.48 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.9%	
d5-EtFOSA	10.989	531.1 -> 219.0	9467	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.1%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	44677	9.82 µg/L	98
		327.1 -> 80.9	18542		
6:2FTS	6.962	427.1 -> 407.0	38072	9.78 µg/L	98
		427.1 -> 80.9	16029		
8:2FTS	7.987	527.1 -> 507.0	26792	10.42 µg/L	96
		527.1 -> 80.8	10072		
EtFOSAA	8.452	584.2 -> 419.1	10518	2.50 µg/L	87
		584.2 -> 526.0	7320		
FOSA	9.672	498.1 -> 77.9	28700	2.44 µg/L	99
		498.1 -> 478.0	725		
MeFOSAA	8.245	570.1 -> 419.0	15775	2.60 µg/L	97
		570.1 -> 483.0	3518		
PFBA	2.981	212.8 -> 168.9	65480	10.10 µg/L	100
PFBS	5.547	298.7 -> 79.9	21085	2.34 µg/L	97
		298.7 -> 98.8	7503		
PFDA	8.198	512.9 -> 469.0	68460	2.56 µg/L	100
		512.9 -> 219.0	11266		
PFDODA	9.068	613.1 -> 569.0	77002	2.67 µg/L	100
		613.1 -> 319.0	9107		
PFDS	9.220	599.0 -> 79.9	9543	2.52 µg/L	96

7.7.10
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	4750			
PFHpA	6.569	363.1 -> 319.0	83767	2.36	µg/L	95
		363.1 -> 169.0	13539			
PFHpS	7.843	449.0 -> 79.9	16720	2.42	µg/L	93
		449.0 -> 98.9	7774			
PFHxA	5.631	313.0 -> 269.0	58201	2.50	µg/L	100
		313.0 -> 118.9	2869			
PFHxS	7.302	398.7 -> 79.9	15225	2.28	µg/L	m 97
		398.7 -> 98.9	7644			
PFNA	7.717	463.0 -> 419.0	54222	2.42	µg/L	89
		463.0 -> 219.0	14068			
PFNS	8.802	548.8 -> 79.9	13436	2.46	µg/L	95
		548.8 -> 98.9	7023			
PFOA	7.187	413.0 -> 369.0	85318	2.34	µg/L	96
		413.0 -> 169.0	16806			
PFOS	8.337	498.9 -> 79.9	16143	2.39	µg/L	m 68
		498.9 -> 98.8	7371			
PFPeA	4.411	263.0 -> 219.0	75135	5.14	µg/L	100
PFPeS	6.608	349.1 -> 79.9	21749	2.33	µg/L	99
		349.1 -> 98.9	9733			
PFTeDA	9.772	713.1 -> 669.0	49003	2.58	µg/L	99
		713.1 -> 168.9	3888			
PFTrDA	9.440	663.0 -> 619.0	67633	2.68	µg/L	99
		663.0 -> 168.9	5651			
PFUnDA	8.639	563.1 -> 519.0	67347	2.73	µg/L	94
		563.1 -> 269.1	9636			
11CI-PF3OUdS	9.491	630.9 -> 450.9	58618	4.99	µg/L	97
		632.9 -> 452.9	18085			
9CI-PF3ONS	8.678	530.8 -> 351.0	103381	5.18	µg/L	96
		532.8 -> 353.0	30931			
ADONA	6.804	376.9 -> 250.9	280766	5.09	µg/L	96
		376.9 -> 84.8	76234			
HFPO-DA	6.007	284.9 -> 168.9	23235	5.26	µg/L	98
		284.9 -> 184.9	2236			
3:3FTCA	3.846	241.0 -> 177.0	12780	12.14	µg/L	100
		241.0 -> 117.0	1534			
5:3FTCA	6.271	341.0 -> 237.1	277468	63.34	µg/L	96
		341.0 -> 217.0	183849			
7:3FTCA	7.669	441.0 -> 316.9	154168	62.12	µg/L	92
		441.0 -> 336.9	329562			
EtFOSA	10.990	526.0 -> 219.0	24542	5.22	µg/L	99
		526.0 -> 169.0	31311			
EtFOSE	10.924	630.0 -> 58.9	65642	12.29	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	20790	5.03	µg/L	99
		511.9 -> 169.0	29171			
MeFOSE	10.691	616.1 -> 58.9	61091	13.44	µg/L	100
PFDoDS	9.886	699.1 -> 79.9	5835	2.58	µg/L	99
		699.1 -> 98.8	3089			
NFDHA	5.512	295.0 -> 201.0	15092	5.04	µg/L	100
		295.0 -> 84.9	4002			
PFMBA	4.838	279.0 -> 85.1	59763	5.09	µg/L	100
PFMPA	3.538	229.0 -> 84.9	44220	5.07	µg/L	100
PFEESA	6.100	314.8 -> 134.9	126799	4.38	µg/L	100
		314.8 -> 82.9	4804			

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

7.7.10
7

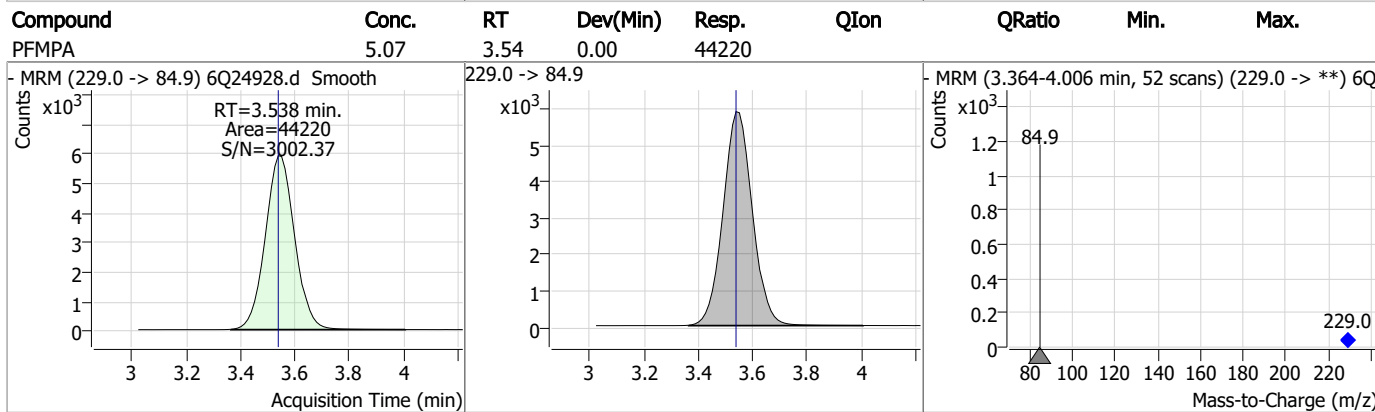
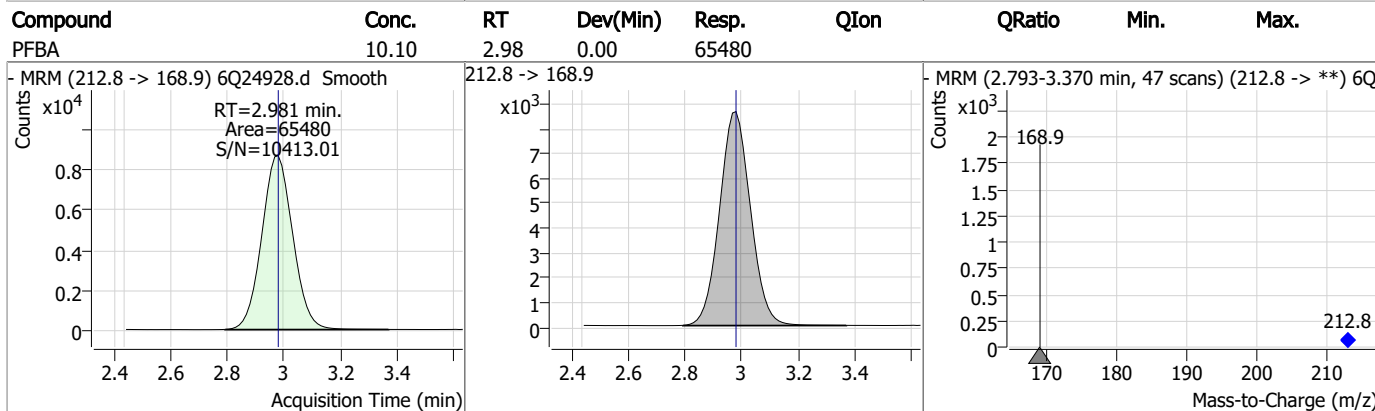
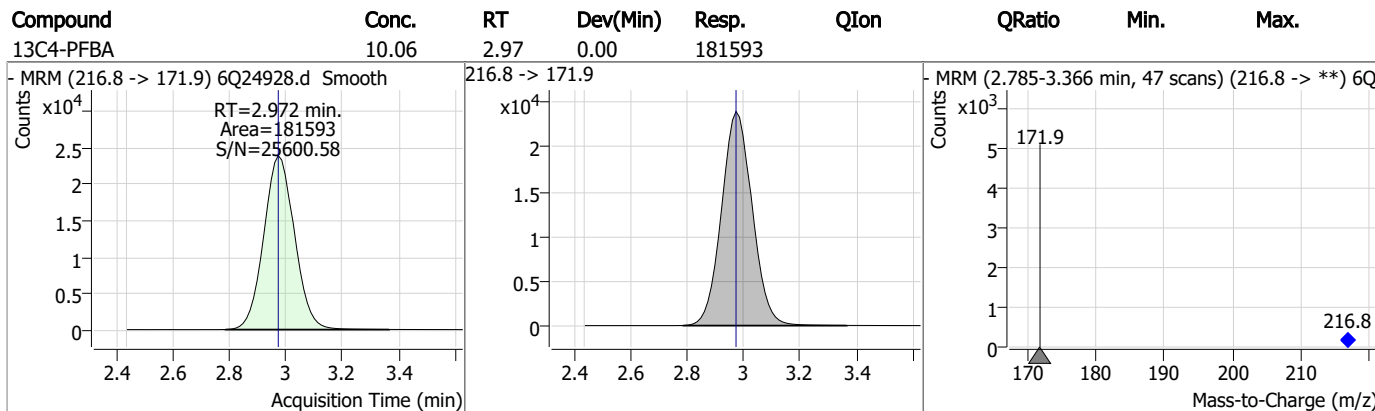
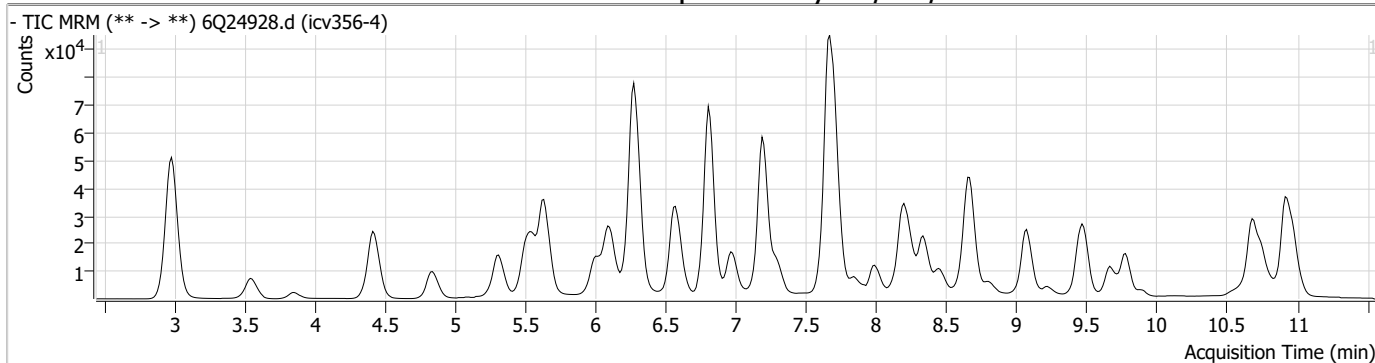
Perfluorinated Compounds by LC/MS/MS

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

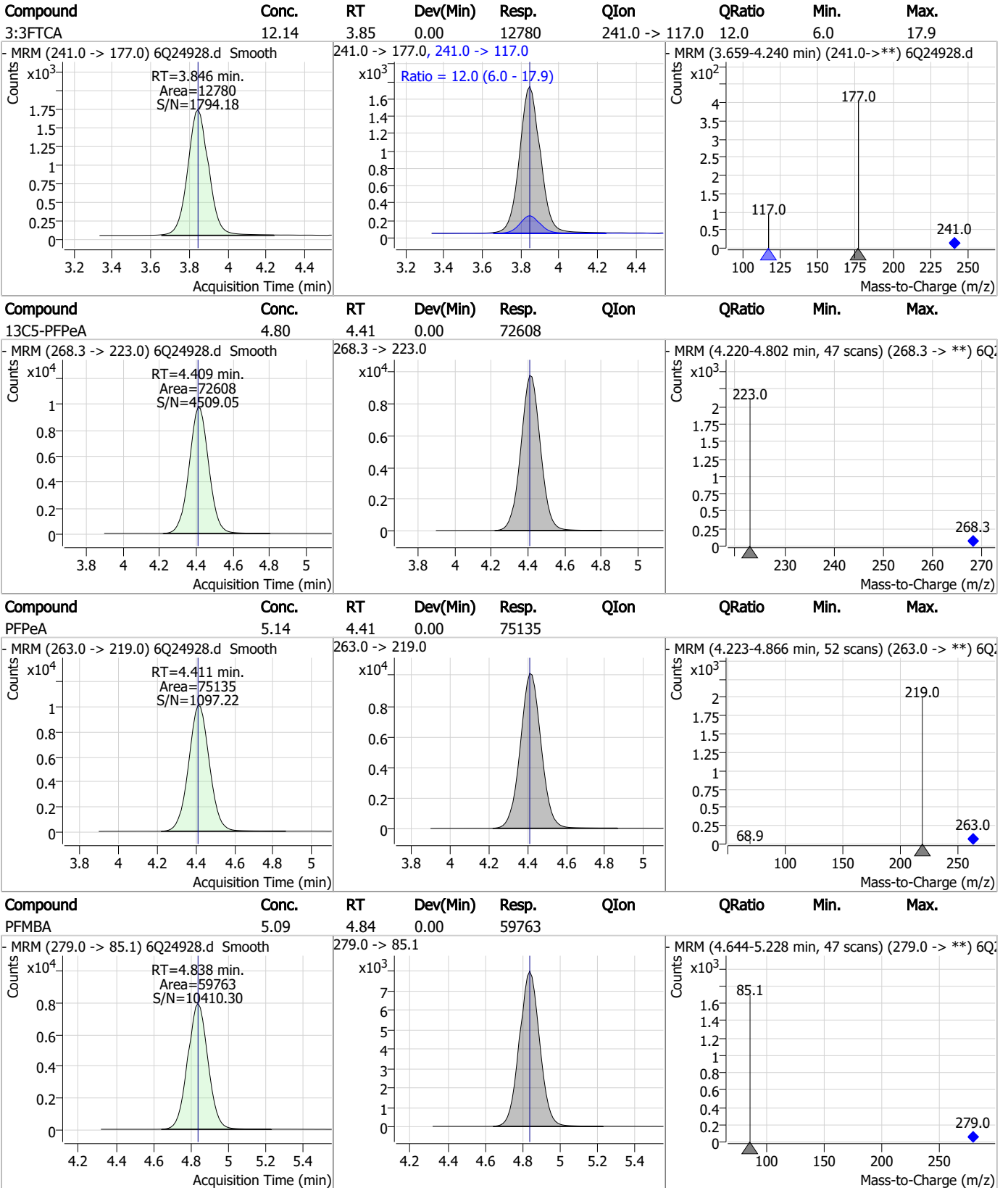
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Perfluorinated Compounds by LC/MS/MS



7.7.10
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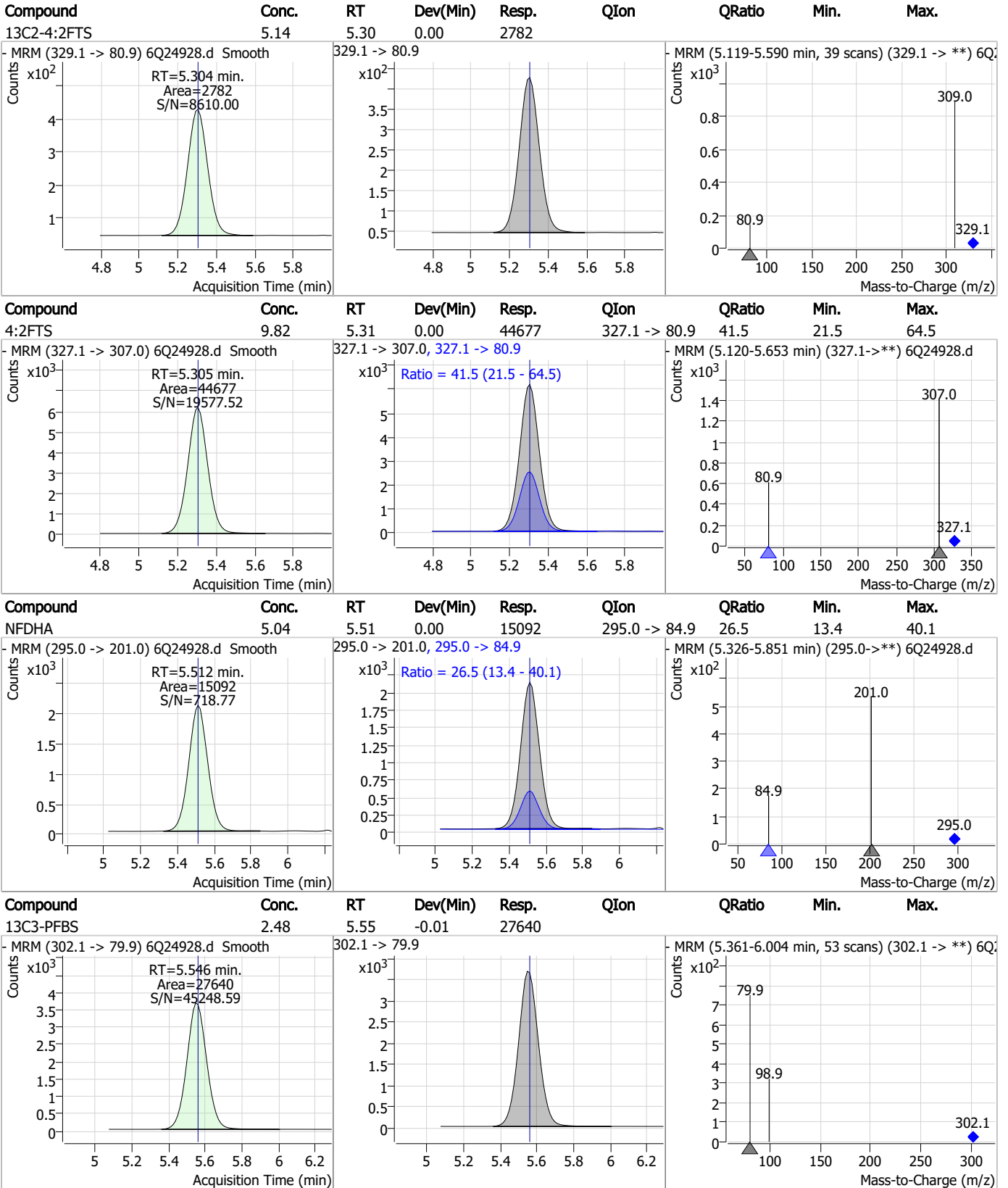
Perfluorinated Compounds by LC/MS/MS



7.7.10 7



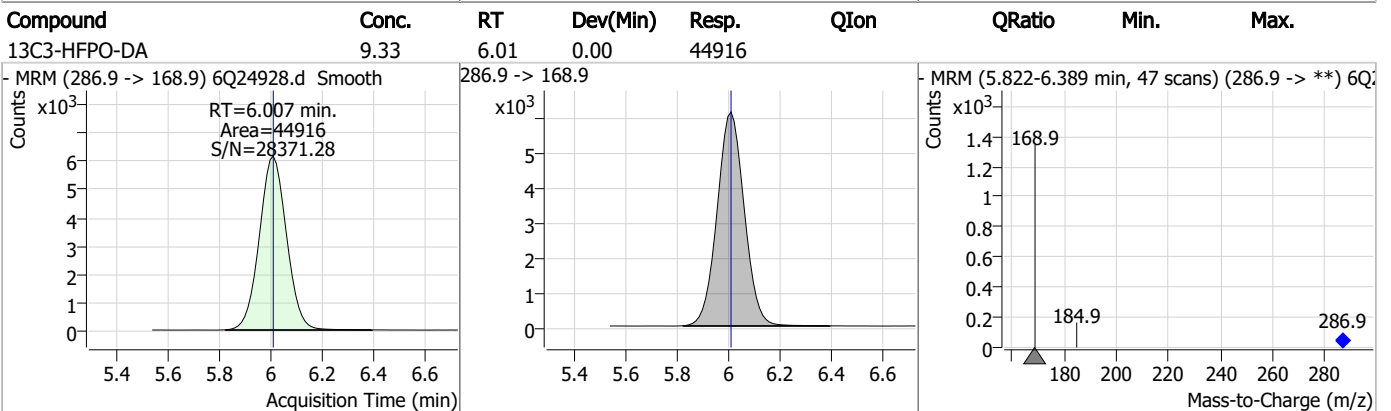
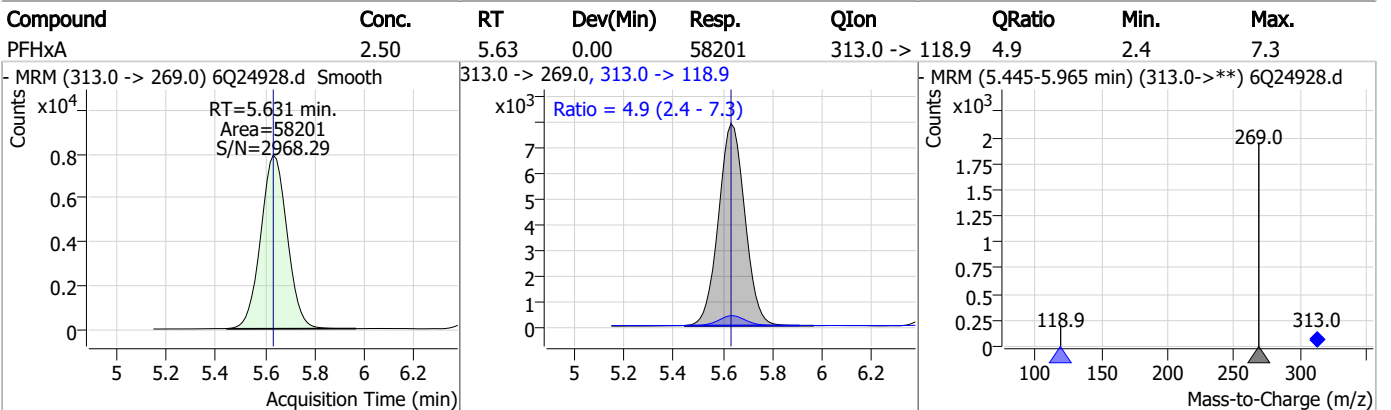
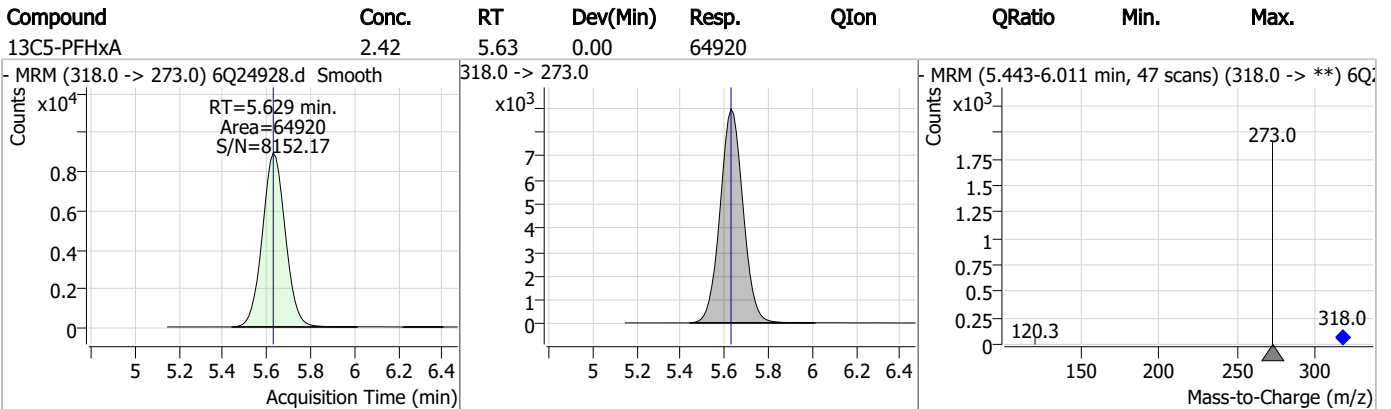
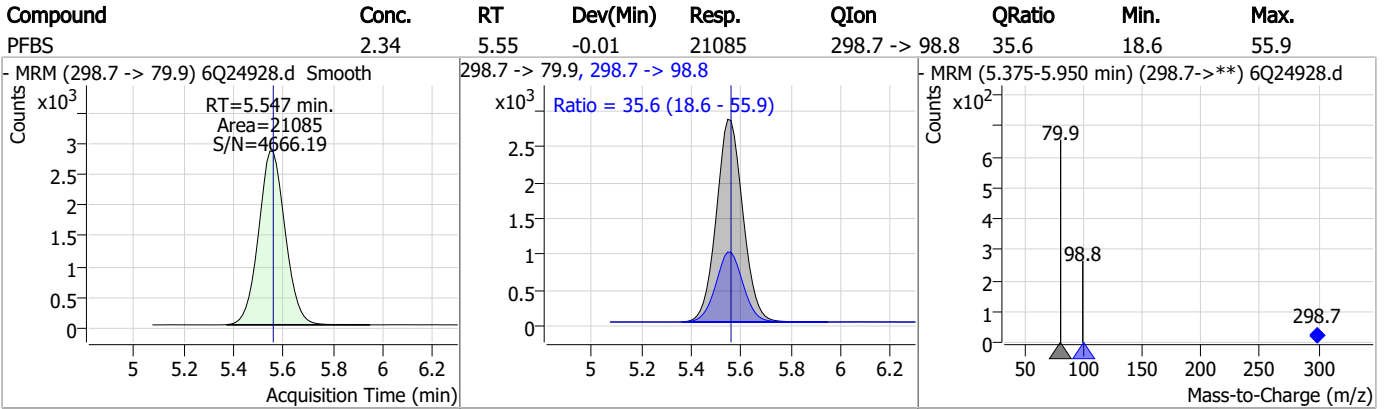
Perfluorinated Compounds by LC/MS/MS



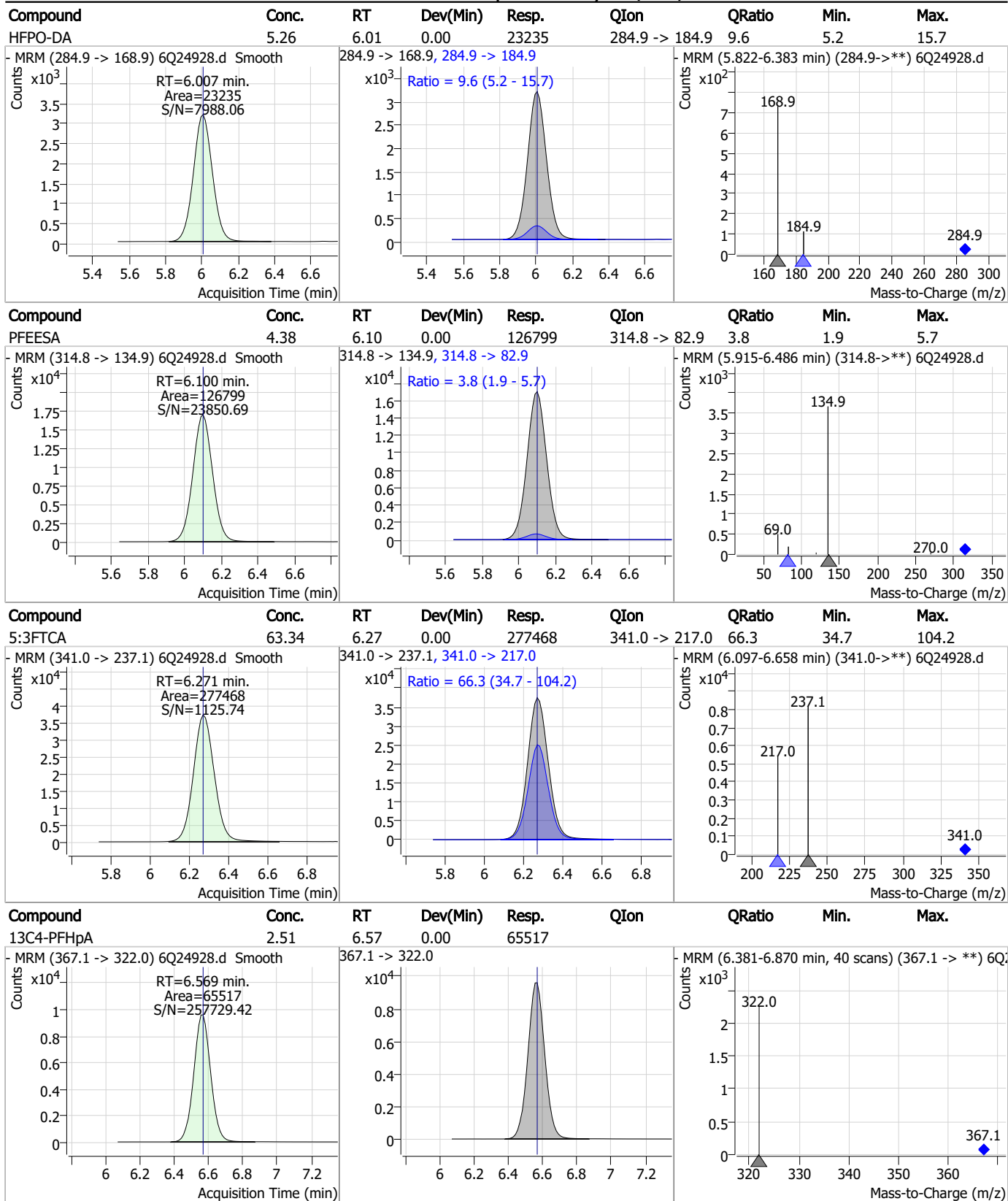
7.7.10 7



Perfluorinated Compounds by LC/MS/MS

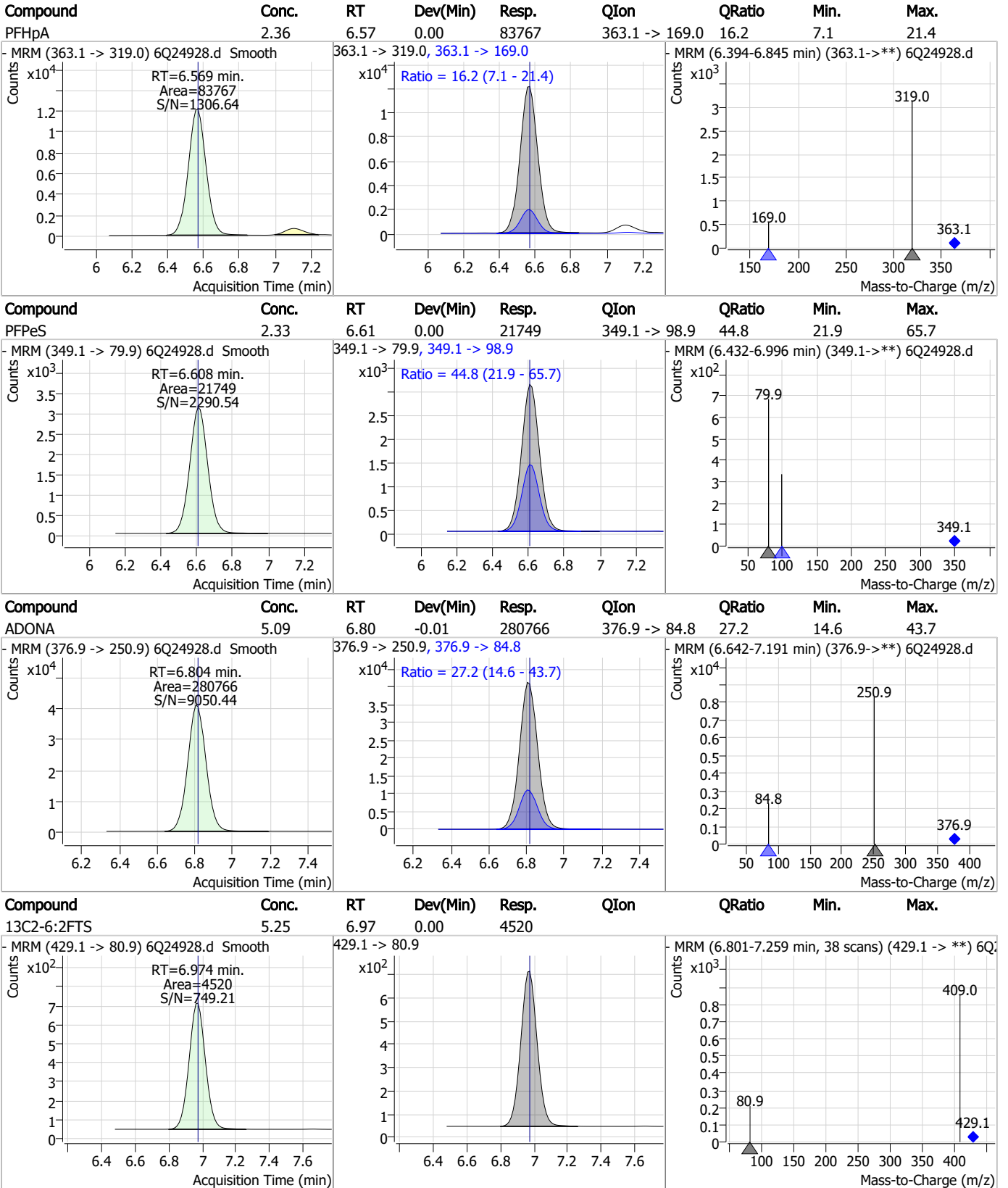


Perfluorinated Compounds by LC/MS/MS



7.7.10
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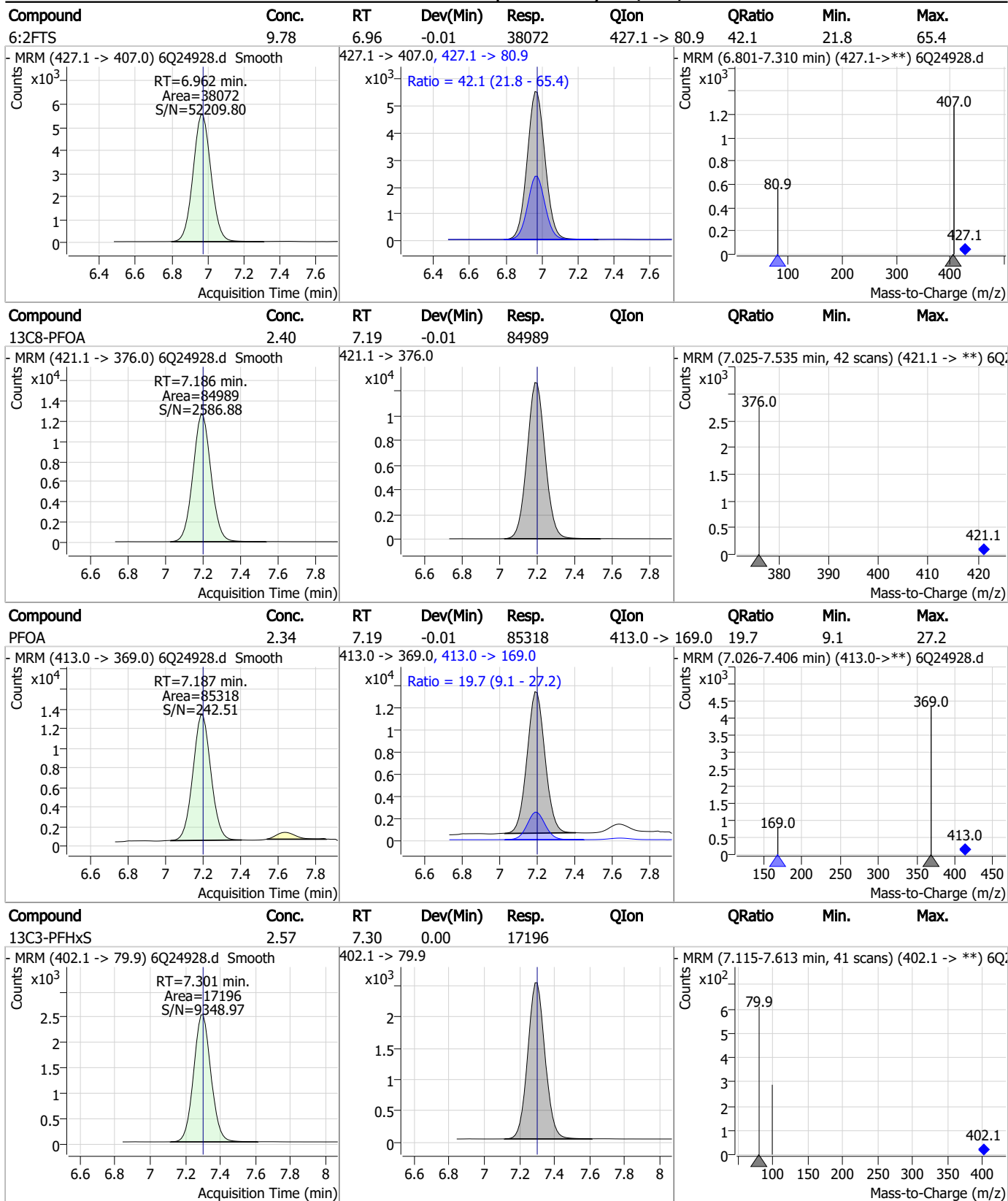
Perfluorinated Compounds by LC/MS/MS



7.7.10 7

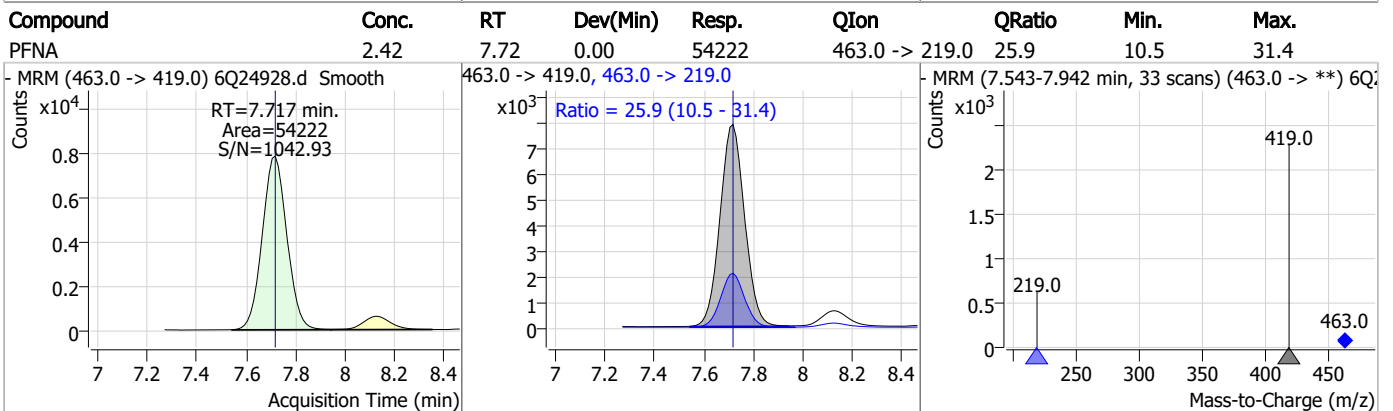
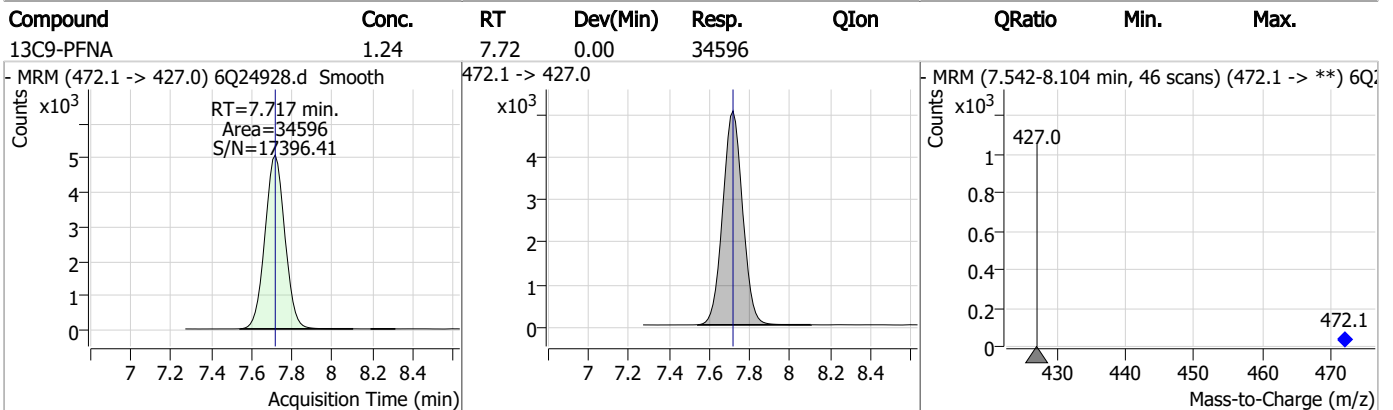
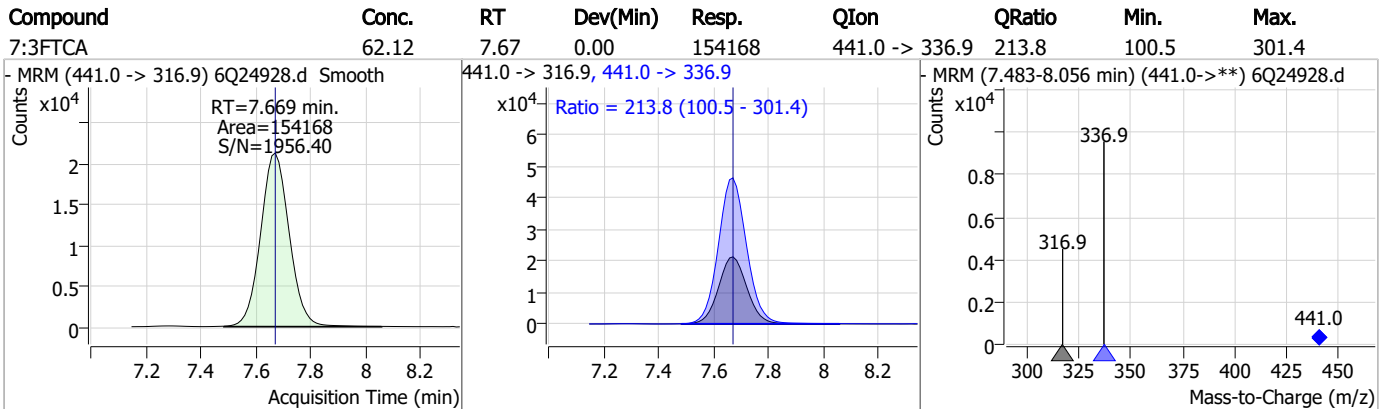
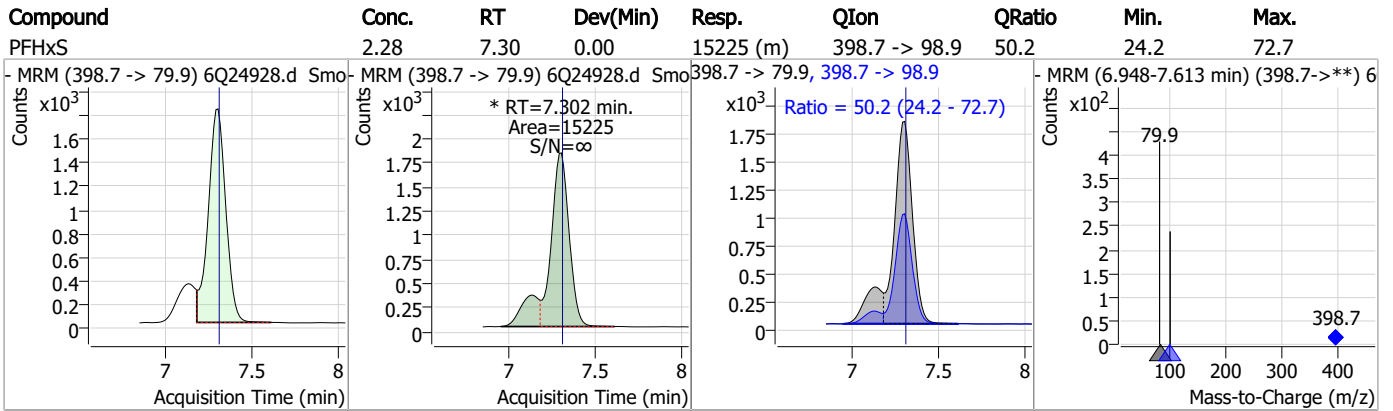


Perfluorinated Compounds by LC/MS/MS



7.7.10
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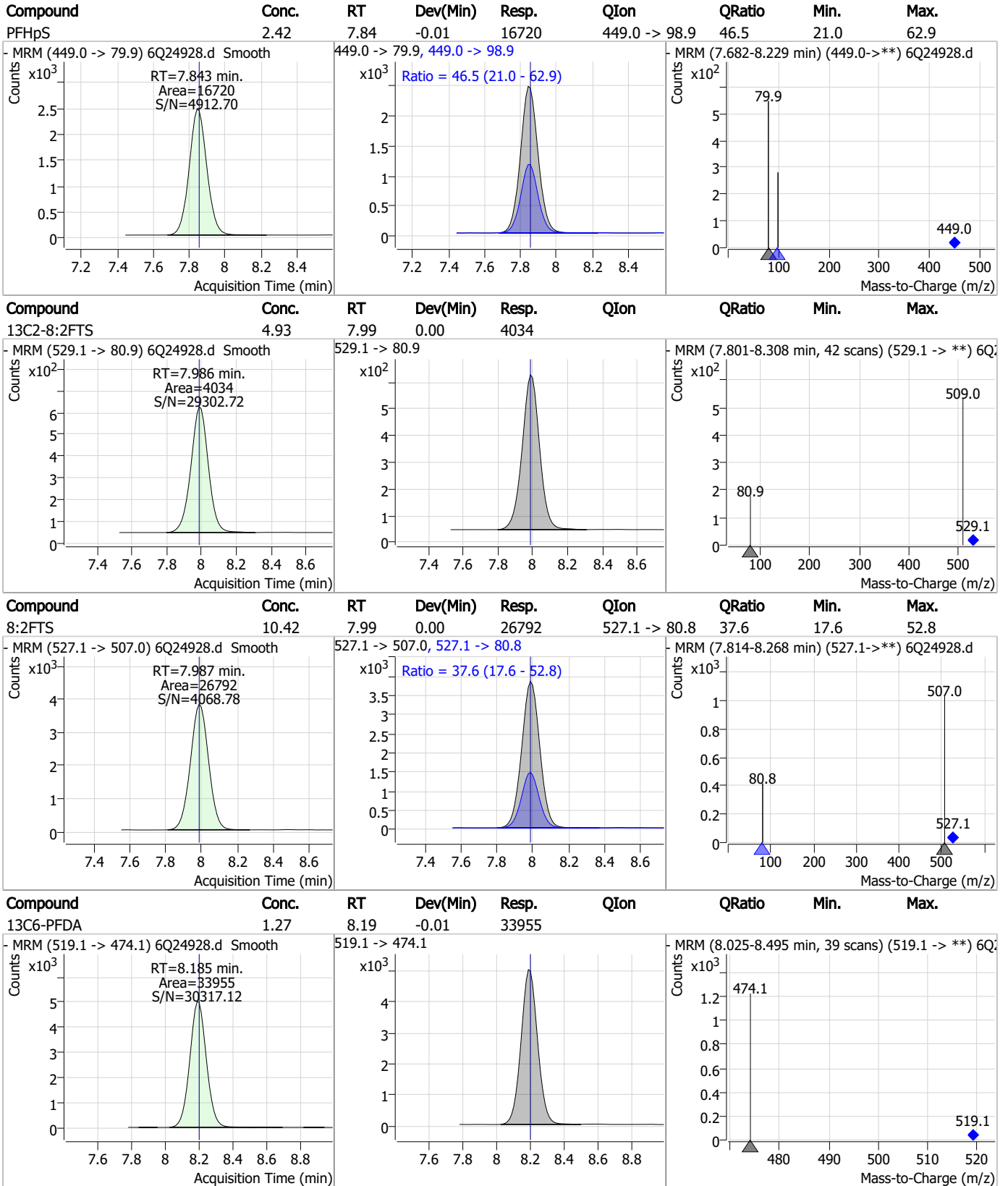
Perfluorinated Compounds by LC/MS/MS



7.7.10 7

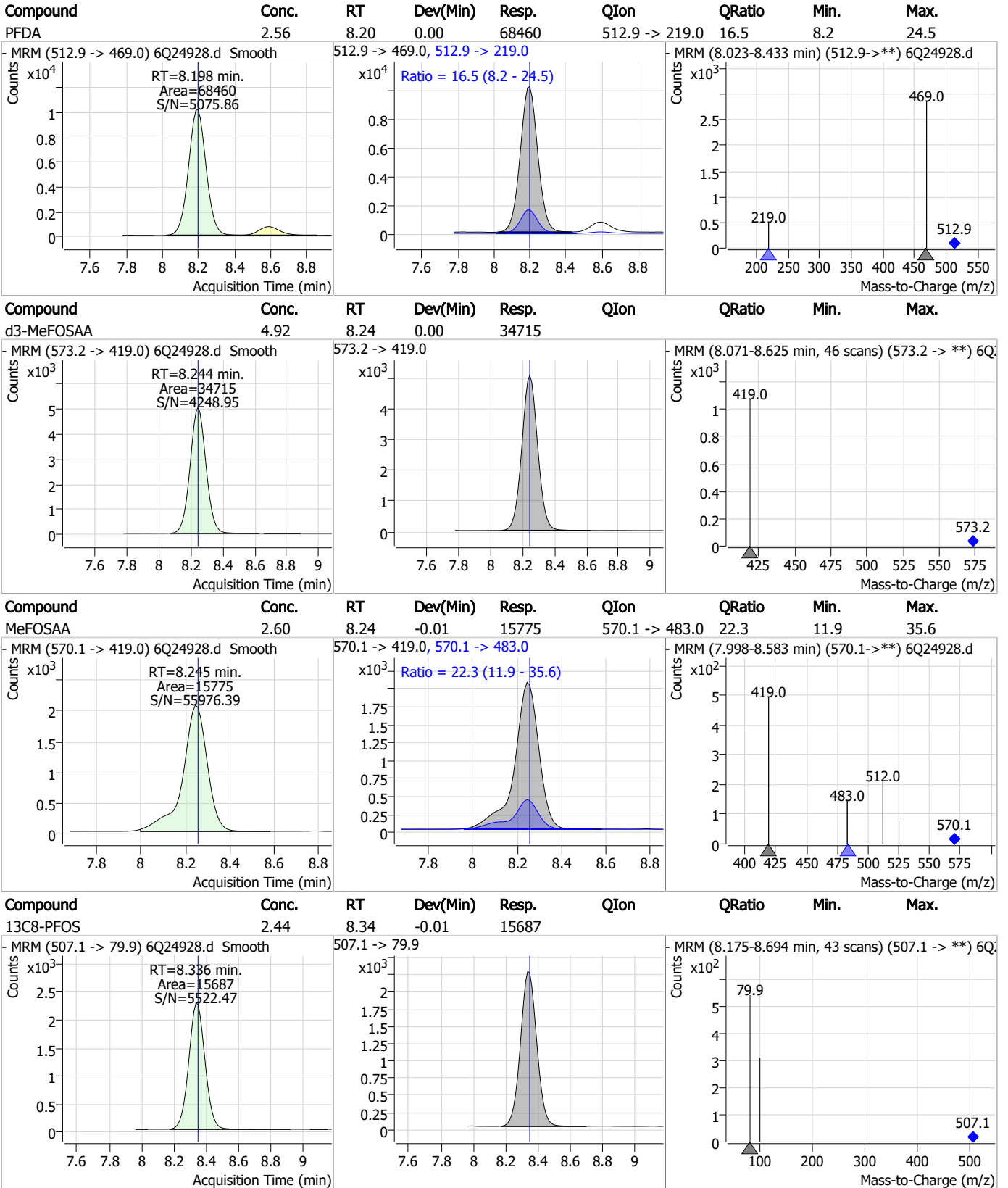


Perfluorinated Compounds by LC/MS/MS



7.7.10 7

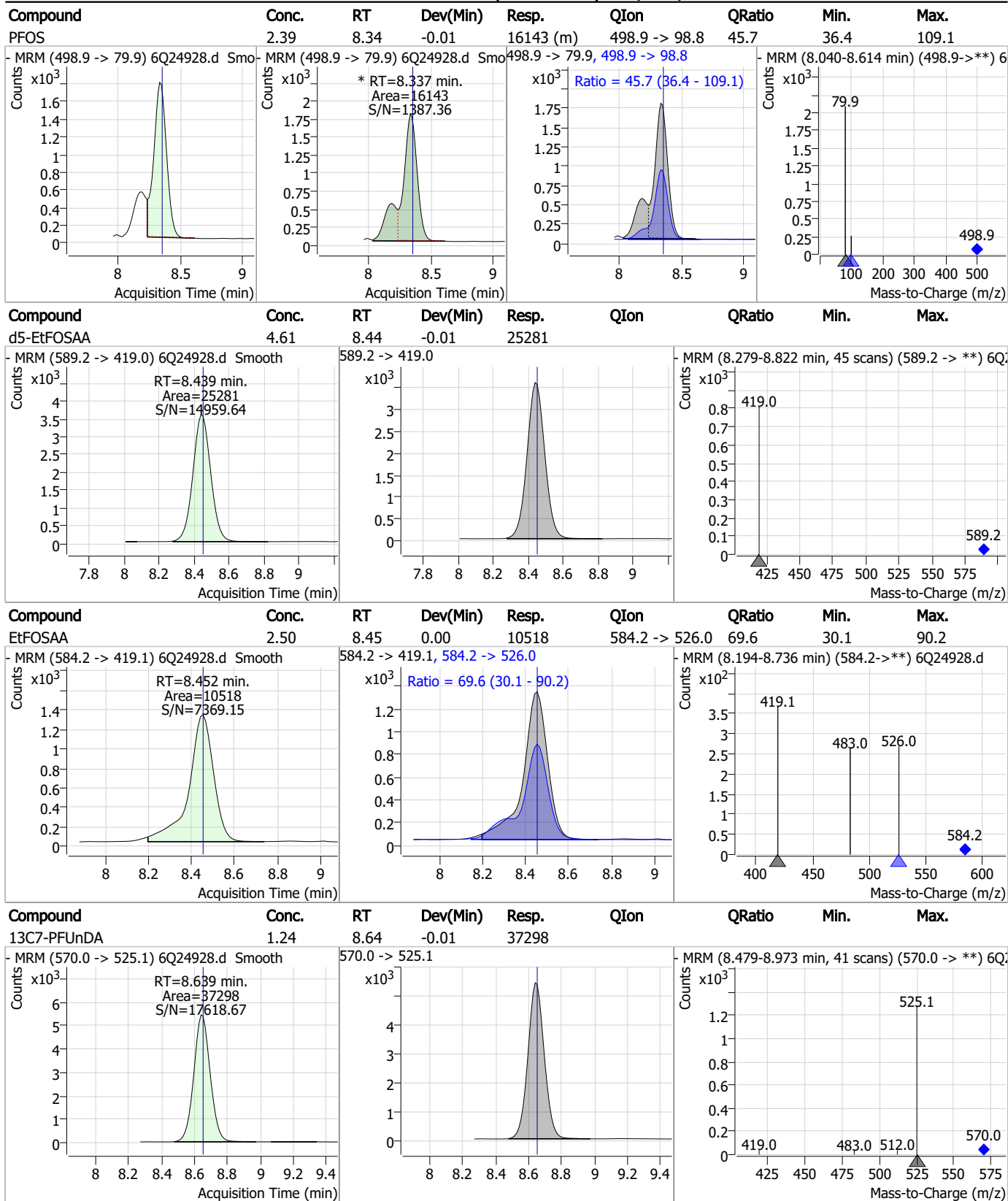
Perfluorinated Compounds by LC/MS/MS



7.7.10 7

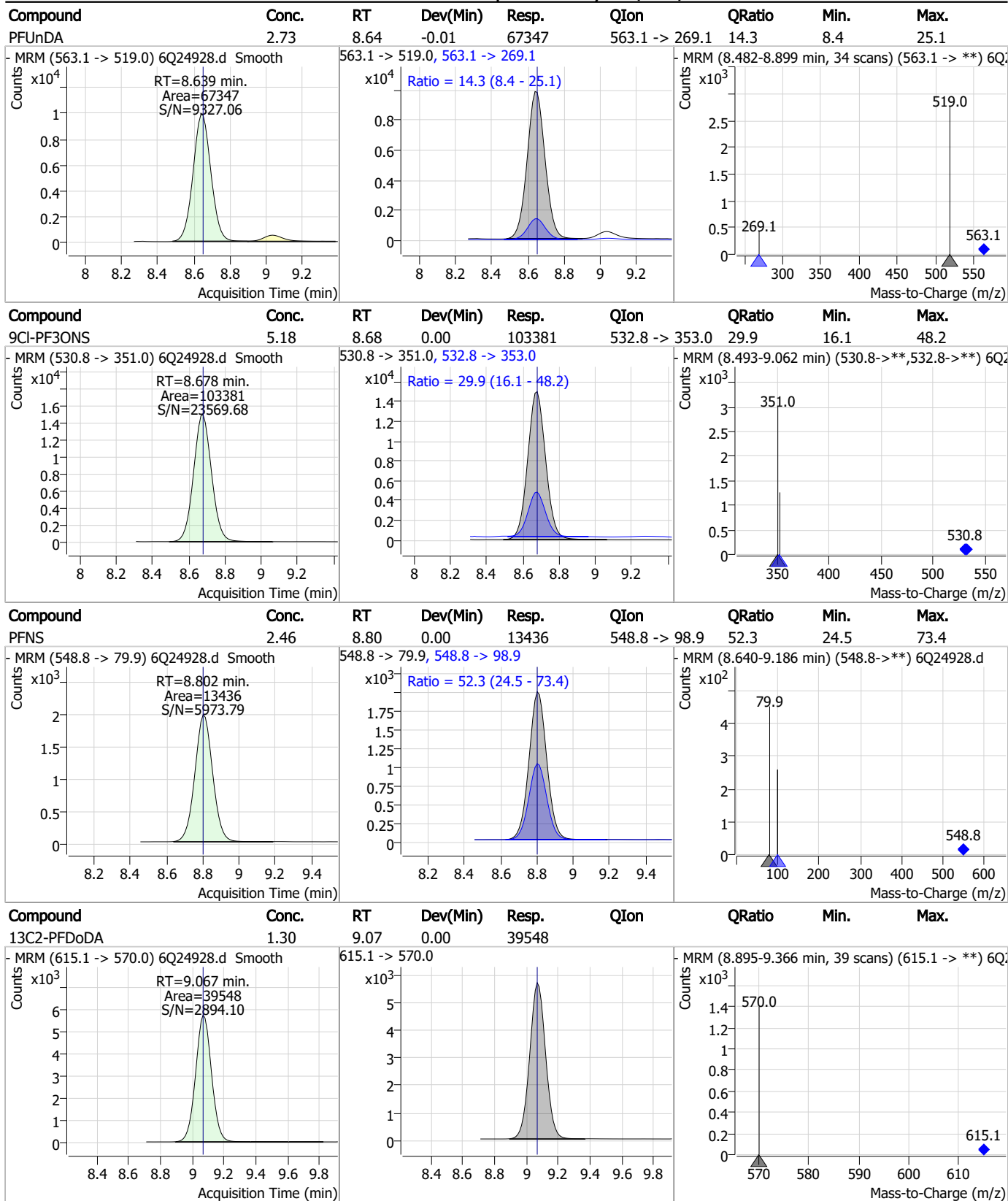


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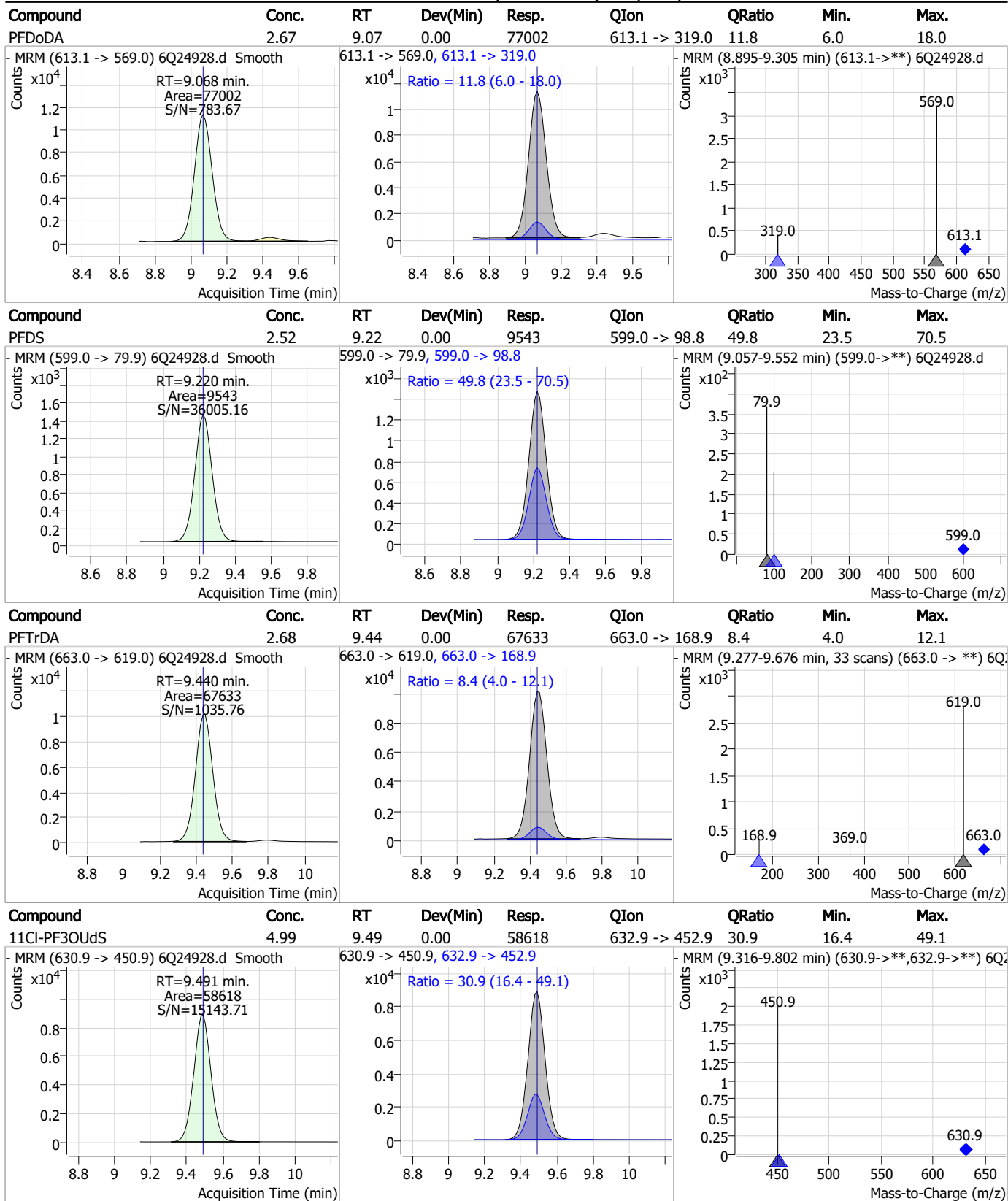
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Perfluorinated Compounds by LC/MS/MS



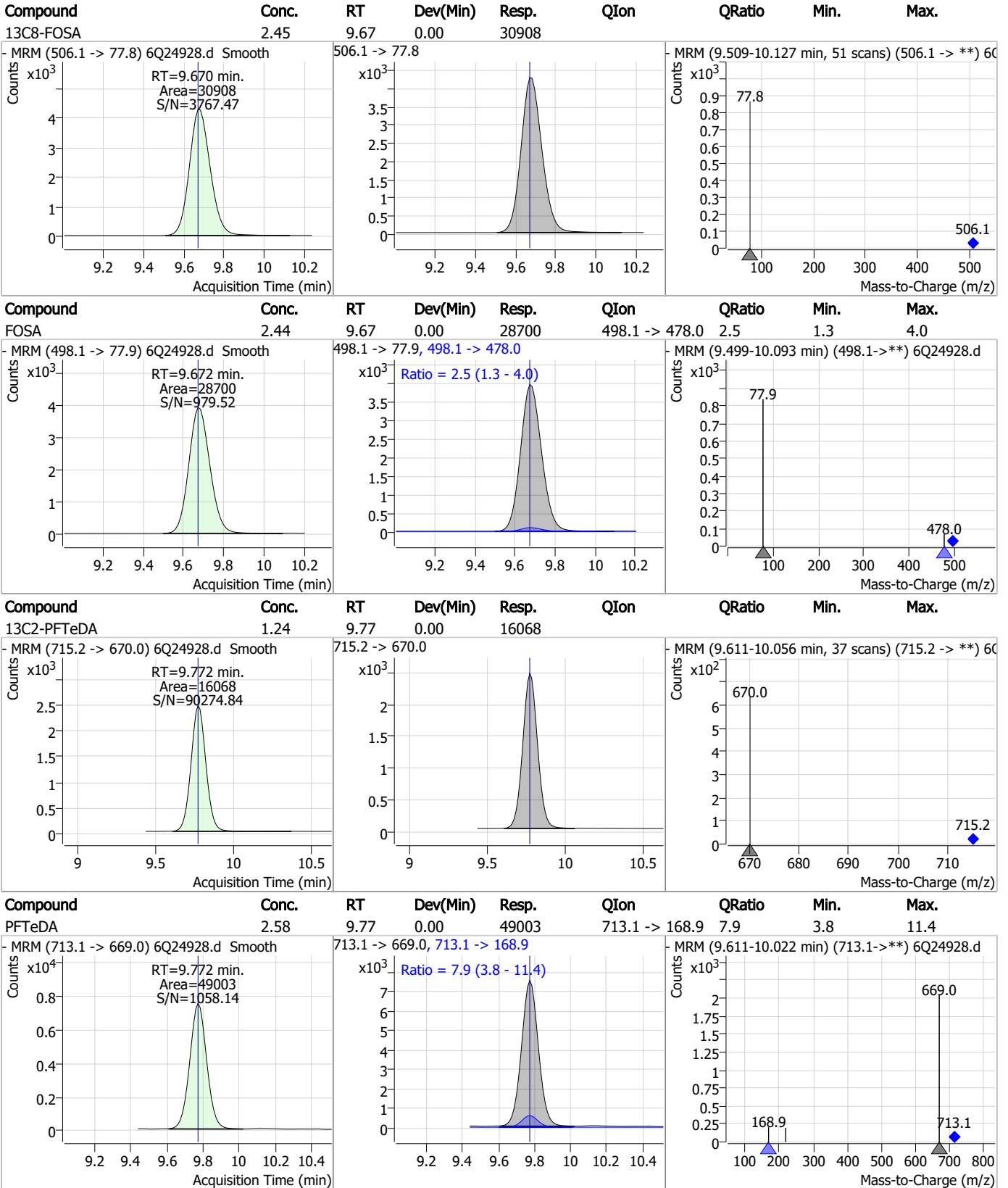
7.7.10 7

Perfluorinated Compounds by LC/MS/MS



7.7.10
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Perfluorinated Compounds by LC/MS/MS

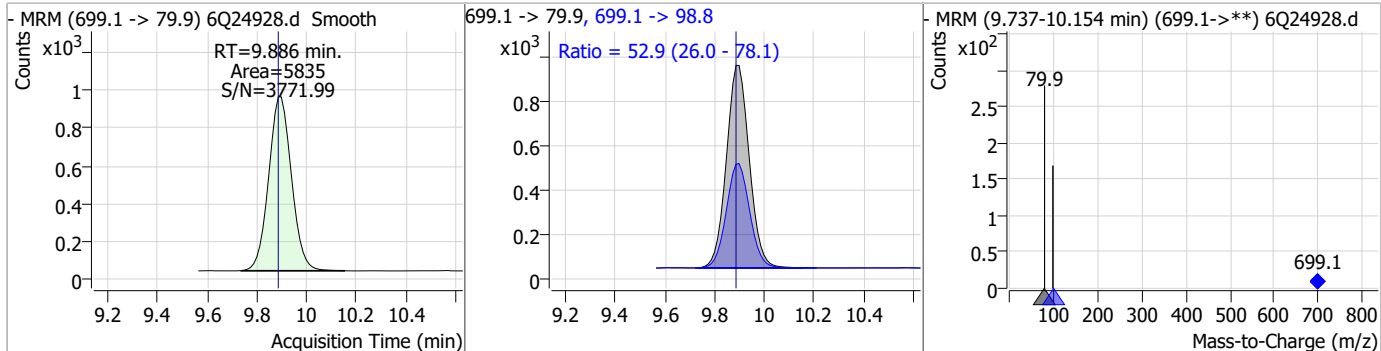


7.7.10 7

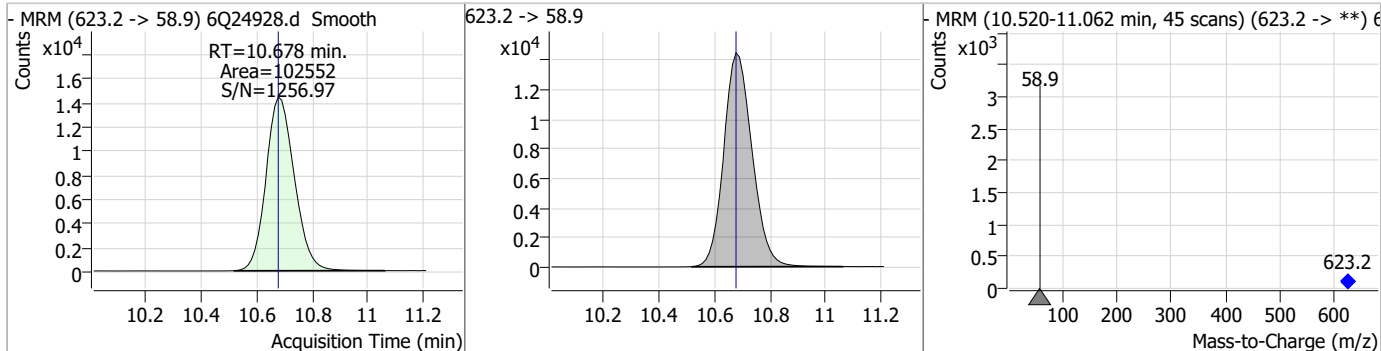


Perfluorinated Compounds by LC/MS/MS

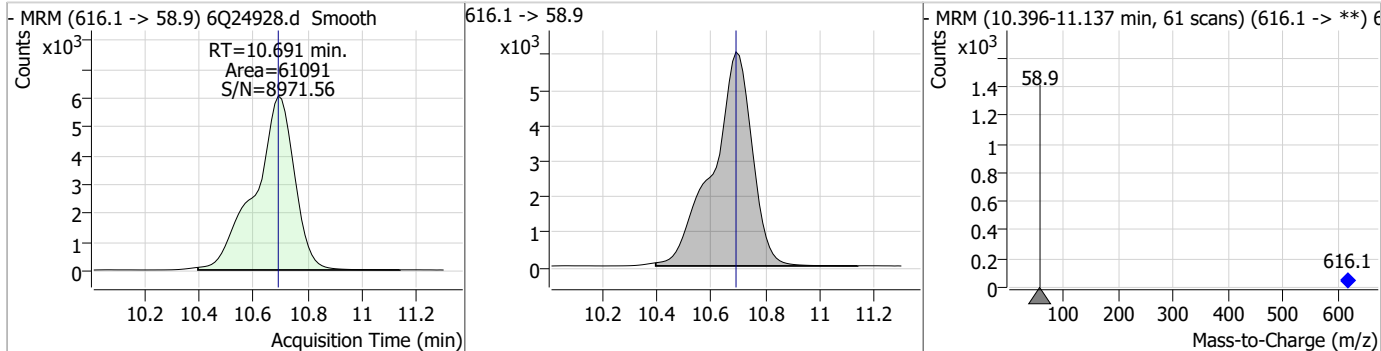
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.58	9.89	0.00	5835	699.1 -> 98.8	52.9	26.0	78.1



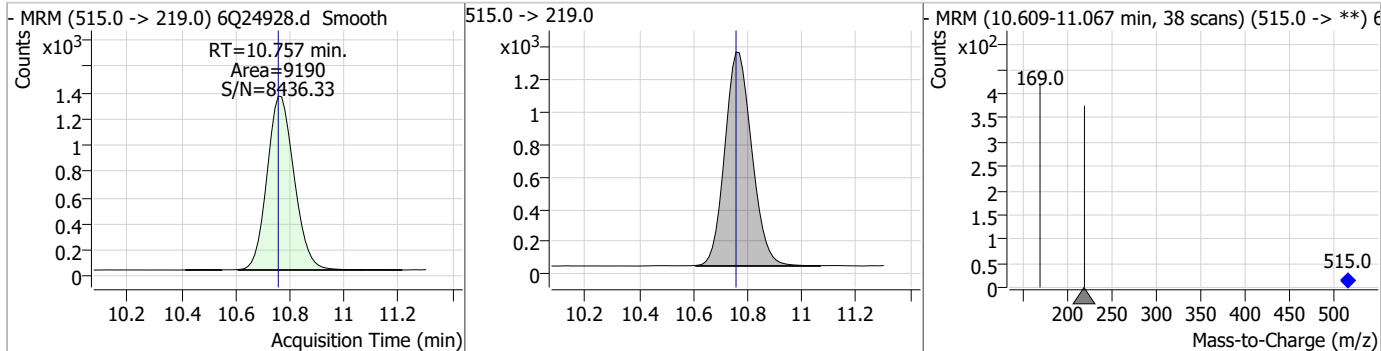
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	22.96	10.68	0.00	102552				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	13.44	10.69	0.00	61091				

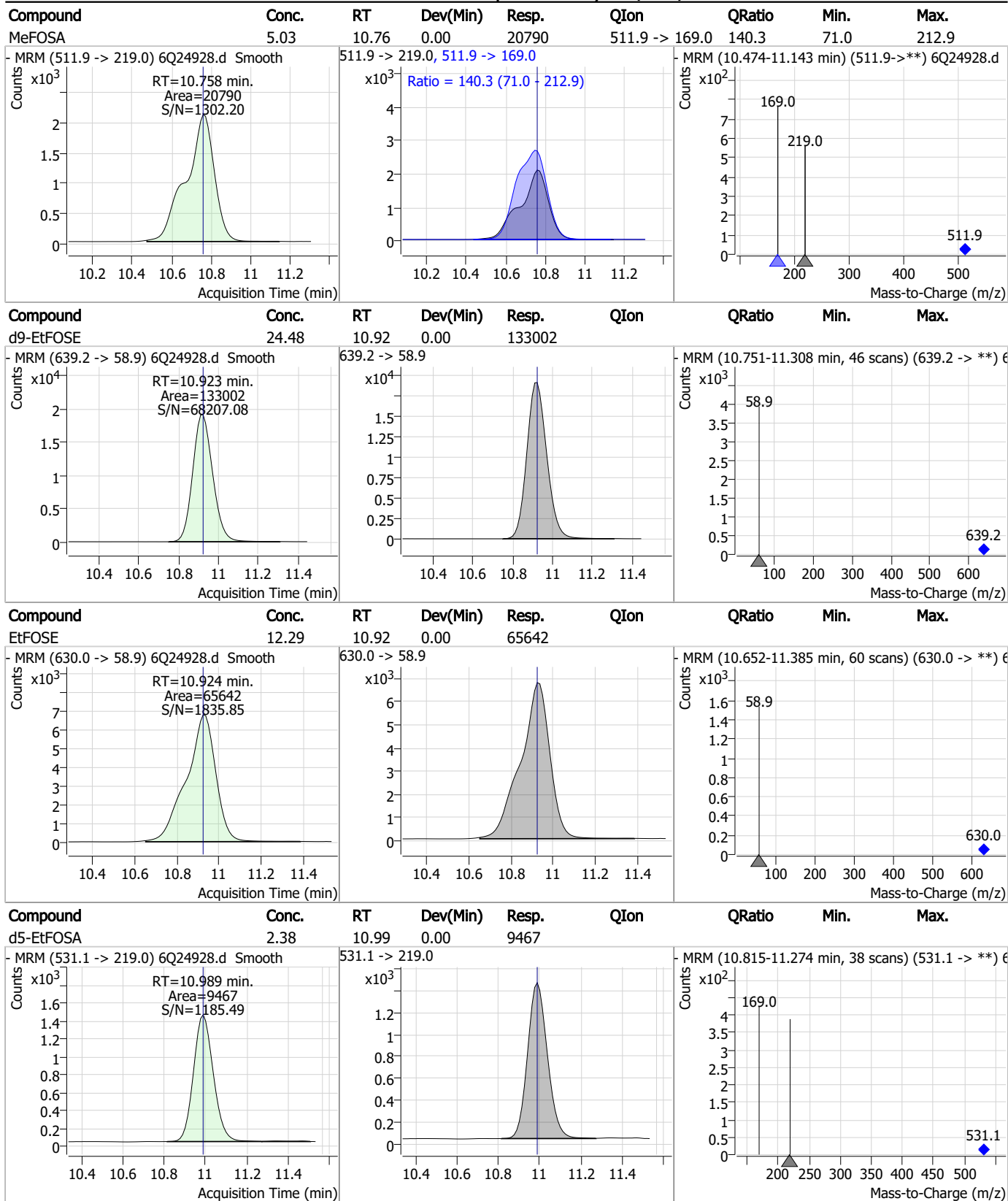


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.43	10.76	0.00	9190				



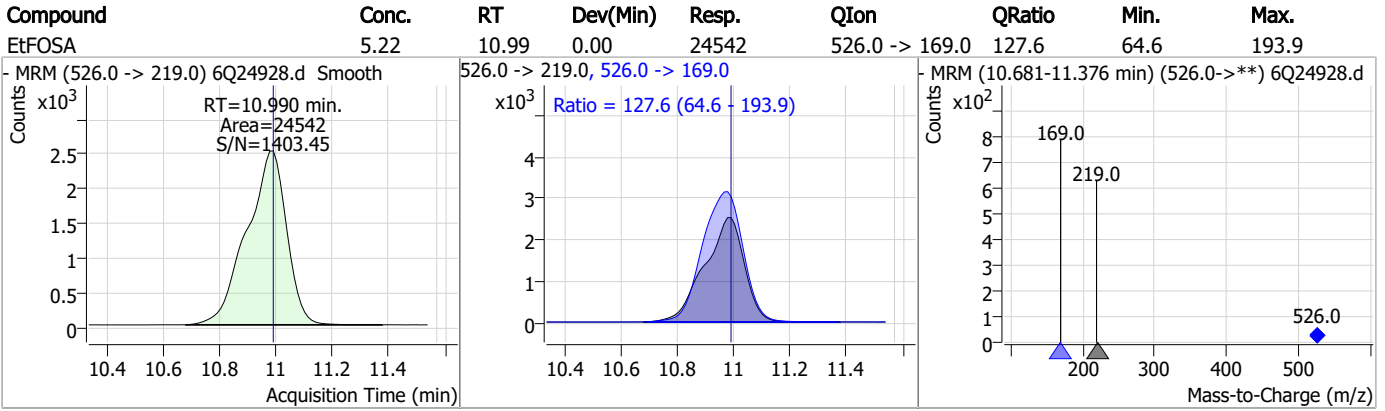
7.7.10
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Perfluorinated Compounds by LC/MS/MS



7.7.10 7

Perfluorinated Compounds by LC/MS/MS



7.7.10
7

Manual Integration Approval Summary

Sample Number: S6Q356-ICV356 Method: EPA DRAFT 1633
Lab FileID: 6Q24928.D Analyst approved: 09/25/23 14:50 Martha Valls
Injection Time: 09/24/23 17:09 Supervisor approved: 09/26/23 13:54 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.34	Split peak

7.7.10.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24929.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/24/2023 5:23:19 PM
 Sample Name : icv356-20
 Vial : P1-B2
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	191030	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	76658	5.00 µg/L	0.000
M5-PFHxA	5.629	318.0 -> 273.0	68209	2.50 µg/L	0.000
M4-PFHpA	6.556	367.1 -> 322.0	64822	2.50 µg/L	-0.012
M8-PFOA	7.186	421.1 -> 376.0	85645	2.50 µg/L	-0.012
M9-PFNA	7.717	472.1 -> 427.0	36623	1.25 µg/L	0.000
M6-PFDA	8.185	519.1 -> 474.1	36276	1.25 µg/L	-0.012
M7-PFUnDA	8.651	570.0 -> 525.1	40213	1.25 µg/L	0.000
M2-PFDoDA	9.067	615.1 -> 570.0	39249	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	17604	1.25 µg/L	0.000
M8-FOSA	9.682	506.1 -> 77.8	30496	2.50 µg/L	0.012
M3-PFBS	5.546	302.1 -> 79.9	28695	2.50 µg/L	-0.013
M3-PFHxS	7.289	402.1 -> 79.9	17901	2.50 µg/L	-0.012
M8-PFOS	8.348	507.1 -> 79.9	16141	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	2924	5.00 µg/L	0.000
M2-6:2FTS	6.961	429.1 -> 80.9	4677	5.00 µg/L	-0.012
M2-8:2FTS	7.986	529.1 -> 80.9	4436	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	34991	5.00 µg/L	0.000
M3-HFPO-DA	5.994	286.9 -> 168.9	48403	10.00 µg/L	-0.012
M5-EtFOSAA	8.439	589.2 -> 419.0	27979	5.00 µg/L	-0.012
M7-MeFOSE	10.678	623.2 -> 58.9	110218	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	132634	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	9864	2.50 µg/L	0.000
M3-MeFOSA	10.769	515.0 -> 219.0	9653	2.50 µg/L	0.012
13C4-PFOS	8.349	502.8 -> 79.9	14673	2.50 µg/L	0.000
13C3-PFBA	2.976	216.0 -> 172.0	79792	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	11113	2.50 µg/L	0.000
13C4-PFOA	7.187	417.1 -> 372.0	101348	2.50 µg/L	-0.012
13C2-PFDA	8.186	515.1 -> 470.1	35664	1.25 µg/L	-0.012
13C5-PFNA	7.717	468.0 -> 423.0	35861	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	63051	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2924	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C2-6:2FTS	6.961	429.1 -> 80.9	4677	5.18 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.5%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4436	5.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C2-PFDoDA	9.067	615.1 -> 570.0	39249	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.0%		
13C2-PFTeDA	9.772	715.2 -> 670.0	17604	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C3-PFBS	5.546	302.1 -> 79.9	28695	2.46 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C3-PFHxS	7.289	402.1 -> 79.9	17901	2.55 µg/L	-0.012

7.7.11
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C4-PFBA	2.972	216.8 -> 171.9	191030	9.91 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C4-PFHpA	6.556	367.1 -> 322.0	64822	2.52 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C5-PFHxA	5.629	318.0 -> 273.0	68209	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C5-PFPeA	4.409	268.3 -> 223.0	76658	5.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C6-PFDA	8.185	519.1 -> 474.1	36276	1.21 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C7-PFUnDA	8.651	570.0 -> 525.1	40213	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C8-FOSA	9.682	506.1 -> 77.8	30496	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C8-PFOA	7.186	421.1 -> 376.0	85645	2.44 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C8-PFOS	8.348	507.1 -> 79.9	16141	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C9-PFNA	7.717	472.1 -> 427.0	36623	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.6%	
d3-MeFOSAA	8.244	573.2 -> 419.0	34991	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C3-HFPO-DA	5.994	286.9 -> 168.9	48403	10.19 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
d3-MeFOSA	10.769	515.0 -> 219.0	9653	2.59 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.5%	
d5-EtFOSAA	8.439	589.2 -> 419.0	27979	5.18 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.6%	
d7-MeFOSE	10.678	623.2 -> 58.9	110218	25.04 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
d9-EtFOSE	10.923	639.2 -> 58.9	132634	24.77 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
d5-EtFOSA	10.989	531.1 -> 219.0	9864	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	96635	20.19 µg/L	98
		327.1 -> 80.9	40026		
6:2FTS	6.962	427.1 -> 407.0	83542	20.73 µg/L	93
		427.1 -> 80.9	32734		
8:2FTS	7.987	527.1 -> 507.0	54300	19.20 µg/L	95
		527.1 -> 80.8	20755		
EtFOSAA	8.452	584.2 -> 419.1	82353	17.68 µg/L	96
		584.2 -> 526.0	51677		
FOSA	9.672	498.1 -> 77.9	218720	18.86 µg/L	99
		498.1 -> 478.0	6307		
MeFOSAA	8.245	570.1 -> 419.0	118897	19.41 µg/L	94
		570.1 -> 483.0	24607		
PFBA	2.981	212.8 -> 168.9	126348	18.53 µg/L	100
PFBS	5.547	298.7 -> 79.9	180644	19.30 µg/L	100
		298.7 -> 98.8	67619		
PFDA	8.186	512.9 -> 469.0	508137	17.75 µg/L	98
		512.9 -> 219.0	87644		
PFDoDA	9.068	613.1 -> 569.0	525167	18.37 µg/L	99
		613.1 -> 319.0	64847		
PFDS	9.220	599.0 -> 79.9	77404	19.84 µg/L	98

7.7.11
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
PFHpA	6.557	599.0 -> 98.8	37655	19.49 µg/L	99
		363.1 -> 319.0	685342		
PFHpS	7.843	363.1 -> 169.0	94634	18.86 µg/L	91
		449.0 -> 79.9	134269		
PFHxA	5.631	449.0 -> 98.9	63955	19.18 µg/L	99
		313.0 -> 269.0	469613		
PFHxS	7.302	313.0 -> 118.9	22220	18.93 µg/L	99
		398.7 -> 79.9	131846		
PFNA	7.717	398.7 -> 98.9	64327	19.92 µg/L	95
		463.0 -> 419.0	472039		
PFNS	8.802	463.0 -> 219.0	110638	19.01 µg/L	99
		548.8 -> 79.9	106810		
PFOA	7.187	548.8 -> 98.9	53099	18.90 µg/L	98
		413.0 -> 369.0	694854		
PFOS	8.337	413.0 -> 169.0	118841	18.46 µg/L	67
		498.9 -> 79.9	128543		
PFPeA	4.411	498.9 -> 98.8	57578	19.63 µg/L	100
		263.0 -> 219.0	302873		
PFPeS	6.608	349.1 -> 79.9	184567	19.02 µg/L	98
		349.1 -> 98.9	83597		
PFTeDA	9.772	713.1 -> 669.0	390203	18.75 µg/L	99
		713.1 -> 168.9	30859		
PFTrDA	9.440	663.0 -> 619.0	441346	17.62 µg/L	99
		663.0 -> 168.9	37172		
PFUnDA	8.652	563.1 -> 519.0	509134	19.12 µg/L	97
		563.1 -> 269.1	77953		
11CI-PF3OUdS	9.479	630.9 -> 450.9	255426	20.17 µg/L	97
		632.9 -> 452.9	78629		
9CI-PF3ONS	8.678	530.8 -> 351.0	427898	19.91 µg/L	94
		532.8 -> 353.0	123495		
ADONA	6.804	376.9 -> 250.9	1033463	17.37 µg/L	99
		376.9 -> 84.8	294731		
HFPO-DA	5.995	284.9 -> 168.9	83166	17.46 µg/L	99
		284.9 -> 184.9	8983		
3:3FTCA	3.846	241.0 -> 177.0	20164	18.21 µg/L	99
		241.0 -> 117.0	2316		
5:3FTCA	6.271	341.0 -> 237.1	89398	19.42 µg/L	97
		341.0 -> 217.0	59705		
7:3FTCA	7.669	441.0 -> 316.9	47295	18.14 µg/L	91
		441.0 -> 336.9	101621		
EtFOSA	10.990	526.0 -> 219.0	82872	16.91 µg/L	81
		526.0 -> 169.0	88992		
EtFOSE	10.937	630.0 -> 58.9	554434	104.11 µg/L	100
		511.9 -> 219.0	73804		
MeFOSA	10.771	511.9 -> 169.0	81717	16.99 µg/L	75
		616.1 -> 58.9	484817		
MeFOSE	10.703	699.1 -> 79.9	42384	99.27 µg/L	100
		699.1 -> 98.8	22915		
PFDoDS	9.886	295.0 -> 201.0	58565	18.20 µg/L	97
		295.0 -> 84.9	15554		
NFDHA	5.512	279.0 -> 85.1	224326	18.62 µg/L	100
		229.0 -> 84.9	167420		
PFMBA	4.838	314.8 -> 134.9	514380	18.09 µg/L	100
		314.8 -> 82.9	18672		
PFMPA	3.538			18.18 µg/L	100
PFEESA	6.100			16.90 µg/L	99

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



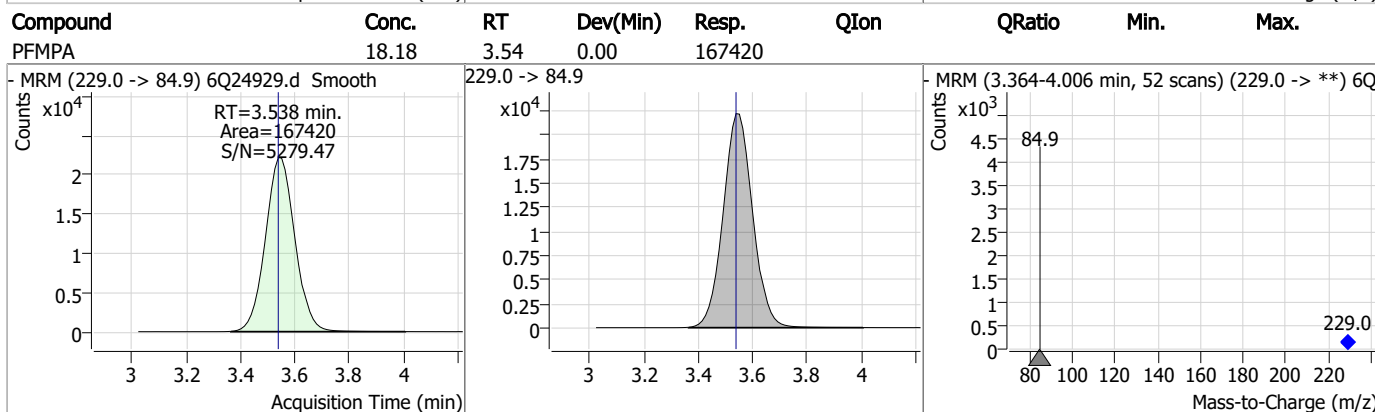
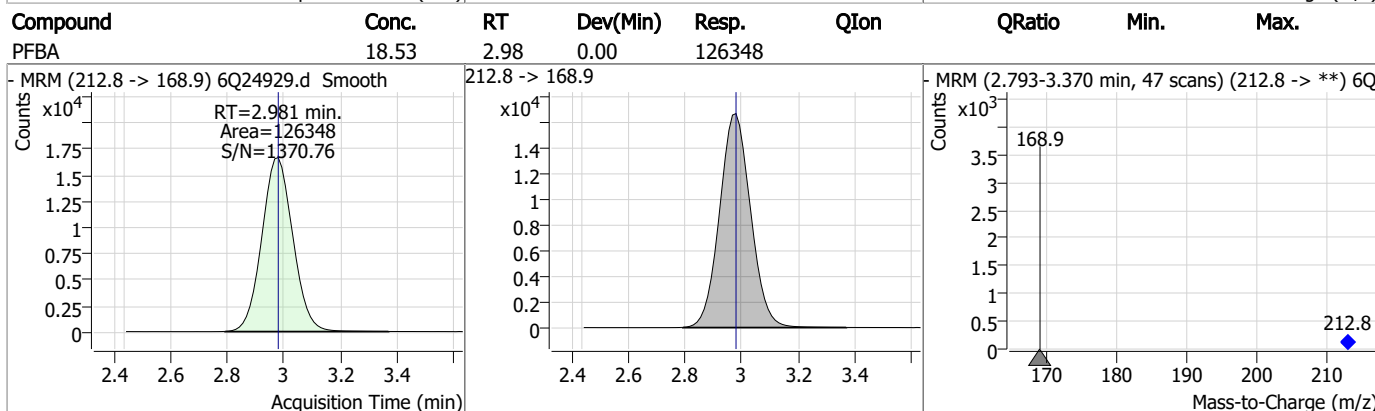
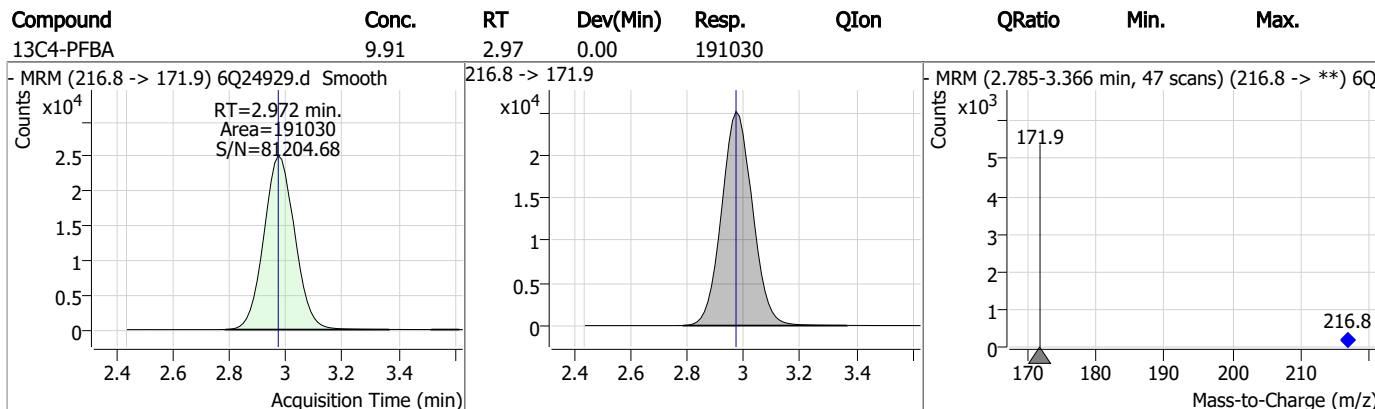
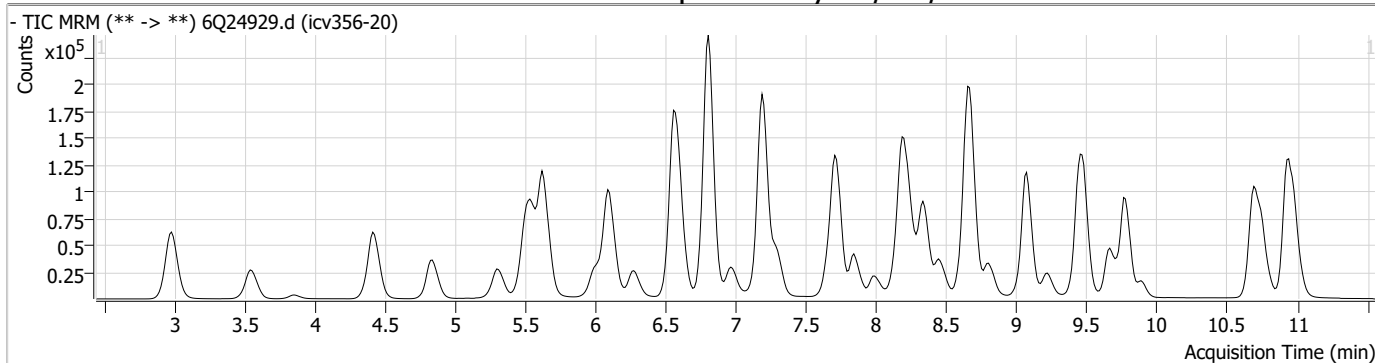
Perfluorinated Compounds by LC/MS/MS

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

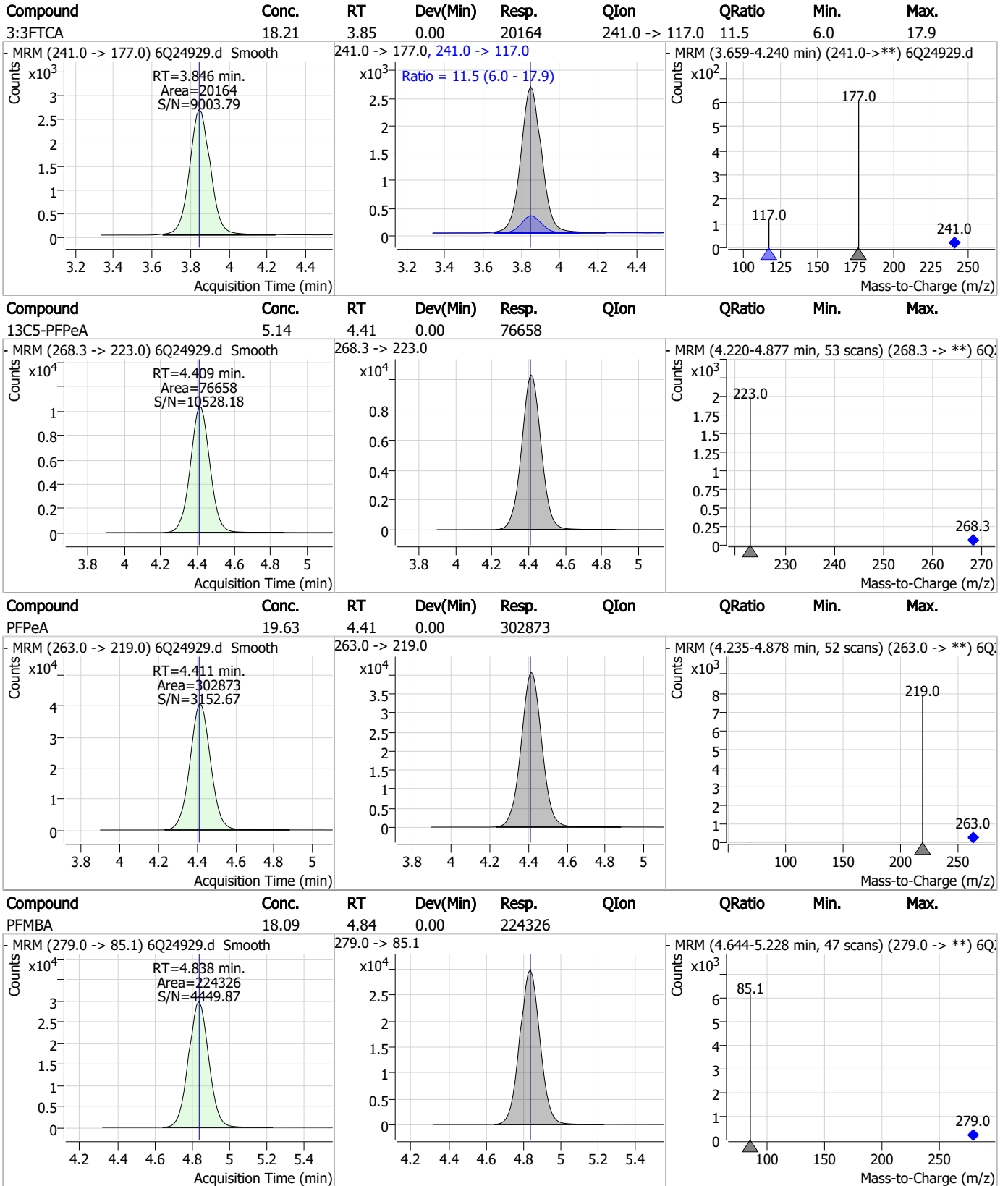
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Perfluorinated Compounds by LC/MS/MS



7.7.11
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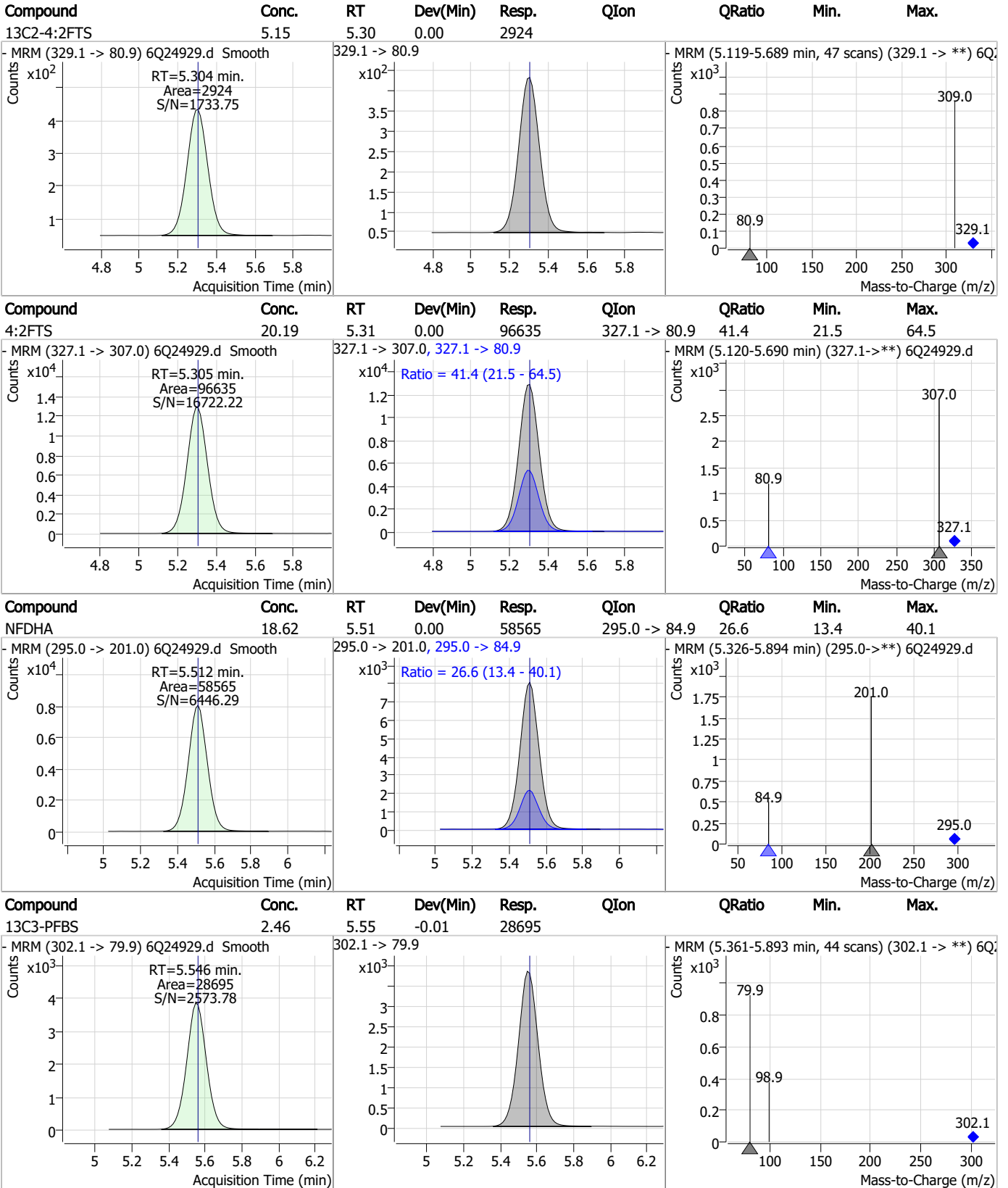
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

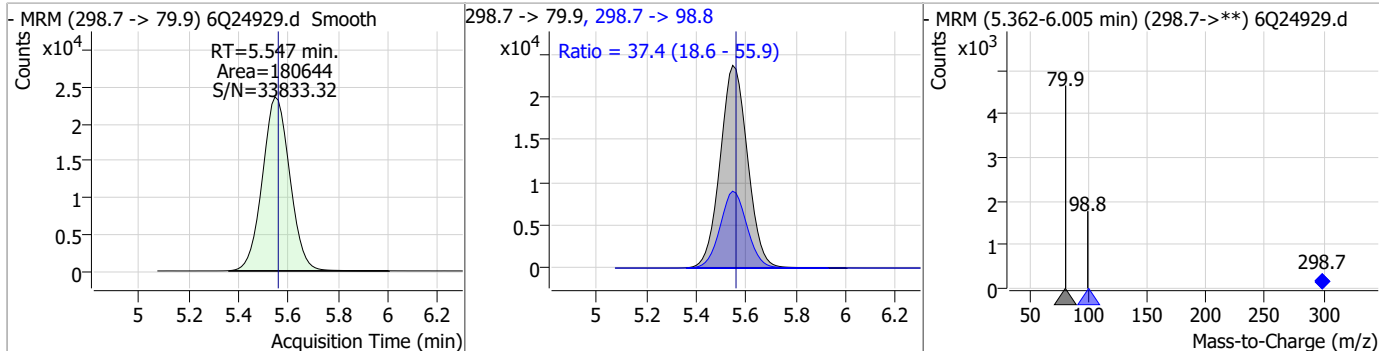


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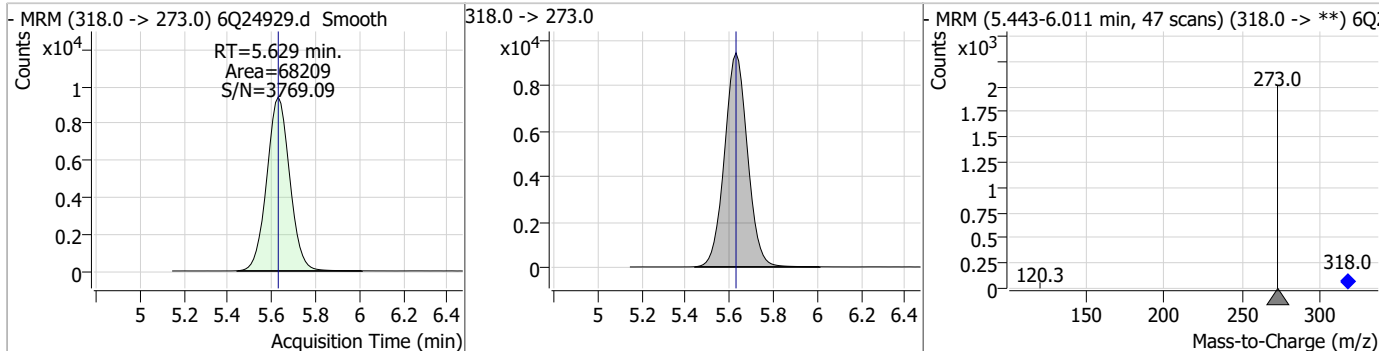
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Perfluorinated Compounds by LC/MS/MS

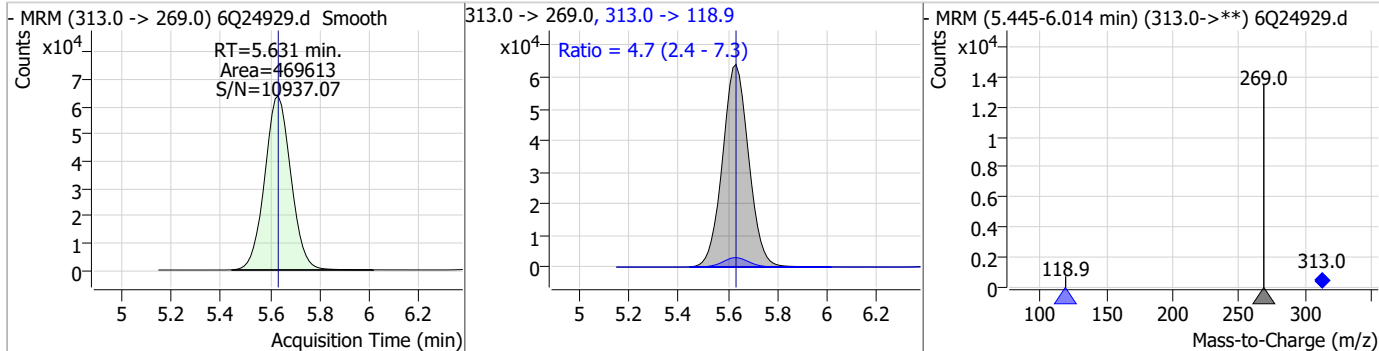
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	19.30	5.55	-0.01	180644	298.7 -> 98.8	37.4	18.6	55.9



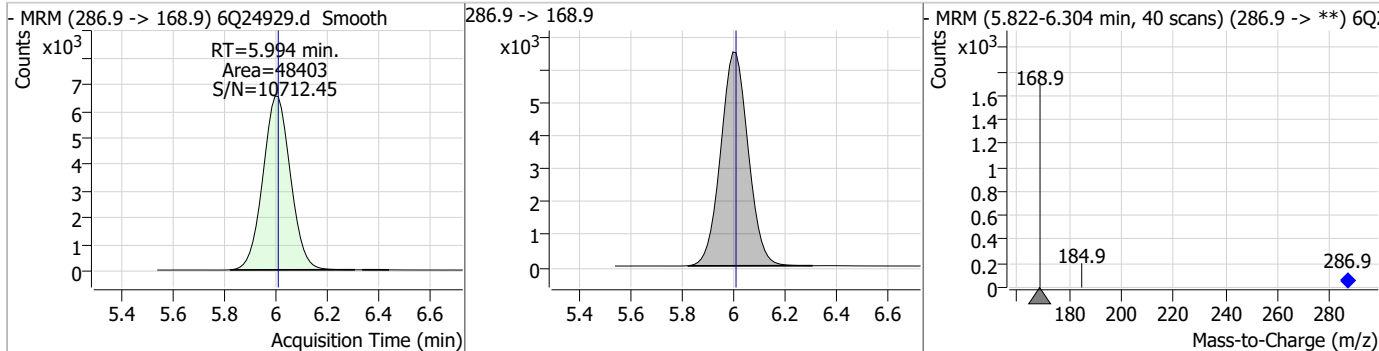
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.57	5.63	0.00	68209				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.18	5.63	0.00	469613	313.0 -> 118.9	4.7	2.4	7.3

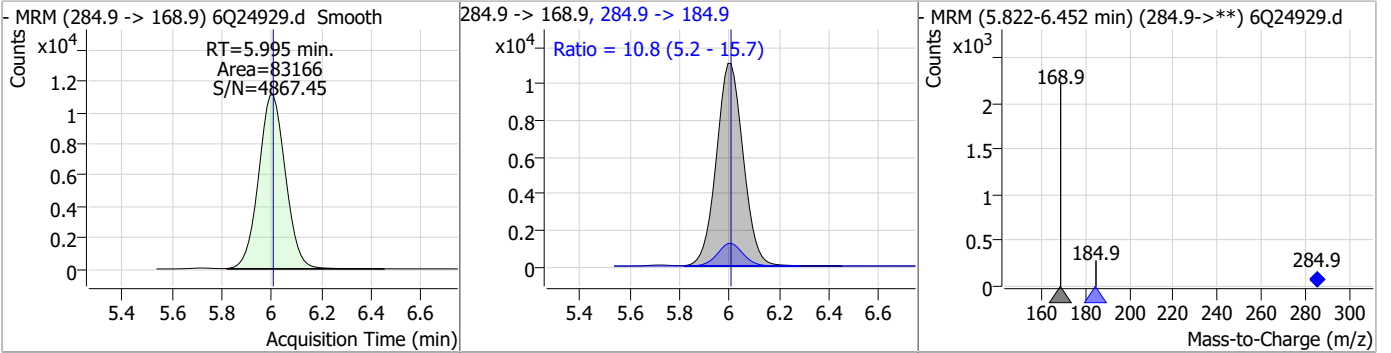


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.19	5.99	-0.01	48403				

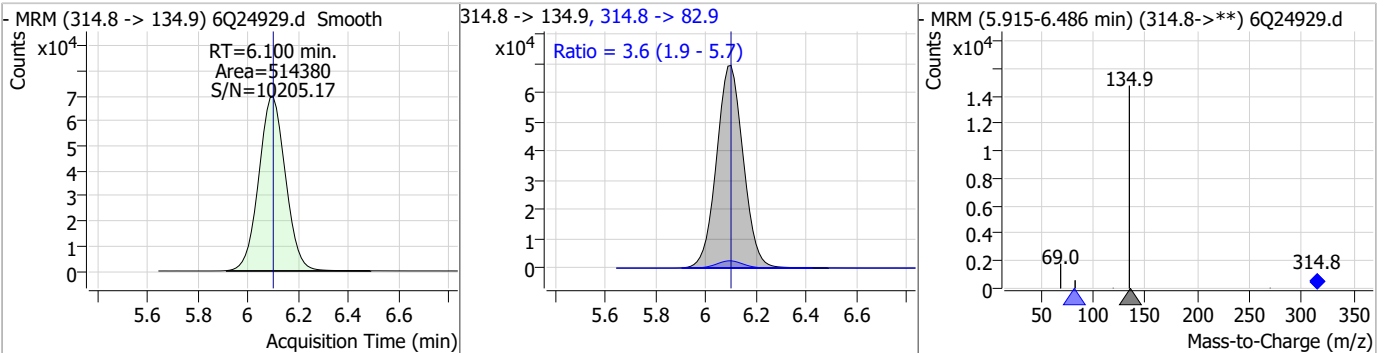


Perfluorinated Compounds by LC/MS/MS

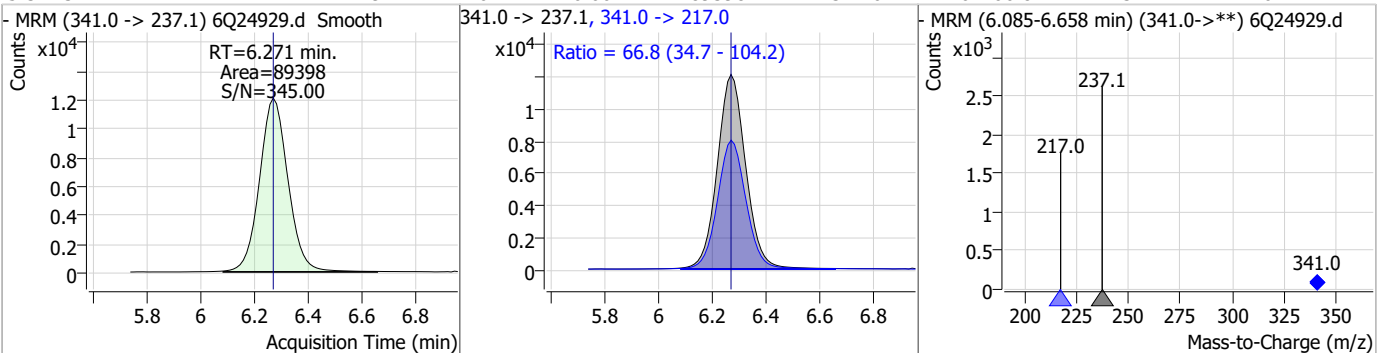
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	17.46	6.00	-0.01	83166	284.9 -> 184.9	10.8	5.2	15.7



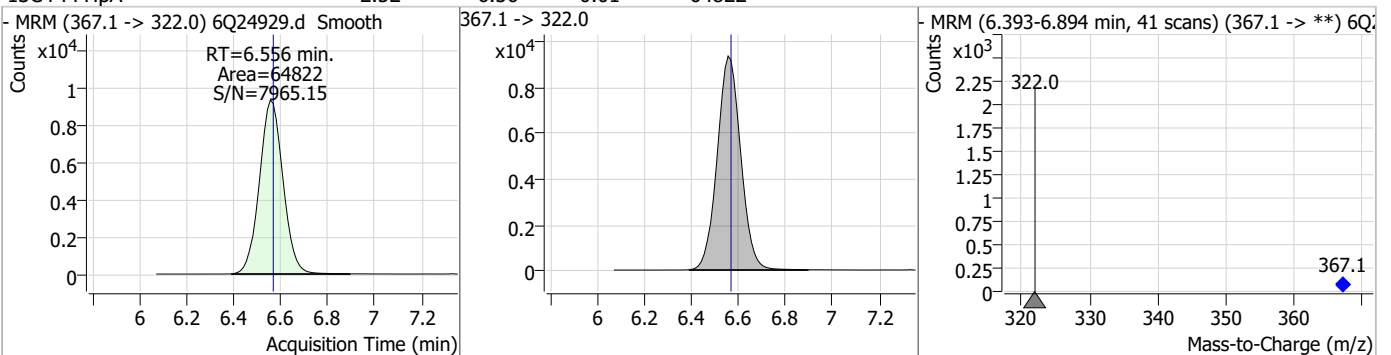
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	16.90	6.10	0.00	514380	314.8 -> 82.9	3.6	1.9	5.7



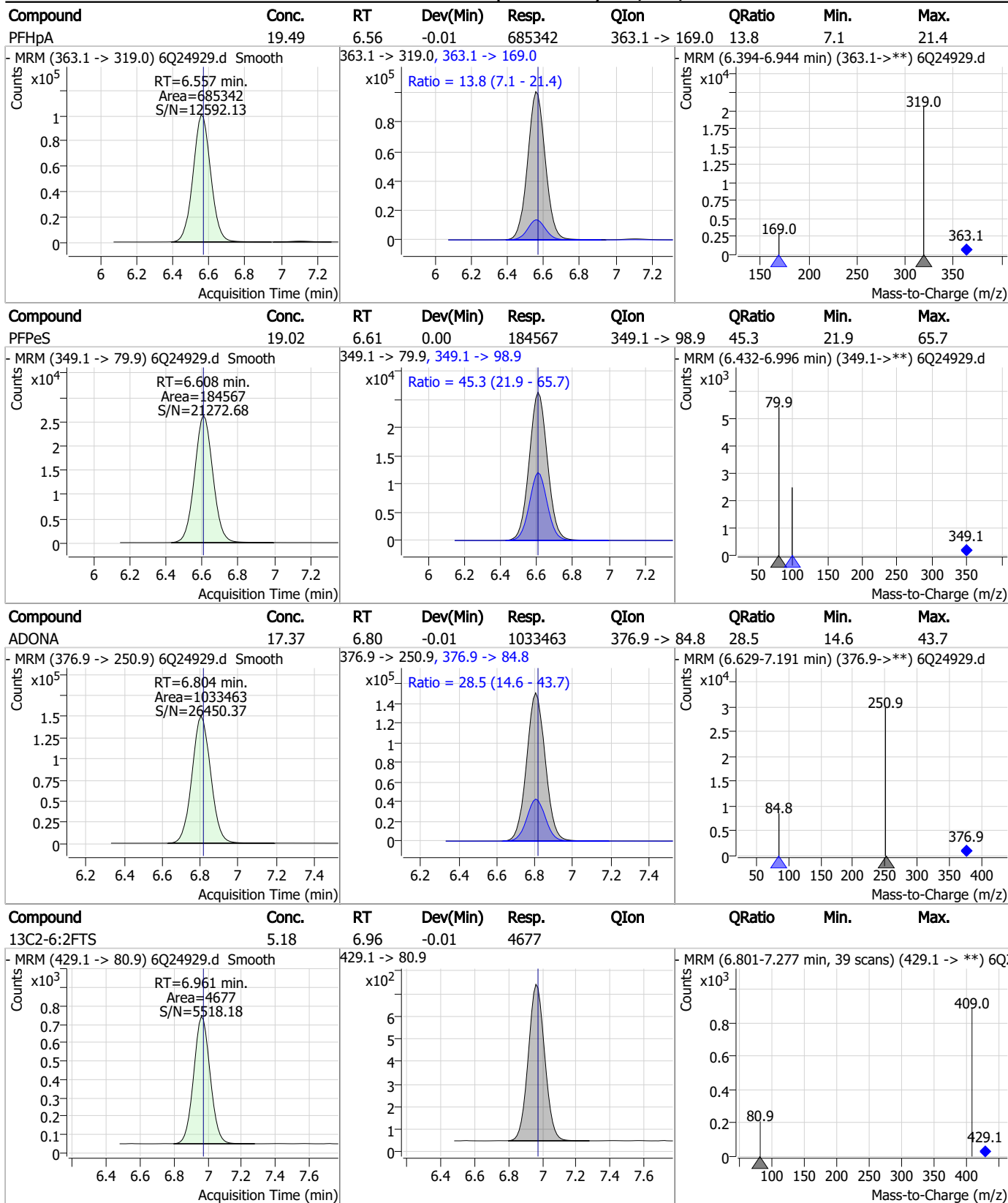
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	19.42	6.27	0.00	89398	341.0 -> 217.0	66.8	34.7	104.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.52	6.56	-0.01	64822	367.1 -> 322.0	-	-	-



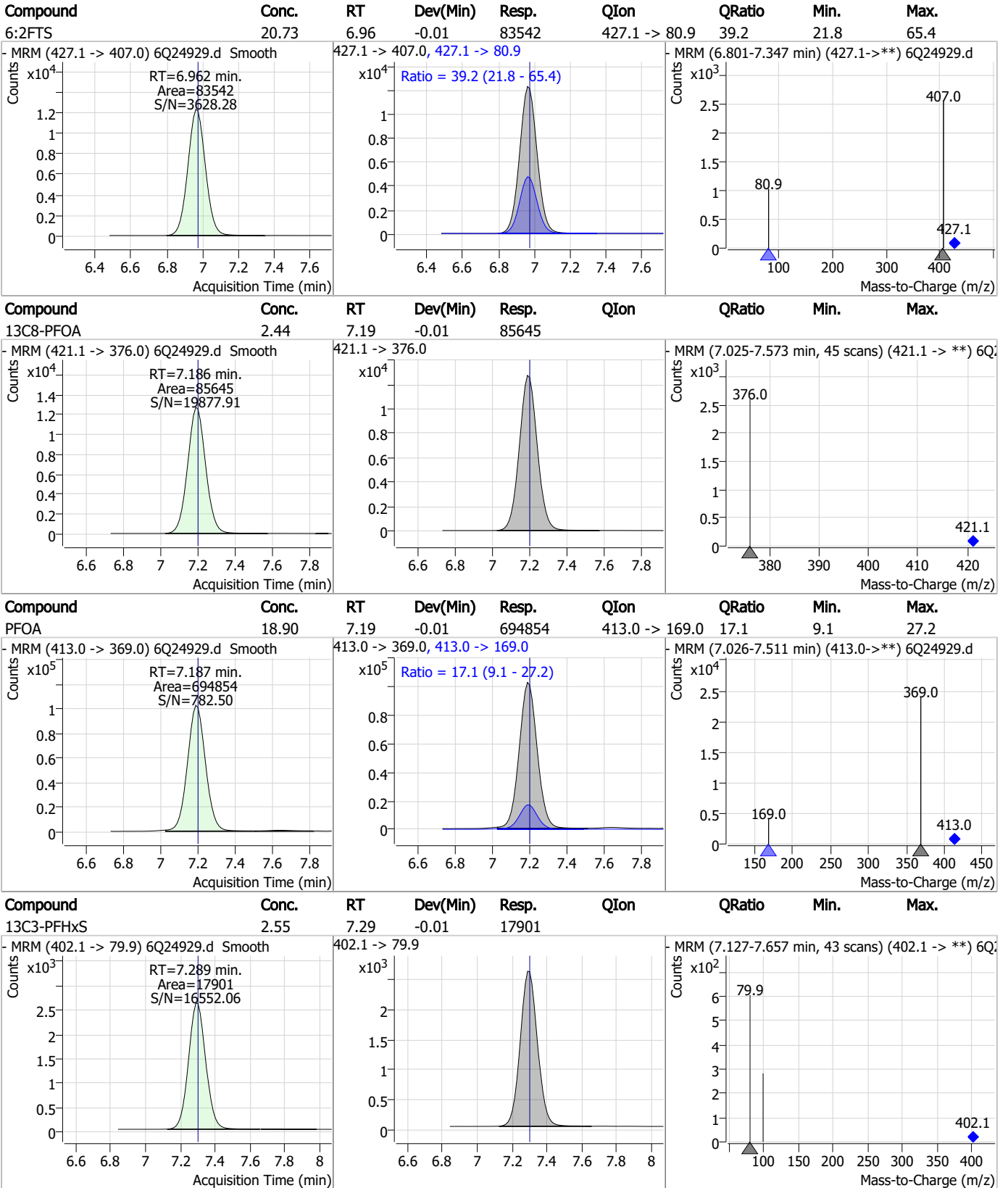
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

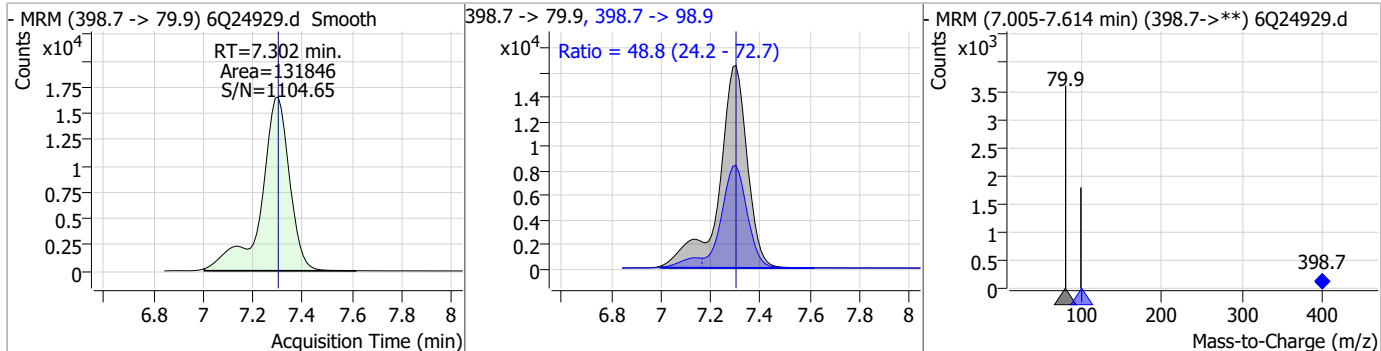


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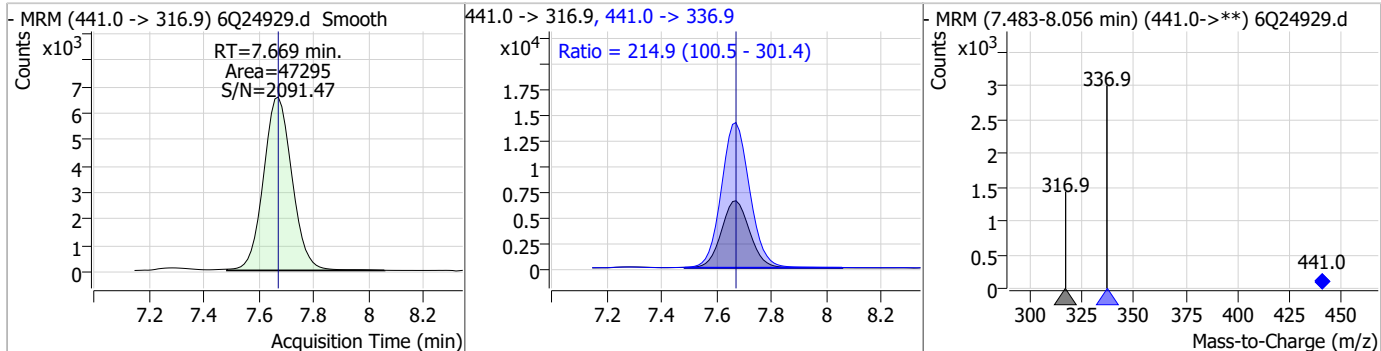
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Perfluorinated Compounds by LC/MS/MS

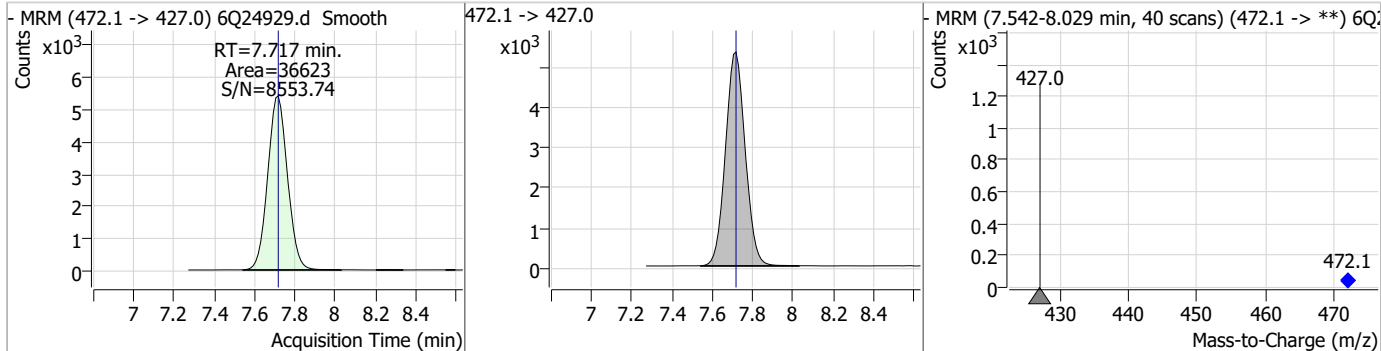
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	18.93	7.30	0.00	131846	398.7 -> 98.9	48.8	24.2	72.7



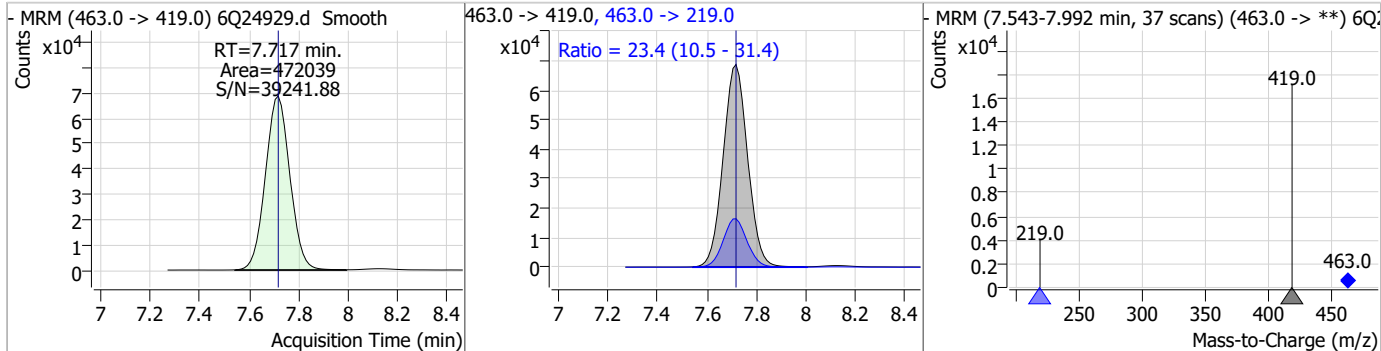
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	18.14	7.67	0.00	47295	441.0 -> 336.9	214.9	100.5	301.4



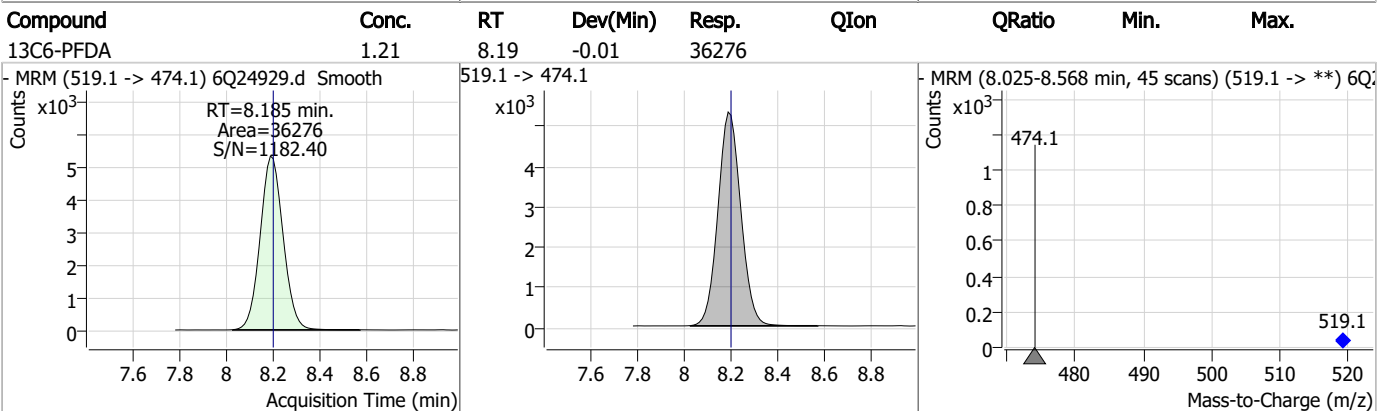
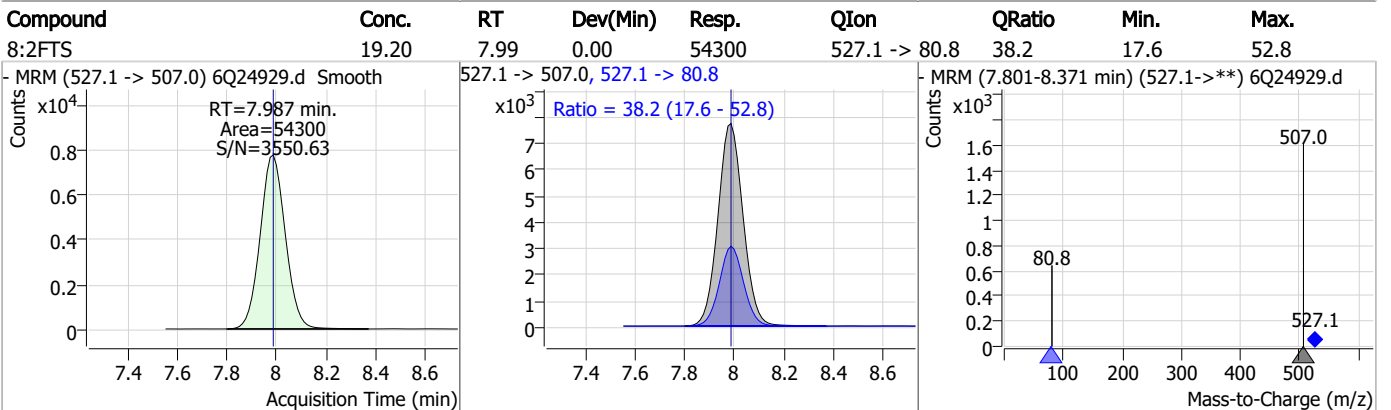
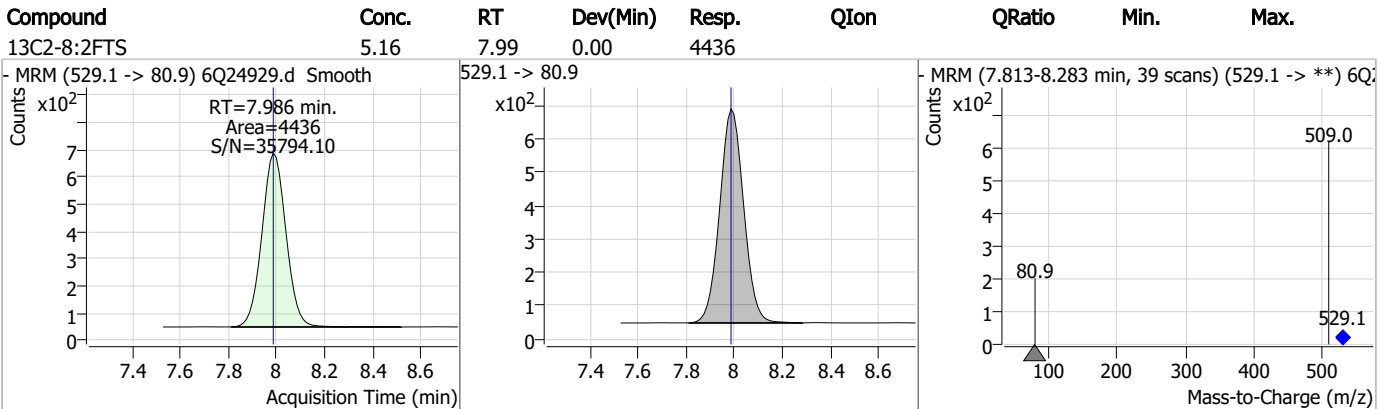
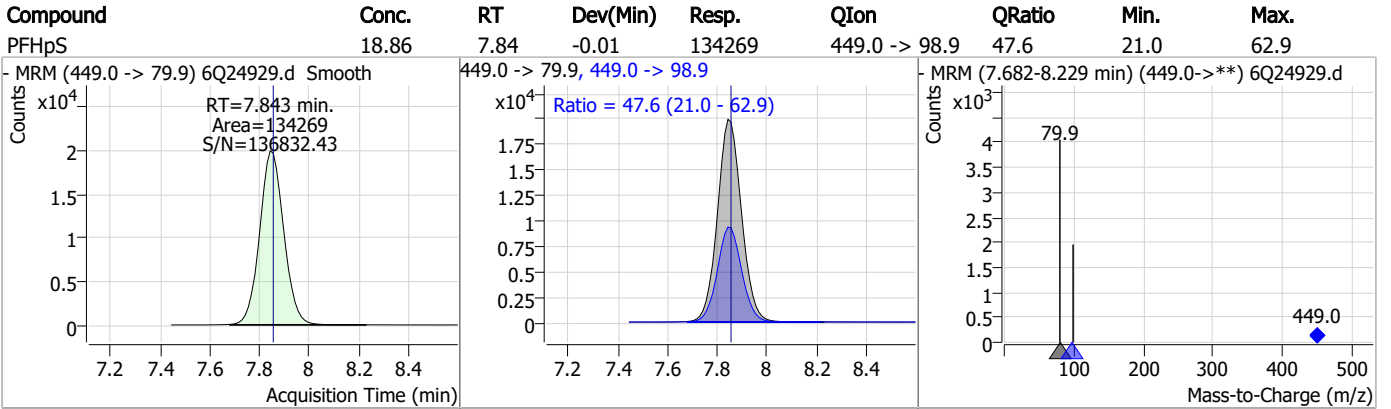
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.27	7.72	0.00	36623	472.1 -> 427.0			



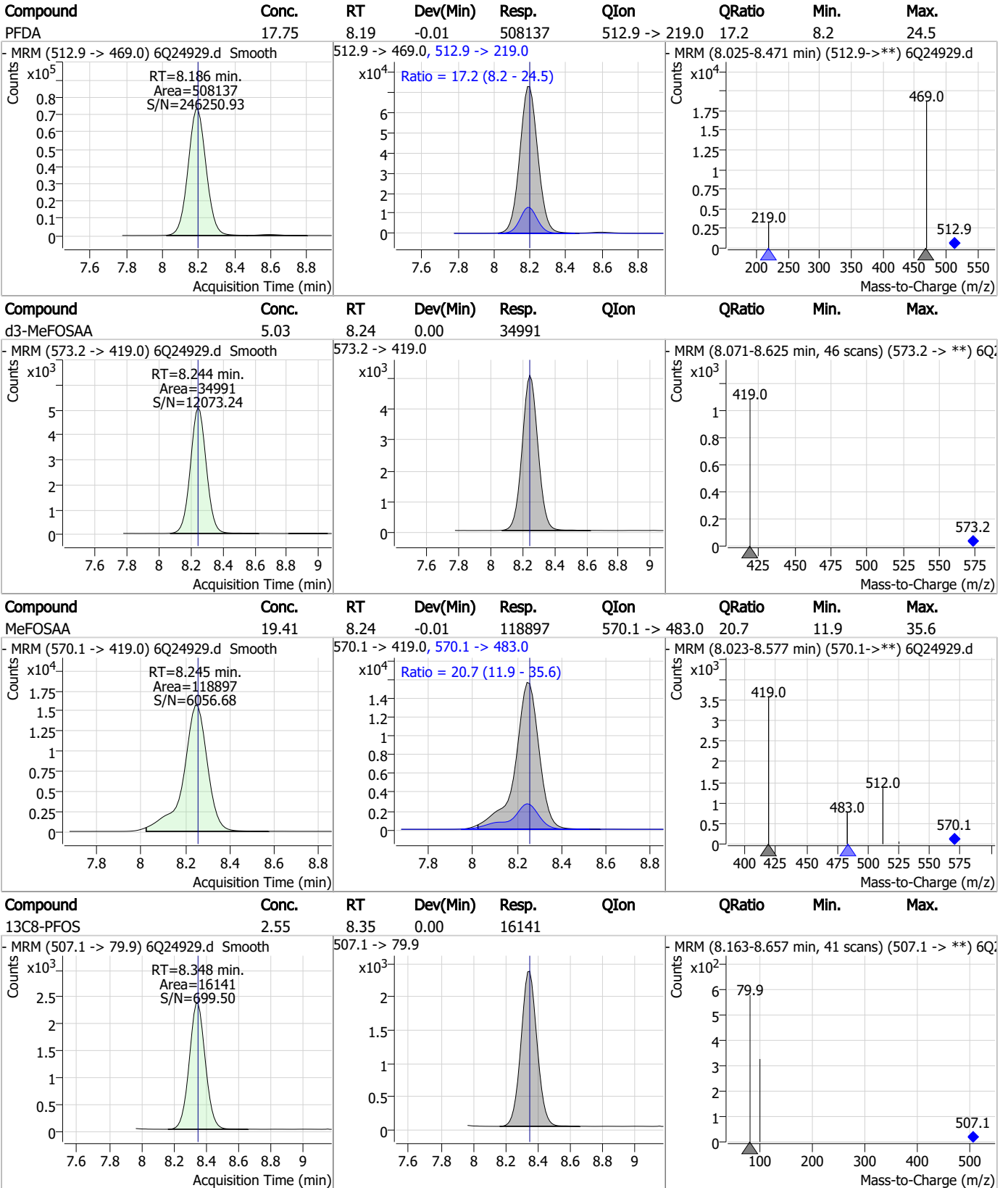
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	19.92	7.72	0.00	472039	463.0 -> 219.0	23.4	10.5	31.4



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



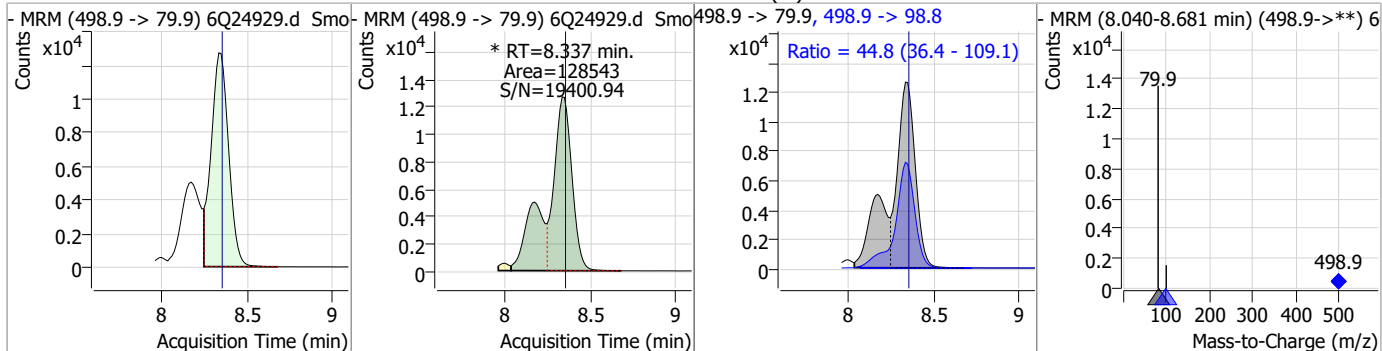
7.7.11

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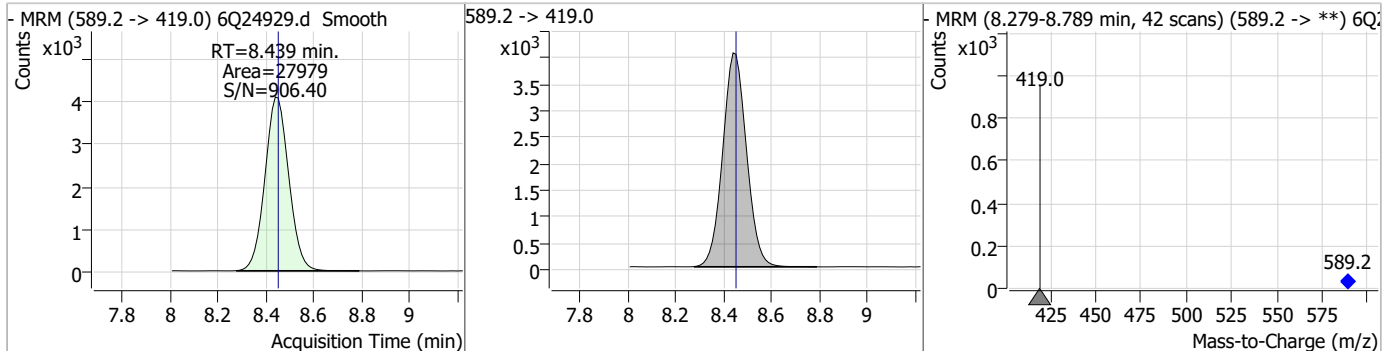


Perfluorinated Compounds by LC/MS/MS

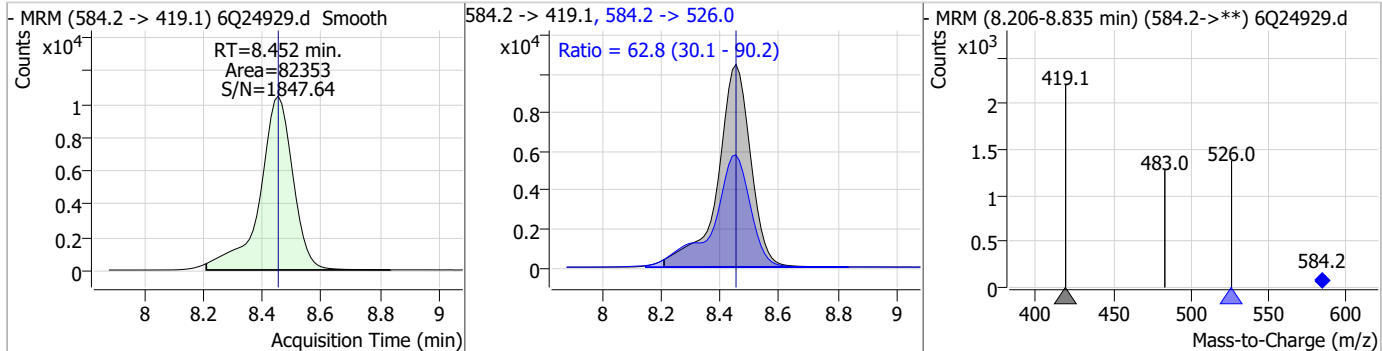
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	18.46	8.34	-0.01	128543 (m)	498.9 -> 98.8	44.8	36.4	109.1



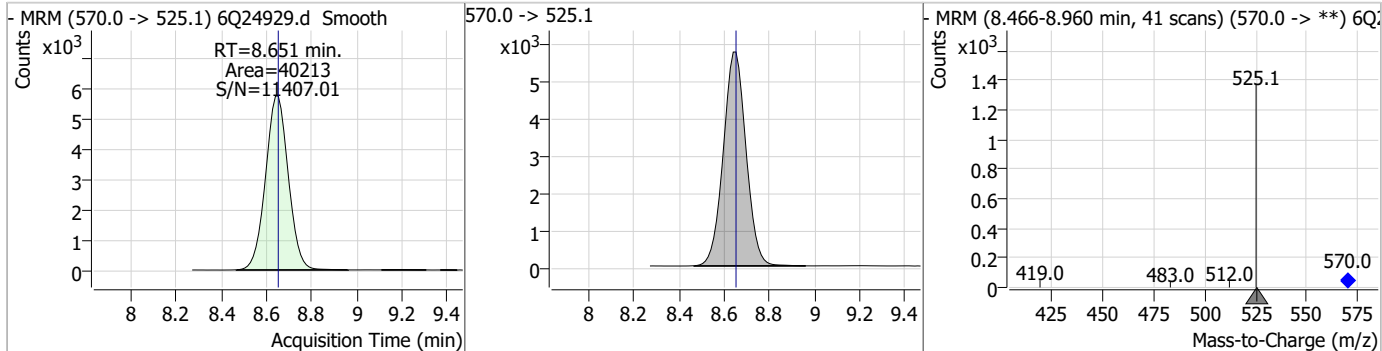
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.18	8.44	-0.01	27979				



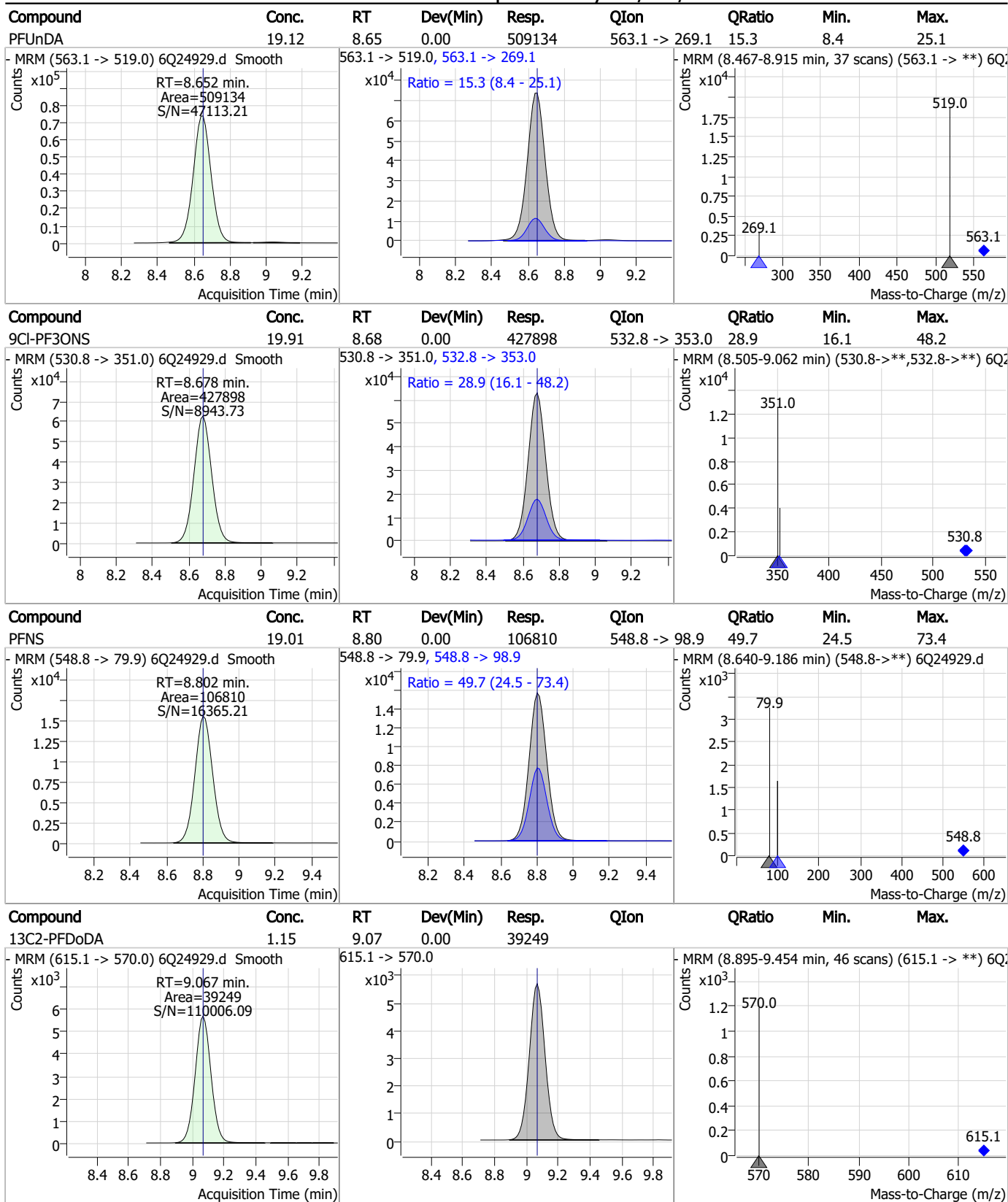
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	17.68	8.45	0.00	82353	584.2 -> 526.0	62.8	30.1	90.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.20	8.65	0.00	40213				



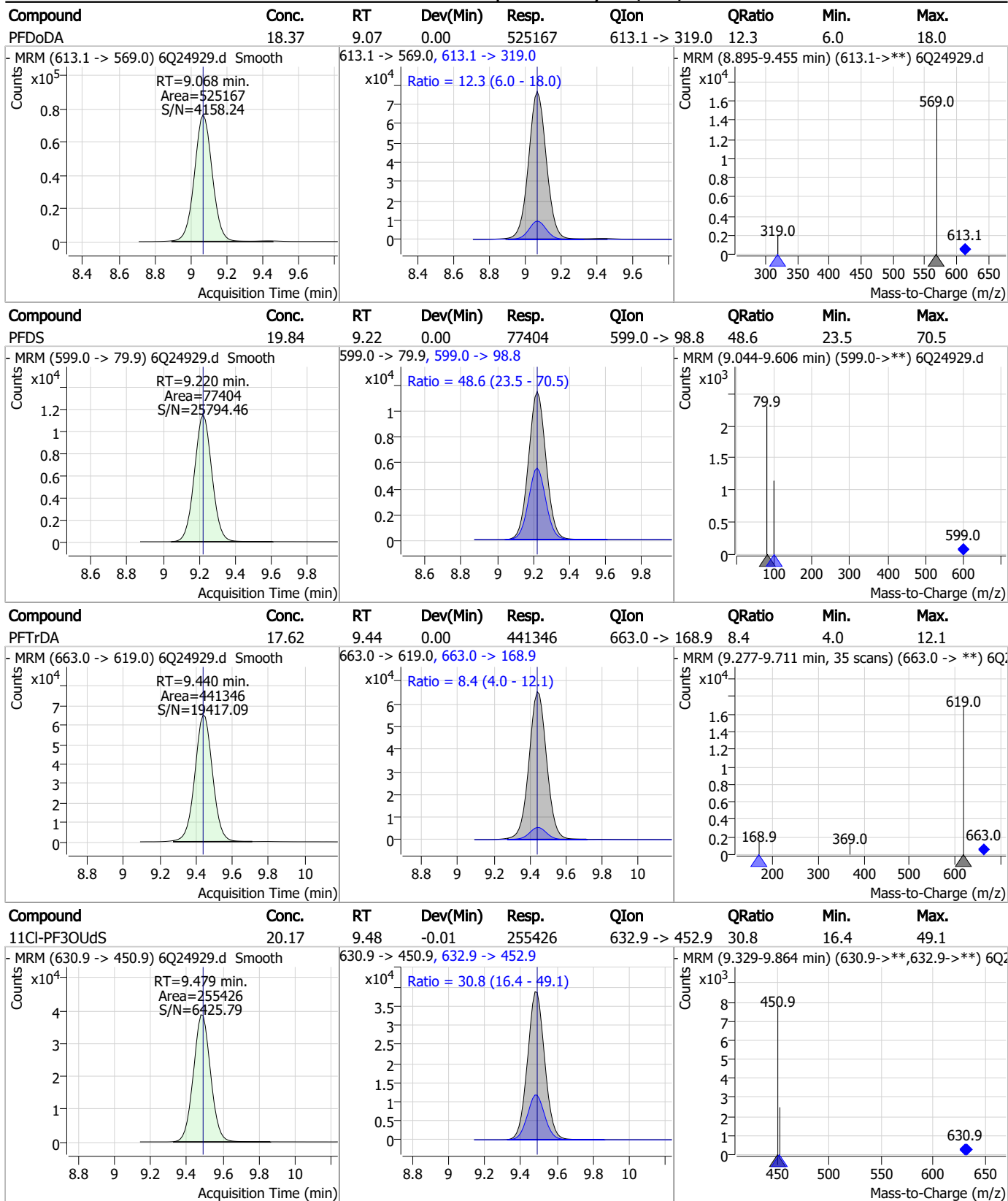
Perfluorinated Compounds by LC/MS/MS



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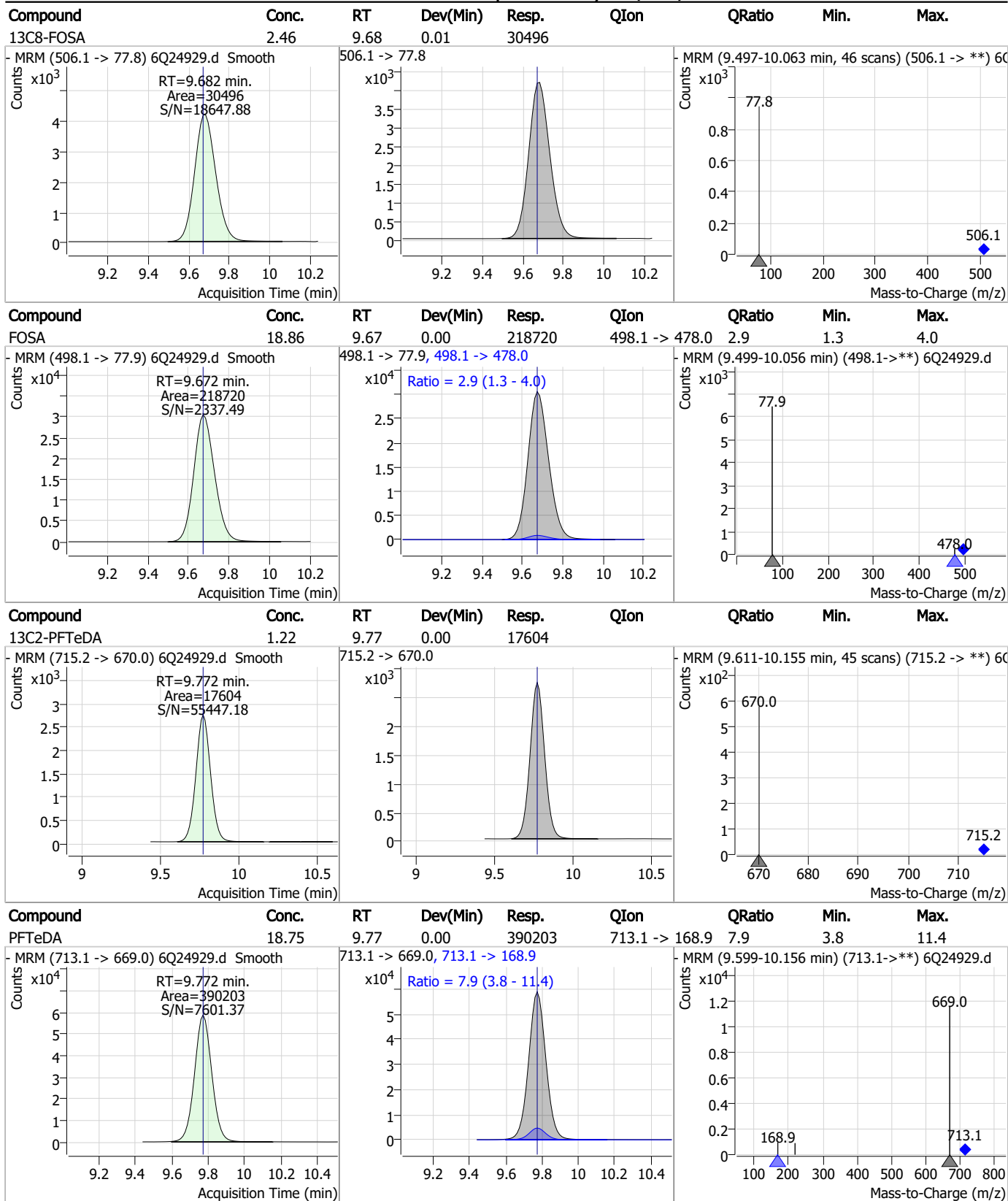
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Perfluorinated Compounds by LC/MS/MS



7.7.11

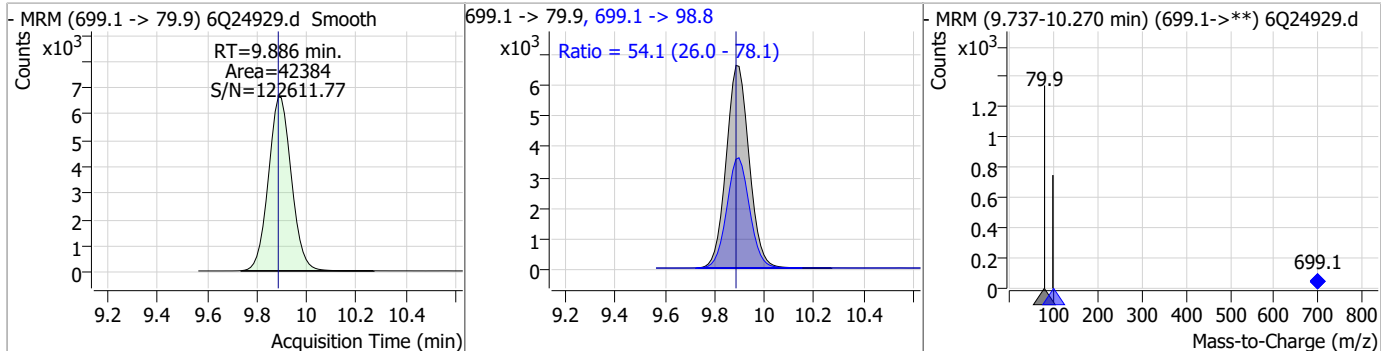
Perfluorinated Compounds by LC/MS/MS



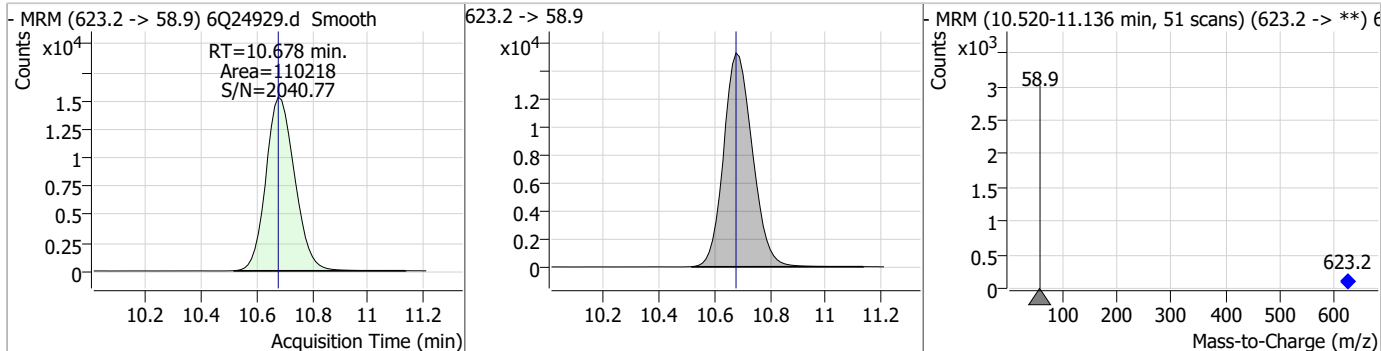
7.7.11
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Perfluorinated Compounds by LC/MS/MS

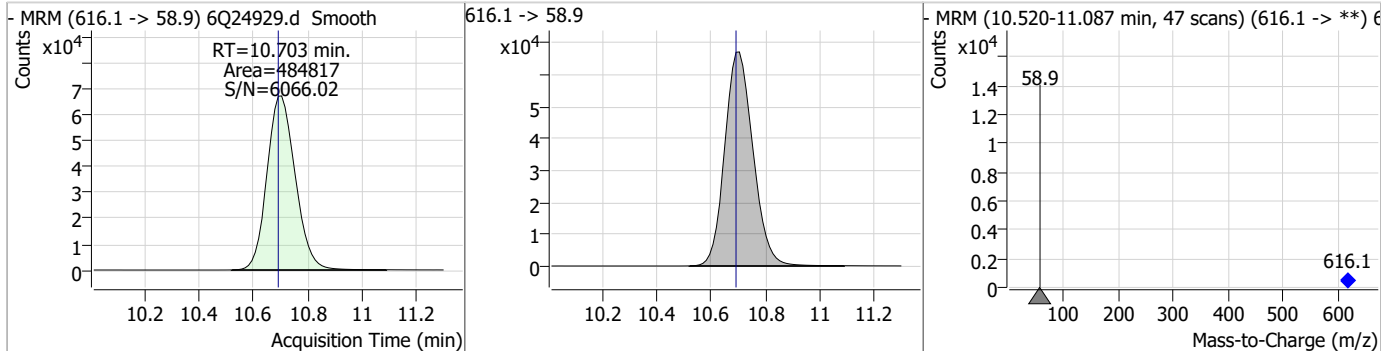
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	18.20	9.89	0.00	42384	699.1 -> 98.8	54.1	26.0	78.1



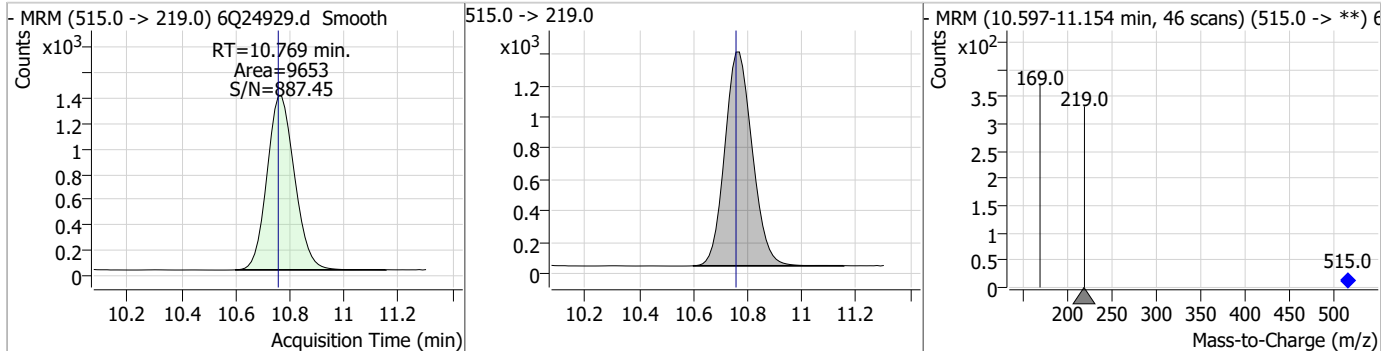
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.04	10.68	0.00	110218				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	99.27	10.70	0.01	484817				

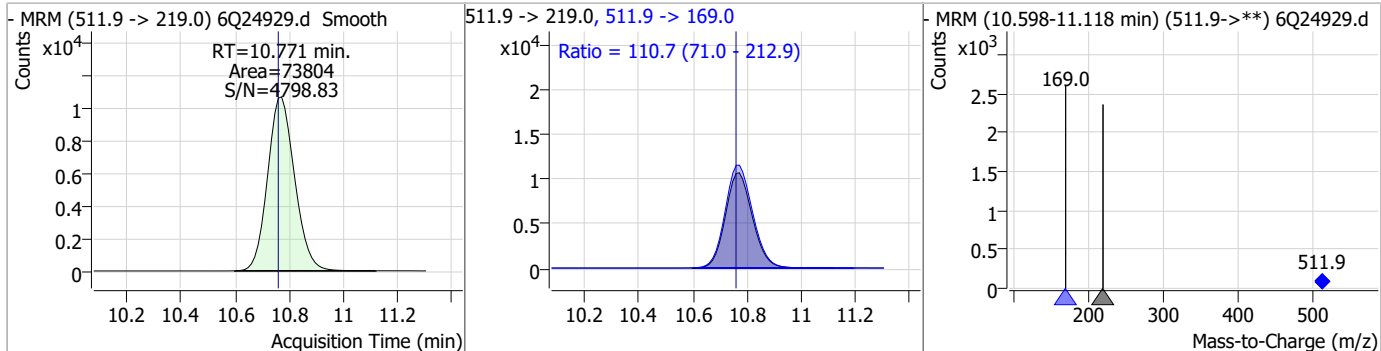


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.59	10.77	0.01	9653				

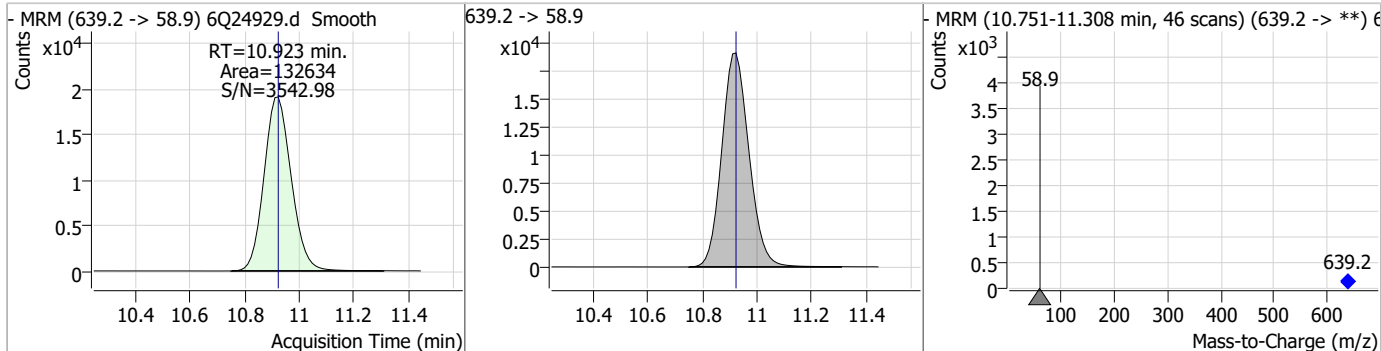


Perfluorinated Compounds by LC/MS/MS

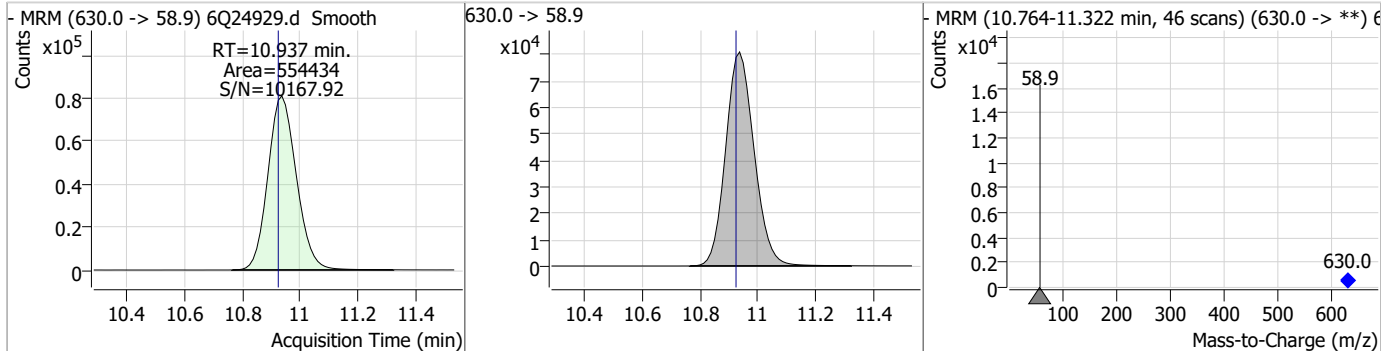
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	16.99	10.77	0.01	73804	511.9 -> 169.0	110.7	71.0	212.9



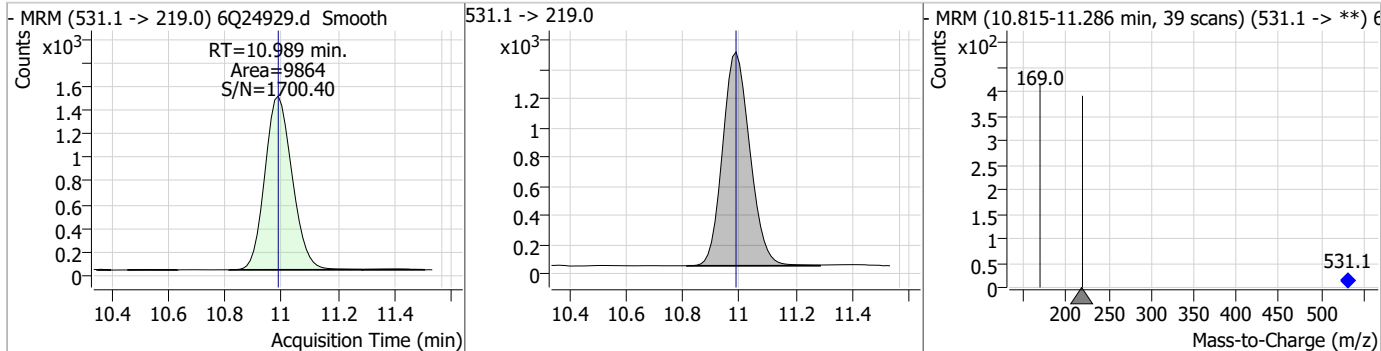
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.77	10.92	0.00	132634				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	104.11	10.94	0.01	554434				

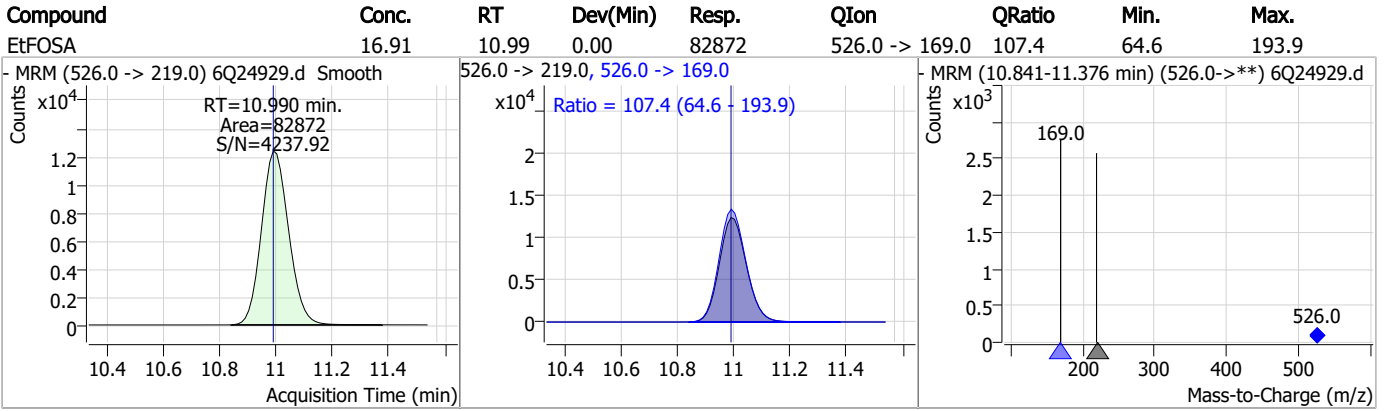


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.51	10.99	0.00	9864				



7.7.11
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Perfluorinated Compounds by LC/MS/MS



7.7.11

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Manual Integration Approval Summary

Sample Number: S6Q356-ICV356 Method: EPA DRAFT 1633
Lab FileID: 6Q24929.D Analyst approved: 09/25/23 14:50 Martha Valls
Injection Time: 09/24/23 17:23 Supervisor approved: 09/26/23 13:54 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.34	Split peak

7.7.11.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24930.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/24/2023 5:37:38 PM
 Sample Name : cc356-4
 Vial : P1-A5
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	174961	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	71772	5.00 µg/L	0.000
M5-PFHxA	5.629	318.0 -> 273.0	60859	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	62878	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	80980	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	32736	1.25 µg/L	0.000
M6-PFDA	8.185	519.1 -> 474.1	33580	1.25 µg/L	-0.012
M7-PFUnDA	8.639	570.0 -> 525.1	35814	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	37585	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	15864	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	30550	2.50 µg/L	0.000
M3-PFBS	5.559	302.1 -> 79.9	26760	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	17424	2.50 µg/L	0.000
M8-PFOS	8.336	507.1 -> 79.9	14638	2.50 µg/L	-0.013
M2-4:2FTS	5.304	329.1 -> 80.9	2850	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4641	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	4073	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	34372	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	43271	10.00 µg/L	0.000
M5-EtFOSAA	8.439	589.2 -> 419.0	25588	5.00 µg/L	-0.012
M7-MeFOSE	10.678	623.2 -> 58.9	105351	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	128085	25.00 µg/L	-0.012
M5-EtFOSA	10.989	531.1 -> 219.0	9097	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	8732	2.50 µg/L	0.000
13C4-PFOS	8.336	502.8 -> 79.9	14967	2.50 µg/L	-0.013
13C3-PFBA	2.976	216.0 -> 172.0	72609	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	9599	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	92348	2.50 µg/L	0.000
13C2-PFDA	8.186	515.1 -> 470.1	31253	1.25 µg/L	-0.012
13C5-PFNA	7.717	468.0 -> 423.0	34755	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	59007	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2850	5.81 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.1%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4641	5.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 118.9%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4073	5.49 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.7%		
13C2-PFDoDA	9.067	615.1 -> 570.0	37585	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C2-PFTeDA	9.772	715.2 -> 670.0	15864	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C3-PFBS	5.559	302.1 -> 79.9	26760	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.1%		
13C3-PFHxS	7.301	402.1 -> 79.9	17424	2.87 µg/L	0.000

7.7.12
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 = 114.7%	
13C4-PFBA	2.972	216.8 -> 171.9	174961	9.97 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C4-PFHpA	6.569	367.1 -> 322.0	62878	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C5-PFHxA	5.629	318.0 -> 273.0	60859	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C5-PFPeA	4.409	268.3 -> 223.0	71772	5.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C6-PFDA	8.185	519.1 -> 474.1	33580	1.28 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C7-PFUnDA	8.639	570.0 -> 525.1	35814	1.22 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C8-FOSA	9.670	506.1 -> 77.8	30550	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.5%	
13C8-PFOA	7.198	421.1 -> 376.0	80980	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C8-PFOS	8.336	507.1 -> 79.9	14638	2.26 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.6%	
13C9-PFNA	7.717	472.1 -> 427.0	32736	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.7%	
d3-MeFOSAA	8.244	573.2 -> 419.0	34372	4.85 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.9%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	43271	9.73 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.3%	
d3-MeFOSA	10.757	515.0 -> 219.0	8732	2.29 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.8%	
d5-EtFOSAA	8.439	589.2 -> 419.0	25588	4.64 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.9%	
d7-MeFOSE	10.678	623.2 -> 58.9	105351	23.46 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.9%	
d9-EtFOSE	10.911	639.2 -> 58.9	128085	23.45 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.8%	
d5-EtFOSA	10.989	531.1 -> 219.0	9097	2.27 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.9%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	44092	9.45 µg/L	99
		327.1 -> 80.9	18731		
6:2FTS	6.974	427.1 -> 407.0	38408	9.60 µg/L	97
		427.1 -> 80.9	15963		
8:2FTS	7.987	527.1 -> 507.0	27528	10.60 µg/L	92
		527.1 -> 80.8	10976		
EtFOSAA	8.452	584.2 -> 419.1	11262	2.64 µg/L	99
		584.2 -> 526.0	6823		
FOSA	9.672	498.1 -> 77.9	28931	2.49 µg/L	100
		498.1 -> 478.0	747		
MeFOSAA	8.245	570.1 -> 419.0	15484	2.57 µg/L	92
		570.1 -> 483.0	3096		
PFBA	2.981	212.8 -> 168.9	64600	10.34 µg/L	100
PFBS	5.547	298.7 -> 79.9	20188	2.31 µg/L	99
		298.7 -> 98.8	7650		
PFDA	8.186	512.9 -> 469.0	68358	2.58 µg/L	98
		512.9 -> 219.0	11641		
PFDoDA	9.068	613.1 -> 569.0	71083	2.60 µg/L	97
		613.1 -> 319.0	9291		
PFDS	9.220	599.0 -> 79.9	9484	2.68 µg/L	98

7.7.12
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.569	599.0 -> 98.8	4324	2.43	µg/L	100
		363.1 -> 319.0	82804			
PFHpS	7.843	363.1 -> 169.0	11923	2.58	µg/L	88
		449.0 -> 79.9	16630			
PFHxA	5.631	449.0 -> 98.9	8253	2.66	µg/L	99
		313.0 -> 269.0	58071			
PFHxS	7.302	313.0 -> 118.9	2650	2.20	µg/L	m
		398.7 -> 79.9	14932			
PFNA	7.717	398.7 -> 98.9	7645	2.49	µg/L	90
		463.0 -> 419.0	52801			
PFNS	8.802	463.0 -> 219.0	13584	2.62	µg/L	100
		548.8 -> 79.9	13352			
PFOA	7.187	548.8 -> 98.9	6493	2.49	µg/L	99
		413.0 -> 369.0	86393			
PFOS	8.337	413.0 -> 169.0	16038	2.54	µg/L	m
		498.9 -> 79.9	16039			
PFPeA	4.411	498.9 -> 98.8	7328	5.04	µg/L	100
		263.0 -> 219.0	72811			
PFPeS	6.608	349.1 -> 79.9	22325	2.36	µg/L	99
		349.1 -> 98.9	9699			
PFTeDA	9.772	713.1 -> 669.0	47868	2.55	µg/L	98
		713.1 -> 168.9	3976			
PFTrDA	9.440	663.0 -> 619.0	62127	2.59	µg/L	99
		663.0 -> 168.9	5226			
PFUnDA	8.639	563.1 -> 519.0	66543	2.81	µg/L	97
		563.1 -> 269.1	10265			
11CI-PF3OUdS	9.479	630.9 -> 450.9	56410	4.98	µg/L	98
		632.9 -> 452.9	17675			
9CI-PF3ONS	8.678	530.8 -> 351.0	95133	4.95	µg/L	98
		532.8 -> 353.0	31570			
ADONA	6.804	376.9 -> 250.9	274793	5.17	µg/L	96
		376.9 -> 84.8	73876			
HFPO-DA	6.007	284.9 -> 168.9	21567	5.06	µg/L	98
		284.9 -> 184.9	2444			
3:3FTCA	3.846	241.0 -> 177.0	12610	12.43	µg/L	98
		241.0 -> 117.0	1399			
5:3FTCA	6.271	341.0 -> 237.1	266321	64.85	µg/L	98
		341.0 -> 217.0	190269			
7:3FTCA	7.669	441.0 -> 316.9	148105	63.66	µg/L	84
		441.0 -> 336.9	333112			
EtFOSA	10.978	526.0 -> 219.0	23616	5.22	µg/L	98
		526.0 -> 169.0	31086			
EtFOSE	10.924	630.0 -> 58.9	65384	12.71	µg/L	100
		511.9 -> 219.0	20221			
MeFOSA	10.758	511.9 -> 169.0	28536	5.15	µg/L	99
		616.1 -> 58.9	58834			
MeFOSE	10.691	699.1 -> 79.9	5406	12.60	µg/L	100
		699.1 -> 98.8	2947			
PFDoDS	9.886	295.0 -> 201.0	14334	2.56	µg/L	97
		295.0 -> 84.9	4043			
NFDHA	5.512	279.0 -> 85.1	58188	5.01	µg/L	100
		229.0 -> 84.9	43270			
PFMBA	3.538	314.8 -> 134.9	125419	4.62	µg/L	100
		314.8 -> 82.9	4940			

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



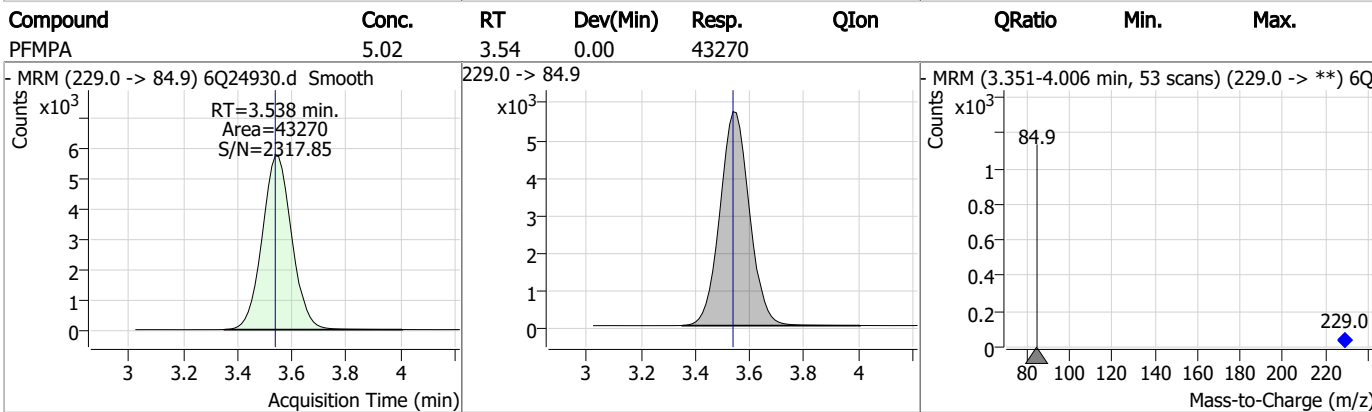
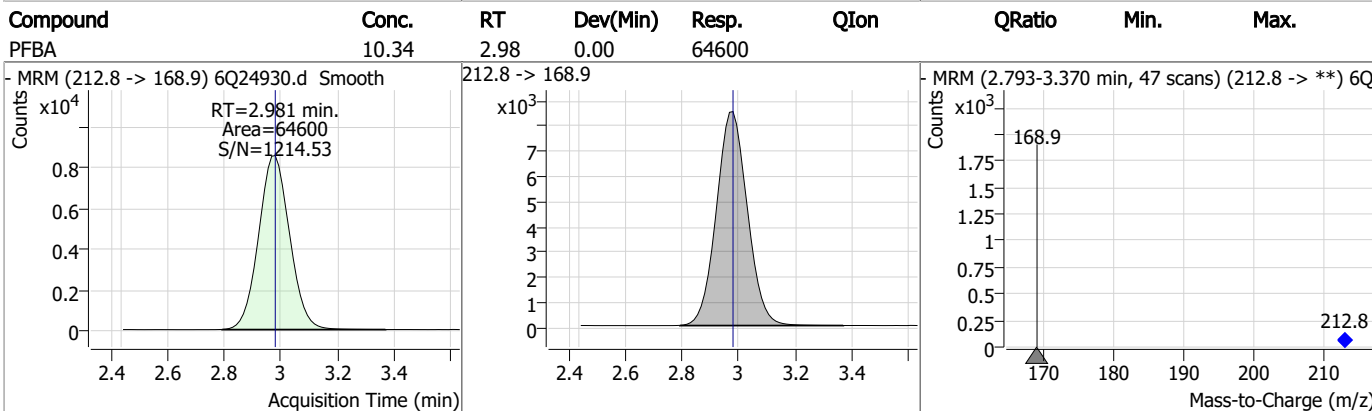
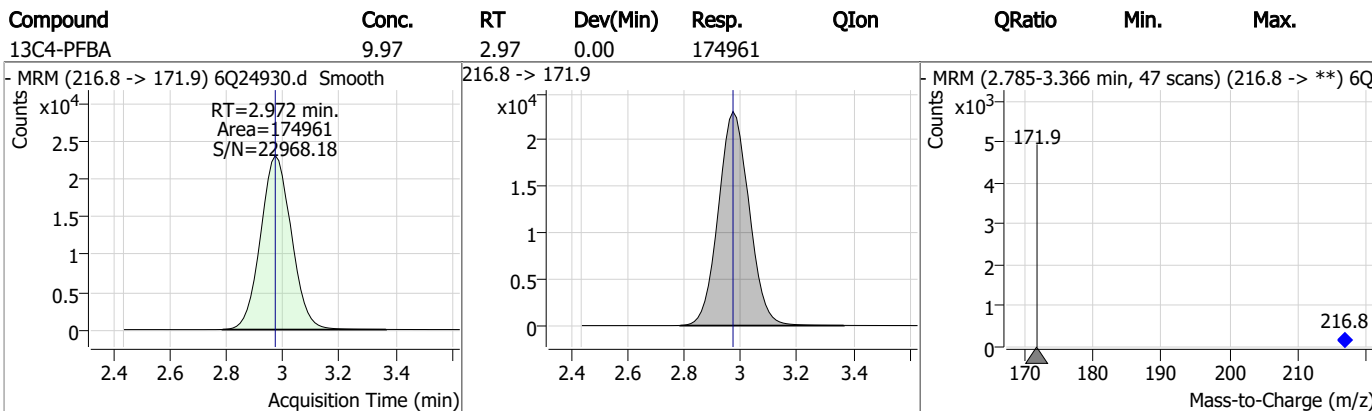
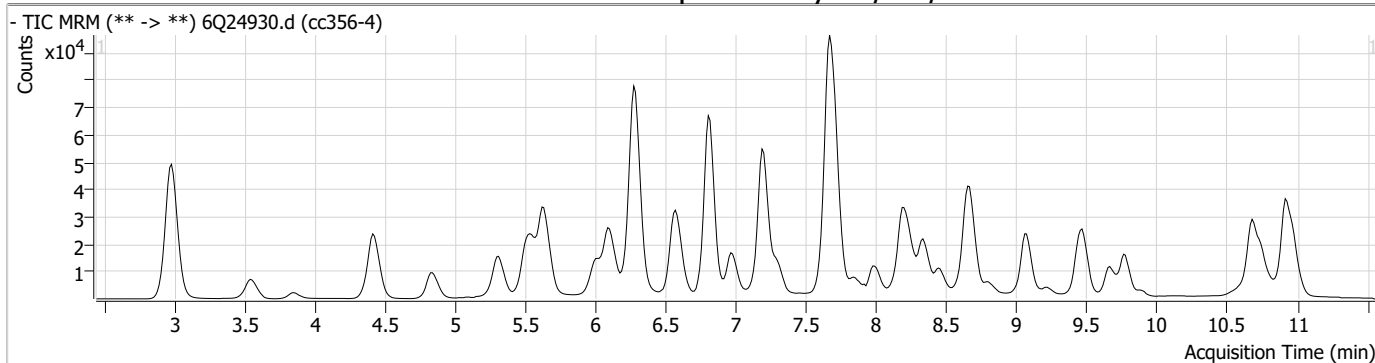
Perfluorinated Compounds by LC/MS/MS

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

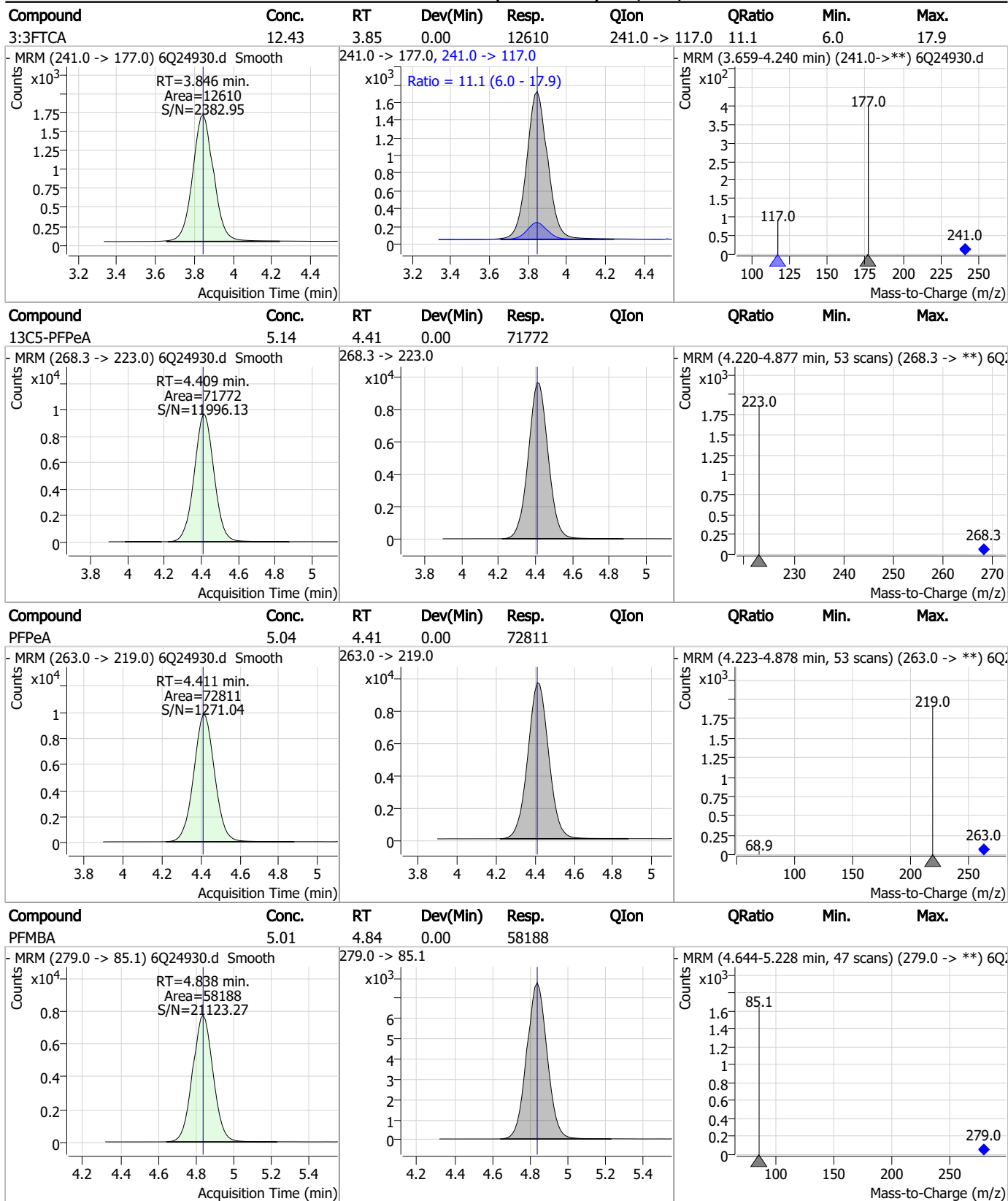
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Perfluorinated Compounds by LC/MS/MS



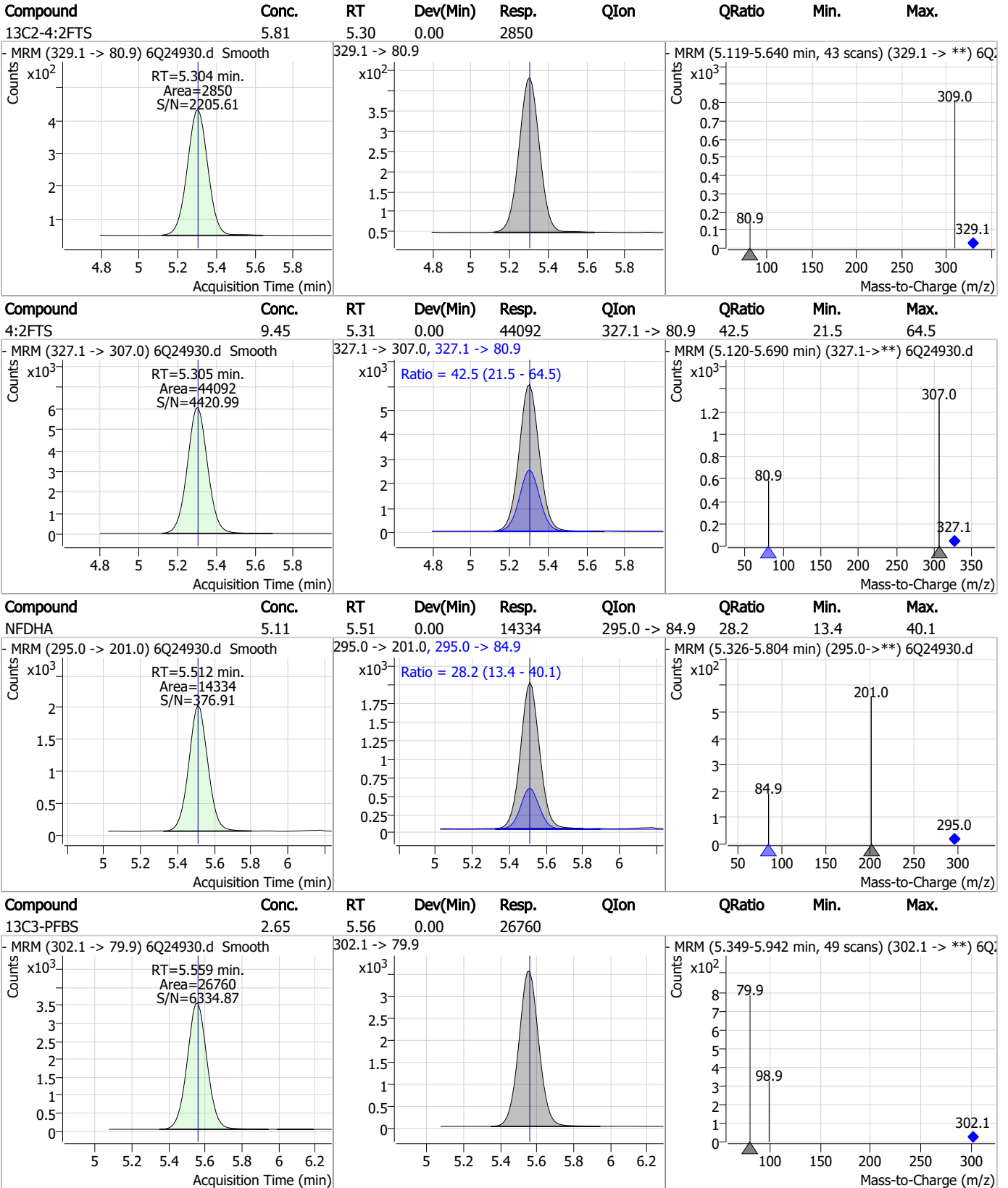
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Perfluorinated Compounds by LC/MS/MS



7.7.12

Perfluorinated Compounds by LC/MS/MS

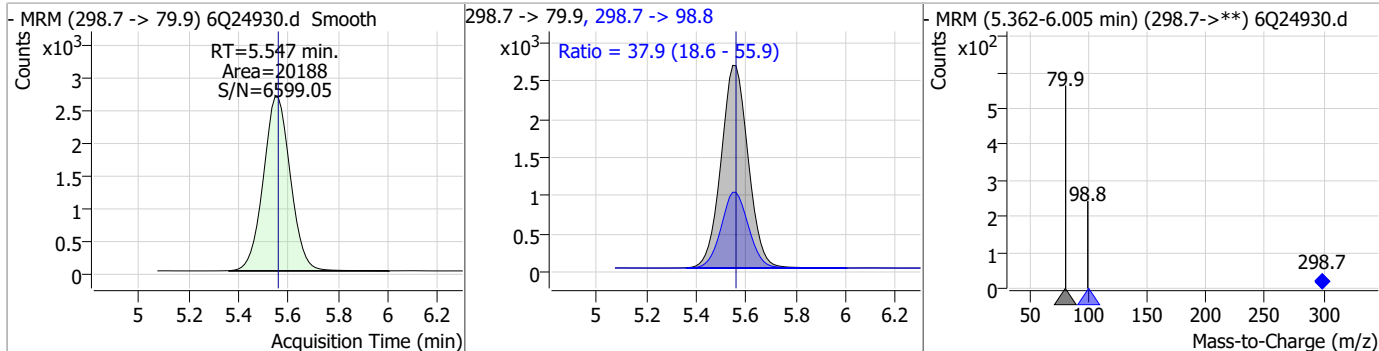


7.7.12 7

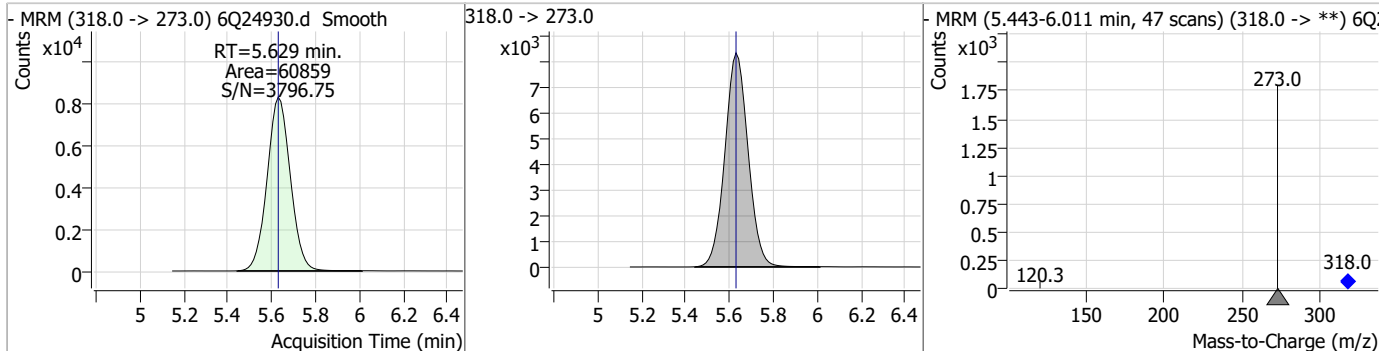


Perfluorinated Compounds by LC/MS/MS

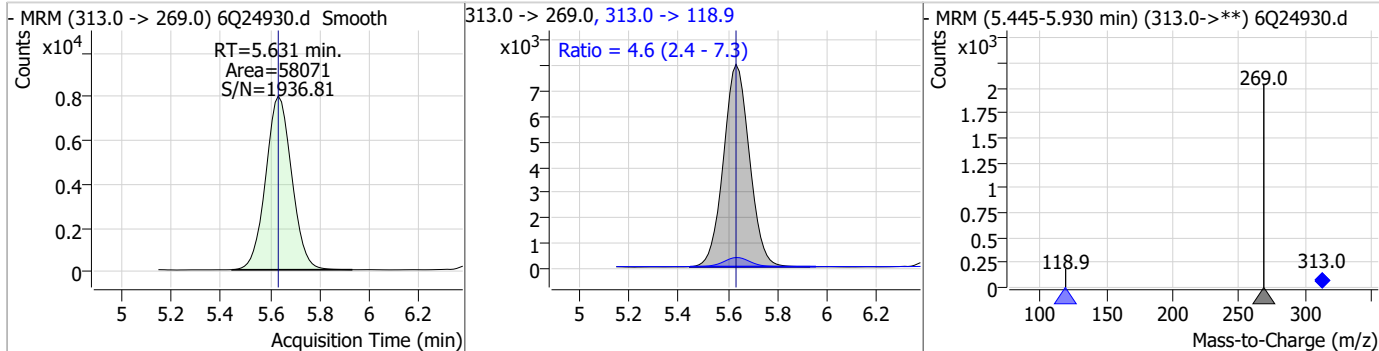
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.31	5.55	-0.01	20188	298.7 -> 98.8	37.9	18.6	55.9



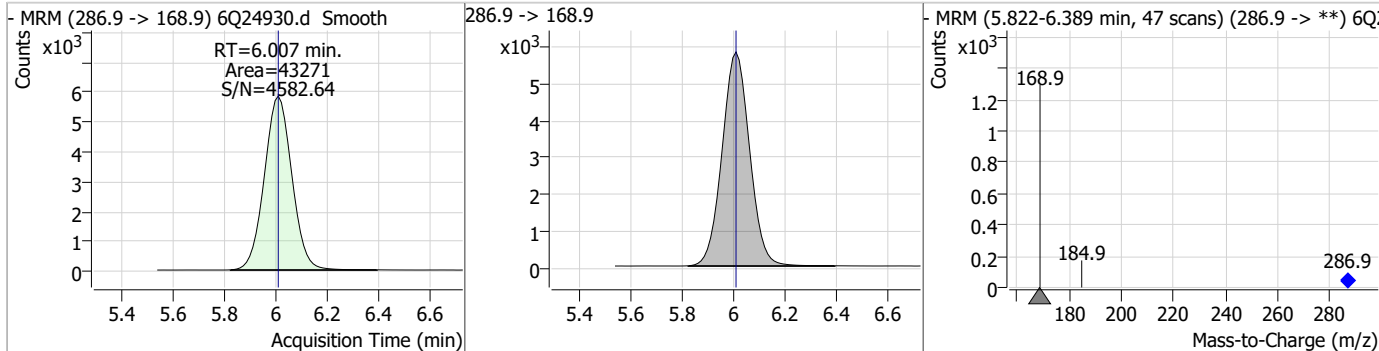
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.45	5.63	0.00	60859				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.66	5.63	0.00	58071	313.0 -> 118.9	4.6	2.4	7.3



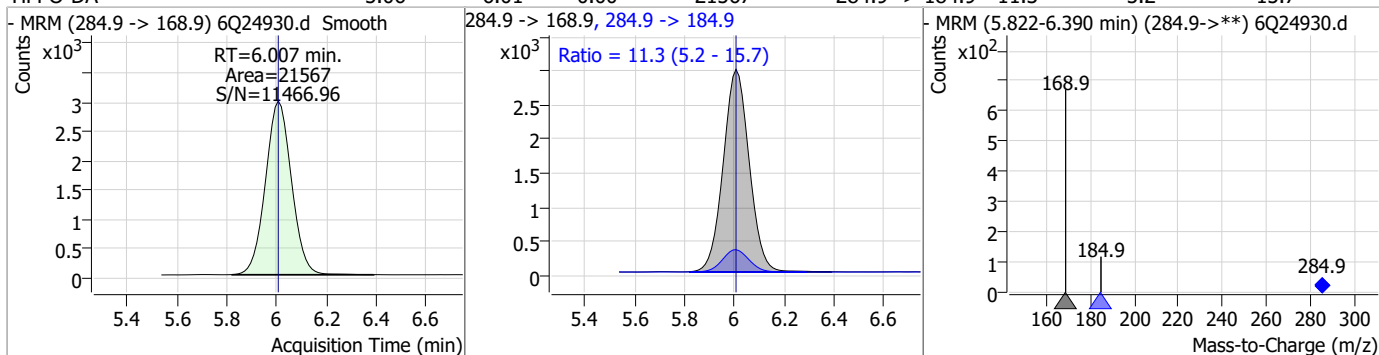
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.73	6.01	0.00	43271				



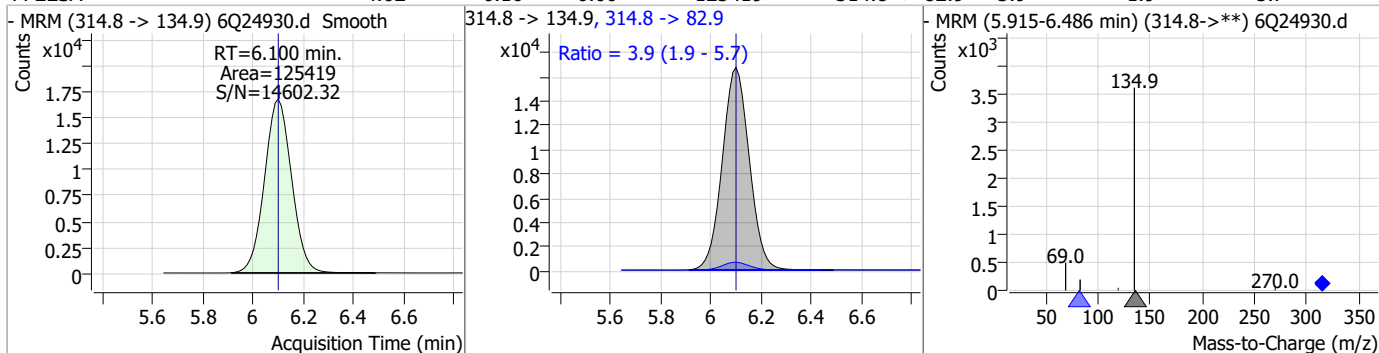
7.7.12
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Perfluorinated Compounds by LC/MS/MS

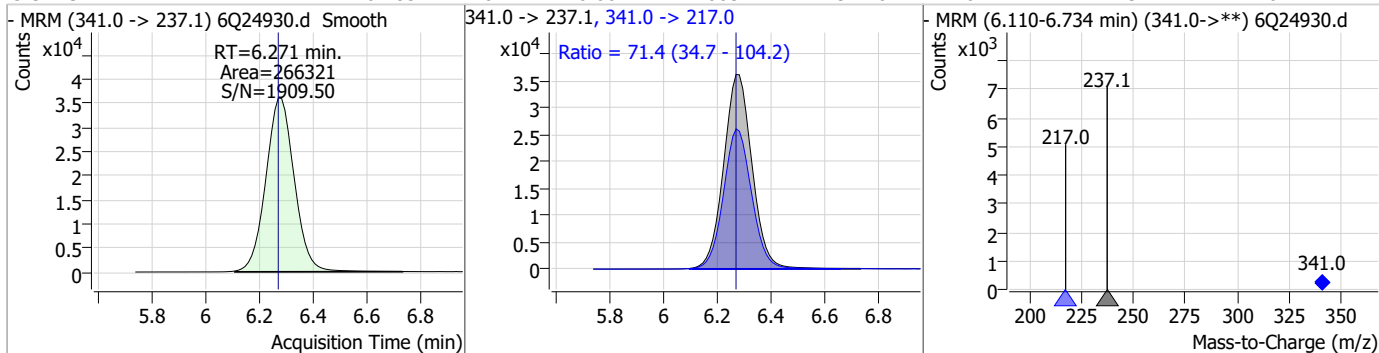
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.06	6.01	0.00	21567	284.9 -> 184.9	11.3	5.2	15.7



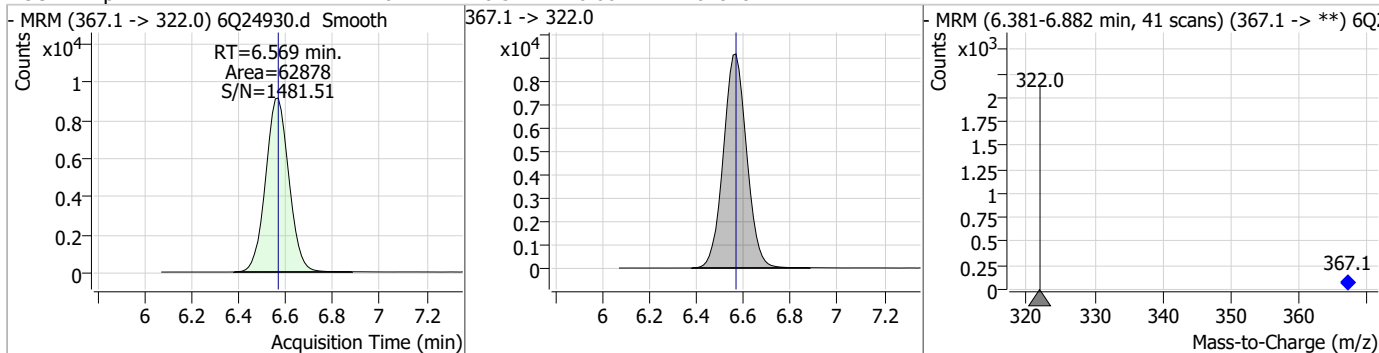
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.62	6.10	0.00	125419	314.8 -> 82.9	3.9	1.9	5.7



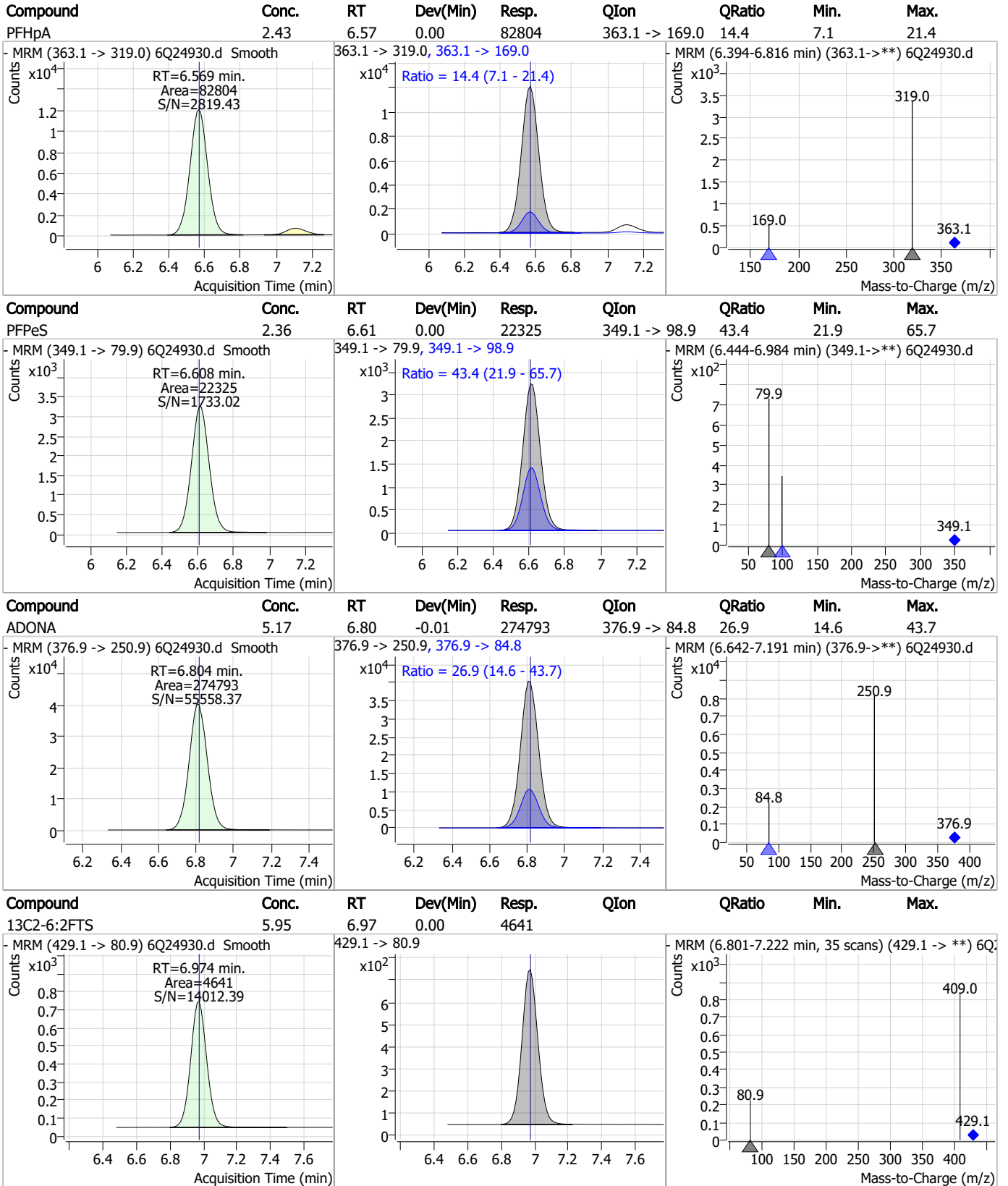
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	64.85	6.27	0.00	266321	341.0 -> 217.0	71.4	34.7	104.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.61	6.57	0.00	62878	367.1 -> 322.0			



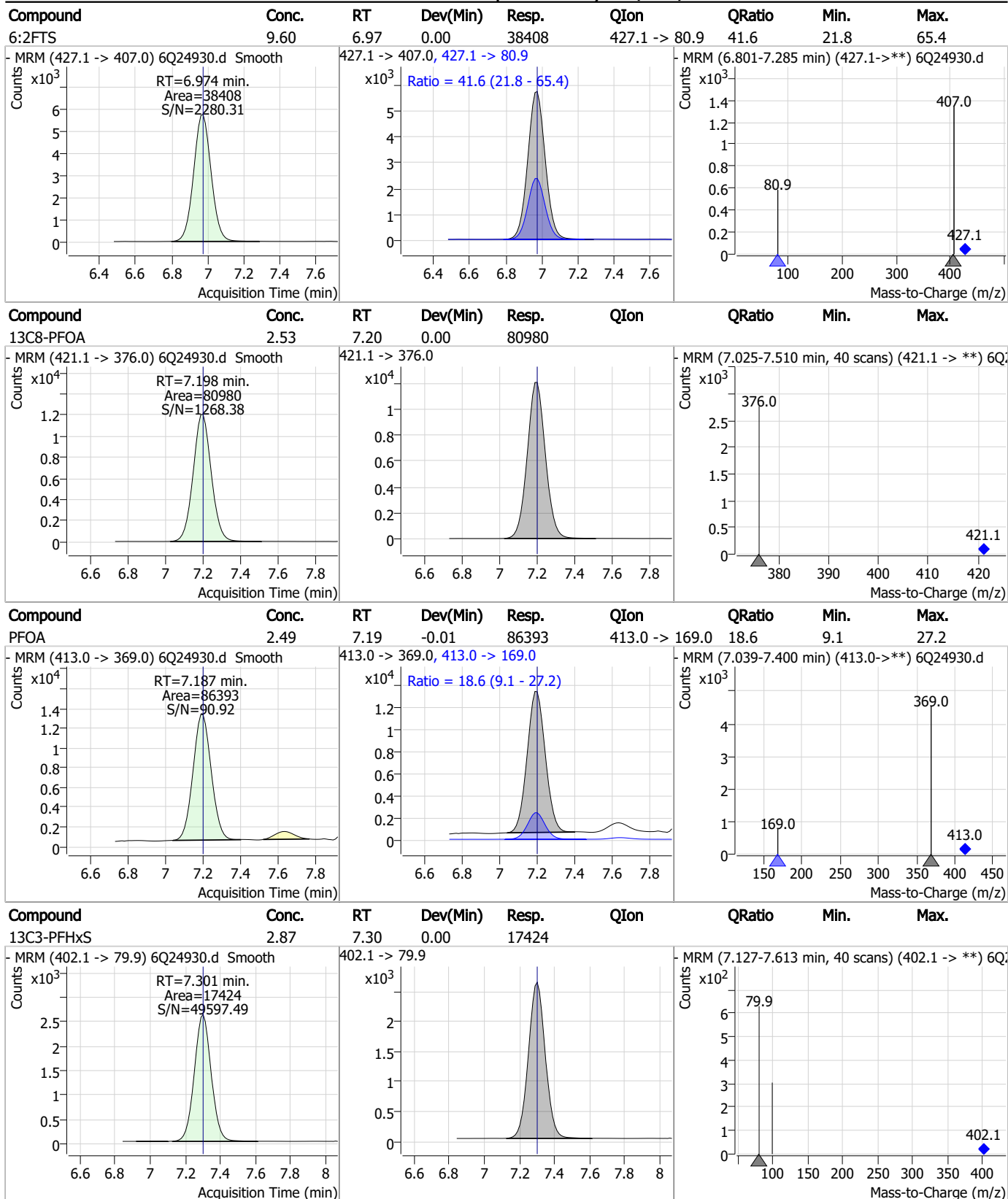
Perfluorinated Compounds by LC/MS/MS



7.7.12 7



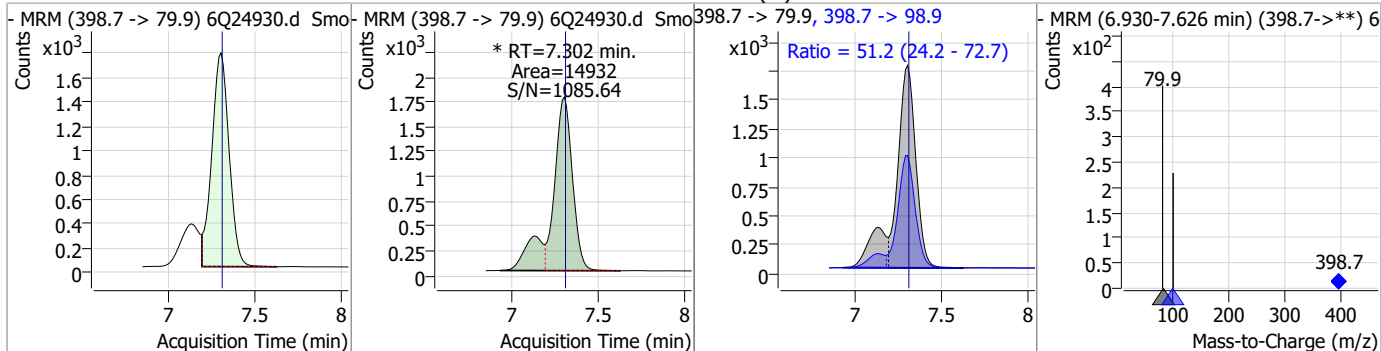
Perfluorinated Compounds by LC/MS/MS



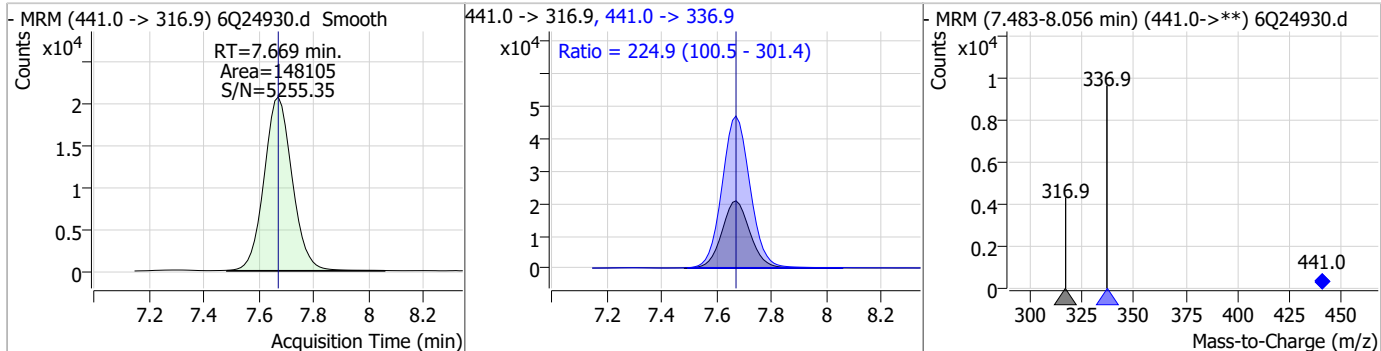
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Perfluorinated Compounds by LC/MS/MS

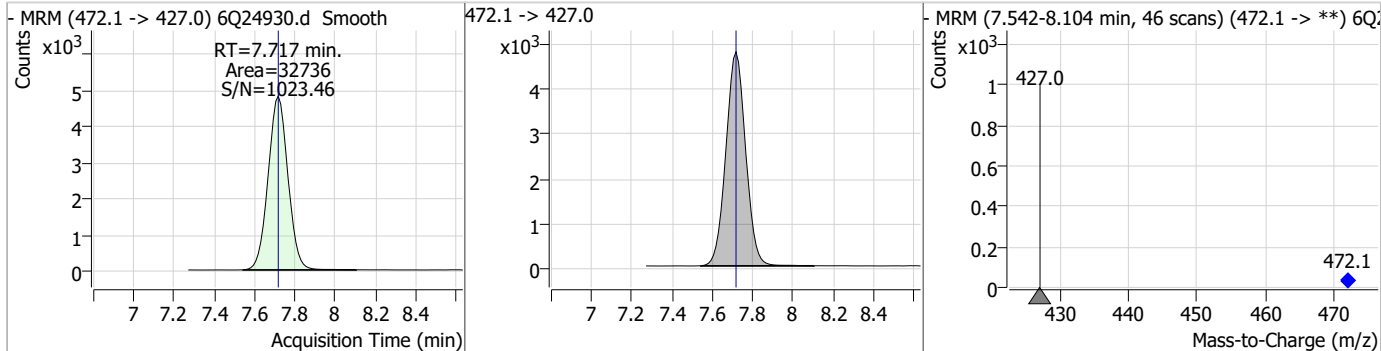
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.20	7.30	0.00	14932 (m)	398.7 -> 98.9	51.2	24.2	72.7



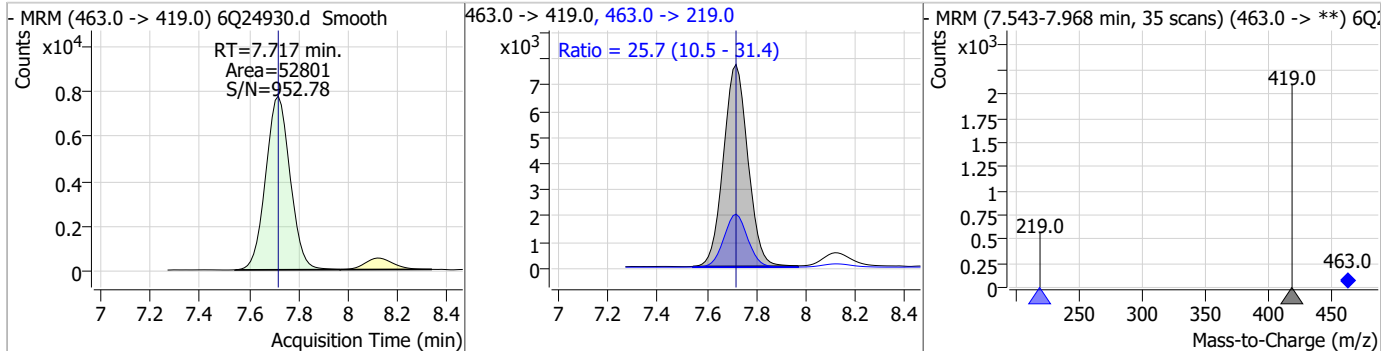
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	63.66	7.67	0.00	148105	441.0 -> 336.9	224.9	100.5	301.4



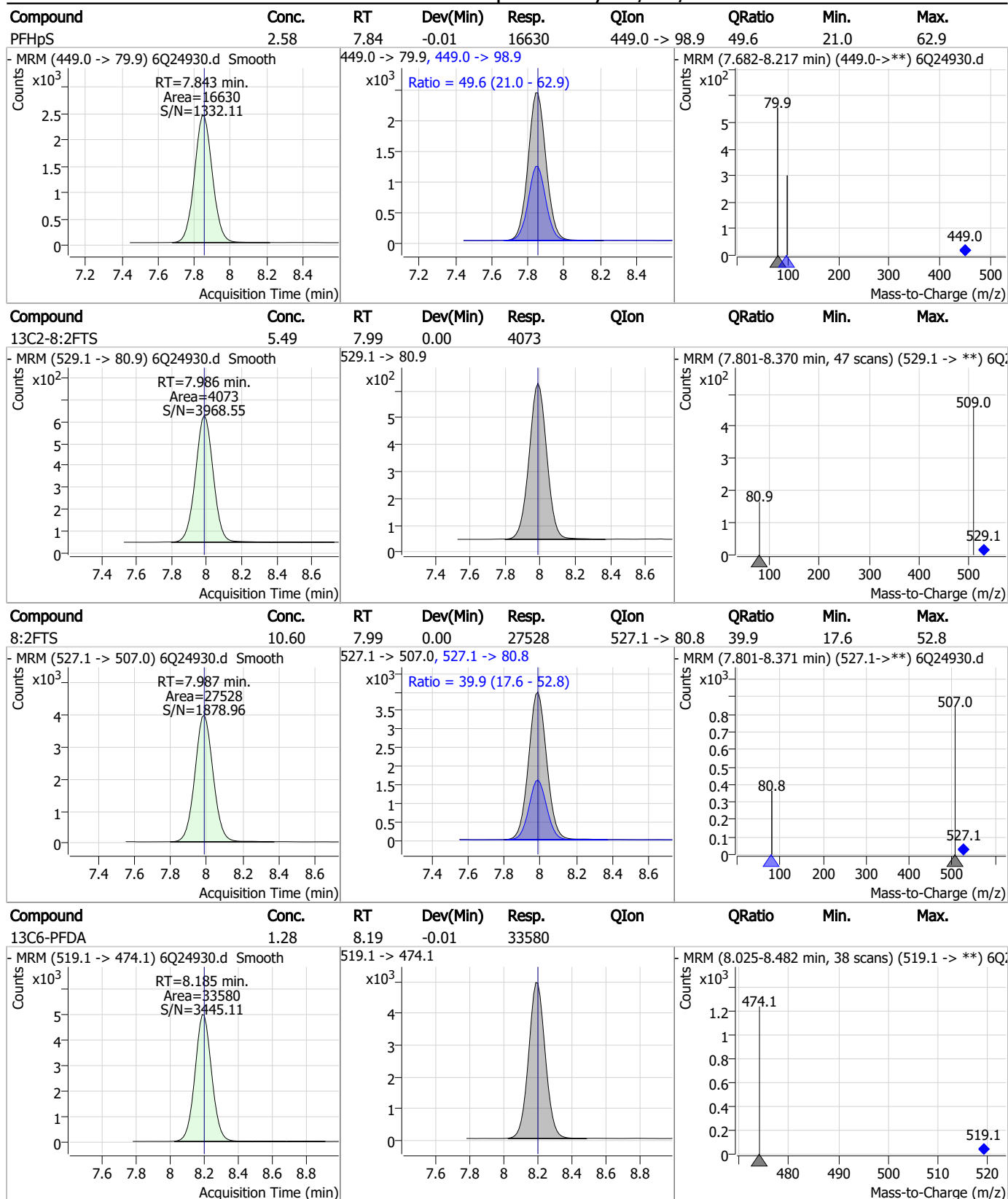
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.17	7.72	0.00	32736	472.1 -> 427.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.49	7.72	0.00	52801	463.0 -> 219.0	25.7	10.5	31.4

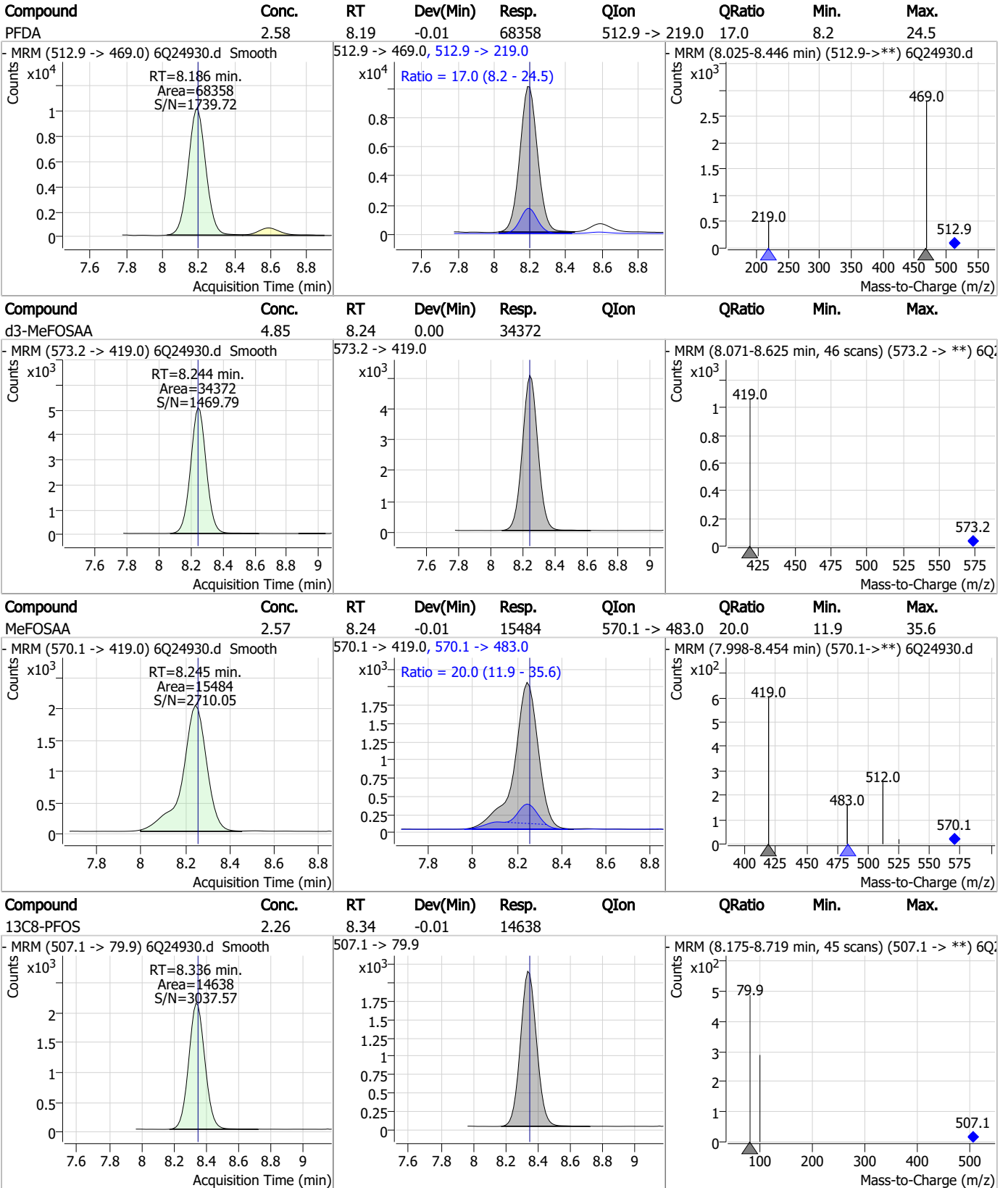


Perfluorinated Compounds by LC/MS/MS



7.7.12

Perfluorinated Compounds by LC/MS/MS

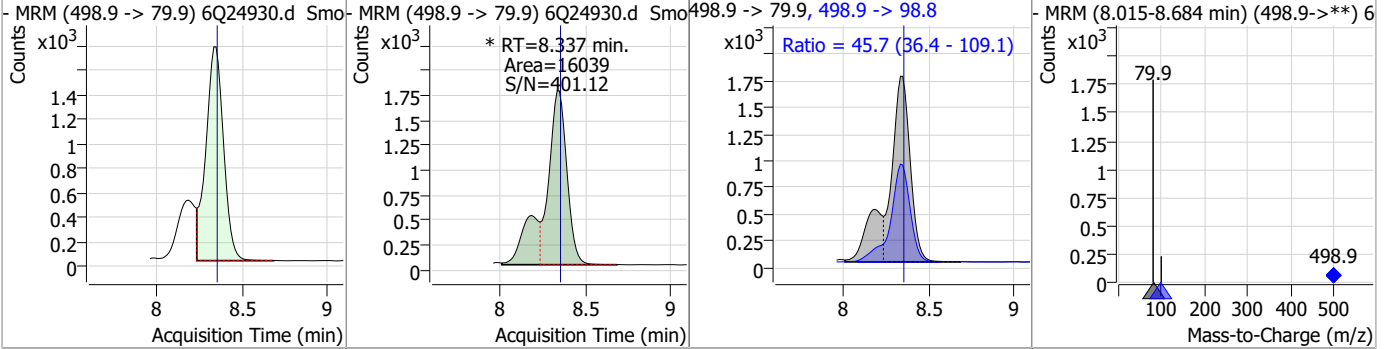


7.7.12
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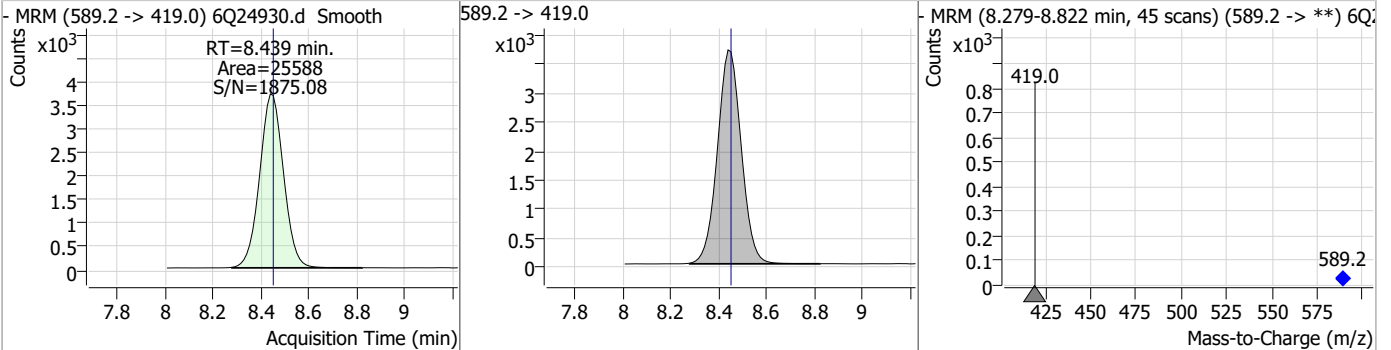


Perfluorinated Compounds by LC/MS/MS

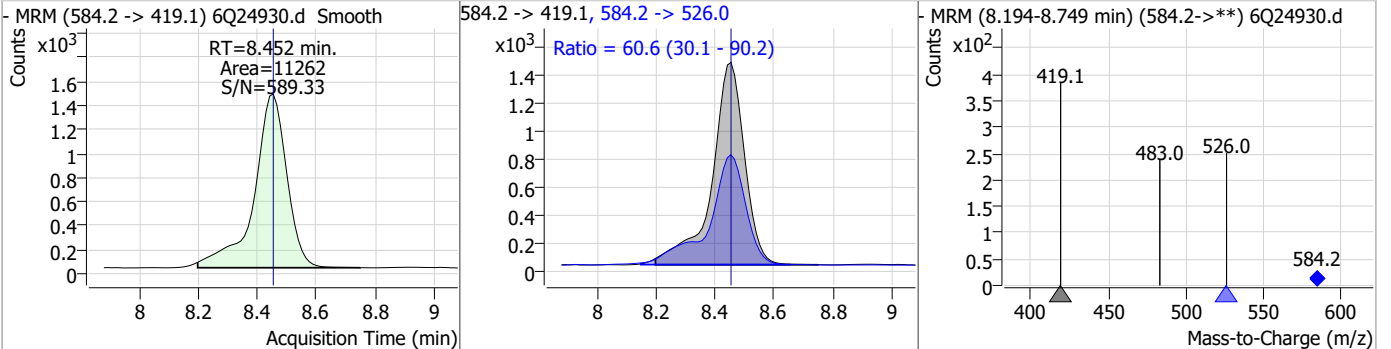
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.54	8.34	-0.01	16039 (m)	498.9 -> 98.8	45.7	36.4	109.1



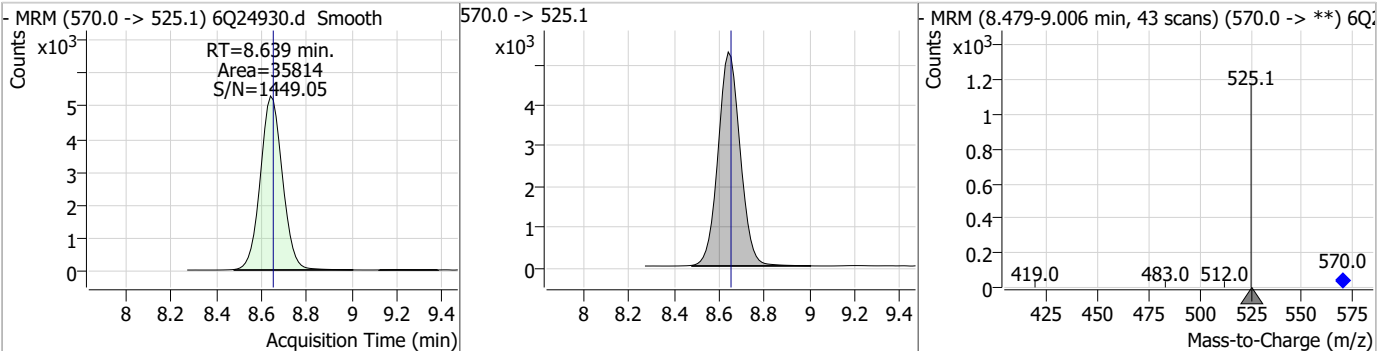
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.64	8.44	-0.01	25588				



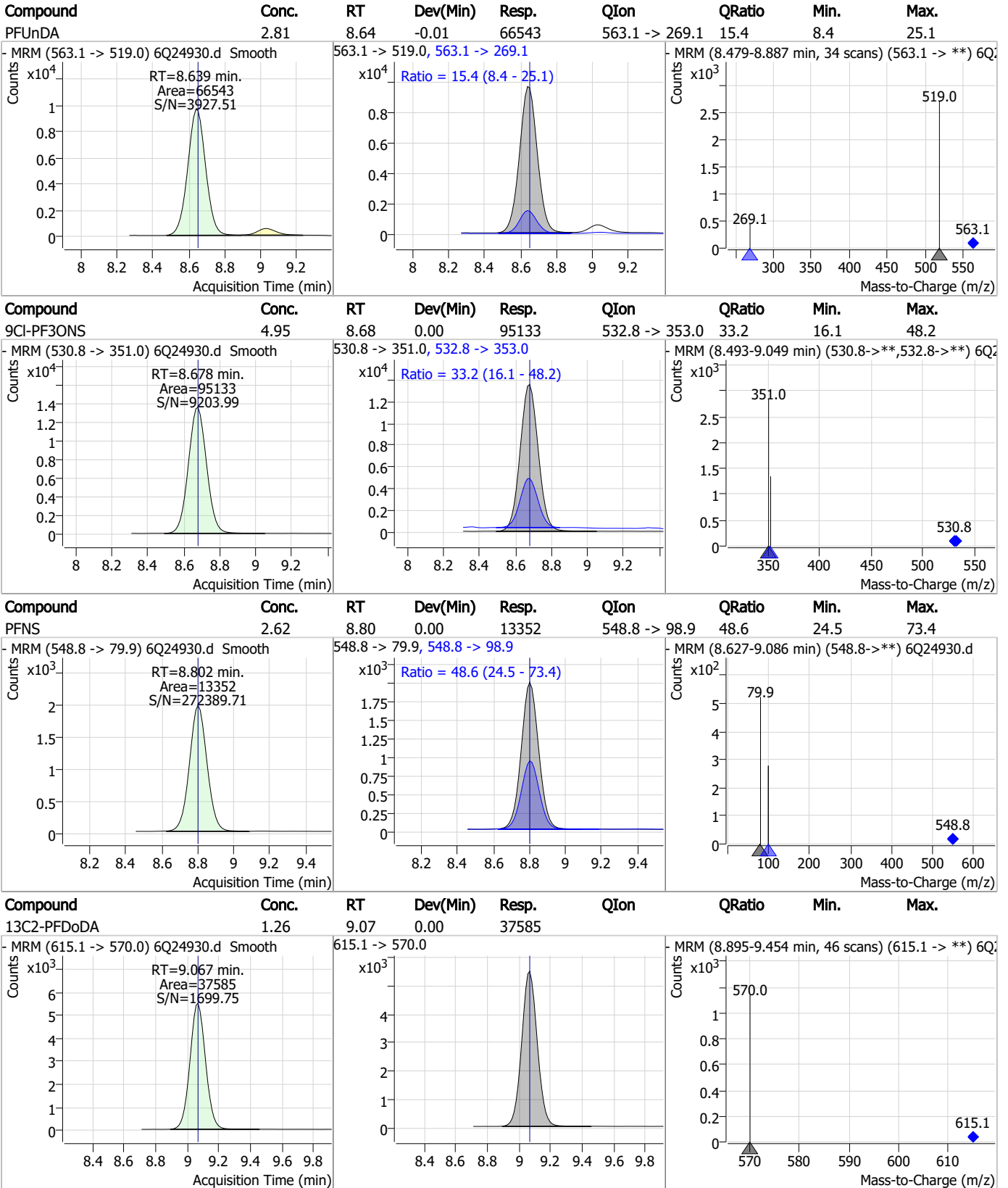
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.64	8.45	0.00	11262	584.2 -> 526.0	60.6	30.1	90.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.22	8.64	-0.01	35814				



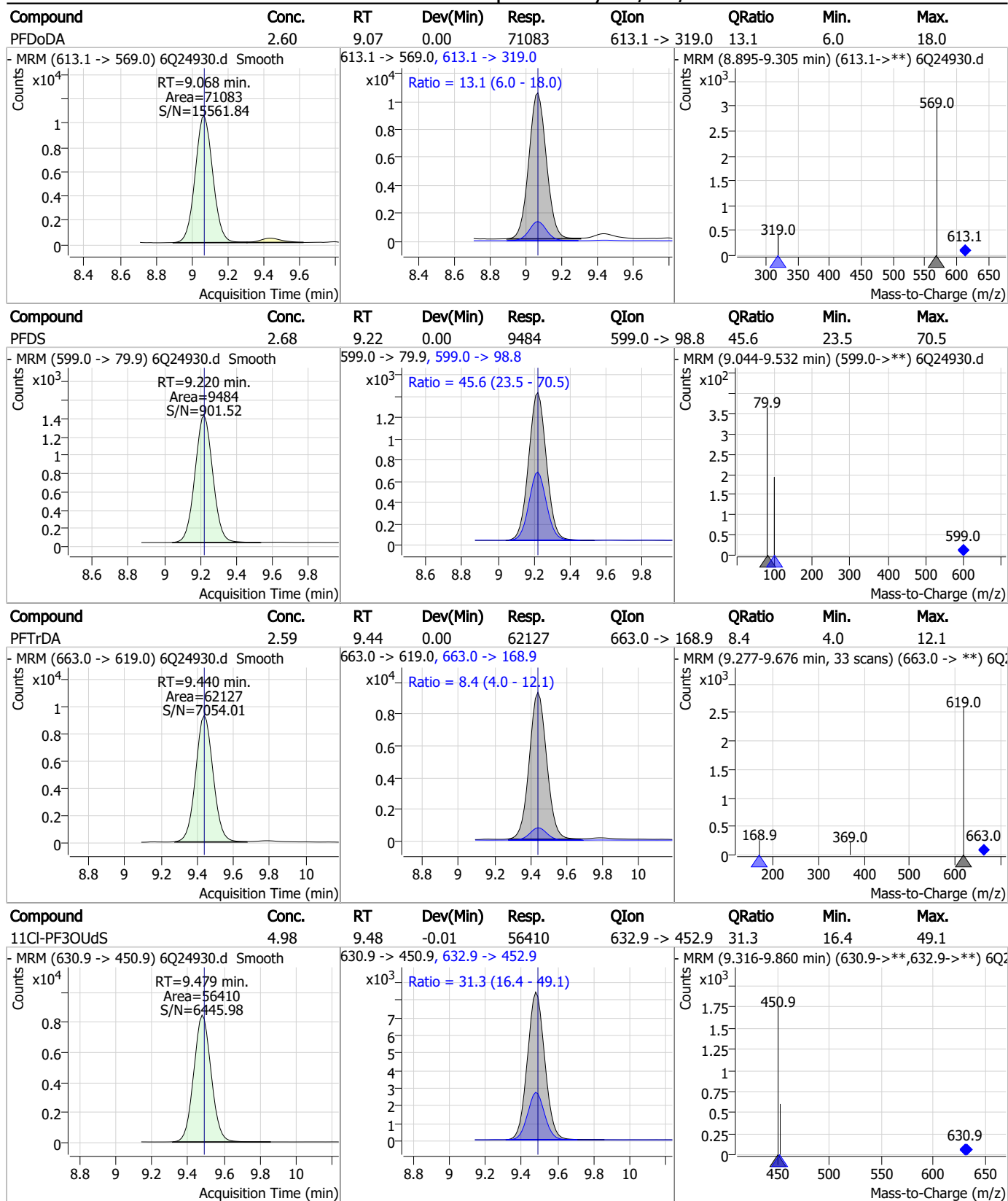
Perfluorinated Compounds by LC/MS/MS



7.7.12 7



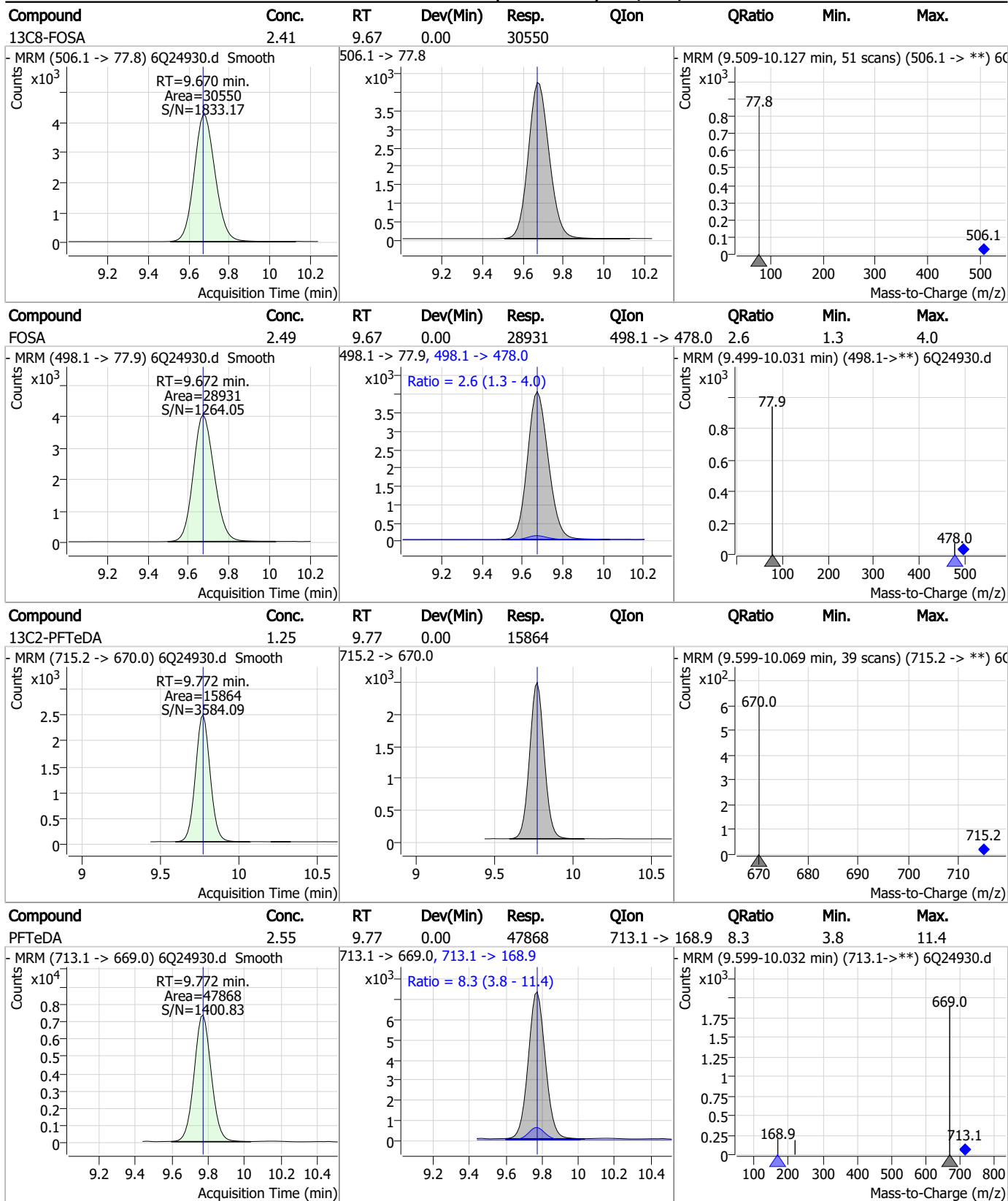
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

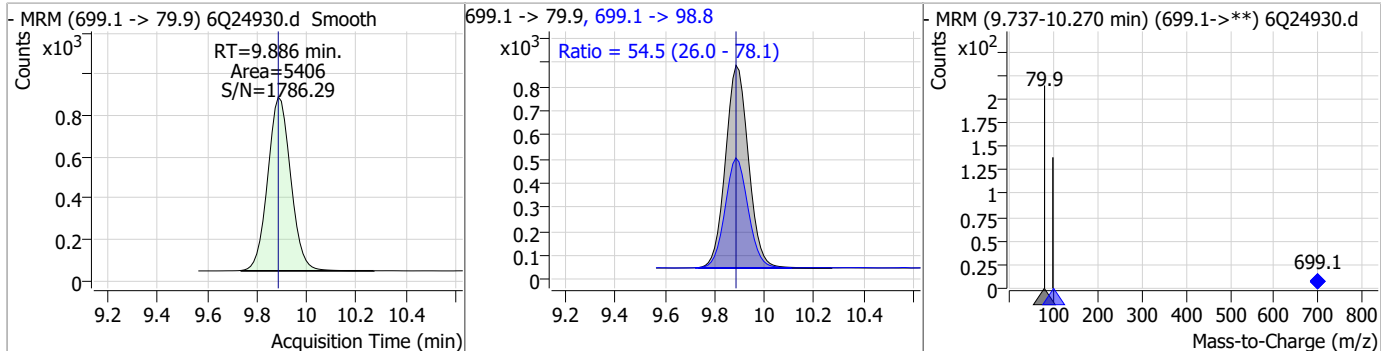


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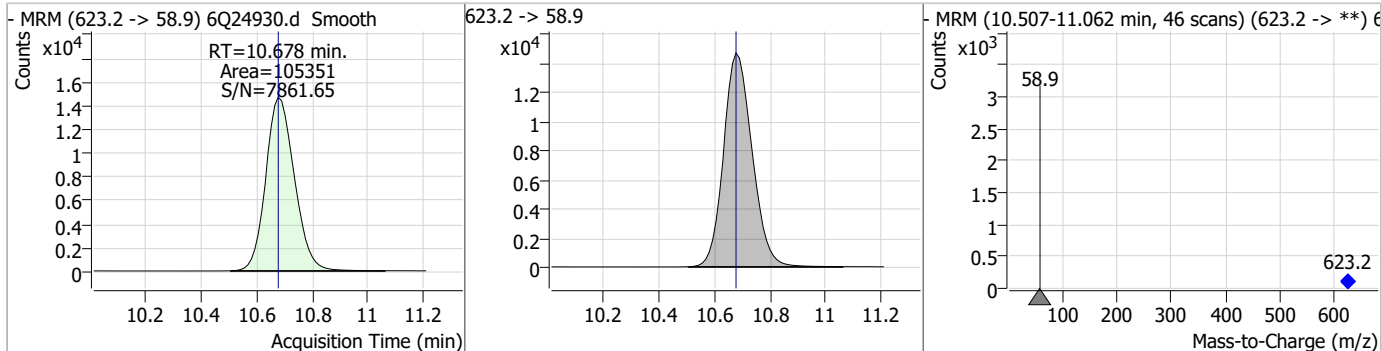


Perfluorinated Compounds by LC/MS/MS

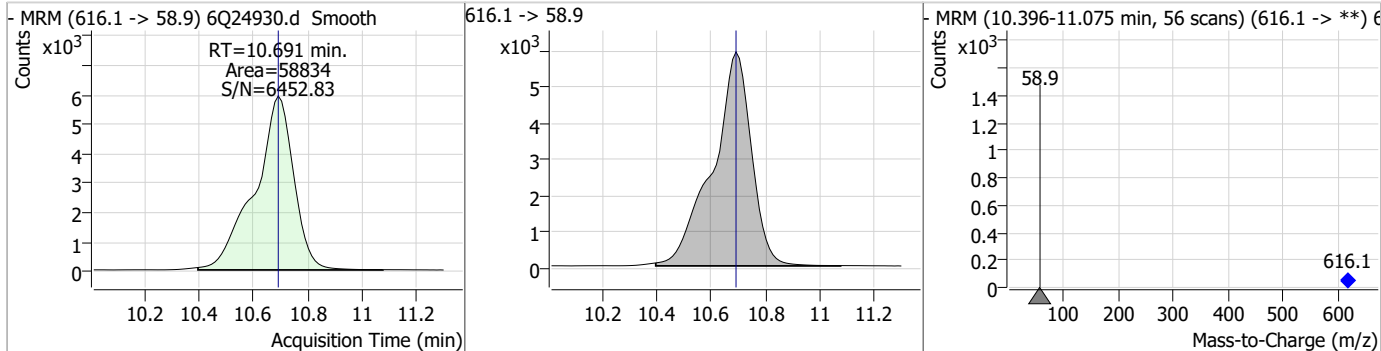
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.56	9.89	0.00	5406	699.1 -> 98.8	54.5	26.0	78.1



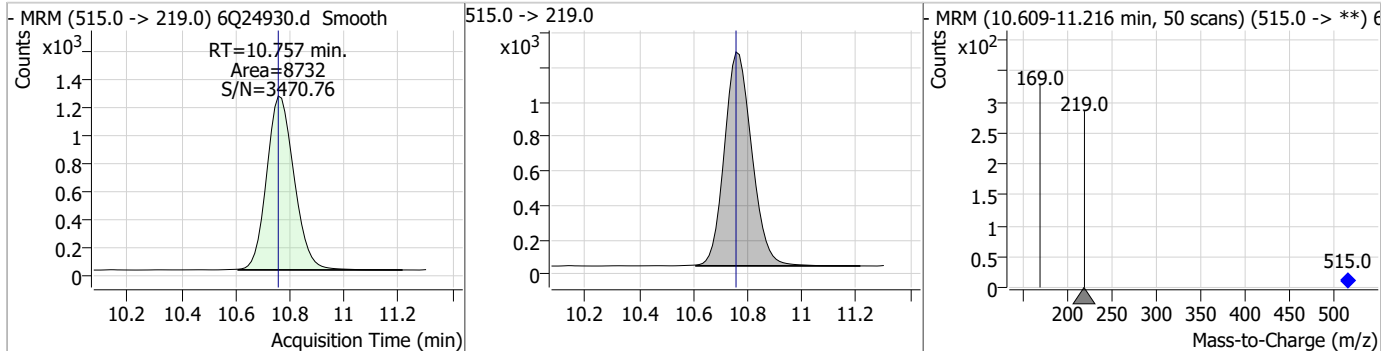
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.46	10.68	0.00	105351				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.60	10.69	0.00	58834				

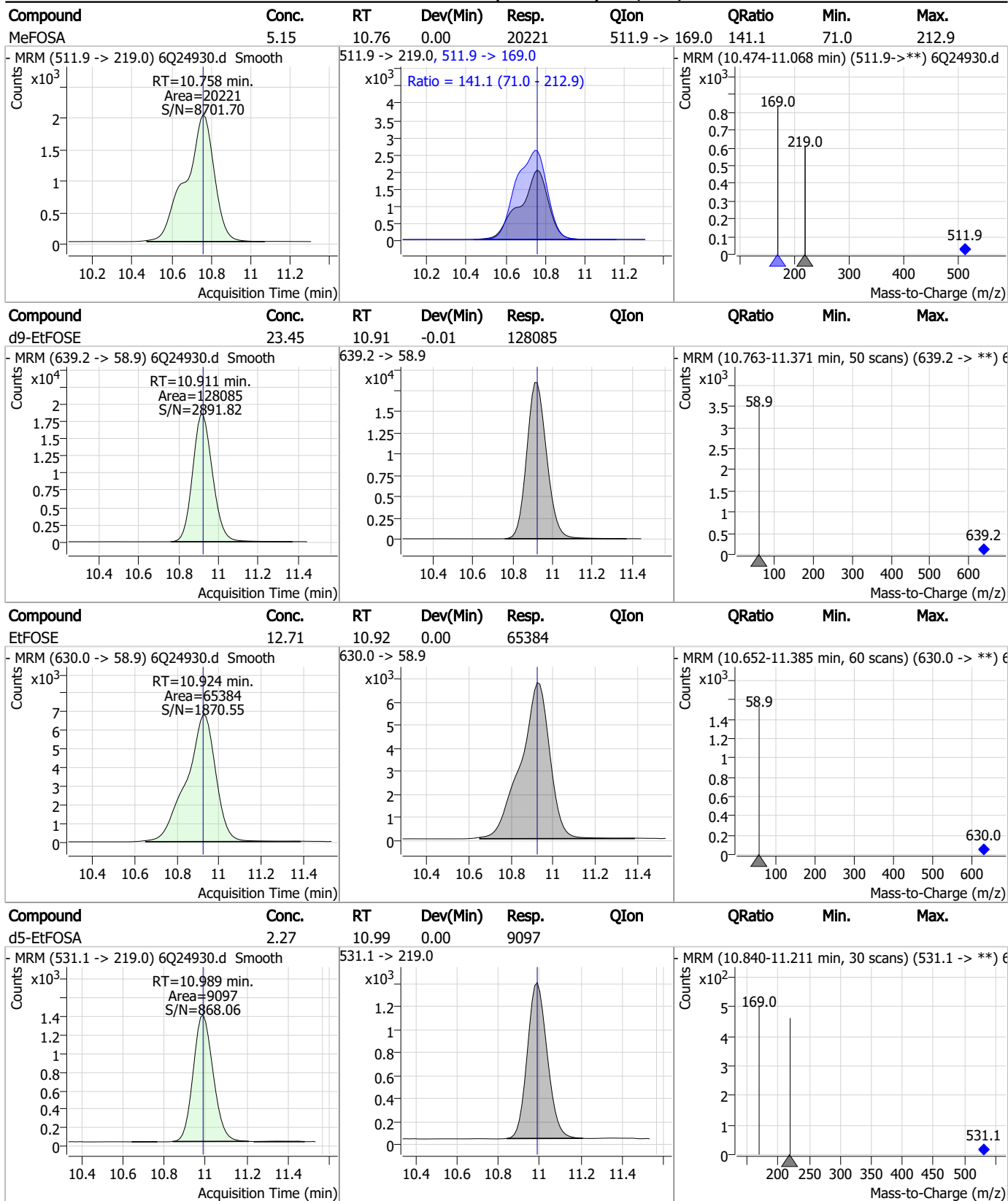


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.29	10.76	0.00	8732				



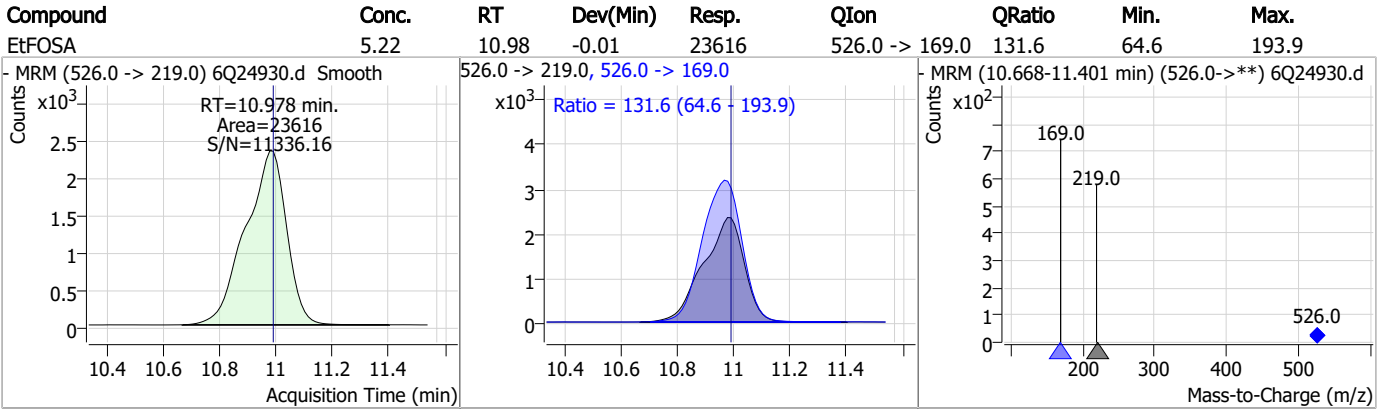
7.7.12
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



7.7.12

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Manual Integration Approval Summary

Sample Number: S6Q356-CC356 Method: EPA DRAFT 1633
Lab FileID: 6Q24930.D Analyst approved: 09/25/23 14:50 Martha Valls
Injection Time: 09/24/23 17:37 Supervisor approved: 09/26/23 13:54 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.34	Split peak

7.7.12.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24931.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/24/2023 5:51:57 PM
 Sample Name : cc356-1.0LL
 Vial : P1-A2
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	187367	10.00 µg/L	0.000
M5-PFPeA	4.422	268.3 -> 223.0	76010	5.00 µg/L	0.012
M5-PFHxA	5.629	318.0 -> 273.0	68047	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	65308	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	91053	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	36037	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	35071	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	42358	1.25 µg/L	0.000
M2-PFDoDA	9.067	615.1 -> 570.0	38206	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	15735	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	31642	2.50 µg/L	0.000
M3-PFBS	5.559	302.1 -> 79.9	30331	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	17236	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	16689	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	3115	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4568	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	4270	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	34780	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	46641	10.00 µg/L	0.000
M5-EtFOSAA	8.439	589.2 -> 419.0	27529	5.00 µg/L	-0.012
M7-MeFOSE	10.678	623.2 -> 58.9	109748	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	134609	25.00 µg/L	-0.012
M5-EtFOSA	10.989	531.1 -> 219.0	9754	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9562	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	15765	2.50 µg/L	0.000
13C3-PFBA	2.976	216.0 -> 172.0	77036	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	11093	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	96596	2.50 µg/L	0.000
13C2-PFDA	8.186	515.1 -> 470.1	32133	1.25 µg/L	-0.012
13C5-PFNA	7.717	468.0 -> 423.0	37392	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	62402	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	3115	5.49 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.8%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4568	5.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4270	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C2-PFDoDA	9.067	615.1 -> 570.0	38206	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C2-PFTeDA	9.772	715.2 -> 670.0	15735	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C3-PFBS	5.559	302.1 -> 79.9	30331	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.1%		
13C3-PFHxS	7.301	402.1 -> 79.9	17236	2.46 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C4-PFBA	2.972	216.8 -> 171.9	187367	10.06 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C4-PFHpA	6.569	367.1 -> 322.0	65308	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C5-PFHxA	5.629	318.0 -> 273.0	68047	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C5-PFPeA	4.422	268.3 -> 223.0	76010	5.14 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C6-PFDA	8.198	519.1 -> 474.1	35071	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C7-PFUnDA	8.651	570.0 -> 525.1	42358	1.40 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 112.2%	
13C8-FOSA	9.670	506.1 -> 77.8	31642	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.9%	
13C8-PFOA	7.198	421.1 -> 376.0	91053	2.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.8%	
13C8-PFOS	8.348	507.1 -> 79.9	16689	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C9-PFNA	7.717	472.1 -> 427.0	36037	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.9%	
d3-MeFOSAA	8.244	573.2 -> 419.0	34780	4.66 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.1%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	46641	9.92 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
d3-MeFOSA	10.757	515.0 -> 219.0	9562	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.4%	
d5-EtFOSAA	8.439	589.2 -> 419.0	27529	4.74 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.9%	
d7-MeFOSE	10.678	623.2 -> 58.9	109748	23.21 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 92.8%	
d9-EtFOSE	10.911	639.2 -> 58.9	134609	23.39 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.6%	
d5-EtFOSA	10.989	531.1 -> 219.0	9754	2.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.5%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	3451	0.68 µg/L	97
		327.1 -> 80.9	1422		
6:2FTS	6.974	427.1 -> 407.0	3039	0.77 µg/L	100
		427.1 -> 80.9	1330		
8:2FTS	7.987	527.1 -> 507.0	2035	0.75 µg/L	81
		527.1 -> 80.8	947		
EtFOSAA	8.452	584.2 -> 419.1	882	0.19 µg/L	79
		584.2 -> 526.0	391		
FOSA	9.672	498.1 -> 77.9	2150	0.18 µg/L	99
		498.1 -> 478.0	63		
MeFOSAA	8.257	570.1 -> 419.0	1144	0.19 µg/L	96
		570.1 -> 483.0	247		
PFBA	2.981	212.8 -> 168.9	4701	0.70 µg/L	100
PFBS	5.560	298.7 -> 79.9	1515	0.15 µg/L	96
		298.7 -> 98.8	525		
PFDA	8.198	512.9 -> 469.0	5158	0.19 µg/L	97
		512.9 -> 219.0	778		
PFDODA	9.068	613.1 -> 569.0	5625	0.20 µg/L	95
		613.1 -> 319.0	574		
PFDS	9.220	599.0 -> 79.9	782	0.19 µg/L	99

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	374			
PFHpA	6.569	363.1 -> 319.0	6272	0.18	µg/L	98
		363.1 -> 169.0	947			
PFHpS	7.856	449.0 -> 79.9	1267	0.17	µg/L	96
		449.0 -> 98.9	565			
PFHxA	5.631	313.0 -> 269.0	4395	0.18	µg/L	100
		313.0 -> 118.9	220			
PFHxS	7.302	398.7 -> 79.9	1251	0.19	µg/L	m 91
		398.7 -> 98.9	529			
PFNA	7.717	463.0 -> 419.0	4361	0.19	µg/L	98
		463.0 -> 219.0	944			
PFNS	8.802	548.8 -> 79.9	1013	0.17	µg/L	97
		548.8 -> 98.9	515			
PFOA	7.200	413.0 -> 369.0	7735	0.20	µg/L	96
		413.0 -> 169.0	1263			
PFOS	8.350	498.9 -> 79.9	1226	0.17	µg/L	m 72
		498.9 -> 98.8	607			
PFPeA	4.424	263.0 -> 219.0	5540	0.36	µg/L	100
PFPeS	6.620	349.1 -> 79.9	1516	0.16	µg/L	96
		349.1 -> 98.9	699			
PFTeDA	9.772	713.1 -> 669.0	3621	0.19	µg/L	98
		713.1 -> 168.9	252			
PFTrDA	9.440	663.0 -> 619.0	4344	0.18	µg/L	95
		663.0 -> 168.9	428			
PFUnDA	8.639	563.1 -> 519.0	5129	0.18	µg/L	92
		563.1 -> 269.1	681			
11Cl-PF3OUdS	9.479	630.9 -> 450.9	4420	0.36	µg/L	98
		632.9 -> 452.9	1385			
9Cl-PF3ONS	8.678	530.8 -> 351.0	7627	0.37	µg/L	82
		532.8 -> 353.0	3208			
ADONA	6.804	376.9 -> 250.9	20234	0.35	µg/L	98
		376.9 -> 84.8	5636			
HFPO-DA	6.007	284.9 -> 168.9	1655	0.36	µg/L	99
		284.9 -> 184.9	180			
3:3FTCA	3.846	241.0 -> 177.0	986	0.91	µg/L	100
		241.0 -> 117.0	118			
5:3FTCA	6.283	341.0 -> 237.1	20695	4.51	µg/L	95
		341.0 -> 217.0	15185			
7:3FTCA	7.669	441.0 -> 316.9	11174	4.30	µg/L	88
		441.0 -> 336.9	24454			
EtFOSA	10.990	526.0 -> 219.0	1710	0.35	µg/L	99
		526.0 -> 169.0	2235			
EtFOSE	10.924	630.0 -> 58.9	4734	0.88	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	1552	0.36	µg/L	90
		511.9 -> 169.0	2006			
MeFOSE	10.691	616.1 -> 58.9	4563	0.94	µg/L	100
PFDoDS	9.886	699.1 -> 79.9	367	0.15	µg/L	89
		699.1 -> 98.8	218			
NFDHA	5.512	295.0 -> 201.0	1119	0.36	µg/L	93
		295.0 -> 84.9	260			
PFMBA	4.838	279.0 -> 85.1	4443	0.36	µg/L	100
PFMPA	3.551	229.0 -> 84.9	3241	0.35	µg/L	100
PFEESA	6.100	314.8 -> 134.9	9445	0.31	µg/L	99
		314.8 -> 82.9	400			

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



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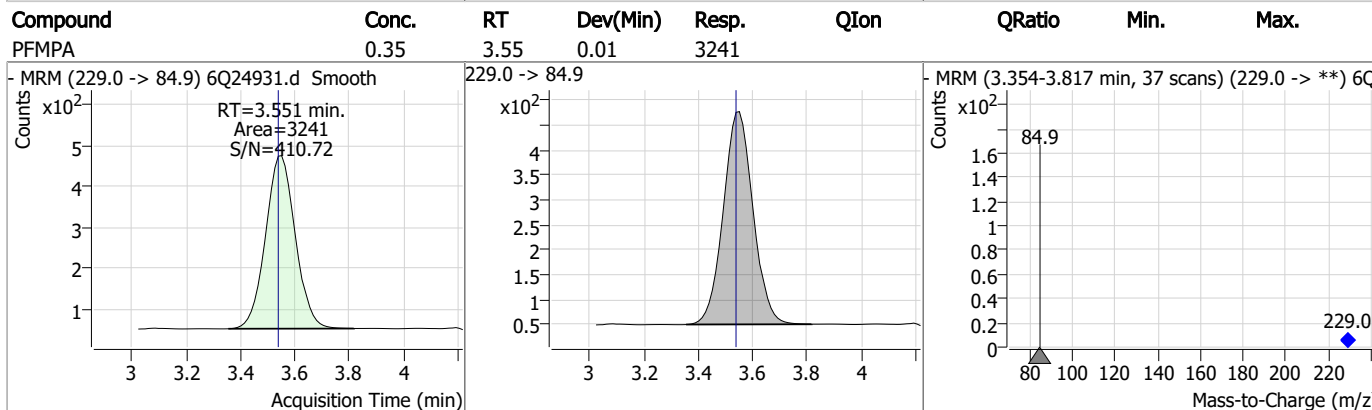
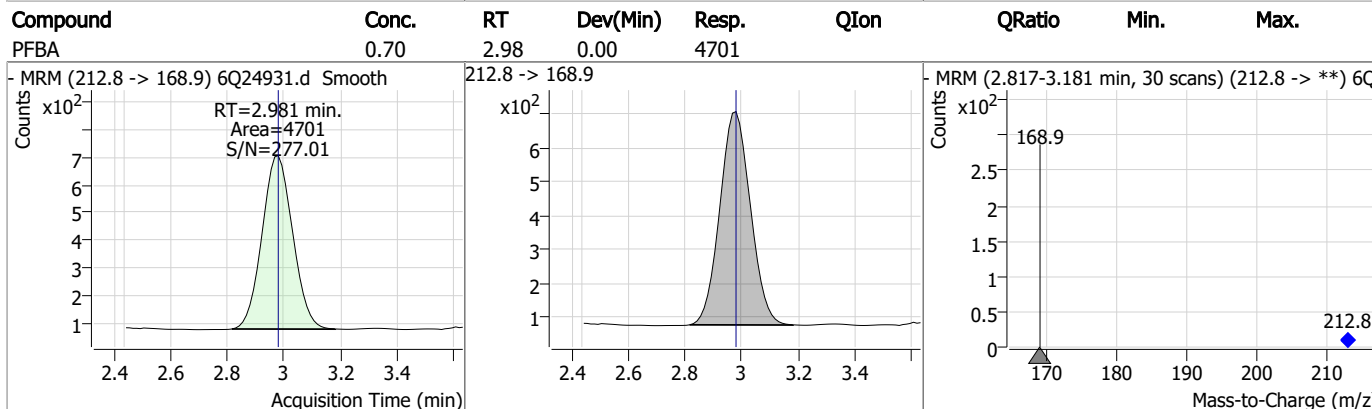
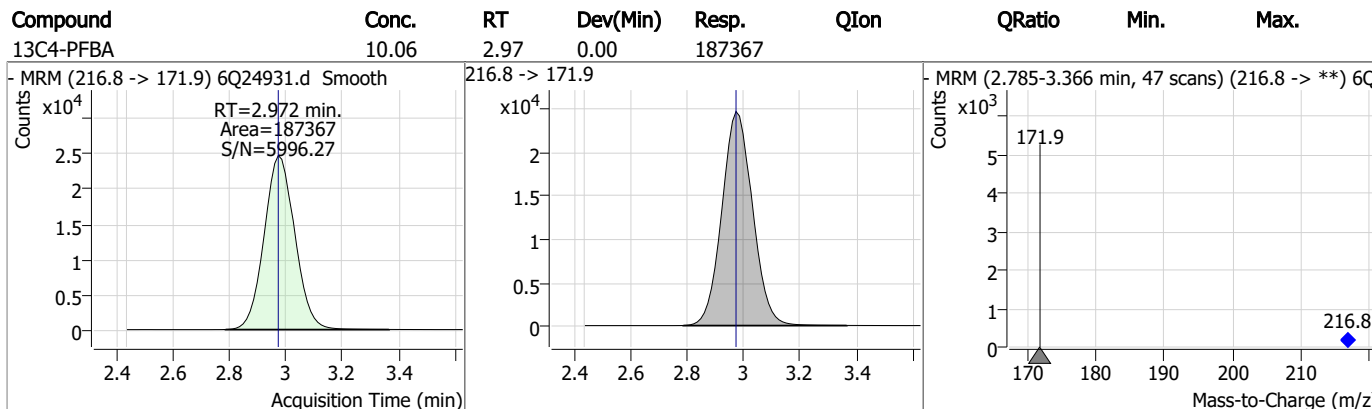
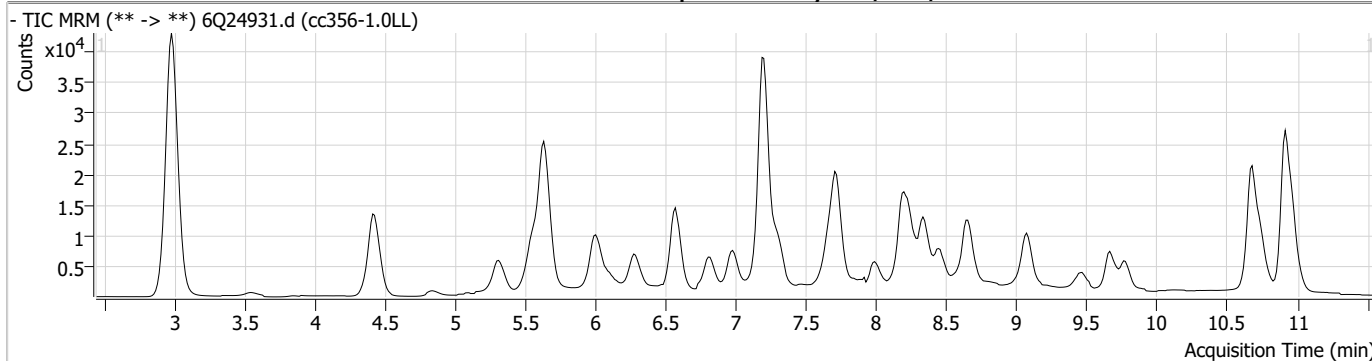
Perfluorinated Compounds by LC/MS/MS

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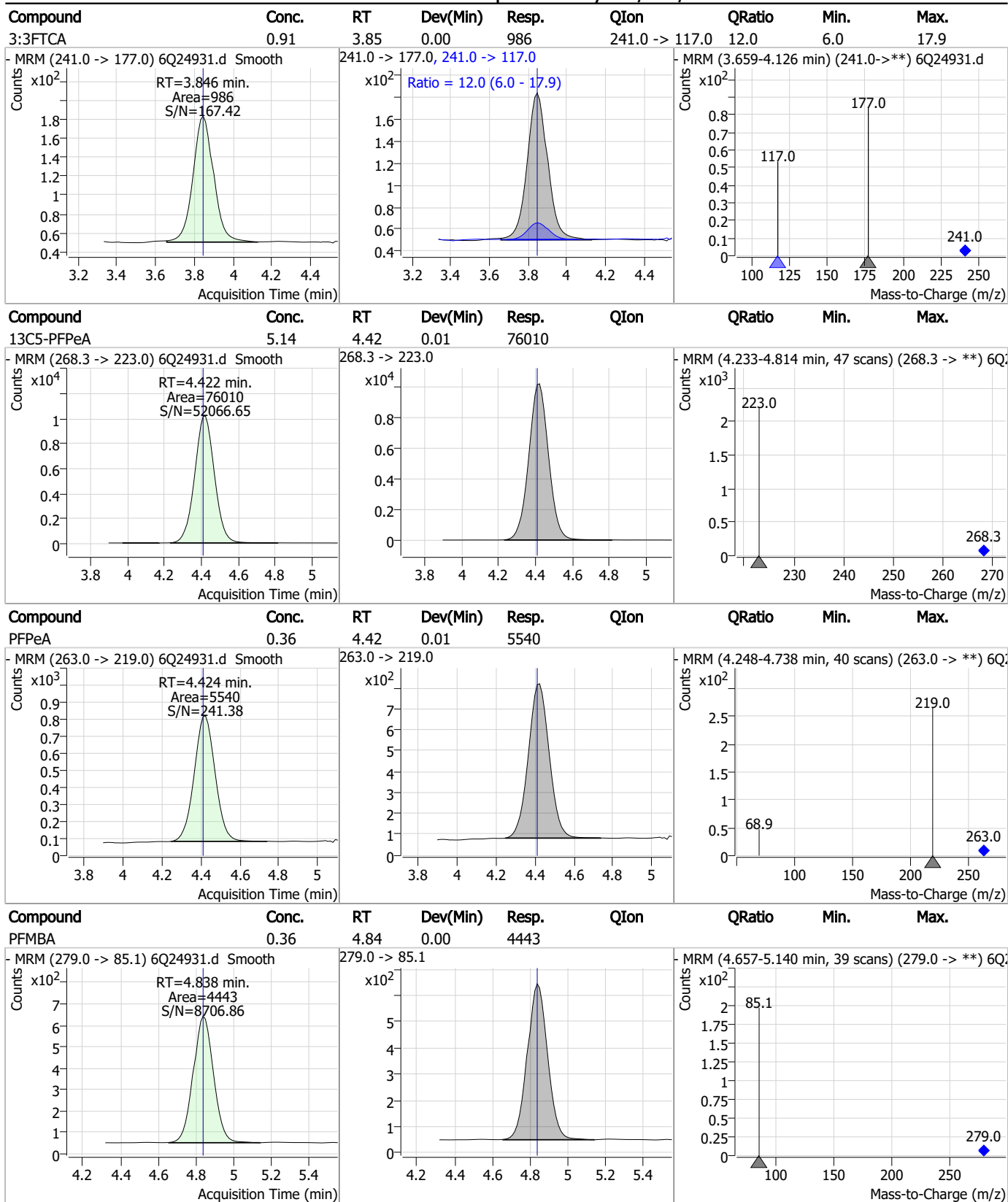
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



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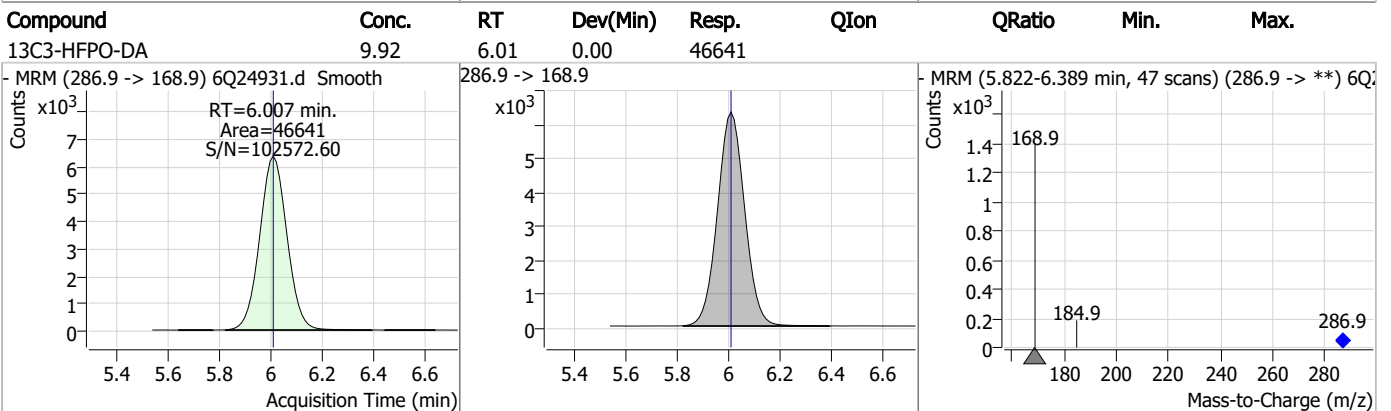
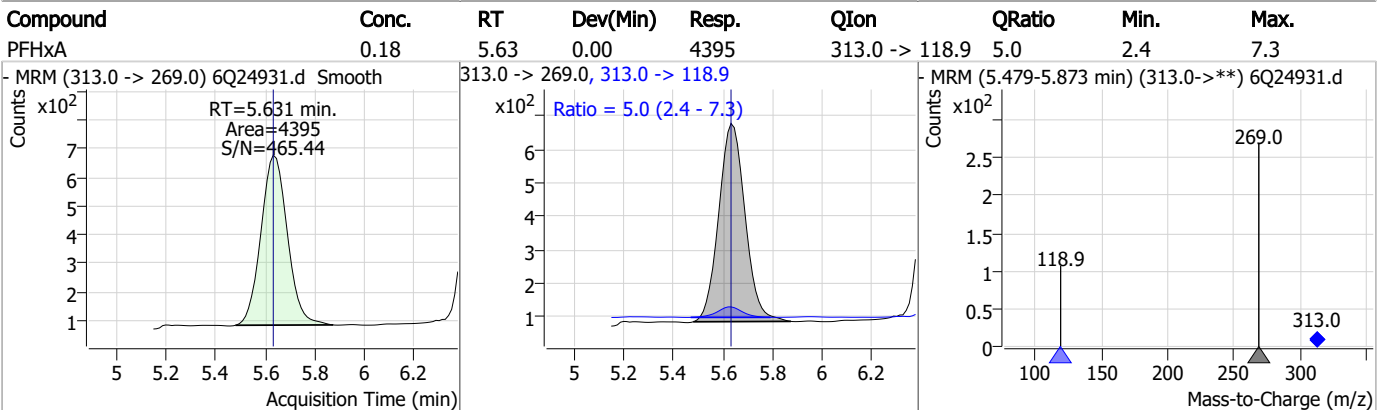
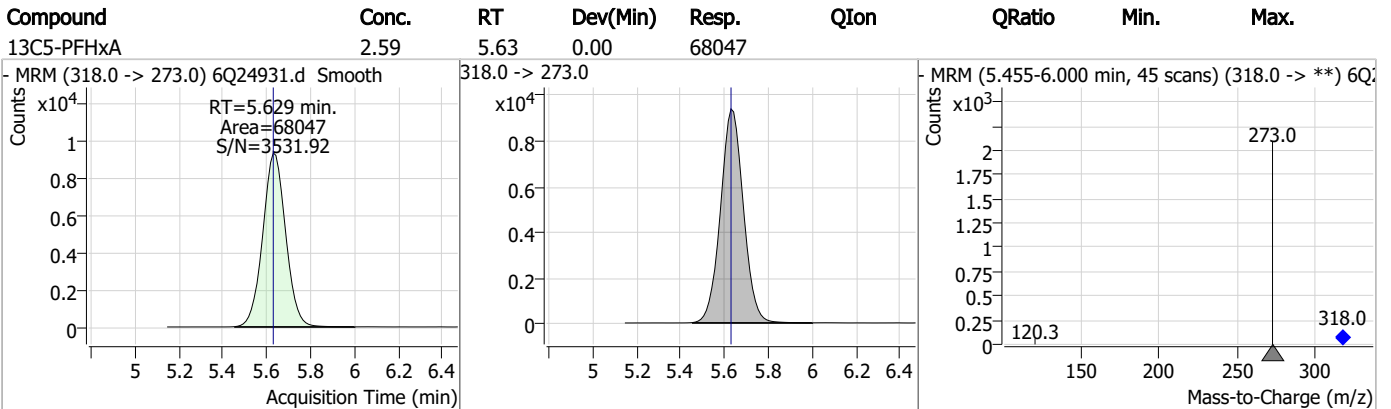
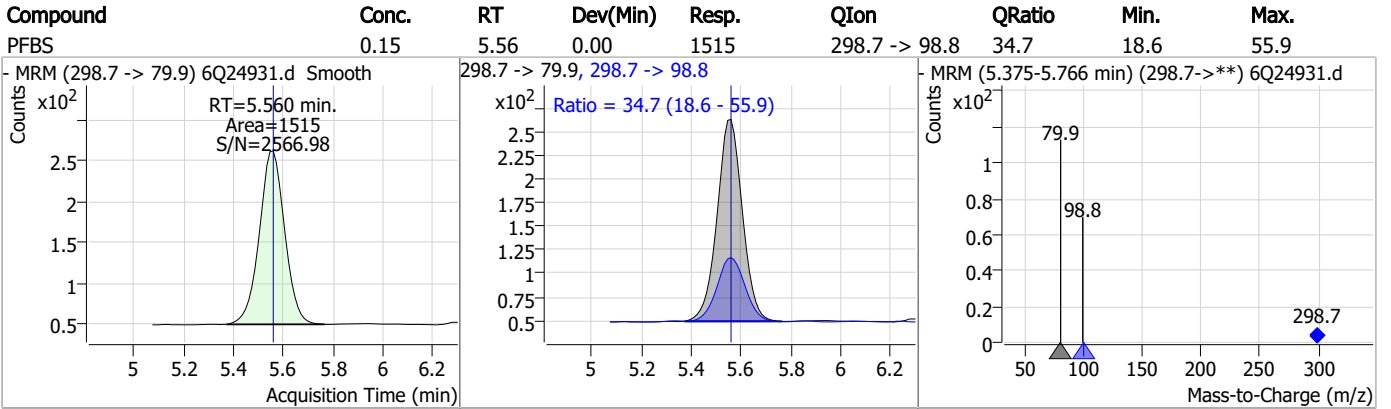
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	5.49	5.30	0.00	3115				
4:2FTS	0.68	5.31	0.00	3451	327.1 -> 80.9	41.2	21.5	64.5
NFDHA	0.36	5.51	0.00	1119	295.0 -> 84.9	23.2	13.4	40.1
13C3-PFBS	2.60	5.56	0.00	30331				

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Perfluorinated Compounds by LC/MS/MS

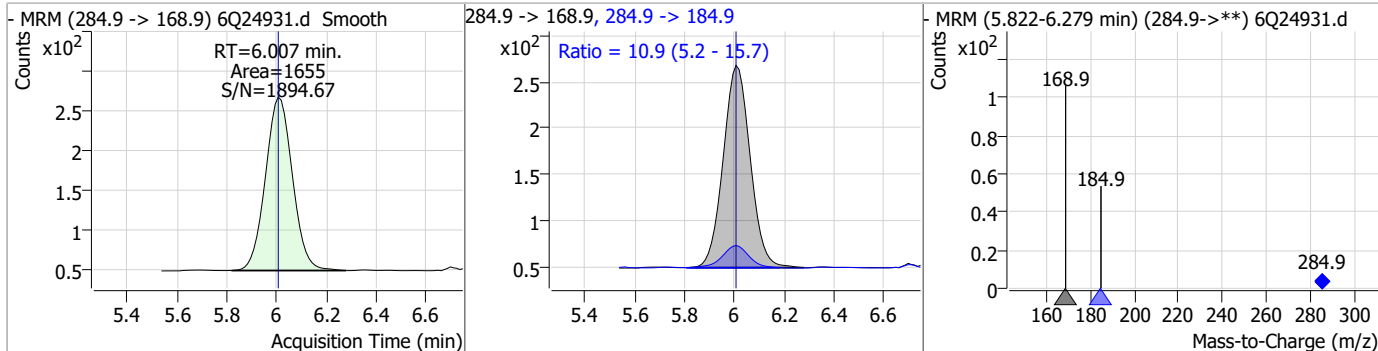


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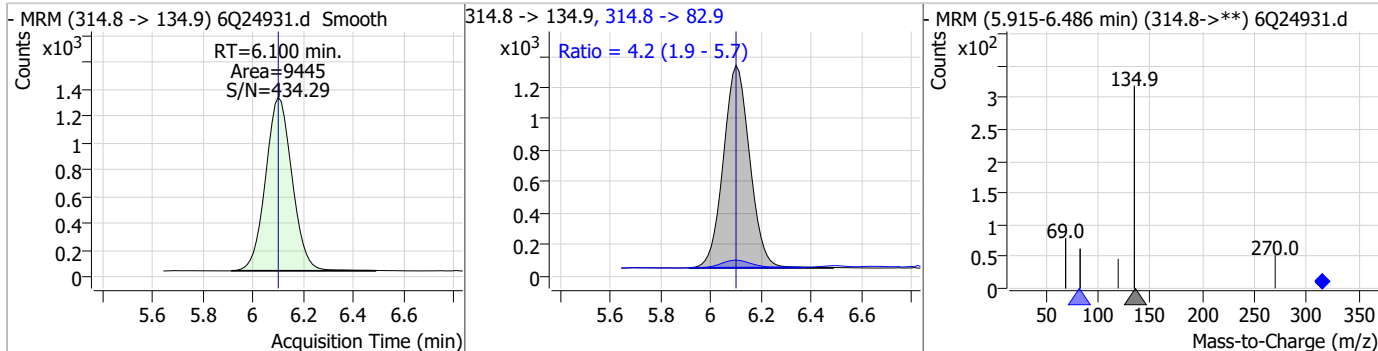


Perfluorinated Compounds by LC/MS/MS

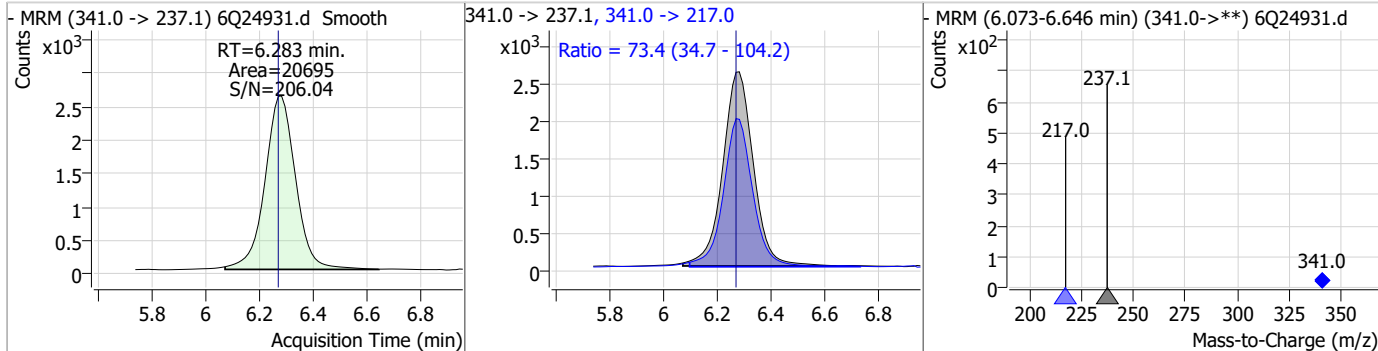
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.36	6.01	0.00	1655	284.9 -> 184.9	10.9	5.2	15.7



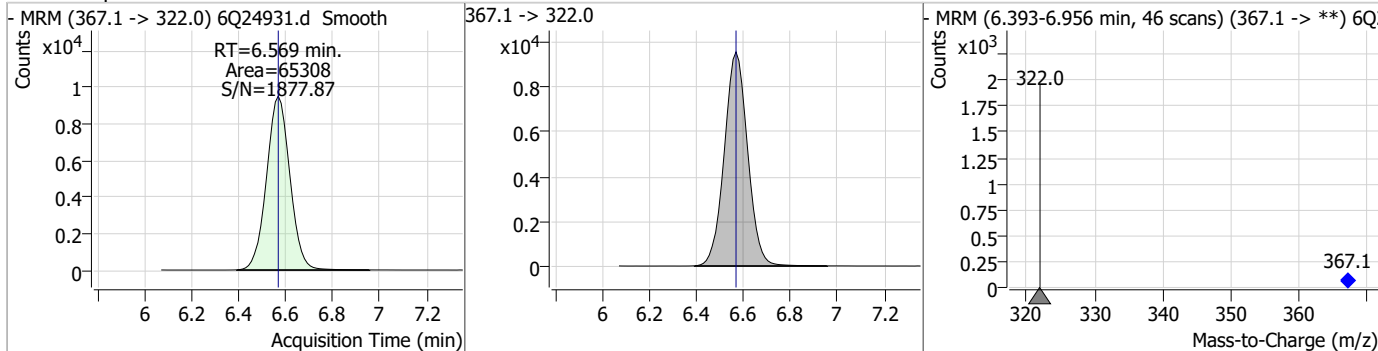
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.31	6.10	0.00	9445	314.8 -> 82.9	4.2	1.9	5.7



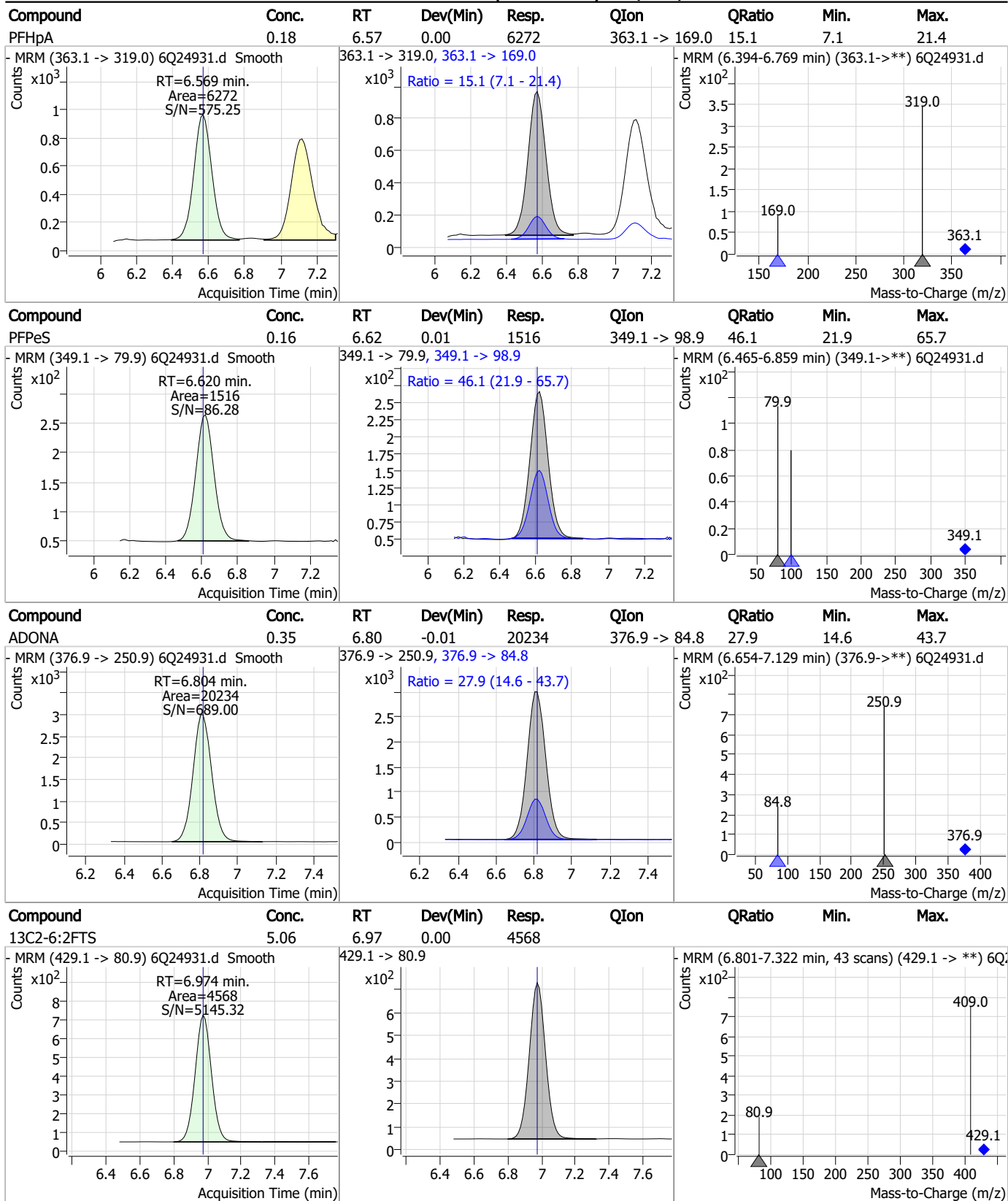
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	4.51	6.28	0.01	20695	341.0 -> 217.0	73.4	34.7	104.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.56	6.57	0.00	65308	367.1 -> 322.0			

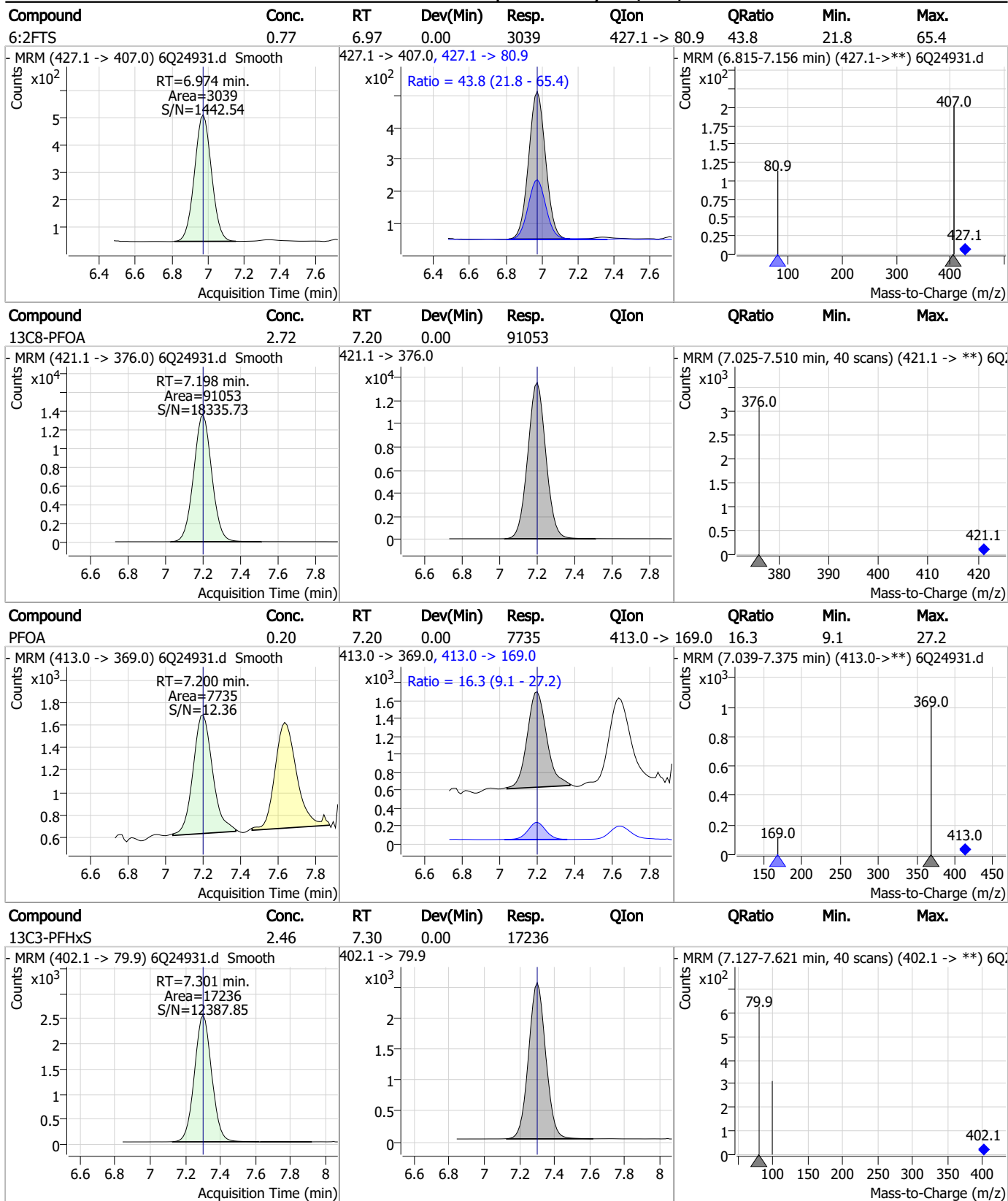


Perfluorinated Compounds by LC/MS/MS



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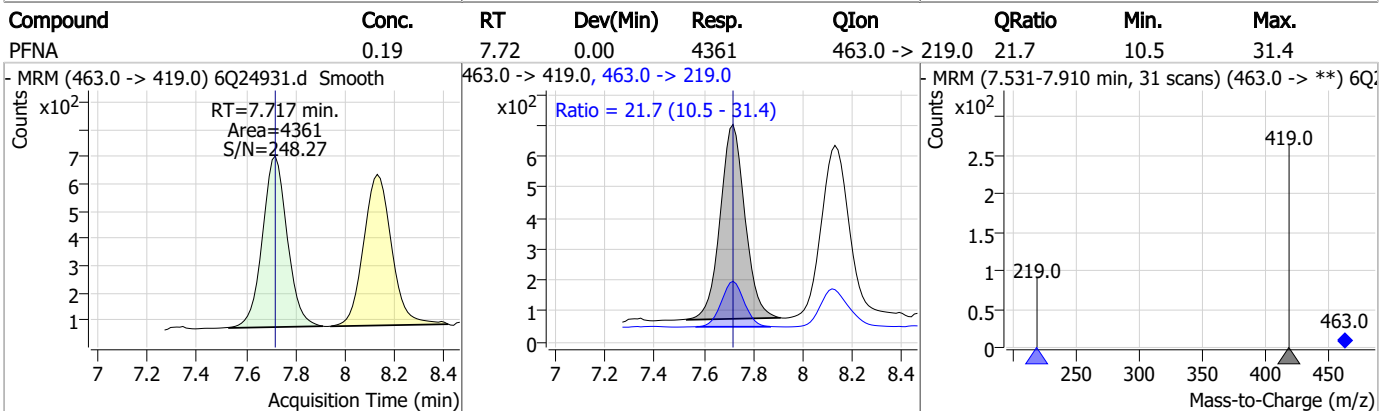
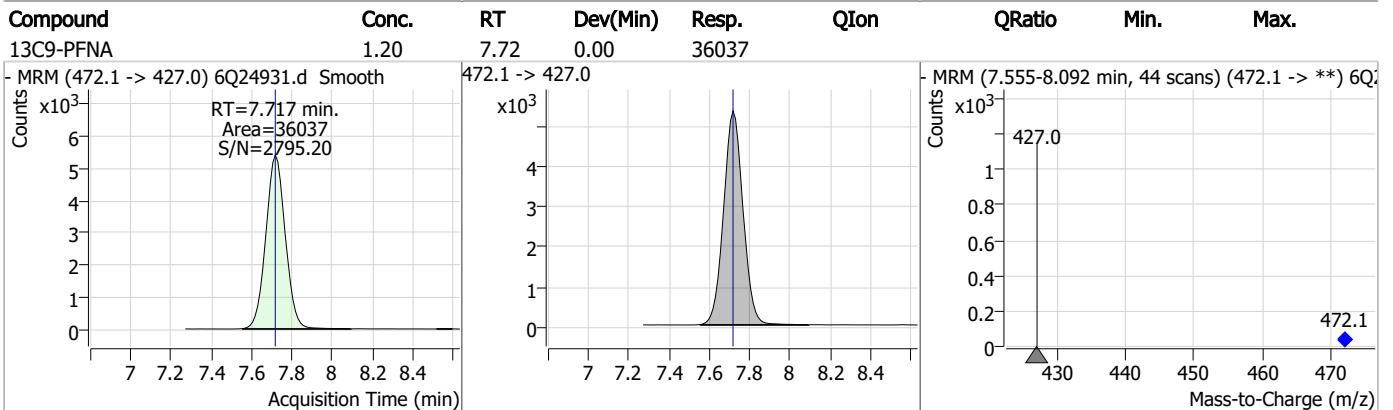
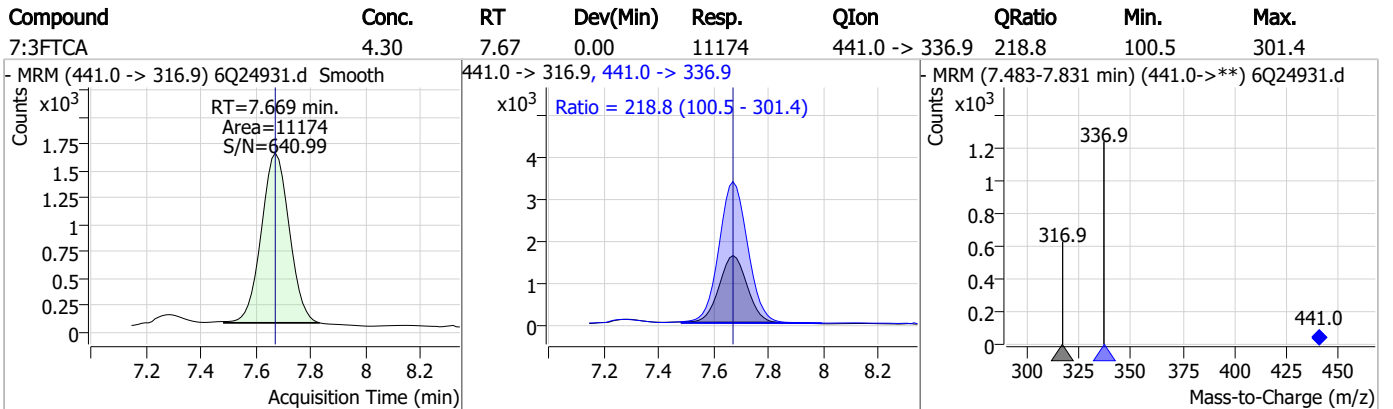
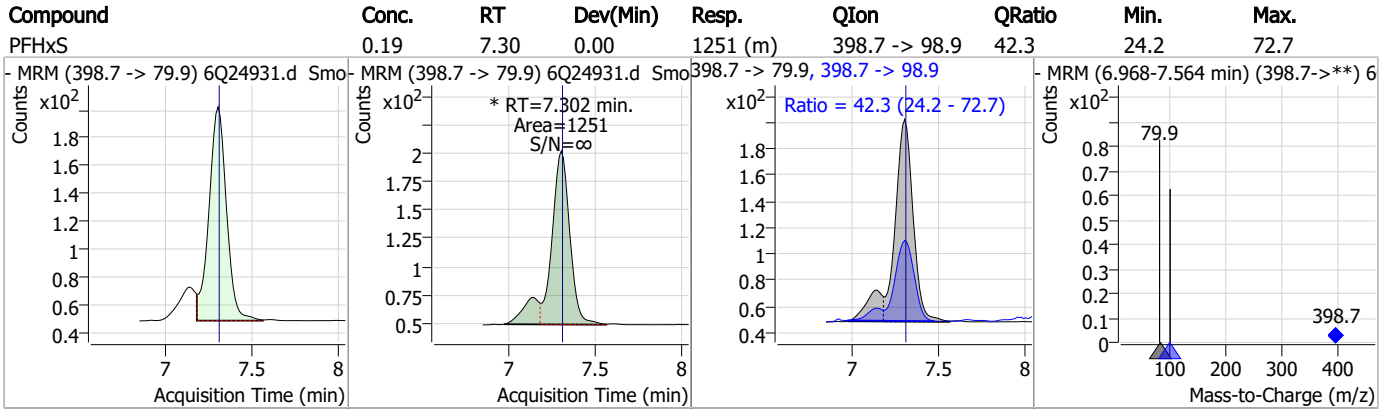
Perfluorinated Compounds by LC/MS/MS



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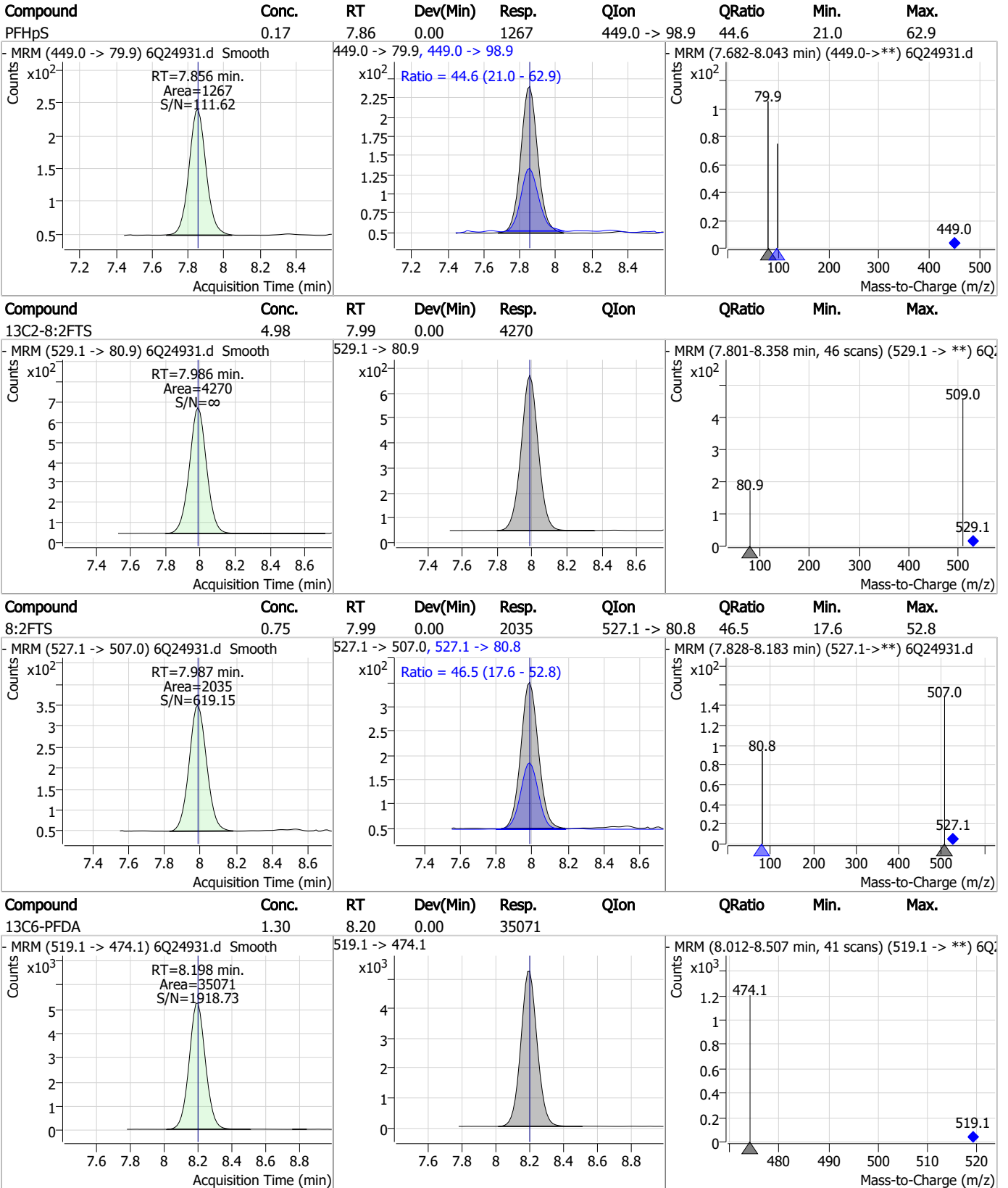


Perfluorinated Compounds by LC/MS/MS



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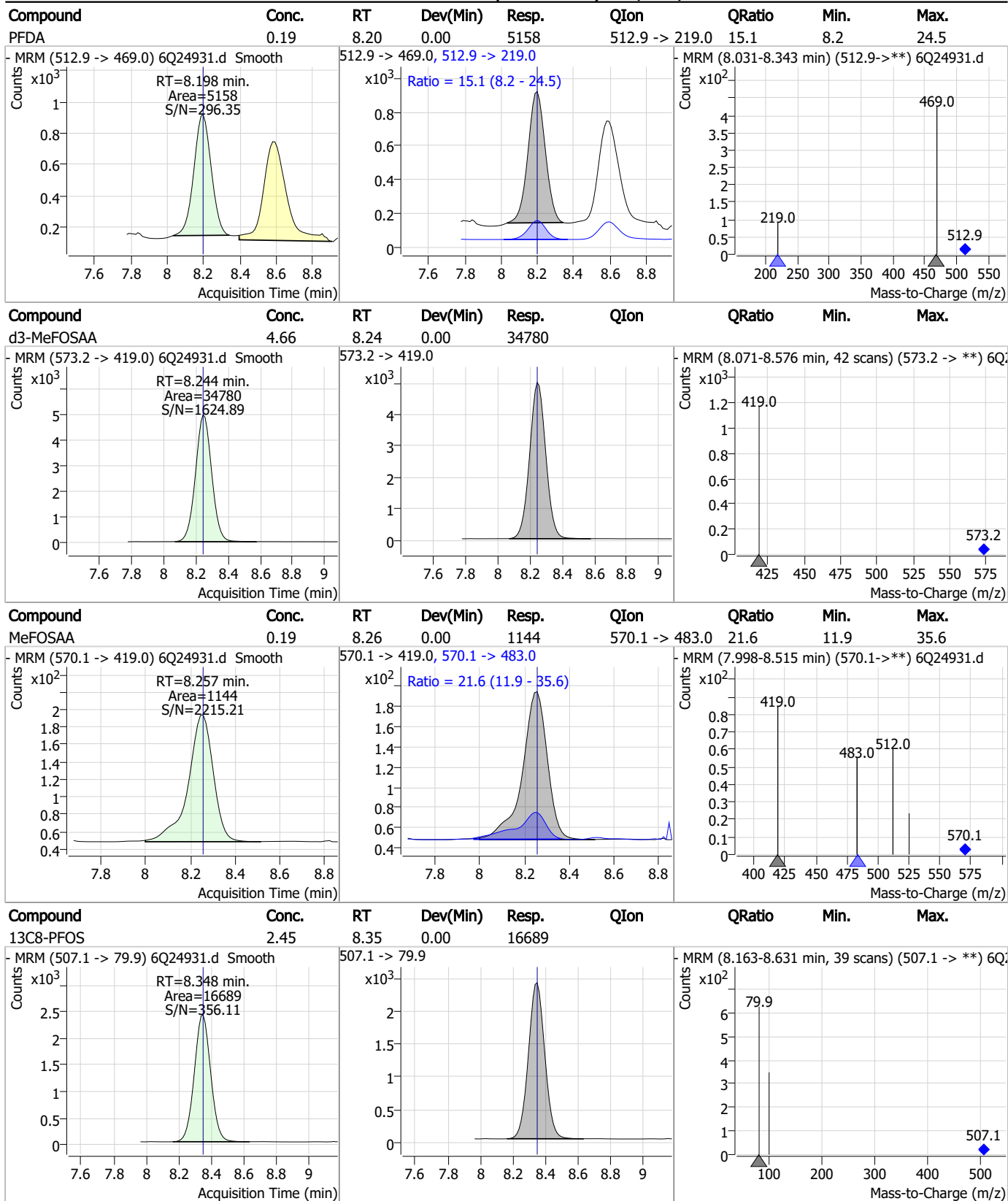
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

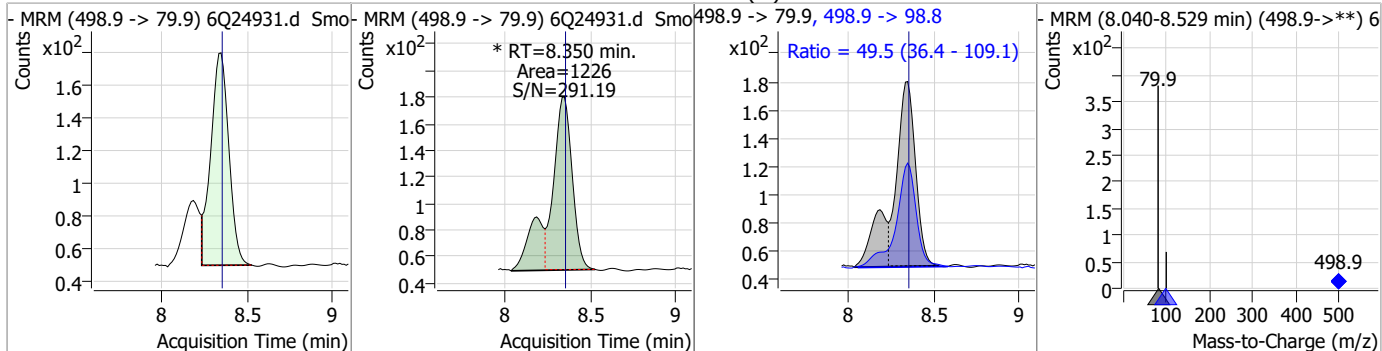


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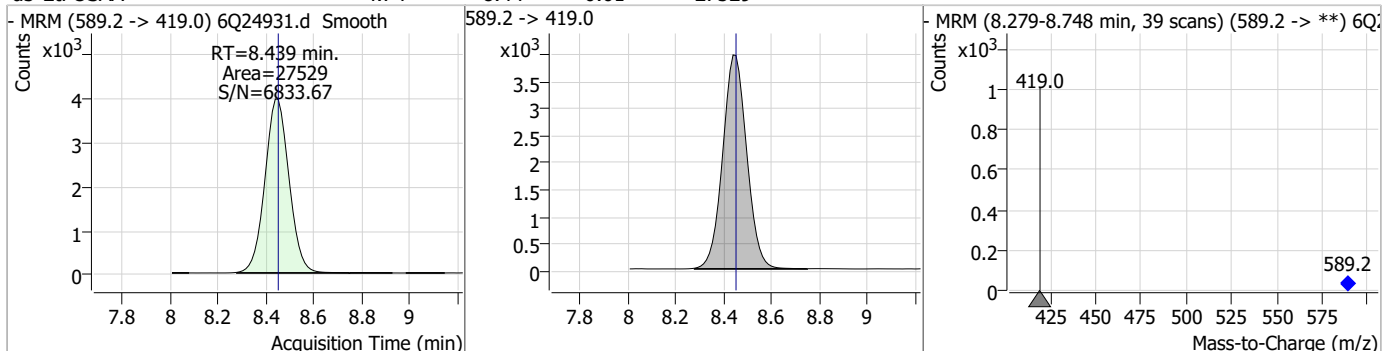
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Perfluorinated Compounds by LC/MS/MS

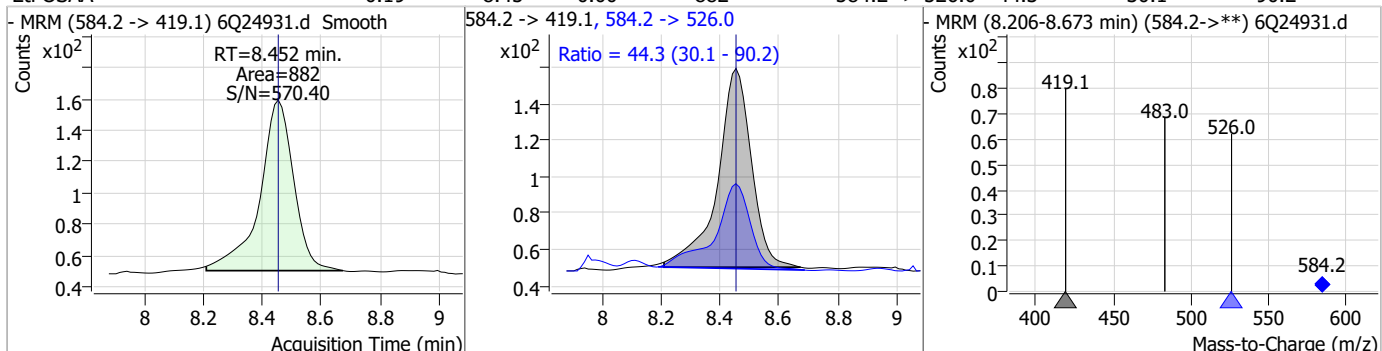
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.17	8.35	0.00	1226 (m)	498.9 -> 98.8	49.5	36.4	109.1



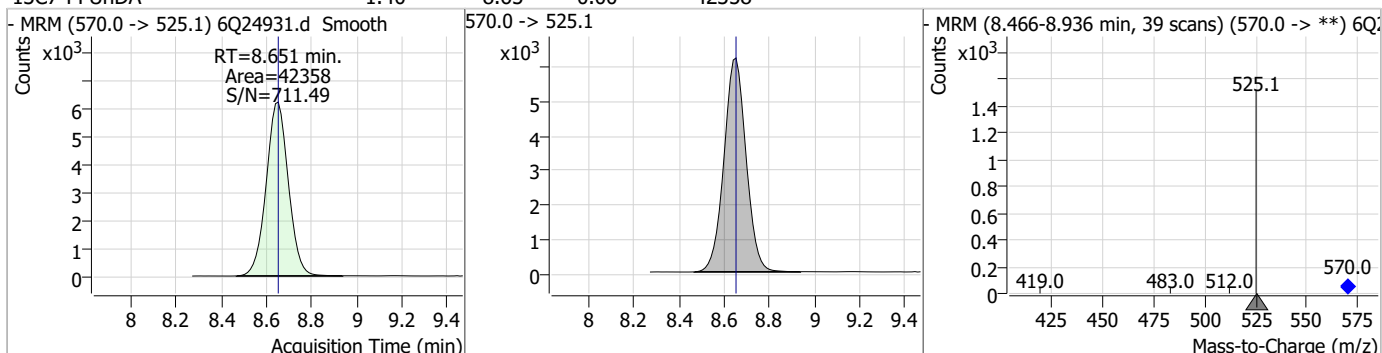
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.74	8.44	-0.01	27529				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.19	8.45	0.00	882	584.2 -> 526.0	44.3	30.1	90.2

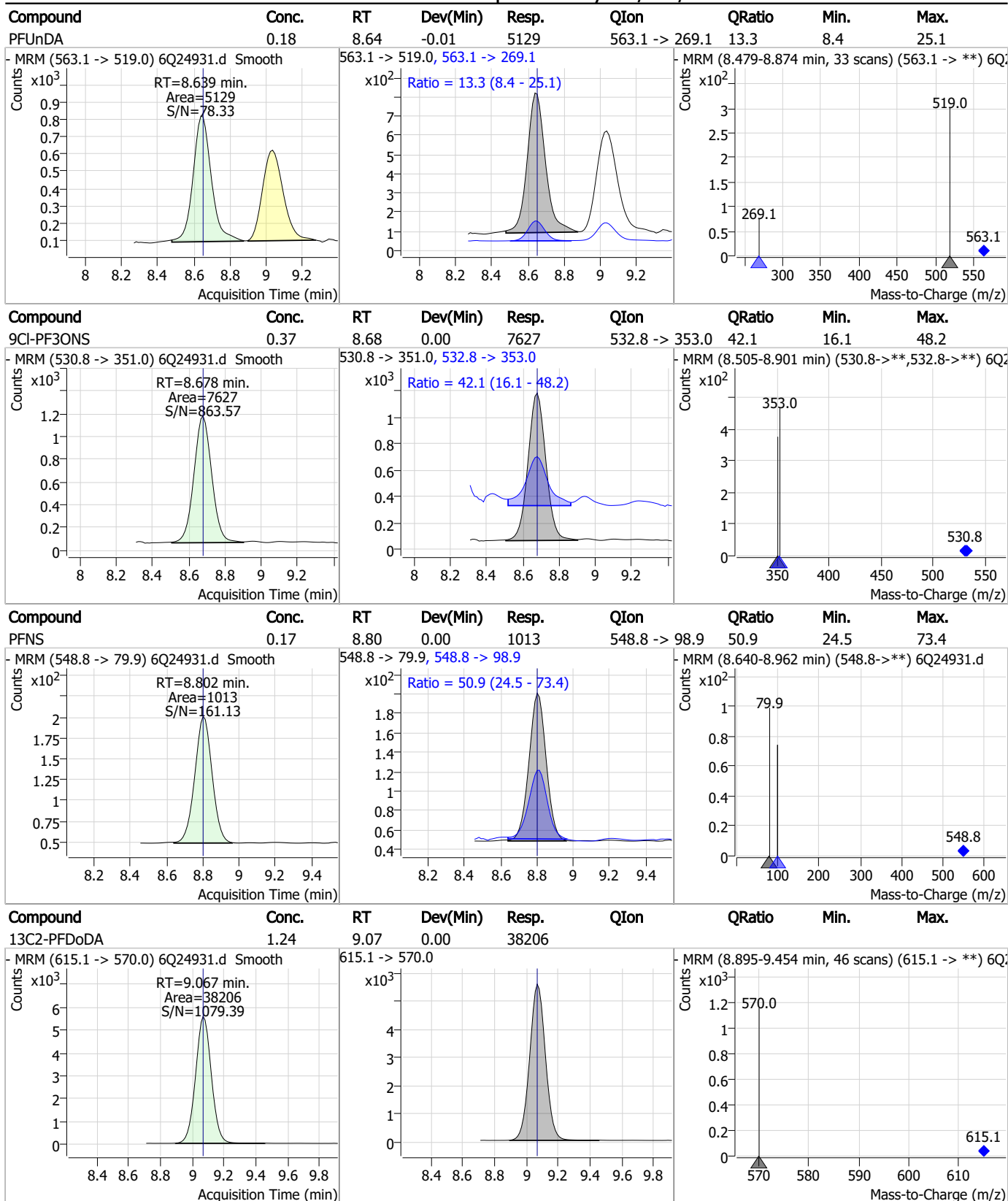


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.40	8.65	0.00	42358				



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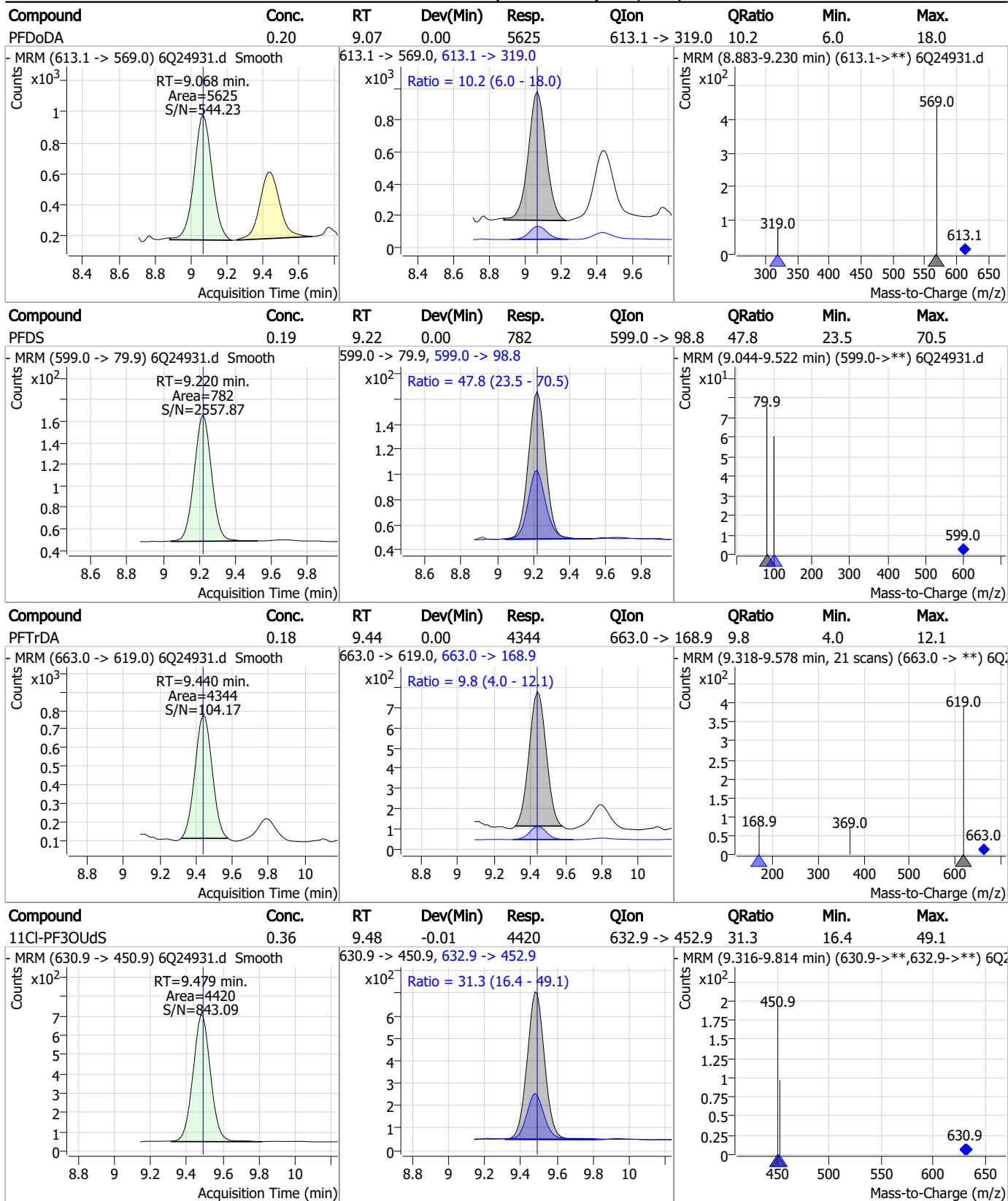
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

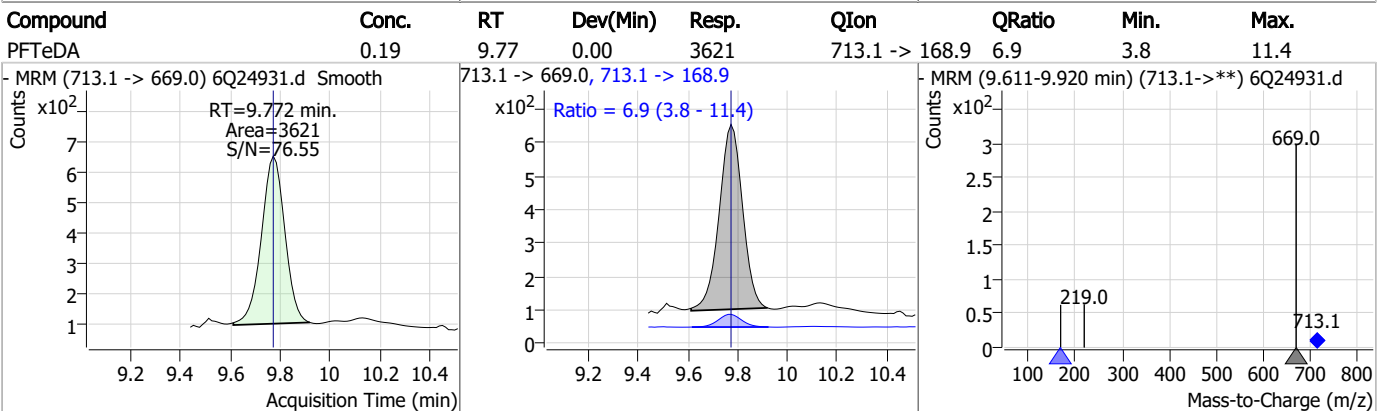
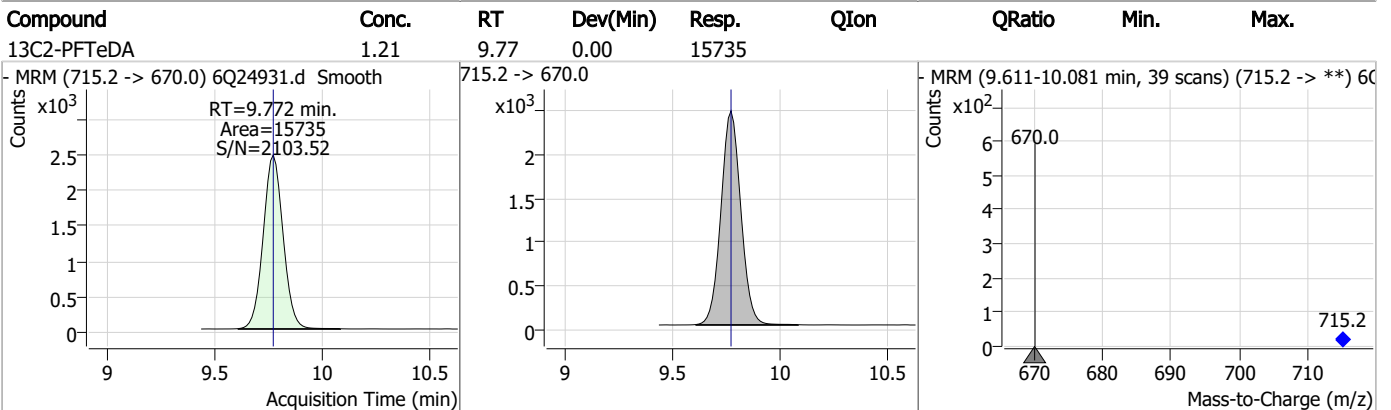
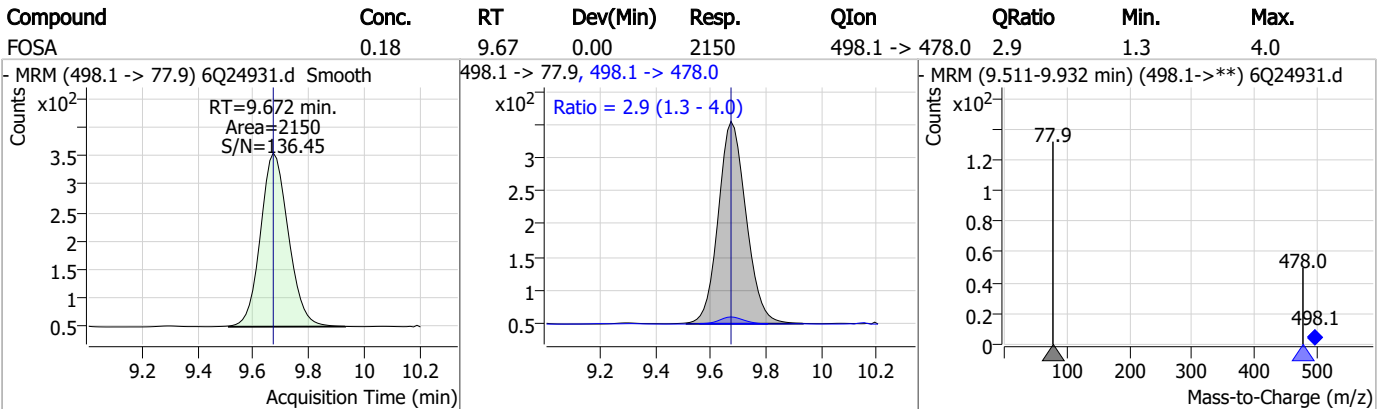
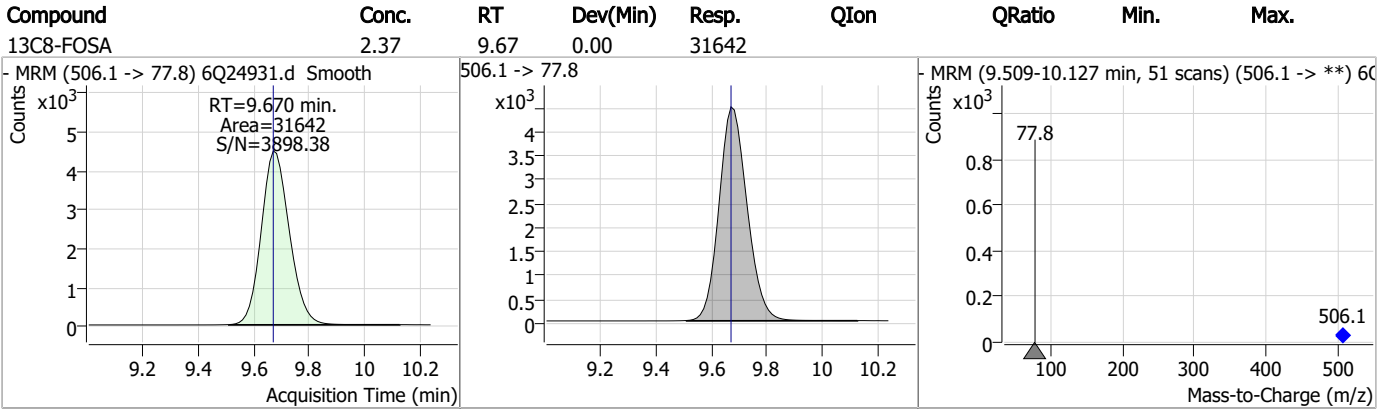


7.7.13

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Perfluorinated Compounds by LC/MS/MS

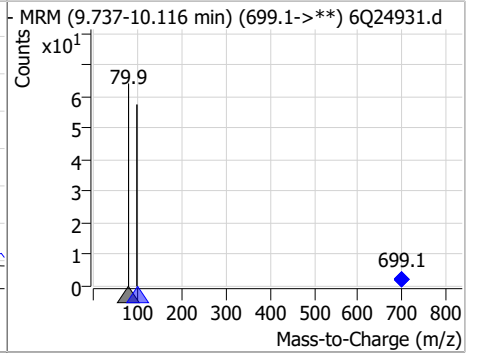
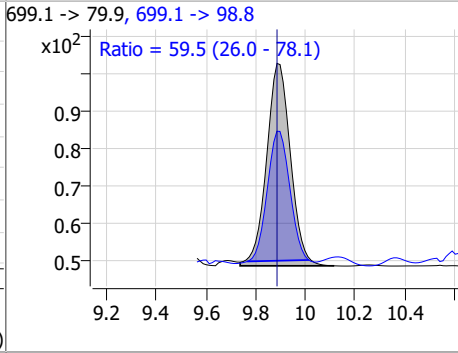
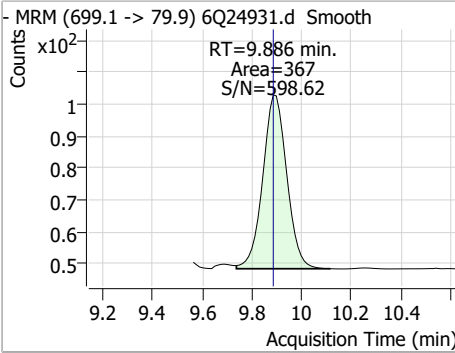


7.7.13 7

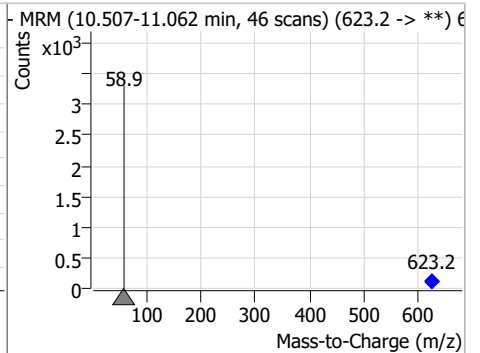
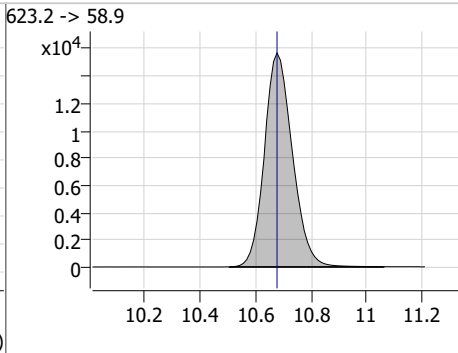
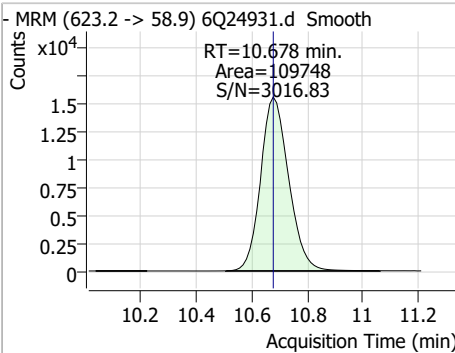


Perfluorinated Compounds by LC/MS/MS

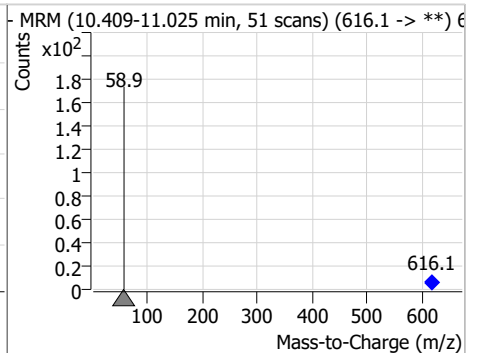
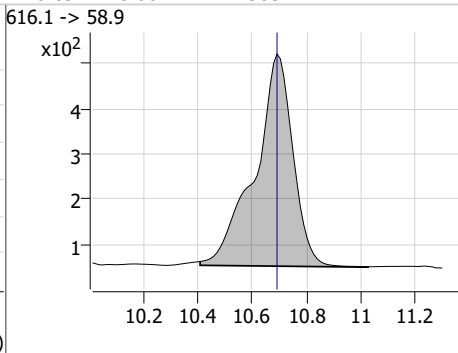
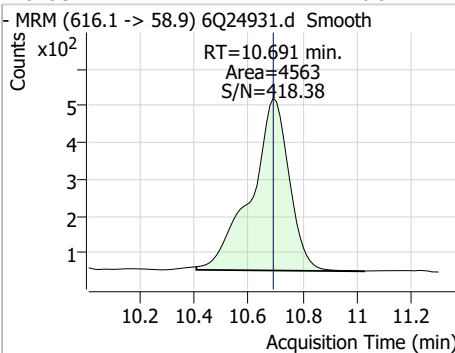
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	0.15	9.89	0.00	367	699.1 -> 98.8	59.5	26.0	78.1



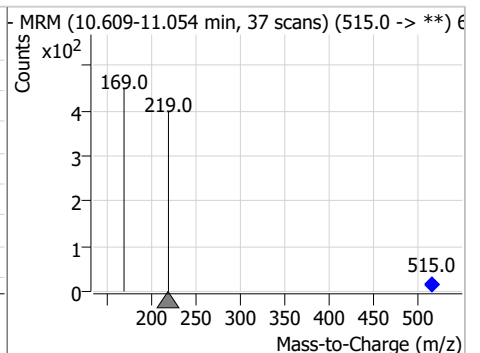
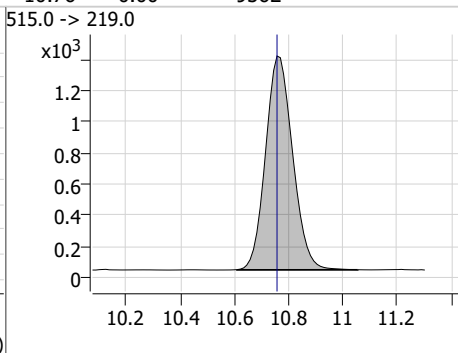
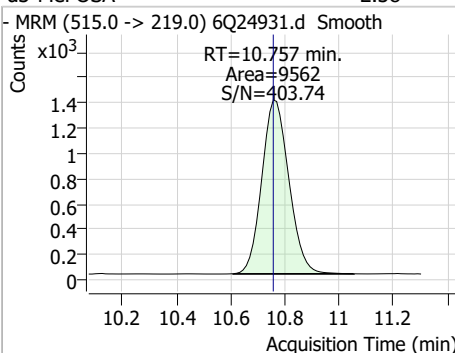
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.21	10.68	0.00	109748	623.2 -> 58.9			



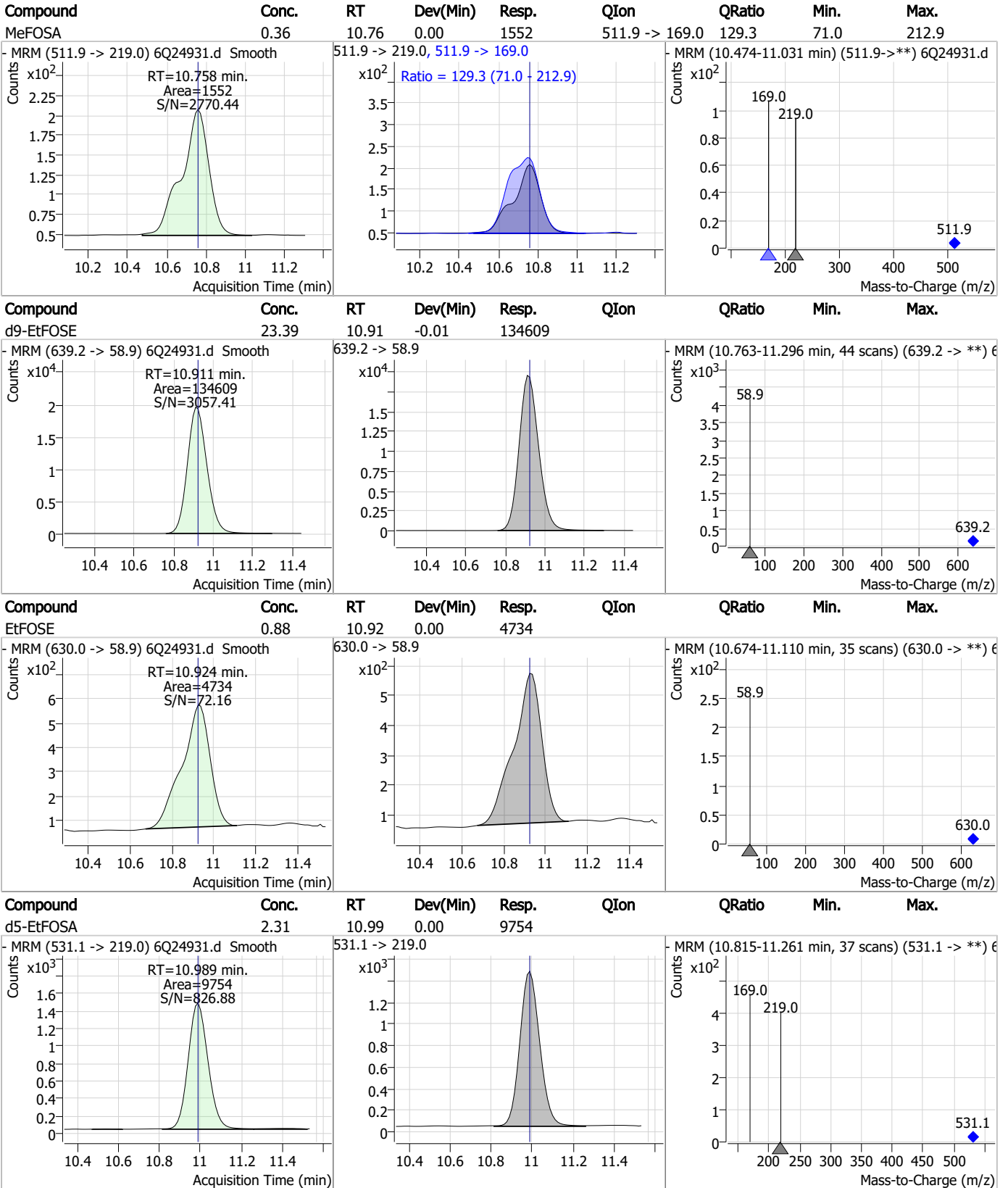
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	0.94	10.69	0.00	4563	616.1 -> 58.9			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.38	10.76	0.00	9562	515.0 -> 219.0			



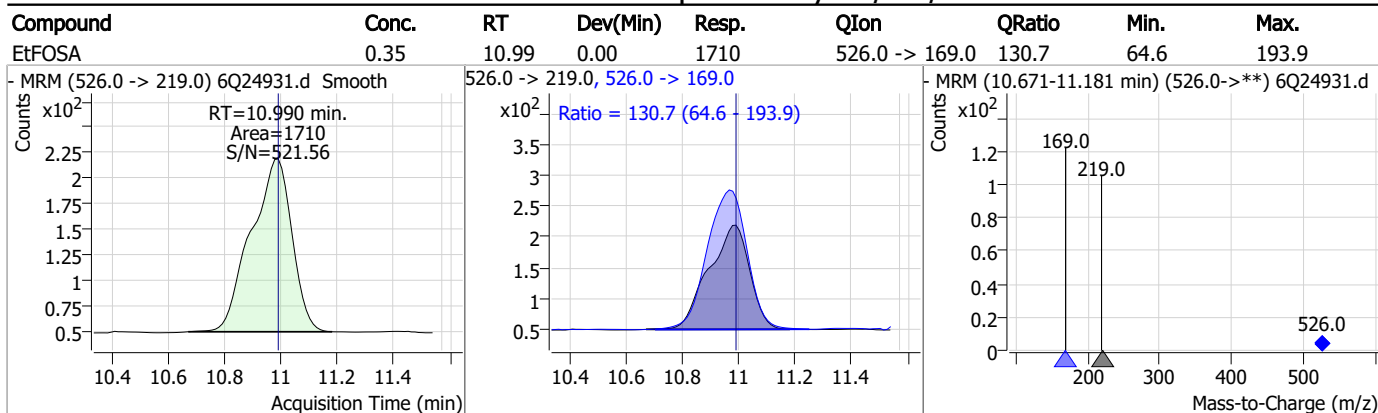
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



7.7.13
7

Manual Integration Approval Summary

Sample Number: S6Q356-CC356 Method: EPA DRAFT 1633
Lab FileID: 6Q24931.D Analyst approved: 09/25/23 14:50 Martha Valls
Injection Time: 09/24/23 17:51 Supervisor approved: 09/26/23 13:54 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

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7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24938.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/24/2023 7:32:10 PM
 Sample Name : cc356-4
 Vial : P1-A5
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	174917	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	71751	5.00 µg/L	0.000
M5-PFHxA	5.629	318.0 -> 273.0	61749	2.50 µg/L	0.000
M4-PFHpA	6.556	367.1 -> 322.0	60435	2.50 µg/L	-0.012
M8-PFOA	7.198	421.1 -> 376.0	78992	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	33735	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	34759	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	37767	1.25 µg/L	0.000
M2-PFDoDA	9.067	615.1 -> 570.0	36515	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	15519	1.25 µg/L	0.000
M8-FOSA	9.682	506.1 -> 77.8	30440	2.50 µg/L	0.012
M3-PFBS	5.546	302.1 -> 79.9	26866	2.50 µg/L	-0.013
M3-PFHxS	7.301	402.1 -> 79.9	16333	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	15782	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	2688	5.00 µg/L	0.000
M2-6:2FTS	6.961	429.1 -> 80.9	4021	5.00 µg/L	-0.012
M2-8:2FTS	7.986	529.1 -> 80.9	4080	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	32774	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	43184	10.00 µg/L	0.000
M5-EtFOSAA	8.452	589.2 -> 419.0	25425	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	103119	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	126169	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	9276	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9037	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	14078	2.50 µg/L	0.000
13C3-PFBA	2.976	216.0 -> 172.0	72793	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	10044	2.50 µg/L	0.000
13C4-PFOA	7.187	417.1 -> 372.0	92402	2.50 µg/L	-0.012
13C2-PFDA	8.198	515.1 -> 470.1	31568	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	34333	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	57412	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2688	5.23 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C2-6:2FTS	6.961	429.1 -> 80.9	4021	4.92 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4080	5.25 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.0%		
13C2-PFDoDA	9.067	615.1 -> 570.0	36515	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C2-PFTeDA	9.772	715.2 -> 670.0	15519	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C3-PFBS	5.546	302.1 -> 79.9	26866	2.54 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C3-PFHxS	7.301	402.1 -> 79.9	16333	2.57 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C4-PFBA	2.972	216.8 -> 171.9	174917	9.94 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C4-PFHpA	6.556	367.1 -> 322.0	60435	2.58 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C5-PFHxA	5.629	318.0 -> 273.0	61749	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C5-PFPeA	4.409	268.3 -> 223.0	71751	5.28 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.6%	
13C6-PFDA	8.198	519.1 -> 474.1	34759	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C7-PFUnDA	8.651	570.0 -> 525.1	37767	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C8-FOSA	9.682	506.1 -> 77.8	30440	2.56 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C8-PFOA	7.198	421.1 -> 376.0	78992	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C8-PFOS	8.348	507.1 -> 79.9	15782	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C9-PFNA	7.717	472.1 -> 427.0	33735	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.8%	
d3-MeFOSAA	8.244	573.2 -> 419.0	32774	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	43184	9.98 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
d3-MeFOSA	10.757	515.0 -> 219.0	9037	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
d5-EtFOSAA	8.452	589.2 -> 419.0	25425	4.90 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.1%	
d7-MeFOSE	10.678	623.2 -> 58.9	103119	24.42 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.7%	
d9-EtFOSE	10.923	639.2 -> 58.9	126169	24.55 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
d5-EtFOSA	10.989	531.1 -> 219.0	9276	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
Target Compounds					QValue
4:2FTS	5.293	327.1 -> 307.0	43700	9.93 µg/L	97
		327.1 -> 80.9	18019		
6:2FTS	6.974	427.1 -> 407.0	36661	10.58 µg/L	98
		427.1 -> 80.9	16461		
8:2FTS	7.987	527.1 -> 507.0	26019	10.00 µg/L	92
		527.1 -> 80.8	10397		
EtFOSAA	8.452	584.2 -> 419.1	11155	2.64 µg/L	94
		584.2 -> 526.0	7230		
FOSA	9.672	498.1 -> 77.9	29254	2.53 µg/L	100
		498.1 -> 478.0	834		
MeFOSAA	8.245	570.1 -> 419.0	15935	2.78 µg/L	91
		570.1 -> 483.0	3103		
PFBA	2.981	212.8 -> 168.9	64321	10.30 µg/L	100
PFBS	5.547	298.7 -> 79.9	19886	2.27 µg/L	99
		298.7 -> 98.8	7260		
PFDA	8.198	512.9 -> 469.0	68178	2.49 µg/L	100
		512.9 -> 219.0	11203		
PFDoDA	9.068	613.1 -> 569.0	71938	2.70 µg/L	100
		613.1 -> 319.0	8717		
PFDS	9.220	599.0 -> 79.9	9484	2.49 µg/L	98

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.557	599.0 -> 98.8	4570	2.60	µg/L	98
		363.1 -> 319.0	85323			
PFHpS	7.856	363.1 -> 169.0	12924	2.40	µg/L	92
		449.0 -> 79.9	16715			
PFHxA	5.631	449.0 -> 98.9	7903	2.53	µg/L	100
		313.0 -> 269.0	55995			
PFHxS	7.302	313.0 -> 118.9	2700	2.43	µg/L	m
		398.7 -> 79.9	15437			
PFNA	7.717	398.7 -> 98.9	6951	2.74	µg/L	98
		463.0 -> 419.0	59777			
PFNS	8.802	463.0 -> 219.0	13191	2.29	µg/L	99
		548.8 -> 79.9	12585			
PFOA	7.200	548.8 -> 98.9	6256	2.67	µg/L	100
		413.0 -> 369.0	90574			
PFOS	8.350	413.0 -> 169.0	16298	2.39	µg/L	m
		498.9 -> 79.9	16302			
PFPeA	4.411	498.9 -> 98.8	7638	5.04	µg/L	100
		263.0 -> 219.0	72849			
PFPeS	6.608	349.1 -> 79.9	22151	2.50	µg/L	99
		349.1 -> 98.9	9787			
PFTeDA	9.772	713.1 -> 669.0	47717	2.60	µg/L	100
		713.1 -> 168.9	3682			
PFTrDA	9.452	663.0 -> 619.0	63816	2.74	µg/L	100
		663.0 -> 168.9	5125			
PFUnDA	8.652	563.1 -> 519.0	63857	2.55	µg/L	100
		563.1 -> 269.1	10585			
11CI-PF3OUdS	9.491	630.9 -> 450.9	60080	5.32	µg/L	93
		632.9 -> 452.9	17289			
9CI-PF3ONS	8.678	530.8 -> 351.0	96454	5.03	µg/L	97
		532.8 -> 353.0	32480			
ADONA	6.804	376.9 -> 250.9	285795	5.39	µg/L	95
		376.9 -> 84.8	75042			
HFPO-DA	6.007	284.9 -> 168.9	21758	5.12	µg/L	100
		284.9 -> 184.9	2272			
3:3FTCA	3.846	241.0 -> 177.0	12645	12.47	µg/L	99
		241.0 -> 117.0	1468			
5:3FTCA	6.271	341.0 -> 237.1	263042	63.13	µg/L	99
		341.0 -> 217.0	185303			
7:3FTCA	7.669	441.0 -> 316.9	158095	66.97	µg/L	93
		441.0 -> 336.9	334813			
EtFOSA	10.990	526.0 -> 219.0	23762	5.16	µg/L	99
		526.0 -> 169.0	30870			
EtFOSE	10.924	630.0 -> 58.9	63841	12.60	µg/L	100
		511.9 -> 219.0	20304			
MeFOSA	10.758	511.9 -> 169.0	27580	4.99	µg/L	95
		616.1 -> 58.9	57574			
MeFOSE	10.691	699.1 -> 79.9	5437	12.60	µg/L	100
		699.1 -> 98.8	2871			
PFDoDS	9.898	295.0 -> 201.0	15053	2.39	µg/L	99
		295.0 -> 84.9	4318			
NFDHA	5.512	279.0 -> 85.1	58556	5.29	µg/L	96
		229.0 -> 84.9	43485			
PFMBA	4.838	314.8 -> 134.9	129564	5.05	µg/L	100
		314.8 -> 82.9	4872			
PFMPA	3.538			5.05	µg/L	100
PFEESA	6.100			4.70	µg/L	100

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



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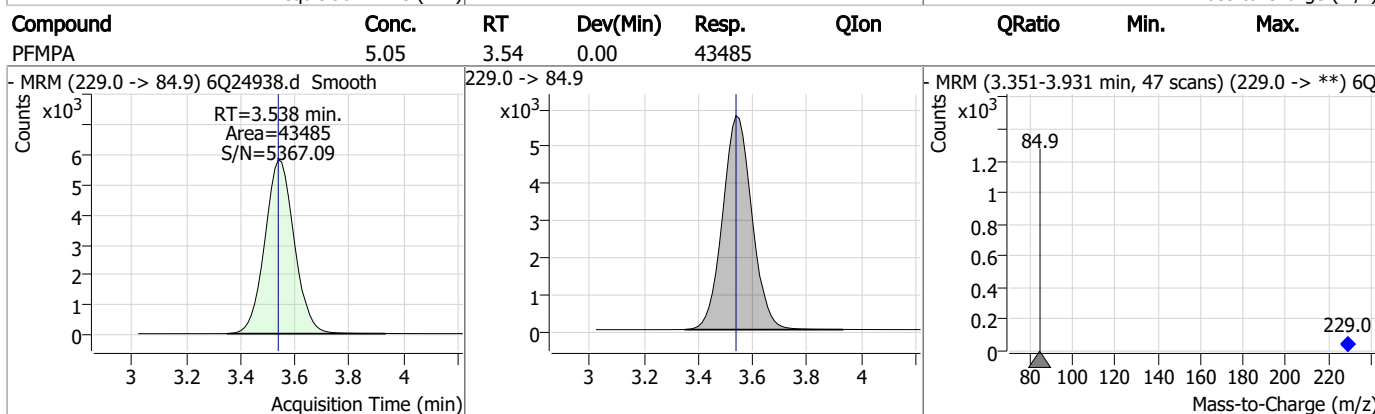
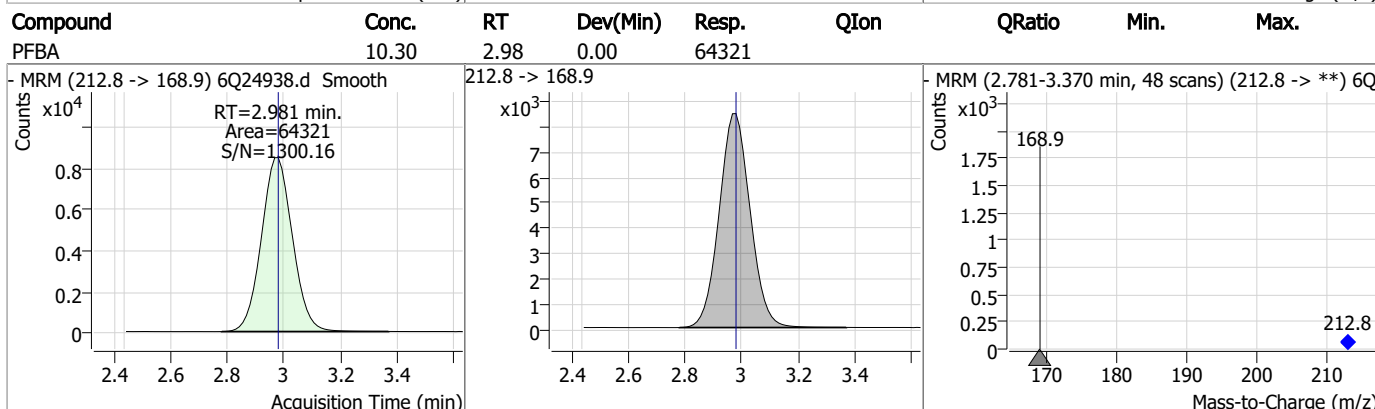
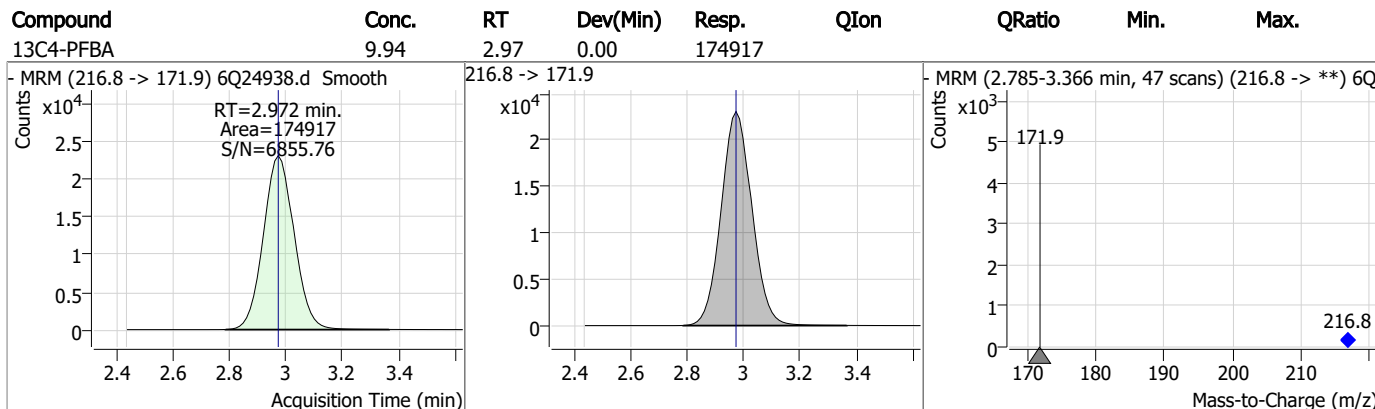
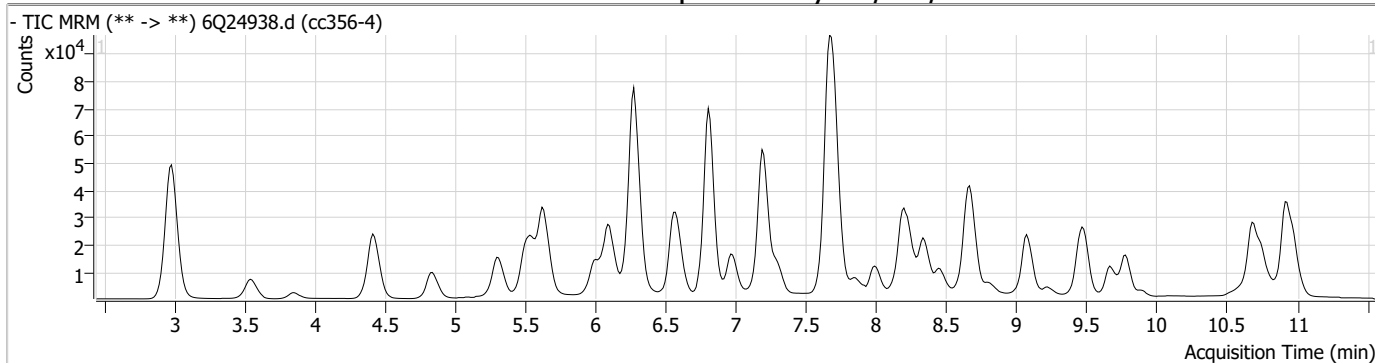
Perfluorinated Compounds by LC/MS/MS

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

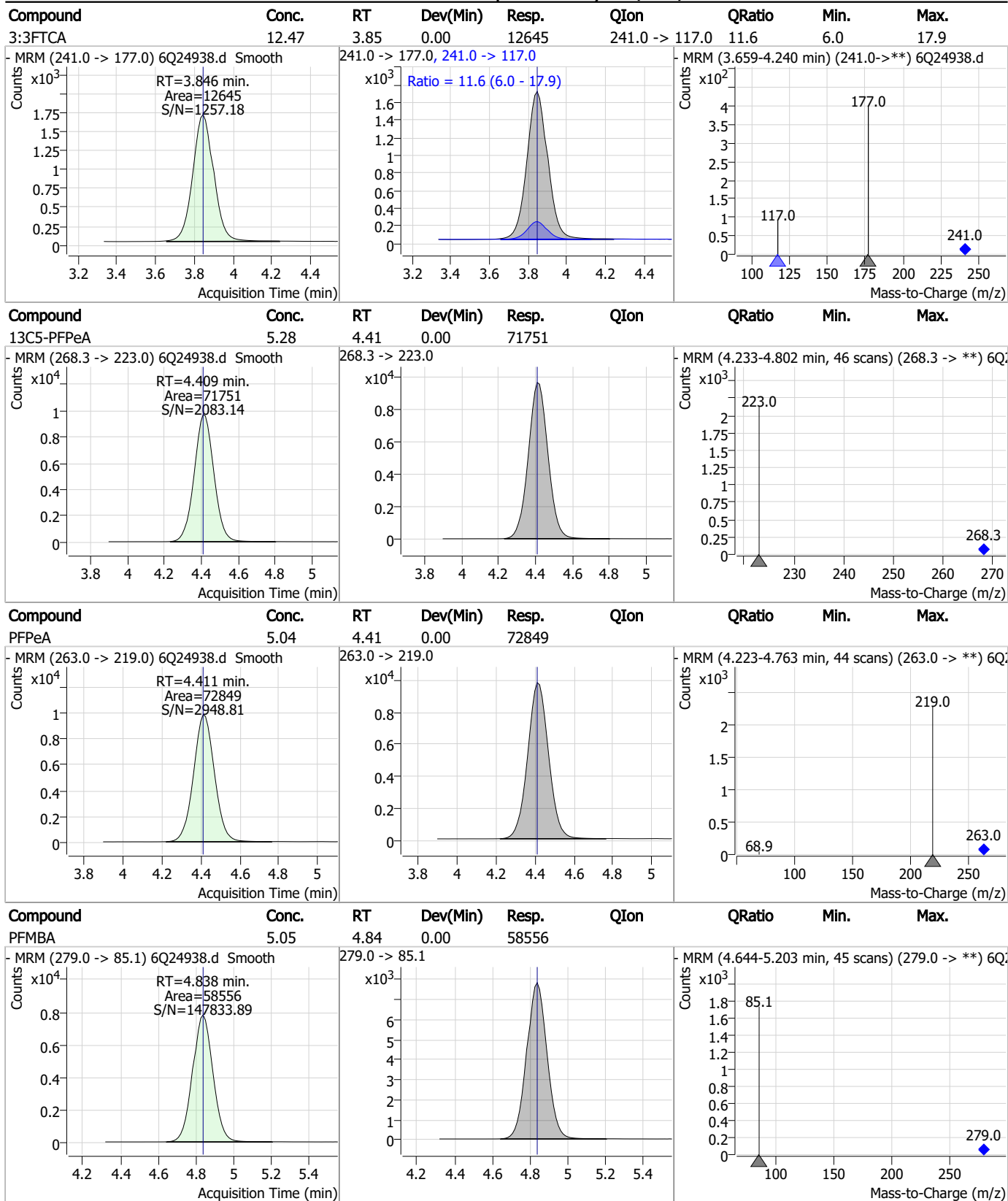
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Perfluorinated Compounds by LC/MS/MS



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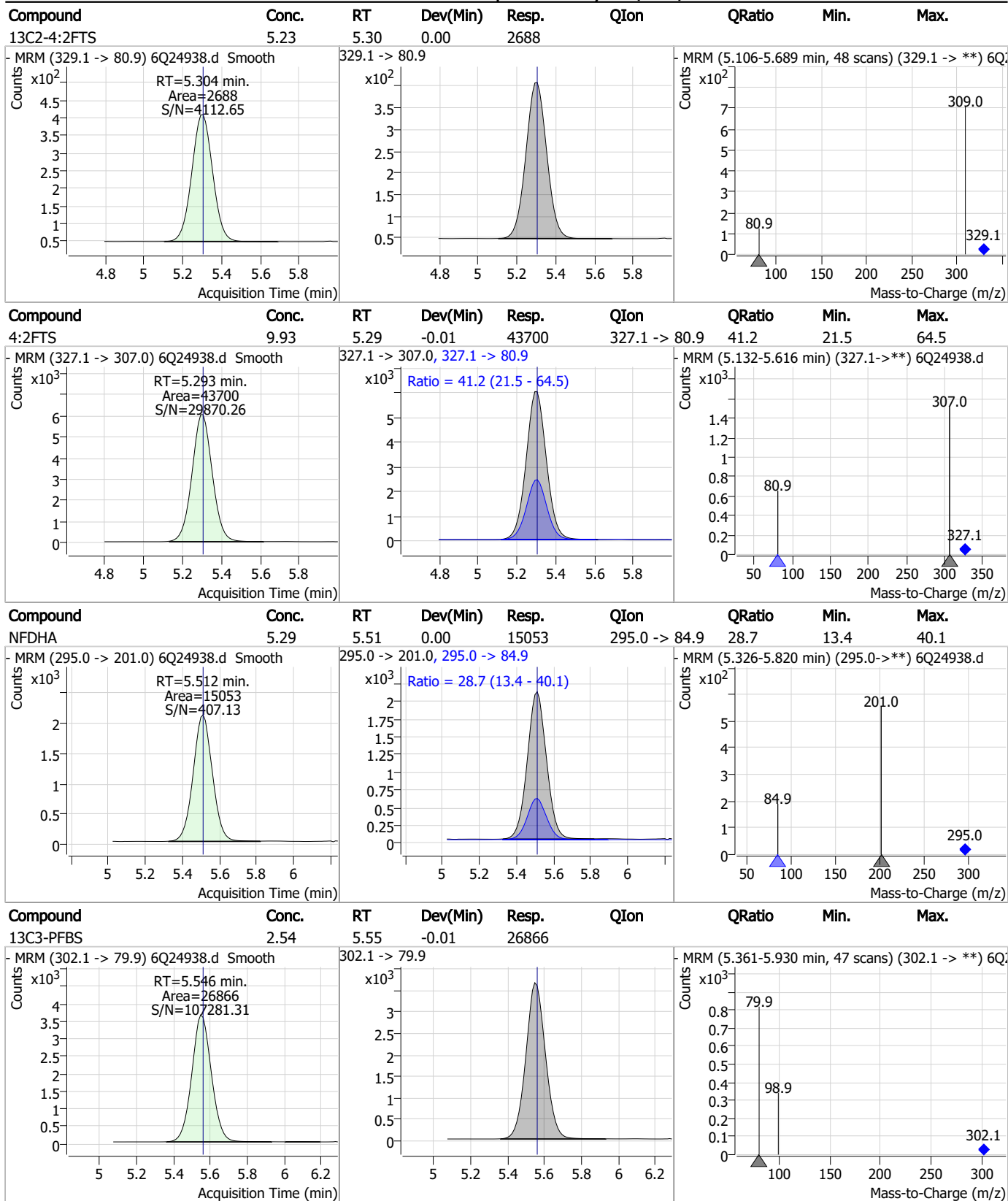
Perfluorinated Compounds by LC/MS/MS



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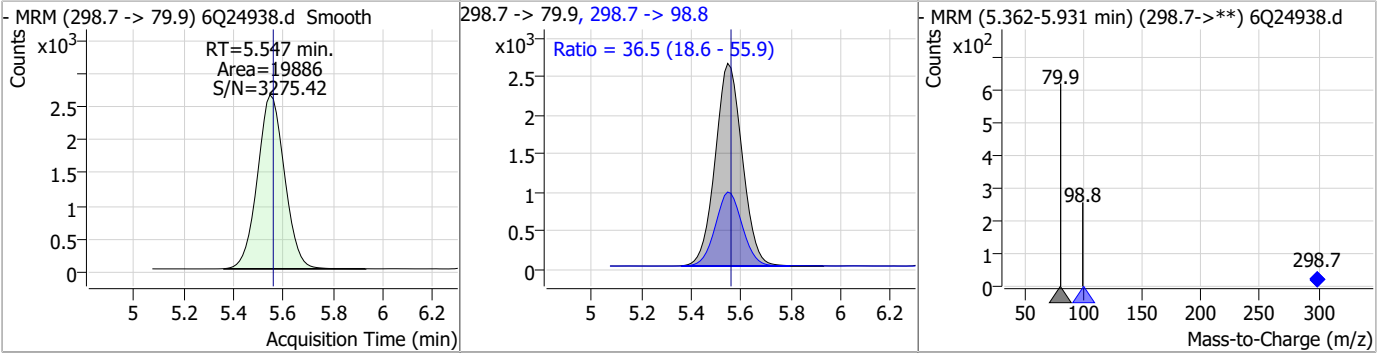
Perfluorinated Compounds by LC/MS/MS



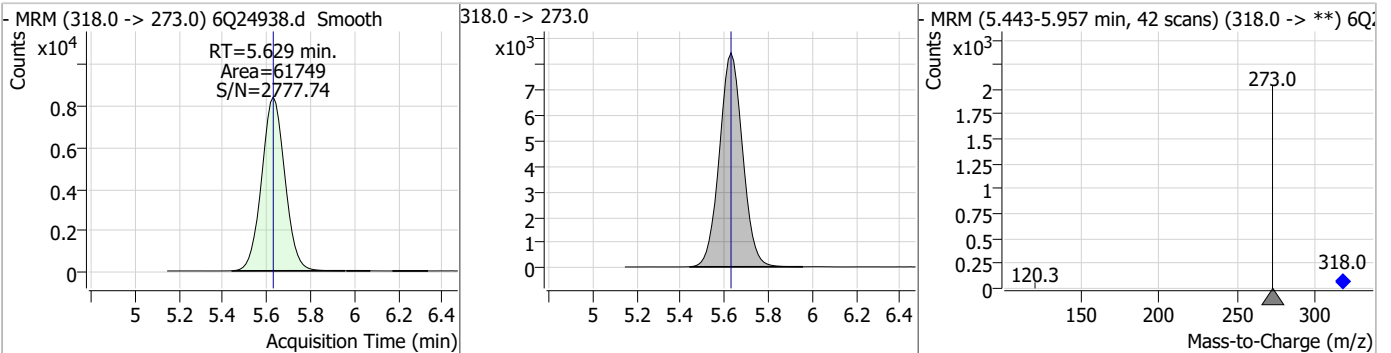
7.7.14
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Perfluorinated Compounds by LC/MS/MS

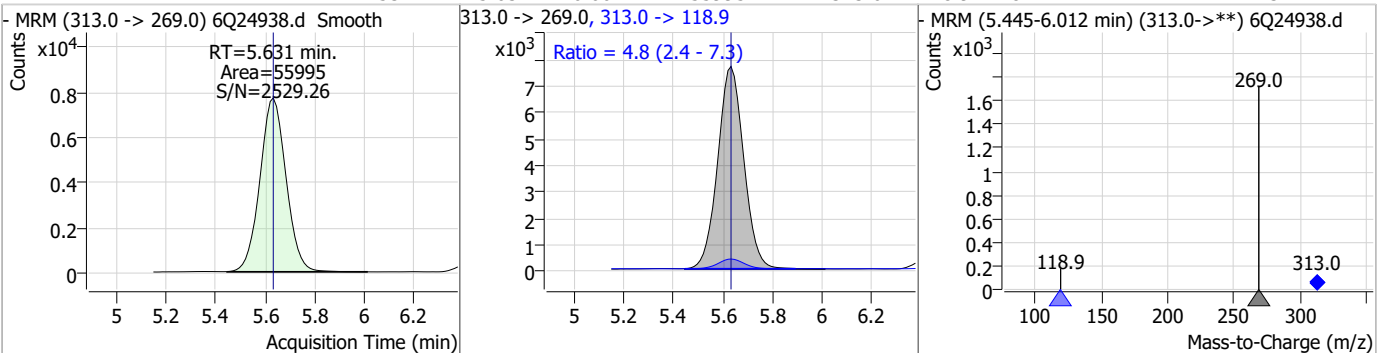
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.27	5.55	-0.01	19886	298.7 -> 98.8	36.5	18.6	55.9



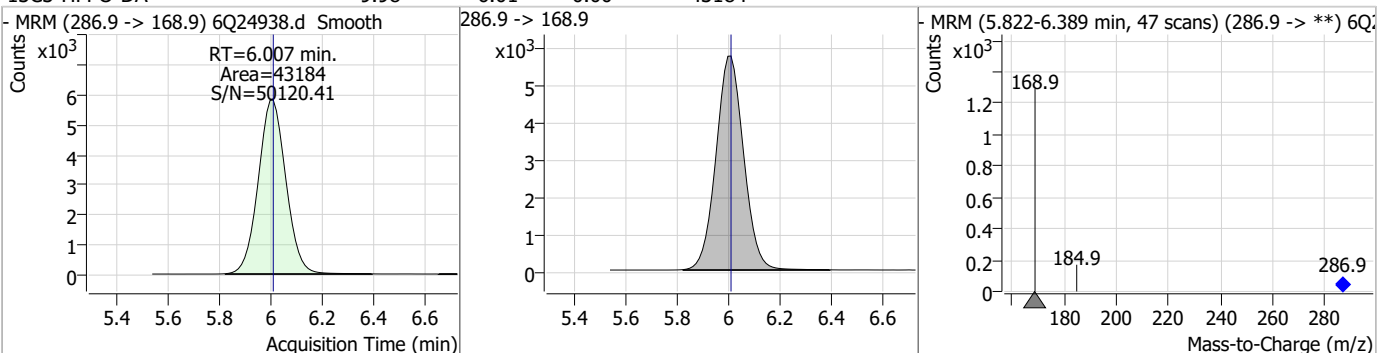
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.56	5.63	0.00	61749				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.53	5.63	0.00	55995	313.0 -> 118.9	4.8	2.4	7.3

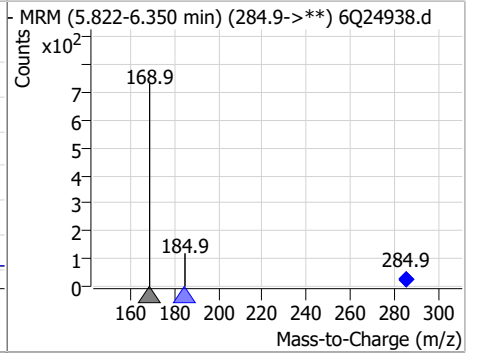
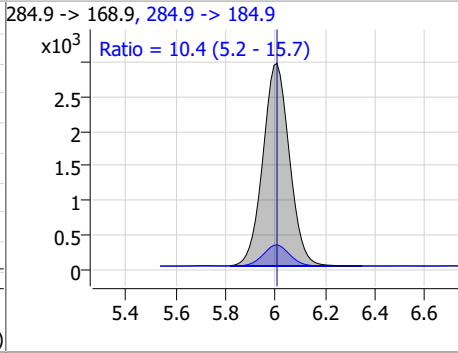
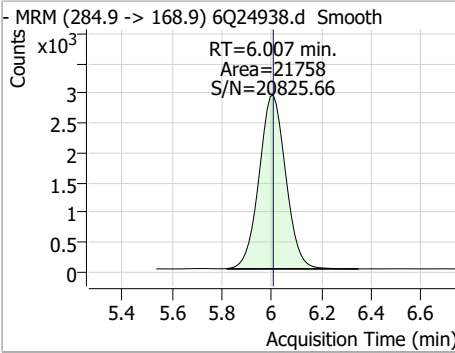


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.98	6.01	0.00	43184				

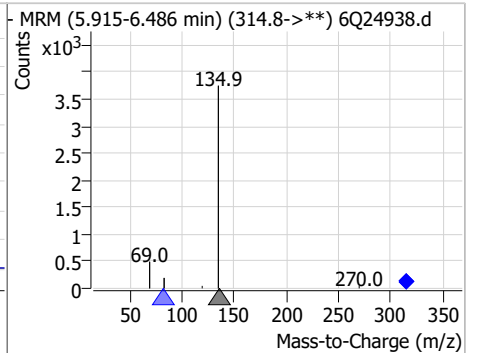
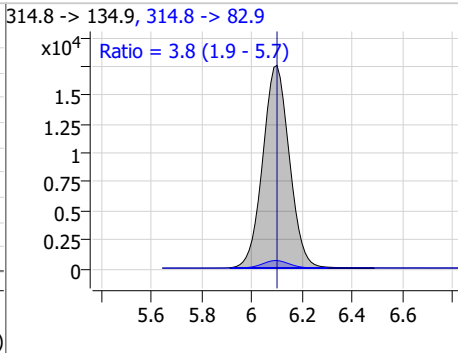
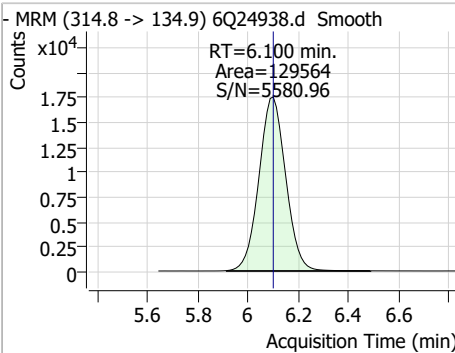


Perfluorinated Compounds by LC/MS/MS

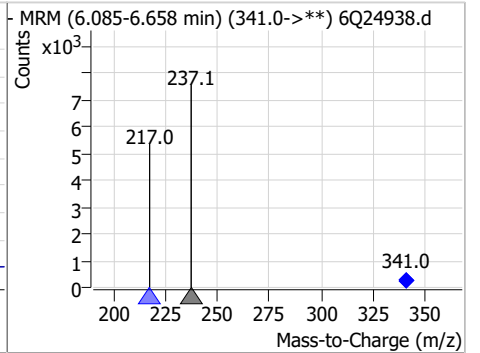
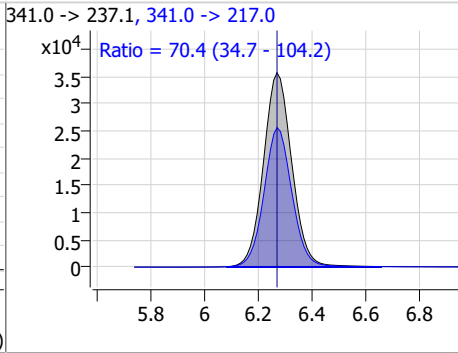
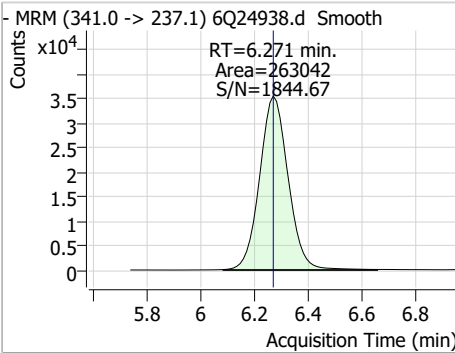
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.12	6.01	0.00	21758	284.9 -> 184.9	10.4	5.2	15.7



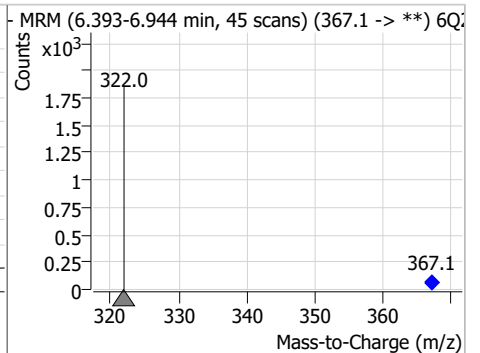
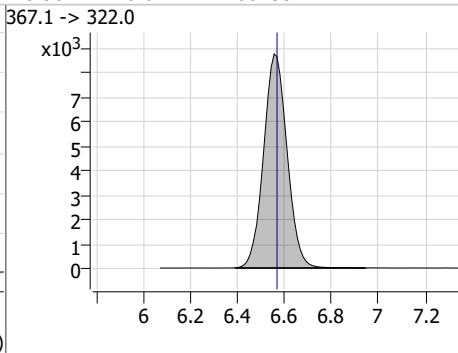
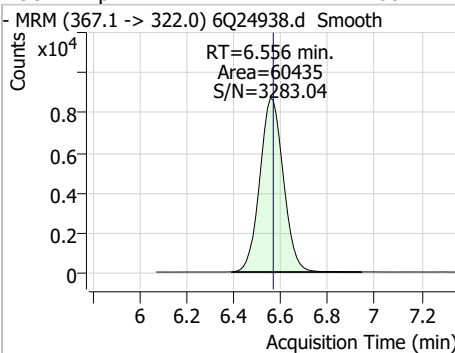
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.70	6.10	0.00	129564	314.8 -> 82.9	3.8	1.9	5.7



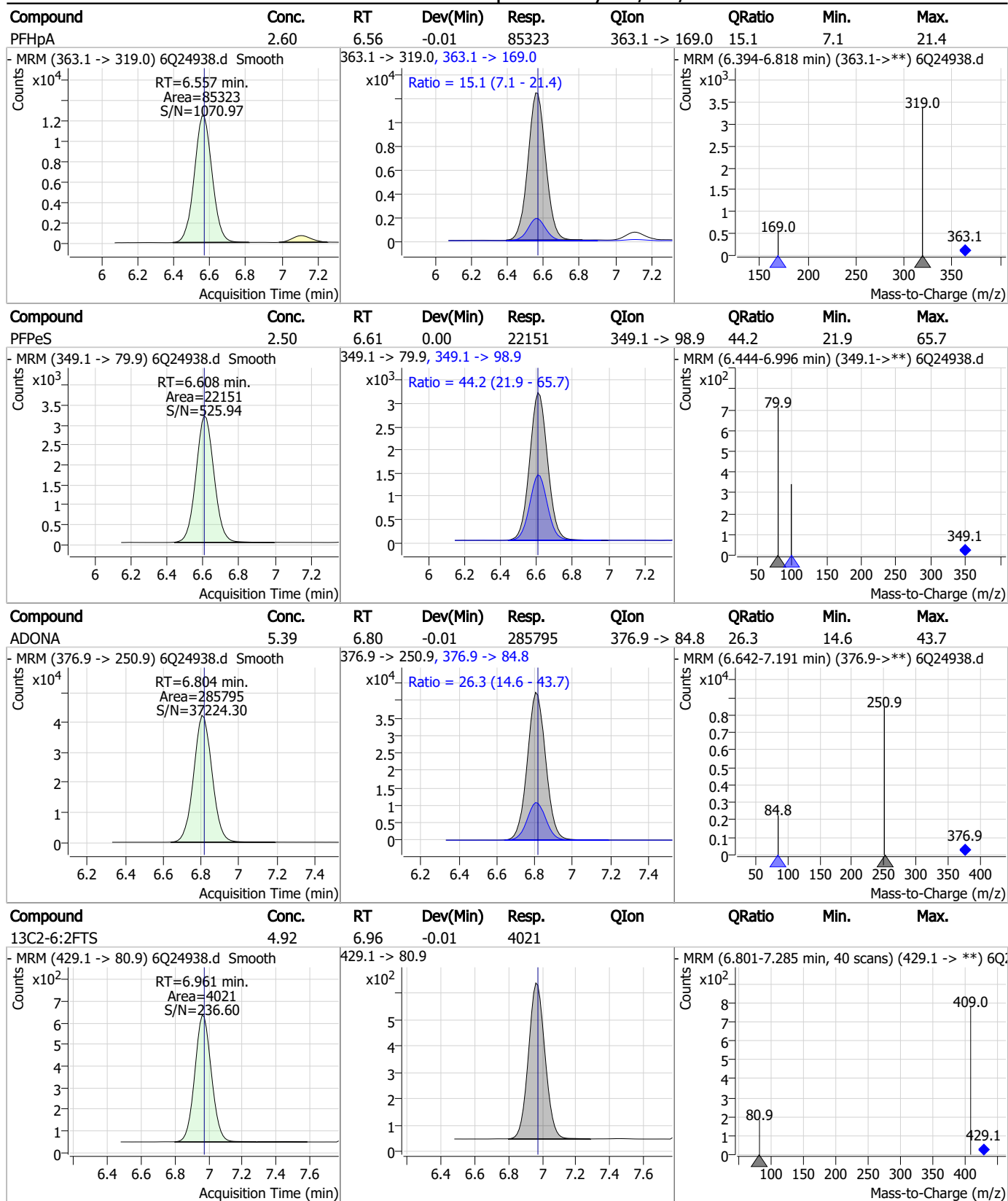
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	63.13	6.27	0.00	263042	341.0 -> 217.0	70.4	34.7	104.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.58	6.56	-0.01	60435	367.1 -> 322.0			

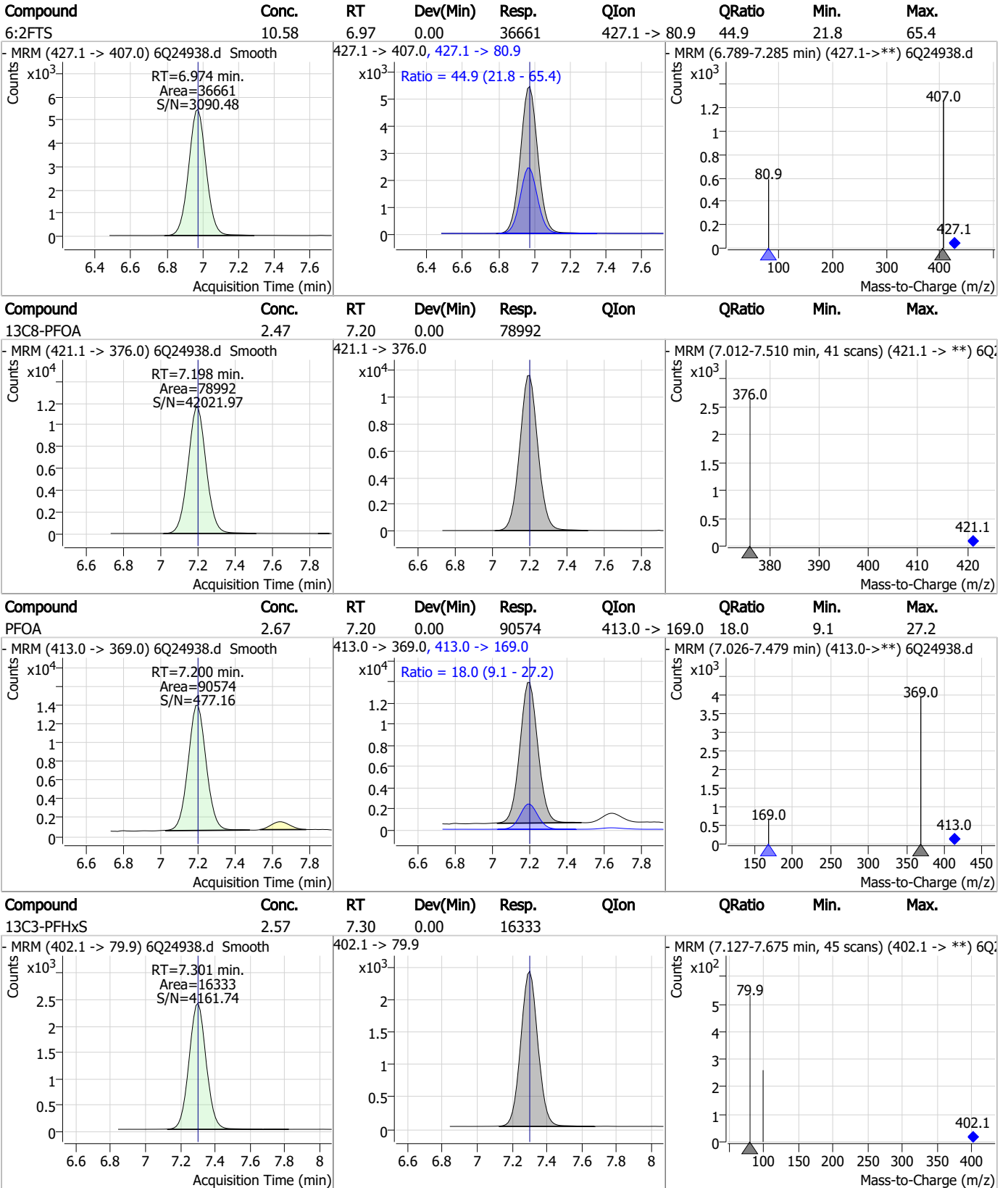


Perfluorinated Compounds by LC/MS/MS



7.7.14

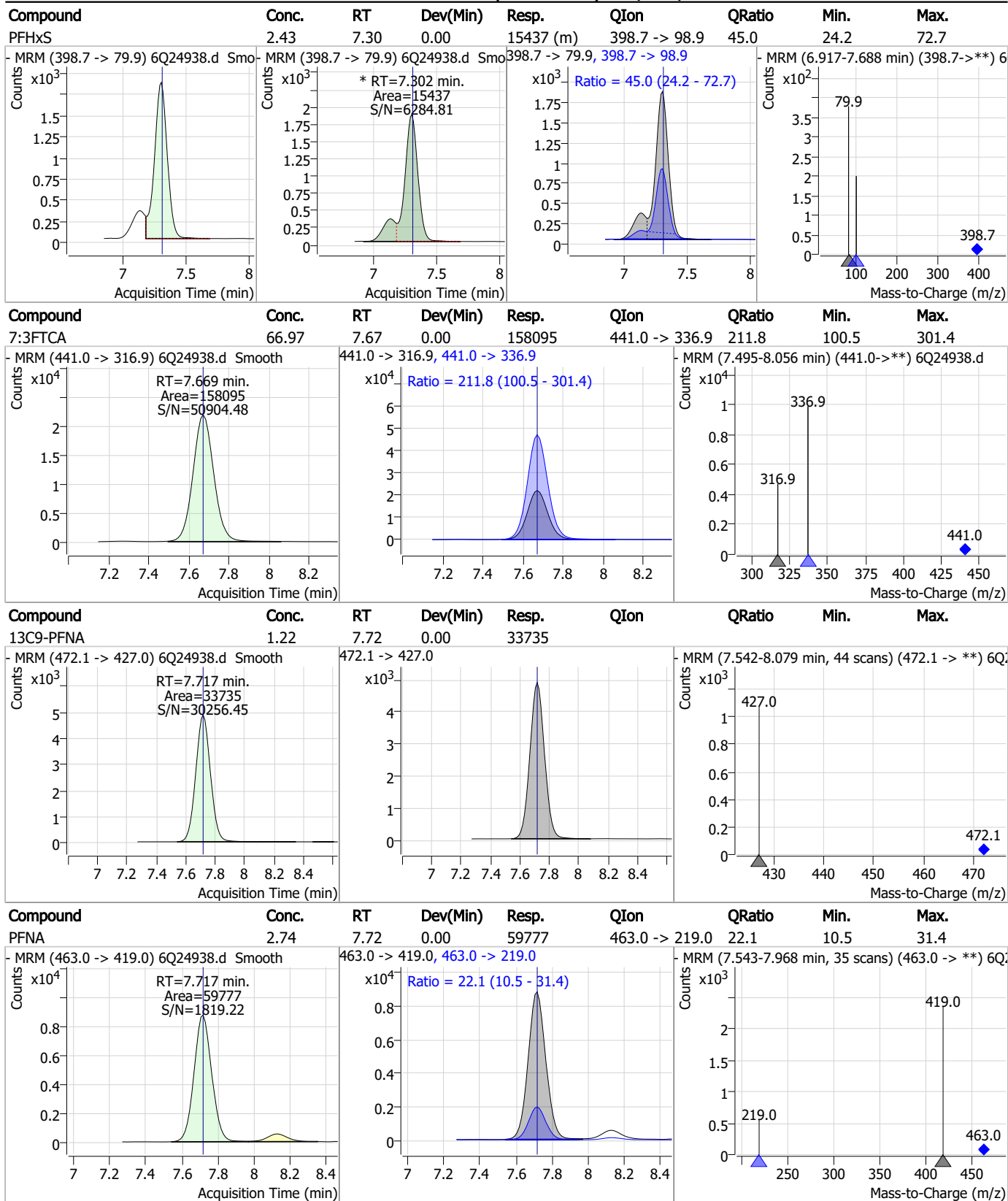
Perfluorinated Compounds by LC/MS/MS



7.7.14

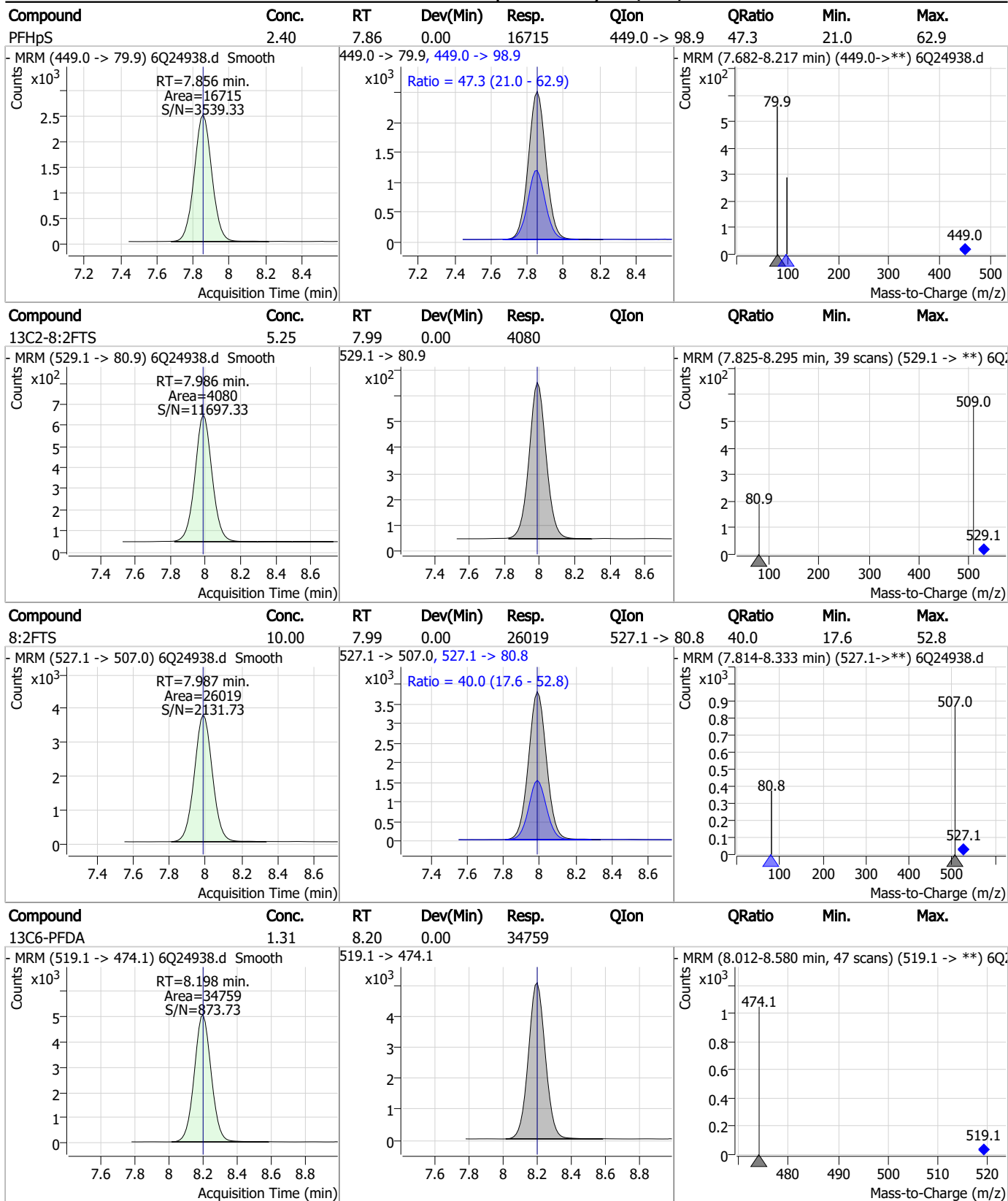


Perfluorinated Compounds by LC/MS/MS



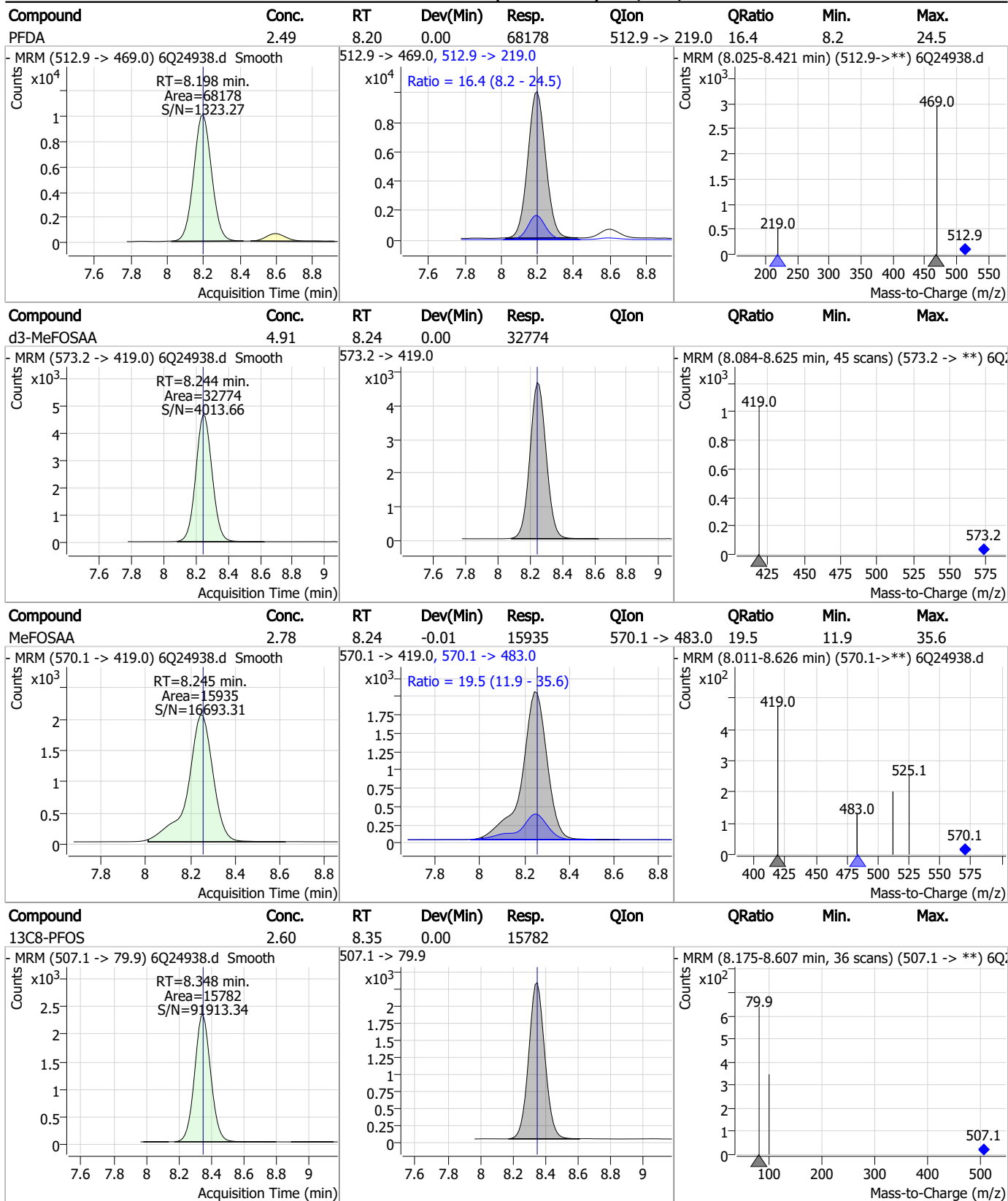
7.7.14
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

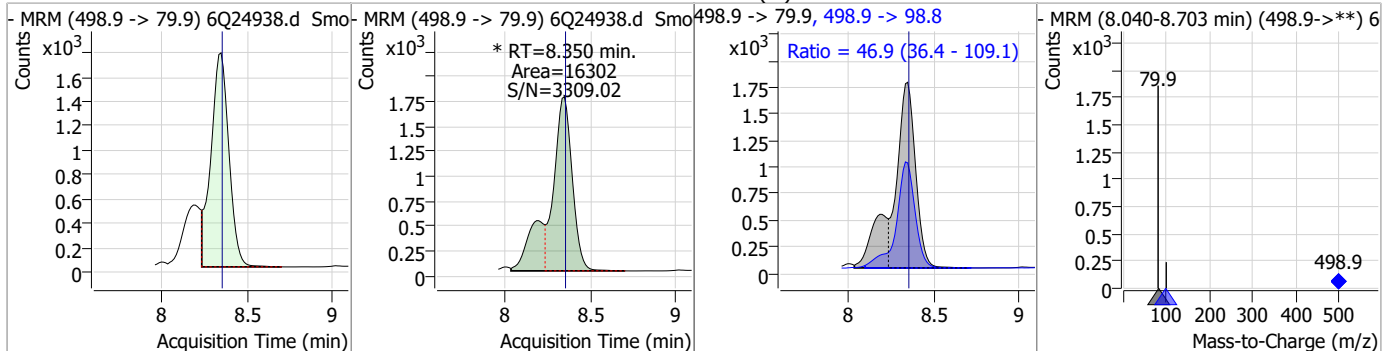


7.7.14

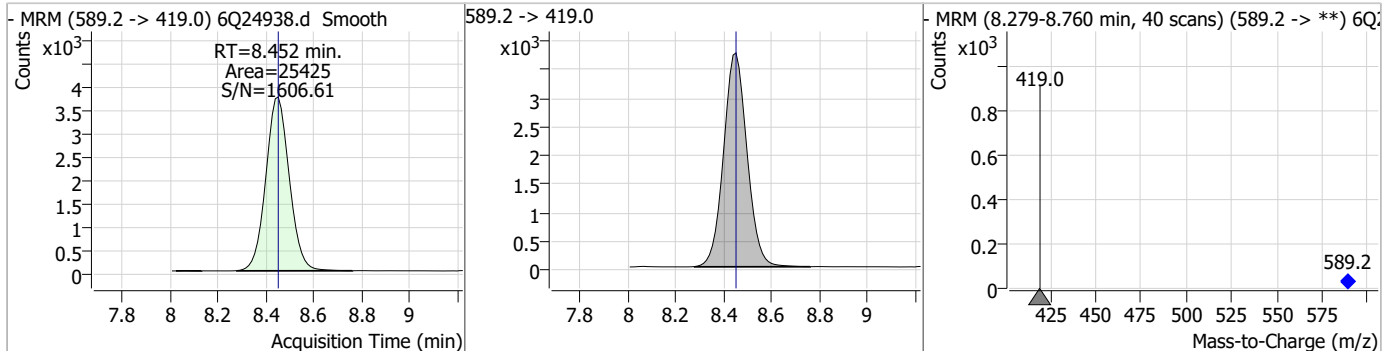
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Perfluorinated Compounds by LC/MS/MS

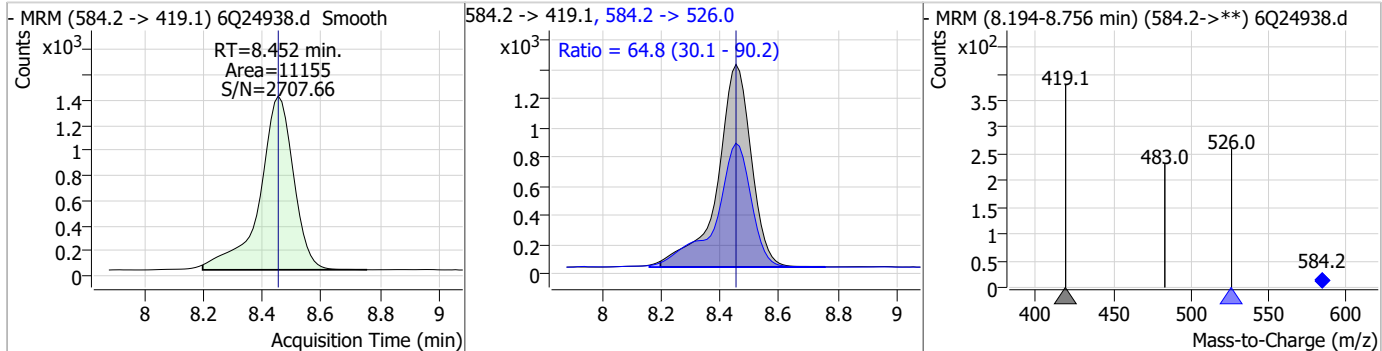
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.39	8.35	0.00	16302 (m)	498.9 -> 98.8	46.9	36.4	109.1



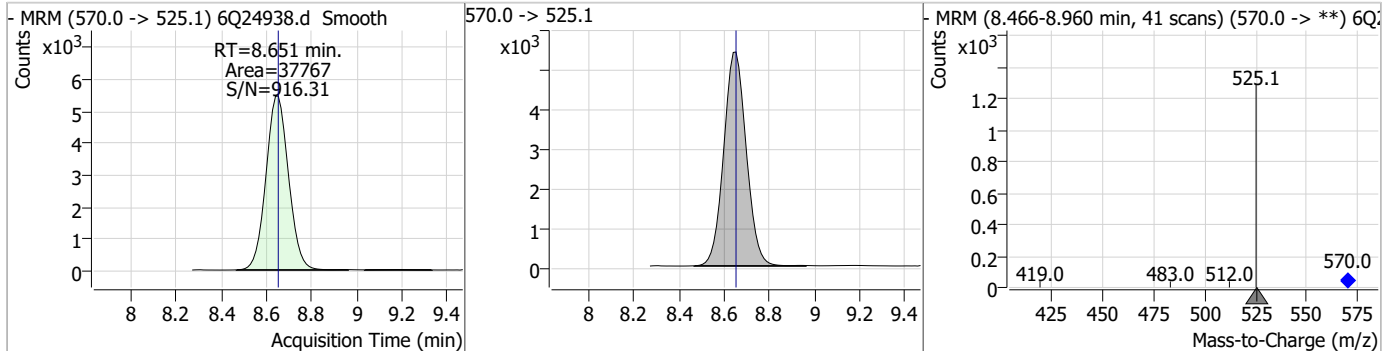
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.90	8.45	0.00	25425				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.64	8.45	0.00	11155	584.2 -> 526.0	64.8	30.1	90.2

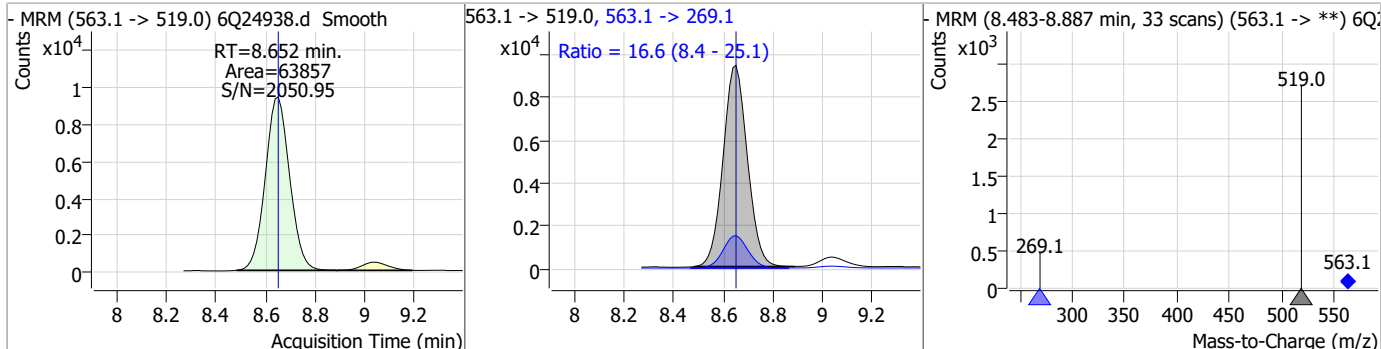


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.27	8.65	0.00	37767				

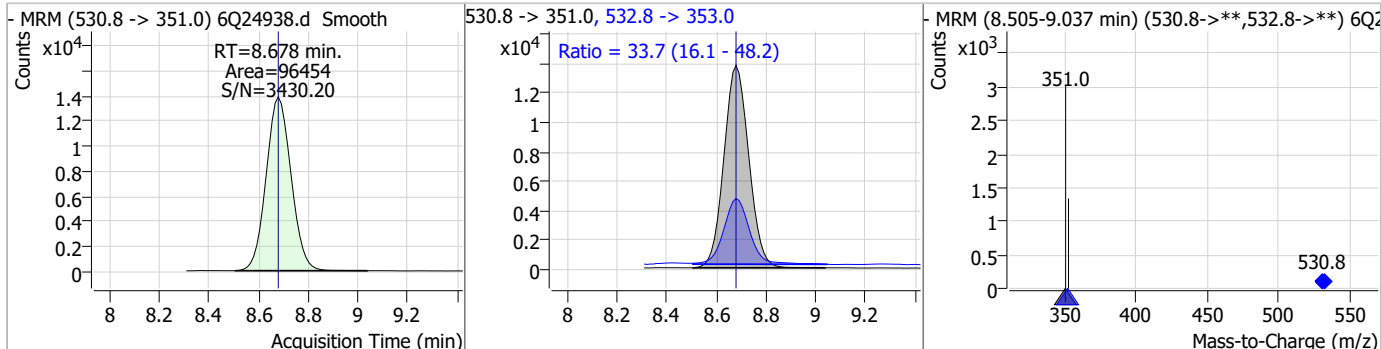


Perfluorinated Compounds by LC/MS/MS

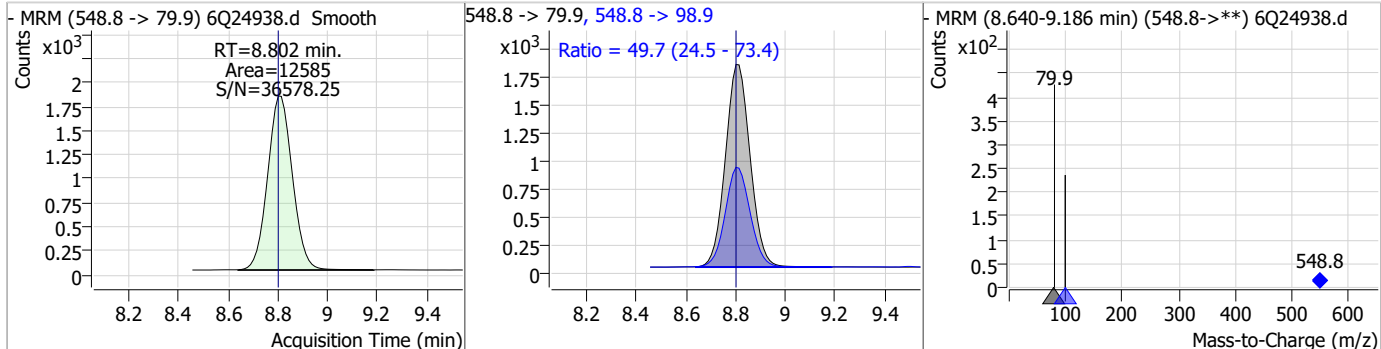
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.55	8.65	0.00	63857	563.1 -> 269.1	16.6	8.4	25.1



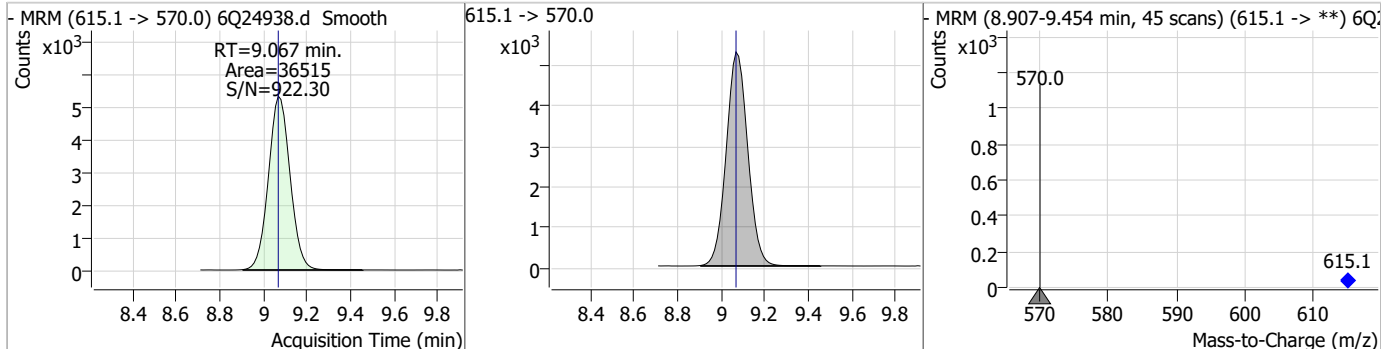
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	5.03	8.68	0.00	96454	532.8 -> 353.0	33.7	16.1	48.2



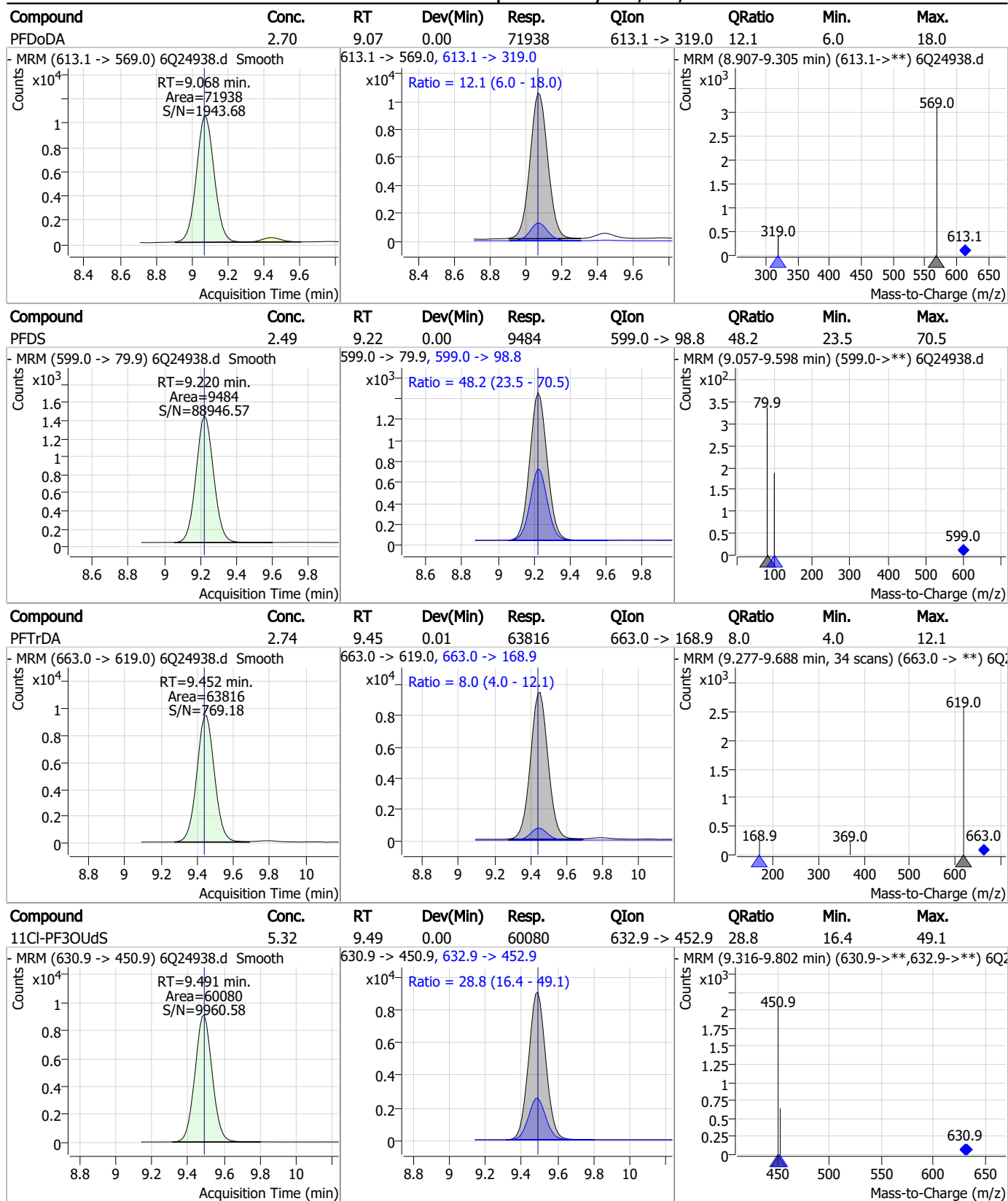
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.29	8.80	0.00	12585	548.8 -> 98.9	49.7	24.5	73.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.21	9.07	0.00	36515	615.1 -> 570.0			



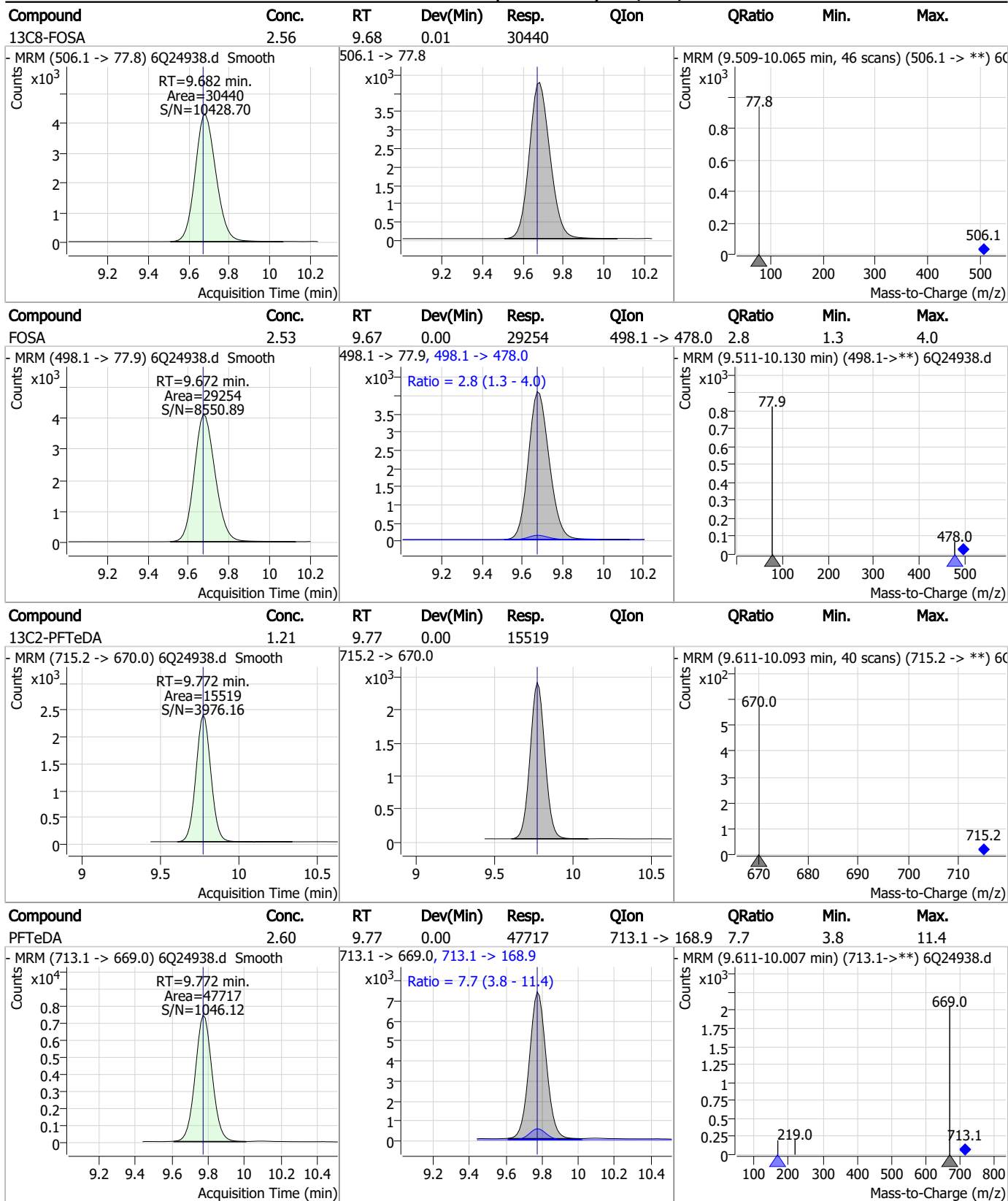
Perfluorinated Compounds by LC/MS/MS



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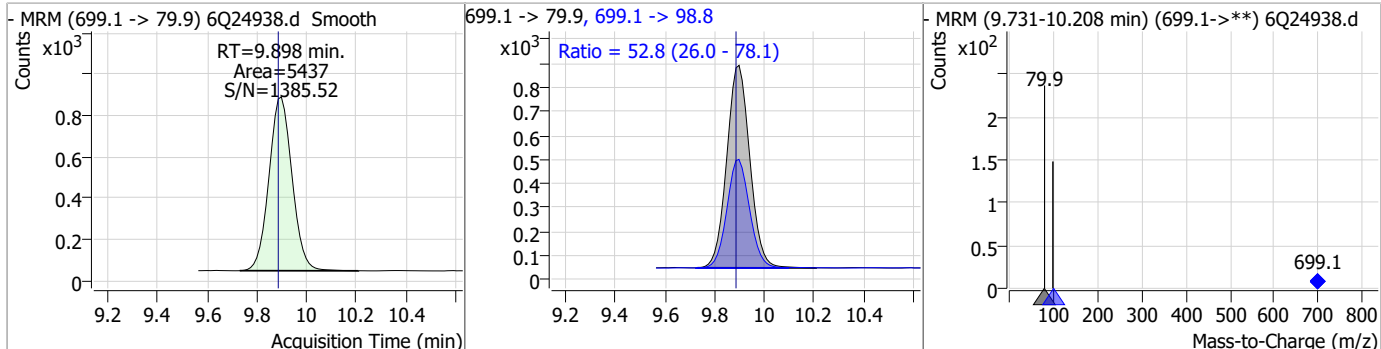
Perfluorinated Compounds by LC/MS/MS



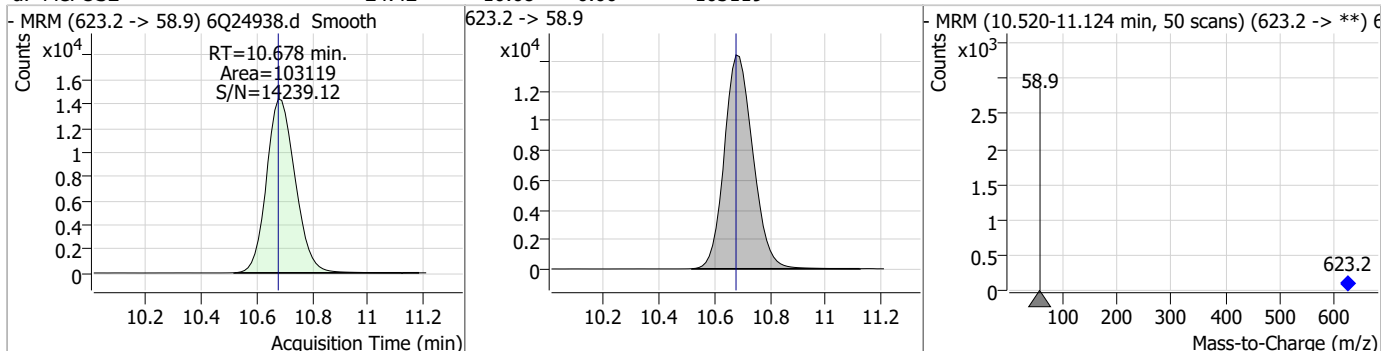
7.7.14
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Perfluorinated Compounds by LC/MS/MS

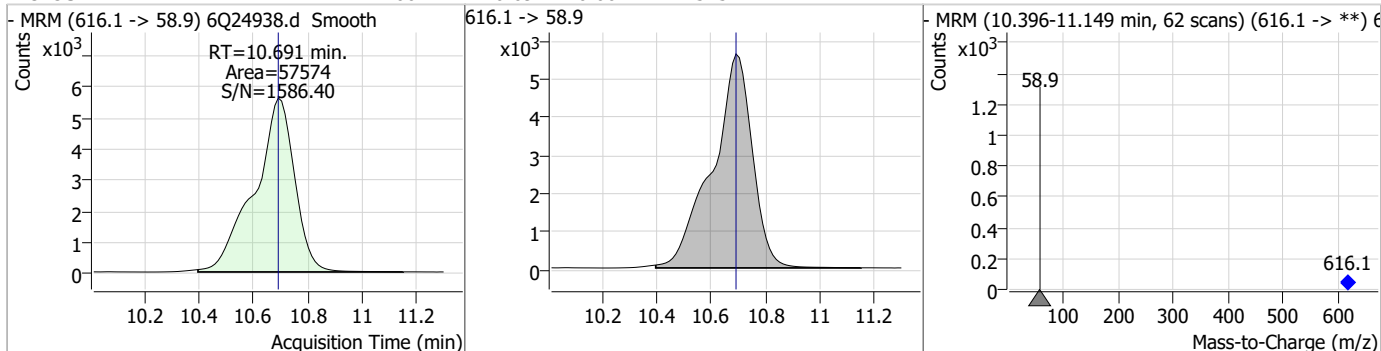
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.39	9.90	0.01	5437	699.1 -> 98.8	52.8	26.0	78.1



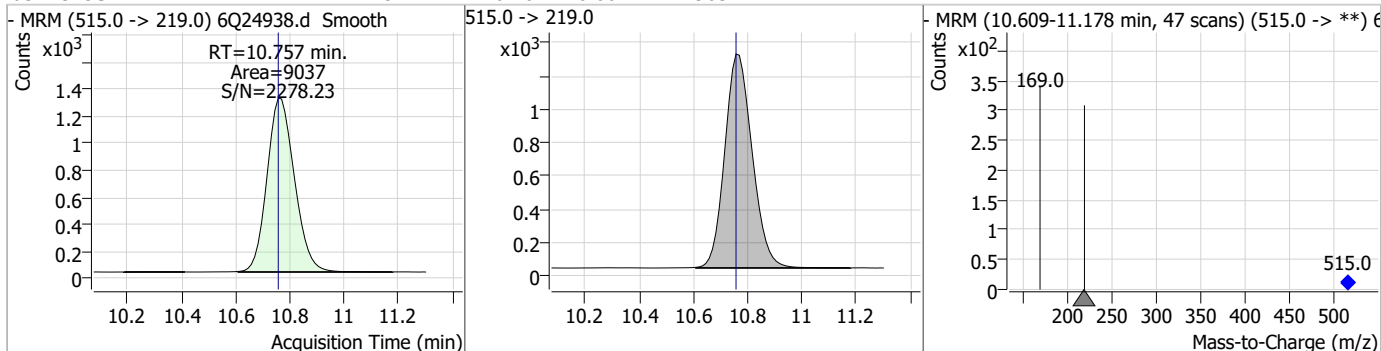
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.42	10.68	0.00	103119				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.60	10.69	0.00	57574				



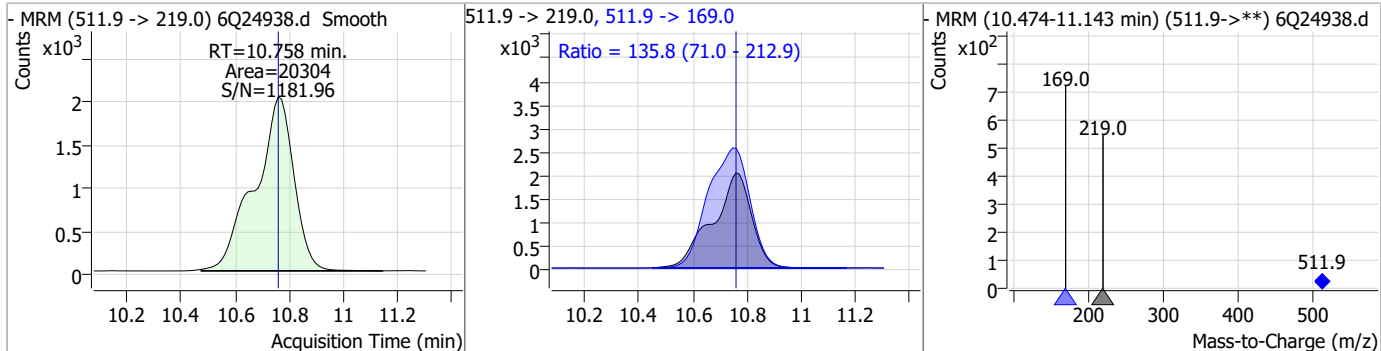
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.52	10.76	0.00	9037				



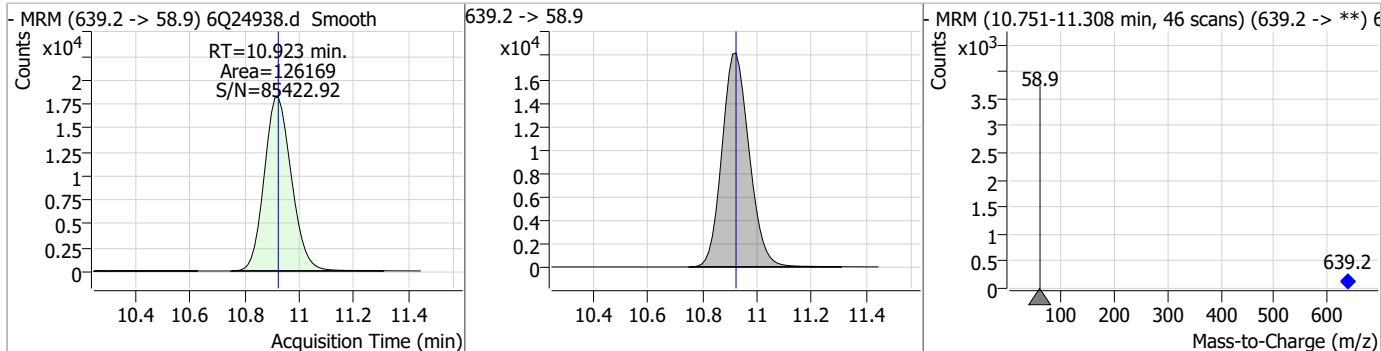
7.7.14
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Perfluorinated Compounds by LC/MS/MS

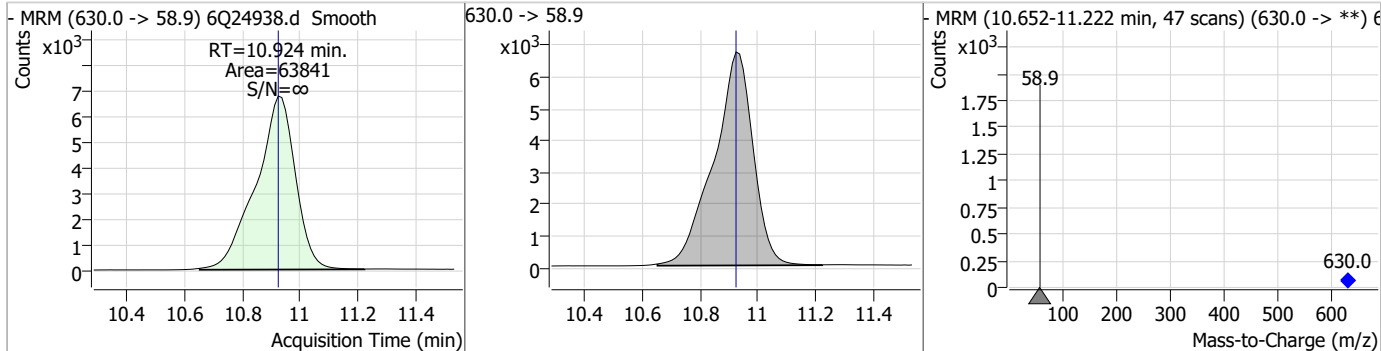
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	4.99	10.76	0.00	20304	511.9 -> 169.0	135.8	71.0	212.9



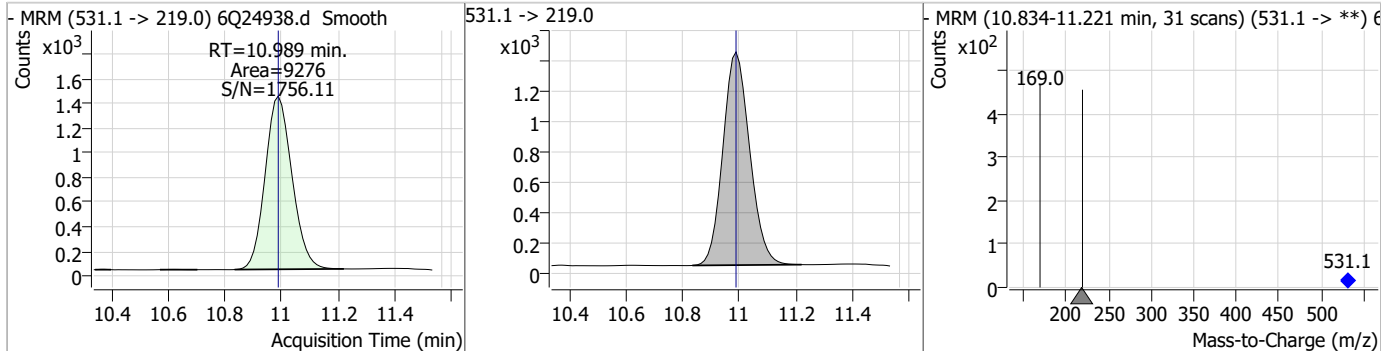
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.55	10.92	0.00	126169				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.60	10.92	0.00	63841				

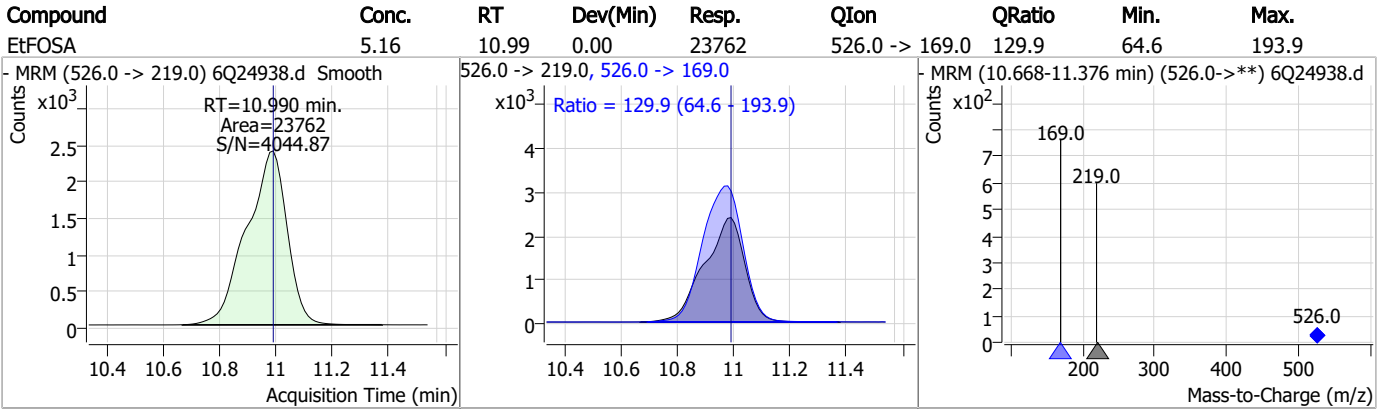


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.46	10.99	0.00	9276				



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q356-CC356 Method: EPA DRAFT 1633
Lab FileID: 6Q24938.D Analyst approved: 09/25/23 14:50 Martha Valls
Injection Time: 09/24/23 19:32 Supervisor approved: 09/26/23 13:54 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24969.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/25/2023 2:56:03 AM
 Sample Name : cc356-4
 Vial : P1-A5
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	178030	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	71817	5.00 µg/L	0.000
M5-PFHxA	5.629	318.0 -> 273.0	63977	2.50 µg/L	0.000
M4-PFHpA	6.556	367.1 -> 322.0	65504	2.50 µg/L	-0.012
M8-PFOA	7.186	421.1 -> 376.0	79897	2.50 µg/L	-0.012
M9-PFNA	7.717	472.1 -> 427.0	34371	1.25 µg/L	0.000
M6-PFDA	8.185	519.1 -> 474.1	32882	1.25 µg/L	-0.012
M7-PFUnDA	8.639	570.0 -> 525.1	39418	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	38897	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	15843	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	29452	2.50 µg/L	0.000
M3-PFBS	5.559	302.1 -> 79.9	27537	2.50 µg/L	0.000
M3-PFHxS	7.289	402.1 -> 79.9	16443	2.50 µg/L	-0.012
M8-PFOS	8.336	507.1 -> 79.9	15297	2.50 µg/L	-0.013
M2-4:2FTS	5.304	329.1 -> 80.9	2728	5.00 µg/L	0.000
M2-6:2FTS	6.961	429.1 -> 80.9	4316	5.00 µg/L	-0.012
M2-8:2FTS	7.986	529.1 -> 80.9	3890	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	33124	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	44124	10.00 µg/L	0.000
M5-EtFOSAA	8.439	589.2 -> 419.0	26040	5.00 µg/L	-0.012
M7-MeFOSE	10.678	623.2 -> 58.9	102099	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	122026	25.00 µg/L	-0.012
M5-EtFOSA	10.989	531.1 -> 219.0	8955	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	8906	2.50 µg/L	0.000
13C4-PFOS	8.336	502.8 -> 79.9	15204	2.50 µg/L	-0.013
13C3-PFBA	2.976	216.0 -> 172.0	74036	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	10269	2.50 µg/L	0.000
13C4-PFOA	7.187	417.1 -> 372.0	100639	2.50 µg/L	-0.012
13C2-PFDA	8.186	515.1 -> 470.1	33302	1.25 µg/L	-0.012
13C5-PFNA	7.705	468.0 -> 423.0	37693	1.25 µg/L	-0.012
13C2-PFHxA	5.630	315.1 -> 270.0	62696	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2728	5.19 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.9%		
13C2-6:2FTS	6.961	429.1 -> 80.9	4316	5.17 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.4%		
13C2-8:2FTS	7.986	529.1 -> 80.9	3890	4.90 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.9%		
13C2-PFDoDA	9.067	615.1 -> 570.0	38897	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C2-PFTeDA	9.772	715.2 -> 670.0	15843	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.9%		
13C3-PFBS	5.559	302.1 -> 79.9	27537	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C3-PFHxS	7.289	402.1 -> 79.9	16443	2.53 µg/L	-0.012

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C4-PFBA	2.972	216.8 -> 171.9	178030	9.95 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C4-PFHpA	6.556	367.1 -> 322.0	65504	2.56 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C5-PFHxA	5.629	318.0 -> 273.0	63977	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C5-PFPeA	4.409	268.3 -> 223.0	71817	4.84 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C6-PFDA	8.185	519.1 -> 474.1	32882	1.18 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.0%	
13C7-PFUnDA	8.639	570.0 -> 525.1	39418	1.26 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C8-FOSA	9.670	506.1 -> 77.8	29452	2.29 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.6%	
13C8-PFOA	7.186	421.1 -> 376.0	79897	2.29 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.6%	
13C8-PFOS	8.336	507.1 -> 79.9	15297	2.33 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.2%	
13C9-PFNA	7.717	472.1 -> 427.0	34371	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.7%	
d3-MeFOSAA	8.244	573.2 -> 419.0	33124	4.60 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 91.9%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	44124	9.34 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.4%	
d3-MeFOSA	10.757	515.0 -> 219.0	8906	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.1%	
d5-EtFOSAA	8.439	589.2 -> 419.0	26040	4.65 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.0%	
d7-MeFOSE	10.678	623.2 -> 58.9	102099	22.38 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.5%	
d9-EtFOSE	10.911	639.2 -> 58.9	122026	21.99 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 88.0%	
d5-EtFOSA	10.989	531.1 -> 219.0	8955	2.20 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.1%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	44827	10.04 µg/L	99
		327.1 -> 80.9	18981		
6:2FTS	6.962	427.1 -> 407.0	40973	11.02 µg/L	93
		427.1 -> 80.9	15913		
8:2FTS	7.974	527.1 -> 507.0	26062	10.51 µg/L	89
		527.1 -> 80.8	10843		
EtFOSAA	8.452	584.2 -> 419.1	11719	2.70 µg/L	98
		584.2 -> 526.0	6896		
FOSA	9.672	498.1 -> 77.9	29684	2.65 µg/L	99
		498.1 -> 478.0	861		
MeFOSAA	8.245	570.1 -> 419.0	15650	2.70 µg/L	95
		570.1 -> 483.0	3290		
PFBA	2.981	212.8 -> 168.9	65800	10.35 µg/L	100
PFBS	5.547	298.7 -> 79.9	21118	2.35 µg/L	99
		298.7 -> 98.8	7772		
PFDA	8.186	512.9 -> 469.0	67322	2.59 µg/L	98
		512.9 -> 219.0	10532		
PFDODA	9.068	613.1 -> 569.0	71653	2.53 µg/L	95
		613.1 -> 319.0	10031		
PFDS	9.220	599.0 -> 79.9	9280	2.51 µg/L	100

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	4370			
PFHpA	6.557	363.1 -> 319.0	85440	2.40	µg/L	98
		363.1 -> 169.0	13077			
PFHpS	7.843	449.0 -> 79.9	16827	2.49	µg/L	90
		449.0 -> 98.9	8172			
PFHxA	5.631	313.0 -> 269.0	59863	2.61	µg/L	100
		313.0 -> 118.9	2906			
PFHxS	7.290	398.7 -> 79.9	15303	2.39	µg/L	m 99
		398.7 -> 98.9	7341			
PFNA	7.705	463.0 -> 419.0	57618	2.59	µg/L	96
		463.0 -> 219.0	13178			
PFNS	8.802	548.8 -> 79.9	13352	2.51	µg/L	97
		548.8 -> 98.9	6837			
PFOA	7.187	413.0 -> 369.0	100640	2.93	µg/L	97
		413.0 -> 169.0	16710			
PFOS	8.337	498.9 -> 79.9	15697	2.38	µg/L	m 75
		498.9 -> 98.8	8163			
PFPeA	4.411	263.0 -> 219.0	74373	5.14	µg/L	100
PFPeS	6.608	349.1 -> 79.9	21106	2.37	µg/L	96
		349.1 -> 98.9	9819			
PFTeDA	9.772	713.1 -> 669.0	52983	2.83	µg/L	98
		713.1 -> 168.9	3711			
PFTrDA	9.440	663.0 -> 619.0	68545	2.76	µg/L	99
		663.0 -> 168.9	5325			
PFUnDA	8.639	563.1 -> 519.0	65207	2.50	µg/L	96
		563.1 -> 269.1	9848			
11CI-PF3OUdS	9.479	630.9 -> 450.9	59995	5.20	µg/L	97
		632.9 -> 452.9	18590			
9CI-PF3ONS	8.666	530.8 -> 351.0	101701	5.19	µg/L	97
		532.8 -> 353.0	31116			
ADONA	6.804	376.9 -> 250.9	275720	5.08	µg/L	99
		376.9 -> 84.8	78451			
HFPO-DA	6.007	284.9 -> 168.9	21592	4.97	µg/L	98
		284.9 -> 184.9	2425			
3:3FTCA	3.846	241.0 -> 177.0	12951	12.55	µg/L	99
		241.0 -> 117.0	1508			
5:3FTCA	6.271	341.0 -> 237.1	275976	63.93	µg/L	100
		341.0 -> 217.0	192178			
7:3FTCA	7.657	441.0 -> 316.9	161301	65.95	µg/L	94
		441.0 -> 336.9	337641			
EtFOSA	10.978	526.0 -> 219.0	24104	5.42	µg/L	99
		526.0 -> 169.0	30856			
EtFOSE	10.924	630.0 -> 58.9	64328	13.13	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	20984	5.24	µg/L	95
		511.9 -> 169.0	28500			
MeFOSE	10.691	616.1 -> 58.9	59732	13.20	µg/L	100
PFDoDS	9.886	699.1 -> 79.9	5623	2.55	µg/L	99
		699.1 -> 98.8	2908			
NFDHA	5.512	295.0 -> 201.0	15268	5.18	µg/L	100
		295.0 -> 84.9	4086			
PFMBA	4.838	279.0 -> 85.1	57952	4.99	µg/L	100
PFMPA	3.551	229.0 -> 84.9	44160	5.12	µg/L	100
PFEESA	6.100	314.8 -> 134.9	132096	4.63	µg/L	99
		314.8 -> 82.9	4777			

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



7.7.15
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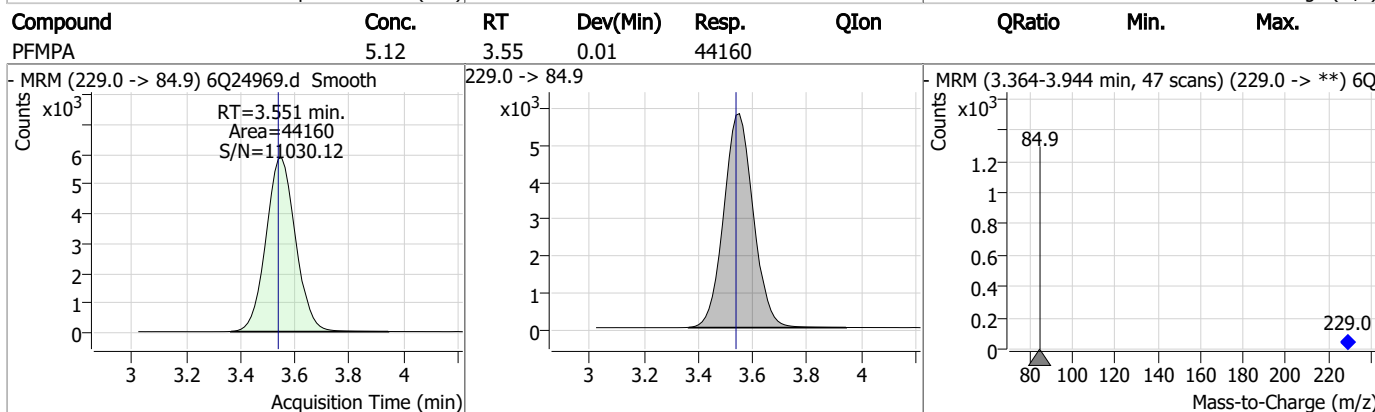
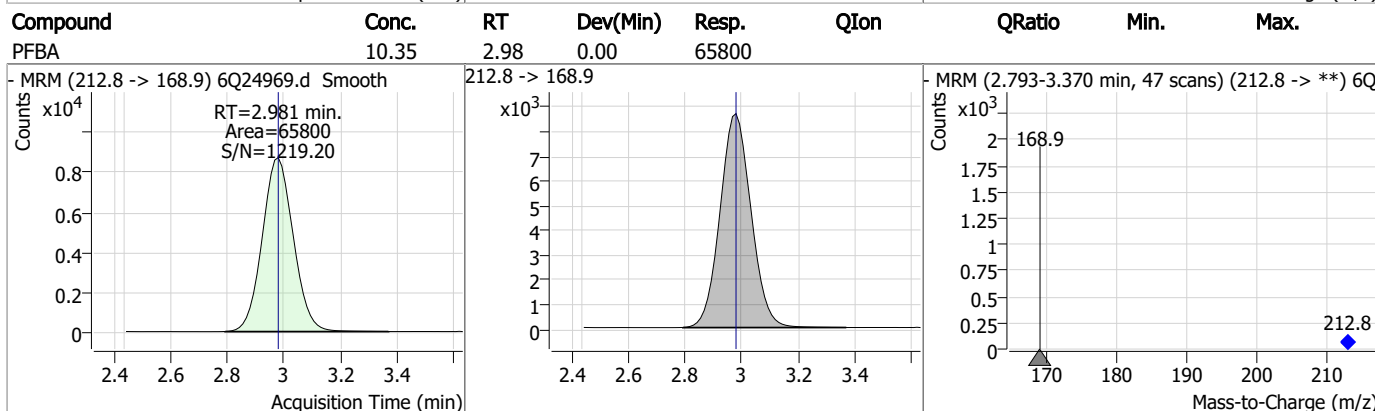
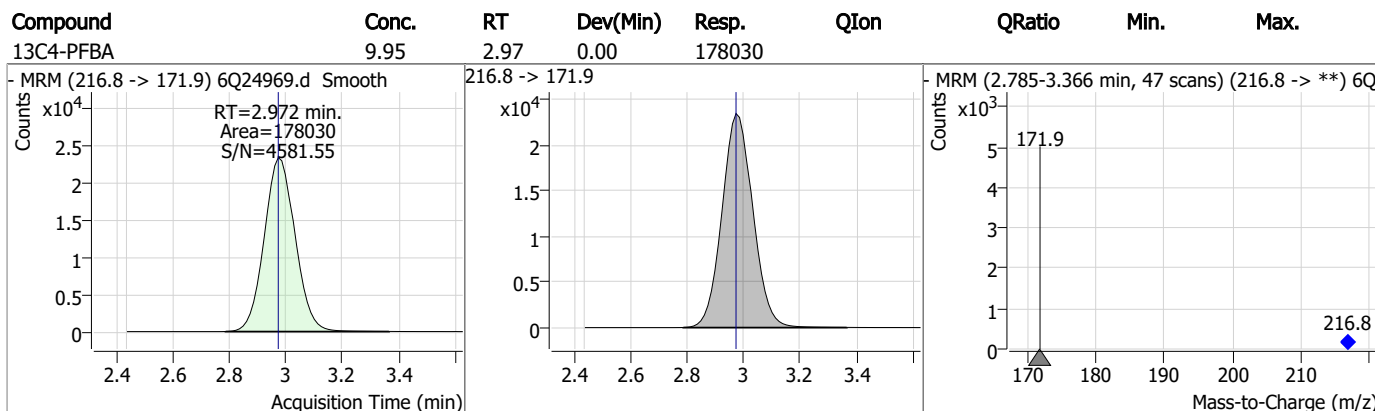
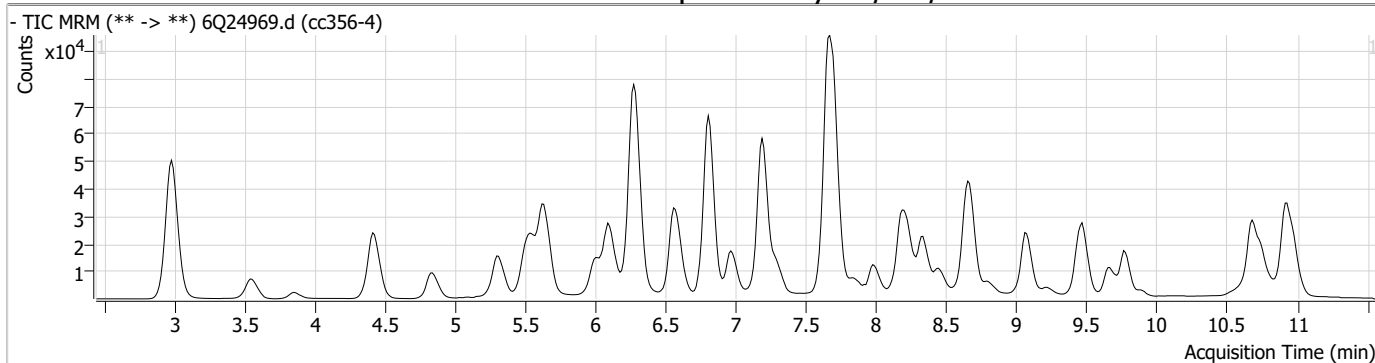
Perfluorinated Compounds by LC/MS/MS

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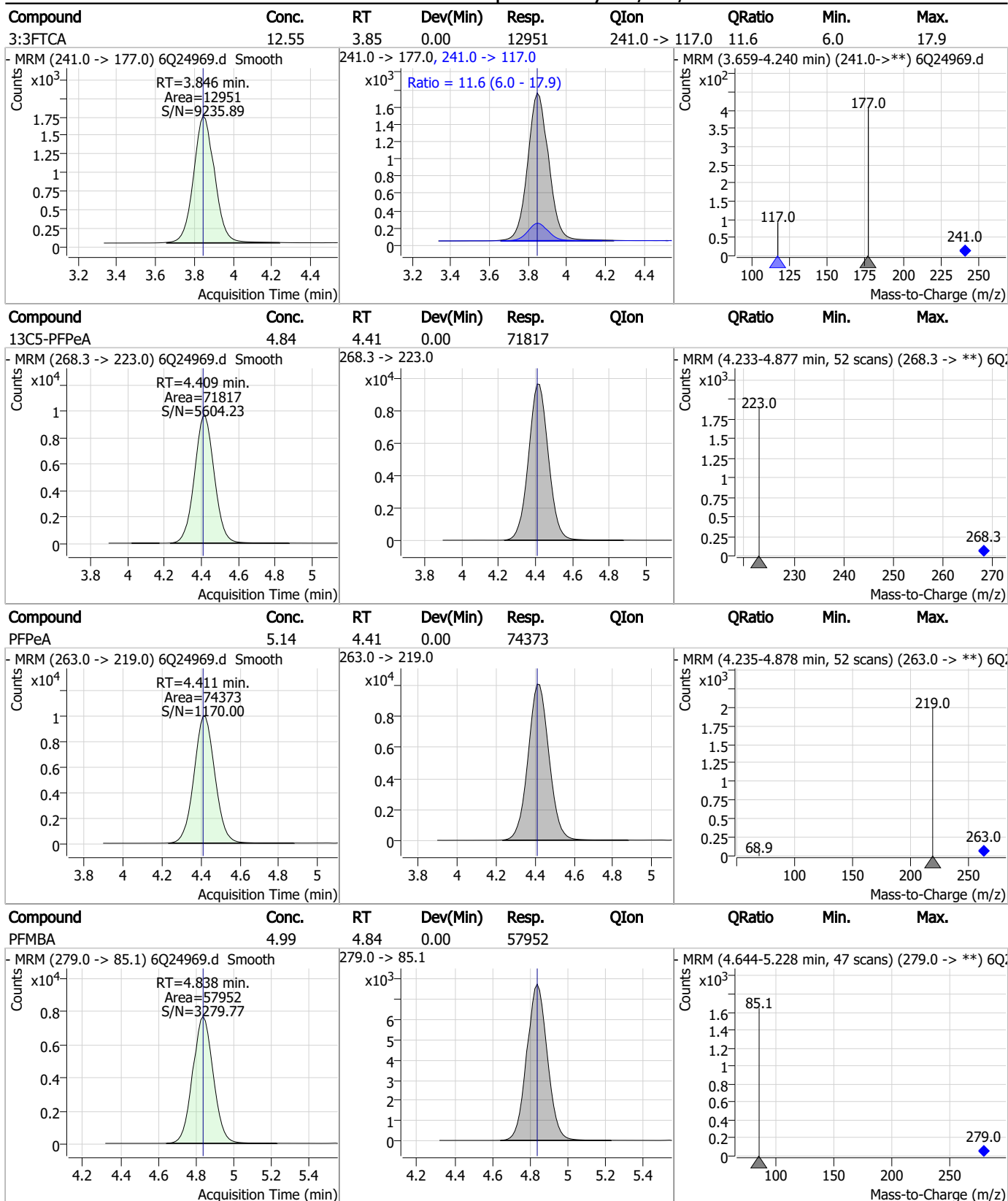
7.7.15

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Perfluorinated Compounds by LC/MS/MS



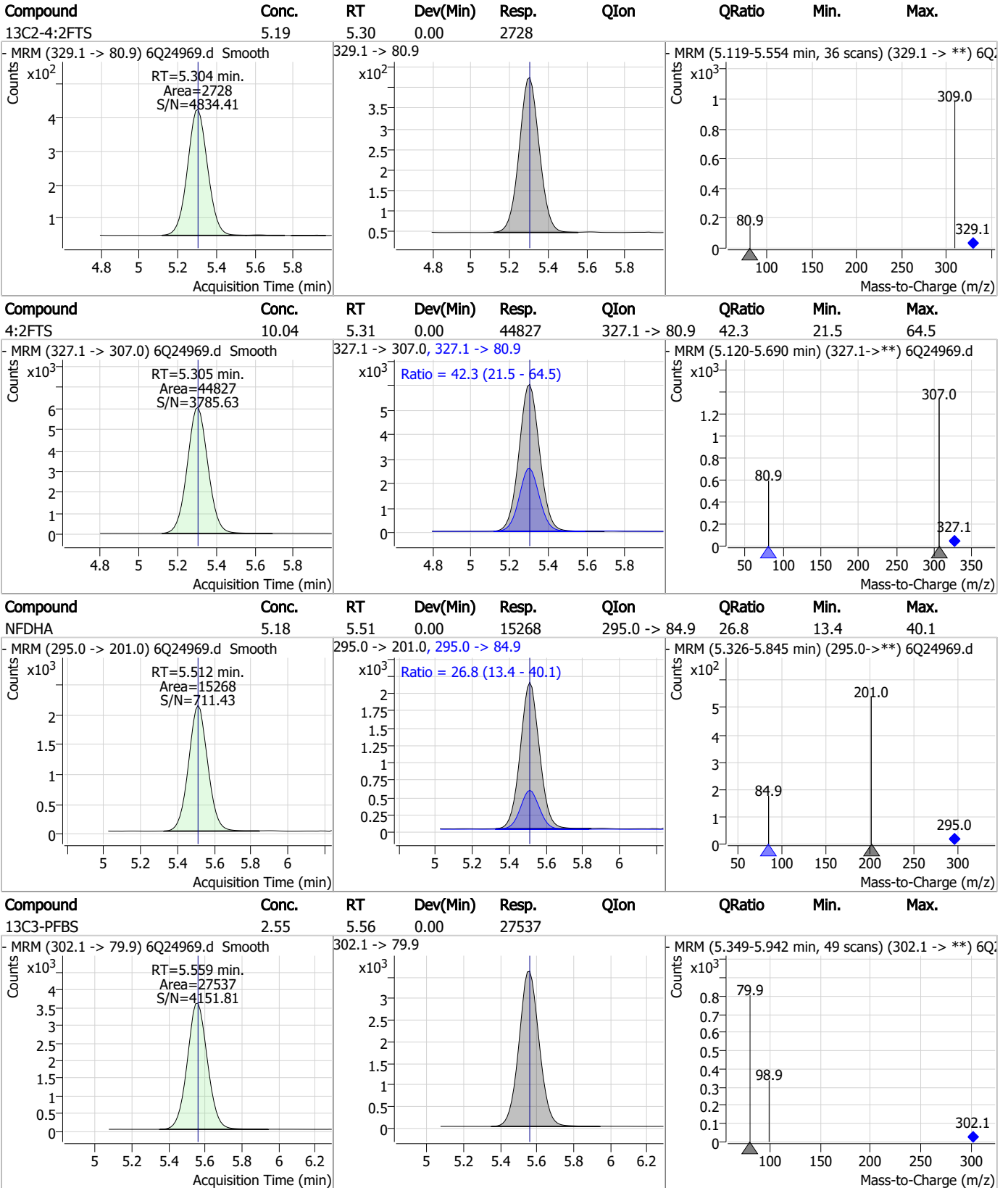
Perfluorinated Compounds by LC/MS/MS



7.7.15

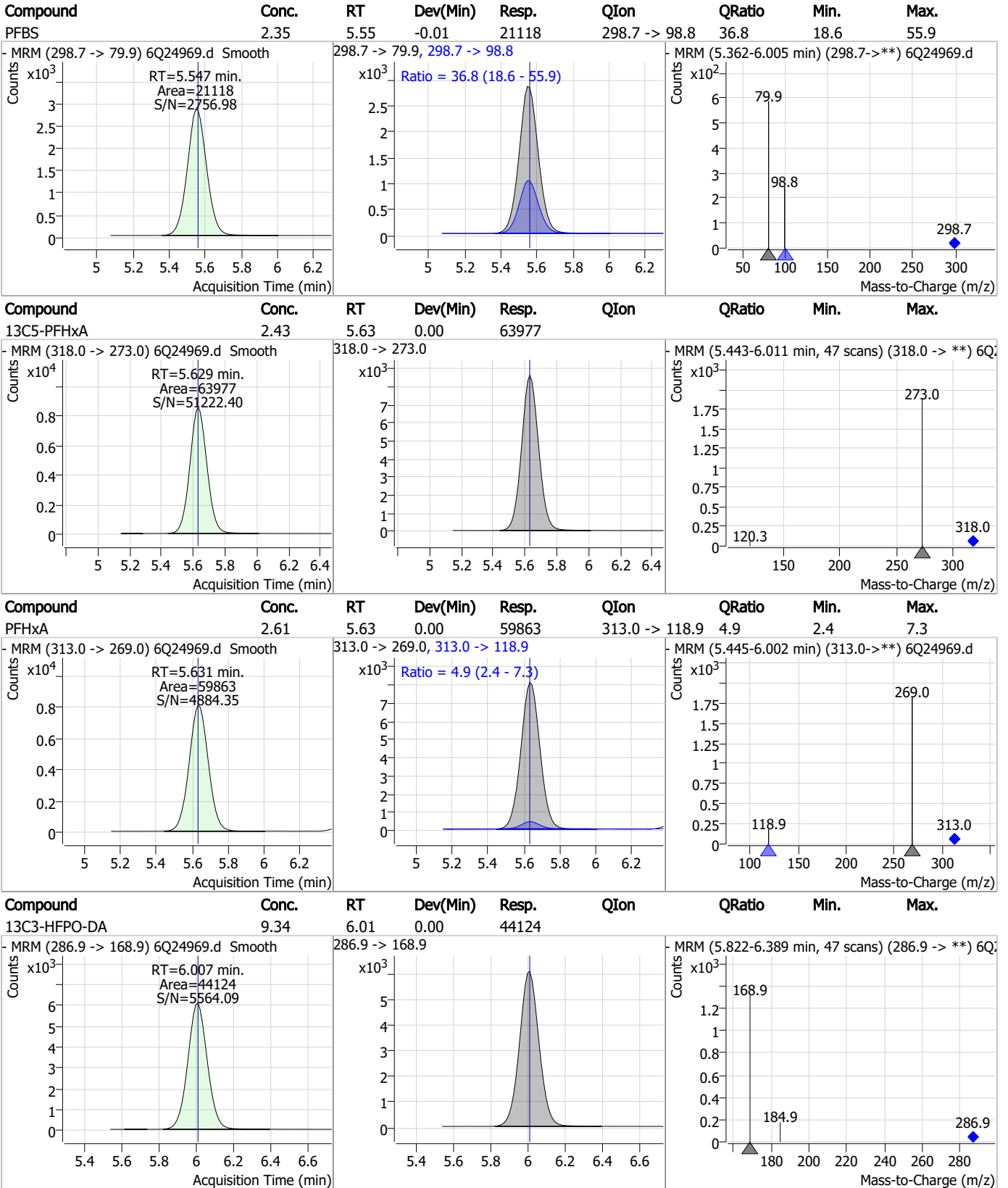
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Perfluorinated Compounds by LC/MS/MS



7.7.15 7

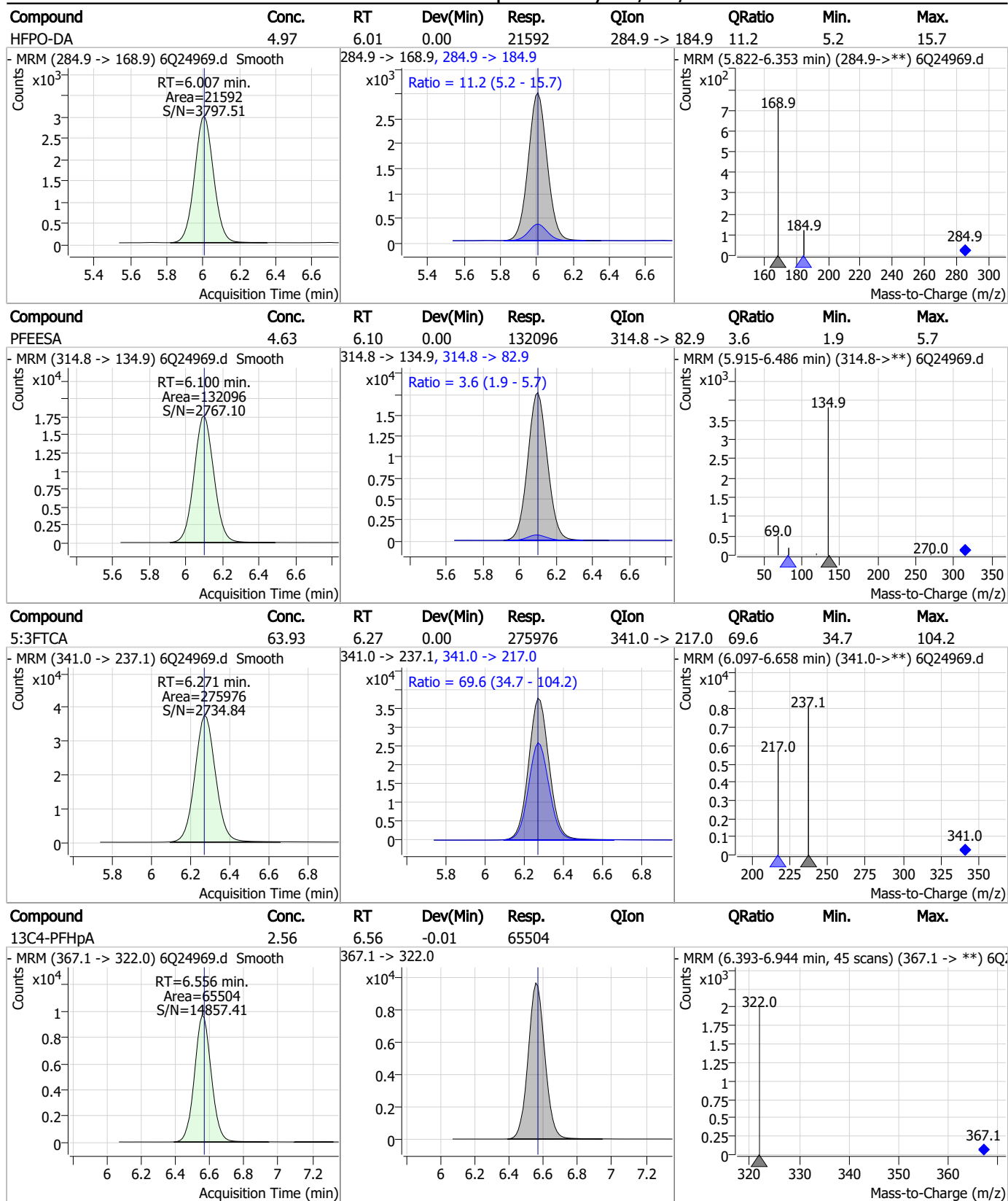
Perfluorinated Compounds by LC/MS/MS



7.7.15
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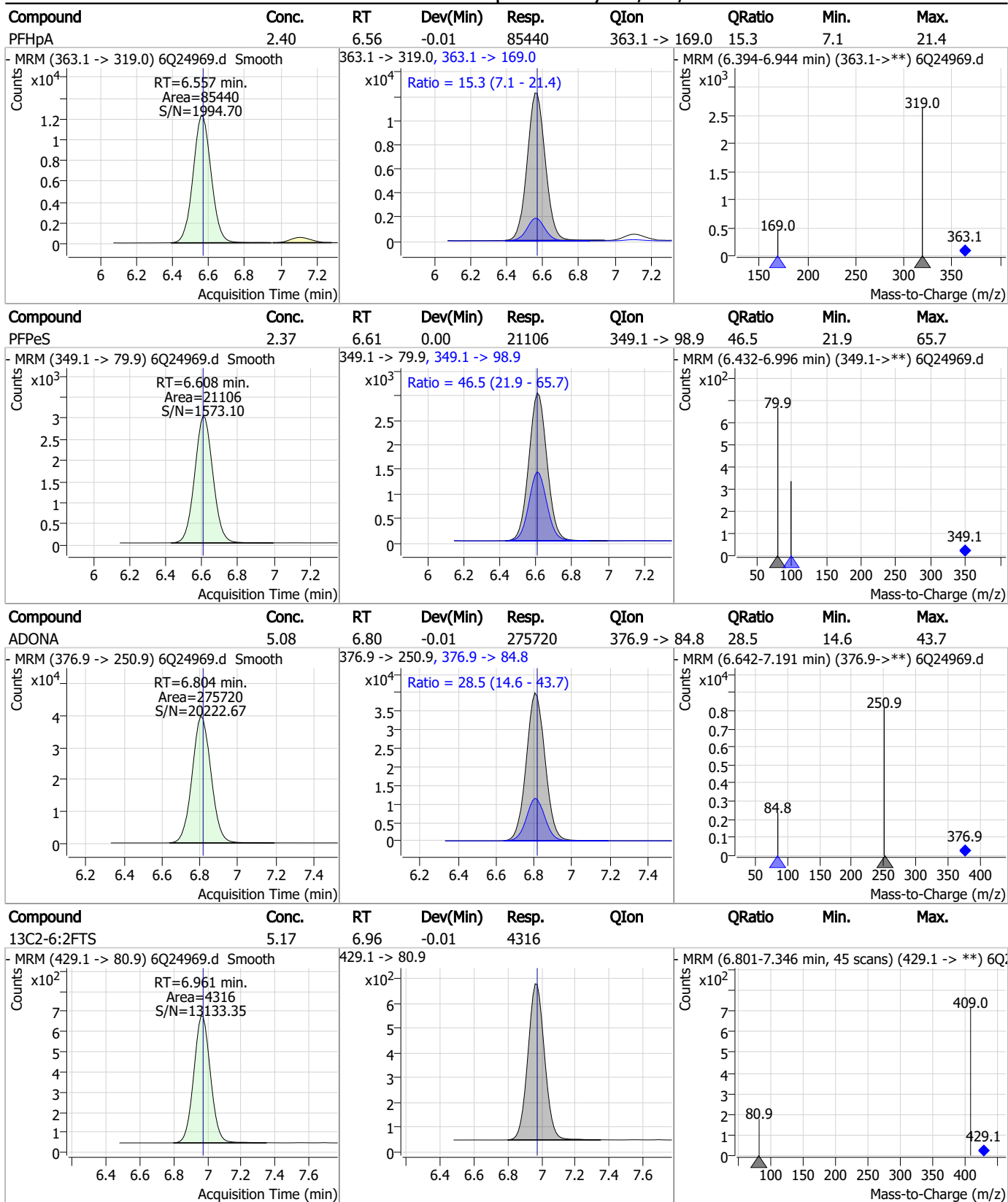


Perfluorinated Compounds by LC/MS/MS



7.7.15
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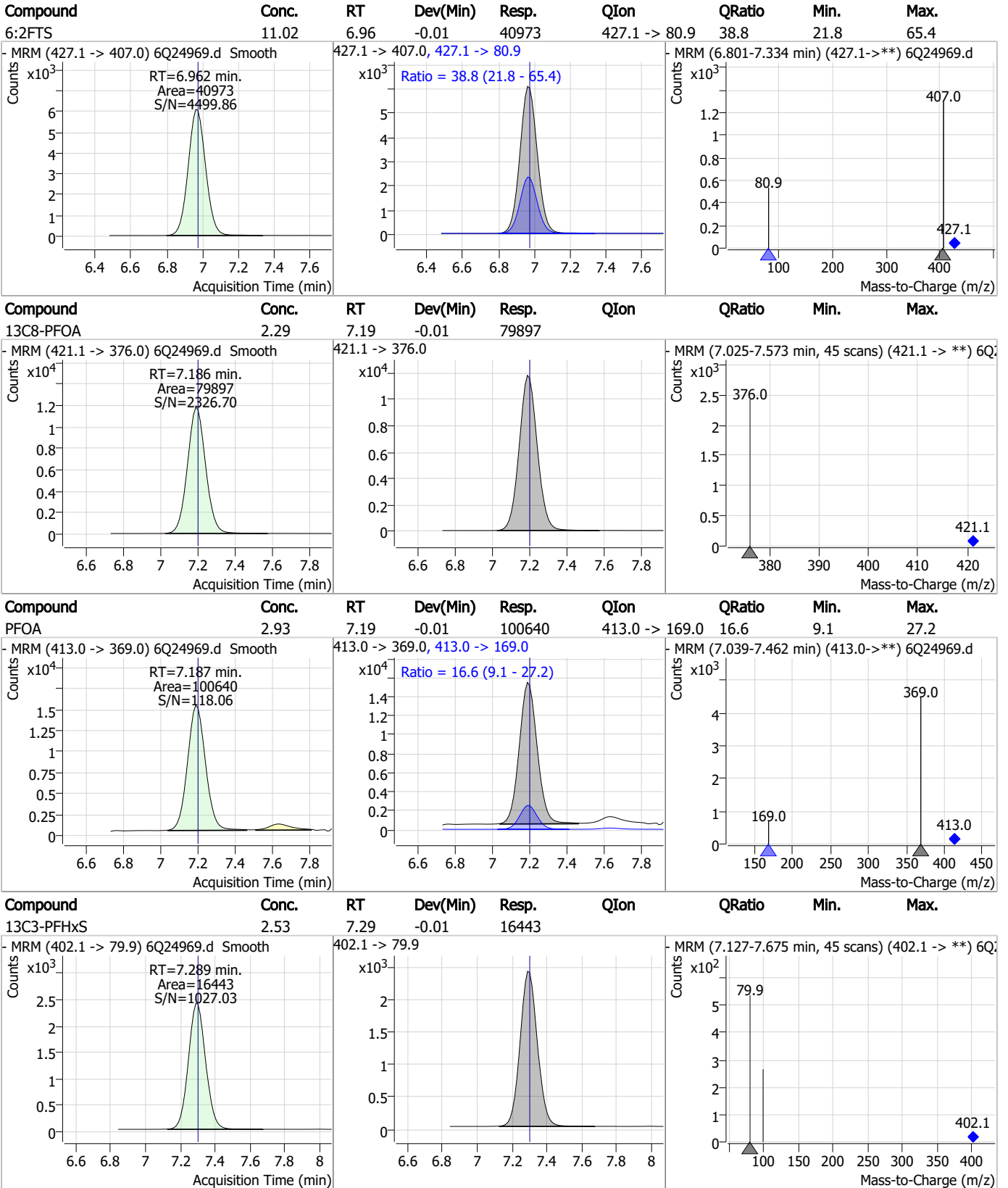
Perfluorinated Compounds by LC/MS/MS



7.7.15
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Perfluorinated Compounds by LC/MS/MS

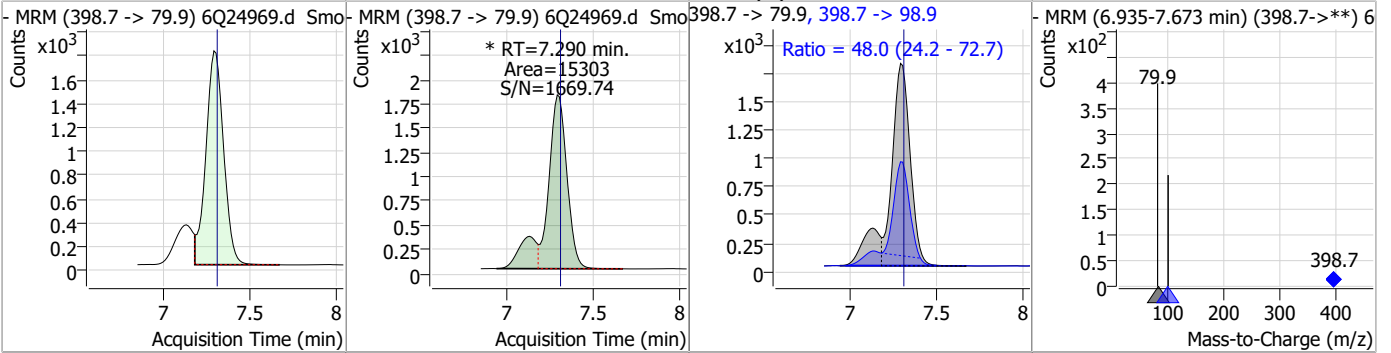


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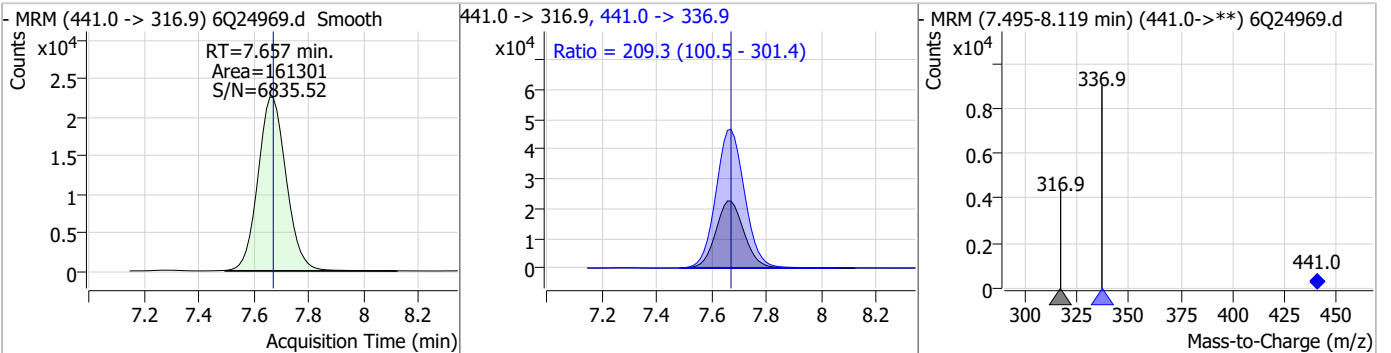


Perfluorinated Compounds by LC/MS/MS

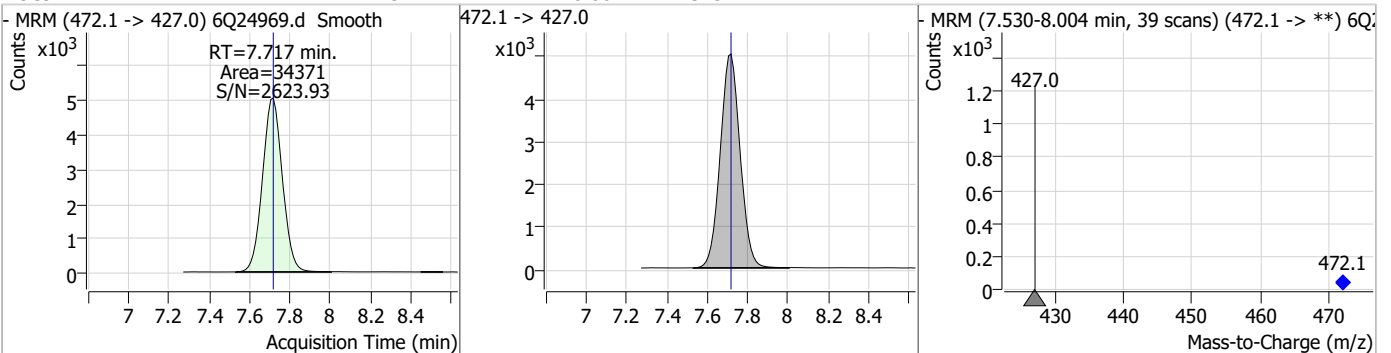
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.39	7.29	-0.01	15303 (m)	398.7 -> 98.9	48.0	24.2	72.7



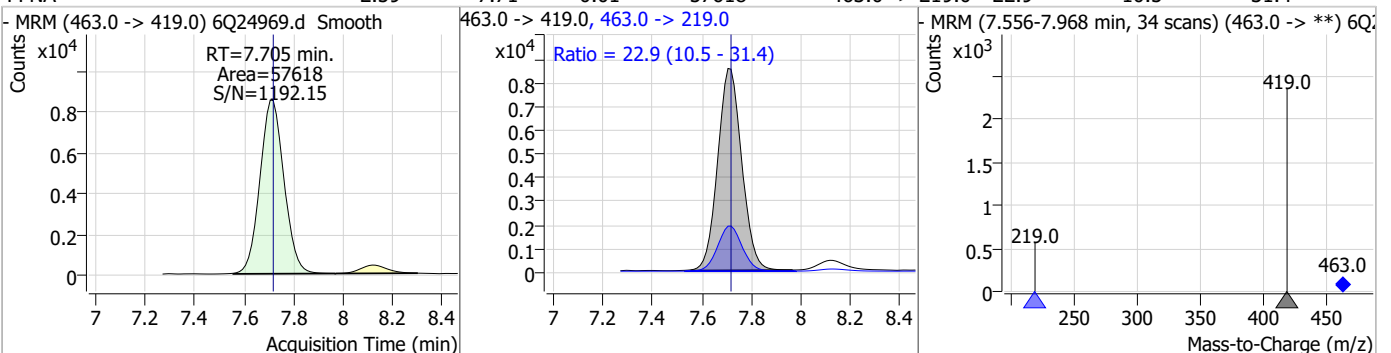
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	65.95	7.66	-0.01	161301	441.0 -> 336.9	209.3	100.5	301.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.13	7.72	0.00	34371				

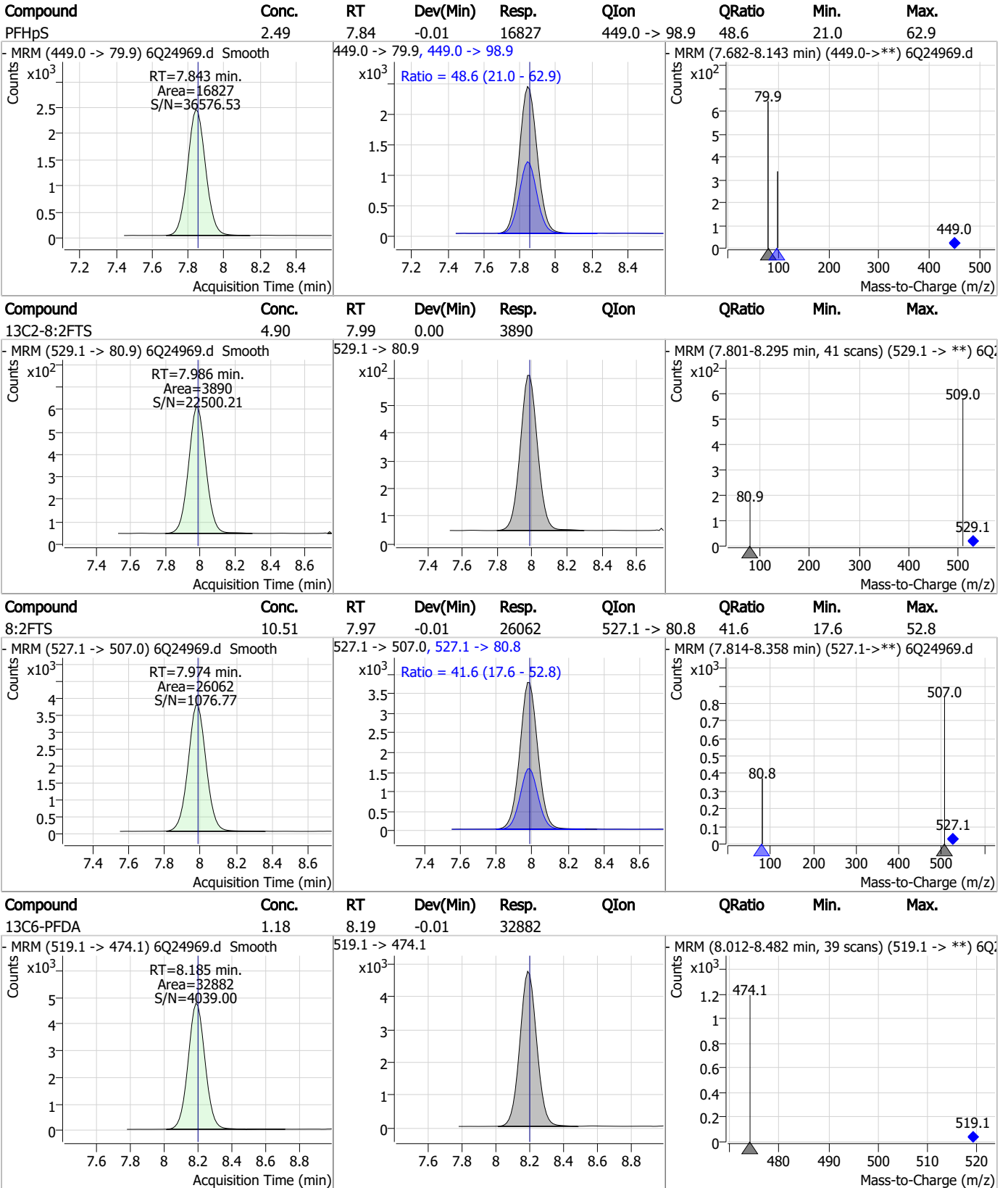


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.59	7.71	-0.01	57618	463.0 -> 219.0	22.9	10.5	31.4



7.7.15 7

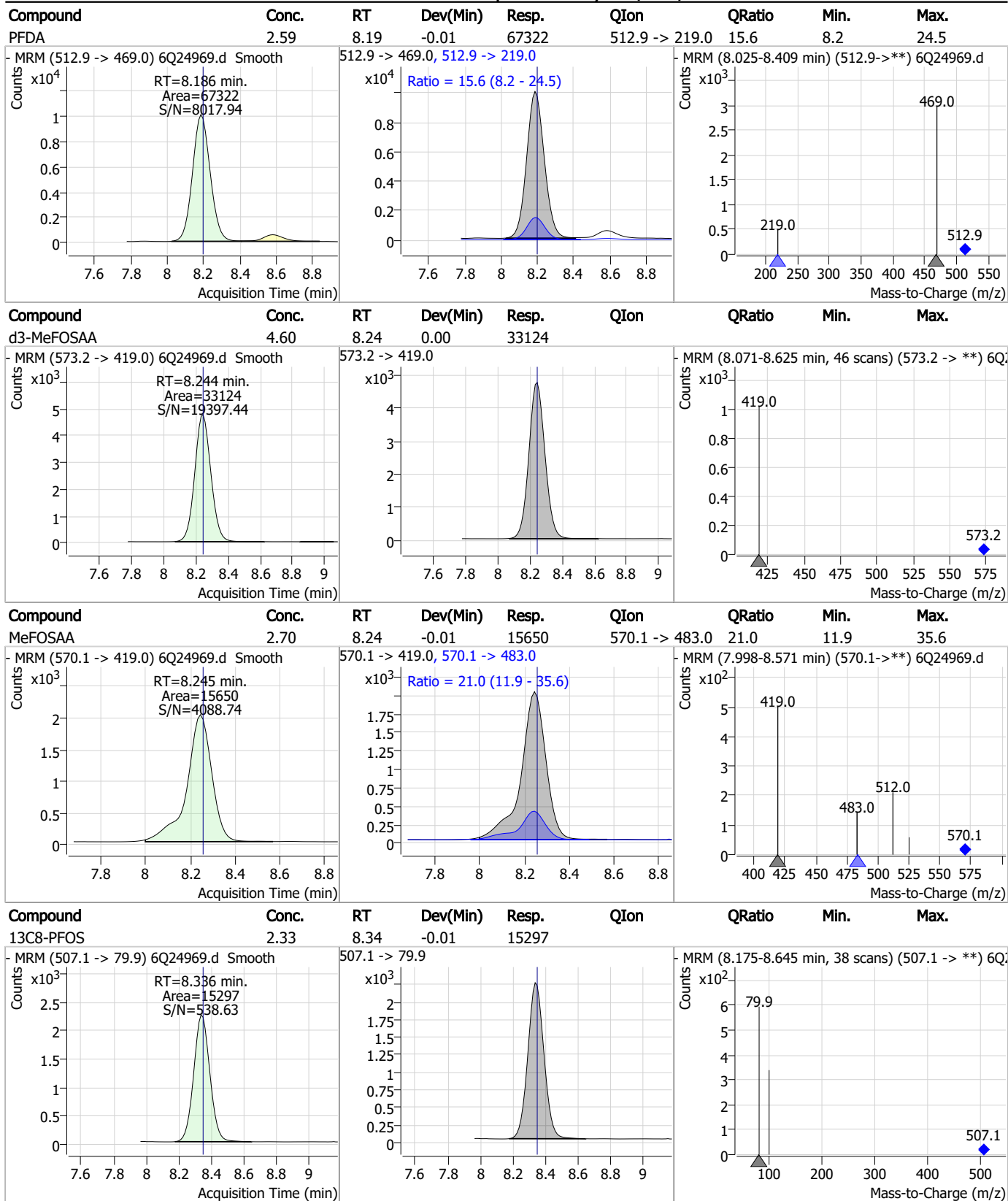
Perfluorinated Compounds by LC/MS/MS



7.7.15 7



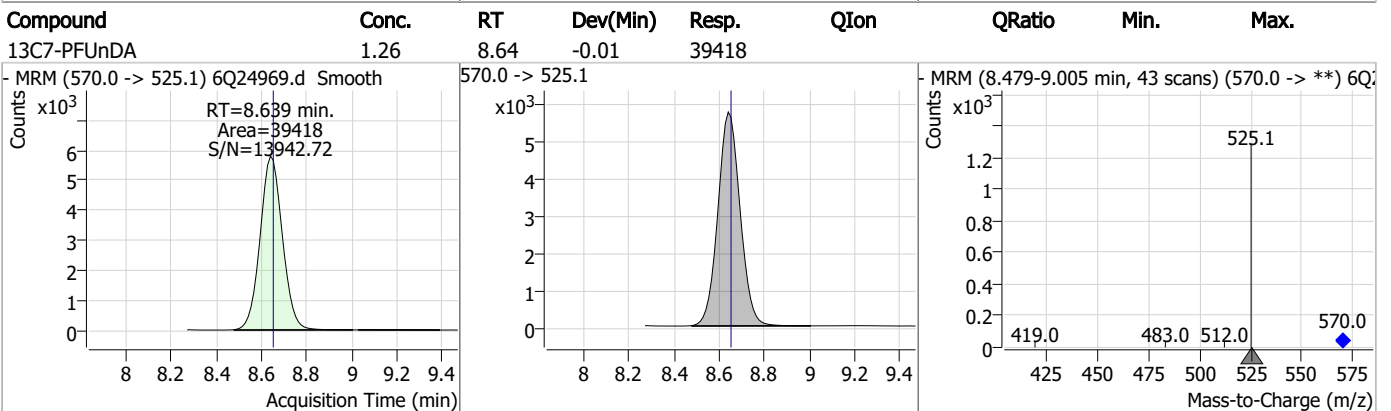
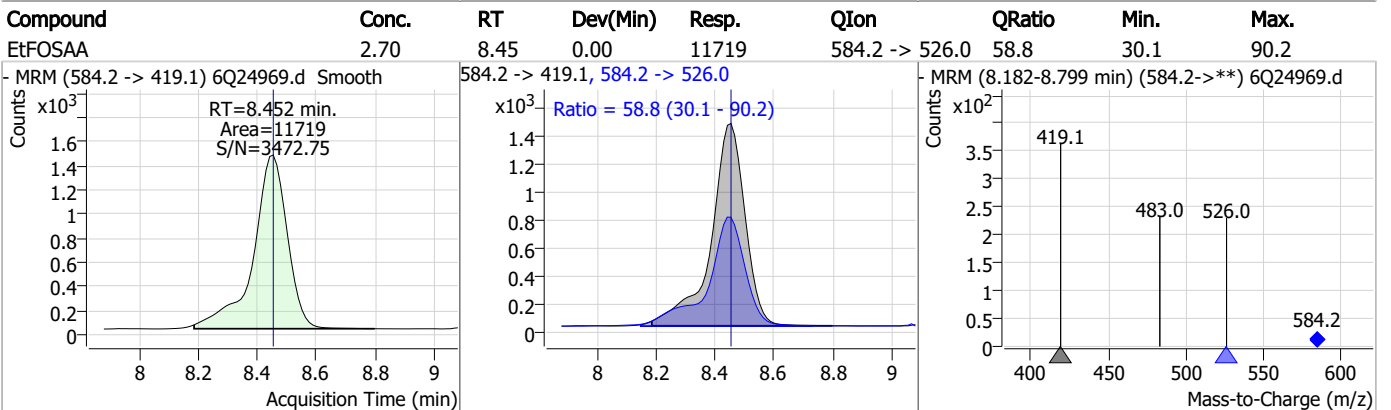
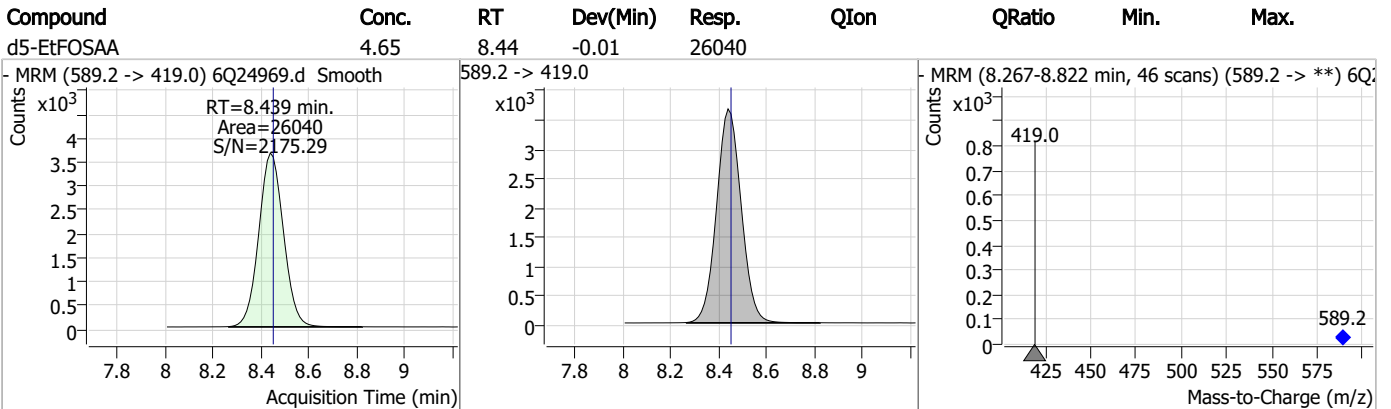
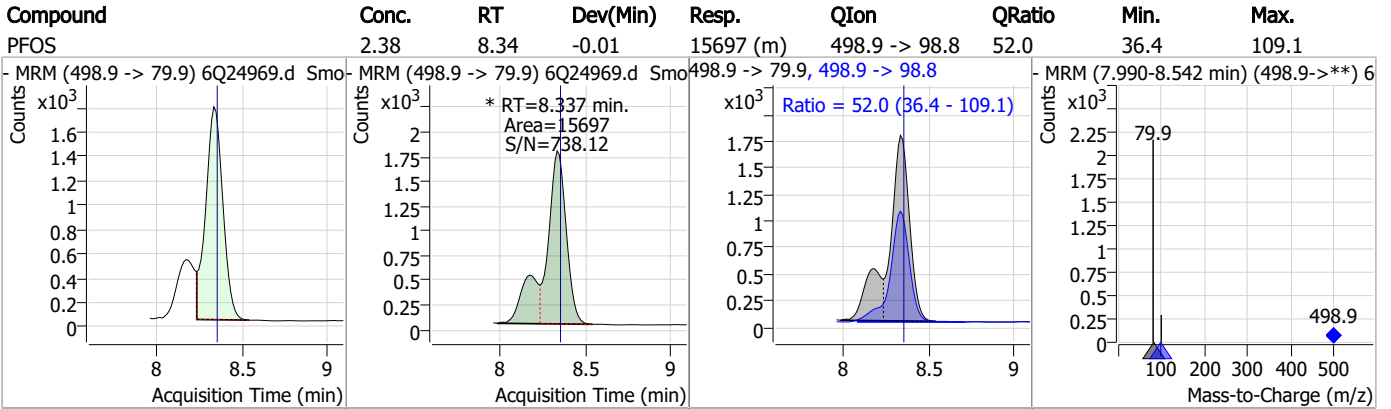
Perfluorinated Compounds by LC/MS/MS



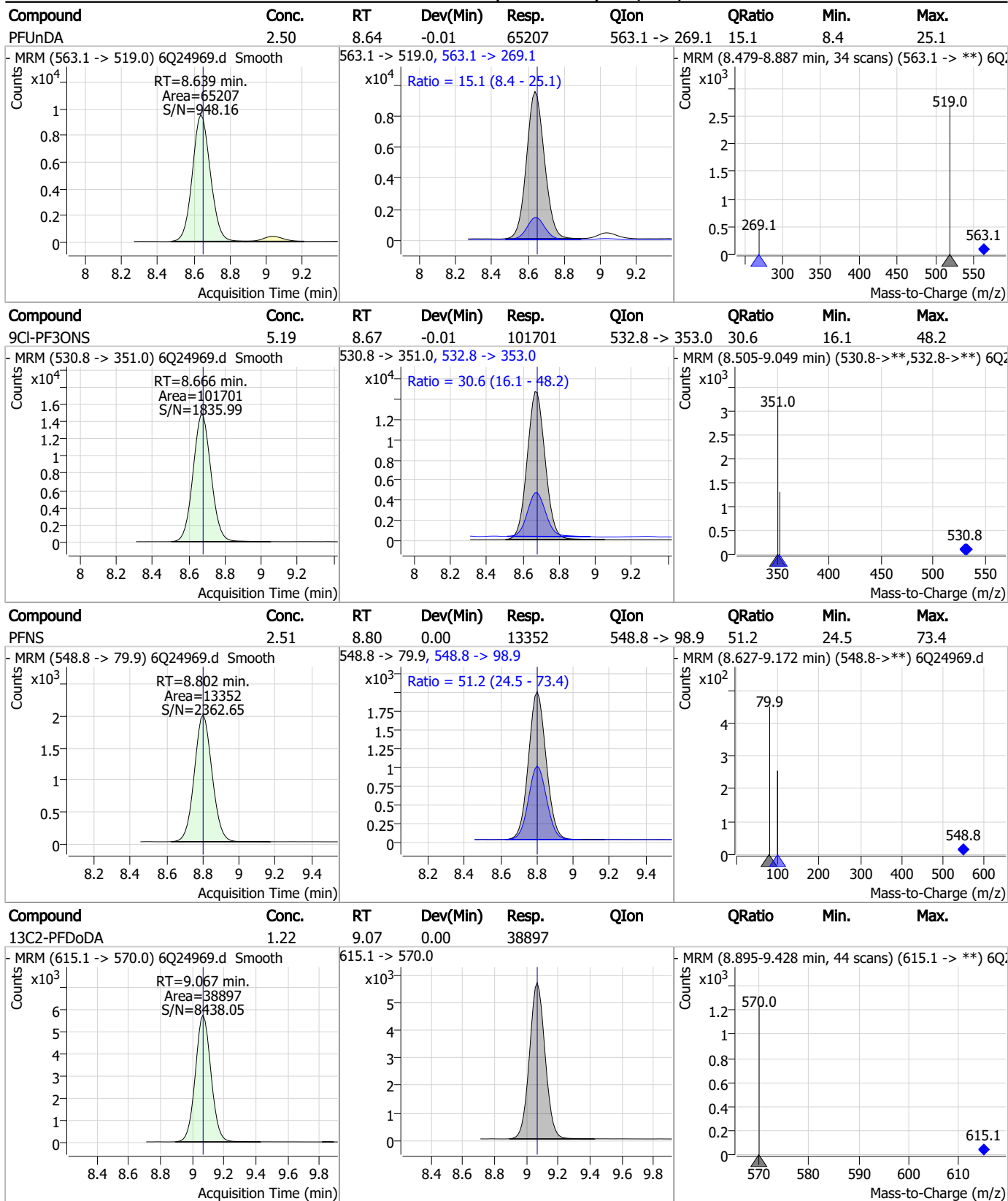
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Perfluorinated Compounds by LC/MS/MS

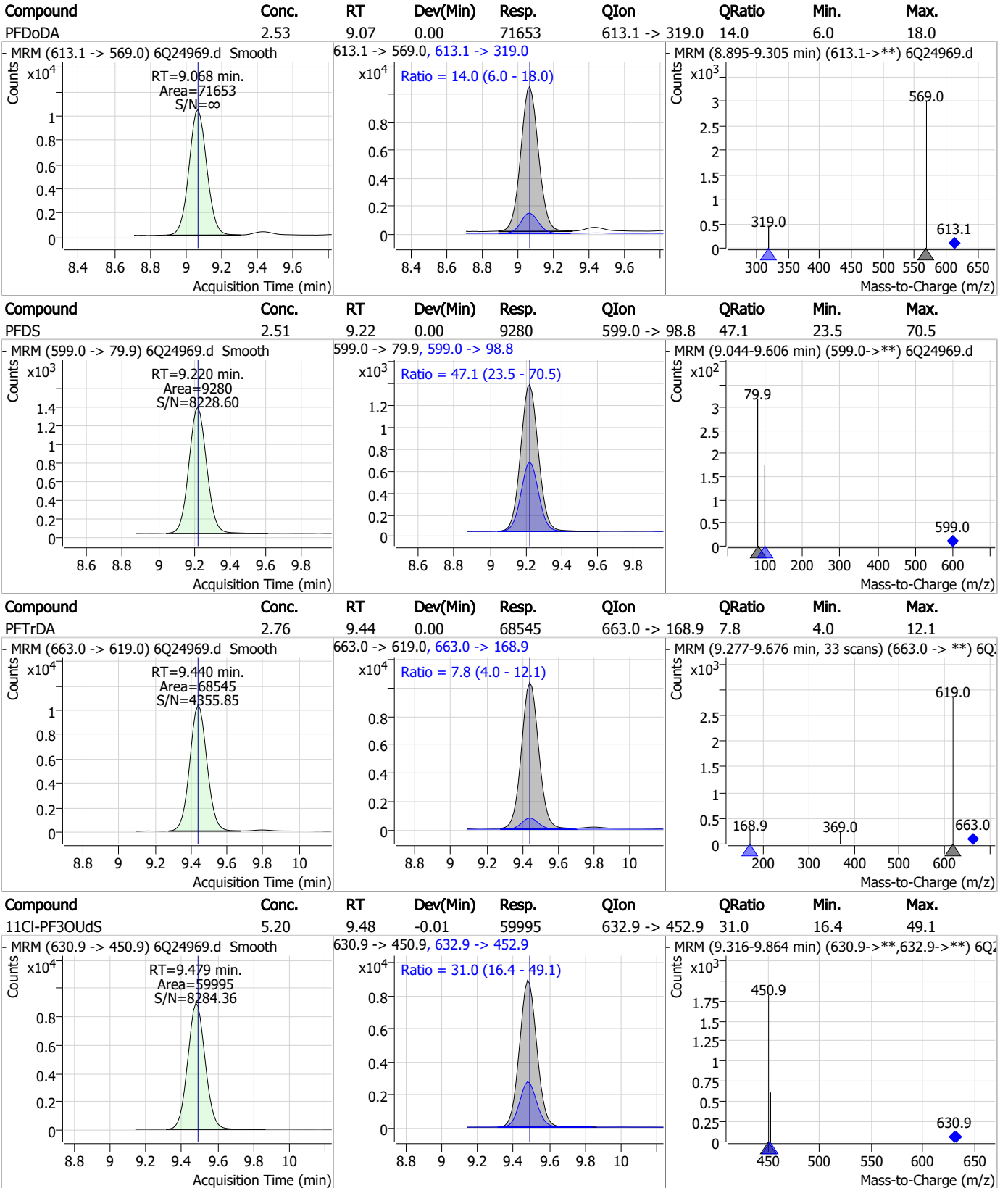


Perfluorinated Compounds by LC/MS/MS



7.7.15 7

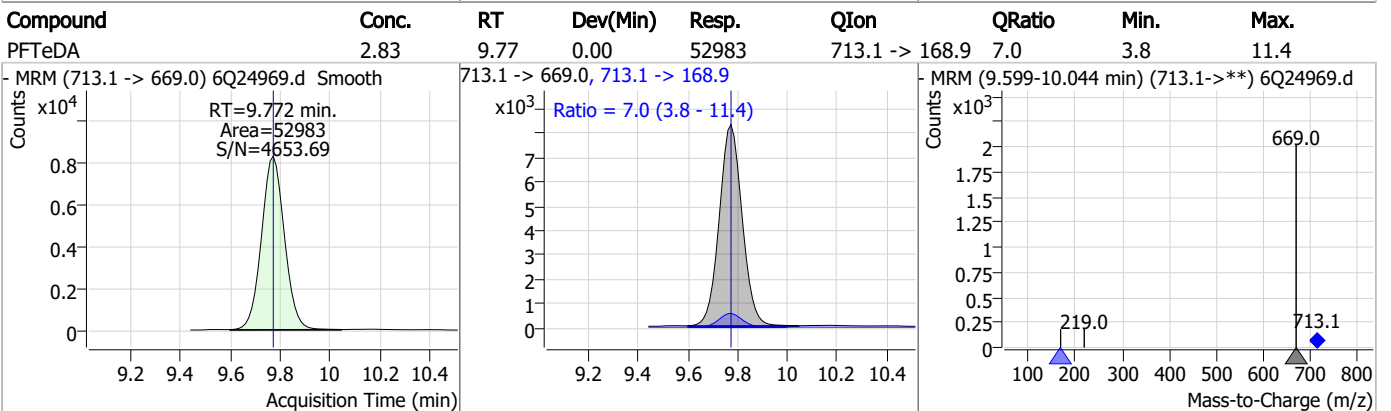
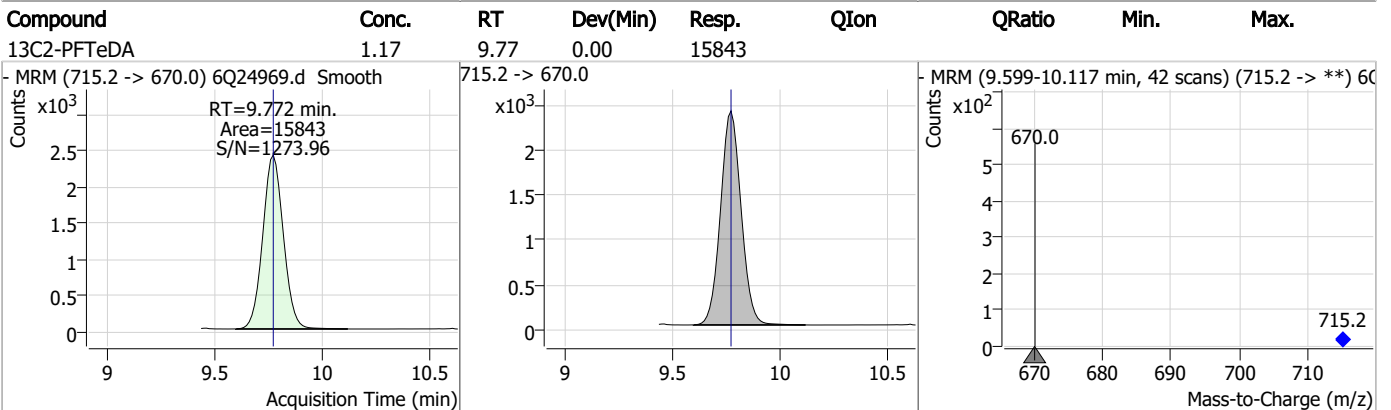
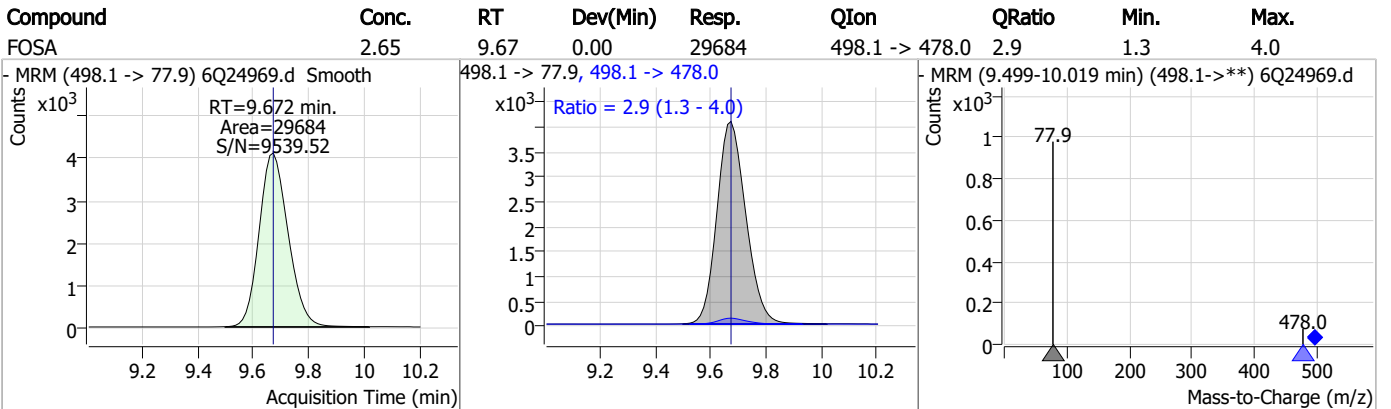
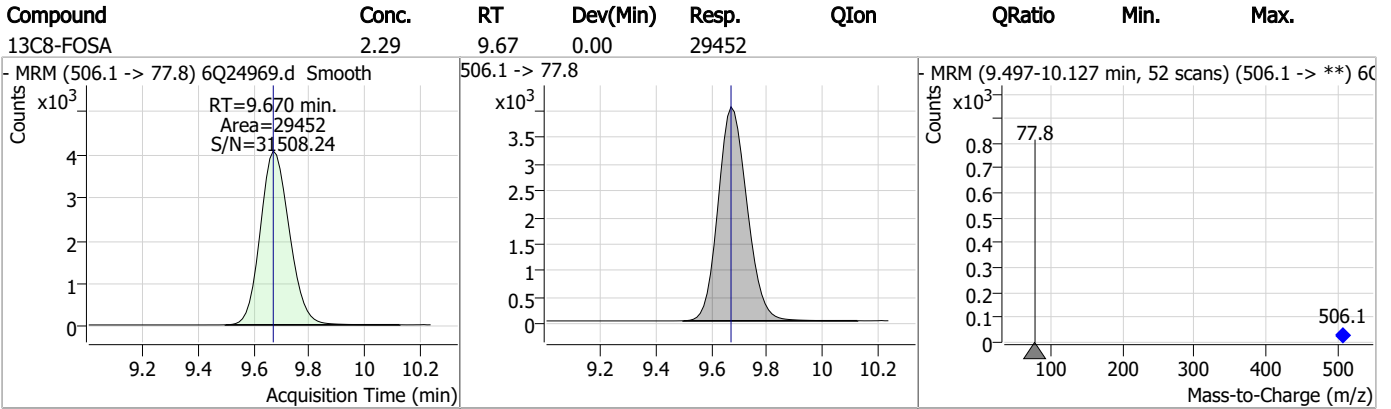
Perfluorinated Compounds by LC/MS/MS



7.7.15 7



Perfluorinated Compounds by LC/MS/MS

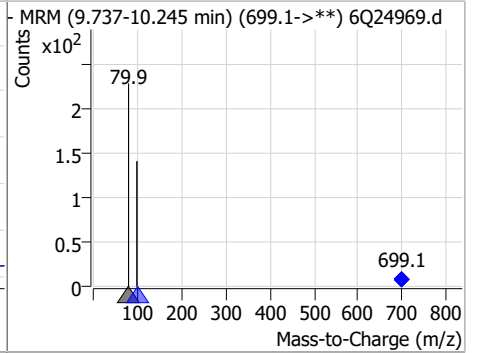
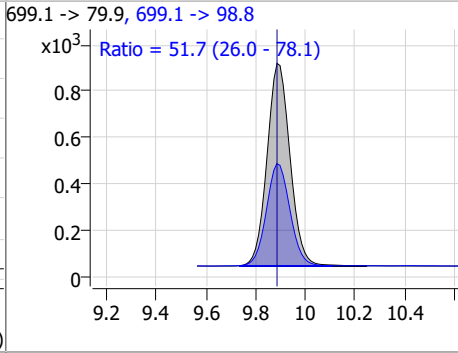
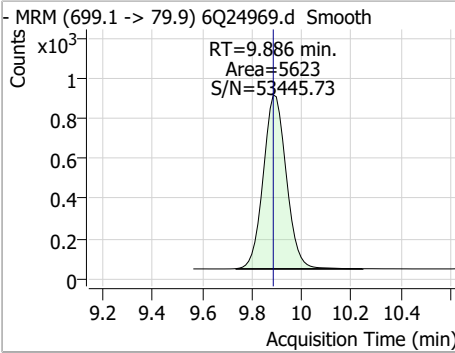


7.7.15
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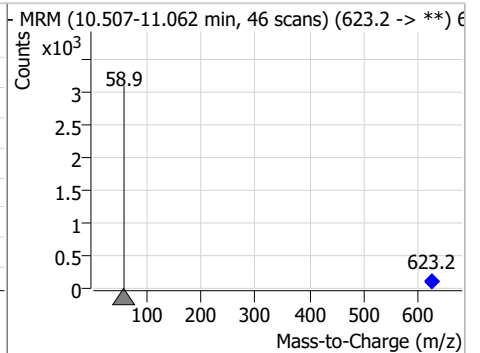
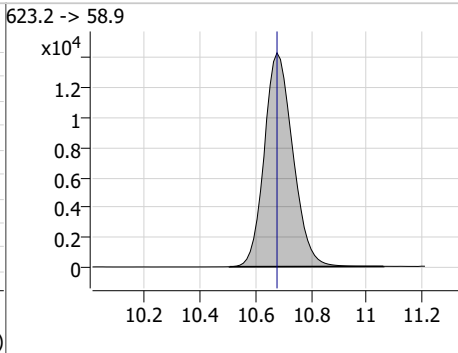
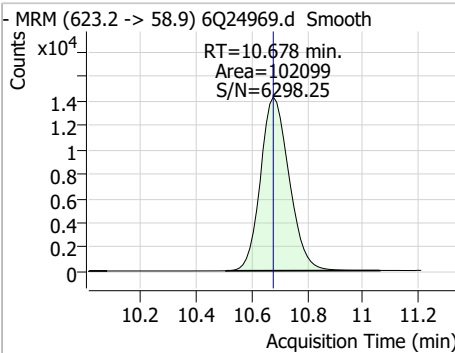


Perfluorinated Compounds by LC/MS/MS

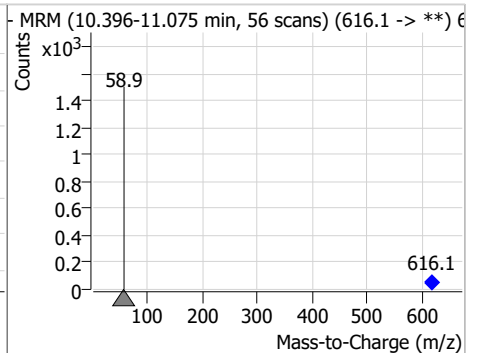
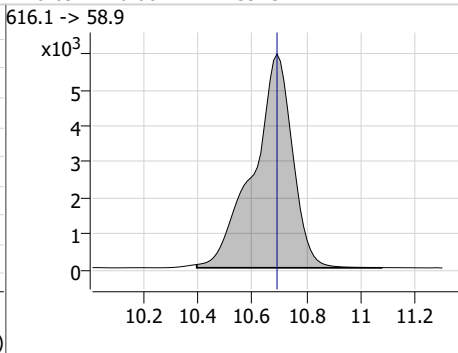
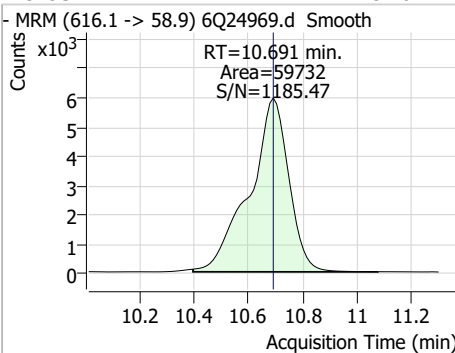
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.55	9.89	0.00	5623	699.1 -> 98.8	51.7	26.0	78.1



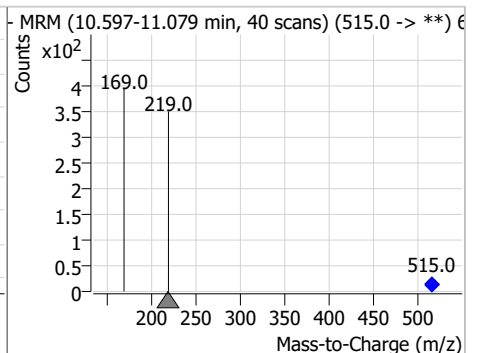
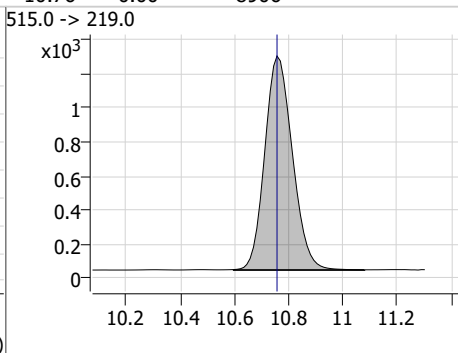
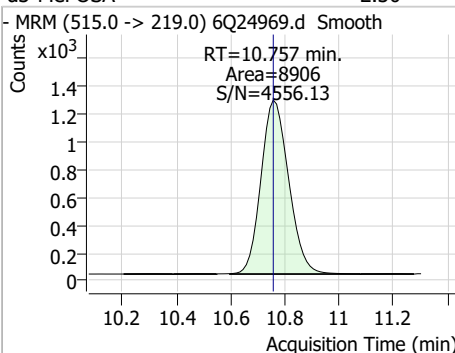
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	22.38	10.68	0.00	102099				



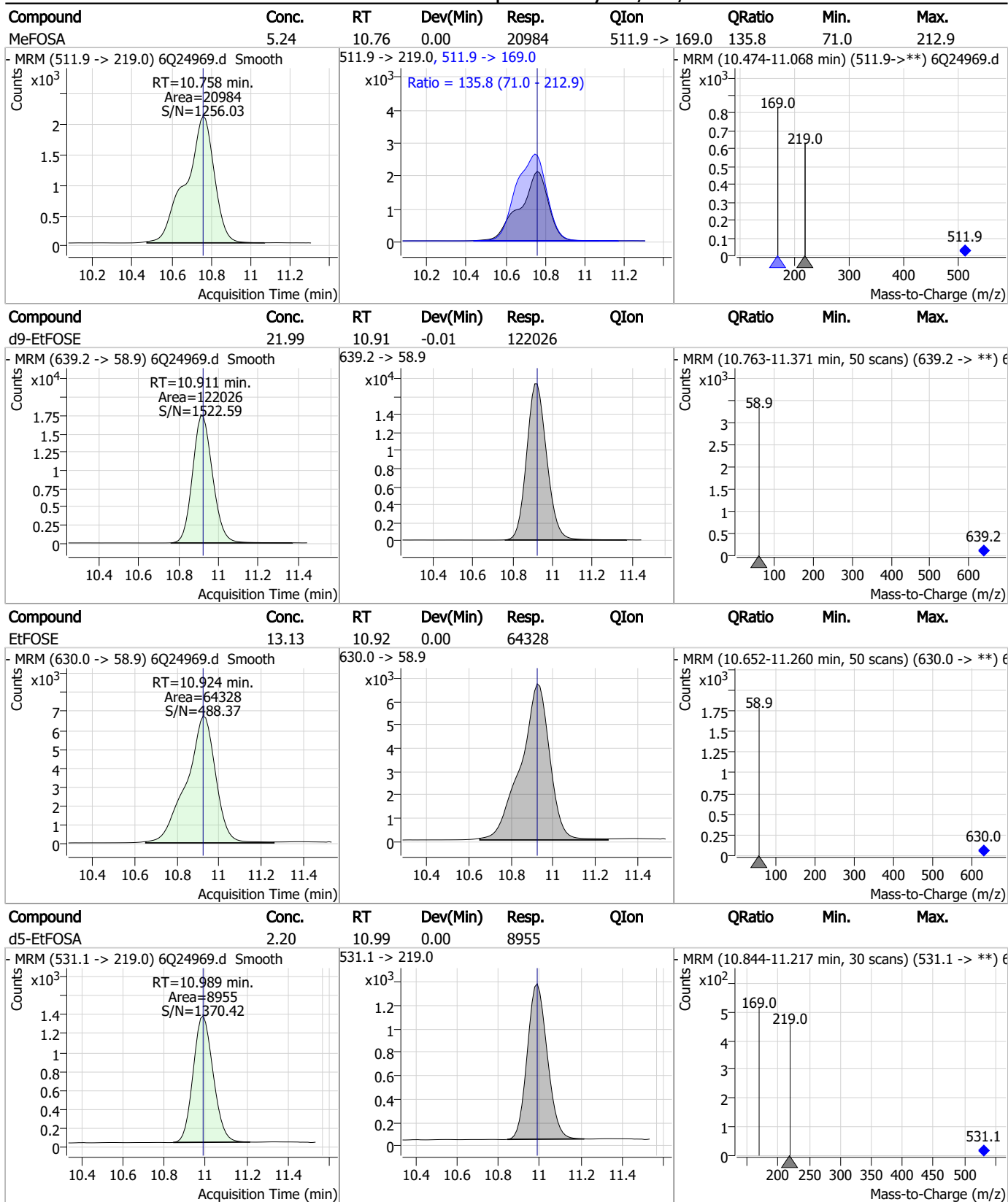
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	13.20	10.69	0.00	59732				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.30	10.76	0.00	8906				



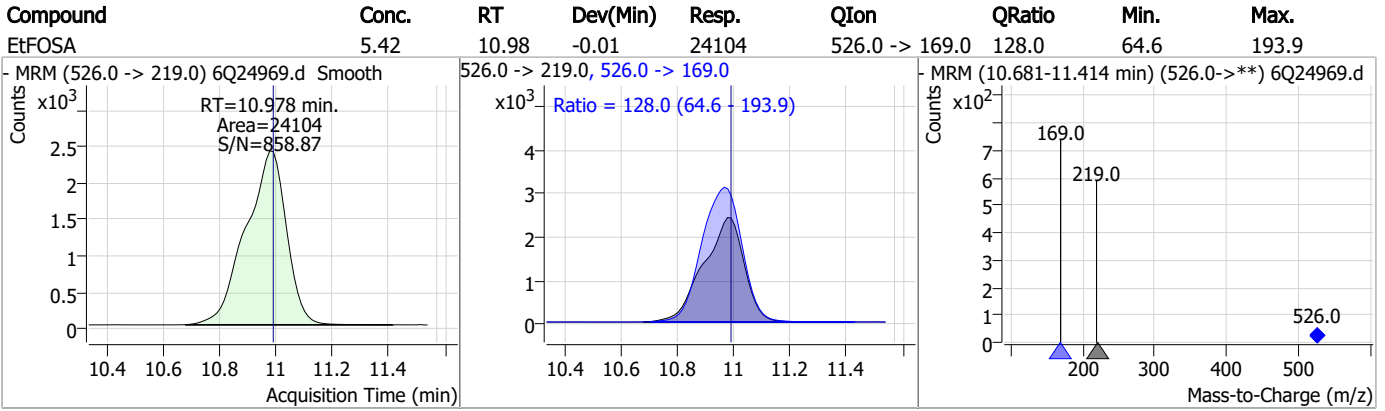
Perfluorinated Compounds by LC/MS/MS



7.7.15

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Perfluorinated Compounds by LC/MS/MS



7.7.15

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Manual Integration Approval Summary

Sample Number: S6Q356-CC356 Method: EPA DRAFT 1633
Lab FileID: 6Q24969.D Analyst approved: 09/25/23 14:50 Martha Valls
Injection Time: 09/25/23 02:56 Supervisor approved: 09/26/23 13:54 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.34	Split peak

7.7.15.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24979.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/25/2023 5:19:13 AM
 Sample Name : cc356-4
 Vial : P1-A5
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	179615	10.00 µg/L	0.000
M5-PFPeA	4.422	268.3 -> 223.0	74335	5.00 µg/L	0.012
M5-PFHxA	5.629	318.0 -> 273.0	65381	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	64059	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	83687	2.50 µg/L	0.000
M9-PFNA	7.717	472.1 -> 427.0	32940	1.25 µg/L	0.000
M6-PFDA	8.198	519.1 -> 474.1	34540	1.25 µg/L	0.000
M7-PFUnDA	8.651	570.0 -> 525.1	41285	1.25 µg/L	0.000
M2-PFDoDA	9.067	615.1 -> 570.0	39929	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	15719	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	30757	2.50 µg/L	0.000
M3-PFBS	5.559	302.1 -> 79.9	27194	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	16384	2.50 µg/L	0.000
M8-PFOS	8.348	507.1 -> 79.9	15299	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	2976	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4463	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	4370	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	34968	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	45235	10.00 µg/L	0.000
M5-EtFOSAA	8.439	589.2 -> 419.0	26262	5.00 µg/L	-0.012
M7-MeFOSE	10.678	623.2 -> 58.9	106625	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	127509	25.00 µg/L	-0.012
M5-EtFOSA	10.989	531.1 -> 219.0	9492	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9291	2.50 µg/L	0.000
13C4-PFOS	8.349	502.8 -> 79.9	15315	2.50 µg/L	0.000
13C3-PFBA	2.976	216.0 -> 172.0	74919	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	10753	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	96758	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	31994	1.25 µg/L	0.000
13C5-PFNA	7.717	468.0 -> 423.0	35234	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	62045	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2976	5.41 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.2%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4463	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4370	5.25 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.1%		
13C2-PFDoDA	9.067	615.1 -> 570.0	39929	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.4%		
13C2-PFTeDA	9.772	715.2 -> 670.0	15719	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C3-PFBS	5.559	302.1 -> 79.9	27194	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C3-PFHxS	7.301	402.1 -> 79.9	16384	2.41 µg/L	0.000

7.7.16
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.3%	
13C4-PFBA	2.972	216.8 -> 171.9	179615	9.92 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C4-PFHpA	6.569	367.1 -> 322.0	64059	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C5-PFHxA	5.629	318.0 -> 273.0	65381	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C5-PFPeA	4.422	268.3 -> 223.0	74335	5.06 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C6-PFDA	8.198	519.1 -> 474.1	34540	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C7-PFUnDA	8.651	570.0 -> 525.1	41285	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.8%	
13C8-FOSA	9.670	506.1 -> 77.8	30757	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.0%	
13C8-PFOA	7.198	421.1 -> 376.0	83687	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C8-PFOS	8.348	507.1 -> 79.9	15299	2.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.5%	
13C9-PFNA	7.717	472.1 -> 427.0	32940	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.0%	
d3-MeFOSAA	8.244	573.2 -> 419.0	34968	4.82 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.4%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	45235	9.67 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.7%	
d3-MeFOSA	10.757	515.0 -> 219.0	9291	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.4%	
d5-EtFOSAA	8.439	589.2 -> 419.0	26262	4.66 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.1%	
d7-MeFOSE	10.678	623.2 -> 58.9	106625	23.21 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 92.8%	
d9-EtFOSE	10.911	639.2 -> 58.9	127509	22.81 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 91.2%	
d5-EtFOSA	10.989	531.1 -> 219.0	9492	2.32 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.7%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	45818	9.41 µg/L	99
		327.1 -> 80.9	19270		
6:2FTS	6.974	427.1 -> 407.0	39887	10.37 µg/L	94
		427.1 -> 80.9	15927		
8:2FTS	7.987	527.1 -> 507.0	28337	10.17 µg/L	99
		527.1 -> 80.8	9884		
EtFOSAA	8.452	584.2 -> 419.1	11908	2.72 µg/L	93
		584.2 -> 526.0	7768		
FOSA	9.672	498.1 -> 77.9	29579	2.53 µg/L	100
		498.1 -> 478.0	809		
MeFOSAA	8.245	570.1 -> 419.0	15905	2.60 µg/L	93
		570.1 -> 483.0	3208		
PFBA	2.981	212.8 -> 168.9	66196	10.32 µg/L	100
PFBS	5.547	298.7 -> 79.9	20494	2.31 µg/L	99
		298.7 -> 98.8	7557		
PFDA	8.198	512.9 -> 469.0	69545	2.55 µg/L	100
		512.9 -> 219.0	11218		
PFDODA	9.068	613.1 -> 569.0	74385	2.56 µg/L	98
		613.1 -> 319.0	9517		
PFDS	9.220	599.0 -> 79.9	9576	2.59 µg/L	99

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.569	599.0 -> 98.8	4541	2.53	µg/L	98
		363.1 -> 319.0	88014			
PFHpS	7.856	363.1 -> 169.0	13142	2.56	µg/L	91
		449.0 -> 79.9	17300			
PFHxA	5.631	449.0 -> 98.9	8235	2.57	µg/L	100
		313.0 -> 269.0	60409			
PFHxS	7.302	313.0 -> 118.9	2914	2.48	µg/L	99
		398.7 -> 79.9	15799			
PFNA	7.717	398.7 -> 98.9	7520	2.71	µg/L	92
		463.0 -> 419.0	57821			
PFNS	8.814	463.0 -> 219.0	14273	2.44	µg/L	94
		548.8 -> 79.9	12976			
PFOA	7.200	548.8 -> 98.9	6833	2.72	µg/L	96
		413.0 -> 369.0	97842			
PFOS	8.350	413.0 -> 169.0	16034	2.65	µg/L	66
		498.9 -> 79.9	17465			
PFPeA	4.424	498.9 -> 98.8	7677	5.02	µg/L	100
		263.0 -> 219.0	75046			
PFPeS	6.608	349.1 -> 79.9	21010	2.37	µg/L	98
		349.1 -> 98.9	9409			
PFTeDA	9.772	713.1 -> 669.0	53994	2.91	µg/L	99
		713.1 -> 168.9	3914			
PFTrDA	9.440	663.0 -> 619.0	66817	2.62	µg/L	99
		663.0 -> 168.9	5723			
PFUnDA	8.652	563.1 -> 519.0	64328	2.35	µg/L	99
		563.1 -> 269.1	10988			
11CI-PF3OUdS	9.479	630.9 -> 450.9	61604	5.21	µg/L	97
		632.9 -> 452.9	19113			
9CI-PF3ONS	8.678	530.8 -> 351.0	98489	4.90	µg/L	98
		532.8 -> 353.0	30756			
ADONA	6.804	376.9 -> 250.9	285682	5.14	µg/L	95
		376.9 -> 84.8	75372			
HFPO-DA	6.007	284.9 -> 168.9	22040	4.95	µg/L	99
		284.9 -> 184.9	2252			
3:3FTCA	3.846	241.0 -> 177.0	12939	12.43	µg/L	100
		241.0 -> 117.0	1515			
5:3FTCA	6.271	341.0 -> 237.1	272257	61.71	µg/L	99
		341.0 -> 217.0	191184			
7:3FTCA	7.669	441.0 -> 316.9	156171	62.48	µg/L	86
		441.0 -> 336.9	345823			
EtFOSA	10.978	526.0 -> 219.0	24880	5.27	µg/L	96
		526.0 -> 169.0	31055			
EtFOSE	10.924	630.0 -> 58.9	65625	12.82	µg/L	100
		511.9 -> 219.0	21670			
MeFOSA	10.758	511.9 -> 169.0	29133	5.18	µg/L	94
		616.1 -> 58.9	60119			
MeFOSE	10.691	699.1 -> 79.9	5864	12.72	µg/L	100
		699.1 -> 98.8	2910			
PFDoDS	9.886	295.0 -> 201.0	14753	2.66	µg/L	96
		295.0 -> 84.9	3929			
NFDHA	5.512	279.0 -> 85.1	59505	4.89	µg/L	100
		229.0 -> 84.9	43929			
PFMBA	4.838	314.8 -> 134.9	128172	4.92	µg/L	100
		314.8 -> 82.9	5138			
PFMPA	3.551			4.39	µg/L	99
PFEESA	6.100					

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

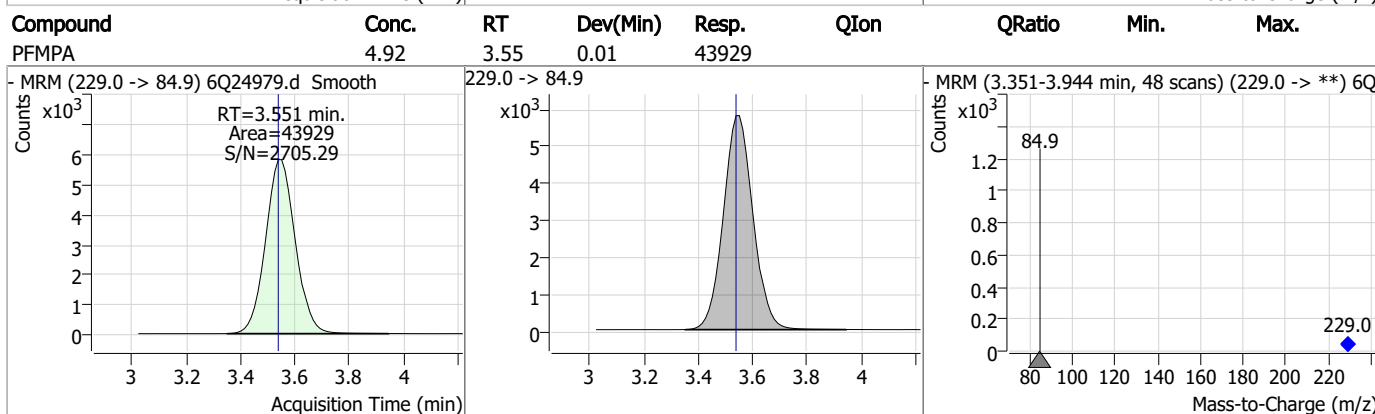
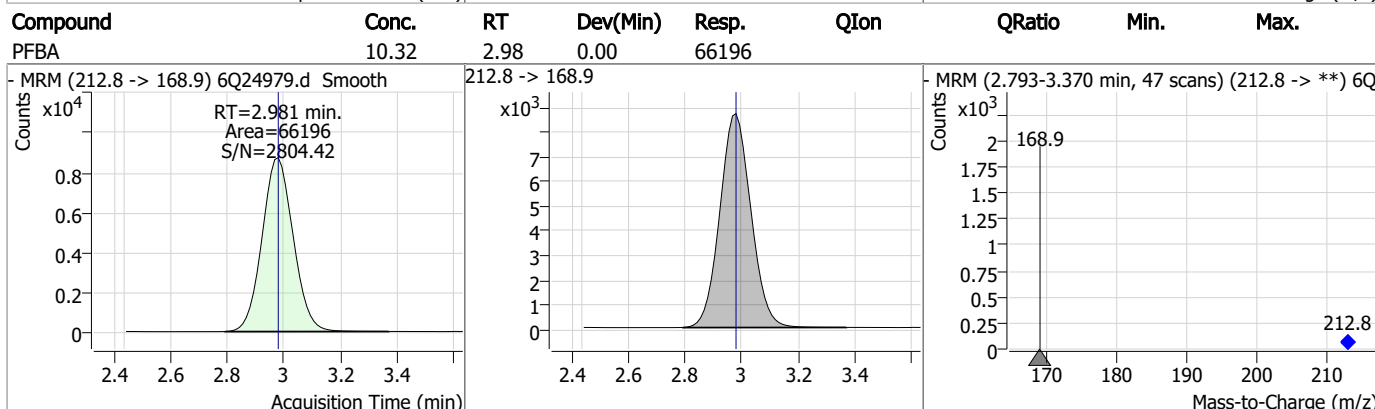
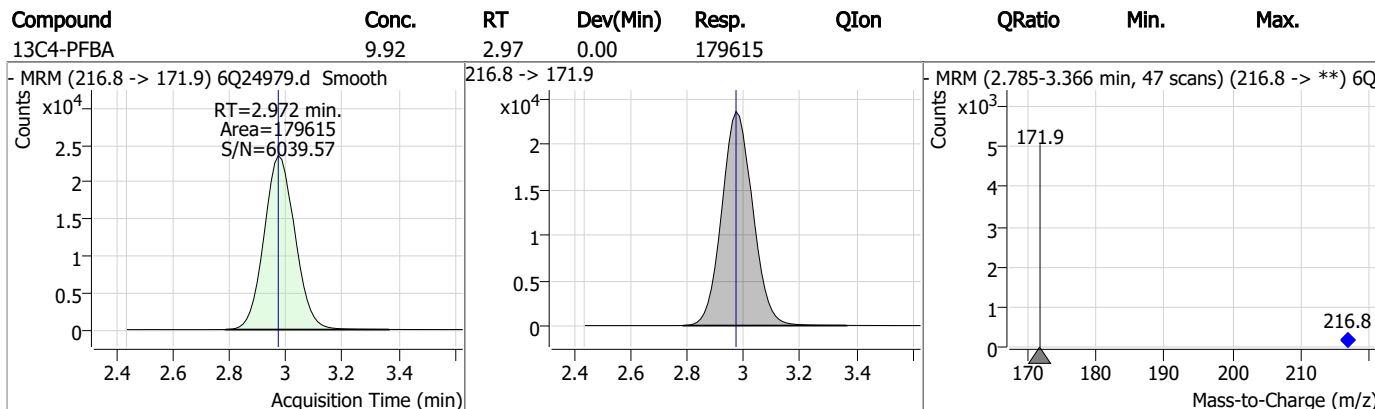
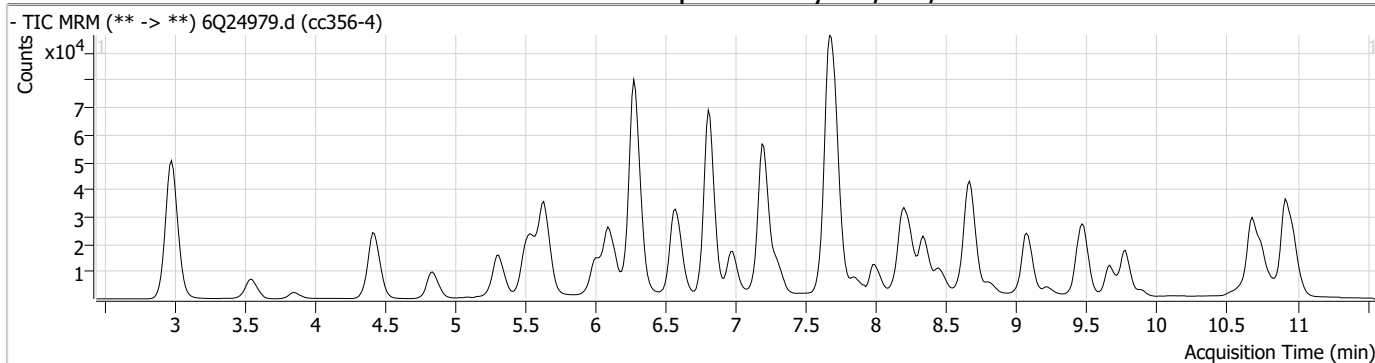
Perfluorinated Compounds by LC/MS/MS

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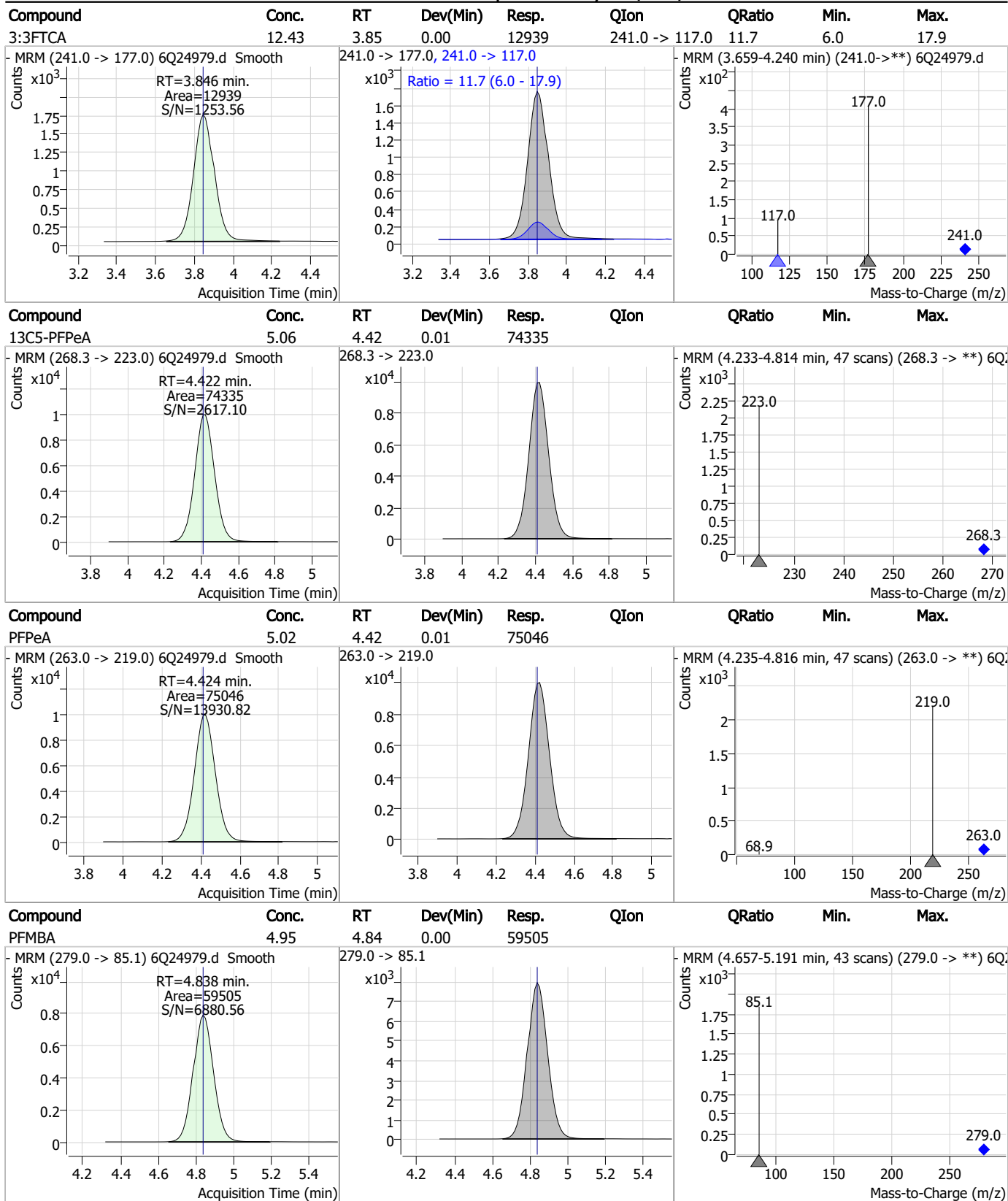
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Perfluorinated Compounds by LC/MS/MS

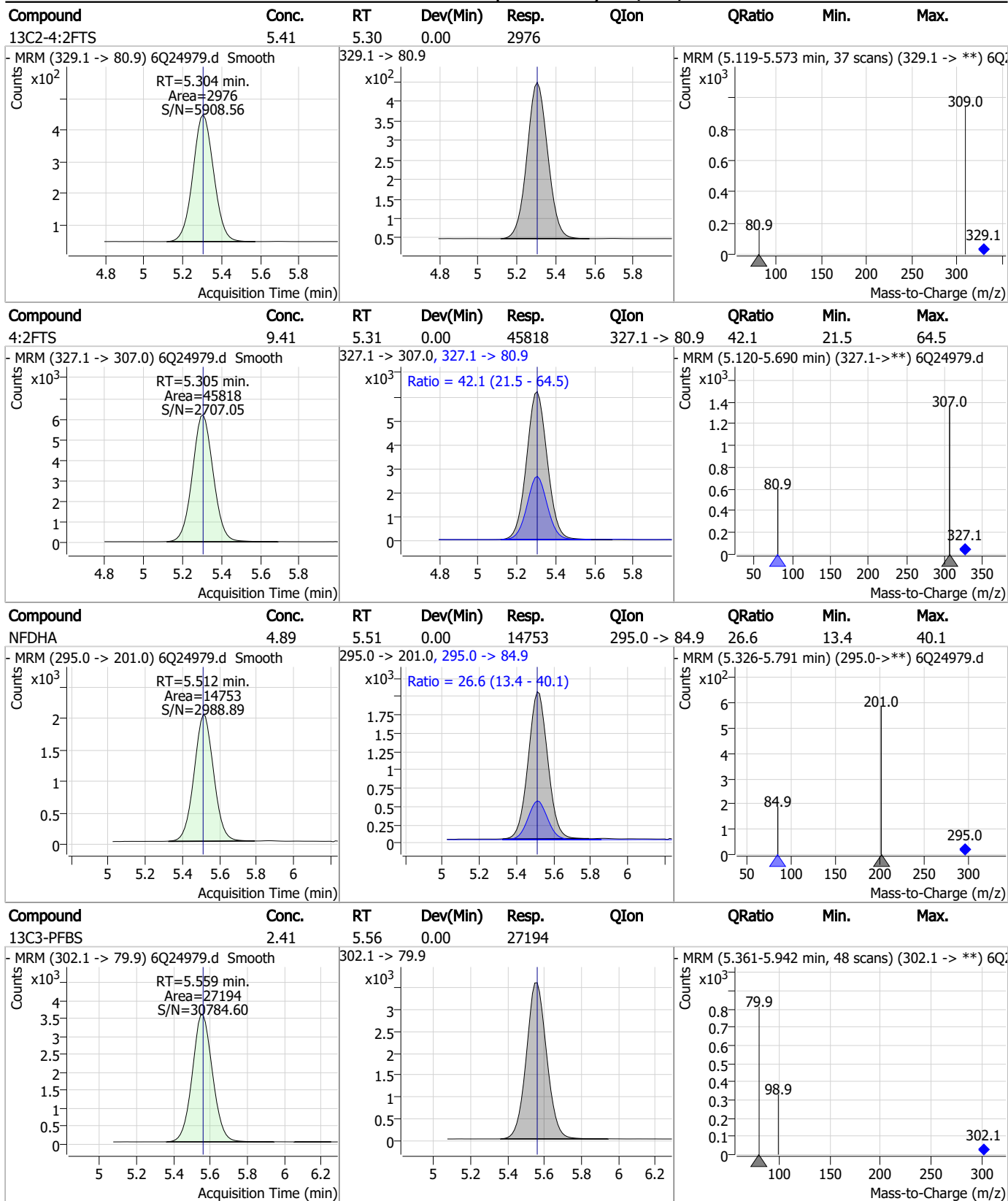


Perfluorinated Compounds by LC/MS/MS



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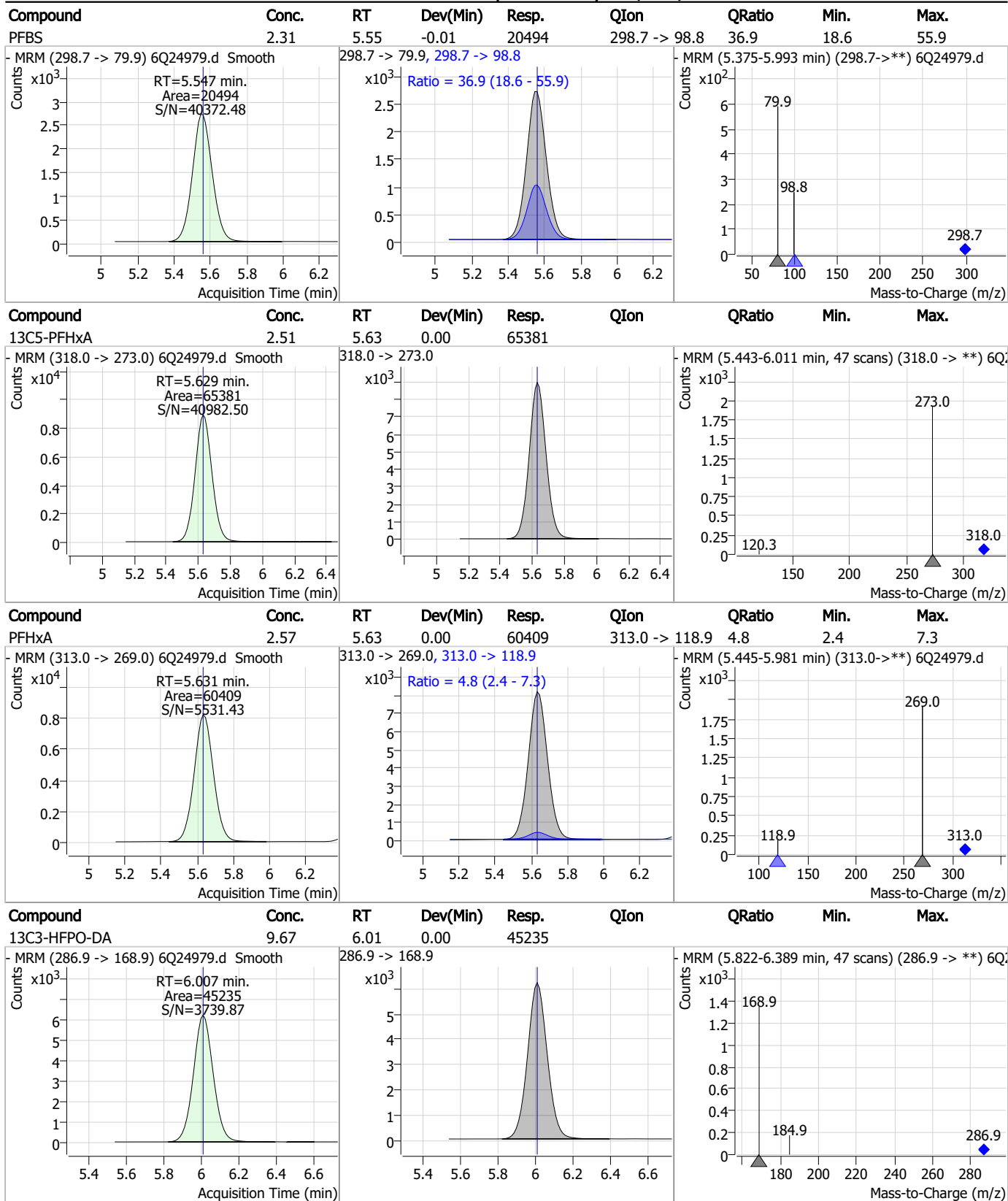
Perfluorinated Compounds by LC/MS/MS



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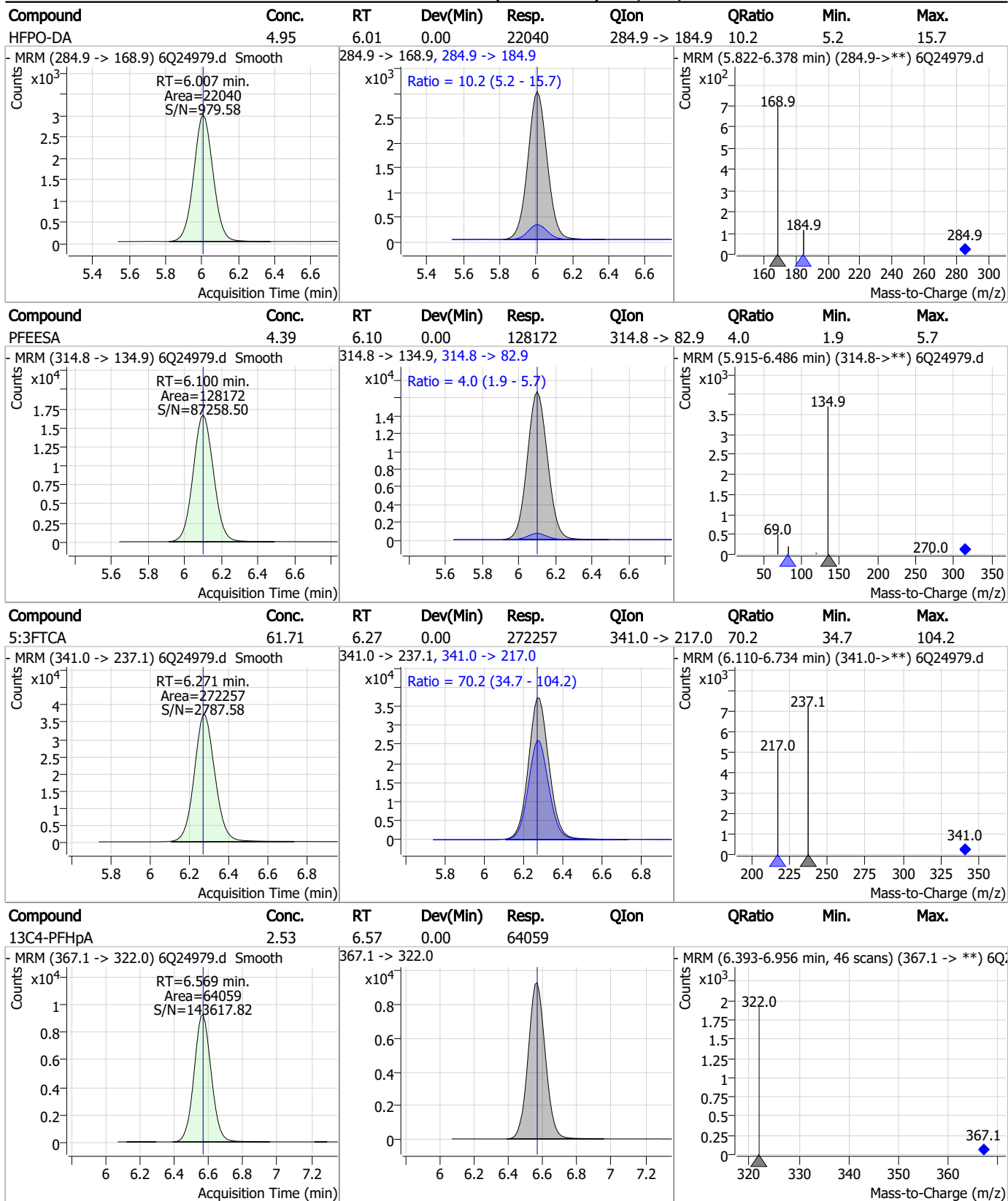


Perfluorinated Compounds by LC/MS/MS



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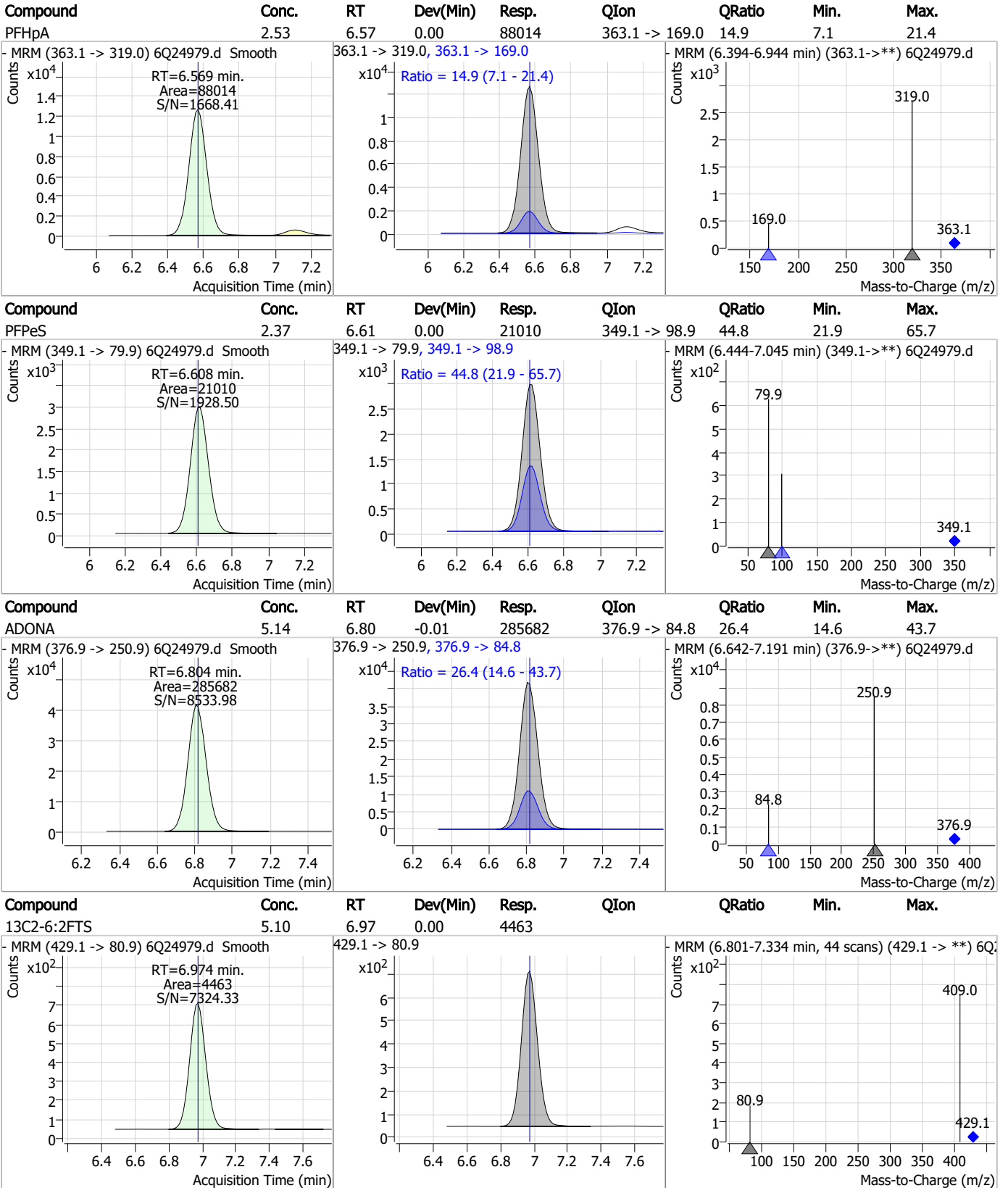
Perfluorinated Compounds by LC/MS/MS



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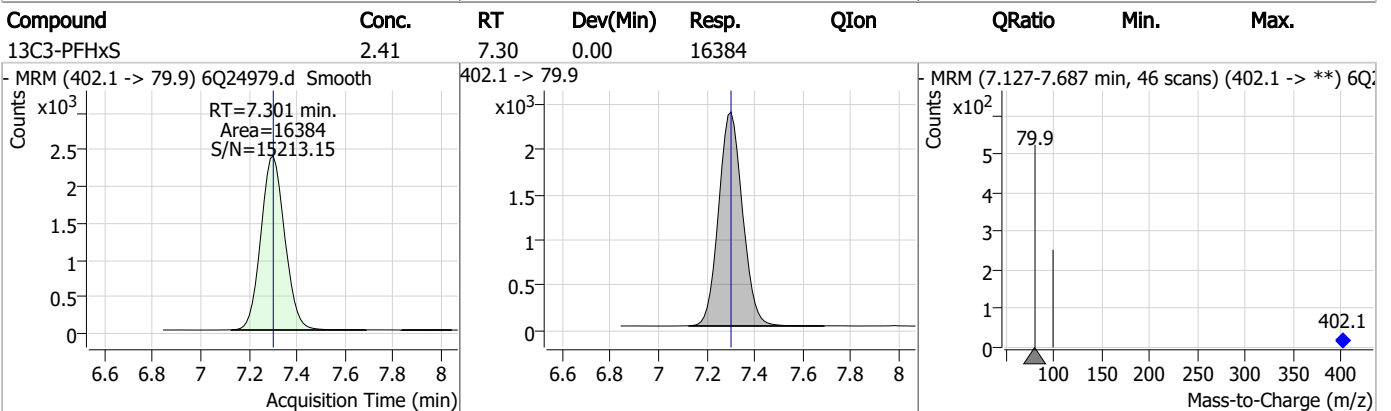
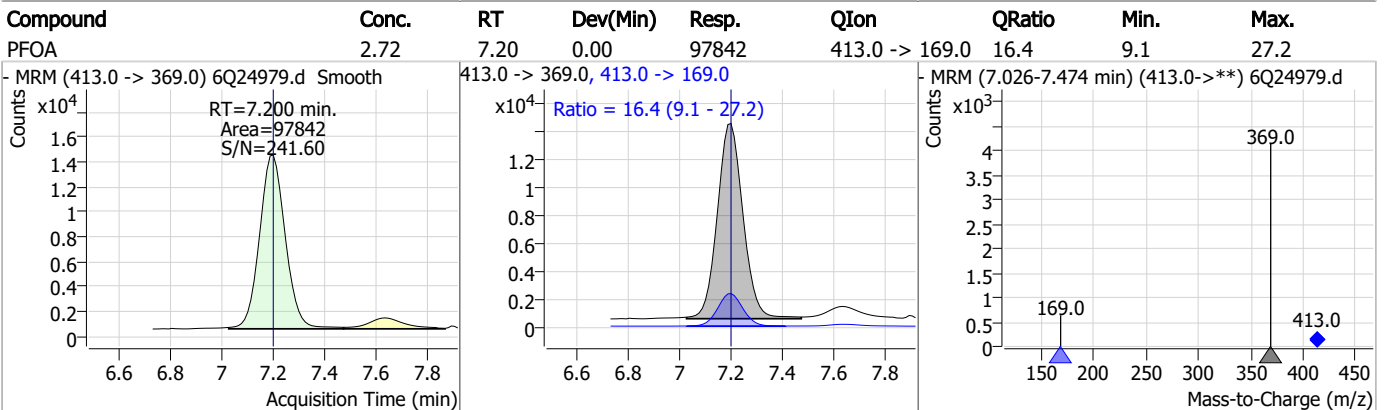
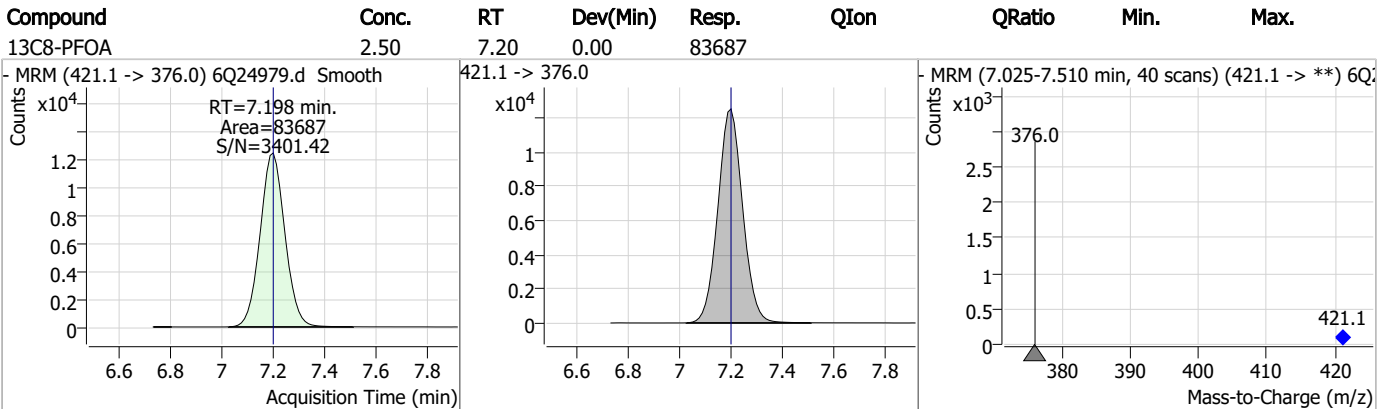
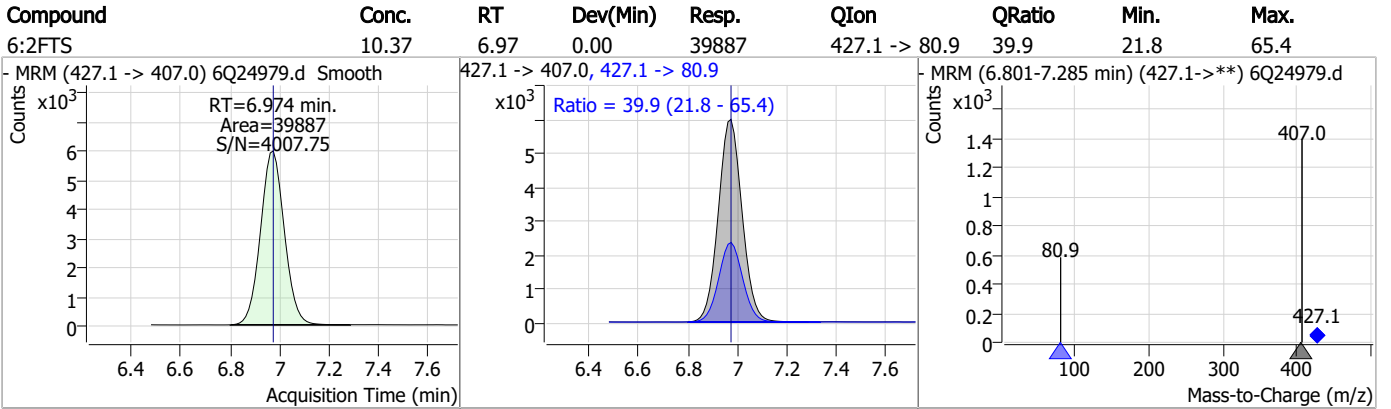
Perfluorinated Compounds by LC/MS/MS



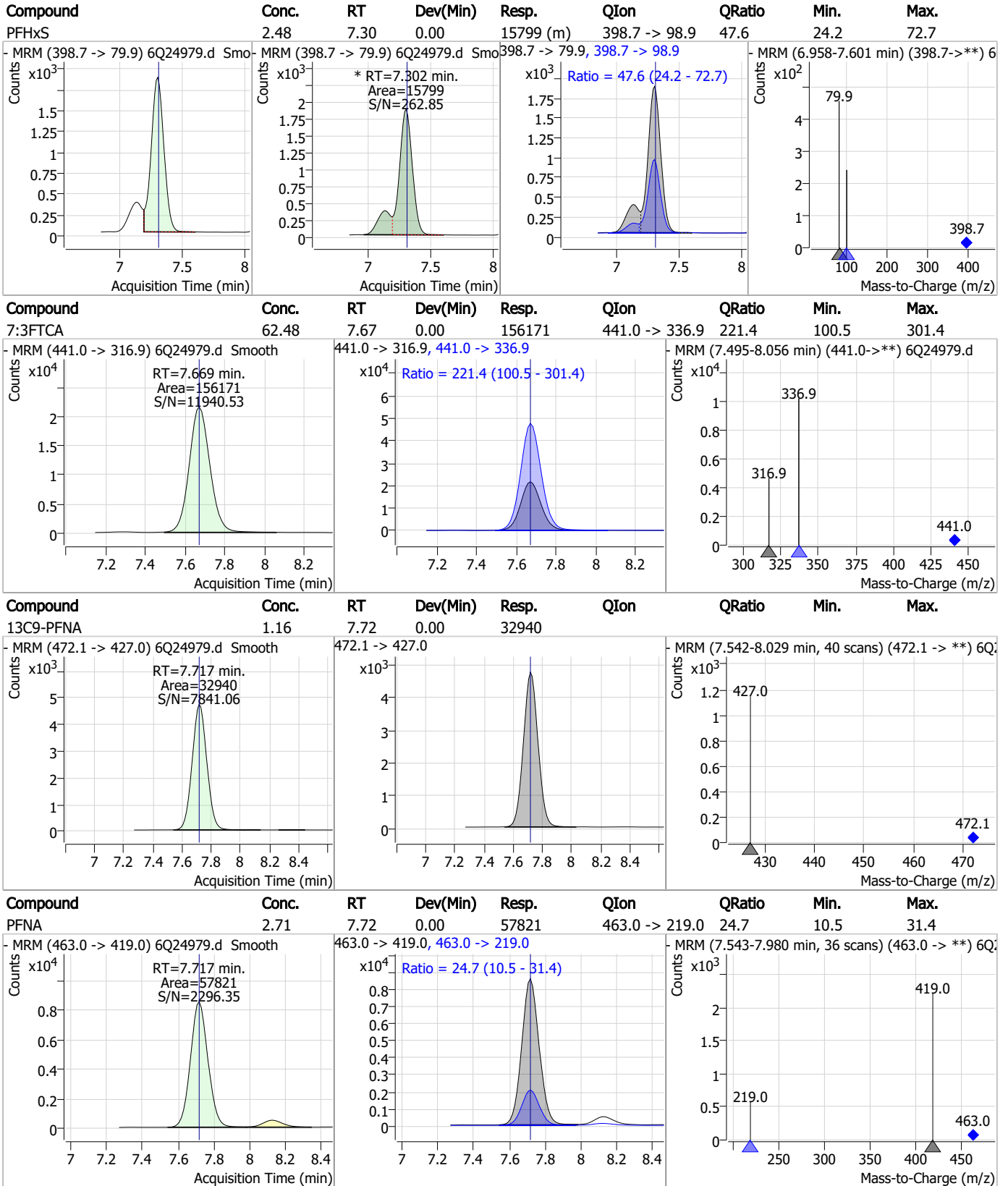
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Perfluorinated Compounds by LC/MS/MS



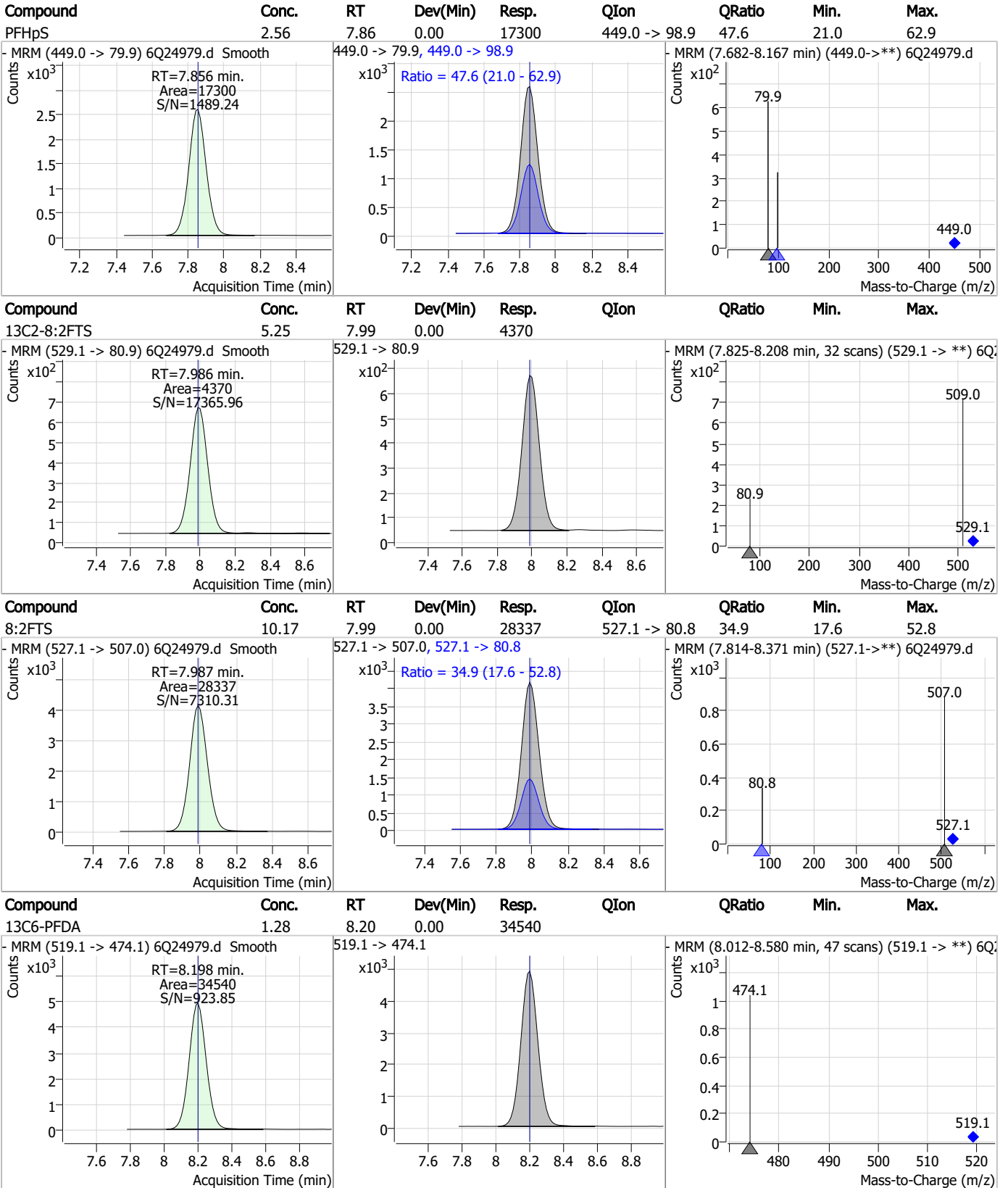
Perfluorinated Compounds by LC/MS/MS



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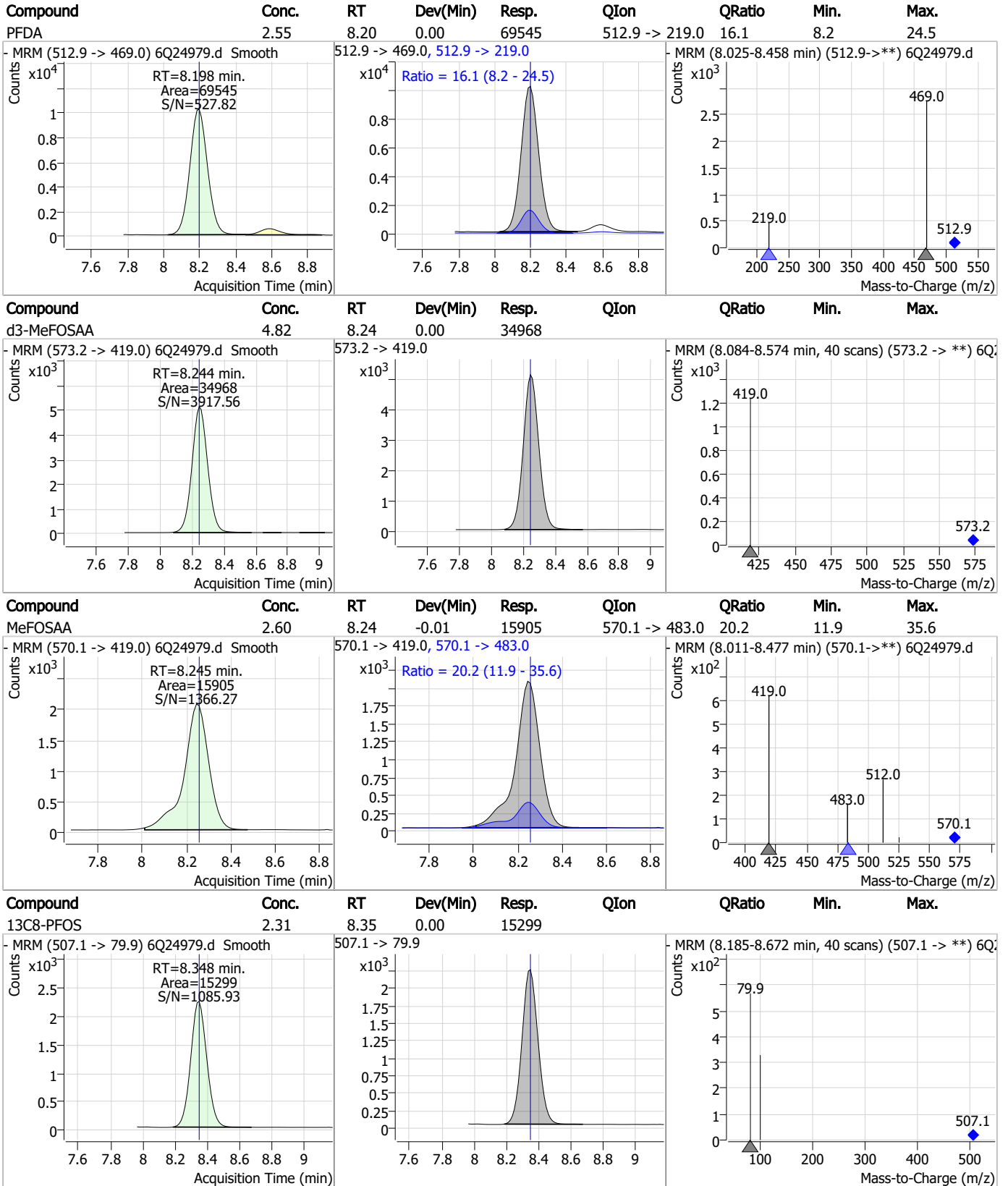
Perfluorinated Compounds by LC/MS/MS



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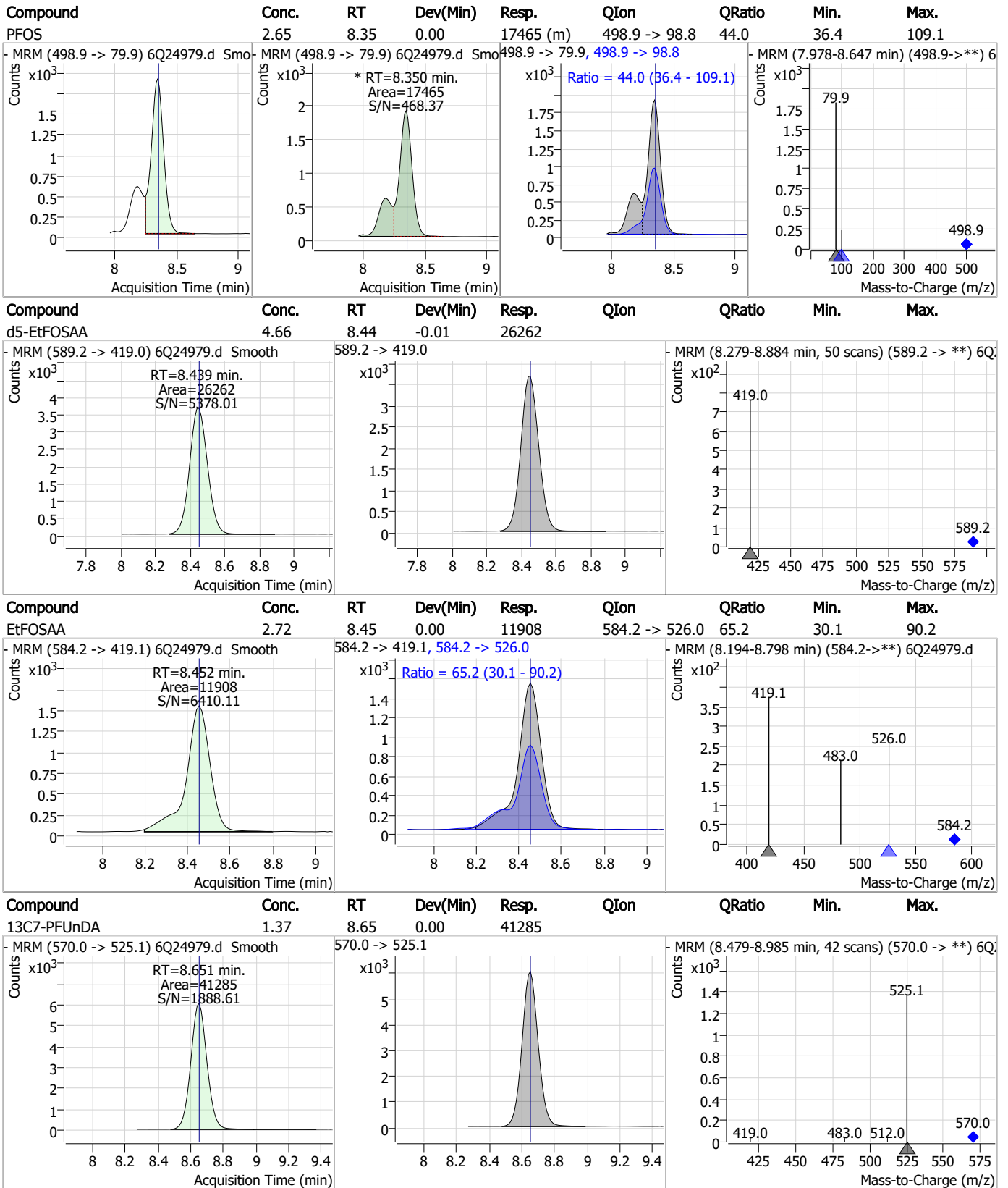
Perfluorinated Compounds by LC/MS/MS



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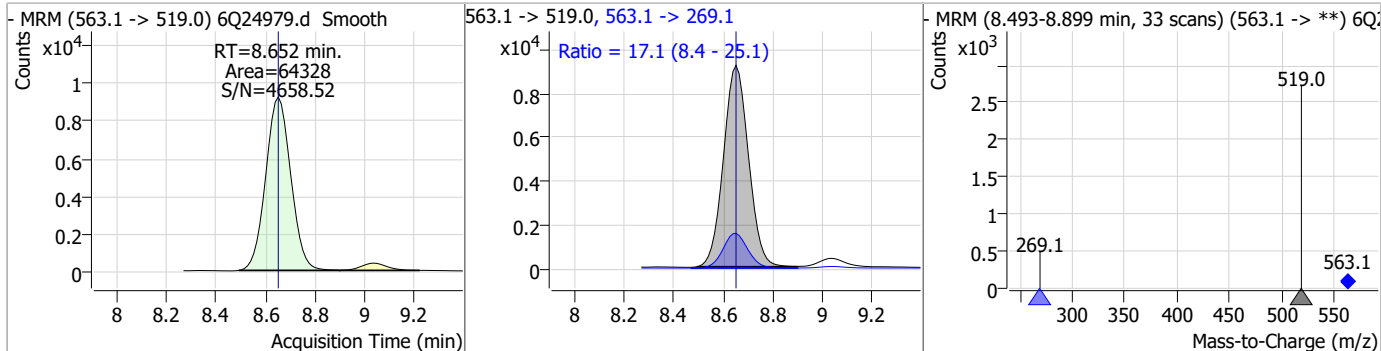
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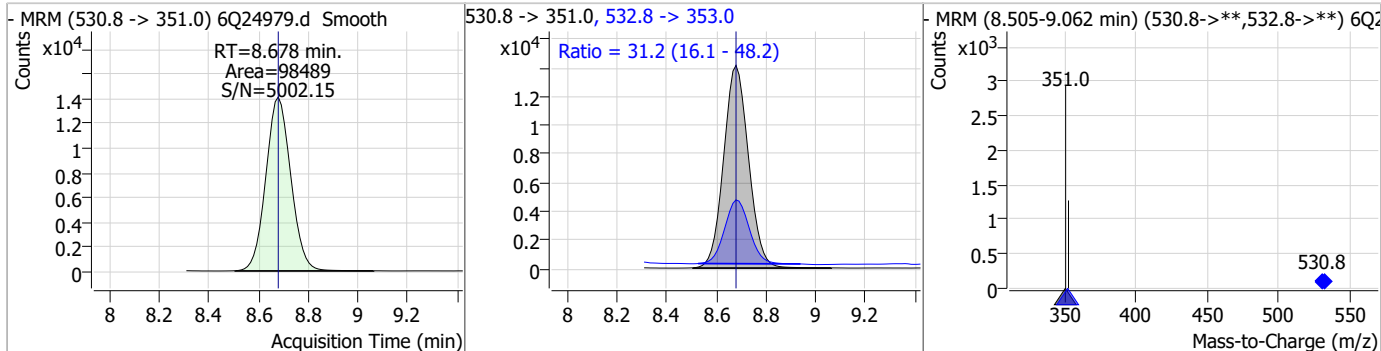
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Perfluorinated Compounds by LC/MS/MS

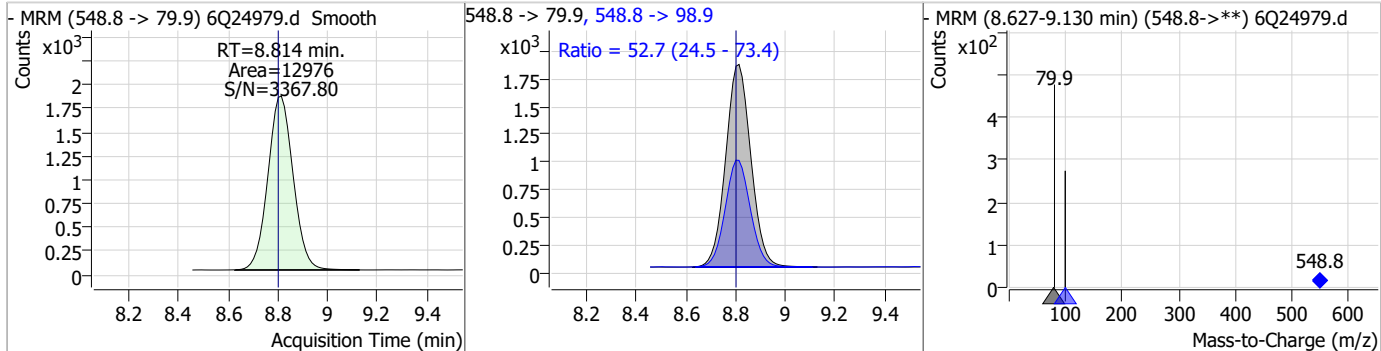
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.35	8.65	0.00	64328	563.1 -> 269.1	17.1	8.4	25.1



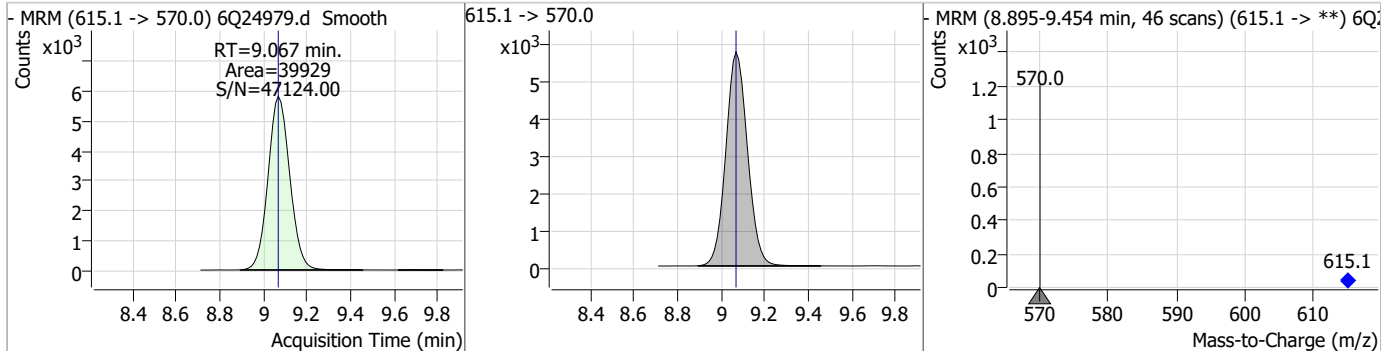
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	4.90	8.68	0.00	98489	532.8 -> 353.0	31.2	16.1	48.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.44	8.81	0.01	12976	548.8 -> 98.9	52.7	24.5	73.4

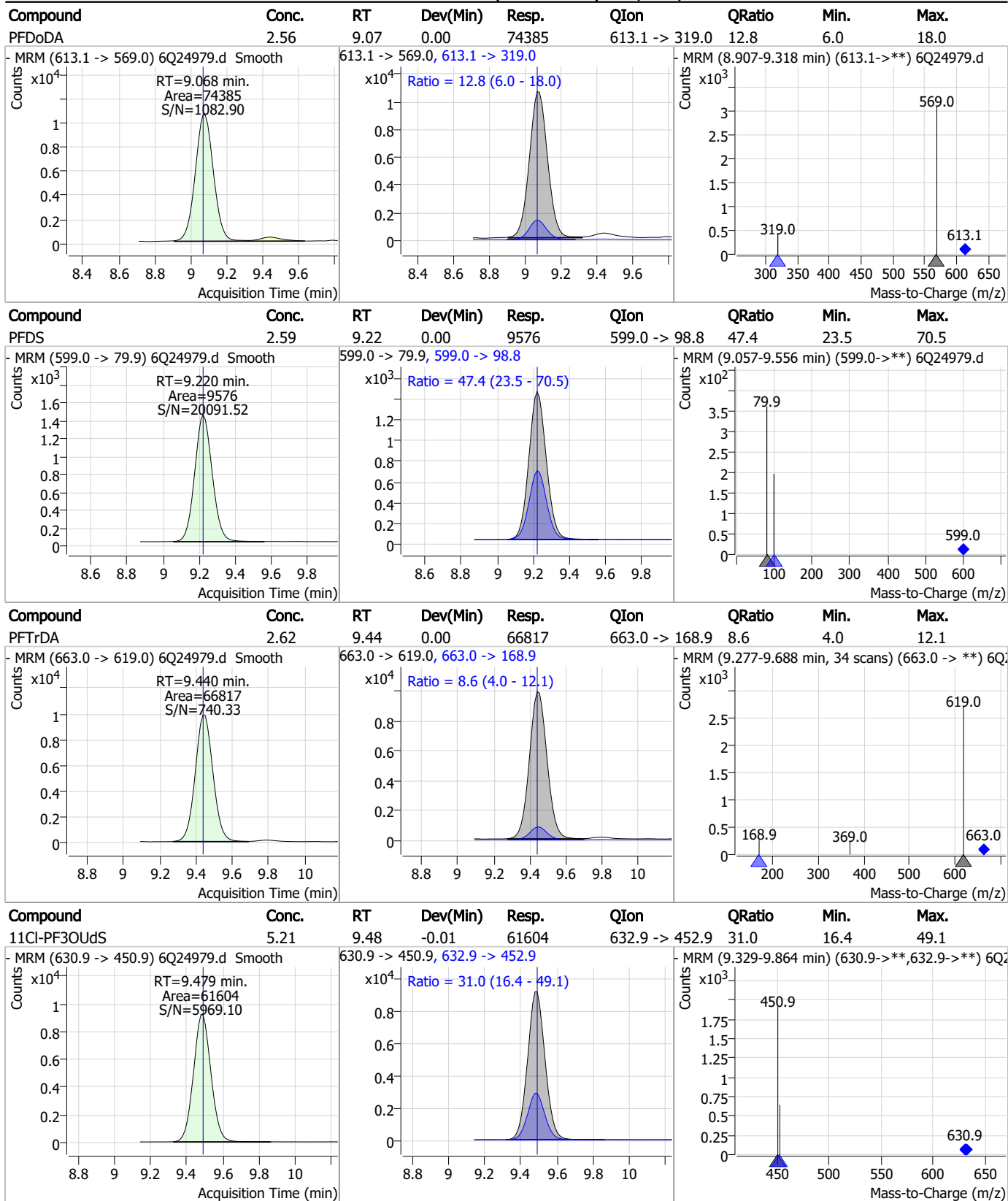


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.30	9.07	0.00	39929	615.1 -> 570.0			



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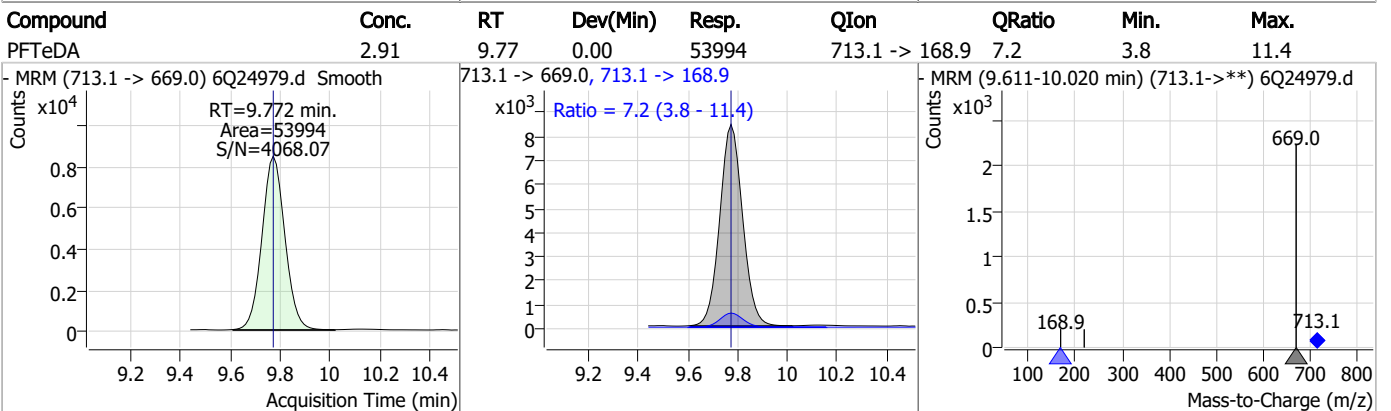
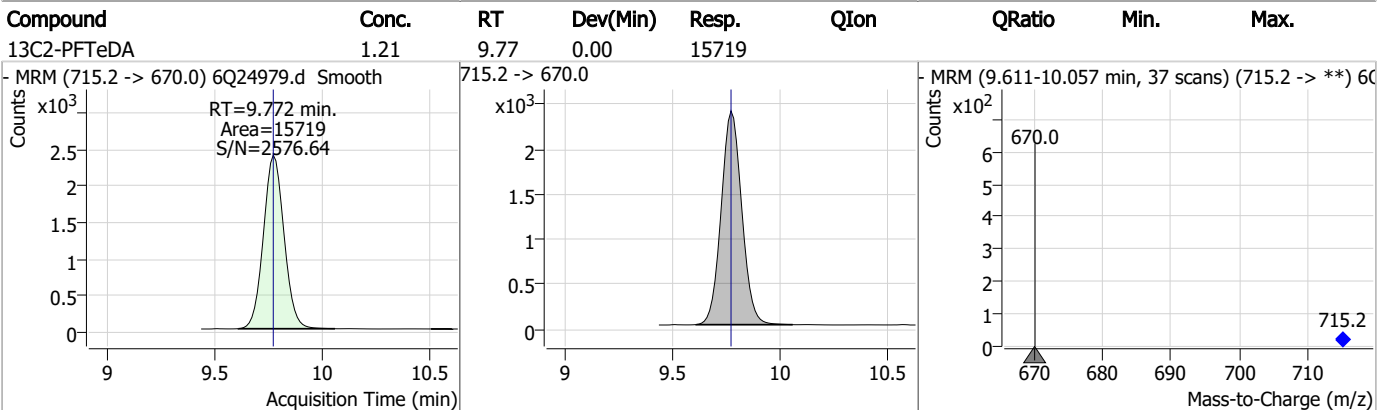
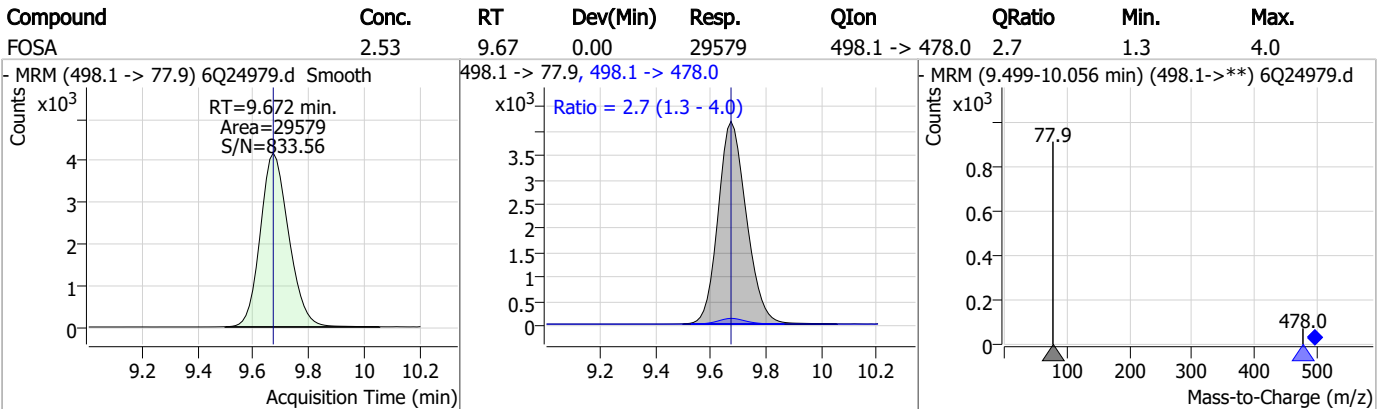
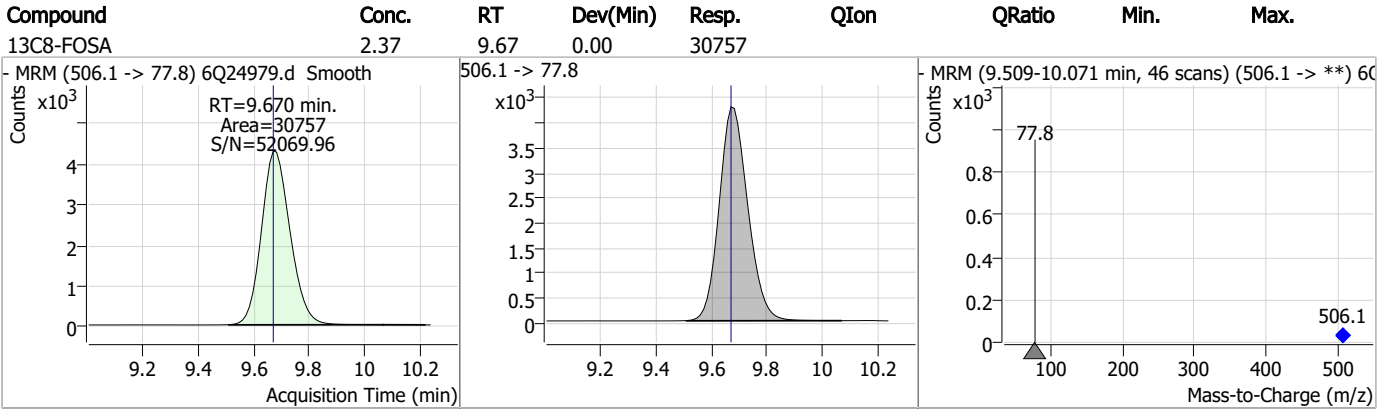
Perfluorinated Compounds by LC/MS/MS



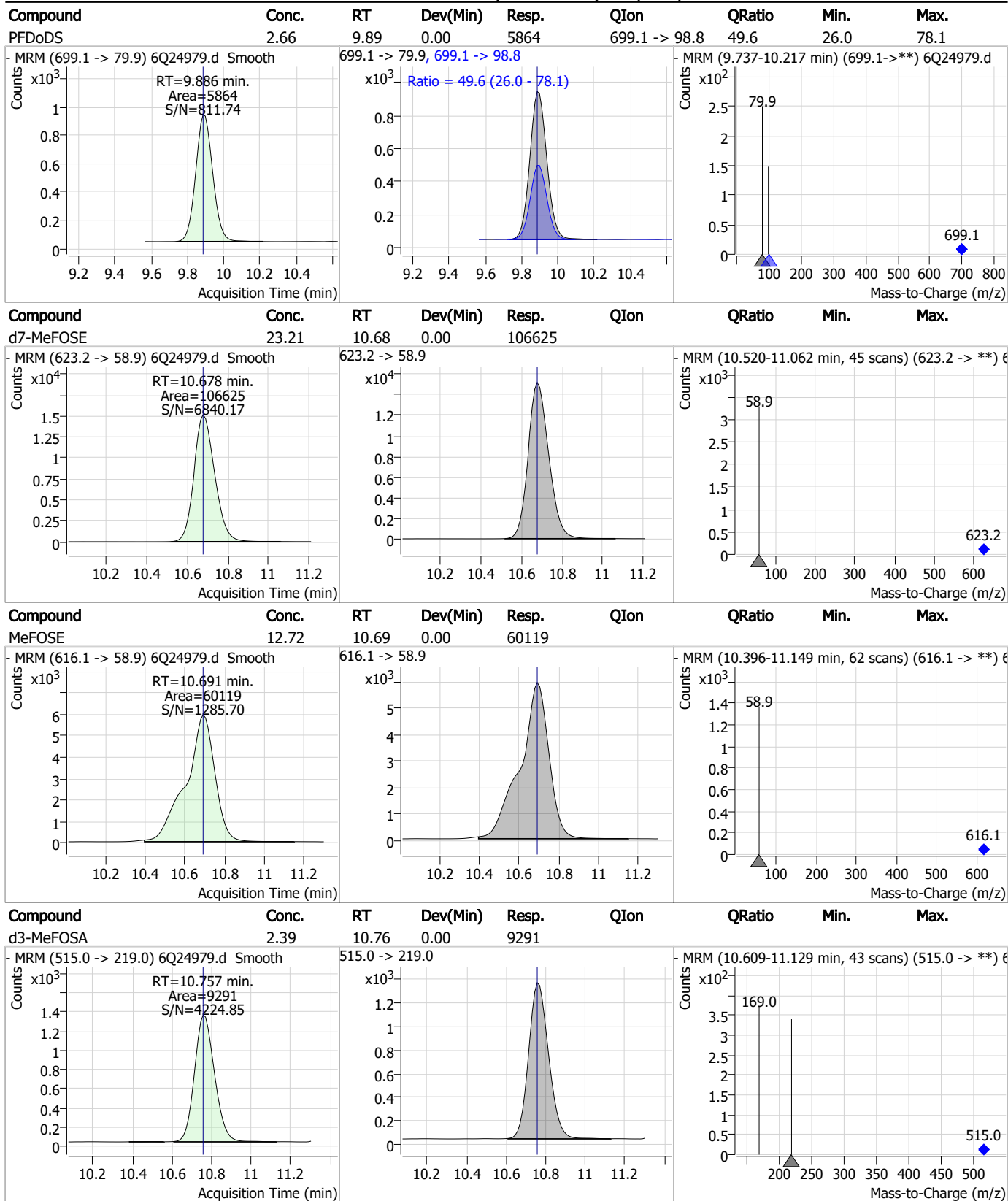
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Perfluorinated Compounds by LC/MS/MS



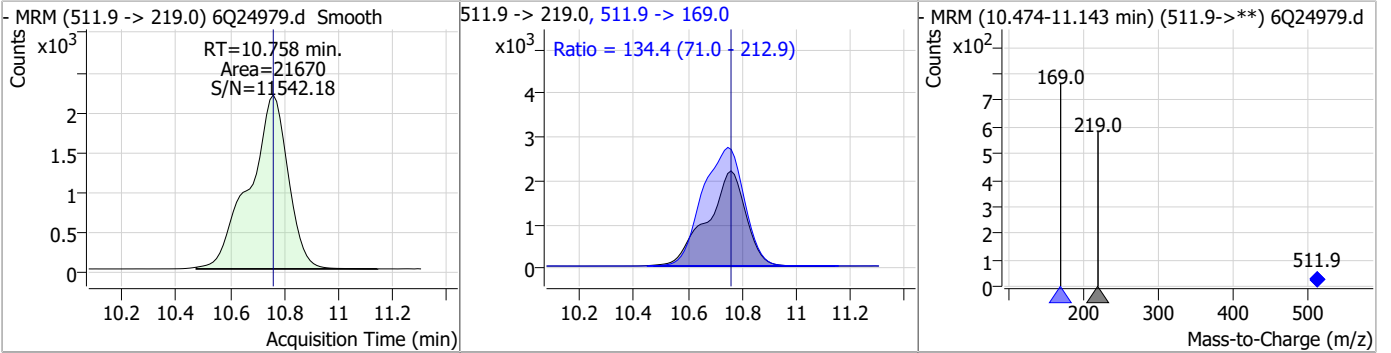
Perfluorinated Compounds by LC/MS/MS



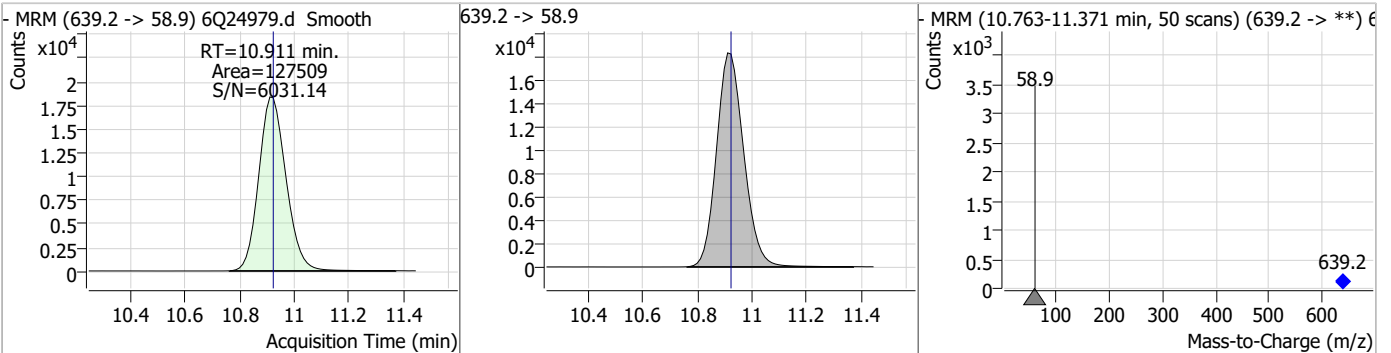
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Perfluorinated Compounds by LC/MS/MS

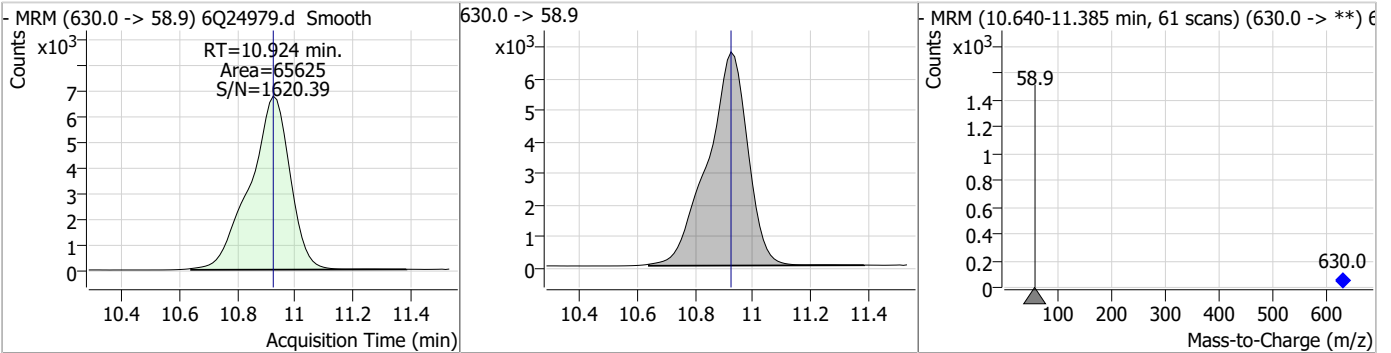
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.18	10.76	0.00	21670	511.9 -> 169.0	134.4	71.0	212.9



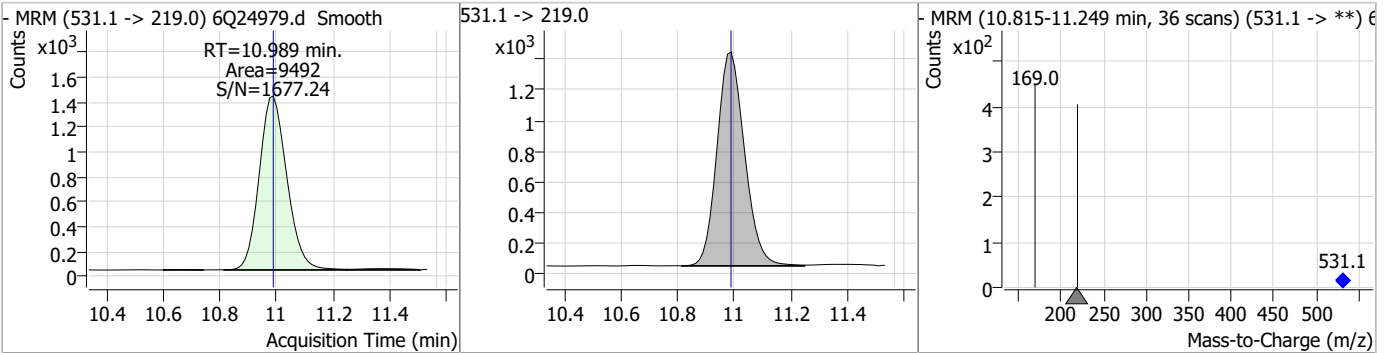
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	22.81	10.91	-0.01	127509				



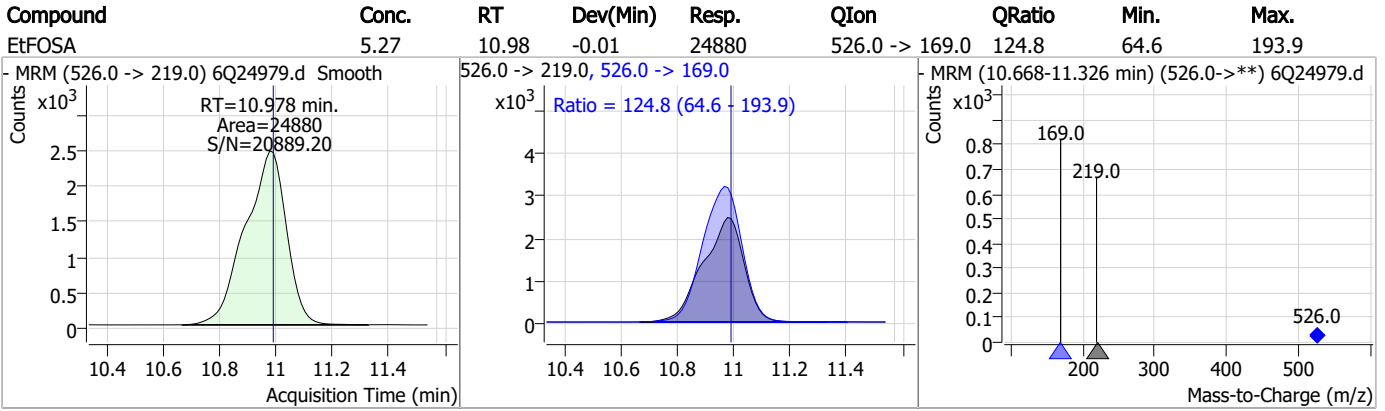
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.82	10.92	0.00	65625				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.32	10.99	0.00	9492				



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q356-CC356 Method: EPA DRAFT 1633
Lab FileID: 6Q24979.D Analyst approved: 09/25/23 14:50 Martha Valls
Injection Time: 09/25/23 05:19 Supervisor approved: 09/26/23 13:54 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q25014.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/25/2023 1:40:29 PM
 Sample Name : cc356-4
 Vial : P1-A5
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	183236	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	75222	5.00 µg/L	0.000
M5-PFHxA	5.629	318.0 -> 273.0	68365	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	63498	2.50 µg/L	0.000
M8-PFOA	7.186	421.1 -> 376.0	85576	2.50 µg/L	-0.012
M9-PFNA	7.717	472.1 -> 427.0	36014	1.25 µg/L	0.000
M6-PFDA	8.185	519.1 -> 474.1	35955	1.25 µg/L	-0.012
M7-PFUnDA	8.639	570.0 -> 525.1	39074	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	39579	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	16620	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	29476	2.50 µg/L	0.000
M3-PFBS	5.559	302.1 -> 79.9	27856	2.50 µg/L	0.000
M3-PFHxS	7.301	402.1 -> 79.9	16551	2.50 µg/L	0.000
M8-PFOS	8.336	507.1 -> 79.9	16024	2.50 µg/L	-0.013
M2-4:2FTS	5.304	329.1 -> 80.9	2805	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4035	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	4338	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	36151	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	45592	10.00 µg/L	0.000
M5-EtFOSAA	8.439	589.2 -> 419.0	27840	5.00 µg/L	-0.012
M7-MeFOSE	10.678	623.2 -> 58.9	104770	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	123917	25.00 µg/L	-0.012
M5-EtFOSA	10.989	531.1 -> 219.0	9347	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9058	2.50 µg/L	0.000
13C4-PFOS	8.336	502.8 -> 79.9	13987	2.50 µg/L	-0.013
13C3-PFBA	2.976	216.0 -> 172.0	76035	5.00 µg/L	0.000
18O2-PFHxS	7.300	403.0 -> 83.9	10653	2.50 µg/L	0.000
13C4-PFOA	7.187	417.1 -> 372.0	103556	2.50 µg/L	-0.012
13C2-PFDA	8.186	515.1 -> 470.1	34468	1.25 µg/L	-0.012
13C5-PFNA	7.717	468.0 -> 423.0	36745	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	62916	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2805	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.0%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4035	4.66 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.2%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4338	5.26 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.3%		
13C2-PFDoDA	9.067	615.1 -> 570.0	39579	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.0%		
13C2-PFTeDA	9.772	715.2 -> 670.0	16620	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.2%		
13C3-PFBS	5.559	302.1 -> 79.9	27856	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C3-PFHxS	7.301	402.1 -> 79.9	16551	2.46 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C4-PFBA	2.972	216.8 -> 171.9	183236	9.97 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C4-PFHpA	6.569	367.1 -> 322.0	63498	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C5-PFHxA	5.629	318.0 -> 273.0	68365	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C5-PFPeA	4.409	268.3 -> 223.0	75222	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C6-PFDA	8.185	519.1 -> 474.1	35955	1.24 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C7-PFUnDA	8.639	570.0 -> 525.1	39074	1.21 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.5%	
13C8-FOSA	9.670	506.1 -> 77.8	29476	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C8-PFOA	7.186	421.1 -> 376.0	85576	2.38 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.4%	
13C8-PFOS	8.336	507.1 -> 79.9	16024	2.65 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C9-PFNA	7.717	472.1 -> 427.0	36014	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.5%	
d3-MeFOSAA	8.244	573.2 -> 419.0	36151	5.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.1%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	45592	9.62 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.2%	
d3-MeFOSA	10.757	515.0 -> 219.0	9058	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.8%	
d5-EtFOSAA	8.439	589.2 -> 419.0	27840	5.41 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.1%	
d7-MeFOSE	10.678	623.2 -> 58.9	104770	24.97 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
d9-EtFOSE	10.911	639.2 -> 58.9	123917	24.27 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.1%	
d5-EtFOSA	10.989	531.1 -> 219.0	9347	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.9%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	46837	10.20 µg/L	96
		327.1 -> 80.9	18869		
6:2FTS	6.962	427.1 -> 407.0	37385	10.75 µg/L	99
		427.1 -> 80.9	16054		
8:2FTS	7.987	527.1 -> 507.0	27757	10.04 µg/L	97
		527.1 -> 80.8	10285		
EtFOSAA	8.452	584.2 -> 419.1	11962	2.58 µg/L	96
		584.2 -> 526.0	7528		
FOSA	9.672	498.1 -> 77.9	29808	2.66 µg/L	100
		498.1 -> 478.0	788		
MeFOSAA	8.245	570.1 -> 419.0	16589	2.62 µg/L	91
		570.1 -> 483.0	3228		
PFBA	2.981	212.8 -> 168.9	67196	10.27 µg/L	100
PFBS	5.547	298.7 -> 79.9	20102	2.21 µg/L	100
		298.7 -> 98.8	7420		
PFDA	8.186	512.9 -> 469.0	67454	2.38 µg/L	97
		512.9 -> 219.0	11719		
PFDODA	9.068	613.1 -> 569.0	77223	2.68 µg/L	99
		613.1 -> 319.0	9445		
PFDS	9.220	599.0 -> 79.9	9985	2.58 µg/L	99

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.557	599.0 -> 98.8	4622	2.67	µg/L	100
		363.1 -> 319.0	92007			
PFHpS	7.843	363.1 -> 169.0	12972	2.45	µg/L	92
		449.0 -> 79.9	17314			
PFHxA	5.631	449.0 -> 98.9	8157	2.47	µg/L	100
		313.0 -> 269.0	60670			
PFHxS	7.302	313.0 -> 118.9	2918	2.34	µg/L	99
		398.7 -> 79.9	15064			
PFNA	7.717	398.7 -> 98.9	7392	2.57	µg/L	97
		463.0 -> 419.0	59796			
PFNS	8.802	463.0 -> 219.0	13375	2.36	µg/L	92
		548.8 -> 79.9	13151			
PFOA	7.200	548.8 -> 98.9	7108	2.67	µg/L	98
		413.0 -> 369.0	98201			
PFOS	8.337	413.0 -> 169.0	16749	2.28	µg/L	77
		498.9 -> 79.9	15733			
PFPeA	4.411	498.9 -> 98.8	8430	5.03	µg/L	100
		263.0 -> 219.0	76225			
PFPeS	6.608	349.1 -> 79.9	21116	2.35	µg/L	93
		349.1 -> 98.9	10239			
PFTeDA	9.772	713.1 -> 669.0	50727	2.58	µg/L	97
		713.1 -> 168.9	4300			
PFTrDA	9.440	663.0 -> 619.0	68763	2.72	µg/L	100
		663.0 -> 168.9	5554			
PFUnDA	8.639	563.1 -> 519.0	65044	2.51	µg/L	100
		563.1 -> 269.1	10732			
11CI-PF3OUdS	9.479	630.9 -> 450.9	63393	5.31	µg/L	97
		632.9 -> 452.9	19732			
9CI-PF3ONS	8.678	530.8 -> 351.0	109225	5.40	µg/L	95
		532.8 -> 353.0	31804			
ADONA	6.804	376.9 -> 250.9	283217	5.05	µg/L	98
		376.9 -> 84.8	79677			
HFPO-DA	6.007	284.9 -> 168.9	23034	5.13	µg/L	98
		284.9 -> 184.9	2277			
3:3FTCA	3.846	241.0 -> 177.0	13094	12.33	µg/L	99
		241.0 -> 117.0	1528			
5:3FTCA	6.271	341.0 -> 237.1	273666	59.32	µg/L	98
		341.0 -> 217.0	194810			
7:3FTCA	7.669	441.0 -> 316.9	167178	63.97	µg/L	100
		441.0 -> 336.9	337031			
EtFOSA	10.978	526.0 -> 219.0	24426	5.26	µg/L	98
		526.0 -> 169.0	30937			
EtFOSE	10.924	630.0 -> 58.9	63555	12.77	µg/L	100
		511.9 -> 219.0	21004			
MeFOSA	10.758	511.9 -> 169.0	29667	5.15	µg/L	99
		616.1 -> 58.9	57542			
MeFOSE	10.691	699.1 -> 79.9	5588	12.39	µg/L	100
		699.1 -> 98.8	3049			
PFDoDS	9.886	295.0 -> 201.0	15461	2.42	µg/L	97
		295.0 -> 84.9	4121			
NFDHA	5.512	279.0 -> 85.1	60222	4.91	µg/L	100
		229.0 -> 84.9	44426			
PFMBA	4.838	314.8 -> 134.9	133785	4.92	µg/L	100
		314.8 -> 82.9	5148			
PFMPA	3.551			4.38	µg/L	100
PFEESA	6.100					

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

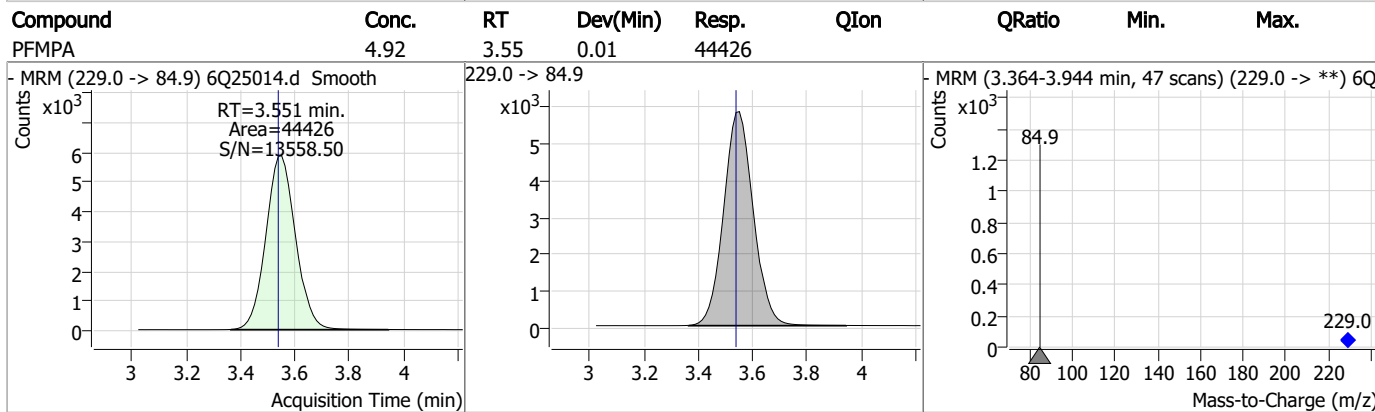
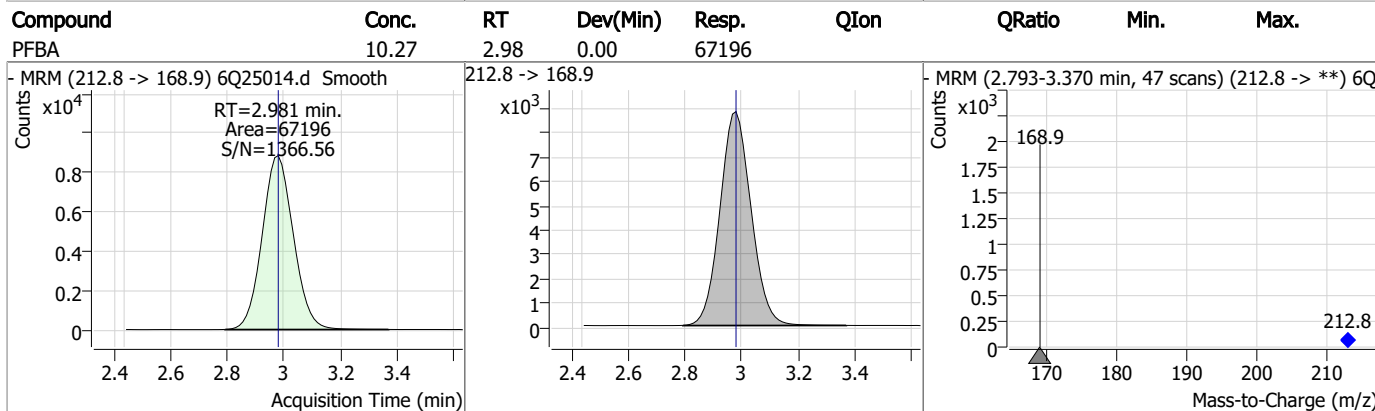
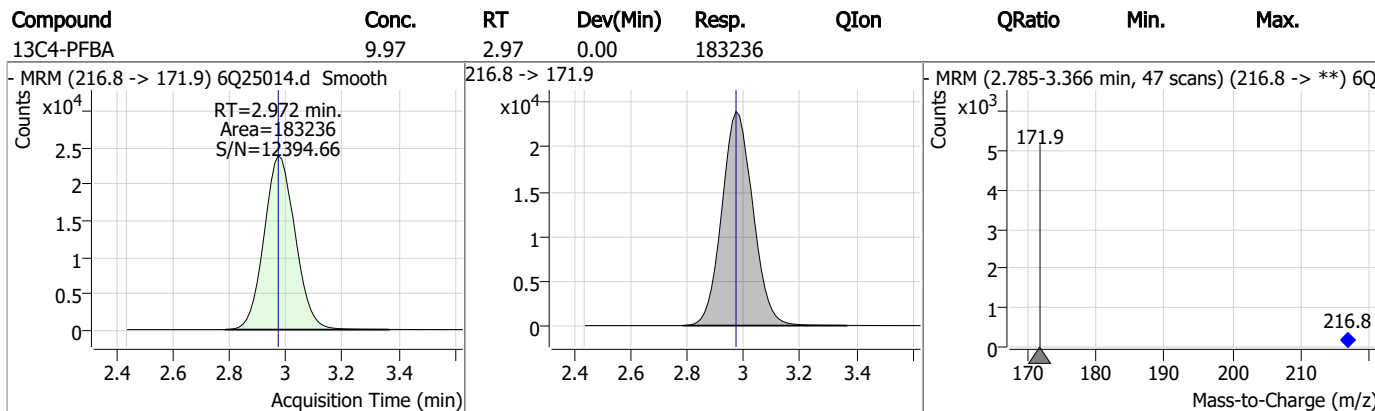
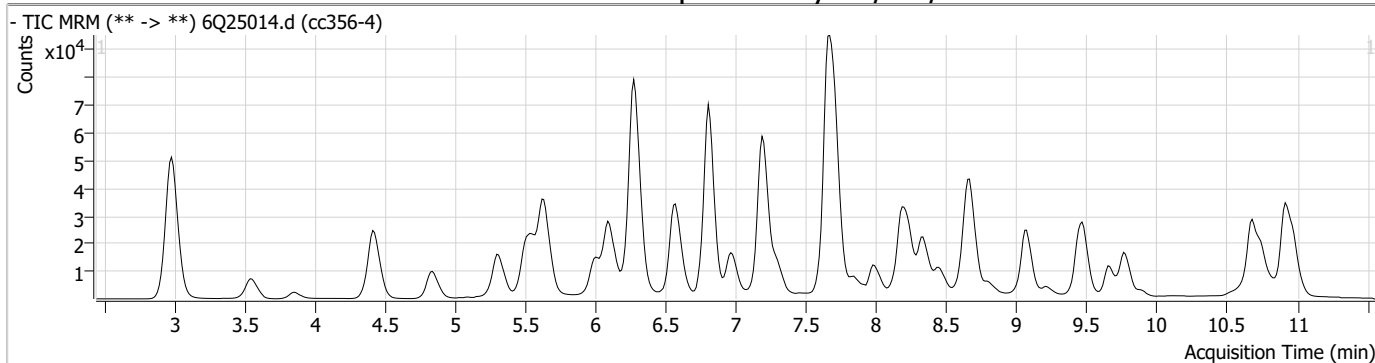
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Perfluorinated Compounds by LC/MS/MS

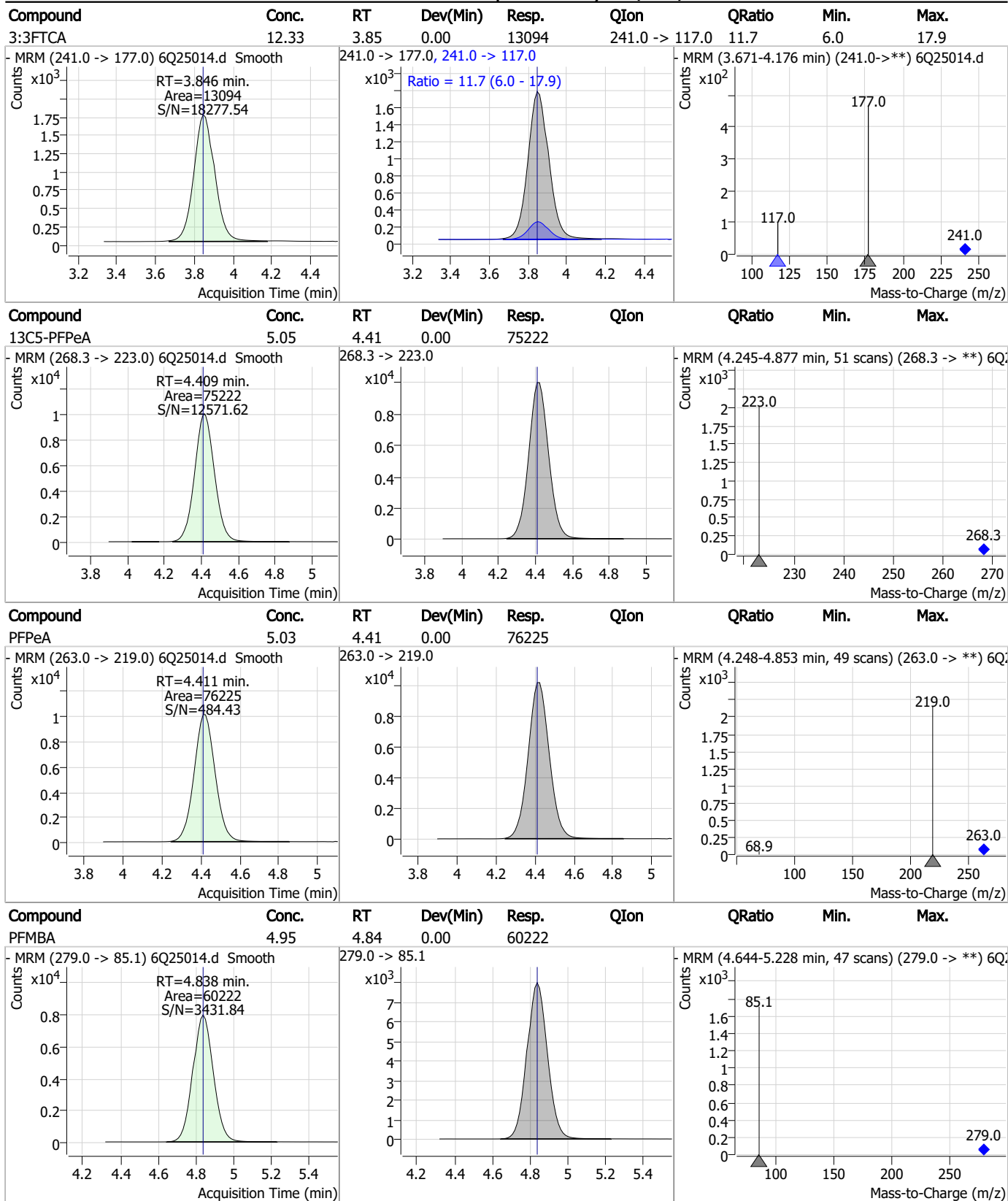
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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Perfluorinated Compounds by LC/MS/MS

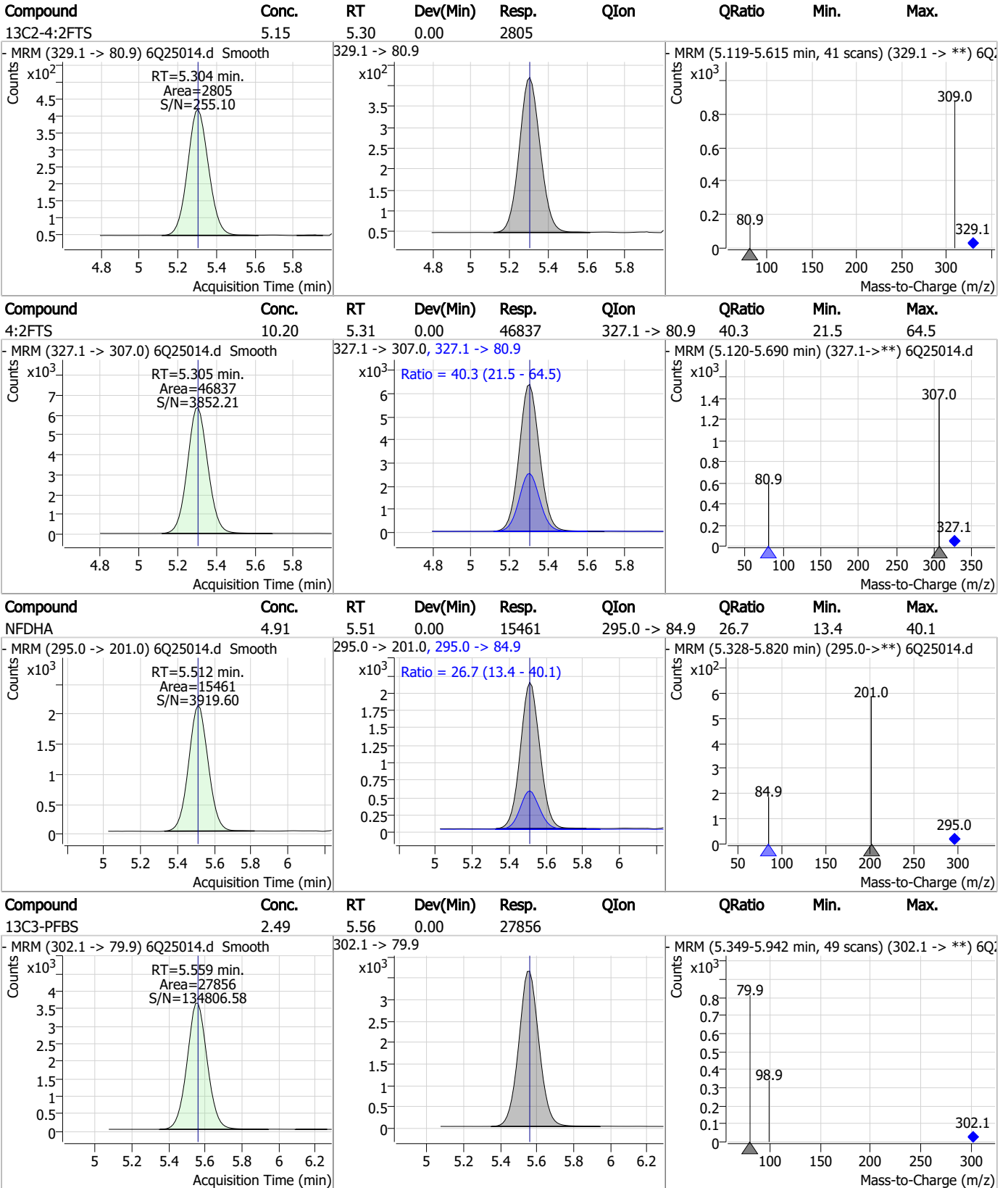


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

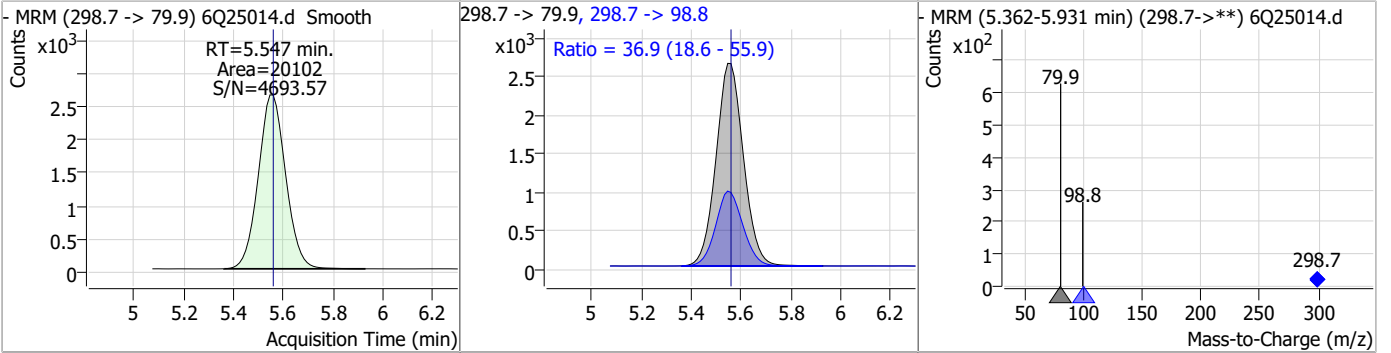


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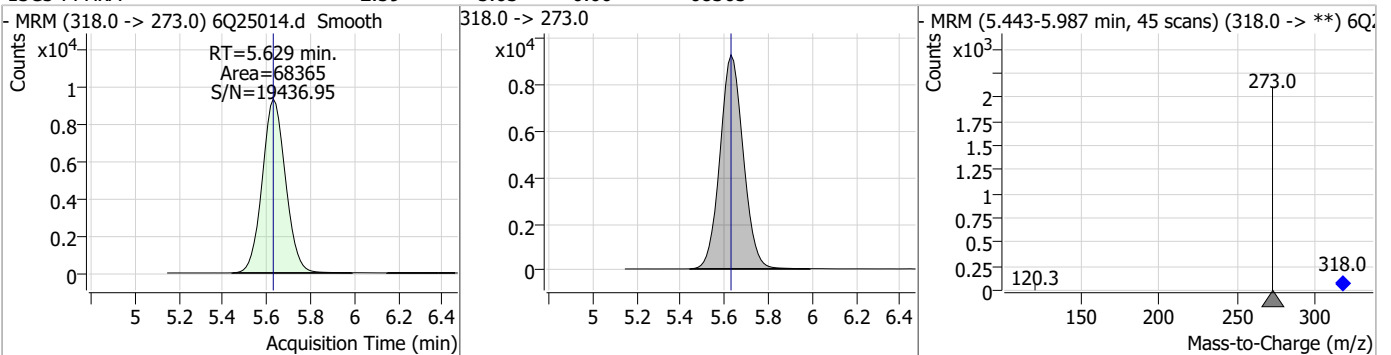


Perfluorinated Compounds by LC/MS/MS

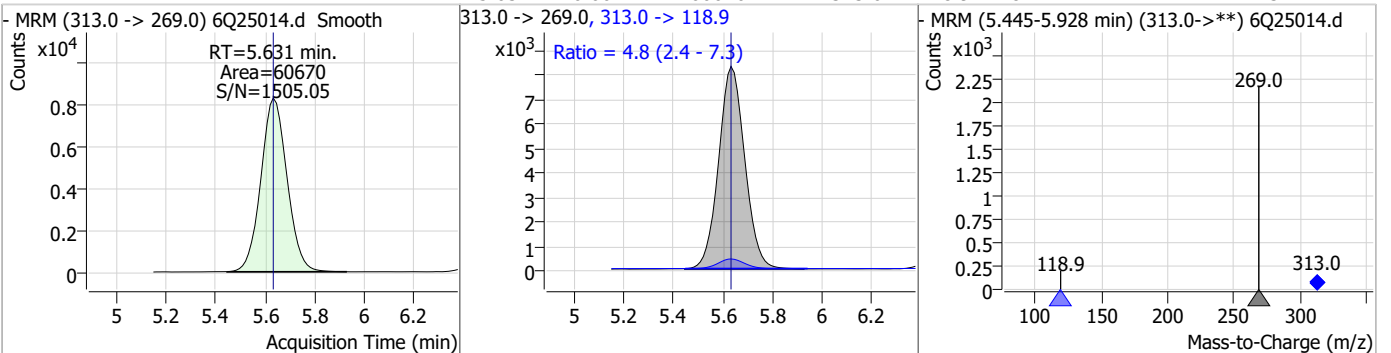
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.21	5.55	-0.01	20102	298.7 -> 98.8	36.9	18.6	55.9



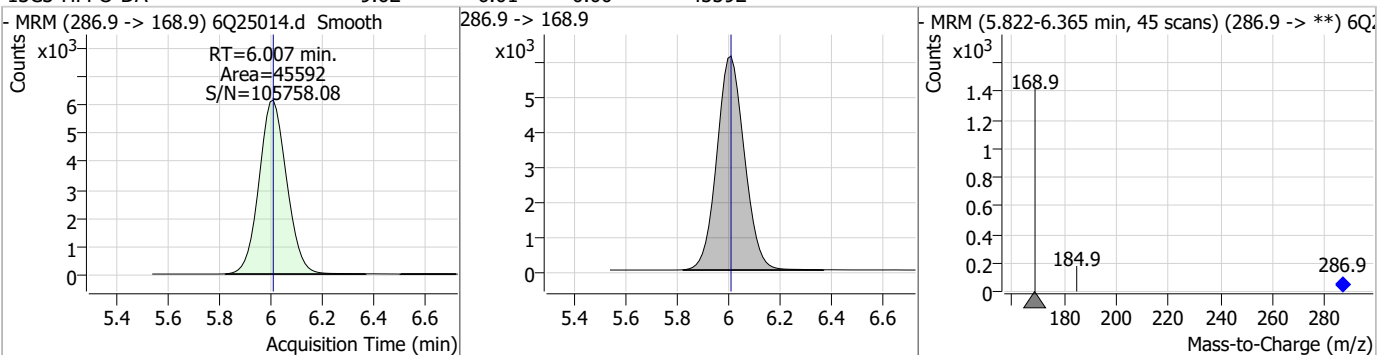
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.59	5.63	0.00	68365				



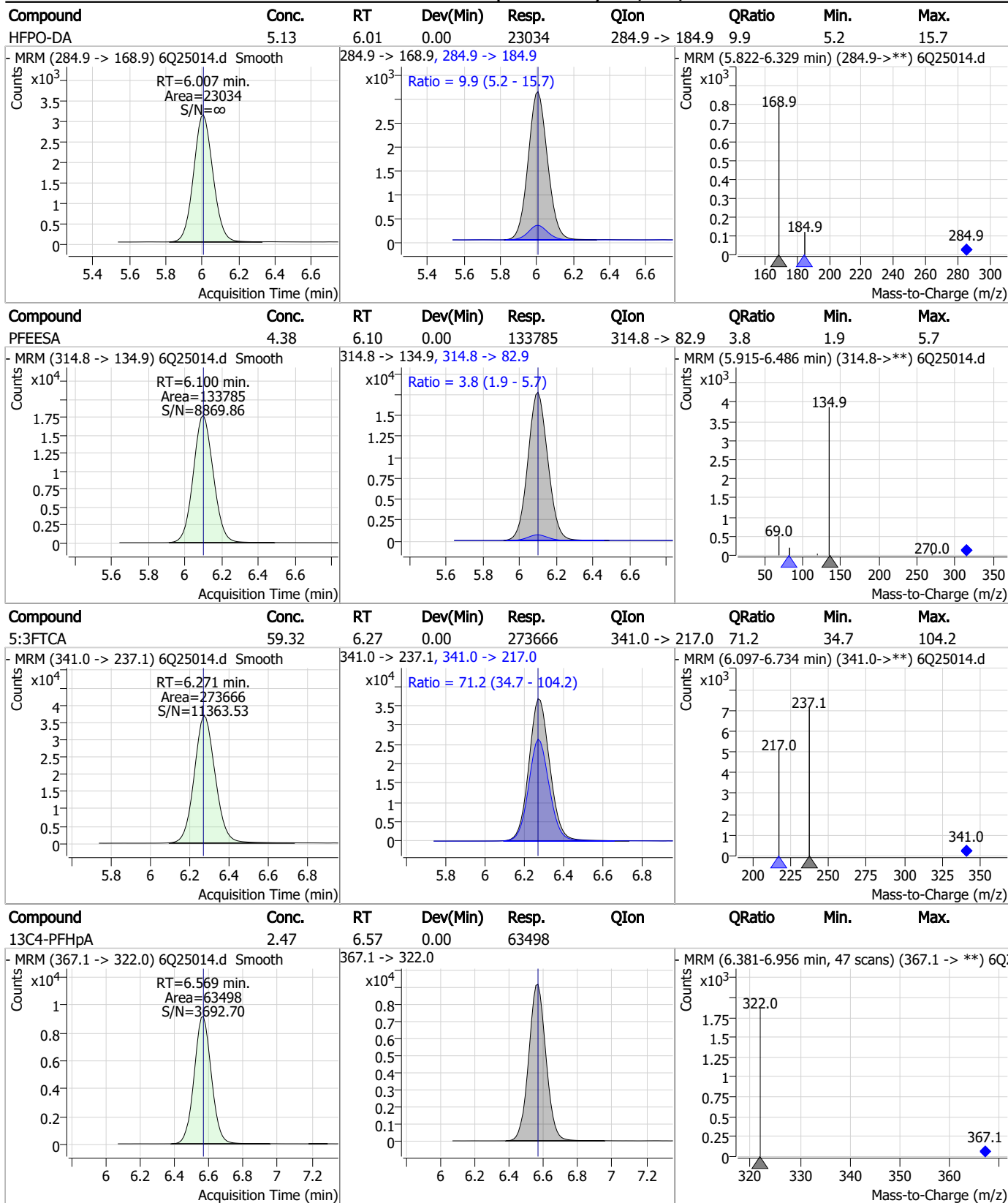
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.47	5.63	0.00	60670	313.0 -> 118.9	4.8	2.4	7.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.62	6.01	0.00	45592				



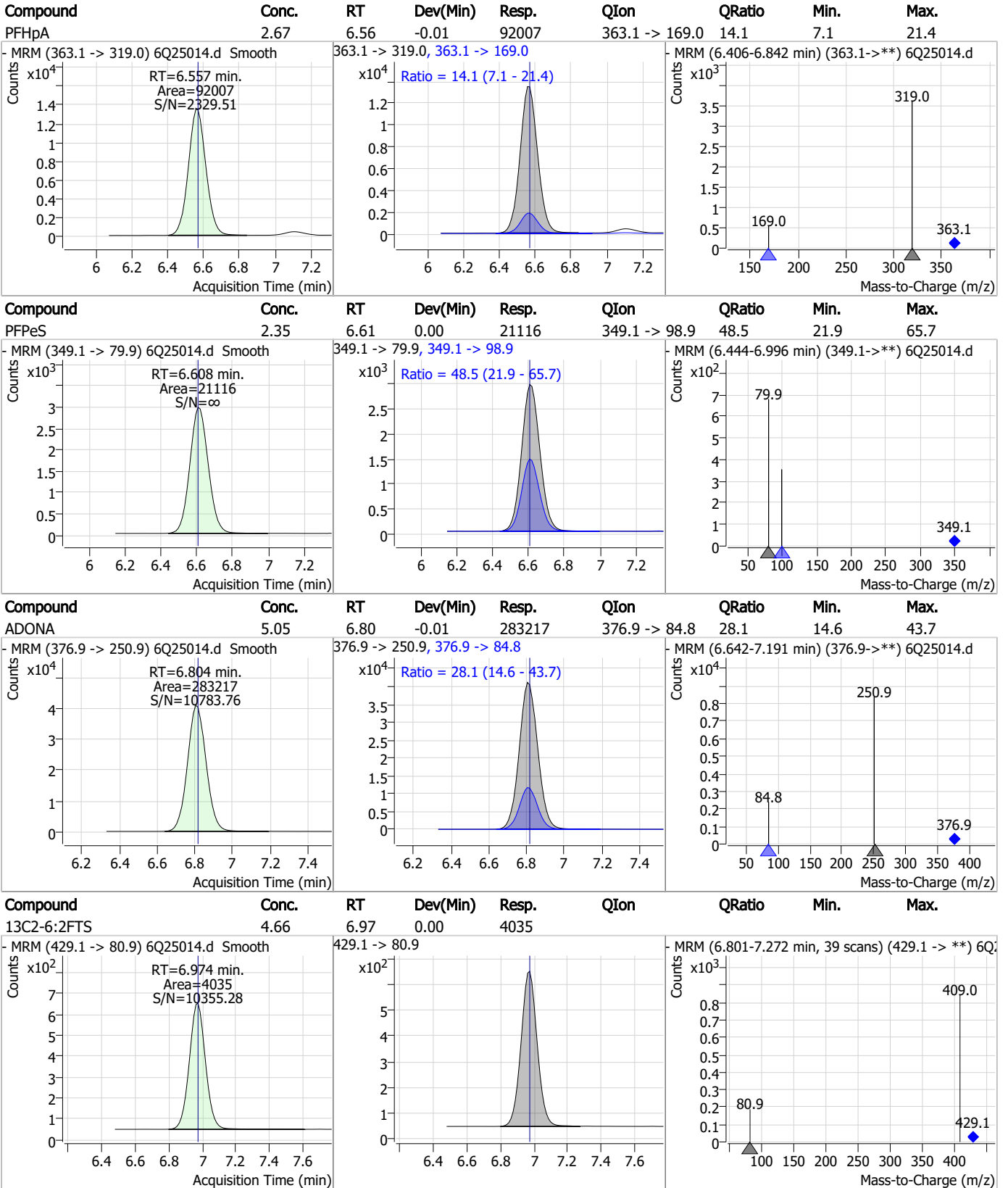
Perfluorinated Compounds by LC/MS/MS



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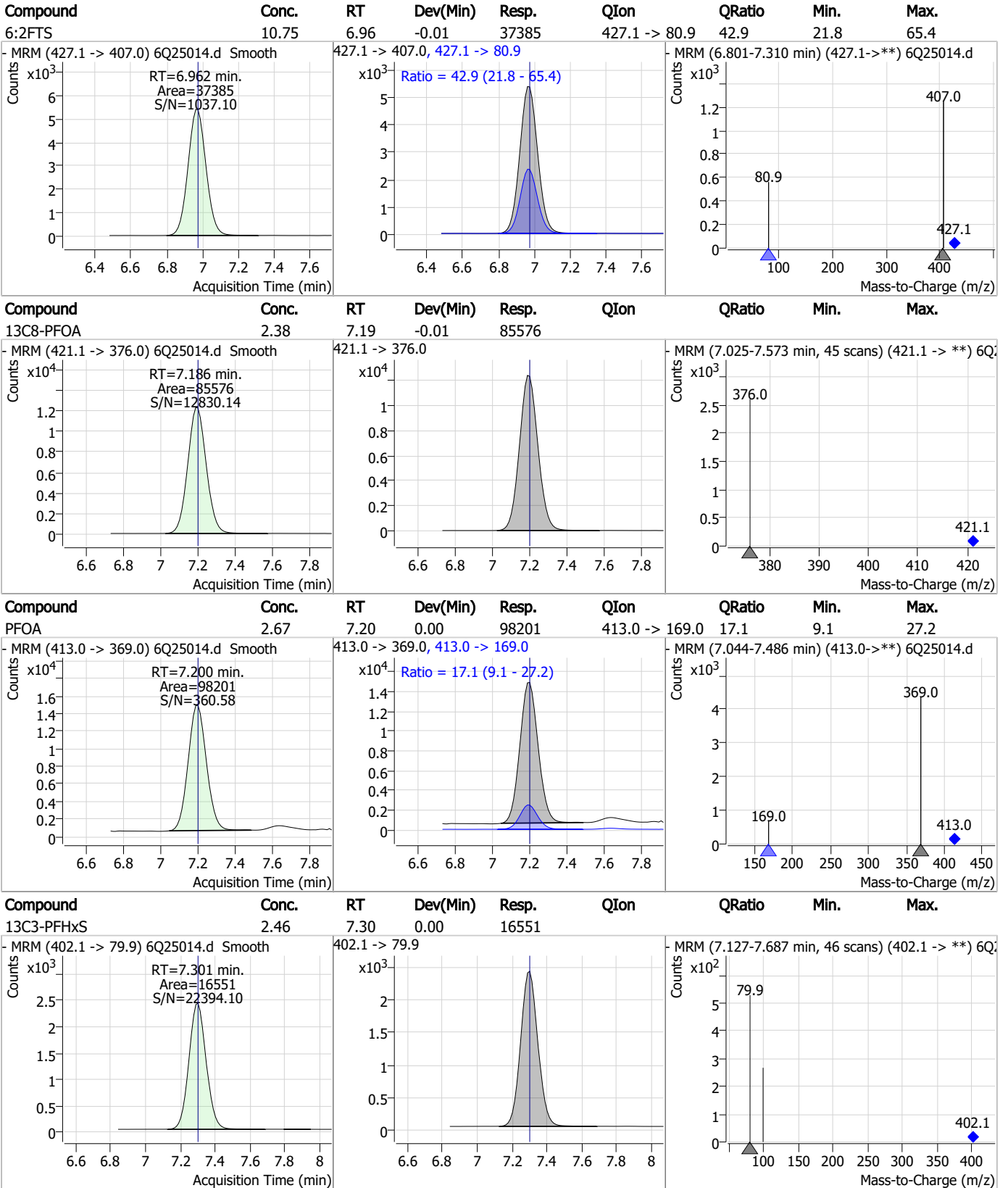
Perfluorinated Compounds by LC/MS/MS



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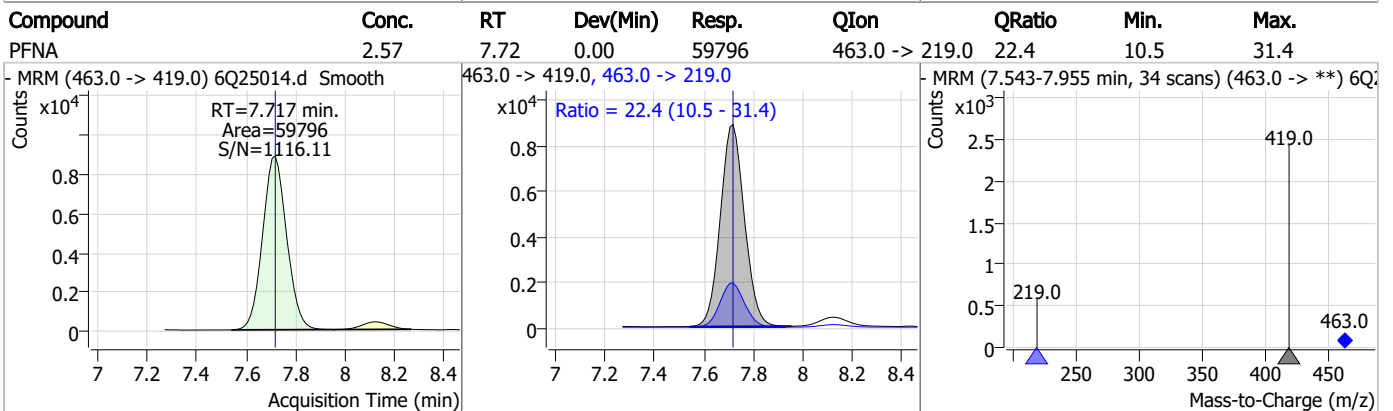
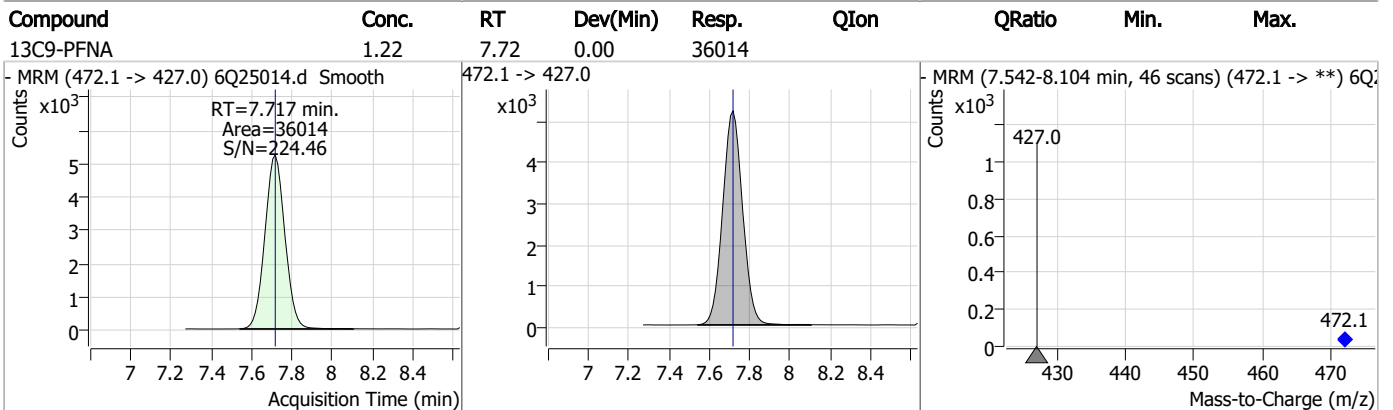
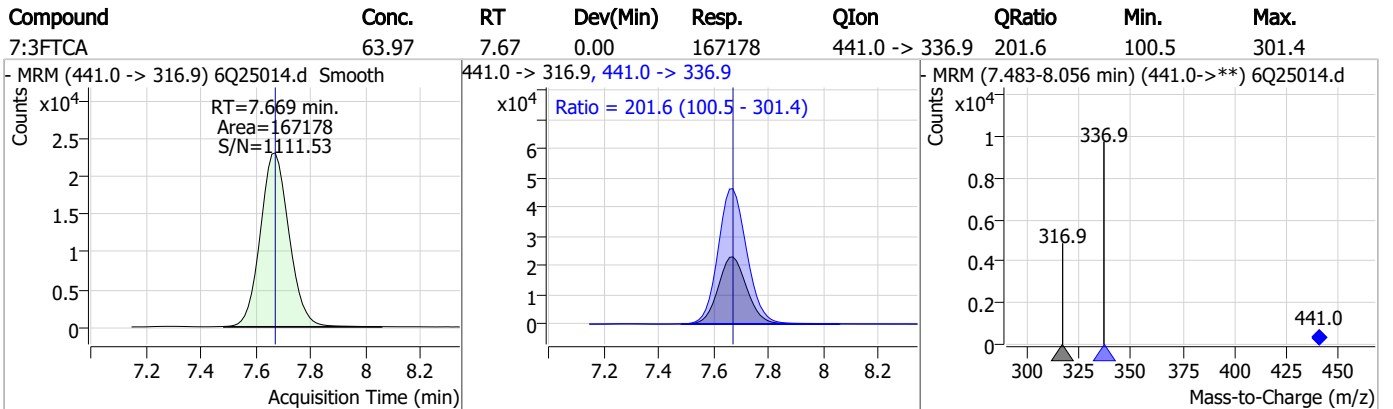
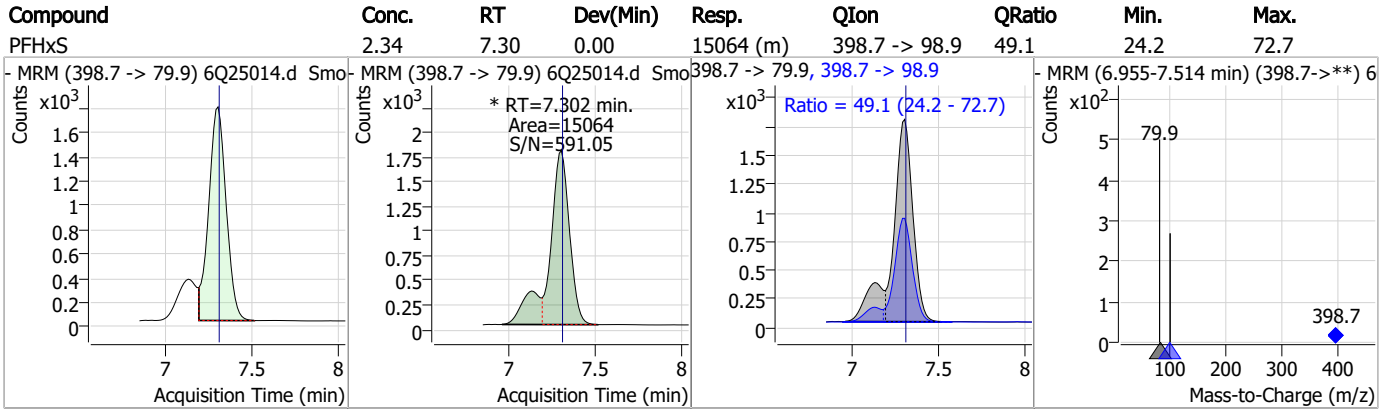
Perfluorinated Compounds by LC/MS/MS



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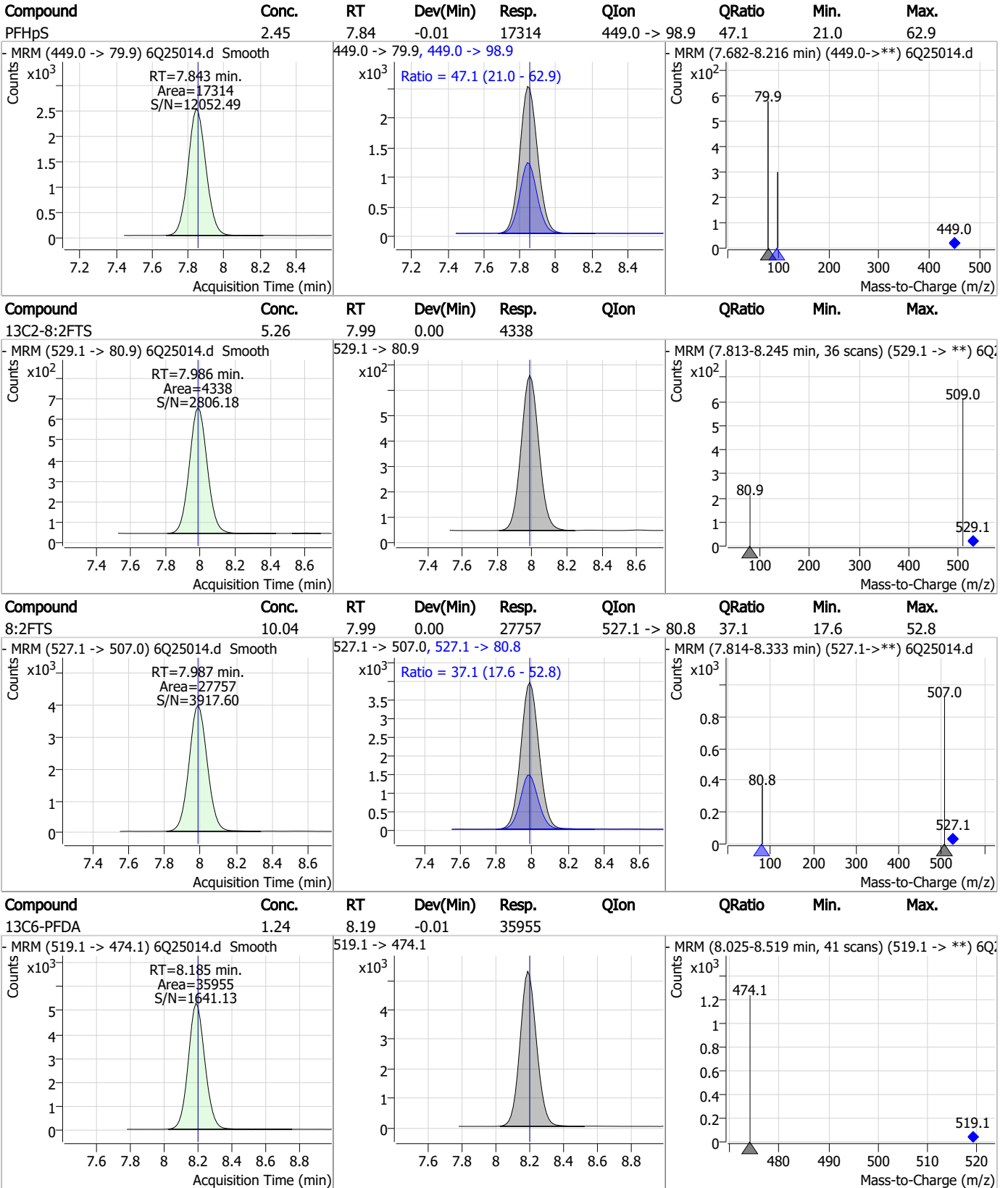
Perfluorinated Compounds by LC/MS/MS



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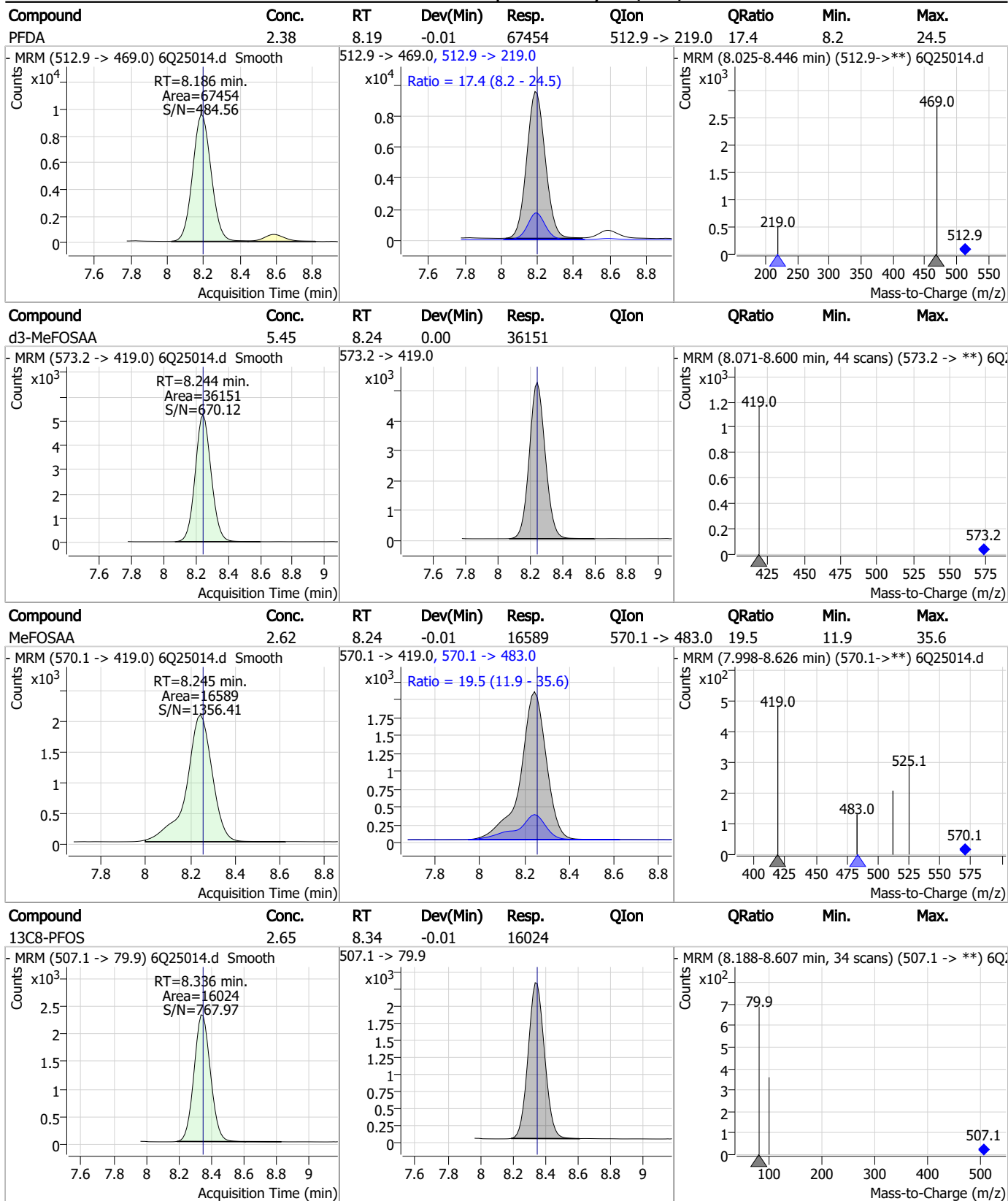
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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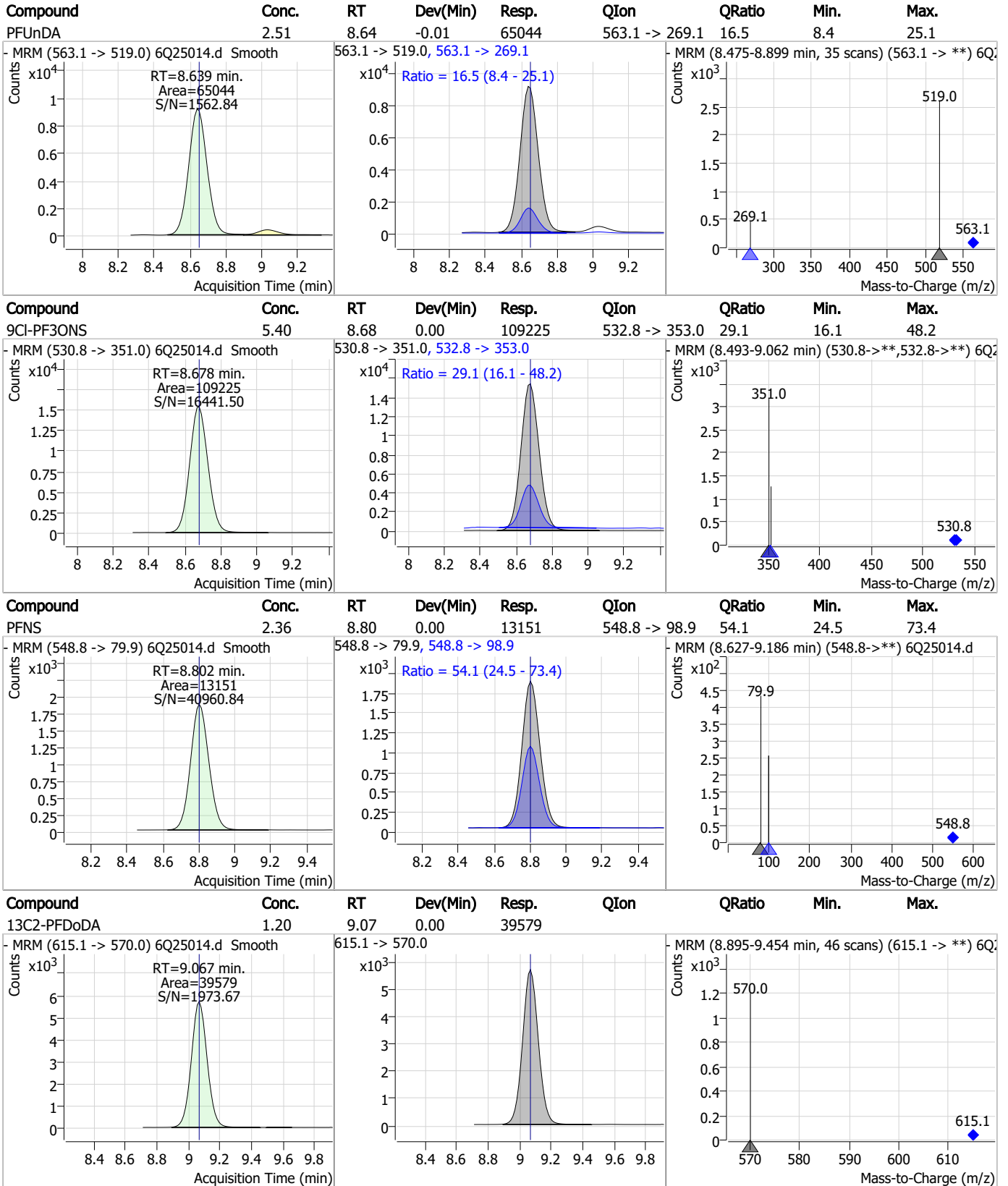


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.28	8.34	-0.01	15733	498.9 -> 98.8	53.6	36.4	109.1
d5-EtFOSAA	5.41	8.44	-0.01	27840				
EtFOSAA	2.58	8.45	0.00	11962	584.2 -> 526.0	62.9	30.1	90.2
13C7-PFUnDA	1.21	8.64	-0.01	39074				

7.7.17

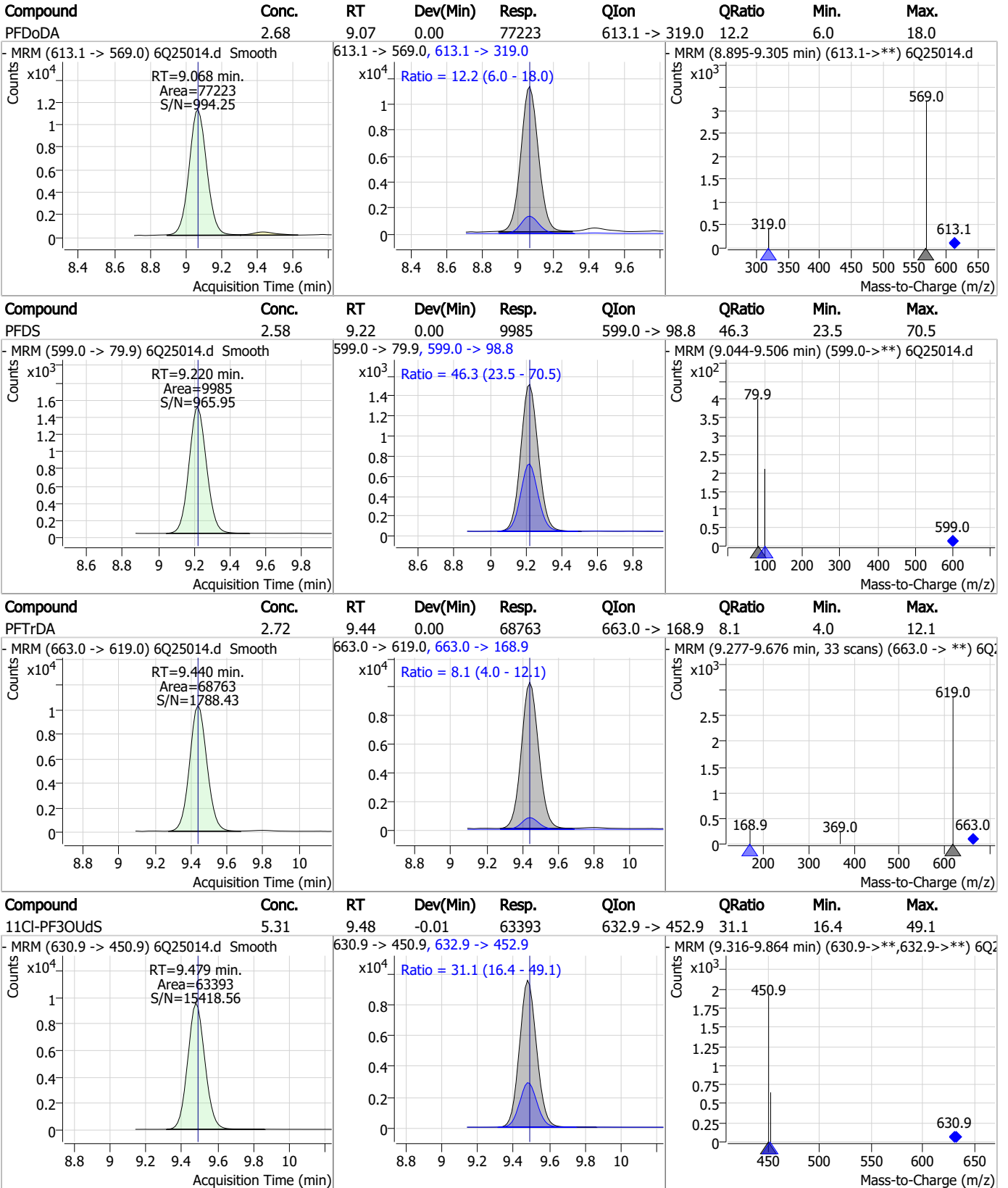
Perfluorinated Compounds by LC/MS/MS



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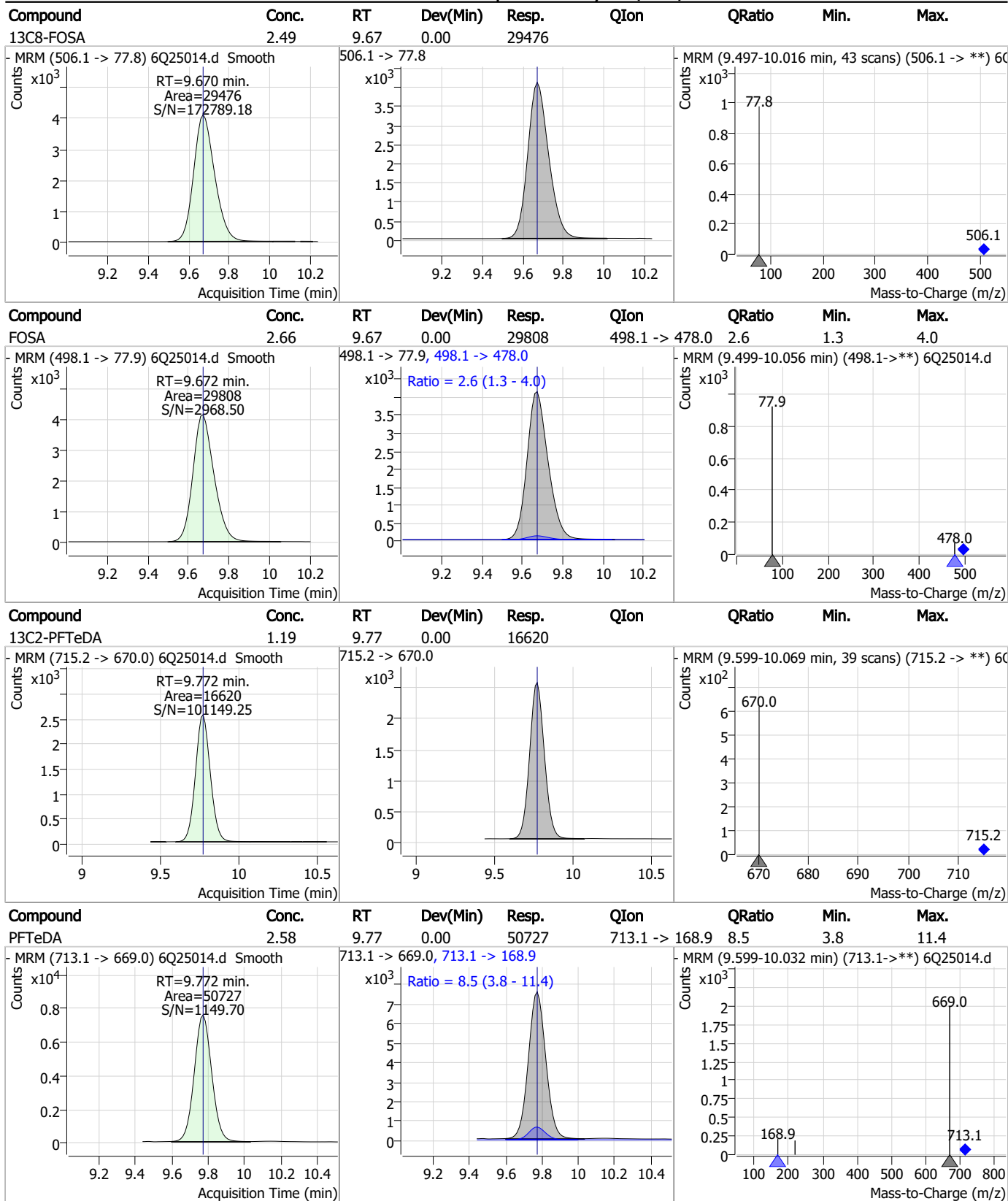
Perfluorinated Compounds by LC/MS/MS



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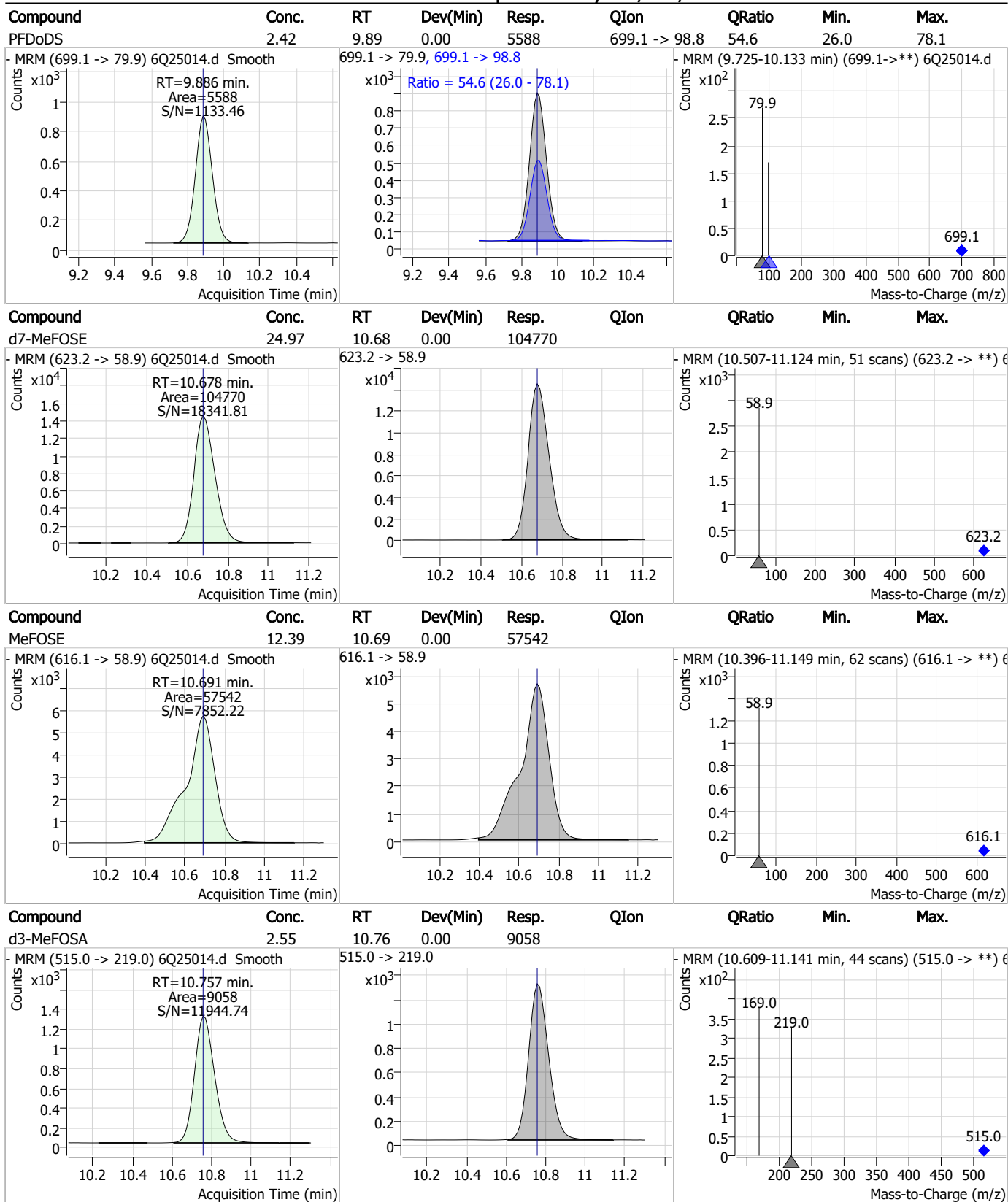
Perfluorinated Compounds by LC/MS/MS



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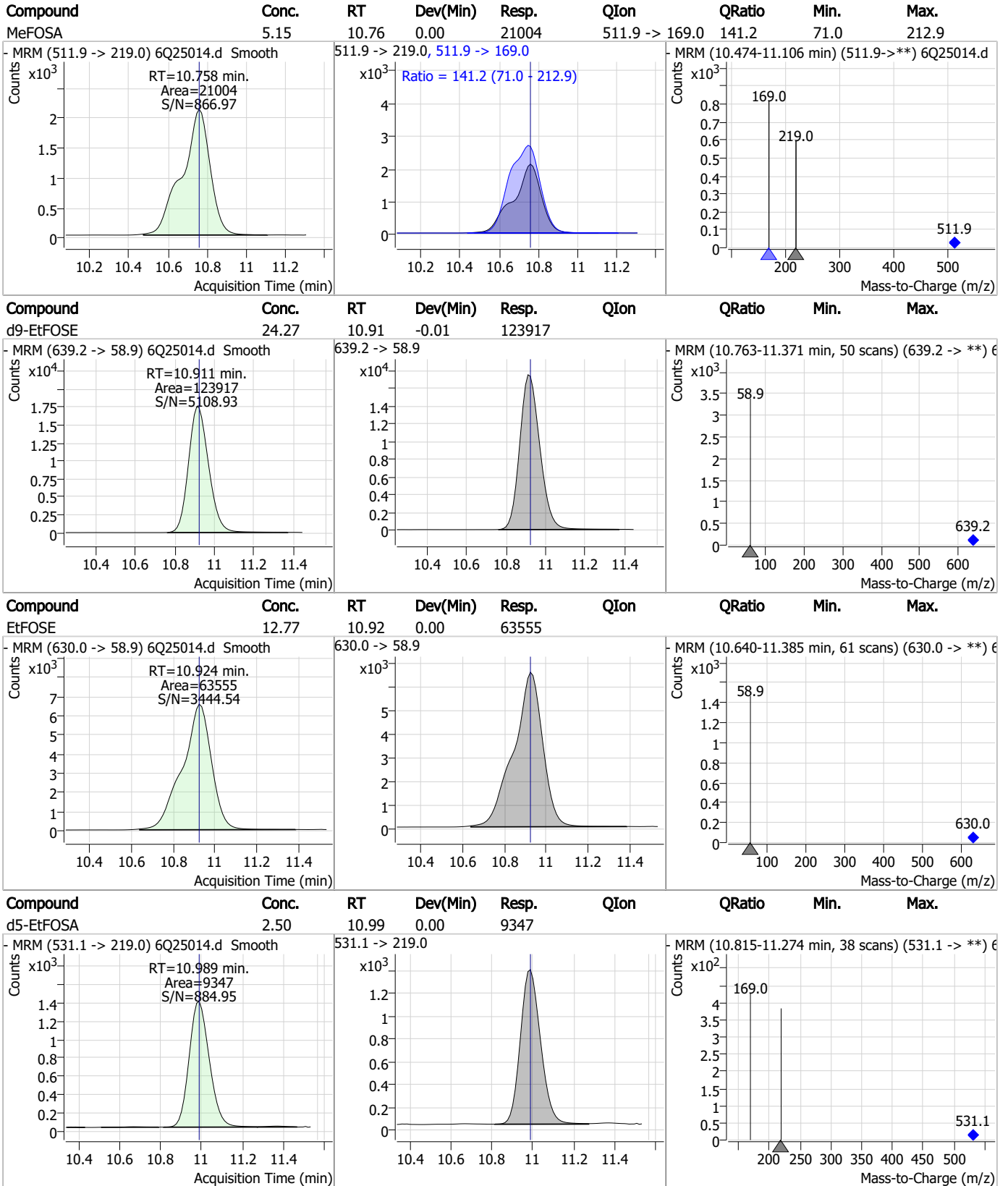


Perfluorinated Compounds by LC/MS/MS



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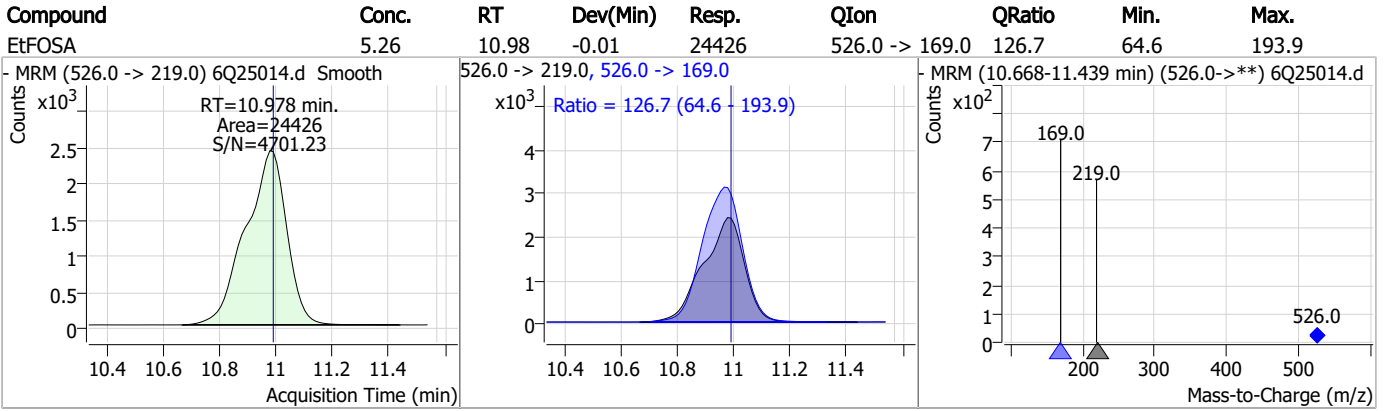
Perfluorinated Compounds by LC/MS/MS



7.7.17



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q356-CC356 Method: EPA DRAFT 1633
Lab FileID: 6Q25014.D Analyst approved: 09/26/23 10:09 Martha Valls
Injection Time: 09/25/23 13:40 Supervisor approved: 09/26/23 13:54 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q25024.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/25/2023 4:07:34 PM
 Sample Name : cc356-4
 Vial : P1-A5
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	179363	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	74436	5.00 µg/L	0.000
M5-PFHxA	5.629	318.0 -> 273.0	64767	2.50 µg/L	0.000
M4-PFHpA	6.556	367.1 -> 322.0	65725	2.50 µg/L	-0.012
M8-PFOA	7.186	421.1 -> 376.0	82861	2.50 µg/L	-0.012
M9-PFNA	7.704	472.1 -> 427.0	35843	1.25 µg/L	-0.012
M6-PFDA	8.185	519.1 -> 474.1	37780	1.25 µg/L	-0.012
M7-PFUnDA	8.639	570.0 -> 525.1	39605	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	40068	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	15223	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	30731	2.50 µg/L	0.000
M3-PFBS	5.546	302.1 -> 79.9	27061	2.50 µg/L	-0.013
M3-PFHxS	7.289	402.1 -> 79.9	16355	2.50 µg/L	-0.012
M8-PFOS	8.336	507.1 -> 79.9	16155	2.50 µg/L	-0.013
M2-4:2FTS	5.304	329.1 -> 80.9	2898	5.00 µg/L	0.000
M2-6:2FTS	6.961	429.1 -> 80.9	4376	5.00 µg/L	-0.012
M2-8:2FTS	7.986	529.1 -> 80.9	4060	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	35169	5.00 µg/L	0.000
M3-HFPO-DA	5.994	286.9 -> 168.9	45943	10.00 µg/L	-0.012
M5-EtFOSAA	8.439	589.2 -> 419.0	27377	5.00 µg/L	-0.012
M7-MeFOSE	10.678	623.2 -> 58.9	105349	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	124695	25.00 µg/L	-0.012
M5-EtFOSA	10.989	531.1 -> 219.0	9692	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9303	2.50 µg/L	0.000
13C4-PFOS	8.336	502.8 -> 79.9	14256	2.50 µg/L	-0.013
13C3-PFBA	2.976	216.0 -> 172.0	75713	5.00 µg/L	0.000
18O2-PFHxS	7.288	403.0 -> 83.9	10686	2.50 µg/L	-0.012
13C4-PFOA	7.187	417.1 -> 372.0	99730	2.50 µg/L	-0.012
13C2-PFDA	8.186	515.1 -> 470.1	31383	1.25 µg/L	-0.012
13C5-PFNA	7.717	468.0 -> 423.0	36268	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	65056	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2898	5.30 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.1%		
13C2-6:2FTS	6.961	429.1 -> 80.9	4376	5.04 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4060	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C2-PFDoDA	9.067	615.1 -> 570.0	40068	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.8%		
13C2-PFTeDA	9.772	715.2 -> 670.0	15223	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.8%		
13C3-PFBS	5.546	302.1 -> 79.9	27061	2.41 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.4%		
13C3-PFHxS	7.289	402.1 -> 79.9	16355	2.42 µg/L	-0.012

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C4-PFBA	2.972	216.8 -> 171.9	179363	9.80 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C4-PFHpA	6.556	367.1 -> 322.0	65725	2.48 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C5-PFHxA	5.629	318.0 -> 273.0	64767	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.7%	
13C5-PFPeA	4.409	268.3 -> 223.0	74436	4.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C6-PFDA	8.185	519.1 -> 474.1	37780	1.43 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 114.6%	
13C7-PFUnDA	8.639	570.0 -> 525.1	39605	1.34 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C8-FOSA	9.670	506.1 -> 77.8	30731	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C8-PFOA	7.186	421.1 -> 376.0	82861	2.40 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.9%	
13C8-PFOS	8.336	507.1 -> 79.9	16155	2.62 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C9-PFNA	7.704	472.1 -> 427.0	35843	1.23 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.3%	
d3-MeFOSAA	8.244	573.2 -> 419.0	35169	5.21 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.1%	
13C3-HFPO-DA	5.994	286.9 -> 168.9	45943	9.37 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.7%	
d3-MeFOSA	10.757	515.0 -> 219.0	9303	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
d5-EtFOSAA	8.439	589.2 -> 419.0	27377	5.22 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.3%	
d7-MeFOSE	10.678	623.2 -> 58.9	105349	24.63 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.5%	
d9-EtFOSE	10.911	639.2 -> 58.9	124695	23.96 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.9%	
d5-EtFOSA	10.989	531.1 -> 219.0	9692	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.6%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	48102	10.14 µg/L	93
		327.1 -> 80.9	18667		
6:2FTS	6.962	427.1 -> 407.0	38364	10.17 µg/L	97
		427.1 -> 80.9	15979		
8:2FTS	7.987	527.1 -> 507.0	27188	10.50 µg/L	90
		527.1 -> 80.8	11179		
EtFOSAA	8.452	584.2 -> 419.1	11934	2.62 µg/L	97
		584.2 -> 526.0	7476		
FOSA	9.672	498.1 -> 77.9	30130	2.58 µg/L	99
		498.1 -> 478.0	891		
MeFOSAA	8.245	570.1 -> 419.0	16125	2.62 µg/L	95
		570.1 -> 483.0	3395		
PFBA	2.981	212.8 -> 168.9	66955	10.46 µg/L	100
PFBS	5.547	298.7 -> 79.9	20263	2.30 µg/L	99
		298.7 -> 98.8	7432		
PFDA	8.186	512.9 -> 469.0	70015	2.35 µg/L	98
		512.9 -> 219.0	11902		
PFDODA	9.068	613.1 -> 569.0	72883	2.50 µg/L	98
		613.1 -> 319.0	9295		
PFDS	9.220	599.0 -> 79.9	9626	2.46 µg/L	97

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	4716			
PFHpA	6.557	363.1 -> 319.0	89317	2.51	µg/L	100
		363.1 -> 169.0	12591			
PFHpS	7.843	449.0 -> 79.9	16561	2.32	µg/L	83
		449.0 -> 98.9	8714			
PFHxA	5.631	313.0 -> 269.0	61248	2.63	µg/L	99
		313.0 -> 118.9	2837			
PFHxS	7.290	398.7 -> 79.9	15711	2.47	µg/L	m 94
		398.7 -> 98.9	6933			
PFNA	7.717	463.0 -> 419.0	58292	2.51	µg/L	95
		463.0 -> 219.0	13540			
PFNS	8.802	548.8 -> 79.9	13446	2.39	µg/L	95
		548.8 -> 98.9	7057			
PFOA	7.187	413.0 -> 369.0	95295	2.68	µg/L	98
		413.0 -> 169.0	16426			
PFOS	8.337	498.9 -> 79.9	16954	2.43	µg/L	m 68
		498.9 -> 98.8	7846			
PFPeA	4.411	263.0 -> 219.0	76444	5.10	µg/L	100
PFPeS	6.608	349.1 -> 79.9	21409	2.41	µg/L	97
		349.1 -> 98.9	9773			
PFTeDA	9.772	713.1 -> 669.0	51575	2.87	µg/L	99
		713.1 -> 168.9	4083			
PFTrDA	9.440	663.0 -> 619.0	67228	2.63	µg/L	100
		663.0 -> 168.9	5392			
PFUnDA	8.639	563.1 -> 519.0	65664	2.50	µg/L	99
		563.1 -> 269.1	10709			
11CI-PF3OUdS	9.479	630.9 -> 450.9	62812	5.23	µg/L	99
		632.9 -> 452.9	20309			
9CI-PF3ONS	8.666	530.8 -> 351.0	108677	5.33	µg/L	93
		532.8 -> 353.0	30937			
ADONA	6.804	376.9 -> 250.9	284288	5.04	µg/L	95
		376.9 -> 84.8	75581			
HFPO-DA	6.007	284.9 -> 168.9	22120	4.89	µg/L	98
		284.9 -> 184.9	2456			
3:3FTCA	3.846	241.0 -> 177.0	12886	12.39	µg/L	99
		241.0 -> 117.0	1503			
5:3FTCA	6.271	341.0 -> 237.1	284754	65.15	µg/L	97
		341.0 -> 217.0	190983			
7:3FTCA	7.657	441.0 -> 316.9	162229	65.52	µg/L	90
		441.0 -> 336.9	350306			
EtFOSA	10.978	526.0 -> 219.0	24325	5.05	µg/L	97
		526.0 -> 169.0	32217			
EtFOSE	10.924	630.0 -> 58.9	63913	12.77	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	21570	5.15	µg/L	96
		511.9 -> 169.0	29498			
MeFOSE	10.691	616.1 -> 58.9	58155	12.46	µg/L	100
PFDoDS	9.886	699.1 -> 79.9	5380	2.31	µg/L	91
		699.1 -> 98.8	3162			
NFDHA	5.512	295.0 -> 201.0	15538	5.20	µg/L	99
		295.0 -> 84.9	4055			
PFMBA	4.838	279.0 -> 85.1	59276	4.92	µg/L	100
PFMPA	3.538	229.0 -> 84.9	44156	4.94	µg/L	100
PFEESA	6.100	314.8 -> 134.9	133224	4.61	µg/L	100
		314.8 -> 82.9	4896			

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



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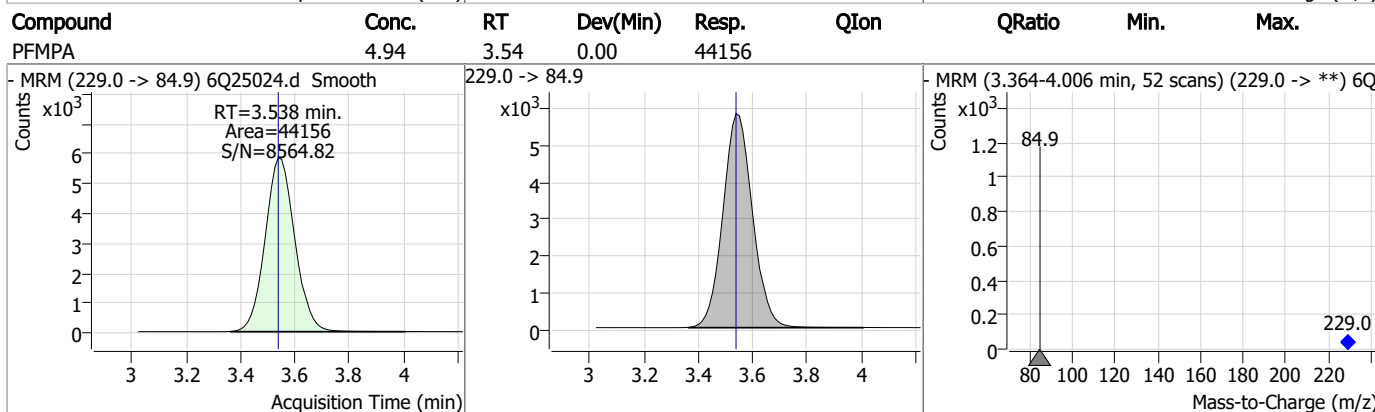
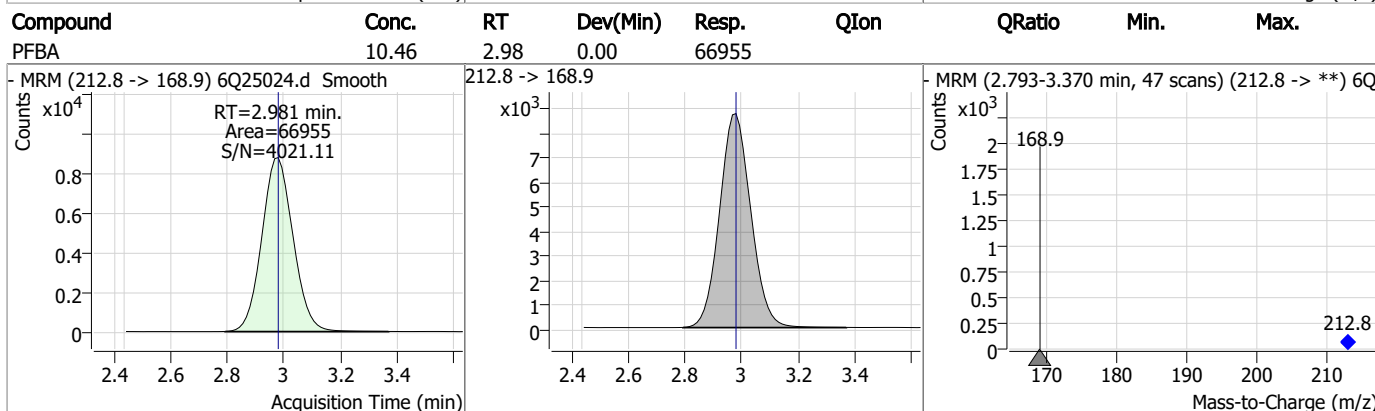
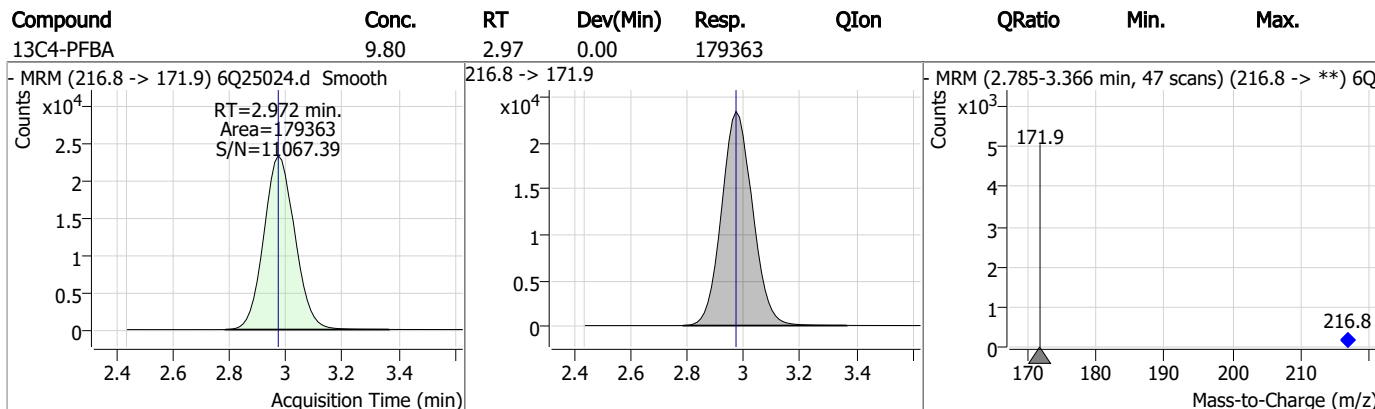
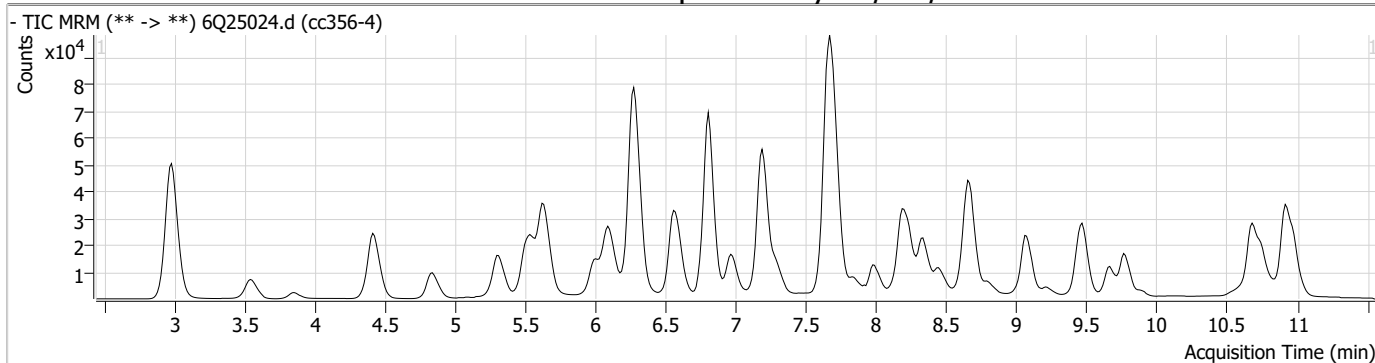
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.18

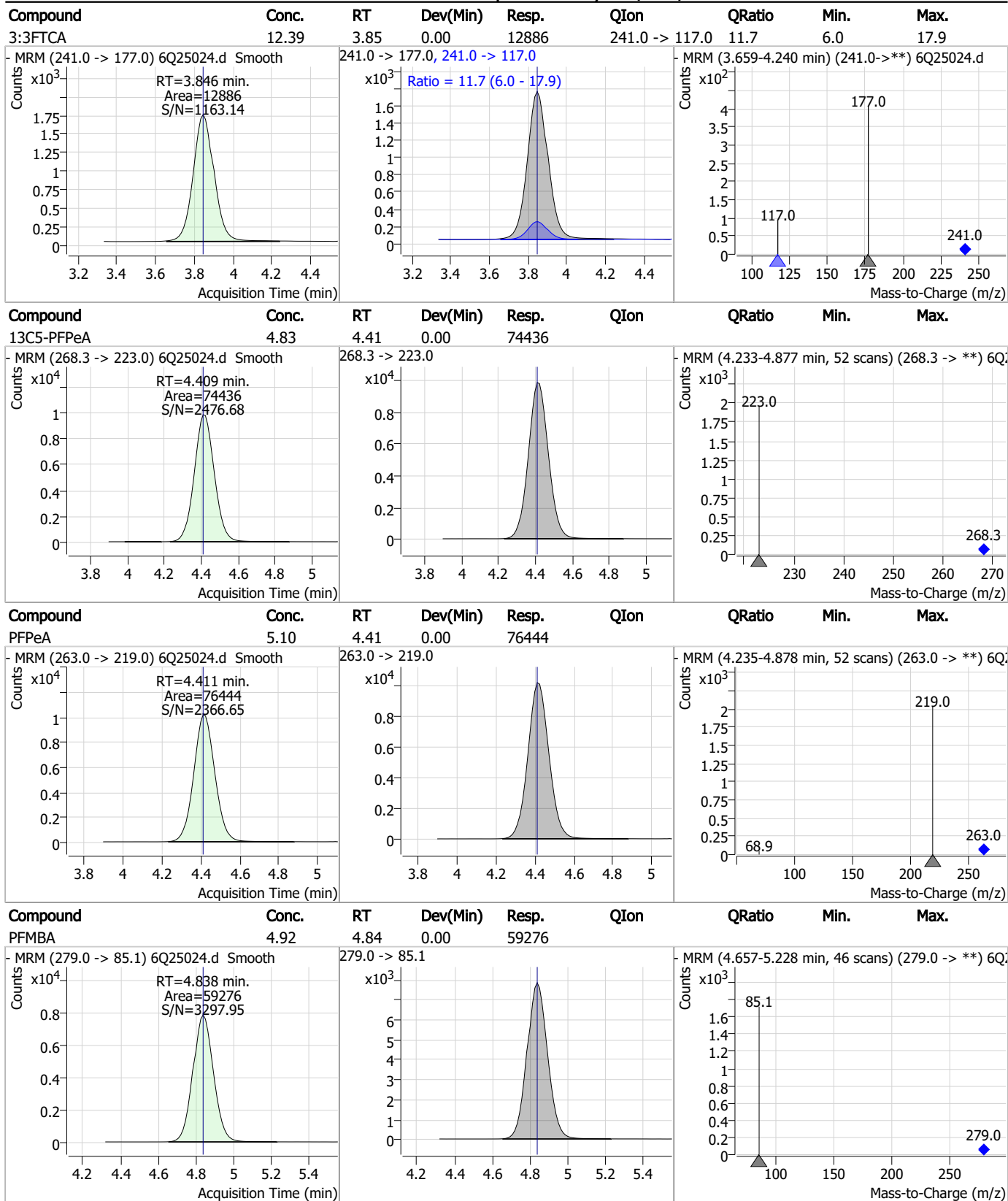
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Perfluorinated Compounds by LC/MS/MS



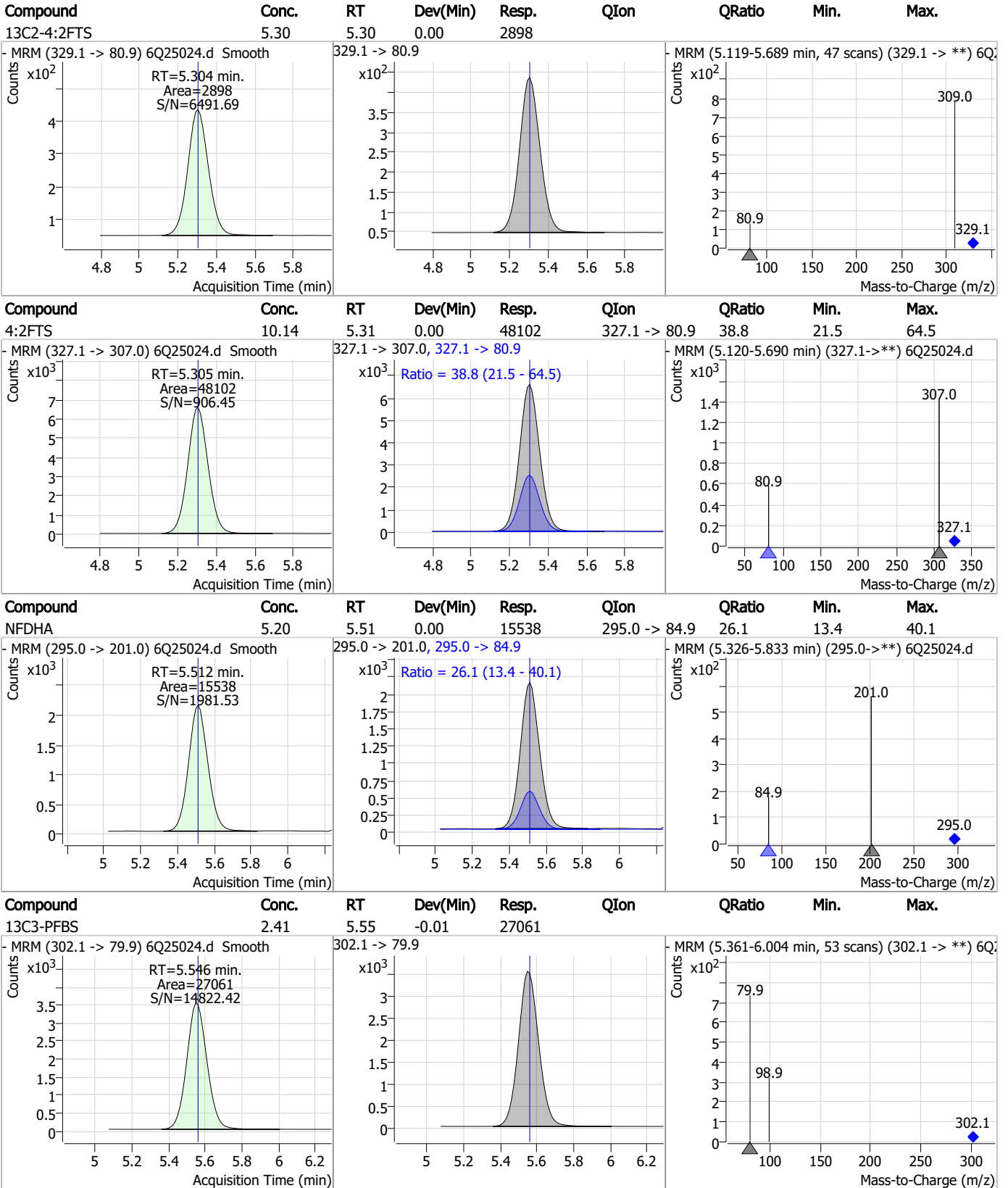
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Perfluorinated Compounds by LC/MS/MS



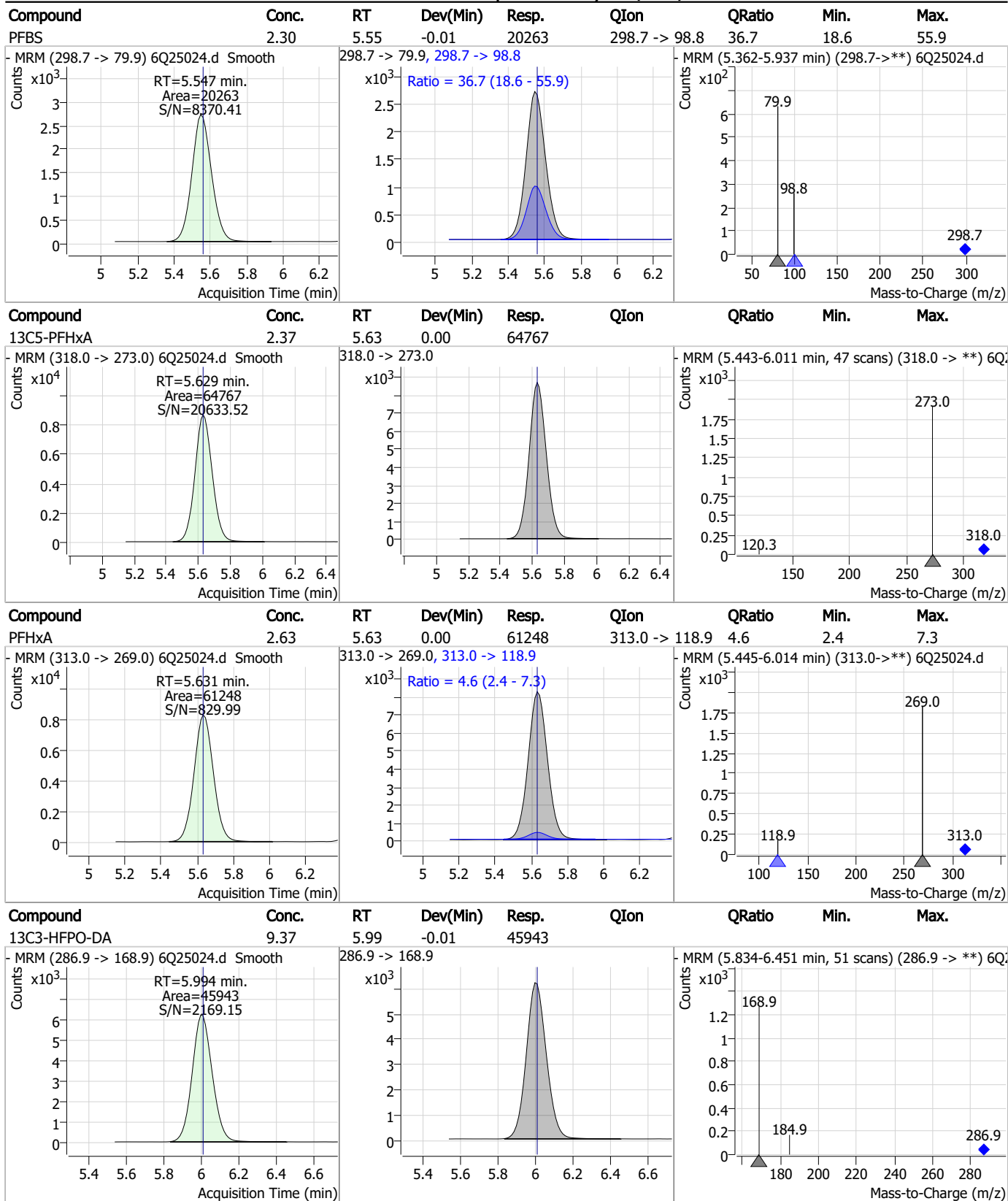
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Perfluorinated Compounds by LC/MS/MS



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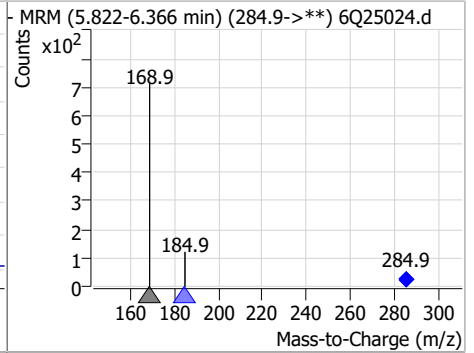
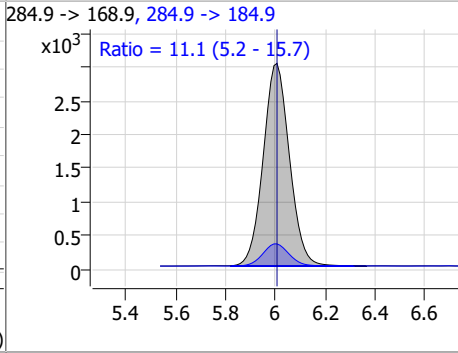
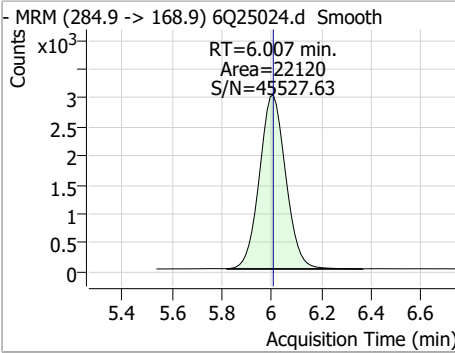
Perfluorinated Compounds by LC/MS/MS



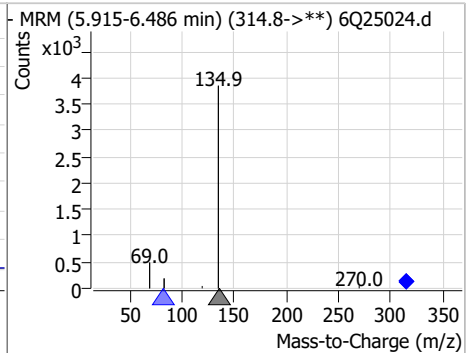
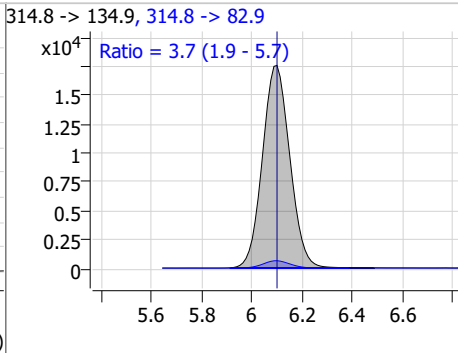
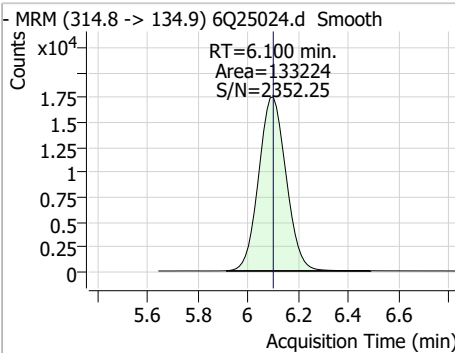
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Perfluorinated Compounds by LC/MS/MS

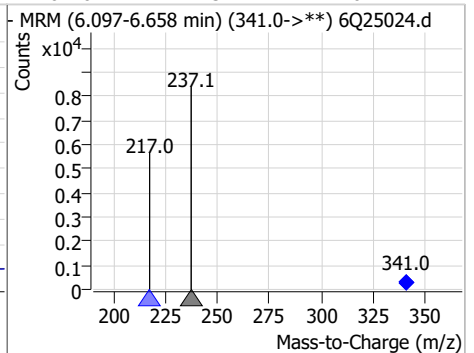
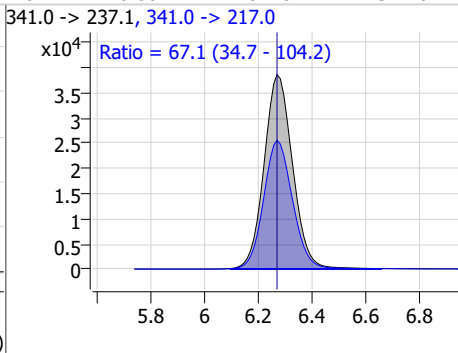
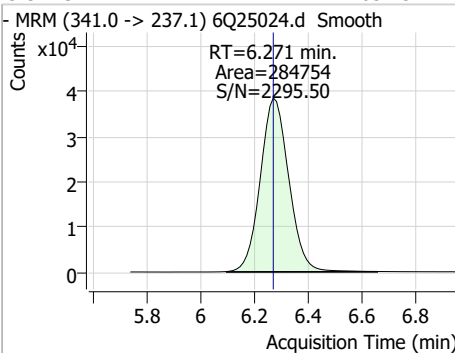
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.89	6.01	0.00	22120	284.9 -> 184.9	11.1	5.2	15.7



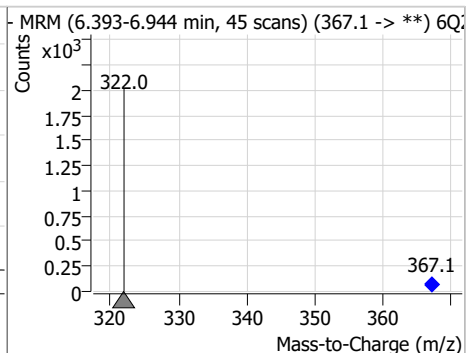
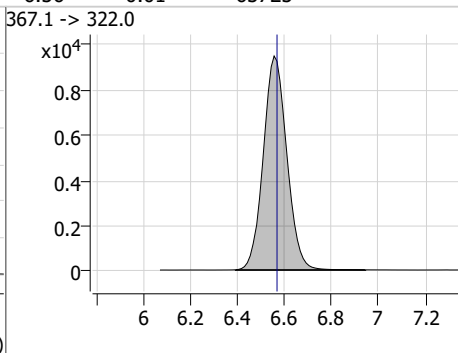
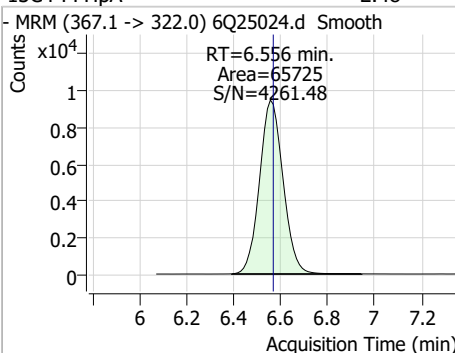
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.61	6.10	0.00	133224	314.8 -> 82.9	3.7	1.9	5.7



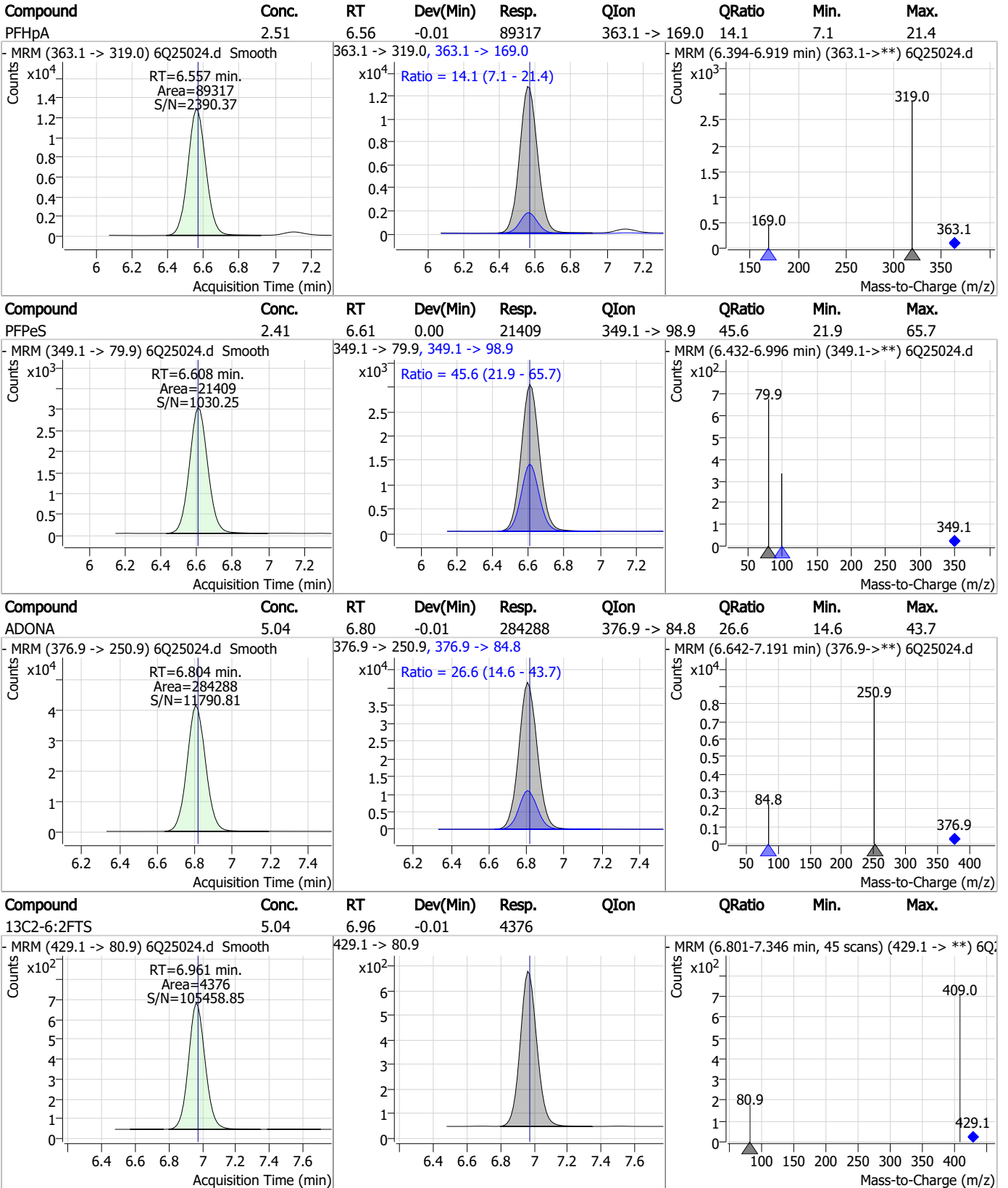
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	65.15	6.27	0.00	284754	341.0 -> 217.0	67.1	34.7	104.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.48	6.56	-0.01	65725	367.1 -> 322.0			



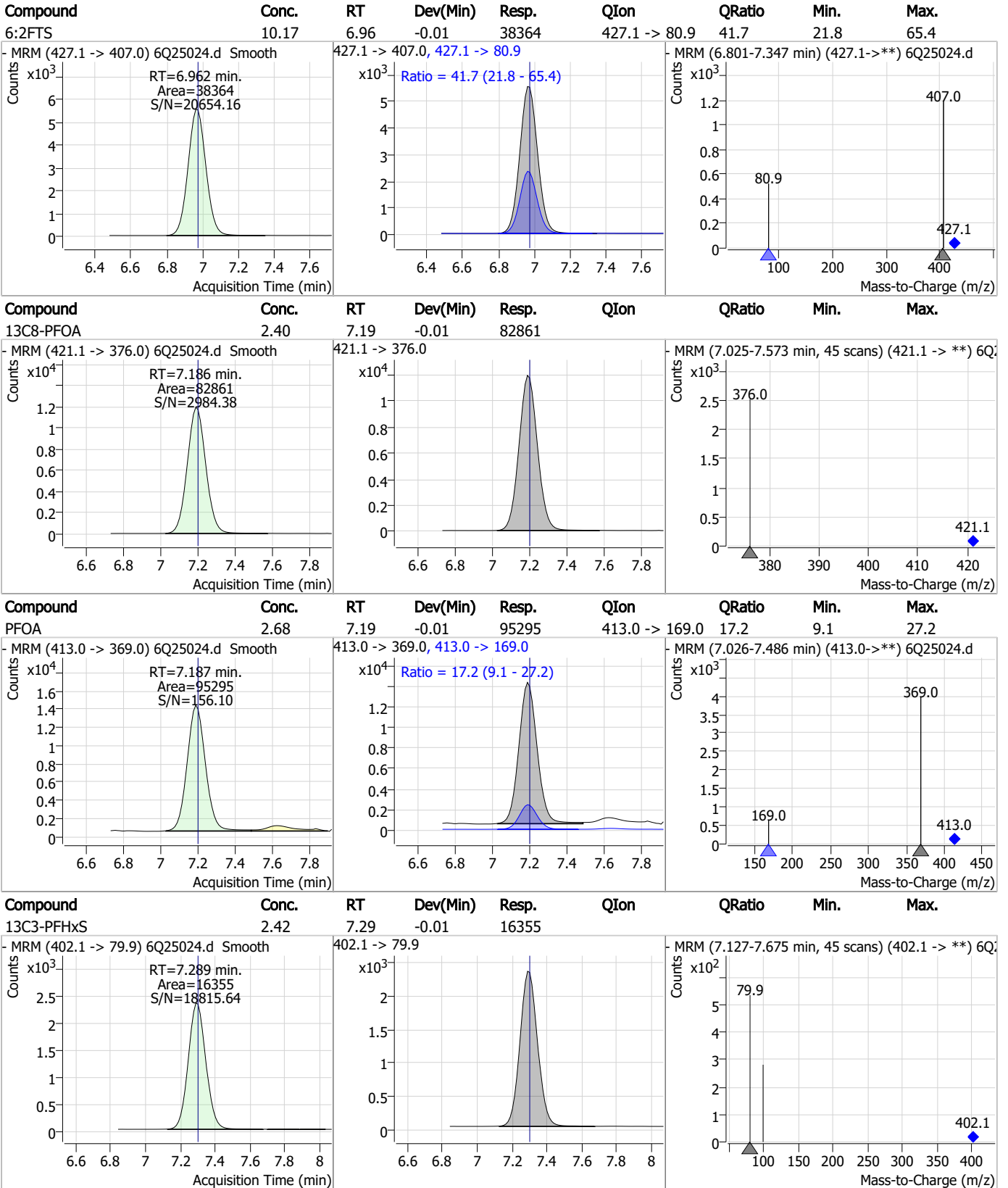
Perfluorinated Compounds by LC/MS/MS



7.7.18 7



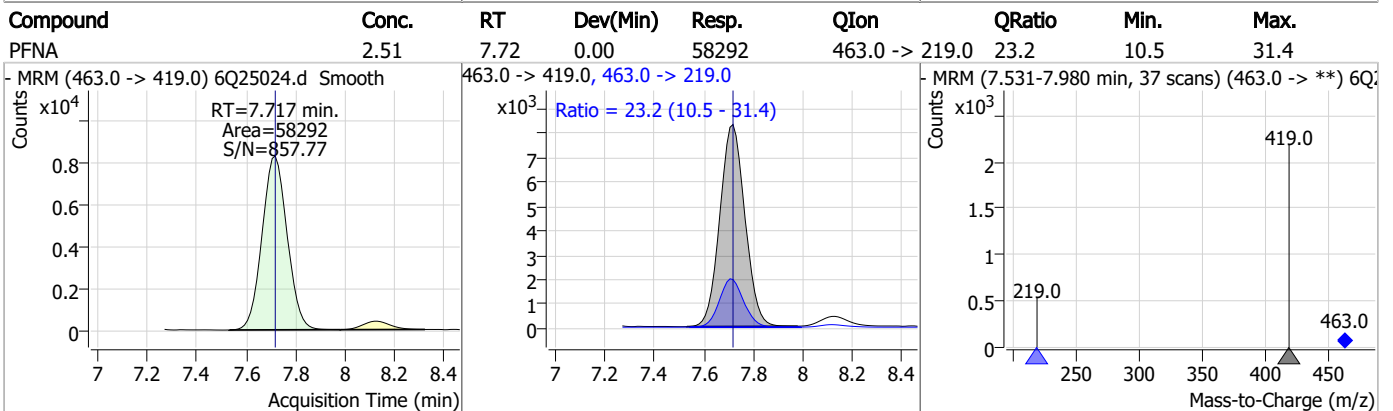
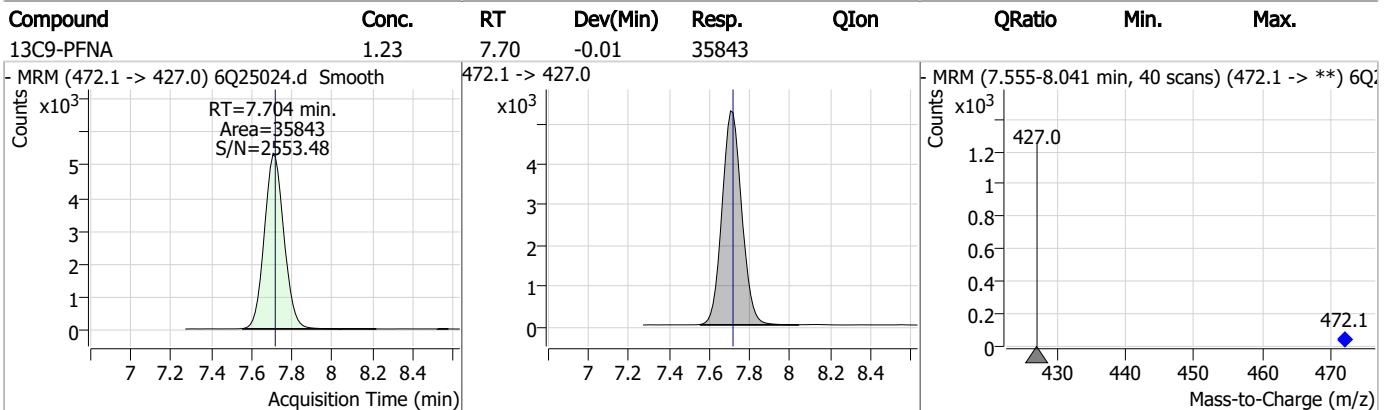
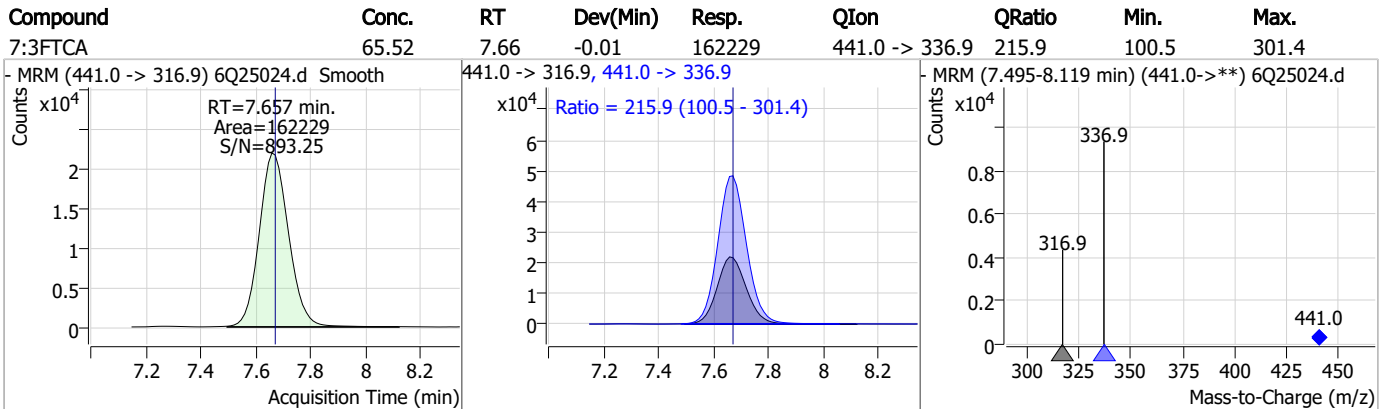
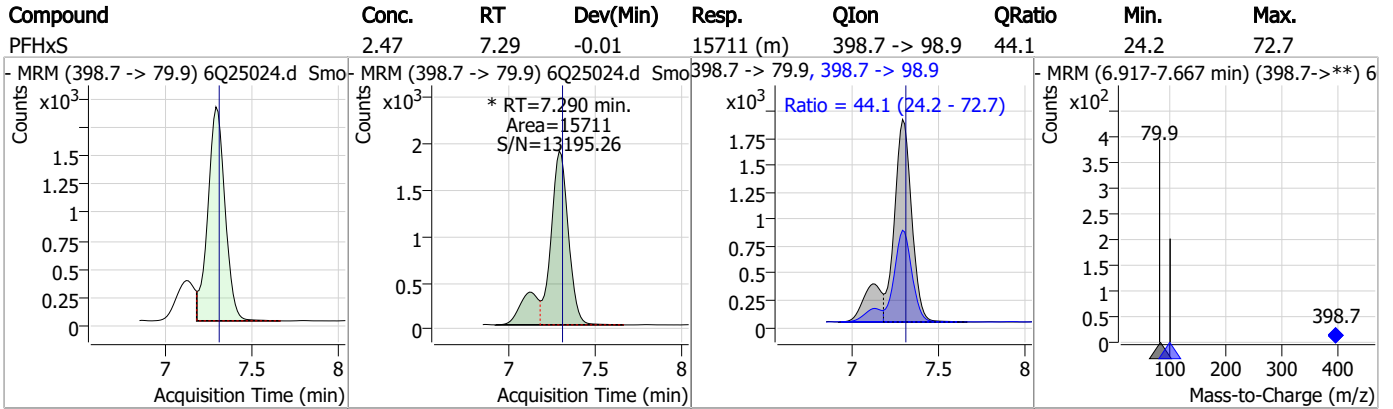
Perfluorinated Compounds by LC/MS/MS



7.7.18 7



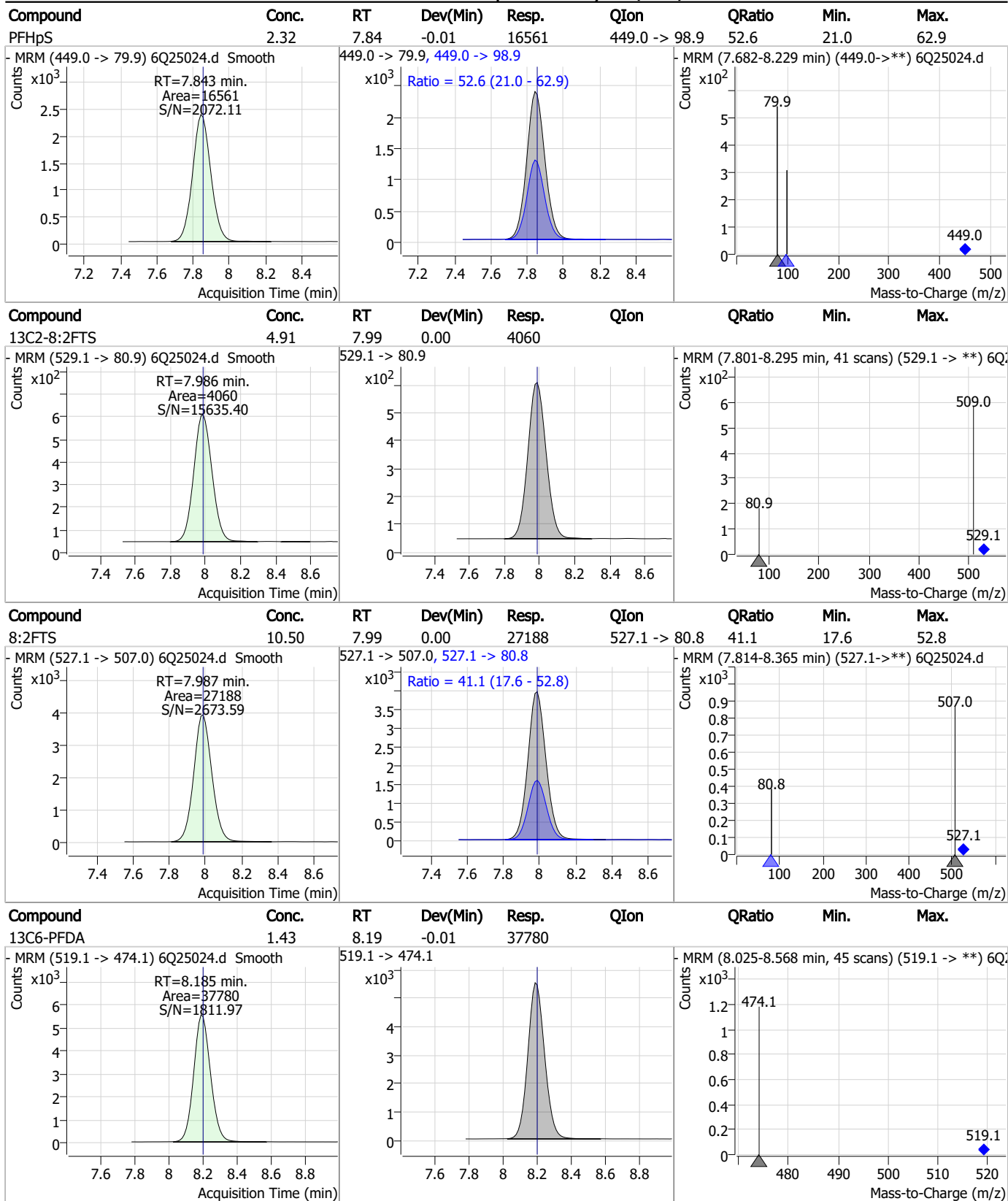
Perfluorinated Compounds by LC/MS/MS



7.7.18 7



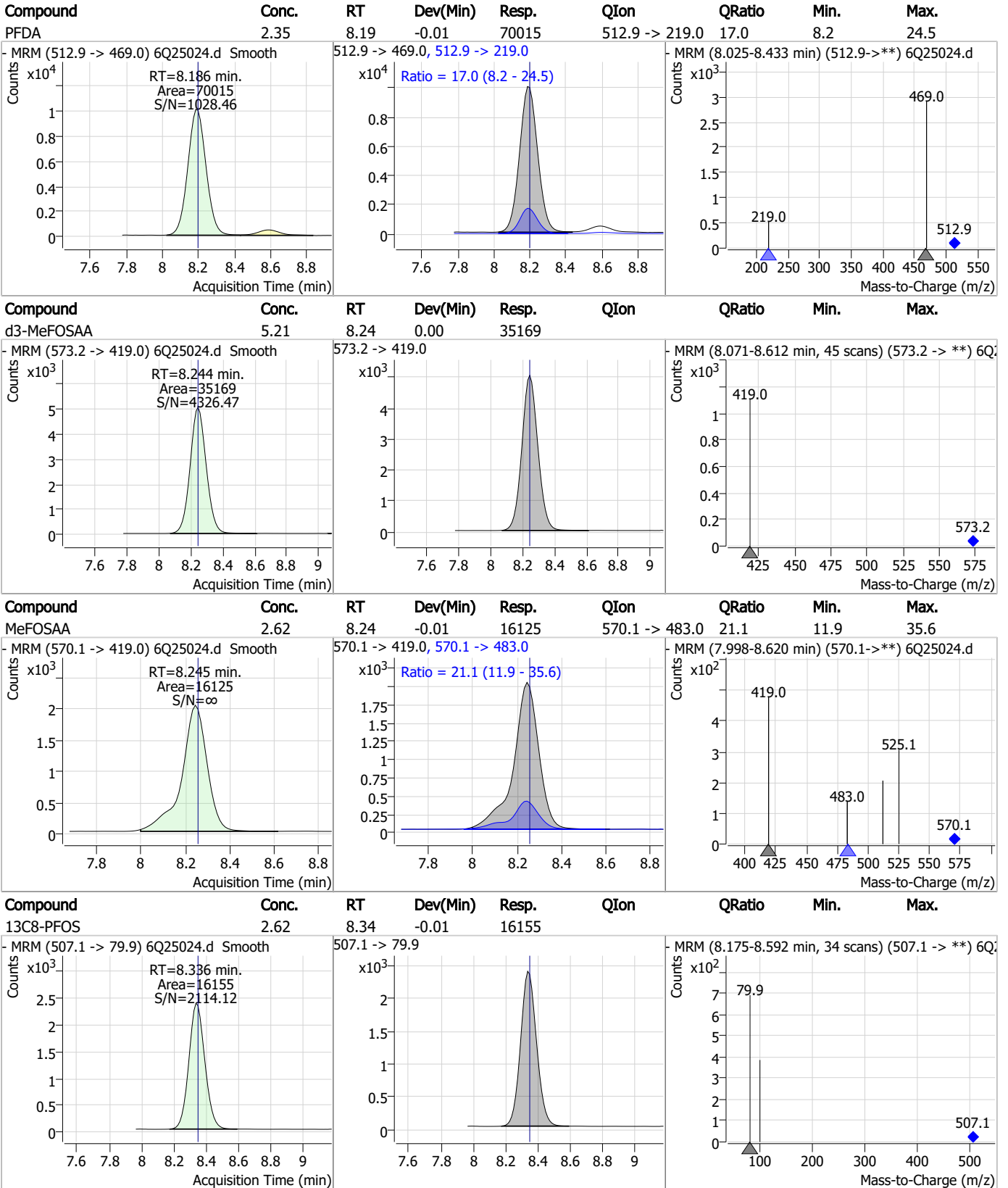
Perfluorinated Compounds by LC/MS/MS



7.7.18
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Perfluorinated Compounds by LC/MS/MS

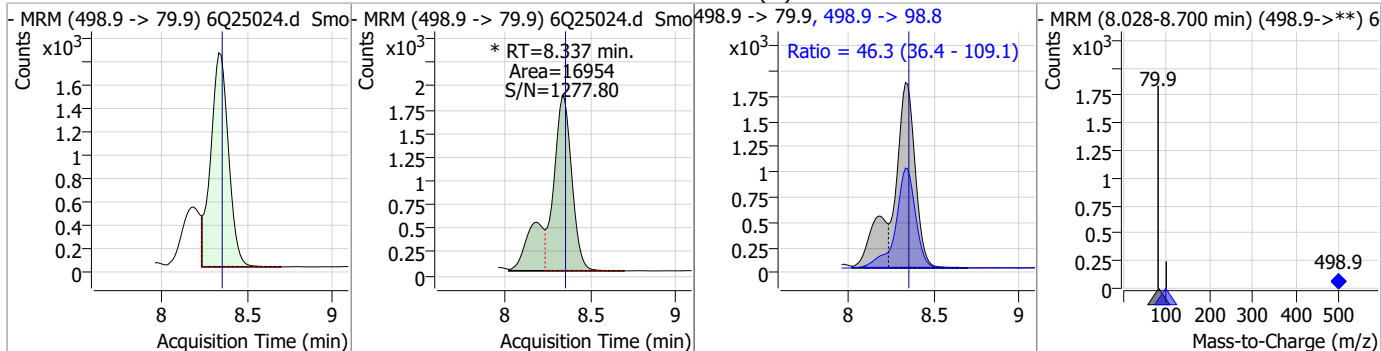


7.7.18 7

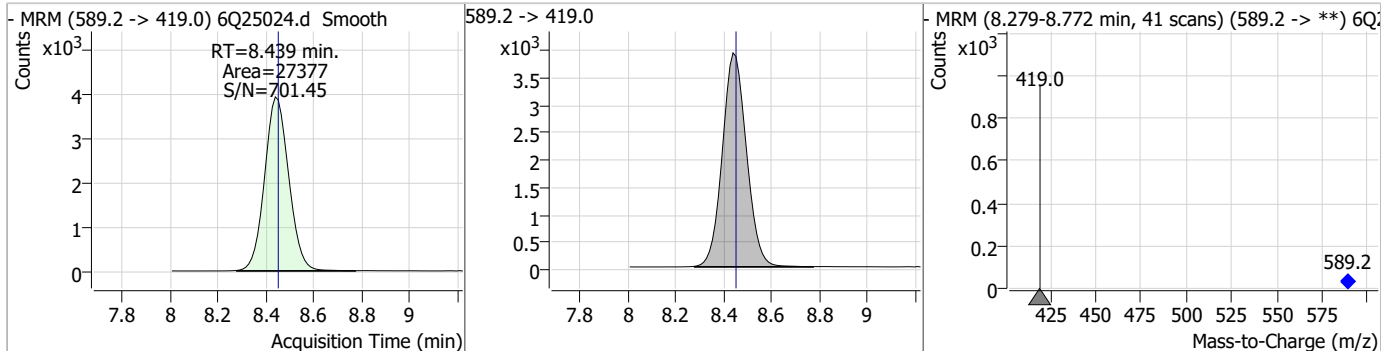


Perfluorinated Compounds by LC/MS/MS

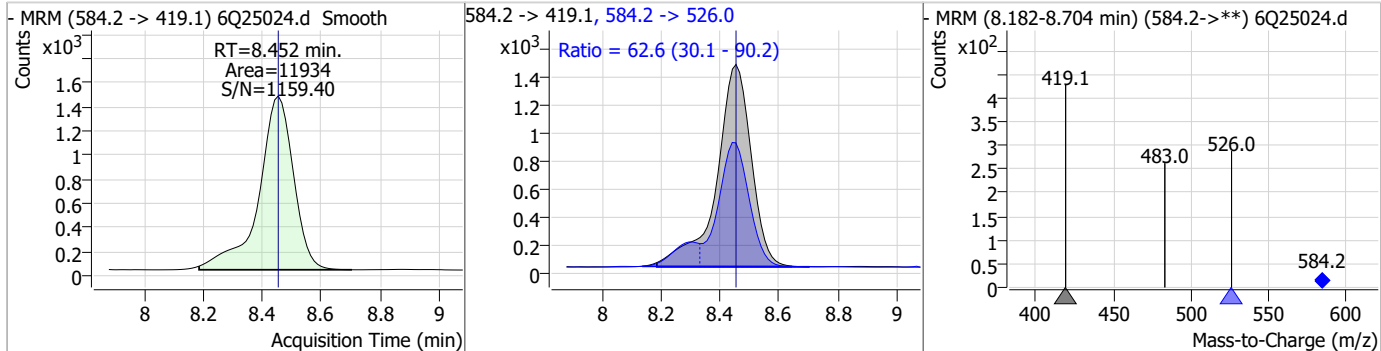
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.43	8.34	-0.01	16954 (m)	498.9 -> 98.8	46.3	36.4	109.1



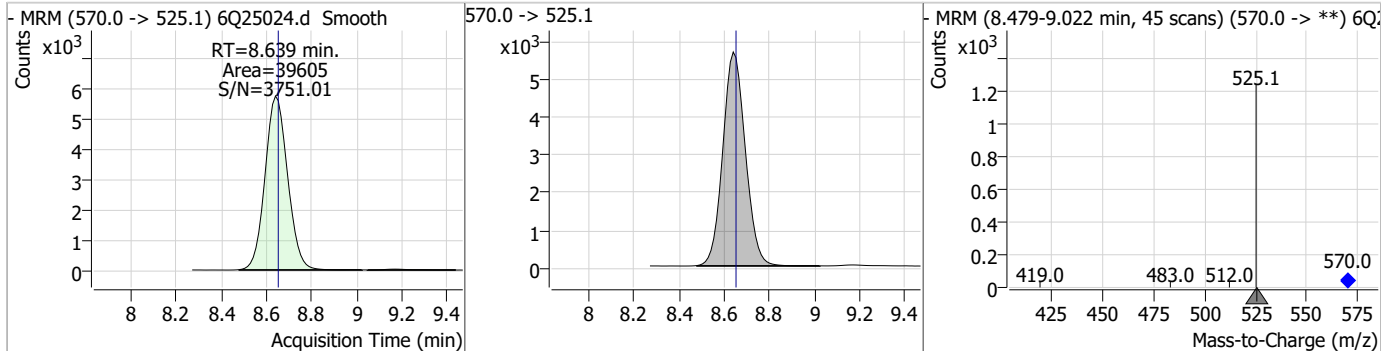
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.22	8.44	-0.01	27377				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.62	8.45	0.00	11934	584.2 -> 526.0	62.6	30.1	90.2

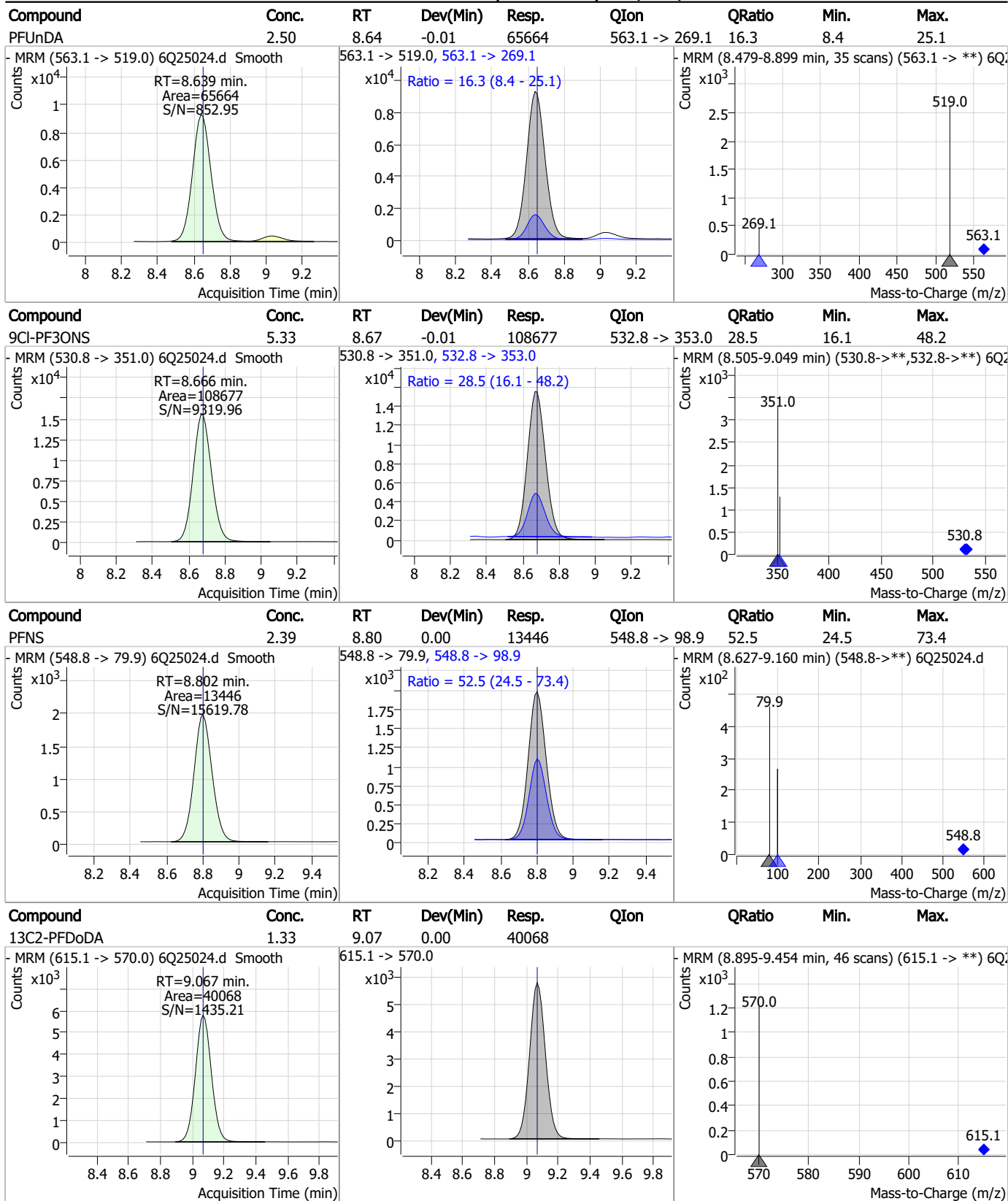


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.34	8.64	-0.01	39605				



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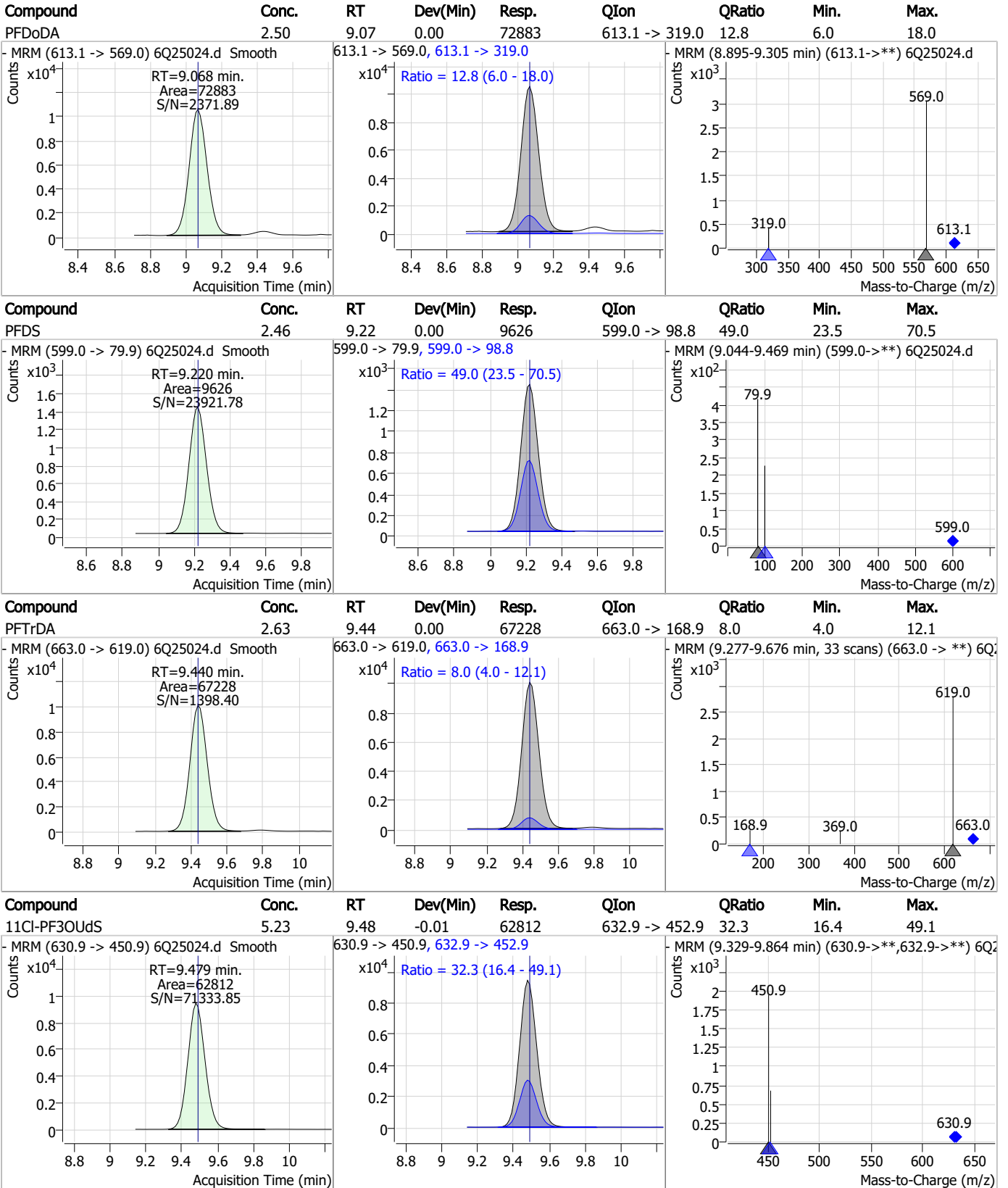
Perfluorinated Compounds by LC/MS/MS



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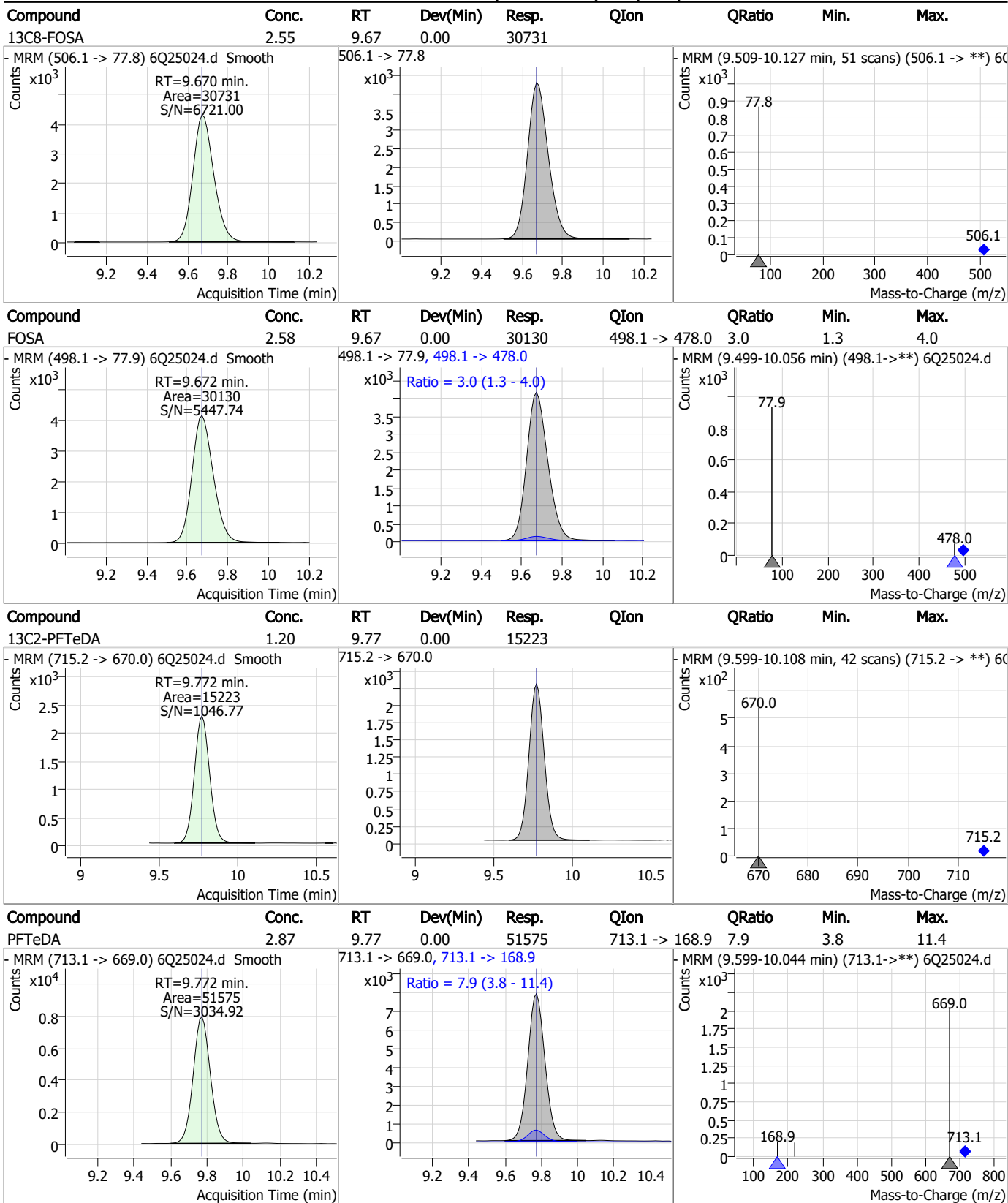
Perfluorinated Compounds by LC/MS/MS



7.7.18 7

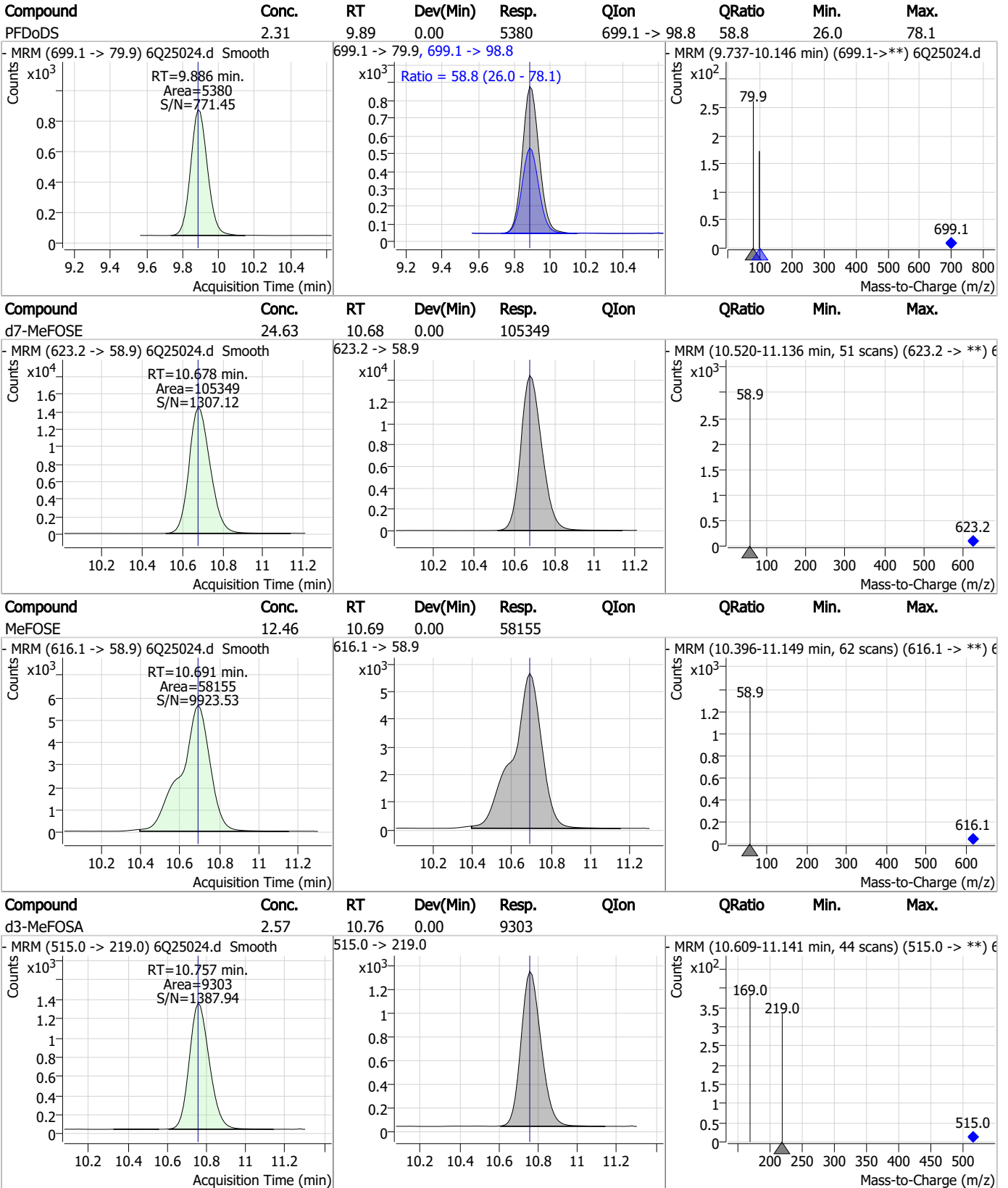


Perfluorinated Compounds by LC/MS/MS



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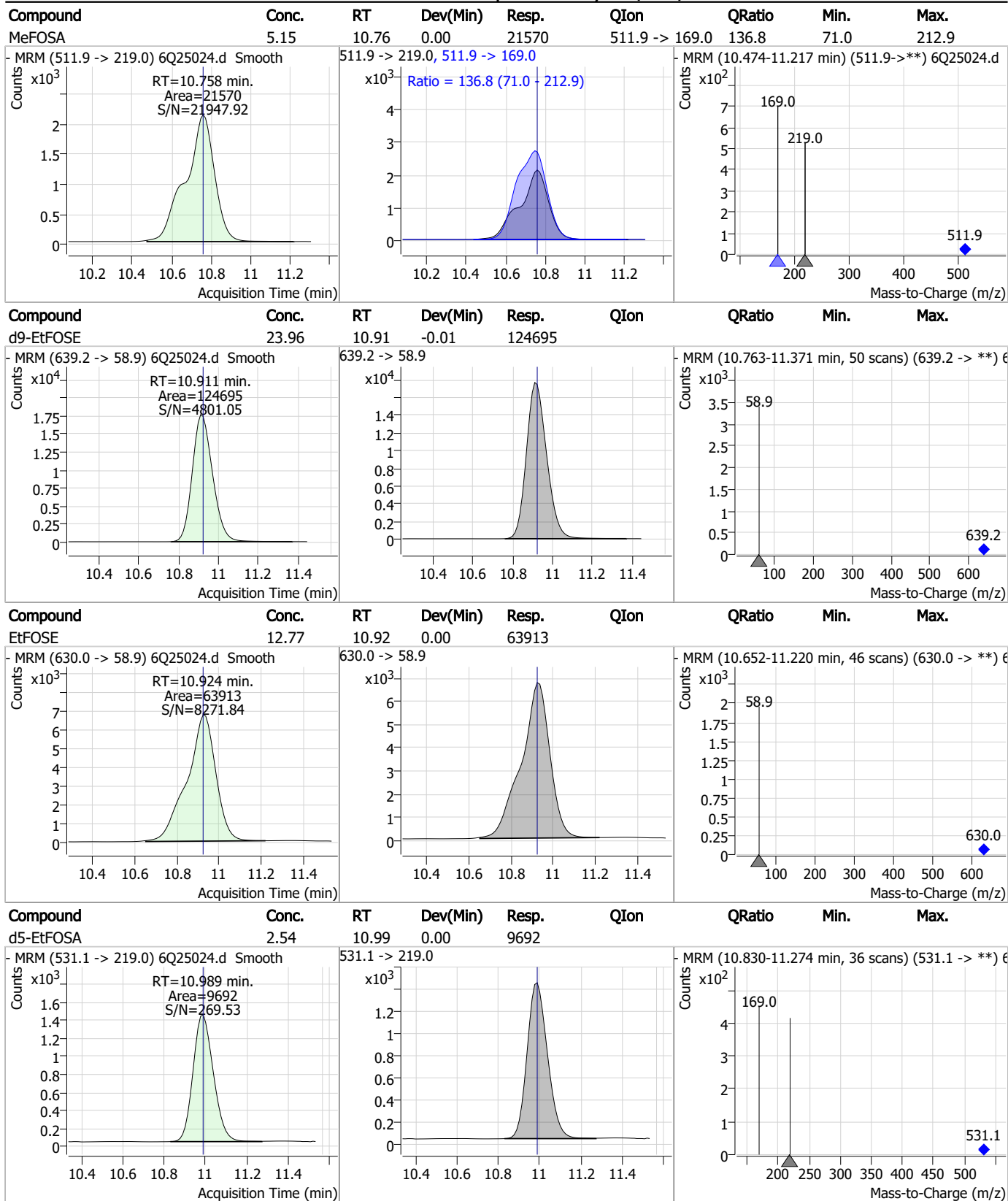
Perfluorinated Compounds by LC/MS/MS



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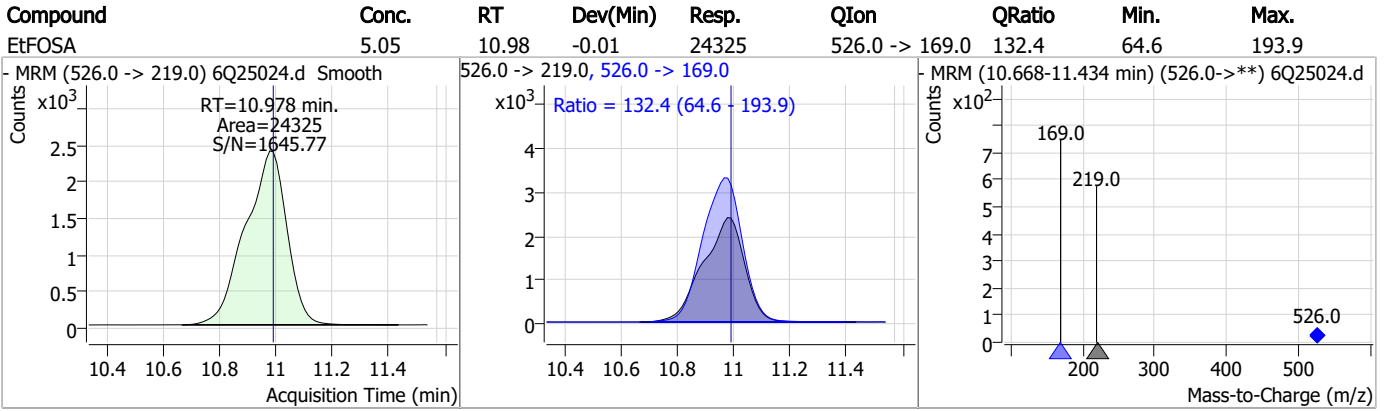


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q356-CC356 Method: EPA DRAFT 1633
Lab FileID: 6Q25024.D Analyst approved: 09/26/23 10:09 Martha Valls
Injection Time: 09/25/23 16:07 Supervisor approved: 09/26/23 13:54 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.34	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q25025.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/25/2023 4:21:54 PM
 Sample Name : cc356-1.0LL
 Vial : P1-A2
 DA Method File : 1633_092423_S6Q356.quantmethod.xml
 Batch Name : s6q356.batch.bin
 Sample Information : OP99081,S6Q356,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	191303	10.00 µg/L	0.000
M5-PFPeA	4.409	268.3 -> 223.0	79721	5.00 µg/L	0.000
M5-PFHxA	5.629	318.0 -> 273.0	72213	2.50 µg/L	0.000
M4-PFHpA	6.556	367.1 -> 322.0	68816	2.50 µg/L	-0.012
M8-PFOA	7.186	421.1 -> 376.0	93465	2.50 µg/L	-0.012
M9-PFNA	7.704	472.1 -> 427.0	36137	1.25 µg/L	-0.012
M6-PFDA	8.185	519.1 -> 474.1	37580	1.25 µg/L	-0.012
M7-PFUnDA	8.639	570.0 -> 525.1	41617	1.25 µg/L	-0.012
M2-PFDoDA	9.067	615.1 -> 570.0	42519	1.25 µg/L	0.000
M2-PFTeDA	9.772	715.2 -> 670.0	17353	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	30791	2.50 µg/L	0.000
M3-PFBS	5.546	302.1 -> 79.9	29065	2.50 µg/L	-0.013
M3-PFHxS	7.289	402.1 -> 79.9	17369	2.50 µg/L	-0.012
M8-PFOS	8.336	507.1 -> 79.9	17484	2.50 µg/L	-0.013
M2-4:2FTS	5.292	329.1 -> 80.9	3046	5.00 µg/L	-0.012
M2-6:2FTS	6.961	429.1 -> 80.9	4852	5.00 µg/L	-0.012
M2-8:2FTS	7.986	529.1 -> 80.9	4447	5.00 µg/L	0.000
M3-MeFOSAA	8.244	573.2 -> 419.0	37572	5.00 µg/L	0.000
M3-HFPO-DA	5.994	286.9 -> 168.9	46357	10.00 µg/L	-0.012
M5-EtFOSAA	8.439	589.2 -> 419.0	29212	5.00 µg/L	-0.012
M7-MeFOSE	10.678	623.2 -> 58.9	111417	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	134917	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	10489	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	9564	2.50 µg/L	0.000
13C4-PFOS	8.336	502.8 -> 79.9	14860	2.50 µg/L	-0.013
13C3-PFBA	2.976	216.0 -> 172.0	80036	5.00 µg/L	0.000
18O2-PFHxS	7.288	403.0 -> 83.9	10611	2.50 µg/L	-0.012
13C4-PFOA	7.187	417.1 -> 372.0	106337	2.50 µg/L	-0.012
13C2-PFDA	8.186	515.1 -> 470.1	34862	1.25 µg/L	-0.012
13C5-PFNA	7.717	468.0 -> 423.0	39438	1.25 µg/L	0.000
13C2-PFHxA	5.630	315.1 -> 270.0	67912	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.292	329.1 -> 80.9	3046	5.61 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.3%		
13C2-6:2FTS	6.961	429.1 -> 80.9	4852	5.62 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.5%		
13C2-8:2FTS	7.986	529.1 -> 80.9	4447	5.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.4%		
13C2-PFDoDA	9.067	615.1 -> 570.0	42519	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C2-PFTeDA	9.772	715.2 -> 670.0	17353	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C3-PFBS	5.546	302.1 -> 79.9	29065	2.61 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C3-PFHxS	7.289	402.1 -> 79.9	17369	2.59 µg/L	-0.012

7.7.19
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C4-PFBA	2.972	216.8 -> 171.9	191303	9.89 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C4-PFHpA	6.556	367.1 -> 322.0	68816	2.48 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C5-PFHxA	5.629	318.0 -> 273.0	72213	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C5-PFPeA	4.409	268.3 -> 223.0	79721	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C6-PFDA	8.185	519.1 -> 474.1	37580	1.28 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C7-PFUnDA	8.639	570.0 -> 525.1	41617	1.27 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C8-FOSA	9.670	506.1 -> 77.8	30791	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C8-PFOA	7.186	421.1 -> 376.0	93465	2.54 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C8-PFOS	8.336	507.1 -> 79.9	17484	2.72 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.0%	
13C9-PFNA	7.704	472.1 -> 427.0	36137	1.14 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.2%	
d3-MeFOSAA	8.244	573.2 -> 419.0	37572	5.34 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.7%	
13C3-HFPO-DA	5.994	286.9 -> 168.9	46357	9.06 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 90.6%	
d3-MeFOSA	10.757	515.0 -> 219.0	9564	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
d5-EtFOSAA	8.439	589.2 -> 419.0	29212	5.34 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.8%	
d7-MeFOSE	10.678	623.2 -> 58.9	111417	24.99 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
d9-EtFOSE	10.923	639.2 -> 58.9	134917	24.87 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
d5-EtFOSA	10.989	531.1 -> 219.0	10489	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.5%	
Target Compounds					QValue
4:2FTS	5.293	327.1 -> 307.0	3667	0.74 µg/L	99
		327.1 -> 80.9	1565		
6:2FTS	6.962	427.1 -> 407.0	2876	0.69 µg/L	96
		427.1 -> 80.9	1187		
8:2FTS	7.987	527.1 -> 507.0	2035	0.72 µg/L	87
		527.1 -> 80.8	866		
EtFOSAA	8.452	584.2 -> 419.1	878	0.18 µg/L	85
		584.2 -> 526.0	625		
FOSA	9.672	498.1 -> 77.9	2264	0.19 µg/L	97
		498.1 -> 478.0	82		
MeFOSAA	8.245	570.1 -> 419.0	1210	0.18 µg/L	100
		570.1 -> 483.0	285		
PFBA	2.968	212.8 -> 168.9	4998	0.73 µg/L	100
PFBS	5.547	298.7 -> 79.9	1600	0.17 µg/L	94
		298.7 -> 98.8	540		
PFDA	8.186	512.9 -> 469.0	5377	0.18 µg/L	99
		512.9 -> 219.0	903		
PFDODA	9.068	613.1 -> 569.0	5452	0.18 µg/L	97
		613.1 -> 319.0	710		
PFDS	9.208	599.0 -> 79.9	853	0.20 µg/L	92

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.557	599.0 -> 98.8	444	0.18	µg/L	98
		363.1 -> 319.0	6715			
PFHpS	7.843	363.1 -> 169.0	1019	0.16	µg/L	87
		449.0 -> 79.9	1202			
PFHxA	5.631	449.0 -> 98.9	603	0.18	µg/L	99
		313.0 -> 269.0	4717			
PFHxS	7.290	313.0 -> 118.9	212	0.18	µg/L	92
		398.7 -> 79.9	1212			
PFNA	7.717	398.7 -> 98.9	522	0.19	µg/L	93
		463.0 -> 419.0	4455			
PFNS	8.802	463.0 -> 219.0	1077	0.17	µg/L	93
		548.8 -> 79.9	1049			
PFOA	7.187	548.8 -> 98.9	563	0.17	µg/L	98
		413.0 -> 369.0	6873			
PFOS	8.337	413.0 -> 169.0	1297	0.18	µg/L	70
		498.9 -> 79.9	1339			
PFPeA	4.411	498.9 -> 98.8	641	0.36	µg/L	100
		263.0 -> 219.0	5747			
PFPeS	6.608	349.1 -> 79.9	1726	0.18	µg/L	94
		349.1 -> 98.9	826			
PFTeDA	9.772	713.1 -> 669.0	3957	0.19	µg/L	100
		713.1 -> 168.9	300			
PFTrDA	9.440	663.0 -> 619.0	4701	0.17	µg/L	93
		663.0 -> 168.9	495			
PFUnDA	8.639	563.1 -> 519.0	4716	0.17	µg/L	97
		563.1 -> 269.1	722			
11Cl-PF3OUdS	9.479	630.9 -> 450.9	4603	0.38	µg/L	99
		632.9 -> 452.9	1520			
9Cl-PF3ONS	8.666	530.8 -> 351.0	8252	0.40	µg/L	96
		532.8 -> 353.0	2819			
ADONA	6.804	376.9 -> 250.9	21395	0.38	µg/L	95
		376.9 -> 84.8	5631			
HFPO-DA	6.007	284.9 -> 168.9	1649	0.36	µg/L	99
		284.9 -> 184.9	168			
3:3FTCA	3.846	241.0 -> 177.0	996	0.90	µg/L	96
		241.0 -> 117.0	104			
5:3FTCA	6.271	341.0 -> 237.1	22572	4.63	µg/L	98
		341.0 -> 217.0	15305			
7:3FTCA	7.657	441.0 -> 316.9	12912	4.68	µg/L	93
		441.0 -> 336.9	27224			
EtFOSA	10.978	526.0 -> 219.0	1771	0.34	µg/L	95
		526.0 -> 169.0	2398			
EtFOSE	10.924	630.0 -> 58.9	5079	0.94	µg/L	100
		511.9 -> 219.0	1566			
MeFOSA	10.758	511.9 -> 169.0	2239	0.36	µg/L	99
		616.1 -> 58.9	4447			
MeFOSE	10.691	699.1 -> 79.9	507	0.90	µg/L	100
		699.1 -> 98.8	227			
PFDoDS	9.886	295.0 -> 201.0	1135	0.20	µg/L	90
		295.0 -> 84.9	255			
NFDHA	5.512	279.0 -> 85.1	4417	0.34	µg/L	100
		229.0 -> 84.9	3307			
PFMBA	4.838	314.8 -> 134.9	9701	0.35	µg/L	100
		314.8 -> 82.9	329			
PFMPA	3.538			0.30	µg/L	99
PFEESA	6.088					

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

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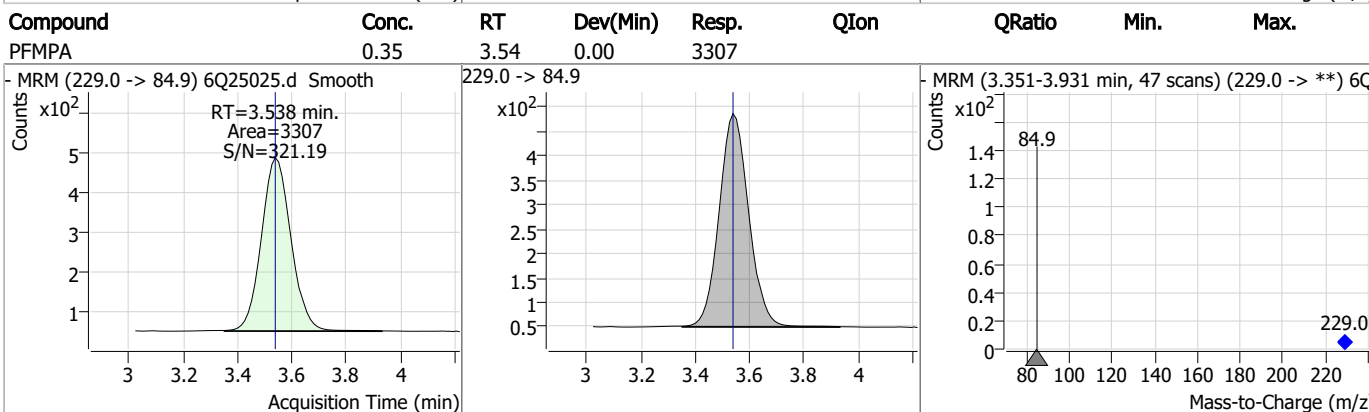
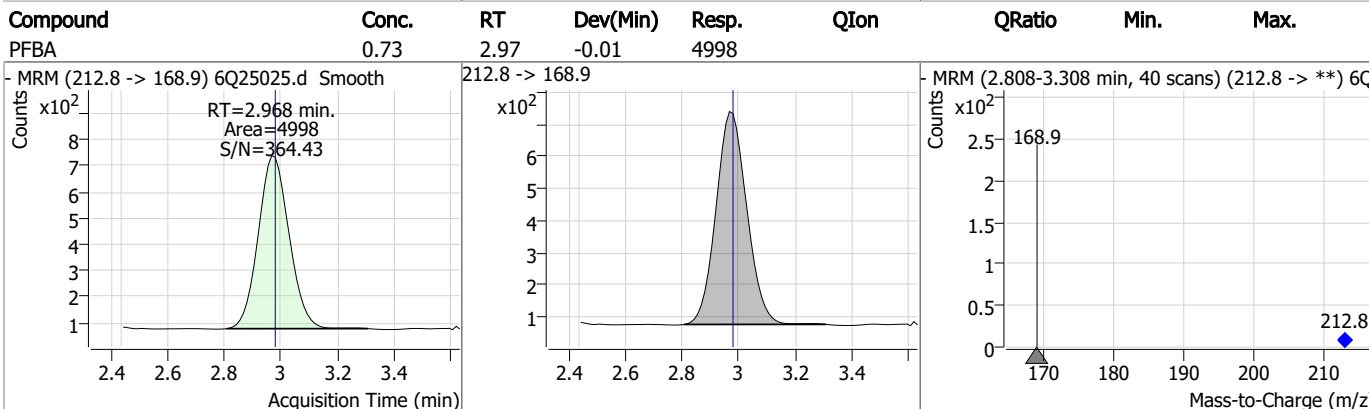
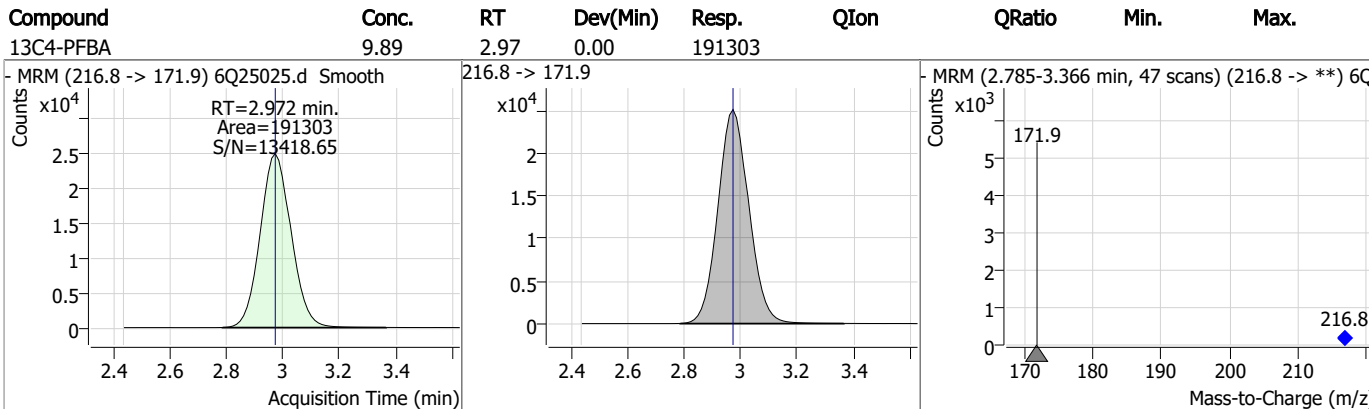
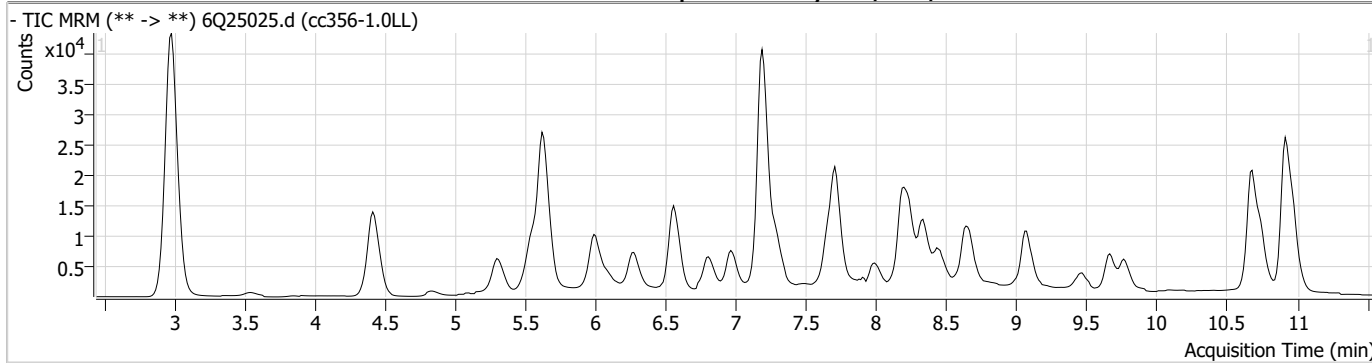
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.19

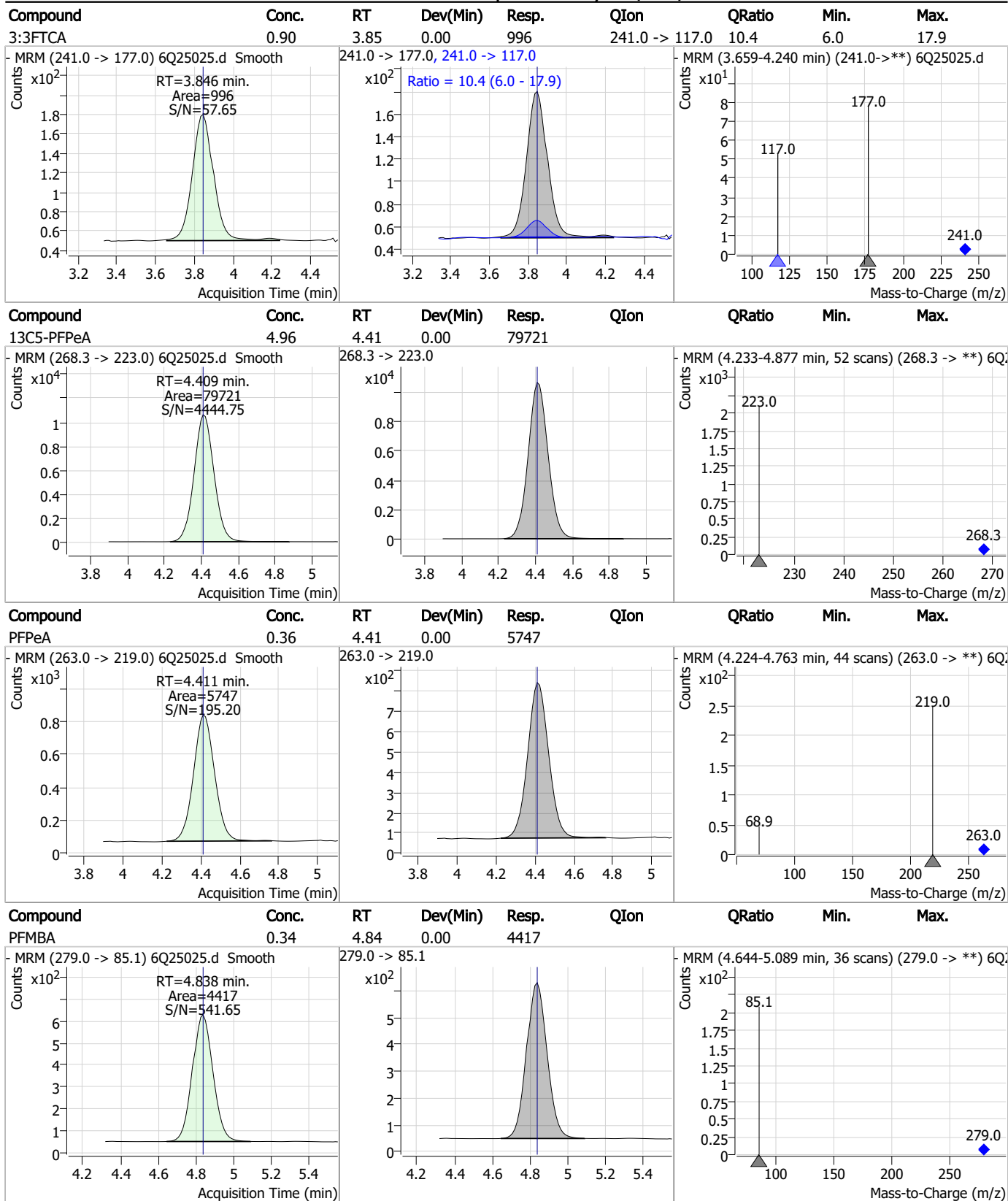
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Perfluorinated Compounds by LC/MS/MS



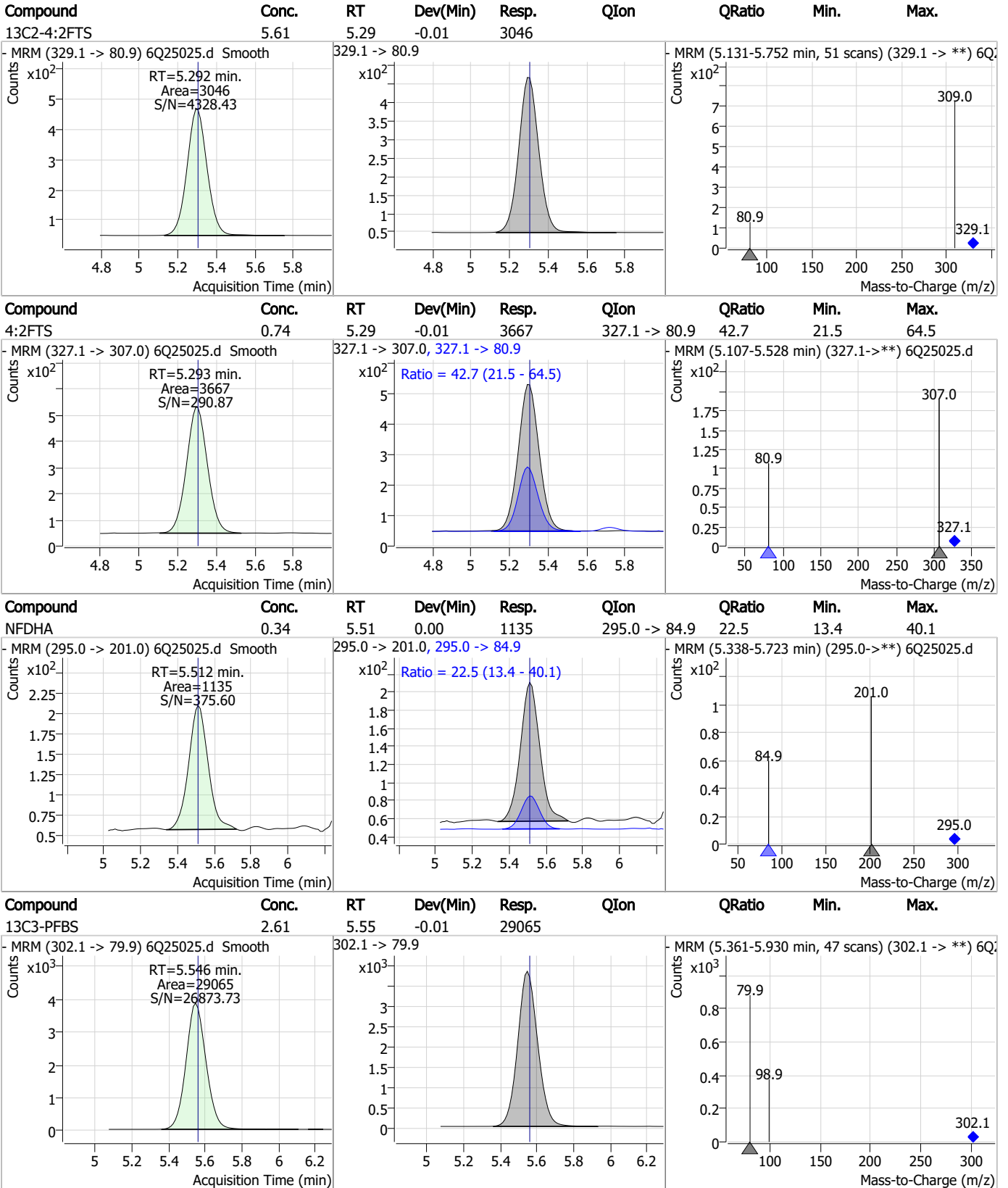
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Perfluorinated Compounds by LC/MS/MS



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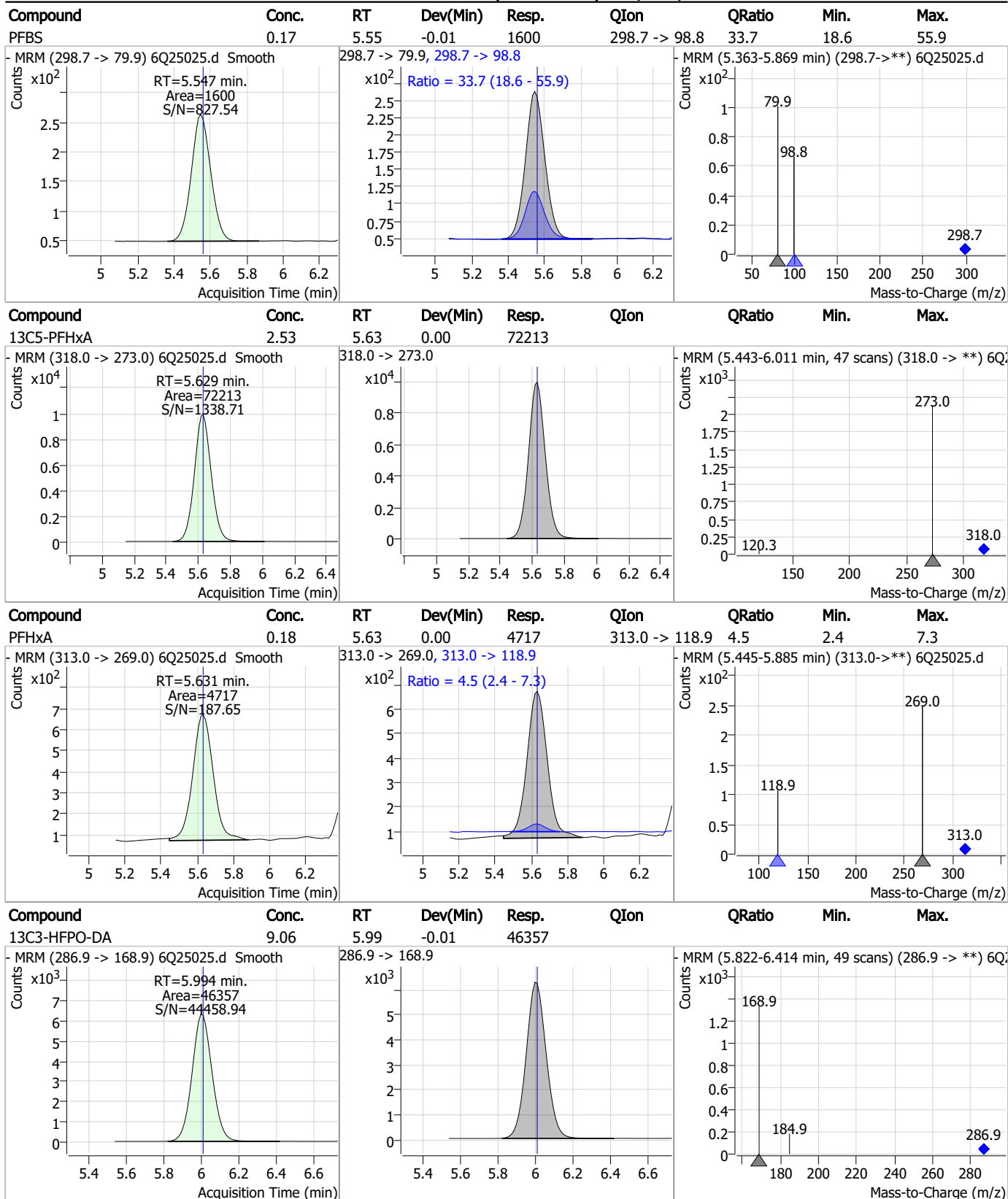
Perfluorinated Compounds by LC/MS/MS



7.7.19 7



Perfluorinated Compounds by LC/MS/MS

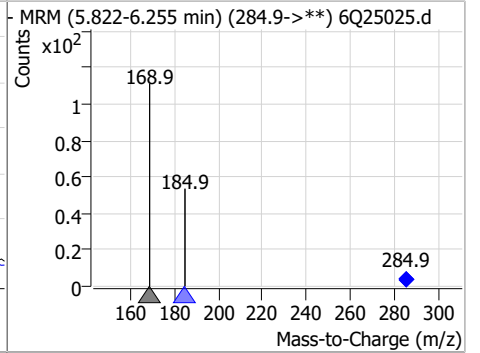
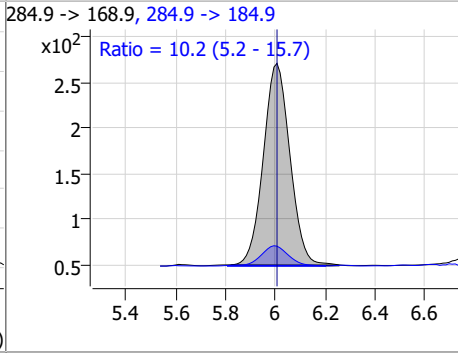
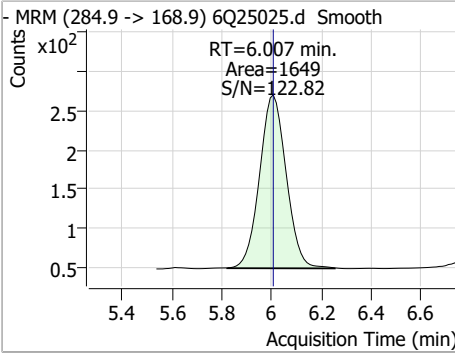


7.7.19 7

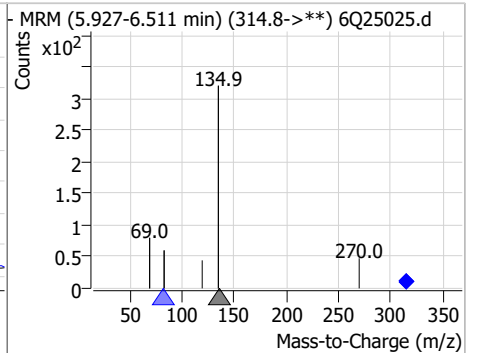
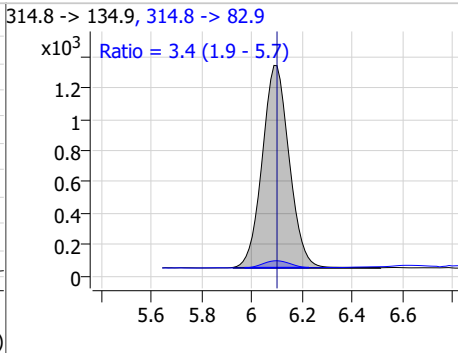
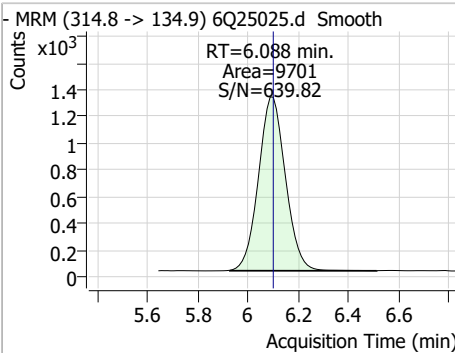


Perfluorinated Compounds by LC/MS/MS

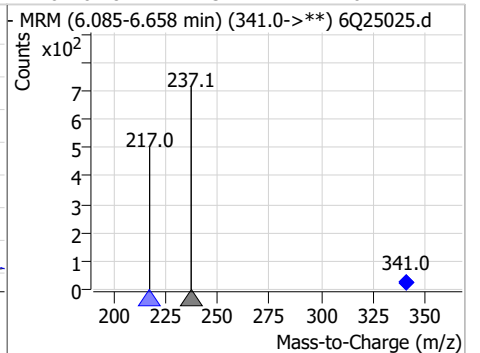
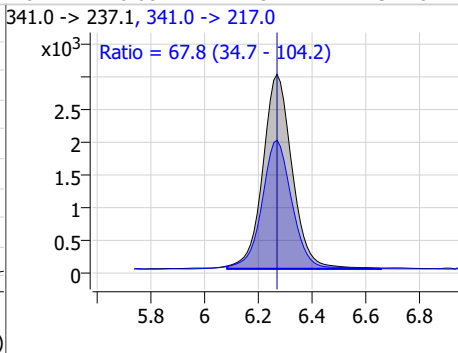
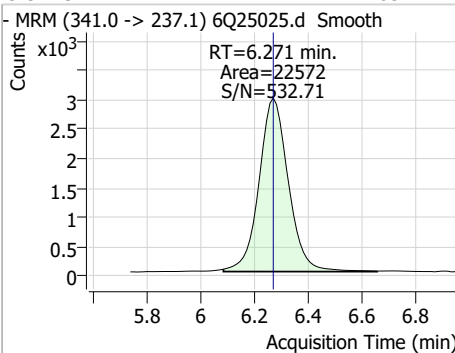
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.36	6.01	0.00	1649	284.9 -> 184.9	10.2	5.2	15.7



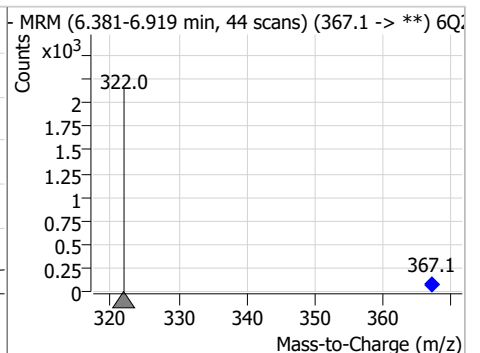
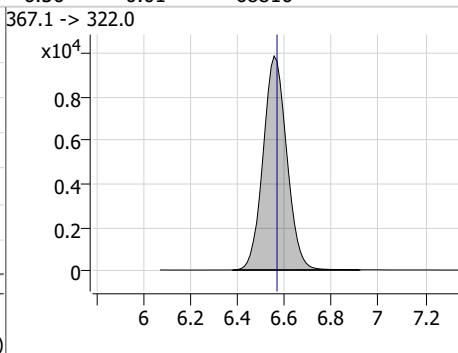
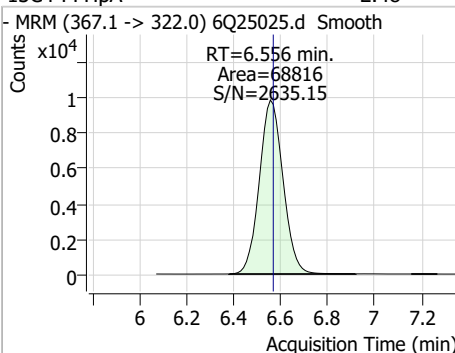
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.30	6.09	-0.01	9701	314.8 -> 82.9	3.4	1.9	5.7



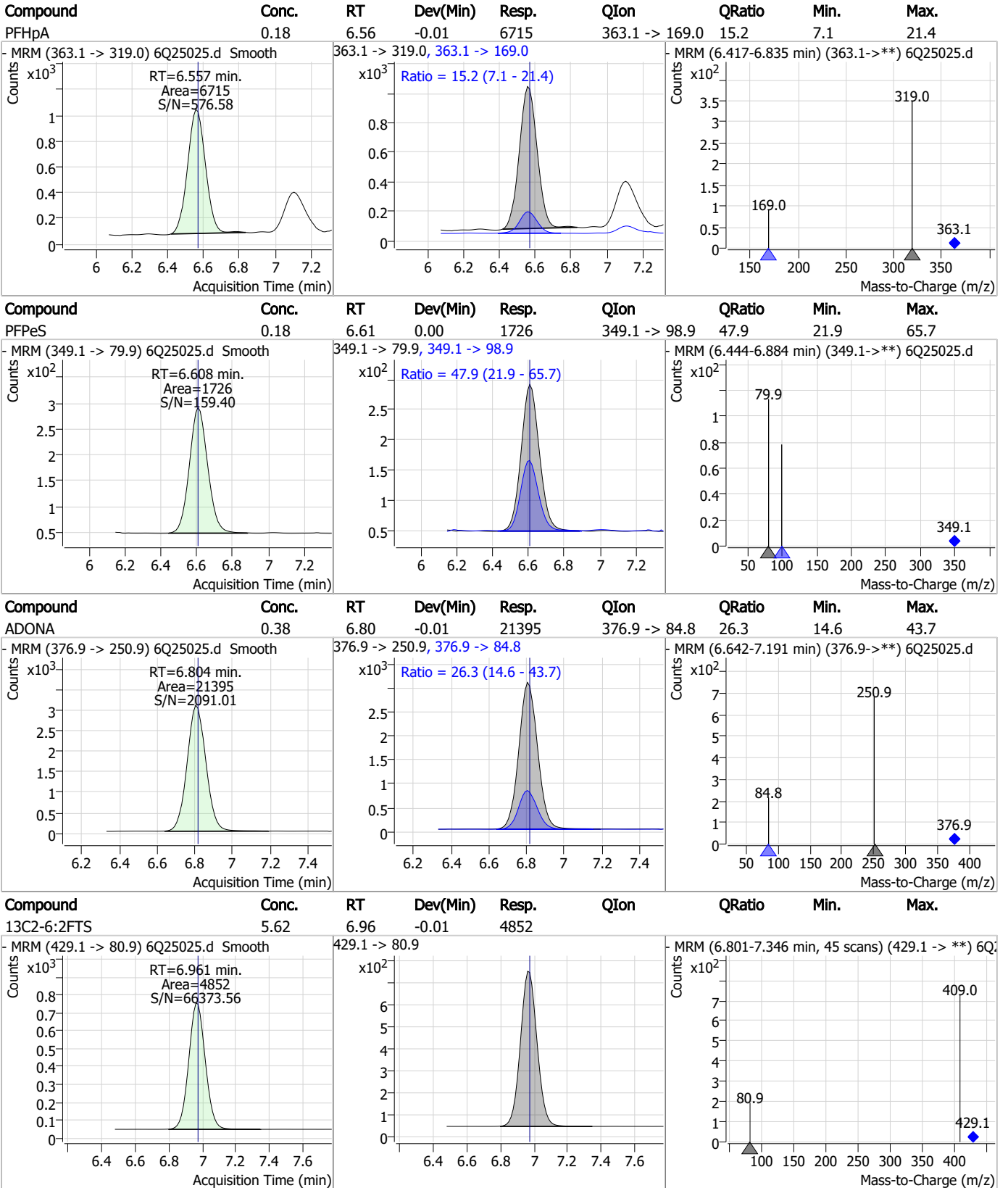
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	4.63	6.27	0.00	22572	341.0 -> 217.0	67.8	34.7	104.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.48	6.56	-0.01	68816	367.1 -> 322.0			



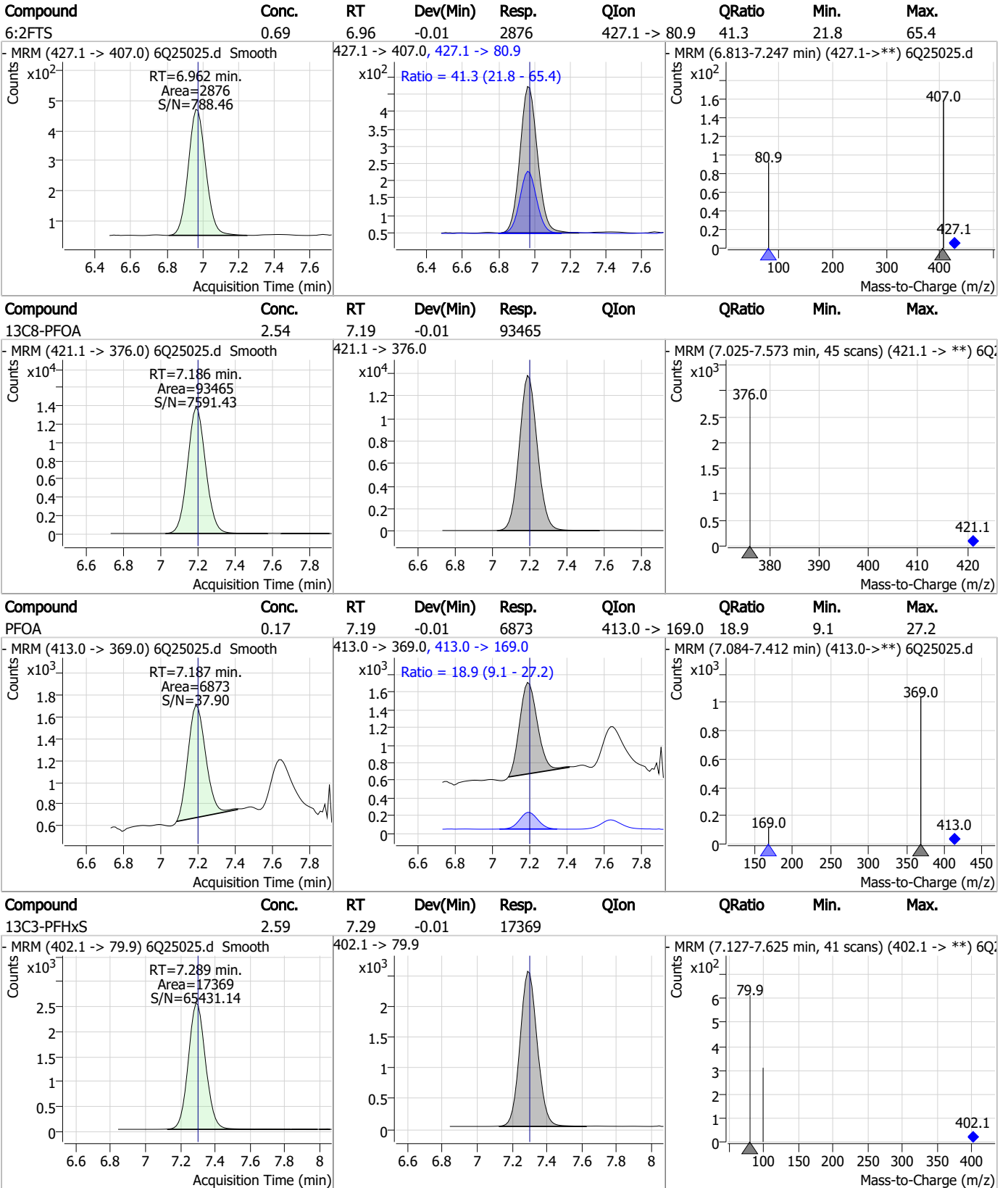
Perfluorinated Compounds by LC/MS/MS



7.7.19 7



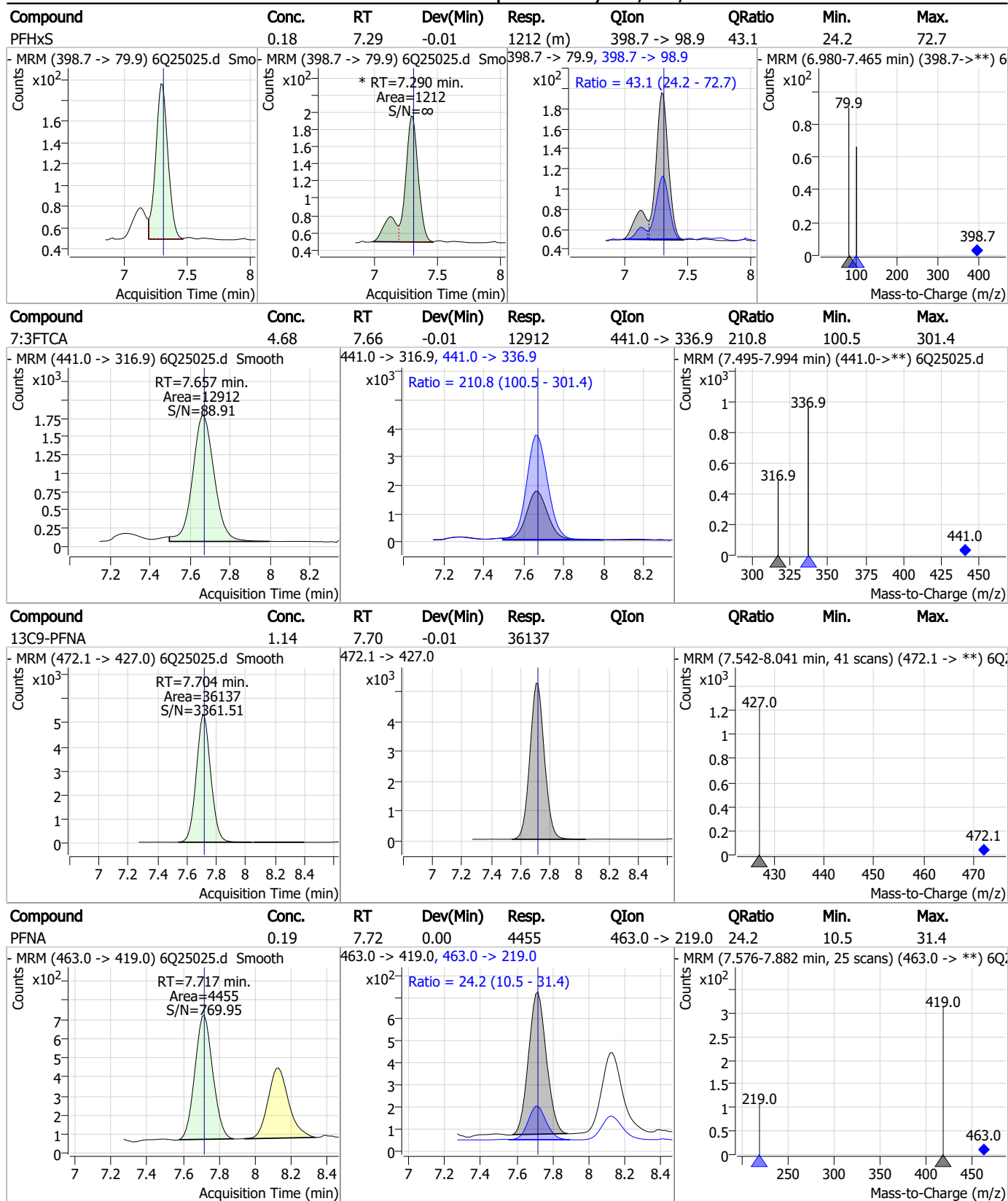
Perfluorinated Compounds by LC/MS/MS



7.7.19 7



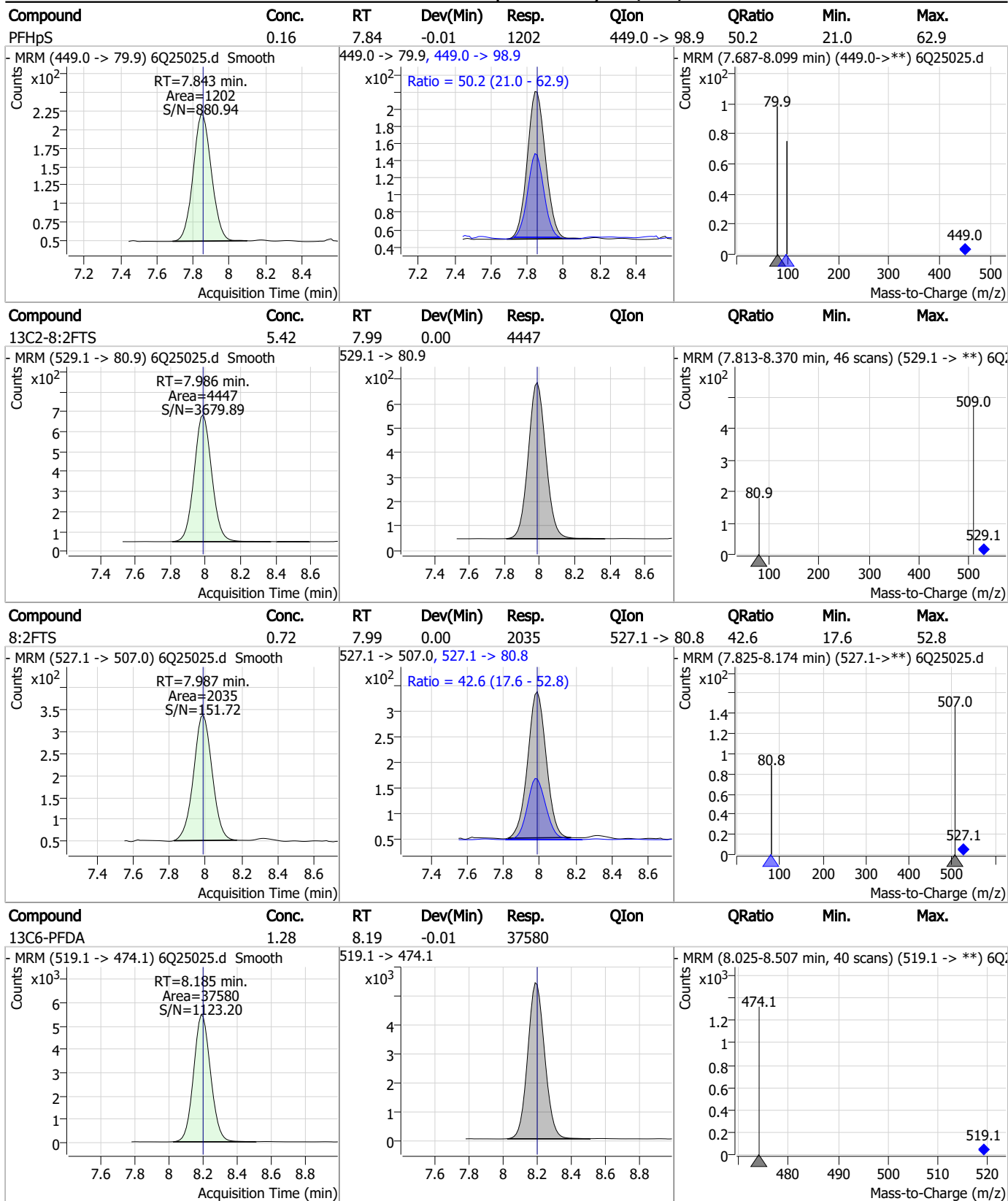
Perfluorinated Compounds by LC/MS/MS



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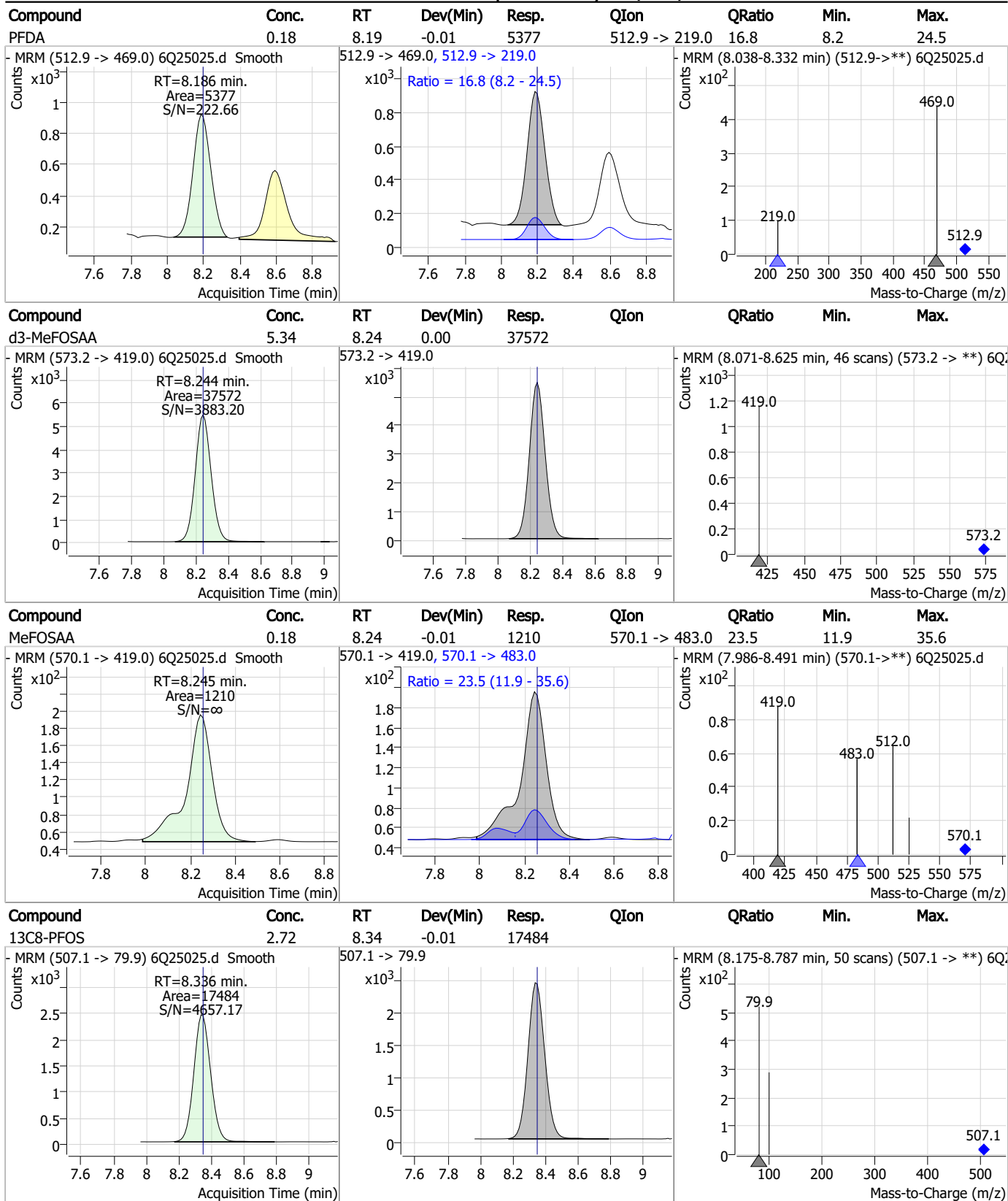
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Perfluorinated Compounds by LC/MS/MS



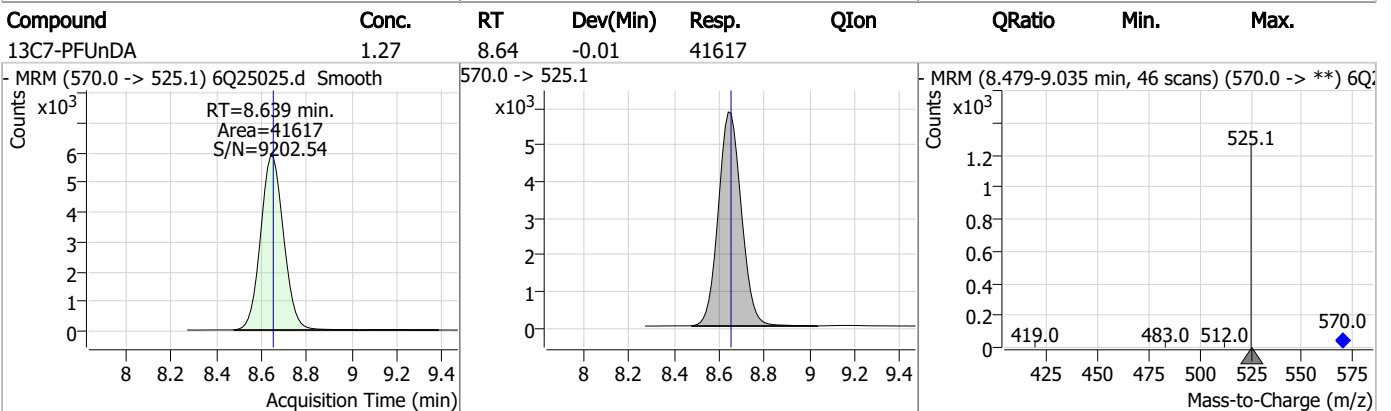
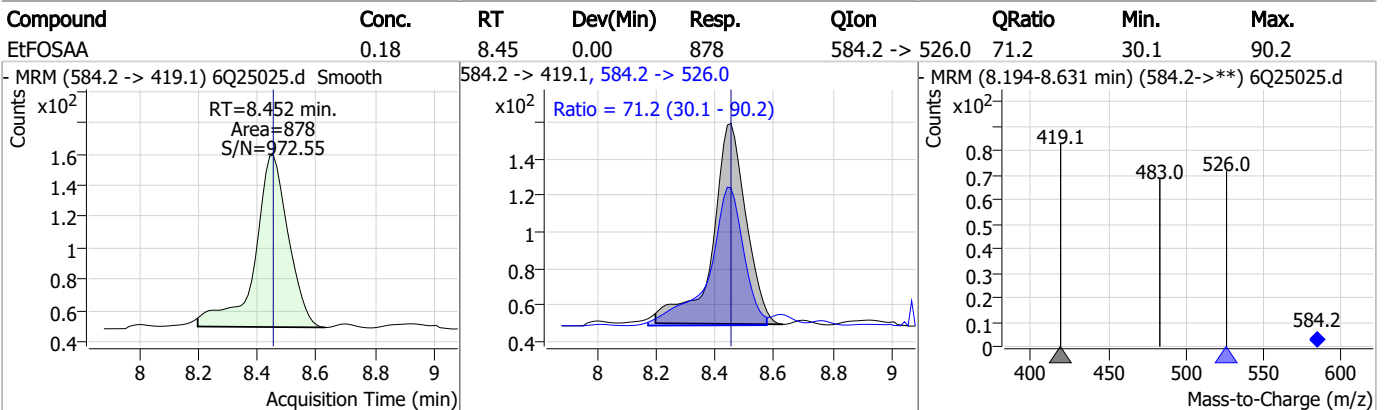
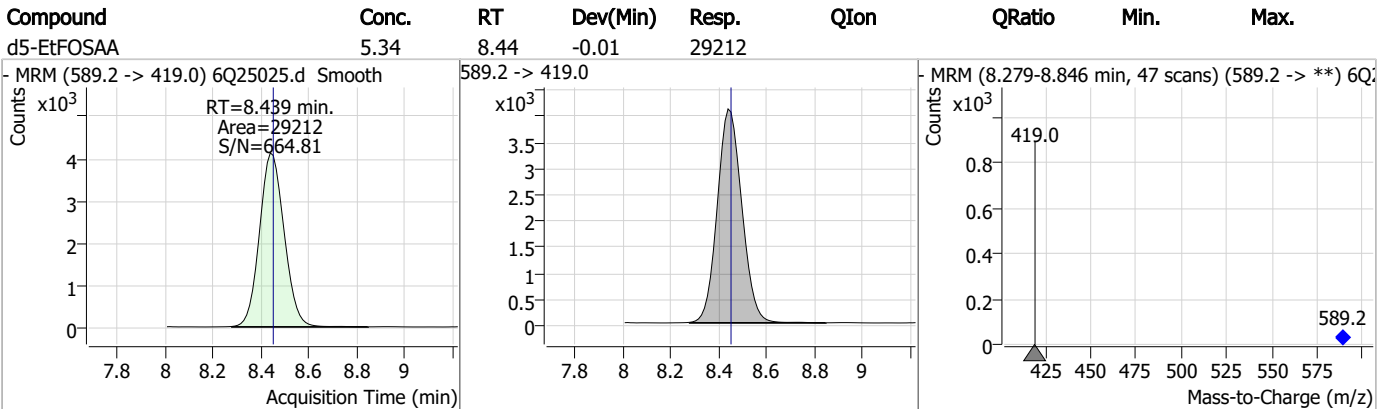
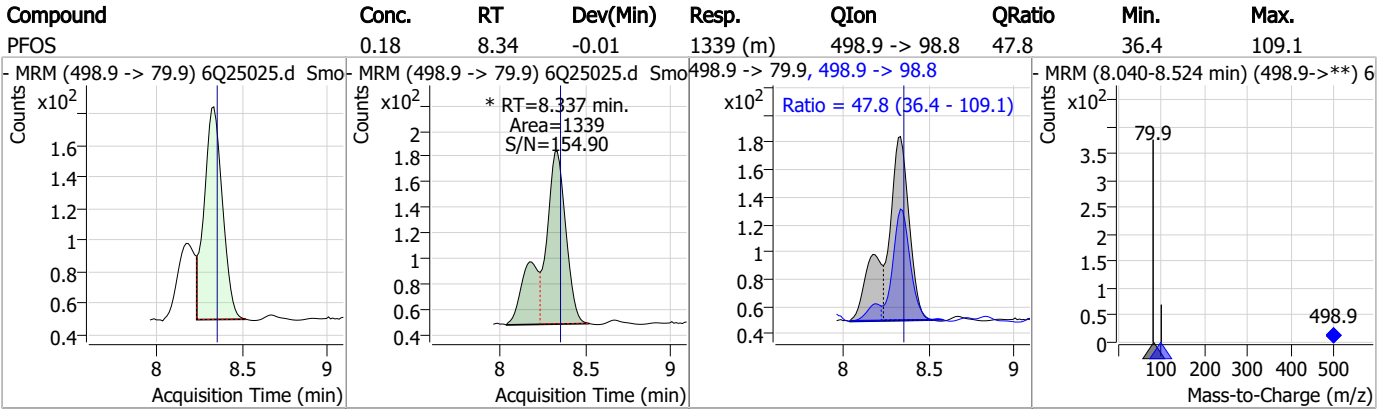
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Perfluorinated Compounds by LC/MS/MS

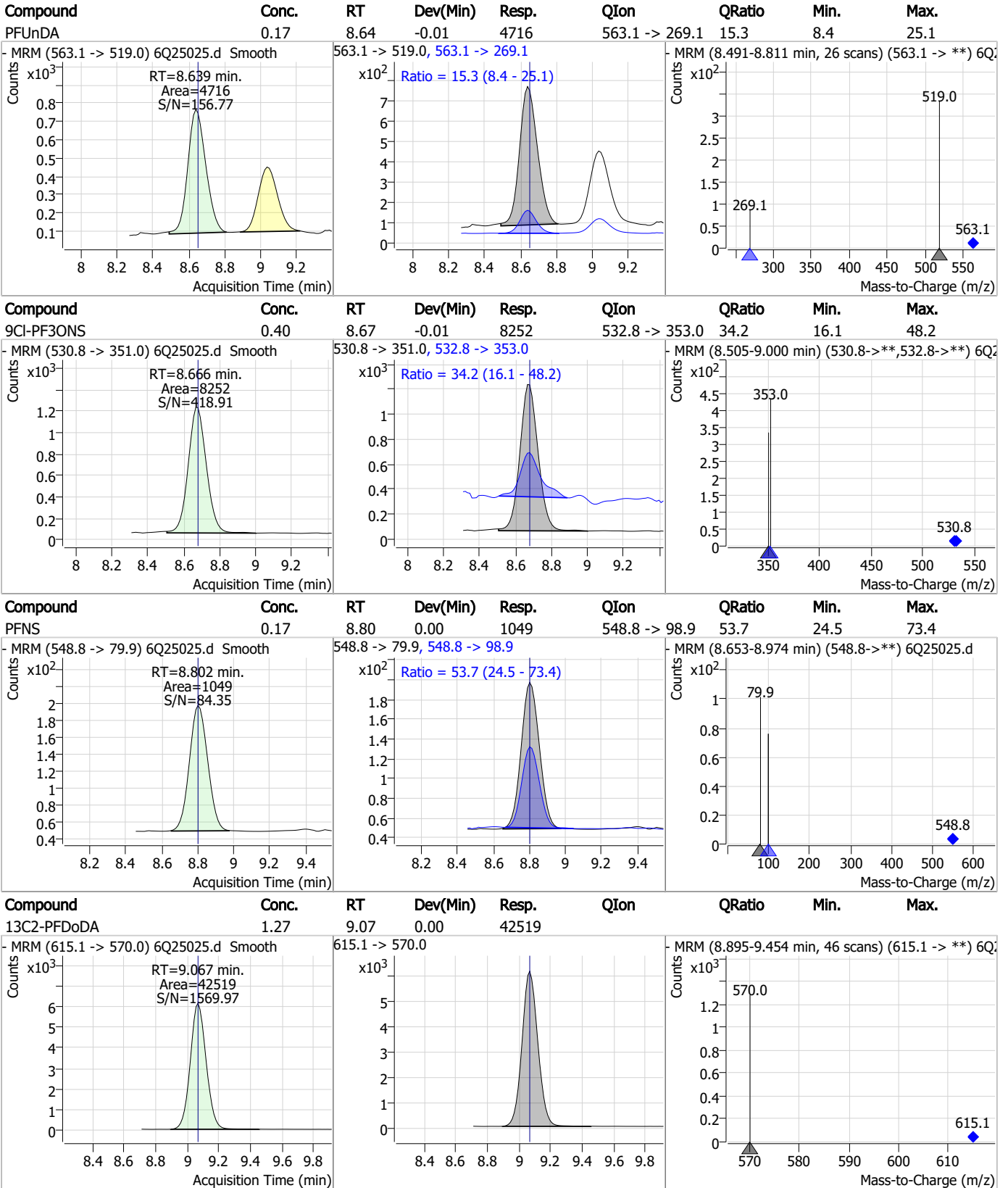


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Perfluorinated Compounds by LC/MS/MS



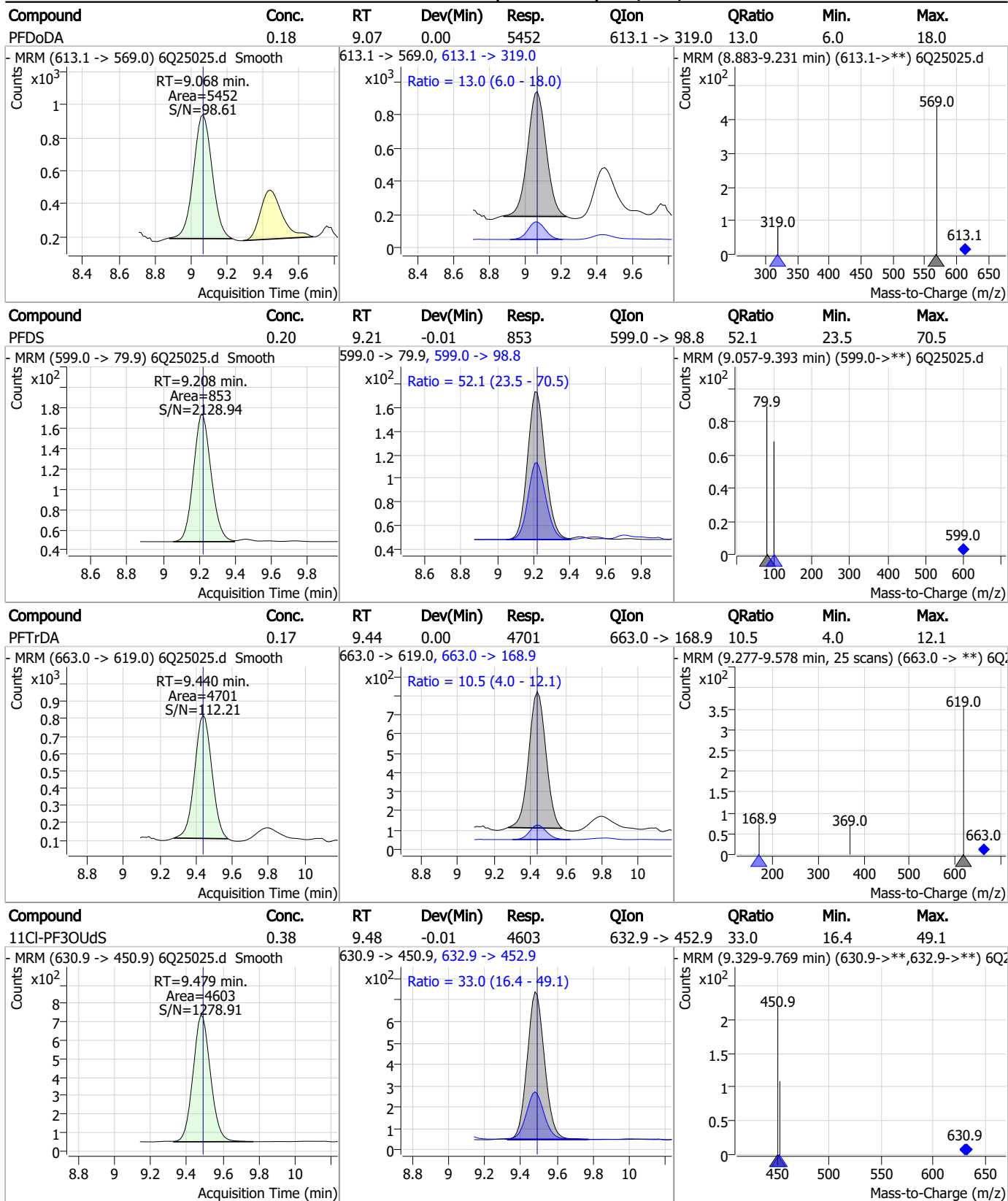
Perfluorinated Compounds by LC/MS/MS



7.7.19 7

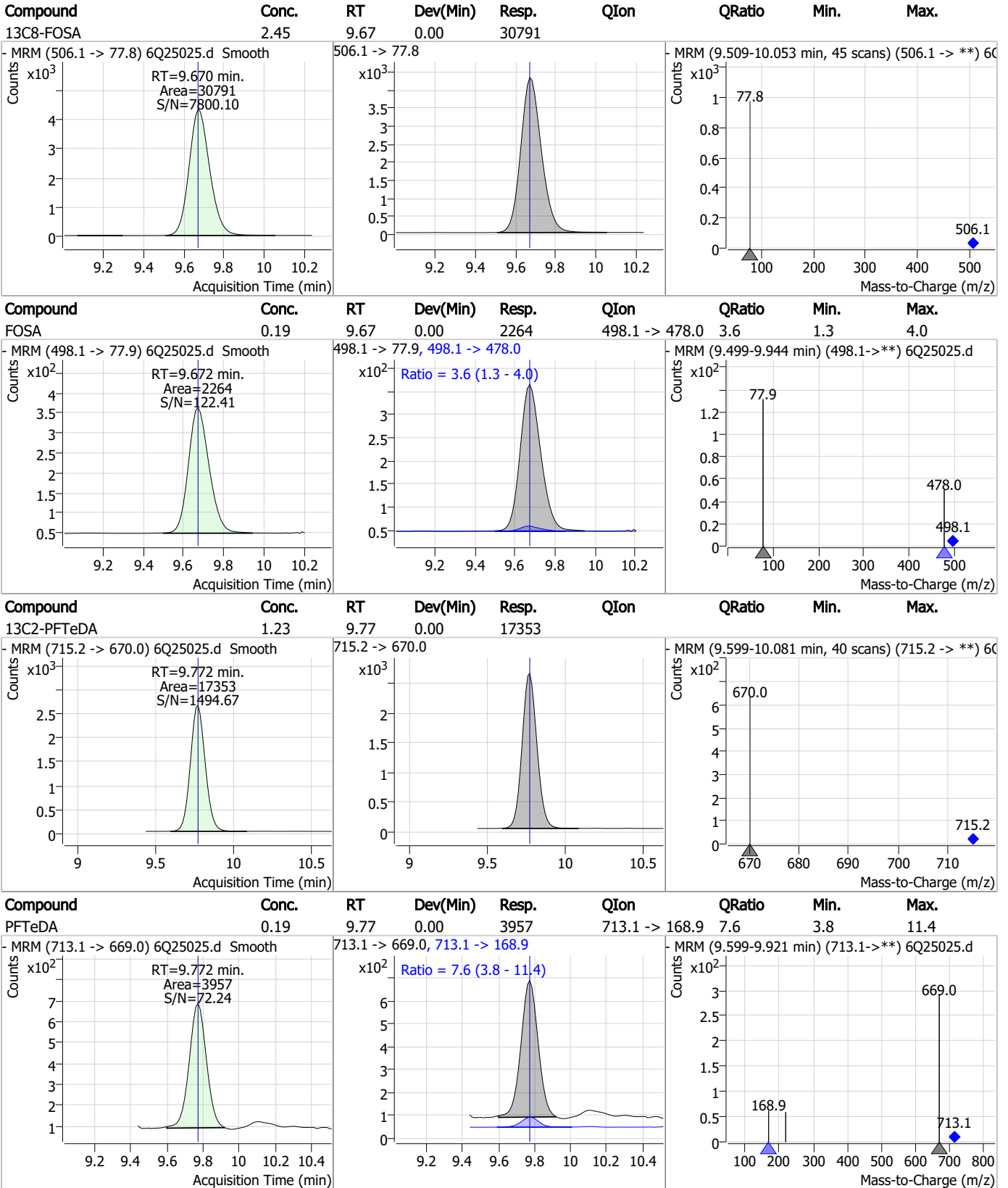


Perfluorinated Compounds by LC/MS/MS



7.7.19 7

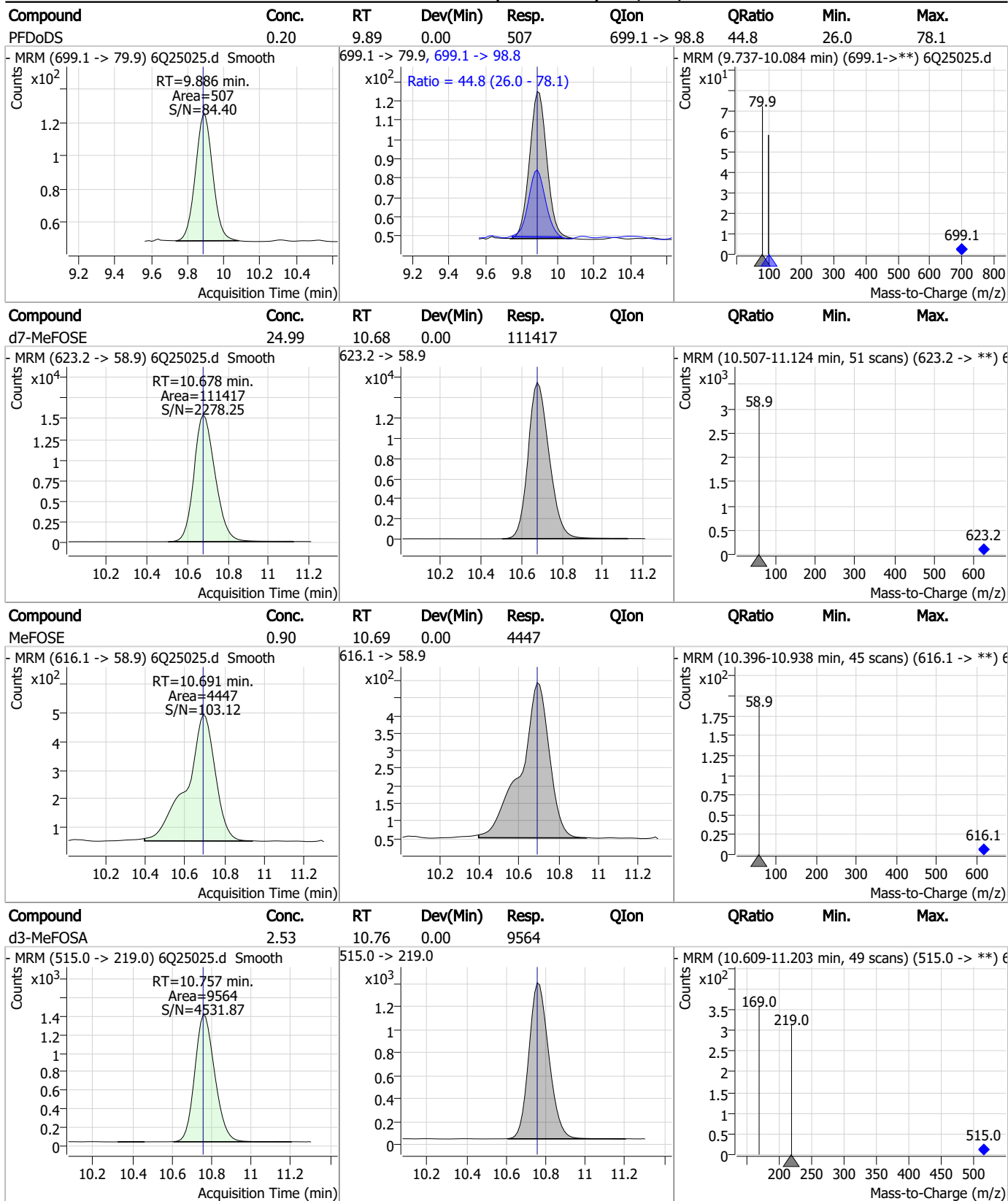
Perfluorinated Compounds by LC/MS/MS



7.7.19 7

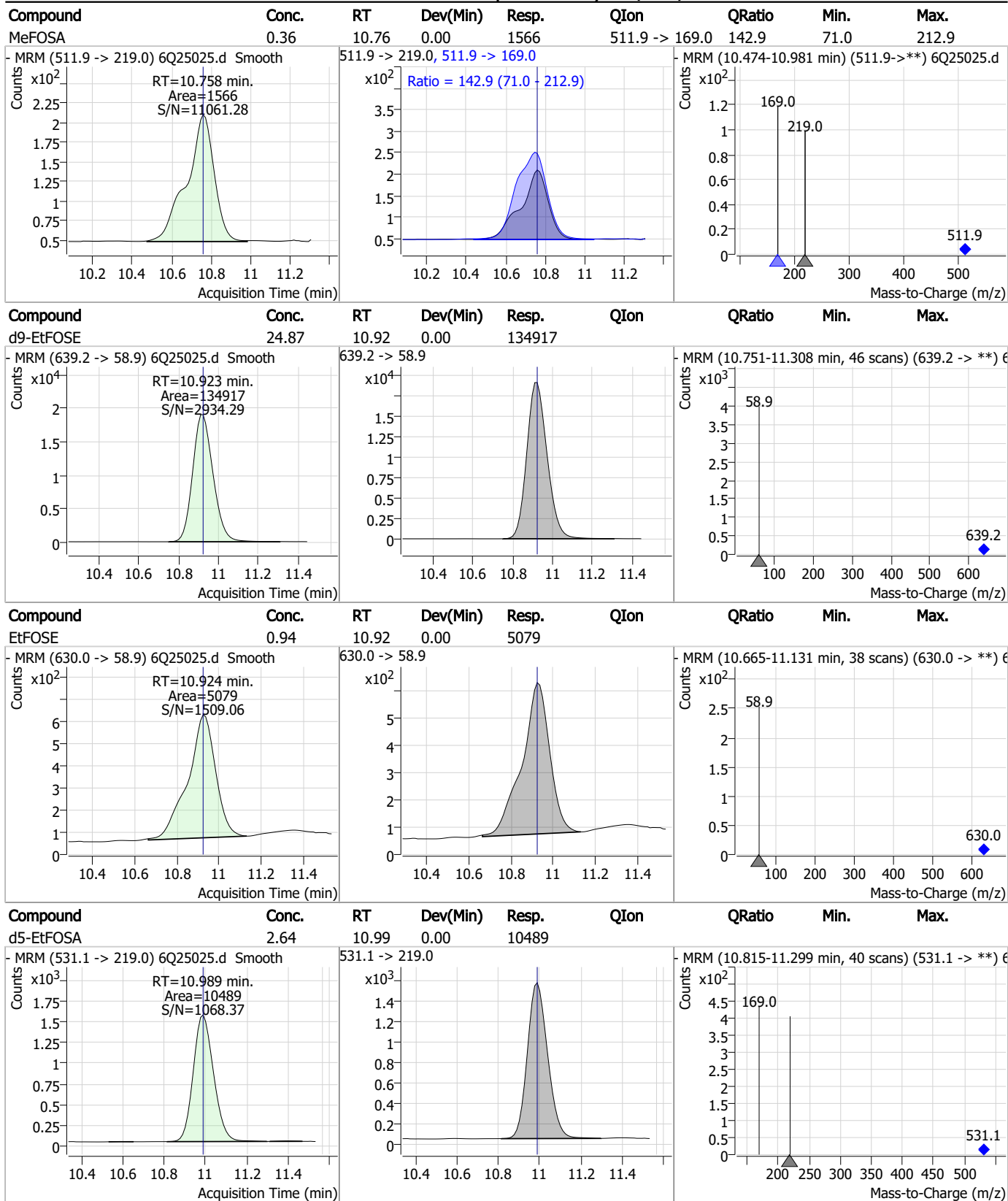


Perfluorinated Compounds by LC/MS/MS



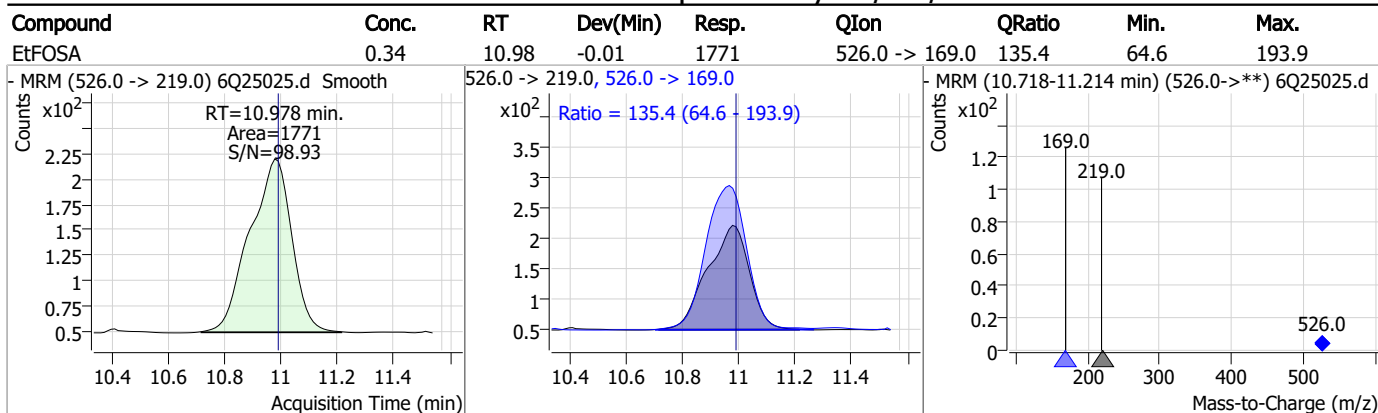
7.7.19
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



7.7.19

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Manual Integration Approval Summary

Sample Number: S6Q356-CC356 Method: EPA DRAFT 1633
Lab FileID: 6Q25025.D Analyst approved: 09/26/23 10:09 Martha Valls
Injection Time: 09/25/23 16:21 Supervisor approved: 09/26/23 13:54 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.34	Split peak

7.7.19.1

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SGS ORLANDO

DATE:	09/24/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 uI
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_092423_S6Q356
CAL DATE:	09/24/23
ANALYST:	M. Valls
RUN BATCH:	S6Q356

ELUENT A LOT #:	ACN 232980
ELUENT B LOT #:	HPLC WATER: 232305, W5%, Acetonitrile: 232980 2mM AMAC.
IC/CC STD LOT #:	LCMS 2192-E
ICV STD LOT #:	LCMS 2192E/2180
ISTD/D STD LOT #:	11987F/11988-I

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	6Q24906.d	P1-B9	CCB	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
2	6Q24907.d	P1-B9	CCB	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
3	6Q24908.d	P1-B3	RT TDCA	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
4	6Q24909.d	P1-B4	RT BR-LN	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
5	6Q24910.d	P1-A9	High Std	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
6	6Q24911.d	P1-A1	IBLK	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
7	6Q24912.d	P1-A5	cc355-4	1633full.m	QC	20/500	OP99081,S6Q356,500,,,5.0,1,water	HIGH, Recalibrate
8	6Q24913.d	P1-A2	cc355-1.0LL	1633full.m	QC	1.6/500	OP99081,S6Q356,500,,,5.0,1,water	↓
9	6Q24914.d	P1-B9	CCB	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
10	6Q24915.d	P1-B9	CCB	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
11	6Q24916.d	P1-B3	RT TDCA	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
12	6Q24917.d	P1-B4	RT BR-LN	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
13	6Q24918.d	P1-A1	ic356-0	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
14	6Q24919.d	P1-A2	ic356-1	1633full.m	Calibration	1.6/500	OP99081,S6Q356,500,,,5.0,1,water	✓
15	6Q24920.d	P1-A3	ic356-2	1633full.m	Calibration	3.2/500	OP99081,S6Q356,500,,,5.0,1,water	✓
16	6Q24921.d	P1-A4	ic356-3	1633full.m	Calibration	10/500	OP99081,S6Q356,500,,,5.0,1,water	✓
17	6Q24922.d	P1-A5	ic356-4	1633full.m	Calibration	20/500	OP99081,S6Q356,500,,,5.0,1,water	✓
18	6Q24923.d	P1-A6	ic356-5	1633full.m	Calibration	40/500	OP99081,S6Q356,500,,,5.0,1,water	✓
19	6Q24924.d	P1-A7	ic356-6	1633full.m	Calibration	100/500	OP99081,S6Q356,500,,,5.0,1,water	✓
20	6Q24925.d	P1-A8	ic356-7	1633full.m	Calibration	200/500	OP99081,S6Q356,500,,,5.0,1,water	✓
21	6Q24926.d	P1-A9	ic356-8	1633full.m	Calibration	1x	OP99081,S6Q356,500,,,5.0,1,water	✓
22	6Q24927.d	P1-A1	IBLK	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
23	6Q24928.d	P1-B1	icv356-4	1633full.m	QC	20/500	OP99081,S6Q356,500,,,5.0,1,water	✓
24	6Q24929.d	P1-B2	icv356-20	1633full.m	QC	100/500	OP99081,S6Q356,500,,,5.0,1,water	✓
25	6Q24930.d	P1-A5	cc356-4	1633full.m	QC	20/500	OP99081,S6Q356,500,,,5.0,1,water	✓
26	6Q24931.d	P1-A2	cc356-1.0LL	1633full.m	QC	1.6/500	OP99081,S6Q356,500,,,5.0,1,water	✓
27	6Q24932.d	P3-C1	FC9580-5	1633full.m	Sample		OP99102,S6Q356,510,,,5.0,1,water	✓
28	6Q24933.d	P3-C2	FC9580-7	1633full.m	Sample		OP99102,S6Q356,480,,,5.0,1,water	✓
29	6Q24934.d	P3-C3	FC9580-6	1633full.m	Sample	50/500	OP99102,S6Q356,480,,,5.0,10,water	✓
30	6Q24935.d	P3-C4	FC9580-4	1633full.m	Sample	50/500	OP99102,S6Q356,505,,,5.0,10,water	redc lower volume
31	6Q24936.d	P3-C5	FC9580-3	1633full.m	Sample	50/500	OP99102,S6Q356,475,,,5.0,10,water	redc lower volume
32	6Q24937.d	P3-C6	OP99102-DUP	1633full.m	Sample	50/500	OP99102,S6Q356,480,,,5.0,10,water	✓
33	6Q24938.d	P1-A5	cc356-4	1633full.m	QC	20/500	OP99081,S6Q356,500,,,5.0,1,water	✓
34	6Q24939.d	P1-A1	iccb	1633full.m	Sample		OP99081,S6Q356,500,,,5.0,1,water	✓
35	6Q24940.d	P3-C7	op99134-bs	1633full.m	Sample		OP99134,S6Q356,5.00,,,5.0,1,soil	✓



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36	6Q24941.d	P3-C8	op99134-llbs:3	1633full.m	Sample	OP99134,S6Q356,5.00,,,5.0,1,soil	✓
37	6Q24942.d	P3-C9	op99134-MB	1633full.m	Sample	OP99134,S6Q356,5.00,,,5.0,1,soil	✓
38	6Q24943.d	P3-D1	FC9131-8	1633full.m	Sample	OP99134,S6Q356,0.96,,,5.0,1,soil	✓ + RR5X pfos
39	6Q24944.d	P4-F8	op99134-MS	1633full.m	Sample	OP99134,S6Q356,1.02,,,5.0,1,soil	RR5X
40	6Q24945.d	P4-F9	op99134-MSD	1633full.m	Sample	OP99134,S6Q356,1.02,,,5.0,1,soil	RR5X
41	6Q24946.d	P3-D2	FC9131-9	1633full.m	Sample	OP99134,S6Q356,0.98,,,5.0,1,soil	✓ + RR5X pfos
42	6Q24947.d	P3-D3	FC9222-9	1633full.m	Sample	OP99134,S6Q356,0.98,,,5.0,1,soil	✓ + RR5X pfos
43	6Q24948.d	P3-D4	FC9222-10	1633full.m	Sample	OP99134,S6Q356,1.04,,,5.0,1,soil	✓ + RR10X pfos
44	6Q24949.d	P3-D5	FC9222-11	1633full.m	Sample	OP99134,S6Q356,0.98,,,5.0,1,soil	✓ + RR5X pfos
45	6Q24950.d	P1-A5	cc356-4	1633full.m	QC	OP99081,S6Q356,500,,,5.0,1,water	✓
46	6Q24951.d	P1-A1	iccb	1633full.m	Sample	OP99081,S6Q356,500,,,5.0,1,water	✓
47	6Q24952.d	P3-D6	OP99155-BS	1633full.m	Sample	OP99155,S6Q356,500,,,5.0,1,water	✓
48	6Q24953.d	P3-D7	OP99155-Llbs:3	1633full.m	Sample	OP99155,S6Q356,500,,,5.0,1,water	✓
49	6Q24954.d	P3-D8	OP99155-MB	1633full.m	Sample	OP99155,S6Q356,500,,,5.0,1,water	✓
50	6Q24955.d	P3-D9	FC9406-4	1633full.m	Sample	OP99155,S6Q356,510,,,5.0,1,water	✓ + RR5X HxS
51	6Q24956.d	P3-E1	FC9406-5	1633full.m	Sample	OP99155,S6Q356,515,,,5.0,1,water	✓ + RR2X HxS
52	6Q24957.d	P3-E2	FC9440-2	1633full.m	Sample	OP99155,S6Q356,30,,,5.0,1,water	✓
53	6Q24958.d	P3-E3	FC9440-2	1633full.m	Sample	OP99155,S6Q356,30,,,5.0,10,water	✓
54	6Q24959.d	P3-E4	FC9440-6	1633full.m	Sample	OP99155,S6Q356,30,,,5.0,1,water	✓
55	6Q24960.d	P3-E5	FC9440-6	1633full.m	Sample	OP99155,S6Q356,30,,,5.0,10,water	✓
56	6Q24961.d	P1-A5	cc356-4	1633full.m	QC	OP99081,S6Q356,500,,,5.0,1,water	✓
57	6Q24962.d	P1-A1	iccb	1633full.m	Sample	OP99081,S6Q356,500,,,5.0,1,water	✓
58	6Q24963.d	P3-E6	FC9440-7	1633full.m	Sample	OP99155,S6Q356,30,,,5.0,1,water	✓
59	6Q24964.d	P3-E7	FC9440-7	1633full.m	Sample	OP99155,S6Q356,30,,,5.0,10,water	✓
60	6Q24965.d	P3-E8	FC9440-8	1633full.m	Sample	OP99155,S6Q356,30,,,5.0,1,water	✓
61	6Q24966.d	P3-E9	FC9440-8	1633full.m	Sample	OP99155,S6Q356,30,,,5.0,10,water	✓
62	6Q24967.d	P3-F1	FC9440-9	1633full.m	Sample	OP99155,S6Q356,30,,,5.0,1,water	✓
63	6Q24968.d	P3-F2	FC9440-9	1633full.m	Sample	OP99155,S6Q356,30,,,5.0,10,water	✓
64	6Q24969.d	P1-A5	cc356-4	1633full.m	QC	OP99081,S6Q356,500,,,5.0,1,water	✓
65	6Q24970.d	P1-A1	iccb	1633full.m	Sample	OP99081,S6Q356,500,,,5.0,1,water	✓
66	6Q24971.d	P3-F3	OP99128-BS	1633full.m	Sample	OP99128,S6Q356,500,,,5.0,1,water	✓
67	6Q24972.d	P3-F4	OP99128-Llbs:3	1633full.m	Sample	OP99128,S6Q356,500,,,5.0,1,water	✓
68	6Q24973.d	P3-F5	OP99128-MB	1633full.m	Sample	OP99128,S6Q356,500,,,5.0,1,water	✓
69	6Q24974.d	P3-F6	FC9163-5	1633full.m	Sample	OP99128,S6Q356,540,,,5.0,1,water	✓
70	6Q24975.d	P3-F7	FC9720-1	1633full.m	Sample	OP99128,S6Q356,530,,,5.0,1,water	✓
71	6Q24976.d	P3-F8	OP99128-MS	1633full.m	Sample	OP99128,S6Q356,520,,,5.0,1,water	✓
72	6Q24977.d	P3-F9	FC9720-2	1633full.m	Sample	OP99128,S6Q356,520,,,5.0,1,water	✓
73	6Q24978.d	P4-A1	OP99128-DUP	1633full.m	Sample	OP99128,S6Q356,560,,,5.0,1,water	✓
74	6Q24979.d	P1-A5	cc356-4	1633full.m	QC	OP99081,S6Q356,500,,,5.0,1,water	✓
75	6Q24980.d	P1-A1	iccb	1633full.m	Sample	OP99081,S6Q356,500,,,5.0,1,water	✓
76	6Q24981.d	P4-A2	OP99106-BS	1633full.m	Sample	OP99106,S6Q356,500,,,5.0,1,water	✓
77	6Q24982.d	P4-A3	OP99106-Llbs:2	1633full.m	Sample	OP99106,S6Q356,500,,,5.0,1,water	✓
78	6Q24983.d	P4-A4	OP99106-MB	1633full.m	Sample	OP99106,S6Q356,500,,,5.0,1,water	✓



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79	6Q24984.d	P4-A5	FC9487-1	1633full.m	Sample	50/500	OP99106,S6Q356,515,,,5.0,1,water	✓
80	6Q24985.d	P4-A6	FC9487-1	1633full.m	Sample	50/500	OP99106,S6Q356,515,,,5.0,10,water	✓
81	6Q24986.d	P4-A7	FC9487-2	1633full.m	Sample	50/500	OP99106,S6Q356,505,,,5.0,1,water	✓
82	6Q24987.d	P4-A8	FC9487-2	1633full.m	Sample	50/500	OP99106,S6Q356,505,,,5.0,10,water	✓
83	6Q24988.d	P4-A9	FC9639-2	1633full.m	Sample	50/500	OP99106,S6Q356,515,,,5.0,1,water	✓
84	6Q24989.d	P4-B1	FC9639-2	1633full.m	Sample	50/500	OP99106,S6Q356,515,,,5.0,10,water	✓
85	6Q24990.d	P1-A5	cc356-4	1633full.m	QC	20/500	OP99081,S6Q356,500,,,5.0,1,water	✓
86	6Q24991.d	P1-A1	iccb	1633full.m	Sample	50/500	OP99106,S6Q356,535,,,5.0,1,water	✓
87	6Q24992.d	P4-B2	FC9639-3	1633full.m	Sample	50/500	OP99106,S6Q356,535,,,5.0,10,water	✓
88	6Q24993.d	P4-B3	FC9639-3	1633full.m	Sample	50/500	OP99106,S6Q356,535,,,5.0,10,water	✓
89	6Q24994.d	P4-B4	FC9639-4	1633full.m	Sample	50/500	OP99106,S6Q356,505,,,5.0,1,water	✓
90	6Q24995.d	P4-B5	FC9639-4	1633full.m	Sample	50/500	OP99106,S6Q356,505,,,5.0,10,water	✓
91	6Q24996.d	P4-B6	FC9639-5	1633full.m	Sample	50/500	OP99106,S6Q356,495,,,5.0,1,water	✓
92	6Q24997.d	P4-B7	FC9639-5	1633full.m	Sample	50/500	OP99106,S6Q356,495,,,5.0,10,water	✓
93	6Q24998.d	P4-B8	OP99106-MS	1633full.m	Sample	50/500	OP99106,S6Q356,505,,,5.0,10,water	✓
94	6Q24999.d	P4-B9	OP99106-MSD	1633full.m	Sample	50/500	OP99106,S6Q356,505,,,5.0,10,water	✓
95	6Q25000.d	P4-C1	FC9639-6	1633full.m	Sample	50/500	OP99106,S6Q356,520,,,5.0,1,water	✓
96	6Q25001.d	P4-C2	FC9610-1	1633full.m	Sample	20/500	OP99106,S6Q356,515,,,5.0,1,water	✓
97	6Q25002.d	P1-A5	cc356-4	1633full.m	QC	20/500	OP99081,S6Q356,500,,,5.0,1,water	✓
98	6Q25003.d	P1-A1	iccb	1633full.m	Sample	50/500	OP99081,S6Q356,500,,,5.0,1,water	✓
99	6Q25004.d	P4-C3	OP99084-BS	1633full.m	Sample	50/500	OP99084,S6Q356,5.00,,,5.0,1,soil	✓
100	6Q25005.d	P4-C4	OP99084-LLBS:2	1633full.m	Sample	50/500	OP99084,S6Q356,5.00,,,5.0,1,soil	✓
101	6Q25006.d	P4-C5	OP99084-MB	1633full.m	Sample	50/500	OP99084,S6Q356,5.00,,,5.0,1,soil	✓
102	6Q25007.d	P4-C6	FC9462-1	1633full.m	Sample	50/500	OP99084,S6Q356,5.01,,,5.0,1,soil	✓
103	6Q25008.d	P4-C7	FC9462-2	1633full.m	Sample	50/500	OP99084,S6Q356,4.98,,,5.0,1,soil	✓
104	6Q25009.d	P4-C8	FC9462-3	1633full.m	Sample	50/500	OP99084,S6Q356,5.01,,,5.0,1,soil	✓
105	6Q25010.d	P4-C9	FC9462-4	1633full.m	Sample	50/500	OP99084,S6Q356,5.00,,,5.0,1,soil	✓
106	6Q25011.d	P4-D1	OP99084-MS	1633full.m	Sample	50/500	OP99084,S6Q356,5.02,,,5.0,1,soil	✓
107	6Q25012.d	P4-D2	OP99084-MSD	1633full.m	Sample	50/500	OP99084,S6Q356,5.00,,,5.0,1,soil	✓
108	6Q25013.d	P4-D3	FC9462-5	1633full.m	Sample	50/500	OP99084,S6Q356,4.95,,,5.0,1,soil	✓
109	6Q25014.d	P1-A5	cc356-4	1633full.m	QC	20/500	OP99081,S6Q356,500,,,5.0,1,water	✓
110	6Q25015.d	P1-A1	iccb	1633full.m	Sample	50/500	OP99081,S6Q356,500,,,5.0,1,water	✓
111	6Q25016.d	P3-B5	FC9131-8	1633full.m	Sample	100/500	OP99134,S6Q356,0.96,,,5.0,5,soil	✓
112	6Q25017.d	P3-B6	op99134-MS	1633full.m	Sample	100/500	OP99134,S6Q356,1.02,,,5.0,5,soil	✓
113	6Q25018.d	P3-B7	op99134-MSD	1633full.m	Sample	100/500	OP99134,S6Q356,1.02,,,5.0,5,soil	✓
114	6Q25019.d	P3-B8	FC9131-9	1633full.m	Sample	100/500	OP99134,S6Q356,1.01,,,5.0,5,soil	✓
115	6Q25020.d	P1-B3	RT TDCA	1633full.m	Sample	50/500	OP99081,S6Q356,500,,,5.0,1,water	✓
116	6Q25021.d	P1-B4	RT BR-LN	1633full.m	Sample	50/500	OP99081,S6Q356,500,,,5.0,1,water	✓
117	6Q25022.d	P1-A9	High Std	1633full.m	Sample	50/500	OP99081,S6Q356,500,,,5.0,1,water	✓
118	6Q25023.d	P1-A1	IBLK	1633full.m	Sample	50/500	OP99081,S6Q356,500,,,5.0,1,water	✓
119	6Q25024.d	P1-A5	cc356-4	1633full.m	QC	20/500	OP99081,S6Q356,500,,,5.0,1,water	✓
120	6Q25025.d	P1-A2	cc356-1.0LL	1633full.m	QC	1.6/500	OP99081,S6Q356,500,,,5.0,1,water	✓
121	6Q25026.d	P3-B5	FC9131-8	1633full.m	Sample	100/500	OP99134,S6Q356,0.96,,,5.0,5,soil	✓



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122	6Q25027.d	P3-B6	op99134-MS	1633full.m	Sample	100/500	OP99134,S6Q356,1.02,,5.0,5.soil	✓
123	6Q25028.d	P3-B7	op99134-MSD	1633full.m	Sample	100/500	OP99134,S6Q356,1.02,,5.0,5.soil	✓
124	6Q25029.d	P3-B8	FC9131-9	1633full.m	Sample	100/500	OP99134,S6Q356,1.01,,5.0,5.soil	✓
125	6Q25030.d	P3-B9	FC9222-9	1633full.m	Sample	100/500	OP99134,S6Q356,0.98,,5.0,5.soil	✓
126	6Q25031.d	P1-A8	FC9222-10	1633full.m	Sample	50/500	OP99134,S6Q356,1.04,,5.0,10.soil	RR wrong position
127	6Q25032.d	P4-E3	FC9222-11	1633full.m	Sample	100/500	OP99134,S6Q356,0.96,,5.0,5.soil	RR wrong position
128	6Q25033.d	P3-B5	FC9131-8	1633full.m	Sample	100/500	OP99134,S6Q356,0.96,,5.0,5.soil	not use.
129	6Q25034.d	P4-D4	FC9406-4	1633full.m	Sample	100/500	OP99155,S6Q356,5.10,,5.0,5.water	✓
130	6Q25035.d	P4-D5	FC9406-5	1633full.m	Sample	250/500	OP99155,S6Q356,5.15,,5.0,2.water	✓
131	6Q25036.d	P1-A5	Ecc356-4	1633full.m	QC	20/500	OP99081,S6Q356,500,,5.0,1.water	✓
132	6Q25037.d	P1-A1	iccb	1633full.m	Sample		OP99081,S6Q356,500,,5.0,1.water	✓
133	6Q25038.d	P1-C1	Test new spike	1633full.m	Sample	20/500	OP99081,S6Q356,500,,5.0,1.water	LCMS 2192-A
134	6Q25039.d	P1-C2	Test new spike	1633full.m	Sample	20/500	OP99081,S6Q356,500,,5.0,1.water	LCMS 2192-B
135	6Q25040.d	P1-C3	Test new spike	1633full.m	Sample	20/500	OP99081,S6Q356,500,,5.0,1.water	LCMS 2192-C
136	6Q25041.d	P1-C4	Test new spike	1633full.m	Sample	20/500	OP99081,S6Q356,500,,5.0,1.water	LCMS 2192-E

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 2192A-E	1033 Cal std. (SPIKE)	LCMS 2191	PFAC Bx-Me	Sgs Labs	M/A	12/28/23	2ppm	250uL	4 mL	125	1033	9/29/23	12/28/23	MW
		11940	PFAC	Wellington	4-19-28	9/24/23	1-4 ppm	250uL		125				
		11908	MXH			9/24/23				250ppb				
		11947B	PFAC		3-24-26	9/15/24	2ppm	250uL		125ppb				
		11943A	MXF		12-1-27	9/24/24	2ppm	250uL		125ppb				
		11948A	PFAC		3-28-28	9/15/24	4-20 ppm	312 uL		312				
		11948B	MXG			9/24/24				1100				
		11971	PFAC		05/13/27	09/25/24	50ppm	200 uL	2.0 mL	5ppb	95% MeOH	09/25/23	03/25/24	JR
		11992	MXJ			09/25/24					5% H ₂ O			
LCMS 2193	FOSE Std	11409	N-ET-FOSE	Wellington Labs										
		11410	N-Me-FOSE		05/13/27	09/25/24								
LCMS 2194	Full List 40 Spike (cal std)	11904/12006	PFAC-DOB (25 comp)	Absolute	03/13/28	09/11/24	1.0 ppm	400 uL	4.0 mL	100ppb	95% MeOH	09/25/23	10/16/23	JR
		LCMS 2179	40 List Add-on#1	SGS Std	-	10/18/23								
		LCMS 2156	40 List Add-on#2		-	02/07/24								
		LCMS 2193	FOSE Std.		-	03/25/24	5.0 ppm			500ppb				

* 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 2188A-J	PFC 1D Surr (10ppb)	11986 A-J	MPFAC-24ES	Wellington Labs	06/08/28	09/19/24	1.0 ppm	1.2 mL	~2.5 mL	0.5 ppm	95% MeOH 5% H ₂ O	9/19/23	03/19/24	JP
		11811	M3HFO-DA		04/03/26	09/06/24	50 ppm	24 mL						
		11709	2-N-Me FOSA-M		11/11/27	08/12/24								
LCMS 2189A	T-PFOA Std. (RT)	10818	T-PFOA	Wellington Labs	01/08/26	10/27/23	50 ppm	8 µL	4 mL	100 ppb	95% MeOH 5% H ₂ O	09/21/23	10/27/23	AL
LCMS 2190	PFMS 1033 Cal Std (CapikE)	11946B	PFAC MxH	Wellington Labs	4/19/28	9/21/24	1-4 ppm	250 µL	4 mL	02.5 125 250 ppb 125	1033 mix (26854)	9/21/23	12/8/23	MW
		LCMS 2154	BR-LN Et+Me	Sgs labs	MA	12/8/23	2 ppm	250 µL		312 ppb				
		11947B	PFAC Mx F	Wellington Labs	3-24-26	9/15/24	2 ppm	250 µL		125 ppb				
		11947C	PFAC Mx J		3-28-28	9/15/24	4-20 ppm	312 µL		312 1160 ppb				
		11948	PFAC Mx G		12/1/27	9/15/24	2 ppm	250 µL		125 ppb				
LCMS 2191	1033 BR-LN Me+EtFosa	11497	br-N Me+fosa	Wellington Labs	8/23/27	12/28/23	50 ppm	100 µL	2.5 mL	2 ppm	1033 mix (18026)	9/24/23	12/28/23	MW
		11498	br-N Et+fosa		10/17/27	12/28/23		100 µL		2 ppm				
		11795	br-N Me+fosa		10/17/27	06/28/24		250 µL		5 ppm				
		11796	br-N Et+fosa		10/17/27	06/28/24		250 µL		5 ppm				
						Continue next page MW								

* 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 2180	List 40 Spike (Cal Std)	11940	PFA-POP (25 Comp)	Absolute	03/13/28	08/29/24	1.0 ppm	400 uL	4.0 mL	100 ppb	95% MeOH 5% H2O	09/09/23	07/19/23	JR
		68MS 2179	40 list Add-on #1	-	-	10/18/23								
		LCMS 2156	40 list Add-on #2	-	-	02/07/24								
		LCMS 2176	PGE Std	-	-	09/19/23	5.0 ppm							
LCMS 2181	537.1 DW Spike	11811	MCHPPO DA	Wellington Labs	04/03/26	09/16/24	50 ppm	200 uL	5 mL	2.0 ppm	91% MeOH 9% H2O	09/16/23	03/16/24	NG
		11337	05-EA-N ROSAA		05/11/27	09/16/24		200 uL						NG
		99926	NPFA		09/05/24	03/16/24		100 uL		1.0 ppm				NG
		99938	MPFAA		10/11/24	03/16/24		100 uL						NG
LCMS 2182	537.1 DW Spike	11940	PFA-DND (25 Comp)	Absolute	03/13/28	08/29/24	1.0 ppm	1 mL	5 mL	200 ppb	91% MeOH 9% H2O	09/16/23	03/16/24	NG
LCMS 2183	537.1 DW Std.	11940	PFA-DND (25 Comp)	Absolute	03/13/28	08/29/24	1.0 ppm	400 uL	4 mL	100 ppb	91% MeOH 9% H2O	09/16/23	03/16/24	NG
		LCMS 2181	DW Spike	-	-	03/16/24	10/20 ppm	400 uL		100/200 ppb				NG
LCMS 2184	PFC Spike	11940/11964	PFA-POP (25 Comp)	Absolute	03/13/28	08/29/24	1.0 ppm	2 mL	5 mL	400 ppb	95% MeOH 5% H2O	09/11/23	03/11/24	JR
		11432	N-Me-EFA	Wellington Labs	02/28/27	03/13/24	50 ppm	40 uL						
		11793	FA-1		02/01/28	08/08/24								
		11792	FHSA-1		12/01/27	08/08/24								
		11332	PFECHS		03/29/27	04/18/24								

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

ORLO-CAC-0017-6-03-EODM-Form-std-prep-log-vic-030819

Organic Standards Preparation Log

SGS - Orlando Std. #	Parent Name	Parent Vendor	Parent Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2175 A-F	1033 spike Cal standard.	SGS LABS	NA	12/28/23	2ppm	250uL	400L	125 312.5ppb	1033 MIX (2000uL)	9/5/23	12/18/23	MJ
		Wellington	4/19/28	8/20/24	1-4 ppm			62.5 125 250ppb				
			3/24/26	8/31/24	2ppm			125ppb				
			12/1/27	8/31/24	2ppm			125ppb				
			5/28/28	9/5/24	4-20 ppm	312uL		312 1100ppb				
LCMS 2176	FOSE Std	Wellington Labs	5/13/27	9/19/23	50ppm	100 200uL	1.0 2.0mL	5 ppm	95% MeOH 5% H2O	9/05/23	9/19/23	JR
			3/13/28	8/29/24	1.0 ppm	400 mL	4.0 mL	100 ppb	95% MeOH 5% H2O	9/05/23	03/05/24	JR
LCMS 2177	PFC ID Std	Wellington Labs	02/28/27	3/13/24	50 ppm	8 mL						
			02/01/28	8/08/24								
			12/01/27	8/08/24								
			3/28/27	4/18/24								
			9/08/28	8/06/24	1.0 ppm	1.2 mL	~2.5 mL	0.5 ppm	75% MeOH 5% H2O	9/04/23	03/06/24	JR
LCMS 2178 A-J	PFC ID SURF (10)	Wellington Labs	4/03/26	9/00/24	50 ppm	24 mL						
			11/1/27	8/12/24								

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

Ended 09/06/23

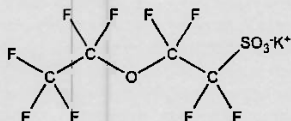
10762 A-B



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFEESA *rec'd 8/20/21 WPH* **LOT NUMBER:** PFEESA0520
COMPOUND: Potassium perfluoro(2-ethoxyethane)sulfonate
STRUCTURE: **CAS #:** 117205-07-9



MOLECULAR FORMULA: C₄F₈SO₄K **MOLECULAR WEIGHT:** 354.19
CONCENTRATION: 50.0 ± 2.5 µg/ml (K salt) **SOLVENT(S):** Methanol
 44.6 ± 2.2 µg/ml (PFEESA acid)
 44.5 ± 2.2 µg/ml (PFEESA anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/13/2020
EXPIRY DATE: (mm/dd/yyyy) 05/13/2025
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

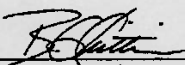
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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

7.9.1

7

10765 A-13



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

3,6-OPFHpA

*rec'd
WPH
8/20/21*

LOT NUMBER:

36OPFHpA0320

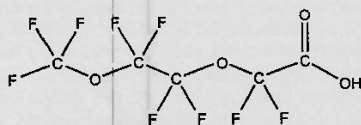
COMPOUND:

Perfluoro-3,6-dioxaheptanoic acid

STRUCTURE:

CAS #:

151772-58-6



MOLECULAR FORMULA:

C₆H₂F₉O₄

MOLECULAR WEIGHT:

296.04

CONCENTRATION:

50.0 ± 2.5 µg/ml

SOLVENT(S):

Methanol
Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

03/31/2020

EXPIRY DATE: (mm/dd/yyyy)

03/31/2025

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

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

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-EtFOSA-M

10837

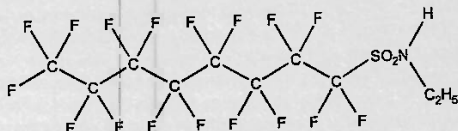
LOT NUMBER: NEtFOSA0821M

COMPOUND:

N-ethylperfluoro-1-octanesulfonamide

STRUCTURE:

CAS #: 4151-50-2



MOLECULAR FORMULA:

C₁₀H₉F₁₇NO₂S

MOLECULAR WEIGHT:

527.20

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

08/12/2021

EXPIRY DATE: (mm/dd/yyyy)

08/12/2026

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

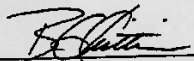
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:


B.G. Chittim, General Manager

Date: 08/16/2021
(mm/dd/yyyy)

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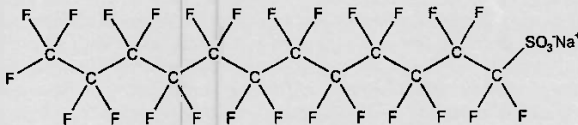
10840

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

LOT NUMBER: LPFDoS0721

STRUCTURE:

CAS #: 1260224-54-1



MOLECULAR FORMULA: C₁₂F₂₅SO₃Na
CONCENTRATION: 50.0 ± 2.5 µg/mL (Na salt)
48.5 ± 2.4 µg/mL (PFDoS acid)
48.4 ± 2.4 µg/mL (PFDoS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 07/09/2021
EXPIRY DATE: (mm/dd/yyyy) 07/09/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 722.14
SOLVENT(S): Methanol


DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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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10847 NS 01/18/23

PRODUCT CODE:

PFODA

LOT NUMBER:

PFODA0821

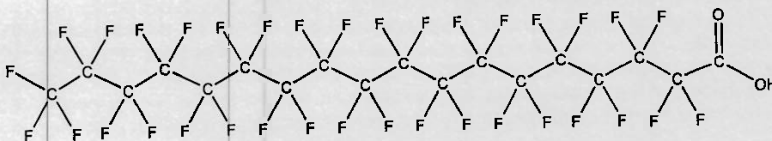
COMPOUND:

Perfluoro-n-octadecanoic acid

STRUCTURE:

CAS #:

16517-11-6



MOLECULAR FORMULA:

C₁₈H₃₅O₂

MOLECULAR WEIGHT:

914.14

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

09/03/2021

EXPIRY DATE: (mm/dd/yyyy)

09/03/2026

RECOMMENDED STORAGE:

Store ampoule at ambient temperature in a dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 09/28/2021

(mm/dd/yyyy)

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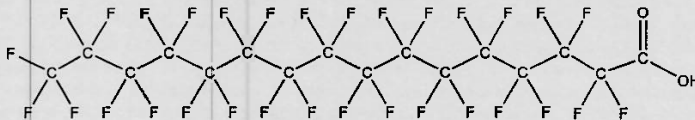
CERTIFICATE OF ANALYSIS
DOCUMENTATION

10842 * NG 01/18/23

PRODUCT CODE: PFHxDA **LOT NUMBER:** PFHxDA0421

COMPOUND: Perfluoro-n-hexadecanoic acid

STRUCTURE: **CAS #:** 67905-19-5



MOLECULAR FORMULA: C₁₆HF₃₁O₂ **MOLECULAR WEIGHT:** 814.13

CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol
Water (<1%)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 05/07/2021

EXPIRY DATE: (mm/dd/yyyy) 05/07/2026

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

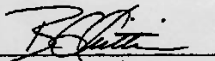
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager **Date:** 05/25/2021
(mm/dd/yyyy)

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1116 A.B NW

1116B on the back NW



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHpPA

LOT NUMBER:

FHpPA1020

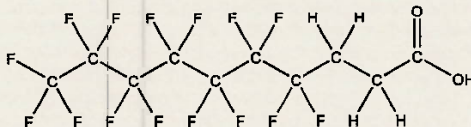
COMPOUND:

3-Perfluoroheptyl propanoic acid

STRUCTURE:

CAS #:

812-70-4



MOLECULAR FORMULA:

C₁₀H₅F₁₅O₂

MOLECULAR WEIGHT:

442.12

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/12/2020

EXPIRY DATE: (mm/dd/yyyy)

11/12/2025

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

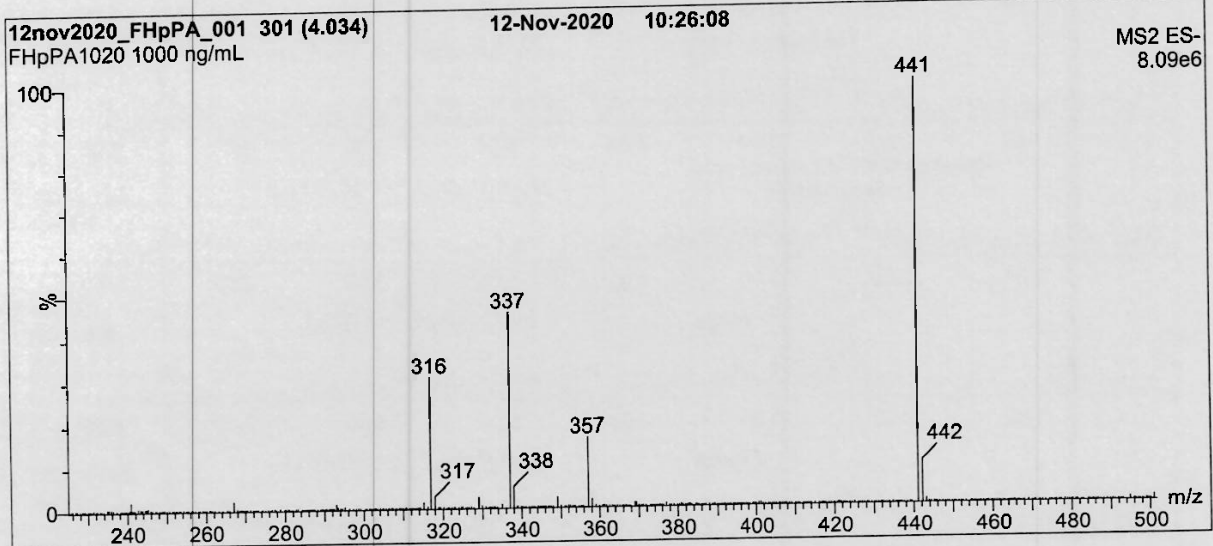
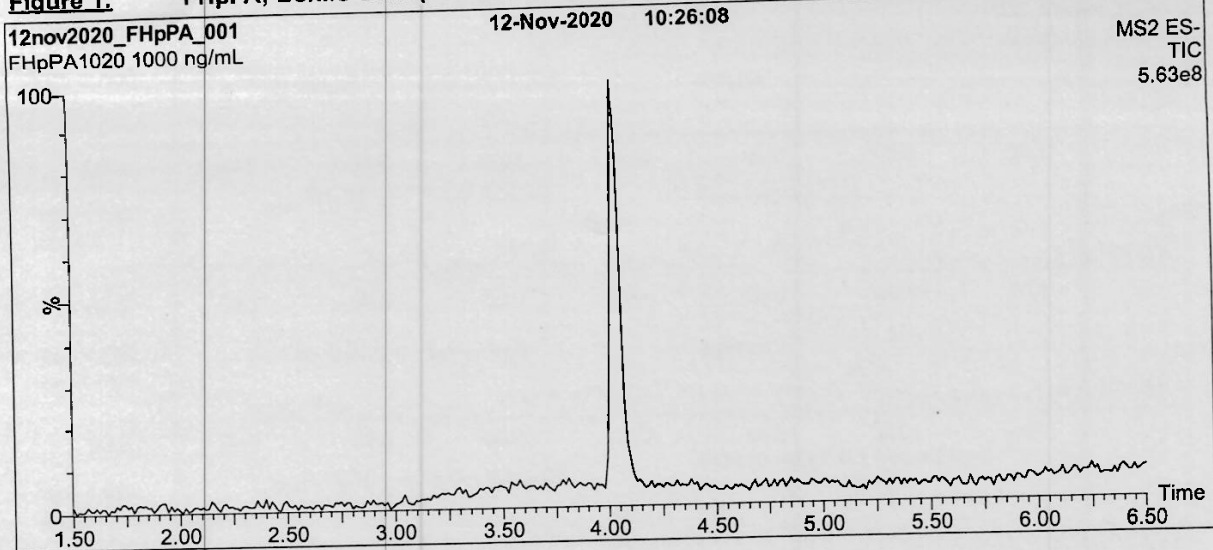
Date: 11/27/2020

(mm/dd/yyyy)

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

FHpPA1020 (1 of 4)
rev0

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

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

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% H₂O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 μ L/min

MS Parameters:

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 28.50
Desolvation Temperature ($^{\circ}$ C) = 500
Desolvation Gas Flow (L/hr) = 1000

FPrPA(3:3FTEA) 1116 B



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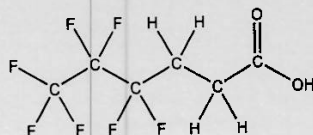
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: FPrPA
COMPOUND: 3-Perfluoropropyl propanoic acid

LOT NUMBER: FPrPA0122

STRUCTURE:

CAS #: 356-02-5



MOLECULAR FORMULA: C₆H₅F₇O₂
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

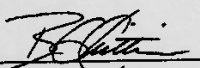
DOCUMENTATION/ DATA ATTACHED:

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 (C₆H₃F₇O₂) as an impurity determined by ¹⁹F 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



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

L-PFPrS

LOT NUMBER:

LPFPrS0721

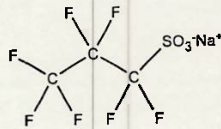
COMPOUND:

Sodium perfluoro-1-propanesulfonate

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

C₃F₇SO₃Na

MOLECULAR WEIGHT:

272.07

CONCENTRATION:

50.0 ± 2.5 µg/mL (Na salt)
 46.0 ± 2.3 µg/mL (PFPrS acid)
 45.8 ± 2.3 µg/mL (PFPrS anion)

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

07/12/2021

EXPIRY DATE: (mm/dd/yyyy)

07/12/2026

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 08/04/2021

(mm/dd/yyyy)

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11338



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-MeFOSE-M

LOT NUMBER:

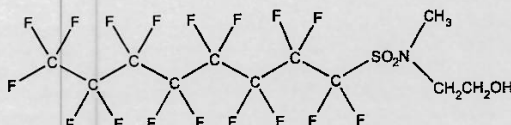
NMeFOSE0522M

COMPOUND:

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

STRUCTURE:**CAS #:**

24448-09-7

**MOLECULAR FORMULA:**C₁₁H₈F₁₇NO₃S**MOLECULAR WEIGHT:**

557.22

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

05/13/2022 (HRGC/LRMS)

05/13/2022 (LC/MS)

EXPIRY DATE: (mm/dd/yyyy)

05/13/2027

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

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

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11497



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CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NMeFOSA

N-Methylperfluorooctanesulfonamide Isomeric Mix

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

DESCRIPTION:

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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

brNMeFOSA0822 (1 of 6)
 rev1

7.9.1

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11498



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NEtFOSA

N-Ethylperfluorooctanesulfonamide Isomeric Mix

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

DESCRIPTION:

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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11514 rec'd 11/14/22

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHxSA-I

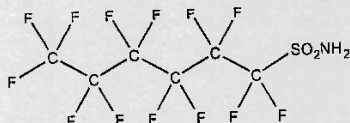
LOT NUMBER: FHxSA1221I

COMPOUND:

Perfluoro-1-hexanesulfonamide

CAS #: 41997-13-1

STRUCTURE:



MOLECULAR FORMULA:

C₆H₂F₁₃NO₂S

MOLECULAR WEIGHT: 399.13

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Isopropanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

12/29/2021

EXPIRY DATE: (mm/dd/yyyy)

12/29/2026

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:

B.G. Chittim, General Manager

Date: 01/10/2022
(mm/dd/yyyy)

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FHxSA1221I (1 of 4)

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11649 Rec. 02/13/23

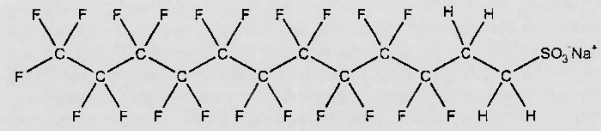


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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: 10:2FTS **LOT NUMBER:** 102FTS1122
COMPOUND: Sodium 1H,1H,2H,2H-perfluorododecanesulfonate

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



MOLECULAR FORMULA: C₁₂H₄F₂₁SO₃Na **MOLECULAR WEIGHT:** 650.18
CONCENTRATION: 50.0 ± 2.5 µg/mL (Na salt) **SOLVENT(S):** Methanol
 48.3 ± 2.4 µg/mL (10:2FTS acid)
 48.2 ± 2.4 µg/mL (10:2FTS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 12/01/2022
EXPIRY DATE: (mm/dd/yyyy) 12/01/2027
RECOMMENDED STORAGE: Refrigerate ampoule

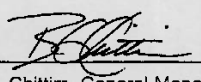
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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Revision# 9, Revised 2020-12-23

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11710
rec'd: 03/17/23



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-MeFOSA-M

LOT NUMBER:

NMeFOSA1122M

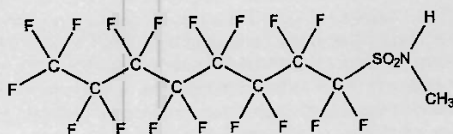
COMPOUND:

N-Methylperfluoro-1-octanesulfonamide

STRUCTURE:

CAS #:

31506-32-8



MOLECULAR FORMULA:

C₉H₄F₁₇NO₂S

MOLECULAR WEIGHT:

513.17

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/11/2022

EXPIRY DATE: (mm/dd/yyyy)

11/11/2027

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.

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Certified By:

B.G. Chittim, General Manager

Date: 11/25/2022

(mm/dd/yyyy)

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11794
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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFECHS

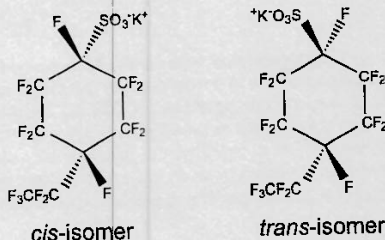
LOT NUMBER: PFECHS0223

COMPOUND:

Potassium perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)

STRUCTURE:

CAS #: 335-24-0



MOLECULAR FORMULA:

C₉F₁₅SO₃K

MOLECULAR WEIGHT: 500.22

CONCENTRATION:

50.0 ± 2.5 µg/mL (K salt)
46.2 ± 2.3 µg/mL (PFECHS acid)
46.1 ± 2.3 µg/mL (PFECHS anion)

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

03/14/2023

EXPIRY DATE: (mm/dd/yyyy)

03/14/2028

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*, by ¹⁹F NMR).

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Certified By:

B.G. Chittim, General Manager

Date: 03/16/2023
(mm/dd/yyyy)

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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 ¹⁹F-NMR
- Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 3: LC/MS Data (SIR)
- Figure 4: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

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

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Revision#: 9, Revised 2020-12-23

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11796
rec'd: 05/15/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NEtFOSE

2-(N-Ethylperfluorooctanesulfonamido)ethanol
Isomeric Mix

PRODUCT CODE:	br-NEtFOSE
LOT NUMBER:	brNEtFOSE1022
CONCENTRATION:	50.0 ± 2.5 µg/mL
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	09/12/2022
LAST TESTED: (mm/dd/yyyy)	09/12/2022 (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-ethylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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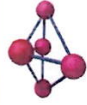
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Form#: 13, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

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Certified Reference Material CRM

CERTIFIED WEIGHT REPORT

Part Number: 64029A
Lot Number: 031323
Description: PFOA - DOD

Expiration Date:
Recommended Storage:
Nominal Concentration (µg/mL):
NIST Test ID:

Solvent(s): Methanol (1 mM KOH)
2-Propanol
Lot #: 102722 (96%)
33600 (2%)
Purity: 99.98%

Formulated By: Prashant Chauhan
Reviewed By: Pedro L. Renteria
DATE: 03/13/23

Formulated By: Prashant Chauhan
Reviewed By: Pedro L. Renteria
DATE: 03/13/23

Volumes shown below were combined and diluted to (mL).
Notes: All assigned values are carbon concentrations.

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty (mL)	Final Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Uncertainty (%)	SDS Information (Solvent Safety Info. On Attached PP)	OSHA PEL (TWA)	LD50
Perfluorobutanoic acid (PFBA)	99242	110422	0.02	2.00	0.017	50.1	1.00	0.02	375-22-4	N/A	N/A	
Perfluoropentanoic acid (PFPA)	99243	011723	0.02	2.00	0.017	50.3	1.01	0.02	2709-90-3	N/A	N/A	
Perfluorohexanoic acid (PFHxA)	99198	071122	0.02	2.00	0.017	50.2	1.00	0.02	307-94-4	N/A	N/A	
Perfluoroheptanoic acid (PFHpA)	99197	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-65-8	N/A	iprcl 10mg/kg	
Perfluorooctanoic acid (PFPOA)	99202	080522	0.02	2.00	0.017	50.2	1.00	0.02	335-81-1 (L)	N/A	iprcl 10mg/kg	
Perfluorononanoic acid (PFNA)	99200	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-95-1	N/A	oral 50mg/kg	
Perfluorodecanoic acid (PFDA)	99195	110922	0.02	2.00	0.017	50.2	1.00	0.02	2069-94-8	N/A	N/A	
Perfluoroundecanoic acid (PFUdA)	99205	071522	0.02	2.00	0.017	50.1	1.00	0.02	307-55-1	N/A	N/A	
Perfluorododecanoic acid (PFDDA)	99198	071522	0.02	2.00	0.017	50.1	1.00	0.02	2709-94-8	N/A	N/A	
Perfluorotridecanoic acid (PFTrDA)	99203	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-95-1	N/A	N/A	
Perfluorotetradecanoic acid (PFTrDA)	99204	030322	0.02	2.00	0.017	50.1	1.00	0.02	2069-94-8	N/A	N/A	
Perfluoropentadecanoic acid (PFPeDA)	99201	030322	0.02	2.00	0.017	50.1	1.00	0.02	375-95-1	N/A	N/A	
Perfluorohexadecanoic acid (PFHxDA)	4162	INHEPDSAA429	0.02	2.00	0.017	50.0	1.00	0.05	2555-51-9 (L)	N/A	N/A	
Perfluoroheptadecanoic acid (PFHeDA)	4163	INHEPDSAA429	0.02	2.00	0.017	50.0	1.00	0.05	2981-60-8 (L)	N/A	N/A	
Perfluorooctadecanoic acid (PFODa)	99194	080522	0.02	2.00	0.017	50.2	1.00	0.02	375-25-3	N/A	N/A	
Perfluorononadecanoic acid (PFNDa)	99244	081522	0.02	2.00	0.017	50.1	1.00	0.02	2709-91-4	N/A	N/A	
Perfluorodecylsulfonic acid (PFDS)	99198	030523	0.02	2.00	0.017	50.0	1.00	0.02	355-46-4 (L)	N/A	N/A	
Perfluoroundecylsulfonic acid (PFUS)	99201	030523	0.02	2.00	0.017	50.1	1.00	0.02	1783-28-1 (L)	N/A	N/A	
Perfluorododecylsulfonic acid (PFDDs)	3957	LPFDS0622	0.02	2.00	0.017	48.0	1.01	0.05	86296-18-1	N/A	N/A	
Perfluorotridecylsulfonic acid (PFTrDs)	3957	LPFDS1122	0.02	2.00	0.017	48.0	1.01	0.05	86296-18-1	N/A	N/A	
Perfluorotetradecylsulfonic acid (PFTeDs)	3671	LPFDS1122	0.02	2.00	0.017	48.0	1.01	0.05	335-77-3	N/A	N/A	
Perfluoropentadecylsulfonic acid (PFPeDs)	65271	080522	0.02	2.00	0.017	50.2	1.00	0.05	257134-72-4	N/A	N/A	
Perfluorohexadecylsulfonic acid (PFHeDs)	65272	031023	0.02	2.00	0.017	50.2	1.00	0.05	27119-97-2	N/A	N/A	
Perfluoroheptadecylsulfonic acid (PFHxDs)	3682	RFPS0622	0.02	2.00	0.017	47.9	1.01	0.05	31106-54-4	N/A	N/A	
Perfluorooctadecylsulfonic acid (PFODs)	99266	080522	0.02	2.00	0.017	50.1	1.00	0.02	13235-15-8	N/A	N/A	
Perfluorononadecylsulfonic acid (PFNDs)	4165	11CFPDS0622	0.02	2.00	0.017	47.1	1.00	0.05	756426-58-1	N/A	N/A	
Perfluorodecylsulfonic acid (PFDDs)	4164	11CFPDS1022	0.02	2.00	0.017	48.5	1.00	0.05	756426-58-1	N/A	N/A	
Perfluorotridecylsulfonic acid (PFTrDs)	4163	11CFPDS1022	0.02	2.00	0.017	47.1	1.00	0.05	618005-14-4	N/A	N/A	
Perfluorotetradecylsulfonic acid (PFTeDs)	4163	11CFPDS1022	0.02	2.00	0.017	47.1	1.00	0.05	618005-14-4	N/A	N/A	
Perfluoropentadecylsulfonic acid (PFPeDs)	99202	080522	0.02	2.00	0.017	49.6	0.99	0.10	335-67-1 (L)	N/A	iprcl 10mg/kg	
Perfluoroheptadecylsulfonic acid (PFHeDs)	99202	080522	0.02	2.00	0.017	44.0	0.88	0.02	335-67-1 (L)	N/A	iprcl 10mg/kg	
Perfluorooctadecylsulfonic acid (PFODs)	99196	030923	0.02	2.00	0.017	44.0	0.88	0.02	335-67-1 (L)	N/A	iprcl 10mg/kg	
Perfluorononadecylsulfonic acid (PFNDs)	99196	030923	0.02	2.00	0.017	44.0	0.88	0.02	335-67-1 (L)	N/A	iprcl 10mg/kg	
Perfluorodecylsulfonic acid (PFDDs)	99201	030923	0.02	2.00	0.017	38.1	0.76	0.02	1783-28-1 (L)	N/A	N/A	
Perfluorotridecylsulfonic acid (PFTrDs)	99201	030923	0.02	2.00	0.017	7.5	0.15	0.003	1783-28-1 (L)	N/A	N/A	
Perfluorotetradecylsulfonic acid (PFTeDs)	99201	030923	0.02	2.00	0.017	4.0	0.08	0.002	1783-28-1 (L)	N/A	N/A	
Perfluoropentadecylsulfonic acid (PFPeDs)	99201	030923	0.02	2.00	0.017	0.5	0.010	0.0002	1783-28-1 (L)	N/A	N/A	
Methylperfluoro-1-octanesulfonamide acid (linear)*	4162	INHEPDSAA429	0.02	2.00	0.017	36.0	0.72	0.04	2935-51-8 (L)	N/A	N/A	
Methylperfluoro-1-octanesulfonamide acid (branched)*	4163	INHEPDSAA429	0.02	2.00	0.017	8.5	0.13	0.011	2355-51-8 (L)	N/A	N/A	
Methylperfluoro-1-decylsulfonamide acid (linear)*	4162	INHEPDSAA429	0.02	2.00	0.017	5.0	0.10	0.005	2355-51-8 (L)	N/A	N/A	
Methylperfluoro-1-decylsulfonamide acid (branched)*	4163	INHEPDSAA429	0.02	2.00	0.017	2.5	0.05	0.0006	2355-51-8 (L)	N/A	N/A	
Methylperfluoro-1-dodecylsulfonamide acid (linear)*	4163	INHEPDSAA429	0.02	2.00	0.017	36.6	0.73	0.04	2931-50-8 (L)	N/A	N/A	
Methylperfluoro-1-dodecylsulfonamide acid (branched)*	4163	INHEPDSAA429	0.02	2.00	0.017	7.7	0.15	0.009	2931-50-8 (L)	N/A	N/A	
Methylperfluoro-1-tetradecylsulfonamide acid (linear)*	4163	INHEPDSAA429	0.02	2.00	0.017	5.3	0.11	0.005	2931-50-8 (L)	N/A	N/A	
Methylperfluoro-1-tetradecylsulfonamide acid (branched)*	4163	INHEPDSAA429	0.02	2.00	0.017	0.4	0.007	0.0006	2931-50-8 (L)	N/A	N/A	

*Concentrations for branched and linear isomers are based on LC/MS chromatographic analysis only.

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

The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
* Standards are certified to ±0.16% of the stated value, unless otherwise stated.
* Uncertainty includes contributions from gravimetric and volumetric measurements, and the uncertainty of the analytical method.
* Uncertainty Information: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results", NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

Part # 64029A Lot # 031323

Printed: 8/3/2023, 4:45:20 PM

1 of 2

Part # 64029A Lot # 031323

11946 A-B
rec'd: 08/09/23



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 (C₄-C₁₄), eight native perfluoroalkanesulfonates (C₄, C₆, C₇, C₈, C₁₀ and C₁₂ linear; C₆ and C₈ linear and branched), three native fluorotelomer sulfonates (4:2, 6:2, and 8:2), two native linear and branched perfluorooctanesulfonamidoacetic acids, and perfluoro-1-octanesulfonamide. 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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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	
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 ^a	N-MeFOSAA: linear isomer	760		20
	N-MeFOSAA: ∑ branched isomers	240		17
N-Ethylperfluorooctanesulfonamidoacetic acid ^b	N-EtFOSAA: linear isomer	775		22
	N-EtFOSAA: ∑ branched isomers	225		21
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro-1-butanedisulfonate	L-PFBS	1000	887	3
Sodium perfluoro-1-pentadisulfonate	L-PFPeS	1000	941	6
Potassium perfluorohexadisulfonate ^c	PFHxSK: linear isomer	811	741	9
	PFHxSK: ∑ branched isomers	189	173	8
Sodium perfluoro-1-heptadisulfonate	L-PFHpS	1000	953	12
Potassium perfluorooctadisulfonate ^d	PFOSK: linear isomer	788	732	15
	PFOSK: ∑ branched isomers	211	196	13
Sodium perfluoro-1-nonadisulfonate	L-PFNS	1000	962	19
Sodium perfluoro-1-decadisulfonate	L-PFDS	1000	965	25
Sodium perfluoro-1-dodecadisulfonate	L-PFDoS	1000	970	28
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	4000	3750	4
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	4000	3800	10
Sodium 1H,1H,2H,2H-perfluorodecane sulfonate	8:2FTS	4000	3840	16

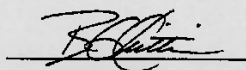
^a See Table B for percent composition of linear and branched N-MeFOSAA isomers.

^b See Table C for percent composition of linear and branched N-EtFOSAA isomers.

^c See Table D for percent composition of linear and branched PFHxSK isomers.

^d See Table E for percent composition of linear and branched PFOSK isomers.

* Concentrations have been rounded to three significant figures.

Certified By: 
B.G. Chittim, General Manager

Date: 05/11/2023
(mm/dd/yyyy)

11947A-B
rec'd: 08/09/23



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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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PFACMXF0323 (1 of 5)
rev0

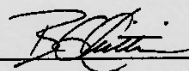
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Table A: PFAC-MXF; Components and Concentrations (ng/mL; ± 5% in Methanol/Water (<1%))

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.

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 B.G. Chittim, General Manager

Date: 03/29/2023
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11948 A-B
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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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PFACMXG1122 (1 of 5)
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Table A: PFAC-MXG; Components and Concentrations (ng/mL; ± 5% in methanol/water (<1%))

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-4-oxapentanoic acid	PF4OPeA	2000		A
Perfluoro-5-oxahexanoic acid	PF5OHxA	2000		B
Perfluoro-3,6-dioxahexanoic acid	3,6-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.

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

11968
rec'd 08/22/23



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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 (C₄-C₁₄), eight native perfluoroalkanesulfonates (C₄, C₆, C₇, C₈, C₁₀ and C₁₂ linear; C₆ and C₈ linear and branched), three native fluorotelomer sulfonates (4:2, 6:2, and 8:2), two native linear and branched perfluorooctanesulfonamidoacetic acids, and perfluoro-1-octanesulfonamide. 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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PFACMXH0423 (1 of 11)
rev 1

7.9.1
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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 ^a	N-MeFOSAA: linear isomer	760		20
	N-MeFOSAA: ∑ branched isomers	240		17
N-Ethylperfluorooctanesulfonamidoacetic acid ^b	N-EtFOSAA: linear isomer	775		22
	N-EtFOSAA: ∑ branched isomers	225		21
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro-1-butanesulfonate	L-PFBS	1000	887	3
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	1000	941	6
Potassium perfluorohexanesulfonate ^c	PFHxSK: linear isomer	811	741	9
	PFHxSK: ∑ branched isomers	189	173	8
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	1000	953	12
Potassium perfluorooctanesulfonate ^d	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

^a See Table B for percent composition of linear and branched N-MeFOSAA isomers.

^b See Table C for percent composition of linear and branched N-EtFOSAA isomers.

^c See Table D for percent composition of linear and branched PFHxSK isomers.

^d See Table E for percent composition of linear and branched PFOSK isomers.

* Concentrations have been rounded to three significant figures.

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B.G. Chittim, General Manager

Date: 05/11/2023
(mm/dd/yyyy)

11971
rec'd: 08/22/23



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture

PRODUCT CODE: PFAC-MXJ
LOT NUMBER: PFACMXJ0323
SOLVENT(S): Methanol
DATE PREPARED: (mm/dd/yyyy) 03/27/2023
LAST TESTED: (mm/dd/yyyy) 03/28/2023
EXPIRY DATE: (mm/dd/yyyy) 03/28/2028
RECOMMENDED STORAGE: 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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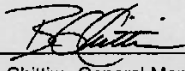
Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

PFACMXJ0323 (1 of 5)
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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

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Date: 04/12/2023
(mm/dd/yyyy)

11992
rec'd 08/13/23



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture

PRODUCT CODE: PFAC-MXJ
LOT NUMBER: PFACMXJ0323
SOLVENT(S): Methanol
DATE PREPARED: (mm/dd/yyyy) 03/27/2023
LAST TESTED: (mm/dd/yyyy) 03/28/2023
EXPIRY DATE: (mm/dd/yyyy) 03/28/2028
RECOMMENDED STORAGE: 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:

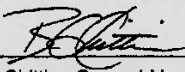
- See page 2 for further details.

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

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

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Date: 04/12/2023
(mm/dd/yyyy)

11994
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PRODUCT CODE:

FPePA (5:3)

LOT NUMBER:

FPePA0722

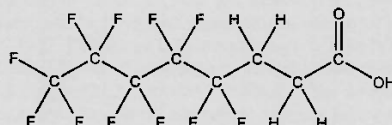
COMPOUND:

3-Perfluoropentyl propanoic acid

STRUCTURE:

CAS #:

914637-49-3



MOLECULAR FORMULA:

C₈H₅F₁₁O₂

MOLECULAR WEIGHT:

342.11

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

08/02/2022

EXPIRY DATE: (mm/dd/yyyy)

08/02/2027

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains <0.5% of the unsaturated 5:3 telomer acid (C₈H₃F₁₁O₂) as an impurity determined by ¹H NMR.

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Certified By:

B.G. Chittim, General Manager

Date: 08/10/2022

(mm/dd/yyyy)

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture

<u>PRODUCT CODE:</u>	PFAC-MXJ
<u>LOT NUMBER:</u>	PFACMXJ0323
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	03/27/2023
<u>LAST TESTED:</u> (mm/dd/yyyy)	03/28/2023
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	03/28/2028
<u>RECOMMENDED STORAGE:</u>	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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PFACMXJ0323 (1 of 5)
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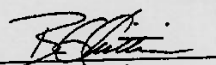
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A:

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)

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

PFACMXJ0323 (3 of 5)
rev0

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11988 A-5
rec'd: 08/13/23



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CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-ES

Mass-Labelled PFAS Extraction Standard Solution/Mixture

PRODUCT CODE:	MPFAC-HIF-ES
LOT NUMBER:	MPFACHIFES0623
SOLVENT(S):	Methanol/Isopropanol (1%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	06/19/2023
LAST TESTED: (mm/dd/yyyy)	06/20/2023
EXPIRY DATE: (mm/dd/yyyy)	06/20/2026
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

MPFAC-HIF-ES is a solution/mixture of ten mass-labelled (¹³C) perfluoroalkylcarboxylic acids (C₄-C₁₂, C₁₄), three mass-labelled (¹³C) perfluoroalkanesulfonates (C₄, C₆, and C₈), three mass-labelled (one ¹³C and two ²H) perfluoro-1-octanesulfonamides, three mass-labelled (¹³C) fluorotelomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (²H) perfluorooctanesulfonamidoacetic acids, two mass-labelled (²H) perfluorooctanesulfonamidoethanols, and mass-labelled (¹³C) hexafluoropropylene oxide dimer acid (¹³C₃-GenX, M3HFPO-DA). The components and their concentrations are given in Table A.

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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Revision#: 9, Revised 2020-12-23

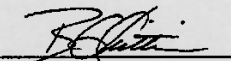
MPFACHIFES0623 (1 of 7)
rev0

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-(¹³ C ₄)butanoic acid	MPFBA	2000		1
Perfluoro-n-(¹³ C ₅)pentanoic acid	M5PFPeA	1000		2
Perfluoro-n-(1,2,3,4,6- ¹³ C ₅)hexanoic acid	M5PFHxA	500		5
Perfluoro-n-(1,2,3,4- ¹³ C ₆)heptanoic acid	M4PFHpA	500		7
Perfluoro-n-(¹³ C ₈)octanoic acid	M8PFOA	500		10
Perfluoro-n-(¹³ C ₉)nonanoic acid	M9PFNA	250		11
Perfluoro-n-(1,2,3,4,5,6- ¹³ C ₆)decanoic acid	M6PFDA	250		14
Perfluoro-n-(1,2,3,4,5,6,7- ¹³ C ₇)undecanoic acid	M7PFUdA	250		18
Perfluoro-n-(1,2- ¹³ C ₂)dodecanoic acid	MPFDoA	250		19
Perfluoro-n-(1,2- ¹³ C ₂)tetradecanoic acid	M2PFTeDA	250		24
Perfluoro-1-(¹³ C ₈)octanesulfonamide	M8FOSA	500		16
N-Methyl-d ₃ -perfluoro-1-octanesulfonamide	d-N-MeFOSA	500		21
N-Ethyl-d ₅ -perfluoro-1-octanesulfonamide	d-N-EtFOSA	500		23
N-Methyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000		15
N-Ethyl-d ₅ -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000		17
2-(N-Methyl-d ₃ -perfluoro-1-octanesulfonamido)ethan-d ₄ -ol	d7-N-MeFOSE	5000		20
2-(N-Ethyl-d ₅ -perfluoro-1-octanesulfonamido)ethan-d ₄ -ol	d9-N-EtFOSE	5000		22
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)(¹³ C ₃)propanoic acid	M3HFPO-DA	2000		6
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Sodium perfluoro-1-(2,3,4- ¹³ C ₃)butanesulfonate	M3PFBS	500	466	3
Sodium perfluoro-1-(1,2,3- ¹³ C ₃)hexanesulfonate	M3PFHxS	500	474	8
Sodium perfluoro-1-(¹³ C ₈)octanesulfonate	M8PFOS	500	479	12
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)hexanesulfonate	M2-4:2FTS	1000	938	4
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)octanesulfonate	M2-6:2FTS	1000	951	9
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)decanesulfonate	M2-8:2FTS	1000	960	13

* Concentrations have been rounded to three significant figures.

Certified By: 
B.G. Chittim, General Manager

Date: 06/22/2023
(mm/dd/yyyy)

11987A-J
rec'd: 08/13/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-IS

**Mass-Labelled PFAS Injection
Standard Solution/Mixture**

PRODUCT CODE: MPFAC-HIF-IS
LOT NUMBER: MPFACHIFIS0723
SOLVENT(S): Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 07/05/2023
LAST TESTED: (mm/dd/yyyy) 07/05/2023
EXPIRY DATE: (mm/dd/yyyy) 07/05/2028
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

MPFAC-HIF-IS is a solution/mixture of five mass-labelled (¹³C) perfluoroalkylcarboxylic acids (C₄, C₆, C₈-C₁₀) and two mass-labelled (¹⁸O and ¹³C) perfluoroalkanesulfonates (C₆ and C₈). The components and their concentrations are given in Table A.

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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

MPFACHIFIS0723 (1 of 5)
rev0

7.9.1
7

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

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-(2,3,4- ¹³ C ₃)butanoic acid	M3PFBA	1000		1
Perfluoro-n-(1,2- ¹³ C ₂)hexanoic acid	MPFHxA	500		2
Perfluoro-n-(1,2,3,4- ¹³ C ₄)octanoic acid	MPFOA	500		4
Perfluoro-n-(1,2,3,4,5- ¹³ C ₅)nonanoic acid	MPFNA	250		5
Perfluoro-n-(1,2- ¹³ C ₂)decanoic acid	MPFDA	250		7
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Sodium perfluoro-1-hexane(¹⁸ O ₂)sulfonate	MPFHxS	500	474	3
Sodium perfluoro-1-(1,2,3,4- ¹³ C ₄)octanesulfonate	MPFOS	500	479	6

* Concentrations have been rounded to three significant figures.

Certified By: 
B.G. Chittim, General Manager

Date: 07/07/2023
(mm/dd/yyyy)

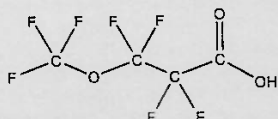
11648 Rec. 02/13/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PF4OPeA **LOT NUMBER:** PF4OPeA0722
COMPOUND: Perfluoro-4-oxapentanoic acid
SYNONYM: Perfluoro-3-methoxypropanoic acid (PFMPA) **CAS #:** 377-73-1
STRUCTURE:



MOLECULAR FORMULA: C₄HF₇O₃ **MOLECULAR WEIGHT:** 230.04
CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 08/02/2022
EXPIRY DATE: (mm/dd/yyyy) 08/02/2027
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

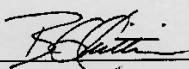
DOCUMENTATION/ DATA ATTACHED:

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 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

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Certified By: 
B.G. Chittim, General Manager Date: 08/15/2022
(mm/dd/yyyy)

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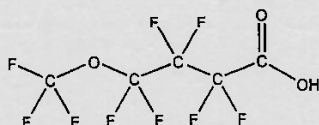
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WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PF5OHxA **LOT NUMBER:** PF5OHxA0722
COMPOUND: Perfluoro-5-oxahexanoic acid
SYNONYM: Perfluoro-4-methoxybutanoic acid (PFMBA)
STRUCTURE: **CAS #:** 863090-89-5



MOLECULAR FORMULA: $C_6H_2F_9O_3$ **MOLECULAR WEIGHT:** 280.05
CONCENTRATION: $50.0 \pm 2.5 \mu\text{g/mL}$ **SOLVENT(S):** Methanol
 Water (<1%)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 08/02/2022
EXPIRY DATE: (mm/dd/yyyy) 08/02/2027
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

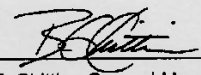
DOCUMENTATION/ DATA ATTACHED:

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 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: 08/26/2022
 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 09/21/23 09:40
Started (mm/dd/yyyy 24:00)

Method: EPA 1633 Draft (QSM) L: 5146

Date/Time: 9/24/23 14:38
Finished (mm/dd/yyyy 24:00)

Balance ID: _____

Batch#: OP99128

Ext. By: GH

Conc. By: _____

Viald By: _____

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount (ul)	Spike Amount (ul)	Final Volume (ml)	Manifold ID	Comments
OP 99128 MB		500	7	N/A	25		5	A4	
OP 99128 BS		500	7			200			
OP 99128 LLBS		500	7			600			
FC9163-5 Re	3	540	7						
FC9720-1	2	530	7						
	2	520	7	N/A	25		5	A4	
<i>GH 09/21/23</i>									
OPFC9720-1MS	3	520	7	N/A	25	200	5	A4	
OP MSD									
OPFC9720-2DUP	3	500	7	N/A	25		5	A4	

Comments:

EIS (SURR) ID: 119675-5 Conc: 350-5000ng/mL Exp. Date: 09/07/24 Inj. By: GH Ver. By: AG
 SPIKE.1 ID: LCMS 2175F Conc: VARIED Exp. Date: 12/28/23 Inj. By: GH Ver. By: AG
 SPIKE.2 ID: _____ Conc: _____ Exp. Date: _____ Inj. By: _____ Ver. By: _____
 NIS (ISTD) ID: 119870-E Conc: 250-501000 ng/mL Exp. Date: 9/18/24 Inj. By: MW Ver. By: MB

TurboVap Temp (Therm ID): _____ N-Evap Temp (Therm ID): _____
 Observed Temp °C: _____ Corr. Temp °C: _____ Observed Temp °C: _____ Corr. Temp °C: _____

Methanol Lot# 232031 1% NH4OH MeOH PF612 SPE Lot# 6744688-01
 Water Lot# 0P98130 051120 0.3M Formic Acid PF664 Syringe filter Lot # _____
 Acetic Acid# 194003 3% NH4OH Sol _____ pH paper Lot# 205423
 0.1M Formic PF614 5% Formic Acid _____ Carbon Lot# 99687

Relinquished By: Habibullah Fudust
 Accepted By: MW

Date: 09/21/23
 Date: 9/24/23

7.10.1
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