

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

e-Hardcopy 2.0
Automated Report

Technical Report for

AECOM, INC.

N6274223F0104 RH Fire Suppression System

60697810

SGS Job Number: FC2447

Sampling Date: 02/02/23



Report to:

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

Total number of pages in report: 552



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Norm Farmer
Technical Director

Client Service contact: Elvin Kumar 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), NC(573), NJ(FL002), NY(12022), SC(96038001)
DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177),
AL, AK, AR, CT, IA, KY, MA, MI, MS, ND, NH, NV, OK, OR, IL, UT, VT, WA, WI, WV

This report shall not be reproduced, except in its entirety, without the written approval of SGS.
Test results relate only to samples analyzed.

Table of Contents

-1-

Section 1: Sample Summary	3
Section 2: Case Narrative/Conformance Summary	4
Section 3: Summary of Hits	5
Section 4: Sample Results	6
4.1: FC2447-1: AF-RHMW16-WGN01LF-2301W5	7
4.2: FC2447-3: AF-RHMW04-WGN01LF-2301W5	10
4.3: FC2447-4: AF-RHMW06-WGN01LF-2301W5	13
Section 5: Misc. Forms	16
5.1: Chain of Custody	17
5.2: QC Evaluation: DOD QSM5.x Limits	23
Section 6: MS Semi-volatiles - QC Data Summaries	24
6.1: Method Blank Summary	25
6.2: Blank Spike Summary	29
6.3: Matrix Spike Summary	33
6.4: Injection Standard Area Summaries	35
6.5: TDCA Retention Time Checks	37
6.6: Isotope Dilution Standard Recovery Summaries	38
6.7: Initial and Continuing Calibration Summaries	41
6.8: Run Sequence Reports	55
Section 7: MS Semi-volatiles - Raw Data	56
7.1: Samples	57
7.2: Method Blanks	90
7.3: Blank Spikes	114
7.4: Matrix Spikes	158
7.5: Retention Time Markers	180
7.6: Initial and Continuing Calibrations	206
7.7: Instrument Run Logs	495
7.8: Standard Prep Logs	497
7.9: Sample Prep Logs	552



Sample Summary

AECOM, INC.

Job No: FC2447

N6274223F0104 RH Fire Suppression System
Project No: 60697810

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FC2447-1	02/02/23	10:20	MYNT02/04/23	AQ	Ground Water	AF-RHMW16-WGN01LF-2301W5
FC2447-2	02/02/23	12:10	MYNT02/04/23	AQ	Ground Water	AF-RHMW225401-WGN01B-2301W5
FC2447-3	02/02/23	09:15	MYNT02/04/23	AQ	Ground Water	AF-RHMW04-WGN01LF-2301W5
FC2447-4	02/02/23	11:15	MYNT02/04/23	AQ	Ground Water	AF-RHMW06-WGN01LF-2301W5

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM, INC.

Job No: FC2447

Site: N6274223F0104 RH Fire Suppression System

Report Date: 2/20/2023 7:57:10 PM

On 02/04/2023, 3 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS North America Inc - Orlando. at a maximum corrected temperature of 3.2 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC2447 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: OP95376

Sample(s) FC2447-IMS were used as the QC samples indicated.

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: FC2447
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 02/02/23



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
---------------	------------------	-----------------	-----	-----	-------	--------

FC2447-1 AF-RHMW16-WGN01LF-2301W5

No hits reported in this sample.

FC2447-3 AF-RHMW04-WGN01LF-2301W5

No hits reported in this sample.

FC2447-4 AF-RHMW06-WGN01LF-2301W5

No hits reported in this sample.

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW16-WGN01LF-2301W5		
Lab Sample ID:	FC2447-1	Date Sampled:	02/02/23
Matrix:	AQ - Ground Water	Date Received:	02/04/23
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	6Q13743.D	1	02/16/23 11:48	MV	02/08/23 09:00	OP95376	S6Q208
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	19	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	9.4	1.9	0.89	ng/l	
307-24-4	Perfluorohexanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
375-85-9	Perfluoroheptanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
335-67-1	Perfluorooctanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	4.7	1.9	0.58	ng/l	
335-76-2	Perfluorodecanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	4.7	1.9	0.57	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	4.7	1.9	0.57	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	4.7	1.9	0.79	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.94 U	4.7	0.94	0.47	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	0.94 U	4.7	0.94	0.47	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.8 U	4.7	3.8	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	4.7	1.9	0.66	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.94 U	4.7	0.94	0.47	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	4.7	1.9	0.51	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	4.7	1.9	0.54	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	4.7	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	4.7	1.9	0.63	ng/l	
31506-32-8	MeFOSA	1.9 U	4.7	1.9	0.94	ng/l	
4151-50-2	EtFOSA	1.9 U	4.7	1.9	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-RHMW16-WGN01LF-2301W5		
Lab Sample ID:	FC2447-1	Date Sampled:	02/02/23
Matrix:	AQ - Ground Water	Date Received:	02/04/23
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
---------	----------	--------	-----	-----	----	-------	---

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	9.4 U	47	9.4	4.1	ng/l	
1691-99-2	EtFOSE	19 U	47	19	7.0	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	3.8 U	19	3.8	0.94	ng/l	
919005-14-4	ADONA	3.8 U	19	3.8	1.8	ng/l	
377-73-1	PFMPA	1.9 U	9.4	1.9	0.94	ng/l	
863090-89-5	PFMBA	3.8 U	9.4	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	9.4	3.8	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.8 U	19	3.8	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.8 U	19	3.8	1.7	ng/l	
113507-82-7	PFEESA	1.9 U	9.4	1.9	0.74	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.4 U	24	9.4	4.3	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	120	19	8.2	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	120	19	7.4	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	112%		20-150%
	13C5-PFPeA	109%		20-150%
	13C5-PFHxA	98%		20-150%
	13C4-PFHpA	101%		20-150%
	13C8-PFOA	106%		20-150%
	13C9-PFNA	91%		20-150%
	13C6-PFDA	87%		20-150%
	13C7-PFUnDA	81%		20-150%
	13C2-PFDoDA	71%		20-150%
	13C2-PFTeDA	71%		20-150%
	13C3-PFBS	108%		20-150%
	13C3-PFHxS	101%		20-150%

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

Report of Analysis

Client Sample ID:	AF-RHMW16-WGN01LF-2301W5		
Lab Sample ID:	FC2447-1	Date Sampled:	02/02/23
Matrix:	AQ - Ground Water	Date Received:	02/04/23
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	92%		20-150%
	13C8-FOSA	92%		20-150%
	d3-MeFOSA	90%		20-150%
	d5-EtFOSA	95%		20-150%
	d3-MeFOSAA	93%		20-150%
	d5-EtFOSAA	90%		20-150%
	d7-MeFOSE	94%		20-150%
	d9-EtFOSE	91%		20-150%
	13C2-4:2FTS	119%		20-150%
	13C2-6:2FTS	109%		20-150%
	13C2-8:2FTS	104%		20-150%
	13C3-HFPO-DA	121%		20-150%

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

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW04-WGN01LF-2301W5		
Lab Sample ID:	FC2447-3	Date Sampled:	02/02/23
Matrix:	AQ - Ground Water	Date Received:	02/04/23
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	6Q13747.D	1	02/16/23 12:44	MV	02/08/23 09:00	OP95376	S6Q208
Run #2							

Run #	Initial Volume	Final Volume
Run #1	550 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
---------	----------	--------	-----	-----	----	-------	---

PERFLUOROALKYL CARBOXYLIC ACIDS

375-22-4	Perfluorobutanoic acid	3.6 U	18	3.6	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8 U	9.1	1.8	0.85	ng/l	
307-24-4	Perfluorohexanoic acid	0.91 U	4.5	0.91	0.45	ng/l	
375-85-9	Perfluoroheptanoic acid	0.91 U	4.5	0.91	0.45	ng/l	
335-67-1	Perfluorooctanoic acid	0.91 U	4.5	0.91	0.45	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	4.5	1.8	0.55	ng/l	
335-76-2	Perfluorodecanoic acid	0.91 U	4.5	0.91	0.45	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	4.5	1.8	0.55	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	4.5	1.8	0.55	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	4.5	1.8	0.76	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.91 U	4.5	0.91	0.45	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	0.91 U	4.5	0.91	0.45	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.6 U	4.5	3.6	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	4.5	1.8	0.64	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.91 U	4.5	0.91	0.45	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	4.5	1.8	0.49	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	4.5	1.8	0.52	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	4.5	1.8	0.58	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.6 U	4.5	3.6	1.0	ng/l	

FLUOROTELOMER SULFONIC ACIDS

757124-72-4	4:2 Fluorotelomer sulfonate	7.3 U	18	7.3	2.9	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.2	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.7	ng/l	

PERFLUOROOCCTANE SULFONAMIDES

754-91-6	PFOSA	1.8 U	4.5	1.8	0.61	ng/l	
31506-32-8	MeFOSA	1.8 U	4.5	1.8	0.91	ng/l	
4151-50-2	EtFOSA	1.8 U	4.5	1.8	0.91	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW04-WGN01LF-2301W5		
Lab Sample ID:	FC2447-3	Date Sampled:	02/02/23
Matrix:	AQ - Ground Water	Date Received:	02/04/23
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
---------	----------	--------	-----	-----	----	-------	---

PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	3.6 U	4.5	3.6	0.91	ng/l	
2991-50-6	EtFOSAA	3.6 U	4.5	3.6	1.2	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

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

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

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

PER and POLYFLUOROETHER SULFONIC ACIDS

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

FLUOROTELOMER CARBOXYLIC ACIDS

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

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
---------	------------------------	--------	--------	--------

	13C4-PFBA	112%		20-150%
	13C5-PFPeA	103%		20-150%
	13C5-PFHxA	96%		20-150%
	13C4-PFHpA	97%		20-150%
	13C8-PFOA	100%		20-150%
	13C9-PFNA	86%		20-150%
	13C6-PFDA	102%		20-150%
	13C7-PFUnDA	98%		20-150%
	13C2-PFDoDA	89%		20-150%
	13C2-PFTeDA	91%		20-150%
	13C3-PFBS	95%		20-150%
	13C3-PFHxS	93%		20-150%

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

Report of Analysis

Client Sample ID:	AF-RHMW04-WGN01LF-2301W5	
Lab Sample ID:	FC2447-3	Date Sampled: 02/02/23
Matrix:	AQ - Ground Water	Date Received: 02/04/23
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	89%		20-150%
	13C8-FOSA	93%		20-150%
	d3-MeFOSA	105%		20-150%
	d5-EtFOSA	96%		20-150%
	d3-MeFOSAA	93%		20-150%
	d5-EtFOSAA	92%		20-150%
	d7-MeFOSE	111%		20-150%
	d9-EtFOSE	103%		20-150%
	13C2-4:2FTS	119%		20-150%
	13C2-6:2FTS	106%		20-150%
	13C2-8:2FTS	103%		20-150%
	13C3-HFPO-DA	114%		20-150%

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

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW06-WGN01LF-2301W5		
Lab Sample ID:	FC2447-4	Date Sampled:	02/02/23
Matrix:	AQ - Ground Water	Date Received:	02/04/23
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	6Q13748.D	1	02/16/23 12:58	MV	02/08/23 09:00	OP95376	S6Q208
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	19	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	9.4	1.9	0.89	ng/l	
307-24-4	Perfluorohexanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
375-85-9	Perfluoroheptanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
335-67-1	Perfluorooctanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	4.7	1.9	0.58	ng/l	
335-76-2	Perfluorodecanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	4.7	1.9	0.57	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	4.7	1.9	0.57	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	4.7	1.9	0.79	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.94 U	4.7	0.94	0.47	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	0.94 U	4.7	0.94	0.47	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.8 U	4.7	3.8	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	4.7	1.9	0.66	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.94 U	4.7	0.94	0.47	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	4.7	1.9	0.51	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	4.7	1.9	0.54	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	4.7	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	4.7	1.9	0.63	ng/l	
31506-32-8	MeFOSA	1.9 U	4.7	1.9	0.94	ng/l	
4151-50-2	EtFOSA	1.9 U	4.7	1.9	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-RHMW06-WGN01LF-2301W5		
Lab Sample ID:	FC2447-4	Date Sampled:	02/02/23
Matrix:	AQ - Ground Water	Date Received:	02/04/23
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
---------	----------	--------	-----	-----	----	-------	---

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	9.4 U	47	9.4	4.1	ng/l	
1691-99-2	EtFOSE	19 U	47	19	7.0	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	3.8 U	19	3.8	0.94	ng/l	
919005-14-4	ADONA	3.8 U	19	3.8	1.8	ng/l	
377-73-1	PFMPA	1.9 U	9.4	1.9	0.94	ng/l	
863090-89-5	PFMBA	3.8 U	9.4	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	9.4	3.8	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.8 U	19	3.8	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.8 U	19	3.8	1.7	ng/l	
113507-82-7	PFEESA	1.9 U	9.4	1.9	0.74	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.4 U	24	9.4	4.3	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	120	19	8.2	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	120	19	7.4	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	108%		20-150%
	13C5-PFPeA	107%		20-150%
	13C5-PFHxA	100%		20-150%
	13C4-PFHpA	96%		20-150%
	13C8-PFOA	89%		20-150%
	13C9-PFNA	92%		20-150%
	13C6-PFDA	87%		20-150%
	13C7-PFUnDA	87%		20-150%
	13C2-PFDoDA	78%		20-150%
	13C2-PFTeDA	80%		20-150%
	13C3-PFBS	105%		20-150%
	13C3-PFHxS	99%		20-150%

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

Report of Analysis

Client Sample ID:	AF-RHMW06-WGN01LF-2301W5	
Lab Sample ID:	FC2447-4	Date Sampled: 02/02/23
Matrix:	AQ - Ground Water	Date Received: 02/04/23
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	88%		20-150%
	13C8-FOSA	85%		20-150%
	d3-MeFOSA	101%		20-150%
	d5-EtFOSA	95%		20-150%
	d3-MeFOSAA	96%		20-150%
	d5-EtFOSAA	93%		20-150%
	d7-MeFOSE	108%		20-150%
	d9-EtFOSE	105%		20-150%
	13C2-4:2FTS	113%		20-150%
	13C2-6:2FTS	117%		20-150%
	13C2-8:2FTS	104%		20-150%
	13C3-HFPO-DA	116%		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



Chain of Custody

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

Client / Reporting Information		Project Information		Analytical Information										Matrix Codes		
Company Name: AECOM		Project Name: N6274223F0104 RH Fire Suppression System		<div style="text-align: right; font-size: 2em; font-weight: bold;"> <i>James Mason</i> <i>2/13/23</i> </div>										DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe		
Address: 1001 Bishop St. ste 1600		Street														
City: Honolulu State: HI Zip: 96813		City Honolulu State Hawaii														
Project Contact: Katie Abbott Email: katie.abbott@aecom.com Project Manager: Watson Tanji Email: watson.tanji@aecom.com Phone #: 303-796-4624 / 808-954-4612		Project # 60697810 Fax #														
Sampler(s) Name(s) (Printed) Sampler 1: <i>North Turnpike</i> Sampler 2: <i>74th St Turnpike</i>		Client Purchase Order #		PPAS EPA Draft 1633										LAB USE ONLY		
SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NOISE	ICI	INCH	INCH3	PERC4	HAZARDOUS		WATER	MECH
4	AF-RHMW06-WGN01LF-2301W5	2/2/23	1115	<i>James Mason</i>	GW	3		X								
Turnaround Time (Business days)		Data Deliverable Information		Comments / Remarks												
10 Day (Business) _____ 7 Day _____ <input checked="" type="checkbox"/> 5 Day _____ 3 Day RUSH _____ 2 Day RUSH _____ 1 Day RUSH _____ Other _____		Approved By: / Date: _____ <input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S		EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW United AWB 016-84609512												
Rush T/A Data Available VIA Email or Lablink													Sample Custody must be documented below each time samples change possession, including courier delivery.			
Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation		
1 <i>Ryan Skinnif</i>	2/2/23 1325	James Mason / AECOM	3 James Mason	2/3/23 1500	James Mason	4 <i>James Mason</i>	2/4/23	1400	5		6	7	8	8		
Lab Use Only: Cooler Temperature (s) Celsius (corrected): <u>3.0 TB1</u>													http://www.sgs.com/en/terms-and-conditions			



SGS Sample Receipt Summary

Job Number: FC2447

Client: AECOM

Project: N6274223F0104 RH Fire Suppression System

Date / Time Received: 2/4/2023 2:00:00 PM

Delivery Method: United Cargo/Airspace

Airbill #'s: United Cargo AWB #: 016-84609512

Therm ID: IR 1;

Therm CF: 0.2;

of Coolers: 1

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

Cooler Temps (Corrected) °C: Cooler 1: (3.2);

Cooler Information

Y or N

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

Trip Blank Information

Y or N N/A

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

Sample Information

Y or N N/A

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

Misc. Information

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

Number of 5035 Field Kits: _____

Number of Lab Filtered Metals: _____

Test Strip Lot #s: pH 0-3 230315

pH 10-12 219813A

Other: (Specify) _____

Residual Chlorine Test Strip Lot #: _____

Comments

SM001
Rev. Date 05/24/17

Technician: ZANEB

Date: 2/4/2023 2:00:00 PM

Reviewer: NS

Date: 2/9/2023

FC2447: Chain of Custody

Page 5 of 6

Job Change Order: FC2447

Requested Date:	2/10/2023	Received Date:	2/4/2023
Account Name:	AECOM, INC.	Due Date:	2/13/2023
Project Description:	N6274223F0104 RH Fire Suppression System	Deliverable:	FULT2
CSR:	EK	TAT (Days):	7

=====

Sample #:	FC2447-2	Change:	
Dept:			HOLD sample analysis per Client. already extracted for LCQSM1633LIST40 [OP:DONE:02/08:OP95376]; Login for PFAS Extract and Hold
TAT:	7		

AF-RHMW225401-WGN01B-2301W5

=====

FC2447: Chain of Custody

Page 6 of 6

Above Changes Per: Katie Abbott

Date/Time: 2/10/2023 8:57:12 AM

To Client: This Change Order is confirmation of the revisions, previously discussed with the Client Service Representative.

Page 1 of 1

QC Evaluation: DOD QSM5.x Limits

Job Number: FC2447
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 02/02/23

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 FC2447

5.2
5

MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

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

Instrument Blank

Job Number: FC2447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q208-IBLK	6Q13735.D	1	02/16/23	MV	n/a	n/a	S6Q208

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2447-1, FC2447-3, FC2447-4

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.020	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.010	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0050	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0050	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0050	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0050	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0050	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0050	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0050	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0050	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0050	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0050	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0050	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0050	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0050	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0050	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0050	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0050	0.00067	ug/l	
31506-32-8	MeFOSA	0.0012	0.0050	0.0010	ug/l	J
4151-50-2	EtFOSA	0.0024	0.0050	0.0010	ug/l	J
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	0.0165	0.050	0.0044	ug/l	J
1691-99-2	EtFOSE	0.0250	0.050	0.0074	ug/l	J
13252-13-6	HFPO-DA (GenX)	ND	0.020	0.0010	ug/l	
919005-14-4	ADONA	ND	0.020	0.0019	ug/l	
377-73-1	PFMPA	ND	0.010	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.010	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.010	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.020	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.020	0.0018	ug/l	

Instrument Blank

Job Number: FC2447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q208-IBLK	6Q13735.D	1	02/16/23	MV	n/a	n/a	S6Q208

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2447-1, FC2447-3, FC2447-4

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

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	112% 20-150%
	13C5-PFPeA	114% 20-150%
	13C5-PFHxA	110% 20-150%
	13C4-PFHpA	114% 20-150%
	13C8-PFOA	110% 20-150%
	13C9-PFNA	104% 20-150%
	13C6-PFDA	108% 20-150%
	13C7-PFUnDA	108% 20-150%
	13C2-PFDoDA	98% 20-150%
	13C2-PFTeDA	109% 20-150%
	13C3-PFBS	120% 20-150%
	13C3-PFHxS	119% 20-150%
	13C8-PFOS	119% 20-150%
	13C8-FOSA	112% 20-150%
	d3-MeFOSA	107% 20-150%
	d5-EtFOSA	109% 20-150%
	d3-MeFOSAA	114% 20-150%
	d5-EtFOSAA	115% 20-150%
	d7-MeFOSE	114% 20-150%
	d9-EtFOSE	108% 20-150%
	13C2-4:2FTS	119% 20-150%
	13C2-6:2FTS	129% 20-150%
	13C2-8:2FTS	131% 20-150%
	13C3-HFPO-DA	114% 20-150%

6.1.1
6

Method Blank Summary

Job Number: FC2447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95376-MB	6Q13742.D	1	02/16/23	MV	02/08/23	OP95376	S6Q208

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2447-1, FC2447-3, FC2447-4

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

Method Blank Summary

Job Number: FC2447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95376-MB	6Q13742.D	1	02/16/23	MV	02/08/23	OP95376	S6Q208

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2447-1, FC2447-3, FC2447-4

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

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	110% 20-150%
	13C5-PFPeA	100% 20-150%
	13C5-PFHxA	89% 20-150%
	13C4-PFHpA	97% 20-150%
	13C8-PFOA	104% 20-150%
	13C9-PFNA	95% 20-150%
	13C6-PFDA	96% 20-150%
	13C7-PFUnDA	98% 20-150%
	13C2-PFDoDA	92% 20-150%
	13C2-PFTeDA	86% 20-150%
	13C3-PFBS	98% 20-150%
	13C3-PFHxS	98% 20-150%
	13C8-PFOS	119% 20-150%
	13C8-FOSA	103% 20-150%
	d3-MeFOSA	107% 20-150%
	d5-EtFOSA	107% 20-150%
	d3-MeFOSAA	120% 20-150%
	d5-EtFOSAA	113% 20-150%
	d7-MeFOSE	124% 20-150%
	d9-EtFOSE	126% 20-150%
	13C2-4:2FTS	115% 20-150%
	13C2-6:2FTS	105% 20-150%
	13C2-8:2FTS	97% 20-150%
	13C3-HFPO-DA	109% 20-150%

Blank Spike Summary

Job Number: FC2447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95376-LLBS	6Q13741.D	1	02/16/23	MV	02/08/23	OP95376	S6Q208

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2447-1, FC2447-3, FC2447-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.04	0.0336	84	40-150
2706-90-3	Perfluoropentanoic acid	0.02	0.0179	90	40-150
307-24-4	Perfluorohexanoic acid	0.01	0.0094	94	40-150
375-85-9	Perfluoroheptanoic acid	0.01	0.0094	94	40-150
335-67-1	Perfluorooctanoic acid	0.01	0.0097	97	40-150
375-95-1	Perfluorononanoic acid	0.01	0.0102	102	40-150
335-76-2	Perfluorodecanoic acid	0.01	0.0096	96	40-150
2058-94-8	Perfluoroundecanoic acid	0.01	0.0091	91	40-150
307-55-1	Perfluorododecanoic acid	0.01	0.0093	93	40-150
72629-94-8	Perfluorotridecanoic acid	0.01	0.0092	92	40-150
376-06-7	Perfluorotetradecanoic acid	0.01	0.0100	100	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00887	0.0083	94	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00941	0.0094	100	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00914	0.0091	100	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00953	0.0100	105	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00928	0.0095	102	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00962	0.0101	105	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00965	0.0102	106	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0097	0.0092	95	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0375	0.0336	90	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.038	0.0355	93	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0384	0.0436	114	40-150
754-91-6	PFOSA	0.01	0.0098	98	40-150
31506-32-8	MeFOSA	0.01	0.0085	85	40-150
4151-50-2	EtFOSA	0.01	0.0082	82	40-150
2355-31-9	MeFOSAA	0.01	0.0096	96	40-150
2991-50-6	EtFOSAA	0.01	0.0091	91	40-150
24448-09-7	MeFOSE	0.1	0.0796	80	40-150
1691-99-2	EtFOSE	0.1	0.0815	82	40-150
13252-13-6	HFPO-DA (GenX)	0.04	0.0332	83	40-150
919005-14-4	ADONA	0.0378	0.0311	82	40-150
377-73-1	PFMPA	0.02	0.0190	95	40-150
863090-89-5	PFMBA	0.02	0.0190	95	40-150
151772-58-6	NFDHA	0.02	0.0215	108	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0374	0.0313	84	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0378	0.0292	77	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC2447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95376-LLBS	6Q13741.D	1	02/16/23	MV	02/08/23	OP95376	S6Q208

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2447-1, FC2447-3, FC2447-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0178	0.0183	103	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.05	0.0413	83	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.25	0.243	97	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.25	0.242	97	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	113%	20-150%
	13C5-PFPeA	109%	20-150%
	13C5-PFHxA	103%	20-150%
	13C4-PFHpA	104%	20-150%
	13C8-PFOA	98%	20-150%
	13C9-PFNA	97%	20-150%
	13C6-PFDA	105%	20-150%
	13C7-PFUnDA	105%	20-150%
	13C2-PFDoDA	103%	20-150%
	13C2-PFTeDA	89%	20-150%
	13C3-PFBS	104%	20-150%
	13C3-PFHxS	97%	20-150%
	13C8-PFOS	93%	20-150%
	13C8-FOSA	100%	20-150%
	d3-MeFOSA	96%	20-150%
	d5-EtFOSA	94%	20-150%
	d3-MeFOSAA	103%	20-150%
	d5-EtFOSAA	104%	20-150%
	d7-MeFOSE	107%	20-150%
	d9-EtFOSE	104%	20-150%
	13C2-4:2FTS	114%	20-150%
	13C2-6:2FTS	112%	20-150%
	13C2-8:2FTS	100%	20-150%
	13C3-HFPO-DA	121%	20-150%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC2447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95376-BS	6Q13740.D	1	02/16/23	MV	02/08/23	OP95376	S6Q208

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2447-1, FC2447-3, FC2447-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.0878	88	40-150
2706-90-3	Perfluoropentanoic acid	0.05	0.0468	94	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0250	100	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0241	96	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0246	98	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0273	109	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0276	110	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0282	113	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0247	99	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0260	104	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0250	100	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0221	100	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0233	99	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0229	100	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0244	102	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0231	100	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0244	101	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0254	105	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0219	90	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0938	0.0868	93	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.0898	95	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.0914	95	40-150
754-91-6	PFOSA	0.025	0.0268	107	40-150
31506-32-8	MeFOSA	0.025	0.0204	82	40-150
4151-50-2	EtFOSA	0.025	0.0202	81	40-150
2355-31-9	MeFOSAA	0.025	0.0258	103	40-150
2991-50-6	EtFOSAA	0.025	0.0203	81	40-150
24448-09-7	MeFOSE	0.25	0.213	85	40-150
1691-99-2	EtFOSE	0.25	0.223	89	40-150
13252-13-6	HFPO-DA (GenX)	0.1	0.0717	72	40-150
919005-14-4	ADONA	0.0945	0.0724	77	40-150
377-73-1	PFMPA	0.05	0.0271	54	40-150
863090-89-5	PFMBA	0.05	0.0491	98	40-150
151772-58-6	NFDHA	0.05	0.0505	101	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0935	0.0705	75	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0945	0.0690	73	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC2447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95376-BS	6Q13740.D	1	02/16/23	MV	02/08/23	OP95376	S6Q208

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2447-1, FC2447-3, FC2447-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0465	104	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.0932	75	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.625	0.620	99	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.621	99	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	27%	20-150%
	13C5-PFPeA	103%	20-150%
	13C5-PFHxA	100%	20-150%
	13C4-PFHpA	100%	20-150%
	13C8-PFOA	102%	20-150%
	13C9-PFNA	89%	20-150%
	13C6-PFDA	89%	20-150%
	13C7-PFUnDA	90%	20-150%
	13C2-PFDoDA	93%	20-150%
	13C2-PFTeDA	86%	20-150%
	13C3-PFBS	96%	20-150%
	13C3-PFHxS	94%	20-150%
	13C8-PFOS	97%	20-150%
	13C8-FOSA	99%	20-150%
	d3-MeFOSA	111%	20-150%
	d5-EtFOSA	109%	20-150%
	d3-MeFOSAA	103%	20-150%
	d5-EtFOSAA	110%	20-150%
	d7-MeFOSE	109%	20-150%
	d9-EtFOSE	105%	20-150%
	13C2-4:2FTS	115%	20-150%
	13C2-6:2FTS	110%	20-150%
	13C2-8:2FTS	100%	20-150%
	13C3-HFPO-DA	127%	20-150%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC2447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95376-MS	6Q13744.D	1	02/16/23	MV	02/08/23	OP95376	S6Q208
FC2447-1	6Q13743.D	1	02/16/23	MV	02/08/23	OP95376	S6Q208

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2447-1, FC2447-3, FC2447-4

CAS No.	Compound	FC2447-1 ug/l	Spike Q	MS ug/l	MS %	Limits
375-22-4	Perfluorobutanoic acid	0.019 U	0.0926	0.0817	88	40-150
2706-90-3	Perfluoropentanoic acid	0.0094 U	0.0463	0.0432	93	40-150
307-24-4	Perfluorohexanoic acid	0.0047 U	0.0231	0.0228	98	40-150
375-85-9	Perfluoroheptanoic acid	0.0047 U	0.0231	0.0231	100	40-150
335-67-1	Perfluorooctanoic acid	0.0047 U	0.0231	0.0216	93	40-150
375-95-1	Perfluorononanoic acid	0.0047 U	0.0231	0.0243	105	40-150
335-76-2	Perfluorodecanoic acid	0.0047 U	0.0231	0.0259	112	40-150
2058-94-8	Perfluoroundecanoic acid	0.0047 U	0.0231	0.0232	100	40-150
307-55-1	Perfluorododecanoic acid	0.0047 U	0.0231	0.0224	97	40-150
72629-94-8	Perfluorotridecanoic acid	0.0047 U	0.0231	0.0239	103	40-150
376-06-7	Perfluorotetradecanoic acid	0.0047 U	0.0231	0.0235	102	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0047 U	0.0205	0.0199	97	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0047 U	0.0218	0.0219	101	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0047 U	0.0212	0.0218	103	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0047 U	0.0221	0.0248	112	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0047 U	0.0215	0.0235	109	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0047 U	0.0223	0.0234	105	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0047 U	0.0223	0.0219	98	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0047 U	0.0225	0.0214	95	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.019 U	0.0868	0.0818	94	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.019 U	0.088	0.0883	100	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.019 U	0.0889	0.0959	108	40-150
754-91-6	PFOSA	0.0047 U	0.0231	0.0237	102	40-150
31506-32-8	MeFOSA	0.0047 U	0.0231	0.0198	86	40-150
4151-50-2	EtFOSA	0.0047 U	0.0231	0.0189	82	40-150
2355-31-9	MeFOSAA	0.0047 U	0.0231	0.0226	98	40-150
2991-50-6	EtFOSAA	0.0047 U	0.0231	0.0212	92	40-150
24448-09-7	MeFOSE	0.047 U	0.231	0.175	76	40-150
1691-99-2	EtFOSE	0.047 U	0.231	0.197	85	40-150
13252-13-6	HFPO-DA (GenX)	0.019 U	0.0926	0.0771	83	40-150
919005-14-4	ADONA	0.019 U	0.0875	0.0749	86	40-150
377-73-1	PFMPA	0.0094 U	0.0463	0.0435	94	40-150
863090-89-5	PFMBA	0.0094 U	0.0463	0.0434	94	40-150
151772-58-6	NFDHA	0.0094 U	0.0463	0.0465	100	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.019 U	0.0866	0.0676	78	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.019 U	0.0875	0.0634	72	40-150

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC2447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95376-MS	6Q13744.D	1	02/16/23	MV	02/08/23	OP95376	S6Q208
FC2447-1	6Q13743.D	1	02/16/23	MV	02/08/23	OP95376	S6Q208

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2447-1, FC2447-3, FC2447-4

CAS No.	Compound	FC2447-1 ug/l	Spike Q	MS ug/l	MS %	Limits
113507-82-7	PFEESA	0.0094 U	0.0412	0.0422	102	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.024 U	0.116	0.103	89	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.12 U	0.579	0.589	102	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.12 U	0.579	0.573	99	40-150

CAS No.	ID Standard Recoveries	MS	FC2447-1	Limits
	13C4-PFBA	78%	112%	20-150%
	13C5-PFPeA	138%	109%	20-150%
	13C5-PFHxA	129%	98%	20-150%
	13C4-PFHpA	128%	101%	20-150%
	13C8-PFOA	130%	106%	20-150%
	13C9-PFNA	109%	91%	20-150%
	13C6-PFDA	115%	87%	20-150%
	13C7-PFUnDA	115%	81%	20-150%
	13C2-PFDoDA	106%	71%	20-150%
	13C2-PFTeDA	109%	71%	20-150%
	13C3-PFBS	134%	108%	20-150%
	13C3-PFHxS	130%	101%	20-150%
	13C8-PFOS	108%	92%	20-150%
	13C8-FOSA	117%	92%	20-150%
	d3-MeFOSA	128%	90%	20-150%
	d5-EtFOSA	128%	95%	20-150%
	d3-MeFOSAA	123%	93%	20-150%
	d5-EtFOSAA	119%	90%	20-150%
	d7-MeFOSE	138%	94%	20-150%
	d9-EtFOSE	127%	91%	20-150%
	13C2-4:2FTS	148%	119%	20-150%
	13C2-6:2FTS	139%	109%	20-150%
	13C2-8:2FTS	128%	104%	20-150%
	13C3-HFPO-DA	154%* a	121%	20-150%

(a) Outside control limits.

* = Outside of Control Limits.

Injection Standard Area Summary

Job Number: FC2447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q208-CC208	Injection Date:	02/16/23
Lab File ID:	6Q13738.D	Injection Time:	10:38
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	32799	2.95	31631	5.54	69079	7.11	21802	7.64	21811	8.12
Check Std ^c	31286	2.95	29742	5.54	62737	7.11	20074	7.64	20460	8.12
Upper Limit ^d	65598	3.35	63262	5.94	138158	7.51	43604	8.04	43622	8.52
Lower Limit ^e	9840	2.55	9489	5.14	20724	6.71	6541	7.24	6543	7.72

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	DF ^a
OP95376-BS	34135	2.99	32815	5.55	69983	7.12	22979	7.65	22532	8.12	1
OP95376-LLBS	33383	2.99	30873	5.55	68048	7.12	21310	7.64	20336	8.12	1
OP95376-MB	34114	2.99	33827	5.55	69514	7.12	22187	7.64	21243	8.12	1
FC2447-1	33447	2.99	31160	5.54	66894	7.11	21601	7.64	20554	8.12	1
OP95376-MS	25701	2.99	24350	5.55	53297	7.12	17529	7.65	15823	8.12	1
FC2447-3	33165	2.99	32171	5.54	66759	7.12	23138	7.64	20285	8.12	1
FC2447-4	32730	2.99	31213	5.55	70169	7.12	21044	7.64	20796	8.12	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q208-ICC208 6Q13730.D 02/16/23 08:46. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time + 0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

Injection Standard Area Summary

Job Number: FC2447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q208-CC208	Injection Date:	02/16/23
Lab File ID:	6Q13738.D	Injection Time:	10:38
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	6074	7.24	9189	8.28
Check Std ^c	5551	7.24	9088	8.28
Upper Limit ^d	12148	7.64	18378	8.68
Lower Limit ^e	1822	6.84	2757	7.88

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
OP95376-BS	6428	7.25	9210	8.30	1
OP95376-LLBS	6163	7.25	9247	8.30	1
OP95376-MB	6443	7.24	7943	8.28	1
FC2447-1	5967	7.24	8941	8.28	1
OP95376-MS	4494	7.24	7042	8.30	1
FC2447-3	6170	7.24	9226	8.30	1
FC2447-4	5689	7.24	9126	8.30	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q208-ICC208 6Q13730.D 02/16/23 08:46. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to + 100% of initial cal area.
- (d) Upper Limit = + 100% of initial standard area; Retention time + 0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

TDCA Retention Time Check

Job Number: FC2447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q208-RT	Injection Date:	02/16/23
Lab File ID:	6Q13724.D	Injection Time:	07:22
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.284	--	--
TDCA	6.795	1.489	1.000
TCDCA	6.646	1.638	1.000
TUDCA	5.794	2.490	1.000

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S6Q208-IC208	6Q13726.D	02/16/23	07:50	00:28	Mass Calibration Verification
S6Q208-IC208	6Q13727.D	02/16/23	08:04	00:42	Initial cal 1
S6Q208-IC208	6Q13728.D	02/16/23	08:18	00:56	Initial cal 2
S6Q208-IC208	6Q13729.D	02/16/23	08:32	01:10	Initial cal 3
S6Q208-ICC208	6Q13730.D	02/16/23	08:46	01:24	Initial cal 4
S6Q208-IC208	6Q13731.D	02/16/23	09:00	01:38	Initial cal 5
S6Q208-IC208	6Q13732.D	02/16/23	09:14	01:52	Initial cal 6
S6Q208-IC208	6Q13733.D	02/16/23	09:28	02:06	Initial cal 7
S6Q208-IC208	6Q13734.D	02/16/23	09:42	02:20	Initial cal 8
S6Q208-IBLK	6Q13735.D	02/16/23	09:56	02:34	Instrument Blank
S6Q208-ICV208	6Q13736.D	02/16/23	10:10	02:48	Initial cal verification 4
S6Q208-ICV208	6Q13737.D	02/16/23	10:24	03:02	Initial cal verification 20
S6Q208-CC208	6Q13738.D	02/16/23	10:38	03:16	Continuing cal 4
S6Q208-CC208	6Q13739.D	02/16/23	10:52	03:30	Continuing cal 1.0LL
OP95376-BS	6Q13740.D	02/16/23	11:06	03:44	Blank Spike
OP95376-LLBS	6Q13741.D	02/16/23	11:20	03:58	Blank Spike
OP95376-MB	6Q13742.D	02/16/23	11:34	04:12	Method Blank
FC2447-1	6Q13743.D	02/16/23	11:48	04:26	AF-RHMW16-WGN01LF-2301W5
OP95376-MS	6Q13744.D	02/16/23	12:02	04:40	Matrix Spike
FC2447-3	6Q13747.D	02/16/23	12:44	05:22	AF-RHMW04-WGN01LF-2301W5
FC2447-4	6Q13748.D	02/16/23	12:58	05:36	AF-RHMW06-WGN01LF-2301W5
S6Q208-CC208	6Q13749.D	02/16/23	13:12	05:50	Continuing cal 4
S6Q208-ICCB	6Q13750.D	02/16/23	13:26	06:04	Continuing Calibration Blank
OP95417-BS	6Q13751.D	02/16/23	13:40	06:18	Blank Spike
OP95417-LLBS	6Q13752.D	02/16/23	13:54	06:32	Blank Spike
OP95417-MB	6Q13753.D	02/16/23	14:07	06:45	Method Blank
ZZZZZZ	6Q13755.D	02/16/23	14:35	07:13	(unrelated sample)
ZZZZZZ	6Q13756.D	02/16/23	14:49	07:27	(unrelated sample)
ZZZZZZ	6Q13757.D	02/16/23	15:03	07:41	(unrelated sample)
ZZZZZZ	6Q13758.D	02/16/23	15:17	07:55	(unrelated sample)
S6Q208-ECC208	6Q13759.D	02/16/23	15:31	08:09	Ending cal 4
S6Q208-ICCB	6Q13760.D	02/16/23	15:46	08:24	Continuing Calibration Blank

Isotope Dilution Standard Recovery Summary

Job Number: FC2447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Method: EPA DRAFT 1633	Matrix: AQ
------------------------	------------

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4	S5	S6	S7	S8
FC2447-1	6Q13743.D	112	109	98	101	106	91	87	81
FC2447-3	6Q13747.D	112	103	96	97	100	86	102	98
FC2447-4	6Q13748.D	108	107	100	96	89	92	87	87
OP95376-BS	6Q13740.D	27	103	100	100	102	89	89	90
OP95376-LLBS	6Q13741.D	113	109	103	104	98	97	105	105
OP95376-MB	6Q13742.D	110	100	89	97	104	95	96	98
OP95376-MS	6Q13744.D	78	138	129	128	130	109	115	115
S6Q208-IBLK	6Q13735.D	112	114	110	114	110	104	108	108

Isotope Dilution Standards **Recovery Limits**

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

6.6.1

6

Isotope Dilution Standard Recovery Summary

Job Number: FC2447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Method: EPA DRAFT 1633	Matrix: AQ
------------------------	------------

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S9	S10	S11	S12	S13	S14	S15	S16
FC2447-1	6Q13743.D	71	71	108	101	92	92	90	95
FC2447-3	6Q13747.D	89	91	95	93	89	93	105	96
FC2447-4	6Q13748.D	78	80	105	99	88	85	101	95
OP95376-BS	6Q13740.D	93	86	96	94	97	99	111	109
OP95376-LLBS	6Q13741.D	103	89	104	97	93	100	96	94
OP95376-MB	6Q13742.D	92	86	98	98	119	103	107	107
OP95376-MS	6Q13744.D	106	109	134	130	108	117	128	128
S6Q208-IBLK	6Q13735.D	98	109	120	119	119	112	107	109

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%

6.6.1

6

Isotope Dilution Standard Recovery Summary

Job Number: FC2447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Method: EPA DRAFT 1633	Matrix: AQ
------------------------	------------

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S17	S18	S19	S20	S21	S22	S23	S24
FC2447-1	6Q13743.D	93	90	94	91	119	109	104	121
FC2447-3	6Q13747.D	93	92	111	103	119	106	103	114
FC2447-4	6Q13748.D	96	93	108	105	113	117	104	116
OP95376-BS	6Q13740.D	103	110	109	105	115	110	100	127
OP95376-LLBS	6Q13741.D	103	104	107	104	114	112	100	121
OP95376-MB	6Q13742.D	120	113	124	126	115	105	97	109
OP95376-MS	6Q13744.D	123	119	138	127	148	139	128	154* a
S6Q208-IBLK	6Q13735.D	114	115	114	108	119	129	131	114

Isotope Dilution Standards **Recovery Limits**

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

(a) Outside control limits.

Initial Calibration Summary

Job Number: FC2447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q208-ICC208
 Lab FileID: 6Q13730.D

Initial Calibration Report

Method Path	Method File	Batch Name	Last Calib Update	Calibration Files	Curve Fit	1	2	3	4	5	7	8	Avg RF	%RSD
D:\MassHunter\Methods	1633_021623_S6Q208NEW.quantmethod.xml	D:\MassHunter\Data\021423_1633_S6Q207\QuantResults\s6q208.batch.bin	2/18/2023 8:00:22 AM	D:\MassHunter\Data\021423_1633_S6Q207\6Q13727.d	Avg RF	0.2122	0.2399	0.2400	0.2353	0.2525	0.2625	0.2698	0.2446	7.822
D:\MassHunter\Data\021423_1633_S6Q207\6Q13728.d	Avg RF	0.2866	0.2984	0.2833	0.2979	0.3202	0.3198	0.2973	5.882					
D:\MassHunter\Data\021423_1633_S6Q207\6Q13729.d	Avg RF	0.0507	0.0532	0.0541	0.0572	0.0590	0.0610	0.0562	6.478					
D:\MassHunter\Data\021423_1633_S6Q207\6Q13730.d	Avg RF	1.0126	1.0982	1.0763	1.1445	1.1796	1.1703	1.1133	5.232					
D:\MassHunter\Data\021423_1633_S6Q207\6Q13731.d	Avg RF	0.2871	0.3224	0.3318	0.3126	0.3356	0.3535	0.3286	7.359					
D:\MassHunter\Data\021423_1633_S6Q207\6Q13733.d	Avg RF	0.0621	0.0603	0.0595	0.0674	0.0608	0.0639	0.0613	6.363					
D:\MassHunter\Data\021423_1633_S6Q207\6Q13734.d	Avg RF	0.9237	1.0084	0.9755	1.0157	1.0717	1.1047	1.0089	6.232					
I M4-PFBA	Avg RF	1.3435	1.3833	1.3889	1.3901	1.4336	1.4109	1.3669	5.204					
T PFBA	Avg RF	0.1791	0.2099	0.2101	0.2045	0.2118	0.2097	0.2197	6.229					
I M5-PFPeA	Avg RF	0.0985	0.1089	0.1110	0.1053	0.1126	0.1120	0.1086	4.702					
T PFPeA	Avg RF	1.5223	1.5951	1.4788	1.5601	1.5860	1.5715	1.5182	6.504					
I M6-PFhA	Avg RF	1.1752	1.4014	1.1014	1.1263	1.2549	1.2770	1.1844	8.447					
T PFhA	Avg RF	0.8022	0.8494	0.7694	0.8518	0.8911	0.8845	0.8254	7.319					
I M7-PFhDA	Avg RF	1.3718	1.5108	1.4044	1.3151	1.6326	1.6421	1.7099	10.125					
T PFhDA	Avg RF	0.9961	0.9961	1.0449	0.9004	1.0089	1.1364	1.1549	10.004					
I M8-PFOA	Avg RF	0.8290	1.0444	0.9775	0.9073	0.9651	1.0671	1.0479	8.825					
T PFOA	Avg RF													
I M9-PFNA	Avg RF													
T PFNA	Avg RF													
I M10-PFDA	Avg RF													
T PFDA	Avg RF													
I M11-PFUnDA	Avg RF													
T PFUnDA	Avg RF													
I M12-PFDoDA	Avg RF													
T PFDoDA	Avg RF													

Generated at 8:01 AM on 2/18/2023

Page 1 of 4

Initial Calibration Summary

Job Number: FC2447
 Account: AECOM AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q208-ICC208
 Lab FileID: 6Q13730.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	7	8	Avg RF	%RSD
T PFTDA	Avg RF	0.7992	0.9093	0.8918	0.8940	0.9191	1.0219	0.9003	0.9051	7.188
I M2-PFTeDA	Avg RF	1.3464	1.4758	1.4693	1.5119	1.5004	1.5222	1.4865	1.4732	4.007
T PFTeDA	Avg RF					ISTD				
I M8-FOSA	Avg RF	0.8942	0.9835	1.0344	0.9287	0.9992	1.0282	1.0199	0.9840	5.432
T FOSA	Avg RF					ISTD				
I M3-PFBS	Avg RF	0.9524	0.9932	1.0313	1.0067	1.0754	1.0957	1.1279	1.0404	5.968
T PFBS	Avg RF					ISTD				
I M3-PFHKS	Avg RF	1.2026	1.2243	1.3154	1.3548	1.4935	1.3927	1.3490	1.3332	7.451
T PFPeS	Avg RF	0.9887	1.0387	1.1763	1.1741	1.2652	1.1943	1.1708	1.1440	8.375
T PFHKS	Avg RF					ISTD				
I M8-PFOS	Avg RF	0.9711	0.9269	1.1543	1.0699	1.1598	1.2341	1.1845	1.1001	10.439
T PFHpS	Avg RF	0.9236	1.1768	1.1871	1.1062	1.2600	1.3620	1.2045	1.1743	11.588
T PFOS	Avg RF	0.8754	1.0635	1.2103	1.1288	1.1821	1.2510	1.1866	1.1282	11.224
T PFNS	Avg RF	0.5804	0.6501	0.8680	0.8300	0.8650	0.8726	0.8282	0.7849	15.156
T PFDS	Avg RF	0.4264	0.4641	0.5330	0.4869	0.4897	0.5059	0.5143	0.4886	7.188
T PFDoDS	Avg RF					ISTD				
I M2-4:2FTS	Avg RF	10.44	11.60	11.98	10.98	12.52	12.83	11.15	11.64	7.367
T 4:2FTS	Avg RF					ISTD				
I M2-6:2FTS	Avg RF	7.1717	7.6728	7.9944	7.5842	8.1563	7.9533	6.9124	7.6350	5.961
T 6:2FTS	Avg RF					ISTD				
I M2-8:2FTS	Avg RF	3.5480	4.1318	4.5243	4.3458	4.0624	3.9508	3.5130	4.0109	9.432
T 8:2FTS	Avg RF					ISTD				
I M3-MeFOSAA	Avg RF	0.7630	0.9280	0.9657	0.9766	1.0567	0.9637	0.9985	0.9503	9.638
T MeFOSAA	Avg RF					ISTD				
I M3-HFPO-DA	Avg RF	0.8401	1.1054	1.0094	0.9800	0.9478	1.0003	0.9948	0.9826	8.077
T HFPO-DA	Avg RF	18.33	21.24	21.71	23.15	21.84	23.43	22.82	21.79	7.925
T ADONA	Avg RF	9.5855	11.54	12.19	11.69	12.20	11.78	11.40	11.48	7.749
T 9CH-HPF3ONS	Avg RF	5.7129	6.6887	6.4171	6.8033	6.5197	6.5537	6.6261	6.4745	5.528
T 11C-HPF3OUds	Avg RF					ISTD				
I M5-EFOSAA	Avg RF	0.9182	0.8182	0.8236	0.7658	0.8916	0.8409	0.8468	0.8436	5.925
T EfOSAA	Avg RF					ISTD				
I M7-MeFOSE	Avg RF	0.8906	0.9860	1.0395	1.0762	0.9786	1.1123	1.1868	1.0386	9.392
T MeFOSE	Avg RF					ISTD				
I M9-EFOSE	Avg RF	0.9270	1.0682	1.0364	1.0200	1.0474	1.1872	1.1766	1.0661	8.525
T EFOSE	Avg RF					ISTD				

Initial Calibration Summary

Job Number: FC2447
 Account: AECOM AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q208-ICC208
 Lab FileID: 6Q13730.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	7	8	Avg RF	%RSD
I M5-EFOSA	Linear	1.1303	1.2594	1.1347	1.0528	1.2462	1.2513	1.2420	1.1881	6.860
T EFOSA				ISTD						
I M3-MeFOSA	Linear	1.0950	1.0648	1.0699	1.0908	1.1502	1.1998	1.0378	1.1012	5.057
T MeFOSA				ISTD						
I 13C4-PFOS	Linear	1.5306	1.7791	1.3340	1.4738	1.5091	1.4534	1.3844	1.4949	9.558
S d3-MeFOSAA	Linear	0.9007	0.9929	0.7537	0.8643	0.8429	0.7583	0.7878	0.8429	10.211
S 13C8-PFOS	Linear	1.2997	1.4264	1.1366	1.3733	1.2035	1.1887	1.1426	1.2530	9.160
S d5-EFOSAA	Linear	1.6776	1.8731	1.5315	1.7661	1.7092	1.5732	1.5774	1.6726	7.287
S 13C8-FOSA	Linear	0.2530	0.2782	0.2339	0.2453	0.2595	0.2307	0.2061	0.2438	9.479
S d7-MeFOSE	Linear	0.7196	0.7802	0.6430	0.7031	0.6950	0.6466	0.7046	0.6989	6.650
S d3-MeFOSA	Linear	0.1795	0.1929	0.1610	0.1844	0.1803	0.1581	0.1506	0.1724	9.132
S d9-EFOSE	Linear	0.7575	0.8291	0.7309	0.8282	0.7453	0.6814	0.6974	0.7528	7.714
S d5-EFOSA				ISTD						
I 13C3-PFBA	Linear	1.1675	1.1765	1.1410	1.2399	1.1473	1.1412	1.1069	1.1600	3.593
S 13C4-PFBA				ISTD						
I 1802-PFHxS	Linear	0.1933	0.1972	0.1729	0.1938	0.1655	0.1515	0.1330	0.1725	14.101
S 13C2-4:2FTS	Linear	2.1094	2.1172	2.0329	2.1505	1.9994	2.1760	1.8624	2.0640	5.259
S 13C3-PFBS	Linear	0.2442	0.2560	0.2279	0.2469	0.2151	0.2104	0.1861	0.2267	10.841
S 13C2-6:2FTS	Linear	1.3901	1.5160	1.3536	1.4230	1.2801	1.4172	1.3642	1.3920	5.226
S 13C3-PFHxS	Linear	0.2319	0.2251	0.2134	0.2334	0.2225	0.2160	0.1974	0.2200	5.637
S 13C2-8:2FTS				ISTD						
I 13C4-PFOA	Linear	0.8567	0.8061	0.8863	0.9916	0.8371	0.7737	0.8305	0.8546	8.215
S 13C8-PFOA				ISTD						
I 13C2-PFDA	Linear	0.7287	0.8145	0.6959	0.8441	0.7586	0.7493	0.6273	0.7455	9.703
S 13C6-PFDA	Linear	0.8959	0.9118	0.8353	0.9826	0.9026	0.8531	0.7372	0.8741	8.760
S 13C7-PFUDA	Linear	0.9902	0.9949	0.9472	1.0894	1.0464	0.9543	0.8773	0.9857	7.026
S 13C2-PFDODA	Linear	0.5647	0.5723	0.5220	0.5650	0.5495	0.5355	0.5092	0.5454	4.399
S 13C2-PFTeDA				ISTD						
I 13C5-PFNA	Linear	0.9393	1.0374	0.9621	0.9830	0.8756	0.9290	0.9062	0.9475	5.590
S 13C9-PFNA				ISTD						
I 13C2-PFHxA	Linear	0.5943	0.5879	0.5750	0.6556	0.5615	0.6008	0.5394	0.5878	6.216
S 13C5-PPeA	Linear	1.0693	1.0704	1.0345	1.1747	1.0004	1.1137	0.9592	1.0603	6.734
S 13C5-PFHxA	Linear	0.1156	0.1106	0.1104	0.1181	0.1106	0.1191	0.1055	0.1128	4.344
S 13C3-HFPO-DA	Linear	1.0873	1.0619	1.0321	1.1905	1.0409	1.1137	1.0008	1.0753	5.841
S 13C4-PFHxA				ISTD						

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

Initial Calibration Summary

Job Number: FC2447
 Account: AECOM AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q208-ICC208
 Lab FileID: 6Q13730.D

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	%RSE
S 13C4-PBBA	Linear	y = 1.160034 * x	
S 13C5-PFPeA	Linear	y = 0.587794 * x	
S 13C2-4:2FTS	Linear	y = 0.172468 * x	
S 13C3-PFBS	Linear	y = 2.063983 * x	
S 13C5-PFHxA	Linear	y = 1.060316 * x	
S 13C3-HFPO-DA	Linear	y = 0.112842 * x	
S 13C4-PFHpA	Linear	y = 1.075324 * x	
S 13C8-PFOA	Linear	y = 0.226677 * x	
S 13C3-PFHxS	Linear	y = 0.854561 * x	
S 13C9-PFNA	Linear	y = 1.392017 * x	
S 13C2-8:2FTS	Linear	y = 0.947518 * x	
S 13C6-PEDA	Linear	y = 0.219972 * x	
S d3-MeFOSAA	Linear	y = 0.745484 * x	
S 13C8-PFOS	Linear	y = 1.494904 * x	
S d5-EFOSAA	Linear	y = 0.842946 * x	
S 13C7-PFUInDA	Linear	y = 1.252990 * x	
S 13C2-PFDODA	Linear	y = 0.874082 * x	
S 13C8-FOSA	Linear	y = 0.985663 * x	
S 13C2-PFTeDA	Linear	y = 1.672606 * x	
S d7-MeFOSE	Linear	y = 0.545445 * x	
S d3-MeFOSA	Linear	y = 0.243823 * x	
S d9-EFOSE	Linear	y = 0.698864 * x	
S d5-EFOSA	Linear	y = 0.172389 * x	
S d5-EFOSA	Linear	y = 0.752810 * x	

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

Initial Calibration Verification

Job Number: FC2447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q208-ICV208
 Lab FileID: 6Q13736.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\021423_1633_S6Q207\s6q208.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\021423_1633_S6Q207\6Q13727.d
 2:D:\MassHunter\Data\021423_1633_S6Q207\6Q13728.d
 3:D:\MassHunter\Data\021423_1633_S6Q207\6Q13729.d
 4:D:\MassHunter\Data\021423_1633_S6Q207\6Q13730.d
 5:D:\MassHunter\Data\021423_1633_S6Q207\6Q13731.d
 7:D:\MassHunter\Data\021423_1633_S6Q207\6Q13733.d
 8:D:\MassHunter\Data\021423_1633_S6Q207\6Q13734.d

Data File: 6Q13736

Type : QC

Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.186	3.7	103.7
13C2-6:2FTS	5.000	5.020	0.4	100.4
13C2-8:2FTS	5.000	4.919	-1.6	98.4
13C2-PFDoDA	3.125	3.082	-1.4	98.6
13C2-PFTeDA	3.125	3.083	-1.3	98.7
13C3-PFBS	3.750	3.754	0.1	100.1
13C3-PFHxS	3.750	3.716	-0.9	99.1
13C4-PFBA	7.500	7.399	-1.4	98.6
13C4-PFHpA	3.750	3.642	-2.9	97.1
13C5-PFHxA	3.750	3.445	-8.1	91.9
13C5-PFPeA	5.000	4.728	-5.4	94.6
13C6-PFDA	3.125	3.114	-0.4	99.6
13C7-PFUnDA	3.125	3.184	1.9	101.9
13C8-FOSA	3.750	3.629	-3.2	96.8
13C8-PFOA	3.750	3.542	-5.5	94.5
13C8-PFOS	3.750	3.328	-11.3	88.7
13C9-PFNA	3.125	3.065	-1.9	98.1
4:2FTS	9.375	9.865	5.2	105.2
6:2FTS	9.500	10.485	10.4	110.4
8:2FTS	9.600	10.824	12.8	112.8
d3-MeFOSAA	5.000	4.857	-2.9	97.1
EtFOSAA	2.500	2.669	6.8	106.8
FOSA	2.500	2.454	-1.8	98.2
MeFOSAA	2.500	2.619	4.8	104.8
PFBA	10.000	10.339	3.4	103.4
PFBS	2.218	2.274	2.5	102.5
PFDA	2.500	2.529	1.2	101.2
PFDoDA	2.500	2.668	6.7	106.7
PFDS	2.413	2.820	16.9	116.9
PFHpA	2.500	2.510	0.4	100.4
PFHpS	2.383	2.596	8.9	108.9
PFHxA	2.500	2.664	6.6	106.6
PFHxS	2.285	2.368	3.6	103.6
PFNA	2.500	2.502	0.1	100.1
PFNS	2.405	2.633	9.5	109.5
PFOA	2.500	2.509	0.4	100.4
PFOS	2.320	2.414	4.1	104.1
PFPeA	5.000	5.244	4.9	104.9

Initial Calibration Verification

Job Number: FC2447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q208-ICV208
 Lab FileID: 6Q13736.D

PFPeS	2.353	2.597	10.4	110.4
PFTeDA	2.500	2.741	9.6	109.6
PFTTrDA	2.500	2.697	7.9	107.9
PFUnDA	2.500	2.458	-1.7	98.3
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUds	9.450	10.139	7.3	107.3
13C3-HFPO-DA	5.000	4.649	-7.0	93.0
9C1-PF3ONS	9.350	10.064	7.6	107.6
ADONA	9.450	10.456	10.6	110.6
HFPO-DA	10.000	10.878	8.8	108.8
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.511	0.2	100.2
5:3FTCA	62.400	69.461	11.3	111.3
7:3FTCA	62.400	68.906	10.4	110.4
d3-MeFOSA	1.250	1.138	-9.0	91.0
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.573	2.9	102.9
EtFOSE	25.000	26.029	4.1	104.1
MeFOSA	2.500	2.619	4.8	104.8
MeFOSE	25.000	26.525	6.1	106.1
PFDoDS	2.425	2.747	13.3	113.3
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.687	-6.3	93.7
d7-MeFOSE	12.500	11.606	-7.1	92.9
d9-EtFOSE	12.500	11.836	-5.3	94.7
d5-EtFOSA	1.250	1.197	-4.3	95.7
NFDHA	5.000	5.552	11.0	111.0
PFMBA	5.000	5.229	4.6	104.6
PFMPA	5.000	5.260	5.2	105.2
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.792	7.7	107.7

CC Criteria: +/- 30%

Initial Calibration Verification

Job Number: FC2447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q208-ICV208
 Lab FileID: 6Q13737.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\021423_1633_S6Q207\s6q208.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\021423_1633_S6Q207\6Q13727.d
 2:D:\MassHunter\Data\021423_1633_S6Q207\6Q13728.d
 3:D:\MassHunter\Data\021423_1633_S6Q207\6Q13729.d
 4:D:\MassHunter\Data\021423_1633_S6Q207\6Q13730.d
 5:D:\MassHunter\Data\021423_1633_S6Q207\6Q13731.d
 7:D:\MassHunter\Data\021423_1633_S6Q207\6Q13733.d
 8:D:\MassHunter\Data\021423_1633_S6Q207\6Q13734.d

Data File: 6Q13737

Type : QC
 Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.021	0.4	100.4
13C2-6:2FTS	5.000	4.677	-6.5	93.5
13C2-8:2FTS	5.000	4.608	-7.8	92.2
13C2-PFDoDA	3.125	3.160	1.1	101.1
13C2-PFTeDA	3.125	3.164	1.2	101.2
13C3-PFBS	3.750	3.380	-9.9	90.1
13C3-PFHxS	3.750	3.446	-8.1	91.9
13C4-PFBA	7.500	7.031	-6.3	93.7
13C4-PFHpA	3.750	3.469	-7.5	92.5
13C5-PFHxA	3.750	3.433	-8.5	91.5
13C5-PFPeA	5.000	4.766	-4.7	95.3
13C6-PFDA	3.125	3.153	0.9	100.9
13C7-PFUnDA	3.125	3.116	-0.3	99.7
13C8-FOSA	3.750	3.425	-8.7	91.3
13C8-PFOA	3.750	3.882	3.5	103.5
13C8-PFOS	3.750	3.403	-9.3	90.7
13C9-PFNA	3.125	2.752	-11.9	88.1
4:2FTS	20.000	21.009	5.0	105.0
6:2FTS	20.000	22.208	11.0	111.0
8:2FTS	20.000	23.162	15.8	115.8
d3-MeFOSAA	5.000	4.416	-11.7	88.3
EtFOSAA	20.000	20.611	3.1	103.1
FOSA	20.000	21.735	8.7	108.7
MeFOSAA	20.000	23.635	18.2	118.2
PFBA	20.000	20.627	3.1	103.1
PFBS	20.000	23.100	15.5	115.5
PFDA	20.000	22.042	10.2	110.2
PFDoDA	20.000	18.676	-6.6	93.4
PFDS	20.000	22.378	11.9	111.9
PFHpA	20.000	21.342	6.7	106.7
PFHpS	20.000	22.326	11.6	111.6
PFHxA	20.000	23.610	18.0	118.0
PFHxS	20.000	22.193	11.0	111.0
PFNA	20.000	25.067	25.3	125.3
PFNS	20.000	22.171	10.9	110.9
PFOA	20.000	19.003	-5.0	95.0
PFOS	20.000	17.620	-11.9	88.1
PFPeA	20.000	22.636	13.2	113.2

Initial Calibration Verification

Job Number: FC2447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q208-ICV208
 Lab FileID: 6Q13737.D

PFPeS	20.000	23.209	16.0	116.0
PFTeDA	20.000	21.984	9.9	109.9
PFTTrDA	20.000	18.884	-5.6	94.4
PFUnDA	20.000	21.821	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	20.000	22.176	10.9	110.9
13C3-HFPO-DA	5.000	4.827	-3.5	96.5
9C1-PF3ONS	20.000	19.553	-2.2	97.8
ADONA	20.000	20.982	4.9	104.9
HFPO-DA	20.000	19.892	-0.5	99.5
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	20.116	0.6	100.6
5:3FTCA	20.000	21.187	5.9	105.9
7:3FTCA	20.000	21.089	5.4	105.4
d3-MeFOSA	1.250	1.193	-4.6	95.4
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	19.913	-0.4	99.6
EtFOSE	100.000	100.039	0.0	100.0
MeFOSA	20.000	19.054	-4.7	95.3
MeFOSE	100.000	89.472	-10.5	89.5
PFDoDS	20.000	19.577	-2.1	97.9
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.586	-8.3	91.7
d7-MeFOSE	12.500	11.648	-6.8	93.2
d9-EtFOSE	12.500	11.107	-11.1	88.9
d5-EtFOSA	1.250	1.131	-9.5	90.5
NFDHA	20.000	20.977	4.9	104.9
PFMBA	20.000	20.206	1.0	101.0
PFMPA	20.000	20.383	1.9	101.9
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	20.000	19.371	-3.1	96.9

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC2447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q208-CC208
 Lab FileID: 6Q13738.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\021423_1633_S6Q207\s6q208.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\021423_1633_S6Q207\6Q13727.d
 2:D:\MassHunter\Data\021423_1633_S6Q207\6Q13728.d
 3:D:\MassHunter\Data\021423_1633_S6Q207\6Q13729.d
 4:D:\MassHunter\Data\021423_1633_S6Q207\6Q13730.d
 5:D:\MassHunter\Data\021423_1633_S6Q207\6Q13731.d
 7:D:\MassHunter\Data\021423_1633_S6Q207\6Q13733.d
 8:D:\MassHunter\Data\021423_1633_S6Q207\6Q13734.d

Data File: 6Q13738

Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	6.097	21.9	121.9
13C2-6:2FTS	5.000	5.730	14.6	114.6
13C2-8:2FTS	5.000	5.581	11.6	111.6
13C2-PFDoDA	3.125	3.260	4.3	104.3
13C2-PFTeDA	3.125	3.403	8.9	108.9
13C3-PFBS	3.750	4.200	12.0	112.0
13C3-PFHxS	3.750	4.103	9.4	109.4
13C4-PFBA	7.500	8.083	7.8	107.8
13C4-PFHpA	3.750	4.008	6.9	106.9
13C5-PFHxA	3.750	4.095	9.2	109.2
13C5-PFPeA	5.000	5.415	8.3	108.3
13C6-PFDA	3.125	3.266	4.5	104.5
13C7-PFUnDA	3.125	3.273	4.7	104.7
13C8-FOSA	3.750	3.982	6.2	106.2
13C8-PFOA	3.750	4.244	13.2	113.2
13C8-PFOS	3.750	3.714	-1.0	99.0
13C9-PFNA	3.125	3.341	6.9	106.9
4:2FTS	9.375	6.985	-25.5	74.5
6:2FTS	9.500	9.440	-0.6	99.4
8:2FTS	9.600	10.383	8.2	108.2
d3-MeFOSAA	5.000	5.239	4.8	104.8
EtFOSAA	2.500	2.510	0.4	100.4
FOSA	2.500	2.313	-7.5	92.5
MeFOSAA	2.500	2.621	4.9	104.9
PFBA	10.000	9.598	-4.0	96.0
PFBS	2.218	2.026	-8.7	91.3
PFDA	2.500	2.763	10.5	110.5
PFDoDA	2.500	2.412	-3.5	96.5
PFDS	2.413	2.546	5.5	105.5
PFHpA	2.500	2.423	-3.1	96.9
PFHpS	2.383	2.470	3.7	103.7
PFHxA	2.500	2.320	-7.2	92.8
PFHxS	2.285	2.116	-7.4	92.6
PFNA	2.500	2.357	-5.7	94.3
PFNS	2.405	2.264	-5.9	94.1
PFOA	2.500	2.366	-5.4	94.6
PFOS	2.320	2.394	3.2	103.2
PFPeA	5.000	4.815	-3.7	96.3

Continuing Calibration Summary

Job Number: FC2447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q208-CC208
 Lab FileID: 6Q13738.D

PFPeS	2.353	2.341	-0.5	99.5
PFTeDA	2.500	2.411	-3.6	96.4
PFTTrDA	2.500	2.475	-1.0	99.0
PFUnDA	2.500	2.377	-4.9	95.1
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUds	9.450	9.481	0.3	100.3
13C3-HFPO-DA	5.000	5.228	4.6	104.6
9C1-PF3ONS	9.350	9.343	-0.1	99.9
ADONA	9.450	9.225	-2.4	97.6
HFPO-DA	10.000	9.910	-0.9	99.1
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.961	-4.2	95.8
5:3FTCA	62.400	61.228	-1.9	98.1
7:3FTCA	62.400	60.080	-3.7	96.3
d3-MeFOSA	1.250	1.279	2.4	102.4
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.508	0.3	100.3
EtFOSE	25.000	25.974	3.9	103.9
MeFOSA	2.500	2.445	-2.2	97.8
MeFOSE	25.000	23.099	-7.6	92.4
PFDoDS	2.425	2.348	-3.2	96.8
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.031	0.6	100.6
d7-MeFOSE	12.500	13.075	4.6	104.6
d9-EtFOSE	12.500	12.180	-2.6	97.4
d5-EtFOSA	1.250	1.270	1.6	101.6
NFDHA	5.000	5.152	3.0	103.0
PFMBA	5.000	4.731	-5.4	94.6
PFMPA	5.000	4.822	-3.6	96.4
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.526	1.7	101.7

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC2447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q208-CC208
 Lab FileID: 6Q13739.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\021423_1633_S6Q207\s6q208.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\021423_1633_S6Q207\6Q13727.d
 2:D:\MassHunter\Data\021423_1633_S6Q207\6Q13728.d
 3:D:\MassHunter\Data\021423_1633_S6Q207\6Q13729.d
 4:D:\MassHunter\Data\021423_1633_S6Q207\6Q13730.d
 5:D:\MassHunter\Data\021423_1633_S6Q207\6Q13731.d
 7:D:\MassHunter\Data\021423_1633_S6Q207\6Q13733.d
 8:D:\MassHunter\Data\021423_1633_S6Q207\6Q13734.d

Data File: 6Q13739

Type : QC

Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.650	13.0	113.0
13C2-6:2FTS	5.000	5.033	0.7	100.7
13C2-8:2FTS	5.000	5.292	5.8	105.8
13C2-PFDoDA	3.125	3.174	1.6	101.6
13C2-PFTeDA	3.125	3.315	6.1	106.1
13C3-PFBS	3.750	3.867	3.1	103.1
13C3-PFHxS	3.750	3.844	2.5	102.5
13C4-PFBA	7.500	7.640	1.9	101.9
13C4-PFHpA	3.750	3.738	-0.3	99.7
13C5-PFHxA	3.750	3.608	-3.8	96.2
13C5-PFPeA	5.000	4.804	-3.9	96.1
13C6-PFDA	3.125	3.340	6.9	106.9
13C7-PFUnDA	3.125	3.222	3.1	103.1
13C8-FOSA	3.750	3.704	-1.2	98.8
13C8-PFOA	3.750	3.666	-2.2	97.8
13C8-PFOS	3.750	3.621	-3.4	96.6
13C9-PFNA	3.125	3.048	-2.5	97.5
4:2FTS	0.750	0.605	-19.4	80.6
6:2FTS	0.760	0.793	4.3	104.3
8:2FTS	0.768	0.784	2.1	102.1
d3-MeFOSAA	5.000	5.219	4.4	104.4
EtFOSAA	0.200	0.210	5.0	105.0
FOSA	0.200	0.203	1.5	101.5
MeFOSAA	0.200	0.147	-26.3	73.7
PFBA	0.800	0.736	-8.0	92.0
PFBS	0.177	0.142	-19.6	80.4
PFDA	0.200	0.176	-11.8	88.2
PFDoDA	0.200	0.196	-2.0	98.0
PFDS	0.193	0.178	-7.6	92.4
PFHpA	0.200	0.179	-10.5	89.5
PFHpS	0.191	0.195	2.3	102.3
PFHxA	0.200	0.190	-5.0	95.0
PFHxS	0.183	0.178	-2.9	97.1
PFNA	0.200	0.163	-18.5	81.5
PFNS	0.192	0.190	-1.0	99.0
PFOA	0.200	0.176	-11.9	88.1
PFOS	0.186	0.202	8.4	108.4
PFPeA	0.400	0.362	-9.5	90.5

Continuing Calibration Summary

Job Number: FC2447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q208-CC208
 Lab FileID: 6Q13739.D

PFPeS	0.188	0.161	-14.6	85.4
PFTeDA	0.200	0.170	-15.2	84.8
PFTTrDA	0.200	0.170	-14.9	85.1
PFUnDA	0.200	0.193	-3.6	96.4
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	0.756	0.700	-7.4	92.6
13C3-HFPO-DA	5.000	4.632	-7.4	92.6
9C1-PF3ONS	0.748	0.664	-11.2	88.8
ADONA	0.756	0.654	-13.5	86.5
HFPO-DA	0.800	0.659	-17.6	82.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	0.850	-14.9	85.1
5:3FTCA	4.992	4.390	-12.1	87.9
7:3FTCA	4.992	4.369	-12.5	87.5
d3-MeFOSA	1.250	1.229	-1.7	98.3
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.200	0.207	3.6	103.6
EtFOSE	2.000	1.917	-4.1	95.9
MeFOSA	0.200	0.197	-1.6	98.4
MeFOSE	2.000	1.801	-9.9	90.1
PFDoDS	0.194	0.185	-4.6	95.4
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.117	2.3	102.3
d7-MeFOSE	12.500	12.557	0.5	100.5
d9-EtFOSE	12.500	12.301	-1.6	98.4
d5-EtFOSA	1.250	1.185	-5.2	94.8
NFDHA	0.400	0.350	-12.6	87.4
PFMBA	0.400	0.375	-6.3	93.7
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--		
PFEESA	0.356	0.301	-15.5	84.5

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC2447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q208-CC208
 Lab FileID: 6Q13749.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\021423_1633_S6Q207\s6q208.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\021423_1633_S6Q207\6Q13727.d
 2:D:\MassHunter\Data\021423_1633_S6Q207\6Q13728.d
 3:D:\MassHunter\Data\021423_1633_S6Q207\6Q13729.d
 4:D:\MassHunter\Data\021423_1633_S6Q207\6Q13730.d
 5:D:\MassHunter\Data\021423_1633_S6Q207\6Q13731.d
 7:D:\MassHunter\Data\021423_1633_S6Q207\6Q13733.d
 8:D:\MassHunter\Data\021423_1633_S6Q207\6Q13734.d

Data File: 6Q13749

Type : QC

Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	6.155	23.1	123.1
13C2-6:2FTS	5.000	5.493	9.9	109.9
13C2-8:2FTS	5.000	5.829	16.6	116.6
13C2-PFDoDA	3.125	3.373	7.9	107.9
13C2-PFTeDA	3.125	3.515	12.5	112.5
13C3-PFBS	3.750	4.148	10.6	110.6
13C3-PFHxS	3.750	4.088	9.0	109.0
13C4-PFBA	7.500	8.082	7.8	107.8
13C4-PFHpA	3.750	4.109	9.6	109.6
13C5-PFHxA	3.750	3.921	4.6	104.6
13C5-PFPeA	5.000	5.309	6.2	106.2
13C6-PFDA	3.125	3.331	6.6	106.6
13C7-PFUnDA	3.125	3.255	4.2	104.2
13C8-FOSA	3.750	3.873	3.3	103.3
13C8-PFOA	3.750	4.189	11.7	111.7
13C8-PFOS	3.750	3.736	-0.4	99.6
13C9-PFNA	3.125	3.247	3.9	103.9
4:2FTS	9.375	8.692	-7.3	92.7
6:2FTS	9.500	9.669	1.8	101.8
8:2FTS	9.600	9.366	-2.4	97.6
d3-MeFOSAA	5.000	5.564	11.3	111.3
EtFOSAA	2.500	2.259	-9.6	90.4
FOSA	2.500	2.651	6.0	106.0
MeFOSAA	2.500	2.399	-4.1	95.9
PFBA	10.000	9.610	-3.9	96.1
PFBS	2.218	2.124	-4.2	95.8
PFDA	2.500	2.439	-2.4	97.6
PFDoDA	2.500	2.317	-7.3	92.7
PFDS	2.413	2.608	8.1	108.1
PFHpA	2.500	2.173	-13.1	86.9
PFHpS	2.383	2.555	7.2	107.2
PFHxA	2.500	2.361	-5.6	94.4
PFHxS	2.285	2.236	-2.2	97.8
PFNA	2.500	2.639	5.5	105.5
PFNS	2.405	2.648	10.1	110.1
PFOA	2.500	2.282	-8.7	91.3
PFOS	2.320	2.321	0.1	100.1
PFPeA	5.000	4.729	-5.4	94.6

Continuing Calibration Summary

Job Number: FC2447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q208-CC208
 Lab FileID: 6Q13749.D

PFPeS	2.353	2.320	-1.4	98.6
PFTeDA	2.500	2.278	-8.9	91.1
PFTTrDA	2.500	2.435	-2.6	97.4
PFUnDA	2.500	2.552	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	9.450	9.737	3.0	103.0
13C3-HFPO-DA	5.000	5.037	0.7	100.7
9C1-PF3ONS	9.350	9.610	2.8	102.8
ADONA	9.450	9.750	3.2	103.2
HFPO-DA	10.000	9.568	-4.3	95.7
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.234	-2.0	98.0
5:3FTCA	62.400	59.623	-4.5	95.5
7:3FTCA	62.400	62.369	0.0	100.0
d3-MeFOSA	1.250	1.309	4.7	104.7
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.377	-4.9	95.1
EtFOSE	25.000	22.347	-10.6	89.4
MeFOSA	2.500	2.343	-6.3	93.7
MeFOSE	25.000	23.979	-4.1	95.9
PFDoDS	2.425	2.604	7.4	107.4
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.667	13.3	113.3
d7-MeFOSE	12.500	13.190	5.5	105.5
d9-EtFOSE	12.500	13.456	7.6	107.6
d5-EtFOSA	1.250	1.294	3.5	103.5
NFDHA	5.000	4.907	-1.9	98.1
PFMBA	5.000	4.684	-6.3	93.7
PFMPA	5.000	4.728	-5.4	94.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.260	-4.3	95.7

CC Criteria: +/- 30%

Run Sequence Report

Job Number: FC2447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q208	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
----------------	------------------------	-----------------------

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S6Q208-RT	6Q13724.D	02/16/23 07:22	n/a	Retention Time Marker
S6Q208-RT	6Q13725.D	02/16/23 07:36	n/a	Retention Time Marker
S6Q208-IC208	6Q13726.D	02/16/23 07:50	n/a	Mass Calibration Verification
S6Q208-IC208	6Q13727.D	02/16/23 08:04	n/a	Initial cal 1
S6Q208-IC208	6Q13728.D	02/16/23 08:18	n/a	Initial cal 2
S6Q208-IC208	6Q13729.D	02/16/23 08:32	n/a	Initial cal 3
S6Q208-ICC208	6Q13730.D	02/16/23 08:46	n/a	Initial cal 4
S6Q208-IC208	6Q13731.D	02/16/23 09:00	n/a	Initial cal 5
S6Q208-IC208	6Q13732.D	02/16/23 09:14	n/a	Initial cal 6
S6Q208-IC208	6Q13733.D	02/16/23 09:28	n/a	Initial cal 7
S6Q208-IC208	6Q13734.D	02/16/23 09:42	n/a	Initial cal 8
S6Q208-IBLK	6Q13735.D	02/16/23 09:56	n/a	Instrument Blank
S6Q208-ICV208	6Q13736.D	02/16/23 10:10	n/a	Initial cal verification 4
S6Q208-ICV208	6Q13737.D	02/16/23 10:24	n/a	Initial cal verification 20
S6Q208-CC208	6Q13738.D	02/16/23 10:38	n/a	Continuing cal 4
S6Q208-CC208	6Q13739.D	02/16/23 10:52	n/a	Continuing cal 1.0LL
OP95376-BS	6Q13740.D	02/16/23 11:06	OP95376	Blank Spike
OP95376-LLBS	6Q13741.D	02/16/23 11:20	OP95376	Blank Spike
OP95376-MB	6Q13742.D	02/16/23 11:34	OP95376	Method Blank
FC2447-1	6Q13743.D	02/16/23 11:48	OP95376	AF-RHMW16-WGN01LF-2301W5
OP95376-MS	6Q13744.D	02/16/23 12:02	OP95376	Matrix Spike
FC2447-3	6Q13747.D	02/16/23 12:44	OP95376	AF-RHMW04-WGN01LF-2301W5
FC2447-4	6Q13748.D	02/16/23 12:58	OP95376	AF-RHMW06-WGN01LF-2301W5
S6Q208-CC208	6Q13749.D	02/16/23 13:12	n/a	Continuing cal 4
S6Q208-ICCB	6Q13750.D	02/16/23 13:26	n/a	Continuing Calibration Blank
OP95417-BS	6Q13751.D	02/16/23 13:40	OP95417	Blank Spike
OP95417-LLBS	6Q13752.D	02/16/23 13:54	OP95417	Blank Spike
OP95417-MB	6Q13753.D	02/16/23 14:07	OP95417	Method Blank
ZZZZZZ	6Q13755.D	02/16/23 14:35	OP95417	(unrelated sample)
ZZZZZZ	6Q13756.D	02/16/23 14:49	OP95417	(unrelated sample)
ZZZZZZ	6Q13757.D	02/16/23 15:03	OP95417	(unrelated sample)
ZZZZZZ	6Q13758.D	02/16/23 15:17	OP95417	(unrelated sample)
S6Q208-ECC208	6Q13759.D	02/16/23 15:31	n/a	Ending cal 4
S6Q208-ICCB	6Q13760.D	02/16/23 15:46	n/a	Continuing Calibration Blank

MS Semi-volatiles

Raw Data

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13743.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/16/2023 11:48:02 AM
 Sample Name : FC2447-1
 Vial : P6-A4
 DA Method File : 1633_021623_S6Q208NEW.quantmethod.xml
 Batch Name : s6q208.batch.bin
 Sample Information : OP95376,S6Q208,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.000	216.8 -> 171.9	65176	7.50 µg/L	0.025
M5-PFPeA	4.374	268.3 -> 223.0	39870	5.00 µg/L	-0.012
M5-PFHxA	5.550	318.0 -> 273.0	48480	3.75 µg/L	-0.012
M4-PFHpA	6.477	367.1 -> 322.0	50690	3.75 µg/L	-0.025
M8-PFOA	7.122	421.1 -> 376.0	90465	3.75 µg/L	-0.025
M9-PFNA	7.640	472.1 -> 427.0	46639	3.13 µg/L	-0.037
M6-PFDA	8.120	519.1 -> 474.1	33214	3.13 µg/L	-0.037
M7-PFUnDA	8.574	570.0 -> 525.1	36449	3.13 µg/L	-0.037
M2-PFDoDA	9.004	615.1 -> 570.0	36070	3.13 µg/L	-0.050
M2-PFTeDA	9.743	715.2 -> 670.0	19785	3.13 µg/L	-0.037
M8-FOSA	9.555	506.1 -> 77.8	20653	3.75 µg/L	-0.012
M3-PFBS	5.493	302.1 -> 79.9	19965	3.75 µg/L	-0.025
M3-PFHxS	7.237	402.1 -> 79.9	12586	3.75 µg/L	-0.037
M8-PFOS	8.283	507.1 -> 79.9	10447	3.75 µg/L	-0.050
M2-4:2FTS	5.215	329.1 -> 80.9	2457	5.00 µg/L	-0.025
M2-6:2FTS	6.883	429.1 -> 80.9	2947	5.00 µg/L	-0.025
M2-8:2FTS	7.907	529.1 -> 80.9	2720	5.00 µg/L	-0.037
M3-MeFOSAA	8.165	573.2 -> 419.0	24958	5.00 µg/L	-0.037
M3-HFPO-DA	5.915	286.9 -> 168.9	8489	5.00 µg/L	-0.025
M5-EtFOSAA	8.361	589.2 -> 419.0	20218	5.00 µg/L	-0.037
M7-MeFOSE	10.589	623.2 -> 58.9	10252	12.50 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	7027	12.50 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	3195	1.25 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	2808	1.25 µg/L	0.000
13C4-PFOS	8.283	502.8 -> 79.9	8941	2.50 µg/L	-0.050
13C3-PFBA	2.991	216.0 -> 172.0	33447	5.00 µg/L	0.012
18O2-PFHxS	7.236	403.0 -> 83.9	5967	2.50 µg/L	-0.037
13C4-PFOA	7.110	417.1 -> 372.0	66894	2.50 µg/L	-0.037
13C2-PFDA	8.120	515.1 -> 470.1	20554	1.25 µg/L	-0.037
13C5-PFNA	7.640	468.0 -> 423.0	21601	1.25 µg/L	-0.037
13C2-PFHxA	5.539	315.1 -> 270.0	31160	2.50 µg/L	-0.025
System Monitoring Compounds					
13C2-4:2FTS	5.215	329.1 -> 80.9	2457	5.97 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.4%		
13C2-6:2FTS	6.883	429.1 -> 80.9	2947	5.45 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.9%		
13C2-8:2FTS	7.907	529.1 -> 80.9	2720	5.18 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C2-PFDoDA	9.004	615.1 -> 570.0	36070	2.23 µg/L	-0.050
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 71.2%		
13C2-PFTeDA	9.743	715.2 -> 670.0	19785	2.21 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 70.6%		
13C3-PFBS	5.493	302.1 -> 79.9	19965	4.05 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 108.1%		
13C3-PFHxS	7.237	402.1 -> 79.9	12586	3.79 µg/L	-0.037

7.1.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C4-PFBA	3.000	216.8 -> 171.9	65176	8.40 µg/L	0.025
Spiked Amount: 7.50	Range: 50.0 - 150.0%			Recovery = 112.0%	
13C4-PFHpA	6.477	367.1 -> 322.0	50690	3.78 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C5-PFHxA	5.550	318.0 -> 273.0	48480	3.67 µg/L	-0.012
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C5-PFPeA	4.374	268.3 -> 223.0	39870	5.44 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.8%	
13C6-PFDA	8.120	519.1 -> 474.1	33214	2.71 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 86.7%	
13C7-PFUnDA	8.574	570.0 -> 525.1	36449	2.54 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 81.2%	
13C8-FOSA	9.555	506.1 -> 77.8	20653	3.45 µg/L	-0.012
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 92.1%	
13C8-PFOA	7.122	421.1 -> 376.0	90465	3.96 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C8-PFOS	8.283	507.1 -> 79.9	10447	3.47 µg/L	-0.050
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 92.4%	
13C9-PFNA	7.640	472.1 -> 427.0	46639	2.85 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 91.1%	
d3-MeFOSAA	8.165	573.2 -> 419.0	24958	4.67 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.4%	
13C3-HFPO-DA	5.915	286.9 -> 168.9	8489	6.04 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 120.7%	
d3-MeFOSA	10.680	515.0 -> 219.0	2808	1.12 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 89.9%	
d5-EtFOSAA	8.361	589.2 -> 419.0	20218	4.51 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 90.2%	
d7-MeFOSE	10.589	623.2 -> 58.9	10252	11.76 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%			Recovery = 94.1%	
d9-EtFOSE	10.847	639.2 -> 58.9	7027	11.40 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%			Recovery = 91.2%	
d5-EtFOSA	10.925	531.1 -> 219.0	3195	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.9%	

7.11
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	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	7.385	548.8 -> 98.9	0	µg/L	m	1
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

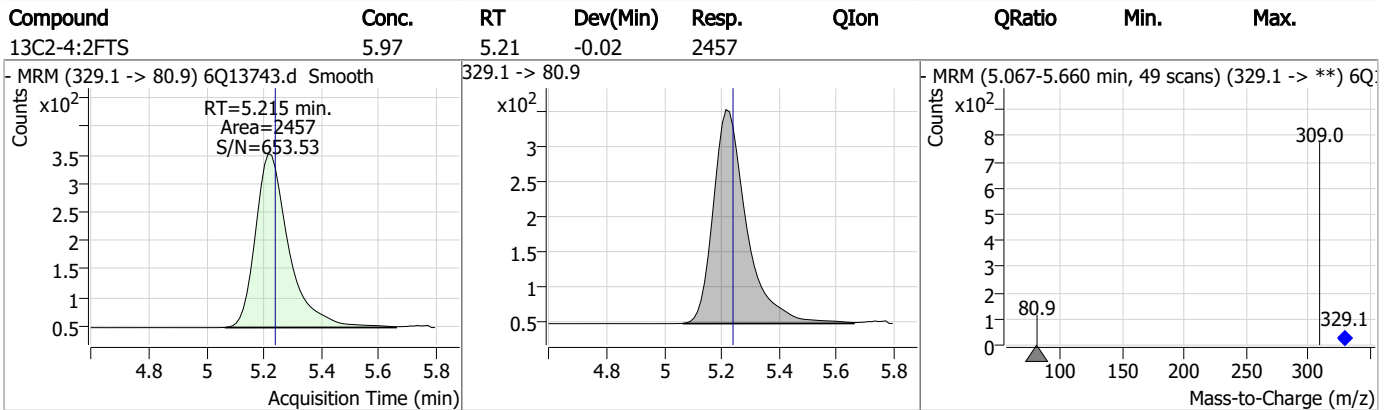
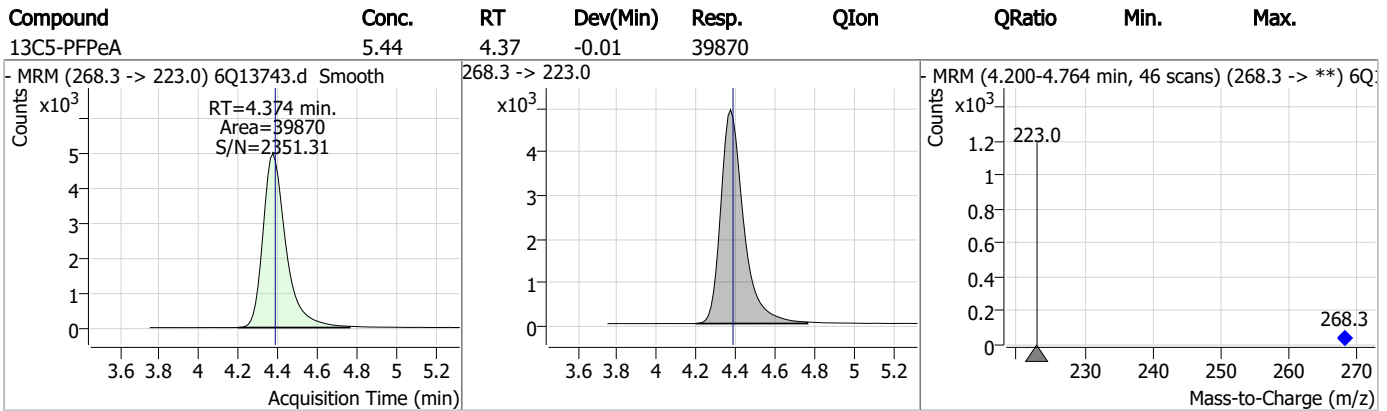
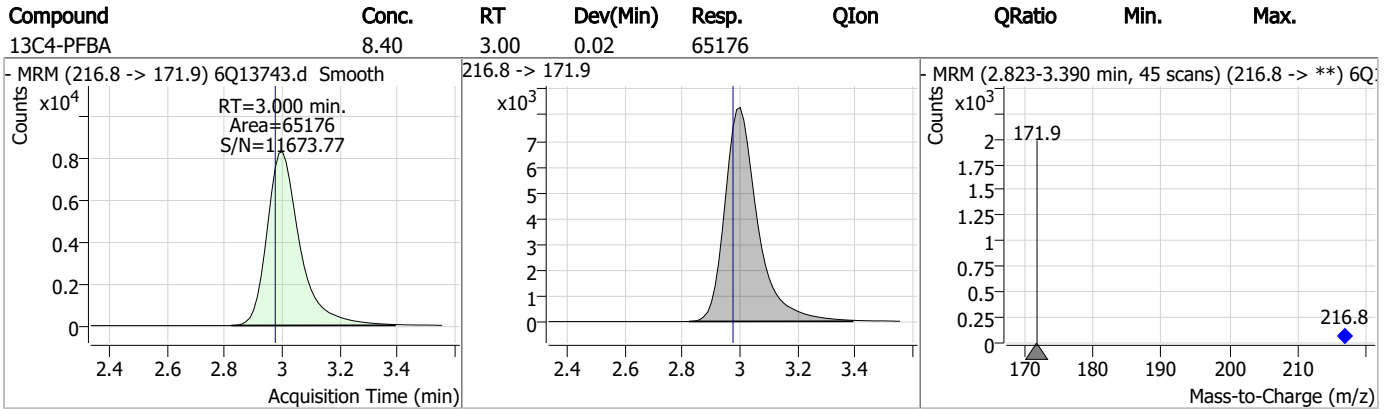
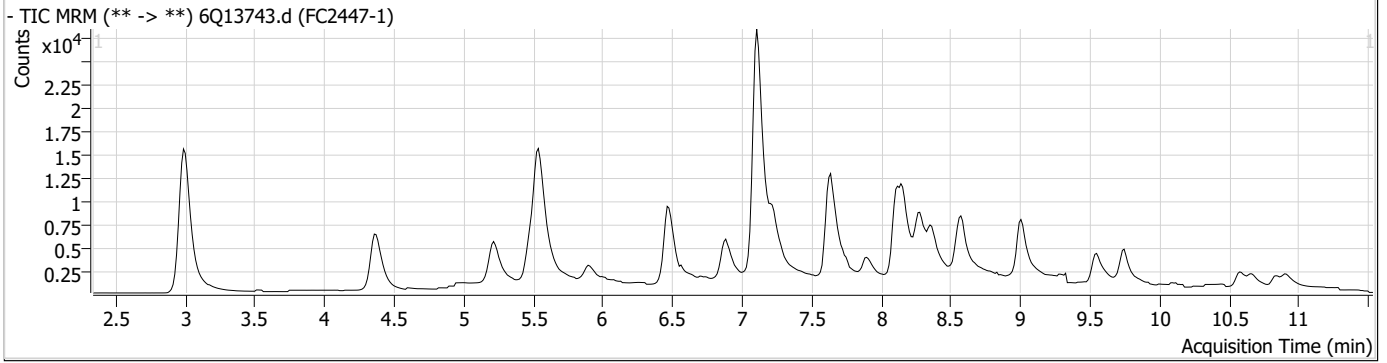
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

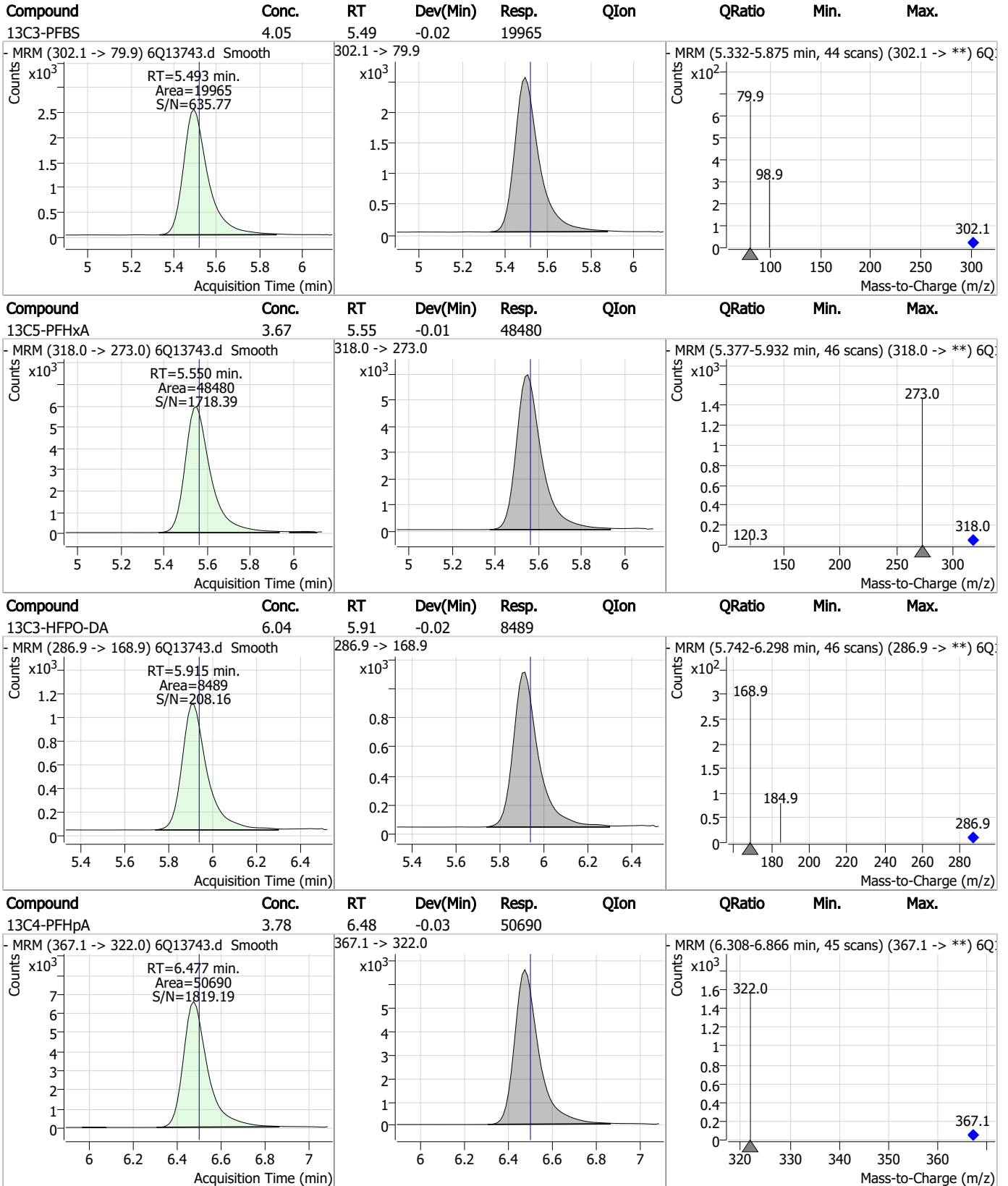
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
----------	----	------------	----------	-------------	----------

7.1.1
7

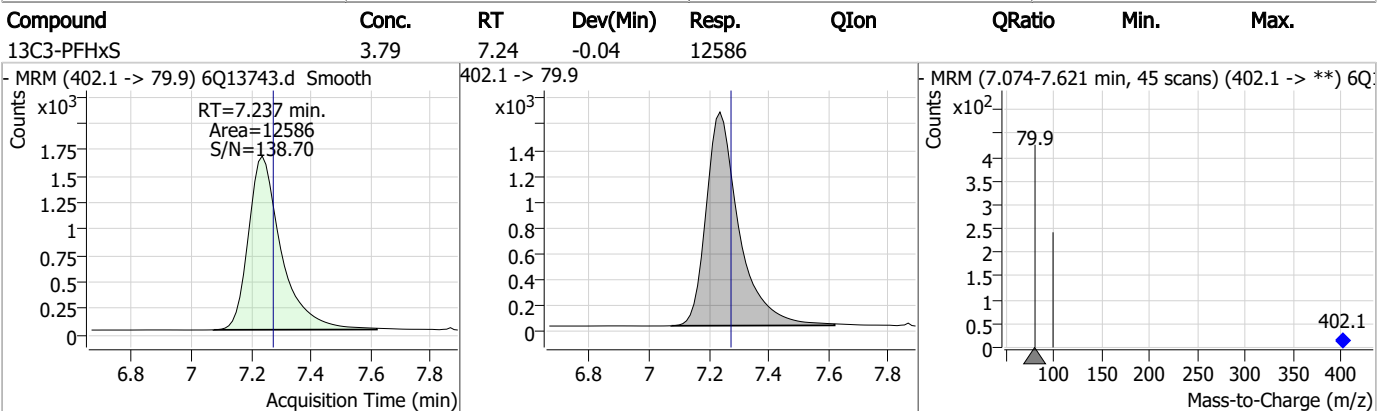
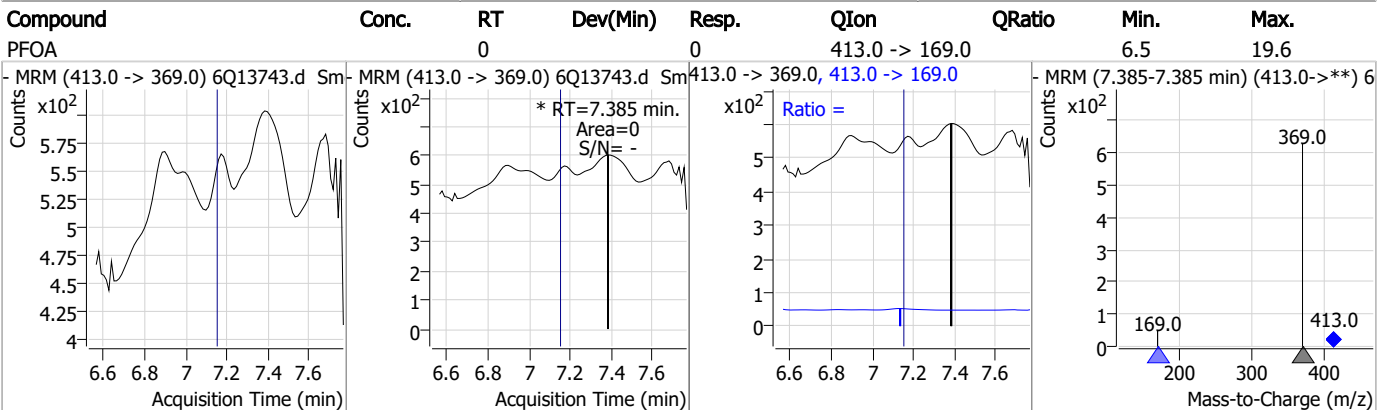
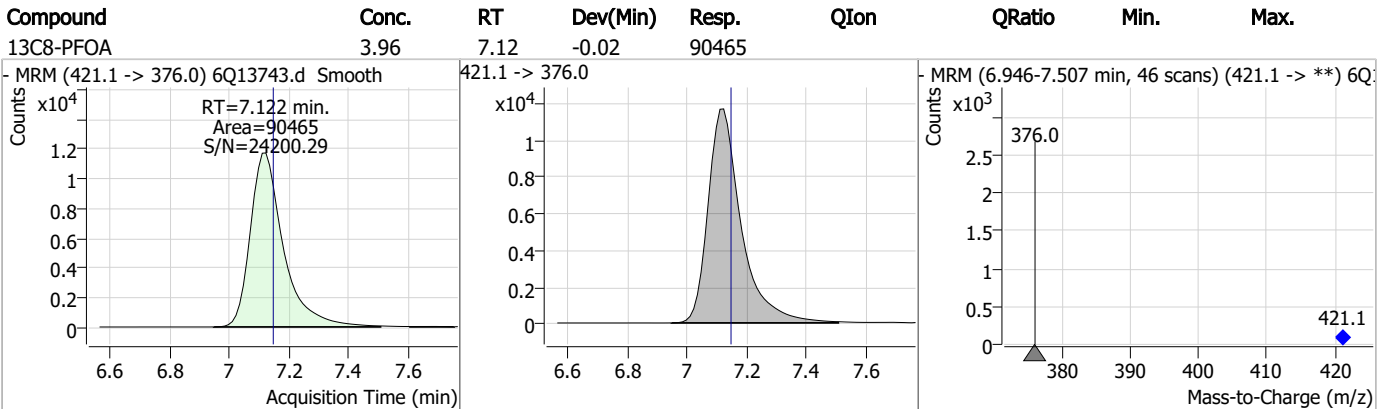
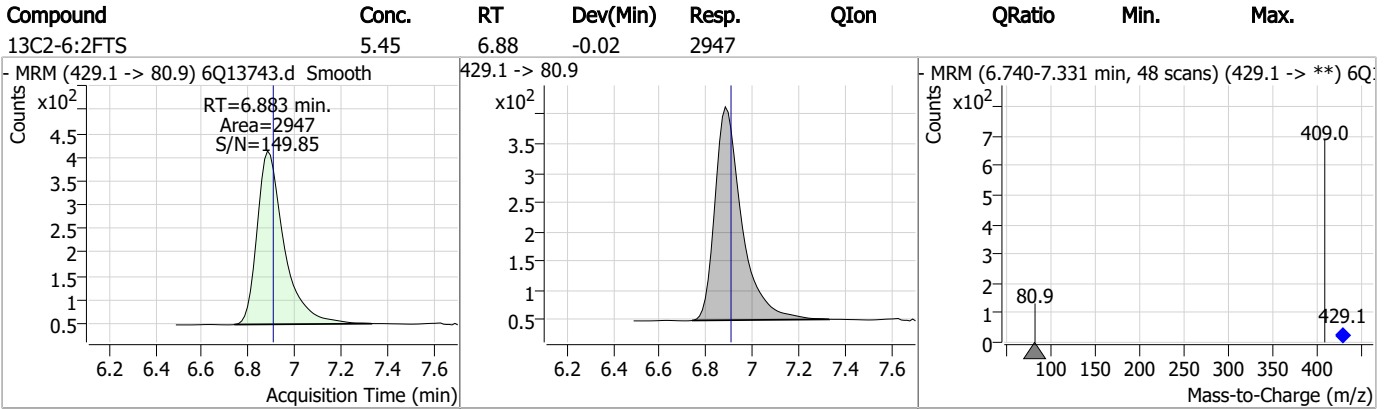
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

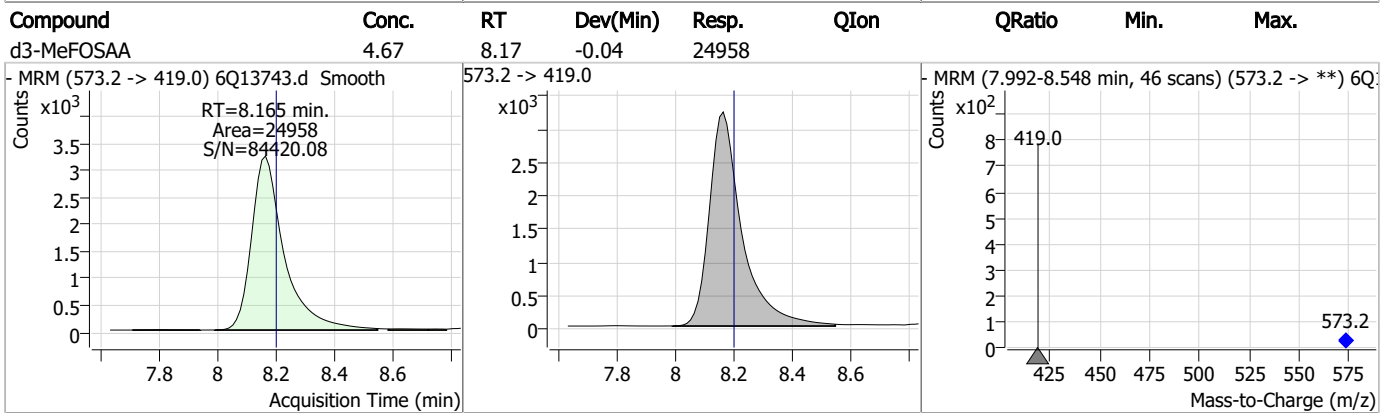
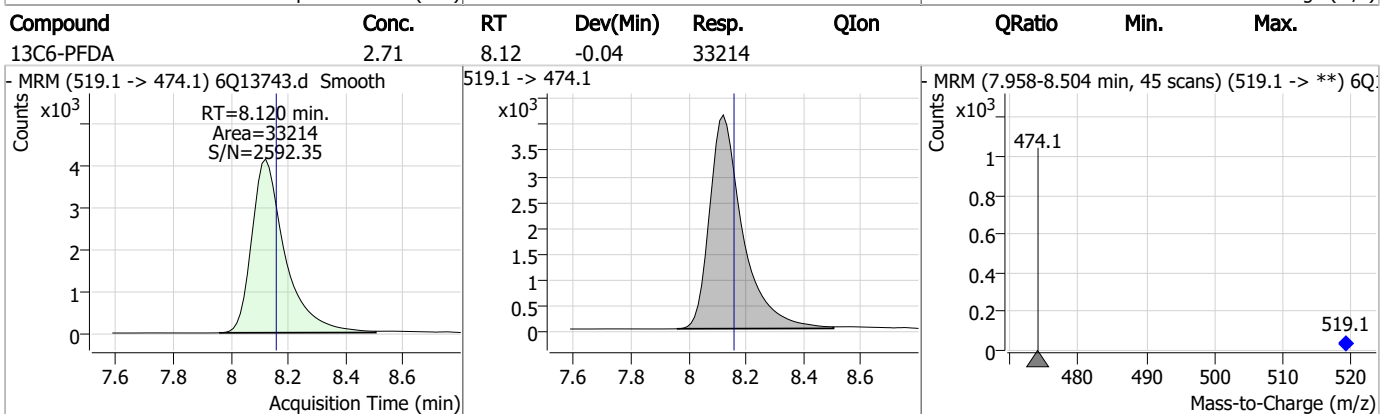
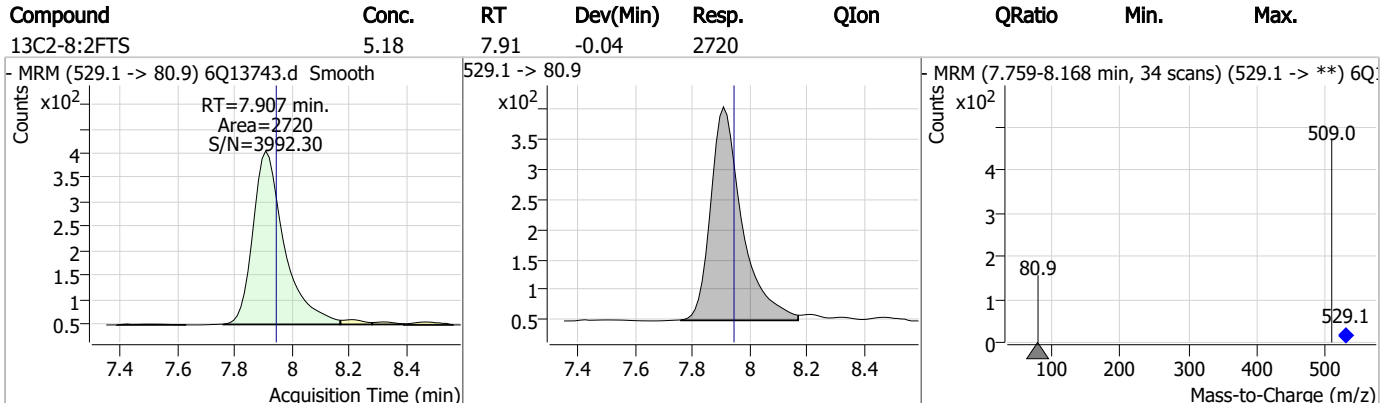
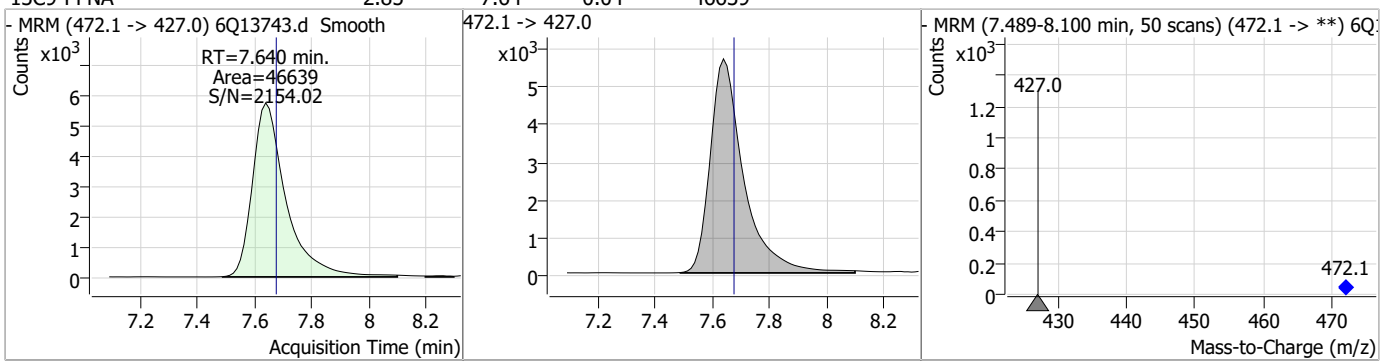


Perfluorinated Compounds by LC/MS/MS

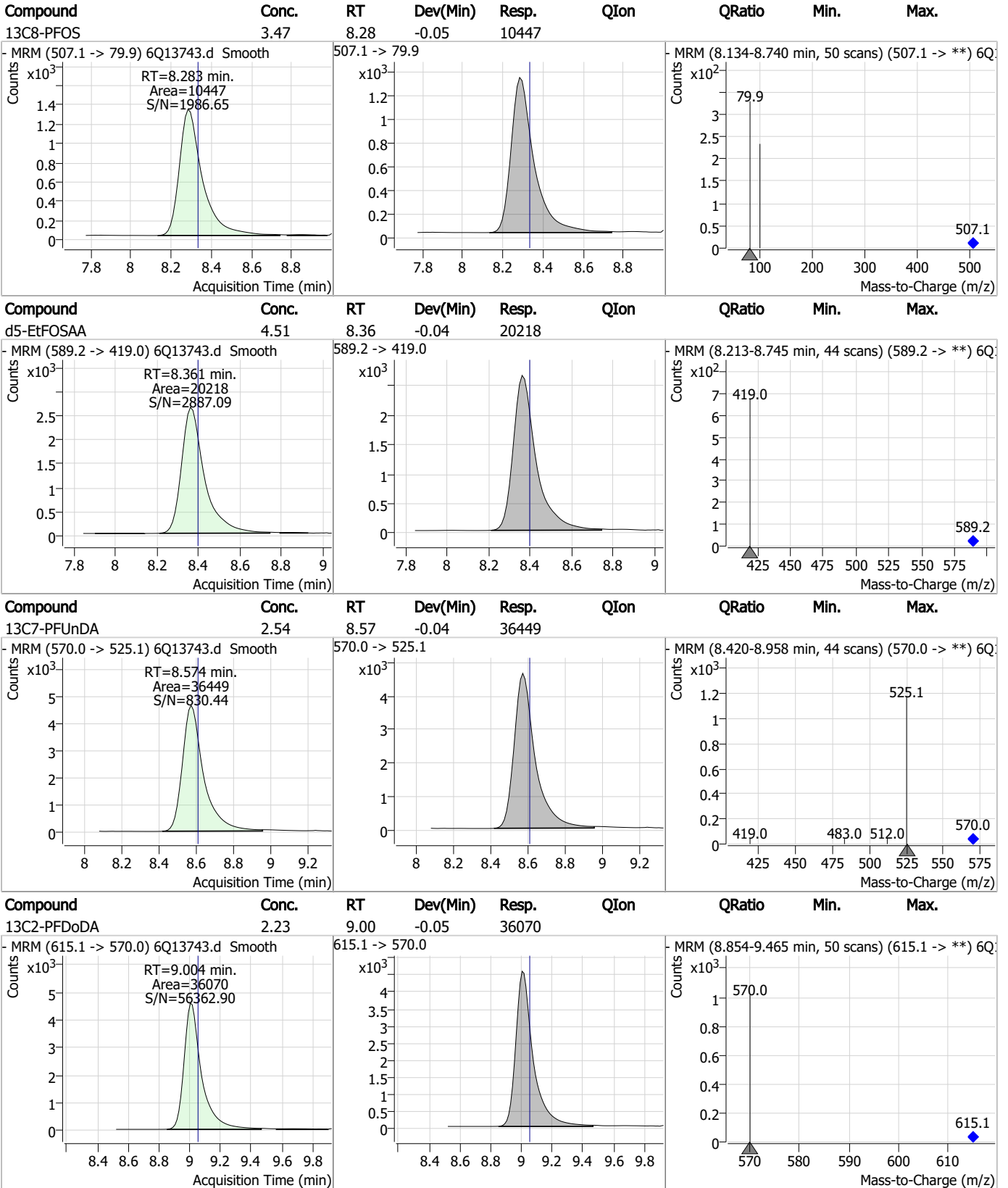


Perfluorinated Compounds by LC/MS/MS

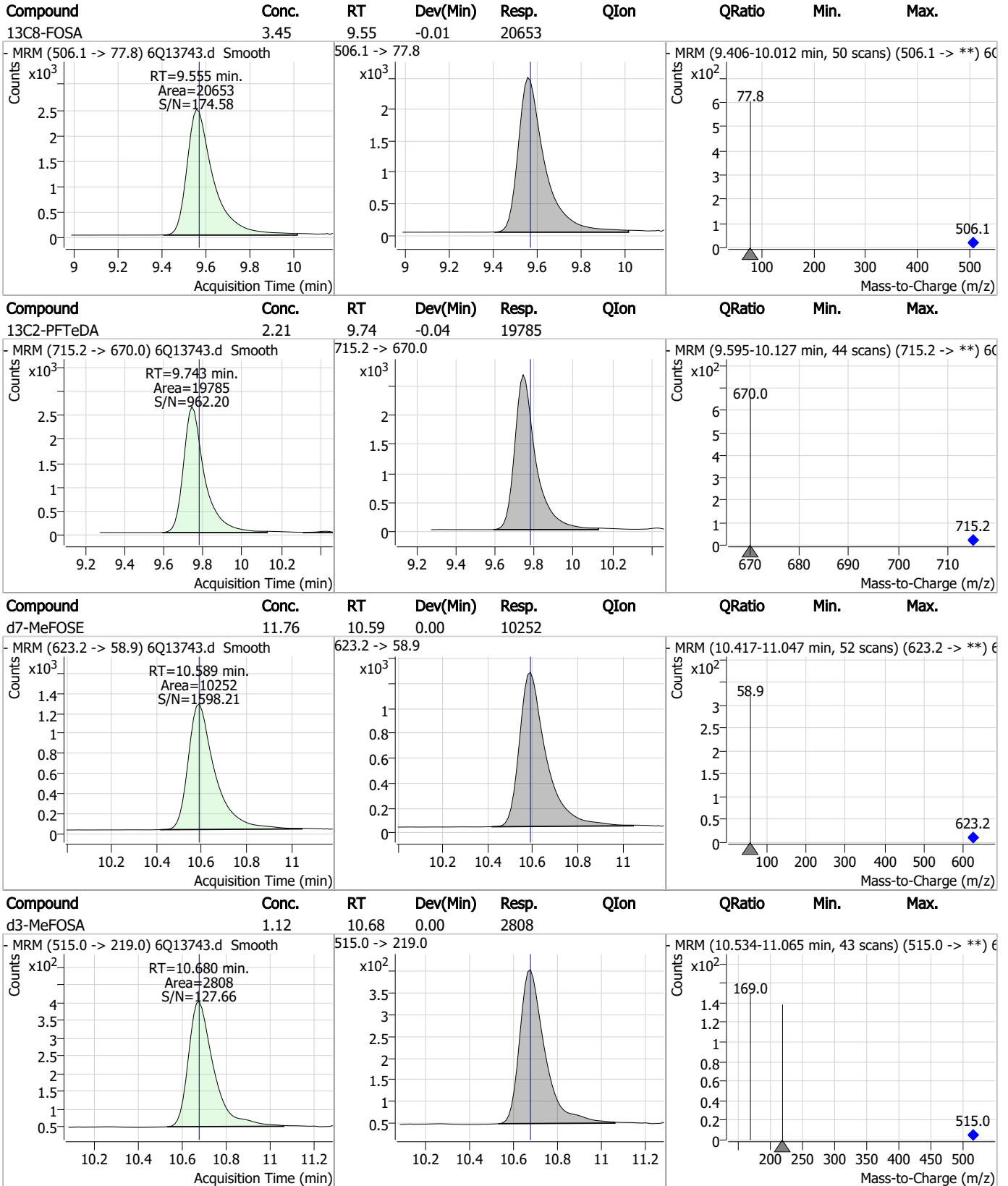
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
----------	-------	----	----------	-------	------	--------	------	------



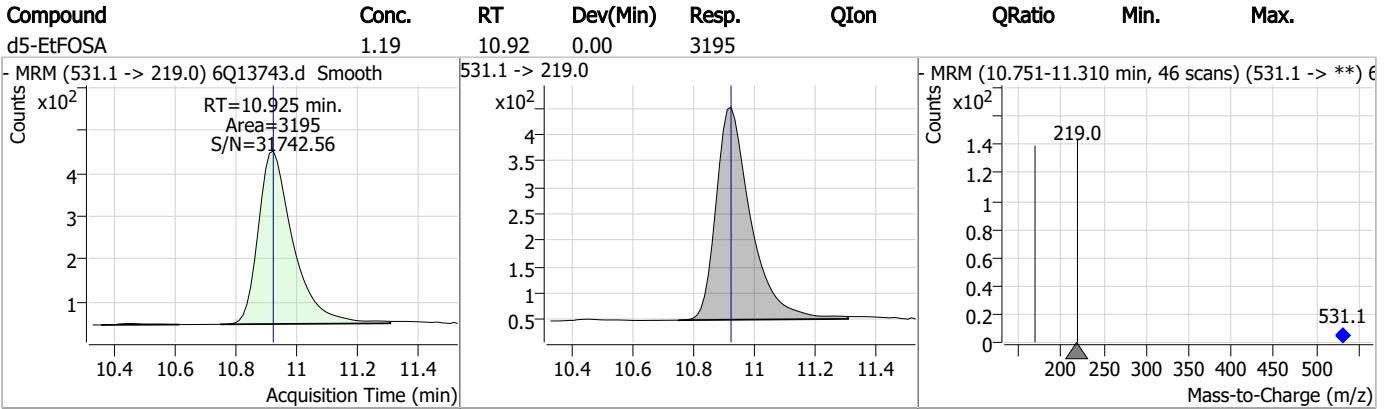
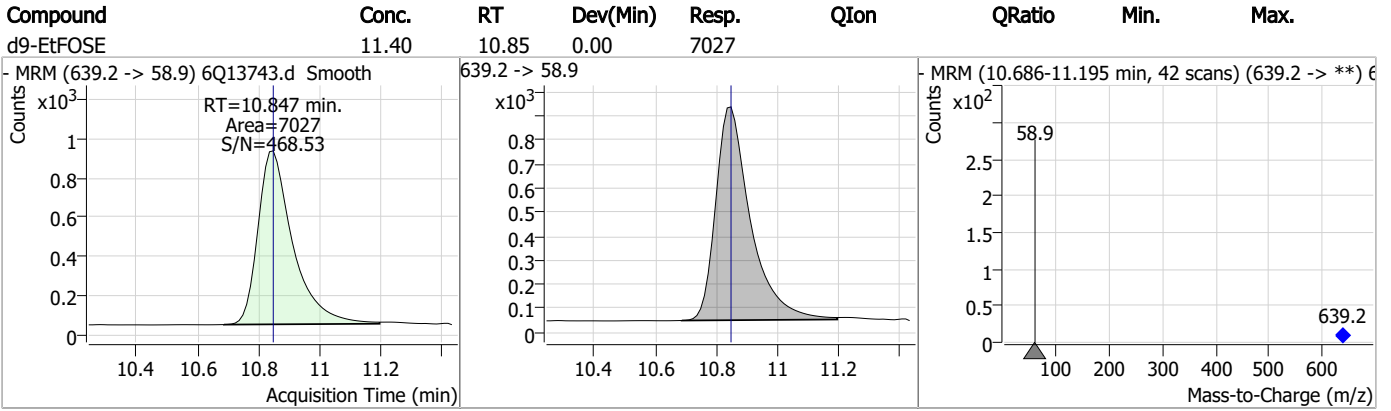
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13747.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/16/2023 12:44:05 PM
 Sample Name : FC2447-3
 Vial : P6-A8
 DA Method File : 1633_021623_S6Q208NEW.quantmethod.xml
 Batch Name : s6q208.batch.bin
 Sample Information : OP95376,S6Q208,550,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.988	216.8 -> 171.9	64590	7.50 µg/L	0.012
M5-PFPeA	4.374	268.3 -> 223.0	39078	5.00 µg/L	-0.012
M5-PFHxA	5.538	318.0 -> 273.0	49322	3.75 µg/L	-0.025
M4-PFHpA	6.477	367.1 -> 322.0	50554	3.75 µg/L	-0.025
M8-PFOA	7.122	421.1 -> 376.0	85315	3.75 µg/L	-0.025
M9-PFNA	7.640	472.1 -> 427.0	46906	3.13 µg/L	-0.037
M6-PFDA	8.120	519.1 -> 474.1	38571	3.13 µg/L	-0.037
M7-PFUnDA	8.574	570.0 -> 525.1	43398	3.13 µg/L	-0.037
M2-PFDoDA	9.017	615.1 -> 570.0	44319	3.13 µg/L	-0.037
M2-PFTeDA	9.743	715.2 -> 670.0	25173	3.13 µg/L	-0.037
M8-FOSA	9.555	506.1 -> 77.8	21489	3.75 µg/L	-0.012
M3-PFBS	5.493	302.1 -> 79.9	18201	3.75 µg/L	-0.025
M3-PFHxS	7.237	402.1 -> 79.9	12013	3.75 µg/L	-0.037
M8-PFOS	8.295	507.1 -> 79.9	10428	3.75 µg/L	-0.038
M2-4:2FTS	5.215	329.1 -> 80.9	2534	5.00 µg/L	-0.025
M2-6:2FTS	6.883	429.1 -> 80.9	2962	5.00 µg/L	-0.025
M2-8:2FTS	7.907	529.1 -> 80.9	2791	5.00 µg/L	-0.037
M3-MeFOSAA	8.178	573.2 -> 419.0	25756	5.00 µg/L	-0.025
M3-HFPO-DA	5.915	286.9 -> 168.9	8276	5.00 µg/L	-0.025
M5-EtFOSAA	8.373	589.2 -> 419.0	21171	5.00 µg/L	-0.025
M7-MeFOSE	10.589	623.2 -> 58.9	12539	12.50 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	8184	12.50 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	3350	1.25 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	3391	1.25 µg/L	0.000
13C4-PFOS	8.296	502.8 -> 79.9	9226	2.50 µg/L	-0.038
13C3-PFBA	2.991	216.0 -> 172.0	33165	5.00 µg/L	0.012
18O2-PFHxS	7.236	403.0 -> 83.9	6170	2.50 µg/L	-0.037
13C4-PFOA	7.122	417.1 -> 372.0	66759	2.50 µg/L	-0.025
13C2-PFDA	8.120	515.1 -> 470.1	20285	1.25 µg/L	-0.037
13C5-PFNA	7.640	468.0 -> 423.0	23138	1.25 µg/L	-0.037
13C2-PFHxA	5.539	315.1 -> 270.0	32171	2.50 µg/L	-0.025
System Monitoring Compounds					
13C2-4:2FTS	5.215	329.1 -> 80.9	2534	5.95 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.1%		
13C2-6:2FTS	6.883	429.1 -> 80.9	2962	5.29 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.9%		
13C2-8:2FTS	7.907	529.1 -> 80.9	2791	5.14 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C2-PFDoDA	9.017	615.1 -> 570.0	44319	2.77 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 88.7%		
13C2-PFTeDA	9.743	715.2 -> 670.0	25173	2.84 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 91.0%		
13C3-PFBS	5.493	302.1 -> 79.9	18201	3.57 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 95.3%		
13C3-PFHxS	7.237	402.1 -> 79.9	12013	3.50 µg/L	-0.037



7.12
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 93.2%	
13C4-PFBA	2.988	216.8 -> 171.9	64590	8.39 µg/L	0.012
Spiked Amount: 7.50	Range: 50.0 - 150.0%			Recovery = 111.9%	
13C4-PFHpA	6.477	367.1 -> 322.0	50554	3.65 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C5-PFHxA	5.538	318.0 -> 273.0	49322	3.61 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 96.4%	
13C5-PFPeA	4.374	268.3 -> 223.0	39078	5.17 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C6-PFDA	8.120	519.1 -> 474.1	38571	3.19 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C7-PFUnDA	8.574	570.0 -> 525.1	43398	3.06 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 97.9%	
13C8-FOSA	9.555	506.1 -> 77.8	21489	3.48 µg/L	-0.012
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 92.8%	
13C8-PFOA	7.122	421.1 -> 376.0	85315	3.74 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C8-PFOS	8.295	507.1 -> 79.9	10428	3.35 µg/L	-0.038
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 89.4%	
13C9-PFNA	7.640	472.1 -> 427.0	46906	2.67 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 85.6%	
d3-MeFOSAA	8.178	573.2 -> 419.0	25756	4.67 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.4%	
13C3-HFPO-DA	5.915	286.9 -> 168.9	8276	5.70 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 114.0%	
d3-MeFOSA	10.680	515.0 -> 219.0	3391	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.2%	
d5-EtFOSAA	8.373	589.2 -> 419.0	21171	4.58 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 91.6%	
d7-MeFOSE	10.589	623.2 -> 58.9	12539	13.94 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%			Recovery = 111.5%	
d9-EtFOSE	10.847	639.2 -> 58.9	8184	12.86 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%			Recovery = 102.9%	
d5-EtFOSA	10.925	531.1 -> 219.0	3350	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.5%	

7.12
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	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	6.973	548.8 -> 98.9	0	µg/L	m	1
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

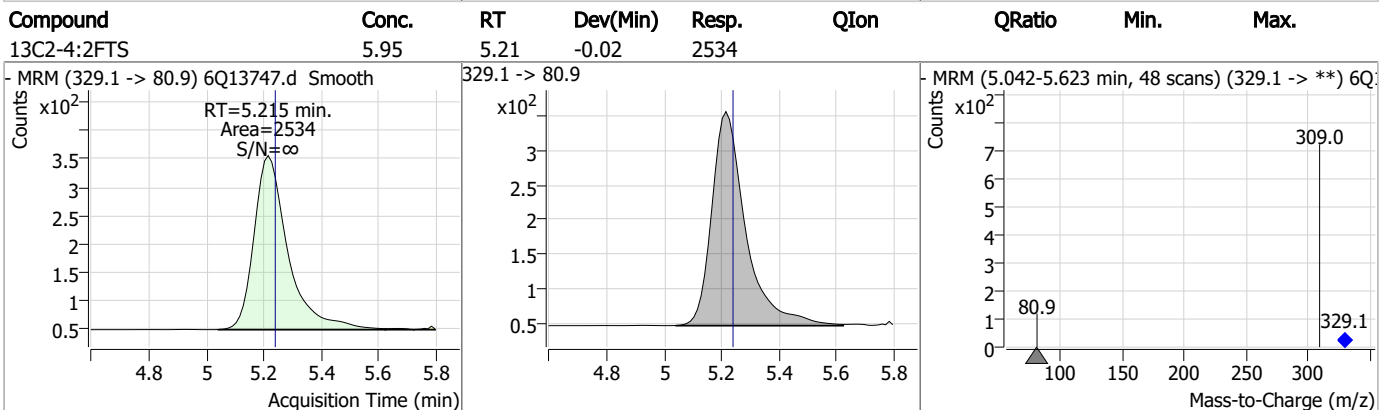
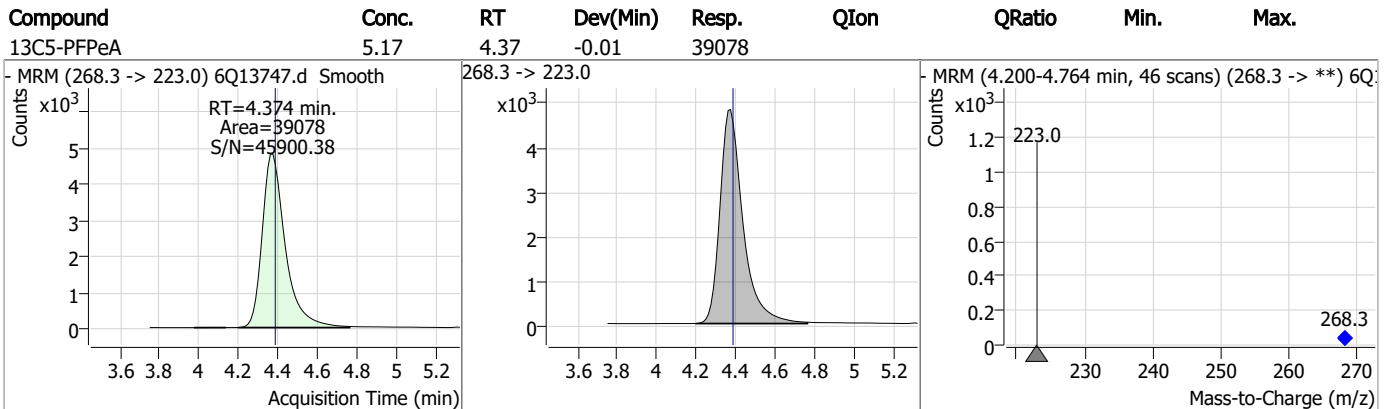
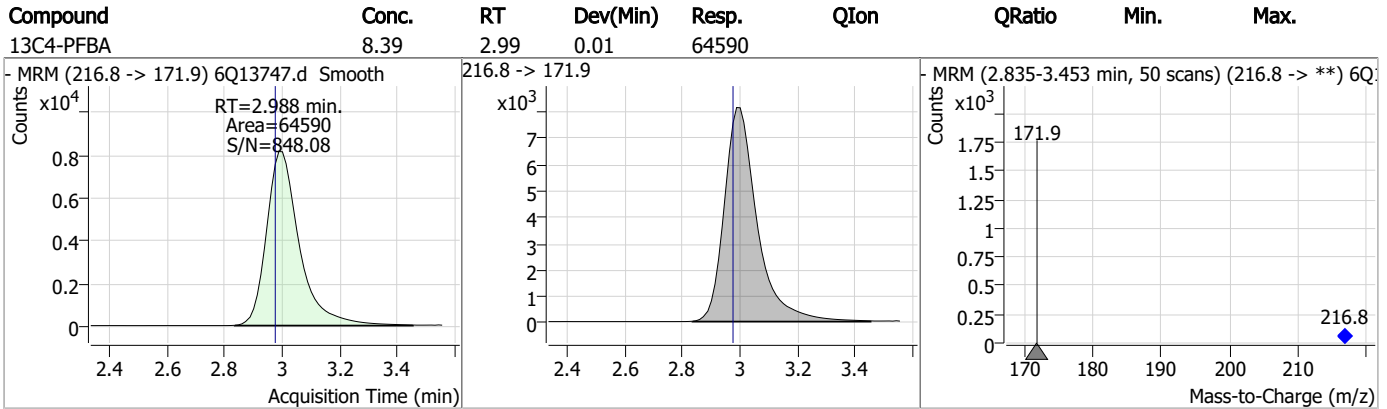
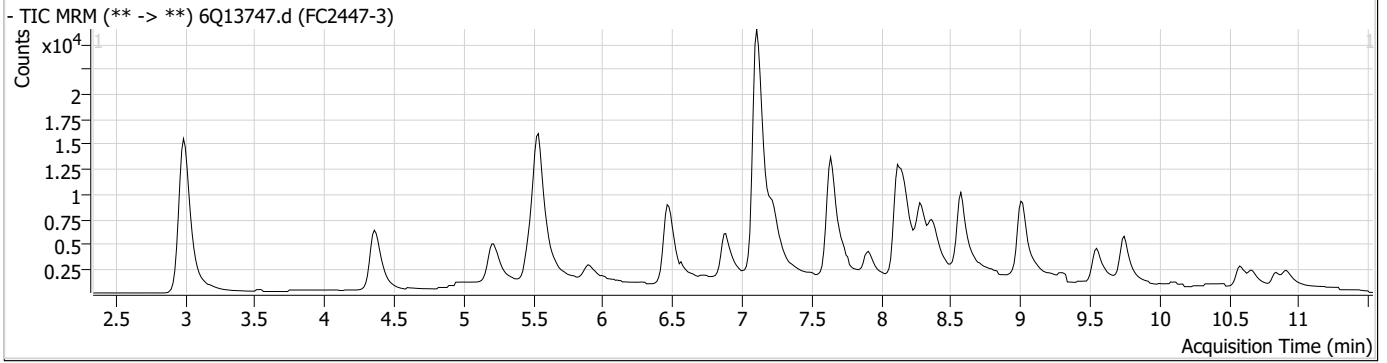
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

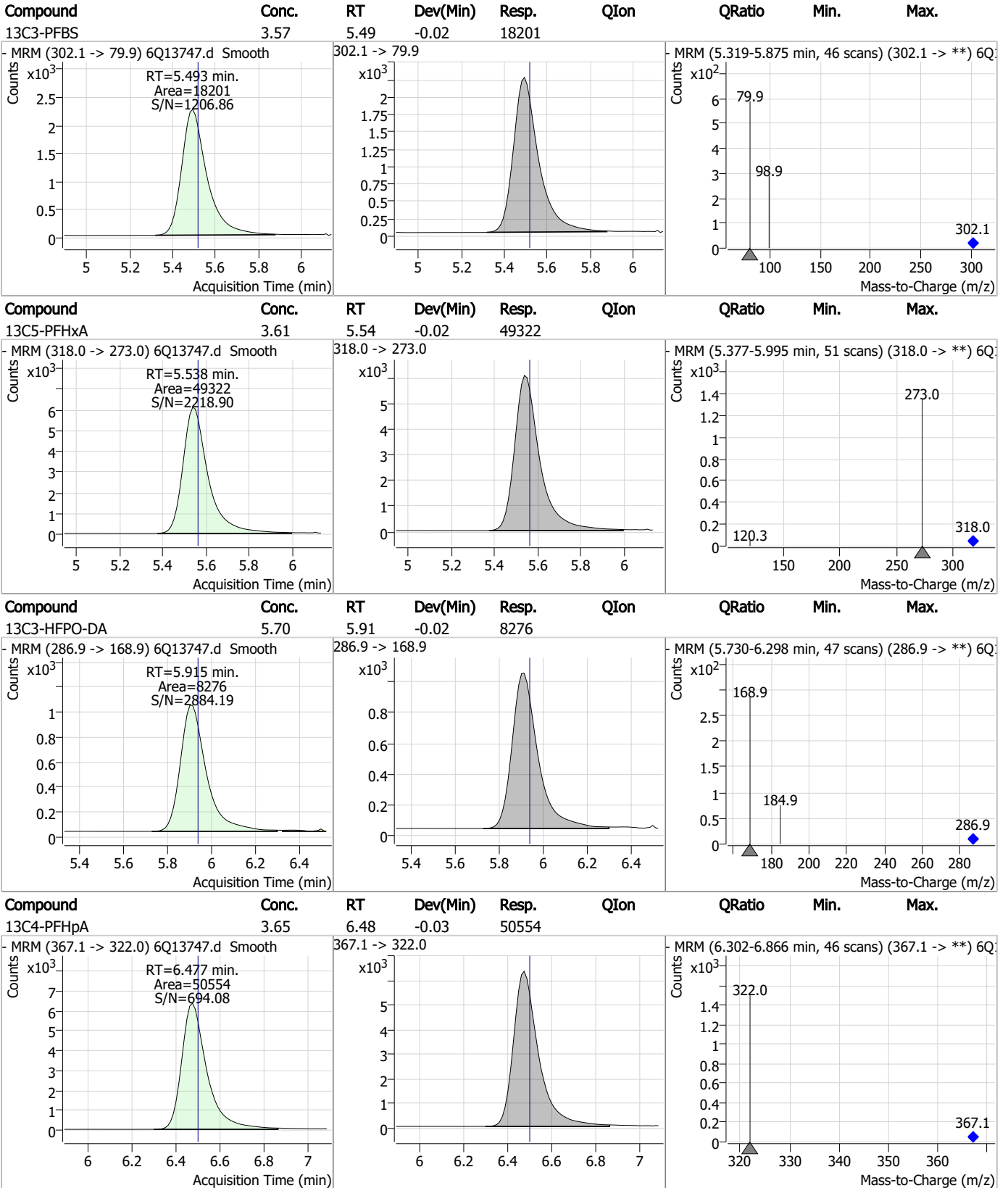
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
----------	----	------------	----------	-------------	----------

7.1.2
7

Perfluorinated Compounds by LC/MS/MS



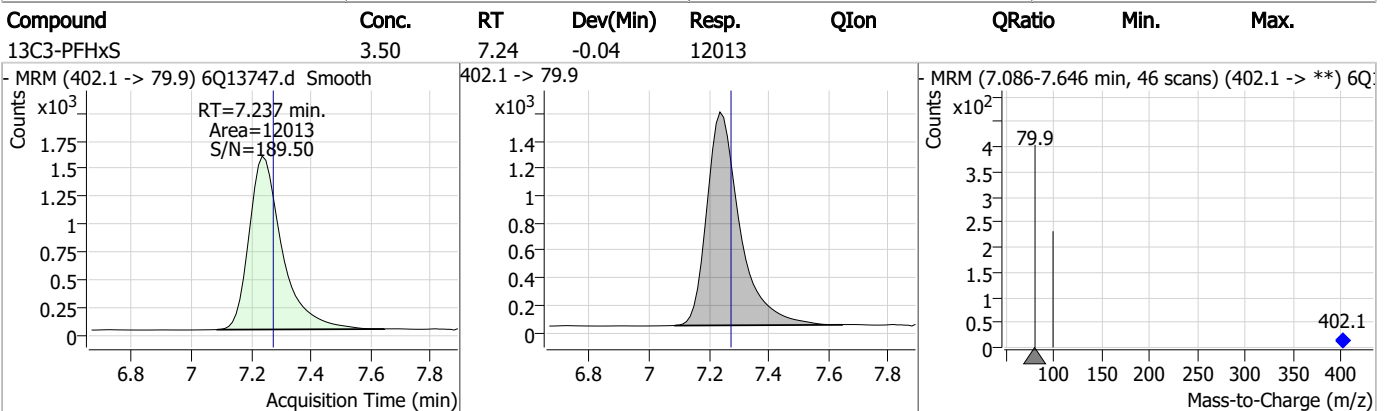
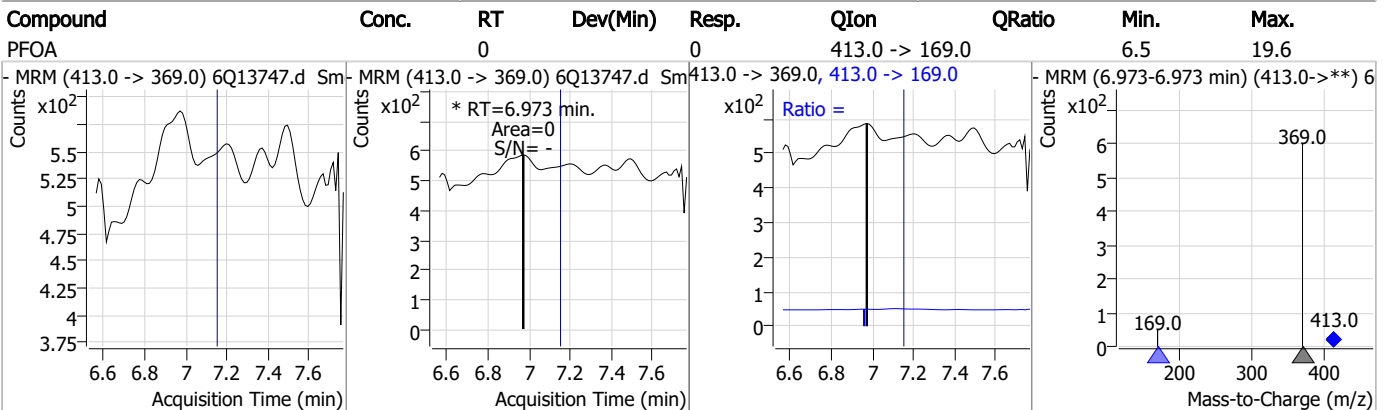
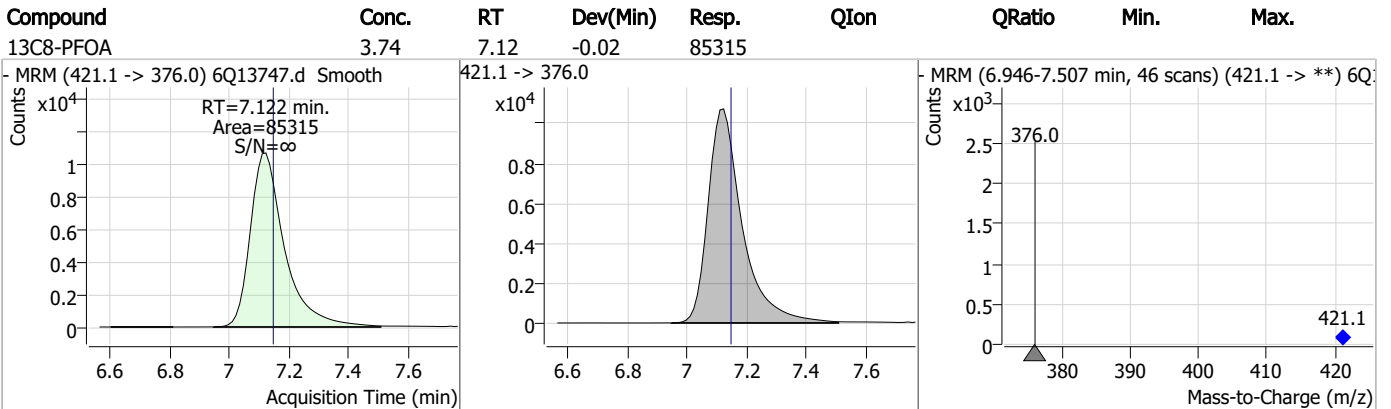
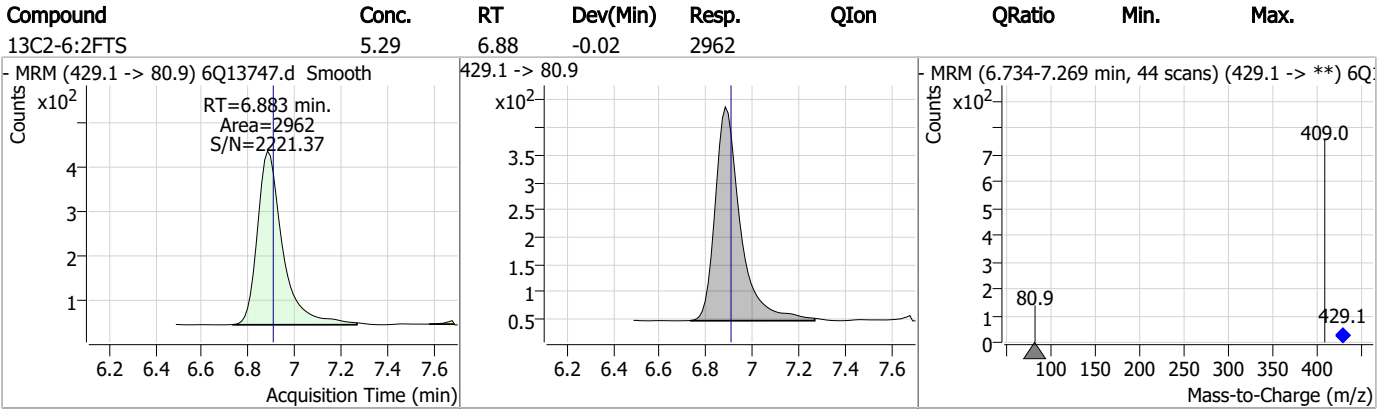
Perfluorinated Compounds by LC/MS/MS



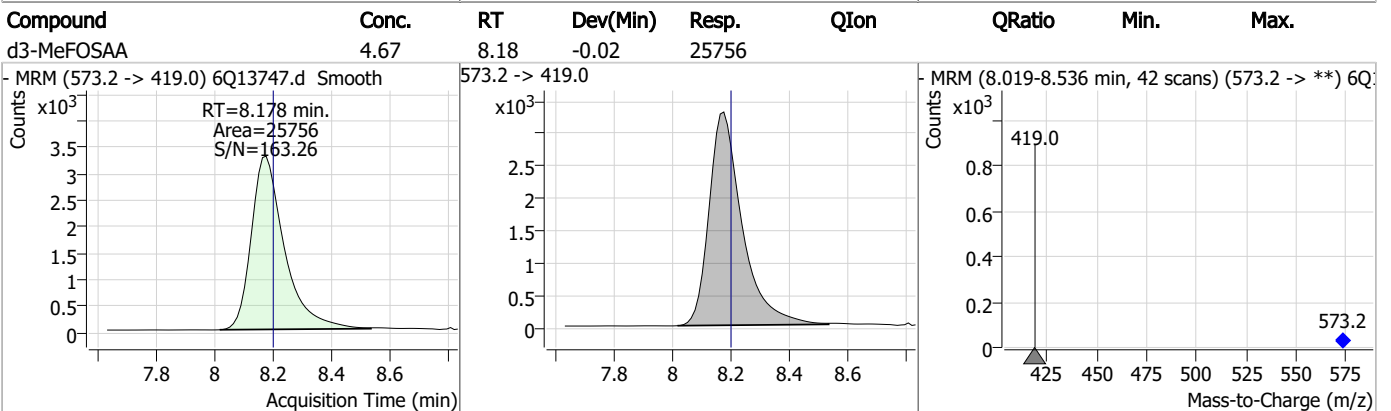
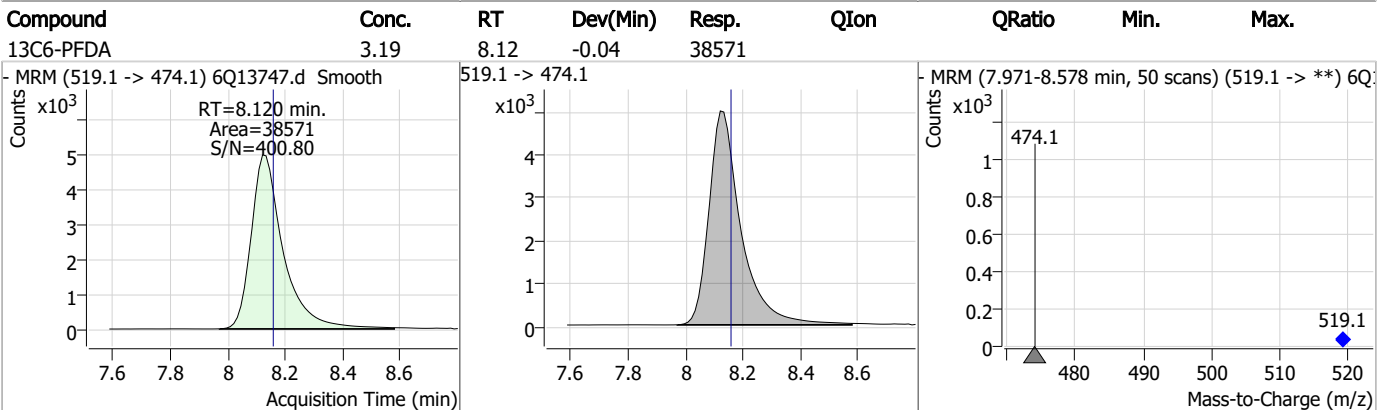
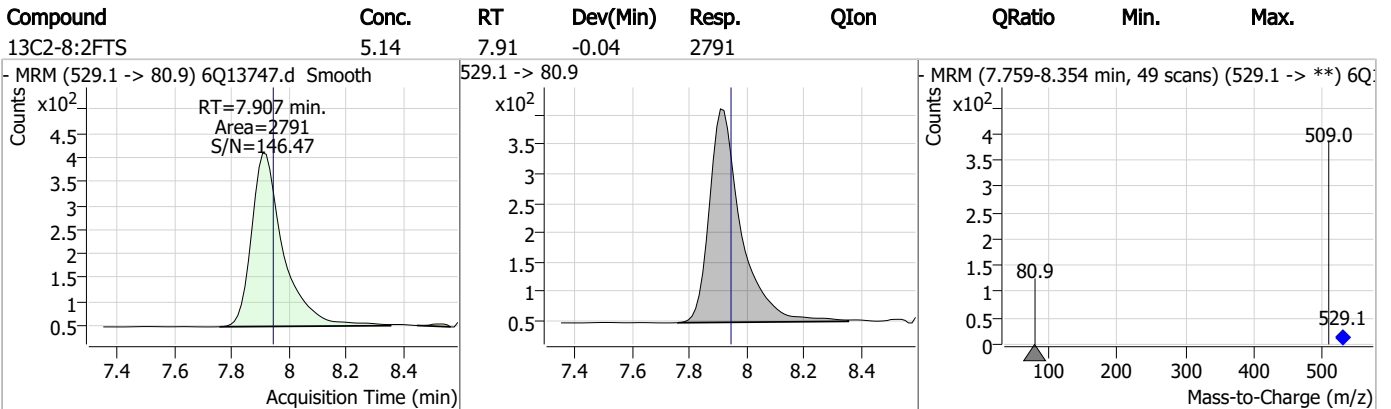
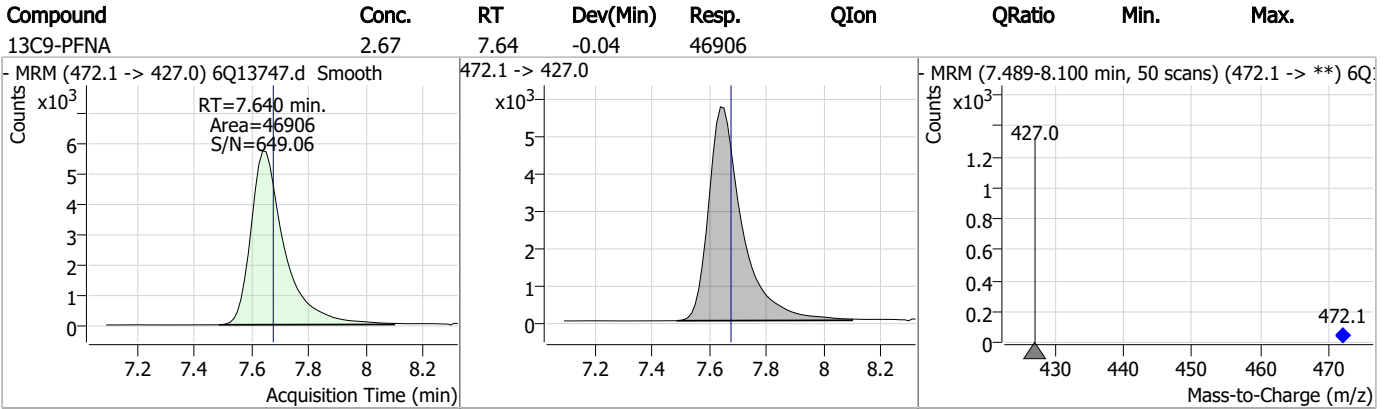
7.1.2

7

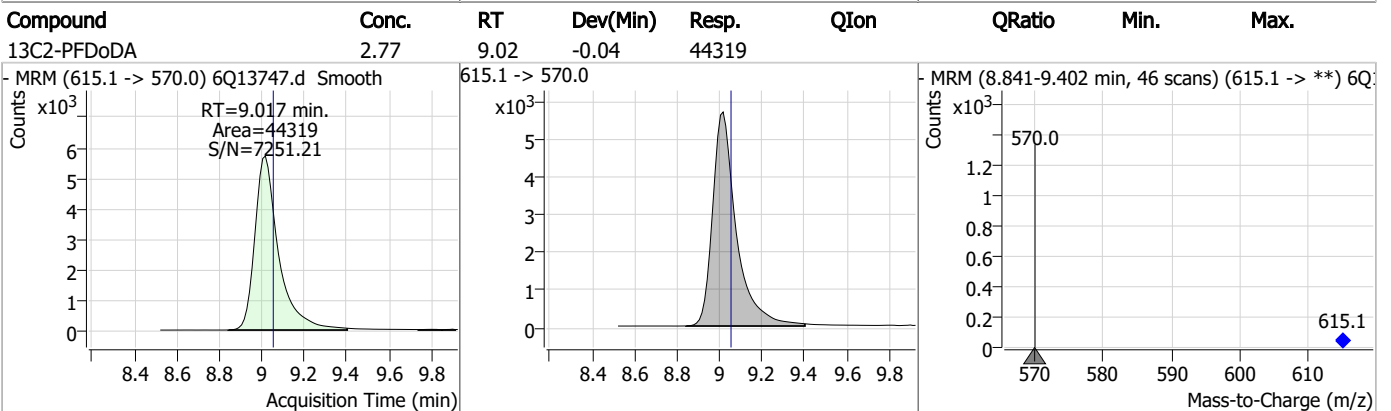
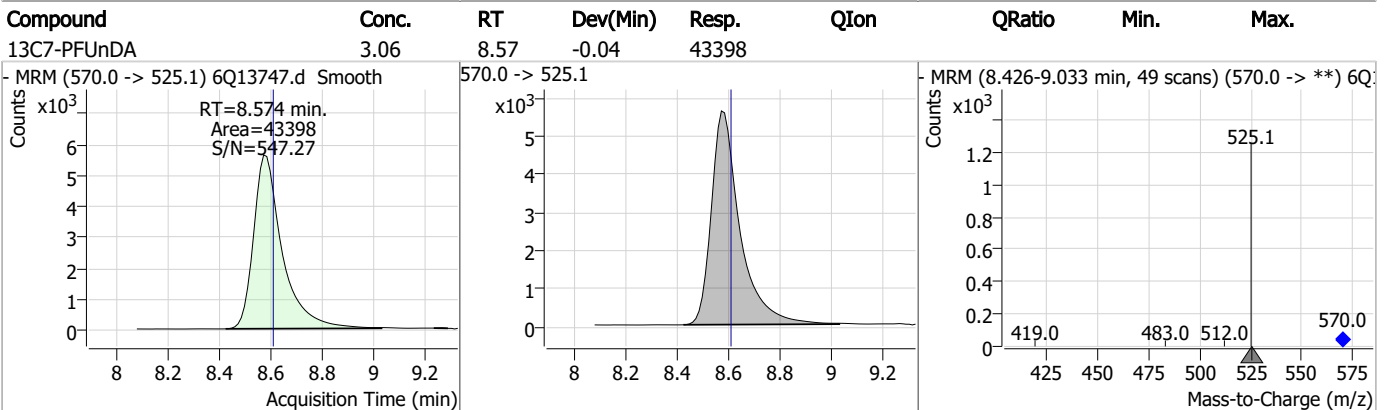
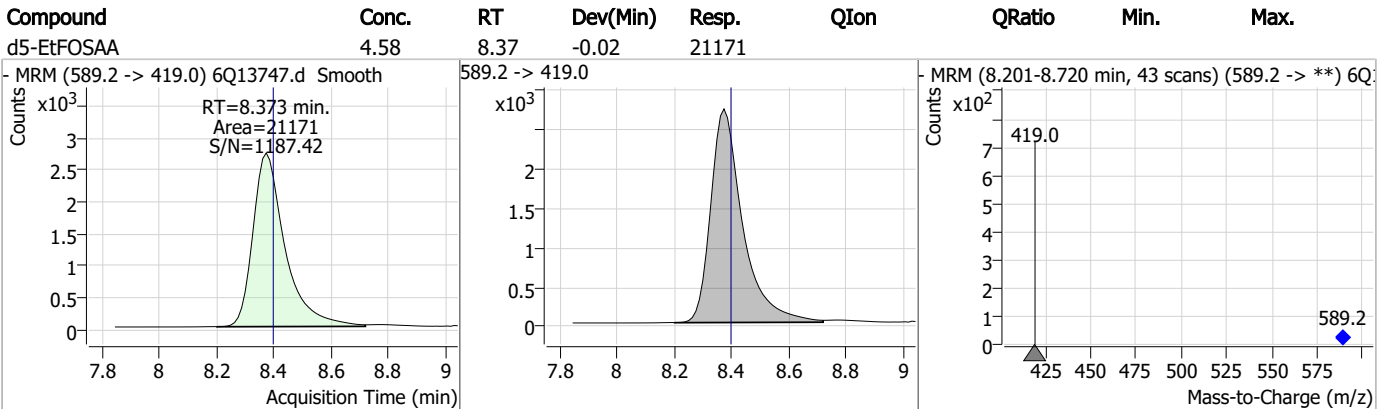
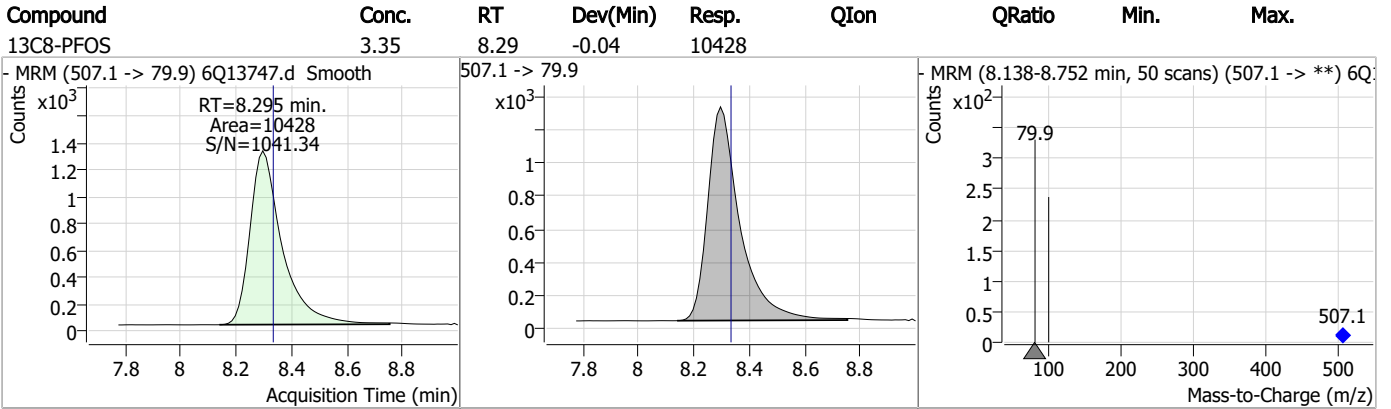
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



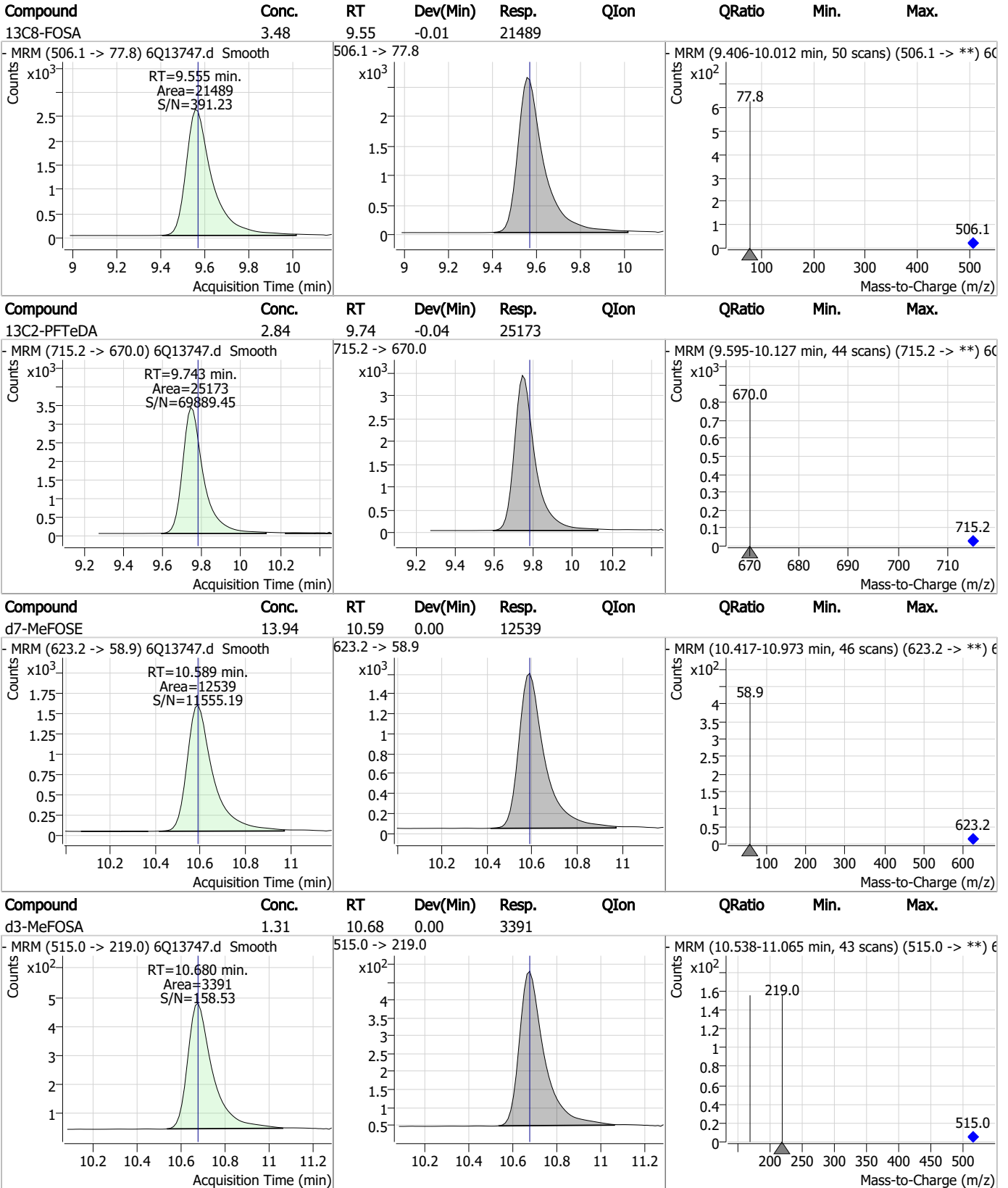
Perfluorinated Compounds by LC/MS/MS



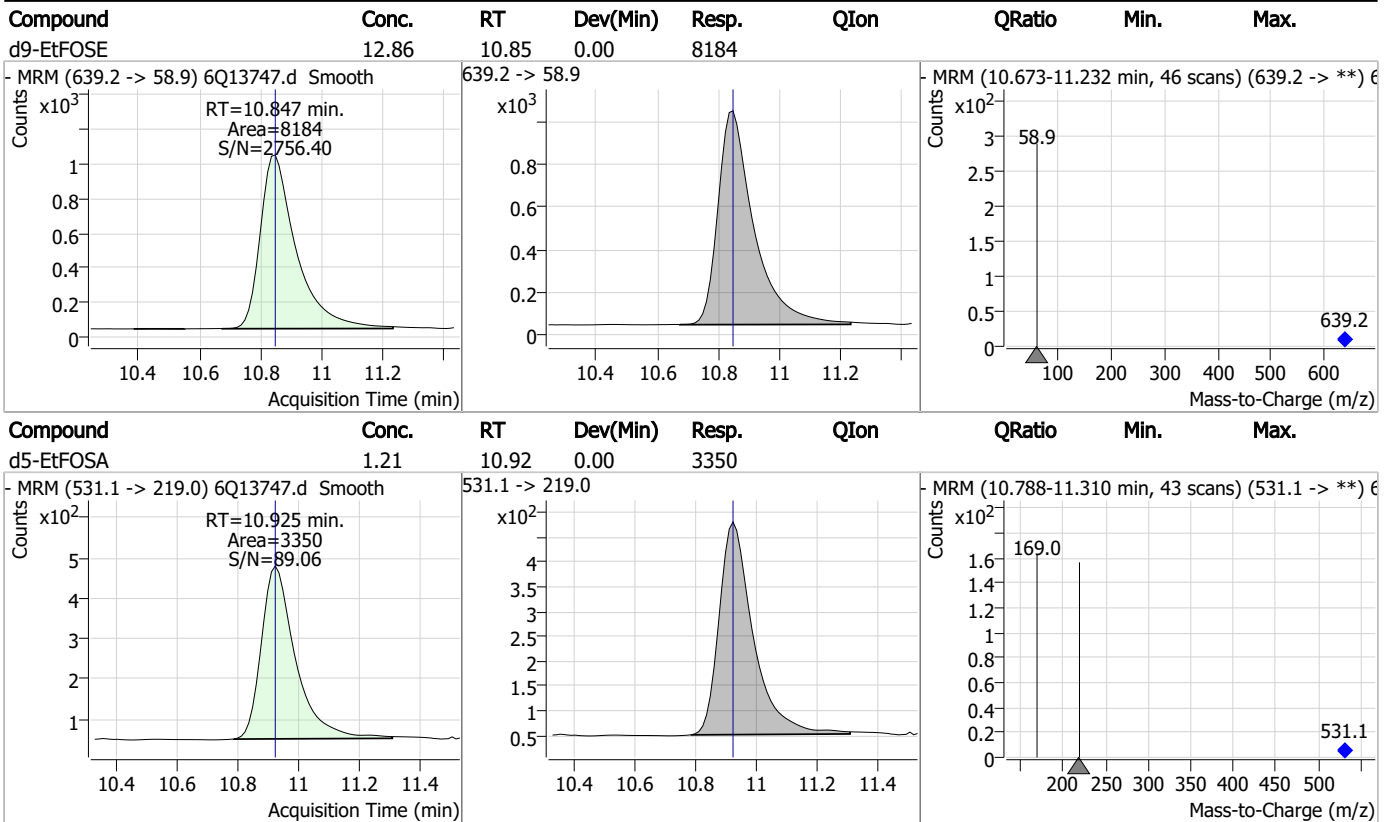
7.1.2

7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.1.2
7



Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13748.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/16/2023 12:58:04 PM
 Sample Name : FC2447-4
 Vial : P6-A9
 DA Method File : 1633_021623_S6Q208NEW.quantmethod.xml
 Batch Name : s6q208.batch.bin
 Sample Information : OP95376,S6Q208,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.000	216.8 -> 171.9	61747	7.50 µg/L	0.025
M5-PFPeA	4.374	268.3 -> 223.0	39111	5.00 µg/L	-0.012
M5-PFHxA	5.550	318.0 -> 273.0	49469	3.75 µg/L	-0.012
M4-PFHpA	6.477	367.1 -> 322.0	48260	3.75 µg/L	-0.025
M8-PFOA	7.122	421.1 -> 376.0	80313	3.75 µg/L	-0.025
M9-PFNA	7.652	472.1 -> 427.0	45897	3.13 µg/L	-0.025
M6-PFDA	8.120	519.1 -> 474.1	33868	3.13 µg/L	-0.037
M7-PFUnDA	8.586	570.0 -> 525.1	39311	3.13 µg/L	-0.025
M2-PFDoDA	9.017	615.1 -> 570.0	40087	3.13 µg/L	-0.037
M2-PFTeDA	9.743	715.2 -> 670.0	22653	3.13 µg/L	-0.037
M8-FOSA	9.555	506.1 -> 77.8	19470	3.75 µg/L	-0.012
M3-PFBS	5.493	302.1 -> 79.9	18536	3.75 µg/L	-0.025
M3-PFHxS	7.237	402.1 -> 79.9	11802	3.75 µg/L	-0.037
M8-PFOS	8.295	507.1 -> 79.9	10176	3.75 µg/L	-0.038
M2-4:2FTS	5.215	329.1 -> 80.9	2217	5.00 µg/L	-0.025
M2-6:2FTS	6.883	429.1 -> 80.9	3027	5.00 µg/L	-0.025
M2-8:2FTS	7.907	529.1 -> 80.9	2600	5.00 µg/L	-0.037
M3-MeFOSAA	8.178	573.2 -> 419.0	26107	5.00 µg/L	-0.025
M3-HFPO-DA	5.915	286.9 -> 168.9	8148	5.00 µg/L	-0.025
M5-EtFOSAA	8.373	589.2 -> 419.0	21239	5.00 µg/L	-0.025
M7-MeFOSE	10.589	623.2 -> 58.9	11961	12.50 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	8254	12.50 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	3258	1.25 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	3233	1.25 µg/L	0.000
13C4-PFOS	8.296	502.8 -> 79.9	9126	2.50 µg/L	-0.038
13C3-PFBA	2.991	216.0 -> 172.0	32730	5.00 µg/L	0.012
18O2-PFHxS	7.236	403.0 -> 83.9	5689	2.50 µg/L	-0.037
13C4-PFOA	7.122	417.1 -> 372.0	70169	2.50 µg/L	-0.025
13C2-PFDA	8.120	515.1 -> 470.1	20796	1.25 µg/L	-0.037
13C5-PFNA	7.640	468.0 -> 423.0	21044	1.25 µg/L	-0.037
13C2-PFHxA	5.551	315.1 -> 270.0	31213	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.215	329.1 -> 80.9	2217	5.65 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.0%		
13C2-6:2FTS	6.883	429.1 -> 80.9	3027	5.87 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.4%		
13C2-8:2FTS	7.907	529.1 -> 80.9	2600	5.19 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.9%		
13C2-PFDoDA	9.017	615.1 -> 570.0	40087	2.44 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 78.2%		
13C2-PFTeDA	9.743	715.2 -> 670.0	22653	2.50 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 79.9%		
13C3-PFBS	5.493	302.1 -> 79.9	18536	3.95 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 105.2%		
13C3-PFHxS	7.237	402.1 -> 79.9	11802	3.73 µg/L	-0.037

7.1.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C4-PFBA	3.000	216.8 -> 171.9	61747	8.13 µg/L	0.025
Spiked Amount: 7.50	Range: 50.0 - 150.0%		Recovery = 108.4%		
13C4-PFHpA	6.477	367.1 -> 322.0	48260	3.59 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 95.9%		
13C5-PFHxA	5.550	318.0 -> 273.0	49469	3.74 µg/L	-0.012
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C5-PFPeA	4.374	268.3 -> 223.0	39111	5.33 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.6%		
13C6-PFDA	8.120	519.1 -> 474.1	33868	2.73 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 87.4%		
13C7-PFUnDA	8.586	570.0 -> 525.1	39311	2.70 µg/L	-0.025
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 86.5%		
13C8-FOSA	9.555	506.1 -> 77.8	19470	3.19 µg/L	-0.012
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 85.0%		
13C8-PFOA	7.122	421.1 -> 376.0	80313	3.35 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 89.3%		
13C8-PFOS	8.295	507.1 -> 79.9	10176	3.31 µg/L	-0.038
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 88.2%		
13C9-PFNA	7.652	472.1 -> 427.0	45897	2.88 µg/L	-0.025
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 92.1%		
d3-MeFOSAA	8.178	573.2 -> 419.0	26107	4.78 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.7%		
13C3-HFPO-DA	5.915	286.9 -> 168.9	8148	5.78 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.7%		
d3-MeFOSA	10.680	515.0 -> 219.0	3233	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.4%		
d5-EtFOSAA	8.373	589.2 -> 419.0	21239	4.64 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.9%		
d7-MeFOSE	10.589	623.2 -> 58.9	11961	13.44 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%		Recovery = 107.5%		
d9-EtFOSE	10.847	639.2 -> 58.9	8254	13.12 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%		Recovery = 104.9%		
d5-EtFOSA	10.925	531.1 -> 219.0	3258	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.8%		

Target Compounds

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



7.13
7

Perfluorinated Compounds by LC/MS/MS

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

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



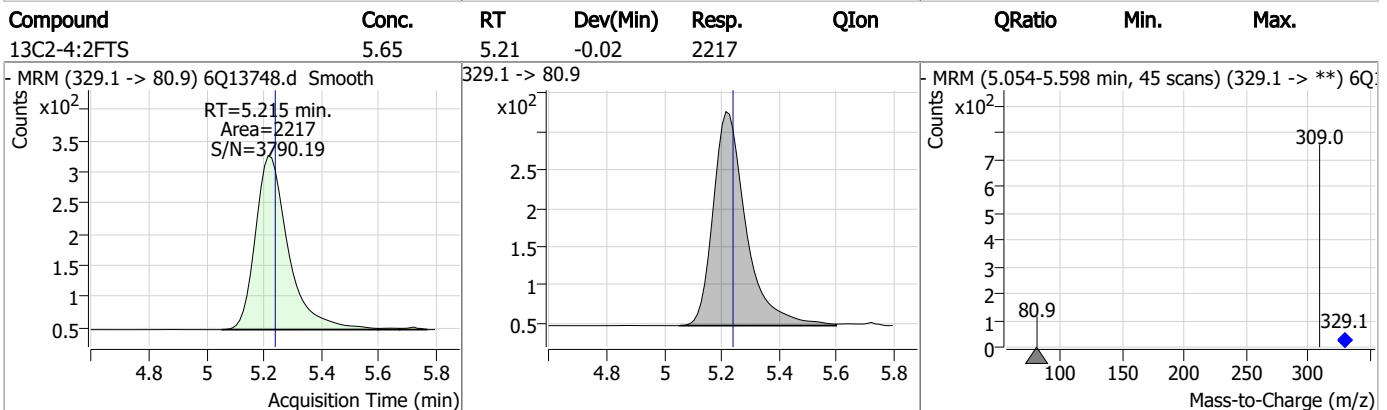
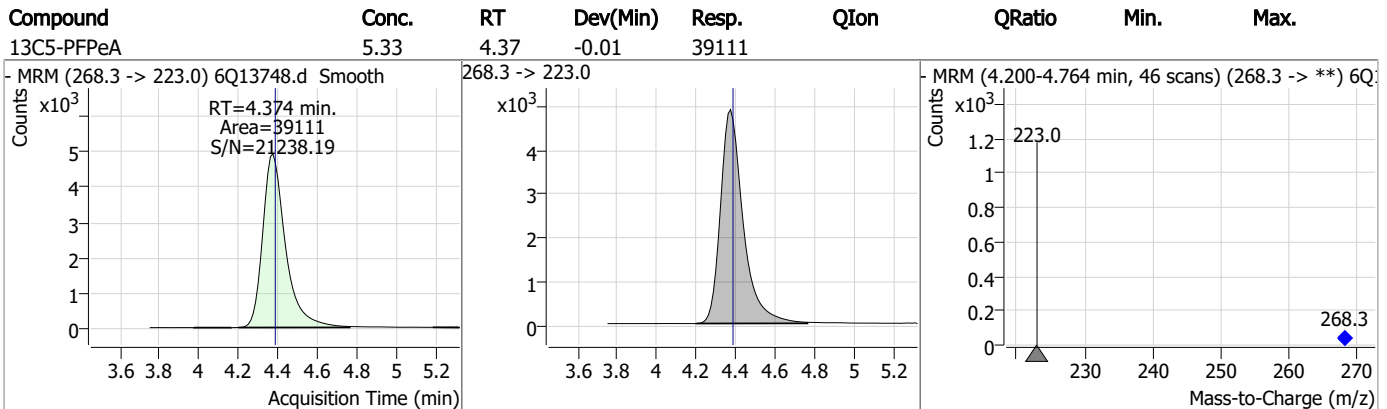
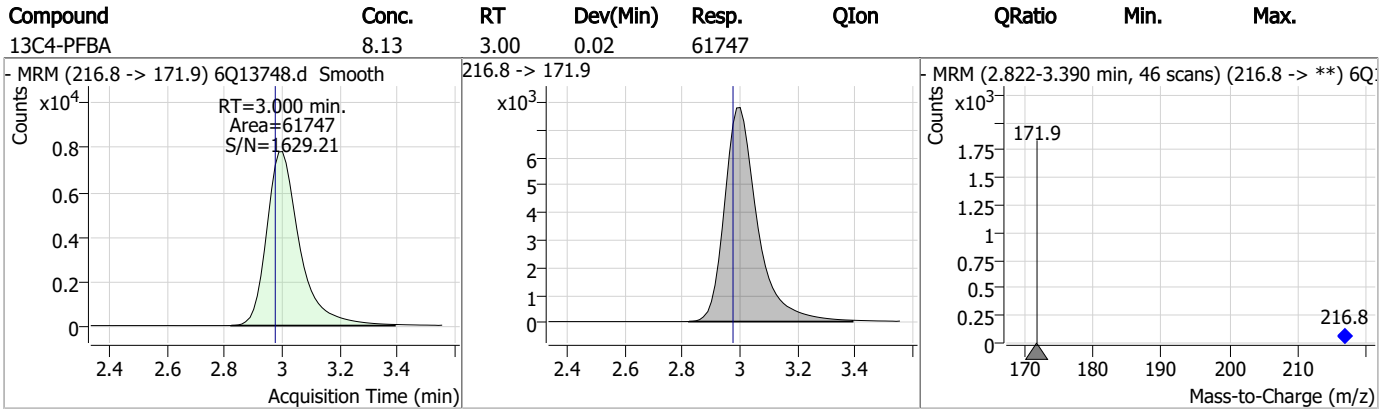
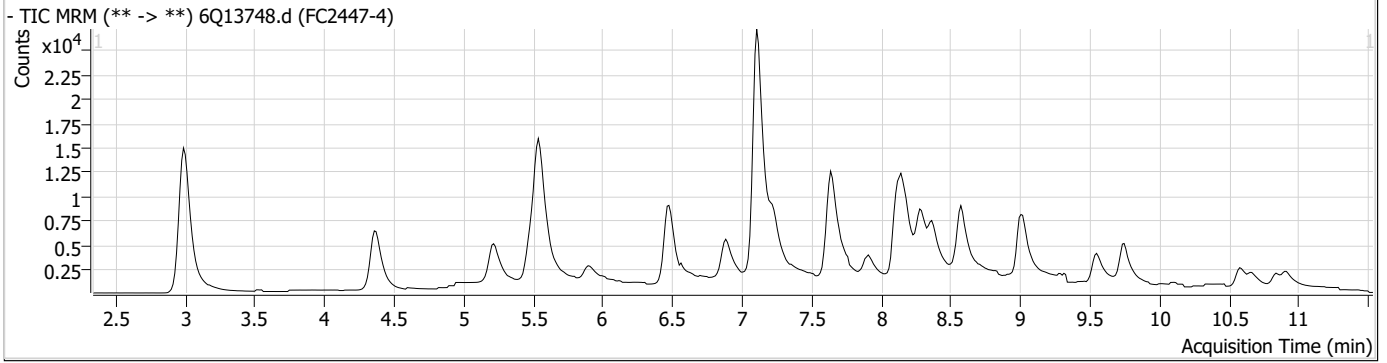
Perfluorinated Compounds by LC/MS/MS

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

7.1.3
7

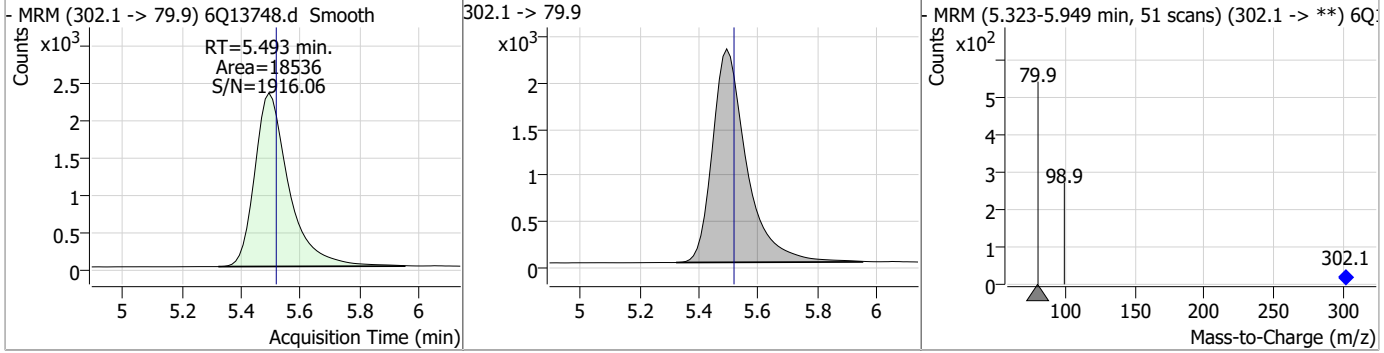


Perfluorinated Compounds by LC/MS/MS

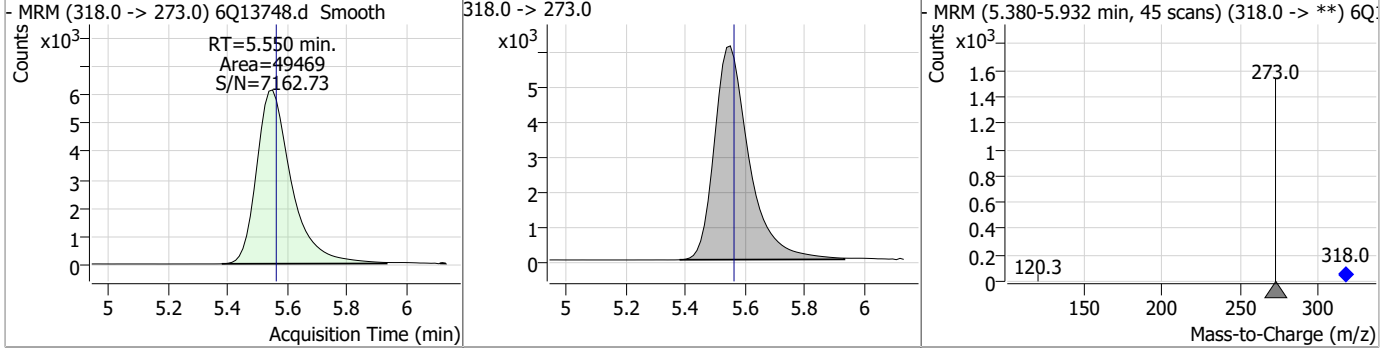


Perfluorinated Compounds by LC/MS/MS

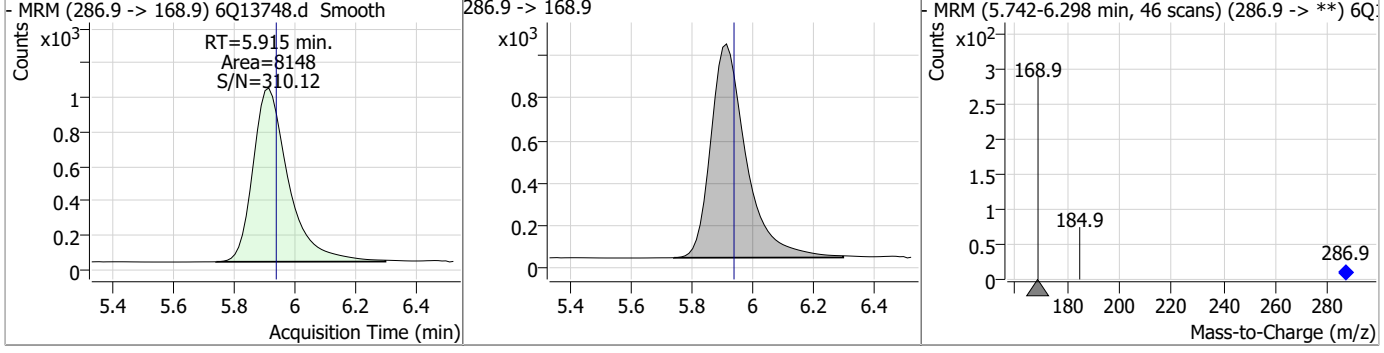
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
----------	-------	----	----------	-------	------	--------	------	------



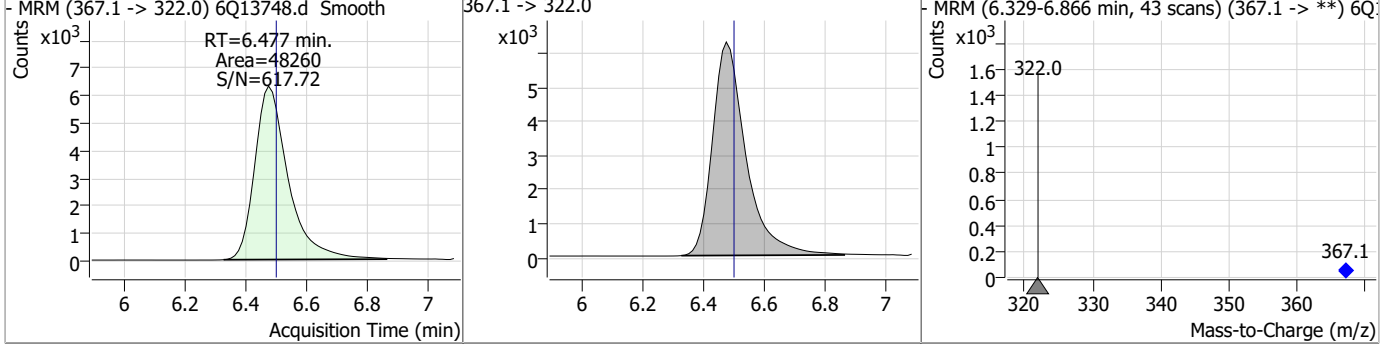
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
----------	-------	----	----------	-------	------	--------	------	------



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
----------	-------	----	----------	-------	------	--------	------	------

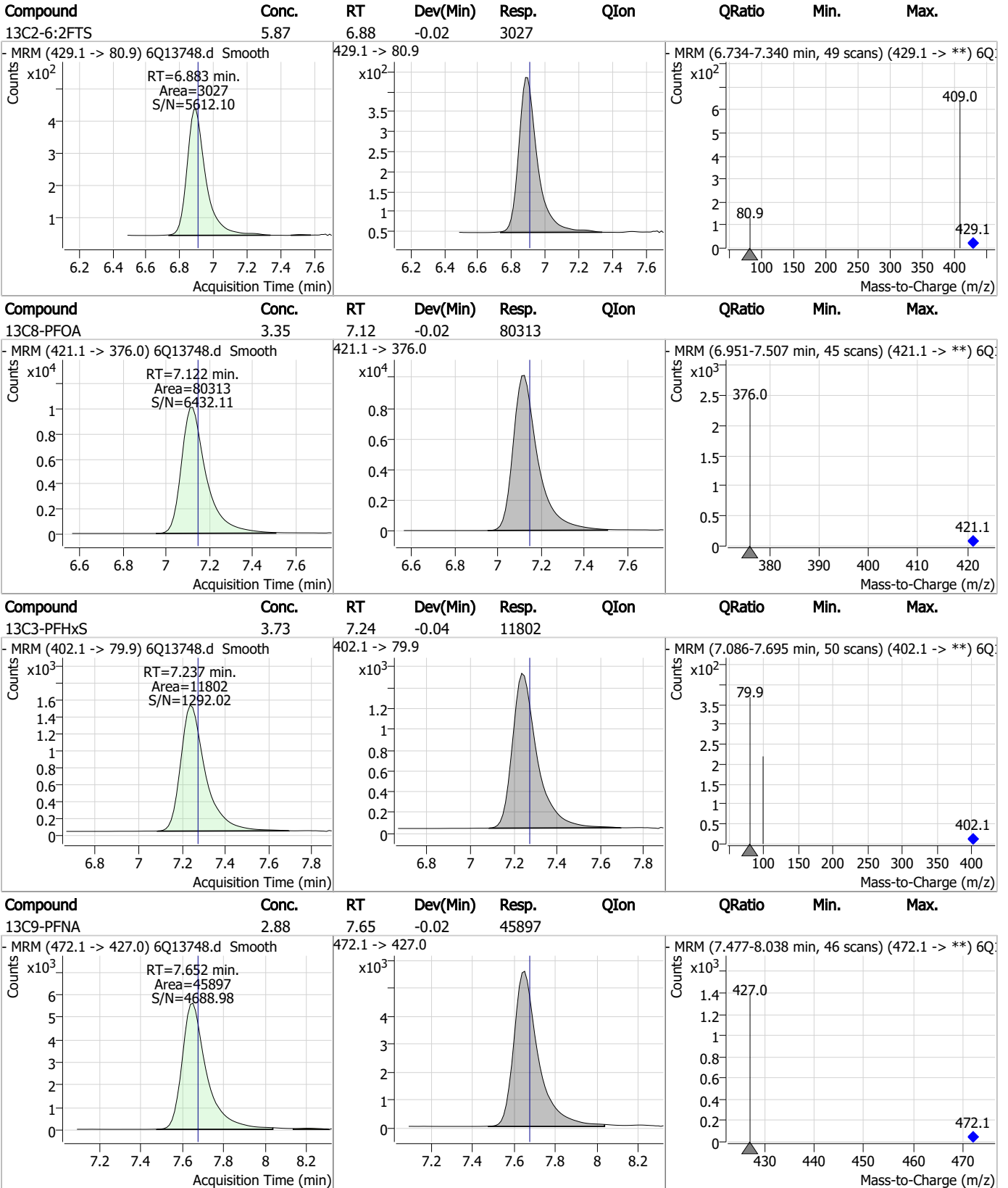


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
----------	-------	----	----------	-------	------	--------	------	------

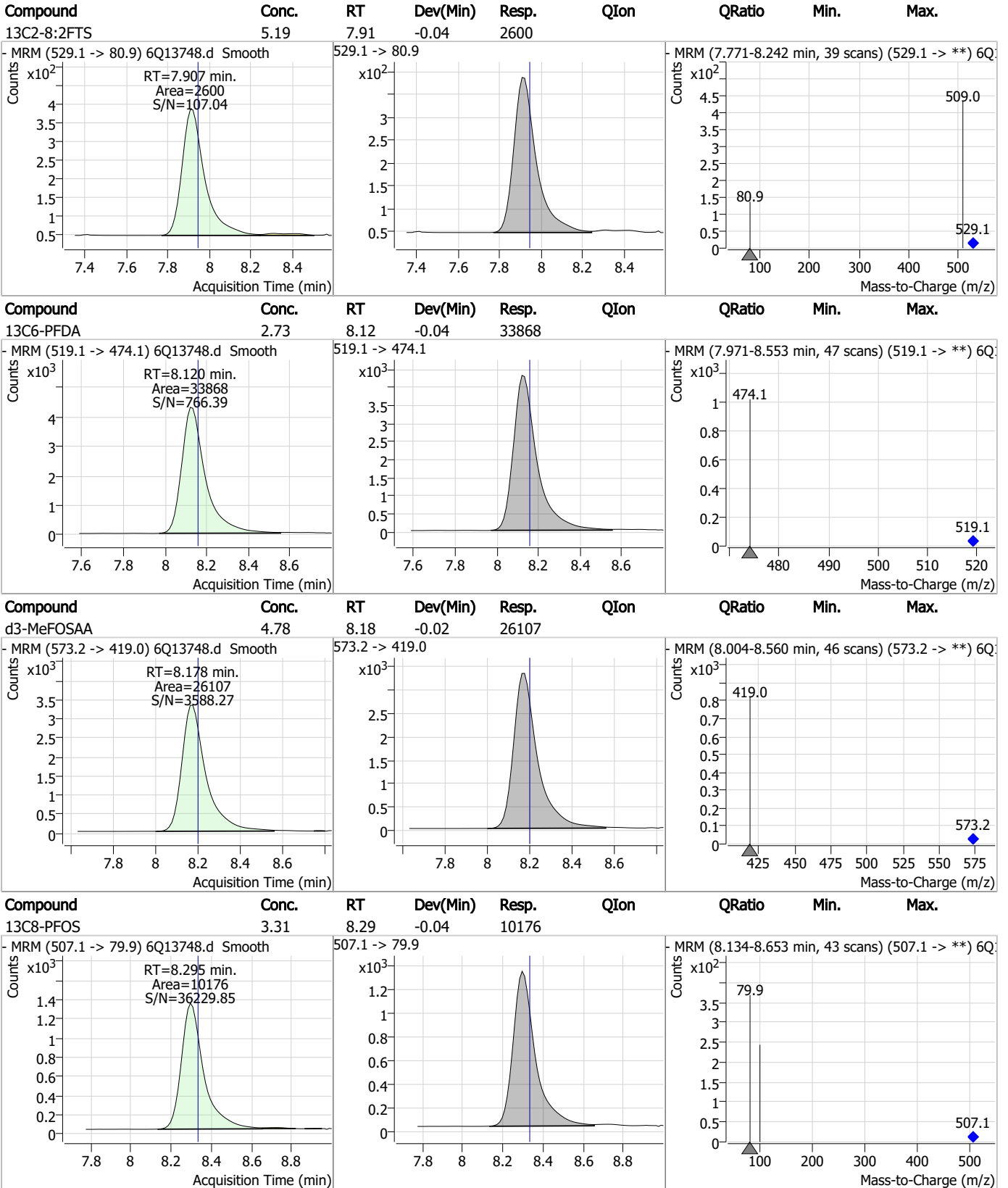


7.1.3
7

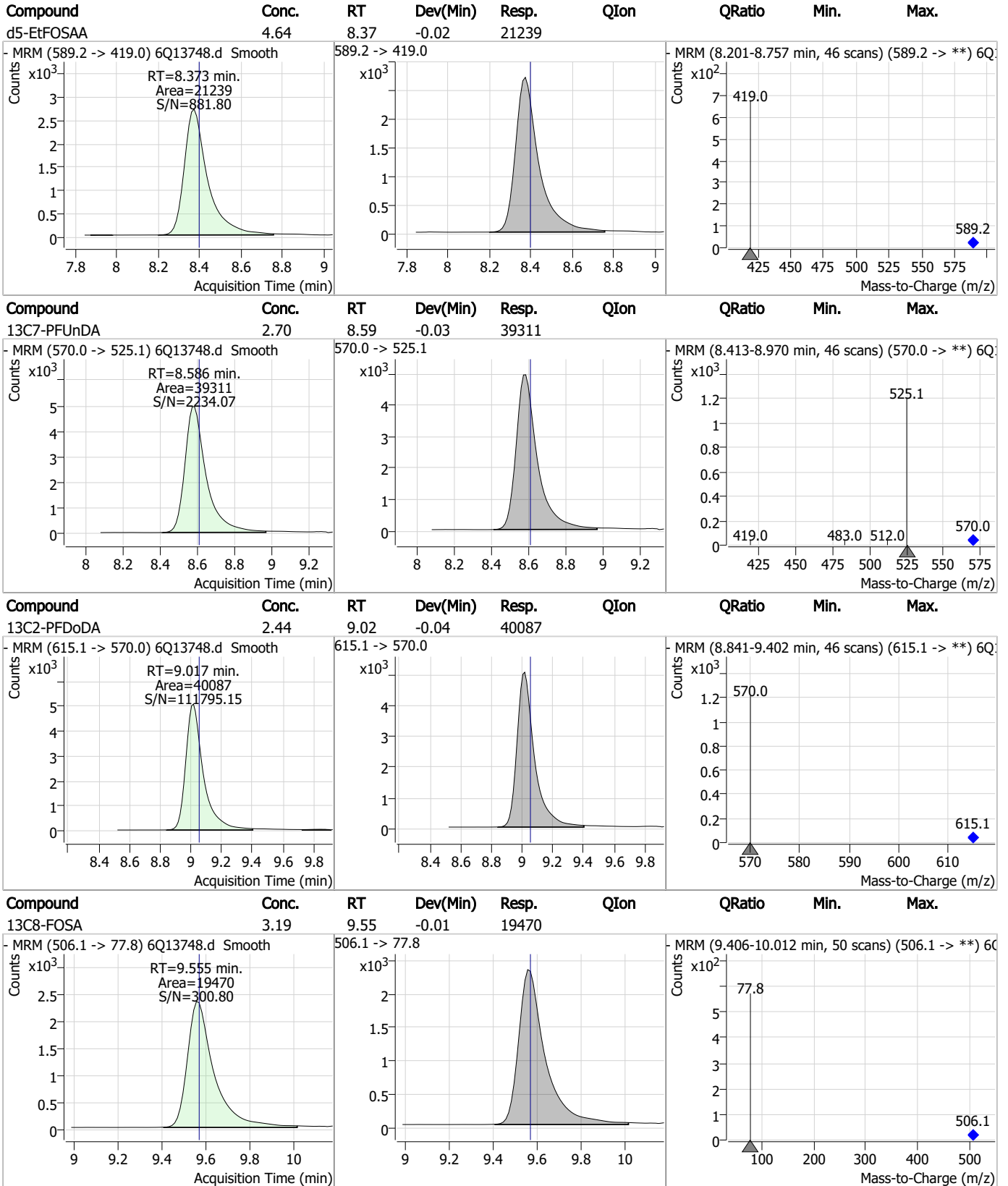
Perfluorinated Compounds by LC/MS/MS



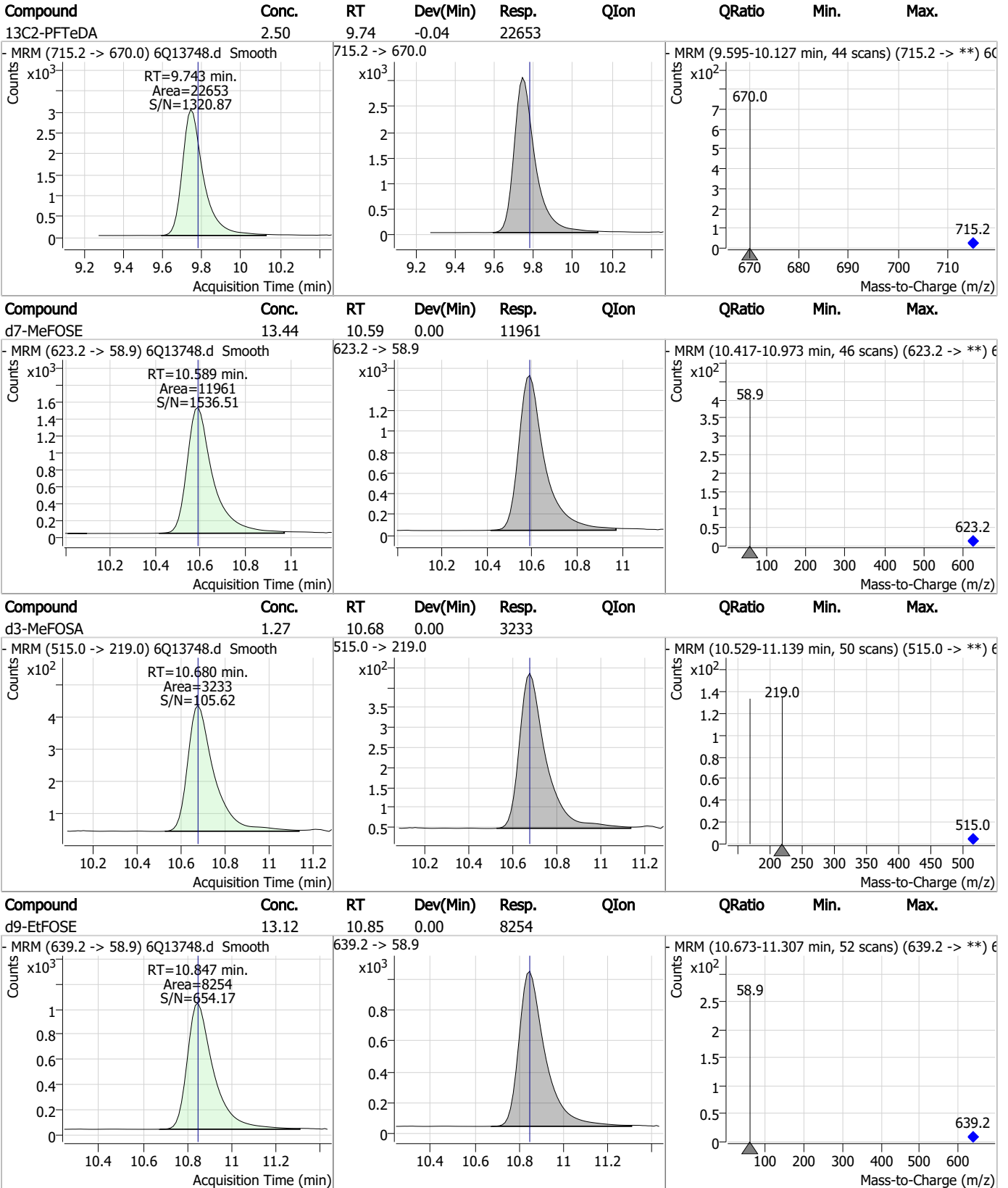
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



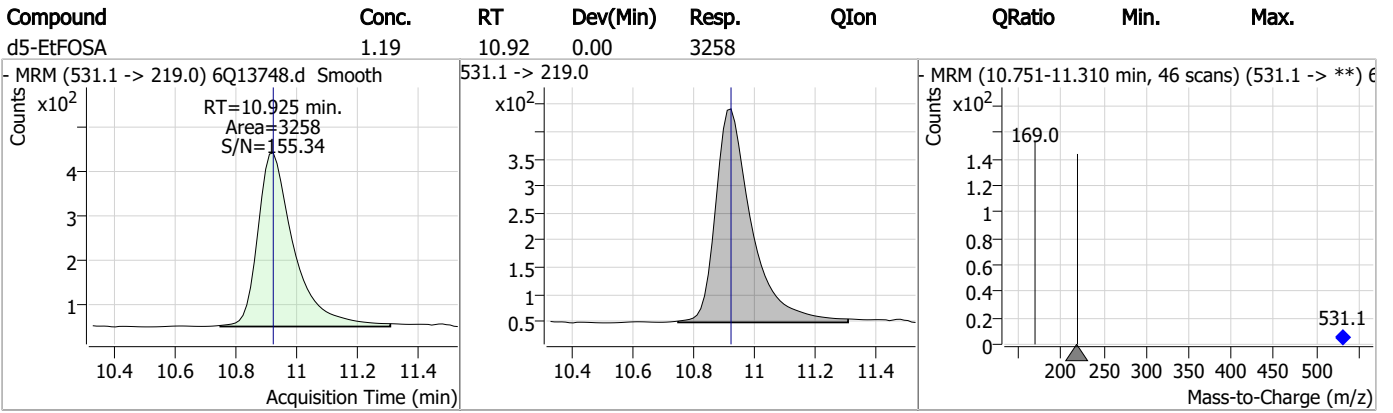
Perfluorinated Compounds by LC/MS/MS



7.1.3

7

Perfluorinated Compounds by LC/MS/MS



7.1.3
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13742.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/16/2023 11:34:02 AM
 Sample Name : op95376-mb
 Vial : P6-A3
 DA Method File : 1633_021623_S6Q208NEW.quantmethod.xml
 Batch Name : s6q208.batch.bin
 Sample Information : OP95376,S6Q208,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.988	216.8 -> 171.9	65180	7.50 µg/L	0.012
M5-PFPeA	4.374	268.3 -> 223.0	39959	5.00 µg/L	-0.012
M5-PFHxA	5.550	318.0 -> 273.0	47977	3.75 µg/L	-0.012
M4-PFHpA	6.477	367.1 -> 322.0	52861	3.75 µg/L	-0.025
M8-PFOA	7.109	421.1 -> 376.0	92570	3.75 µg/L	-0.037
M9-PFNA	7.640	472.1 -> 427.0	50043	3.13 µg/L	-0.037
M6-PFDA	8.120	519.1 -> 474.1	38067	3.13 µg/L	-0.037
M7-PFUnDA	8.574	570.0 -> 525.1	45577	3.13 µg/L	-0.037
M2-PFDoDA	9.017	615.1 -> 570.0	48105	3.13 µg/L	-0.037
M2-PFTeDA	9.756	715.2 -> 670.0	24862	3.13 µg/L	-0.025
M8-FOSA	9.567	506.1 -> 77.8	20586	3.75 µg/L	0.000
M3-PFBS	5.493	302.1 -> 79.9	19514	3.75 µg/L	-0.025
M3-PFHxS	7.237	402.1 -> 79.9	13175	3.75 µg/L	-0.037
M8-PFOS	8.283	507.1 -> 79.9	11961	3.75 µg/L	-0.050
M2-4:2FTS	5.215	329.1 -> 80.9	2565	5.00 µg/L	-0.025
M2-6:2FTS	6.883	429.1 -> 80.9	3066	5.00 µg/L	-0.025
M2-8:2FTS	7.907	529.1 -> 80.9	2742	5.00 µg/L	-0.037
M3-MeFOSAA	8.165	573.2 -> 419.0	28459	5.00 µg/L	-0.037
M3-HFPO-DA	5.915	286.9 -> 168.9	8307	5.00 µg/L	-0.025
M5-EtFOSAA	8.373	589.2 -> 419.0	22523	5.00 µg/L	-0.025
M7-MeFOSE	10.589	623.2 -> 58.9	12050	12.50 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	8643	12.50 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	3197	1.25 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	2981	1.25 µg/L	0.000
13C4-PFOS	8.283	502.8 -> 79.9	7943	2.50 µg/L	-0.050
13C3-PFBA	2.991	216.0 -> 172.0	34114	5.00 µg/L	0.012
18O2-PFHxS	7.236	403.0 -> 83.9	6443	2.50 µg/L	-0.037
13C4-PFOA	7.122	417.1 -> 372.0	69514	2.50 µg/L	-0.025
13C2-PFDA	8.120	515.1 -> 470.1	21243	1.25 µg/L	-0.037
13C5-PFNA	7.640	468.0 -> 423.0	22187	1.25 µg/L	-0.037
13C2-PFHxA	5.551	315.1 -> 270.0	33827	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.215	329.1 -> 80.9	2565	5.77 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.4%		
13C2-6:2FTS	6.883	429.1 -> 80.9	3066	5.25 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.0%		
13C2-8:2FTS	7.907	529.1 -> 80.9	2742	4.84 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C2-PFDoDA	9.017	615.1 -> 570.0	48105	2.87 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 91.9%		
13C2-PFTeDA	9.756	715.2 -> 670.0	24862	2.68 µg/L	-0.025
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 85.8%		
13C3-PFBS	5.493	302.1 -> 79.9	19514	3.67 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C3-PFHxS	7.237	402.1 -> 79.9	13175	3.67 µg/L	-0.037

7.2.1
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 97.9%	
13C4-PFBA	2.988	216.8 -> 171.9	65180	8.24 µg/L	0.012
Spiked Amount: 7.50	Range: 50.0 - 150.0%			Recovery = 109.8%	
13C4-PFHpA	6.477	367.1 -> 322.0	52861	3.63 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 96.9%	
13C5-PFHxA	5.550	318.0 -> 273.0	47977	3.34 µg/L	-0.012
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 89.2%	
13C5-PFPeA	4.374	268.3 -> 223.0	39959	5.02 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C6-PFDA	8.120	519.1 -> 474.1	38067	3.00 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C7-PFUnDA	8.574	570.0 -> 525.1	45577	3.07 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C8-FOSA	9.567	506.1 -> 77.8	20586	3.87 µg/L	0.000
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C8-PFOA	7.109	421.1 -> 376.0	92570	3.90 µg/L	-0.037
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C8-PFOS	8.283	507.1 -> 79.9	11961	4.47 µg/L	-0.050
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 119.1%	
13C9-PFNA	7.640	472.1 -> 427.0	50043	2.98 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 95.2%	
d3-MeFOSAA	8.165	573.2 -> 419.0	28459	5.99 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 119.8%	
13C3-HFPO-DA	5.915	286.9 -> 168.9	8307	5.44 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.8%	
d3-MeFOSA	10.680	515.0 -> 219.0	2981	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.4%	
d5-EtFOSAA	8.373	589.2 -> 419.0	22523	5.66 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 113.2%	
d7-MeFOSE	10.589	623.2 -> 58.9	12050	15.55 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%			Recovery = 124.4%	
d9-EtFOSE	10.847	639.2 -> 58.9	8643	15.78 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%			Recovery = 126.2%	
d5-EtFOSA	10.925	531.1 -> 219.0	3197	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.9%	

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

7.2.1
7

Perfluorinated Compounds by LC/MS/MS

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

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

7.2.1
7

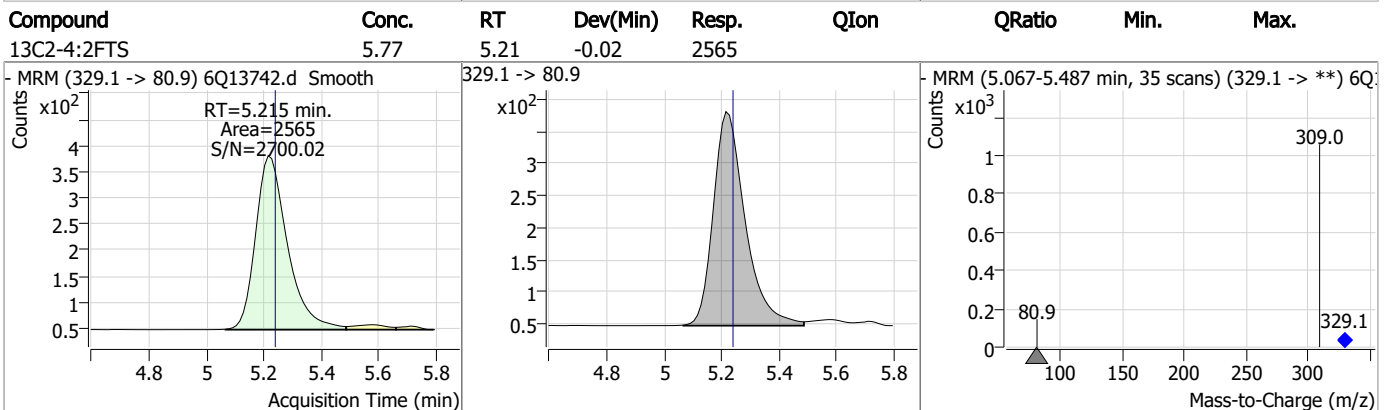
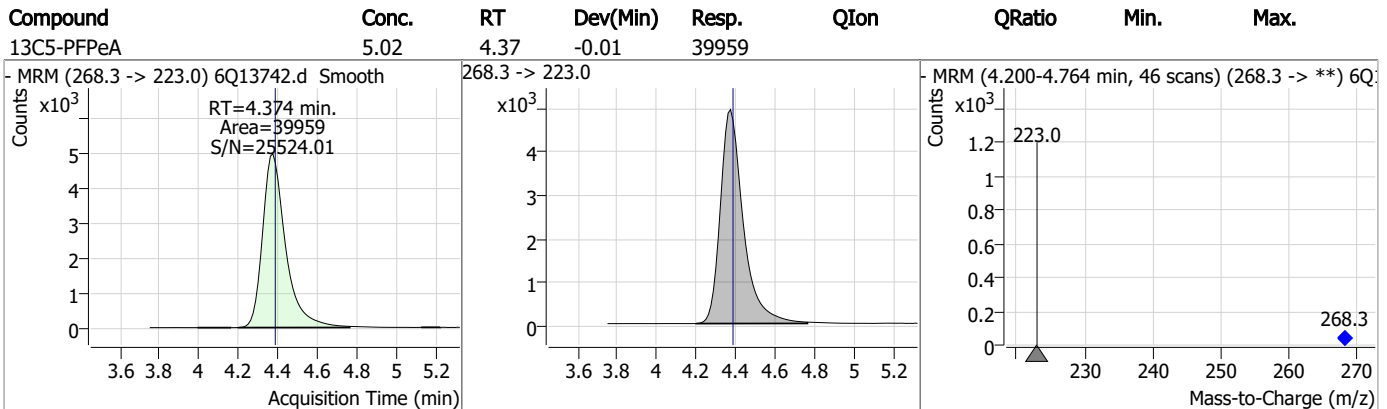
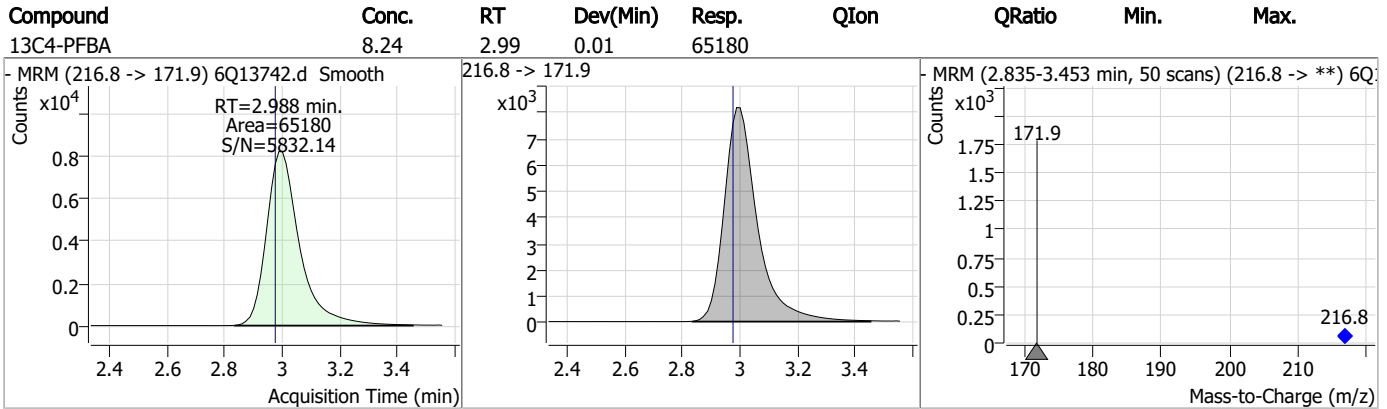
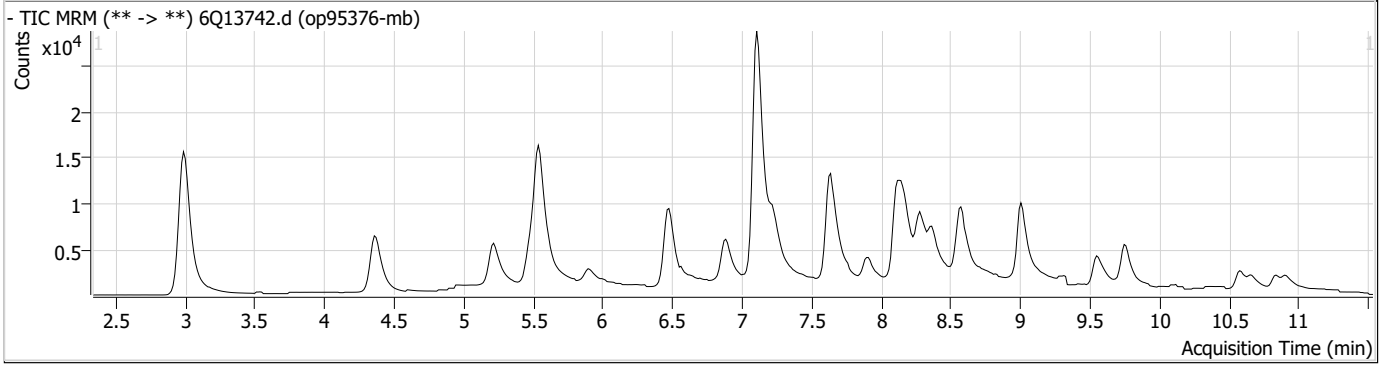
Perfluorinated Compounds by LC/MS/MS

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

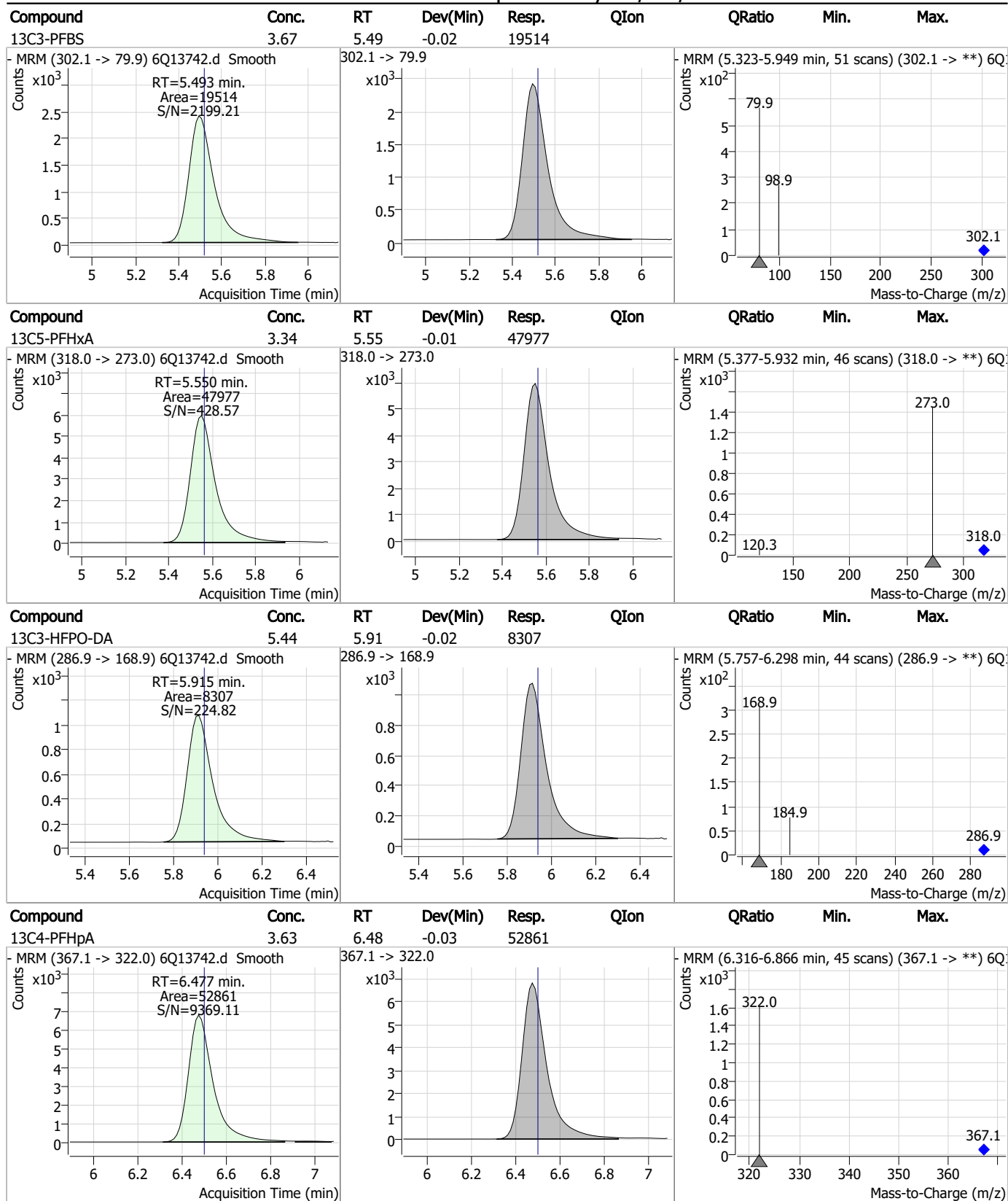
7.2.1

7

Perfluorinated Compounds by LC/MS/MS

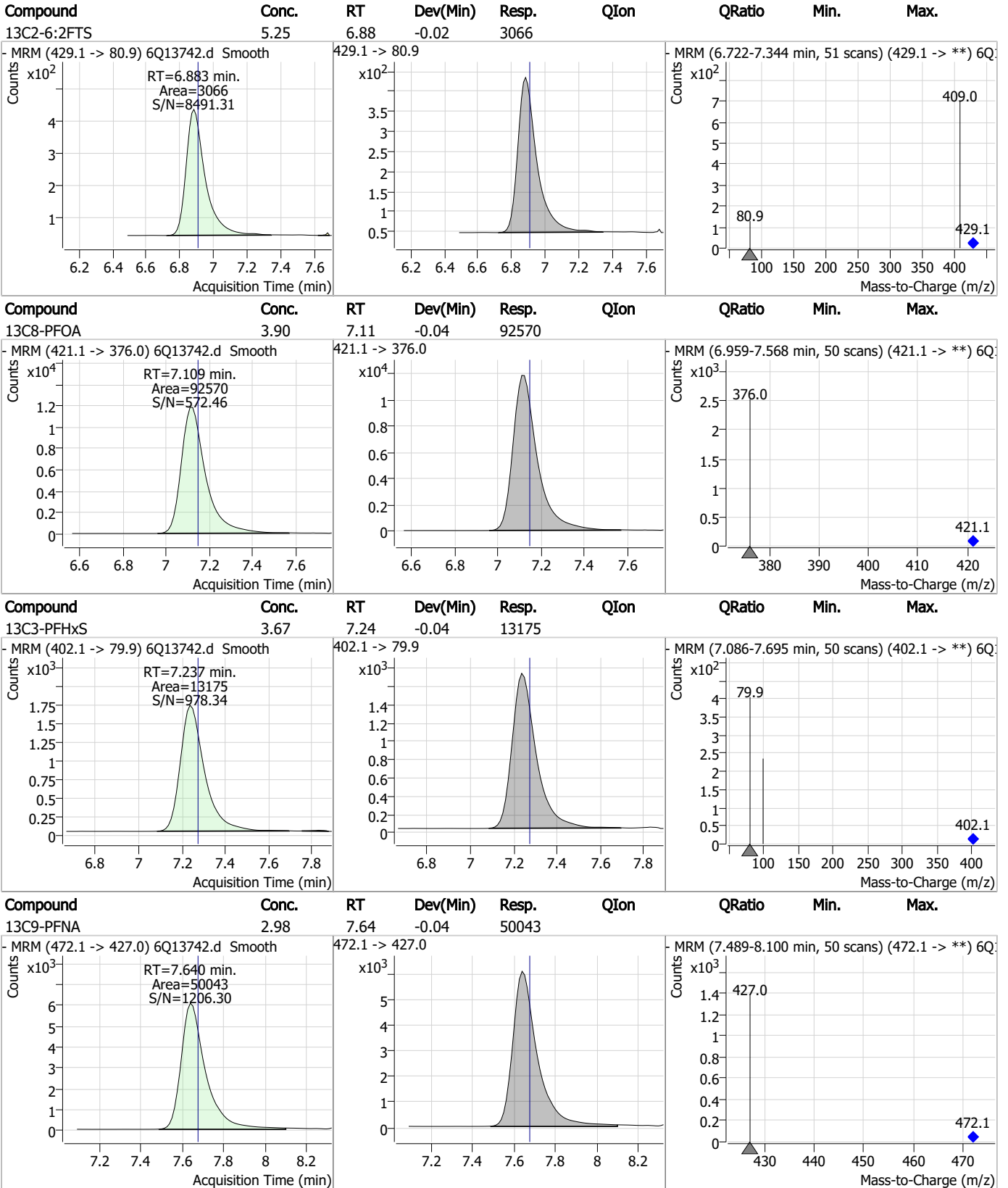


Perfluorinated Compounds by LC/MS/MS



7.2.1
7

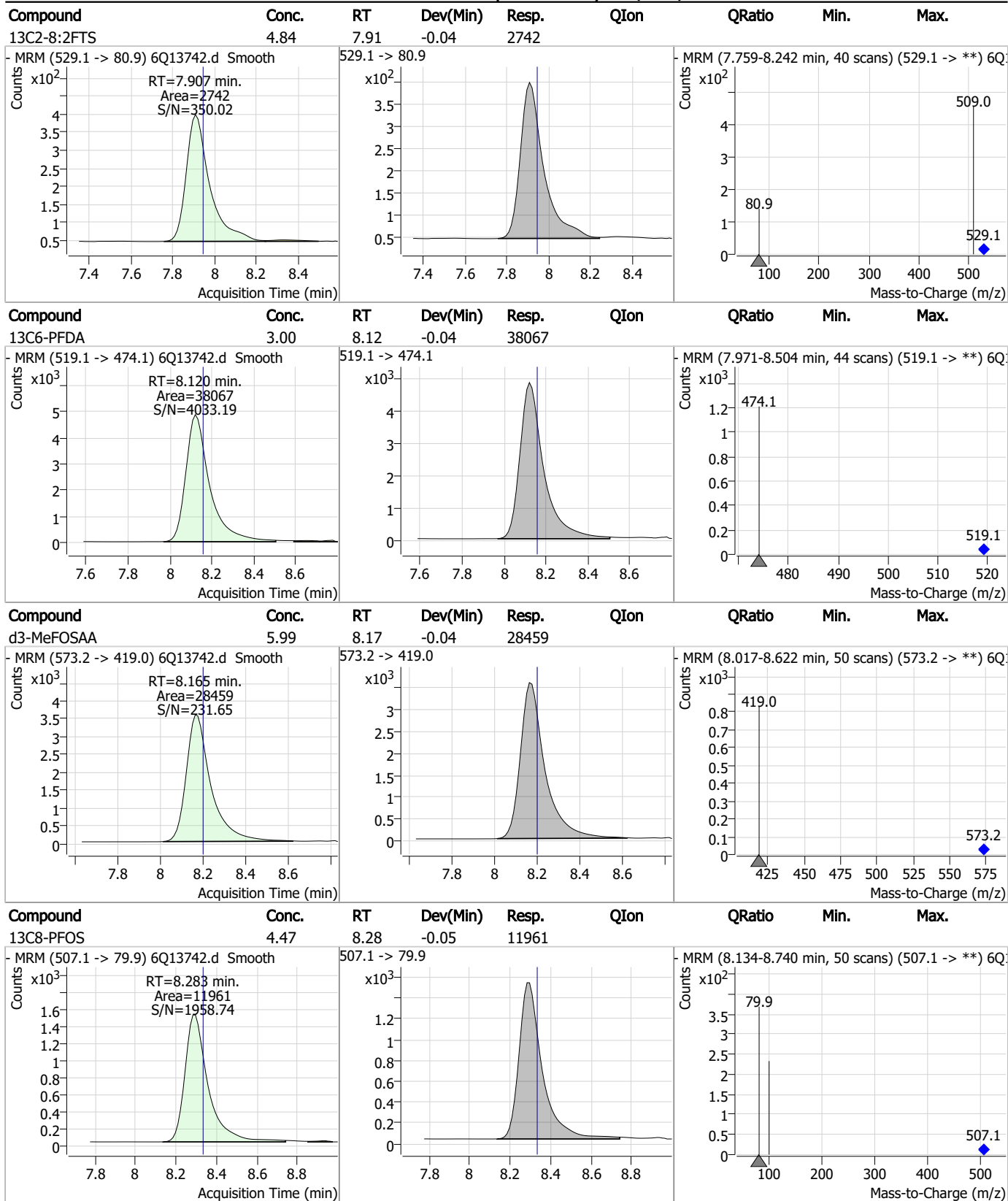
Perfluorinated Compounds by LC/MS/MS



7.2.1

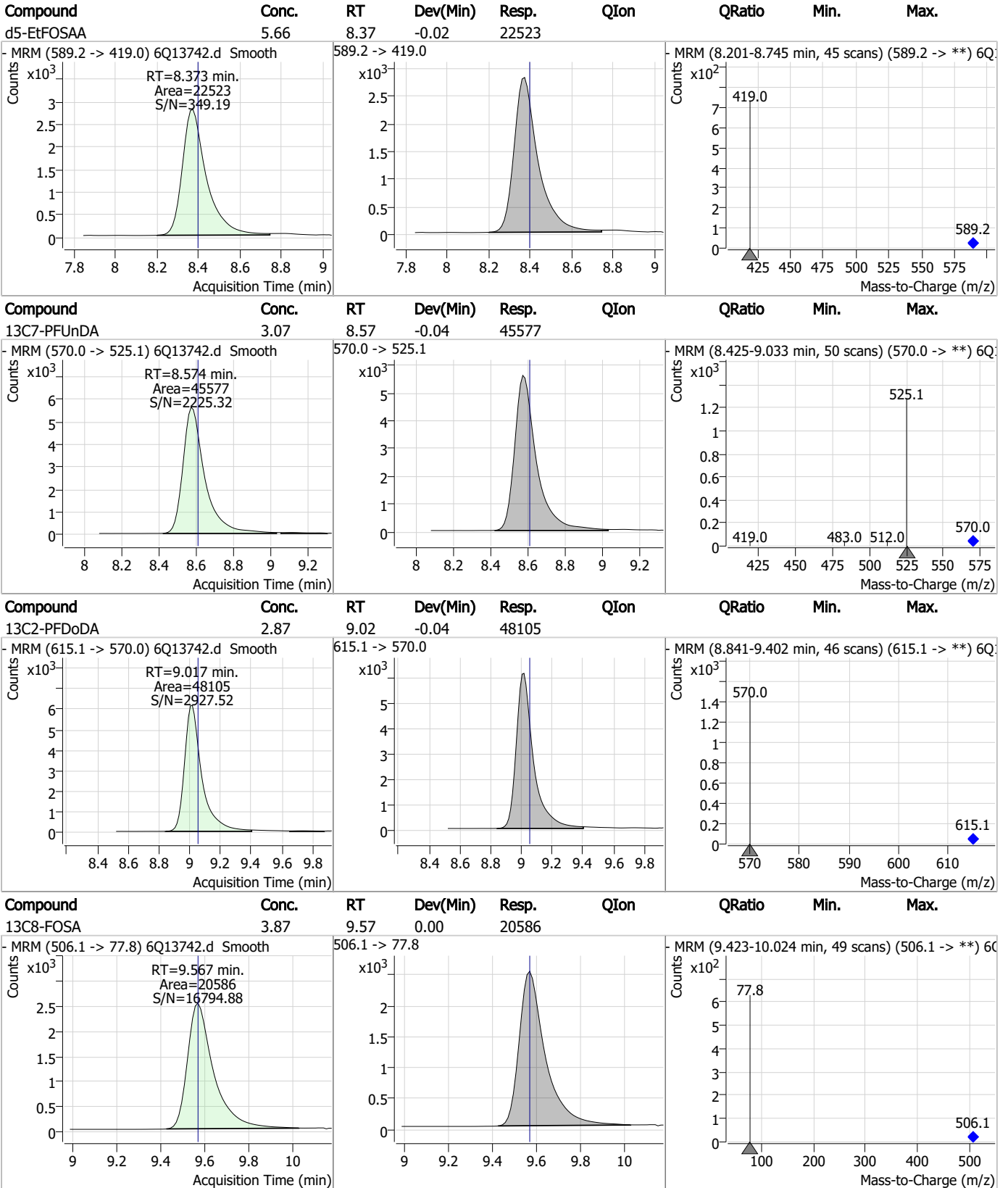
7

Perfluorinated Compounds by LC/MS/MS



7.2.1
7

Perfluorinated Compounds by LC/MS/MS



7.2.1

7

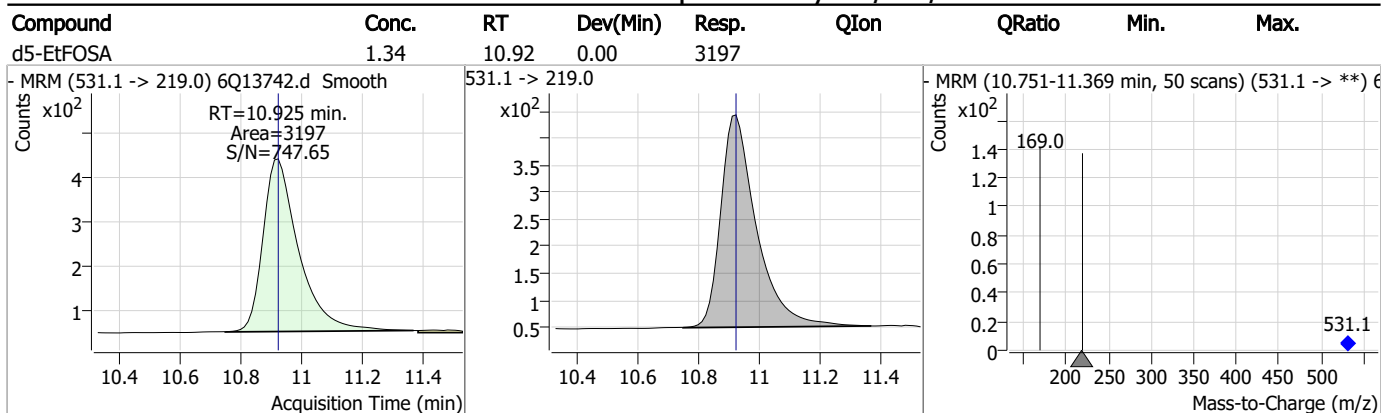
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	2.68	9.76	-0.02	24862				
d7-MeFOSE	15.55	10.59	0.00	12050				
d3-MeFOSEA	1.34	10.68	0.00	2981				
d9-EtFOSE	15.78	10.85	0.00	8643				

7.2.1
7



Perfluorinated Compounds by LC/MS/MS



7.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13735.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/16/2023 9:56:05 AM
 Sample Name : IBLK
 Vial : P1-D1
 DA Method File : 1633_021623_S6Q208NEW.quantmethod.xml
 Batch Name : s6q208.batch.bin
 Sample Information : OP95142,S6Q208,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.950	216.8 -> 171.9	59983	7.50 µg/L	-0.025
M5-PFPeA	4.361	268.3 -> 223.0	39166	5.00 µg/L	-0.025
M5-PFHxA	5.538	318.0 -> 273.0	51186	3.75 µg/L	-0.025
M4-PFHpA	6.477	367.1 -> 322.0	53874	3.75 µg/L	-0.025
M8-PFOA	7.109	421.1 -> 376.0	92237	3.75 µg/L	-0.037
M9-PFNA	7.640	472.1 -> 427.0	54094	3.13 µg/L	-0.037
M6-PFDA	8.120	519.1 -> 474.1	41729	3.13 µg/L	-0.037
M7-PFUnDA	8.574	570.0 -> 525.1	49163	3.13 µg/L	-0.037
M2-PFDoDA	9.017	615.1 -> 570.0	50279	3.13 µg/L	-0.037
M2-PFTeDA	9.756	715.2 -> 670.0	31011	3.13 µg/L	-0.025
M8-FOSA	9.555	506.1 -> 77.8	23904	3.75 µg/L	-0.012
M3-PFBS	5.481	302.1 -> 79.9	19756	3.75 µg/L	-0.037
M3-PFHxS	7.237	402.1 -> 79.9	13271	3.75 µg/L	-0.037
M8-PFOS	8.283	507.1 -> 79.9	12781	3.75 µg/L	-0.050
M2-4:2FTS	5.203	329.1 -> 80.9	2185	5.00 µg/L	-0.037
M2-6:2FTS	6.883	429.1 -> 80.9	3115	5.00 µg/L	-0.025
M2-8:2FTS	7.907	529.1 -> 80.9	3067	5.00 µg/L	-0.037
M3-MeFOSAA	8.165	573.2 -> 419.0	28922	5.00 µg/L	-0.037
M3-HFPO-DA	5.903	286.9 -> 168.9	7563	5.00 µg/L	-0.037
M5-EtFOSAA	8.361	589.2 -> 419.0	24377	5.00 µg/L	-0.037
M7-MeFOSE	10.589	623.2 -> 58.9	11808	12.50 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	7879	12.50 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	3469	1.25 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	3169	1.25 µg/L	0.000
13C4-PFOS	8.283	502.8 -> 79.9	8493	2.50 µg/L	-0.050
13C3-PFBA	2.954	216.0 -> 172.0	30732	5.00 µg/L	-0.025
18O2-PFHxS	7.236	403.0 -> 83.9	5320	2.50 µg/L	-0.037
13C4-PFOA	7.110	417.1 -> 372.0	65369	2.50 µg/L	-0.037
13C2-PFDA	8.120	515.1 -> 470.1	20788	1.25 µg/L	-0.037
13C5-PFNA	7.640	468.0 -> 423.0	21937	1.25 µg/L	-0.037
13C2-PFHxA	5.539	315.1 -> 270.0	29333	2.50 µg/L	-0.025
System Monitoring Compounds					
13C2-4:2FTS	5.203	329.1 -> 80.9	2185	5.95 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.1%		
13C2-6:2FTS	6.883	429.1 -> 80.9	3115	6.46 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 129.2%		
13C2-8:2FTS	7.907	529.1 -> 80.9	3067	6.55 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 131.1%		
13C2-PFDoDA	9.017	615.1 -> 570.0	50279	3.07 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C2-PFTeDA	9.756	715.2 -> 670.0	31011	3.42 µg/L	-0.025
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 109.4%		
13C3-PFBS	5.481	302.1 -> 79.9	19756	4.50 µg/L	-0.037
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 119.9%		
13C3-PFHxS	7.237	402.1 -> 79.9	13271	4.48 µg/L	-0.037

7.22
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 119.5%	
13C4-PFBA	2.950	216.8 -> 171.9	59983	8.41 µg/L	-0.025
Spiked Amount: 7.50	Range: 50.0 - 150.0%			Recovery = 112.2%	
13C4-PFHpA	6.477	367.1 -> 322.0	53874	4.27 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 113.9%	
13C5-PFHxA	5.538	318.0 -> 273.0	51186	4.11 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 109.7%	
13C5-PFPeA	4.361	268.3 -> 223.0	39166	5.68 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 113.6%	
13C6-PFDA	8.120	519.1 -> 474.1	41729	3.37 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 107.7%	
13C7-PFUnDA	8.574	570.0 -> 525.1	49163	3.38 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 108.2%	
13C8-FOSA	9.555	506.1 -> 77.8	23904	4.21 µg/L	-0.012
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 112.2%	
13C8-PFOA	7.109	421.1 -> 376.0	92237	4.13 µg/L	-0.037
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 110.1%	
13C8-PFOS	8.283	507.1 -> 79.9	12781	4.46 µg/L	-0.050
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 119.0%	
13C9-PFNA	7.640	472.1 -> 427.0	54094	3.25 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 104.1%	
d3-MeFOSAA	8.165	573.2 -> 419.0	28922	5.70 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 113.9%	
13C3-HFPO-DA	5.903	286.9 -> 168.9	7563	5.71 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 114.2%	
d3-MeFOSA	10.680	515.0 -> 219.0	3169	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.8%	
d5-EtFOSAA	8.361	589.2 -> 419.0	24377	5.73 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 114.5%	
d7-MeFOSE	10.589	623.2 -> 58.9	11808	14.26 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%			Recovery = 114.0%	
d9-EtFOSE	10.847	639.2 -> 58.9	7879	13.45 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%			Recovery = 107.6%	
d5-EtFOSA	10.925	531.1 -> 219.0	3469	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.5%	

Target Compounds

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

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	-	548.8 -> 98.9	-	N.D.		
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	10.914	526.0 -> 219.0	799	0.24 µg/L	m	92
		526.0 -> 169.0	811			
EtFOSE	10.848	630.0 -> 58.9	1683	2.50 µg/L	m	100
		511.9 -> 219.0	343	0.12 µg/L		81
MeFOSA	10.669	511.9 -> 169.0	334			
		616.1 -> 58.9	1620	1.65 µg/L		100
MeFOSE	10.590	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	-	N.D.		

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

7.2.2
7

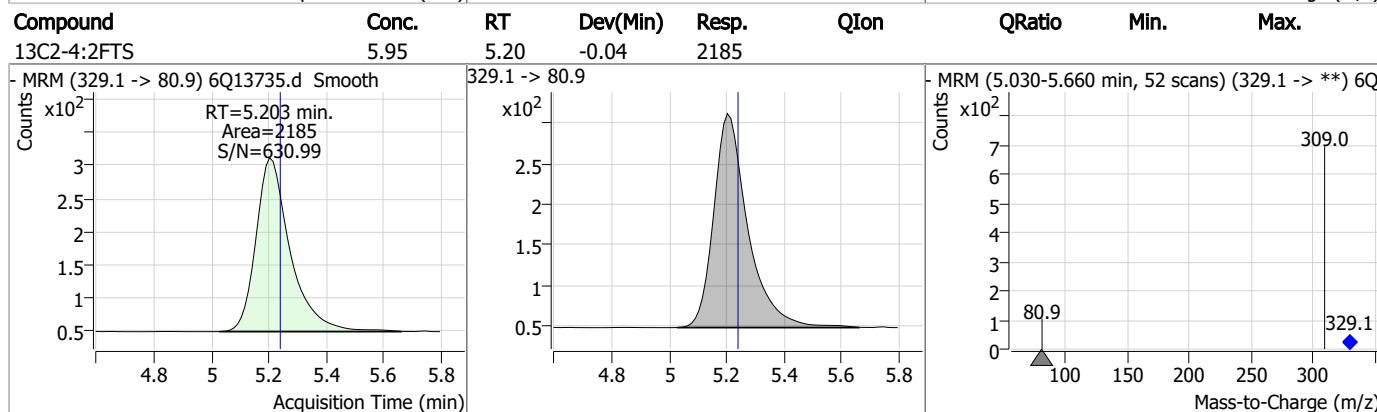
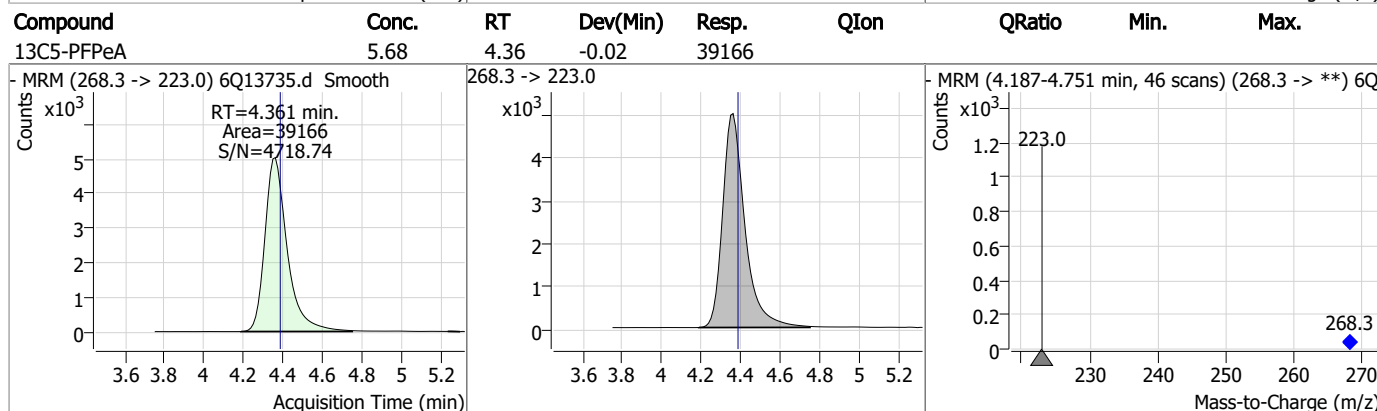
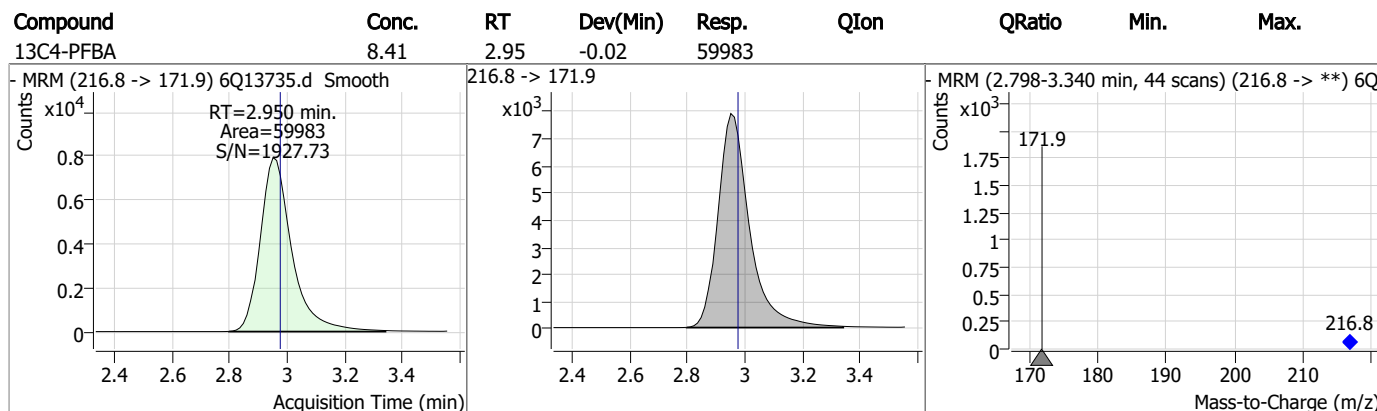
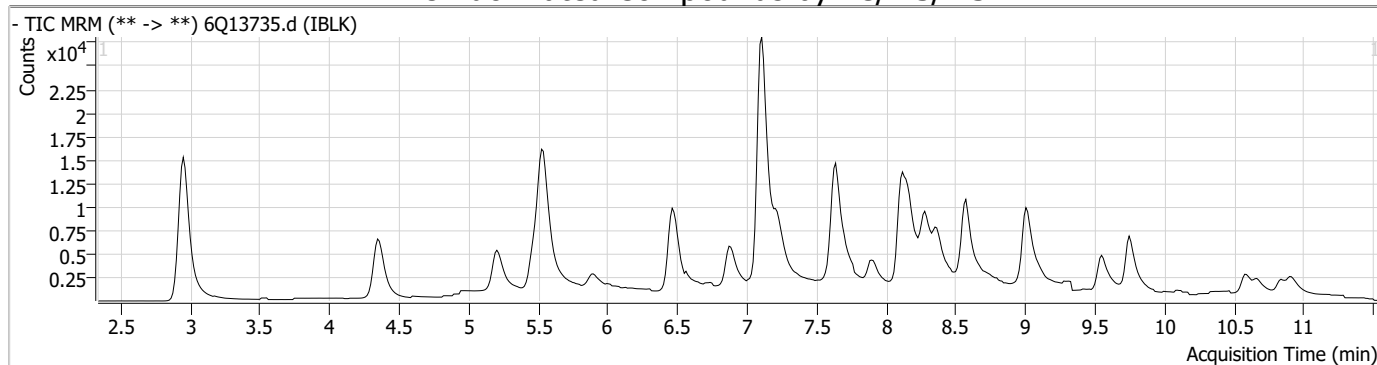
Perfluorinated Compounds by LC/MS/MS

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

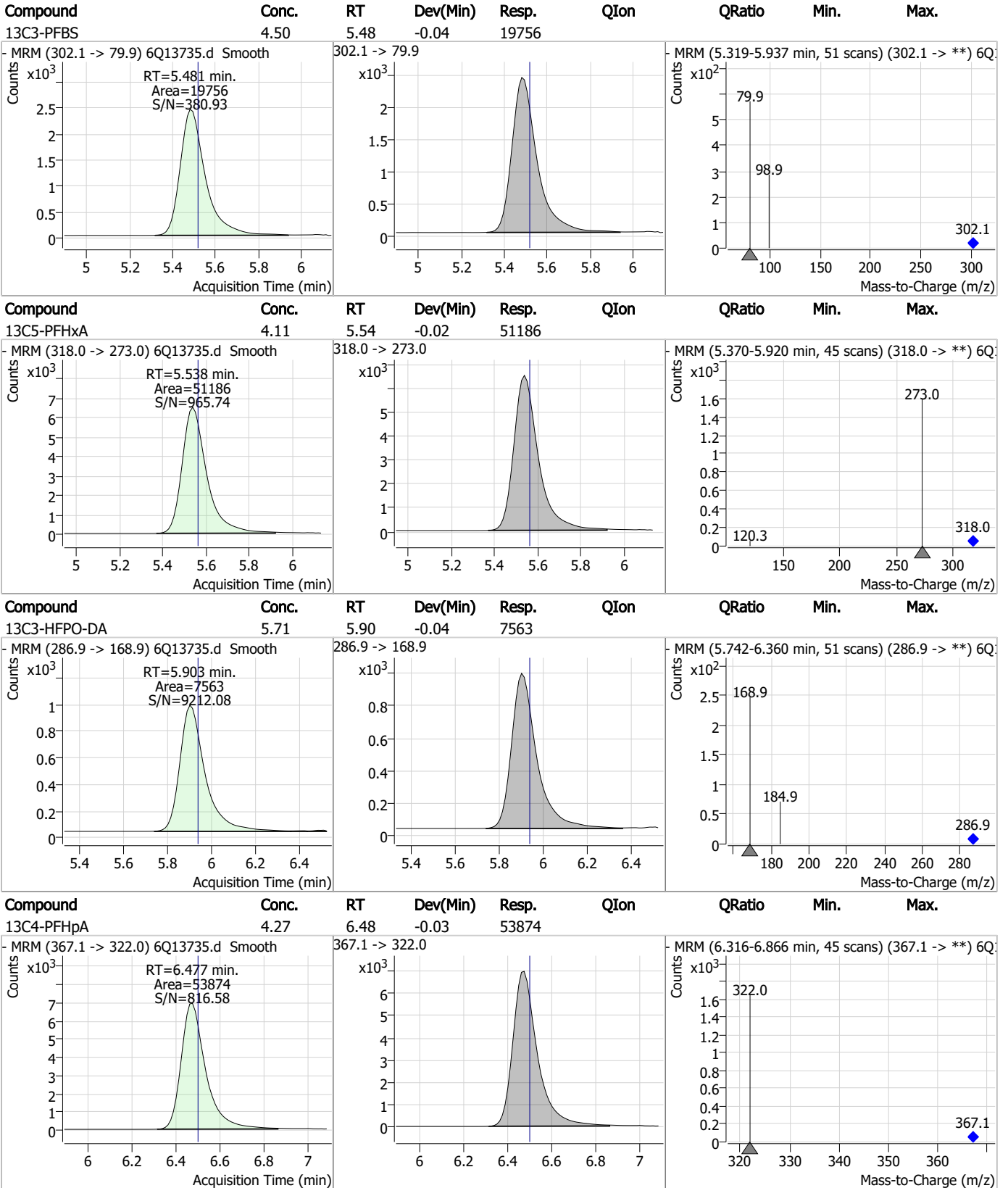
7.2.2

7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

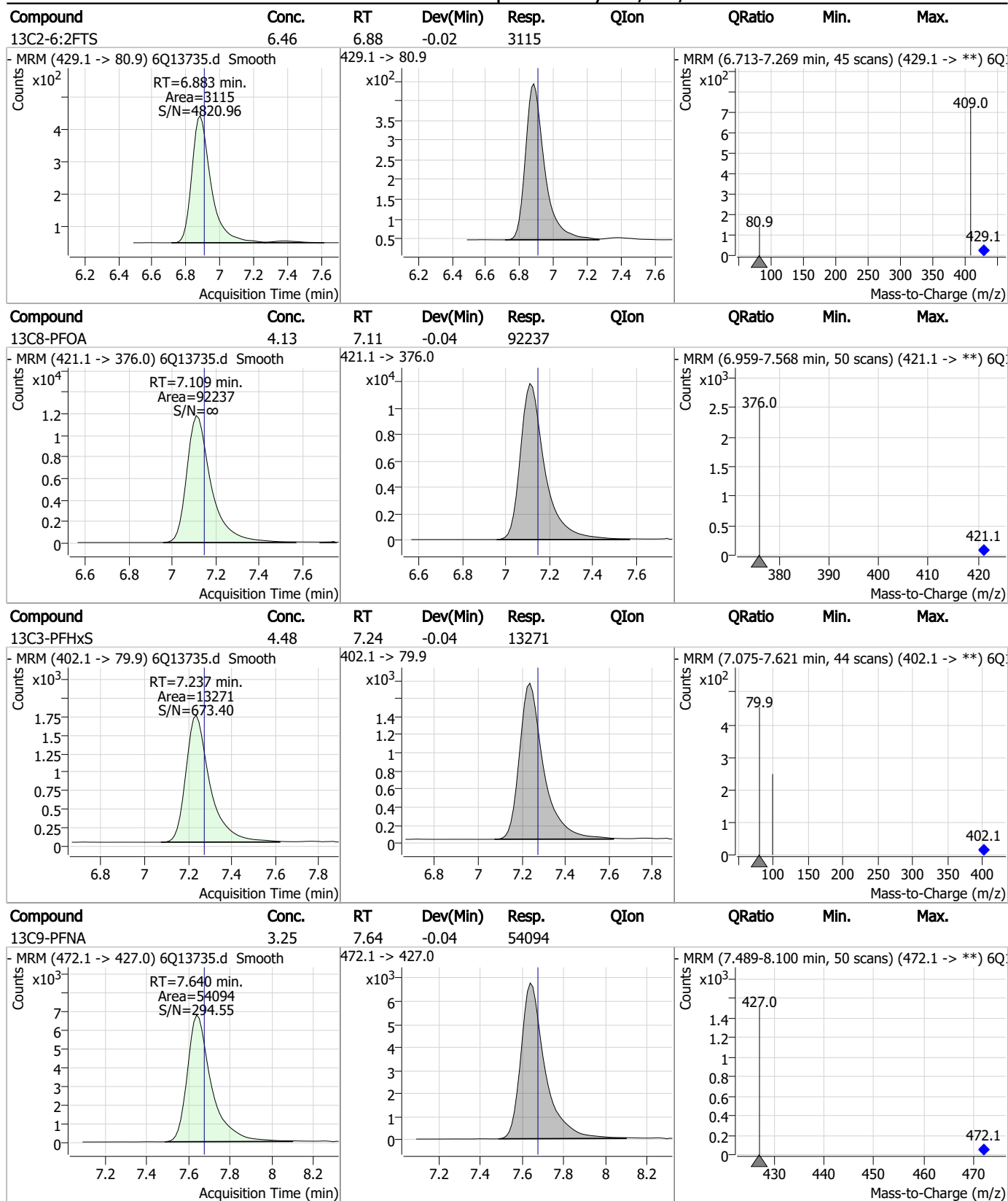


7.2.2

7



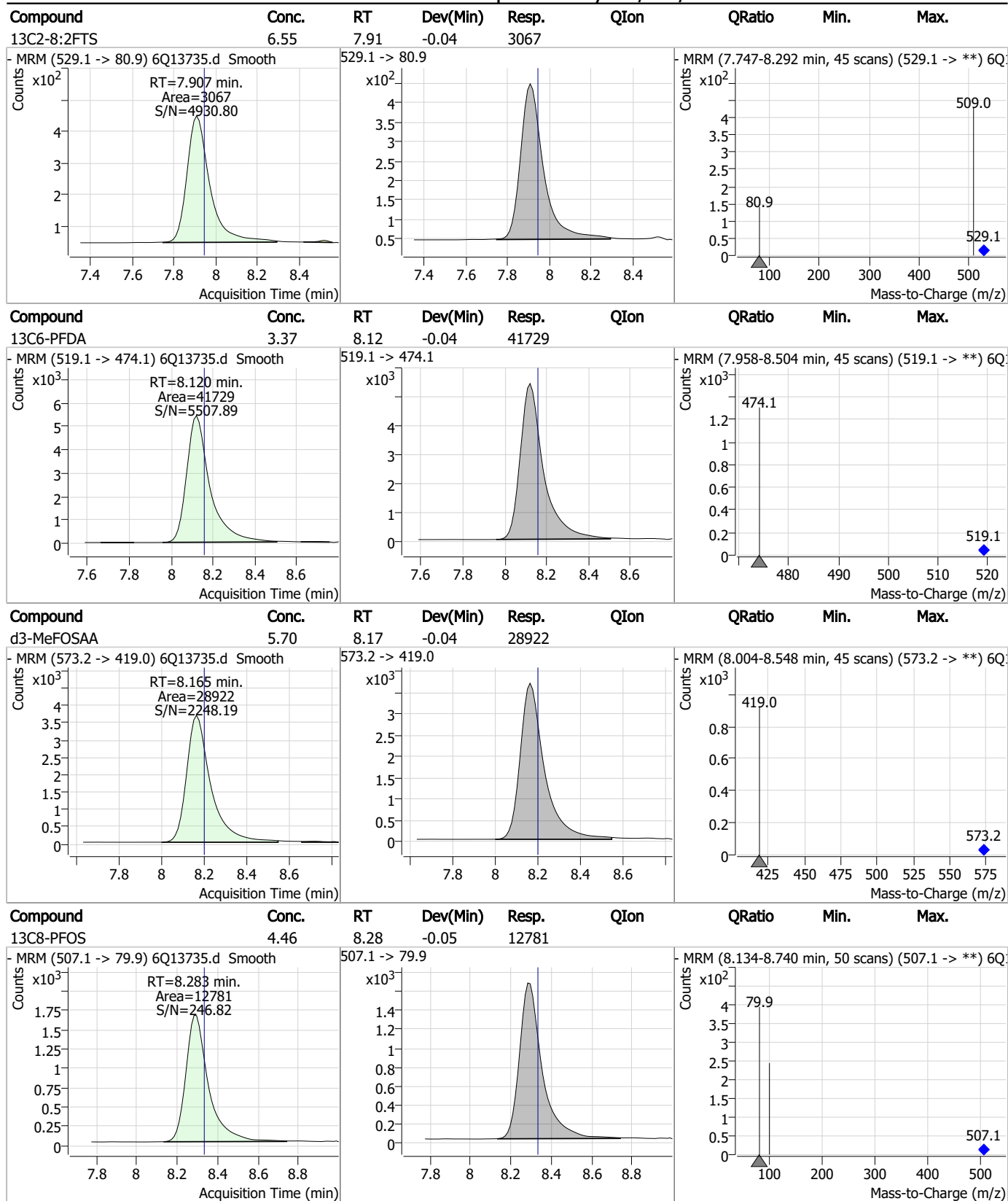
Perfluorinated Compounds by LC/MS/MS



7.2.2
7

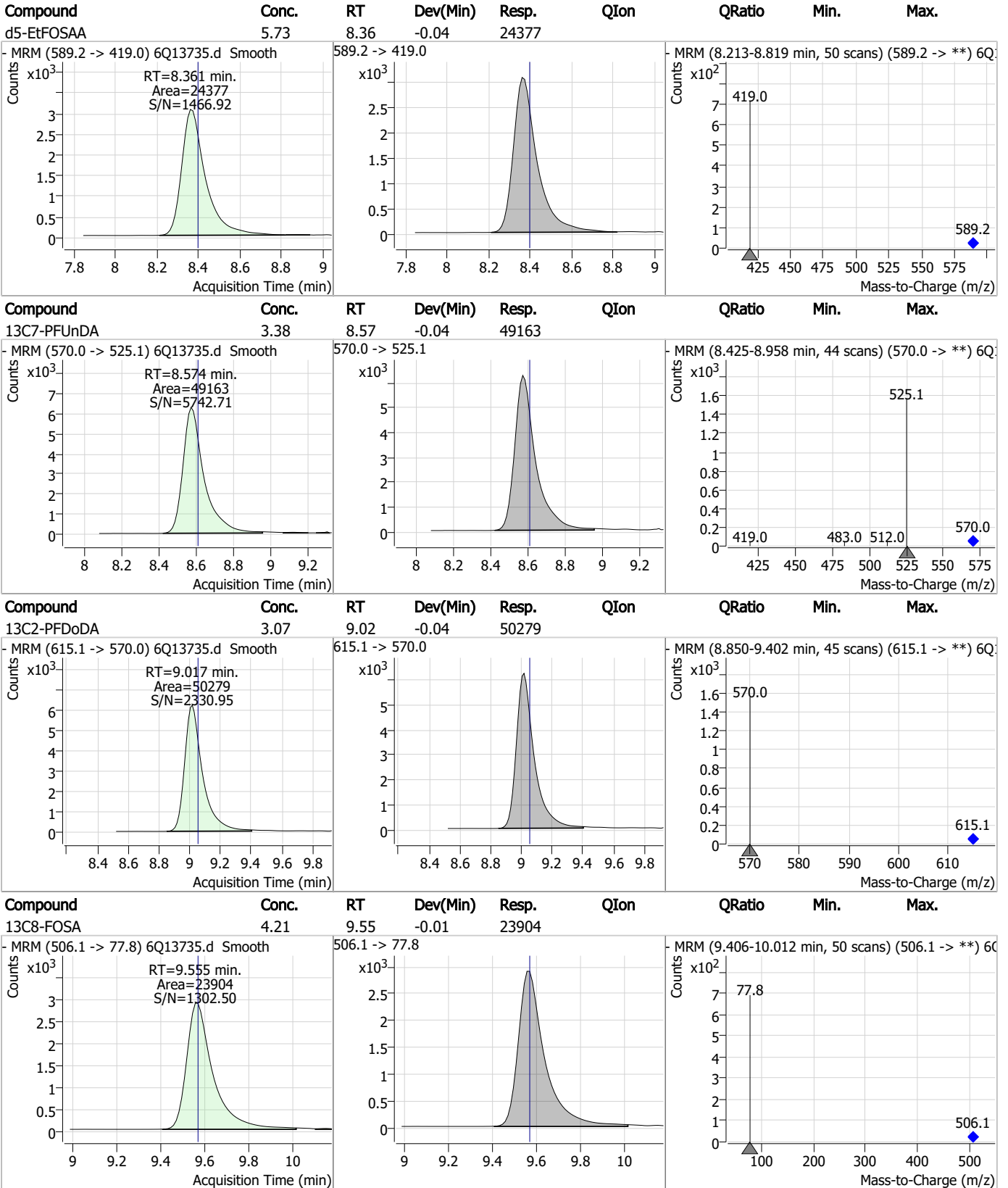


Perfluorinated Compounds by LC/MS/MS



7.22
7

Perfluorinated Compounds by LC/MS/MS

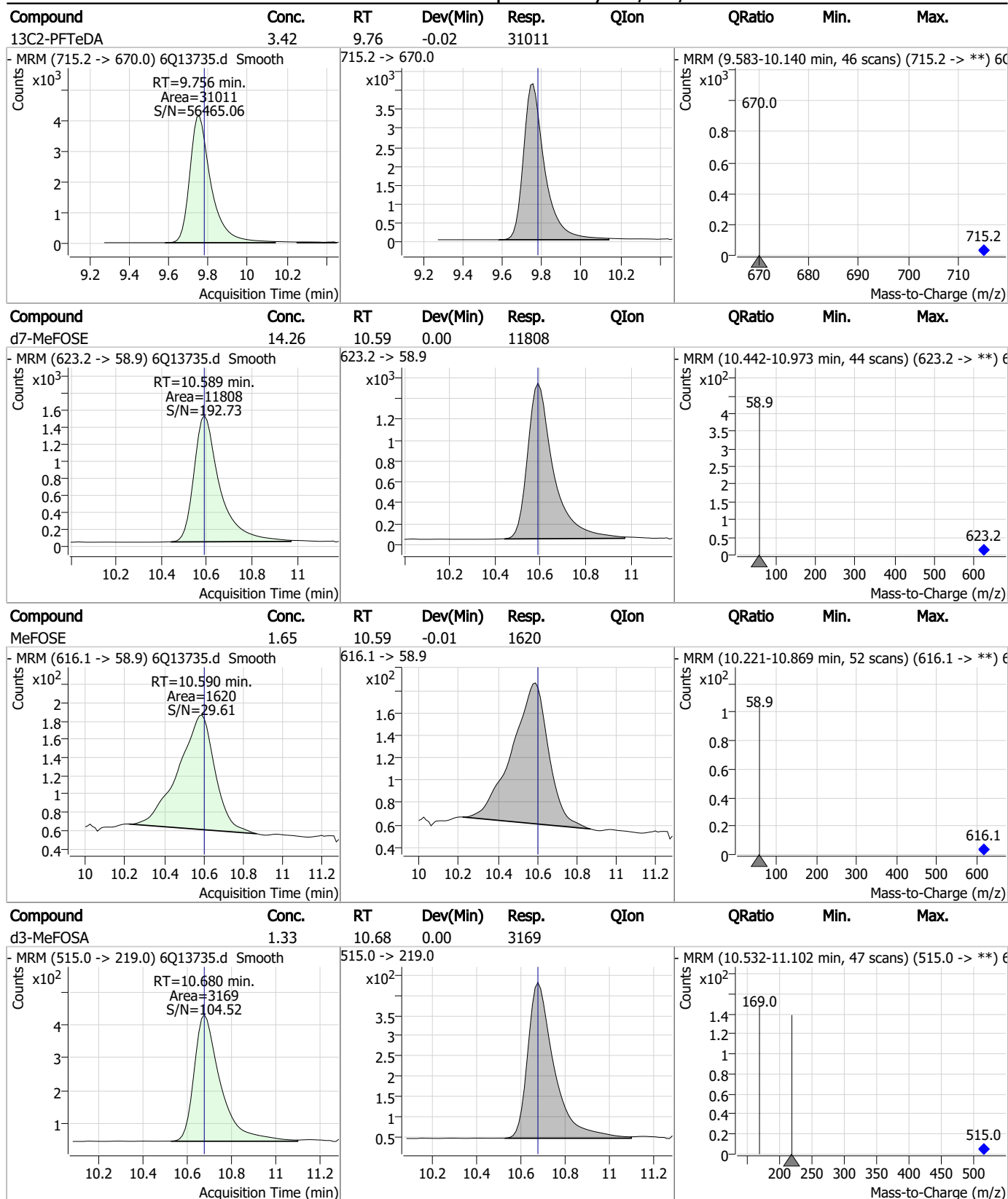


7.2.2

7



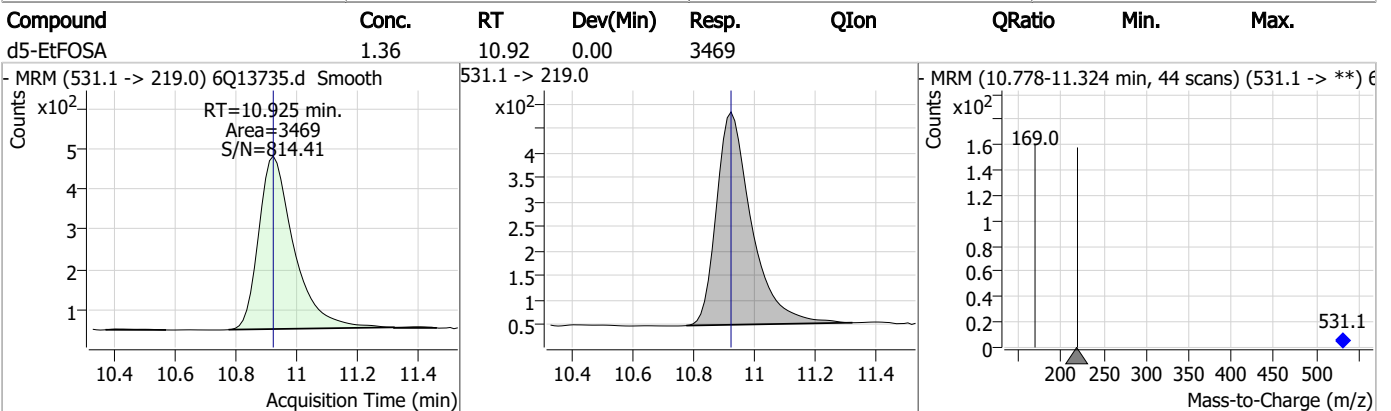
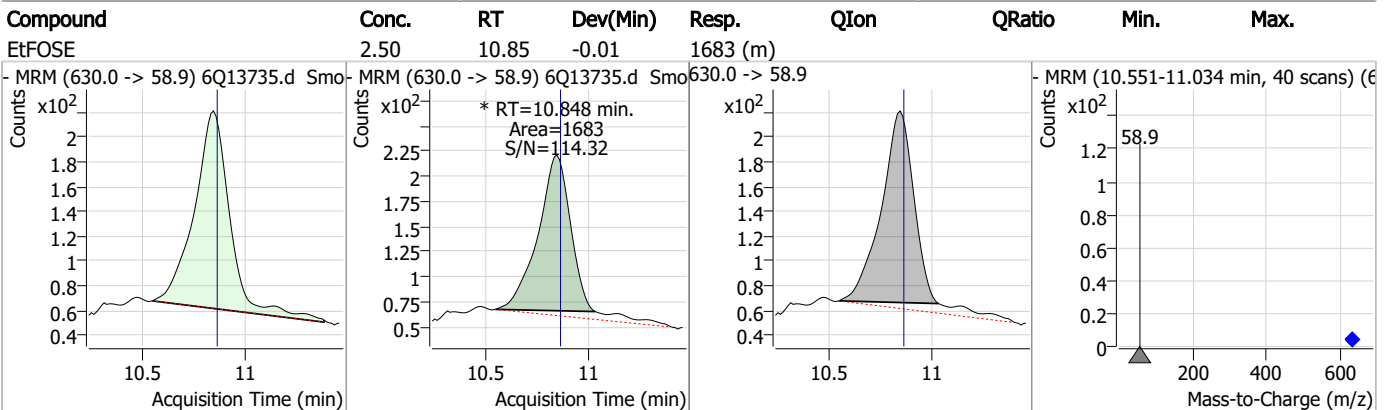
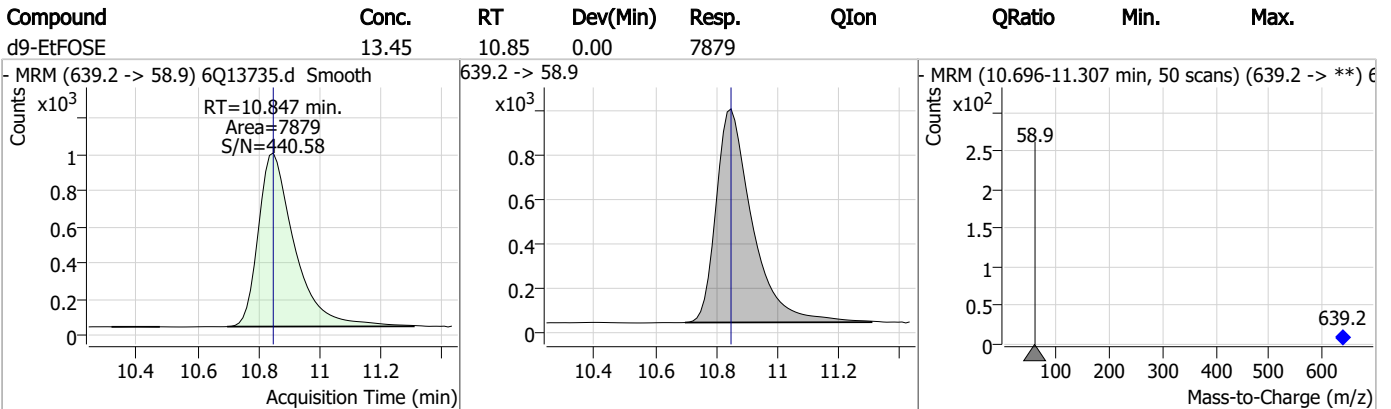
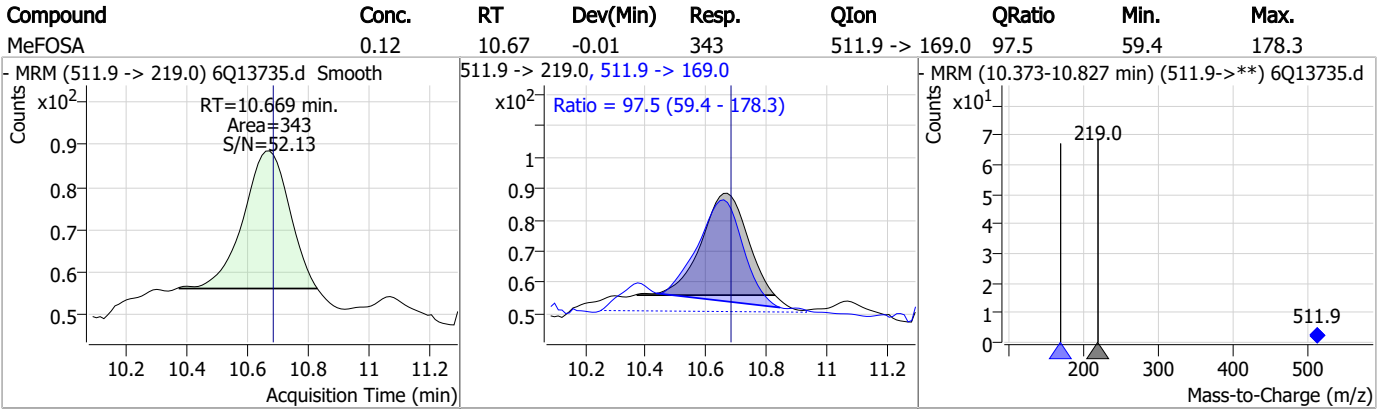
Perfluorinated Compounds by LC/MS/MS



7.2.2
7



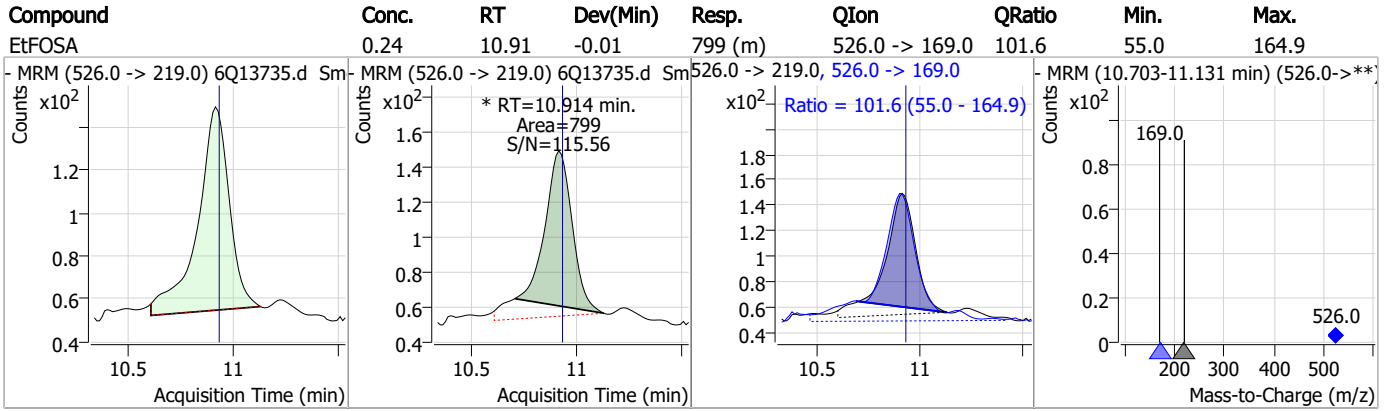
Perfluorinated Compounds by LC/MS/MS



7.2.2

7

Perfluorinated Compounds by LC/MS/MS



7.2.2

7

Manual Integration Approval Summary

Sample Number: S6Q208-IBLK Method: EPA DRAFT 1633
Lab FileID: 6Q13735.D Analyst approved: 02/18/23 11:42 Natasha Gumtie
Injection Time: 02/16/23 09:56 Supervisor approved: 02/18/23 12:01 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
EiFOSE	1691-99-2		10.85	Split peak
EiFOSA	4151-50-2		10.91	Split peak

7.2.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13740.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/16/2023 11:06:03 AM
 Sample Name : op95376-bs
 Vial : P6-A1
 DA Method File : 1633_021623_S6Q208NEW.quantmethod.xml
 Batch Name : s6q208.batch.bin
 Sample Information : OP95376,S6Q208,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.988	216.8 -> 171.9	16250	7.50 µg/L	0.012
M5-PFPeA	4.374	268.3 -> 223.0	39827	5.00 µg/L	-0.012
M5-PFHxA	5.538	318.0 -> 273.0	51972	3.75 µg/L	-0.025
M4-PFHpA	6.477	367.1 -> 322.0	53156	3.75 µg/L	-0.025
M8-PFOA	7.122	421.1 -> 376.0	91120	3.75 µg/L	-0.025
M9-PFNA	7.652	472.1 -> 427.0	48494	3.13 µg/L	-0.025
M6-PFDA	8.120	519.1 -> 474.1	37338	3.13 µg/L	-0.037
M7-PFUnDA	8.586	570.0 -> 525.1	44456	3.13 µg/L	-0.025
M2-PFDoDA	9.017	615.1 -> 570.0	51444	3.13 µg/L	-0.037
M2-PFTeDA	9.743	715.2 -> 670.0	26466	3.13 µg/L	-0.037
M8-FOSA	9.555	506.1 -> 77.8	22763	3.75 µg/L	-0.012
M3-PFBS	5.493	302.1 -> 79.9	19012	3.75 µg/L	-0.025
M3-PFHxS	7.237	402.1 -> 79.9	12599	3.75 µg/L	-0.037
M8-PFOS	8.295	507.1 -> 79.9	11308	3.75 µg/L	-0.038
M2-4:2FTS	5.215	329.1 -> 80.9	2548	5.00 µg/L	-0.025
M2-6:2FTS	6.895	429.1 -> 80.9	3198	5.00 µg/L	-0.012
M2-8:2FTS	7.907	529.1 -> 80.9	2831	5.00 µg/L	-0.037
M3-MeFOSAA	8.165	573.2 -> 419.0	28470	5.00 µg/L	-0.037
M3-HFPO-DA	5.915	286.9 -> 168.9	9399	5.00 µg/L	-0.025
M5-EtFOSAA	8.373	589.2 -> 419.0	25438	5.00 µg/L	-0.025
M7-MeFOSE	10.589	623.2 -> 58.9	12227	12.50 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	8352	12.50 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	3789	1.25 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	3575	1.25 µg/L	0.000
13C4-PFOS	8.296	502.8 -> 79.9	9210	2.50 µg/L	-0.038
13C3-PFBA	2.991	216.0 -> 172.0	34135	5.00 µg/L	0.012
18O2-PFHxS	7.248	403.0 -> 83.9	6428	2.50 µg/L	-0.025
13C4-PFOA	7.122	417.1 -> 372.0	69983	2.50 µg/L	-0.025
13C2-PFDA	8.120	515.1 -> 470.1	22532	1.25 µg/L	-0.037
13C5-PFNA	7.652	468.0 -> 423.0	22979	1.25 µg/L	-0.025
13C2-PFHxA	5.551	315.1 -> 270.0	32815	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.215	329.1 -> 80.9	2548	5.75 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.9%		
13C2-6:2FTS	6.895	429.1 -> 80.9	3198	5.49 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.7%		
13C2-8:2FTS	7.907	529.1 -> 80.9	2831	5.01 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C2-PFDoDA	9.017	615.1 -> 570.0	51444	2.90 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 92.7%		
13C2-PFTeDA	9.743	715.2 -> 670.0	26466	2.69 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 86.1%		
13C3-PFBS	5.493	302.1 -> 79.9	19012	3.58 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 95.5%		
13C3-PFHxS	7.237	402.1 -> 79.9	12599	3.52 µg/L	-0.037

7.31
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 3.75 13C4-PFBA	Range: 50.0 - 150.0% 2.988	216.8 -> 171.9	16250	Recovery = 93.9% 2.05 µg/L	0.012
Spiked Amount: 7.50 13C4-PFHpA	Range: 50.0 - 150.0% 6.477	367.1 -> 322.0	53156	Recovery = 27.4% 3.77 µg/L	-0.025
Spiked Amount: 3.75 13C5-PFHxA	Range: 50.0 - 150.0% 5.538	318.0 -> 273.0	51972	Recovery = 100.4% 3.73 µg/L	-0.025
Spiked Amount: 3.75 13C5-PFPeA	Range: 50.0 - 150.0% 4.374	268.3 -> 223.0	39827	Recovery = 99.6% 5.16 µg/L	-0.012
Spiked Amount: 5.00 13C6-PFDA	Range: 50.0 - 150.0% 8.120	519.1 -> 474.1	37338	Recovery = 103.2% 2.78 µg/L	-0.037
Spiked Amount: 3.13 13C7-PFUnDA	Range: 50.0 - 150.0% 8.586	570.0 -> 525.1	44456	Recovery = 88.9% 2.82 µg/L	-0.025
Spiked Amount: 3.13 13C8-FOSA	Range: 50.0 - 150.0% 9.555	506.1 -> 77.8	22763	Recovery = 90.3% 3.69 µg/L	-0.012
Spiked Amount: 3.75 13C8-PFOA	Range: 50.0 - 150.0% 7.122	421.1 -> 376.0	91120	Recovery = 98.5% 3.81 µg/L	-0.025
Spiked Amount: 3.75 13C8-PFOS	Range: 50.0 - 150.0% 8.295	507.1 -> 79.9	11308	Recovery = 101.6% 3.64 µg/L	-0.038
Spiked Amount: 3.75 13C9-PFNA	Range: 50.0 - 150.0% 7.652	472.1 -> 427.0	48494	Recovery = 97.1% 2.78 µg/L	-0.025
Spiked Amount: 3.13 d3-MeFOSAA	Range: 50.0 - 150.0% 8.165	573.2 -> 419.0	28470	Recovery = 89.1% 5.17 µg/L	-0.037
Spiked Amount: 5.00 13C3-HFPO-DA	Range: 50.0 - 150.0% 5.915	286.9 -> 168.9	9399	Recovery = 103.4% 6.35 µg/L	-0.025
Spiked Amount: 5.00 d3-MeFOSA	Range: 50.0 - 150.0% 10.680	515.0 -> 219.0	3575	Recovery = 126.9% 1.39 µg/L	0.000
Spiked Amount: 1.25 d5-EtFOSAA	Range: 50.0 - 150.0% 8.373	589.2 -> 419.0	25438	Recovery = 111.1% 5.51 µg/L	-0.025
Spiked Amount: 5.00 d7-MeFOSE	Range: 50.0 - 150.0% 10.589	623.2 -> 58.9	12227	Recovery = 110.2% 13.61 µg/L	0.000
Spiked Amount: 12.50 d9-EtFOSE	Range: 50.0 - 150.0% 10.847	639.2 -> 58.9	8352	Recovery = 108.9% 13.15 µg/L	0.000
Spiked Amount: 12.50 d5-EtFOSA	Range: 50.0 - 150.0% 10.925	531.1 -> 219.0	3789	Recovery = 105.2% 1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.3%	
Target Compounds					QValue
4:2FTS	5.215	327.1 -> 307.0 327.1 -> 80.9	51492 11485	8.68 µg/L	100
6:2FTS	6.883	427.1 -> 407.0 427.1 -> 80.9	43876 8602	8.98 µg/L	99
8:2FTS	7.908	527.1 -> 507.0 527.1 -> 80.8	20753 5299	9.14 µg/L	96
EtFOSAA	8.374	584.2 -> 419.1 584.2 -> 526.0	8726 4648	2.03 µg/L	m 97
FOSA	9.557	498.1 -> 77.9 498.1 -> 478.0	16008 476	2.68 µg/L	97
MeFOSAA	8.179	570.1 -> 419.0 570.1 -> 483.0	13944 2089	2.58 µg/L	92
PFBA	2.994	212.8 -> 168.9	4656	8.78 µg/L	100
PFBS	5.494	298.7 -> 79.9 298.7 -> 98.8	11668 5337	2.21 µg/L	95
PFDA	8.121	512.9 -> 469.0 512.9 -> 219.0	49837 6458	2.76 µg/L	99
PFDoDA	9.017	613.1 -> 569.0 613.1 -> 319.0	39788 4805	2.47 µg/L	99
PFDS	9.179	599.0 -> 79.9	6015	2.54 µg/L	97

7.3.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.477	599.0 -> 98.8	3058	2.41	µg/L	99
		363.1 -> 319.0	51774			
PFHpS	7.804	363.1 -> 169.0	6844	2.44	µg/L	93
		449.0 -> 79.9	8103			
PFHxA	5.541	449.0 -> 98.9	4847	2.50	µg/L	99
		313.0 -> 269.0	34934			
PFHxS	7.238	313.0 -> 118.9	1215	2.29	µg/L	98
		398.7 -> 79.9	8791			
PFNA	7.653	398.7 -> 98.9	4930	2.73	µg/L	98
		463.0 -> 419.0	34942			
PFNS	8.762	463.0 -> 219.0	6860	2.44	µg/L	96
		548.8 -> 79.9	8293			
PFOA	7.123	548.8 -> 98.9	4705	2.46	µg/L	100
		413.0 -> 369.0	72657			
PFOS	8.296	413.0 -> 169.0	9478	2.31	µg/L	98
		498.9 -> 79.9	8189			
PFPeA	4.375	498.9 -> 98.8	5171	4.68	µg/L	100
		263.0 -> 219.0	41503			
PFPeS	6.543	349.1 -> 79.9	10426	2.33	µg/L	99
		349.1 -> 98.9	5629			
PFTeDA	9.744	713.1 -> 669.0	31216	2.50	µg/L	99
		713.1 -> 168.9	2027			
PFTrDA	9.399	663.0 -> 619.0	38696	2.60	µg/L	98
		663.0 -> 168.9	2686			
PFUnDA	8.575	563.1 -> 519.0	40955	2.82	µg/L	97
		563.1 -> 269.1	5390			
11CI-PF3OUdS	9.452	630.9 -> 450.9	84023	6.90	µg/L	98
		632.9 -> 452.9	26707			
9CI-PF3ONS	8.626	530.8 -> 351.0	152247	7.05	µg/L	99
		532.8 -> 353.0	45456			
ADONA	6.728	376.9 -> 250.9	296487	7.24	µg/L	98
		376.9 -> 84.8	65158			
HFPO-DA	5.916	284.9 -> 168.9	13242	7.17	µg/L	96
		284.9 -> 184.9	1674			
3:3FTCA	3.866	241.0 -> 177.0	4170	9.32	µg/L	94
		241.0 -> 117.0	634			
5:3FTCA	6.193	341.0 -> 237.1	177403	62.02	µg/L	95
		341.0 -> 217.0	149438			
7:3FTCA	7.592	441.0 -> 316.9	93438	62.08	µg/L	95
		441.0 -> 336.9	181505			
EtFOSA	10.927	526.0 -> 219.0	7279	2.02	µg/L	84
		526.0 -> 169.0	6796			
EtFOSE	10.860	630.0 -> 58.9	15862	22.27	µg/L	100
		511.9 -> 219.0	6413			
MeFOSA	10.681	511.9 -> 169.0	6315	2.04	µg/L	82
		616.1 -> 58.9	21650			
MeFOSE	10.602	699.1 -> 79.9	3226	21.31	µg/L	100
		699.1 -> 98.8	2206			
PFDoDS	9.883	295.0 -> 201.0	4289	2.19	µg/L	98
		295.0 -> 84.9	2121			
NFDHA	5.432	279.0 -> 85.1	12860	5.05	µg/L	97
		229.0 -> 84.9	6418			
PFMBA	4.775	314.8 -> 134.9	88118	4.91	µg/L	100
		314.8 -> 82.9	2060			
PFMPA	3.541			2.71	µg/L	100
PFEESA	6.021			4.65	µg/L	100

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

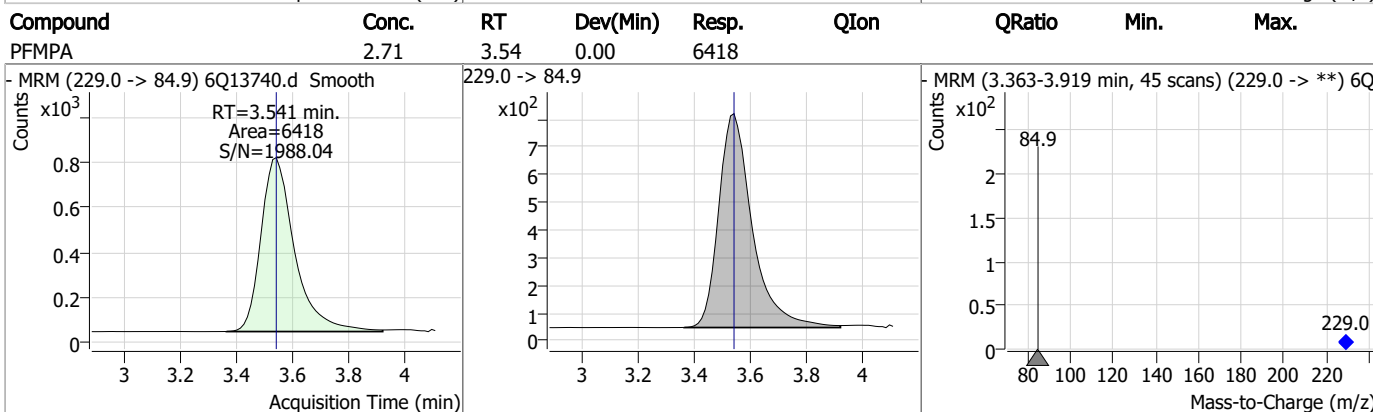
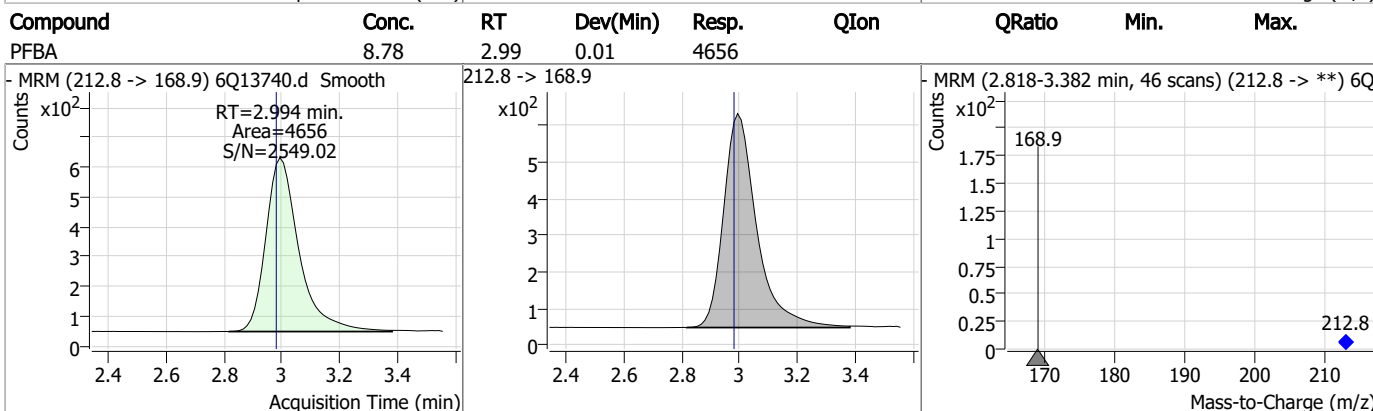
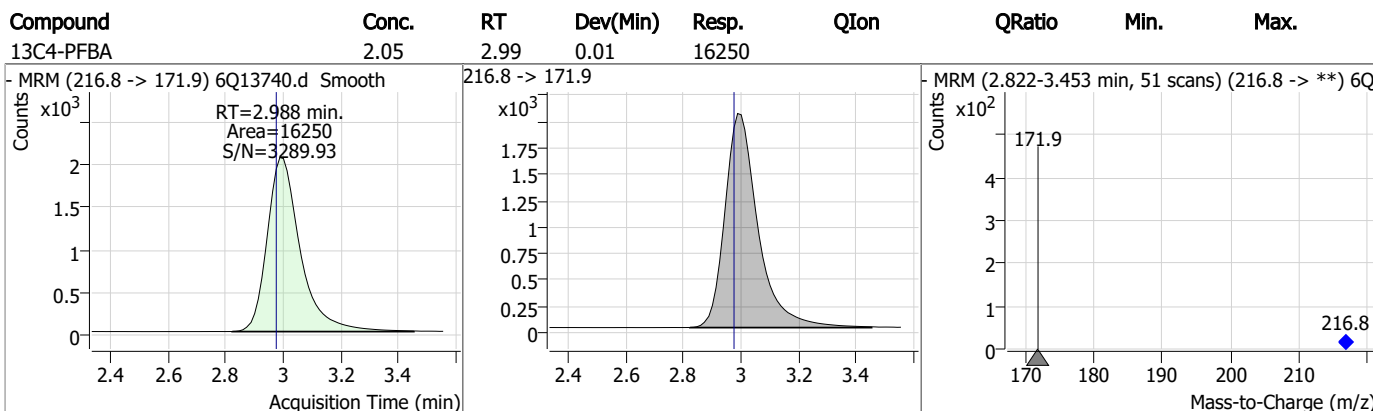
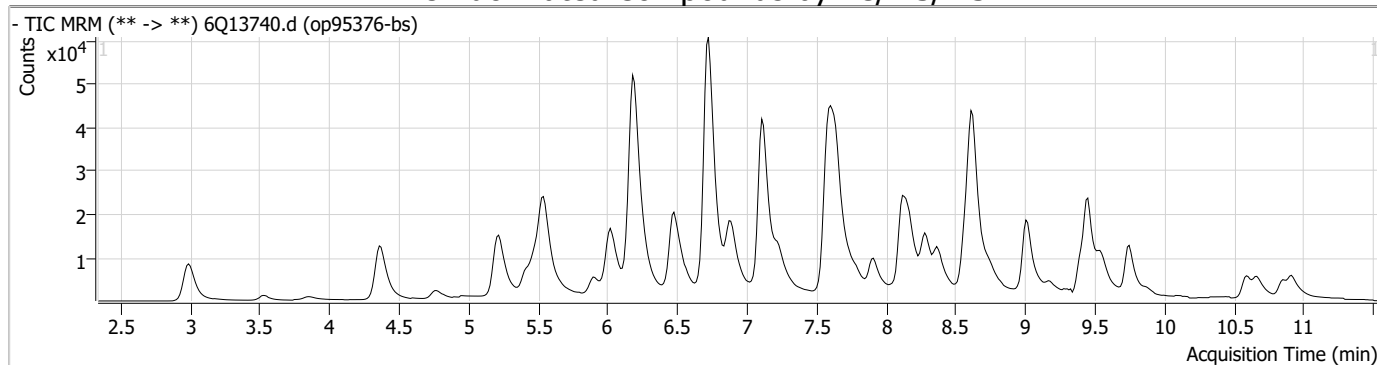
Perfluorinated Compounds by LC/MS/MS

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

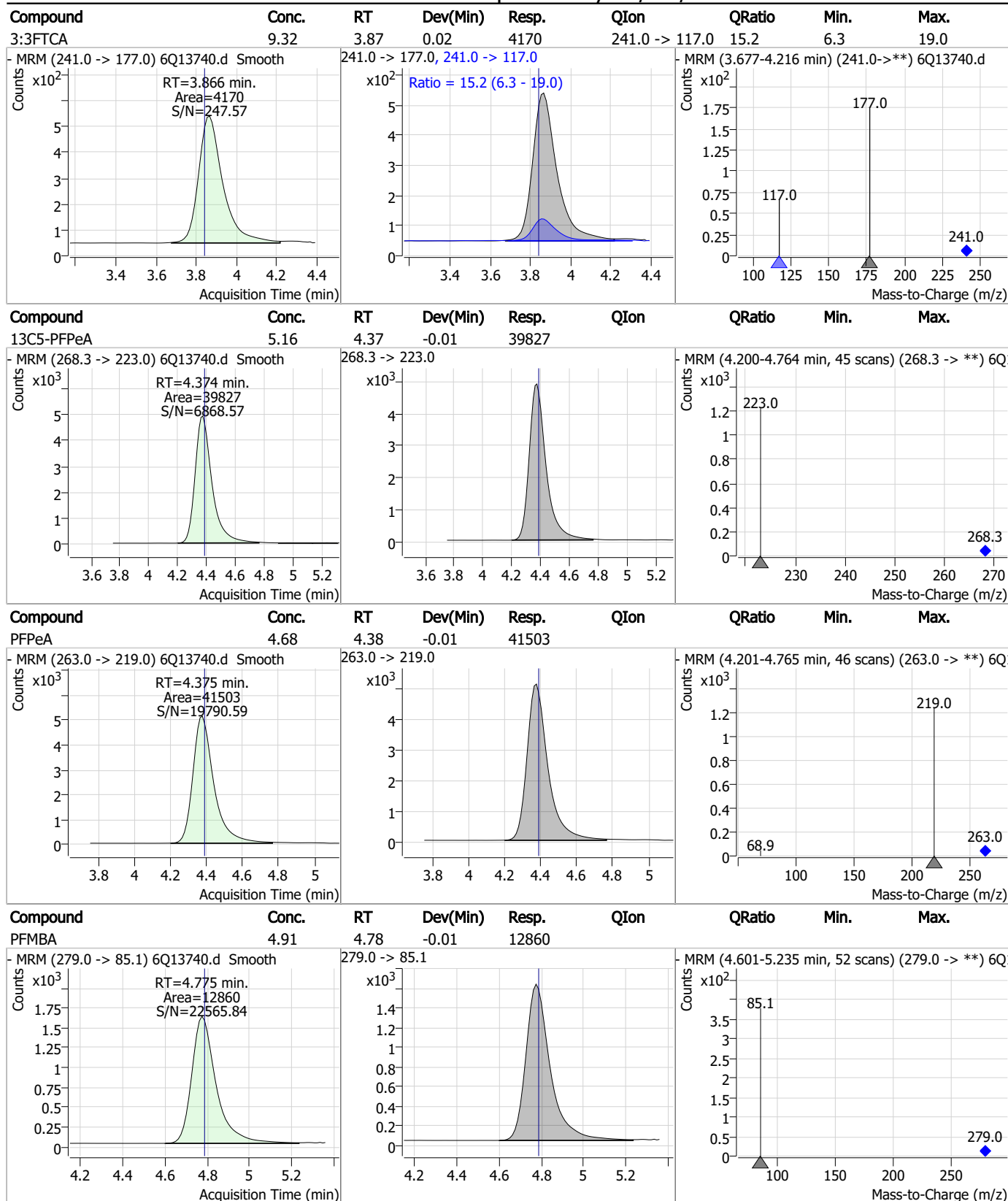
7.3.1

7

Perfluorinated Compounds by LC/MS/MS



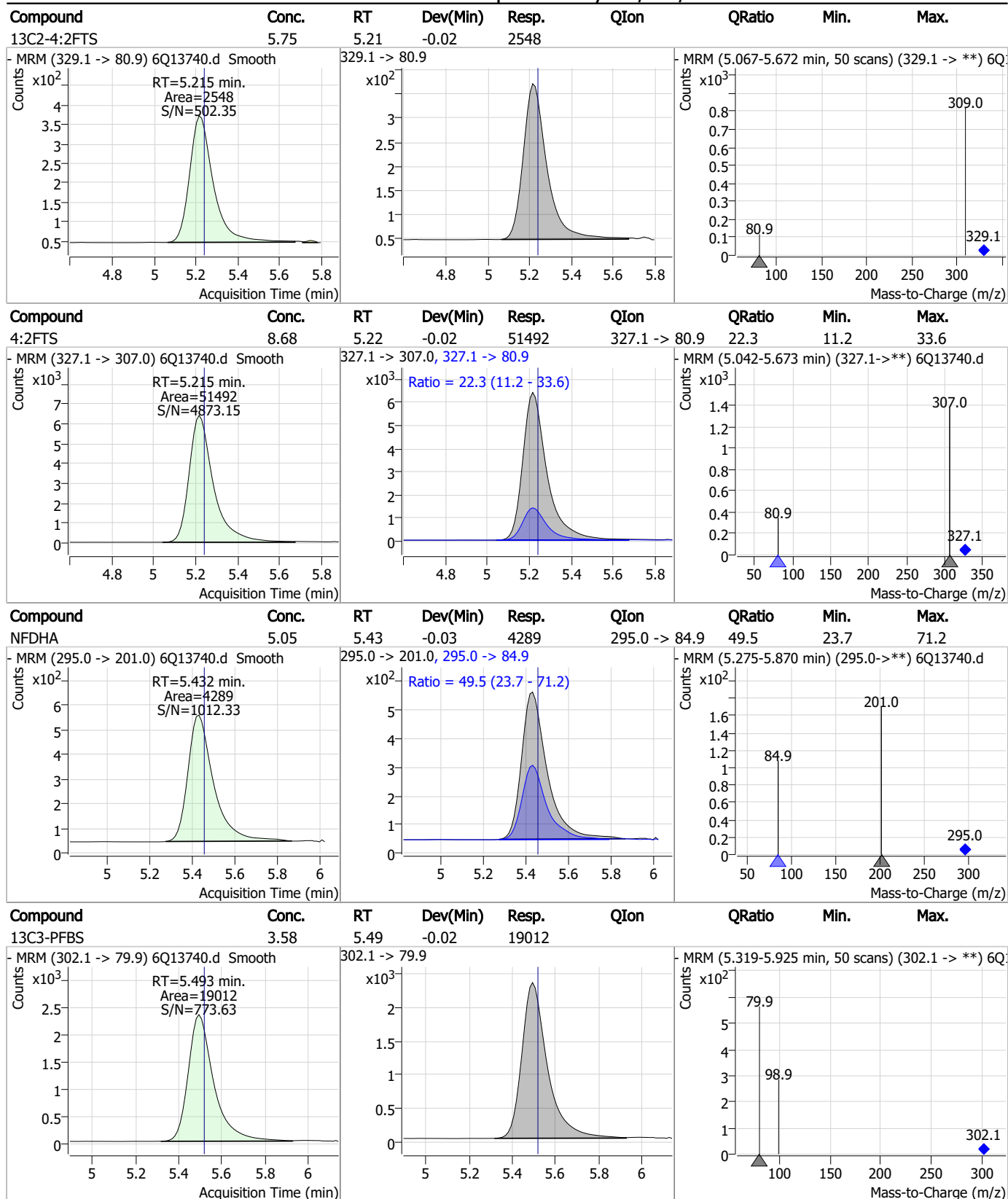
Perfluorinated Compounds by LC/MS/MS



7.3.1
7



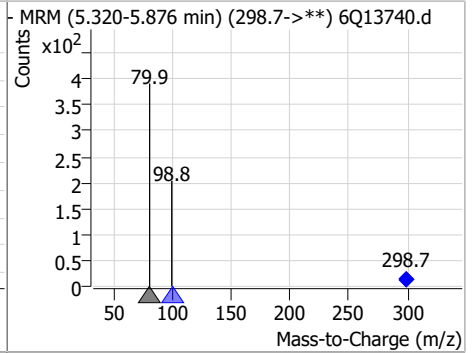
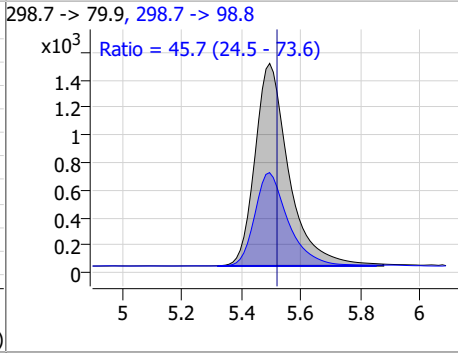
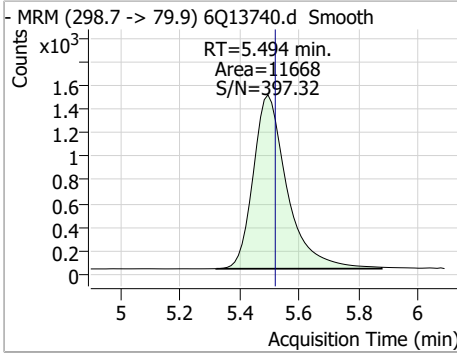
Perfluorinated Compounds by LC/MS/MS



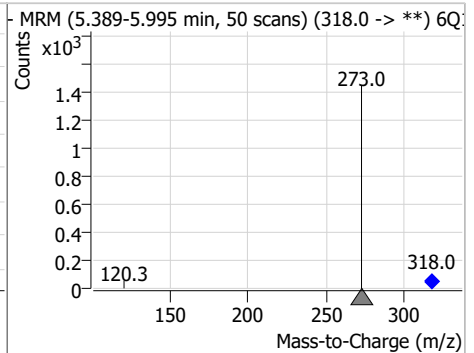
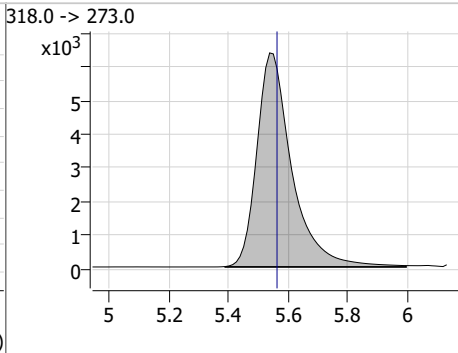
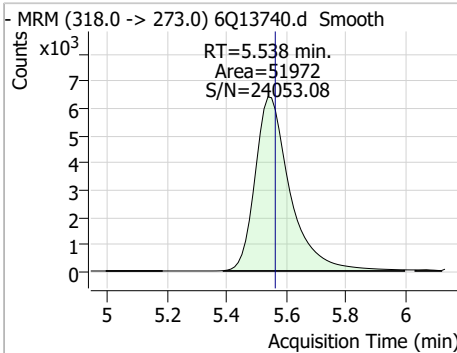
7.3.1
7

Perfluorinated Compounds by LC/MS/MS

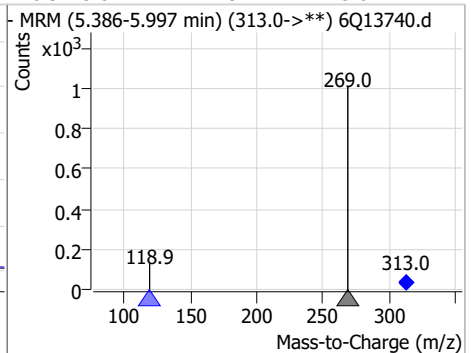
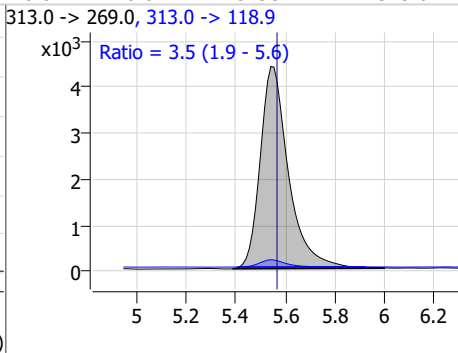
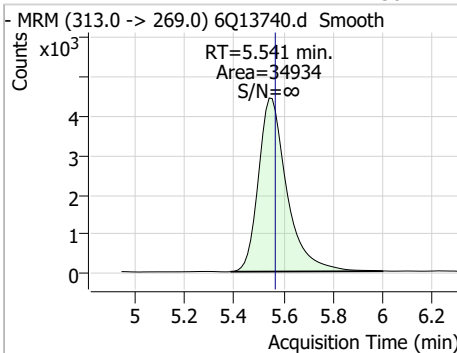
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.21	5.49	-0.02	11668	298.7 -> 98.8	45.7	24.5	73.6



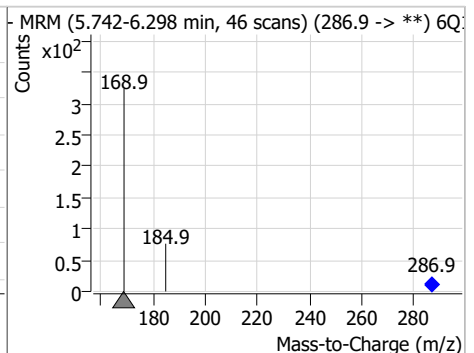
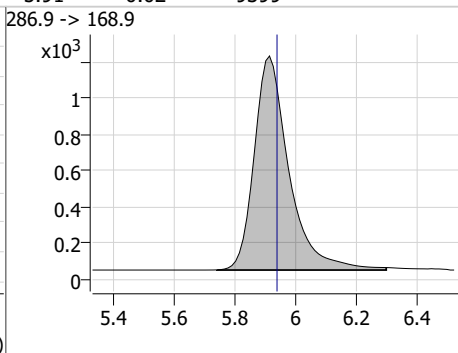
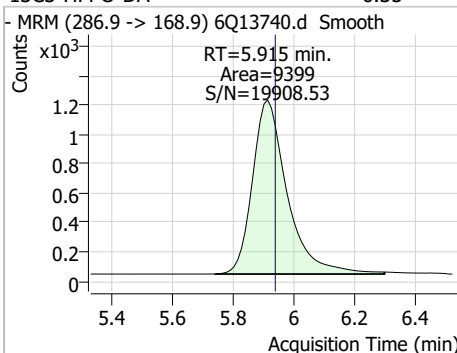
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	3.73	5.54	-0.02	51972				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.50	5.54	-0.02	34934	313.0 -> 118.9	3.5	1.9	5.6

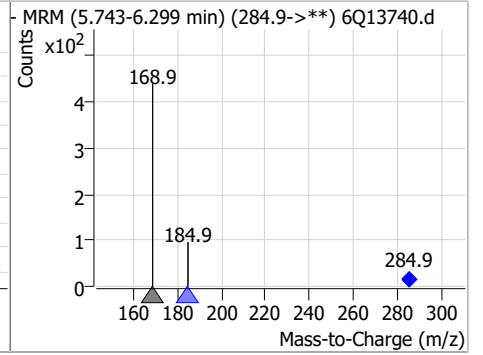
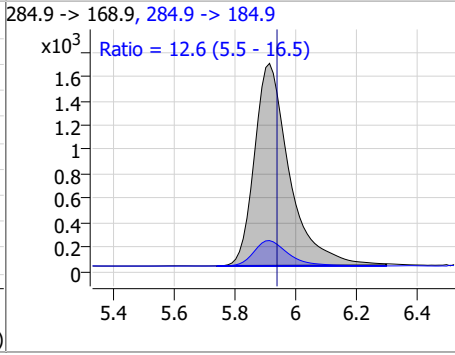
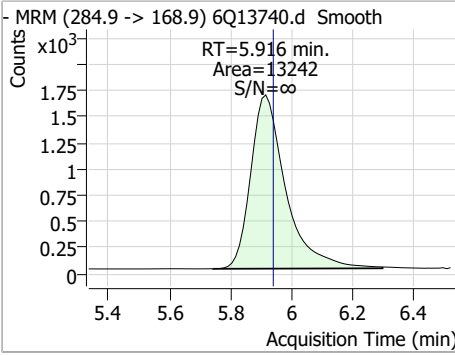


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	6.35	5.91	-0.02	9399				

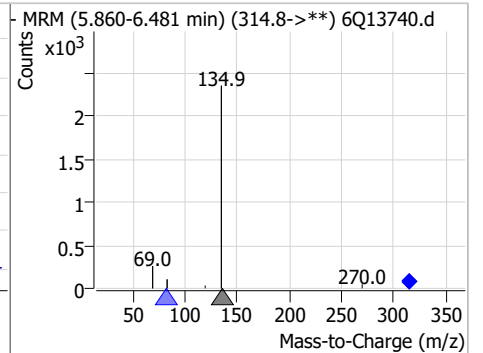
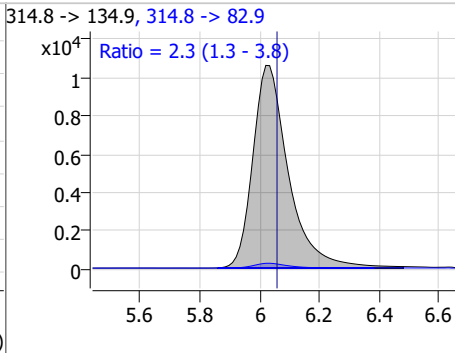
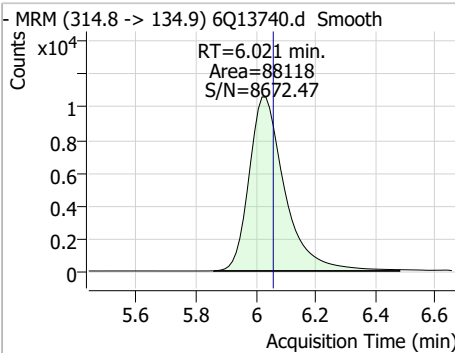


Perfluorinated Compounds by LC/MS/MS

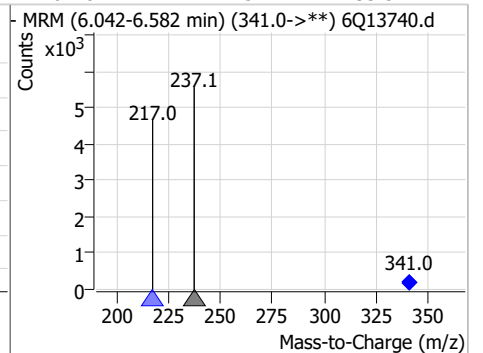
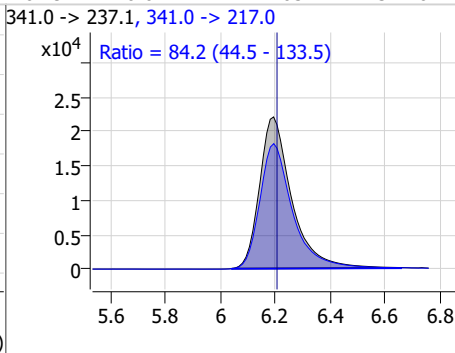
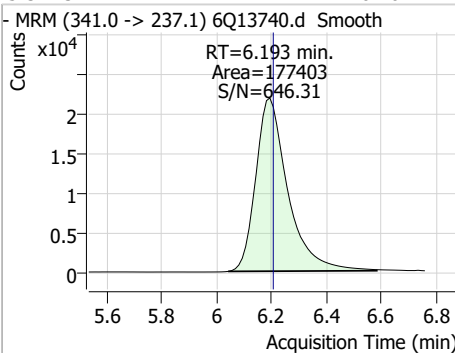
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	7.17	5.92	-0.02	13242	284.9 -> 184.9	12.6	5.5	16.5



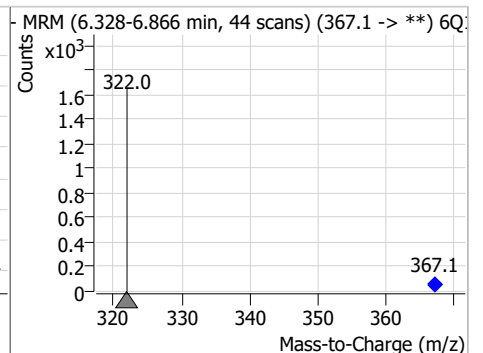
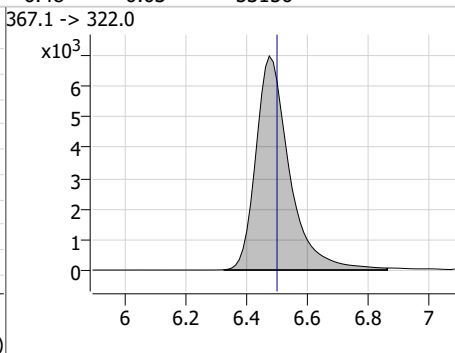
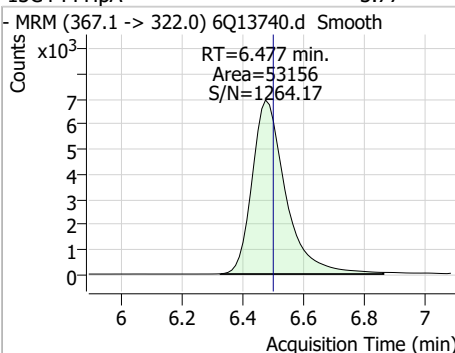
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.65	6.02	-0.04	88118	314.8 -> 82.9	2.3	1.3	3.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	62.02	6.19	-0.01	177403	341.0 -> 217.0	84.2	44.5	133.5

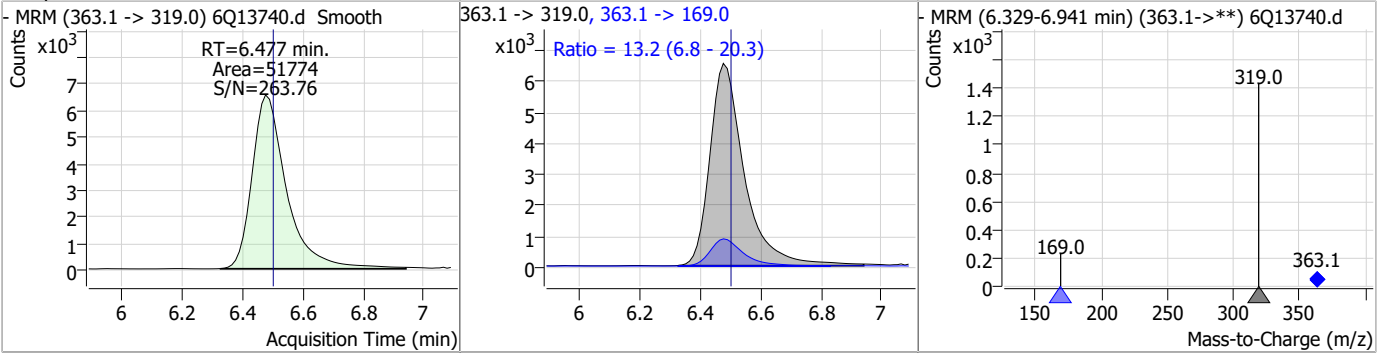


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	3.77	6.48	-0.03	53156	367.1 -> 322.0			

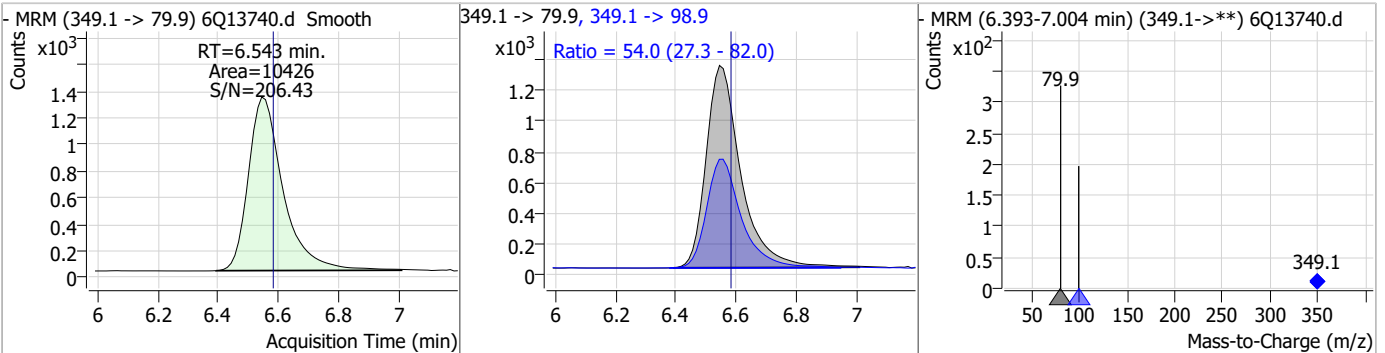


Perfluorinated Compounds by LC/MS/MS

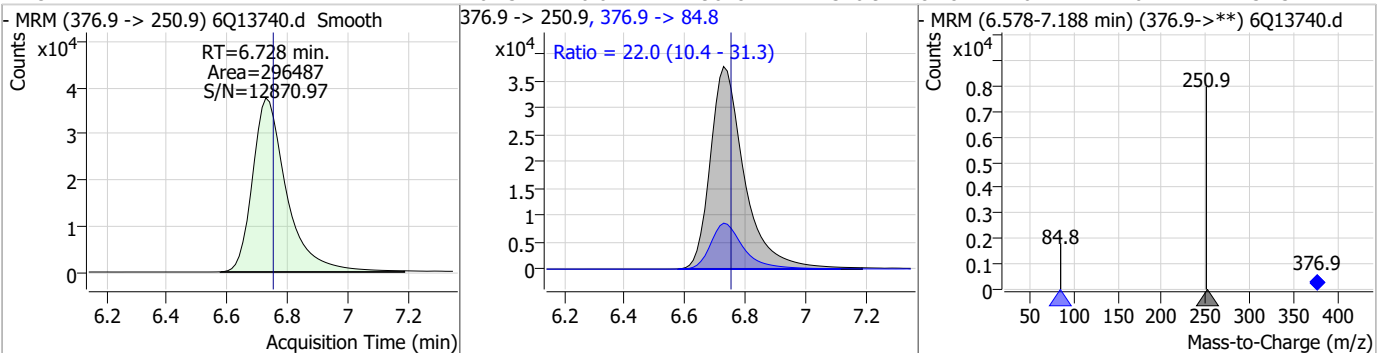
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.41	6.48	-0.03	51774	363.1 -> 169.0	13.2	6.8	20.3



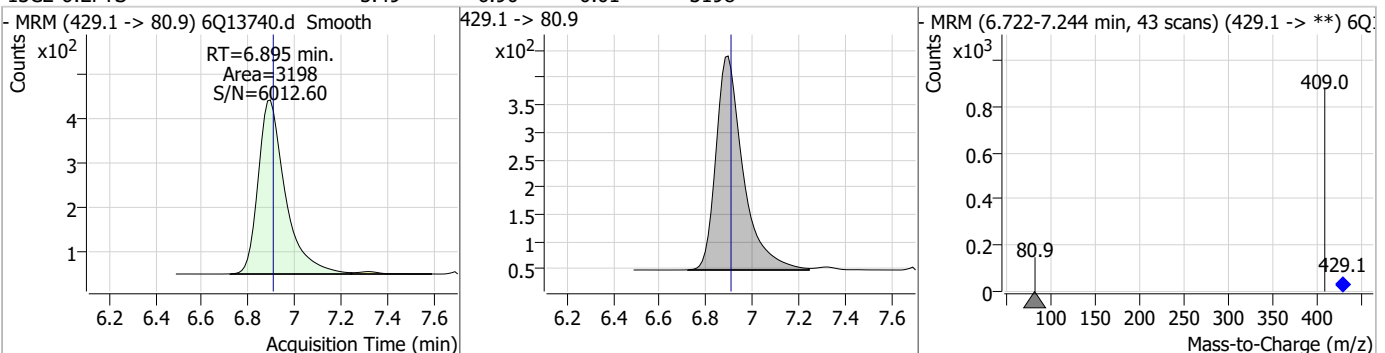
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.33	6.54	-0.04	10426	349.1 -> 98.9	54.0	27.3	82.0



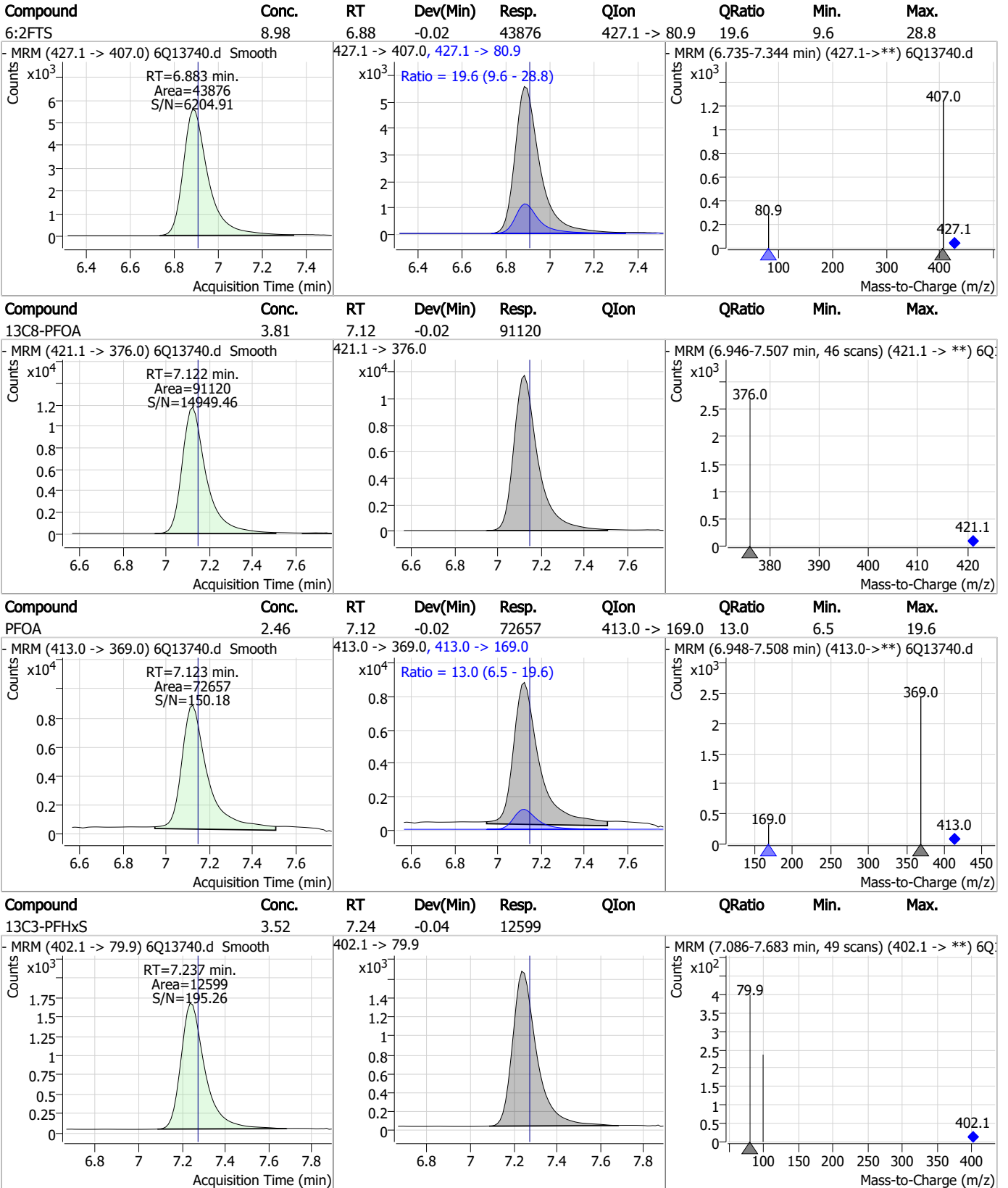
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	7.24	6.73	-0.02	296487	376.9 -> 84.8	22.0	10.4	31.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.49	6.90	-0.01	3198	429.1 -> 80.9			



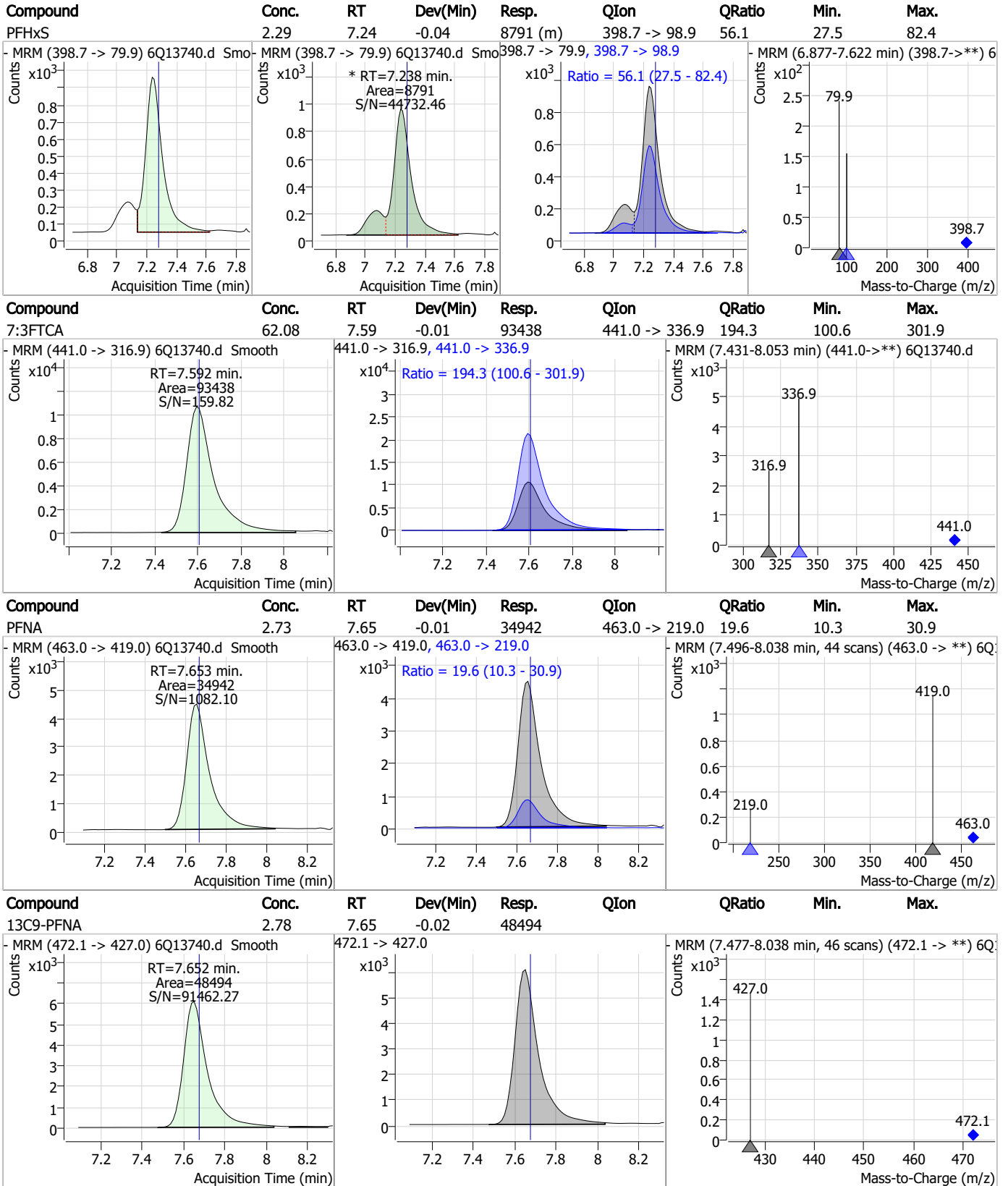
Perfluorinated Compounds by LC/MS/MS



7.3.1

7

Perfluorinated Compounds by LC/MS/MS



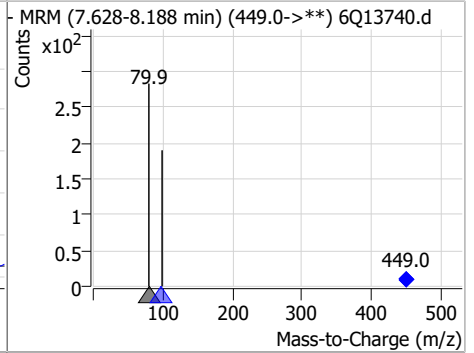
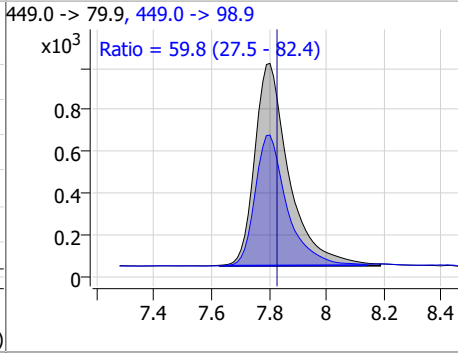
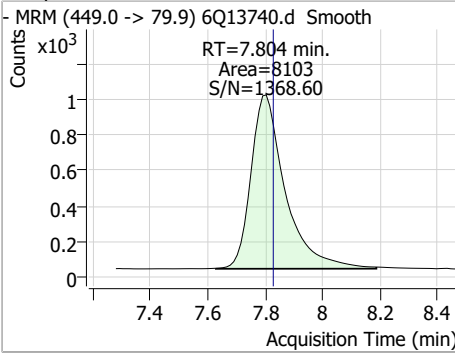
7.3.1

7

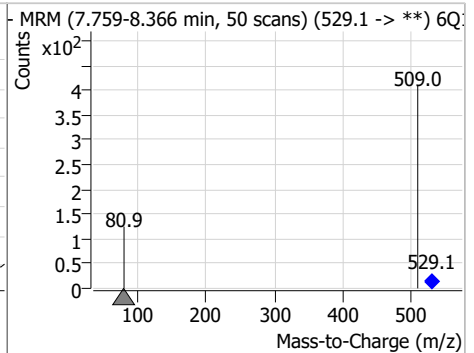
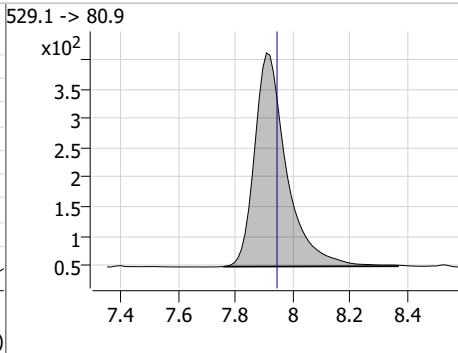
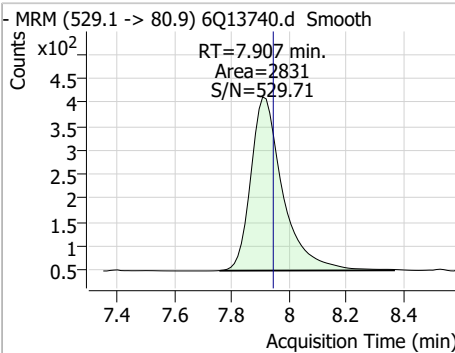


Perfluorinated Compounds by LC/MS/MS

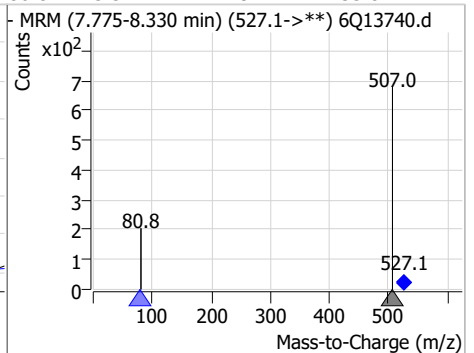
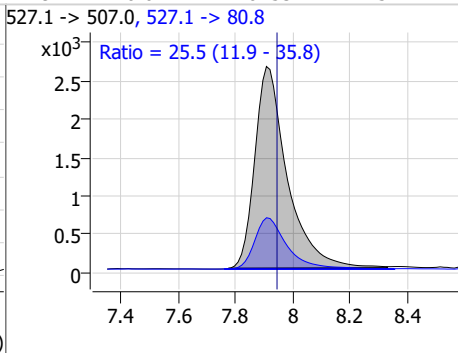
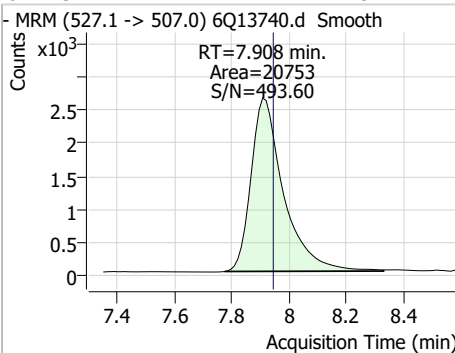
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.44	7.80	-0.02	8103	449.0 -> 98.9	59.8	27.5	82.4



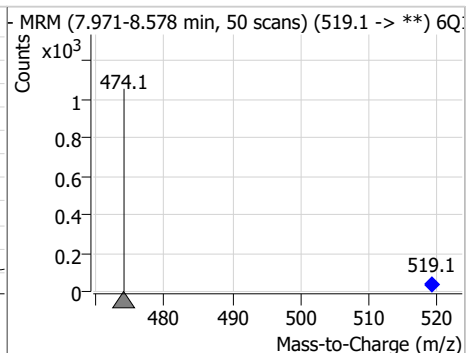
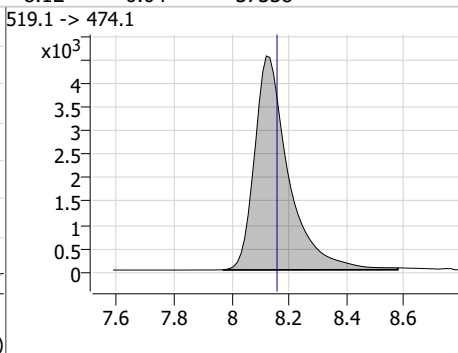
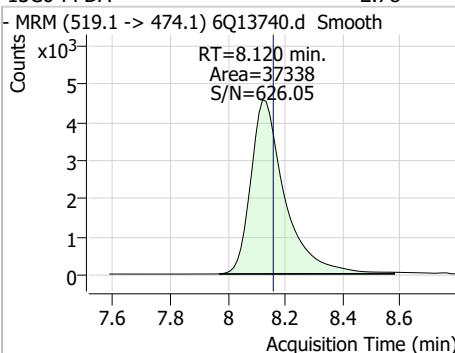
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.01	7.91	-0.04	2831	529.1 -> 80.9			



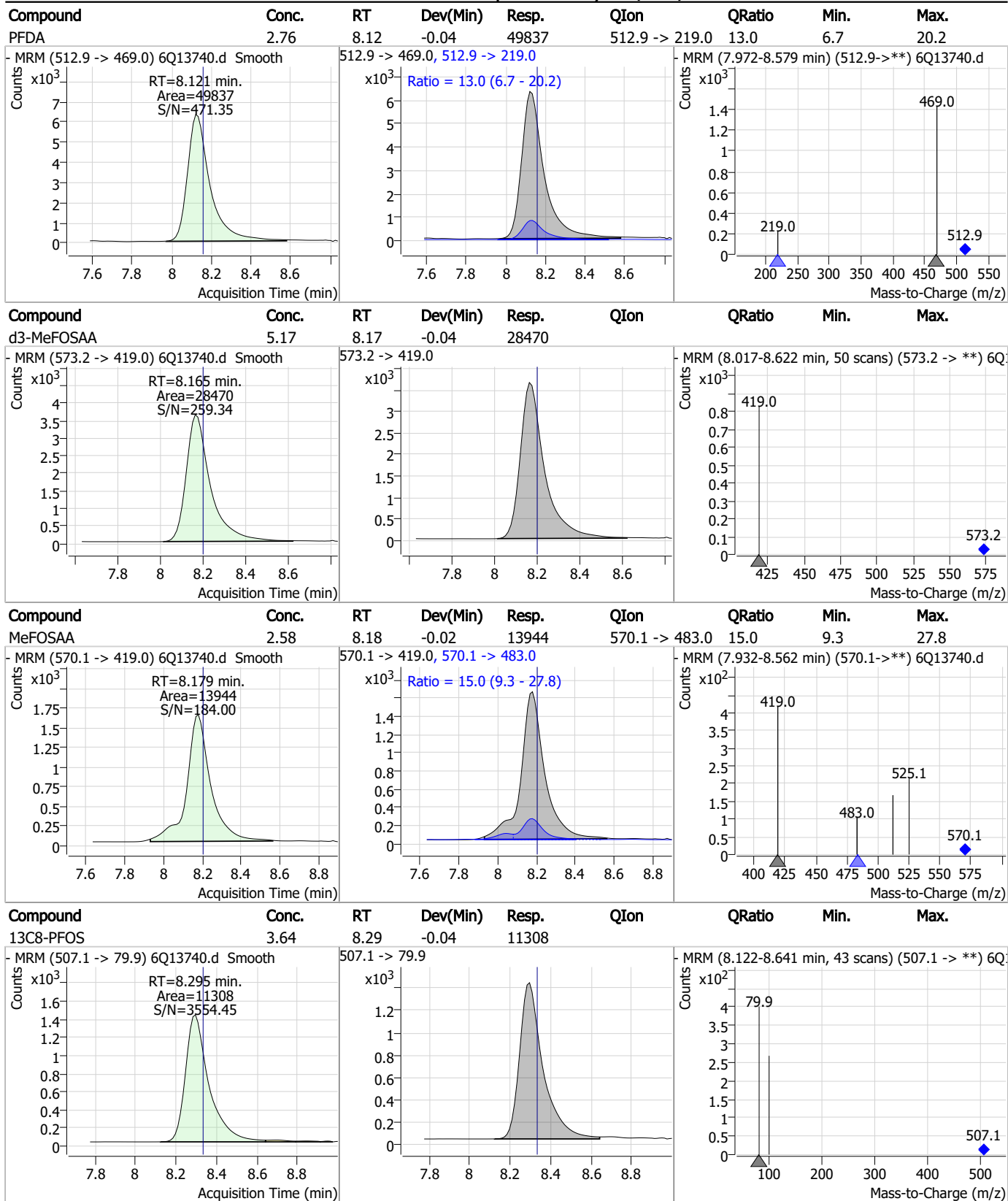
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	9.14	7.91	-0.04	20753	527.1 -> 80.8	25.5	11.9	35.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	2.78	8.12	-0.04	37338	519.1 -> 474.1			

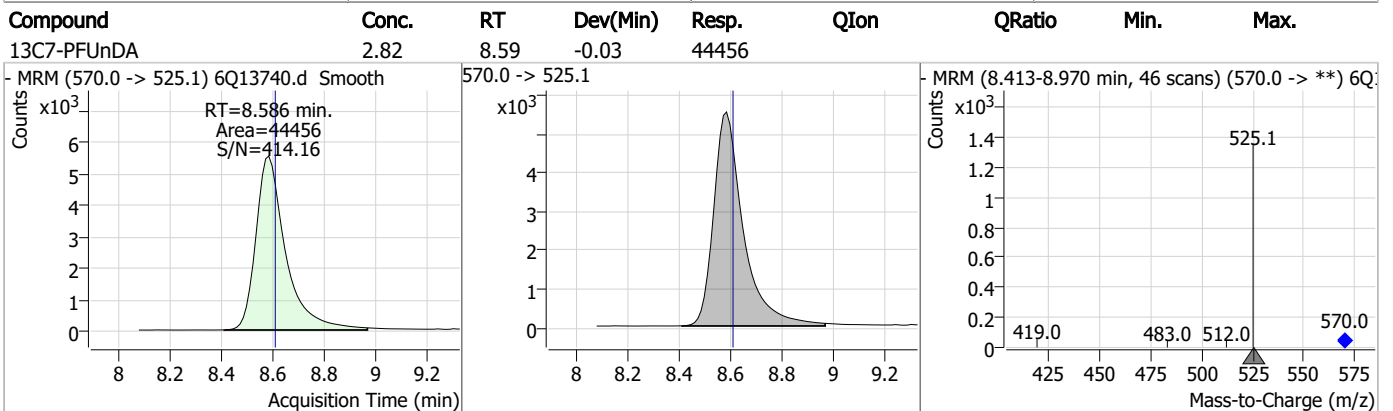
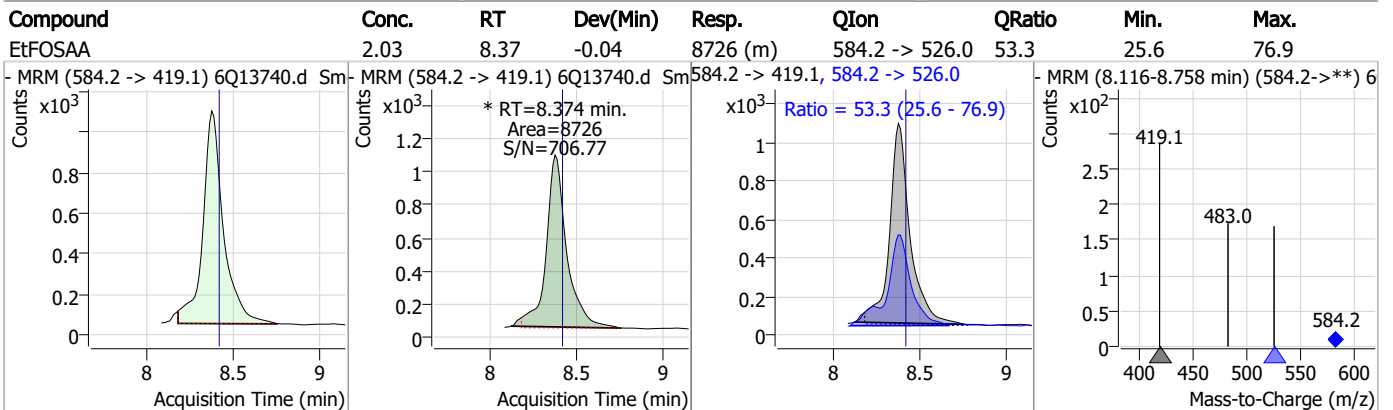
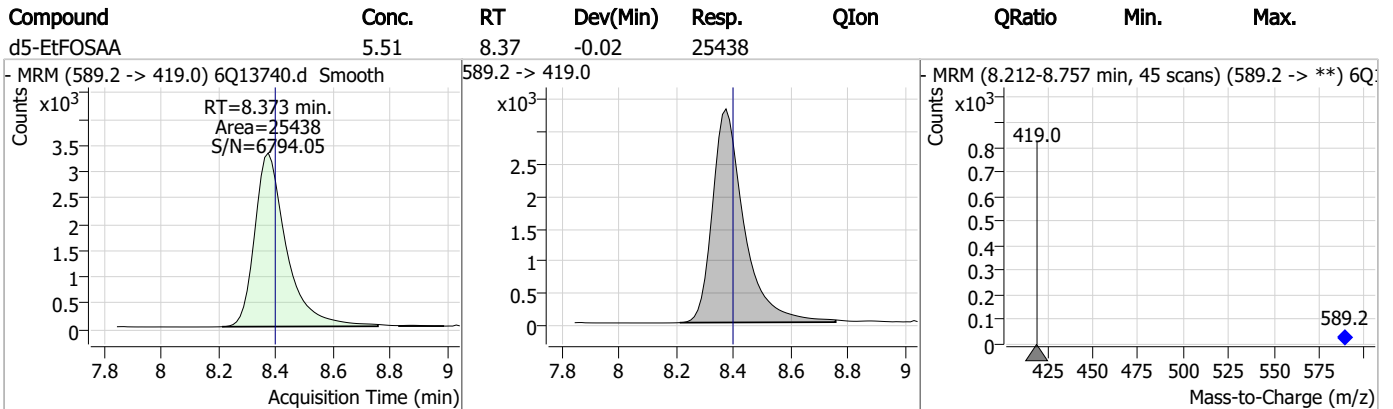
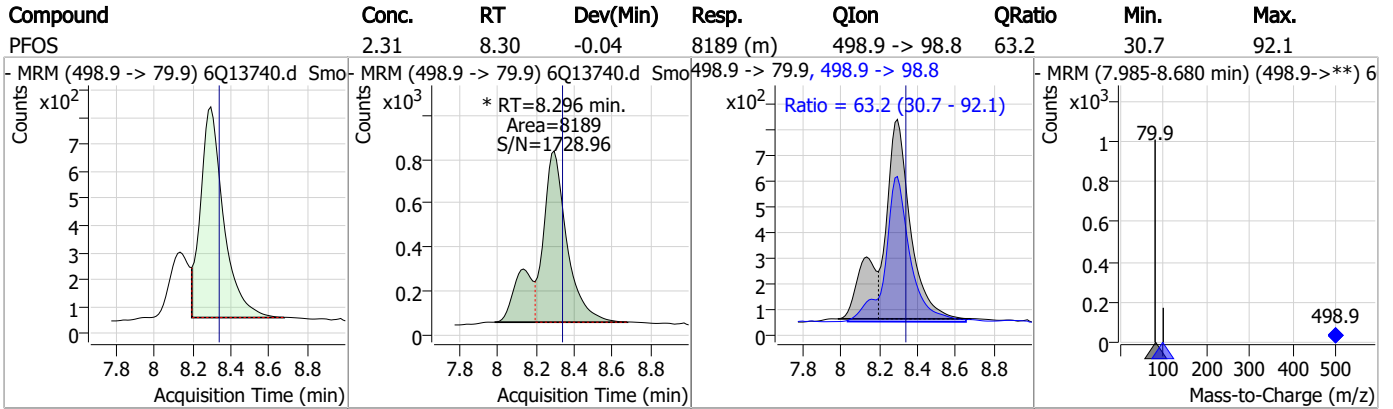


Perfluorinated Compounds by LC/MS/MS

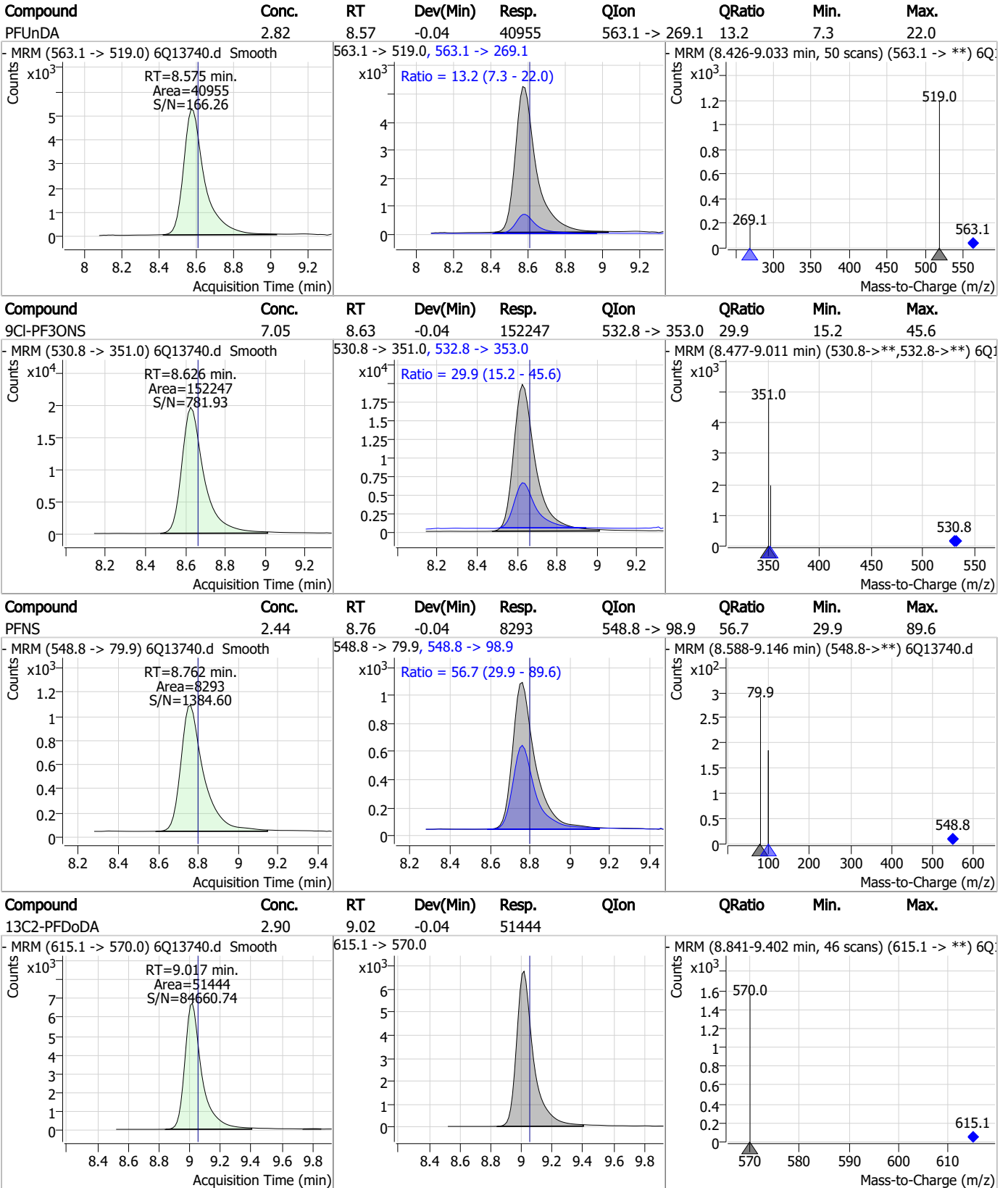


7.3.1
7

Perfluorinated Compounds by LC/MS/MS



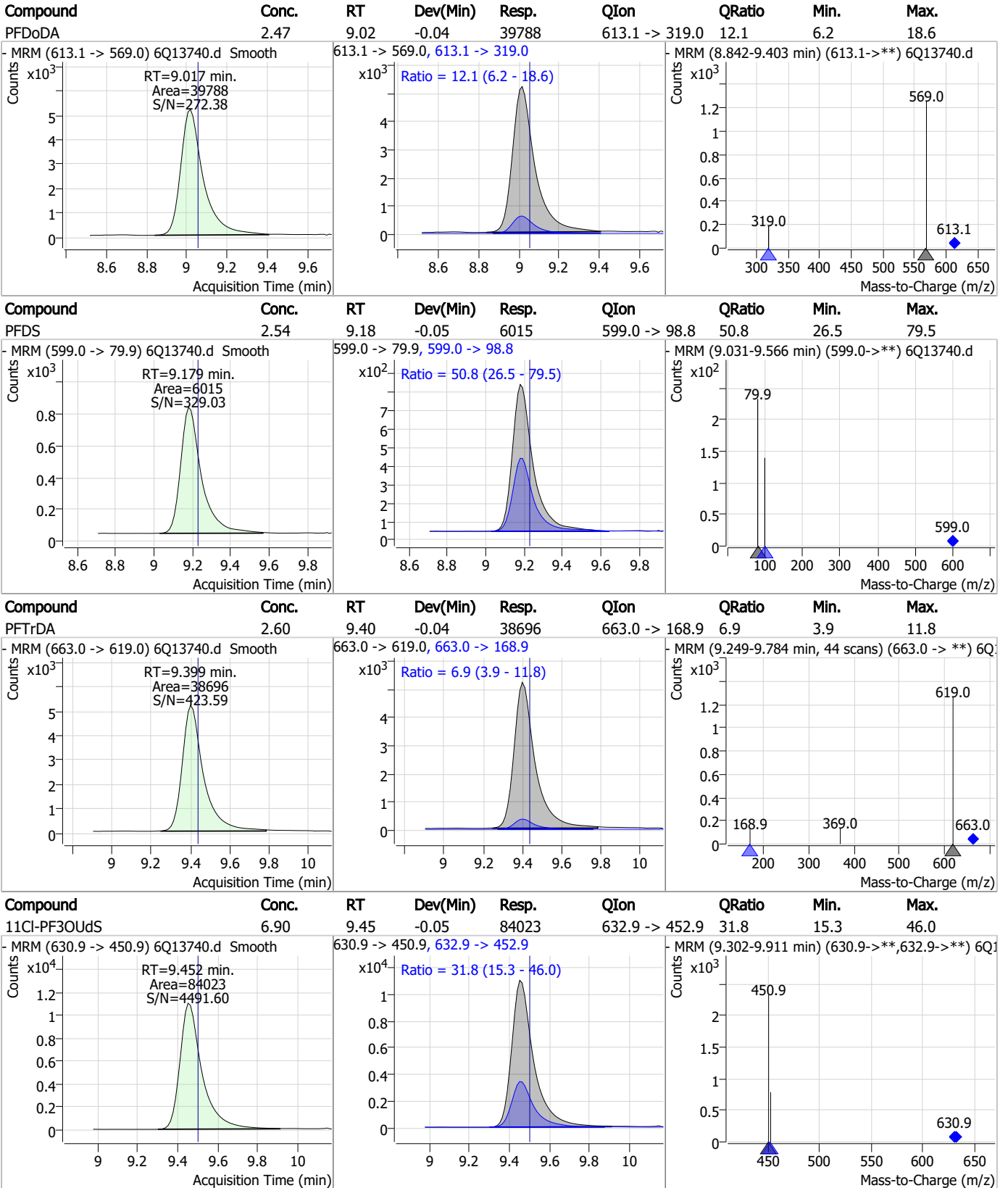
Perfluorinated Compounds by LC/MS/MS



7.3.1

7

Perfluorinated Compounds by LC/MS/MS



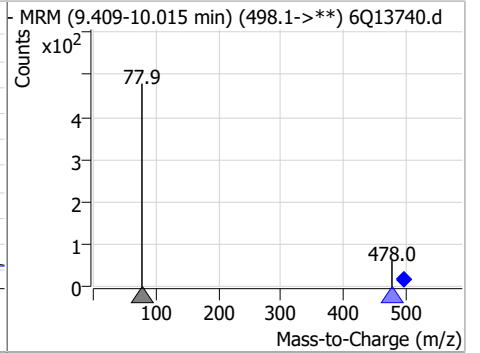
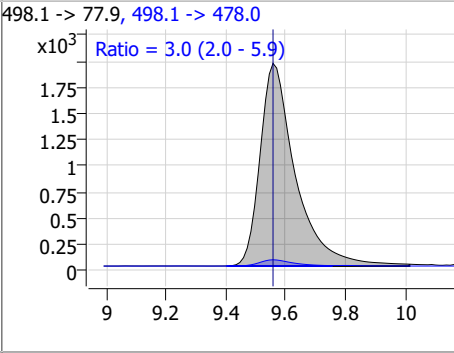
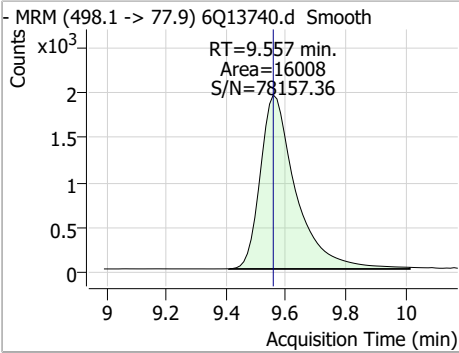
7.3.1

7

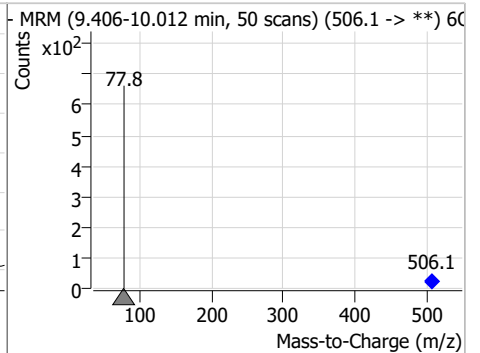
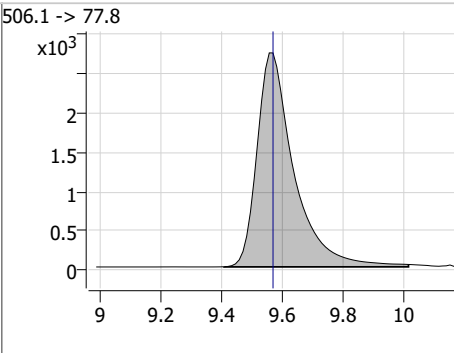
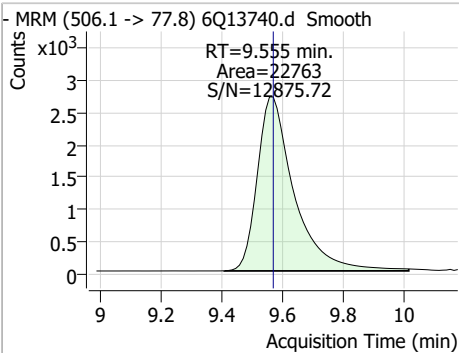


Perfluorinated Compounds by LC/MS/MS

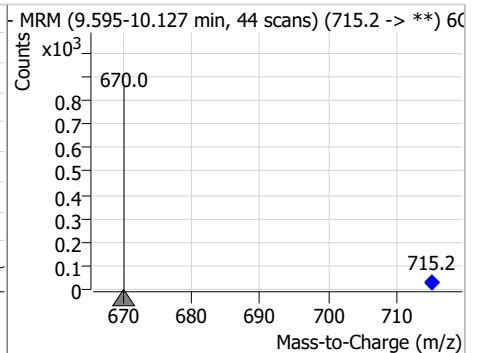
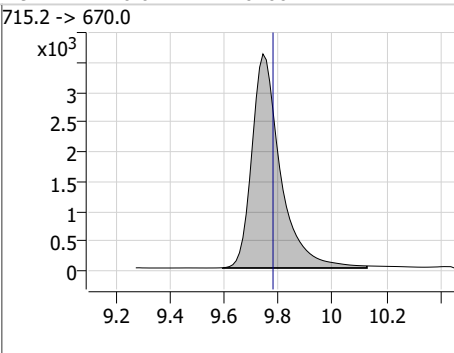
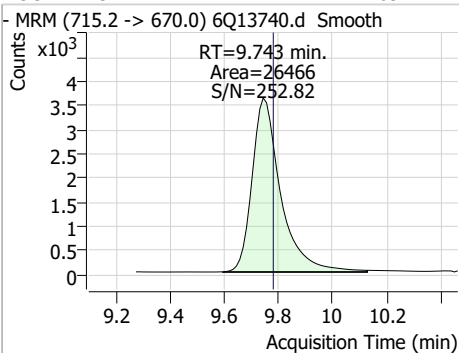
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.68	9.56	0.00	16008	498.1 -> 478.0	3.0	2.0	5.9



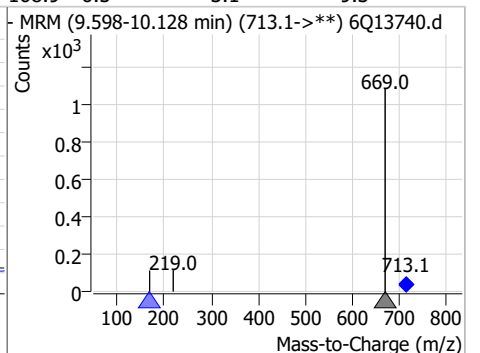
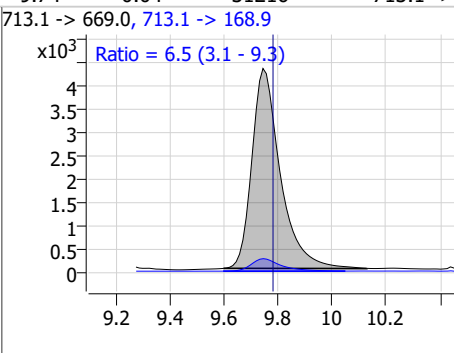
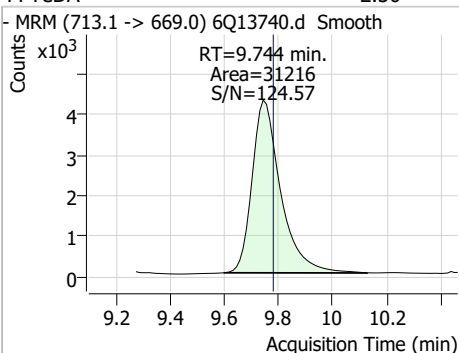
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	3.69	9.55	-0.01	22763				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	2.69	9.74	-0.04	26466				

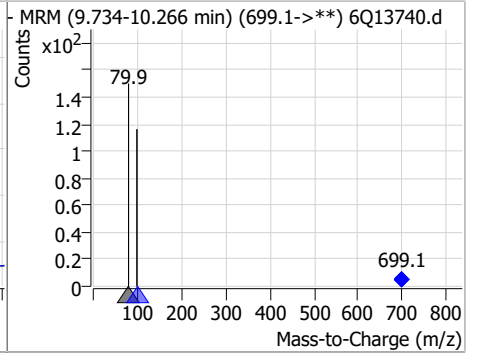
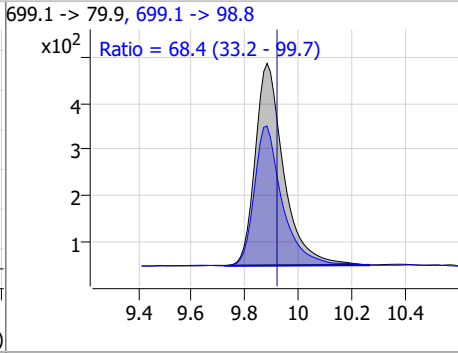
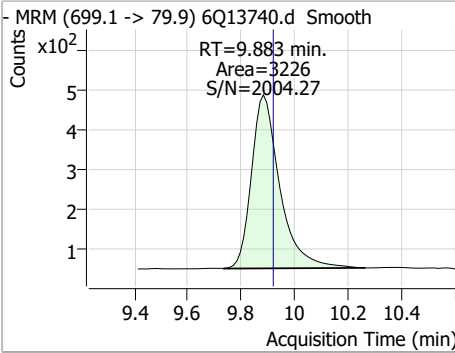


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.50	9.74	-0.04	31216	713.1 -> 168.9	6.5	3.1	9.3

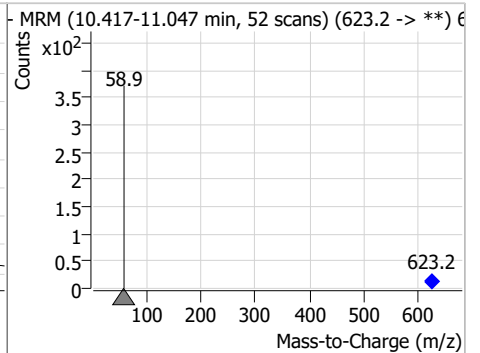
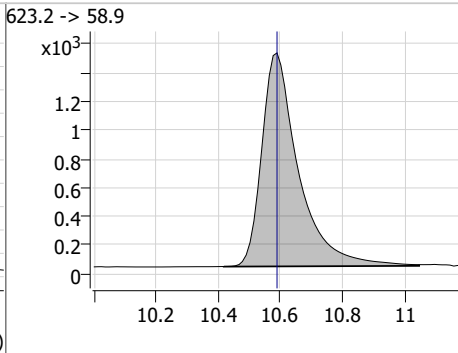
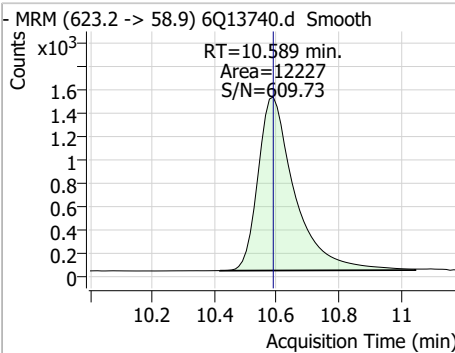


Perfluorinated Compounds by LC/MS/MS

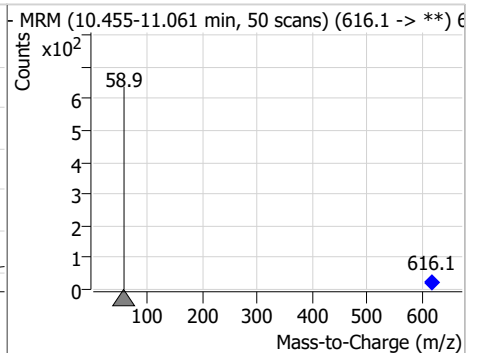
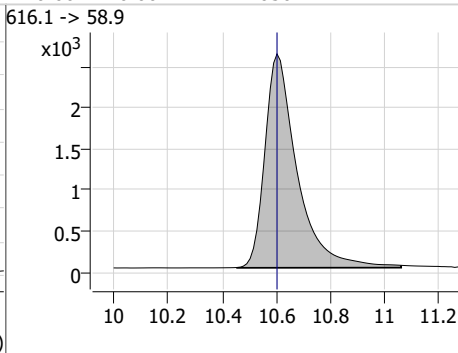
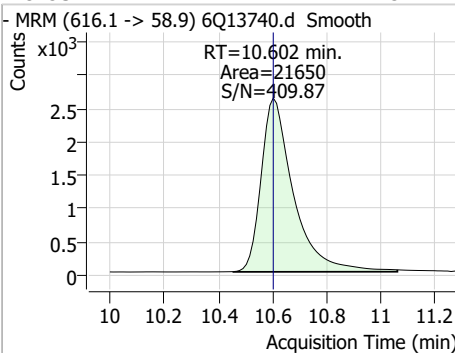
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.19	9.88	-0.04	3226	699.1 -> 98.8	68.4	33.2	99.7



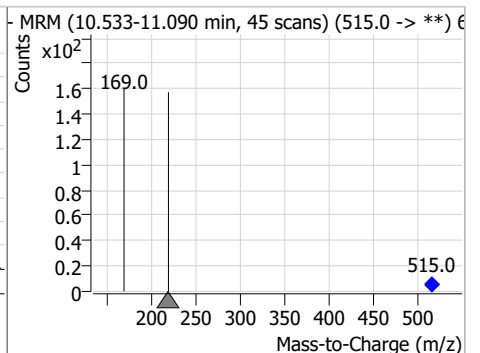
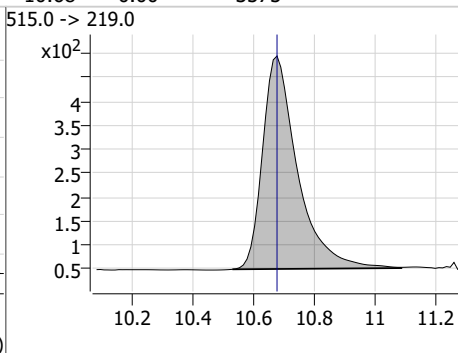
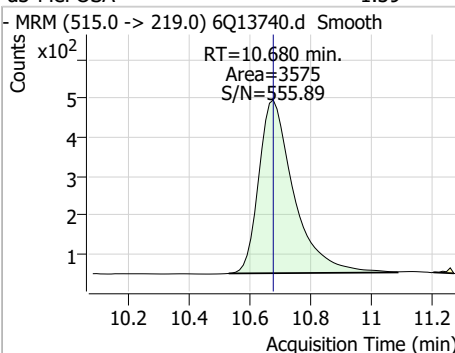
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	13.61	10.59	0.00	12227				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	21.31	10.60	0.00	21650				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	1.39	10.68	0.00	3575				



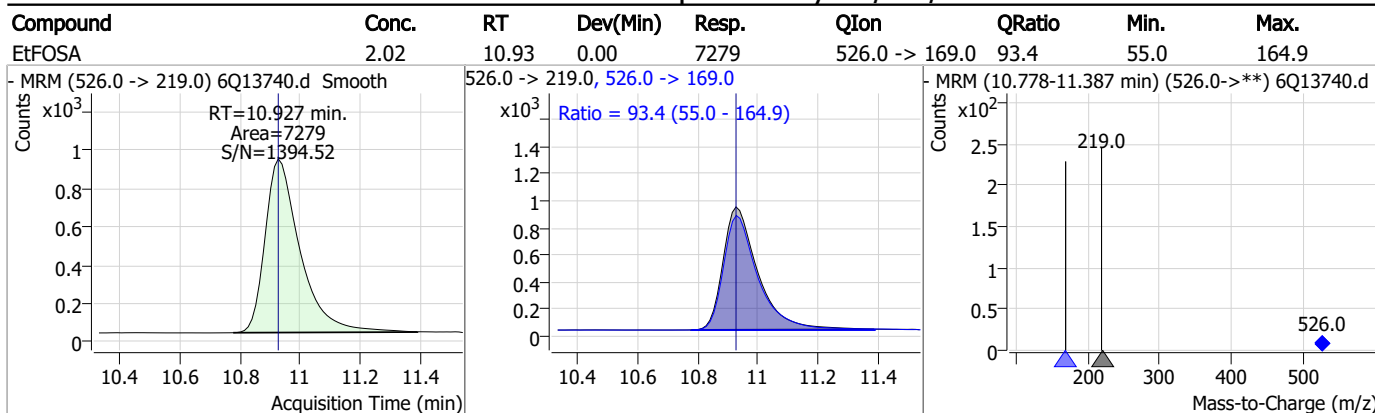
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	2.04	10.68	0.00	6413	511.9 -> 169.0	98.5	59.4	178.3
d9-EtFOSE	13.15	10.85	0.00	8352	639.2 -> 58.9			
EtFOSE	22.27	10.86	0.00	15862	630.0 -> 58.9			
d5-EtFOSA	1.37	10.92	0.00	3789	531.1 -> 219.0			

7.3.1

7

Perfluorinated Compounds by LC/MS/MS



7.3.1
7

Manual Integration Approval Summary

Sample Number: OP95376-BS Method: EPA DRAFT 1633
Lab FileID: 6Q13740.D Analyst approved: 02/18/23 11:42 Natasha Gumtie
Injection Time: 02/16/23 11:06 Supervisor approved: 02/18/23 12:01 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.30	Split peak
EtFOSAA	2991-50-6		8.37	Split peak

7.3.1.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13741.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/16/2023 11:20:03 AM
 Sample Name : op95376-llbs:3
 Vial : P6-A2
 DA Method File : 1633_021623_S6Q208NEW.quantmethod.xml
 Batch Name : s6q208.batch.bin
 Sample Information : OP95376,S6Q208,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.988	216.8 -> 171.9	65646	7.50 µg/L	0.012
M5-PFPeA	4.374	268.3 -> 223.0	39629	5.00 µg/L	-0.012
M5-PFHxA	5.550	318.0 -> 273.0	50599	3.75 µg/L	-0.012
M4-PFHpA	6.477	367.1 -> 322.0	51842	3.75 µg/L	-0.025
M8-PFOA	7.122	421.1 -> 376.0	85855	3.75 µg/L	-0.025
M9-PFNA	7.640	472.1 -> 427.0	48963	3.13 µg/L	-0.037
M6-PFDA	8.120	519.1 -> 474.1	39955	3.13 µg/L	-0.037
M7-PFUnDA	8.574	570.0 -> 525.1	46800	3.13 µg/L	-0.037
M2-PFDoDA	9.017	615.1 -> 570.0	51729	3.13 µg/L	-0.037
M2-PFTeDA	9.743	715.2 -> 670.0	24716	3.13 µg/L	-0.037
M8-FOSA	9.555	506.1 -> 77.8	23189	3.75 µg/L	-0.012
M3-PFBS	5.493	302.1 -> 79.9	19897	3.75 µg/L	-0.025
M3-PFHxS	7.237	402.1 -> 79.9	12524	3.75 µg/L	-0.037
M8-PFOS	8.295	507.1 -> 79.9	10914	3.75 µg/L	-0.038
M2-4:2FTS	5.215	329.1 -> 80.9	2414	5.00 µg/L	-0.025
M2-6:2FTS	6.883	429.1 -> 80.9	3120	5.00 µg/L	-0.025
M2-8:2FTS	7.907	529.1 -> 80.9	2701	5.00 µg/L	-0.037
M3-MeFOSAA	8.165	573.2 -> 419.0	28534	5.00 µg/L	-0.037
M3-HFPO-DA	5.915	286.9 -> 168.9	8423	5.00 µg/L	-0.025
M5-EtFOSAA	8.373	589.2 -> 419.0	24162	5.00 µg/L	-0.025
M7-MeFOSE	10.589	623.2 -> 58.9	12049	12.50 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	8276	12.50 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	3271	1.25 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	3115	1.25 µg/L	0.000
13C4-PFOS	8.296	502.8 -> 79.9	9247	2.50 µg/L	-0.038
13C3-PFBA	2.991	216.0 -> 172.0	33383	5.00 µg/L	0.012
18O2-PFHxS	7.248	403.0 -> 83.9	6163	2.50 µg/L	-0.025
13C4-PFOA	7.122	417.1 -> 372.0	68048	2.50 µg/L	-0.025
13C2-PFDA	8.120	515.1 -> 470.1	20336	1.25 µg/L	-0.037
13C5-PFNA	7.640	468.0 -> 423.0	21310	1.25 µg/L	-0.037
13C2-PFHxA	5.551	315.1 -> 270.0	30873	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.215	329.1 -> 80.9	2414	5.68 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.6%		
13C2-6:2FTS	6.883	429.1 -> 80.9	3120	5.58 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.7%		
13C2-8:2FTS	7.907	529.1 -> 80.9	2701	4.98 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C2-PFDoDA	9.017	615.1 -> 570.0	51729	3.23 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C2-PFTeDA	9.743	715.2 -> 670.0	24716	2.79 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 89.1%		
13C3-PFBS	5.493	302.1 -> 79.9	19897	3.91 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C3-PFHxS	7.237	402.1 -> 79.9	12524	3.65 µg/L	-0.037

7.32
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 97.3%		
13C4-PFBA	2.988	216.8 -> 171.9	65646	8.48 µg/L	0.012
Spiked Amount: 7.50	Range: 50.0 - 150.0%		Recovery = 113.0%		
13C4-PFHpA	6.477	367.1 -> 322.0	51842	3.90 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 104.1%		
13C5-PFHxA	5.550	318.0 -> 273.0	50599	3.86 µg/L	-0.012
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 103.0%		
13C5-PFPeA	4.374	268.3 -> 223.0	39629	5.46 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.2%		
13C6-PFDA	8.120	519.1 -> 474.1	39955	3.29 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 105.4%		
13C7-PFUnDA	8.574	570.0 -> 525.1	46800	3.29 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 105.3%		
13C8-FOSA	9.555	506.1 -> 77.8	23189	3.75 µg/L	-0.012
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C8-PFOA	7.122	421.1 -> 376.0	85855	3.69 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 98.4%		
13C8-PFOS	8.295	507.1 -> 79.9	10914	3.50 µg/L	-0.038
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 93.3%		
13C9-PFNA	7.640	472.1 -> 427.0	48963	3.03 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 97.0%		
d3-MeFOSAA	8.165	573.2 -> 419.0	28534	5.16 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C3-HFPO-DA	5.915	286.9 -> 168.9	8423	6.04 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.9%		
d3-MeFOSA	10.680	515.0 -> 219.0	3115	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.4%		
d5-EtFOSAA	8.373	589.2 -> 419.0	24162	5.21 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.3%		
d7-MeFOSE	10.589	623.2 -> 58.9	12049	13.36 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%		Recovery = 106.9%		
d9-EtFOSE	10.847	639.2 -> 58.9	8276	12.98 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%		Recovery = 103.8%		
d5-EtFOSA	10.925	531.1 -> 219.0	3271	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.0%		
Target Compounds					QValue
4:2FTS	5.215	327.1 -> 307.0	18880	3.36 µg/L	99
		327.1 -> 80.9	4352		
6:2FTS	6.896	427.1 -> 407.0	16929	3.55 µg/L	100
		427.1 -> 80.9	3251		
8:2FTS	7.908	527.1 -> 507.0	9445	4.36 µg/L	94
		527.1 -> 80.8	1975		
EtFOSAA	8.374	584.2 -> 419.1	3708	0.91 µg/L	m 99
		584.2 -> 526.0	1935		
FOSA	9.557	498.1 -> 77.9	5937	0.98 µg/L	97
		498.1 -> 478.0	294		
MeFOSAA	8.166	570.1 -> 419.0	5213	0.96 µg/L	m 95
		570.1 -> 483.0	857		
PFBA	2.994	212.8 -> 168.9	7200	3.36 µg/L	100
PFBS	5.494	298.7 -> 79.9	4569	0.83 µg/L	85
		298.7 -> 98.8	1760		
PFDA	8.121	512.9 -> 469.0	18565	0.96 µg/L	99
		512.9 -> 219.0	2467		
PFDODA	9.005	613.1 -> 569.0	15071	0.93 µg/L	99
		613.1 -> 319.0	1835		
PFDS	9.179	599.0 -> 79.9	2335	1.02 µg/L	95

7.3.2
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	1157			
PFHpA	6.477	363.1 -> 319.0	19696	0.94	µg/L	99
		363.1 -> 169.0	2763			
PFHpS	7.792	449.0 -> 79.9	3216	1.00	µg/L	99
		449.0 -> 98.9	1794			
PFHxA	5.541	313.0 -> 269.0	12856	0.94	µg/L	100
		313.0 -> 118.9	490			
PFHxS	7.238	398.7 -> 79.9	3460	0.91	µg/L	m 90
		398.7 -> 98.9	2141			
PFNA	7.640	463.0 -> 419.0	13209	1.02	µg/L	94
		463.0 -> 219.0	2379			
PFNS	8.762	548.8 -> 79.9	3308	1.01	µg/L	91
		548.8 -> 98.9	1751			
PFOA	7.123	413.0 -> 369.0	27031	0.97	µg/L	98
		413.0 -> 169.0	3314			
PFOS	8.296	498.9 -> 79.9	3234	0.95	µg/L	m 99
		498.9 -> 98.8	2022			
PFPeA	4.375	263.0 -> 219.0	15765	1.79	µg/L	100
PFPeS	6.555	349.1 -> 79.9	4204	0.94	µg/L	99
		349.1 -> 98.9	2270			
PFTeDA	9.744	713.1 -> 669.0	11708	1.00	µg/L	98
		713.1 -> 168.9	807			
PFTrDA	9.399	663.0 -> 619.0	13826	0.92	µg/L	100
		663.0 -> 168.9	1092			
PFUnDA	8.575	563.1 -> 519.0	13958	0.91	µg/L	95
		563.1 -> 269.1	2312			
11CI-PF3OUdS	9.452	630.9 -> 450.9	31802	2.92	µg/L	98
		632.9 -> 452.9	10128			
9CI-PF3ONS	8.626	530.8 -> 351.0	60609	3.13	µg/L	96
		532.8 -> 353.0	19688			
ADONA	6.728	376.9 -> 250.9	114105	3.11	µg/L	98
		376.9 -> 84.8	24940			
HFPO-DA	5.916	284.9 -> 168.9	5494	3.32	µg/L	97
		284.9 -> 184.9	664			
3:3FTCA	3.866	241.0 -> 177.0	1842	4.13	µg/L	97
		241.0 -> 117.0	254			
5:3FTCA	6.193	341.0 -> 237.1	67536	24.25	µg/L	96
		341.0 -> 217.0	57779			
7:3FTCA	7.592	441.0 -> 316.9	35421	24.17	µg/L	97
		441.0 -> 336.9	69621			
EtFOSA	10.927	526.0 -> 219.0	2541	0.82	µg/L	91
		526.0 -> 169.0	2538			
EtFOSE	10.860	630.0 -> 58.9	5749	8.14	µg/L	100
MeFOSA	10.681	511.9 -> 219.0	2344	0.85	µg/L	78
		511.9 -> 169.0	2211			
MeFOSE	10.602	616.1 -> 58.9	7972	7.96	µg/L	100
PFDoDS	9.883	699.1 -> 79.9	1309	0.92	µg/L	96
		699.1 -> 98.8	829			
NFDHA	5.432	295.0 -> 201.0	1779	2.15	µg/L	98
		295.0 -> 84.9	816			
PFMBA	4.775	279.0 -> 85.1	4936	1.90	µg/L	100
PFMPA	3.541	229.0 -> 84.9	4475	1.90	µg/L	100
PFEESA	6.034	314.8 -> 134.9	33821	1.83	µg/L	100
		314.8 -> 82.9	820			

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

7.3.2
7

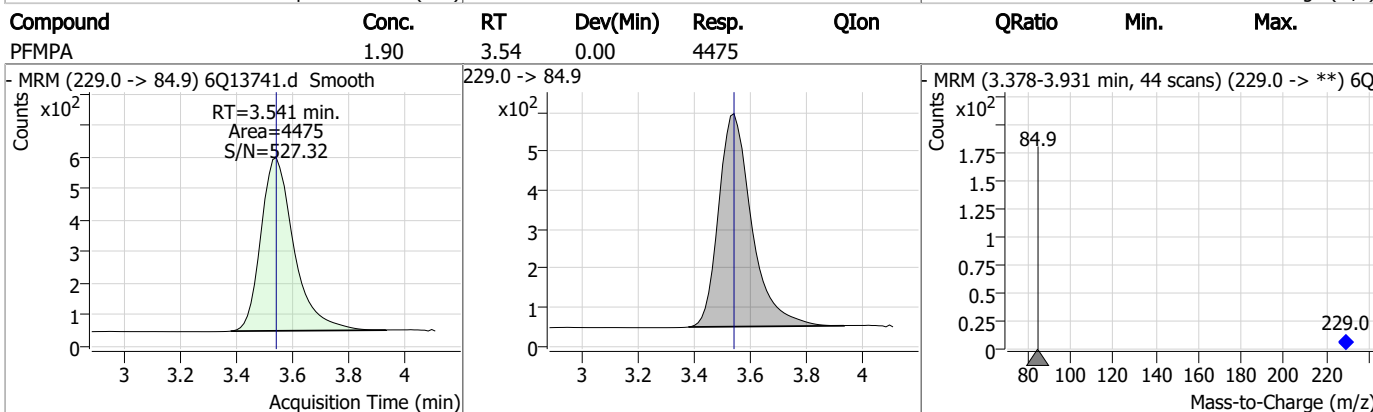
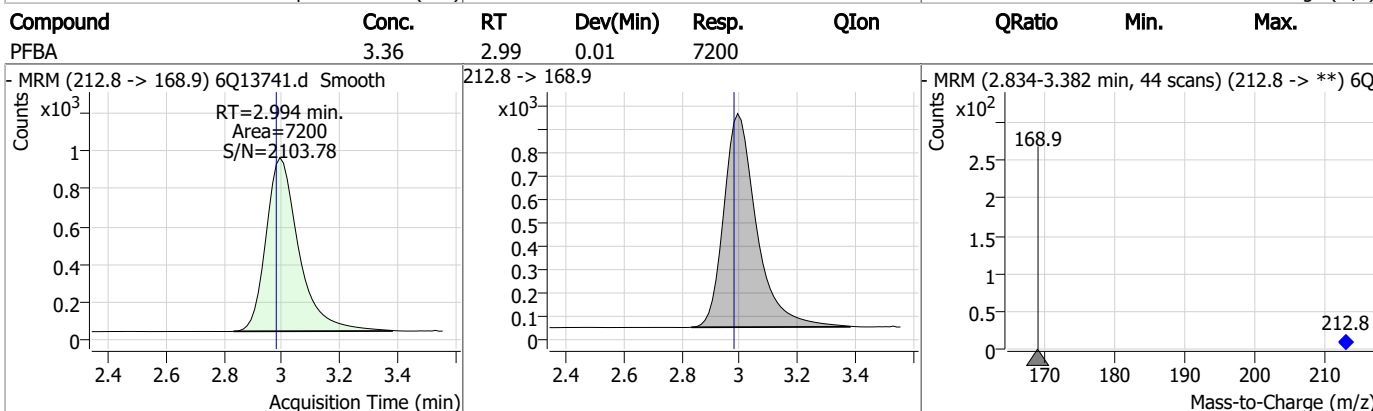
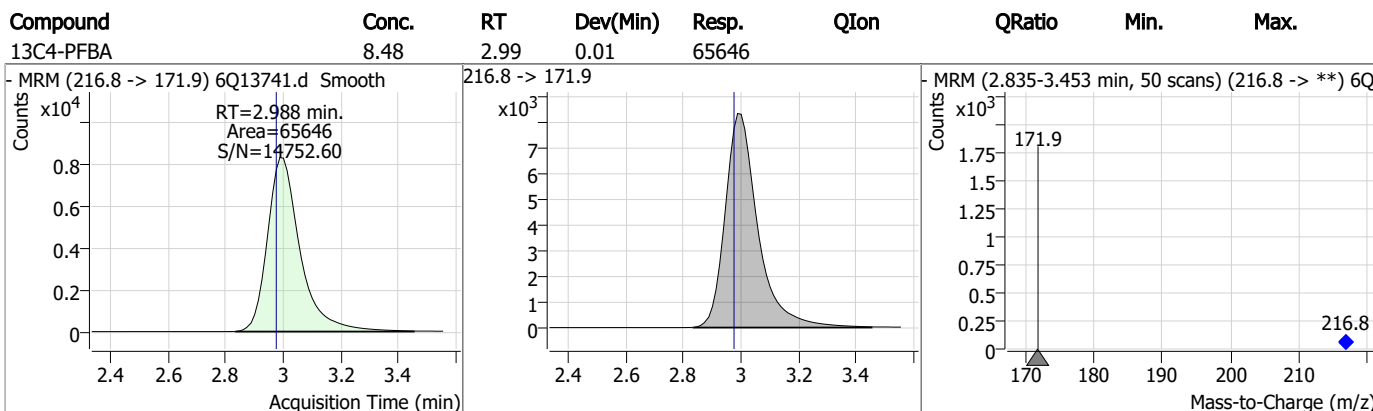
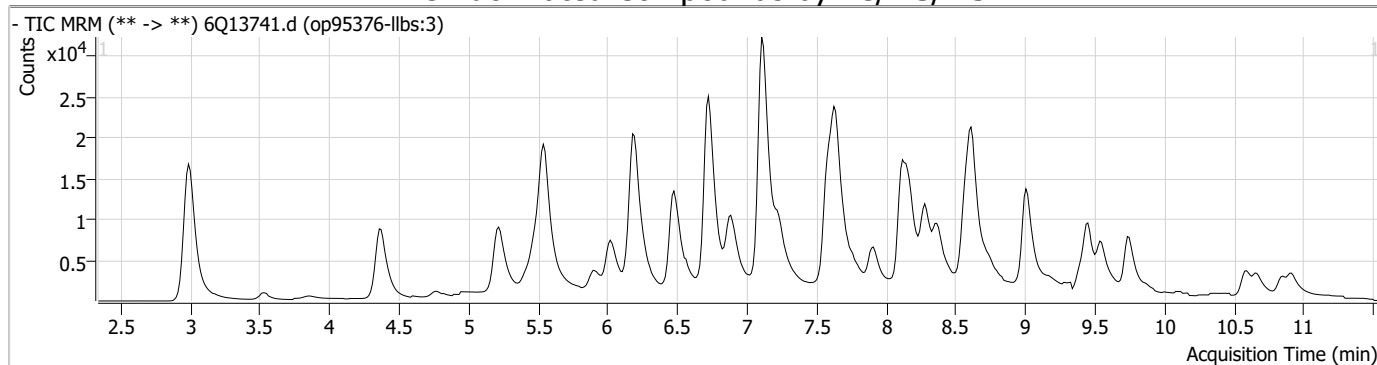
Perfluorinated Compounds by LC/MS/MS

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

7.3.2

7

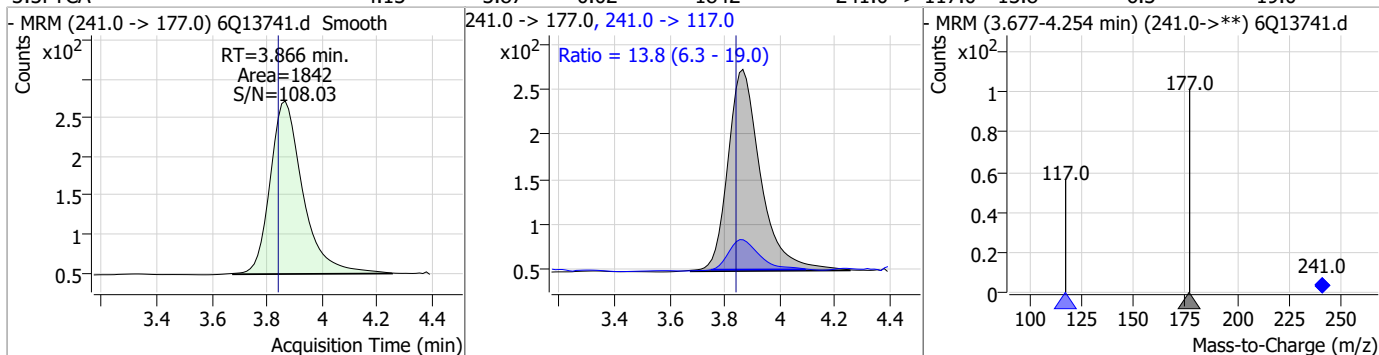
Perfluorinated Compounds by LC/MS/MS



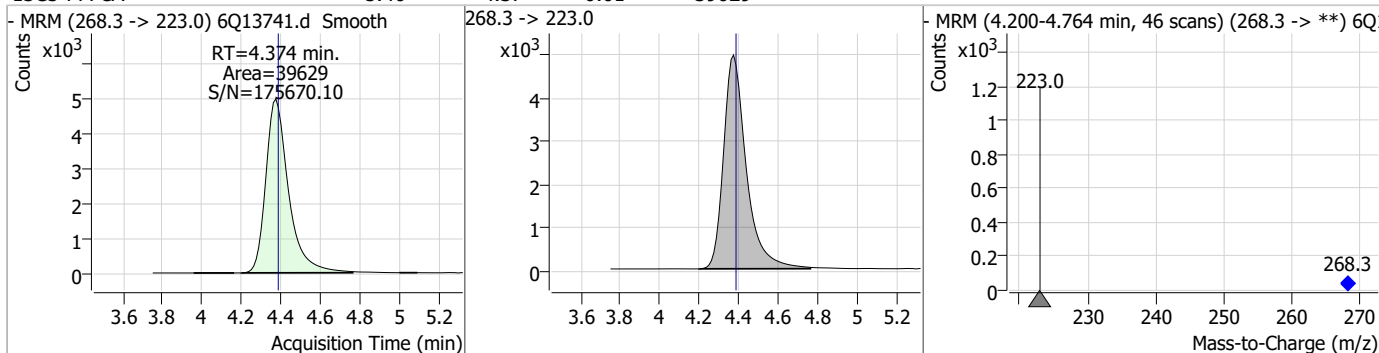
7.3.2
7

Perfluorinated Compounds by LC/MS/MS

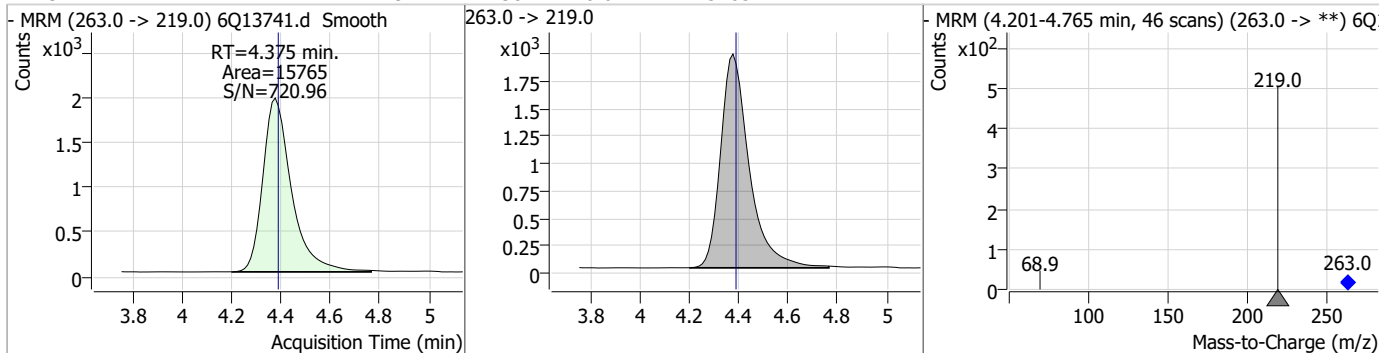
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	4.13	3.87	0.02	1842	241.0 -> 117.0	13.8	6.3	19.0



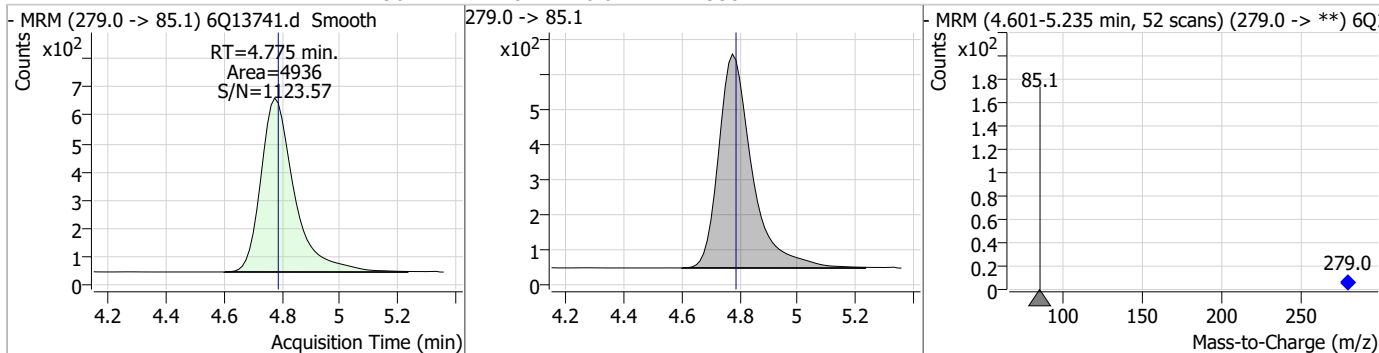
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.46	4.37	-0.01	39629				



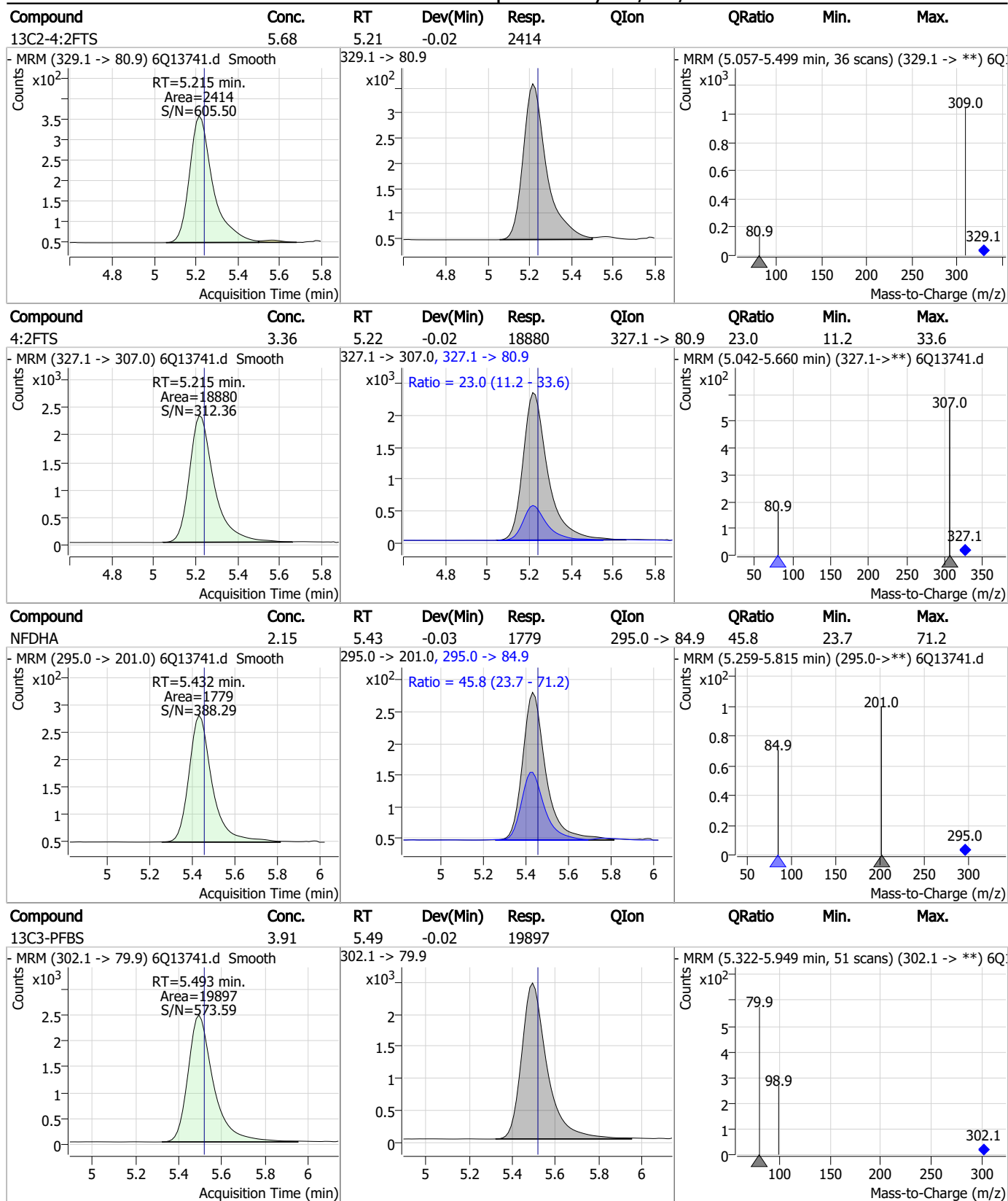
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.79	4.38	-0.01	15765				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	1.90	4.78	-0.01	4936				



Perfluorinated Compounds by LC/MS/MS

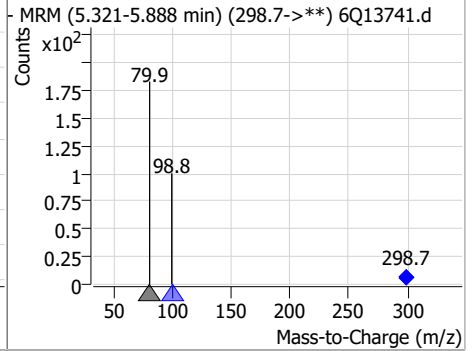
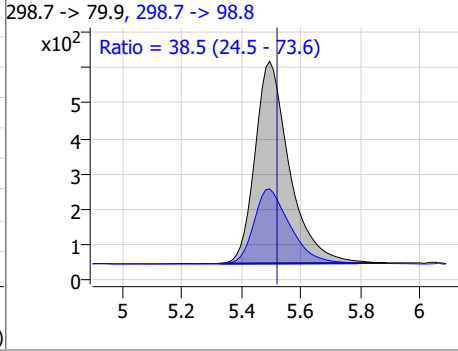
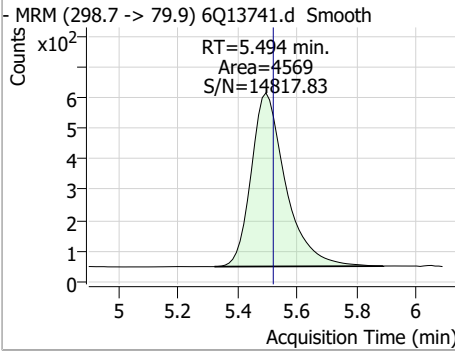


7.3.2
7

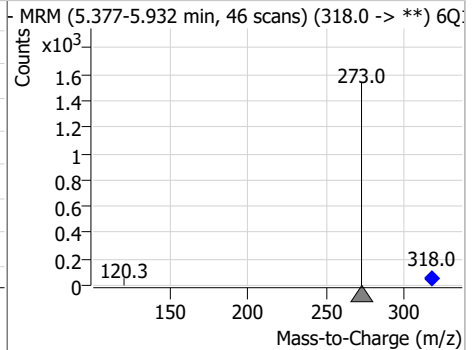
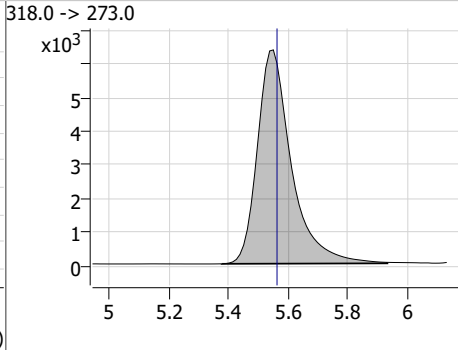
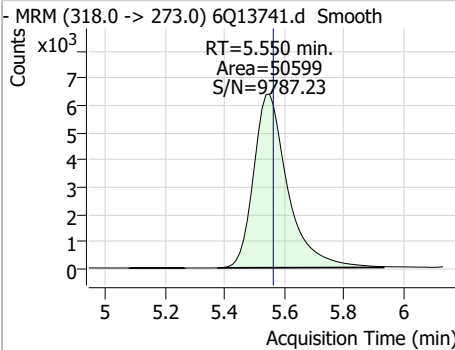


Perfluorinated Compounds by LC/MS/MS

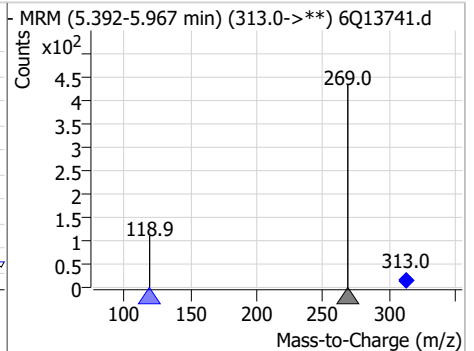
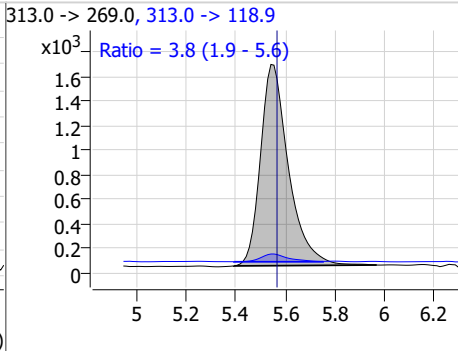
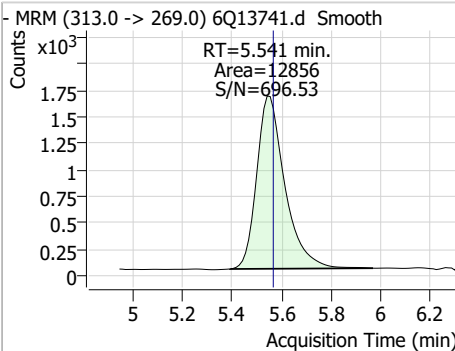
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.83	5.49	-0.02	4569	298.7 -> 98.8	38.5	24.5	73.6



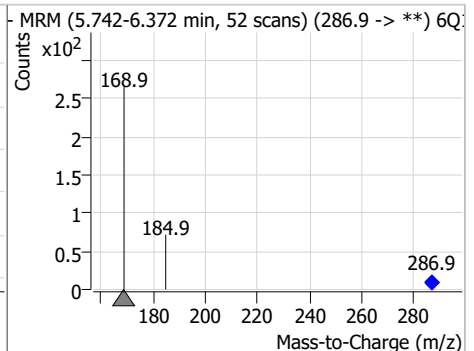
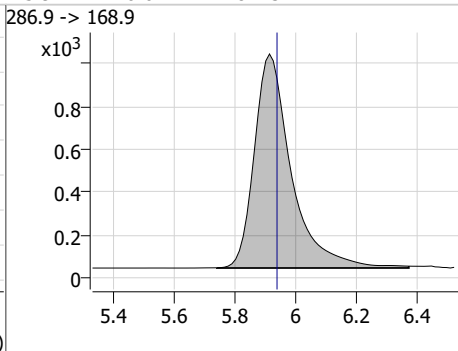
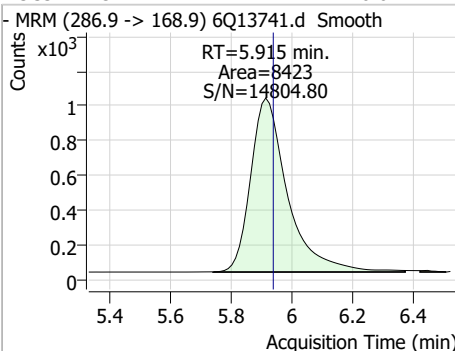
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	3.86	5.55	-0.01	50599				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.94	5.54	-0.02	12856	313.0 -> 118.9	3.8	1.9	5.6



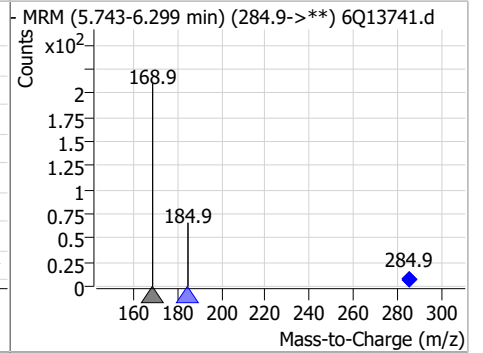
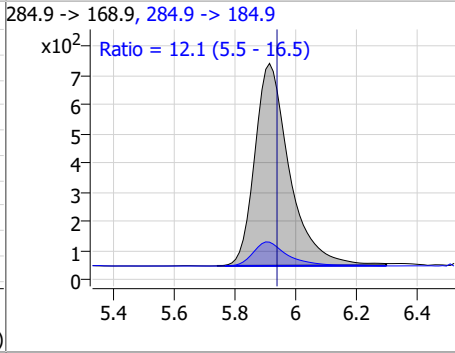
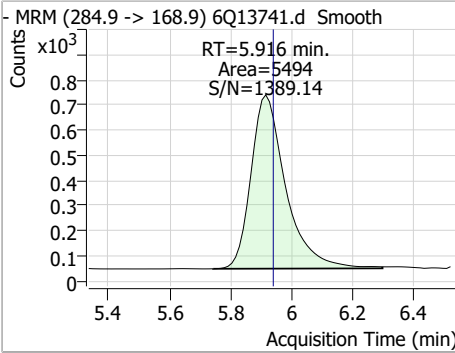
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	6.04	5.91	-0.02	8423				



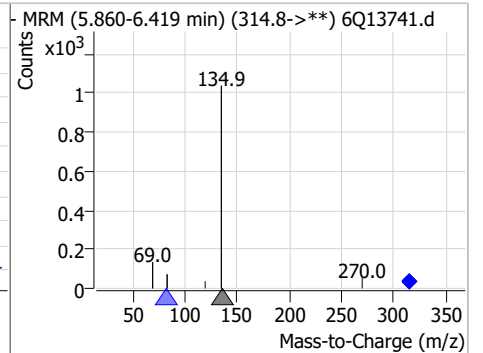
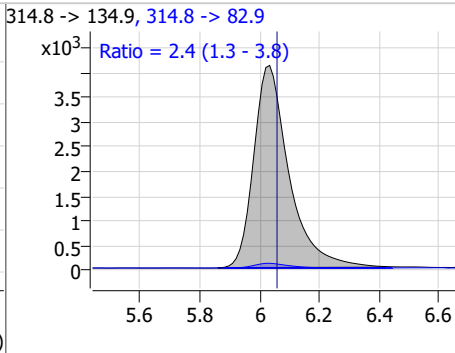
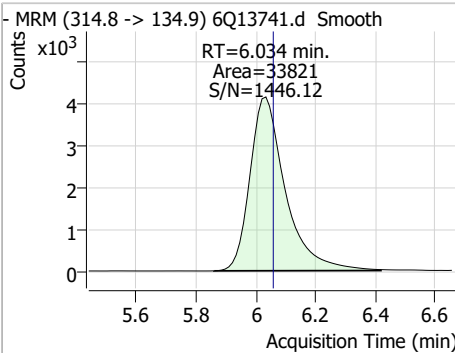
7.3.2 7

Perfluorinated Compounds by LC/MS/MS

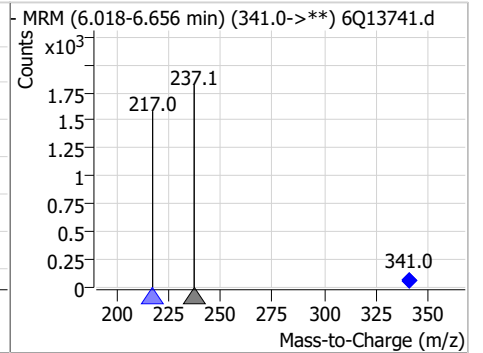
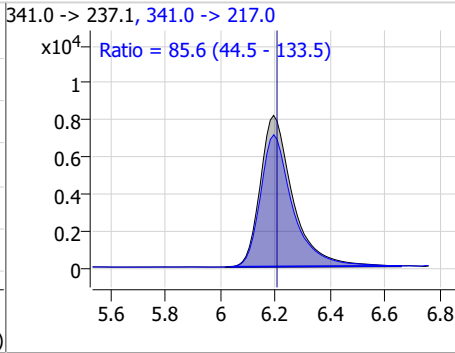
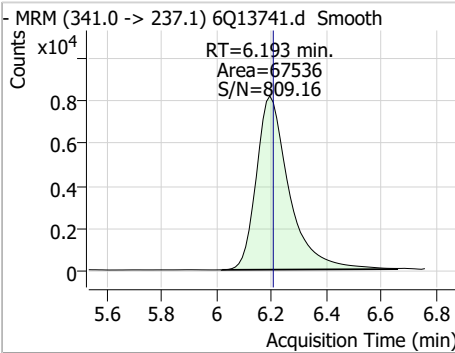
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	3.32	5.92	-0.02	5494	284.9 -> 184.9	12.1	5.5	16.5



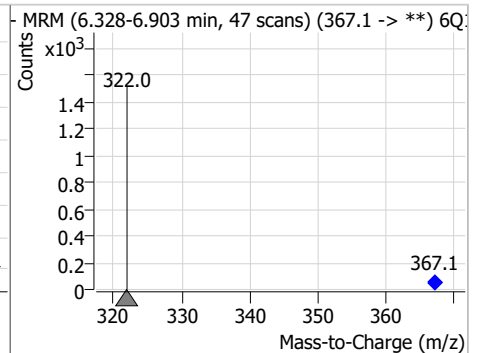
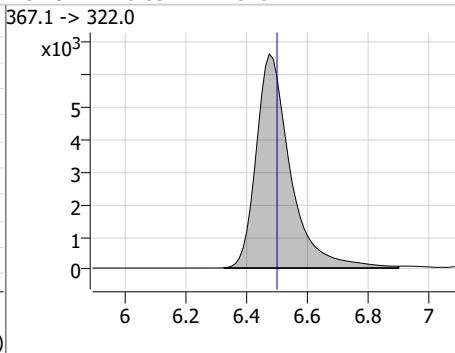
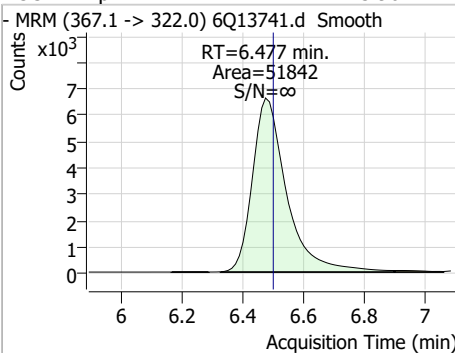
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	1.83	6.03	-0.02	33821	314.8 -> 82.9	2.4	1.3	3.8



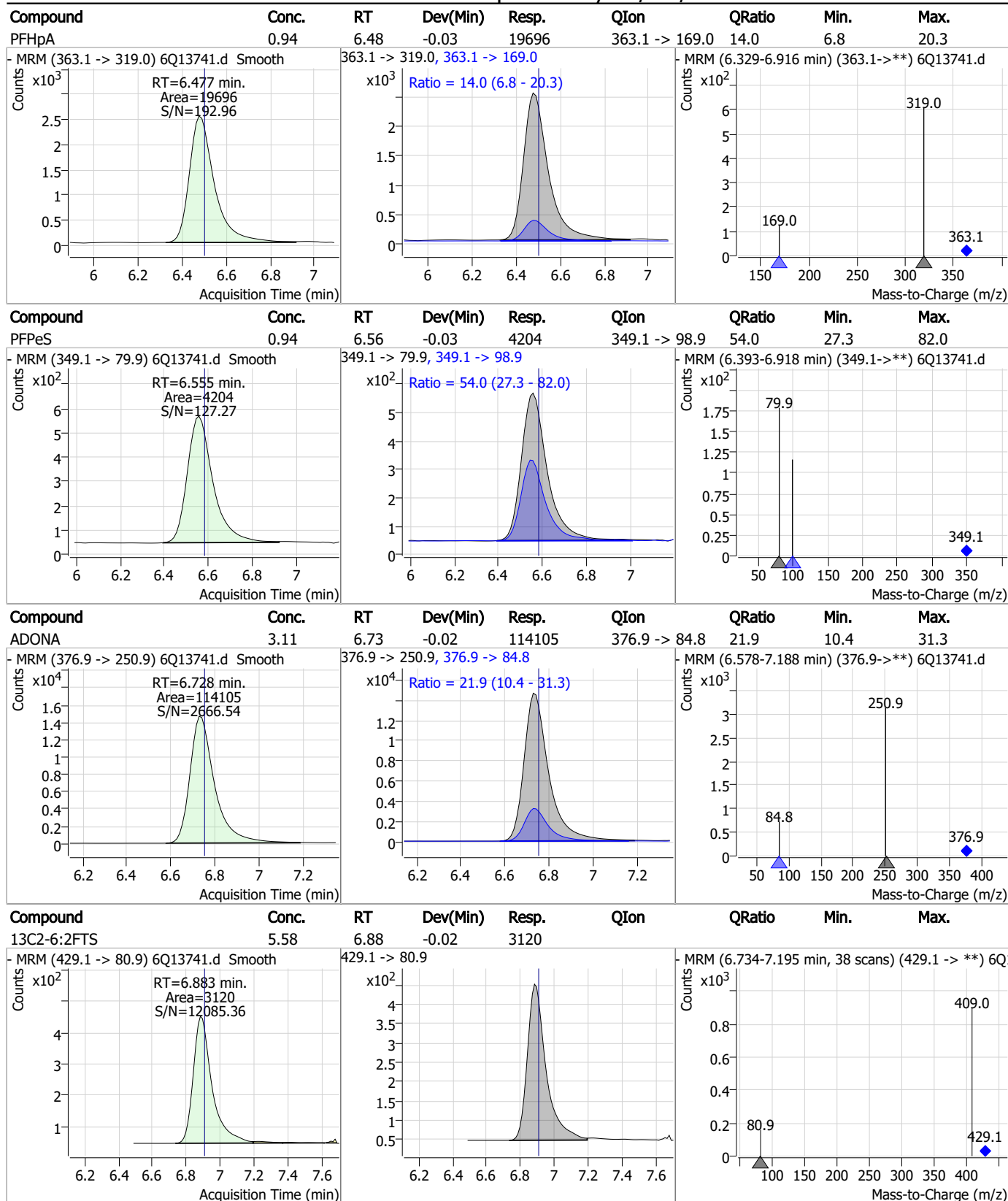
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	24.25	6.19	-0.01	67536	341.0 -> 217.0	85.6	44.5	133.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	3.90	6.48	-0.03	51842	367.1 -> 322.0			

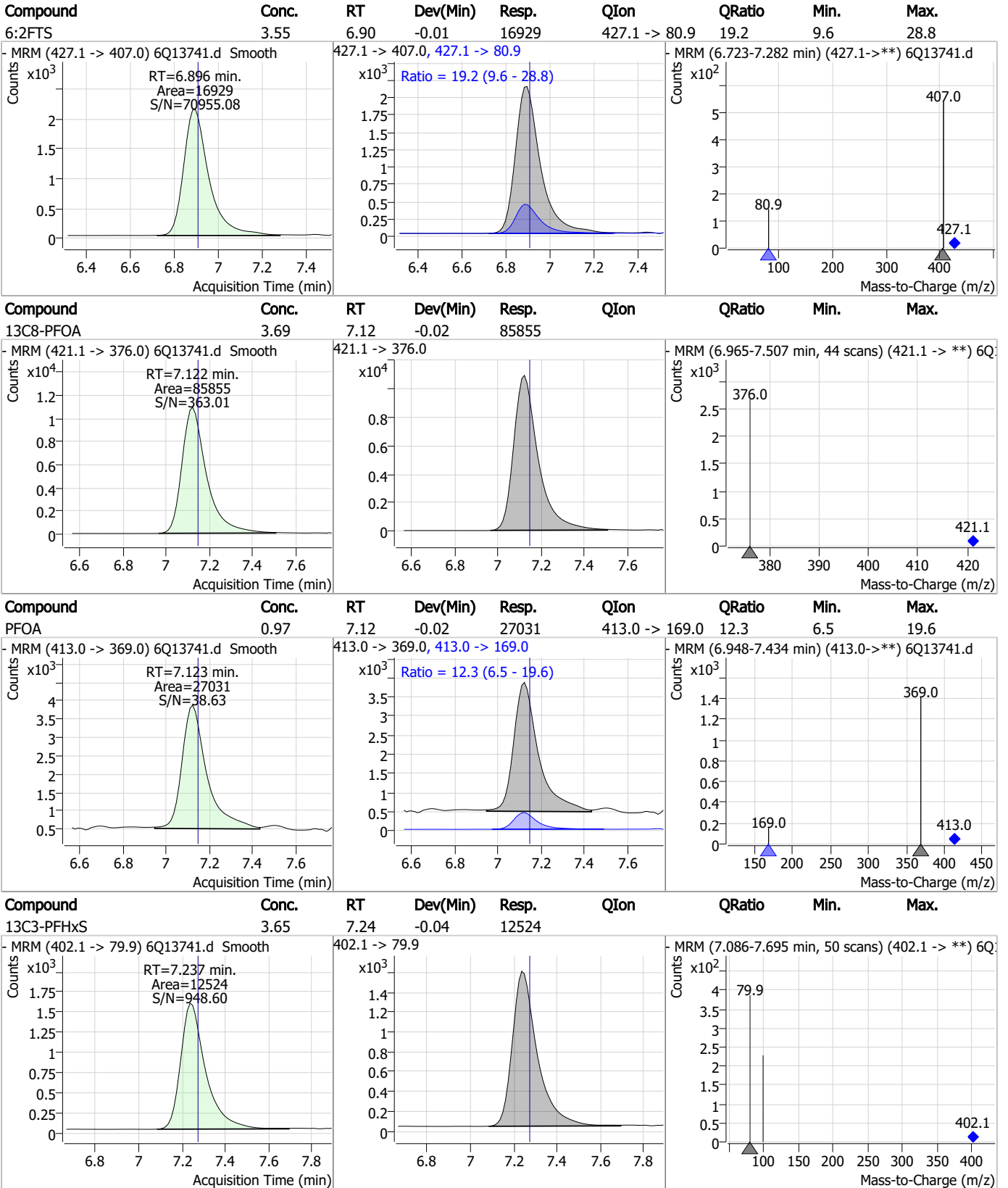


Perfluorinated Compounds by LC/MS/MS



7.3.2
7

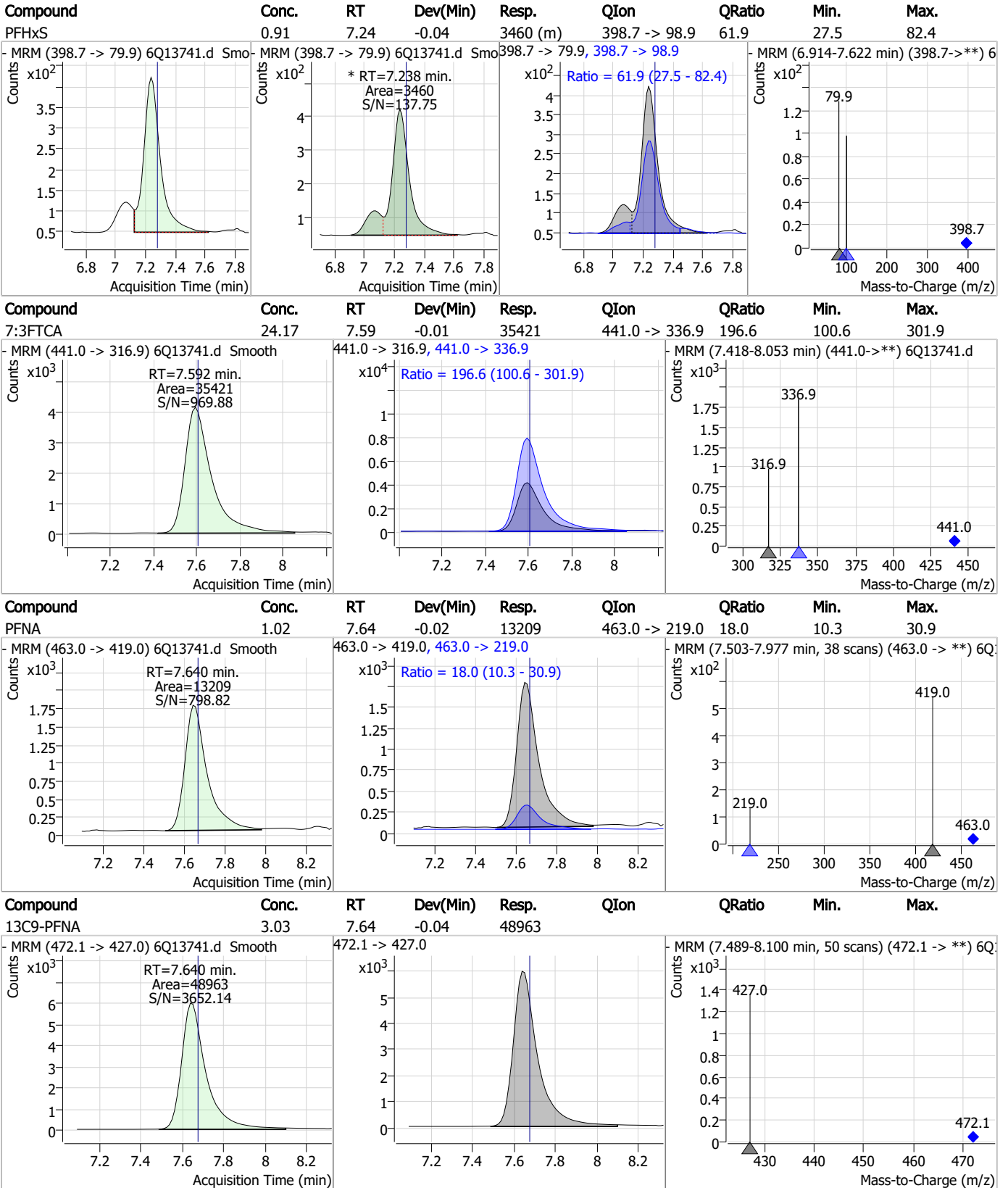
Perfluorinated Compounds by LC/MS/MS



7.3.2

7

Perfluorinated Compounds by LC/MS/MS

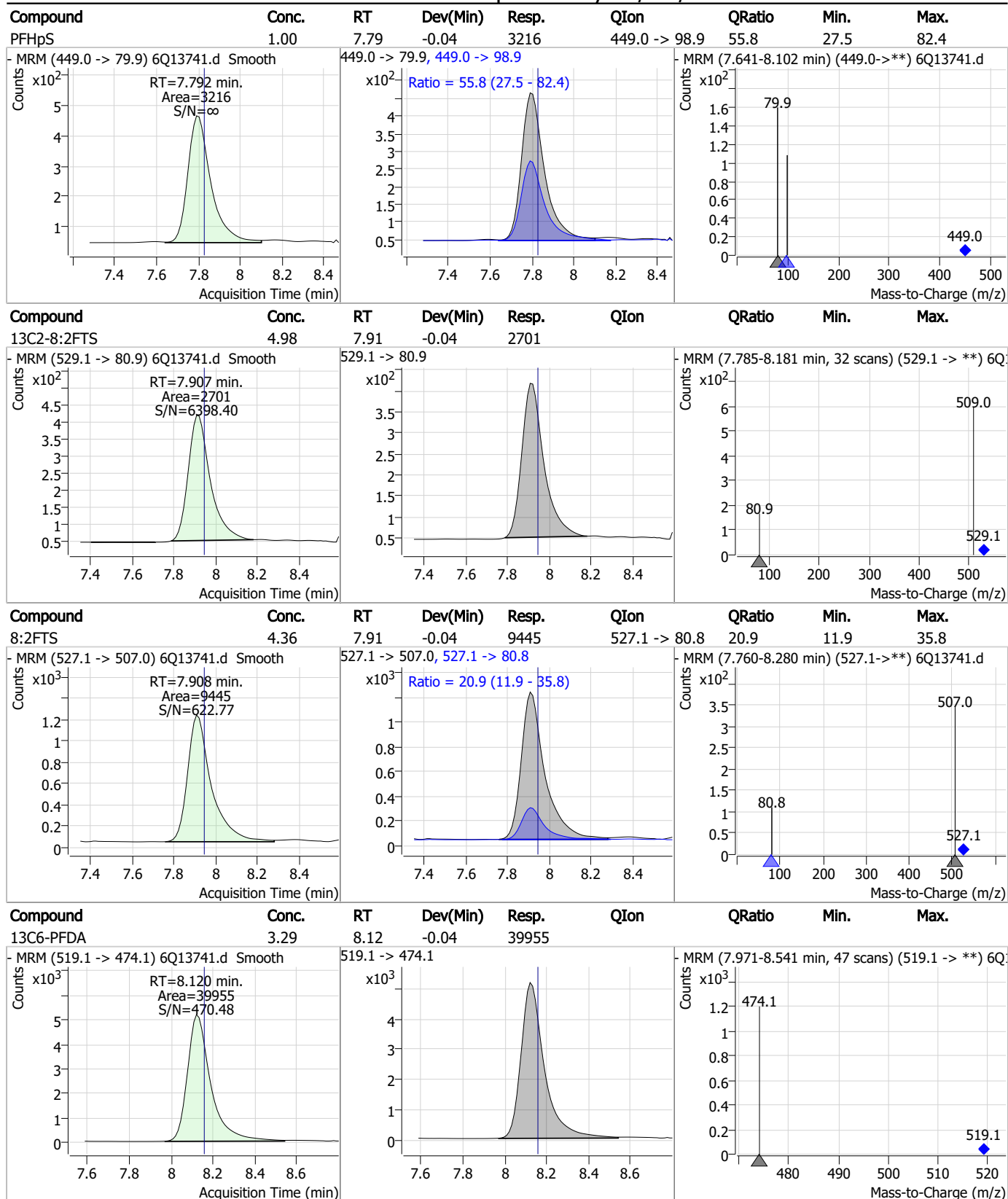


7.3.2

7



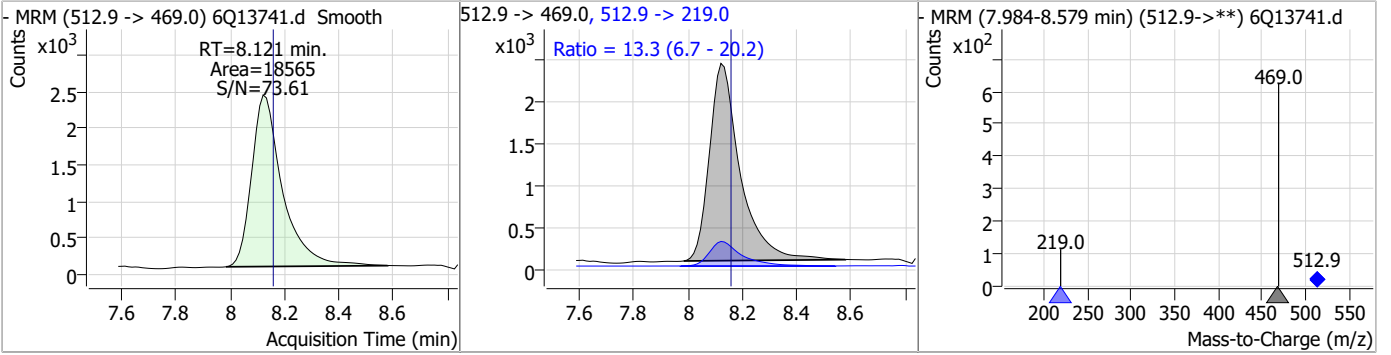
Perfluorinated Compounds by LC/MS/MS



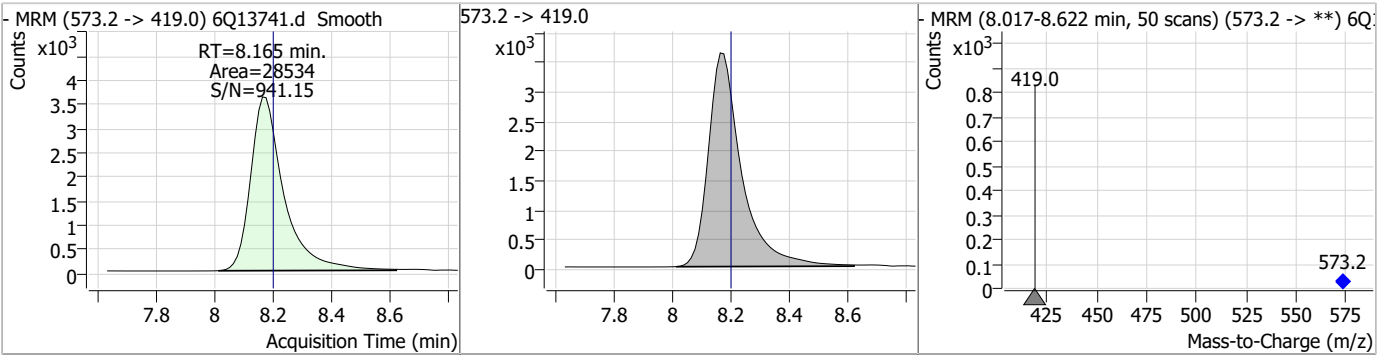
7.3.2
7

Perfluorinated Compounds by LC/MS/MS

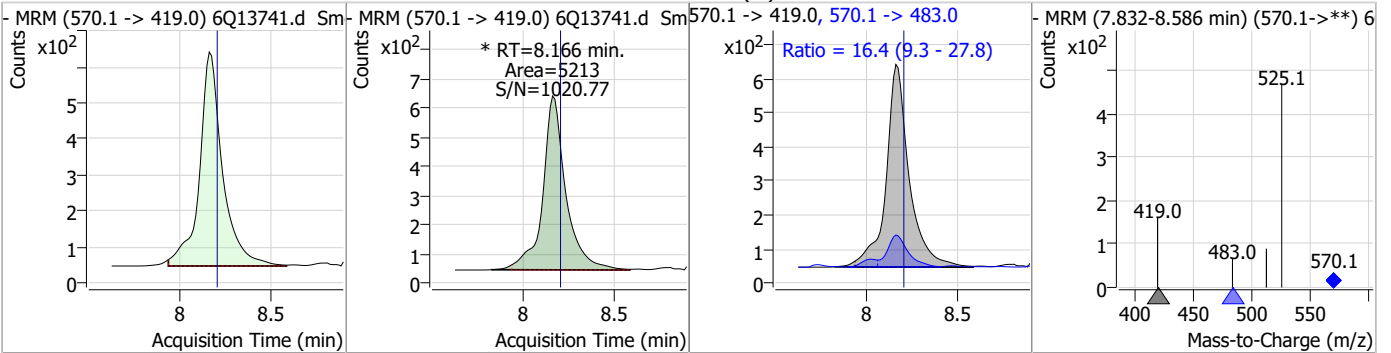
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.96	8.12	-0.04	18565	512.9 -> 219.0	13.3	6.7	20.2



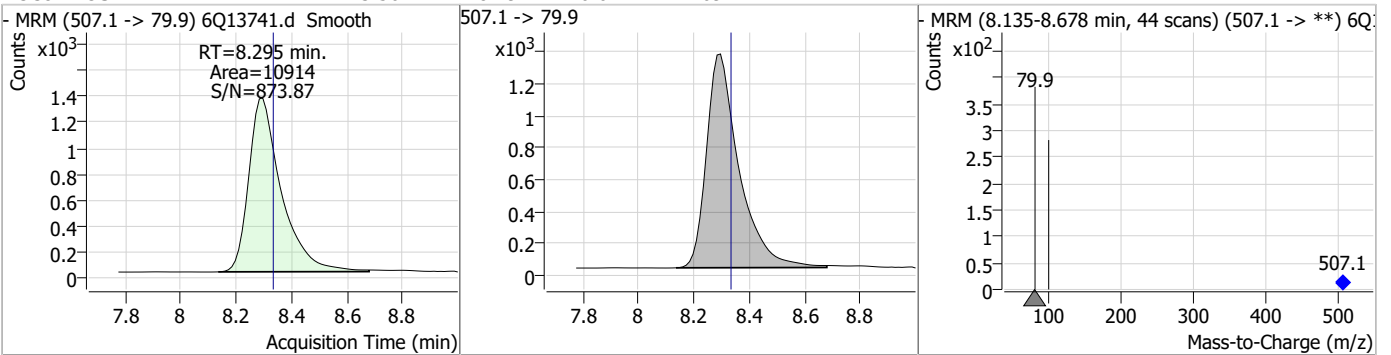
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.16	8.17	-0.04	28534				



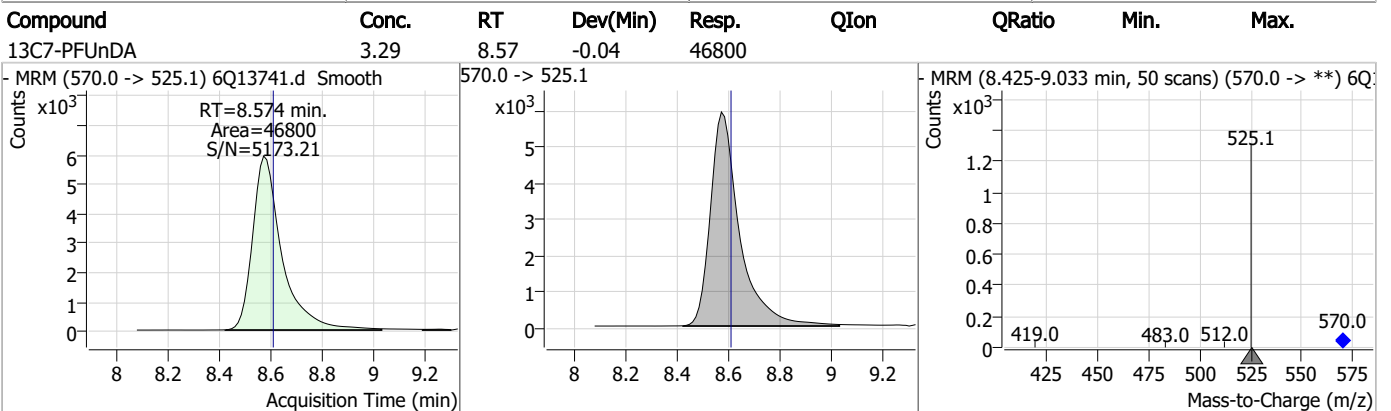
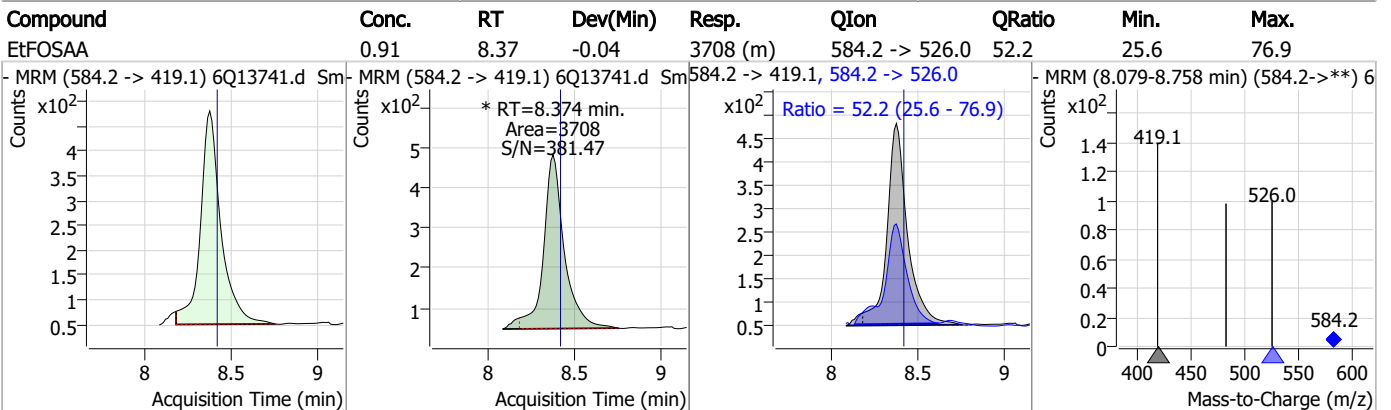
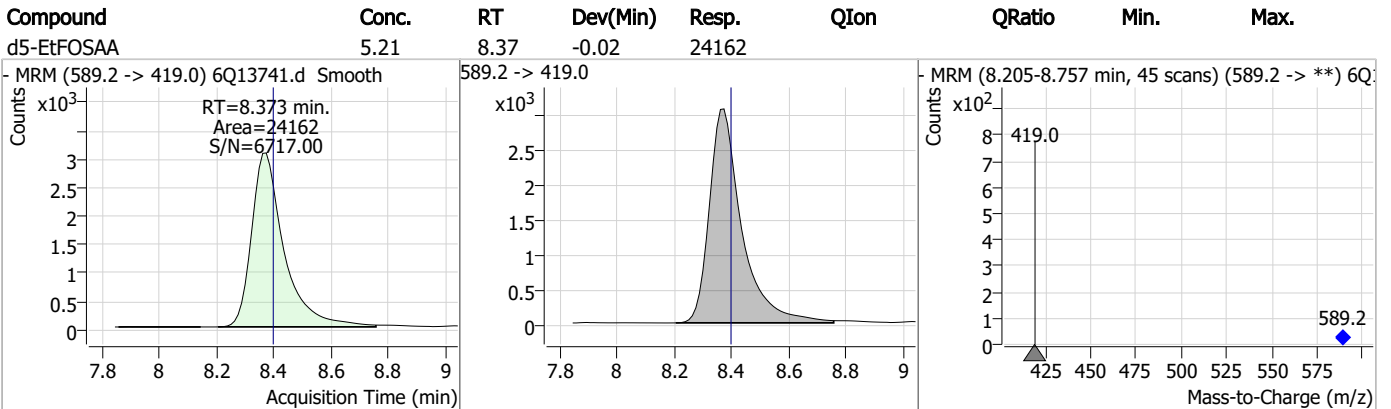
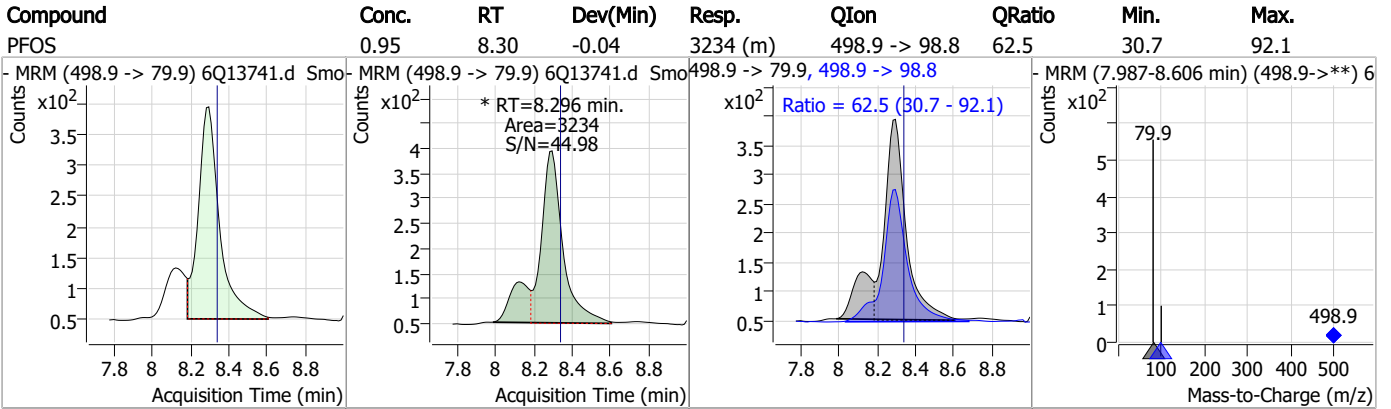
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.96	8.17	-0.04	5213 (m)	570.1 -> 483.0	16.4	9.3	27.8



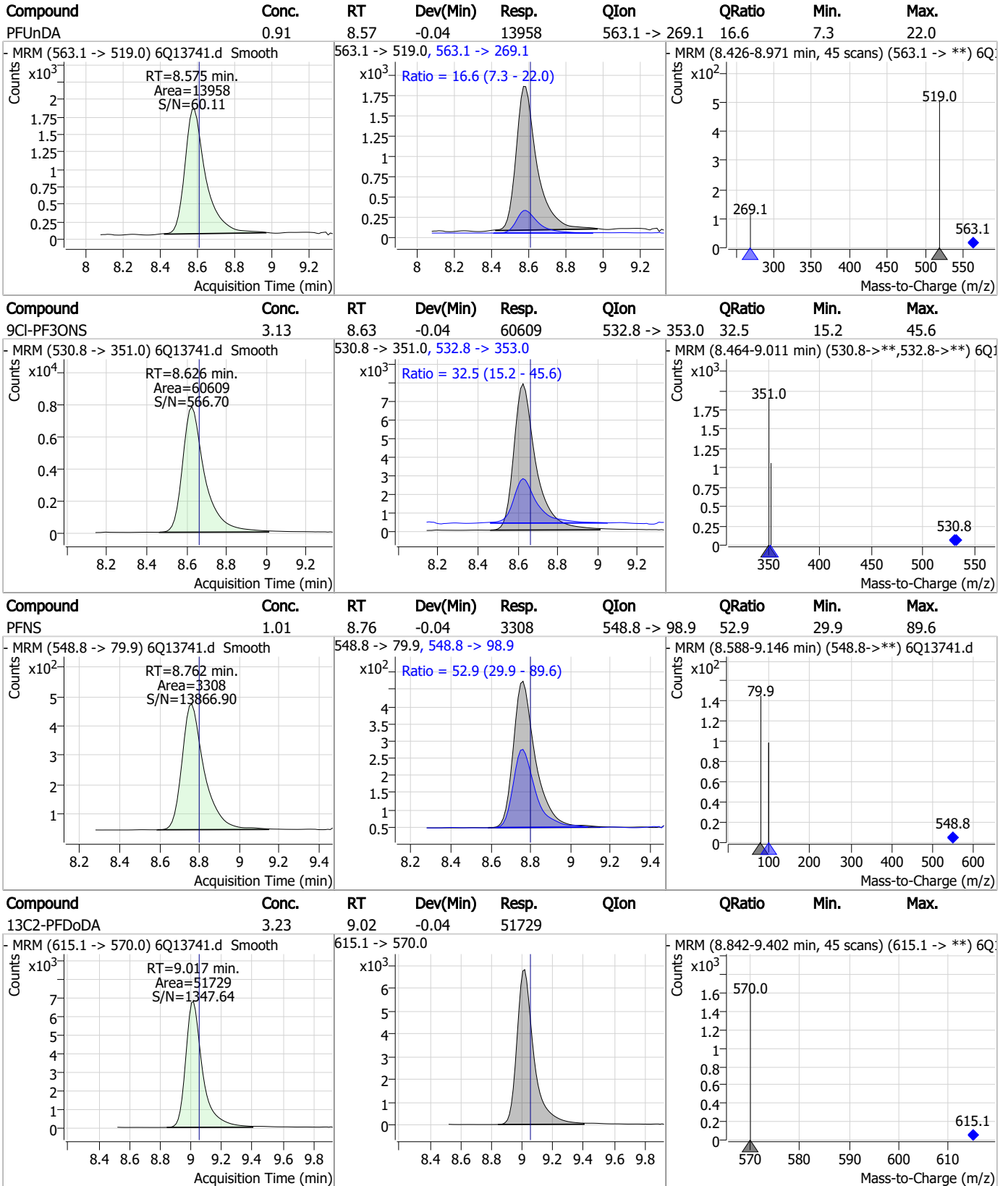
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	3.50	8.29	-0.04	10914				



Perfluorinated Compounds by LC/MS/MS



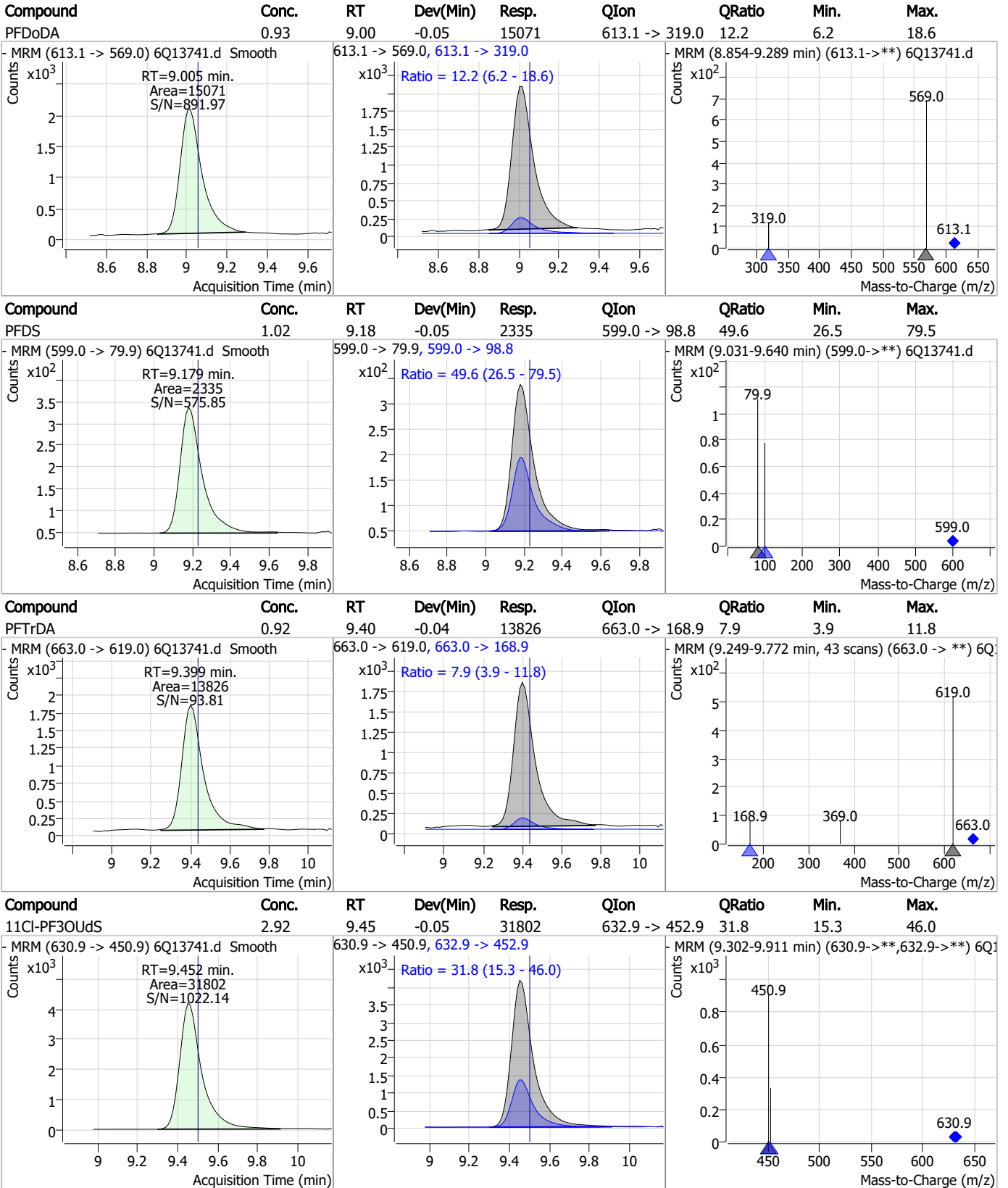
Perfluorinated Compounds by LC/MS/MS



7.3.2

7

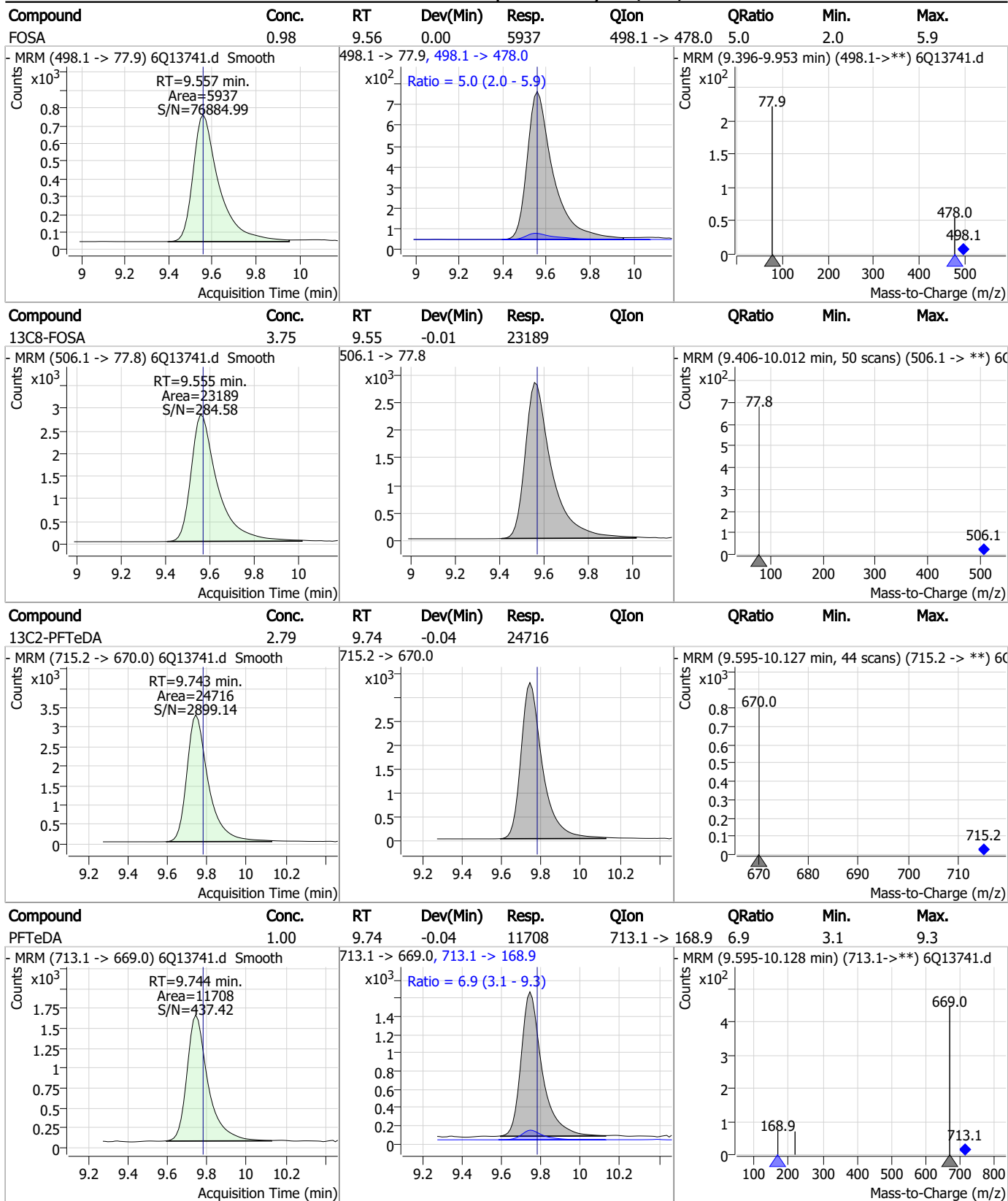
Perfluorinated Compounds by LC/MS/MS



7.3.2

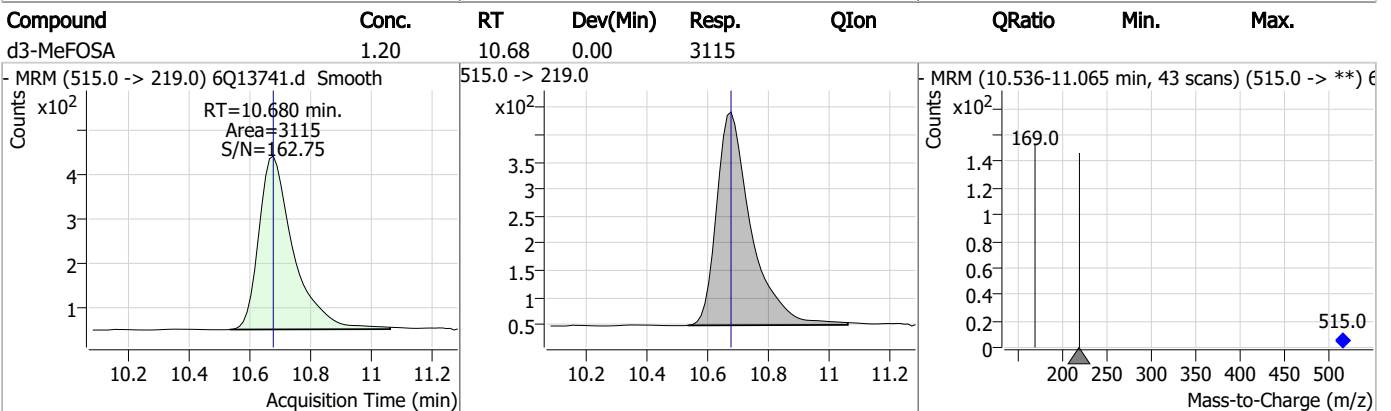
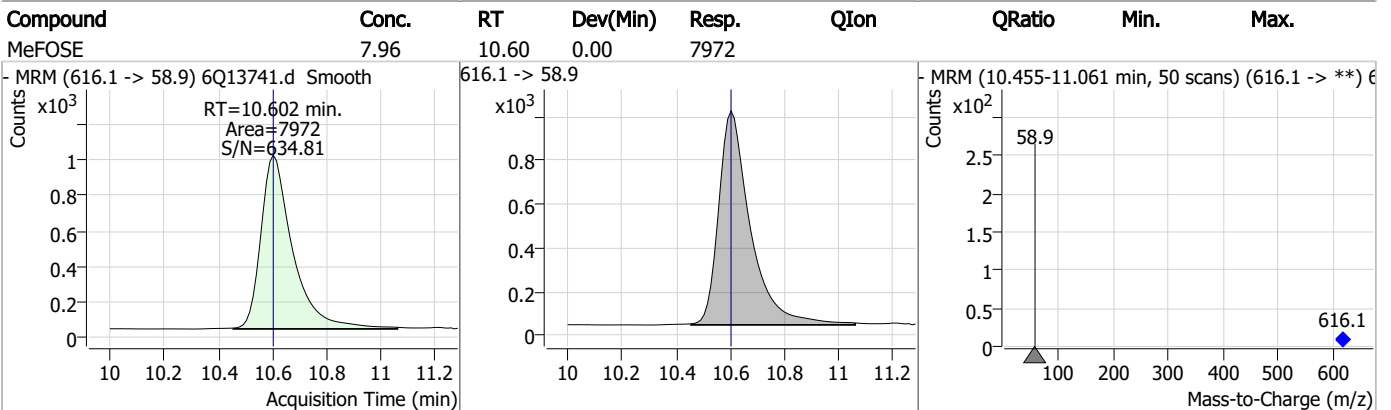
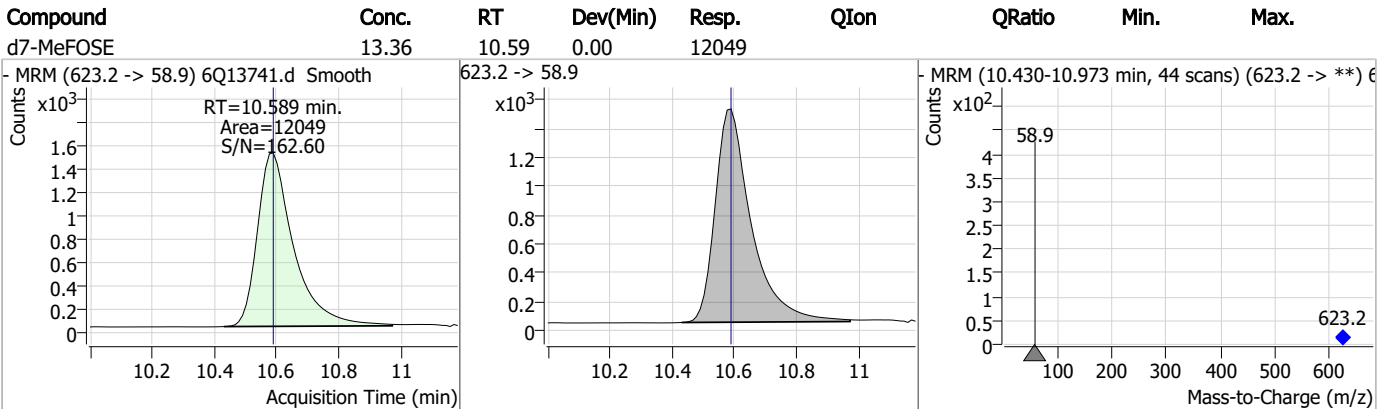
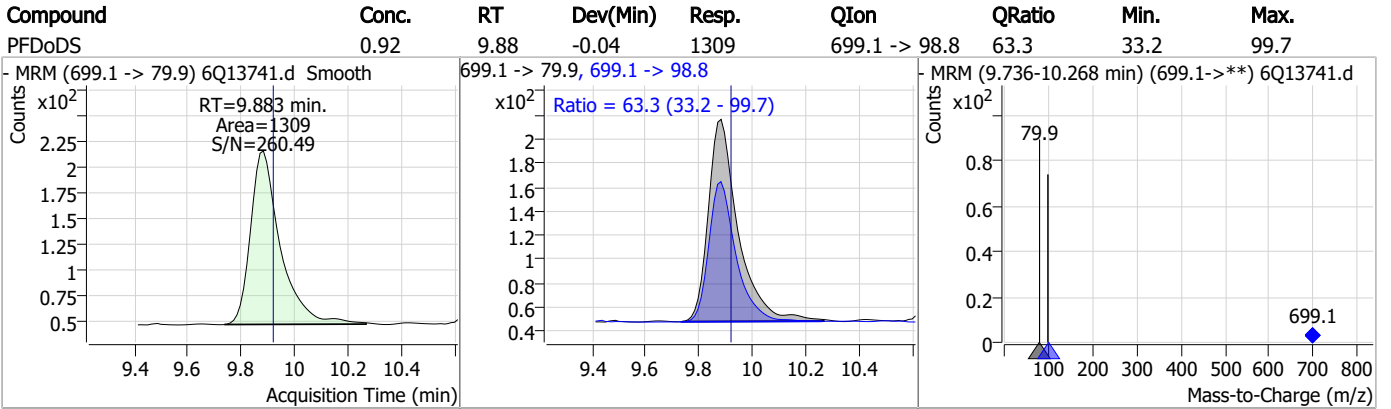
7

Perfluorinated Compounds by LC/MS/MS



7.3.2
7

Perfluorinated Compounds by LC/MS/MS



7.3.2

7

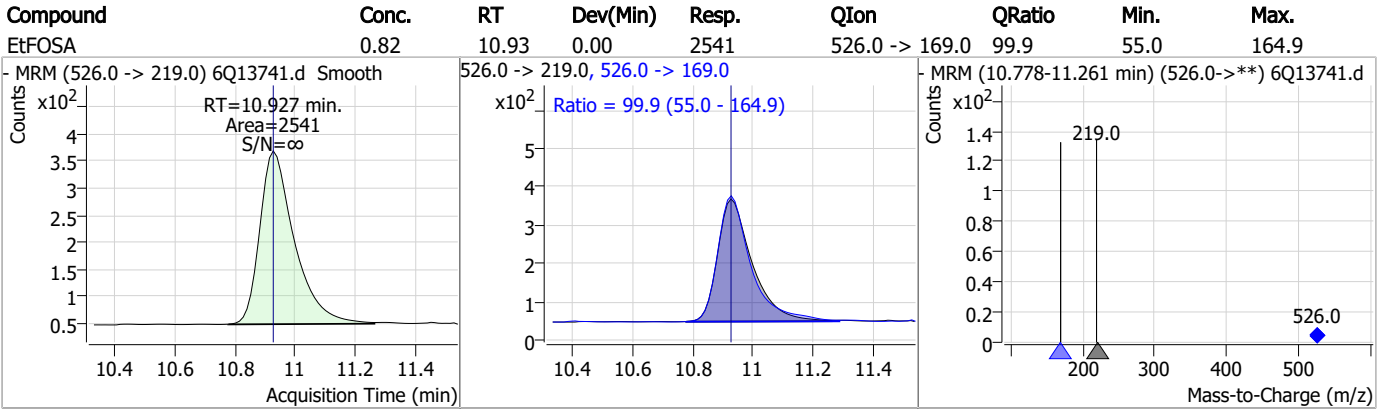
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.85	10.68	0.00	2344	511.9 -> 169.0	94.3	59.4	178.3
d9-EtFOSE	12.98	10.85	0.00	8276				
EtFOSE	8.14	10.86	0.00	5749				
d5-EtFOSA	1.17	10.92	0.00	3271				

7.3.2
7



Perfluorinated Compounds by LC/MS/MS



7.3.2

7

Manual Integration Approval Summary

Sample Number: OP95376-LLBS Method: EPA DRAFT 1633
Lab FileID: 6Q13741.D Analyst approved: 02/18/23 09:44 Mike Eger
Injection Time: 02/16/23 11:20 Supervisor approved: 02/18/23 10:38 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
MeFOSAA	2355-31-9		8.17	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.30	Split peak
EtFOSAA	2991-50-6		8.37	Split peak

7.3.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13744.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/16/2023 12:02:02 PM
 Sample Name : op95376-ms
 Vial : P6-A5
 DA Method File : 1633_021623_S6Q208NEW.quantmethod.xml
 Batch Name : s6q208.batch.bin
 Sample Information : OP95376,S6Q208,540,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.000	216.8 -> 171.9	34885	7.50 µg/L	0.025
M5-PFPeA	4.374	268.3 -> 223.0	39504	5.00 µg/L	-0.012
M5-PFHxA	5.550	318.0 -> 273.0	49885	3.75 µg/L	-0.012
M4-PFHpA	6.477	367.1 -> 322.0	50173	3.75 µg/L	-0.025
M8-PFOA	7.122	421.1 -> 376.0	88806	3.75 µg/L	-0.025
M9-PFNA	7.652	472.1 -> 427.0	45119	3.13 µg/L	-0.025
M6-PFDA	8.120	519.1 -> 474.1	33972	3.13 µg/L	-0.037
M7-PFUnDA	8.574	570.0 -> 525.1	39706	3.13 µg/L	-0.037
M2-PFDoDA	9.017	615.1 -> 570.0	41307	3.13 µg/L	-0.037
M2-PFTeDA	9.743	715.2 -> 670.0	23516	3.13 µg/L	-0.037
M8-FOSA	9.555	506.1 -> 77.8	20733	3.75 µg/L	-0.012
M3-PFBS	5.493	302.1 -> 79.9	18627	3.75 µg/L	-0.025
M3-PFHxS	7.237	402.1 -> 79.9	12201	3.75 µg/L	-0.037
M8-PFOS	8.295	507.1 -> 79.9	9617	3.75 µg/L	-0.038
M2-4:2FTS	5.215	329.1 -> 80.9	2293	5.00 µg/L	-0.025
M2-6:2FTS	6.895	429.1 -> 80.9	2842	5.00 µg/L	-0.012
M2-8:2FTS	7.907	529.1 -> 80.9	2524	5.00 µg/L	-0.037
M3-MeFOSAA	8.165	573.2 -> 419.0	25832	5.00 µg/L	-0.037
M3-HFPO-DA	5.915	286.9 -> 168.9	8448	5.00 µg/L	-0.025
M5-EtFOSAA	8.361	589.2 -> 419.0	20995	5.00 µg/L	-0.037
M7-MeFOSE	10.589	623.2 -> 58.9	11887	12.50 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	7709	12.50 µg/L	0.000
M5-EtFOSA	10.913	531.1 -> 219.0	3395	1.25 µg/L	-0.012
M3-MeFOSA	10.680	515.0 -> 219.0	3153	1.25 µg/L	0.000
13C4-PFOS	8.296	502.8 -> 79.9	7042	2.50 µg/L	-0.038
13C3-PFBA	2.991	216.0 -> 172.0	25701	5.00 µg/L	0.012
18O2-PFHxS	7.236	403.0 -> 83.9	4494	2.50 µg/L	-0.037
13C4-PFOA	7.122	417.1 -> 372.0	53297	2.50 µg/L	-0.025
13C2-PFDA	8.120	515.1 -> 470.1	15823	1.25 µg/L	-0.037
13C5-PFNA	7.652	468.0 -> 423.0	17529	1.25 µg/L	-0.025
13C2-PFHxA	5.551	315.1 -> 270.0	24350	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.215	329.1 -> 80.9	2293	7.40 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 147.9%		
13C2-6:2FTS	6.895	429.1 -> 80.9	2842	6.97 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 139.5%		
13C2-8:2FTS	7.907	529.1 -> 80.9	2524	6.38 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 127.7%		
13C2-PFDoDA	9.017	615.1 -> 570.0	41307	3.31 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 105.9%		
13C2-PFTeDA	9.743	715.2 -> 670.0	23516	3.41 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 109.0%		
13C3-PFBS	5.493	302.1 -> 79.9	18627	5.02 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 133.9%		
13C3-PFHxS	7.237	402.1 -> 79.9	12201	4.88 µg/L	-0.037

7.4.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 130.0%	
13C4-PFBA	3.000	216.8 -> 171.9	34885	5.85 µg/L	0.025
Spiked Amount: 7.50	Range: 50.0 - 150.0%			Recovery = 78.0%	
13C4-PFHpA	6.477	367.1 -> 322.0	50173	4.79 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 127.7%	
13C5-PFHxA	5.550	318.0 -> 273.0	49885	4.83 µg/L	-0.012
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 128.8%	
13C5-PFPeA	4.374	268.3 -> 223.0	39504	6.90 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 138.0%	
13C6-PFDA	8.120	519.1 -> 474.1	33972	3.60 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 115.2%	
13C7-PFUnDA	8.574	570.0 -> 525.1	39706	3.59 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 114.8%	
13C8-FOSA	9.555	506.1 -> 77.8	20733	4.40 µg/L	-0.012
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 117.4%	
13C8-PFOA	7.122	421.1 -> 376.0	88806	4.87 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 130.0%	
13C8-PFOS	8.295	507.1 -> 79.9	9617	4.05 µg/L	-0.038
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 108.0%	
13C9-PFNA	7.652	472.1 -> 427.0	45119	3.40 µg/L	-0.025
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 108.7%	
d3-MeFOSAA	8.165	573.2 -> 419.0	25832	6.13 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 122.7%	
13C3-HFPO-DA	5.915	286.9 -> 168.9	8448	7.69 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 153.7%	
d3-MeFOSA	10.680	515.0 -> 219.0	3153	1.60 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 128.1%	
d5-EtFOSAA	8.361	589.2 -> 419.0	20995	5.95 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 119.0%	
d7-MeFOSE	10.589	623.2 -> 58.9	11887	17.31 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%			Recovery = 138.5%	
d9-EtFOSE	10.847	639.2 -> 58.9	7709	15.88 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%			Recovery = 127.0%	
d5-EtFOSA	10.913	531.1 -> 219.0	3395	1.60 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 128.1%	
Target Compounds					QValue
4:2FTS	5.215	327.1 -> 307.0	47159	8.83 µg/L	99
		327.1 -> 80.9	10304		
6:2FTS	6.883	427.1 -> 407.0	41396	9.54 µg/L	99
		427.1 -> 80.9	7840		
8:2FTS	7.908	527.1 -> 507.0	20966	10.35 µg/L	97
		527.1 -> 80.8	5318		
EtFOSAA	8.374	584.2 -> 419.1	8126	2.29 µg/L	89
		584.2 -> 526.0	4793		
FOSA	9.557	498.1 -> 77.9	13954	2.56 µg/L	99
		498.1 -> 478.0	575		
MeFOSAA	8.166	570.1 -> 419.0	11974	2.44 µg/L	99
		570.1 -> 483.0	2148		
PFBA	2.994	212.8 -> 168.9	10040	8.82 µg/L	100
PFBS	5.494	298.7 -> 79.9	11117	2.15 µg/L	99
		298.7 -> 98.8	5380		
PFDA	8.121	512.9 -> 469.0	46008	2.80 µg/L	99
		512.9 -> 219.0	6009		
PFDODA	9.017	613.1 -> 569.0	31273	2.42 µg/L	98
		613.1 -> 319.0	4112		
PFDS	9.179	599.0 -> 79.9	4759	2.36 µg/L	93

7.4.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2746			
PFHpA	6.477	363.1 -> 319.0	50683	2.50	µg/L	99
		363.1 -> 169.0	7035			
PFHpS	7.792	449.0 -> 79.9	7556	2.68	µg/L	94
		449.0 -> 98.9	4488			
PFHxA	5.553	313.0 -> 269.0	33097	2.47	µg/L	99
		313.0 -> 118.9	1165			
PFHxS	7.238	398.7 -> 79.9	8753	2.35	µg/L	m 98
		398.7 -> 98.9	4937			
PFNA	7.653	463.0 -> 419.0	31316	2.63	µg/L	98
		463.0 -> 219.0	6680			
PFNS	8.749	548.8 -> 79.9	7316	2.53	µg/L	98
		548.8 -> 98.9	4252			
PFOA	7.123	413.0 -> 369.0	67286	2.33	µg/L	99
		413.0 -> 169.0	8450			
PFOS	8.284	498.9 -> 79.9	7630	2.53	µg/L	m 90
		498.9 -> 98.8	5296			
PFPeA	4.375	263.0 -> 219.0	41029	4.66	µg/L	100
PFPeS	6.555	349.1 -> 79.9	10274	2.37	µg/L	99
		349.1 -> 98.9	5515			
PFTeDA	9.744	713.1 -> 669.0	28178	2.54	µg/L	100
		713.1 -> 168.9	1784			
PFTrDA	9.399	663.0 -> 619.0	30816	2.58	µg/L	100
		663.0 -> 168.9	2370			
PFUnDA	8.575	563.1 -> 519.0	32408	2.50	µg/L	98
		563.1 -> 269.1	4486			
11CI-PF3OUdS	9.452	630.9 -> 450.9	74849	6.84	µg/L	99
		632.9 -> 452.9	22655			
9CI-PF3ONS	8.626	530.8 -> 351.0	141729	7.30	µg/L	97
		532.8 -> 353.0	41082			
ADONA	6.728	376.9 -> 250.9	297696	8.09	µg/L	99
		376.9 -> 84.8	60973			
HFPO-DA	5.916	284.9 -> 168.9	13826	8.33	µg/L	96
		284.9 -> 184.9	1750			
3:3FTCA	3.866	241.0 -> 177.0	4922	11.09	µg/L	98
		241.0 -> 117.0	664			
5:3FTCA	6.193	341.0 -> 237.1	174542	63.57	µg/L	98
		341.0 -> 217.0	152750			
7:3FTCA	7.592	441.0 -> 316.9	89442	61.91	µg/L	89
		441.0 -> 336.9	165310			
EtFOSA	10.927	526.0 -> 219.0	6586	2.04	µg/L	85
		526.0 -> 169.0	6185			
EtFOSE	10.860	630.0 -> 58.9	13960	21.23	µg/L	100
MeFOSA	10.681	511.9 -> 219.0	5931	2.14	µg/L	83
		511.9 -> 169.0	5905			
MeFOSE	10.602	616.1 -> 58.9	18647	18.88	µg/L	100
PFDoDS	9.883	699.1 -> 79.9	2895	2.31	µg/L	99
		699.1 -> 98.8	1947			
NFDHA	5.432	295.0 -> 201.0	4096	5.02	µg/L	92
		295.0 -> 84.9	2172			
PFMBA	4.775	279.0 -> 85.1	12173	4.69	µg/L	100
PFMPA	3.541	229.0 -> 84.9	11030	4.70	µg/L	100
PFEESA	6.034	314.8 -> 134.9	82828	4.56	µg/L	100
		314.8 -> 82.9	2116			

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

7.4.1
7

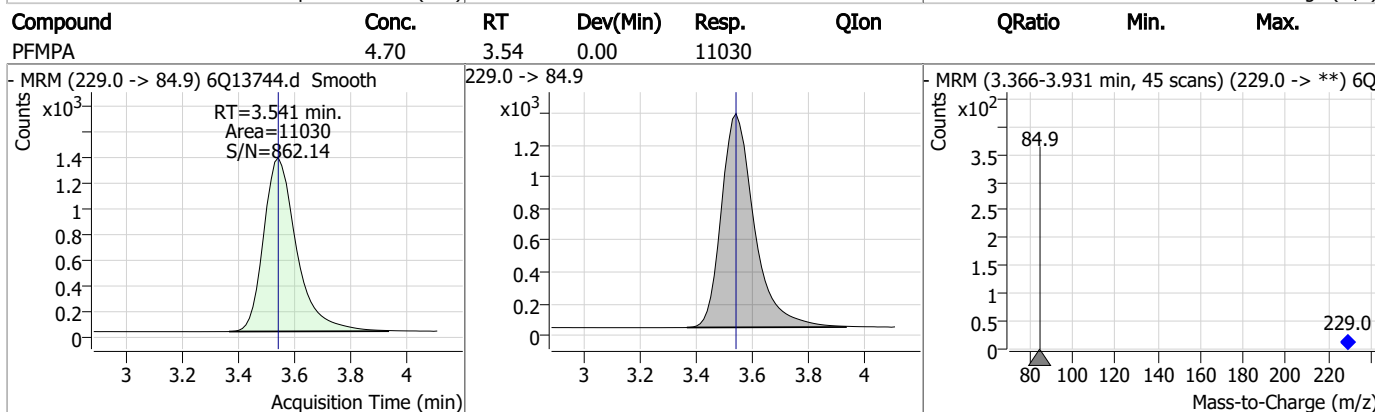
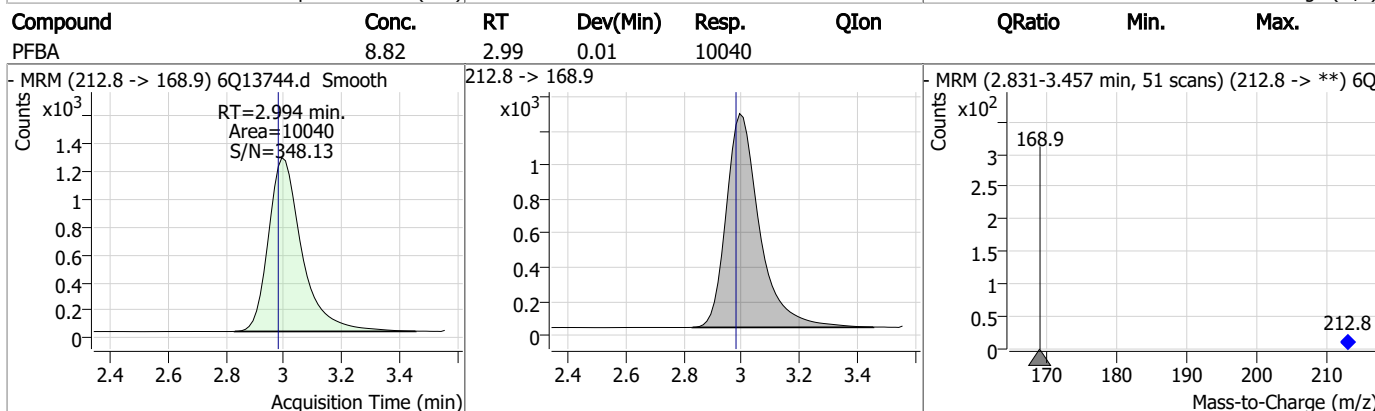
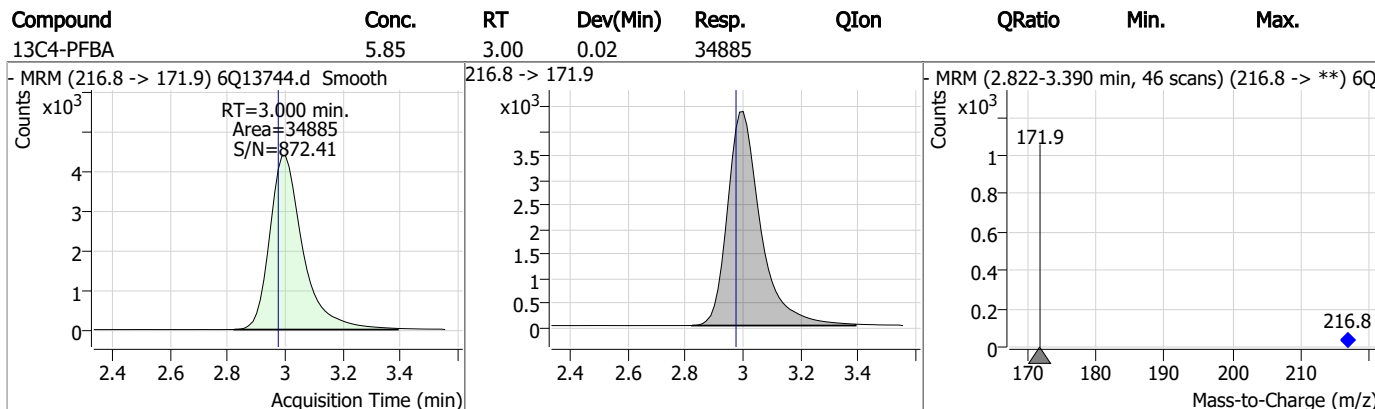
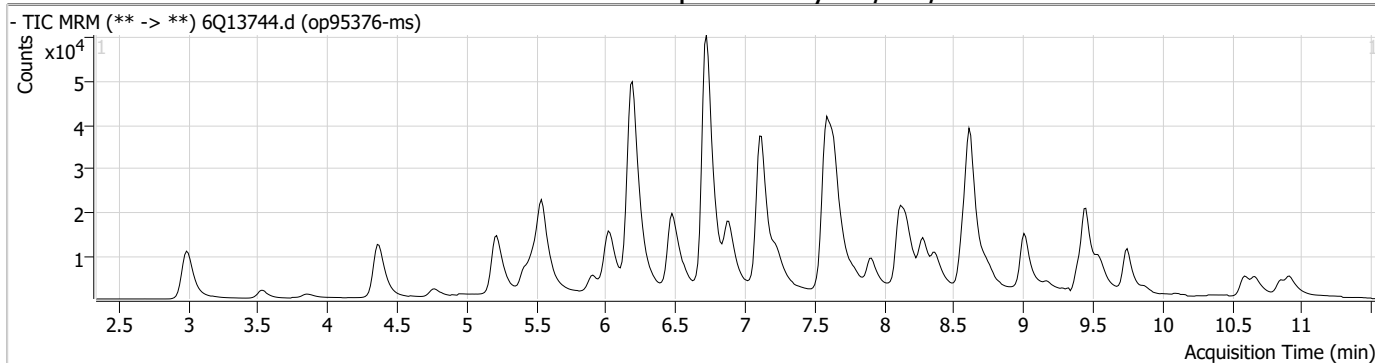
Perfluorinated Compounds by LC/MS/MS

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

7.4.1

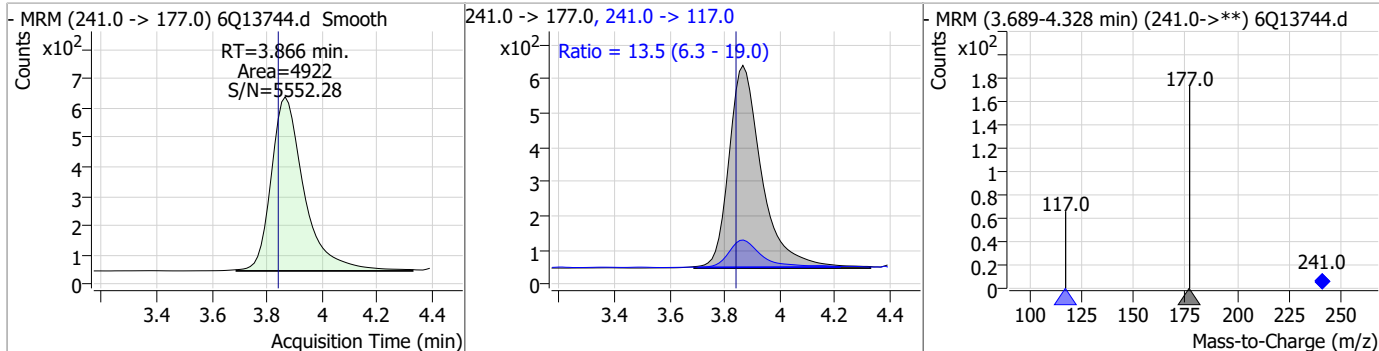
7

Perfluorinated Compounds by LC/MS/MS

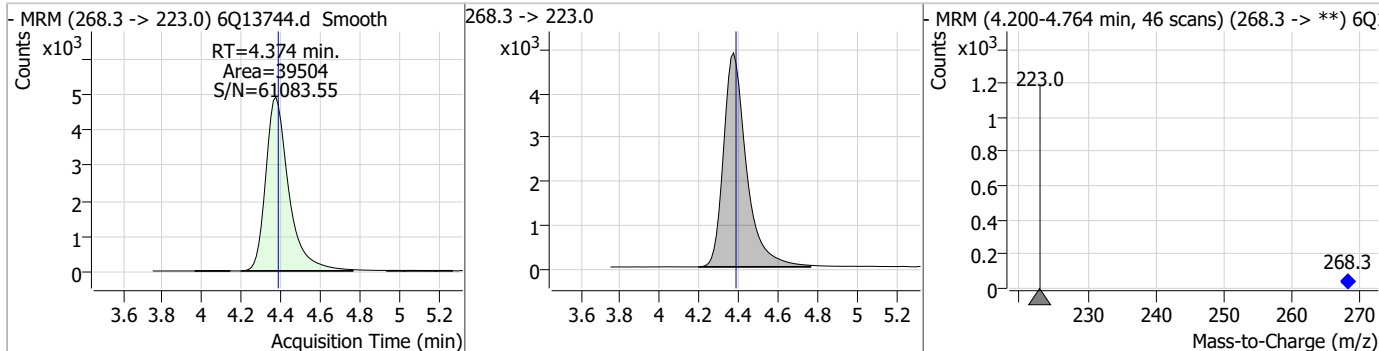


Perfluorinated Compounds by LC/MS/MS

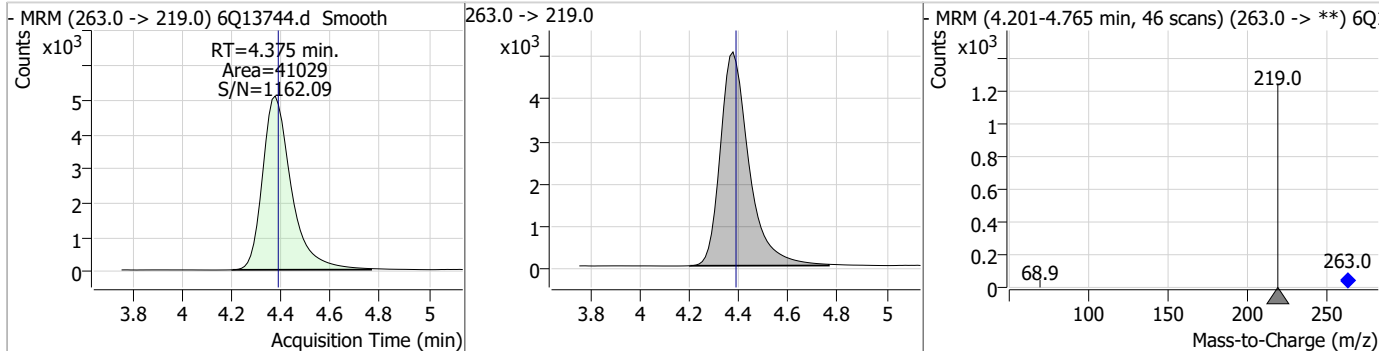
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.09	3.87	0.02	4922	241.0 -> 117.0	13.5	6.3	19.0



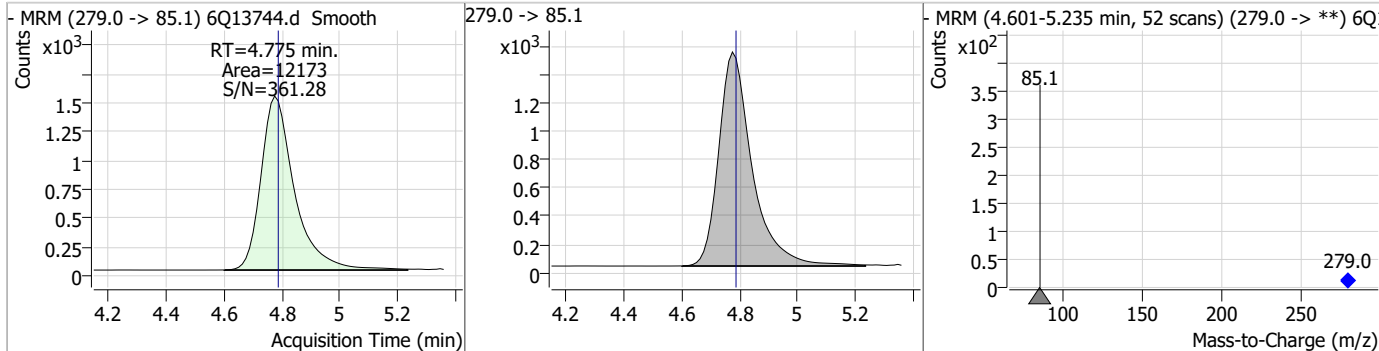
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	6.90	4.37	-0.01	39504				



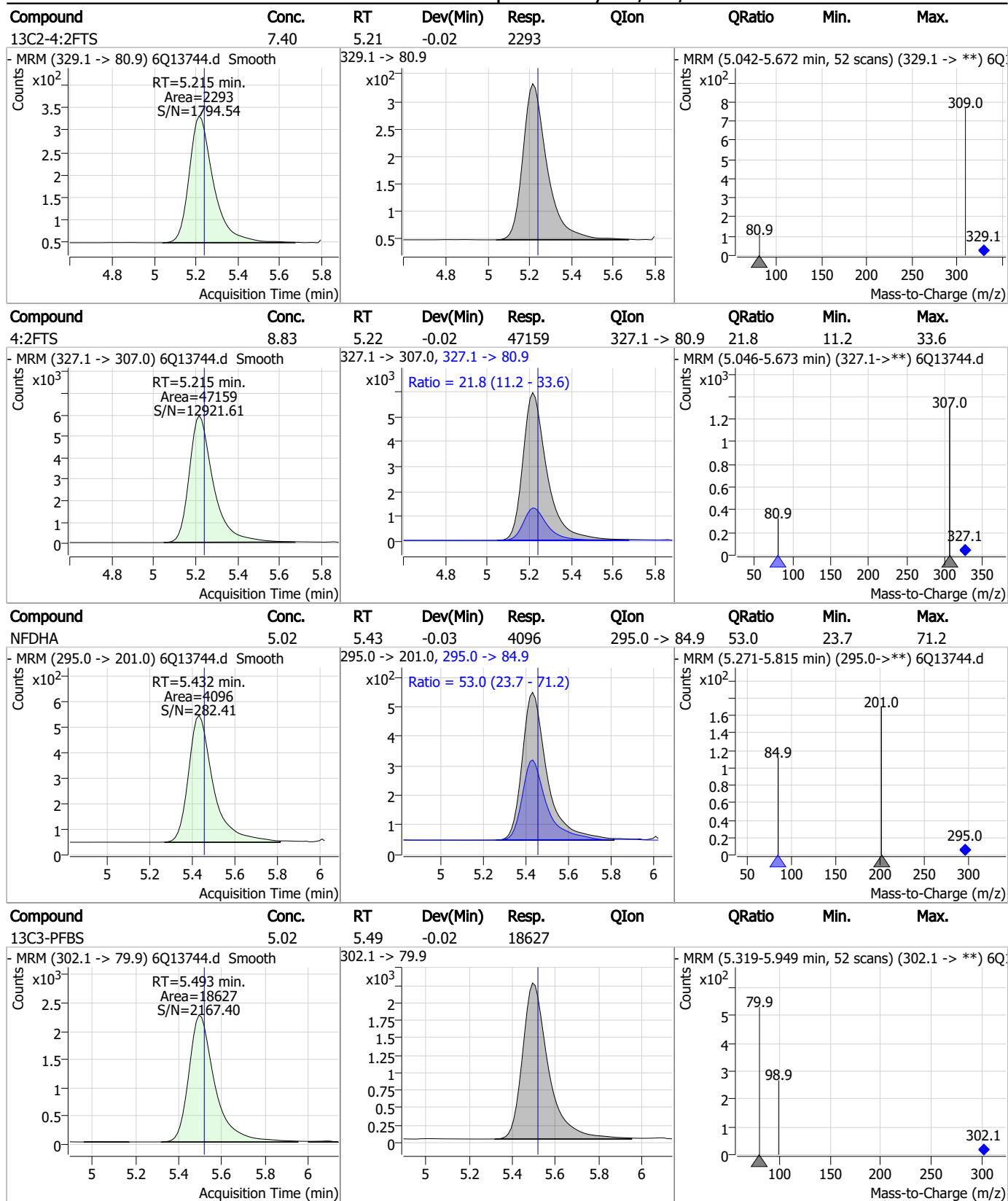
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.66	4.38	-0.01	41029				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.69	4.78	-0.01	12173				



Perfluorinated Compounds by LC/MS/MS

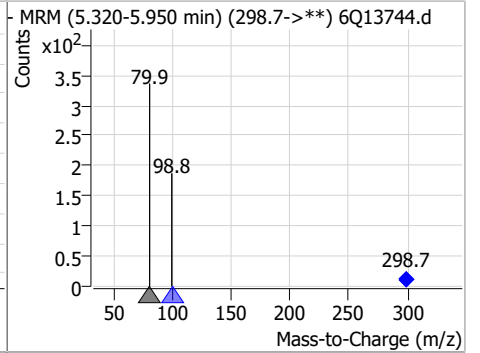
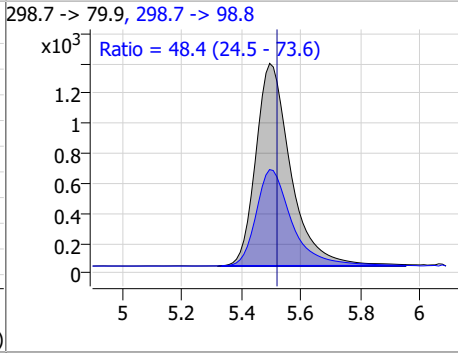
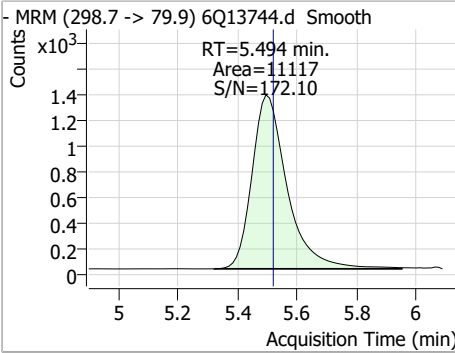


7.4.1
7

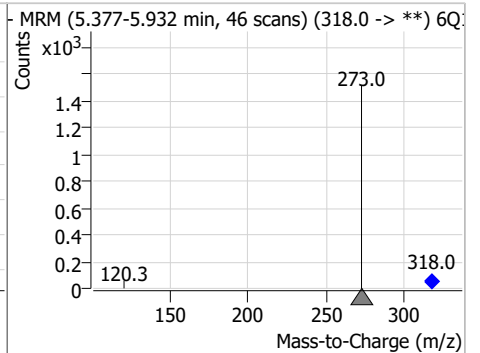
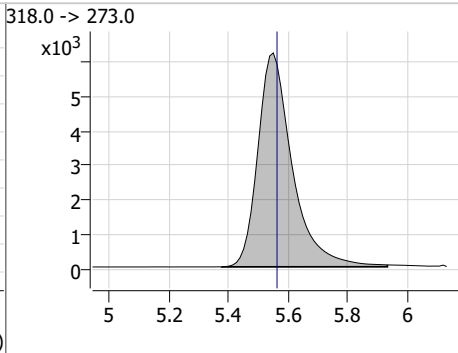
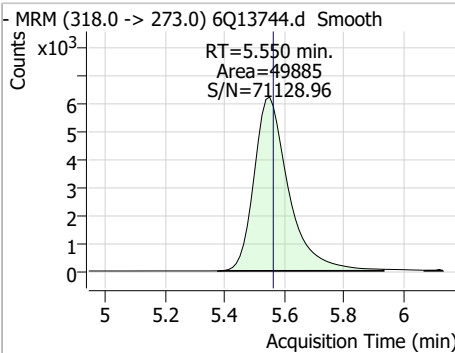


Perfluorinated Compounds by LC/MS/MS

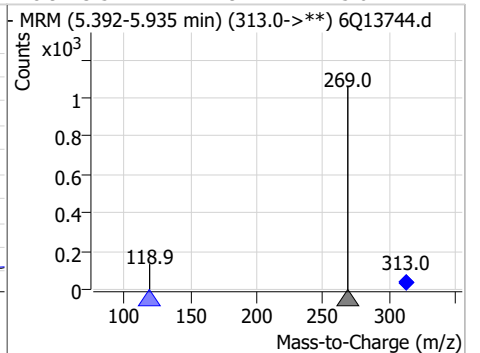
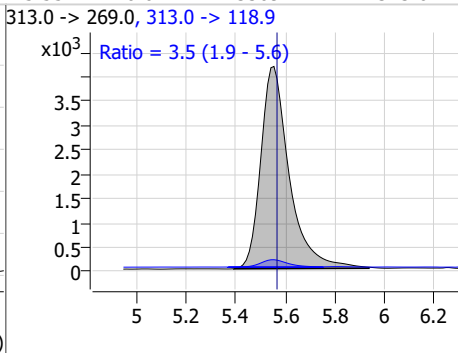
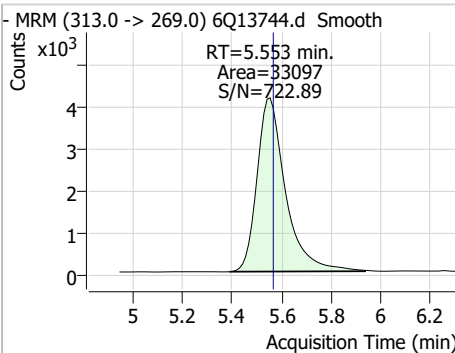
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.15	5.49	-0.02	11117	298.7 -> 98.8	48.4	24.5	73.6



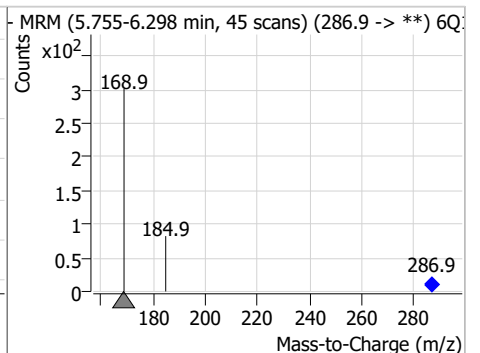
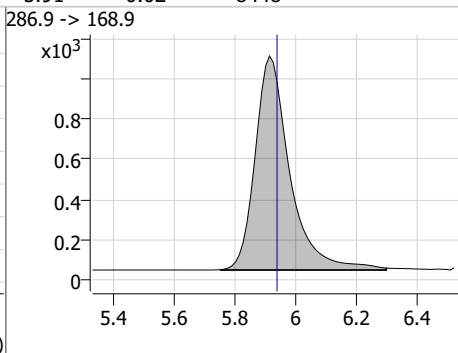
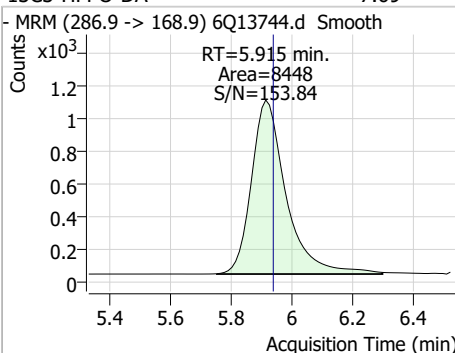
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	4.83	5.55	-0.01	49885	318.0 -> 273.0			



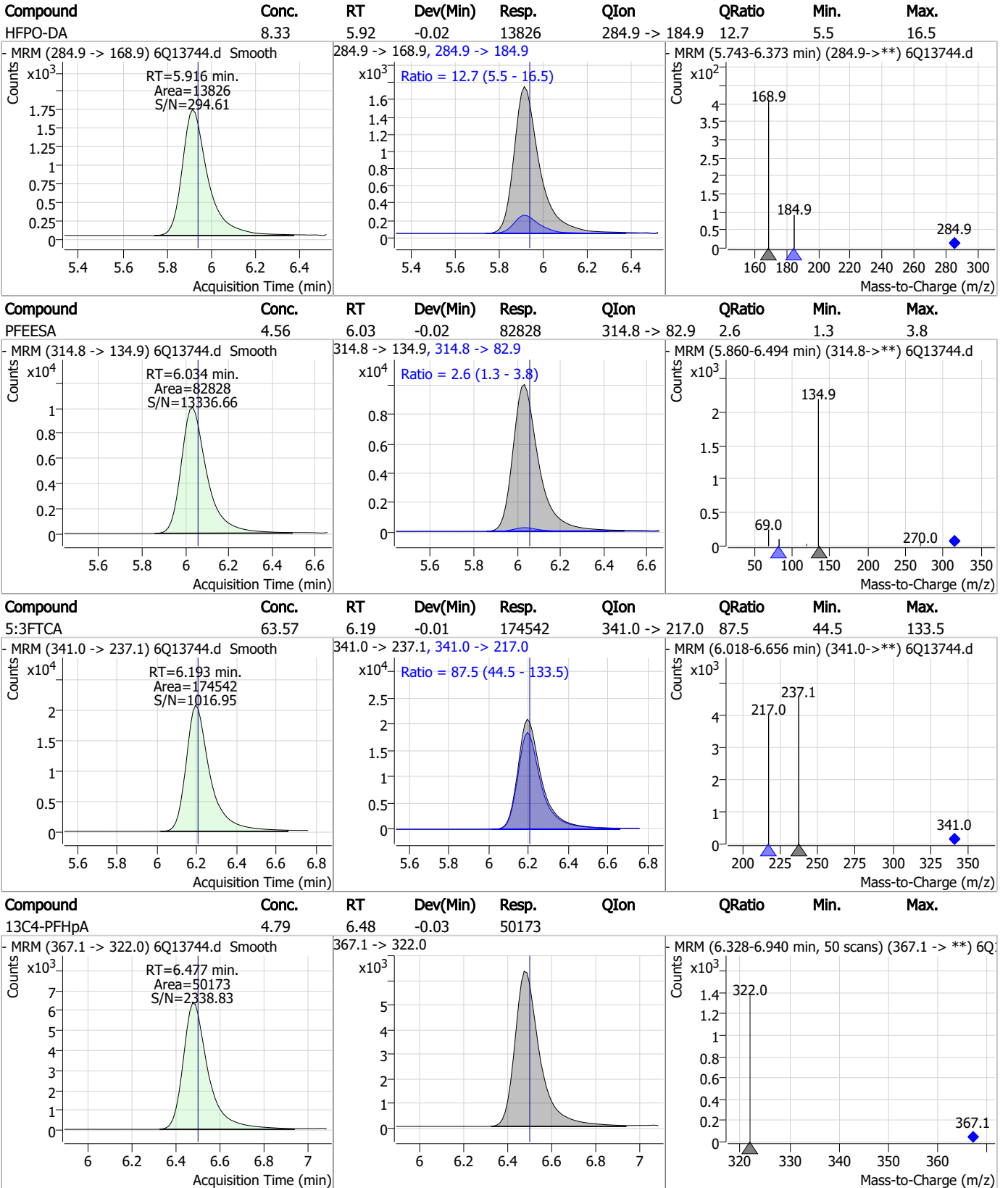
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.47	5.55	-0.01	33097	313.0 -> 118.9	3.5	1.9	5.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	7.69	5.91	-0.02	8448	286.9 -> 168.9			



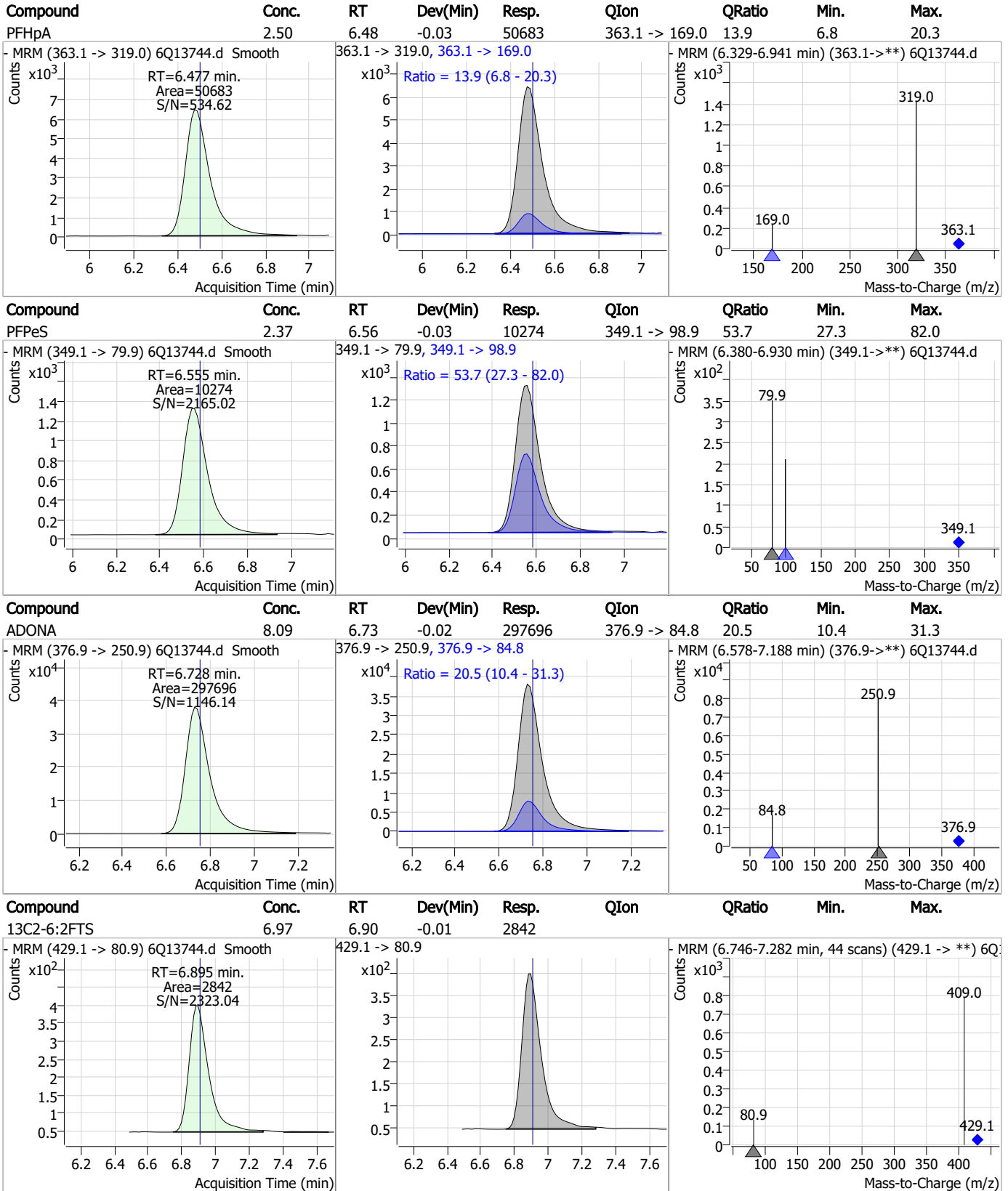
Perfluorinated Compounds by LC/MS/MS



7.4.1

7

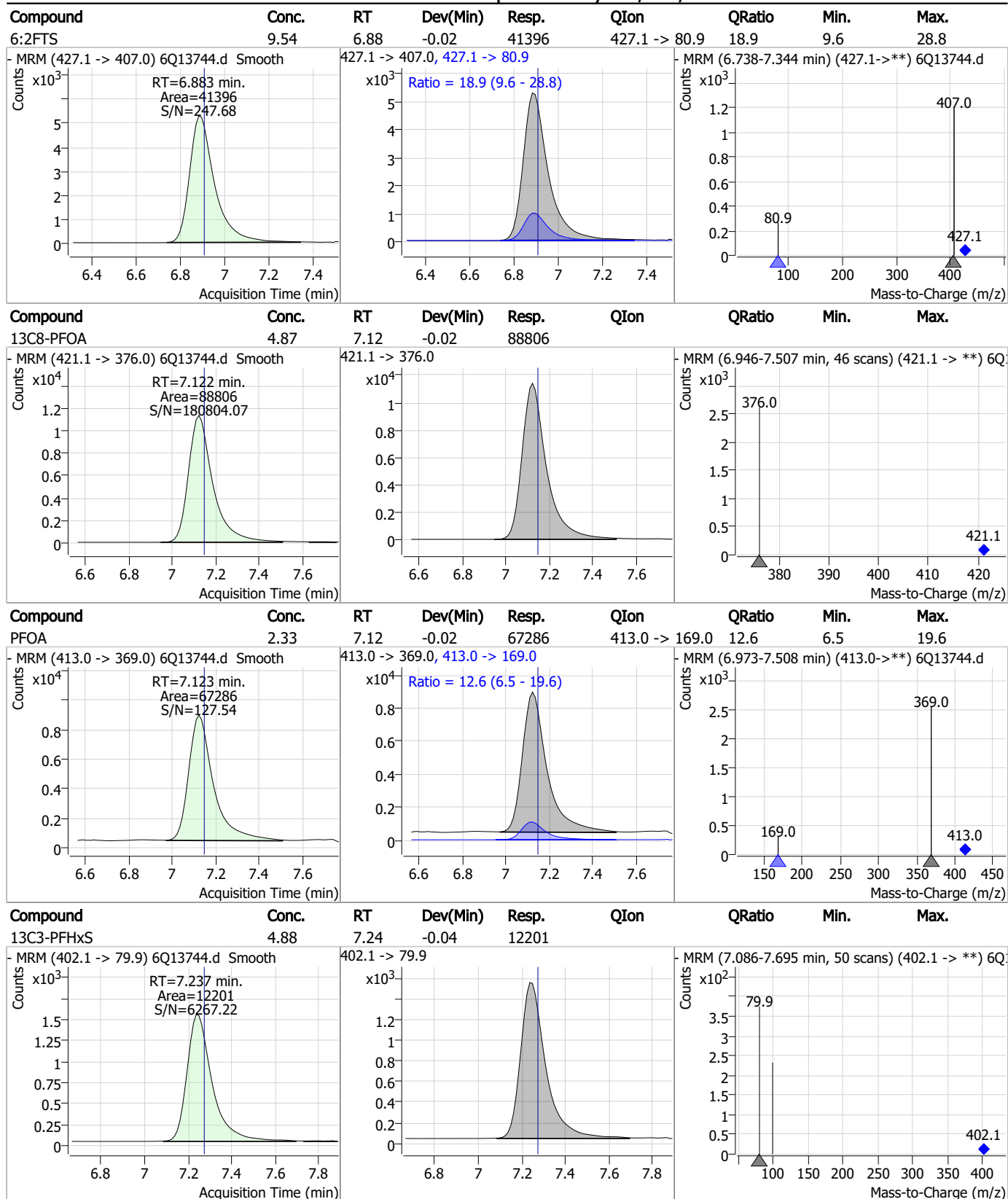
Perfluorinated Compounds by LC/MS/MS



7.4.1

7

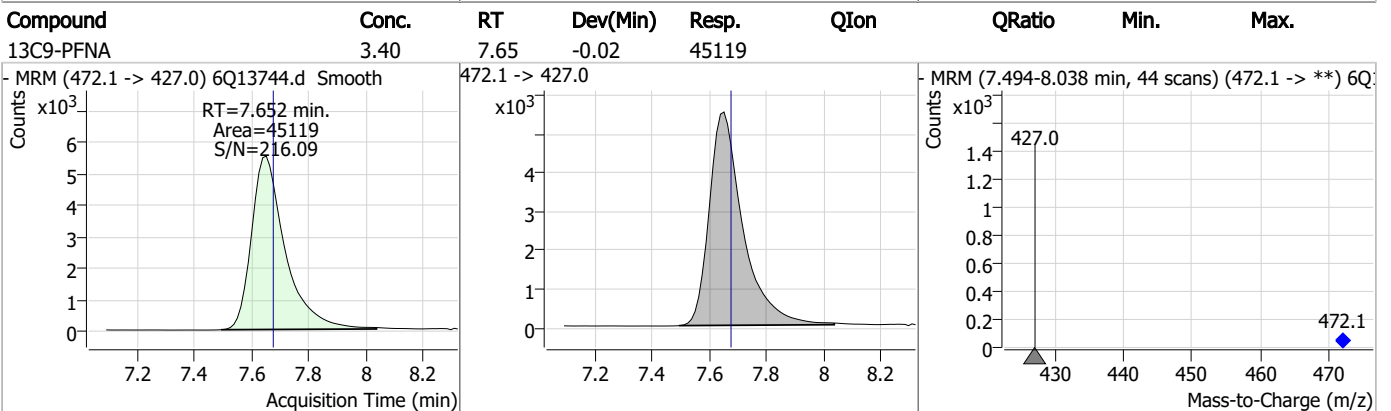
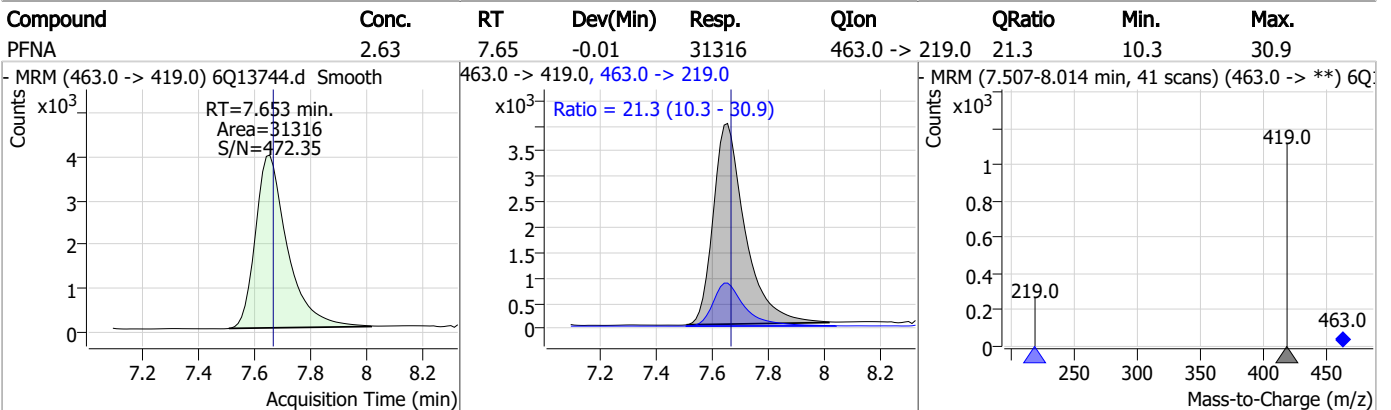
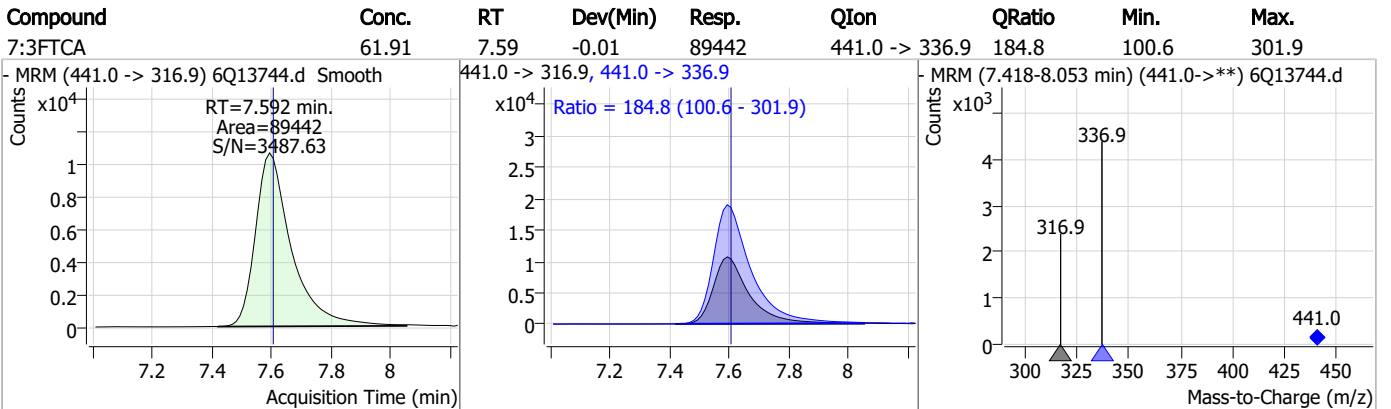
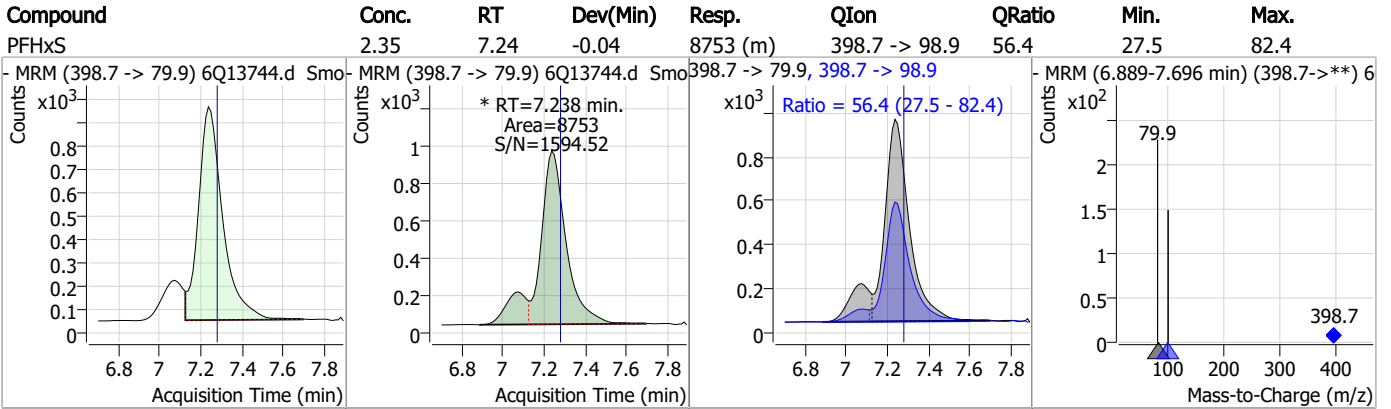
Perfluorinated Compounds by LC/MS/MS



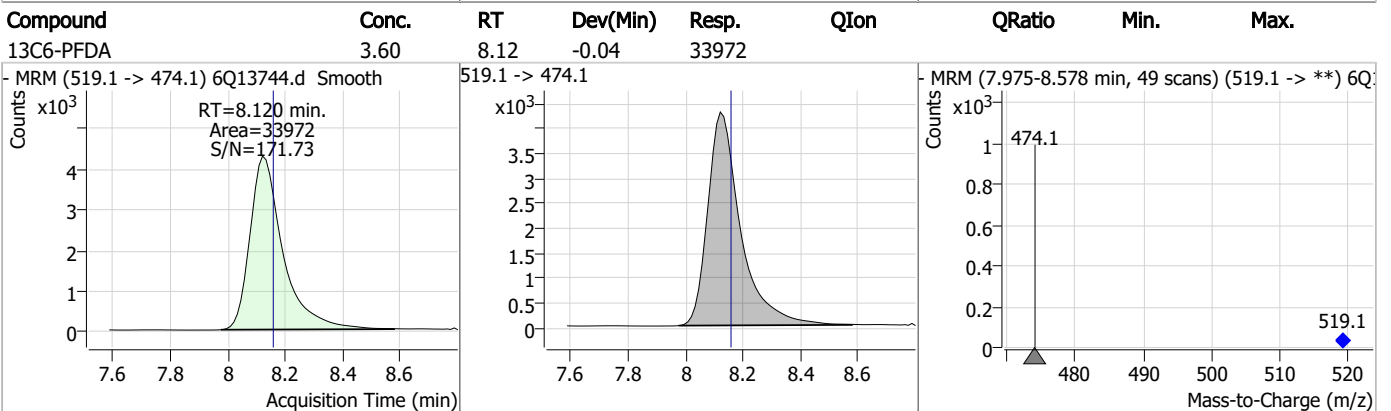
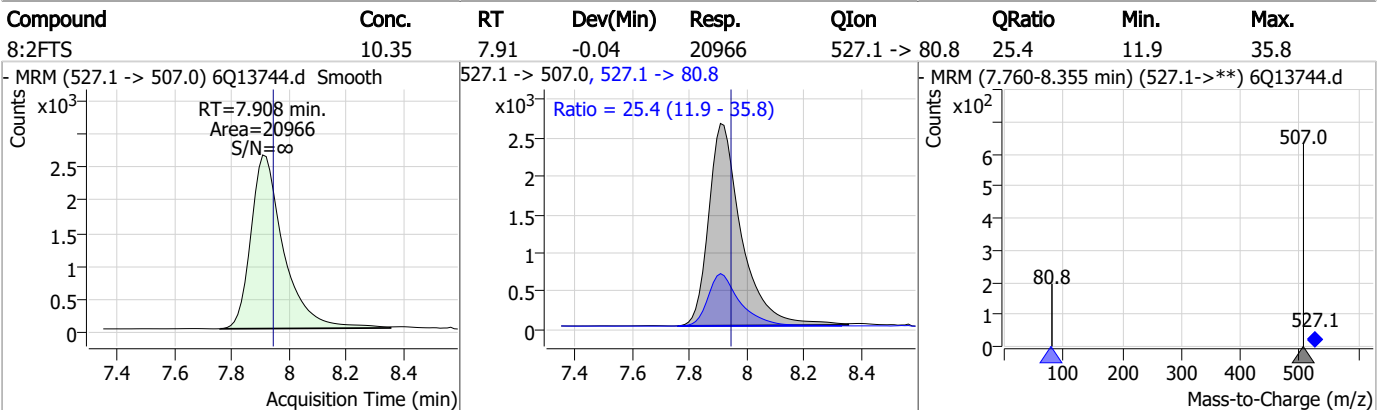
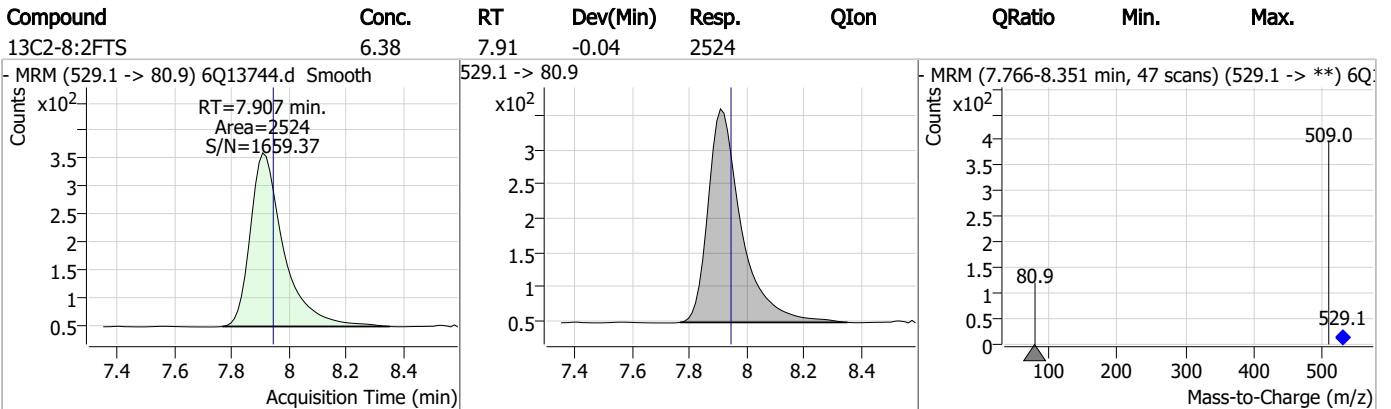
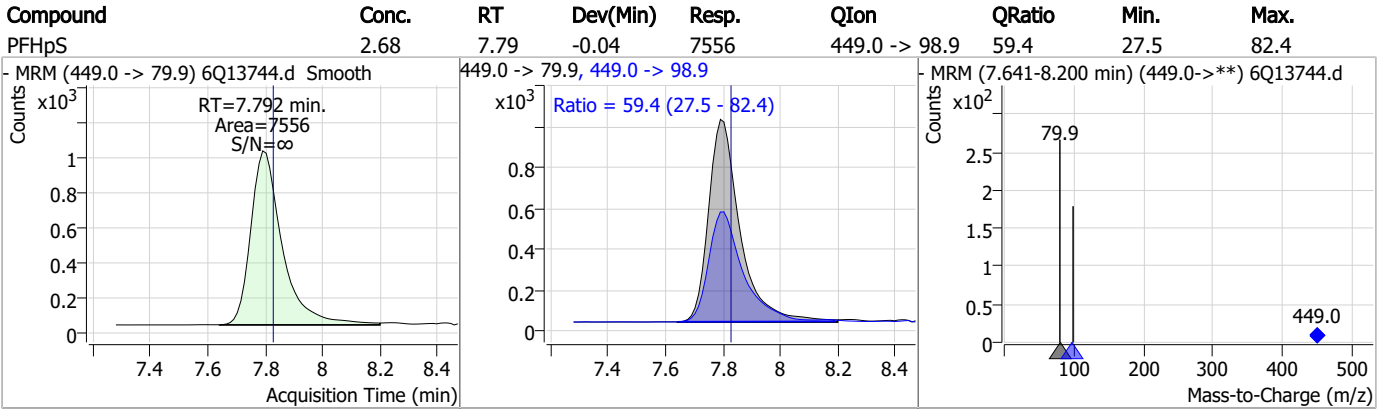
7.4.1

7

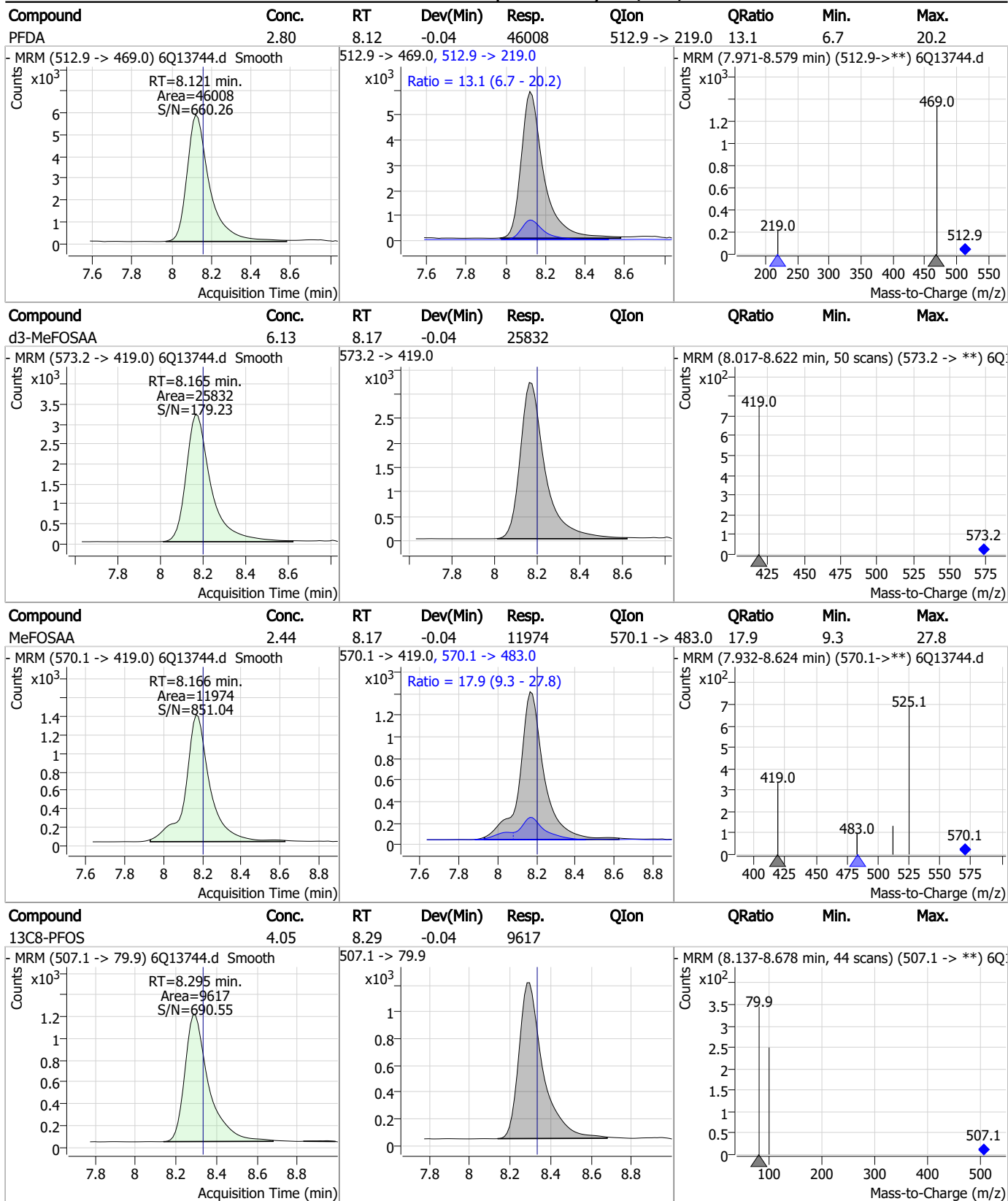
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



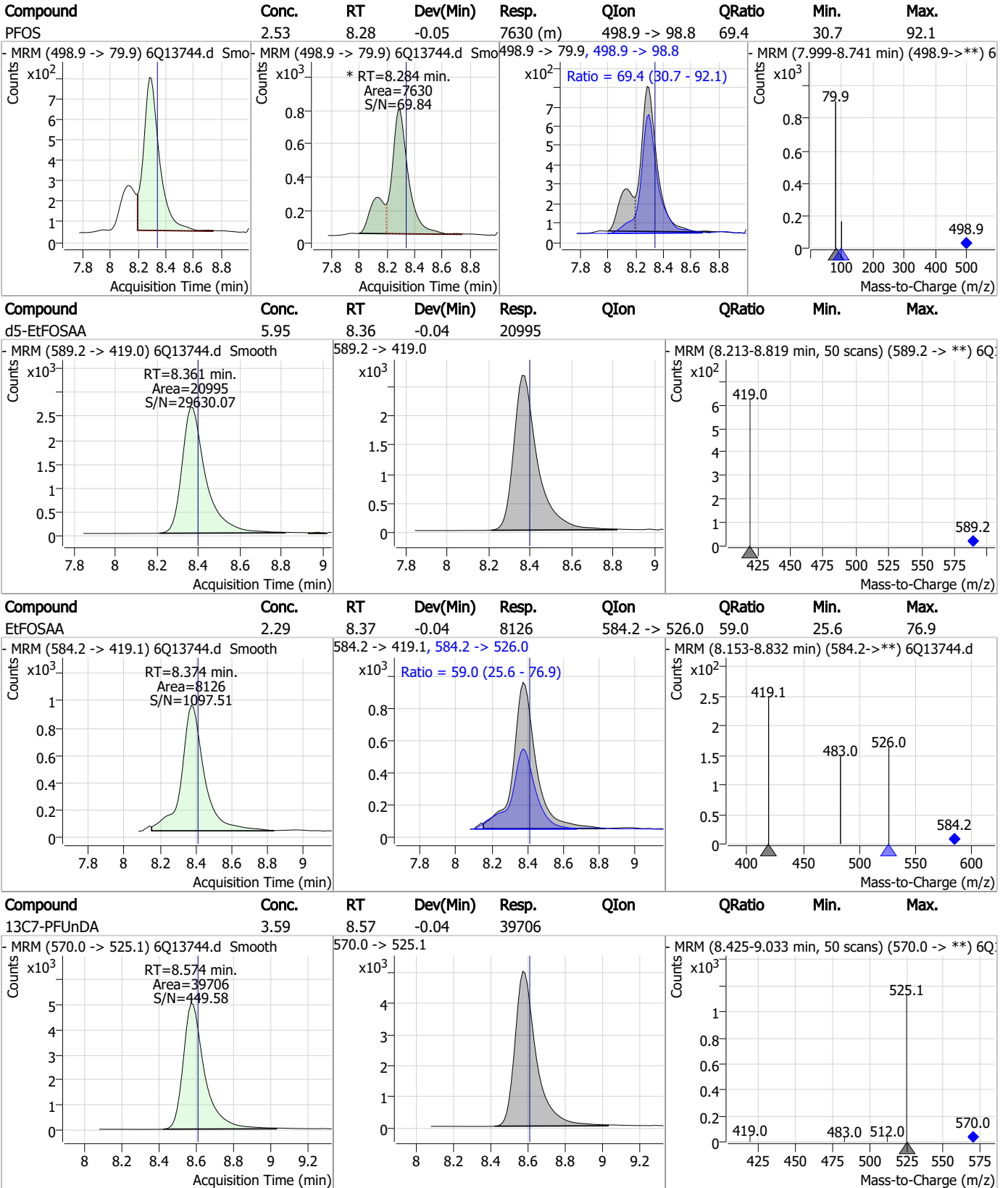
Perfluorinated Compounds by LC/MS/MS



7.4.1

7

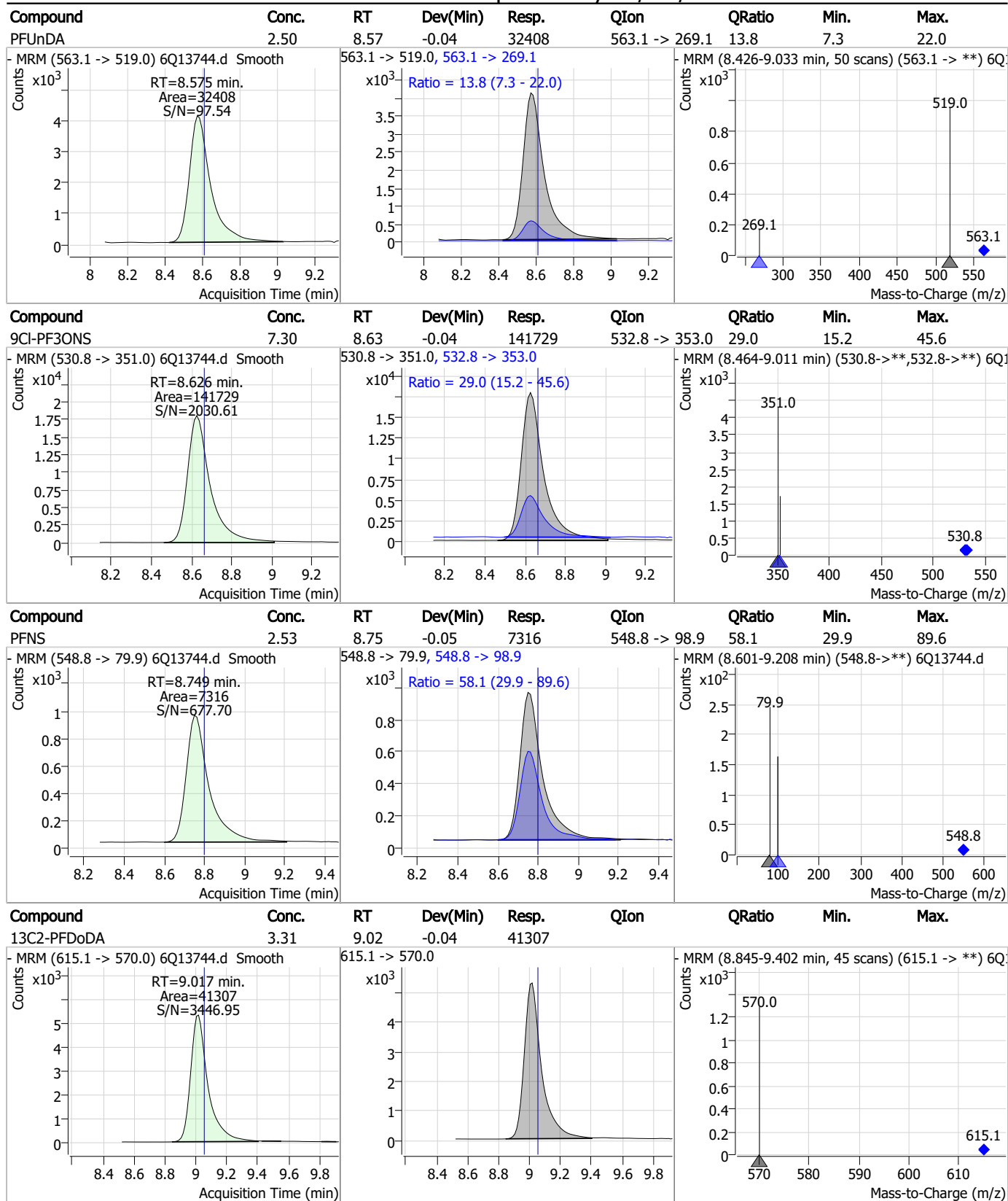
Perfluorinated Compounds by LC/MS/MS



7.4.1

7

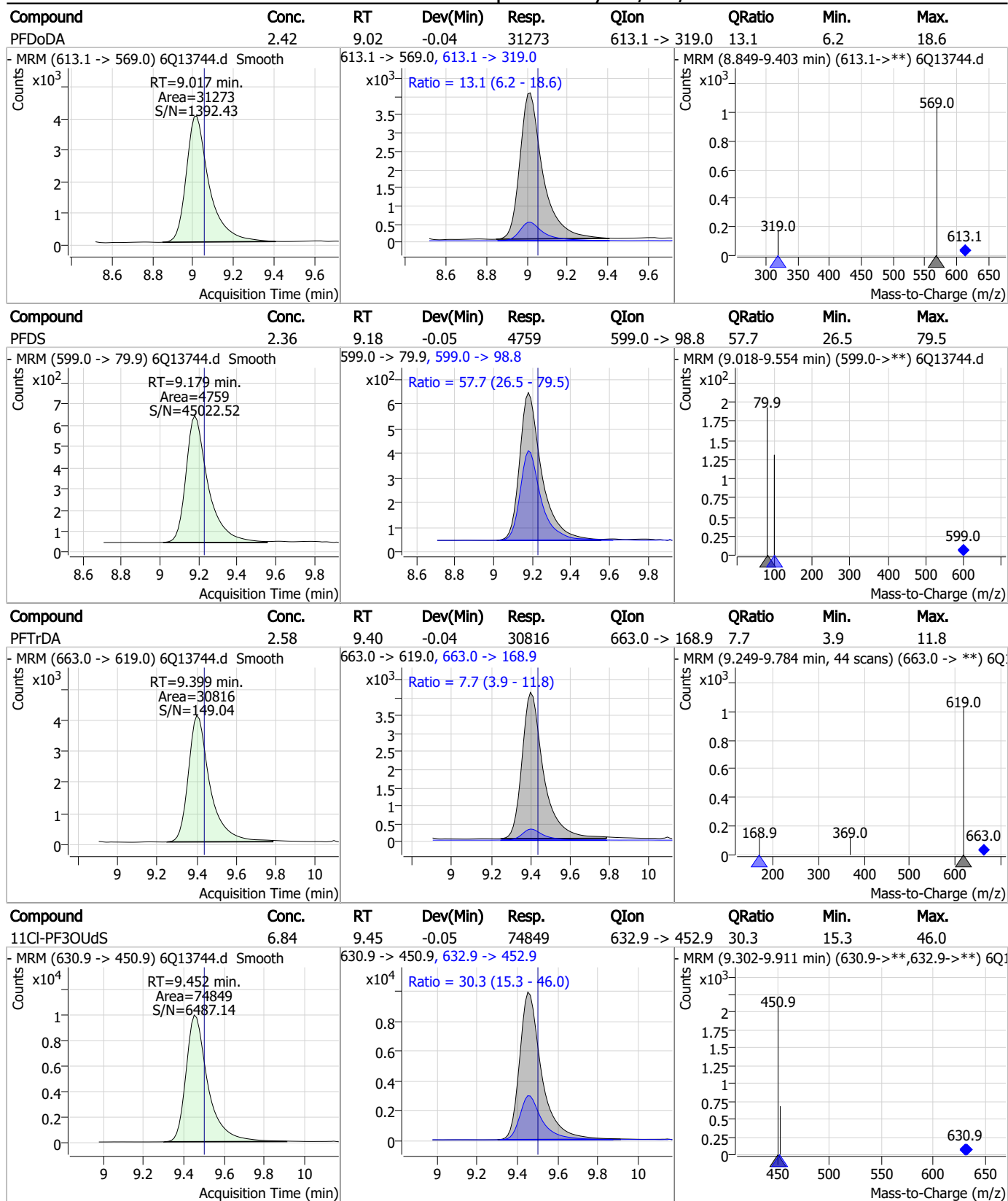
Perfluorinated Compounds by LC/MS/MS



7.4.1

7

Perfluorinated Compounds by LC/MS/MS

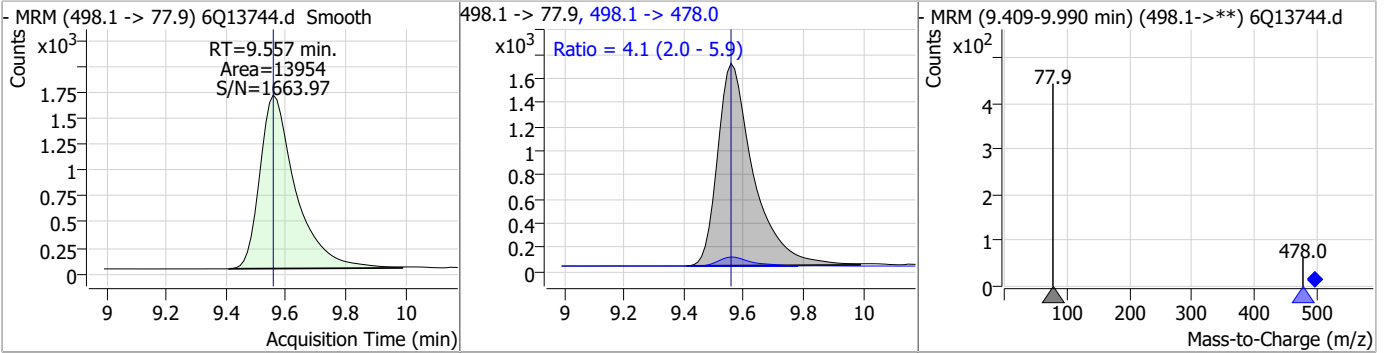


7.4.1
7

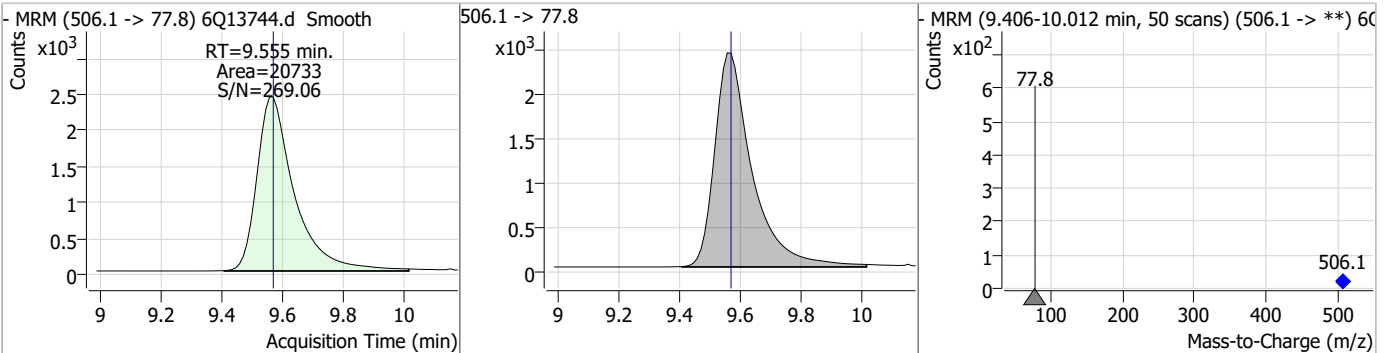


Perfluorinated Compounds by LC/MS/MS

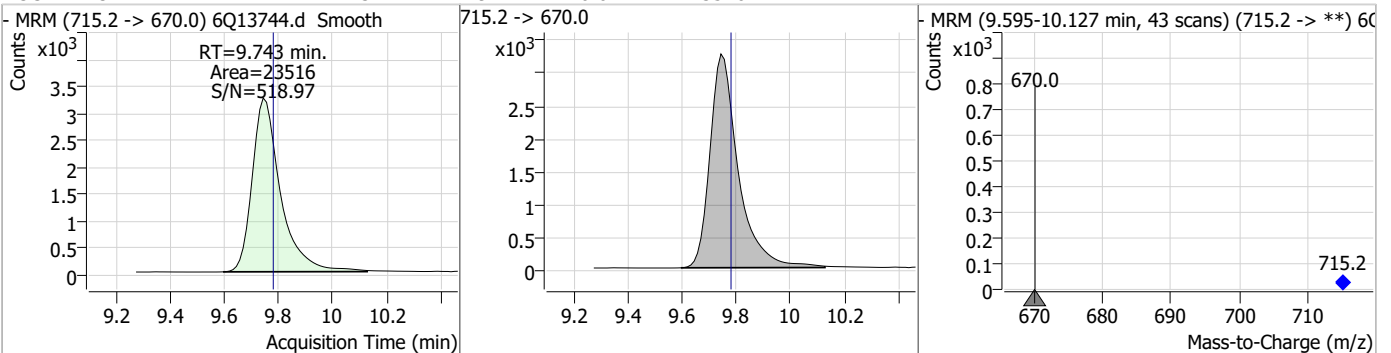
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.56	9.56	0.00	13954	498.1 -> 478.0	4.1	2.0	5.9



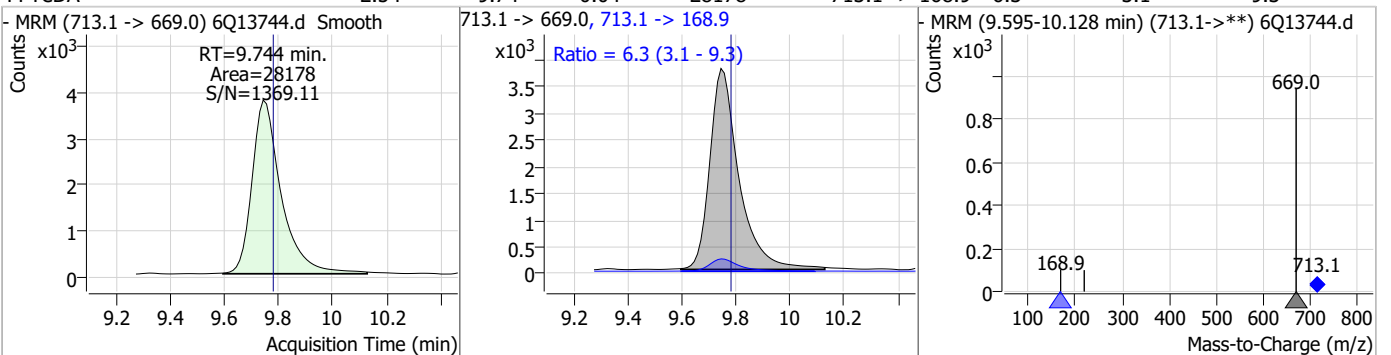
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	4.40	9.55	-0.01	20733				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	3.41	9.74	-0.04	23516				

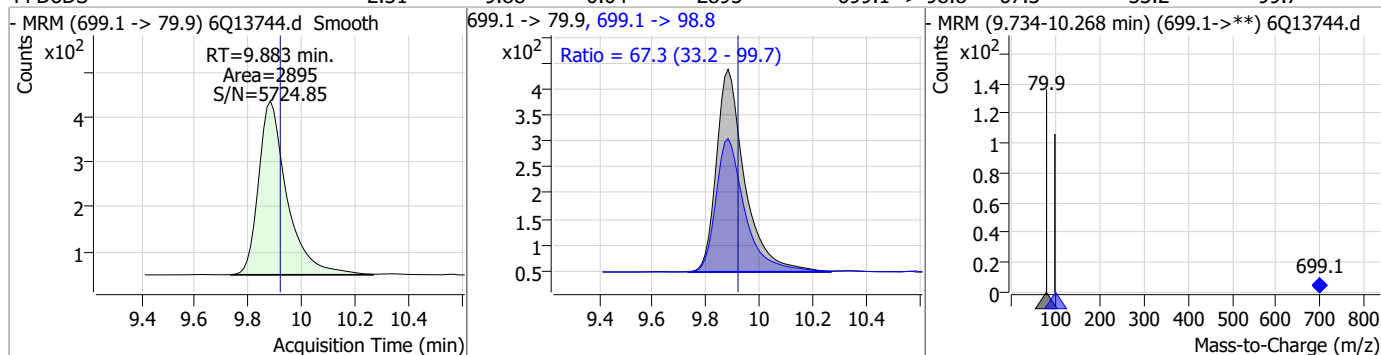


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.54	9.74	-0.04	28178	713.1 -> 168.9	6.3	3.1	9.3

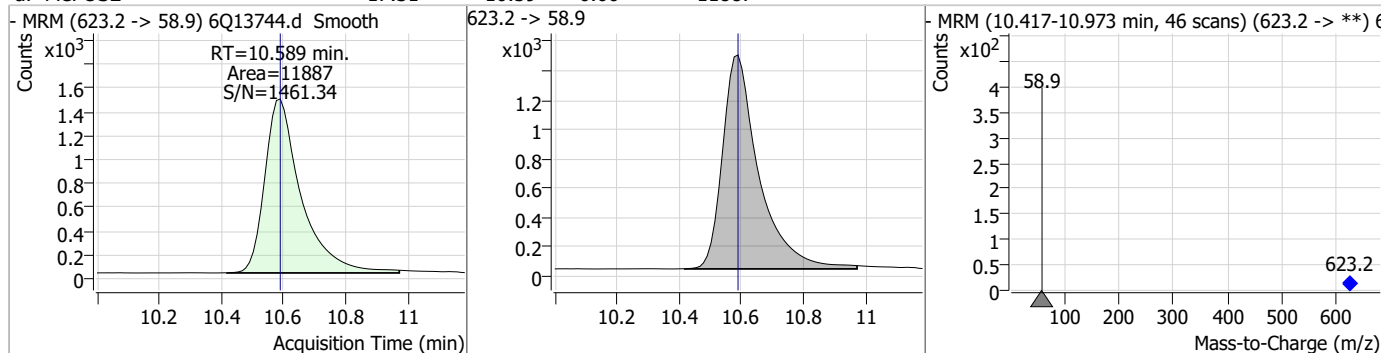


Perfluorinated Compounds by LC/MS/MS

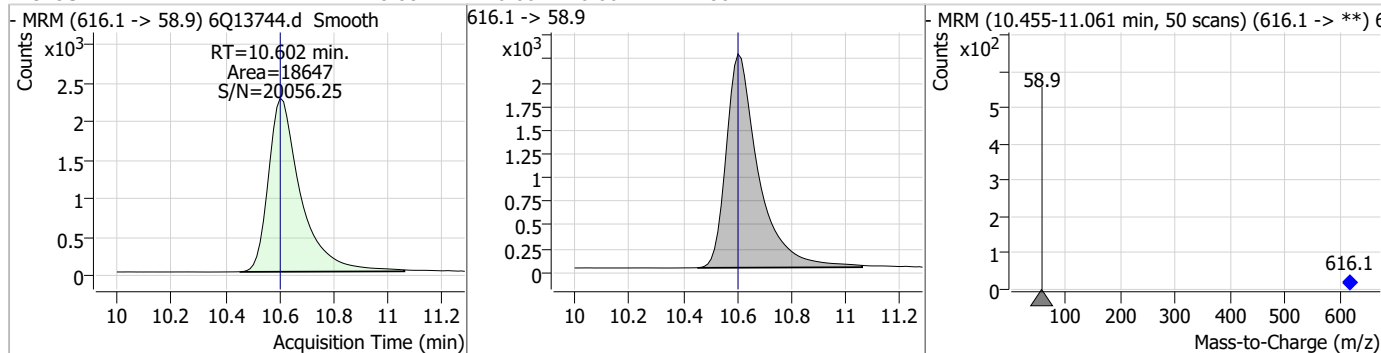
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.31	9.88	-0.04	2895	699.1 -> 98.8	67.3	33.2	99.7



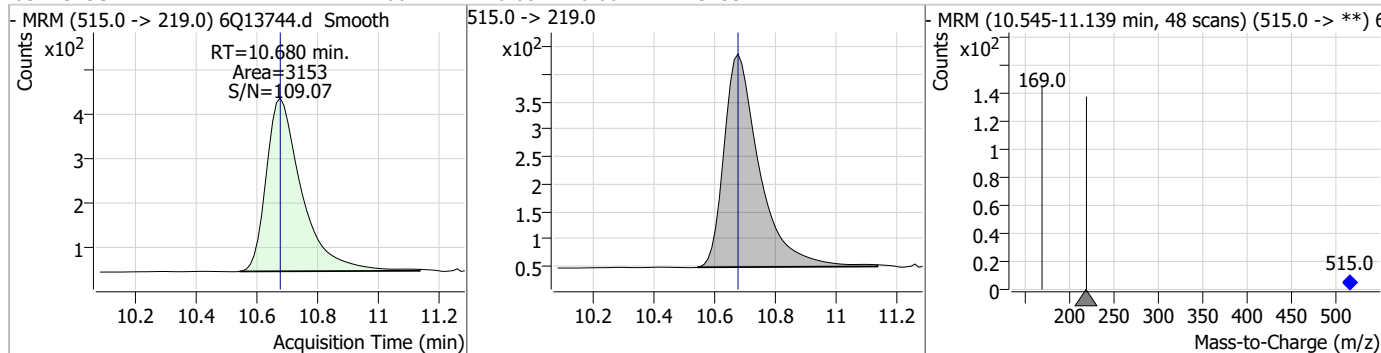
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	17.31	10.59	0.00	11887				



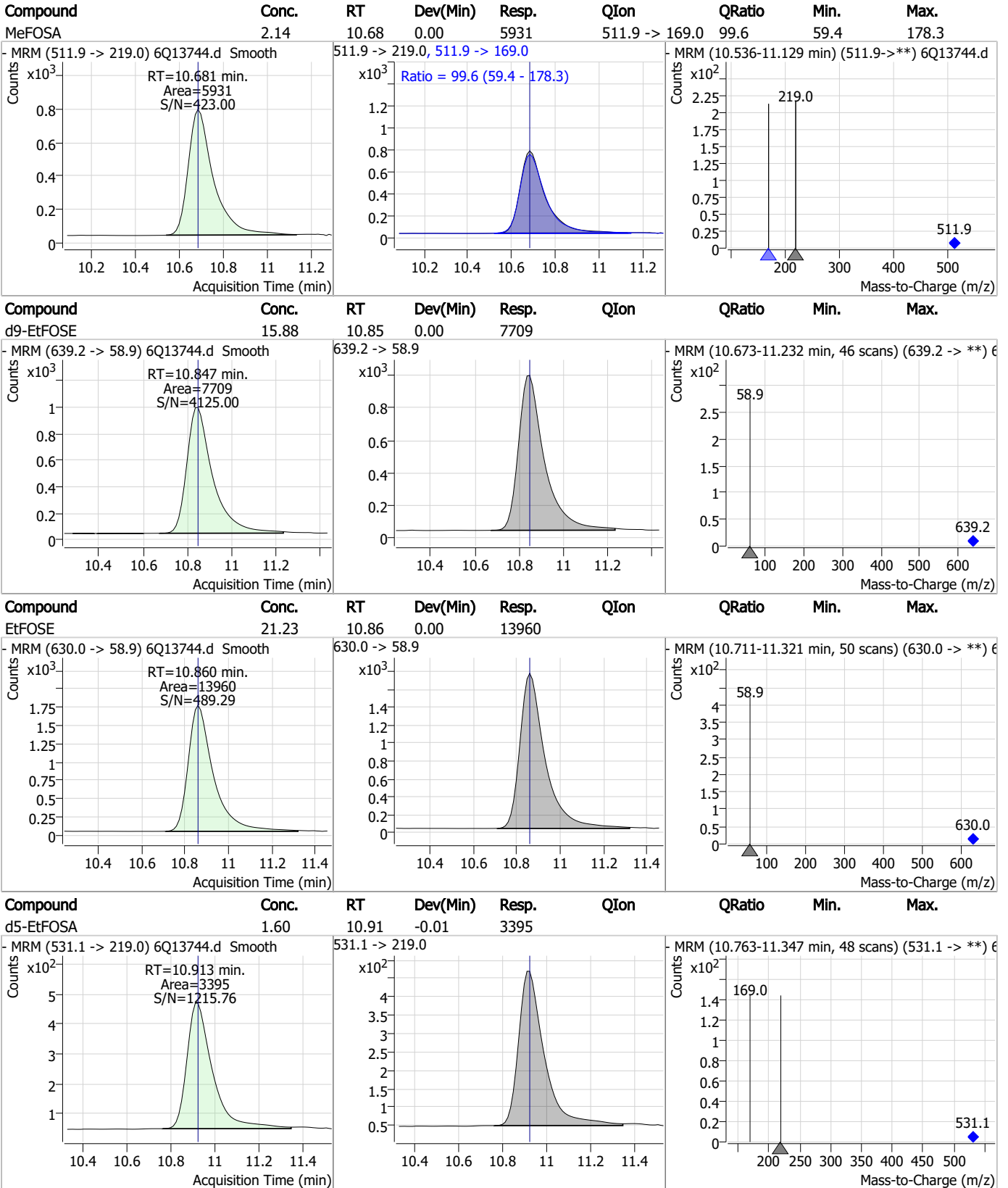
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	18.88	10.60	0.00	18647				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	1.60	10.68	0.00	3153				



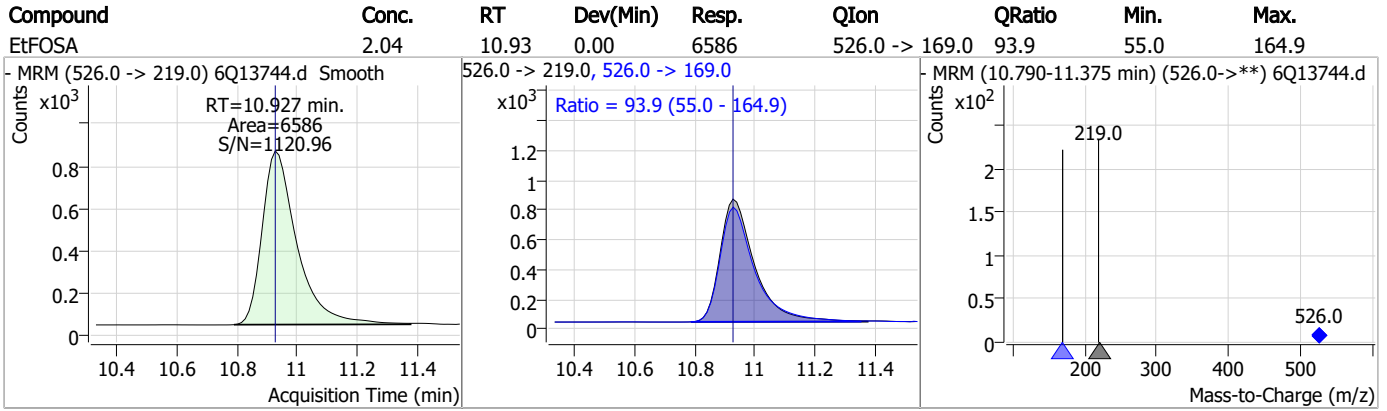
Perfluorinated Compounds by LC/MS/MS



7.4.1

7

Perfluorinated Compounds by LC/MS/MS



7.4.1

7

Manual Integration Approval Summary

Sample Number: OP95376-MS Method: EPA DRAFT 1633
Lab FileID: 6Q13744.D Analyst approved: 02/18/23 11:48 Natasha Gumtie
Injection Time: 02/16/23 12:02 Supervisor approved: 02/18/23 12:04 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.28	Split peak

7.4.1.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)
Norman Farmer
02/18/23 12:01

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13724.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/16/2023 7:22:10 AM
 Sample Name : RT TDCA
 Vial : P1-E3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s6q208TDCA.batch.bin
 Sample Information : OP95142,S6Q208,500,,,5.0,1,water

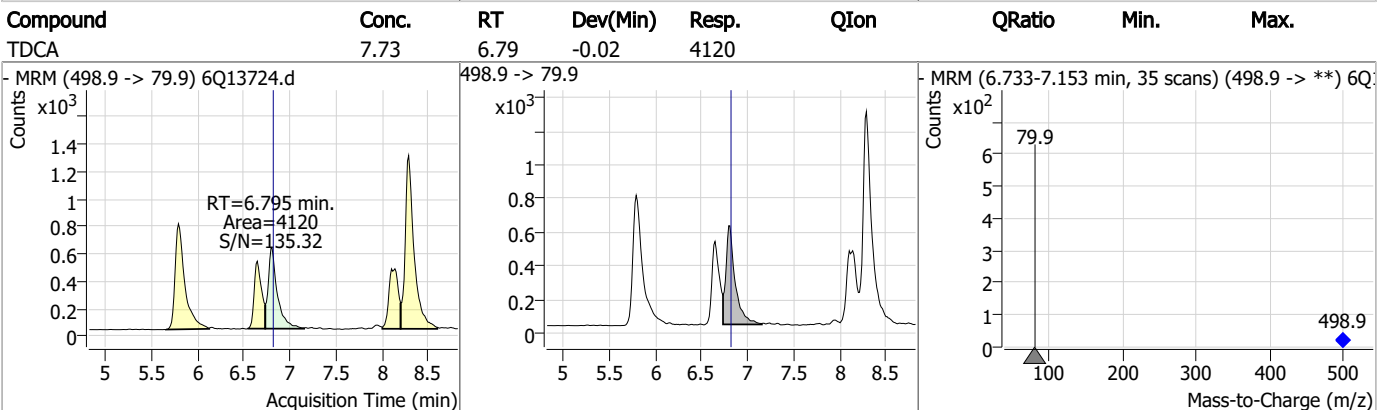
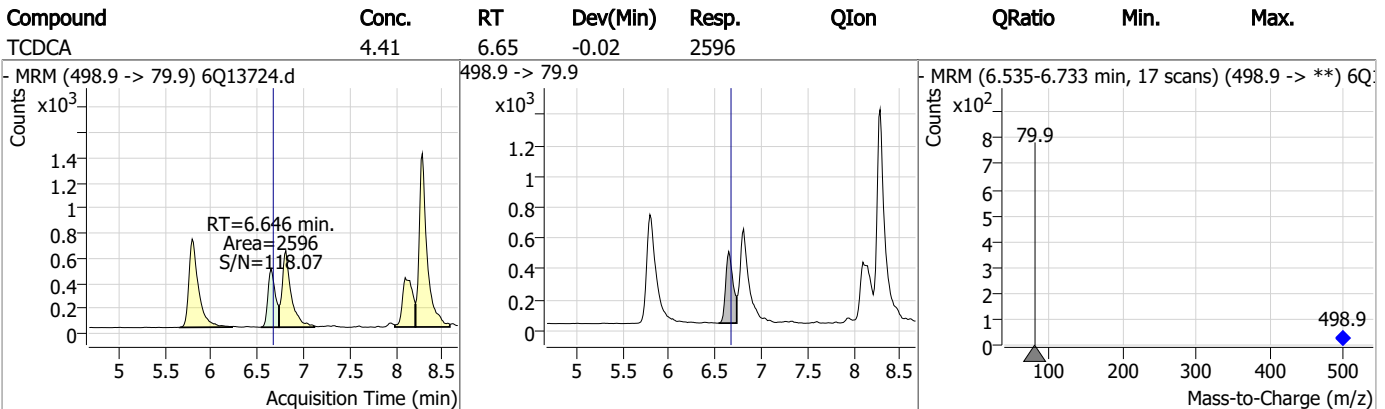
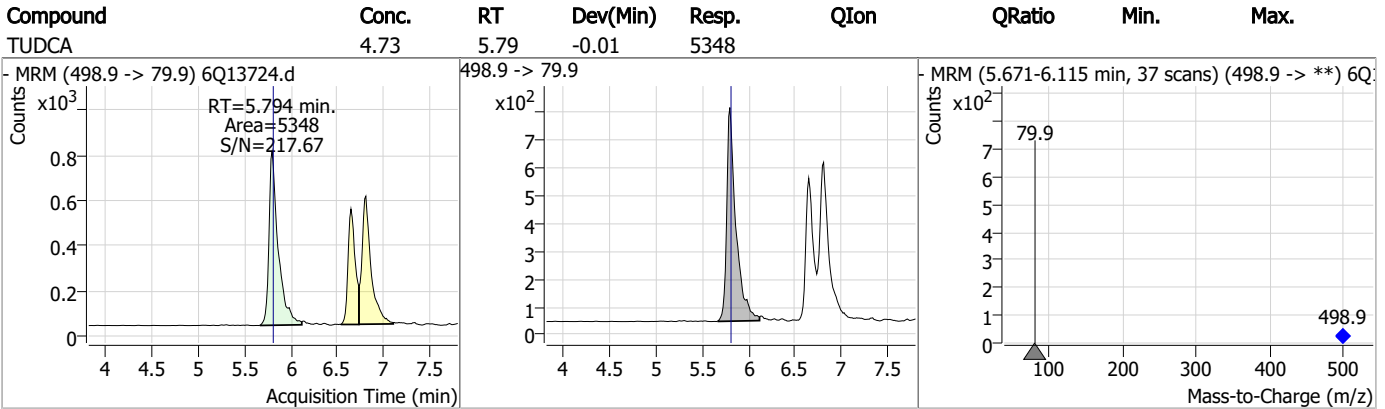
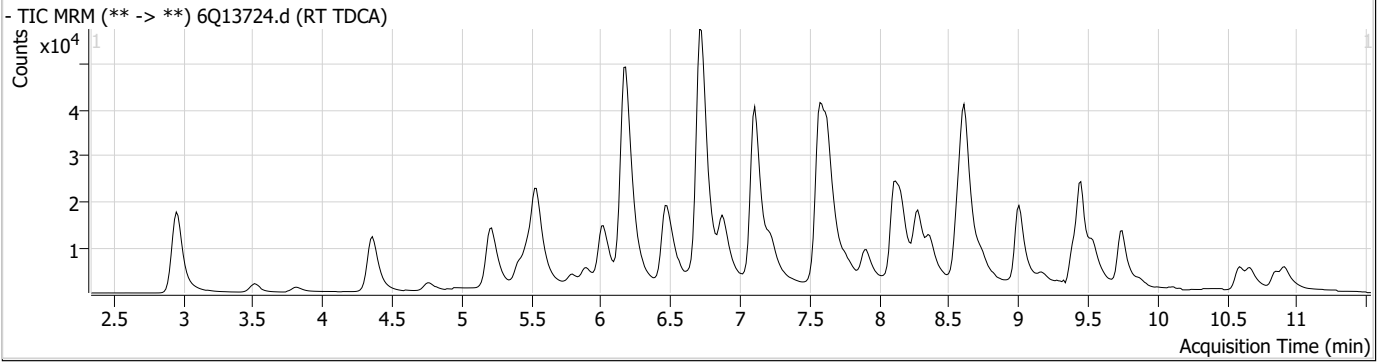
Compound	RT	Transition	Response	Conc. Units	Dev(Min)	
Internal Standards						
M8-PFOS	8.283	507.1 -> 79.9	12761	2.50 µg/L	-0.062	
13C4-PFOS	8.283	502.8 -> 79.9	12590	2.50 µg/L	-0.050	
System Monitoring Compounds						
13C8-PFOS	8.283	507.1 -> 79.9	12761	2.57 µg/L	-0.062	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.8%			
Target Compounds						
PFOS	8.284	498.9 -> 79.9 498.9 -> 98.8	10085 6550	2.31 µg/L	#m	QValue 72
TCDCa	6.646	498.9 -> 79.9	2596	4.41 ng/ml		100
TDCA	6.795	498.9 -> 79.9	4120	7.73 ng/ml		100
TUDCA	5.794	498.9 -> 79.9	5348	4.73 ng/ml		100

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

7.5.1
7

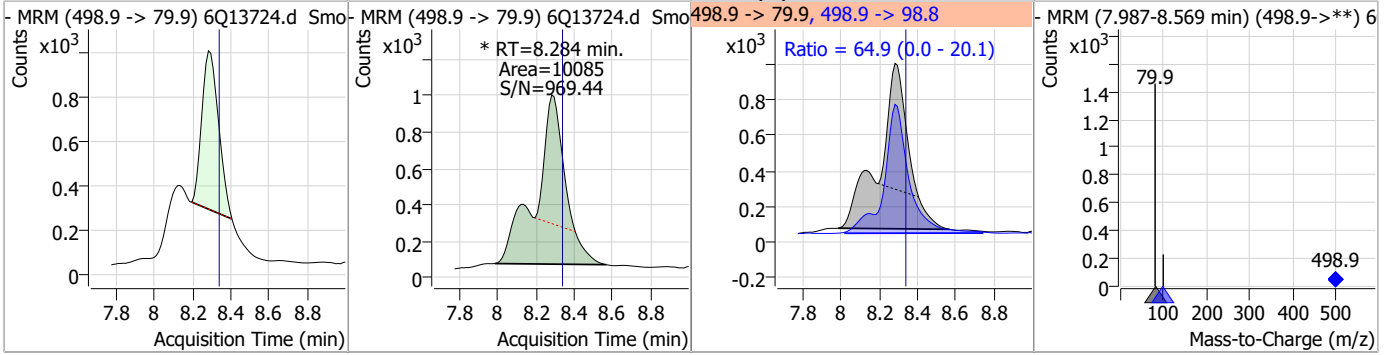


Perfluorinated Compounds by LC/MS/MS

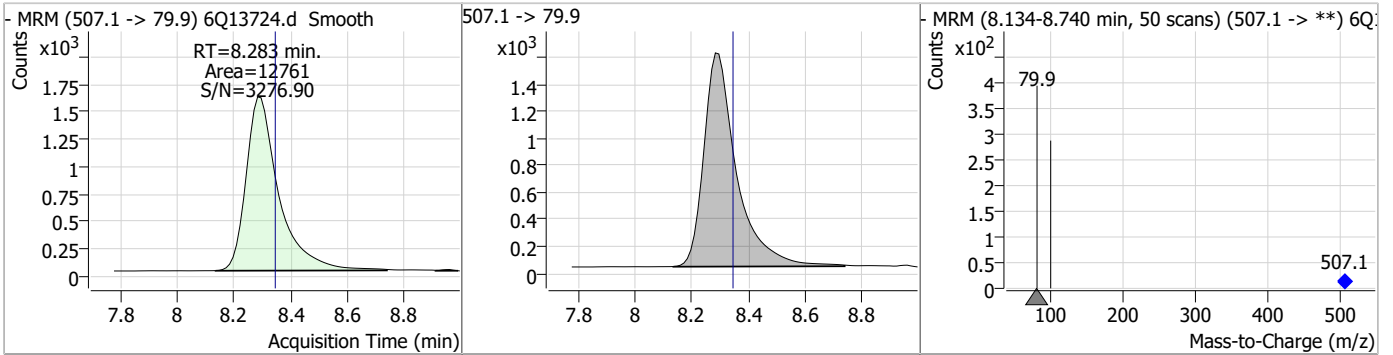


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.31	8.28	-0.05	10085 (m)	498.9 -> 98.8	64.9	0.0	20.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.57	8.28	-0.06	12761				



7.5.1

7



Manual Integration Approval Summary

Sample Number: S6Q208-RT Method: EPA DRAFT 1633
Lab FileID: 6Q13724.D Analyst approved: 02/18/23 09:44 Mike Eger
Injection Time: 02/16/23 07:22 Supervisor approved: 02/18/23 12:01 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.28	Split peak

7.5.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13725.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/16/2023 7:36:09 AM
 Sample Name : RT BR-LN
 Vial : P1-E4
 DA Method File : 1633_021623_S6Q208NEW.quantmethod.xml
 Batch Name : s6q208.batch.bin
 Sample Information : OP95142,S6Q208,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.963	216.8 -> 171.9	49301	7.50 µg/L	-0.012
M5-PFPeA	4.361	268.3 -> 223.0	32257	5.00 µg/L	-0.025
M5-PFHxA	5.538	318.0 -> 273.0	42309	3.75 µg/L	-0.025
M4-PFHpA	6.477	367.1 -> 322.0	44508	3.75 µg/L	-0.025
M8-PFOA	7.122	421.1 -> 376.0	75826	3.75 µg/L	-0.025
M9-PFNA	7.640	472.1 -> 427.0	43377	3.13 µg/L	-0.037
M6-PFDA	8.120	519.1 -> 474.1	33533	3.13 µg/L	-0.037
M7-PFUnDA	8.574	570.0 -> 525.1	42248	3.13 µg/L	-0.037
M2-PFDoDA	9.017	615.1 -> 570.0	46346	3.13 µg/L	-0.037
M2-PFTeDA	9.743	715.2 -> 670.0	25913	3.13 µg/L	-0.037
M8-FOSA	9.555	506.1 -> 77.8	19425	3.75 µg/L	-0.012
M3-PFBS	5.493	302.1 -> 79.9	16032	3.75 µg/L	-0.025
M3-PFHxS	7.237	402.1 -> 79.9	10465	3.75 µg/L	-0.037
M8-PFOS	8.295	507.1 -> 79.9	9894	3.75 µg/L	-0.038
M2-4:2FTS	5.215	329.1 -> 80.9	1848	5.00 µg/L	-0.025
M2-6:2FTS	6.883	429.1 -> 80.9	2209	5.00 µg/L	-0.025
M2-8:2FTS	7.907	529.1 -> 80.9	2259	5.00 µg/L	-0.037
M3-MeFOSAA	8.165	573.2 -> 419.0	23685	5.00 µg/L	-0.037
M3-HFPO-DA	5.915	286.9 -> 168.9	5721	5.00 µg/L	-0.025
M5-EtFOSAA	8.373	589.2 -> 419.0	18817	5.00 µg/L	-0.025
M7-MeFOSE	10.589	623.2 -> 58.9	9675	12.50 µg/L	0.000
M9-EtFOSE	10.835	639.2 -> 58.9	6710	12.50 µg/L	-0.012
M5-EtFOSA	10.913	531.1 -> 219.0	2957	1.25 µg/L	-0.012
M3-MeFOSA	10.680	515.0 -> 219.0	3086	1.25 µg/L	0.000
13C4-PFOS	8.296	502.8 -> 79.9	8605	2.50 µg/L	-0.038
13C3-PFBA	2.966	216.0 -> 172.0	29440	5.00 µg/L	-0.012
18O2-PFHxS	7.236	403.0 -> 83.9	5590	2.50 µg/L	-0.037
13C4-PFOA	7.122	417.1 -> 372.0	57703	2.50 µg/L	-0.025
13C2-PFDA	8.120	515.1 -> 470.1	19129	1.25 µg/L	-0.037
13C5-PFNA	7.640	468.0 -> 423.0	20185	1.25 µg/L	-0.037
13C2-PFHxA	5.539	315.1 -> 270.0	27067	2.50 µg/L	-0.025
System Monitoring Compounds					
13C2-4:2FTS	5.215	329.1 -> 80.9	1848	4.79 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.9%		
13C2-6:2FTS	6.883	429.1 -> 80.9	2209	4.36 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 87.2%		
13C2-8:2FTS	7.907	529.1 -> 80.9	2259	4.59 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.9%		
13C2-PFDoDA	9.017	615.1 -> 570.0	46346	3.07 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C2-PFTeDA	9.743	715.2 -> 670.0	25913	3.10 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C3-PFBS	5.493	302.1 -> 79.9	16032	3.47 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 92.6%		
13C3-PFHxS	7.237	402.1 -> 79.9	10465	3.36 µg/L	-0.037

7.52
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 89.7%	
13C4-PFBA	2.963	216.8 -> 171.9	49301	7.22 µg/L	-0.012
Spiked Amount: 7.50	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C4-PFHpA	6.477	367.1 -> 322.0	44508	3.82 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C5-PFHxA	5.538	318.0 -> 273.0	42309	3.69 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C5-PFPeA	4.361	268.3 -> 223.0	32257	5.07 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C6-PFDA	8.120	519.1 -> 474.1	33533	2.94 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 94.1%	
13C7-PFUnDA	8.574	570.0 -> 525.1	42248	3.16 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C8-FOSA	9.555	506.1 -> 77.8	19425	3.37 µg/L	-0.012
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 90.0%	
13C8-PFOA	7.122	421.1 -> 376.0	75826	3.84 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C8-PFOS	8.295	507.1 -> 79.9	9894	3.41 µg/L	-0.038
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 90.9%	
13C9-PFNA	7.640	472.1 -> 427.0	43377	2.84 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 90.7%	
d3-MeFOSAA	8.165	573.2 -> 419.0	23685	4.60 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.1%	
13C3-HFPO-DA	5.915	286.9 -> 168.9	5721	4.68 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.7%	
d3-MeFOSA	10.680	515.0 -> 219.0	3086	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.6%	
d5-EtFOSAA	8.373	589.2 -> 419.0	18817	4.36 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 87.3%	
d7-MeFOSE	10.589	623.2 -> 58.9	9675	11.53 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%			Recovery = 92.2%	
d9-EtFOSE	10.835	639.2 -> 58.9	6710	11.31 µg/L	-0.012
Spiked Amount: 12.50	Range: 50.0 - 150.0%			Recovery = 90.5%	
d5-EtFOSA	10.913	531.1 -> 219.0	2957	1.14 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.3%	
Target Compounds					QValue
4:2FTS	5.215	327.1 -> 307.0	227622	52.90 µg/L	98
		327.1 -> 80.9	48517		
6:2FTS	6.883	427.1 -> 407.0	197993	58.69 µg/L	98
		427.1 -> 80.9	36477		
8:2FTS	7.908	527.1 -> 507.0	110538	61.00 µg/L	98
		527.1 -> 80.8	25348		
EtFOSAA	8.374	584.2 -> 419.1	48266	15.20 µg/L	95
		584.2 -> 526.0	26313		
FOSA	9.557	498.1 -> 77.9	192083	37.68 µg/L	99
		498.1 -> 478.0	7011		
MeFOSAA	8.166	570.1 -> 419.0	67668	15.03 µg/L	99
		570.1 -> 483.0	12080		
PFBA	2.957	212.8 -> 168.9	97864	60.86 µg/L	100
PFBS	5.494	298.7 -> 79.9	59668	13.42 µg/L	95
		298.7 -> 98.8	27012		
PFDA	8.121	512.9 -> 469.0	256393	15.80 µg/L	99
		512.9 -> 219.0	35489		
PFDoDA	9.017	613.1 -> 569.0	219880	15.18 µg/L	99
		613.1 -> 319.0	26572		
PFDS	9.179	599.0 -> 79.9	30333	14.65 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.477	599.0 -> 98.8	16266	14.59	µg/L	100
		363.1 -> 319.0	262933			
PFHpS	7.804	363.1 -> 169.0	35418	13.11	µg/L	87
		449.0 -> 79.9	38047			
PFHxA	5.541	449.0 -> 98.9	24455	14.61	µg/L	99
		313.0 -> 269.0	166355			
PFHxS	7.238	313.0 -> 118.9	6711	13.48	µg/L	92
		398.7 -> 79.9	43024			
PFNA	7.640	398.7 -> 98.9	26304	30.83	µg/L	99
		463.0 -> 419.0	353283			
PFNS	8.762	463.0 -> 219.0	74602	13.90	µg/L	98
		548.8 -> 79.9	41377			
PFOA	7.123	548.8 -> 98.9	24058	30.63	µg/L	99
		413.0 -> 369.0	753802			
PFOS	8.296	413.0 -> 169.0	96661	14.24	µg/L	97
		498.9 -> 79.9	44123			
PFPeA	4.363	498.9 -> 98.8	27950	29.40	µg/L	100
		263.0 -> 219.0	211178			
PFPeS	6.543	349.1 -> 79.9	55581	14.94	µg/L	96
		349.1 -> 98.9	28652			
PFTeDA	9.744	713.1 -> 669.0	170740	13.98	µg/L	99
		713.1 -> 168.9	11137			
PFTrDA	9.399	663.0 -> 619.0	199561	14.87	µg/L	99
		663.0 -> 168.9	14827			
PFUnDA	8.575	563.1 -> 519.0	202398	14.68	µg/L	98
		563.1 -> 269.1	28079			
11Cl-PF3OUdS	9.452	630.9 -> 450.9	482371	65.12	µg/L	98
		632.9 -> 452.9	143296			
9Cl-PF3ONS	8.626	530.8 -> 351.0	786826	59.89	µg/L	99
		532.8 -> 353.0	242946			
ADONA	6.728	376.9 -> 250.9	1509804	60.56	µg/L	98
		376.9 -> 84.8	330973			
HFPO-DA	5.916	284.9 -> 168.9	69788	62.08	µg/L	96
		284.9 -> 184.9	8777			
3:3FTCA	3.829	241.0 -> 177.0	26162	72.16	µg/L	97
		241.0 -> 117.0	3637			
5:3FTCA	6.181	341.0 -> 237.1	884086	379.68	µg/L	99
		341.0 -> 217.0	776922			
7:3FTCA	7.579	441.0 -> 316.9	469821	383.44	µg/L	98
		441.0 -> 336.9	933002			
EtFOSA	10.927	526.0 -> 219.0	101582	36.14	µg/L	96
		526.0 -> 169.0	115433			
EtFOSE	10.860	630.0 -> 58.9	95742	167.29	µg/L	100
MeFOSA	10.681	511.9 -> 219.0	87798	32.30	µg/L	98
		511.9 -> 169.0	102763			
MeFOSE	10.602	616.1 -> 58.9	125314	155.90	µg/L	100
PFDoDS	9.883	699.1 -> 79.9	18552	14.39	µg/L	95
		699.1 -> 98.8	11524			
NFDHA	5.420	295.0 -> 201.0	20400	29.51	µg/L	99
		295.0 -> 84.9	9868			
PFMBA	4.775	279.0 -> 85.1	62541	29.50	µg/L	100
PFMPA	3.516	229.0 -> 84.9	56501	29.46	µg/L	100
PFEESA	6.021	314.8 -> 134.9	421365	27.32	µg/L	100
		314.8 -> 82.9	10206			

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

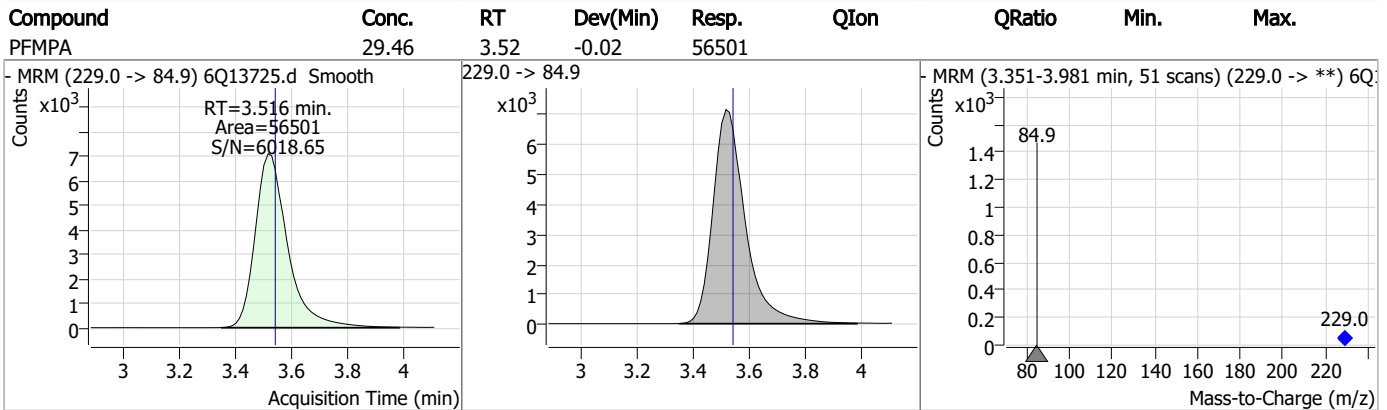
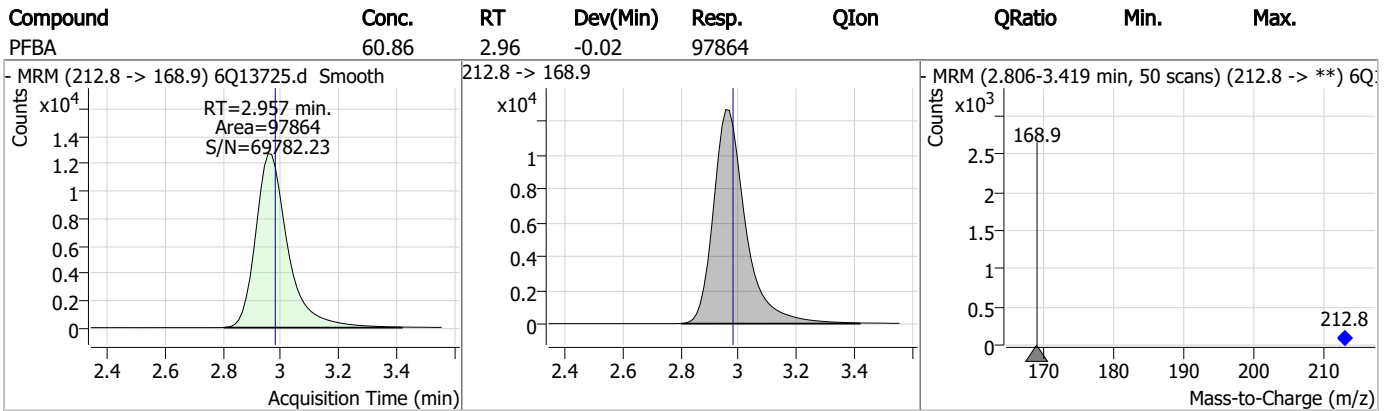
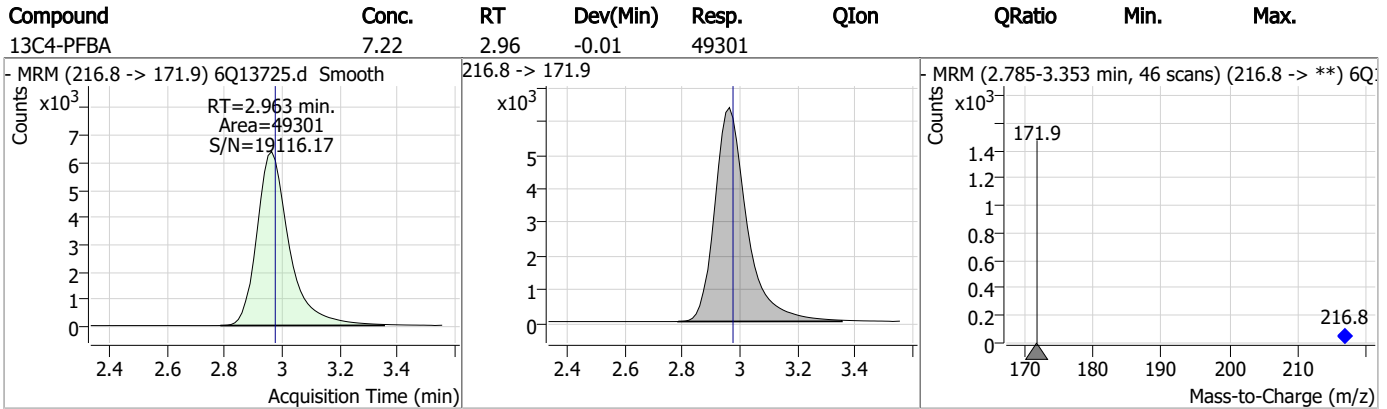
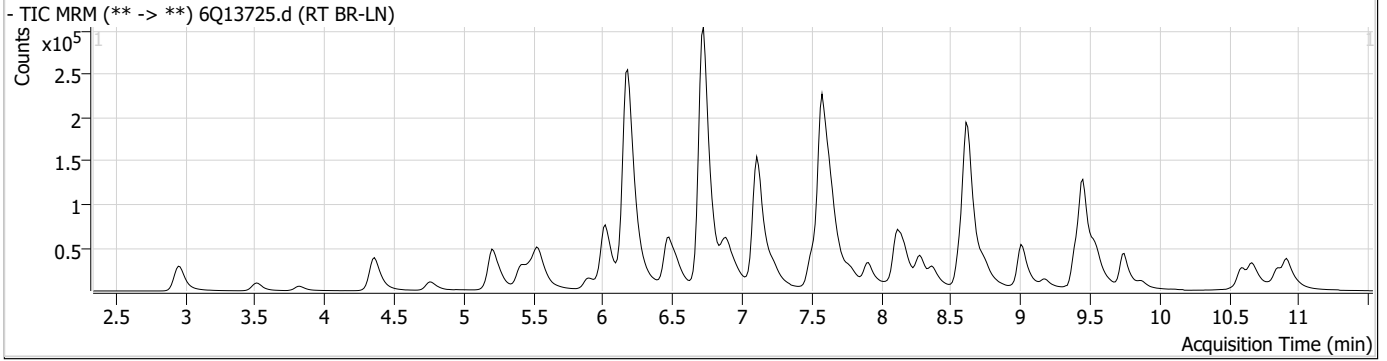
Perfluorinated Compounds by LC/MS/MS

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

7.5.2

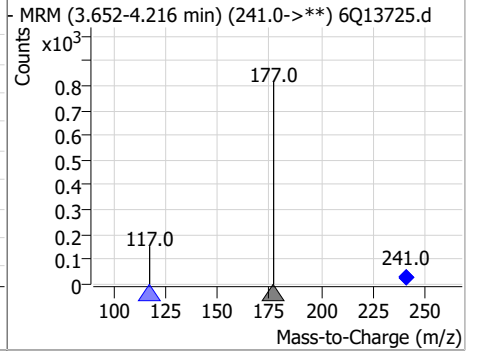
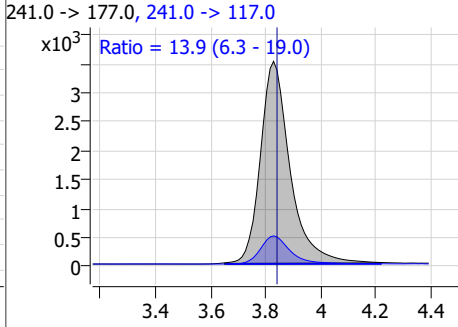
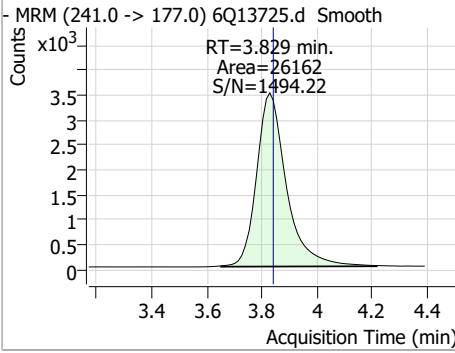
7

Perfluorinated Compounds by LC/MS/MS

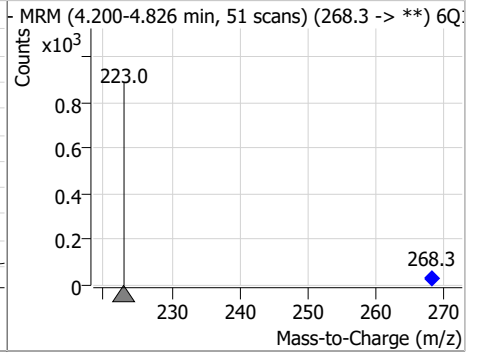
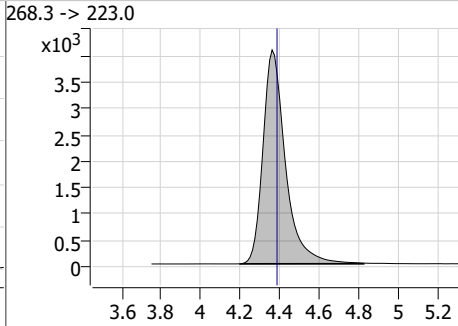
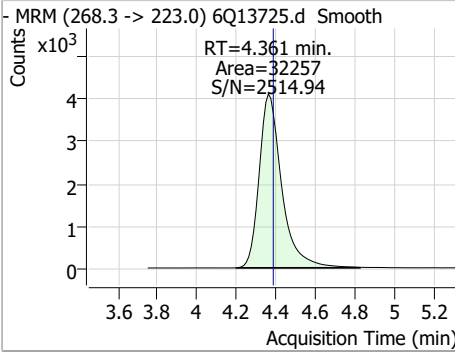


Perfluorinated Compounds by LC/MS/MS

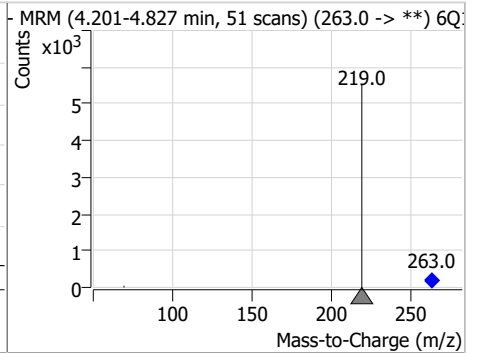
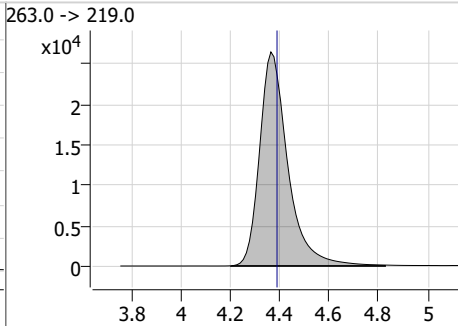
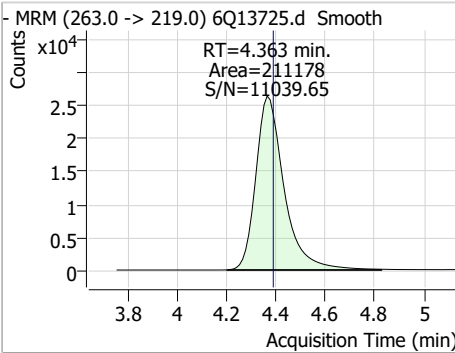
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	72.16	3.83	-0.01	26162	241.0 -> 117.0	13.9	6.3	19.0



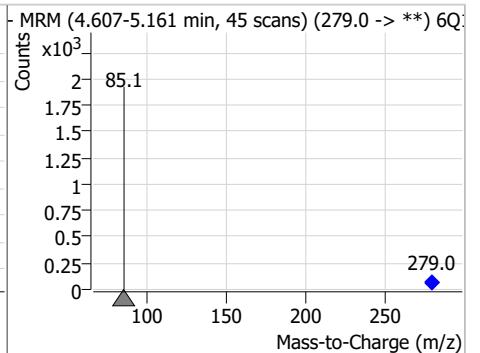
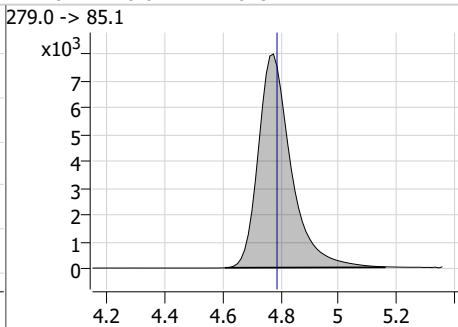
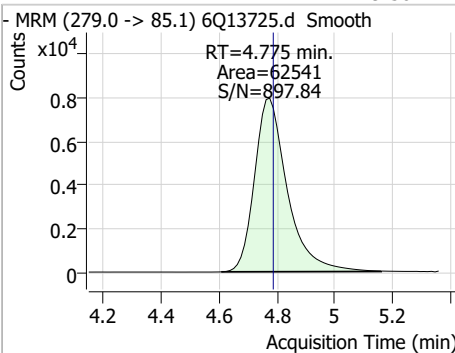
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.07	4.36	-0.02	32257				



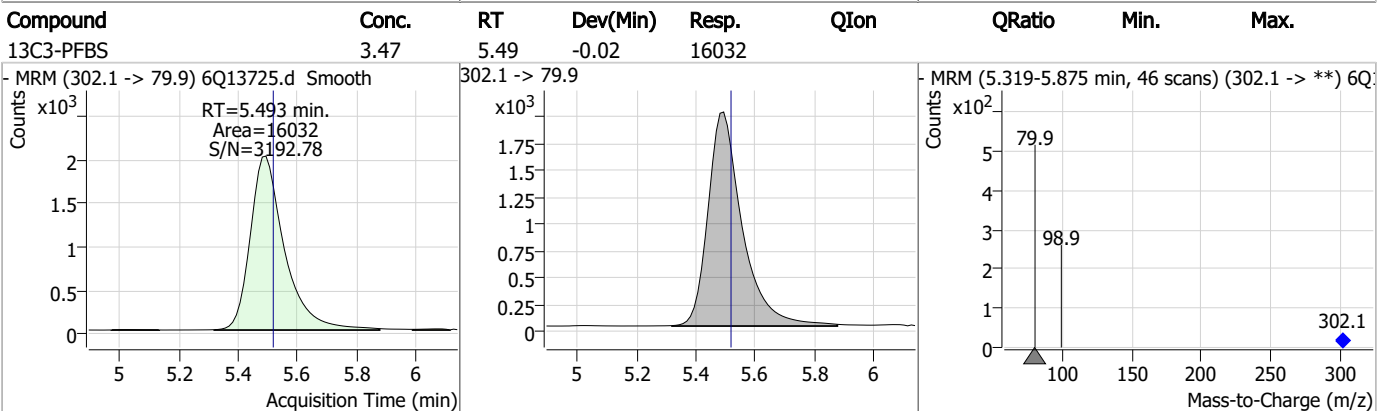
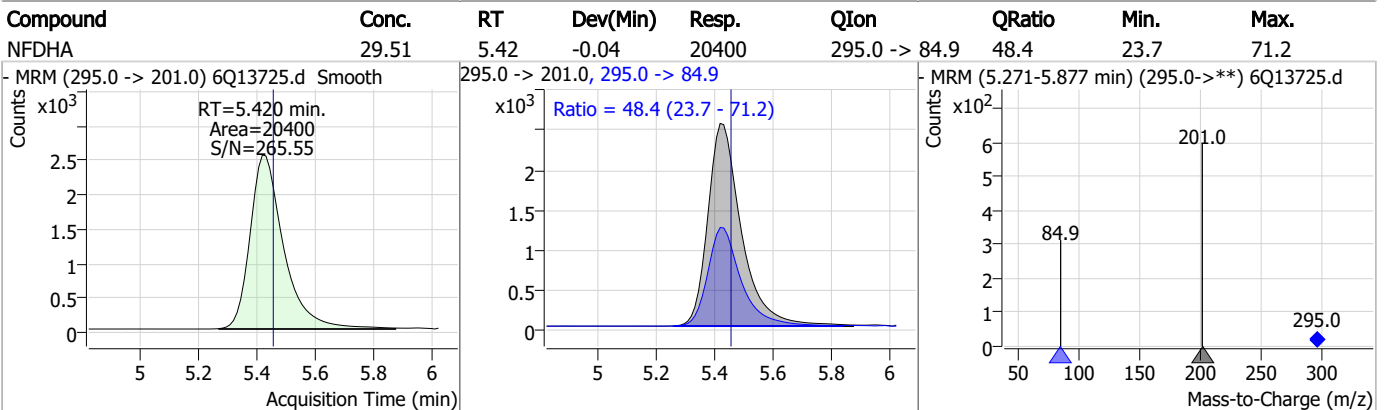
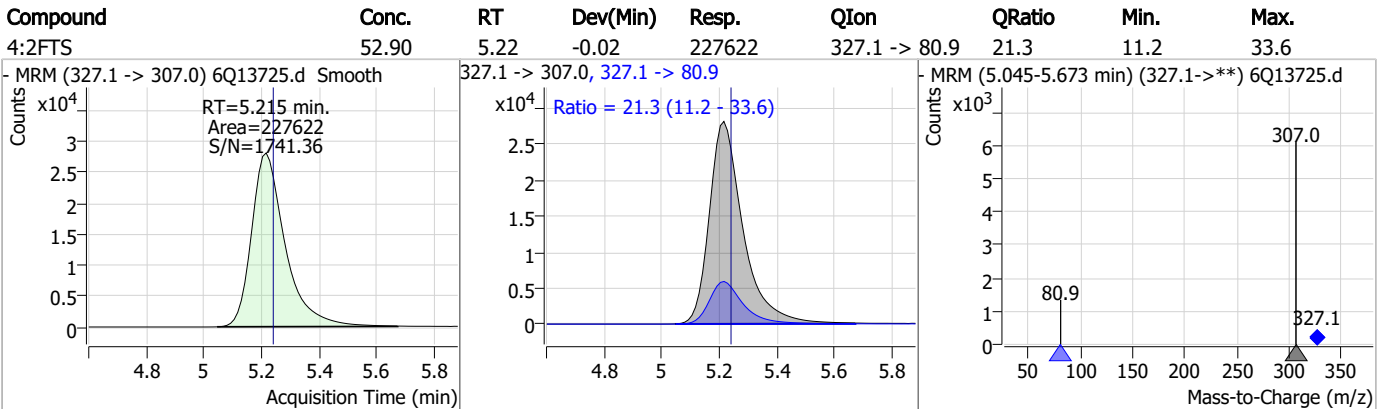
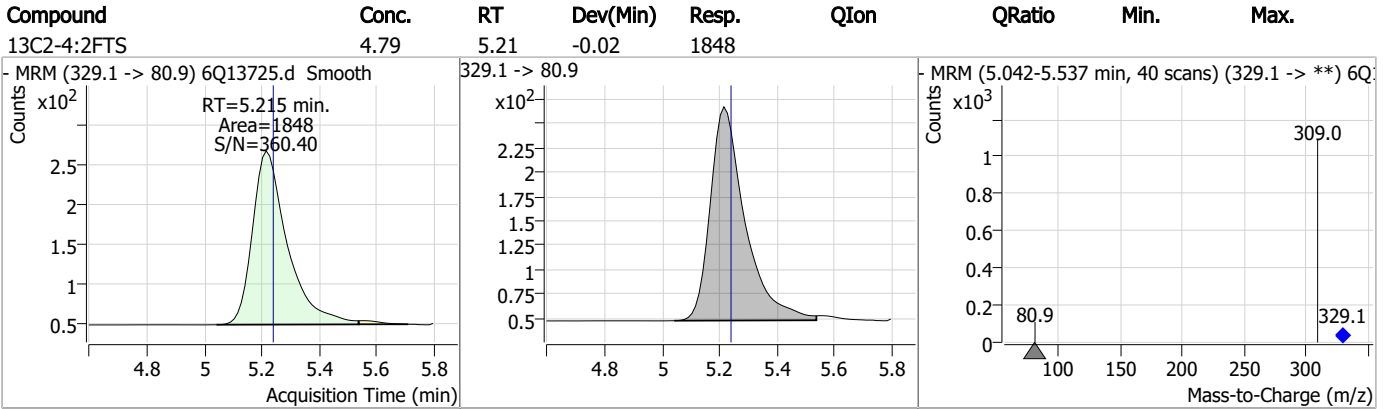
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	29.40	4.36	-0.02	211178				



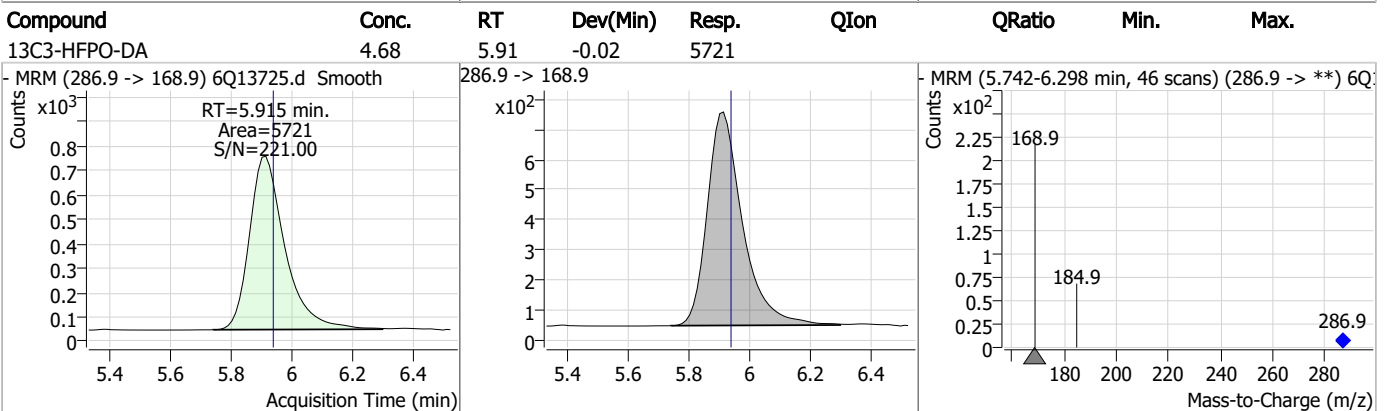
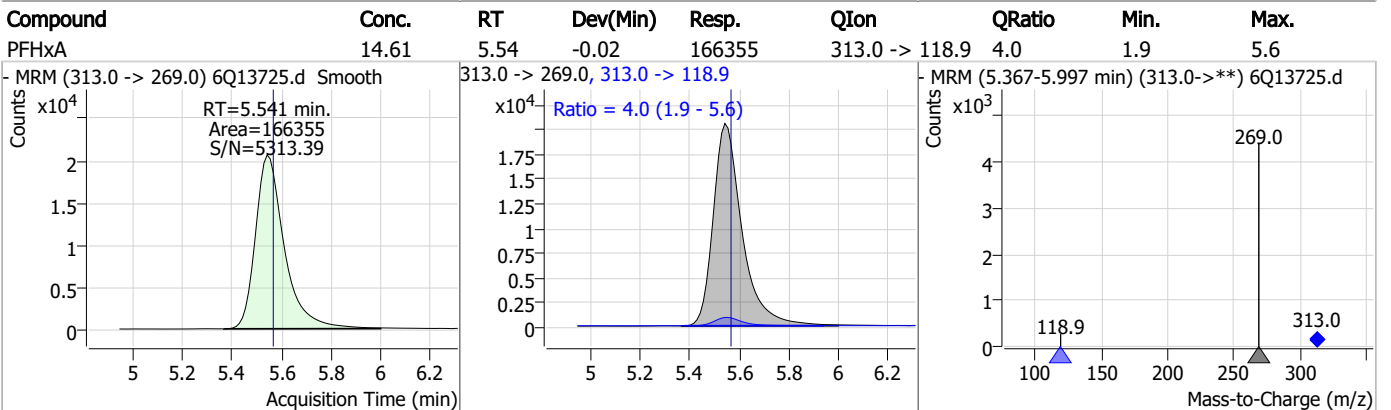
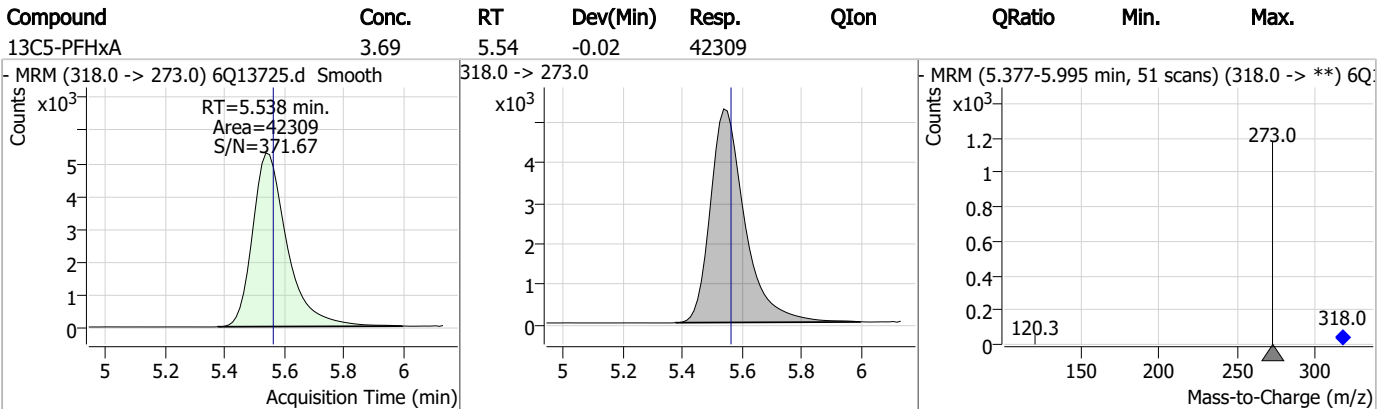
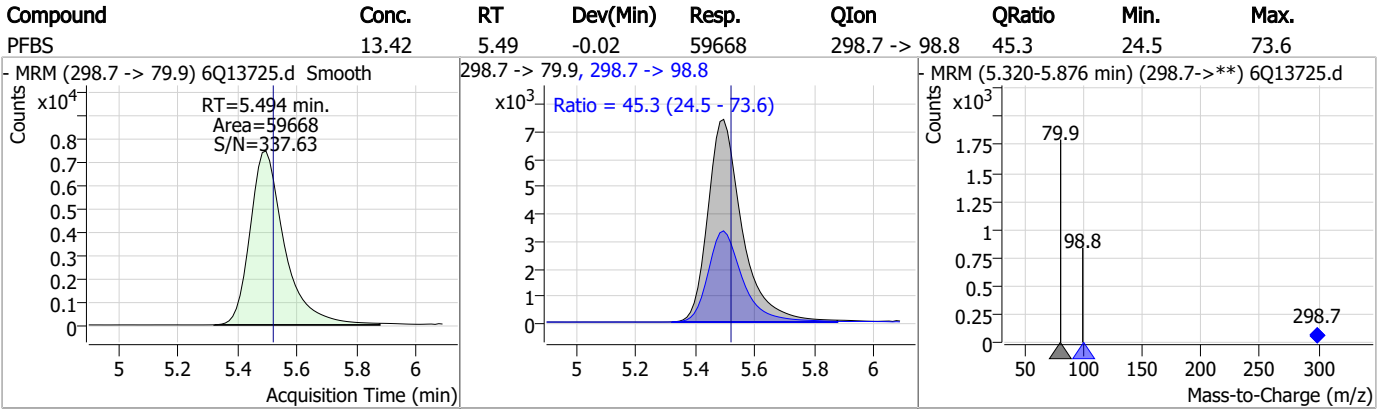
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	29.50	4.78	-0.01	62541				



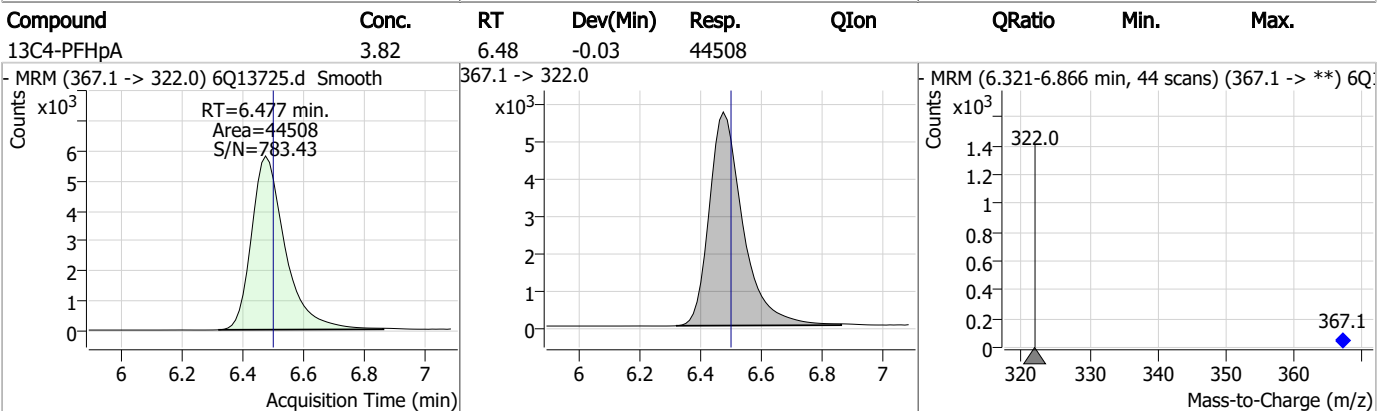
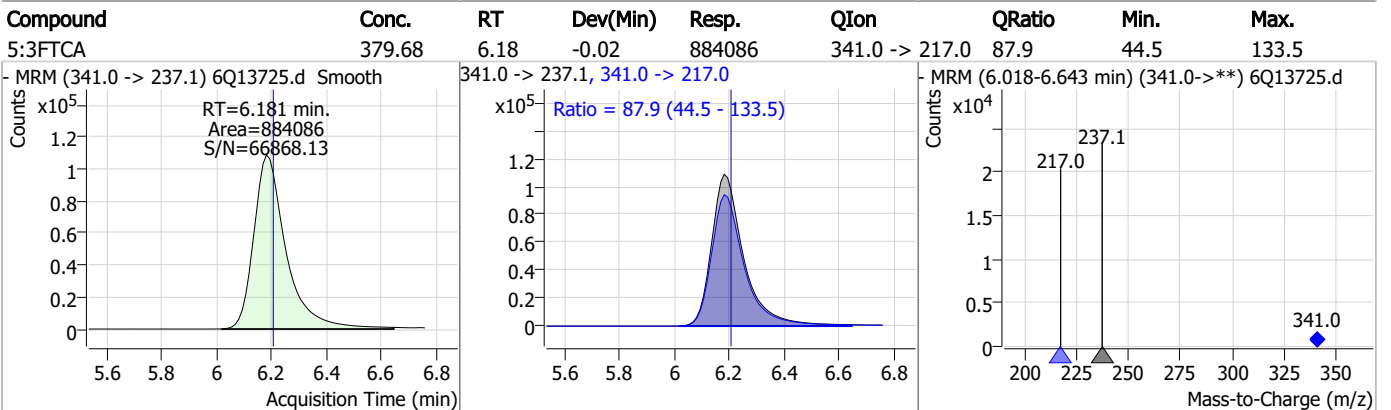
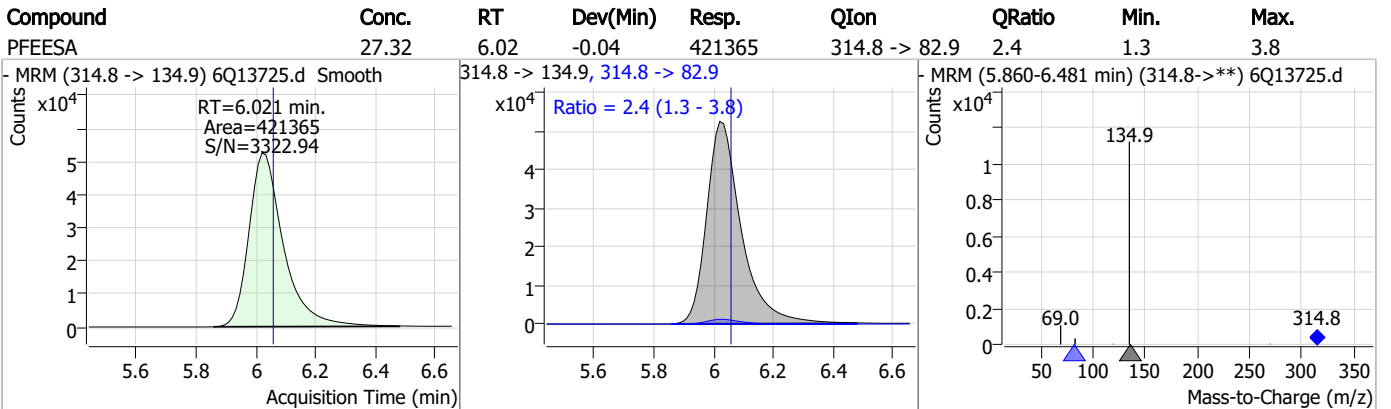
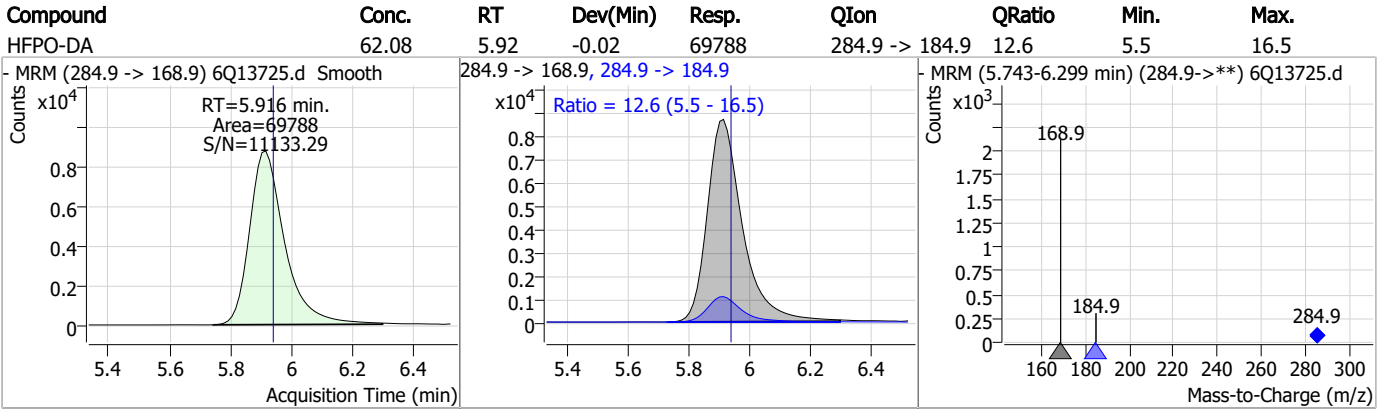
Perfluorinated Compounds by LC/MS/MS



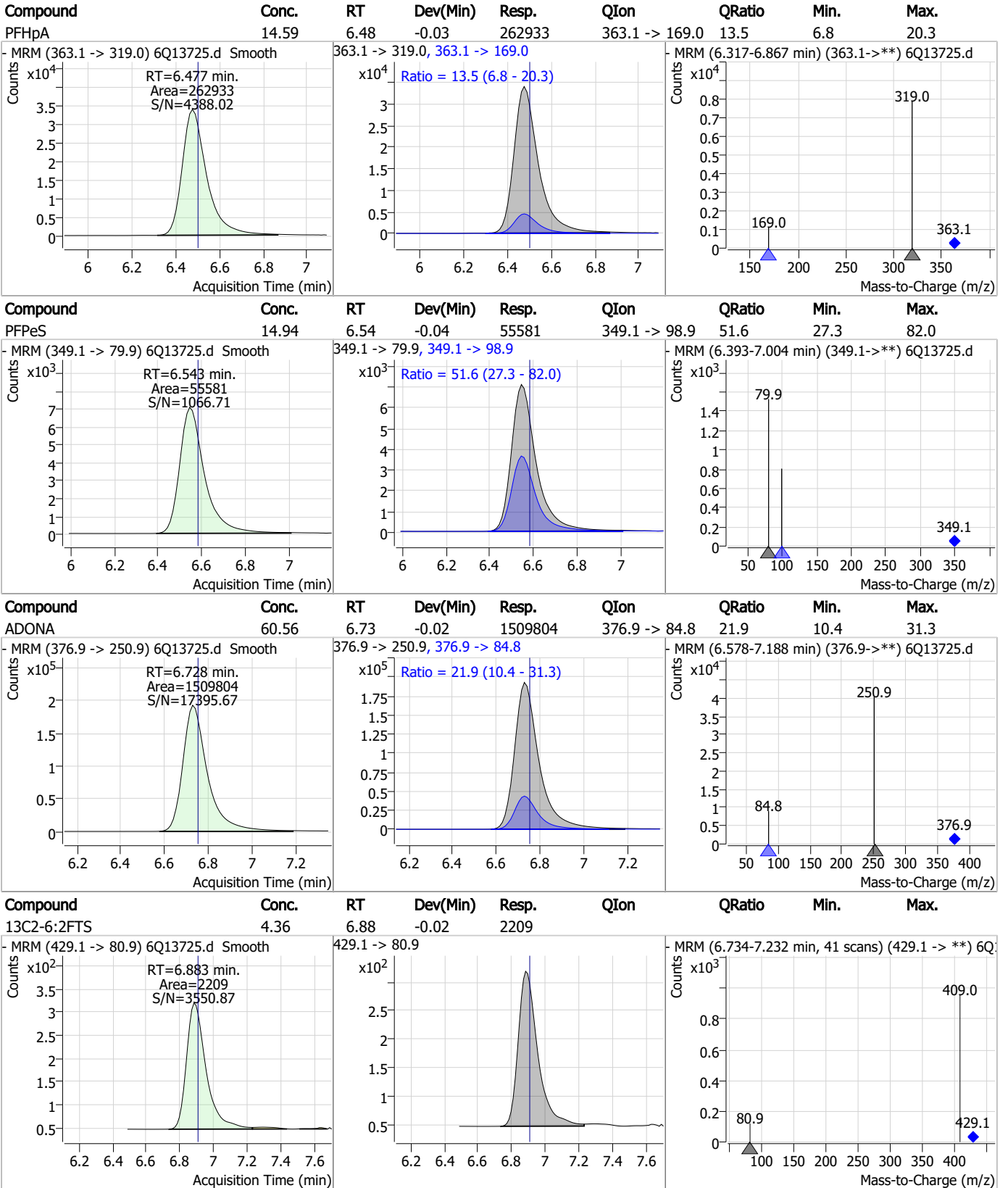
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



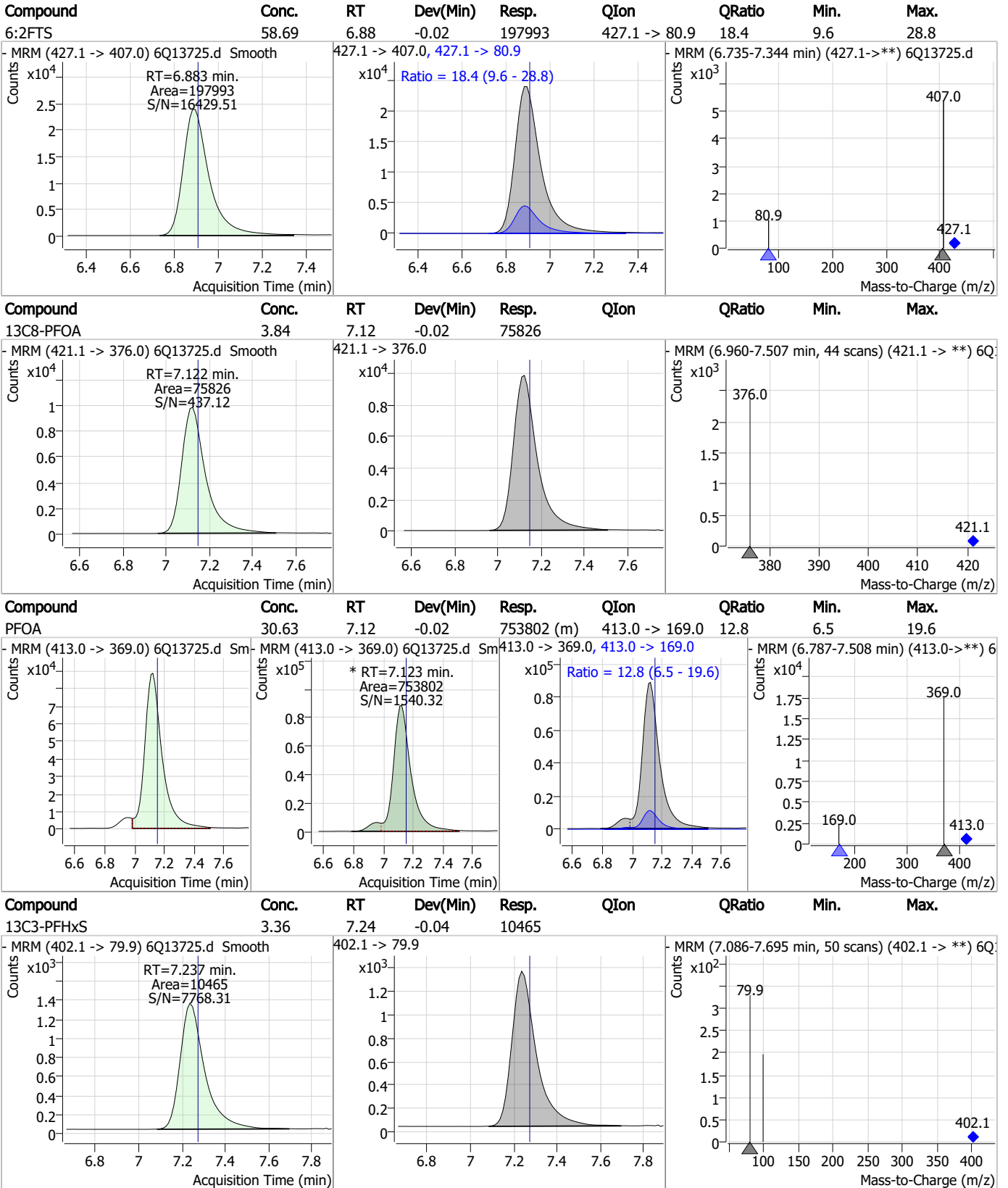
Perfluorinated Compounds by LC/MS/MS



7.5.2

7

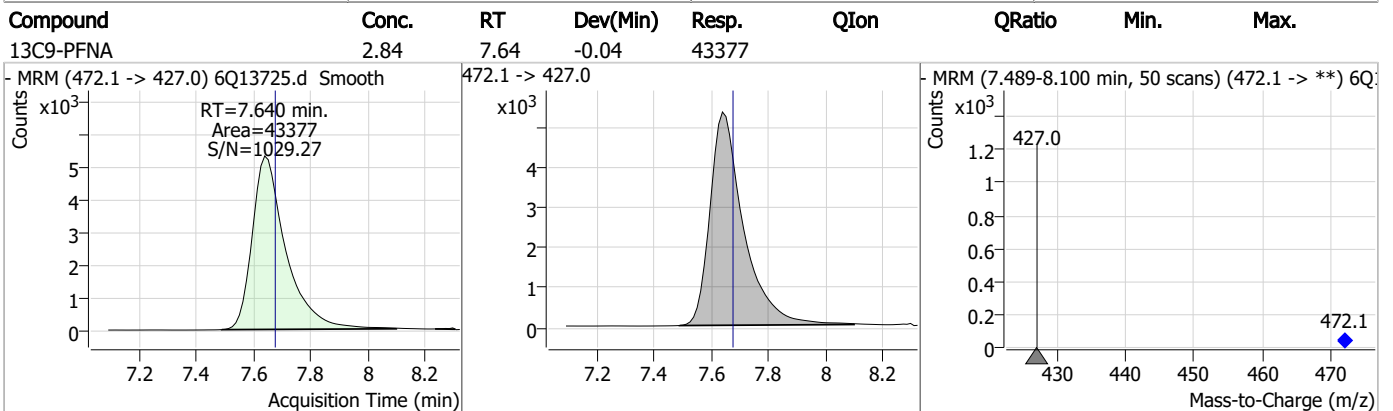
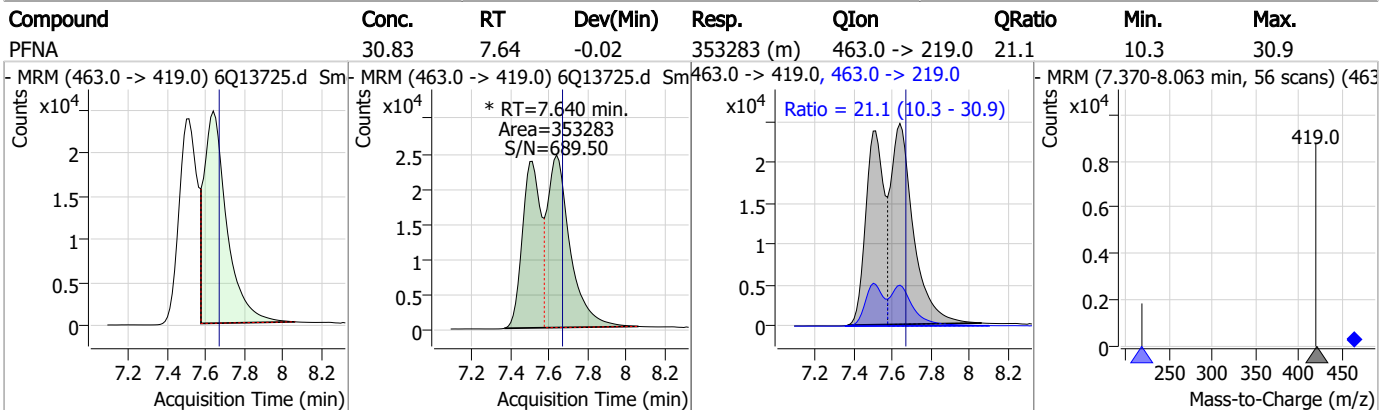
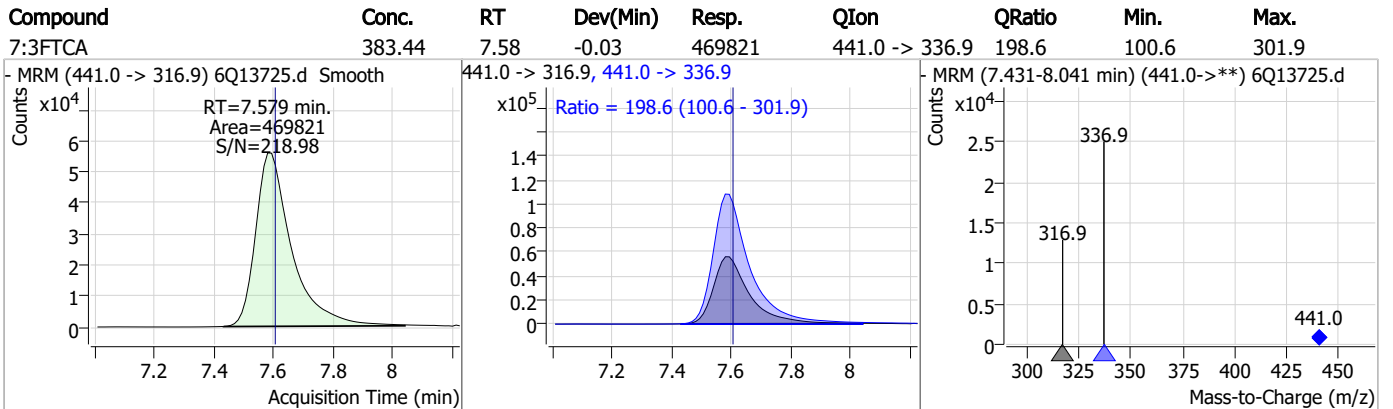
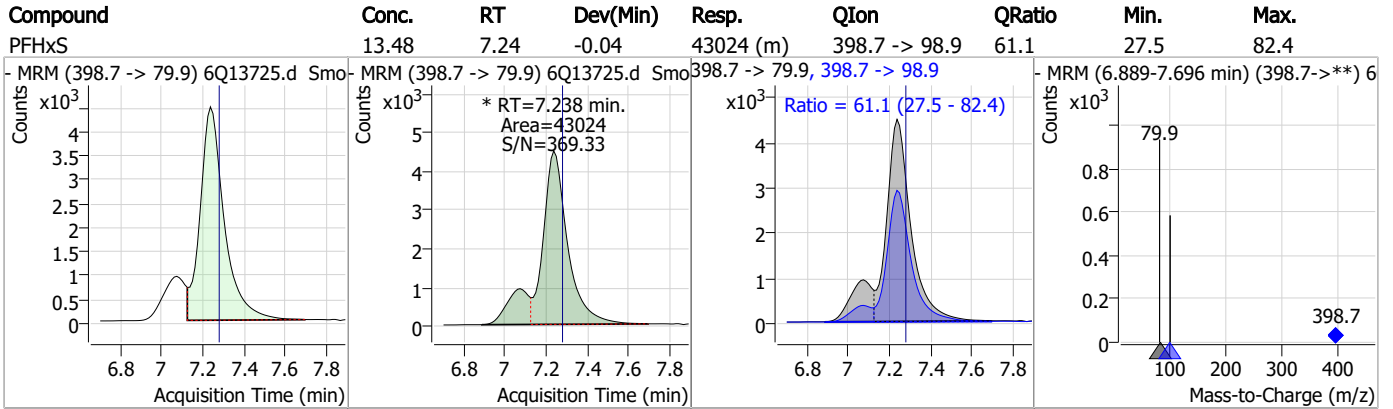
Perfluorinated Compounds by LC/MS/MS



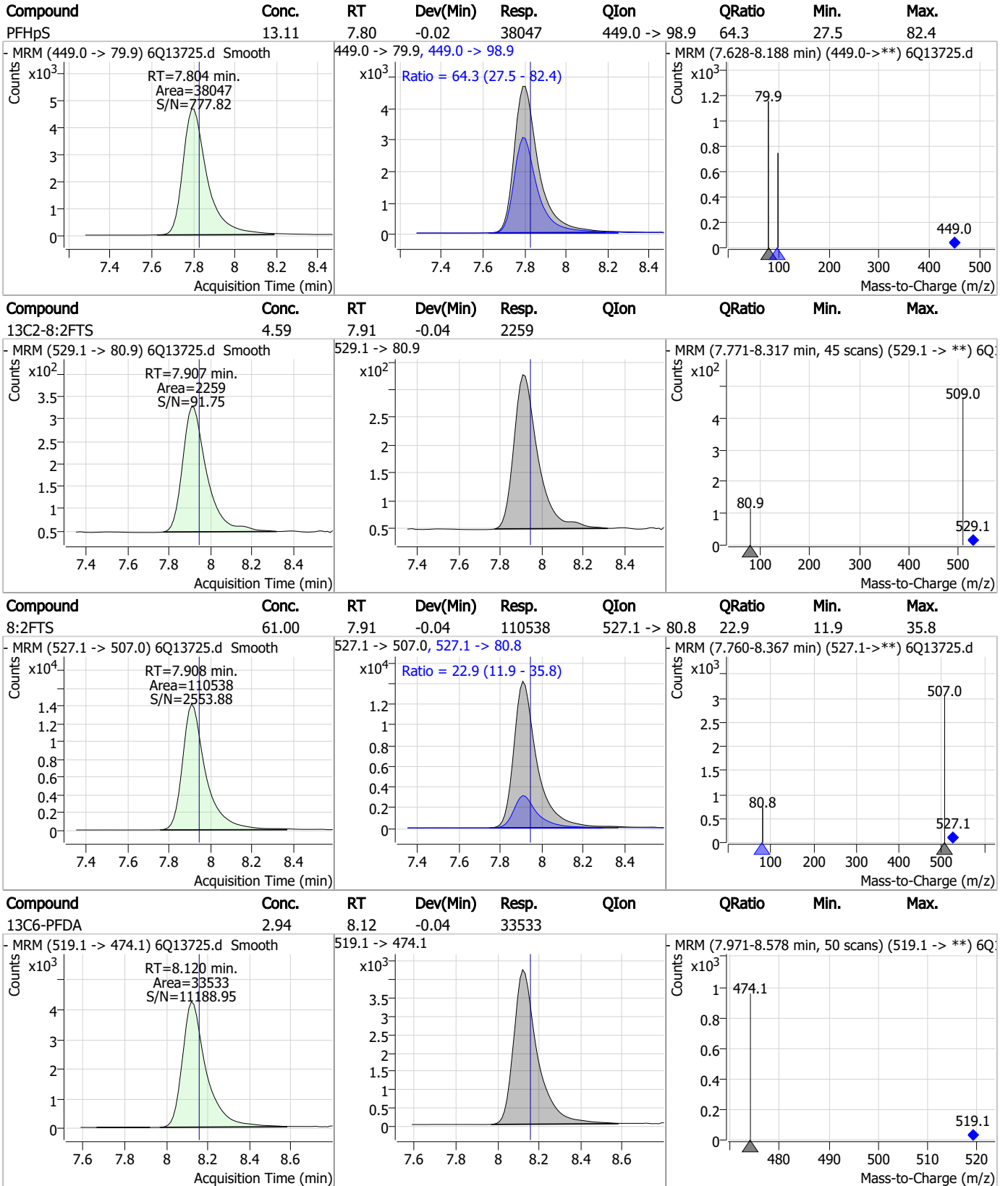
7.5.2

7

Perfluorinated Compounds by LC/MS/MS



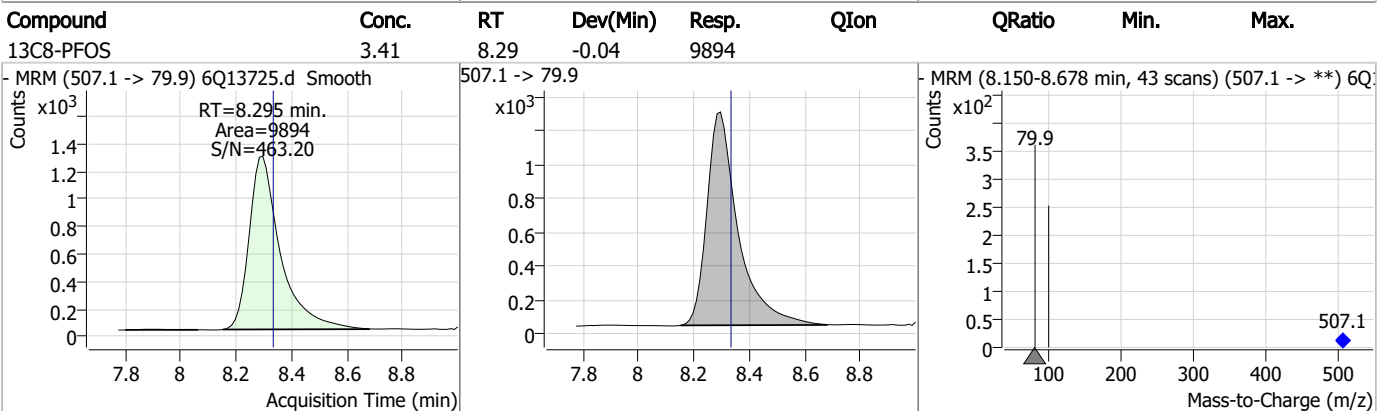
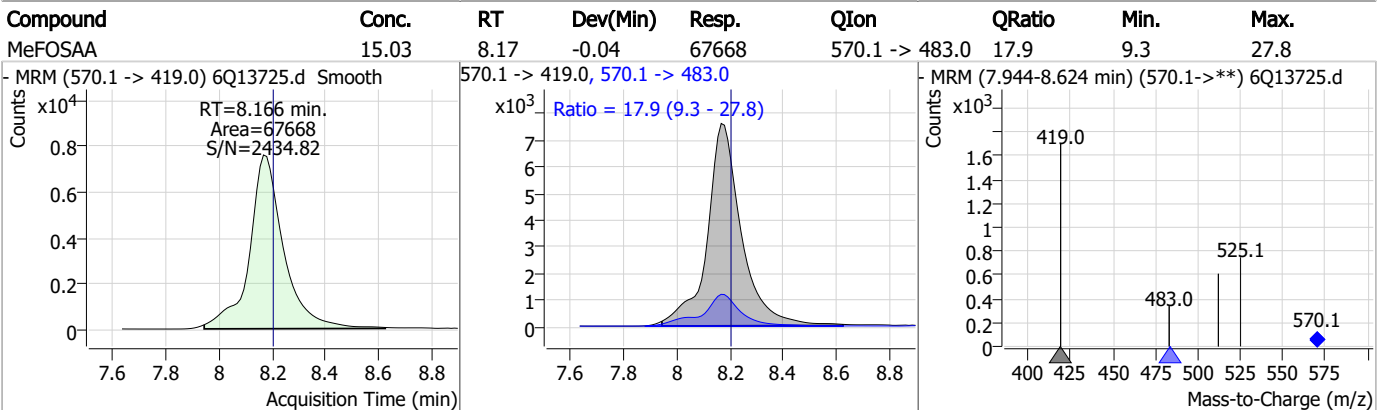
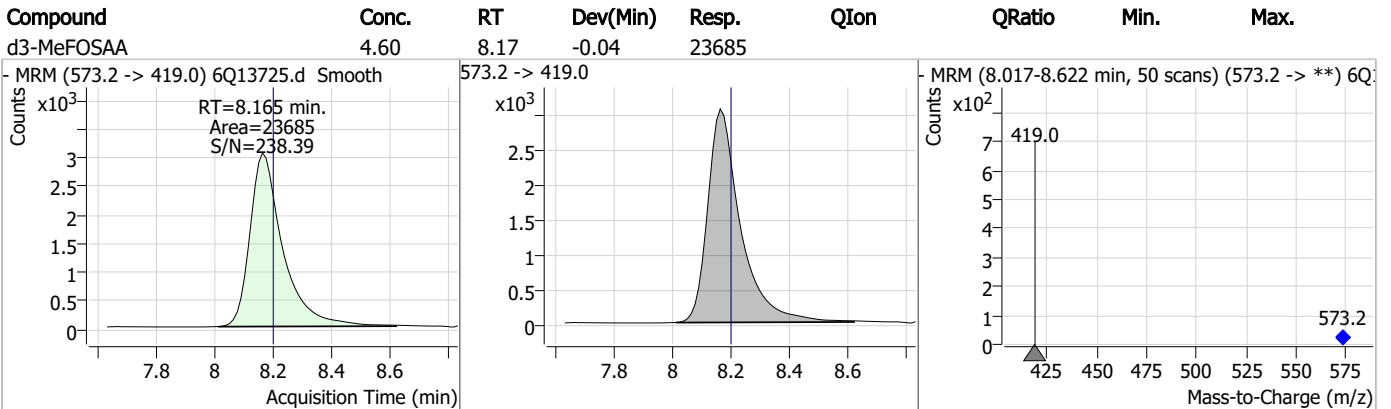
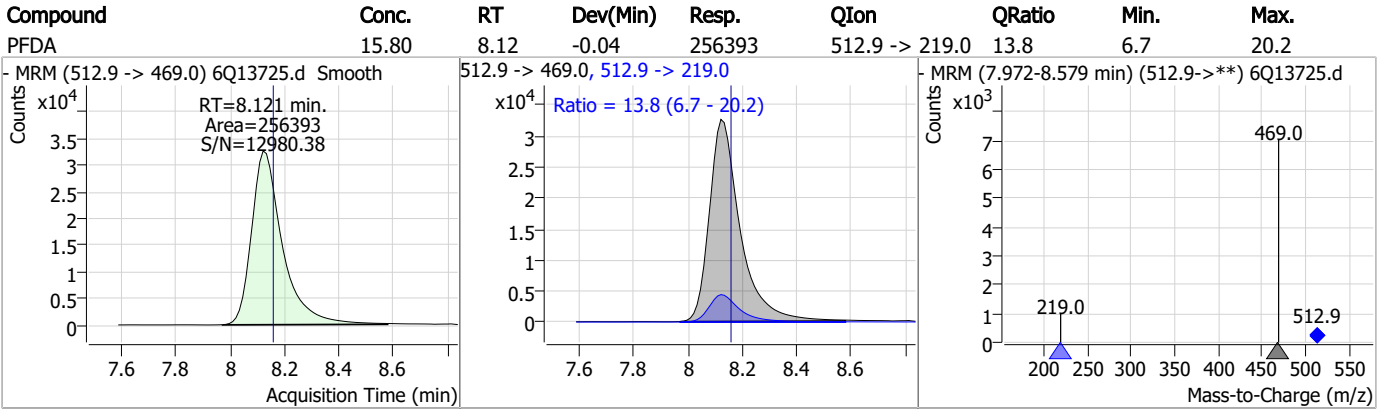
Perfluorinated Compounds by LC/MS/MS



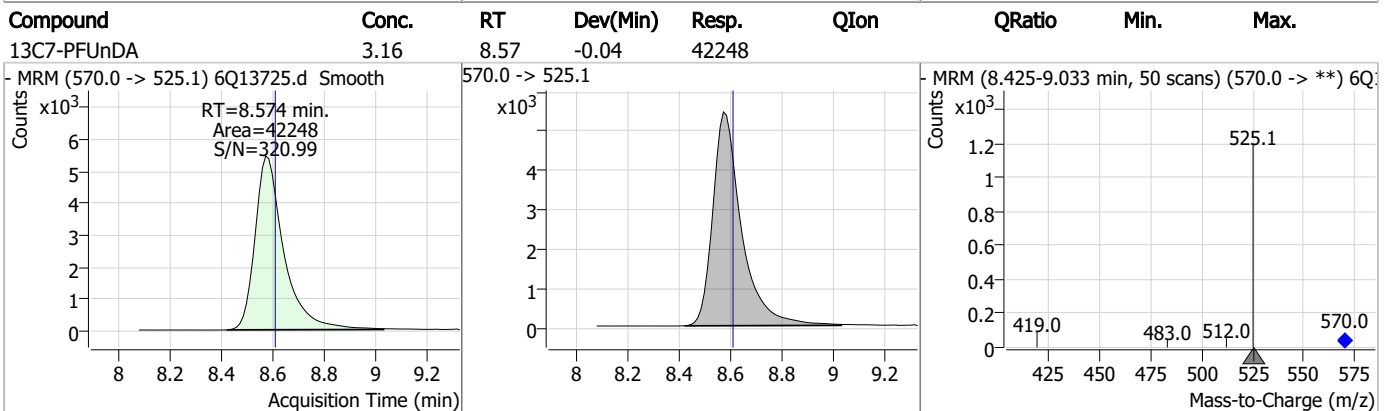
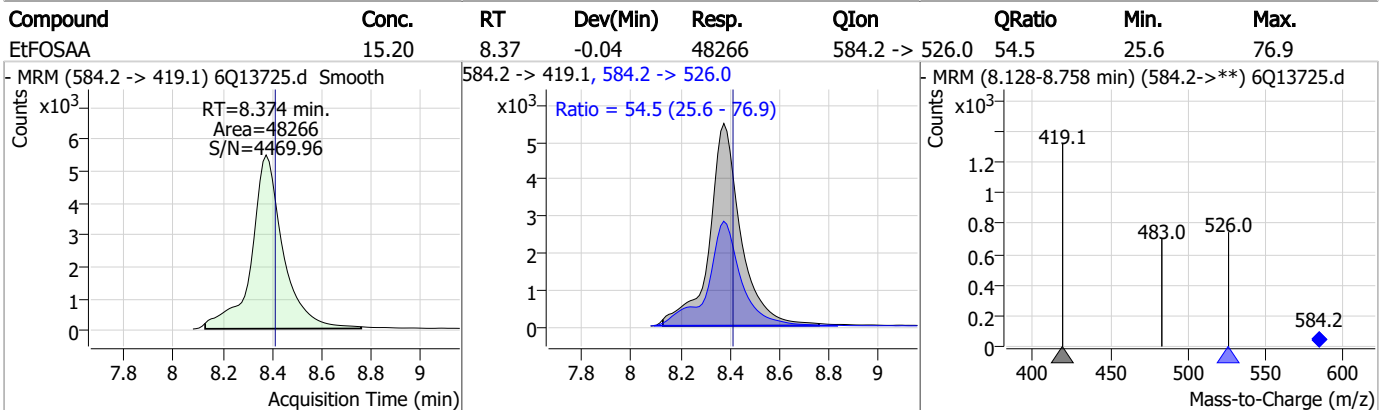
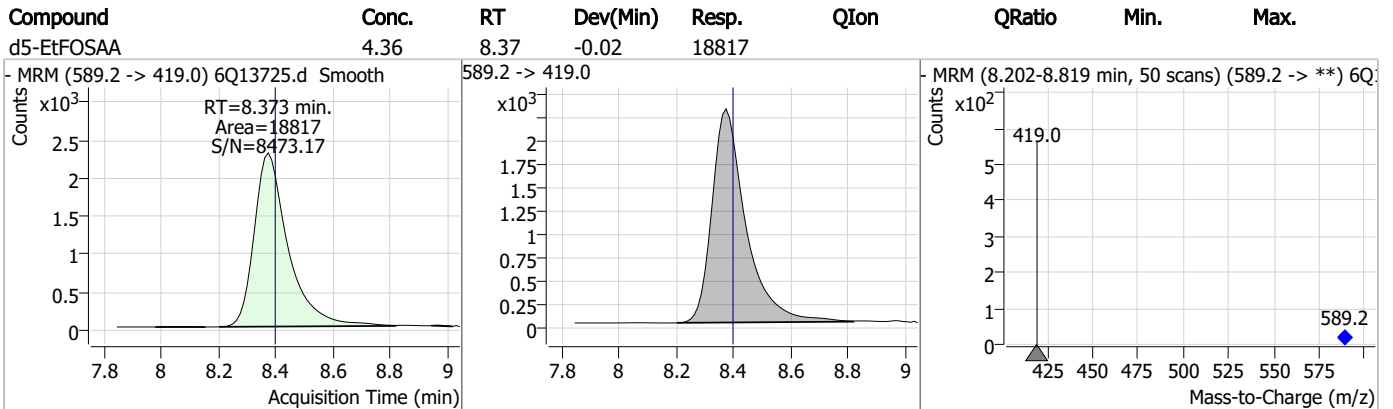
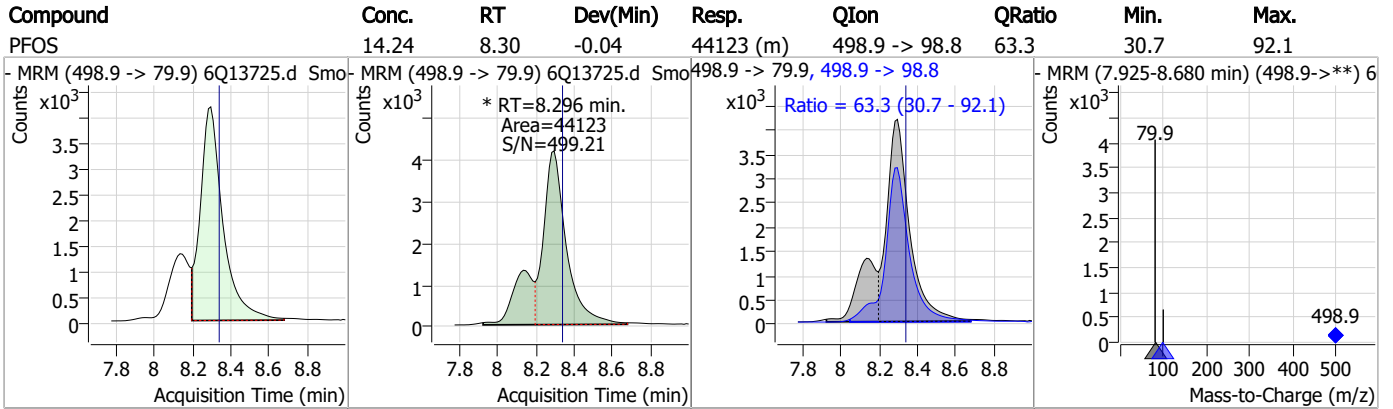
7.5.2

7

Perfluorinated Compounds by LC/MS/MS

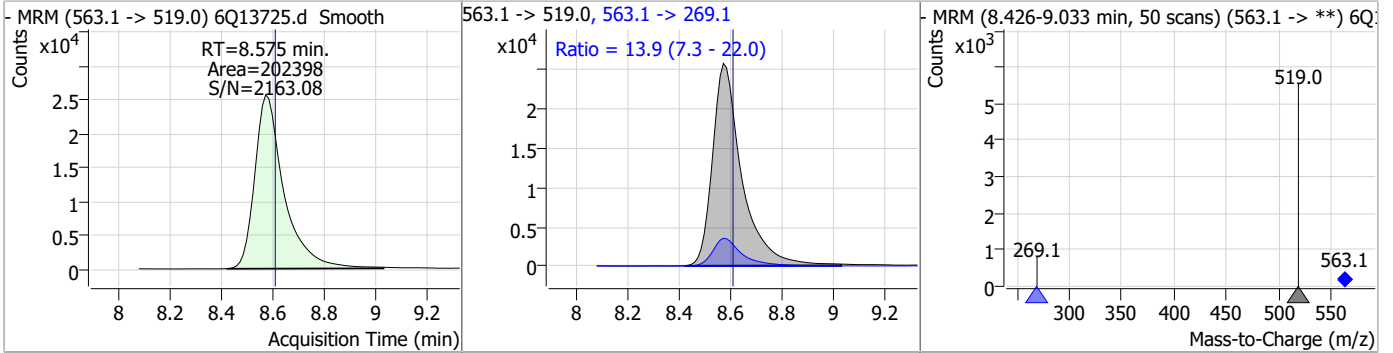


Perfluorinated Compounds by LC/MS/MS

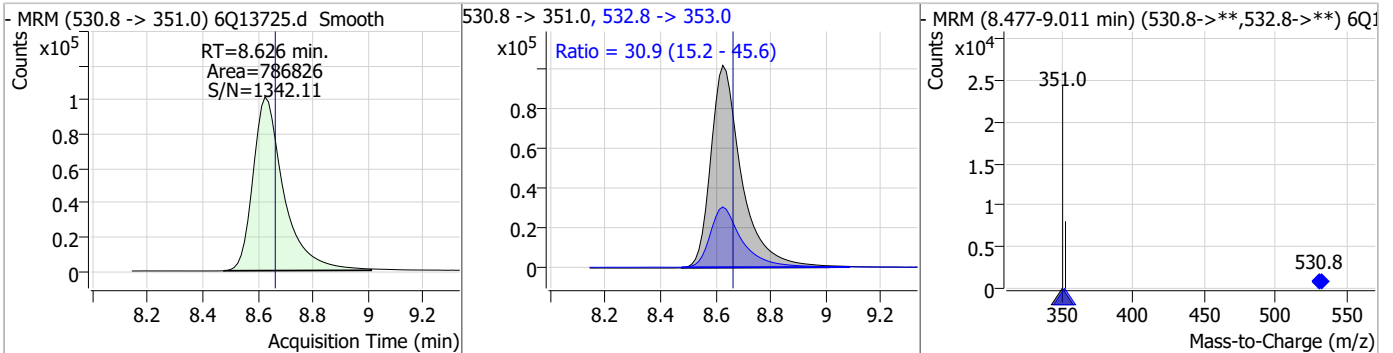


Perfluorinated Compounds by LC/MS/MS

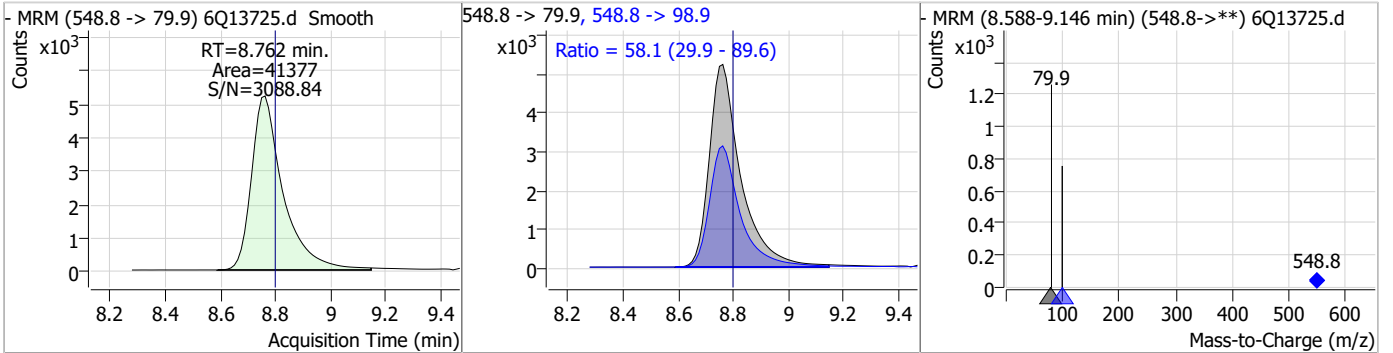
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	14.68	8.57	-0.04	202398	563.1 -> 269.1	13.9	7.3	22.0



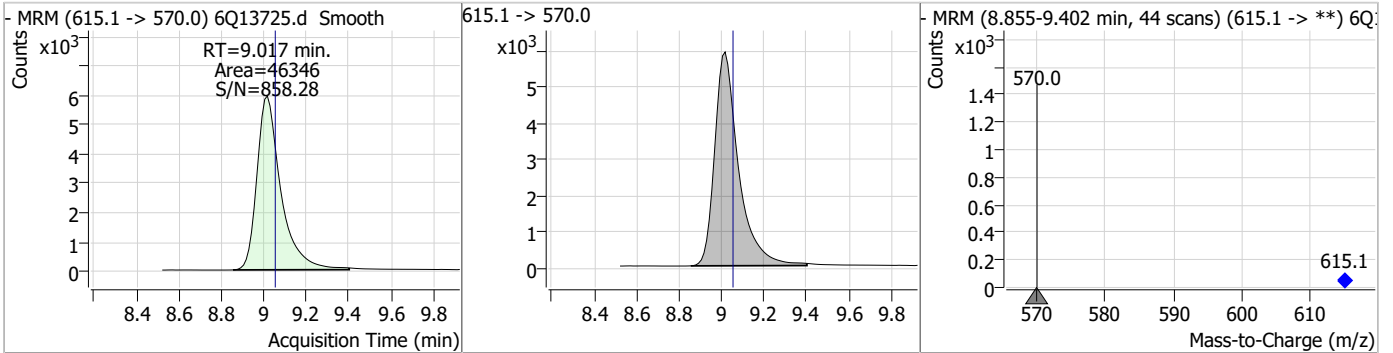
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	59.89	8.63	-0.04	786826	532.8 -> 353.0	30.9	15.2	45.6



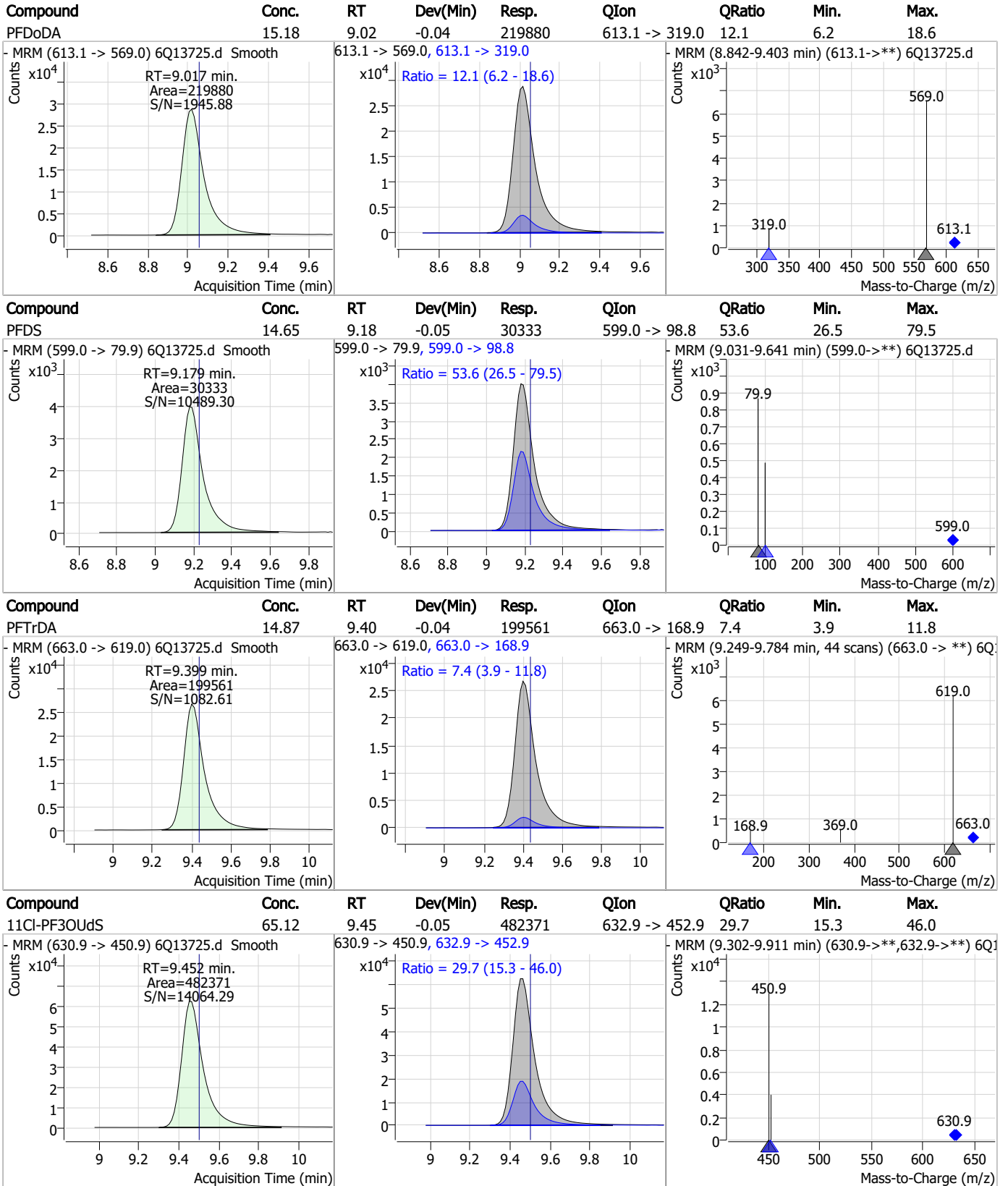
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	13.90	8.76	-0.04	41377	548.8 -> 98.9	58.1	29.9	89.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	3.07	9.02	-0.04	46346	615.1 -> 570.0			



Perfluorinated Compounds by LC/MS/MS

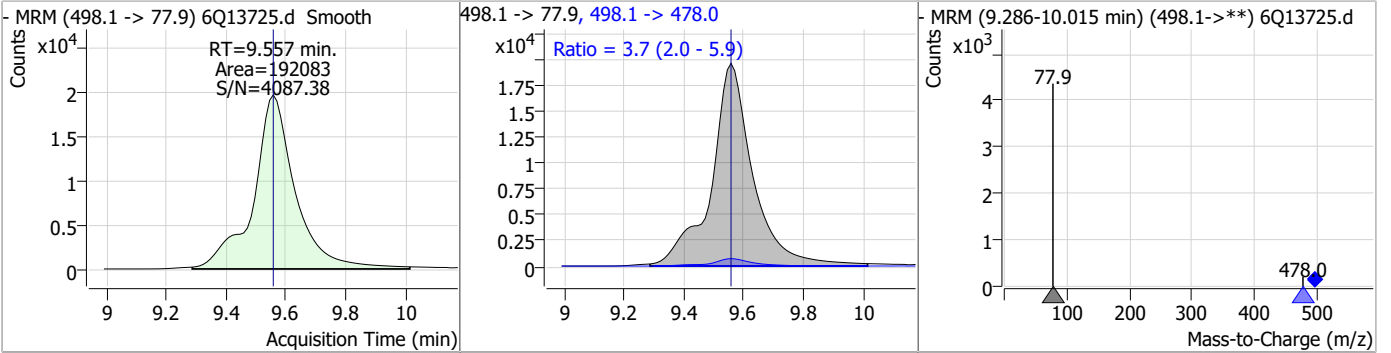


7.5.2

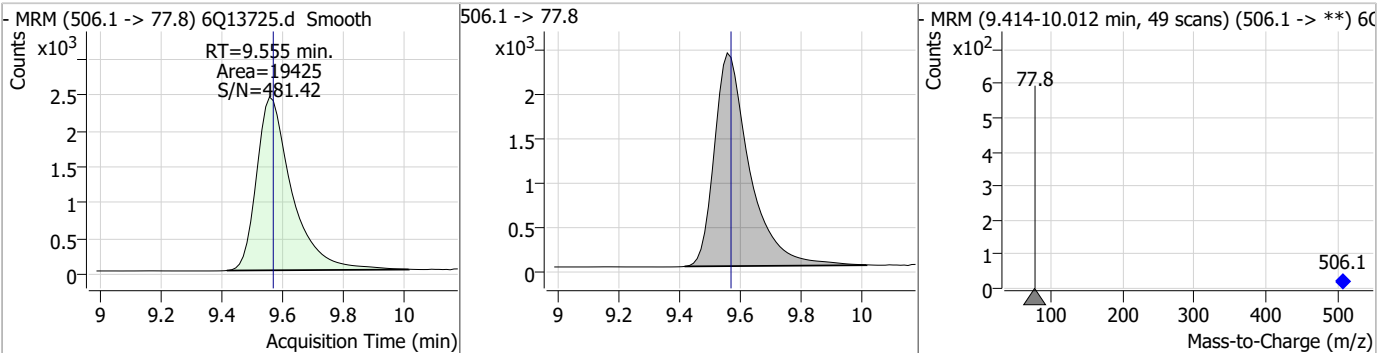
7

Perfluorinated Compounds by LC/MS/MS

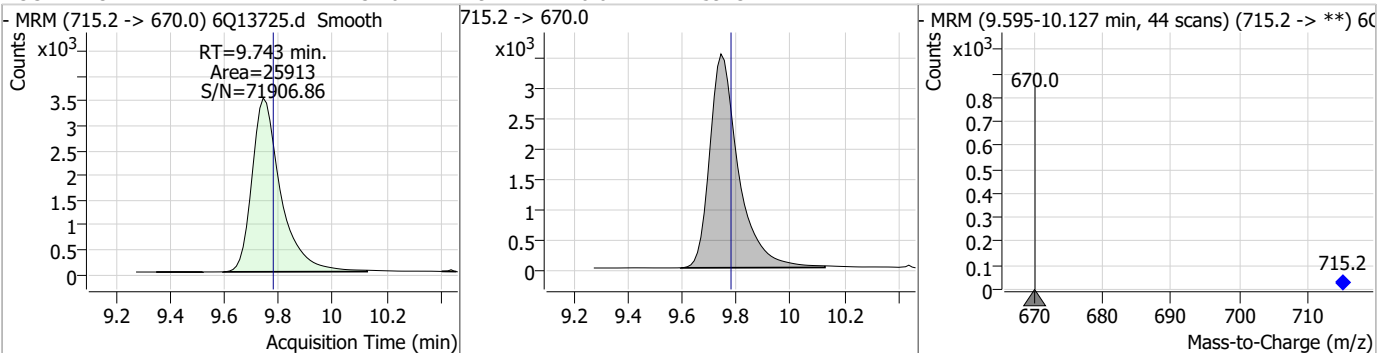
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	37.68	9.56	0.00	192083	498.1 -> 478.0	3.7	2.0	5.9



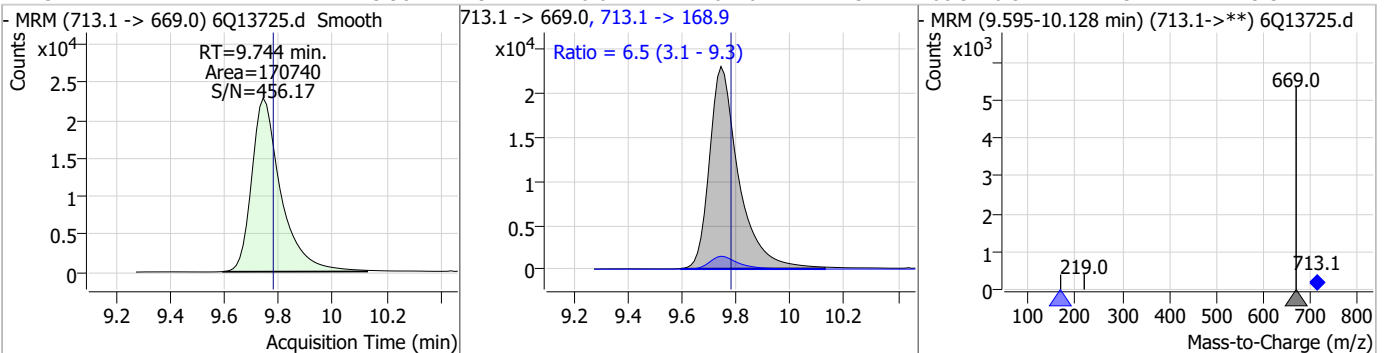
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	3.37	9.55	-0.01	19425				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	3.10	9.74	-0.04	25913				

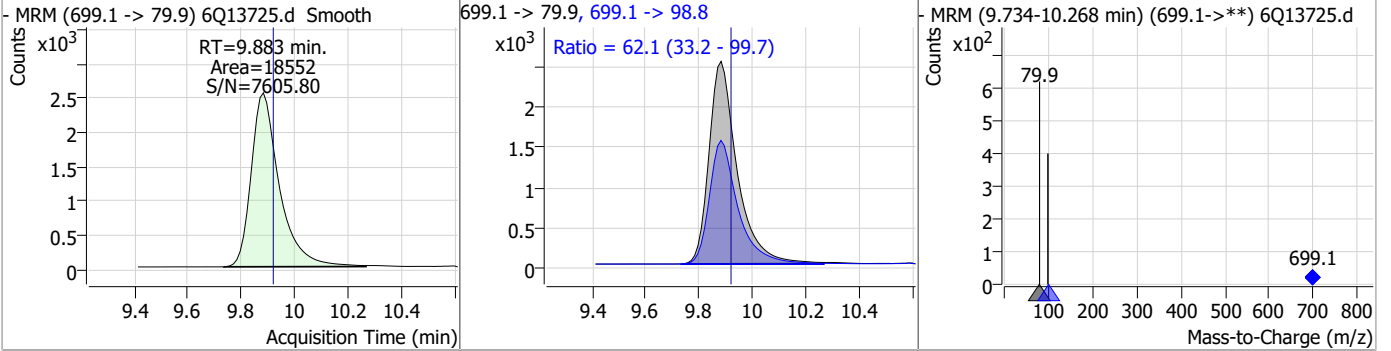


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	13.98	9.74	-0.04	170740	713.1 -> 168.9	6.5	3.1	9.3

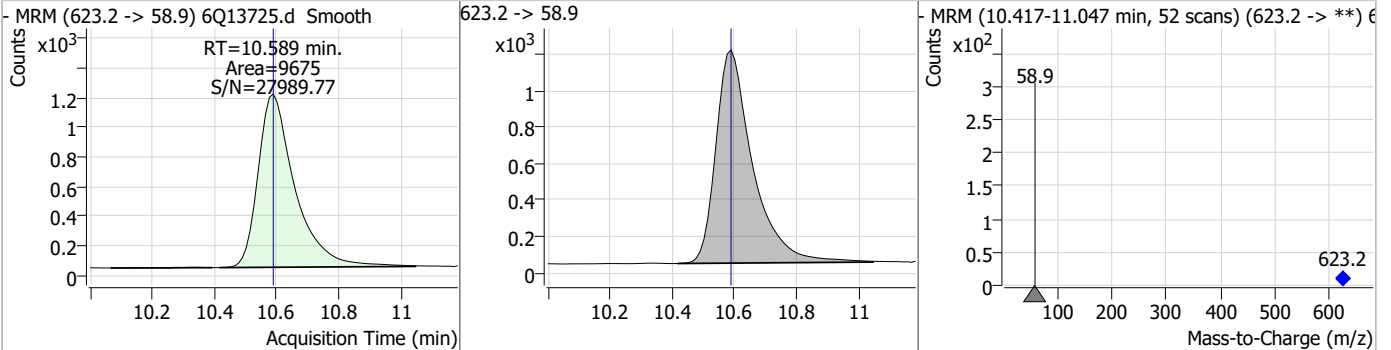


Perfluorinated Compounds by LC/MS/MS

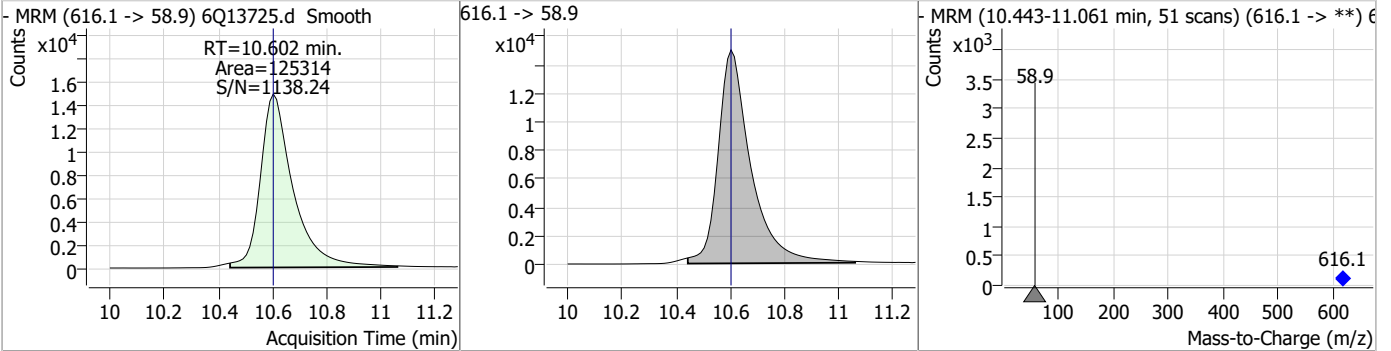
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	14.39	9.88	-0.04	18552	699.1 -> 98.8	62.1	33.2	99.7



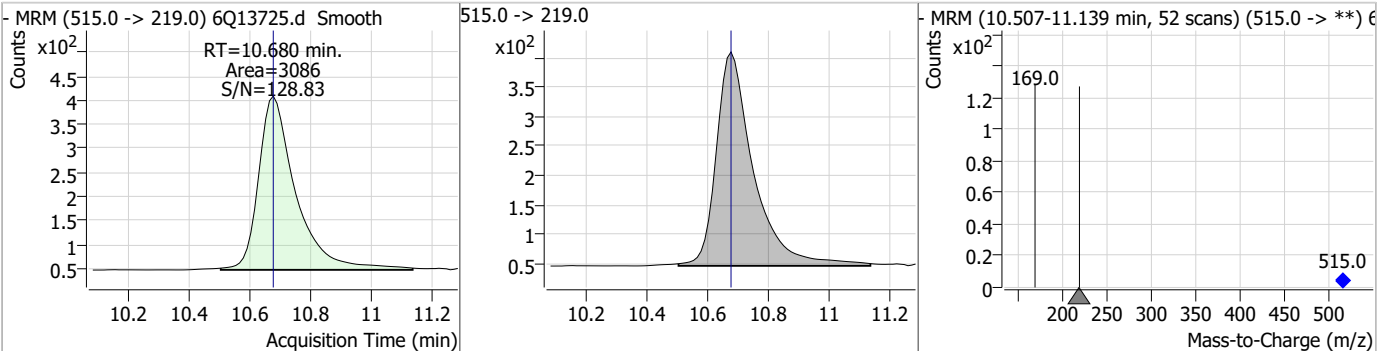
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	11.53	10.59	0.00	9675				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	155.90	10.60	0.00	125314				

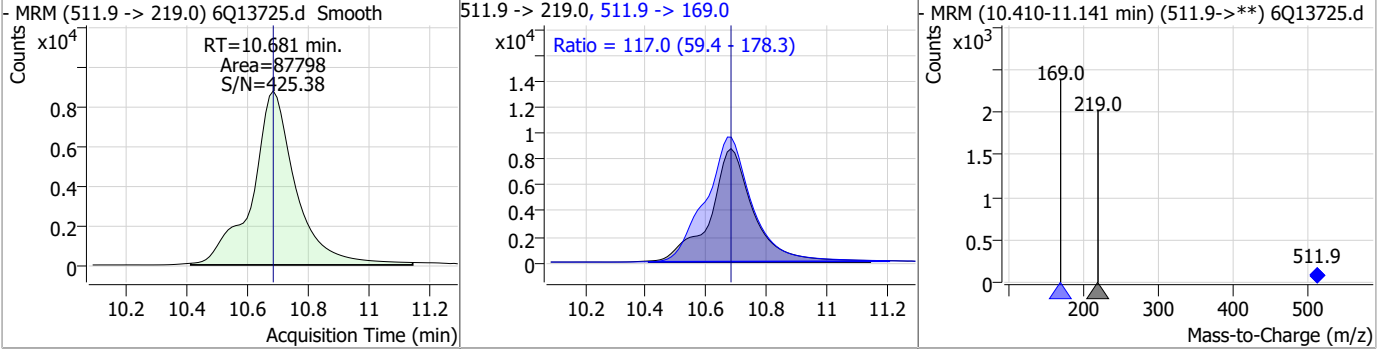


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	1.28	10.68	0.00	3086				

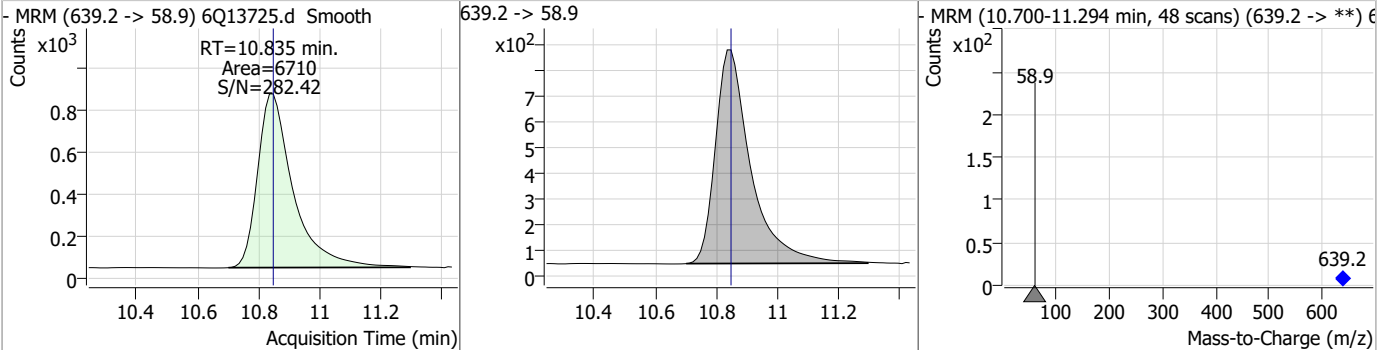


Perfluorinated Compounds by LC/MS/MS

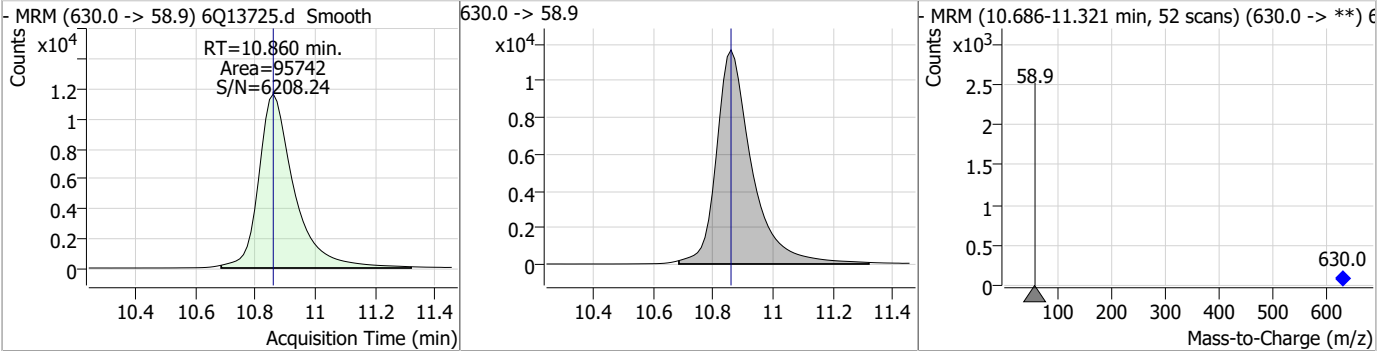
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	32.30	10.68	0.00	87798	511.9 -> 169.0	117.0	59.4	178.3



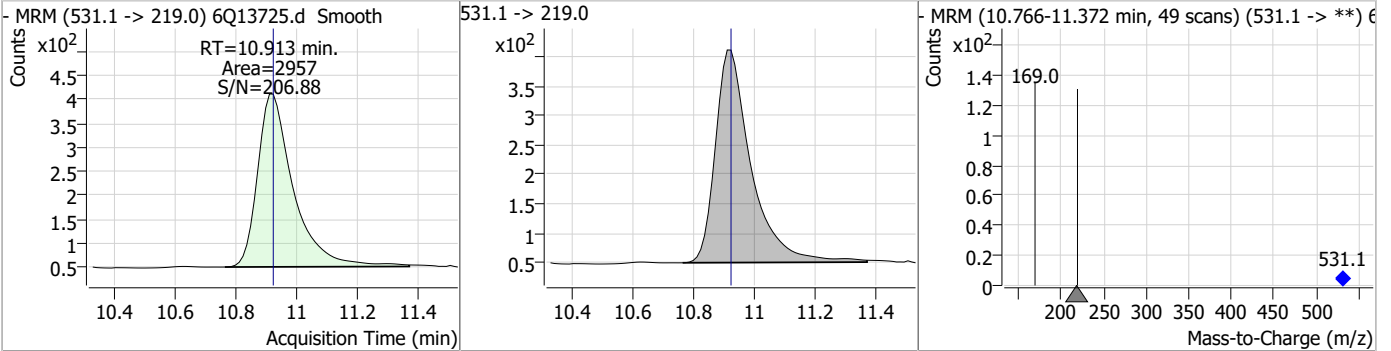
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	11.31	10.83	-0.01	6710				



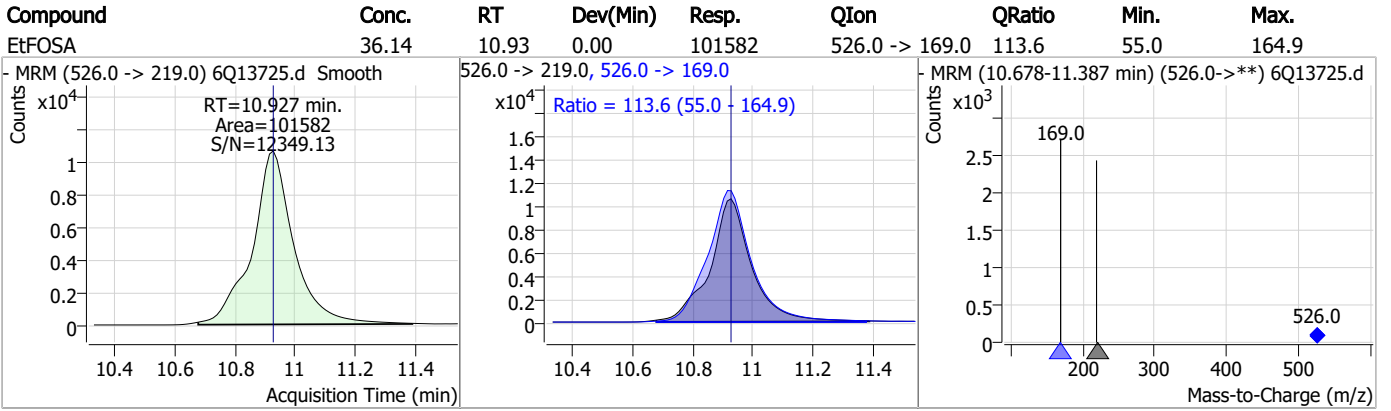
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	167.29	10.86	0.00	95742				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	1.14	10.91	-0.01	2957				



Perfluorinated Compounds by LC/MS/MS



7.5.2

7

Manual Integration Approval Summary

Sample Number: S6Q208-RT Method: EPA DRAFT 1633
Lab FileID: 6Q13725.D Analyst approved: 02/18/23 11:42 Natasha Gumtie
Injection Time: 02/16/23 07:36 Supervisor approved: 02/18/23 12:01 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.12	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorononanoic acid	375-95-1		7.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.30	Split peak

7.5.2.1

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 14 February 2023 10:32:04
File Path D:\MassHunter\Tune\QQQ\G6495B\atunes.TUNE.XML
Ion Source AJS ESI
Ionization Mode AJS ESI
Tuned Resolution All
Vacuum Pressure 1.82E+0 [R] (Torr); 2.93E-5 [H] (Torr)

Source Parameters

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

QQQ Check Tune Report



Negative Results

Analyzer: MS1 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.94	-0.05	Pass	0.70	0.76	0.06	Pass	90153
302.00	301.93	-0.07	Pass	0.70	0.74	0.04	Pass	560677
601.98	601.92	-0.06	Pass	0.70	0.71	0.01	Pass	2686679
1033.99	1033.93	-0.06	Pass	0.70	0.84	0.14	Pass	445212
1633.95	1633.90	-0.05	Pass	0.70	0.83	0.13	Pass	282625
2233.91	2233.90	-0.01	Pass	0.70	0.76	0.06	Pass	72857

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.04	0.04	Pass	0.70	0.64	-0.06	Pass	61697
112.99	112.95	-0.04	Pass	0.70	0.69	-0.01	Pass	100680
302.00	302.01	0.01	Pass	0.70	0.68	-0.02	Pass	425922
601.98	601.92	-0.06	Pass	0.70	0.75	0.05	Pass	1780595
1033.99	1033.96	-0.03	Pass	0.70	0.72	0.02	Pass	896280
1633.95	1633.90	-0.05	Pass	0.70	0.73	0.03	Pass	681037
2233.91	2233.82	-0.09	Pass	0.70	0.74	0.04	Pass	158305

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.94	-0.05	Pass	1.20	1.44	0.24	Pass	107826
302.00	302.00	0.00	Pass	1.20	1.51	0.31	Pass	697639
601.98	601.92	-0.06	Pass	1.20	1.61	0.41	Pass	3960564
1033.99	1033.82	-0.17	Pass	1.20	1.52	0.32	Pass	805388
1633.95	1633.83	-0.12	Pass	1.20	1.42	0.22	Pass	497289
2233.91	2233.84	-0.07	Pass	1.20	1.27	0.07	Pass	139652

Analyzer: MS2 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.03	0.03	Pass	1.20	1.10	-0.10	Pass	95883
112.99	112.95	-0.04	Pass	1.20	1.24	0.04	Pass	149675
302.00	301.99	-0.01	Pass	1.20	1.26	0.06	Pass	608774
601.98	601.98	0.00	Pass	1.20	1.31	0.11	Pass	3466429
1033.99	1033.94	-0.05	Pass	1.20	1.34	0.14	Pass	2160650
1633.95	1633.83	-0.12	Pass	1.20	1.52	0.32	Pass	1603194
2233.91	2233.84	-0.07	Pass	1.20	1.34	0.14	Pass	437849

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.91	-0.08	Pass	2.50	2.69	0.19	Pass	131246
302.00	301.88	-0.12	Pass	2.50	2.91	0.41	Pass	923420
601.98	601.68	-0.30	Pass	2.50	2.84	0.34	Pass	5338508
1033.99	1033.78	-0.21	Pass	2.50	2.74	0.24	Pass	1429243
1633.95	1633.80	-0.15	Pass	2.50	2.66	0.16	Pass	1126240
2233.91	2233.62	-0.29	Pass	2.50	2.33	-0.17	Pass	446694

Analyzer: MS2 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.02	0.02	Pass	2.50	2.56	0.06	Pass	116207
112.99	113.03	0.04	Pass	2.50	2.58	0.08	Pass	206382
302.00	301.99	-0.01	Pass	2.50	2.70	0.20	Pass	744857
601.98	601.97	-0.01	Pass	2.50	2.55	0.05	Pass	4953646
1033.99	1033.96	-0.03	Pass	2.50	2.68	0.18	Pass	3503033
1633.95	1633.92	-0.03	Pass	2.50	2.65	0.15	Pass	3262947
2233.91	2233.79	-0.12	Pass	2.50	2.36	-0.14	Pass	1080878

7.6.1
7

Manual Integration Approval Summary

Sample Number: S6Q208-IC208 Method: EPA DRAFT 1633
Lab FileID: 6Q13726.D Analyst approved: 02/18/23 11:42 Natasha Gumtie
Injection Time: 02/16/23 07:50 Supervisor approved: 02/18/23 12:01 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
EiFOSA	4151-50-2		10.91	Split peak

7.6.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13727.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/16/2023 8:04:11 AM
 Sample Name : ic208-1
 Vial : P1-D2
 DA Method File : 1633_021623_S6Q208NEW.quantmethod.xml
 Batch Name : s6q208.batch.bin
 Sample Information : OP95142,S6Q208,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.950	216.8 -> 171.9	60580	7.50 µg/L	-0.025
M5-PFPeA	4.361	268.3 -> 223.0	39024	5.00 µg/L	-0.025
M5-PFHxA	5.538	318.0 -> 273.0	52659	3.75 µg/L	-0.025
M4-PFHpA	6.477	367.1 -> 322.0	53545	3.75 µg/L	-0.025
M8-PFOA	7.109	421.1 -> 376.0	93007	3.75 µg/L	-0.037
M9-PFNA	7.640	472.1 -> 427.0	53116	3.13 µg/L	-0.037
M6-PFDA	8.120	519.1 -> 474.1	41681	3.13 µg/L	-0.037
M7-PFUnDA	8.574	570.0 -> 525.1	51243	3.13 µg/L	-0.037
M2-PFDoDA	9.017	615.1 -> 570.0	56635	3.13 µg/L	-0.037
M2-PFTeDA	9.743	715.2 -> 670.0	32301	3.13 µg/L	-0.037
M8-FOSA	9.555	506.1 -> 77.8	23458	3.75 µg/L	-0.012
M3-PFBS	5.481	302.1 -> 79.9	19745	3.75 µg/L	-0.037
M3-PFHxS	7.237	402.1 -> 79.9	13012	3.75 µg/L	-0.037
M8-PFOS	8.295	507.1 -> 79.9	12594	3.75 µg/L	-0.038
M2-4:2FTS	5.215	329.1 -> 80.9	2412	5.00 µg/L	-0.025
M2-6:2FTS	6.883	429.1 -> 80.9	3048	5.00 µg/L	-0.025
M2-8:2FTS	7.907	529.1 -> 80.9	2894	5.00 µg/L	-0.037
M3-MeFOSAA	8.165	573.2 -> 419.0	28535	5.00 µg/L	-0.037
M3-HFPO-DA	5.903	286.9 -> 168.9	7590	5.00 µg/L	-0.037
M5-EtFOSAA	8.373	589.2 -> 419.0	24231	5.00 µg/L	-0.025
M7-MeFOSE	10.589	623.2 -> 58.9	11791	12.50 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	8364	12.50 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	3530	1.25 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	3354	1.25 µg/L	0.000
13C4-PFOS	8.296	502.8 -> 79.9	9322	2.50 µg/L	-0.038
13C3-PFBA	2.954	216.0 -> 172.0	34591	5.00 µg/L	-0.025
18O2-PFHxS	7.236	403.0 -> 83.9	6240	2.50 µg/L	-0.037
13C4-PFOA	7.110	417.1 -> 372.0	72374	2.50 µg/L	-0.037
13C2-PFDA	8.120	515.1 -> 470.1	22879	1.25 µg/L	-0.037
13C5-PFNA	7.640	468.0 -> 423.0	22618	1.25 µg/L	-0.037
13C2-PFHxA	5.539	315.1 -> 270.0	32830	2.50 µg/L	-0.025
System Monitoring Compounds					
13C2-4:2FTS	5.215	329.1 -> 80.9	2412	5.60 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.1%		
13C2-6:2FTS	6.883	429.1 -> 80.9	3048	5.39 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.7%		
13C2-8:2FTS	7.907	529.1 -> 80.9	2894	5.27 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.4%		
13C2-PFDoDA	9.017	615.1 -> 570.0	56635	3.14 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C2-PFTeDA	9.743	715.2 -> 670.0	32301	3.24 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 103.5%		
13C3-PFBS	5.481	302.1 -> 79.9	19745	3.83 µg/L	-0.037
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C3-PFHxS	7.237	402.1 -> 79.9	13012	3.74 µg/L	-0.037

7.62
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C4-PFBA	2.950	216.8 -> 171.9	60580	7.55 µg/L	-0.025
Spiked Amount: 7.50	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C4-PFHpA	6.477	367.1 -> 322.0	53545	3.79 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 101.1%		
13C5-PFHxA	5.538	318.0 -> 273.0	52659	3.78 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C5-PFPeA	4.361	268.3 -> 223.0	39024	5.06 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.1%		
13C6-PFDA	8.120	519.1 -> 474.1	41681	3.05 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C7-PFUnDA	8.574	570.0 -> 525.1	51243	3.20 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C8-FOSA	9.555	506.1 -> 77.8	23458	3.76 µg/L	-0.012
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C8-PFOA	7.109	421.1 -> 376.0	93007	3.76 µg/L	-0.037
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C8-PFOS	8.295	507.1 -> 79.9	12594	4.01 µg/L	-0.038
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 106.9%		
13C9-PFNA	7.640	472.1 -> 427.0	53116	3.10 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 99.1%		
d3-MeFOSAA	8.165	573.2 -> 419.0	28535	5.12 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.4%		
13C3-HFPO-DA	5.903	286.9 -> 168.9	7590	5.12 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.4%		
d3-MeFOSA	10.680	515.0 -> 219.0	3354	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.0%		
d5-EtFOSAA	8.373	589.2 -> 419.0	24231	5.19 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.7%		
d7-MeFOSE	10.589	623.2 -> 58.9	11791	12.97 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%		Recovery = 103.8%		
d9-EtFOSE	10.847	639.2 -> 58.9	8364	13.01 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%		Recovery = 104.1%		
d5-EtFOSA	10.925	531.1 -> 219.0	3530	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.6%		
Target Compounds					QValue
4:2FTS	5.215	327.1 -> 307.0	3777	0.67 µg/L	95
		327.1 -> 80.9	763		
6:2FTS	6.883	427.1 -> 407.0	3322	0.71 µg/L	100
		427.1 -> 80.9	636		
8:2FTS	7.908	527.1 -> 507.0	1577	0.68 µg/L	96
		527.1 -> 80.8	342		
EtFOSAA	8.374	584.2 -> 419.1	890	0.22 µg/L	m 88
		584.2 -> 526.0	382		
FOSA	9.557	498.1 -> 77.9	1119	0.18 µg/L	m 99
		498.1 -> 478.0	46		
MeFOSAA	8.179	570.1 -> 419.0	871	0.16 µg/L	96
		570.1 -> 483.0	179		
PFBA	2.957	212.8 -> 168.9	1372	0.69 µg/L	100
PFBS	5.481	298.7 -> 79.9	888	0.16 µg/L	98
		298.7 -> 98.8	422		
PFDA	8.121	512.9 -> 469.0	3659	0.18 µg/L	97
		512.9 -> 219.0	544		
PFDODA	9.017	613.1 -> 569.0	3005	0.17 µg/L	97
		613.1 -> 319.0	404		
PFDS	9.179	599.0 -> 79.9	376	0.14 µg/L	m 82

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	248			
PFHpA	6.477	363.1 -> 319.0	3752	0.17	µg/L	98
		363.1 -> 169.0	533			
PFHpS	7.792	449.0 -> 79.9	623	0.17	µg/L	98
		449.0 -> 98.9	352			
PFHxA	5.541	313.0 -> 269.0	2594	0.18	µg/L	98
		313.0 -> 118.9	76			
PFHxS	7.238	398.7 -> 79.9	628	0.16	µg/L	m 94
		398.7 -> 98.9	374			
PFNA	7.640	463.0 -> 419.0	2481	0.18	µg/L	95
		463.0 -> 219.0	454			
PFNS	8.762	548.8 -> 79.9	564	0.15	µg/L	92
		548.8 -> 98.9	301			
PFOA	7.111	413.0 -> 369.0	5829	0.19	µg/L	98
		413.0 -> 169.0	717			
PFOS	8.296	498.9 -> 79.9	577	0.15	µg/L	m 93
		498.9 -> 98.8	383			
PFPeA	4.363	263.0 -> 219.0	3161	0.36	µg/L	100
PFPeS	6.543	349.1 -> 79.9	784	0.17	µg/L	96
		349.1 -> 98.9	403			
PFTeDA	9.744	713.1 -> 669.0	2783	0.18	µg/L	97
		713.1 -> 168.9	199			
PFTrDA	9.399	663.0 -> 619.0	2897	0.18	µg/L	97
		663.0 -> 168.9	196			
PFUnDA	8.575	563.1 -> 519.0	2942	0.18	µg/L	98
		563.1 -> 269.1	401			
11Cl-PF3OUdS	9.464	630.9 -> 450.9	6557	0.67	µg/L	100
		632.9 -> 452.9	2010			
9Cl-PF3ONS	8.626	530.8 -> 351.0	10885	0.62	µg/L	95
		532.8 -> 353.0	3628			
ADONA	6.728	376.9 -> 250.9	21040	0.64	µg/L	97
		376.9 -> 84.8	4661			
HFPO-DA	5.903	284.9 -> 168.9	1020	0.68	µg/L	99
		284.9 -> 184.9	109			
3:3FTCA	3.816	241.0 -> 177.0	395	0.90	µg/L	99
		241.0 -> 117.0	52			
5:3FTCA	6.181	341.0 -> 237.1	12554	4.33	µg/L	99
		341.0 -> 217.0	11052			
7:3FTCA	7.579	441.0 -> 316.9	6908	4.53	µg/L	99
		441.0 -> 336.9	13769			
EtFOSA	10.927	526.0 -> 219.0	638	0.19	µg/L	87
		526.0 -> 169.0	612			
EtFOSE	10.860	630.0 -> 58.9	1241	1.74	µg/L	100
MeFOSA	10.681	511.9 -> 219.0	588	0.20	µg/L	81
		511.9 -> 169.0	574			
MeFOSE	10.602	616.1 -> 58.9	1680	1.72	µg/L	100
PFDoDS	9.883	699.1 -> 79.9	278	0.17	µg/L	89
		699.1 -> 98.8	161			
NFDHA	5.420	295.0 -> 201.0	308	0.36	µg/L	84
		295.0 -> 84.9	113			
PFMBA	4.763	279.0 -> 85.1	896	0.35	µg/L	100
PFMPA	3.516	229.0 -> 84.9	859	0.37	µg/L	100
PFEESA	6.021	314.8 -> 134.9	6090	0.32	µg/L	99
		314.8 -> 82.9	132			

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

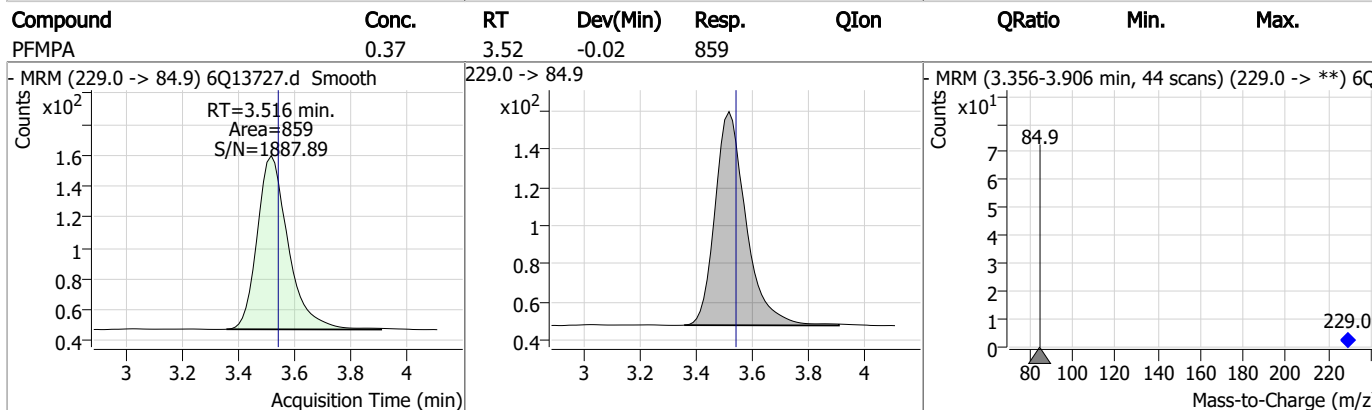
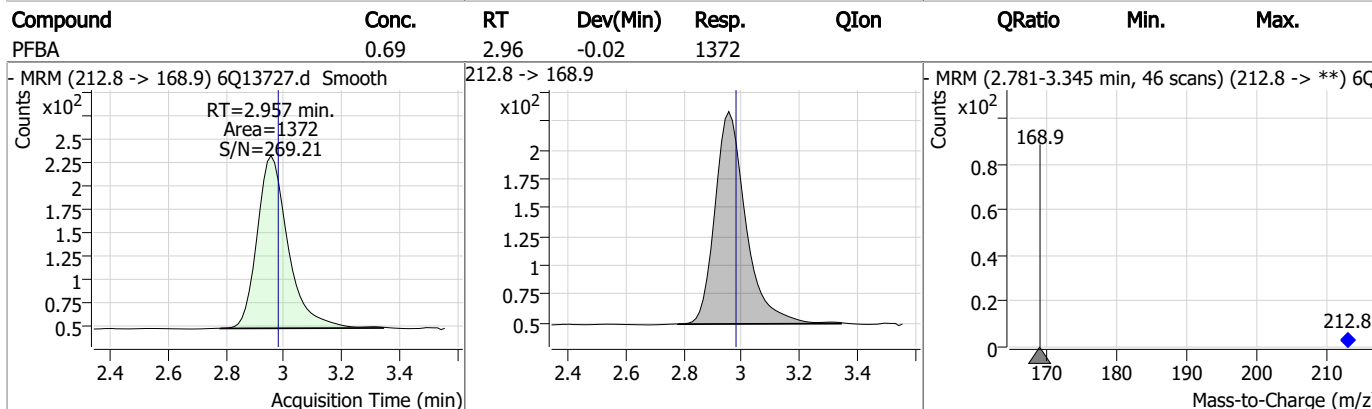
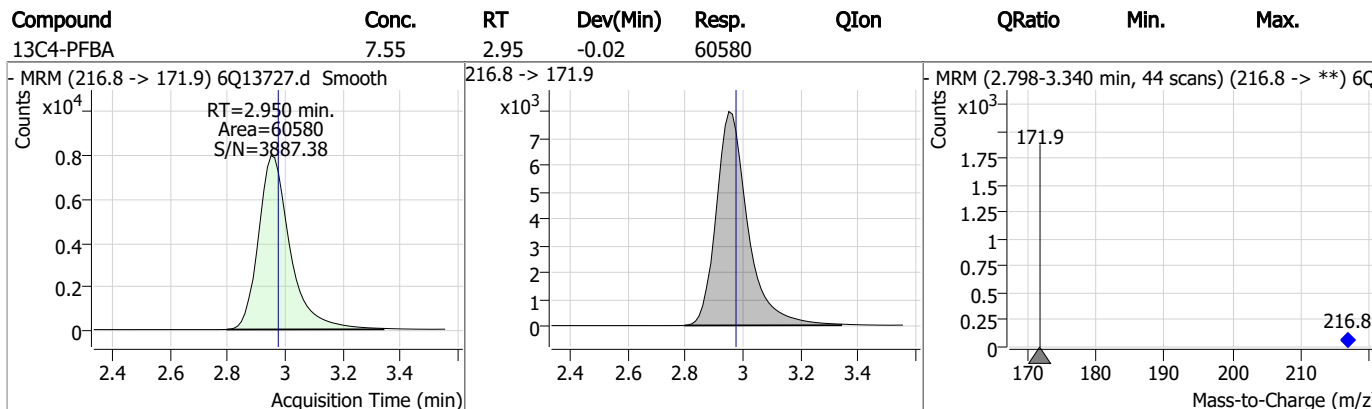
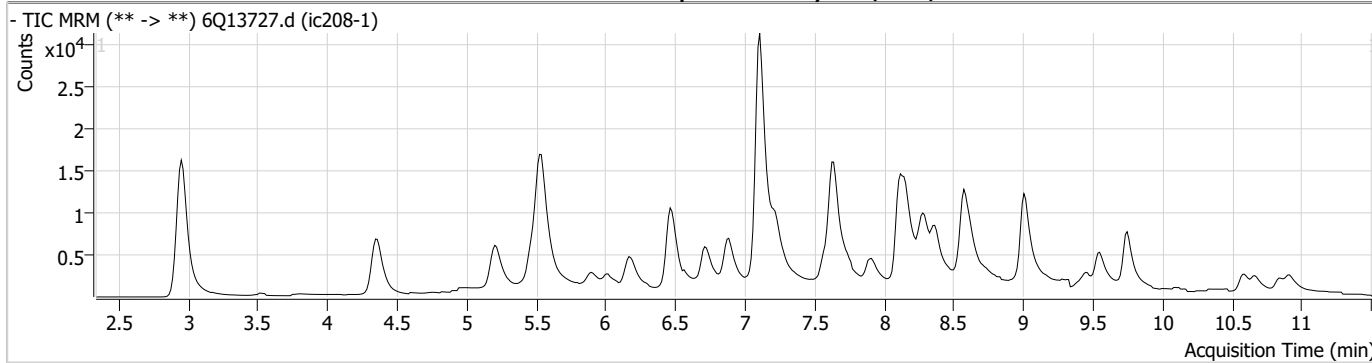
Perfluorinated Compounds by LC/MS/MS

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

7.6.2
7

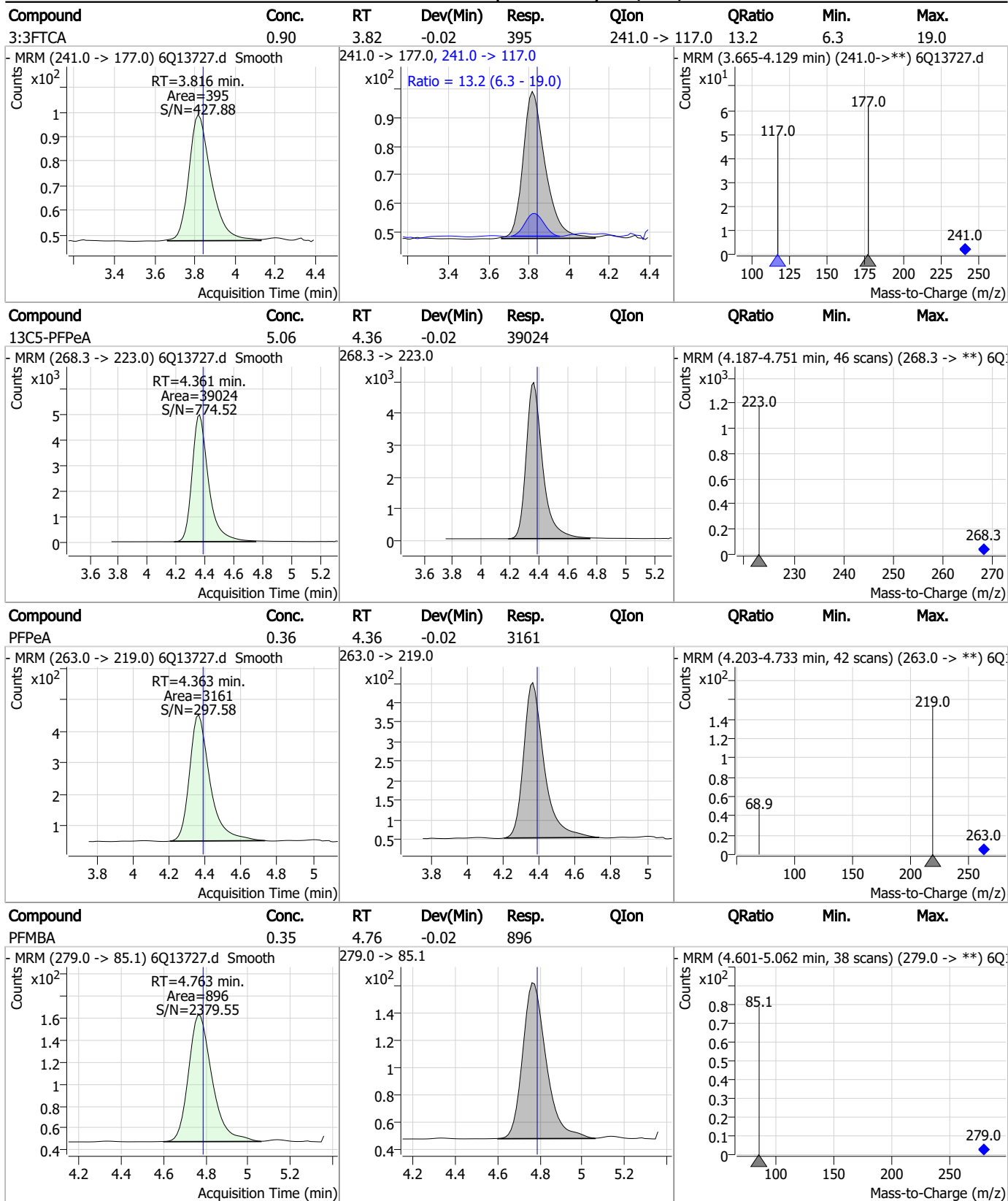


Perfluorinated Compounds by LC/MS/MS



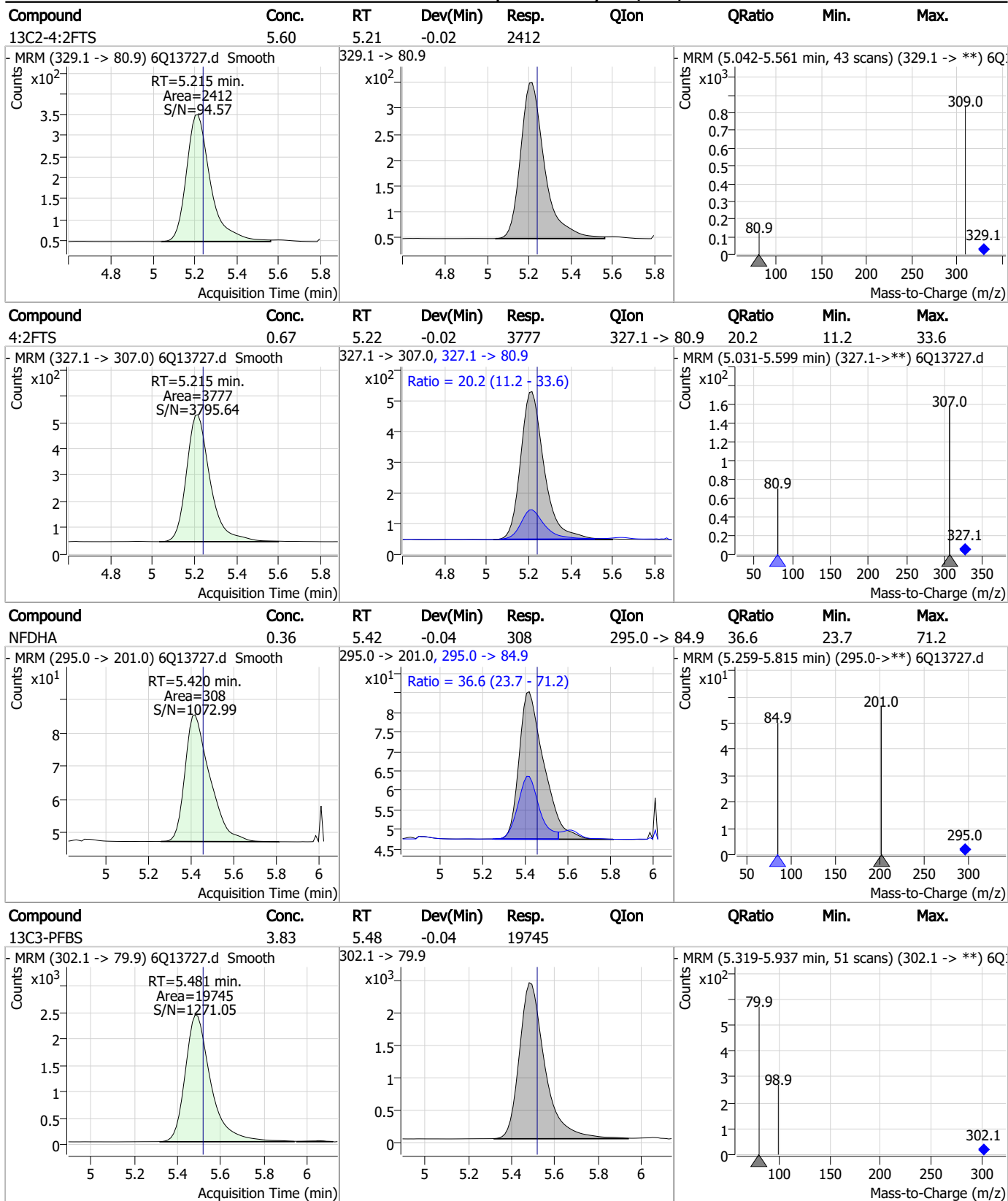
7.6.2
7

Perfluorinated Compounds by LC/MS/MS



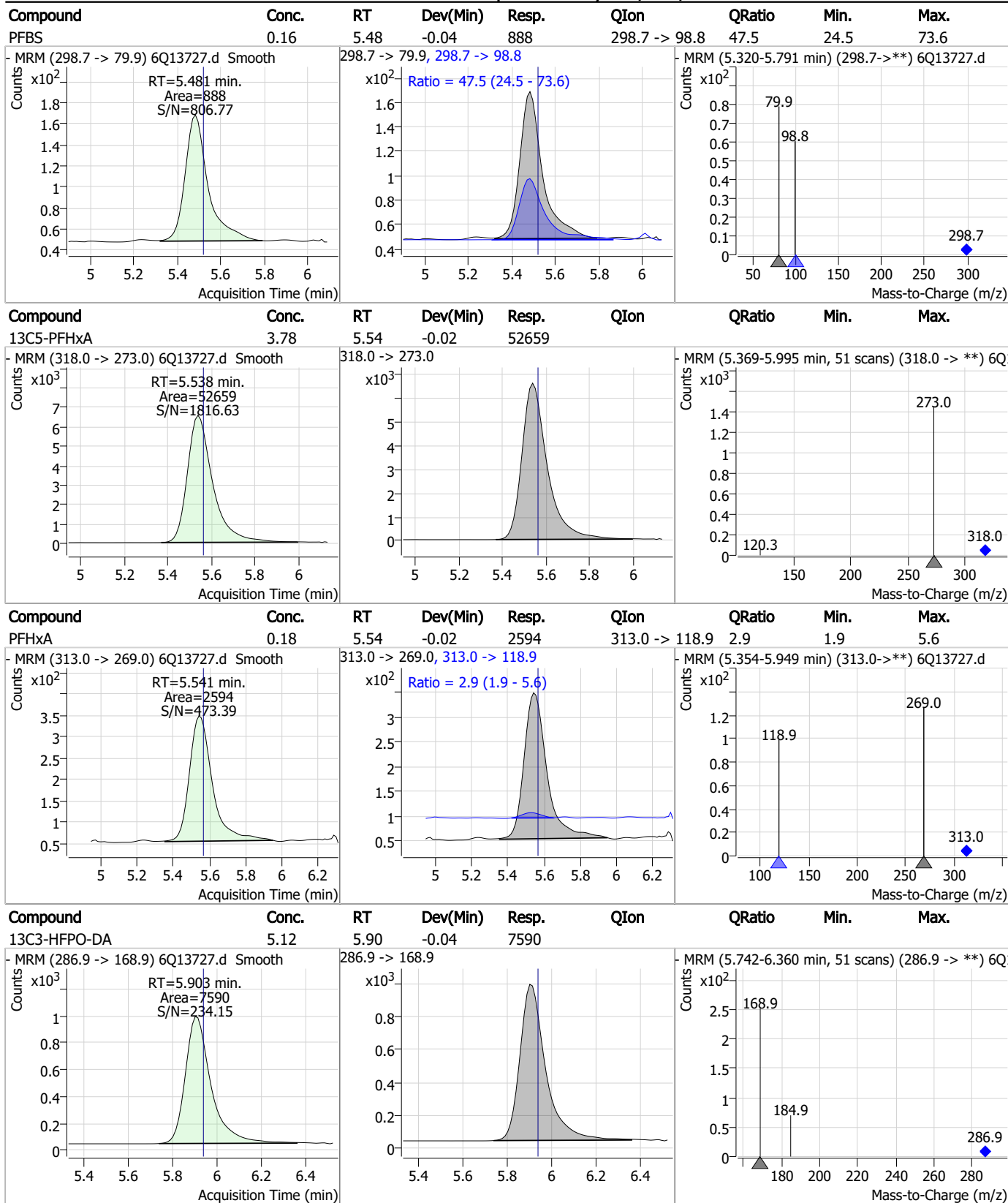
7.6.2
7

Perfluorinated Compounds by LC/MS/MS



7.6.2
7

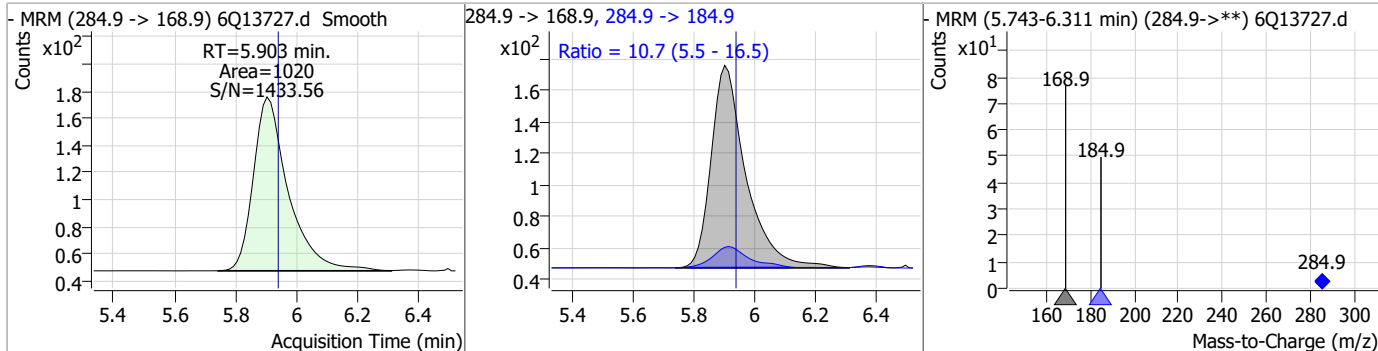
Perfluorinated Compounds by LC/MS/MS



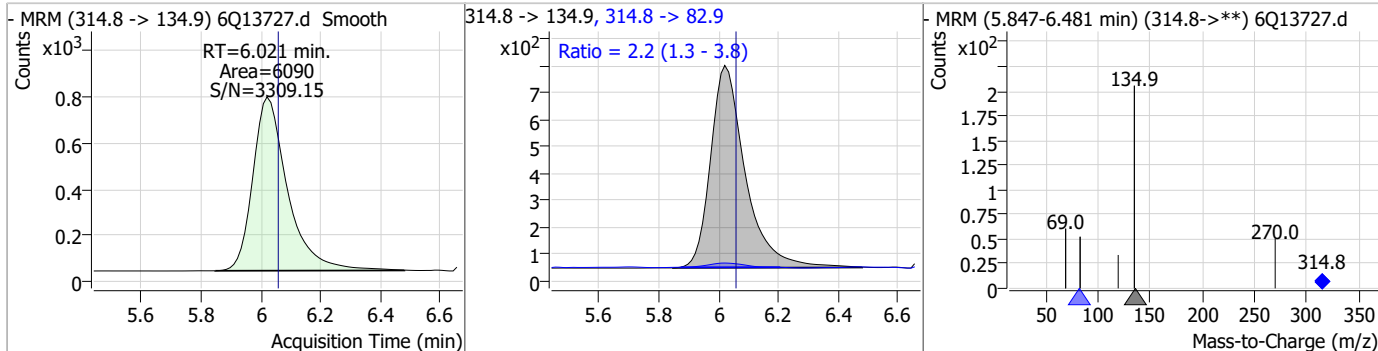
7.6.2
7

Perfluorinated Compounds by LC/MS/MS

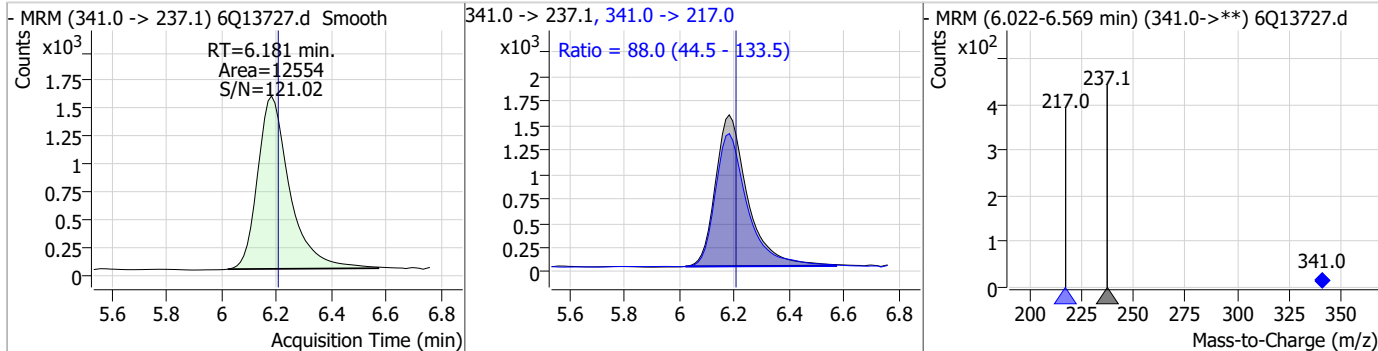
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.68	5.90	-0.04	1020	284.9 -> 184.9	10.7	5.5	16.5



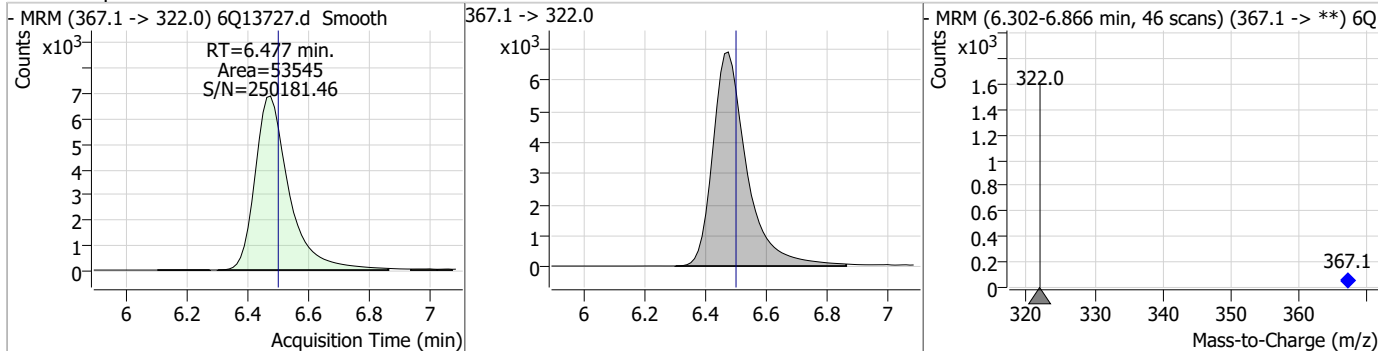
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.32	6.02	-0.04	6090	314.8 -> 82.9	2.2	1.3	3.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	4.33	6.18	-0.02	12554	341.0 -> 217.0	88.0	44.5	133.5

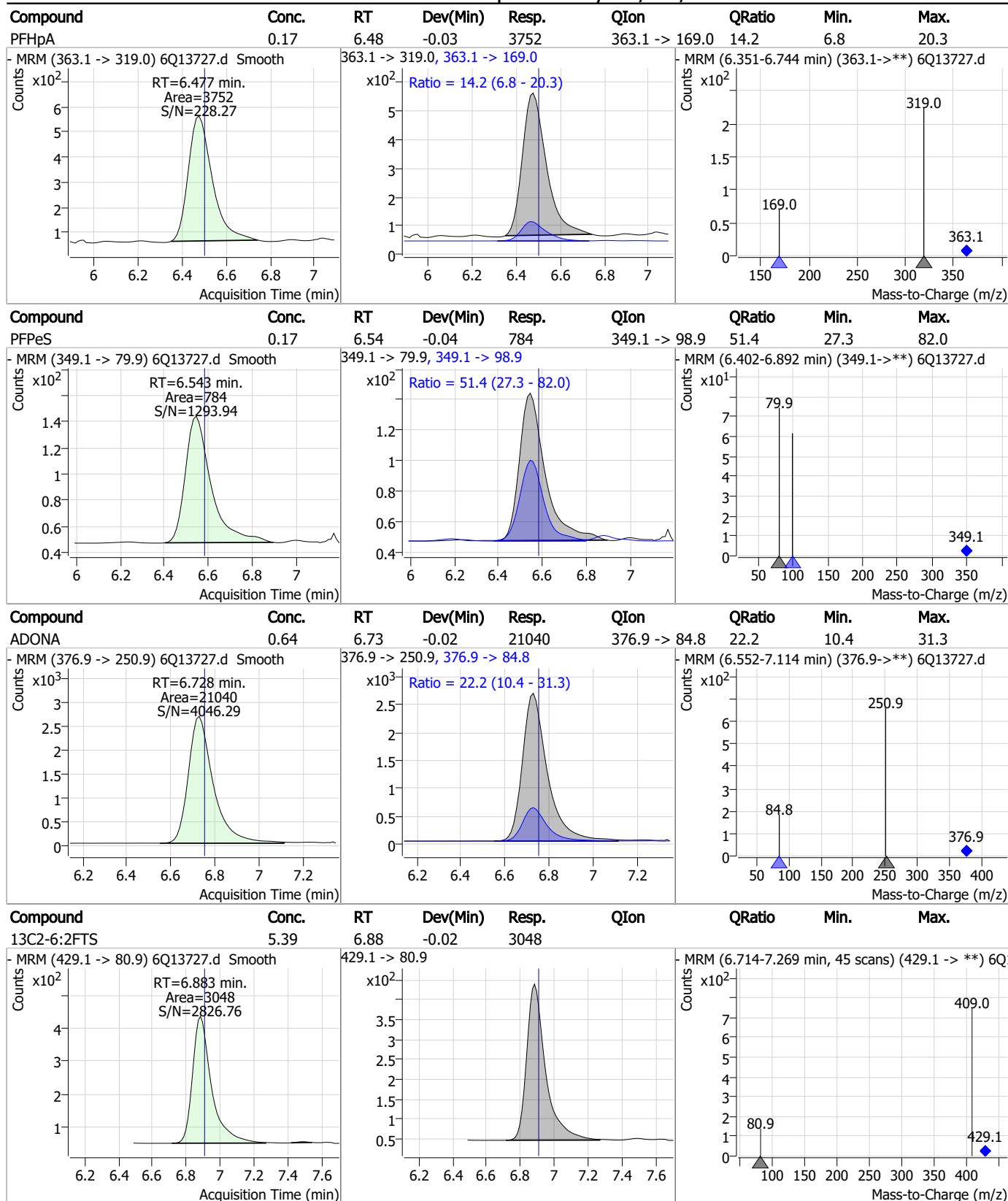


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	3.79	6.48	-0.03	53545	367.1 -> 322.0			



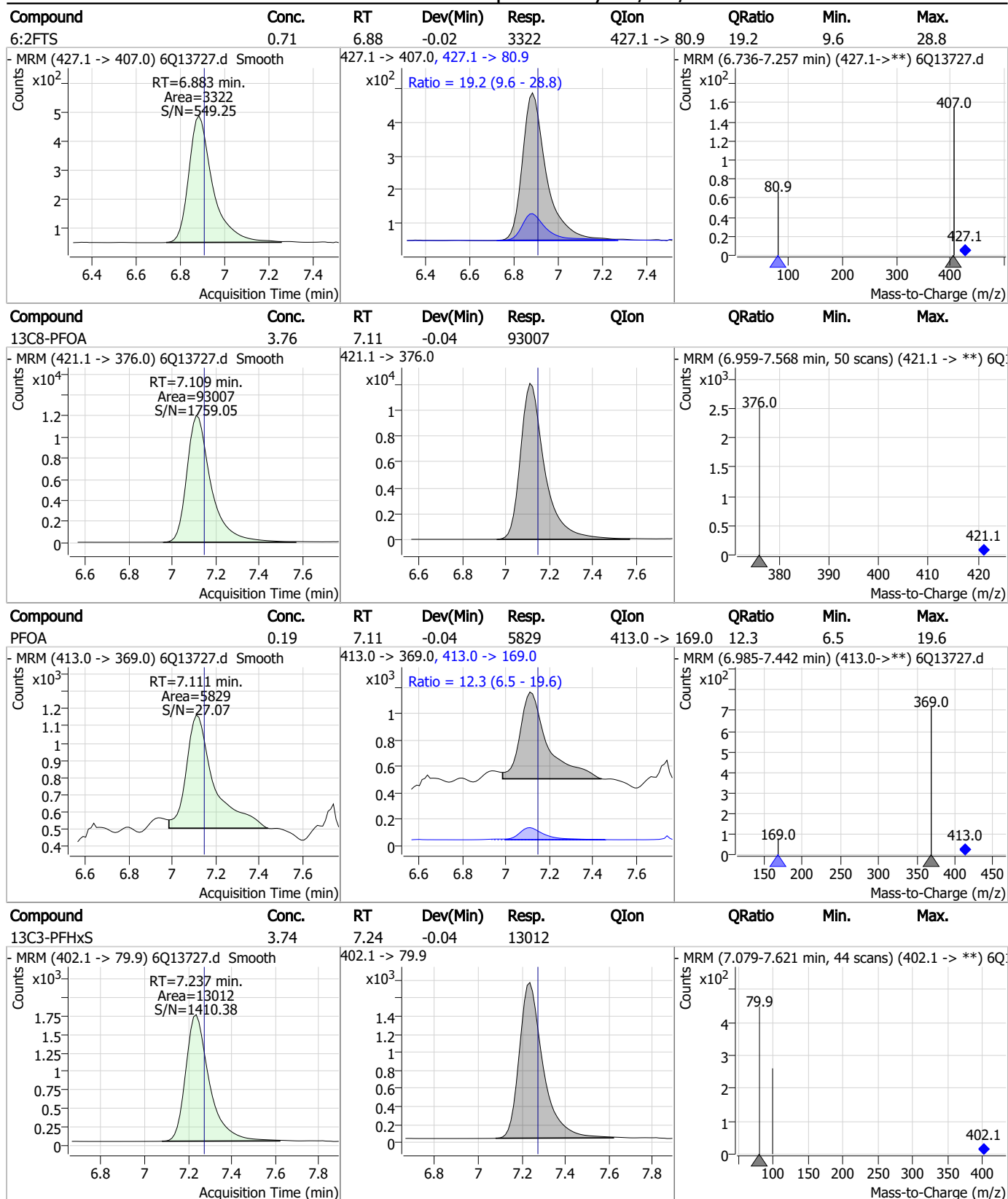
7.6.2
7

Perfluorinated Compounds by LC/MS/MS



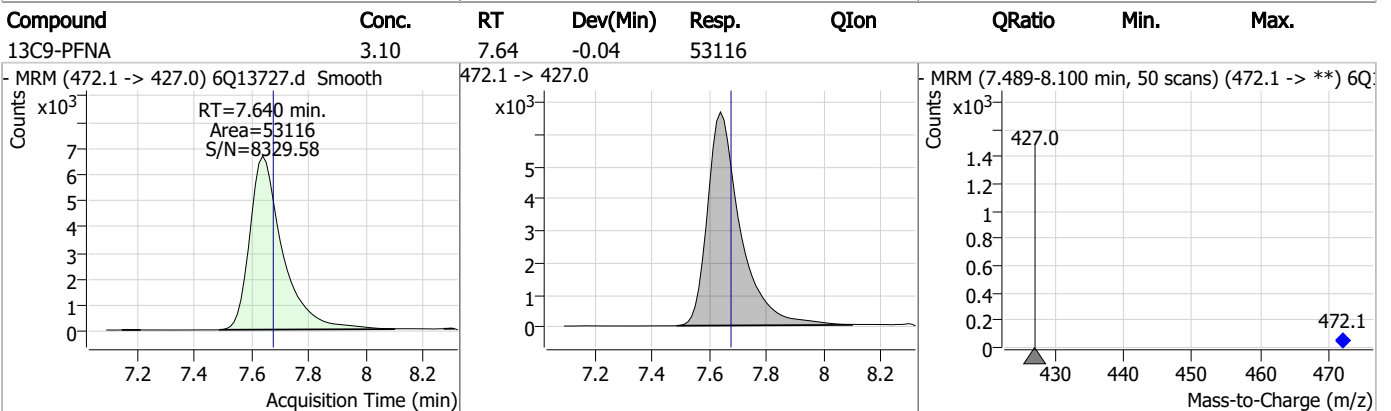
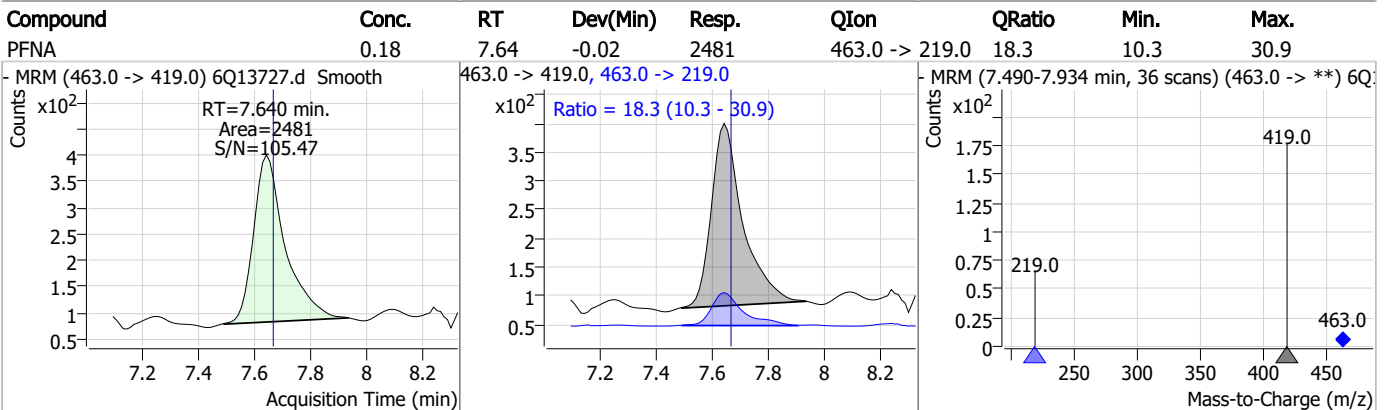
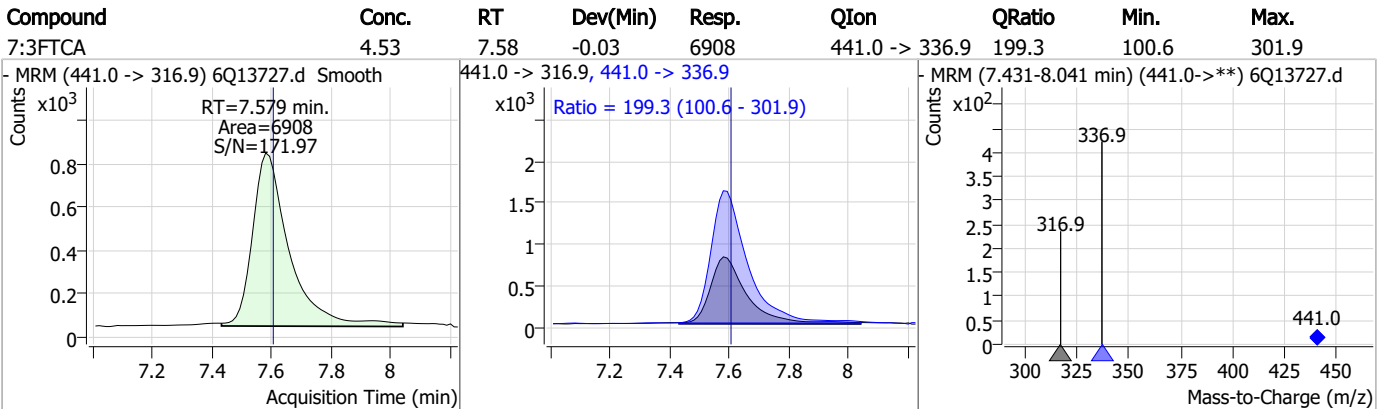
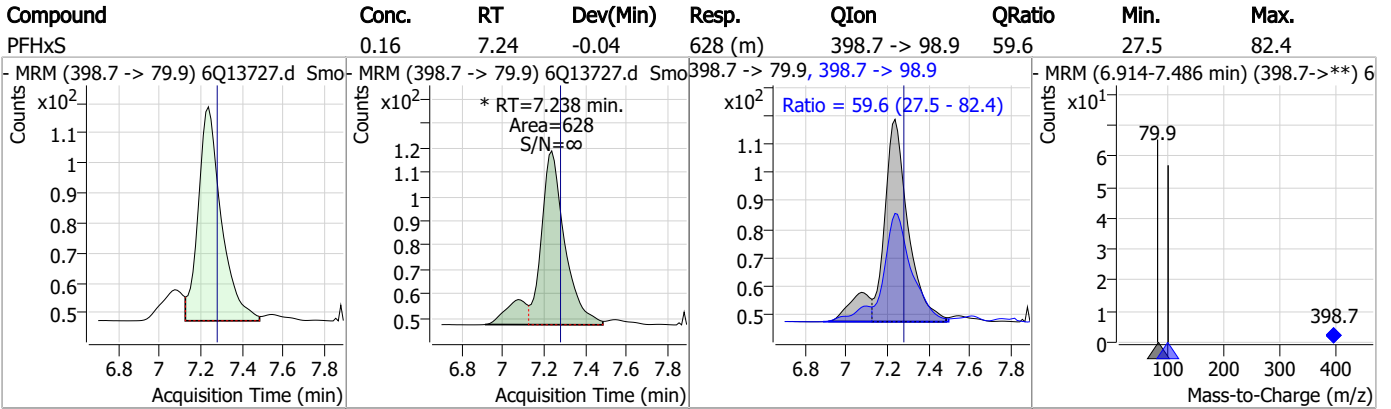
7.6.2
7

Perfluorinated Compounds by LC/MS/MS



7.6.2
7

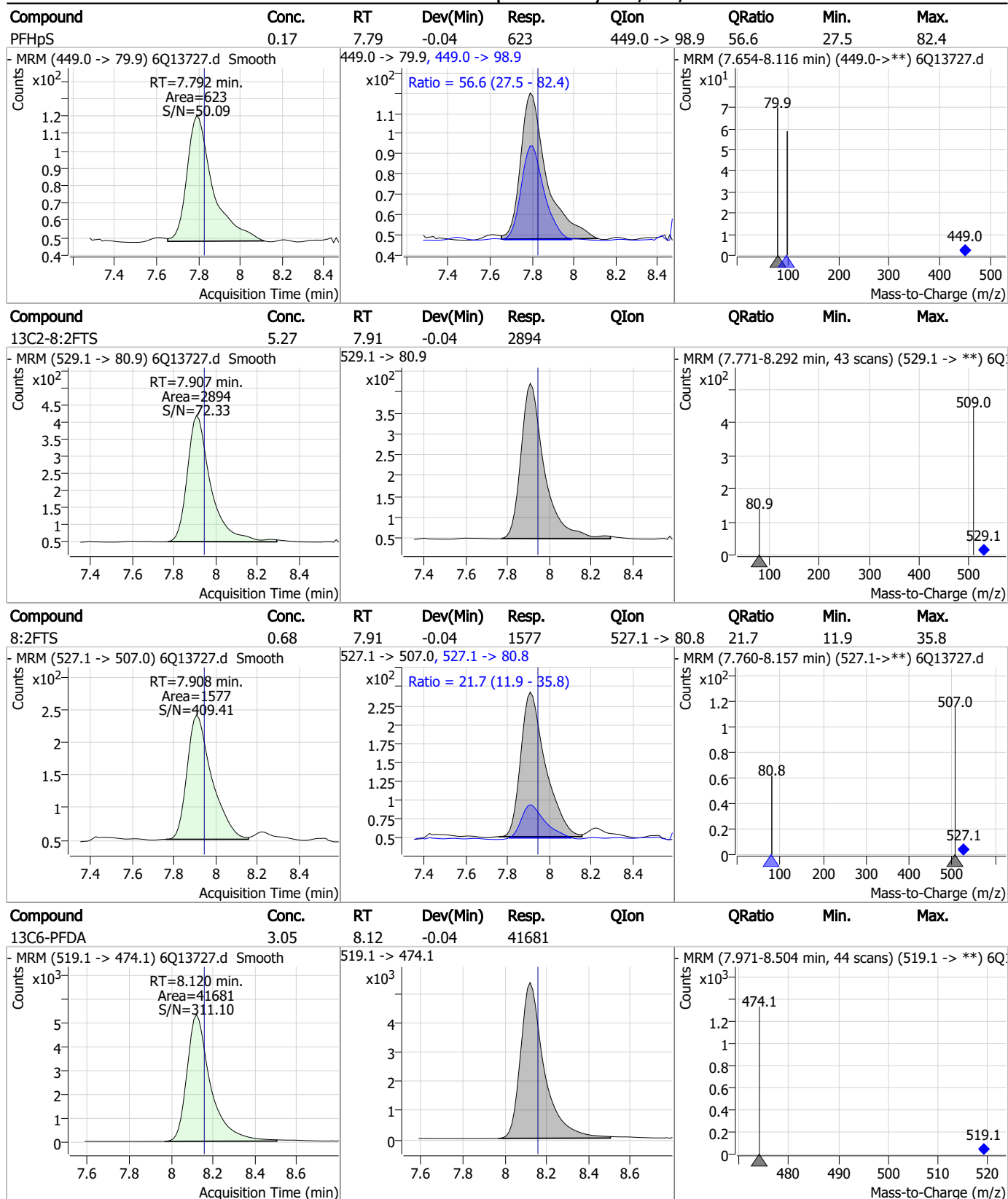
Perfluorinated Compounds by LC/MS/MS



7.6.2

7

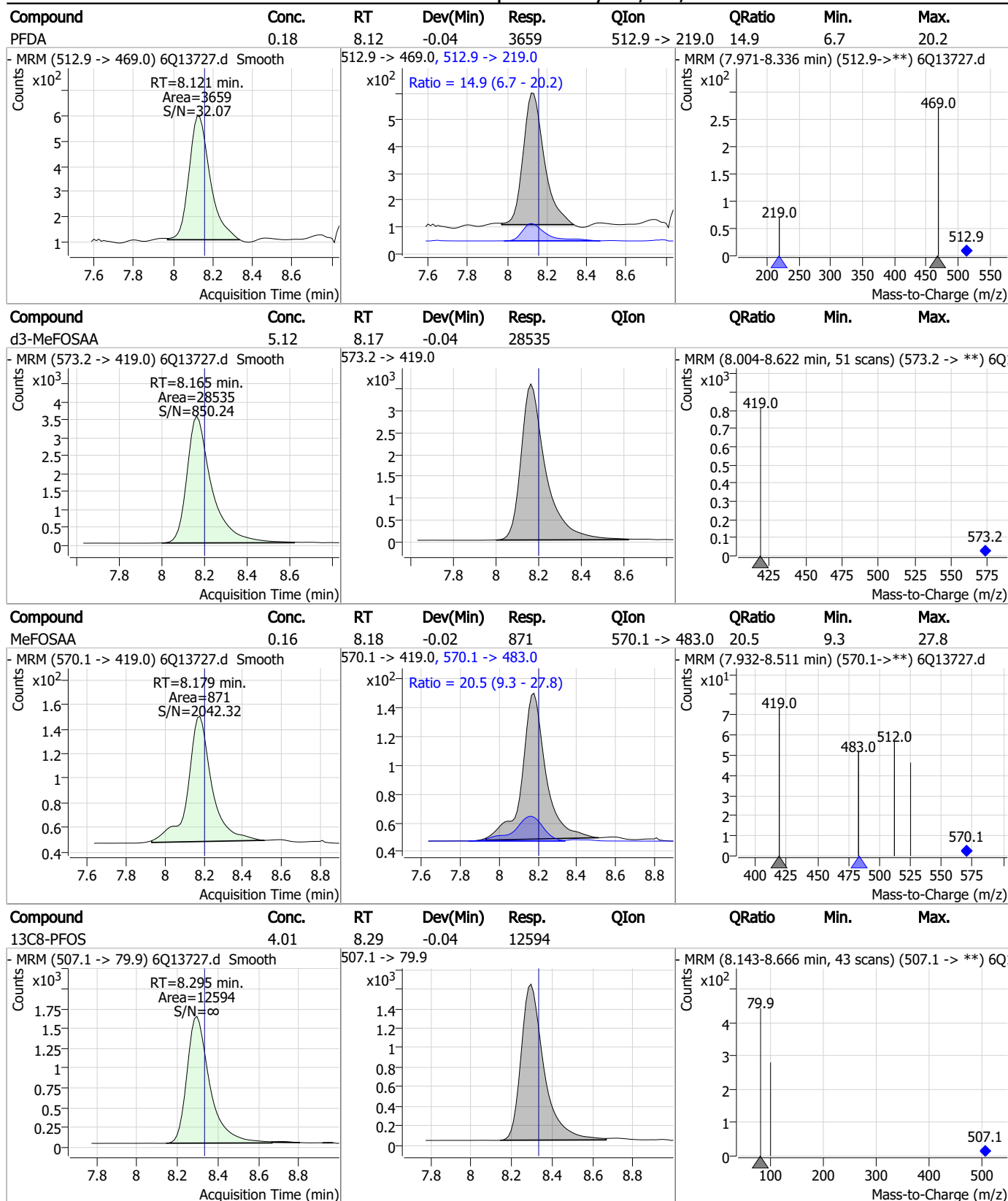
Perfluorinated Compounds by LC/MS/MS



7.6.2

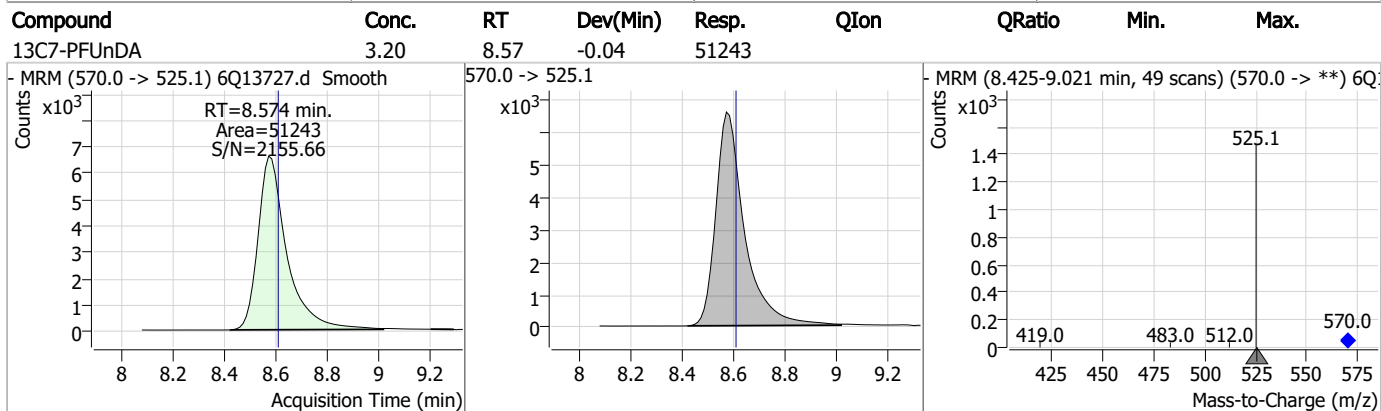
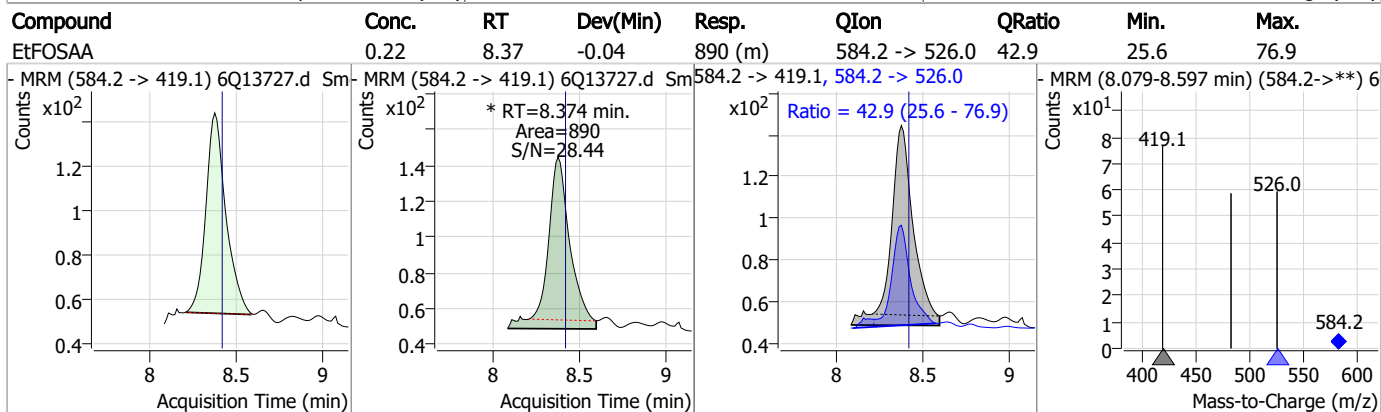
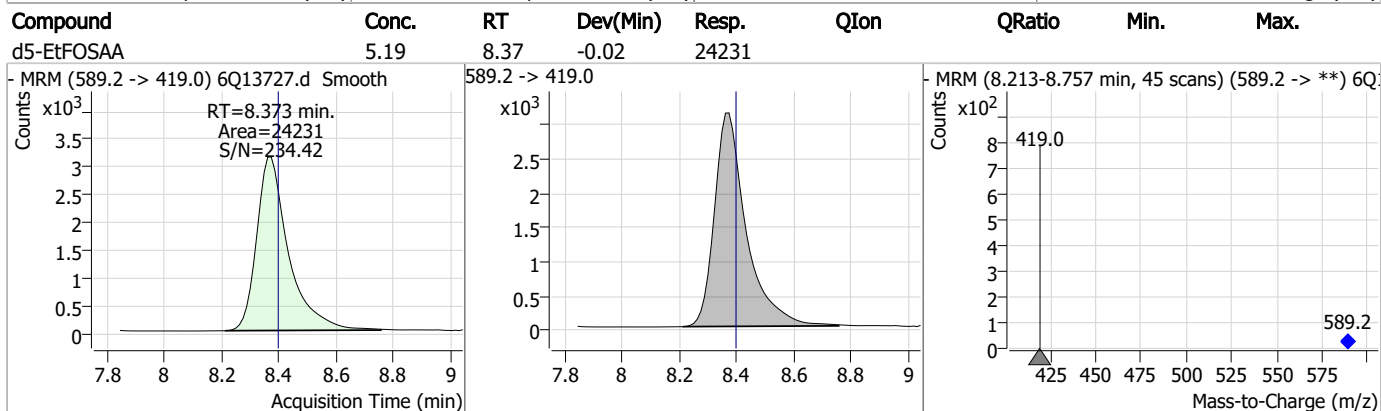
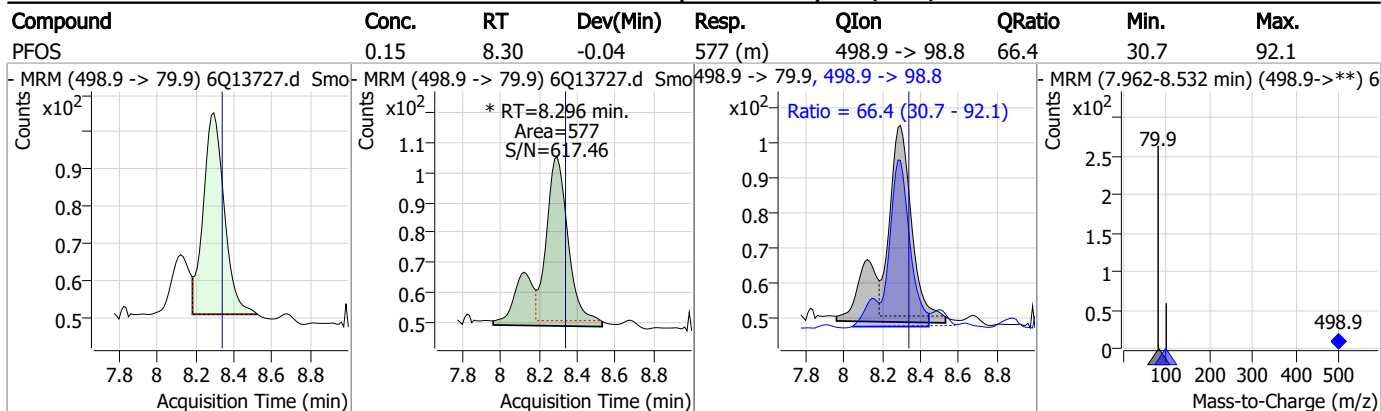
7

Perfluorinated Compounds by LC/MS/MS



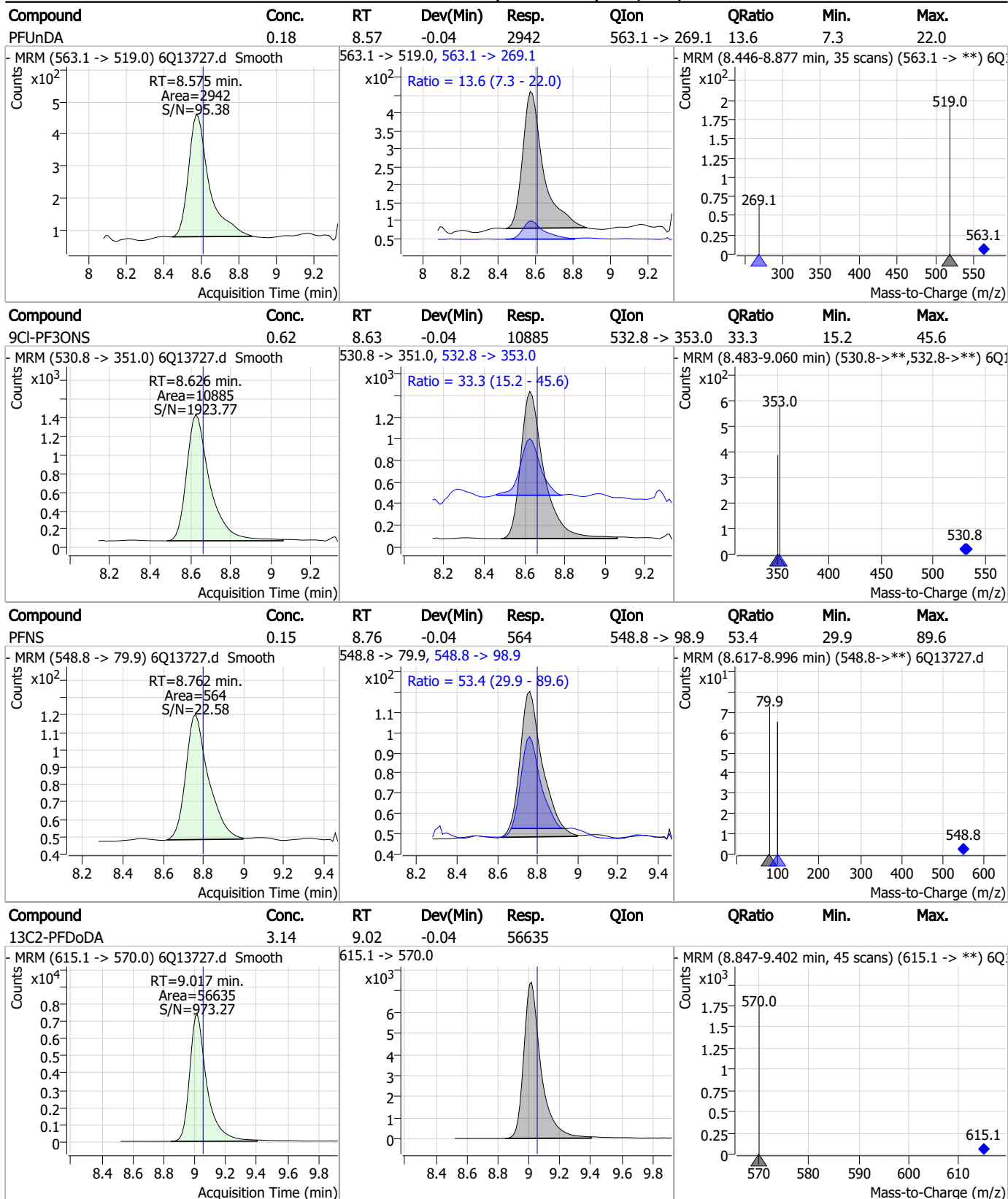
7.6.2
7

Perfluorinated Compounds by LC/MS/MS



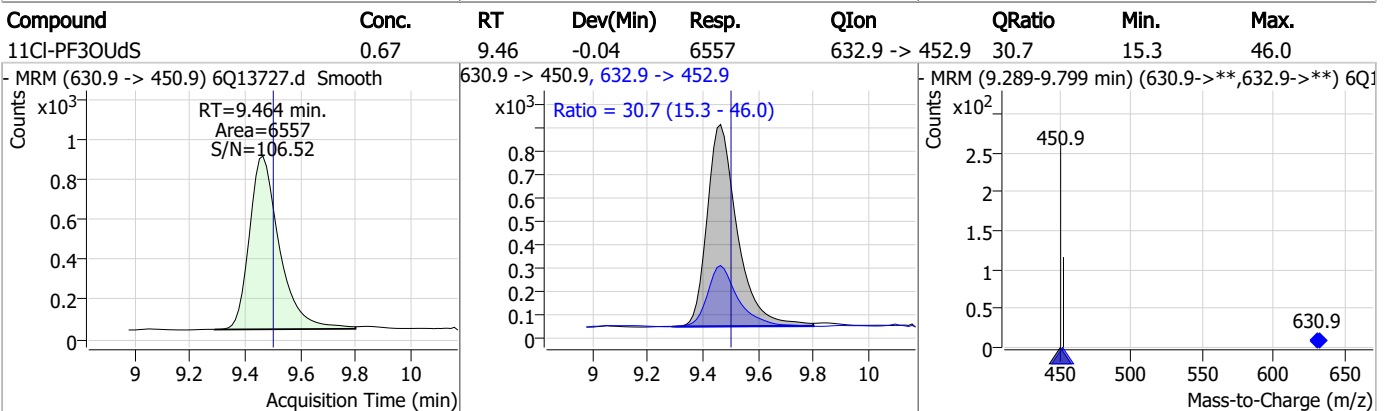
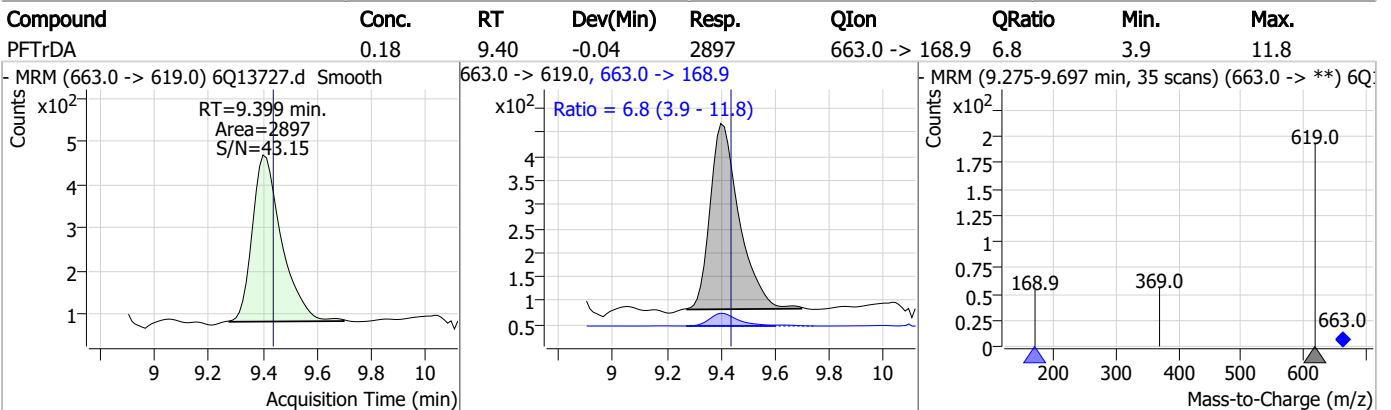
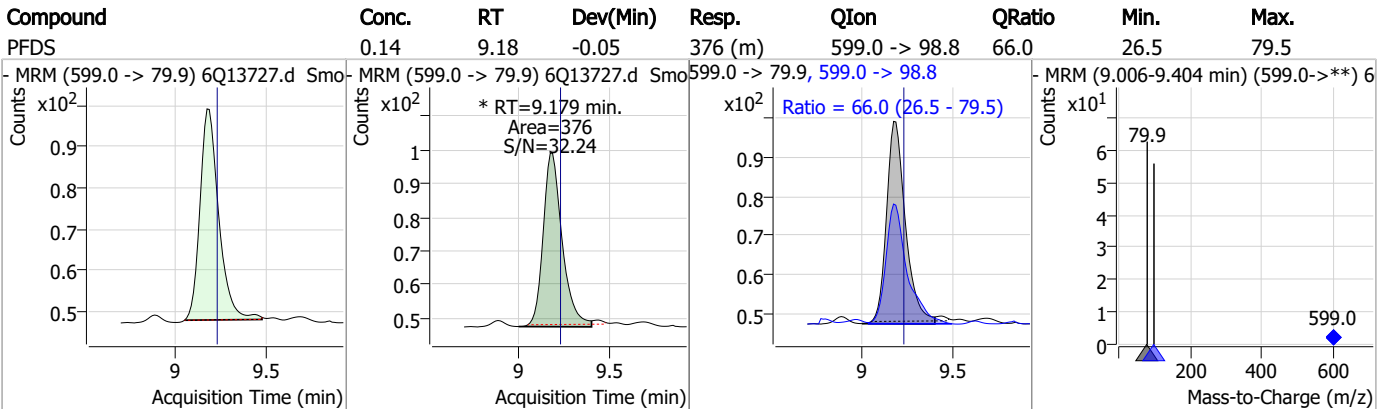
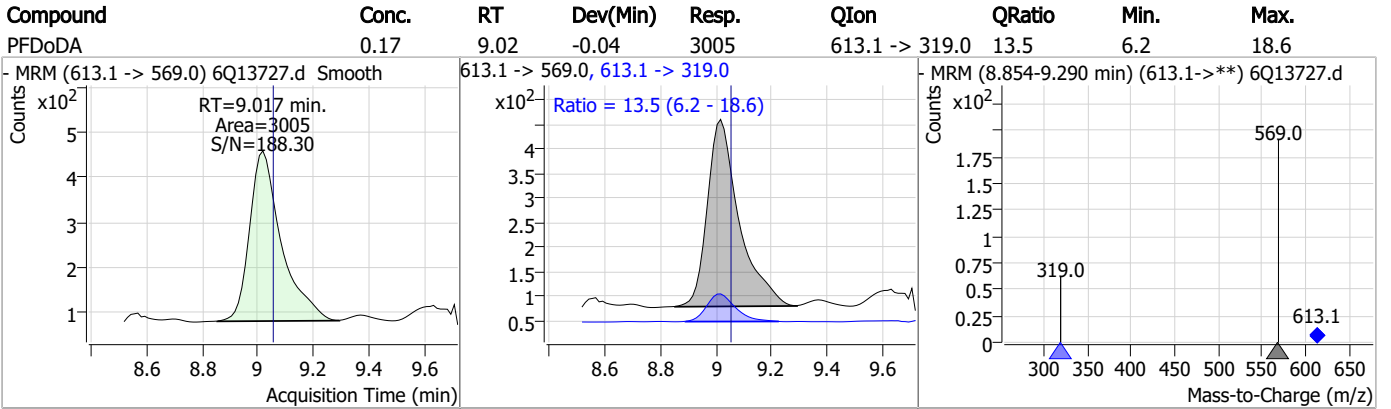
7.6.2
7

Perfluorinated Compounds by LC/MS/MS



7.6.2
7

Perfluorinated Compounds by LC/MS/MS

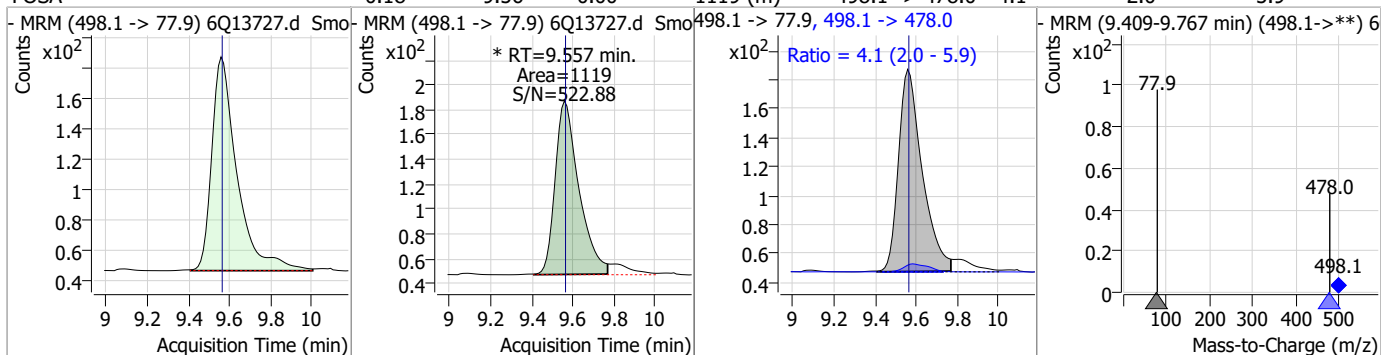


7.6.2

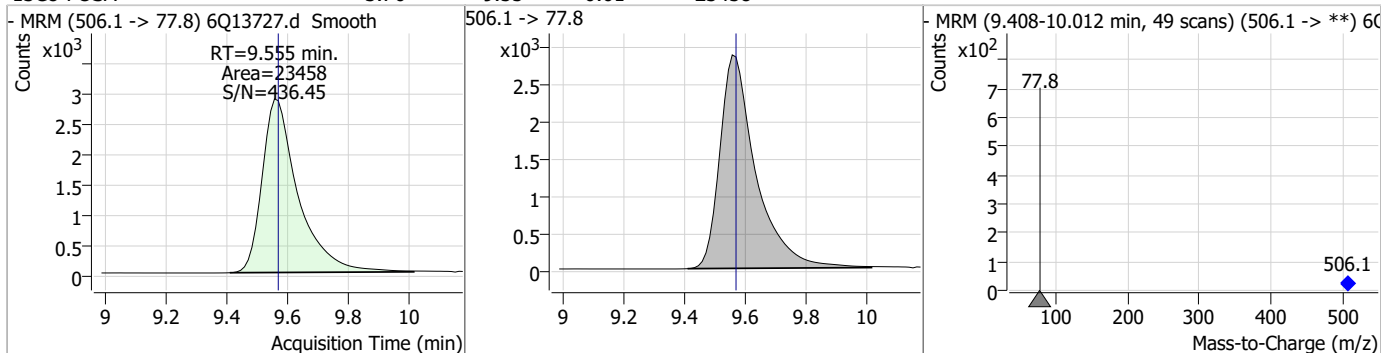
7

Perfluorinated Compounds by LC/MS/MS

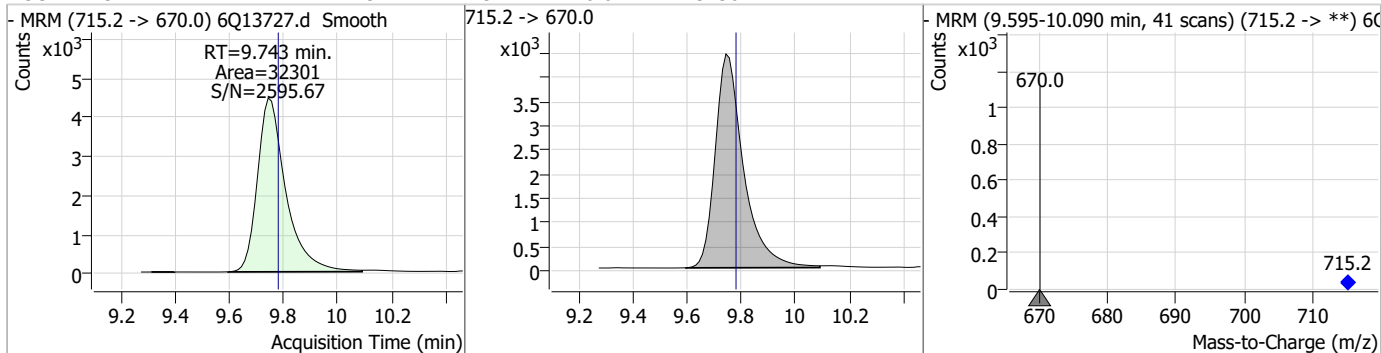
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.18	9.56	0.00	1119 (m)	498.1 -> 478.0	4.1	2.0	5.9



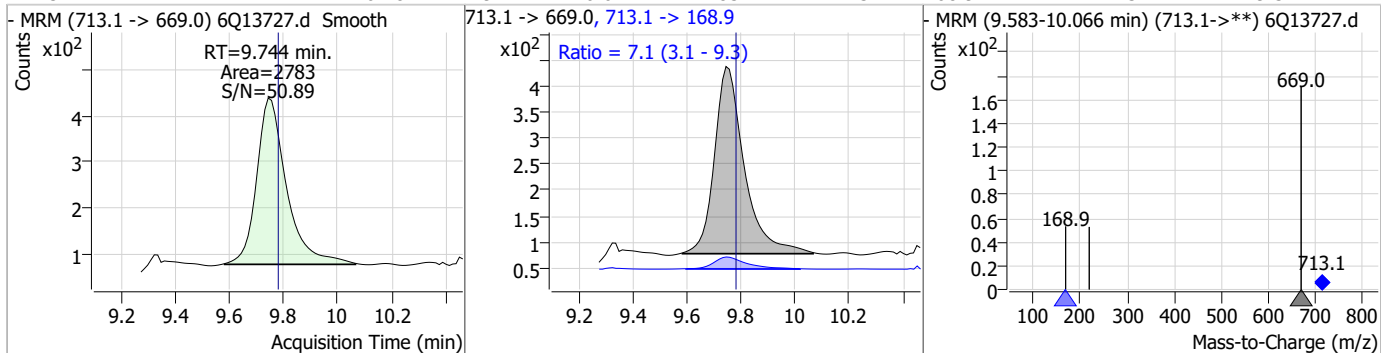
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	3.76	9.55	-0.01	23458				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	3.24	9.74	-0.04	32301				

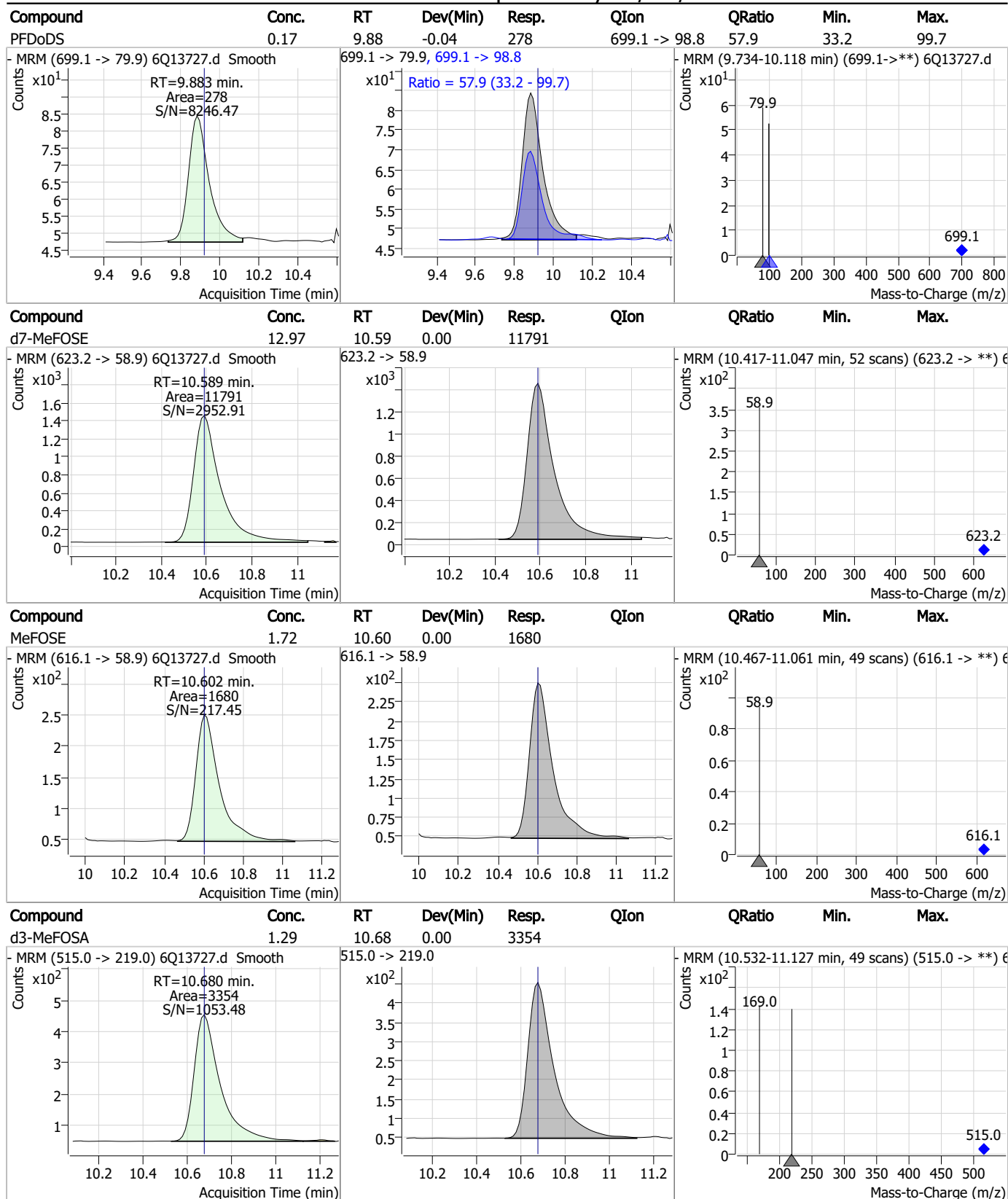


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.18	9.74	-0.04	2783	713.1 -> 168.9	7.1	3.1	9.3



7.6.2
7

Perfluorinated Compounds by LC/MS/MS

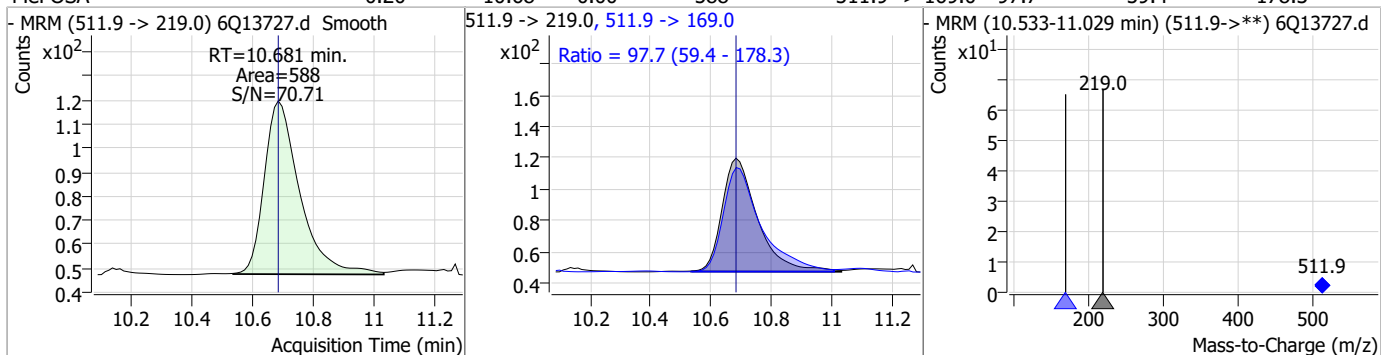


7.6.2

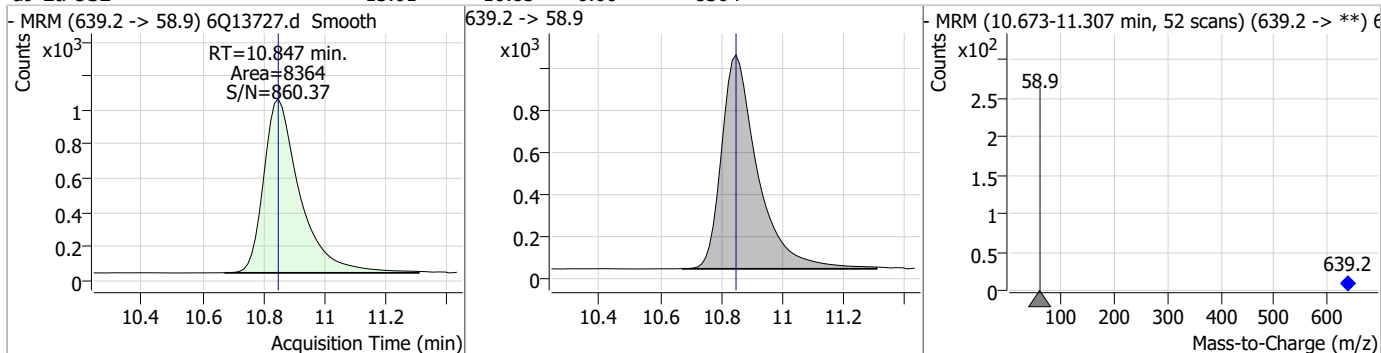
7

Perfluorinated Compounds by LC/MS/MS

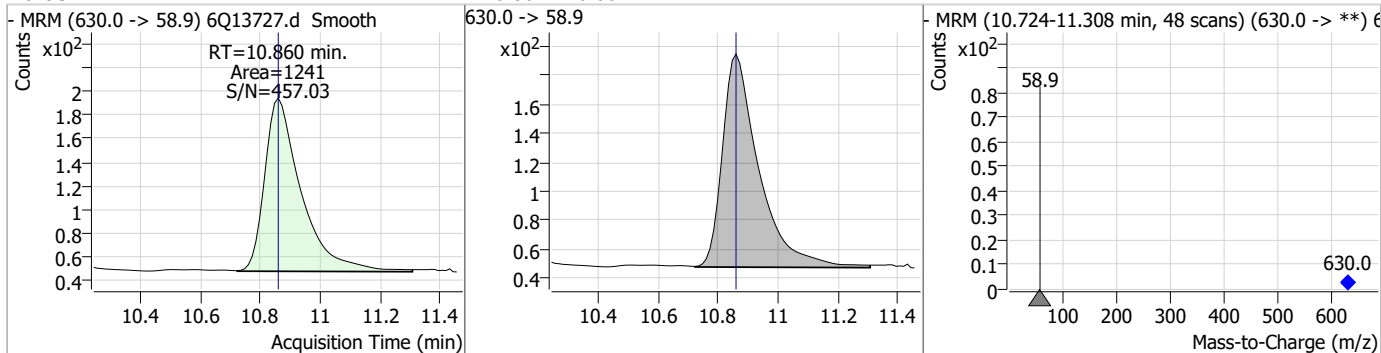
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.20	10.68	0.00	588	511.9 -> 169.0	97.7	59.4	178.3



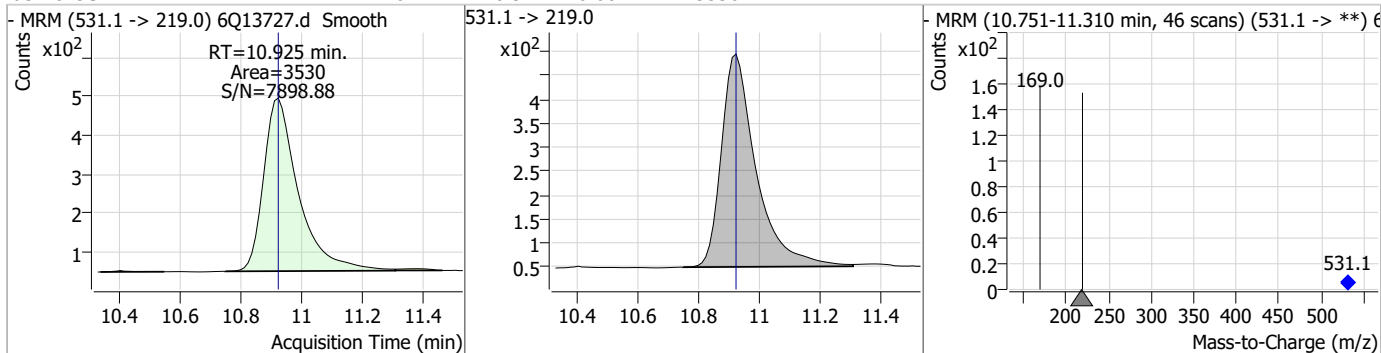
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	13.01	10.85	0.00	8364				



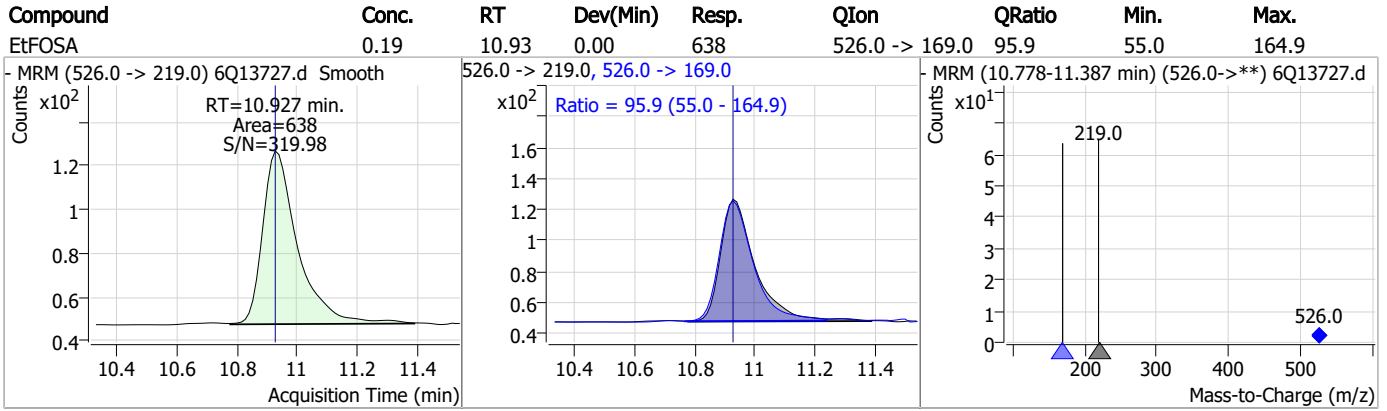
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	1.74	10.86	0.00	1241				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	1.26	10.92	0.00	3530				



Perfluorinated Compounds by LC/MS/MS



7.6.2

7

Manual Integration Approval Summary

Sample Number: S6Q208-IC208 Method: EPA DRAFT 1633
Lab FileID: 6Q13727.D Analyst approved: 02/18/23 11:42 Natasha Gumtie
Injection Time: 02/16/23 08:04 Supervisor approved: 02/18/23 12:01 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.30	Split peak
EtFOSAA	2991-50-6		8.37	Split peak
Perfluorodecanesulfonic acid	335-77-3		9.18	Poor instrument integration
PFOSA	754-91-6		9.56	Poor instrument integration

7.6.2.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13728.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/16/2023 8:18:10 AM
 Sample Name : ic208-2
 Vial : P1-D3
 DA Method File : 1633_021623_S6Q208NEW.quantmethod.xml
 Batch Name : s6q208.batch.bin
 Sample Information : OP95142,S6Q208,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.950	216.8 -> 171.9	53863	7.50 µg/L	-0.025
M5-PFPeA	4.361	268.3 -> 223.0	34675	5.00 µg/L	-0.025
M5-PFHxA	5.538	318.0 -> 273.0	47351	3.75 µg/L	-0.025
M4-PFHpA	6.464	367.1 -> 322.0	46976	3.75 µg/L	-0.038
M8-PFOA	7.109	421.1 -> 376.0	78859	3.75 µg/L	-0.037
M9-PFNA	7.640	472.1 -> 427.0	49485	3.13 µg/L	-0.037
M6-PFDA	8.120	519.1 -> 474.1	39835	3.13 µg/L	-0.037
M7-PFUnDA	8.574	570.0 -> 525.1	44598	3.13 µg/L	-0.037
M2-PFDoDA	9.017	615.1 -> 570.0	48659	3.13 µg/L	-0.037
M2-PFTeDA	9.743	715.2 -> 670.0	27989	3.13 µg/L	-0.037
M8-FOSA	9.555	506.1 -> 77.8	21610	3.75 µg/L	-0.012
M3-PFBS	5.481	302.1 -> 79.9	17388	3.75 µg/L	-0.037
M3-PFHxS	7.237	402.1 -> 79.9	12450	3.75 µg/L	-0.037
M8-PFOS	8.283	507.1 -> 79.9	11456	3.75 µg/L	-0.050
M2-4:2FTS	5.203	329.1 -> 80.9	2160	5.00 µg/L	-0.037
M2-6:2FTS	6.871	429.1 -> 80.9	2804	5.00 µg/L	-0.037
M2-8:2FTS	7.907	529.1 -> 80.9	2465	5.00 µg/L	-0.037
M3-MeFOSAA	8.165	573.2 -> 419.0	27367	5.00 µg/L	-0.037
M3-HFPO-DA	5.903	286.9 -> 168.9	6523	5.00 µg/L	-0.037
M5-EtFOSAA	8.373	589.2 -> 419.0	21943	5.00 µg/L	-0.025
M7-MeFOSE	10.589	623.2 -> 58.9	10699	12.50 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	7417	12.50 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	3188	1.25 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	3000	1.25 µg/L	0.000
13C4-PFOS	8.283	502.8 -> 79.9	7691	2.50 µg/L	-0.050
13C3-PFBA	2.954	216.0 -> 172.0	30523	5.00 µg/L	-0.025
18O2-PFHxS	7.236	403.0 -> 83.9	5475	2.50 µg/L	-0.037
13C4-PFOA	7.110	417.1 -> 372.0	65217	2.50 µg/L	-0.037
13C2-PFDA	8.120	515.1 -> 470.1	19564	1.25 µg/L	-0.037
13C5-PFNA	7.640	468.0 -> 423.0	19081	1.25 µg/L	-0.037
13C2-PFHxA	5.539	315.1 -> 270.0	29490	2.50 µg/L	-0.025
System Monitoring Compounds					
13C2-4:2FTS	5.203	329.1 -> 80.9	2160	5.72 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.4%		
13C2-6:2FTS	6.871	429.1 -> 80.9	2804	5.65 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.9%		
13C2-8:2FTS	7.907	529.1 -> 80.9	2465	5.12 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.4%		
13C2-PFDoDA	9.017	615.1 -> 570.0	48659	3.15 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C2-PFTeDA	9.743	715.2 -> 670.0	27989	3.28 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 104.9%		
13C3-PFBS	5.481	302.1 -> 79.9	17388	3.85 µg/L	-0.037
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C3-PFHxS	7.237	402.1 -> 79.9	12450	4.08 µg/L	-0.037

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 108.9%	
13C4-PFBA	2.950	216.8 -> 171.9	53863	7.61 µg/L	-0.025
Spiked Amount: 7.50	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C4-PFHpA	6.464	367.1 -> 322.0	46976	3.70 µg/L	-0.038
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C5-PFHxA	5.538	318.0 -> 273.0	47351	3.79 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C5-PFPeA	4.361	268.3 -> 223.0	34675	5.00 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C6-PFDA	8.120	519.1 -> 474.1	39835	3.41 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 109.3%	
13C7-PFUnDA	8.574	570.0 -> 525.1	44598	3.26 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 104.3%	
13C8-FOSA	9.555	506.1 -> 77.8	21610	4.20 µg/L	-0.012
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 112.0%	
13C8-PFOA	7.109	421.1 -> 376.0	78859	3.54 µg/L	-0.037
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 94.3%	
13C8-PFOS	8.283	507.1 -> 79.9	11456	4.42 µg/L	-0.050
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 117.8%	
13C9-PFNA	7.640	472.1 -> 427.0	49485	3.42 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 109.5%	
d3-MeFOSAA	8.165	573.2 -> 419.0	27367	5.95 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 119.0%	
13C3-HFPO-DA	5.903	286.9 -> 168.9	6523	4.90 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
d3-MeFOSA	10.680	515.0 -> 219.0	3000	1.40 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.6%	
d5-EtFOSAA	8.373	589.2 -> 419.0	21943	5.69 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 113.8%	
d7-MeFOSE	10.589	623.2 -> 58.9	10699	14.26 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%			Recovery = 114.1%	
d9-EtFOSE	10.847	639.2 -> 58.9	7417	13.99 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%			Recovery = 111.9%	
d5-EtFOSA	10.925	531.1 -> 219.0	3188	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.1%	
Target Compounds					QValue
4:2FTS	5.203	327.1 -> 307.0	9393	1.87 µg/L	97
		327.1 -> 80.9	1978		
6:2FTS	6.883	427.1 -> 407.0	8174	1.91 µg/L	97
		427.1 -> 80.9	1674		
8:2FTS	7.908	527.1 -> 507.0	3912	1.98 µg/L	88
		527.1 -> 80.8	1160		
EtFOSAA	8.374	584.2 -> 419.1	1795	0.48 µg/L	m 85
		584.2 -> 526.0	1108		
FOSA	9.557	498.1 -> 77.9	2834	0.50 µg/L	99
		498.1 -> 478.0	120		
MeFOSAA	8.166	570.1 -> 419.0	2540	0.49 µg/L	92
		570.1 -> 483.0	565		
PFBA	2.957	212.8 -> 168.9	3446	1.96 µg/L	100
PFBS	5.481	298.7 -> 79.9	2045	0.42 µg/L	97
		298.7 -> 98.8	1047		
PFDA	8.121	512.9 -> 469.0	9629	0.50 µg/L	96
		512.9 -> 219.0	1159		
PFDODA	9.017	613.1 -> 569.0	8131	0.53 µg/L	96
		613.1 -> 319.0	885		
PFDS	9.179	599.0 -> 79.9	959	0.40 µg/L	m 85

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	610			
PFHpA	6.465	363.1 -> 319.0	9535	0.50	µg/L	100
		363.1 -> 169.0	1302			
PFHpS	7.792	449.0 -> 79.9	1351	0.40	µg/L	97
		449.0 -> 98.9	768			
PFHxA	5.541	313.0 -> 269.0	6076	0.48	µg/L	99
		313.0 -> 118.9	236			
PFHxS	7.238	398.7 -> 79.9	1576	0.41	µg/L	m 93
		398.7 -> 98.9	950			
PFNA	7.640	463.0 -> 419.0	6352	0.49	µg/L	94
		463.0 -> 219.0	1129			
PFNS	8.762	548.8 -> 79.9	1563	0.45	µg/L	96
		548.8 -> 98.9	887			
PFOA	7.111	413.0 -> 369.0	14735	0.58	µg/L	94
		413.0 -> 169.0	1607			
PFOS	8.296	498.9 -> 79.9	1668	0.46	µg/L	m 94
		498.9 -> 98.8	1100			
PFPeA	4.363	263.0 -> 219.0	7708	1.00	µg/L	100
PFPeS	6.543	349.1 -> 79.9	1914	0.43	µg/L	99
		349.1 -> 98.9	1029			
PFTeDA	9.744	713.1 -> 669.0	6609	0.50	µg/L	100
		713.1 -> 168.9	420			
PFTrDA	9.399	663.0 -> 619.0	7079	0.50	µg/L	100
		663.0 -> 168.9	548			
PFUnDA	8.575	563.1 -> 519.0	7108	0.49	µg/L	98
		563.1 -> 269.1	982			
11CI-PF3OUdS	9.464	630.9 -> 450.9	16491	1.95	µg/L	96
		632.9 -> 452.9	5406			
9CI-PF3ONS	8.626	530.8 -> 351.0	28151	1.88	µg/L	100
		532.8 -> 353.0	8566			
ADONA	6.716	376.9 -> 250.9	52366	1.84	µg/L	94
		376.9 -> 84.8	12494			
HFPO-DA	5.903	284.9 -> 168.9	2884	2.25	µg/L	96
		284.9 -> 184.9	277			
3:3FTCA	3.816	241.0 -> 177.0	1007	2.58	µg/L	98
		241.0 -> 117.0	120			
5:3FTCA	6.181	341.0 -> 237.1	33070	12.69	µg/L	100
		341.0 -> 217.0	29550			
7:3FTCA	7.579	441.0 -> 316.9	17160	12.51	µg/L	94
		441.0 -> 336.9	32954			
EtFOSA	10.927	526.0 -> 219.0	1606	0.53	µg/L	79
		526.0 -> 169.0	1409			
EtFOSE	10.860	630.0 -> 58.9	3169	5.01	µg/L	100
MeFOSA	10.681	511.9 -> 219.0	1278	0.48	µg/L	84
		511.9 -> 169.0	1293			
MeFOSE	10.602	616.1 -> 58.9	4220	4.75	µg/L	100
PFDoDS	9.883	699.1 -> 79.9	688	0.46	µg/L	99
		699.1 -> 98.8	463			
NFDHA	5.420	295.0 -> 201.0	784	1.01	µg/L	94
		295.0 -> 84.9	342			
PFMBA	4.763	279.0 -> 85.1	2236	0.98	µg/L	100
PFMPA	3.516	229.0 -> 84.9	1987	0.96	µg/L	100
PFEESA	6.021	314.8 -> 134.9	15099	0.87	µg/L	100
		314.8 -> 82.9	365			

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

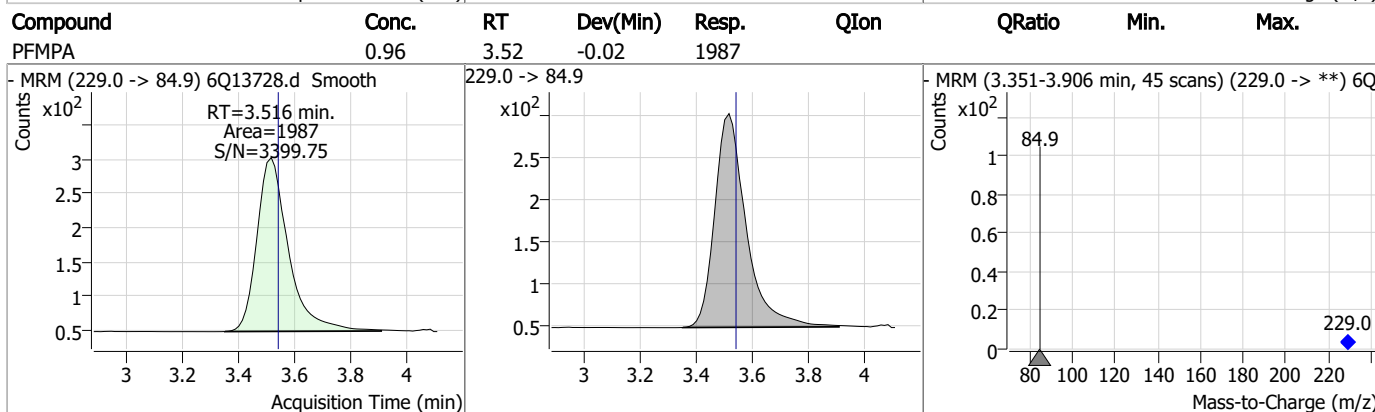
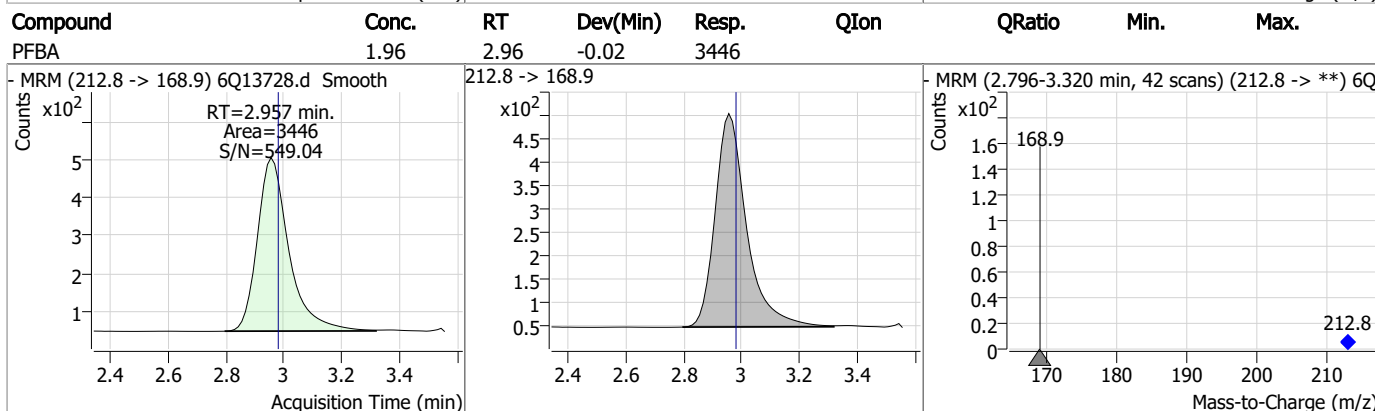
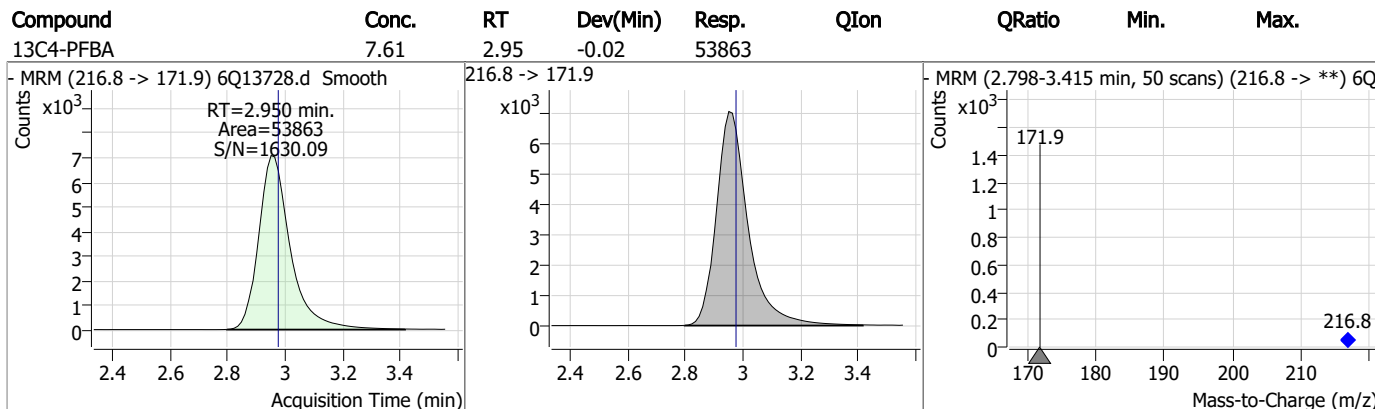
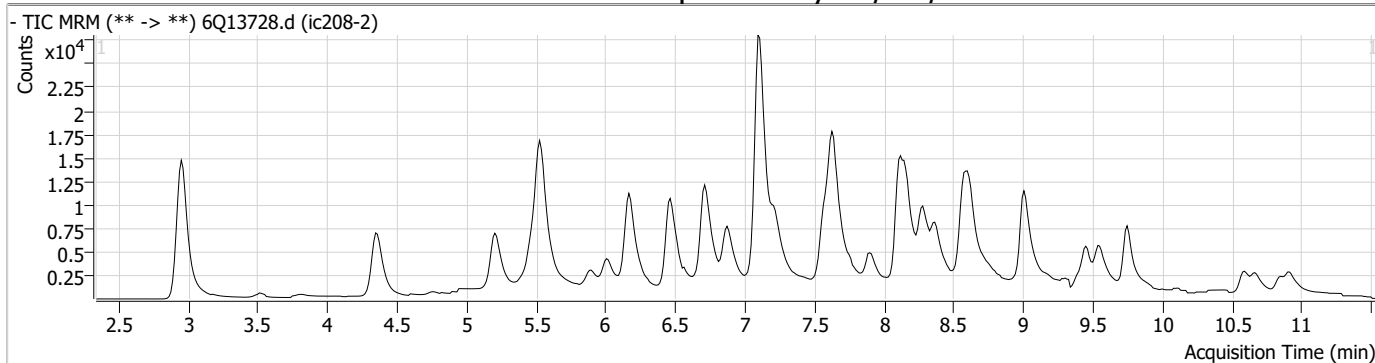
Perfluorinated Compounds by LC/MS/MS

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

7.6.3

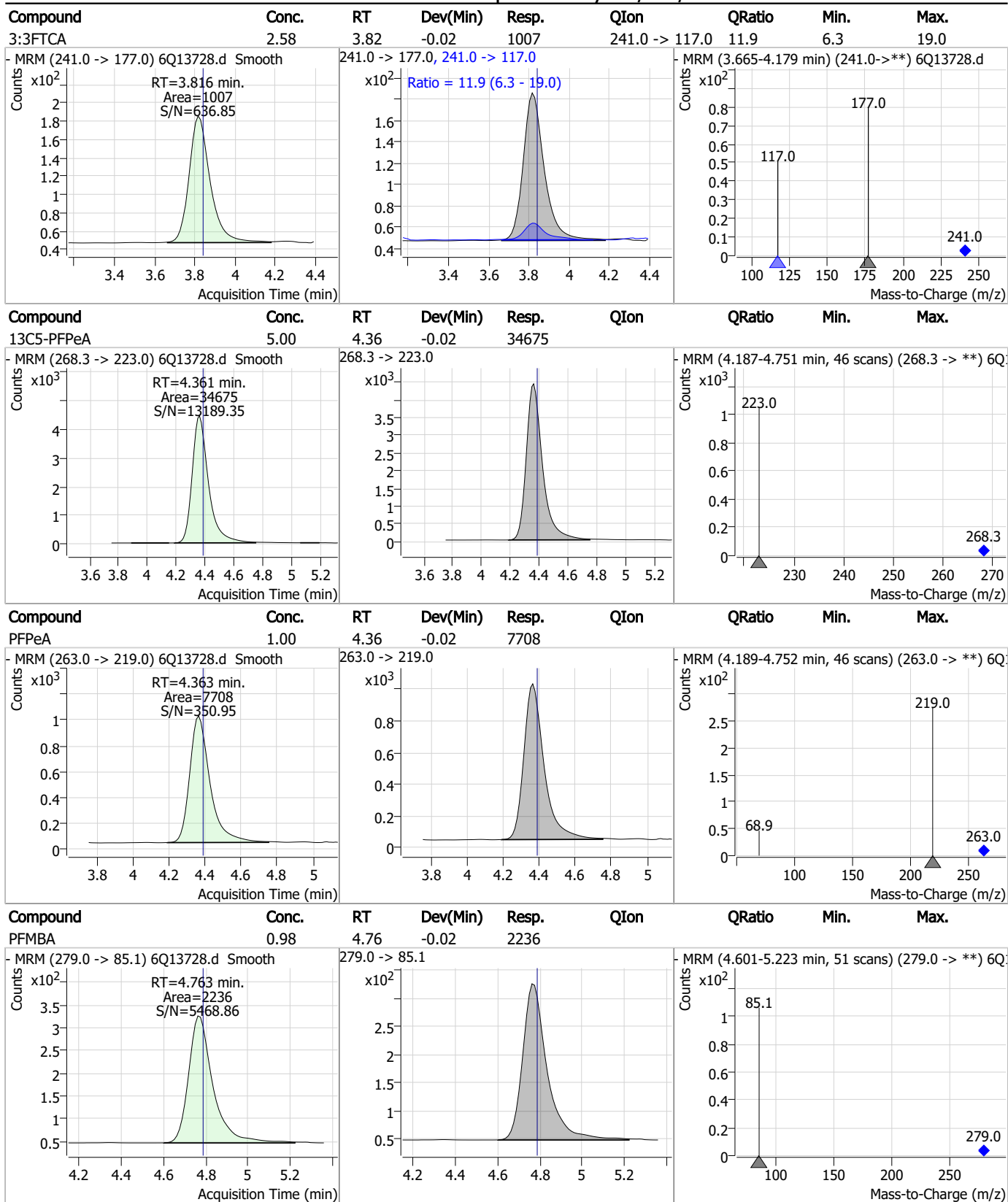
7

Perfluorinated Compounds by LC/MS/MS



7.6.3
7

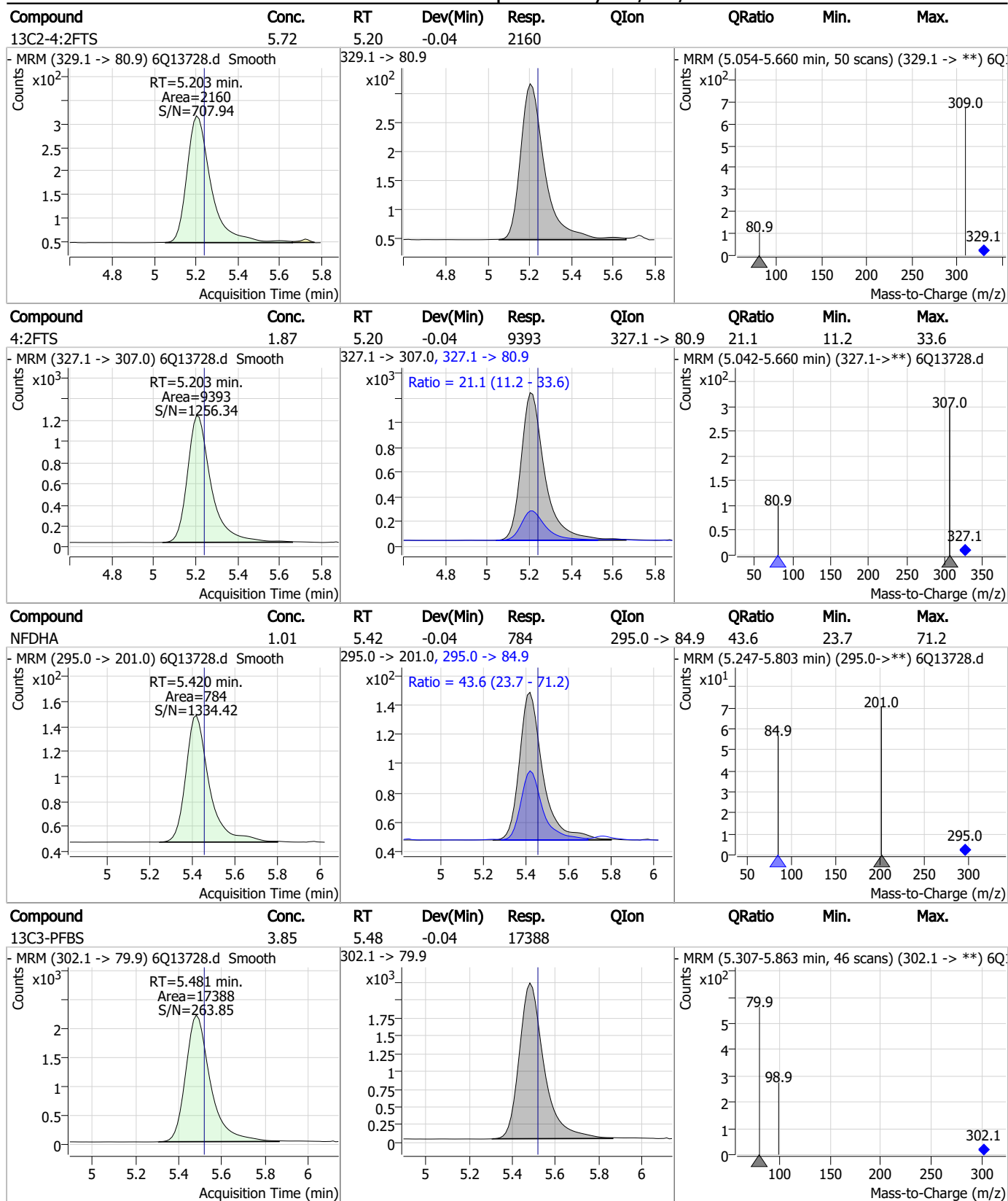
Perfluorinated Compounds by LC/MS/MS



7.6.3

7

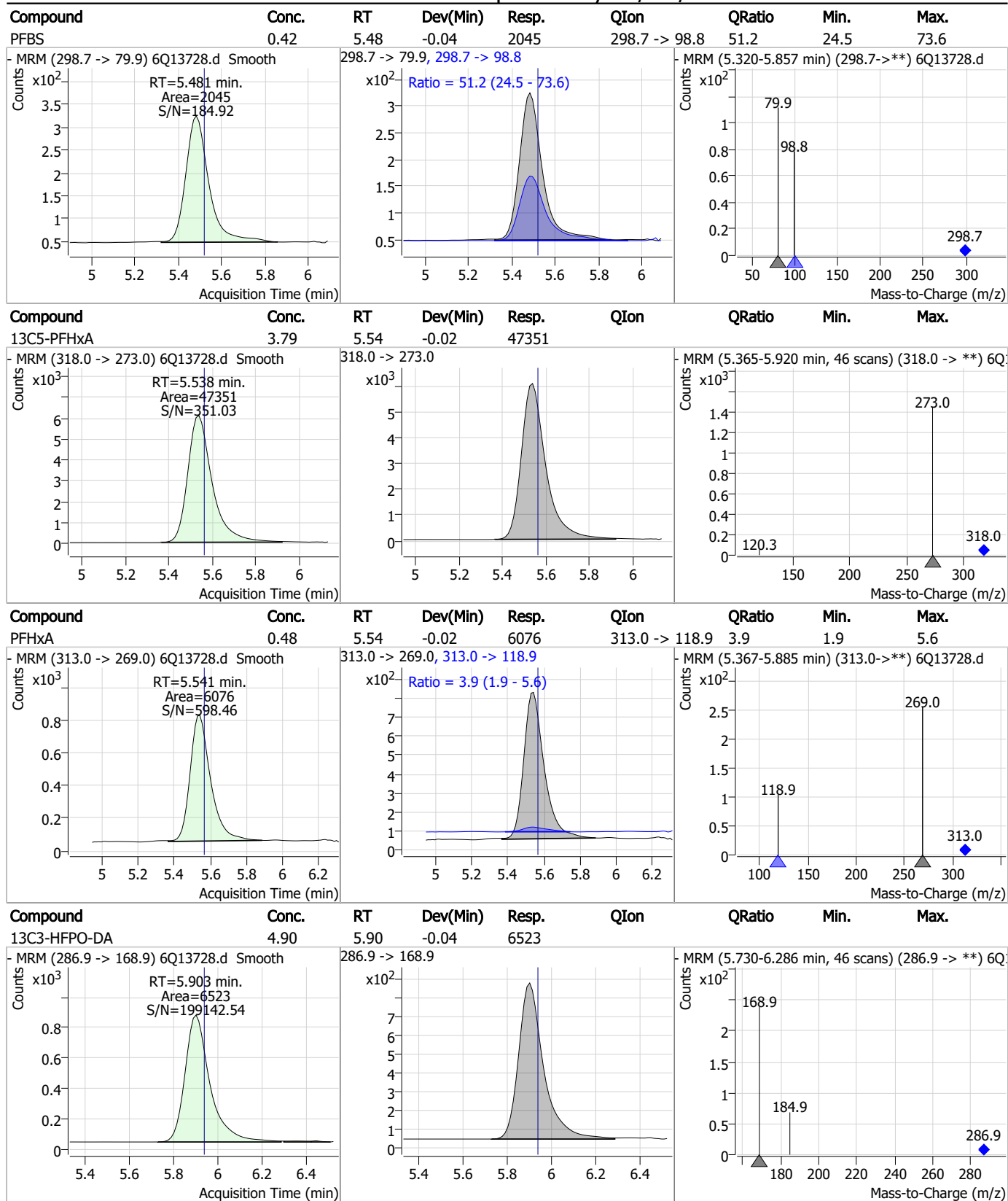
Perfluorinated Compounds by LC/MS/MS



7.6.3

7

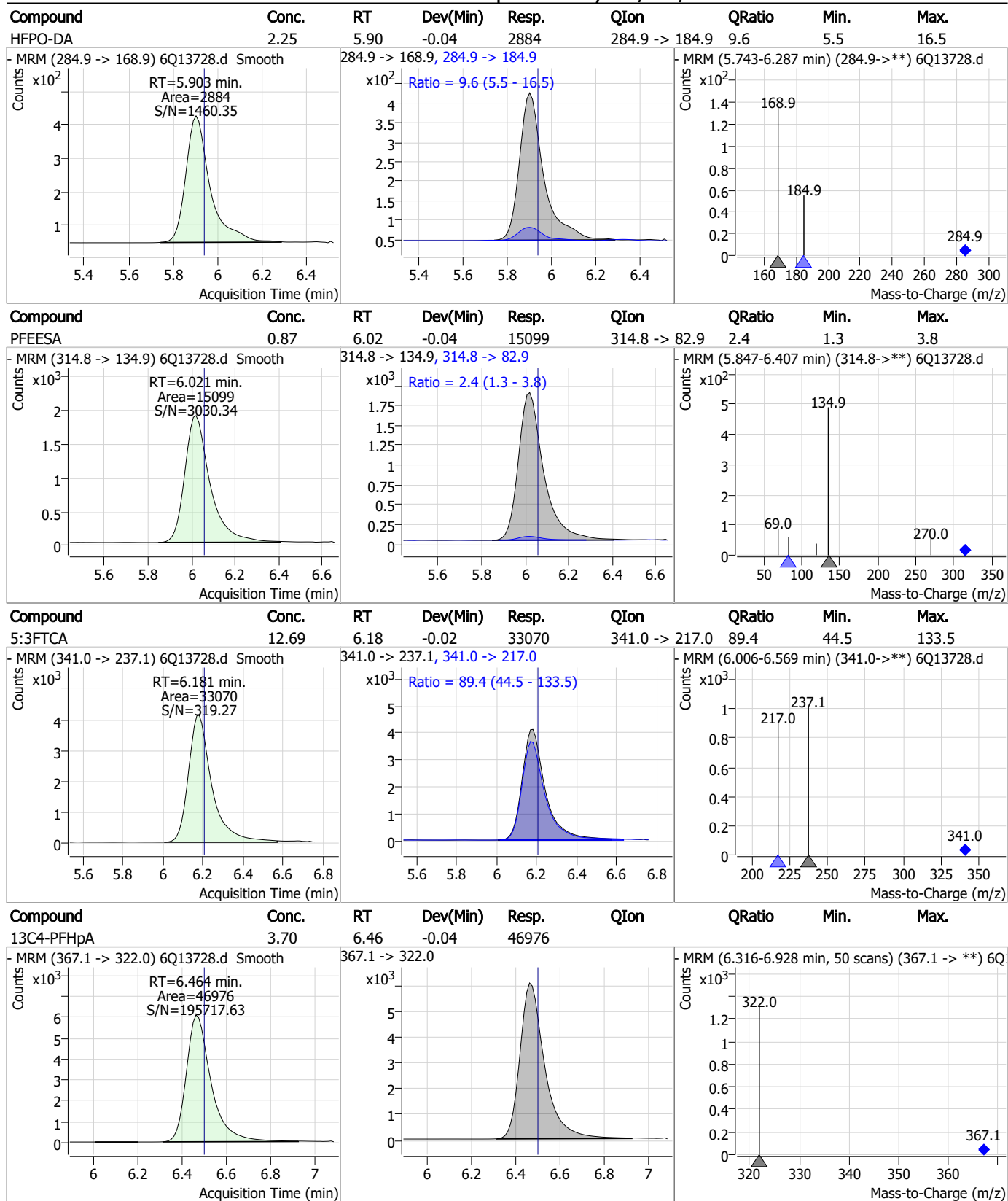
Perfluorinated Compounds by LC/MS/MS



7.6.3

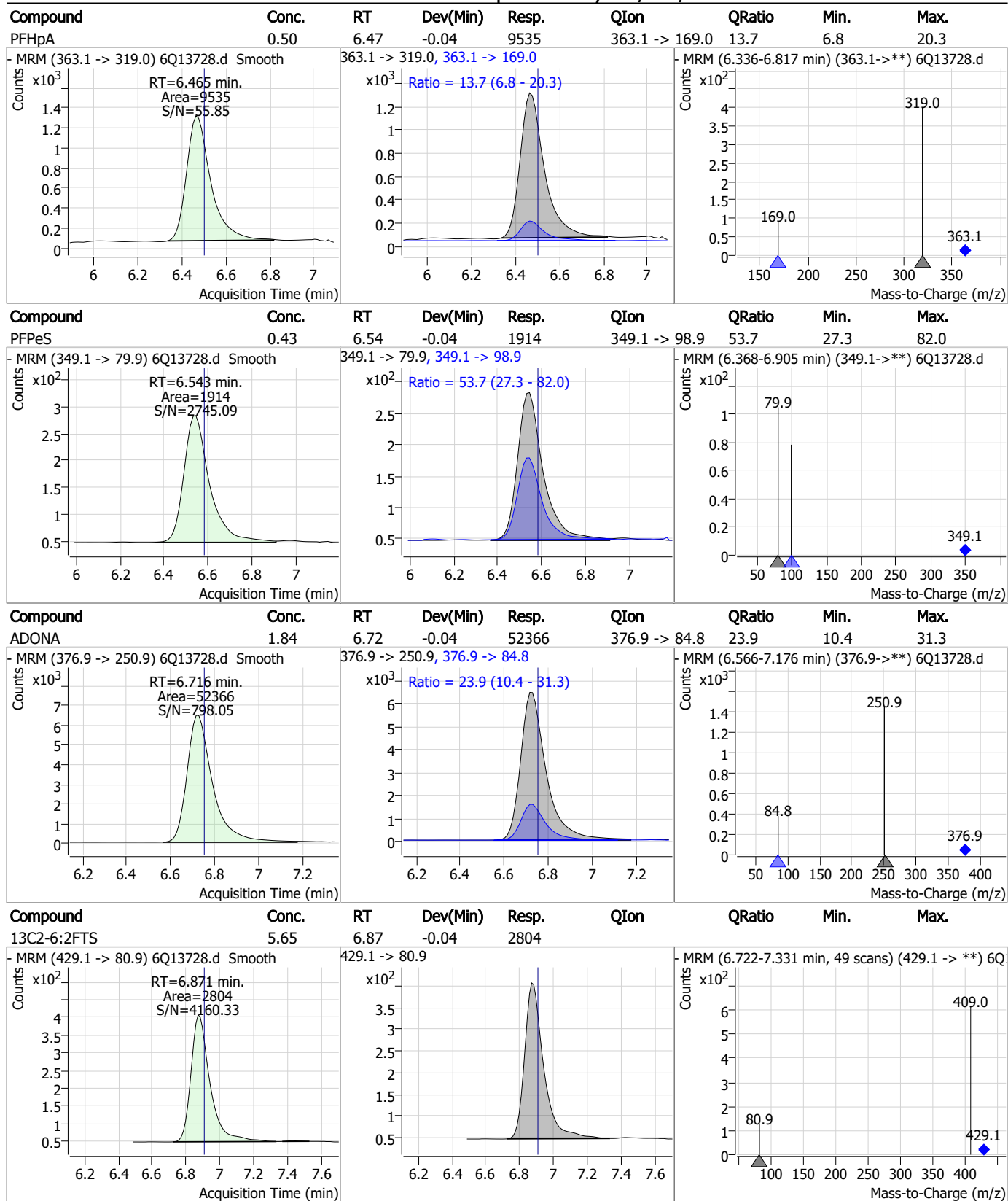
7

Perfluorinated Compounds by LC/MS/MS



7.6.3
7

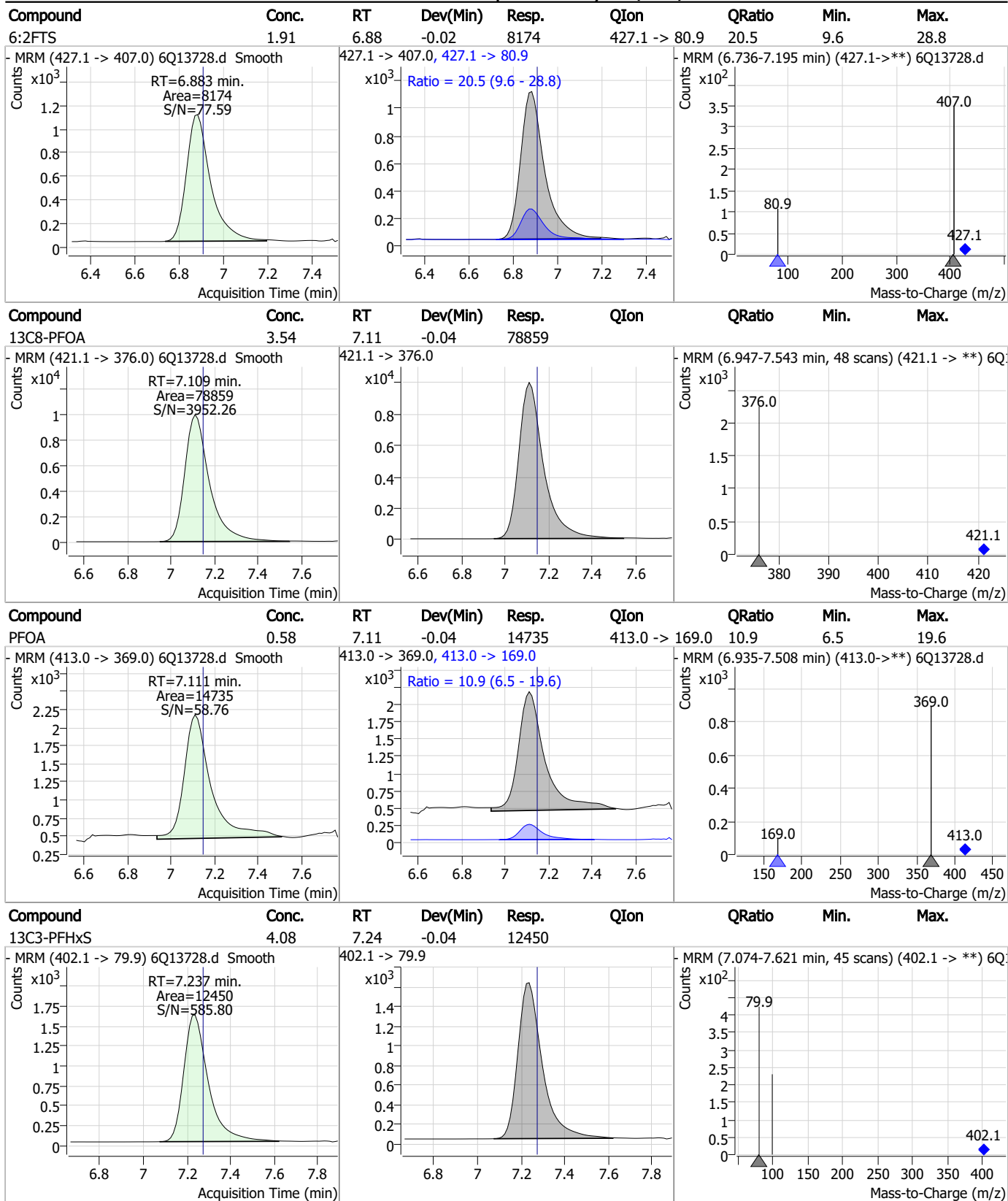
Perfluorinated Compounds by LC/MS/MS



7.6.3

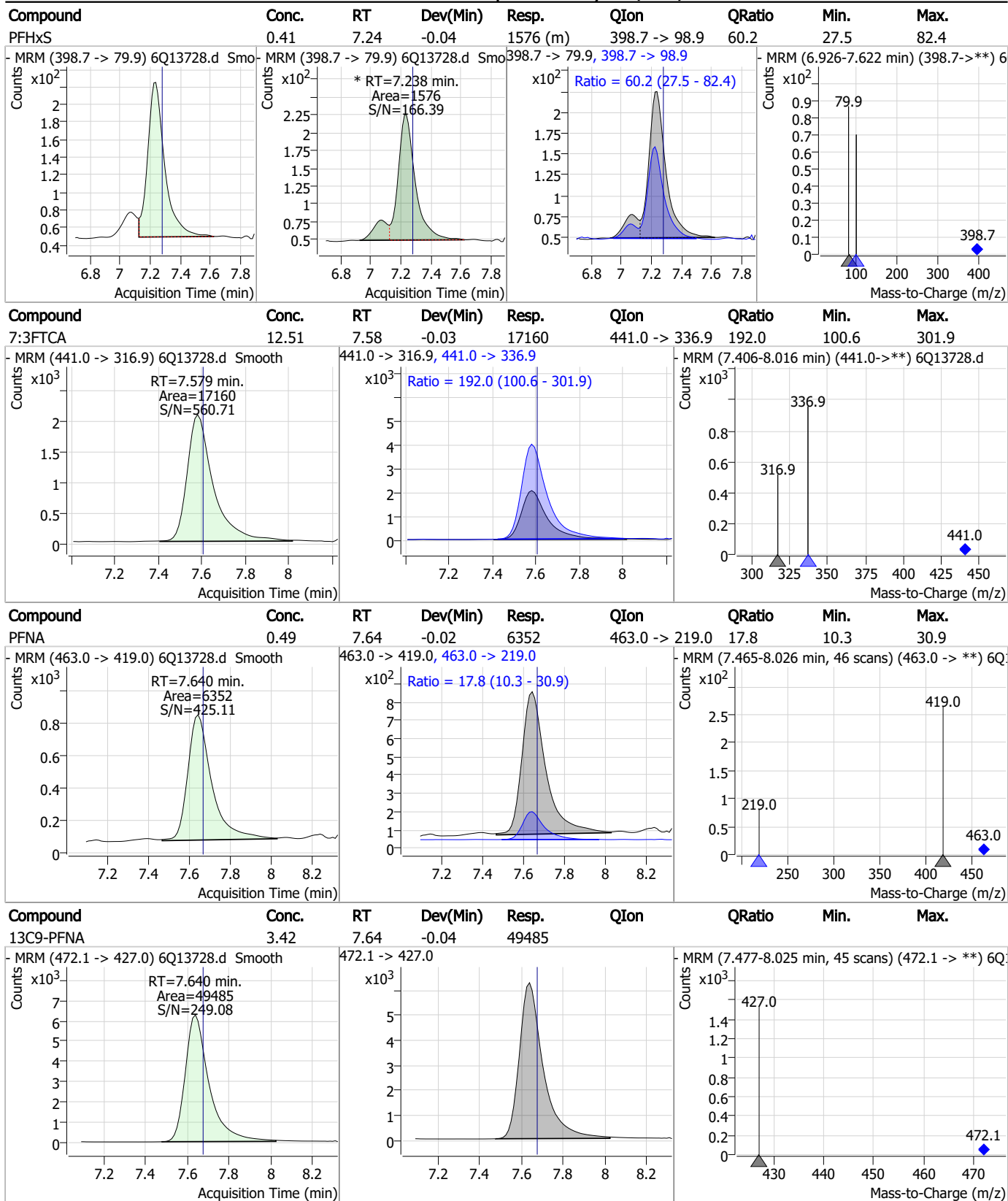
7

Perfluorinated Compounds by LC/MS/MS



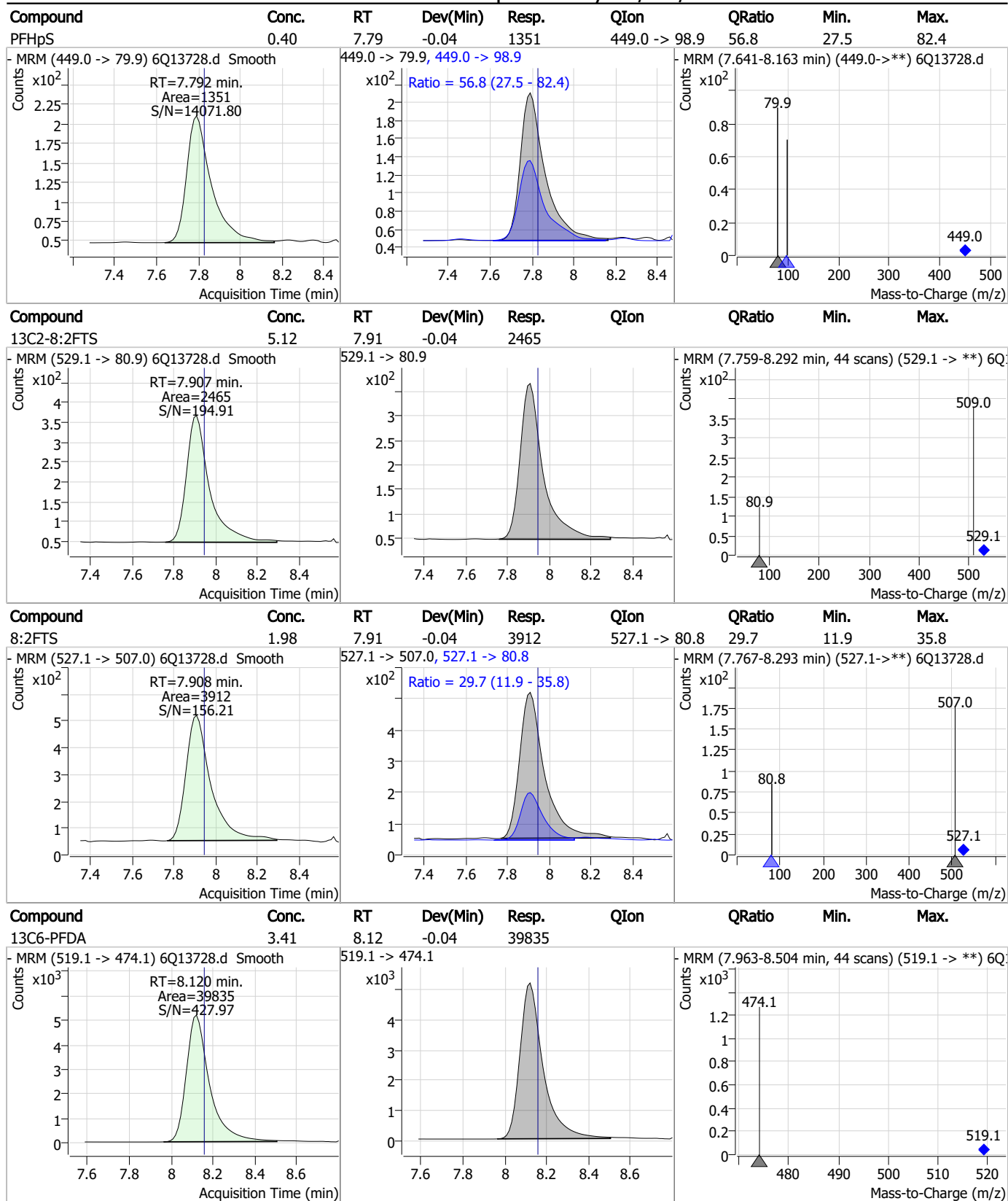
7.6.3
7

Perfluorinated Compounds by LC/MS/MS



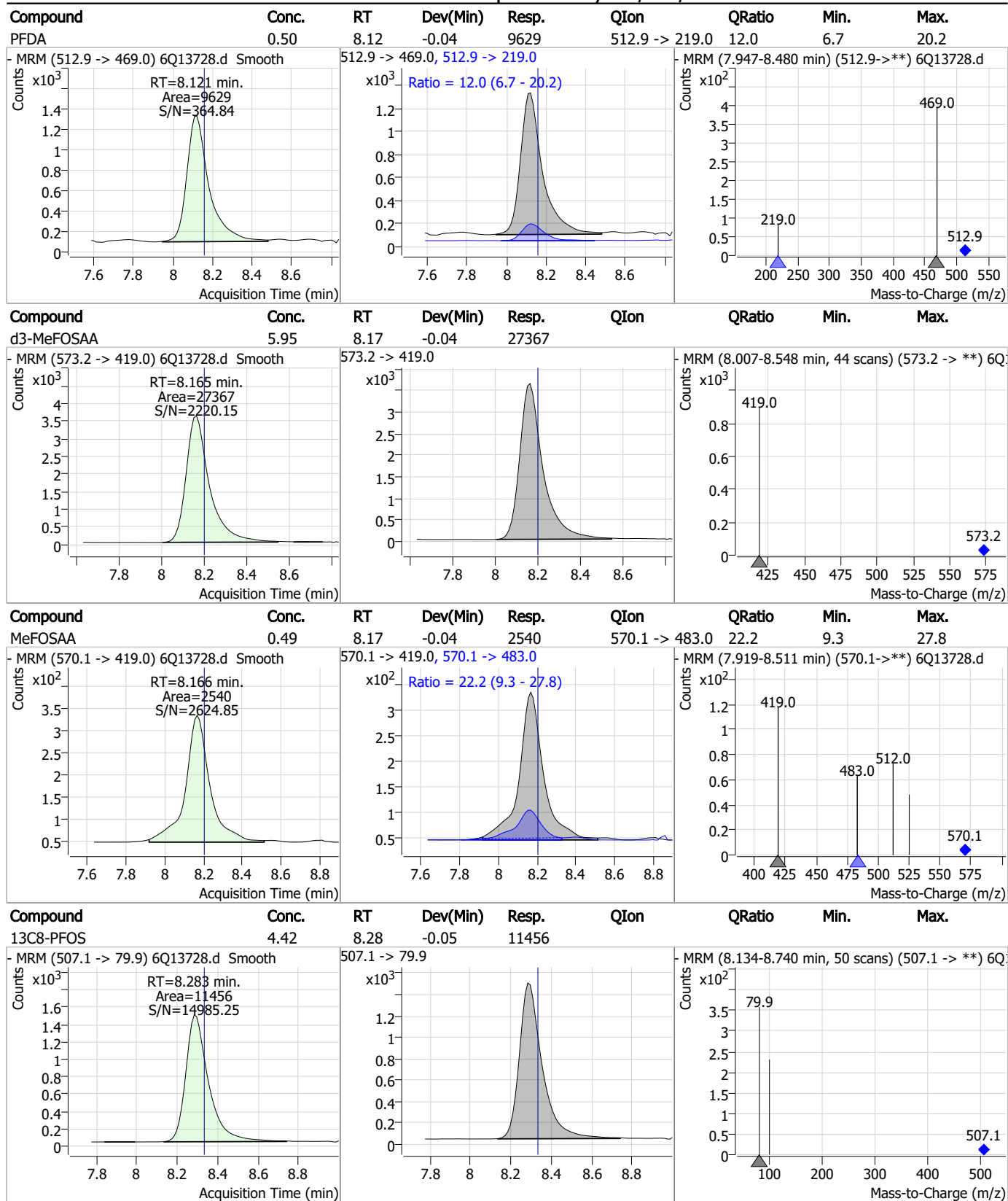
7.6.3
7

Perfluorinated Compounds by LC/MS/MS



7.6.3
7

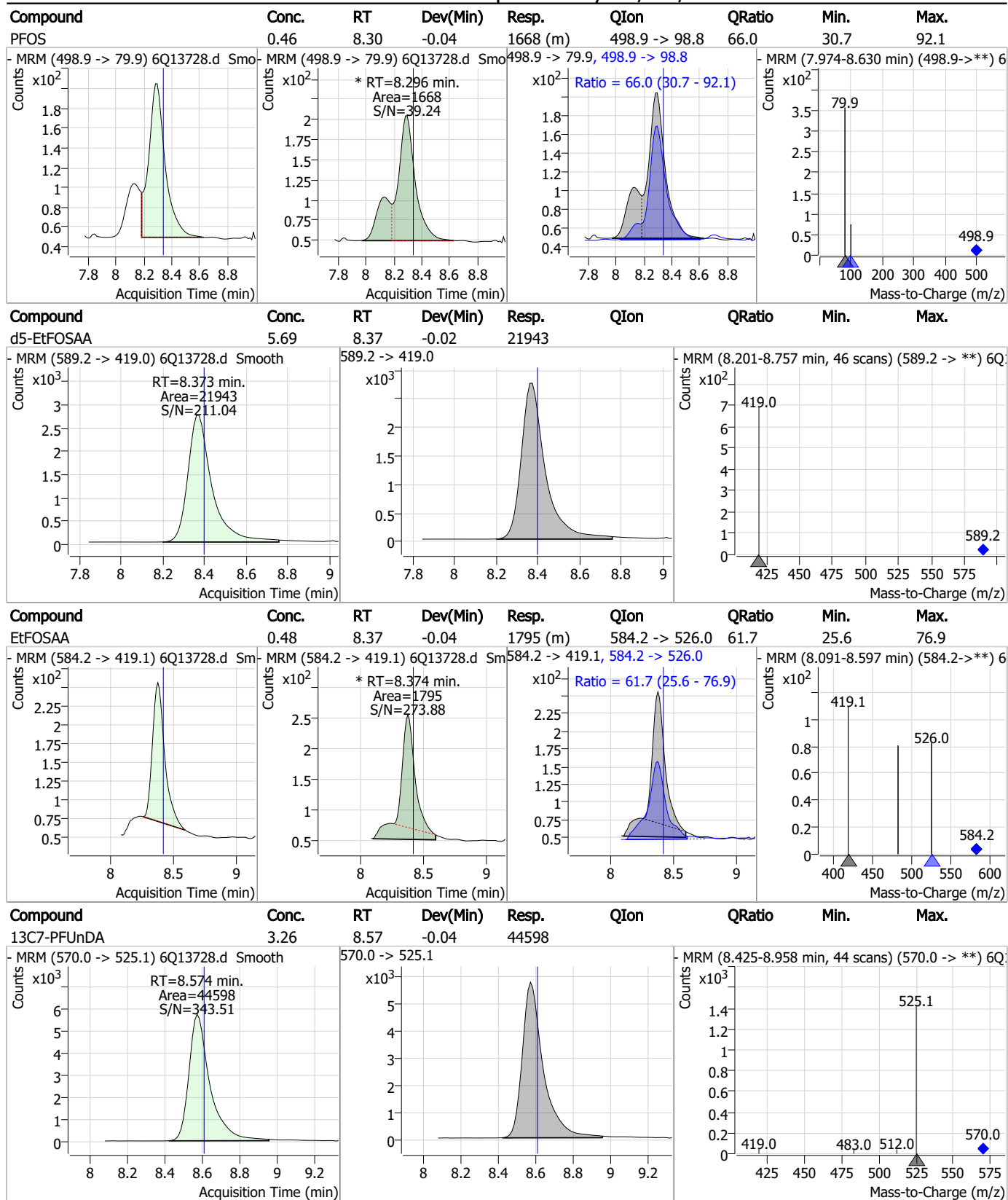
Perfluorinated Compounds by LC/MS/MS



7.6.3

7

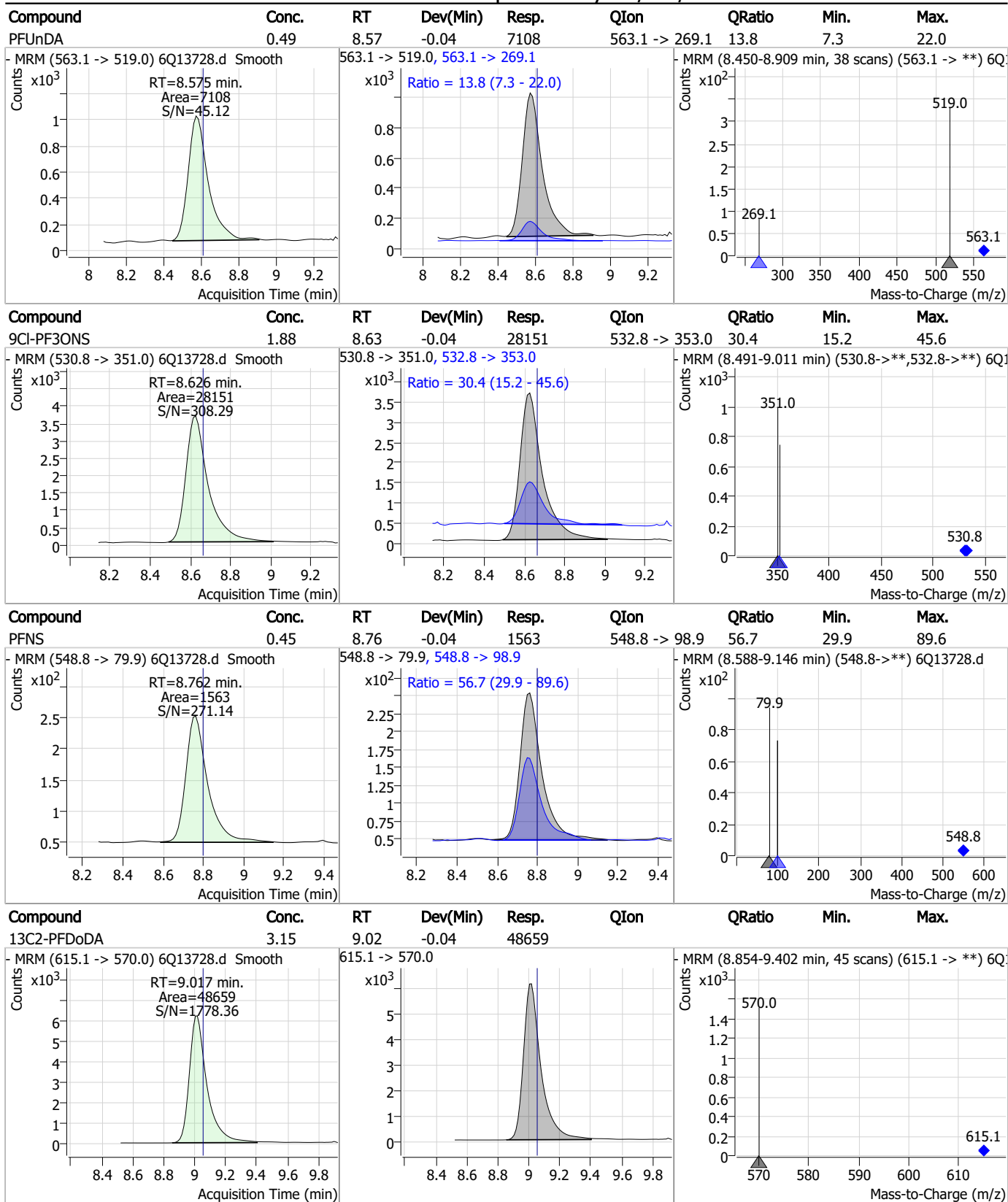
Perfluorinated Compounds by LC/MS/MS



7.6.3

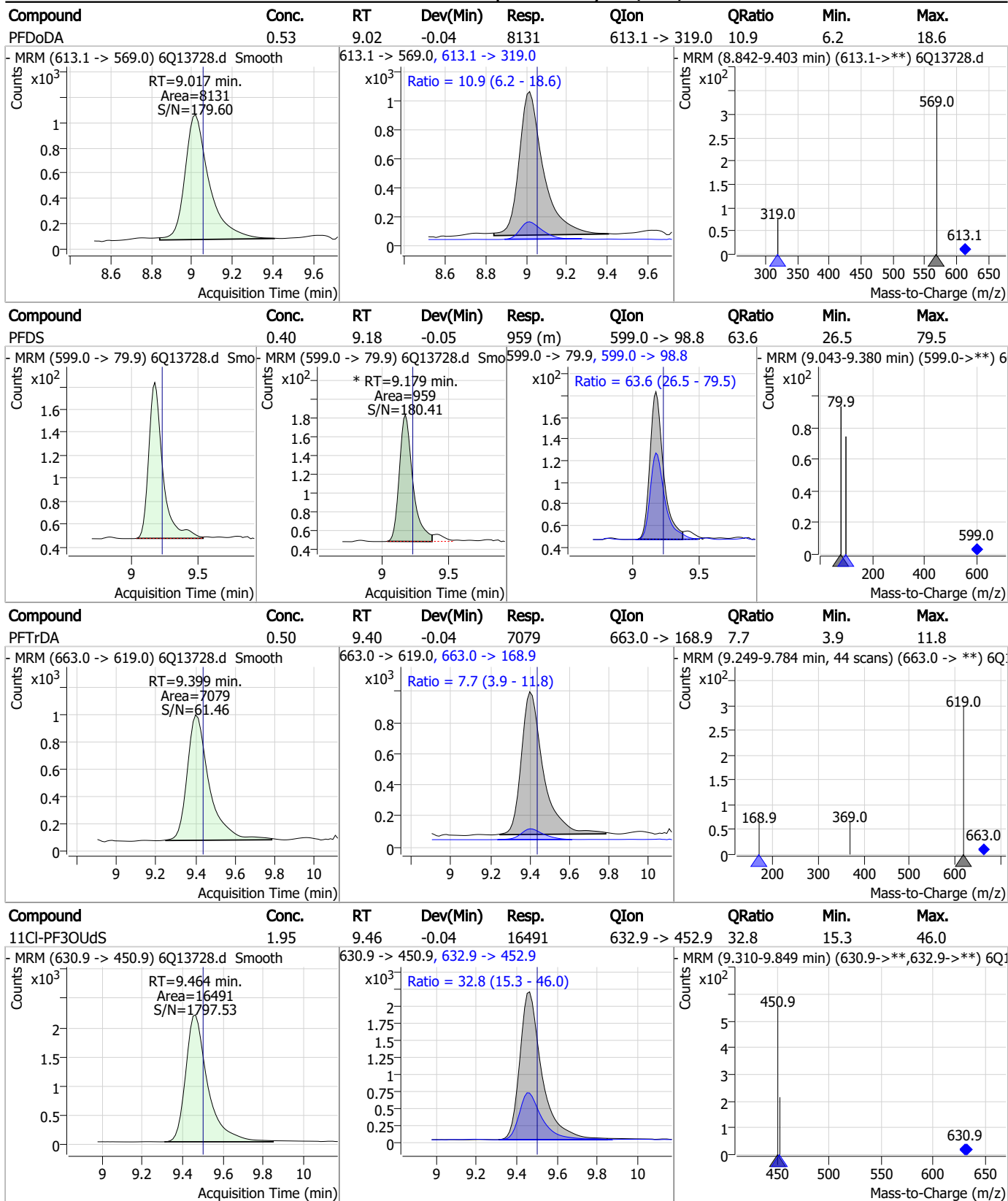
7

Perfluorinated Compounds by LC/MS/MS



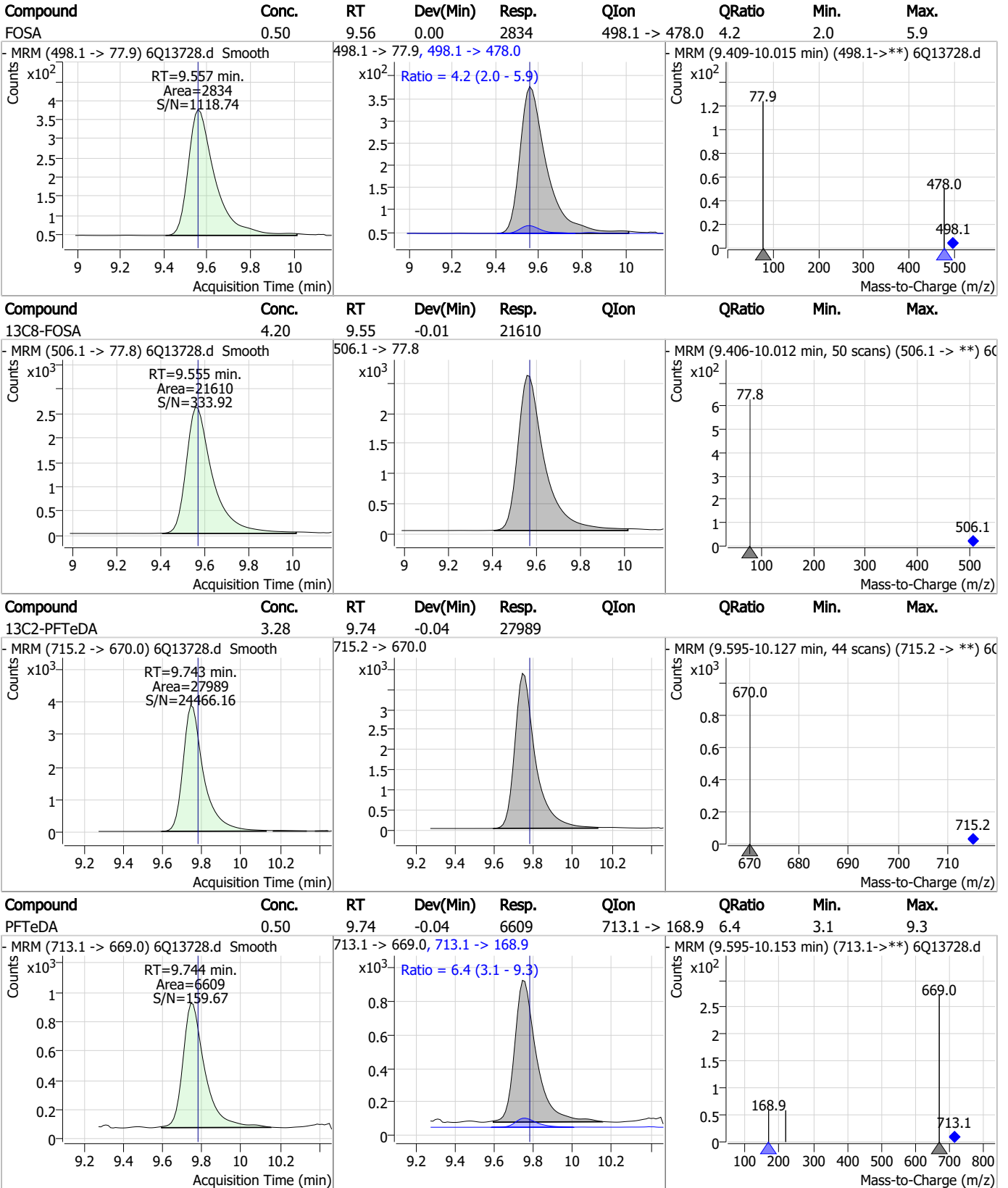
7.6.3
7

Perfluorinated Compounds by LC/MS/MS



7.6.3
7

Perfluorinated Compounds by LC/MS/MS

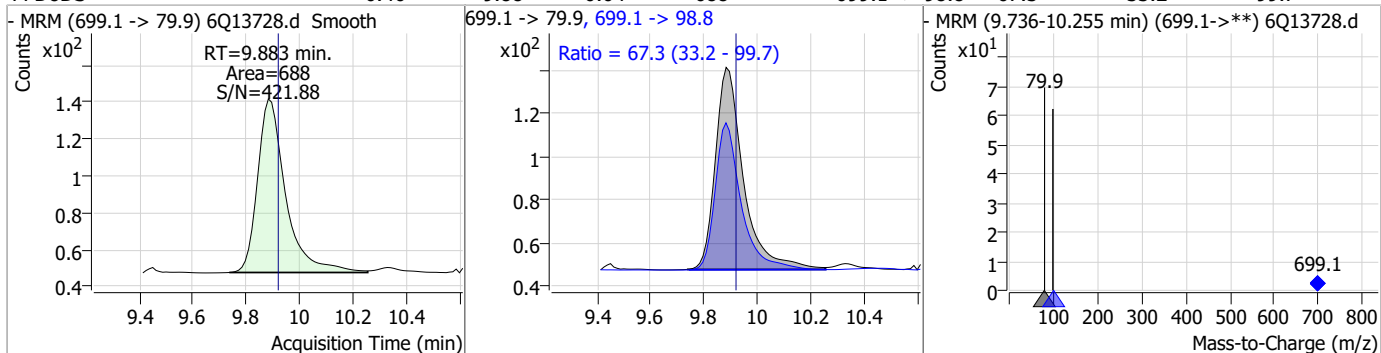


7.6.3

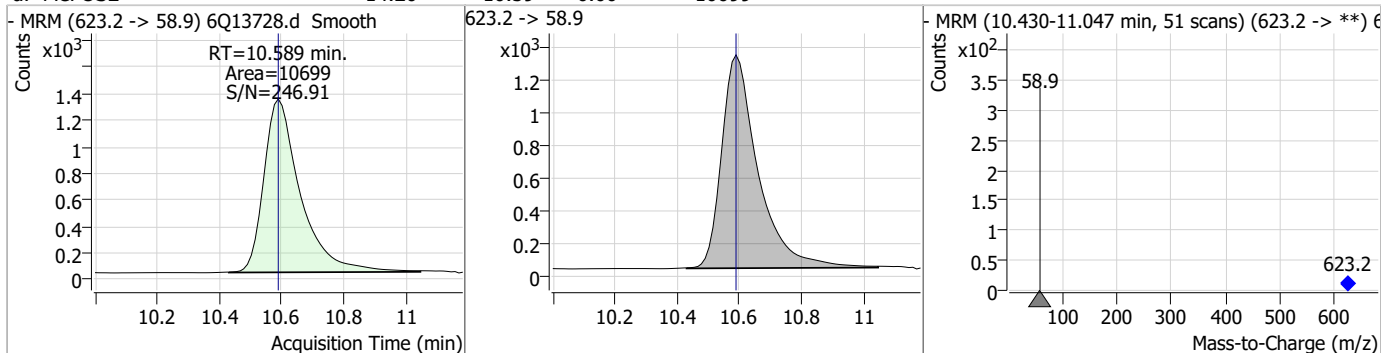
7

Perfluorinated Compounds by LC/MS/MS

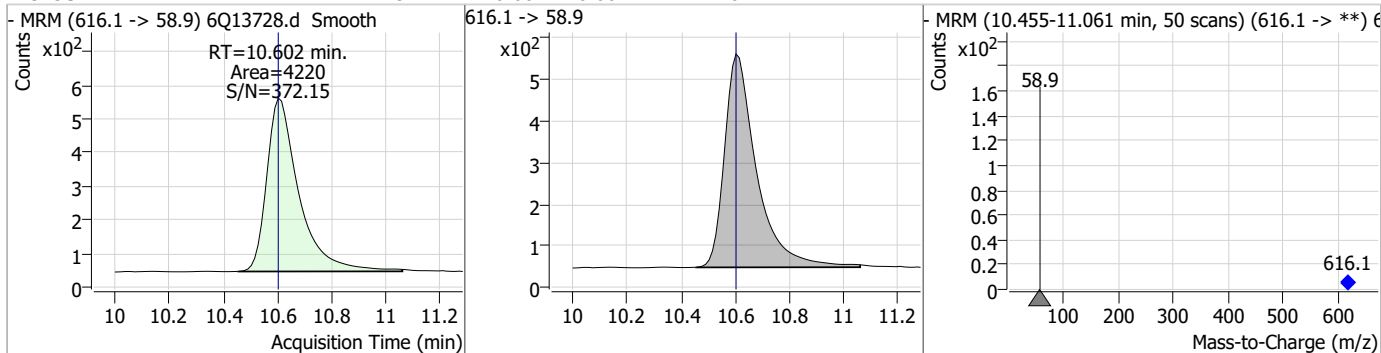
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.46	9.88	-0.04	688	699.1 -> 98.8	67.3	33.2	99.7



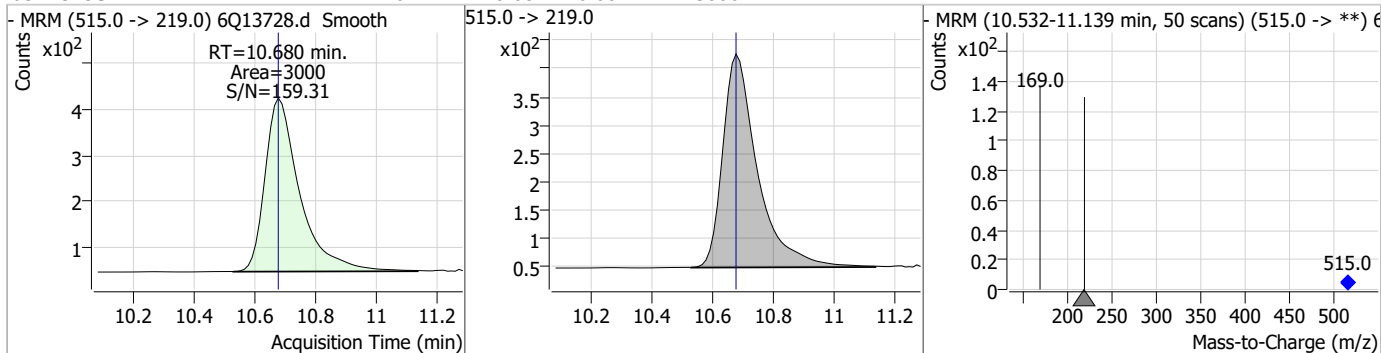
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	14.26	10.59	0.00	10699				



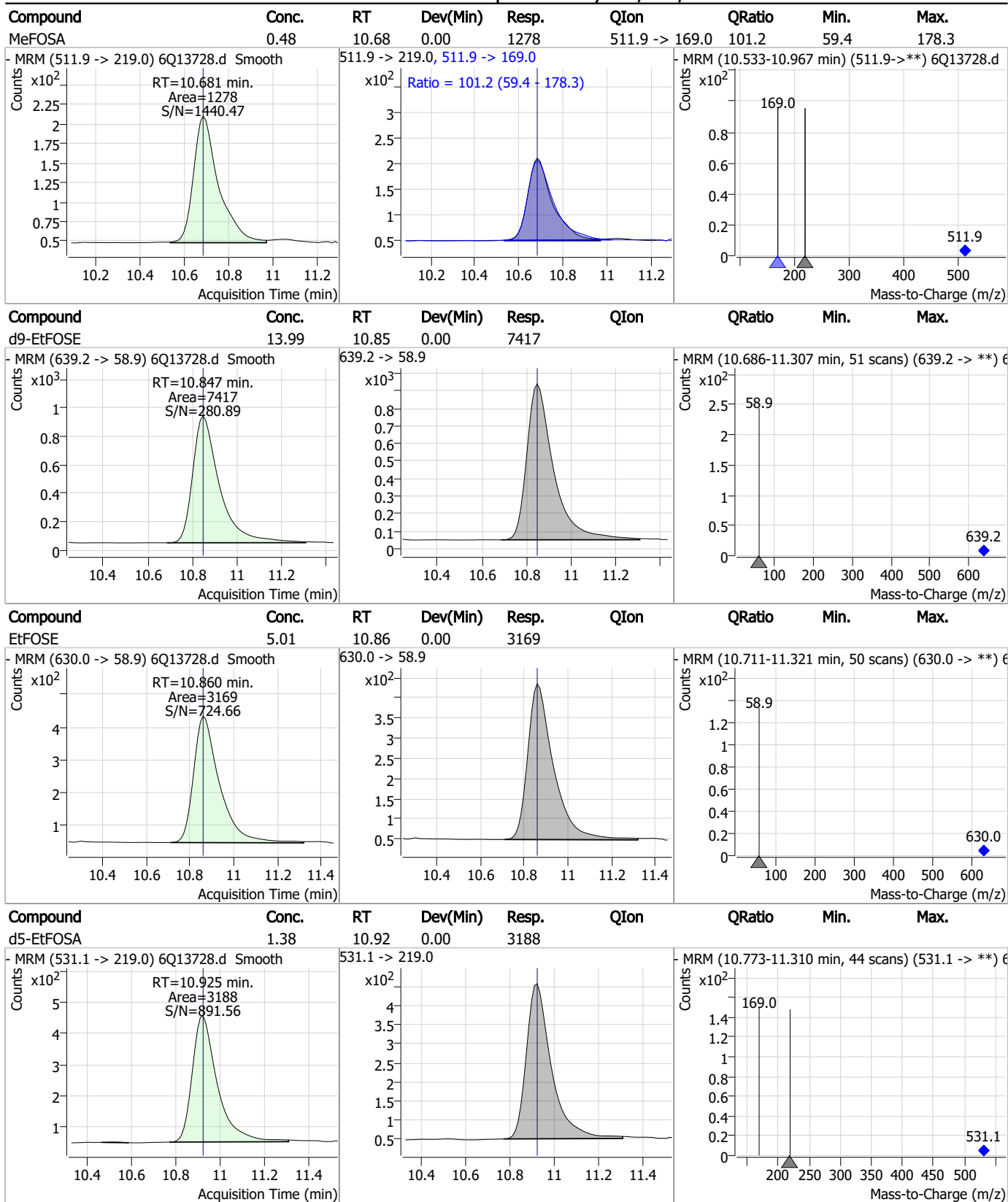
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	4.75	10.60	0.00	4220				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	1.40	10.68	0.00	3000				



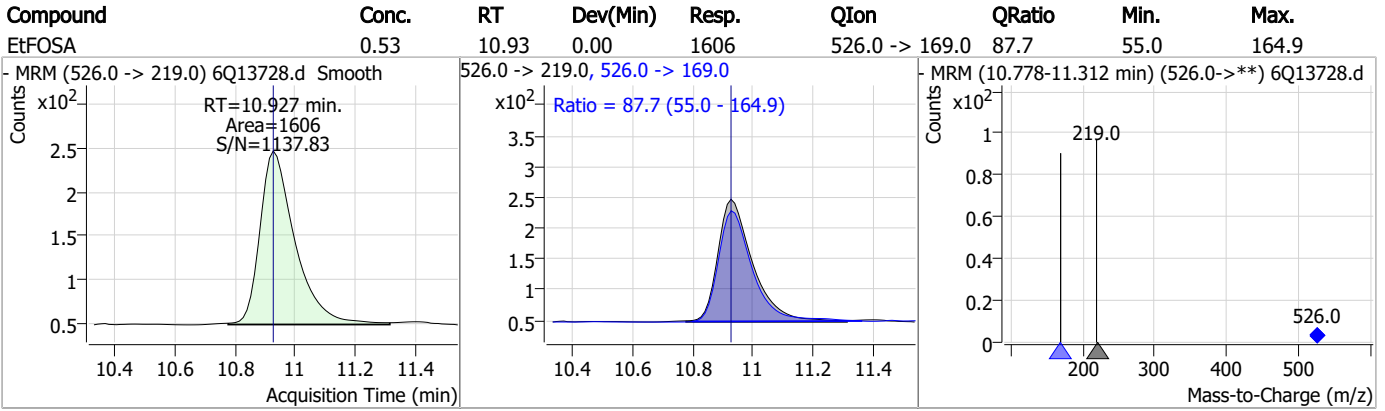
Perfluorinated Compounds by LC/MS/MS



7.6.3

7

Perfluorinated Compounds by LC/MS/MS



7.6.3

7

Manual Integration Approval Summary

Sample Number: S6Q208-IC208 Method: EPA DRAFT 1633
Lab FileID: 6Q13728.D Analyst approved: 02/18/23 11:42 Natasha Gumtie
Injection Time: 02/16/23 08:18 Supervisor approved: 02/18/23 12:01 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.30	Split peak
EtFOSAA	2991-50-6		8.37	Split peak
Perfluorodecanesulfonic acid	335-77-3		9.18	Split peak

7.6.3.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13729.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/16/2023 8:32:08 AM
 Sample Name : ic208-3
 Vial : P1-D4
 DA Method File : 1633_021623_S6Q208NEW.quantmethod.xml
 Batch Name : s6q208.batch.bin
 Sample Information : OP95142,S6Q208,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.950	216.8 -> 171.9	61278	7.50 µg/L	-0.025
M5-PFPeA	4.361	268.3 -> 223.0	38949	5.00 µg/L	-0.025
M5-PFHxA	5.538	318.0 -> 273.0	52558	3.75 µg/L	-0.025
M4-PFHpA	6.477	367.1 -> 322.0	52434	3.75 µg/L	-0.025
M8-PFOA	7.109	421.1 -> 376.0	96859	3.75 µg/L	-0.037
M9-PFNA	7.640	472.1 -> 427.0	53850	3.13 µg/L	-0.037
M6-PFDA	8.120	519.1 -> 474.1	42271	3.13 µg/L	-0.037
M7-PFUnDA	8.574	570.0 -> 525.1	50740	3.13 µg/L	-0.037
M2-PFDoDA	9.004	615.1 -> 570.0	57538	3.13 µg/L	-0.050
M2-PFTeDA	9.743	715.2 -> 670.0	31707	3.13 µg/L	-0.037
M8-FOSA	9.555	506.1 -> 77.8	23388	3.75 µg/L	-0.012
M3-PFBS	5.493	302.1 -> 79.9	19994	3.75 µg/L	-0.025
M3-PFHxS	7.237	402.1 -> 79.9	13313	3.75 µg/L	-0.037
M8-PFOS	8.283	507.1 -> 79.9	11509	3.75 µg/L	-0.050
M2-4:2FTS	5.215	329.1 -> 80.9	2268	5.00 µg/L	-0.025
M2-6:2FTS	6.883	429.1 -> 80.9	2989	5.00 µg/L	-0.025
M2-8:2FTS	7.907	529.1 -> 80.9	2799	5.00 µg/L	-0.037
M3-MeFOSAA	8.165	573.2 -> 419.0	27161	5.00 µg/L	-0.037
M3-HFPO-DA	5.903	286.9 -> 168.9	7478	5.00 µg/L	-0.037
M5-EtFOSAA	8.361	589.2 -> 419.0	23143	5.00 µg/L	-0.037
M7-MeFOSE	10.589	623.2 -> 58.9	11908	12.50 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	8196	12.50 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	3720	1.25 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	3273	1.25 µg/L	0.000
13C4-PFOS	8.283	502.8 -> 79.9	10180	2.50 µg/L	-0.050
13C3-PFBA	2.954	216.0 -> 172.0	35804	5.00 µg/L	-0.025
18O2-PFHxS	7.236	403.0 -> 83.9	6557	2.50 µg/L	-0.037
13C4-PFOA	7.110	417.1 -> 372.0	72860	2.50 µg/L	-0.037
13C2-PFDA	8.120	515.1 -> 470.1	24297	1.25 µg/L	-0.037
13C5-PFNA	7.640	468.0 -> 423.0	22389	1.25 µg/L	-0.037
13C2-PFHxA	5.539	315.1 -> 270.0	33869	2.50 µg/L	-0.025
System Monitoring Compounds					
13C2-4:2FTS	5.215	329.1 -> 80.9	2268	5.01 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C2-6:2FTS	6.883	429.1 -> 80.9	2989	5.03 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C2-8:2FTS	7.907	529.1 -> 80.9	2799	4.85 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C2-PFDoDA	9.004	615.1 -> 570.0	57538	3.00 µg/L	-0.050
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 96.1%		
13C2-PFTeDA	9.743	715.2 -> 670.0	31707	2.99 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 95.7%		
13C3-PFBS	5.493	302.1 -> 79.9	19994	3.69 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C3-PFHxS	7.237	402.1 -> 79.9	13313	3.65 µg/L	-0.037

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C4-PFBA	2.950	216.8 -> 171.9	61278	7.38 µg/L	-0.025
Spiked Amount: 7.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C4-PFHpA	6.477	367.1 -> 322.0	52434	3.60 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C5-PFHxA	5.538	318.0 -> 273.0	52558	3.66 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C5-PFPeA	4.361	268.3 -> 223.0	38949	4.89 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C6-PFDA	8.120	519.1 -> 474.1	42271	2.92 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 93.3%	
13C7-PFUnDA	8.574	570.0 -> 525.1	50740	2.99 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 95.6%	
13C8-FOSA	9.555	506.1 -> 77.8	23388	3.43 µg/L	-0.012
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 91.6%	
13C8-PFOA	7.109	421.1 -> 376.0	96859	3.89 µg/L	-0.037
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C8-PFOS	8.283	507.1 -> 79.9	11509	3.35 µg/L	-0.050
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 89.4%	
13C9-PFNA	7.640	472.1 -> 427.0	53850	3.17 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 101.5%	
d3-MeFOSAA	8.165	573.2 -> 419.0	27161	4.46 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 89.2%	
13C3-HFPO-DA	5.903	286.9 -> 168.9	7478	4.89 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.8%	
d3-MeFOSA	10.680	515.0 -> 219.0	3273	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.0%	
d5-EtFOSAA	8.361	589.2 -> 419.0	23143	4.54 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 90.7%	
d7-MeFOSE	10.589	623.2 -> 58.9	11908	11.99 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%			Recovery = 95.9%	
d9-EtFOSE	10.847	639.2 -> 58.9	8196	11.67 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%			Recovery = 93.4%	
d5-EtFOSA	10.925	531.1 -> 219.0	3720	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.1%	
Target Compounds					QValue
4:2FTS	5.215	327.1 -> 307.0	25465	4.82 µg/L	96
		327.1 -> 80.9	5200		
6:2FTS	6.883	427.1 -> 407.0	22698	4.97 µg/L	99
		427.1 -> 80.9	4498		
8:2FTS	7.908	527.1 -> 507.0	12157	5.41 µg/L	98
		527.1 -> 80.8	2788		
EtFOSAA	8.362	584.2 -> 419.1	4765	1.22 µg/L	m 84
		584.2 -> 526.0	2981		
FOSA	9.557	498.1 -> 77.9	8064	1.31 µg/L	99
		498.1 -> 478.0	352		
MeFOSAA	8.166	570.1 -> 419.0	6558	1.27 µg/L	m 99
		570.1 -> 483.0	1182		
PFBA	2.957	212.8 -> 168.9	9803	4.91 µg/L	100
PFBS	5.494	298.7 -> 79.9	6098	1.10 µg/L	94
		298.7 -> 98.8	2733		
PFDA	8.121	512.9 -> 469.0	23746	1.16 µg/L	98
		512.9 -> 219.0	3362		
PFDODA	9.005	613.1 -> 569.0	22498	1.25 µg/L	97
		613.1 -> 319.0	2560		
PFDS	9.179	599.0 -> 79.9	3213	1.33 µg/L	98

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	1751			
PFHpA	6.477	363.1 -> 319.0	27879	1.31	µg/L	97
		363.1 -> 169.0	4062			
PFHpS	7.792	449.0 -> 79.9	4219	1.25	µg/L	95
		449.0 -> 98.9	2472			
PFHxA	5.541	313.0 -> 269.0	17666	1.25	µg/L	99
		313.0 -> 118.9	588			
PFHxS	7.238	398.7 -> 79.9	4773	1.18	µg/L	m 91
		398.7 -> 98.9	2924			
PFNA	7.640	463.0 -> 419.0	18295	1.29	µg/L	95
		463.0 -> 219.0	3340			
PFNS	8.749	548.8 -> 79.9	4469	1.29	µg/L	92
		548.8 -> 98.9	2400			
PFOA	7.111	413.0 -> 369.0	35561	1.13	µg/L	100
		413.0 -> 169.0	4657			
PFOS	8.284	498.9 -> 79.9	4226	1.17	µg/L	m 87
		498.9 -> 98.8	3006			
PFPeA	4.363	263.0 -> 219.0	21387	2.47	µg/L	100
PFPeS	6.543	349.1 -> 79.9	5492	1.16	µg/L	99
		349.1 -> 98.9	3025			
PFTeDA	9.744	713.1 -> 669.0	18635	1.25	µg/L	100
		713.1 -> 168.9	1186			
PFTrDA	9.399	663.0 -> 619.0	20524	1.23	µg/L	99
		663.0 -> 168.9	1648			
PFUnDA	8.575	563.1 -> 519.0	21208	1.28	µg/L	99
		563.1 -> 269.1	3145			
11CI-PF3OUdS	9.452	630.9 -> 450.9	45348	4.68	µg/L	99
		632.9 -> 452.9	14086			
9CI-PF3ONS	8.626	530.8 -> 351.0	85227	4.96	µg/L	96
		532.8 -> 353.0	24230			
ADONA	6.728	376.9 -> 250.9	153424	4.71	µg/L	98
		376.9 -> 84.8	33460			
HFPO-DA	5.916	284.9 -> 168.9	7549	5.14	µg/L	97
		284.9 -> 184.9	924			
3:3FTCA	3.816	241.0 -> 177.0	2586	5.91	µg/L	95
		241.0 -> 117.0	379			
5:3FTCA	6.181	341.0 -> 237.1	91882	31.76	µg/L	96
		341.0 -> 217.0	78546			
7:3FTCA	7.579	441.0 -> 316.9	48546	31.89	µg/L	89
		441.0 -> 336.9	89418			
EtFOSA	10.927	526.0 -> 219.0	4221	1.19	µg/L	86
		526.0 -> 169.0	4014			
EtFOSE	10.860	630.0 -> 58.9	8494	12.15	µg/L	100
MeFOSA	10.681	511.9 -> 219.0	3502	1.21	µg/L	89
		511.9 -> 169.0	3732			
MeFOSE	10.602	616.1 -> 58.9	12378	12.51	µg/L	100
PFDoDS	9.883	699.1 -> 79.9	1984	1.32	µg/L	93
		699.1 -> 98.8	1212			
NFDHA	5.432	295.0 -> 201.0	2112	2.46	µg/L	96
		295.0 -> 84.9	1062			
PFMBA	4.775	279.0 -> 85.1	6463	2.52	µg/L	100
PFMPA	3.516	229.0 -> 84.9	5812	2.51	µg/L	100
PFEESA	6.021	314.8 -> 134.9	43137	2.25	µg/L	100
		314.8 -> 82.9	1086			

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

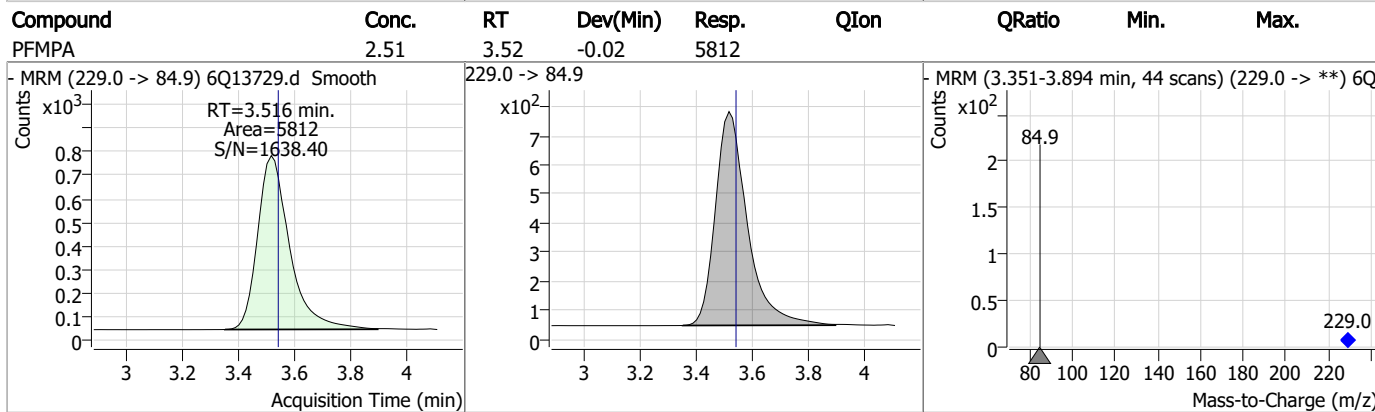
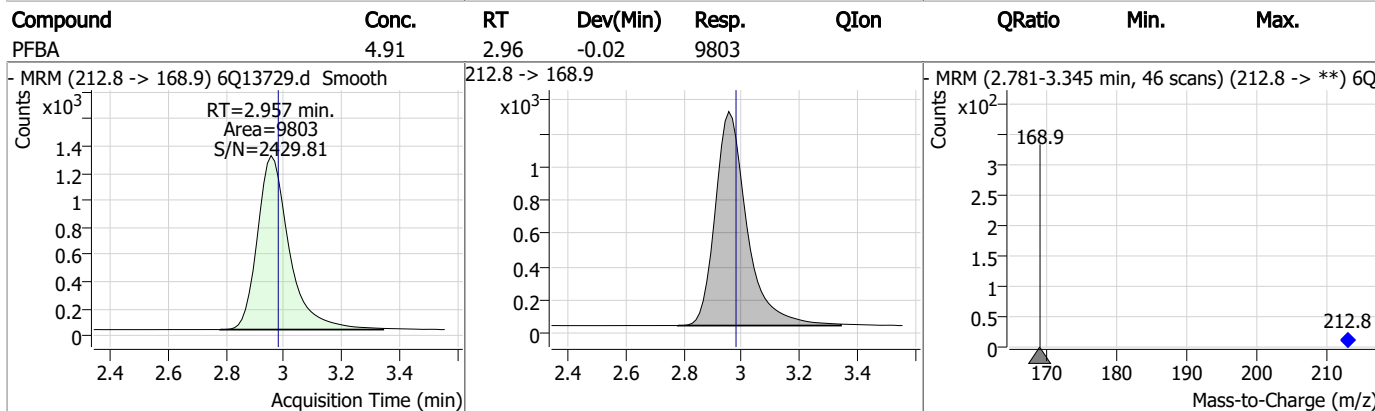
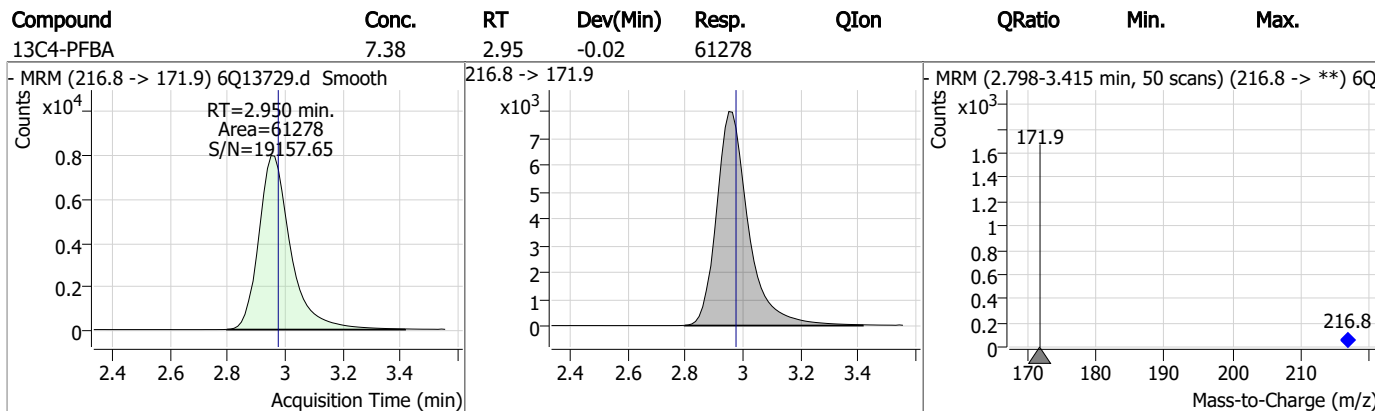
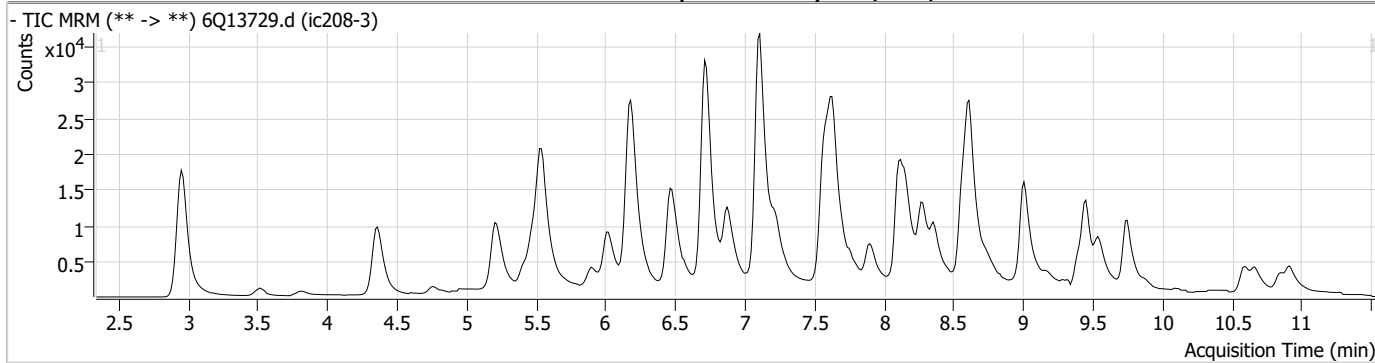
Perfluorinated Compounds by LC/MS/MS

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

7.6.4

7

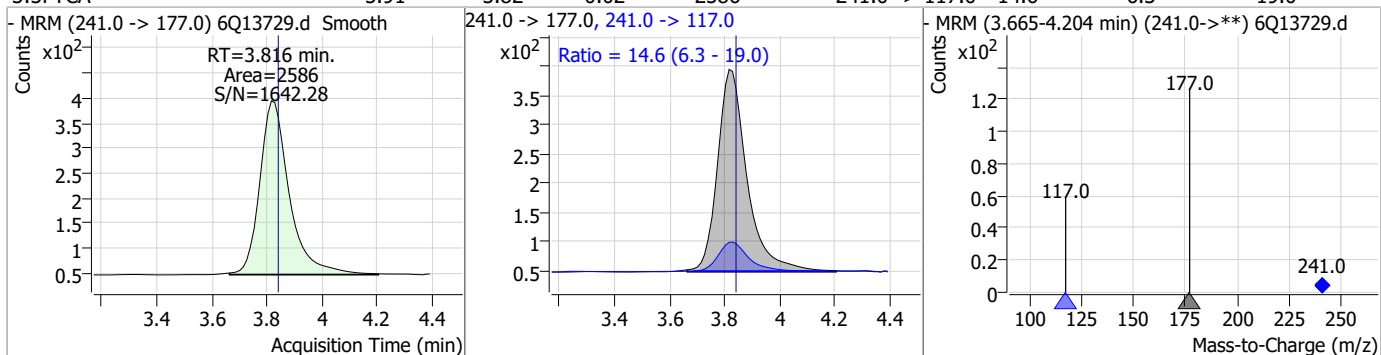
Perfluorinated Compounds by LC/MS/MS



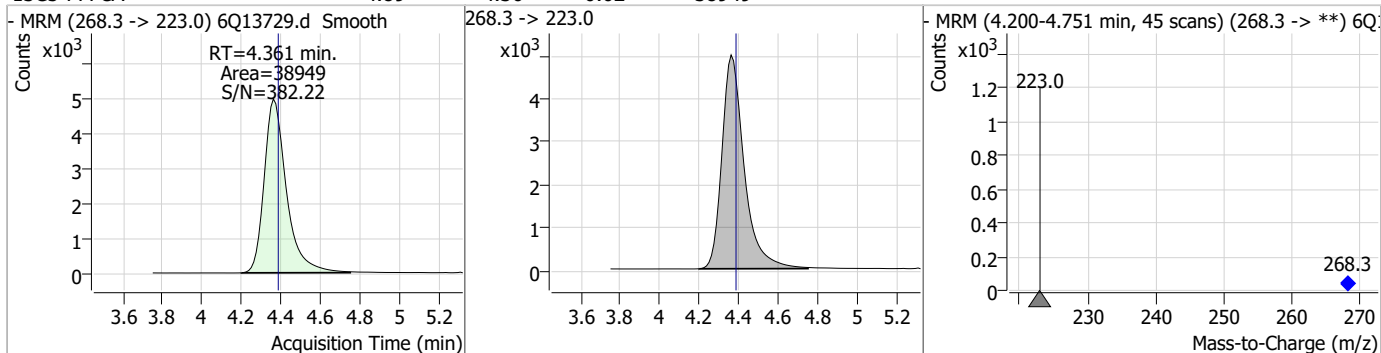
7.6.4
7

Perfluorinated Compounds by LC/MS/MS

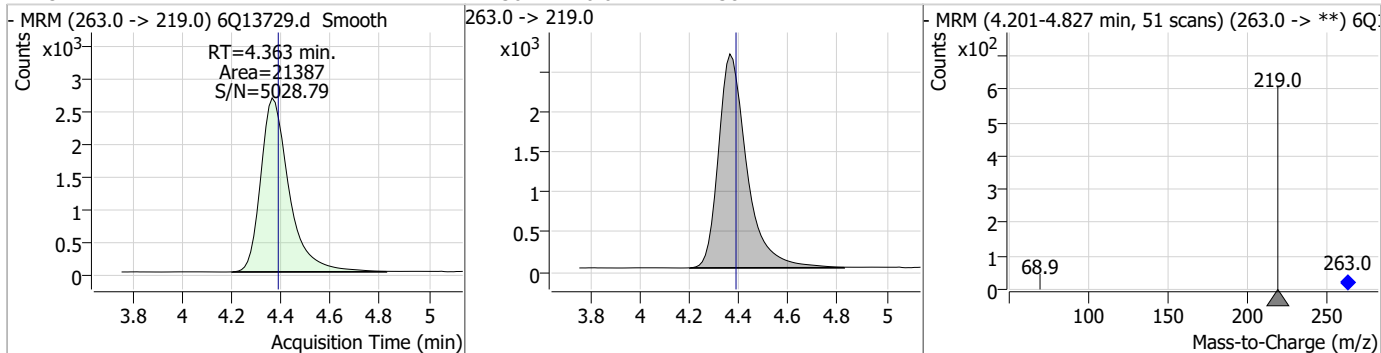
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	5.91	3.82	-0.02	2586	241.0 -> 117.0	14.6	6.3	19.0



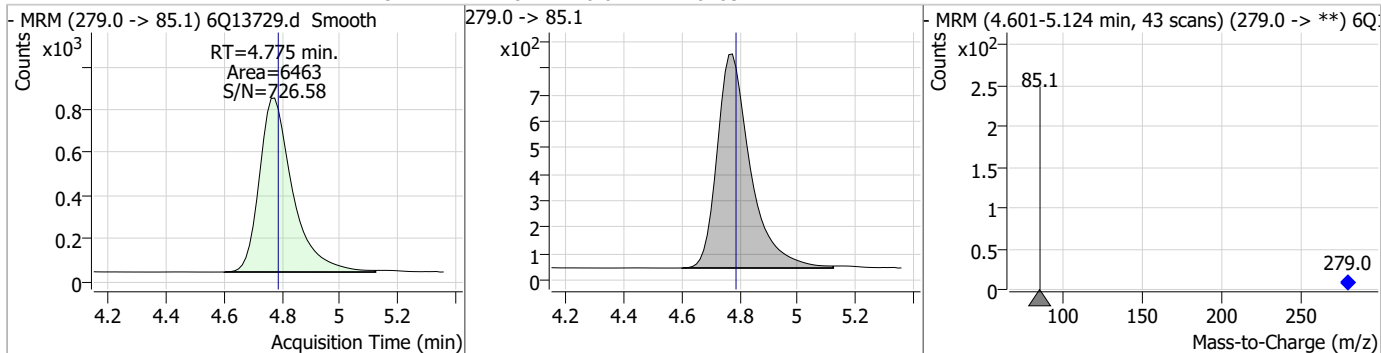
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.89	4.36	-0.02	38949				



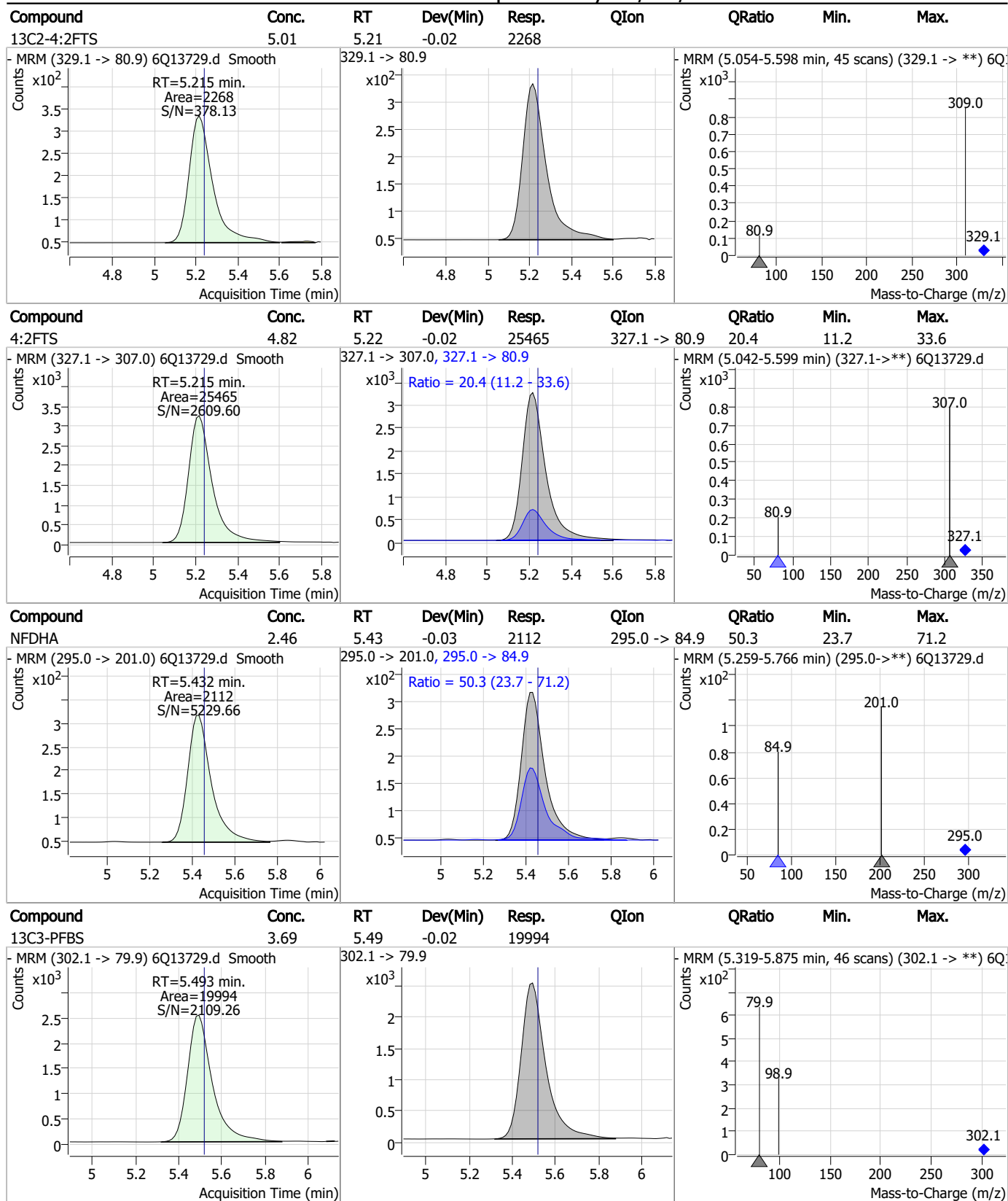
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	2.47	4.36	-0.02	21387				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	2.52	4.78	-0.01	6463				



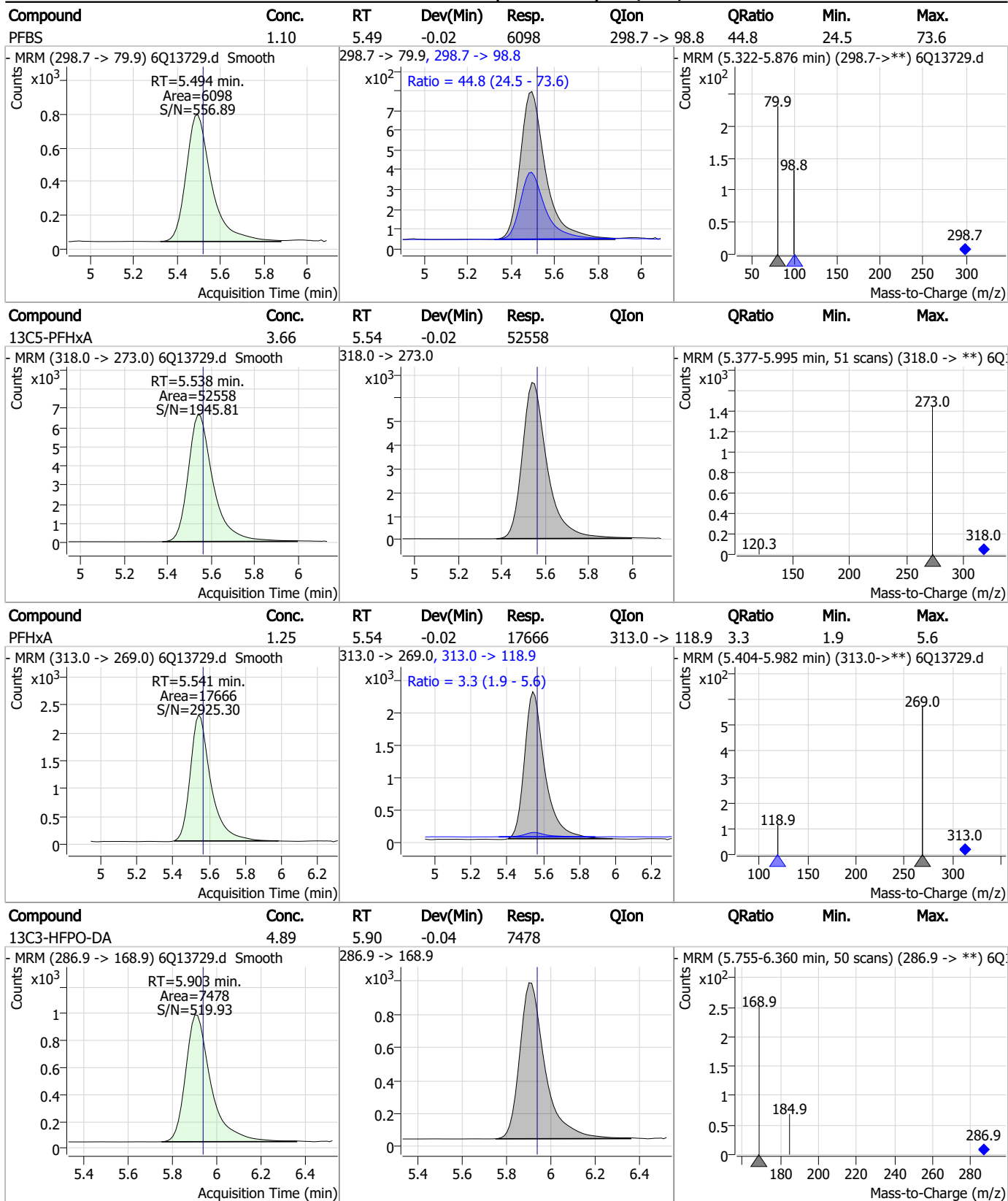
Perfluorinated Compounds by LC/MS/MS



7.6.4

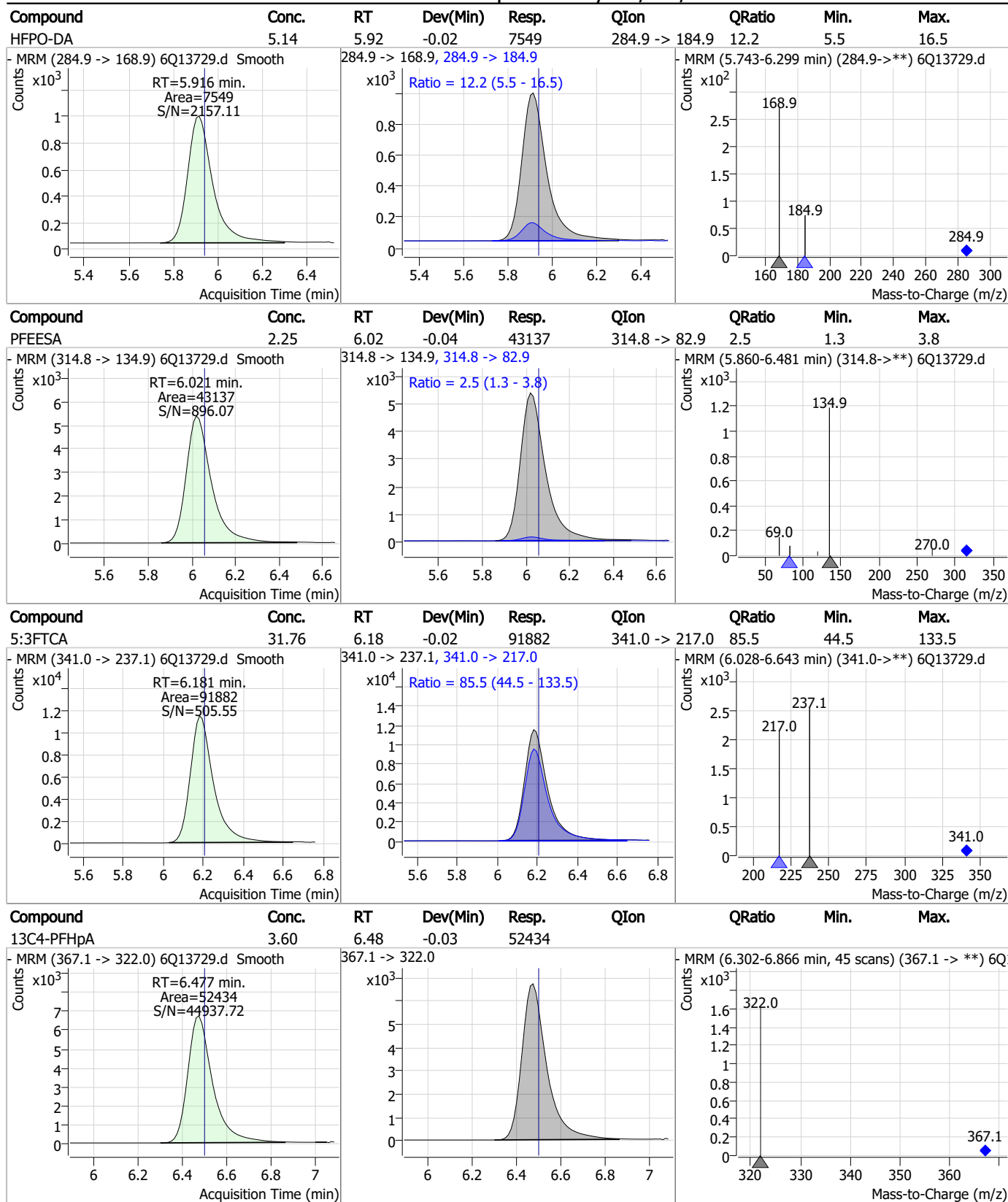
7

Perfluorinated Compounds by LC/MS/MS



7.6.4
7

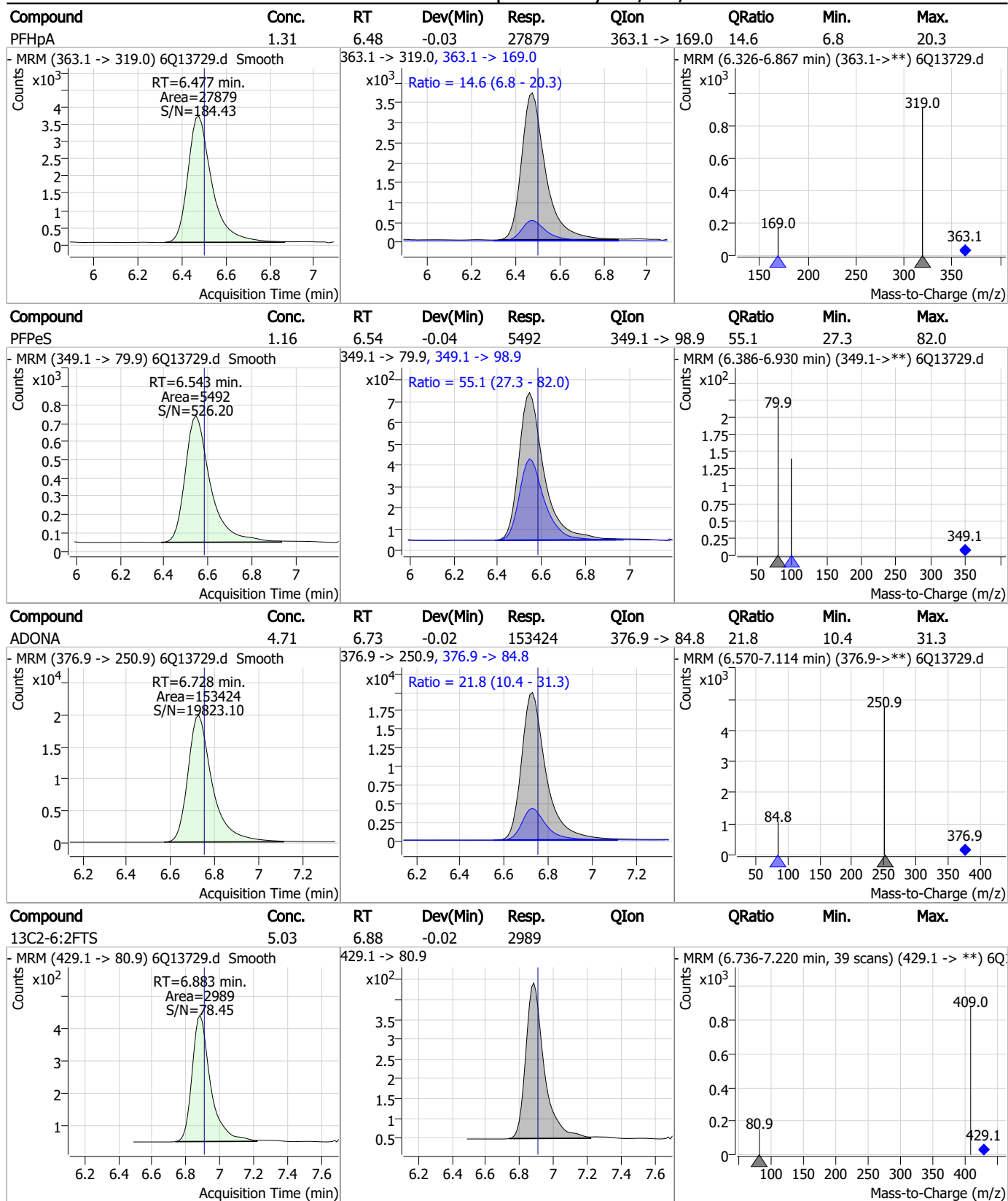
Perfluorinated Compounds by LC/MS/MS



7.6.4

7

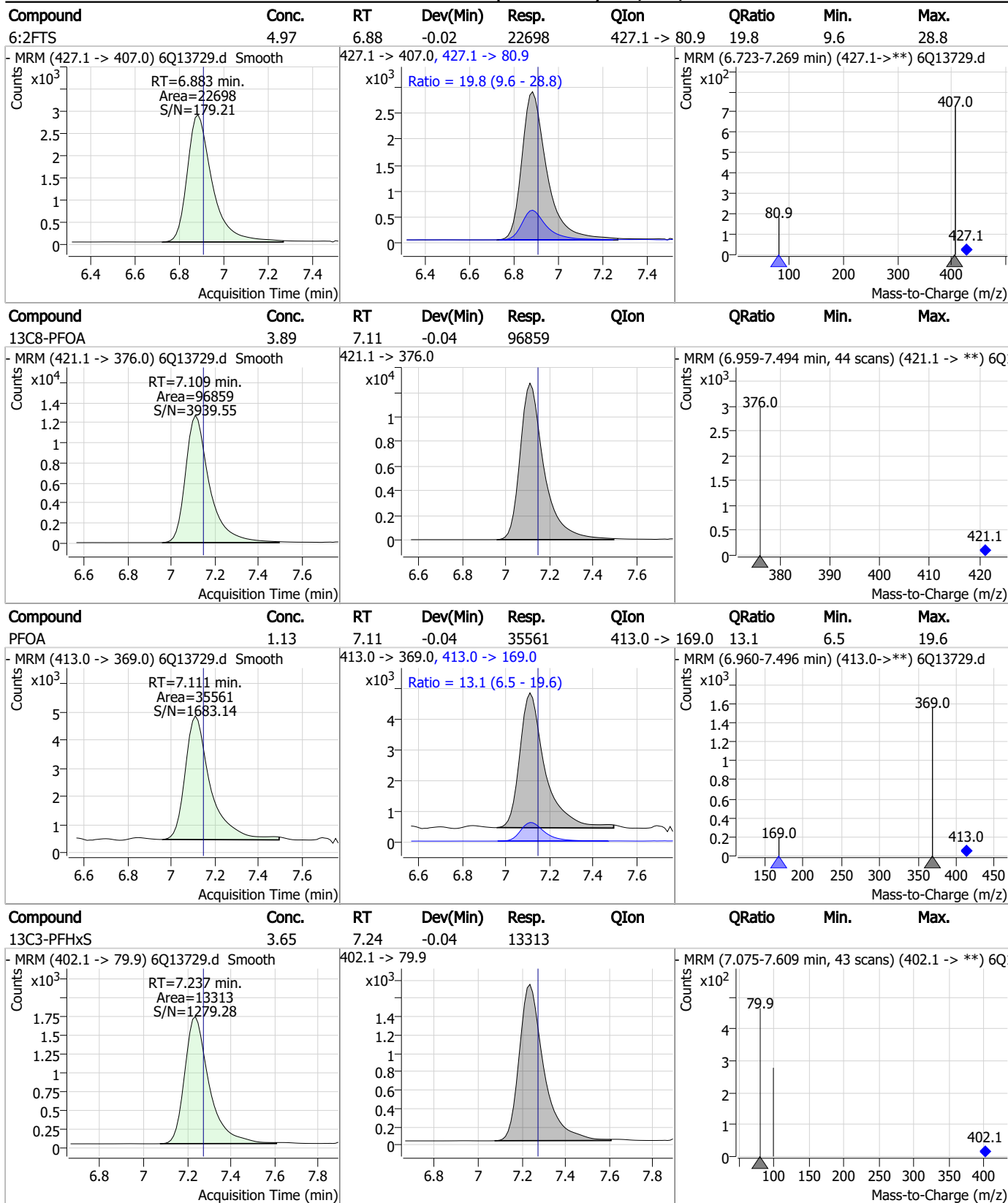
Perfluorinated Compounds by LC/MS/MS



7.6.4

7

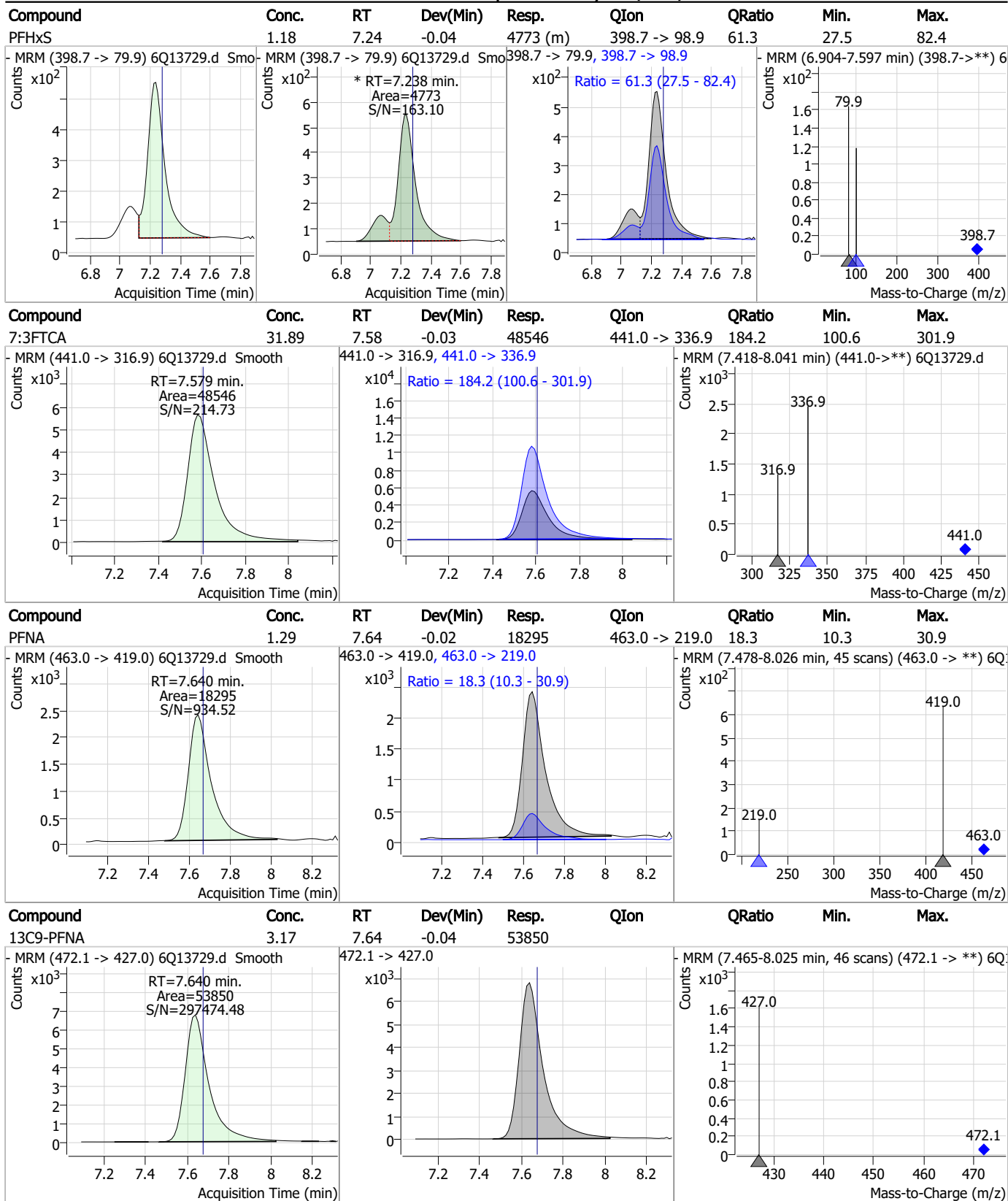
Perfluorinated Compounds by LC/MS/MS



7.6.4

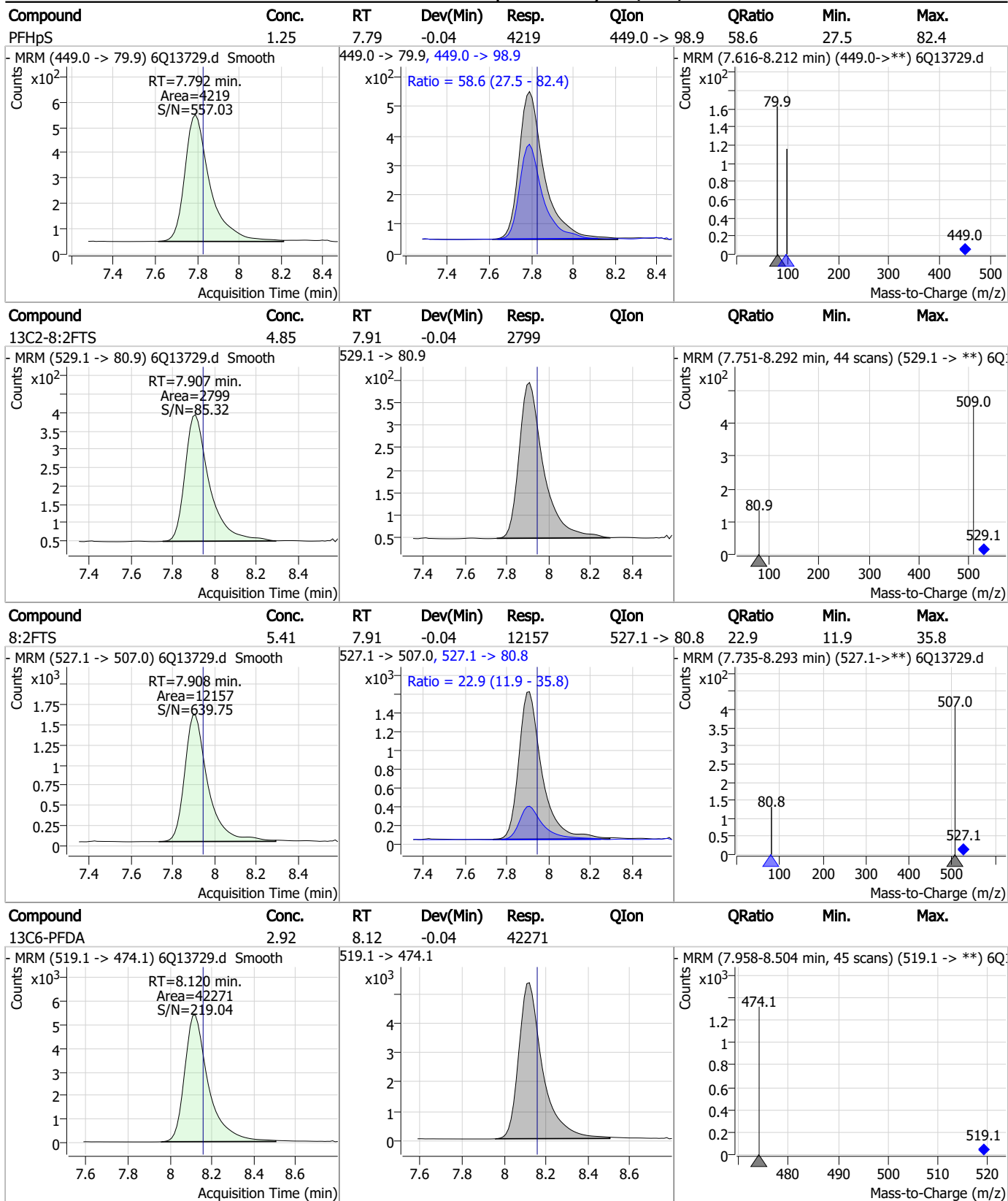
7

Perfluorinated Compounds by LC/MS/MS



7.6.4
7

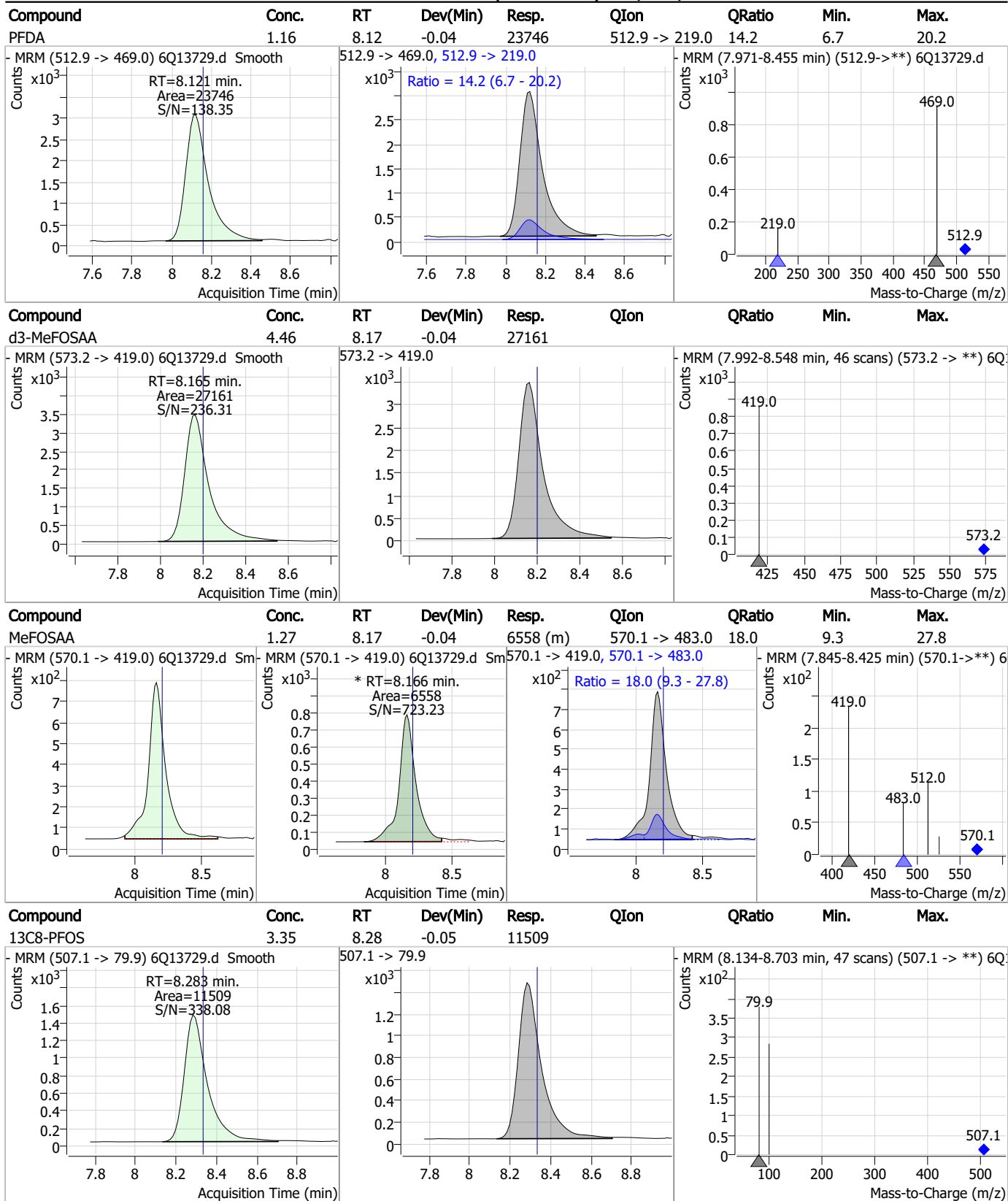
Perfluorinated Compounds by LC/MS/MS



7.6.4

7

Perfluorinated Compounds by LC/MS/MS

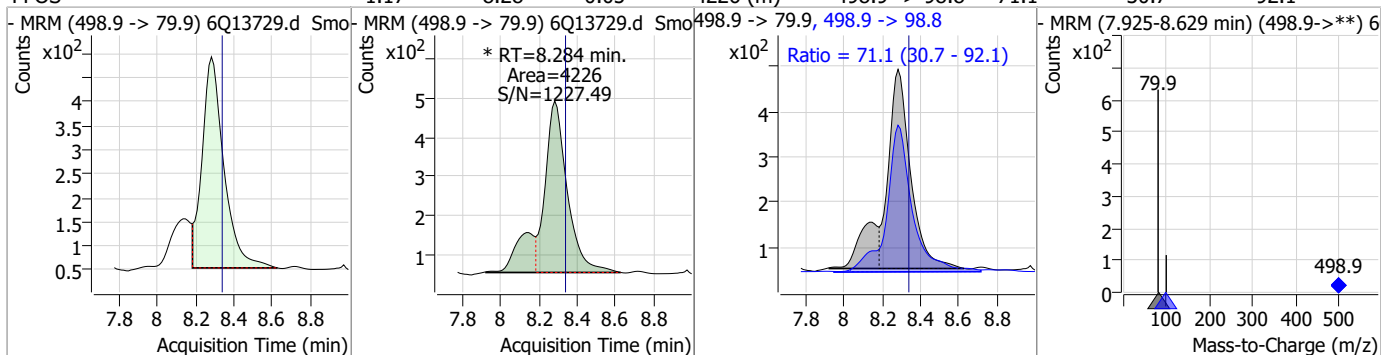


7.6.4

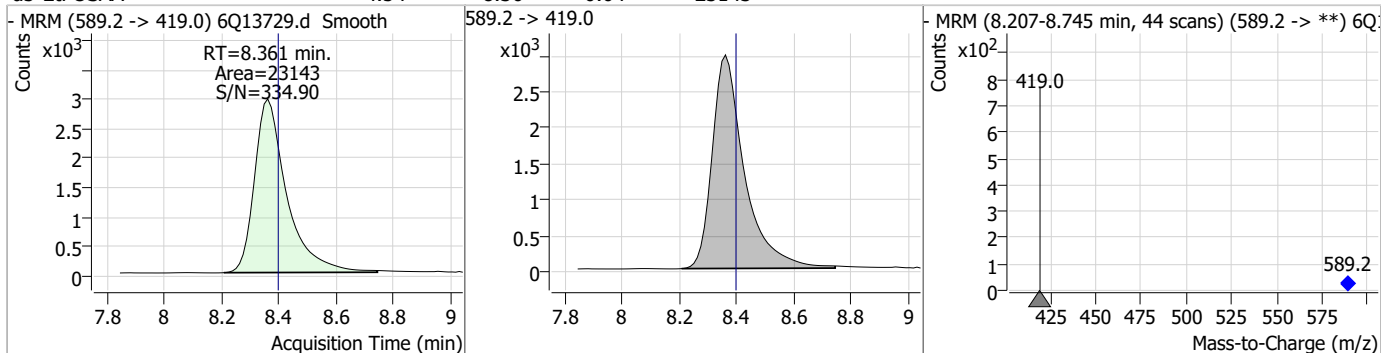
7

Perfluorinated Compounds by LC/MS/MS

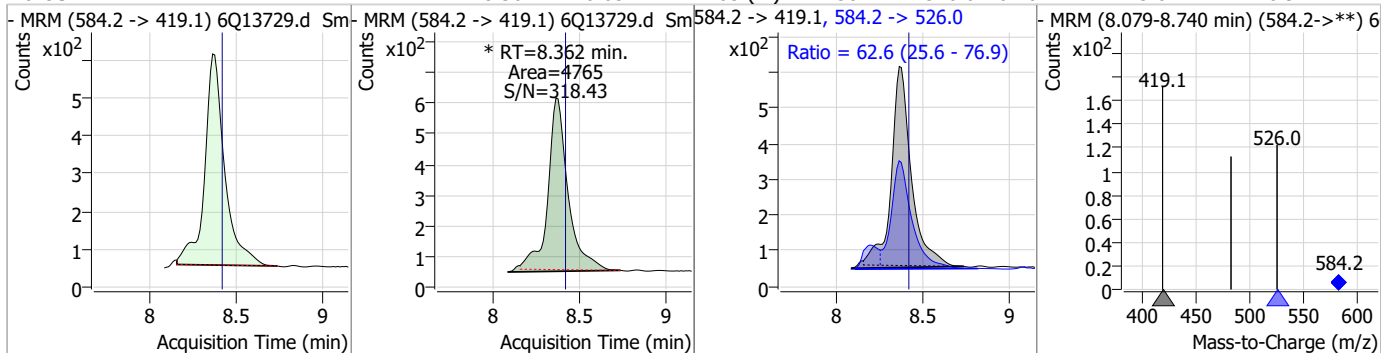
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.17	8.28	-0.05	4226 (m)	498.9 -> 98.8	71.1	30.7	92.1



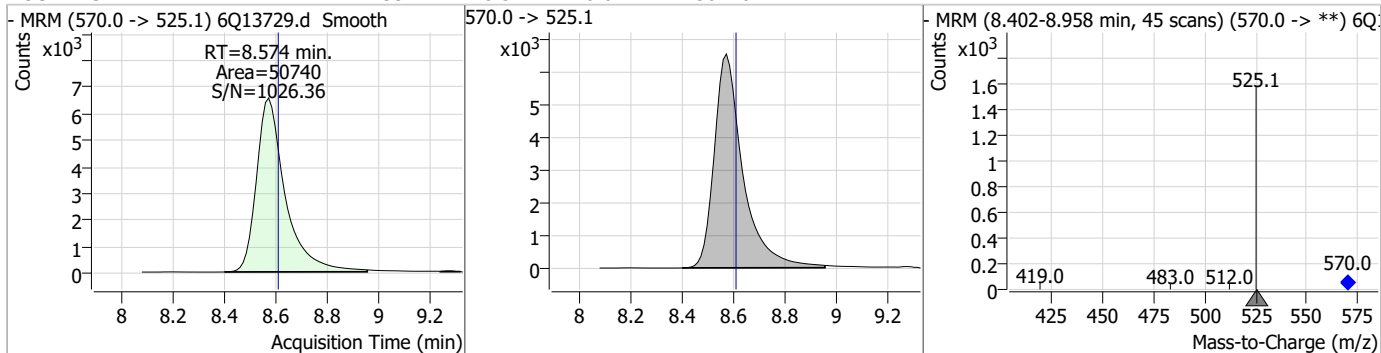
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.54	8.36	-0.04	23143				



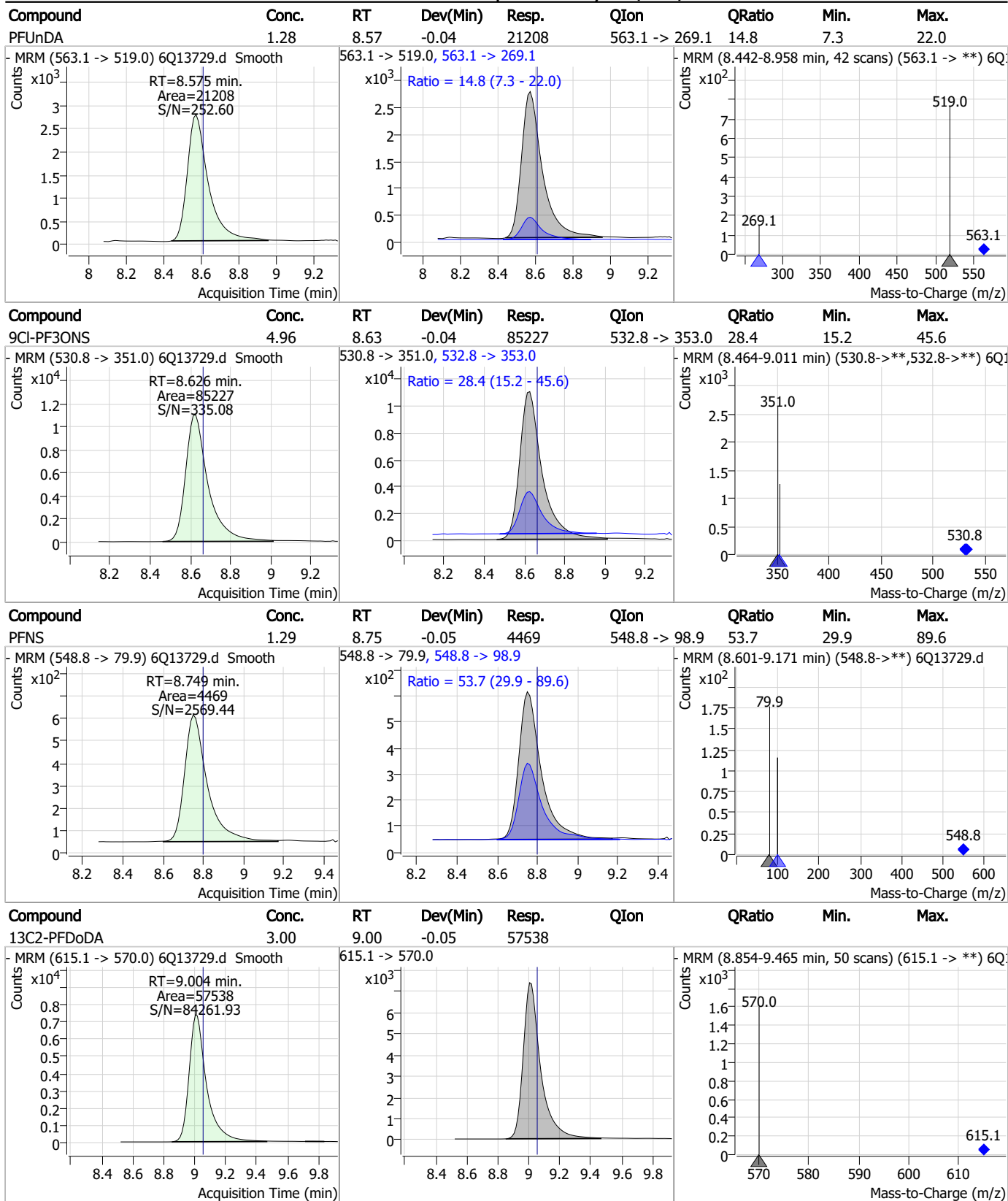
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.22	8.36	-0.05	4765 (m)	584.2 -> 526.0	62.6	25.6	76.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	2.99	8.57	-0.04	50740				

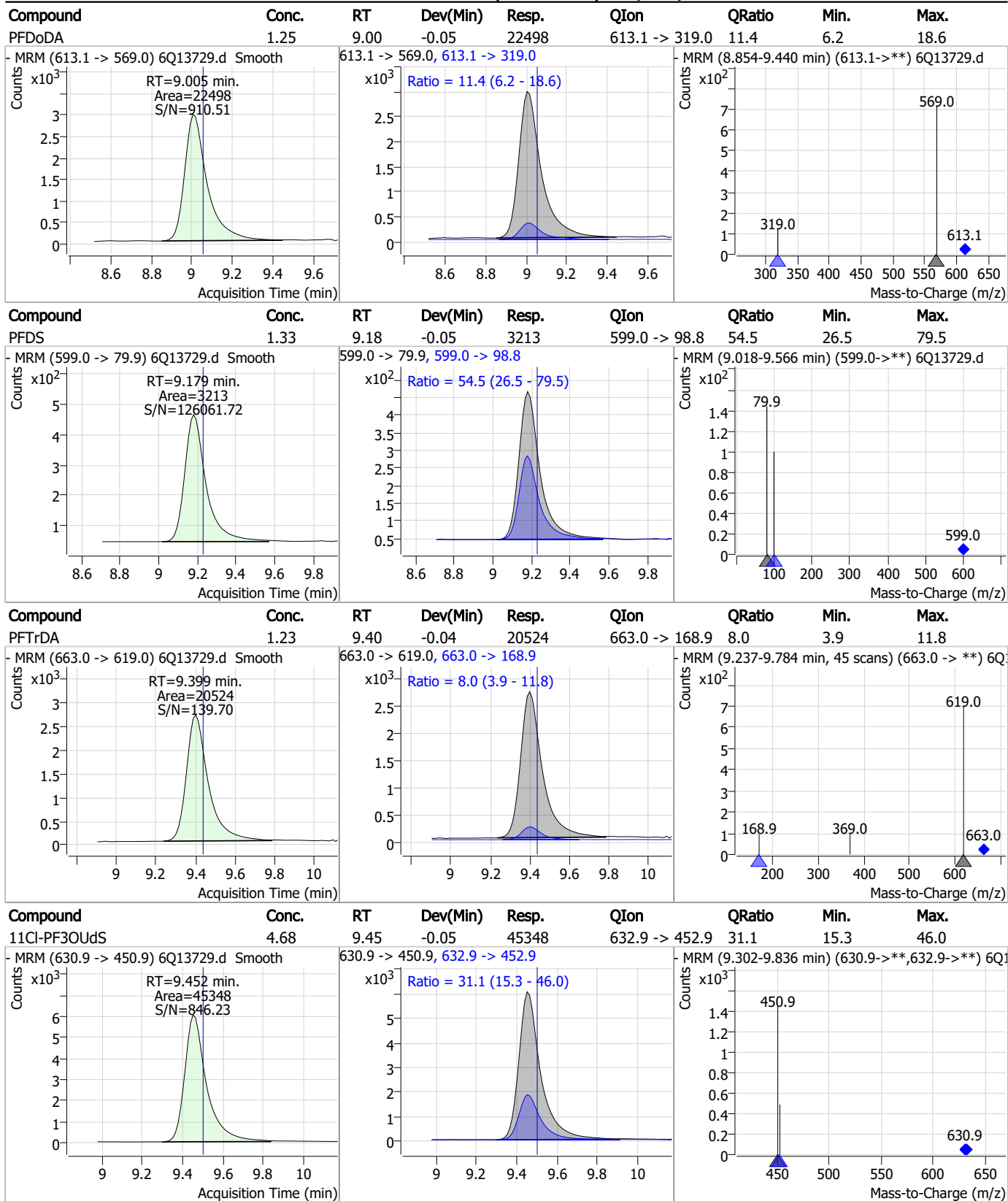


Perfluorinated Compounds by LC/MS/MS



7.6.4
7

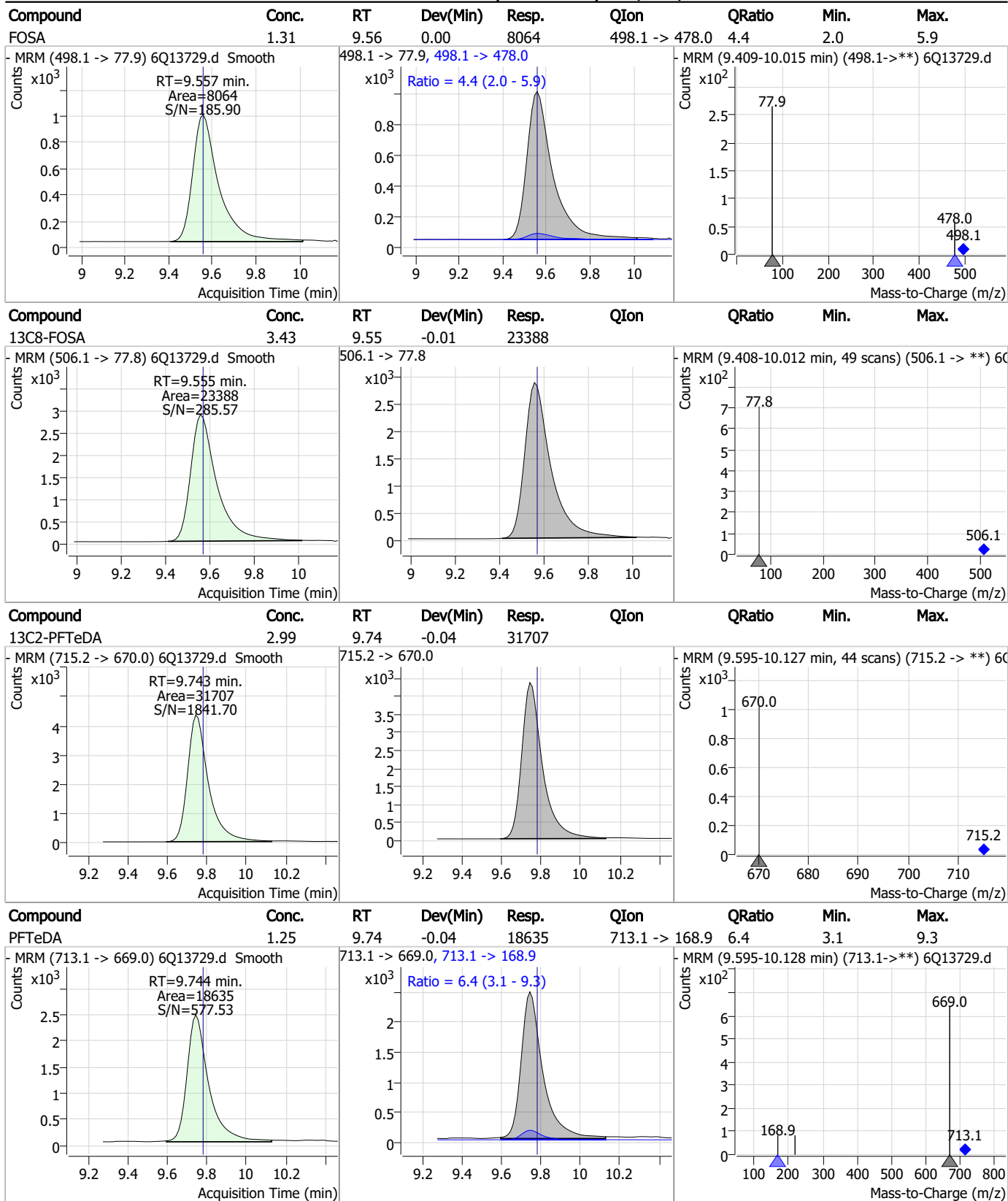
Perfluorinated Compounds by LC/MS/MS



7.6.4

7

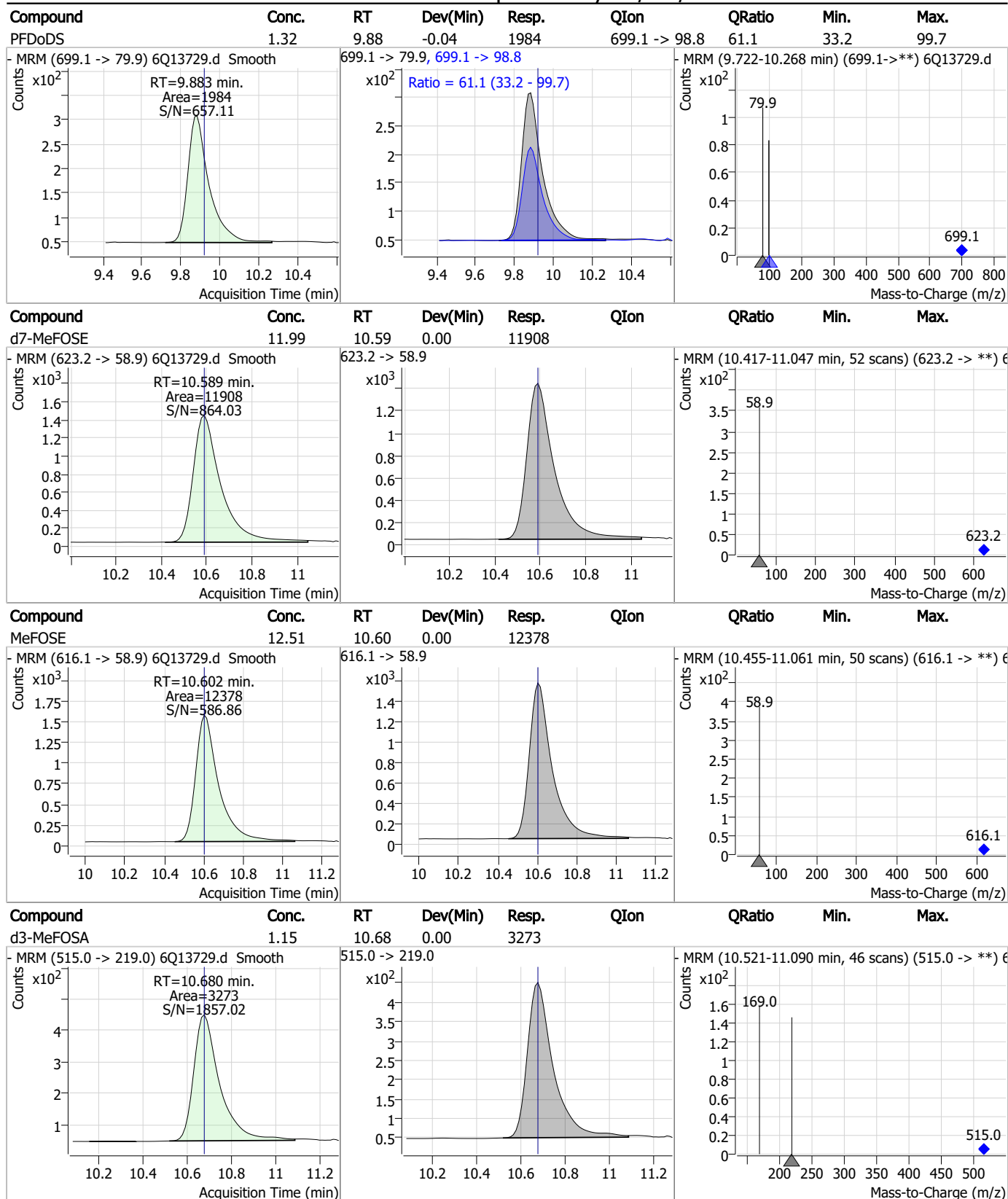
Perfluorinated Compounds by LC/MS/MS



7.6.4

7

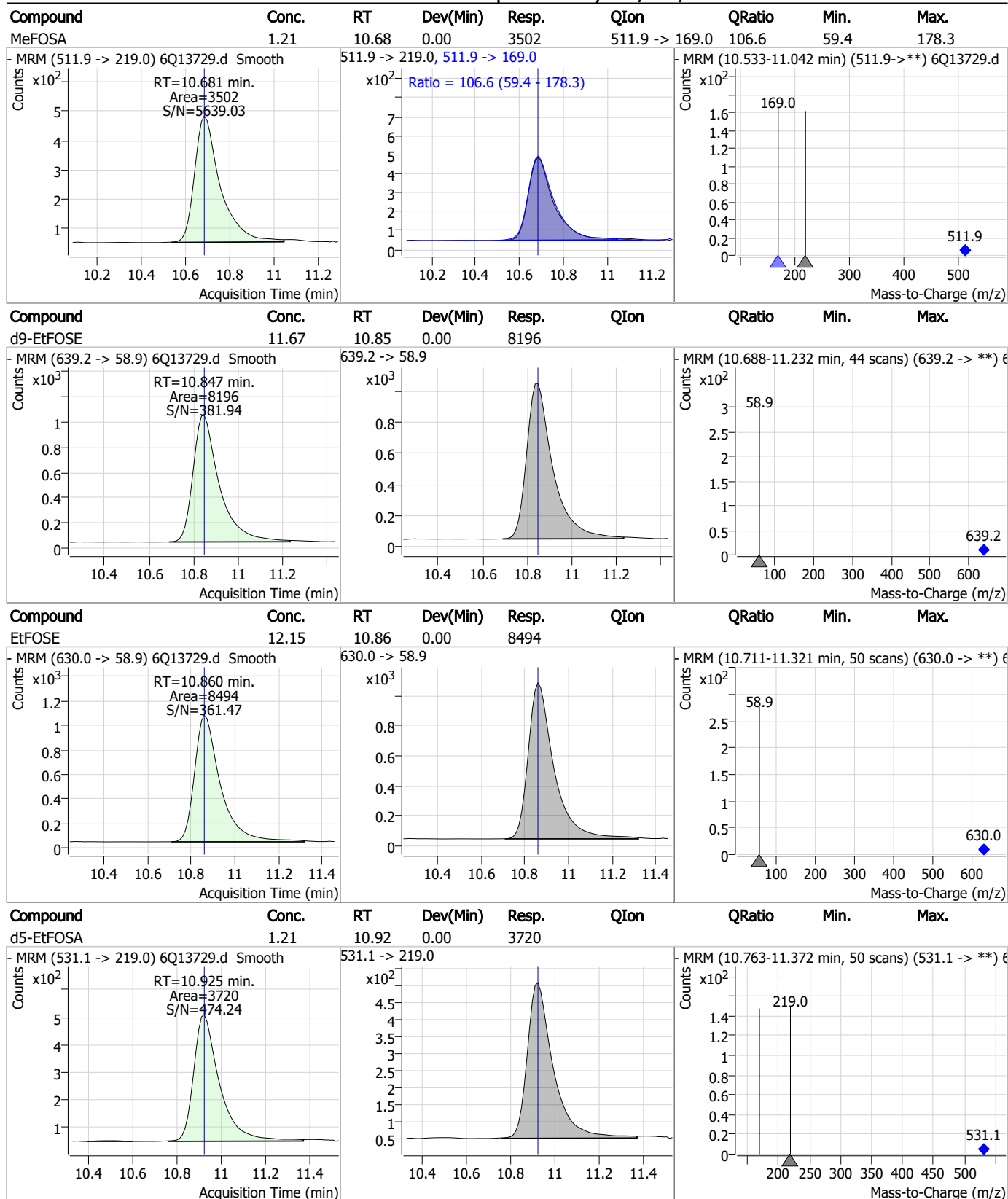
Perfluorinated Compounds by LC/MS/MS



7.6.4

7

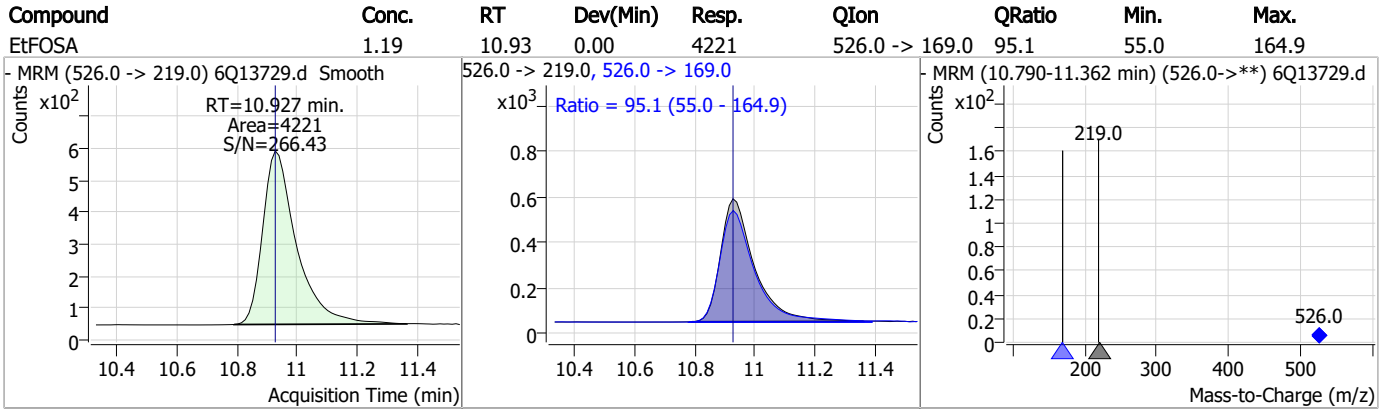
Perfluorinated Compounds by LC/MS/MS



7.6.4

7

Perfluorinated Compounds by LC/MS/MS



7.6.4

7

Manual Integration Approval Summary

Sample Number: S6Q208-IC208 Method: EPA DRAFT 1633
Lab FileID: 6Q13729.D Analyst approved: 02/18/23 11:42 Natasha Gumtie
Injection Time: 02/16/23 08:32 Supervisor approved: 02/18/23 12:01 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
MeFOSAA	2355-31-9		8.17	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.28	Split peak
EtFOSAA	2991-50-6		8.36	Split peak

7.6.4.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13730.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/16/2023 8:46:08 AM
 Sample Name : icc208-4
 Vial : P1-D5
 DA Method File : 1633_021623_S6Q208NEW.quantmethod.xml
 Batch Name : s6q208.batch.bin
 Sample Information : OP95142,S6Q208,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.963	216.8 -> 171.9	58405	7.50 µg/L	-0.012
M5-PFPeA	4.361	268.3 -> 223.0	37938	5.00 µg/L	-0.025
M5-PFHxA	5.538	318.0 -> 273.0	50981	3.75 µg/L	-0.025
M4-PFHpA	6.477	367.1 -> 322.0	51669	3.75 µg/L	-0.025
M8-PFOA	7.109	421.1 -> 376.0	91749	3.75 µg/L	-0.037
M9-PFNA	7.640	472.1 -> 427.0	51761	3.13 µg/L	-0.037
M6-PFDA	8.120	519.1 -> 474.1	42829	3.13 µg/L	-0.037
M7-PFUnDA	8.574	570.0 -> 525.1	49856	3.13 µg/L	-0.037
M2-PFDoDA	9.004	615.1 -> 570.0	55274	3.13 µg/L	-0.050
M2-PFTeDA	9.743	715.2 -> 670.0	28667	3.13 µg/L	-0.037
M8-FOSA	9.555	506.1 -> 77.8	23397	3.75 µg/L	-0.012
M3-PFBS	5.493	302.1 -> 79.9	18644	3.75 µg/L	-0.025
M3-PFHxS	7.237	402.1 -> 79.9	12337	3.75 µg/L	-0.037
M8-PFOS	8.283	507.1 -> 79.9	11450	3.75 µg/L	-0.050
M2-4:2FTS	5.215	329.1 -> 80.9	2240	5.00 µg/L	-0.025
M2-6:2FTS	6.883	429.1 -> 80.9	2854	5.00 µg/L	-0.025
M2-8:2FTS	7.907	529.1 -> 80.9	2698	5.00 µg/L	-0.037
M3-MeFOSAA	8.165	573.2 -> 419.0	26032	5.00 µg/L	-0.037
M3-HFPO-DA	5.903	286.9 -> 168.9	6834	5.00 µg/L	-0.037
M5-EtFOSAA	8.361	589.2 -> 419.0	24257	5.00 µg/L	-0.037
M7-MeFOSE	10.589	623.2 -> 58.9	10831	12.50 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	8143	12.50 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	3657	1.25 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	3105	1.25 µg/L	0.000
13C4-PFOS	8.283	502.8 -> 79.9	8832	2.50 µg/L	-0.050
13C3-PFBA	2.954	216.0 -> 172.0	31402	5.00 µg/L	-0.025
18O2-PFHxS	7.236	403.0 -> 83.9	5780	2.50 µg/L	-0.037
13C4-PFOA	7.110	417.1 -> 372.0	61682	2.50 µg/L	-0.037
13C2-PFDA	8.120	515.1 -> 470.1	20295	1.25 µg/L	-0.037
13C5-PFNA	7.640	468.0 -> 423.0	21062	1.25 µg/L	-0.037
13C2-PFHxA	5.539	315.1 -> 270.0	28934	2.50 µg/L	-0.025
System Monitoring Compounds					
13C2-4:2FTS	5.215	329.1 -> 80.9	2240	5.62 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.4%		
13C2-6:2FTS	6.883	429.1 -> 80.9	2854	5.45 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.9%		
13C2-8:2FTS	7.907	529.1 -> 80.9	2698	5.31 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.1%		
13C2-PFDoDA	9.004	615.1 -> 570.0	55274	3.45 µg/L	-0.050
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 110.5%		
13C2-PFTeDA	9.743	715.2 -> 670.0	28667	3.24 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C3-PFBS	5.493	302.1 -> 79.9	18644	3.91 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C3-PFHxS	7.237	402.1 -> 79.9	12337	3.83 µg/L	-0.037

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C4-PFBA	2.963	216.8 -> 171.9	58405	8.02 µg/L	-0.012
Spiked Amount: 7.50	Range: 50.0 - 150.0%			Recovery = 106.9%	
13C4-PFHpA	6.477	367.1 -> 322.0	51669	4.15 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 110.7%	
13C5-PFHxA	5.538	318.0 -> 273.0	50981	4.15 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 110.8%	
13C5-PFPeA	4.361	268.3 -> 223.0	37938	5.58 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 111.5%	
13C6-PFDA	8.120	519.1 -> 474.1	42829	3.54 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 113.2%	
13C7-PFUnDA	8.574	570.0 -> 525.1	49856	3.51 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 112.4%	
13C8-FOSA	9.555	506.1 -> 77.8	23397	3.96 µg/L	-0.012
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 105.6%	
13C8-PFOA	7.109	421.1 -> 376.0	91749	4.35 µg/L	-0.037
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 116.0%	
13C8-PFOS	8.283	507.1 -> 79.9	11450	3.85 µg/L	-0.050
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C9-PFNA	7.640	472.1 -> 427.0	51761	3.24 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 103.7%	
d3-MeFOSAA	8.165	573.2 -> 419.0	26032	4.93 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C3-HFPO-DA	5.903	286.9 -> 168.9	6834	5.23 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.7%	
d3-MeFOSA	10.680	515.0 -> 219.0	3105	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.6%	
d5-EtFOSAA	8.361	589.2 -> 419.0	24257	5.48 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.6%	
d7-MeFOSE	10.589	623.2 -> 58.9	10831	12.57 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%			Recovery = 100.6%	
d9-EtFOSE	10.847	639.2 -> 58.9	8143	13.37 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%			Recovery = 107.0%	
d5-EtFOSA	10.925	531.1 -> 219.0	3657	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.0%	
Target Compounds					QValue
4:2FTS	5.215	327.1 -> 307.0	46117	8.84 µg/L	99
		327.1 -> 80.9	10632		
6:2FTS	6.883	427.1 -> 407.0	41132	9.44 µg/L	99
		427.1 -> 80.9	8050		
8:2FTS	7.908	527.1 -> 507.0	22512	10.40 µg/L	100
		527.1 -> 80.8	5349		
EtFOSAA	8.362	584.2 -> 419.1	9288	2.27 µg/L	m 91
		584.2 -> 526.0	5334		
FOSA	9.557	498.1 -> 77.9	14485	2.36 µg/L	98
		498.1 -> 478.0	489		
MeFOSAA	8.166	570.1 -> 419.0	12712	2.57 µg/L	98
		570.1 -> 483.0	2248		
PFBA	2.957	212.8 -> 168.9	18322	9.62 µg/L	100
PFBS	5.494	298.7 -> 79.9	11102	2.15 µg/L	96
		298.7 -> 98.8	5136		
PFDA	8.121	512.9 -> 469.0	45058	2.17 µg/L	96
		512.9 -> 219.0	6735		
PFDODA	9.017	613.1 -> 569.0	40120	2.32 µg/L	99
		613.1 -> 319.0	5183		
PFDS	9.179	599.0 -> 79.9	6115	2.55 µg/L	95

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3012			
PFHpA	6.477	363.1 -> 319.0	50938	2.44	µg/L	99
		363.1 -> 169.0	6728			
PFHpS	7.792	449.0 -> 79.9	7784	2.32	µg/L	97
		449.0 -> 98.9	4437			
PFHxA	5.541	313.0 -> 269.0	33155	2.42	µg/L	100
		313.0 -> 118.9	1186			
PFHxS	7.238	398.7 -> 79.9	8826	2.35	µg/L	m 97
		398.7 -> 98.9	5073			
PFNA	7.640	463.0 -> 419.0	31862	2.33	µg/L	96
		463.0 -> 219.0	5963			
PFNS	8.749	548.8 -> 79.9	8289	2.41	µg/L	94
		548.8 -> 98.9	4554			
PFOA	7.111	413.0 -> 369.0	68893	2.31	µg/L	99
		413.0 -> 169.0	8616			
PFOS	8.284	498.9 -> 79.9	7836	2.19	µg/L	m 95
		498.9 -> 98.8	5106			
PFPeA	4.363	263.0 -> 219.0	40833	4.83	µg/L	100
PFPeS	6.543	349.1 -> 79.9	10487	2.39	µg/L	99
		349.1 -> 98.9	5618			
PFTeDA	9.744	713.1 -> 669.0	34674	2.57	µg/L	100
		713.1 -> 168.9	2128			
PFTrDA	9.399	663.0 -> 619.0	39533	2.47	µg/L	98
		663.0 -> 168.9	2852			
PFUnDA	8.575	563.1 -> 519.0	35911	2.21	µg/L	100
		563.1 -> 269.1	5302			
11CI-PF3OUdS	9.452	630.9 -> 450.9	87871	9.93	µg/L	97
		632.9 -> 452.9	28164			
9CI-PF3ONS	8.626	530.8 -> 351.0	149430	9.52	µg/L	99
		532.8 -> 353.0	46265			
ADONA	6.728	376.9 -> 250.9	299055	10.04	µg/L	99
		376.9 -> 84.8	61756			
HFPO-DA	5.916	284.9 -> 168.9	13394	9.97	µg/L	96
		284.9 -> 184.9	1663			
3:3FTCA	3.816	241.0 -> 177.0	5121	12.01	µg/L	99
		241.0 -> 117.0	663			
5:3FTCA	6.181	341.0 -> 237.1	173450	61.82	µg/L	95
		341.0 -> 217.0	146736			
7:3FTCA	7.579	441.0 -> 316.9	89306	60.49	µg/L	97
		441.0 -> 336.9	176173			
EtFOSA	10.927	526.0 -> 219.0	7701	2.22	µg/L	91
		526.0 -> 169.0	7750			
EtFOSE	10.860	630.0 -> 58.9	16613	23.92	µg/L	100
MeFOSA	10.681	511.9 -> 219.0	6773	2.48	µg/L	86
		511.9 -> 169.0	7015			
MeFOSE	10.602	616.1 -> 58.9	23313	25.91	µg/L	100
PFDoDS	9.883	699.1 -> 79.9	3605	2.42	µg/L	91
		699.1 -> 98.8	2137			
NFDHA	5.432	295.0 -> 201.0	4045	4.86	µg/L	99
		295.0 -> 84.9	1904			
PFMBA	4.775	279.0 -> 85.1	11860	4.76	µg/L	100
PFMPA	3.516	229.0 -> 84.9	10749	4.76	µg/L	100
PFEESA	6.021	314.8 -> 134.9	84024	4.52	µg/L	100
		314.8 -> 82.9	2063			

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

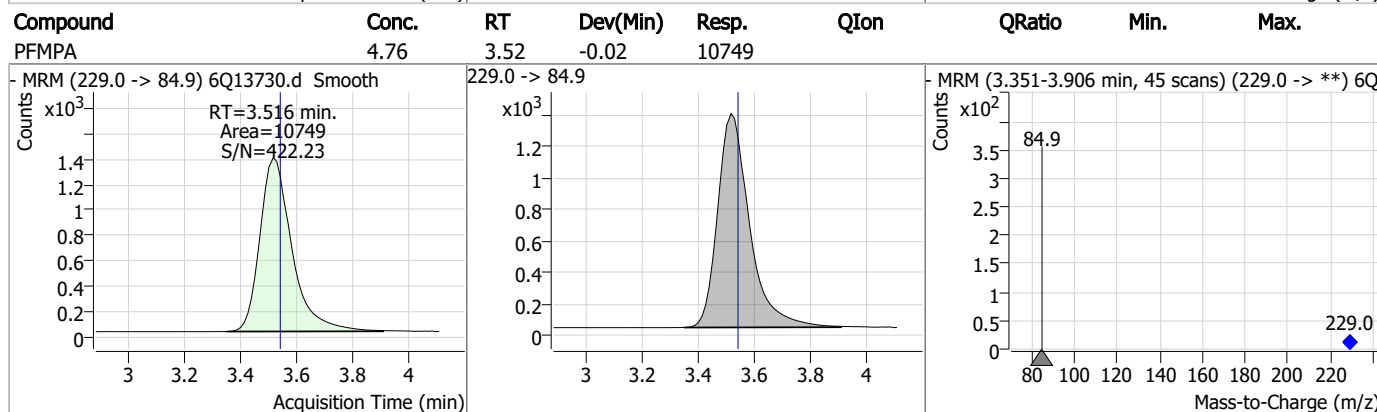
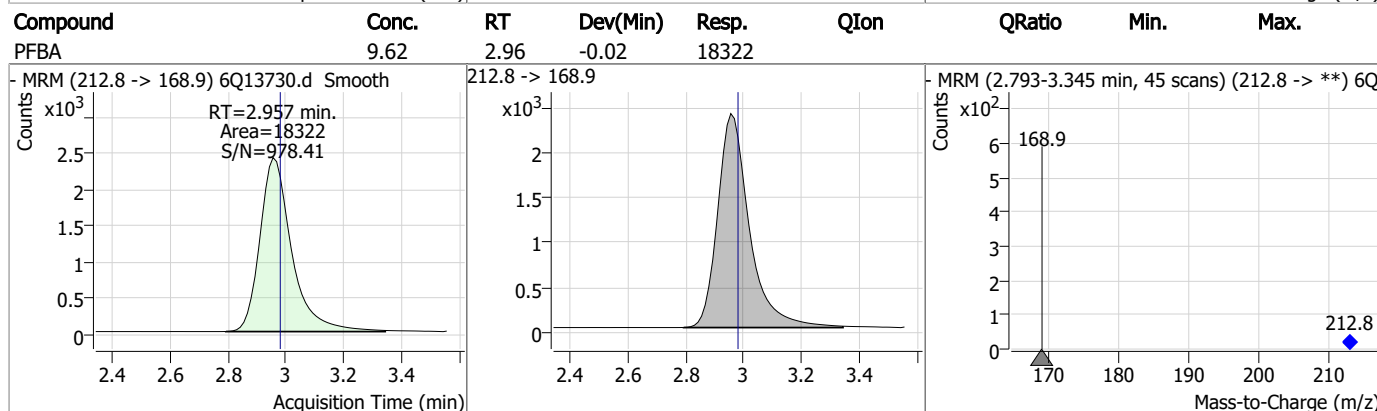
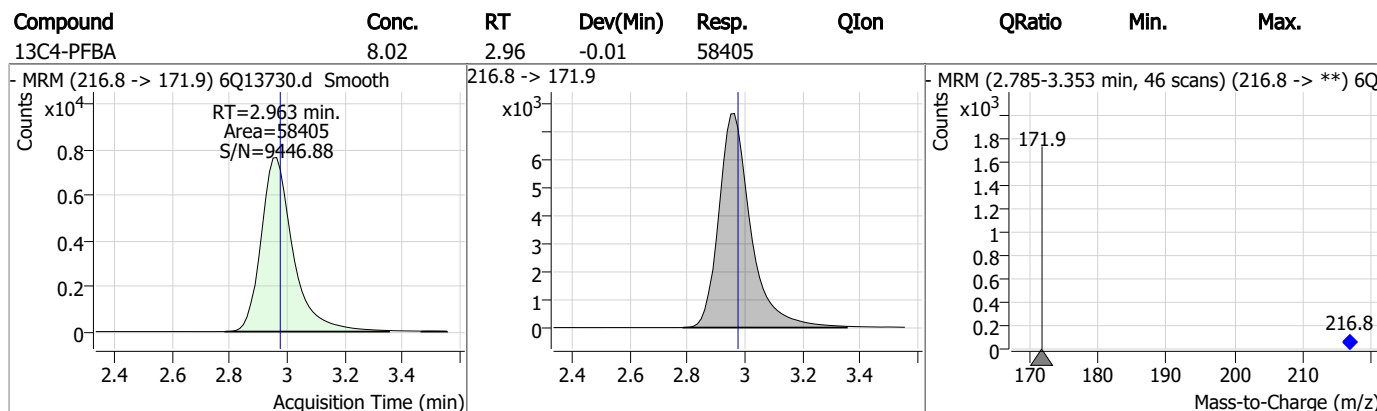
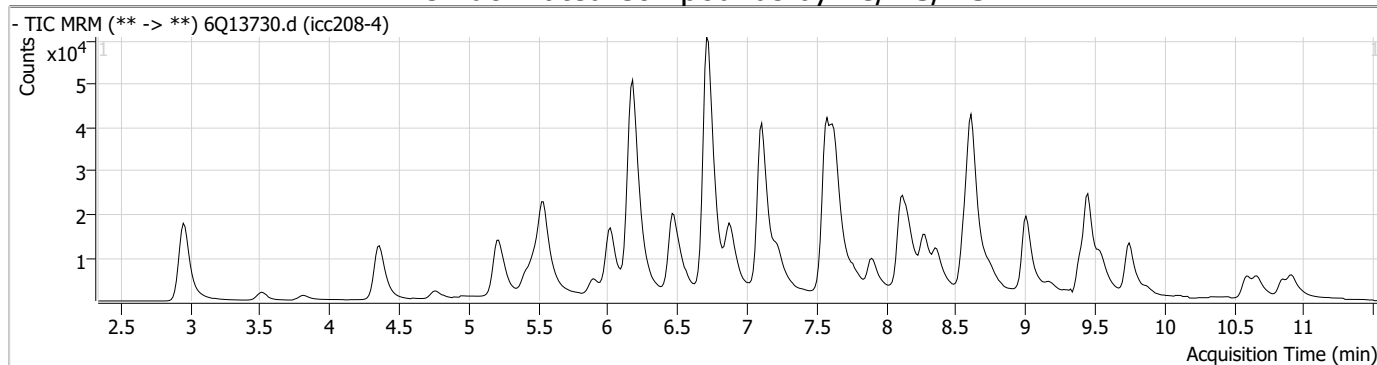
Perfluorinated Compounds by LC/MS/MS

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

7.6.5
7

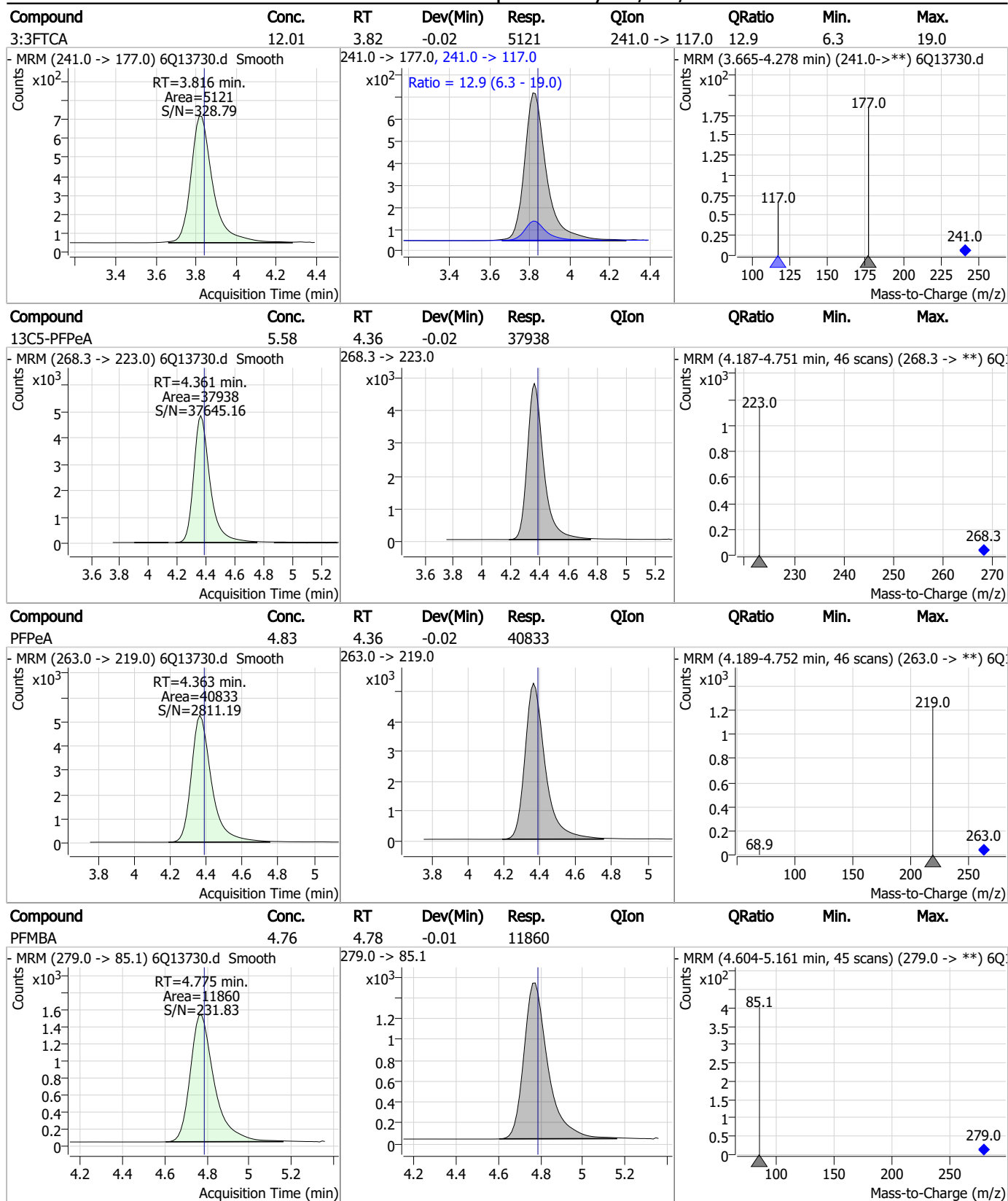


Perfluorinated Compounds by LC/MS/MS



7.6.5
7

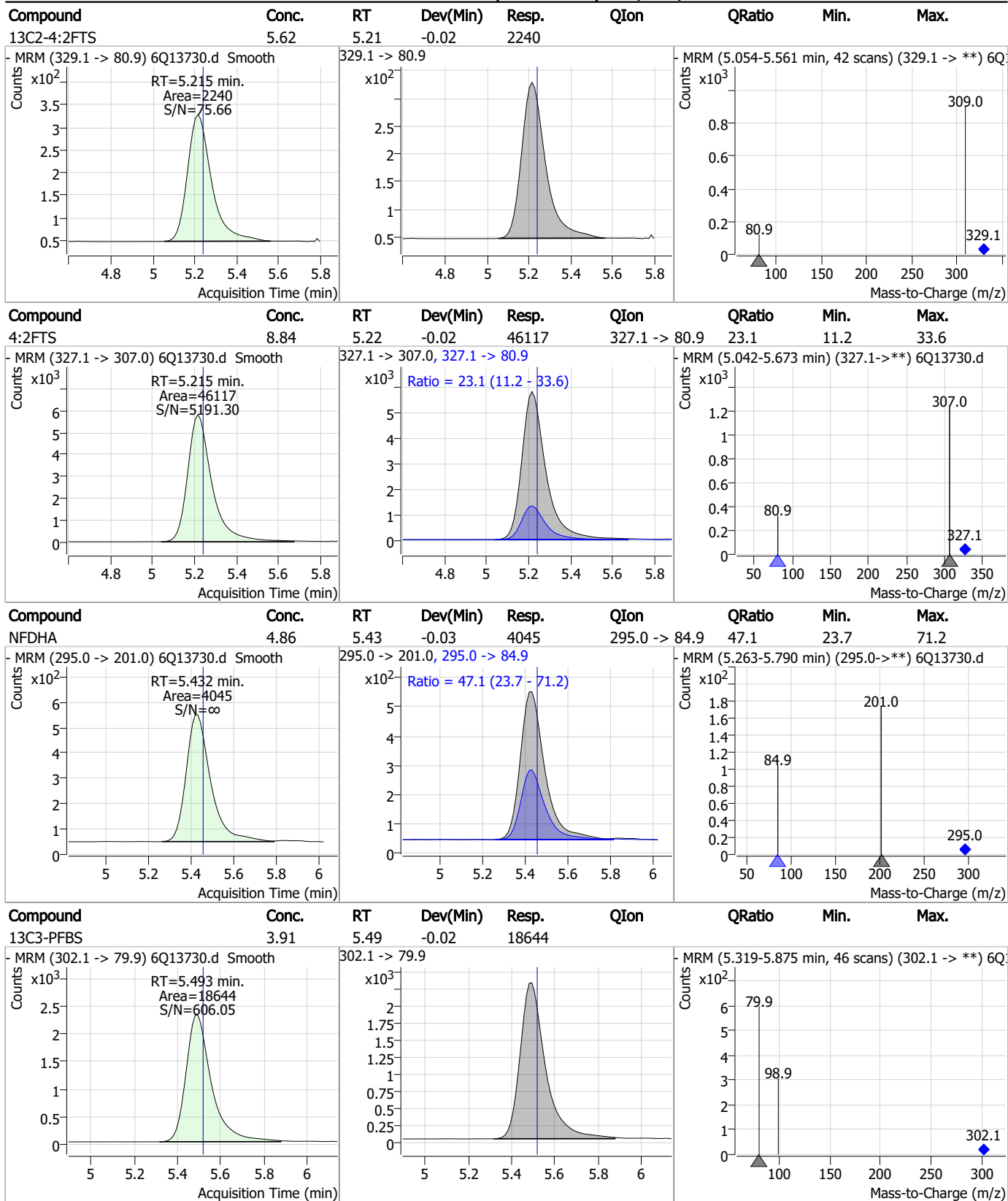
Perfluorinated Compounds by LC/MS/MS



7.6.5
7

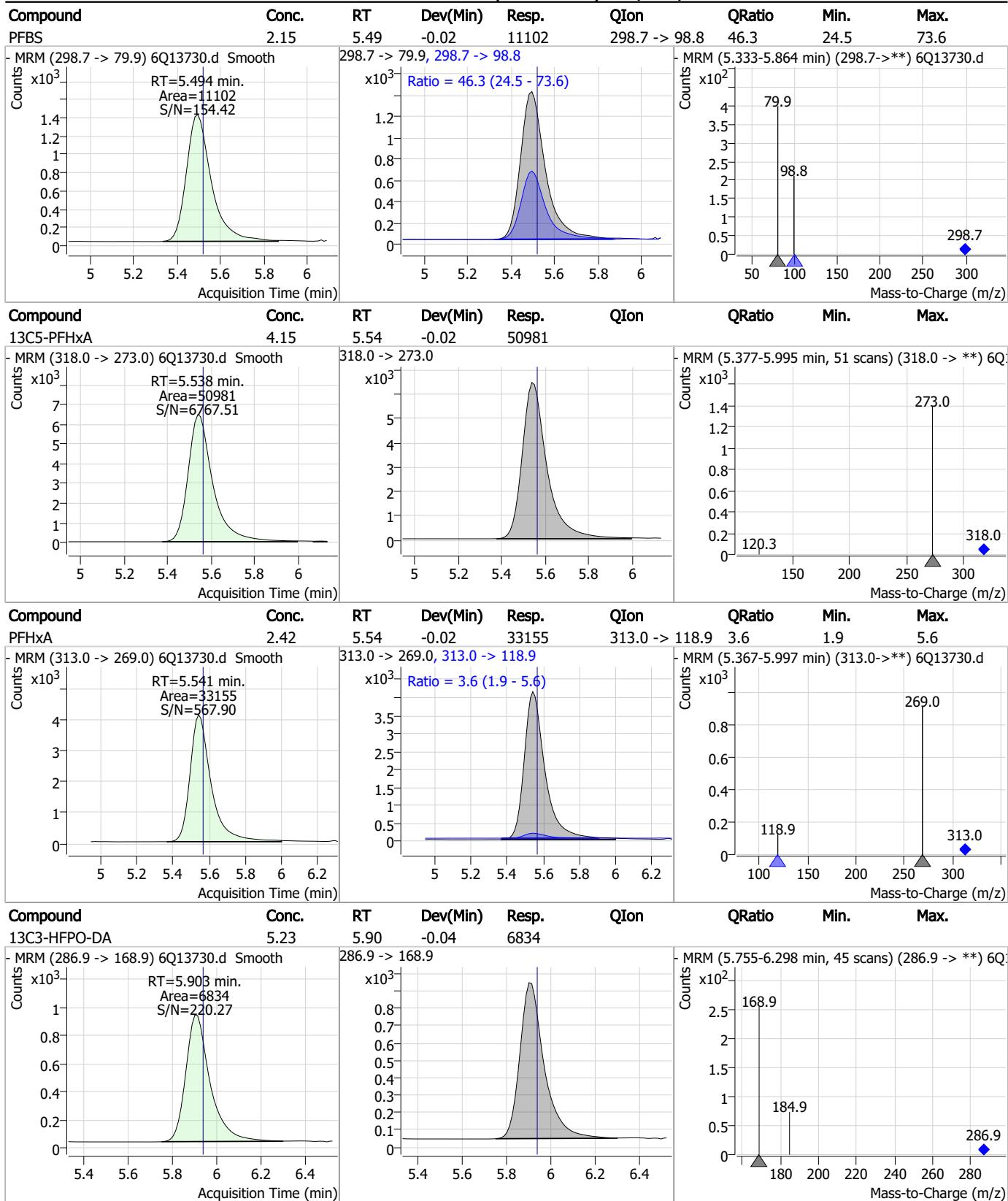


Perfluorinated Compounds by LC/MS/MS



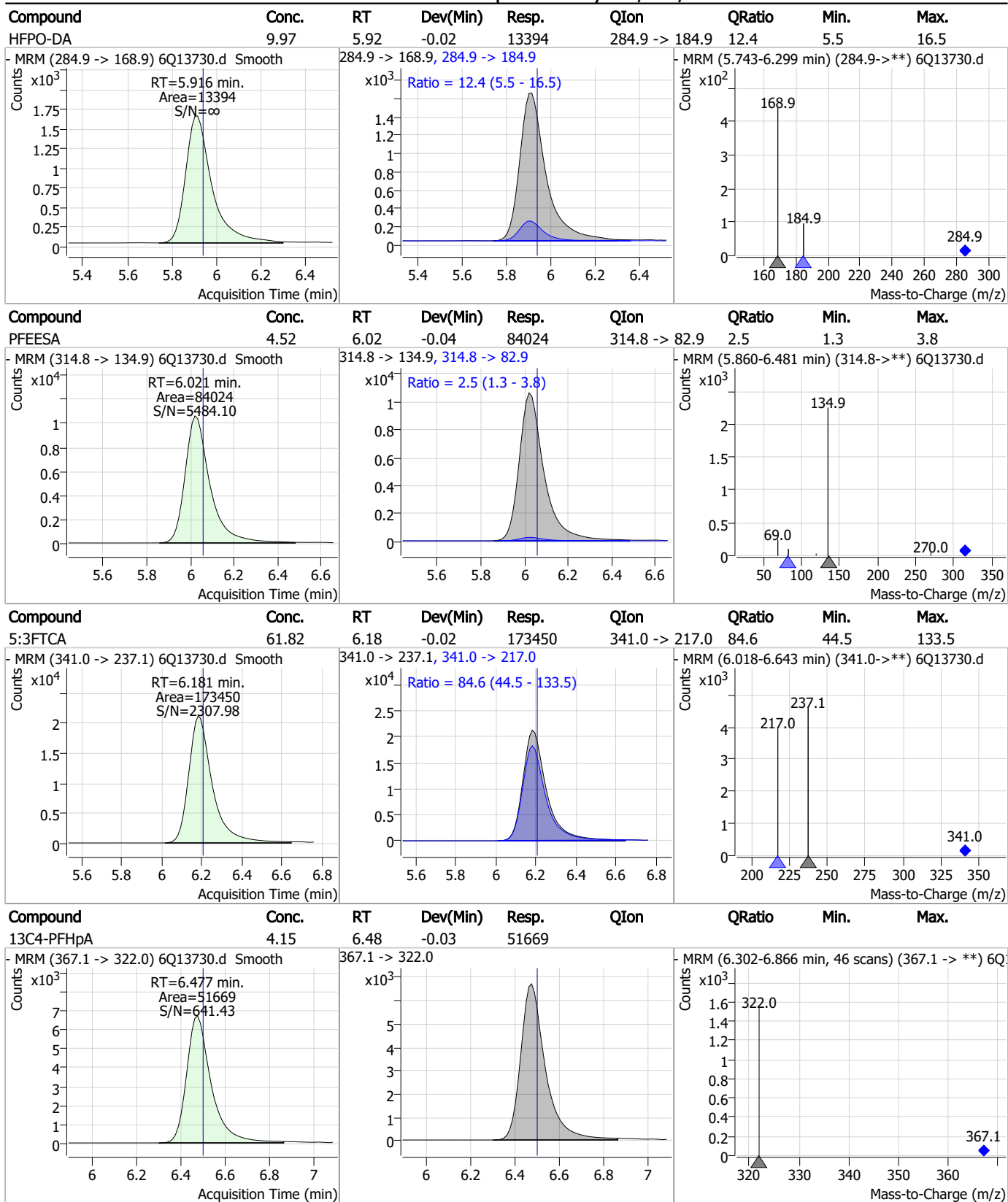
7.6.5
7

Perfluorinated Compounds by LC/MS/MS



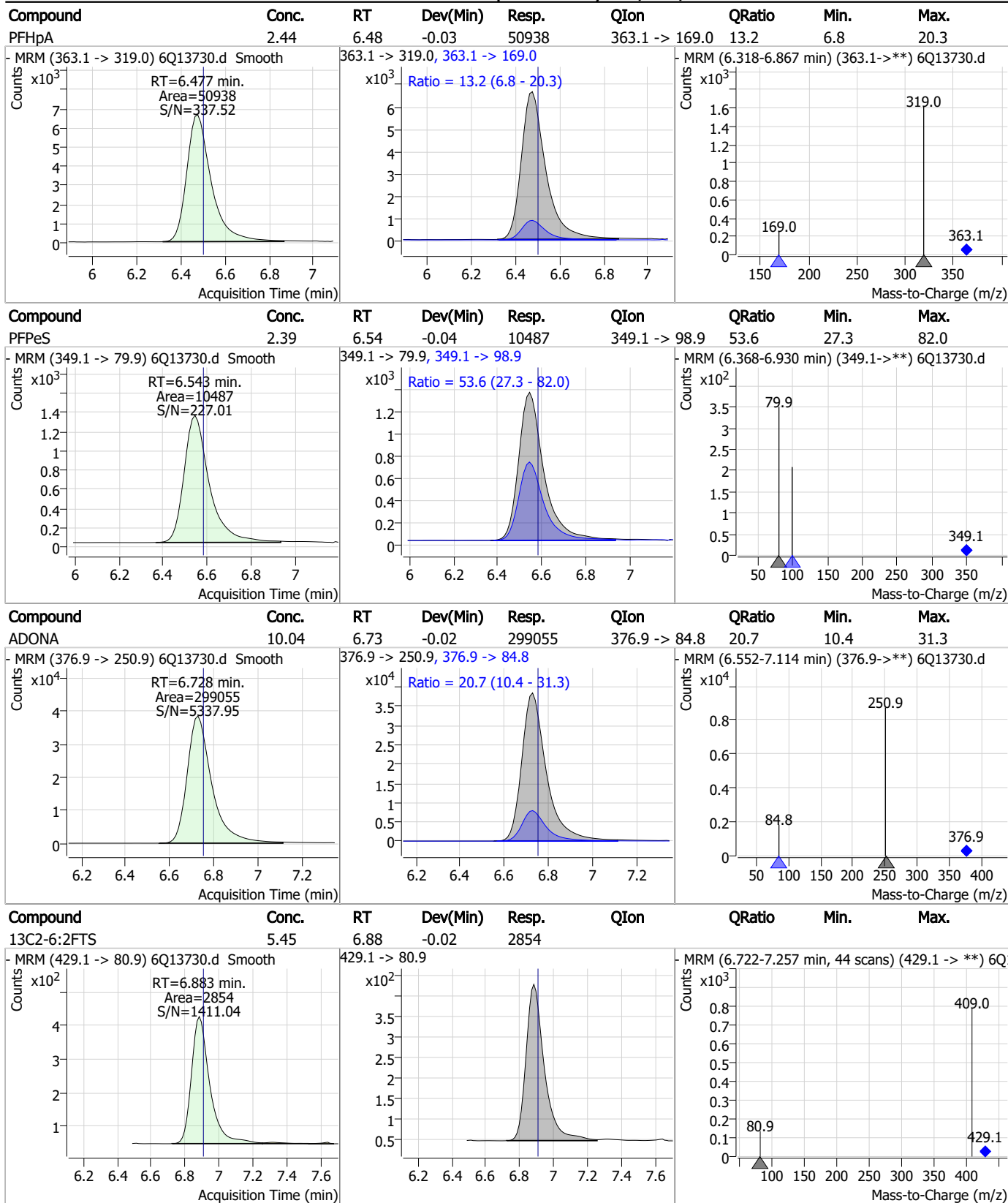
7.6.5
7

Perfluorinated Compounds by LC/MS/MS



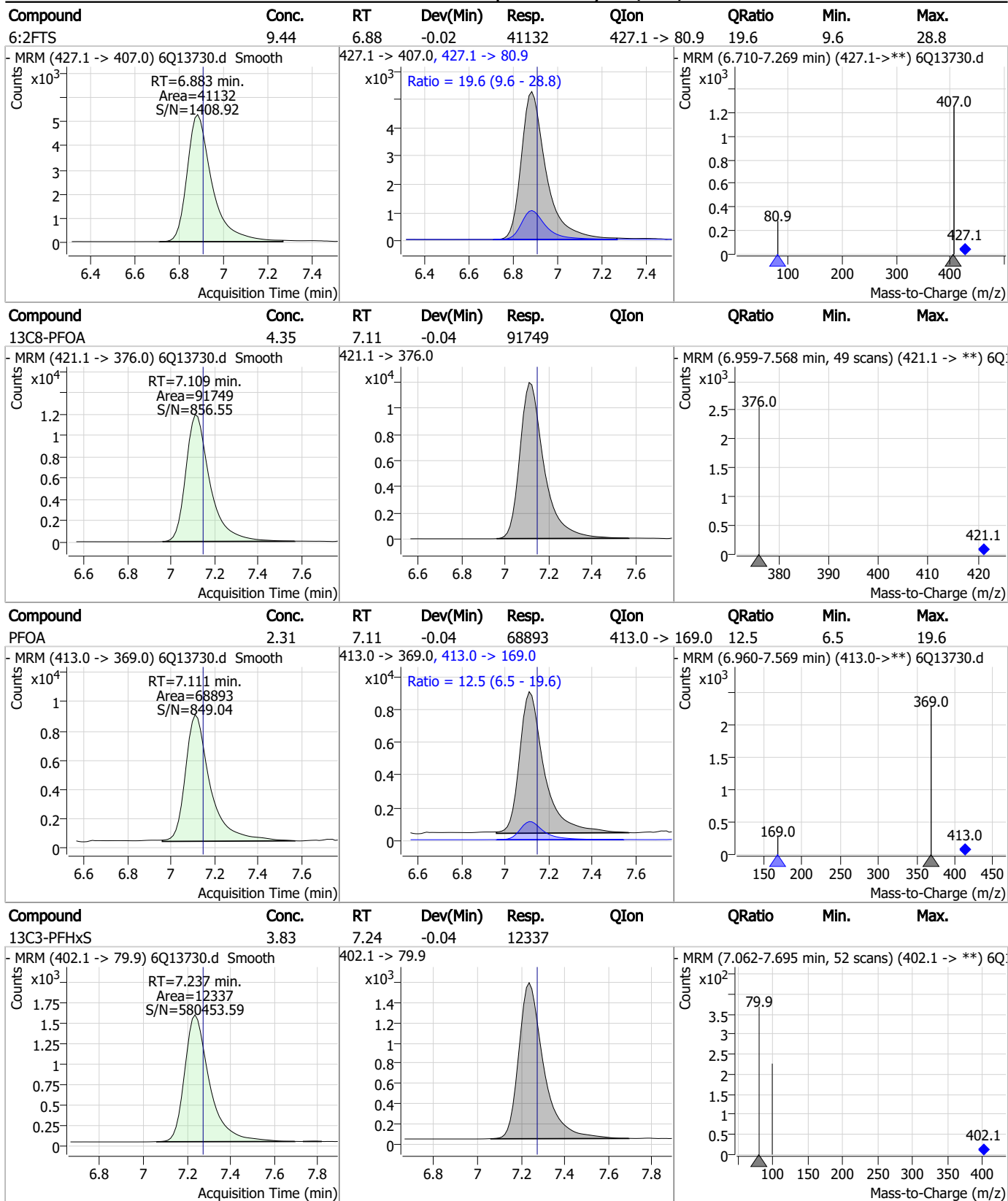
7.6.5
7

Perfluorinated Compounds by LC/MS/MS



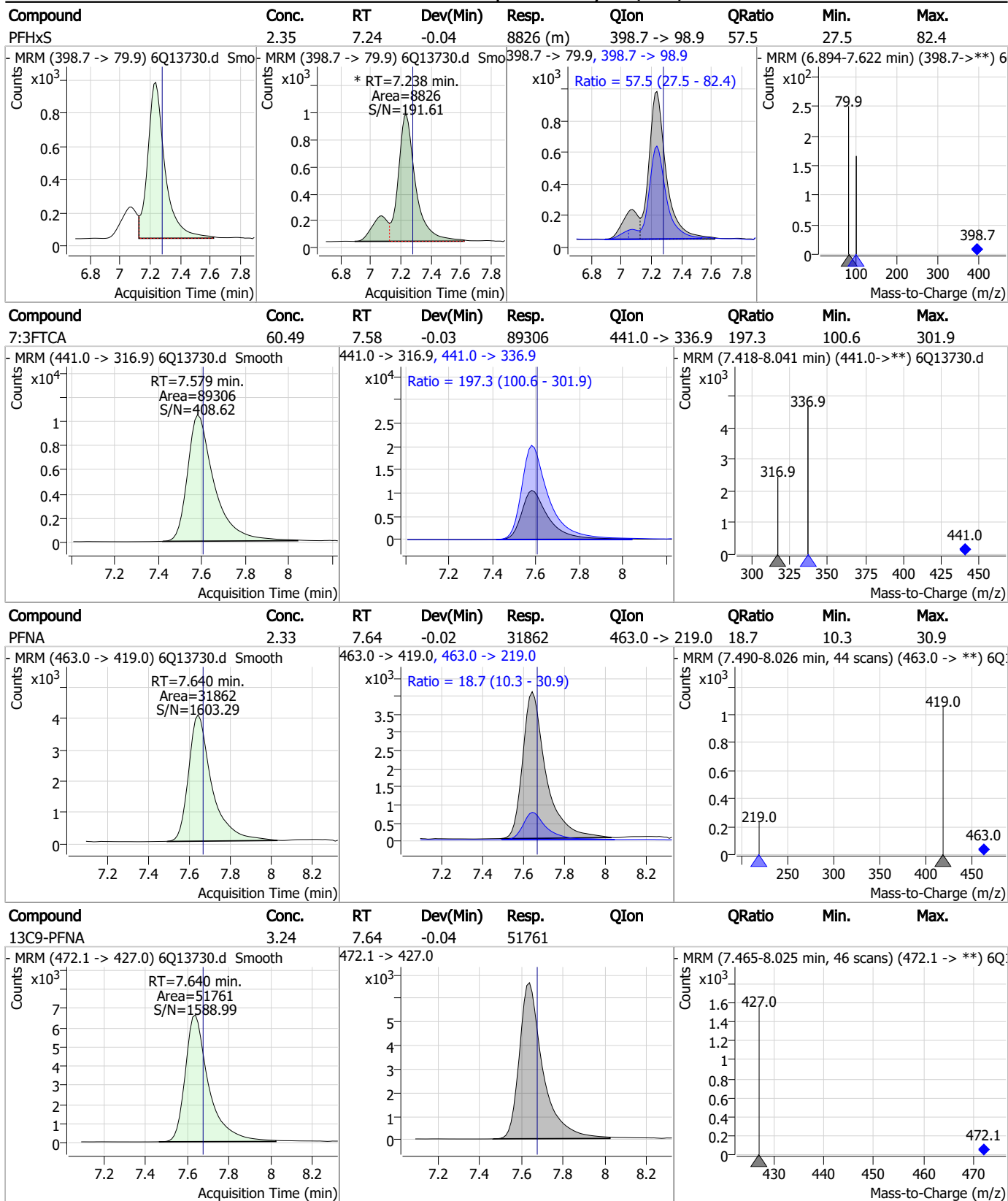
7.6.5
7

Perfluorinated Compounds by LC/MS/MS



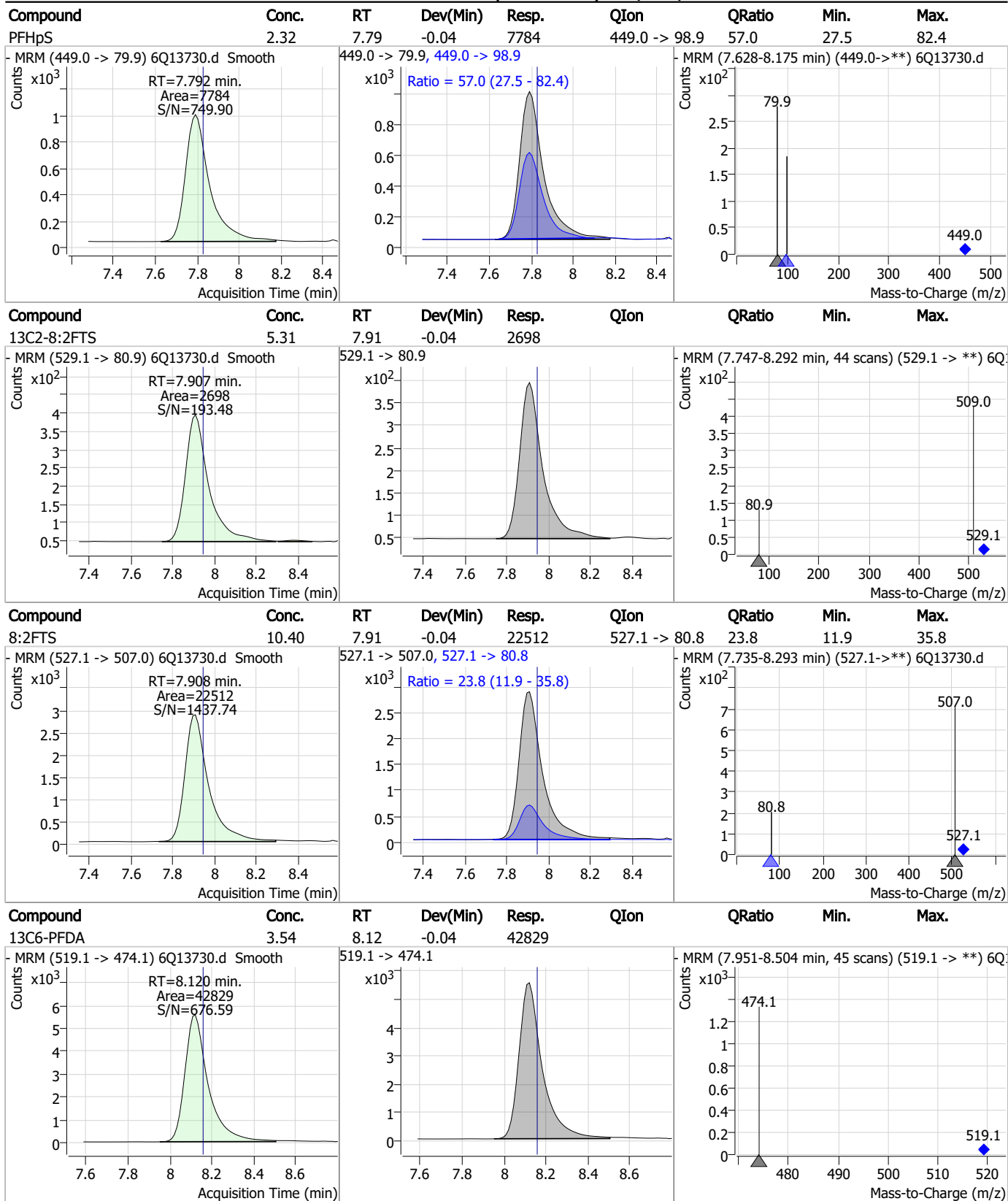
7.6.5
7

Perfluorinated Compounds by LC/MS/MS



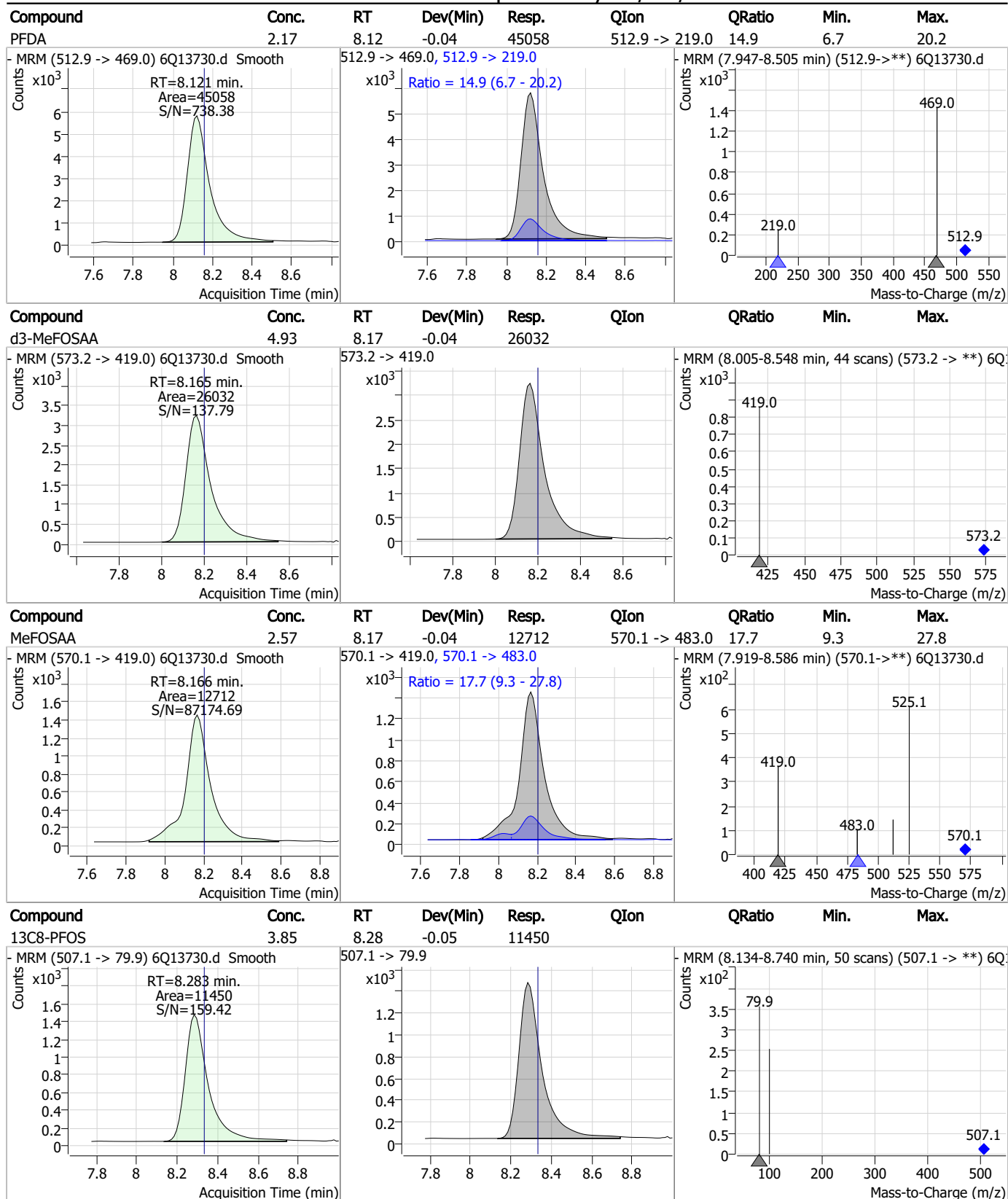
7.6.5
7

Perfluorinated Compounds by LC/MS/MS



7.6.5
7

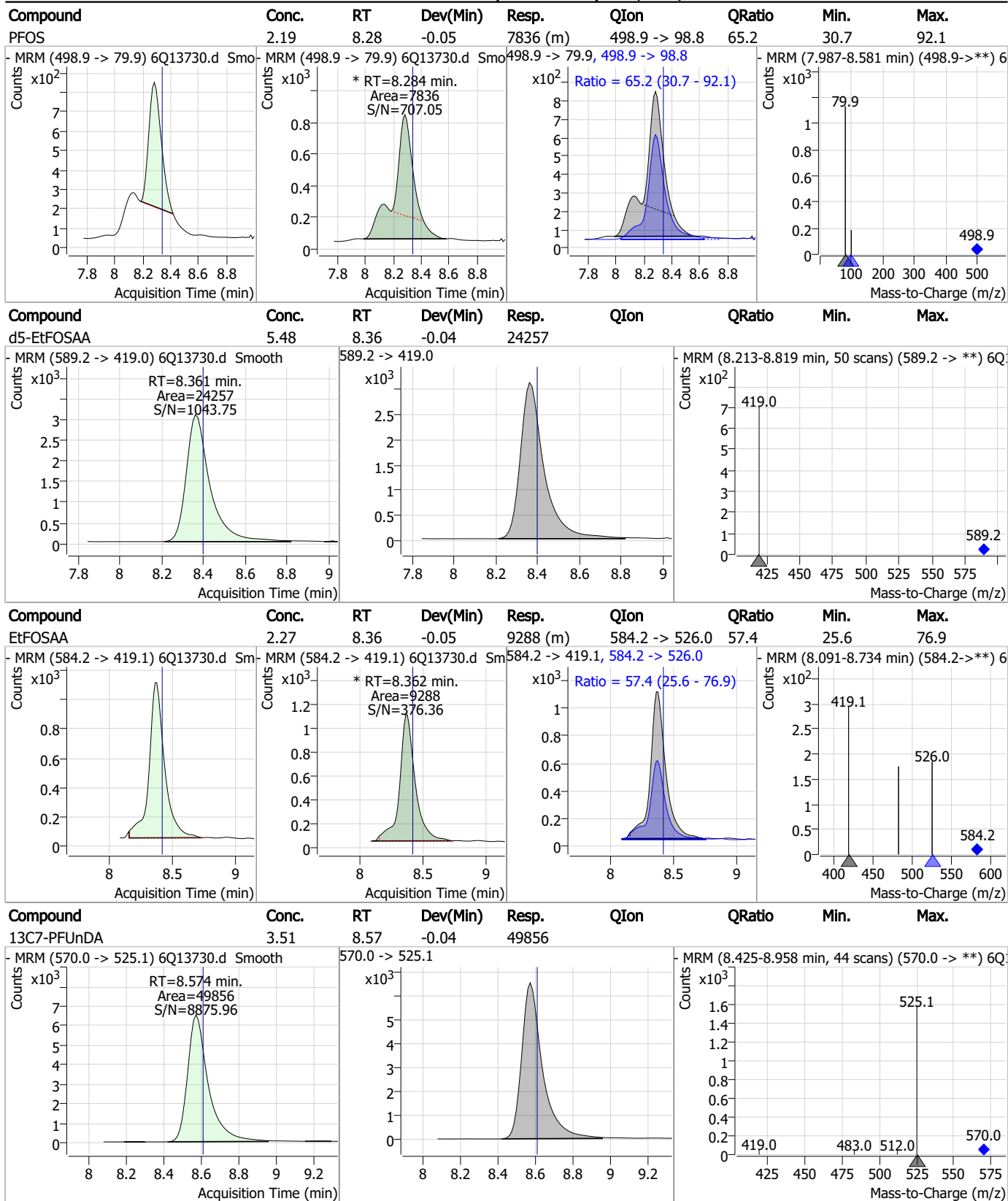
Perfluorinated Compounds by LC/MS/MS



7.6.5

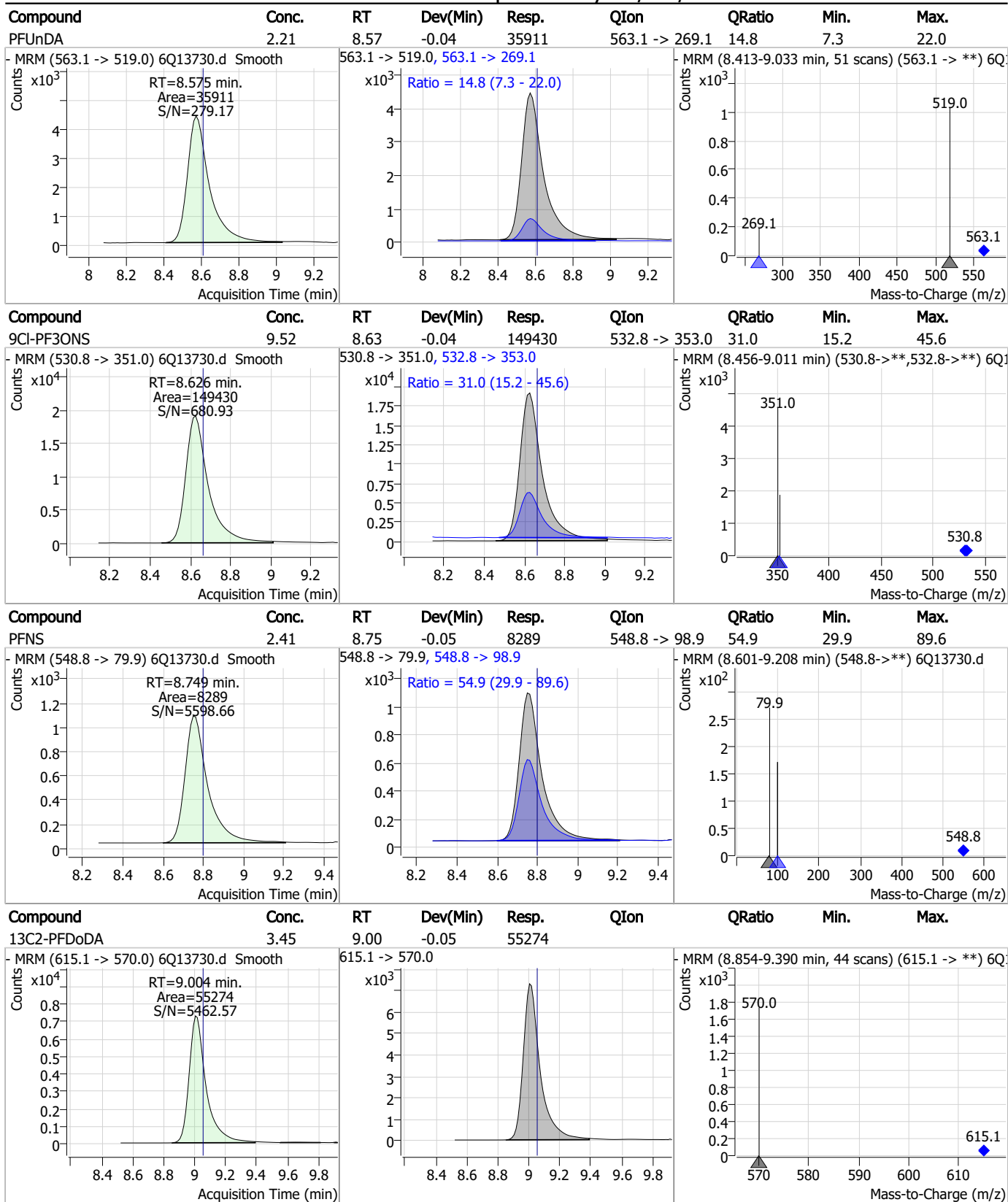
7

Perfluorinated Compounds by LC/MS/MS



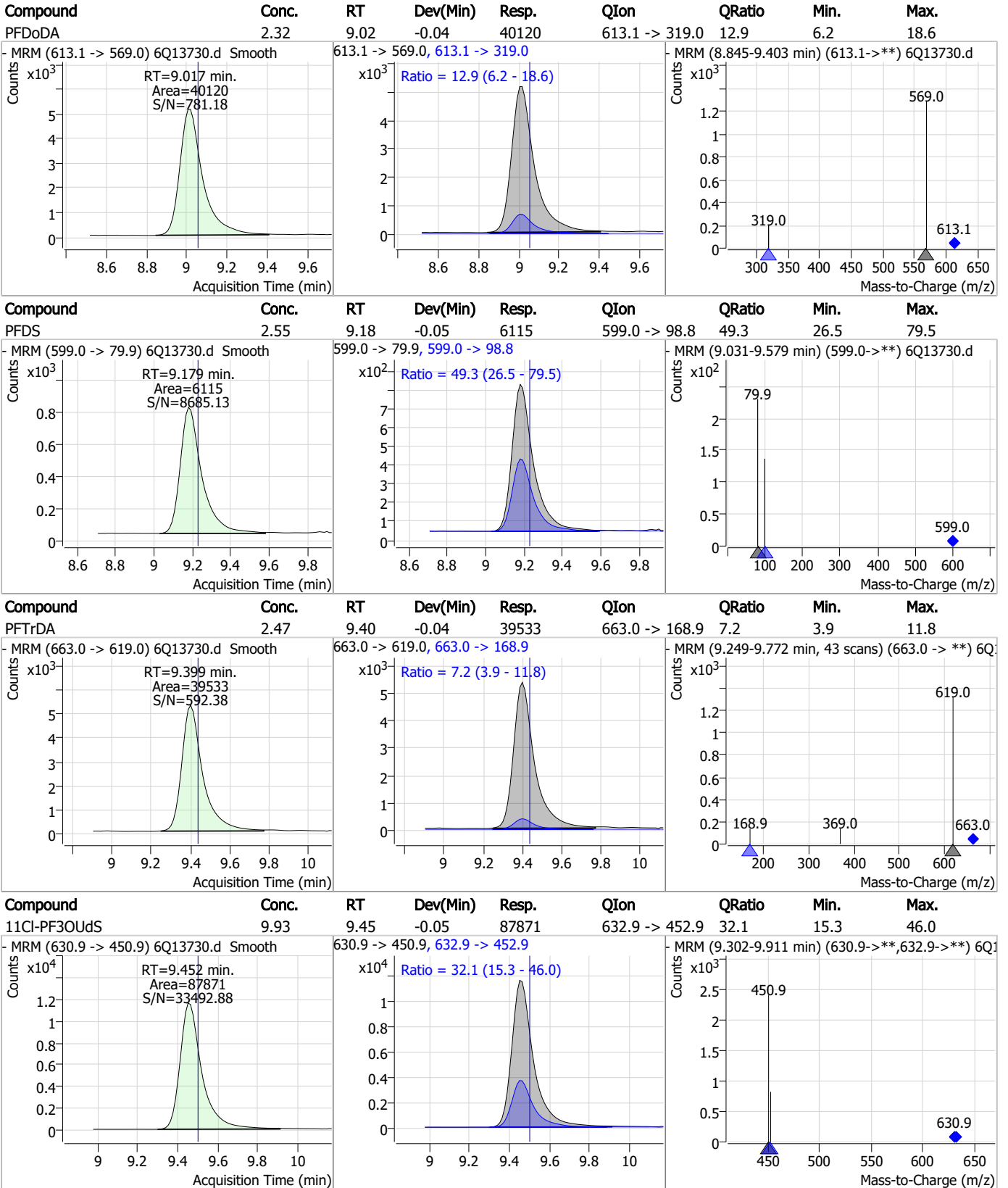
7.6.5
7

Perfluorinated Compounds by LC/MS/MS



7.6.5
7

Perfluorinated Compounds by LC/MS/MS

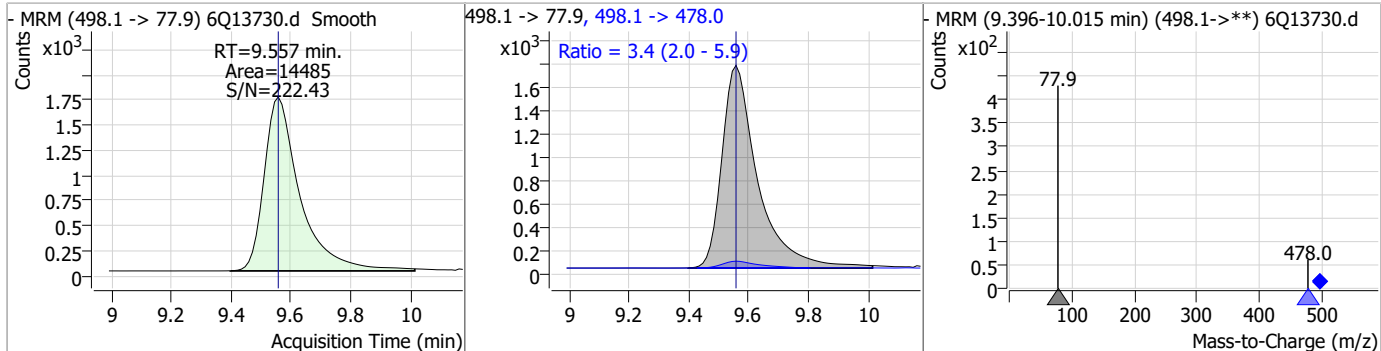


7.6.5

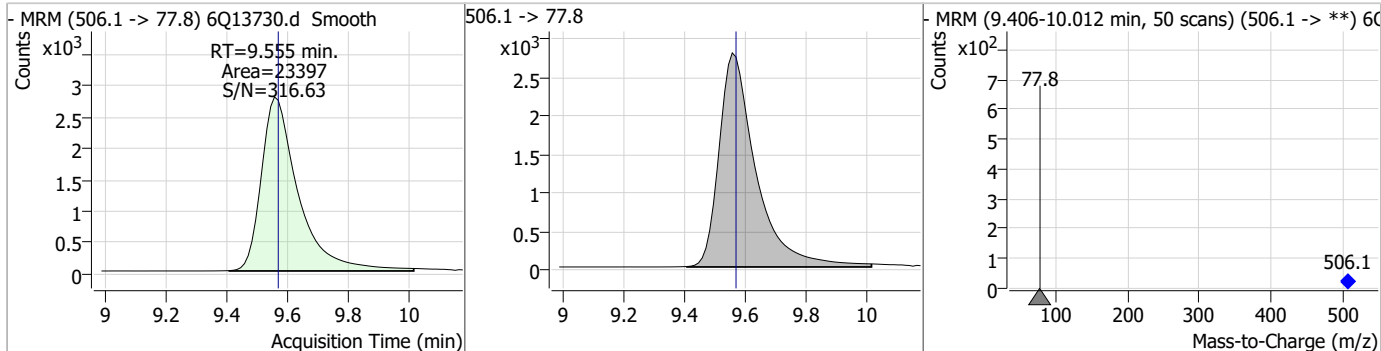
7

Perfluorinated Compounds by LC/MS/MS

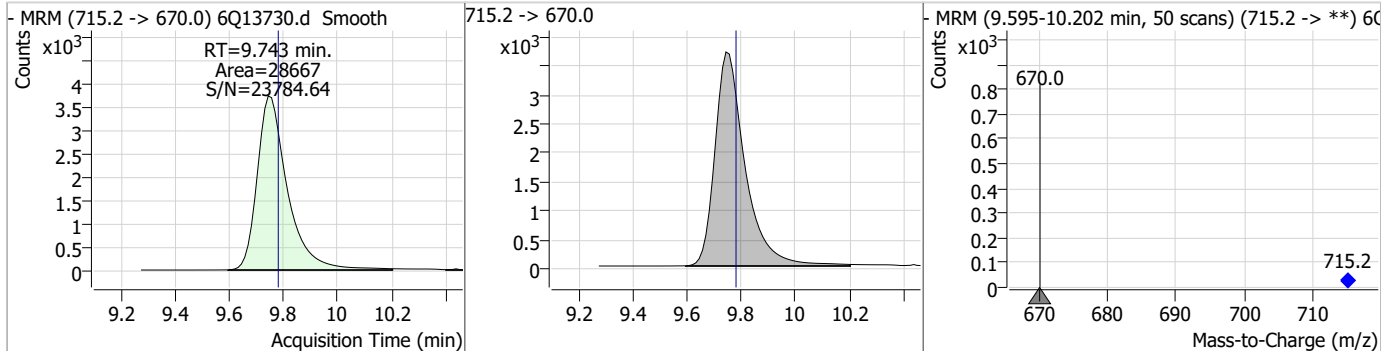
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.36	9.56	0.00	14485	498.1 -> 478.0	3.4	2.0	5.9



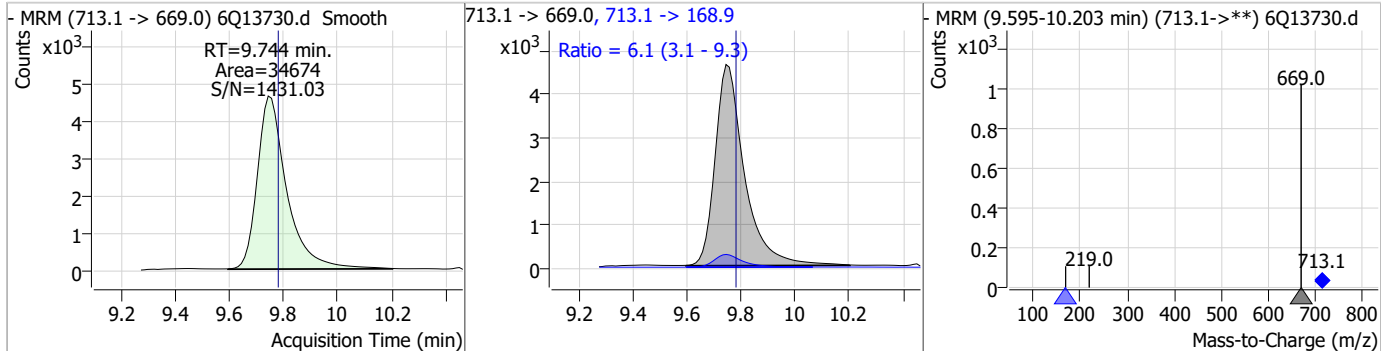
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	3.96	9.55	-0.01	23397				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	3.24	9.74	-0.04	28667				

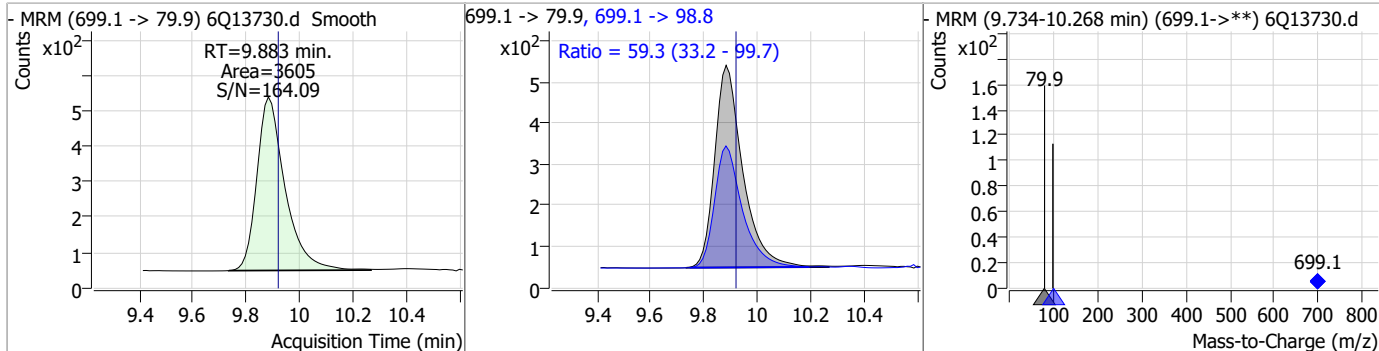


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.57	9.74	-0.04	34674	713.1 -> 168.9	6.1	3.1	9.3

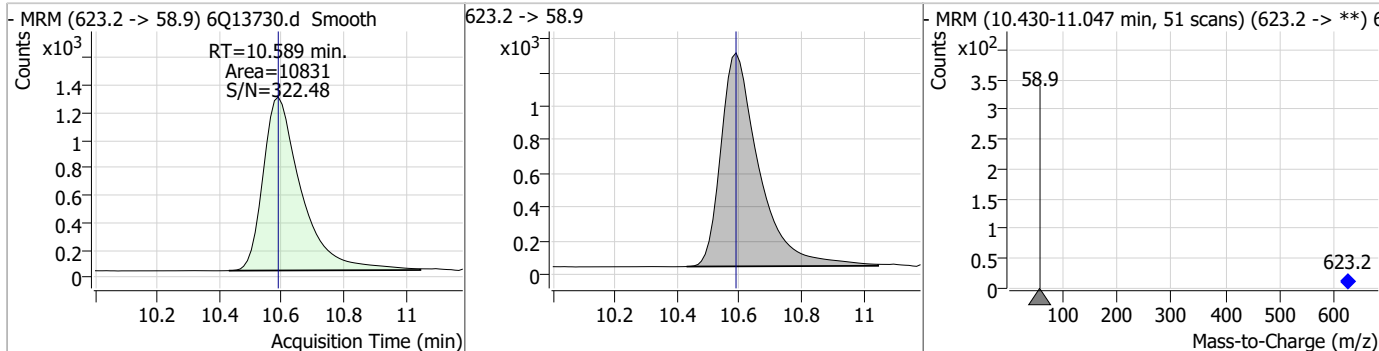


Perfluorinated Compounds by LC/MS/MS

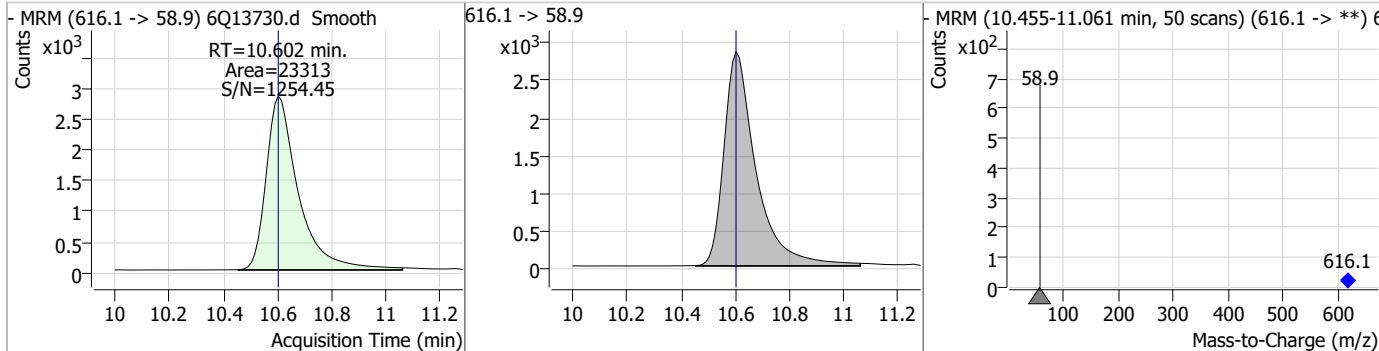
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	2.42	9.88	-0.04	3605	699.1 -> 98.8	59.3	33.2	99.7



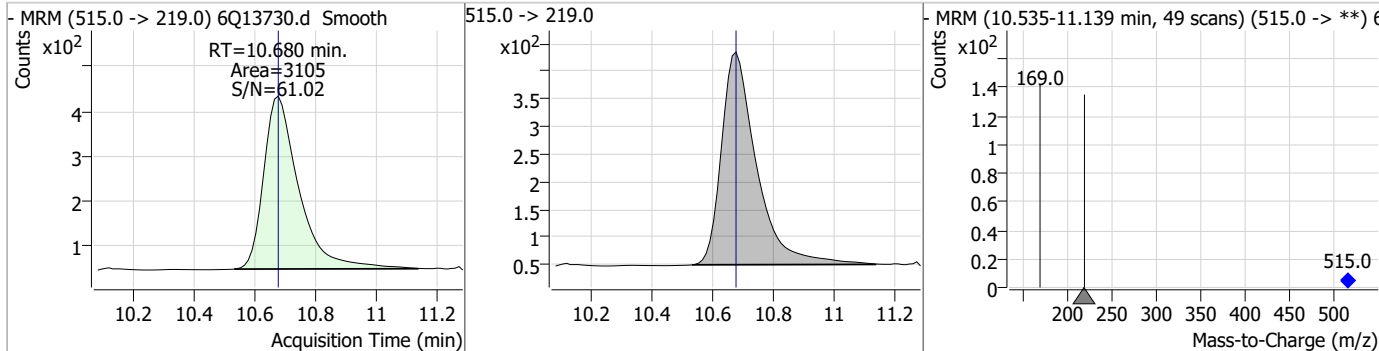
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	12.57	10.59	0.00	10831				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	25.91	10.60	0.00	23313				

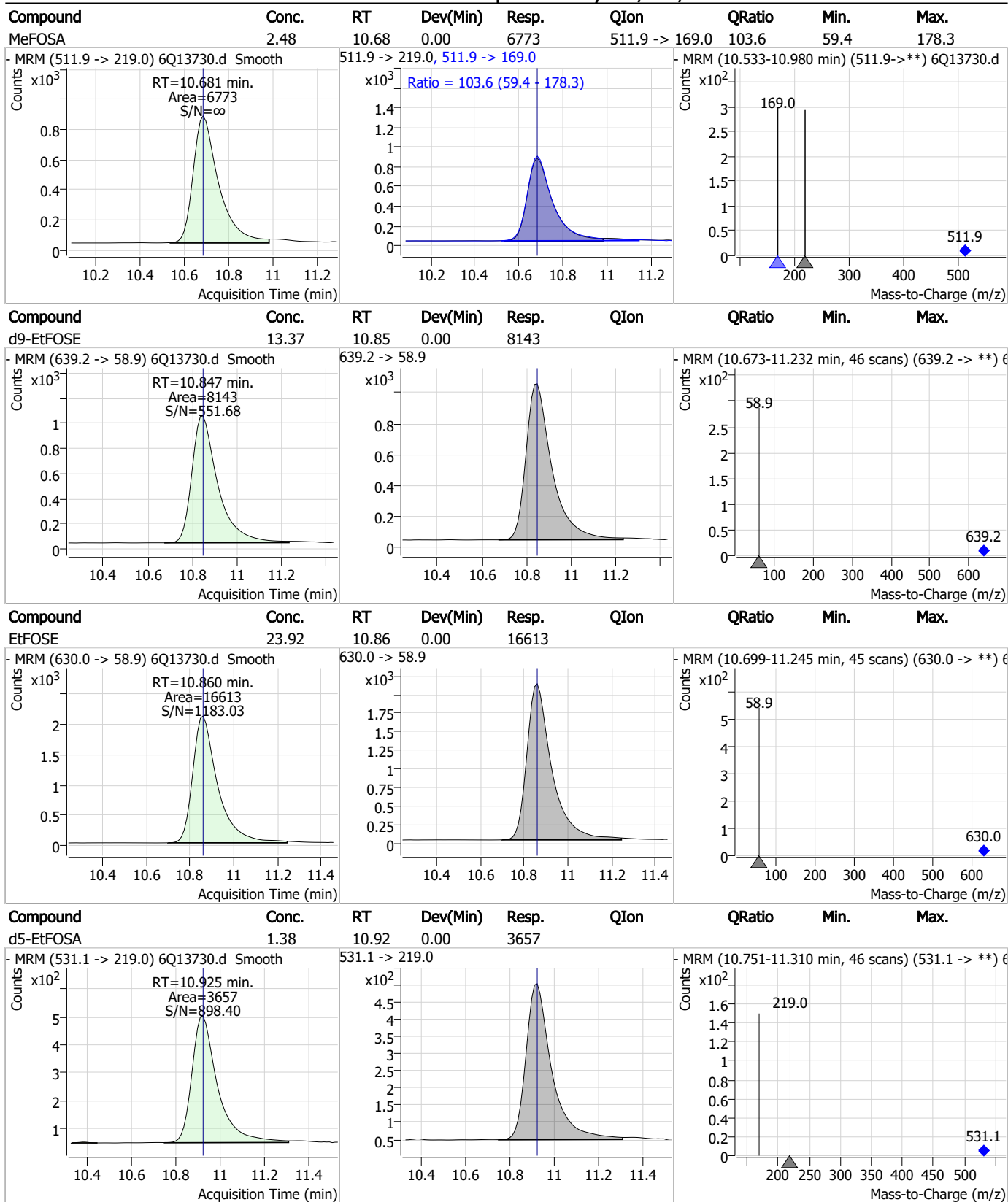


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	1.26	10.68	0.00	3105				



7.6.5
7

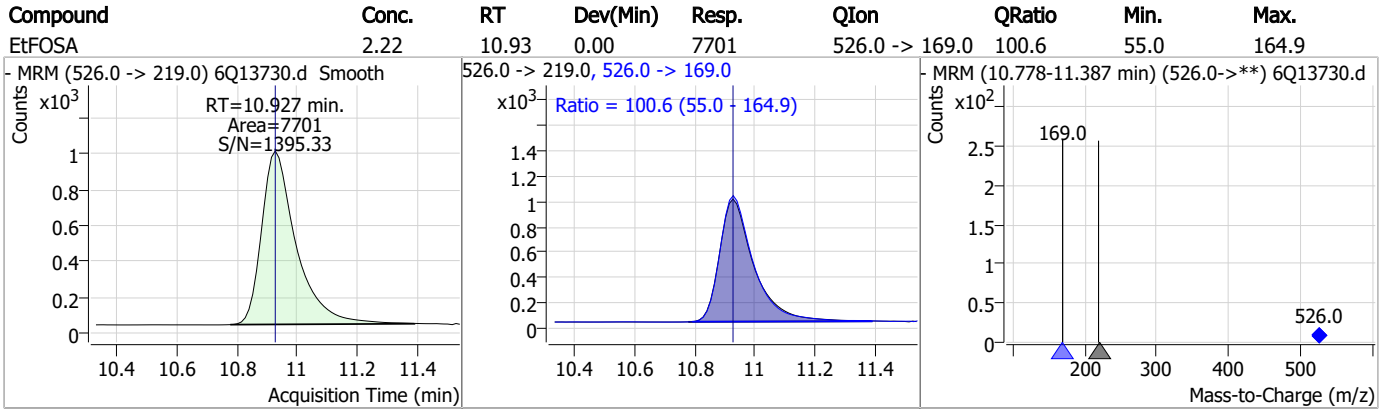
Perfluorinated Compounds by LC/MS/MS



7.6.5

7

Perfluorinated Compounds by LC/MS/MS



7.6.5

7

Manual Integration Approval Summary

Sample Number: S6Q208-ICC208 Method: EPA DRAFT 1633
Lab FileID: 6Q13730.D Analyst approved: 02/18/23 11:42 Natasha Gumtie
Injection Time: 02/16/23 08:46 Supervisor approved: 02/18/23 12:01 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.28	Split peak
EtFOSAA	2991-50-6		8.36	Split peak

7.6.5.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
 02/18/23 12:01

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13731.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/16/2023 9:00:06 AM
 Sample Name : ic208-5
 Vial : P1-D6
 DA Method File : 1633_021623_S6Q208NEW.quantmethod.xml
 Batch Name : s6q208.batch.bin
 Sample Information : OP95142,S6Q208,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.950	216.8 -> 171.9	59446	7.50 µg/L	-0.025
M5-PFPeA	4.361	268.3 -> 223.0	38178	5.00 µg/L	-0.025
M5-PFHxA	5.538	318.0 -> 273.0	51012	3.75 µg/L	-0.025
M4-PFHpA	6.477	367.1 -> 322.0	53078	3.75 µg/L	-0.025
M8-PFOA	7.109	421.1 -> 376.0	90536	3.75 µg/L	-0.037
M9-PFNA	7.640	472.1 -> 427.0	50468	3.13 µg/L	-0.037
M6-PFDA	8.120	519.1 -> 474.1	41206	3.13 µg/L	-0.037
M7-PFUnDA	8.574	570.0 -> 525.1	49029	3.13 µg/L	-0.037
M2-PFDoDA	9.017	615.1 -> 570.0	56841	3.13 µg/L	-0.037
M2-PFTeDA	9.743	715.2 -> 670.0	29847	3.13 µg/L	-0.037
M8-FOSA	9.555	506.1 -> 77.8	23369	3.75 µg/L	-0.012
M3-PFBS	5.481	302.1 -> 79.9	19301	3.75 µg/L	-0.037
M3-PFHxS	7.237	402.1 -> 79.9	12356	3.75 µg/L	-0.037
M8-PFOS	8.283	507.1 -> 79.9	11524	3.75 µg/L	-0.050
M2-4:2FTS	5.215	329.1 -> 80.9	2130	5.00 µg/L	-0.025
M2-6:2FTS	6.883	429.1 -> 80.9	2769	5.00 µg/L	-0.025
M2-8:2FTS	7.907	529.1 -> 80.9	2863	5.00 µg/L	-0.037
M3-MeFOSAA	8.165	573.2 -> 419.0	27510	5.00 µg/L	-0.037
M3-HFPO-DA	5.915	286.9 -> 168.9	7521	5.00 µg/L	-0.025
M5-EtFOSAA	8.361	589.2 -> 419.0	21939	5.00 µg/L	-0.037
M7-MeFOSE	10.589	623.2 -> 58.9	11827	12.50 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	8218	12.50 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	3396	1.25 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	3167	1.25 µg/L	0.000
13C4-PFOS	8.283	502.8 -> 79.9	9115	2.50 µg/L	-0.050
13C3-PFBA	2.954	216.0 -> 172.0	34543	5.00 µg/L	-0.025
18O2-PFHxS	7.236	403.0 -> 83.9	6435	2.50 µg/L	-0.037
13C4-PFOA	7.110	417.1 -> 372.0	72106	2.50 µg/L	-0.037
13C2-PFDA	8.120	515.1 -> 470.1	21728	1.25 µg/L	-0.037
13C5-PFNA	7.640	468.0 -> 423.0	23056	1.25 µg/L	-0.037
13C2-PFHxA	5.539	315.1 -> 270.0	33994	2.50 µg/L	-0.025
System Monitoring Compounds					
13C2-4:2FTS	5.215	329.1 -> 80.9	2130	4.80 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.0%		
13C2-6:2FTS	6.883	429.1 -> 80.9	2769	4.75 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.9%		
13C2-8:2FTS	7.907	529.1 -> 80.9	2863	5.06 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.1%		
13C2-PFDoDA	9.017	615.1 -> 570.0	56841	3.32 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 106.2%		
13C2-PFTeDA	9.743	715.2 -> 670.0	29847	3.15 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C3-PFBS	5.481	302.1 -> 79.9	19301	3.63 µg/L	-0.037
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C3-PFHxS	7.237	402.1 -> 79.9	12356	3.45 µg/L	-0.037

7.6.6
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 3.75 13C4-PFBA	Range: 50.0 - 150.0% 2.950	216.8 -> 171.9	59446	Recovery = 92.0% 7.42 µg/L	-0.025
Spiked Amount: 7.50 13C4-PFHpA	Range: 50.0 - 150.0% 6.477	367.1 -> 322.0	53078	Recovery = 98.9% 3.63 µg/L	-0.025
Spiked Amount: 3.75 13C5-PFHxA	Range: 50.0 - 150.0% 5.538	318.0 -> 273.0	51012	Recovery = 96.8% 3.54 µg/L	-0.025
Spiked Amount: 3.75 13C5-PFPeA	Range: 50.0 - 150.0% 4.361	268.3 -> 223.0	38178	Recovery = 94.3% 4.78 µg/L	-0.025
Spiked Amount: 5.00 13C6-PFDA	Range: 50.0 - 150.0% 8.120	519.1 -> 474.1	41206	Recovery = 95.5% 3.18 µg/L	-0.037
Spiked Amount: 3.13 13C7-PFUnDA	Range: 50.0 - 150.0% 8.574	570.0 -> 525.1	49029	Recovery = 101.8% 3.23 µg/L	-0.037
Spiked Amount: 3.13 13C8-FOSA	Range: 50.0 - 150.0% 9.555	506.1 -> 77.8	23369	Recovery = 103.3% 3.83 µg/L	-0.012
Spiked Amount: 3.75 13C8-PFOA	Range: 50.0 - 150.0% 7.109	421.1 -> 376.0	90536	Recovery = 102.2% 3.67 µg/L	-0.037
Spiked Amount: 3.75 13C8-PFOS	Range: 50.0 - 150.0% 8.283	507.1 -> 79.9	11524	Recovery = 98.0% 3.75 µg/L	-0.050
Spiked Amount: 3.75 13C9-PFNA	Range: 50.0 - 150.0% 7.640	472.1 -> 427.0	50468	Recovery = 100.0% 2.89 µg/L	-0.037
Spiked Amount: 3.13 d3-MeFOSAA	Range: 50.0 - 150.0% 8.165	573.2 -> 419.0	27510	Recovery = 92.4% 5.05 µg/L	-0.037
Spiked Amount: 5.00 13C3-HFPO-DA	Range: 50.0 - 150.0% 5.915	286.9 -> 168.9	7521	Recovery = 101.0% 4.90 µg/L	-0.025
Spiked Amount: 5.00 d3-MeFOSA	Range: 50.0 - 150.0% 10.680	515.0 -> 219.0	3167	Recovery = 98.0% 1.24 µg/L	0.000
Spiked Amount: 1.25 d5-EtFOSAA	Range: 50.0 - 150.0% 8.361	589.2 -> 419.0	21939	Recovery = 99.5% 4.80 µg/L	-0.037
Spiked Amount: 5.00 d7-MeFOSE	Range: 50.0 - 150.0% 10.589	623.2 -> 58.9	11827	Recovery = 96.0% 13.30 µg/L	0.000
Spiked Amount: 12.50 d9-EtFOSE	Range: 50.0 - 150.0% 10.847	639.2 -> 58.9	8218	Recovery = 106.4% 13.08 µg/L	0.000
Spiked Amount: 12.50 d5-EtFOSA	Range: 50.0 - 150.0% 10.925	531.1 -> 219.0	3396	Recovery = 104.6% 1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.0%	
Target Compounds					QValue
4:2FTS	5.215	327.1 -> 307.0 327.1 -> 80.9	100005 21540	20.16 µg/L	98
6:2FTS	6.883	427.1 -> 407.0 427.1 -> 80.9	85815 17079	20.30 µg/L	98
8:2FTS	7.908	527.1 -> 507.0 527.1 -> 80.8	44666 10556	19.45 µg/L	100
EtFOSAA	8.374	584.2 -> 419.1 584.2 -> 526.0	19560 10522	5.28 µg/L	96
FOSA	9.557	498.1 -> 77.9 498.1 -> 478.0	31135 1247	5.08 µg/L	100
MeFOSAA	8.166	570.1 -> 419.0 570.1 -> 483.0	29071 5000	5.56 µg/L	97
PFBA	2.957	212.8 -> 168.9	40030	20.65 µg/L	100
PFBS	5.481	298.7 -> 79.9 298.7 -> 98.8	24547 11280	4.58 µg/L	96
PFDA	8.121	512.9 -> 469.0 512.9 -> 219.0	107635 14598	5.40 µg/L	100
PFDODA	9.017	613.1 -> 569.0 613.1 -> 319.0	87767 11390	4.94 µg/L	99
PFDS	9.179	599.0 -> 79.9	12826	5.32 µg/L	97

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	6495			
PFHpA	6.477	363.1 -> 319.0	110410	5.14	µg/L	100
		363.1 -> 169.0	14726			
PFHpS	7.792	449.0 -> 79.9	16982	5.02	µg/L	98
		449.0 -> 98.9	9568			
PFHxA	5.541	313.0 -> 269.0	69087	5.03	µg/L	99
		313.0 -> 118.9	2713			
PFHxS	7.238	398.7 -> 79.9	19052	5.05	µg/L	m 99
		398.7 -> 98.9	10583			
PFNA	7.640	463.0 -> 419.0	68780	5.16	µg/L	97
		463.0 -> 219.0	13188			
PFNS	8.749	548.8 -> 79.9	17473	5.04	µg/L	96
		548.8 -> 98.9	9853			
PFOA	7.111	413.0 -> 369.0	151487	5.15	µg/L	98
		413.0 -> 169.0	18457			
PFOS	8.284	498.9 -> 79.9	17966	4.98	µg/L	m 100
		498.9 -> 98.8	11000			
PFPeA	4.363	263.0 -> 219.0	87392	10.28	µg/L	100
PFPeS	6.543	349.1 -> 79.9	23154	5.27	µg/L	95
		349.1 -> 98.9	11764			
PFTeDA	9.744	713.1 -> 669.0	71653	5.09	µg/L	97
		713.1 -> 168.9	5137			
PFTrDA	9.399	663.0 -> 619.0	83590	5.08	µg/L	99
		663.0 -> 168.9	6347			
PFUnDA	8.575	563.1 -> 519.0	79141	4.95	µg/L	100
		563.1 -> 269.1	11511			
11CI-PF3OUdS	9.452	630.9 -> 450.9	185349	19.03	µg/L	100
		632.9 -> 452.9	56833			
9CI-PF3ONS	8.626	530.8 -> 351.0	343109	19.86	µg/L	98
		532.8 -> 353.0	100510			
ADONA	6.728	376.9 -> 250.9	620942	18.94	µg/L	97
		376.9 -> 84.8	138285			
HFPO-DA	5.903	284.9 -> 168.9	28513	19.29	µg/L	96
		284.9 -> 184.9	3557			
3:3FTCA	3.816	241.0 -> 177.0	10899	25.40	µg/L	97
		241.0 -> 117.0	1508			
5:3FTCA	6.181	341.0 -> 237.1	359557	128.07	µg/L	100
		341.0 -> 217.0	320592			
7:3FTCA	7.579	441.0 -> 316.9	191107	129.36	µg/L	95
		441.0 -> 336.9	370587			
EtFOSA	10.927	526.0 -> 219.0	16931	5.24	µg/L	86
		526.0 -> 169.0	16023			
EtFOSE	10.860	630.0 -> 58.9	34429	49.12	µg/L	100
MeFOSA	10.681	511.9 -> 219.0	14573	5.22	µg/L	82
		511.9 -> 169.0	14404			
MeFOSE	10.602	616.1 -> 58.9	46297	47.11	µg/L	100
PFDoDS	9.883	699.1 -> 79.9	7299	4.86	µg/L	100
		699.1 -> 98.8	4856			
NFDHA	5.420	295.0 -> 201.0	9171	11.00	µg/L	96
		295.0 -> 84.9	4097			
PFMBA	4.775	279.0 -> 85.1	25622	10.21	µg/L	100
PFMPA	3.516	229.0 -> 84.9	22746	10.02	µg/L	100
PFEESA	6.021	314.8 -> 134.9	168304	9.05	µg/L	100
		314.8 -> 82.9	4280			

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

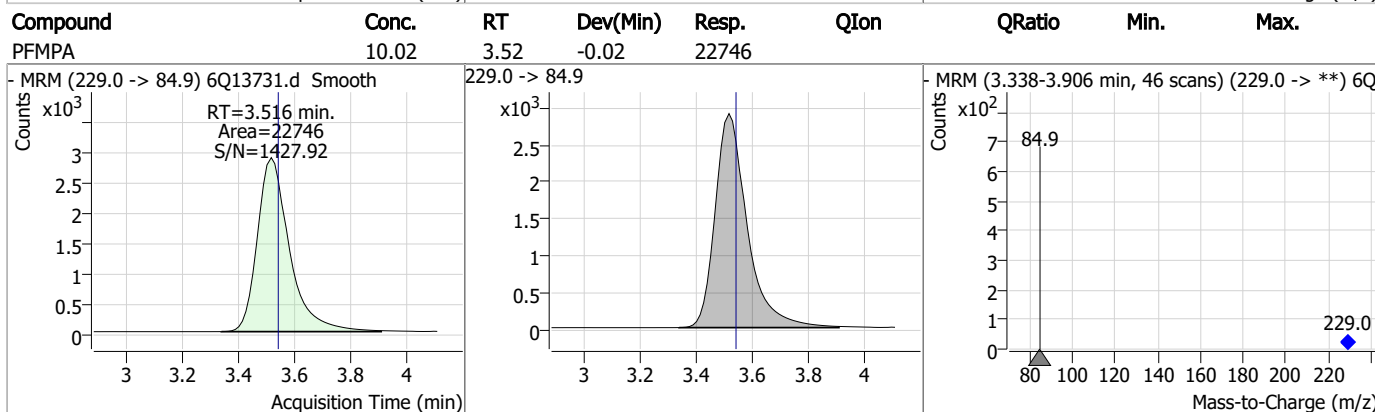
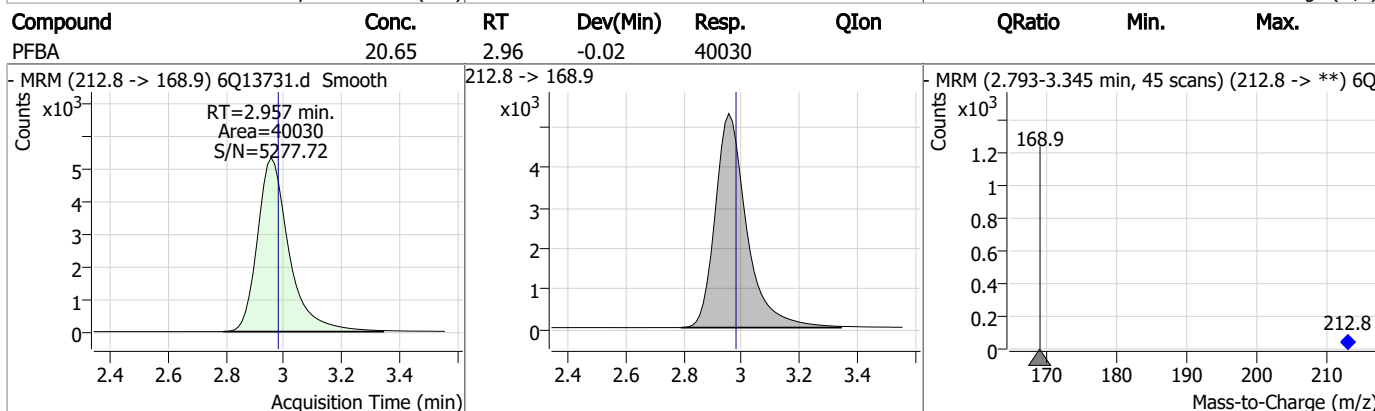
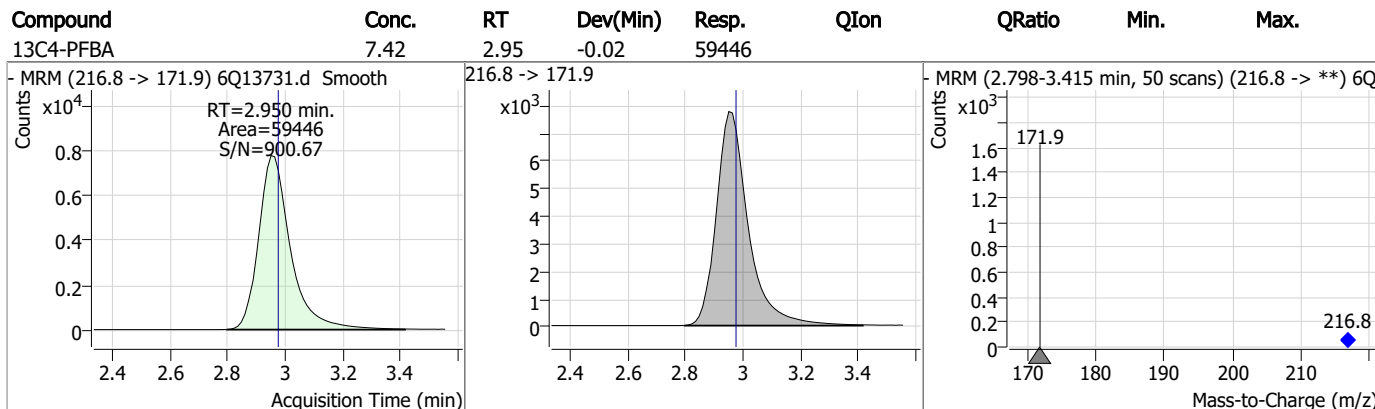
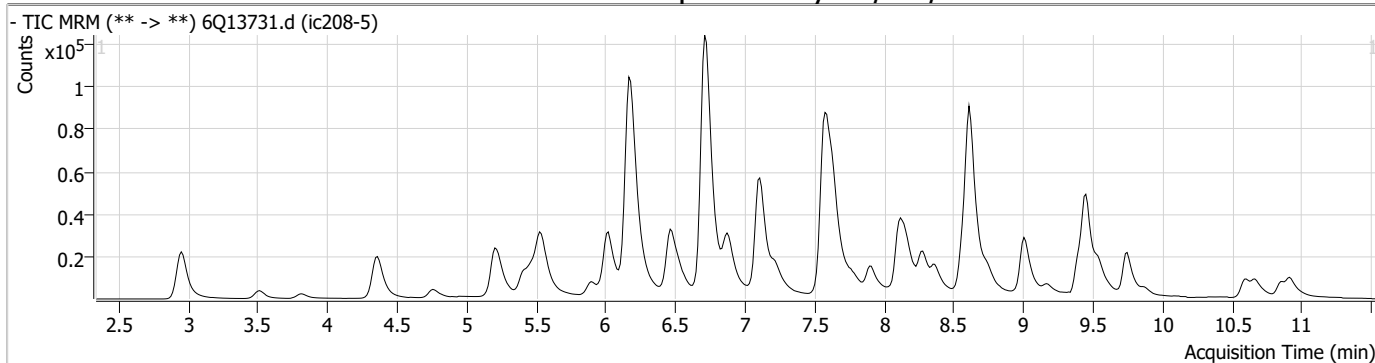
Perfluorinated Compounds by LC/MS/MS

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

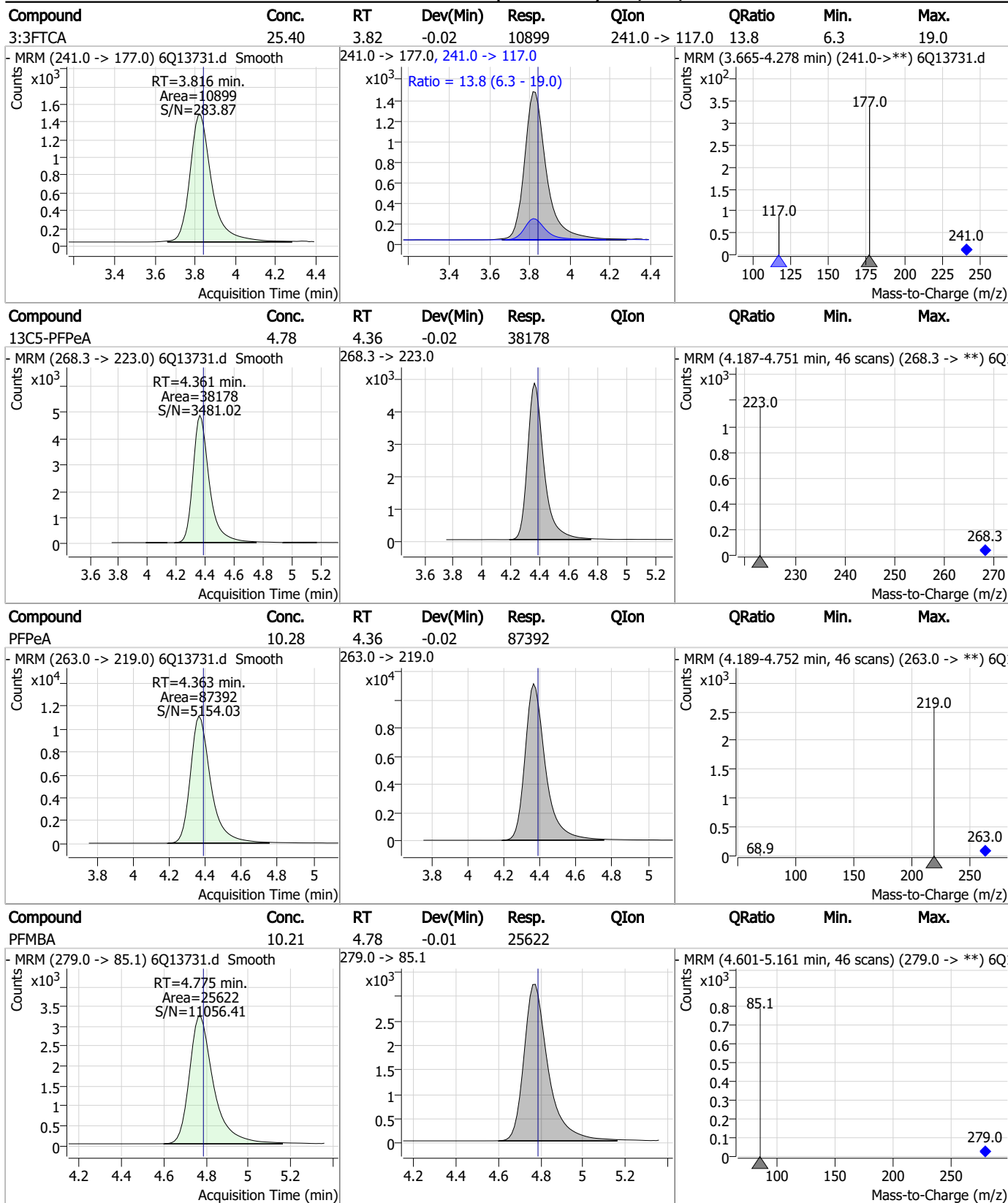
7.6.6

7

Perfluorinated Compounds by LC/MS/MS



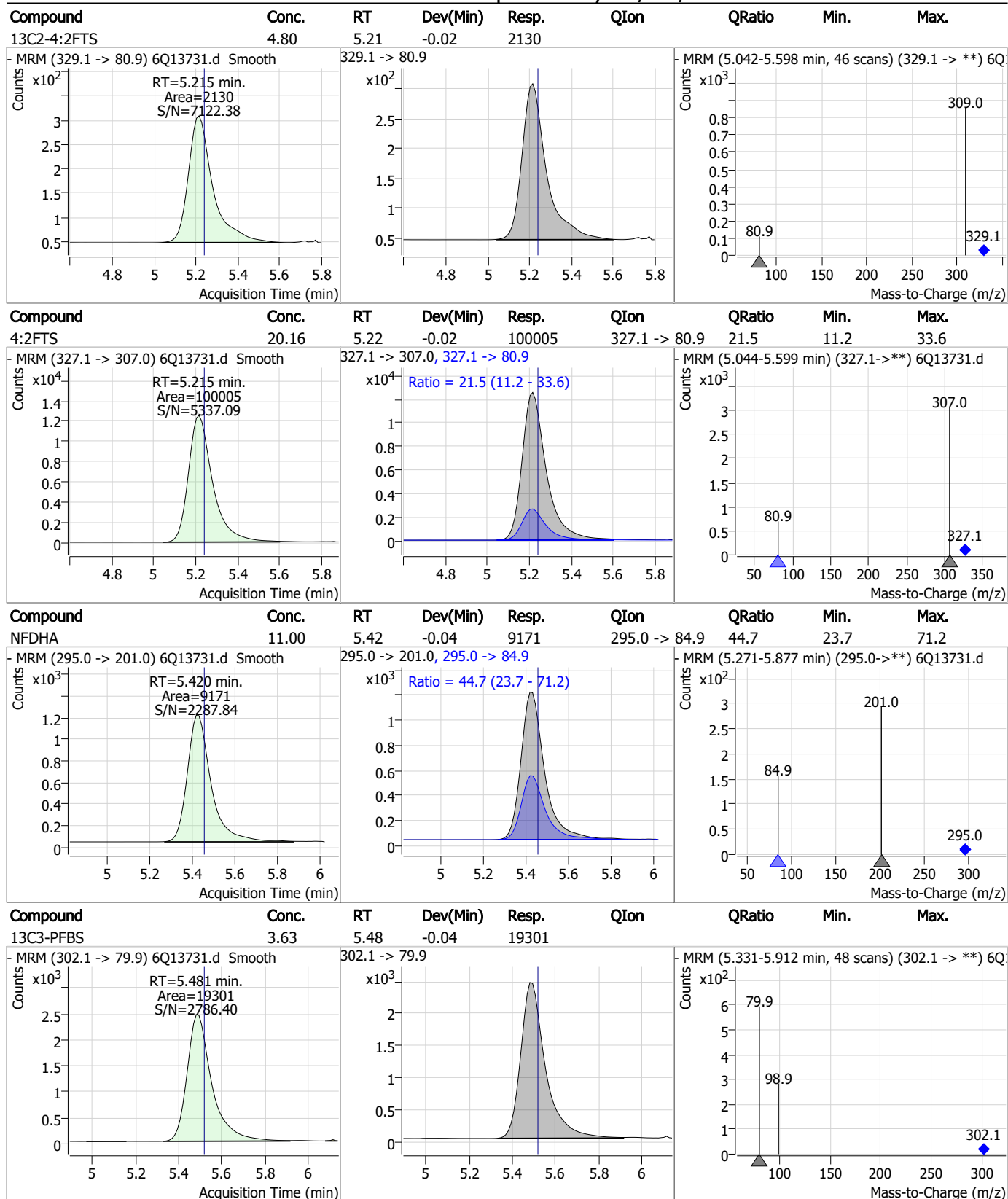
Perfluorinated Compounds by LC/MS/MS



7.6.6

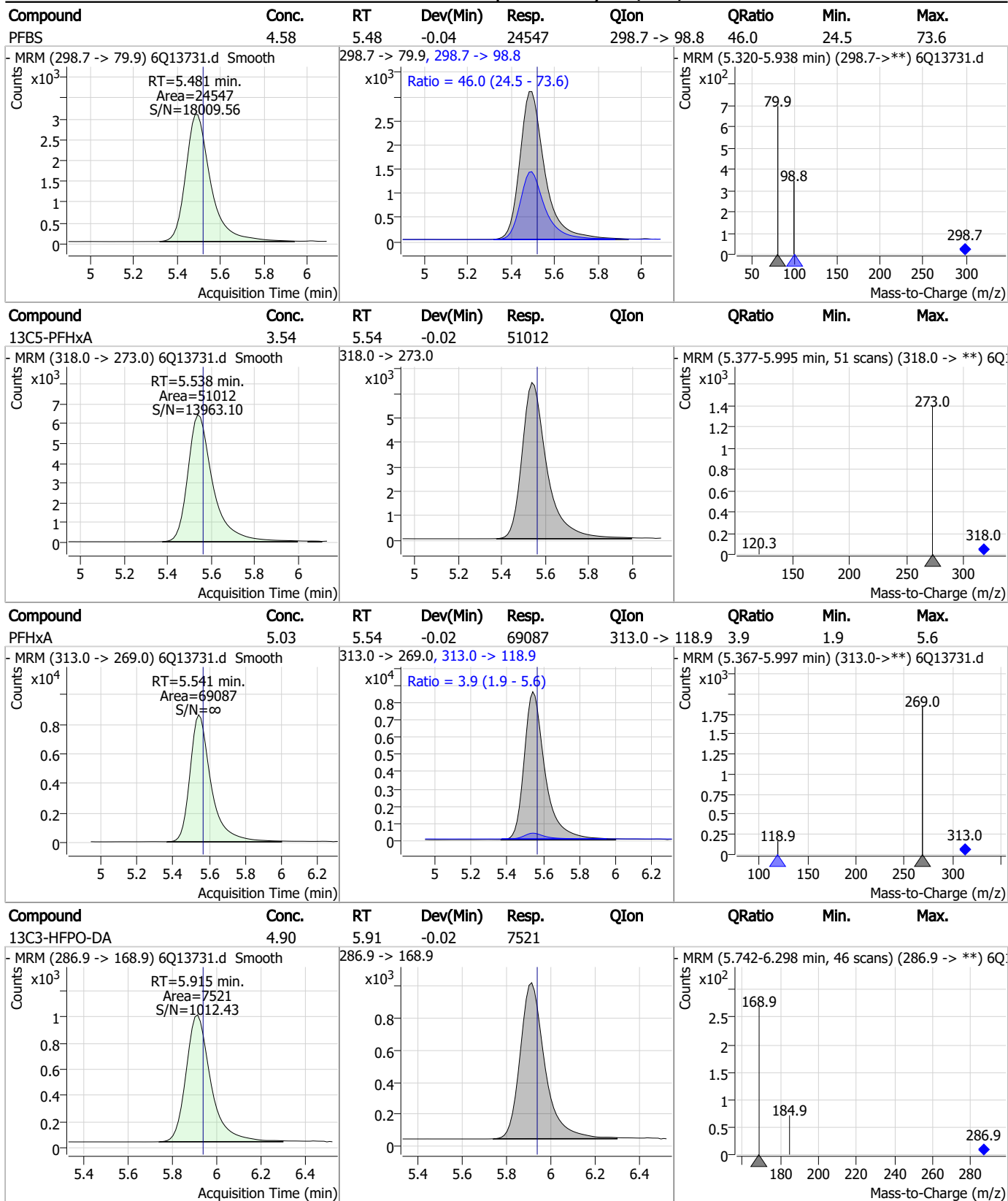
7

Perfluorinated Compounds by LC/MS/MS



7.6.6
7

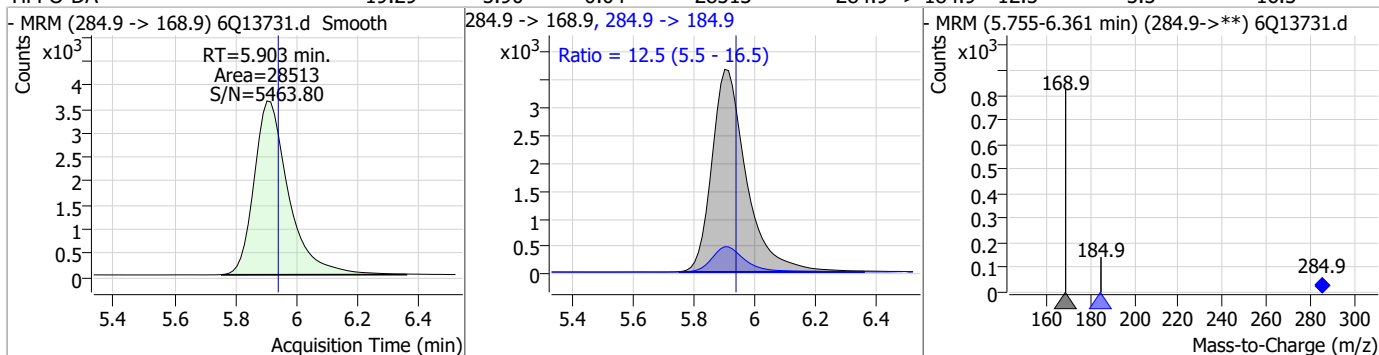
Perfluorinated Compounds by LC/MS/MS



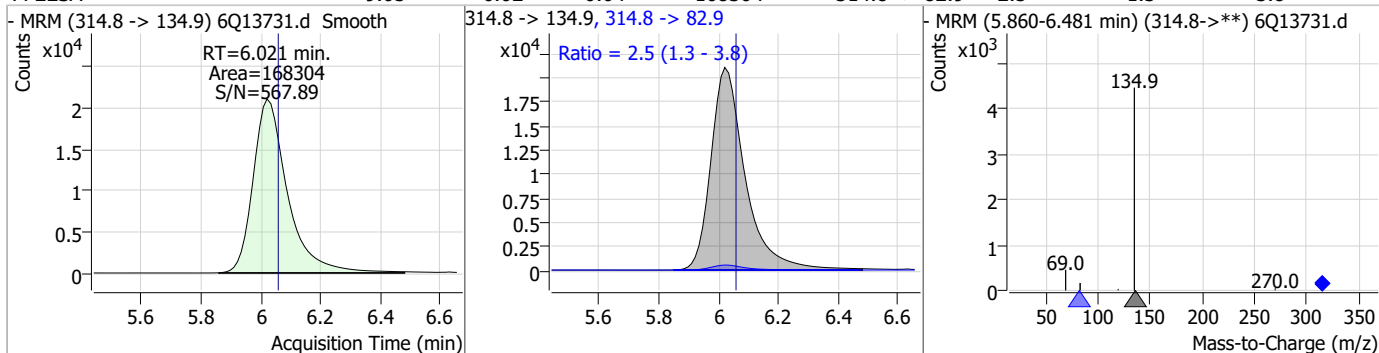
7.6.6
7

Perfluorinated Compounds by LC/MS/MS

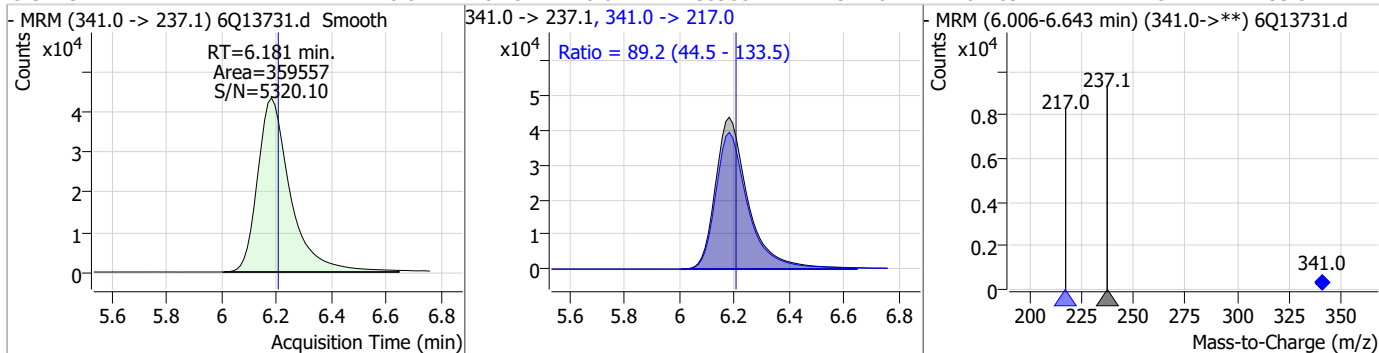
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.29	5.90	-0.04	28513	284.9 -> 184.9	12.5	5.5	16.5



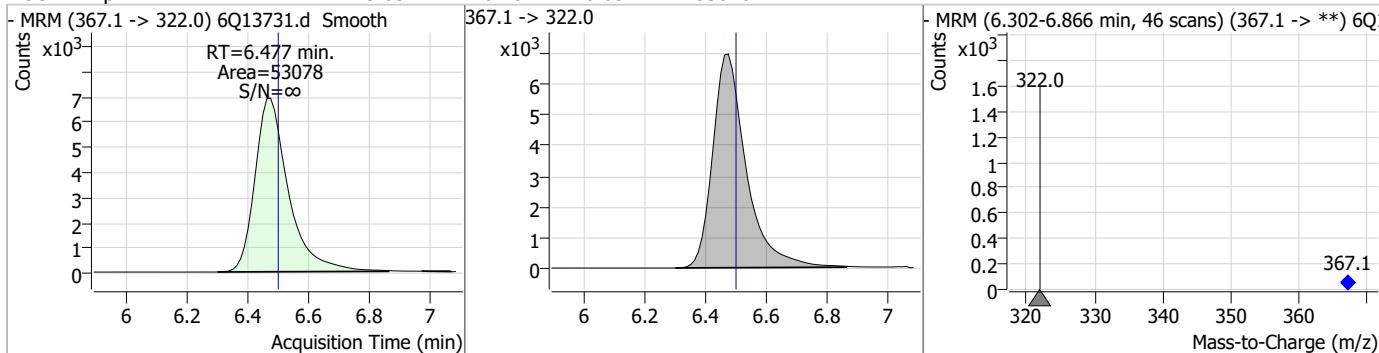
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	9.05	6.02	-0.04	168304	314.8 -> 82.9	2.5	1.3	3.8



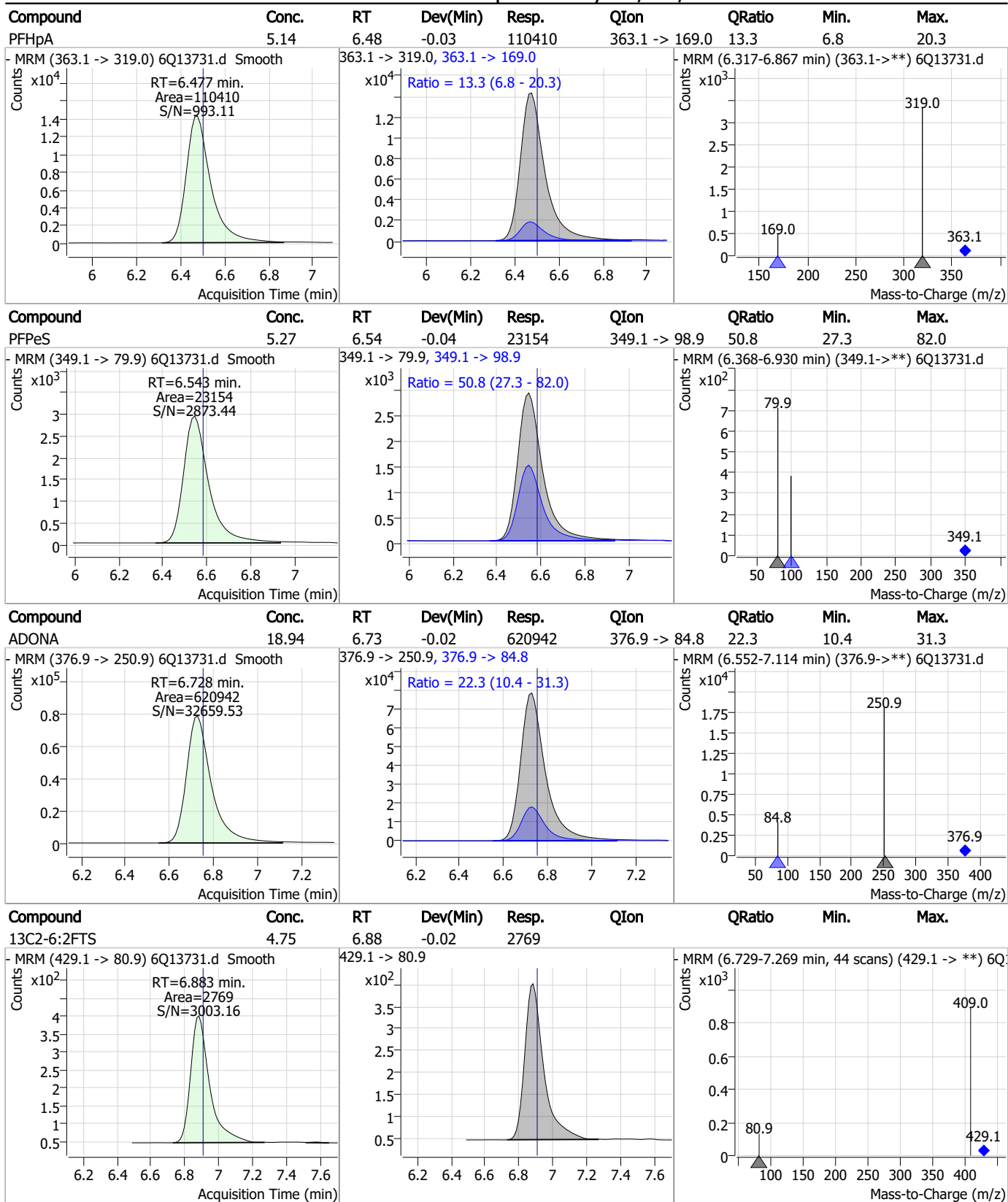
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	128.07	6.18	-0.02	359557	341.0 -> 217.0	89.2	44.5	133.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	3.63	6.48	-0.03	53078	367.1 -> 322.0			

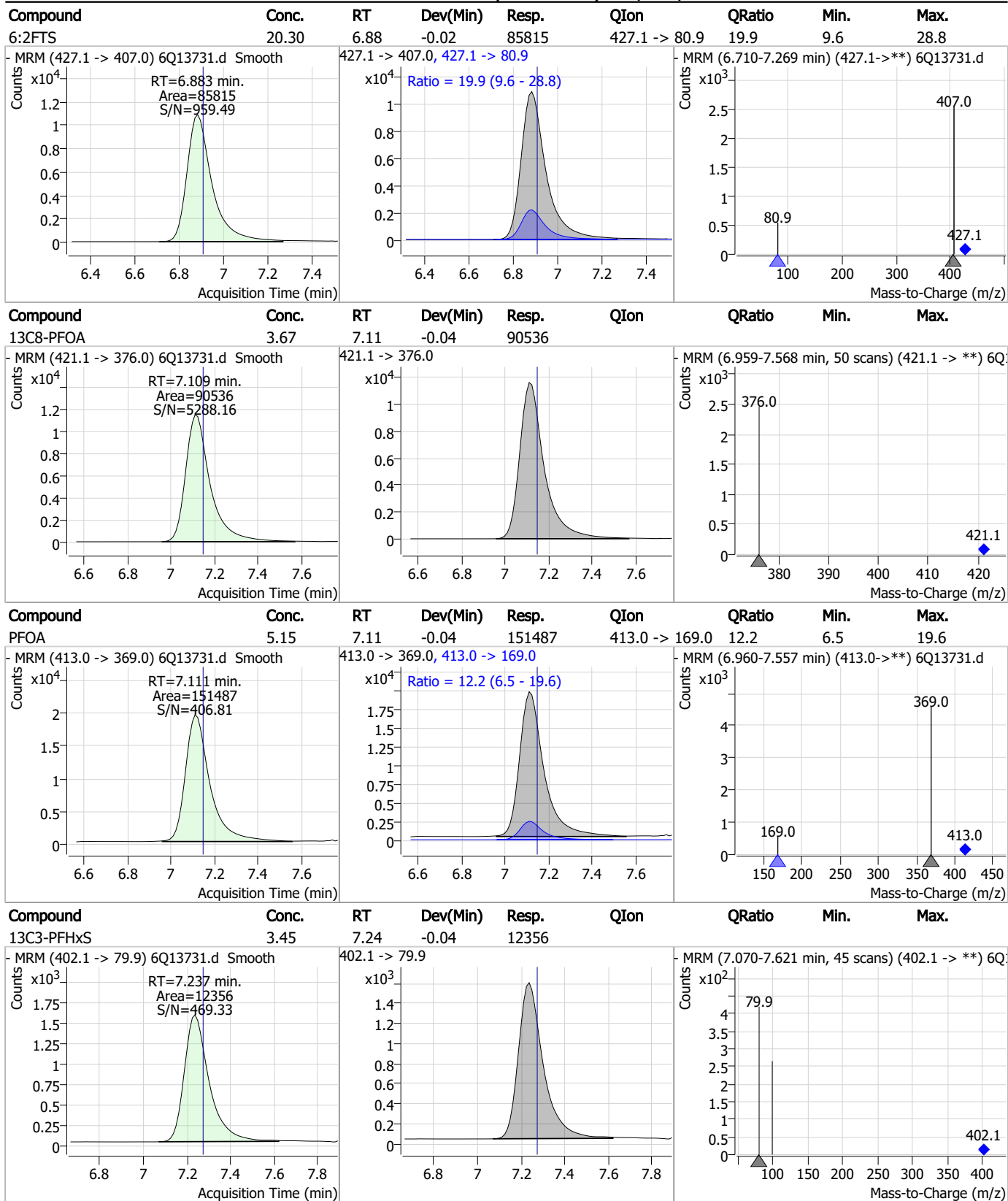


Perfluorinated Compounds by LC/MS/MS



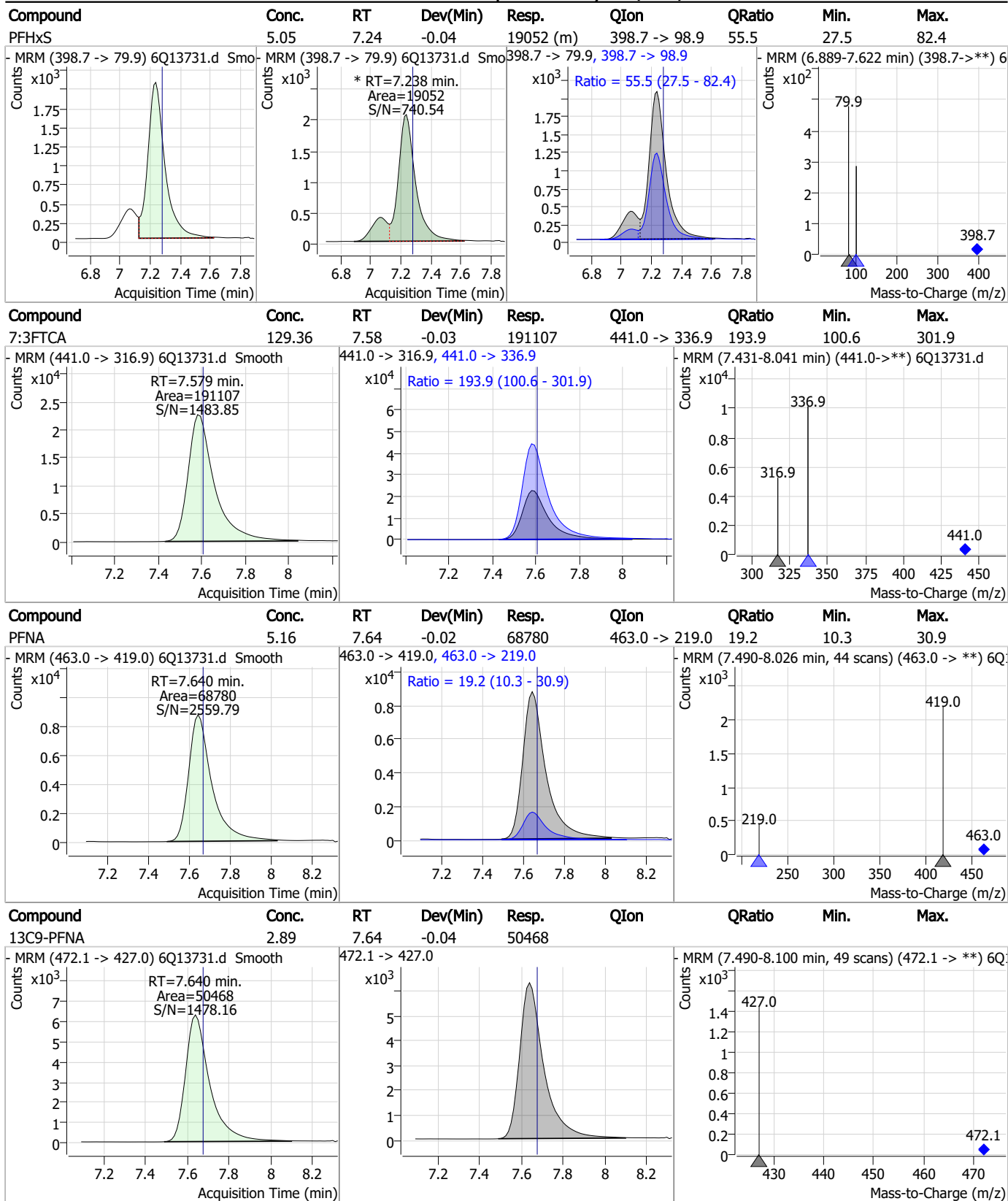
7.6.6
7

Perfluorinated Compounds by LC/MS/MS



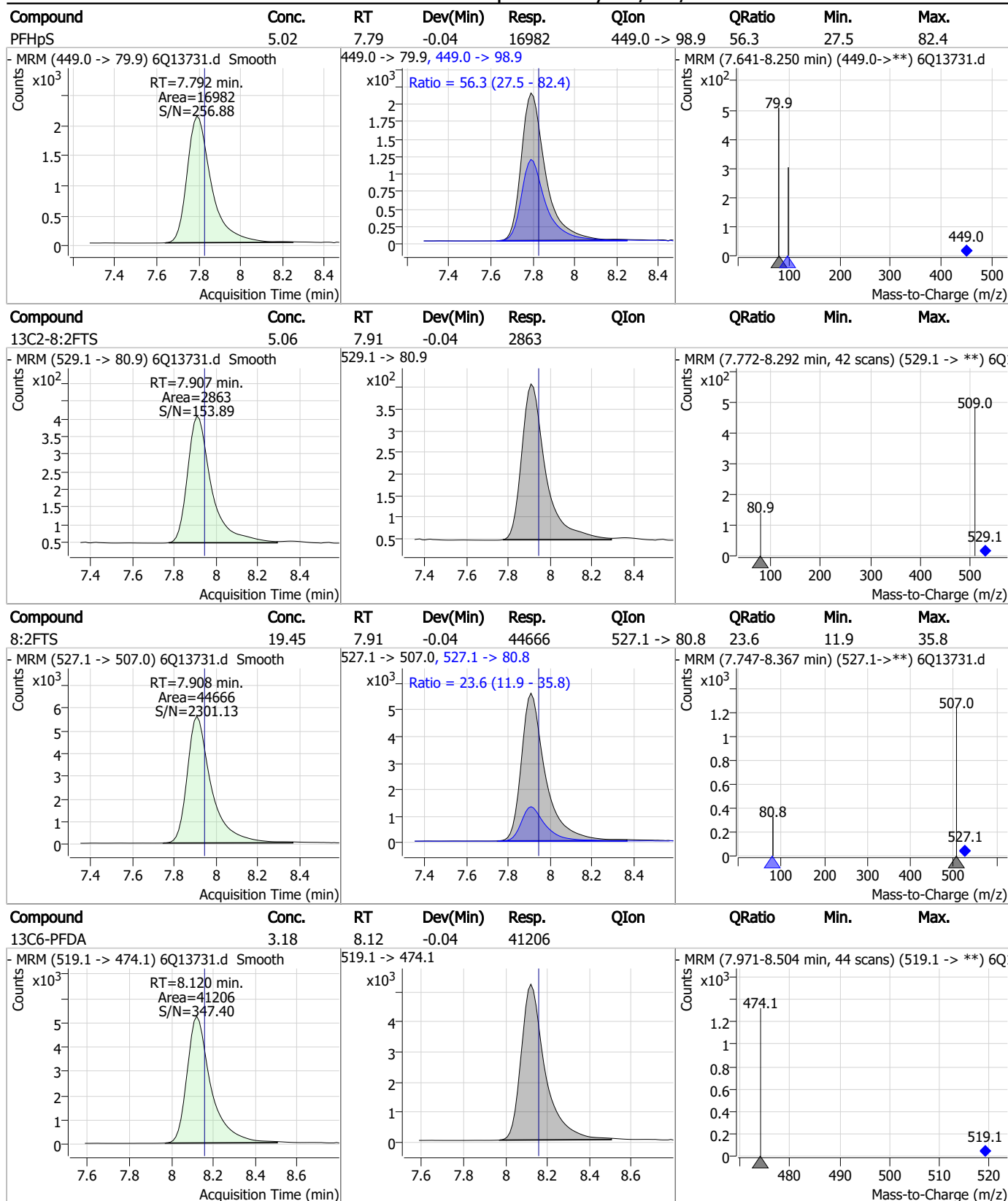
7.6.6
7

Perfluorinated Compounds by LC/MS/MS



7.6.6
7

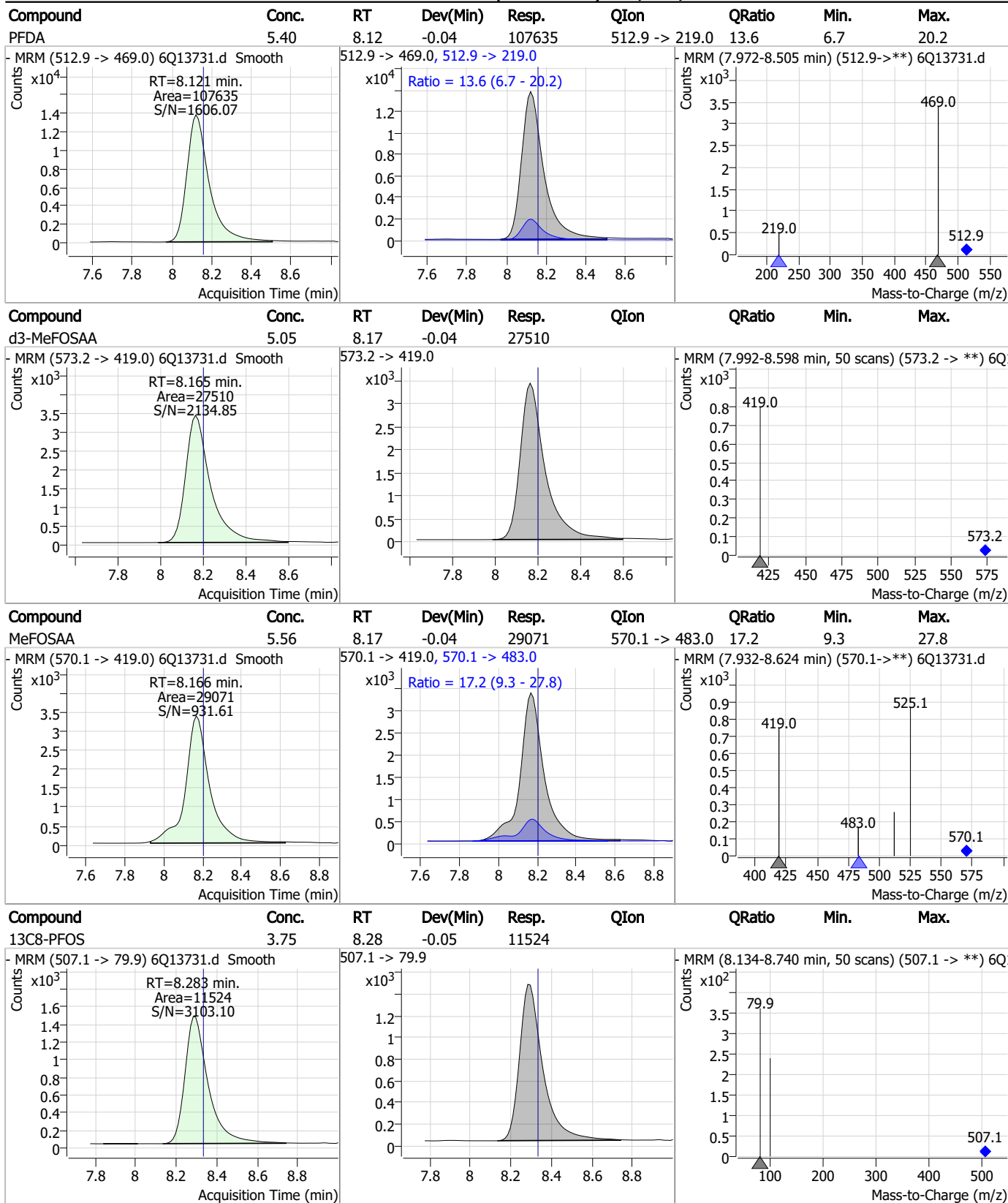
Perfluorinated Compounds by LC/MS/MS



7.6.6

7

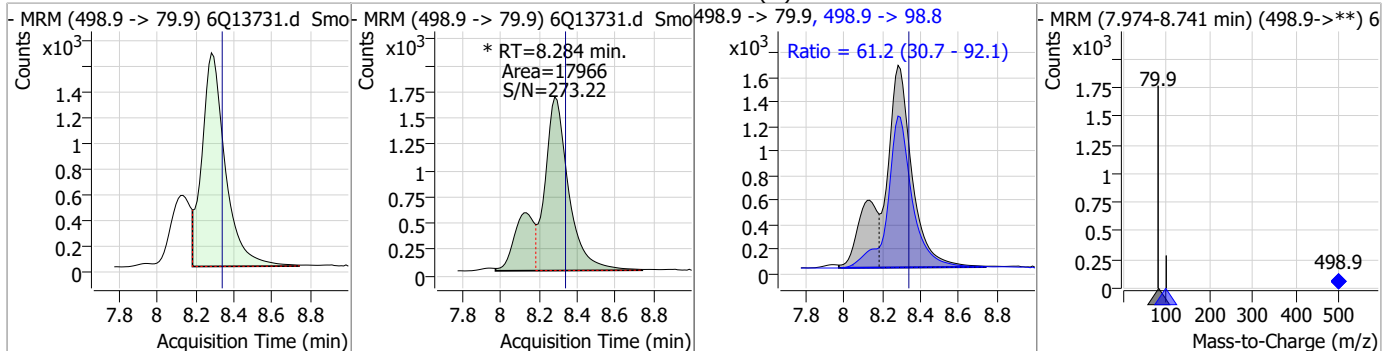
Perfluorinated Compounds by LC/MS/MS



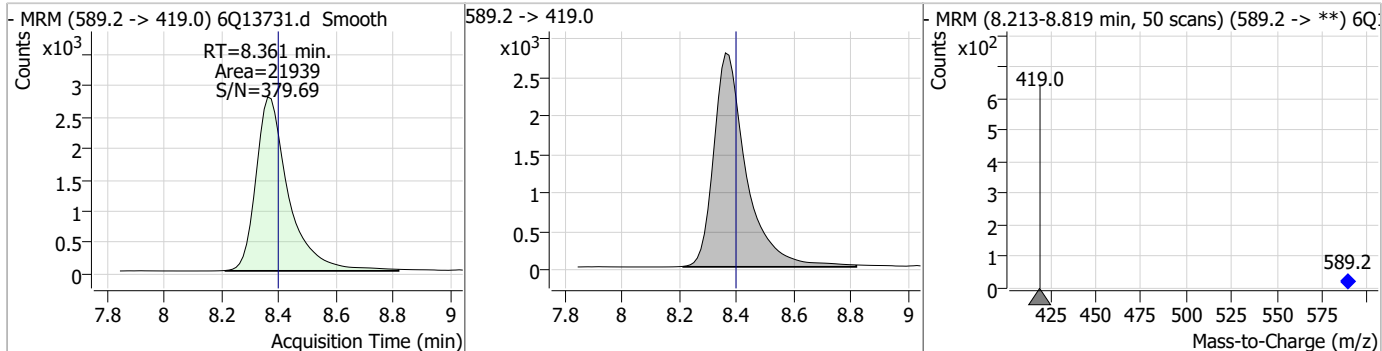
7.6.6
7

Perfluorinated Compounds by LC/MS/MS

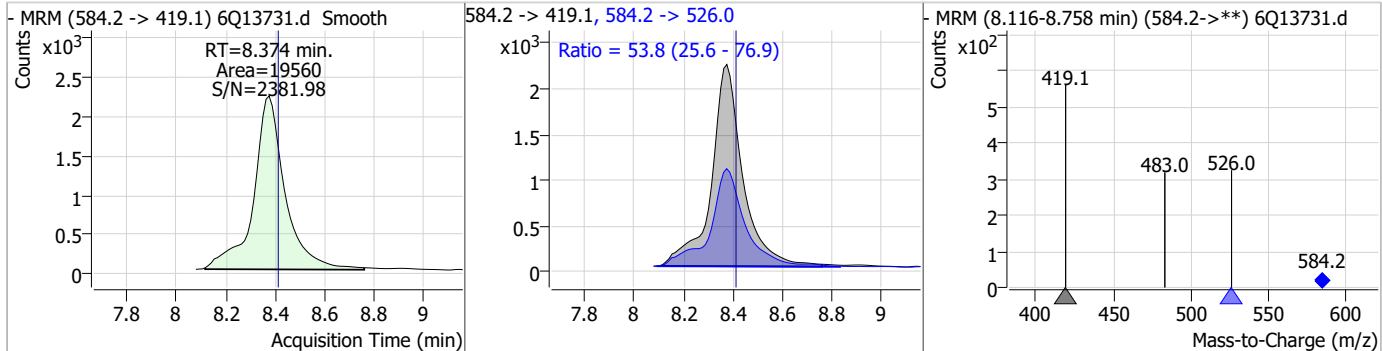
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	4.98	8.28	-0.05	17966 (m)	498.9 -> 98.8	61.2	30.7	92.1



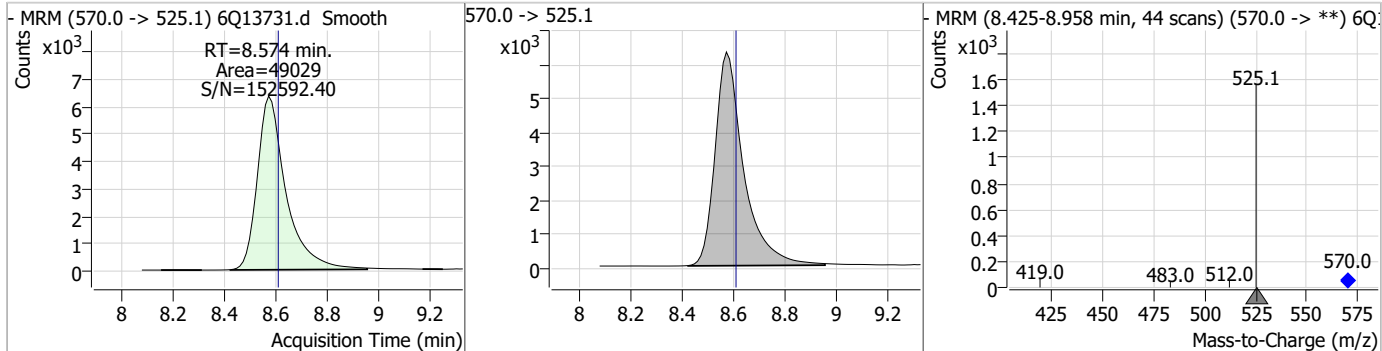
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.80	8.36	-0.04	21939				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	5.28	8.37	-0.04	19560	584.2 -> 526.0	53.8	25.6	76.9

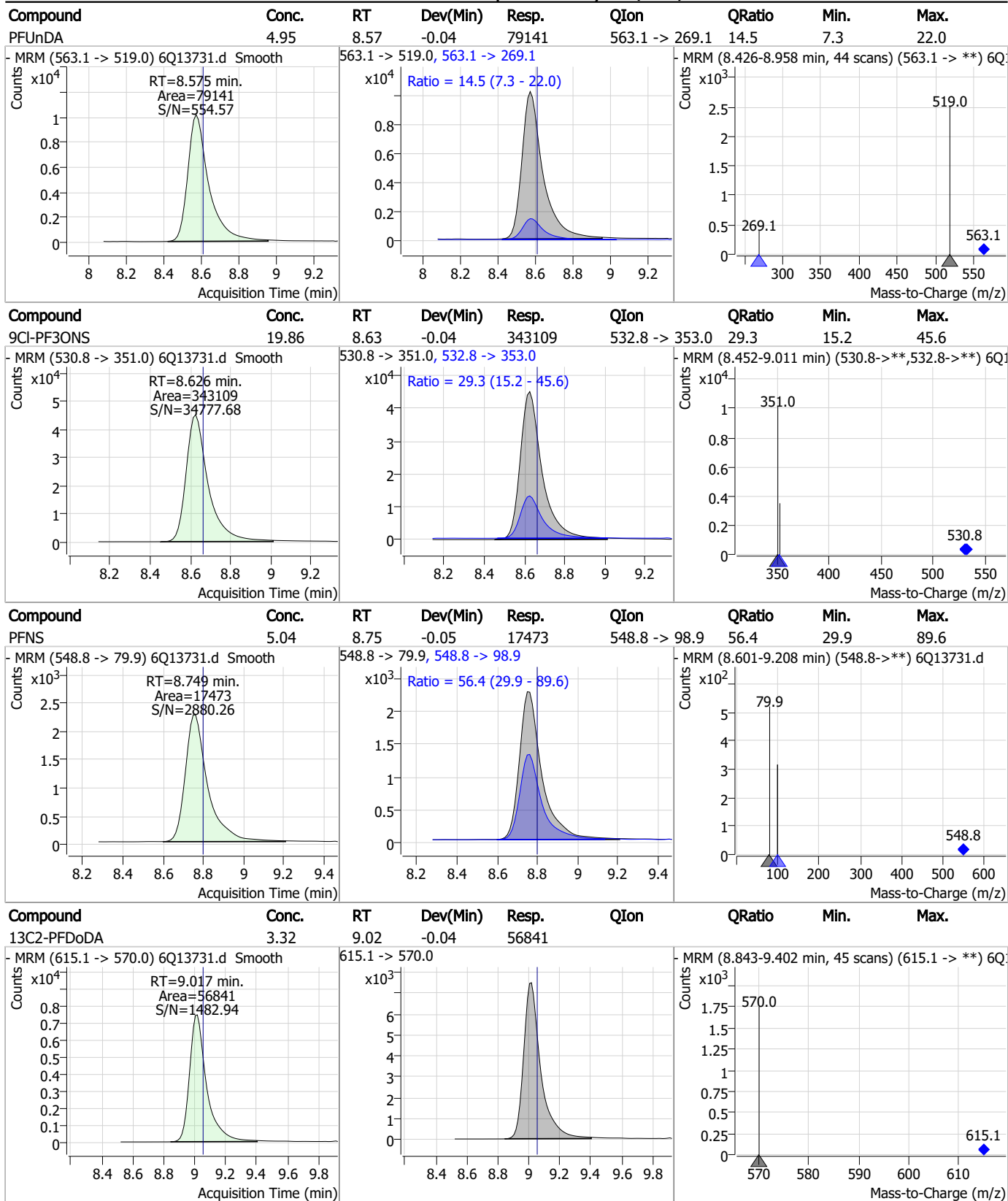


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	3.23	8.57	-0.04	49029				



7.6.6
7

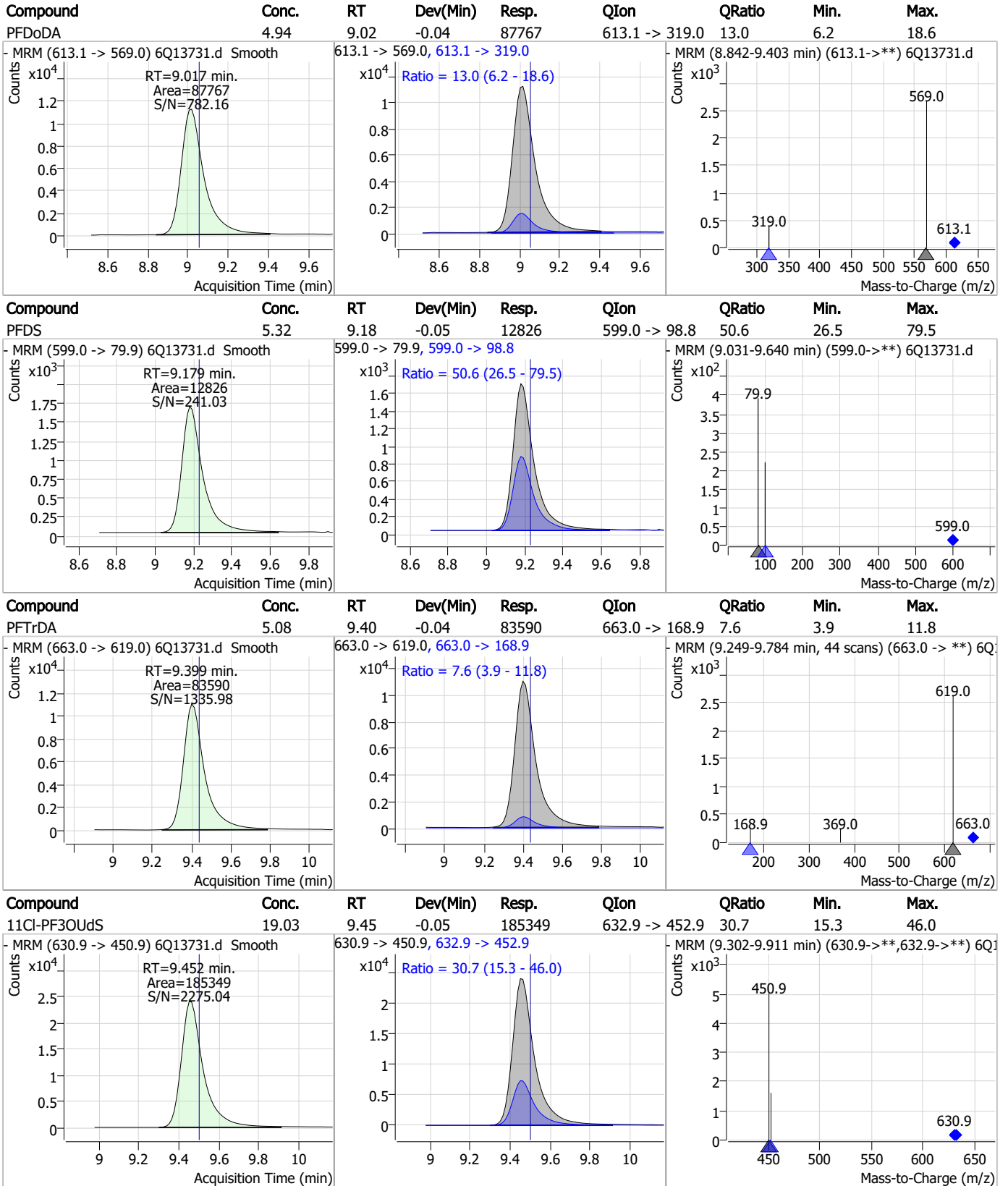
Perfluorinated Compounds by LC/MS/MS



7.6.6

7

Perfluorinated Compounds by LC/MS/MS



7.6.6

7

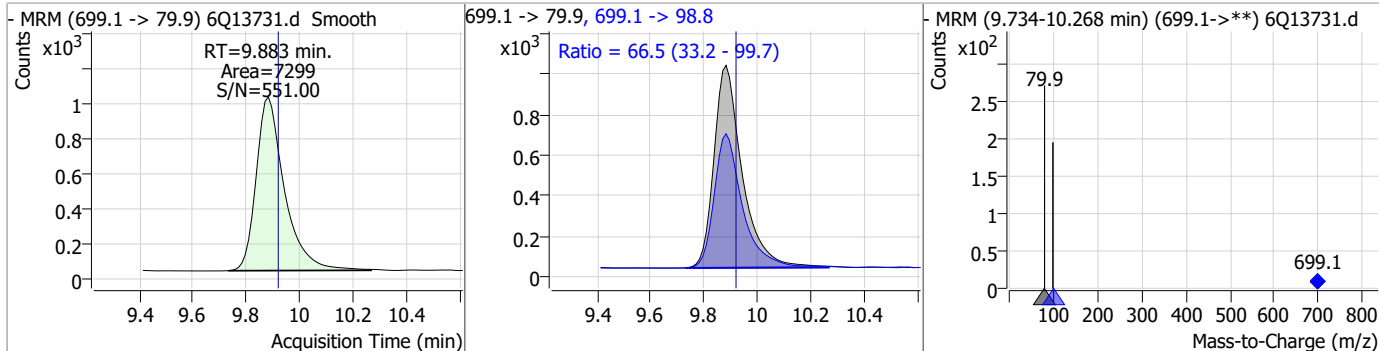
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	5.08	9.56	0.00	31135	498.1 -> 478.0	4.0	2.0	5.9
13C8-FOSA	3.83	9.55	-0.01	23369	506.1 -> 77.8			
13C2-PFTeDA	3.15	9.74	-0.04	29847	715.2 -> 670.0			
PFTeDA	5.09	9.74	-0.04	71653	713.1 -> 168.9	7.2	3.1	9.3

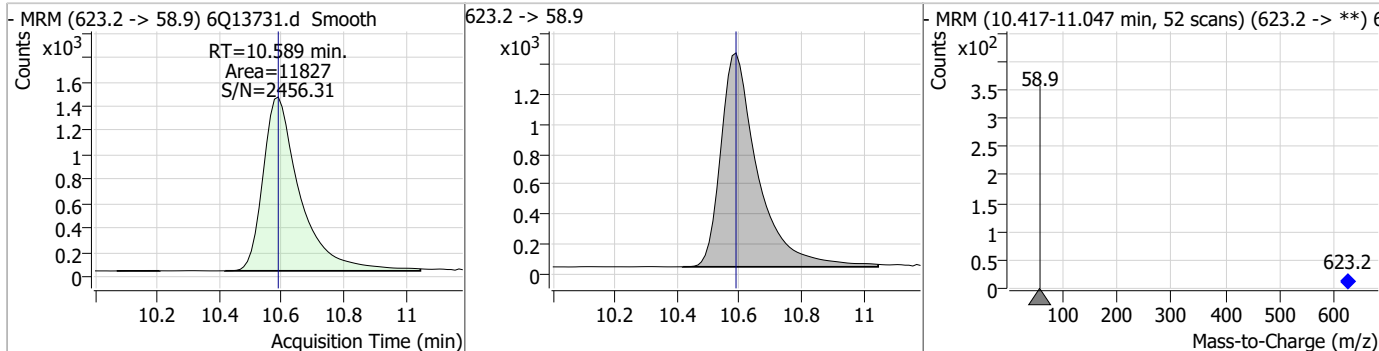
7.6.6
7

Perfluorinated Compounds by LC/MS/MS

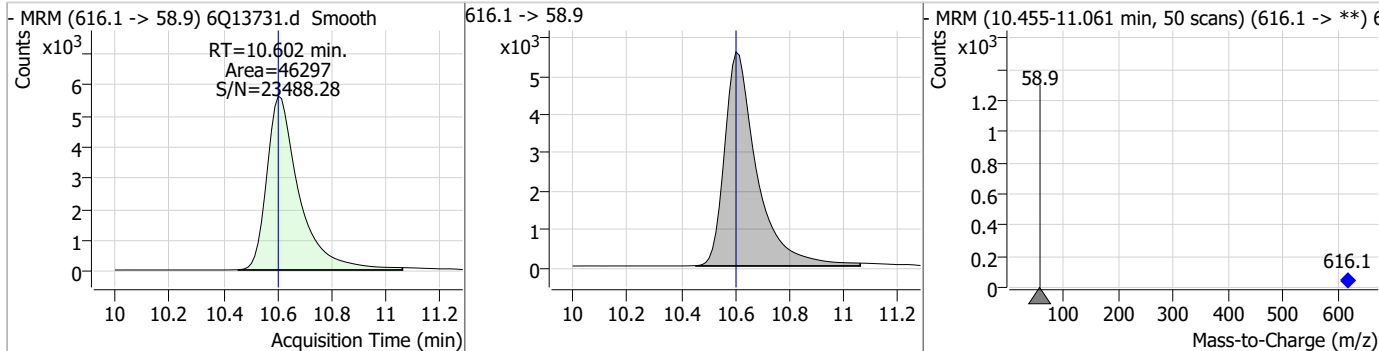
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	4.86	9.88	-0.04	7299	699.1 -> 98.8	66.5	33.2	99.7



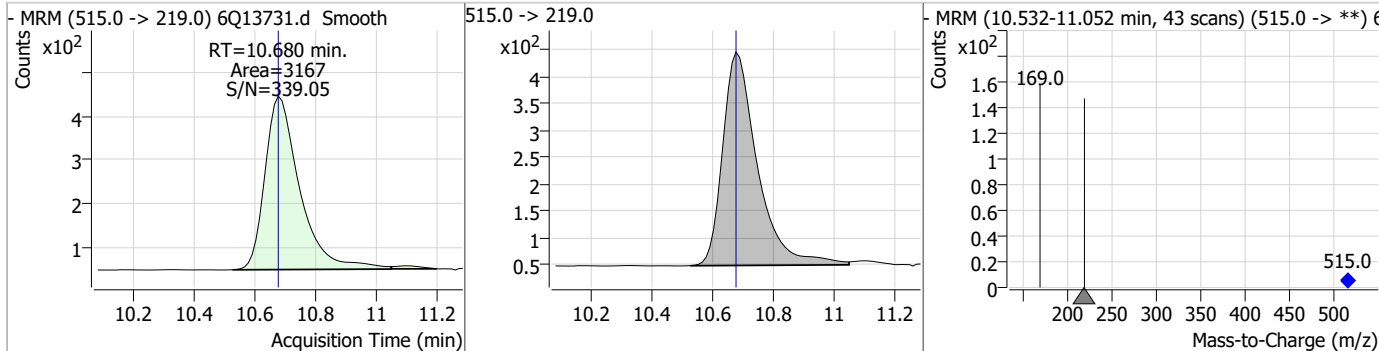
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	13.30	10.59	0.00	11827				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	47.11	10.60	0.00	46297				

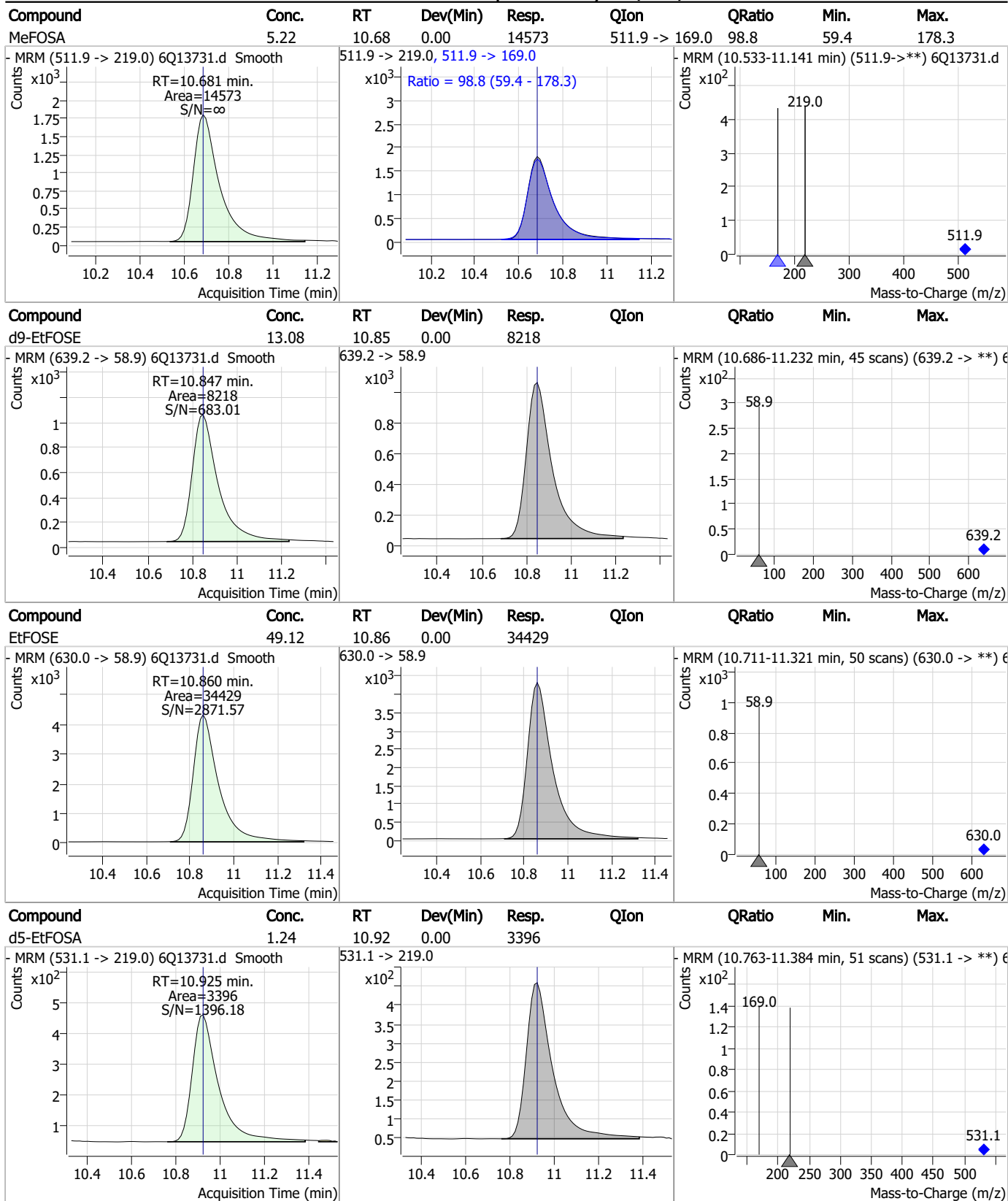


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	1.24	10.68	0.00	3167				



7.6.6
7

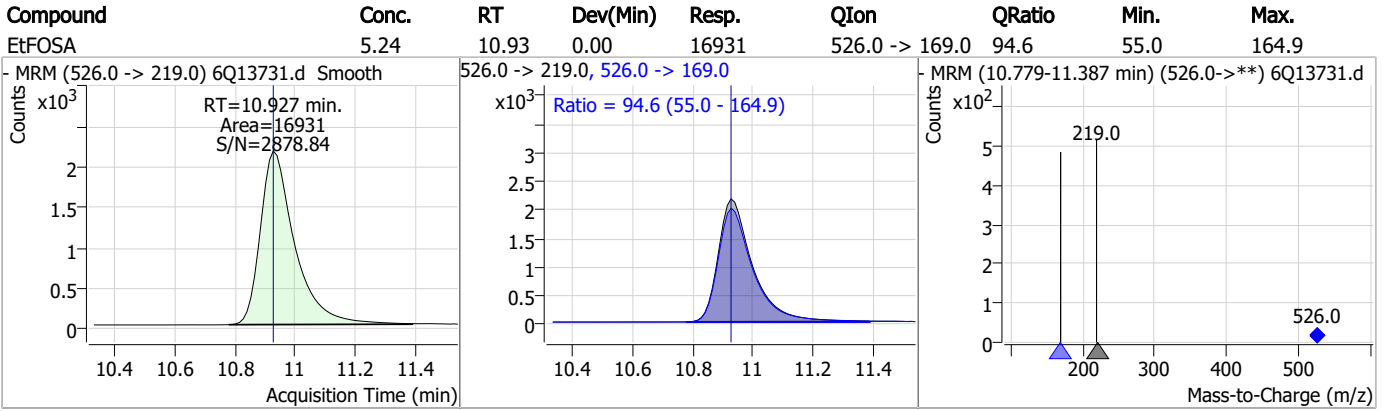
Perfluorinated Compounds by LC/MS/MS



7.6.6

7

Perfluorinated Compounds by LC/MS/MS



7.6.6

7

Manual Integration Approval Summary

Sample Number: S6Q208-IC208 Method: EPA DRAFT 1633
Lab FileID: 6Q13731.D Analyst approved: 02/18/23 11:42 Natasha Gumtie
Injection Time: 02/16/23 09:00 Supervisor approved: 02/18/23 12:01 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.28	Split peak

7.6.6.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13732.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/16/2023 9:14:06 AM
 Sample Name : ic208-6
 Vial : P1-D7
 DA Method File : 1633_021623_S6Q208NEW.quantmethod.xml
 Batch Name : s6q208.batch.bin
 Sample Information : OP95142,S6Q208,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.950	216.8 -> 171.9	48118	7.50 µg/L	-0.025
M5-PFPeA	4.361	268.3 -> 223.0	31518	5.00 µg/L	-0.025
M5-PFHxA	5.538	318.0 -> 273.0	41174	3.75 µg/L	-0.025
M4-PFHpA	6.464	367.1 -> 322.0	41838	3.75 µg/L	-0.038
M8-PFOA	7.109	421.1 -> 376.0	69768	3.75 µg/L	-0.037
M9-PFNA	7.640	472.1 -> 427.0	43958	3.13 µg/L	-0.037
M6-PFDA	8.120	519.1 -> 474.1	36656	3.13 µg/L	-0.037
M7-PFUnDA	8.574	570.0 -> 525.1	41692	3.13 µg/L	-0.037
M2-PFDoDA	9.017	615.1 -> 570.0	44832	3.13 µg/L	-0.037
M2-PFTeDA	9.743	715.2 -> 670.0	24156	3.13 µg/L	-0.037
M8-FOSA	9.555	506.1 -> 77.8	18658	3.75 µg/L	-0.012
M3-PFBS	5.481	302.1 -> 79.9	15845	3.75 µg/L	-0.037
M3-PFHxS	7.237	402.1 -> 79.9	10629	3.75 µg/L	-0.037
M8-PFOS	8.283	507.1 -> 79.9	9378	3.75 µg/L	-0.050
M2-4:2FTS	5.203	329.1 -> 80.9	1646	5.00 µg/L	-0.037
M2-6:2FTS	6.871	429.1 -> 80.9	2149	5.00 µg/L	-0.037
M2-8:2FTS	7.907	529.1 -> 80.9	2308	5.00 µg/L	-0.037
M3-MeFOSAA	8.165	573.2 -> 419.0	23337	5.00 µg/L	-0.037
M3-HFPO-DA	5.903	286.9 -> 168.9	5551	5.00 µg/L	-0.037
M5-EtFOSAA	8.361	589.2 -> 419.0	19552	5.00 µg/L	-0.037
M7-MeFOSE	10.589	623.2 -> 58.9	9635	12.50 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	6842	12.50 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	2876	1.25 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	2694	1.25 µg/L	0.000
13C4-PFOS	8.283	502.8 -> 79.9	9566	2.50 µg/L	-0.050
13C3-PFBA	2.954	216.0 -> 172.0	33186	5.00 µg/L	-0.025
18O2-PFHxS	7.236	403.0 -> 83.9	6106	2.50 µg/L	-0.037
13C4-PFOA	7.110	417.1 -> 372.0	69954	2.50 µg/L	-0.037
13C2-PFDA	8.120	515.1 -> 470.1	21316	1.25 µg/L	-0.037
13C5-PFNA	7.640	468.0 -> 423.0	23487	1.25 µg/L	-0.037
13C2-PFHxA	5.539	315.1 -> 270.0	31124	2.50 µg/L	-0.025
System Monitoring Compounds					
13C2-4:2FTS	5.203	329.1 -> 80.9	1646	3.91 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 78.1%		
13C2-6:2FTS	6.871	429.1 -> 80.9	2149	3.88 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 77.6%		
13C2-8:2FTS	7.907	529.1 -> 80.9	2308	4.30 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 85.9%		
13C2-PFDoDA	9.017	615.1 -> 570.0	44832	2.67 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 85.4%		
13C2-PFTeDA	9.743	715.2 -> 670.0	24156	2.60 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 83.1%		
13C3-PFBS	5.481	302.1 -> 79.9	15845	3.14 µg/L	-0.037
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 83.8%		
13C3-PFHxS	7.237	402.1 -> 79.9	10629	3.13 µg/L	-0.037

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 3.75 13C4-PFBA	Range: 50.0 - 150.0% 2.950	216.8 -> 171.9	48118	Recovery = 83.4% 6.25 µg/L	-0.025
Spiked Amount: 7.50 13C4-PFHpA	Range: 50.0 - 150.0% 6.464	367.1 -> 322.0	41838	Recovery = 83.3% 3.13 µg/L	-0.038
Spiked Amount: 3.75 13C5-PFHxA	Range: 50.0 - 150.0% 5.538	318.0 -> 273.0	41174	Recovery = 83.3% 3.12 µg/L	-0.025
Spiked Amount: 3.75 13C5-PFPeA	Range: 50.0 - 150.0% 4.361	268.3 -> 223.0	31518	Recovery = 83.2% 4.31 µg/L	-0.025
Spiked Amount: 5.00 13C6-PFDA	Range: 50.0 - 150.0% 8.120	519.1 -> 474.1	36656	Recovery = 86.1% 2.88 µg/L	-0.037
Spiked Amount: 3.13 13C7-PFUnDA	Range: 50.0 - 150.0% 8.574	570.0 -> 525.1	41692	Recovery = 92.3% 2.80 µg/L	-0.037
Spiked Amount: 3.13 13C8-FOSA	Range: 50.0 - 150.0% 9.555	506.1 -> 77.8	18658	Recovery = 89.5% 2.92 µg/L	-0.012
Spiked Amount: 3.75 13C8-PFOA	Range: 50.0 - 150.0% 7.109	421.1 -> 376.0	69768	Recovery = 77.7% 2.92 µg/L	-0.037
Spiked Amount: 3.75 13C8-PFOS	Range: 50.0 - 150.0% 8.283	507.1 -> 79.9	9378	Recovery = 77.8% 2.91 µg/L	-0.050
Spiked Amount: 3.75 13C9-PFNA	Range: 50.0 - 150.0% 7.640	472.1 -> 427.0	43958	Recovery = 77.5% 2.47 µg/L	-0.037
Spiked Amount: 3.13 d3-MeFOSAA	Range: 50.0 - 150.0% 8.165	573.2 -> 419.0	23337	Recovery = 79.0% 4.08 µg/L	-0.037
Spiked Amount: 5.00 13C3-HFPO-DA	Range: 50.0 - 150.0% 5.903	286.9 -> 168.9	5551	Recovery = 81.6% 3.95 µg/L	-0.037
Spiked Amount: 5.00 d3-MeFOSA	Range: 50.0 - 150.0% 10.680	515.0 -> 219.0	2694	Recovery = 79.0% 1.01 µg/L	0.000
Spiked Amount: 1.25 d5-EtFOSAA	Range: 50.0 - 150.0% 8.361	589.2 -> 419.0	19552	Recovery = 80.6% 4.08 µg/L	-0.037
Spiked Amount: 5.00 d7-MeFOSE	Range: 50.0 - 150.0% 10.589	623.2 -> 58.9	9635	Recovery = 81.6% 10.33 µg/L	0.000
Spiked Amount: 12.50 d9-EtFOSE	Range: 50.0 - 150.0% 10.847	639.2 -> 58.9	6842	Recovery = 82.6% 10.37 µg/L	0.000
Spiked Amount: 12.50 d5-EtFOSA	Range: 50.0 - 150.0% 10.925	531.1 -> 219.0	2876	Recovery = 83.0% 1.00 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 79.9%	
Target Compounds					QValue
4:2FTS	5.203	327.1 -> 307.0 327.1 -> 80.9	235842 50692	61.56 µg/L	98
6:2FTS	6.871	427.1 -> 407.0 427.1 -> 80.9	200584 36614	61.13 µg/L	98
8:2FTS	7.908	527.1 -> 507.0 527.1 -> 80.8	102745 24853	55.50 µg/L	99
EtFOSAA	8.374	584.2 -> 419.1 584.2 -> 526.0	49648 26559	15.05 µg/L	m 97
FOSA	9.557	498.1 -> 77.9 498.1 -> 478.0	80349 3109	16.41 µg/L	100
MeFOSAA	8.166	570.1 -> 419.0 570.1 -> 483.0	71498 11699	16.12 µg/L	95
PFBA	2.957	212.8 -> 168.9	99507	63.41 µg/L	100
PFBS	5.481	298.7 -> 79.9 298.7 -> 98.8	59536 28115	13.54 µg/L	97
PFDA	8.121	512.9 -> 469.0 512.9 -> 219.0	255111 35482	14.38 µg/L	99
PFDoDA	9.017	613.1 -> 569.0 613.1 -> 319.0	222651 25617	15.89 µg/L	98
PFDS	9.179	599.0 -> 79.9	31098	15.84 µg/L	98

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	15992			
PFHpA	6.465	363.1 -> 319.0	253412	14.96	µg/L	98
		363.1 -> 169.0	36093			
PFHpS	7.792	449.0 -> 79.9	39334	14.30	µg/L	94
		449.0 -> 98.9	23372			
PFHxA	5.528	313.0 -> 269.0	179756	16.23	µg/L	99
		313.0 -> 118.9	6336			
PFHxS	7.225	398.7 -> 79.9	46462	14.33	µg/L	m 99
		398.7 -> 98.9	25841			
PFNA	7.640	463.0 -> 419.0	174887	15.06	µg/L	95
		463.0 -> 219.0	31795			
PFNS	8.762	548.8 -> 79.9	43028	15.25	µg/L	93
		548.8 -> 98.9	23552			
PFOA	7.111	413.0 -> 369.0	356617	15.75	µg/L	99
		413.0 -> 169.0	44970			
PFOS	8.284	498.9 -> 79.9	45788	15.59	µg/L	m 95
		498.9 -> 98.8	26253			
PFPeA	4.363	263.0 -> 219.0	216989	30.92	µg/L	100
PFPeS	6.531	349.1 -> 79.9	54708	14.48	µg/L	98
		349.1 -> 98.9	29254			
PFTeDA	9.744	713.1 -> 669.0	180458	15.85	µg/L	99
		713.1 -> 168.9	11906			
PFTrDA	9.399	663.0 -> 619.0	199397	15.36	µg/L	99
		663.0 -> 168.9	14959			
PFUnDA	8.575	563.1 -> 519.0	194561	14.30	µg/L	99
		563.1 -> 269.1	29416			
11Cl-PF3OUdS	9.464	630.9 -> 450.9	463968	64.55	µg/L	99
		632.9 -> 452.9	145582			
9Cl-PF3ONS	8.626	530.8 -> 351.0	774615	60.76	µg/L	97
		532.8 -> 353.0	246564			
ADONA	6.716	376.9 -> 250.9	1595840	65.96	µg/L	96
		376.9 -> 84.8	304109			
HFPO-DA	5.903	284.9 -> 168.9	70920	65.01	µg/L	96
		284.9 -> 184.9	8865			
3:3FTCA	3.816	241.0 -> 177.0	26421	74.59	µg/L	98
		241.0 -> 117.0	3525			
5:3FTCA	6.169	341.0 -> 237.1	909698	401.45	µg/L	96
		341.0 -> 217.0	775640			
7:3FTCA	7.579	441.0 -> 316.9	474061	397.56	µg/L	97
		441.0 -> 336.9	931710			
EtFOSA	10.927	526.0 -> 219.0	41525	15.19	µg/L	86
		526.0 -> 169.0	39575			
EtFOSE	10.860	630.0 -> 58.9	86661	148.51	µg/L	100
MeFOSA	10.681	511.9 -> 219.0	35754	15.07	µg/L	83
		511.9 -> 169.0	35596			
MeFOSE	10.602	616.1 -> 58.9	119142	148.84	µg/L	100
PFDoDS	9.883	699.1 -> 79.9	18321	14.99	µg/L	92
		699.1 -> 98.8	11052			
NFDHA	5.420	295.0 -> 201.0	21442	31.87	µg/L	99
		295.0 -> 84.9	10044			
PFMBA	4.763	279.0 -> 85.1	62848	30.34	µg/L	100
PFMPA	3.516	229.0 -> 84.9	58407	31.16	µg/L	100
PFEESA	6.009	314.8 -> 134.9	413984	27.58	µg/L	100
		314.8 -> 82.9	10351			

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

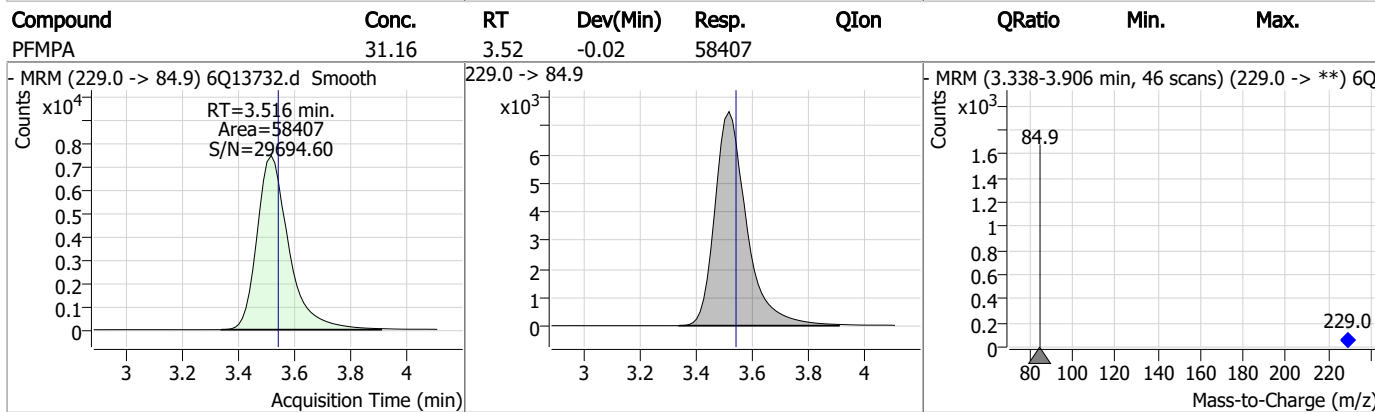
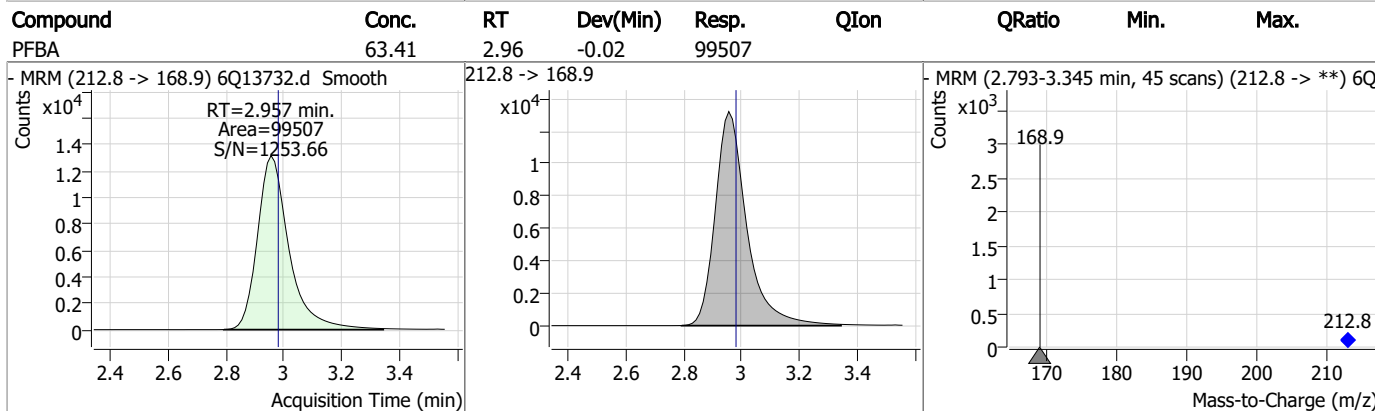
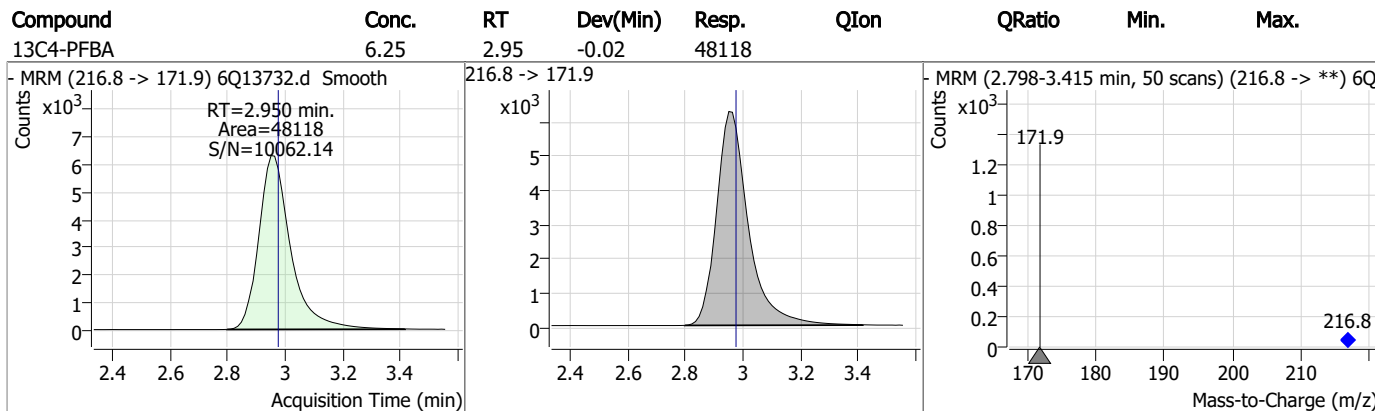
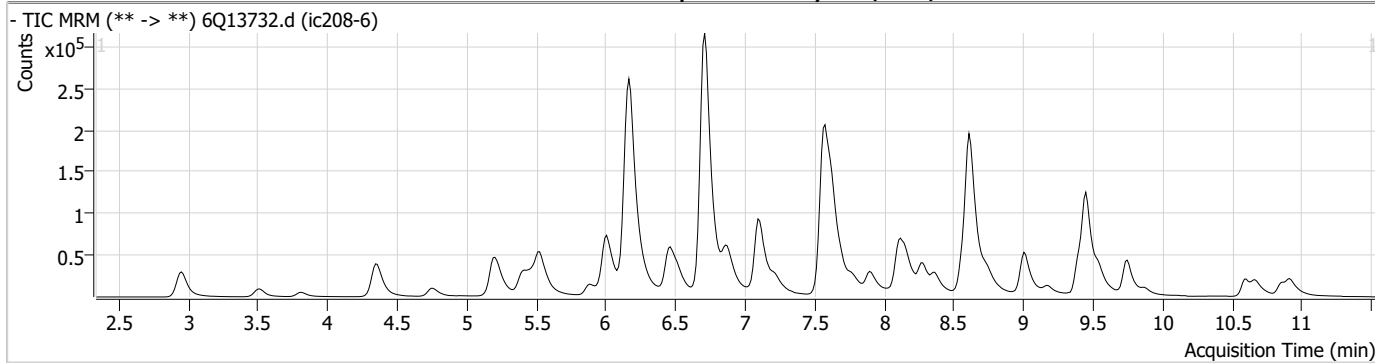
Perfluorinated Compounds by LC/MS/MS

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

7.6.7

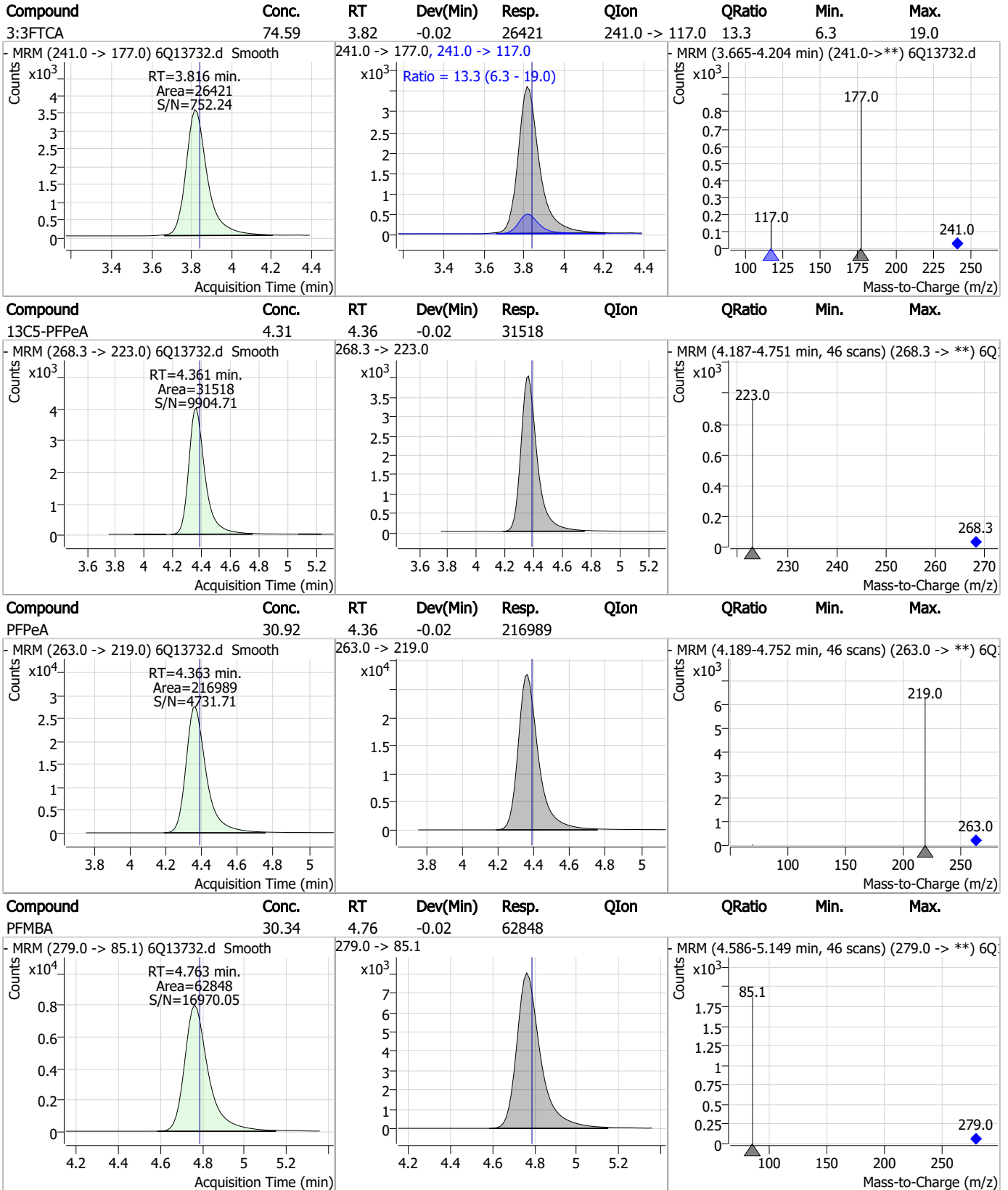
7

Perfluorinated Compounds by LC/MS/MS



7.6.7
7

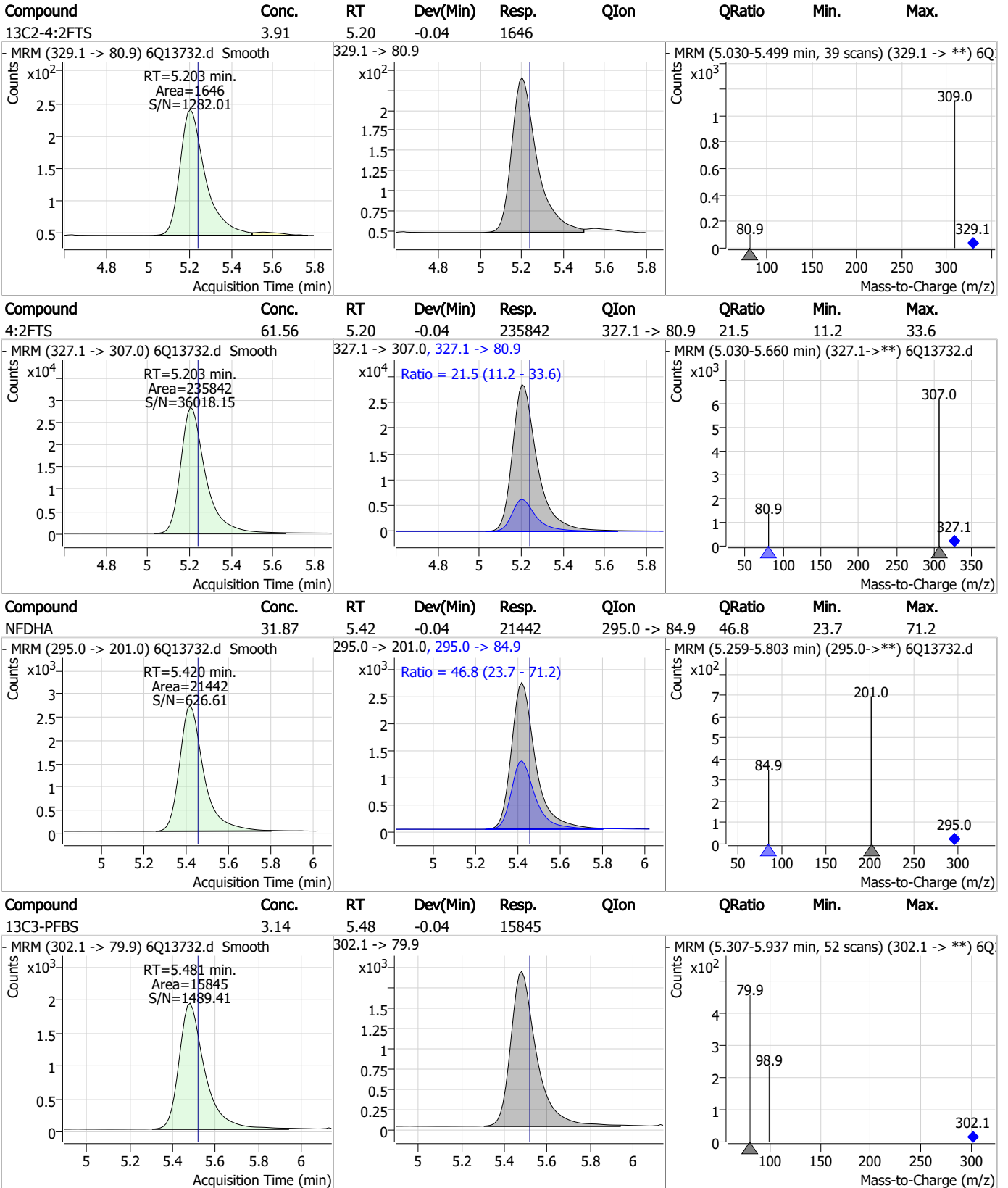
Perfluorinated Compounds by LC/MS/MS



7.6.7

7

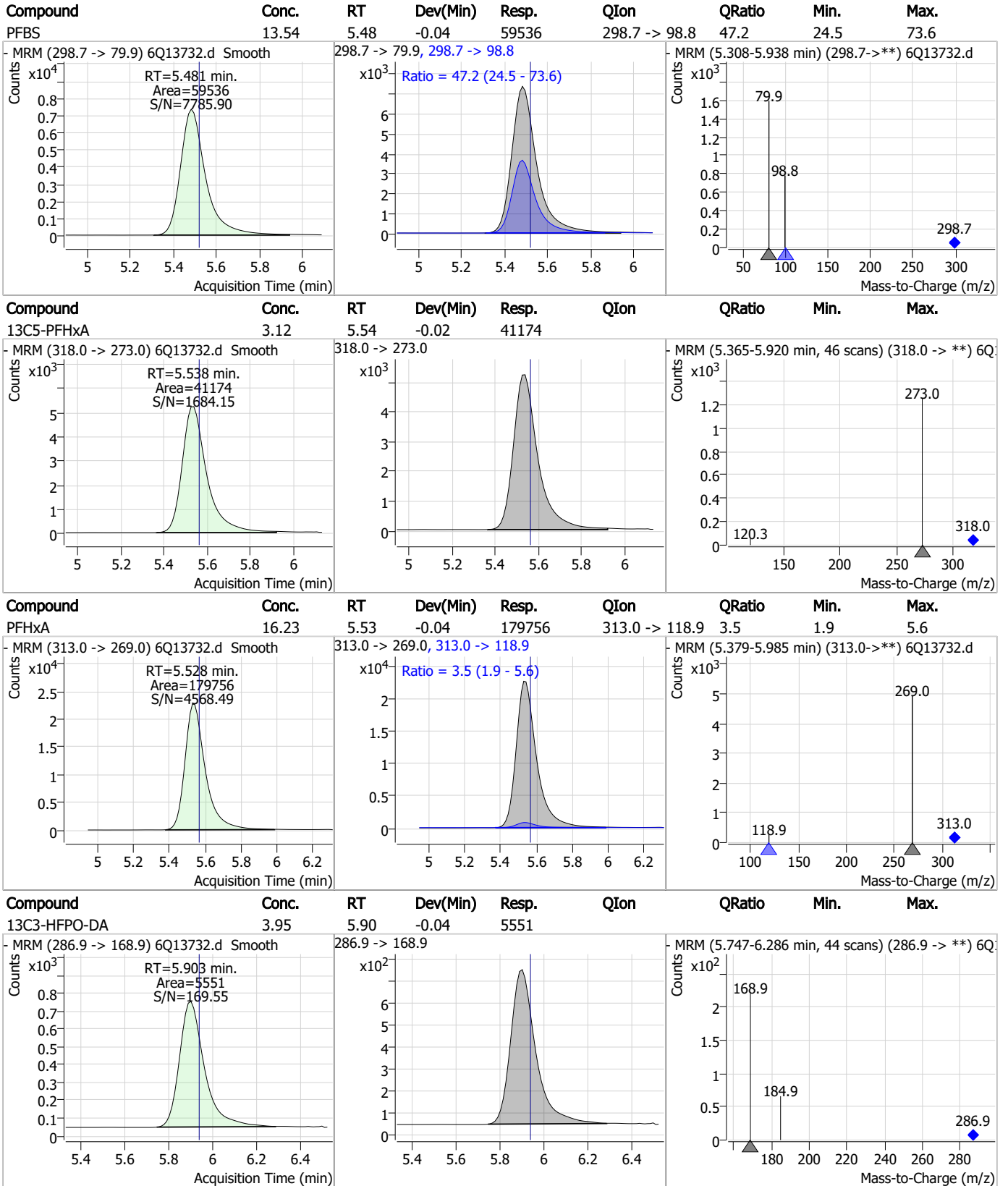
Perfluorinated Compounds by LC/MS/MS



7.67

7

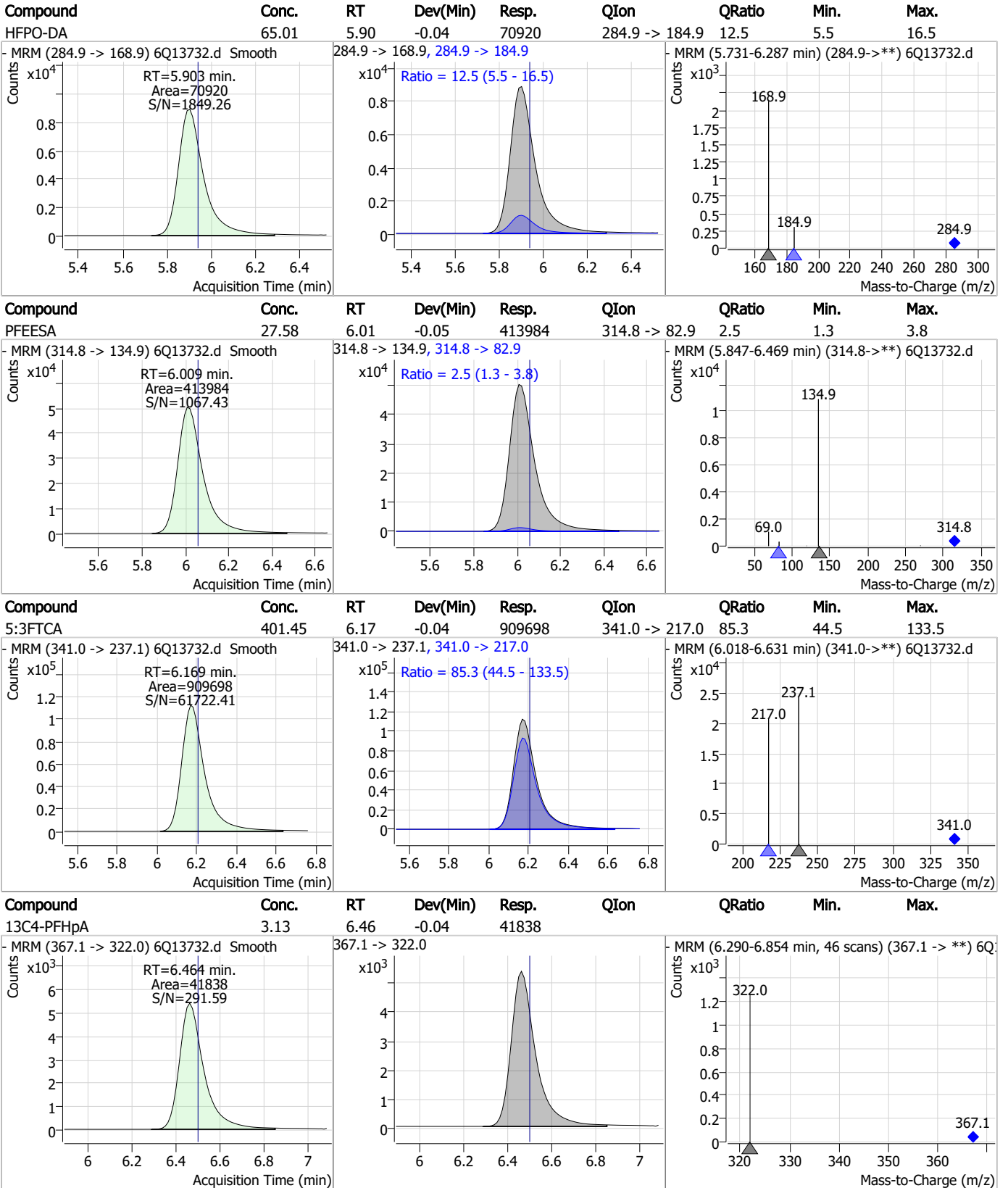
Perfluorinated Compounds by LC/MS/MS



7.6.7

7

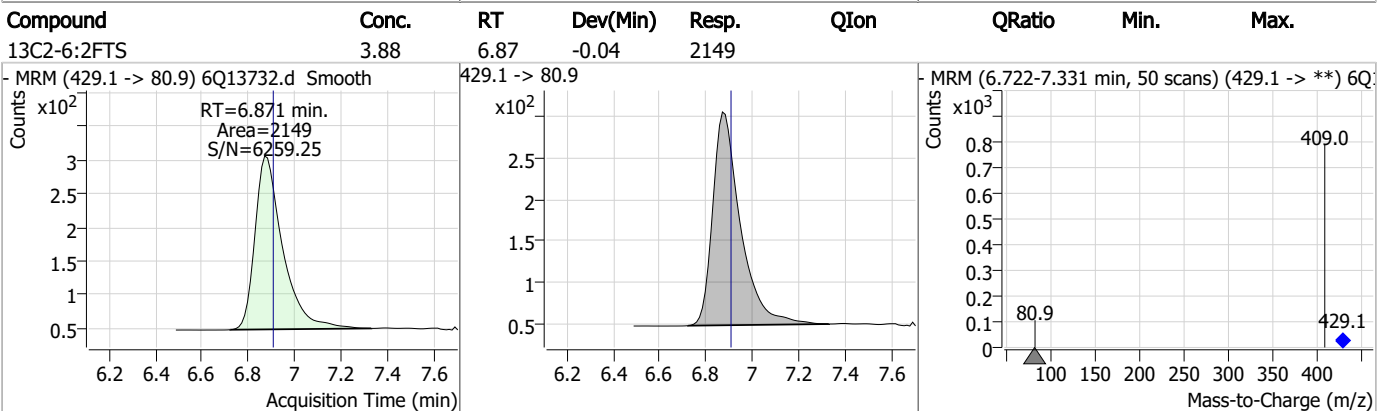
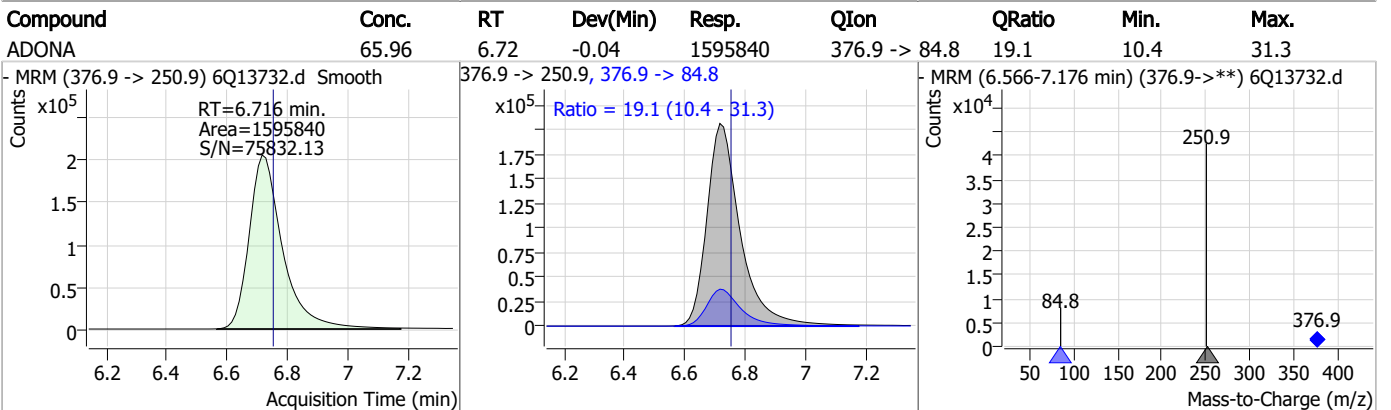
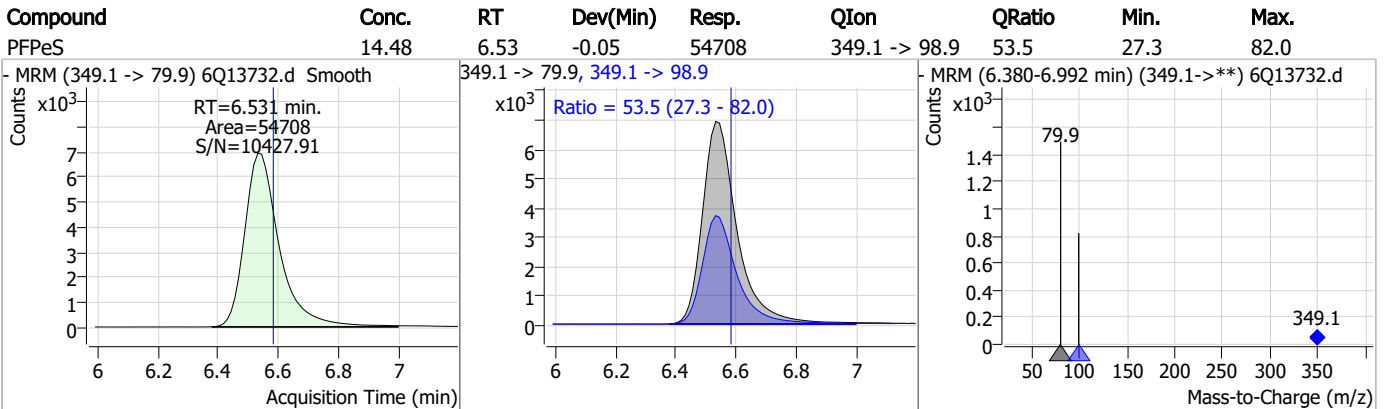
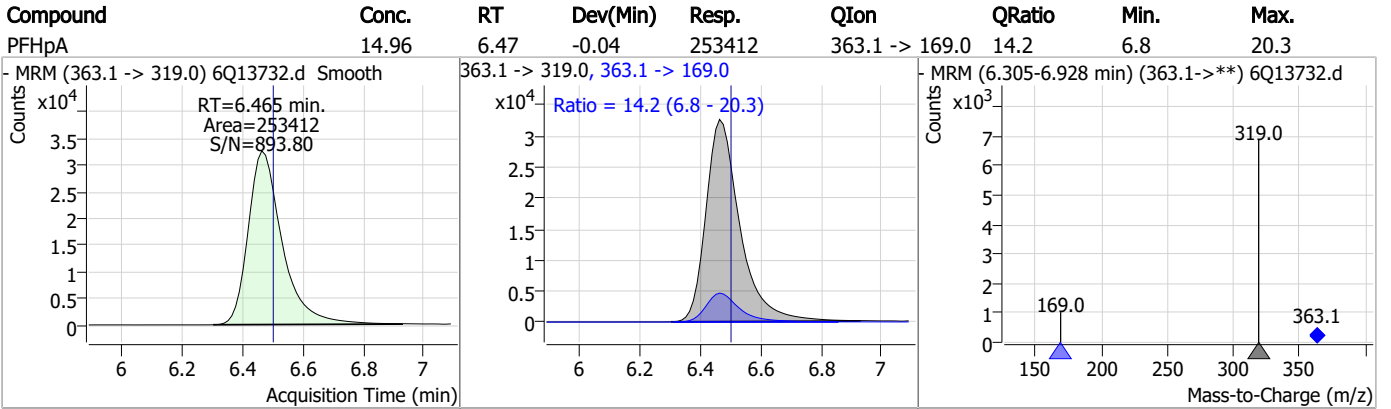
Perfluorinated Compounds by LC/MS/MS



7.67

7

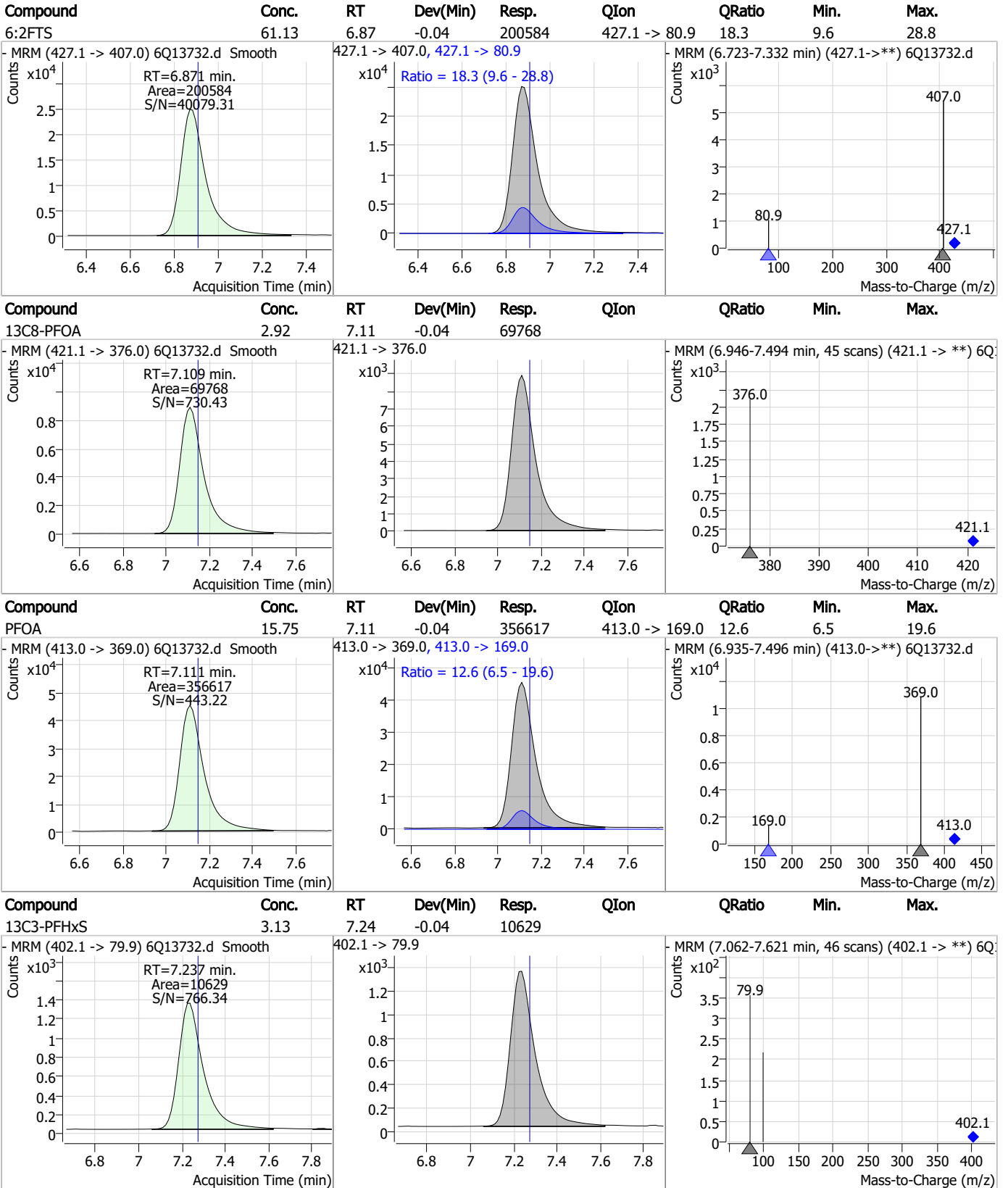
Perfluorinated Compounds by LC/MS/MS



7.67

7

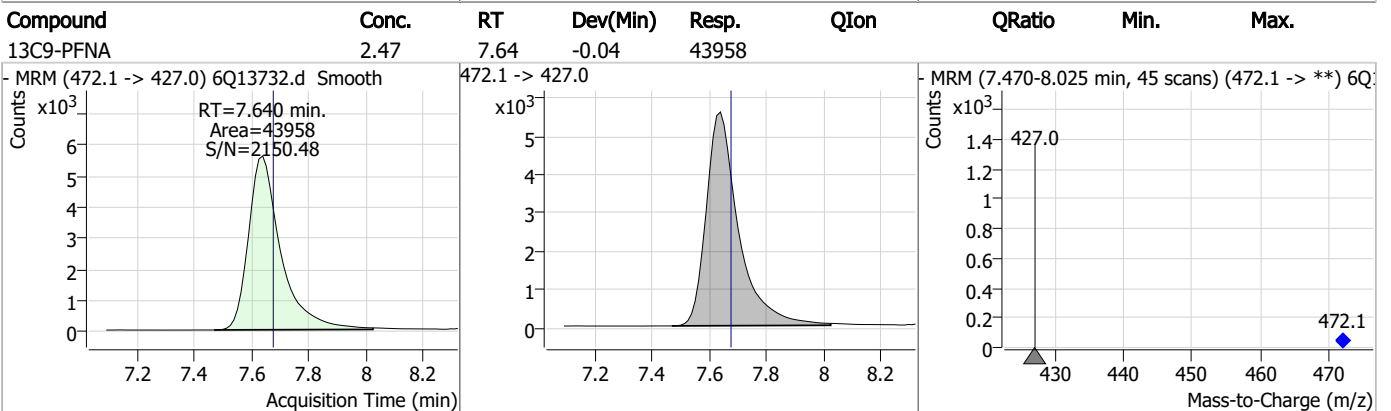
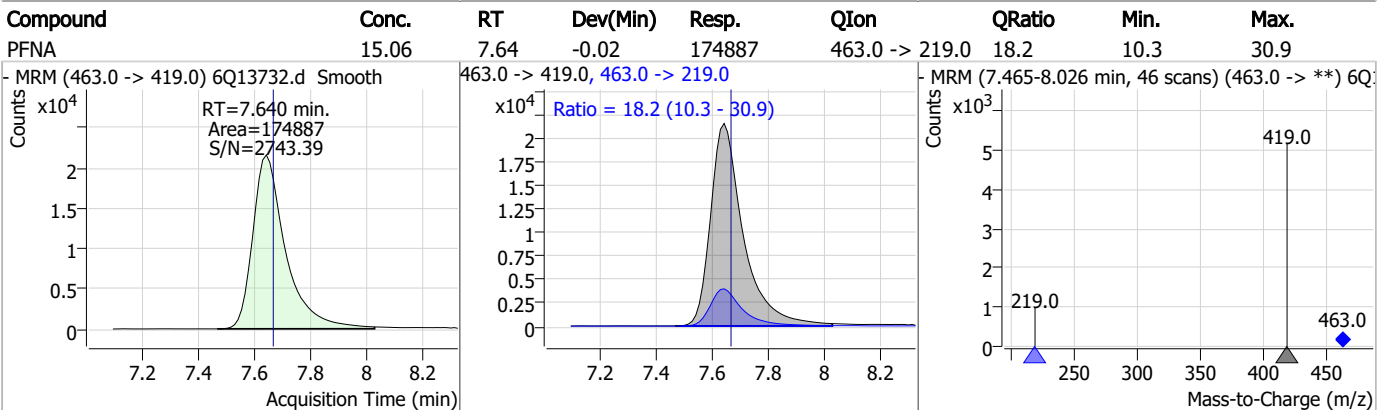
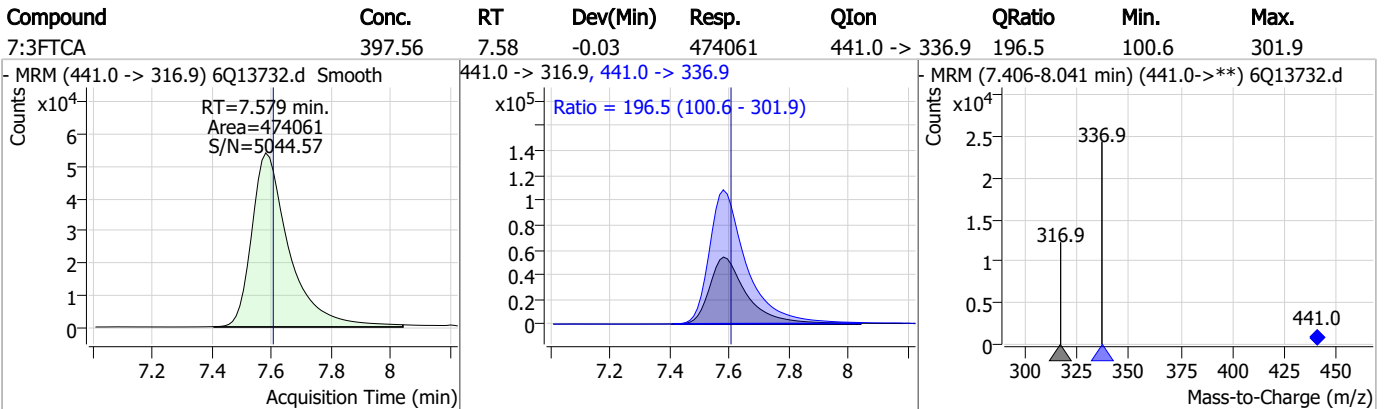
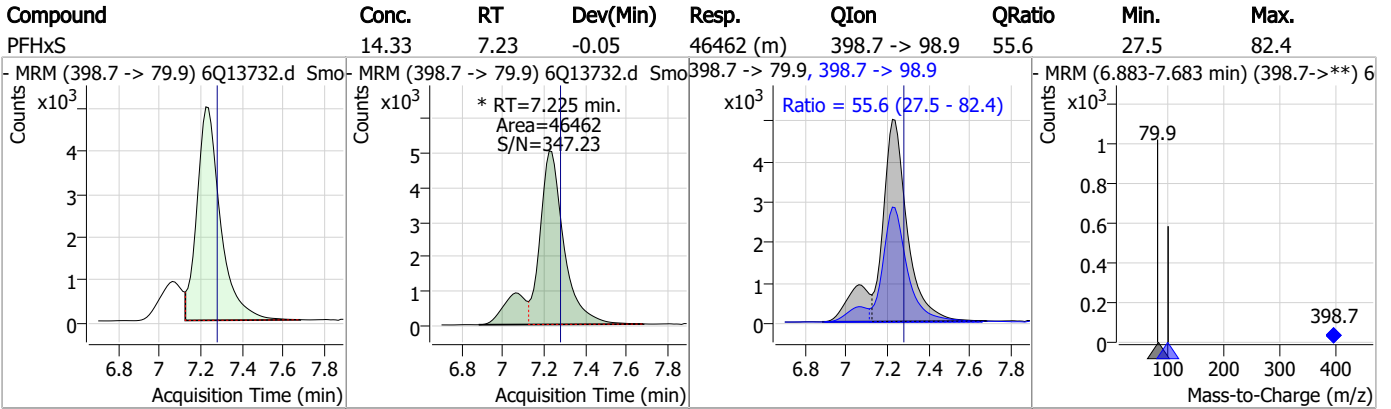
Perfluorinated Compounds by LC/MS/MS



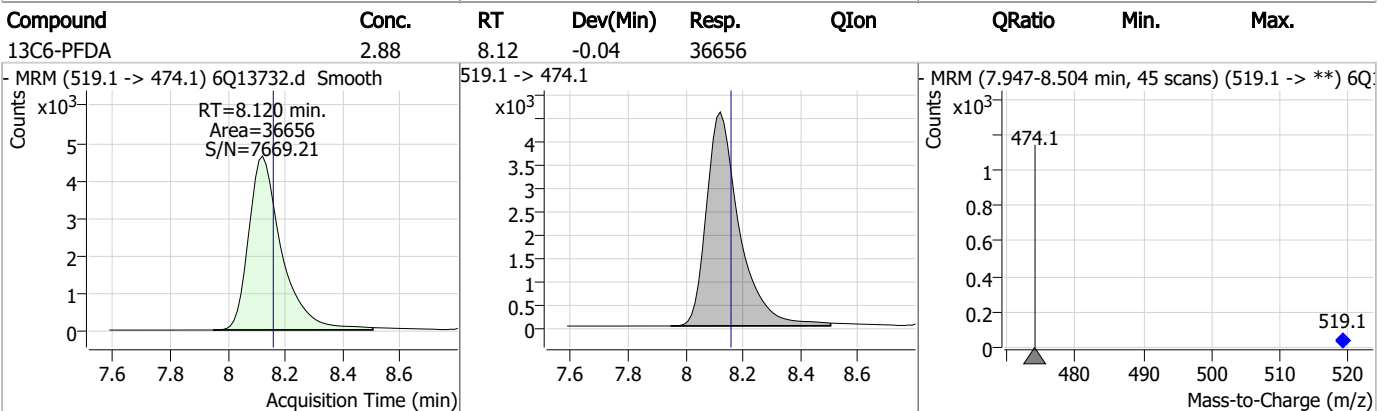
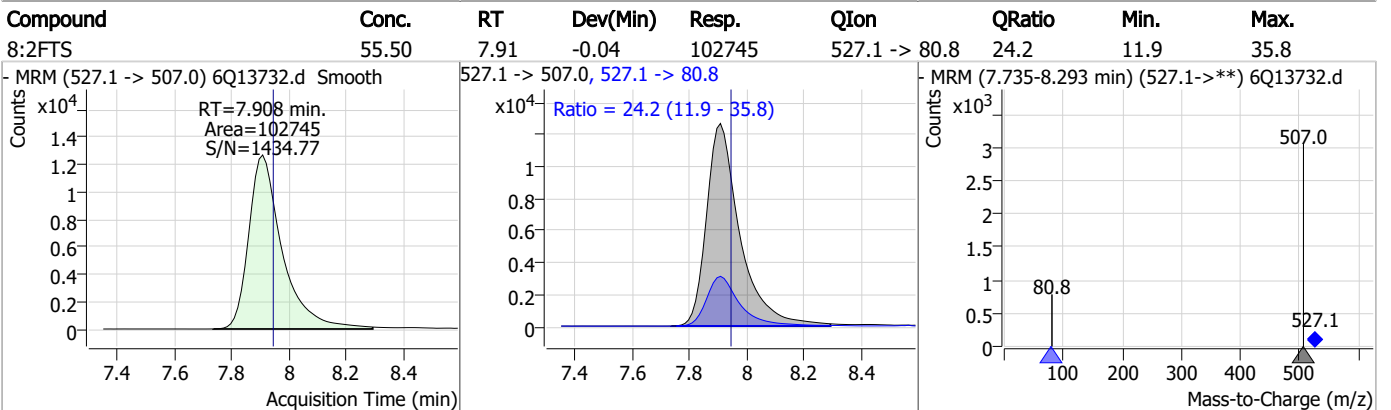
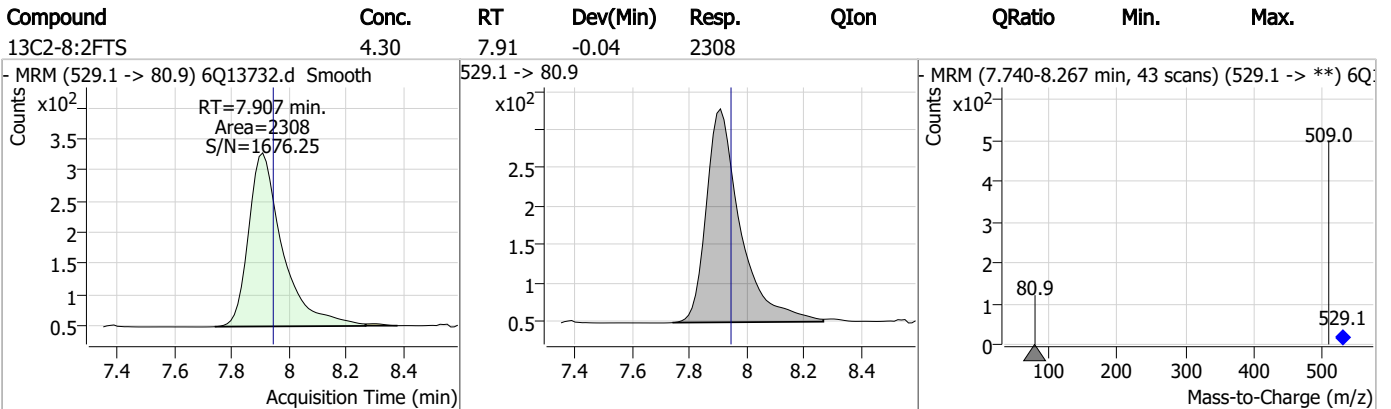
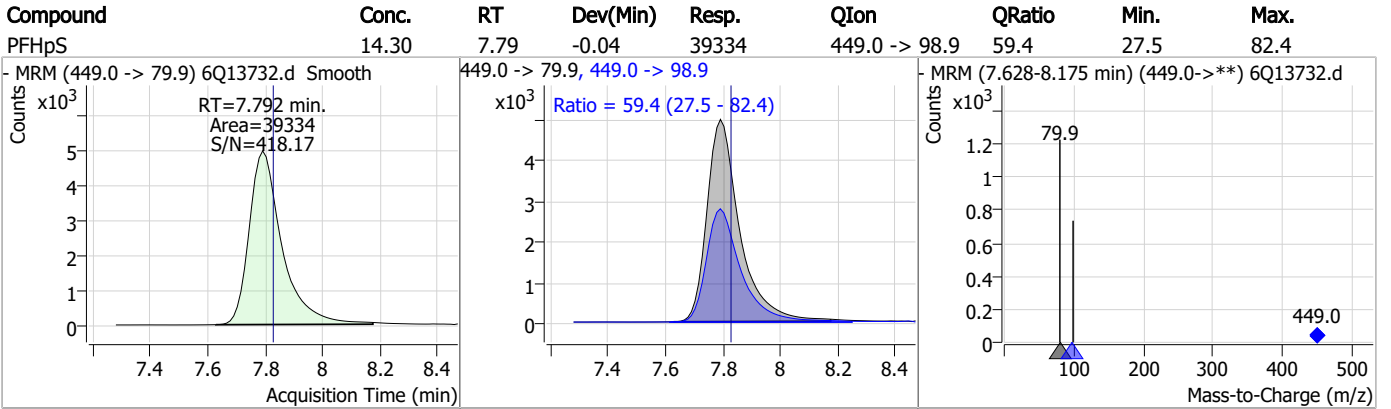
7.6.7



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

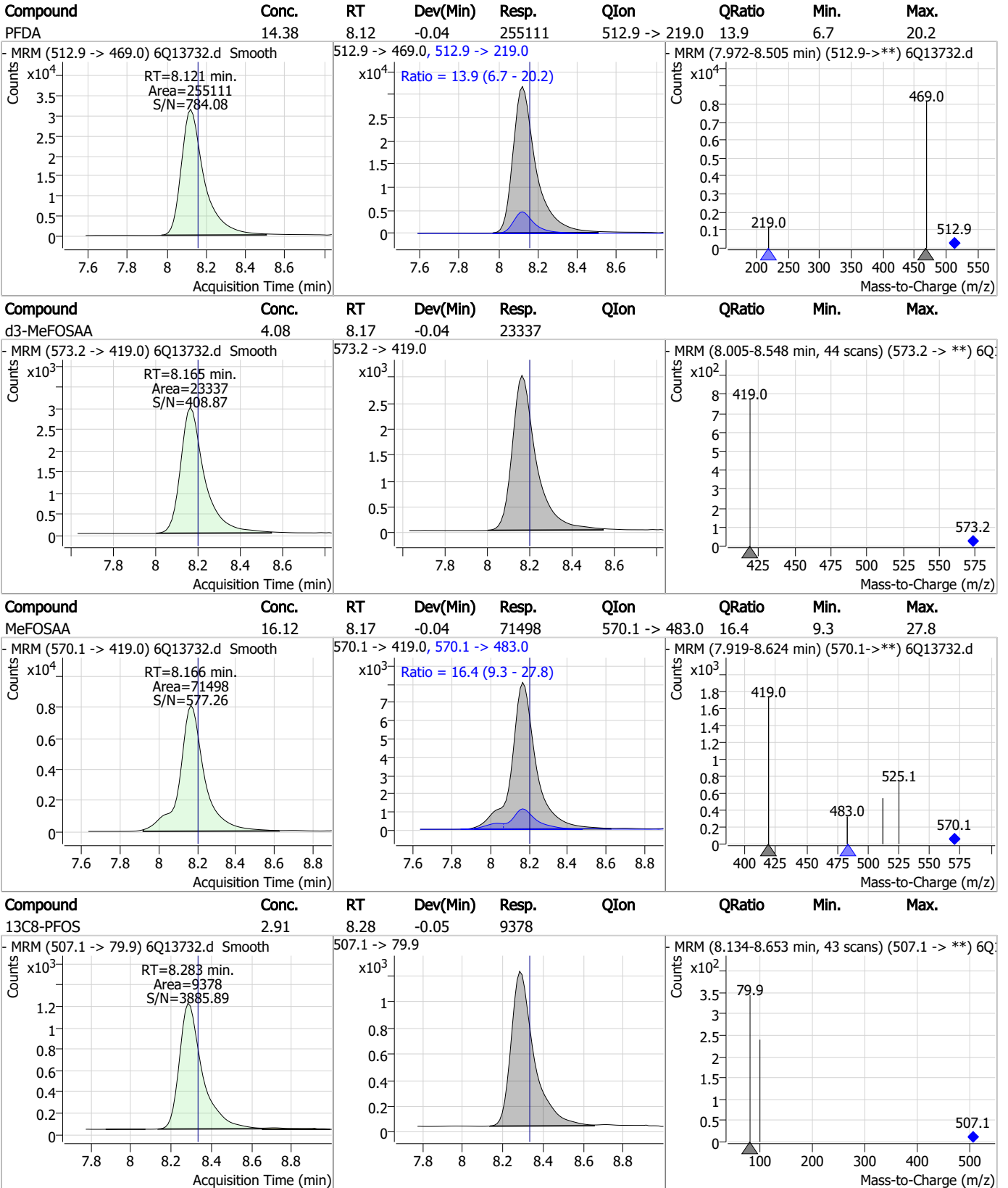


7.67

7



Perfluorinated Compounds by LC/MS/MS

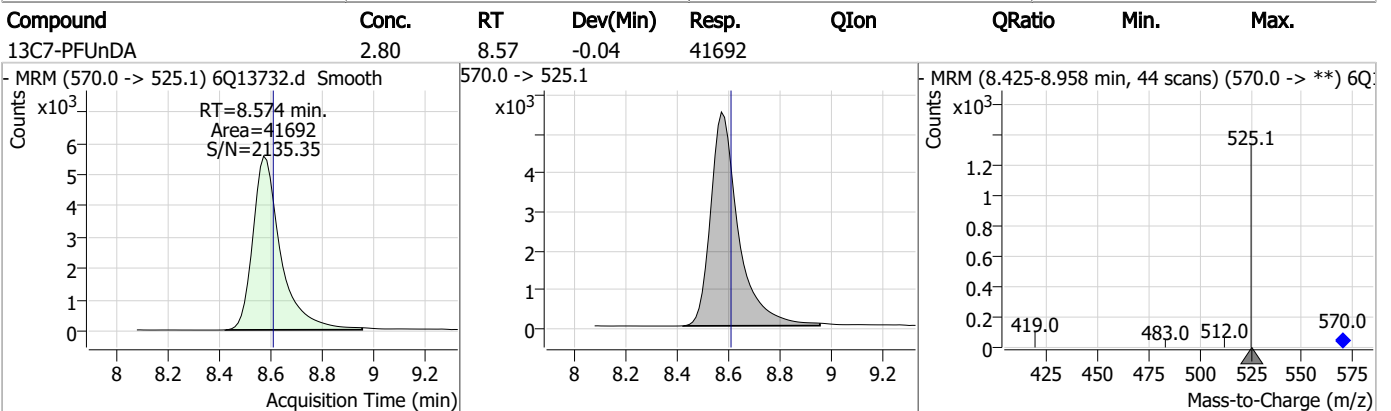
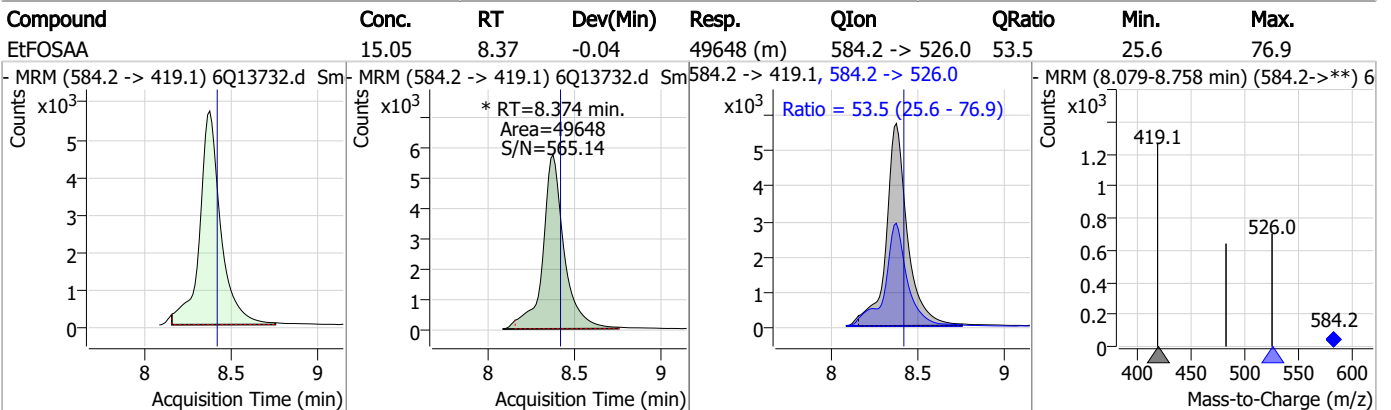
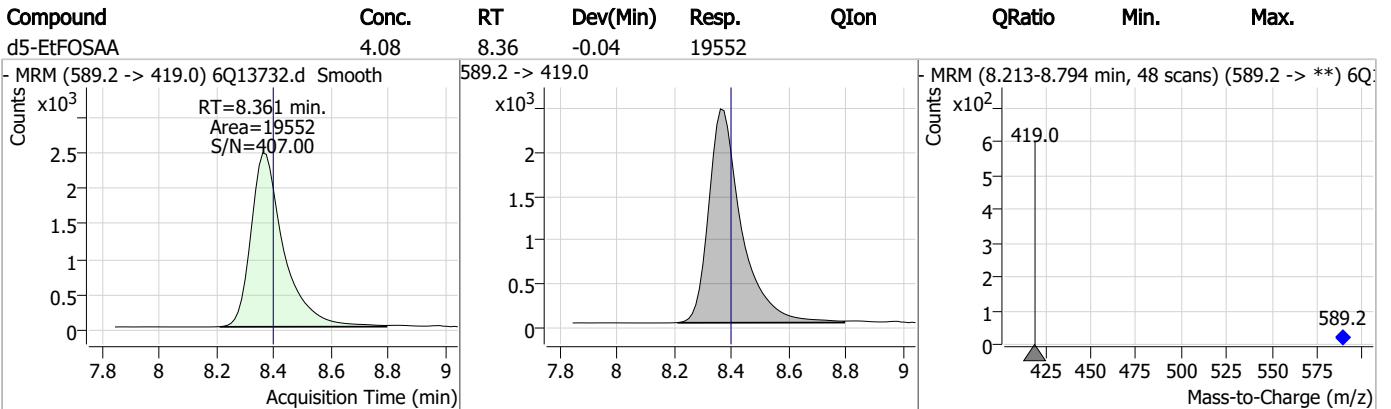
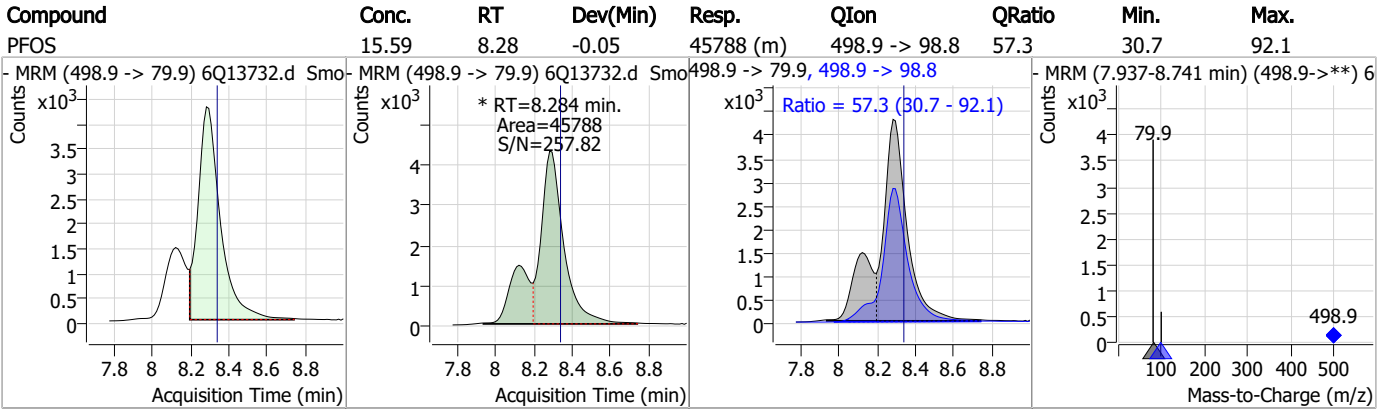


7.6.7

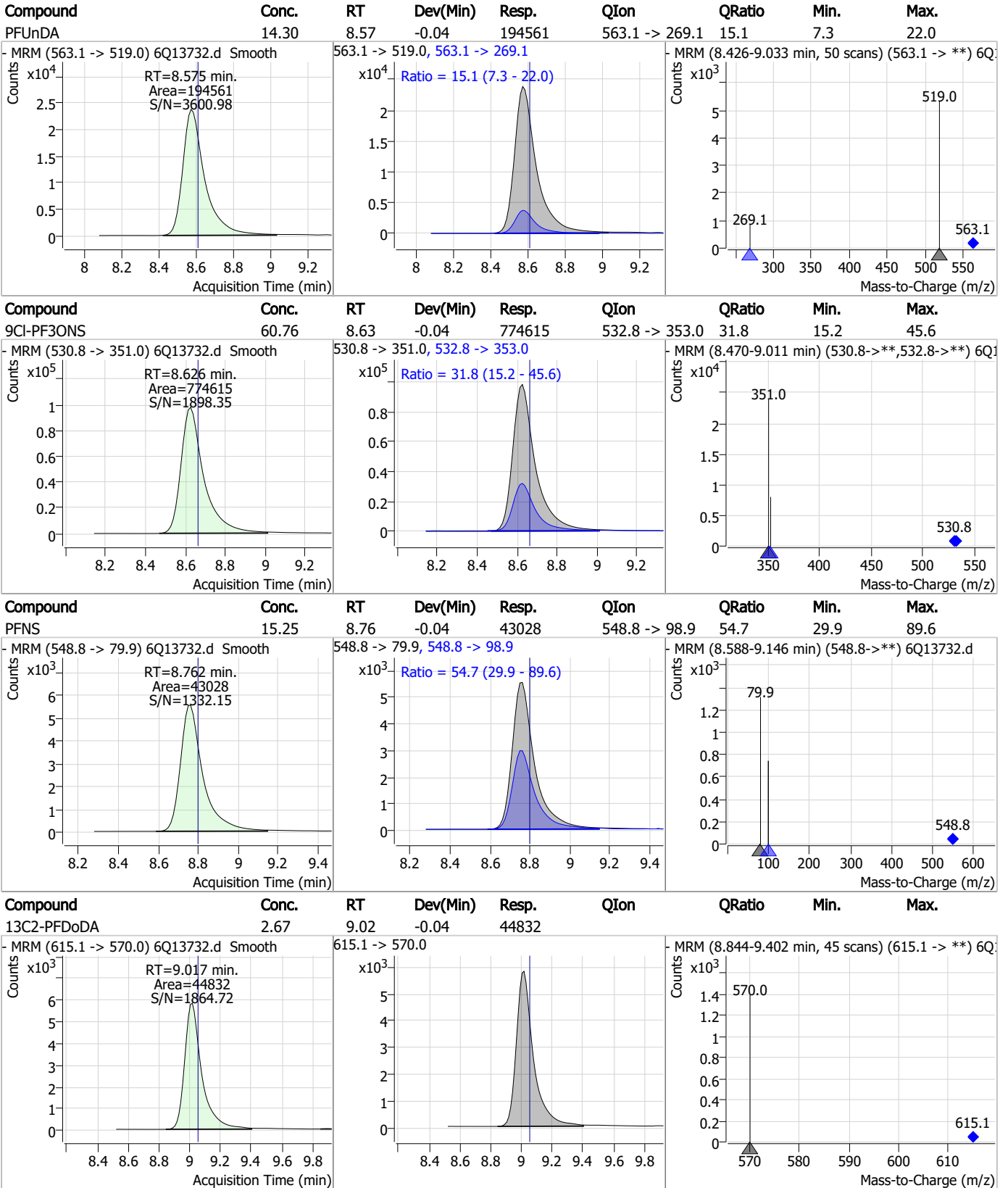
7



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

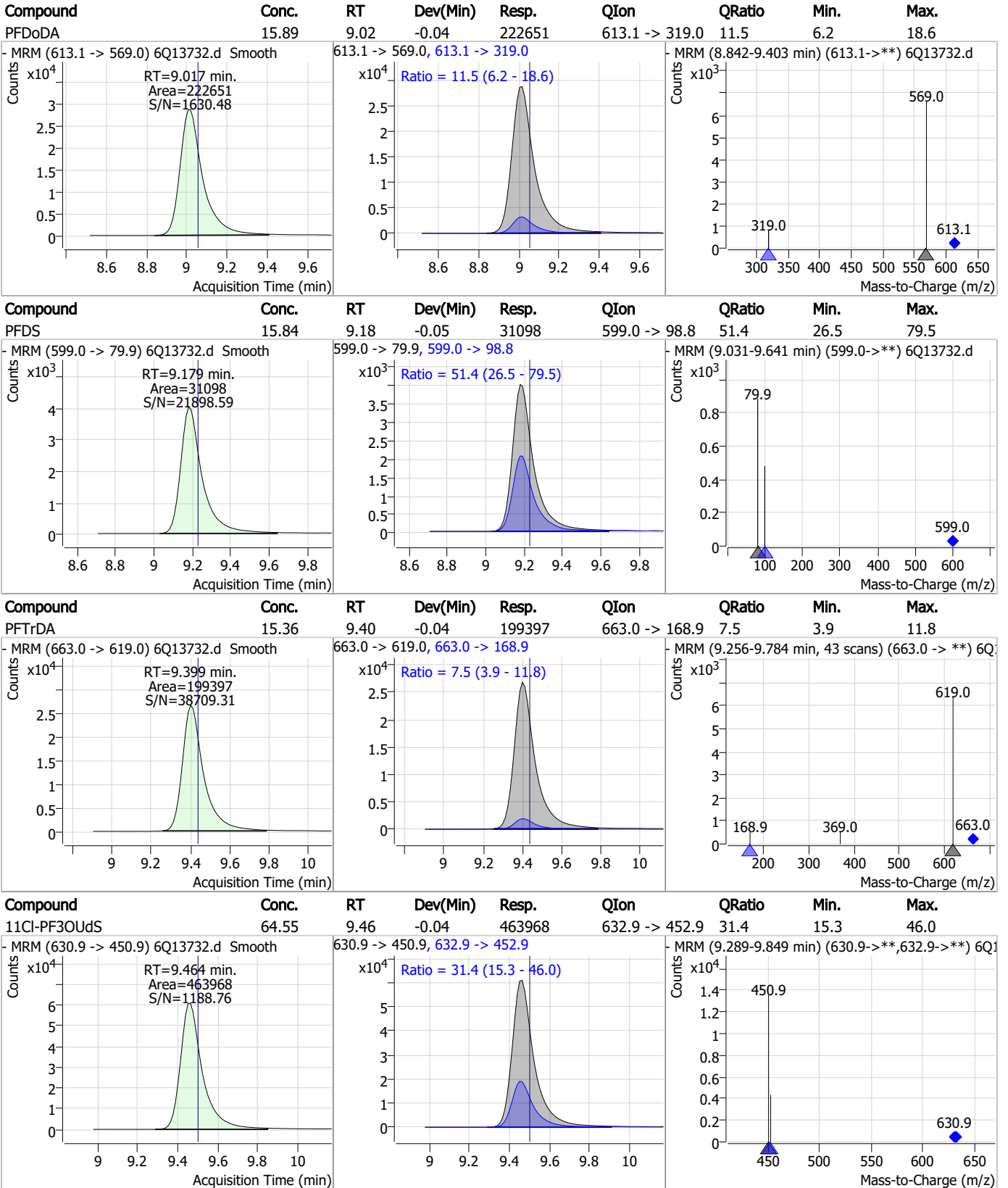


7.67

7

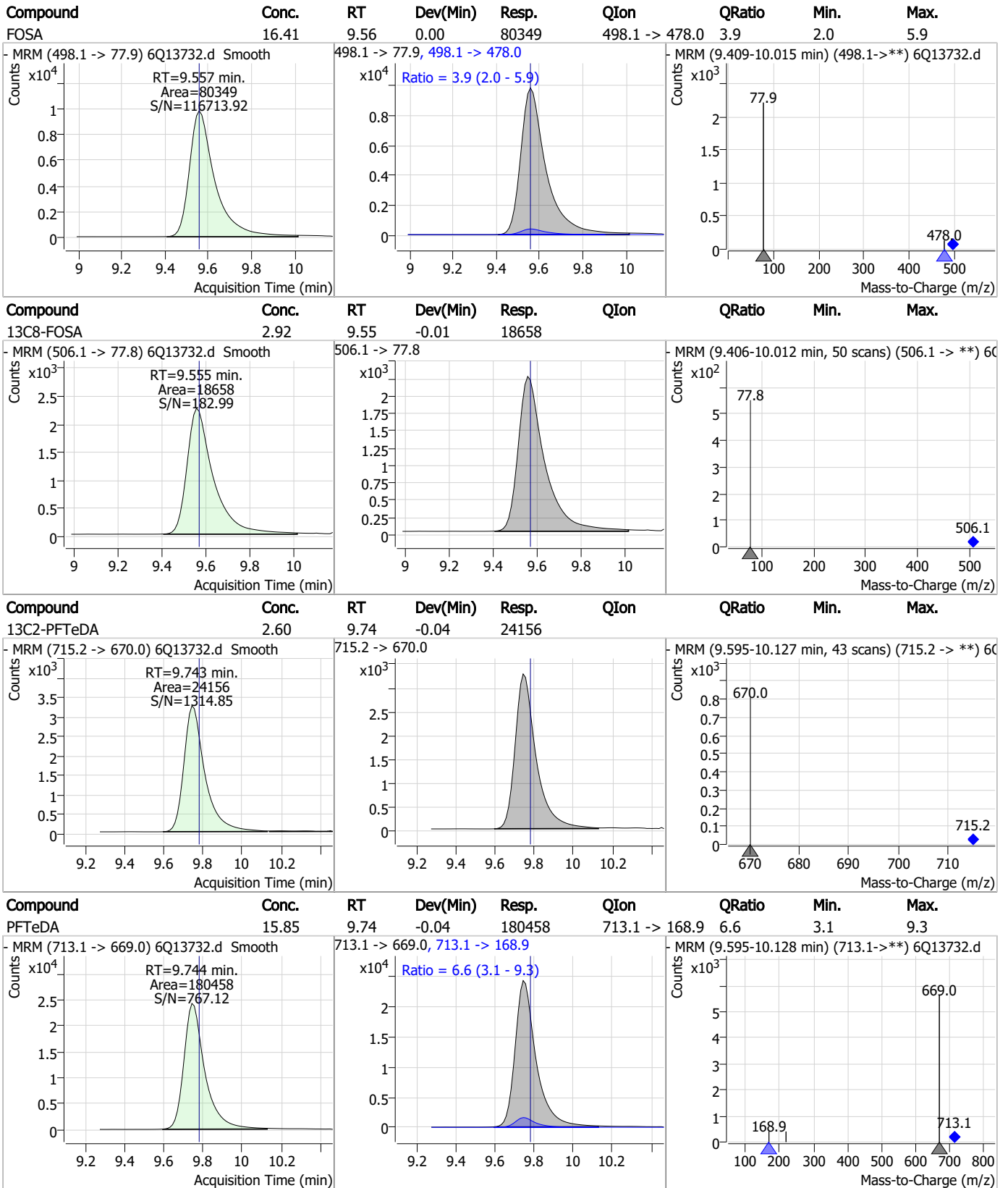


Perfluorinated Compounds by LC/MS/MS



7.67
7

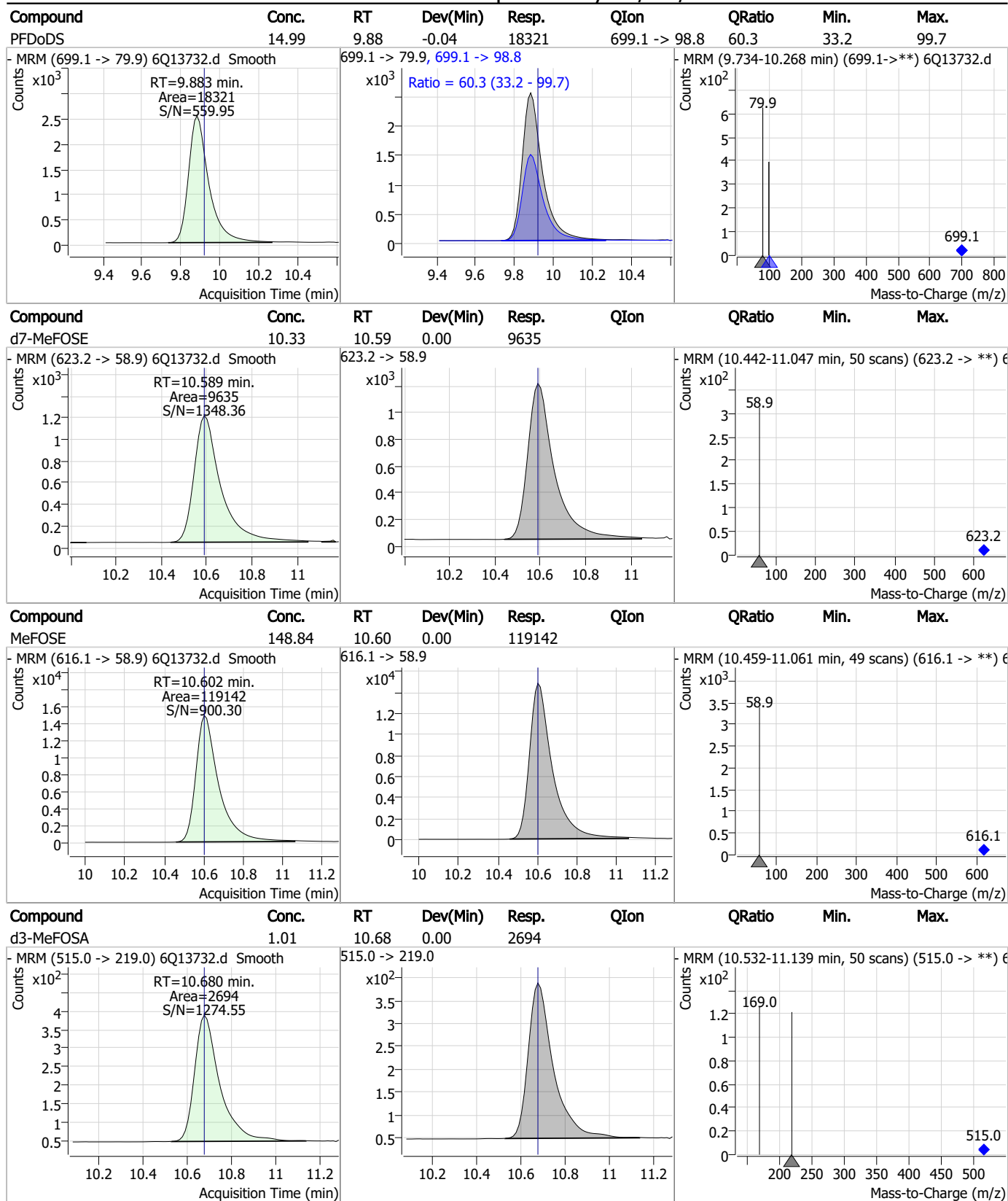
Perfluorinated Compounds by LC/MS/MS



7.6.7

7

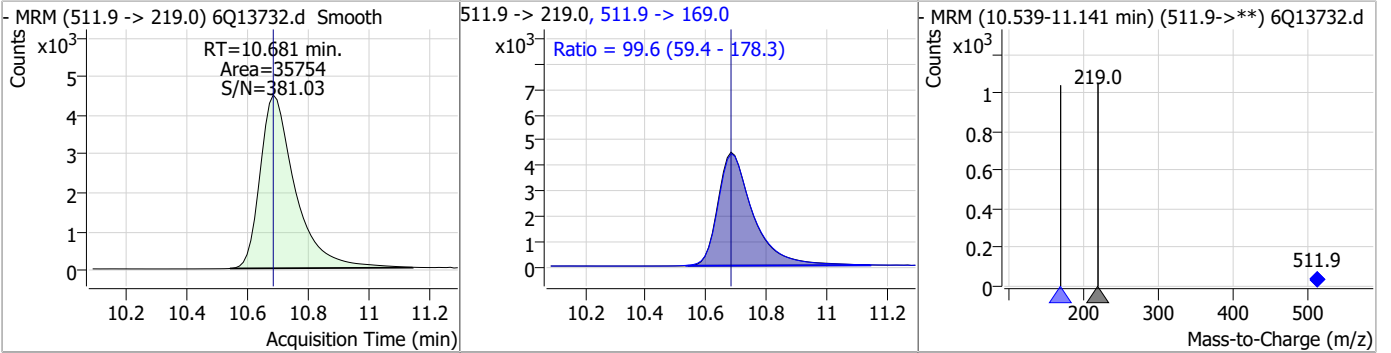
Perfluorinated Compounds by LC/MS/MS



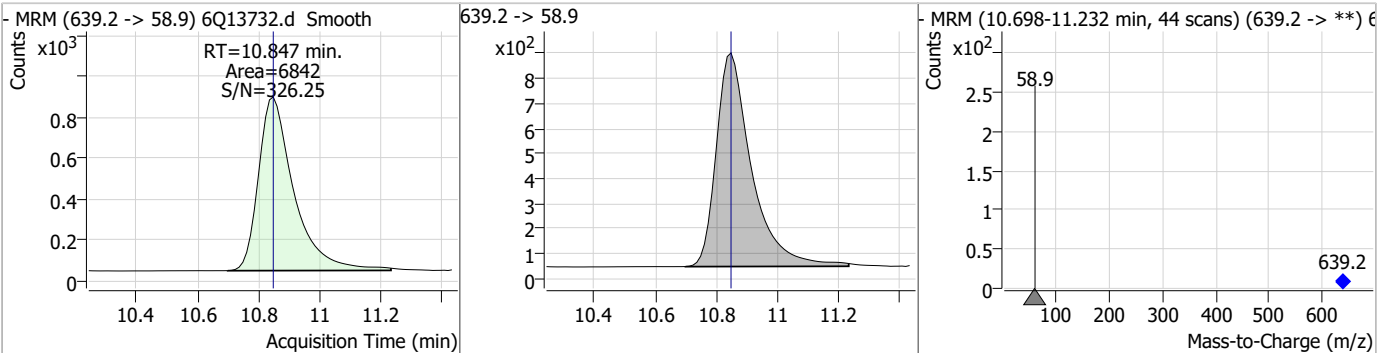
7.67
7

Perfluorinated Compounds by LC/MS/MS

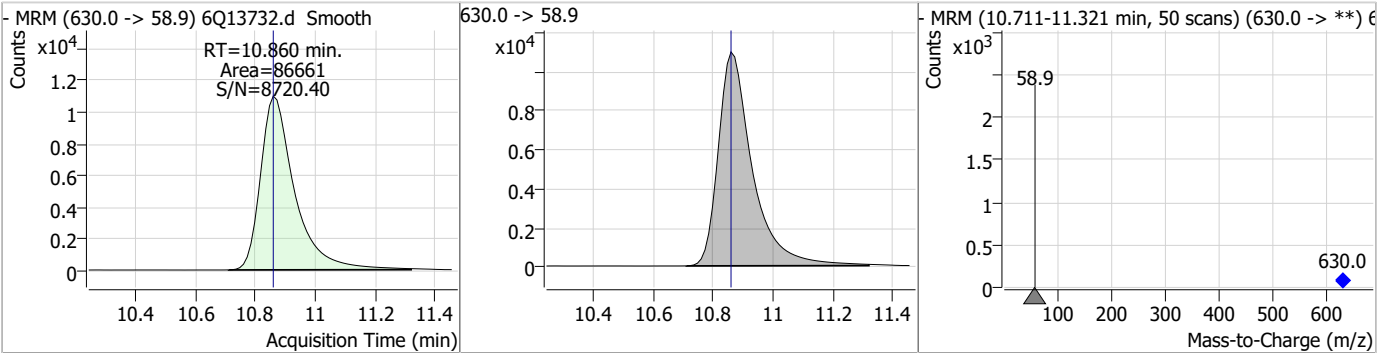
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	15.07	10.68	0.00	35754	511.9 -> 169.0	99.6	59.4	178.3



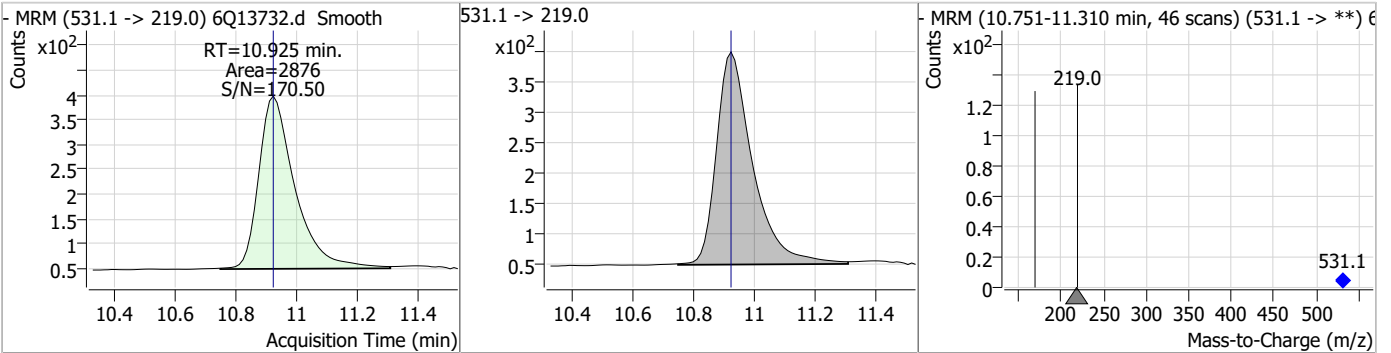
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	10.37	10.85	0.00	6842				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	148.51	10.86	0.00	86661				



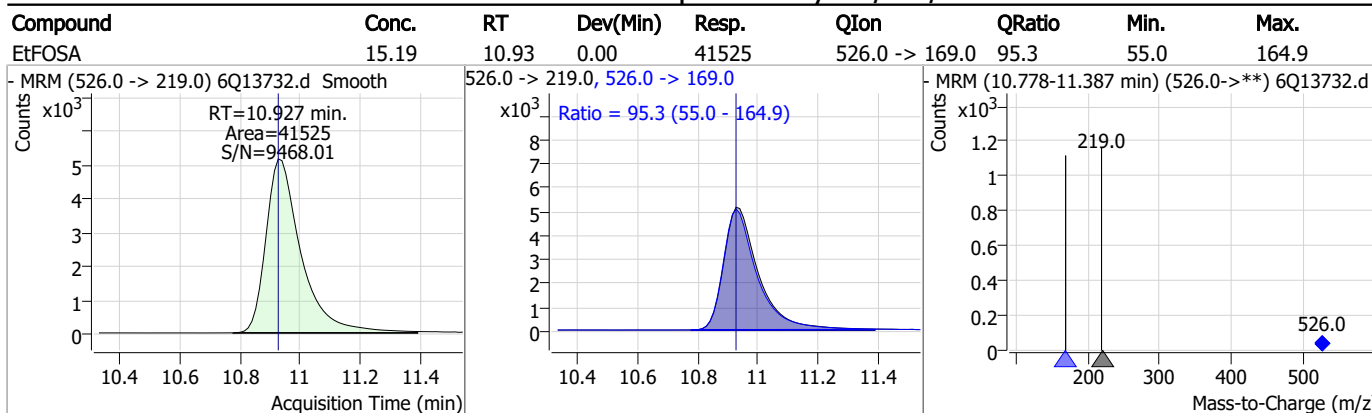
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	1.00	10.92	0.00	2876				



7.67

7

Perfluorinated Compounds by LC/MS/MS



7.6.7
7

Manual Integration Approval Summary

Sample Number: S6Q208-IC208 Method: EPA DRAFT 1633
Lab FileID: 6Q13732.D Analyst approved: 02/18/23 11:42 Natasha Gumtie
Injection Time: 02/16/23 09:14 Supervisor approved: 02/18/23 12:01 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.28	Split peak
EtFOSAA	2991-50-6		8.37	Split peak

7.6.7.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
 02/18/23 12:01

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13733.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/16/2023 9:28:05 AM
 Sample Name : ic208-7
 Vial : P1-D8
 DA Method File : 1633_021623_S6Q208NEW.quantmethod.xml
 Batch Name : s6q208.batch.bin
 Sample Information : OP95142,S6Q208,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.963	216.8 -> 171.9	54822	7.50 µg/L	-0.012
M5-PFPeA	4.361	268.3 -> 223.0	36103	5.00 µg/L	-0.025
M5-PFHxA	5.538	318.0 -> 273.0	50190	3.75 µg/L	-0.025
M4-PFHpA	6.477	367.1 -> 322.0	50191	3.75 µg/L	-0.025
M8-PFOA	7.109	421.1 -> 376.0	81431	3.75 µg/L	-0.037
M9-PFNA	7.640	472.1 -> 427.0	48928	3.13 µg/L	-0.037
M6-PFDA	8.120	519.1 -> 474.1	39877	3.13 µg/L	-0.037
M7-PFUnDA	8.574	570.0 -> 525.1	45400	3.13 µg/L	-0.037
M2-PFDoDA	9.004	615.1 -> 570.0	50783	3.13 µg/L	-0.050
M2-PFTeDA	9.743	715.2 -> 670.0	28496	3.13 µg/L	-0.037
M8-FOSA	9.555	506.1 -> 77.8	22163	3.75 µg/L	-0.012
M3-PFBS	5.481	302.1 -> 79.9	19064	3.75 µg/L	-0.037
M3-PFHxS	7.237	402.1 -> 79.9	12416	3.75 µg/L	-0.037
M8-PFOS	8.283	507.1 -> 79.9	10682	3.75 µg/L	-0.050
M2-4:2FTS	5.215	329.1 -> 80.9	1770	5.00 µg/L	-0.025
M2-6:2FTS	6.883	429.1 -> 80.9	2458	5.00 µg/L	-0.025
M2-8:2FTS	7.907	529.1 -> 80.9	2523	5.00 µg/L	-0.037
M3-MeFOSAA	8.165	573.2 -> 419.0	27300	5.00 µg/L	-0.037
M3-HFPO-DA	5.903	286.9 -> 168.9	7156	5.00 µg/L	-0.037
M5-EtFOSAA	8.361	589.2 -> 419.0	22328	5.00 µg/L	-0.037
M7-MeFOSE	10.589	623.2 -> 58.9	10833	12.50 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	7423	12.50 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	3200	1.25 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	3036	1.25 µg/L	0.000
13C4-PFOS	8.283	502.8 -> 79.9	9392	2.50 µg/L	-0.050
13C3-PFBA	2.954	216.0 -> 172.0	32027	5.00 µg/L	-0.025
18O2-PFHxS	7.236	403.0 -> 83.9	5841	2.50 µg/L	-0.037
13C4-PFOA	7.110	417.1 -> 372.0	70168	2.50 µg/L	-0.037
13C2-PFDA	8.108	515.1 -> 470.1	21287	1.25 µg/L	-0.050
13C5-PFNA	7.640	468.0 -> 423.0	21068	1.25 µg/L	-0.037
13C2-PFHxA	5.539	315.1 -> 270.0	30045	2.50 µg/L	-0.025
System Monitoring Compounds					
13C2-4:2FTS	5.215	329.1 -> 80.9	1770	4.39 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 87.9%		
13C2-6:2FTS	6.883	429.1 -> 80.9	2458	4.64 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.8%		
13C2-8:2FTS	7.907	529.1 -> 80.9	2523	4.91 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C2-PFDoDA	9.004	615.1 -> 570.0	50783	3.03 µg/L	-0.050
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 96.8%		
13C2-PFTeDA	9.743	715.2 -> 670.0	28496	3.07 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C3-PFBS	5.481	302.1 -> 79.9	19064	3.95 µg/L	-0.037
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 105.4%		
13C3-PFHxS	7.237	402.1 -> 79.9	12416	3.82 µg/L	-0.037

7.68
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C4-PFBA	2.963	216.8 -> 171.9	54822	7.38 µg/L	-0.012
Spiked Amount: 7.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C4-PFHpA	6.477	367.1 -> 322.0	50191	3.88 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C5-PFHxA	5.538	318.0 -> 273.0	50190	3.94 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C5-PFPeA	4.361	268.3 -> 223.0	36103	5.11 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C6-PFDA	8.120	519.1 -> 474.1	39877	3.14 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C7-PFUnDA	8.574	570.0 -> 525.1	45400	3.05 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C8-FOSA	9.555	506.1 -> 77.8	22163	3.53 µg/L	-0.012
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 94.1%	
13C8-PFOA	7.109	421.1 -> 376.0	81431	3.40 µg/L	-0.037
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 90.5%	
13C8-PFOS	8.283	507.1 -> 79.9	10682	3.37 µg/L	-0.050
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 90.0%	
13C9-PFNA	7.640	472.1 -> 427.0	48928	3.06 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 98.0%	
d3-MeFOSAA	8.165	573.2 -> 419.0	27300	4.86 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C3-HFPO-DA	5.903	286.9 -> 168.9	7156	5.28 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.5%	
d3-MeFOSA	10.680	515.0 -> 219.0	3036	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.5%	
d5-EtFOSAA	8.361	589.2 -> 419.0	22328	4.74 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.9%	
d7-MeFOSE	10.589	623.2 -> 58.9	10833	11.83 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%			Recovery = 94.6%	
d9-EtFOSE	10.847	639.2 -> 58.9	7423	11.46 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%			Recovery = 91.7%	
d5-EtFOSA	10.925	531.1 -> 219.0	3200	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.5%	
Target Compounds					QValue
4:2FTS	5.215	327.1 -> 307.0	425716	103.31 µg/L	96
		327.1 -> 80.9	87904		
6:2FTS	6.883	427.1 -> 407.0	371480	98.96 µg/L	99
		427.1 -> 80.9	68851		
8:2FTS	7.908	527.1 -> 507.0	191390	94.56 µg/L	99
		527.1 -> 80.8	45018		
EtFOSAA	8.362	584.2 -> 419.1	93879	24.92 µg/L	m 91
		584.2 -> 526.0	53896		
FOSA	9.557	498.1 -> 77.9	151911	26.12 µg/L	100
		498.1 -> 478.0	5911		
MeFOSAA	8.166	570.1 -> 419.0	131537	25.35 µg/L	99
		570.1 -> 483.0	23717		
PFBA	2.957	212.8 -> 168.9	191873	107.31 µg/L	100
PFBS	5.481	298.7 -> 79.9	123518	23.35 µg/L	92
		298.7 -> 98.8	53397		
PFDA	8.121	512.9 -> 469.0	523869	27.14 µg/L	98
		512.9 -> 219.0	66970		
PFDoDA	9.005	613.1 -> 569.0	433537	27.31 µg/L	100
		613.1 -> 319.0	52992		
PFDS	9.179	599.0 -> 79.9	59965	26.82 µg/L	98

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	32488			
PFHpA	6.477	363.1 -> 319.0	530687	26.12	µg/L	100
		363.1 -> 169.0	71663			
PFHpS	7.792	449.0 -> 79.9	83753	26.73	µg/L	97
		449.0 -> 98.9	47767			
PFHxA	5.541	313.0 -> 269.0	358598	26.56	µg/L	100
		313.0 -> 118.9	12919			
PFHxS	7.238	398.7 -> 79.9	90357	23.85	µg/L	m 100
		398.7 -> 98.9	49850			
PFNA	7.640	463.0 -> 419.0	348787	26.99	µg/L	96
		463.0 -> 219.0	64615			
PFNS	8.749	548.8 -> 79.9	85702	26.67	µg/L	99
		548.8 -> 98.9	50625			
PFOA	7.111	413.0 -> 369.0	693252	26.23	µg/L	99
		413.0 -> 169.0	92226			
PFOS	8.284	498.9 -> 79.9	90009	26.91	µg/L	m 100
		498.9 -> 98.8	55566			
PFPeA	4.363	263.0 -> 219.0	425870	52.98	µg/L	100
PFPeS	6.543	349.1 -> 79.9	108478	24.58	µg/L	98
		349.1 -> 98.9	57626			
PFTeDA	9.744	713.1 -> 669.0	347018	25.83	µg/L	99
		713.1 -> 168.9	23048			
PFTrDA	9.399	663.0 -> 619.0	415164	28.23	µg/L	98
		663.0 -> 168.9	30023			
PFUnDA	8.575	563.1 -> 519.0	412722	27.86	µg/L	98
		563.1 -> 269.1	57135			
11CI-PF3OUdS	9.452	630.9 -> 450.9	886426	95.66	µg/L	95
		632.9 -> 452.9	295686			
9CI-PF3ONS	8.626	530.8 -> 351.0	1575969	95.88	µg/L	100
		532.8 -> 353.0	480779			
ADONA	6.728	376.9 -> 250.9	3169341	101.62	µg/L	100
		376.9 -> 84.8	658918			
HFPO-DA	5.903	284.9 -> 168.9	143171	101.81	µg/L	98
		284.9 -> 184.9	16992			
3:3FTCA	3.829	241.0 -> 177.0	53157	131.00	µg/L	98
		241.0 -> 117.0	7109			
5:3FTCA	6.181	341.0 -> 237.1	1751333	634.03	µg/L	100
		341.0 -> 217.0	1553268			
7:3FTCA	7.579	441.0 -> 316.9	934979	643.25	µg/L	98
		441.0 -> 336.9	1853094			
EtFOSA	10.927	526.0 -> 219.0	80073	26.33	µg/L	94
		526.0 -> 169.0	82762			
EtFOSE	10.860	630.0 -> 58.9	176241	278.39	µg/L	100
MeFOSA	10.681	511.9 -> 219.0	72866	27.24	µg/L	80
		511.9 -> 169.0	70887			
MeFOSE	10.602	616.1 -> 58.9	240983	267.75	µg/L	100
PFDoS	9.883	699.1 -> 79.9	34948	25.11	µg/L	98
		699.1 -> 98.8	22541			
NFDHA	5.420	295.0 -> 201.0	40706	49.64	µg/L	96
		295.0 -> 84.9	20366			
PFMBA	4.763	279.0 -> 85.1	127623	53.79	µg/L	100
PFMPA	3.516	229.0 -> 84.9	115586	53.84	µg/L	100
PFEESA	6.021	314.8 -> 134.9	853844	46.67	µg/L	100
		314.8 -> 82.9	21143			

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

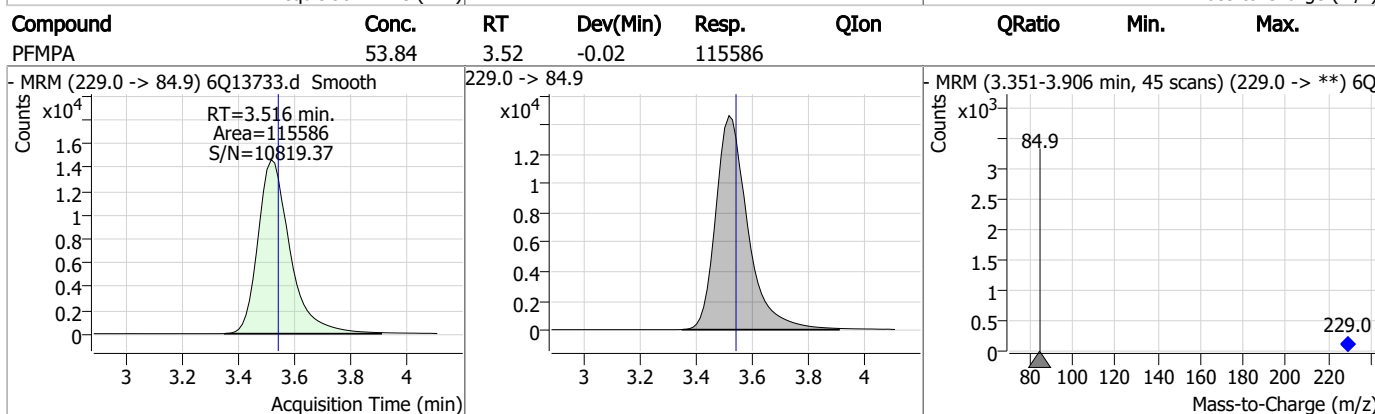
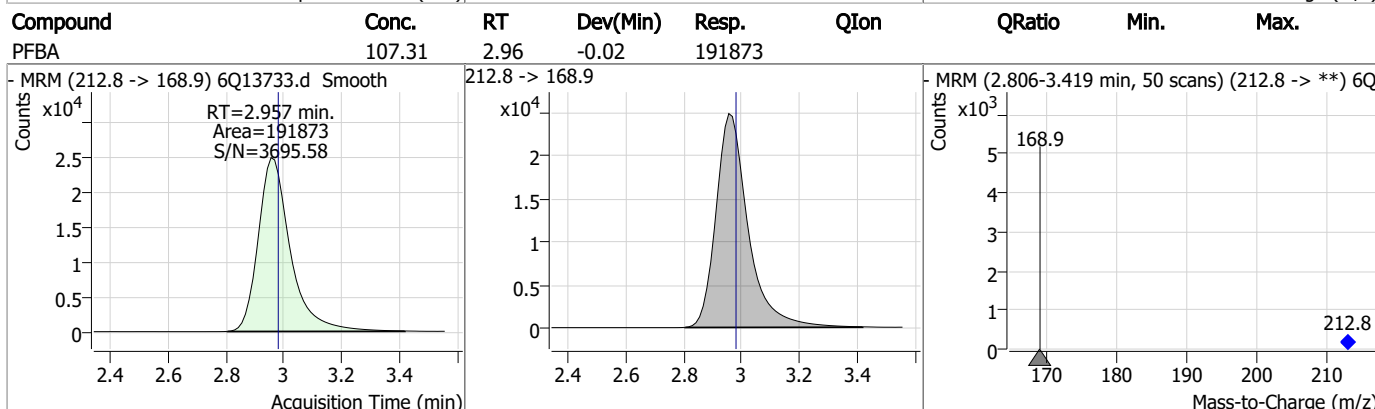
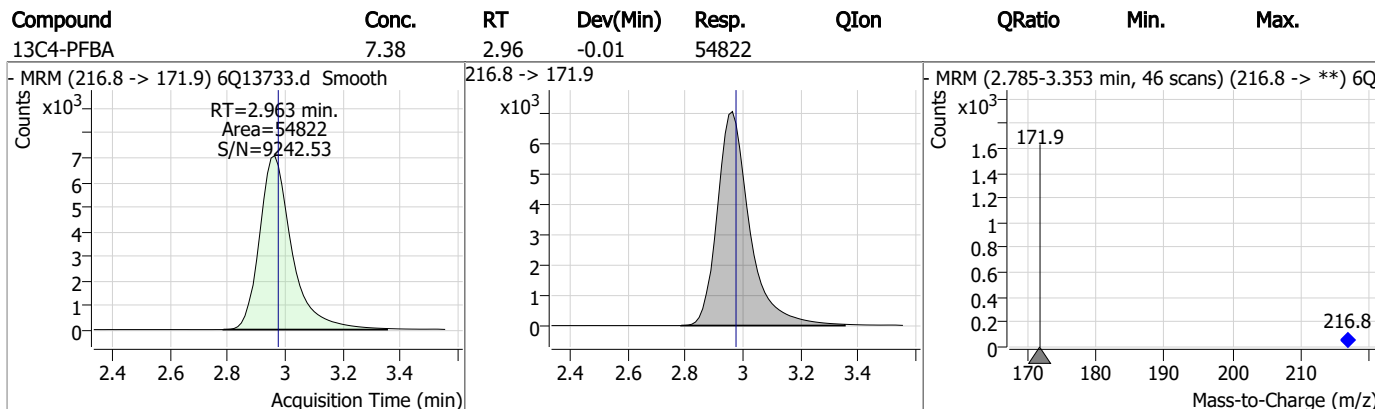
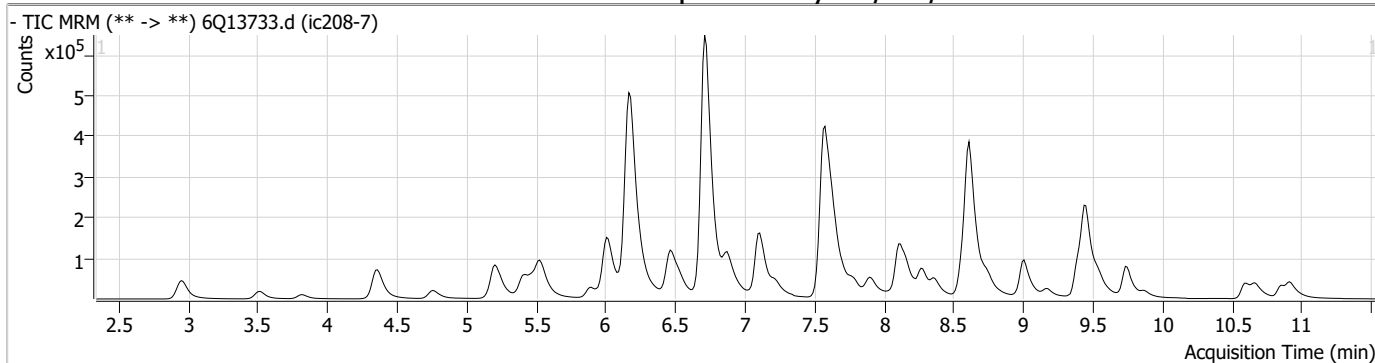
Perfluorinated Compounds by LC/MS/MS

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

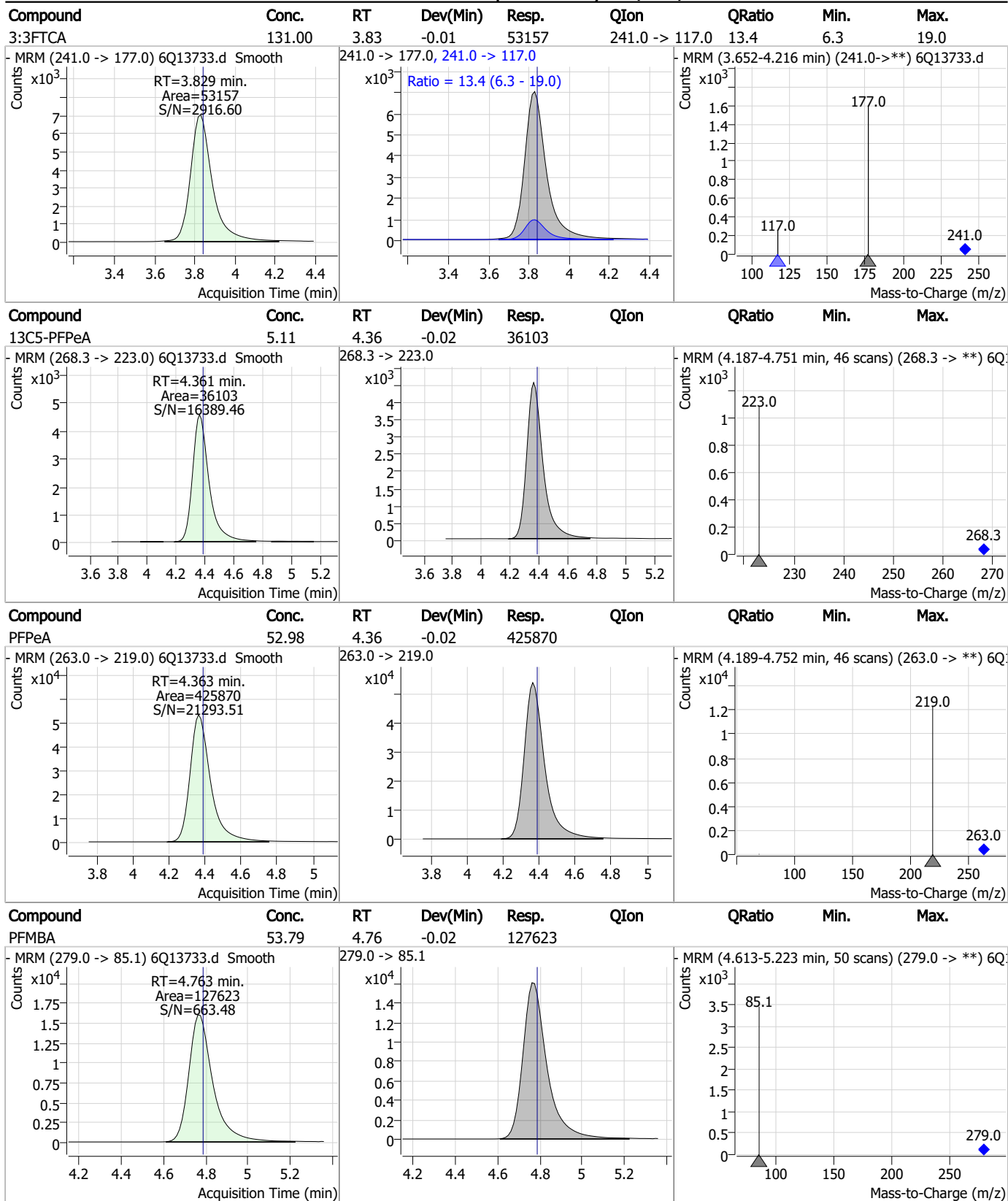
7.6.8
7



Perfluorinated Compounds by LC/MS/MS

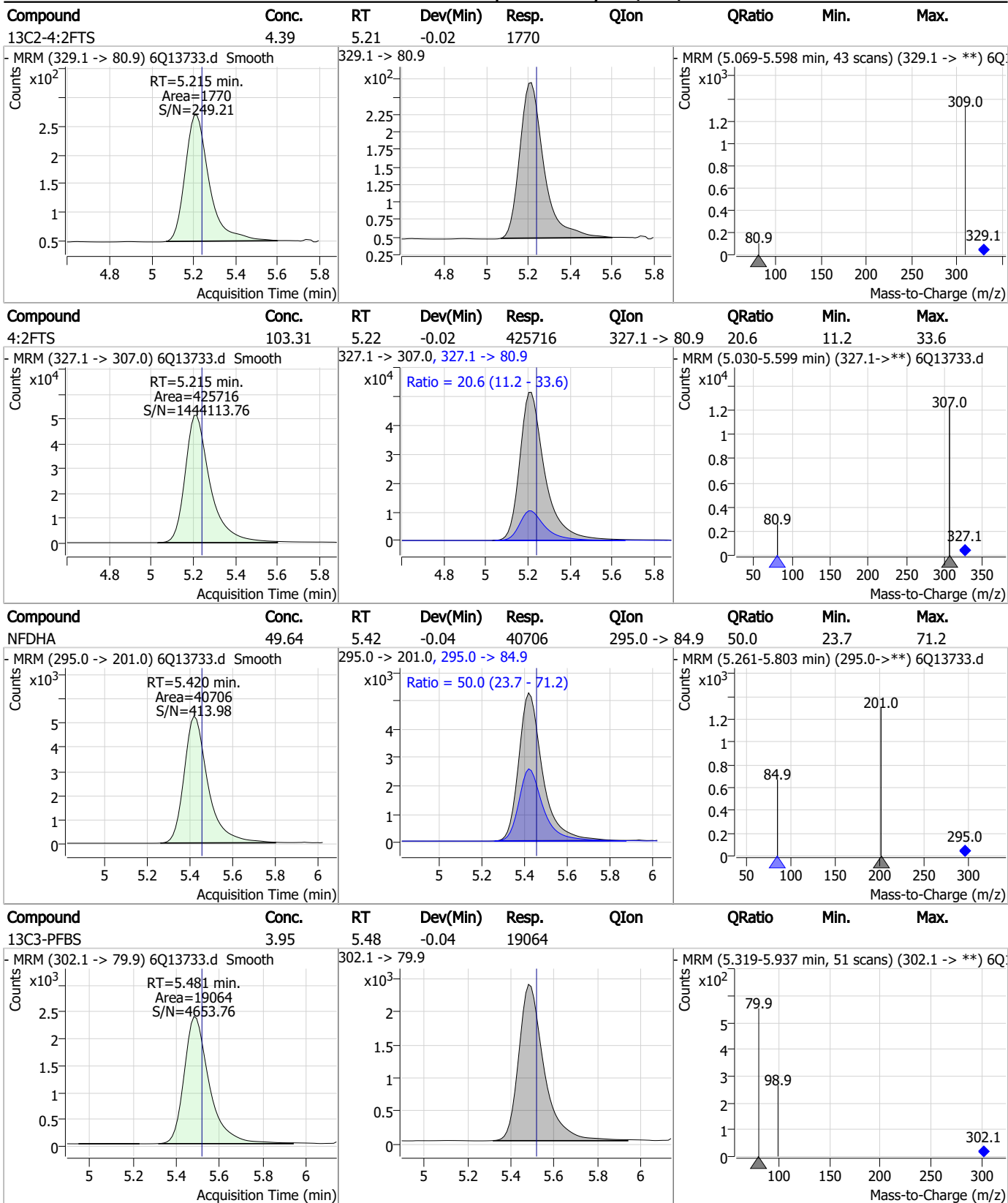


Perfluorinated Compounds by LC/MS/MS



7.6.8
7

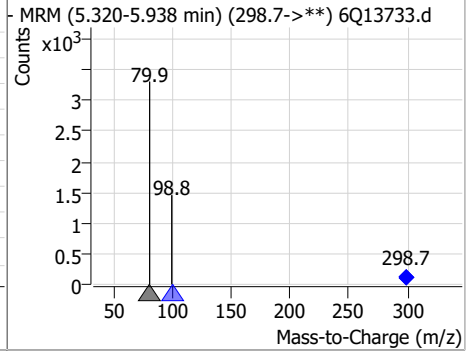
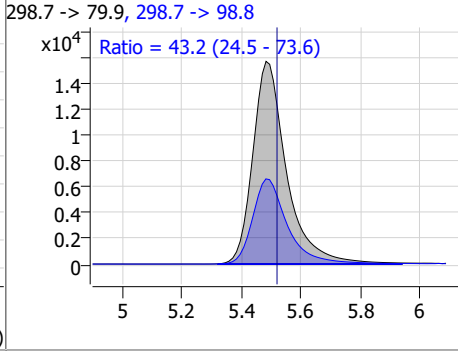
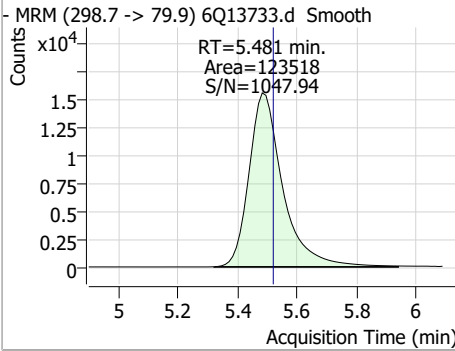
Perfluorinated Compounds by LC/MS/MS



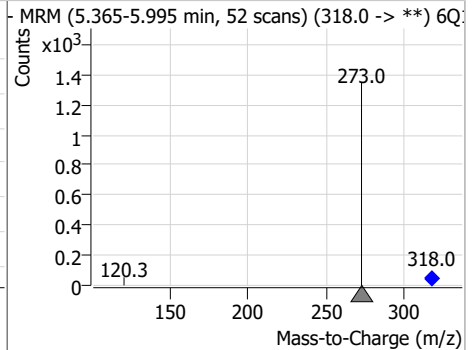
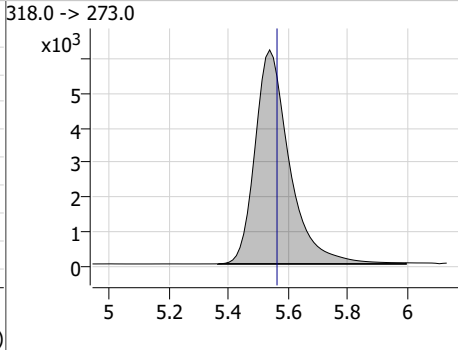
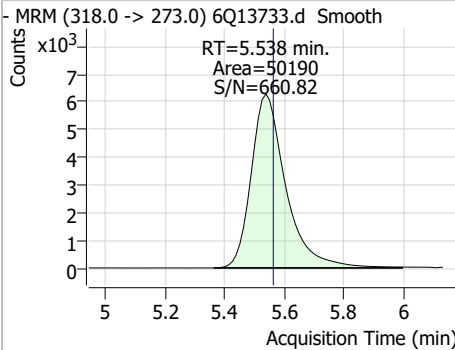
7.6.8
7

Perfluorinated Compounds by LC/MS/MS

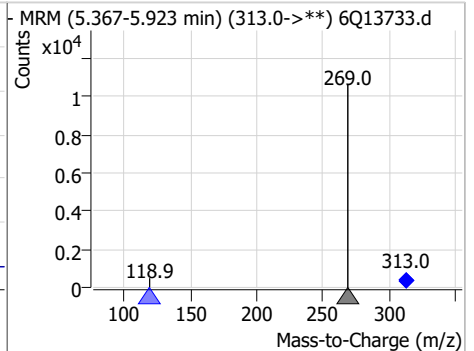
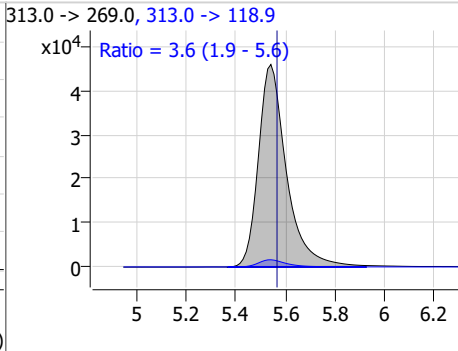
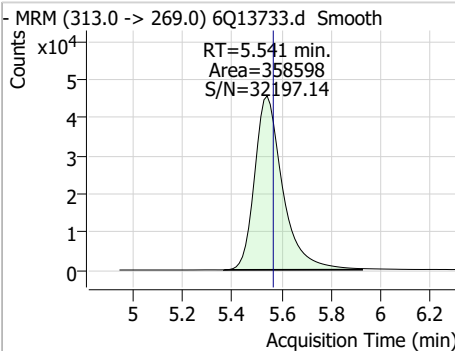
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	23.35	5.48	-0.04	123518	298.7 -> 98.8	43.2	24.5	73.6



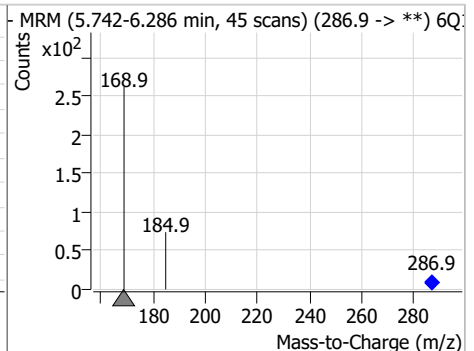
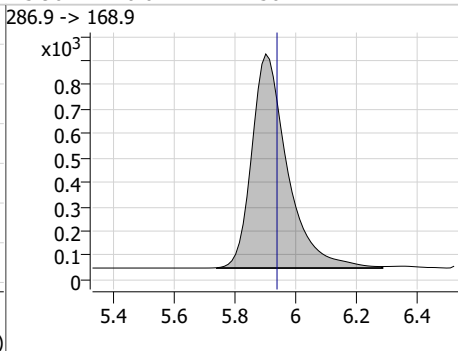
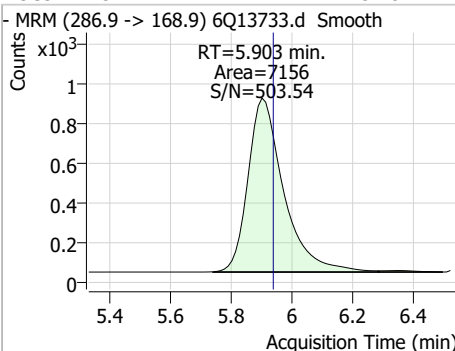
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	3.94	5.54	-0.02	50190	318.0 -> 273.0	3.6	1.9	5.6



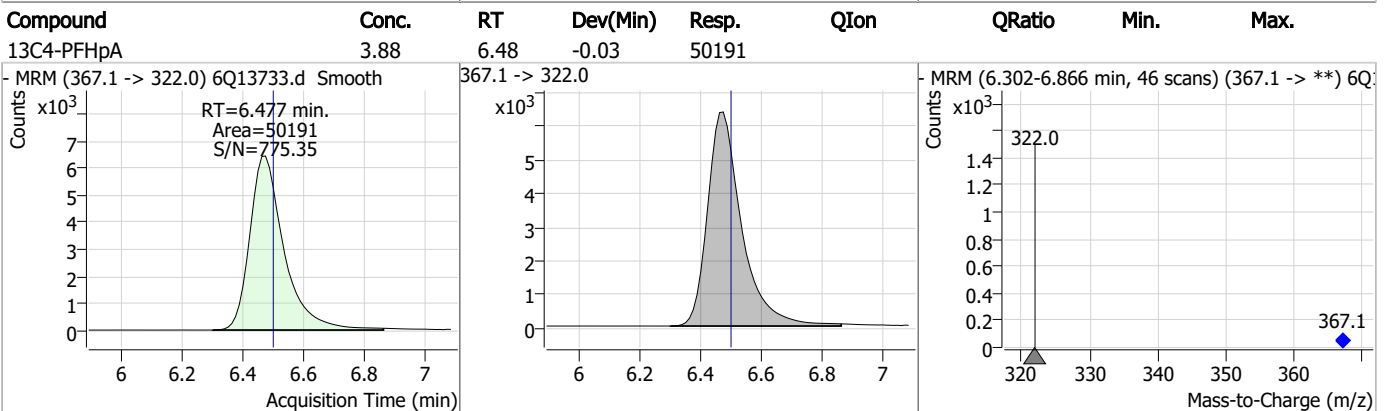
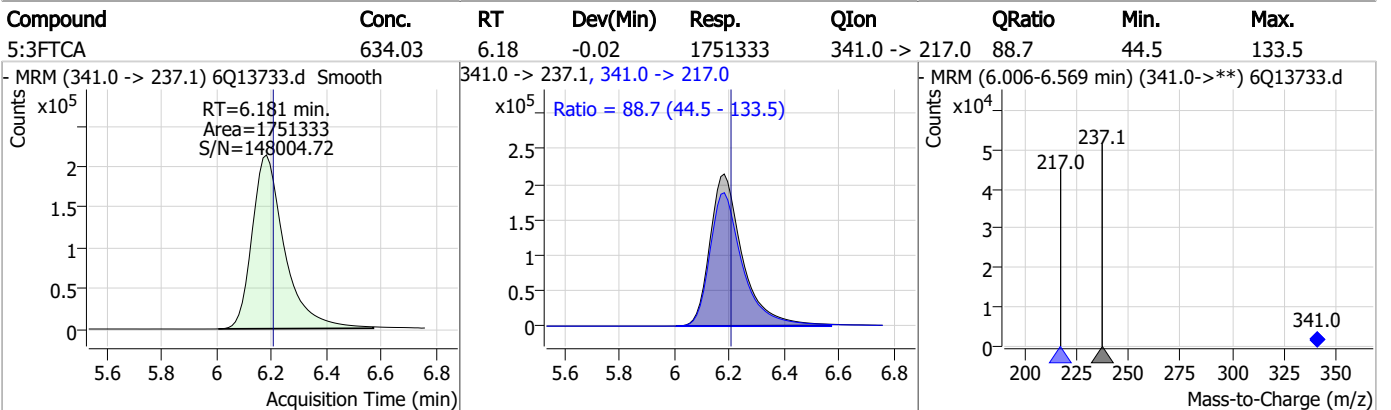
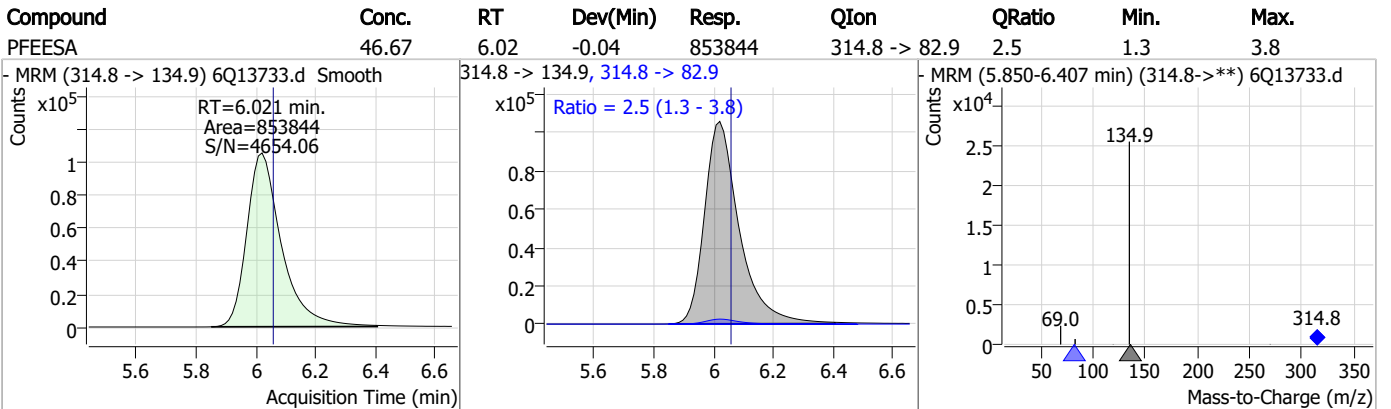
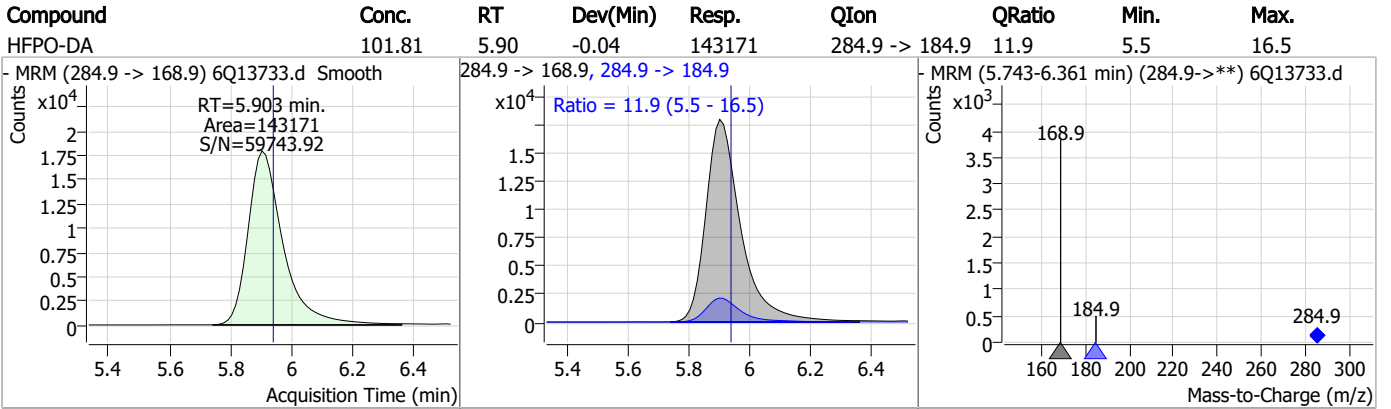
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	26.56	5.54	-0.02	358598	313.0 -> 118.9	3.6	1.9	5.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	5.28	5.90	-0.04	7156	286.9 -> 168.9	3.6	1.9	5.6



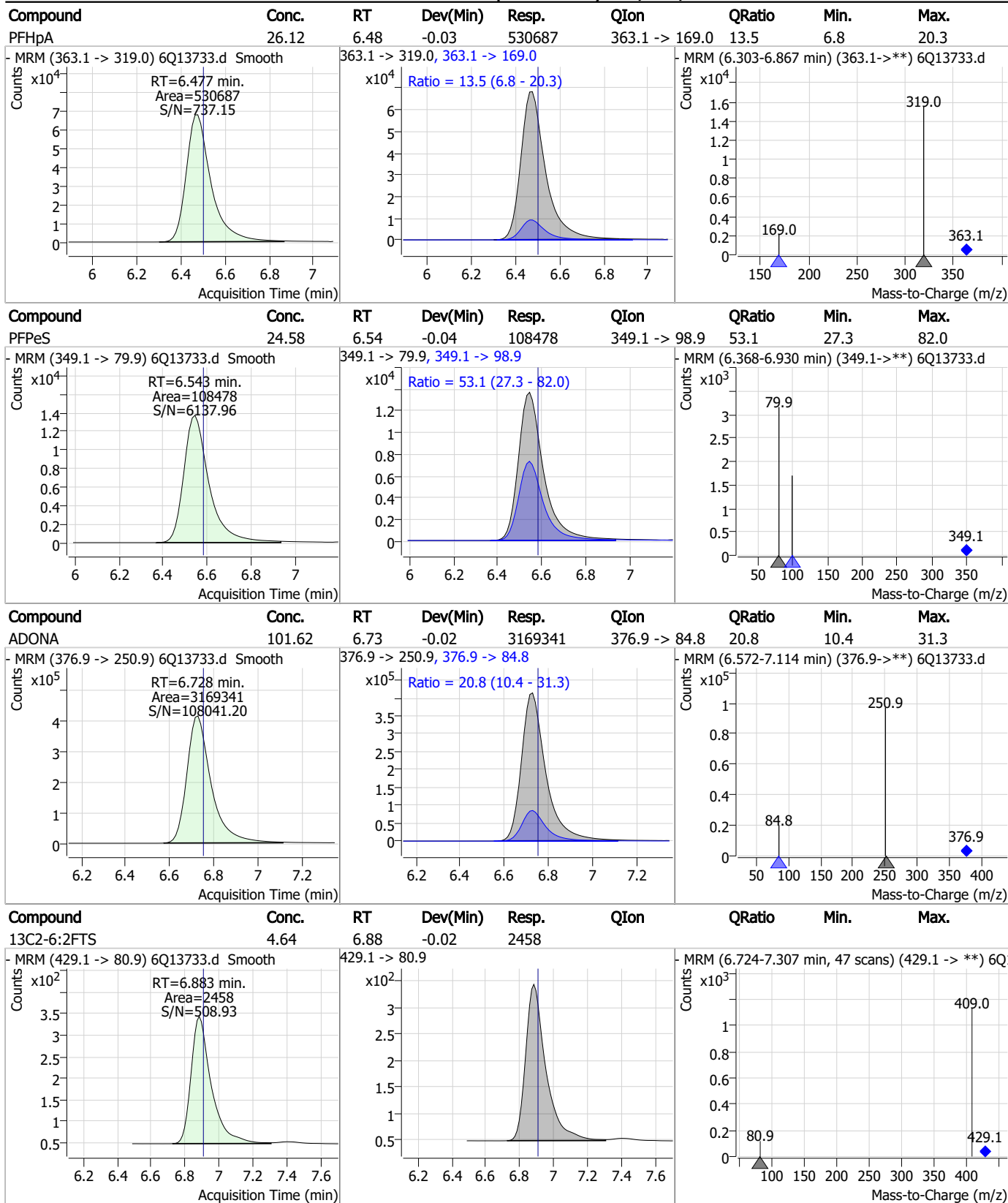
Perfluorinated Compounds by LC/MS/MS



7.6.8

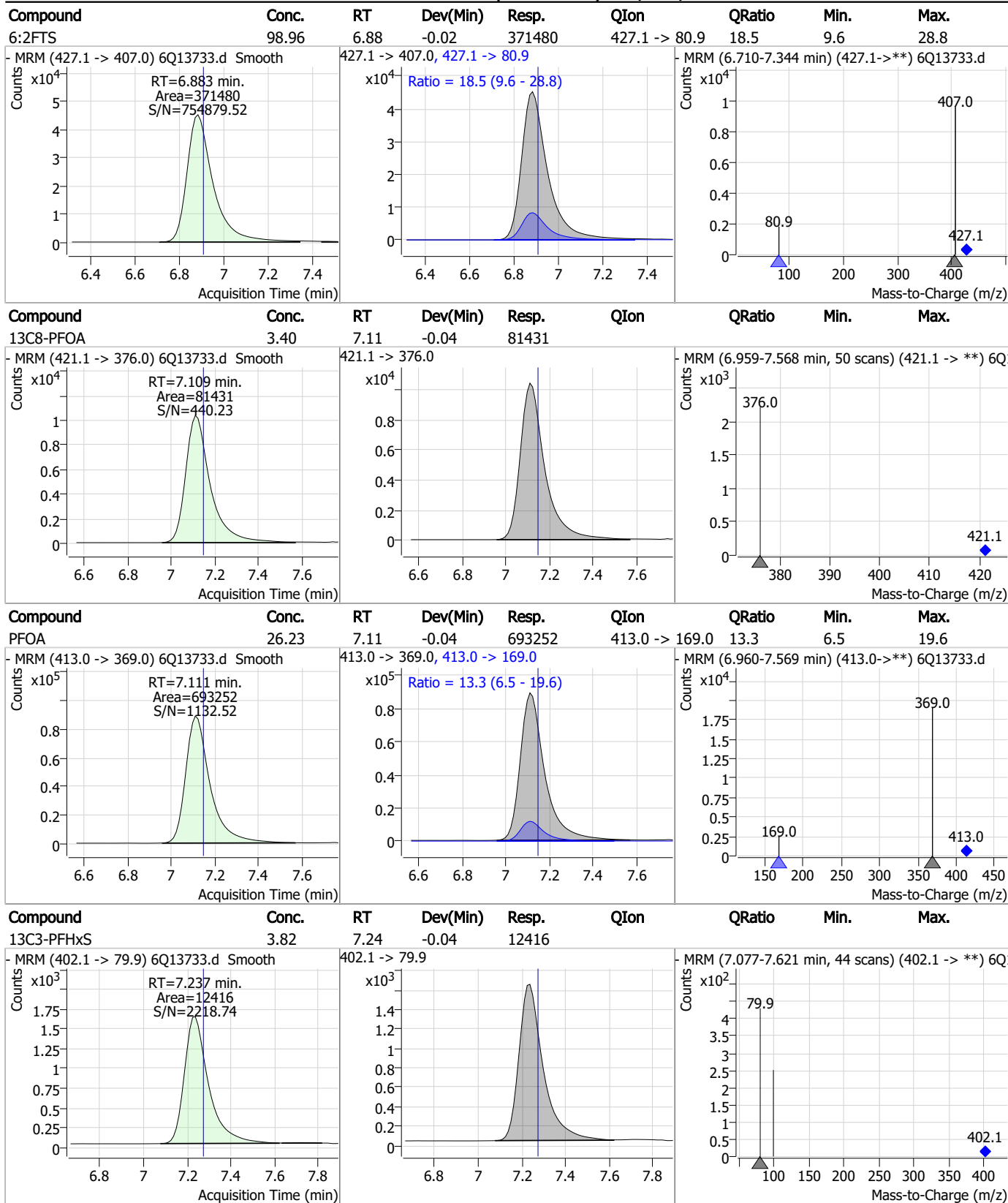
7

Perfluorinated Compounds by LC/MS/MS



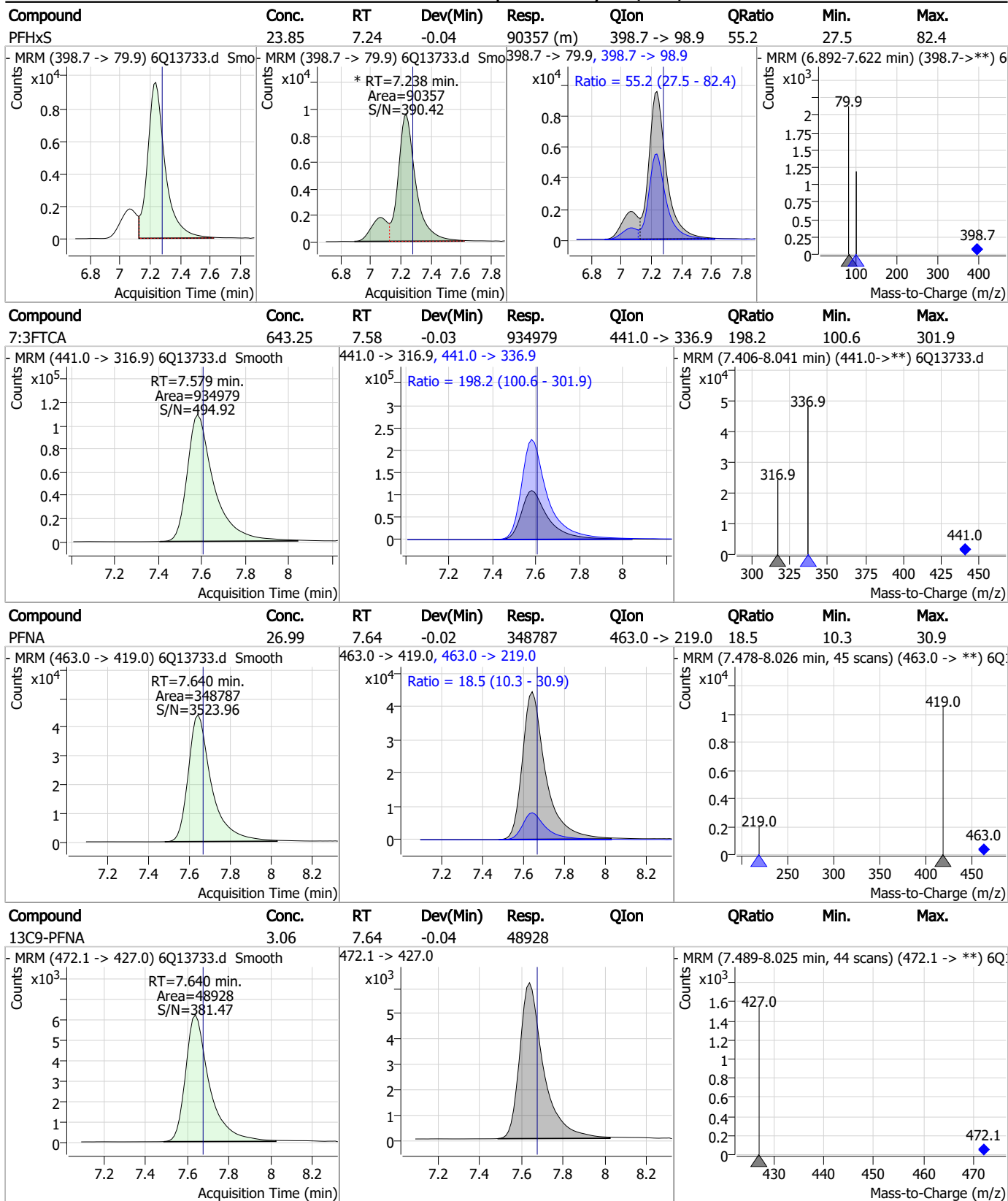
7.6.8
7

Perfluorinated Compounds by LC/MS/MS



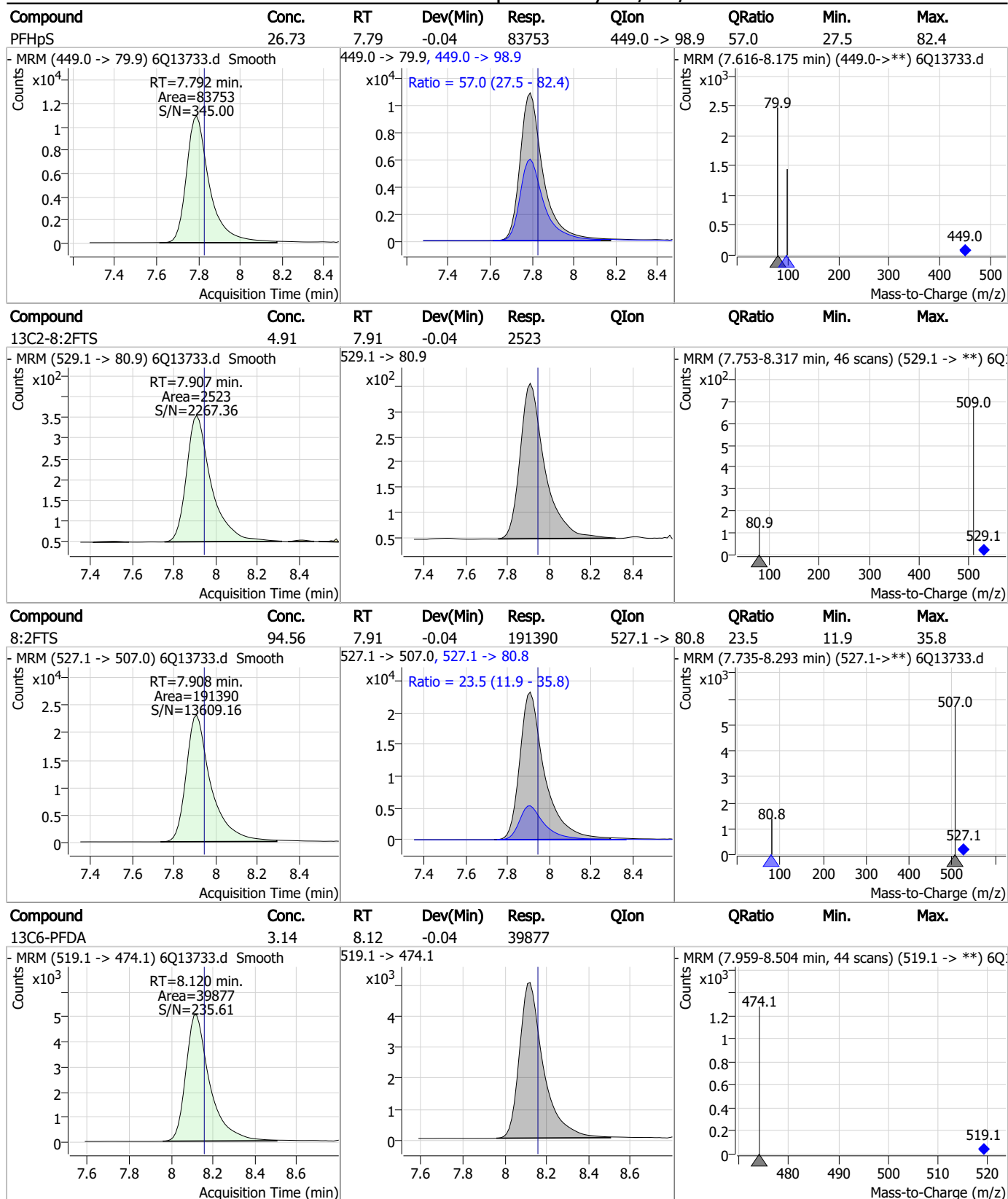
7.6.8

Perfluorinated Compounds by LC/MS/MS



7.6.8
7

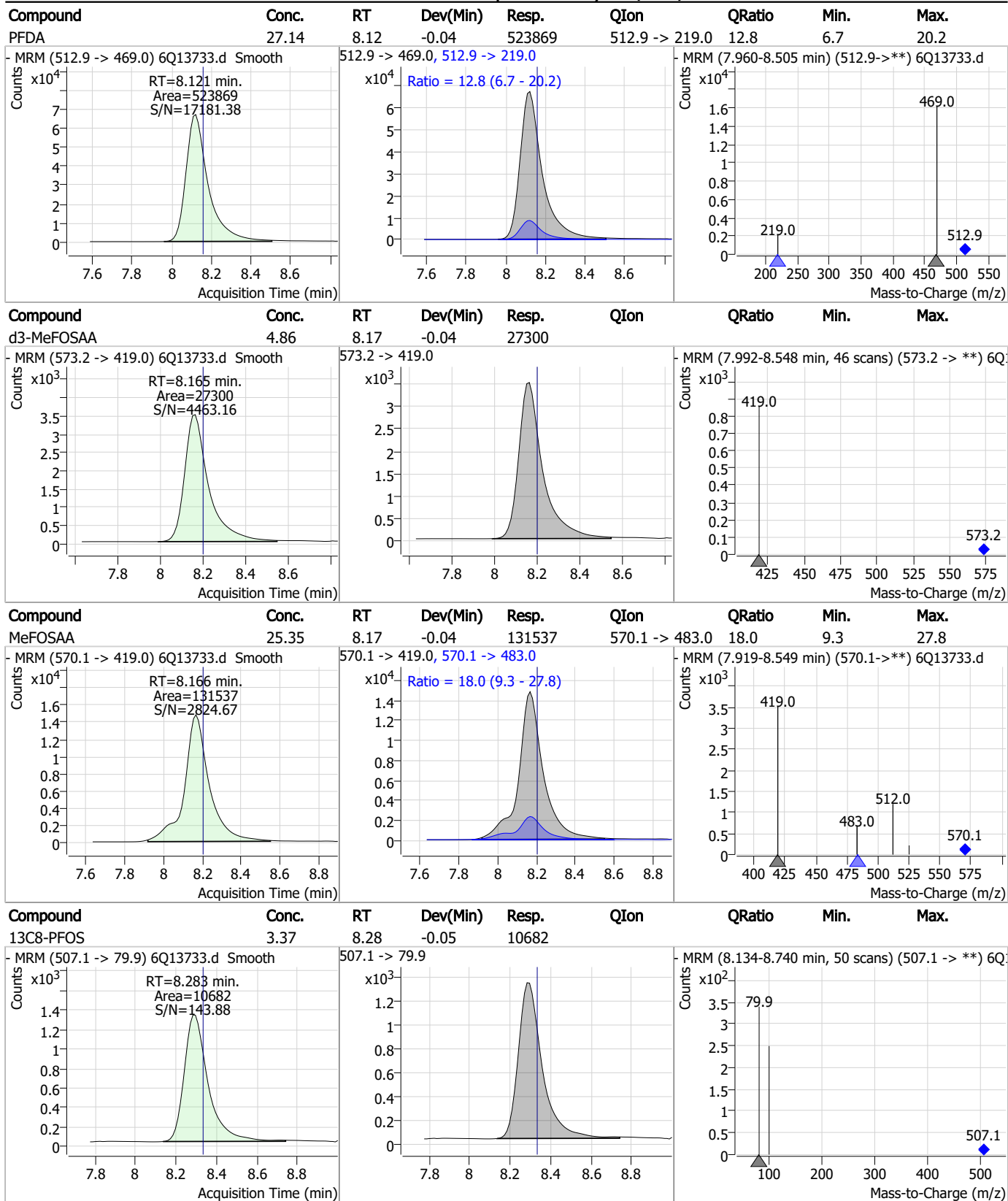
Perfluorinated Compounds by LC/MS/MS



7.6.8
7

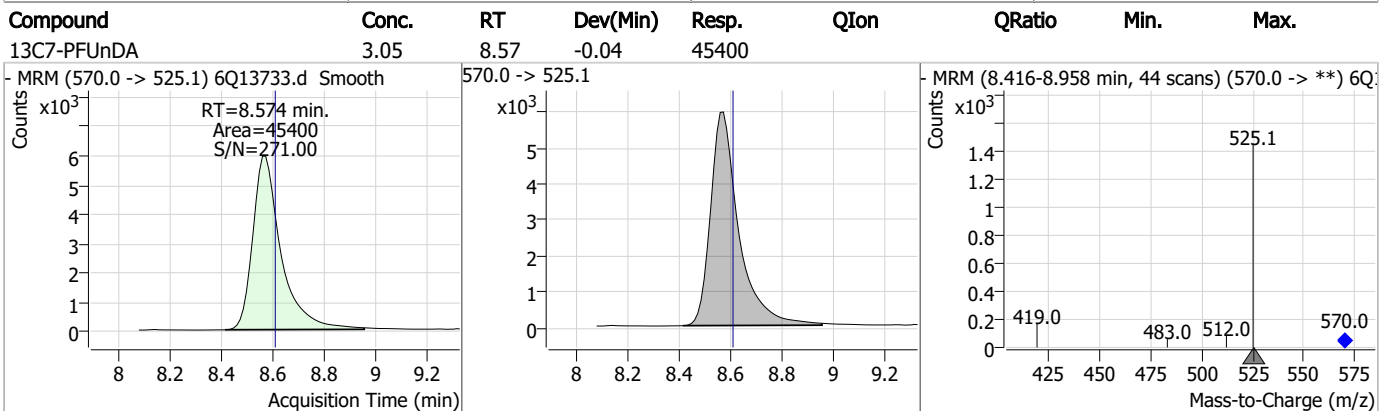
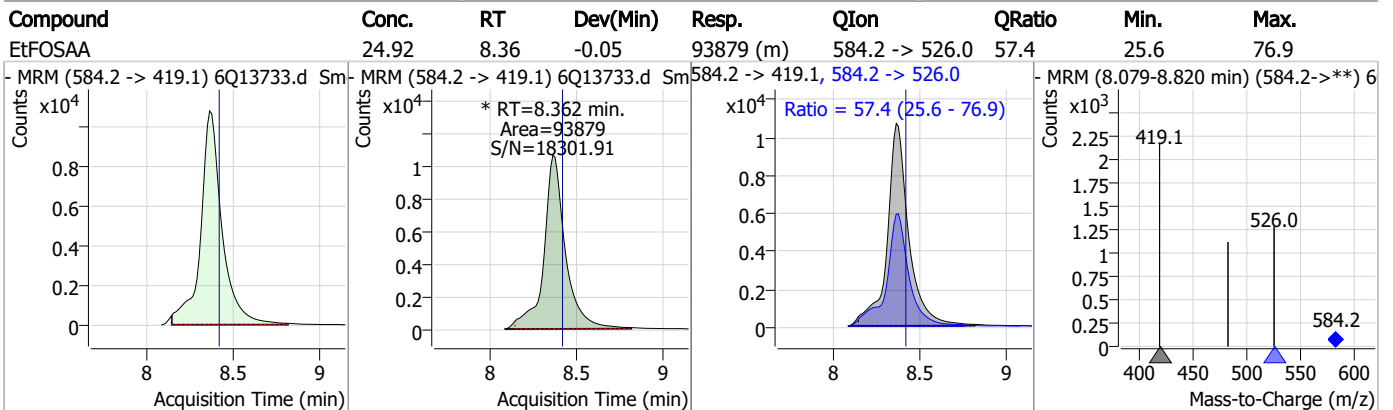
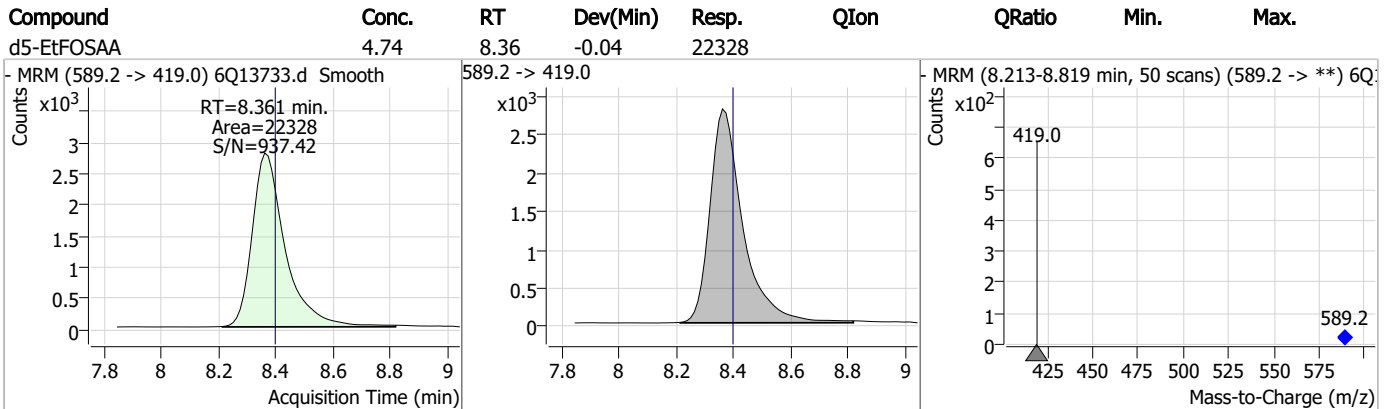
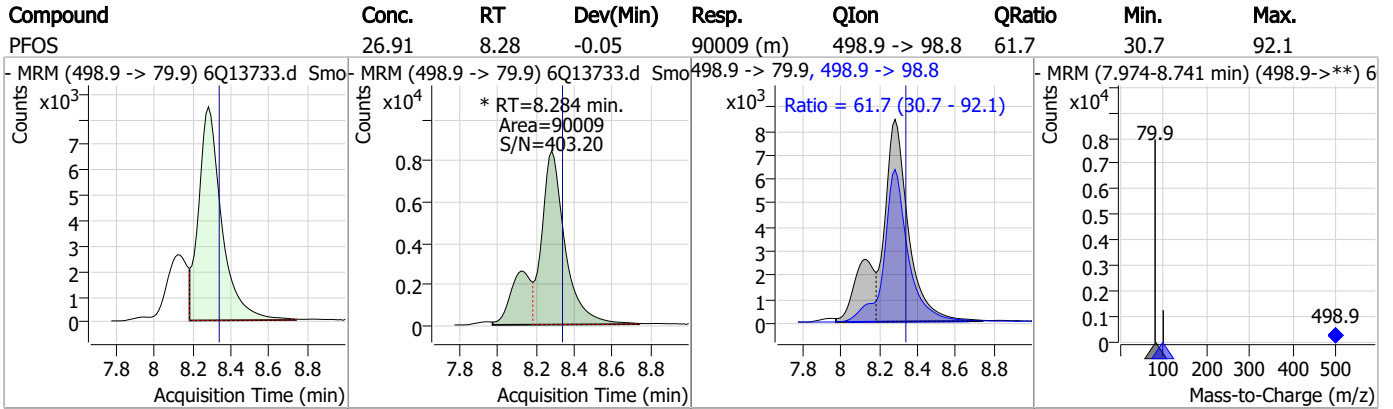


Perfluorinated Compounds by LC/MS/MS

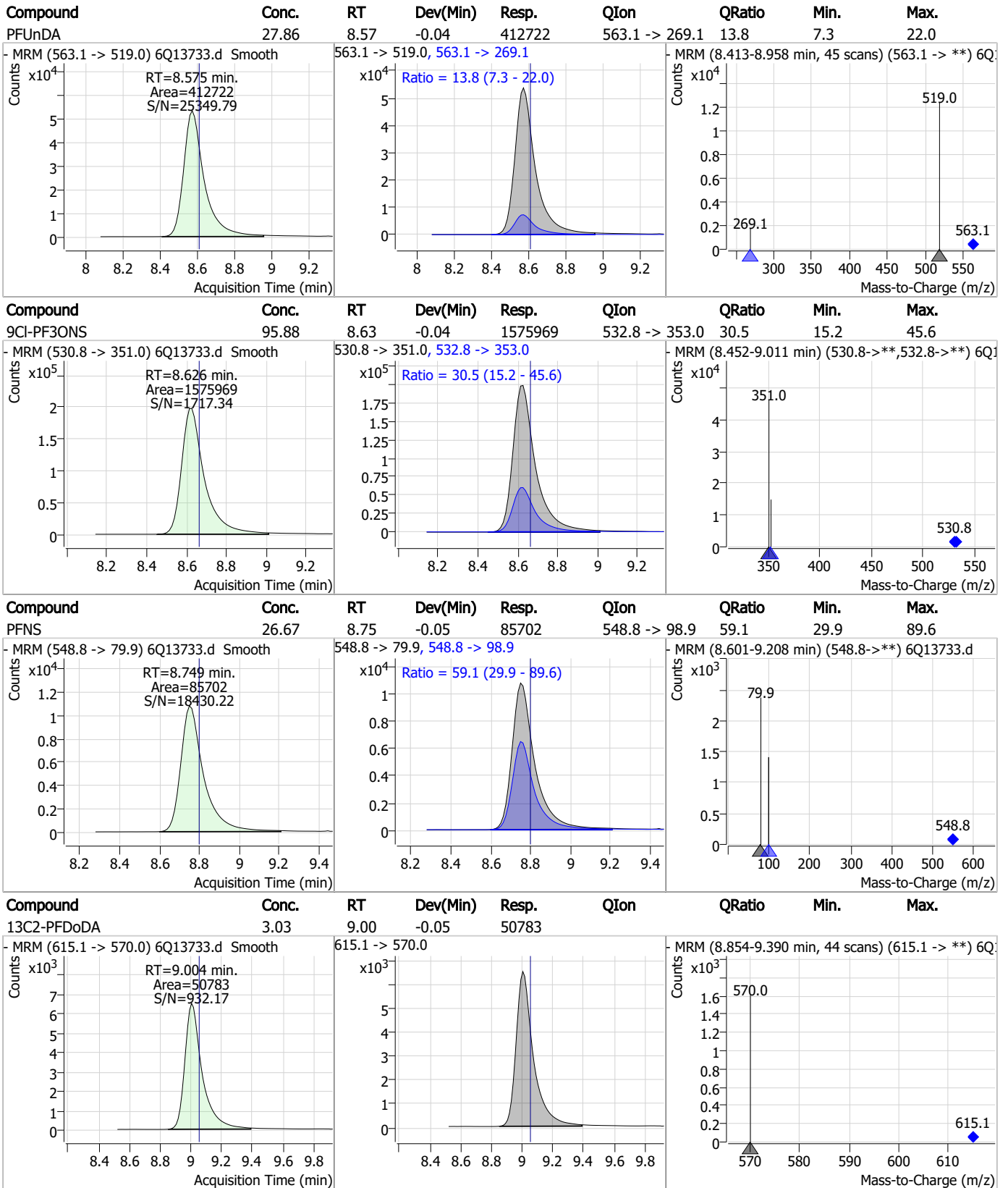


7.6.8
7

Perfluorinated Compounds by LC/MS/MS



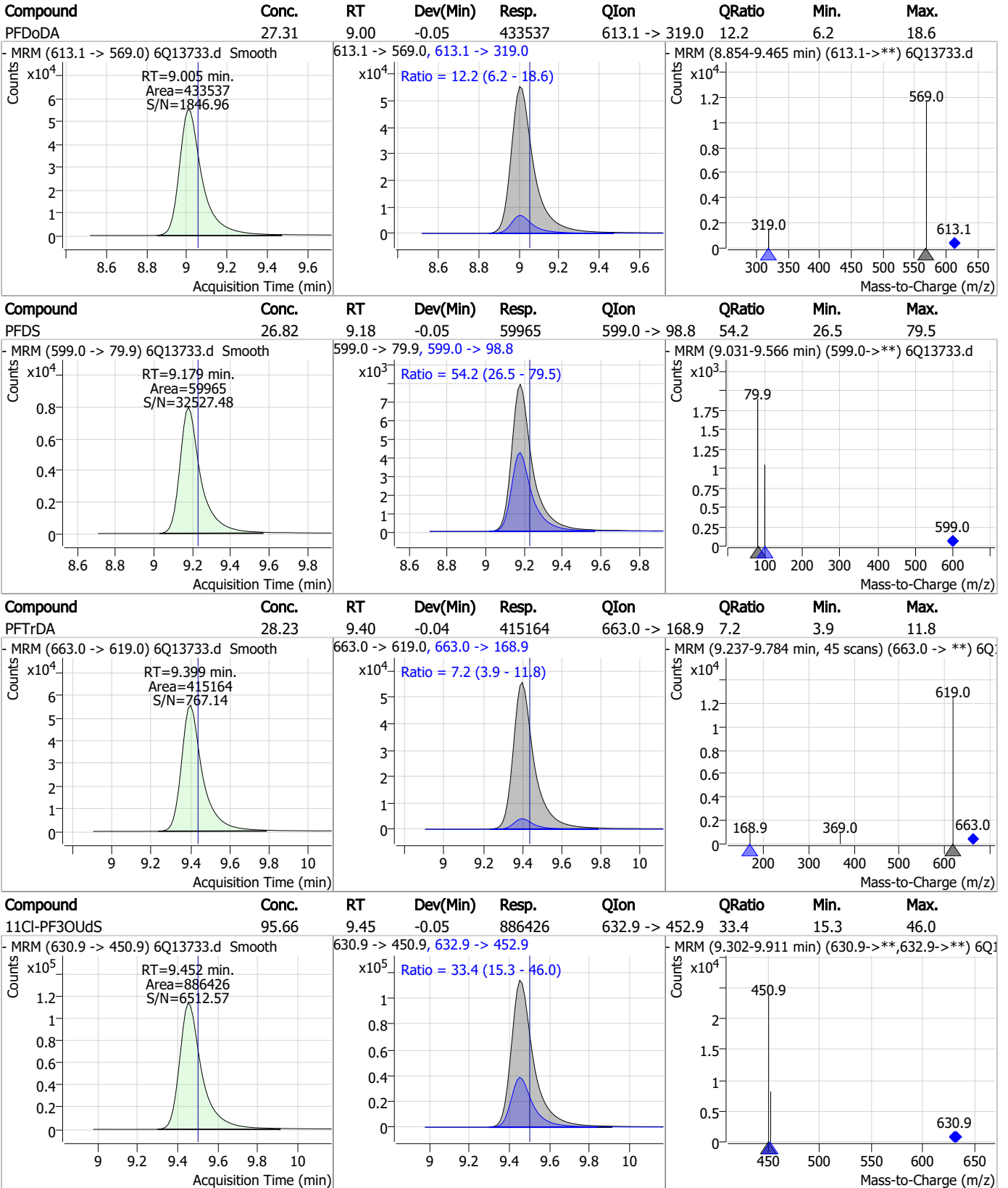
Perfluorinated Compounds by LC/MS/MS



7.6.8

7

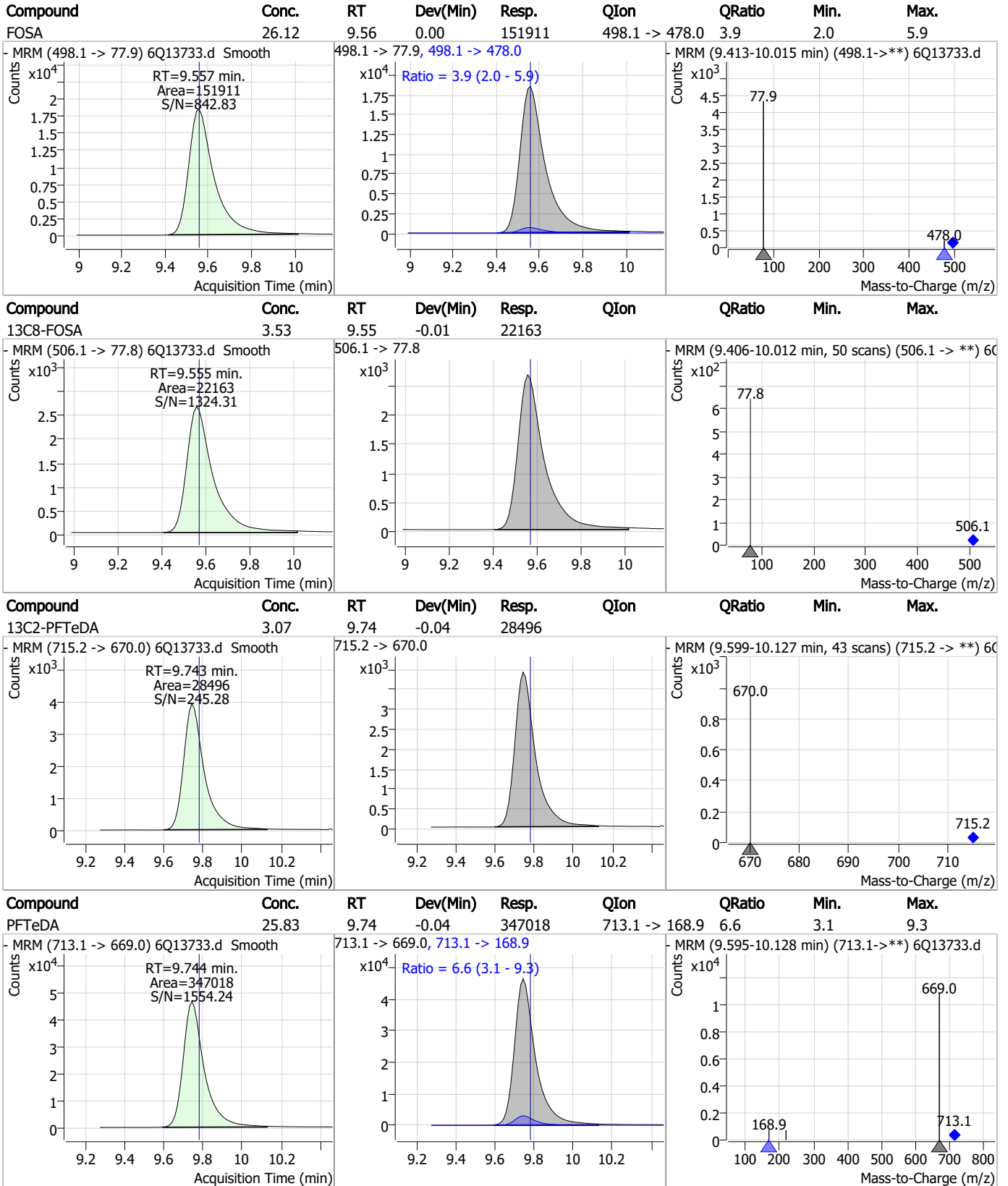
Perfluorinated Compounds by LC/MS/MS



7.6.8

7

Perfluorinated Compounds by LC/MS/MS

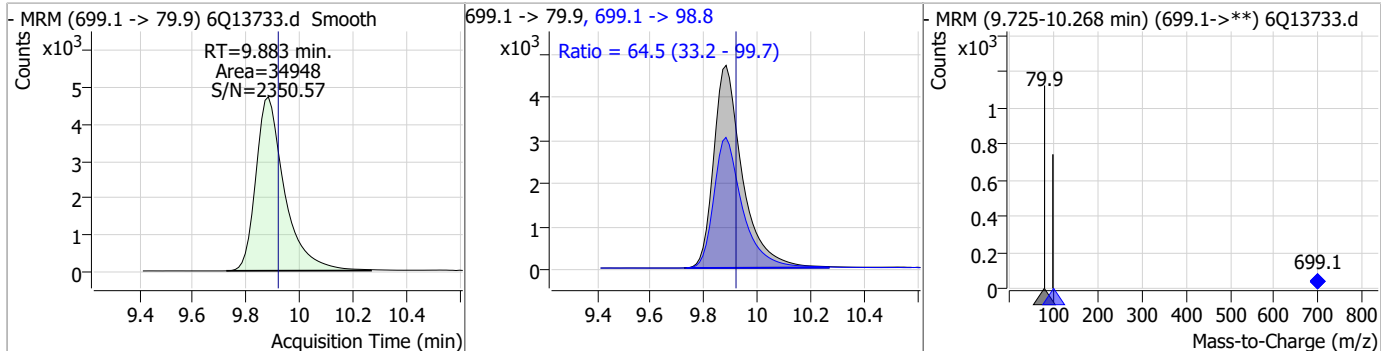


7.6.8

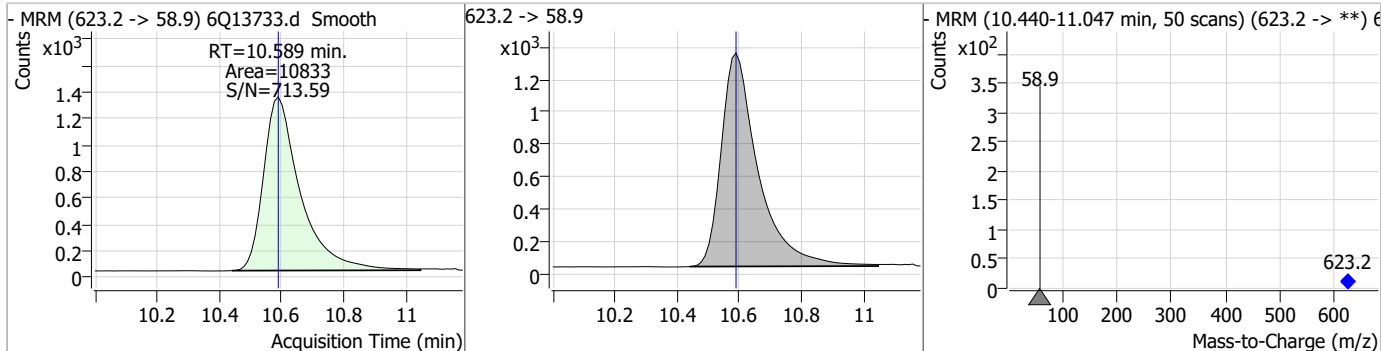
7

Perfluorinated Compounds by LC/MS/MS

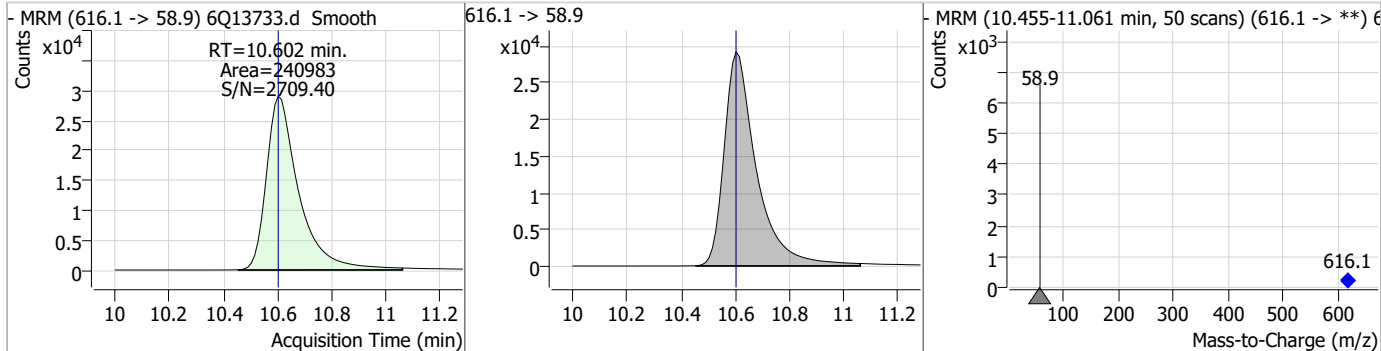
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	25.11	9.88	-0.04	34948	699.1 -> 98.8	64.5	33.2	99.7



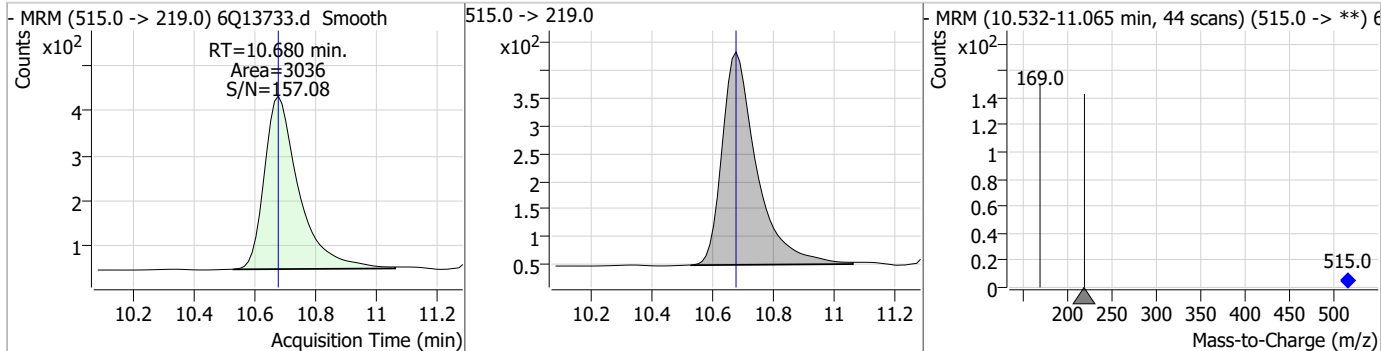
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	11.83	10.59	0.00	10833				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	267.75	10.60	0.00	240983				

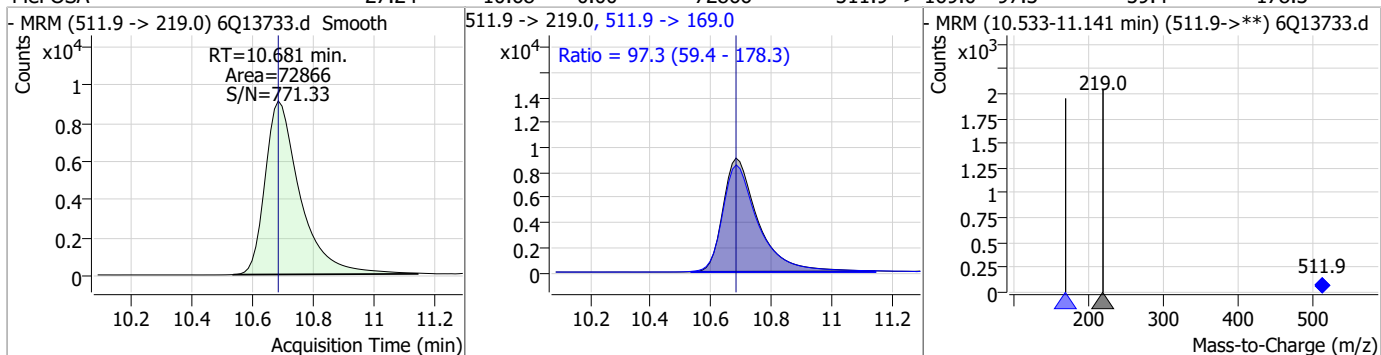


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	1.16	10.68	0.00	3036				

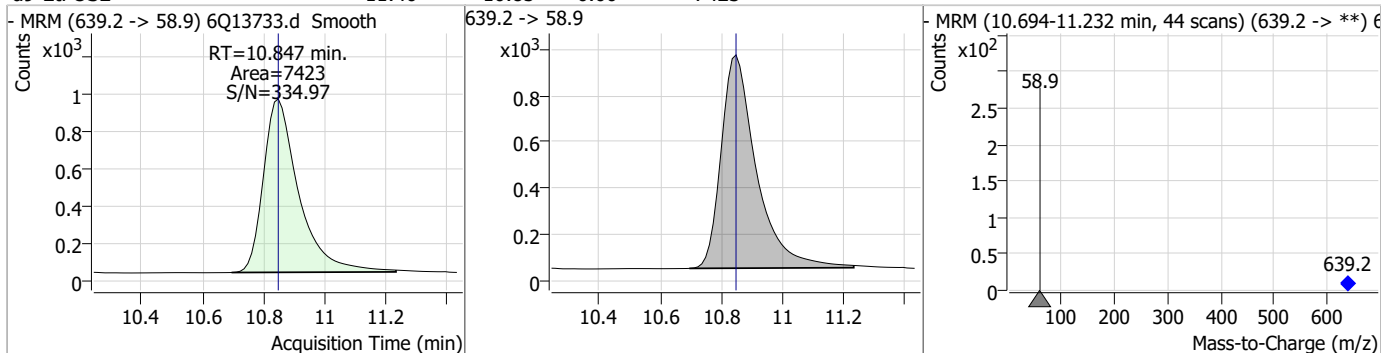


Perfluorinated Compounds by LC/MS/MS

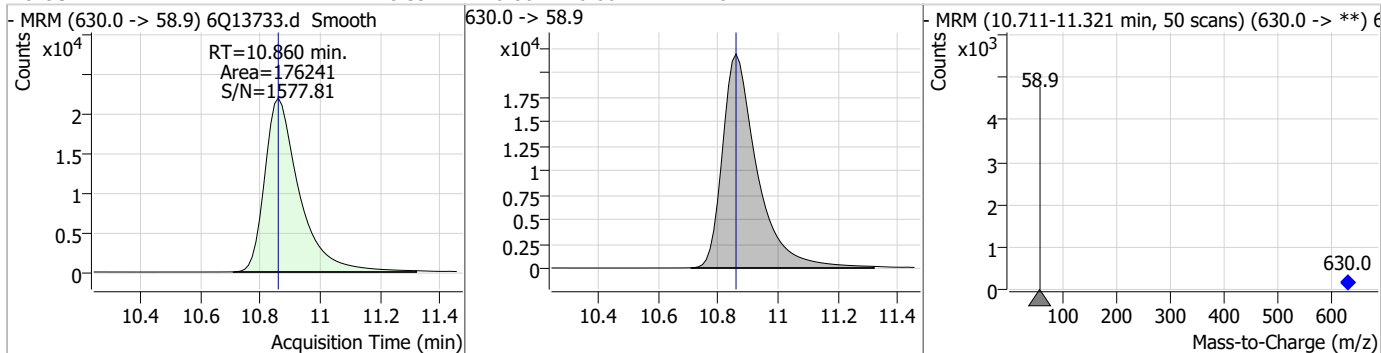
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	27.24	10.68	0.00	72866	511.9 -> 169.0	97.3	59.4	178.3



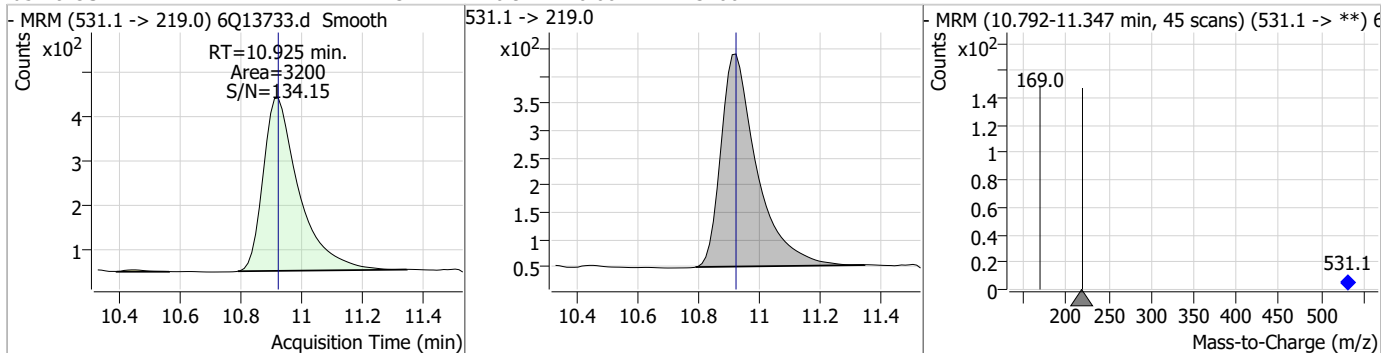
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	11.46	10.85	0.00	7423				



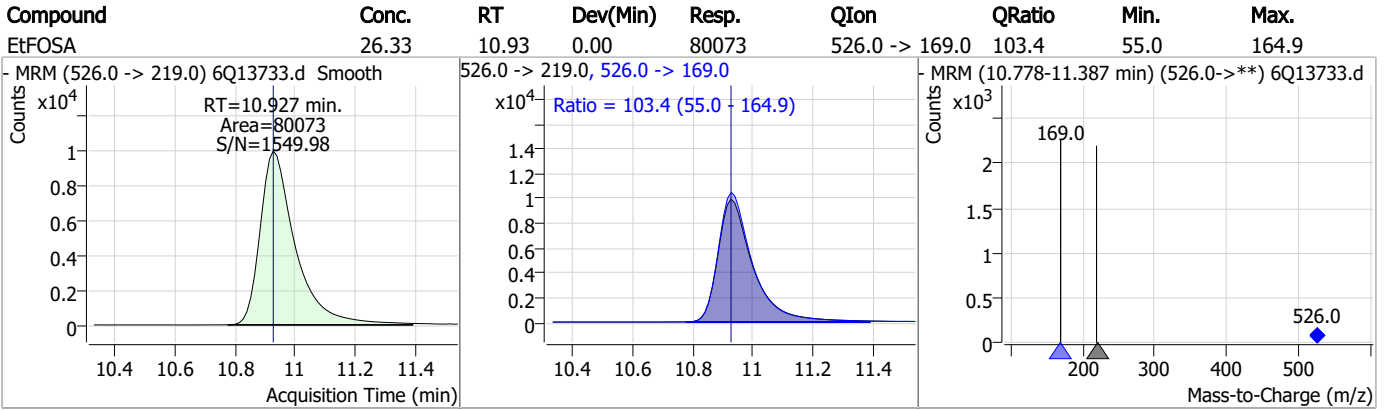
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	278.39	10.86	0.00	176241				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	1.13	10.92	0.00	3200				



Perfluorinated Compounds by LC/MS/MS



7.6.8

7

Manual Integration Approval Summary

Sample Number: S6Q208-IC208 Method: EPA DRAFT 1633
Lab FileID: 6Q13733.D Analyst approved: 02/18/23 11:42 Natasha Gumtie
Injection Time: 02/16/23 09:28 Supervisor approved: 02/18/23 12:01 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.28	Split peak
EtFOSAA	2991-50-6		8.36	Split peak

7.6.8.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13734.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/16/2023 9:42:05 AM
 Sample Name : ic208-8
 Vial : P1-D9
 DA Method File : 1633_021623_S6Q208NEW.quantmethod.xml
 Batch Name : s6q208.batch.bin
 Sample Information : OP95142,S6Q208,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.963	216.8 -> 171.9	50336	7.50 µg/L	-0.012
M5-PFPeA	4.361	268.3 -> 223.0	35340	5.00 µg/L	-0.025
M5-PFHxA	5.538	318.0 -> 273.0	47135	3.75 µg/L	-0.025
M4-PFHpA	6.477	367.1 -> 322.0	49181	3.75 µg/L	-0.025
M8-PFOA	7.109	421.1 -> 376.0	85047	3.75 µg/L	-0.037
M9-PFNA	7.640	472.1 -> 427.0	49058	3.13 µg/L	-0.037
M6-PFDA	8.120	519.1 -> 474.1	36263	3.13 µg/L	-0.037
M7-PFUnDA	8.574	570.0 -> 525.1	42619	3.13 µg/L	-0.037
M2-PFDoDA	9.017	615.1 -> 570.0	50717	3.13 µg/L	-0.037
M2-PFTeDA	9.743	715.2 -> 670.0	29438	3.13 µg/L	-0.037
M8-FOSA	9.555	506.1 -> 77.8	22269	3.75 µg/L	-0.012
M3-PFBS	5.481	302.1 -> 79.9	17193	3.75 µg/L	-0.037
M3-PFHxS	7.237	402.1 -> 79.9	12594	3.75 µg/L	-0.037
M8-PFOS	8.283	507.1 -> 79.9	11122	3.75 µg/L	-0.050
M2-4:2FTS	5.215	329.1 -> 80.9	1637	5.00 µg/L	-0.025
M2-6:2FTS	6.883	429.1 -> 80.9	2291	5.00 µg/L	-0.025
M2-8:2FTS	7.907	529.1 -> 80.9	2430	5.00 µg/L	-0.037
M3-MeFOSAA	8.165	573.2 -> 419.0	26059	5.00 µg/L	-0.037
M3-HFPO-DA	5.915	286.9 -> 168.9	6913	5.00 µg/L	-0.025
M5-EtFOSAA	8.361	589.2 -> 419.0	21508	5.00 µg/L	-0.037
M7-MeFOSE	10.589	623.2 -> 58.9	9700	12.50 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	7086	12.50 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	3282	1.25 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	3316	1.25 µg/L	0.000
13C4-PFOS	8.283	502.8 -> 79.9	9412	2.50 µg/L	-0.050
13C3-PFBA	2.966	216.0 -> 172.0	30318	5.00 µg/L	-0.012
18O2-PFHxS	7.236	403.0 -> 83.9	6154	2.50 µg/L	-0.037
13C4-PFOA	7.110	417.1 -> 372.0	68273	2.50 µg/L	-0.037
13C2-PFDA	8.120	515.1 -> 470.1	23125	1.25 µg/L	-0.037
13C5-PFNA	7.640	468.0 -> 423.0	21653	1.25 µg/L	-0.037
13C2-PFHxA	5.539	315.1 -> 270.0	32761	2.50 µg/L	-0.025
System Monitoring Compounds					
13C2-4:2FTS	5.215	329.1 -> 80.9	1637	3.85 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 77.1%		
13C2-6:2FTS	6.883	429.1 -> 80.9	2291	4.11 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 82.1%		
13C2-8:2FTS	7.907	529.1 -> 80.9	2430	4.49 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.8%		
13C2-PFDoDA	9.017	615.1 -> 570.0	50717	2.78 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 89.0%		
13C2-PFTeDA	9.743	715.2 -> 670.0	29438	2.92 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 93.4%		
13C3-PFBS	5.481	302.1 -> 79.9	17193	3.38 µg/L	-0.037
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 90.2%		
13C3-PFHxS	7.237	402.1 -> 79.9	12594	3.68 µg/L	-0.037

7.69
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C4-PFBA	2.963	216.8 -> 171.9	50336	7.16 µg/L	-0.012
Spiked Amount: 7.50	Range: 50.0 - 150.0%			Recovery = 95.4%	
13C4-PFHpA	6.477	367.1 -> 322.0	49181	3.49 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 93.1%	
13C5-PFHxA	5.538	318.0 -> 273.0	47135	3.39 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 90.5%	
13C5-PFPeA	4.361	268.3 -> 223.0	35340	4.59 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 91.8%	
13C6-PFDA	8.120	519.1 -> 474.1	36263	2.63 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 84.1%	
13C7-PFUnDA	8.574	570.0 -> 525.1	42619	2.64 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 84.3%	
13C8-FOSA	9.555	506.1 -> 77.8	22269	3.54 µg/L	-0.012
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 94.3%	
13C8-PFOA	7.109	421.1 -> 376.0	85047	3.64 µg/L	-0.037
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C8-PFOS	8.283	507.1 -> 79.9	11122	3.50 µg/L	-0.050
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 93.5%	
13C9-PFNA	7.640	472.1 -> 427.0	49058	2.99 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 95.6%	
d3-MeFOSAA	8.165	573.2 -> 419.0	26059	4.63 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.6%	
13C3-HFPO-DA	5.915	286.9 -> 168.9	6913	4.67 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.5%	
d3-MeFOSA	10.680	515.0 -> 219.0	3316	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.8%	
d5-EtFOSAA	8.361	589.2 -> 419.0	21508	4.56 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 91.2%	
d7-MeFOSE	10.589	623.2 -> 58.9	9700	10.57 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%			Recovery = 84.5%	
d9-EtFOSE	10.847	639.2 -> 58.9	7086	10.92 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%			Recovery = 87.3%	
d5-EtFOSA	10.925	531.1 -> 219.0	3282	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.6%	
Target Compounds					QValue
4:2FTS	5.215	327.1 -> 307.0	855455	224.50 µg/L	98
		327.1 -> 80.9	181928		
6:2FTS	6.883	427.1 -> 407.0	752130	215.02 µg/L	100
		427.1 -> 80.9	144566		
8:2FTS	7.908	527.1 -> 507.0	409778	210.21 µg/L	100
		527.1 -> 80.8	96629		
EtFOSAA	8.374	584.2 -> 419.1	227665	62.74 µg/L	98
		584.2 -> 526.0	120392		
FOSA	9.557	498.1 -> 77.9	378540	64.78 µg/L	100
		498.1 -> 478.0	14683		
MeFOSAA	8.166	570.1 -> 419.0	325257	65.67 µg/L	96
		570.1 -> 483.0	54810		
PFBA	2.969	212.8 -> 168.9	452753	275.78 µg/L	100
PFBS	5.481	298.7 -> 79.9	286692	60.10 µg/L	92
		298.7 -> 98.8	125788		
PFDA	8.121	512.9 -> 469.0	1240142	70.66 µg/L	98
		512.9 -> 219.0	158904		
PFDoDA	9.017	613.1 -> 569.0	1062931	67.04 µg/L	99
		613.1 -> 319.0	127708		
PFDS	9.179	599.0 -> 79.9	148145	63.64 µg/L	100

7.69
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.477	599.0 -> 98.8	78058	64.69	µg/L	99
		363.1 -> 319.0	1288175			
PFHpS	7.792	363.1 -> 169.0	178374	64.14	µg/L	97
		449.0 -> 79.9	209258			
PFHxA	5.541	449.0 -> 98.9	119261	68.44	µg/L	100
		313.0 -> 269.0	867833			
PFHxS	7.238	313.0 -> 118.9	31248	58.46	µg/L	m
		398.7 -> 79.9	224607			
PFNA	7.640	398.7 -> 98.9	119275	66.97	µg/L	95
		463.0 -> 419.0	867867			
PFNS	8.762	463.0 -> 219.0	157538	63.23	µg/L	97
		548.8 -> 79.9	211594			
PFOA	7.111	548.8 -> 98.9	121503	60.81	µg/L	98
		413.0 -> 369.0	1678875			
PFOS	8.284	413.0 -> 169.0	230063	59.49	µg/L	m
		498.9 -> 79.9	207205			
PFPeA	4.363	498.9 -> 98.8	126729	131.40	µg/L	100
		263.0 -> 219.0	1033925			
PFPeS	6.543	349.1 -> 79.9	266447	59.51	µg/L	98
		349.1 -> 98.9	142397			
PFTeDA	9.744	713.1 -> 669.0	875165	63.06	µg/L	99
		713.1 -> 168.9	55800			
PFTrDA	9.399	663.0 -> 619.0	913241	62.17	µg/L	100
		663.0 -> 168.9	70038			
PFUnDA	8.575	563.1 -> 519.0	984439	70.78	µg/L	96
		563.1 -> 269.1	129036			
11Cl-PF3OUdS	9.452	630.9 -> 450.9	2164221	241.78	µg/L	100
		632.9 -> 452.9	658594			
9Cl-PF3ONS	8.626	530.8 -> 351.0	3684888	232.10	µg/L	98
		532.8 -> 353.0	1170036			
ADONA	6.728	376.9 -> 250.9	7455011	247.46	µg/L	98
		376.9 -> 84.8	1471265			
HFPO-DA	5.903	284.9 -> 168.9	343824	253.11	µg/L	97
		284.9 -> 184.9	41430			
3:3FTCA	3.829	241.0 -> 177.0	134588	338.85	µg/L	99
		241.0 -> 117.0	17800			
5:3FTCA	6.181	341.0 -> 237.1	4307244	1660.39	µg/L	97
		341.0 -> 217.0	3717915			
7:3FTCA	7.579	441.0 -> 316.9	2195435	1608.31	µg/L	98
		441.0 -> 336.9	4469227			
EtFOSA	10.927	526.0 -> 219.0	203810	65.34	µg/L	88
		526.0 -> 169.0	197105			
EtFOSE	10.860	630.0 -> 58.9	416866	689.77	µg/L	100
		511.9 -> 219.0	172043			
MeFOSA	10.681	511.9 -> 169.0	172565	58.90	µg/L	83
		616.1 -> 58.9	575611			
MeFOSE	10.602	699.1 -> 79.9	92480	714.20	µg/L	100
		699.1 -> 98.8	56861			
PFDoDS	9.883	295.0 -> 201.0	100464	63.81	µg/L	94
		295.0 -> 84.9	47922			
NFDHA	5.420	279.0 -> 85.1	315509	130.45	µg/L	100
		229.0 -> 84.9	282514			
PFMBA	4.763	314.8 -> 134.9	1972977	134.44	µg/L	100
		314.8 -> 82.9	49027			
PFMPA	3.516			114.83	µg/L	100
PFEESA	6.021					

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



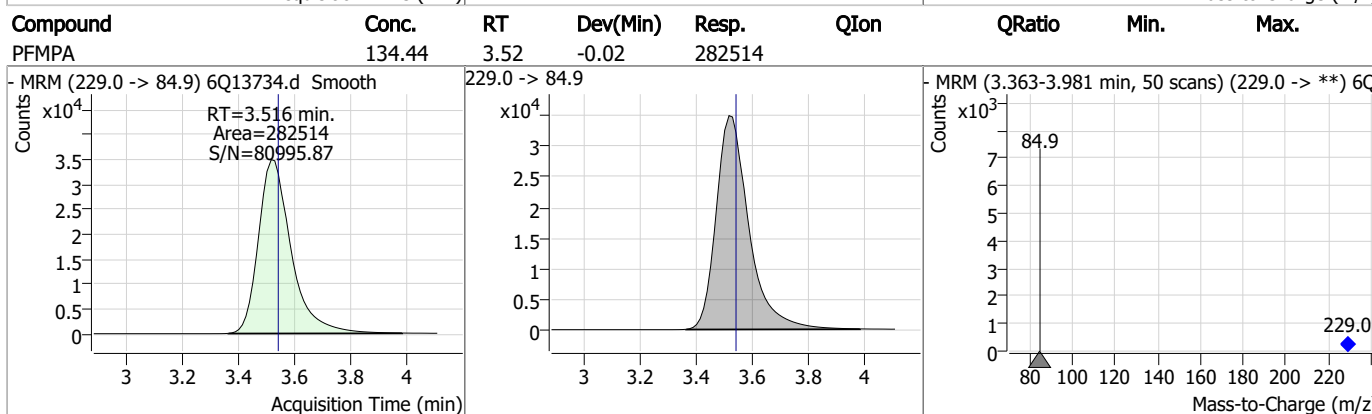
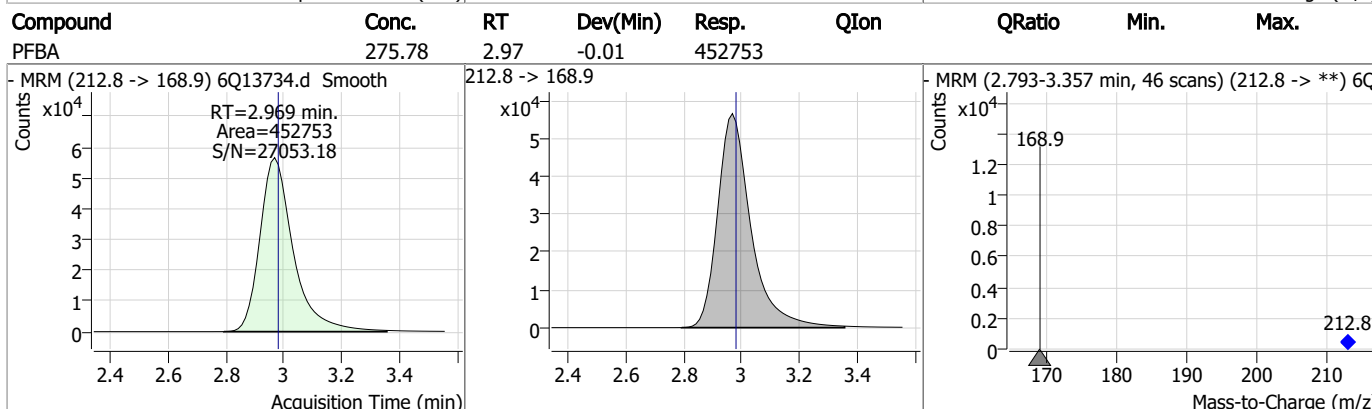
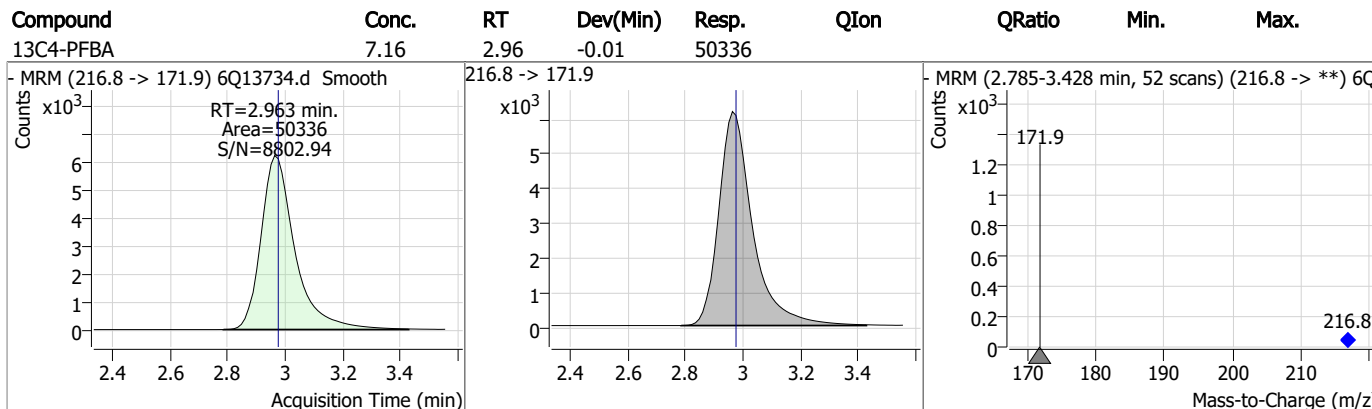
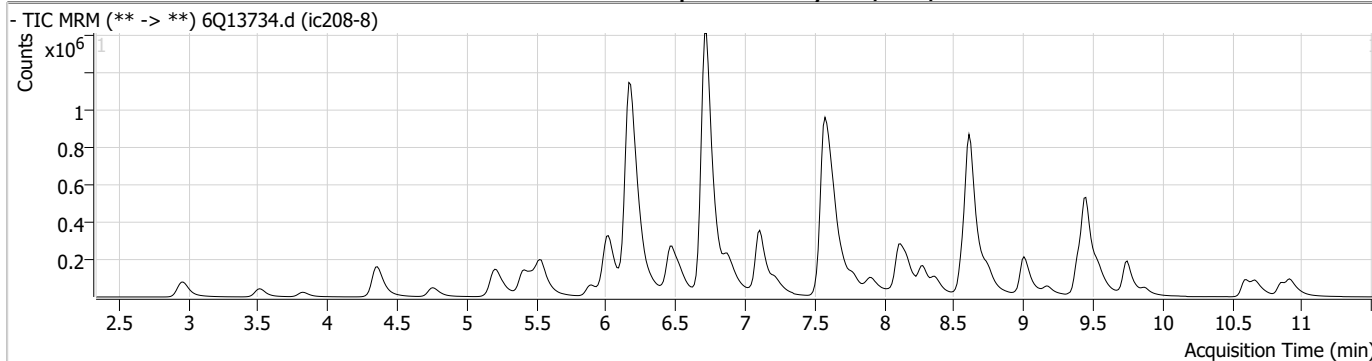
Perfluorinated Compounds by LC/MS/MS

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

7.6.9

7

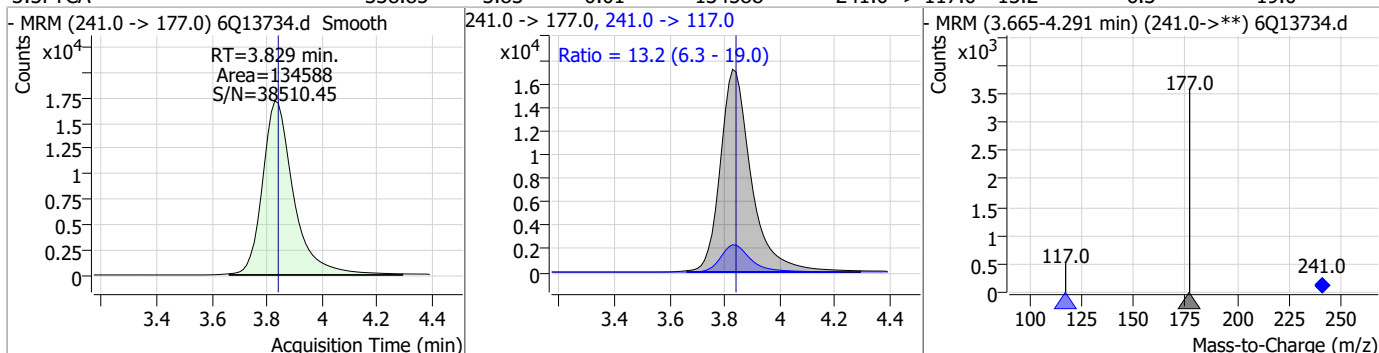
Perfluorinated Compounds by LC/MS/MS



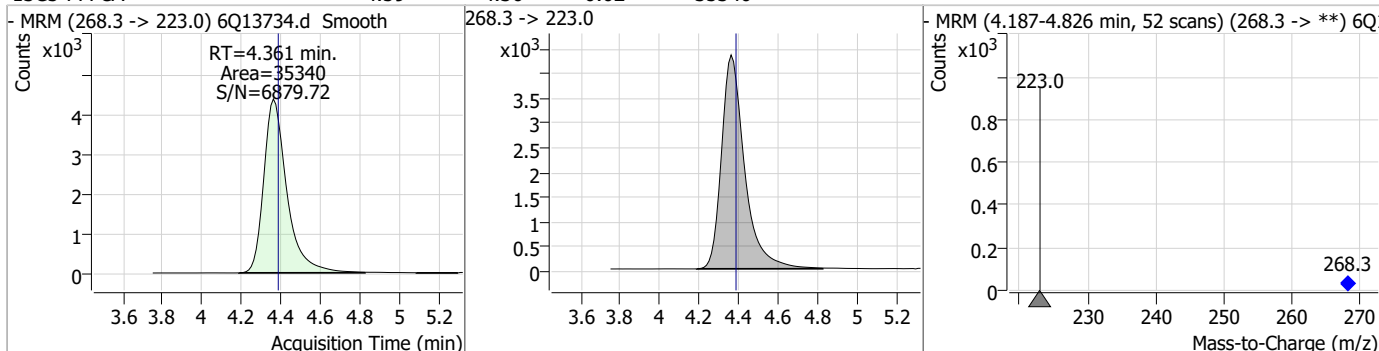
7.6.9
7

Perfluorinated Compounds by LC/MS/MS

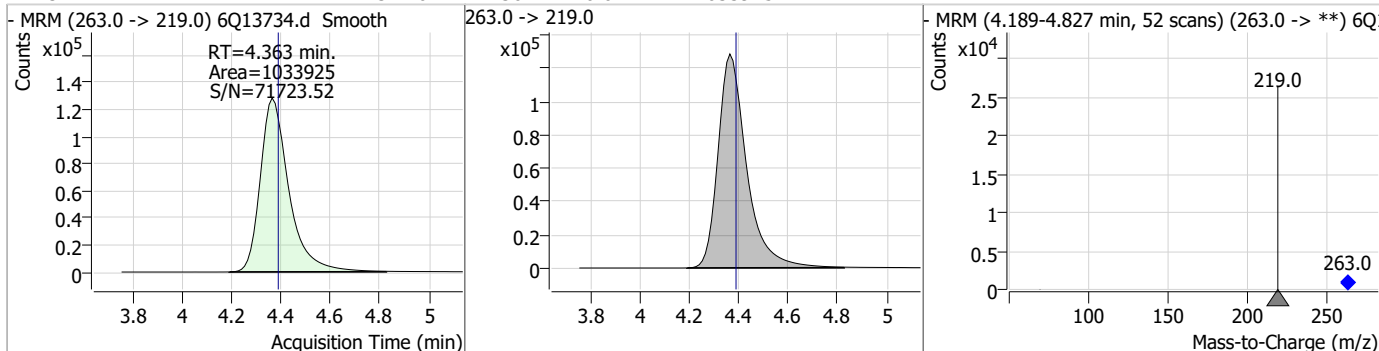
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	338.85	3.83	-0.01	134588	241.0 -> 117.0	13.2	6.3	19.0



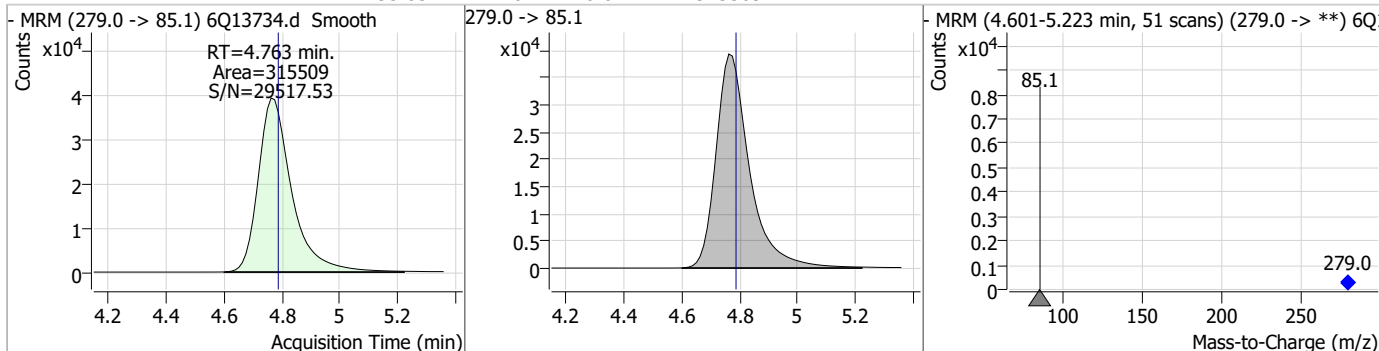
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.59	4.36	-0.02	35340				



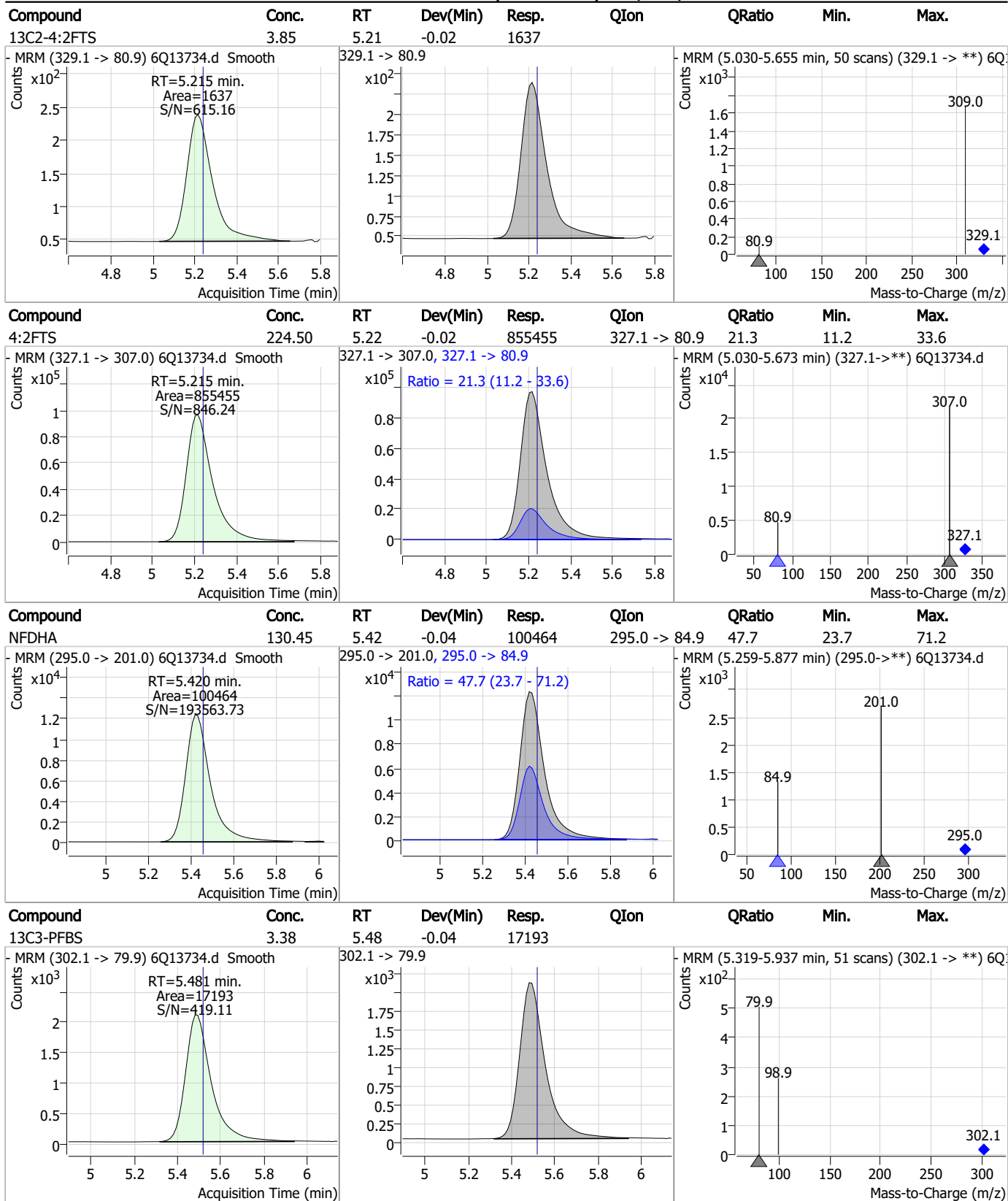
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	131.40	4.36	-0.02	1033925				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	135.85	4.76	-0.02	315509				



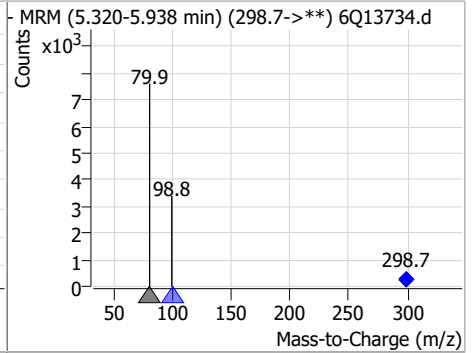
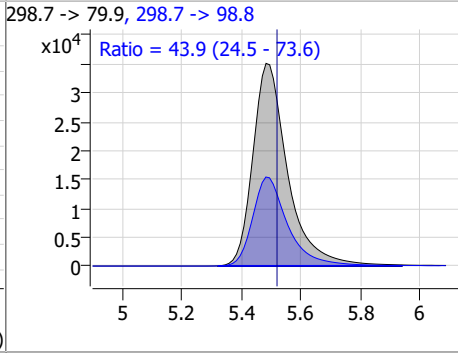
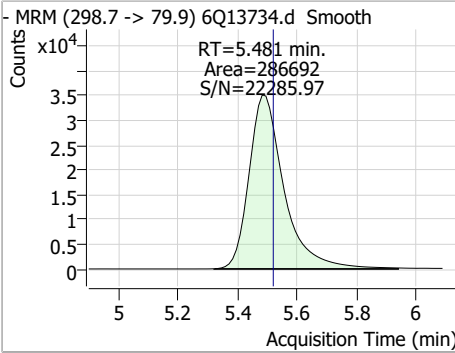
Perfluorinated Compounds by LC/MS/MS



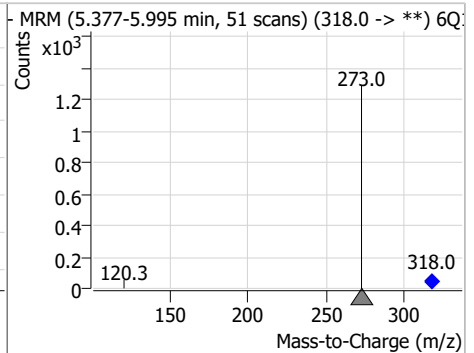
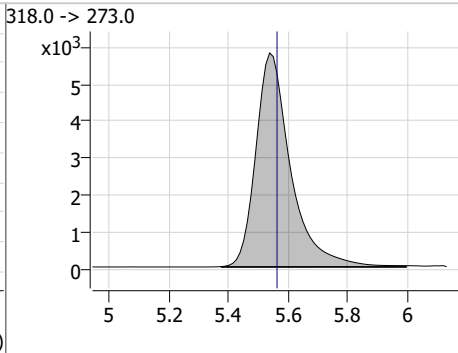
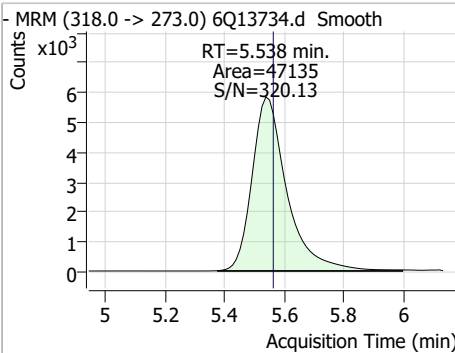
7.6.9
7

Perfluorinated Compounds by LC/MS/MS

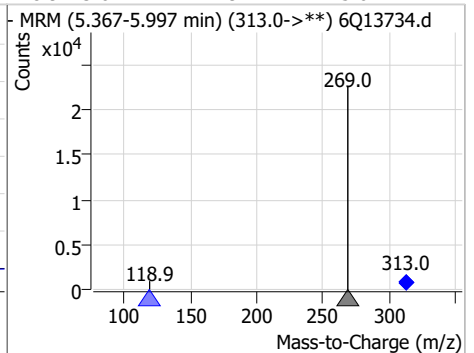
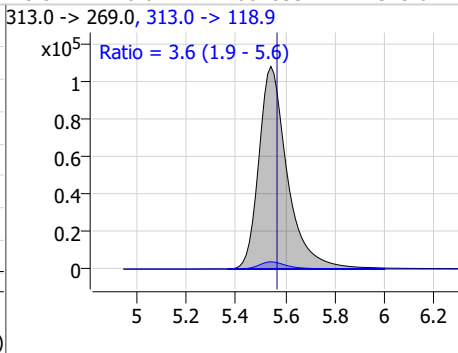
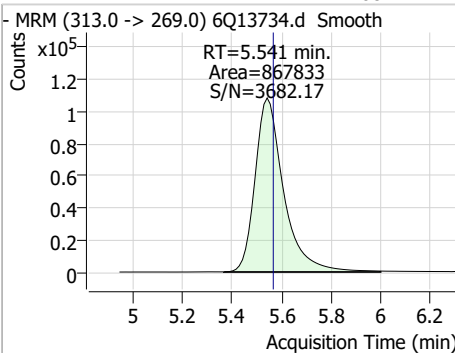
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	60.10	5.48	-0.04	286692	298.7 -> 98.8	43.9	24.5	73.6



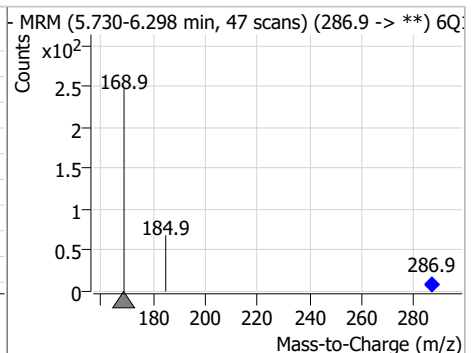
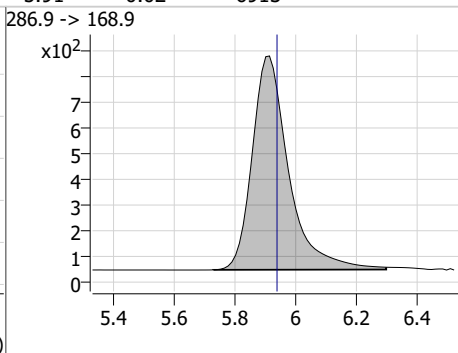
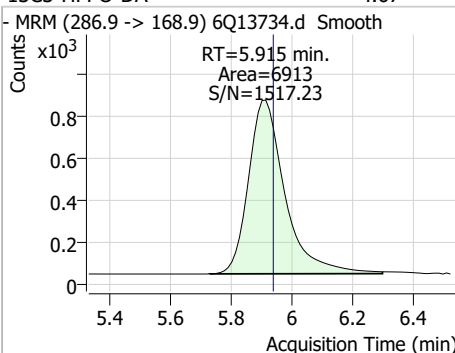
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	3.39	5.54	-0.02	47135				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	68.44	5.54	-0.02	867833	313.0 -> 118.9	3.6	1.9	5.6

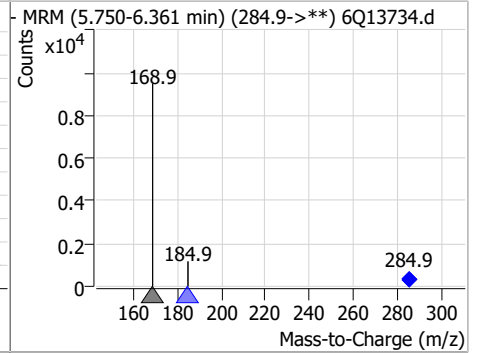
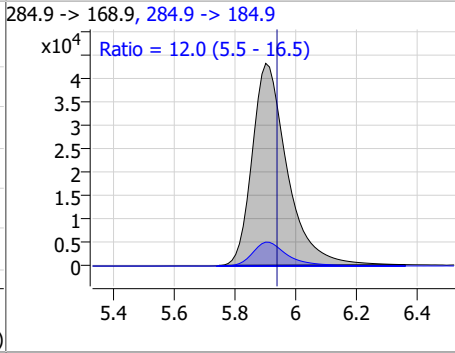
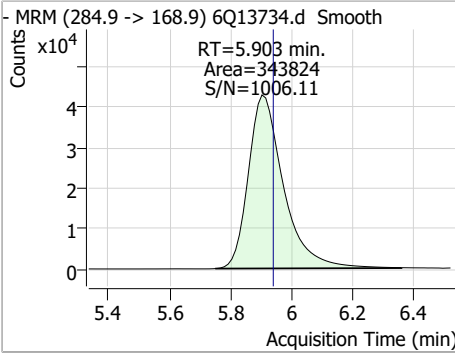


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	4.67	5.91	-0.02	6913				

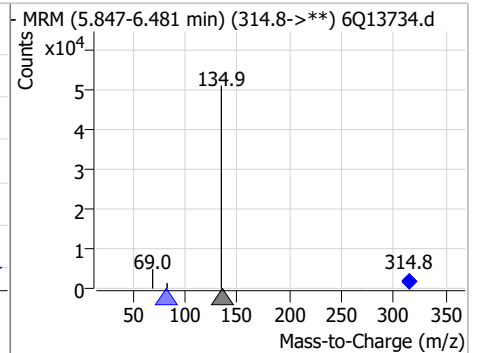
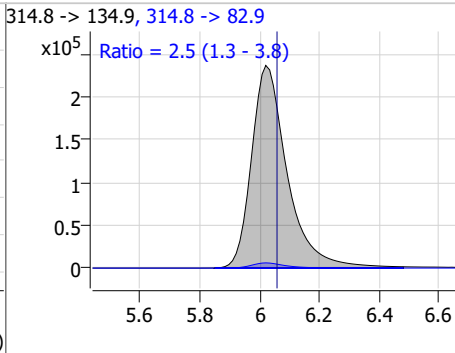
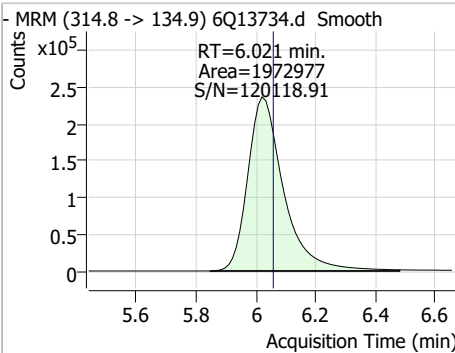


Perfluorinated Compounds by LC/MS/MS

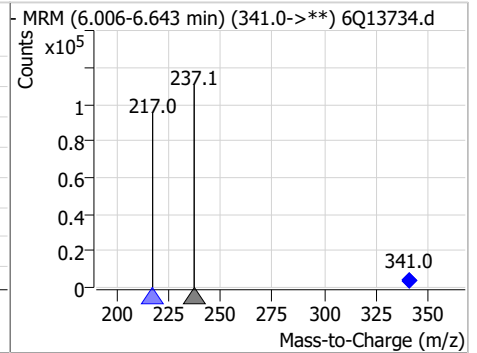
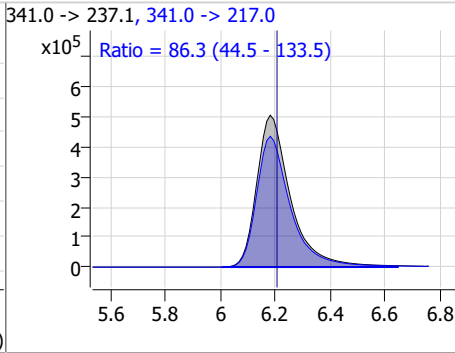
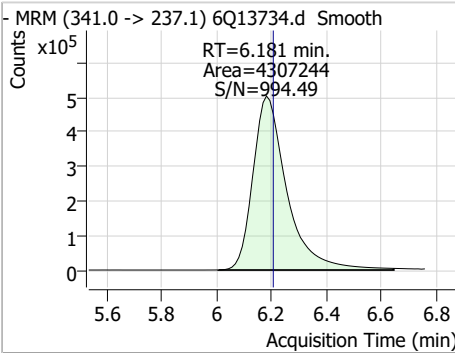
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	253.11	5.90	-0.04	343824	284.9 -> 184.9	12.0	5.5	16.5



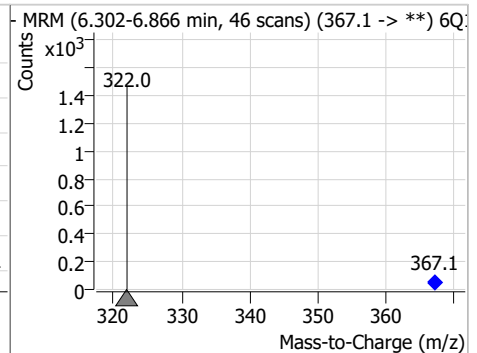
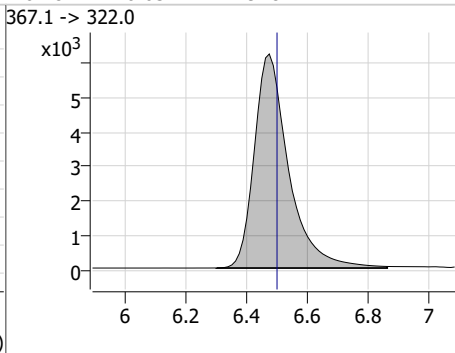
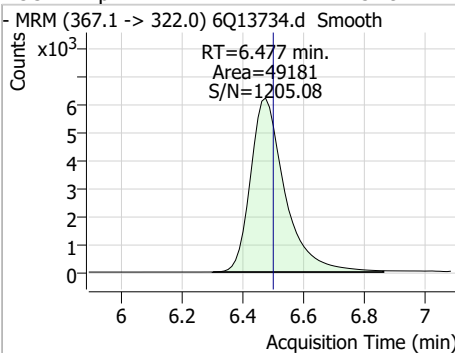
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	114.83	6.02	-0.04	1972977	314.8 -> 82.9	2.5	1.3	3.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	1660.39	6.18	-0.02	4307244	341.0 -> 217.0	86.3	44.5	133.5

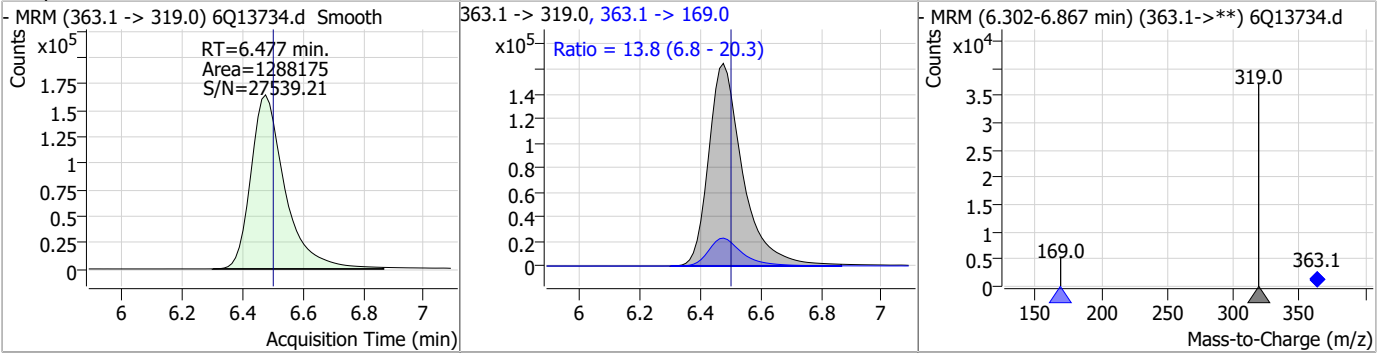


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	3.49	6.48	-0.03	49181	367.1 -> 322.0			

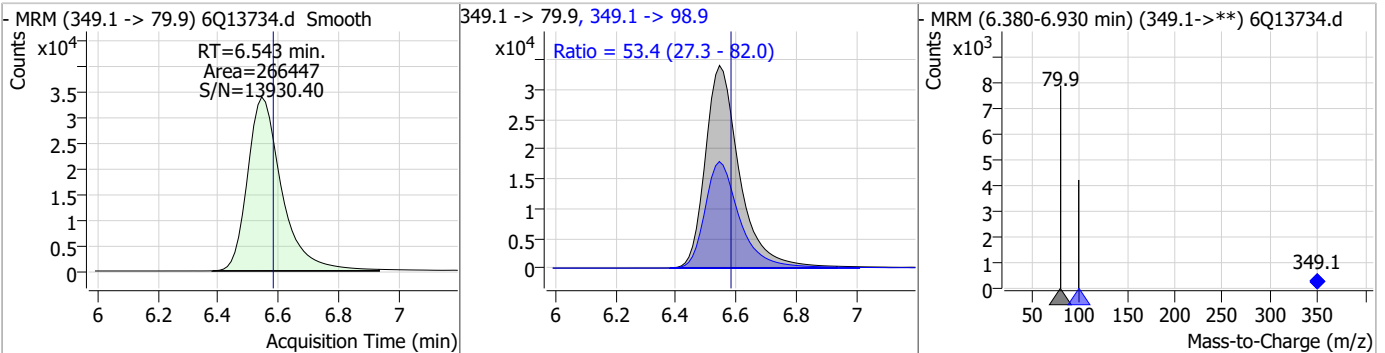


Perfluorinated Compounds by LC/MS/MS

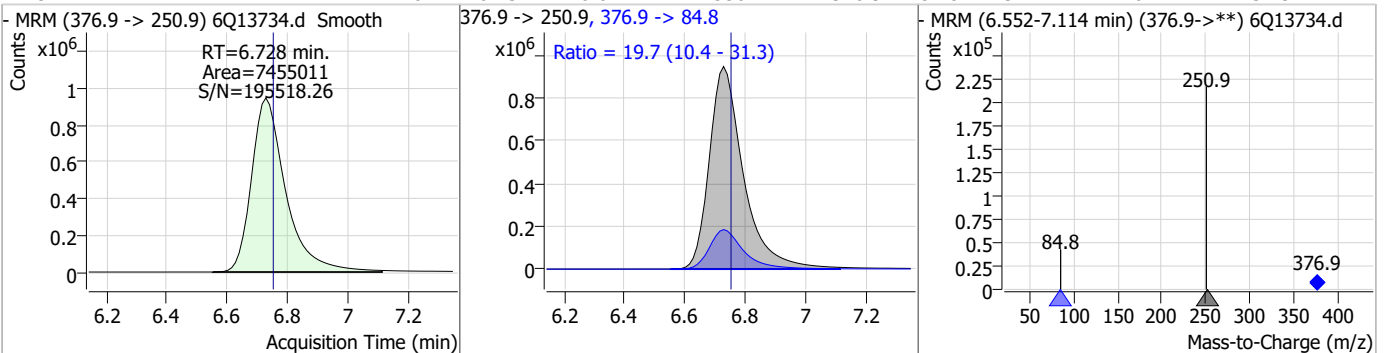
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	64.69	6.48	-0.03	1288175	363.1 -> 169.0	13.8	6.8	20.3



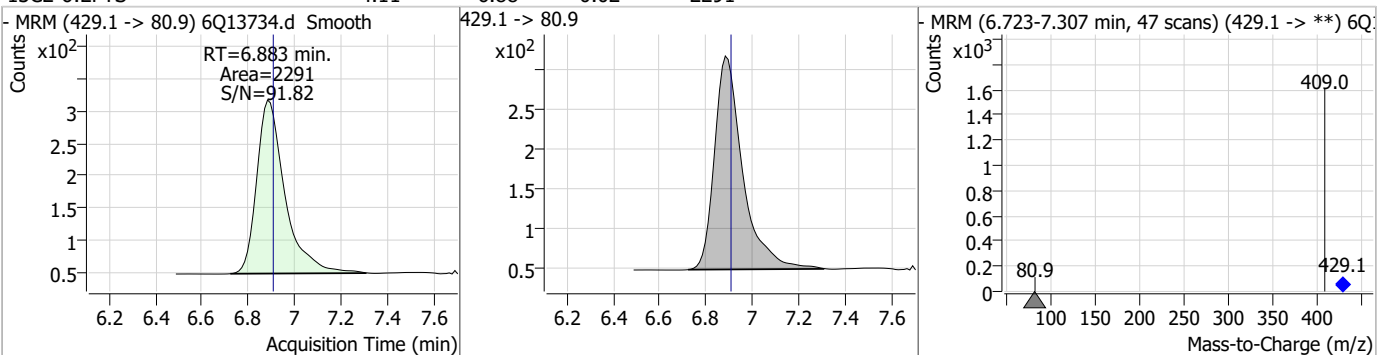
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	59.51	6.54	-0.04	266447	349.1 -> 98.9	53.4	27.3	82.0



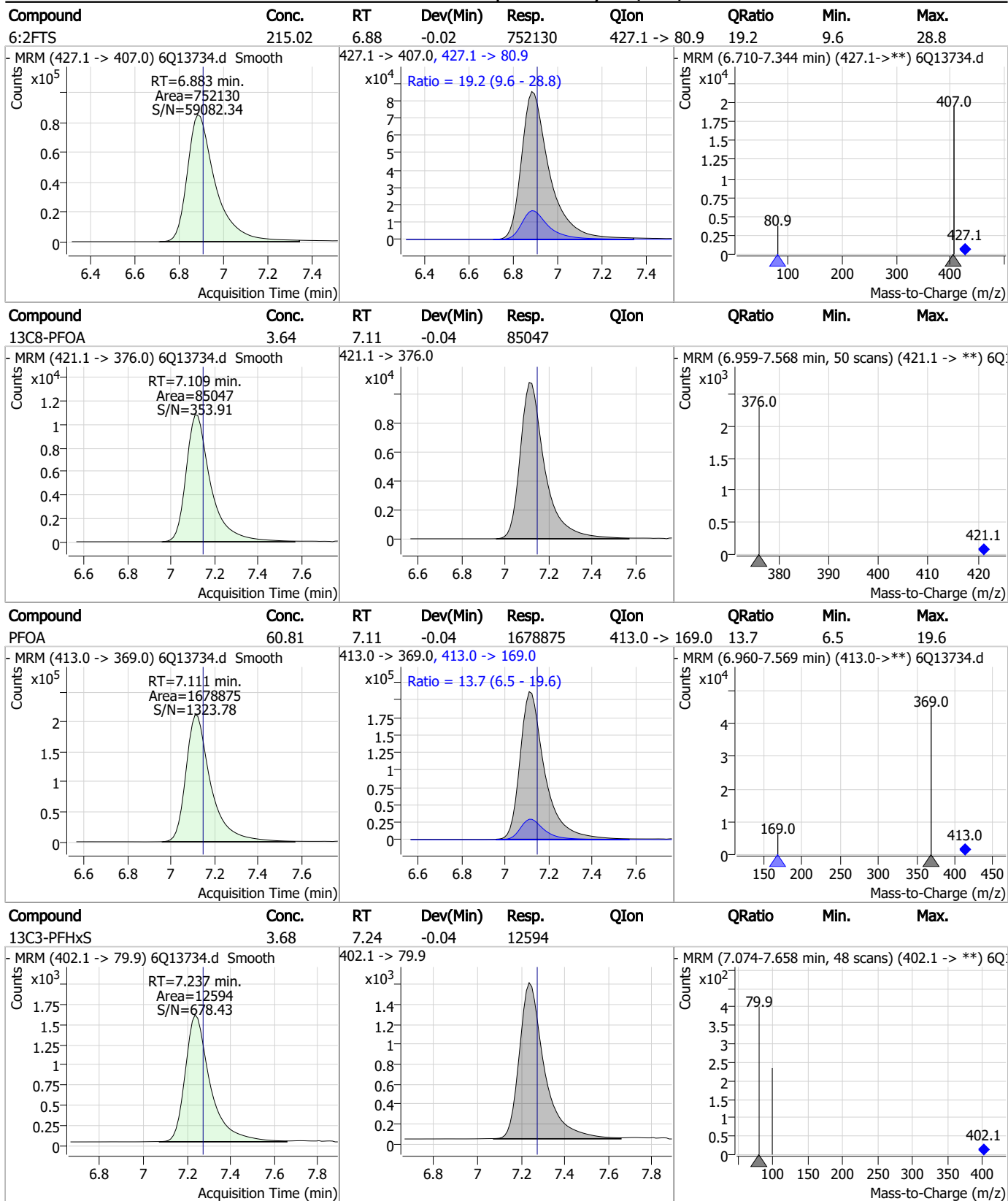
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	247.46	6.73	-0.02	7455011	376.9 -> 84.8	19.7	10.4	31.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6-2FTS	4.11	6.88	-0.02	2291	429.1 -> 80.9			

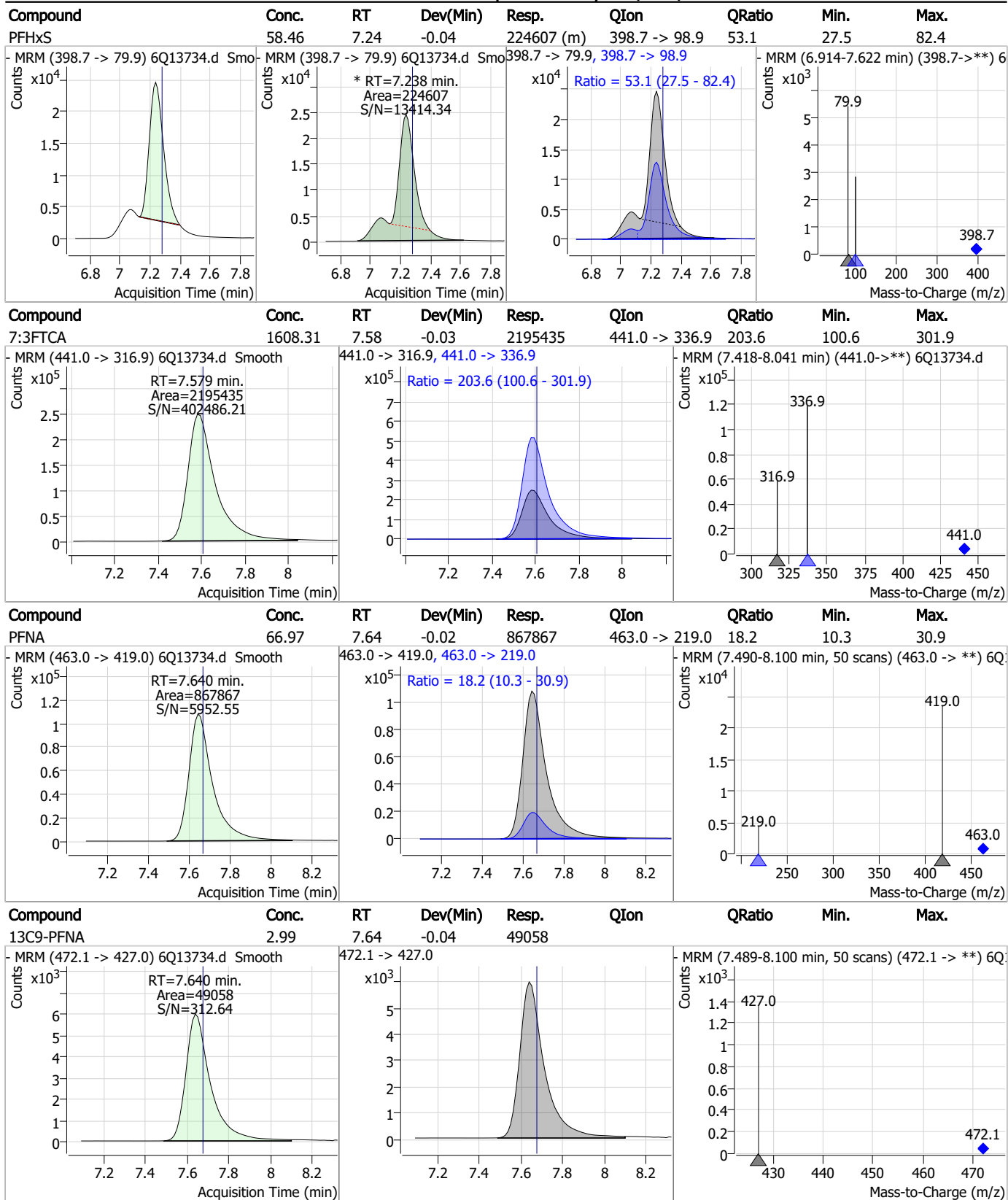


Perfluorinated Compounds by LC/MS/MS



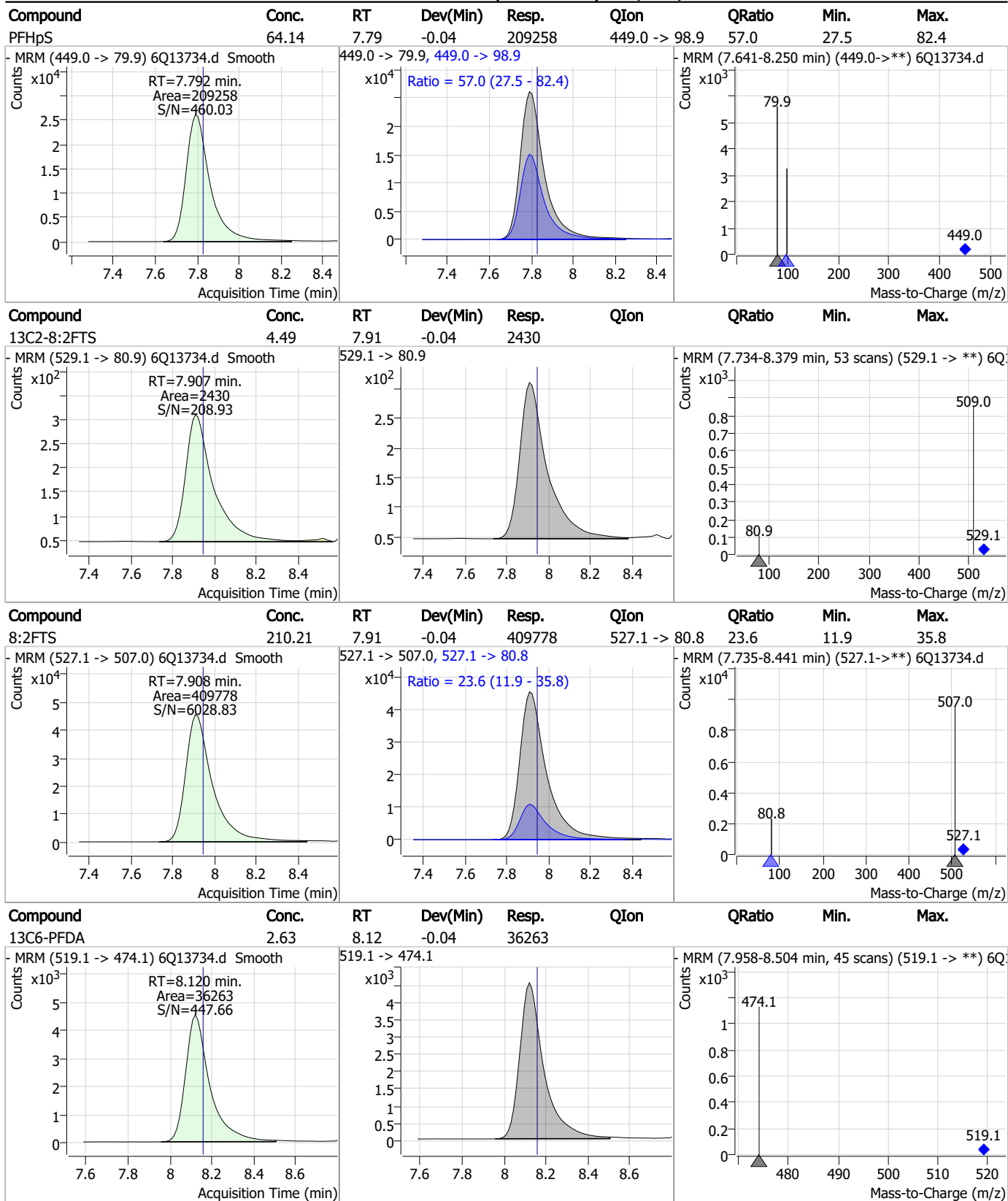
7.6.9
7

Perfluorinated Compounds by LC/MS/MS



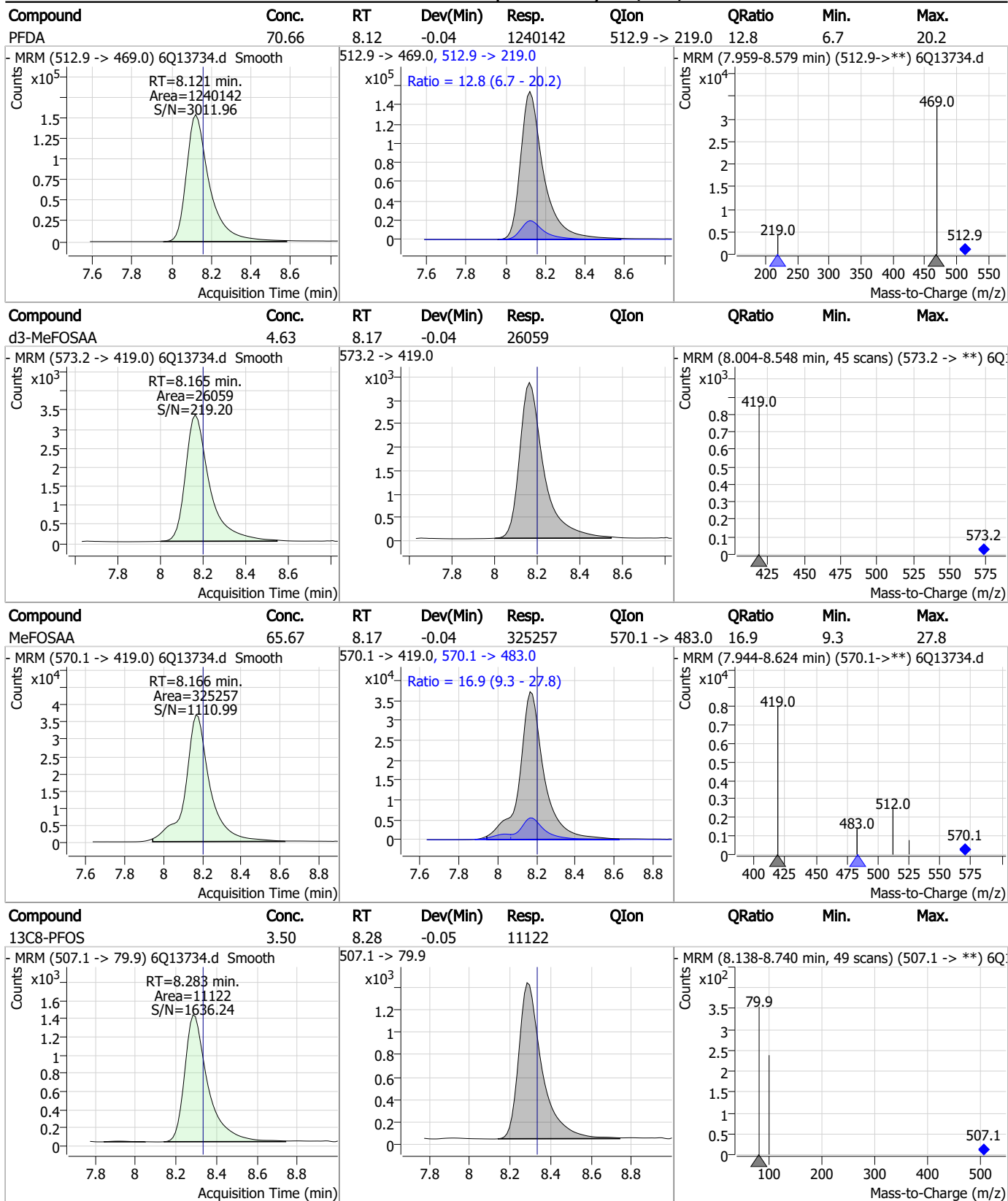
7.6.9

Perfluorinated Compounds by LC/MS/MS



7.6.9
7

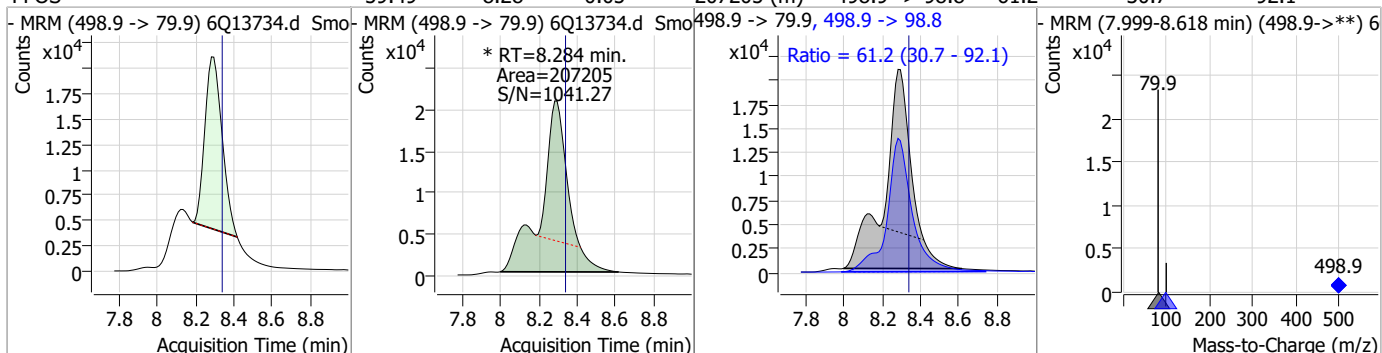
Perfluorinated Compounds by LC/MS/MS



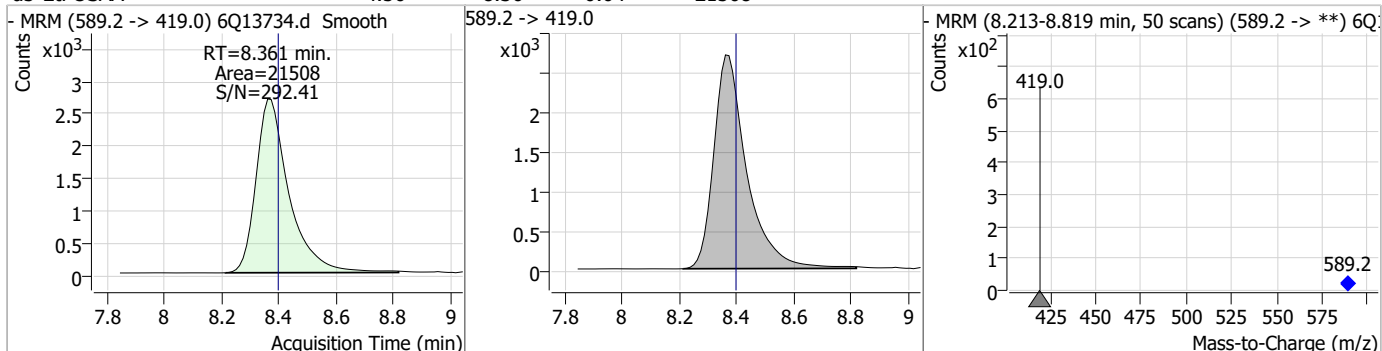
7.6.9
7

Perfluorinated Compounds by LC/MS/MS

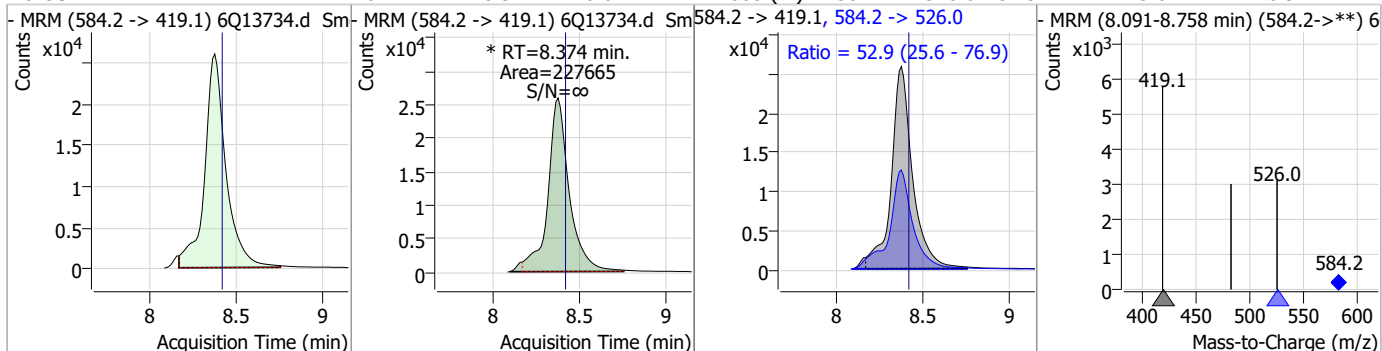
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	59.49	8.28	-0.05	207205 (m)	498.9 -> 98.8	61.2	30.7	92.1



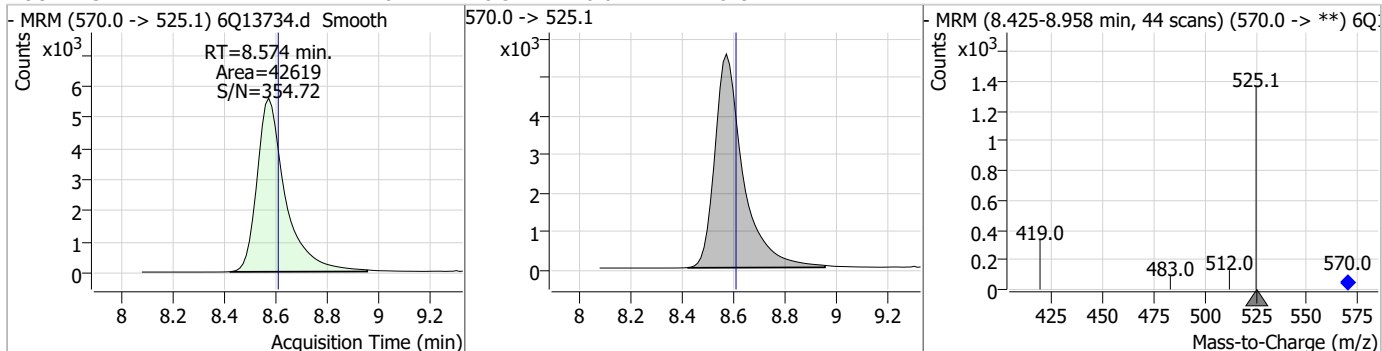
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.56	8.36	-0.04	21508				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	62.74	8.37	-0.04	227665 (m)	584.2 -> 526.0	52.9	25.6	76.9

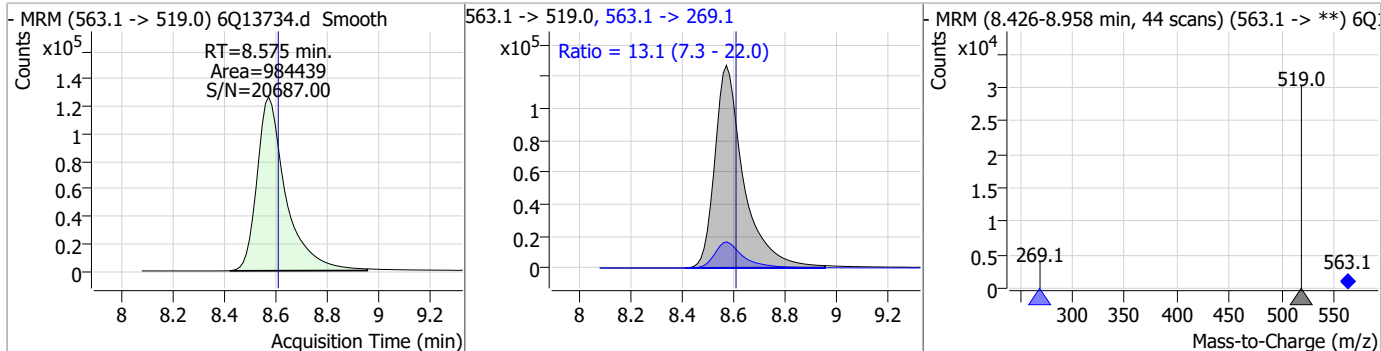


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	2.64	8.57	-0.04	42619				

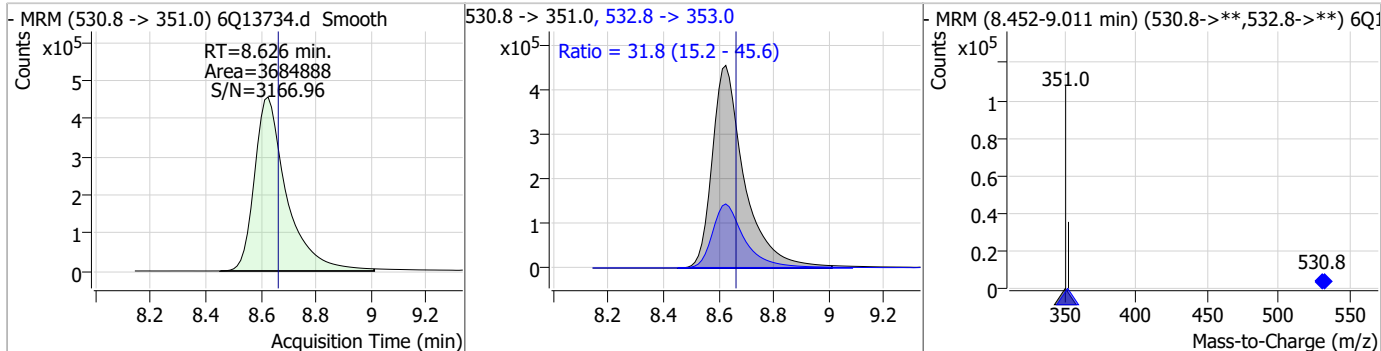


Perfluorinated Compounds by LC/MS/MS

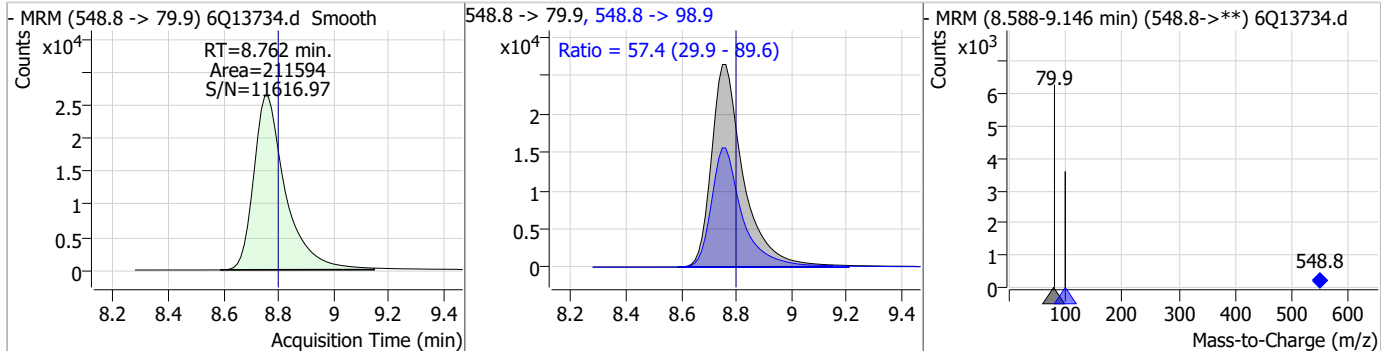
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	70.78	8.57	-0.04	984439	563.1 -> 269.1	13.1	7.3	22.0



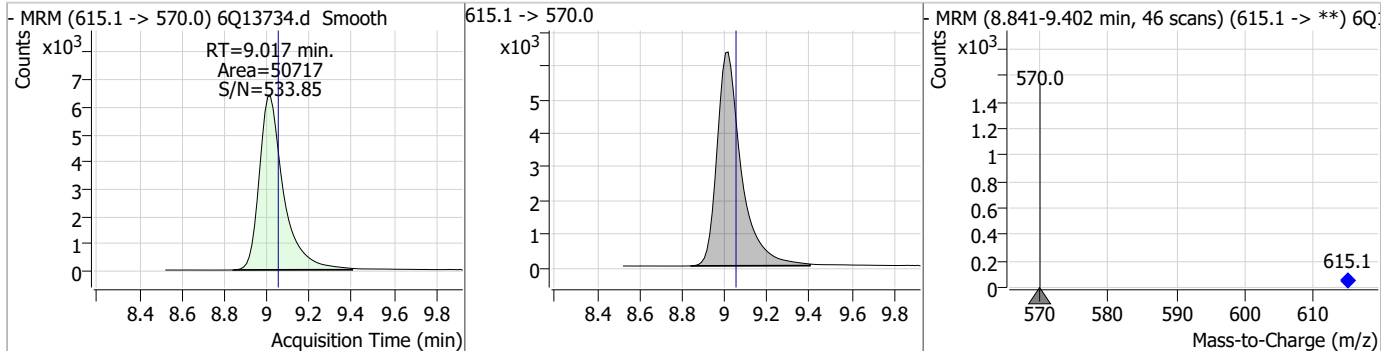
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	232.10	8.63	-0.04	3684888	532.8 -> 353.0	31.8	15.2	45.6



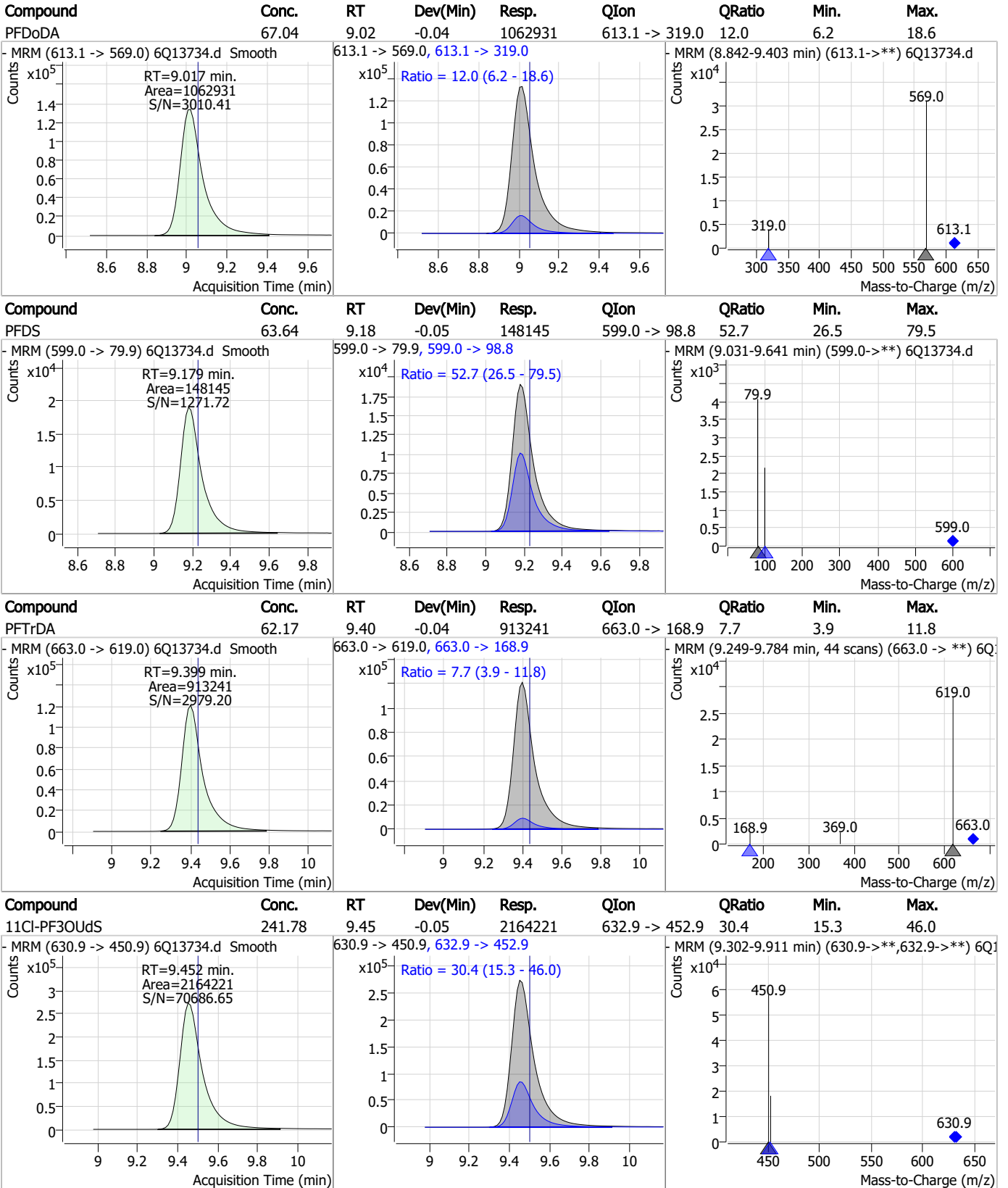
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	63.23	8.76	-0.04	211594	548.8 -> 98.9	57.4	29.9	89.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	2.78	9.02	-0.04	50717	615.1 -> 570.0			



Perfluorinated Compounds by LC/MS/MS

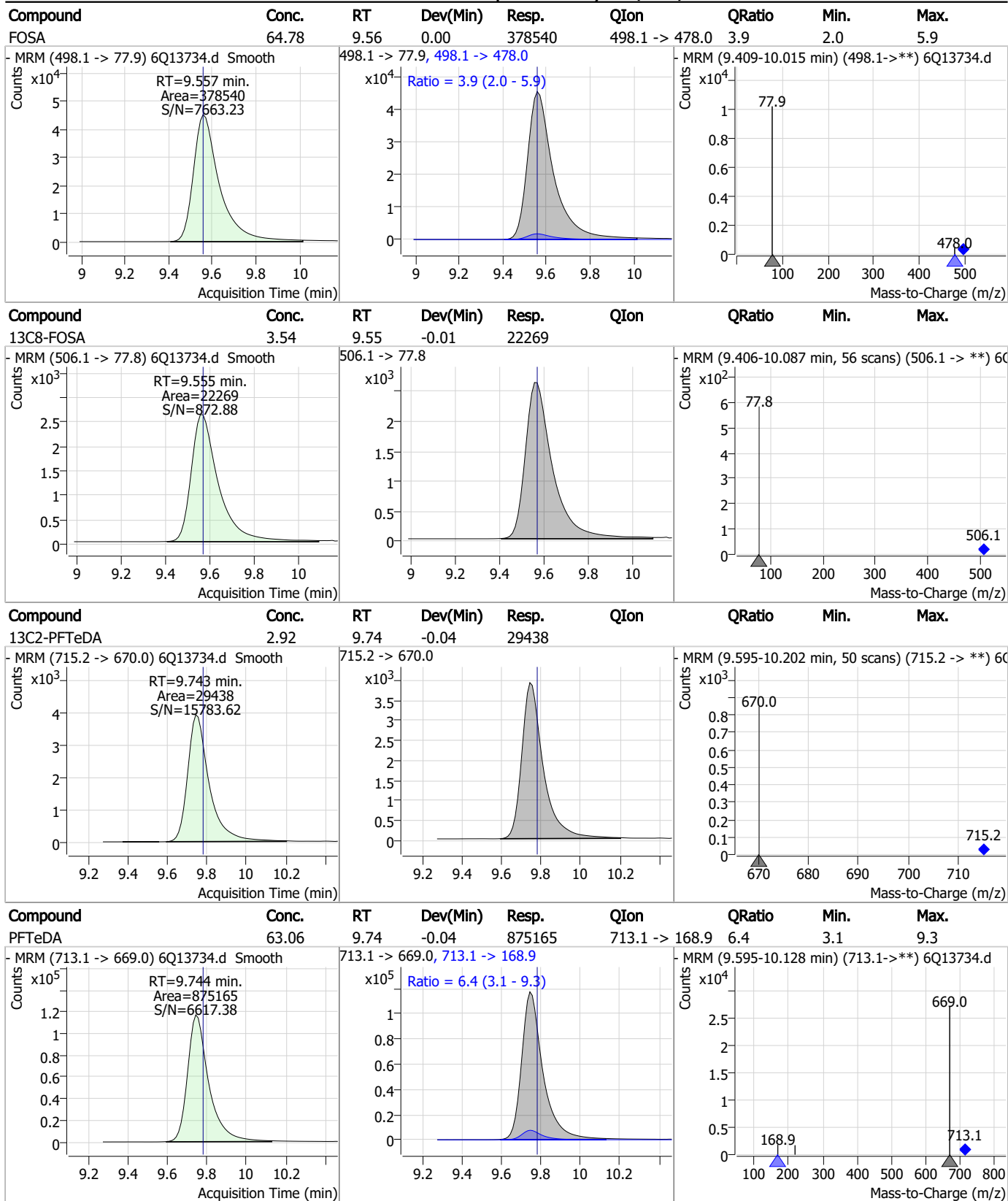


7.6.9

7



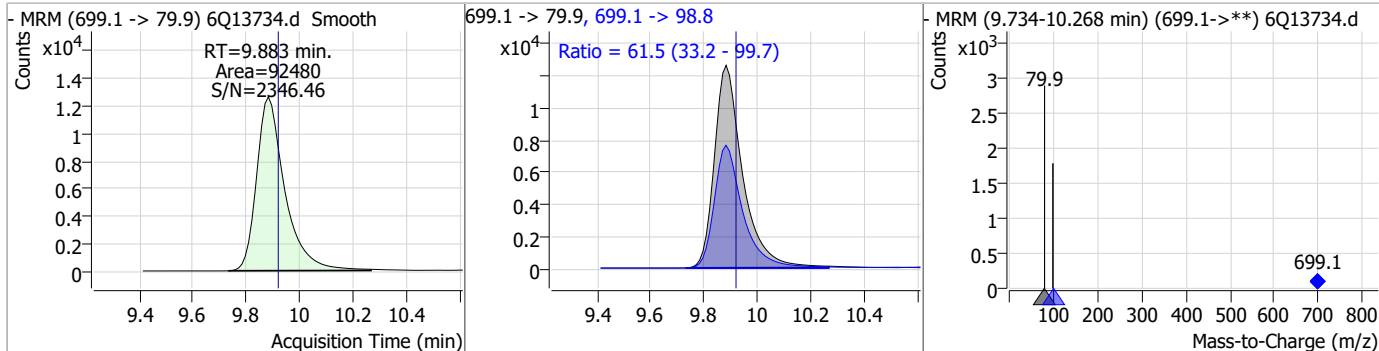
Perfluorinated Compounds by LC/MS/MS



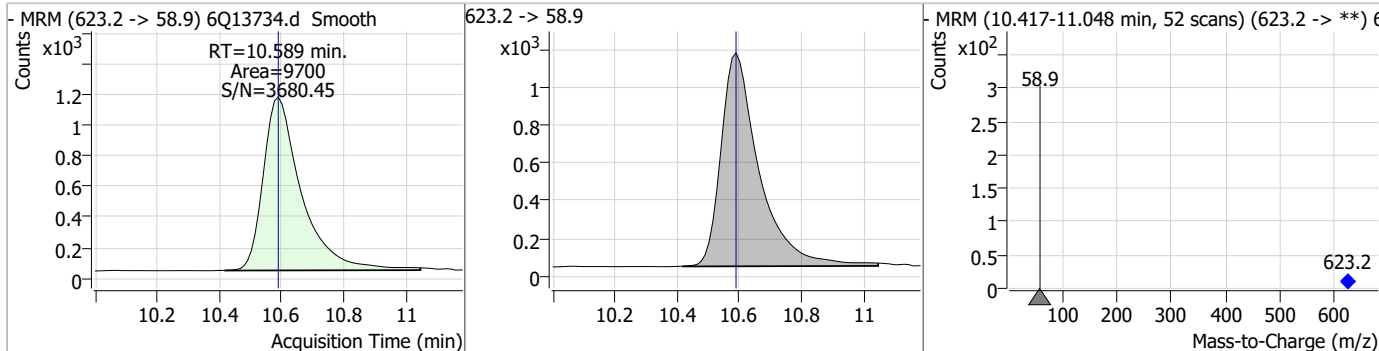
7.6.9
7

Perfluorinated Compounds by LC/MS/MS

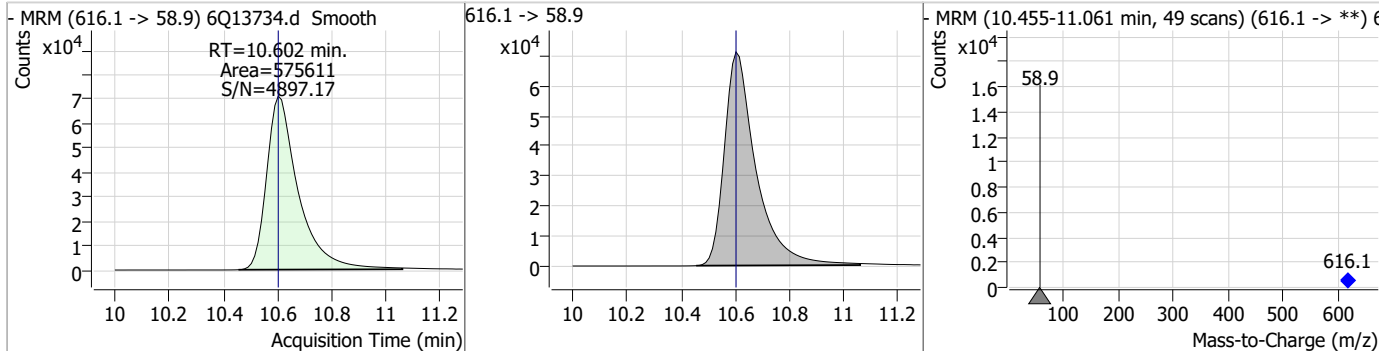
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	63.81	9.88	-0.04	92480	699.1 -> 98.8	61.5	33.2	99.7



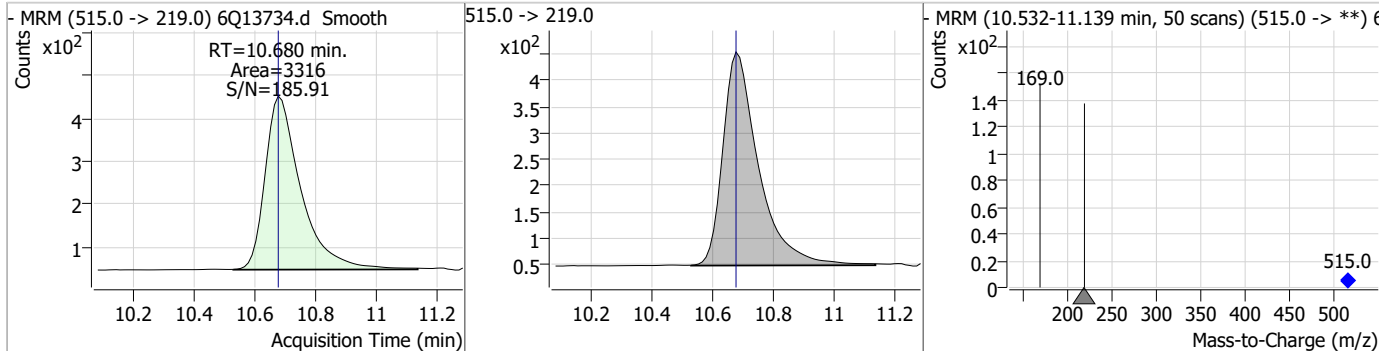
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	10.57	10.59	0.00	9700				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	714.20	10.60	0.00	575611				

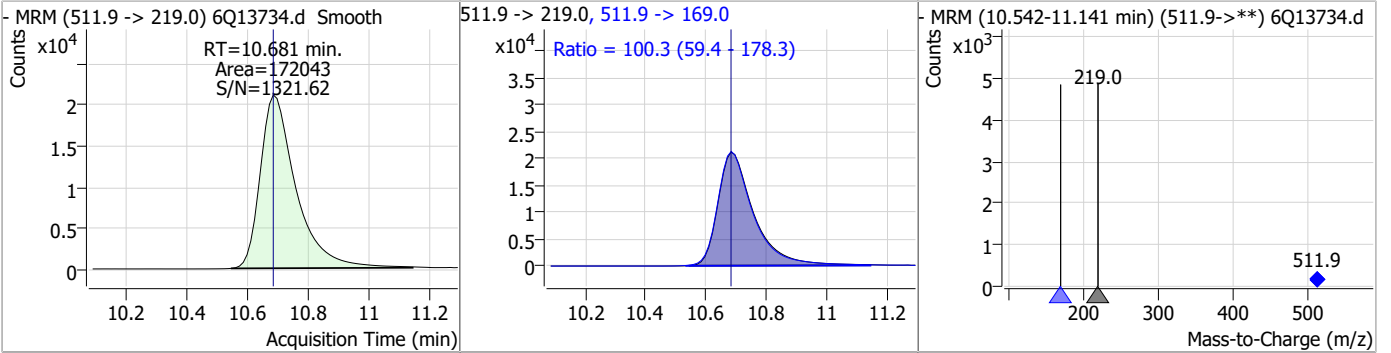


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	1.26	10.68	0.00	3316				

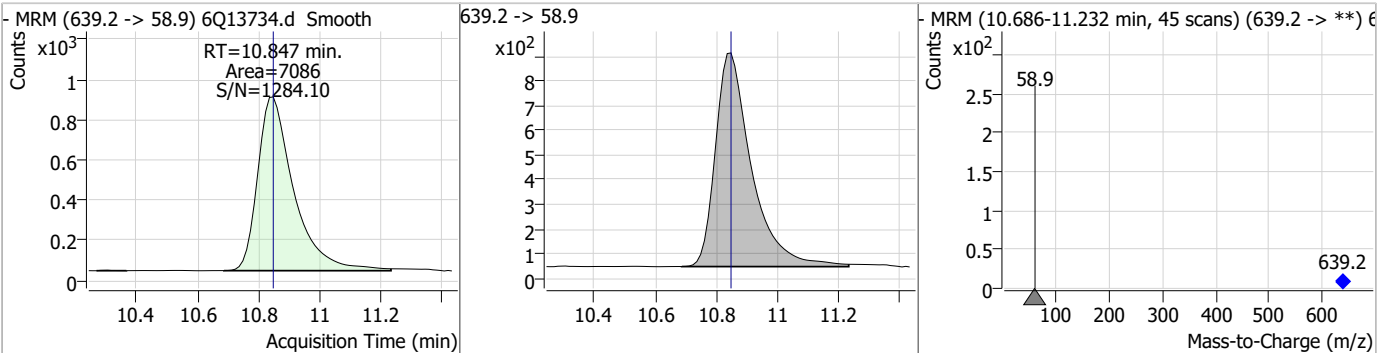


Perfluorinated Compounds by LC/MS/MS

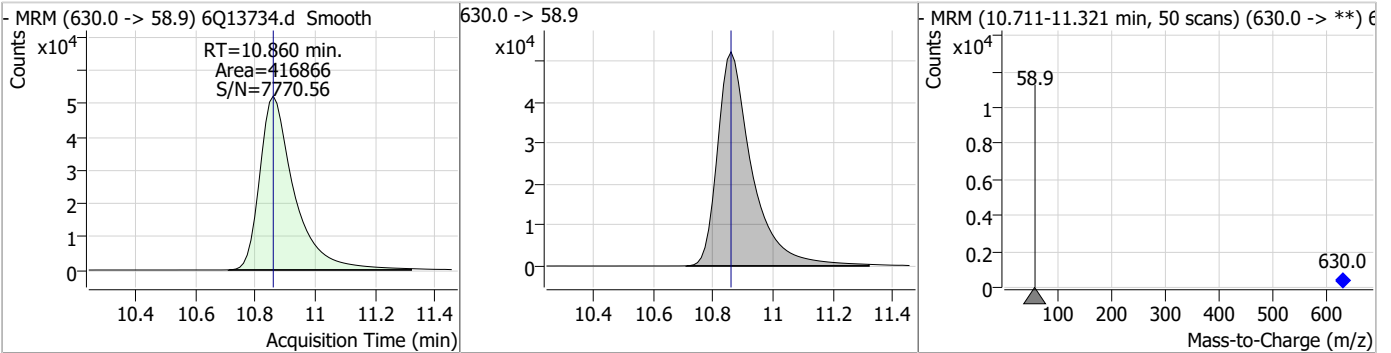
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	58.90	10.68	0.00	172043	511.9 -> 169.0	100.3	59.4	178.3



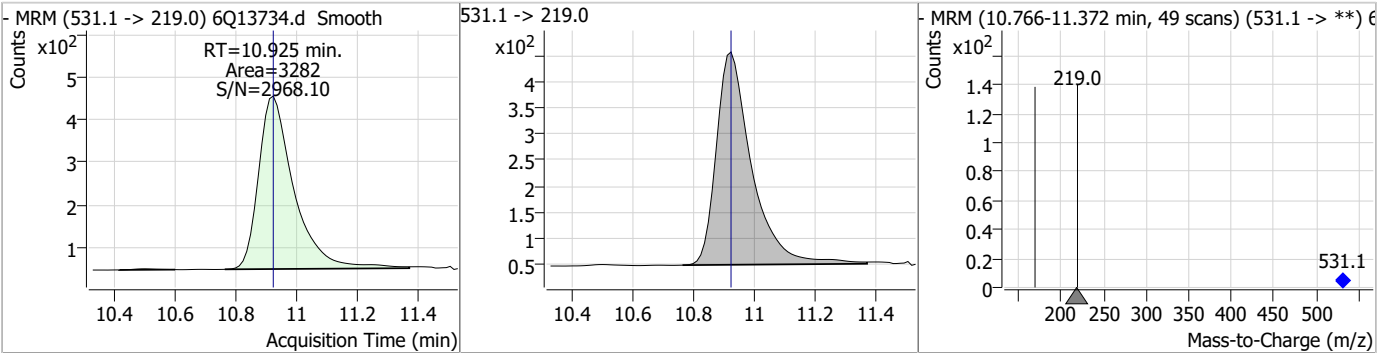
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	10.92	10.85	0.00	7086				



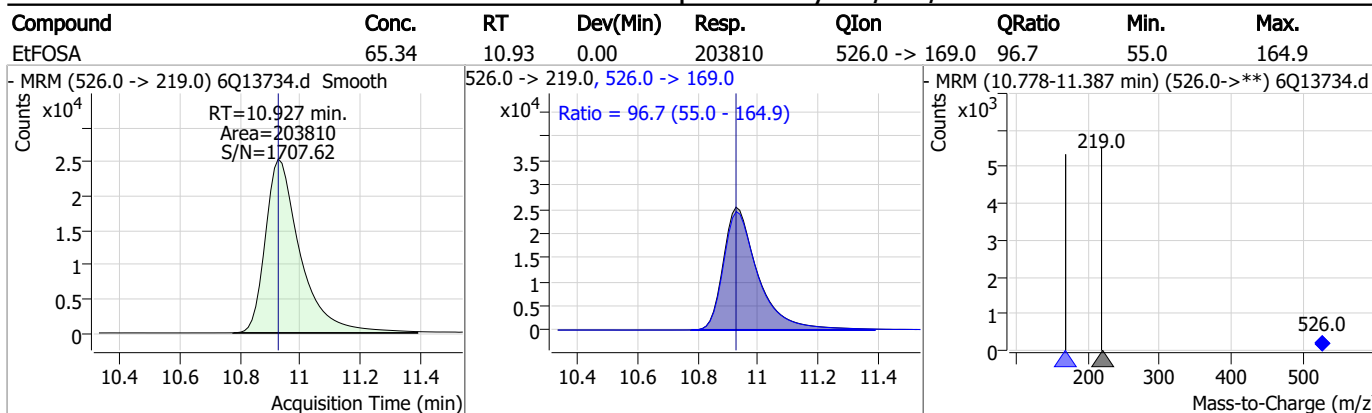
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	689.77	10.86	0.00	416866				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	1.16	10.92	0.00	3282				



Perfluorinated Compounds by LC/MS/MS



7.6.9

7

Manual Integration Approval Summary

Sample Number: S6Q208-IC208 Method: EPA DRAFT 1633
Lab FileID: 6Q13734.D Analyst approved: 02/18/23 11:42 Natasha Gumtie
Injection Time: 02/16/23 09:42 Supervisor approved: 02/18/23 12:01 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.28	Split peak
EtFOSAA	2991-50-6		8.37	Split peak

7.6.9.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13736.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/16/2023 10:10:08 AM
 Sample Name : icv208-4
 Vial : P1-E1
 DA Method File : 1633_021623_S6Q208NEW.quantmethod.xml
 Batch Name : s6q208.batch.bin
 Sample Information : OP95142,S6Q208,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.963	216.8 -> 171.9	55961	7.50 µg/L	-0.012
M5-PFPeA	4.361	268.3 -> 223.0	35800	5.00 µg/L	-0.025
M5-PFHxA	5.538	318.0 -> 273.0	47066	3.75 µg/L	-0.025
M4-PFHpA	6.464	367.1 -> 322.0	50458	3.75 µg/L	-0.038
M8-PFOA	7.109	421.1 -> 376.0	83956	3.75 µg/L	-0.037
M9-PFNA	7.640	472.1 -> 427.0	49465	3.13 µg/L	-0.037
M6-PFDA	8.120	519.1 -> 474.1	39395	3.13 µg/L	-0.037
M7-PFUnDA	8.574	570.0 -> 525.1	47233	3.13 µg/L	-0.037
M2-PFDoDA	9.004	615.1 -> 570.0	51546	3.13 µg/L	-0.050
M2-PFTeDA	9.743	715.2 -> 670.0	28540	3.13 µg/L	-0.037
M8-FOSA	9.555	506.1 -> 77.8	23108	3.75 µg/L	-0.012
M3-PFBS	5.481	302.1 -> 79.9	18222	3.75 µg/L	-0.037
M3-PFHxS	7.224	402.1 -> 79.9	12165	3.75 µg/L	-0.049
M8-PFOS	8.283	507.1 -> 79.9	10681	3.75 µg/L	-0.050
M2-4:2FTS	5.203	329.1 -> 80.9	2103	5.00 µg/L	-0.037
M2-6:2FTS	6.871	429.1 -> 80.9	2676	5.00 µg/L	-0.037
M2-8:2FTS	7.907	529.1 -> 80.9	2545	5.00 µg/L	-0.037
M3-MeFOSAA	8.165	573.2 -> 419.0	27646	5.00 µg/L	-0.037
M3-HFPO-DA	5.903	286.9 -> 168.9	6759	5.00 µg/L	-0.037
M5-EtFOSAA	8.361	589.2 -> 419.0	22360	5.00 µg/L	-0.037
M7-MeFOSE	10.589	623.2 -> 58.9	10774	12.50 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	7768	12.50 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	3430	1.25 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	3028	1.25 µg/L	0.000
13C4-PFOS	8.283	502.8 -> 79.9	9518	2.50 µg/L	-0.050
13C3-PFBA	2.966	216.0 -> 172.0	32602	5.00 µg/L	-0.012
18O2-PFHxS	7.236	403.0 -> 83.9	5879	2.50 µg/L	-0.037
13C4-PFOA	7.110	417.1 -> 372.0	69333	2.50 µg/L	-0.037
13C2-PFDA	8.120	515.1 -> 470.1	21212	1.25 µg/L	-0.037
13C5-PFNA	7.640	468.0 -> 423.0	21293	1.25 µg/L	-0.037
13C2-PFHxA	5.539	315.1 -> 270.0	32208	2.50 µg/L	-0.025
System Monitoring Compounds					
13C2-4:2FTS	5.203	329.1 -> 80.9	2103	5.19 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.7%		
13C2-6:2FTS	6.871	429.1 -> 80.9	2676	5.02 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C2-8:2FTS	7.907	529.1 -> 80.9	2545	4.92 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.4%		
13C2-PFDoDA	9.004	615.1 -> 570.0	51546	3.08 µg/L	-0.050
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C2-PFTeDA	9.743	715.2 -> 670.0	28540	3.08 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C3-PFBS	5.481	302.1 -> 79.9	18222	3.75 µg/L	-0.037
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C3-PFHxS	7.224	402.1 -> 79.9	12165	3.72 µg/L	-0.049

7.6.10
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C4-PFBA	2.963	216.8 -> 171.9	55961	7.40 µg/L	-0.012
Spiked Amount: 7.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C4-PFHpA	6.464	367.1 -> 322.0	50458	3.64 µg/L	-0.038
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C5-PFHxA	5.538	318.0 -> 273.0	47066	3.45 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 91.9%	
13C5-PFPeA	4.361	268.3 -> 223.0	35800	4.73 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.6%	
13C6-PFDA	8.120	519.1 -> 474.1	39395	3.11 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C7-PFUnDA	8.574	570.0 -> 525.1	47233	3.18 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C8-FOSA	9.555	506.1 -> 77.8	23108	3.63 µg/L	-0.012
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C8-PFOA	7.109	421.1 -> 376.0	83956	3.54 µg/L	-0.037
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 94.5%	
13C8-PFOS	8.283	507.1 -> 79.9	10681	3.33 µg/L	-0.050
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 88.7%	
13C9-PFNA	7.640	472.1 -> 427.0	49465	3.06 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 98.1%	
d3-MeFOSAA	8.165	573.2 -> 419.0	27646	4.86 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C3-HFPO-DA	5.903	286.9 -> 168.9	6759	4.65 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.0%	
d3-MeFOSA	10.680	515.0 -> 219.0	3028	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.0%	
d5-EtFOSAA	8.361	589.2 -> 419.0	22360	4.69 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.7%	
d7-MeFOSE	10.589	623.2 -> 58.9	10774	11.61 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%			Recovery = 92.9%	
d9-EtFOSE	10.847	639.2 -> 58.9	7768	11.84 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%			Recovery = 94.7%	
d5-EtFOSA	10.925	531.1 -> 219.0	3430	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.7%	
Target Compounds					QValue
4:2FTS	5.215	327.1 -> 307.0	48308	9.87 µg/L	99
		327.1 -> 80.9	10955		
6:2FTS	6.871	427.1 -> 407.0	42840	10.49 µg/L	100
		427.1 -> 80.9	8278		
8:2FTS	7.908	527.1 -> 507.0	22094	10.82 µg/L	97
		527.1 -> 80.8	5625		
EtFOSAA	8.362	584.2 -> 419.1	10071	2.67 µg/L	100
		584.2 -> 526.0	5134		
FOSA	9.557	498.1 -> 77.9	14880	2.45 µg/L	97
		498.1 -> 478.0	444		
MeFOSAA	8.166	570.1 -> 419.0	13763	2.62 µg/L	98
		570.1 -> 483.0	2404		
PFBA	2.957	212.8 -> 168.9	18870	10.34 µg/L	100
PFBS	5.481	298.7 -> 79.9	11494	2.27 µg/L	98
		298.7 -> 98.8	5476		
PFDA	8.121	512.9 -> 469.0	48216	2.53 µg/L	99
		512.9 -> 219.0	6713		
PFDODA	9.005	613.1 -> 569.0	42984	2.67 µg/L	100
		613.1 -> 319.0	5256		
PFDS	9.179	599.0 -> 79.9	6305	2.82 µg/L	99

7.6.10
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.465	599.0 -> 98.8	3370	2.51	µg/L	98
		363.1 -> 319.0	51274			
PFHpS	7.792	363.1 -> 169.0	7233	2.60	µg/L	89
		449.0 -> 79.9	8134			
PFHxA	5.541	449.0 -> 98.9	5139	2.66	µg/L	99
		313.0 -> 269.0	33733			
PFHxS	7.225	313.0 -> 118.9	1173	2.37	µg/L	96
		398.7 -> 79.9	8788			
PFNA	7.640	398.7 -> 98.9	5075	2.50	µg/L	97
		463.0 -> 419.0	32695			
PFNS	8.749	463.0 -> 219.0	6319	2.63	µg/L	98
		548.8 -> 79.9	8461			
PFOA	7.111	548.8 -> 98.9	4904	2.51	µg/L	100
		413.0 -> 369.0	68371			
PFOS	8.284	413.0 -> 169.0	9092	2.41	µg/L	93
		498.9 -> 79.9	8074			
PFPeA	4.363	498.9 -> 98.8	5413	5.24	µg/L	100
		263.0 -> 219.0	41801			
PFPeS	6.531	349.1 -> 79.9	11234	2.60	µg/L	93
		349.1 -> 98.9	5573			
PFTeDA	9.744	713.1 -> 669.0	36881	2.74	µg/L	100
		713.1 -> 168.9	2252			
PFTrDA	9.399	663.0 -> 619.0	40269	2.70	µg/L	100
		663.0 -> 168.9	3126			
PFUnDA	8.575	563.1 -> 519.0	37896	2.46	µg/L	100
		563.1 -> 269.1	5469			
11CI-PF3OUdS	9.452	630.9 -> 450.9	88733	10.14	µg/L	100
		632.9 -> 452.9	27364			
9CI-PF3ONS	8.626	530.8 -> 351.0	156232	10.06	µg/L	99
		532.8 -> 353.0	46289			
ADONA	6.716	376.9 -> 250.9	307982	10.46	µg/L	99
		376.9 -> 84.8	65906			
HFPO-DA	5.903	284.9 -> 168.9	14448	10.88	µg/L	95
		284.9 -> 184.9	1848			
3:3FTCA	3.829	241.0 -> 177.0	5034	12.51	µg/L	97
		241.0 -> 117.0	706			
5:3FTCA	6.181	341.0 -> 237.1	179925	69.46	µg/L	97
		341.0 -> 217.0	155307			
7:3FTCA	7.579	441.0 -> 316.9	93921	68.91	µg/L	95
		441.0 -> 336.9	182216			
EtFOSA	10.927	526.0 -> 219.0	8388	2.57	µg/L	81
		526.0 -> 169.0	7557			
EtFOSE	10.860	630.0 -> 58.9	17246	26.03	µg/L	100
		511.9 -> 219.0	6987			
MeFOSA	10.681	511.9 -> 169.0	6827	2.62	µg/L	81
		616.1 -> 58.9	23745			
MeFOSE	10.602	699.1 -> 79.9	3824	26.52	µg/L	100
		699.1 -> 98.8	2208			
PFDoDS	9.883	295.0 -> 201.0	4270	2.75	µg/L	89
		295.0 -> 84.9	1905			
NFDHA	5.420	279.0 -> 85.1	12302	5.55	µg/L	96
		229.0 -> 84.9	11198			
PFMBA	4.763	314.8 -> 134.9	82213	5.23	µg/L	100
PFMPA	3.516	314.8 -> 82.9	2213	5.26	µg/L	100
PFEESA	6.021			4.79	µg/L	99

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



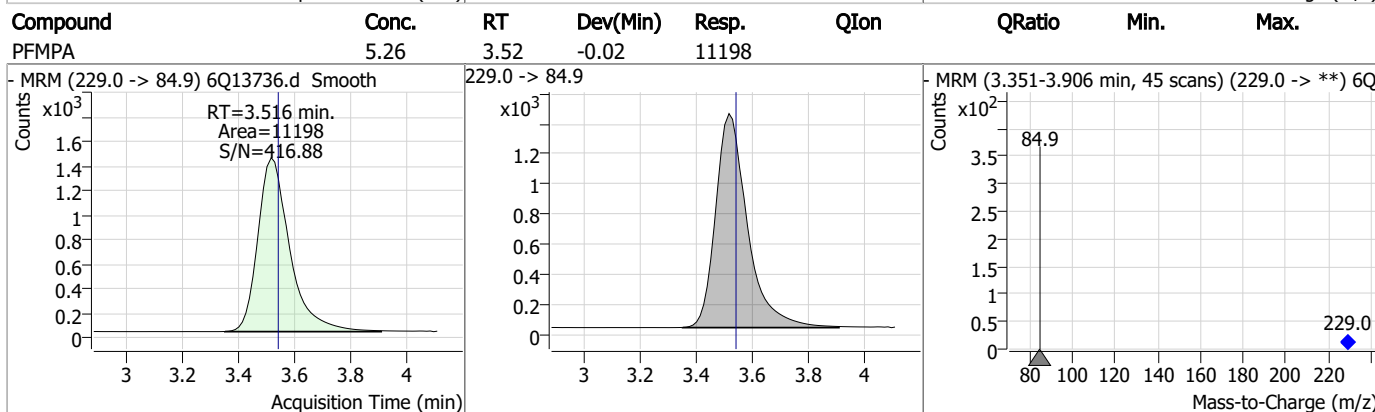
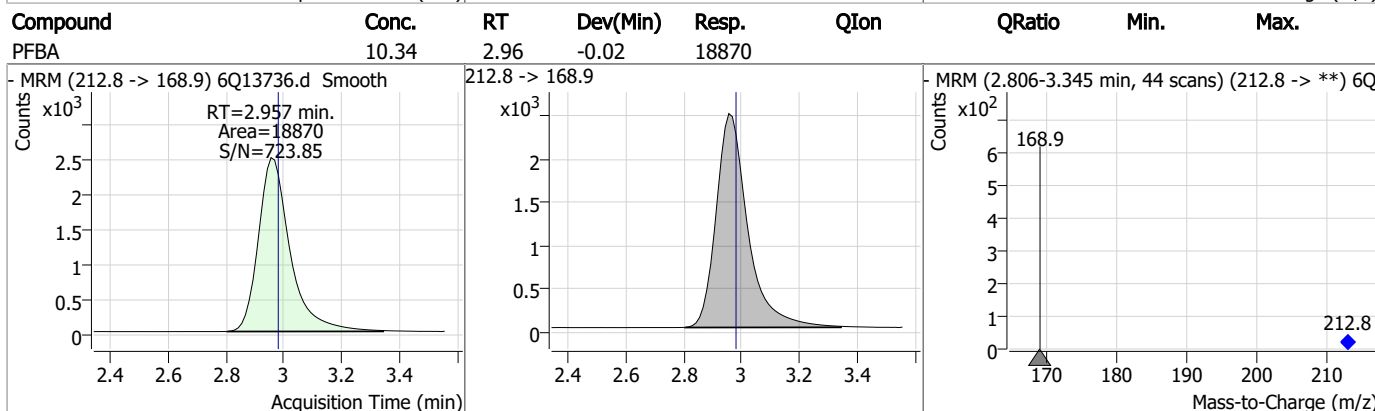
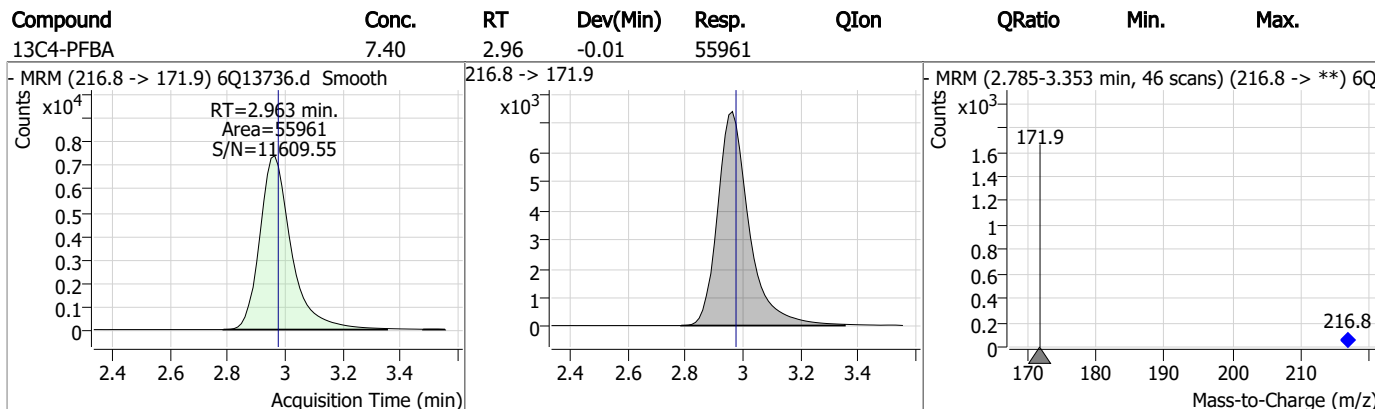
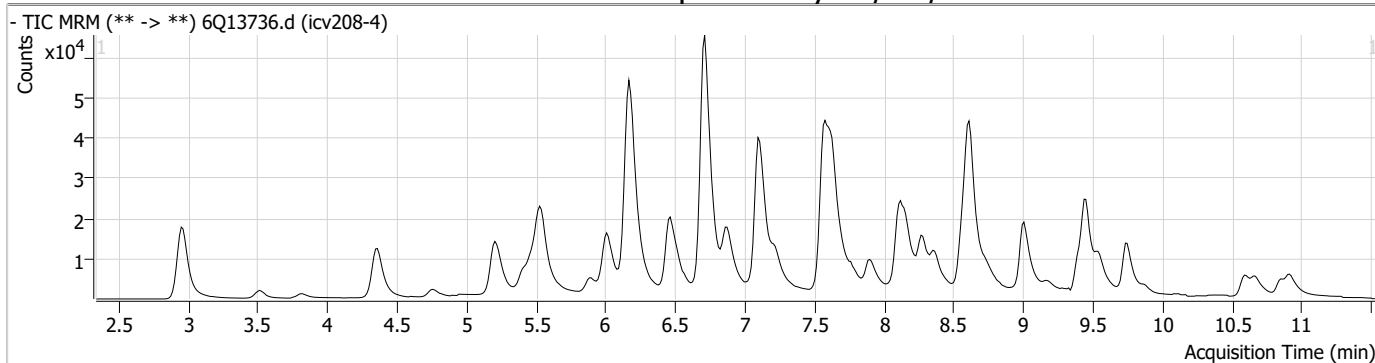
Perfluorinated Compounds by LC/MS/MS

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

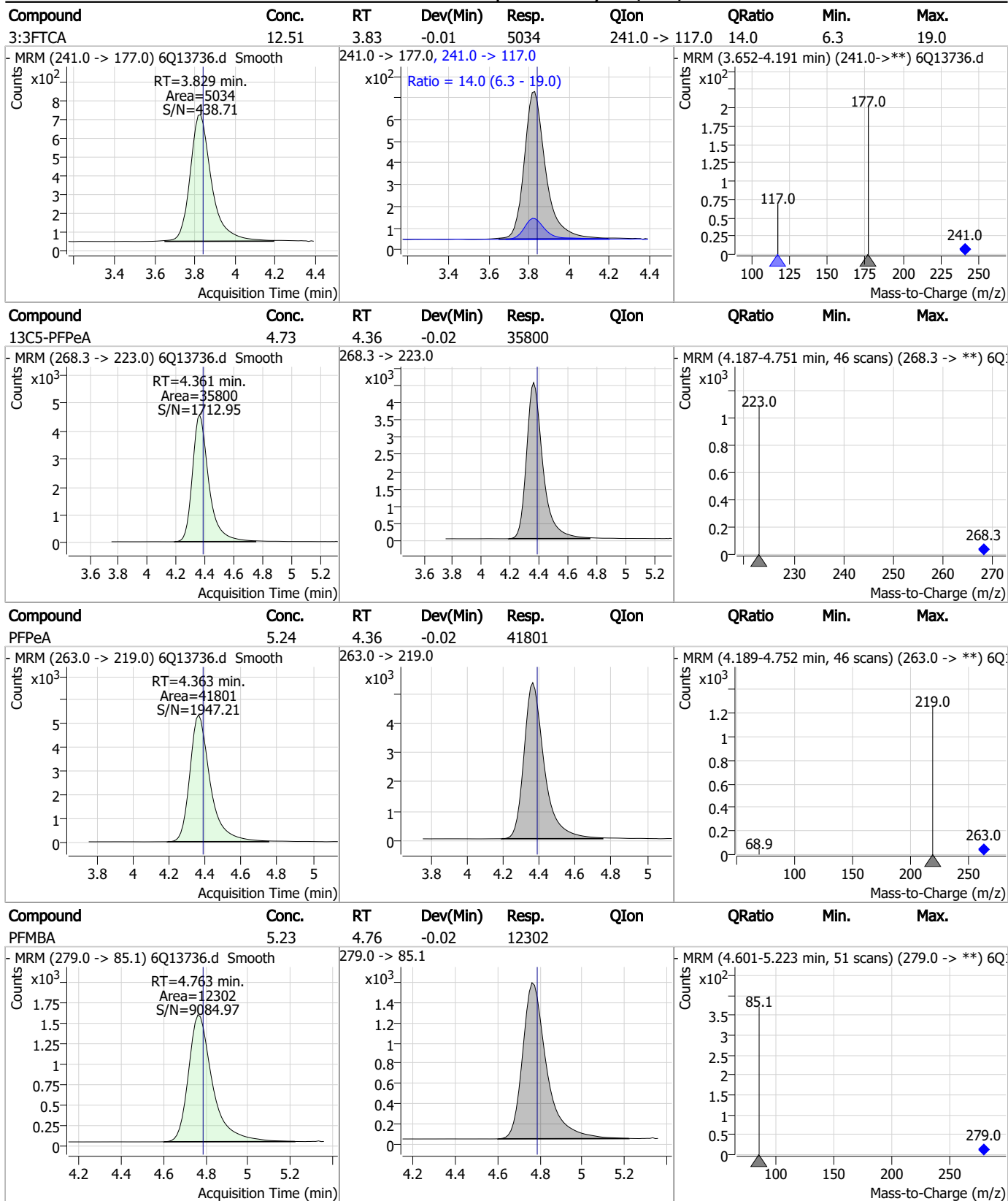
7.6.10

7

Perfluorinated Compounds by LC/MS/MS

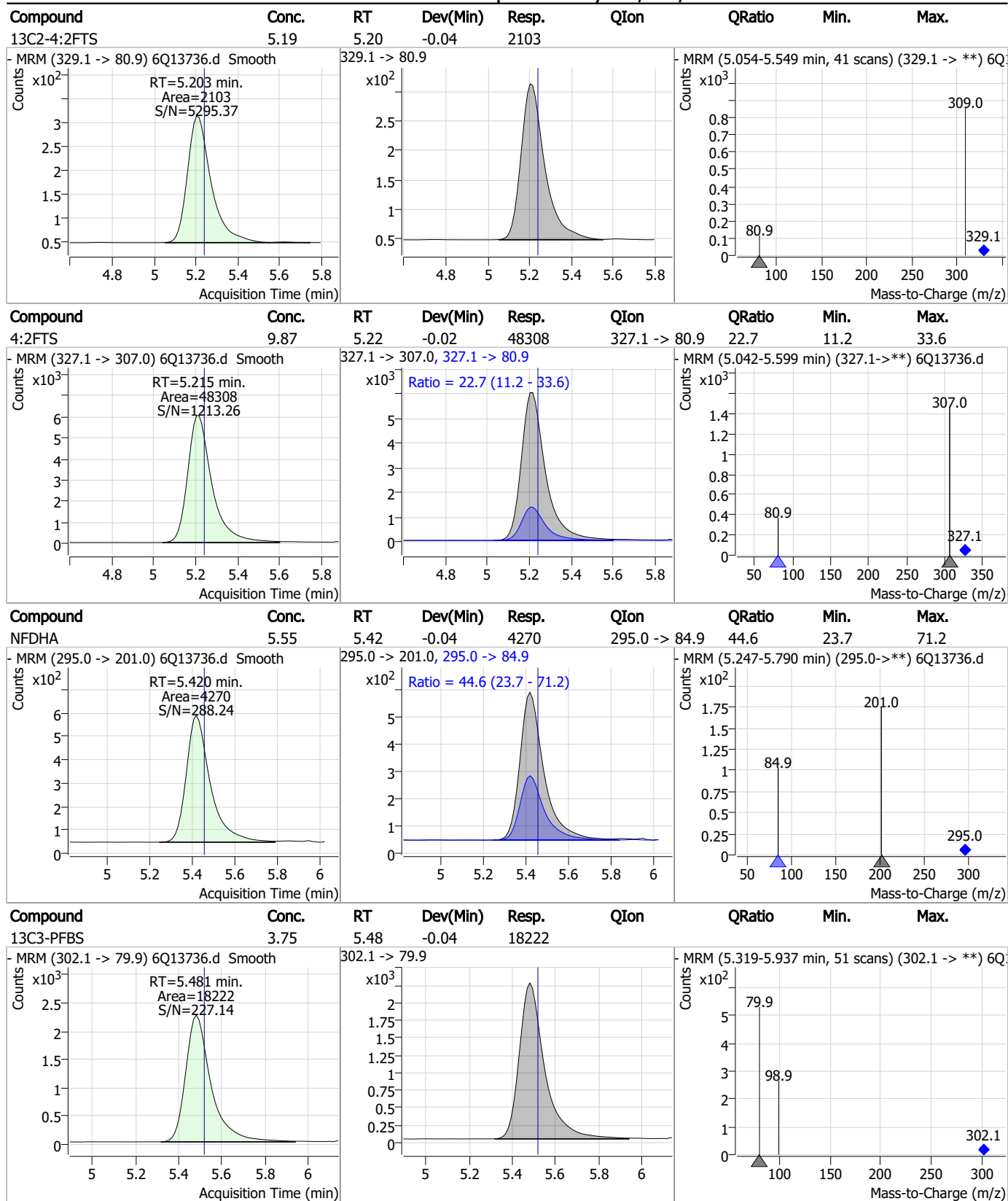


Perfluorinated Compounds by LC/MS/MS



7.6.10 7

Perfluorinated Compounds by LC/MS/MS

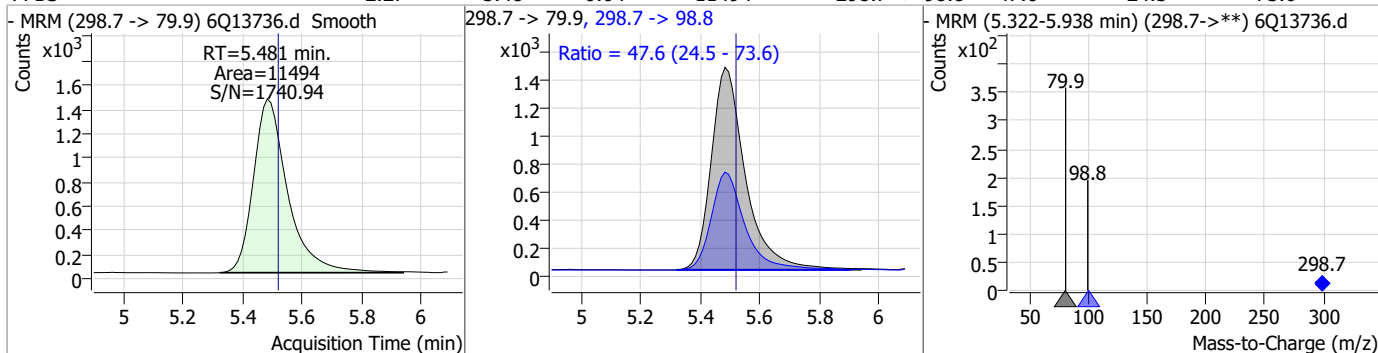


7.6.10 7

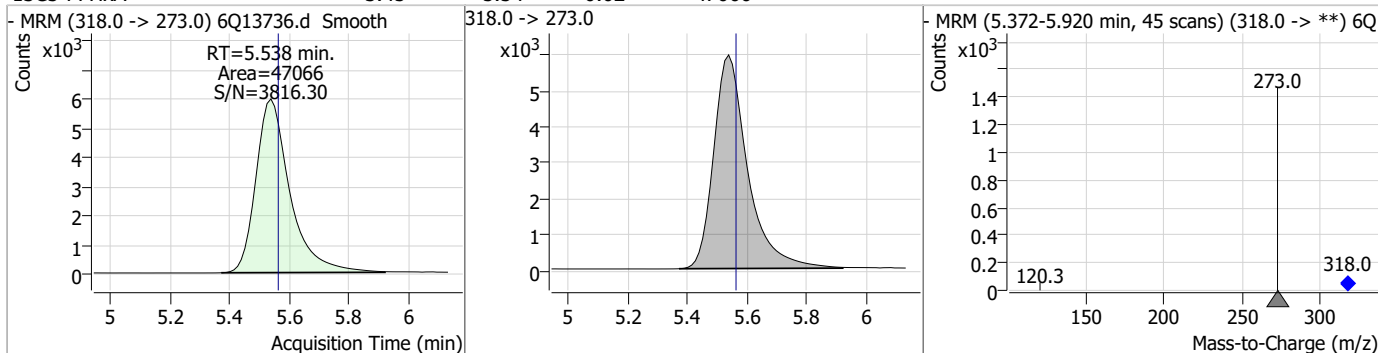


Perfluorinated Compounds by LC/MS/MS

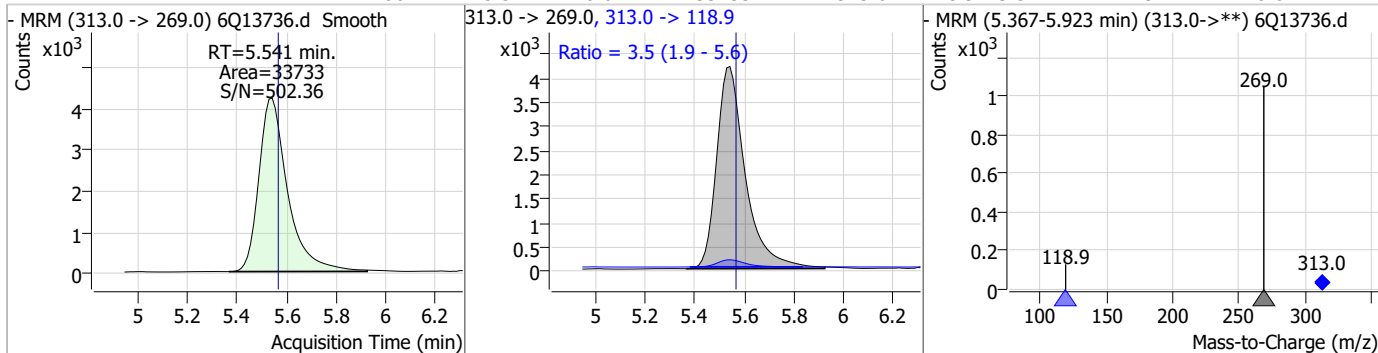
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.27	5.48	-0.04	11494	298.7 -> 98.8	47.6	24.5	73.6



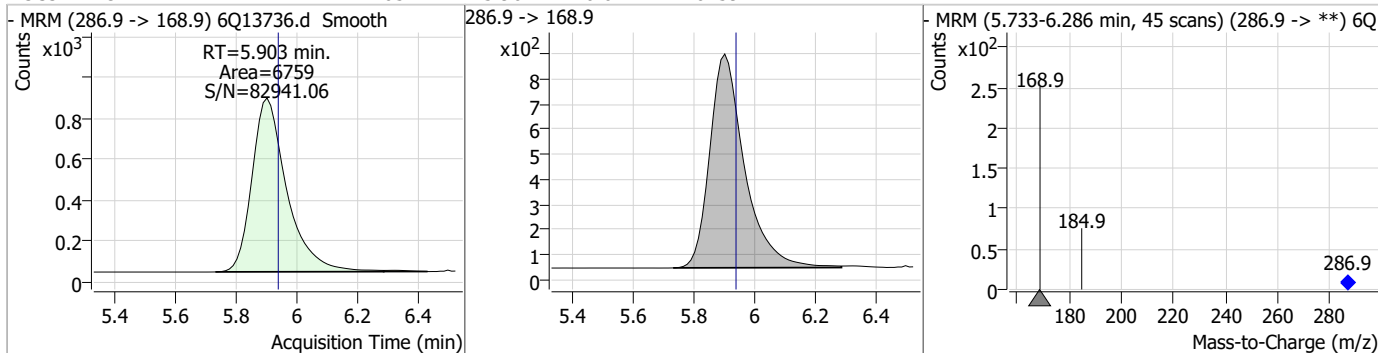
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	3.45	5.54	-0.02	47066				



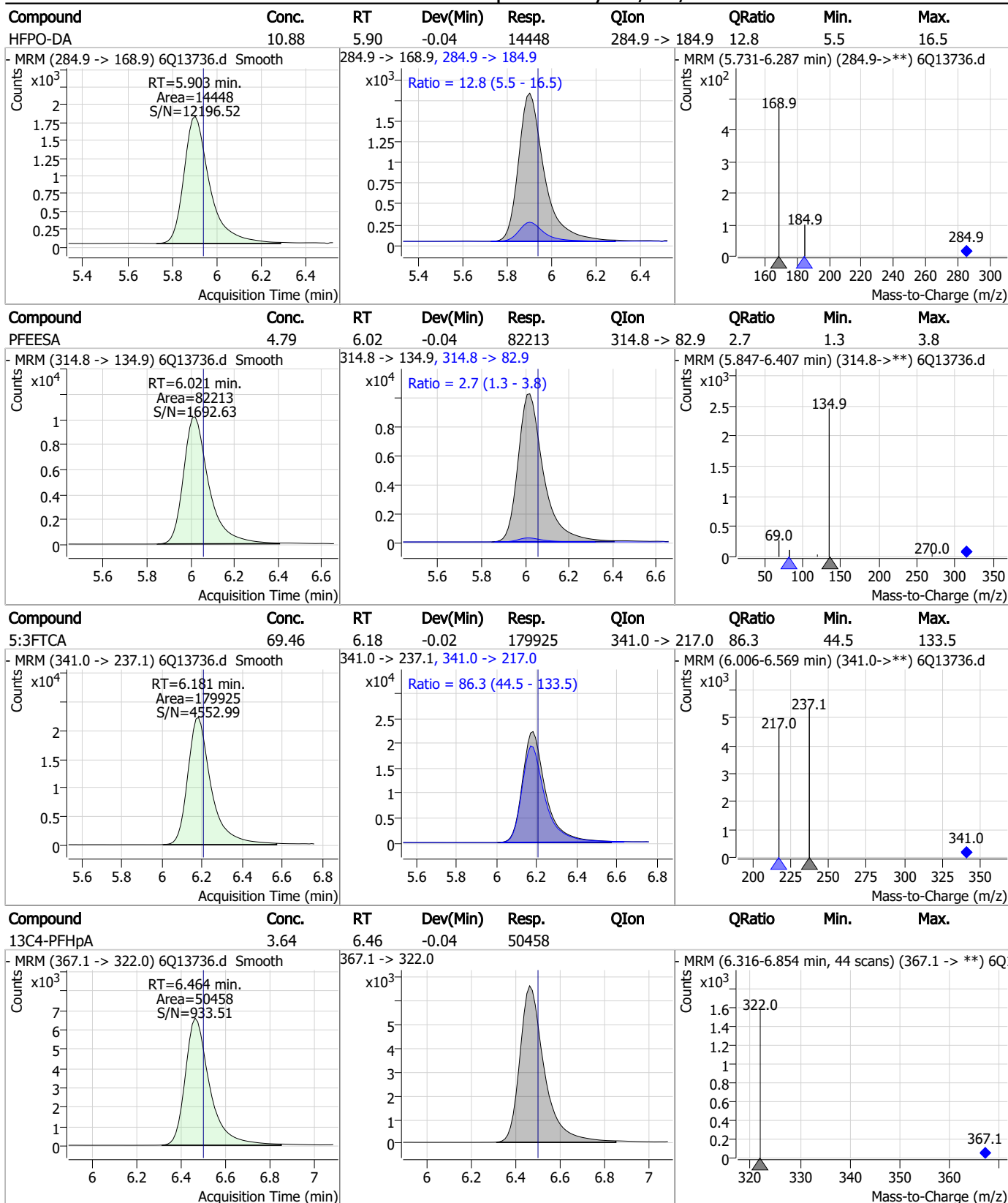
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.66	5.54	-0.02	33733	313.0 -> 118.9	3.5	1.9	5.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	4.65	5.90	-0.04	6759				

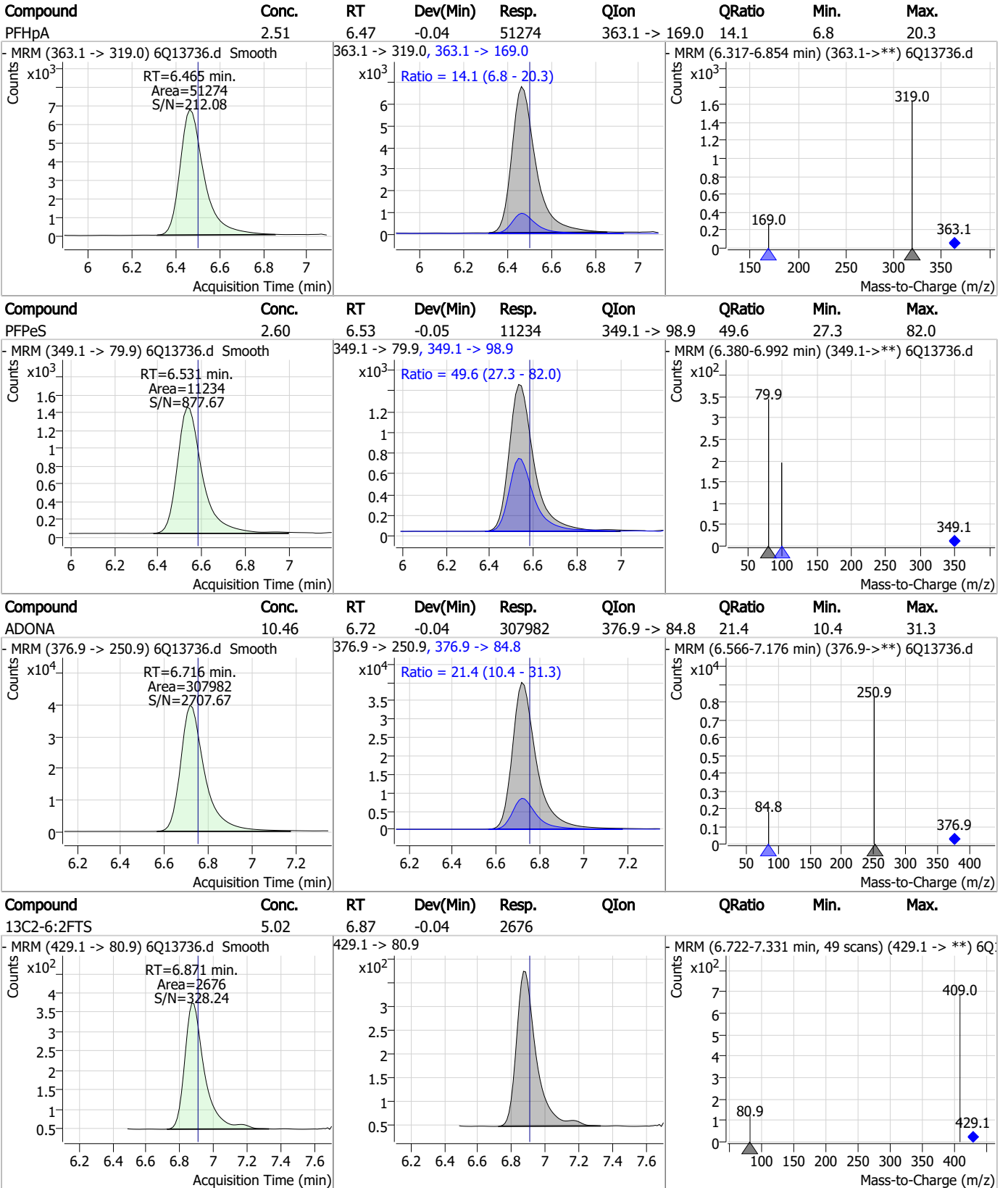


Perfluorinated Compounds by LC/MS/MS



7.6.10 7

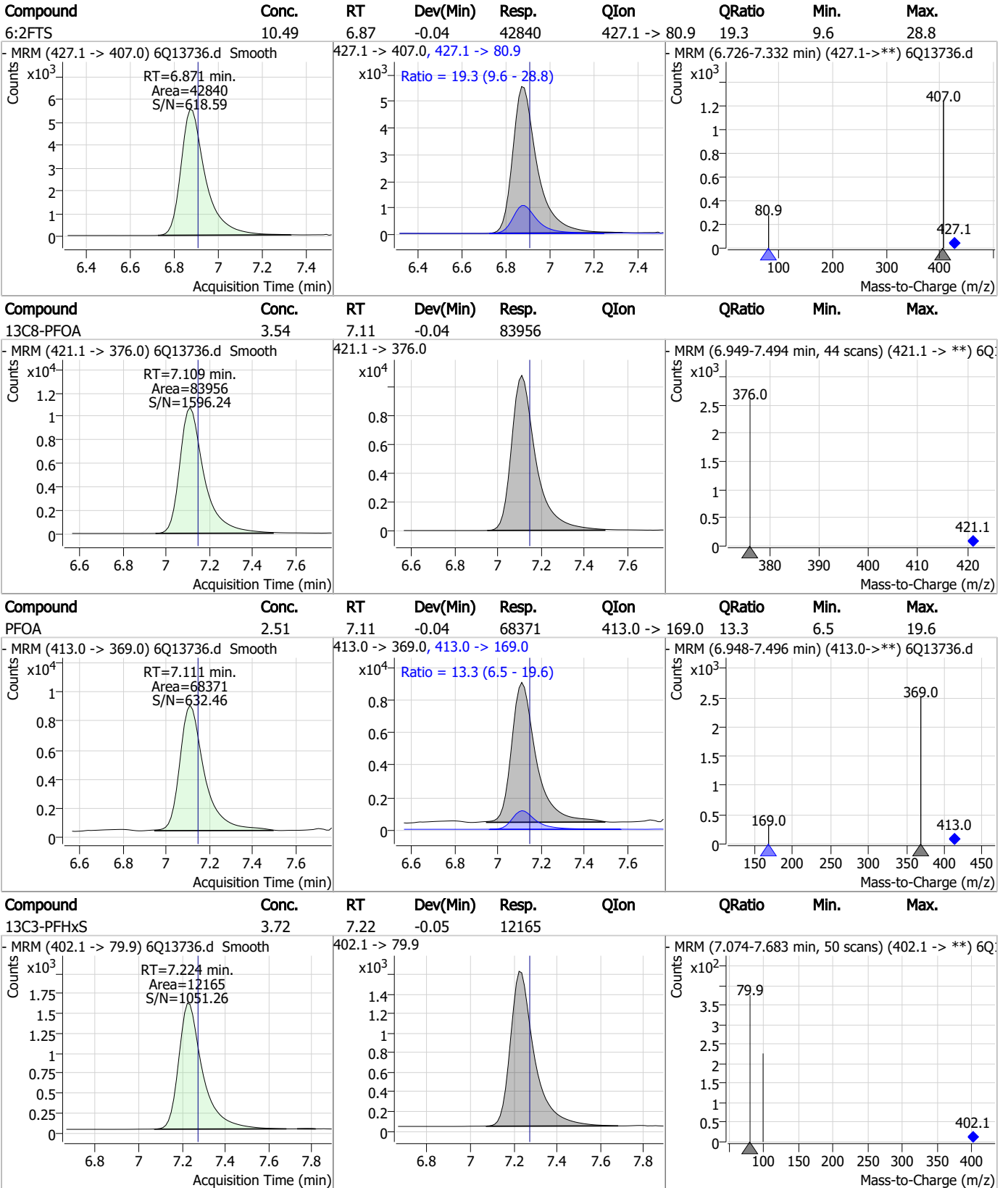
Perfluorinated Compounds by LC/MS/MS



7.6-10 7



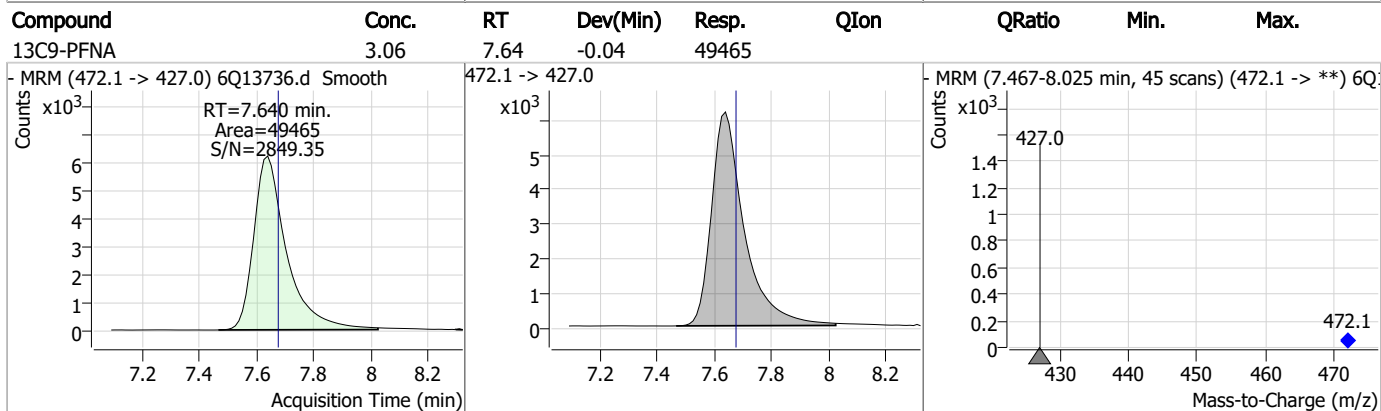
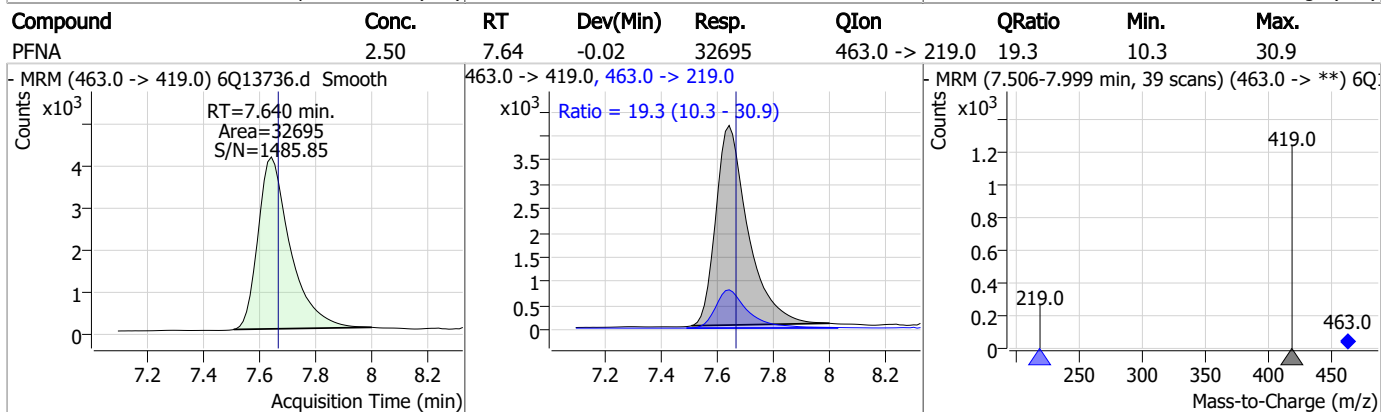
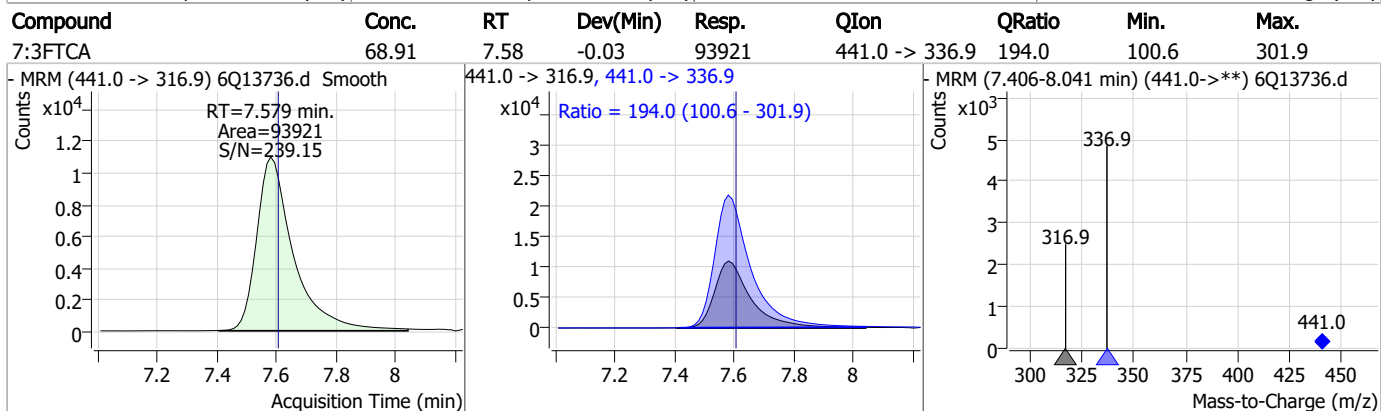
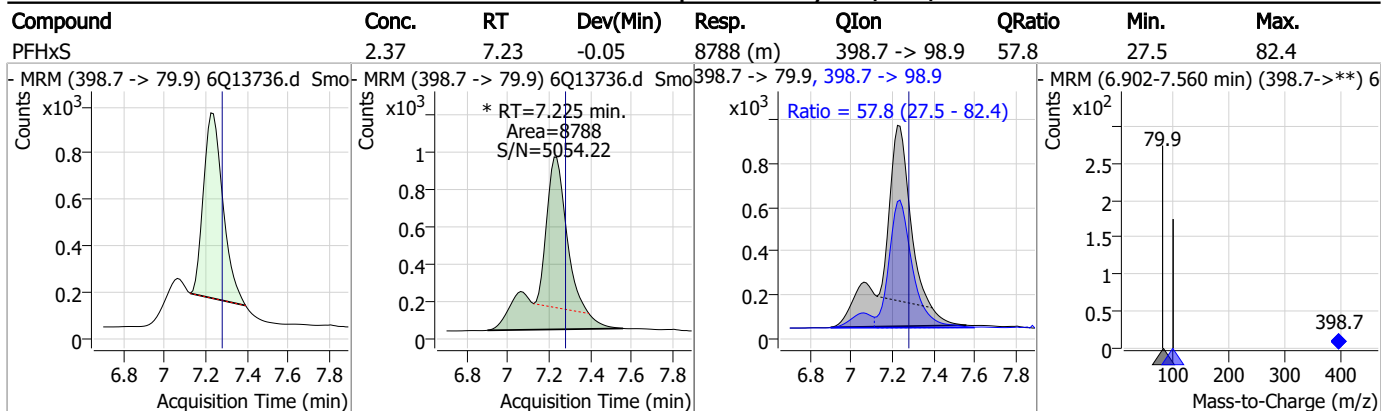
Perfluorinated Compounds by LC/MS/MS



7.6.10 7

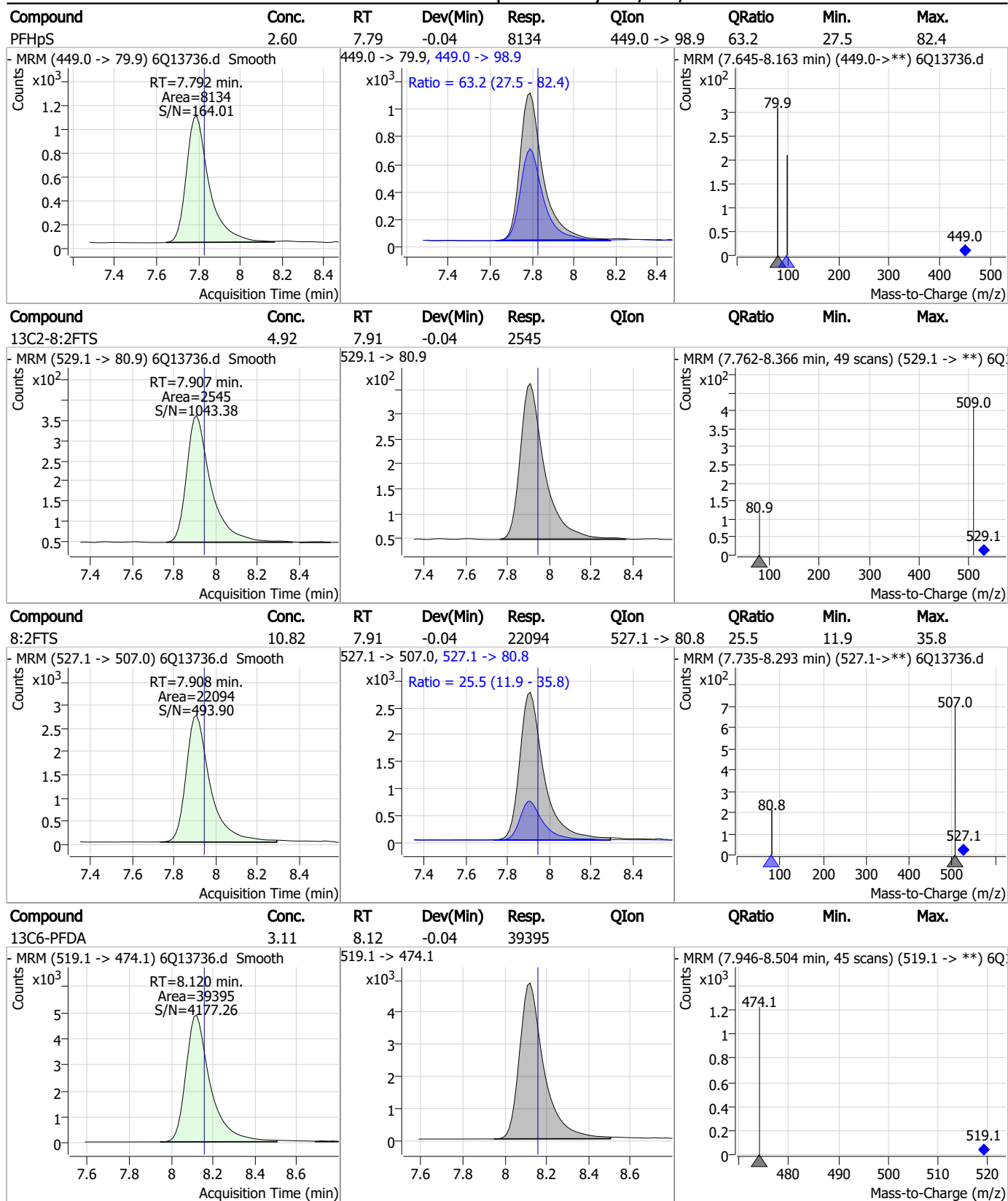


Perfluorinated Compounds by LC/MS/MS



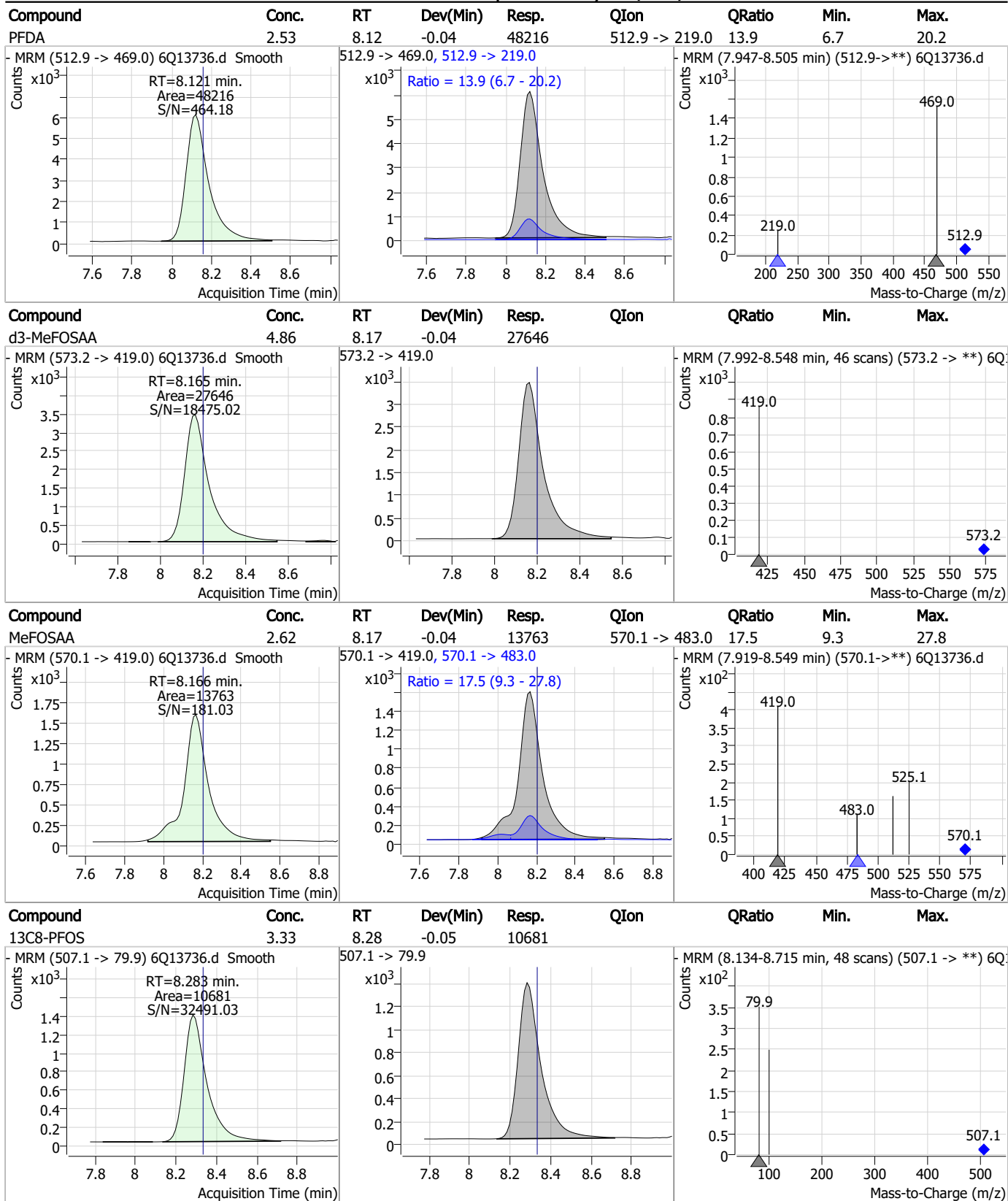
7.6.10 7

Perfluorinated Compounds by LC/MS/MS



7.6.10 7

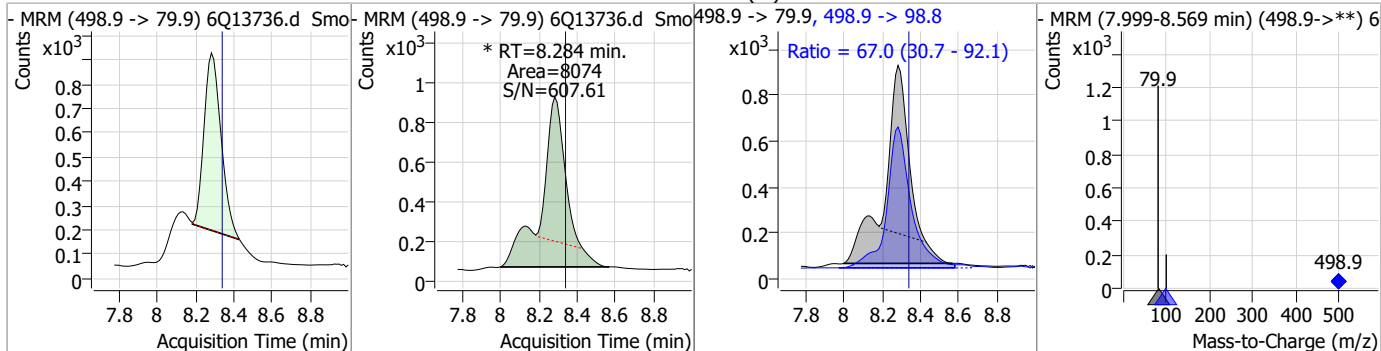
Perfluorinated Compounds by LC/MS/MS



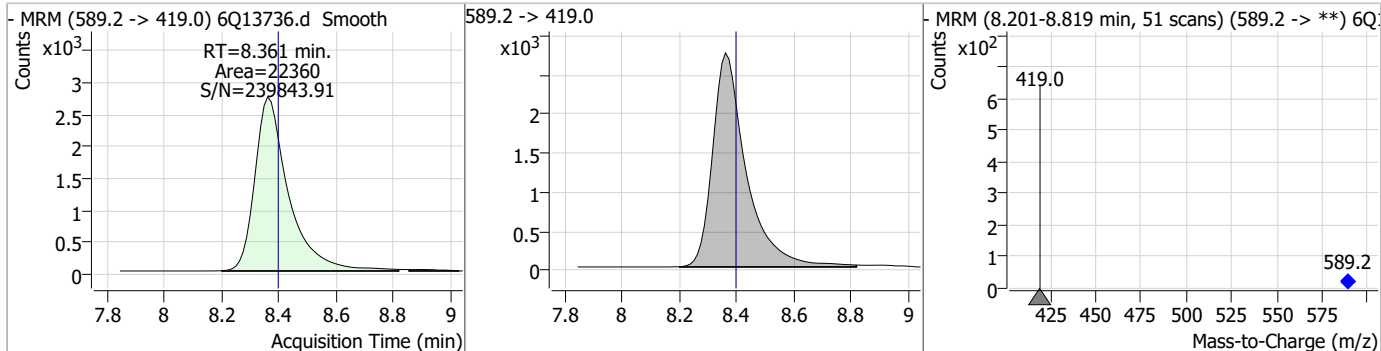
7.6.10
7

Perfluorinated Compounds by LC/MS/MS

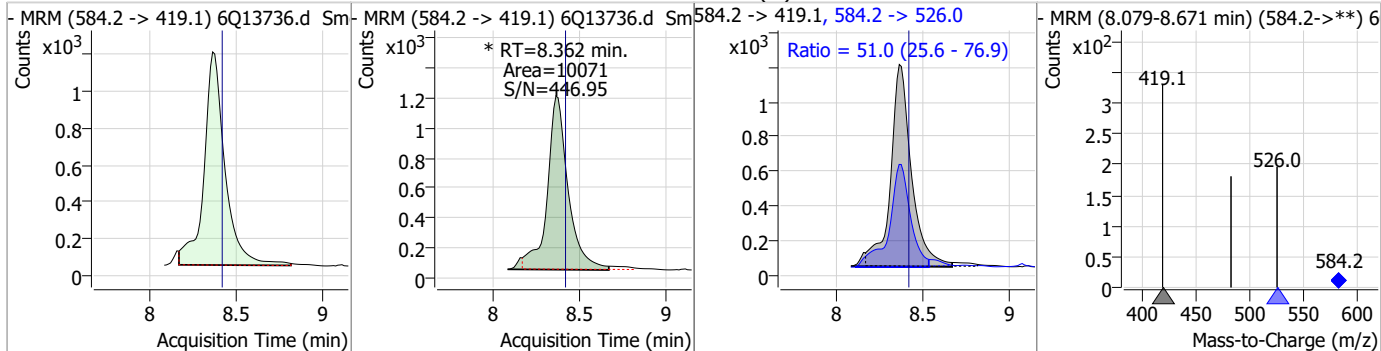
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.41	8.28	-0.05	8074 (m)	498.9 -> 98.8	67.0	30.7	92.1



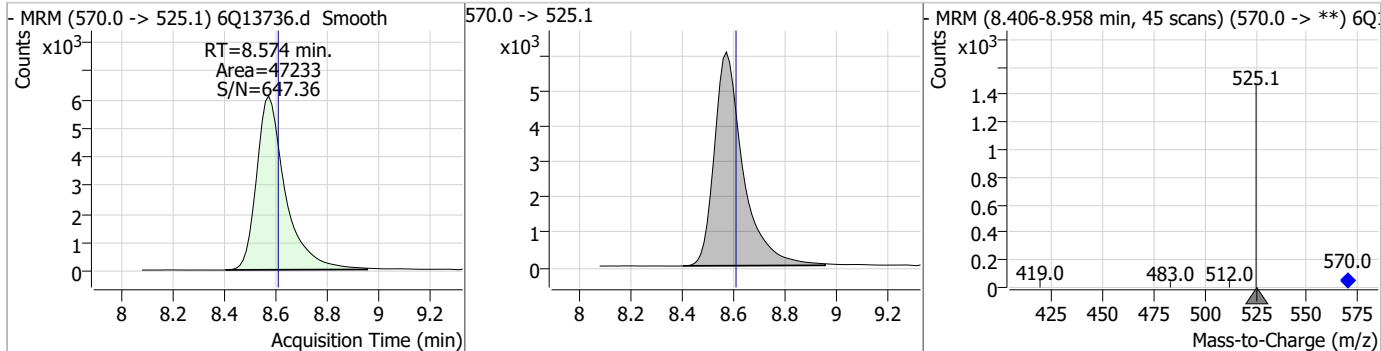
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.69	8.36	-0.04	22360				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.67	8.36	-0.05	10071 (m)	584.2 -> 526.0	51.0	25.6	76.9

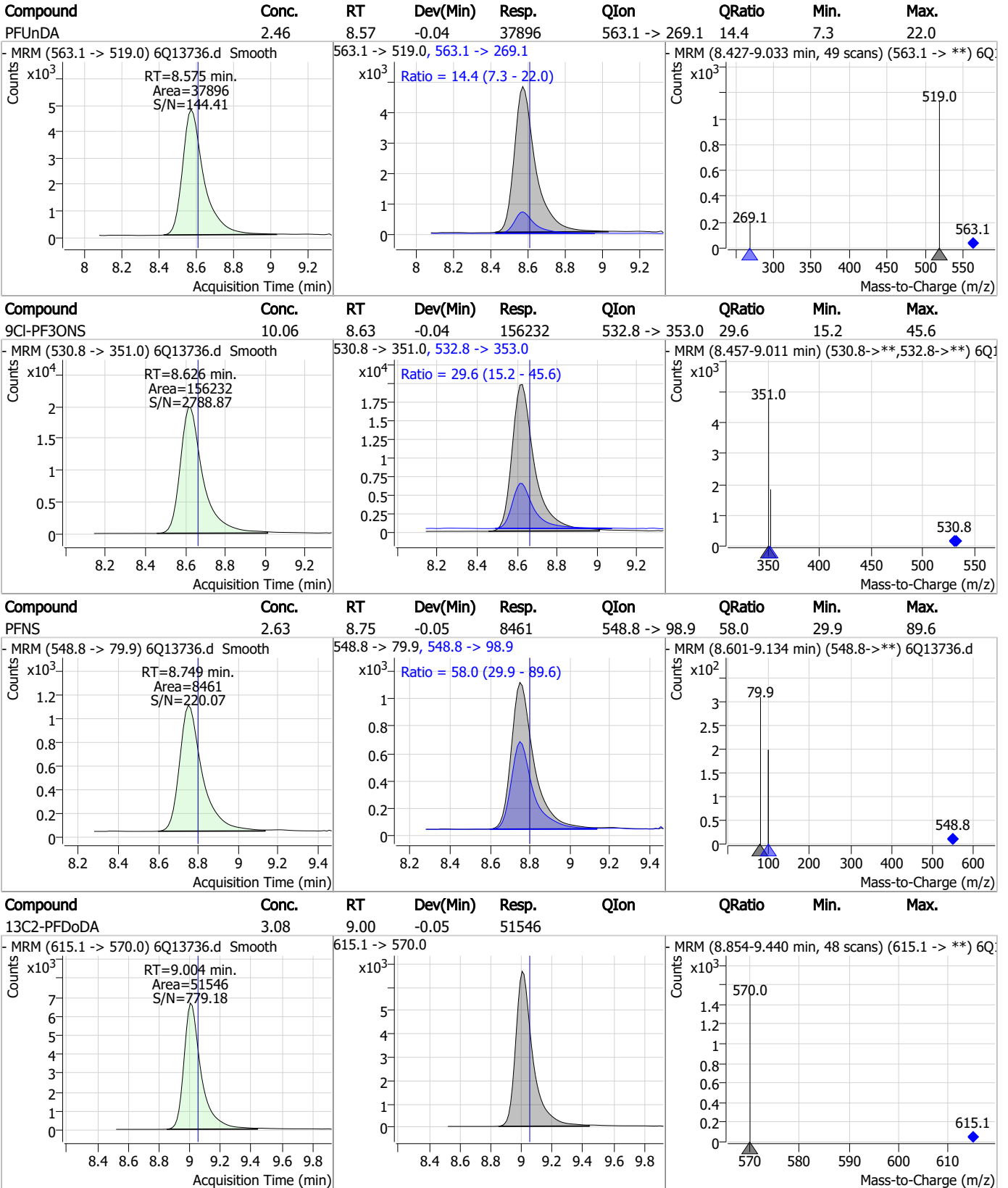


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	3.18	8.57	-0.04	47233				



7.6.10 7

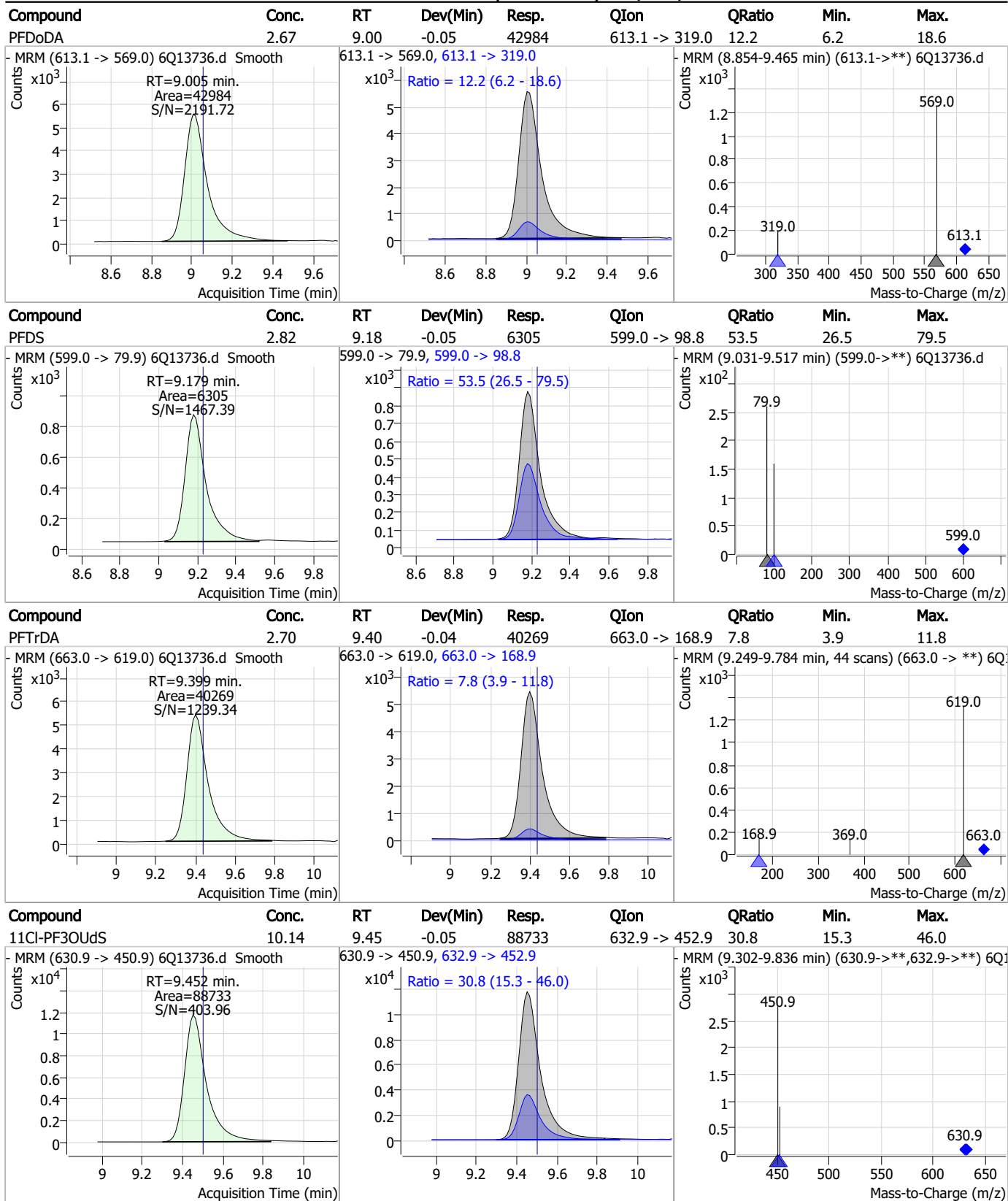
Perfluorinated Compounds by LC/MS/MS



7.6.10 7



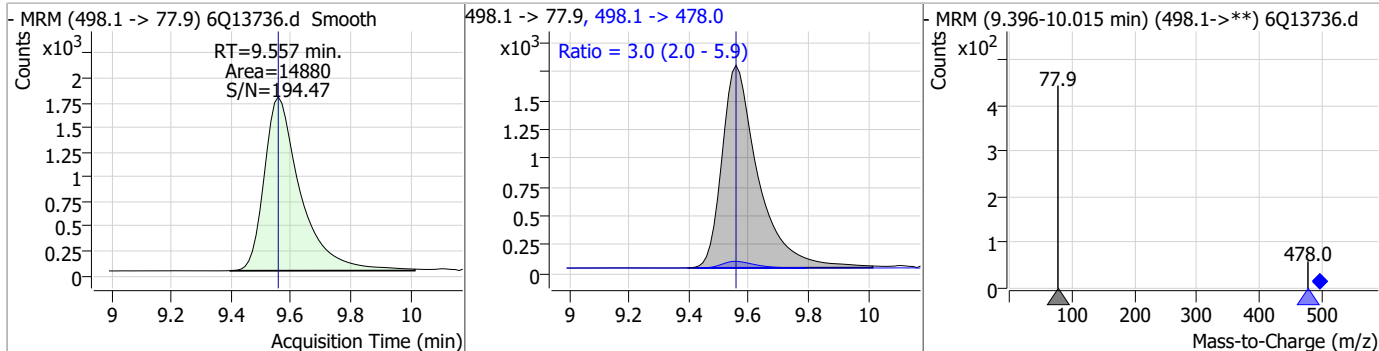
Perfluorinated Compounds by LC/MS/MS



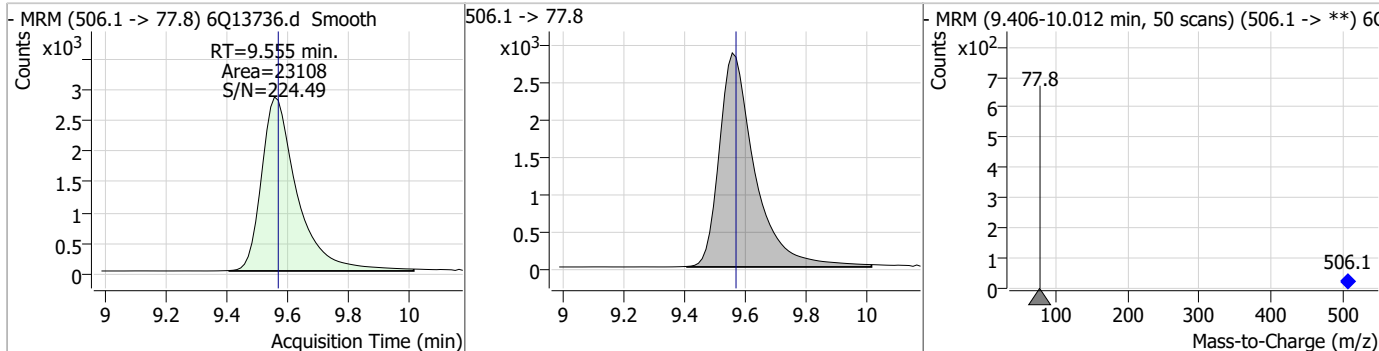
7.6.10 7

Perfluorinated Compounds by LC/MS/MS

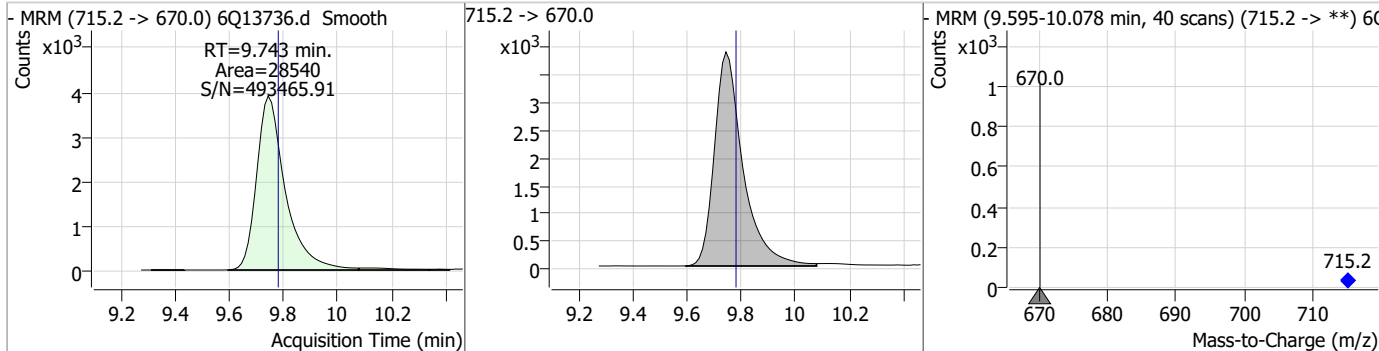
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.45	9.56	0.00	14880	498.1 -> 478.0	3.0	2.0	5.9



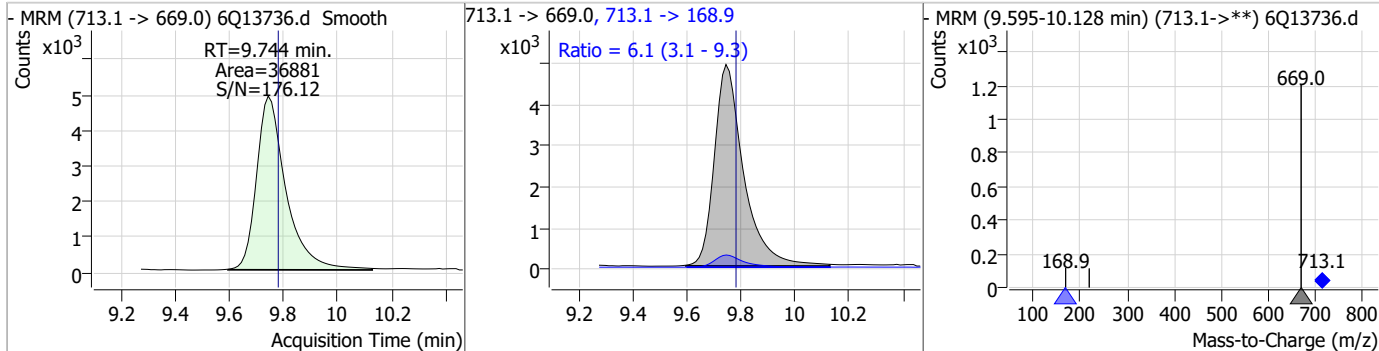
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	3.63	9.55	-0.01	23108				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	3.08	9.74	-0.04	28540				

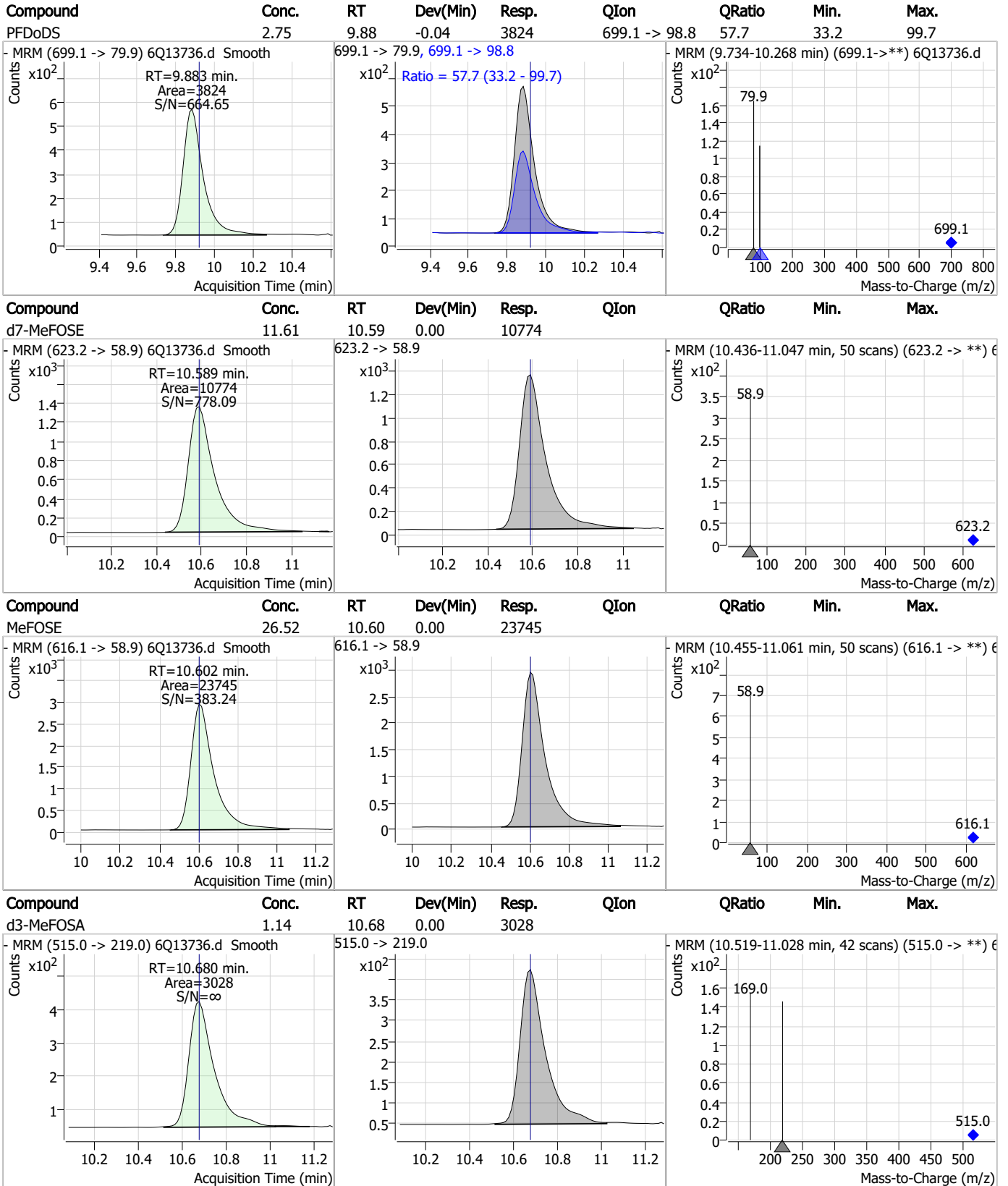


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.74	9.74	-0.04	36881	713.1 -> 168.9	6.1	3.1	9.3



7.6.10
7

Perfluorinated Compounds by LC/MS/MS

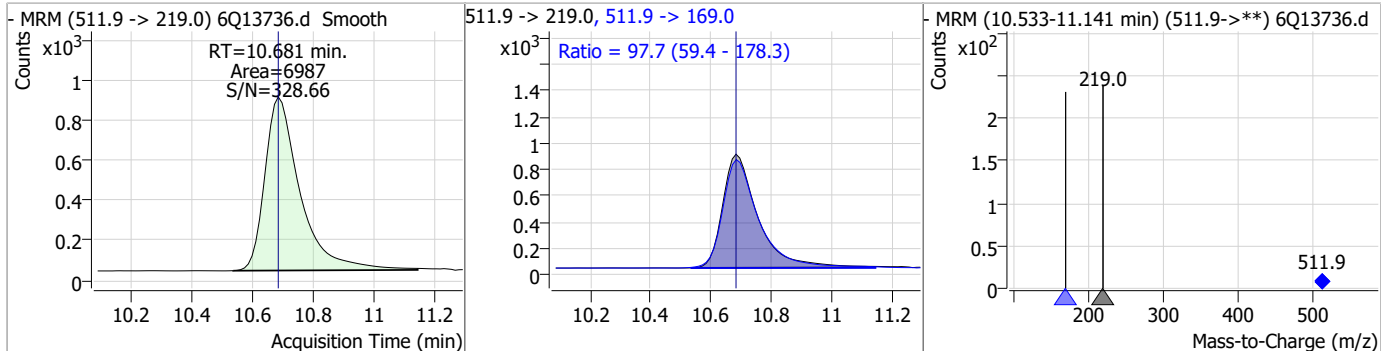


7.6.10 7

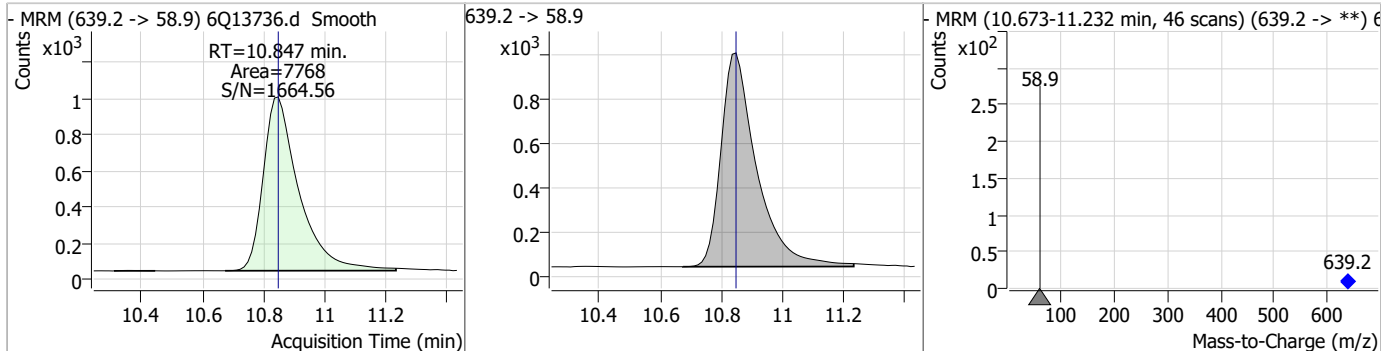


Perfluorinated Compounds by LC/MS/MS

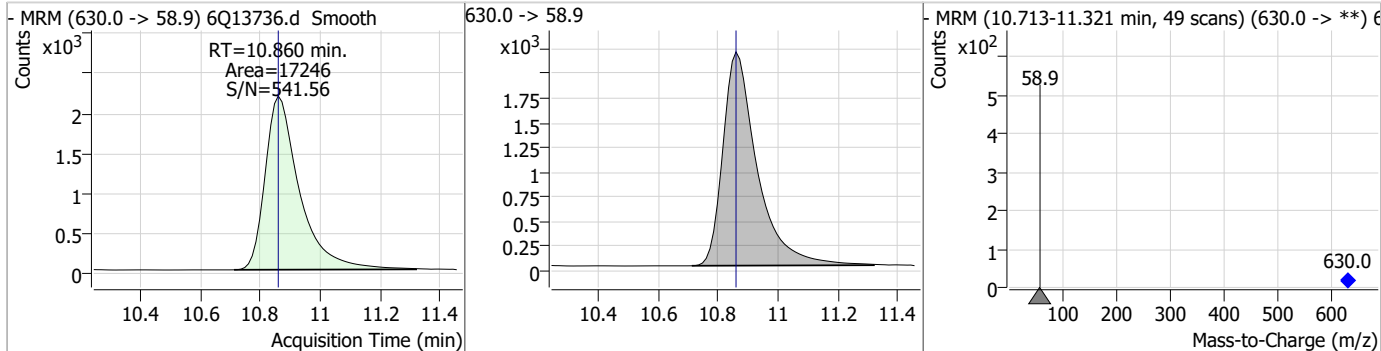
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	2.62	10.68	0.00	6987	511.9 -> 169.0	97.7	59.4	178.3



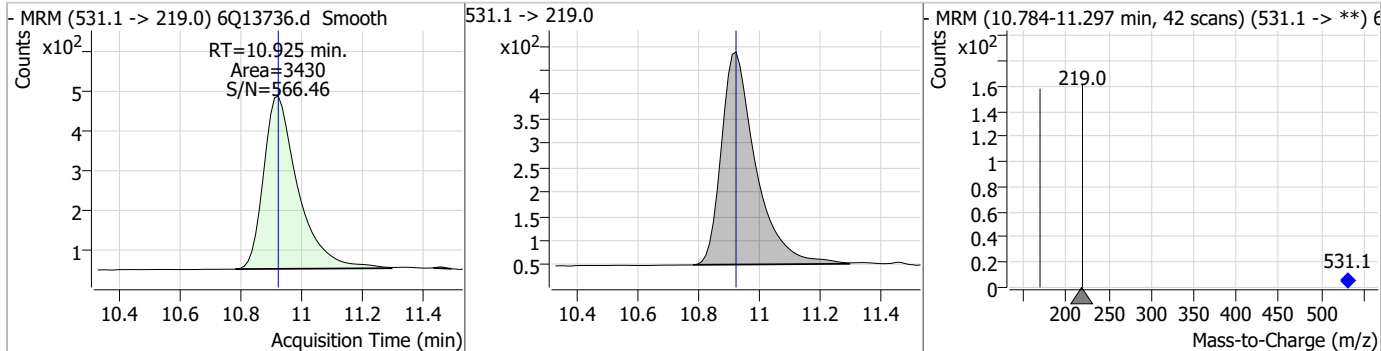
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	11.84	10.85	0.00	7768				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	26.03	10.86	0.00	17246				

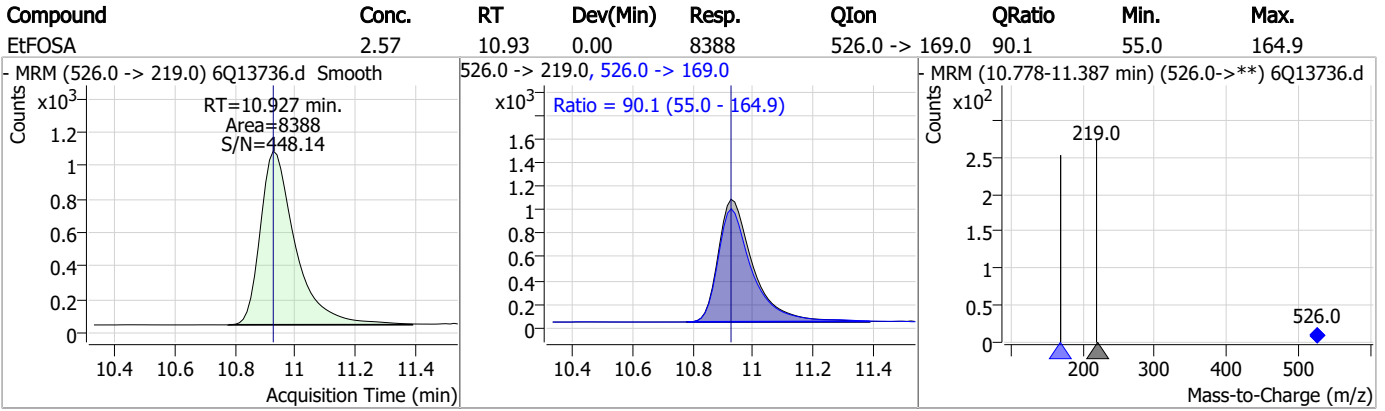


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	1.20	10.92	0.00	3430				



7.6.10
7

Perfluorinated Compounds by LC/MS/MS



7.6.10
7



Manual Integration Approval Summary

Sample Number: S6Q208-ICV208 Method: EPA DRAFT 1633
Lab FileID: 6Q13736.D Analyst approved: 02/18/23 11:42 Natasha Gumtie
Injection Time: 02/16/23 10:10 Supervisor approved: 02/18/23 12:01 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.28	Split peak
EtFOSAA	2991-50-6		8.36	Split peak

7.6.10.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13737.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/16/2023 10:24:06 AM
 Sample Name : icv208-20
 Vial : P1-E2
 DA Method File : 1633_021623_S6Q208NEW.quantmethod.xml
 Batch Name : s6q208.batch.bin
 Sample Information : OP95142,S6Q208,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.963	216.8 -> 171.9	57851	7.50 µg/L	-0.012
M5-PFPeA	4.361	268.3 -> 223.0	37500	5.00 µg/L	-0.025
M5-PFHxA	5.538	318.0 -> 273.0	48715	3.75 µg/L	-0.025
M4-PFHpA	6.477	367.1 -> 322.0	49936	3.75 µg/L	-0.025
M8-PFOA	7.122	421.1 -> 376.0	90590	3.75 µg/L	-0.025
M9-PFNA	7.640	472.1 -> 427.0	49122	3.13 µg/L	-0.037
M6-PFDA	8.120	519.1 -> 474.1	40216	3.13 µg/L	-0.037
M7-PFUnDA	8.574	570.0 -> 525.1	46597	3.13 µg/L	-0.037
M2-PFDoDA	9.017	615.1 -> 570.0	53288	3.13 µg/L	-0.037
M2-PFTeDA	9.743	715.2 -> 670.0	29529	3.13 µg/L	-0.037
M8-FOSA	9.555	506.1 -> 77.8	22655	3.75 µg/L	-0.012
M3-PFBS	5.481	302.1 -> 79.9	17922	3.75 µg/L	-0.037
M3-PFHxS	7.237	402.1 -> 79.9	12321	3.75 µg/L	-0.037
M8-PFOS	8.283	507.1 -> 79.9	11346	3.75 µg/L	-0.050
M2-4:2FTS	5.203	329.1 -> 80.9	2224	5.00 µg/L	-0.037
M2-6:2FTS	6.883	429.1 -> 80.9	2723	5.00 µg/L	-0.025
M2-8:2FTS	7.907	529.1 -> 80.9	2604	5.00 µg/L	-0.037
M3-MeFOSAA	8.165	573.2 -> 419.0	26110	5.00 µg/L	-0.037
M3-HFPO-DA	5.915	286.9 -> 168.9	7291	5.00 µg/L	-0.025
M5-EtFOSAA	8.373	589.2 -> 419.0	22727	5.00 µg/L	-0.025
M7-MeFOSE	10.589	623.2 -> 58.9	11233	12.50 µg/L	0.000
M9-EtFOSE	10.835	639.2 -> 58.9	7573	12.50 µg/L	-0.012
M5-EtFOSA	10.925	531.1 -> 219.0	3368	1.25 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	3298	1.25 µg/L	0.000
13C4-PFOS	8.283	502.8 -> 79.9	9888	2.50 µg/L	-0.050
13C3-PFBA	2.954	216.0 -> 172.0	35464	5.00 µg/L	-0.025
18O2-PFHxS	7.236	403.0 -> 83.9	6422	2.50 µg/L	-0.037
13C4-PFOA	7.122	417.1 -> 372.0	68270	2.50 µg/L	-0.025
13C2-PFDA	8.120	515.1 -> 470.1	21388	1.25 µg/L	-0.037
13C5-PFNA	7.640	468.0 -> 423.0	23548	1.25 µg/L	-0.037
13C2-PFHxA	5.539	315.1 -> 270.0	33463	2.50 µg/L	-0.025
System Monitoring Compounds					
13C2-4:2FTS	5.203	329.1 -> 80.9	2224	5.02 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C2-6:2FTS	6.883	429.1 -> 80.9	2723	4.68 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.5%		
13C2-8:2FTS	7.907	529.1 -> 80.9	2604	4.61 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.2%		
13C2-PFDoDA	9.017	615.1 -> 570.0	53288	3.16 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 101.1%		
13C2-PFTeDA	9.743	715.2 -> 670.0	29529	3.16 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C3-PFBS	5.481	302.1 -> 79.9	17922	3.38 µg/L	-0.037
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 90.1%		
13C3-PFHxS	7.237	402.1 -> 79.9	12321	3.45 µg/L	-0.037

7.6.11
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 91.9%		
13C4-PFBA	2.963	216.8 -> 171.9	57851	7.03 µg/L	-0.012
Spiked Amount: 7.50	Range: 50.0 - 150.0%		Recovery = 93.7%		
13C4-PFHpA	6.477	367.1 -> 322.0	49936	3.47 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 92.5%		
13C5-PFHxA	5.538	318.0 -> 273.0	48715	3.43 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 91.5%		
13C5-PFPeA	4.361	268.3 -> 223.0	37500	4.77 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.3%		
13C6-PFDA	8.120	519.1 -> 474.1	40216	3.15 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C7-PFUnDA	8.574	570.0 -> 525.1	46597	3.12 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C8-FOSA	9.555	506.1 -> 77.8	22655	3.42 µg/L	-0.012
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 91.3%		
13C8-PFOA	7.122	421.1 -> 376.0	90590	3.88 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 103.5%		
13C8-PFOS	8.283	507.1 -> 79.9	11346	3.40 µg/L	-0.050
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 90.7%		
13C9-PFNA	7.640	472.1 -> 427.0	49122	2.75 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 88.1%		
d3-MeFOSAA	8.165	573.2 -> 419.0	26110	4.42 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 88.3%		
13C3-HFPO-DA	5.915	286.9 -> 168.9	7291	4.83 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.5%		
d3-MeFOSA	10.680	515.0 -> 219.0	3298	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.4%		
d5-EtFOSAA	8.373	589.2 -> 419.0	22727	4.59 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.7%		
d7-MeFOSE	10.589	623.2 -> 58.9	11233	11.65 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%		Recovery = 93.2%		
d9-EtFOSE	10.835	639.2 -> 58.9	7573	11.11 µg/L	-0.012
Spiked Amount: 12.50	Range: 50.0 - 150.0%		Recovery = 88.9%		
d5-EtFOSA	10.925	531.1 -> 219.0	3368	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.5%		
Target Compounds					QValue
4:2FTS	5.215	327.1 -> 307.0	108803	21.01 µg/L	99
		327.1 -> 80.9	23714		
6:2FTS	6.883	427.1 -> 407.0	92349	22.21 µg/L	99
		427.1 -> 80.9	17394		
8:2FTS	7.908	527.1 -> 507.0	48377	23.16 µg/L	100
		527.1 -> 80.8	11421		
EtFOSAA	8.374	584.2 -> 419.1	79033	20.61 µg/L	94
		584.2 -> 526.0	43979		
FOSA	9.557	498.1 -> 77.9	129205	21.73 µg/L	99
		498.1 -> 478.0	5287		
MeFOSAA	8.166	570.1 -> 419.0	117290	23.63 µg/L	96
		570.1 -> 483.0	19397		
PFBA	2.957	212.8 -> 168.9	38919	20.63 µg/L	100
PFBS	5.494	298.7 -> 79.9	114853	23.10 µg/L	94
		298.7 -> 98.8	51622		
PFDA	8.121	512.9 -> 469.0	429008	22.04 µg/L	99
		512.9 -> 219.0	55825		
PFDoDA	9.017	613.1 -> 569.0	311118	18.68 µg/L	98
		613.1 -> 319.0	35920		
PFDS	9.179	599.0 -> 79.9	53142	22.38 µg/L	100

7.6.11
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.477	599.0 -> 98.8	28135	21.34	µg/L	99
		363.1 -> 319.0	431474			
PFHpS	7.792	363.1 -> 169.0	60376	22.33	µg/L	99
		449.0 -> 79.9	74307			
PFHxA	5.541	449.0 -> 98.9	41325	23.61	µg/L	100
		313.0 -> 269.0	309427			
PFHxS	7.238	313.0 -> 118.9	11016	22.19	µg/L	98
		398.7 -> 79.9	83417			
PFNA	7.640	398.7 -> 98.9	46940	25.07	µg/L	97
		463.0 -> 419.0	325252			
PFNS	8.762	463.0 -> 219.0	62124	22.17	µg/L	96
		548.8 -> 79.9	75682			
PFOA	7.123	548.8 -> 98.9	42654	19.00	µg/L	100
		413.0 -> 369.0	558800			
PFOS	8.284	413.0 -> 169.0	73338	17.62	µg/L	99
		498.9 -> 79.9	62603			
PFPeA	4.363	498.9 -> 98.8	37940	22.64	µg/L	100
		263.0 -> 219.0	189003			
PFPeS	6.543	349.1 -> 79.9	101661	23.21	µg/L	96
		349.1 -> 98.9	52528			
PFTeDA	9.744	713.1 -> 669.0	306044	21.98	µg/L	99
		713.1 -> 168.9	20146			
PFTrDA	9.399	663.0 -> 619.0	291456	18.88	µg/L	99
		663.0 -> 168.9	23692			
PFUnDA	8.575	563.1 -> 519.0	331816	21.82	µg/L	100
		563.1 -> 269.1	48109			
11CI-PF3OUdS	9.452	630.9 -> 450.9	209374	22.18	µg/L	100
		632.9 -> 452.9	63975			
9CI-PF3ONS	8.626	530.8 -> 351.0	327438	19.55	µg/L	94
		532.8 -> 353.0	110462			
ADONA	6.728	376.9 -> 250.9	666744	20.98	µg/L	98
		376.9 -> 84.8	146412			
HFPO-DA	5.916	284.9 -> 168.9	28502	19.89	µg/L	97
		284.9 -> 184.9	3434			
3:3FTCA	3.829	241.0 -> 177.0	8478	20.12	µg/L	99
		241.0 -> 117.0	1117			
5:3FTCA	6.181	341.0 -> 237.1	56803	21.19	µg/L	97
		341.0 -> 217.0	48773			
7:3FTCA	7.592	441.0 -> 316.9	29752	21.09	µg/L	90
		441.0 -> 336.9	55429			
EtFOSA	10.927	526.0 -> 219.0	63751	19.91	µg/L	88
		526.0 -> 169.0	62315			
EtFOSE	10.860	630.0 -> 58.9	64614	100.04	µg/L	100
		511.9 -> 219.0	55357			
MeFOSA	10.681	511.9 -> 169.0	54192	19.05	µg/L	81
		616.1 -> 58.9	83504			
MeFOSE	10.602	699.1 -> 79.9	28941	89.47	µg/L	100
		699.1 -> 98.8	17733			
PFDoDS	9.883	295.0 -> 201.0	16697	19.58	µg/L	94
		295.0 -> 84.9	7854			
NFDHA	5.420	279.0 -> 85.1	49796	20.98	µg/L	99
		229.0 -> 84.9	45450			
PFMBA	4.763	314.8 -> 134.9	343977	20.21	µg/L	100
		314.8 -> 82.9	8501			
PFMPA	3.516			20.38	µg/L	100
PFEESA	6.021			19.37	µg/L	100

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



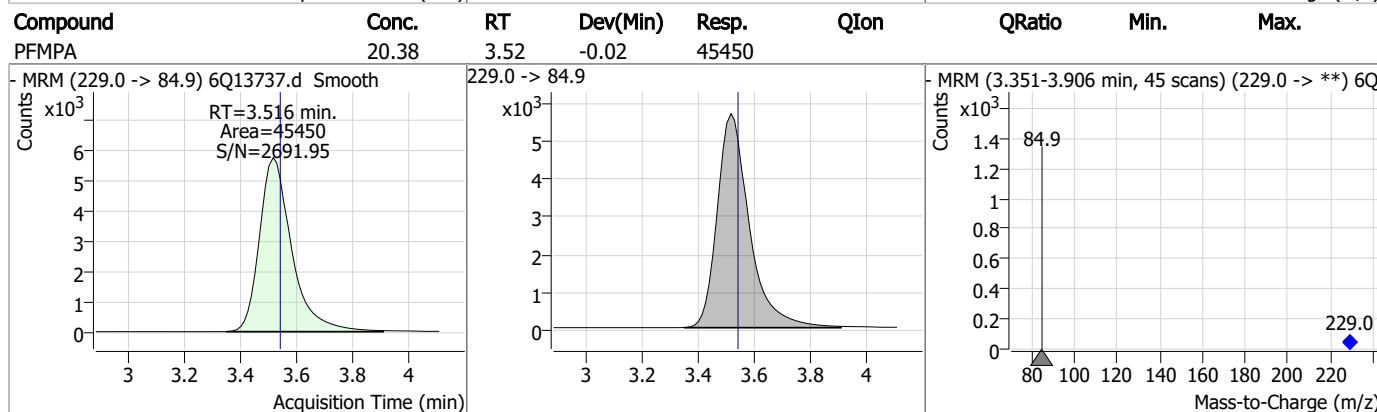
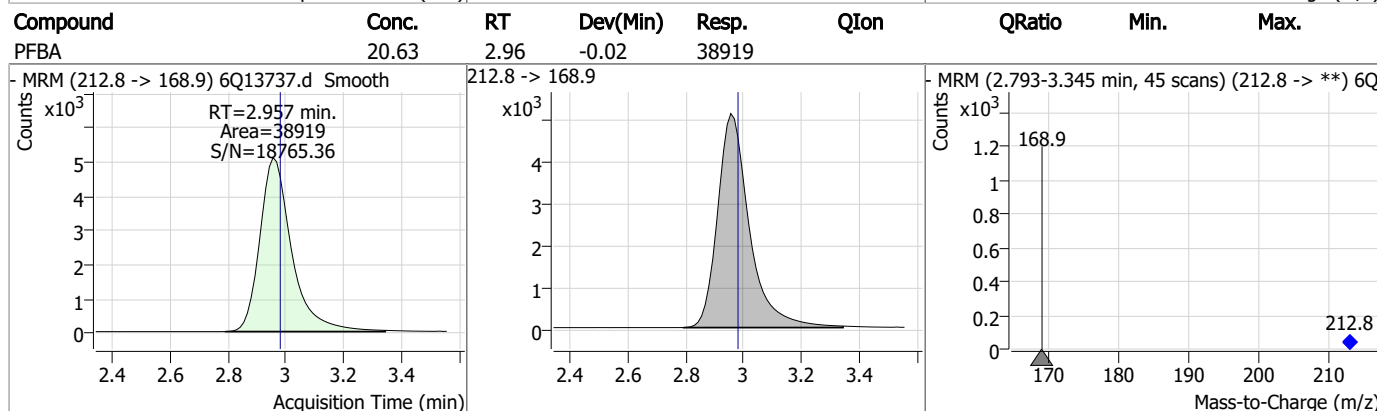
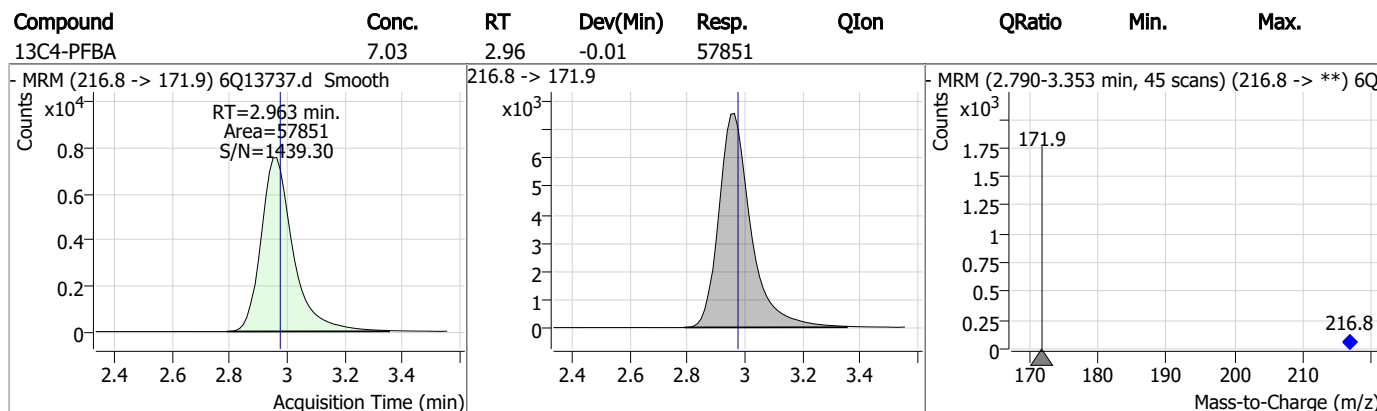
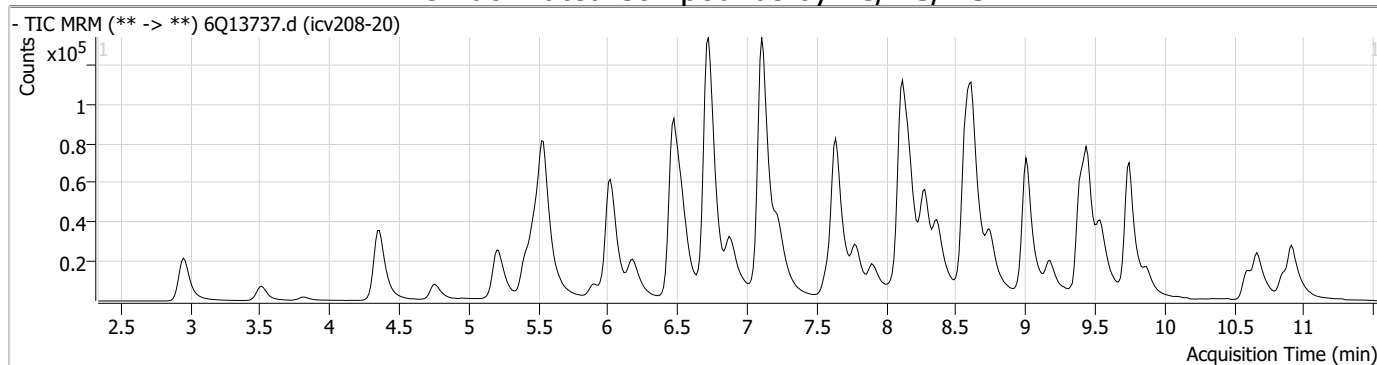
Perfluorinated Compounds by LC/MS/MS

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

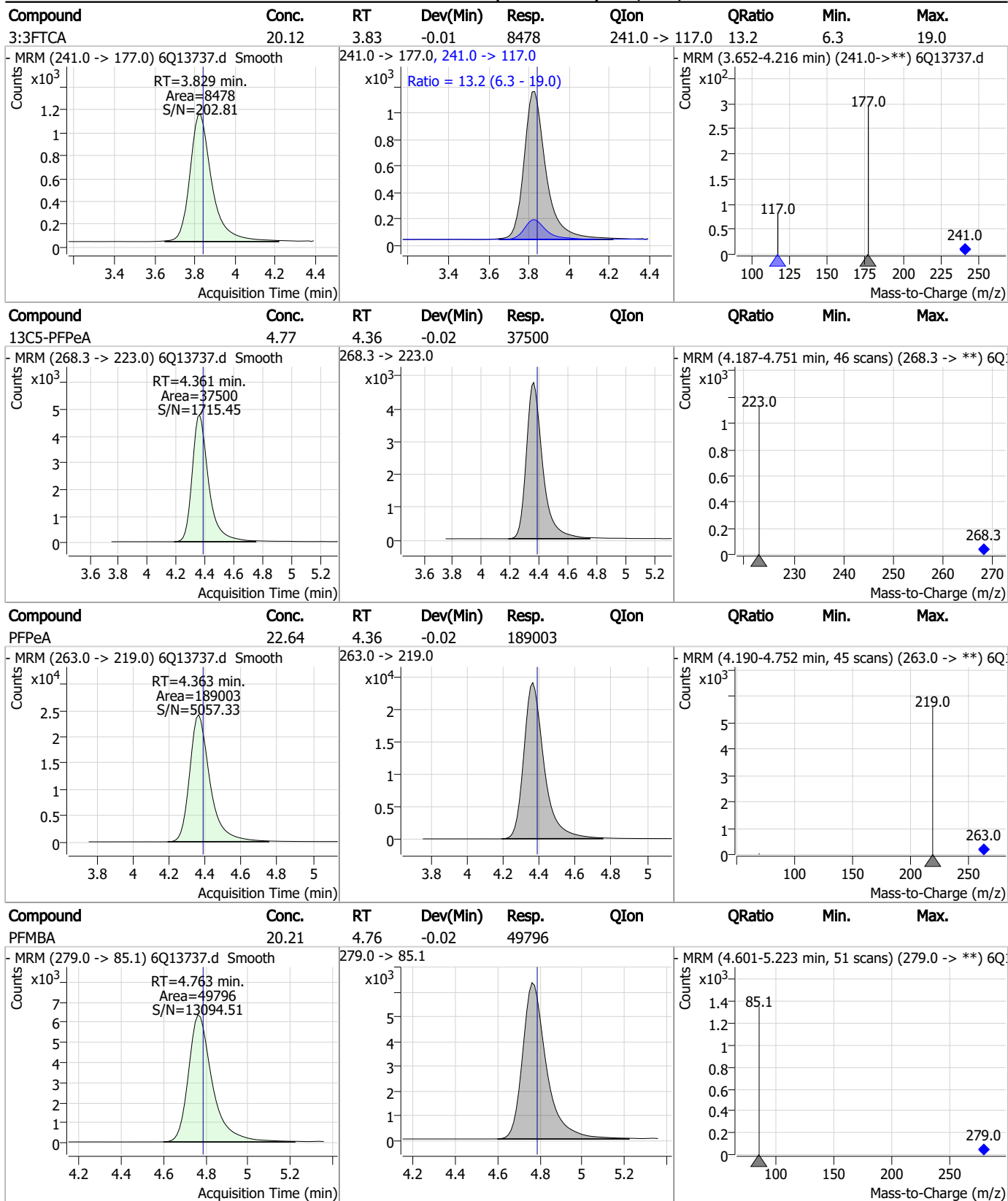
7.6.11

7

Perfluorinated Compounds by LC/MS/MS



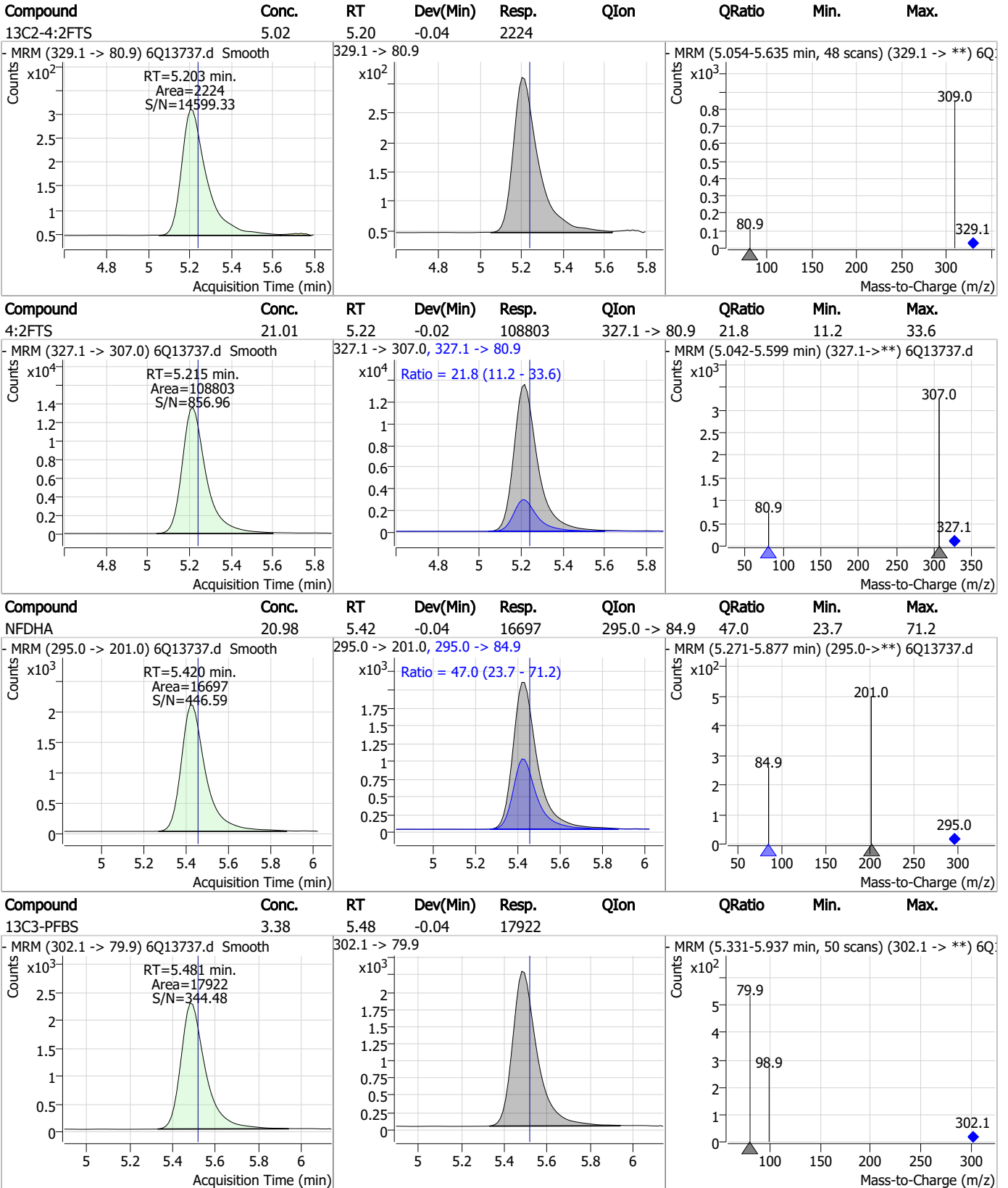
Perfluorinated Compounds by LC/MS/MS



7.6.11

7

Perfluorinated Compounds by LC/MS/MS



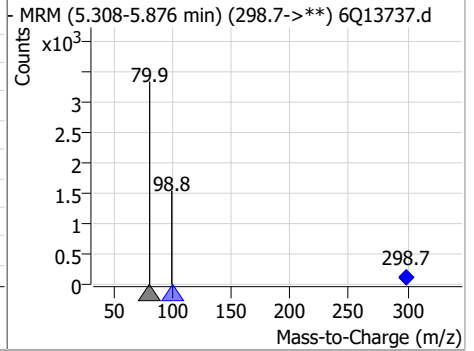
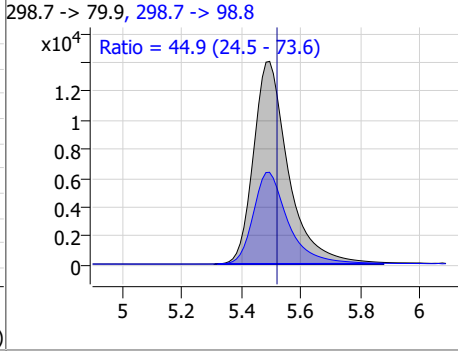
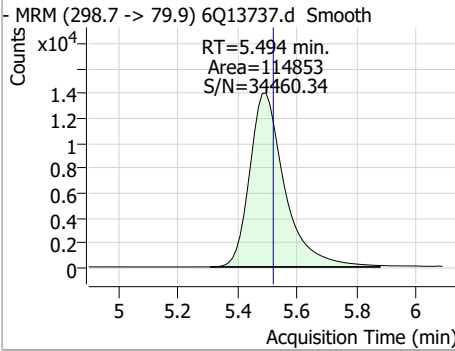
7.6.11

7

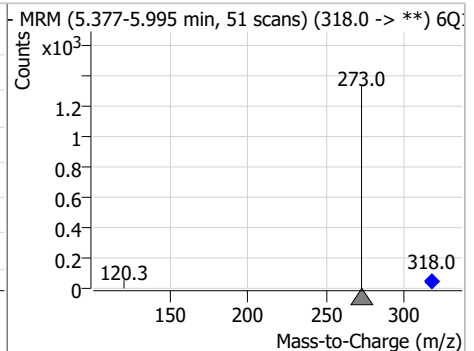
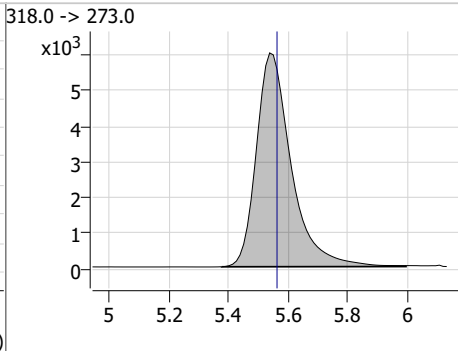
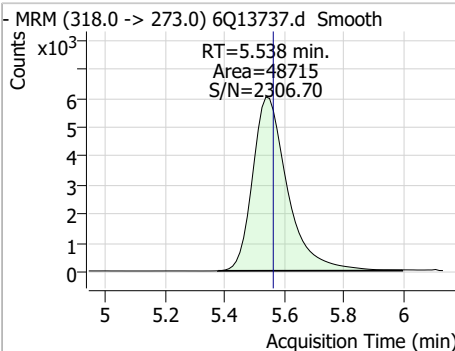


Perfluorinated Compounds by LC/MS/MS

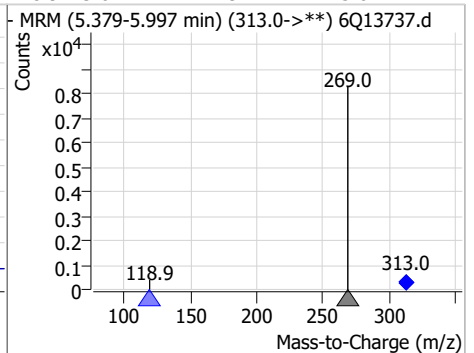
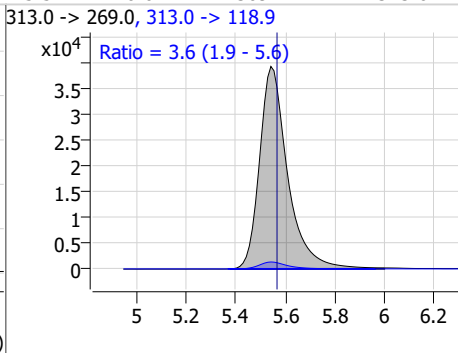
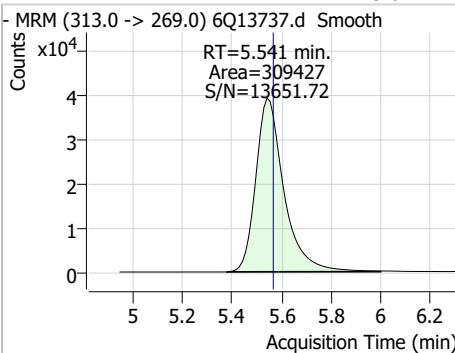
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	23.10	5.49	-0.02	114853	298.7 -> 98.8	44.9	24.5	73.6



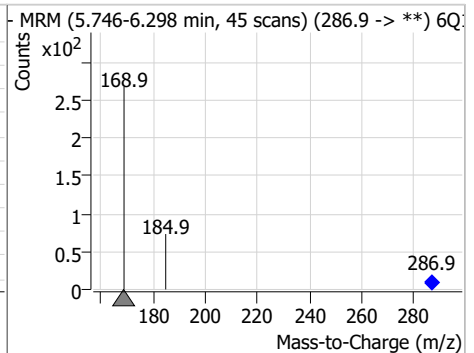
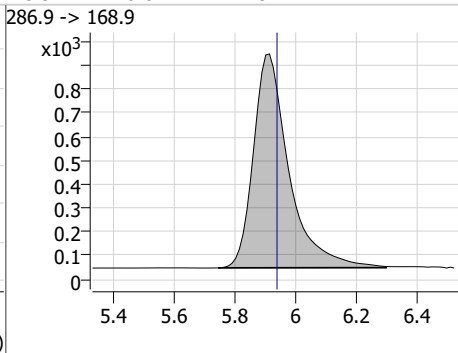
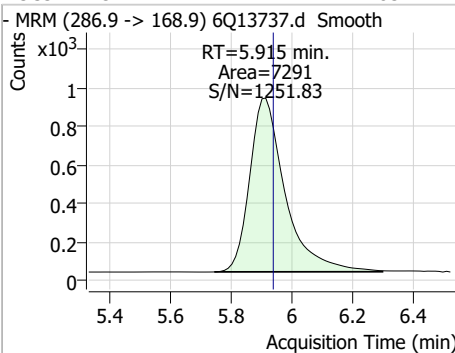
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	3.43	5.54	-0.02	48715				



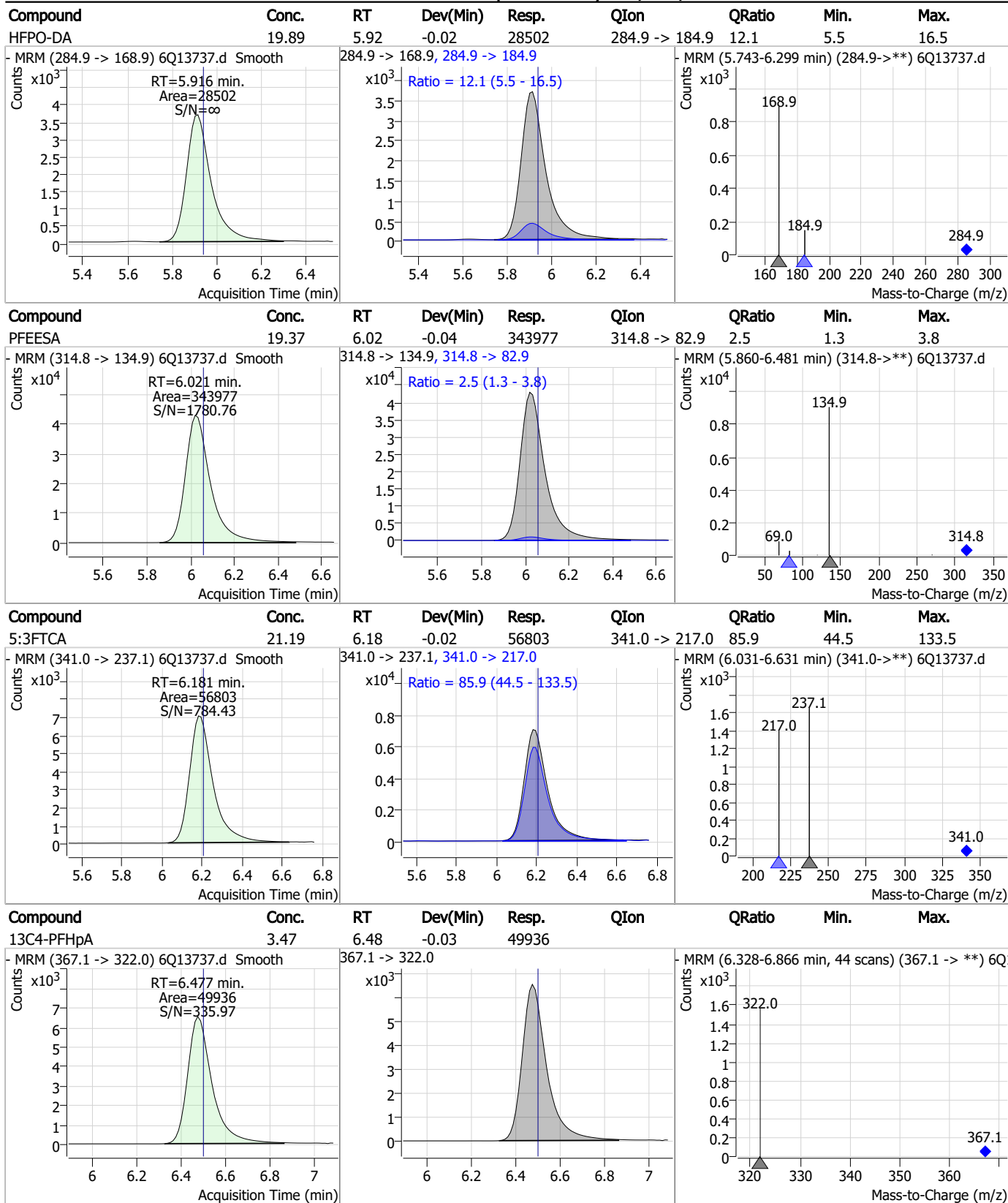
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	23.61	5.54	-0.02	309427	313.0 -> 118.9	3.6	1.9	5.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	4.83	5.91	-0.02	7291				



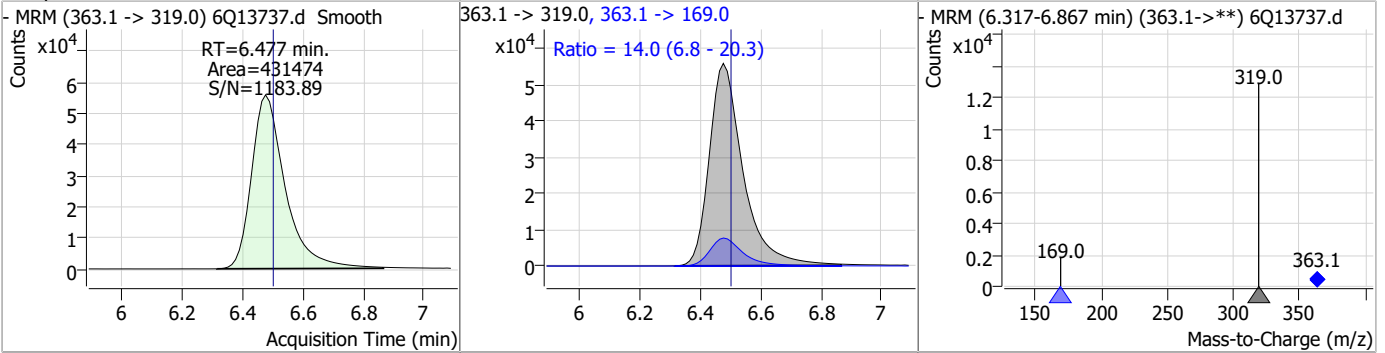
Perfluorinated Compounds by LC/MS/MS



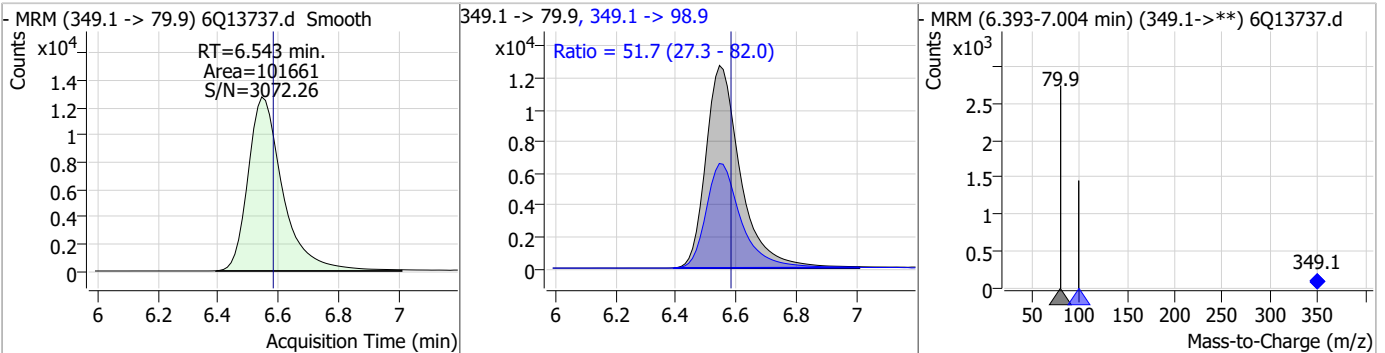
7.6.11
7

Perfluorinated Compounds by LC/MS/MS

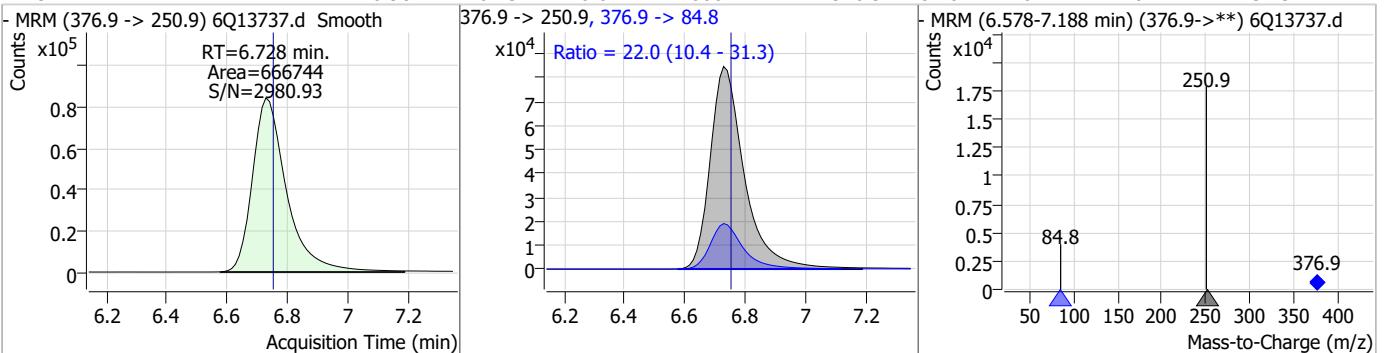
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	21.34	6.48	-0.03	431474	363.1 -> 169.0	14.0	6.8	20.3



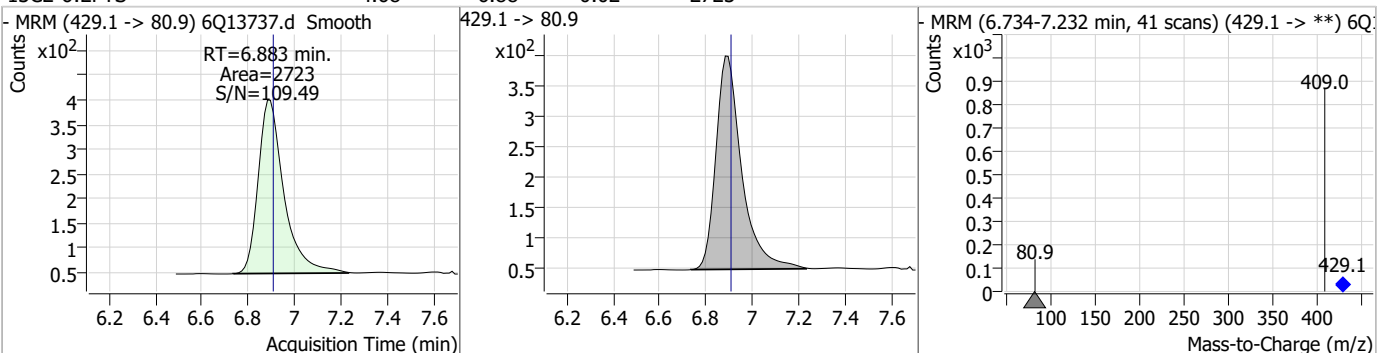
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	23.21	6.54	-0.04	101661	349.1 -> 98.9	51.7	27.3	82.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	20.98	6.73	-0.02	666744	376.9 -> 84.8	22.0	10.4	31.3

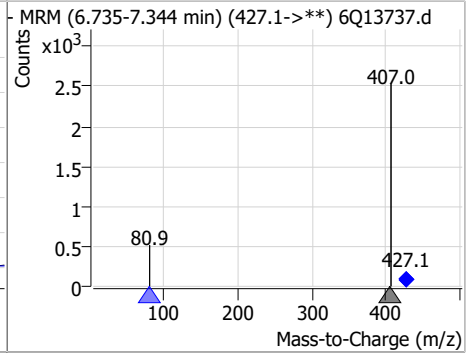
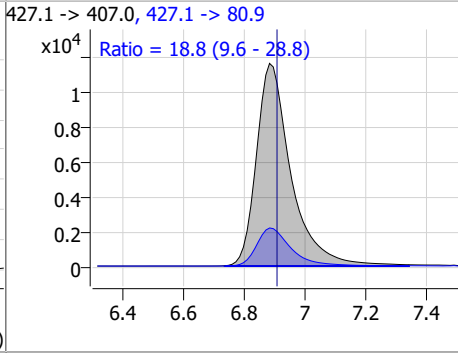
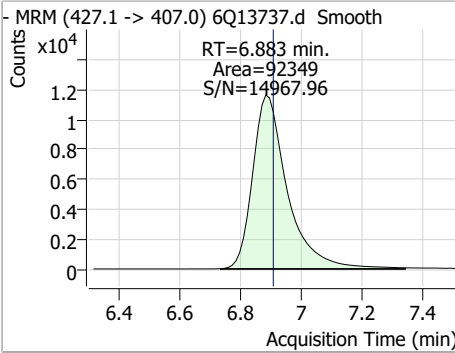


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6-2FTS	4.68	6.88	-0.02	2723	429.1 -> 80.9			

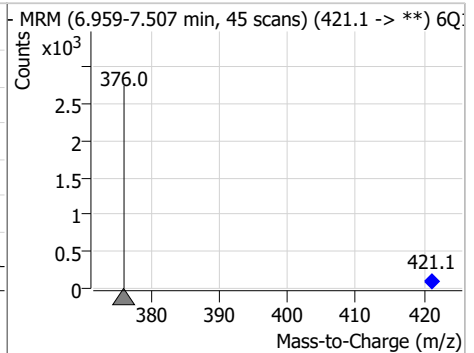
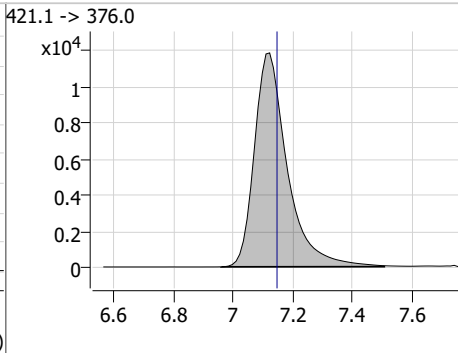
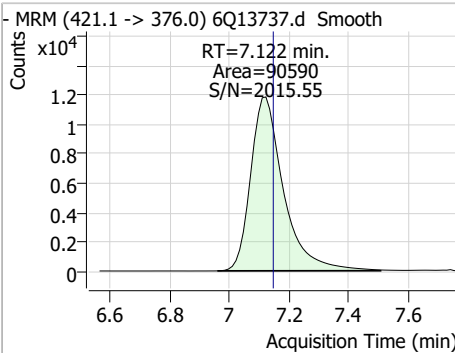


Perfluorinated Compounds by LC/MS/MS

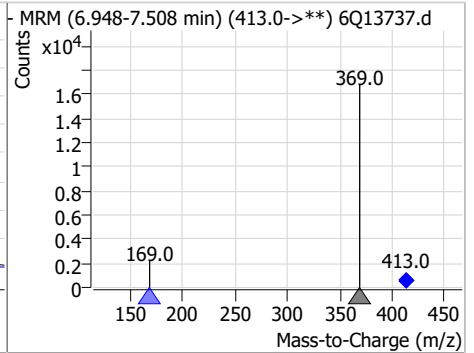
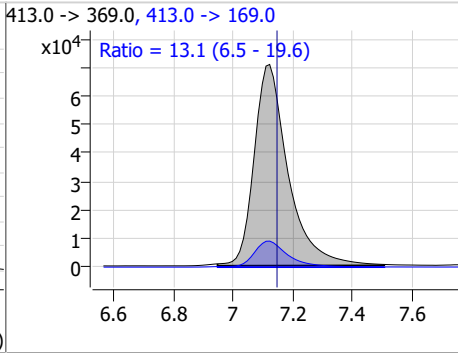
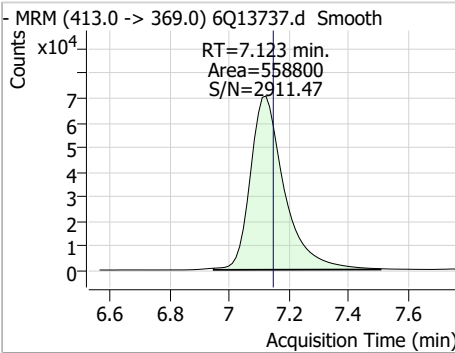
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	22.21	6.88	-0.02	92349	427.1 -> 80.9	18.8	9.6	28.8



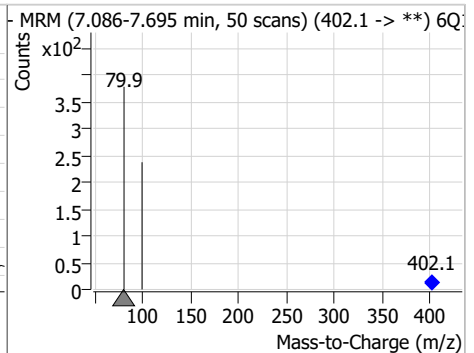
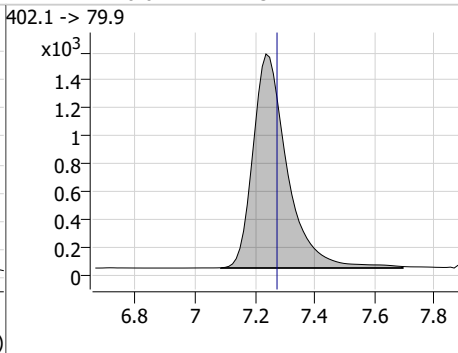
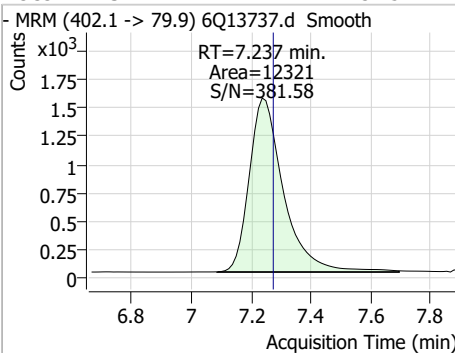
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	3.88	7.12	-0.02	90590	421.1 -> 376.0			



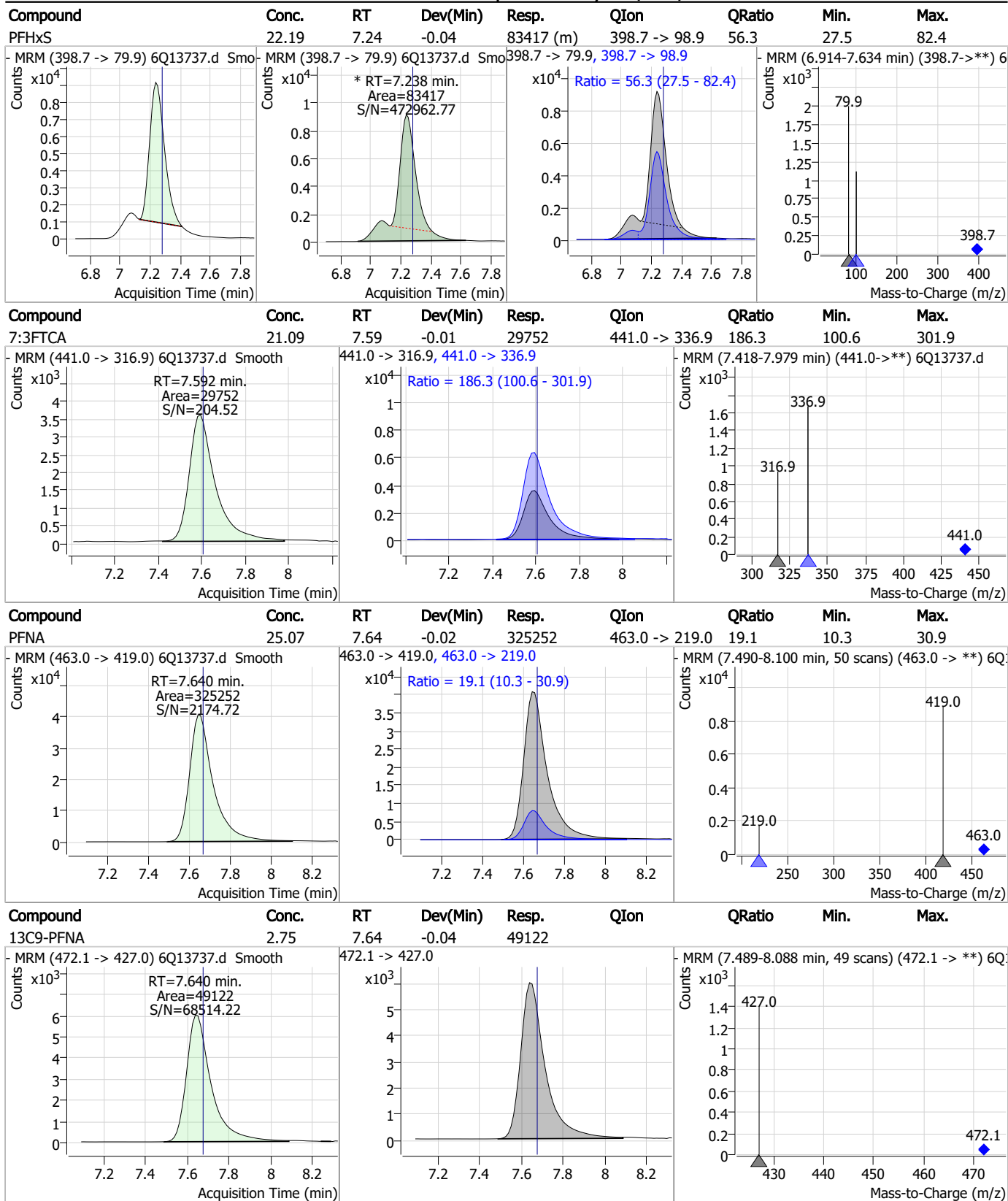
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.00	7.12	-0.02	558800	413.0 -> 169.0	13.1	6.5	19.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	3.45	7.24	-0.04	12321	402.1 -> 79.9			



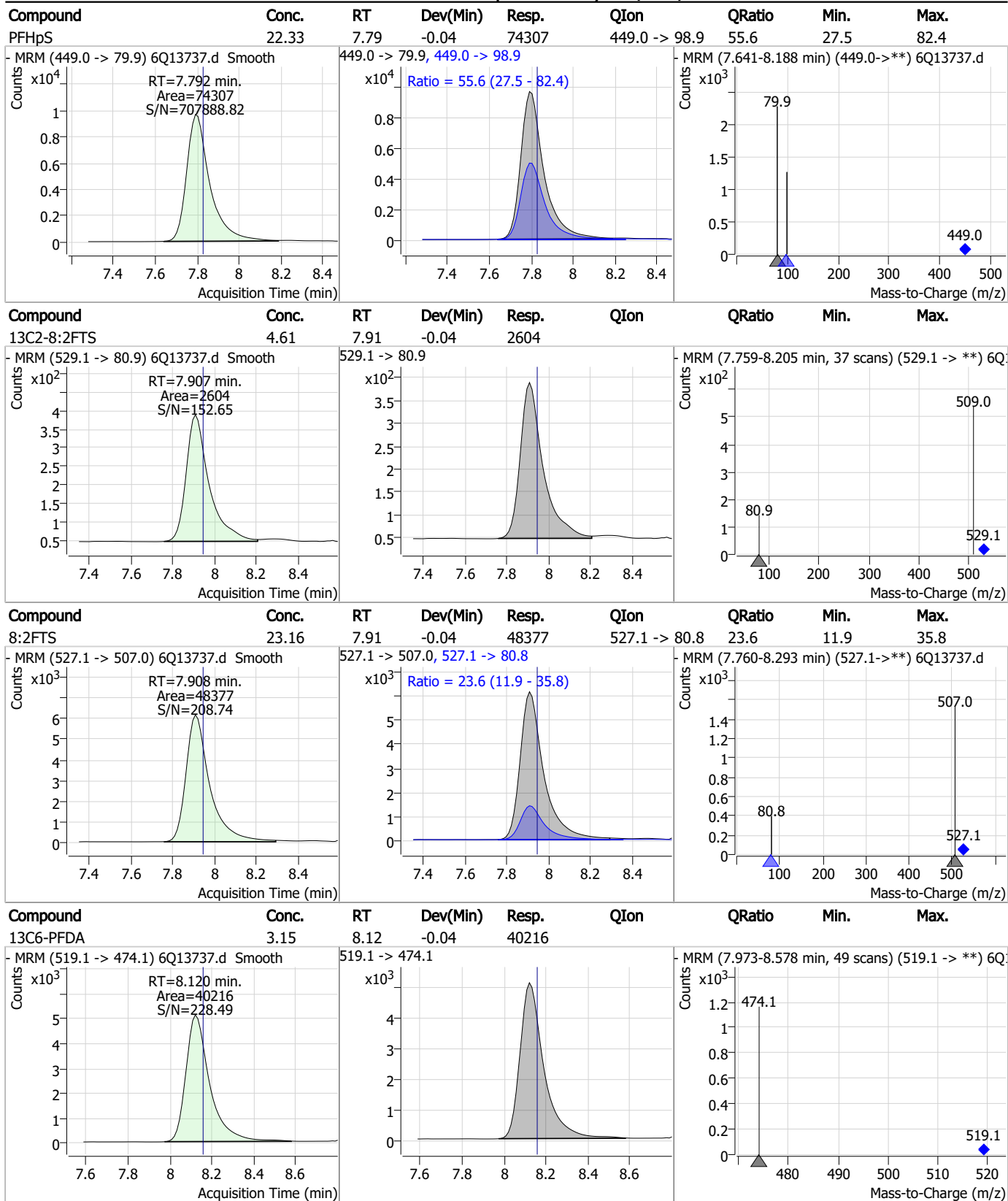
Perfluorinated Compounds by LC/MS/MS



7.6.11

7

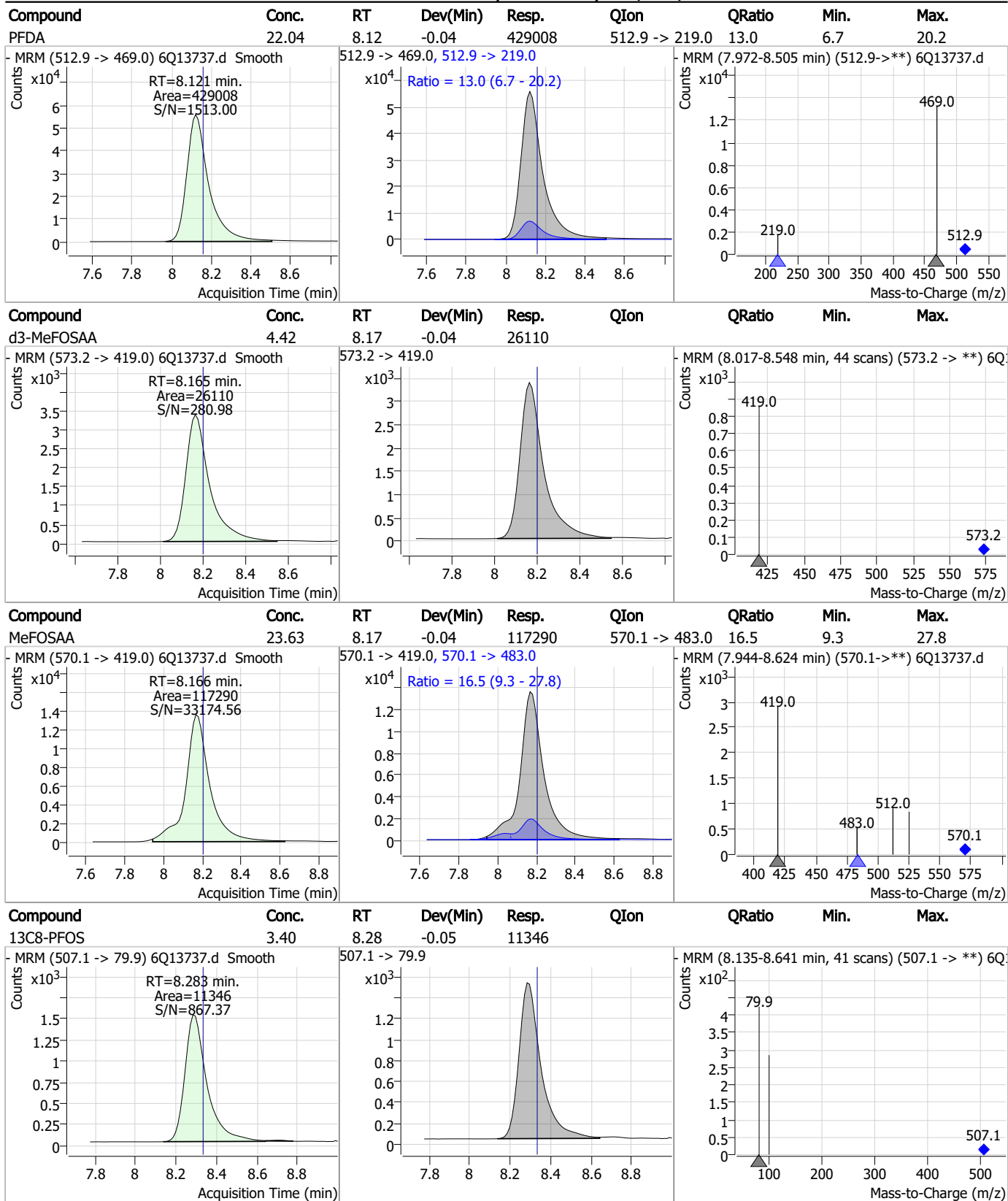
Perfluorinated Compounds by LC/MS/MS



7.6.11

7

Perfluorinated Compounds by LC/MS/MS

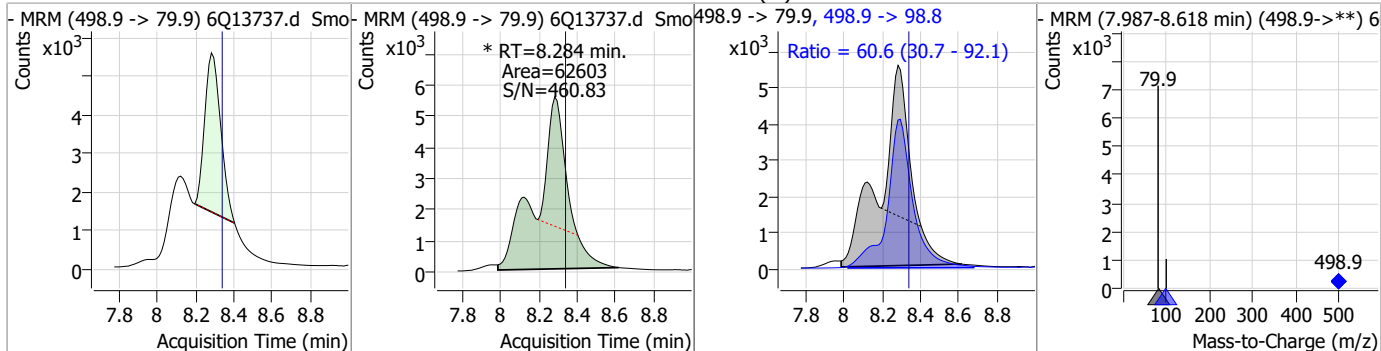


7.6.11

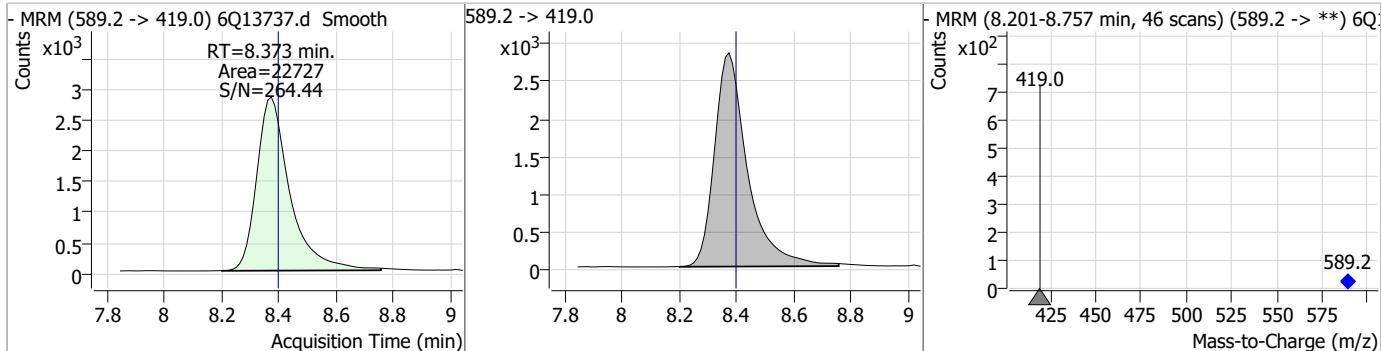
7

Perfluorinated Compounds by LC/MS/MS

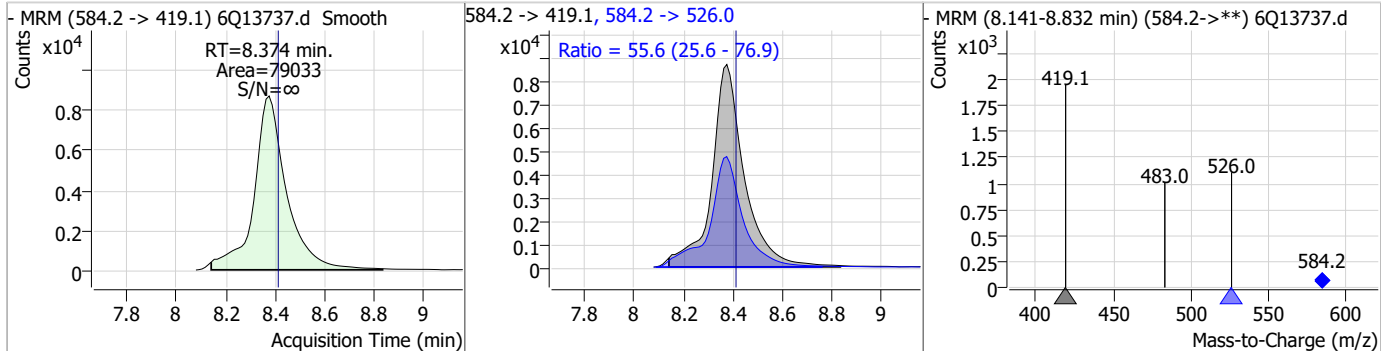
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	17.62	8.28	-0.05	62603 (m)	498.9 -> 98.8	60.6	30.7	92.1



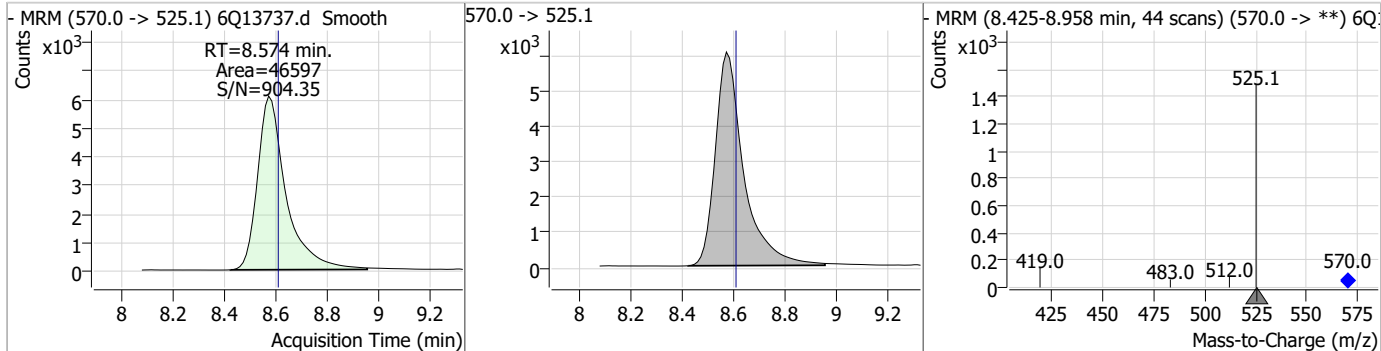
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.59	8.37	-0.02	22727				



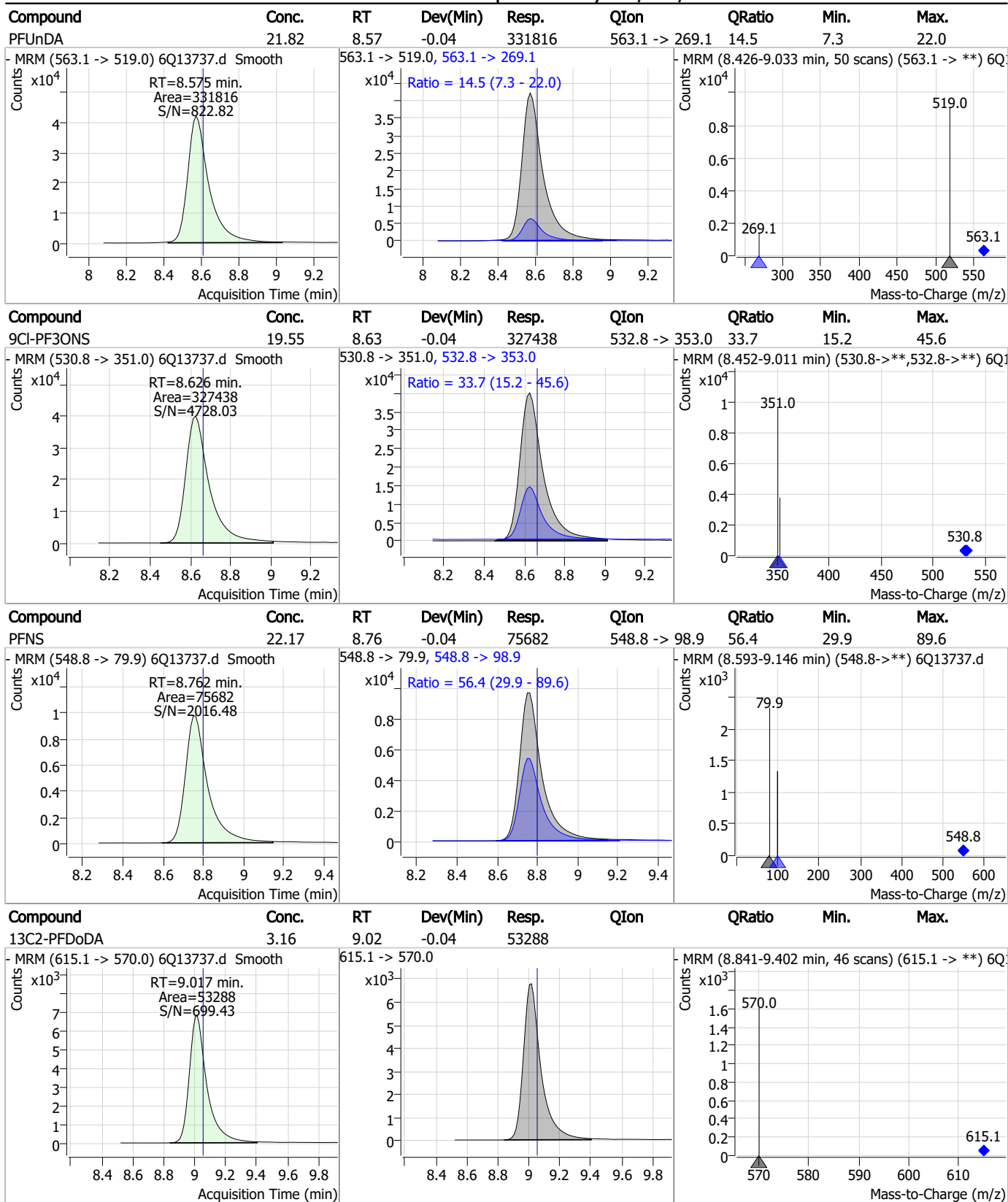
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	20.61	8.37	-0.04	79033	584.2 -> 526.0	55.6	25.6	76.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	3.12	8.57	-0.04	46597				



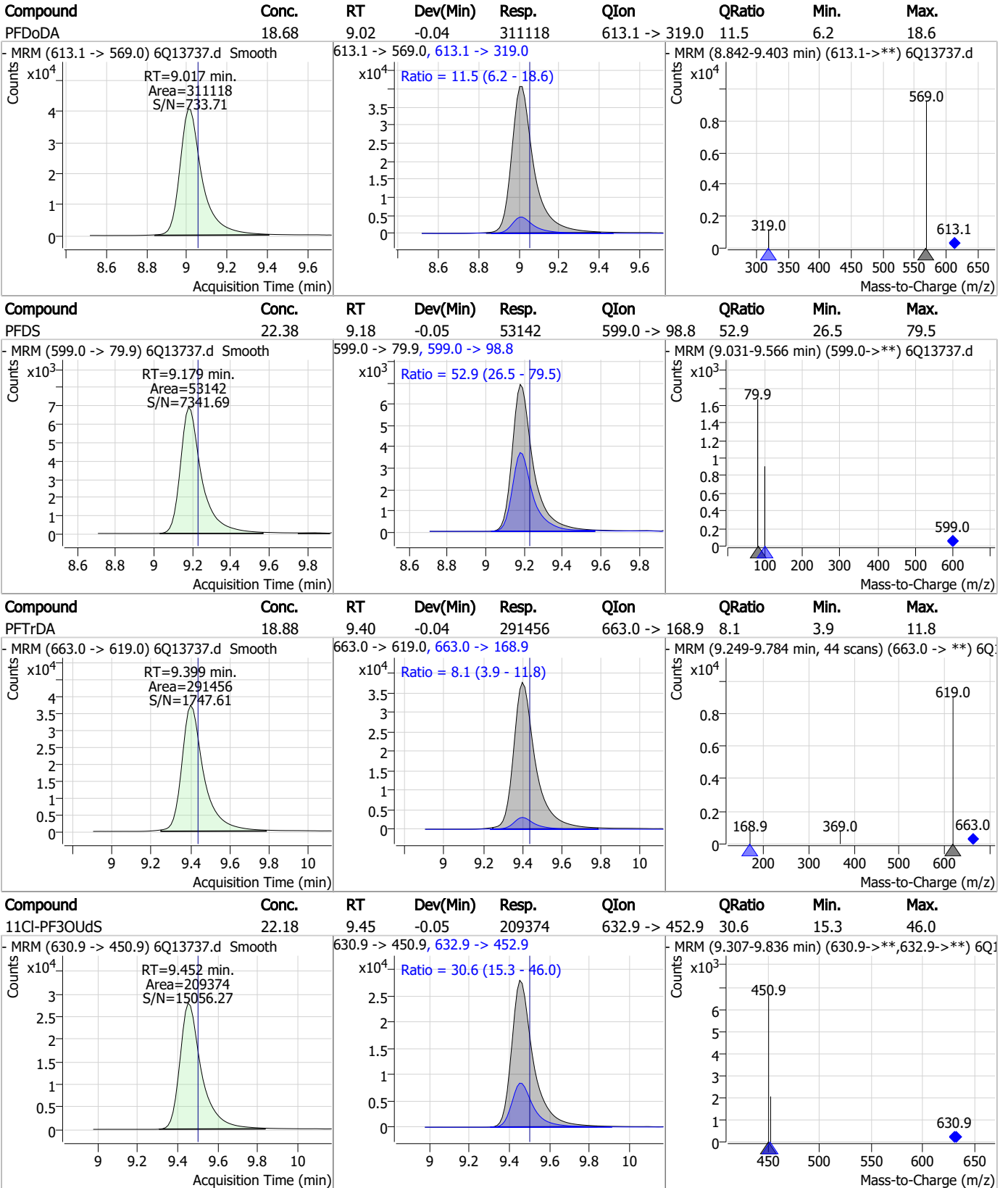
Perfluorinated Compounds by LC/MS/MS



7.6.11

7

Perfluorinated Compounds by LC/MS/MS

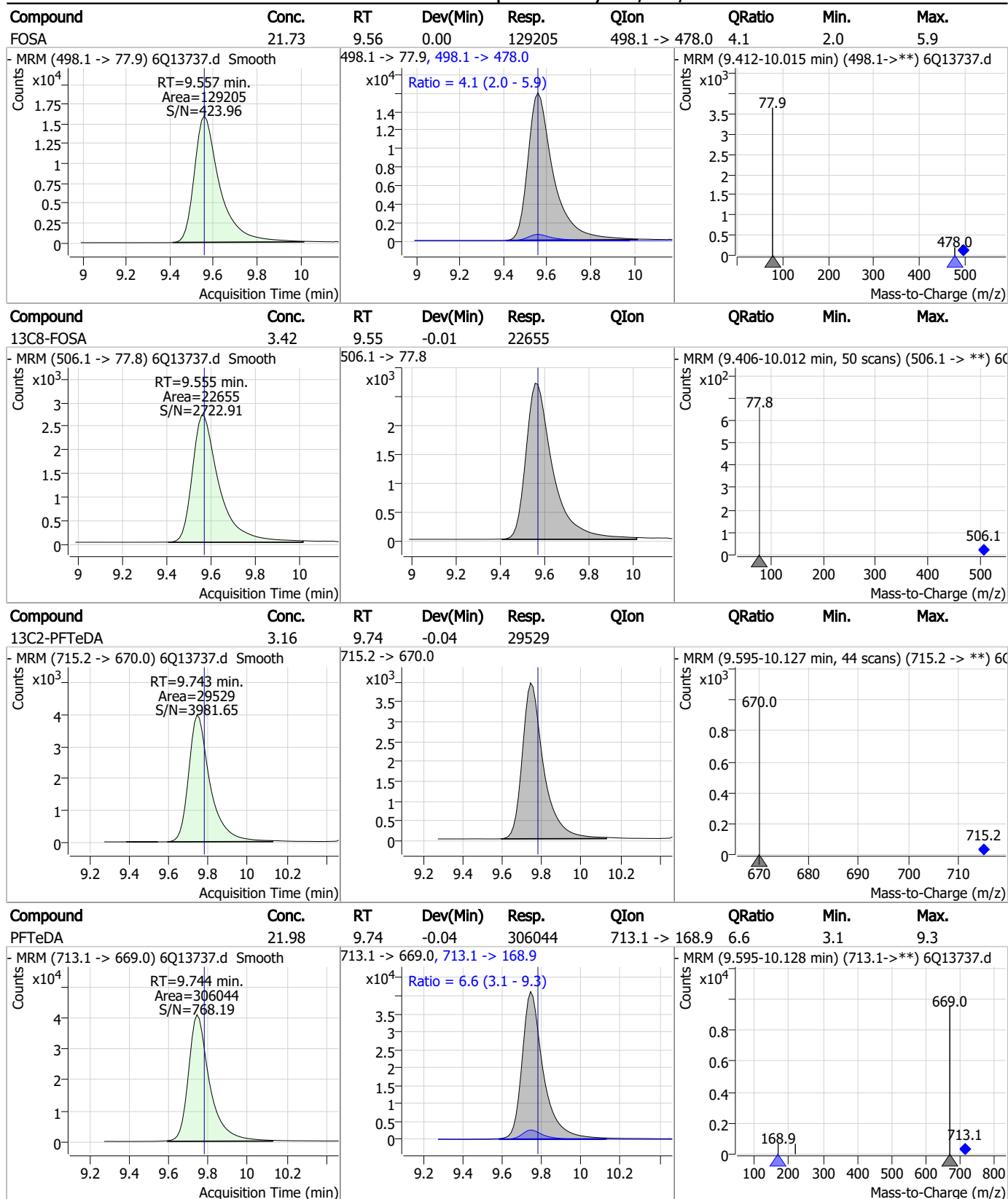


7.6.11

7



Perfluorinated Compounds by LC/MS/MS

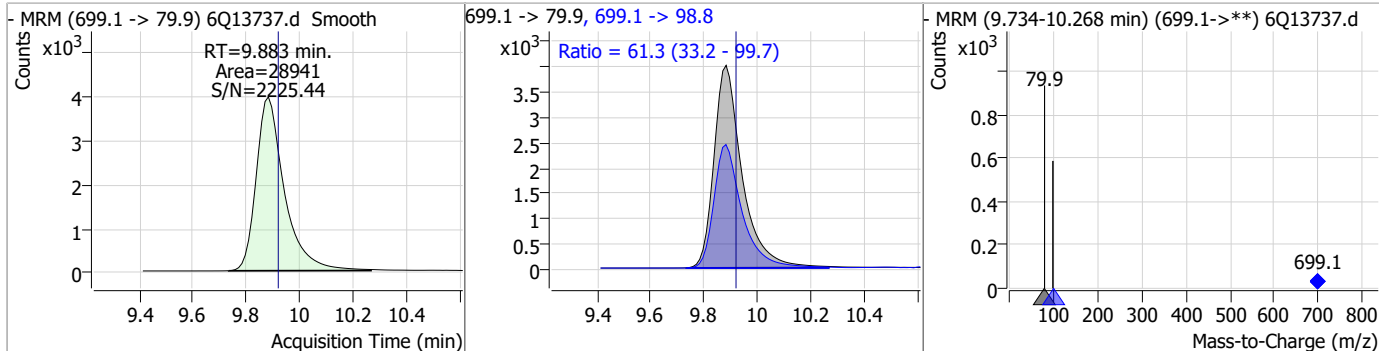


7.6.11

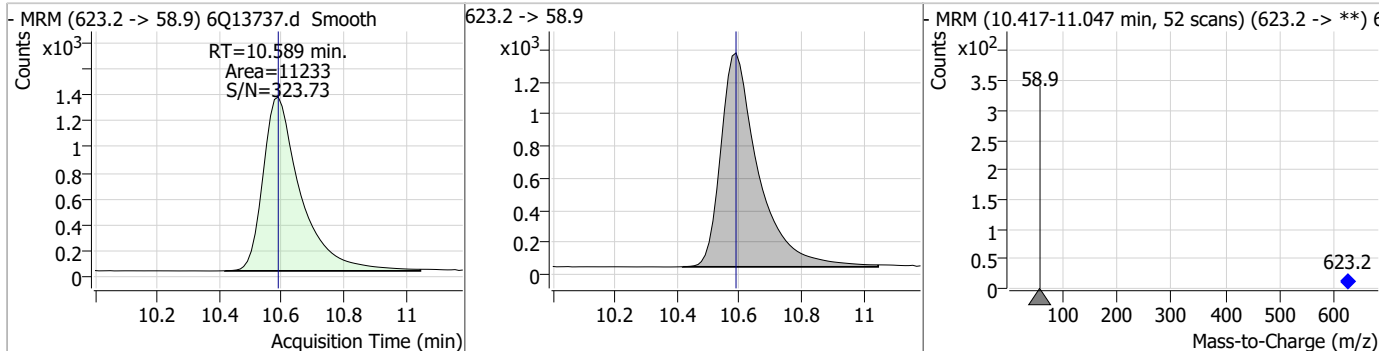
7

Perfluorinated Compounds by LC/MS/MS

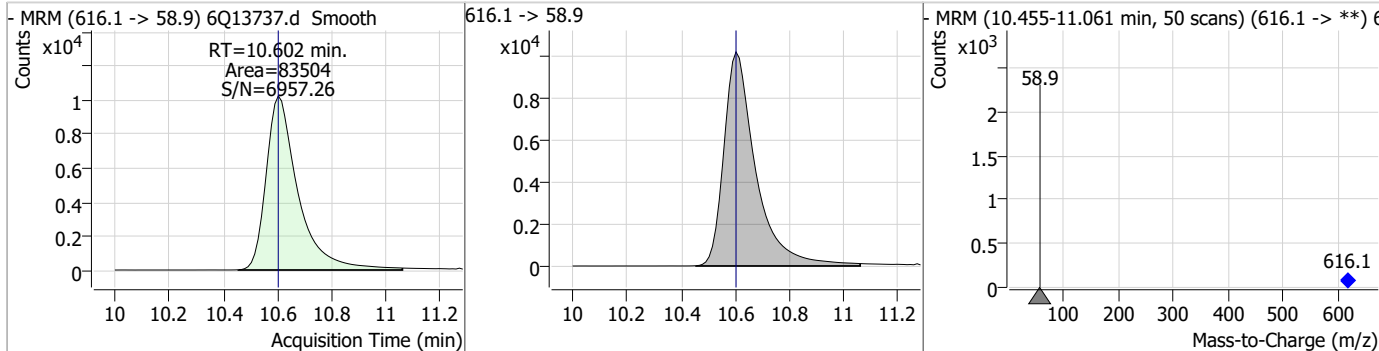
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	19.58	9.88	-0.04	28941	699.1 -> 98.8	61.3	33.2	99.7



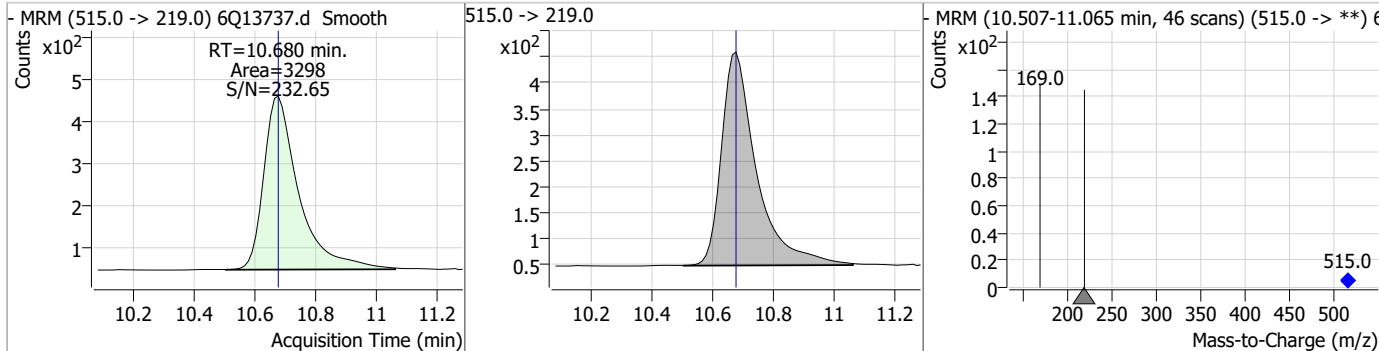
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	11.65	10.59	0.00	11233				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	89.47	10.60	0.00	83504				

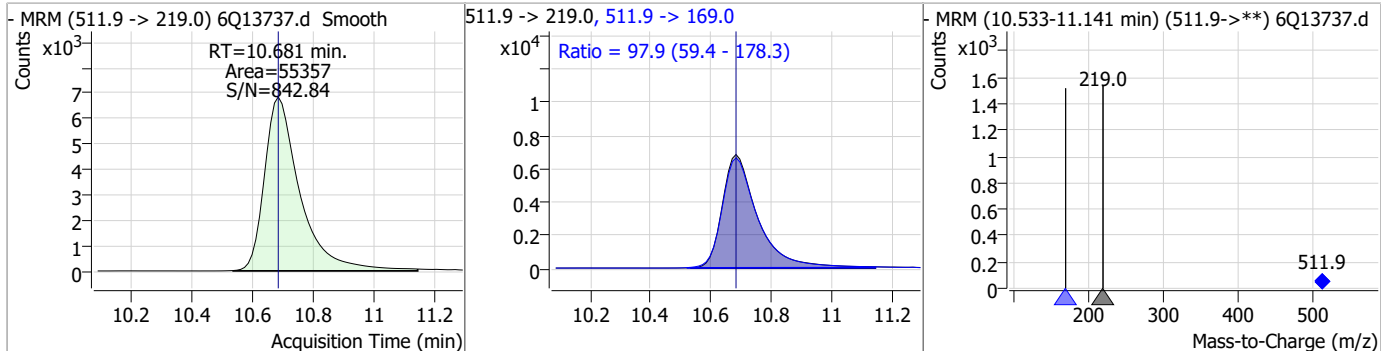


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	1.19	10.68	0.00	3298				

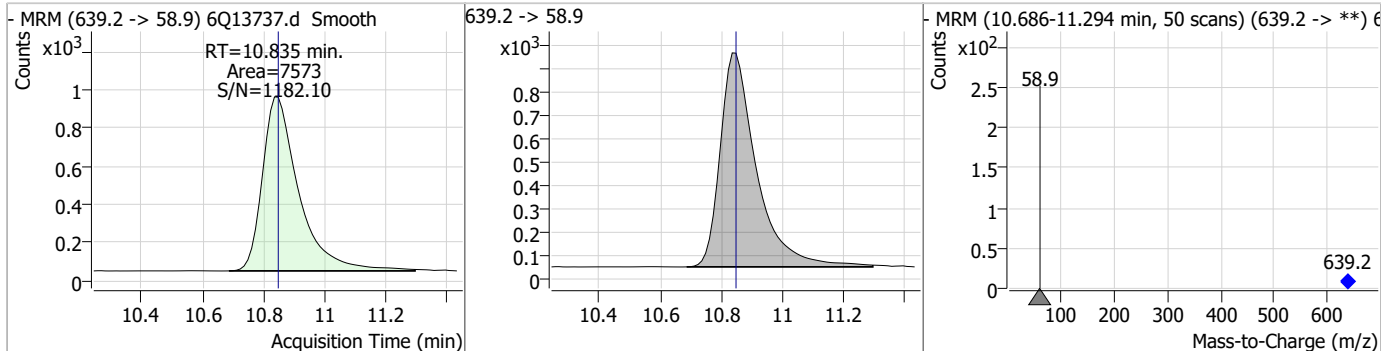


Perfluorinated Compounds by LC/MS/MS

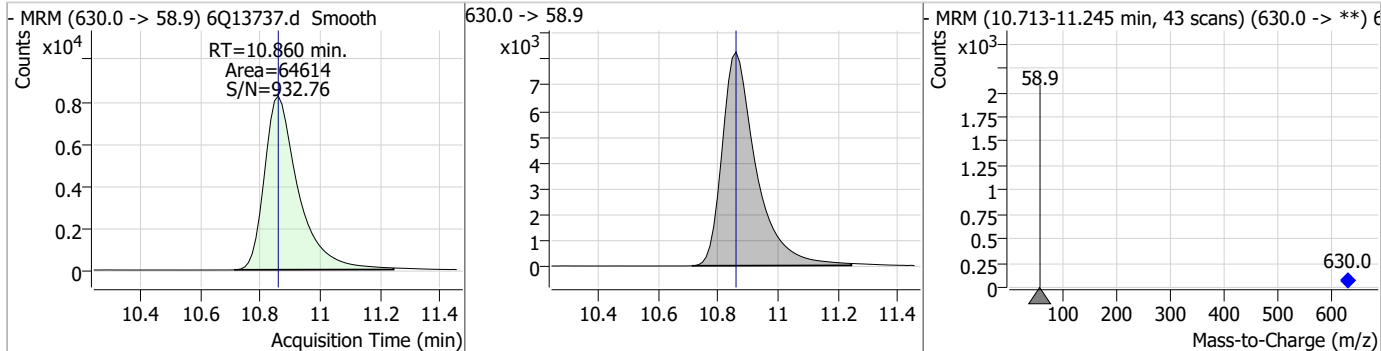
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	19.05	10.68	0.00	55357	511.9 -> 169.0	97.9	59.4	178.3



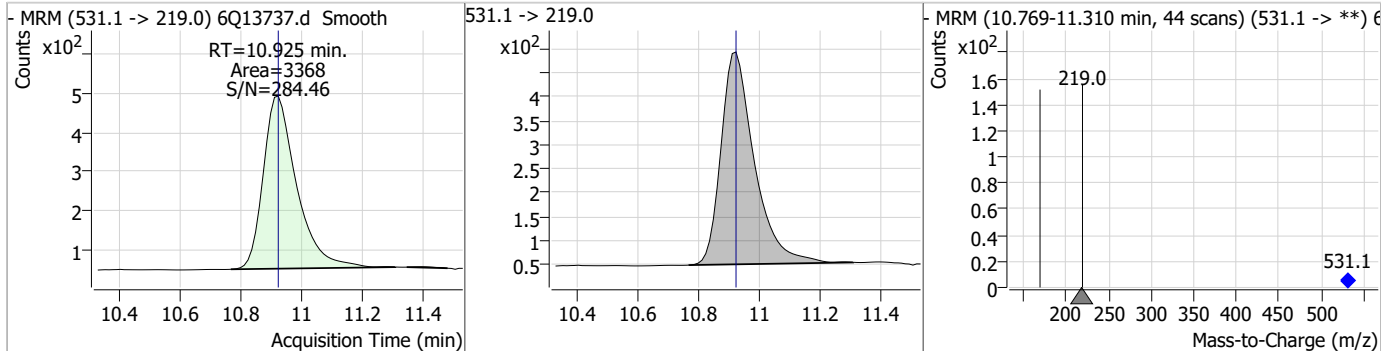
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	11.11	10.83	-0.01	7573				



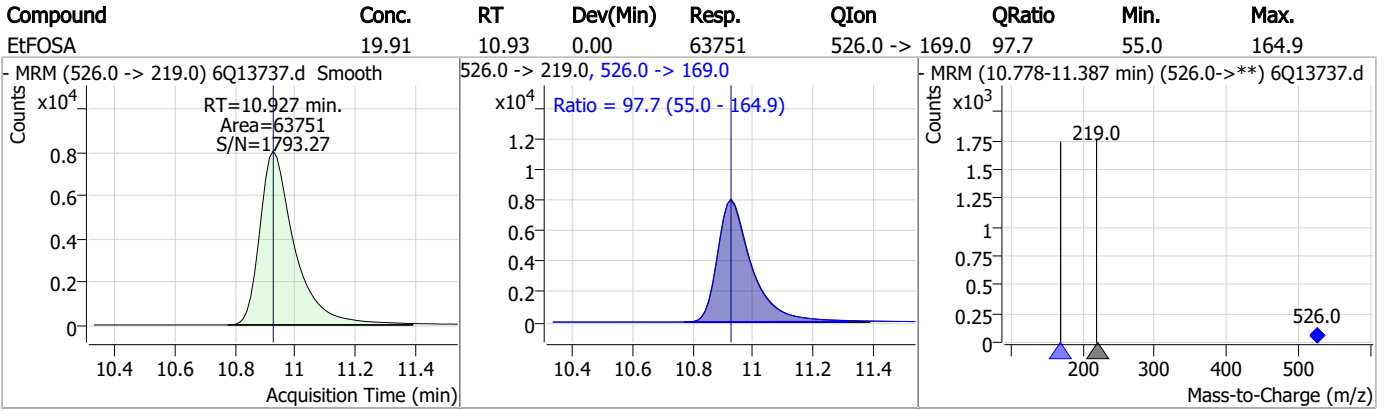
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	100.04	10.86	0.00	64614				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	1.13	10.92	0.00	3368				



Perfluorinated Compounds by LC/MS/MS



7.6.11

7

Manual Integration Approval Summary

Sample Number: S6Q208-ICV208 Method: EPA DRAFT 1633
Lab FileID: 6Q13737.D Analyst approved: 02/18/23 11:42 Natasha Gumtie
Injection Time: 02/16/23 10:24 Supervisor approved: 02/18/23 12:01 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.28	Split peak

7.6.11.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13738.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/16/2023 10:38:04 AM
 Sample Name : cc208-4
 Vial : P1-D5
 DA Method File : 1633_021623_S6Q208NEW.quantmethod.xml
 Batch Name : s6q208.batch.bin
 Sample Information : OP95142,S6Q208,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.950	216.8 -> 171.9	58668	7.50 µg/L	-0.025
M5-PFPeA	4.361	268.3 -> 223.0	37866	5.00 µg/L	-0.025
M5-PFHxA	5.538	318.0 -> 273.0	51659	3.75 µg/L	-0.025
M4-PFHpA	6.477	367.1 -> 322.0	51277	3.75 µg/L	-0.025
M8-PFOA	7.109	421.1 -> 376.0	91012	3.75 µg/L	-0.037
M9-PFNA	7.640	472.1 -> 427.0	50838	3.13 µg/L	-0.037
M6-PFDA	8.120	519.1 -> 474.1	39858	3.13 µg/L	-0.037
M7-PFUnDA	8.574	570.0 -> 525.1	46826	3.13 µg/L	-0.037
M2-PFDoDA	9.017	615.1 -> 570.0	52600	3.13 µg/L	-0.037
M2-PFTeDA	9.743	715.2 -> 670.0	30383	3.13 µg/L	-0.037
M8-FOSA	9.555	506.1 -> 77.8	24213	3.75 µg/L	-0.012
M3-PFBS	5.481	302.1 -> 79.9	19247	3.75 µg/L	-0.037
M3-PFHxS	7.237	402.1 -> 79.9	12683	3.75 µg/L	-0.037
M8-PFOS	8.283	507.1 -> 79.9	11379	3.75 µg/L	-0.050
M2-4:2FTS	5.203	329.1 -> 80.9	2335	5.00 µg/L	-0.037
M2-6:2FTS	6.883	429.1 -> 80.9	2884	5.00 µg/L	-0.025
M2-8:2FTS	7.907	529.1 -> 80.9	2726	5.00 µg/L	-0.037
M3-MeFOSAA	8.165	573.2 -> 419.0	28467	5.00 µg/L	-0.037
M3-HFPO-DA	5.903	286.9 -> 168.9	7018	5.00 µg/L	-0.037
M5-EtFOSAA	8.373	589.2 -> 419.0	22914	5.00 µg/L	-0.025
M7-MeFOSE	10.589	623.2 -> 58.9	11589	12.50 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	7633	12.50 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	3475	1.25 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	3250	1.25 µg/L	0.000
13C4-PFOS	8.283	502.8 -> 79.9	9088	2.50 µg/L	-0.050
13C3-PFBA	2.954	216.0 -> 172.0	31286	5.00 µg/L	-0.025
18O2-PFHxS	7.236	403.0 -> 83.9	5551	2.50 µg/L	-0.037
13C4-PFOA	7.110	417.1 -> 372.0	62737	2.50 µg/L	-0.037
13C2-PFDA	8.120	515.1 -> 470.1	20460	1.25 µg/L	-0.037
13C5-PFNA	7.640	468.0 -> 423.0	20074	1.25 µg/L	-0.037
13C2-PFHxA	5.539	315.1 -> 270.0	29742	2.50 µg/L	-0.025
System Monitoring Compounds					
13C2-4:2FTS	5.203	329.1 -> 80.9	2335	6.10 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.9%		
13C2-6:2FTS	6.883	429.1 -> 80.9	2884	5.73 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.6%		
13C2-8:2FTS	7.907	529.1 -> 80.9	2726	5.58 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.6%		
13C2-PFDoDA	9.017	615.1 -> 570.0	52600	3.26 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C2-PFTeDA	9.743	715.2 -> 670.0	30383	3.40 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 108.9%		
13C3-PFBS	5.481	302.1 -> 79.9	19247	4.20 µg/L	-0.037
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 112.0%		
13C3-PFHxS	7.237	402.1 -> 79.9	12683	4.10 µg/L	-0.037

7.6.12
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 109.4%	
13C4-PFBA	2.950	216.8 -> 171.9	58668	8.08 µg/L	-0.025
Spiked Amount: 7.50	Range: 50.0 - 150.0%			Recovery = 107.8%	
13C4-PFHpA	6.477	367.1 -> 322.0	51277	4.01 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 106.9%	
13C5-PFHxA	5.538	318.0 -> 273.0	51659	4.10 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 109.2%	
13C5-PFPeA	4.361	268.3 -> 223.0	37866	5.42 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.3%	
13C6-PFDA	8.120	519.1 -> 474.1	39858	3.27 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C7-PFUnDA	8.574	570.0 -> 525.1	46826	3.27 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 104.7%	
13C8-FOSA	9.555	506.1 -> 77.8	24213	3.98 µg/L	-0.012
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 106.2%	
13C8-PFOA	7.109	421.1 -> 376.0	91012	4.24 µg/L	-0.037
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 113.2%	
13C8-PFOS	8.283	507.1 -> 79.9	11379	3.71 µg/L	-0.050
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C9-PFNA	7.640	472.1 -> 427.0	50838	3.34 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 106.9%	
d3-MeFOSAA	8.165	573.2 -> 419.0	28467	5.24 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C3-HFPO-DA	5.903	286.9 -> 168.9	7018	5.23 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.6%	
d3-MeFOSA	10.680	515.0 -> 219.0	3250	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.4%	
d5-EtFOSAA	8.373	589.2 -> 419.0	22914	5.03 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
d7-MeFOSE	10.589	623.2 -> 58.9	11589	13.08 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%			Recovery = 104.6%	
d9-EtFOSE	10.847	639.2 -> 58.9	7633	12.18 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%			Recovery = 97.4%	
d5-EtFOSA	10.925	531.1 -> 219.0	3475	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.6%	
Target Compounds					QValue
4:2FTS	5.203	327.1 -> 307.0	37975	6.99 µg/L	89
		327.1 -> 80.9	10590		
6:2FTS	6.883	427.1 -> 407.0	41576	9.44 µg/L	100
		427.1 -> 80.9	7959		
8:2FTS	7.908	527.1 -> 507.0	22704	10.38 µg/L	100
		527.1 -> 80.8	5357		
EtFOSAA	8.374	584.2 -> 419.1	9704	2.51 µg/L	m 97
		584.2 -> 526.0	4791		
FOSA	9.557	498.1 -> 77.9	14695	2.31 µg/L	99
		498.1 -> 478.0	613		
MeFOSAA	8.166	570.1 -> 419.0	14183	2.62 µg/L	97
		570.1 -> 483.0	2416		
PFBA	2.957	212.8 -> 168.9	18366	9.60 µg/L	100
PFBS	5.481	298.7 -> 79.9	10818	2.03 µg/L	98
		298.7 -> 98.8	5444		
PFDA	8.121	512.9 -> 469.0	53305	2.76 µg/L	96
		512.9 -> 219.0	6350		
PFDoDA	9.017	613.1 -> 569.0	39663	2.41 µg/L	100
		613.1 -> 319.0	4865		
PFDS	9.179	599.0 -> 79.9	6064	2.55 µg/L	97

7.6.12
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.477	599.0 -> 98.8	3066	2.42	µg/L	98
		363.1 -> 319.0	50297			
PFHpS	7.792	363.1 -> 169.0	6483	2.47	µg/L	99
		449.0 -> 79.9	8245			
PFHxA	5.541	449.0 -> 98.9	4603	2.32	µg/L	99
		313.0 -> 269.0	32242			
PFHxS	7.238	313.0 -> 118.9	1345	2.12	µg/L	92
		398.7 -> 79.9	8186			
PFNA	7.640	398.7 -> 98.9	4964	2.36	µg/L	97
		463.0 -> 419.0	31650			
PFNS	8.762	463.0 -> 219.0	7003	2.26	µg/L	97
		548.8 -> 79.9	7751			
PFOA	7.123	548.8 -> 98.9	4797	2.37	µg/L	99
		413.0 -> 369.0	69905			
PFOS	8.296	413.0 -> 169.0	8908	2.39	µg/L	100
		498.9 -> 79.9	8531			
PFPeA	4.363	498.9 -> 98.8	5214	4.82	µg/L	100
		263.0 -> 219.0	40600			
PFPeS	6.543	349.1 -> 79.9	10555	2.34	µg/L	100
		349.1 -> 98.9	5751			
PFTeDA	9.744	713.1 -> 669.0	34536	2.41	µg/L	99
		713.1 -> 168.9	2272			
PFTrDA	9.399	663.0 -> 619.0	37709	2.48	µg/L	100
		663.0 -> 168.9	2881			
PFUnDA	8.575	563.1 -> 519.0	36317	2.38	µg/L	97
		563.1 -> 269.1	5678			
11CI-PF3OUdS	9.452	630.9 -> 450.9	86165	9.48	µg/L	97
		632.9 -> 452.9	27937			
9CI-PF3ONS	8.626	530.8 -> 351.0	150590	9.34	µg/L	98
		532.8 -> 353.0	47686			
ADONA	6.728	376.9 -> 250.9	282145	9.22	µg/L	96
		376.9 -> 84.8	64470			
HFPO-DA	5.903	284.9 -> 168.9	13667	9.91	µg/L	98
		284.9 -> 184.9	1611			
3:3FTCA	3.816	241.0 -> 177.0	5090	11.96	µg/L	96
		241.0 -> 117.0	720			
5:3FTCA	6.181	341.0 -> 237.1	174074	61.23	µg/L	98
		341.0 -> 217.0	152391			
7:3FTCA	7.592	441.0 -> 316.9	89883	60.08	µg/L	88
		441.0 -> 336.9	164441			
EtFOSA	10.927	526.0 -> 219.0	8284	2.51	µg/L	86
		526.0 -> 169.0	7860			
EtFOSE	10.860	630.0 -> 58.9	16909	25.97	µg/L	100
		511.9 -> 219.0	7001			
MeFOSA	10.681	511.9 -> 169.0	6793	2.44	µg/L	80
		616.1 -> 58.9	22241			
MeFOSE	10.602	699.1 -> 79.9	3481	23.10	µg/L	100
		699.1 -> 98.8	2180			
PFDoDS	9.883	295.0 -> 201.0	4349	2.35	µg/L	95
		295.0 -> 84.9	1933			
NFDHA	5.420	279.0 -> 85.1	11774	5.15	µg/L	95
		229.0 -> 84.9	10858			
PFMBA	4.763	314.8 -> 134.9	85221	4.73	µg/L	100
		314.8 -> 82.9	1904			
PFMPA	3.516			4.82	µg/L	100
PFEESA	6.021			4.53	µg/L	99

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



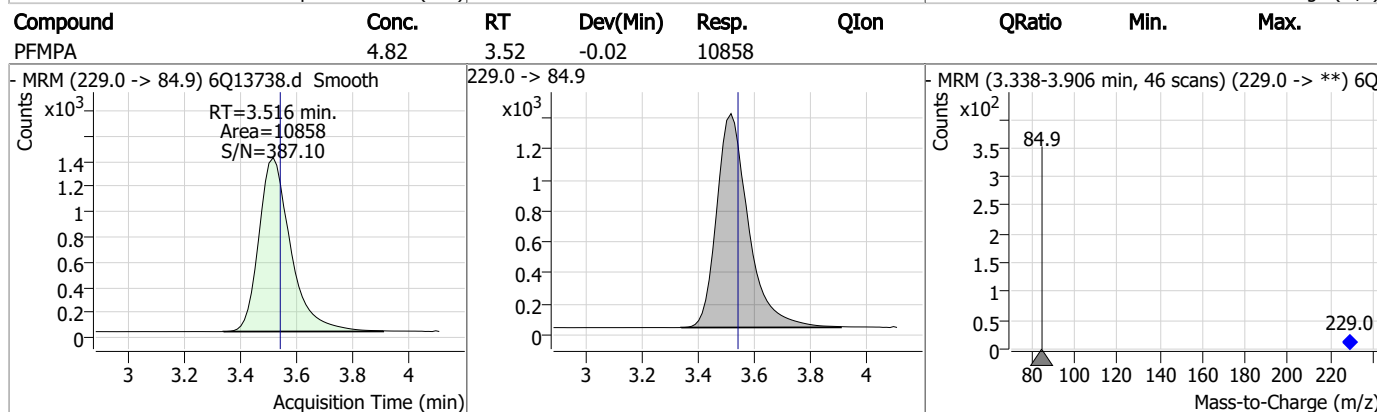
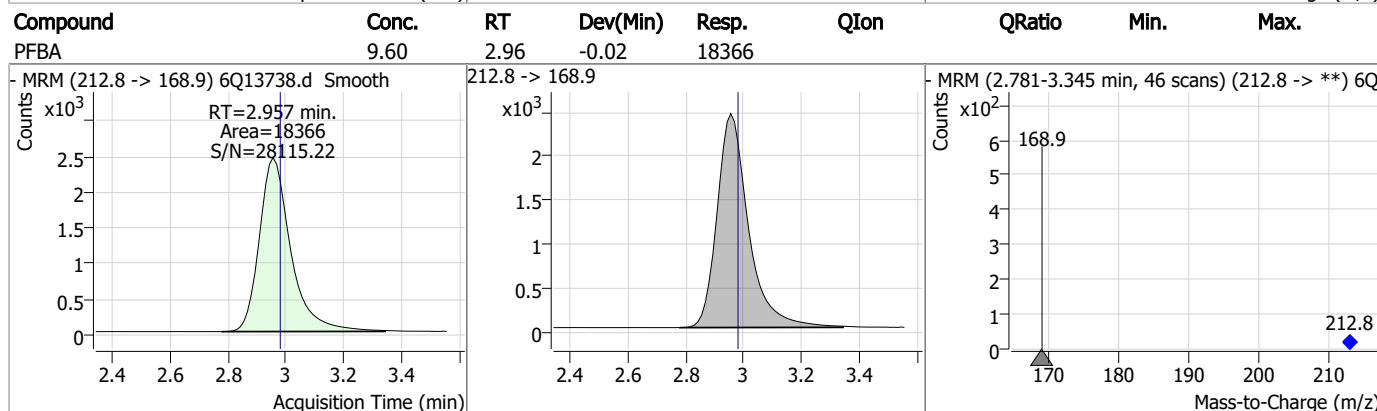
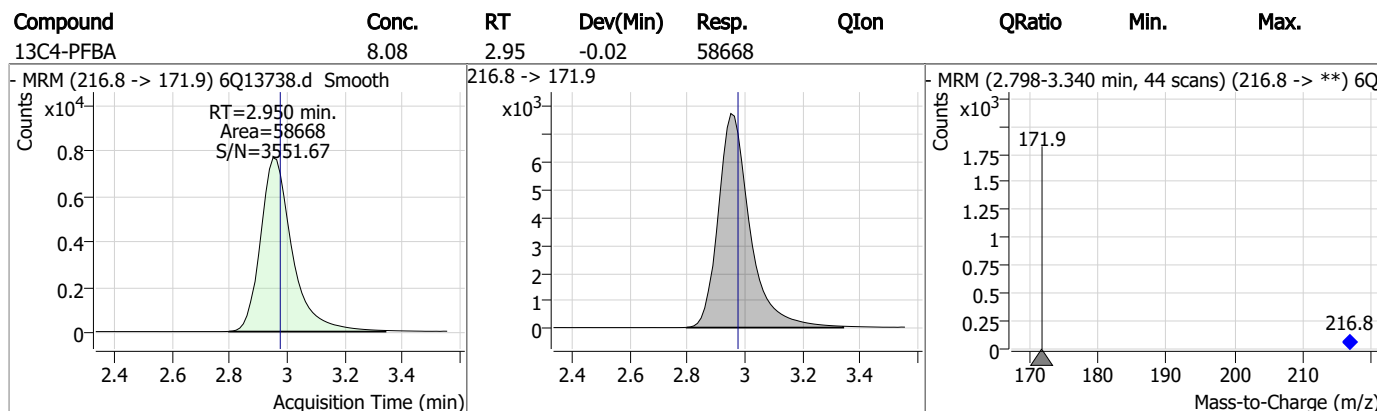
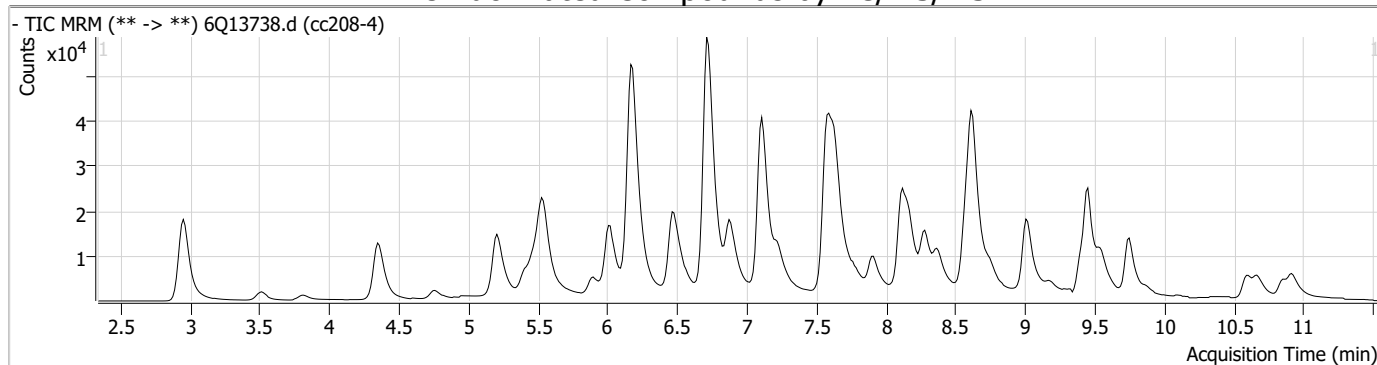
Perfluorinated Compounds by LC/MS/MS

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

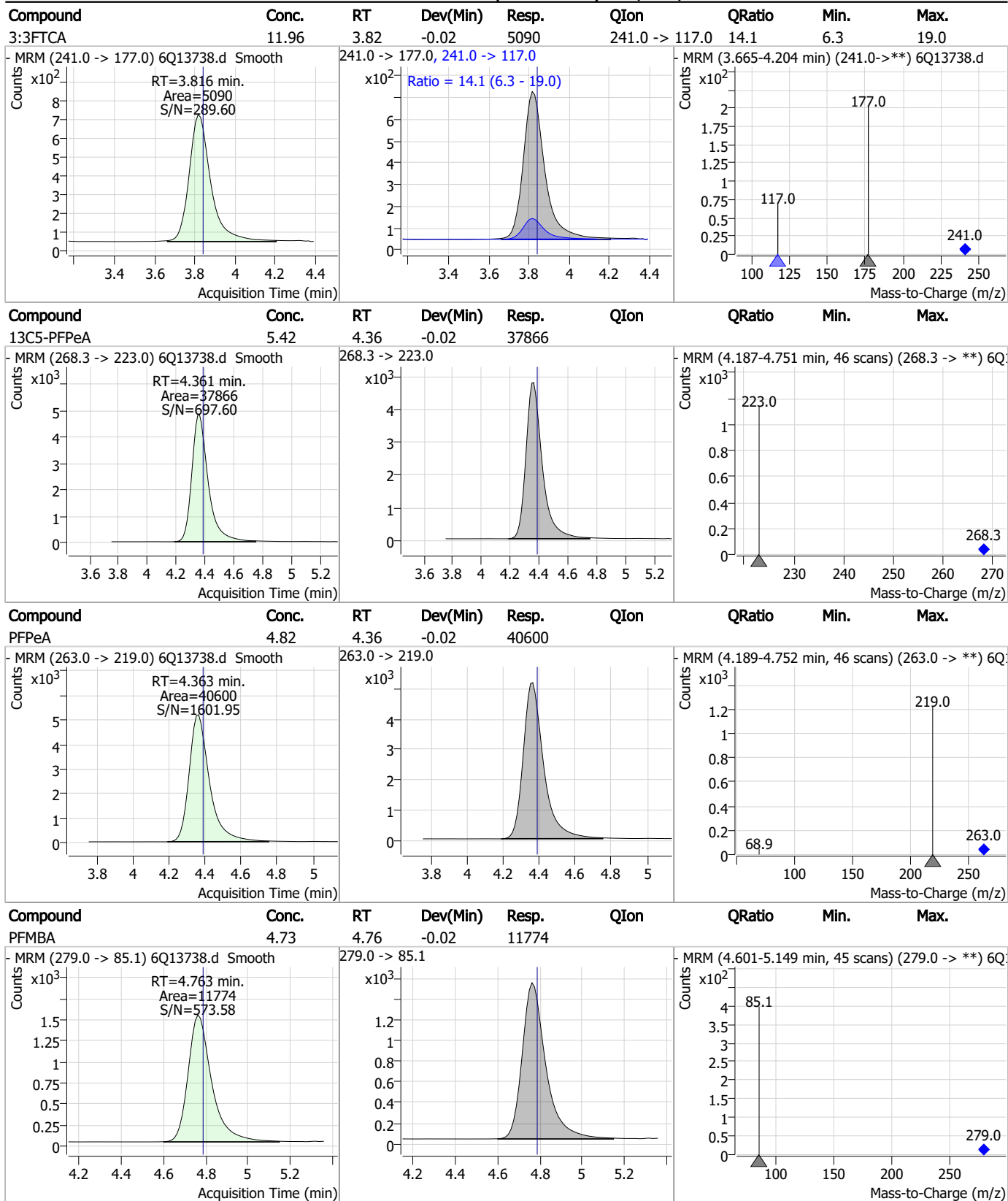
7.6.12

7

Perfluorinated Compounds by LC/MS/MS



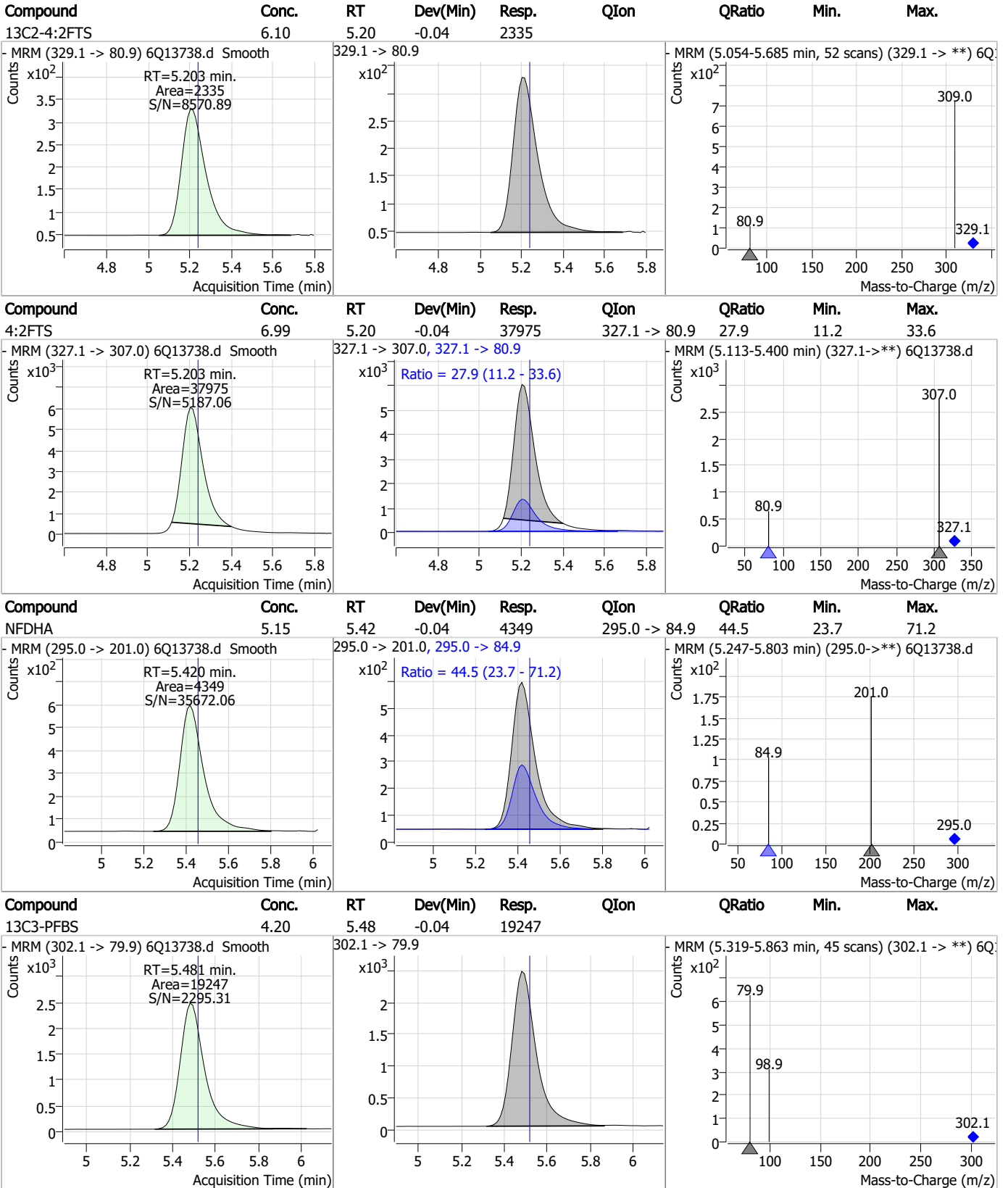
Perfluorinated Compounds by LC/MS/MS



7.6.12

7

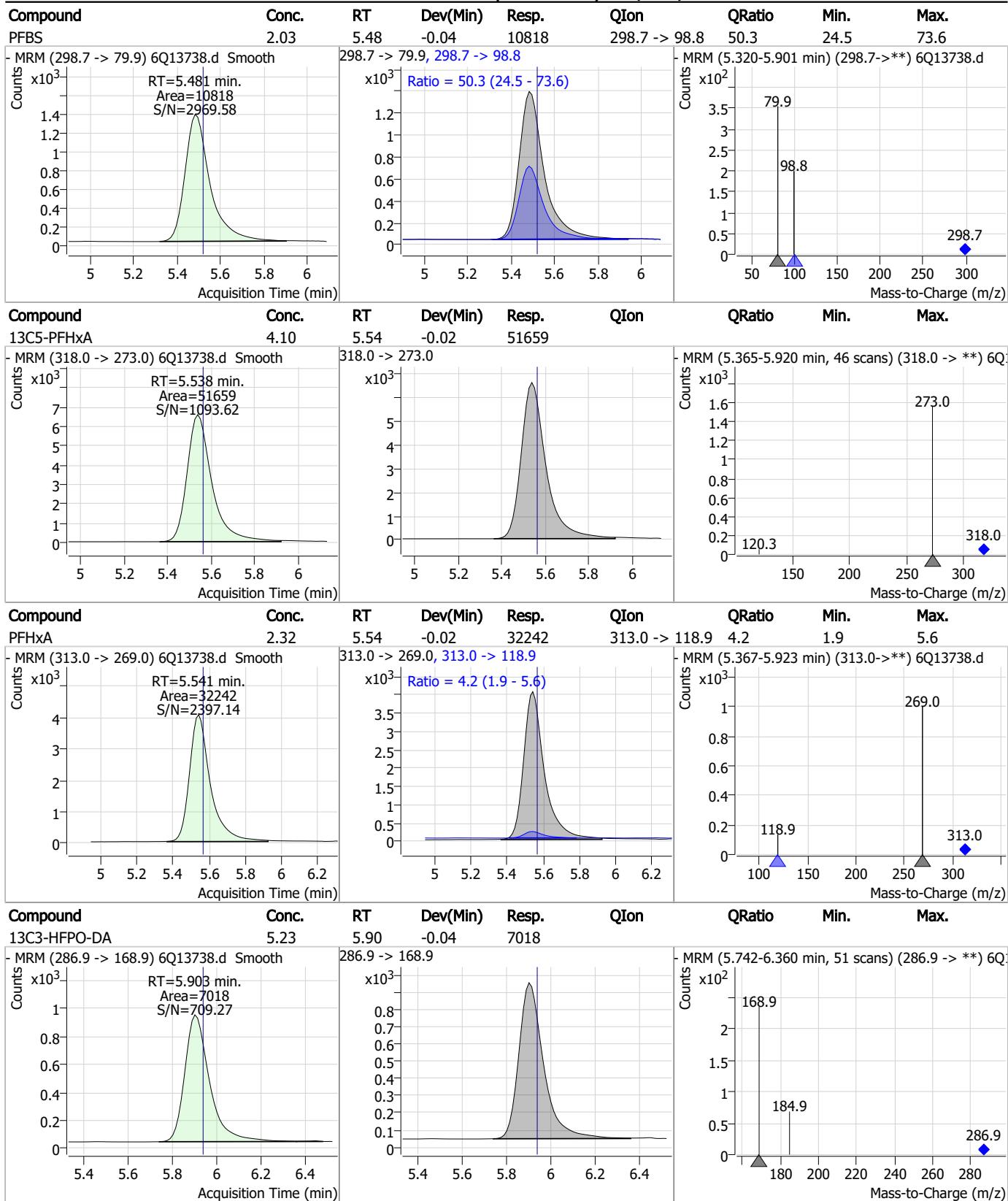
Perfluorinated Compounds by LC/MS/MS



7.6.12 7



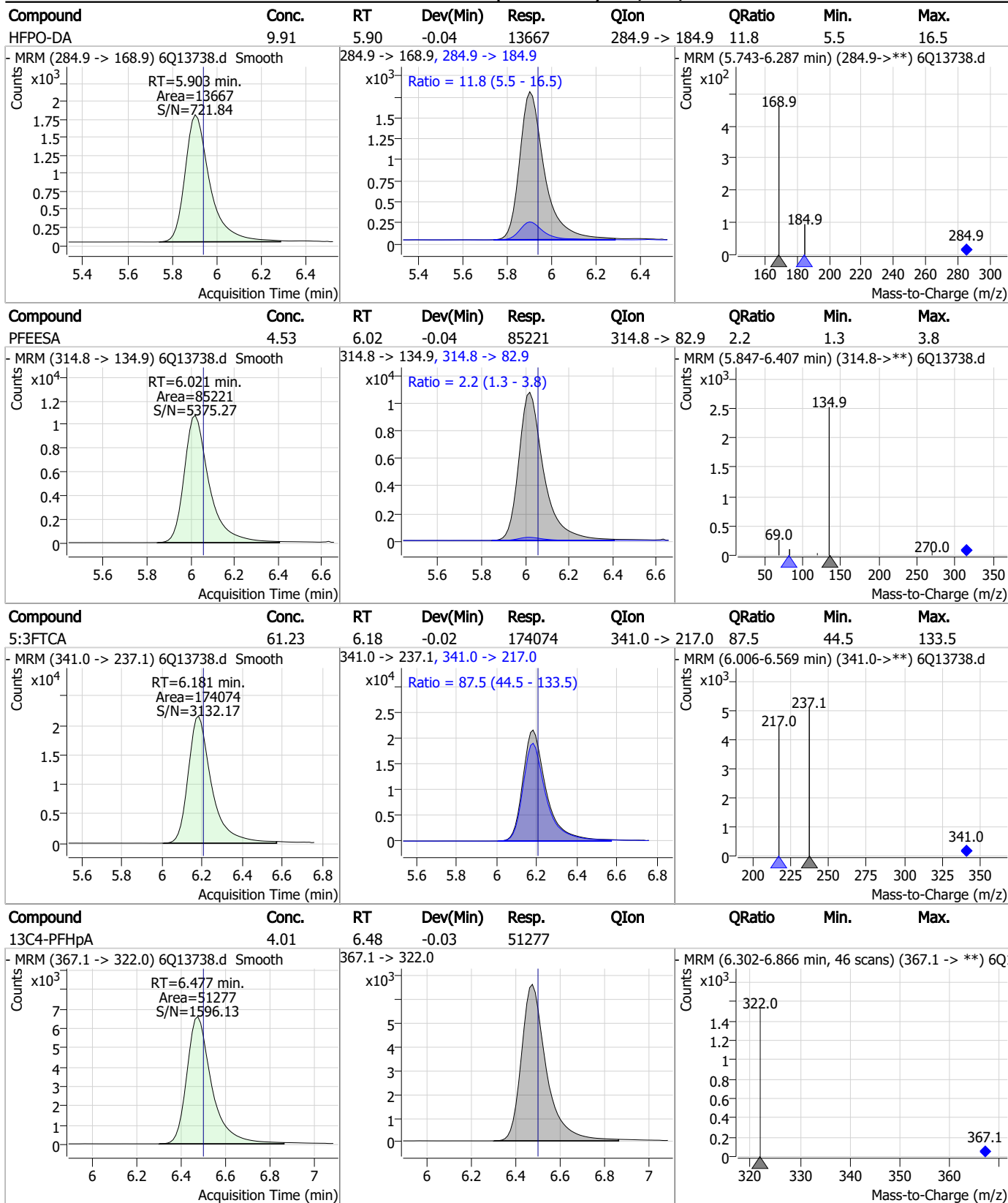
Perfluorinated Compounds by LC/MS/MS



7.6.12 7

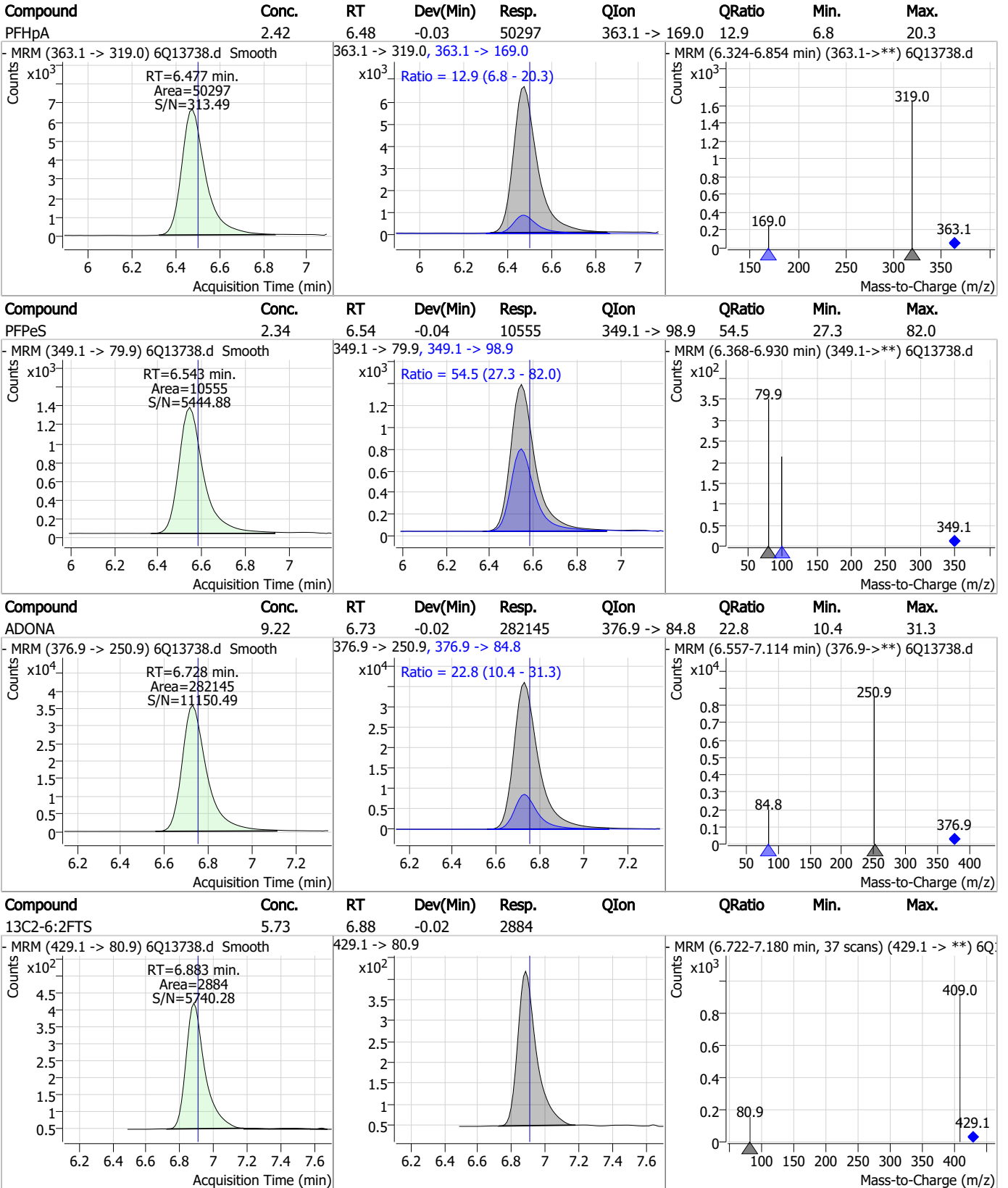


Perfluorinated Compounds by LC/MS/MS



7.6.12 7

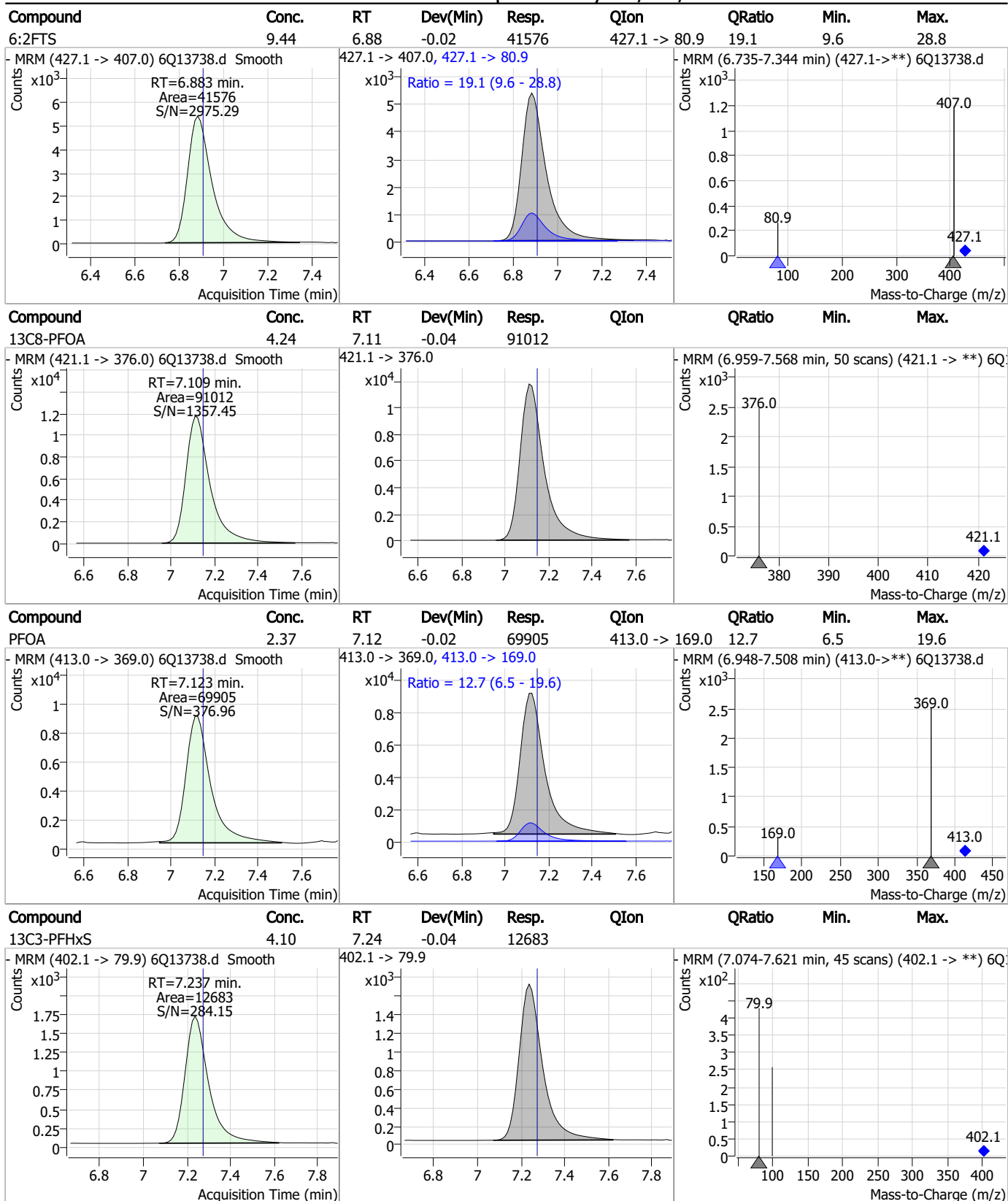
Perfluorinated Compounds by LC/MS/MS



7.6.12 7

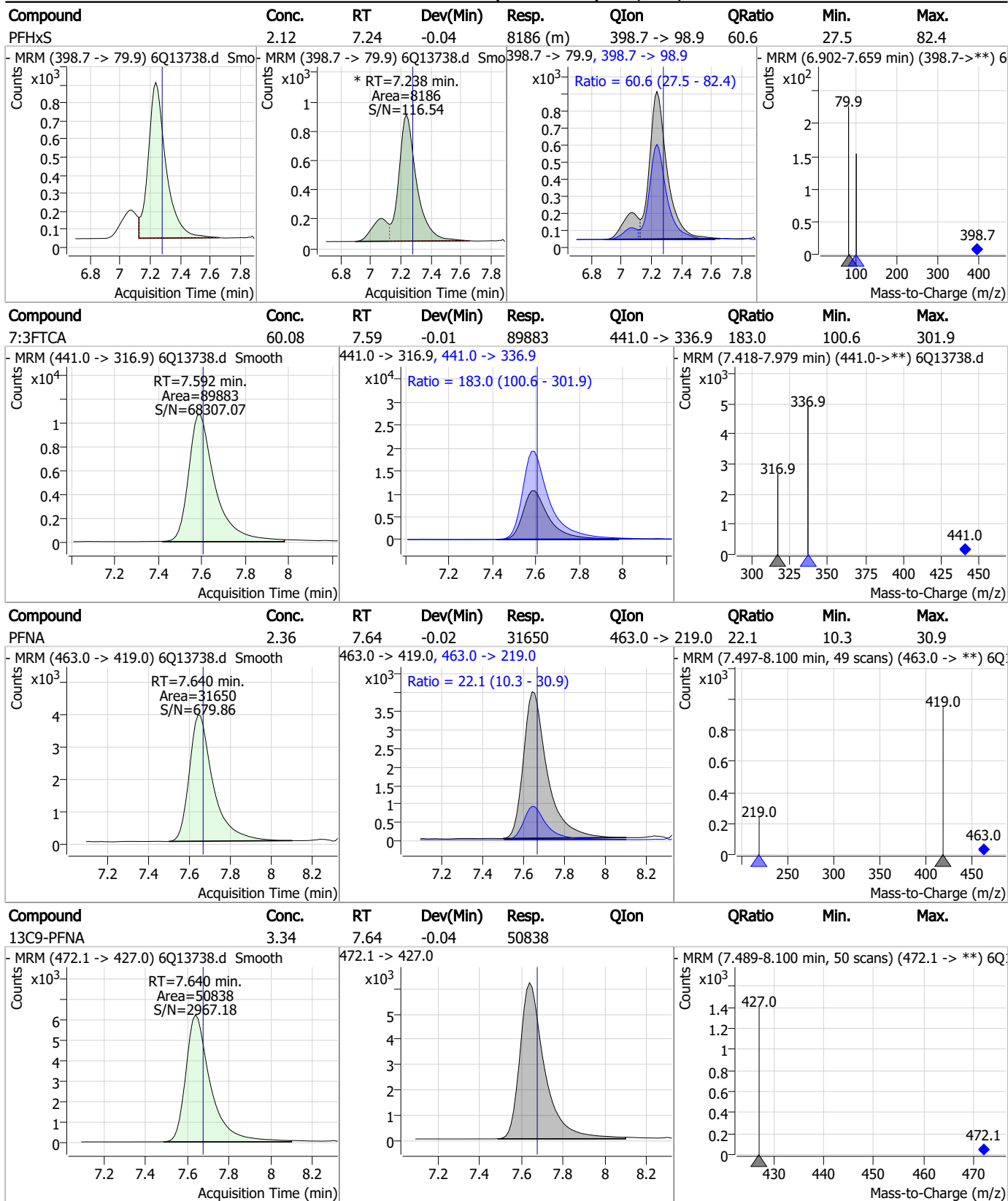


Perfluorinated Compounds by LC/MS/MS



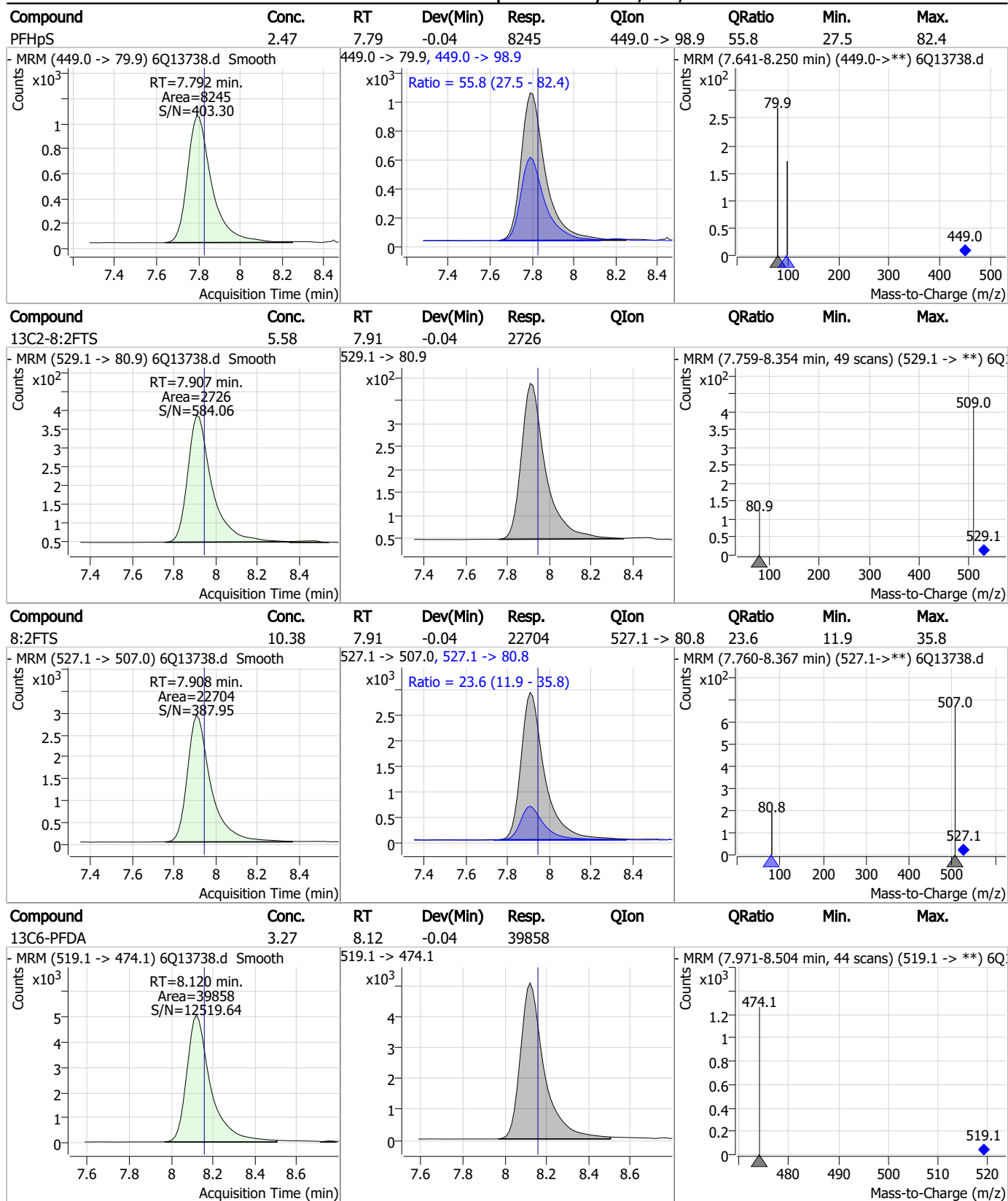
7.6.12
7

Perfluorinated Compounds by LC/MS/MS



7.6.12 7

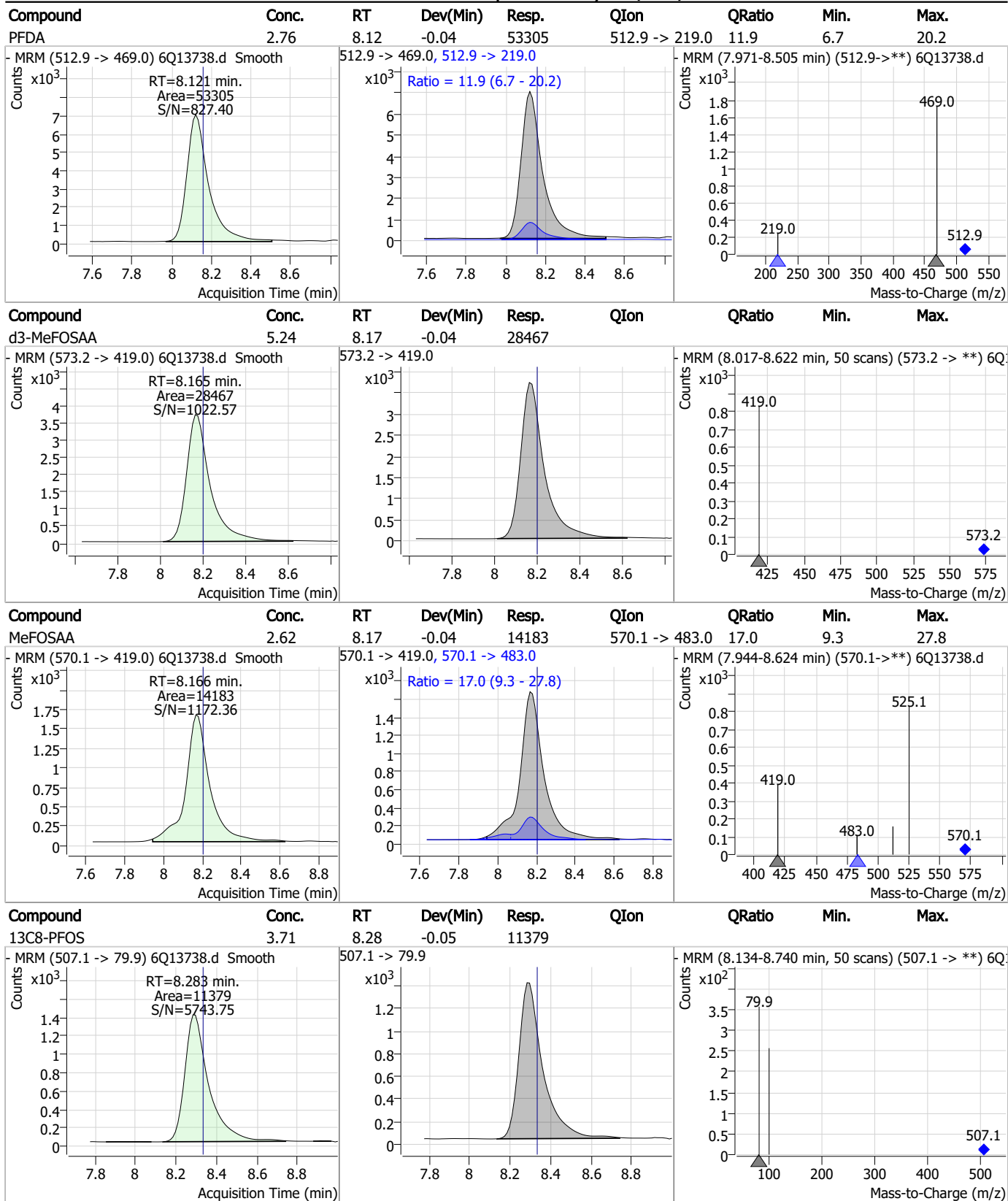
Perfluorinated Compounds by LC/MS/MS



7.6.12 7



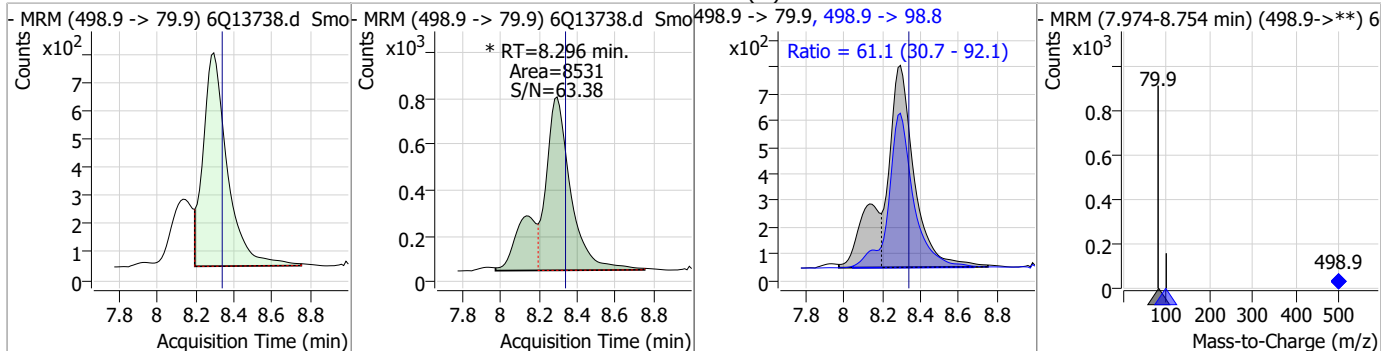
Perfluorinated Compounds by LC/MS/MS



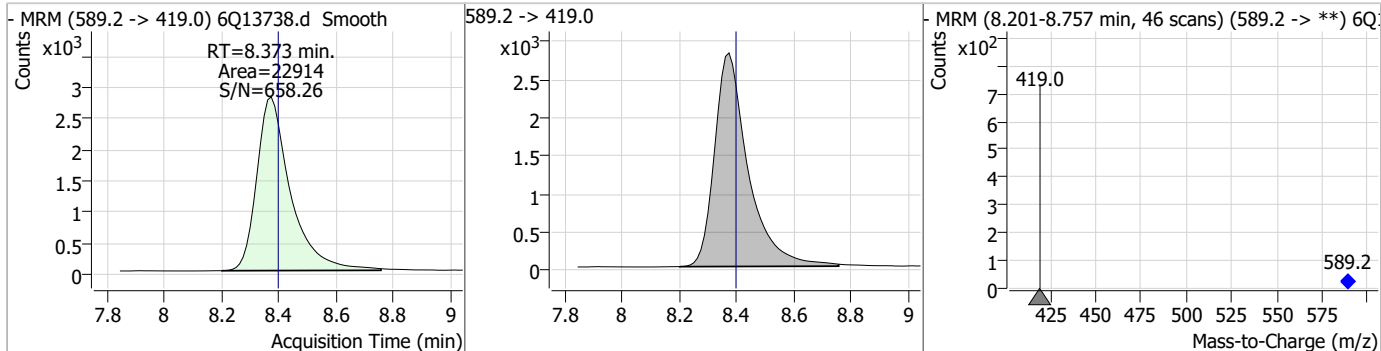
7.6.12
7

Perfluorinated Compounds by LC/MS/MS

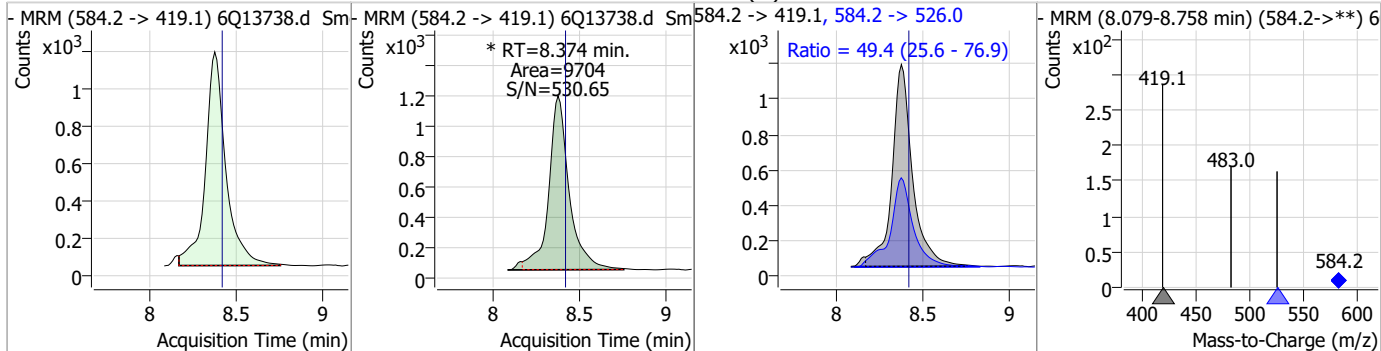
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.39	8.30	-0.04	8531 (m)	498.9 -> 98.8	61.1	30.7	92.1



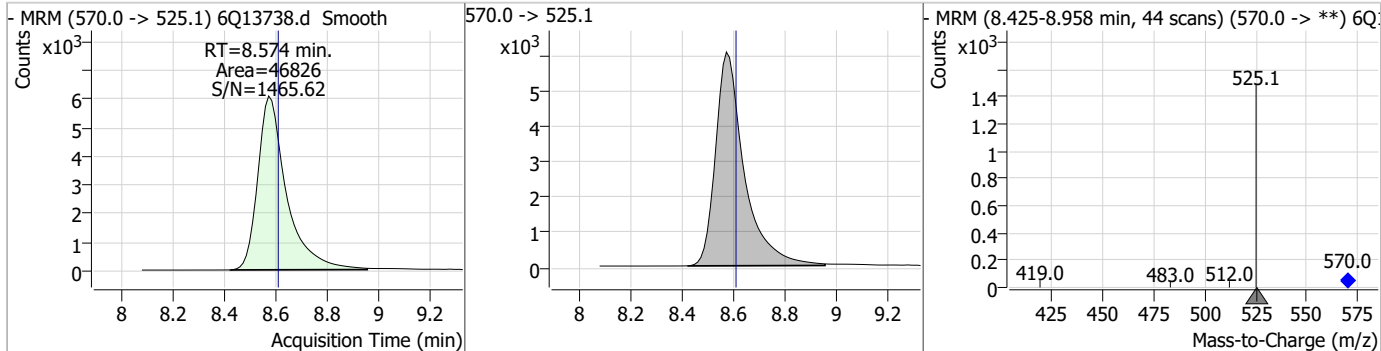
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.03	8.37	-0.02	22914				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.51	8.37	-0.04	9704 (m)	584.2 -> 526.0	49.4	25.6	76.9

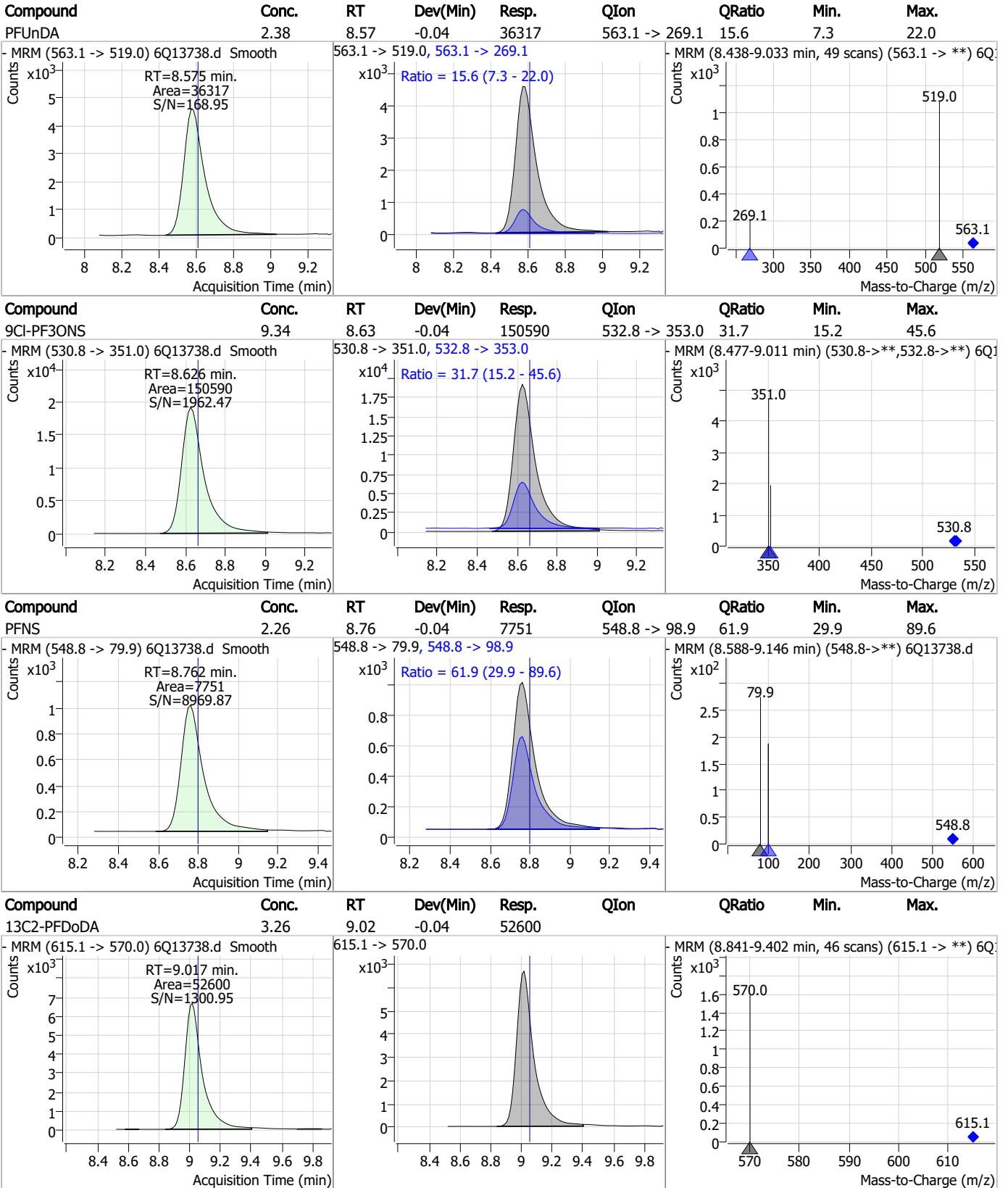


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	3.27	8.57	-0.04	46826				



7.6.12
7

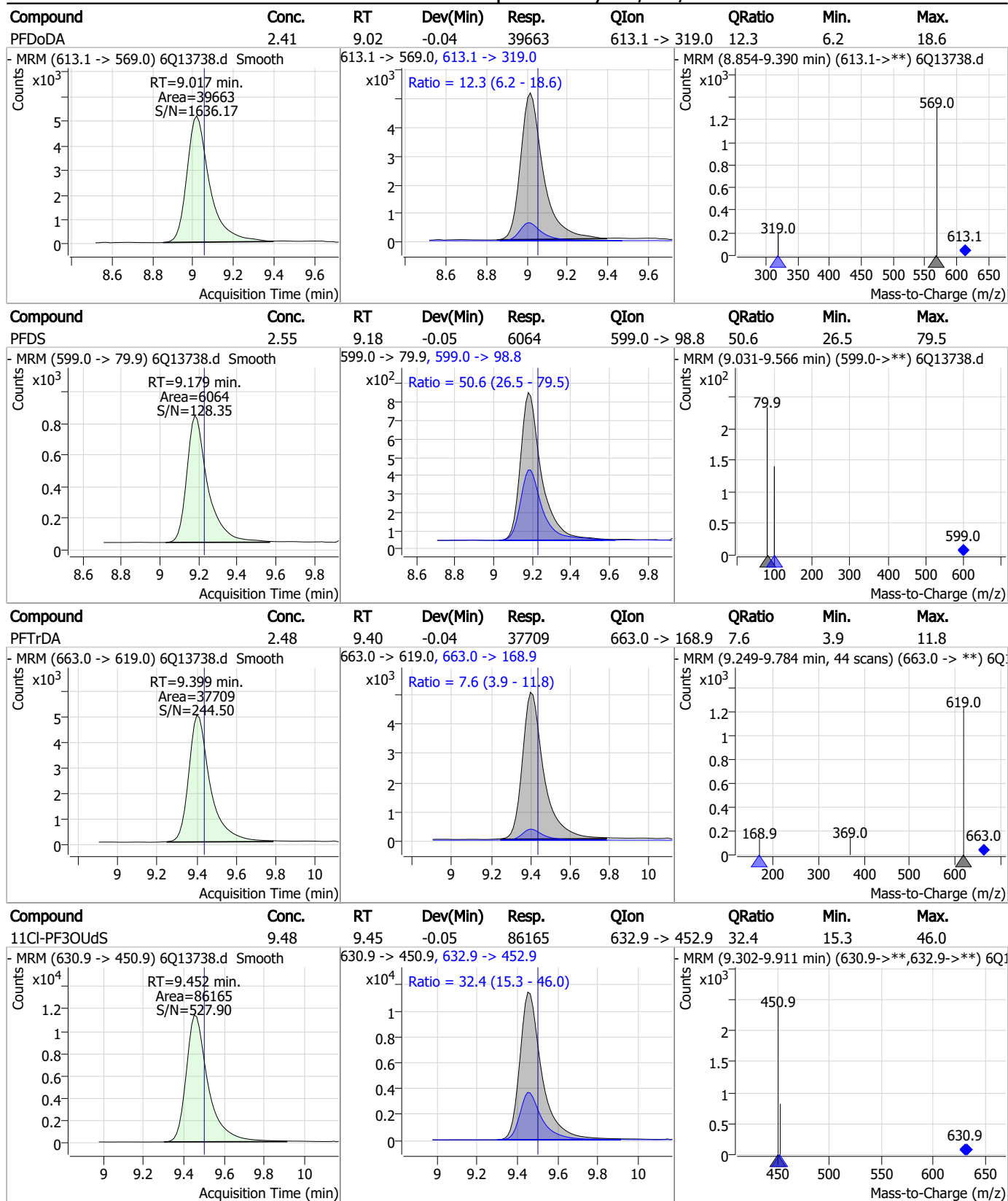
Perfluorinated Compounds by LC/MS/MS



7.6.12 7



Perfluorinated Compounds by LC/MS/MS

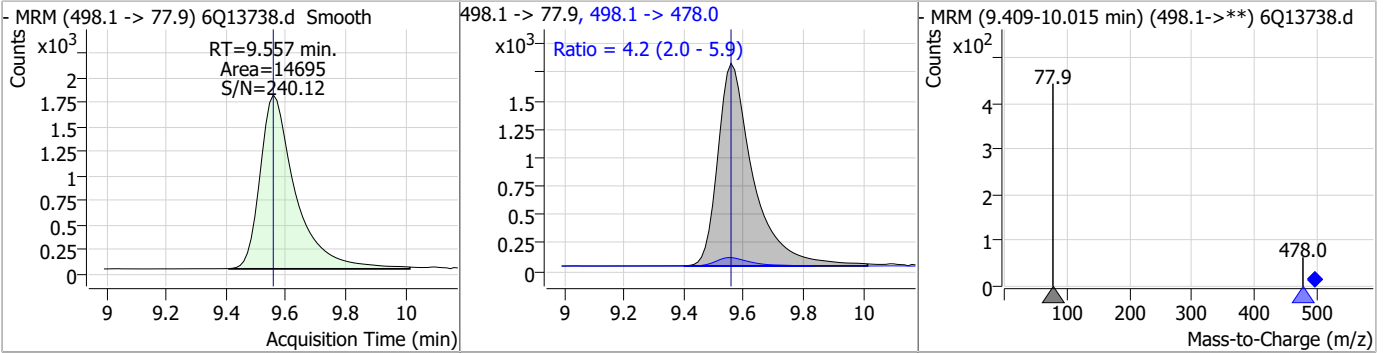


7.6.12 7

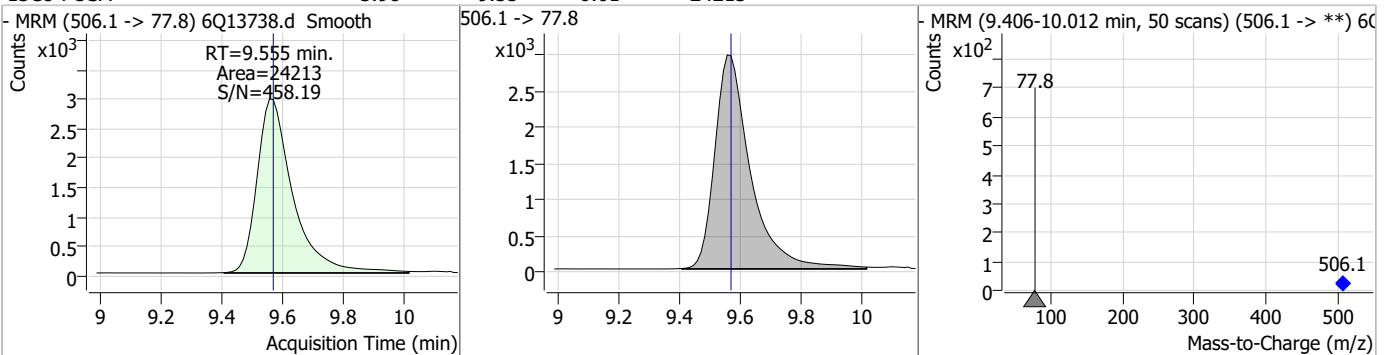


Perfluorinated Compounds by LC/MS/MS

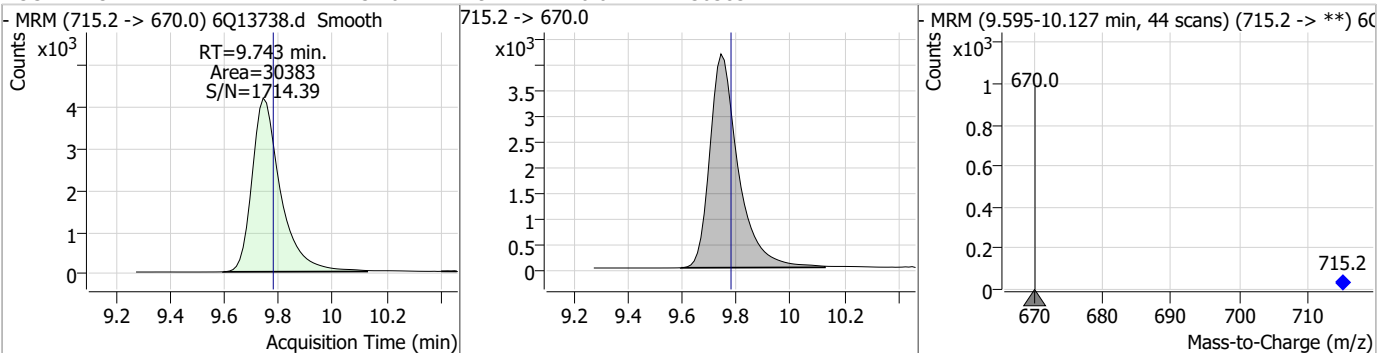
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.31	9.56	0.00	14695	498.1 -> 478.0	4.2	2.0	5.9



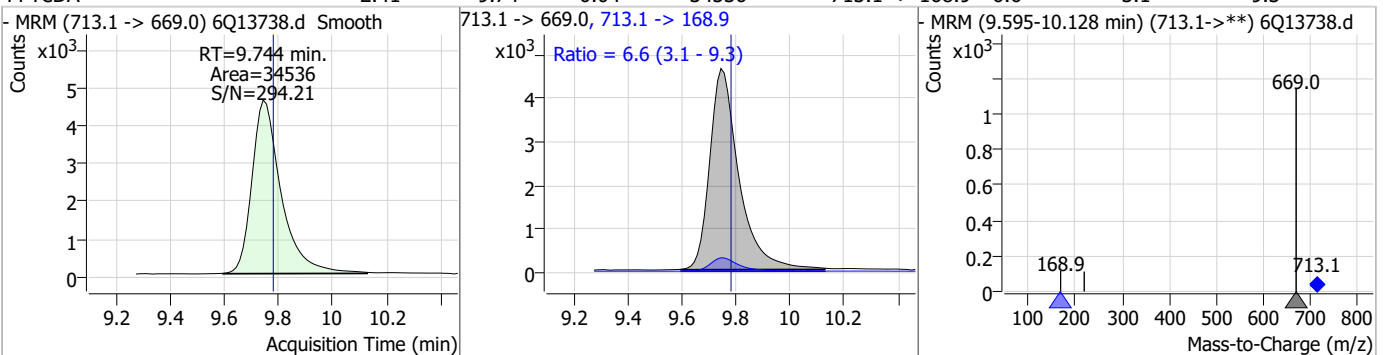
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	3.98	9.55	-0.01	24213				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	3.40	9.74	-0.04	30383				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.41	9.74	-0.04	34536	713.1 -> 168.9	6.6	3.1	9.3

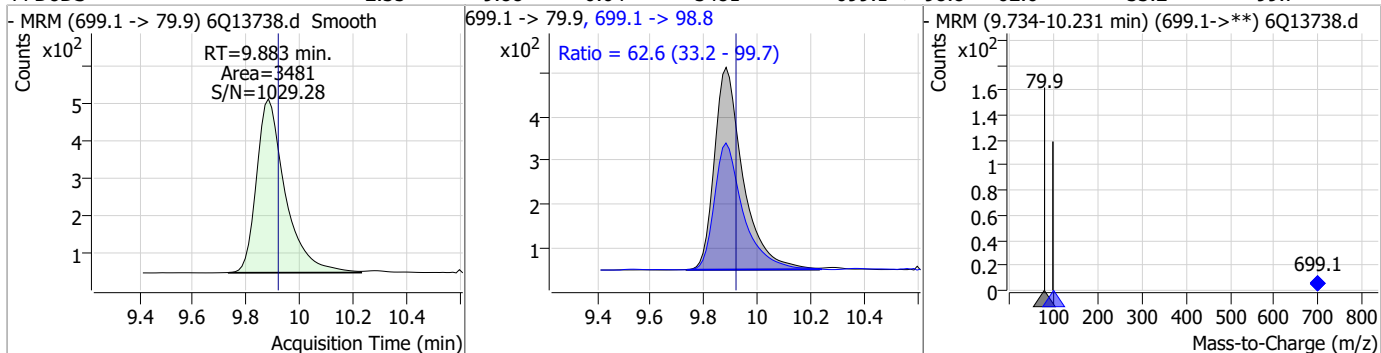


7.6.12 7

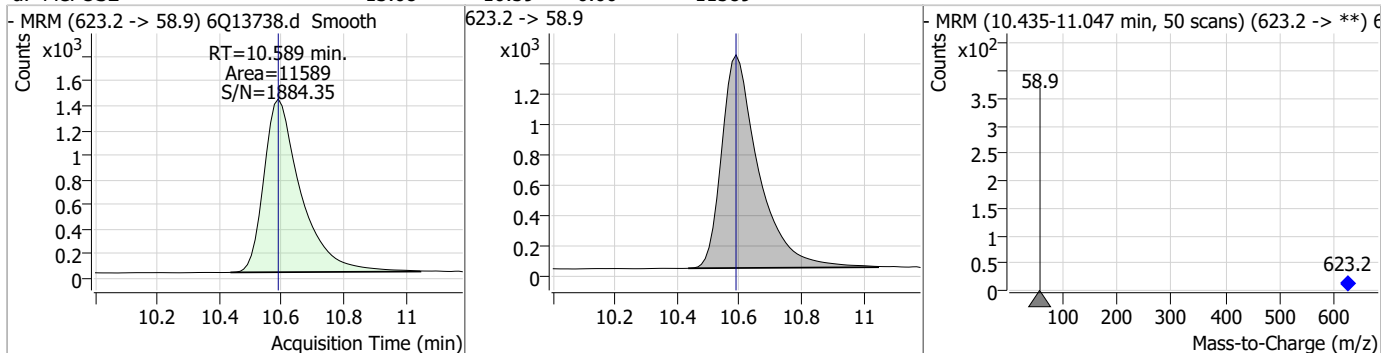


Perfluorinated Compounds by LC/MS/MS

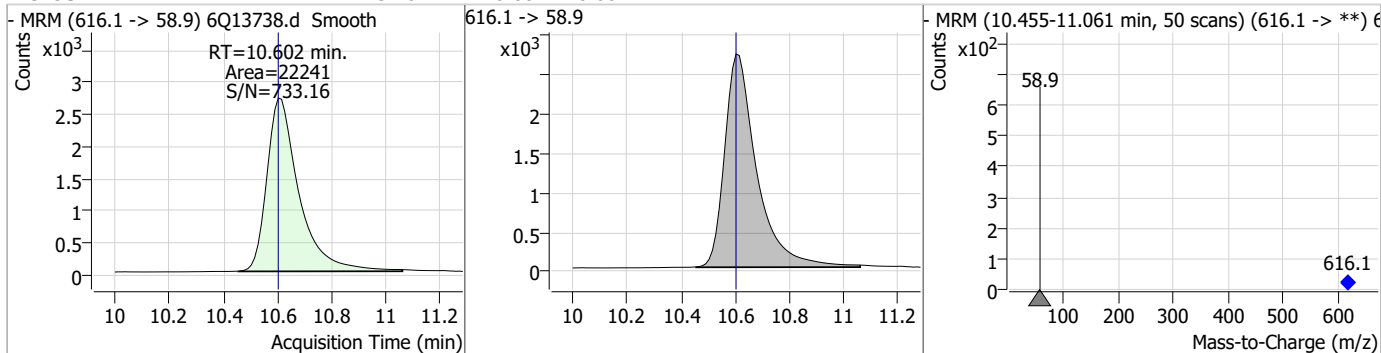
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.35	9.88	-0.04	3481	699.1 -> 98.8	62.6	33.2	99.7



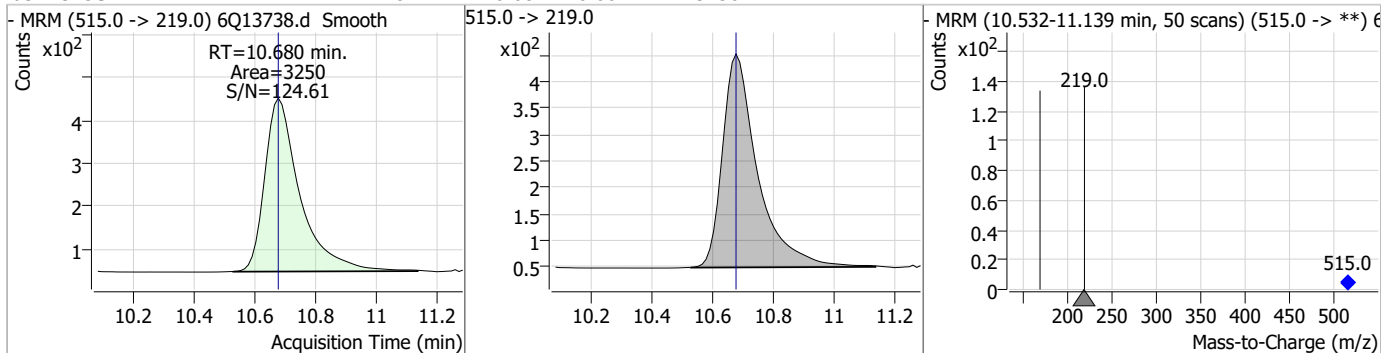
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	13.08	10.59	0.00	11589				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	23.10	10.60	0.00	22241				

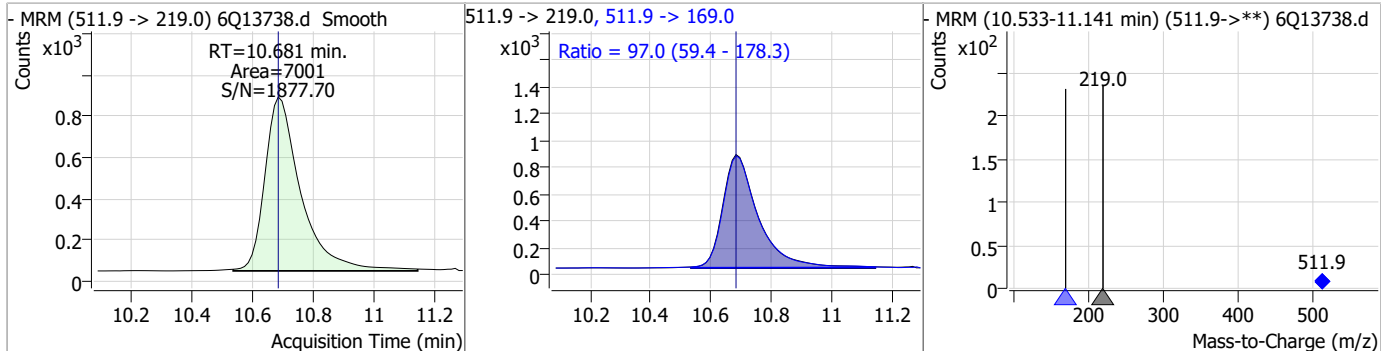


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	1.28	10.68	0.00	3250				

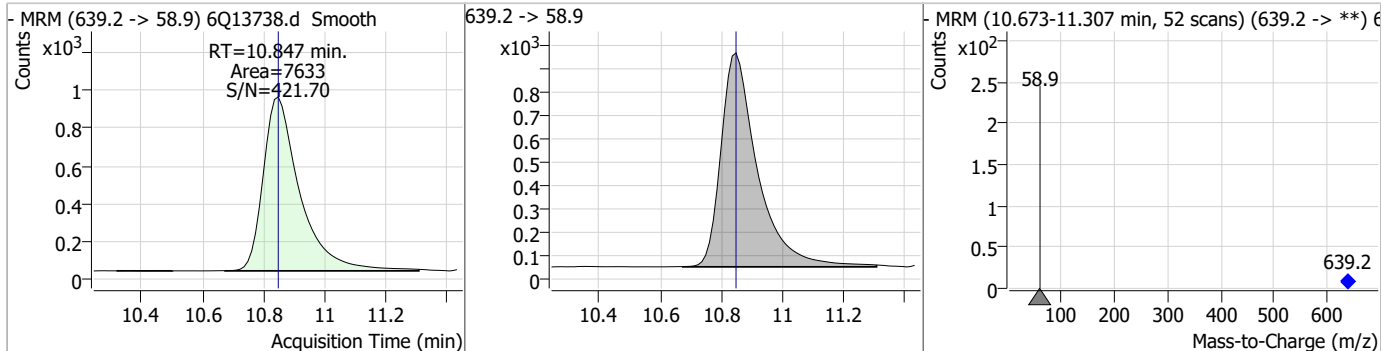


Perfluorinated Compounds by LC/MS/MS

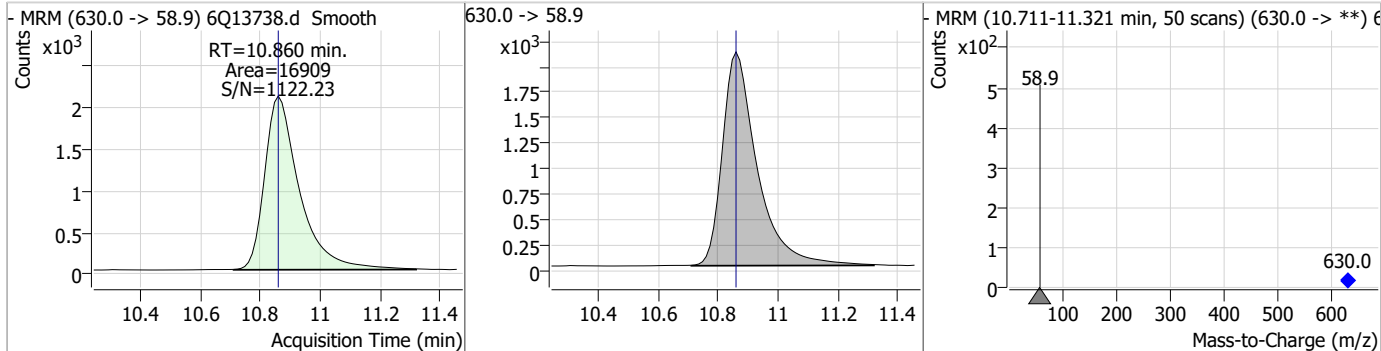
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	2.44	10.68	0.00	7001	511.9 -> 169.0	97.0	59.4	178.3



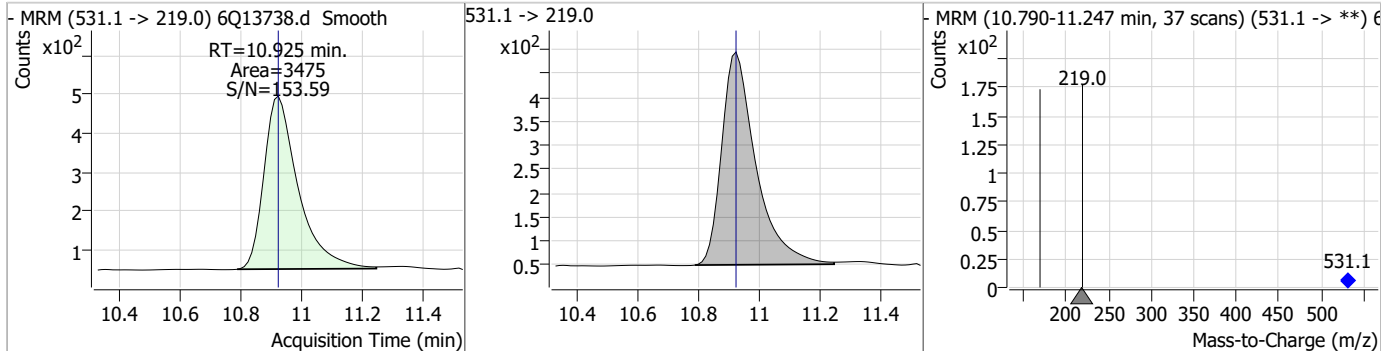
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	12.18	10.85	0.00	7633				



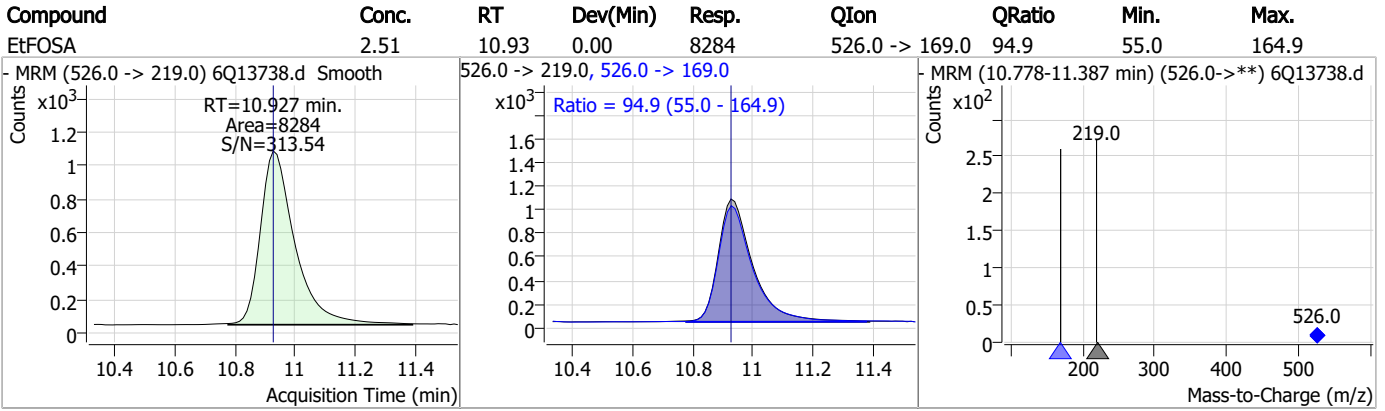
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	25.97	10.86	0.00	16909				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	1.27	10.92	0.00	3475				



Perfluorinated Compounds by LC/MS/MS



7.6.12

7

Manual Integration Approval Summary

Sample Number: S6Q208-CC208 Method: EPA DRAFT 1633
Lab FileID: 6Q13738.D Analyst approved: 02/18/23 11:42 Natasha Gumtie
Injection Time: 02/16/23 10:38 Supervisor approved: 02/18/23 12:01 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.30	Split peak
EtFOSAA	2991-50-6		8.37	Split peak

7.6.12.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13739.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/16/2023 10:52:04 AM
 Sample Name : cc208-1.0LL
 Vial : P1-D2
 DA Method File : 1633_021623_S6Q208NEW.quantmethod.xml
 Batch Name : s6q208.batch.bin
 Sample Information : OP95142,S6Q208,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.950	216.8 -> 171.9	60203	7.50 µg/L	-0.025
M5-PFPeA	4.361	268.3 -> 223.0	39131	5.00 µg/L	-0.025
M5-PFHxA	5.538	318.0 -> 273.0	53021	3.75 µg/L	-0.025
M4-PFHpA	6.477	367.1 -> 322.0	55696	3.75 µg/L	-0.025
M8-PFOA	7.109	421.1 -> 376.0	93721	3.75 µg/L	-0.037
M9-PFNA	7.640	472.1 -> 427.0	53463	3.13 µg/L	-0.037
M6-PFDA	8.120	519.1 -> 474.1	43584	3.13 µg/L	-0.037
M7-PFUnDA	8.574	570.0 -> 525.1	49297	3.13 µg/L	-0.037
M2-PFDoDA	9.017	615.1 -> 570.0	54757	3.13 µg/L	-0.037
M2-PFTeDA	9.743	715.2 -> 670.0	31647	3.13 µg/L	-0.037
M8-FOSA	9.555	506.1 -> 77.8	23536	3.75 µg/L	-0.012
M3-PFBS	5.481	302.1 -> 79.9	19903	3.75 µg/L	-0.037
M3-PFHxS	7.237	402.1 -> 79.9	13344	3.75 µg/L	-0.037
M8-PFOS	8.295	507.1 -> 79.9	11595	3.75 µg/L	-0.038
M2-4:2FTS	5.215	329.1 -> 80.9	2430	5.00 µg/L	-0.025
M2-6:2FTS	6.883	429.1 -> 80.9	2845	5.00 µg/L	-0.025
M2-8:2FTS	7.907	529.1 -> 80.9	2903	5.00 µg/L	-0.037
M3-MeFOSAA	8.165	573.2 -> 419.0	29639	5.00 µg/L	-0.037
M3-HFPO-DA	5.903	286.9 -> 168.9	7243	5.00 µg/L	-0.037
M5-EtFOSAA	8.373	589.2 -> 419.0	24360	5.00 µg/L	-0.025
M7-MeFOSE	10.589	623.2 -> 58.9	11632	12.50 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	8056	12.50 µg/L	0.000
M5-EtFOSA	10.913	531.1 -> 219.0	3388	1.25 µg/L	-0.012
M3-MeFOSA	10.680	515.0 -> 219.0	3263	1.25 µg/L	0.000
13C4-PFOS	8.296	502.8 -> 79.9	9498	2.50 µg/L	-0.038
13C3-PFBA	2.954	216.0 -> 172.0	33966	5.00 µg/L	-0.025
18O2-PFHxS	7.236	403.0 -> 83.9	6235	2.50 µg/L	-0.037
13C4-PFOA	7.110	417.1 -> 372.0	74793	2.50 µg/L	-0.037
13C2-PFDA	8.120	515.1 -> 470.1	21877	1.25 µg/L	-0.037
13C5-PFNA	7.640	468.0 -> 423.0	23141	1.25 µg/L	-0.037
13C2-PFHxA	5.539	315.1 -> 270.0	34645	2.50 µg/L	-0.025
System Monitoring Compounds					
13C2-4:2FTS	5.215	329.1 -> 80.9	2430	5.65 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.0%		
13C2-6:2FTS	6.883	429.1 -> 80.9	2845	5.03 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C2-8:2FTS	7.907	529.1 -> 80.9	2903	5.29 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.8%		
13C2-PFDoDA	9.017	615.1 -> 570.0	54757	3.17 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C2-PFTeDA	9.743	715.2 -> 670.0	31647	3.32 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 106.1%		
13C3-PFBS	5.481	302.1 -> 79.9	19903	3.87 µg/L	-0.037
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C3-PFHxS	7.237	402.1 -> 79.9	13344	3.84 µg/L	-0.037

7.6.13
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C4-PFBA	2.950	216.8 -> 171.9	60203	7.64 µg/L	-0.025
Spiked Amount: 7.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C4-PFHpA	6.477	367.1 -> 322.0	55696	3.74 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C5-PFHxA	5.538	318.0 -> 273.0	53021	3.61 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C5-PFPeA	4.361	268.3 -> 223.0	39131	4.80 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C6-PFDA	8.120	519.1 -> 474.1	43584	3.34 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 106.9%	
13C7-PFUnDA	8.574	570.0 -> 525.1	49297	3.22 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C8-FOSA	9.555	506.1 -> 77.8	23536	3.70 µg/L	-0.012
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C8-PFOA	7.109	421.1 -> 376.0	93721	3.67 µg/L	-0.037
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C8-PFOS	8.295	507.1 -> 79.9	11595	3.62 µg/L	-0.038
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 96.6%	
13C9-PFNA	7.640	472.1 -> 427.0	53463	3.05 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 97.5%	
d3-MeFOSAA	8.165	573.2 -> 419.0	29639	5.22 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C3-HFPO-DA	5.903	286.9 -> 168.9	7243	4.63 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.6%	
d3-MeFOSA	10.680	515.0 -> 219.0	3263	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.3%	
d5-EtFOSAA	8.373	589.2 -> 419.0	24360	5.12 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.3%	
d7-MeFOSE	10.589	623.2 -> 58.9	11632	12.56 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
d9-EtFOSE	10.847	639.2 -> 58.9	8056	12.30 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
d5-EtFOSA	10.913	531.1 -> 219.0	3388	1.18 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.8%	
Target Compounds					QValue
4:2FTS	5.203	327.1 -> 307.0	3421	0.60 µg/L	98
		327.1 -> 80.9	805		
6:2FTS	6.883	427.1 -> 407.0	3444	0.79 µg/L	93
		427.1 -> 80.9	559		
8:2FTS	7.908	527.1 -> 507.0	1826	0.78 µg/L	96
		527.1 -> 80.8	473		
EtFOSAA	8.374	584.2 -> 419.1	863	0.21 µg/L	81
		584.2 -> 526.0	325		
FOSA	9.557	498.1 -> 77.9	1253	0.20 µg/L	99
		498.1 -> 478.0	46		
MeFOSAA	8.166	570.1 -> 419.0	830	0.15 µg/L	85
		570.1 -> 483.0	211	m	
PFBA	2.957	212.8 -> 168.9	1446	0.74 µg/L	100
PFBS	5.481	298.7 -> 79.9	786	0.14 µg/L	99
		298.7 -> 98.8	380		
PFDA	8.121	512.9 -> 469.0	3720	0.18 µg/L	95
		512.9 -> 219.0	424		
PFDODA	9.005	613.1 -> 569.0	3353	0.20 µg/L	96
		613.1 -> 319.0	361		
PFDS	9.179	599.0 -> 79.9	433	0.18 µg/L	92

7.6.13
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.477	599.0 -> 98.8	255	0.18	µg/L	95
		363.1 -> 319.0	4036			
PFHpS	7.804	363.1 -> 169.0	469	0.20	µg/L	97
		449.0 -> 79.9	664			
PFHxA	5.541	449.0 -> 98.9	352	0.19	µg/L	95
		313.0 -> 269.0	2710			
PFHxS	7.238	313.0 -> 118.9	54	0.18	µg/L	m
		398.7 -> 79.9	723			
PFNA	7.640	398.7 -> 98.9	417	0.16	µg/L	93
		463.0 -> 419.0	2302			
PFNS	8.749	463.0 -> 219.0	550	0.19	µg/L	87
		548.8 -> 79.9	663			
PFOA	7.111	548.8 -> 98.9	332	0.18	µg/L	95
		413.0 -> 369.0	5359			
PFOS	8.284	413.0 -> 169.0	588	0.20	µg/L	m
		498.9 -> 79.9	732			
PFPeA	4.363	498.9 -> 98.8	388	0.36	µg/L	100
		263.0 -> 219.0	3154			
PFPeS	6.543	349.1 -> 79.9	761	0.16	µg/L	98
		349.1 -> 98.9	426			
PFTeDA	9.744	713.1 -> 669.0	2530	0.17	µg/L	96
		713.1 -> 168.9	195			
PFTrDA	9.399	663.0 -> 619.0	2701	0.17	µg/L	100
		663.0 -> 168.9	213			
PFUnDA	8.575	563.1 -> 519.0	3102	0.19	µg/L	94
		563.1 -> 269.1	381			
11Cl-PF3OUdS	9.452	630.9 -> 450.9	6566	0.70	µg/L	92
		632.9 -> 452.9	1724			
9Cl-PF3ONS	8.626	530.8 -> 351.0	11046	0.66	µg/L	99
		532.8 -> 353.0	3390			
ADONA	6.728	376.9 -> 250.9	20636	0.65	µg/L	96
		376.9 -> 84.8	4702			
HFPO-DA	5.903	284.9 -> 168.9	938	0.66	µg/L	93
		284.9 -> 184.9	128			
3:3FTCA	3.829	241.0 -> 177.0	374	0.85	µg/L	99
		241.0 -> 117.0	46			
5:3FTCA	6.181	341.0 -> 237.1	12809	4.39	µg/L	100
		341.0 -> 217.0	11384			
7:3FTCA	7.579	441.0 -> 316.9	6709	4.37	µg/L	95
		441.0 -> 336.9	12943			
EtFOSA	10.927	526.0 -> 219.0	668	0.21	µg/L	87
		526.0 -> 169.0	642			
EtFOSE	10.860	630.0 -> 58.9	1317	1.92	µg/L	100
		511.9 -> 219.0	566			
MeFOSA	10.681	511.9 -> 169.0	547	0.20	µg/L	80
		616.1 -> 58.9	1741			
MeFOSE	10.602	699.1 -> 79.9	280	1.80	µg/L	100
		699.1 -> 98.8	148			
PFDoDS	9.883	295.0 -> 201.0	303	0.35	µg/L	96
		295.0 -> 84.9	136			
NFDHA	5.432	279.0 -> 85.1	964	0.37	µg/L	100
		229.0 -> 84.9	826			
PFMBA	3.516	314.8 -> 134.9	5816	0.35	µg/L	100
		314.8 -> 82.9	160			
PFEESA	6.021			0.30	µg/L	99

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



7.6.13
7

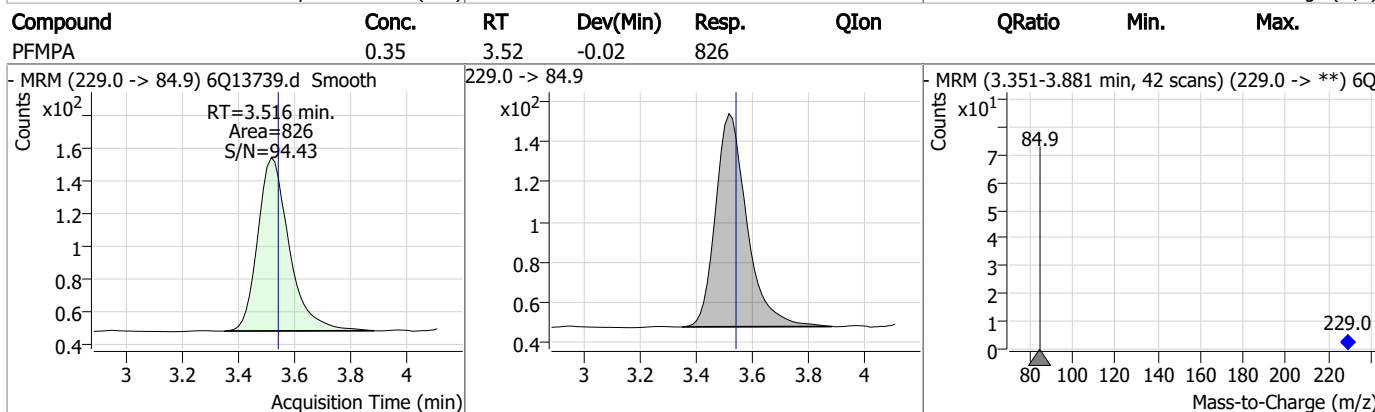
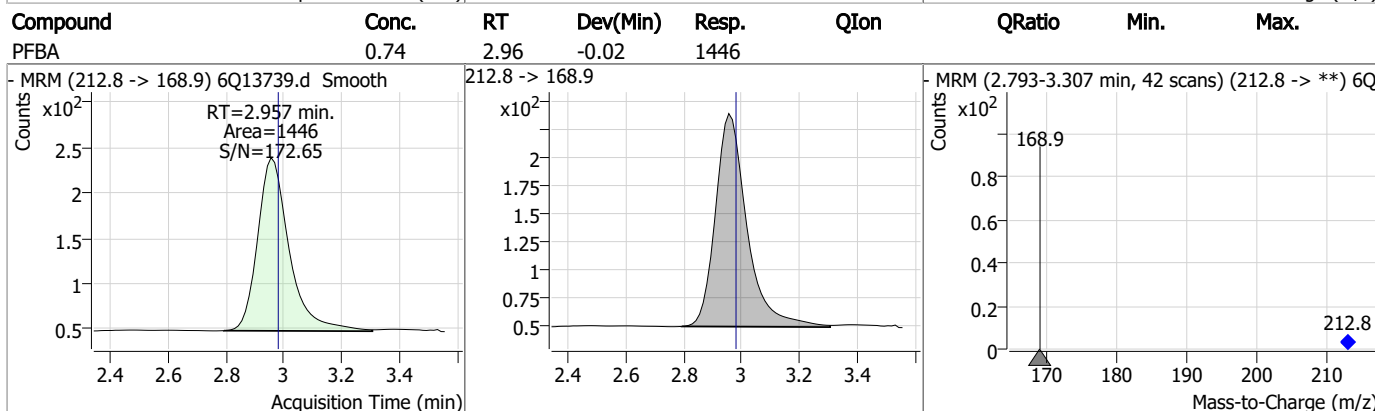
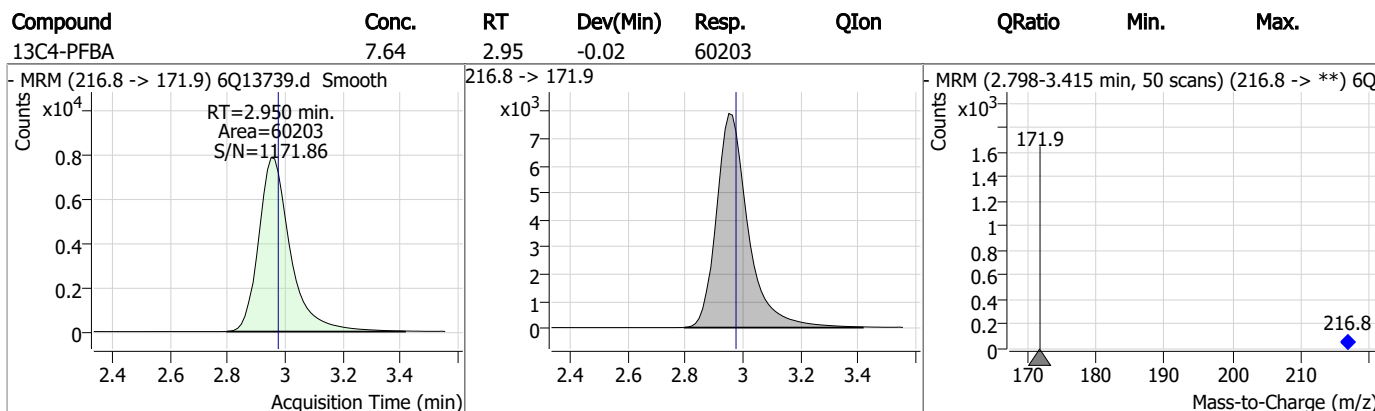
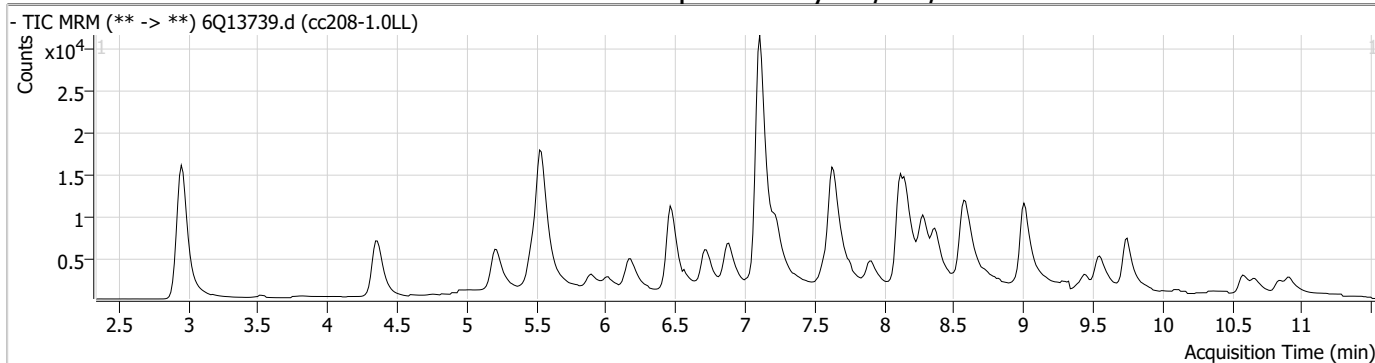
Perfluorinated Compounds by LC/MS/MS

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

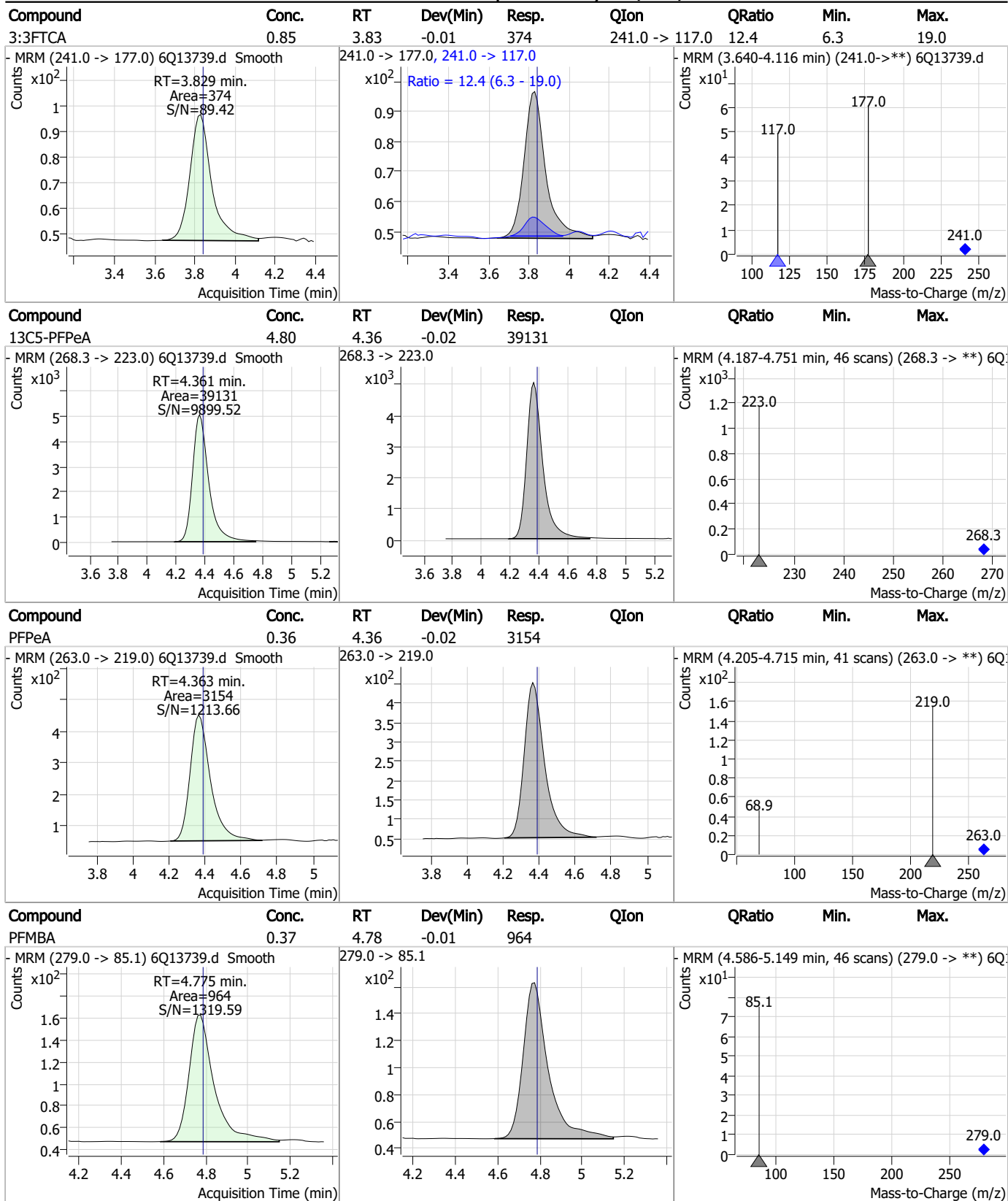
7.6.13

7

Perfluorinated Compounds by LC/MS/MS



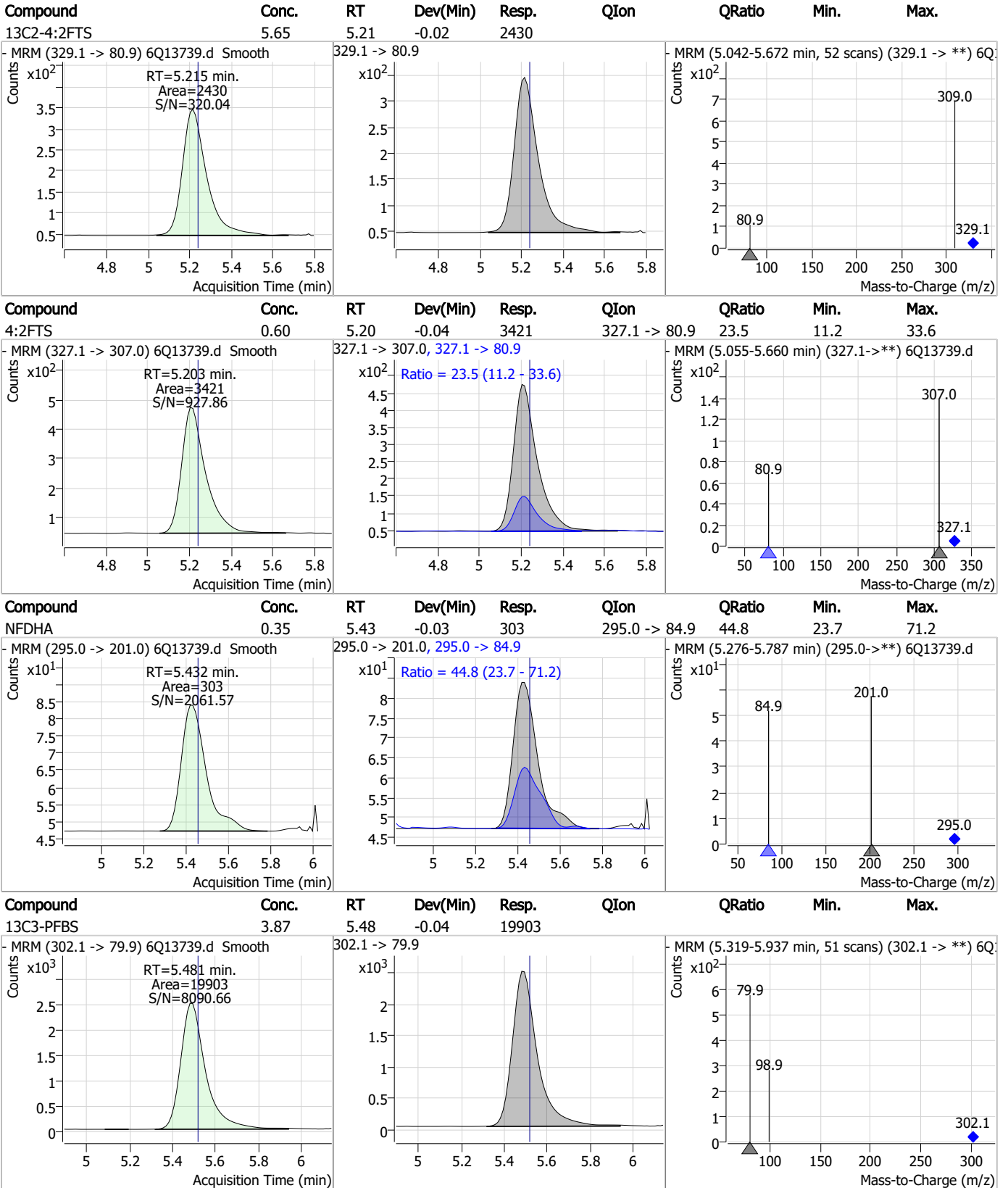
Perfluorinated Compounds by LC/MS/MS



7.6.13

7

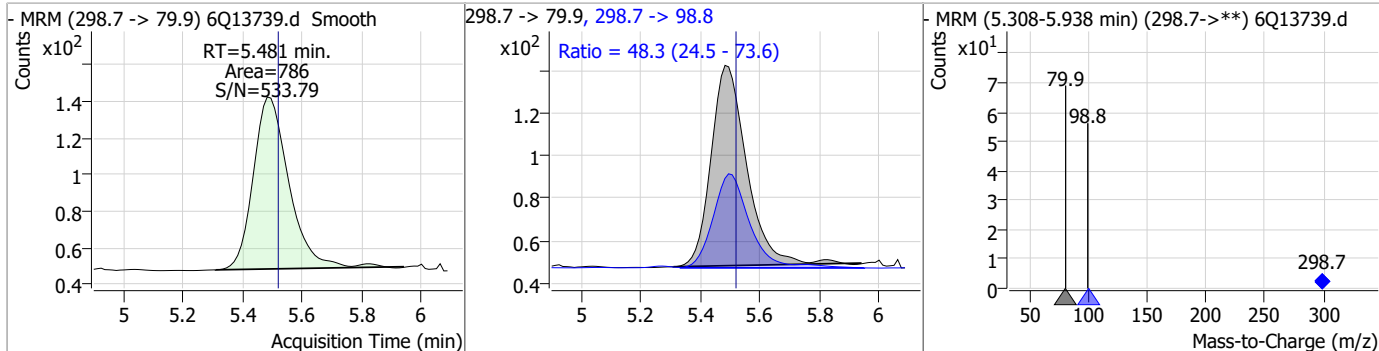
Perfluorinated Compounds by LC/MS/MS



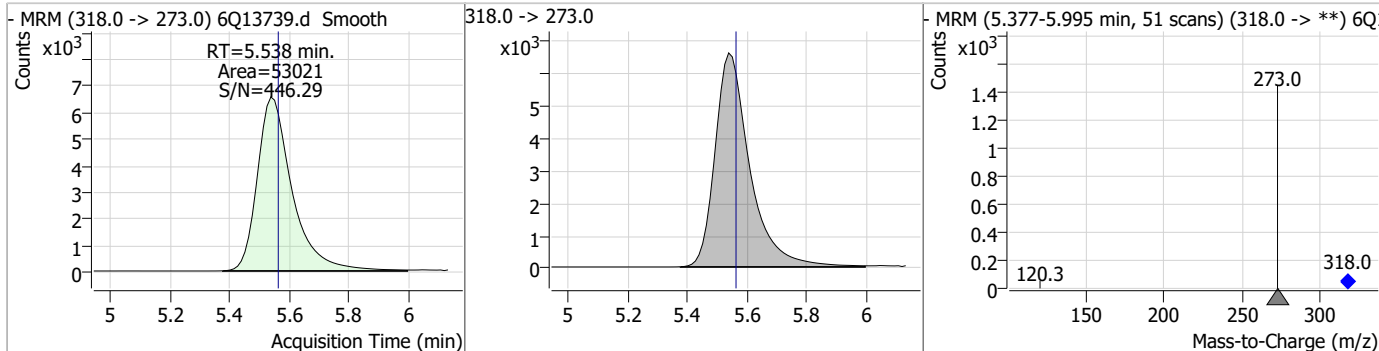
7.6.13
7

Perfluorinated Compounds by LC/MS/MS

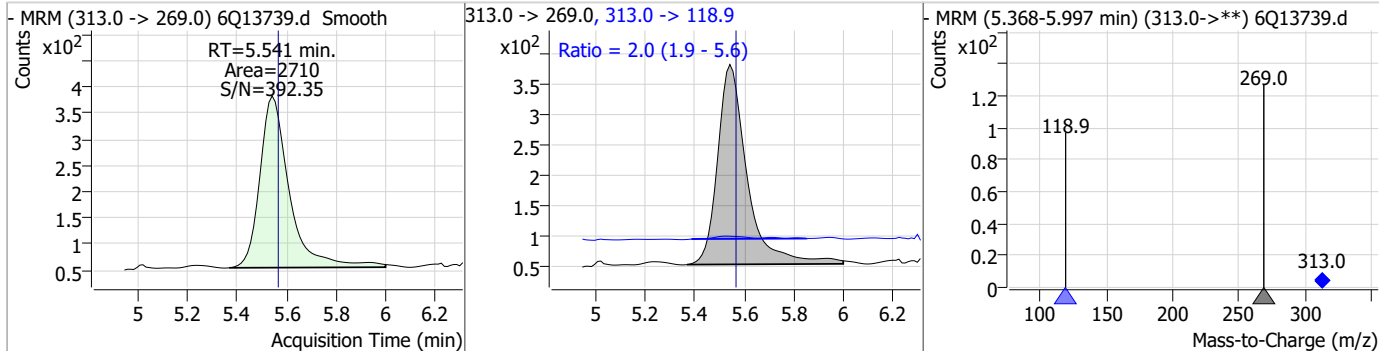
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.14	5.48	-0.04	786	298.7 -> 98.8	48.3	24.5	73.6



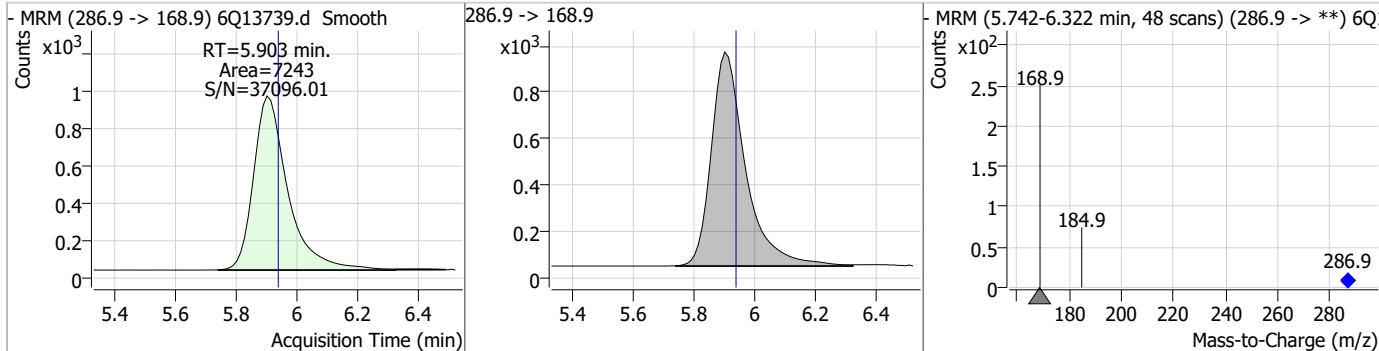
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	3.61	5.54	-0.02	53021				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.19	5.54	-0.02	2710	313.0 -> 118.9	2.0	1.9	5.6

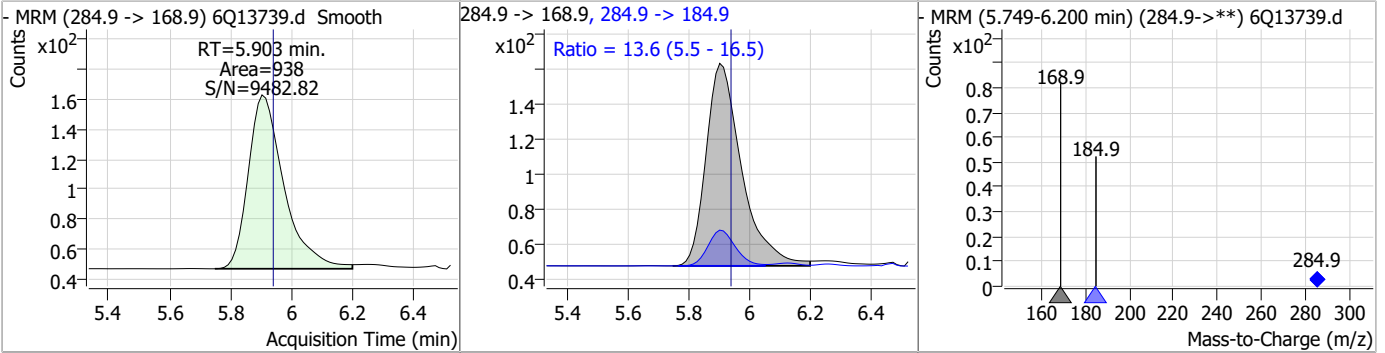


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	4.63	5.90	-0.04	7243				

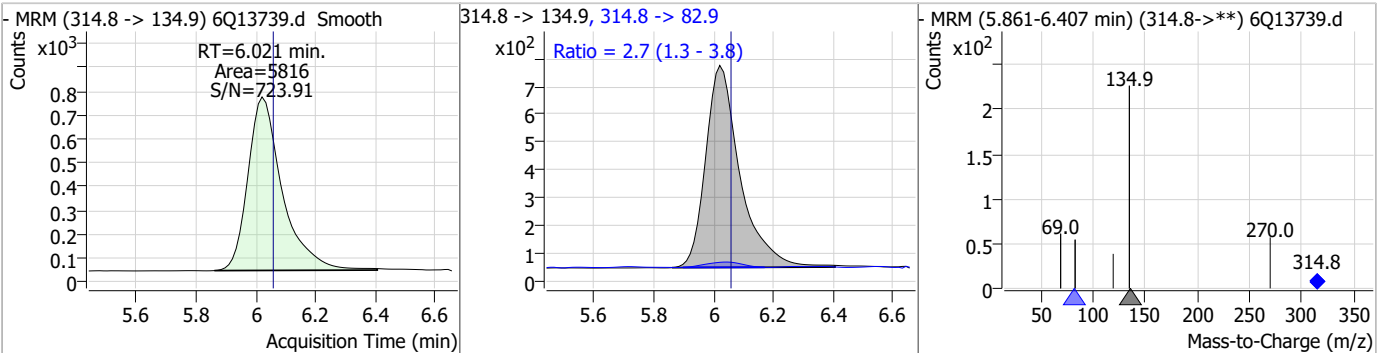


Perfluorinated Compounds by LC/MS/MS

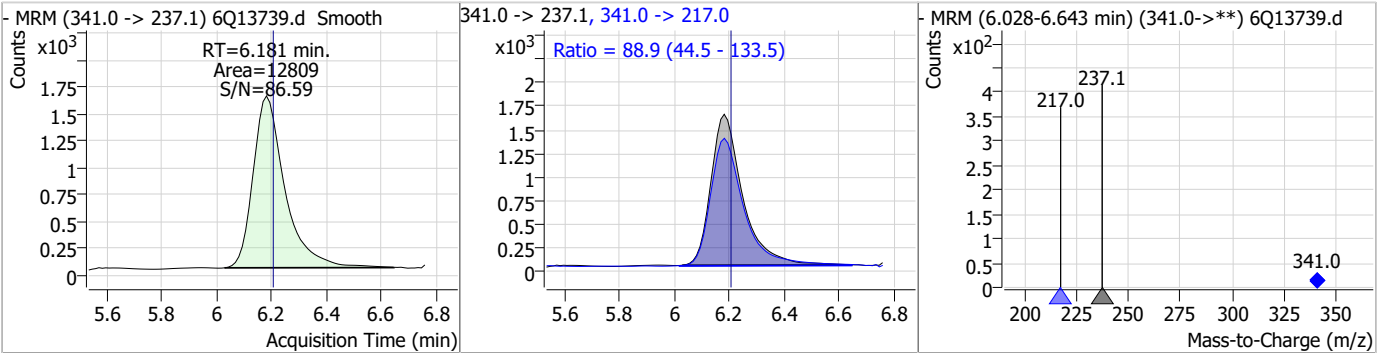
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.66	5.90	-0.04	938	284.9 -> 184.9	13.6	5.5	16.5



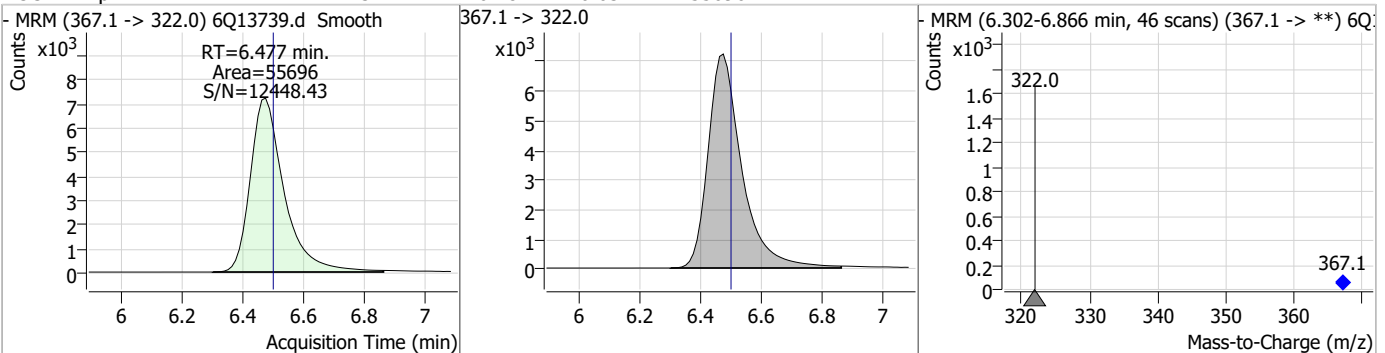
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.30	6.02	-0.04	5816	314.8 -> 82.9	2.7	1.3	3.8



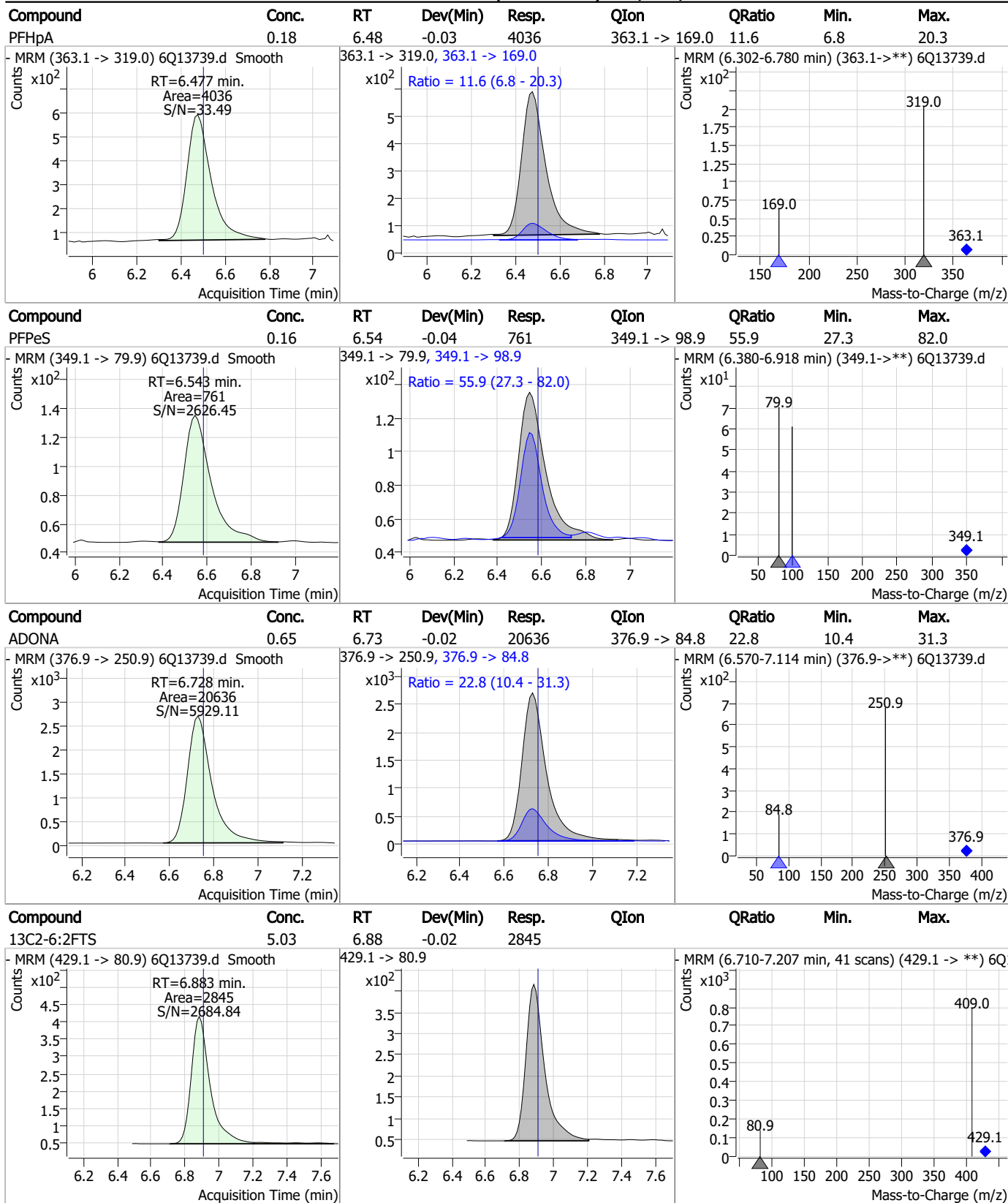
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	4.39	6.18	-0.02	12809	341.0 -> 217.0	88.9	44.5	133.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	3.74	6.48	-0.03	55696	367.1 -> 322.0			

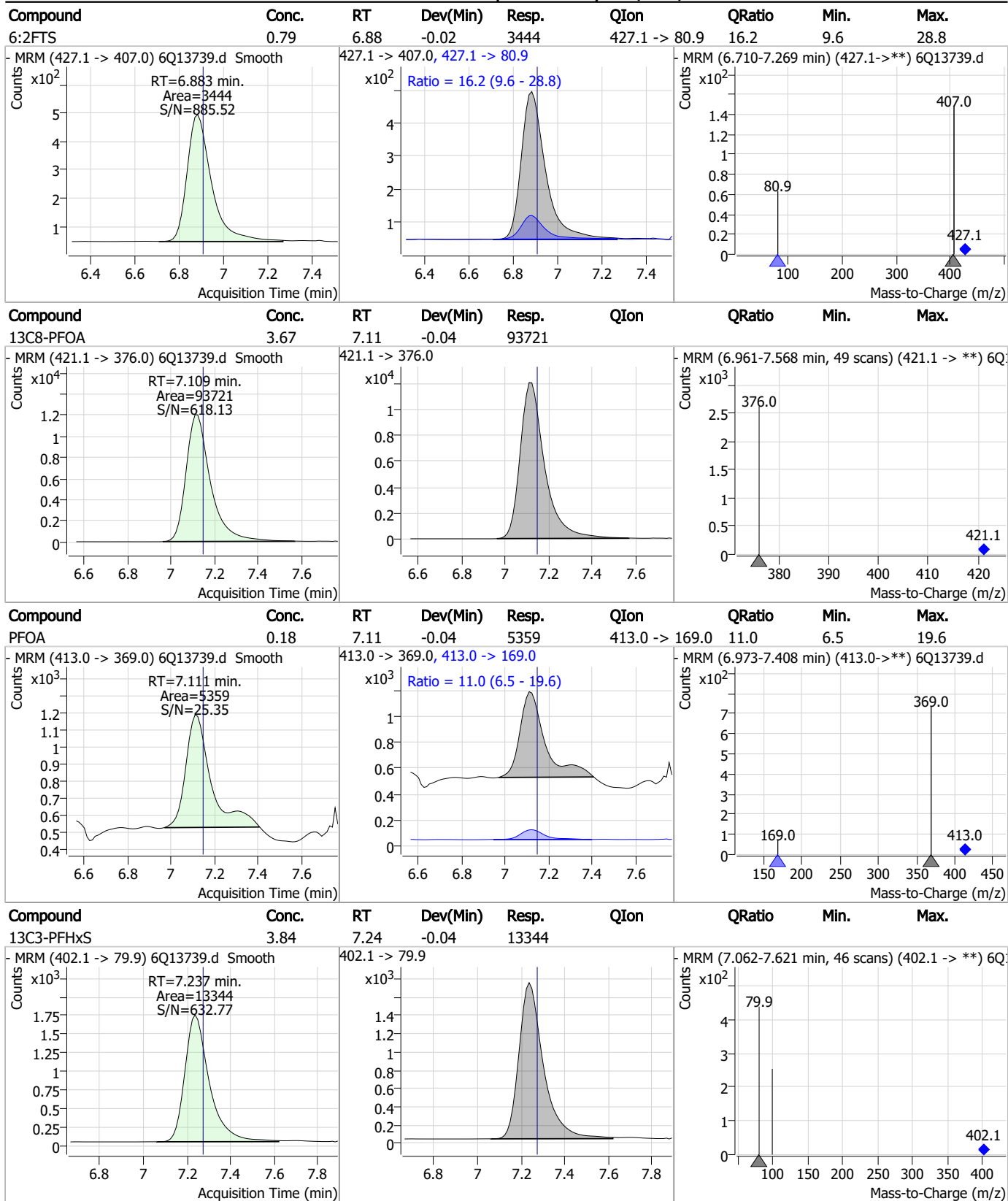


Perfluorinated Compounds by LC/MS/MS



7.6.13
7

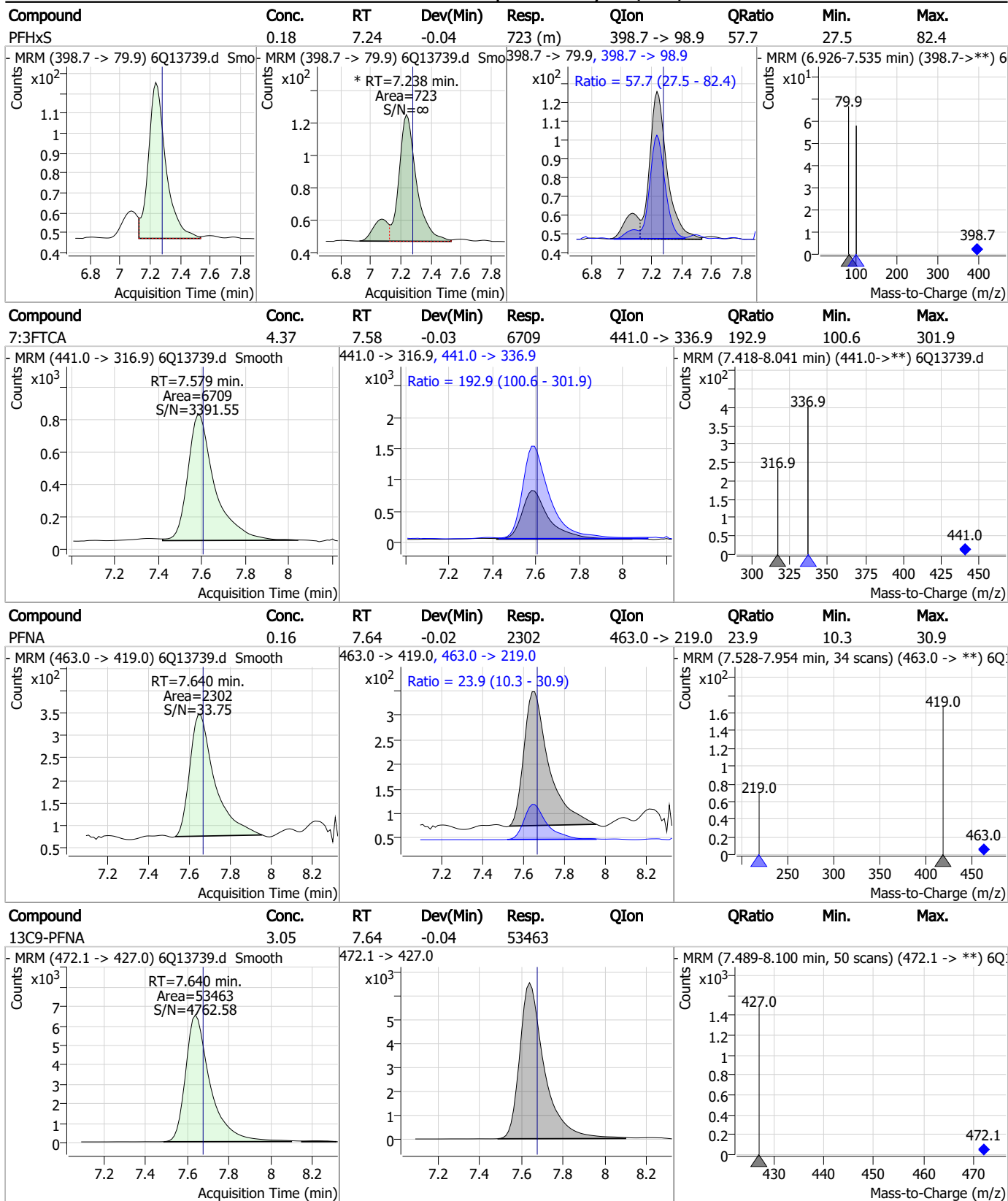
Perfluorinated Compounds by LC/MS/MS



7.6.13

7

Perfluorinated Compounds by LC/MS/MS

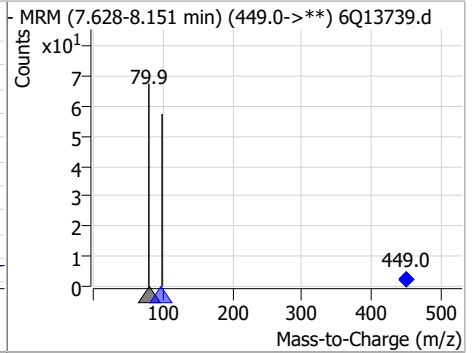
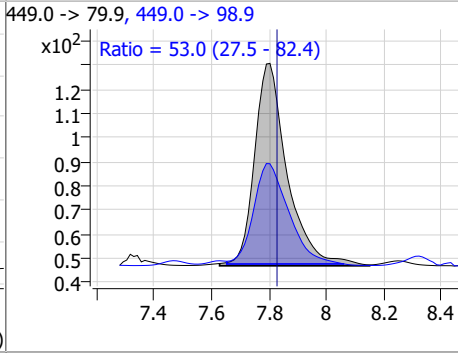
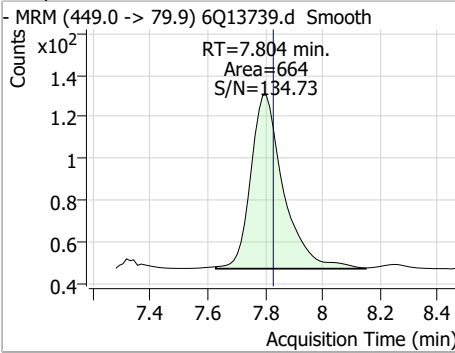


7.6.13

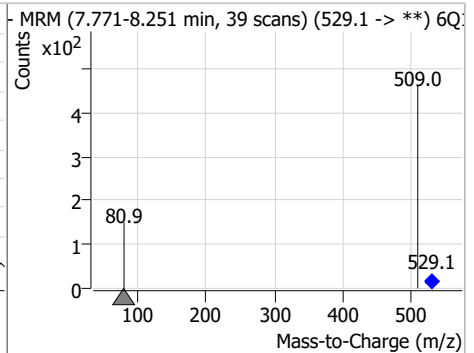
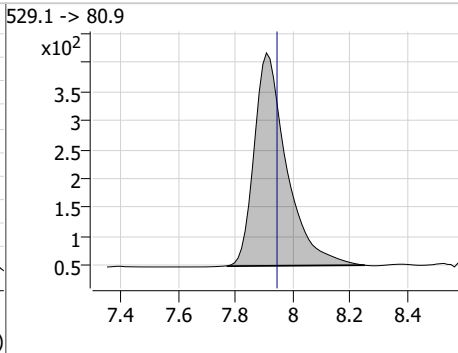
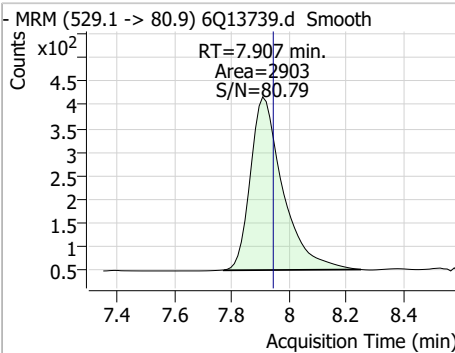
7

Perfluorinated Compounds by LC/MS/MS

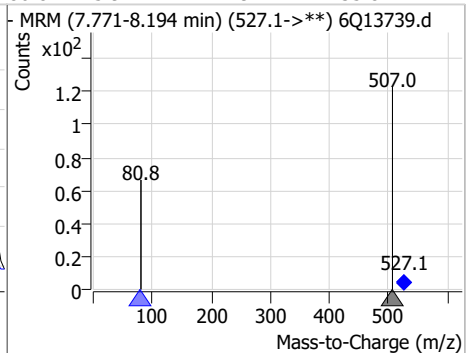
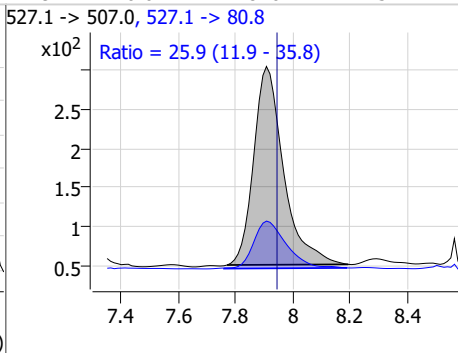
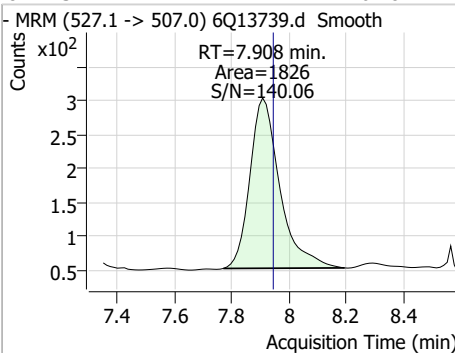
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	0.20	7.80	-0.02	664	449.0 -> 98.9	53.0	27.5	82.4



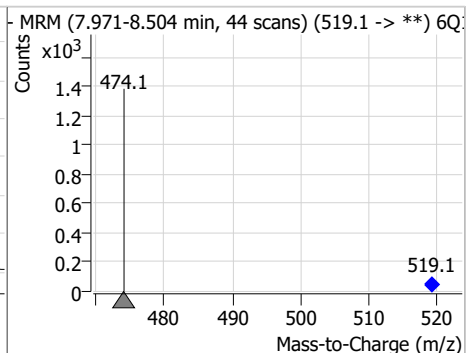
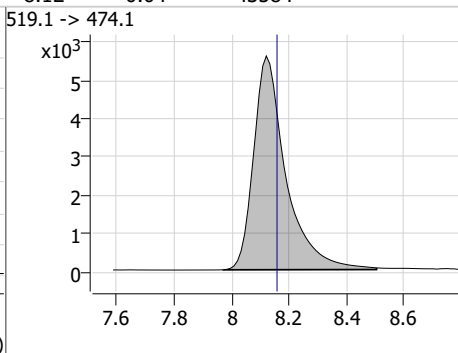
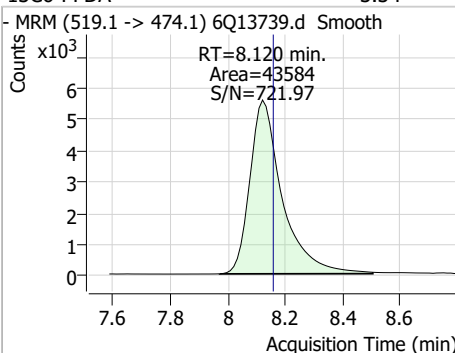
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.29	7.91	-0.04	2903	529.1 -> 80.9			



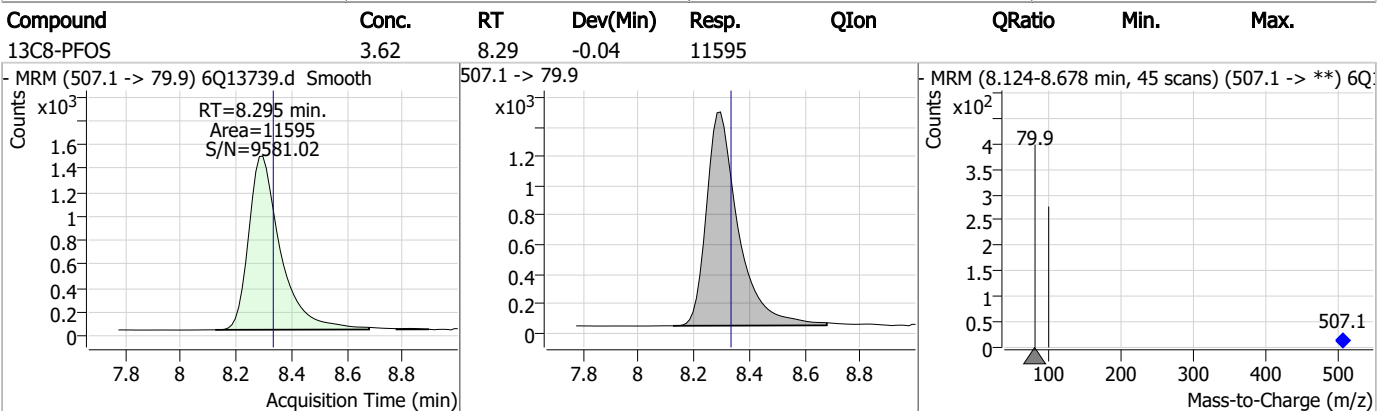
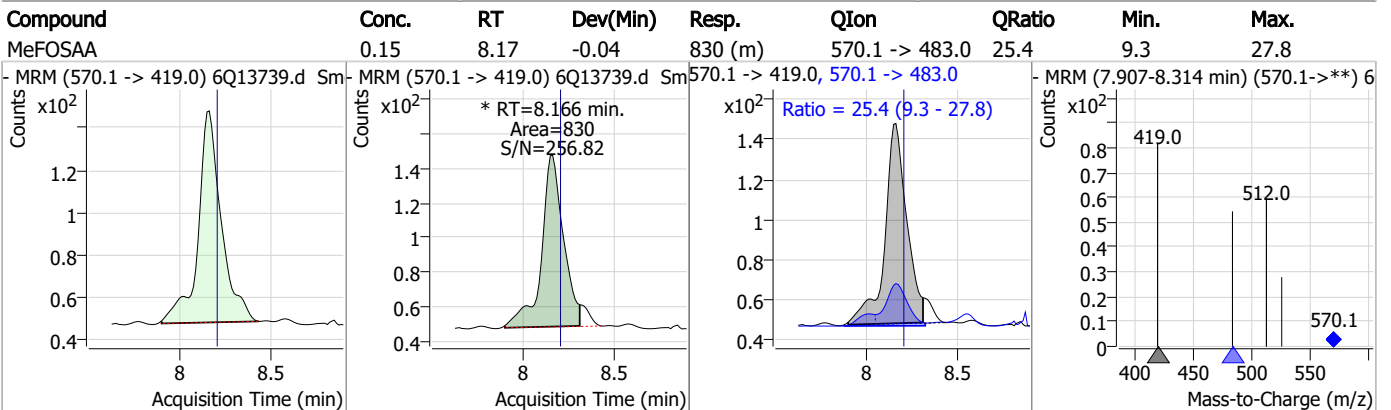
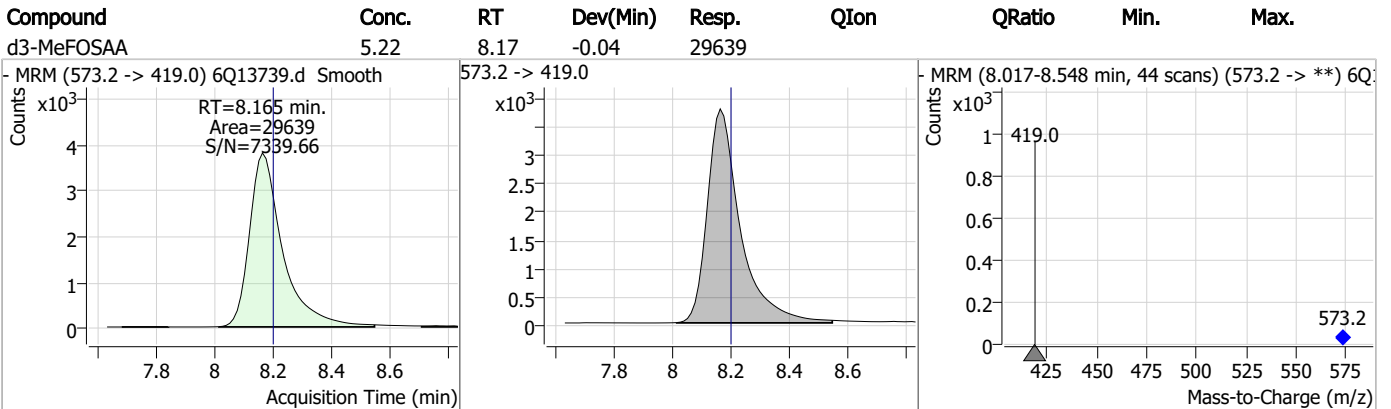
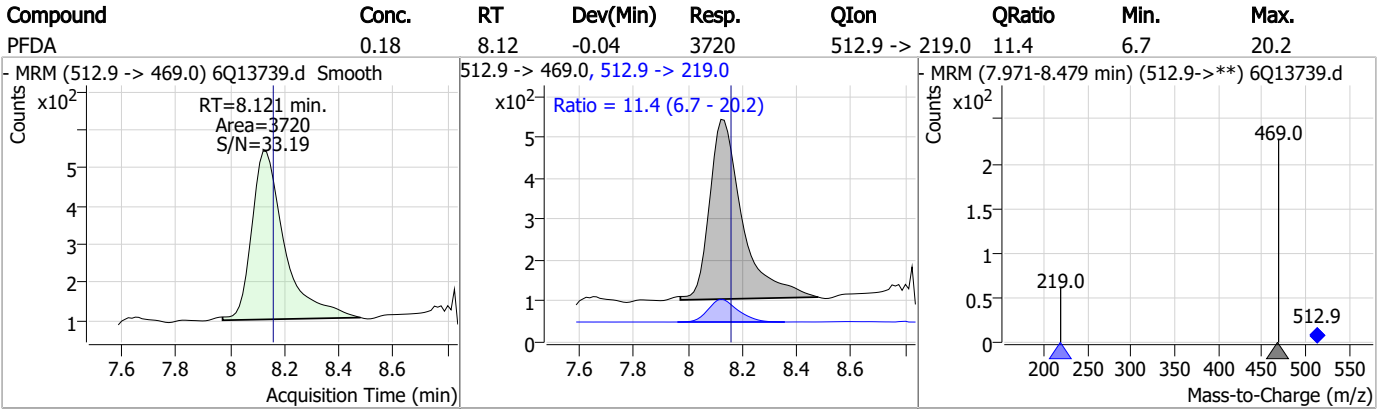
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.78	7.91	-0.04	1826	527.1 -> 80.8	25.9	11.9	35.8



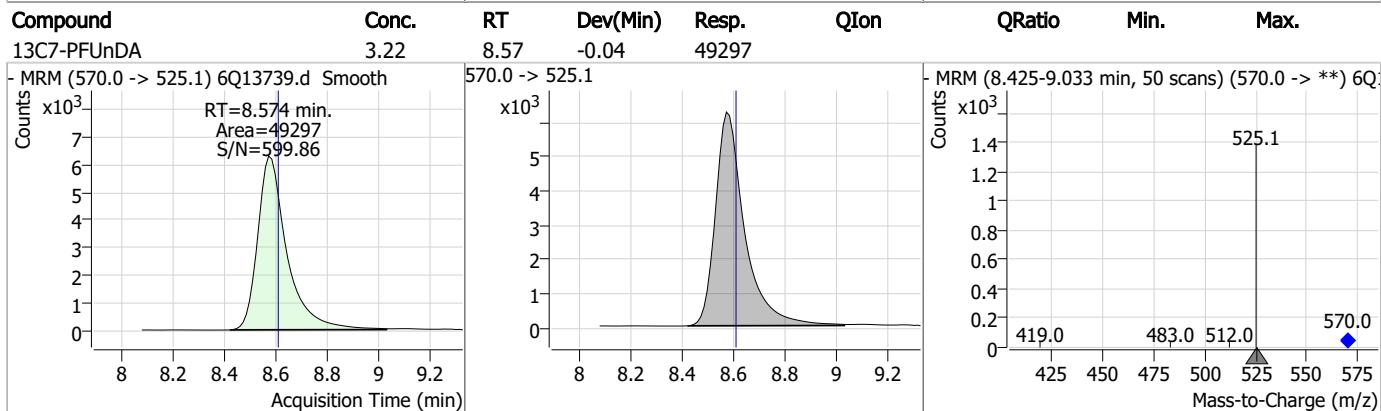
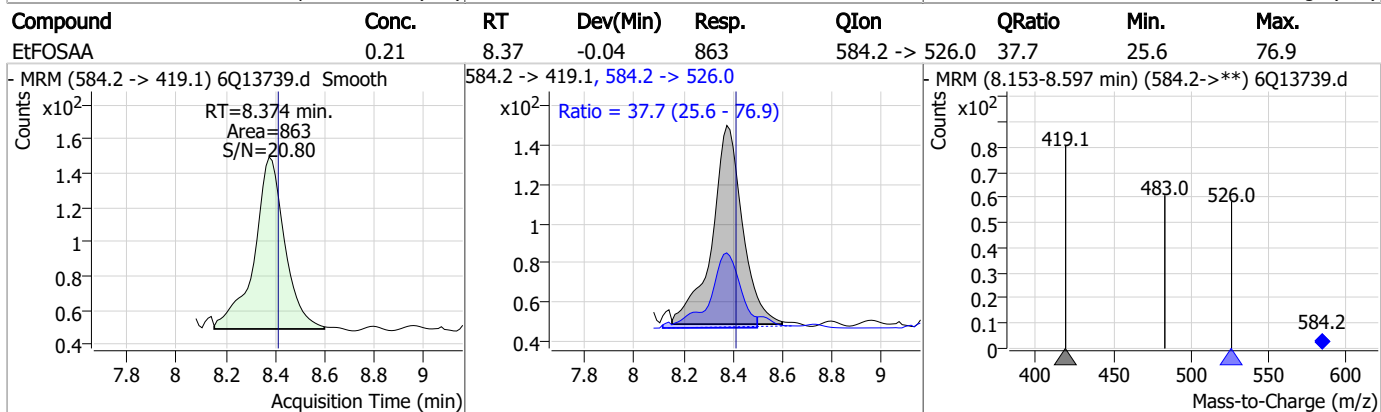
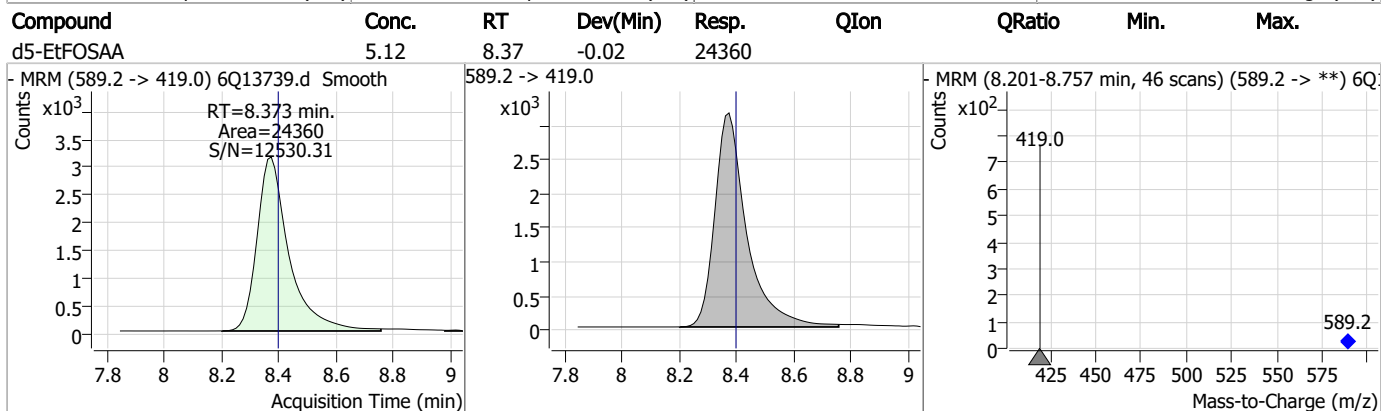
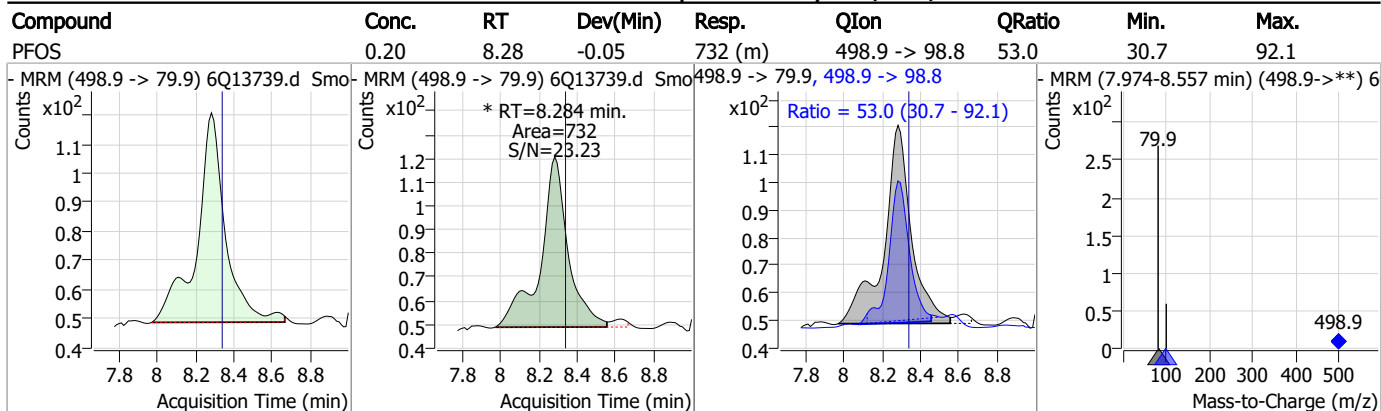
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	3.34	8.12	-0.04	43584	519.1 -> 474.1			



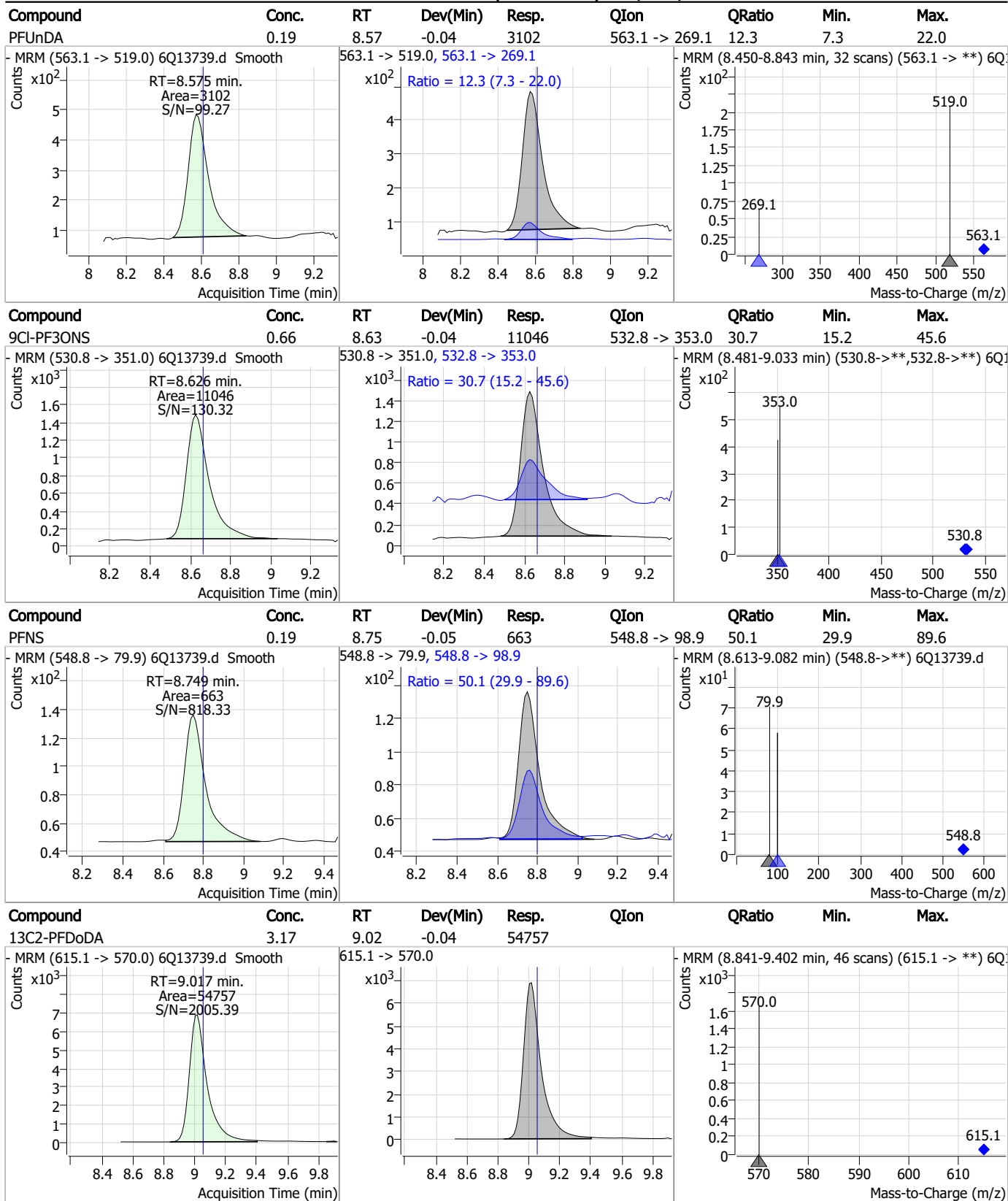
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



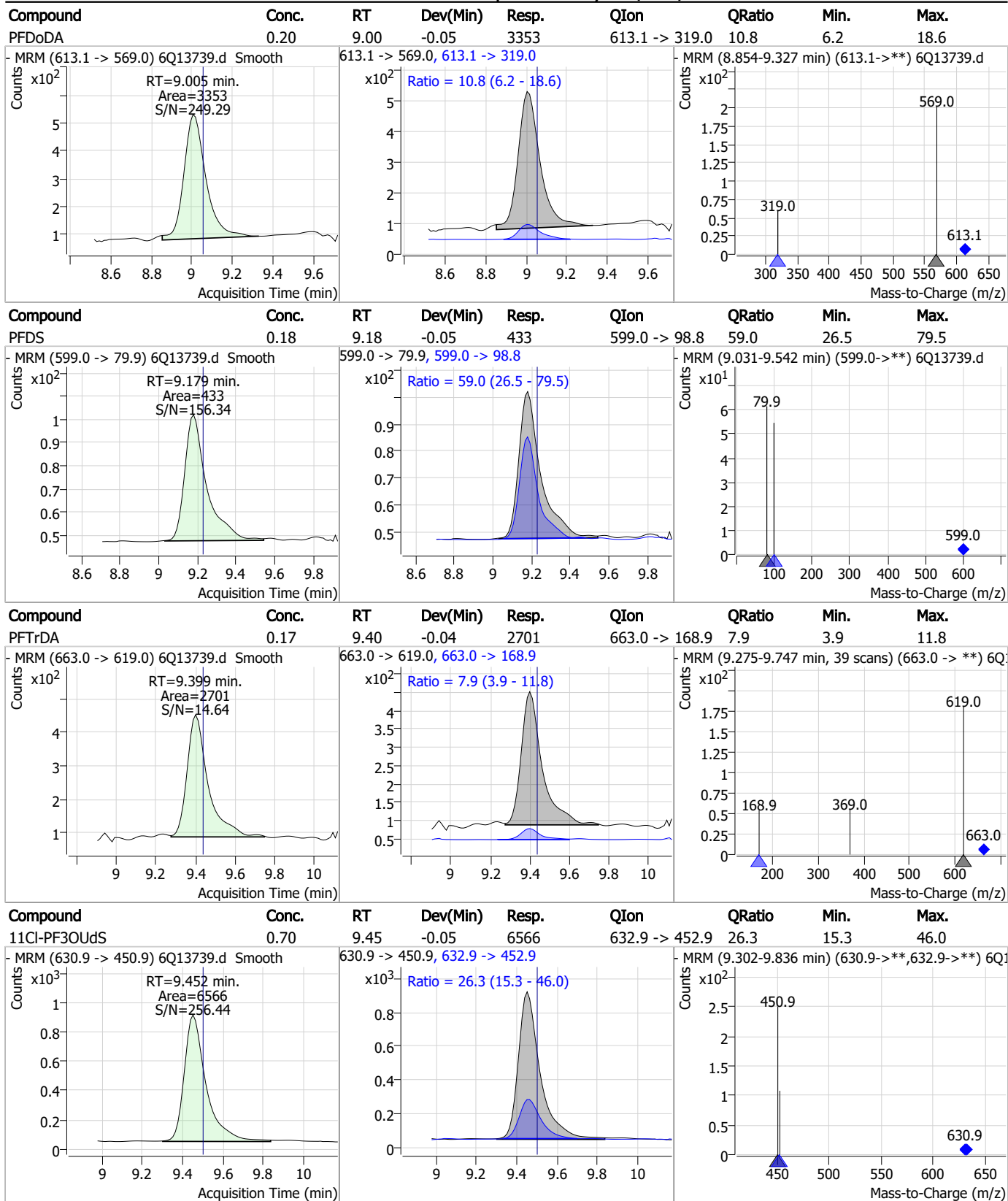
Perfluorinated Compounds by LC/MS/MS



7.6.13

7

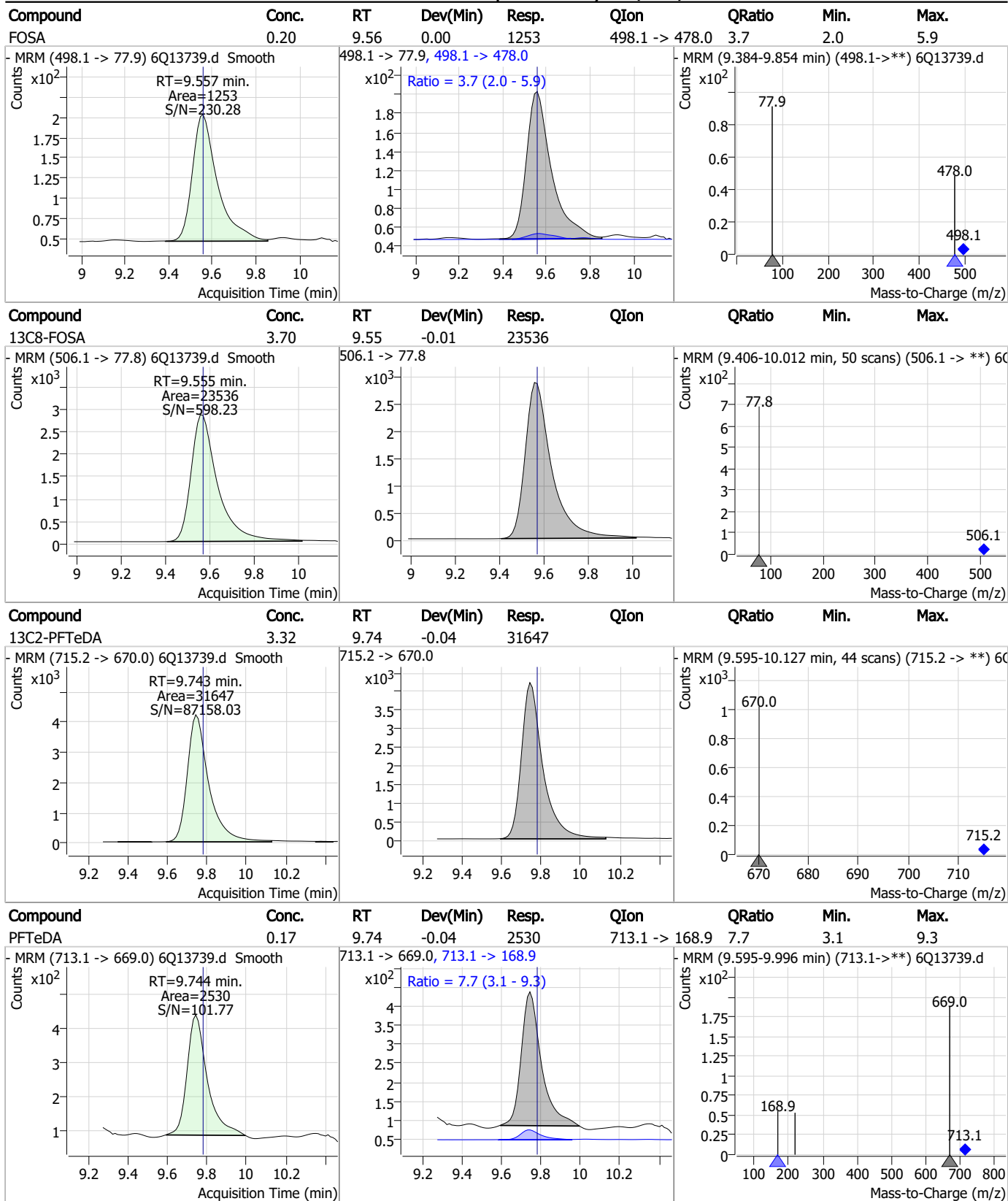
Perfluorinated Compounds by LC/MS/MS



7.6.13

7

Perfluorinated Compounds by LC/MS/MS

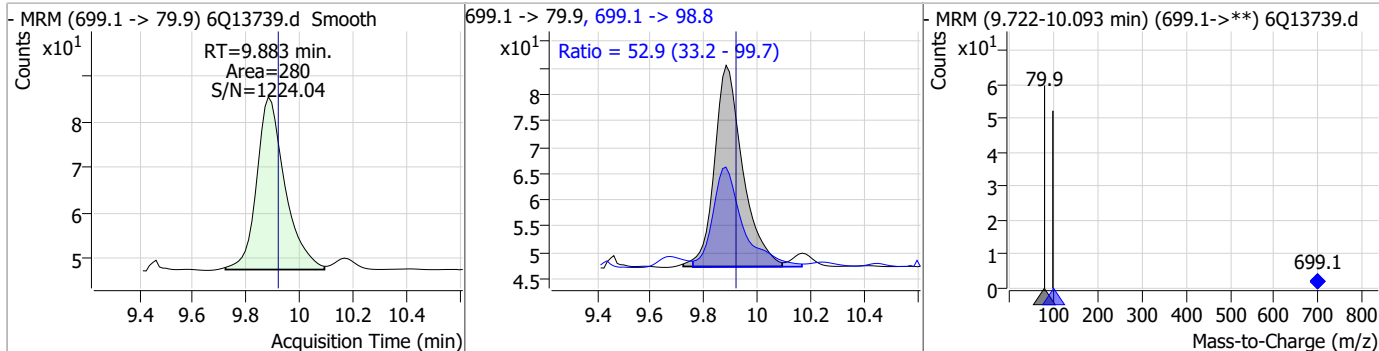


7.6.13

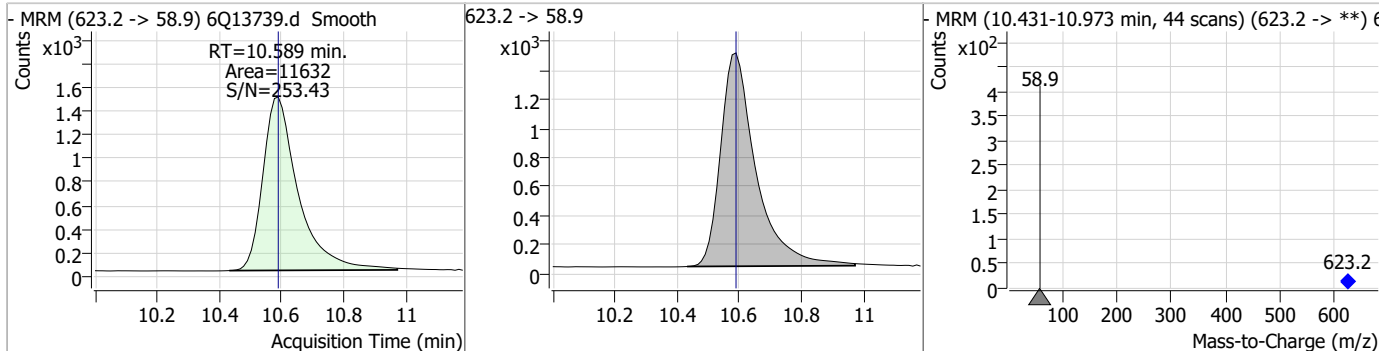
7

Perfluorinated Compounds by LC/MS/MS

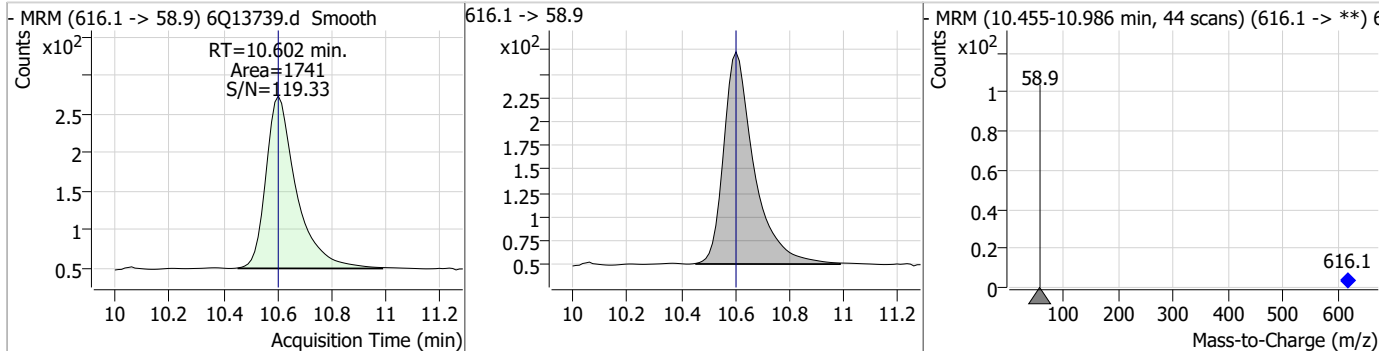
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.19	9.88	-0.04	280	699.1 -> 98.8	52.9	33.2	99.7



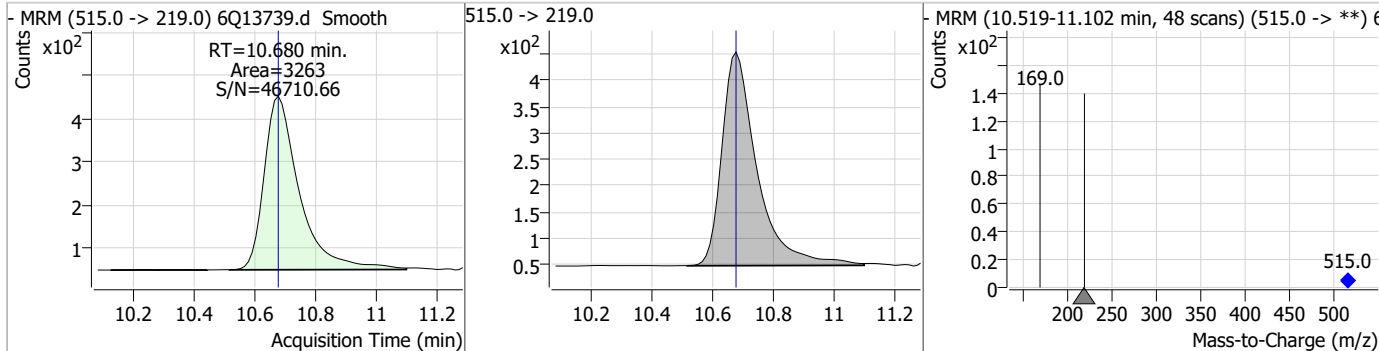
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	12.56	10.59	0.00	11632				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	1.80	10.60	0.00	1741				

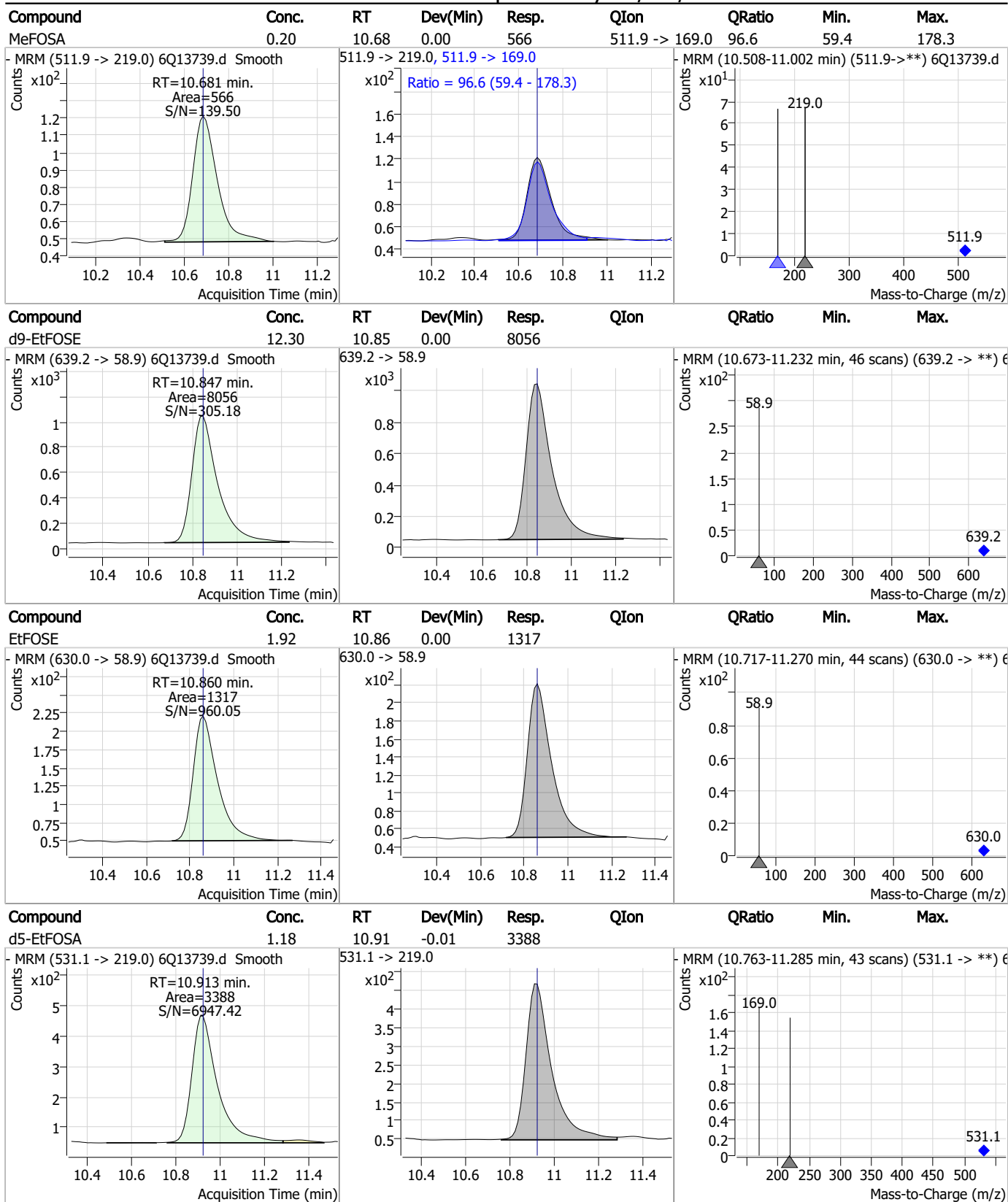


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	1.23	10.68	0.00	3263				



7.6.13
7

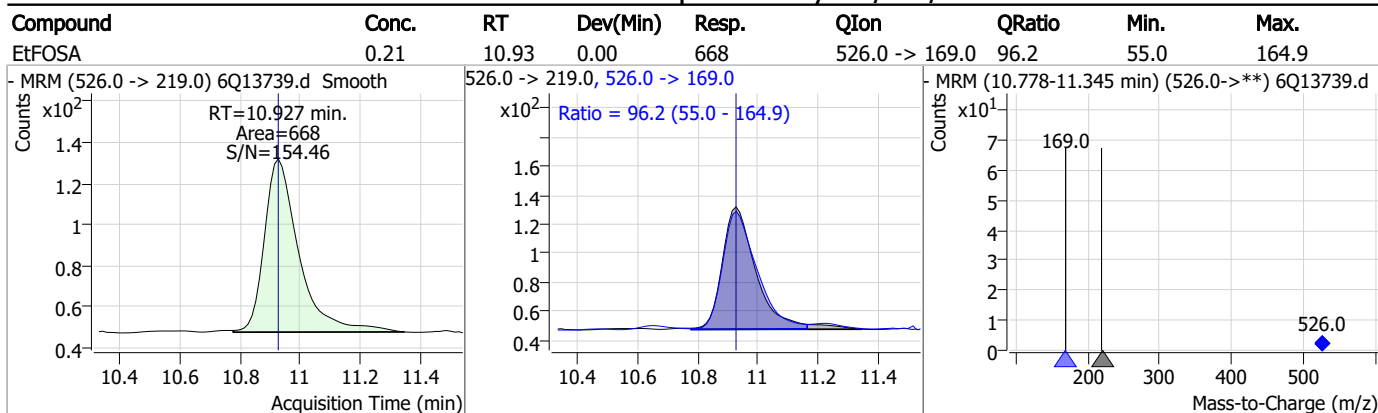
Perfluorinated Compounds by LC/MS/MS



7.6.13

7

Perfluorinated Compounds by LC/MS/MS



7.6.13

7

Manual Integration Approval Summary

Sample Number: S6Q208-CC208 Method: EPA DRAFT 1633
Lab FileID: 6Q13739.D Analyst approved: 02/18/23 11:42 Natasha Gumtie
Injection Time: 02/16/23 10:52 Supervisor approved: 02/18/23 12:01 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
MeFOSAA	2355-31-9		8.17	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.28	Split peak

7.6.13.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q13749.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/16/2023 1:12:05 PM
 Sample Name : cc208-4
 Vial : P1-D5
 DA Method File : 1633_021623_S6Q208NEW.quantmethod.xml
 Batch Name : s6q208.batch.bin
 Sample Information : OP95142,S6Q208,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.963	216.8 -> 171.9	58476	7.50 µg/L	-0.012
M5-PFPeA	4.361	268.3 -> 223.0	38196	5.00 µg/L	-0.025
M5-PFHxA	5.538	318.0 -> 273.0	50892	3.75 µg/L	-0.025
M4-PFHpA	6.477	367.1 -> 322.0	54087	3.75 µg/L	-0.025
M8-PFOA	7.109	421.1 -> 376.0	92085	3.75 µg/L	-0.037
M9-PFNA	7.640	472.1 -> 427.0	50516	3.13 µg/L	-0.037
M6-PFDA	8.120	519.1 -> 474.1	40690	3.13 µg/L	-0.037
M7-PFUnDA	8.586	570.0 -> 525.1	46610	3.13 µg/L	-0.025
M2-PFDoDA	9.017	615.1 -> 570.0	54462	3.13 µg/L	-0.037
M2-PFTeDA	9.743	715.2 -> 670.0	31408	3.13 µg/L	-0.037
M8-FOSA	9.567	506.1 -> 77.8	22459	3.75 µg/L	0.000
M3-PFBS	5.493	302.1 -> 79.9	19039	3.75 µg/L	-0.025
M3-PFHxS	7.237	402.1 -> 79.9	12656	3.75 µg/L	-0.037
M8-PFOS	8.295	507.1 -> 79.9	10921	3.75 µg/L	-0.038
M2-4:2FTS	5.215	329.1 -> 80.9	2361	5.00 µg/L	-0.025
M2-6:2FTS	6.883	429.1 -> 80.9	2769	5.00 µg/L	-0.025
M2-8:2FTS	7.907	529.1 -> 80.9	2852	5.00 µg/L	-0.037
M3-MeFOSAA	8.165	573.2 -> 419.0	28842	5.00 µg/L	-0.037
M3-HFPO-DA	5.903	286.9 -> 168.9	6957	5.00 µg/L	-0.037
M5-EtFOSAA	8.373	589.2 -> 419.0	24620	5.00 µg/L	-0.025
M7-MeFOSE	10.589	623.2 -> 58.9	11151	12.50 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	8043	12.50 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	3378	1.25 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	3171	1.25 µg/L	0.000
13C4-PFOS	8.296	502.8 -> 79.9	8668	2.50 µg/L	-0.038
13C3-PFBA	2.954	216.0 -> 172.0	31184	5.00 µg/L	-0.025
18O2-PFHxS	7.236	403.0 -> 83.9	5560	2.50 µg/L	-0.037
13C4-PFOA	7.110	417.1 -> 372.0	64309	2.50 µg/L	-0.037
13C2-PFDA	8.120	515.1 -> 470.1	20480	1.25 µg/L	-0.037
13C5-PFNA	7.640	468.0 -> 423.0	20522	1.25 µg/L	-0.037
13C2-PFHxA	5.539	315.1 -> 270.0	30602	2.50 µg/L	-0.025
System Monitoring Compounds					
13C2-4:2FTS	5.215	329.1 -> 80.9	2361	6.15 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.1%		
13C2-6:2FTS	6.883	429.1 -> 80.9	2769	5.49 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.9%		
13C2-8:2FTS	7.907	529.1 -> 80.9	2852	5.83 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.6%		
13C2-PFDoDA	9.017	615.1 -> 570.0	54462	3.37 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 107.9%		
13C2-PFTeDA	9.743	715.2 -> 670.0	31408	3.51 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%		Recovery = 112.5%		
13C3-PFBS	5.493	302.1 -> 79.9	19039	4.15 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%		Recovery = 110.6%		
13C3-PFHxS	7.237	402.1 -> 79.9	12656	4.09 µg/L	-0.037

7.6.14
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 109.0%	
13C4-PFBA	2.963	216.8 -> 171.9	58476	8.08 µg/L	-0.012
Spiked Amount: 7.50	Range: 50.0 - 150.0%			Recovery = 107.8%	
13C4-PFHpA	6.477	367.1 -> 322.0	54087	4.11 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 109.6%	
13C5-PFHxA	5.538	318.0 -> 273.0	50892	3.92 µg/L	-0.025
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C5-PFPeA	4.361	268.3 -> 223.0	38196	5.31 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.2%	
13C6-PFDA	8.120	519.1 -> 474.1	40690	3.33 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 106.6%	
13C7-PFUnDA	8.586	570.0 -> 525.1	46610	3.25 µg/L	-0.025
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C8-FOSA	9.567	506.1 -> 77.8	22459	3.87 µg/L	0.000
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C8-PFOA	7.109	421.1 -> 376.0	92085	4.19 µg/L	-0.037
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 111.7%	
13C8-PFOS	8.295	507.1 -> 79.9	10921	3.74 µg/L	-0.038
Spiked Amount: 3.75	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C9-PFNA	7.640	472.1 -> 427.0	50516	3.25 µg/L	-0.037
Spiked Amount: 3.13	Range: 50.0 - 150.0%			Recovery = 103.9%	
d3-MeFOSAA	8.165	573.2 -> 419.0	28842	5.56 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 111.3%	
13C3-HFPO-DA	5.903	286.9 -> 168.9	6957	5.04 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
d3-MeFOSA	10.680	515.0 -> 219.0	3171	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.7%	
d5-EtFOSAA	8.373	589.2 -> 419.0	24620	5.67 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 113.3%	
d7-MeFOSE	10.589	623.2 -> 58.9	11151	13.19 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%			Recovery = 105.5%	
d9-EtFOSE	10.847	639.2 -> 58.9	8043	13.46 µg/L	0.000
Spiked Amount: 12.50	Range: 50.0 - 150.0%			Recovery = 107.6%	
d5-EtFOSA	10.925	531.1 -> 219.0	3378	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.5%	
Target Compounds					QValue
4:2FTS	5.215	327.1 -> 307.0	47773	8.69 µg/L	97
		327.1 -> 80.9	10088		
6:2FTS	6.883	427.1 -> 407.0	40882	9.67 µg/L	98
		427.1 -> 80.9	8251		
8:2FTS	7.908	527.1 -> 507.0	21425	9.37 µg/L	98
		527.1 -> 80.8	5334		
EtFOSAA	8.374	584.2 -> 419.1	9384	2.26 µg/L	m 93
		584.2 -> 526.0	5269		
FOSA	9.557	498.1 -> 77.9	15624	2.65 µg/L	99
		498.1 -> 478.0	581		
MeFOSAA	8.166	570.1 -> 419.0	13149	2.40 µg/L	98
		570.1 -> 483.0	2338		
PFBA	2.957	212.8 -> 168.9	18327	9.61 µg/L	100
PFBS	5.494	298.7 -> 79.9	11221	2.12 µg/L	95
		298.7 -> 98.8	5081		
PFDA	8.121	512.9 -> 469.0	48035	2.44 µg/L	99
		512.9 -> 219.0	6638		
PFDODA	9.017	613.1 -> 569.0	39449	2.32 µg/L	100
		613.1 -> 319.0	4898		
PFDS	9.179	599.0 -> 79.9	5960	2.61 µg/L	97

7.6.14
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.477	599.0 -> 98.8	3020	2.17	µg/L	98
		363.1 -> 319.0	47575			
PFHpS	7.792	363.1 -> 169.0	6810	2.56	µg/L	99
		449.0 -> 79.9	8186			
PFHxA	5.541	449.0 -> 98.9	4528	2.36	µg/L	99
		313.0 -> 269.0	32320			
PFHxS	7.238	313.0 -> 118.9	1268	2.24	µg/L	97
		398.7 -> 79.9	8632			
PFNA	7.640	398.7 -> 98.9	4963	2.64	µg/L	97
		463.0 -> 419.0	35209			
PFNS	8.762	463.0 -> 219.0	6827	2.65	µg/L	90
		548.8 -> 79.9	8699			
PFOA	7.111	548.8 -> 98.9	4512	2.28	µg/L	100
		413.0 -> 369.0	68215			
PFOS	8.296	413.0 -> 169.0	8856	2.32	µg/L	100
		498.9 -> 79.9	7938			
PFPeA	4.363	498.9 -> 98.8	4900	4.73	µg/L	100
		263.0 -> 219.0	40221			
PFPeS	6.543	349.1 -> 79.9	10440	2.32	µg/L	98
		349.1 -> 98.9	5840			
PFTeDA	9.744	713.1 -> 669.0	33724	2.28	µg/L	98
		713.1 -> 168.9	2331			
PFTrDA	9.399	663.0 -> 619.0	38413	2.44	µg/L	100
		663.0 -> 168.9	3000			
PFUnDA	8.575	563.1 -> 519.0	38812	2.55	µg/L	100
		563.1 -> 269.1	5615			
11CI-PF3OUdS	9.452	630.9 -> 450.9	87722	9.74	µg/L	100
		632.9 -> 452.9	26880			
9CI-PF3ONS	8.626	530.8 -> 351.0	153559	9.61	µg/L	99
		532.8 -> 353.0	47706			
ADONA	6.728	376.9 -> 250.9	295632	9.75	µg/L	99
		376.9 -> 84.8	60887			
HFPO-DA	5.916	284.9 -> 168.9	13081	9.57	µg/L	96
		284.9 -> 184.9	1617			
3:3FTCA	3.816	241.0 -> 177.0	5252	12.23	µg/L	97
		241.0 -> 117.0	724			
5:3FTCA	6.181	341.0 -> 237.1	166993	59.62	µg/L	98
		341.0 -> 217.0	151435			
7:3FTCA	7.592	441.0 -> 316.9	91922	62.37	µg/L	89
		441.0 -> 336.9	169101			
EtFOSA	10.927	526.0 -> 219.0	7633	2.38	µg/L	89
		526.0 -> 169.0	7501			
EtFOSE	10.860	630.0 -> 58.9	15330	22.35	µg/L	100
		511.9 -> 219.0	6546			
MeFOSA	10.681	511.9 -> 169.0	6589	2.34	µg/L	83
		616.1 -> 58.9	22215			
MeFOSE	10.602	699.1 -> 79.9	3706	23.98	µg/L	100
		699.1 -> 98.8	2211			
PFDoDS	9.883	295.0 -> 201.0	4081	2.60	µg/L	92
		295.0 -> 84.9	1903			
NFDHA	5.420	279.0 -> 85.1	11758	4.91	µg/L	99
		229.0 -> 84.9	10739			
PFMBA	4.763			4.68	µg/L	100
PFMPA	3.516			4.73	µg/L	100
PFEESA	6.021	314.8 -> 134.9	79029	4.26	µg/L	99
		314.8 -> 82.9	2145			

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

7.6.14
7

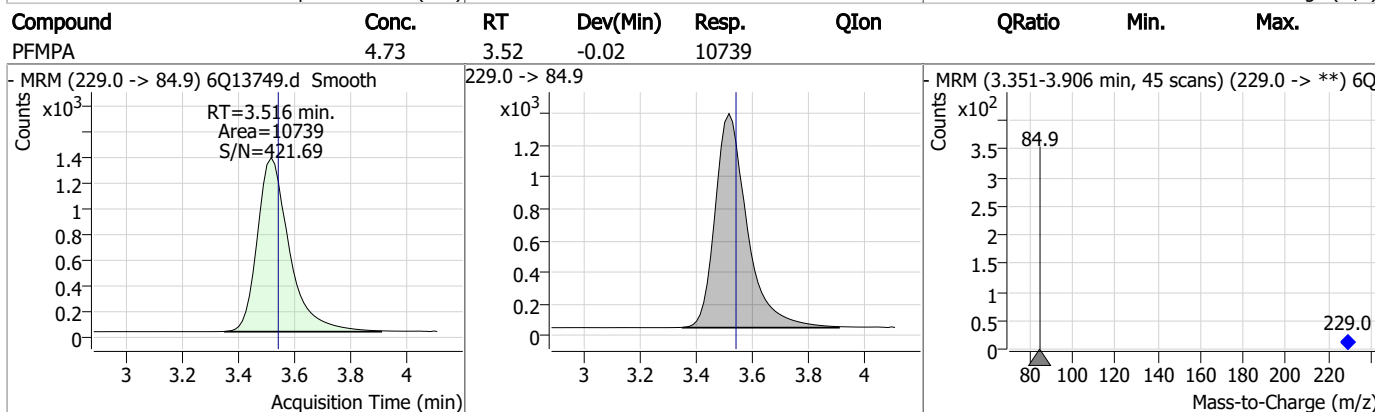
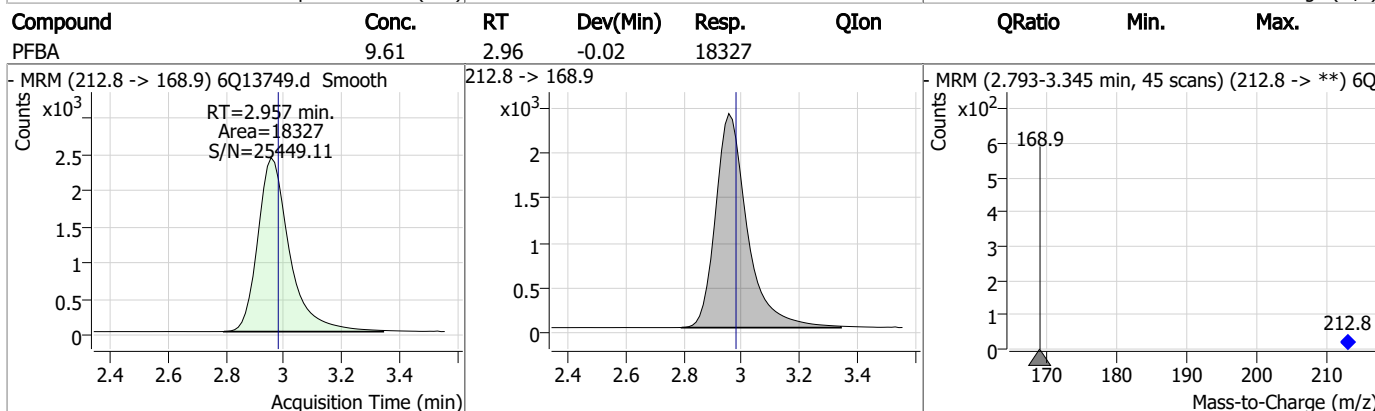
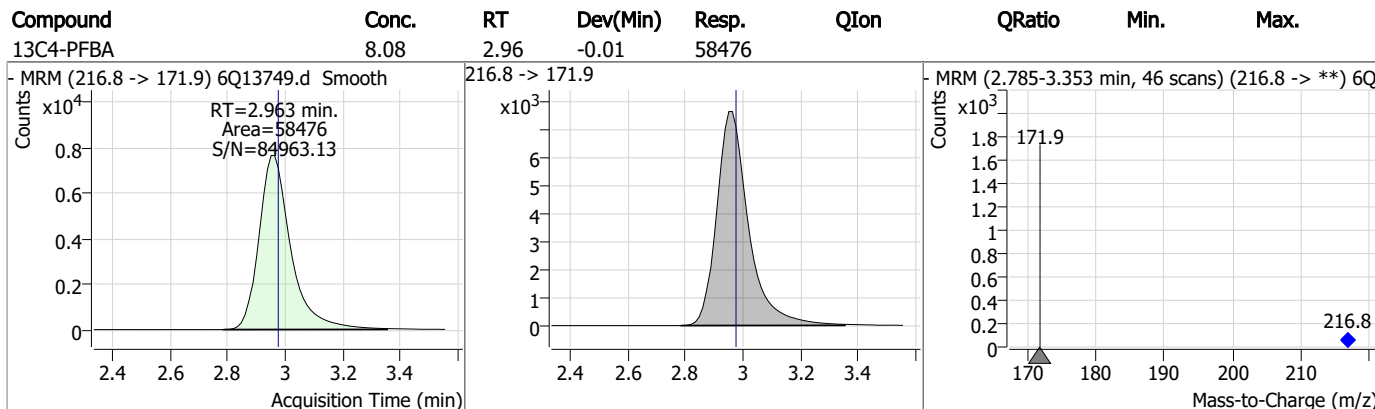
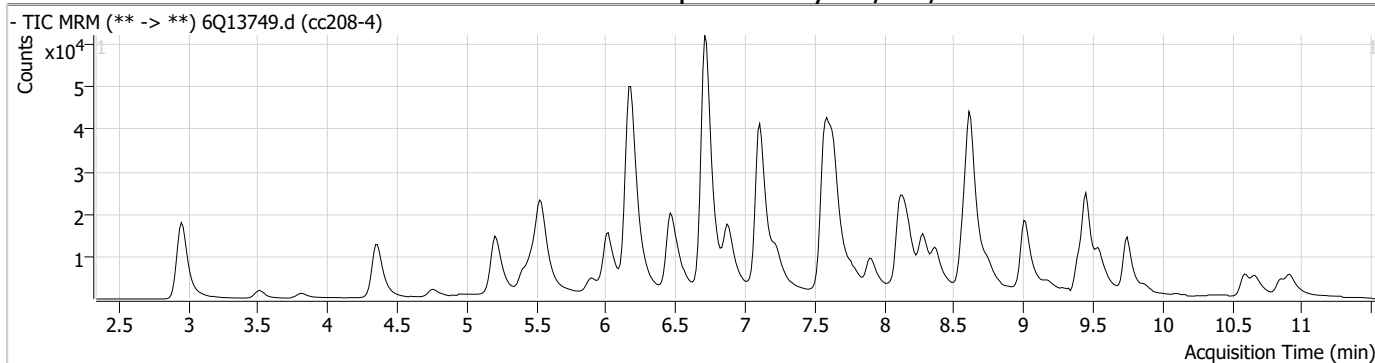
Perfluorinated Compounds by LC/MS/MS

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

7.6.14

7

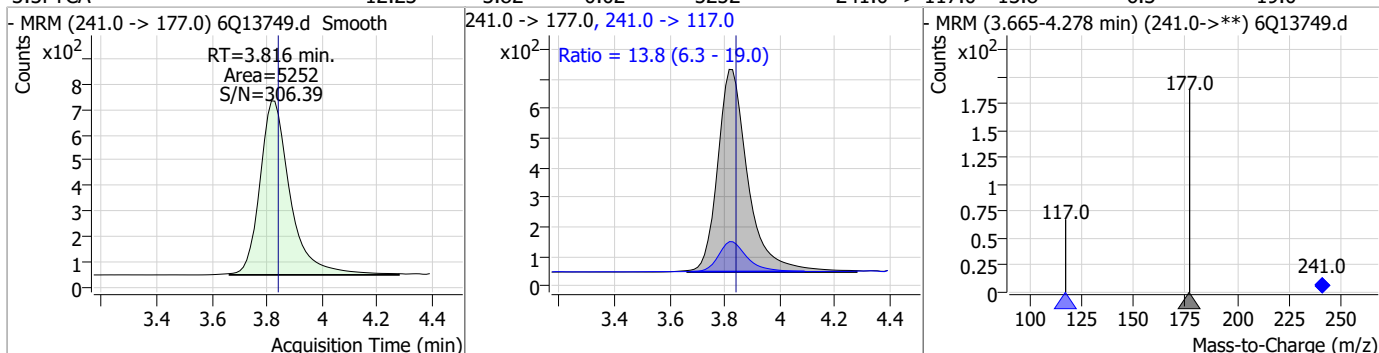
Perfluorinated Compounds by LC/MS/MS



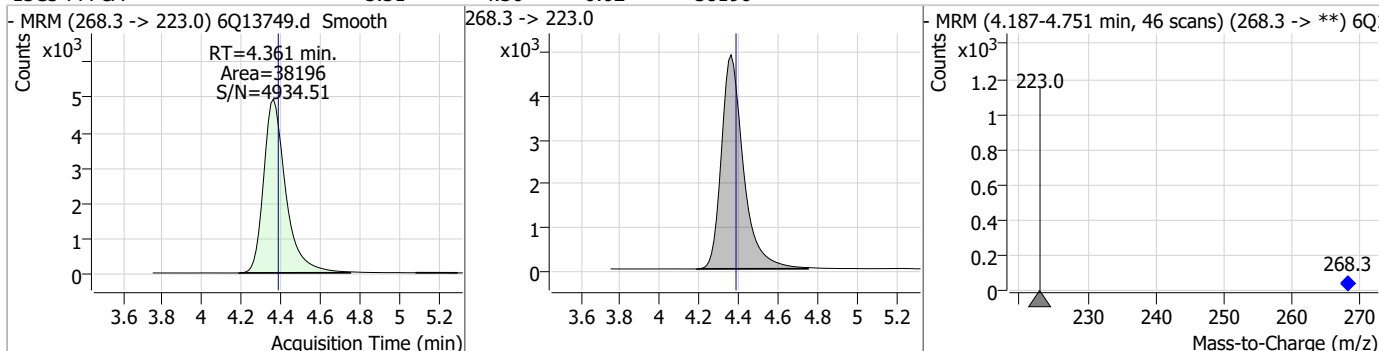
7.6.14
7

Perfluorinated Compounds by LC/MS/MS

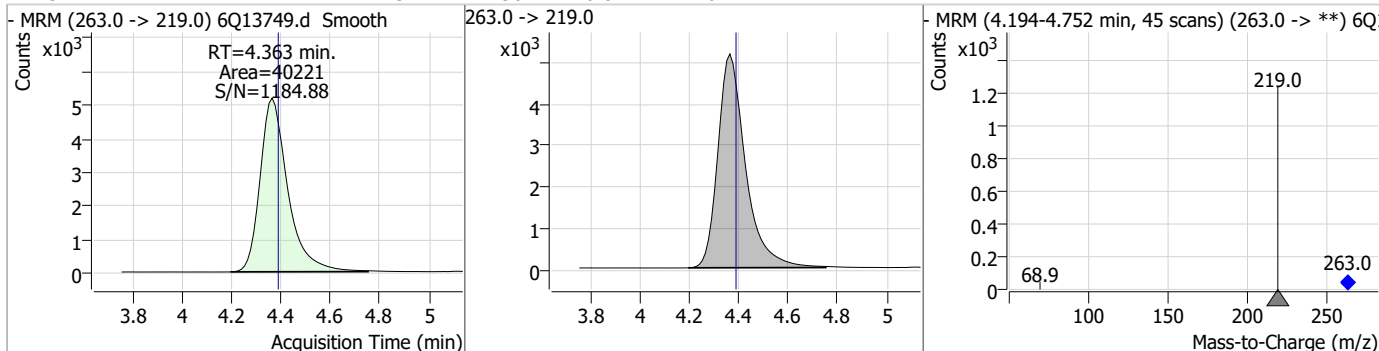
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	12.23	3.82	-0.02	5252	241.0 -> 117.0	13.8	6.3	19.0



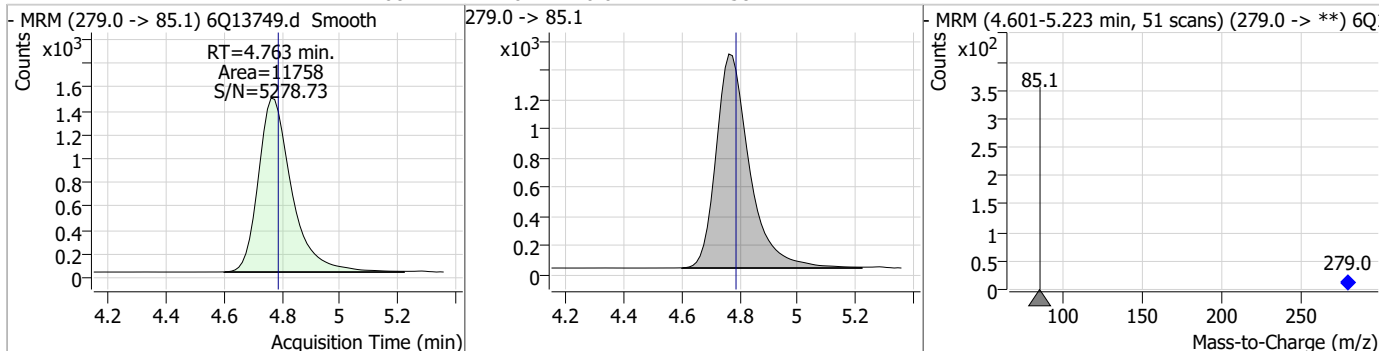
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.31	4.36	-0.02	38196				



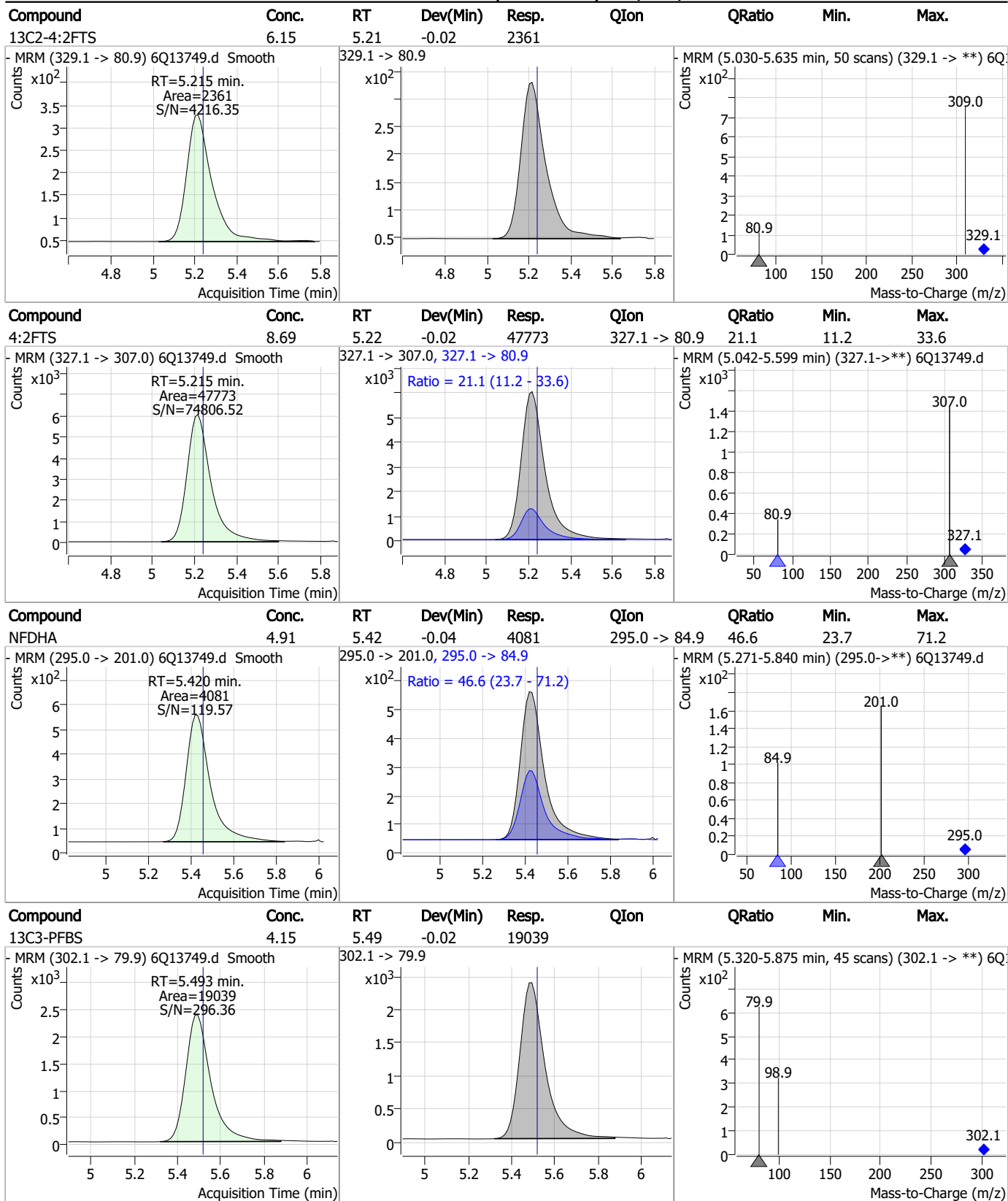
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.73	4.36	-0.02	40221				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.68	4.76	-0.02	11758				



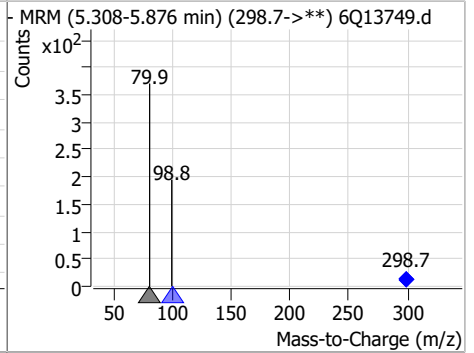
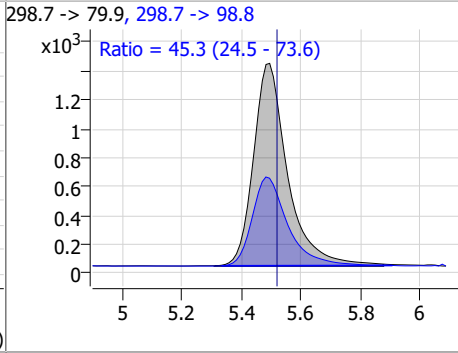
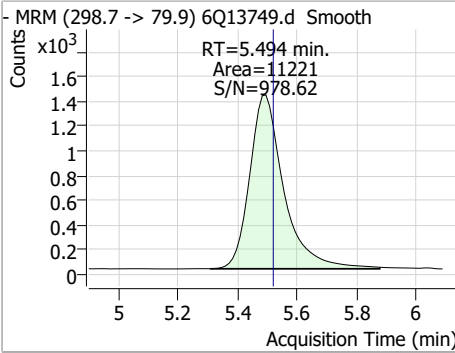
Perfluorinated Compounds by LC/MS/MS



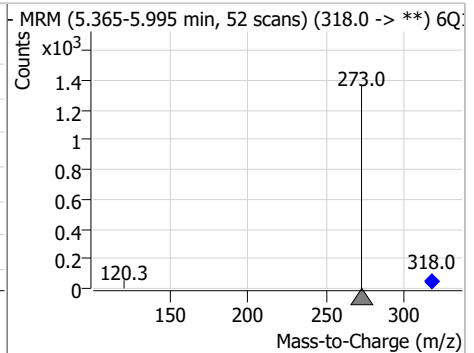
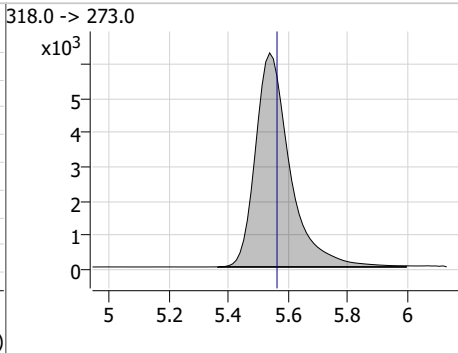
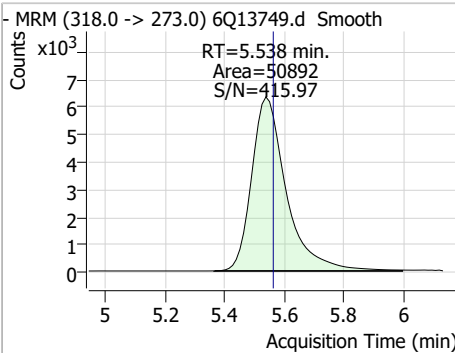
7.6.14
7

Perfluorinated Compounds by LC/MS/MS

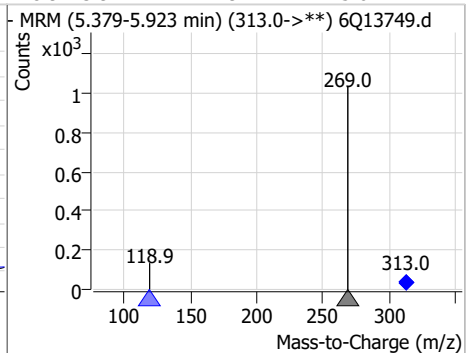
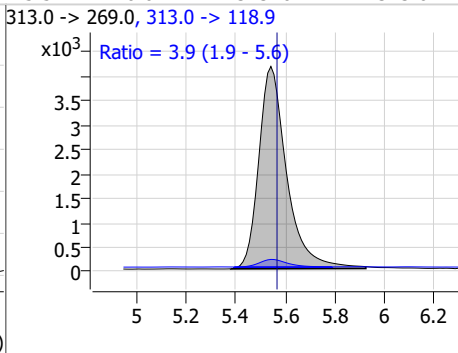
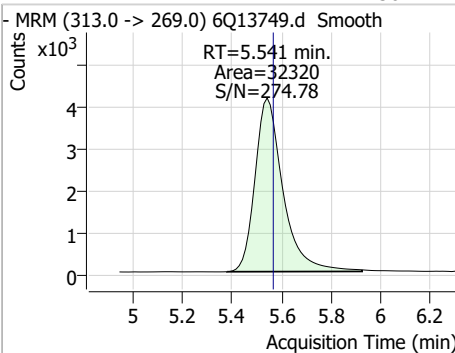
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.12	5.49	-0.02	11221	298.7 -> 98.8	45.3	24.5	73.6



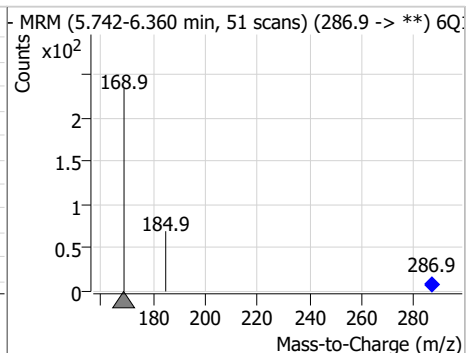
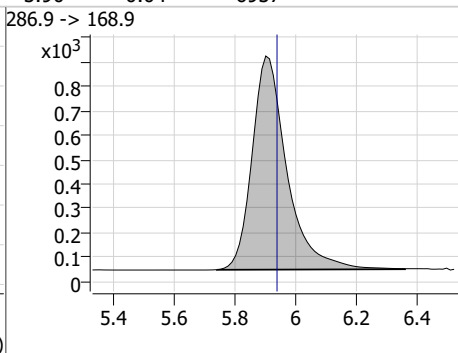
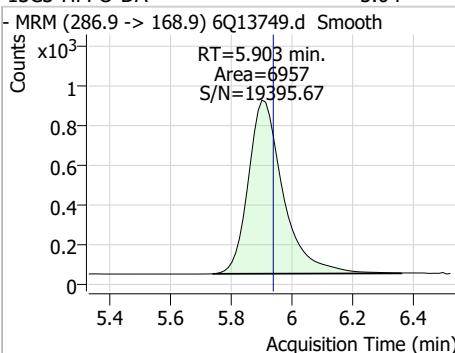
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	3.92	5.54	-0.02	50892	318.0 -> 273.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.36	5.54	-0.02	32320	313.0 -> 118.9	3.9	1.9	5.6

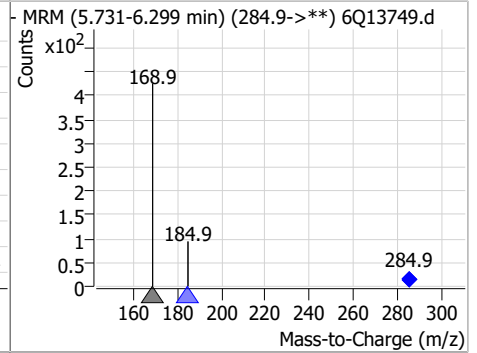
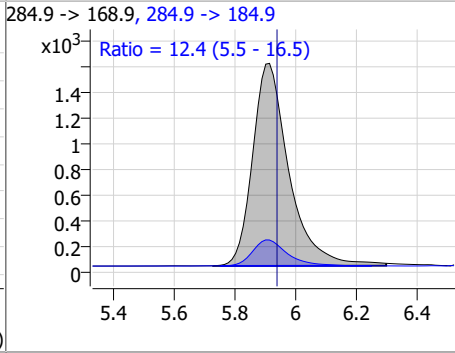
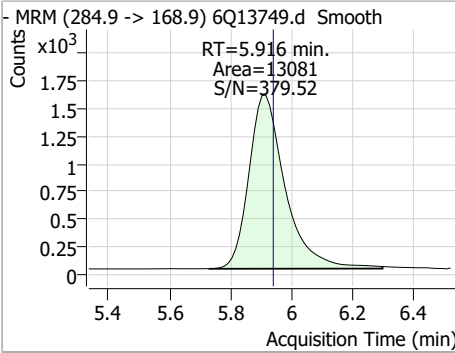


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	5.04	5.90	-0.04	6957	286.9 -> 168.9			

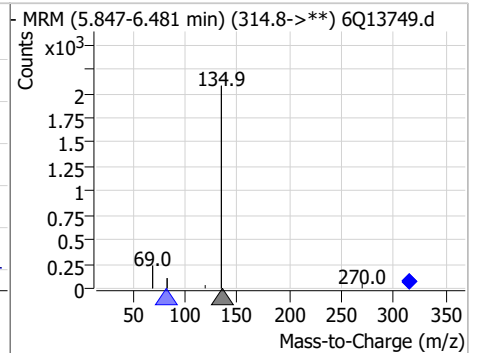
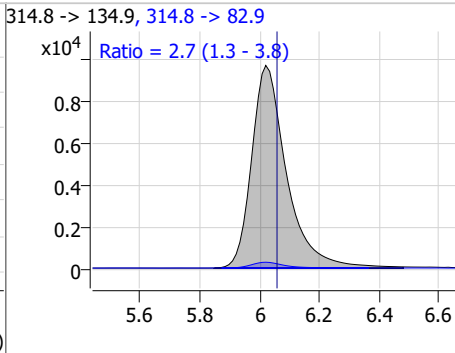
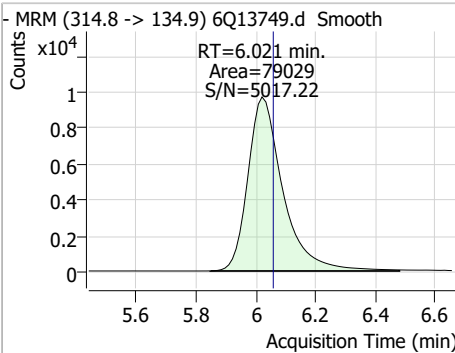


Perfluorinated Compounds by LC/MS/MS

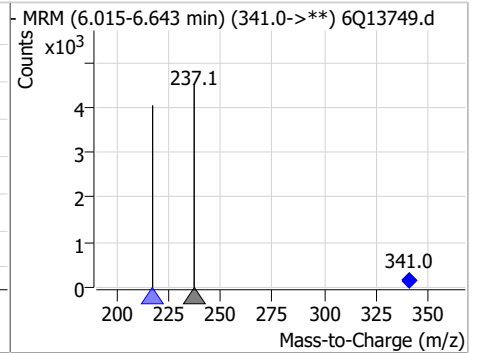
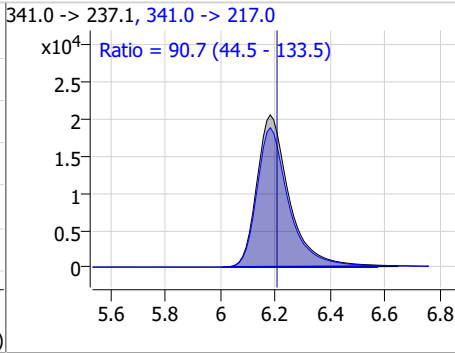
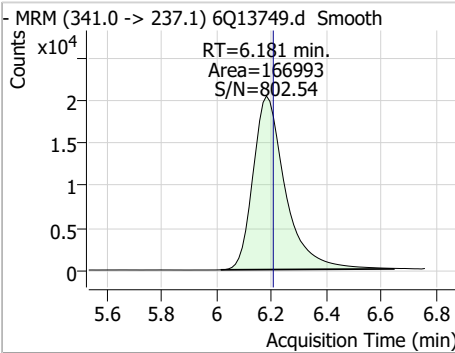
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.57	5.92	-0.02	13081	284.9 -> 184.9	12.4	5.5	16.5



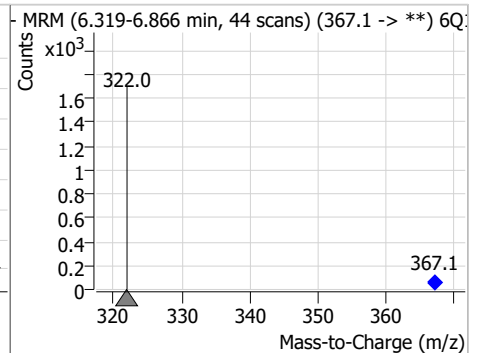
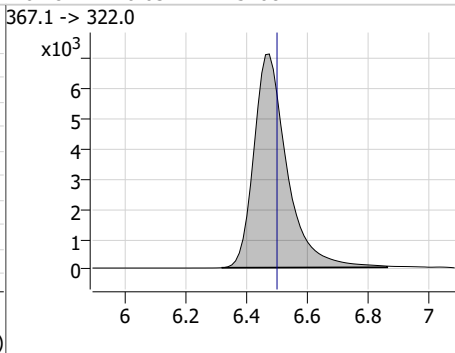
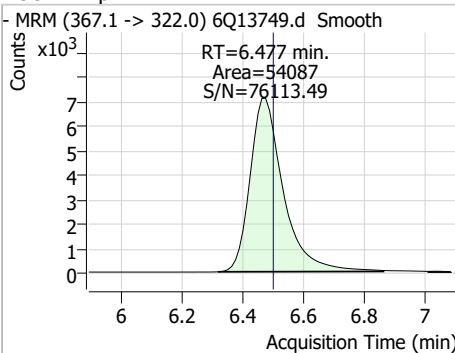
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.26	6.02	-0.04	79029	314.8 -> 82.9	2.7	1.3	3.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	59.62	6.18	-0.02	166993	341.0 -> 217.0	90.7	44.5	133.5



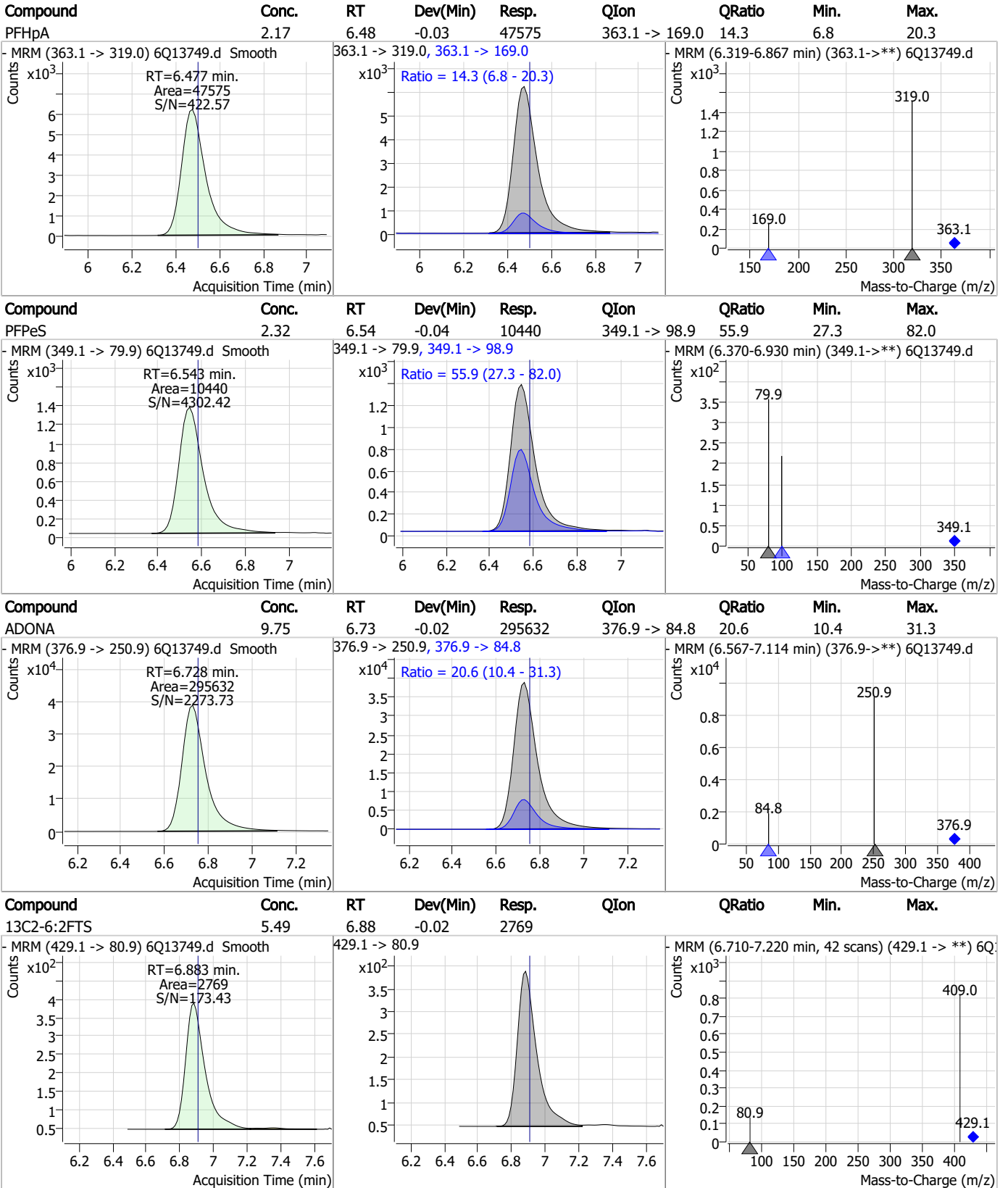
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	4.11	6.48	-0.03	54087	367.1 -> 322.0			



7.6.14 7



Perfluorinated Compounds by LC/MS/MS

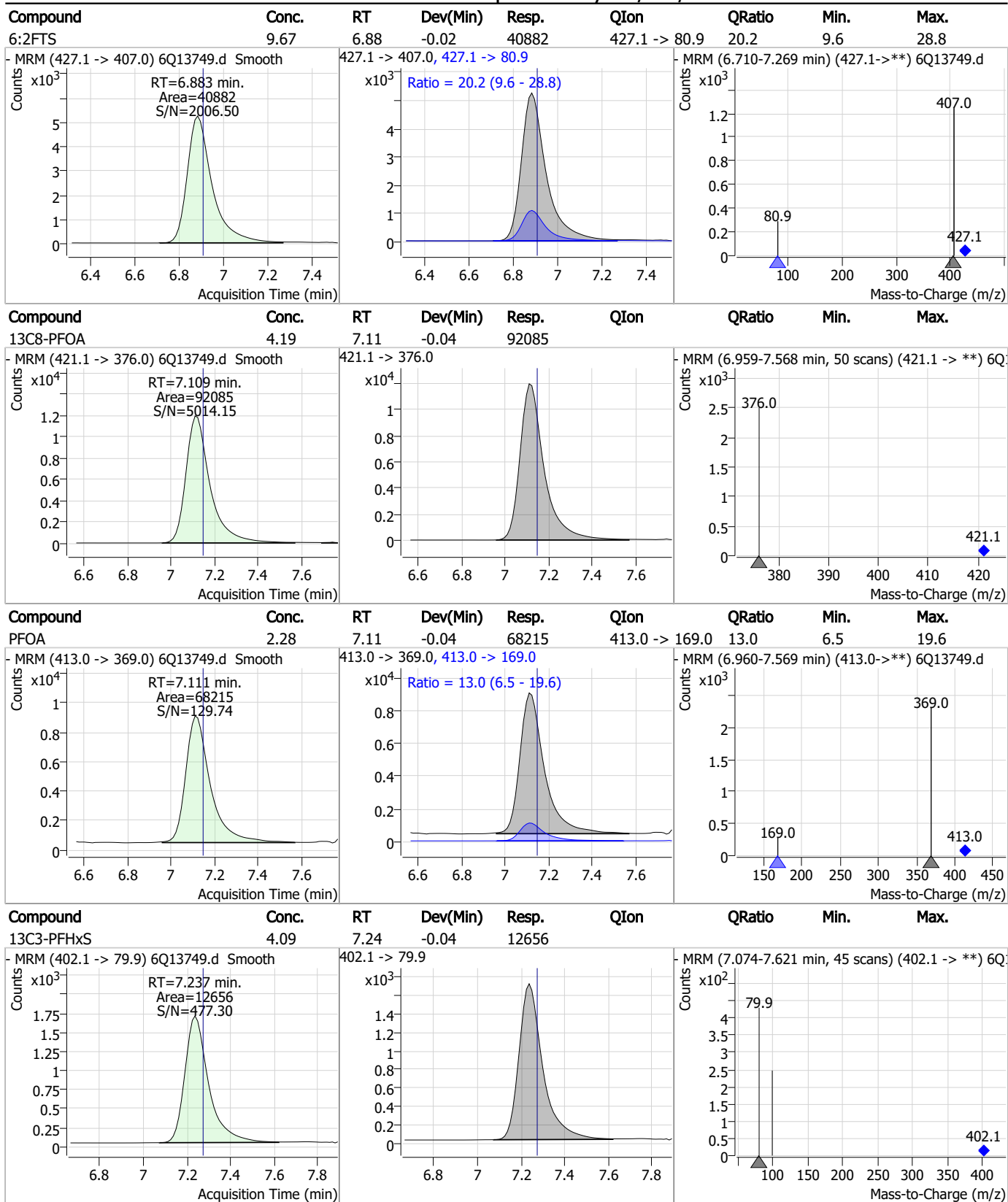


7.6.14

7



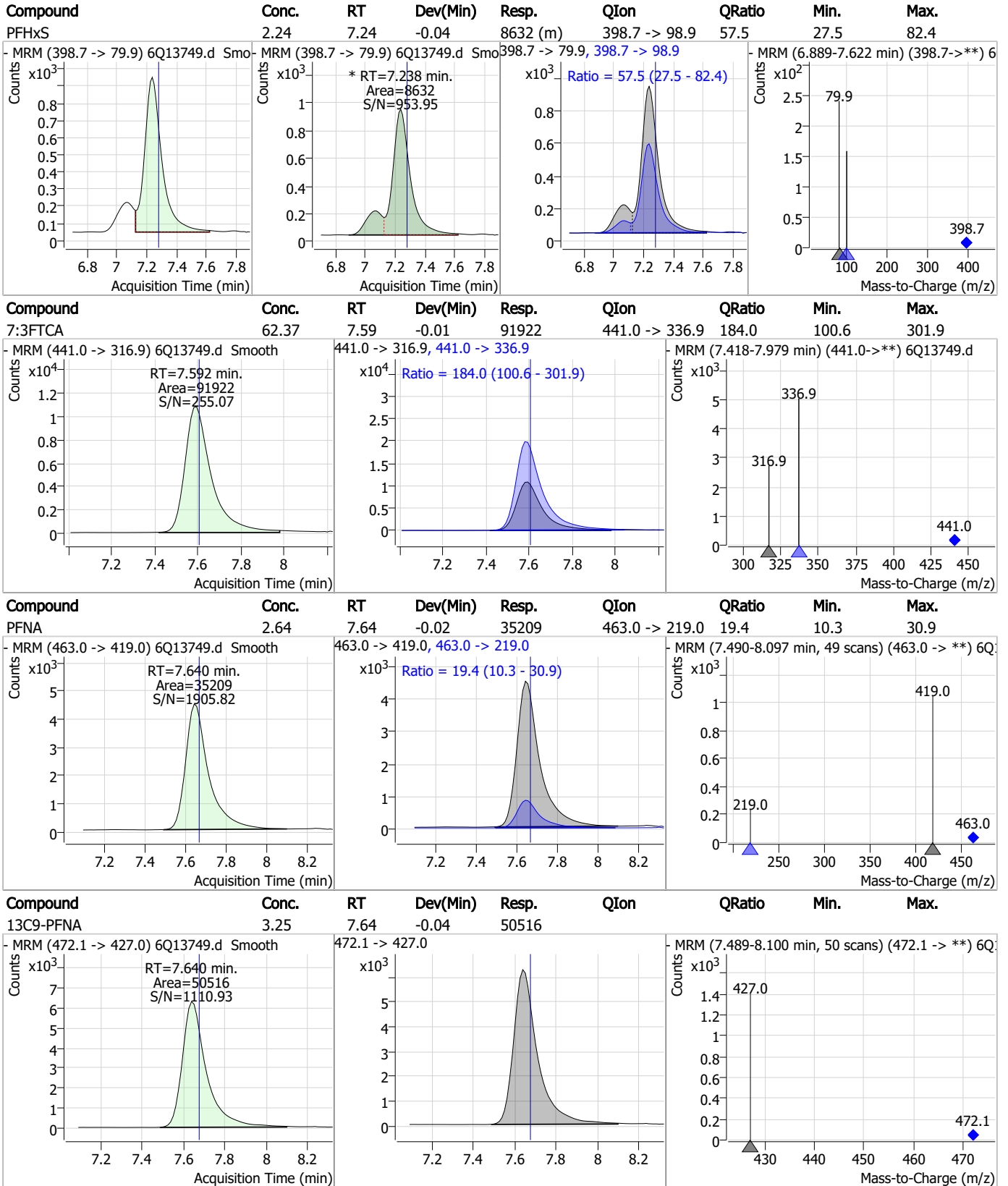
Perfluorinated Compounds by LC/MS/MS



7.6.14

7

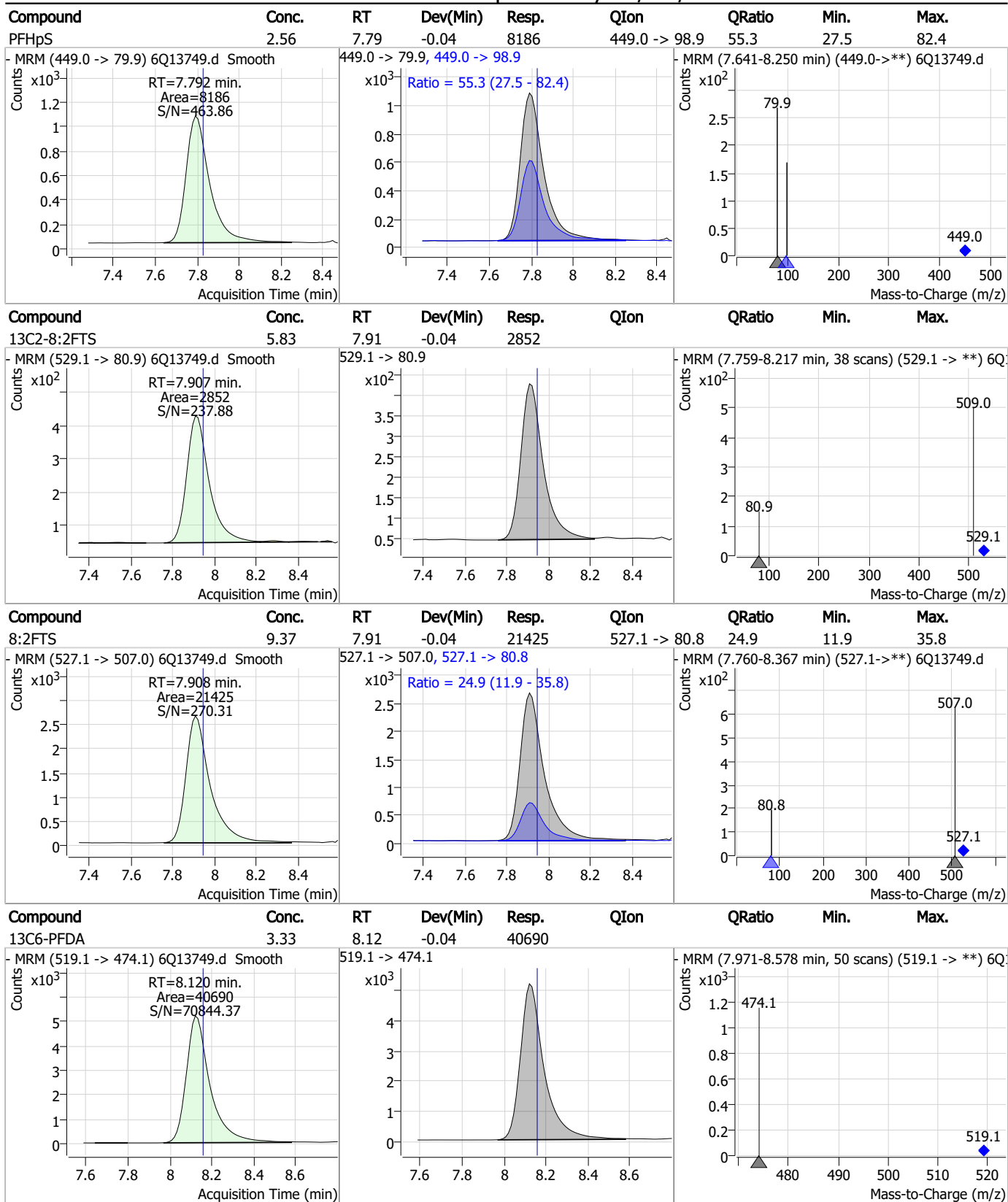
Perfluorinated Compounds by LC/MS/MS



7.6.14 7



Perfluorinated Compounds by LC/MS/MS

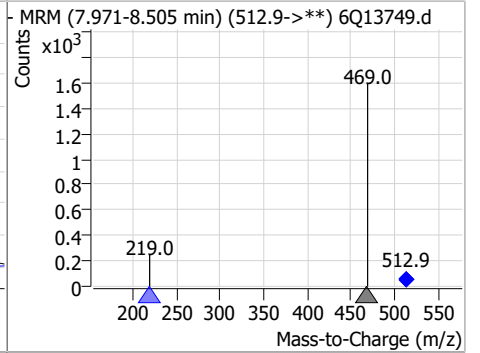
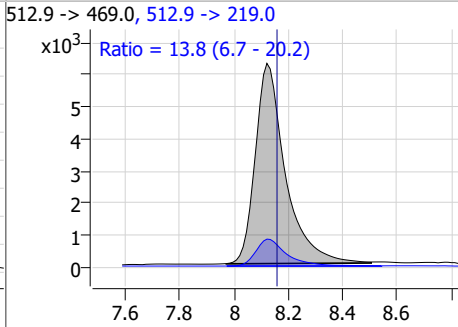
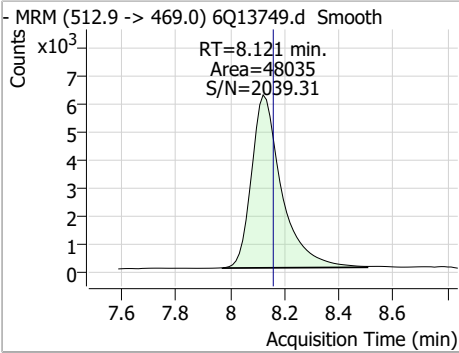


7.6.14

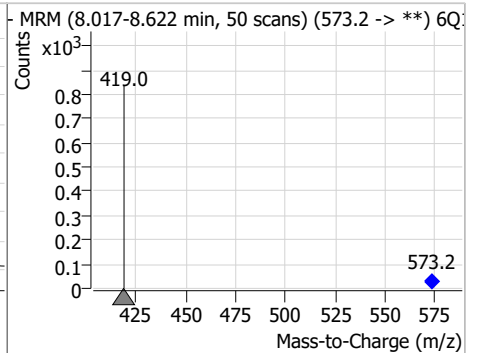
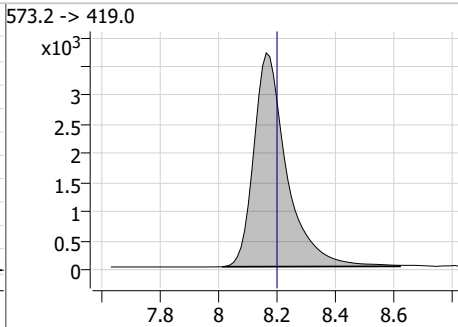
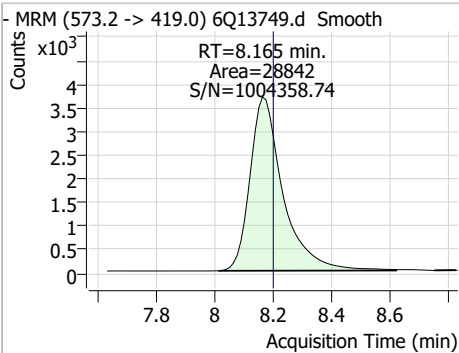
7

Perfluorinated Compounds by LC/MS/MS

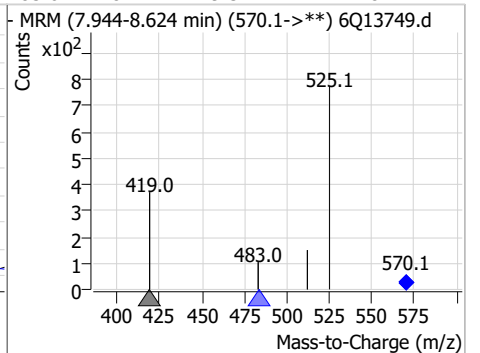
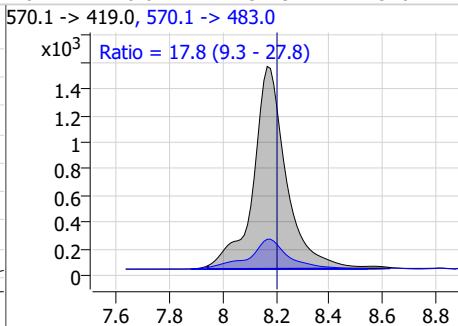
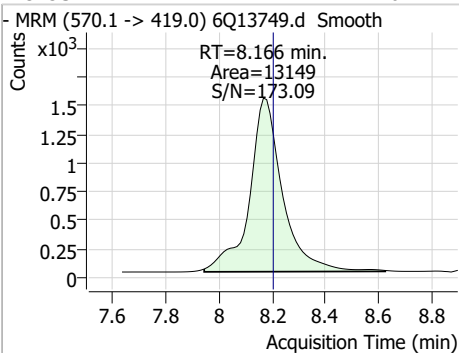
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.44	8.12	-0.04	48035	512.9 -> 219.0	13.8	6.7	20.2



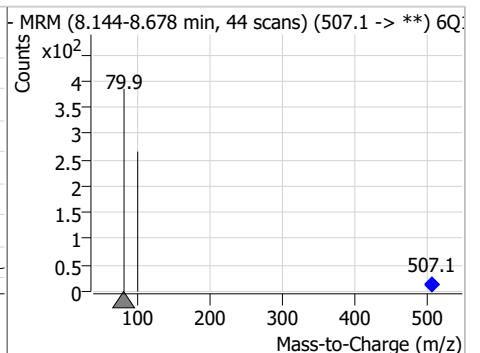
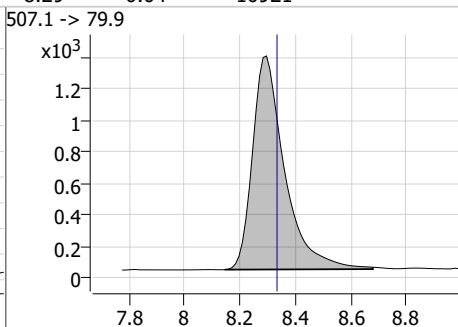
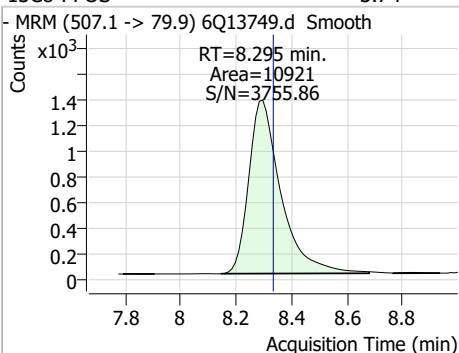
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.56	8.17	-0.04	28842				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.40	8.17	-0.04	13149	570.1 -> 483.0	17.8	9.3	27.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	3.74	8.29	-0.04	10921				

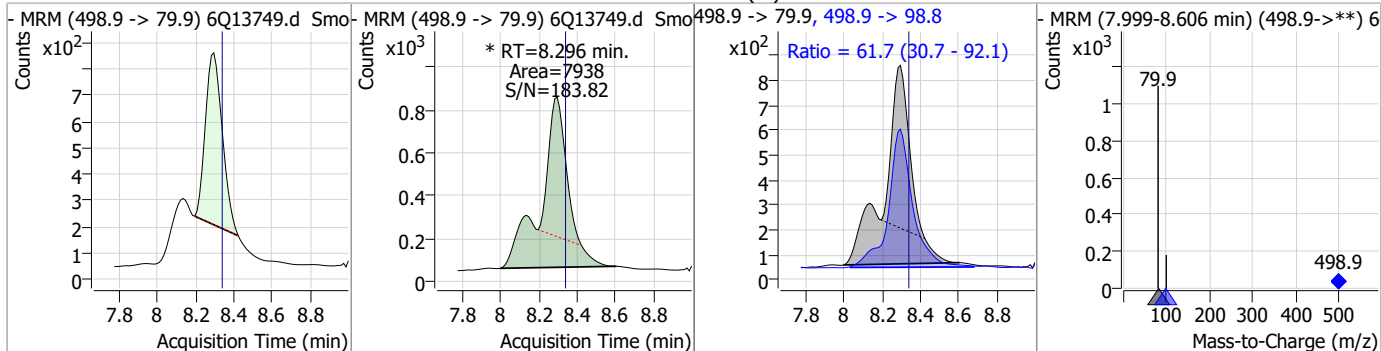


7.6.14

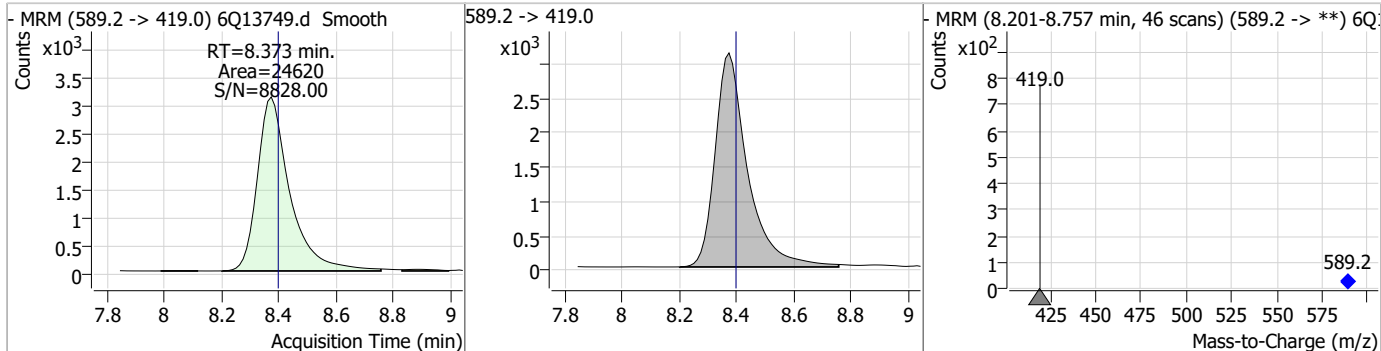


Perfluorinated Compounds by LC/MS/MS

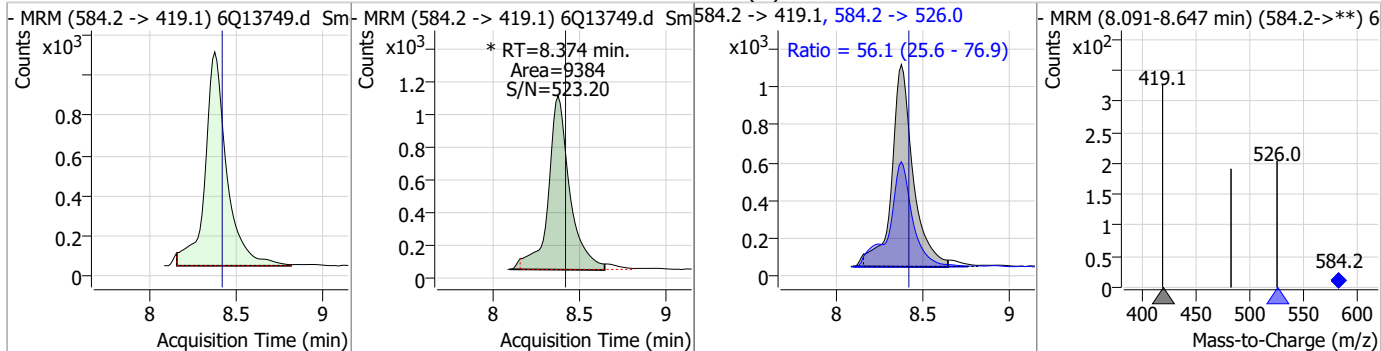
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.32	8.30	-0.04	7938 (m)	498.9 -> 98.8	61.7	30.7	92.1



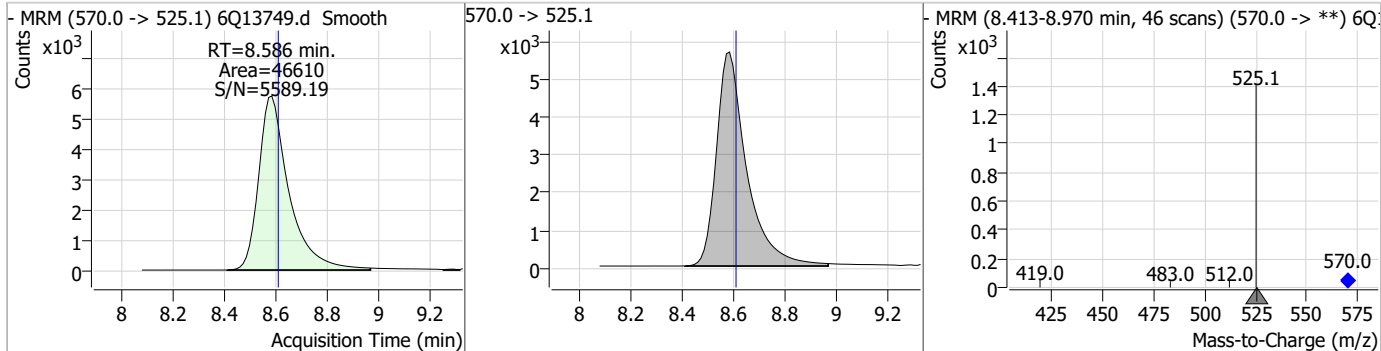
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.67	8.37	-0.02	24620				



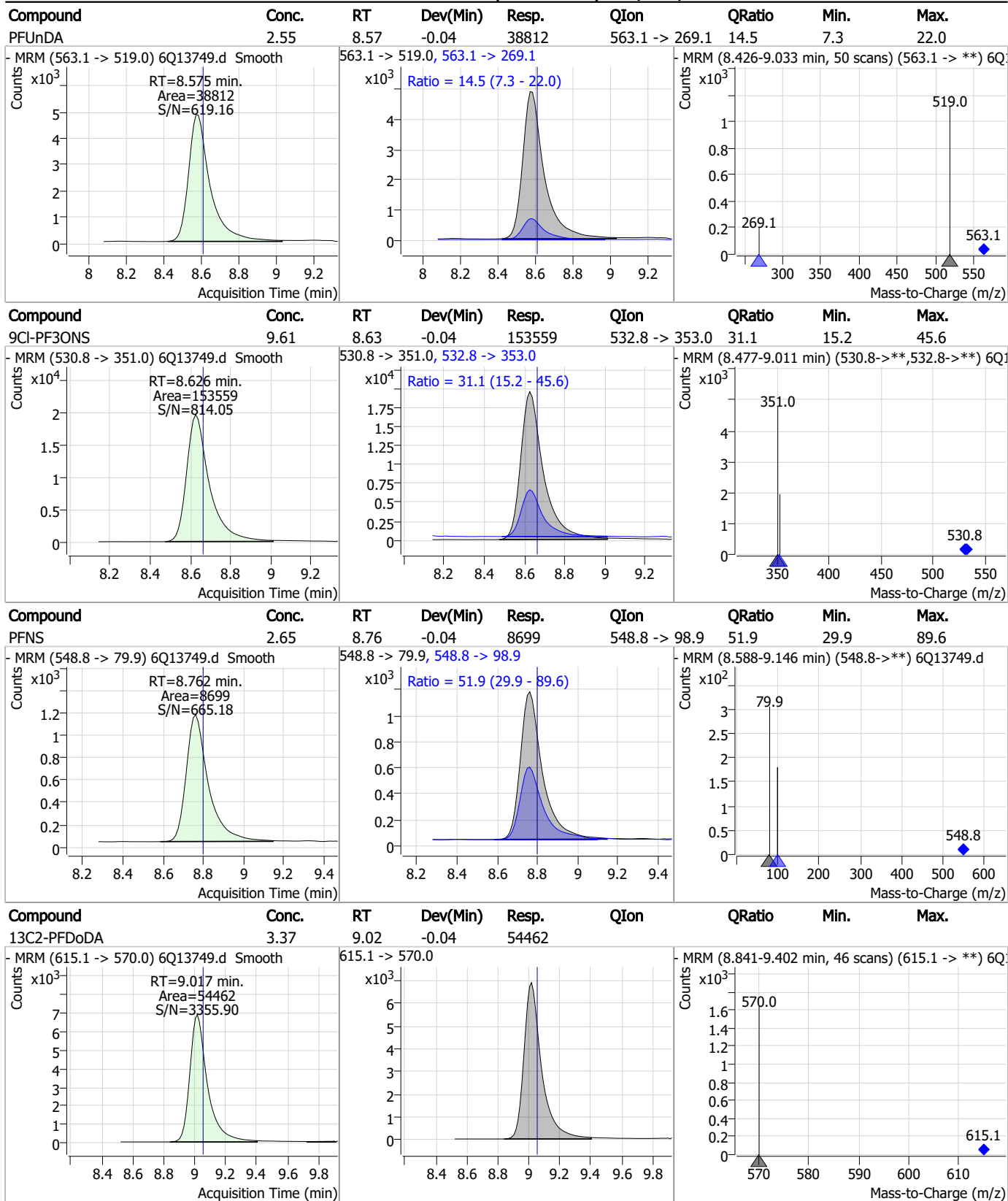
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.26	8.37	-0.04	9384 (m)	584.2 -> 526.0	56.1	25.6	76.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	3.25	8.59	-0.03	46610				



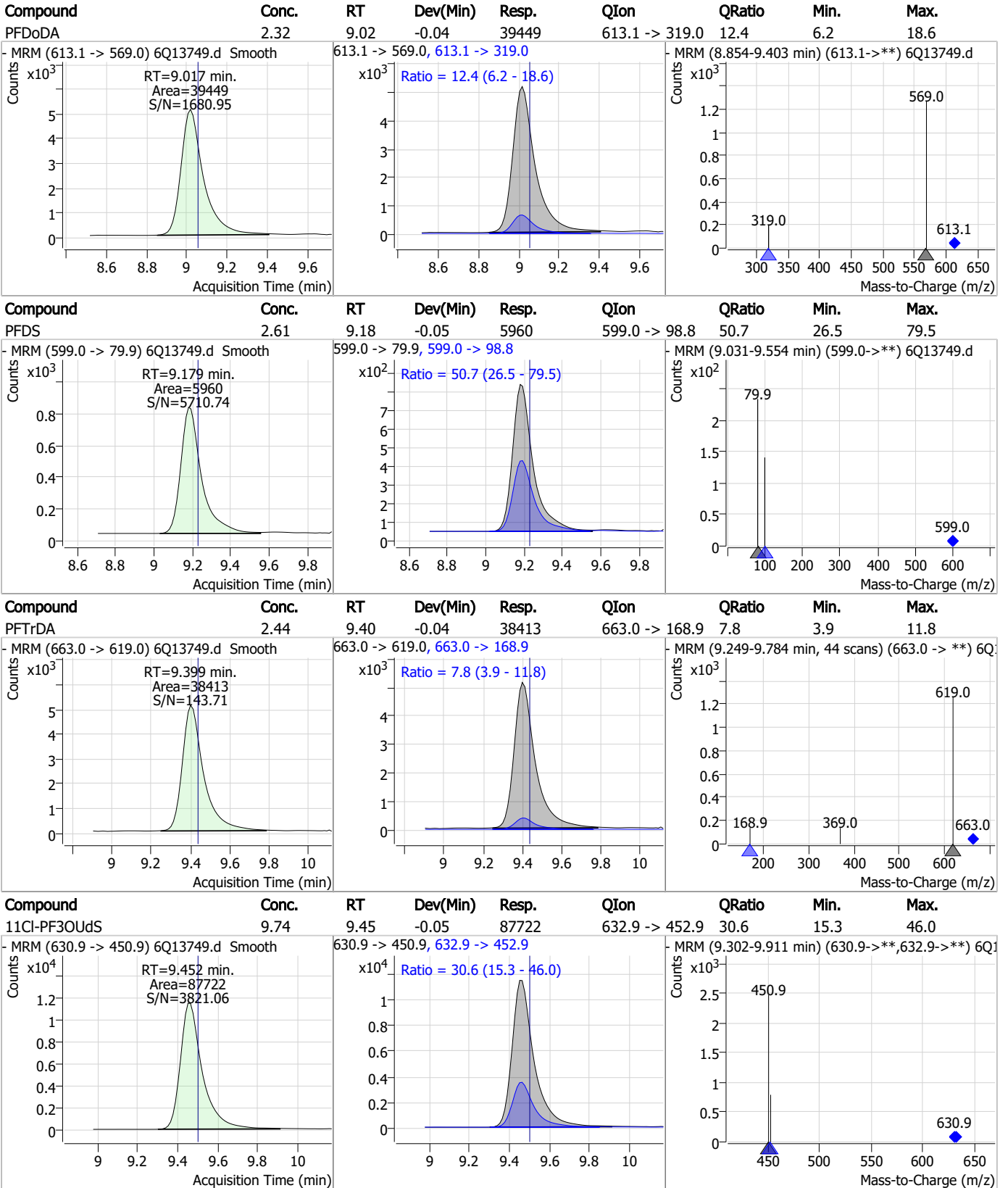
Perfluorinated Compounds by LC/MS/MS



7.6.14

7

Perfluorinated Compounds by LC/MS/MS



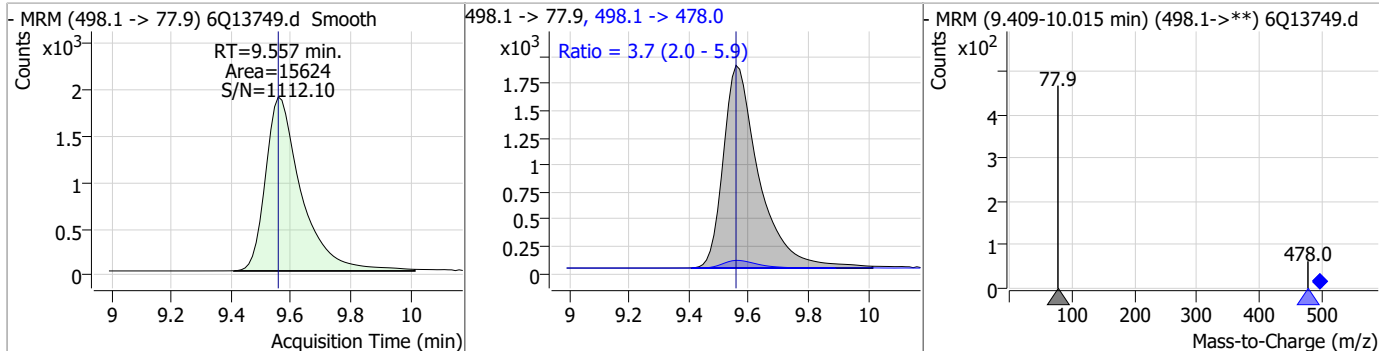
7.6.14

7

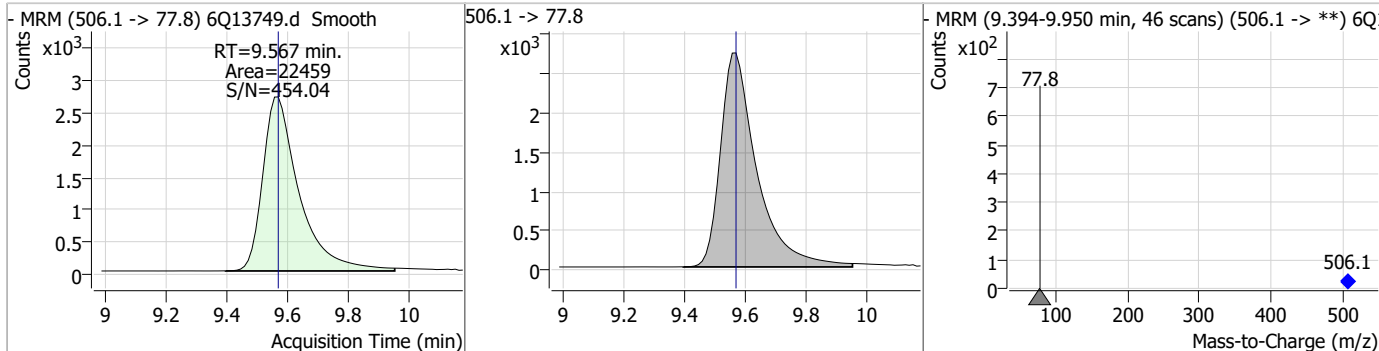


Perfluorinated Compounds by LC/MS/MS

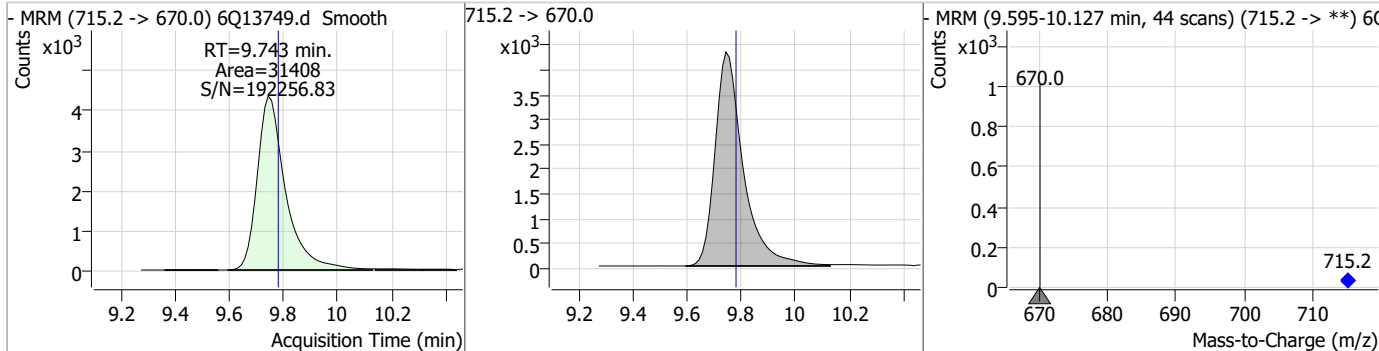
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.65	9.56	0.00	15624	498.1 -> 478.0	3.7	2.0	5.9



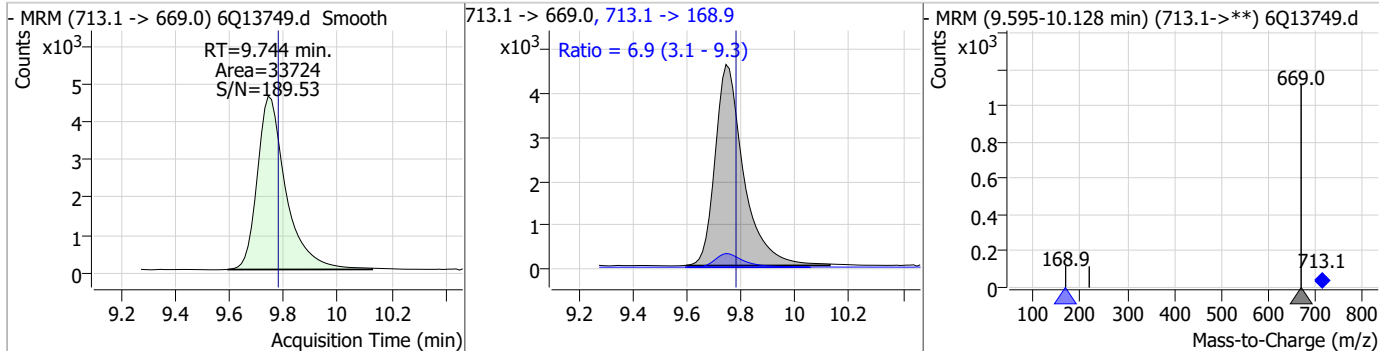
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	3.87	9.57	0.00	22459				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	3.51	9.74	-0.04	31408				

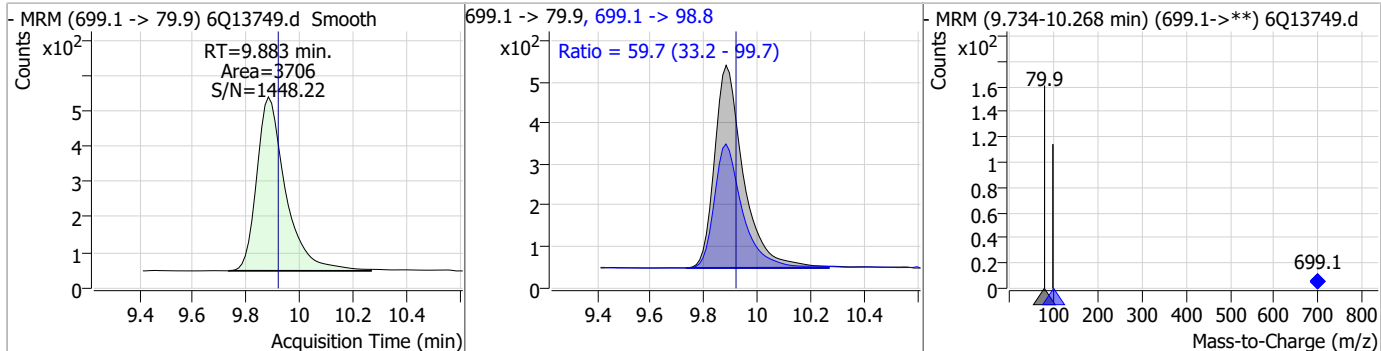


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.28	9.74	-0.04	33724	713.1 -> 168.9	6.9	3.1	9.3

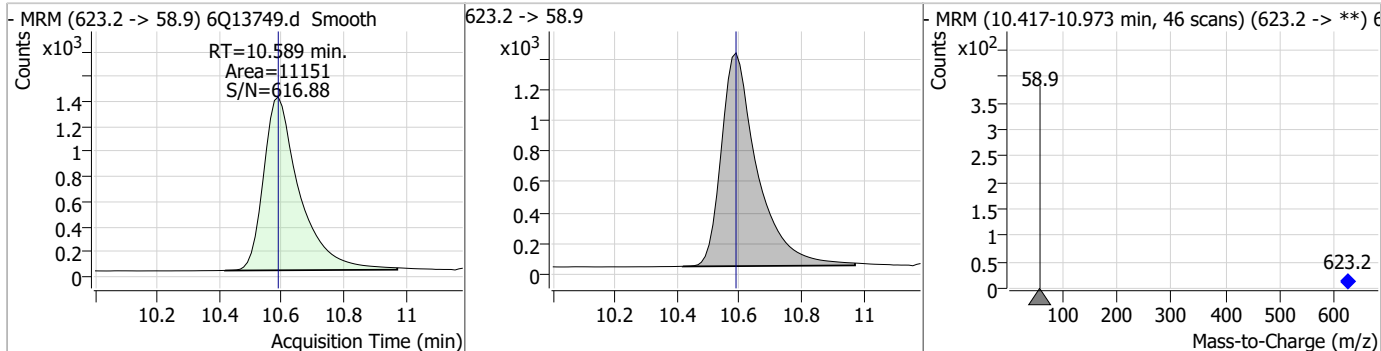


Perfluorinated Compounds by LC/MS/MS

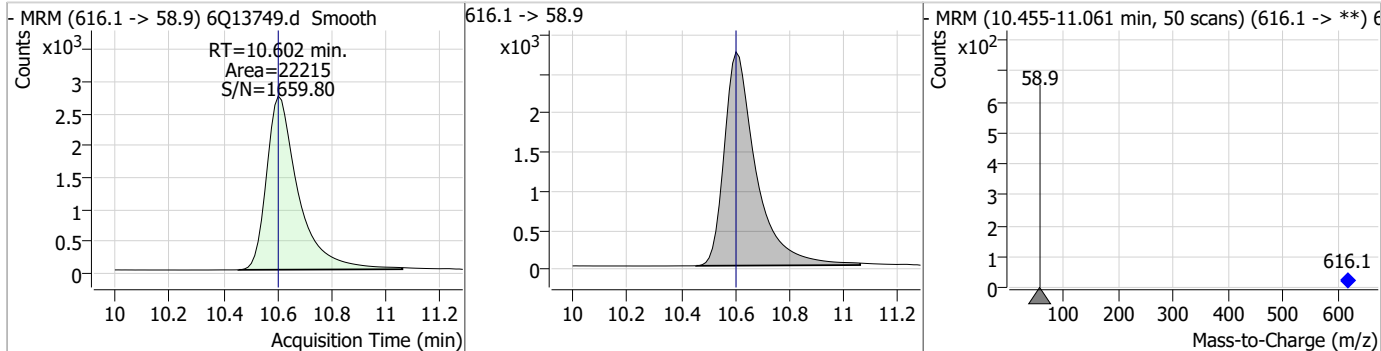
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.60	9.88	-0.04	3706	699.1 -> 98.8	59.7	33.2	99.7



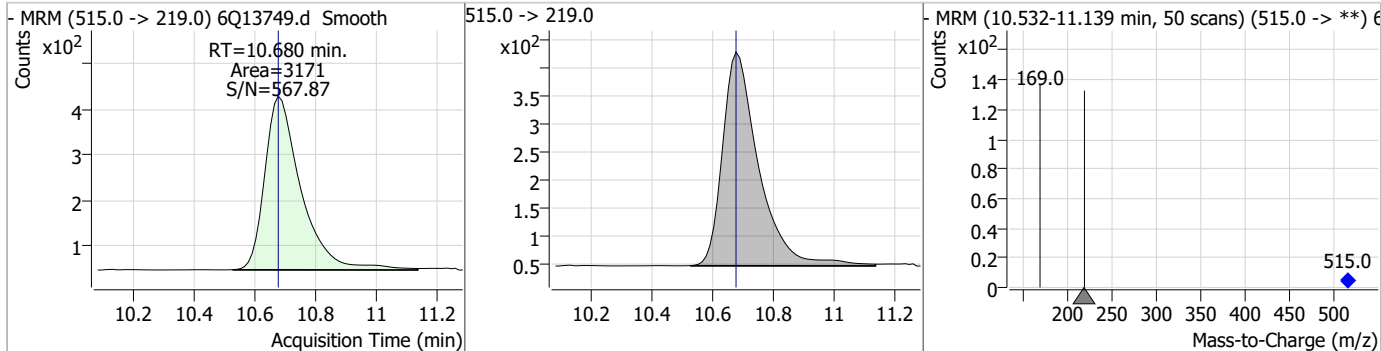
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	13.19	10.59	0.00	11151				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	23.98	10.60	0.00	22215				

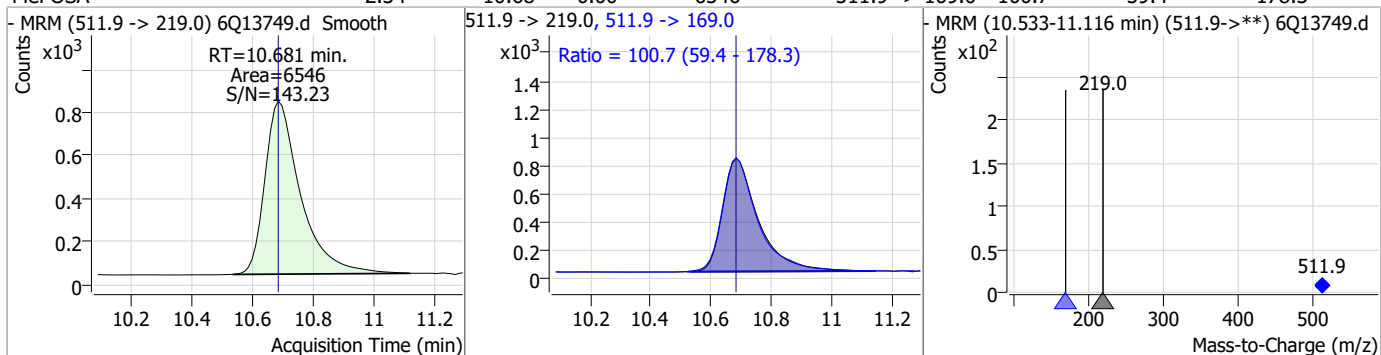


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	1.31	10.68	0.00	3171				

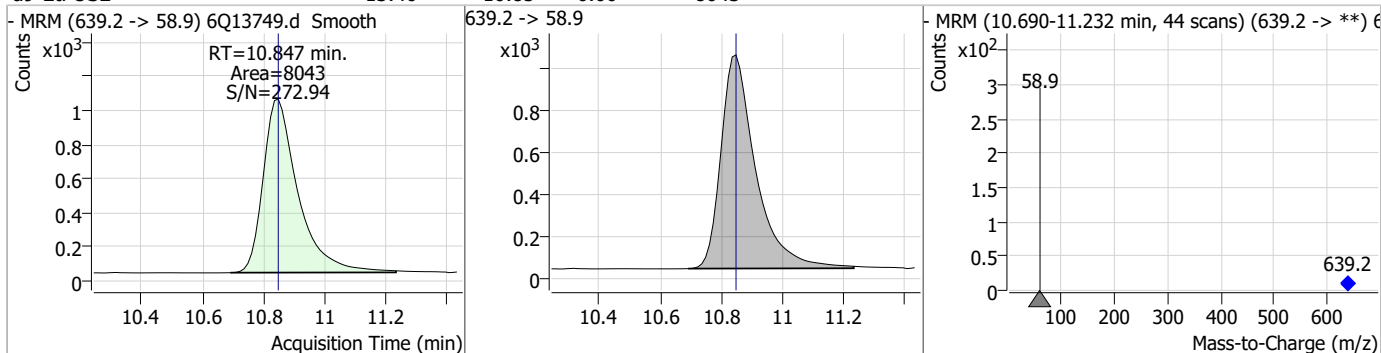


Perfluorinated Compounds by LC/MS/MS

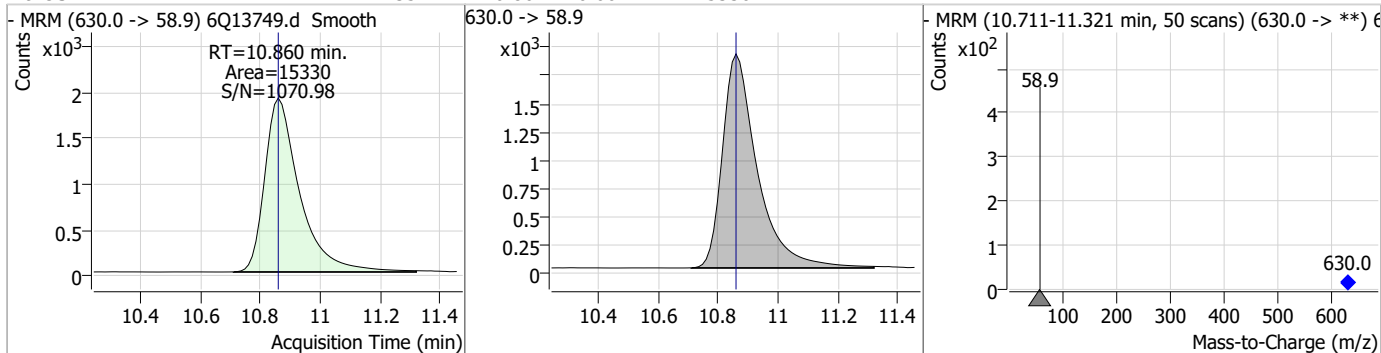
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSEA	2.34	10.68	0.00	6546	511.9 -> 169.0	100.7	59.4	178.3



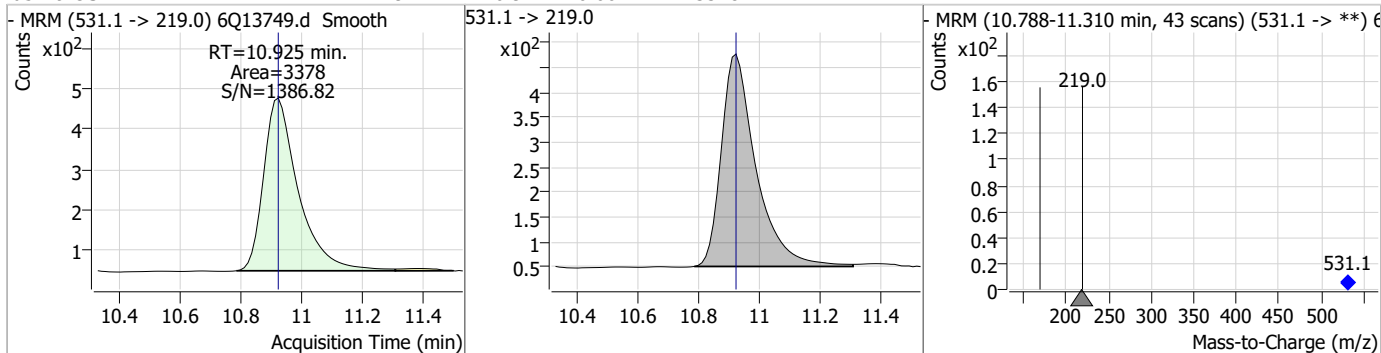
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	13.46	10.85	0.00	8043				



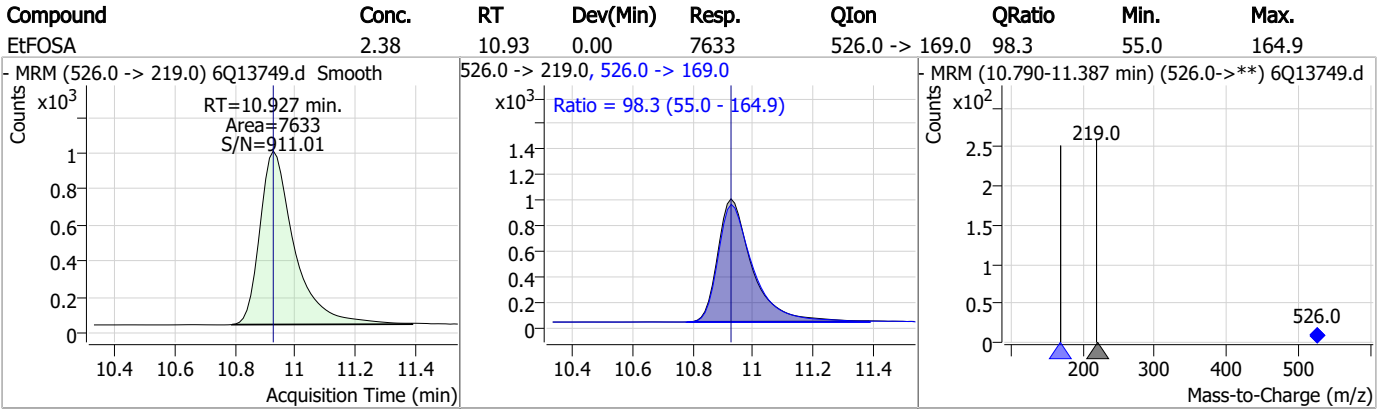
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	22.35	10.86	0.00	15330				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSEA	1.29	10.92	0.00	3378				



Perfluorinated Compounds by LC/MS/MS



7.6.14

7

Manual Integration Approval Summary

Sample Number: S6Q208-CC208 Method: EPA DRAFT 1633
Lab FileID: 6Q13749.D Analyst approved: 02/18/23 11:42 Natasha Gumtie
Injection Time: 02/16/23 13:12 Supervisor approved: 02/18/23 12:04 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.30	Split peak
EtFOSAA	2991-50-6		8.37	Split peak

7.6.14.1

7

SGS ORLANDO

DATE:	02/16/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 uI
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_021623_S6Q208
CAL DATE:	02/16/23
ANALYST:	M. Valls
RUN BATCH:	S6Q208

ELUENT A LOT #:	ACN lot#: 220228
ELUENT B LOT #:	LCMS 2057
IC/CC STD LOT #:	LCMS 2062-C
ICV STD LOT #:	LCMS 2062-B/2071
ISTD/ID STD LOT #:	LCMS2068B/11637

ICV 2: Full list LCMS2071

ISTD: HIF-ES + 24ES MIX

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
108	6Q13722.d	P1-D1	CCB	1633full.m	Sample		OP95142,S6Q208,500,,5.0,1,water	✓
109	6Q13723.d	P1-D1	CCB	1633full.m	Sample		OP95142,S6Q208,500,,5.0,1,water	✓
110	6Q13724.d	P1-E3	RT TDCA	1633full.m	Sample		OP95142,S6Q208,500,,5.0,1,water	✓
111	6Q13725.d	P1-E4	RT BR-LN	1633full.m	Sample		OP95142,S6Q208,500,,5.0,1,water	✓
112	6Q13726.d	P1-D1	ic208-0	1633full.m	Sample		OP95142,S6Q208,500,,5.0,1,water	✓
113	6Q13727.d	P1-D2	ic208-1	1633full.m	Calibration	1.6/500	OP95142,S6Q208,500,,5.0,1,water	✓
114	6Q13728.d	P1-D3	ic208-2	1633full.m	Calibration	4/500	OP95142,S6Q208,500,,5.0,1,water	✓
115	6Q13729.d	P1-D4	ic208-3	1633full.m	Calibration	10/500	OP95142,S6Q208,500,,5.0,1,water	✓
116	6Q13730.d	P1-D5	ic208-4	1633full.m	Calibration	20/500	OP95142,S6Q208,500,,5.0,1,water	✓
117	6Q13731.d	P1-D6	ic208-5	1633full.m	Calibration	40/500	OP95142,S6Q208,500,,5.0,1,water	✓
118	6Q13732.d	P1-D7	ic208-6	1633full.m	Calibration	100/500	OP95142,S6Q208,500,,5.0,1,water	✓
119	6Q13733.d	P1-D8	ic208-7	1633full.m	Calibration	200/500	OP95142,S6Q208,500,,5.0,1,water	✓
120	6Q13734.d	P1-D9	ic208-8	1633full.m	Calibration	1x	OP95142,S6Q208,500,,5.0,1,water	✓
121	6Q13735.d	P1-D1	IBLK	1633full.m	Sample		OP95142,S6Q208,500,,5.0,1,water	✓
122	6Q13736.d	P1-E1	ic208-4	1633full.m	QC	20/500	OP95142,S6Q208,500,,5.0,1,water	Prepared by NG
123	6Q13737.d	P1-E2	ic208-20	1633full.m	QC	100/500	OP95142,S6Q208,500,,5.0,1,water	✓
124	6Q13738.d	P1-D5	cc208-4	1633full.m	QC	20/500	OP95142,S6Q208,500,,5.0,1,water	✓
125	6Q13739.d	P1-D2	cc208-1.0LL	1633full.m	QC	1.6/500	OP95142,S6Q208,500,,5.0,1,water	✓
126	6Q13740.d	P6-A1	op95376-bs	1633full.m	Sample		OP95376,S6Q208,500,,5.0,1,water	✓
127	6Q13741.d	P6-A2	op95376-llbs:3	1633full.m	Sample		OP95376,S6Q208,500,,5.0,1,water	✓
128	6Q13742.d	P6-A3	op95376-mb	1633full.m	Sample		OP95376,S6Q208,500,,5.0,1,water	✓
129	6Q13743.d	P6-A4	FC24447-1	1633full.m	Sample		OP95376,S6Q208,530,,5.0,1,water	✓
130	6Q13744.d	P6-A5	op95376-ms	1633full.m	Sample		OP95376,S6Q208,540,,5.0,1,water	✓
131	6Q13745.d	P6-A6	FC24447-2	1633full.m	Sample		OP95376,S6Q208,550,,5.0,1,water	✓
132	6Q13746.d	P6-A7	op95376-dup	1633full.m	Sample		OP95376,S6Q208,540,,5.0,1,water	✓
133	6Q13747.d	P6-A8	FC24447-3	1633full.m	Sample		OP95376,S6Q208,550,,5.0,1,water	✓
134	6Q13748.d	P6-A9	FC24447-4	1633full.m	Sample		OP95376,S6Q208,530,,5.0,1,water	✓
135	6Q13749.d	P1-D5	cc208-4	1633full.m	QC		OP95142,S6Q208,500,,5.0,1,water	✓
136	6Q13750.d	P1-D1	iccb	1633full.m	Sample		OP95142,S6Q208,500,,5.0,1,water	✓
137	6Q13751.d	P6-B1	op95417-bs	1633full.m	Sample		OP95417,S6Q208,500,,5.0,1,water	✓
138	6Q13752.d	P6-B2	op95417-llbs:3	1633full.m	Sample		OP95417,S6Q208,500,,5.0,1,water	✓
139	6Q13753.d	P6-B3	op95417-mb	1633full.m	Sample		OP95417,S6Q208,500,,5.0,1,water	✓
140	6Q13754.d	P6-B4	FC1805-15	1633full.m	Sample		OP95417,S6Q208,550,,5.0,1,water	✓
141	6Q13755.d	P6-B5	FC1805-17	1633full.m	Sample		OP95417,S6Q208,545,,5.0,1,water	✓



SGS ORLANDO LCMS6-6Q ANALYSIS LOG

142	6Q13756.d	P6-B6	FC1842-1	1633full.m	Sample	OP95417,S6Q208,550,,5.0,1,water	✓
143	6Q13757.d	P6-B7	FC1842-2	1633full.m	Sample	OP95417,S6Q208,550,,5.0,1,water	✓
144	6Q13758.d	P6-B8	FC1842-6	1633full.m	Sample	OP95417,S6Q208,540,,5.0,1,water	✓
145	6Q13759.d	P1-D5	ecc208-4	1633full.m	QC	OP95142,S6Q208,500,,5.0,1,water	✓
146	6Q13760.d	P1-D1	iccb	1633full.m	Sample	OP95142,S6Q208,500,,5.0,1,water	✓



Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2071	SPIKE Full list std.	11606	PFOA DOD 28 Comp.	Absolute	11/9/27	2/7/24	1.0ppm	200uL	2.0mL	100ppb	957b MCOH + 5% H2O	2/16/23	3/21/23	MW
		LCMS 1987	40LIST PDD 041 21#1	SGS Std.		3/21/23	1.0ppm	200uL						
		LCMS 1986	40LIST PDD 041 21#2			4/18/23	1.0ppm	200uL						
		LCMS 2012	FOSGKA			5/11/23	5.0ppm	200uL		500ppb				
LCMS 2072	A-C 1633 (w/19)	11599	PFAC- MxH	Wilmington	8/8/27	2/7/24	1-4 ppm	250uL	4mL	42.5 125 250ppb	1633 MIX	2/20/23	8/20/23	MN
		11491	PFAC- MxI		9/14/26	2/7/24	1-10 ppm	250uL		42.5ppb				
		11600	PFAC- MxI		11/1/25	2/20/24	2ppm	500uL		250ppb				
		11627A	PFAC- MxI		2/22/27	2/7/24	2ppm	250uL		125ppb				
		11627B	PFAC- MxI		12/1/27	2/20/24	4-20 ppm	312uL		312/160 ppb				
		11489	PFAC- MxG		9/14/26	2/7/24								
		11602	PFAC- MxJ											
		11618B	PFAC- MxJ											

* 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 1987	40 List Std ADD-ON #1	10730A	10:2 PF3	Wilmington Labs	03/03/26	03/31/23	50ppm	80uL	4.0mL	1ppm	051NEOH 57470	10/18/22	03/21/23	NJS
		10840	PFDO5		07/01/26	10/18/23								
		10889	N-HEXOSA		08/03/26	08/23/23								
		10837	N-HEXOSA		08/03/26	08/23/23								
		10848	PFHDA	NS J&H	03/09/26	10/18/23								
		10841	PFODA		05/07/26	10/18/23								
		10684A	3:3FICA		11/12/25	03/21/23								
		10685A	PFPPA		11/11/25	08/23/23								
		10683A	7:3FICA		11/12/25	03/21/23								
		11117	PFECNS		10/14/26	06/23/23								
		10762B	PFESA		05/12/25	10/18/23								
		10763B	PFMBA		03/23/25	10/18/23								
		10764A	PFMPA		03/23/25	03/21/23								
		10768B	PFHDA 3.6 PFHDA		03/23/25	10/18/23								
						10/18/22								

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



Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS A 2009 B	PFC Spike	11483	PFOA-D00 (28 Comp.)	Wellington Labs	08/05/27	11/08/23	1.0ppm	2mL	5mL	400ppb	95/MEOH 5/1.H2O	11/08/22	05/10/23	NG
		10829	N-He-FOSA-M		08/23/24	09/23/23	50ppm	40uL						NG
		11294	FOSA-1		11/10/26	06/23/23								NG
		11249	FHXA-1		12/29/26	11/03/23								NG
		11332	PFECHS		03/28/27	10/18/23								NG
LCMS A-B 2010	(Spike) 1623 CAL. Std.	10855F	PFAC-NXH	Wellington Labs	09/14/26	11/04/23	1-11 ppm	250uL	4mL	92.5/105/1250 ppb	1623 Mix	11/01/22	05/10/23	NG
		10853E	PFAC-NXI		09/14/26	11/04/23	1-10 ppm	250uL		62.5/62.5 ppb				NG
		10856I	PFAC-NXF		05/10/23	05/10/23	2 ppm	500uL		250ppb				NG
		10854E	PFAC-NXG		03/24/25	11/04/23	2 ppm	250uL		12.5 ppb				NG
		10857D	PFAC-NXS		10/12/23	11/02/23	4-20 ppm	312uL		212/1160 ppb				NG
LCMS 2011	(Spike) FULL List std.	11440	PFOA-D00 (28)	Absolute	08/05/27	10/24/23	1.0ppm	400uL	4.0mL	100ppb	95/MEOH 5/1.H2O	11/11/22	07/21/23	NG
		LCMS 1987	40 List ADDON #1			03/21/23	1.0ppm	400uL		100ppb				NG
		LCMS 1986	40 List ADDON #2			01/18/23	1.0ppm	400uL		100ppb				NG
		LCMS 2012	FOSE std.			05/11/23	50ppm	400uL		500ppb				NG
LCMS 2012	FOSE std.	11336	N-He-FOSE	Wellington Labs	05/13/27	09/19/23	50ppm	200uL	2.0mL	5ppm	95/MEOH 5/1.H2O	11/11/22	05/11/23	NG
		11336	N-He-FOSE		05/13/27	09/19/23	50ppm	200uL						NG

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

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



ISOTOPE	1633 HIF	REG EIS	EIS 11629A	EIS 11629A concentration	EIS 11629B	EIS 11629B concentration
MPFBA	2000	1000	1500	7.50	1000	5.00
M5PFPeA	1000	1000	1000	5.00	1000	5.00
M5PFHxA	500	1000	750	3.75	1000	5.00
M4PFHpA	500	1000	750	3.75	1000	5.00
M8PFOA	500	1000	750	3.75	1000	5.00
M9PFNA	250	1000	625	3.125	1000	5.00
M6PFDA	250	1000	625	3.125	1000	5.00
M7PFUdA	250	1000	625	3.125	1000	5.00
MPFDoA	250	1000	625	3.125	1000	5.00
M2PFTeDA	250	1000	625	3.125	1000	5.00
M8FOSA	500	1000	750	3.75	1000	5.00
d-N-MeFOSA	500		250	1.25		
d-N-EtFOSA	500		250	1.25		
d3-N-MeFOSAA	1000	1000	1000	5.00	1000	5.00
d5-N-EtFOSAA	1000	1000	1000	5.00	1000	5.00
d7-N-MeFOSE	5000		2500	12.50		
d9-N-EtFOSE	5000		2500	12.50		
M3HFPO-DA	2000		1000	5.00		
M3PFBS	500	1000	750	3.75	1000	5.00
M3PFHxS	500	1000	750	3.75	1000	5.00
M8PFOS	500	1000	750	3.75	1000	5.00
M2-4:2FTS	1000	1000	1000	5.00	1000	5.00
M2-6:2FTS	1000	1000	1000	5.00	1000	5.00
M2-8:2FTS	1000	1000	1000	5.00	1000	5.00

EIS Spike 11629A was inadvertently prepared using 2ml of 1633 EIS and 2ml of regular EIS. Instrument standards were prepared to match the resultant EIS concentrations and the method was updated accordingly.

EIS Spike 11629B was inadvertently prepared using 4ml of regular EIS instead of 1633 EIS. Instrument standards were prepared to match the resultant EIS concentrations and the method was updated accordingly.

10853



WELLINGTON
LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PFAC-MXI

**Native Perfluorooctanesulfonamide
and Perfluorooctanesulfonamidoethanol
Solution/Mixture**

PRODUCT CODE: PFAC-MXI
LOT NUMBER: PFACMXI0921
SOLVENT(S): Methanol
DATE PREPARED: (mm/dd/yyyy) 09/08/2021
LAST TESTED: (mm/dd/yyyy) 09/14/2021
EXPIRY DATE: (mm/dd/yyyy) 09/14/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXI is a solution/mixture of two native perfluorooctanesulfonamides (FOSAs) and two native perfluorooctanesulfonamidoethanols (FOSEs). The components and their concentrations are given in Table A.

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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#: 3, Revised 2020-12-23


PFACMXI0921 (1 of 5)
rev0

7.8.1

7

Table A: PFAC-MXI; Components and Concentrations (µg/mL; ± 5% in methanol)

Compound	Acronym	Concentration (µg/mL)	Peak Assignment in Figure 1
N-methylperfluoro-1-octanesulfonamide	N-MeFOSA	1.00	B
N-ethylperfluoro-1-octanesulfonamide	N-EtFOSA	1.00	D
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	N-MeFOSE	10.0	A
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	N-EtFOSE	10.0	C

Certified By: 
 B.G. Chittim, General Manager

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

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

PFACMXI0921 (3 of 5)
 rev0

7.8.1
 7

10854



**WELLINGTON
LABORATORIES**

**CERTIFICATE OF ANALYSIS
DOCUMENTATION**

PFAC-MXG

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

<u>PRODUCT CODE:</u>	PFAC-MXG
<u>LOT NUMBER:</u>	PFACMXG1219
<u>SOLVENT(S):</u>	Methanol/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	12/03/2019
<u>LAST TESTED:</u> (mm/dd/yyyy)	05/04/2020
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	05/04/2025
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

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

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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

PFACMXG1219 (1 of 5)
rev2


7.8.1

7

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

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

* Concentrations have been rounded to three significant figures.

Certified By: 
 B.G. Chittim, General Manager

Date: 07/30/2021
(mm/dd/yyyy)

rec'd 10/31/22 11489



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXG

Native Perfluoroalkyl Ether Carboxylic
Acids and Sulfonate Solution/Mixture

PRODUCT CODE:

PFAC-MXG

LOT NUMBER:

PFACMXG0222

SOLVENT(S):

Methanol/Water (<1%)

DATE PREPARED: (mm/dd/yyyy)

02/07/2022

LAST TESTED: (mm/dd/yyyy)

02/22/2022

EXPIRY DATE: (mm/dd/yyyy)

02/22/2027

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.

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

PFACMXG0222 (1 of 5)
rev0

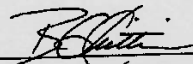
7.8.1

7

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-dioxaheptanoic acid	3,6-OPFHpA	2000		D
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
Potassium perfluoro(2-ethoxyethane)sulfonate	PFEESA	2000	1780	

* Concentrations have been rounded to three significant figures.

Certified By: 
 B.G. Chittim, General Manager

Date: 03/03/2022
(mm/dd/yyyy)

rec'd 10/21/22 11490



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

**Native PFAS
Solution/Mixture**

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

DESCRIPTION:

PFAC-MXH is a solution/mixture of 11 native linear perfluoroalkylcarboxylic acids (C₄-C₁₄), eight native perfluoroalkanesulfonates (C₄, C₆, C₇, C₉, 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 (FOSA). The components and their concentrations are given in Table A.

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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

PFACMXH0822 (1 of 11)
rev0

7.8.1

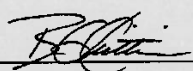
7

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

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-butanoic acid	PFBA	4000		1
Perfluoro-n-pentanoic acid	PFPeA	2000		2
Perfluoro-n-hexanoic acid	PFHxA	1000		5
Perfluoro-n-heptanoic acid	PFHpA	1000		7
Perfluoro-n-octanoic acid	PFOA	1000		11
Perfluoro-n-nonanoic acid	PFNA	1000		14
Perfluoro-n-decanoic acid	PFDA	1000		18
Perfluoro-n-undecanoic acid	PFUDA	1000		24
Perfluoro-n-dodecanoic acid	PFDoA	1000		26
Perfluoro-n-tridecanoic acid	PFTrDA	1000		27
Perfluoro-n-tetradecanoic acid	PFTeDA	1000		29
Perfluoro-1-octanesulfonamide	FOSA	1000		23
N-methylperfluorooctanesulfonamidoacetic acid ^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.

Certified By: 
 B.G. Chittim, General Manager

Date: 08/09/2022
(mm/dd/yyyy)

rec'd 10/31/22 11491



WELLINGTON
LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PFAC-MXI

**Native Perfluorooctanesulfonamide
and Perfluorooctanesulfonamidoethanol
Solution/Mixture**

<u>PRODUCT CODE:</u>	PFAC-MXI
<u>LOT NUMBER:</u>	PFACMXI0921
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/08/2021
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/14/2021
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	09/14/2026
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXI is a solution/mixture of two native perfluorooctanesulfonamides (FOSAs) and two native perfluorooctanesulfonamidoethanols (FOSEs). The components and their concentrations are given in Table A.

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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

PFACMXI0921 (1 of 5)
rev0

7.8.1

7

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

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

Certified By: 
 B.G. Chittim, General Manager

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

11599
rec'd 01/10/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

Native PFAS
Solution/Mixture

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

DESCRIPTION:

PFAC-MXH is a solution/mixture of 11 native linear perfluoroalkylcarboxylic acids (C₄-C₁₄), eight native perfluoroalkanesulfonates (C₄, C₆, C₇, C₉, 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 (FOSA). The components and their concentrations are given in Table A.

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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

PFACMXH0822 (1 of 11)
rev0

7.8.1

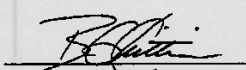
7

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

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-butanoic acid	PFBA	4000		1
Perfluoro-n-pentanoic acid	PFPeA	2000		2
Perfluoro-n-hexanoic acid	PFHxA	1000		5
Perfluoro-n-heptanoic acid	PFHpA	1000		7
Perfluoro-n-octanoic acid	PFOA	1000		11
Perfluoro-n-nonanoic acid	PFNA	1000		14
Perfluoro-n-decanoic acid	PFDA	1000		18
Perfluoro-n-undecanoic acid	PFUDA	1000		24
Perfluoro-n-dodecanoic acid	PFDoA	1000		26
Perfluoro-n-tridecanoic acid	PFTrDA	1000		27
Perfluoro-n-tetradecanoic acid	PFTeDA	1000		29
Perfluoro-1-octanesulfonamide	FOSA	1000		23
N-methylperfluorooctanesulfonamidoacetic acid ^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.

Certified By: 
 B.G. Chittim, General Manager

Date: 08/09/2022
(mm/dd/yyyy)

11603
rec'd: 01/10/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture

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

DESCRIPTION:

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

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.


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

7.8.1
7

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

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

Certified By: 
B.G. Chittim, General Manager

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

11617 A-B rec'd 01/19/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF

Native Replacement PFAS
Solution/Mixture

PRODUCT CODE: PFAC-MXF
LOT NUMBER: PFACMXF0122
SOLVENT(S): Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 01/10/2022
LAST TESTED: (mm/dd/yyyy) 01/11/2022
EXPIRY DATE: (mm/dd/yyyy) 01/11/2025
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonanoate (NaDONA), the major and minor components of F-53B (9CI-PF3ONS and 11CI-PF3OUdS), and GenX (HFPO-DA). The components and their concentrations are given in Table A.

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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

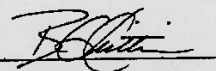
PFACMXF0122 (1 of 5)
revD

7.8.1
7

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

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

* Concentrations have been rounded to three significant figures.

Certified By: 
B.G. Chittim, General Manager

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

11618 A-B rec'd 01/19/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture

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

DESCRIPTION:

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

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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

PFACMXJ0921 (1 of 5)
rev1

7.8.1

7

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

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

Certified By: 
 B.G. Chittim, General Manager

Date: 10/02/2021
(mm/dd/yyyy)

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

PFACMXJ0921 (3 of 5)
 rev1

7.8.1
 7

11627 A-B
rec'd 01/26/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF

Native Replacement PFAS
Solution/Mixture

<u>PRODUCT CODE:</u>	PFAC-MXF
<u>LOT NUMBER:</u>	PFACMXF0122
<u>SOLVENT(S):</u>	Methanol / Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	01/10/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	01/11/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	01/11/2025
<u>RECOMMENDED STORAGE:</u>	Refrigerate ampoule

DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonanoate (NaDONA), the major and minor components of F-53B (9Cl-PF3ONS and 11Cl-PF3OUdS), and GenX (HFPO-DA). The components and their concentrations are given in Table A.

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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

PFACMXF0122 (1 of 5)
rev0

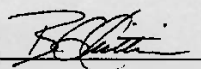
7.8.1
7

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

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

* Concentrations have been rounded to three significant figures.

Certified By:


B.G. Chittim, General Manager

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



116060 rec'd: 01/13/23

CERTIFIED WEIGHT REPORT

Part Number: **64029A**
Lot Number: **110922**
Description: **PFOA - DOD**
28 components
Expiration Date: **110927**
Recommended Storage: **Freezer (0 °C)**
Nominal Concentration (µg/mL): **1.0**
NIST Test ID#: **GUTB**

Solvent(s): **Methanol (1 mM KOH)**
2-Propanol

Lot# **102722 (98%)**
32500 (2%)

SE-05 Balance Uncertainty
0.012 Peak Uncertainty

Formulated By: <i>Prashant Chauhan</i>	110922
Prashant Chauhan	DATE
Reviewed By: <i>Pedro L. Rantas</i>	110922
Pedro L. Rantas	DATE

Volume(s) shown below were combined and diluted to: **100.0**
Note: All assigned values are anion concentrations.

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (+/-) µg/mL	SDS Information (Solvent Safety Info. On Attached pg.)		
									Free Acid CAS#	OSHA PEL (TWA)	LOSO
1. Perfluoro-n-butanoic acid (PFBA)	99542	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-22-4	N/A	N/A
2. Perfluoro-n-pentanoic acid (PFPeA)	99543	050222	0.02	2.00	0.017	50.3	1.01	0.02	2706-90-3	N/A	N/A
3. Perfluorohexanoic acid (PFHxA)	99199	071122	0.02	2.00	0.017	50.2	1.00	0.02	307-24-4	N/A	N/A
4. Perfluoroheptanoic acid (PFHpA)	99197	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-85-9	N/A	N/A
5. Perfluorooctanoic acid (br-PFOA)*	99202	080522	0.02	2.00	0.017	50.2	1.00	0.02	335-67-1 (L)	N/A	ip-rat 189mg/kg
6. Perfluorononanoic acid (PFNA)	99200	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-95-1	N/A	N/A
7. Perfluorodecanoic acid (PFDA)	99195	110922	0.02	2.00	0.017	50.0	1.00	0.02	335-76-2	N/A	ori-rat 57mg/kg
8. Perfluoroundecanoic acid (PFUnA)	99205	071522	0.02	2.00	0.017	50.2	1.00	0.02	2058-94-8	N/A	N/A
9. Perfluorododecanoic acid (PFDoA)	99196	071522	0.02	2.00	0.017	50.1	1.00	0.02	307-55-1	N/A	N/A
10. Perfluorotridecanoic acid (PFTriDA)	99204	110922	0.02	2.00	0.017	50.1	1.00	0.02	72629-94-8	N/A	N/A
11. Perfluorotetradecanoic acid (PFTeDA)	99203	033022	0.02	2.00	0.017	50.1	1.00	0.02	376-06-7	N/A	N/A
12. Perfluoro-1-octanesulfonamide (FOSA)	3677	FOSA03221	0.02	2.00	0.017	50.0	1.00	0.05	754-91-6	N/A	N/A
13. N-Methylperfluorooctanesulfonamidoacetic acid (br-NMeFOSAA)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	50.0	1.00	0.05	2355-31-9 (L)	N/A	N/A
14. N-Ethylperfluorooctanesulfonamidoacetic acid (br-NEFOSAA)*	4163	brNEFOSAA1121	0.02	2.00	0.017	50.0	1.00	0.05	2991-50-6 (L)	N/A	N/A
15. Perfluorobutanesulfonic acid (PFBS)	99194	080522	0.02	2.00	0.017	50.2	1.00	0.02	375-73-5	N/A	N/A
16. Perfluoro-1-pentanesulfonic acid (PFPeS)	99544	032422	0.02	2.00	0.017	50.1	1.00	0.02	2706-91-4	N/A	N/A
17. Perfluorohexanesulfonic acid (br-PFHxS)*	99198	071522	0.02	2.00	0.017	50.2	1.00	0.02	355-46-4 (L)	N/A	N/A
18. Perfluoro-1-heptanesulfonic acid (PFHpS)	3672	LPFHpS0822	0.021	2.10	0.017	47.6	1.00	0.05	375-92-8	N/A	N/A
19. Heptadecafluorooctanesulfonic acid (br-PFOS)*	99201	033022	0.02	2.00	0.017	50.1	1.00	0.02	1763-23-1 (L)	N/A	N/A
20. Perfluoro-1-nonanesulfonic acid (PFNS)	3957	LPFNS1021	0.021	2.10	0.017	48.0	1.01	0.05	68259-12-1	N/A	N/A
21. Perfluoro-1-decanesulfonic acid (PFDS)	3671	LPFDS0222	0.021	2.10	0.017	48.2	1.01	0.05	335-77-3	N/A	N/A
22. 1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	65271	080522	0.02	2.00	0.017	50.2	1.00	0.05	757124-72-4	N/A	N/A
23. 1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	65272	071522	0.02	2.00	0.017	50.2	1.00	0.05	27819-67-2	N/A	N/A
24. 1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	3662	82FTS0822	0.021	2.10	0.017	47.9	1.01	0.05	39108-34-4	N/A	N/A
25. 2-(Heptafluoropropyl)-2,3,3,3-tetrafluoropropionic acid (HFPO-DA)	99666	080522	0.02	2.00	0.017	50.1	1.00	0.02	13252-13-6	N/A	N/A
26. 11-Chlorooctadecafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	4165	11ClPF3OUdS0522	0.021	2.12	0.017	47.1	1.00	0.05	763051-92-9	N/A	N/A
27. 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	4164	9ClPF3ONS0522	0.021	2.14	0.017	46.6	1.00	0.05	756426-58-1	N/A	N/A
Dodecafluoro-3H-4,8-dioxanonanoic acid (ADONA)	4103	NaDONA0922	0.021	2.12	0.017	47.1	1.00	0.05	919005-14-4	N/A	N/A
Perfluorooctanoic acid (linear)*	99202	080522	0.02	2.00	0.004	49.6	0.99	0.010	335-67-1 (L)	N/A	ip-rat 189mg/kg
Perfluorooctanoic acid (branched isomer)*	99202	080522	0.02	2.00	0.004	0.6	0.01	0.001	335-67-1 (L)	N/A	ip-rat 189mg/kg
Perfluorohexanesulfonic acid (linear)*	99198	071522	0.02	2.00	0.017	44.2	0.88	0.02	355-46-4 (L)	N/A	N/A
Perfluorohexanesulfonic acid (branched isomer)*	99198	071522	0.02	2.00	0.017	6.0	0.12	0.0021	355-46-4 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (linear)*	99201	033022	0.02	2.00	0.017	38.1	0.76	0.02	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	7.5	0.15	0.003	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	4.0	0.08	0.002	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	0.5	0.010	0.0002	1763-23-1 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	36.0	0.72	0.04	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	6.5	0.13	0.011	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	5.0	0.10	0.005	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	2.5	0.05	0.0009	2355-31-9 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4163	brNEFOSAA1121	0.02	2.00	0.017	36.6	0.73	0.04	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	7.7	0.15	0.009	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	5.3	0.11	0.005	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	0.4	0.007	0.0006	2991-50-6 (L)	N/A	N/A

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

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

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

10683A



WELLINGTON LABORATORIES

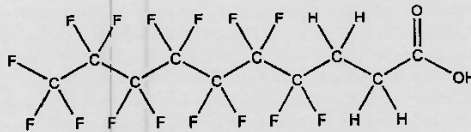
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: FHpPA
COMPOUND: 3-Perfluoroheptyl propanoic acid

LOT NUMBER: FHpPA1020

STRUCTURE:

CAS #: 812-70-4



MOLECULAR FORMULA: C₁₀H₉F₁₅O₂
CONCENTRATION: 50.0 ± 2.5 µg/mL
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 11/12/2020
EXPIRY DATE: (mm/dd/yyyy) 11/12/2025
RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 442.12
SOLVENT(S): Methanol

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager

Date: 11/27/2020
(mm/dd/yyyy)

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

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

FHpPA1020 (1 of 4)
rev0

7.8.1

7

106 84A



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FPrPA

LOT NUMBER:

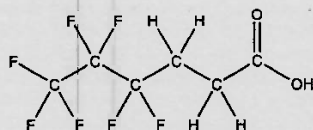
FPrPA1020

COMPOUND:

3-Perfluoropropyl propanoic acid

STRUCTURE:**CAS #:**

356-02-5

**MOLECULAR FORMULA:** $C_6H_5F_7O_2$ **MOLECULAR WEIGHT:**

242.09

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

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/12/2020

EXPIRY DATE: (mm/dd/yyyy)

11/12/2025

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains <1% of the unsaturated 3:3 telomer acid ($C_8H_5F_7O_2$) as an impurity determined by ^{19}F NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 11/27/2020

(mm/dd/yyyy)

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

10685A



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FPePA

LOT NUMBER:

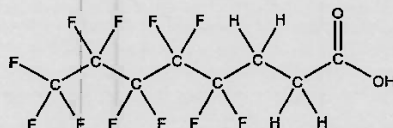
FPePA1120

COMPOUND:

3-Perfluoropentyl propanoic acid

STRUCTURE:**CAS #:**

914637-49-3

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

342.11

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

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/11/2020

EXPIRY DATE: (mm/dd/yyyy)

11/11/2025

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

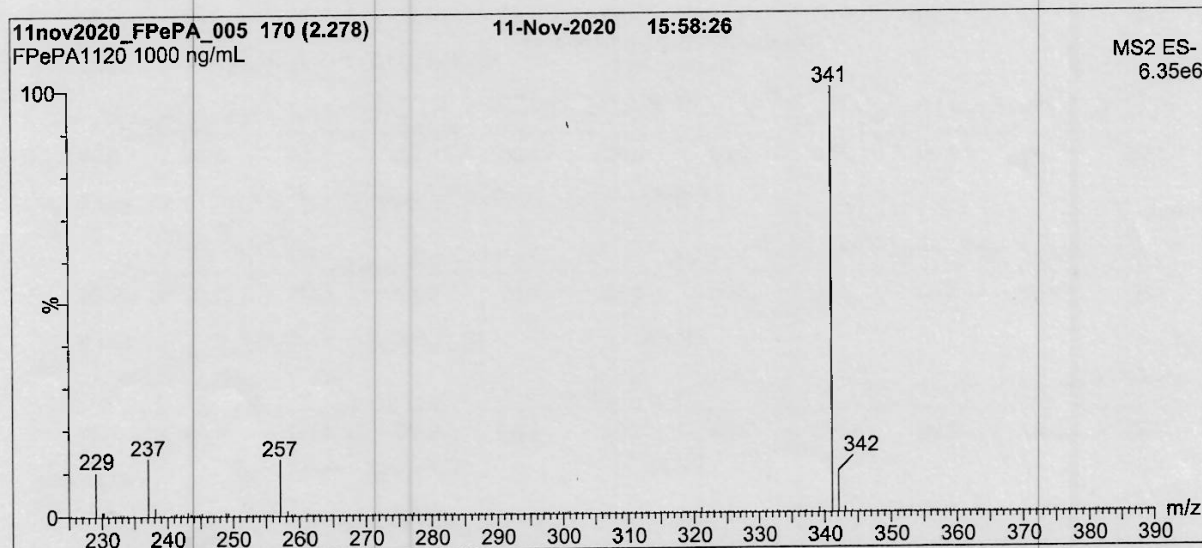
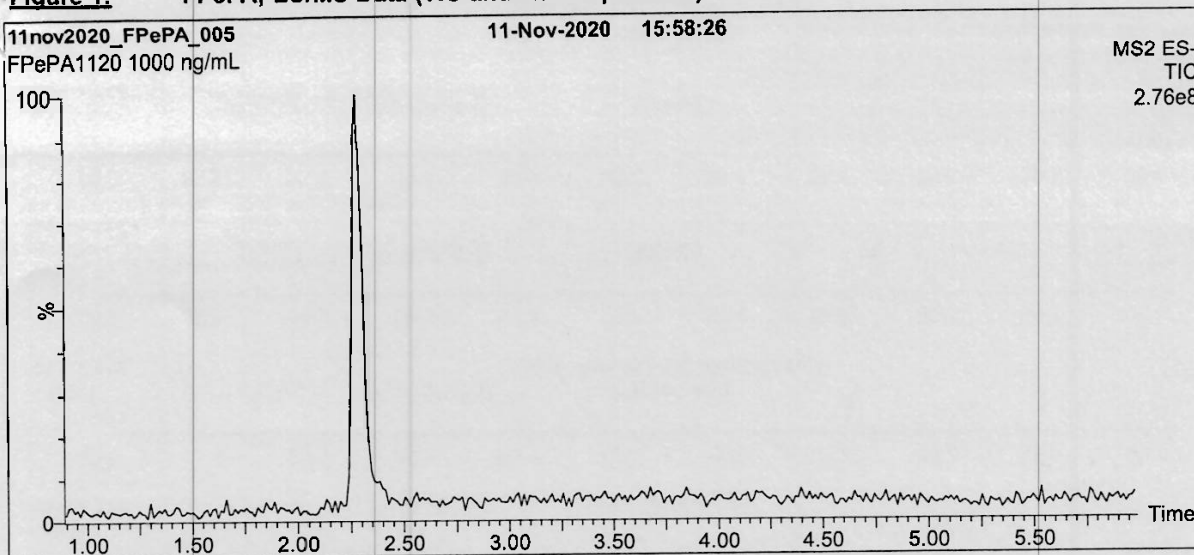
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

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

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

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



Conditions for Figure 1:

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

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{1a}
1.7 μ m, 2.1 x 100 mm

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

Flow: 300 μ L/min

MS Parameters:

Experiment: Full Scan (225 - 850 amu)

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

10726 A

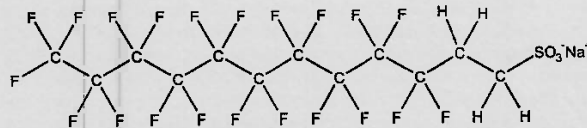


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

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

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



MOLECULAR FORMULA: C₁₂H₄F₂₁SO₃Na **MOLECULAR WEIGHT:** 650.18
CONCENTRATION: 50.0 ± 2.5 µg/mL (Na salt) **SOLVENT(S):** Methanol
48.3 ± 2.4 µg/mL (10:2FTS acid)
48.2 ± 2.4 µg/mL (10:2FTS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 03/03/2021
EXPIRY DATE: (mm/dd/yyyy) 03/03/2026
RECOMMENDED STORAGE: Refrigerate ampoule

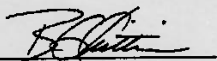
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

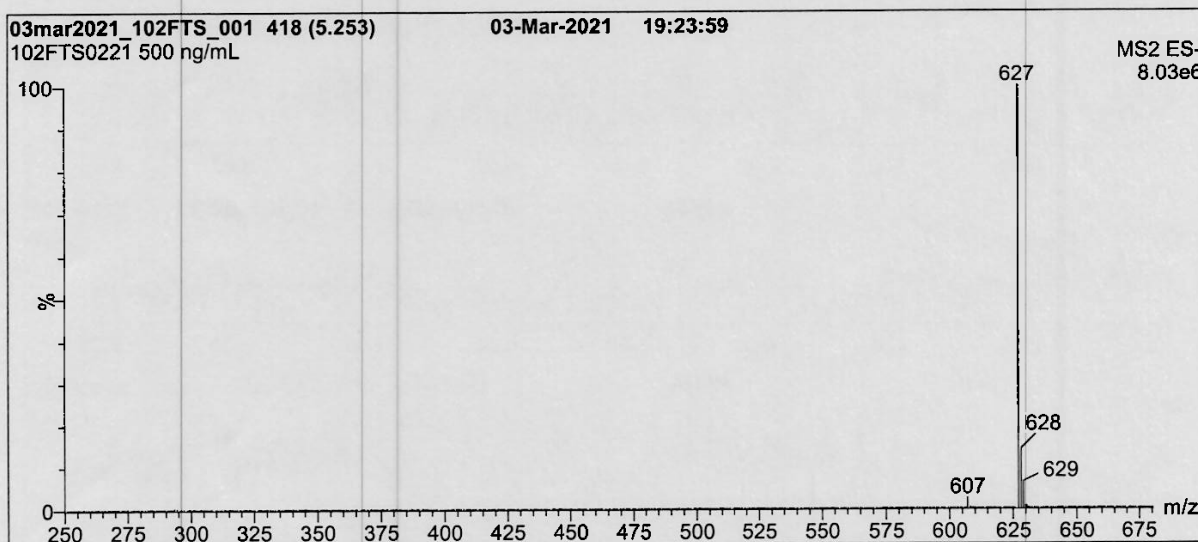
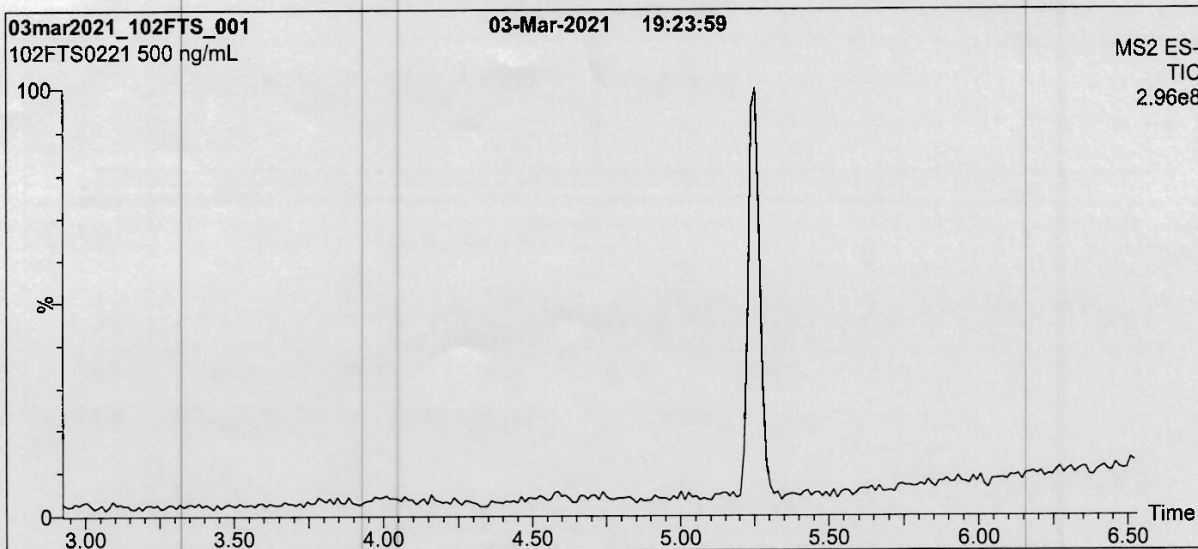
Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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

7.8.1

7

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



Conditions for Figure 1:

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

Chromatographic Conditions:

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

Mobile phase: Gradient
Start: 40% H₂O / 60% (80:20 MeOH:ACN)
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 3 min
before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 μ L/min

MS Parameters:

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

10762 A-B



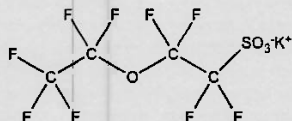
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFEESA *rec'd
8/20/21
WPH* **LOT NUMBER:** PFEESA0520

COMPOUND: Potassium perfluoro(2-ethoxyethane)sulfonate

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



MOLECULAR FORMULA: C₄F₈SO₄K

CONCENTRATION: 50.0 ± 2.5 µg/ml (K salt)
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

MOLECULAR WEIGHT: 354.19

SOLVENT(S): Methanol

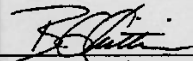
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

B.G. Chittim, General Manager

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

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

7.8.1
7

10763 A-B



WELLINGTON LABORATORIES

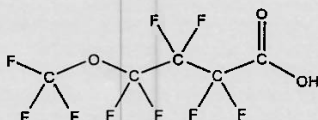
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PF5OHxA *res'd with 8/20/21* **LOT NUMBER:** PF5OHxA0320

COMPOUND: Perfluoro-5-oxahexanoic acid

SYNONYM: Perfluoro-4-methoxybutanoic acid (PFMBA)

STRUCTURE: **CAS #:** 863090-89-5



MOLECULAR FORMULA: C₅HF₉O₃ **MOLECULAR WEIGHT:** 280.05

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

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 03/31/2020

EXPIRY DATE: (mm/dd/yyyy) 03/31/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

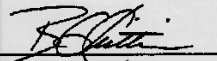
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager

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

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

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

PF5OHxA0320 (1 of 4)
rev1

7.8.1
7

10764A-B



WELLINGTON LABORATORIES

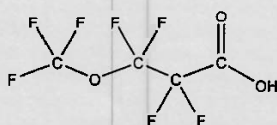
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PF4OPeA *rec'd
WPH
8/20/21* **LOT NUMBER:** PF4OPeA0320

COMPOUND: Perfluoro-4-oxapentanoic acid

SYNONYM: Perfluoro-3-methoxypropanoic acid (PFMPA)

STRUCTURE: **CAS #:** 377-73-1



MOLECULAR FORMULA: C₄HF₇O₃ **MOLECULAR WEIGHT:** 230.04

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

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 03/31/2020

EXPIRY DATE: (mm/dd/yyyy) 03/31/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

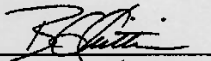
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager

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

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

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

PF4OPeA0320 (1 of 4)
rev1

7.8.1

7

10765 A-13



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

3,6-OPFHpA

rec'd
WPH
8/20/21

LOT NUMBER:

36OPFHpA0320

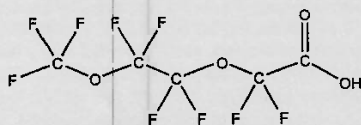
COMPOUND:

Perfluoro-3,6-dioxahexanoic acid

STRUCTURE:

CAS #:

151772-58-6



MOLECULAR FORMULA:

C₆H₂F₁₀O₄

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)

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

10829



WELLINGTON LABORATORIES

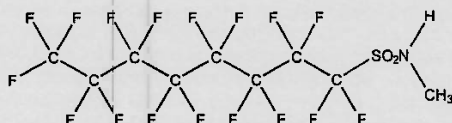
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

LOT NUMBER: NMeFOSA0721M

STRUCTURE:

CAS #: 31506-32-8



rec'd
WPA
10/5/21

MOLECULAR FORMULA: C₉H₄F₁₇NO₂S
CONCENTRATION: 50.0 ± 2.5 µg/mL
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 08/03/2021
EXPIRY DATE: (mm/dd/yyyy) 08/03/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 513.17
SOLVENT(S): Methanol

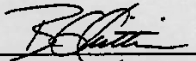
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager

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

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

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

NMeFOSA0721M (1 of 4)
rev0

7.8.1

7



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-EtFOSA-M

10837

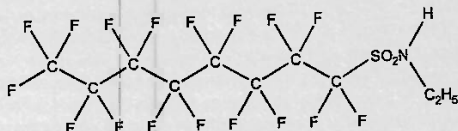
LOT NUMBER: NEtFOSA0821M

COMPOUND:

N-ethylperfluoro-1-octanesulfonamide

STRUCTURE:

CAS #: 4151-50-2



MOLECULAR FORMULA:

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)

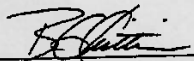
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:


B.G. Chittim, General Manager

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

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA



WELLINGTON LABORATORIES

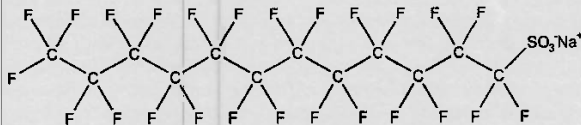
CERTIFICATE OF ANALYSIS DOCUMENTATION

10840

PRODUCT CODE: L-PFDoS **LOT NUMBER:** LPFDoS0721

COMPOUND: Sodium perfluoro-1-dodecanesulfonate

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



MOLECULAR FORMULA: C₁₂F₂₅SO₃Na **MOLECULAR WEIGHT:** 722.14

CONCENTRATION: 50.0 ± 2.5 µg/mL (Na salt) **SOLVENT(S):** Methanol
 48.5 ± 2.4 µg/mL (PFDoS acid)
 48.4 ± 2.4 µg/mL (PFDoS anion)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 07/09/2021

EXPIRY DATE: (mm/dd/yyyy) 07/09/2026

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

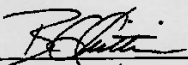
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 07/16/2021
(mm/dd/yyyy)
 B.G. Chittim, General Manager

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



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

10847 NG 01/18/23

PRODUCT CODE:

PFODA

LOT NUMBER:

PFODA0821

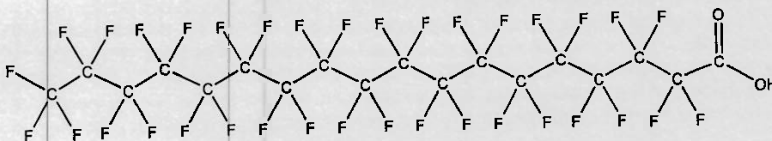
COMPOUND:

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 ampoules 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)

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

7.8.1
7

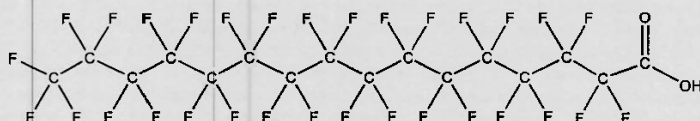


10842 * NG 01/18/23

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

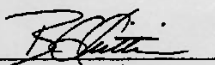
DOCUMENTATION/ DATA ATTACHED:

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

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

7.8.1
7

1117

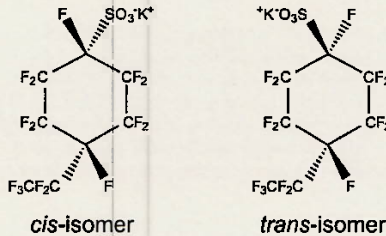


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFECHS **LOT NUMBER:** PFECHS1021
COMPOUND: Potassium perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)

STRUCTURE: **CAS #:** 335-24-0



MOLECULAR FORMULA: C₈F₁₆SO₃K **MOLECULAR WEIGHT:** 500.22
CONCENTRATION: 50.0 ± 2.5 µg/mL (K salt) **SOLVENT(S):** Methanol
 46.2 ± 2.3 µg/mL (PFECHS acid)
 46.1 ± 2.3 µg/mL (PFECHS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 10/14/2021
EXPIRY DATE: (mm/dd/yyyy) 10/14/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

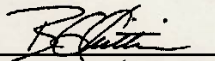
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains a mixture of the *cis/trans* isomers of PFECHS at a ratio of 1:1.27 (*cis:trans*).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
 B.G. Chittim, General Manager **Date:** 10/15/2021
(mm/dd/yyyy)

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

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

PFECHS1021 (1 of 4)
 rev0

7.8.1

7

11140



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

L-PFPrS

LOT NUMBER:

LPFPrS0721

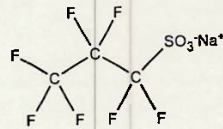
COMPOUND:

Sodium perfluoro-1-propanesulfonate

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

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)

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

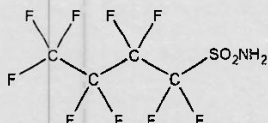
11224



WELLINGTON
LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: FBSA-I **LOT NUMBER:** FBSA11211
COMPOUND: Perfluoro-1-butananesulfonamide
STRUCTURE: **CAS #:** 30334-69-1



MOLECULAR FORMULA: C₄H₂F₉NO₂S **MOLECULAR WEIGHT:** 299.11
CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Isopropanol
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 11/10/2021
EXPIRY DATE: (mm/dd/yyyy) 11/10/2026
RECOMMENDED STORAGE: Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____

B.G. Chittim, General Manager

Date: 11/10/2021

(mm/dd/yyyy)

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

11225



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHxSA-I

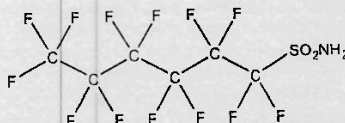
LOT NUMBER: FHxSA12211

COMPOUND:

Perfluoro-1-hexanesulfonamide

CAS #: 41997-13-1

STRUCTURE:



MOLECULAR FORMULA:

C₆H₂F₁₃NO₂S

MOLECULAR WEIGHT: 399.13

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S): Isopropanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

12/29/2021

EXPIRY DATE: (mm/dd/yyyy)

12/29/2026

RECOMMENDED STORAGE: Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

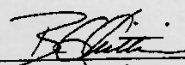
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:


B.G. Chittim, General Manager

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

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

11338



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-MeFOSE-M

LOT NUMBER:

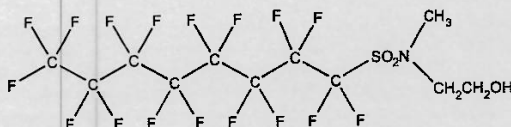
NMeFOSE0522M

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)

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

11629 A-J
rec'd 01/26/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-24ES

**Mass-Labelled Per- and Poly-fluoroalkyl Substance
Extraction Standard Solution**

<u>PRODUCT CODE:</u>	MPFAC-24ES
<u>LOT NUMBER:</u>	MPFAC24ES0322
<u>SOLVENT(S):</u>	Methanol / Isopropanol (2%) / Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	03/22/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	03/24/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	03/24/2027
<u>RECOMMENDED STORAGE:</u>	Refrigerate ampoule

DESCRIPTION:

MPFAC-24ES is a solution/mixture of ten mass-labelled (¹³C) perfluoroalkylcarboxylic acids (C₄-C₁₂ and C₁₄), three mass-labelled (¹³C) perfluoroalkanesulfonates (C₄, C₆, and C₈), three mass-labelled (¹³C) telomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (²H) perfluorooctanesulfonamidoacetic acids, and perfluoro-1-(¹³C₈)octanesulfonamide. The components and their concentrations are given in Table A.

The individual ¹³C-labelled perfluoroalkylcarboxylic acids, ¹³C-labelled perfluoroalkanesulfonates, ¹³C-labelled telomer sulfonates, and perfluoro-1-(¹³C₈)octanesulfonamide all have chemical purities of >98% and isotopic purities of ≥99%. The individual ²H-labelled perfluorooctanesulfonamidoacetic acids all have chemical purities of >98% and isotopic purities of ≥98%.

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

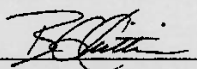
7.8.1
7

Table A: MPFAC-24ES; 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-(¹³ C ₄)butanoic acid	MPFBA	1000		A
Perfluoro-n-(¹³ C ₅)pentanoic acid	M5PFPeA	1000		B
Perfluoro-n-(1,2,3,4,6- ¹³ C ₆)hexanoic acid	M5PFHxA	1000		E
Perfluoro-n-(1,2,3,4- ¹³ C ₇)heptanoic acid	M4PFHpA	1000		F
Perfluoro-n-(¹³ C ₈)octanoic acid	M8PFOA	1000		I
Perfluoro-n-(¹³ C ₉)nonanoic acid	M9PFNA	1000		J
Perfluoro-n-(1,2,3,4,5,6- ¹³ C ₁₀)decanoic acid	M6PFDA	1000		M
Perfluoro-n-(1,2,3,4,5,6,7- ¹³ C ₁₁)undecanoic acid	M7PFUdA	1000		P
Perfluoro-n-(1,2- ¹³ C ₁₂)dodecanoic acid	MPFDoA	1000		R
Perfluoro-n-(1,2- ¹³ C ₁₄)tetradecanoic acid	M2PFTeDA	1000		S
Perfluoro-1-(¹³ C ₈)octanesulfonamide	M8FOSA	1000		Q
N-methyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000		N
N-ethyl-d ₅ -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000		O
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	1000	932	C
Sodium perfluoro-1-(1,2,3- ¹³ C ₃)hexanesulfonate	M3PFHxS	1000	948	G
Sodium perfluoro-1-(¹³ C ₈)octanesulfonate	M8PFOS	1000	959	K
Sodium 1H,1H,2H,2H-perfluoro-1-(1,2- ¹³ C ₂)hexanesulfonate	M2-4:2FTS	1000	938	D
Sodium 1H,1H,2H,2H-perfluoro-1-(1,2- ¹³ C ₂)octanesulfonate	M2-6:2FTS	1000	951	H
Sodium 1H,1H,2H,2H-perfluoro-1-(1,2- ¹³ C ₂)decanesulfonate	M2-8:2FTS	1000	960	L

* Concentrations have been rounded to three significant figures.

Certified By:


B.G. Chittim, General Manager

Date: 03/31/2022
(mm/dd/yyyy)

11636 A-J
rec'd 02/06/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-ES

Mass-Labelled PFAS Extraction
Standard Solution/Mixture

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

DESCRIPTION:

MPFAC-HIF-ES is a solution/mixture of ten mass-labelled (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 (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.

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

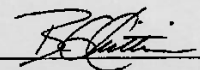
MPFACHIFES1022 (1 of 7)
rev0

7.8.1
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 ₅)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 ₉)decanoic acid	M6PFDA	250		14
Perfluoro-n-(1,2,3,4,5,6,7- ¹³ C ₉)undecanoic acid	M7PFUdA	250		18
Perfluoro-n-(1,2- ¹³ C ₁₂)dodecanoic acid	MPFD _o A	250		19
Perfluoro-n-(1,2- ¹³ C ₁₄)tetradecanoic acid	M2PFTeDA	250		22
Perfluoro-1-(¹³ C ₈)octanesulfonamide	M8FOSA	500		17
N-methyl-d ₃ -perfluoro-1-octanesulfonamide	d-N-MeFOSA	500		21
N-ethyl-d ₅ -perfluoro-1-octanesulfonamide	d-N-EtFOSA	500		24
N-methyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000		15
N-ethyl-d ₅ -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000		16
2-(N-methyl-d ₃ -perfluoro-1-octanesulfonamido)ethan-d ₅ -ol	d7-N-MeFOSE	5000		20
2-(N-ethyl-d ₅ -perfluoro-1-octanesulfonamido)ethan-d ₅ -ol	d9-N-EtFOSE	5000		23
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: 11/24/2022
(mm/dd/yyyy)

11637 A-S
rec'd: 02/06/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-IS

Mass-Labelled PFAS Injection
Standard Solution/Mixture

PRODUCT CODE: MPFAC-HIF-IS
LOT NUMBER: MPFACHIFIS1122
SOLVENT(S): Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 11/28/2022
LAST TESTED: (mm/dd/yyyy) 11/29/2022
EXPIRY DATE: (mm/dd/yyyy) 11/29/2027
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

MPFAC-HIF-IS is a solution/mixture of five mass-labelled (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 mass-labelled perfluoroalkanesulfonates all have chemical purities of >98% and isotopic purities of ≥99% per ¹³C or >94% per ¹⁸O.

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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


MPFACHIFIS1122 (1 of 5)
rev0

7.8.1
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: 12/05/2022
(mm/dd/yyyy)

7.8.1
 7

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 02/08/23 09:00
 Started (mm/dd/yy 24:00)

Method: EPA 1633 Draft (QSM)

Date/Time: 2/18/23 11:00
 Finished (mm/dd/yy 24:00)

Balance ID: _____

Batch#: OP95376 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 95376 MB		500	7	N/A	25		5	A4	
OP 95376 BS		500				200			
OP 95376 LLBS		500				80			
FC2447-1	2	530							
	2	530							
	3	530	↓	↓	↓		↓		
	4	530	7	N/A	25		5	A4	
OPFC2447-1 MS	3	540	7	N/A	25	200	5	A4	
OP MSD									
OPFC2447-2 DUP	3	540	7	N/A	25		5	A4	

Comments:

EIS (SURR) ID: 11629A Conc: 250-5000 ng/mL Exp. Date: 02/04/24 Inj. By: GH Ver. By: CM
 SPIKE.1 ID: LCMS 20616 Conc: VARIED Exp. Date: 08/02/23 Inj. By: GH Ver. By: CM
 SPIKE.2 ID: _____ Conc: _____ Exp. Date: _____ Inj. By: _____ Ver. By: _____
 NIS (ISTD) ID: 11631A Conc: 250-1000 ng/mL Exp. Date: 2/8/24 Inj. By: MV Ver. By: NG

TurboVap Temp (Therm ID): _____ N-Evap Temp (Therm ID): _____
 Observed Temp °C: _____ Corr. Temp °C: _____ Observed Temp °C: _____ Corr. Temp °C: _____

Methanol Lot # 221068 1% NH4OH MeOH PF267 SPE Lot # 322-003793
 Water Lot# OP95069 0.3M Formic Acid PF250 Syringe filter Lot # _____
 Acetic Acid# 194003 3% NH4OH Sol _____ pH paper Lot# 215322
 0.1M Formic PF264 5% Formic Acid _____ Carbon Lot# 160898

Relinquished By: Patricia A. Pacheco
 Accepted By: MV

Date: 02/08/23
 Date: 2/18/23

7.9.1
7