UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
Environmental Sciences Center
701 Mapes Road
Fort Meade, Maryland 20755-5350

DATE: 5/2/2019

SUBJECT: Region III Data QA Review

FROM: Brandon McDonald
Region III ESAT RPO(3EA22)

TO: CONNOR O'LOUGHLIN
Hazardous Site Cleanup Division (HSCD)

Attached is the data validation report for the BLADES GROUNDWATER site for DAS# R35542; SDG# C0AP3 completed by the Region III Environmental Services Assistance Team(ESAT) contractor, ICF International, under the direction of Region III EAID.

If you have any questions regarding this review, please call Brandon McDonald at (410) 305-2607 or you can call Eric Graybill at (410)-305-2665.

Attachment

cc: Ex. 4 CBI

TO: #0002 TDF: #0419029

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ICF
ESAT Region 3
US Environmental Protection Agency Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-5350
Phone 410-305-3012

Date: April 29, 2019

To: Brandon McDonald
ESAT Region 3 Project Officer

From: Ex. 4 CBI
Validator

Ex. 4 CBI
Reviewer

Subject: Organic Data Validation (S4VM)
Blades Groundwater
R35542 C0AP3

Overview

This data package consisted of seven (7) Field Reagent Blanks (FRBs) and eight (8) ground water samples analyzed for perfluorinated alkyl acid compounds by Liquid Chromatography/Mass Spectrometry (LC/MS). This sample set included a field duplicate sample.

Analyses were performed by Eurofins Test America Sacramento (TAMC). The samples were submitted to the laboratory directly by the sampling contractor. The laboratory indicated analyses were performed according to EPA Method 537 utilizing a quantitative isotope dilution-internal standard technique.

Data were validated according to the National Functional Guidelines for Organic Superfund Methods Data Review and applicable USEPA Region 3 modifications. The validation report has been assigned the Superfund Data Validation Label S4VM (Stage_4_Validation_Manual).

The following validation narrative is an evaluation of laboratory reported data based on the electronic data package received by Region 3 on April 10, 2019.

The laboratory did not provide sufficient data to determine if branched chain isomers of PFOA were included in the reporting of this analyte in field samples. No data were qualified based on this finding.

Summary

No significant data quality outliers or technical deficiencies were identified that would require rejection or estimation of sample results.

Notes

Accuracy and precision criteria were met by the laboratory in the initial and continuing calibration verification standard analyses associated with the samples in this Sample Data Group (SDG).

Analytes detected below Reporting Limits are estimated and have been qualified "J".

The method blank and FRBs associated with the samples in this SDG were free from contamination. No data were qualified based on blank contamination.

Percent recoveries and Relative Percent Differences (RPDs) for target analytes in Laboratory Control Sample/ Laboratory Control Sample Duplicate LCS/LCSD analyses were within control limits. No field sample data were qualified based on these findings.

Due to insufficient sample volume received by the laboratory, Matrix Spike/Matrix Spike Duplicate (MS/MSD) analyses were not performed in this SDG. No data were qualified based on these findings.

Results reported for field duplicate sample C0AP3 /C0AX9 were comparable. No data were qualified based on field duplicate precision.

The samples in this SDG were found to be free of residual chlorine at the time of sample preparation by the laboratory. No data were qualified based on this finding.

The samples in this SDG were preserved and reported pH within the optimum range. No data were qualified based on these findings.

Manual integrations were performed and identified by the laboratory. A subset of these was evaluated by the reviewer and found to be accurate and consistent. No action was taken by the reviewer based on manual integrations.

Glossary of Organic Data Qualifier Codes

Validation Qualifiers	In order of descending precedence. Only one of these qualifiers may apply to any result.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
U	The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.

Additional Qualifiers	Additional qualifiers may be combined with other qualifiers.
N	The analyte has been “tentatively identified” or “presumptively” as present.
B	The result is presumed a blank contaminant. This qualifier is used for drinking water samples only.
C	The target Pesticide or Aroclor analyte identification has been confirmed by Gas Chromatography/Mass Spectrometry (GC/MS). This qualifier may be added to other qualifiers.
X	The target Pesticide or Aroclor analyte identification was not confirmed when GC/MS analysis was performed. This qualifier may be added to other qualifiers.

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: C0AP3
Lab Sample ID: 320-48794-1
Matrix: Water
Lab File ID: 2019.04.02_537A_020.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 12:48
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 274.7(mL)
Date Analyzed: 04/03/2019 07:13
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 285757
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
335-67-1	Perfluorooctanoic acid	5.7		5.5	2.5
375-95-1	Perfluorononanoic acid	1.7	J	1.8	0.43
355-46-4	Perfluorohexanesulfonic acid	2.4		1.8	0.58
375-85-9	Perfluoroheptanoic acid	29		2.7	1.2
375-73-5	Perfluorobutanesulfonic acid	39		1.8	0.73

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	108		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: COAP3 DL
Lab Sample ID: 320-48794-1 DL
Matrix: Water
Lab File ID: 2019.04.05_537.1A_028.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 12:48
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 274.7(mL)
Date Analyzed: 04/05/2019 14:16
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 5
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 286379
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	870		9.1	4.3

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	101		70-130
STL00996	13C2 PFDA	106		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: C0AP4
Lab Sample ID: 320-48794-2
Matrix: Water
Lab File ID: 2019.04.02_537A_021.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 14:00
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 266.1(mL)
Date Analyzed: 04/03/2019 07:21
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 285757
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	190		1.9	0.89
335-67-1	Perfluorooctanoic acid	30		5.6	2.5
375-95-1	Perfluorononanoic acid	6.3		1.9	0.44
355-46-4	Perfluorohexanesulfonic acid	7.6		1.9	0.60
375-85-9	Perfluoroheptanoic acid	21		2.8	1.2
375-73-5	Perfluorobutanesulfonic acid	35		1.9	0.75

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	95		70-130
STL00996	13C2 PFDA	105		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: C0AQ9
Lab Sample ID: 320-48794-3
Matrix: Water
Lab File ID: 2019.04.02_537A_022.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 15:28
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 266.2(mL)
Date Analyzed: 04/03/2019 07:28
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 285757
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
335-67-1	Perfluorooctanoic acid	16		5.6	2.5
375-95-1	Perfluorononanoic acid	2.3		1.9	0.44
355-46-4	Perfluorohexanesulfonic acid	9.0		1.9	0.60
375-85-9	Perfluoroheptanoic acid	8.0		2.8	1.2
375-73-5	Perfluorobutanesulfonic acid	80		1.9	0.75

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	111		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: C0AQ9 DL
Lab Sample ID: 320-48794-3 DL
Matrix: Water
Lab File ID: 2019.04.05_537.1A_029.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 15:28
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 266.2(mL)
Date Analyzed: 04/05/2019 14:26
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 5
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 286379
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	640		9.4	4.5

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	104		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: C0AR5
Lab Sample ID: 320-48794-4
Matrix: Water
Lab File ID: 2019.04.04_537AA_007.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 16:45
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 290.4(mL)
Date Analyzed: 04/04/2019 19:29
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 286182
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	3.6		1.7	0.82
335-67-1	Perfluorooctanoic acid	3.3	J	5.2	2.3
375-95-1	Perfluorononanoic acid	ND		1.7	0.40
355-46-4	Perfluorohexanesulfonic acid	1.6	J	1.7	0.55
375-85-9	Perfluoroheptanoic acid	3.0		2.6	1.1
375-73-5	Perfluorobutanesulfonic acid	1.3	J	1.7	0.69

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	107		70-130
STL00996	13C2 PFDA	110		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: C0AR9
Lab Sample ID: 320-48794-5
Matrix: Water
Lab File ID: 2019.04.02_537A_024.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 10:21
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 275.3(mL)
Date Analyzed: 04/03/2019 07:43
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 285757
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	48		1.8	0.86
335-67-1	Perfluorooctanoic acid	32		5.4	2.5
375-95-1	Perfluorononanoic acid	20		1.8	0.43
355-46-4	Perfluorohexanesulfonic acid	12		1.8	0.58
375-85-9	Perfluoroheptanoic acid	14		2.7	1.2
375-73-5	Perfluorobutanesulfonic acid	5.9		1.8	0.73

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	102		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: COAS0
Lab Sample ID: 320-48794-6
Matrix: Water
Lab File ID: 2019.04.02_537A_025.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 10:23
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 288.4(mL)
Date Analyzed: 04/03/2019 07:51
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 285757
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	140		1.7	0.82
335-67-1	Perfluorooctanoic acid	19		5.2	2.3
375-95-1	Perfluorononanoic acid	39		1.7	0.41
355-46-4	Perfluorohexanesulfonic acid	23		1.7	0.55
375-85-9	Perfluoroheptanoic acid	5.8		2.6	1.1
375-73-5	Perfluorobutanesulfonic acid	4.3		1.7	0.69

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	104		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: COAS1
Lab Sample ID: 320-48794-7
Matrix: Water
Lab File ID: 2019.04.02_537A_026.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 10:27
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 285.4(mL)
Date Analyzed: 04/03/2019 07:58
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 285757
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	95		1.8	0.83
335-67-1	Perfluorooctanoic acid	20		5.3	2.4
375-95-1	Perfluorononanoic acid	19		1.8	0.41
355-46-4	Perfluorohexanesulfonic acid	19		1.8	0.56
375-85-9	Perfluoroheptanoic acid	7.3		2.6	1.1
375-73-5	Perfluorobutanesulfonic acid	12		1.8	0.70

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	103		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: COAS4
Lab Sample ID: 320-48794-8
Matrix: Water
Lab File ID: 2019.04.02_537A_029.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 12:53
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 278.4(mL)
Date Analyzed: 04/03/2019 08:20
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 285758
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	ND		1.8	0.85
335-67-1	Perfluorooctanoic acid	ND		5.4	2.4
375-95-1	Perfluorononanoic acid	ND		1.8	0.42
355-46-4	Perfluorohexanesulfonic acid	ND		1.8	0.57
375-85-9	Perfluoroheptanoic acid	ND		2.7	1.2
375-73-5	Perfluorobutanesulfonic acid	ND		1.8	0.72

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	104		70-130
STL00996	13C2 PFDA	106		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: C0AS5
Lab Sample ID: 320-48794-9
Matrix: Water
Lab File ID: 2019.04.02_537A_030.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 14:05
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 290.1(mL)
Date Analyzed: 04/03/2019 08:28
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 285758
Unite: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	ND		1.7	0.82
335-67-1	Perfluorooctanoic acid	ND		5.2	2.3
375-95-1	Perfluorononanoic acid	ND		1.7	0.41
355-46-4	Perfluorohexanesulfonic acid	ND		1.7	0.55
375-85-9	Perfluoroheptanoic acid	ND		2.6	1.1
375-73-5	Perfluorobutanesulfonic acid	ND		1.7	0.69

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	103		70-130
STL00996	13C2 PFDA	108		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: C0AS6
Lab Sample ID: 320-48794-10
Matrix: Water
Lab File ID: 2019.04.02_537A_031.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 15:33
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 272.8(mL)
Date Analyzed: 04/03/2019 08:35
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 285758
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	ND		1.8	0.87
335-67-1	Perfluorooctanoic acid	ND		5.5	2.5
375-95-1	Perfluorononanoic acid	ND		1.8	0.43
355-46-4	Perfluorohexanesulfonic acid	ND		1.8	0.59
375-85-9	Perfluoroheptanoic acid	ND		2.7	1.2
375-73-5	Perfluorobutanesulfonic acid	ND		1.8	0.73

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	98		70-130
STL00996	13C2 PFDA	104		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: C0AW5
Lab Sample ID: 320-48794-11
Matrix: Water
Lab File ID: 2019.04.02_537A_032.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 16:50
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 275.1(mL)
Date Analyzed: 04/03/2019 08:43
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 285758
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	ND		1.8	0.86
335-67-1	Perfluorooctanoic acid	ND		5.5	2.5
375-95-1	Perfluorononanoic acid	ND		1.8	0.43
355-46-4	Perfluorohexanesulfonic acid	ND		1.8	0.58
375-85-9	Perfluoroheptanoic acid	ND		2.7	1.2
375-73-5	Perfluorobutanesulfonic acid	ND		1.8	0.73

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	99		70-130
STL00996	13C2 PFDA	106		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: COAX2
Lab Sample ID: 320-48794-12
Matrix: Water
Lab File ID: 2019.04.02_537A_033.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 10:22
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 273.9(mL)
Date Analyzed: 04/03/2019 08:50
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 285758
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	ND		1.8	0.87
335-67-1	Perfluorooctanoic acid	ND		5.5	2.5
375-95-1	Perfluorononanoic acid	ND		1.8	0.43
355-46-4	Perfluorohexanesulfonic acid	ND		1.8	0.58
375-85-9	Perfluoroheptanoic acid	ND		2.7	1.2
375-73-5	Perfluorobutanesulfonic acid	ND		1.8	0.73

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	100		70-130
STL00896	13C2 PFDA	106		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: C0AX3
Lab Sample ID: 320-48794-13
Matrix: Water
Lab File ID: 2019.04.02_537A_034.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 10:25
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 279(mL)
Date Analyzed: 04/03/2019 08:58
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 285758
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	ND		1.8	0.85
335-67-1	Perfluorooctanoic acid	ND		5.4	2.4
375-95-1	Perfluorononanoic acid	ND		1.8	0.42
355-46-4	Perfluorohexanesulfonic acid	ND		1.8	0.57
375-85-9	Perfluoroheptanoic acid	ND		2.7	1.2
375-73-5	Perfluorobutanesulfonic acid	ND		1.8	0.72

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	102		70-130
STL00996	13C2 PFDA	109		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: COAX4
Lab Sample ID: 320-48794-14
Matrix: Water
Lab File ID: 2019.04.02_537A_035.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 10:30
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 279.4(mL)
Date Analyzed: 04/03/2019 09:05
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 285758
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	ND		1.8	0.85
335-67-1	Perfluorooctanoic acid	ND		5.4	2.4
375-95-1	Perfluorononanoic acid	ND		1.8	0.42
355-46-4	Perfluorohexanesulfonic acid	ND		1.8	0.57
375-85-9	Perfluoroheptanoic acid	ND		2.7	1.2
375-73-5	Perfluorobutanesulfonic acid	ND		1.8	0.72

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	100		70-130
STL00996	13C2 PFDA	107		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: C0AX9
Lab Sample ID: 320-48794-15
Matrix: Water
Lab File ID: 2019.04.02_537A_036.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 12:48
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 265.3(mL)
Date Analyzed: 04/03/2019 09:13
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 285758
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
335-67-1	Perfluorooctanoic acid	5.8		5.7	2.5
375-95-1	Perfluorononanoic acid	1.7	J	1.9	0.44
355-46-4	Perfluorohexanesulfonic acid	2.9		1.9	0.60
375-85-9	Perfluoroheptanoic acid	28		2.8	1.2
375-73-5	Perfluorobutanesulfonic acid	38		1.9	0.75

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	93		70-130
STL00996	13C2 PFDA	104		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: COAX9 DL
Lab Sample ID: 320-48794-15 DL
Matrix: Water
Lab File ID: 2019.04.05_537.1A_030.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 12:48
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 265.3(mL)
Date Analyzed: 04/05/2019 14:35
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 5
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 286379
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	940		9.4	4.5

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	104		70-130

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Job Number: 320-48794-1

Job Description: DAS R35542. SDG C0AP3

For:
Weston Solutions, Inc.
1400 Weston Way
PO BOX 2653
West Chester, PA 19380

Attention: Ex. 4 CBI

Ex. 4 CBI

Ex. 4 CBI, Project Manager I
880 Riverside Parkway, West Sacramento, CA, 95605
(916)374-Ex. 6 Personal Privacy (PP)
Ex. 4 CBI@testamericainc.com
04/05/2019

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Qualifiers

LCMS

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job Narrative
320-48794-1

Receipt
The samples were received on 3/29/2019 9:25 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.3° C.

LCMS
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Method(s) 537 DW: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-285397.

Method(s) 537 DW: Pipette I46370G used for spiking LC537HSP_00002, LC537-SU_00101, and LC537-IS_00100 failed the inaccuracy criteria during the daily verification. The inaccuracy was calculated to be 3% with a criterion less than or equal to 2%. Pipette demonstrate a slight high bias on the verification the next day the pipette was in control. C0AP3 (320-48794-1), C0AP4 (320-48794-2), C0AQ9 (320-48794-3), C0AR5 (320-48794-4), C0AR9 (320-48794-5), C0AS0 (320-48794-6), C0AS1 (320-48794-7), C0AS4 (320-48794-8), C0AS5 (320-48794-9), C0AS6 (320-48794-10), C0AW5 (320-48794-11), C0AX2 (320-48794-12), C0AX3 (320-48794-13), C0AX4 (320-48794-14) and C0AX9 (320-48794-15)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Weston Solutions, Inc.
Project/Site: DAS R35542. SDG C0AP3

Job ID: 320-48794-1

Client Sample ID: C0AP3 — Lab Sample ID: 320-48794-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid	5.7		5.5	2.5	ng/L	1		537 DW	Total/NA
Perfluorononanoic acid	1.7	J	1.8	0.43	ng/L	1		537 DW	Total/NA
Perfluorohexanesulfonic acid	2.4		1.8	0.58	ng/L	1		537 DW	Total/NA
Perfluoroheptanoic acid	29		2.7	1.2	ng/L	1		537 DW	Total/NA
Perfluorobutanesulfonic acid	39		1.8	0.73	ng/L	1		537 DW	Total/NA
Perfluorooctanesulfonic acid - DL	870		9.1	4.3	ng/L	5		537 DW	Total/NA

Client Sample ID: C0AP4 — Lab Sample ID: 320-48794-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid	190		1.9	0.89	ng/L	1		537 DW	Total/NA
Perfluorooctanoic acid	30		5.6	2.5	ng/L	1		537 DW	Total/NA
Perfluorononanoic acid	6.3		1.9	0.44	ng/L	1		537 DW	Total/NA
Perfluorohexanesulfonic acid	7.6		1.9	0.60	ng/L	1		537 DW	Total/NA
Perfluoroheptanoic acid	21		2.8	1.2	ng/L	1		537 DW	Total/NA
Perfluorobutanesulfonic acid	35		1.9	0.75	ng/L	1		537 DW	Total/NA

Client Sample ID: C0AQ9 — Lab Sample ID: 320-48794-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid	16		5.6	2.5	ng/L	1		537 DW	Total/NA
Perfluorononanoic acid	2.3		1.9	0.44	ng/L	1		537 DW	Total/NA
Perfluorohexanesulfonic acid	9.0		1.9	0.60	ng/L	1		537 DW	Total/NA
Perfluoroheptanoic acid	8.0		2.8	1.2	ng/L	1		537 DW	Total/NA
Perfluorobutanesulfonic acid	80		1.9	0.75	ng/L	1		537 DW	Total/NA
Perfluorooctanesulfonic acid - DL	640		9.4	4.5	ng/L	5		537 DW	Total/NA

Client Sample ID: C0AR5 — Lab Sample ID: 320-48794-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid	3.6		1.7	0.82	ng/L	1		537 DW	Total/NA
Perfluorooctanoic acid	3.3	J	5.2	2.3	ng/L	1		537 DW	Total/NA
Perfluorohexanesulfonic acid	1.6	J	1.7	0.55	ng/L	1		537 DW	Total/NA
Perfluoroheptanoic acid	3.0		2.6	1.1	ng/L	1		537 DW	Total/NA
Perfluorobutanesulfonic acid	1.3	J	1.7	0.69	ng/L	1		537 DW	Total/NA

Client Sample ID: C0AR9 — Lab Sample ID: 320-48794-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid	48		1.8	0.86	ng/L	1		537 DW	Total/NA
Perfluorooctanoic acid	32		5.4	2.5	ng/L	1		537 DW	Total/NA
Perfluorononanoic acid	20		1.8	0.43	ng/L	1		537 DW	Total/NA
Perfluorohexanesulfonic acid	12		1.8	0.58	ng/L	1		537 DW	Total/NA
Perfluoroheptanoic acid	14		2.7	1.2	ng/L	1		537 DW	Total/NA
Perfluorobutanesulfonic acid	5.9		1.8	0.73	ng/L	1		537 DW	Total/NA

Client Sample ID: C0AS0 — Lab Sample ID: 320-48794-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid	140		1.7	0.82	ng/L	1		537 DW	Total/NA
Perfluorooctanoic acid	19		5.2	2.3	ng/L	1		537 DW	Total/NA
Perfluorononanoic acid	39		1.7	0.41	ng/L	1		537 DW	Total/NA
Perfluorohexanesulfonic acid	23		1.7	0.55	ng/L	1		537 DW	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Weston Solutions, Inc.
Project/Site: DAS R35542. SDG C0AP3

Job ID: 320-48794-1

Client Sample ID: C0AS0 (Continued) — Lab Sample ID: 320-48794-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid	5.8		2.6	1.1	ng/L	1		537 DW	Total/NA
Perfluorobutanesulfonic acid	4.3		1.7	0.69	ng/L	1		537 DW	Total/NA

Client Sample ID: C0AS1 — Lab Sample ID: 320-48794-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid	95		1.8	0.83	ng/L	1		537 DW	Total/NA
Perfluorooctanoic acid	20		5.3	2.4	ng/L	1		537 DW	Total/NA
Perfluorononanoic acid	19		1.8	0.41	ng/L	1		537 DW	Total/NA
Perfluorohexanesulfonic acid	19		1.8	0.56	ng/L	1		537 DW	Total/NA
Perfluoroheptanoic acid	7.3		2.6	1.1	ng/L	1		537 DW	Total/NA
Perfluorobutanesulfonic acid	12		1.8	0.70	ng/L	1		537 DW	Total/NA

Client Sample ID: C0AS4 — Lab Sample ID: 320-48794-8

No Detections.

Client Sample ID: C0AS5 — Lab Sample ID: 320-48794-9

No Detections.

Client Sample ID: C0AS6 — Lab Sample ID: 320-48794-10

No Detections.

Client Sample ID: C0AW5 — Lab Sample ID: 320-48794-11

No Detections.

Client Sample ID: C0AX2 — Lab Sample ID: 320-48794-12

No Detections.

Client Sample ID: C0AX3 — Lab Sample ID: 320-48794-13

No Detections.

Client Sample ID: C0AX4 — Lab Sample ID: 320-48794-14

No Detections.

Client Sample ID: C0AX9 — Lab Sample ID: 320-48794-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid	5.8		5.7	2.5	ng/L	1		537 DW	Total/NA
Perfluorononanoic acid	1.7	J	1.9	0.44	ng/L	1		537 DW	Total/NA
Perfluorohexanesulfonic acid	2.9		1.9	0.60	ng/L	1		537 DW	Total/NA
Perfluoroheptanoic acid	28		2.8	1.2	ng/L	1		537 DW	Total/NA
Perfluorobutanesulfonic acid	38		1.9	0.75	ng/L	1		537 DW	Total/NA
Perfluorooctanesulfonic acid - DL	940		9.4	4.5	ng/L	5		537 DW	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: C0AP3
Lab Sample ID: 320-48794-1
Date Collected: 03/26/19 12:48
Matrix: Water
Date Received: 03/29/19 09:25

Method: 537 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid	5.7		5.5	2.5	ng/L		04/01/19 15:03	04/03/19 07:13	1
Perfluorononanoic acid	1.7	J	1.8	0.43	ng/L		04/01/19 15:03	04/03/19 07:13	1
Perfluorohexanesulfonic acid	2.4		1.8	0.58	ng/L		04/01/19 15:03	04/03/19 07:13	1
Perfluoroheptanoic acid	29		2.7	1.2	ng/L		04/01/19 15:03	04/03/19 07:13	1
Perfluorobutanesulfonic acid	39		1.8	0.73	ng/L		04/01/19 15:03	04/03/19 07:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*94*		*70 - 130*	*04/01/19 15:03*	*04/03/19 07:13*	*1*
13C2 PFDA	*108*		*70 - 130*	*04/01/19 15:03*	*04/03/19 07:13*	*1*

Method: 537 DW - Perfluorinated Alkyl Acids (LC/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	870		9.1	4.3	ng/L		04/01/19 15:03	04/05/19 14:16	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*101*		*70 - 130*	*04/01/19 15:03*	*04/05/19 14:16*	*5*
13C2 PFDA	*106*		*70 - 130*	*04/01/19 15:03*	*04/05/19 14:16*	*5*

Client Sample ID: C0AP4
Lab Sample ID: 320-48794-2
Date Collected: 03/26/19 14:00
Matrix: Water
Date Received: 03/29/19 09:25

Method: 537 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	190		1.9	0.89	ng/L		04/01/19 15:03	04/03/19 07:21	1
Perfluorooctanoic acid	30		5.6	2.5	ng/L		04/01/19 15:03	04/03/19 07:21	1
Perfluorononanoic acid	6.3		1.9	0.44	ng/L		04/01/19 15:03	04/03/19 07:21	1
Perfluorohexanesulfonic acid	7.6		1.9	0.60	ng/L		04/01/19 15:03	04/03/19 07:21	1
Perfluoroheptanoic acid	21		2.8	1.2	ng/L		04/01/19 15:03	04/03/19 07:21	1
Perfluorobutanesulfonic acid	35		1.9	0.75	ng/L		04/01/19 15:03	04/03/19 07:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*95*		*70 - 130*	*04/01/19 15:03*	*04/03/19 07:21*	*1*
13C2 PFDA	*105*		*70 - 130*	*04/01/19 15:03*	*04/03/19 07:21*	*1*

Client Sample ID: C0AQ9
Lab Sample ID: 320-48794-3
Date Collected: 03/26/19 15:28
Matrix: Water
Date Received: 03/29/19 09:25

Method: 537 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid	16		5.6	2.5	ng/L		04/01/19 15:03	04/03/19 07:28	1
Perfluorononanoic acid	2.3		1.9	0.44	ng/L		04/01/19 15:03	04/03/19 07:28	1
Perfluorohexanesulfonic acid	9.0		1.9	0.60	ng/L		04/01/19 15:03	04/03/19 07:28	1
Perfluoroheptanoic acid	8.0		2.8	1.2	ng/L		04/01/19 15:03	04/03/19 07:28	1
Perfluorobutanesulfonic acid	80		1.9	0.75	ng/L		04/01/19 15:03	04/03/19 07:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*90*		*70 - 130*	*04/01/19 15:03*	*04/03/19 07:28*	*1*
13C2 PFDA	*111*		*70 - 130*	*04/01/19 15:03*	*04/03/19 07:28*	*1*

Client: Weston Solutions, Inc.
Project/Site: DAS R35542. SDG C0AP3

Client Sample ID: C0AQ9
Lab Sample ID: 320-48794-3
Date Collected: 03/26/19 15:28
Matrix: Water
Date Received: 03/29/19 09:25

Method: 537 DW - Perfluorinated Alkyl Acids (LC/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	640		9.4	4.5	ng/L		04/01/19 15:03	04/05/19 14:26	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*94*		*70 - 130*	*04/01/19 15:03*	*04/05/19 14:26*	*5*
13C2 PFDA	*104*		*70 - 130*	*04/01/19 15:03*	*04/05/19 14:26*	*5*

Client Sample ID: C0AR5
Lab Sample ID: 320-48794-4
Date Collected: 03/26/19 16:45
Matrix: Water
Date Received: 03/29/19 09:25

Method: 537 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	3.6		1.7	0.82	ng/L		04/01/19 15:03	04/04/19 19:29	1
Perfluorooctanoic acid	3.3	J	5.2	2.3	ng/L		04/01/19 15:03	04/04/19 19:29	1
Perfluorononanoic acid	ND		1.7	0.40	ng/L		04/01/19 15:03	04/04/19 19:29	1
Perfluorohexanesulfonic acid	1.6	J	1.7	0.55	ng/L		04/01/19 15:03	04/04/19 19:29	1
Perfluoroheptanoic acid	3.0		2.6	1.1	ng/L		04/01/19 15:03	04/04/19 19:29	1
Perfluorobutanesulfonic acid	1.3	J	1.7	0.69	ng/L		04/01/19 15:03	04/04/19 19:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*107*		*70 - 130*	*04/01/19 15:03*	*04/04/19 19:29*	*1*
13C2 PFDA	*110*		*70 - 130*	*04/01/19 15:03*	*04/04/19 19:29*	*1*

Client Sample ID: C0AR9
Lab Sample ID: 320-48794-5
Date Collected: 03/26/19 10:21
Matrix: Water
Date Received: 03/29/19 09:25

Method: 537 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	48		1.8	0.86	ng/L		04/01/19 15:03	04/03/19 07:43	1
Perfluorooctanoic acid	32		5.4	2.5	ng/L		04/01/19 15:03	04/03/19 07:43	1
Perfluorononanoic acid	20		1.8	0.43	ng/L		04/01/19 15:03	04/03/19 07:43	1
Perfluorohexanesulfonic acid	12		1.8	0.58	ng/L		04/01/19 15:03	04/03/19 07:43	1
Perfluoroheptanoic acid	14		2.7	1.2	ng/L		04/01/19 15:03	04/03/19 07:43	1
Perfluorobutanesulfonic acid	5.9		1.8	0.73	ng/L		04/01/19 15:03	04/03/19 07:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*90*		*70 - 130*	*04/01/19 15:03*	*04/03/19 07:43*	*1*
13C2 PFDA	*102*		*70 - 130*	*04/01/19 15:03*	*04/03/19 07:43*	*1*

Client Sample ID: C0AS0
Lab Sample ID: 320-48794-6
Date Collected: 03/26/19 10:23
Matrix: Water
Date Received: 03/29/19 09:25

Method: 537 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	140		1.7	0.82	ng/L		04/01/19 15:03	04/03/19 07:51	1
Perfluorooctanoic acid	19		5.2	2.3	ng/L		04/01/19 15:03	04/03/19 07:51	1
Perfluorononanoic acid	39		1.7	0.41	ng/L		04/01/19 15:03	04/03/19 07:51	1
Perfluorohexanesulfonic acid	23		1.7	0.55	ng/L		04/01/19 15:03	04/03/19 07:51	1
Perfluoroheptanoic acid	5.8		2.6	1.1	ng/L		04/01/19 15:03	04/03/19 07:51	1
Perfluorobutanesulfonic acid	4.3		1.7	0.69	ng/L		04/01/19 15:03	04/03/19 07:51	1

Client: Weston Solutions, Inc.
Project/Site: DAS R35542. SDG C0AP3

Client Sample ID: C0AS0
Lab Sample ID: 320-48794-6
Date Collected: 03/26/19 10:23
Matrix: Water
Date Received: 03/29/19 09:25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	92		70 - 130	04/01/19 15:03	04/03/19 07:51	1
13C2 PFDA	104		70 - 130	04/01/19 15:03	04/03/19 07:51	1

Client Sample ID: C0AS1
Lab Sample ID: 320-48794-7
Date Collected: 03/26/19 10:27
Matrix: Water
Date Received: 03/29/19 09:25

Method: 537 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	**95**		1.8	0.83	ng/L		04/01/19 15:03	04/03/19 07:58	1
Perfluorooctanoic acid	**20**		5.3	2.4	ng/L		04/01/19 15:03	04/03/19 07:58	1
Perfluorononanoic acid	**19**		1.8	0.41	ng/L		04/01/19 15:03	04/03/19 07:58	1
Perfluorohexanesulfonic acid	**19**		1.8	0.56	ng/L		04/01/19 15:03	04/03/19 07:58	1
Perfluoroheptanoic acid	**7.3**		2.6	1.1	ng/L		04/01/19 15:03	04/03/19 07:58	1
Perfluorobutanesulfonic acid	**12**		1.8	0.70	ng/L		04/01/19 15:03	04/03/19 07:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	90		70 - 130	04/01/19 15:03	04/03/19 07:58	1
13C2 PFDA	103		70 - 130	04/01/19 15:03	04/03/19 07:58	1

Client Sample ID: C0AS4
Lab Sample ID: 320-48794-8
Date Collected: 03/26/19 12:53
Matrix: Water
Date Received: 03/29/19 09:25

Method: 537 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	ND		1.8	0.85	ng/L		04/01/19 15:03	04/03/19 08:20	1
Perfluorooctanoic acid	ND		5.4	2.4	ng/L		04/01/19 15:03	04/03/19 08:20	1
Perfluorononanoic acid	ND		1.8	0.42	ng/L		04/01/19 15:03	04/03/19 08:20	1
Perfluorohexanesulfonic acid	ND		1.8	0.57	ng/L		04/01/19 15:03	04/03/19 08:20	1
Perfluoroheptanoic acid	ND		2.7	1.2	ng/L		04/01/19 15:03	04/03/19 08:20	1
Perfluorobutanesulfonic acid	ND		1.8	0.72	ng/L		04/01/19 15:03	04/03/19 08:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	104		70 - 130	04/01/19 15:03	04/03/19 08:20	1
13C2 PFDA	106		70 - 130	04/01/19 15:03	04/03/19 08:20	1

Client Sample ID: C0AS5
Lab Sample ID: 320-48794-9
Date Collected: 03/26/19 14:05
Matrix: Water
Date Received: 03/29/19 09:25

Method: 537 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	ND		1.7	0.82	ng/L		04/01/19 15:03	04/03/19 08:28	1
Perfluorooctanoic acid	ND		5.2	2.3	ng/L		04/01/19 15:03	04/03/19 08:28	1
Perfluorononanoic acid	ND		1.7	0.41	ng/L		04/01/19 15:03	04/03/19 08:28	1
Perfluorohexanesulfonic acid	ND		1.7	0.55	ng/L		04/01/19 15:03	04/03/19 08:28	1
Perfluoroheptanoic acid	ND		2.6	1.1	ng/L		04/01/19 15:03	04/03/19 08:28	1
Perfluorobutanesulfonic acid	ND		1.7	0.69	ng/L		04/01/19 15:03	04/03/19 08:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	103		70 - 130	04/01/19 15:03	04/03/19 08:28	1

Client Sample ID: C0AS5
Lab Sample ID: 320-48794-9
Date Collected: 03/26/19 14:05
Matrix: Water
Date Received: 03/29/19 09:25

Method: 537 DW - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDA	108		70 - 130	04/01/19 15:03	04/03/19 08:28	1

Client Sample ID: C0AS6
Lab Sample ID: 320-48794-10
Date Collected: 03/26/19 15:33
Matrix: Water
Date Received: 03/29/19 09:25

Method: 537 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	ND		1.8	0.87	ng/L		04/01/19 15:03	04/03/19 08:35	1
Perfluorooctanoic acid	ND		5.5	2.5	ng/L		04/01/19 15:03	04/03/19 08:35	1
Perfluorononanoic acid	ND		1.8	0.43	ng/L		04/01/19 15:03	04/03/19 08:35	1
Perfluorohexanesulfonic acid	ND		1.8	0.59	ng/L		04/01/19 15:03	04/03/19 08:35	1
Perfluoroheptanoic acid	ND		2.7	1.2	ng/L		04/01/19 15:03	04/03/19 08:35	1
Perfluorobutanesulfonic acid	ND		1.8	0.73	ng/L		04/01/19 15:03	04/03/19 08:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	98		70 - 130	04/01/19 15:03	04/03/19 08:35	1
13C2 PFDA	104		70 - 130	04/01/19 15:03	04/03/19 08:35	1

Client Sample ID: C0AW5
Lab Sample ID: 320-48794-11
Date Collected: 03/26/19 16:50
Matrix: Water
Date Received: 03/29/19 09:25

Method: 537 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	ND		1.8	0.86	ng/L		04/01/19 15:03	04/03/19 08:43	1
Perfluorooctanoic acid	ND		5.5	2.5	ng/L		04/01/19 15:03	04/03/19 08:43	1
Perfluorononanoic acid	ND		1.8	0.43	ng/L		04/01/19 15:03	04/03/19 08:43	1
Perfluorohexanesulfonic acid	ND		1.8	0.58	ng/L		04/01/19 15:03	04/03/19 08:43	1
Perfluoroheptanoic acid	ND		2.7	1.2	ng/L		04/01/19 15:03	04/03/19 08:43	1
Perfluorobutanesulfonic acid	ND		1.8	0.73	ng/L		04/01/19 15:03	04/03/19 08:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	99		70 - 130	04/01/19 15:03	04/03/19 08:43	1
13C2 PFDA	106		70 - 130	04/01/19 15:03	04/03/19 08:43	1

Client Sample ID: C0AX2
Lab Sample ID: 320-48794-12
Date Collected: 03/26/19 10:22
Matrix: Water
Date Received: 03/29/19 09:25

Method: 537 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	ND		1.8	0.87	ng/L		04/01/19 15:03	04/03/19 08:50	1
Perfluorooctanoic acid	ND		5.5	2.5	ng/L		04/01/19 15:03	04/03/19 08:50	1
Perfluorononanoic acid	ND		1.8	0.43	ng/L		04/01/19 15:03	04/03/19 08:50	1
Perfluorohexanesulfonic acid	ND		1.8	0.58	ng/L		04/01/19 15:03	04/03/19 08:50	1
Perfluoroheptanoic acid	ND		2.7	1.2	ng/L		04/01/19 15:03	04/03/19 08:50	1
Perfluorobutanesulfonic acid	ND		1.8	0.73	ng/L		04/01/19 15:03	04/03/19 08:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	100		70 - 130	04/01/19 15:03	04/03/19 08:50	1

Client Sample ID: C0AX2
Lab Sample ID: 320-48794-12
Date Collected: 03/26/19 10:22
Matrix: Water
Date Received: 03/29/19 09:25

Method: 537 DW - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDA	106		70 - 130	04/01/19 15:03	04/03/19 08:50	1

Client Sample ID: C0AX3
Lab Sample ID: 320-48794-13
Date Collected: 03/26/19 10:25
Matrix: Water
Date Received: 03/29/19 09:25

Method: 537 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	ND		1.8	0.85	ng/L		04/01/19 15:03	04/03/19 08:58	1
Perfluorooctanoic acid	ND		5.4	2.4	ng/L		04/01/19 15:03	04/03/19 08:58	1
Perfluorononanoic acid	ND		1.8	0.42	ng/L		04/01/19 15:03	04/03/19 08:58	1
Perfluorohexanesulfonic acid	ND		1.8	0.57	ng/L		04/01/19 15:03	04/03/19 08:58	1
Perfluoroheptanoic acid	ND		2.7	1.2	ng/L		04/01/19 15:03	04/03/19 08:58	1
Perfluorobutanesulfonic acid	ND		1.8	0.72	ng/L		04/01/19 15:03	04/03/19 08:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	102		70 - 130	04/01/19 15:03	04/03/19 08:58	1
13C2 PFDA	109		70 - 130	04/01/19 15:03	04/03/19 08:58	1

Client Sample ID: C0AX4
Lab Sample ID: 320-48794-14
Date Collected: 03/26/19 10:30
Matrix: Water
Date Received: 03/29/19 09:25

Method: 537 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	ND		1.8	0.85	ng/L		04/01/19 15:03	04/03/19 09:05	1
Perfluorooctanoic acid	ND		5.4	2.4	ng/L		04/01/19 15:03	04/03/19 09:05	1
Perfluorononanoic acid	ND		1.8	0.42	ng/L		04/01/19 15:03	04/03/19 09:05	1
Perfluorohexanesulfonic acid	ND		1.8	0.57	ng/L		04/01/19 15:03	04/03/19 09:05	1
Perfluoroheptanoic acid	ND		2.7	1.2	ng/L		04/01/19 15:03	04/03/19 09:05	1
Perfluorobutanesulfonic acid	ND		1.8	0.72	ng/L		04/01/19 15:03	04/03/19 09:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	100		70 - 130	04/01/19 15:03	04/03/19 09:05	1
13C2 PFDA	107		70 - 130	04/01/19 15:03	04/03/19 09:05	1

Client Sample ID: C0AX9
Lab Sample ID: 320-48794-15
Date Collected: 03/26/19 12:48
Matrix: Water
Date Received: 03/29/19 09:25

Method: 537 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid	**5.8**		5.7	2.5	ng/L		04/01/19 15:03	04/03/19 09:13	1
Perfluorononanoic acid	**1.7**	J	1.9	0.44	ng/L		04/01/19 15:03	04/03/19 09:13	1
Perfluorohexanesulfonic acid	**2.9**		1.9	0.60	ng/L		04/01/19 15:03	04/03/19 09:13	1
Perfluoroheptanoic acid	**28**		2.8	1.2	ng/L		04/01/19 15:03	04/03/19 09:13	1
Perfluorobutanesulfonic acid	**38**		1.9	0.75	ng/L		04/01/19 15:03	04/03/19 09:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	93		70 - 130	04/01/19 15:03	04/03/19 09:13	1
13C2 PFDA	104		70 - 130	04/01/19 15:03	04/03/19 09:13	1

Client Sample Results

Client: Weston Solutions, Inc.
Project/Site: DAS R35542. SDG C0AP3

Job ID: 320-48794-1

Client Sample ID: C0AX9

Lab Sample ID: 320-48794-15

Date Collected: 03/26/19 12:48
Date Received: 03/29/19 09:25

Matrix: Water

Method: 537 DW - Perfluorinated Alkyl Acids (LC/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	**940**		9.4	4.5	ng/L		04/01/19 15:03	04/05/19 14:35	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*94*		*70 - 130*	*04/01/19 15:03*	*04/05/19 14:35*	*5*
13C2 PFDA	*104*		*70 - 130*	*04/01/19 15:03*	*04/05/19 14:35*	*5*

Default Detection Limits

Client: Weston Solutions, Inc.
Job ID: 320-48794-1
Project/Site: DAS R35542. SDG C0AP3

Method: 537 DW - Perfluorinated Alkyl Acids (LC/MS)

Prep: 537 DW

Analyte	RL	MDL	Units
Perfluorobutanesulfonic acid	2.0	0.80	ng/L
Perfluoroheptanoic acid	3.0	1.3	ng/L
Perfluorohexanesulfonic acid	2.0	0.64	ng/L
Perfluorononanoic acid	2.0	0.47	ng/L
Perfluorooctanesulfonic acid	2.0	0.95	ng/L
Perfluorooctanoic acid	6.0	2.7	ng/L

Surrogate Summary

Client: Weston Solutions, Inc.
Project/Site: DAS R35542. SDG C0AP3

Job ID: 320-48794-1

Method: 537 DW - Perfluorinated Alkyl Acids (LC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	**Client Sample ID**	**PFHxA (70-130)**	**PFDA (70-130)**
320-48794-1	C0AP3	94	108
320-48794-1 - DL	C0AP3	101	106
320-48794-2	C0AP4	95	105
320-48794-3	C0AQ9	90	111
320-48794-3 - DL	C0AQ9	94	104
320-48794-4	C0AR5	107	110
320-48794-5	C0AR9	90	102
320-48794-6	C0AS0	92	104
320-48794-7	C0AS1	90	103
320-48794-8	C0AS4	104	106
320-48794-9	C0AS5	103	108
320-48794-10	C0AS6	98	104
320-48794-11	C0AW5	99	106
320-48794-12	C0AX2	100	106
320-48794-13	C0AX3	102	109
320-48794-14	C0AX4	100	107
320-48794-15	C0AX9	93	104
320-48794-15 - DL	C0AX9	94	104
LCS 320-285397/2-A	Lab Control Sample	97	102
LCSD 320-285397/3-A	Lab Control Sample Dup	92	103
MB 320-285397/1-A	Method Blank	98	101

Surrogate Legend

PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA

QC Sample Results

Client: Weston Solutions, Inc.
Project/Site: DAS R35542. SDG C0AP3

Job ID: 320-48794-1

Method: 537 DW - Perfluorinated Alkyl Acids (LC/MS)

Lab Sample ID: MB 320-285397/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 285757 — **Prep Batch: 285397**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	ND		2.0	0.95	ng/L		04/01/19 15:03	04/03/19 06:51	1
Perfluorooctanoic acid	ND		6.0	2.7	ng/L		04/01/19 15:03	04/03/19 06:51	1
Perfluorononanoic acid	ND		2.0	0.47	ng/L		04/01/19 15:03	04/03/19 06:51	1
Perfluorohexanesulfonic acid	ND		2.0	0.64	ng/L		04/01/19 15:03	04/03/19 06:51	1
Perfluoroheptanoic acid	ND		3.0	1.3	ng/L		04/01/19 15:03	04/03/19 06:51	1
Perfluorobutanesulfonic acid	ND		2.0	0.80	ng/L		04/01/19 15:03	04/03/19 06:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*98*		*70 - 130*	*04/01/19 15:03*	*04/03/19 06:51*	*1*
13C2 PFDA	*101*		*70 - 130*	*04/01/19 15:03*	*04/03/19 06:51*	*1*

Lab Sample ID: LCS 320-285397/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 285757 — **Prep Batch: 285397**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanesulfonic acid	186	184		ng/L		99	70 - 130
Perfluorooctanoic acid	200	206		ng/L		103	70 - 130
Perfluorononanoic acid	200	200		ng/L		100	70 - 130
Perfluorohexanesulfonic acid	182	181		ng/L		100	70 - 130
Perfluoroheptanoic acid	200	195		ng/L		98	70 - 130
Perfluorobutanesulfonic acid	177	171		ng/L		97	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFHxA	*97*		*70 - 130*
13C2 PFDA	*102*		*70 - 130*

Lab Sample ID: LCSD 320-285397/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 285757 — **Prep Batch: 285397**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanesulfonic acid	186	181		ng/L		98	70 - 130	2	30
Perfluorooctanoic acid	200	200		ng/L		100	70 - 130	3	30
Perfluorononanoic acid	200	200		ng/L		100	70 - 130	0	30
Perfluorohexanesulfonic acid	182	178		ng/L		98	70 - 130	2	30
Perfluoroheptanoic acid	200	194		ng/L		97	70 - 130	1	30
Perfluorobutanesulfonic acid	177	153		ng/L		87	70 - 130	11	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFHxA	*92*		*70 - 130*
13C2 PFDA	*103*		*70 - 130*

QC Association Summary

Client: Weston Solutions, Inc.
Project/Site: DAS R35542. SDG C0AP3

Job ID: 320-48794-1

LCMS

Prep Batch: 285397

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-48794-1 - DL	C0AP3	Total/NA	Water	537 DW	
320-48794-1	C0AP3	Total/NA	Water	537 DW	
320-48794-2	C0AP4	Total/NA	Water	537 DW	
320-48794-3	C0AQ9	Total/NA	Water	537 DW	
320-48794-3 - DL	C0AQ9	Total/NA	Water	537 DW	
320-48794-4	C0AR5	Total/NA	Water	537 DW	
320-48794-5	C0AR9	Total/NA	Water	537 DW	
320-48794-6	C0AS0	Total/NA	Water	537 DW	
320-48794-7	C0AS1	Total/NA	Water	537 DW	
320-48794-8	C0AS4	Total/NA	Water	537 DW	
320-48794-9	C0AS5	Total/NA	Water	537 DW	
320-48794-10	C0AS6	Total/NA	Water	537 DW	
320-48794-11	C0AW5	Total/NA	Water	537 DW	
320-48794-12	C0AX2	Total/NA	Water	537 DW	
320-48794-13	C0AX3	Total/NA	Water	537 DW	
320-48794-14	C0AX4	Total/NA	Water	537 DW	
320-48794-15 - DL	C0AX9	Total/NA	Water	537 DW	
320-48794-15	C0AX9	Total/NA	Water	537 DW	
MB 320-285397/1-A	Method Blank	Total/NA	Water	537 DW	
LCS 320-285397/2-A	Lab Control Sample	Total/NA	Water	537 DW	
LCSD 320-285397/3-A	Lab Control Sample Dup	Total/NA	Water	537 DW	

Analysis Batch: 285757

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-48794-1	C0AP3	Total/NA	Water	537 DW	285397
320-48794-2	C0AP4	Total/NA	Water	537 DW	285397
320-48794-3	C0AQ9	Total/NA	Water	537 DW	285397
320-48794-5	C0AR9	Total/NA	Water	537 DW	285397
320-48794-6	C0AS0	Total/NA	Water	537 DW	285397
320-48794-7	C0AS1	Total/NA	Water	537 DW	285397
MB 320-285397/1-A	Method Blank	Total/NA	Water	537 DW	285397
LCS 320-285397/2-A	Lab Control Sample	Total/NA	Water	537 DW	285397
LCSD 320-285397/3-A	Lab Control Sample Dup	Total/NA	Water	537 DW	285397

Analysis Batch: 285758

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-48794-8	C0AS4	Total/NA	Water	537 DW	285397
320-48794-9	C0AS5	Total/NA	Water	537 DW	285397
320-48794-10	C0AS6	Total/NA	Water	537 DW	285397
320-48794-11	C0AW5	Total/NA	Water	537 DW	285397
320-48794-12	C0AX2	Total/NA	Water	537 DW	285397
320-48794-13	C0AX3	Total/NA	Water	537 DW	285397
320-48794-14	C0AX4	Total/NA	Water	537 DW	285397
320-48794-15	C0AX9	Total/NA	Water	537 DW	285397

Analysis Batch: 286182

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-48794-4	C0AR5	Total/NA	Water	537 DW	285397

QC Association Summary

Client: Weston Solutions, Inc.
Project/Site: DAS R35542. SDG C0AP3

Job ID: 320-48794-1

LCMS

Analysis Batch: 286379

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-48794-1 - DL	C0AP3	Total/NA	Water	537 DW	285397
320-48794-3 - DL	C0AQ9	Total/NA	Water	537 DW	285397
320-48794-15 - DL	C0AX9	Total/NA	Water	537 DW	285397

Client Sample ID: C0AP3
Lab Sample ID: 320-48794-1
Date Collected: 03/26/19 12:48
Matrix: Water
Date Received: 03/29/19 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 DW			285397	04/01/19 15:03	DTH	TAL SAC
Total/NA	Analysis	537 DW		1	285757	04/03/19 07:13	JRB	TAL SAC
Total/NA	Prep	537 DW	DL		285397	04/01/19 15:03	DTH	TAL SAC
Total/NA	Analysis	537 DW	DL	5	286379	04/05/19 14:16	JRB	TAL SAC

Client Sample ID: C0AP4
Lab Sample ID: 320-48794-2
Date Collected: 03/26/19 14:00
Matrix: Water
Date Received: 03/29/19 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 DW			285397	04/01/19 15:03	DTH	TAL SAC
Total/NA	Analysis	537 DW		1	285757	04/03/19 07:21	JRB	TAL SAC

Client Sample ID: C0AQ9
Lab Sample ID: 320-48794-3
Date Collected: 03/26/19 15:28
Matrix: Water
Date Received: 03/29/19 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 DW			285397	04/01/19 15:03	DTH	TAL SAC
Total/NA	Analysis	537 DW		1	285757	04/03/19 07:28	JRB	TAL SAC
Total/NA	Prep	537 DW	DL		285397	04/01/19 15:03	DTH	TAL SAC
Total/NA	Analysis	537 DW	DL	5	286379	04/05/19 14:26	JRB	TAL SAC

Client Sample ID: C0AR5
Lab Sample ID: 320-48794-4
Date Collected: 03/26/19 16:45
Matrix: Water
Date Received: 03/29/19 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 DW			285397	04/01/19 15:03	DTH	TAL SAC
Total/NA	Analysis	537 DW		1	286182	04/04/19 19:29	JRB	TAL SAC

Client Sample ID: C0AR9
Lab Sample ID: 320-48794-5
Date Collected: 03/26/19 10:21
Matrix: Water
Date Received: 03/29/19 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 DW			285397	04/01/19 15:03	DTH	TAL SAC
Total/NA	Analysis	537 DW		1	285757	04/03/19 07:43	JRB	TAL SAC

Client Sample ID: C0AS0
Lab Sample ID: 320-48794-6
Date Collected: 03/26/19 10:23
Matrix: Water
Date Received: 03/29/19 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 DW			285397	04/01/19 15:03	DTH	TAL SAC
Total/NA	Analysis	537 DW		1	285757	04/03/19 07:51	JRB	TAL SAC

Client Sample ID: C0AS1 — Lab Sample ID: 320-48794-7

Date Collected: 03/26/19 10:27 — **Matrix: Water**
Date Received: 03/29/19 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 DW			285397	04/01/19 15:03	DTH	TAL SAC
Total/NA	Analysis	537 DW		1	285757	04/03/19 07:58	JRB	TAL SAC

Client Sample ID: C0AS4 — Lab Sample ID: 320-48794-8

Date Collected: 03/26/19 12:53 — **Matrix: Water**
Date Received: 03/29/19 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 DW			285397	04/01/19 15:03	DTH	TAL SAC
Total/NA	Analysis	537 DW		1	285758	04/03/19 08:20	JRB	TAL SAC

Client Sample ID: C0AS5 — Lab Sample ID: 320-48794-9

Date Collected: 03/26/19 14:05 — **Matrix: Water**
Date Received: 03/29/19 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 DW			285397	04/01/19 15:03	DTH	TAL SAC
Total/NA	Analysis	537 DW		1	285758	04/03/19 08:28	JRB	TAL SAC

Client Sample ID: C0AS6 — Lab Sample ID: 320-48794-10

Date Collected: 03/26/19 15:33 — **Matrix: Water**
Date Received: 03/29/19 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 DW			285397	04/01/19 15:03	DTH	TAL SAC
Total/NA	Analysis	537 DW		1	285758	04/03/19 08:35	JRB	TAL SAC

Client Sample ID: C0AW5 — Lab Sample ID: 320-48794-11

Date Collected: 03/26/19 16:50 — **Matrix: Water**
Date Received: 03/29/19 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 DW			285397	04/01/19 15:03	DTH	TAL SAC
Total/NA	Analysis	537 DW		1	285758	04/03/19 08:43	JRB	TAL SAC

Client Sample ID: C0AX2 — Lab Sample ID: 320-48794-12

Date Collected: 03/26/19 10:22 — **Matrix: Water**
Date Received: 03/29/19 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 DW			285397	04/01/19 15:03	DTH	TAL SAC
Total/NA	Analysis	537 DW		1	285758	04/03/19 08:50	JRB	TAL SAC

Client Sample ID: C0AX3
Lab Sample ID: 320-48794-13
Date Collected: 03/26/19 10:25
Matrix: Water
Date Received: 03/29/19 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 DW			285397	04/01/19 15:03	DTH	TAL SAC
Total/NA	Analysis	537 DW		1	285758	04/03/19 08:58	JRB	TAL SAC

Client Sample ID: C0AX4
Lab Sample ID: 320-48794-14
Date Collected: 03/26/19 10:30
Matrix: Water
Date Received: 03/29/19 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 DW			285397	04/01/19 15:03	DTH	TAL SAC
Total/NA	Analysis	537 DW		1	285758	04/03/19 09:05	JRB	TAL SAC

Client Sample ID: C0AX9
Lab Sample ID: 320-48794-15
Date Collected: 03/26/19 12:48
Matrix: Water
Date Received: 03/29/19 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 DW			285397	04/01/19 15:03	DTH	TAL SAC
Total/NA	Analysis	537 DW		1	285758	04/03/19 09:13	JRB	TAL SAC
Total/NA	Prep	537 DW	DL		285397	04/01/19 15:03	DTH	TAL SAC
Total/NA	Analysis	537 DW	DL	5	286379	04/05/19 14:35	JRB	TAL SAC

Laboratory References:
TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: Weston Solutions, Inc.
Job ID: 320-48794-1
Project/Site: DAS R35542. SDG C0AP3

Laboratory: Eurofins TestAmerica, Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-020	01-20-21
ANAB	DoD / DOE		L2468	01-20-21
Arizona	State Program	9	AZ0708	08-11-19
Arkansas DEQ	State Program	6	88-0691	06-17-19
California	State Program	9	2897	01-31-20
Colorado	State Program	8	CA00044	08-31-19
Connecticut	State Program	1	PH-0691	06-30-19
Florida	NELAP	4	E87570	06-30-19
Georgia	State Program	4	N/A	01-28-19 *
Hawaii	State Program	9	N/A	01-29-20
Illinois	NELAP	5	200060	03-17-19 *
Kansas	NELAP	7	E-10375	10-31-19
Louisiana	NELAP	6	30612	06-30-19
Maine	State Program	1	CA0004	04-14-20
Michigan	State Program	5	9947	01-31-20
Nevada	State Program	9	CA00044	07-31-19
New Hampshire	NELAP	1	2997	04-18-19
New Jersey	NELAP	2	CA005	06-30-19
New York	NELAP	2	11666	03-31-19 *
Oregon	NELAP	10	4040	01-29-20
Pennsylvania	NELAP	3	68-01272	03-31-19 *
Texas	NELAP	6	T104704399	05-31-19
US Fish & Wildlife	Federal		LE148388-0	07-31-19
USDA	Federal		P330-18-00239	01-17-21
USEPA UCMR	Federal	1	CA00044	12-31-20
Utah	NELAP	8	CA00044	02-28-19 *
Vermont	State Program	1	VT-4040	04-30-19
Virginia	NELAP	3	460278	03-14-19 *
Washington	State Program	10	C581	05-05-19
West Virginia (DW)	State Program	3	9930C	12-31-19
Wyoming	State Program	8	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Weston Solutions, Inc.
Project/Site: DAS R35542. SDG C0AP3

Job ID: 320-48794-1

Method	Method Description	Protocol	Laboratory
537 DW	Perfluorinated Alkyl Acids (LC/MS)	EPA	TAL SAC
537 DW	Extraction of Perfluorinated Alkyl Acids	EPA	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: Weston Solutions, Inc.
Project/Site: DAS R35542. SDG C0AP3

Job ID: 320-48794-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-48794-1	C0AP3	Water	03/26/19 12:48	03/29/19 09:25
320-48794-2	C0AP4	Water	03/26/19 14:00	03/29/19 09:25
320-48794-3	C0AQ9	Water	03/26/19 15:28	03/29/19 09:25
320-48794-4	C0AR5	Water	03/26/19 16:45	03/29/19 09:25
320-48794-5	C0AR9	Water	03/26/19 10:21	03/29/19 09:25
320-48794-6	C0AS0	Water	03/26/19 10:23	03/29/19 09:25
320-48794-7	C0AS1	Water	03/26/19 10:27	03/29/19 09:25
320-48794-8	C0AS4	Water	03/26/19 12:53	03/29/19 09:25
320-48794-9	C0AS5	Water	03/26/19 14:05	03/29/19 09:25
320-48794-10	C0AS6	Water	03/26/19 15:33	03/29/19 09:25
320-48794-11	C0AW5	Water	03/26/19 16:50	03/29/19 09:25
320-48794-12	C0AX2	Water	03/26/19 10:22	03/29/19 09:25
320-48794-13	C0AX3	Water	03/26/19 10:25	03/29/19 09:25
320-48794-14	C0AX4	Water	03/26/19 10:30	03/29/19 09:25
320-48794-15	C0AX9	Water	03/26/19 12:48	03/29/19 09:25

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Sacram Job No.: 320-48794-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 284068

Lab Sample ID: IC 320-284068/2 Client Sample ID:

Date Analyzed: 03/26/19 15:43 Lab File ID: 2019.03.26_537.1CURVE_003 GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid	2.76	Baseline	Ex. 4 CBI	03/26/19 15:56
Perfluorooctanoic acid	3.18	Baseline		03/26/19 15:56

Lab Sample ID: IC 320-284068/3 Client Sample ID:

Date Analyzed: 03/26/19 15:50 Lab File ID: 2019.03.26_537.1CURVE_004 GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorohexanesulfonic acid	2.76	Baseline	Ex. 4 CBI	03/26/19 16:44
Perfluorooctanoic acid	3.16	Baseline		03/26/19 16:45
Perfluorooctanesulfonic acid	3.55	Baseline		03/26/19 16:45

Lab Sample ID: CCVL 320-284068/10 Client Sample ID:

Date Analyzed: 03/26/19 16:42 Lab File ID: 2019.03.26_537.1CURVE_011 GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid	2.76	Baseline	Ex. 4 CBI	03/26/19 17:29
Perfluorooctanoic acid	3.16	Baseline		03/26/19 17:29
Perfluorooctanesulfonic acid	3.55	Baseline		03/26/19 17:29

537 DW

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Sacram Job No.: 320-48794-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 285473

Lab Sample ID: CCVL 320-285473/1 Client Sample ID:

Date Analyzed: 04/03/19 05:14 Lab File ID: 2019.04.02_537A_004.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoro(2-propoxypropanoic) acid	2.49	Baseline	Ex. 4 CBI	04/03/19 09:08
Perfluoroheptanoic acid	2.80	Baseline		04/03/19 09:08
Perfluorooctanoic acid	3.22	Baseline		04/03/19 09:08
Perfluorononanoic acid	3.59	Baseline		04/03/19 09:08
Perfluorooctanesulfonic acid	3.59	Baseline		04/03/19 09:08
Perfluoroundecanoic acid	4.27	Baseline		04/03/19 09:08
N-ethylperfluorooctanesulfonamido acetic acid	4.28	Baseline		04/03/19 09:08

537 DW

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Sacram Job No.: 320-48794-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 285757

Lab Sample ID: MB 320-285397/1-A Client Sample ID:

Date Analyzed: 04/03/19 06:51 Lab File ID: 2019.04.02_537A_017.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid		Invalid Compound ID	Ex. 4 CBI	04/03/19 09:59

Lab Sample ID: 320-48794-1 Client Sample ID: C0AP3

Date Analyzed: 04/03/19 07:13 Lab File ID: 2019.04.02_537A_020.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid	2.78	Baseline	Ex. 4 CBI	04/03/19 10:26
Perfluorohexanesulfonic acid	2.80	Baseline		04/03/19 10:26
Perfluorooctanoic acid	3.20	Isomers		04/03/19 10:27

Lab Sample ID: 320-48794-2 Client Sample ID: C0AP4

Date Analyzed: 04/03/19 07:21 Lab File ID: 2019.04.02_537A_021.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid	2.78	Baseline	Ex. 4 CBI	04/03/19 10:30
Perfluorohexanesulfonic acid	2.80	Baseline		04/03/19 10:29
Perfluorooctanoic acid	3.20	Isomers		04/03/19 10:30

Lab Sample ID: 320-48794-3 Client Sample ID: C0AQ9

Date Analyzed: 04/03/19 07:28 Lab File ID: 2019.04.02_537A_022.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid	2.78	Baseline	Ex. 4 CBI	04/03/19 10:54
Perfluorohexanesulfonic acid	2.80	Baseline		04/03/19 10:54
Perfluorooctanoic acid	3.20	Isomers		04/03/19 10:55

537 DW

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Sacram Job No.: 320-48794-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 285757

Lab Sample ID: 320-48794-5 Client Sample ID: C0AR9

Date Analyzed: 04/03/19 07:43 Lab File ID: 2019.04.02_537A_024.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid	2.78	Baseline	Ex. 4 CBI	04/03/19 10:59
Perfluorohexanesulfonic acid	2.80	Baseline		04/03/19 10:58
Perfluorooctanoic acid	3.18	Isomers		04/03/19 10:59

Lab Sample ID: 320-48794-6 Client Sample ID: C0AS0

Date Analyzed: 04/03/19 07:51 Lab File ID: 2019.04.02_537A_025.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid	2.78	Baseline	Ex. 4 CBI	04/03/19 11:00
Perfluorooctanoic acid	3.20	Isomers		04/03/19 11:01

Lab Sample ID: 320-48794-7 Client Sample ID: C0AS1

Date Analyzed: 04/03/19 07:58 Lab File ID: 2019.04.02_537A_026.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid	2.78	Baseline	Ex. 4 CBI	04/03/19 11:02
Perfluorohexanesulfonic acid	2.80	Baseline		04/03/19 11:02
Perfluorooctanoic acid	3.18	Isomers		04/03/19 11:03

537 DW

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Sacram Job No.: 320-48794-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 285758

Lab Sample ID: 320-48794-8 Client Sample ID: C0AS4

Date Analyzed: 04/03/19 08:20 Lab File ID: 2019.04.02_537A_029.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid		Invalid Compound ID	Ex. 4 CBI	04/03/19 11:38

Lab Sample ID: 320-48794-9 Client Sample ID: C0AS5

Date Analyzed: 04/03/19 08:28 Lab File ID: 2019.04.02_537A_030.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid		Invalid Compound ID	Ex. 4 CBI	04/03/19 11:38
Perfluorooctanoic acid		Invalid Compound ID		04/03/19 11:38

Lab Sample ID: 320-48794-10 Client Sample ID: C0AS6

Date Analyzed: 04/03/19 08:35 Lab File ID: 2019.04.02_537A_031.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid		Invalid Compound ID	Ex. 4 CBI	04/03/19 11:39

Lab Sample ID: 320-48794-11 Client Sample ID: C0AW5

Date Analyzed: 04/03/19 08:43 Lab File ID: 2019.04.02_537A_032.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid		Invalid Compound ID	Ex. 4 CBI	04/03/19 11:39

Lab Sample ID: 320-48794-12 Client Sample ID: C0AX2

Date Analyzed: 04/03/19 08:50 Lab File ID: 2019.04.02_537A_033.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid		Invalid Compound ID	Ex. 4 CBI	04/03/19 11:39
Perfluorooctanoic acid		Invalid Compound ID		04/03/19 11:39

537 DW

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Sacram Job No.: 320-48794-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 285758

Lab Sample ID: 320-48794-13 Client Sample ID: C0AX3

Date Analyzed: 04/03/19 08:58 Lab File ID: 2019.04.02_537A_034.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid		Invalid Compound ID	Ex. 4 CBI	04/03/19 11:39

Lab Sample ID: 320-48794-14 Client Sample ID: C0AX4

Date Analyzed: 04/03/19 09:05 Lab File ID: 2019.04.02_537A_035.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid		Invalid Compound ID	Ex. 4 CBI	04/03/19 11:40

Lab Sample ID: 320-48794-15 Client Sample ID: C0AX9

Date Analyzed: 04/03/19 09:13 Lab File ID: 2019.04.02_537A_036.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid	2.78	Baseline	Ex. 4 CBI	04/03/19 11:41
Perfluorohexanesulfonic acid	2.78	Baseline		04/03/19 11:40
Perfluorooctanoic acid	3.18	Isomers		04/03/19 11:41

537 DW

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Sacram Job No.: 320-48794-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 286141

Lab Sample ID: IC 320-286141/2 Client Sample ID:

Date Analyzed: 04/04/19 15:14 Lab File ID: 2019.04.04_537ICAL_003.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid	2.78	Baseline	Ex. 4 CBI	04/04/19 16:23
Perfluorohexanesulfonic acid	2.80	Baseline		04/04/19 16:23
Perfluorooctanesulfonic acid	3.56	Baseline		04/04/19 16:23
Perfluorodecanoic acid	3.92	Baseline		04/04/19 16:24
N-ethylperfluorooctanesulfonamido acetic acid	4.25	Baseline		04/04/19 16:24
Perfluorotetradecanoic acid	4.99	Baseline		04/04/19 16:24

Lab Sample ID: IC 320-286141/3 Client Sample ID:

Date Analyzed: 04/04/19 15:23 Lab File ID: 2019.04.04_537ICAL_004.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid	2.78	Baseline	Ex. 4 CBI	04/04/19 16:25
Perfluorohexanesulfonic acid	2.80	Baseline		04/04/19 16:25
Perfluorooctanesulfonic acid	3.56	Baseline		04/04/19 16:25

Lab Sample ID: IC 320-286141/4 Client Sample ID:

Date Analyzed: 04/04/19 15:33 Lab File ID: 2019.04.04_537ICAL_005.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid	2.78	Baseline	Ex. 4 CBI	04/04/19 16:26
Perfluorohexanesulfonic acid	2.78	Baseline		04/04/19 16:26
Perfluorooctanesulfonic acid	3.56	Baseline		04/04/19 16:26

537 DW

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Sacram Job No.: 320-48794-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 286141

Lab Sample ID: CCVL 320-286141/10 Client Sample ID:

Date Analyzed: 04/04/19 16:29 Lab File ID: 2019.04.04_537ICAL_011.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorohexanesulfonic acid	2.80	Baseline	Ex. 4 CBI	04/04/19 16:42
Perfluorooctanoic acid	3.20	Baseline		04/04/19 16:43
Perfluorooctanesulfonic acid	3.58	Baseline		04/04/19 16:43

537 DW

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Sacram Job No.: 320-48794-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 286182

Lab Sample ID: 320-48794-4 Client Sample ID: C0AR5

Date Analyzed: 04/04/19 19:29 Lab File ID: 2019.04.04_537AA_007.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid	2.78	Baseline	Ex. 4 CBI	04/05/19 10:55
Perfluorohexanesulfonic acid	2.80	Baseline		04/05/19 10:54
Perfluorooctanoic acid	3.18	Isomers		04/05/19 10:56
Perfluorooctanesulfonic acid	3.43	Baseline		04/05/19 10:57
Perfluorononanoic acid		Invalid Compound ID		04/05/19 10:57

537 DW

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Sacram Job No.: 320-48794-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 286320

Lab Sample ID: CCVL 320-286320/1 Client Sample ID:

Date Analyzed: 04/05/19 11:55 Lab File ID: 2019.04.05_537.1A_004.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid	2.78	Baseline	Ex. 4 CBI	04/05/19 14:28
Perfluorohexanesulfonic acid	2.78	Baseline		04/05/19 14:28
Perfluorooctanoic acid	3.17	Baseline		04/05/19 14:29
N-ethylperfluorooctanesulfonamido acetic acid	4.24	Baseline		04/05/19 14:29

537 DW

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
LC537-IS_00100	09/16/19	03/18/19	Methanol, Lot 186954	200 mL	LCd3-NMeFOSAA_00012	200 uL	d3-NMeFOSAA	0.05 ug/mL
					LCM2PFOA_00015	200 uL	13C2 PFOA	0.05 ug/mL
					LCMPFOS_00031	200 uL	13C4 PFOS	0.0478 ug/mL
.LCd3-NMeFOSAA_00012	08/23/23	WELLINGTON, Lot d3NMeFOSAA0818			(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
.LCM2PFOA_00015	10/10/23	Wellington Laboratories, Lot M2PFOA1018			(Purchased Reagent)		13C2 PFOA	50 ug/mL
.LCMPFOS_00031	09/11/23	Wellington Laboratories, Lot MPFOS0918			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
LC537-SU_00101	09/29/19	03/29/19	Methanol, Lot 186960	200 mL	LCd5-NEtFOSAA_00013	200 uL	d5-NEtFOSAA	0.05 ug/mL
					LCM3HFPO-DA_00006	200 uL	13C3 HFPO-DA	0.05 ug/mL
					LCMPFDA_00024	200 uL	13C2 PFDA	0.05 ug/mL
					LCMPFHxA_00026	200 uL	13C2 PFHxA	0.05 ug/mL
.LCd5-NEtFOSAA_00013	08/23/23	WELLINGTON, Lot d5NEtFOSAA0818			(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
.LCM3HFPO-DA_00006	10/24/21	WELLINGTON, Lot M3HFPODA1018			(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL
.LCMPFDA_00024	02/16/23	Wellington Laboratories, Lot MPFDA0218			(Purchased Reagent)		13C2 PFDA	50 ug/mL
.LCMPFHxA_00026	05/22/23	Wellington Laboratories, Lot MPFHxA0518			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537_NC_ICV_00003	08/02/19	02/05/19	MeOH/H2O, Lot Fisher 185850	200 mL	LC537-IS/SU_00002	10 mL	13C2 PFOA	2.5 ng/mL
							13C4 PFOS	2.39 ng/mL
.LC537-IS/SU_00002	08/02/19	02/02/19	Methanol, Lot 185850	200 mL	LCM2PFOA_00015	200 uL	13C2 PFOA	0.05 ug/mL
					LCMPFOS_00031	200 uL	13C4 PFOS	0.0478 ug/mL
..LCM2PFOA_00015	10/10/23	Wellington Laboratories, Lot M2PFOA1018			(Purchased Reagent)		13C2 PFOA	50 ug/mL
..LCMPFOS_00031	09/11/23	Wellington Laboratories, Lot MPFOS0918			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
LC537_NC_ICV_00003	08/02/19	02/05/19	MeOH/H2O, Lot Fisher 185850	200 mL	LC537-IS/SU_00002	10 mL	13C2 PFDA	2.5 ng/mL
							13C2 PFHxA	2.5 ng/mL
					LCPFAC-24PAR_00002	200 uL	Perfluorobutanesulfonic acid	1.77 ng/mL
							Perfluoroheptanoic acid	2 ng/mL
							Perfluorohexanesulfonic acid	1.824 ng/mL
							Perfluorononanoic acid	2 ng/mL
							Perfluorooctanesulfonic acid	1.851 ng/mL
							Perfluorooctanoic acid	2 ng/mL
.LC537-IS/SU_00002	08/02/19	02/02/19	Methanol, Lot 185850	200 mL	LCMPFDA_00024	200 uL	13C2 PFDA	0.05 ug/mL
					LCMPFHxA_00026	200 uL	13C2 PFHxA	0.05 ug/mL
..LCMPFDA_00024	02/16/23	Wellington Laboratories, Lot MPFDA0218			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00026	05/22/23	Wellington Laboratories, Lot MPFHxA0518			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
.LCPFAC-24PAR_00002	04/18/23	Wellington Laboratories, Lot PFAC24PAR0418			(Purchased Reagent)		Perfluorobutanesulfonic acid	1.77 ug/mL
							Perfluoroheptanoic acid	2 ug/mL
							Perfluorohexanesulfonic acid	1.824 ug/mL
							Perfluorononanoic acid	2 ug/mL
							Perfluorooctanesulfonic acid	1.851 ug/mL
							Perfluorooctanoic acid	2 ug/mL
LC537_NC_L1_00004	08/02/19	02/02/19	MeOH/H2O, Lot 185850	200 mL	LC537-IS/SU_00002	10 mL	d3-NMeFOSAA	2.5 ng/mL
							d5-NEtFOSAA	2.5 ng/mL
							13C2 PFOA	2.5 ng/mL
							13C2 PFDA	2.5 ng/mL
							13C2 PFHxA	2.5 ng/mL
							13C4 PFOS	2.39 ng/mL

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LC537HSP_00002	50 uL	N-ethylperfluorooctanesulfonamidoacetic acid	0.025 ng/mL
							N-methylperfluorooctanesulfonamidoacetic acid	0.025 ng/mL
							Perfluorobutanesulfonic acid	0.0221 ng/mL
							Perfluorodecanoic acid	0.025 ng/mL
							Perfluorododecanoic acid	0.025 ng/mL
							Perfluoroheptanoic acid	0.025 ng/mL
							Perfluorohexanoic acid	0.025 ng/mL
							Perfluorohexanesulfonic acid	0.02275 ng/mL
							Perfluorononanoic acid	0.025 ng/mL
							Perfluorooctanoic acid	0.025 ng/mL
							Perfluorooctanesulfonic acid	0.0232 ng/mL
							Perfluorotetradecanoic acid	0.025 ng/mL
							Perfluorotridecanoic acid	0.025 ng/mL
							Perfluoroundecanoic acid	0.025 ng/mL
.LC537-IS/SU_00002	08/02/19	02/02/19	Methanol, Lot 185850	200 mL	LCd3-NMeFOSAA_00012	200 uL	d3-NMeFOSAA	0.05 ug/mL
					LCd5-NEtFOSAA_00013	200 uL	d5-NEtFOSAA	0.05 ug/mL
					LCM2PFOA_00015	200 uL	13C2 PFOA	0.05 ug/mL
					LCMPFDA_00024	200 uL	13C2 PFDA	0.05 ug/mL
					LCMPFHxA_00026	200 uL	13C2 PFHxA	0.05 ug/mL
					LCMPFOS_00031	200 uL	13C4 PFOS	0.0478 ug/mL
..LCd3-NMeFOSAA_00012	08/23/23	WELLINGTON, Lot d3NMeFOSAA0818			(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NEtFOSAA_00013	08/23/23	WELLINGTON, Lot d5NEtFOSAA0818			(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
..LCM2PFOA_00015	10/10/23	Wellington Laboratories, Lot M2PFOA1018			(Purchased Reagent)		13C2 PFOA	50 ug/mL
..LCMPFDA_00024	02/16/23	Wellington Laboratories, Lot MPFDA0218			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00026	05/22/23	Wellington Laboratories, Lot MPFHxA0518			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFOS_00031	09/11/23	Wellington Laboratories, Lot MPFOS0918			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537HSP_00002	08/02/19	02/02/19	Methanol, Lot 185850	250 mL	LCbr-NEtFOSAA_00004	500 uL	N-ethylperfluorooctanesulfonamidoacetic acid	0.1 ug/mL
					LCbr-NMeFOSAA_00004	500 uL	N-methylperfluorooctanesulfonamidoacetic acid	0.1 ug/mL
					LCPFBSA_00005	500 uL	Perfluorobutanesulfonic acid	0.0884 ug/mL
					LCPFDA_00012	500 uL	Perfluorodecanoic acid	0.1 ug/mL
					LCPFDoA_00012	500 uL	Perfluorododecanoic acid	0.1 ug/mL
					LCPFHpA_00013	500 uL	Perfluoroheptanoic acid	0.1 ug/mL
					LCPFHxA_00012	500 uL	Perfluorohexanoic acid	0.1 ug/mL
					LCPFHxS-br_00009	500 uL	Perfluorohexanesulfonic acid	0.091 ug/mL
					LCPFNA_00012	500 uL	Perfluorononanoic acid	0.1 ug/mL
					LCPFOA_00014	500 uL	Perfluorooctanoic acid	0.1 ug/mL
					LCPFOS-br_00009	500 uL	Perfluorooctanesulfonic acid	0.0928 ug/mL
					LCPFTeDA_00012	500 uL	Perfluorotetradecanoic acid	0.1 ug/mL
					LCPFTrDA_00012	500 uL	Perfluorotridecanoic acid	0.1 ug/mL
					LCPFUdA_00012	500 uL	Perfluoroundecanoic acid	0.1 ug/mL
..LCbr-NEtFOSAA_00004	07/26/23	WELLINGTON, Lot brNEtFOSAA0718			(Purchased Reagent)		N-ethylperfluorooctanesulfonamidoacetic acid	50 ug/mL
..LCbr-NMeFOSAA_00004	01/17/23	WELLINGTON, Lot brNMeFOSAA0118			(Purchased Reagent)		N-methylperfluorooctanesulfonamidoacetic acid	50 ug/mL
..LCPFBSA_00005	05/04/23	Wellington Laboratories, Lot LPFBS0418			(Purchased Reagent)		Perfluorobutanesulfonic acid	44.2 ug/mL

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCPFDA_00012	12/14/22	Wellington Laboratories, Lot PFDA1217			(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL
..LCPFDoA_00012	04/18/23	Wellington Laboratories, Lot PFDoA0418			(Purchased Reagent)		Perfluorododecanoic acid	50 ug/mL
..LCPFHpA_00013	07/12/23	Wellington Laboratories, Lot PFHpA0718			(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL
..LCPFHxA_00012	05/18/23	Wellington Laboratories, Lot PFHxA0518			(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
..LCPFHxS-br_00009	10/02/23	Wellington Laboratories, Lot brPFHxSK1018			(Purchased Reagent)		Perfluorohexanesulfonic acid	45.5 ug/mL
..LCPFNA_00012	02/16/23	Wellington Laboratories, Lot PFNA0218			(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL
..LCPFOA_00014	08/23/23	Wellington Laboratories, Lot PFOA0818			(Purchased Reagent)		Perfluorooctanoic acid	50 ug/mL
..LCPFOS-br_00009	04/18/23	Wellington Laboratories, Lot brPFOSK0418			(Purchased Reagent)		Perfluorooctanesulfonic acid	46.4 ug/mL
..LCPFTeDA_00012	08/23/23	Wellington Laboratories, Lot PFTeDA0818			(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
..LCPFTrDA_00012	02/16/23	Wellington Laboratories, Lot PFTrDA0218			(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
..LCPFUdA_00012	08/23/23	Wellington Laboratories, Lot PFUdA0818			(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LC537_NC_L2_00004	08/02/19	02/02/19	MeOH/H2O, Lot 185850	200 mL	LC537-IS/SU_00002	10 mL	d3-NMeFOSAA	2.5 ng/mL
							d5-NEtFOSAA	2.5 ng/mL
							13C2 PFOA	2.5 ng/mL
							13C2 PFDA	2.5 ng/mL
							13C2 PFHxA	2.5 ng/mL
							13C4 PFOS	2.39 ng/mL
					LC537HSP_00002	100 uL	N-ethylperfluorooctanesulfonamidoacetic acid	0.05 ng/mL
							N-methylperfluorooctanesulfonamidoacetic acid	0.05 ng/mL
							Perfluorobutanesulfonic acid	0.0442 ng/mL
							Perfluorodecanoic acid	0.05 ng/mL
							Perfluorododecanoic acid	0.05 ng/mL
							Perfluoroheptanoic acid	0.05 ng/mL
							Perfluorohexanoic acid	0.05 ng/mL
							Perfluorohexanesulfonic acid	0.0455 ng/mL
							Perfluorononanoic acid	0.05 ng/mL
							Perfluorooctanoic acid	0.05 ng/mL
							Perfluorooctanesulfonic acid	0.0464 ng/mL
							Perfluorotetradecanoic acid	0.05 ng/mL
							Perfluorotridecanoic acid	0.05 ng/mL
							Perfluoroundecanoic acid	0.05 ng/mL
.LC537-IS/SU_00002	08/02/19	02/02/19	Methanol, Lot 185850	200 mL	LCd3-NMeFOSAA_00012	200 uL	d3-NMeFOSAA	0.05 ug/mL
					LCd5-NEtFOSAA_00013	200 uL	d5-NEtFOSAA	0.05 ug/mL
					LCM2PFOA_00015	200 uL	13C2 PFOA	0.05 ug/mL
					LCMPFDA_00024	200 uL	13C2 PFDA	0.05 ug/mL
					LCMPFHxA_00026	200 uL	13C2 PFHxA	0.05 ug/mL
					LCMPFOS_00031	200 uL	13C4 PFOS	0.0478 ug/mL
..LCd3-NMeFOSAA_00012	08/23/23	WELLINGTON, Lot d3NMeFOSAA0818			(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NEtFOSAA_00013	08/23/23	WELLINGTON, Lot d5NEtFOSAA0818			(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
..LCM2PFOA_00015	10/10/23	Wellington Laboratories, Lot M2PFOA1018			(Purchased Reagent)		13C2 PFOA	50 ug/mL
..LCMPFDA_00024	02/16/23	Wellington Laboratories, Lot MPFDA0218			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00026	05/22/23	Wellington Laboratories, Lot MPFHxA0518			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFOS_00031	09/11/23	Wellington Laboratories, Lot MPFOS0918			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537HSP_00002	08/02/19	02/02/19	Methanol, Lot 185850	250 mL	LCbr-NEtFOSAA_00004	500 uL	N-ethylperfluorooctanesulfonamidoacetic acid	0.1 ug/mL

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCbr-NMeFOSAA_00004	500 uL	N-methylperfluorooctanesulfonamidoacetic acid	0.1 ug/mL
					LCPFBSA_00005	500 uL	Perfluorobutanesulfonic acid	0.0884 ug/mL
					LCPFDA_00012	500 uL	Perfluorodecanoic acid	0.1 ug/mL
					LCPFDoA_00012	500 uL	Perfluorododecanoic acid	0.1 ug/mL
					LCPFHpA_00013	500 uL	Perfluoroheptanoic acid	0.1 ug/mL
					LCPFHxA_00012	500 uL	Perfluorohexanoic acid	0.1 ug/mL
					LCPFHxS-br_00009	500 uL	Perfluorohexanesulfonic acid	0.091 ug/mL
					LCPFNA_00012	500 uL	Perfluorononanoic acid	0.1 ug/mL
					LCPFOA_00014	500 uL	Perfluorooctanoic acid	0.1 ug/mL
					LCPFOS-br_00009	500 uL	Perfluorooctanesulfonic acid	0.0928 ug/mL
					LCPFTeDA_00012	500 uL	Perfluorotetradecanoic acid	0.1 ug/mL
					LCPFTrDA_00012	500 uL	Perfluorotridecanoic acid	0.1 ug/mL
					LCPFUdA_00012	500 uL	Perfluoroundecanoic acid	0.1 ug/mL
..LCbr-NEtFOSAA_00004	07/26/23	WELLINGTON, Lot brNEtFOSAA0718			(Purchased Reagent)		N-ethylperfluorooctanesulfonamidoacetic acid	50 ug/mL
..LCbr-NMeFOSAA_00004	01/17/23	WELLINGTON, Lot brNMeFOSAA0118			(Purchased Reagent)		N-methylperfluorooctanesulfonamidoacetic acid	50 ug/mL
..LCPFBSA_00005	05/04/23	Wellington Laboratories, Lot LPFBS0418			(Purchased Reagent)		Perfluorobutanesulfonic acid	44.2 ug/mL
..LCPFDA_00012	12/14/22	Wellington Laboratories, Lot PFDA1217			(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL
..LCPFDoA_00012	04/18/23	Wellington Laboratories, Lot PFDoA0418			(Purchased Reagent)		Perfluorododecanoic acid	50 ug/mL
..LCPFHpA_00013	07/12/23	Wellington Laboratories, Lot PFHpA0718			(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL
..LCPFHxA_00012	05/18/23	Wellington Laboratories, Lot PFHxA0518			(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
..LCPFHxS-br_00009	10/02/23	Wellington Laboratories, Lot brPFHxSK1018			(Purchased Reagent)		Perfluorohexanesulfonic acid	45.5 ug/mL
..LCPFNA_00012	02/16/23	Wellington Laboratories, Lot PFNA0218			(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL
..LCPFOA_00014	08/23/23	Wellington Laboratories, Lot PFOA0818			(Purchased Reagent)		Perfluorooctanoic acid	50 ug/mL
..LCPFOS-br_00009	04/18/23	Wellington Laboratories, Lot brPFOSK0418			(Purchased Reagent)		Perfluorooctanesulfonic acid	46.4 ug/mL
..LCPFTeDA_00012	08/23/23	Wellington Laboratories, Lot PFTeDA0818			(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
..LCPFTrDA_00012	02/16/23	Wellington Laboratories, Lot PFTrDA0218			(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
..LCPFUdA_00012	08/23/23	Wellington Laboratories, Lot PFUdA0818			(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LC537_NC_L3_00004	08/02/19	02/02/19	MeOH/H2O, Lot 185850	200 mL	LC537-IS/SU_00002	10 mL	d3-NMeFOSAA	2.5 ng/mL
							d5-NEtFOSAA	2.5 ng/mL
							13C2 PFOA	2.5 ng/mL
							13C2 PFDA	2.5 ng/mL
							13C2 PFHxA	2.5 ng/mL
							13C4 PFOS	2.39 ng/mL
					LC537HSP_00002	500 uL	N-ethylperfluorooctanesulfonamidoacetic acid	0.25 ng/mL
							N-methylperfluorooctanesulfonamidoacetic acid	0.25 ng/mL
							Perfluorobutanesulfonic acid	0.221 ng/mL
							Perfluorodecanoic acid	0.25 ng/mL
							Perfluorododecanoic acid	0.25 ng/mL
							Perfluoroheptanoic acid	0.25 ng/mL
							Perfluorohexanoic acid	0.25 ng/mL
							Perfluorohexanesulfonic acid	0.2275 ng/mL
							Perfluorononanoic acid	0.25 ng/mL
							Perfluorooctanoic acid	0.25 ng/mL

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorooctanesulfonic acid	0.232 ng/mL
							Perfluorotetradecanoic acid	0.25 ng/mL
							Perfluorotridecanoic acid	0.25 ng/mL
							Perfluoroundecanoic acid	0.25 ng/mL
.LC537-IS/SU_00002	08/02/19	02/02/19	Methanol, Lot 185850	200 mL	LCd3-NMeFOSAA_00012	200 uL	d3-NMeFOSAA	0.05 ug/mL
					LCd5-NEtFOSAA_00013	200 uL	d5-NEtFOSAA	0.05 ug/mL
					LCM2PFOA_00015	200 uL	13C2 PFOA	0.05 ug/mL
					LCMPFDA_00024	200 uL	13C2 PFDA	0.05 ug/mL
					LCMPFHxA_00026	200 uL	13C2 PFHxA	0.05 ug/mL
					LCMPFOS_00031	200 uL	13C4 PFOS	0.0478 ug/mL
..LCd3-NMeFOSAA_00012	08/23/23	WELLINGTON, Lot d3NMeFOSAA0818			(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NEtFOSAA_00013	08/23/23	WELLINGTON, Lot d5NEtFOSAA0818			(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
..LCM2PFOA_00015	10/10/23	Wellington Laboratories, Lot M2PFOA1018			(Purchased Reagent)		13C2 PFOA	50 ug/mL
..LCMPFDA_00024	02/16/23	Wellington Laboratories, Lot MPFDA0218			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00026	05/22/23	Wellington Laboratories, Lot MPFHxA0518			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFOS_00031	09/11/23	Wellington Laboratories, Lot MPFOS0918			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537HSP_00002	08/02/19	02/02/19	Methanol, Lot 185850	250 mL	LCbr-NEtFOSAA_00004	500 uL	N-ethylperfluorooctanesulfonamidoacetic acid	0.1 ug/mL
					LCbr-NMeFOSAA_00004	500 uL	N-methylperfluorooctanesulfonamidoacetic acid	0.1 ug/mL
					LCPFBSA_00005	500 uL	Perfluorobutanesulfonic acid	0.0884 ug/mL
					LCPFDA_00012	500 uL	Perfluorodecanoic acid	0.1 ug/mL
					LCPFDoA_00012	500 uL	Perfluorododecanoic acid	0.1 ug/mL
					LCPFHpA_00013	500 uL	Perfluoroheptanoic acid	0.1 ug/mL
					LCPFHxA_00012	500 uL	Perfluorohexanoic acid	0.1 ug/mL
					LCPFHxS-br_00009	500 uL	Perfluorohexanesulfonic acid	0.091 ug/mL
					LCPFNA_00012	500 uL	Perfluorononanoic acid	0.1 ug/mL
					LCPFOA_00014	500 uL	Perfluorooctanoic acid	0.1 ug/mL
					LCPFOS-br_00009	500 uL	Perfluorooctanesulfonic acid	0.0928 ug/mL
					LCPFTeDA_00012	500 uL	Perfluorotetradecanoic acid	0.1 ug/mL
					LCPFTrDA_00012	500 uL	Perfluorotridecanoic acid	0.1 ug/mL
					LCPFUdA_00012	500 uL	Perfluoroundecanoic acid	0.1 ug/mL
..LCbr-NEtFOSAA_00004	07/26/23	WELLINGTON, Lot brNEtFOSAA0718			(Purchased Reagent)		N-ethylperfluorooctanesulfonamidoacetic acid	50 ug/mL
..LCbr-NMeFOSAA_00004	01/17/23	WELLINGTON, Lot brNMeFOSAA0118			(Purchased Reagent)		N-methylperfluorooctanesulfonamidoacetic acid	50 ug/mL
..LCPFBSA_00005	05/04/23	Wellington Laboratories, Lot LPFBS0418			(Purchased Reagent)		Perfluorobutanesulfonic acid	44.2 ug/mL
..LCPFDA_00012	12/14/22	Wellington Laboratories, Lot PFDA1217			(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL
..LCPFDoA_00012	04/18/23	Wellington Laboratories, Lot PFDoA0418			(Purchased Reagent)		Perfluorododecanoic acid	50 ug/mL
..LCPFHpA_00013	07/12/23	Wellington Laboratories, Lot PFHpA0718			(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL
..LCPFHxA_00012	05/18/23	Wellington Laboratories, Lot PFHxA0518			(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
..LCPFHxS-br_00009	10/02/23	Wellington Laboratories, Lot brPFHxSK1018			(Purchased Reagent)		Perfluorohexanesulfonic acid	45.5 ug/mL
..LCPFNA_00012	02/16/23	Wellington Laboratories, Lot PFNA0218			(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL
..LCPFOA_00014	08/23/23	Wellington Laboratories, Lot PFOA0818			(Purchased Reagent)		Perfluorooctanoic acid	50 ug/mL
..LCPFOS-br_00009	04/18/23	Wellington Laboratories, Lot brPFOSK0418			(Purchased Reagent)		Perfluorooctanesulfonic acid	46.4 ug/mL
..LCPFTeDA_00012	08/23/23	Wellington Laboratories, Lot PFTeDA0818			(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
..LCPFTrDA_00012	02/16/23	Wellington Laboratories, Lot PFTrDA0218			(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
..LCPFUdA_00012	08/23/23	Wellington Laboratories, Lot PFUdA0818			(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
LC537_NC_L4_00003	08/02/19	02/02/19	MeOH/H2O, Lot 185850	200 mL	LC537-IS/SU_00002	10 mL	d3-NMeFOSAA	2.5 ng/mL
							d5-NEtFOSAA	2.5 ng/mL
							13C2 PFOA	2.5 ng/mL
							13C2 PFDA	2.5 ng/mL
							13C2 PFHxA	2.5 ng/mL
							13C4 PFOS	2.39 ng/mL
					LC537SP_00014	200 uL	N-ethylperfluorooctanesulfonamidoacetic acid	1 ng/mL
							N-methylperfluorooctanesulfonamidoacetic acid	1 ng/mL
							Perfluorobutanesulfonic acid	0.884 ng/mL
							Perfluorodecanoic acid	1 ng/mL
							Perfluorododecanoic acid	1 ng/mL
							Perfluoroheptanoic acid	1 ng/mL
							Perfluorohexanoic acid	1 ng/mL
							Perfluorohexanesulfonic acid	0.91 ng/mL
							Perfluorononanoic acid	1 ng/mL
							Perfluorooctanoic acid	1 ng/mL
							Perfluorooctanesulfonic acid	0.928 ng/mL
							Perfluorotetradecanoic acid	1 ng/mL
							Perfluorotridecanoic acid	1 ng/mL
							Perfluoroundecanoic acid	1 ng/mL
.LC537-IS/SU_00002	08/02/19	02/02/19	Methanol, Lot 185850	200 mL	LCd3-NMeFOSAA_00012	200 uL	d3-NMeFOSAA	0.05 ug/mL
					LCd5-NEtFOSAA_00013	200 uL	d5-NEtFOSAA	0.05 ug/mL
					LCM2PFOA_00015	200 uL	13C2 PFOA	0.05 ug/mL
					LCMPFDA_00024	200 uL	13C2 PFDA	0.05 ug/mL
					LCMPFHxA_00026	200 uL	13C2 PFHxA	0.05 ug/mL
					LCMPFOS_00031	200 uL	13C4 PFOS	0.0478 ug/mL
..LCd3-NMeFOSAA_00012	08/23/23	WELLINGTON, Lot d3NMeFOSAA0818			(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NEtFOSAA_00013	08/23/23	WELLINGTON, Lot d5NEtFOSAA0818			(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
..LCM2PFOA_00015	10/10/23	Wellington Laboratories, Lot M2PFOA1018			(Purchased Reagent)		13C2 PFOA	50 ug/mL
..LCMPFDA_00024	02/16/23	Wellington Laboratories, Lot MPFDA0218			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00026	05/22/23	Wellington Laboratories, Lot MPFHxA0518			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFOS_00031	09/11/23	Wellington Laboratories, Lot MPFOS0918			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537SP_00014	08/02/19	02/02/19	Methanol, Lot 185850	10 mL	LCbr-NEtFOSAA_00004	200 uL	N-ethylperfluorooctanesulfonamidoacetic acid	1 ug/mL
					LCbr-NMeFOSAA_00004	200 uL	N-methylperfluorooctanesulfonamidoacetic acid	1 ug/mL
					LCPFBSA_00005	200 uL	Perfluorobutanesulfonic acid	0.884 ug/mL
					LCPFDA_00012	200 uL	Perfluorodecanoic acid	1 ug/mL
					LCPFDoA_00012	200 uL	Perfluorododecanoic acid	1 ug/mL
					LCPFHpA_00013	200 uL	Perfluoroheptanoic acid	1 ug/mL
					LCPFHxA_00012	200 uL	Perfluorohexanoic acid	1 ug/mL
					LCPFHxS-br_00009	200 uL	Perfluorohexanesulfonic acid	0.91 ug/mL
					LCPFNA_00012	200 uL	Perfluorononanoic acid	1 ug/mL
					LCPFOA_00014	200 uL	Perfluorooctanoic acid	1 ug/mL
					LCPFOS-br_00009	200 uL	Perfluorooctanesulfonic acid	0.928 ug/mL
					LCPFTeDA_00012	200 uL	Perfluorotetradecanoic acid	1 ug/mL

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCPFTrDA_00012	200 uL	Perfluorotridecanoic acid	1 ug/mL
					LCPFUdA_00012	200 uL	Perfluoroundecanoic acid	1 ug/mL
..LCbr-NEtFOSAA_00004	07/26/23	WELLINGTON, Lot brNEtFOSAA0718			(Purchased Reagent)		N-ethylperfluorooctanesulfonamidoacetic acid	50 ug/mL
..LCbr-NMeFOSAA_00004	01/17/23	WELLINGTON, Lot brNMeFOSAA0118			(Purchased Reagent)		N-methylperfluorooctanesulfonamidoacetic acid	50 ug/mL
..LCPFBSA_00005	05/04/23	Wellington Laboratories, Lot LPFBS0418			(Purchased Reagent)		Perfluorobutanesulfonic acid	44.2 ug/mL
..LCPFDA_00012	12/14/22	Wellington Laboratories, Lot PFDA1217			(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL
..LCPFDoA_00012	04/18/23	Wellington Laboratories, Lot PFDoA0418			(Purchased Reagent)		Perfluorododecanoic acid	50 ug/mL
..LCPFHpA_00013	07/12/23	Wellington Laboratories, Lot PFHpA0718			(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL
..LCPFHxA_00012	05/18/23	Wellington Laboratories, Lot PFHxA0518			(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
..LCPFHxS-br_00009	10/02/23	Wellington Laboratories, Lot brPFHxSK1018			(Purchased Reagent)		Perfluorohexanesulfonic acid	45.5 ug/mL
..LCPFNA_00012	02/16/23	Wellington Laboratories, Lot PFNA0218			(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL
..LCPFOA_00014	08/23/23	Wellington Laboratories, Lot PFOA0818			(Purchased Reagent)		Perfluorooctanoic acid	50 ug/mL
..LCPFOS-br_00009	04/18/23	Wellington Laboratories, Lot brPFOSK0418			(Purchased Reagent)		Perfluorooctanesulfonic acid	46.4 ug/mL
..LCPFTeDA_00012	08/23/23	Wellington Laboratories, Lot PFTeDA0818			(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
..LCPFTrDA_00012	02/16/23	Wellington Laboratories, Lot PFTrDA0218			(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
..LCPFUdA_00012	08/23/23	Wellington Laboratories, Lot PFUdA0818			(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LC537_NC_L5_00003	08/02/19	02/02/19	MeOH/H2O, Lot 185850	200 mL	LC537-IS/SU_00002	10 mL	d3-NMeFOSAA	2.5 ng/mL
							d5-NEtFOSAA	2.5 ng/mL
							13C2 PFOA	2.5 ng/mL
							13C2 PFDA	2.5 ng/mL
							13C2 PFHxA	2.5 ng/mL
							13C4 PFOS	2.39 ng/mL
					LC537SP_00014	500 uL	N-ethylperfluorooctanesulfonamidoacetic acid	2.5 ng/mL
							N-methylperfluorooctanesulfonamidoacetic acid	2.5 ng/mL
							Perfluorobutanesulfonic acid	2.21 ng/mL
							Perfluorodecanoic acid	2.5 ng/mL
							Perfluorododecanoic acid	2.5 ng/mL
							Perfluoroheptanoic acid	2.5 ng/mL
							Perfluorohexanoic acid	2.5 ng/mL
							Perfluorohexanesulfonic acid	2.275 ng/mL
							Perfluorononanoic acid	2.5 ng/mL
							Perfluorooctanoic acid	2.5 ng/mL
							Perfluorooctanesulfonic acid	2.32 ng/mL
							Perfluorotetradecanoic acid	2.5 ng/mL
							Perfluorotridecanoic acid	2.5 ng/mL
							Perfluoroundecanoic acid	2.5 ng/mL
.LC537-IS/SU_00002	08/02/19	02/02/19	Methanol, Lot 185850	200 mL	LCd3-NMeFOSAA_00012	200 uL	d3-NMeFOSAA	0.05 ug/mL
					LCd5-NEtFOSAA_00013	200 uL	d5-NEtFOSAA	0.05 ug/mL
					LCM2PFOA_00015	200 uL	13C2 PFOA	0.05 ug/mL
					LCMPFDA_00024	200 uL	13C2 PFDA	0.05 ug/mL
					LCMPFHxA_00026	200 uL	13C2 PFHxA	0.05 ug/mL
					LCMPFOS_00031	200 uL	13C4 PFOS	0.0478 ug/mL
..LCd3-NMeFOSAA_00012	08/23/23	WELLINGTON, Lot d3NMeFOSAA0818			(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NEtFOSAA_00013	08/23/23	WELLINGTON, Lot d5NEtFOSAA0818			(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCM2PFOA_00015	10/10/23	Wellington Laboratories, Lot M2PFOA1018			(Purchased Reagent)		13C2 PFOA	50 ug/mL
..LCMPFDA_00024	02/16/23	Wellington Laboratories, Lot MPFDA0218			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00026	05/22/23	Wellington Laboratories, Lot MPFHxA0518			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFOS_00031	09/11/23	Wellington Laboratories, Lot MPFOS0918			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537SP_00014	08/02/19	02/02/19	Methanol, Lot 185850	10 mL	LCbr-NEtFOSAA_00004	200 uL	N-ethylperfluorooctanesulfonamidoacetic acid	1 ug/mL
					LCbr-NMeFOSAA_00004	200 uL	N-methylperfluorooctanesulfonamidoacetic acid	1 ug/mL
					LCPFBSA_00005	200 uL	Perfluorobutanesulfonic acid	0.884 ug/mL
					LCPFDA_00012	200 uL	Perfluorodecanoic acid	1 ug/mL
					LCPFDoA_00012	200 uL	Perfluorododecanoic acid	1 ug/mL
					LCPFHpA_00013	200 uL	Perfluoroheptanoic acid	1 ug/mL
					LCPFHxA_00012	200 uL	Perfluorohexanoic acid	1 ug/mL
					LCPFHxS-br_00009	200 uL	Perfluorohexanesulfonic acid	0.91 ug/mL
					LCPFNA_00012	200 uL	Perfluorononanoic acid	1 ug/mL
					LCPFOA_00014	200 uL	Perfluorooctanoic acid	1 ug/mL
					LCPFOS-br_00009	200 uL	Perfluorooctanesulfonic acid	0.928 ug/mL
					LCPFTeDA_00012	200 uL	Perfluorotetradecanoic acid	1 ug/mL
					LCPFTrDA_00012	200 uL	Perfluorotridecanoic acid	1 ug/mL
					LCPFUdA_00012	200 uL	Perfluoroundecanoic acid	1 ug/mL
..LCbr-NEtFOSAA_00004	07/26/23	WELLINGTON, Lot brNEtFOSAA0718			(Purchased Reagent)		N-ethylperfluorooctanesulfonamidoacetic acid	50 ug/mL
..LCbr-NMeFOSAA_00004	01/17/23	WELLINGTON, Lot brNMeFOSAA0118			(Purchased Reagent)		N-methylperfluorooctanesulfonamidoacetic acid	50 ug/mL
..LCPFBSA_00005	05/04/23	Wellington Laboratories, Lot LPFBS0418			(Purchased Reagent)		Perfluorobutanesulfonic acid	44.2 ug/mL
..LCPFDA_00012	12/14/22	Wellington Laboratories, Lot PFDA1217			(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL
..LCPFDoA_00012	04/18/23	Wellington Laboratories, Lot PFDoA0418			(Purchased Reagent)		Perfluorododecanoic acid	50 ug/mL
..LCPFHpA_00013	07/12/23	Wellington Laboratories, Lot PFHpA0718			(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL
..LCPFHxA_00012	05/18/23	Wellington Laboratories, Lot PFHxA0518			(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
..LCPFHxS-br_00009	10/02/23	Wellington Laboratories, Lot brPFHxSK1018			(Purchased Reagent)		Perfluorohexanesulfonic acid	45.5 ug/mL
..LCPFNA_00012	02/16/23	Wellington Laboratories, Lot PFNA0218			(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL
..LCPFOA_00014	08/23/23	Wellington Laboratories, Lot PFOA0818			(Purchased Reagent)		Perfluorooctanoic acid	50 ug/mL
..LCPFOS-br_00009	04/18/23	Wellington Laboratories, Lot brPFOSK0418			(Purchased Reagent)		Perfluorooctanesulfonic acid	46.4 ug/mL
..LCPFTeDA_00012	08/23/23	Wellington Laboratories, Lot PFTeDA0818			(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
..LCPFTrDA_00012	02/16/23	Wellington Laboratories, Lot PFTrDA0218			(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
..LCPFUdA_00012	08/23/23	Wellington Laboratories, Lot PFUdA0818			(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LC537_NC_L6_00003	08/02/19	02/02/19	MeOH/H2O, Lot 185850	200 mL	LC537-IS/SU_00002	10 mL	d3-NMeFOSAA	2.5 ng/mL
							d5-NEtFOSAA	2.5 ng/mL
							13C2 PFOA	2.5 ng/mL
							13C2 PFDA	2.5 ng/mL
							13C2 PFHxA	2.5 ng/mL
							13C4 PFOS	2.39 ng/mL
					LC537SP_00014	1 mL	N-ethylperfluorooctanesulfonamidoacetic acid	5 ng/mL
							N-methylperfluorooctanesulfonamidoacetic acid	5 ng/mL
							Perfluorobutanesulfonic acid	4.42 ng/mL
							Perfluorodecanoic acid	5 ng/mL

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorododecanoic acid	5 ng/mL
							Perfluoroheptanoic acid	5 ng/mL
							Perfluorohexanoic acid	5 ng/mL
							Perfluorohexanesulfonic acid	4.55 ng/mL
							Perfluorononanoic acid	5 ng/mL
							Perfluorooctanoic acid	5 ng/mL
							Perfluorooctanesulfonic acid	4.64 ng/mL
							Perfluorotetradecanoic acid	5 ng/mL
							Perfluorotridecanoic acid	5 ng/mL
							Perfluoroundecanoic acid	5 ng/mL
.LC537-IS/SU_00002	08/02/19	02/02/19	Methanol, Lot 185850	200 mL	LCd3-NMeFOSAA_00012	200 uL	d3-NMeFOSAA	0.05 ug/mL
					LCd5-NEtFOSAA_00013	200 uL	d5-NEtFOSAA	0.05 ug/mL
					LCM2PFOA_00015	200 uL	13C2 PFOA	0.05 ug/mL
					LCMPFDA_00024	200 uL	13C2 PFDA	0.05 ug/mL
					LCMPFHxA_00026	200 uL	13C2 PFHxA	0.05 ug/mL
					LCMPFOS_00031	200 uL	13C4 PFOS	0.0478 ug/mL
..LCd3-NMeFOSAA_00012	08/23/23	WELLINGTON, Lot d3NMeFOSAA0818			(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NEtFOSAA_00013	08/23/23	WELLINGTON, Lot d5NEtFOSAA0818			(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
..LCM2PFOA_00015	10/10/23	Wellington Laboratories, Lot M2PFOA1018			(Purchased Reagent)		13C2 PFOA	50 ug/mL
..LCMPFDA_00024	02/16/23	Wellington Laboratories, Lot MPFDA0218			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00026	05/22/23	Wellington Laboratories, Lot MPFHxA0518			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFOS_00031	09/11/23	Wellington Laboratories, Lot MPFOS0918			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537SP_00014	08/02/19	02/02/19	Methanol, Lot 185850	10 mL	LCbr-NEtFOSAA_00004	200 uL	N-ethylperfluorooctanesulfonamidoacetic acid	1 ug/mL
					LCbr-NMeFOSAA_00004	200 uL	N-methylperfluorooctanesulfonamidoacetic acid	1 ug/mL
					LCPFBSA_00005	200 uL	Perfluorobutanesulfonic acid	0.884 ug/mL
					LCPFDA_00012	200 uL	Perfluorodecanoic acid	1 ug/mL
					LCPFDoA_00012	200 uL	Perfluorododecanoic acid	1 ug/mL
					LCPFHpA_00013	200 uL	Perfluoroheptanoic acid	1 ug/mL
					LCPFHxA_00012	200 uL	Perfluorohexanoic acid	1 ug/mL
					LCPFHxS-br_00009	200 uL	Perfluorohexanesulfonic acid	0.91 ug/mL
					LCPFNA_00012	200 uL	Perfluorononanoic acid	1 ug/mL
					LCPFOA_00014	200 uL	Perfluorooctanoic acid	1 ug/mL
					LCPFOS-br_00009	200 uL	Perfluorooctanesulfonic acid	0.928 ug/mL
					LCPFTeDA_00012	200 uL	Perfluorotetradecanoic acid	1 ug/mL
					LCPFTrDA_00012	200 uL	Perfluorotridecanoic acid	1 ug/mL
					LCPFUdA_00012	200 uL	Perfluoroundecanoic acid	1 ug/mL
..LCbr-NEtFOSAA_00004	07/26/23	WELLINGTON, Lot brNEtFOSAA0718			(Purchased Reagent)		N-ethylperfluorooctanesulfonamidoacetic acid	50 ug/mL
..LCbr-NMeFOSAA_00004	01/17/23	WELLINGTON, Lot brNMeFOSAA0118			(Purchased Reagent)		N-methylperfluorooctanesulfonamidoacetic acid	50 ug/mL
..LCPFBSA_00005	05/04/23	Wellington Laboratories, Lot LPFBS0418			(Purchased Reagent)		Perfluorobutanesulfonic acid	44.2 ug/mL
..LCPFDA_00012	12/14/22	Wellington Laboratories, Lot PFDA1217			(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL
..LCPFDoA_00012	04/18/23	Wellington Laboratories, Lot PFDoA0418			(Purchased Reagent)		Perfluorododecanoic acid	50 ug/mL
..LCPFHpA_00013	07/12/23	Wellington Laboratories, Lot PFHpA0718			(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL
..LCPFHxA_00012	05/18/23	Wellington Laboratories, Lot PFHxA0518			(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
..LCPFHxS-br_00009	10/02/23	Wellington Laboratories, Lot brPFHxSK1018			(Purchased Reagent)		Perfluorohexanesulfonic acid	45.5 ug/mL

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCPFNA_00012	02/16/23	Wellington Laboratories, Lot PFNA0218			(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL
..LCPFOA_00014	08/23/23	Wellington Laboratories, Lot PFOA0818			(Purchased Reagent)		Perfluorooctanoic acid	50 ug/mL
..LCPFOS-br_00009	04/18/23	Wellington Laboratories, Lot brPFOSK0418			(Purchased Reagent)		Perfluorooctanesulfonic acid	46.4 ug/mL
..LCPFTeDA_00012	08/23/23	Wellington Laboratories, Lot PFTeDA0818			(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
..LCPFTrDA_00012	02/16/23	Wellington Laboratories, Lot PFTrDA0218			(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
..LCPFUdA_00012	08/23/23	Wellington Laboratories, Lot PFUdA0818			(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LC537_NC_L7_00003	08/02/19	02/02/19	MeOH/H2O, Lot 185850	200 mL	LC537-IS/SU_00002	10 mL	d3-NMeFOSAA	2.5 ng/mL
							d5-NEtFOSAA	2.5 ng/mL
							13C2 PFOA	2.5 ng/mL
							13C2 PFDA	2.5 ng/mL
							13C2 PFHxA	2.5 ng/mL
							13C4 PFOS	2.39 ng/mL
					LC537SP_00014	2 mL	N-ethylperfluorooctanesulfonamidoacetic acid	10 ng/mL
							N-methylperfluorooctanesulfonamidoacetic acid	10 ng/mL
							Perfluorobutanesulfonic acid	8.84 ng/mL
							Perfluorodecanoic acid	10 ng/mL
							Perfluorododecanoic acid	10 ng/mL
							Perfluoroheptanoic acid	10 ng/mL
							Perfluorohexanoic acid	10 ng/mL
							Perfluorohexanesulfonic acid	9.1 ng/mL
							Perfluorononanoic acid	10 ng/mL
							Perfluorooctanoic acid	10 ng/mL
							Perfluorooctanesulfonic acid	9.28 ng/mL
							Perfluorotetradecanoic acid	10 ng/mL
							Perfluorotridecanoic acid	10 ng/mL
							Perfluoroundecanoic acid	10 ng/mL
.LC537-IS/SU_00002	08/02/19	02/02/19	Methanol, Lot 185850	200 mL	LCd3-NMeFOSAA_00012	200 uL	d3-NMeFOSAA	0.05 ug/mL
					LCd5-NEtFOSAA_00013	200 uL	d5-NEtFOSAA	0.05 ug/mL
					LCM2PFOA_00015	200 uL	13C2 PFOA	0.05 ug/mL
					LCMPFDA_00024	200 uL	13C2 PFDA	0.05 ug/mL
					LCMPFHxA_00026	200 uL	13C2 PFHxA	0.05 ug/mL
					LCMPFOS_00031	200 uL	13C4 PFOS	0.0478 ug/mL
..LCd3-NMeFOSAA_00012	08/23/23	WELLINGTON, Lot d3NMeFOSAA0818			(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NEtFOSAA_00013	08/23/23	WELLINGTON, Lot d5NEtFOSAA0818			(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
..LCM2PFOA_00015	10/10/23	Wellington Laboratories, Lot M2PFOA1018			(Purchased Reagent)		13C2 PFOA	50 ug/mL
..LCMPFDA_00024	02/16/23	Wellington Laboratories, Lot MPFDA0218			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00026	05/22/23	Wellington Laboratories, Lot MPFHxA0518			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFOS_00031	09/11/23	Wellington Laboratories, Lot MPFOS0918			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537SP_00014	08/02/19	02/02/19	Methanol, Lot 185850	10 mL	LCbr-NEtFOSAA_00004	200 uL	N-ethylperfluorooctanesulfonamidoacetic acid	1 ug/mL
					LCbr-NMeFOSAA_00004	200 uL	N-methylperfluorooctanesulfonamidoacetic acid	1 ug/mL
					LCPFBSA_00005	200 uL	Perfluorobutanesulfonic acid	0.884 ug/mL
					LCPFDA_00012	200 uL	Perfluorodecanoic acid	1 ug/mL
					LCPFDoA_00012	200 uL	Perfluorododecanoic acid	1 ug/mL
					LCPFHpA_00013	200 uL	Perfluoroheptanoic acid	1 ug/mL

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCPFHxA_00012	200 uL	Perfluorohexanoic acid	1 ug/mL
					LCPFHxS-br_00009	200 uL	Perfluorohexanesulfonic acid	0.91 ug/mL
					LCPFNA_00012	200 uL	Perfluorononanoic acid	1 ug/mL
					LCPFOA_00014	200 uL	Perfluorooctanoic acid	1 ug/mL
					LCPFOS-br_00009	200 uL	Perfluorooctanesulfonic acid	0.928 ug/mL
					LCPFTeDA_00012	200 uL	Perfluorotetradecanoic acid	1 ug/mL
					LCPFTrDA_00012	200 uL	Perfluorotridecanoic acid	1 ug/mL
					LCPFUdA_00012	200 uL	Perfluoroundecanoic acid	1 ug/mL
..LCbr-NEtFOSAA_00004	07/26/23	WELLINGTON, Lot brNEtFOSAA0718			(Purchased Reagent)		N-ethylperfluorooctanesulfonamidoacetic acid	50 ug/mL
..LCbr-NMeFOSAA_00004	01/17/23	WELLINGTON, Lot brNMeFOSAA0118			(Purchased Reagent)		N-methylperfluorooctanesulfonamidoacetic acid	50 ug/mL
..LCPFBSA_00005	05/04/23	Wellington Laboratories, Lot LPFBS0418			(Purchased Reagent)		Perfluorobutanesulfonic acid	44.2 ug/mL
..LCPFDA_00012	12/14/22	Wellington Laboratories, Lot PFDA1217			(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL
..LCPFDoA_00012	04/18/23	Wellington Laboratories, Lot PFDoA0418			(Purchased Reagent)		Perfluorododecanoic acid	50 ug/mL
..LCPFHpA_00013	07/12/23	Wellington Laboratories, Lot PFHpA0718			(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL
..LCPFHxA_00012	05/18/23	Wellington Laboratories, Lot PFHxA0518			(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
..LCPFHxS-br_00009	10/02/23	Wellington Laboratories, Lot brPFHxSK1018			(Purchased Reagent)		Perfluorohexanesulfonic acid	45.5 ug/mL
..LCPFNA_00012	02/16/23	Wellington Laboratories, Lot PFNA0218			(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL
..LCPFOA_00014	08/23/23	Wellington Laboratories, Lot PFOA0818			(Purchased Reagent)		Perfluorooctanoic acid	50 ug/mL
..LCPFOS-br_00009	04/18/23	Wellington Laboratories, Lot brPFOSK0418			(Purchased Reagent)		Perfluorooctanesulfonic acid	46.4 ug/mL
..LCPFTeDA_00012	08/23/23	Wellington Laboratories, Lot PFTeDA0818			(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
..LCPFTrDA_00012	02/16/23	Wellington Laboratories, Lot PFTrDA0218			(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
..LCPFUdA_00012	08/23/23	Wellington Laboratories, Lot PFUdA0818			(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LC537HSP_00002	08/02/19	02/02/19	Methanol, Lot 185850	250 mL	LC11ClPF3OUdS_00004	500 uL	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonate	0.0942 ug/mL
					LC9Cl-PF3ONS_00004	500 uL	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonate	0.0932 ug/mL
					LCbr-NEtFOSAA_00004	500 uL	N-ethylperfluorooctanesulfonamidoacetic acid	0.1 ug/mL
					LCbr-NMeFOSAA_00004	500 uL	N-methylperfluorooctanesulfonamidoacetic acid	0.1 ug/mL
					LCDONA_00009	500 uL	DONA	0.0942 ug/mL
					LCHFPO-DA_00007	500 uL	Perfluoro(2-propoxypropanoic) acid	0.1 ug/mL
					LCPFBSA_00005	500 uL	Perfluorobutanesulfonic acid	0.0884 ug/mL
					LCPFDA_00012	500 uL	Perfluorodecanoic acid	0.1 ug/mL
					LCPFDoA_00012	500 uL	Perfluorododecanoic acid	0.1 ug/mL
					LCPFHpA_00013	500 uL	Perfluoroheptanoic acid	0.1 ug/mL
					LCPFHxA_00012	500 uL	Perfluorohexanoic acid	0.1 ug/mL
					LCPFHxS-br_00009	500 uL	Perfluorohexanesulfonic acid	0.091 ug/mL
					LCPFNA_00012	500 uL	Perfluorononanoic acid	0.1 ug/mL
					LCPFOA_00014	500 uL	Perfluorooctanoic acid	0.1 ug/mL
					LCPFOS-br_00009	500 uL	Perfluorooctanesulfonic acid	0.0928 ug/mL
					LCPFTeDA_00012	500 uL	Perfluorotetradecanoic acid	0.1 ug/mL
					LCPFTrDA_00012	500 uL	Perfluorotridecanoic acid	0.1 ug/mL
					LCPFUdA_00012	500 uL	Perfluoroundecanoic acid	0.1 ug/mL

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LC11CIPF3OUdS_00004	07/13/23	Wellington Labs, Lot 11CIPF3OUdS0718			(Purchased Reagent)		11-Chloroeicosafluoro-3-oxaundecane-1-sulfonate	47.1 ug/mL
.LC9CI-PF3ONS_00004	05/18/23	Wellington Labs, Lot 9CIPF3ONS0518			(Purchased Reagent)		9-Chlorohexadecafluoro-3-oxanonane-1-sulfonate	46.6 ug/mL
.LCbr-NEtFOSAA_00004	07/26/23	WELLINGTON, Lot brNEtFOSAA0718			(Purchased Reagent)		N-ethylperfluorooctanesulfonamidoacetic acid	50 ug/mL
.LCbr-NMeFOSAA_00004	01/17/23	WELLINGTON, Lot brNMeFOSAA0118			(Purchased Reagent)		N-methylperfluorooctanesulfonamidoacetic acid	50 ug/mL
.LCDONA_00009	03/26/23	WELLINGTON, Lot NADONA0318			(Purchased Reagent)		DONA	47.1 ug/mL
.LCHFPO-DA_00007	10/24/21	WELLINGTON, Lot HFPODA1018			(Purchased Reagent)		Perfluoro(2-propoxypropanoic) acid	50 ug/mL
.LCPFBSA_00005	05/04/23	Wellington Laboratories, Lot LPFBS0418			(Purchased Reagent)		Perfluorobutanesulfonic acid	44.2 ug/mL
.LCPFDA_00012	12/14/22	Wellington Laboratories, Lot PFDA1217			(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL
.LCPFDoA_00012	04/18/23	Wellington Laboratories, Lot PFDoA0418			(Purchased Reagent)		Perfluorododecanoic acid	50 ug/mL
.LCPFHpA_00013	07/12/23	Wellington Laboratories, Lot PFHpA0718			(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL
.LCPFHxA_00012	05/18/23	Wellington Laboratories, Lot PFHxA0518			(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
.LCPFHxS-br_00009	10/02/23	Wellington Laboratories, Lot brPFHxSK1018			(Purchased Reagent)		Perfluorohexanesulfonic acid	45.5 ug/mL
.LCPFNA_00012	02/16/23	Wellington Laboratories, Lot PFNA0218			(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL
.LCPFOA_00014	08/23/23	Wellington Laboratories, Lot PFOA0818			(Purchased Reagent)		Perfluorooctanoic acid	50 ug/mL
.LCPFOS-br_00009	04/18/23	Wellington Laboratories, Lot brPFOSK0418			(Purchased Reagent)		Perfluorooctanesulfonic acid	46.4 ug/mL
.LCPFTeDA_00012	08/23/23	Wellington Laboratories, Lot PFTeDA0818			(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
.LCPFTrDA_00012	02/16/23	Wellington Laboratories, Lot PFTrDA0218			(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
.LCPFUdA_00012	08/23/23	Wellington Laboratories, Lot PFUdA0818			(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL

Reagent

LC11CIPF3OUdS_00004

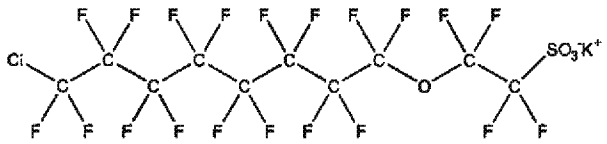
1416128
ID: LC11ClPF3OUdS_00004
Exp:07/13/23 Prpd:CBW Opn:10/29/18
11Cl-PF3OUdS

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: 11Cl-PF3OUdS **LOT NUMBER:** 11ClPF3OUdS0718
COMPOUND: Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate

STRUCTURE: **CAS #:** 83329-89-9



MOLECULAR FORMULA: $C_{10}F_{20}ClSO_4K$ **MOLECULAR WEIGHT:** 670.69
CONCENTRATION: 50.0 ± 2.5 µg/ml (K Salt) **SOLVENT(S):** Methanol
47.1 ± 2.4 µg/ml (11Cl-PF3OUdS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 07/13/2018
EXPIRY DATE: (mm/dd/yyyy) 07/13/2023
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.
- This compound is a minor component of the commercial formulation known as F-53B.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: Ex. 4 CBI **Date:** 07/20/2018 (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

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

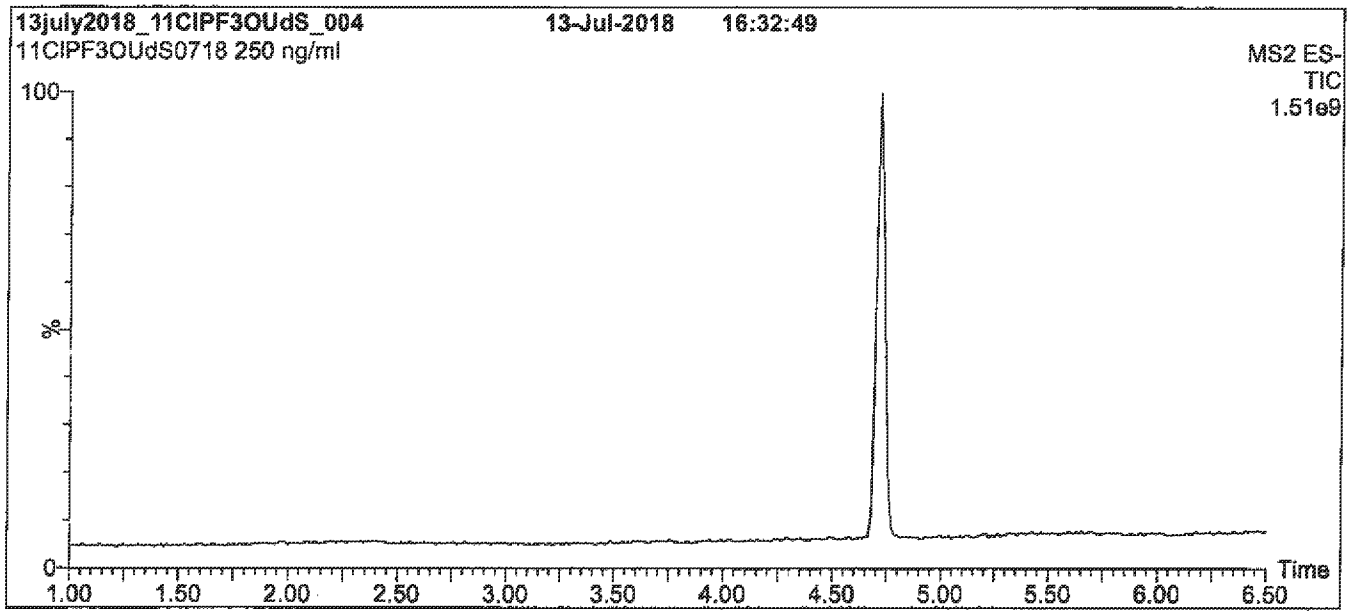
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

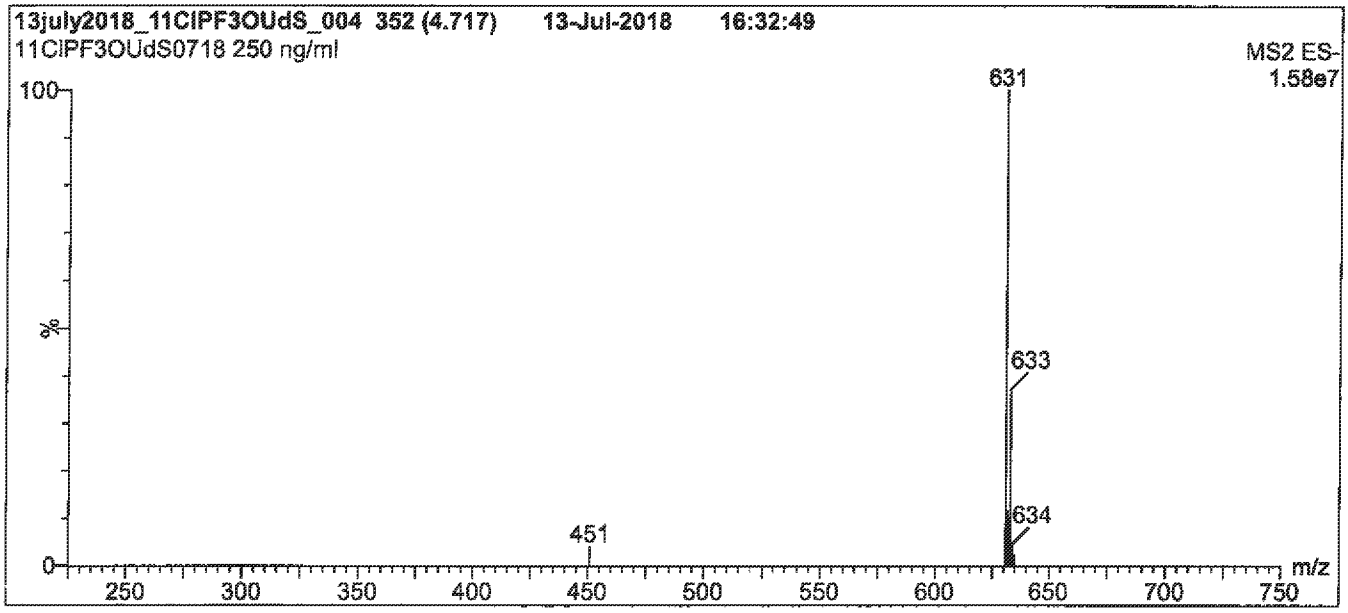
CALA

ANAB

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **11Cl-PF3OUdS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc 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

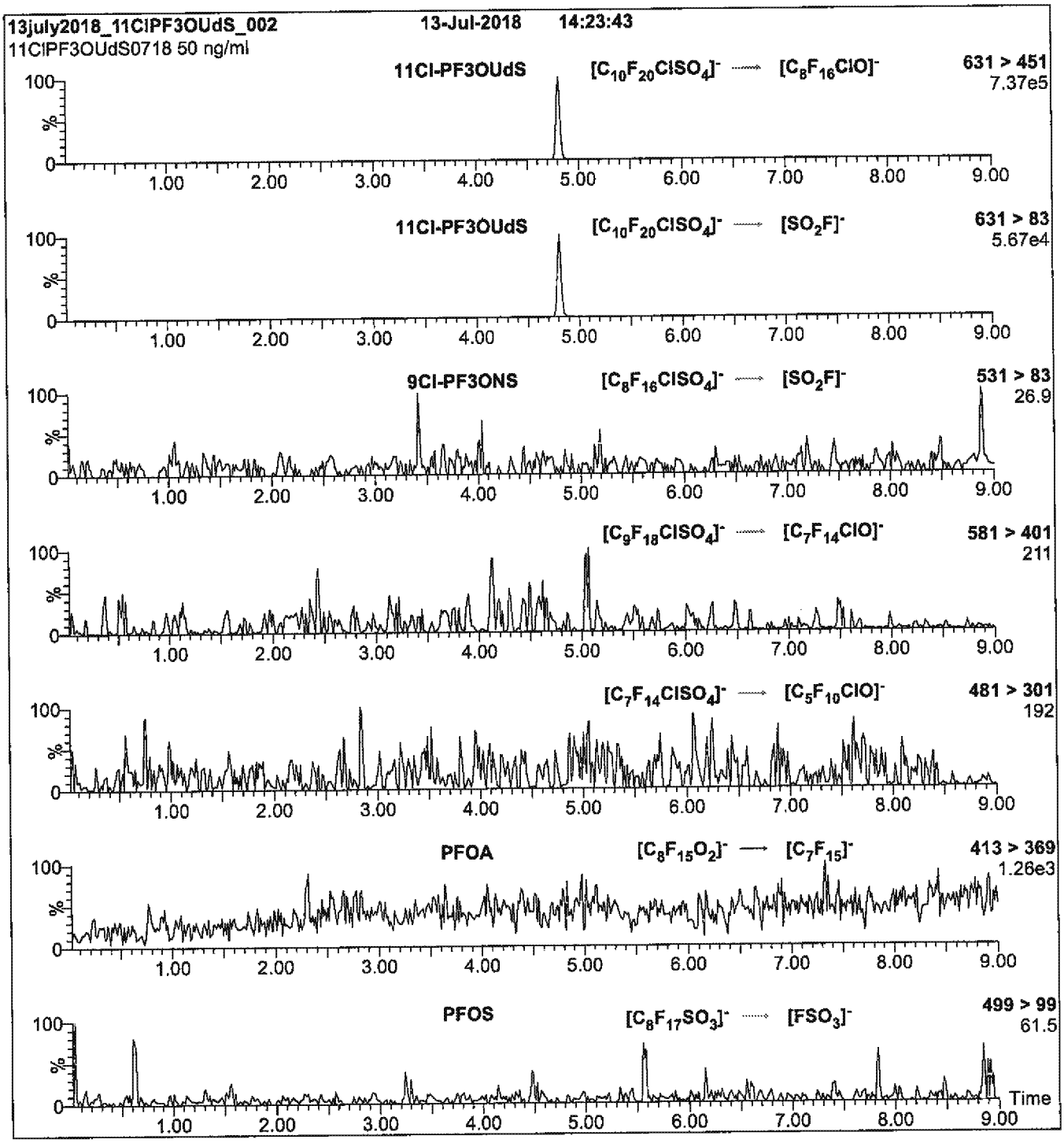
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.60
Cone Voltage (V) = 70.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 750

Figure 2: **11Cl-PF3OUdS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (11Cl-PF3OUdS)

Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.45e-3
Collision Energy (eV) = 24

Reagent

LC9CI-PF3ONS_00004

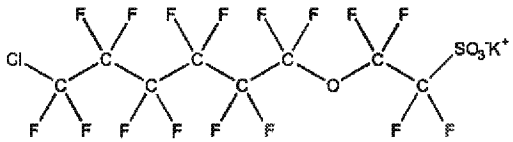
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: 9Cl-PF3ONS **LOT NUMBER:** 9ClPF3ONS0518

COMPOUND: Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate

STRUCTURE: **CAS #:** 73606-19-6



MOLECULAR FORMULA: $C_8F_{16}ClSO_4K$ **MOLECULAR WEIGHT:** 570.67

CONCENTRATION: 50.0 ± 2.5 µg/ml (K Salt) **SOLVENT(S):** Methanol

46.6 ± 2.3 µg/ml (9Cl-PF3ONS anion)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 05/18/2018

EXPIRY DATE: (mm/dd/yyyy) 05/18/2023

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.
- This compound is the major component of the commercial formulation known as F-53B.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: Ex. 4 CBI Date: 05/25/2018 (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

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HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

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The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

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EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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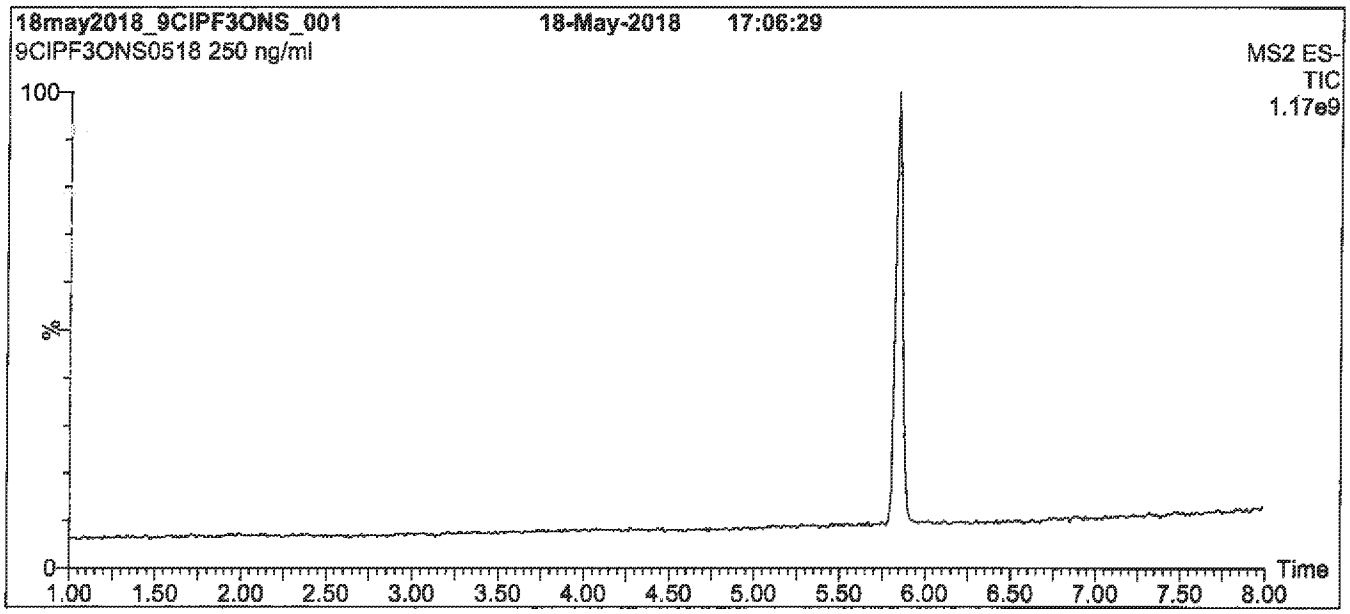
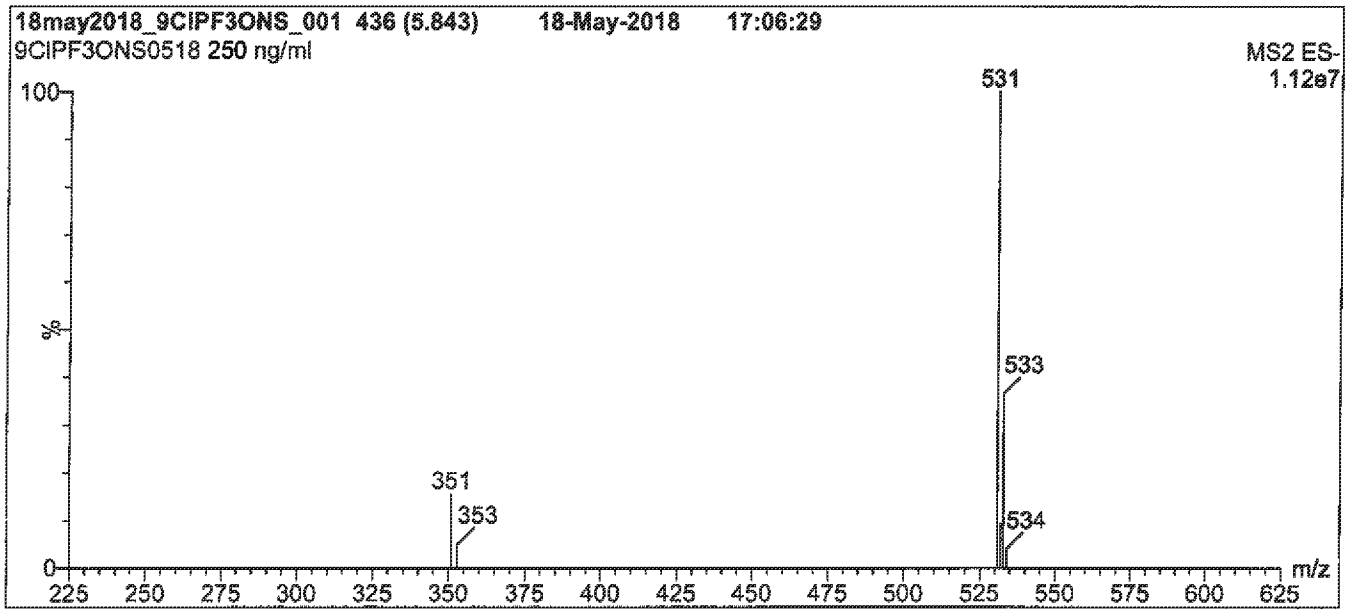
Figure 1: **9Cl-PF3ONS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 80% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

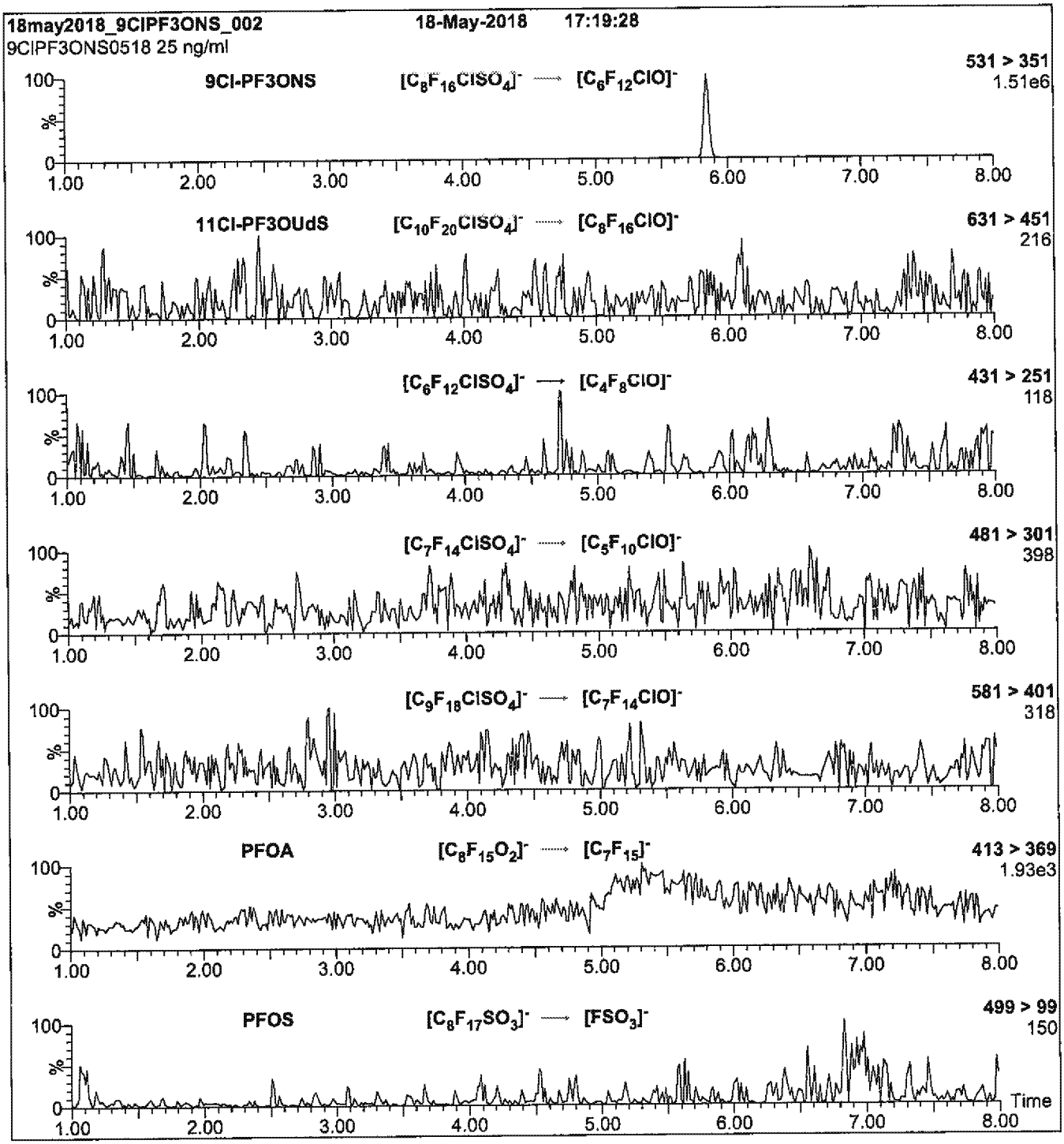
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.60
Cone Voltage (V) = 70.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 750

Figure 2: **9Cl-PF3ONS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (9Cl-PF3ONS)

Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.50e-3
Collision Energy (eV) = 20

Reagent

LCbr-NEtFOSAA_00004

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NEtFOSAA

N-Ethylperfluorooctanesulfonamidoacetic Acid Solution/Mixture of Linear and Branched Isomers

PRODUCT CODE:	br-NEtFOSAA
LOT NUMBER:	brNEtFOSAA0718
CONCENTRATION:	50.0 ± 2.5 µg/ml
SOLVENT(S):	Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	07/25/2018
LAST TESTED: (mm/dd/yyyy)	07/26/2018
EXPIRY DATE: (mm/dd/yyyy)	07/26/2023
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

* See page 2 for further details.
* Contains 4 mole eq. of NaOH to prevent conversion of the acetic acid moiety to its respective methyl ester.
* Contains ~ 0.6% of perfluoro-n-octanoic acid.

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

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

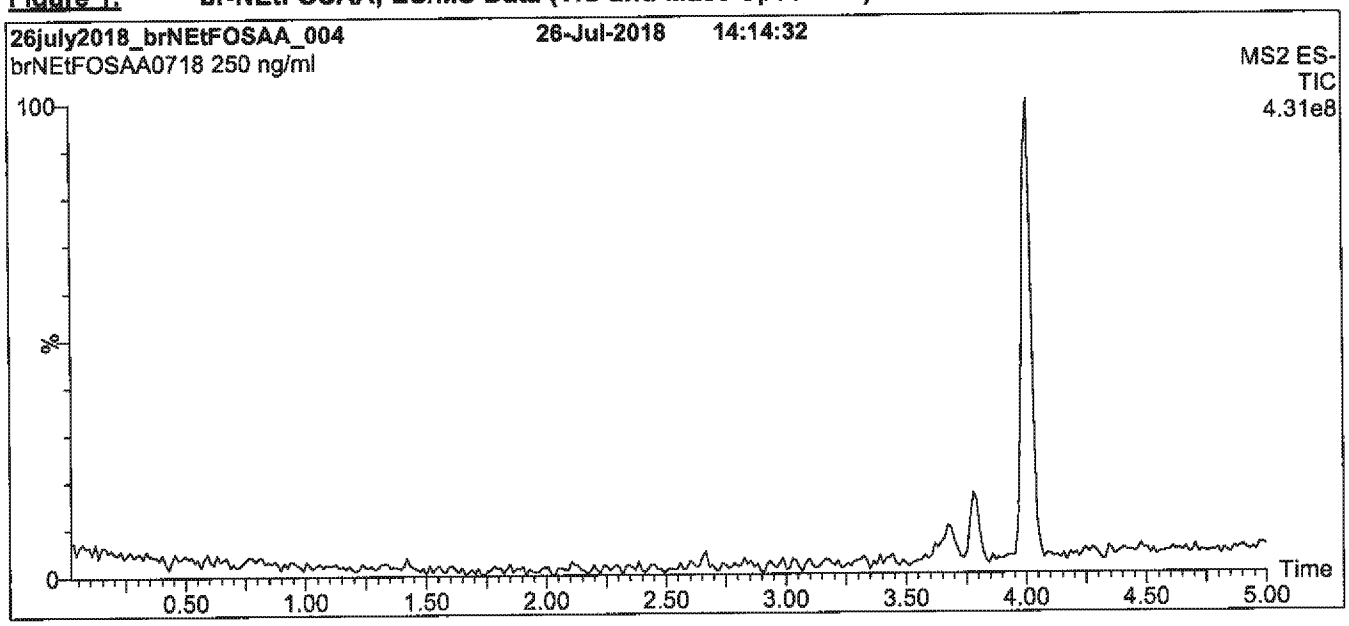
Table A: **br-NEtFOSAA; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

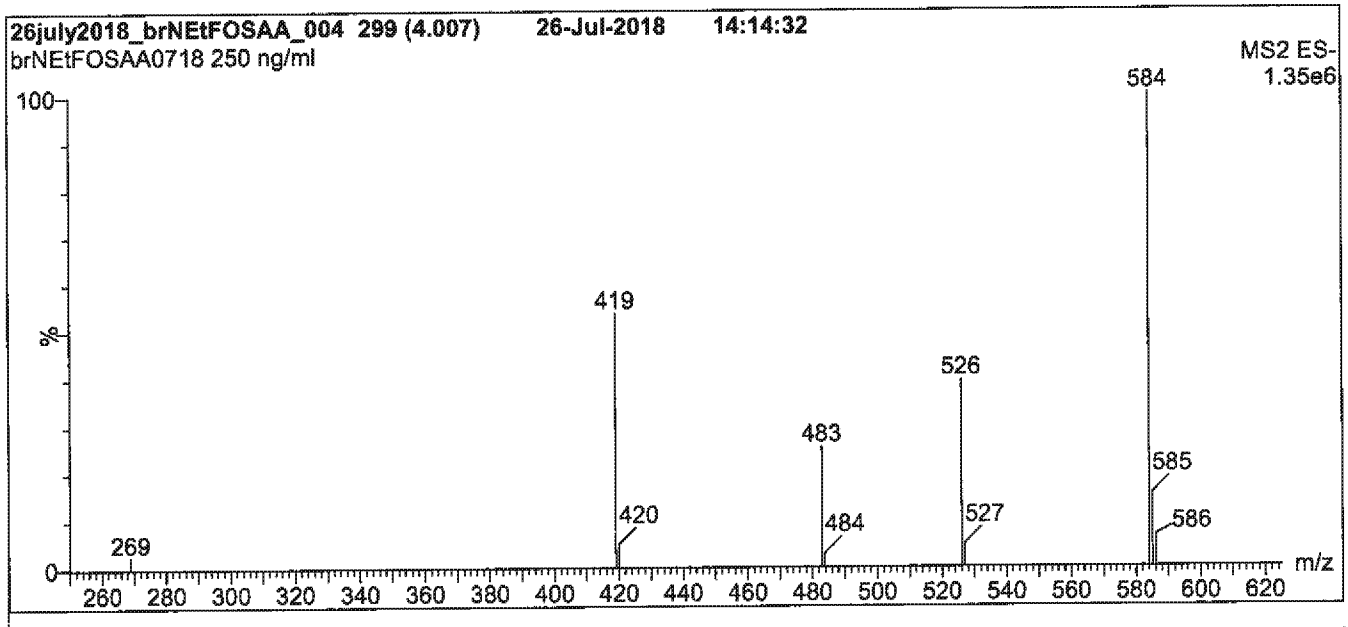
Isomer	Name	Structure	Percent Composition by ^{19}F-NMR
1	N-ethylperfluoro-1-octanesulfonamidoacetic acid	$CF_3(CF_2)_7SO_2N(C_2H_5)CH_2CO_2H$	77.5
2	N-ethylperfluoro-3-methylheptanesulfonamidoacetic acid	$CF_3(CF_2)_3CF(CF_3)(CF_2)_2SO_2N(C_2H_5)CH_2CO_2H$	2.3
3	N-ethylperfluoro-4-methylheptanesulfonamidoacetic acid	$CF_3(CF_2)_2CF(CF_3)(CF_2)_3SO_2N(C_2H_5)CH_2CO_2H$	2.2
4	N-ethylperfluoro-5-methylheptanesulfonamidoacetic acid	$CF_3CF_2CF(CF_3)(CF_2)_4SO_2N(C_2H_5)CH_2CO_2H$	5.4
5	N-ethylperfluoro-6-methylheptanesulfonamidoacetic acid	$CF_3CF(CF_3)(CF_2)_5SO_2N(C_2H_5)CH_2CO_2H$	10.4
6	N-ethylperfluoro-5,5-dimethylhexanesulfonamidoacetic acid	$CF_3C(CF_3)_2(CF_2)_4SO_2N(C_2H_5)CH_2CO_2H$	0.3
7	N-ethylperfluoro-4,5-dimethylhexanesulfonamidoacetic acid	$CF_3CF(CF_3)CF(CF_2)_3SO_2N(C_2H_5)CH_2CO_2H$	0.3
8	N-ethylperfluoro-3,5-dimethylhexanesulfonamidoacetic acid	$CF_3CF(CF_3)CF_2CF(CF_2)_2SO_2N(C_2H_5)CH_2CO_2H$	0.3
9	Other Unidentified Isomers		1.3

* Percent of total N-ethylperfluorooctanesulfonamidoacetic acid isomers only.

Certified By: Ex. 4 CBI **Date:** 07/27/2018 (mm/dd/yyyy)

Figure 1: **br-NEtFOSAA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc 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

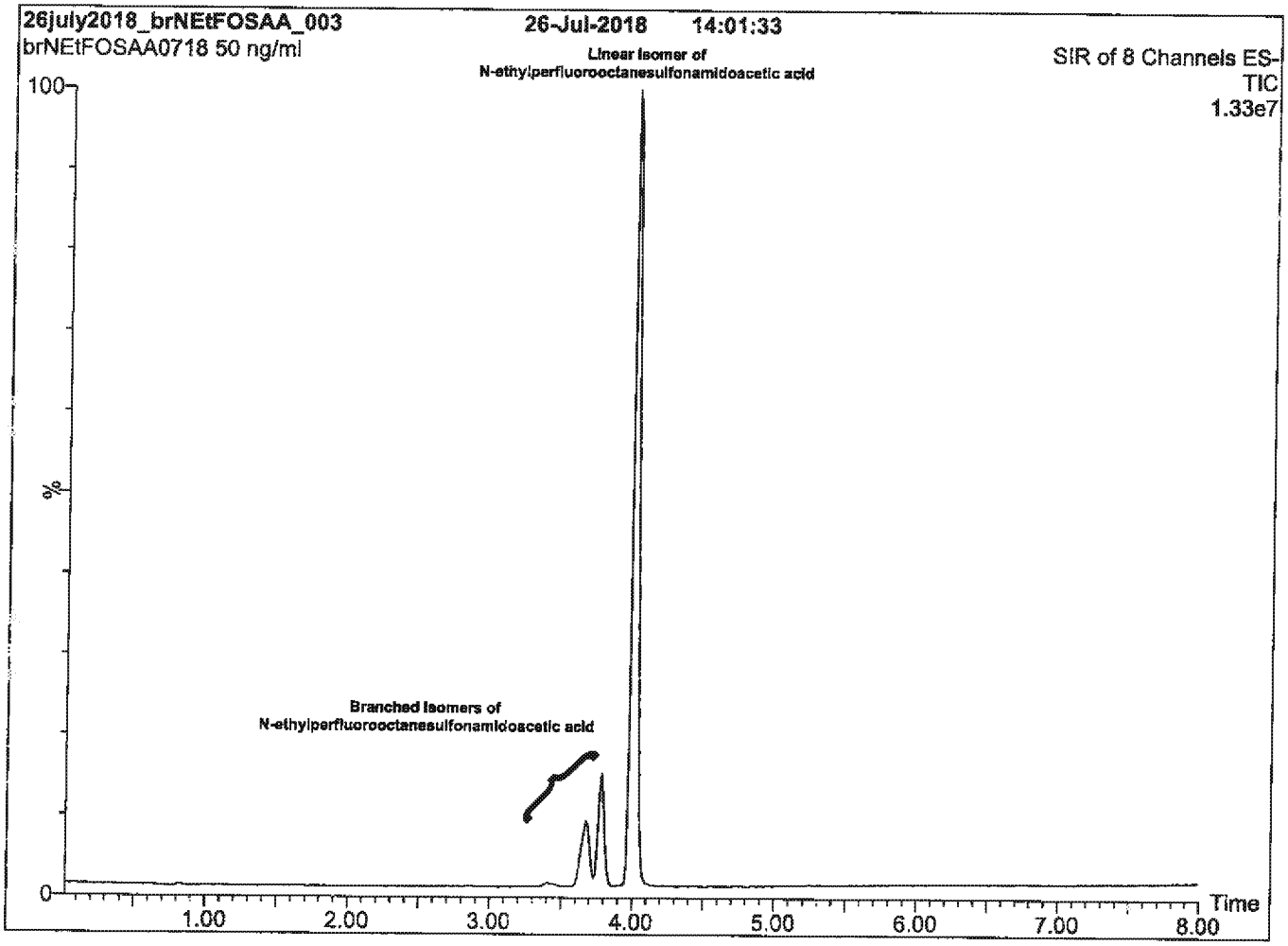
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 64
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 750

Figure 2: **br-NEtFOSAA; LC/MS Data (SIR)**



Conditions for Figure 2:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc 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

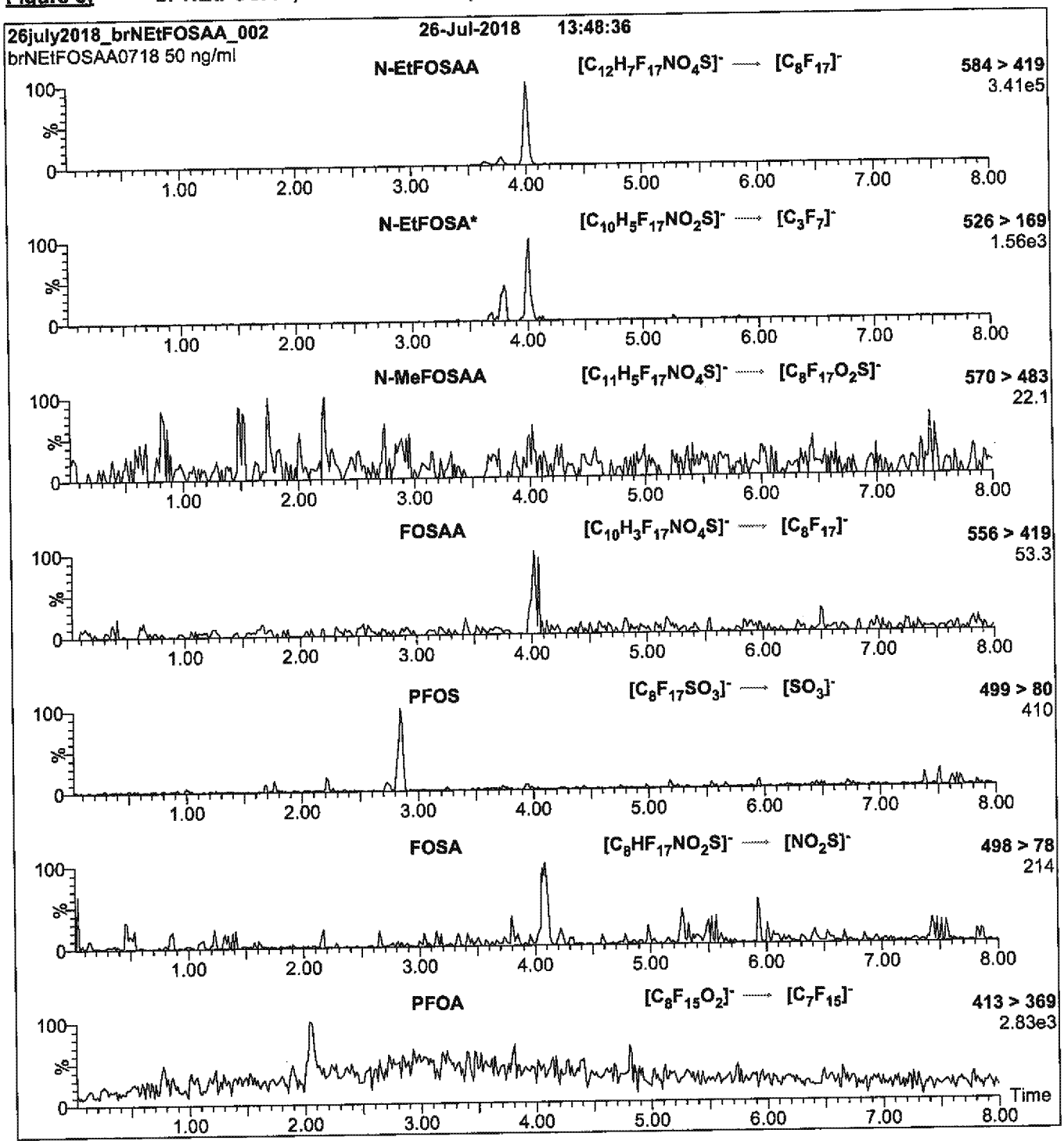
Flow: 300 µl/min

MS Parameters

Experiment: SIR (8 channels)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = variable (2-64)
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 750

Figure 3: **br-NEtFOSAA; LC/MS/MS Data (Selected MRM Transitions)**



***Note**: N-EtFOSA is formed by in-source fragmentation.

Conditions for Figure 3:

Injection: On-column (br-NEtFOSAA)

Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.76e-3
Collision Energy (eV) = 18

Reagent

LCbr-NMeFOSAA_00004

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NMeFOSAA

N-Methylperfluorooctanesulfonamidoacetic Acid Solution/Mixture of Linear and Branched isomers

PRODUCT CODE:	br-NMeFOSAA
LOT NUMBER:	brNMeFOSAA0118
CONCENTRATION:	50.0 ± 2.5 µg/ml
SOLVENT(S):	Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	01/10/2018
LAST TESTED: (mm/dd/yyyy)	01/17/2018
EXPIRY DATE: (mm/dd/yyyy)	01/17/2023
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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INTENDED USE:

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HANDLING:

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SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

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For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

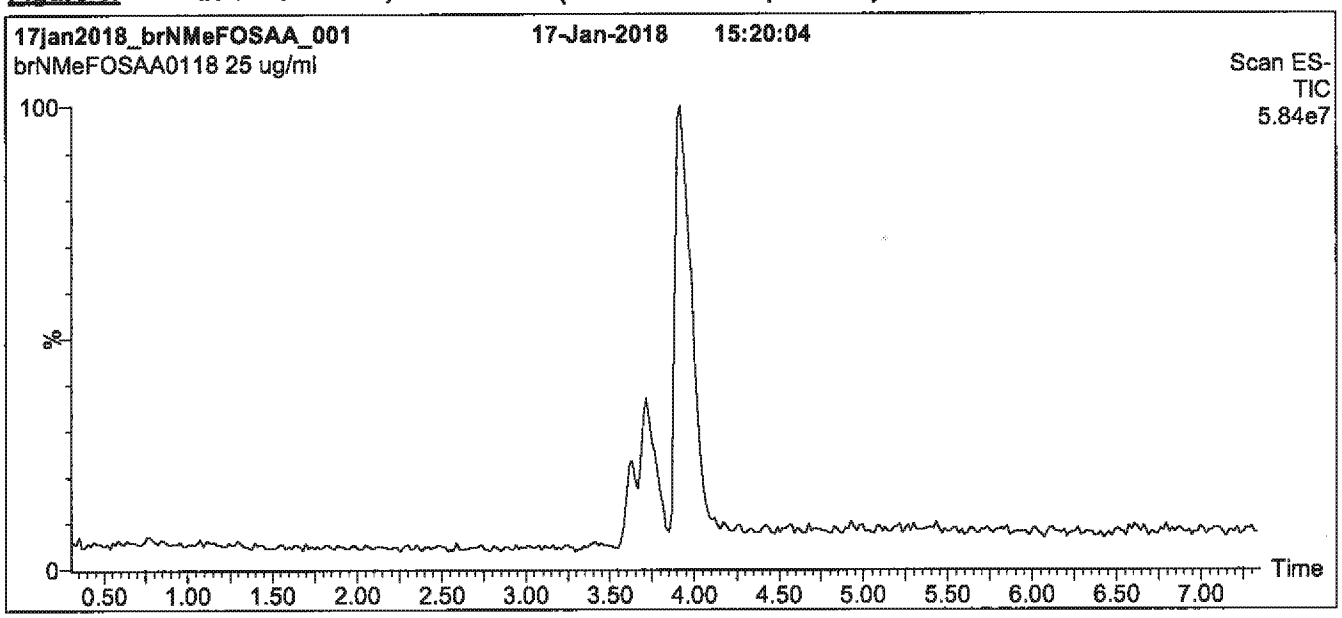
Table A: **br-NMeFOSAA; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

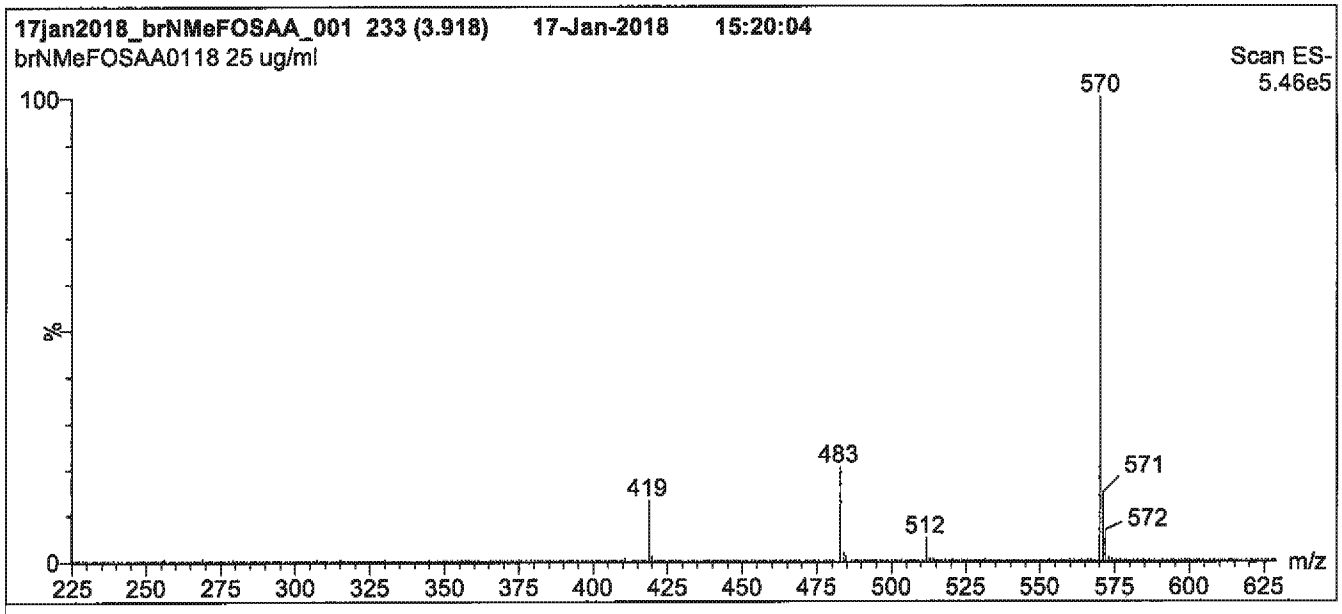
Isomer	Name	Structure	Percent Composition by ^{19}F-NMR
1	N-methylperfluoro-1-octanesulfonamidoacetic acid	$CF_3(CF_2)_7SO_2N(CH_3)CH_2CO_2H$	76.0
2	N-methylperfluoro-3-methylheptanesulfonamidoacetic acid	$CF_3(CF_2)_3CF(CF_3)(CF_2)_2SO_2N(CH_3)CH_2CO_2H$	0.7
3	N-methylperfluoro-4-methylheptanesulfonamidoacetic acid	$CF_3(CF_2)_2CF(CF_3)(CF_2)_3SO_2N(CH_3)CH_2CO_2H$	2.0
4	N-methylperfluoro-5-methylheptanesulfonamidoacetic acid	$CF_3CF_2CF(CF_3)(CF_2)_4SO_2N(CH_3)CH_2CO_2H$	6.0
5	N-methylperfluoro-6-methylheptanesulfonamidoacetic acid	$CF_3CF(CF_3)(CF_2)_5SO_2N(CH_3)CH_2CO_2H$	14.0
6	N-methylperfluoro-5,5-dimethylhexanesulfonamidoacetic acid	$CF_3C(CF_3)_2(CF_2)_4SO_2N(CH_3)CH_2CO_2H$	0.2
7	Other Unidentified Isomers		1.1

* Percent of total N-methylperfluorooctanesulfonamidoacetic acid isomers only.

Certified By: Ex. 4 CBI **Date:** 03/22/2018 (mm/dd/yyyy)

Figure 1: **br-NMeFOSAA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
2 min before returning to initial conditions in 0.5 min.

Time: 10 min

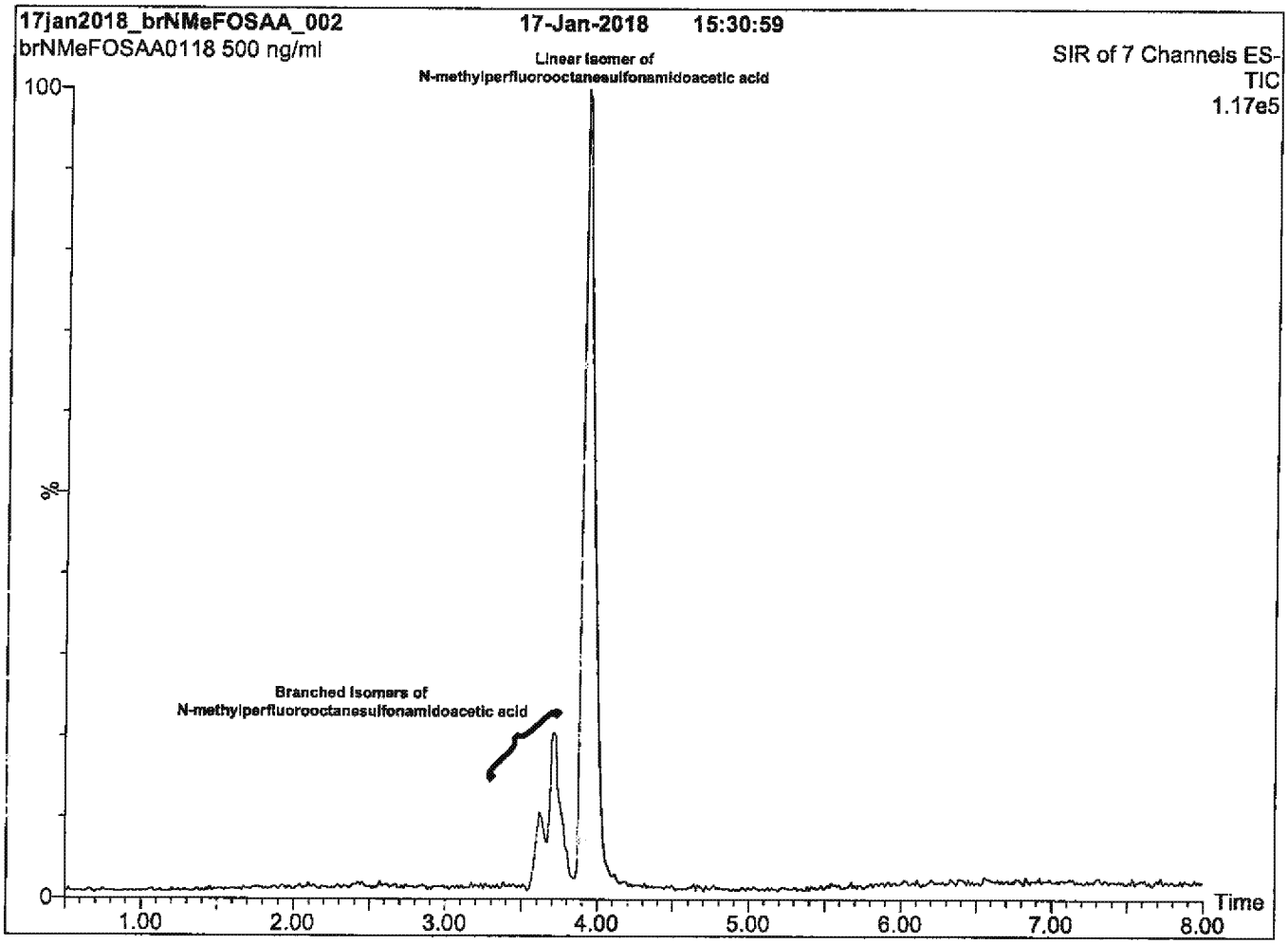
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 35.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **br-NMeFOSAA; LC/MS Data (SIR)**



Conditions for Figure 2:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
2 min before returning to initial conditions in 0.5 min.

Time: 10 min

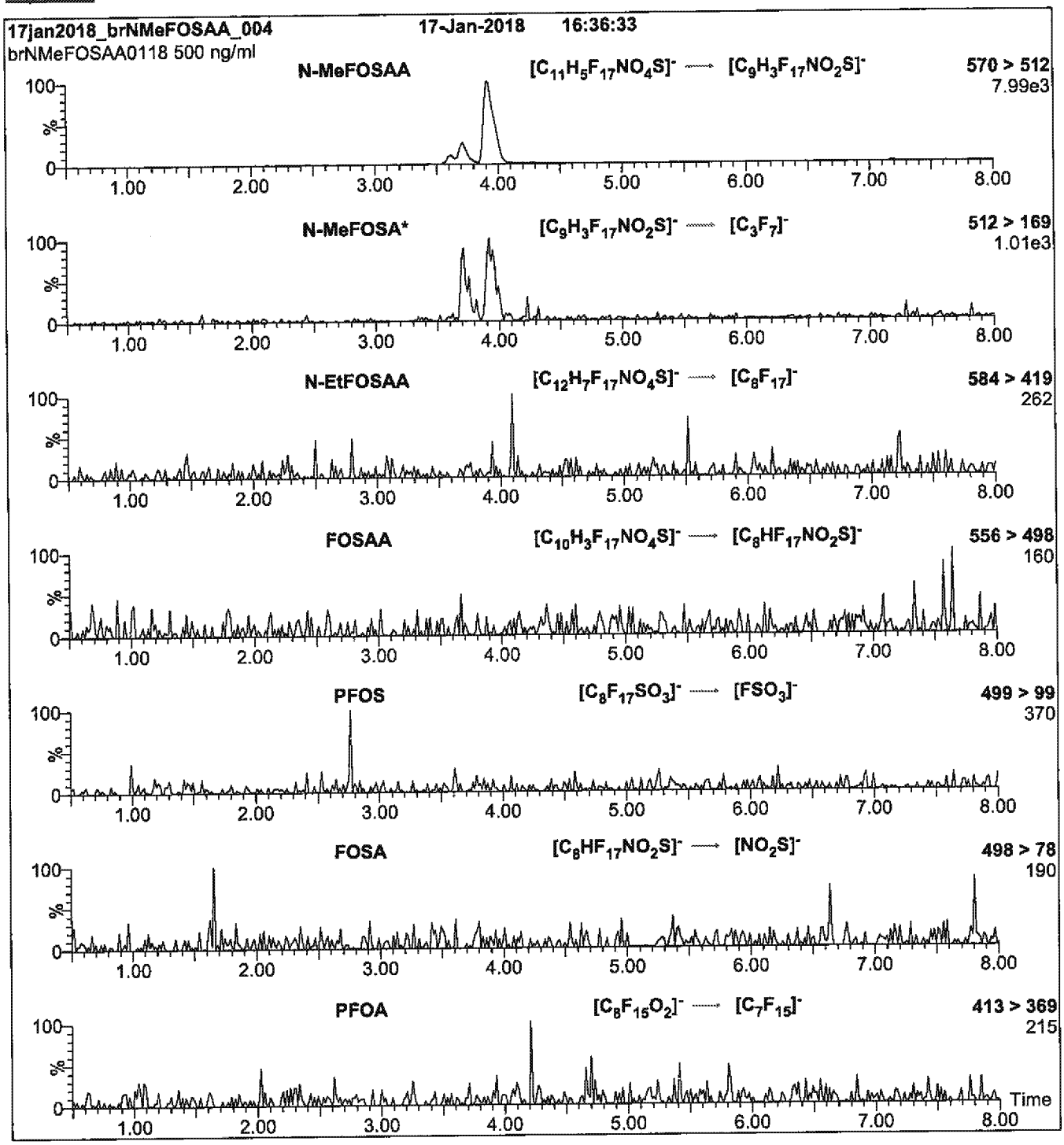
Flow: 300 µl/min

MS Parameters

Experiment: SIR (7 channels)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15-60
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 3: **br-NMeFOSAA; LC/MS/MS Data (Selected MRM Transitions)**



*Note: N-MeFOSA is formed by in-source fragmentation.

Conditions for Figure 3:

Injection: On-column

Mobile phase: Same as Figure 2

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 11-40 (variable)

Reagent

LCd3-NMeFOSAA_00012

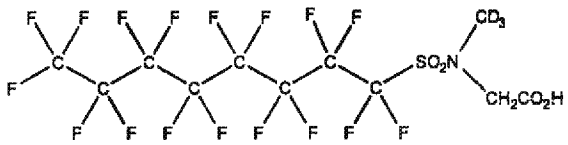
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: d3-N-MeFOSAA **LOT NUMBER:** d3NMeFOSAA0818

COMPOUND: N-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$C_{11}D_3H_3F_{17}NO_4S$	**MOLECULAR WEIGHT:**	574.23
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥98% $^2H_3$
LAST TESTED: (mm/dd/yyyy)	08/23/2018		
EXPIRY DATE: (mm/dd/yyyy)	08/23/2023		
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 4 mole eq. of NaOH to prevent the conversion of the acetic acid moiety to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: Ex. 4 CBI **Date:** 08/24/2018 (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

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

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The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

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EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

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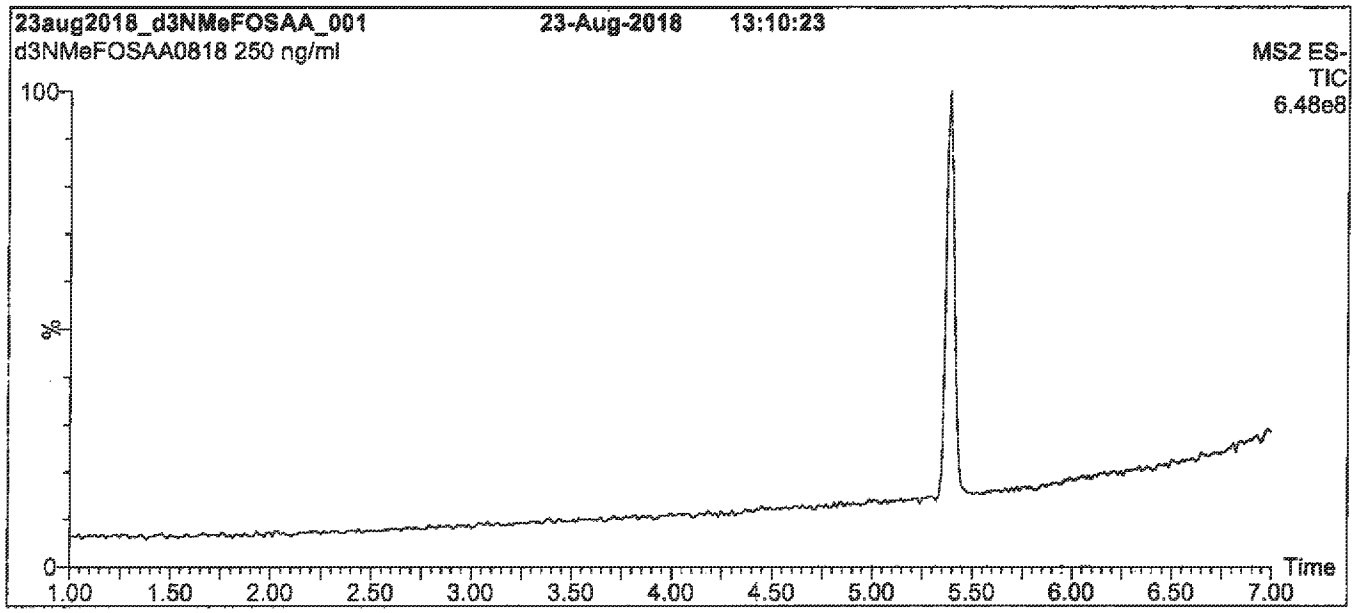
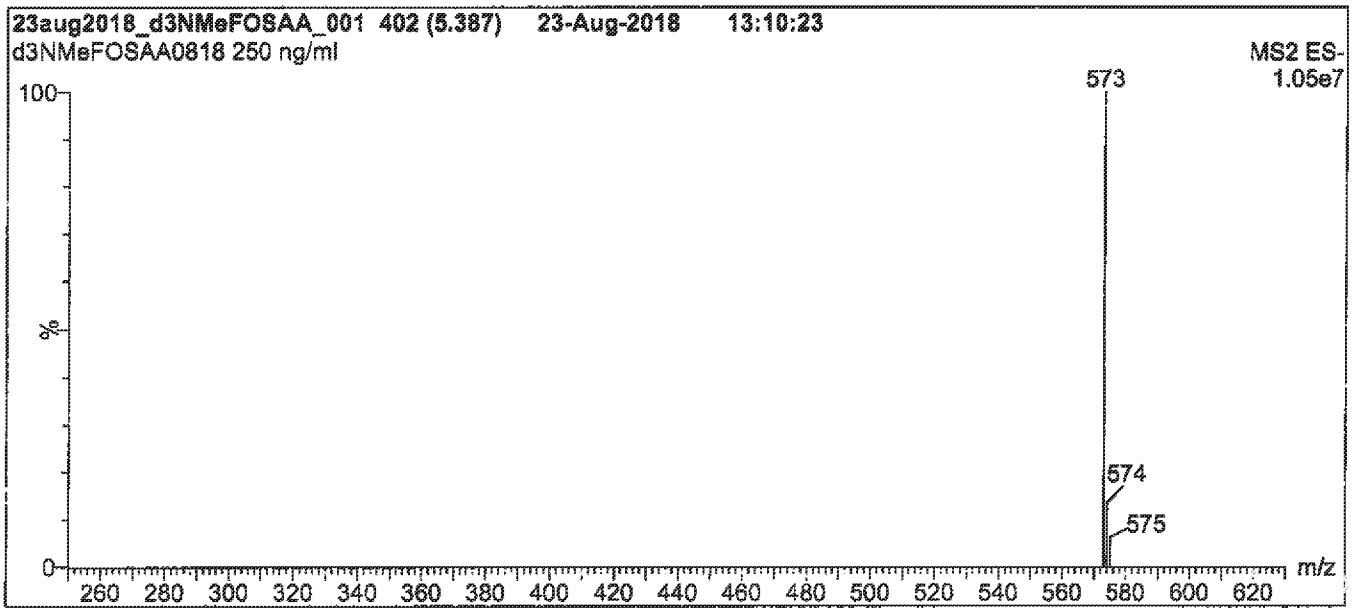
Figure 1: **d3-N-MeFOSAA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc 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

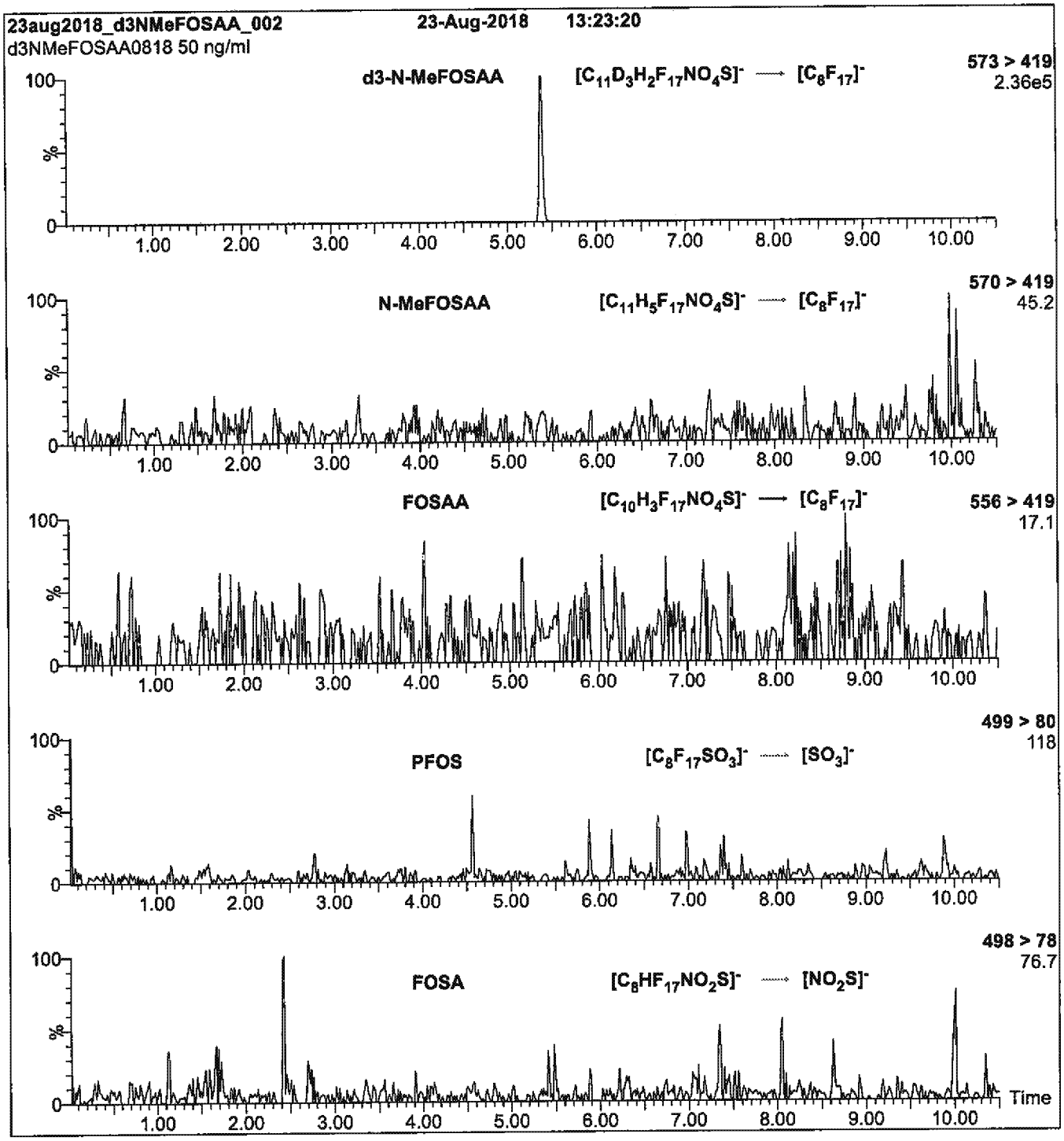
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 20.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

Figure 2: **d3-N-MeFOSAA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (d3-N-MeFOSAA)

Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 18

Reagent

LCd5-NEtFOSAA_00013

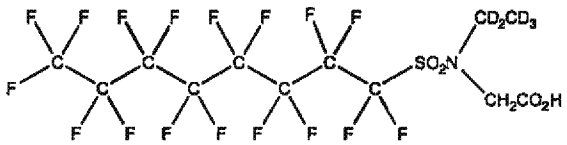
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: d5-N-EtFOSAA **LOT NUMBER:** d5NEtFOSAA0818

COMPOUND: N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$C_{12}D_5H_3F_{17}NO_4S$	**MOLECULAR WEIGHT:**	590.26
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥98% $^2H_5$
LAST TESTED: (mm/dd/yyyy)	08/23/2018		
EXPIRY DATE: (mm/dd/yyyy)	08/23/2023		
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 4 mole eq. of NaOH to prevent the conversion of the acetic acid moiety to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: Ex. 4 CBI **Date:** 08/28/2018 (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

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

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LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

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CALA

ANAB ACCREDITED

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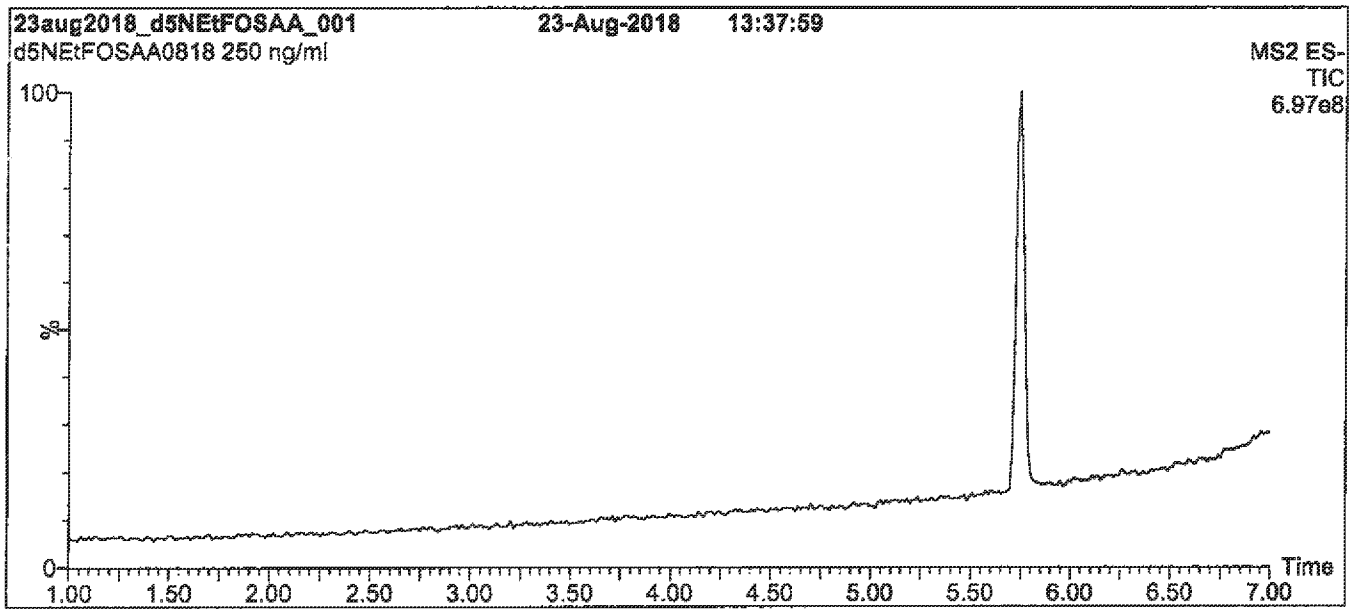
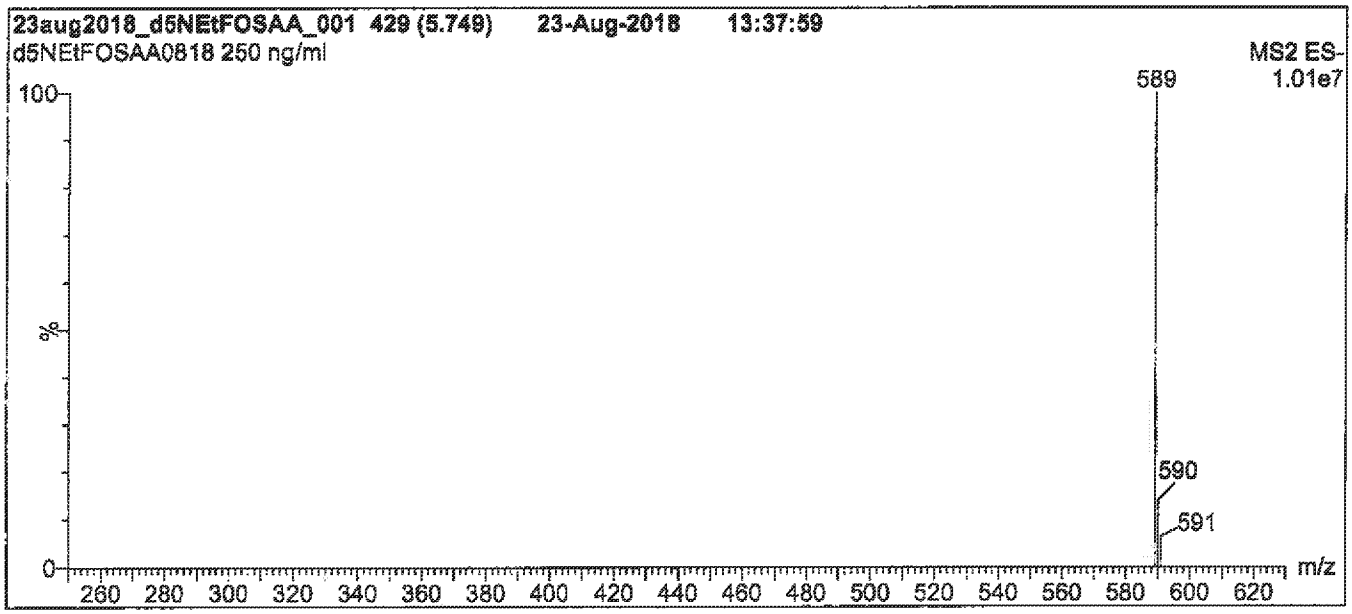
Figure 1: d5-N-EtFOSAA; LC/MS Data (TIC and Mass Spectrum)





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc 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

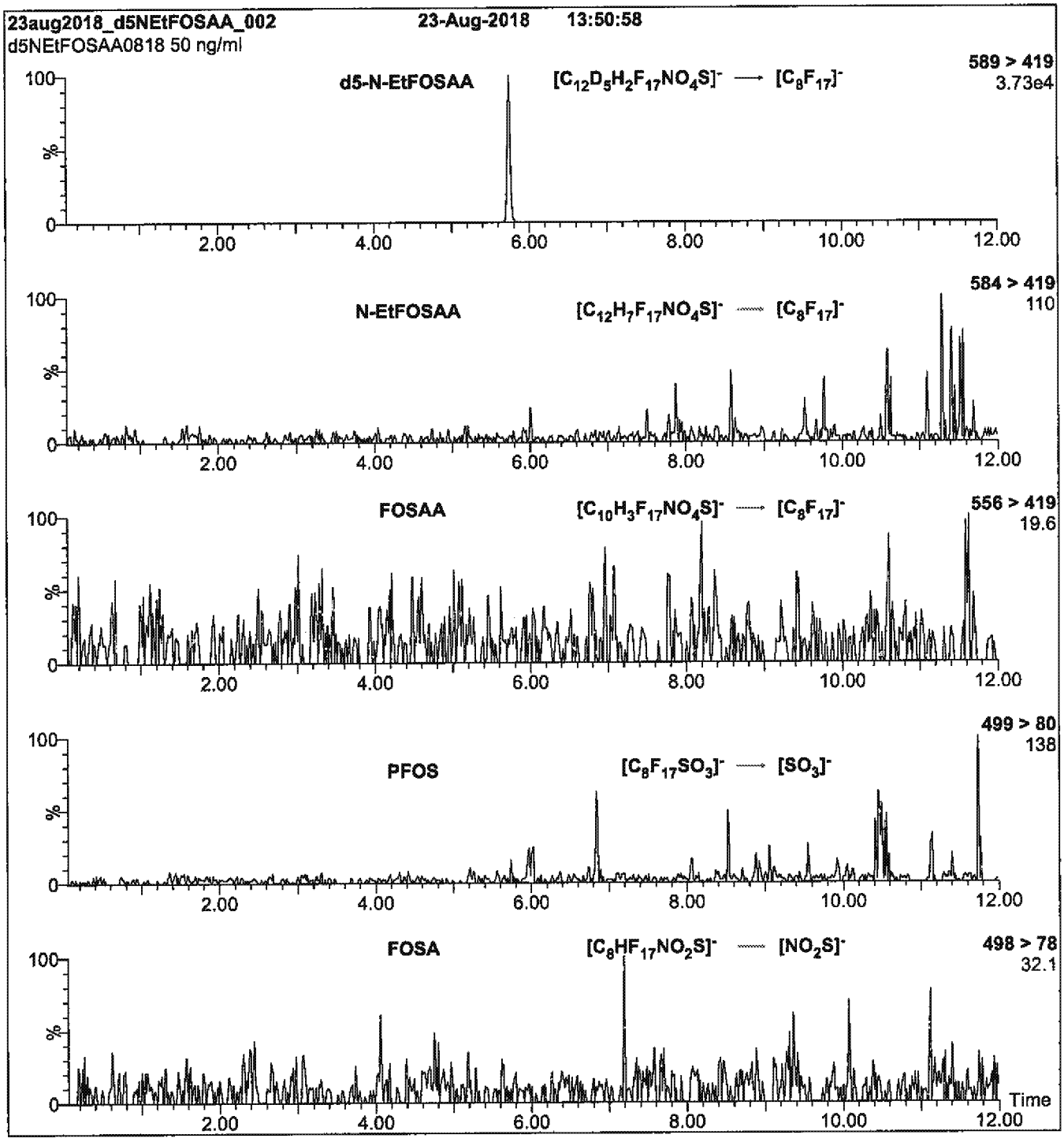
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 20.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

Figure 2: **d5-N-EtFOSAA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (d5-N-EtFOSAA)

Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 18

Reagent

LCDONA_00009

1416205
ID: LCDONA_00009
Exp:03/26/23 Prpd:CBW Opn:10/29/18
DONA

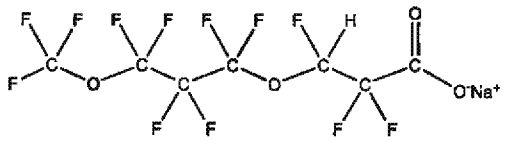
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: NaDONA
LOT NUMBER: NaDONA0318
COMPOUND: Sodium dodecafluoro-3H-4,8-dioxanonanoate

STRUCTURE:

CAS #: 958445-44-8 (ammonium salt)



MOLECULAR FORMULA: $C_7HF_{12}O_4Na$
MOLECULAR WEIGHT: 400.05
CONCENTRATION: 50 ± 2.5 µg/ml (Na Salt)
SOLVENT(S): Methanol, Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 03/26/2018
EXPIRY DATE: (mm/dd/yyyy) 03/26/2023
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.
- Product is commercially known as ADONA.
- 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: Ex. 4 CBI **Date:** 03/27/2018 (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

INTENDED USE:

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CALA

ANAB ACCREDITED

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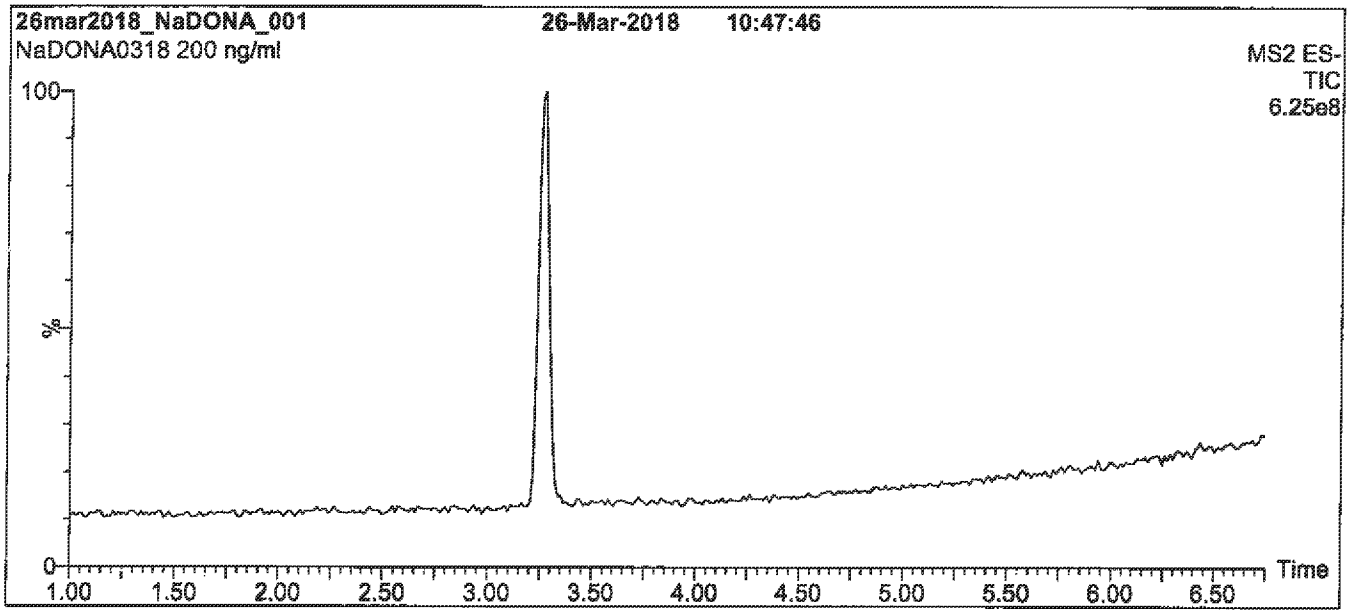
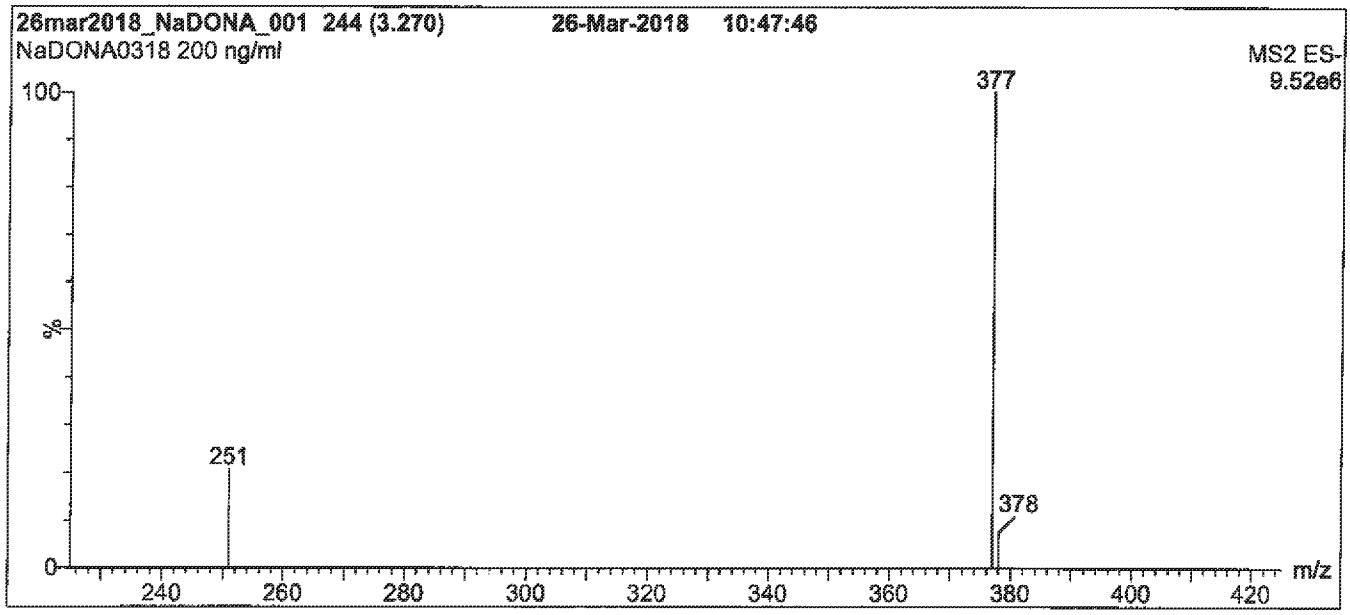
Figure 1: **NaDONA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 80% organic over 7 min and hold for
3 min before returning to initial conditions in 0.75 min.
Time: 12 min

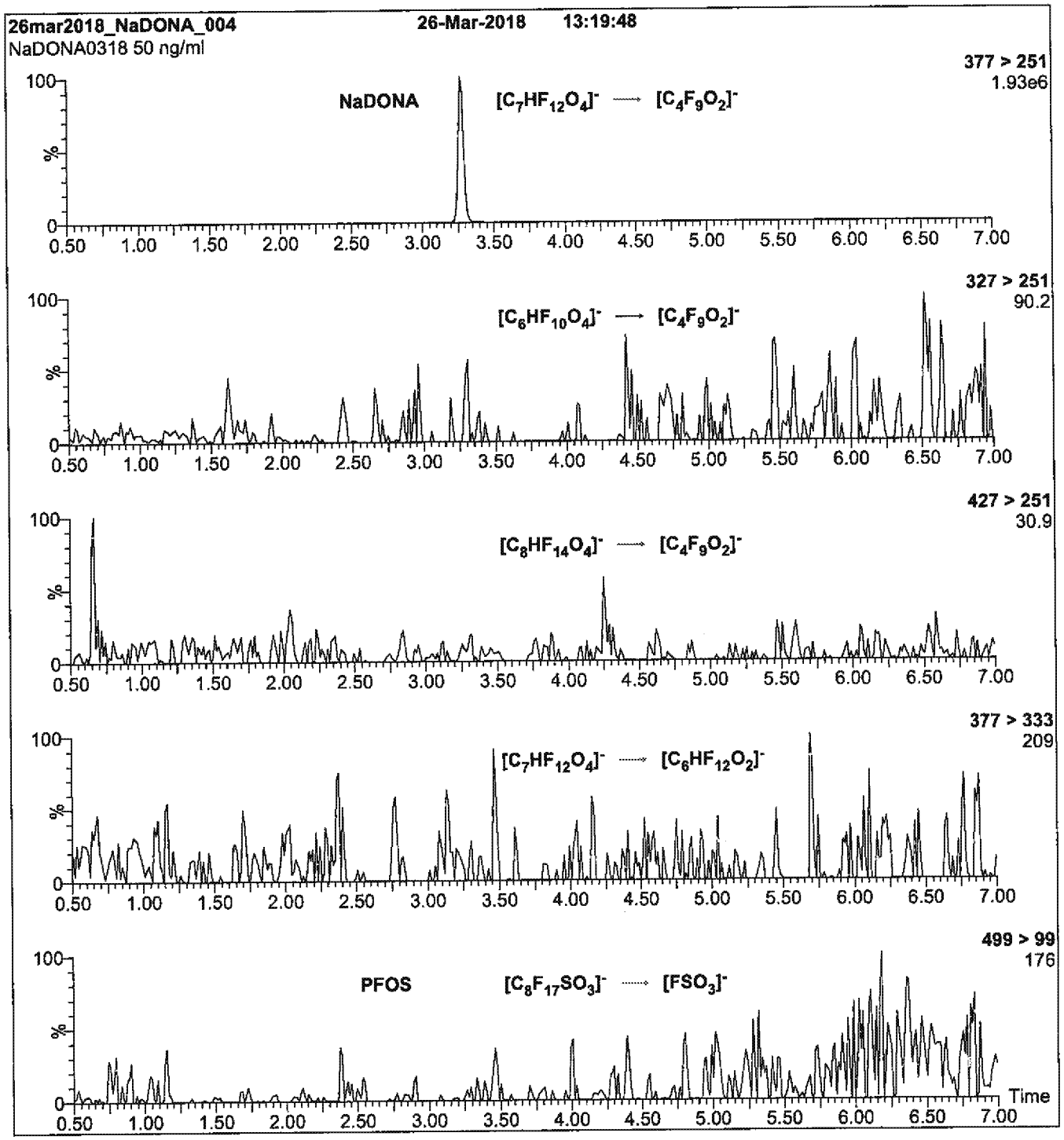
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.70
Cone Voltage (V) = 20.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

Injection: On-column (NaDONA)

Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.65e-3
Collision Energy (eV) = 10

Reagent

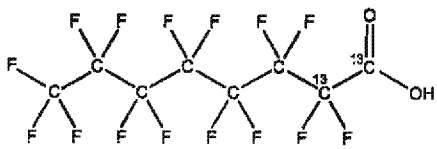
LCM2PFOA_00015

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M2PFOA
COMPOUND: Perfluoro-n-[1,2-$^{13}C_2$]octanoic acid
LOT NUMBER: M2PFOA1018

STRUCTURE:
CAS #: Not available



MOLECULAR FORMULA: $^{13}C_2{}^{12}C_6HF_{15}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml
MOLECULAR WEIGHT: 416.05
SOLVENT(S): Methanol, Water (<1%)

CHEMICAL PURITY: >98%
ISOTOPIC PURITY: ≥99% ^{13}C (1,2-$^{13}C_2$)
LAST TESTED: (mm/dd/yyyy) 10/10/2018
EXPIRY DATE: (mm/dd/yyyy) 10/10/2023
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.
* Contains < 0.1% of perfluoro-n-[$^{13}C_2$]heptanoic acid ($^{13}C_1$-PFHpA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: Ex. 4 CBI Date: 10/17/2018 (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

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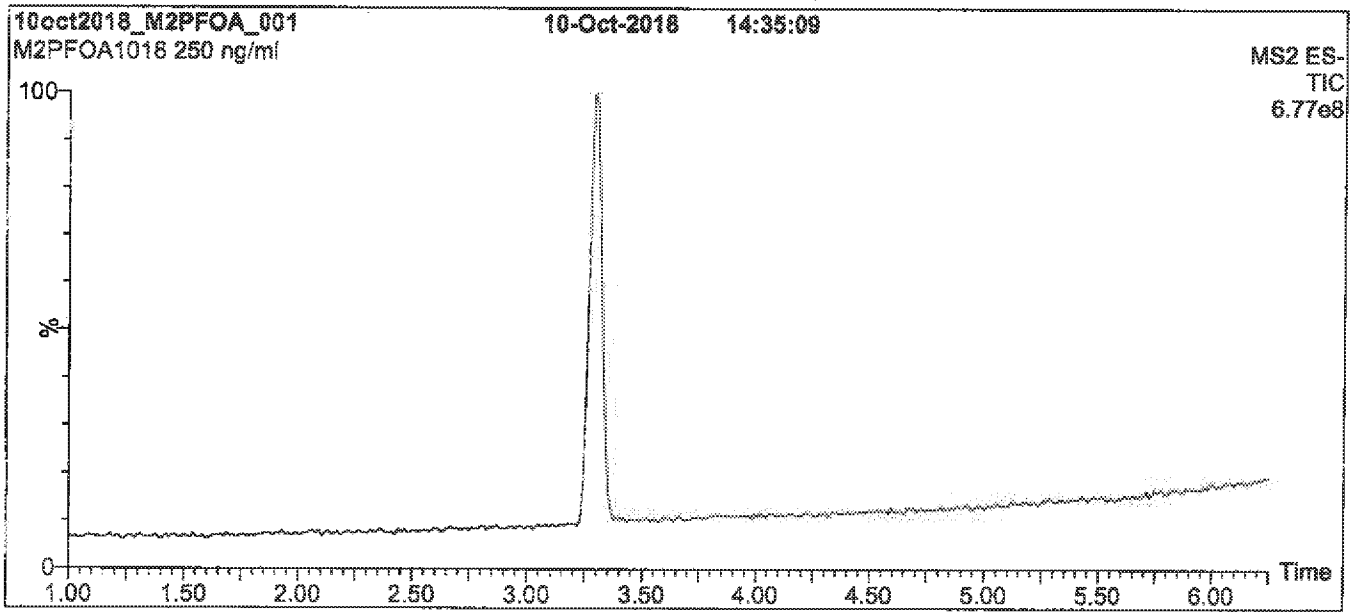
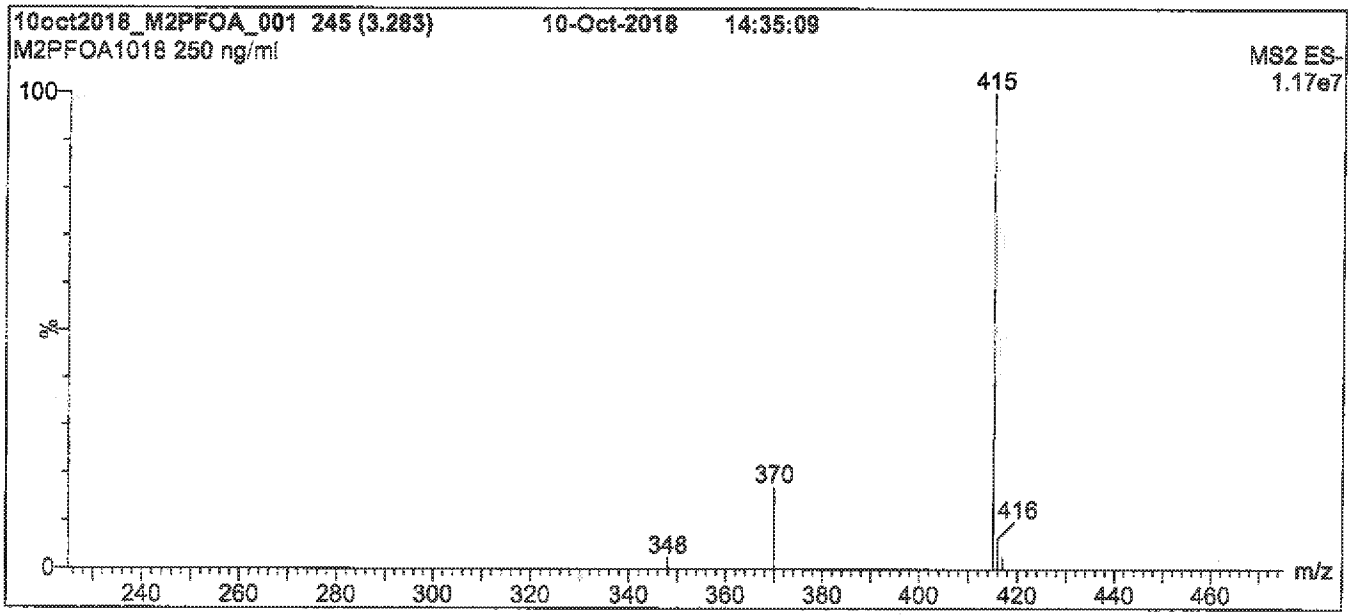
CALA Testing

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **M2PFOA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc 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

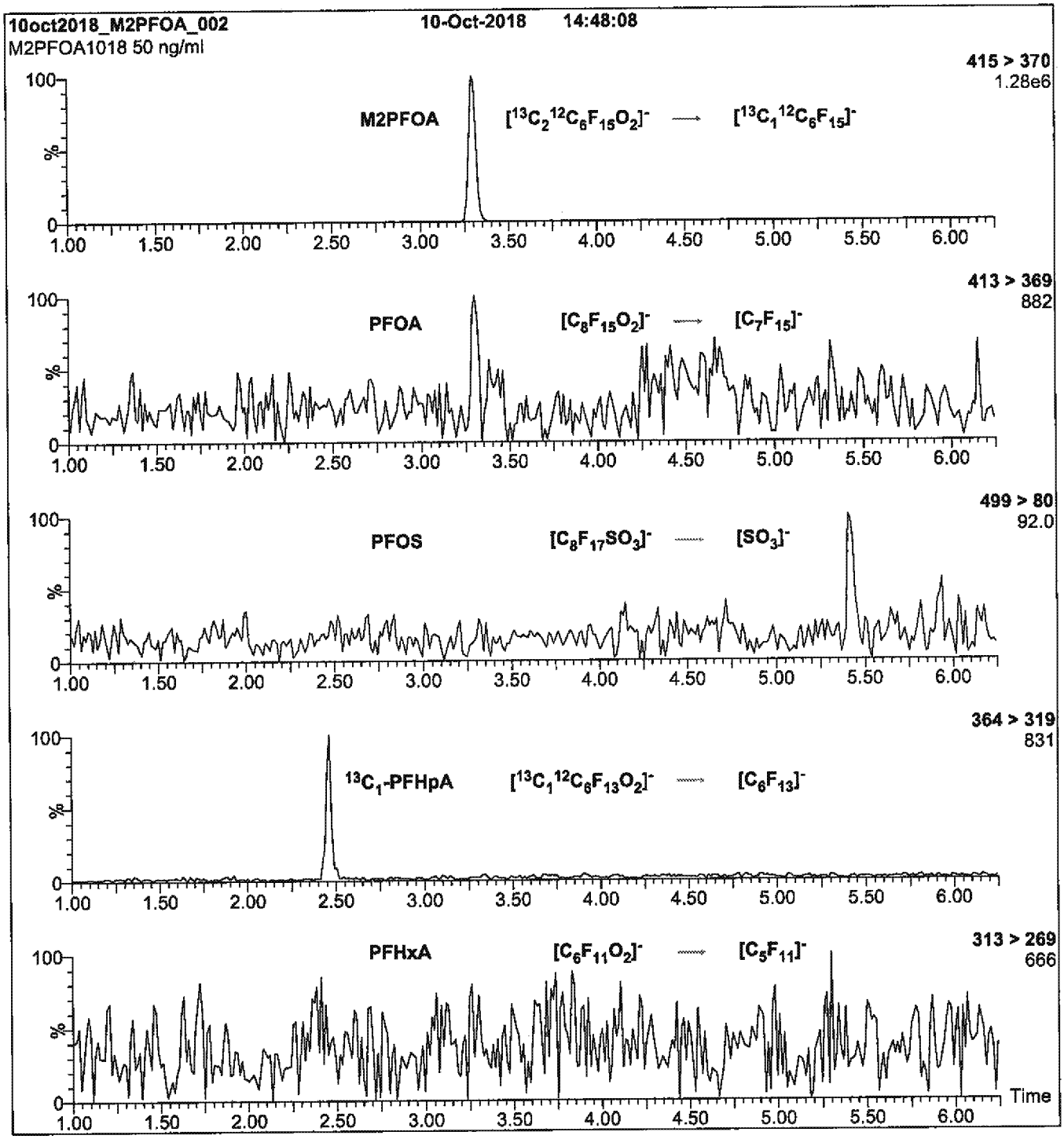
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

Figure 2: **M2PFOA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (M2PFOA)

Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 2.97e-3
Collision Energy (eV) = 8

Reagent

LCM3HFPO-DA_00006

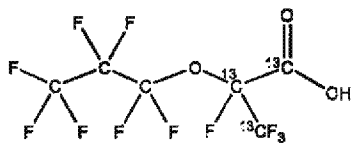
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M3HFPO-DA **LOT NUMBER:** M3HFPODA1018

COMPOUND: 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-$^{13}C_3$-propanoic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$^{13}C_3{}^{12}C_3HF_{11}O_3$	**MOLECULAR WEIGHT:**	333.03
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($^{13}C_3$)
LAST TESTED: (mm/dd/yyyy)	10/24/2018		
EXPIRY DATE: (mm/dd/yyyy)	10/24/2021		
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 ~ 1.9% of the linear M3HFPO-DA isomer.
- Product is commercially known as GenX.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: Ex. 4 CBI **Date:** 10/31/2018 (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

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

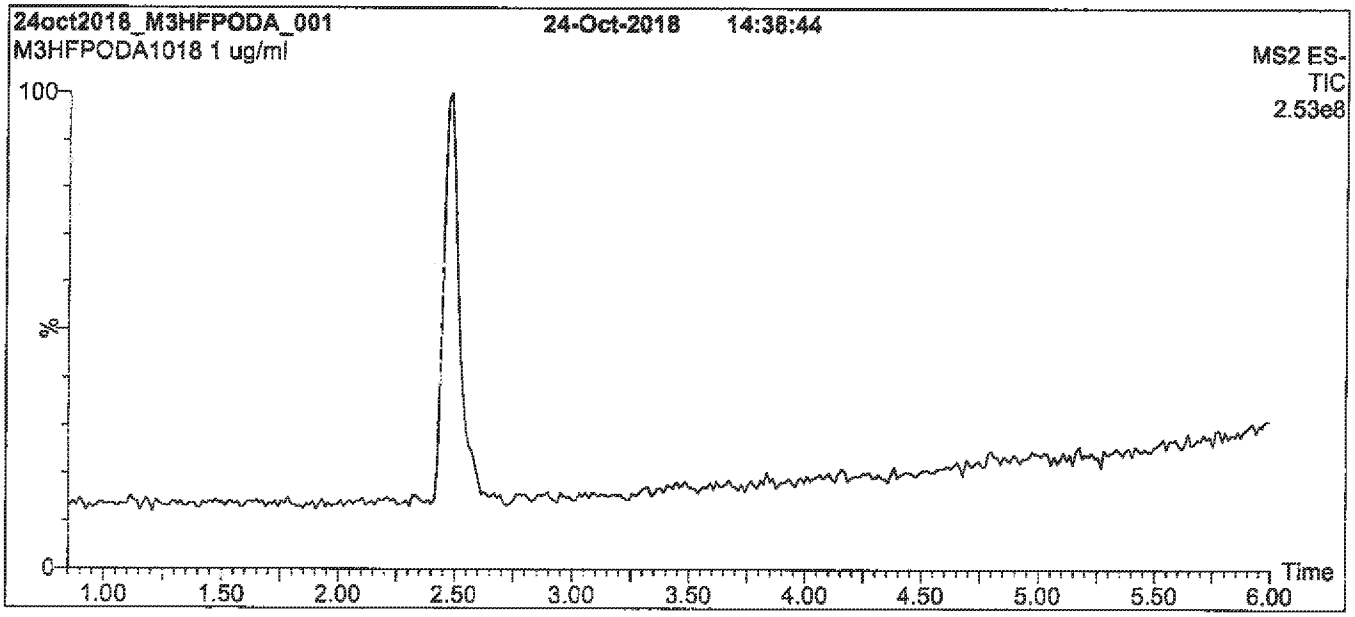
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

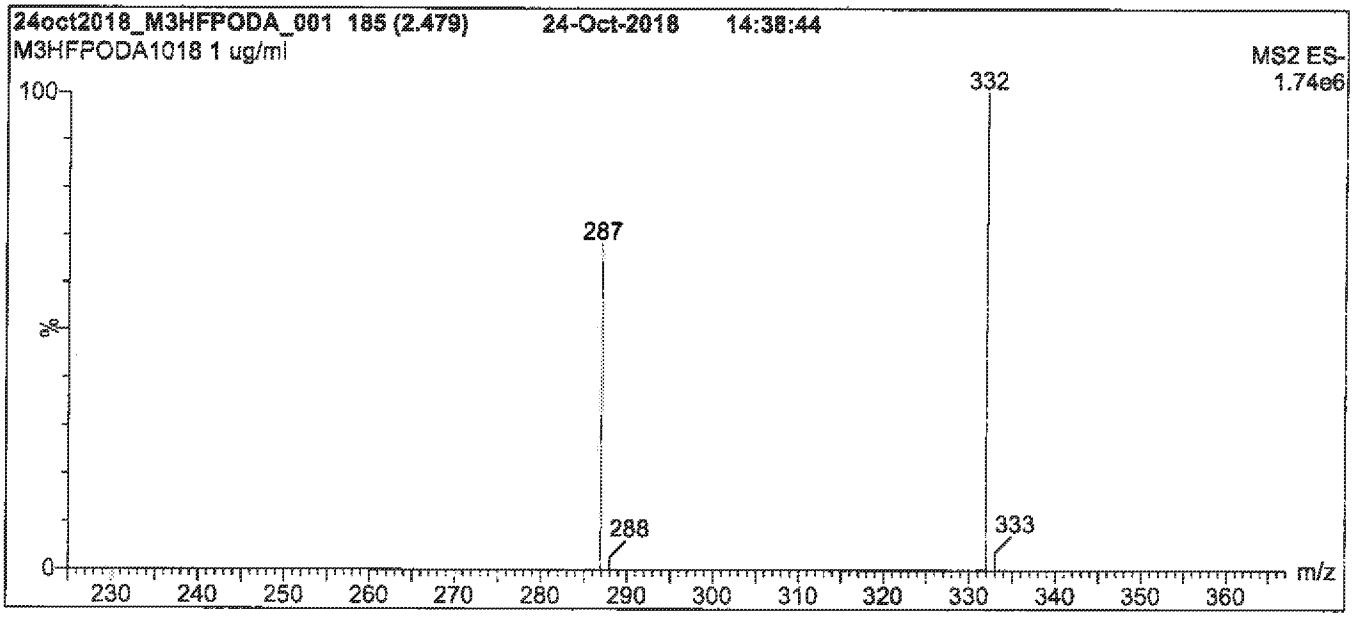
CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **M3HFPO-DA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% (80:20 MeOH:ACN) / 55% H_2O
(both with 10 mM NH_4OAc 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

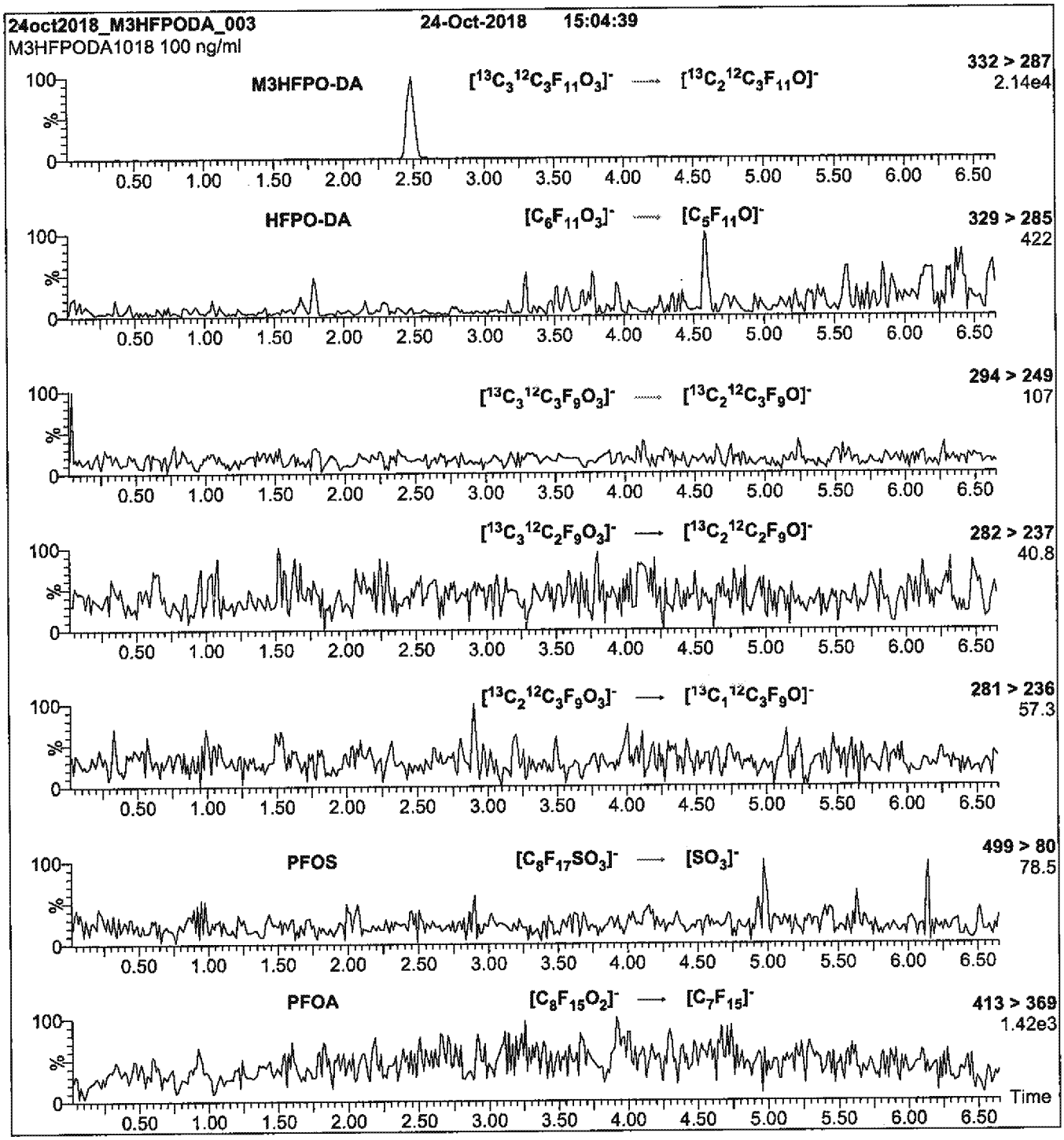
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Desolvation Temperature (°C) = 325
Desolvation Gas Flow (l/hr) = 1000

Figure 2: **M3HFPO-DA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (M3HFPO-DA)

Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.02e-3
Collision Energy (eV) = 6

Reagent

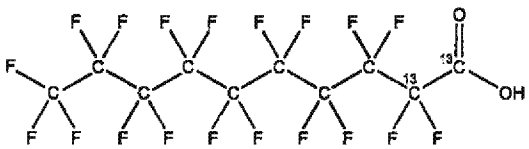
LCMPFDA_00024

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFDA
LOT NUMBER: MPFDA0218
COMPOUND: Perfluoro-n-[1,2-$^{13}C_2$]decanoic acid

STRUCTURE:
CAS #: Not available



MOLECULAR FORMULA: $^{13}C_2{}^{12}C_8HF_{18}O_2$
MOLECULAR WEIGHT: 516.07
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol, Water (<1%)
CHEMICAL PURITY: >98%
ISOTOPIC PURITY: ≥99% ^{13}C (1,2-$^{13}C_2$)
LAST TESTED: (mm/dd/yyyy) 02/16/2018
EXPIRY DATE: (mm/dd/yyyy) 02/16/2023
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.
- Contains < 0.1% of $^{13}C_1$-PFNA.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: Ex. 4 CBI **Date:** 03/07/2018 (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

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA

ANAB ACCREDITED

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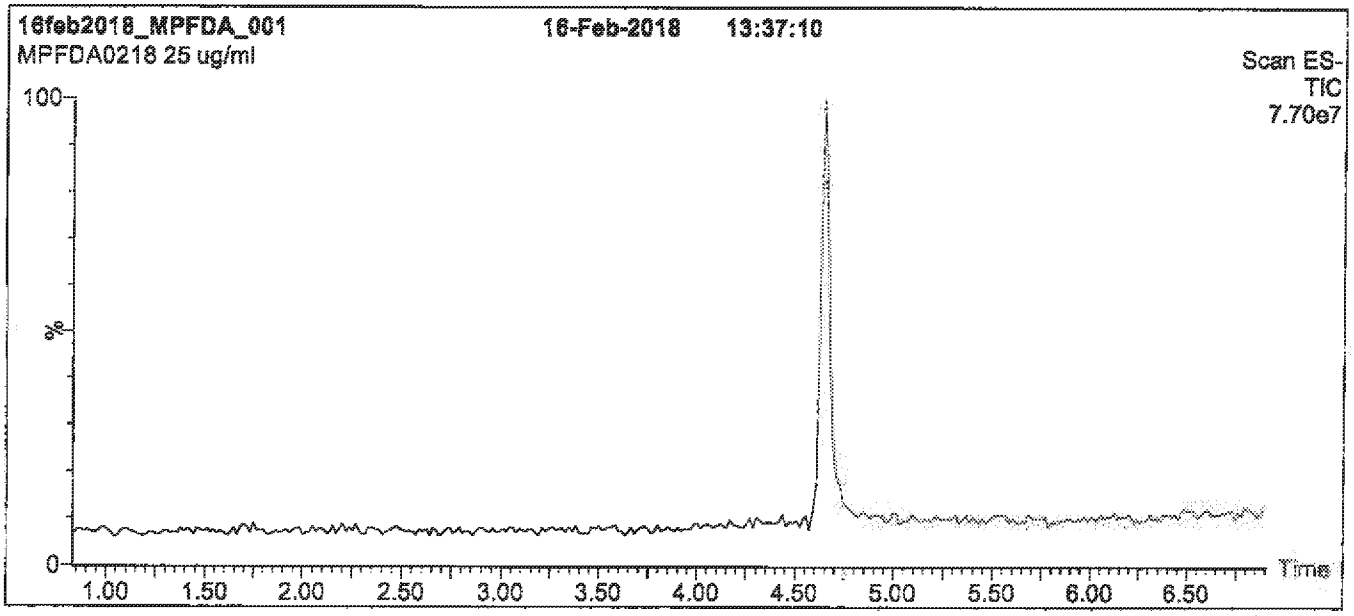
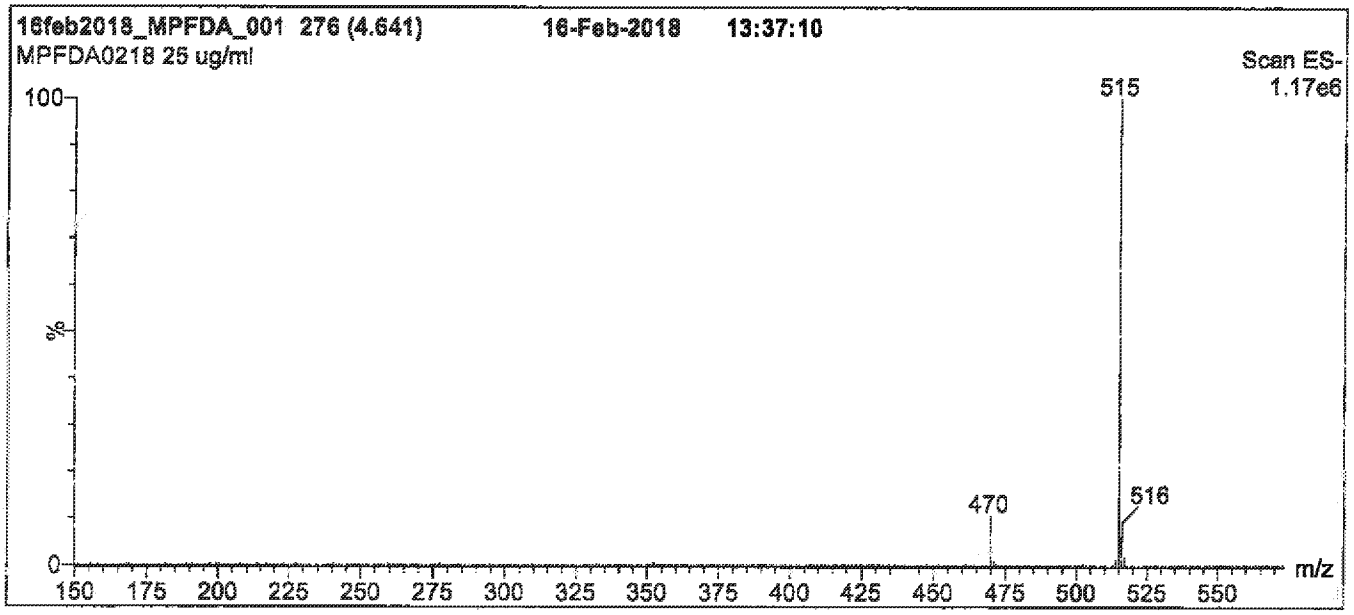
Figure 1: **MPFDA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min before returning to initial conditions in 0.5 min.
Time: 10 min

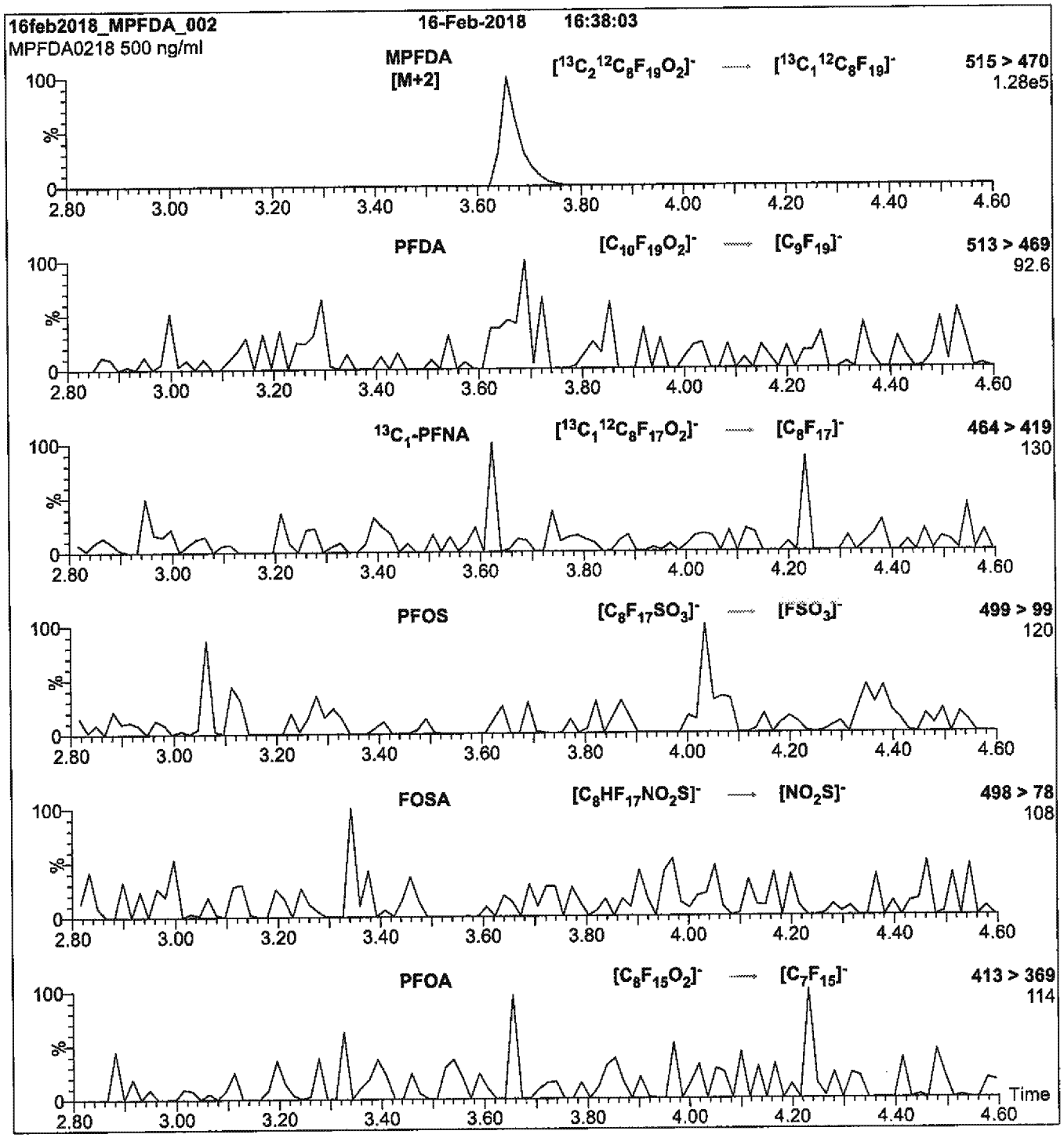
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml MPFDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 13

Reagent

LCMPFHxA_00026

WELLINGTON LABORATORIES

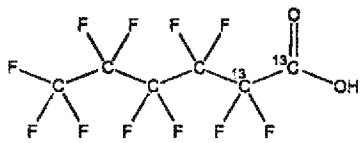
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFHxA
COMPOUND: Perfluoro-n-[1,2-$^{13}C_2$]hexanoic acid

LOT NUMBER: MPFHxA0518

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: $^{13}C_2{}^{12}C_4HF_{11}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 316.04
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/22/2018
EXPIRY DATE: (mm/dd/yyyy) 05/22/2023
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

ISOTOPIC PURITY: ≥99% ^{13}C (1,2-$^{13}C_2$)

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.
- Contains < 0.1% of perfluoro-n-hexanoic acid.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: Ex. 4 CBI **Date:** 05/30/2018 (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

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CALA

ANAB ACCREDITED

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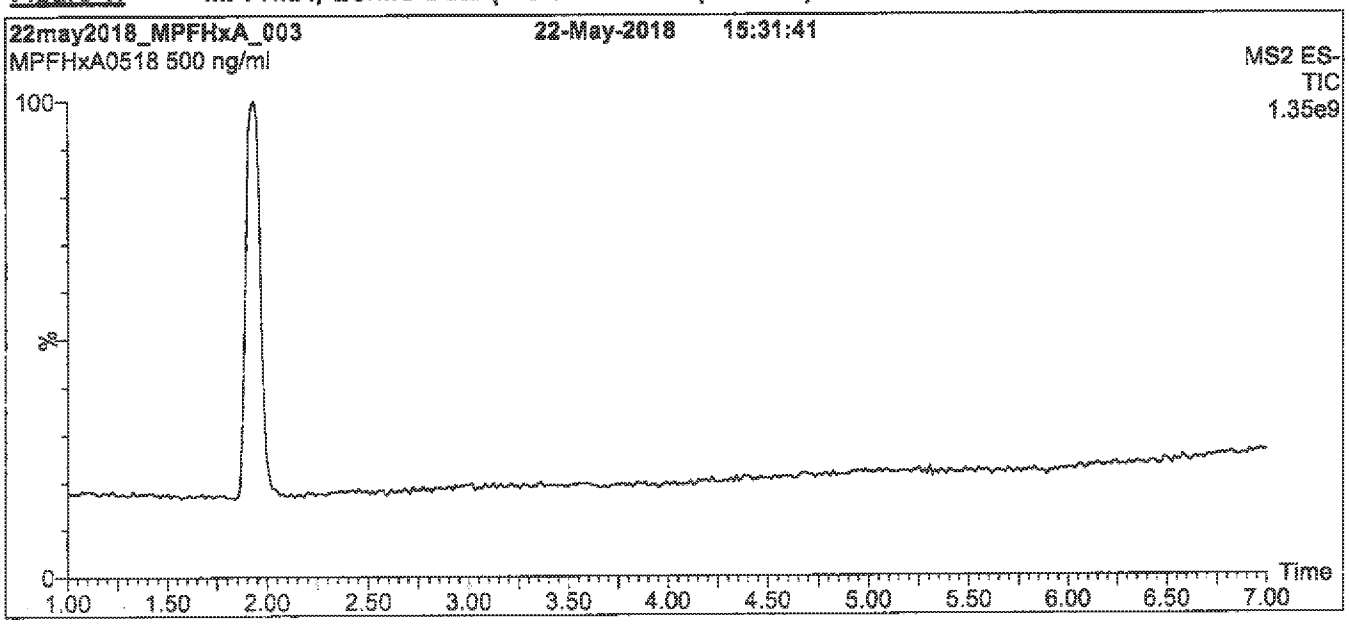
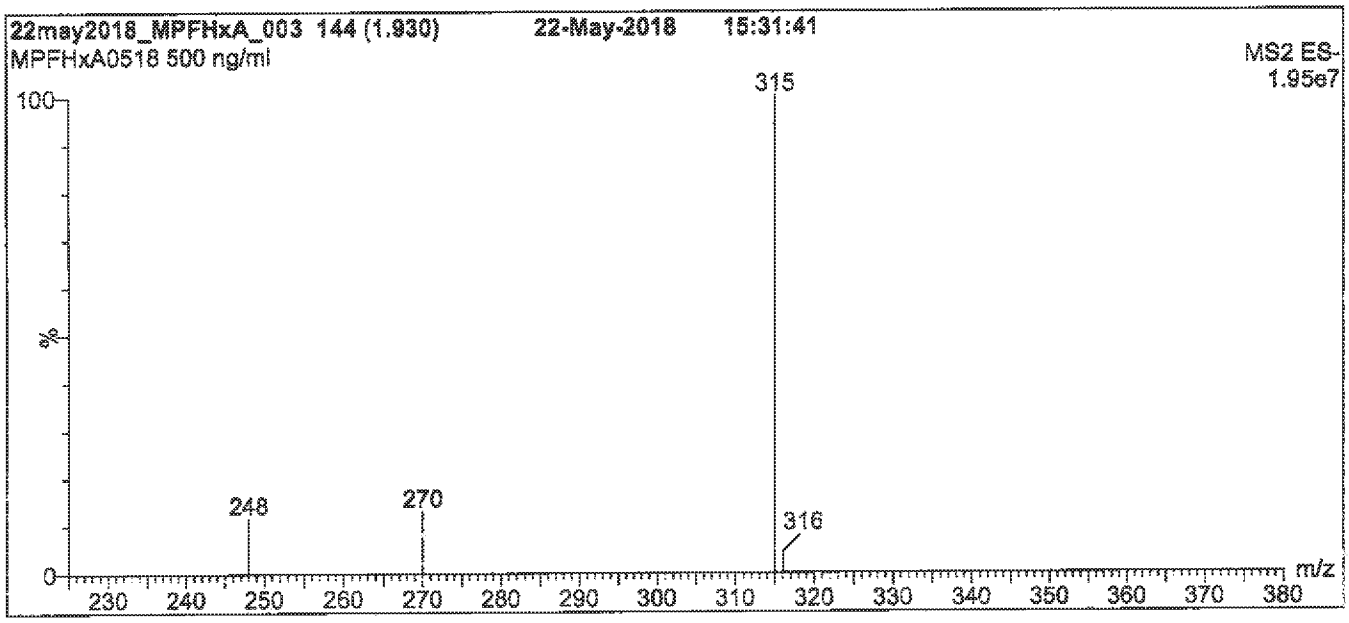
Figure 1: **MPFHxA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 80% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

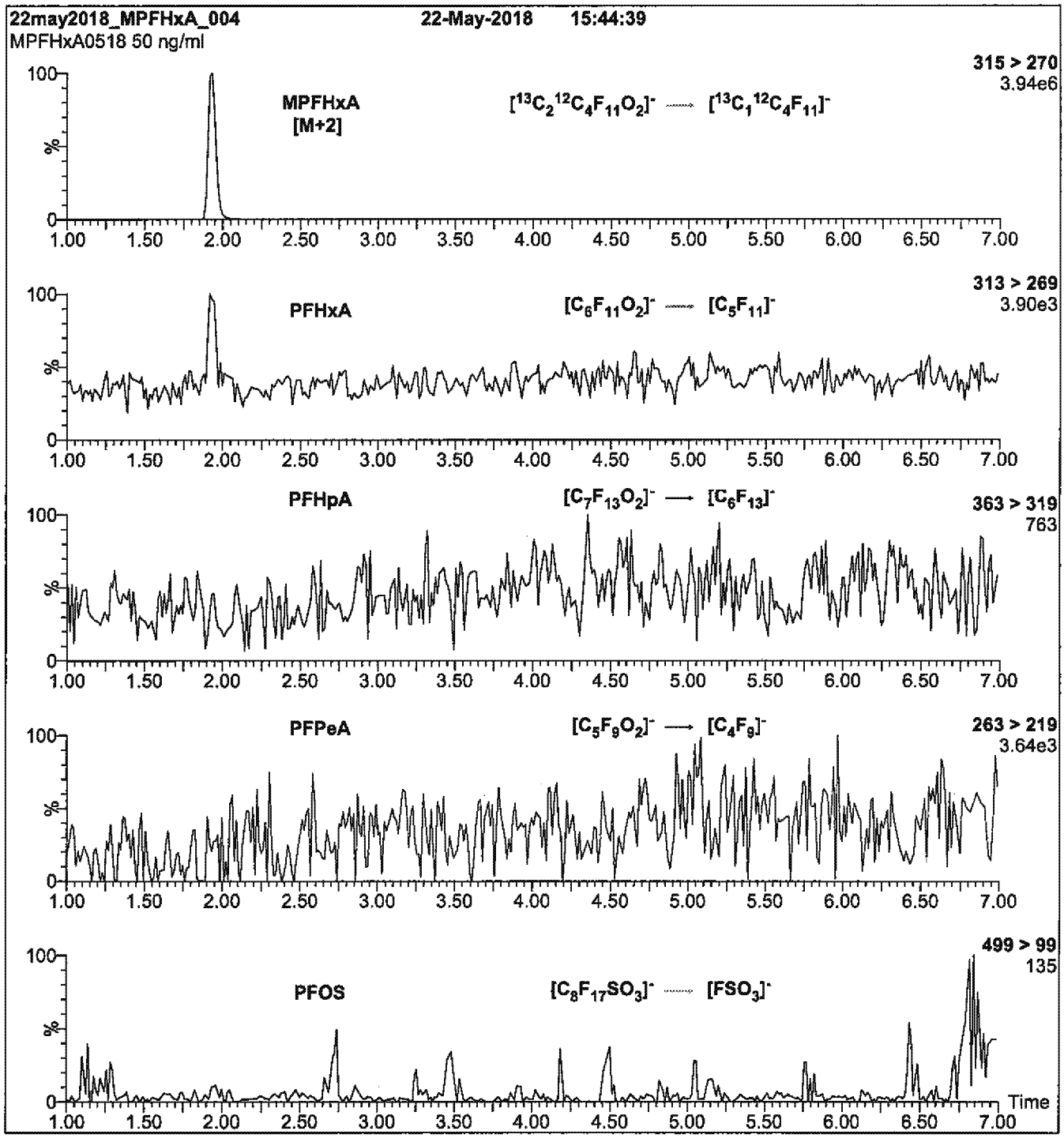
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 5.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

Injection: On-column (MPFHxA)

Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.55e-3
Collision Energy (eV) = 8

Reagent

LCMPFOS_00031

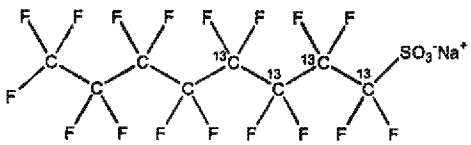
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFOS **LOT NUMBER:** MPFOS0918

COMPOUND: Sodium perfluoro-1-[1,2,3,4-$^{13}C_4$]octanesulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: $^{13}C_4{}^{12}C_4F_{17}SO_3Na$ **MOLECULAR WEIGHT:** 526.08

CONCENTRATION: 50.0 ± 2.5 µg/ml (Na salt) **SOLVENT(S):** Methanol

47.8 ± 2.4 µg/ml (MPFOS anion)

CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99% ^{13}C (1,2,3,4-$^{13}C_4$)

LAST TESTED: (mm/dd/yyyy) 09/11/2018

EXPIRY DATE: (mm/dd/yyyy) 09/11/2023

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

* See page 2 for further details.
* Contains ~ 0.3% Sodium perfluoro-1-[1,2,3-$^{13}C_3$]heptanesulfonate.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: Ex. 4 CBI **Date:** 09/14/2018 (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

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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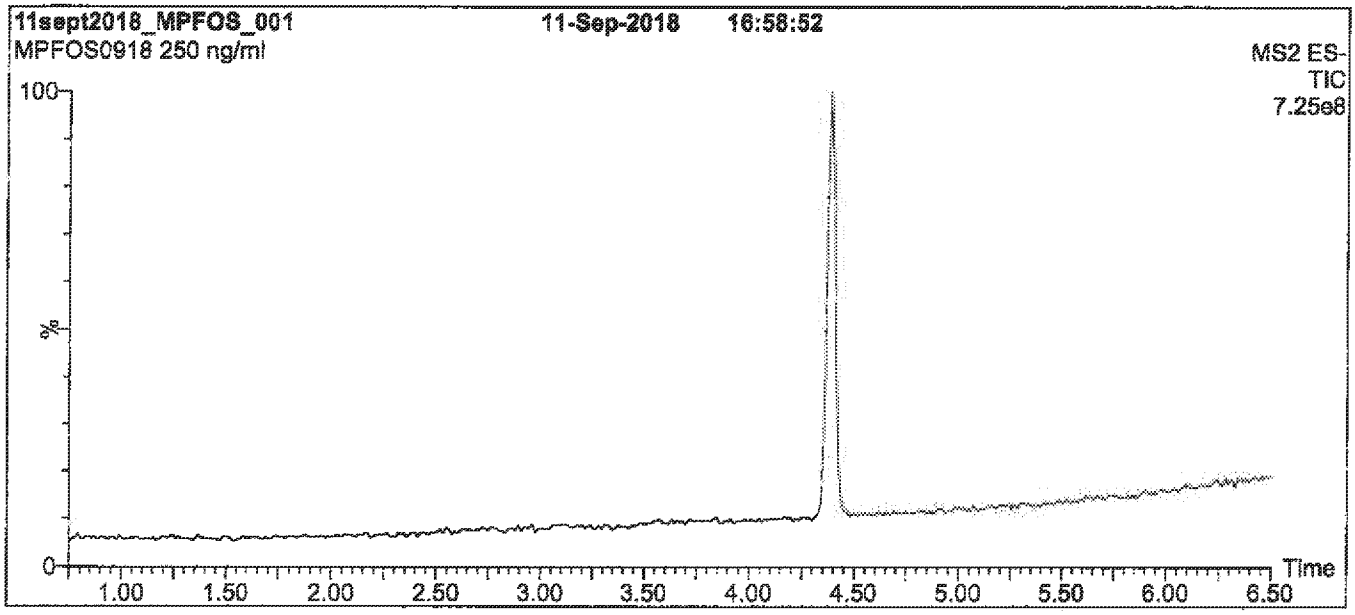
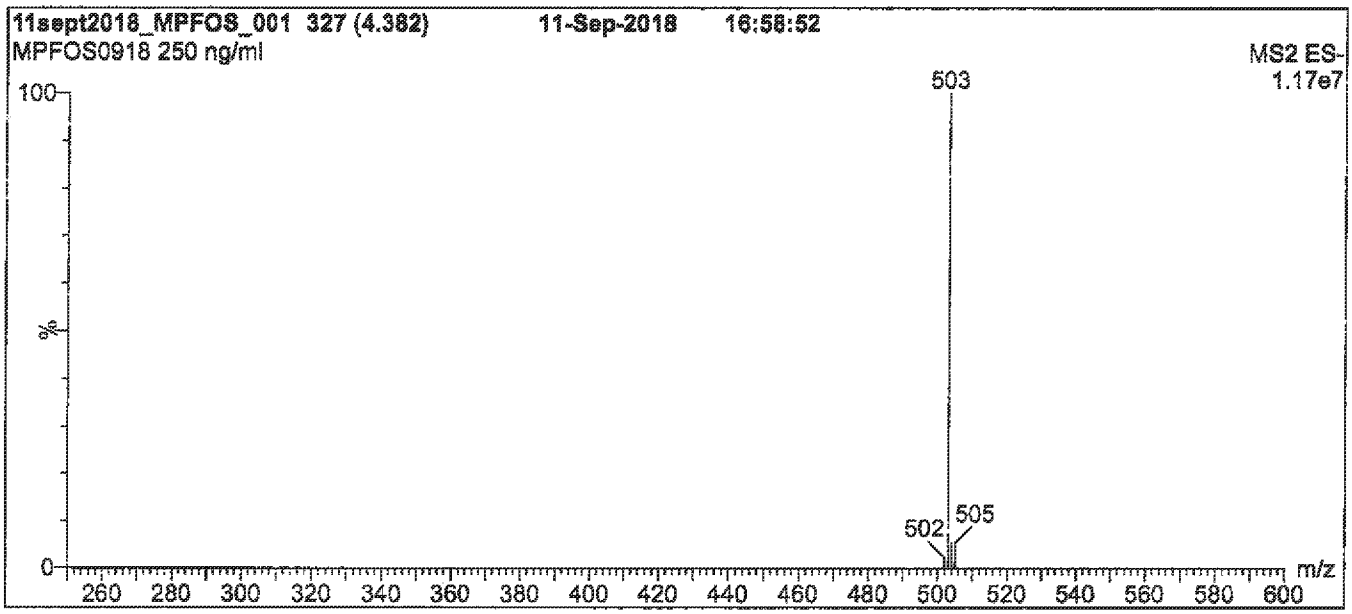
Figure 1: MPFOS; LC/MS Data (TIC and Mass Spectrum)





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc 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

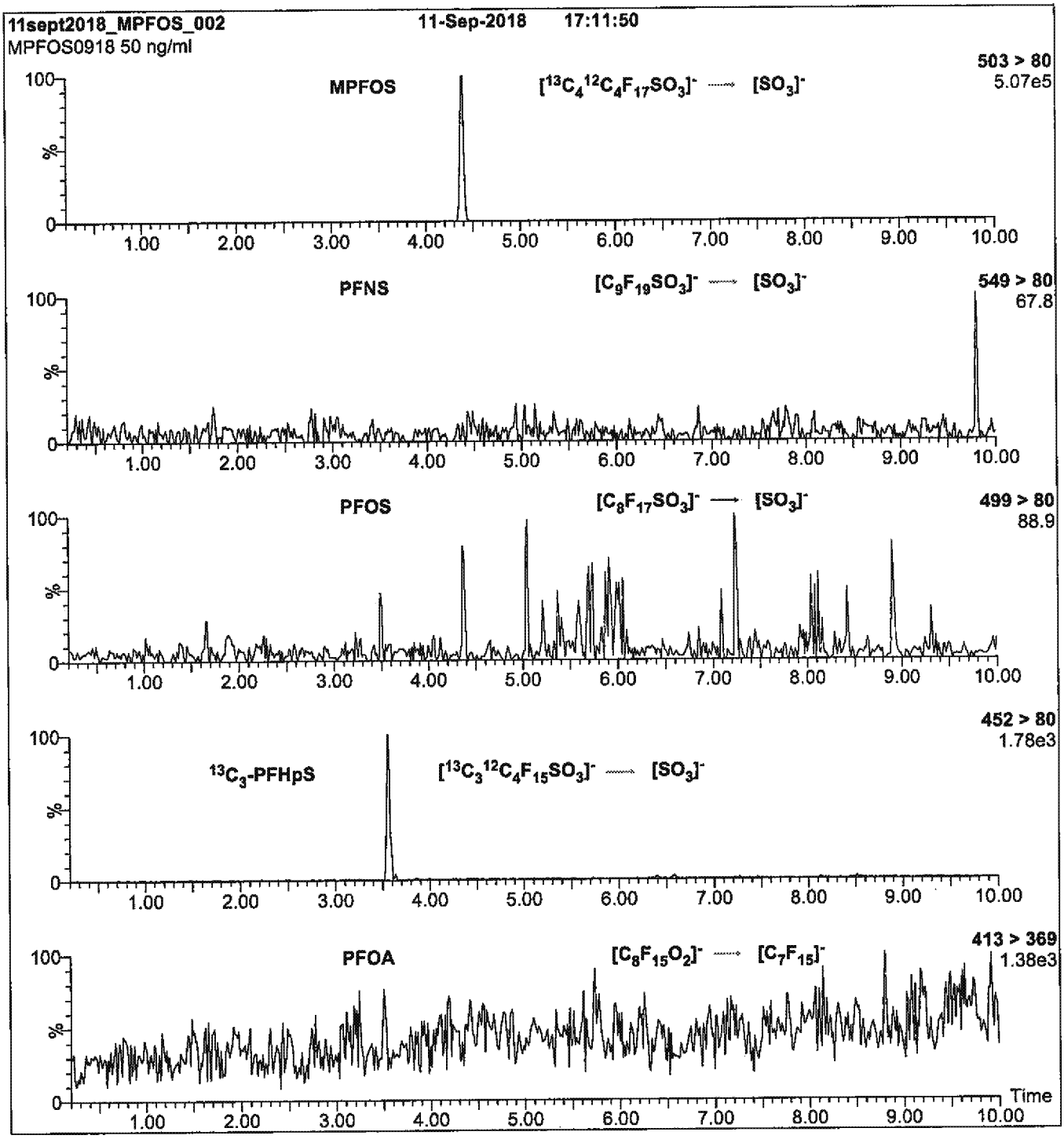
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

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



Conditions for Figure 2:

Injection: On-column (MPFOS)

Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 2.99e-3
Collision Energy (eV) = 42

Reagent

LCPFAC-24PAR_00002

1310191
ID: LCPFAC-24PAR_00002
Exp:04/18/23 Prpd:TTP Opn:07/24/18
PFAC/PFAS Mix

Rec: 7/24/18 TTP
Open: 7/24/18 TTP
Exp: 4/18/23

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-24PAR

Native Per- and Poly-fluoroalkyl Substance Precision and Recovery Standard Solution

PRODUCT CODE:	PFAC-24PAR
LOT NUMBER:	PFAC24PAR0418
SOLVENT(S):	Methanol / Isopropanol (4%) / Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	04/09/2018
LAST TESTED: (mm/dd/yyyy)	04/18/2018
EXPIRY DATE: (mm/dd/yyyy)	04/18/2023
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

PFAC-24PAR is a solution/mixture of eleven native linear perfluoroalkylcarboxylic acids (C_4-C_{14}), seven native perfluoroalkylsulfonates (C_4, C_5, C_7, C_9, and C_{10} linear; C_6 and C_8 linear and branched), three native telomer sulfonates (4:2, 6:2, and 8:2), two native perfluorooctanesulfonamidoacetic acids, and perfluoro-1-octanesulfonamide. The components and their concentrations are given in Table A.

The individual native perfluoroalkylcarboxylic acids, native perfluoroalkylsulfonates, native telomer sulfonates, native perfluorooctanesulfonamidoacetic acids, and perfluoro-1-octanesulfonamide 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 PFHxSK
Table C: Isomeric Components and Percent Composition of PFOSK
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

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

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CALA

ANAB ACCREDITED

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Table A: **PFAC-24PAR; Components and Concentrations (ng/ml, ± 5% in Methanol / Isopropanol (4%) / Water (<1%))**

Compound	Abbreviation	Concentration *** (ng/ml)	Peak Assignment in Figure 1
Perfluoro-n-butanoic acid	PFBA	2000	A
Perfluoro-n-pentanoic acid	PFPeA	2000	B
Perfluoro-n-hexanoic acid	PFHxA	2000	E
Perfluoro-n-heptanoic acid	PFHpA	2000	G
Perfluoro-n-octanoic acid	PFOA	2000	K
Perfluoro-n-nonanoic acid	PFNA	2000	M
Perfluoro-n-decanoic acid	PFDA	2000	Q
Perfluoro-n-undecanoic acid	PFUdA	2000	V
Perfluoro-n-dodecanoic acid	PFDoA	2000	X
Perfluoro-n-tridecanoic acid	PFTrDA	2000	Y
Perfluoro-n-tetradecanoic acid	PFTeDA	2000	Z
Perfluoro-1-octanesulfonamide	FOSA	2000	T
N-methylperfluoro-1-octanesulfonamidoacetic acid	N-MeFOSAA	2000	S
N-ethylperfluoro-1-octanesulfonamidoacetic acid	N-EtFOSAA	2000	U

Compound	Abbreviation	Concentration *** (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the anion	
Potassium perfluoro-1-butanesulfonate	L-PFBS	2000	1770	C
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	2000	1880	F
Potassium perfluorohexanesulfonate*	PFHxSK: linear isomer	1620	1480	I
	PFHxSK: ∑ branched isomers	378	344	H
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	2000	1900	L
Potassium perfluorooctanesulfonate**	PFOSK: linear isomer	1580	1460	O
	PFOSK: ∑ branched isomers	422	391	N
Sodium perfluoro-1-nonanesulfonate	L-PFNS	2000	1920	R
Sodium perfluoro-1-decanesulfonate	L-PFDS	2000	1930	W
Sodium 1H,1H,2H,2H-perfluoro-1-hexanesulfonate	4:2FTS	2000	1870	D
Sodium 1H,1H,2H,2H-perfluoro-1-octanesulfonate	6:2FTS	2000	1900	J
Sodium 1H,1H,2H,2H-perfluoro-1-decanesulfonate	8:2FTS	2000	1920	P

* See Table B for percent composition of linear and branched PFHxSK isomers.
** See Table C for percent composition of linear and branched PFOSK isomers.
*** Concentrations have been rounded to three significant figures.

Table B: **PFHxSK; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

Isomer	Name	Structure	Percent Composition by ^{19}F-NMR	
1	Potassium perfluoro-1-hexanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	81.1	81.1
2	Potassium 1-trifluoromethylperfluoropentanesulfonate**	$CF_3CF_2CF_2CF_2CF(CF_3)SO_3^-K^+$	2.9	18.9
3	Potassium 2-trifluoromethylperfluoropentanesulfonate	$CF_3CF_2CF_2CF(CF_3)CF_2SO_3^-K^+$	1.4	
4	Potassium 3-trifluoromethylperfluoropentanesulfonate	$CF_3CF_2CF(CF_3)CF_2CF_2SO_3^-K^+$	5.0	
5	Potassium 4-trifluoromethylperfluoropentanesulfonate	$CF_3CF(CF_3)CF_2CF_2CF_2SO_3^-K^+$	8.9	
6	Potassium 3,3-di(trifluoromethyl)perfluorobutanesulfonate	$CF_3C(CF_3)_2CF_2CF_2SO_3^-K^+$	0.2	
7	Other Unidentified Isomers		0.5	

* Percent of total perfluorohexanesulfonate isomers only.
** Systematic Name: Potassium perfluorohexane-2-sulfonate.

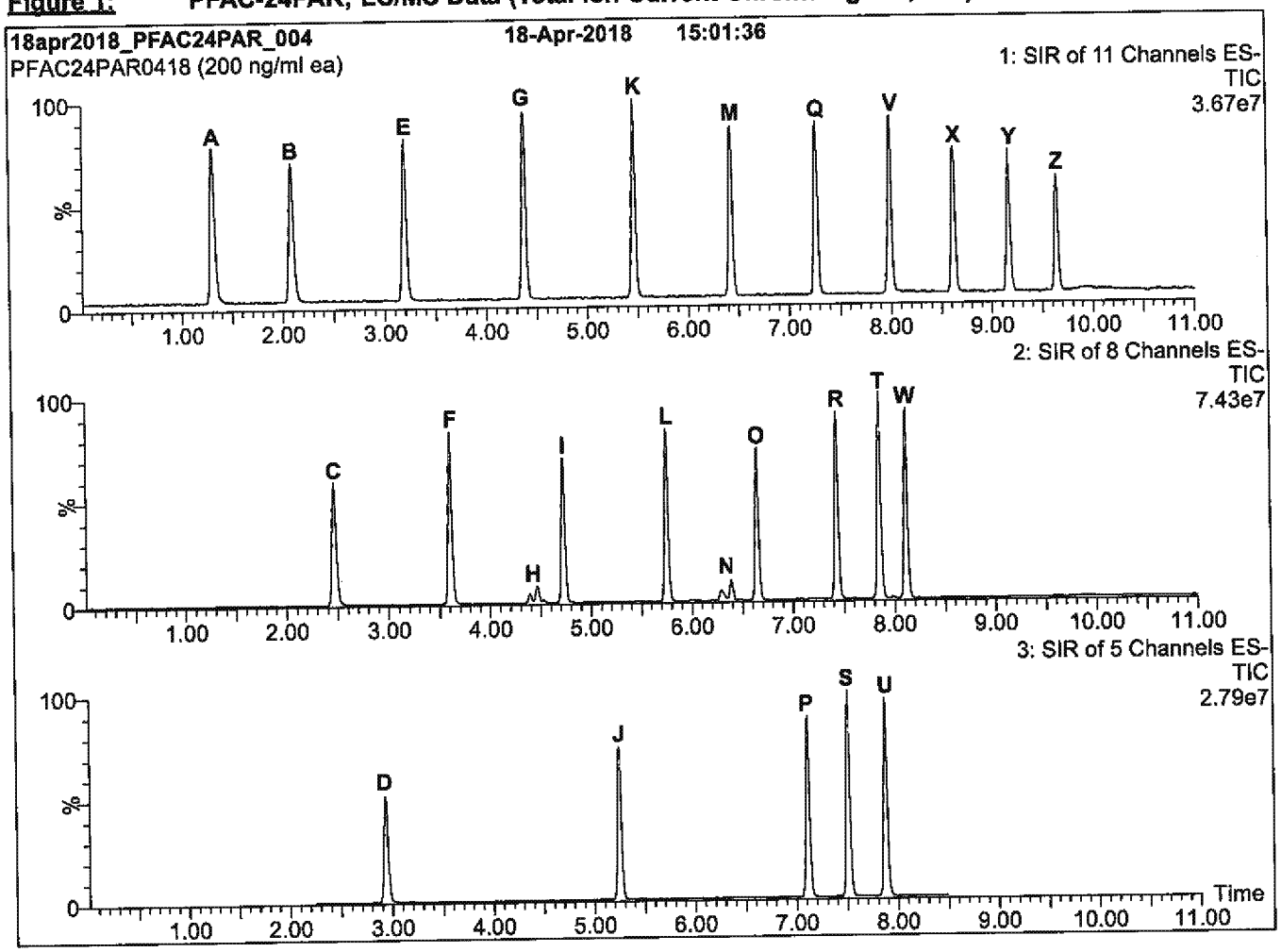
Table C: **PFOSK; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

Isomer	Name	Structure	Percent Composition by ^{19}F-NMR	
1	Potassium perfluoro-1-octanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	78.8	78.8
2	Potassium 1-trifluoromethylperfluoroheptanesulfonate**	$CF_3CF_2CF_2CF_2CF_2CF_2CF(CF_3)SO_3^-K^+$	1.2	21.1
3	Potassium 2-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF(CF_3)CF_2SO_3^-K^+$	0.6	
4	Potassium 3-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF_2CF(CF_3)CF_2CF_2SO_3^-K^+$	1.9	
5	Potassium 4-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF(CF_3)CF_2CF_2CF_2SO_3^-K^+$	2.2	
6	Potassium 5-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF(CF_3)CF_2CF_2CF_2CF_2SO_3^-K^+$	4.5	
7	Potassium 6-trifluoromethylperfluoroheptanesulfonate	$CF_3CF(CF_3)CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	10.0	
8	Potassium 5,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3C(CF_3)_2CF_2CF_2CF_2CF_2SO_3^-K^+$	0.2	
9	Potassium 4,4-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF_2C(CF_3)_2CF_2CF_2CF_2SO_3^-K^+$	0.03	
10	Potassium 4,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF(CF_3)CF(CF_3)CF_2CF_2CF_2SO_3^-K^+$	0.4	
11	Potassium 3,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF(CF_3)CF_2CF(CF_3)CF_2CF_2SO_3^-K^+$	0.07	

* Percent of total perfluorooctanesulfonate isomers only.
** Systematic Name: Potassium perfluorooctane-2-sulfonate.

Certified By: Ex. 4 CBI **Date:** 04/24/2018 (mm/dd/yyyy)

Figure 1: **PFAC-24PAR; LC/MS Data (Total Ion Current Chromatogram; SIR)**



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% (80:20 MeOH:ACN) / 60% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 10 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 15 min

Flow: 300 µl/min

MS Parameters

Experiment: SIR

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = variable (2-38)
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 750

Figure 2: **PFAC-24PAR; LC/MS/MS Data (Selected MRM Transitions)**

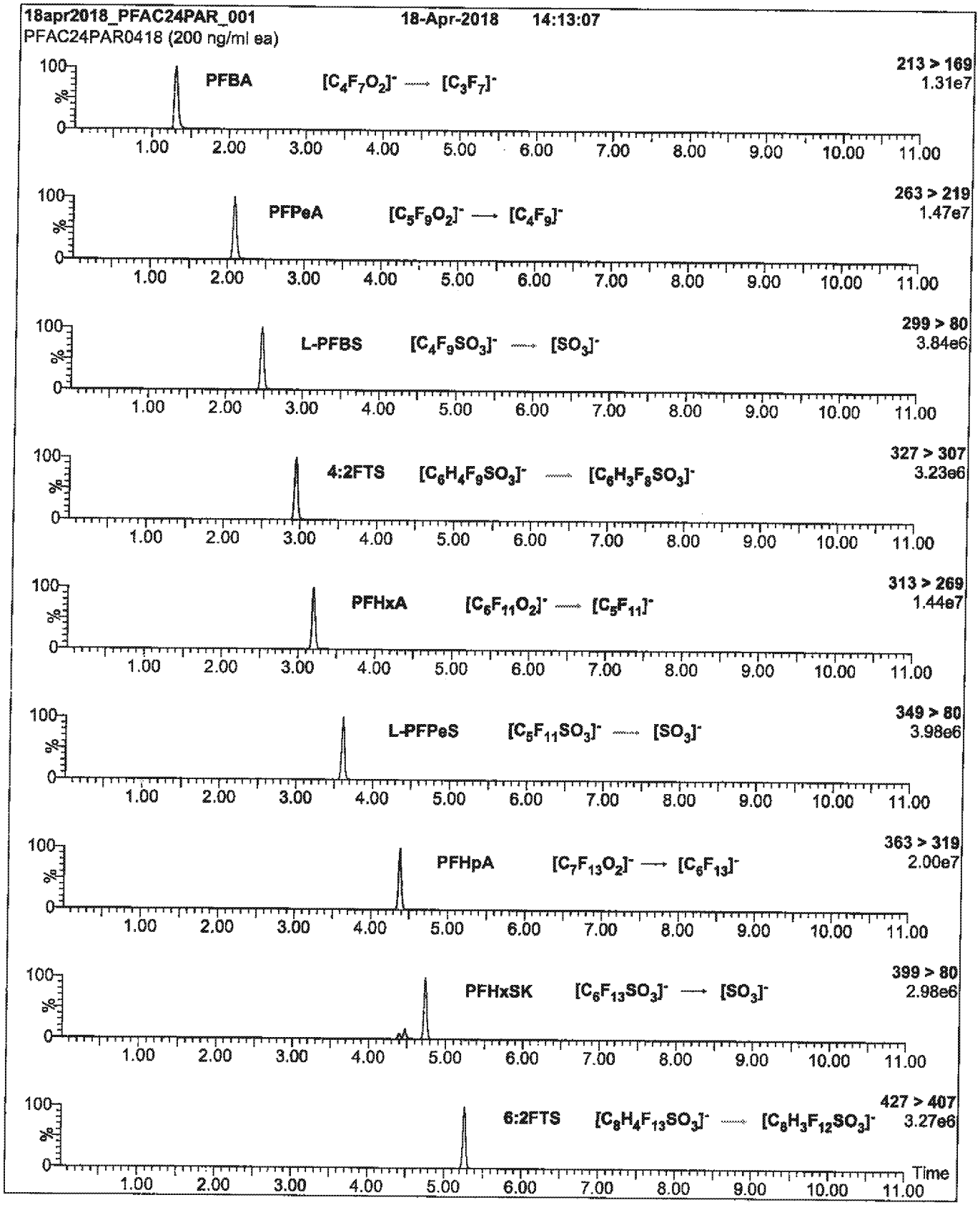
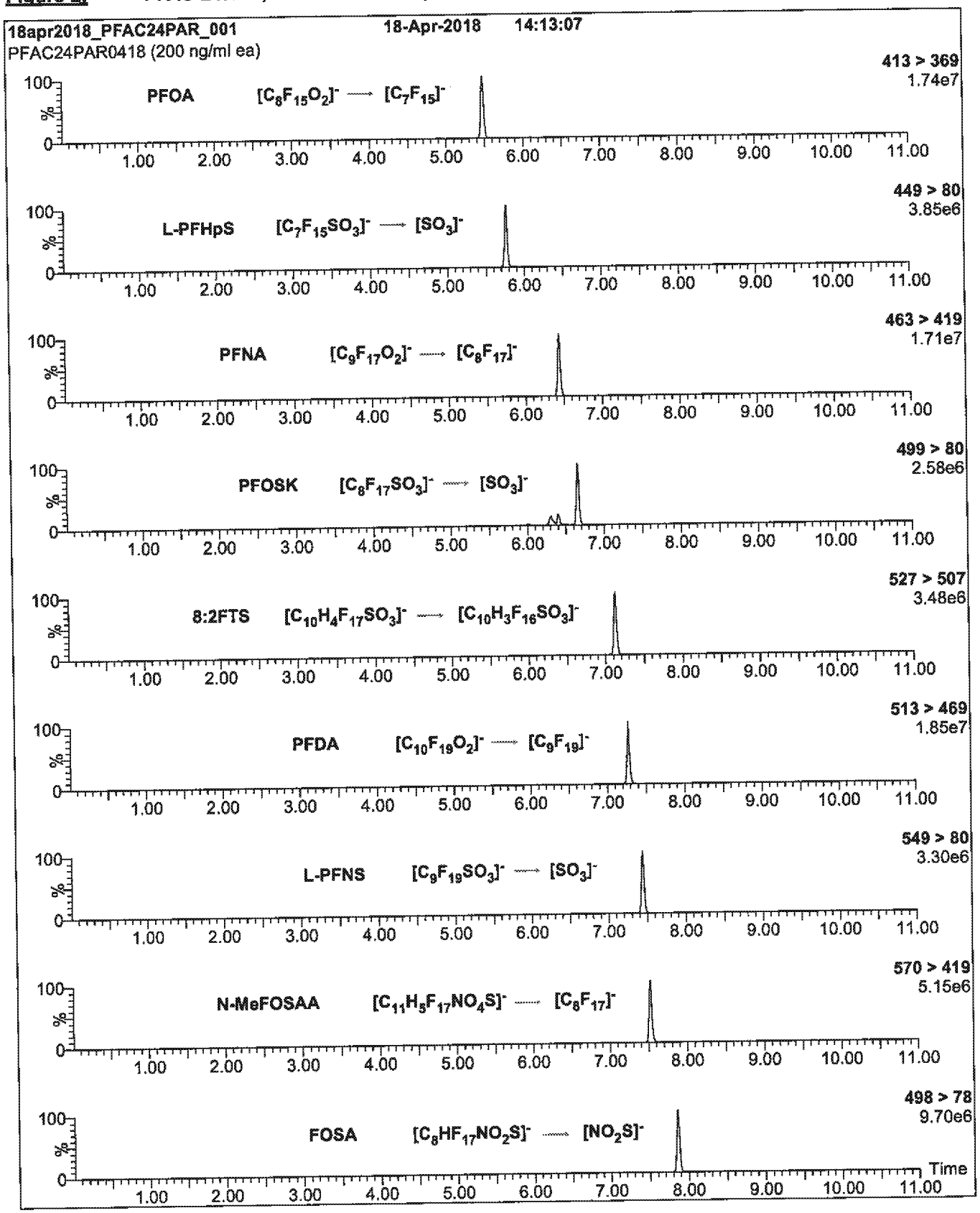


Figure 2: **PFAC-24PAR; LC/MS/MS Data (Selected MRM Transitions)**



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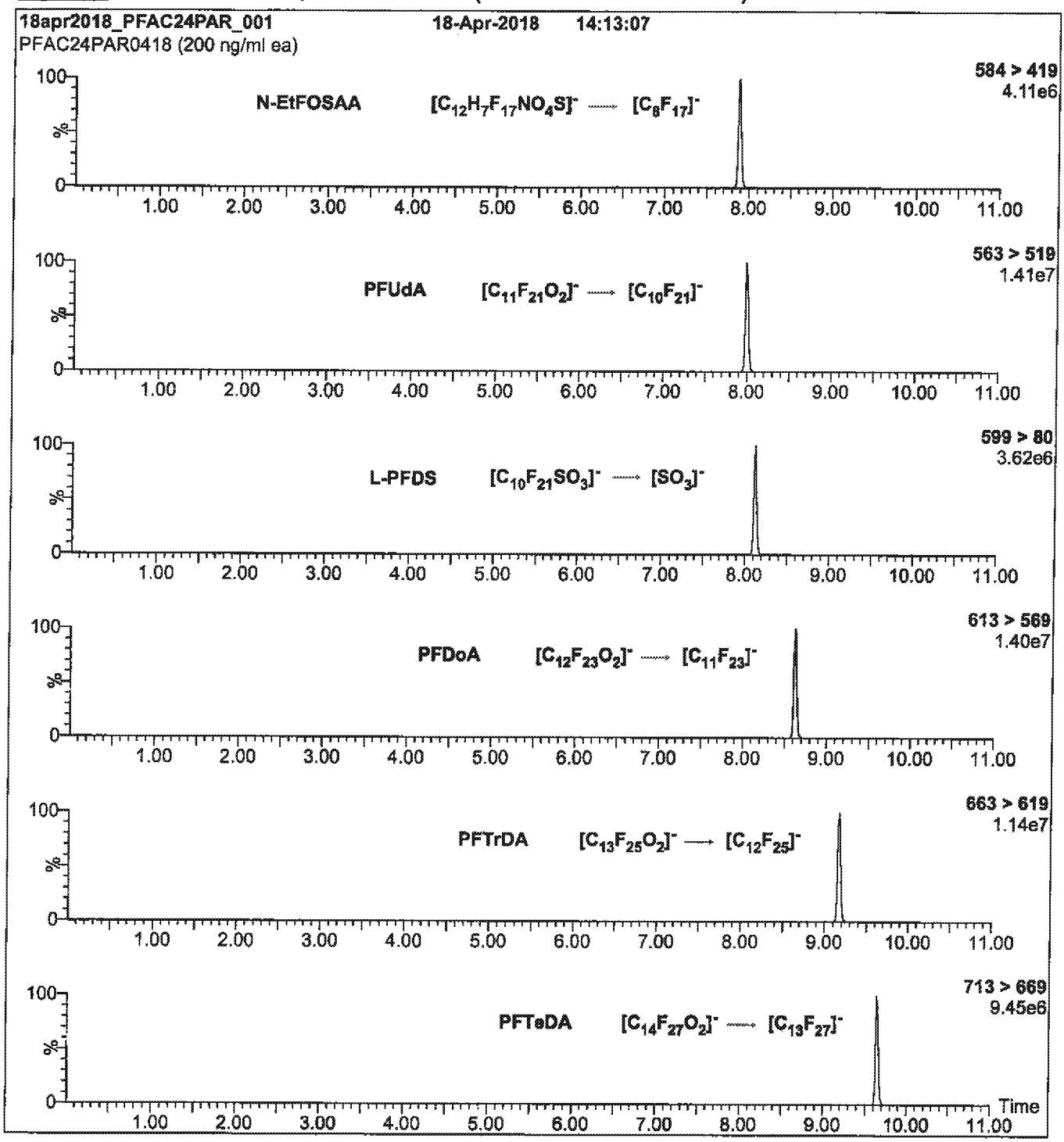


Conditions for Figure 2:

Injection: On-column (PFAC-24PAR)

Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters
Collision Gas (mbar) = 3.47e-3
Collision Energy (eV) = 8-64 (variable)

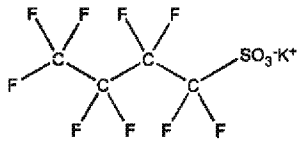
Reagent

LCPFBSA_00005

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: L-PFBS
LOT NUMBER: LPFBS0418
COMPOUND: Potassium perfluoro-1-butanesulfonate
STRUCTURE:
CAS #: 29420-49-3



MOLECULAR FORMULA: $C_4F_9SO_3K$
MOLECULAR WEIGHT: 338.19
CONCENTRATION: 50.0 ± 2.5 µg/ml (K salt)
44.2 ± 2.2 µg/ml (PFBS anion)
SOLVENT(S): Methanol
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/04/2018
EXPIRY DATE: (mm/dd/yyyy) 05/04/2023
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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: Ex. 4 CBI **Date:** 05/25/2018 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

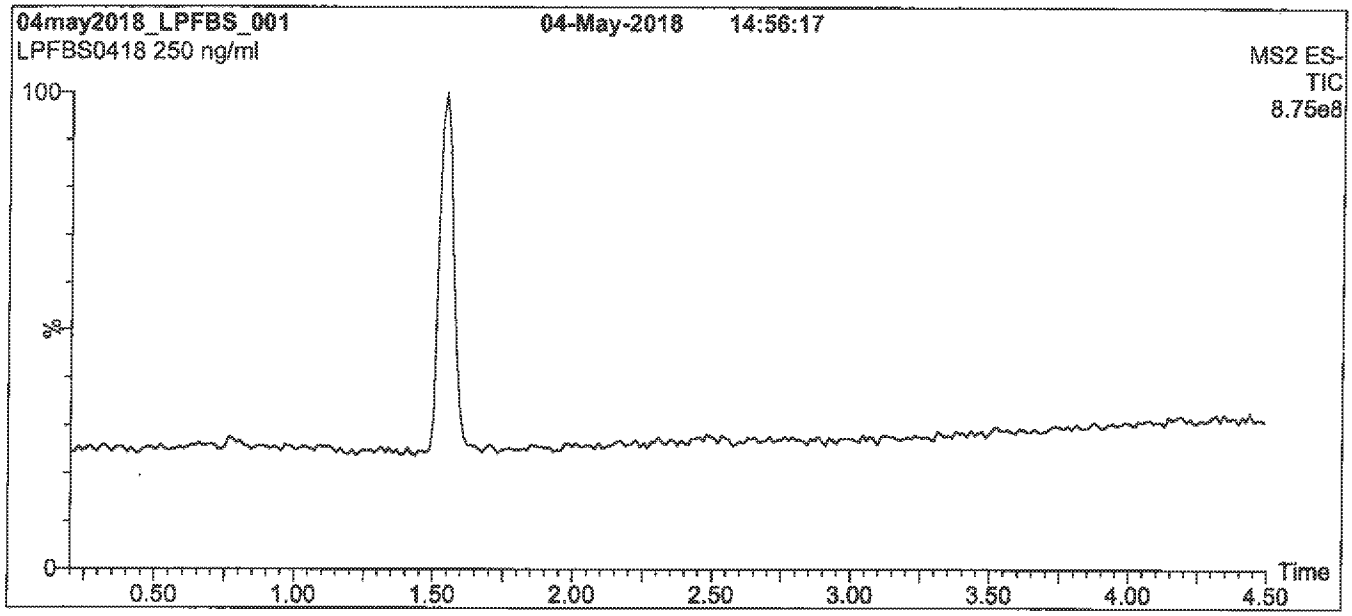
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

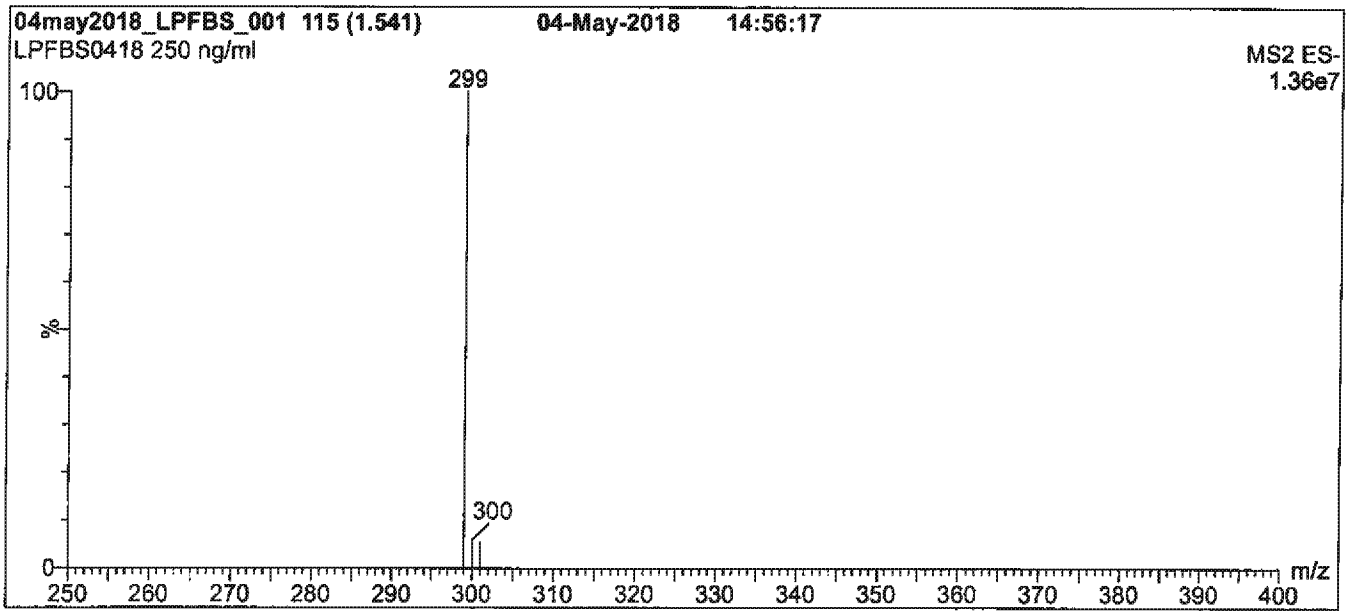
CALA

ANAB

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **L-PFBS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 80% organic over 7 min and hold for
3 min before returning to initial conditions in 0.75 min.
Time: 12 min

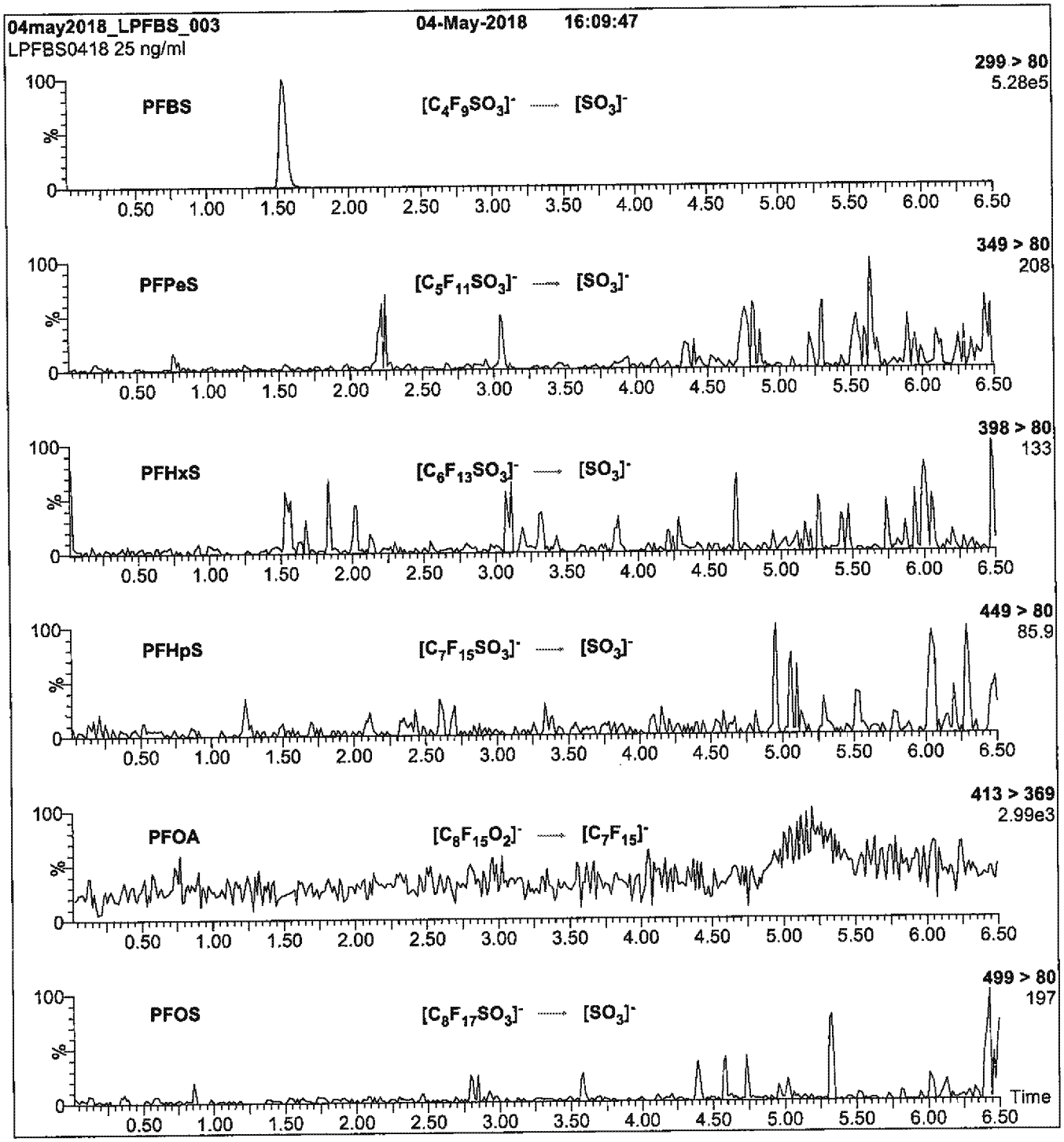
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 5.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 750

Figure 2: **L-PFBS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (L-PFBS)

Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.45e-3
Collision Energy (eV) = 30

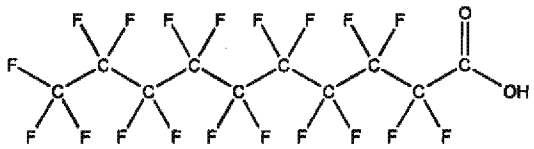
Reagent

LCPFDA_00012

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFDA
LOT NUMBER: PFDA1217
COMPOUND: Perfluoro-n-decanoic acid
STRUCTURE:
CAS #: 335-76-2



MOLECULAR FORMULA: $C_{10}HF_{19}O_2$
MOLECULAR WEIGHT: 514.08
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol, Water (<1%)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 12/14/2017
EXPIRY DATE: (mm/dd/yyyy) 12/14/2022
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.
- Contains ~ 0.2% of perfluoro-n-nonanoic acid (PFNA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: Ex. 4 CBI **Date:** 12/18/2017 (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

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Where possible, all of our products are synthesized using single-product unambiguous routes. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using calibrated NIST and/or NRC traceable external weights. All volumetric glassware used is calibrated, of Class A tolerance, and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

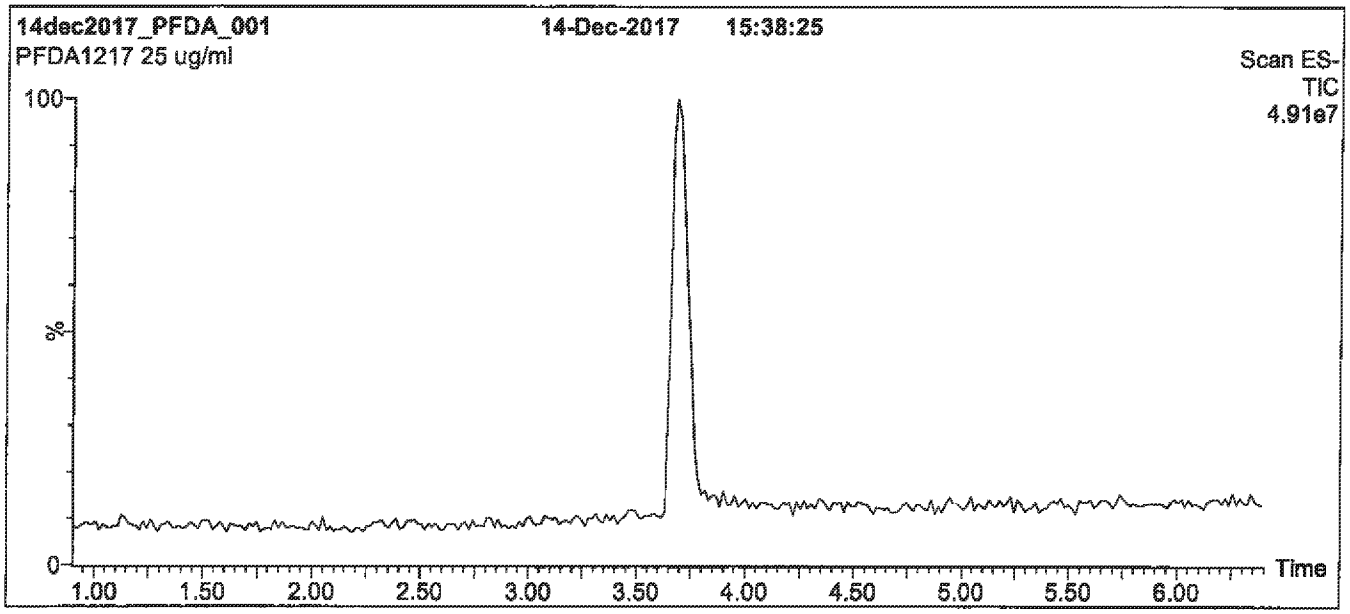
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

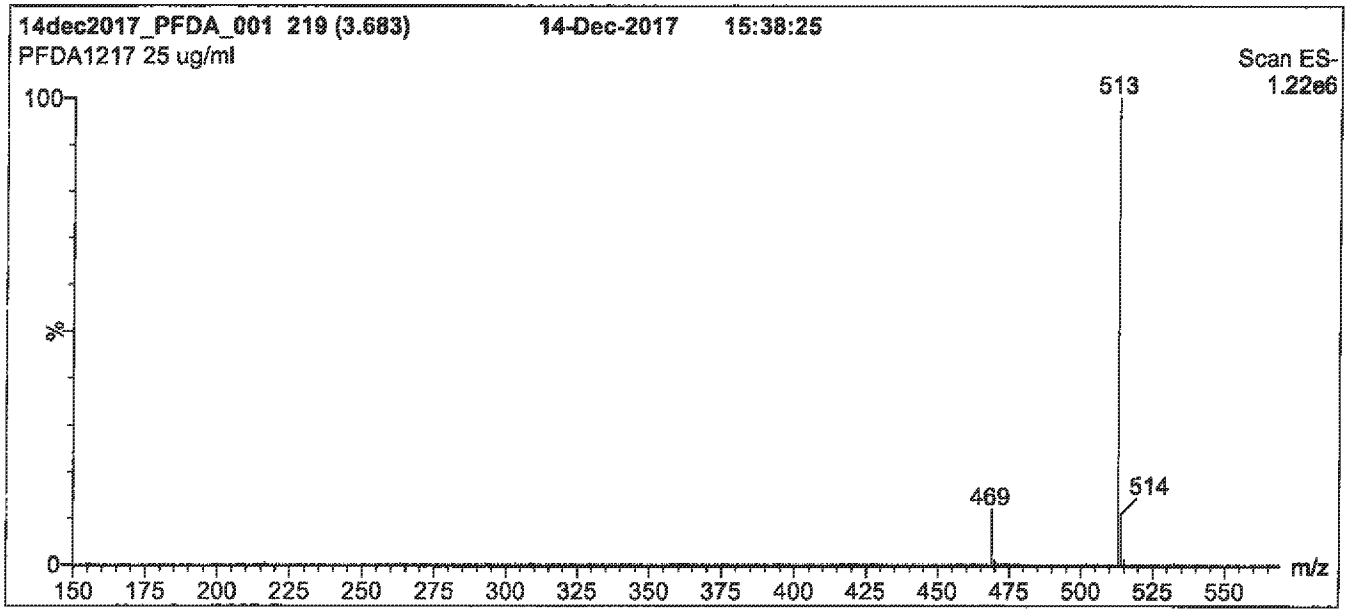
CALA

ANAB ACCREDITED

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

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





Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
2 min before returning to initial conditions in 0.5 min.
Time: 10 min

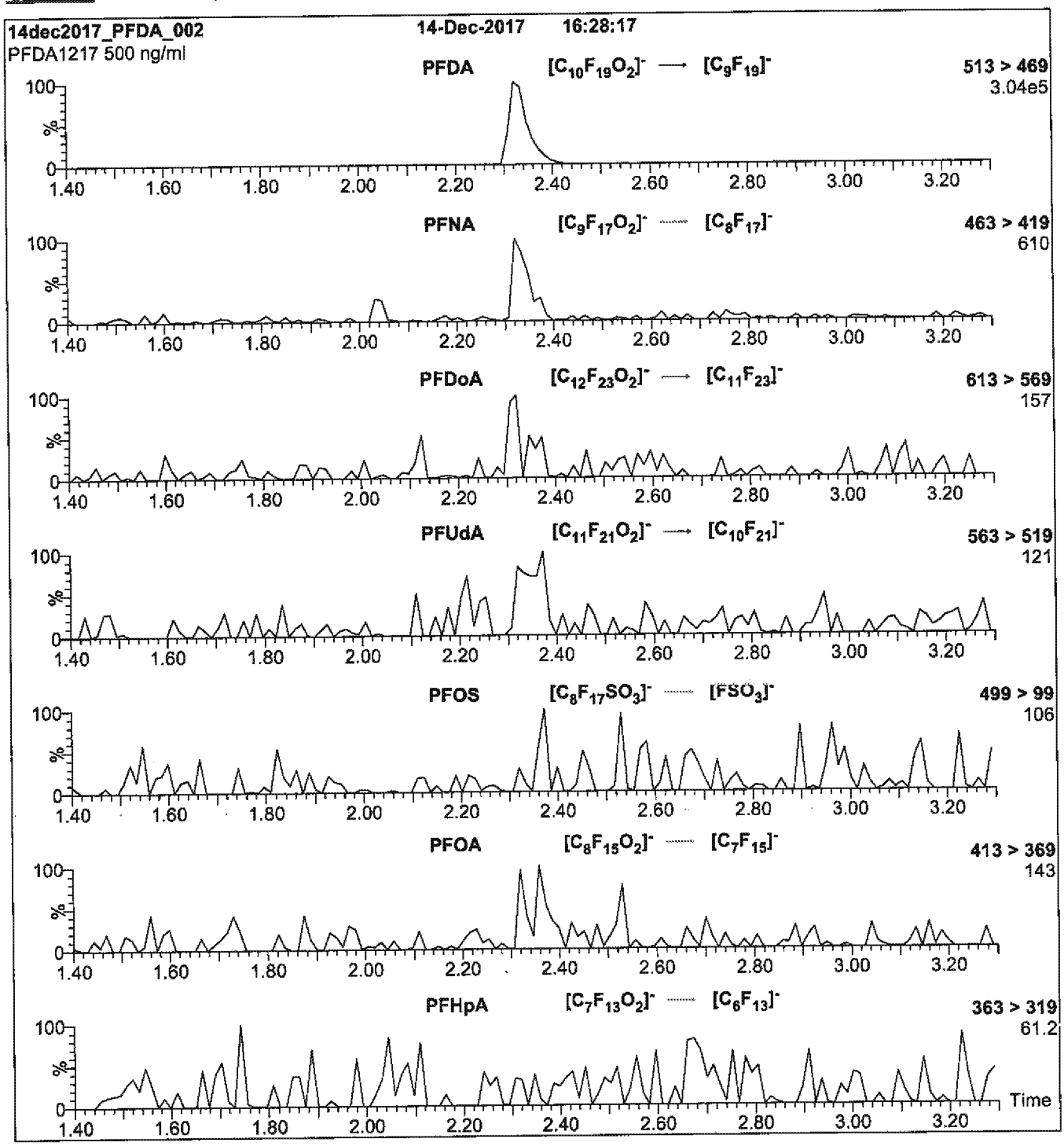
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.35e-3
Collision Energy (eV) = 13

Reagent

LCPFDoA_00012

1416232
ID: LCPFDoA_00012
Exp:04/18/23 Prpd:CBW Opn:10/29/18
PF-n-dodecanoic acid

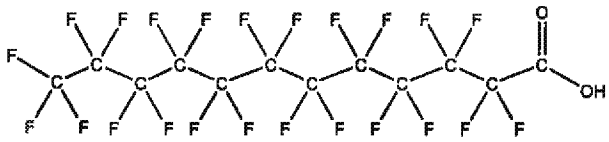
R: 10/29/18

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFDoA
LOT NUMBER: PFDoA0418
COMPOUND: Perfluoro-n-dodecanoic acid

STRUCTURE:
CAS #: 307-55-1



MOLECULAR FORMULA: $C_{12}HF_{23}O_2$
MOLECULAR WEIGHT: 614.10
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 04/18/2018
EXPIRY DATE: (mm/dd/yyyy) 04/18/2023
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS Data (Mass Spectrum)
Figure 3: 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: Ex. 4 CBI **Date:** 04/24/2018 (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

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

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LIMITED WARRANTY:

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QUALITY MANAGEMENT:

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CALA

ANAB ACCREDITED

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Figure 1: **PFDoA; LC/MS Data (SIR)**

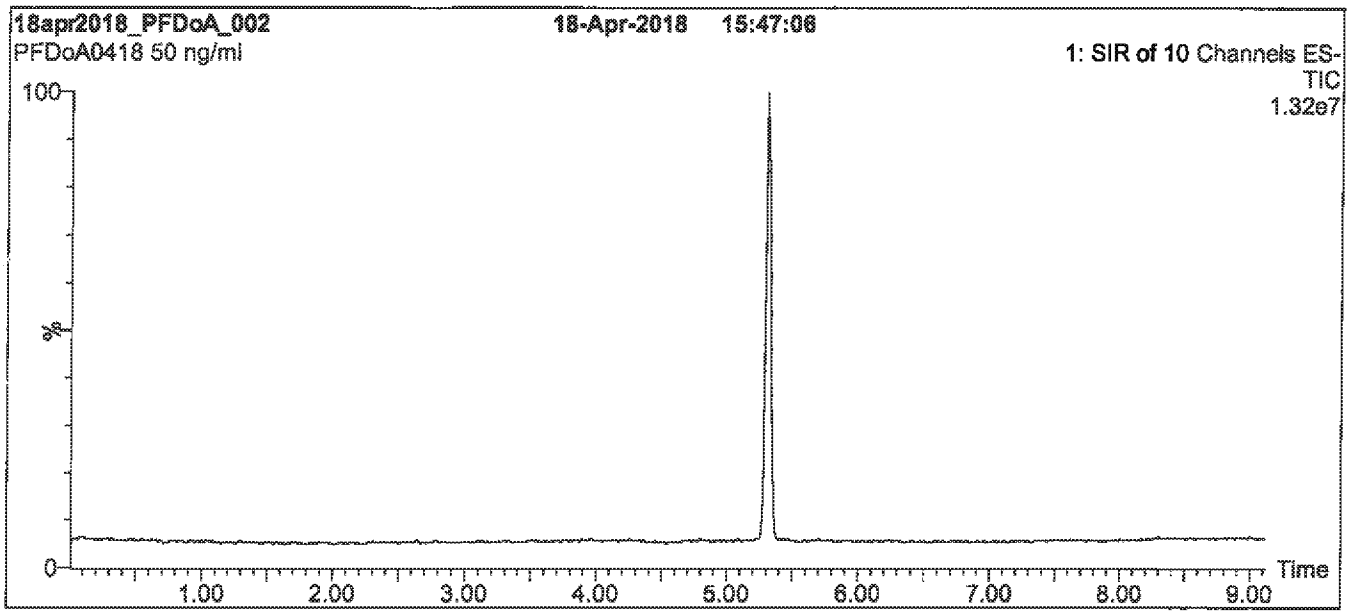
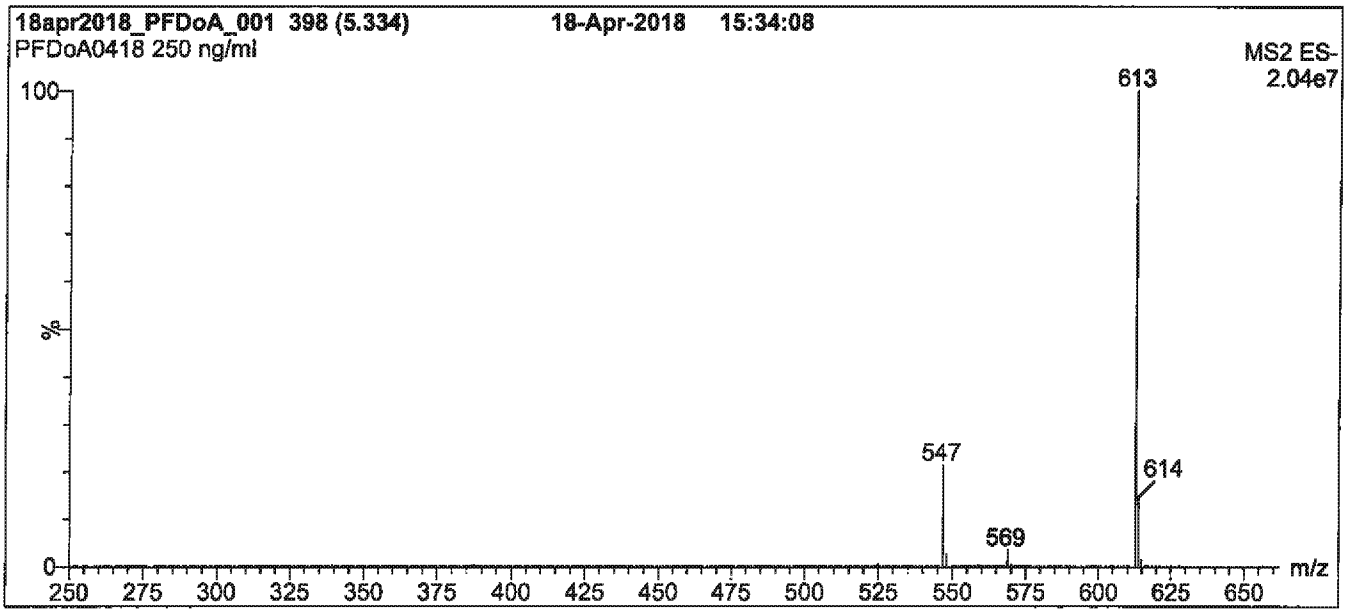


Figure 2: **PFDoA; LC/MS Data (Mass Spectrum)**



Conditions for Figures 1 & 2:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

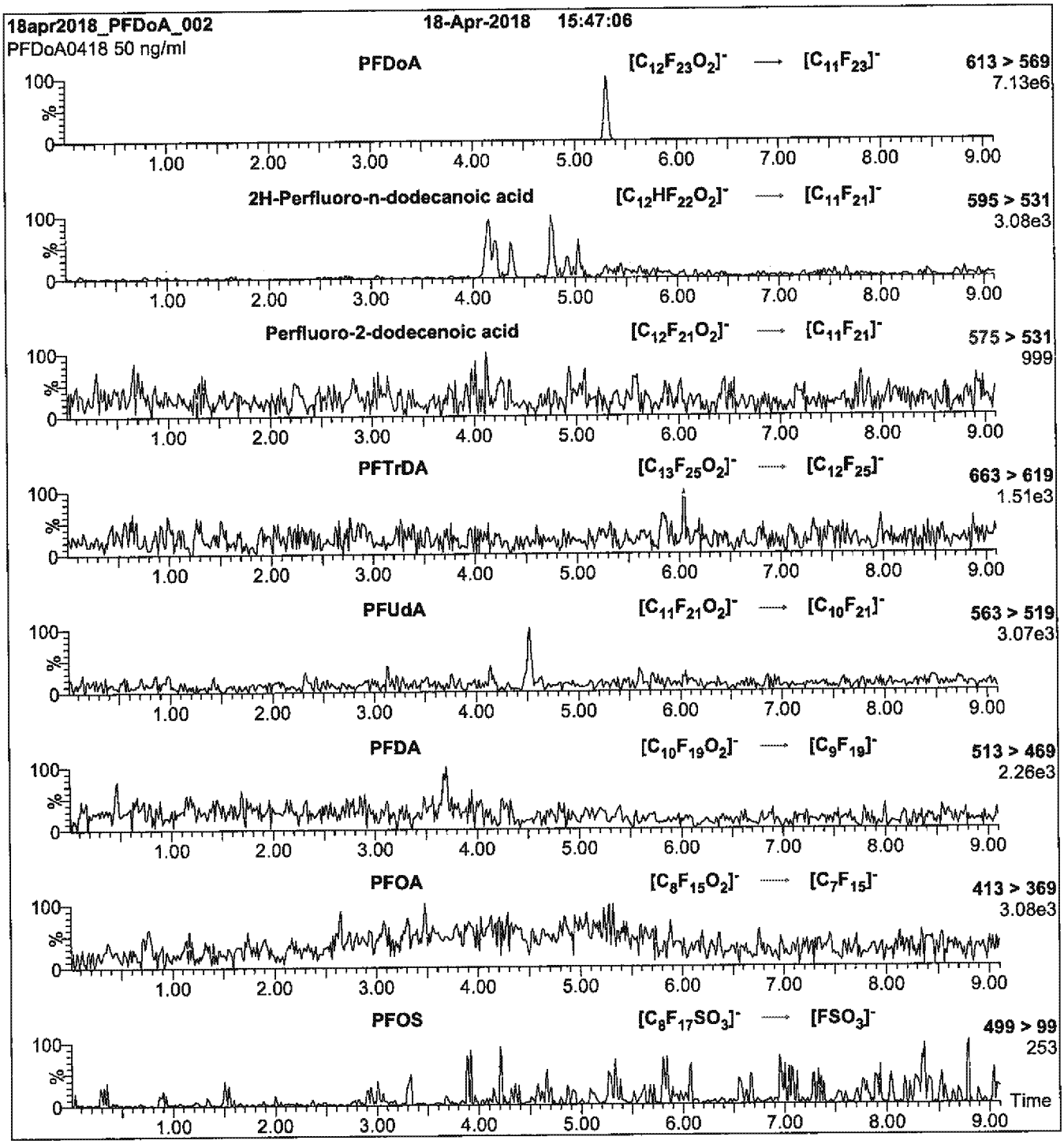
Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 85% organic over 7 min and hold for
3 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Parameters

Experiments: SIR of 10 channels
Full Scan (250 - 850 amu)
Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 5 (variable for SIR (2-12))
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 3:

Injection: On-column (PFDoA)

Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.47e-3

Collision Energy (eV) = 12

Reagent

LCPFHpA_00013

1416250
ID: LCPFHpA_00013
Exp:07/12/23 Prpd:CBW Opn:10/29/18
PF-n-heptanoic acid

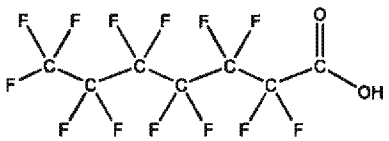
R. 10/29/18

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFHpA
LOT NUMBER: PFHpA0718
COMPOUND: Perfluoro-n-heptanoic acid

STRUCTURE:
CAS #: 375-85-9



MOLECULAR FORMULA: $C_7HF_{13}O_2$
MOLECULAR WEIGHT: 364.06
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 07/12/2018
EXPIRY DATE: (mm/dd/yyyy) 07/12/2023
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: Ex. 4 CBI **Date:** 07/18/2018 (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

INTENDED USE:

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HANDLING:

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HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

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where x is expressed as a relative standard uncertainty of the individual parameter.

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TRACEABILITY:

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EXPIRY DATE / PERIOD OF VALIDITY:

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LIMITED WARRANTY:

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QUALITY MANAGEMENT:

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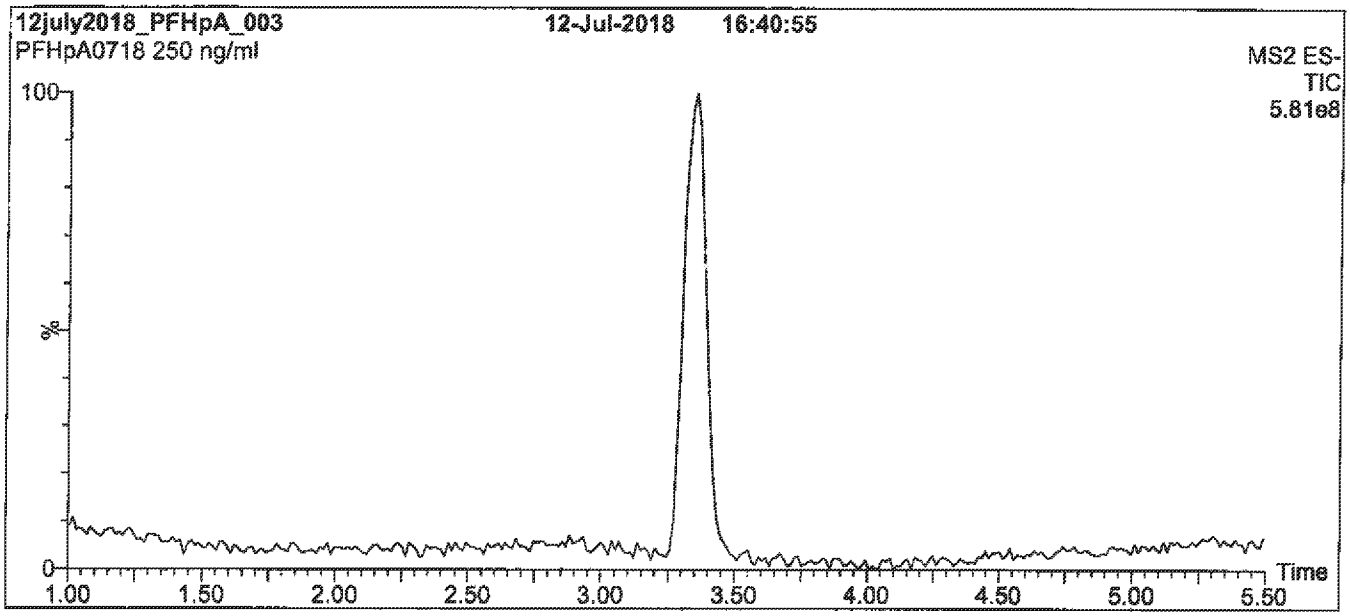
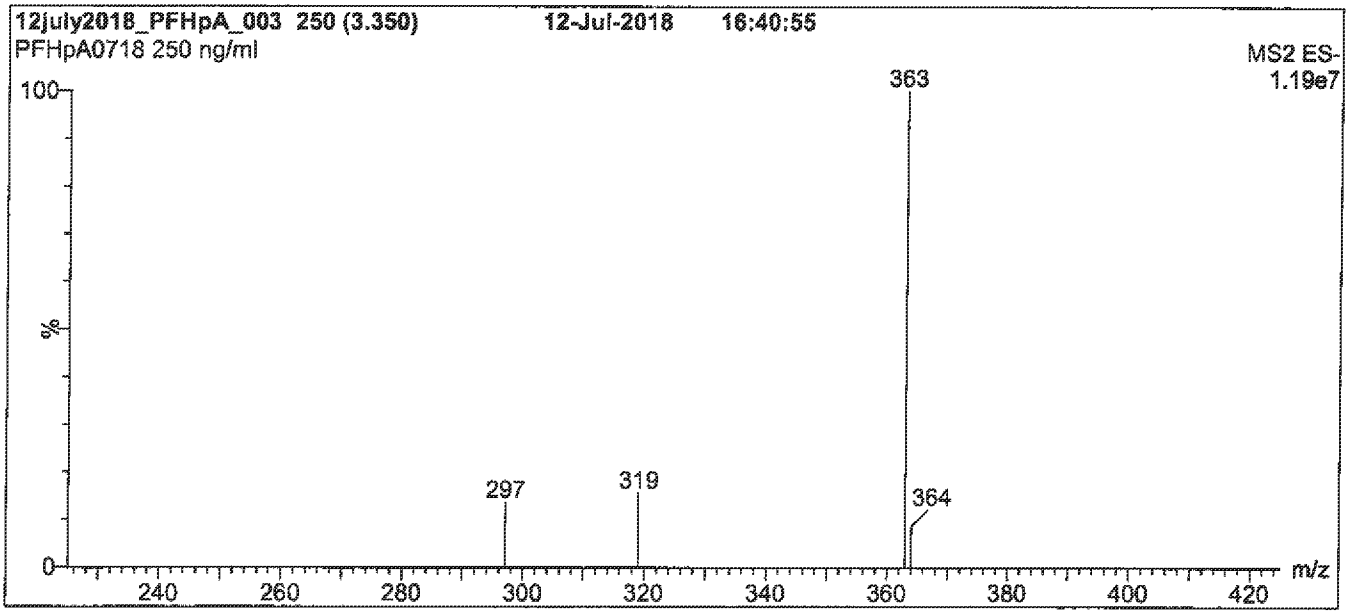
ANAB ACCREDITED

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

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





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 80% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

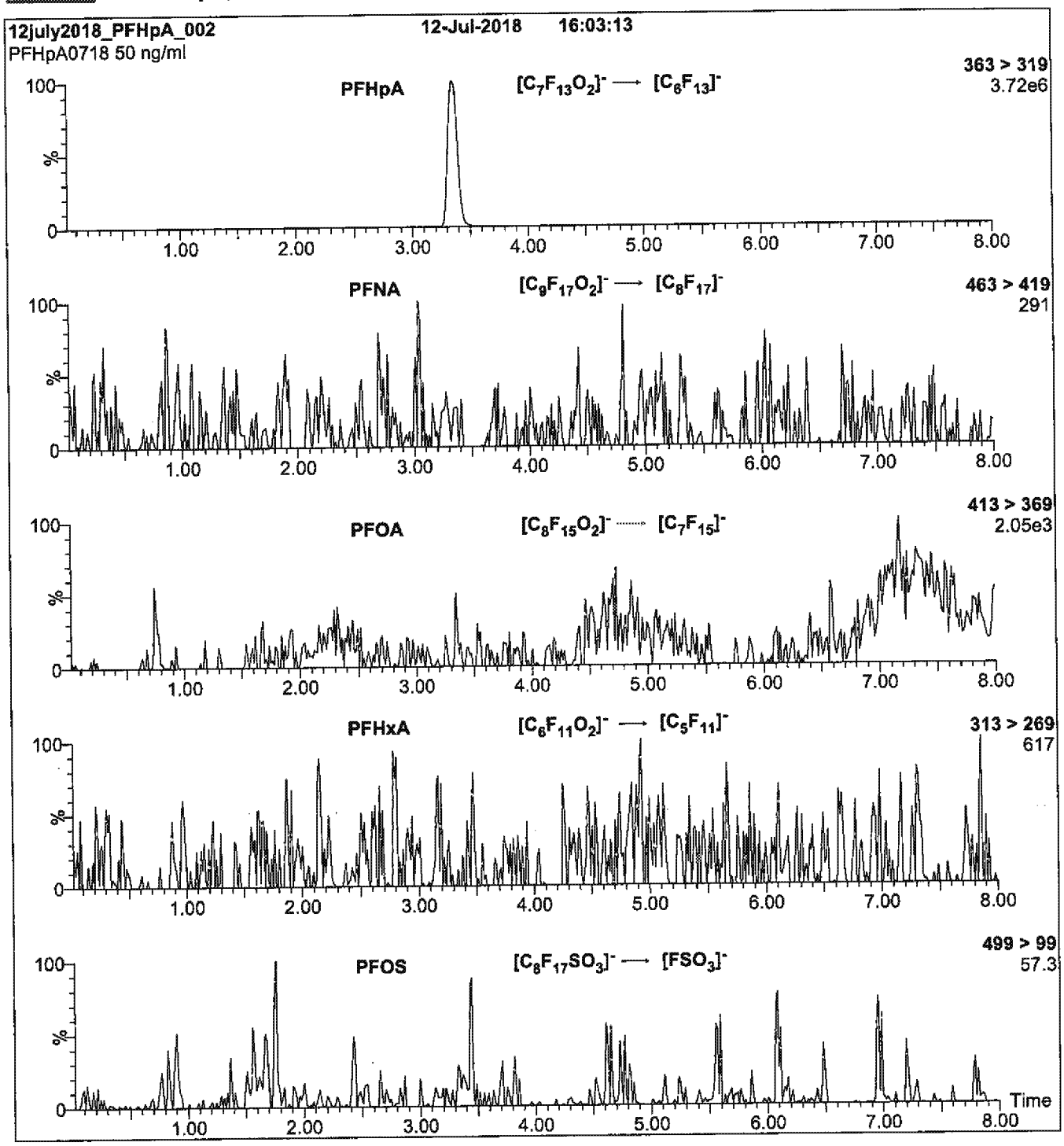
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 5.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

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



Conditions for Figure 2:

Injection: On-column (PFHpA)

Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.47e-3
Collision Energy (eV) = 8

Reagent

LCPFHxA_00012

1416256
ID: LCPFHxA_00012
Exp:05/18/23 Prpd:CBW Opn:10/29/18
PF-n-hexanoic acid

R: 10/29/18 CBW

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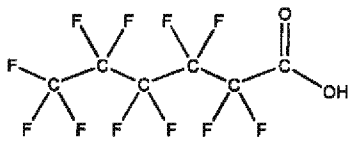
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFHxA
LOT NUMBER: PFHxA0518
COMPOUND: Perfluoro-n-hexanoic acid

STRUCTURE:
CAS #: 307-24-4



MOLECULAR FORMULA: $C_8HF_{11}O_2$
MOLECULAR WEIGHT: 314.05
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol, Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/18/2018
EXPIRY DATE: (mm/dd/yyyy) 05/18/2023
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.
- Contains ~ 1.0% of branched isomers.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: Ex. 4 CBI **Date:** 05/30/2018 (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

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

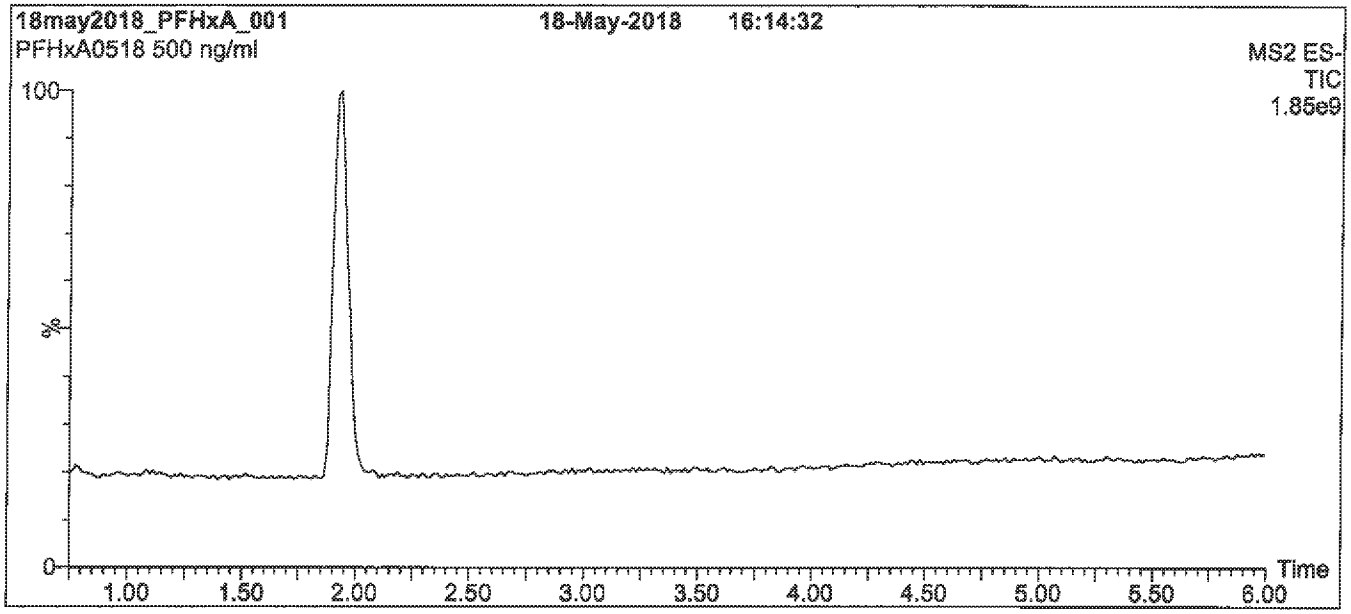
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

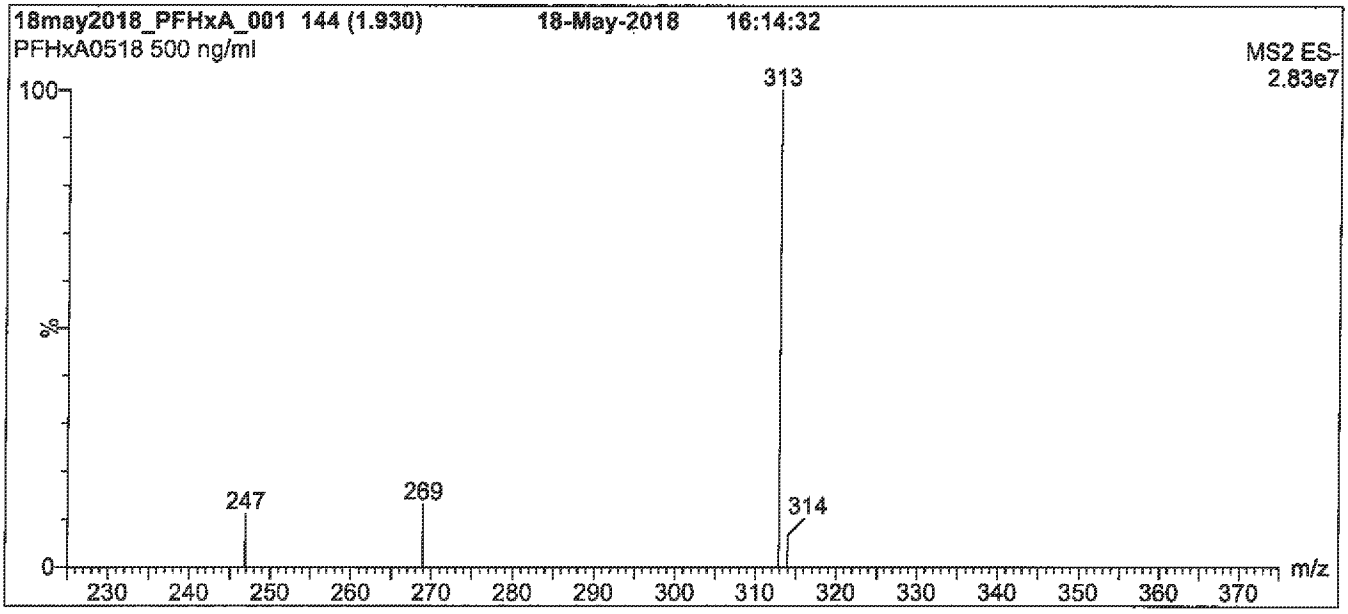
CALA

ANAB

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

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





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 80% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

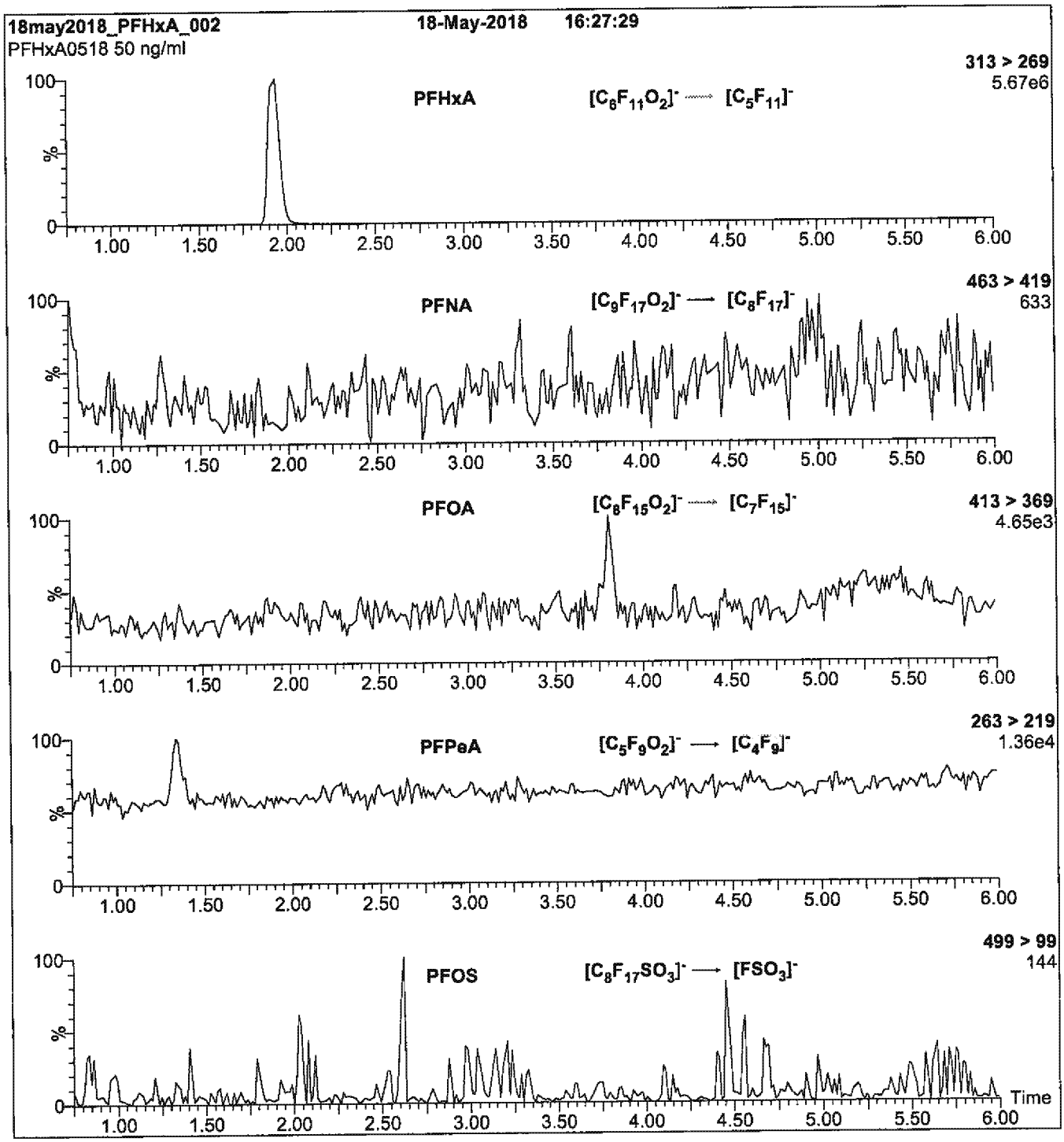
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 5.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

Injection: On-column (PFHxA)

Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.50e-3
Collision Energy (eV) = 8

Reagent

LCPFHxS-br_00009

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

br-PFHxSK

Potassium Perfluorohexanesulfonate
Solution/Mixture of Linear and
Branched Isomers

PRODUCT CODE:	br-PFHxSK
LOT NUMBER:	brPFHxSK1018
CONCENTRATION:	50.0 ± 2.5 µg/ml (total potassium salt)
	45.5 ± 2.3 µg/ml (total PFHxS anion)
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	10/01/2018
LAST TESTED: (mm/dd/yyyy)	10/02/2018
EXPIRY DATE: (mm/dd/yyyy)	10/02/2023
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.3% of perfluoro-n-hexanoic acid and ~ 0.15% of perfluoro-1-pentanesulfonate.
- CAS#: 3871-99-6 (for linear isomer; potassium salt).

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INTENDED USE:

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HANDLING:

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SYNTHESIS / CHARACTERIZATION:

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HOMOGENEITY:

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UNCERTAINTY:

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$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

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EXPIRY DATE / PERIOD OF VALIDITY:

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LIMITED WARRANTY:

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QUALITY MANAGEMENT:

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ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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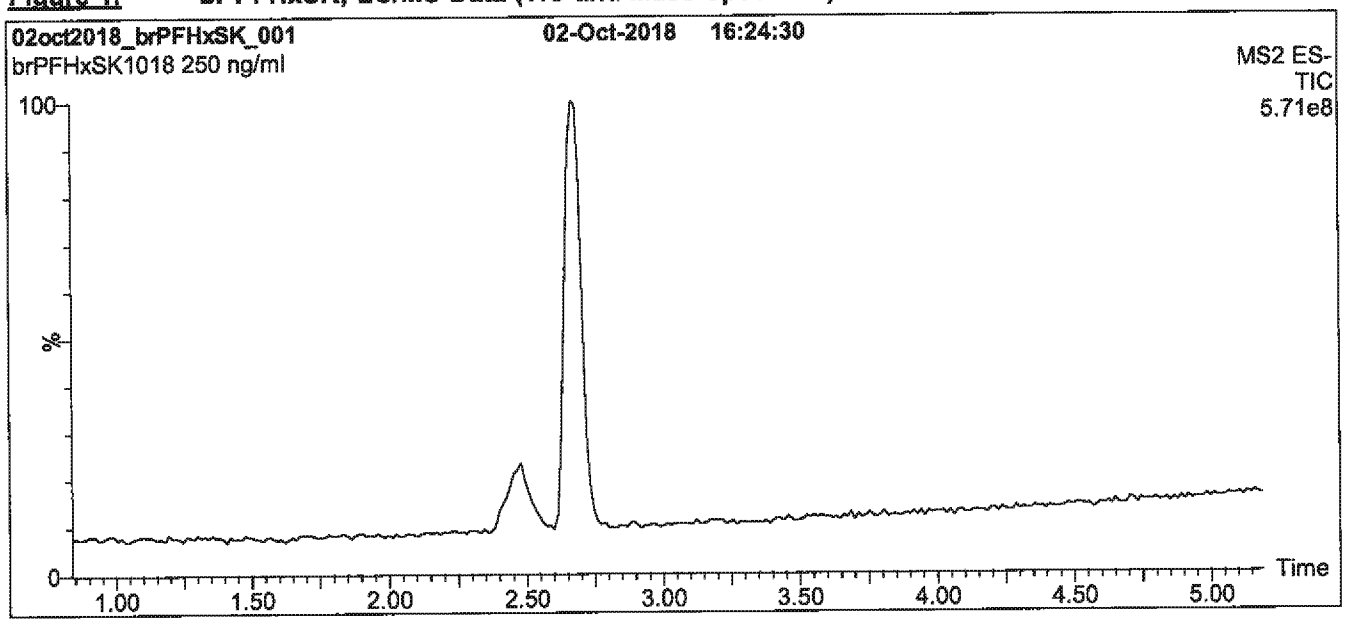
Table A: **br-PFHxSK; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

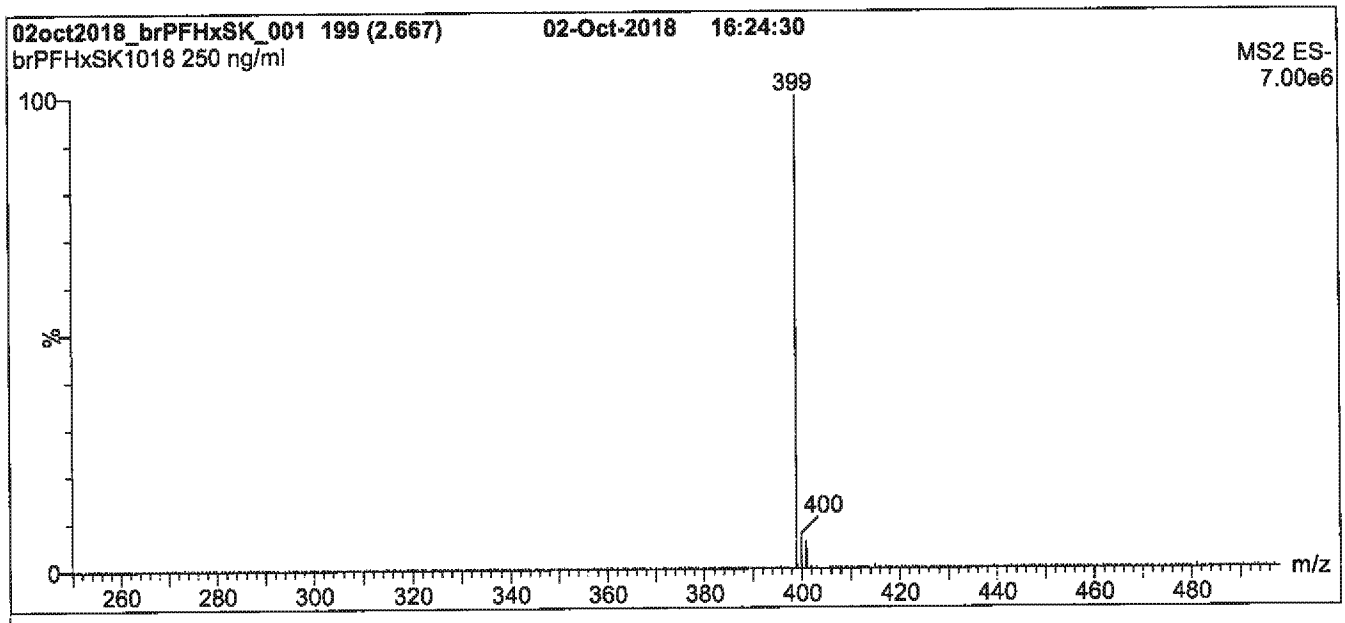
Isomer	Name	Structure	Percent Composition by ^{19}F-NMR
1	Potassium perfluoro-1-hexanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	81.1
2	Potassium 1-trifluoromethylperfluoropentanesulfonate**	$CF_3CF_2CF_2CF_2CF(CF_3)SO_3^-K^+$	2.9
3	Potassium 2-trifluoromethylperfluoropentanesulfonate	$CF_3CF_2CF_2CF(CF_3)CF_2SO_3^-K^+$	1.4
4	Potassium 3-trifluoromethylperfluoropentanesulfonate	$CF_3CF_2CF(CF_3)CF_2CF_2SO_3^-K^+$	5.0
5	Potassium 4-trifluoromethylperfluoropentanesulfonate	$CF_3CF(CF_3)CF_2CF_2CF_2SO_3^-K^+$	8.9
6	Potassium 3,3-di(trifluoromethyl)perfluorobutanesulfonate	$CF_3C(CF_3)(CF_3)CF_2CF_2SO_3^-K^+$	0.2
7	Other Unidentified Isomers		0.5

* Percent of total perfluorohexanesulfonate isomers only.
** Systematic Name: Potassium perfluorohexane-2-sulfonate.

Certified By: Ex. 4 CBI **Date:** 10/05/2018 (mm/dd/yyyy)

Figure 1: **br-PFHxSK; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min. Hold for 2 min
before returning to initial conditions in 0.75 min.
Time: 12 min

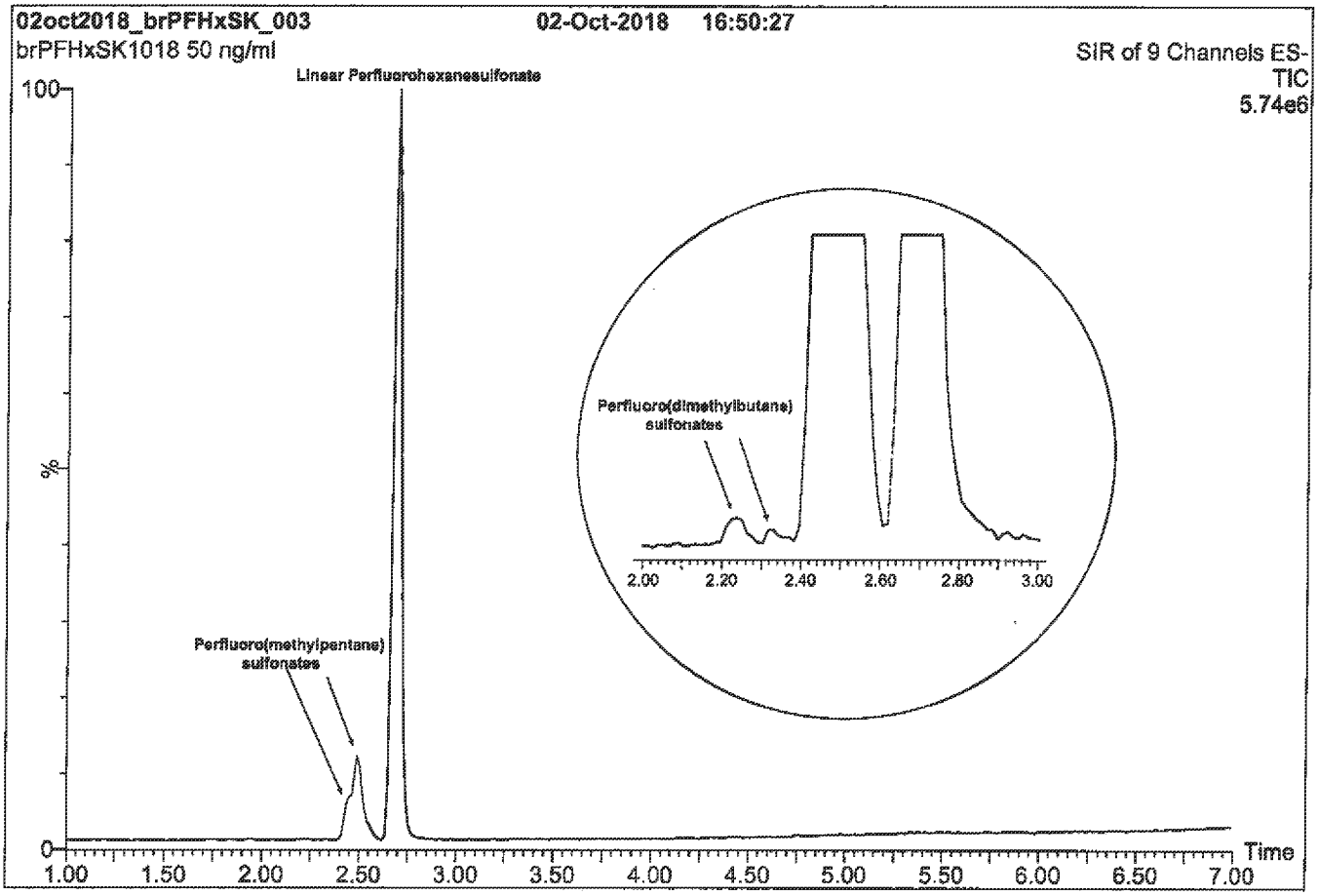
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

Figure 2: **br-PFHxSK; LC/MS Data (SIR)**



Conditions for Figure 2:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min. Hold for 2 min
before returning to initial conditions in 0.75 min.
Time: 12 min

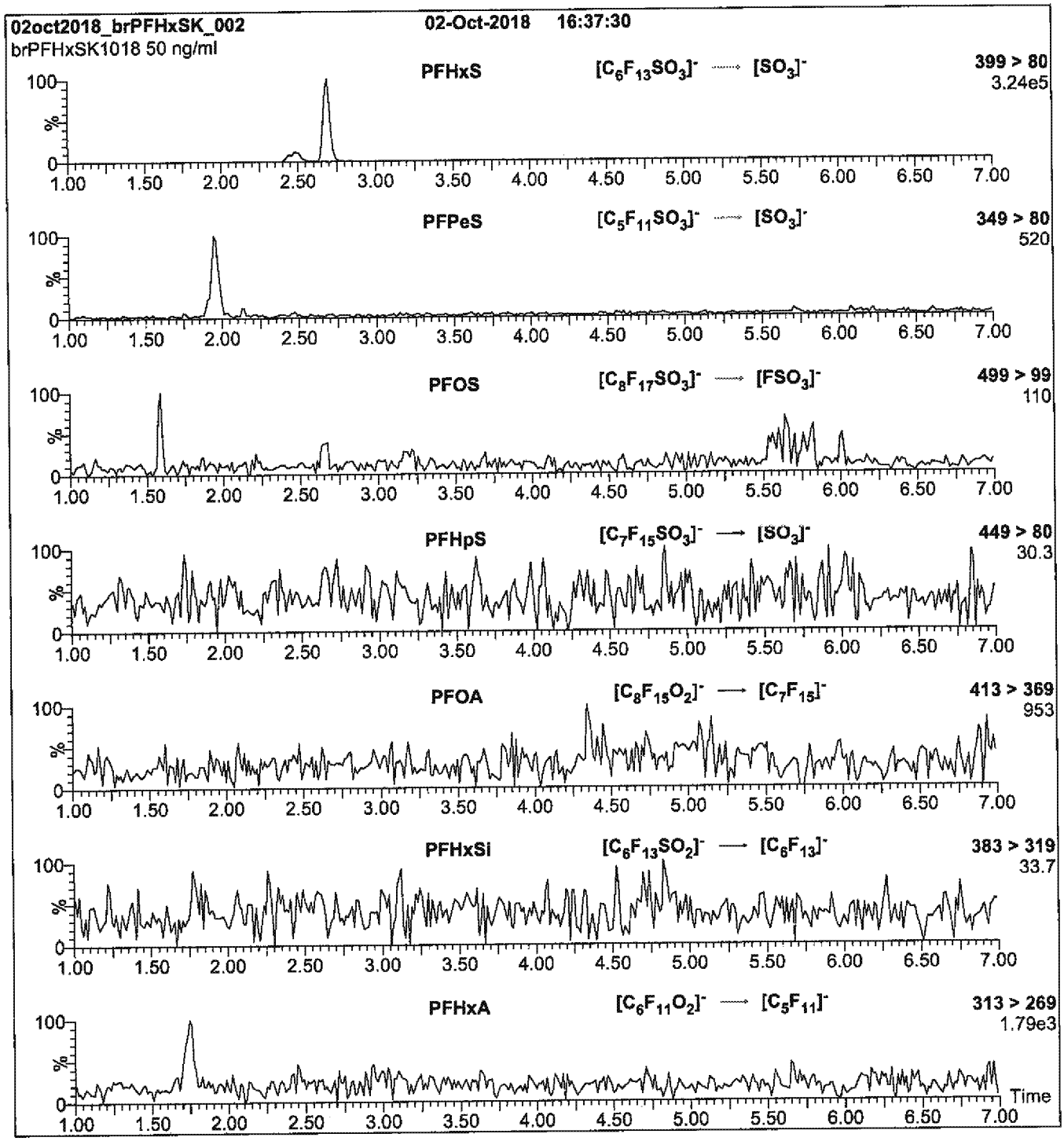
Flow: 300 µl/min

MS Parameters

Experiment: SIR (9 channels)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = variable (2 - 6)
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

Figure 3: **br-PFHxSK; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 3:

Injection: On-column (br-PFHxSK)

Mobile phase: Same as Figures 1 and 2

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 2.87e-3
Collision Energy (eV) = 42

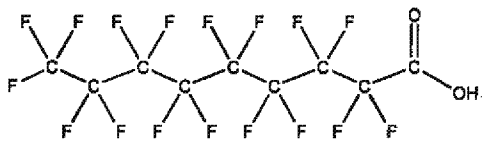
Reagent

LCPFNA_00012

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFNA
LOT NUMBER: PFNA0218
COMPOUND: Perfluoro-n-nonanoic acid
STRUCTURE:
CAS #: 375-95-1



MOLECULAR FORMULA: $C_9HF_{17}O_2$
MOLECULAR WEIGHT: 464.08
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 02/16/2018
EXPIRY DATE: (mm/dd/yyyy) 02/16/2023
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.
- Contains ~ 0.2% of perfluoro-n-octanoic acid (PFOA), < 0.1% of perfluoro-n-heptanoic acid (PFHpA), and < 0.1% of perfluoro-n-undecanoic acid (PFUdA).

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Certified By: Ex. 4 CBI **Date:** 02/20/2018 (mm/dd/yyyy)

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where x is expressed as a relative standard uncertainty of the individual parameter.

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TRACEABILITY:

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EXPIRY DATE / PERIOD OF VALIDITY:

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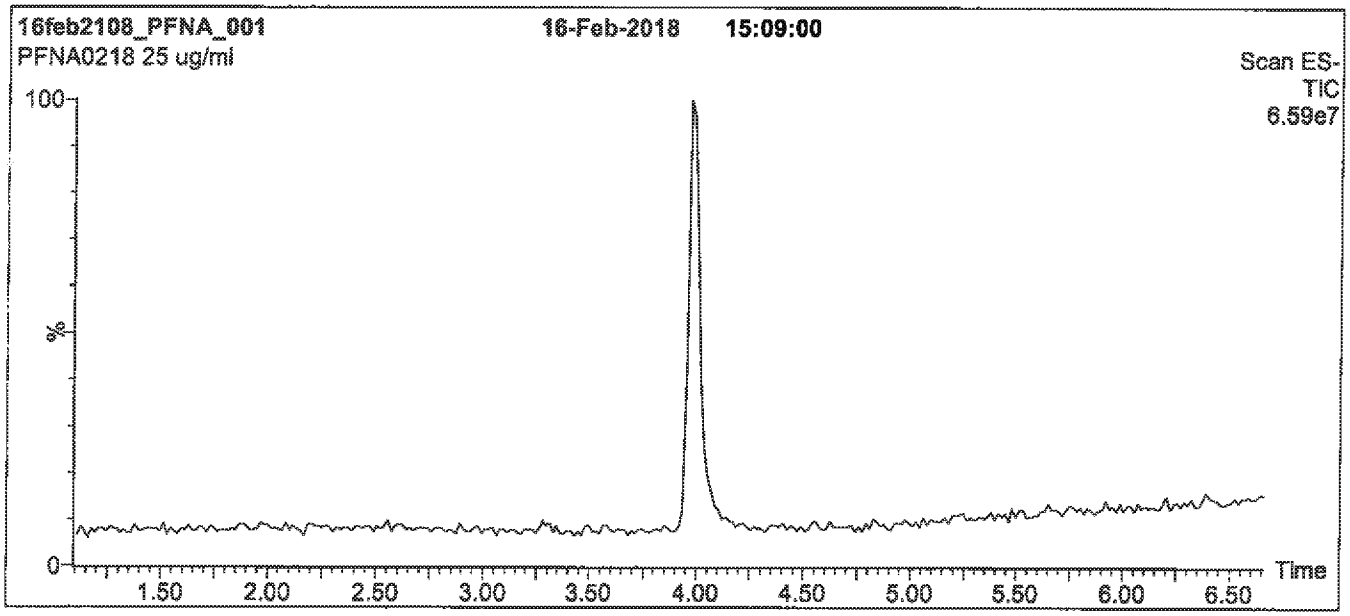
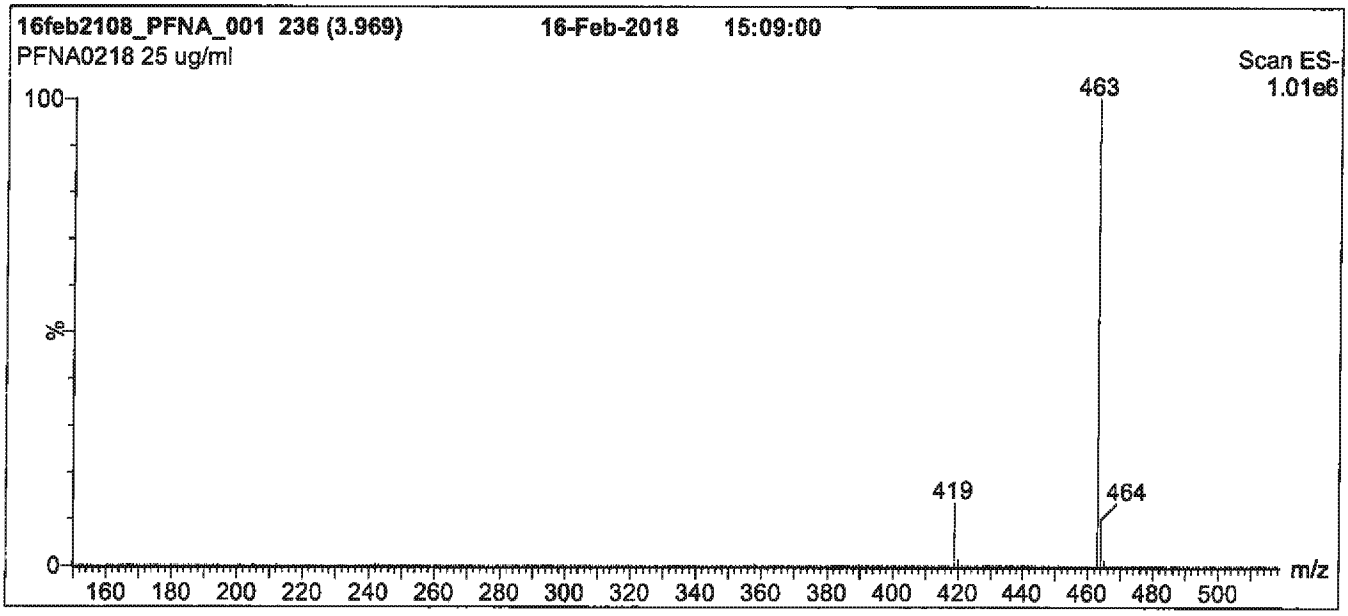
Figure 1: **PFNA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min before returning to initial conditions in 0.5 min.
Time: 10 min

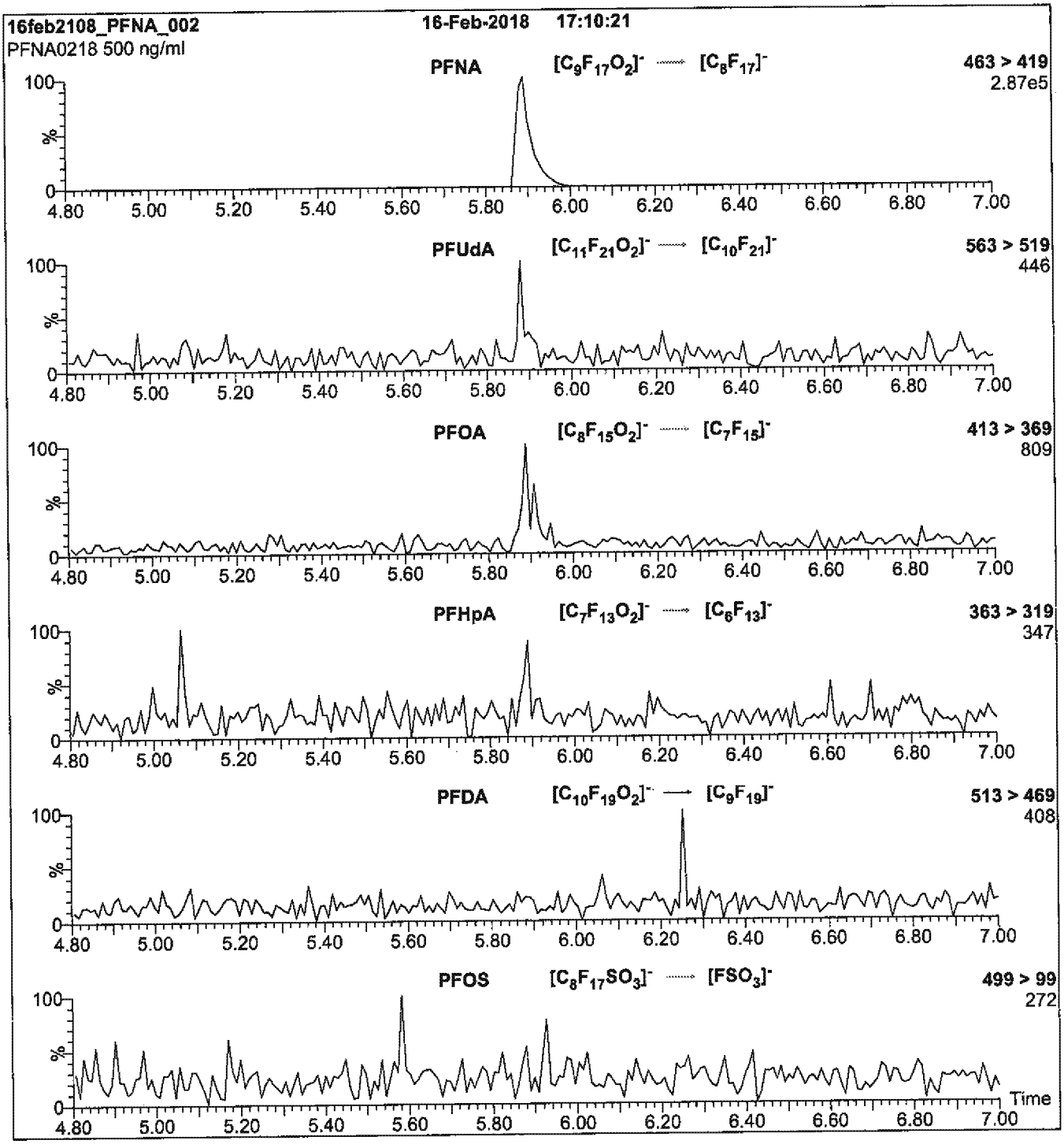
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFNA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.24e-3
Collision Energy (eV) = 11

Reagent

LCPFOA_00014

1416058
ID: LCPFOA_00014
Exp:08/23/23 Prpd:CBW Opn:10/29/18
PF-n-octanoic acid

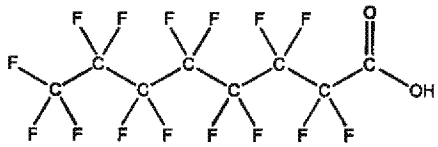
R: 10/29/18 CBW

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFOA
COMPOUND: Perfluoro-n-octanoic acid
LOT NUMBER: PFOA0818

STRUCTURE:
CAS #: 335-67-1



MOLECULAR FORMULA: $C_8HF_{16}O_2$
MOLECULAR WEIGHT: 414.07
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol, Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 08/23/2018
EXPIRY DATE: (mm/dd/yyyy) 08/23/2023
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: Ex. 4 CBI **Date:** 08/24/2018 (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

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

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Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

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where x is expressed as a relative standard uncertainty of the individual parameter.

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CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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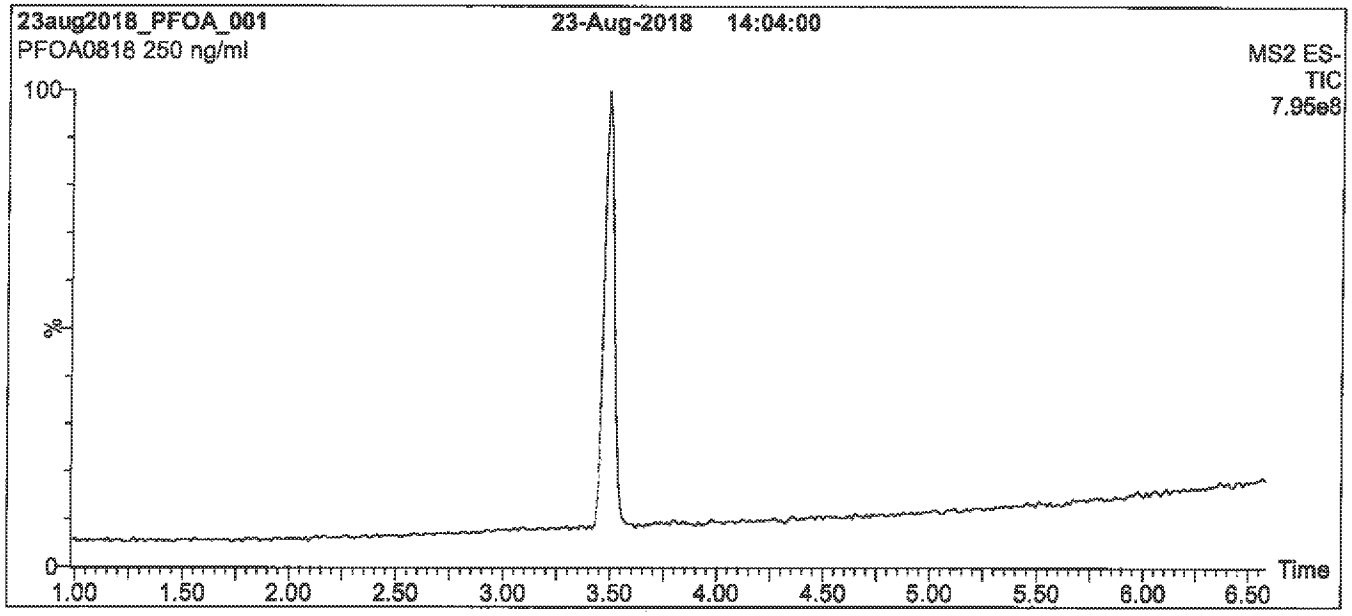
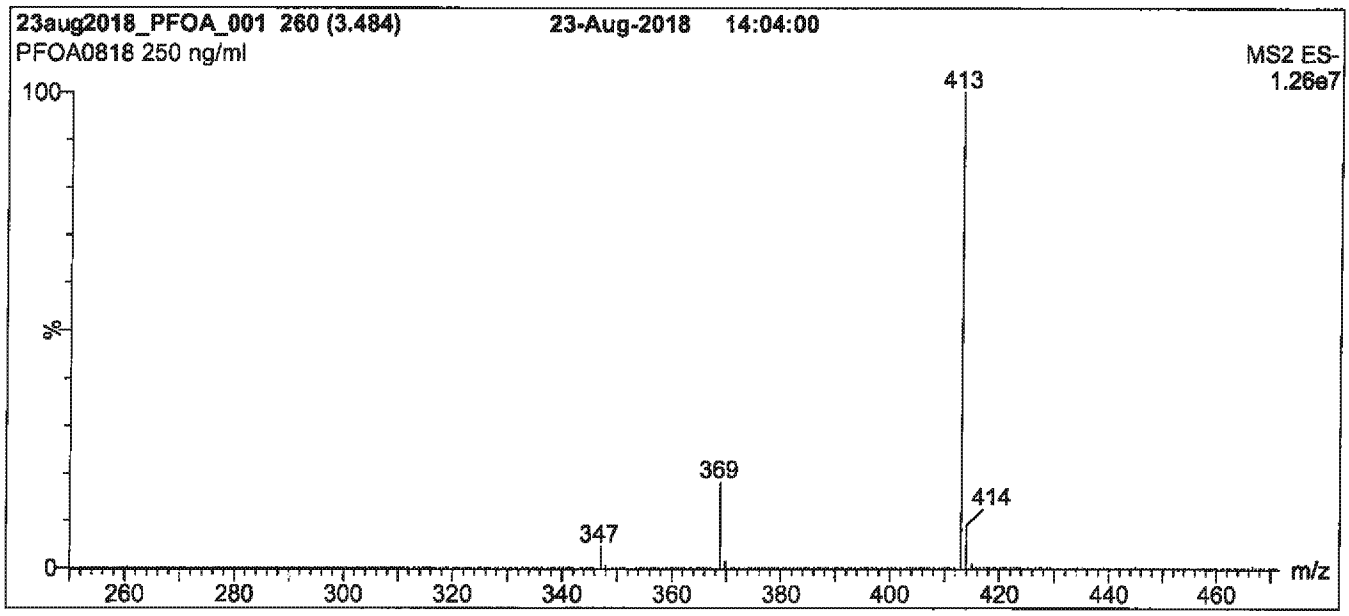
Figure 1: PFOA; LC/MS Data (TIC and Mass Spectrum)





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc 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

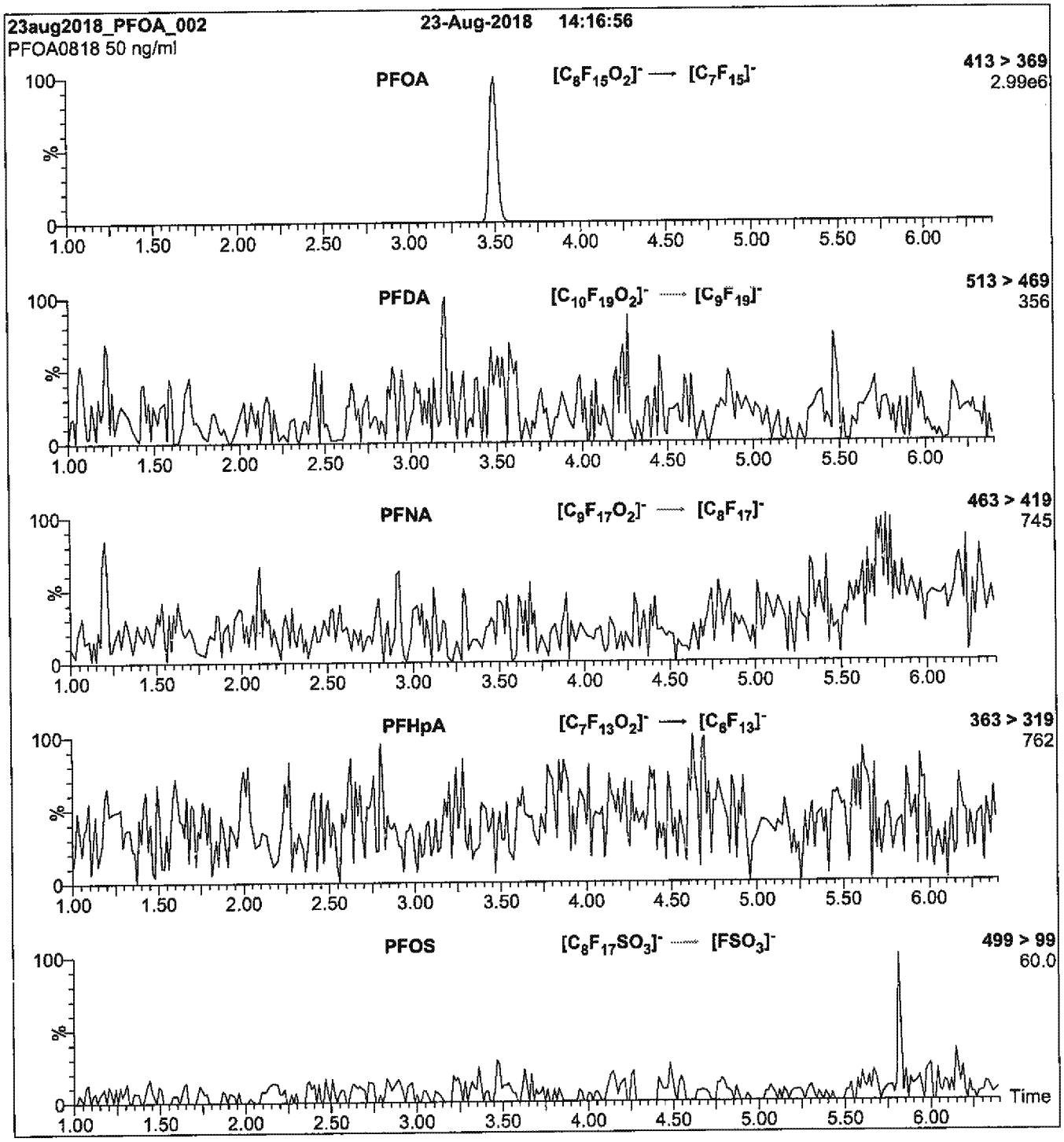
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 5.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

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



Conditions for Figure 2:

Injection: On-column (PFOA)

Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.45e-3
Collision Energy (eV) = 8

Reagent

LCPFOS-br_00009

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

br-PFOSK

Potassium Perfluorooctanesulfonate Solution/Mixture of Linear and Branched Isomers

PRODUCT CODE:	br-PFOSK
LOT NUMBER:	brPFOSK0418
CONCENTRATION:	50 ± 2.5 µg/ml (total potassium salt)
	46.4 ± 2.3 µg/ml (total PFOS anion)
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	04/09/2018
LAST TESTED: (mm/dd/yyyy)	04/18/2018
EXPIRY DATE: (mm/dd/yyyy)	04/18/2023
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- A 5-point calibration curve was generated using linear PFOS (potassium salt) and mass-labelled PFOS as an internal standard to enable quantitation of br-PFOSK using isotopic dilution.
- CAS#: 2795-39-3 (for linear isomer; potassium salt).

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HOMOGENEITY:

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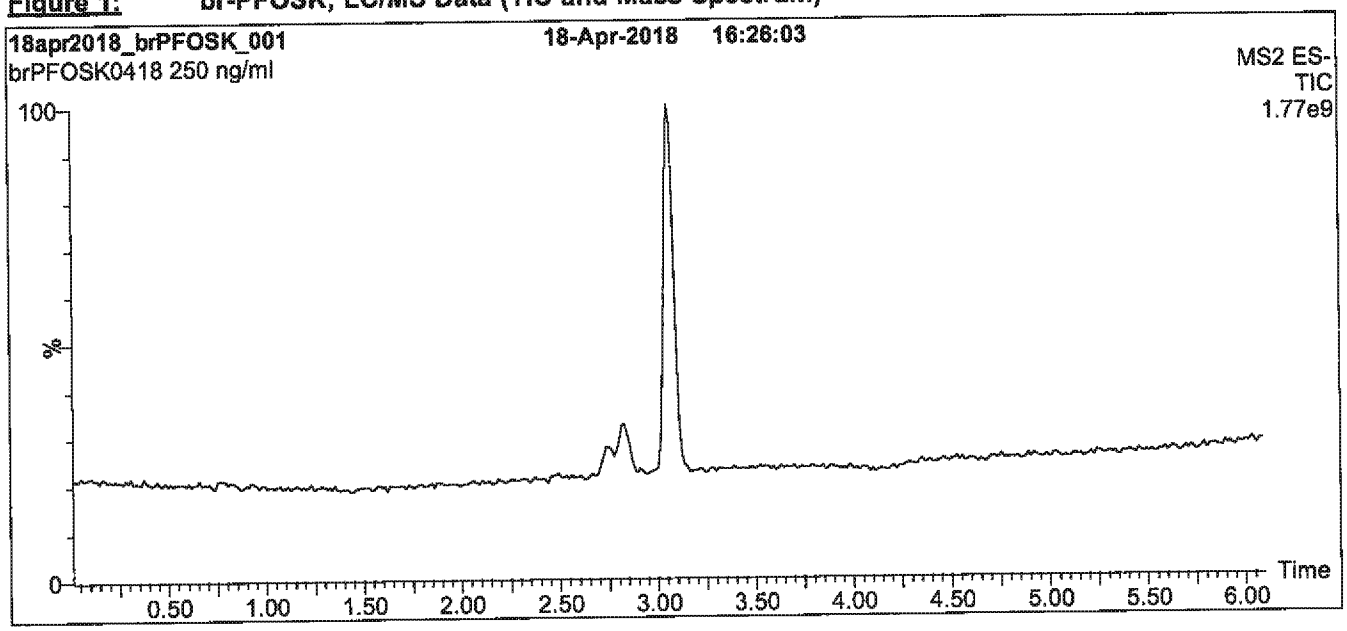
Table A: **br-PFOSK; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

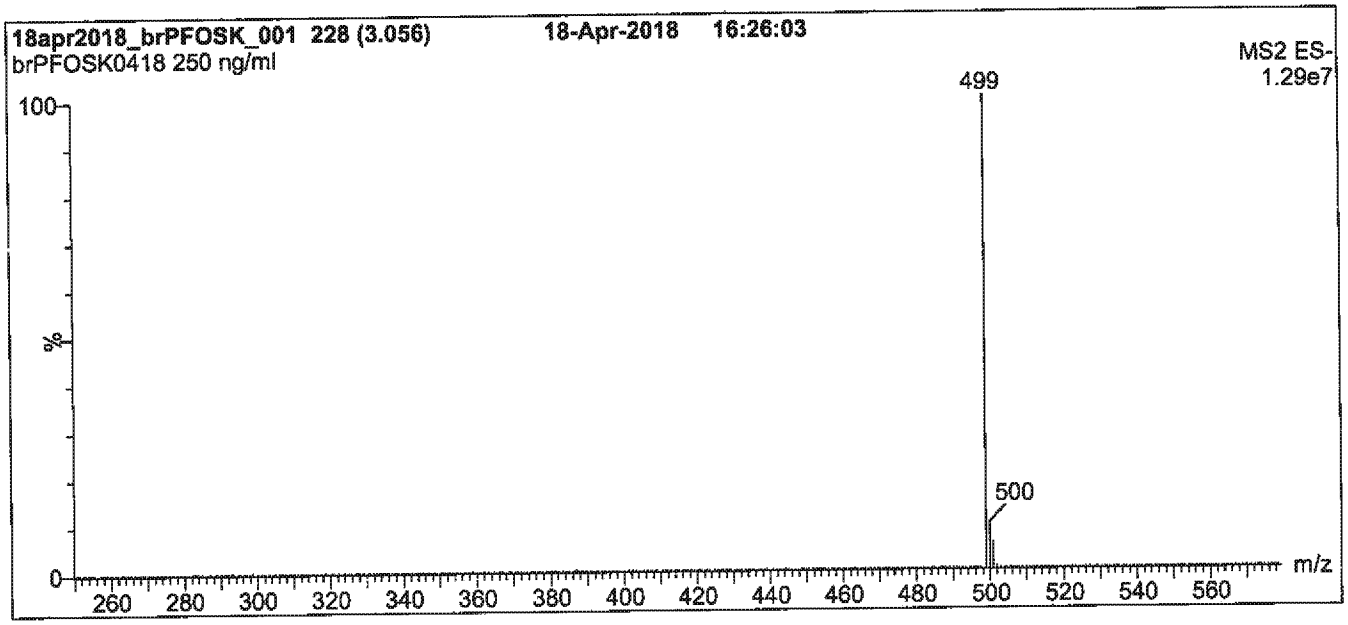
Isomer	Name	Structure	Percent Composition by ^{19}F-NMR
1	Potassium perfluoro-1-octanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	78.8
2	Potassium 1-trifluoromethylperfluoroheptanesulfonate**	$CF_3CF_2CF_2CF_2CF_2CF_2CF(CF_3)SO_3^-K^+$	1.2
3	Potassium 2-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF(CF_3)CF_2SO_3^-K^+$	0.6
4	Potassium 3-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF_2CF(CF_3)CF_2CF_2SO_3^-K^+$	1.9
5	Potassium 4-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF(CF_3)CF_2CF_2CF_2SO_3^-K^+$	2.2
6	Potassium 5-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF(CF_3)CF_2CF_2CF_2CF_2SO_3^-K^+$	4.5
7	Potassium 6-trifluoromethylperfluoroheptanesulfonate	$CF_3CF(CF_3)CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	10.0
8	Potassium 5,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3C(CF_3)(CF_3)CF_2CF_2CF_2CF_2SO_3^-K^+$	0.2
9	Potassium 4,4-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF_2C(CF_3)(CF_3)CF_2CF_2CF_2SO_3^-K^+$	0.03
10	Potassium 4,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF(CF_3)CF(CF_3)CF_2CF_2CF_2SO_3^-K^+$	0.4
11	Potassium 3,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF(CF_3)CF_2CF(CF_3)CF_2CF_2SO_3^-K^+$	0.07

* Percent of total perfluorooctanesulfonate isomers only. Isomers are labelled in Figure 2.
** Systematic Name: Potassium perfluorooctane-2-sulfonate.

Certified By: Ex. 4 CBI **Date:** 04/23/2018 (mm/dd/yyyy)

Figure 1: **br-PFOSK; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 85% organic over 7 min and hold for 3 min.
Return to initial conditions over 0.75 min.
Time: 12 min

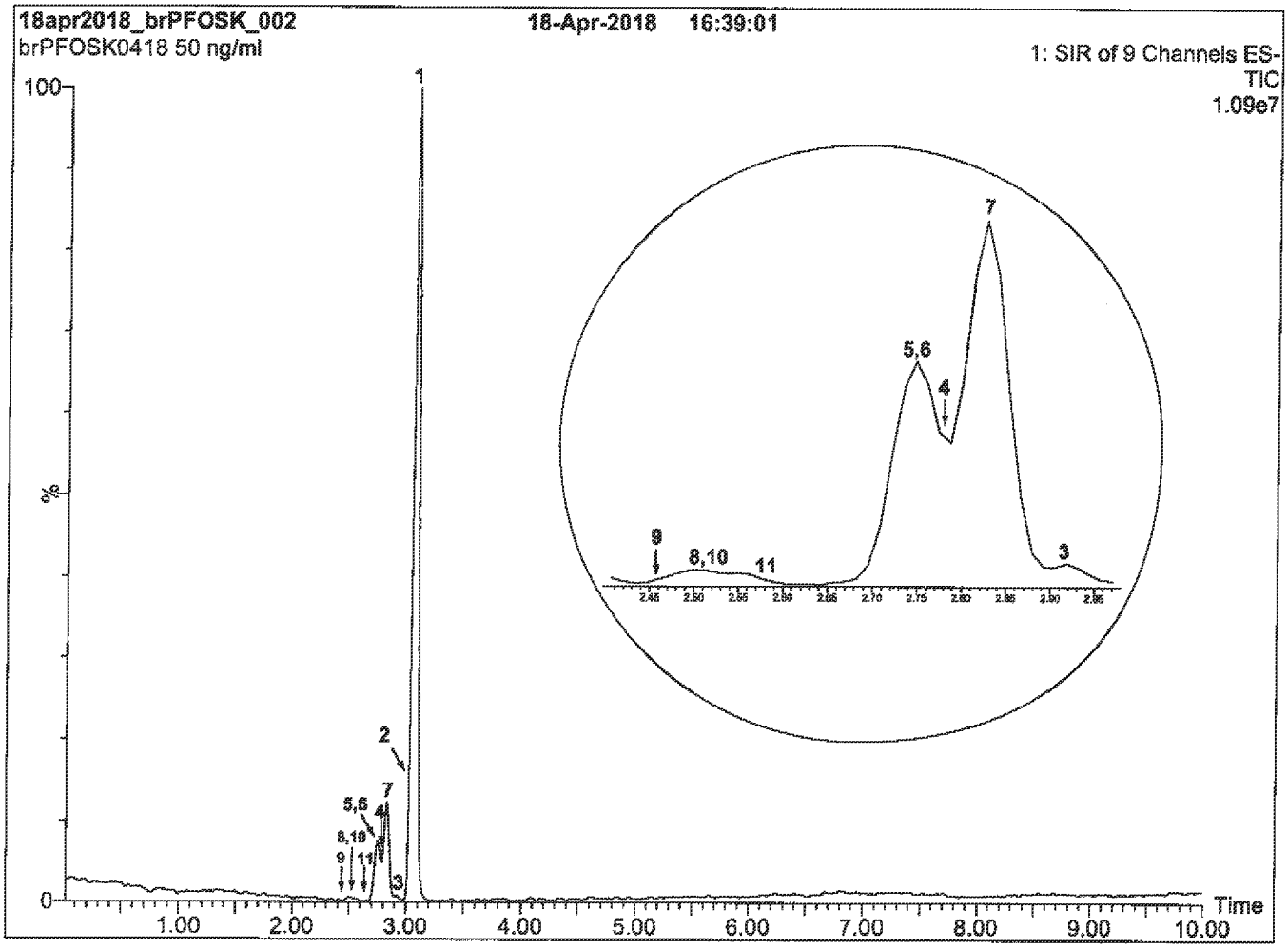
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 5.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 750

Figure 2: **br-PFOSK; LC/MS Data (SIR)**



Conditions for Figure 2:

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

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18} (1.7 µm, 2.1 x 100 mm)

Injection: 50 ng/ml of br-PFOSK

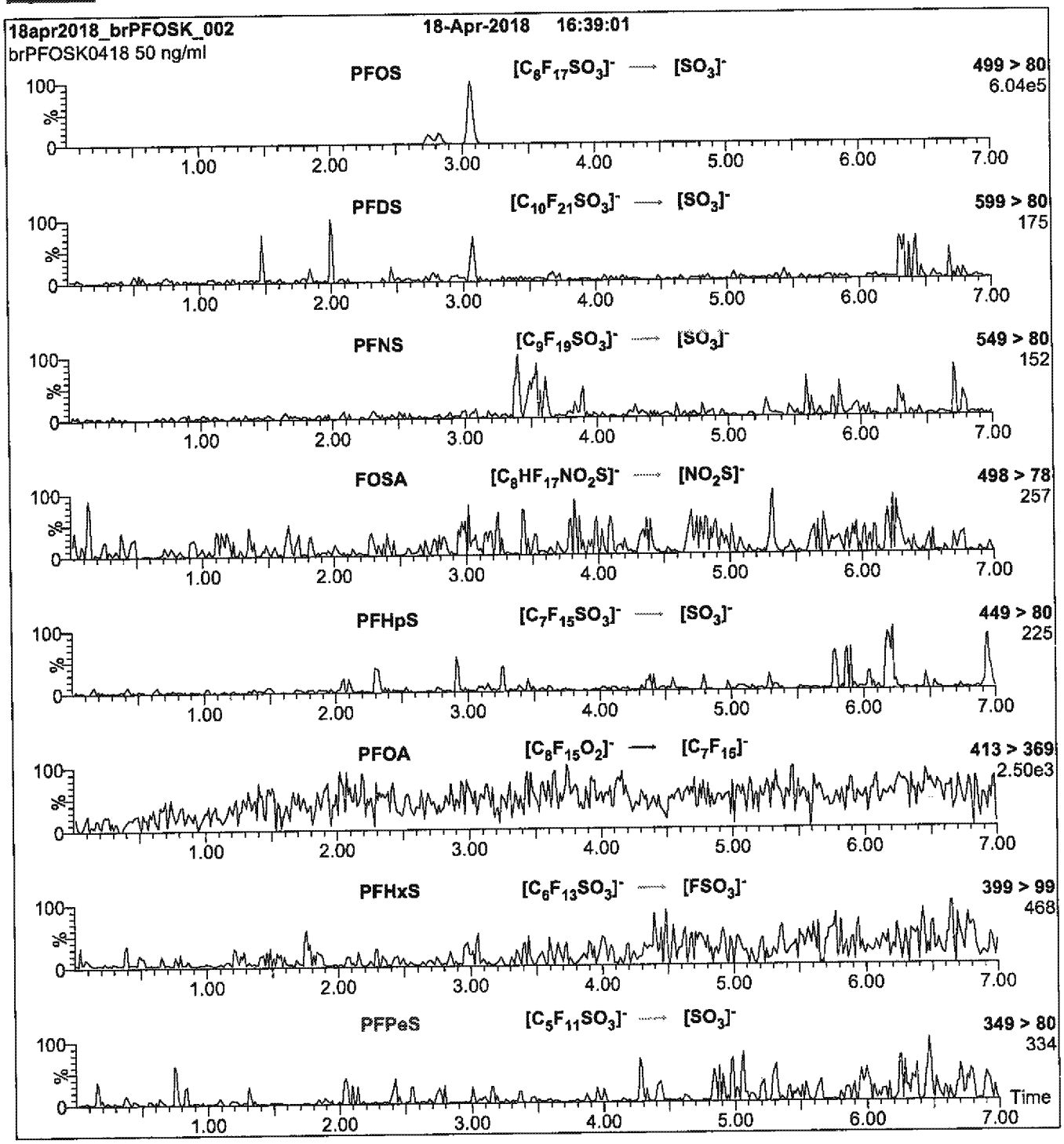
Mobile Phase: Gradient
60% (80:20 MeOH:ACN) / 40% H_2O (both with 10 mM NH_4OAc buffer)
Ramp to 85% organic over 7 min and hold for 3 min.
Return to initial conditions over 0.75 min.
Time: 12 min

Flow: 300 µl/min

MS Conditions:

SIR (ES^-)
Source = 150 °C
Desolvation = 500 °C
Cone Voltage = 2 - 20V (variable)

Figure 3: **br-PFOSK; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 3:

Injection: On-column (br-PFOSK)

Mobile phase: Same as Figure 2

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.47e-3
Collision Energy (eV) = 64

Reagent

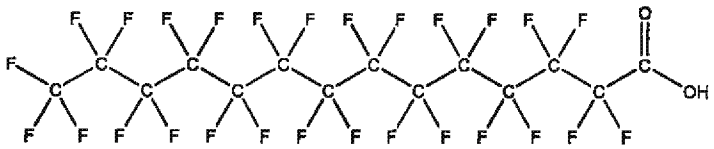
LCPFTeDA_00012

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFTeDA
LOT NUMBER: PFTeDA0818
COMPOUND: Perfluoro-n-tetradecanoic acid

STRUCTURE:
CAS #: 376-06-7



MOLECULAR FORMULA: $C_{14}HF_{27}O_2$
MOLECULAR WEIGHT: 714.11
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 08/23/2018
EXPIRY DATE: (mm/dd/yyyy) 08/23/2023
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.
- Contains ~ 0.3% of PFDoA ($C_{12}HF_{23}O_2$), ~ 0.1% of PFTrDA ($C_{13}HF_{25}O_2$), and ~ 0.1% of PFPeDA ($C_{15}HF_{29}O_2$).

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Certified By: Ex. 4 CBI **Date:** 09/05/2018 (mm/dd/yyyy)

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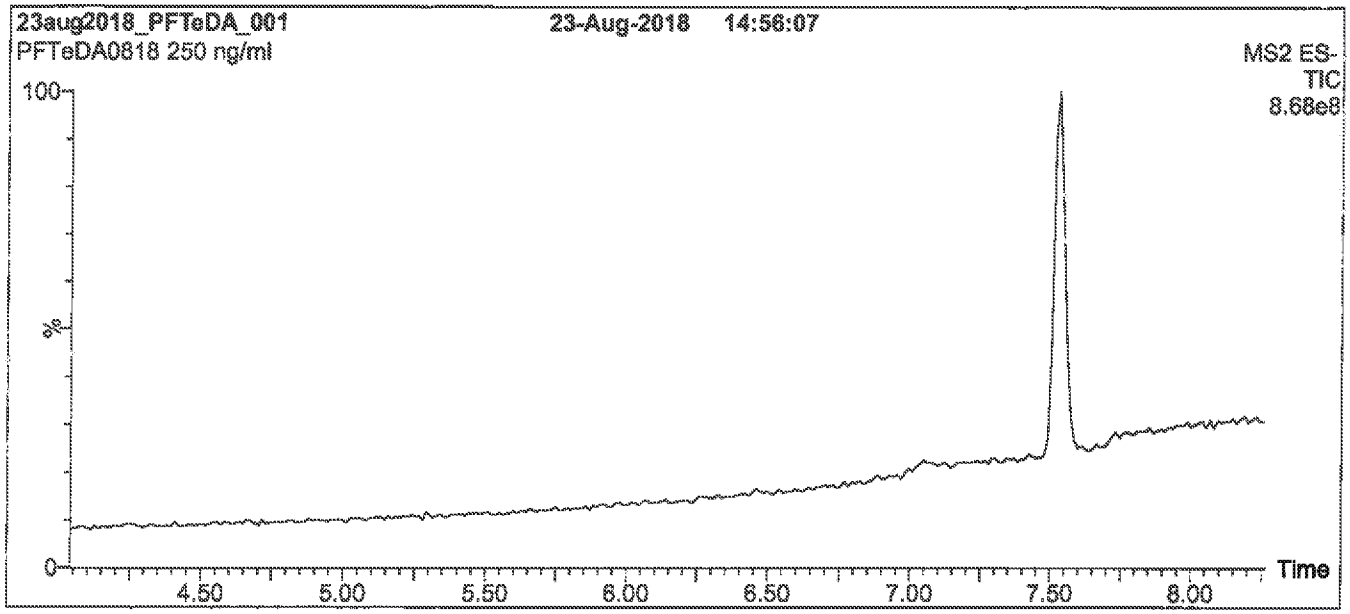
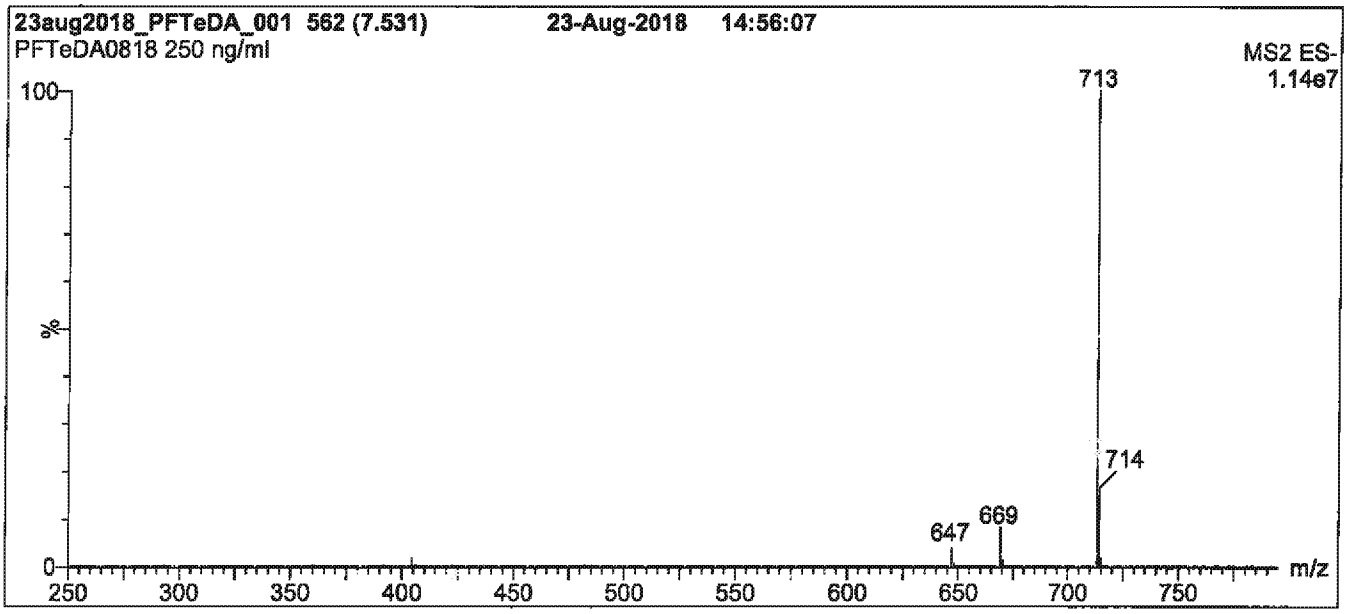
Figure 1: PFTeDA; LC/MS Data (TIC and Mass Spectrum)





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Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

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Ramp to 90% organic over 8 min and hold for 2 min before returning to initial conditions in 0.75 min.
Time: 12 min

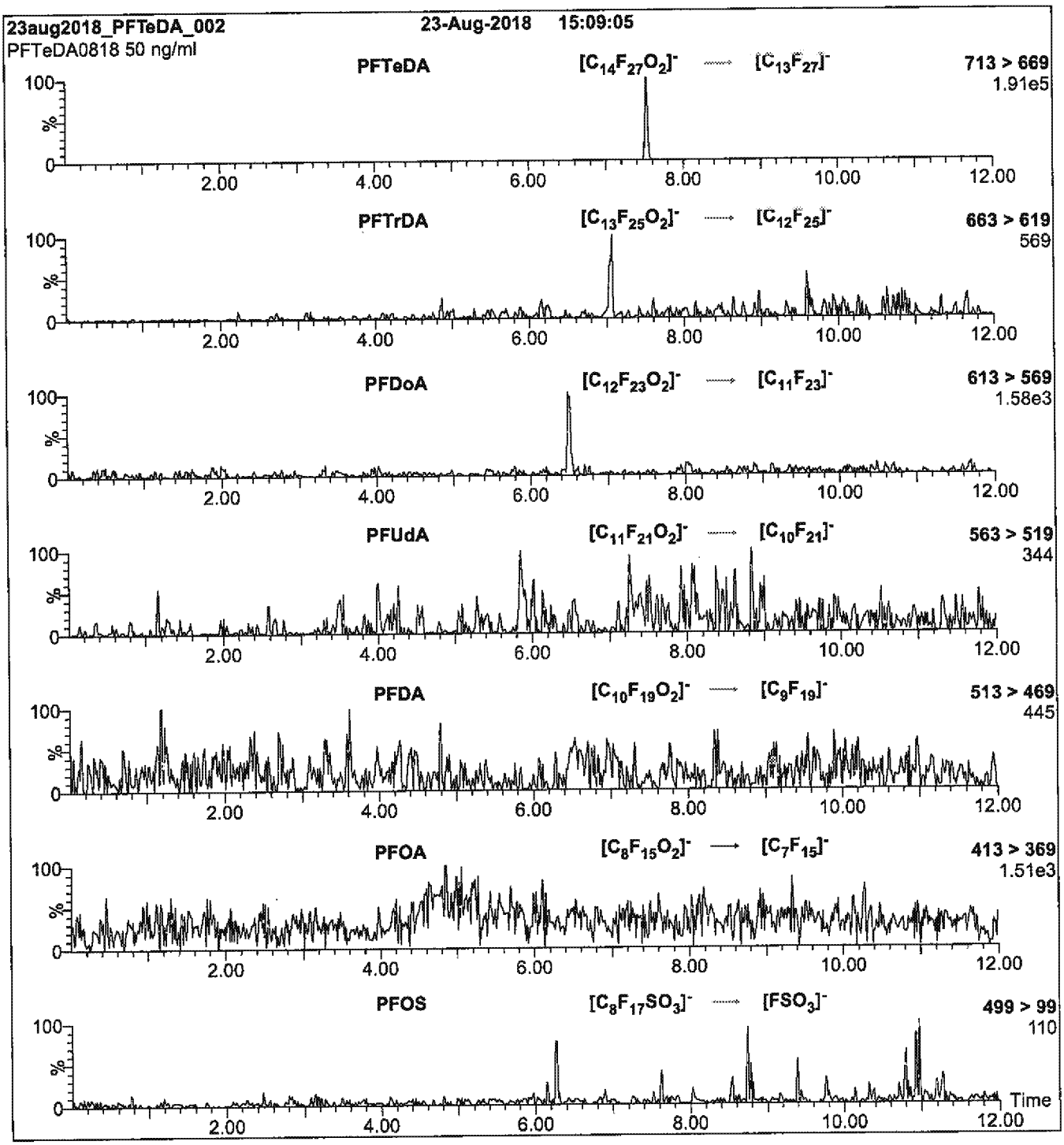
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 5.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

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



Conditions for Figure 2:

Injection: On-column (PFTeDA)

Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.45e-3
Collision Energy (eV) = 12

Reagent

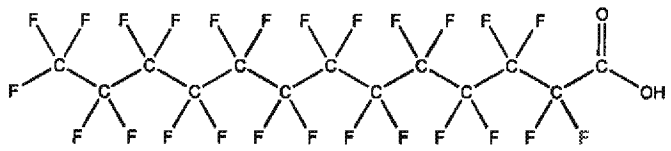
LCPFTrDA_00012

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFTrDA
LOT NUMBER: PFTrDA0218
COMPOUND: Perfluoro-n-tridecanoic acid

STRUCTURE:
CAS #: 72629-94-8



MOLECULAR FORMULA: $C_{13}HF_{25}O_2$
MOLECULAR WEIGHT: 664.11
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol, Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 02/16/2018
EXPIRY DATE: (mm/dd/yyyy) 02/16/2023
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.
- Contains ~ 0.1% of PFUdA ($C_{11}HF_{21}O_2$), ~ 0.4% of PFDoA ($C_{12}HF_{23}O_2$), and ~ 0.1% of PFTeDA ($C_{14}HF_{27}O_2$).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By Ex. 4 CBI **Date:** 02/20/2018 (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

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

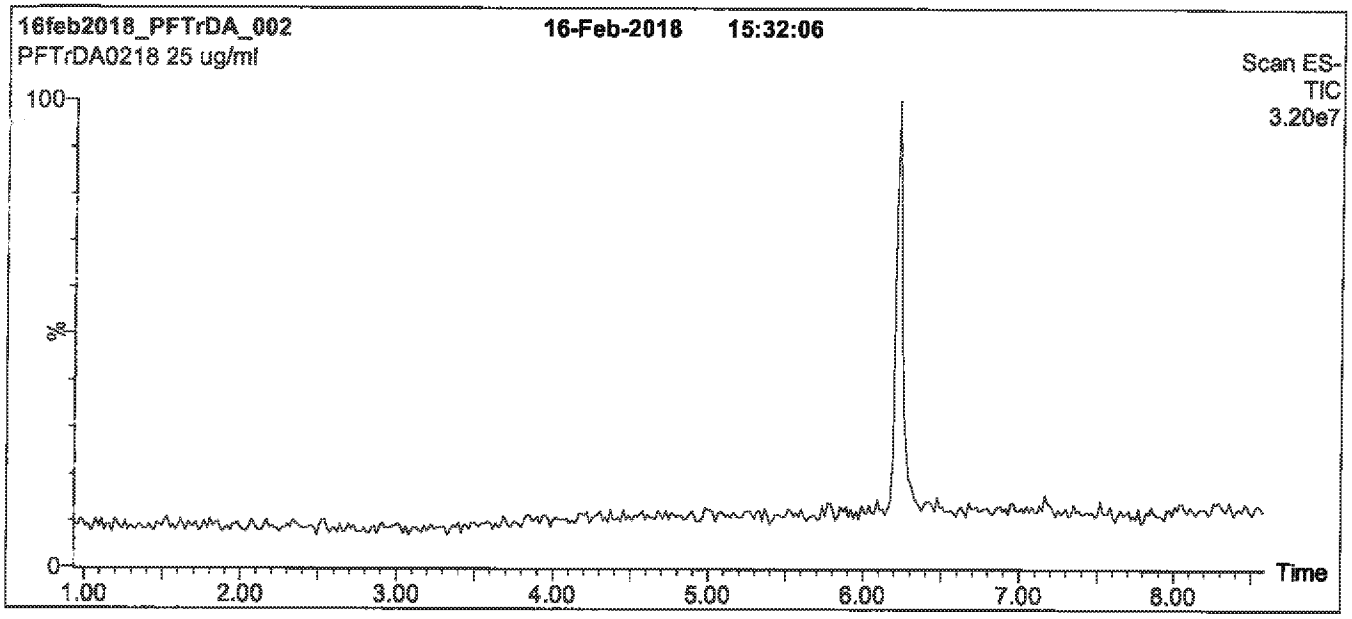
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

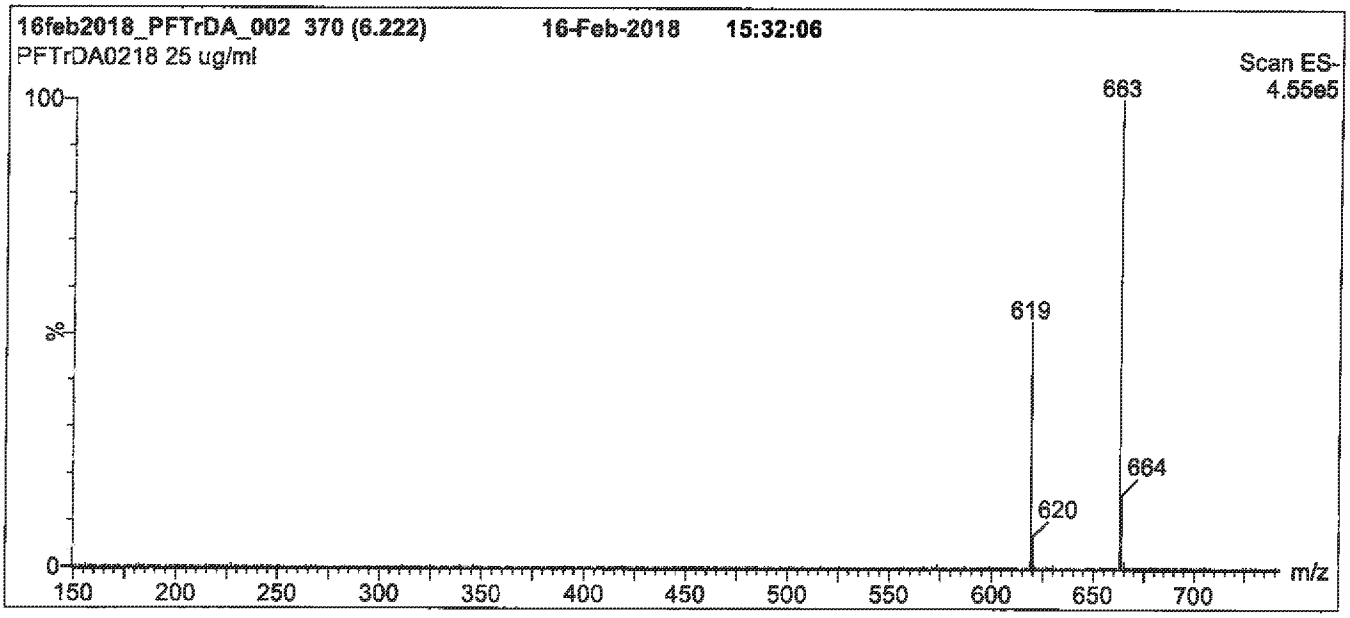
CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

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





Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min before returning to initial conditions in 0.5 min.
Time: 10 min

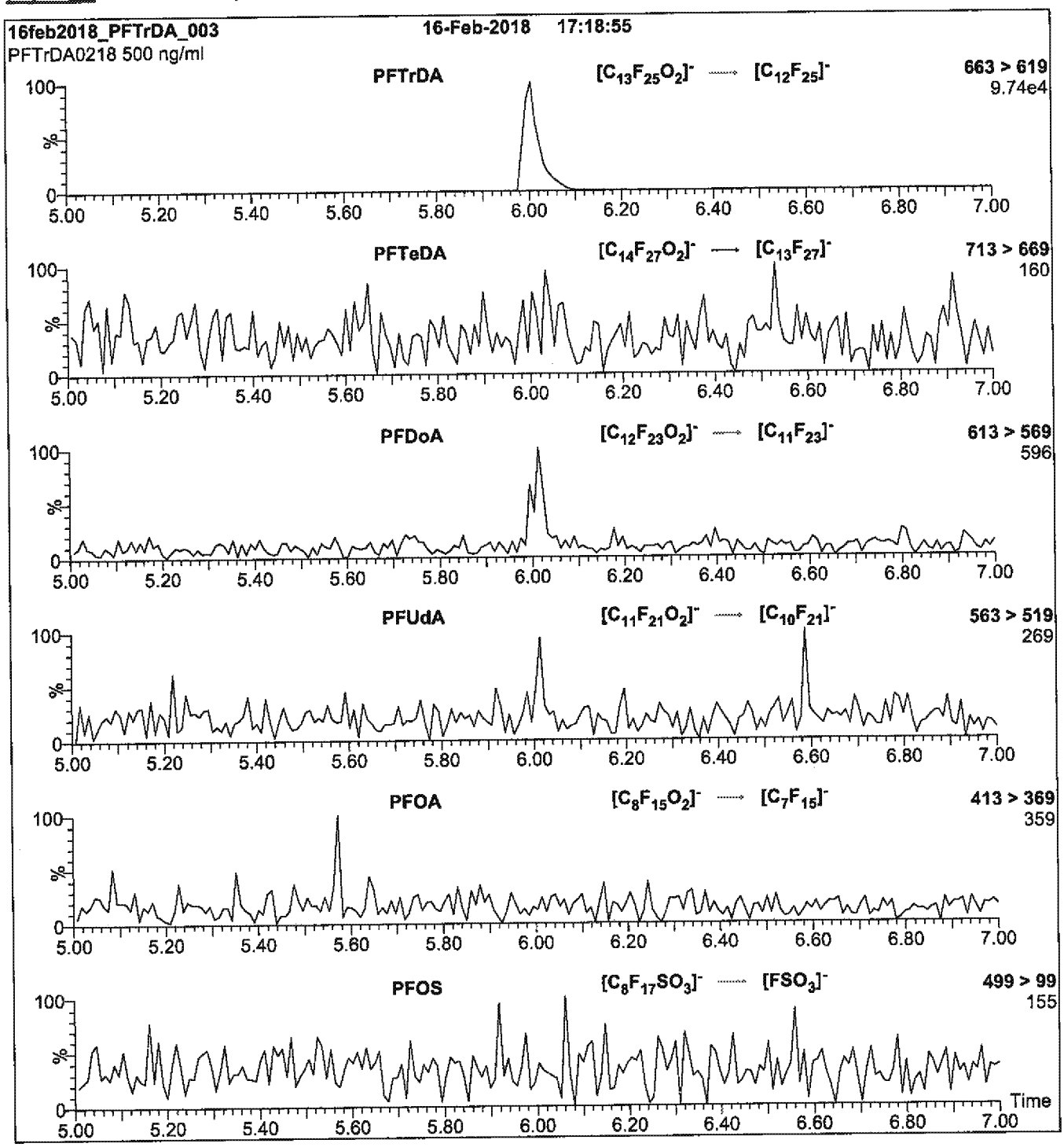
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 22.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 650

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



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFTrDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 15

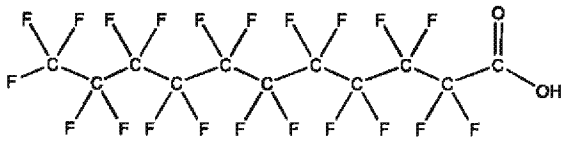
Reagent

LCPFUdA_00012

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFUdA
LOT NUMBER: PFUdA0818
COMPOUND: Perfluoro-n-undecanoic acid
STRUCTURE:
CAS #: 2058-94-8



MOLECULAR FORMULA: $C_{11}HF_{21}O_2$
MOLECULAR WEIGHT: 564.09
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol, Water (<1%)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 08/23/2018
EXPIRY DATE: (mm/dd/yyyy) 08/23/2023
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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Certified By Ex. 4 CBI **Date:** 08/24/2018 (mm/dd/yyyy)

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where x is expressed as a relative standard uncertainty of the individual parameter.

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CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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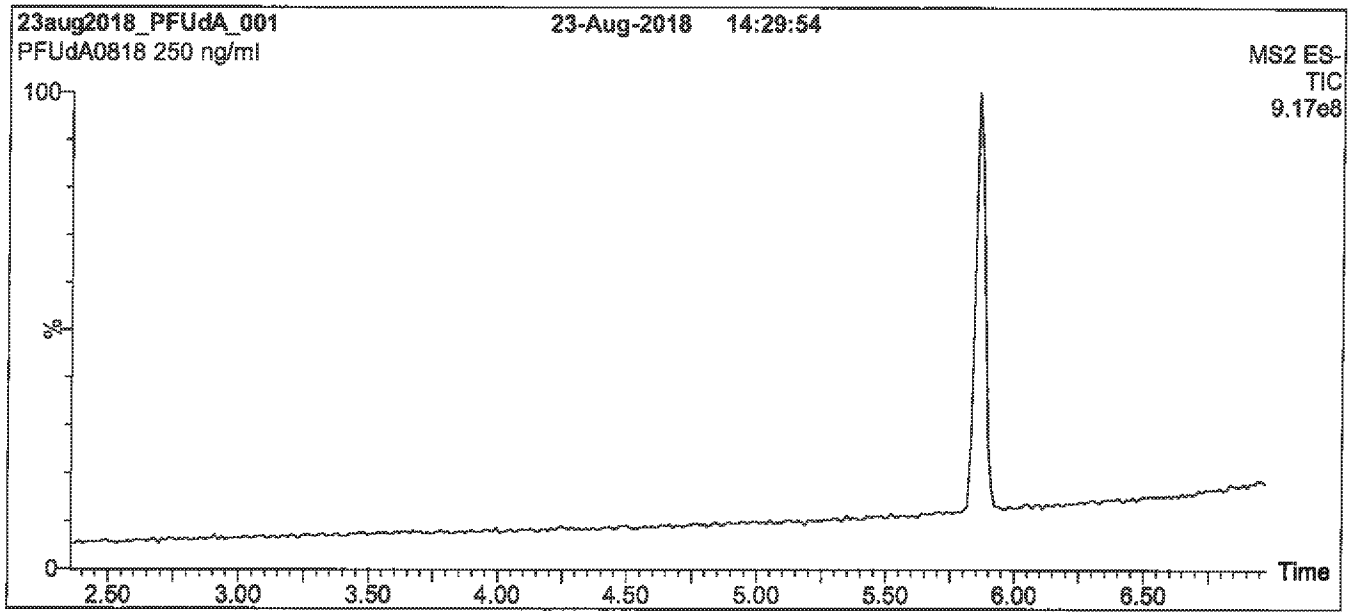
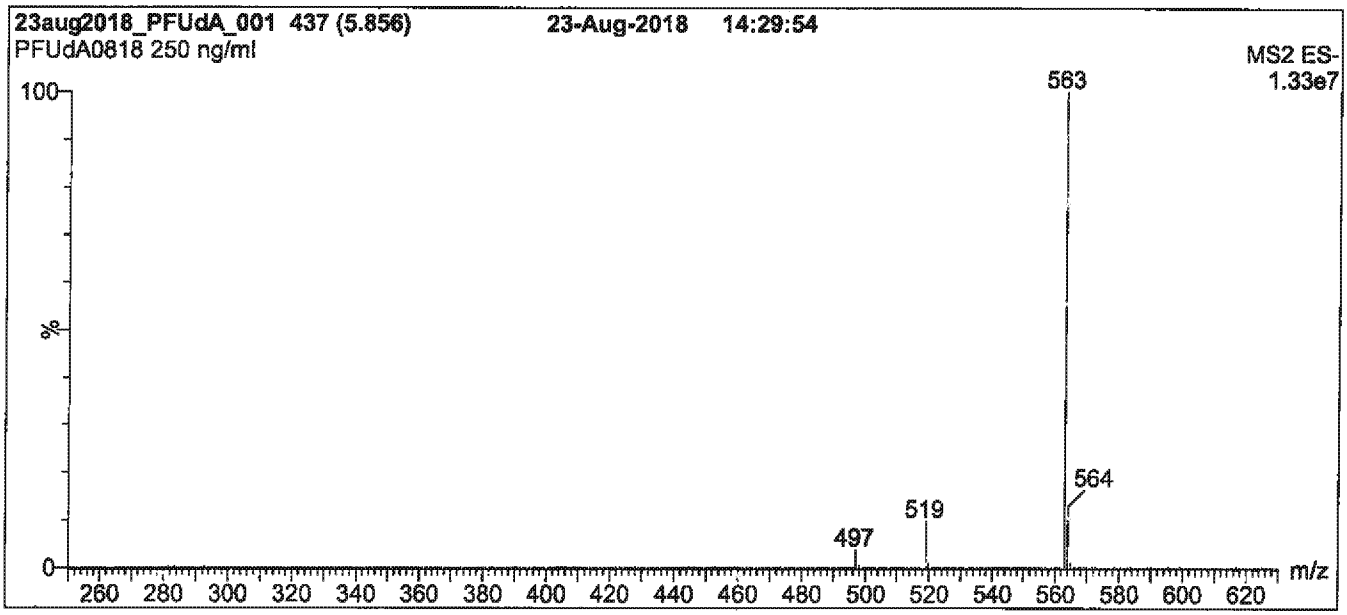
Figure 1: PFUdA; LC/MS Data (TIC and Mass Spectrum)





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc 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

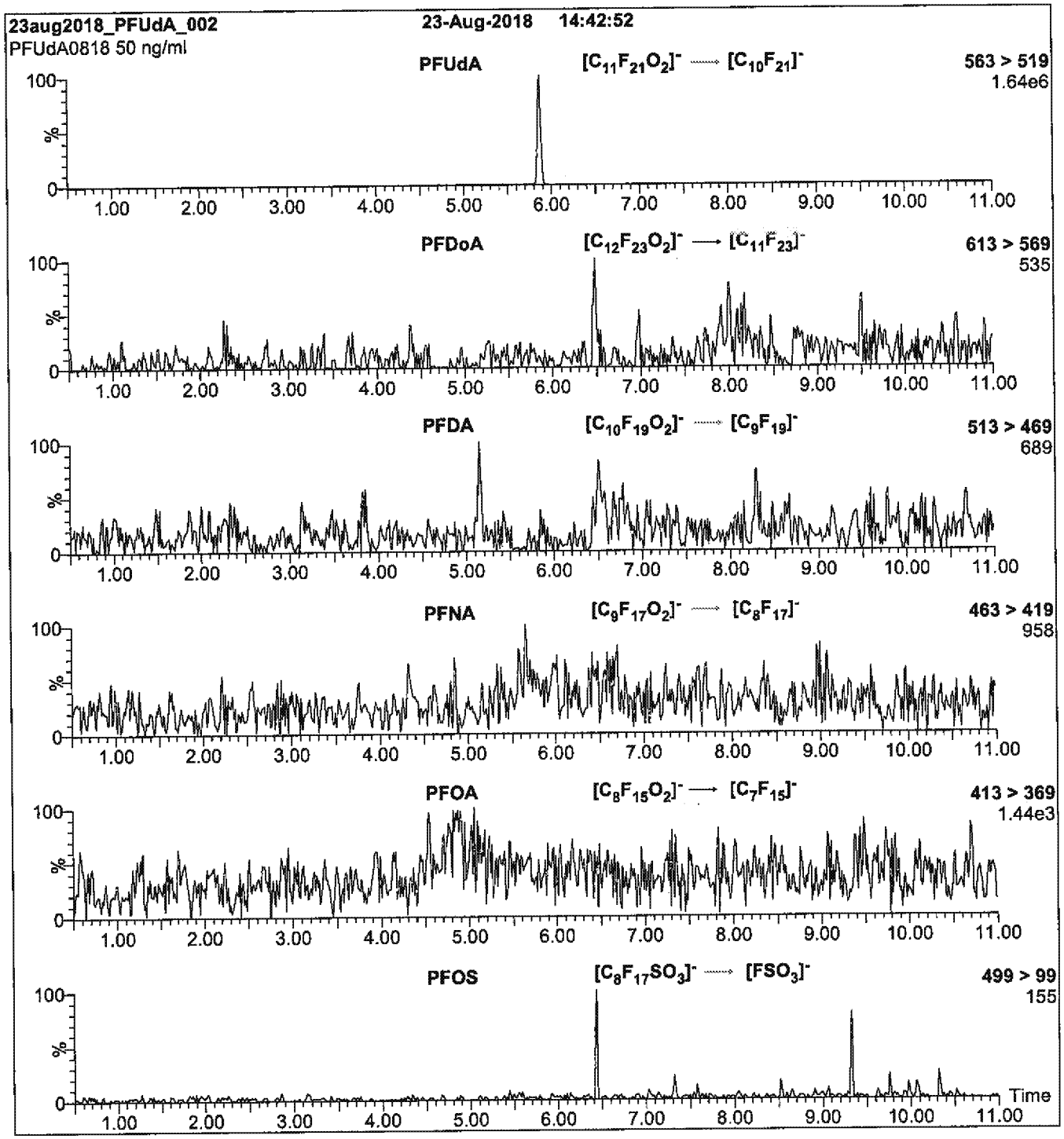
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 5.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 1000

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



Conditions for Figure 2:

Injection: On-column (PFUdA)

Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.45e-3
Collision Energy (eV) = 12

Method 537

Perfluorinated Alkyl Acids (LC/MS) by Method 537

FORM II
LCMS SURROGATE RECOVERY

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): GeminiC18 3 ID: 3 (mm)

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
C0AP3	320-48794-1	94	108
C0AP3 DL	320-48794-1 DL	101	106
C0AP4	320-48794-2	95	105
C0AQ9	320-48794-3	90	111
C0AQ9 DL	320-48794-3 DL	94	104
C0AR5	320-48794-4	107	110
C0AR9	320-48794-5	90	102
C0AS0	320-48794-6	92	104
C0AS1	320-48794-7	90	103
C0AS4	320-48794-8	104	106
C0AS5	320-48794-9	103	108
C0AS6	320-48794-10	98	104
C0AW5	320-48794-11	99	106
C0AX2	320-48794-12	100	106
C0AX3	320-48794-13	102	109
C0AX4	320-48794-14	100	107
C0AX9	320-48794-15	93	104
C0AX9 DL	320-48794-15 DL	94	104
	MB 320-285397/1-A	98	101
	LCS 320-285397/2-A	97	102
	LCSD 320-285397/3-A	92	103

	QC LIMITS
PFHxA = 13C2 PFHxA	70-130
PFDA = 13C2 PFDA	70-130

Column to be used to flag recovery values

FORM II 537 DW

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2019.04.02_537A_018.d

Lab ID: LCS 320-285397/2-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid	186	184	99	70-130	
Perfluorooctanoic acid	200	206	103	70-130	
Perfluorononanoic acid	200	200	100	70-130	
Perfluorohexanesulfonic acid	182	181	100	70-130	
Perfluoroheptanoic acid	200	195	98	70-130	
Perfluorobutanesulfonic acid	177	171	97	70-130	

Column to be used to flag recovery and RPD values

FORM III 537 DW

FORM III
LCMS LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2019.04.02_537A_019.d

Lab ID: LCSD 320-285397/3-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCSD CONCENTRATION (ng/L)	LCSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Perfluorooctanesulfonic acid	186	181	98	2	30	70-130	
Perfluorooctanoic acid	200	200	100	3	30	70-130	
Perfluorononanoic acid	200	200	100	0	30	70-130	
Perfluorohexanesulfonic acid	182	178	98	2	30	70-130	
Perfluoroheptanoic acid	200	194	97	1	30	70-130	
Perfluorobutanesulfonic acid	177	153	87	11	30	70-130	

Column to be used to flag recovery and RPD values

FORM III 537 DW

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Lab File ID: 2019.04.02_537A_017.d Lab Sample ID: MB 320-285397/1-A

Matrix: Water Date Extracted: 04/01/2019 15:03

Instrument ID: A8_N Date Analyzed: 04/03/2019 06:51

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-285397/2-A	2019.04.02_537A_018.d	04/03/2019 06:58
	LCSD 320-285397/3-A	2019.04.02_537A_019.d	04/03/2019 07:06
C0AP3	320-48794-1	2019.04.02_537A_020.d	04/03/2019 07:13
C0AP4	320-48794-2	2019.04.02_537A_021.d	04/03/2019 07:21
C0AQ9	320-48794-3	2019.04.02_537A_022.d	04/03/2019 07:28
C0AR9	320-48794-5	2019.04.02_537A_024.d	04/03/2019 07:43
C0AS0	320-48794-6	2019.04.02_537A_025.d	04/03/2019 07:51
C0AS1	320-48794-7	2019.04.02_537A_026.d	04/03/2019 07:58
C0AS4	320-48794-8	2019.04.02_537A_029.d	04/03/2019 08:20
C0AS5	320-48794-9	2019.04.02_537A_030.d	04/03/2019 08:28
C0AS6	320-48794-10	2019.04.02_537A_031.d	04/03/2019 08:35
C0AW5	320-48794-11	2019.04.02_537A_032.d	04/03/2019 08:43
C0AX2	320-48794-12	2019.04.02_537A_033.d	04/03/2019 08:50
C0AX3	320-48794-13	2019.04.02_537A_034.d	04/03/2019 08:58
C0AX4	320-48794-14	2019.04.02_537A_035.d	04/03/2019 09:05
C0AX9	320-48794-15	2019.04.02_537A_036.d	04/03/2019 09:13
C0AR5	320-48794-4	2019.04.04_537AA_007.d	04/04/2019 19:29
C0AP3 DL	320-48794-1 DL	2019.04.05_537.1A_028.d	04/05/2019 14:16
C0AQ9 DL	320-48794-3 DL	2019.04.05_537.1A_029.d	04/05/2019 14:26
C0AX9 DL	320-48794-15 DL	2019.04.05_537.1A_030.d	04/05/2019 14:35

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Instrument ID: A8_N Calibration Start Date: 03/26/2019 15:43

GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 03/26/2019 16:27

Calibration ID: 44434

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		3088069	3.17	3101787	3.55		
UPPER LIMIT		4632104	3.67	4652681	4.05		
LOWER LIMIT		1544035	2.67	1550894	3.05		
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCVL 320-284068/10		2968052	3.16	2984661	3.55		
ICV 320-284068/12		3223407	3.16	3261680	3.55		
CCV 320-285757/12 CCVIS		2910846	3.18	2754389	3.57		
MB 320-285397/1-A		2830167	3.18	2886220	3.56		
LCS 320-285397/2-A		2796041	3.19	2799830	3.57		
LCSD 320-285397/3-A		2808979	3.19	2816152	3.56		
320-48794-1	C0AP3	2838997	3.20	2710769	3.56		
320-48794-2	C0AP4	2843521	3.18	2881330	3.56		
320-48794-3	C0AQ9	2907716	3.20	2863270	3.56		
320-48794-5	C0AR9	2910258	3.18	3037180	3.56		
320-48794-6	C0AS0	2864154	3.20	2939700	3.56		
320-48794-7	C0AS1	2924175	3.18	3067489	3.56		
CCV 320-285757/24 CCVIS		2630608	3.18	2651814	3.56		
CCV 320-285758/24 CCVIS		2630608	3.18	2651814	3.56		
320-48794-8	C0AS4	2745659	3.18	2859345	3.56		
320-48794-9	C0AS5	2789165	3.20	2967038	3.56		
320-48794-10	C0AS6	2836843	3.18	2893743	3.55		
320-48794-11	C0AW5	2809703	3.18	2842311	3.55		
320-48794-12	C0AX2	2783494	3.18	2933302	3.56		
320-48794-13	C0AX3	2820860	3.18	2865917	3.56		
320-48794-14	C0AX4	2825106	3.18	2907618	3.55		
320-48794-15	C0AX9	2943921	3.18	2771278	3.55		
CCV 320-285758/34 CCVIS		2960738	3.17	2843301	3.55		

13PFOA = 13C2 PFOA
PFOS = 13C4 PFOS

Area Limit = 50%-150% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537 DW

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Sample No.: CCV 320-285757/12 Date Analyzed: 04/03/2019 06:36

Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3(mm)

Lab File ID (Standard): 2019.04.02_537A_015 Heated Purge: (Y/N) N

Calibration ID: 44434

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		2910846	3.18	2754389	3.57		
UPPER LIMIT		4075184	3.68	3856145	4.07		
LOWER LIMIT		2037592	2.68	1928072	3.07		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-285397/1-A		2830167	3.18	2886220	3.56		
LCS 320-285397/2-A		2796041	3.19	2799830	3.57		
LCSD 320-285397/3-A		2808979	3.19	2816152	3.56		
320-48794-1	C0AP3	2838997	3.20	2710769	3.56		
320-48794-2	C0AP4	2843521	3.18	2881330	3.56		
320-48794-3	C0AQ9	2907716	3.20	2863270	3.56		
320-48794-5	C0AR9	2910258	3.18	3037180	3.56		
320-48794-6	C0AS0	2864154	3.20	2939700	3.56		
320-48794-7	C0AS1	2924175	3.18	3067489	3.56		

13PFOA = 13C2 PFOA
PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537 DW

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Sample No.: CCV 320-285757/24 Date Analyzed: 04/03/2019 08:05

Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3(mm)

Lab File ID (Standard): 2019.04.02_537A_027 Heated Purge: (Y/N) N

Calibration ID: 44434

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		2630608	3.18	2651814	3.56		
UPPER LIMIT		3682851	3.68	3712540	4.06		
LOWER LIMIT		1841426	2.68	1856270	3.06		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-285397/1-A		2830167	3.18	2886220	3.56		
LCS 320-285397/2-A		2796041	3.19	2799830	3.57		
LCSD 320-285397/3-A		2808979	3.19	2816152	3.56		
320-48794-1	C0AP3	2838997	3.20	2710769	3.56		
320-48794-2	C0AP4	2843521	3.18	2881330	3.56		
320-48794-3	C0AQ9	2907716	3.20	2863270	3.56		
320-48794-5	C0AR9	2910258	3.18	3037180	3.56		
320-48794-6	C0AS0	2864154	3.20	2939700	3.56		
320-48794-7	C0AS1	2924175	3.18	3067489	3.56		

13PFOA = 13C2 PFOA
PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537 DW

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Sample No.: CCV 320-285758/24 Date Analyzed: 04/03/2019 08:05

Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3(mm)

Lab File ID (Standard): 2019.04.02_537A_027 Heated Purge: (Y/N) N

Calibration ID: 44434

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		2630608	3.18	2651814	3.56		
UPPER LIMIT		3682851	3.68	3712540	4.06		
LOWER LIMIT		1841426	2.68	1856270	3.06		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-48794-8	C0AS4	2745659	3.18	2859345	3.56		
320-48794-9	C0AS5	2789165	3.20	2967038	3.56		
320-48794-10	C0AS6	2836843	3.18	2893743	3.55		
320-48794-11	C0AW5	2809703	3.18	2842311	3.55		
320-48794-12	C0AX2	2783494	3.18	2933302	3.56		
320-48794-13	C0AX3	2820860	3.18	2865917	3.56		
320-48794-14	C0AX4	2825106	3.18	2907618	3.55		
320-48794-15	C0AX9	2943921	3.18	2771278	3.55		

13PFOA = 13C2 PFOA
PFOS = 13C4 PFOS
PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537 DW

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Sample No.: CCV 320-285758/34 Date Analyzed: 04/03/2019 09:20

Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3(mm)

Lab File ID (Standard): 2019.04.02_537A_037 Heated Purge: (Y/N) N

Calibration ID: 44434

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		2960738	3.17	2843301	3.55		
UPPER LIMIT		4145033	3.67	3980621	4.05		
LOWER LIMIT		2072517	2.67	1990311	3.05		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-48794-8	C0AS4	2745659	3.18	2859345	3.56		
320-48794-9	C0AS5	2789165	3.20	2967038	3.56		
320-48794-10	C0AS6	2836843	3.18	2893743	3.55		
320-48794-11	C0AW5	2809703	3.18	2842311	3.55		
320-48794-12	C0AX2	2783494	3.18	2933302	3.56		
320-48794-13	C0AX3	2820860	3.18	2865917	3.56		
320-48794-14	C0AX4	2825106	3.18	2907618	3.55		
320-48794-15	C0AX9	2943921	3.18	2771278	3.55		

13PFOA = 13C2 PFOA
PFOS = 13C4 PFOS
PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537 DW

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Instrument ID: A8_N Calibration Start Date: 04/04/2019 15:14

GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 04/04/2019 16:11

Calibration ID: 44584

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		3230125	3.19	3241981	3.56		
UPPER LIMIT		4845188	3.69	4862972	4.06		
LOWER LIMIT		1615063	2.69	1620991	3.06		
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCVL 320-286141/10		3347956	3.20	3378268	3.56		
ICV 320-286141/12		3235073	3.20	3261224	3.55		
CCV 320-286182/1 CCVIS		2937146	3.18	2937469	3.55		
320-48794-4	C0AR5	2898820	3.18	3126503	3.55		
CCV 320-286182/8 CCVIS		2912806	3.18	2777861	3.55		
CCVL 320-286320/1		3095391	3.17	2995972	3.55		
CCV 320-286379/1 CCVIS		2979789	3.18	2842140	3.55		
320-48794-1 DL	C0AP3 DL	3075940	3.18	2989701	3.56		
320-48794-3 DL	C0AQ9 DL	3127183	3.18	3008561	3.55		
320-48794-15 DL	C0AX9 DL	3167162	3.18	3003369	3.56		
CCV 320-286379/6 CCVIS		3068176	3.18	2917818	3.55		

13PFOA = 13C2 PFOA
PFOS = 13C4 PFOS

Area Limit = 50%-150% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537 DW

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Sample No.: CCV 320-286182/1 Date Analyzed: 04/04/2019 19:10

Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3(mm)

Lab File ID (Standard): 2019.04.04_537AA_00 Heated Purge: (Y/N) N

Calibration ID: 44584

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		2937146	3.18	2937469	3.55		
UPPER LIMIT		4112004	3.68	4112457	4.05		
LOWER LIMIT		2056002	2.68	2056228	3.05		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-48794-4	C0AR5	2898820	3.18	3126503	3.55		

13PFOA = 13C2 PFOA
13PFOA = 13C2 PFOA
PFOS = 13C4 PFOS
PFOS = 13C4 PFOS
Area Limit = 70%-140% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537 DW

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Sample No.: CCV 320-286182/8 Date Analyzed: 04/04/2019 20:17

Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3(mm)

Lab File ID (Standard): 2019.04.04_537AA_01 Heated Purge: (Y/N) N

Calibration ID: 44584

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		2912806	3.18	2777861	3.55		
UPPER LIMIT		4077928	3.68	3889005	4.05		
LOWER LIMIT		2038964	2.68	1944503	3.05		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-48794-4	C0AR5	2898820	3.18	3126503	3.55		

13PFOA = 13C2 PFOA
13PFOA = 13C2 PFOA
PFOS = 13C4 PFOS
PFOS = 13C4 PFOS
Area Limit = 70%-140% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537 DW

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Sample No.: CCV 320-286379/1 Date Analyzed: 04/05/2019 13:58

Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3(mm)

Lab File ID (Standard): 2019.04.05_537.1A_0 Heated Purge: (Y/N) N

Calibration ID: 44584

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		2979789	3.18	2842140	3.55		
UPPER LIMIT		4171705	3.68	3978996	4.05		
LOWER LIMIT		2085852	2.68	1989498	3.05		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-48794-1 DL	C0AP3 DL	3075940	3.18	2989701	3.56		
320-48794-3 DL	C0AQ9 DL	3127183	3.18	3008561	3.55		
320-48794-15 DL	C0AX9 DL	3167162	3.18	3003369	3.56		

13PFOA = 13C2 PFOA
13PFOA = 13C2 PFOA
PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537 DW

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Sample No.: CCV 320-286379/6 Date Analyzed: 04/05/2019 14:45

Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3(mm)

Lab File ID (Standard): 2019.04.05_537.1A_0 Heated Purge: (Y/N) N

Calibration ID: 44584

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		3068176	3.18	2917818	3.55		
UPPER LIMIT		4295446	3.68	4084945	4.05		
LOWER LIMIT		2147723	2.68	2042473	3.05		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-48794-1 DL	C0AP3 DL	3075940	3.18	2989701	3.56		
320-48794-3 DL	C0AQ9 DL	3127183	3.18	3008561	3.55		
320-48794-15 DL	C0AX9 DL	3167162	3.18	3003369	3.56		

13PFOA = 13C2 PFOA
13PFOA = 13C2 PFOA
PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537 DW

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: C0AP3
Lab Sample ID: 320-48794-1
Matrix: Water
Lab File ID: 2019.04.02_537A_020.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 12:48
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 274.7(mL)
Date Analyzed: 04/03/2019 07:13
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 285757
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
335-67-1	Perfluorooctanoic acid	5.7		5.5	2.5
375-95-1	Perfluorononanoic acid	1.7	J	1.8	0.43
355-46-4	Perfluorohexanesulfonic acid	2.4		1.8	0.58
375-85-9	Perfluoroheptanoic acid	29		2.7	1.2
375-73-5	Perfluorobutanesulfonic acid	39		1.8	0.73

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	108		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_020.d
Lims ID: 320-48794-A-1-A
Client ID: C0AP3
Sample Type: Client
Inject. Date: 03-Apr-2019 07:13:54 ALS Bottle#: 10 Worklist Smp#: 17
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-48794-A-1-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 11:42:11 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

First Level Reviewer: **Ex. 4 CBI** Date: 03-Apr-2019 13:02:43
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.992	1.975	0.017	1.000	1454225	1.06	Target=1.47	1625	
298.90 > 99.00	1.976	1.975	0.001	0.992	955150		1.52(0.00-0.00)	757	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.348	2.347	0.001	0.734	2046748	1.65	Target=11.08	230	
313.00 > 119.00	2.348	2.347	0.001	0.734	191540		10.69(0.00-0.00)	239	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.348	2.347	0.001	1.000	3104463	2.36		5036	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.491	2.473	0.018	1.000	172104	2.88		759	
4 Perfluoroheptanoic acid									M
363.00 > 319.00	2.778	2.778	0.0	1.000	982530	0.8007	Target=2.42	90.0	M
363.00 > 169.00	2.778	2.778	0.0	1.000	419241		2.34(0.00-0.00)	853	
3 Perfluorohexanesulfonic acid									M
399.00 > 80.00	2.799	2.778	0.021	1.000	104419	0.0647	Target=2.92	41.5	M
399.00 > 99.00	2.799	2.778	0.021	1.000	39089		2.67(0.00-0.00)	28.0	
* 5 13C2 PFOA									
415.00 > 370.00	3.196	3.177	0.019		2838997	2.50		8667	
6 Perfluorooctanoic acid									M
413.00 > 369.00	3.196	3.177	0.019	1.000	182491	0.1577	Target=1.75	18.2	M
413.00 > 169.00	3.196	3.177	0.019	1.000	107150		1.70(0.00-0.00)	243	M
9 Perfluorononanoic acid									
463.00 > 419.00	3.579	3.549	0.031	1.000	39949	0.0471	Target=3.96	11.9	
463.00 > 169.00	3.579	3.549	0.031	1.000	10749		3.72(0.00-0.00)	54.4	
* 7 13C4 PFOS									
503.00 > 80.00	3.564	3.549	0.016		2710769	2.39		2696	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
8 Perfluorooctanesulfonic acid									E
499.00 > 80.00	3.564	3.564	0.0	1.000	27529006	23.0	Target=4.69	2921	E
499.00 > 99.00	3.564	3.564	0.0	1.000	5243445		5.25(0.00-0.00)	2528	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.930	3.911	0.019	1.000	23718	0.0356	Target=5.01	8.6	
513.00 > 169.00	3.930	3.911	0.019	1.000	3296		7.20(0.00-0.00)	20.6	
$ 10 13C2 PFDA									
515.00 > 470.00	3.930	3.911	0.019	1.000	1886524	2.69		8584	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.106	4.070	0.036		518322	2.50		3399	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.252	4.236	0.016	1.035	515836	2.44		284	
16 N-ethylperfluorooctanesulfonamidoa									
584.00 > 419.00	4.268	4.236	0.032	1.004	3242	0.0179		8.7	
21 11-Chloroeicosafluoro-3-oxaundecan									M
631.00 > 451.00	4.395	4.358	0.037	1.000	4739	0.001963		21.2	M

QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount

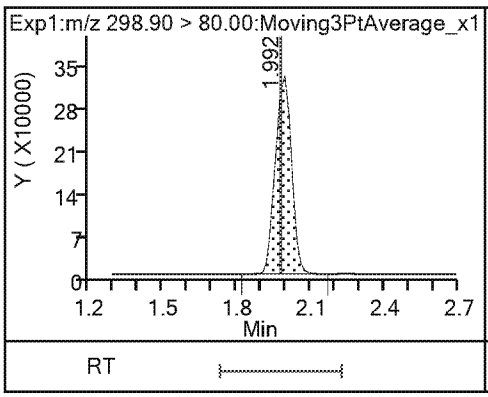
Review Flags

M - Manually Integrated

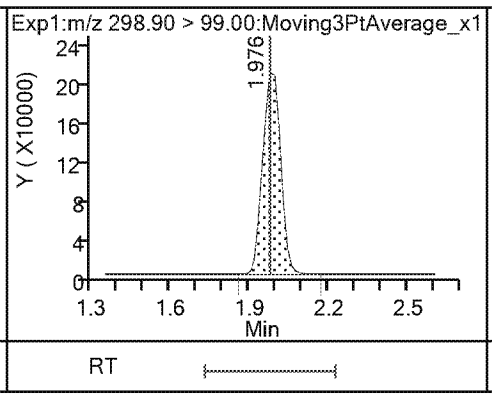
TestAmerica Sacramento

Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_020.d				
Injection Date:	03-Apr-2019 07:13:54	Instrument ID:	A8_N		
Lims ID:	320-48794-A-1-A	Lab Sample ID:	320-48794-1		
Client ID:	C0AP3				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	10	Worklist Smp#:	17
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

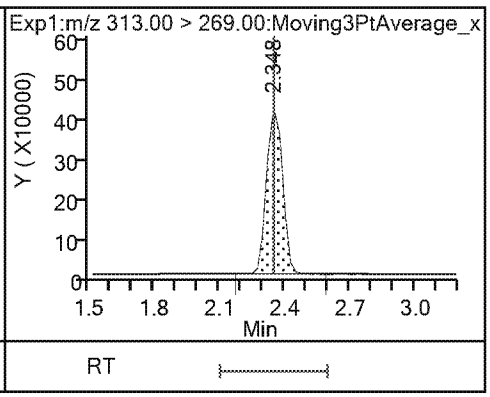
1 Perfluorobutanesulfonic acid



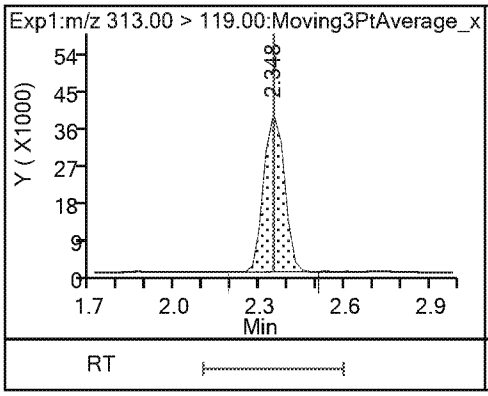
1 Perfluorobutanesulfonic acid



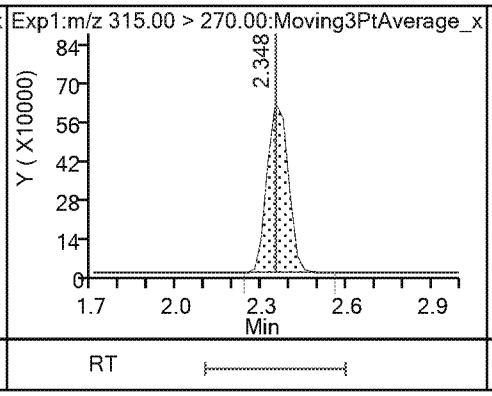
13 Perfluorohexanoic acid



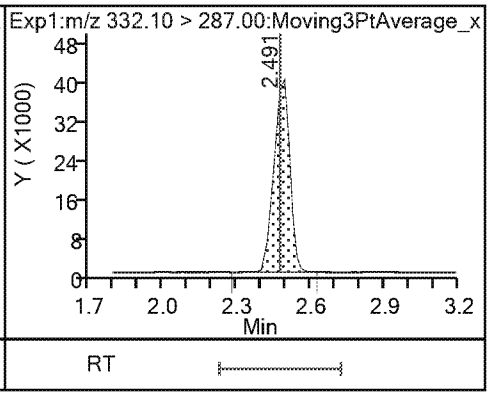
13 Perfluorohexanoic acid



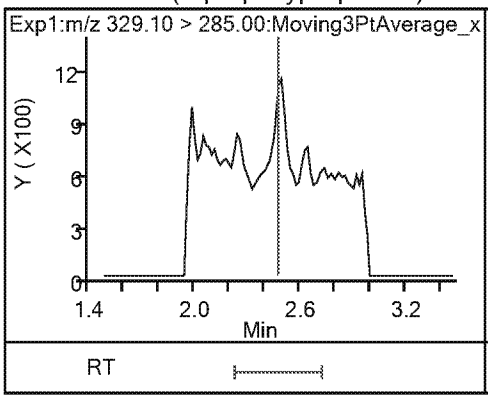
$ 2 13C2 PFHxA



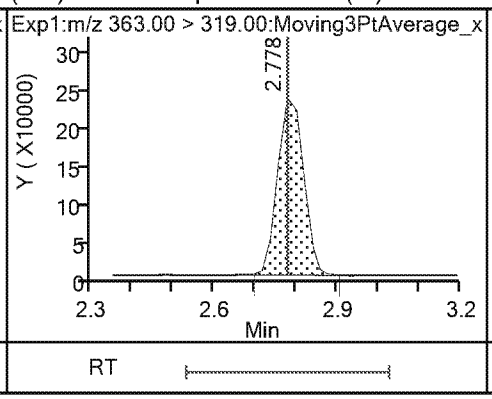
$ 25 13C3 HFPO-DA



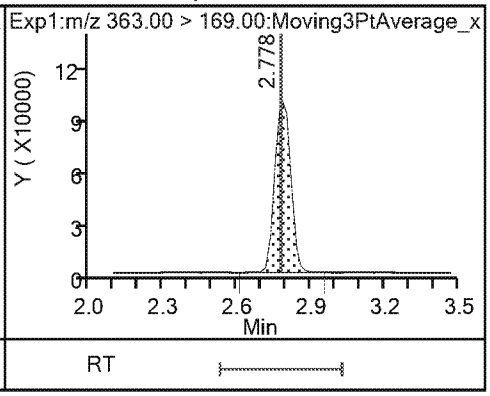
22 Perfluoro(2-propoxypropanoic) acid (ND)



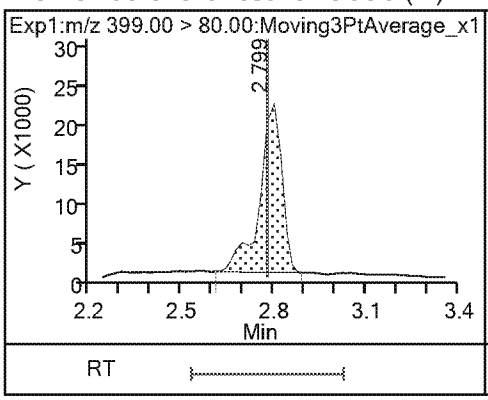
4 Perfluoroheptanoic acid (M)



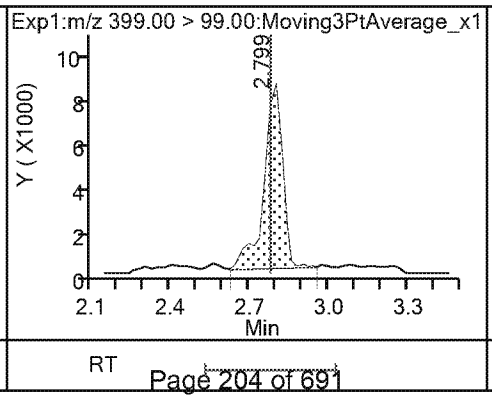
4 Perfluoroheptanoic acid



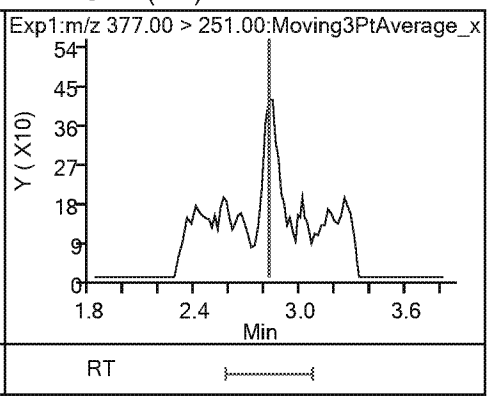
3 Perfluorohexanesulfonic acid (M)



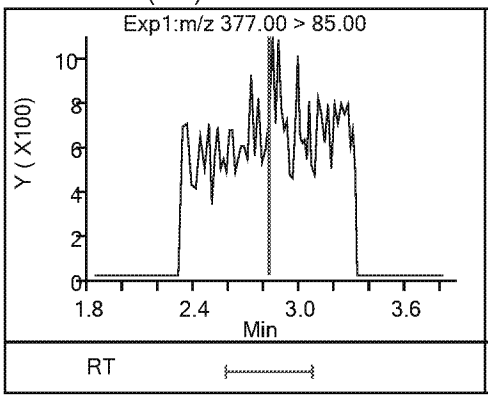
3 Perfluorohexanesulfonic acid



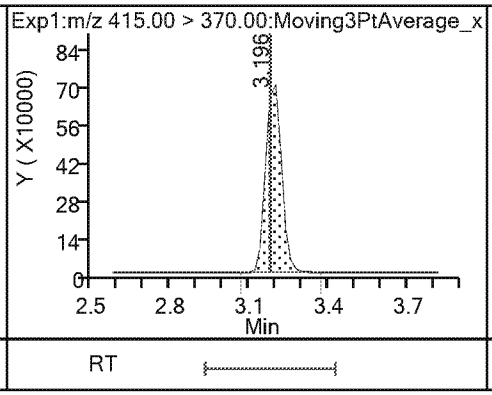
24 DONA (ND)



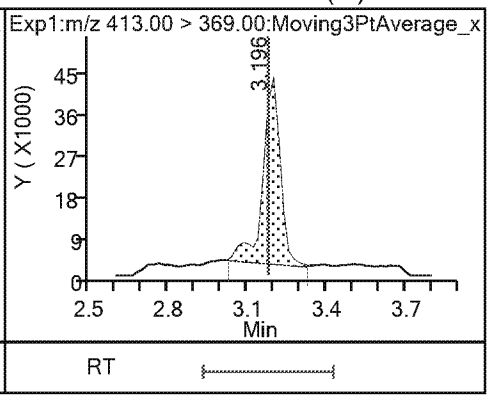
24 DONA (ND)



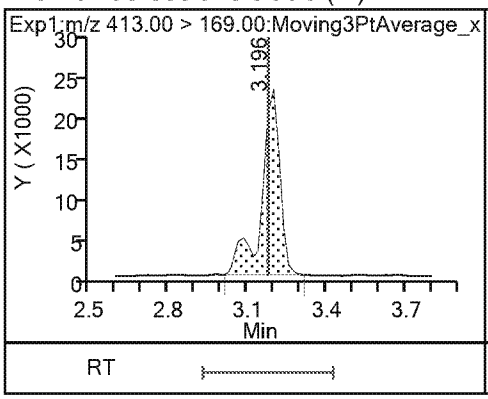
* 5 13C2 PFOA



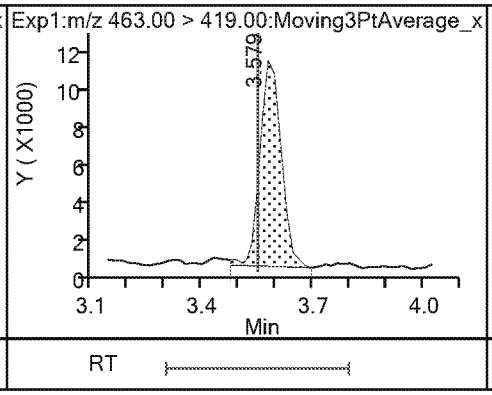
6 Perfluorooctanoic acid (M)



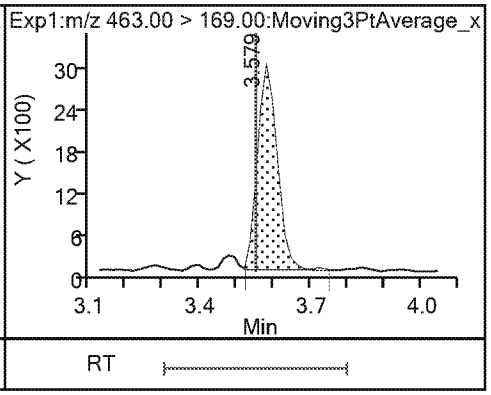
6 Perfluorooctanoic acid (M)



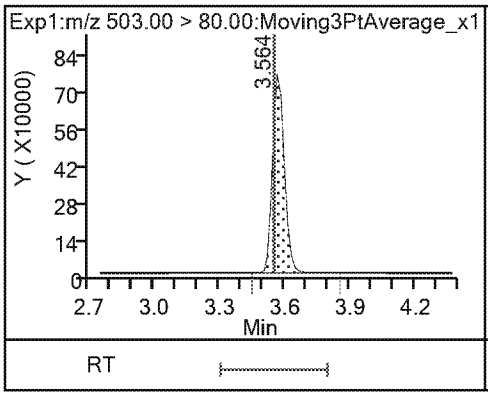
9 Perfluorononanoic acid



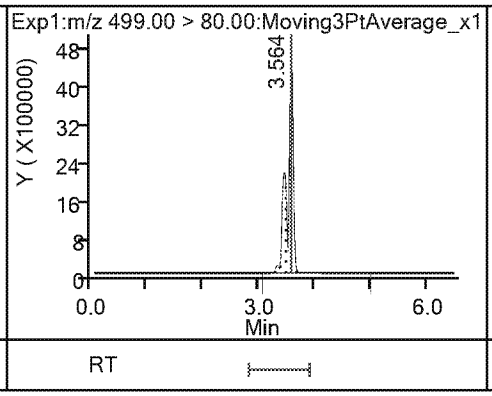
9 Perfluorononanoic acid



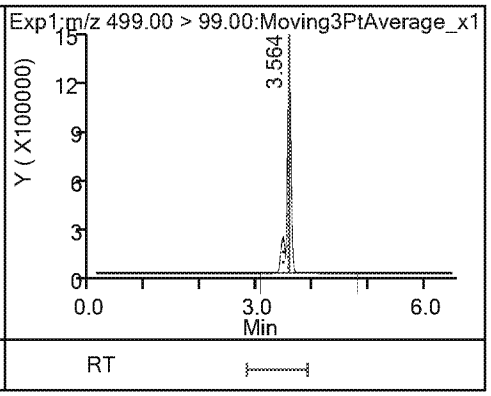
* 7 13C4 PFOS



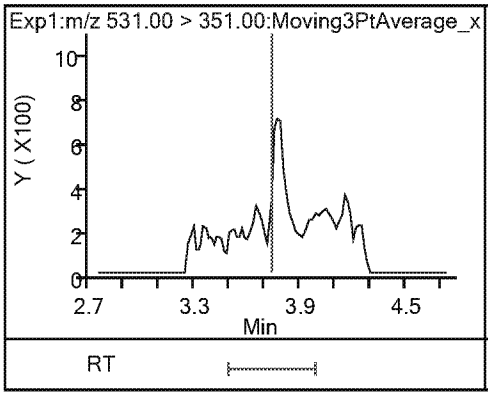
8 Perfluorooctanesulfonic acid



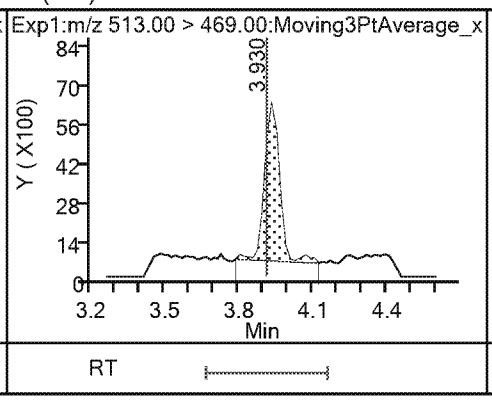
8 Perfluorooctanesulfonic acid



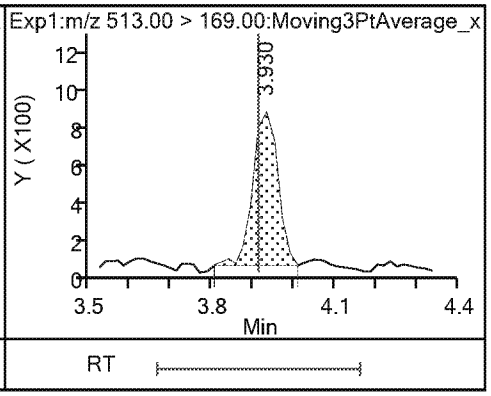
23 9-Chlorohexadecafluoro-3-oxanonane1(ND)



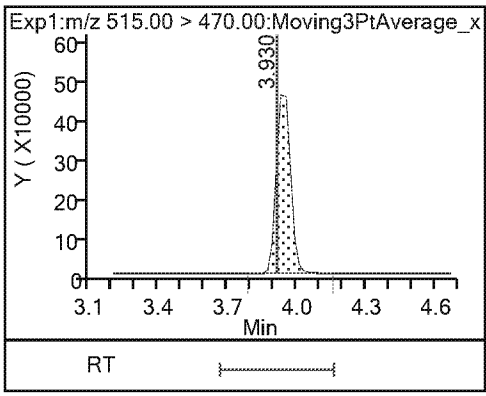
14 Perfluorodecanoic acid



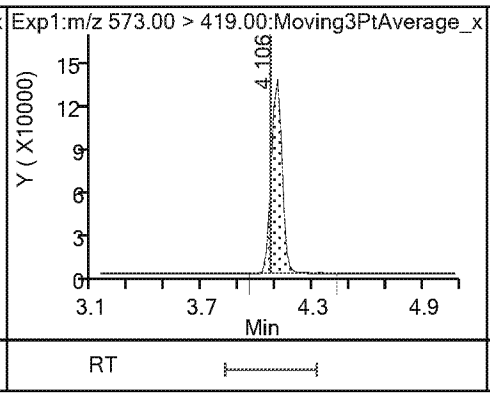
14 Perfluorodecanoic acid



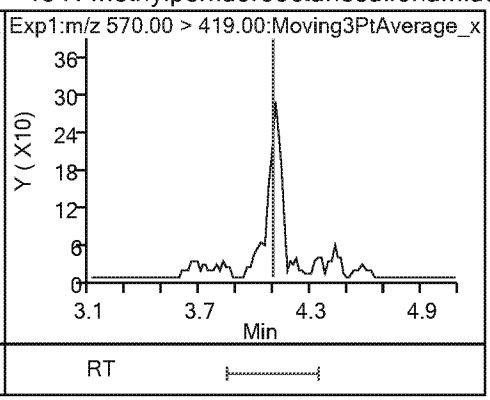
$ 10 13C2 PFDA



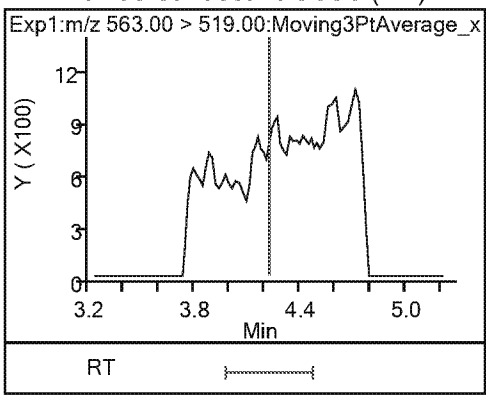
* 12 d3-NMeFOSAA



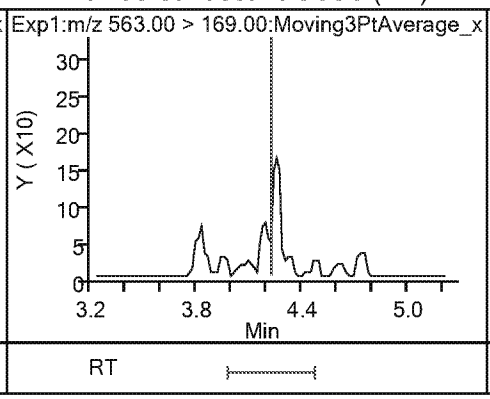
15 N-methylperfluorooctanesulfonamido (ND)



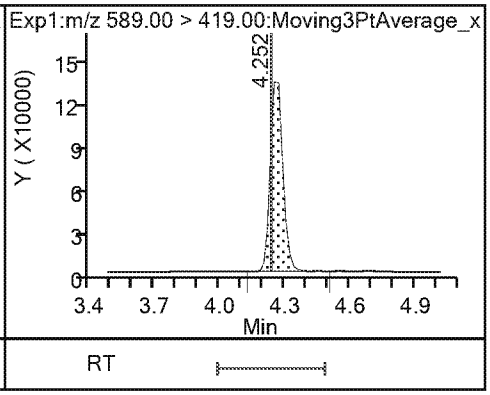
17 Perfluoroundecanoic acid (ND)



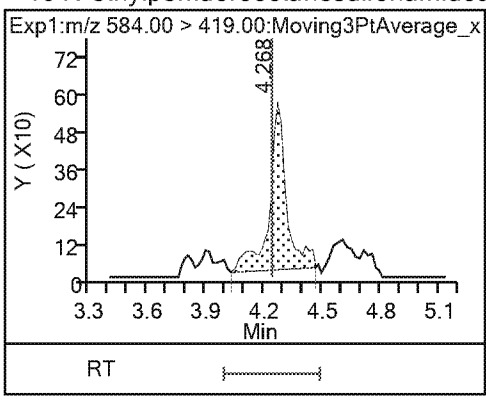
17 Perfluoroundecanoic acid (ND)



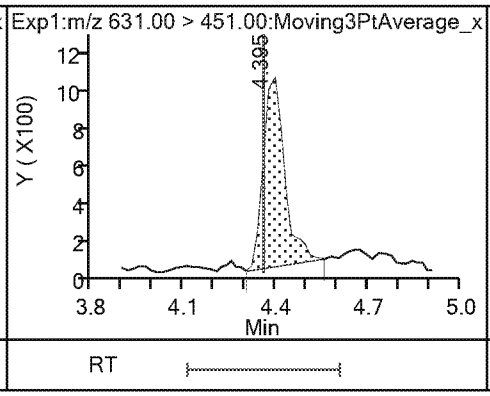
$ 11 d5-NEtFOSAA



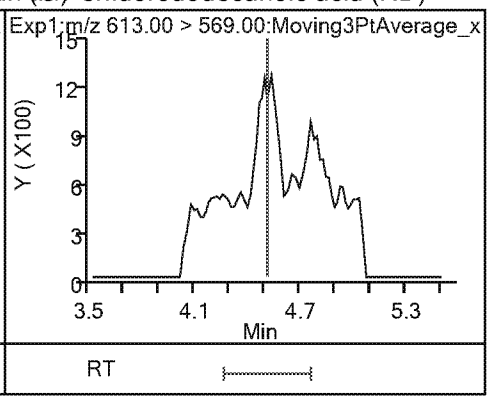
16 N-ethylperfluorooctanesulfonamidoa



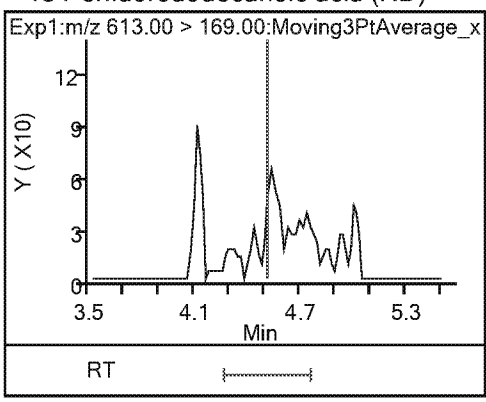
21 11-Chloroeicosafluoro-3-oxaundecan



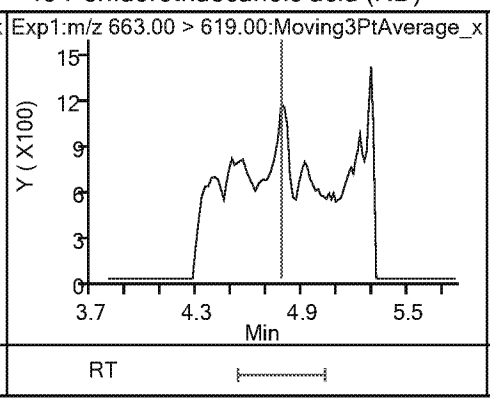
18 Perfluorododecanoic acid (ND)



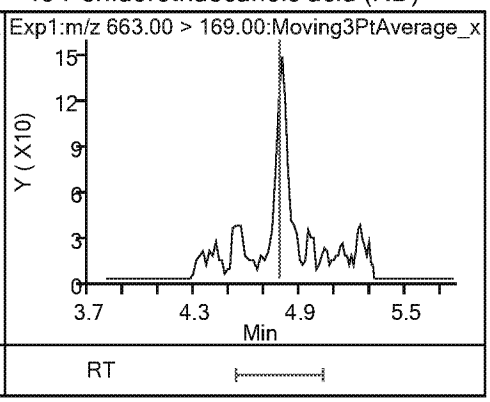
18 Perfluorododecanoic acid (ND)



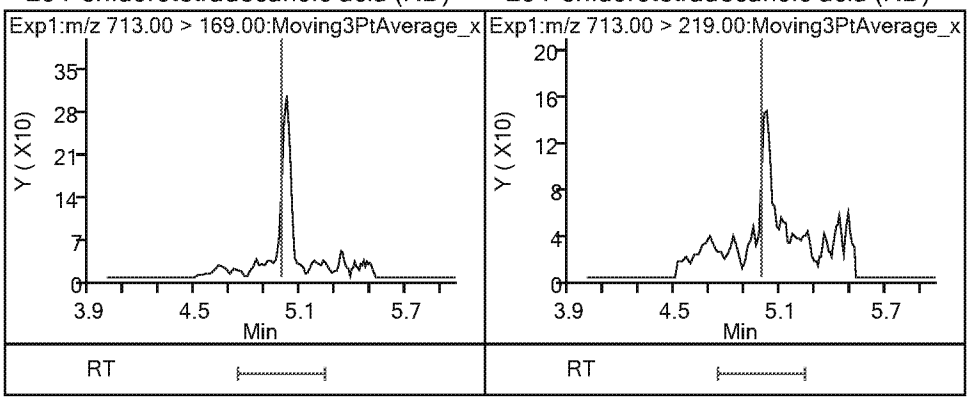
19 Perfluorotridecanoic acid (ND)



19 Perfluorotridecanoic acid (ND)



20 Perfluorotetradecanoic acid (ND) 20 Perfluorotetradecanoic acid (ND)



TestAmerica Sacramento
Recovery Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_020.d
Lims ID: 320-48794-A-1-A
Client ID: C0AP3
Sample Type: Client
Inject. Date: 03-Apr-2019 07:13:54 ALS Bottle#: 10 Worklist Smp#: 17
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-48794-A-1-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 11:42:11 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 13:02:43

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	2.50	2.36	94.43
$ 25 13C3 HFPO-DA	2.50	2.88	115.10
$ 10 13C2 PFDA	2.50	2.69	107.79
$ 11 d5-NEtFOSAA	2.50	2.44	97.59

TestAmerica Sacramento

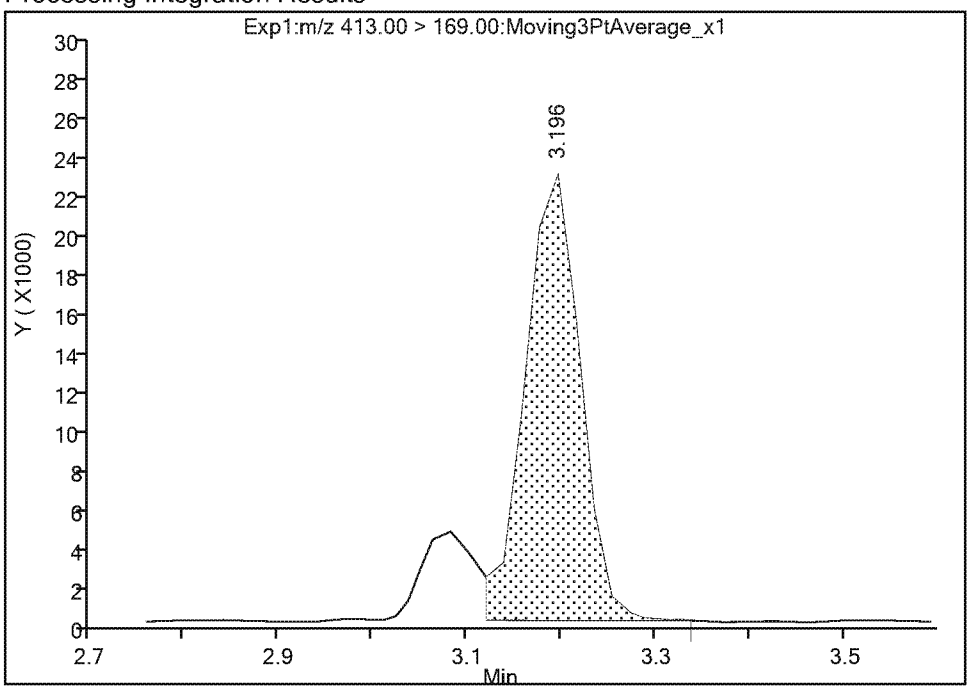
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_020.d				
Injection Date:	03-Apr-2019 07:13:54	Instrument ID:	A8_N		
Lims ID:	320-48794-A-1-A	Lab Sample ID:	320-48794-1		
Client ID:	C0AP3				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	10	Worklist Smp#:	17
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

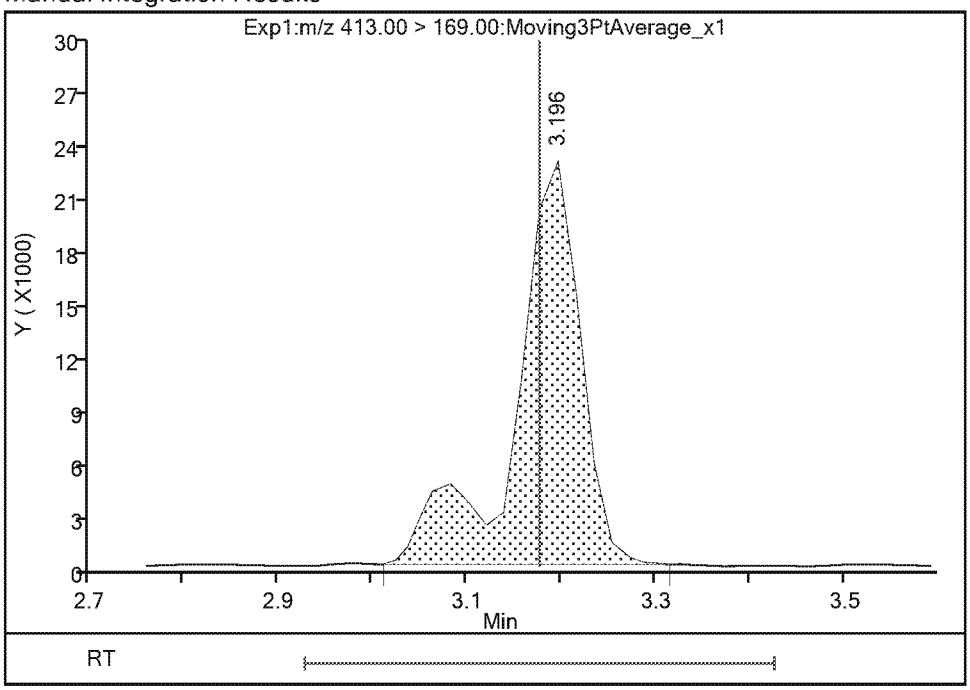
Processing Integration Results

RT: 3.20
Area: 90299
Amount: 0.148919
Amount Units: ng/ml



Manual Integration Results

RT: 3.20
Area: 107150
Amount: 0.157709
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 3-Apr-2019 10:27:04
Audit Action: Manually Integrated Audit Reason: Isomers

TestAmerica Sacramento

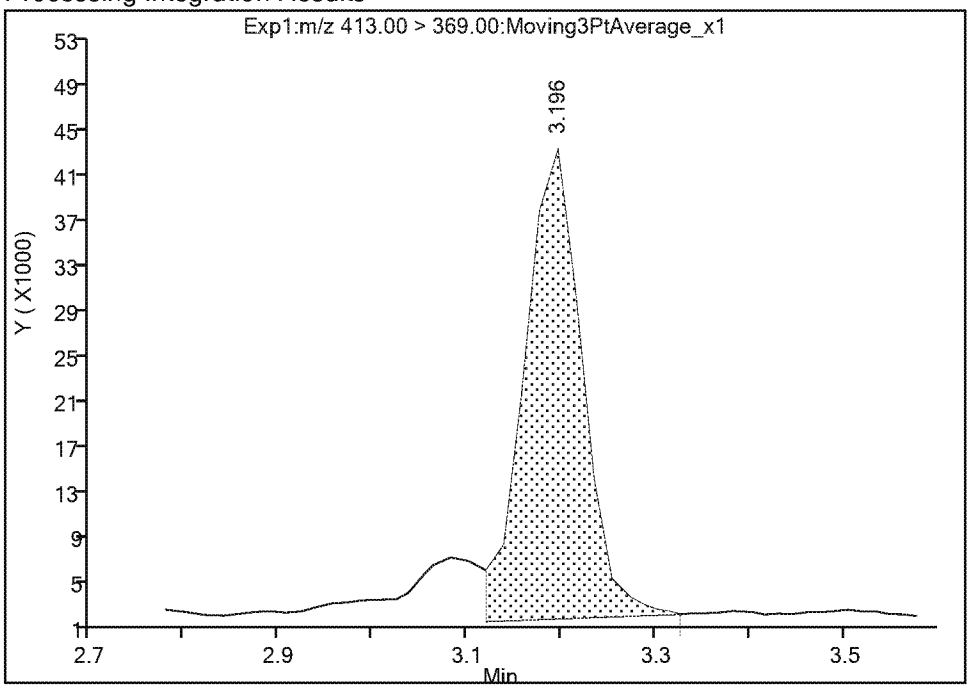
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_020.d				
Injection Date:	03-Apr-2019 07:13:54	Instrument ID:	A8_N		
Lims ID:	320-48794-A-1-A	Lab Sample ID:	320-48794-1		
Client ID:	C0AP3				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	10	Worklist Smp#:	17
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

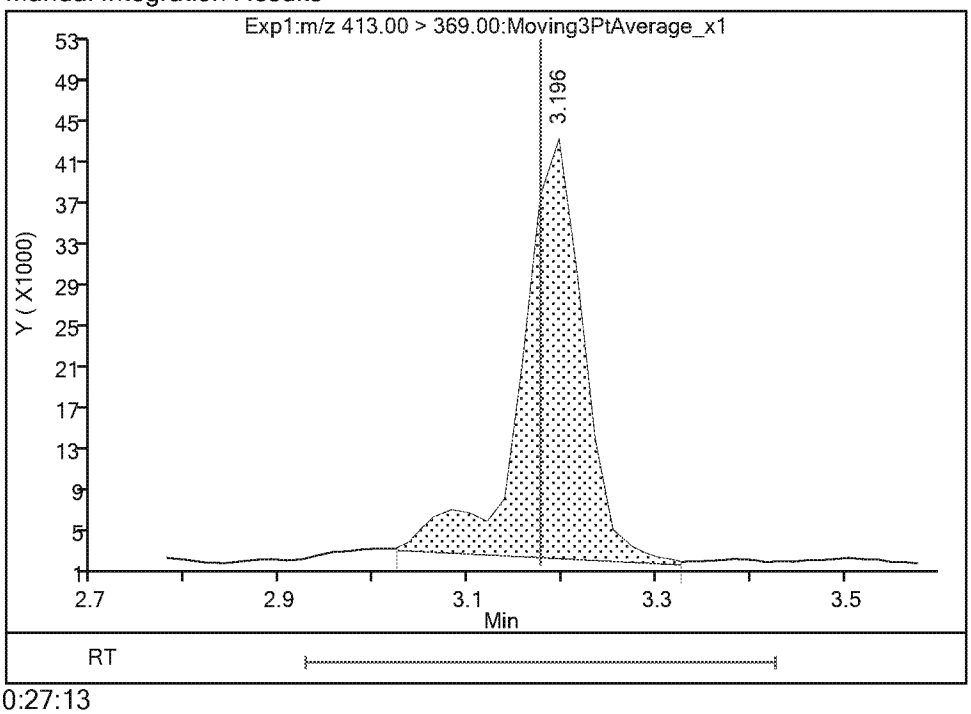
Processing Integration Results

RT: 3.20
Area: 172319
Amount: 0.148919
Amount Units: ng/ml



Manual Integration Results

RT: 3.20
Area: 182491
Amount: 0.157709
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 10:27:13
Audit Action: Manually Integrated Audit Reason: Isomers

TestAmerica Sacramento

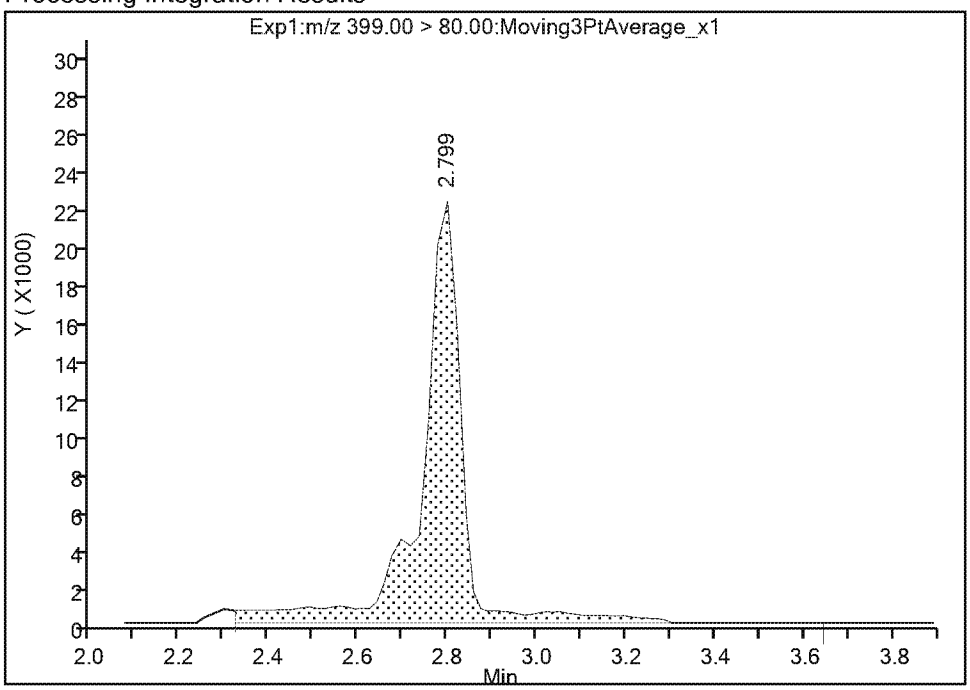
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_020.d				
Injection Date:	03-Apr-2019 07:13:54	Instrument ID:	A8_N		
Lims ID:	320-48794-A-1-A	Lab Sample ID:	320-48794-1		
Client ID:	C0AP3				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	10	Worklist Smp#:	17
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

3 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

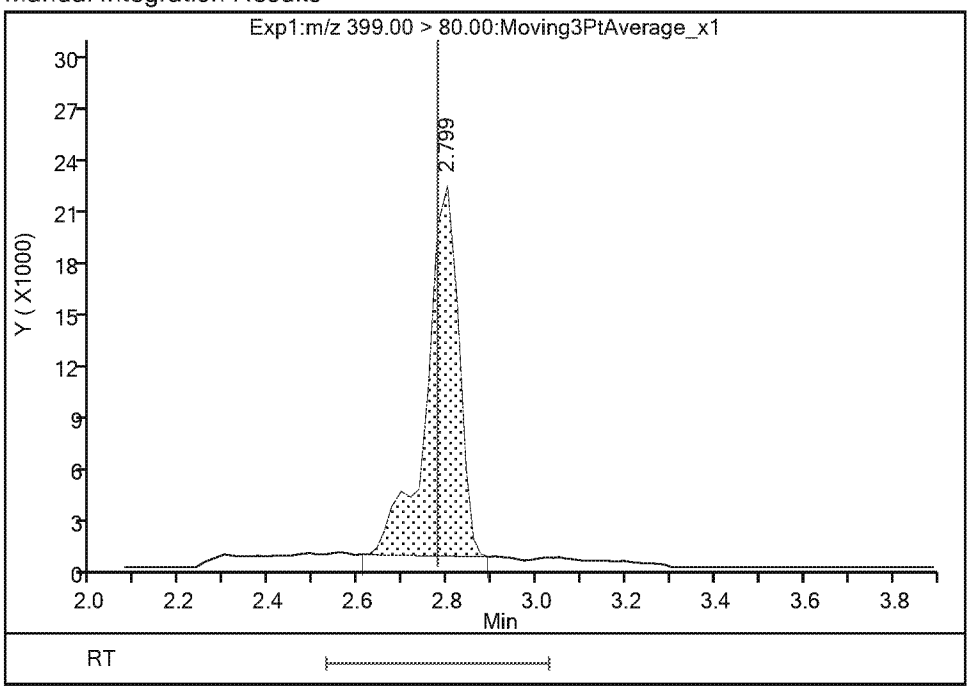
Processing Integration Results

RT: 2.80
Area: 136522
Amount: 0.084613
Amount Units: ng/ml



Manual Integration Results

RT: 2.80
Area: 104419
Amount: 0.064716
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 10:26:22
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento

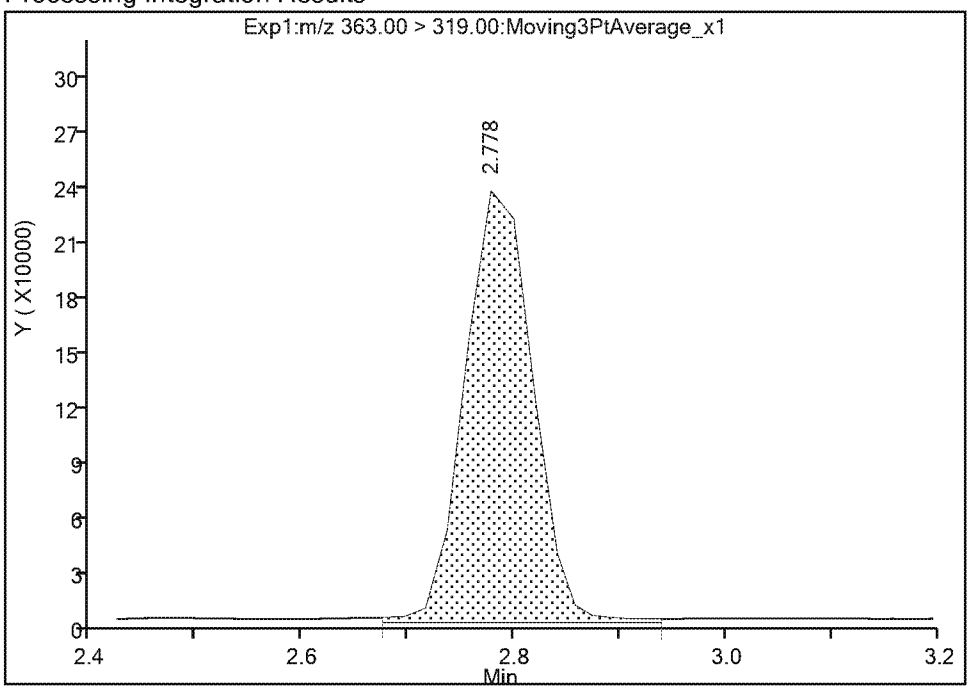
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_020.d				
Injection Date:	03-Apr-2019 07:13:54	Instrument ID:	A8_N		
Lims ID:	320-48794-A-1-A	Lab Sample ID:	320-48794-1		
Client ID:	C0AP3				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	10	Worklist Smp#:	17
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

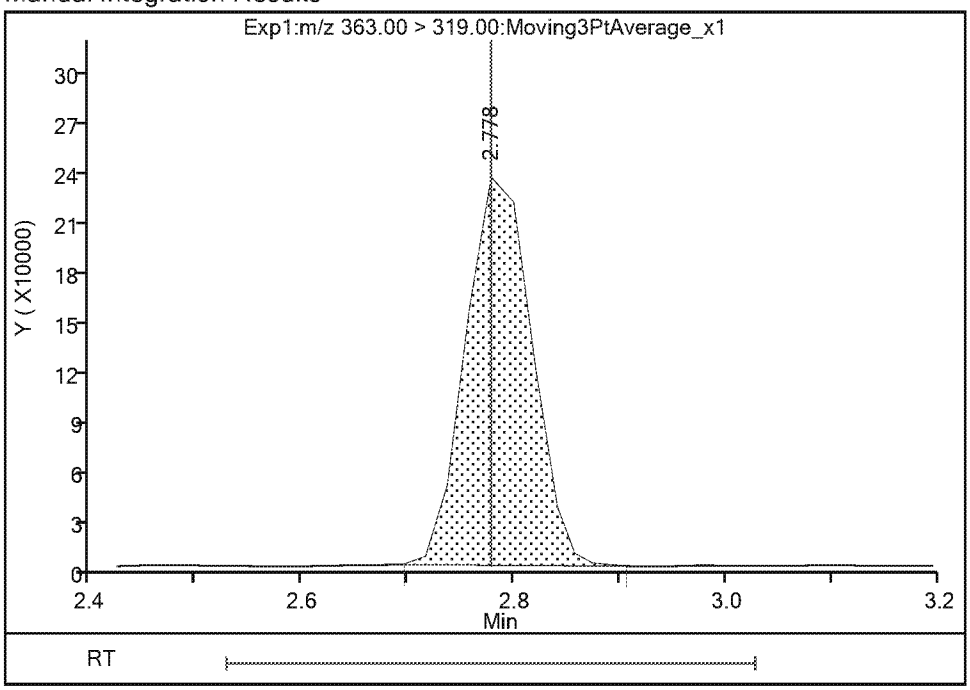
Processing Integration Results

RT: 2.78
Area: 1018094
Amount: 0.829712
Amount Units: ng/ml



Manual Integration Results

RT: 2.78
Area: 982530
Amount: 0.800728
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 10:26:44
Audit Action: Manually Integrated Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: C0AP3 DL
Lab Sample ID: 320-48794-1 DL
Matrix: Water
Lab File ID: 2019.04.05_537.1A_028.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 12:48
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 274.7(mL)
Date Analyzed: 04/05/2019 14:16
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 5
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 286379
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	870		9.1	4.3

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	101		70-130
STL00996	13C2 PFDA	106		70-130

Eurofins TestAmerica, Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190405-74359.b\2019.04.05_537.1A_028.d
Lims ID: 320-48794-A-1-A
Client ID: C0AP3
Sample Type: Client
Inject. Date: 05-Apr-2019 14:16:56 ALS Bottle#: 16 Worklist Smp#: 3
Injection Vol: 10.0 ul Dil. Factor: 5.0000
Sample Info: 320-48794-a-1-a 5X (#285397)
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190405-74359.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Apr-2019 15:06:06 Calib Date: 04-Apr-2019 16:11:08
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: CTX0314

First Level Reviewer: Ex. 4 CBI Date: 05-Apr-2019 15:00:11
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.993	1.994	-0.001	1.000	324040	0.2193	Target=1.41	1173	
298.90 > 99.00	1.993	1.994	-0.001	1.000	219280		1.48(0.00-0.00)	99.8	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.348	2.349	-0.001	0.739	449898	0.3286	Target=10.46	85.4	
313.00 > 119.00	2.348	2.349	-0.001	0.739	43333		10.38(0.00-0.00)	59.2	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.348	2.349	-0.001	1.000	723193	0.5042		2872	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.474	2.475	-0.001	1.000	41143	0.6387		273	
4 Perfluoroheptanoic acid									
363.00 > 319.00	2.779	2.776	0.002	1.000	246263	0.1889	Target=2.41	25.3	
363.00 > 169.00	2.779	2.776	0.002	1.000	90565		2.72(0.00-0.00)	218	
3 Perfluorohexanesulfonic acid									M
399.00 > 80.00	2.799	2.776	0.023	1.000	25730	0.0144	Target=2.91	23.4	M
399.00 > 99.00	2.779	2.776	0.002	0.993	8591		2.99(0.00-0.00)	3.1	M
* 5 13C2 PFOA									
415.00 > 370.00	3.177	3.177	0.0		3075940	2.50		7596	
6 Perfluorooctanoic acid									M
413.00 > 369.00	3.177	3.177	0.0	1.000	44103	0.0353	Target=1.70	4.6	M
413.00 > 169.00	3.177	3.177	0.0	1.000	22956		1.92(0.00-0.00)	24.4	M
* 7 13C4 PFOS									
503.00 > 80.00	3.564	3.548	0.016		2989701	2.39		7704	
9 Perfluorononanoic acid									
463.00 > 419.00	3.579	3.562	0.017	1.000	9269	0.0102	Target=3.78	4.3	
463.00 > 169.00	3.564	3.562	0.002	0.996	2099		4.42(0.00-0.00)	19.8	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
8 Perfluorooctanesulfonic acid									
499.00 > 80.00	3.564	3.564	0.0	1.000	6310011	4.78	Target=4.63	4679	
499.00 > 99.00	3.564	3.564	0.0	1.000	1187494		5.31(0.00-0.00)	980	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.914	3.911	0.003	1.000	5309	0.007376	Target=4.93	2.2	
513.00 > 169.00	3.914	3.911	0.003	1.000	1553		3.42(0.00-0.00)	3.9	
$ 10 13C2 PFDA									
515.00 > 470.00	3.933	3.911	0.022	1.000	405162	0.5303		2338	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.089	4.088	0.001		532475	2.50		2646	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.233	4.232	0.001	1.035	103866	0.4771		64.2	

QC Flag Legend

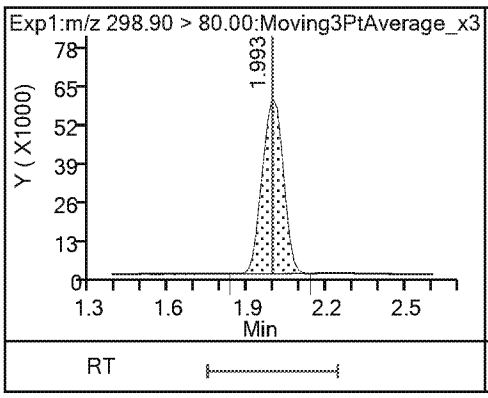
Review Flags

M - Manually Integrated

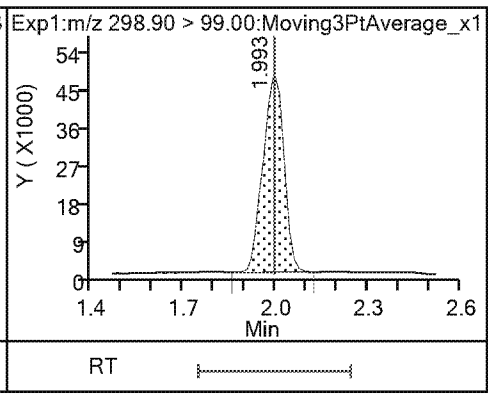
Eurofins TestAmerica, Sacramento

Data File:	\\chromna\Sacramento\ChromData\A8_N\20190405-74359.b\2019.04.05_537.1A_028.d				
Injection Date:	05-Apr-2019 14:16:56	Instrument ID:	A8_N		
Lims ID:	320-48794-A-1-A	Lab Sample ID:	320-48794-1		
Client ID:	C0AP3				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	16	Worklist Smp#:	3
Injection Vol:	10.0 ul	Dil. Factor:	5.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

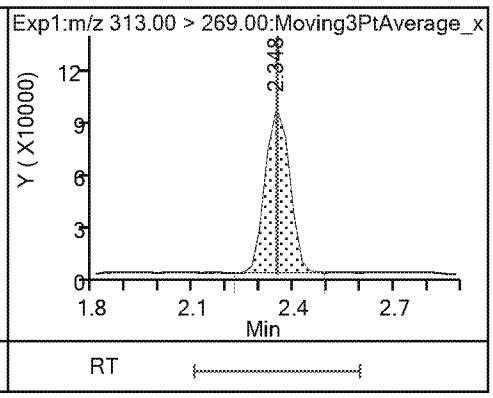
1 Perfluorobutanesulfonic acid



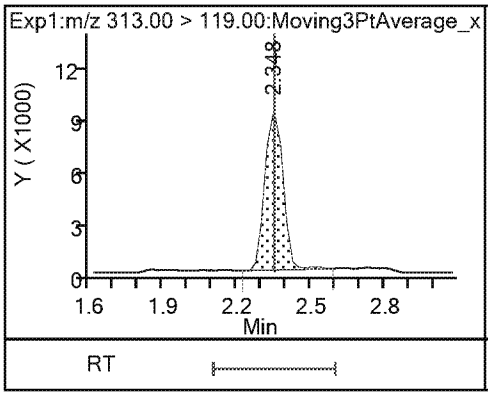
1 Perfluorobutanesulfonic acid



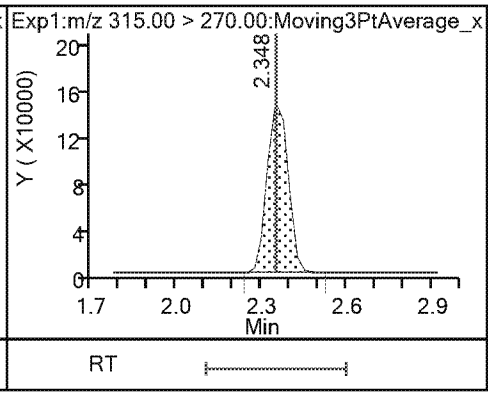
13 Perfluorohexanoic acid



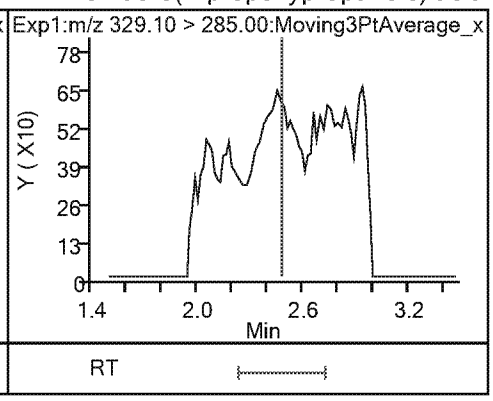
13 Perfluorohexanoic acid



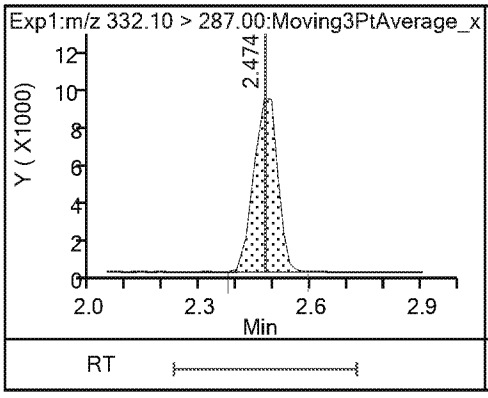
$ 2 13C2 PFHxA



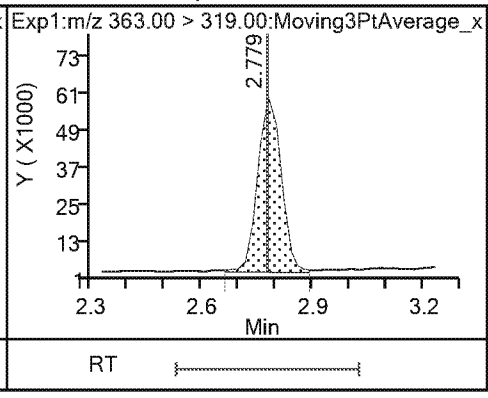
22 Perfluoro(2-propoxypropanoic) acid (ND)



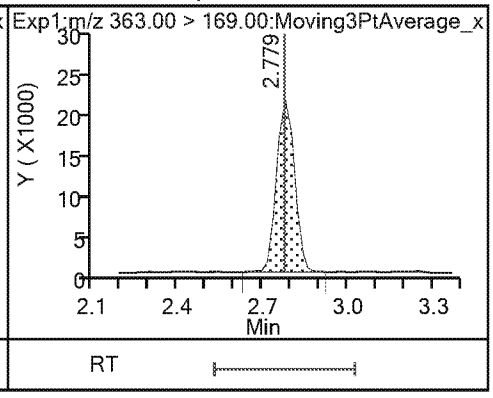
$ 25 13C3 HFPO-DA



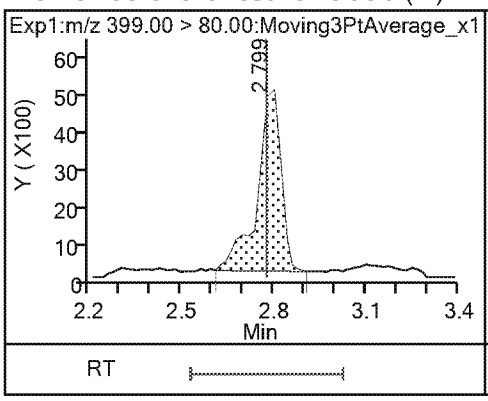
4 Perfluoroheptanoic acid



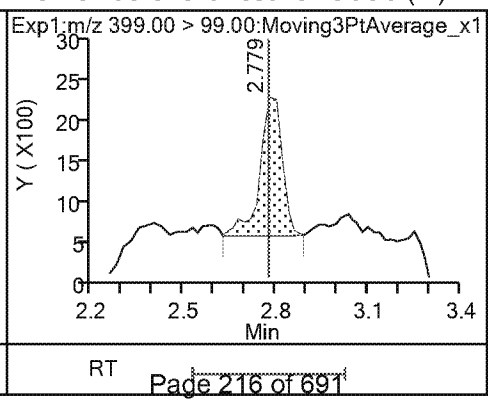
4 Perfluoroheptanoic acid



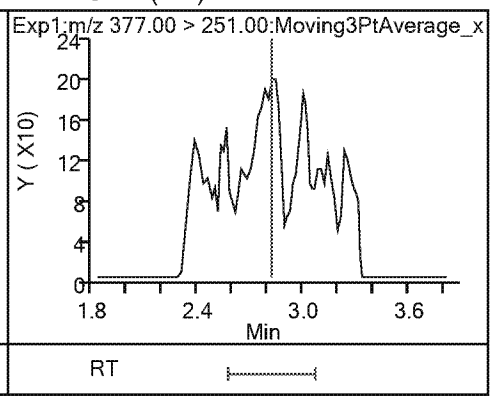
3 Perfluorohexanesulfonic acid (M)



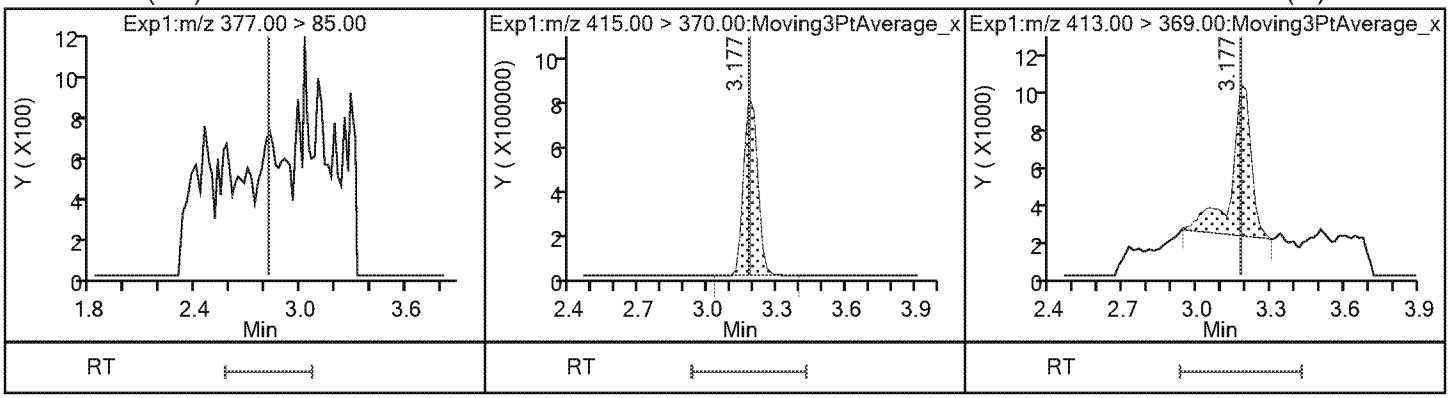
3 Perfluorohexanesulfonic acid (M)



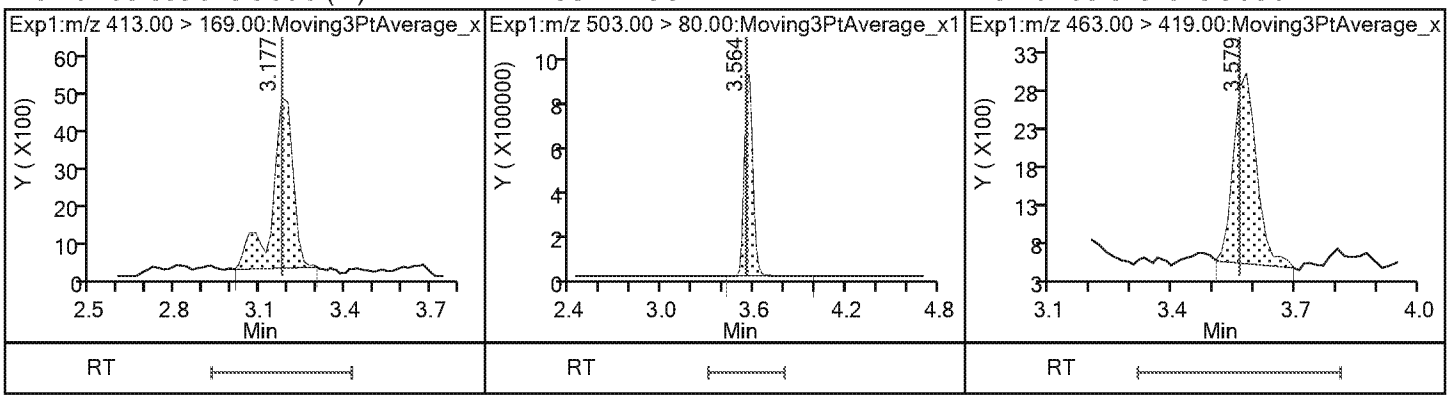
24 DONA (ND)



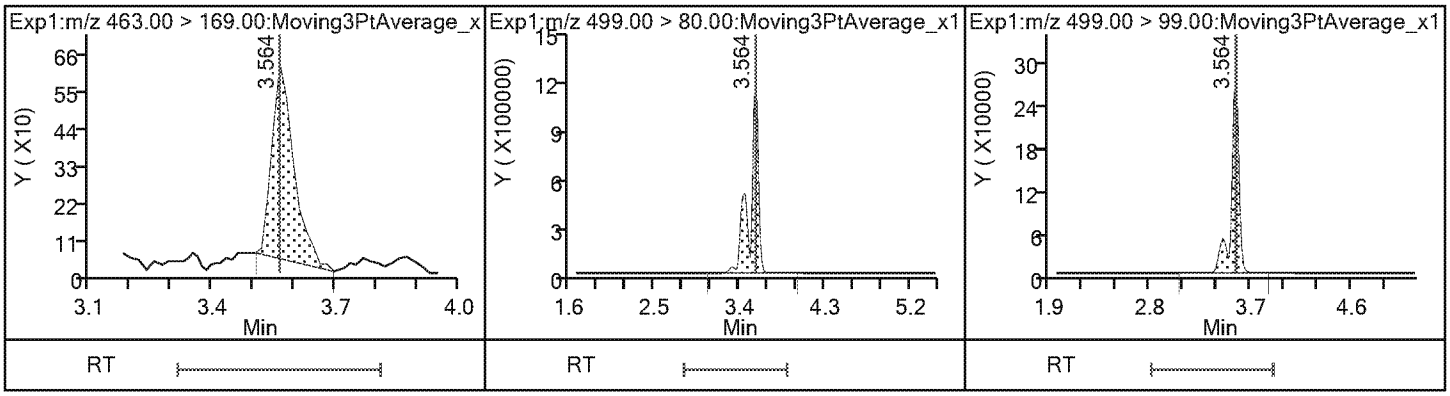
24 DONA (ND) * 5 13C2 PFOA 6 Perfluorooctanoic acid (M)



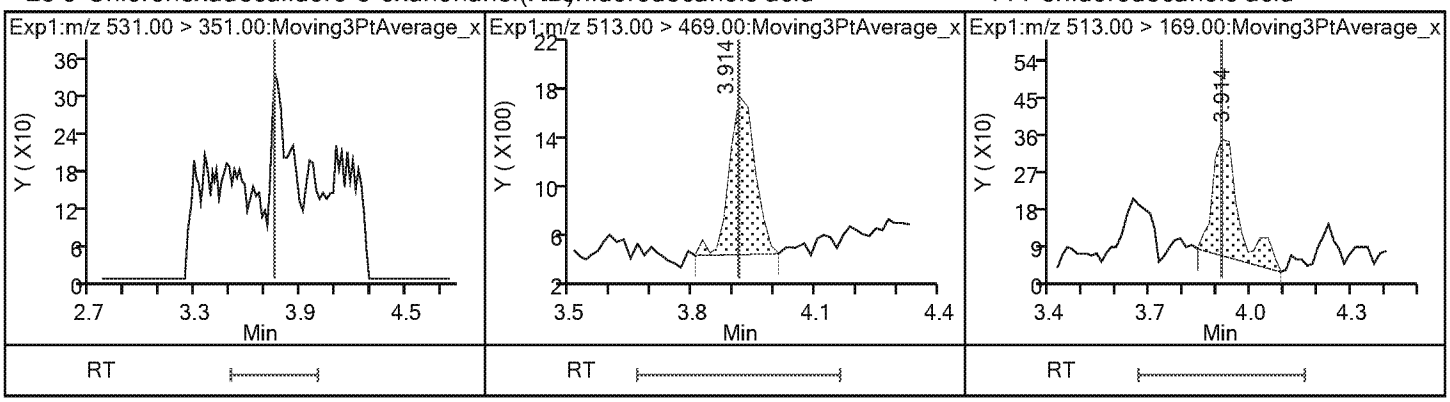
6 Perfluorooctanoic acid (M) * 7 13C4 PFOS 9 Perfluorononanoic acid



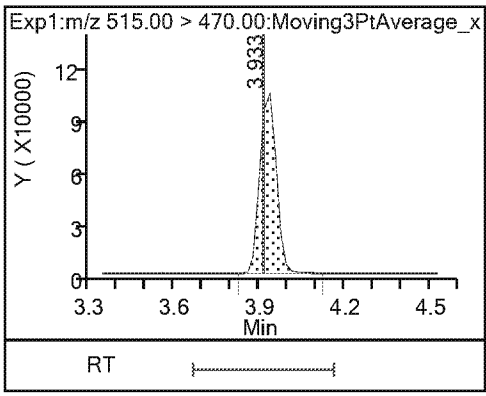
9 Perfluorononanoic acid 8 Perfluorooctanesulfonic acid 8 Perfluorooctanesulfonic acid



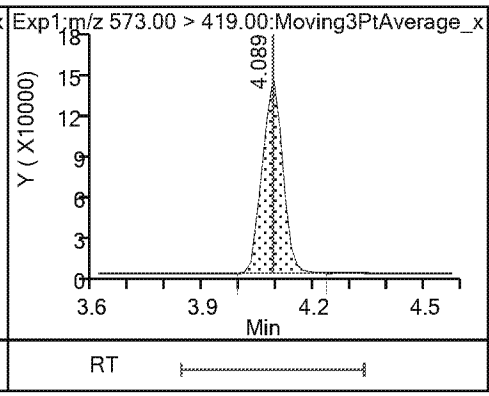
23 9-Chlorohexadecafluoro-3-oxanonane1(ND) 14 Perfluorodecanoic acid 14 Perfluorodecanoic acid



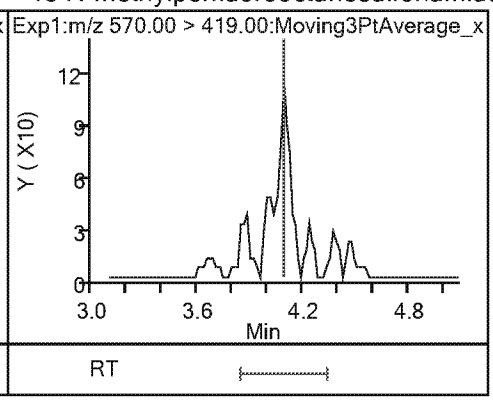
$ 10 13C2 PFDA



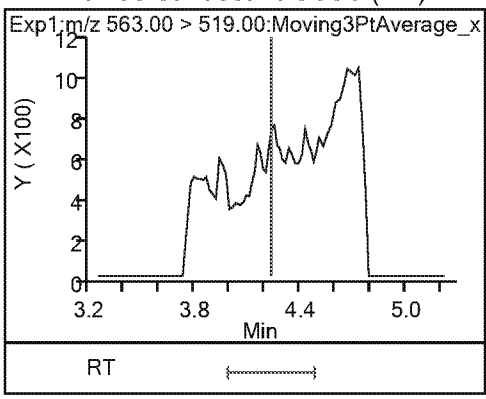
* 12 d3-NMeFOSAA



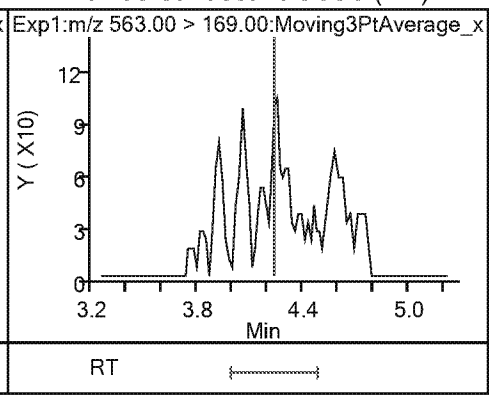
15 N-methylperfluorooctanesulfonamido (ND)



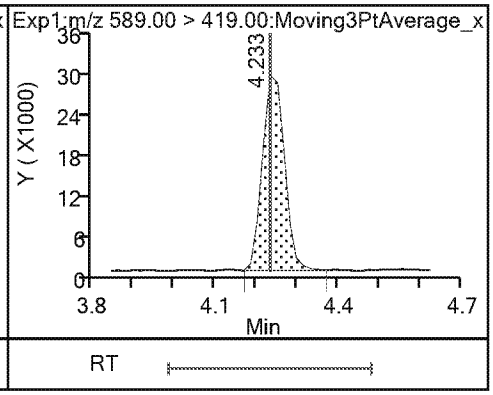
17 Perfluoroundecanoic acid (ND)



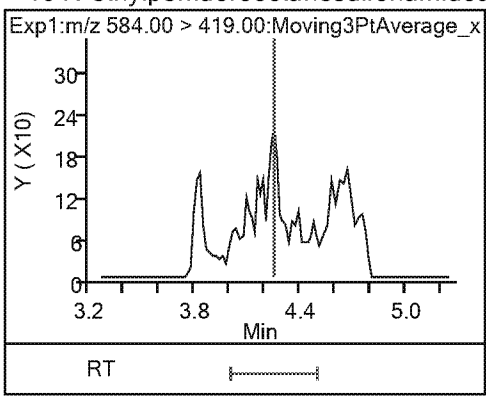
17 Perfluoroundecanoic acid (ND)



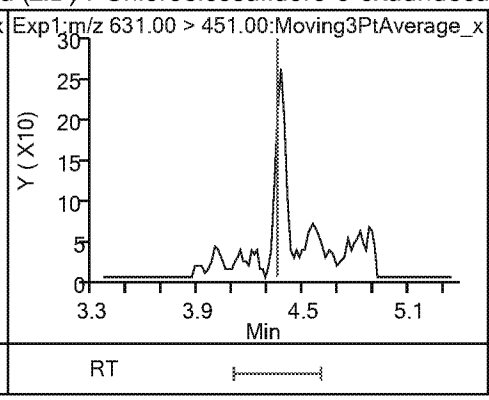
$ 11 d5-NEtFOSAA



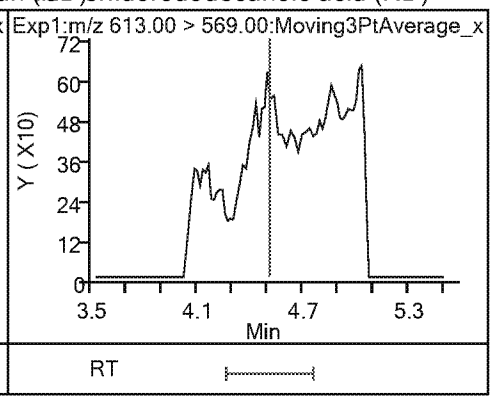
16 N-ethylperfluorooctanesulfonamidoa (ND)



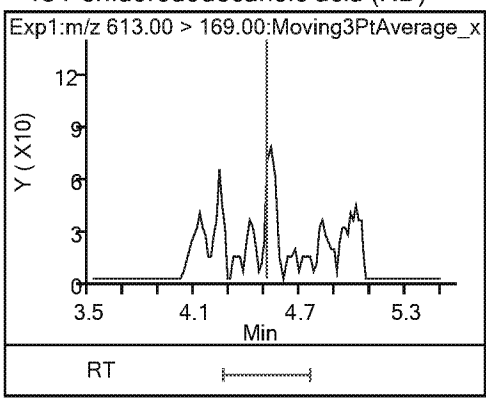
21 11-Chloroeicosafluoro-3-oxaundecan (ND)



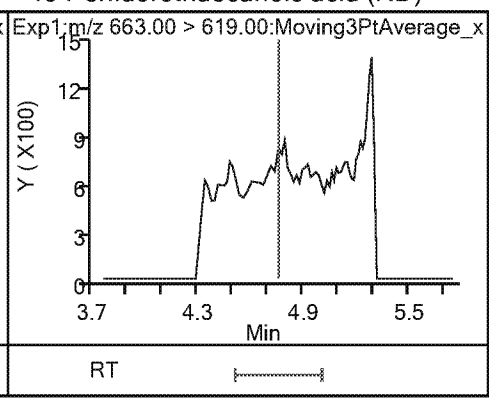
18 Perfluorododecanoic acid (ND)



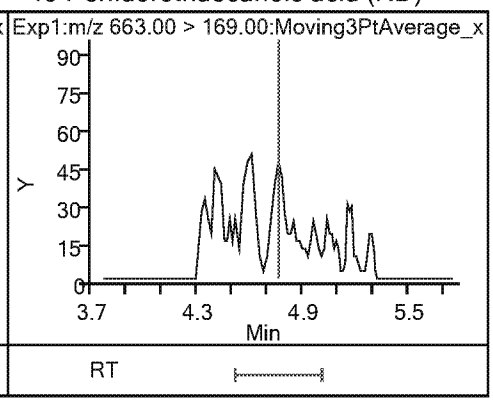
18 Perfluorododecanoic acid (ND)



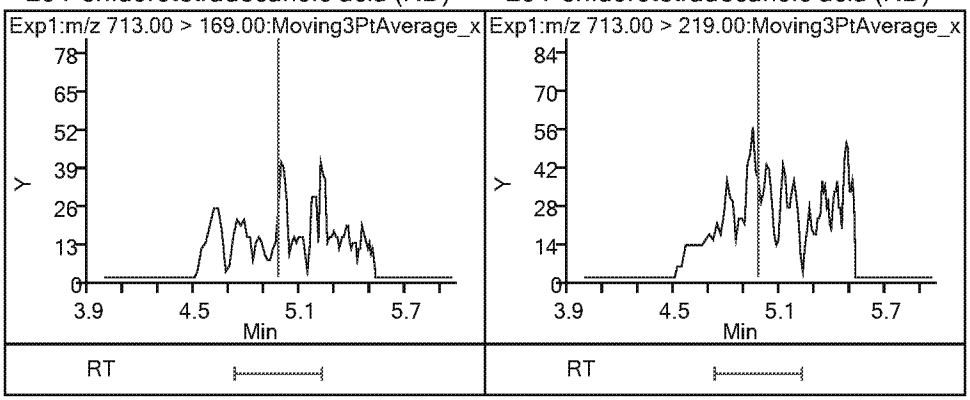
19 Perfluorotridecanoic acid (ND)



19 Perfluorotridecanoic acid (ND)



20 Perfluorotetradecanoic acid (ND) 20 Perfluorotetradecanoic acid (ND)



Eurofins TestAmerica, Sacramento
Recovery Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190405-74359.b\2019.04.05_537.1A_028.d
Lims ID: 320-48794-A-1-A
Client ID: C0AP3
Sample Type: Client
Inject. Date: 05-Apr-2019 14:16:56 ALS Bottle#: 16 Worklist Smp#: 3
Injection Vol: 10.0 ul Dil. Factor: 5.0000
Sample Info: 320-48794-a-1-a 5X (#285397)
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190405-74359.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Apr-2019 15:06:06 Calib Date: 04-Apr-2019 16:11:08
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: CTX0314

First Level Reviewer: Ex. 4 CBI Date: 05-Apr-2019 15:00:11

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	2.50	0.5042	100.85
$ 25 13C3 HFPO-DA	2.50	0.6387	127.74
$ 10 13C2 PFDA	2.50	0.5303	106.06
$ 11 d5-NEtFOSAA	2.50	0.4771	95.43

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: C0AP4
Lab Sample ID: 320-48794-2
Matrix: Water
Lab File ID: 2019.04.02_537A_021.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 14:00
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 266.1(mL)
Date Analyzed: 04/03/2019 07:21
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 285757
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	190		1.9	0.89
335-67-1	Perfluorooctanoic acid	30		5.6	2.5
375-95-1	Perfluorononanoic acid	6.3		1.9	0.44
355-46-4	Perfluorohexanesulfonic acid	7.6		1.9	0.60
375-85-9	Perfluoroheptanoic acid	21		2.8	1.2
375-73-5	Perfluorobutanesulfonic acid	35		1.9	0.75

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	95		70-130
STL00996	13C2 PFDA	105		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_021.d
Lims ID: 320-48794-A-2-A
Client ID: C0AP4
Sample Type: Client
Inject. Date: 03-Apr-2019 07:21:20 ALS Bottle#: 11 Worklist Smp#: 18
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-48794-A-2-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 11:03:28 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 10:31:39
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.992	1.992	0.0	1.000	1342754	0.9203	Target=1.47	870	
298.90 > 99.00	1.992	1.992	0.0	1.000	889612		1.51(0.00-0.00)	726	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.347	2.347	0.0	0.739	958770	0.7697	Target=11.08	98.4	
313.00 > 119.00	2.347	2.347	0.0	0.739	93119		10.30(0.00-0.00)	122	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.347	2.347	0.0	1.000	3137089	2.38		4525	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.490	2.490	0.0	1.000	203273	3.39		954	
4 Perfluoroheptanoic acid									M
363.00 > 319.00	2.777	2.778	-0.001	1.000	674586	0.5489	Target=2.42	57.7	M
363.00 > 169.00	2.777	2.778	-0.001	1.000	276403		2.44(0.00-0.00)	665	
3 Perfluorohexanesulfonic acid									M
399.00 > 80.00	2.798	2.798	0.0	1.000	348157	0.2030	Target=2.92	77.3	M
399.00 > 99.00	2.798	2.798	0.0	1.000	109427		3.18(0.00-0.00)	82.0	M
* 5 13C2 PFOA									
415.00 > 370.00	3.176	3.177	-0.001		2843521	2.50		11519	
6 Perfluorooctanoic acid									M
413.00 > 369.00	3.195	3.177	0.018	1.006	924690	0.7978	Target=1.75	86.3	M
413.00 > 169.00	3.176	3.177	-0.001	1.000	552177		1.67(0.00-0.00)	1268	M
8 Perfluorooctanesulfonic acid									
499.00 > 80.00	3.563	3.564	-0.001	1.000	6463445	5.07	Target=4.69	1599	
499.00 > 99.00	3.563	3.564	-0.001	1.000	961508		6.72(0.00-0.00)	1098	
* 7 13C4 PFOS									
503.00 > 80.00	3.563	3.565	-0.002		2881330	2.39		2780	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
9 Perfluorononanoic acid									
463.00 > 419.00	3.578	3.580	-0.002	1.000	143166	0.1687	Target=3.96	41.2	
463.00 > 169.00	3.578	3.580	-0.002	1.000	36095		3.97(0.00-0.00)	143	
14 Perfluorodecanoic acid									M
513.00 > 469.00	3.930	3.915	0.015	1.000	18348	0.0275	Target=5.01	7.5	M
513.00 > 169.00	3.930	3.915	0.015	1.000	3825		4.80(0.00-0.00)	24.5	
$ 10 13C2 PFDA									
515.00 > 470.00	3.930	3.934	-0.004	1.000	1834891	2.62		6631	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.092	4.090	0.002		539792	2.50		3145	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.252	4.250	0.002	1.039	488701	2.22		250	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.396	4.375	0.021	1.000	1682	0.000656		8.9	

QC Flag Legend

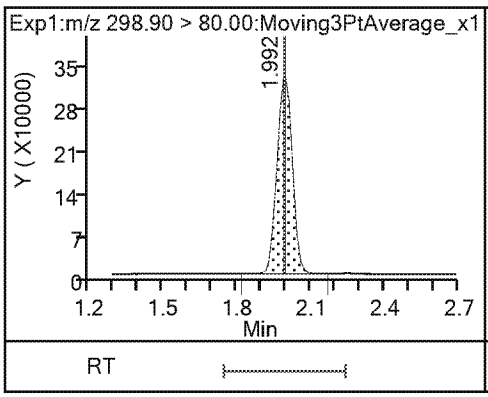
Review Flags

M - Manually Integrated

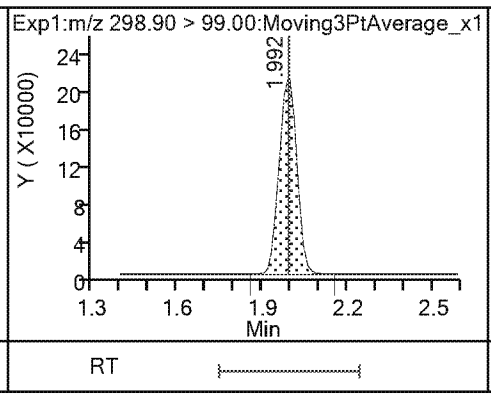
TestAmerica Sacramento

Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_021.d				
Injection Date:	03-Apr-2019 07:21:20	Instrument ID:	A8_N		
Lims ID:	320-48794-A-2-A	Lab Sample ID:	320-48794-2		
Client ID:	C0AP4				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	11	Worklist Smp#:	18
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

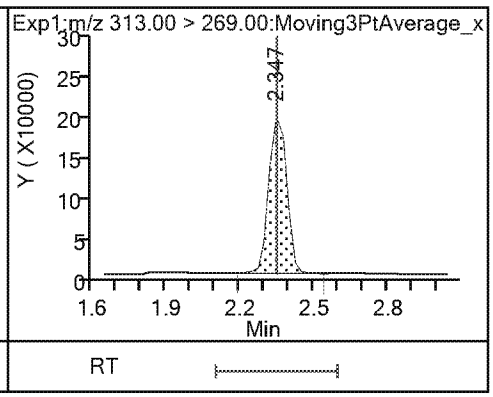
1 Perfluorobutanesulfonic acid



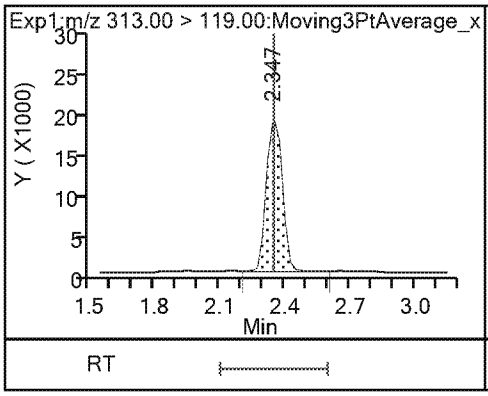
1 Perfluorobutanesulfonic acid



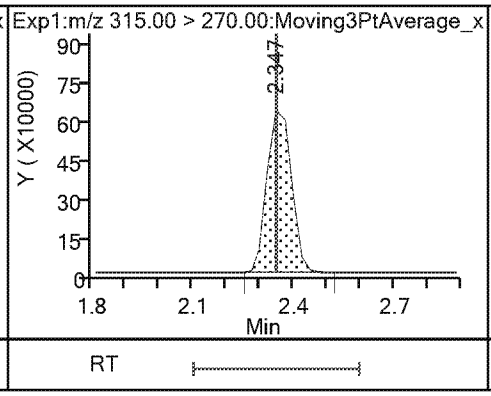
13 Perfluorohexanoic acid



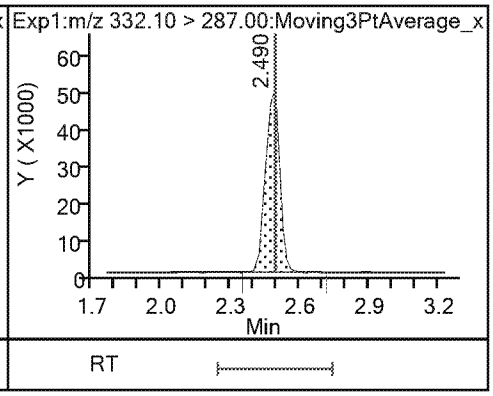
13 Perfluorohexanoic acid



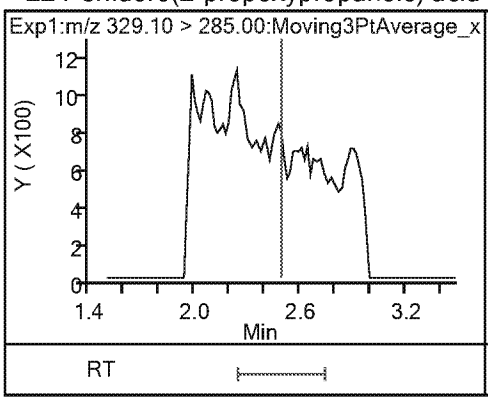
$ 2 13C2 PFHxA



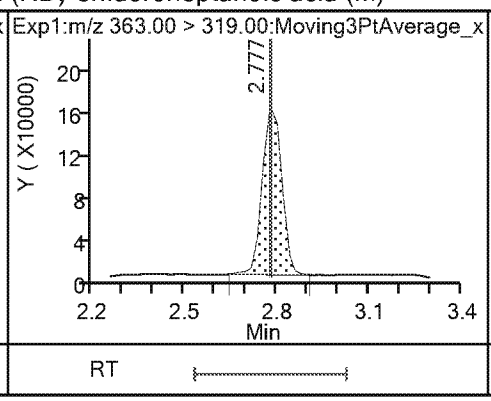
$ 25 13C3 HFPO-DA



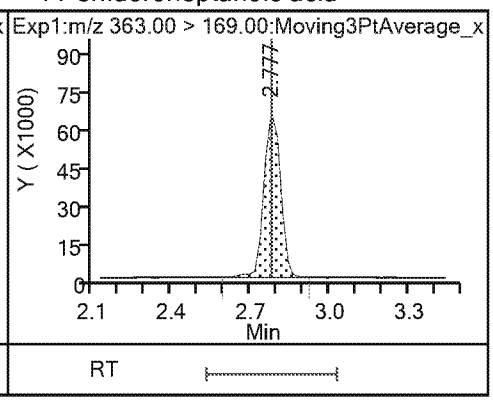
22 Perfluoro(2-propoxypropanoic) acid (ND)



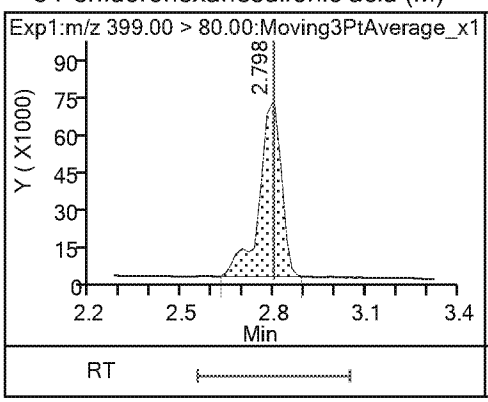
4 Perfluoroheptanoic acid (M)



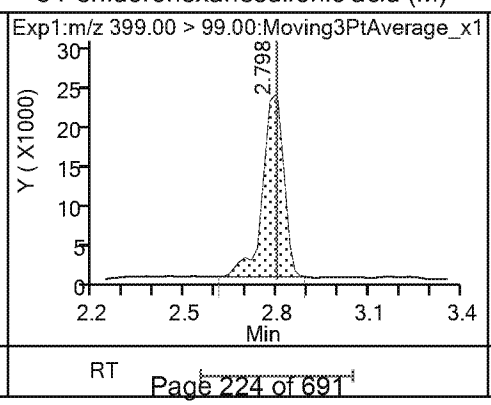
4 Perfluoroheptanoic acid



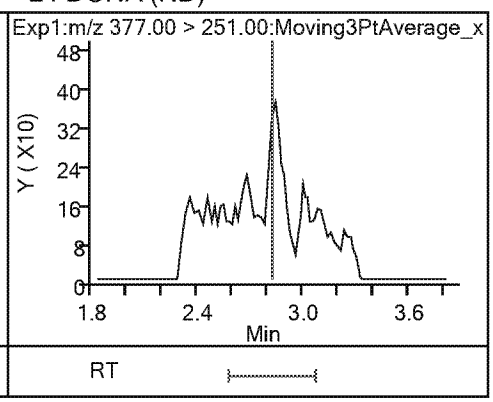
3 Perfluorohexanesulfonic acid (M)



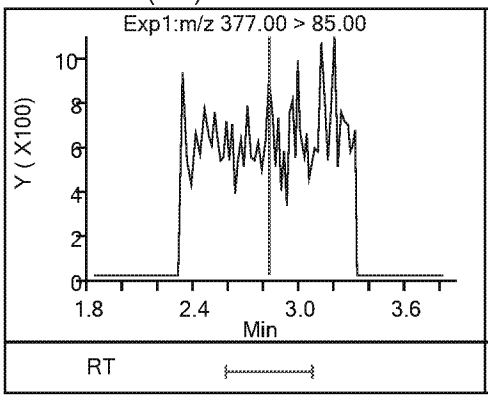
3 Perfluorohexanesulfonic acid (M)



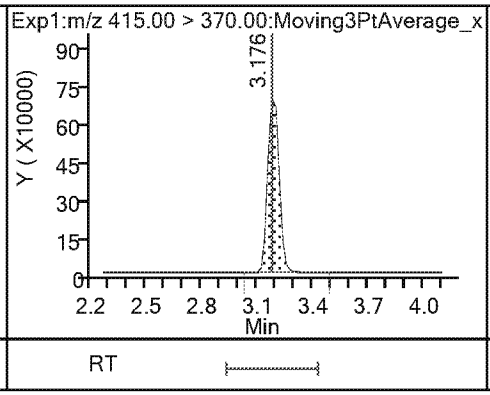
24 DONA (ND)



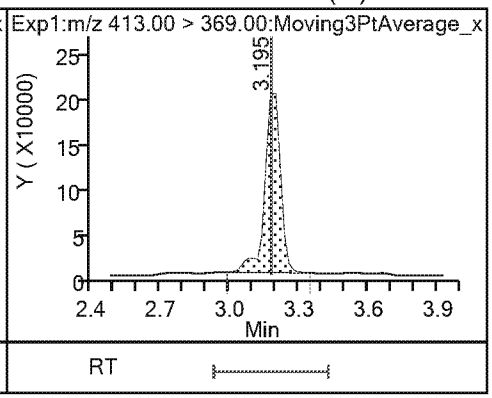
24 DONA (ND)



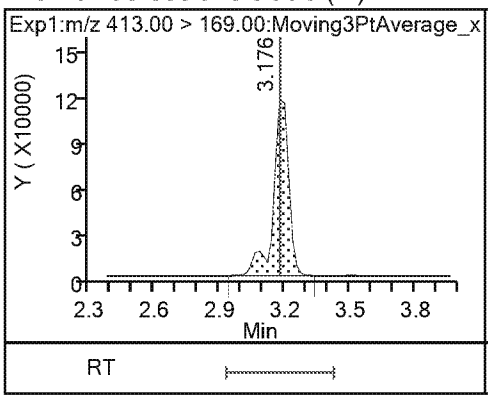
* 5 13C2 PFOA



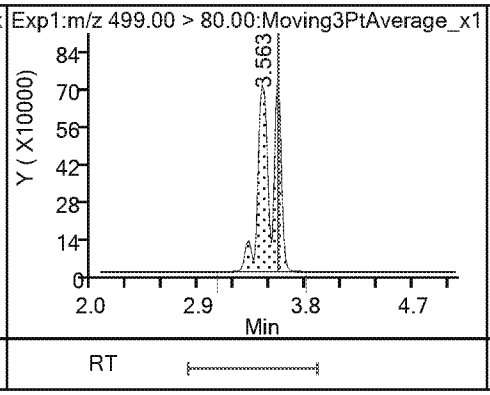
6 Perfluorooctanoic acid (M)



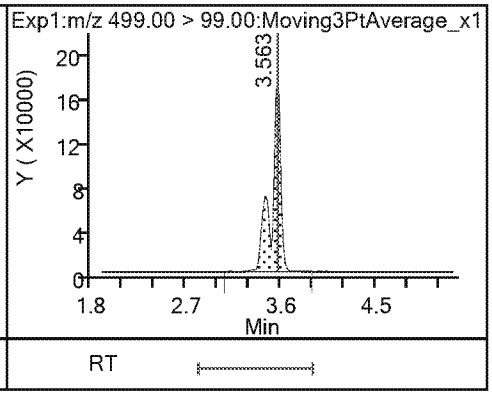
6 Perfluorooctanoic acid (M)



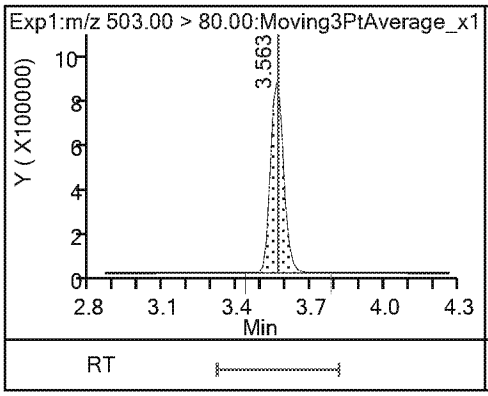
8 Perfluorooctanesulfonic acid



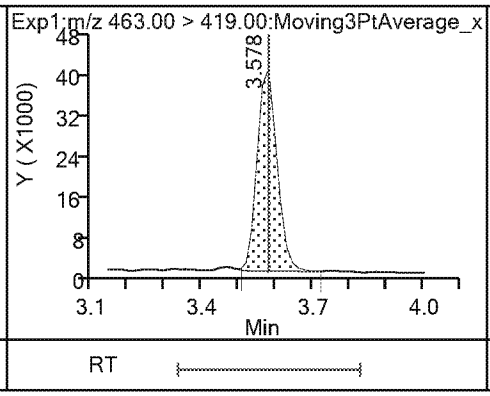
8 Perfluorooctanesulfonic acid



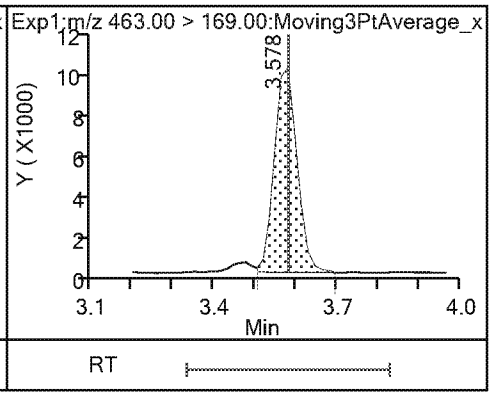
* 7 13C4 PFOS



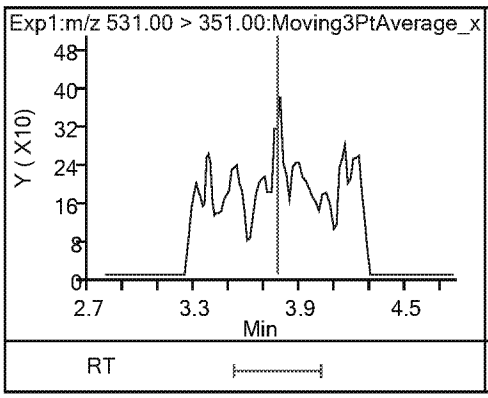
9 Perfluorononanoic acid



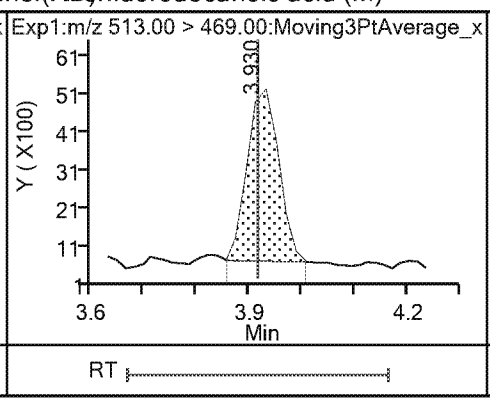
9 Perfluorononanoic acid



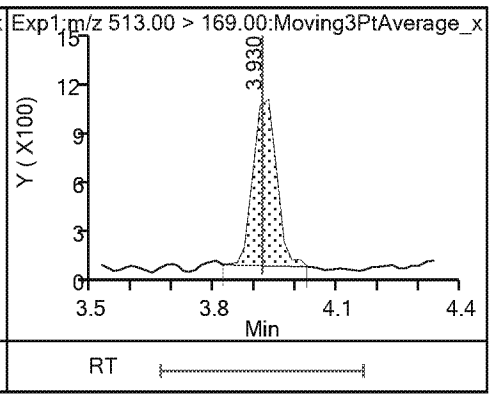
23 9-Chlorohexadecafluoro-3-oxanonane1(ND)



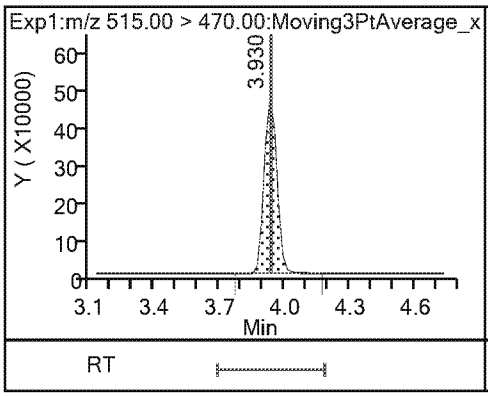
14 Perfluorodecanoic acid (M)



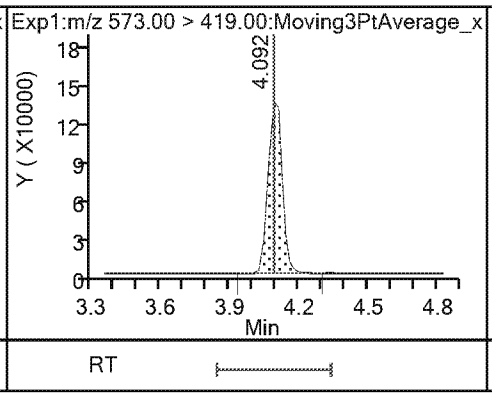
14 Perfluorodecanoic acid



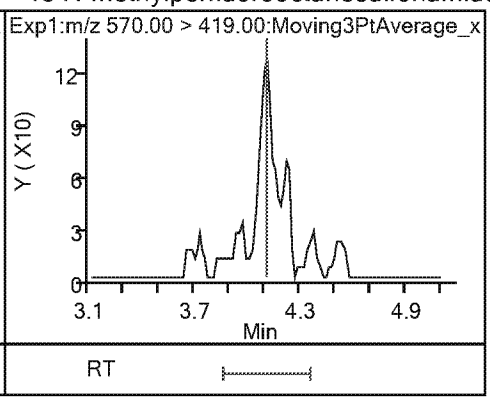
$ 10 13C2 PFDA



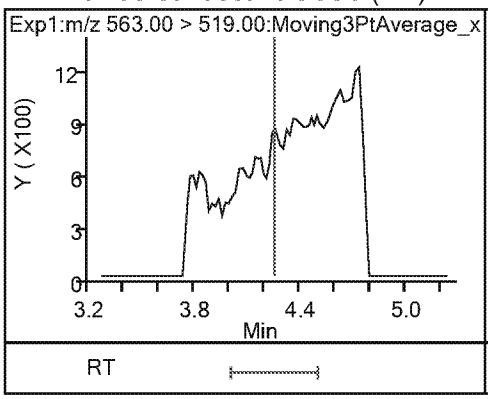
* 12 d3-NMeFOSAA



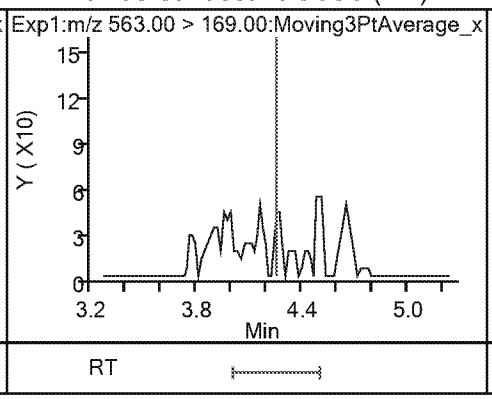
15 N-methylperfluorooctanesulfonamido (ND)



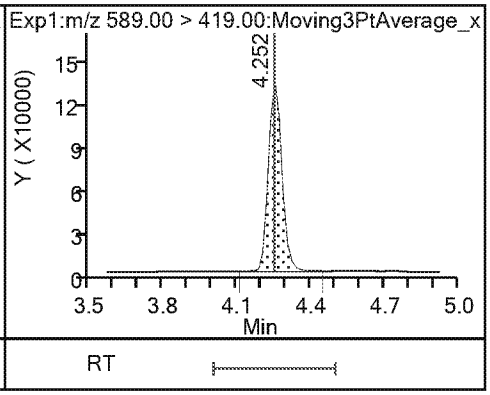
17 Perfluoroundecanoic acid (ND)



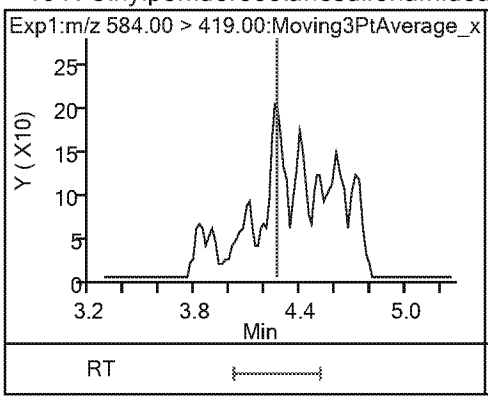
17 Perfluoroundecanoic acid (ND)



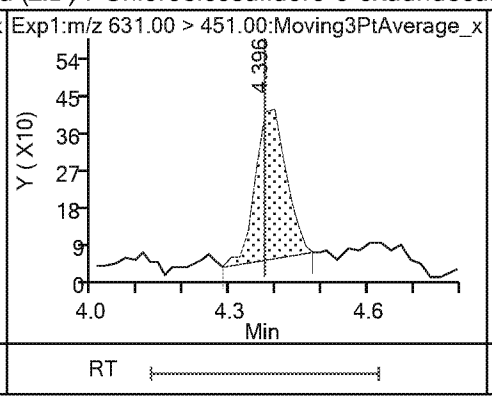
$ 11 d5-NEtFOSAA



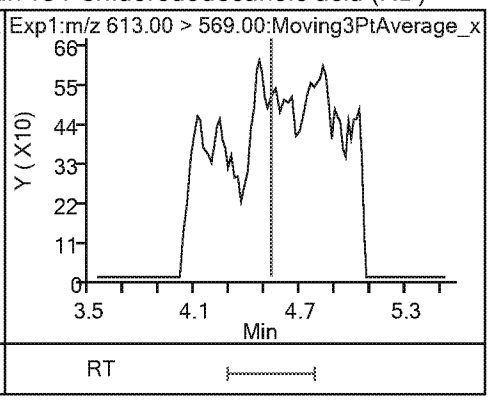
16 N-ethylperfluorooctanesulfonamidoa (ND)



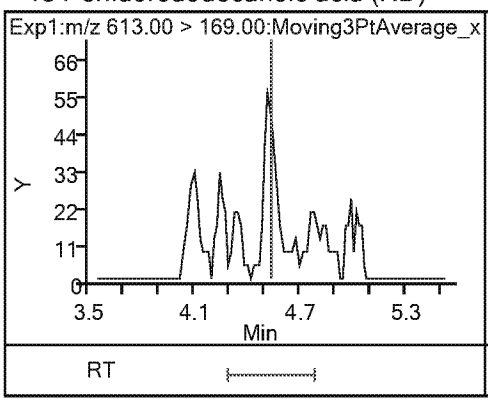
2 (ND) 11-Chloroeicosafluoro-3-oxaundecan



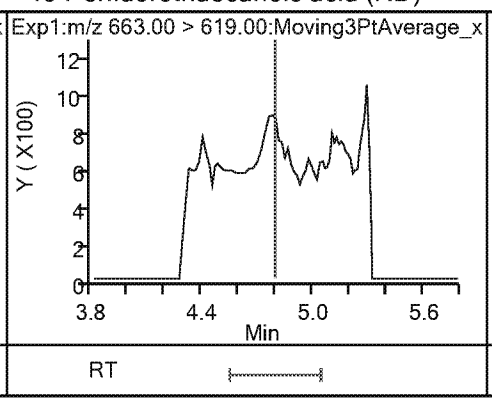
18 Perfluorododecanoic acid (ND)



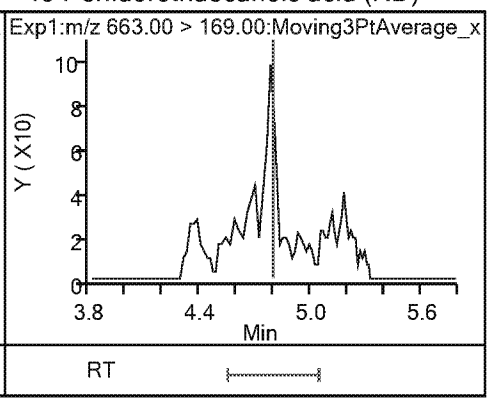
18 Perfluorododecanoic acid (ND)



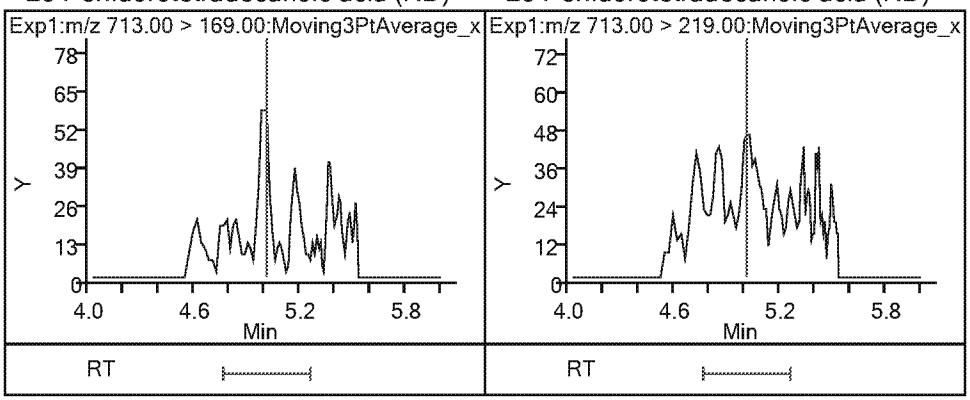
19 Perfluorotridecanoic acid (ND)



19 Perfluorotridecanoic acid (ND)



20 Perfluorotetradecanoic acid (ND) 20 Perfluorotetradecanoic acid (ND)



TestAmerica Sacramento
Recovery Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_021.d
Lims ID: 320-48794-A-2-A
Client ID: C0AP4
Sample Type: Client
Inject. Date: 03-Apr-2019 07:21:20 ALS Bottle#: 11 Worklist Smp#: 18
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-48794-A-2-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 11:03:28 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

First Level Reviewer: **Ex. 4 CBI** Date: 03-Apr-2019 10:31:39

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	2.50	2.38	95.27
$ 25 13C3 HFPO-DA	2.50	3.39	135.73
$ 10 13C2 PFDA	2.50	2.62	104.67
$ 11 d5-NEtFOSAA	2.50	2.22	88.78

TestAmerica Sacramento

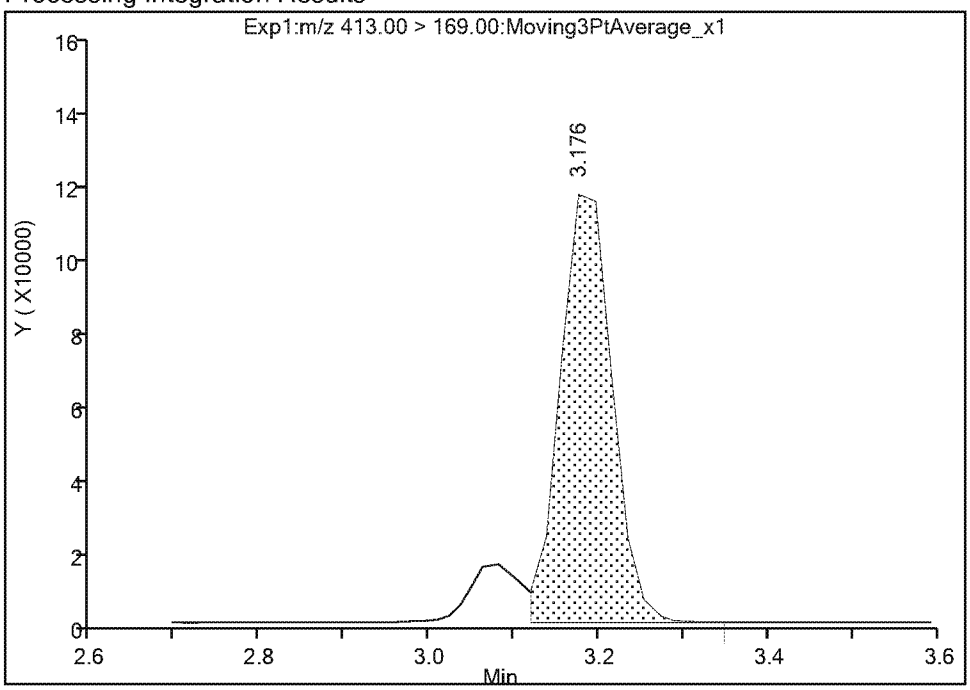
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_021.d				
Injection Date:	03-Apr-2019 07:21:20	Instrument ID:	A8_N		
Lims ID:	320-48794-A-2-A	Lab Sample ID:	320-48794-2		
Client ID:	C0AP4				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	11	Worklist Smp#:	18
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

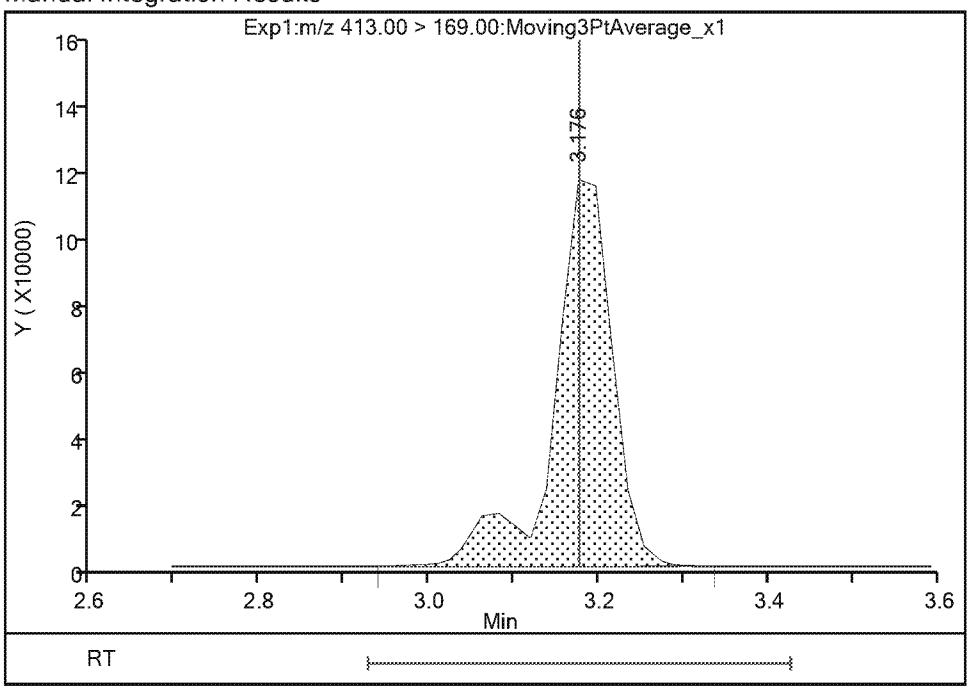
Processing Integration Results

RT: 3.18
Area: 487269
Amount: 0.760043
Amount Units: ng/ml



Manual Integration Results

RT: 3.18
Area: 552177
Amount: 0.797849
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 10:30:23
Audit Action: Manually Integrated Audit Reason: Isomers

TestAmerica Sacramento

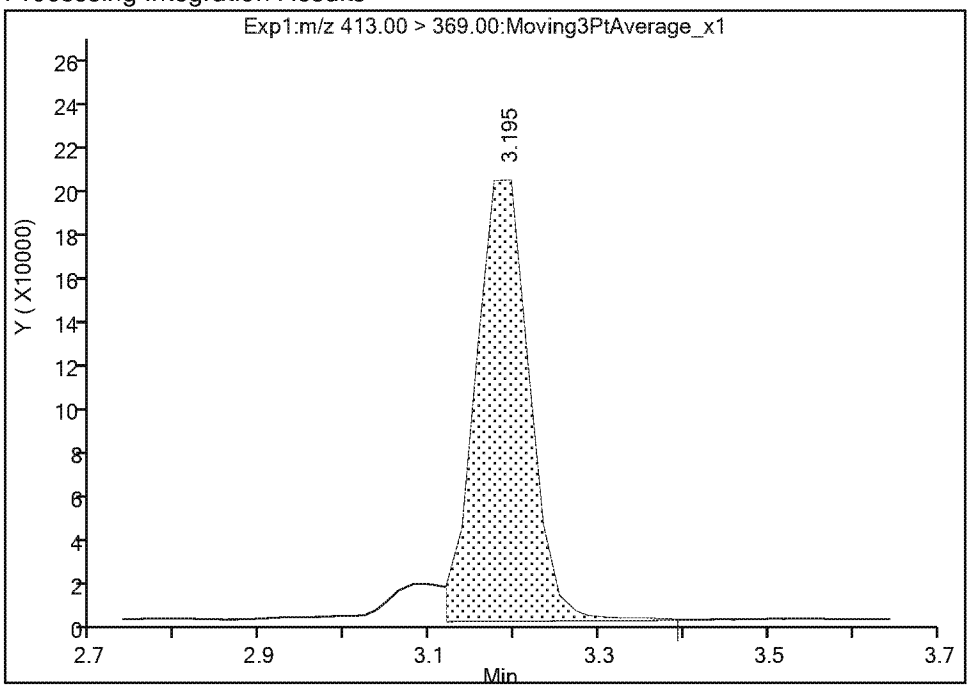
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_021.d				
Injection Date:	03-Apr-2019 07:21:20	Instrument ID:	A8_N		
Lims ID:	320-48794-A-2-A	Lab Sample ID:	320-48794-2		
Client ID:	C0AP4				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	11	Worklist Smp#:	18
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

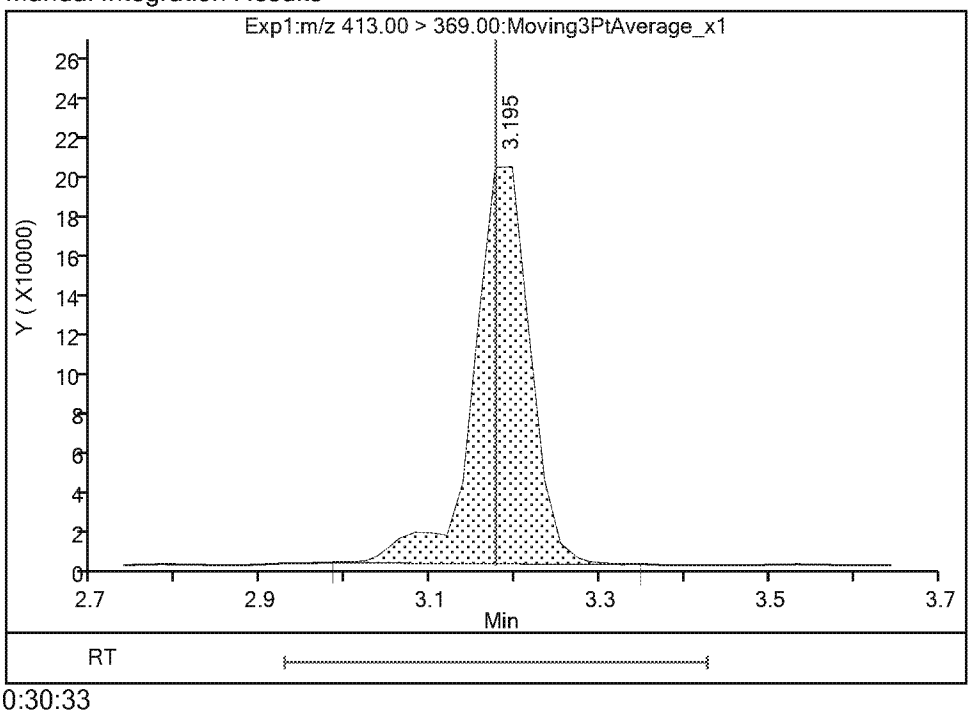
Processing Integration Results

RT: 3.20
Area: 880874
Amount: 0.760043
Amount Units: ng/ml



Manual Integration Results

RT: 3.20
Area: 924690
Amount: 0.797849
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 10:30:33
Audit Action: Manually Integrated Audit Reason: Isomers

TestAmerica Sacramento

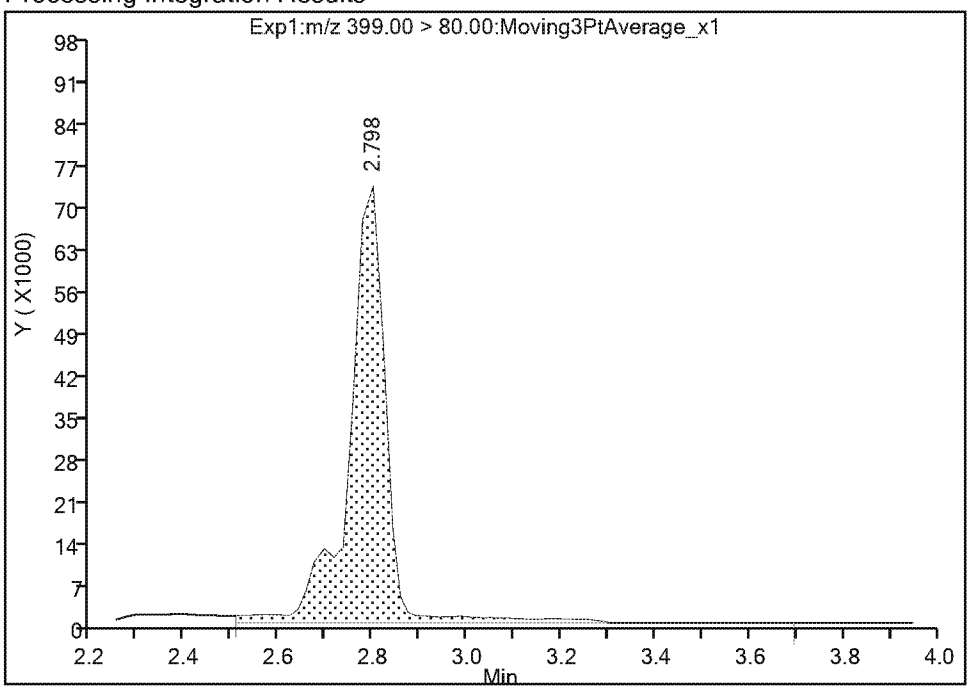
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_021.d				
Injection Date:	03-Apr-2019 07:21:20	Instrument ID:	A8_N		
Lims ID:	320-48794-A-2-A	Lab Sample ID:	320-48794-2		
Client ID:	C0AP4				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	11	Worklist Smp#:	18
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

3 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

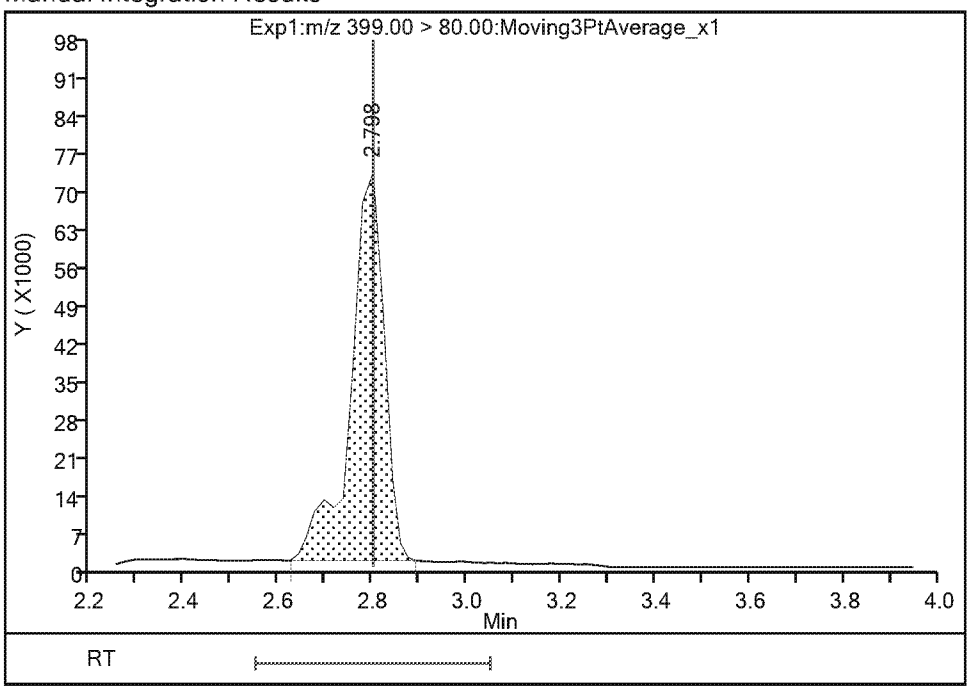
Processing Integration Results

RT: 2.80
Area: 391128
Amount: 0.228062
Amount Units: ng/ml



Manual Integration Results

RT: 2.80
Area: 348157
Amount: 0.203006
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 10:29:41
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento

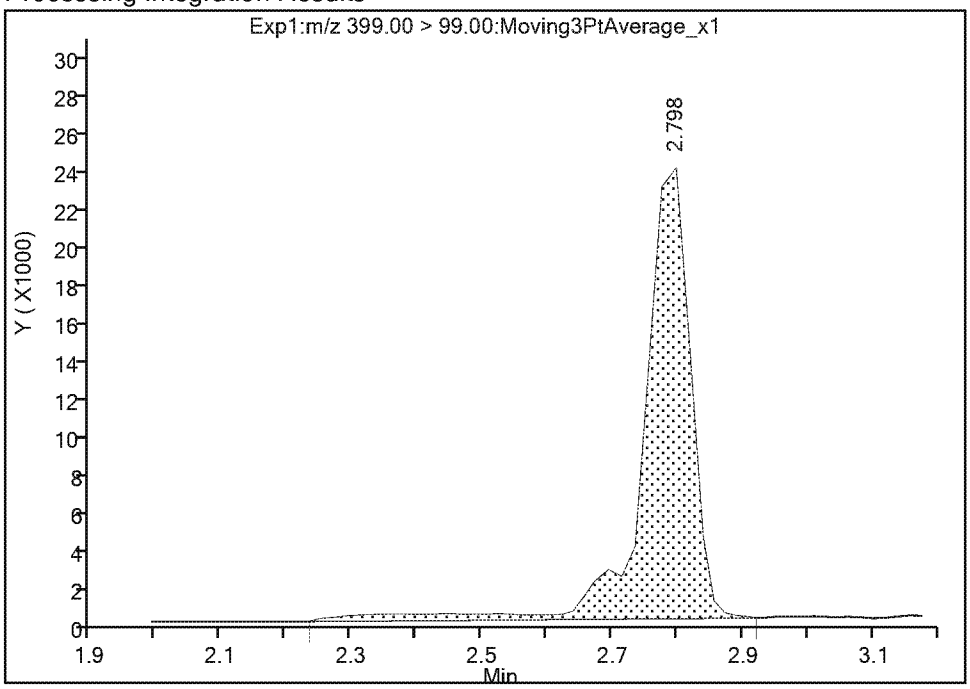
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_021.d				
Injection Date:	03-Apr-2019 07:21:20	Instrument ID:	A8_N		
Lims ID:	320-48794-A-2-A	Lab Sample ID:	320-48794-2		
Client ID:	C0AP4				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	11	Worklist Smp#:	18
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

3 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 2

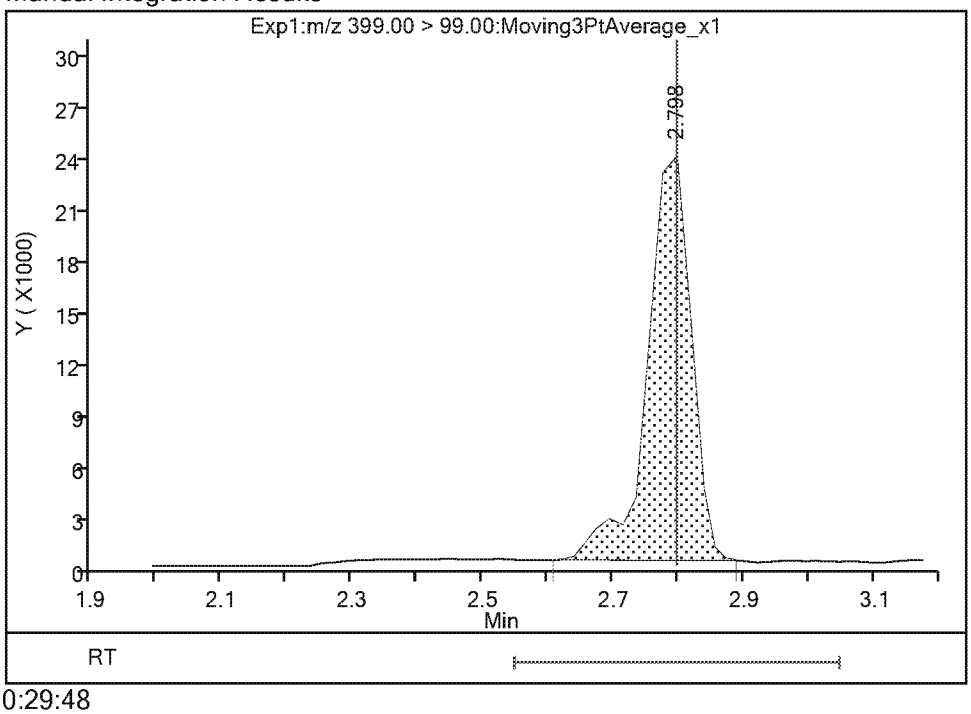
Processing Integration Results

RT: 2.80
Area: 118946
Amount: 0.228062
Amount Units: ng/ml



Manual Integration Results

RT: 2.80
Area: 109427
Amount: 0.203006
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 10:29:48
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento

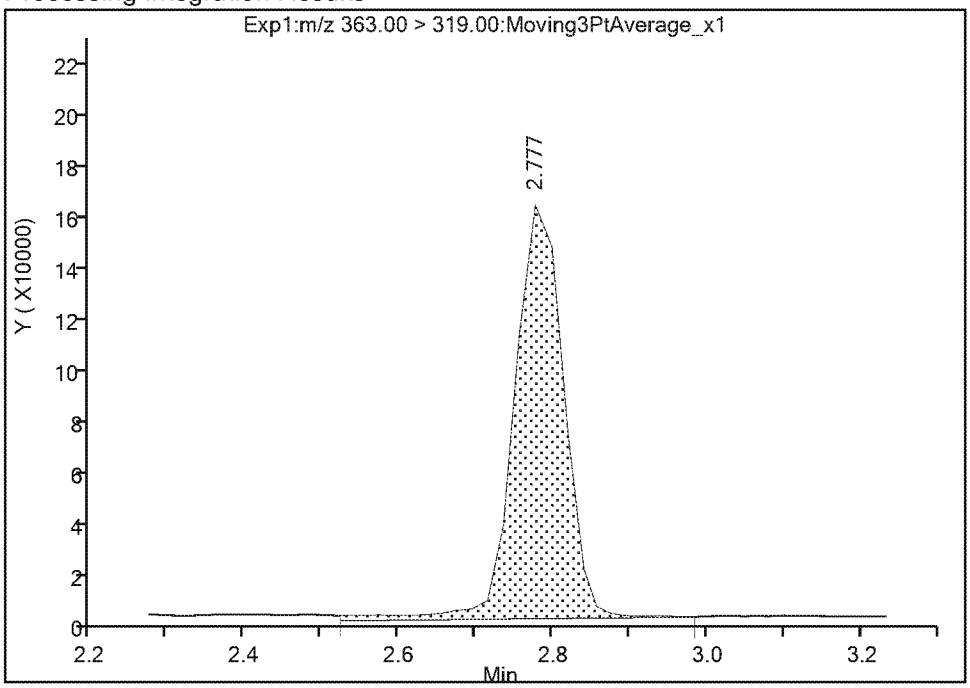
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_021.d				
Injection Date:	03-Apr-2019 07:21:20	Instrument ID:	A8_N		
Lims ID:	320-48794-A-2-A	Lab Sample ID:	320-48794-2		
Client ID:	C0AP4				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	11	Worklist Smp#:	18
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

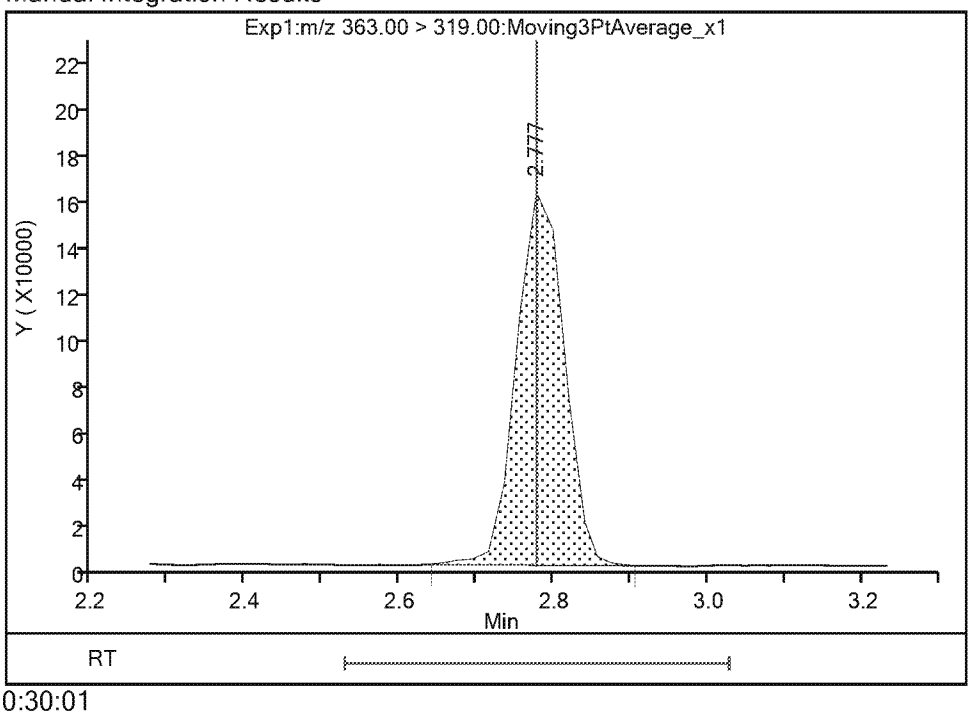
Processing Integration Results

RT: 2.78
Area: 706484
Amount: 0.574844
Amount Units: ng/ml



Manual Integration Results

RT: 2.78
Area: 674586
Amount: 0.548890
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 10:30:01
Audit Action: Manually Integrated Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: C0AQ9
Lab Sample ID: 320-48794-3
Matrix: Water
Lab File ID: 2019.04.02_537A_022.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 15:28
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 266.2(mL)
Date Analyzed: 04/03/2019 07:28
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 285757
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
335-67-1	Perfluorooctanoic acid	16		5.6	2.5
375-95-1	Perfluorononanoic acid	2.3		1.9	0.44
355-46-4	Perfluorohexanesulfonic acid	9.0		1.9	0.60
375-85-9	Perfluoroheptanoic acid	8.0		2.8	1.2
375-73-5	Perfluorobutanesulfonic acid	80		1.9	0.75

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	111		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_022.d
Lims ID: 320-48794-A-3-A
Client ID: C0AQ9
Sample Type: Client
Inject. Date: 03-Apr-2019 07:28:47 ALS Bottle#: 12 Worklist Smp#: 19
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-48794-A-3-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 11:03:28 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 10:55:46
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.992	1.992	0.0	1.000	3087419	2.13	Target=1.47	2722	
298.90 > 99.00	1.992	1.992	0.0	1.000	2049436		1.51(0.00-0.00)	1110	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.347	2.347	0.0	0.734	373807	0.2935	Target=11.08	35.7	
313.00 > 119.00	2.347	2.347	0.0	0.734	34781		10.75(0.00-0.00)	47.0	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.347	2.347	0.0	1.000	3016371	2.24		5672	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.490	2.490	0.0	1.000	173899	2.84		650	
4 Perfluoroheptanoic acid									M
363.00 > 319.00	2.778	2.778	0.0	1.000	268096	0.2133	Target=2.42	19.2	M
363.00 > 169.00	2.778	2.778	0.0	1.000	113241		2.37(0.00-0.00)	153	
3 Perfluorohexanesulfonic acid									M
399.00 > 80.00	2.799	2.798	0.001	1.000	408271	0.2396	Target=2.92	105	M
399.00 > 99.00	2.799	2.798	0.001	1.000	127937		3.19(0.00-0.00)	66.7	M
* 5 13C2 PFOA									
415.00 > 370.00	3.196	3.177	0.019		2907716	2.50		10138	
6 Perfluorooctanoic acid									M
413.00 > 369.00	3.196	3.177	0.019	1.000	494195	0.4170	Target=1.75	41.4	M
413.00 > 169.00	3.196	3.177	0.019	1.000	300091		1.65(0.00-0.00)	623	M
8 Perfluorooctanesulfonic acid									E
499.00 > 80.00	3.564	3.564	0.0	1.000	21477701	17.0	Target=4.69	2113	E
499.00 > 99.00	3.564	3.564	0.0	1.000	3526579		6.09(0.00-0.00)	2006	
* 7 13C4 PFOS									
503.00 > 80.00	3.564	3.565	-0.001		2863270	2.39		2691	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
9 Perfluorononanoic acid									
463.00 > 419.00	3.579	3.580	-0.001	1.000	53838	0.0620	Target=3.96	13.0	
463.00 > 169.00	3.579	3.580	-0.001	1.000	14133		3.81(0.00-0.00)	51.8	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.933	3.915	0.018	1.000	8551	0.0125	Target=5.01	3.4	
513.00 > 169.00	3.933	3.915	0.018	1.000	1739		4.92(0.00-0.00)	8.2	
$ 10 13C2 PFDA									
515.00 > 470.00	3.933	3.934	-0.001	1.000	1995504	2.78		10824	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.108	4.090	0.018		551960	2.50		3615	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.252	4.250	0.002	1.035	517751	2.30		298	

QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount

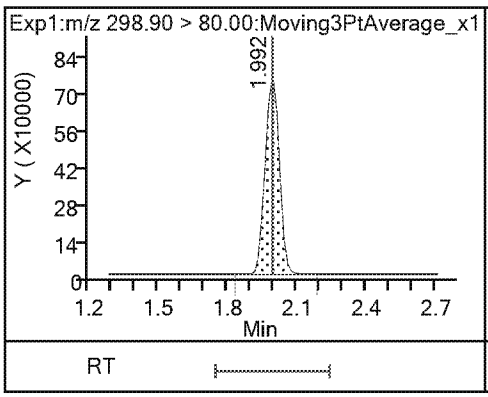
Review Flags

M - Manually Integrated

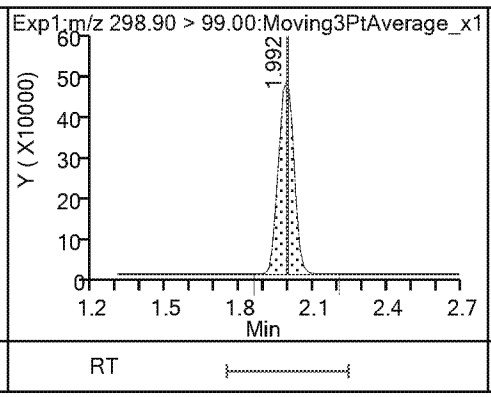
TestAmerica Sacramento

Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_022.d				
Injection Date:	03-Apr-2019 07:28:47	Instrument ID:	A8_N		
Lims ID:	320-48794-A-3-A	Lab Sample ID:	320-48794-3		
Client ID:	C0AQ9				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	12	Worklist Smp#:	19
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

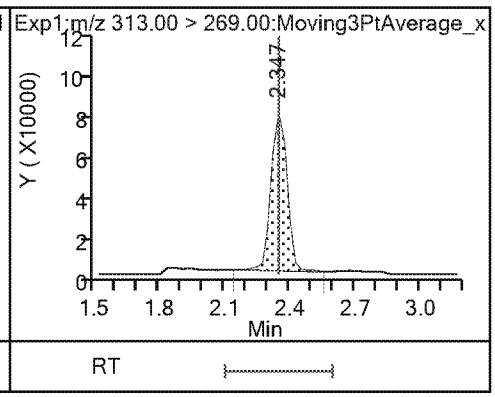
1 Perfluorobutanesulfonic acid



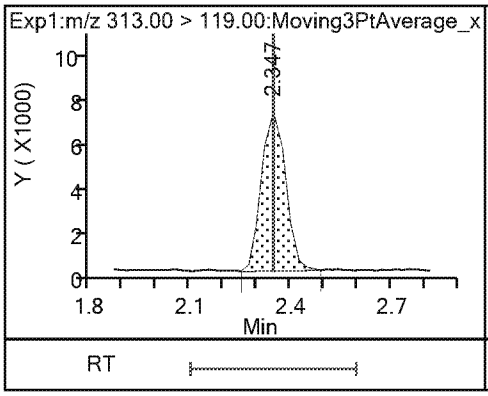
1 Perfluorobutanesulfonic acid



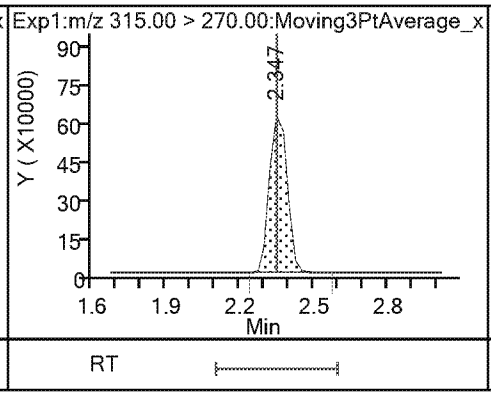
13 Perfluorohexanoic acid



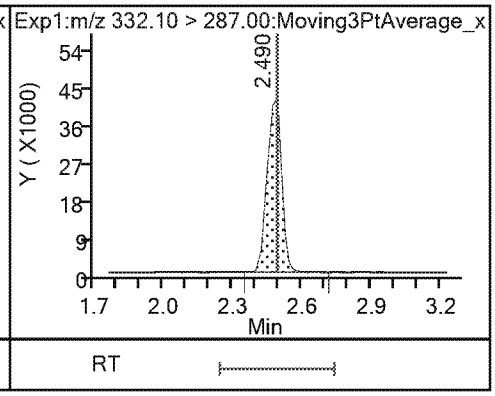
13 Perfluorohexanoic acid



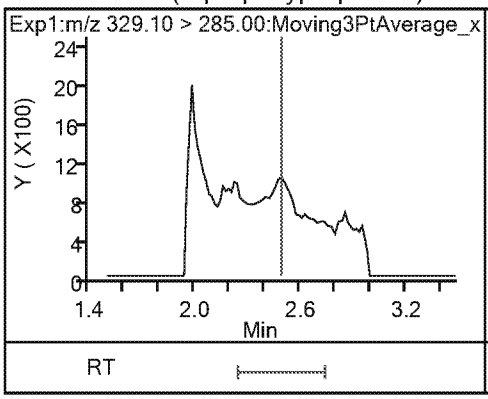
$ 2 13C2 PFHxA



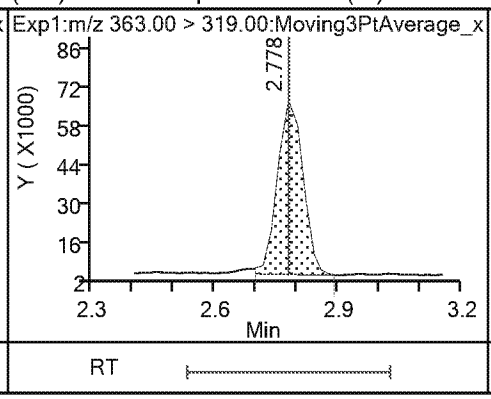
$ 25 13C3 HFPO-DA



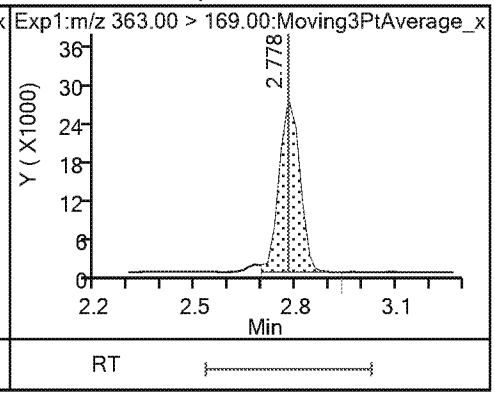
22 Perfluoro(2-propoxypropanoic) acid (ND)



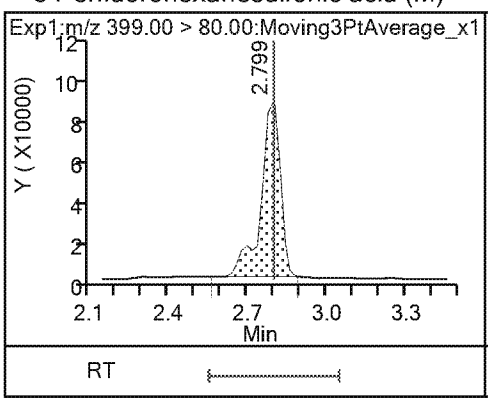
4 Perfluoroheptanoic acid (M)



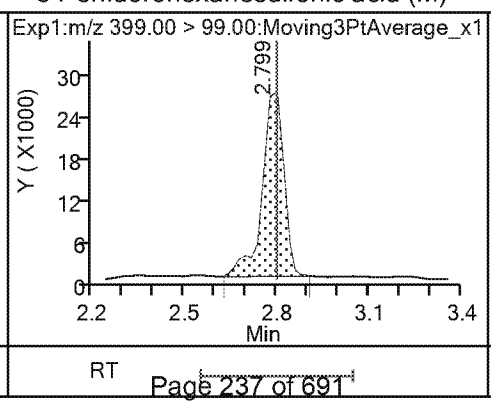
4 Perfluoroheptanoic acid



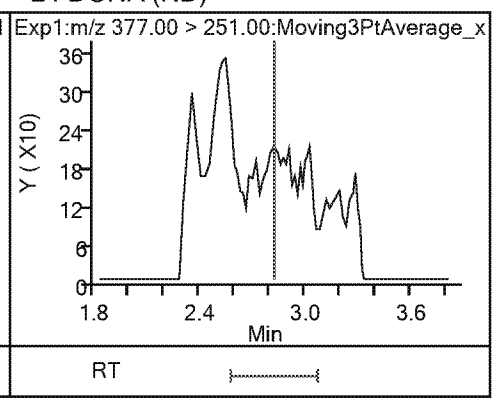
3 Perfluorohexanesulfonic acid (M)



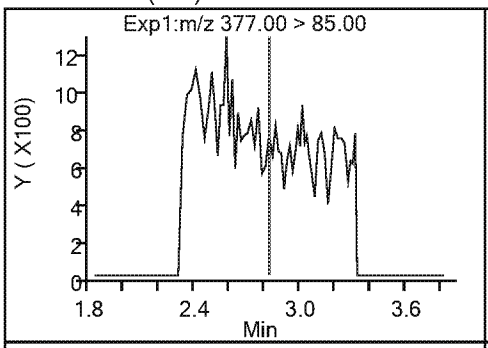
3 Perfluorohexanesulfonic acid (M)



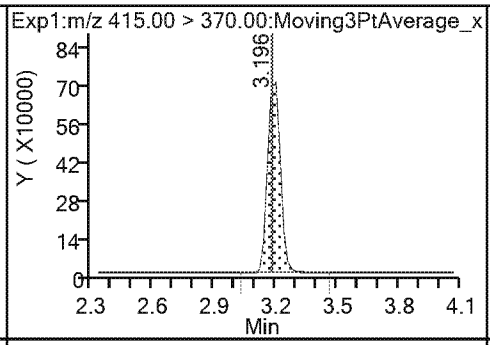
24 DONA (ND)



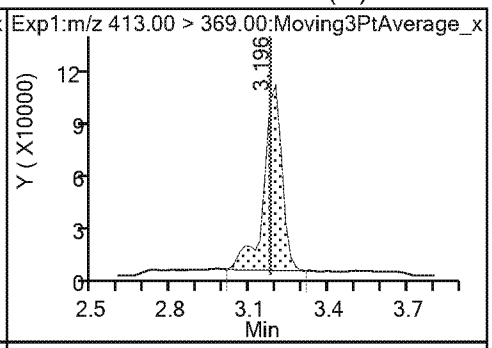
24 DONA (ND)



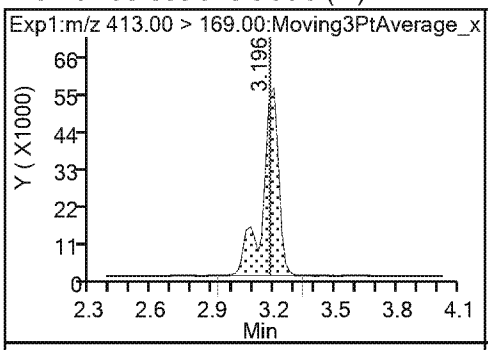
* 5 13C2 PFOA



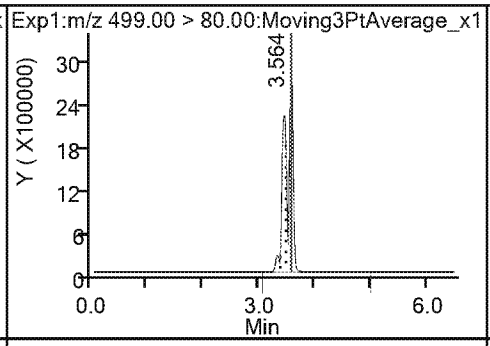
6 Perfluorooctanoic acid (M)



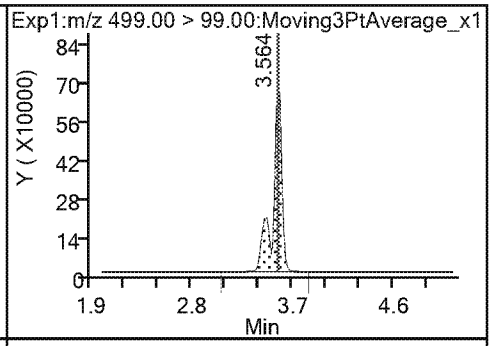
6 Perfluorooctanoic acid (M)



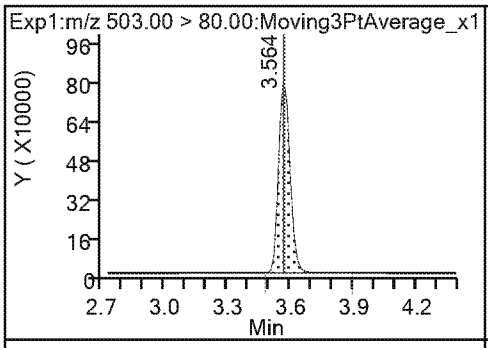
8 Perfluorooctanesulfonic acid



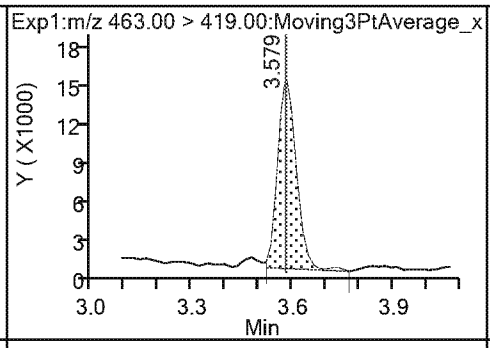
8 Perfluorooctanesulfonic acid



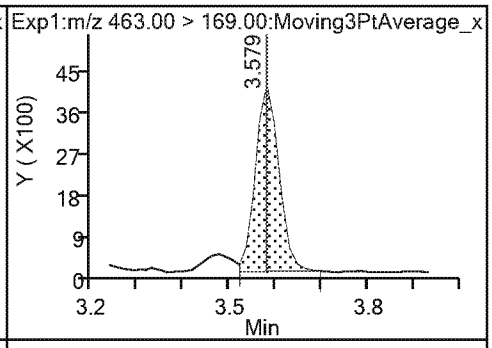
* 7 13C4 PFOS



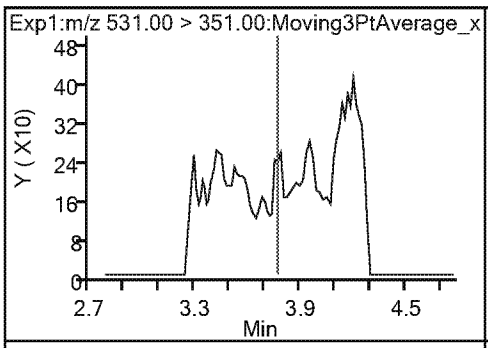
9 Perfluorononanoic acid



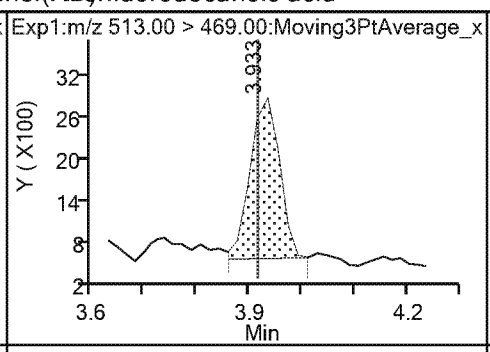
9 Perfluorononanoic acid



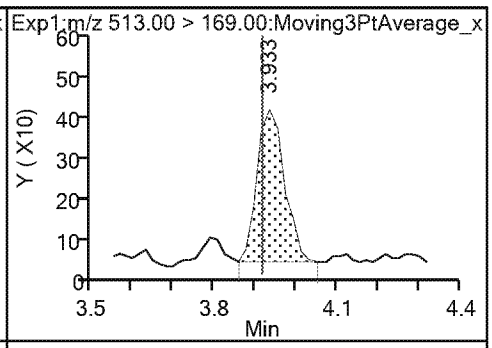
23 9-Chlorohexadecafluoro-3-oxanonane1(ND)



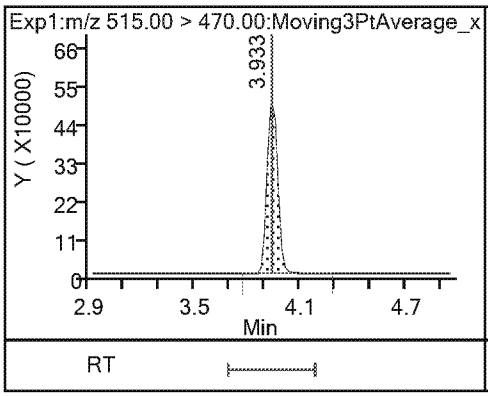
14 Perfluorodecanoic acid



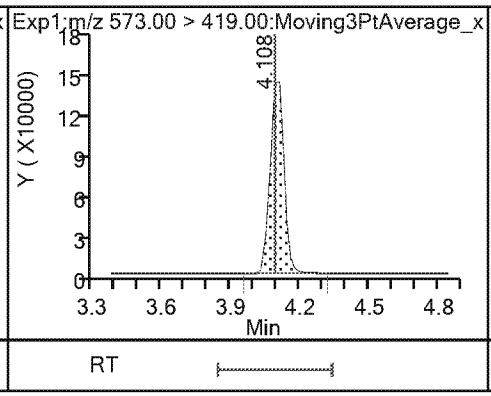
14 Perfluorodecanoic acid



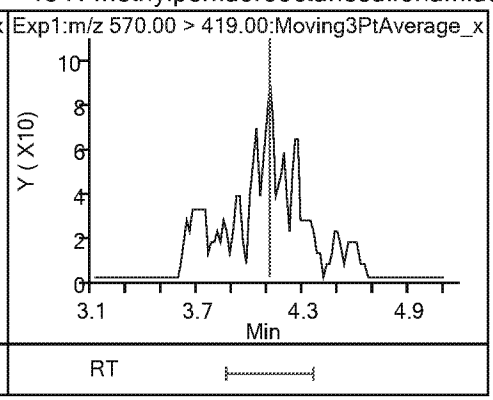
$ 10 13C2 PFDA



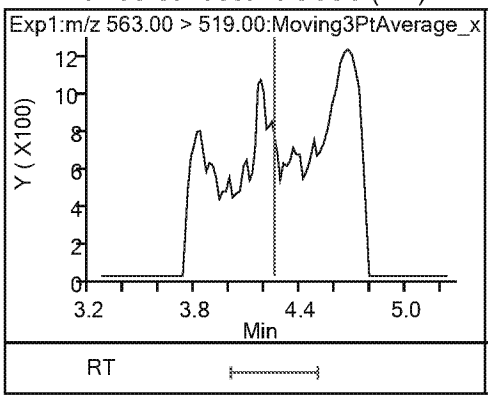
* 12 d3-NMeFOSAA



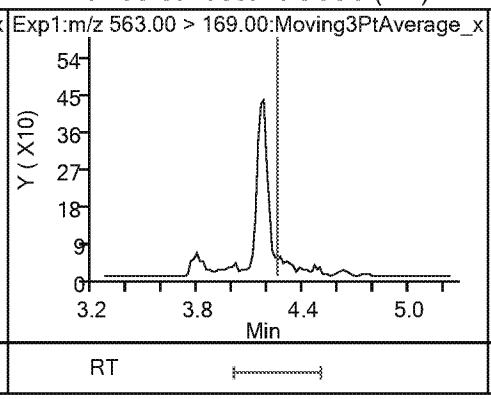
15 N-methylperfluorooctanesulfonamido (ND)



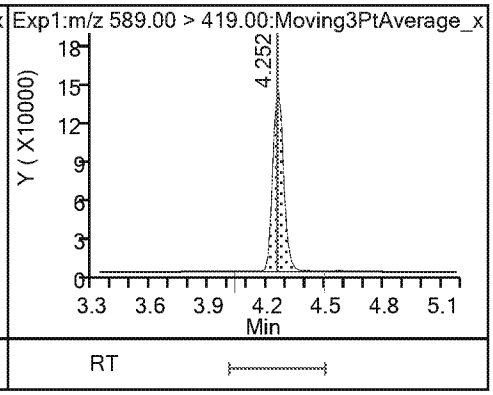
17 Perfluoroundecanoic acid (ND)



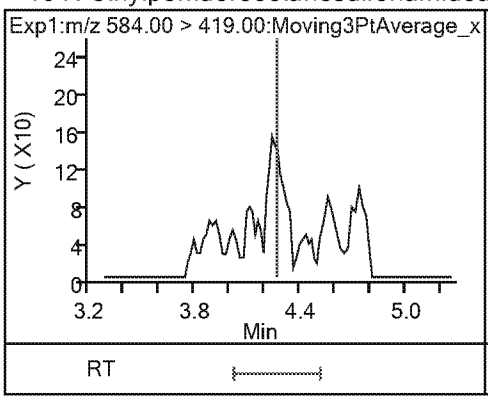
17 Perfluoroundecanoic acid (ND)



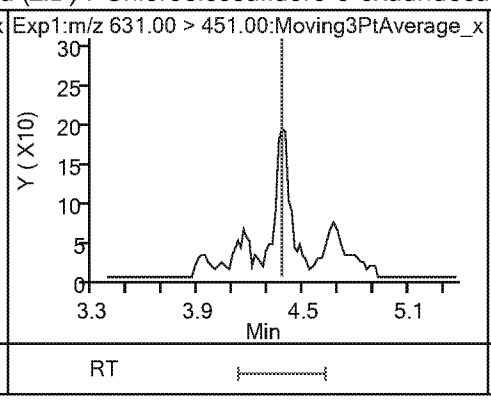
$ 11 d5-NEtFOSAA



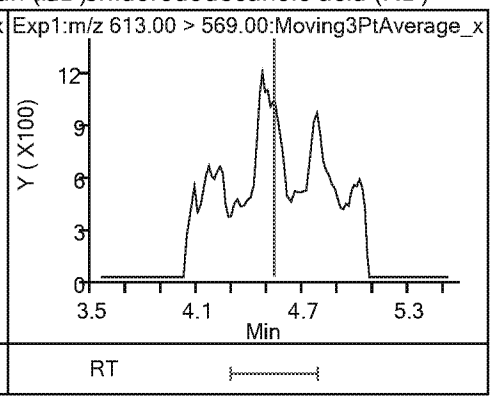
16 N-ethylperfluorooctanesulfonamidoa (ND)



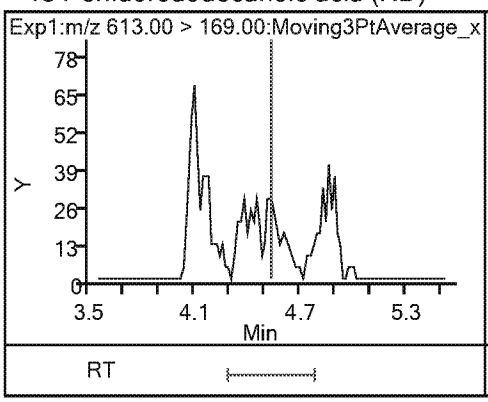
2 (ND) 11-Chloroeicosafluoro-3-oxaundecan



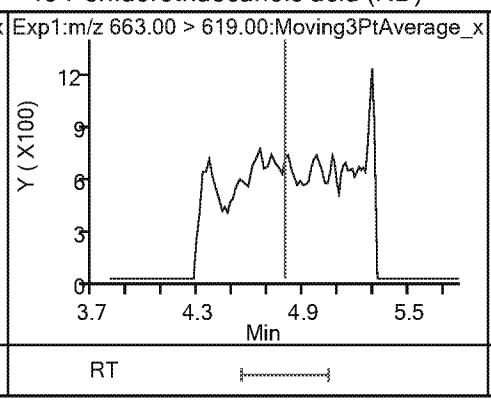
18 Perfluorododecanoic acid (ND)



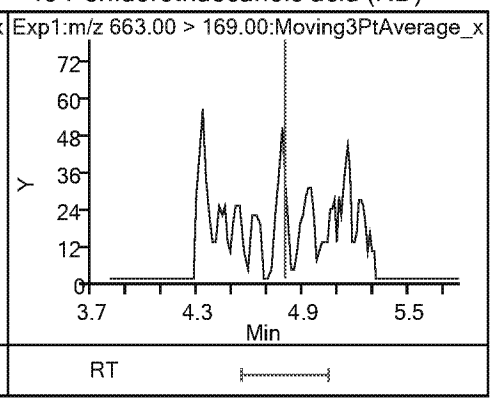
18 Perfluorododecanoic acid (ND)



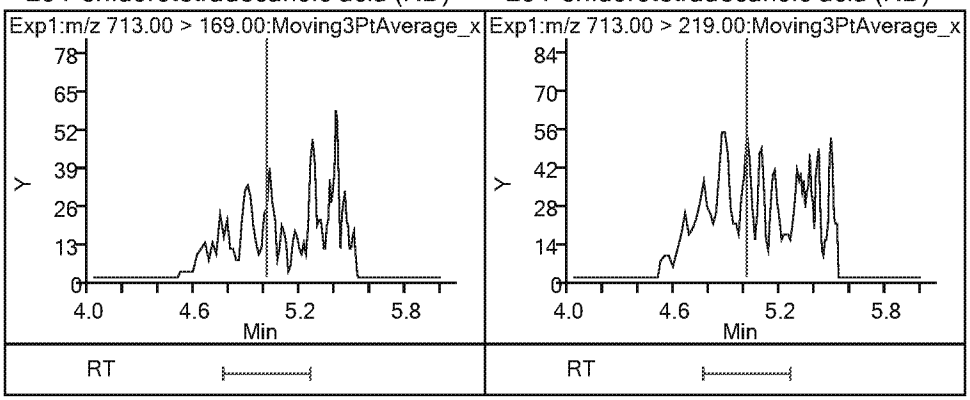
19 Perfluorotridecanoic acid (ND)



19 Perfluorotridecanoic acid (ND)



20 Perfluorotetradecanoic acid (ND) 20 Perfluorotetradecanoic acid (ND)



TestAmerica Sacramento
Recovery Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_022.d
Lims ID: 320-48794-A-3-A
Client ID: C0AQ9
Sample Type: Client
Inject. Date: 03-Apr-2019 07:28:47 ALS Bottle#: 12 Worklist Smp#: 19
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-48794-A-3-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 11:03:28 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 10:55:46

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	2.50	2.24	89.58
$ 25 13C3 HFPO-DA	2.50	2.84	113.55
$ 10 13C2 PFDA	2.50	2.78	111.32
$ 11 d5-NEtFOSAA	2.50	2.30	91.98

TestAmerica Sacramento

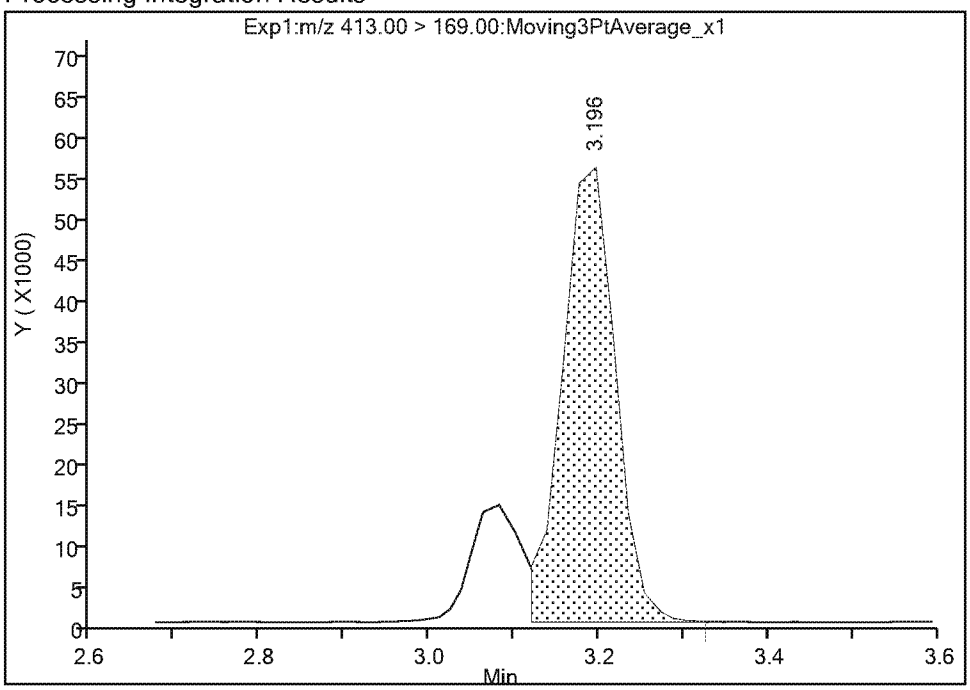
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_022.d				
Injection Date:	03-Apr-2019 07:28:47	Instrument ID:	A8_N		
Lims ID:	320-48794-A-3-A	Lab Sample ID:	320-48794-3		
Client ID:	C0AQ9				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	12	Worklist Smp#:	19
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

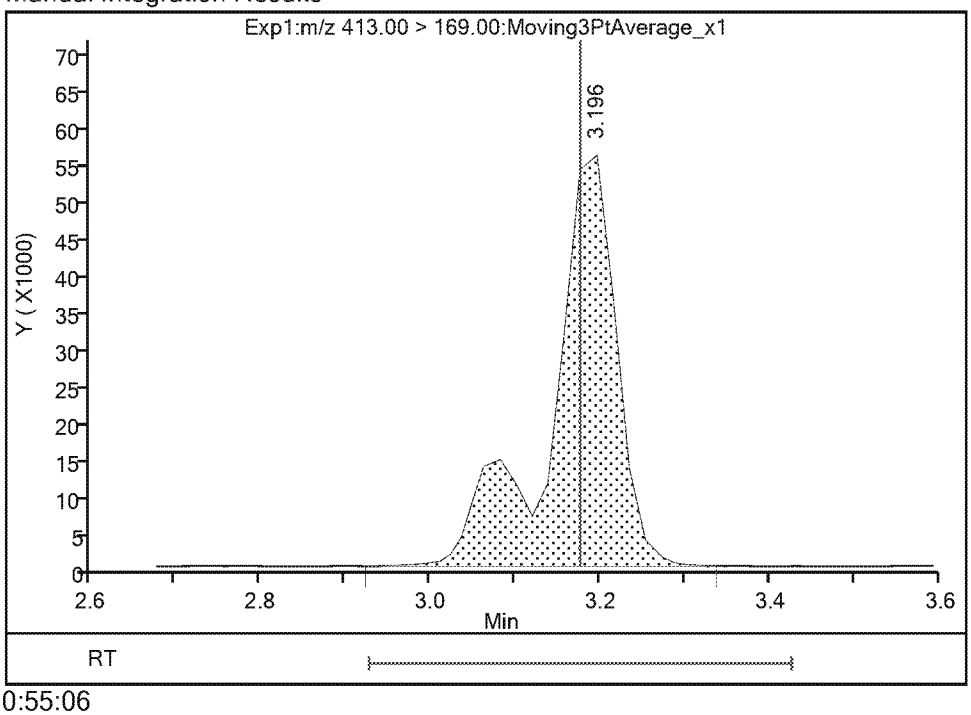
Processing Integration Results

RT: 3.20
Area: 241354
Amount: 0.376414
Amount Units: ng/ml



Manual Integration Results

RT: 3.20
Area: 300091
Amount: 0.416991
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 10:55:06
Audit Action: Manually Integrated Audit Reason: Isomers

TestAmerica Sacramento

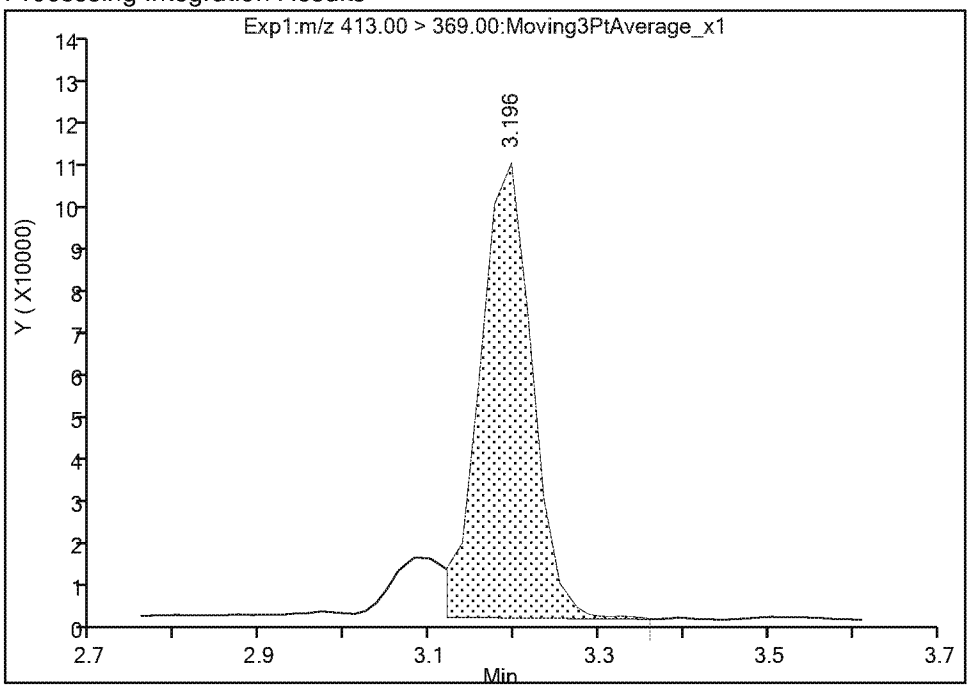
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_022.d				
Injection Date:	03-Apr-2019 07:28:47	Instrument ID:	A8_N		
Lims ID:	320-48794-A-3-A	Lab Sample ID:	320-48794-3		
Client ID:	C0AQ9				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	12	Worklist Smp#:	19
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

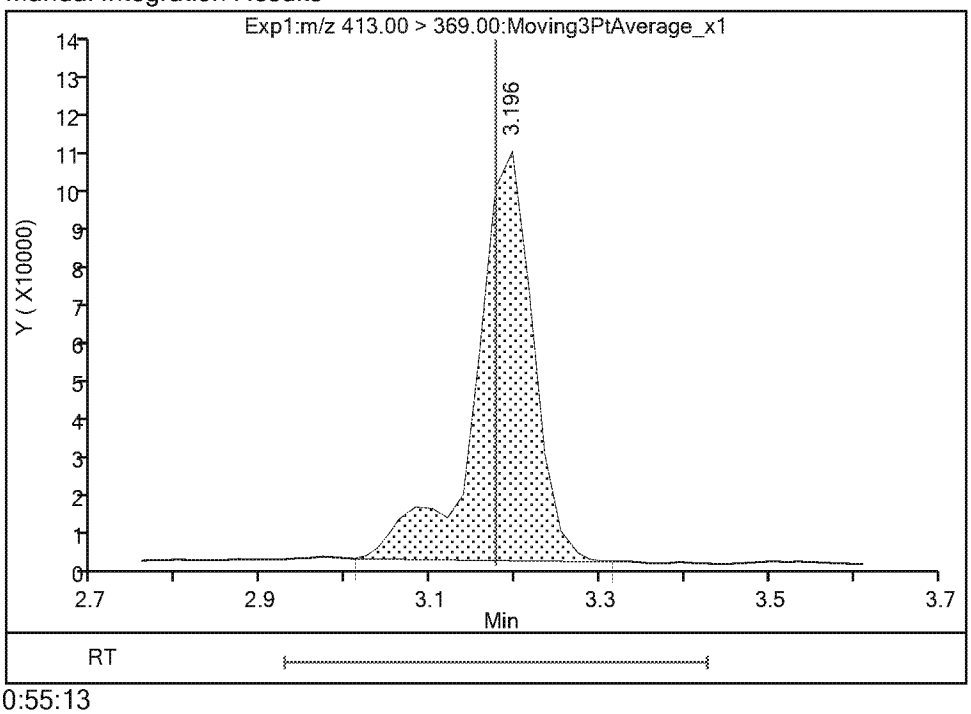
Processing Integration Results

RT: 3.20
Area: 446105
Amount: 0.376414
Amount Units: ng/ml



Manual Integration Results

RT: 3.20
Area: 494195
Amount: 0.416991
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 10:55:13
Audit Action: Manually Integrated Audit Reason: Isomers

TestAmerica Sacramento

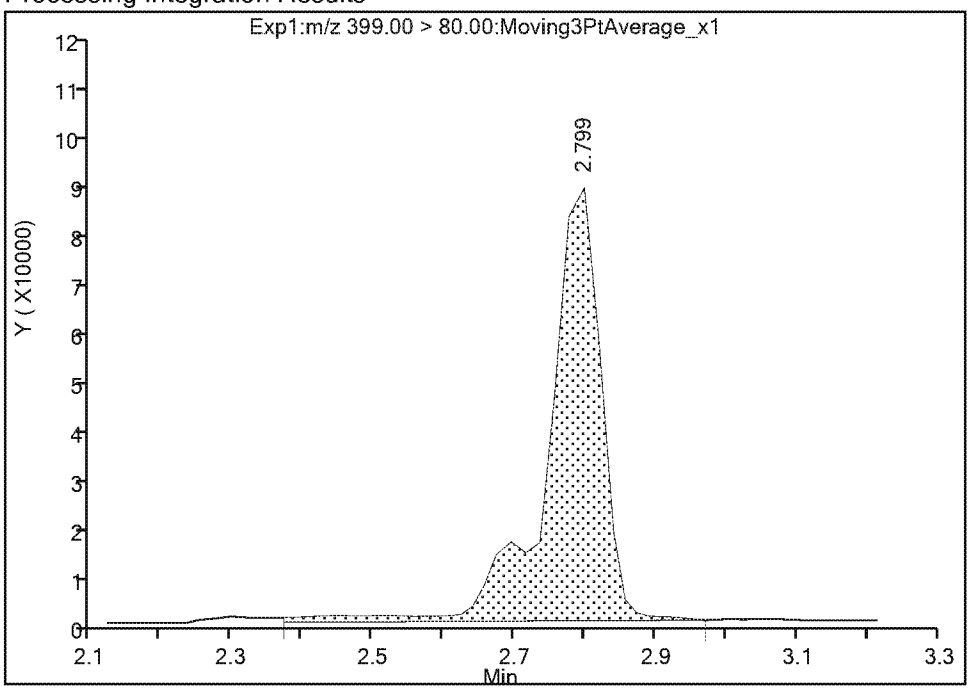
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_022.d				
Injection Date:	03-Apr-2019 07:28:47	Instrument ID:	A8_N		
Lims ID:	320-48794-A-3-A	Lab Sample ID:	320-48794-3		
Client ID:	C0AQ9				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	12	Worklist Smp#:	19
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

3 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

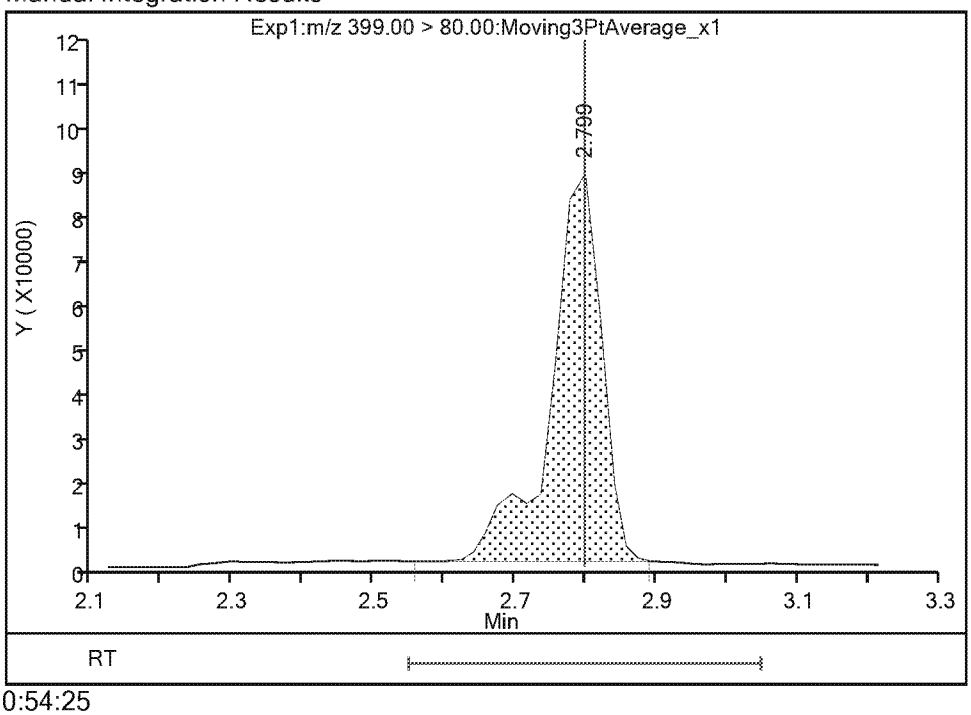
Processing Integration Results

RT: 2.80
Area: 436972
Amount: 0.256400
Amount Units: ng/ml



Manual Integration Results

RT: 2.80
Area: 408271
Amount: 0.239559
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 10:54:25
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento

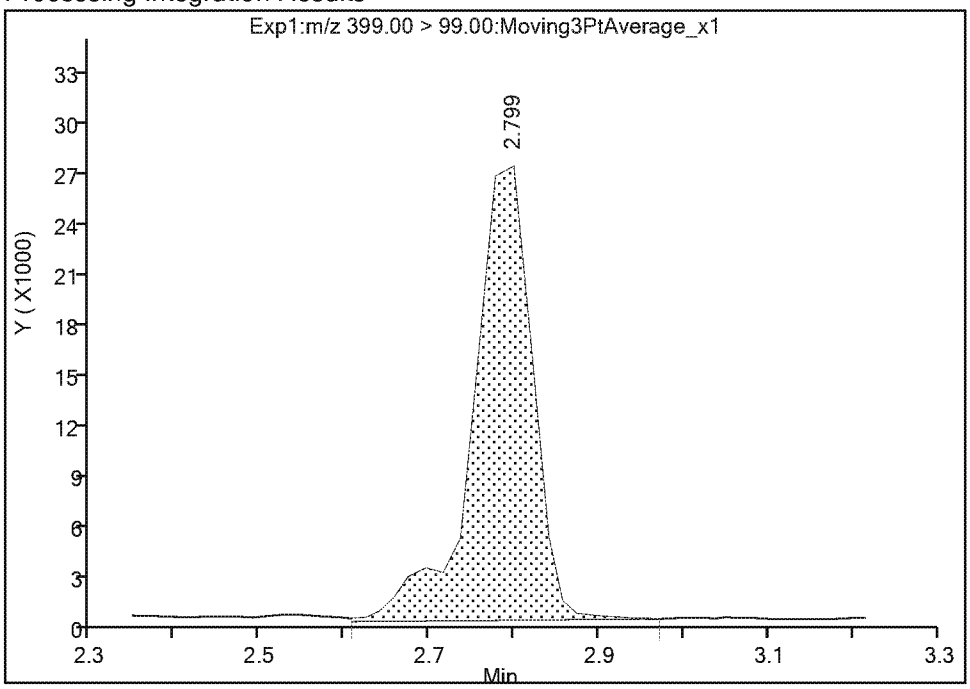
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_022.d				
Injection Date:	03-Apr-2019 07:28:47	Instrument ID:	A8_N		
Lims ID:	320-48794-A-3-A	Lab Sample ID:	320-48794-3		
Client ID:	C0AQ9				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	12	Worklist Smp#:	19
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

3 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 2

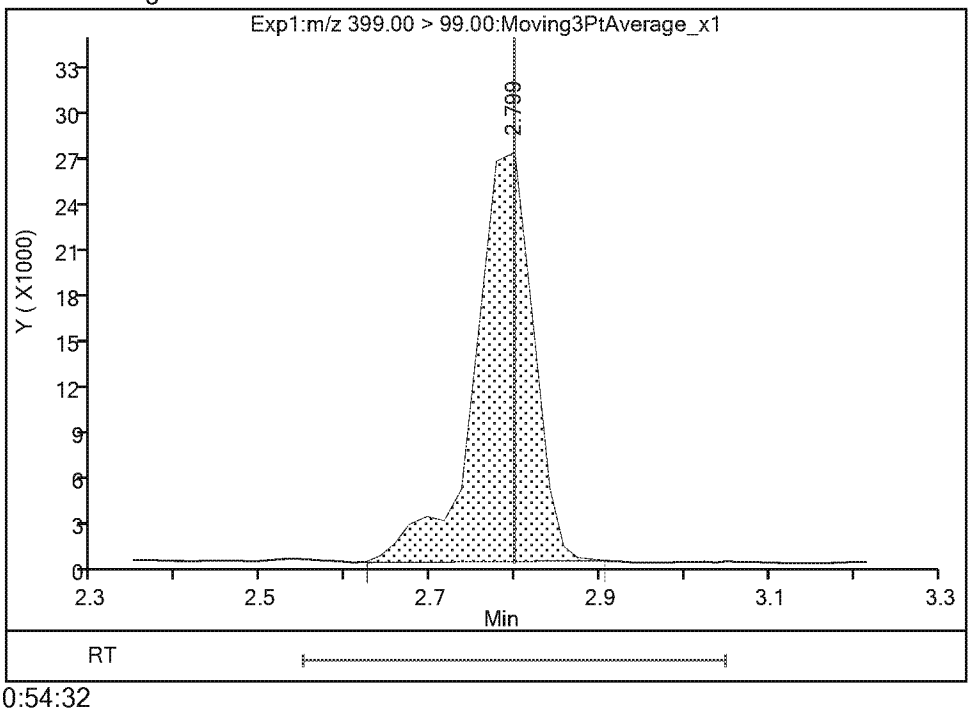
Processing Integration Results

RT: 2.80
Area: 131217
Amount: 0.256400
Amount Units: ng/ml



Manual Integration Results

RT: 2.80
Area: 127937
Amount: 0.239559
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 10:54:32
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento

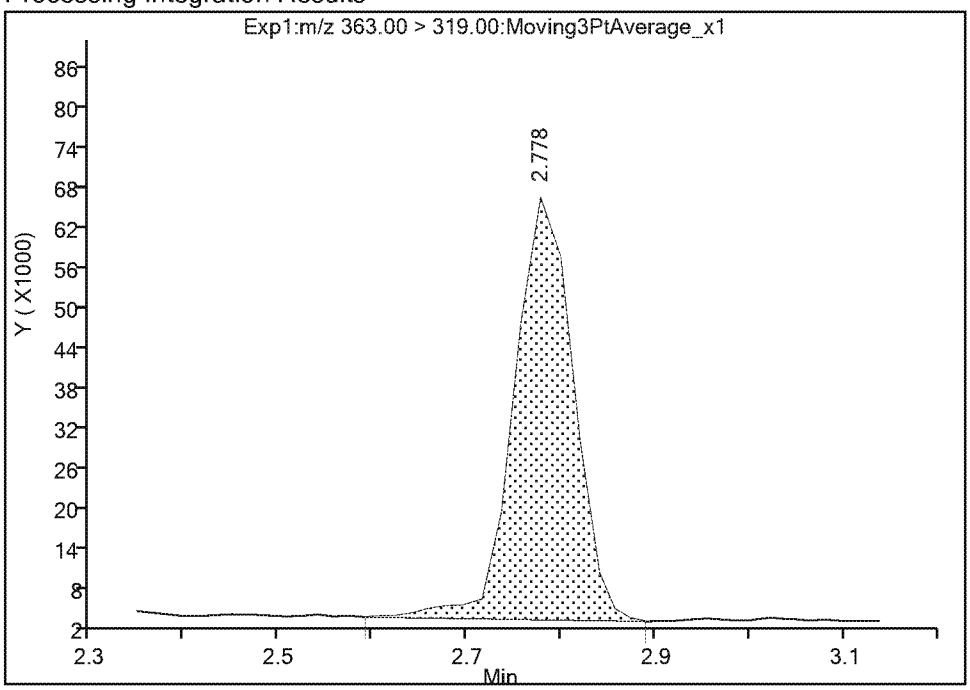
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_022.d				
Injection Date:	03-Apr-2019 07:28:47	Instrument ID:	A8_N		
Lims ID:	320-48794-A-3-A	Lab Sample ID:	320-48794-3		
Client ID:	C0AQ9				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	12	Worklist Smp#:	19
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

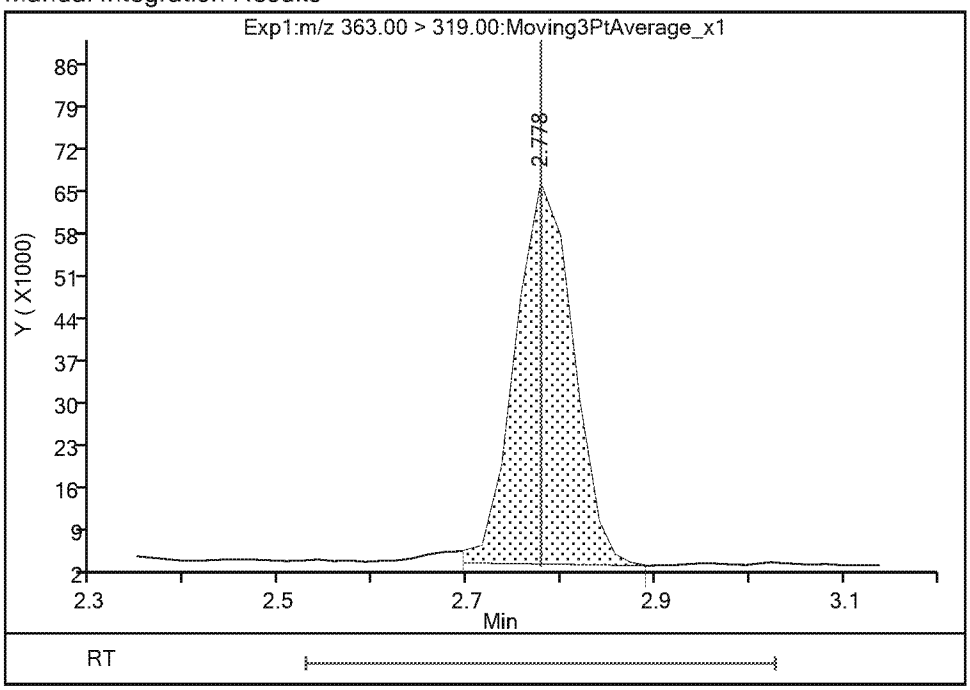
Processing Integration Results

RT: 2.78
Area: 274162
Amount: 0.218152
Amount Units: ng/ml



Manual Integration Results

RT: 2.78
Area: 268096
Amount: 0.213325
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 10:54:46
Audit Action: Manually Integrated Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: C0AQ9 DL
Lab Sample ID: 320-48794-3 DL
Matrix: Water
Lab File ID: 2019.04.05_537.1A_029.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 15:28
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 266.2(mL)
Date Analyzed: 04/05/2019 14:26
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 5
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 286379
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	640		9.4	4.5

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	104		70-130

Eurofins TestAmerica, Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190405-74359.b\2019.04.05_537.1A_029.d
Lims ID: 320-48794-A-3-A
Client ID: C0AQ9
Sample Type: Client
Inject. Date: 05-Apr-2019 14:26:23 ALS Bottle#: 17 Worklist Smp#: 4
Injection Vol: 10.0 ul Dil. Factor: 5.0000
Sample Info: 320-48794-a-3-a 5X
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190405-74359.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Apr-2019 15:06:06 Calib Date: 04-Apr-2019 16:11:08
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: CTX0314

First Level Reviewer: Ex. 4 CBI Date: 05-Apr-2019 15:03:46
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.992	1.994	-0.002	1.000	673532	0.4530	Target=1.41	2025	
298.90 > 99.00	1.992	1.994	-0.002	1.000	461965		1.46(0.00-0.00)	214	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.347	2.349	-0.002	0.739	84835	0.0609	Target=10.46	15.1	
313.00 > 119.00	2.347	2.349	-0.002	0.739	8427		10.07(0.00-0.00)	9.6	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.347	2.349	-0.002	1.000	684175	0.4692		2911	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.474	2.475	-0.001	1.000	39850	0.6085		249	
4 Perfluoroheptanoic acid									M
363.00 > 319.00	2.778	2.776	0.002	1.000	55164	0.0416	Target=2.41	5.2	M
363.00 > 169.00	2.778	2.776	0.002	1.000	26096		2.11(0.00-0.00)	64.1	
3 Perfluorohexanesulfonic acid									M
399.00 > 80.00	2.799	2.776	0.023	1.000	96359	0.0534	Target=2.91	66.2	M
399.00 > 99.00	2.799	2.776	0.023	1.000	32195		2.99(0.00-0.00)	11.6	M
* 5 13C2 PFOA									
415.00 > 370.00	3.177	3.177	0.0		3127183	2.50		8367	
6 Perfluorooctanoic acid									M
413.00 > 369.00	3.177	3.177	0.0	1.000	105894	0.0835	Target=1.70	11.5	M
413.00 > 169.00	3.177	3.177	0.0	1.000	67232		1.58(0.00-0.00)	80.7	M
* 7 13C4 PFOS									
503.00 > 80.00	3.549	3.548	0.001		3008561	2.39		5296	
9 Perfluorononanoic acid									
463.00 > 419.00	3.564	3.562	0.002	1.000	12624	0.0137	Target=3.78	5.6	
463.00 > 169.00	3.564	3.562	0.002	1.000	2890		4.37(0.00-0.00)	18.0	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
8 Perfluorooctanesulfonic acid									
499.00 > 80.00	3.564	3.564	0.0	1.004	4542059	3.42	Target=4.63	3417	
499.00 > 99.00	3.564	3.564	0.0	1.004	774618		5.86(0.00-0.00)	570	
$ 10 13C2 PFDA									
515.00 > 470.00	3.930	3.911	0.019	1.000	404940	0.5213		2401	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.086	4.088	-0.002		530995	2.50		3782	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.231	4.232	-0.001	1.035	114864	0.5291		70.3	

QC Flag Legend

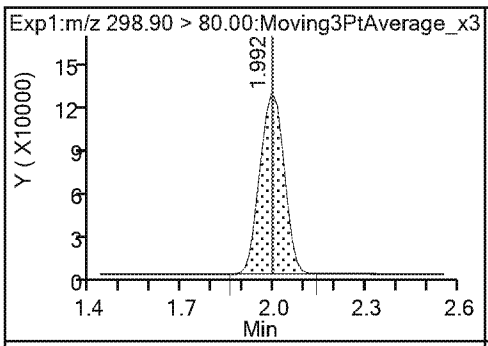
Review Flags

M - Manually Integrated

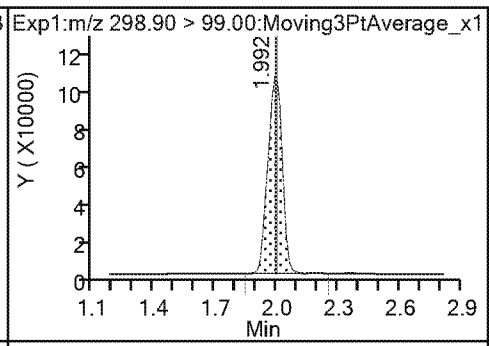
Eurofins TestAmerica, Sacramento

Data File:	\\chromna\Sacramento\ChromData\A8_N\20190405-74359.b\2019.04.05_537.1A_029.d				
Injection Date:	05-Apr-2019 14:26:23	Instrument ID:	A8_N		
Lims ID:	320-48794-A-3-A	Lab Sample ID:	320-48794-3		
Client ID:	C0AQ9				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	17	Worklist Smp#:	4
Injection Vol:	10.0 ul	Dil. Factor:	5.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

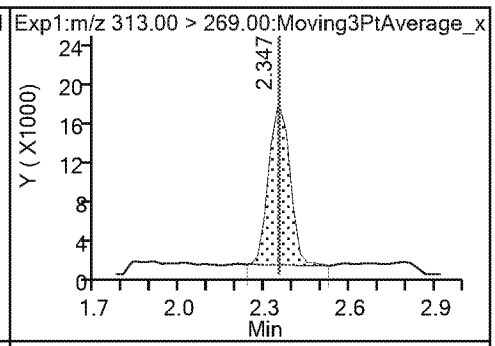
1 Perfluorobutanesulfonic acid



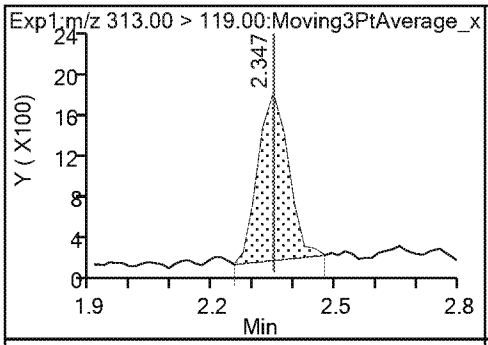
1 Perfluorobutanesulfonic acid



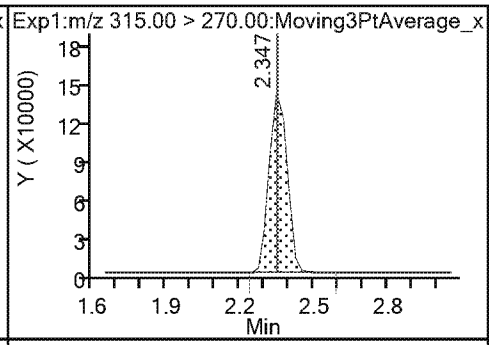
13 Perfluorohexanoic acid



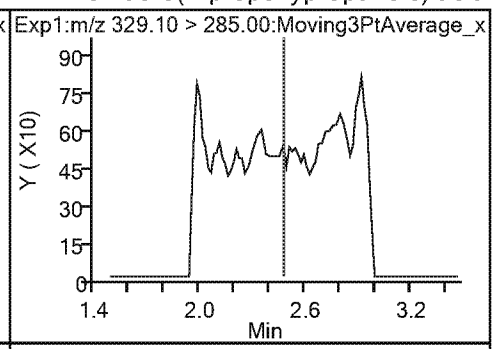
13 Perfluorohexanoic acid



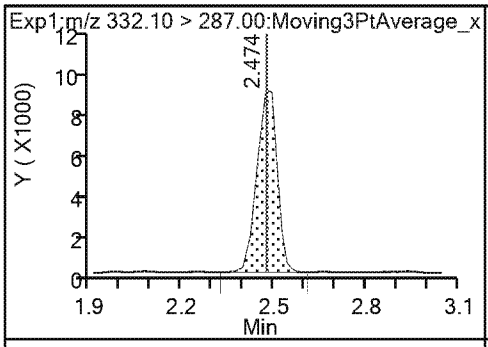
$ 2 13C2 PFHxA



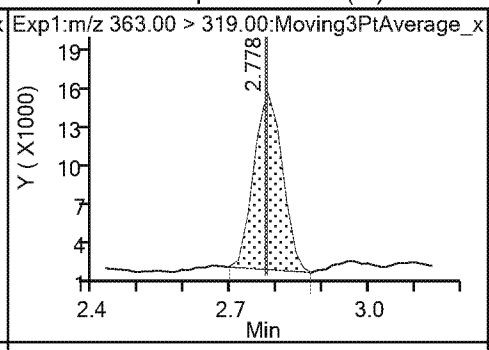
22 Perfluoro(2-propoxypropanoic) acid (ND)



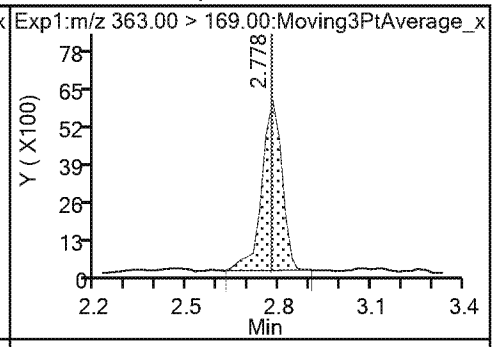
$ 25 13C3 HFPO-DA



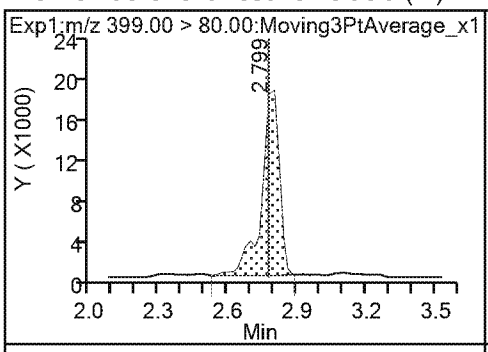
4 Perfluoroheptanoic acid (M)



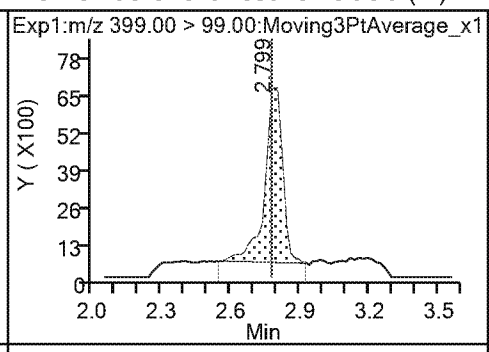
4 Perfluoroheptanoic acid



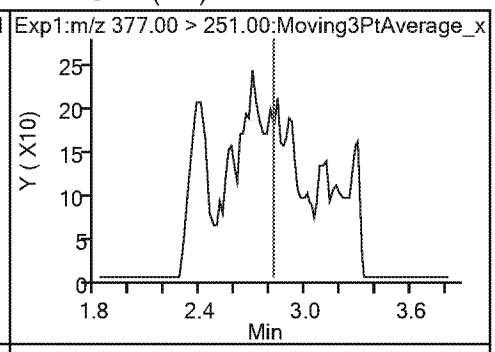
3 Perfluorohexanesulfonic acid (M)



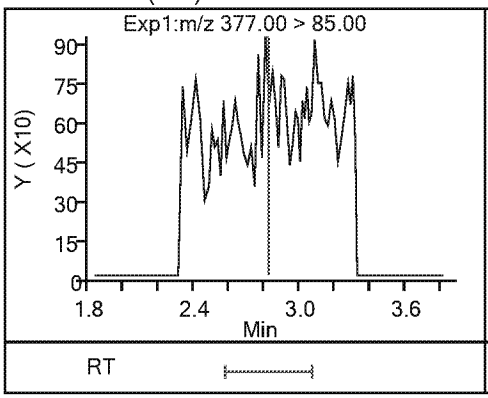
3 Perfluorohexanesulfonic acid (M)



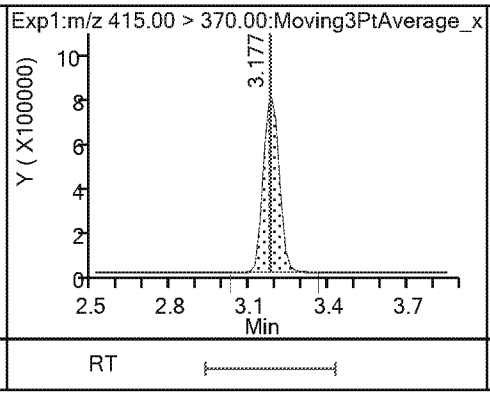
24 DONA (ND)



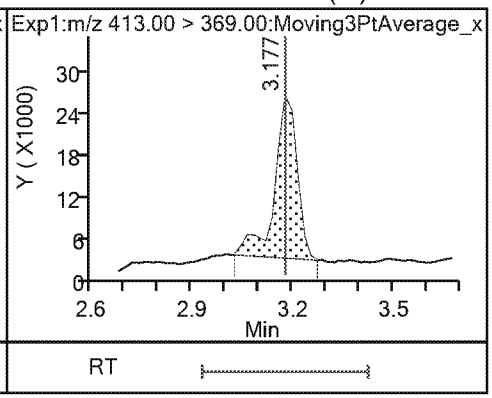
24 DONA (ND)



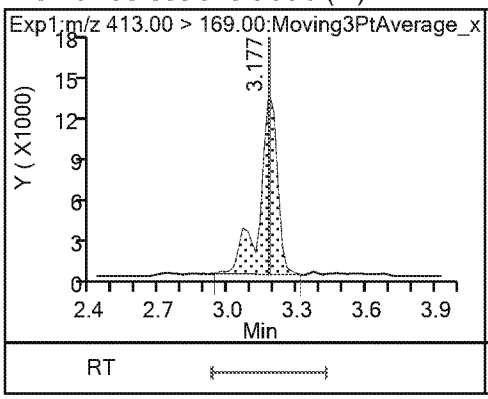
* 5 13C2 PFOA



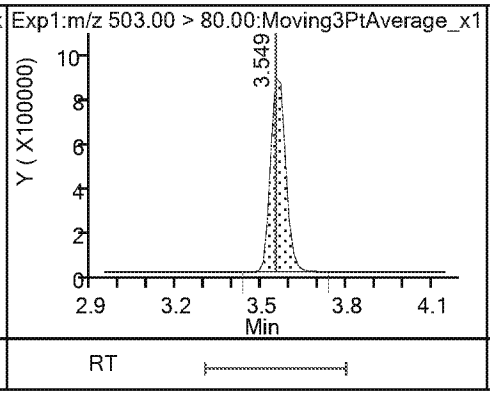
6 Perfluorooctanoic acid (M)



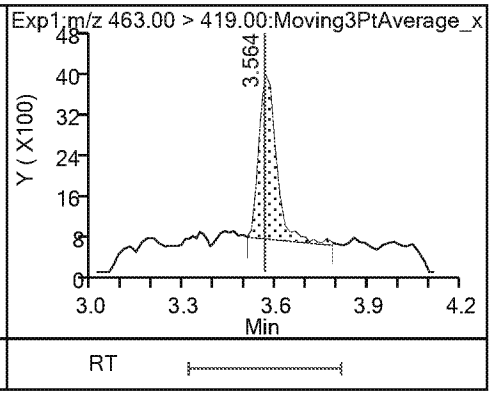
6 Perfluorooctanoic acid (M)



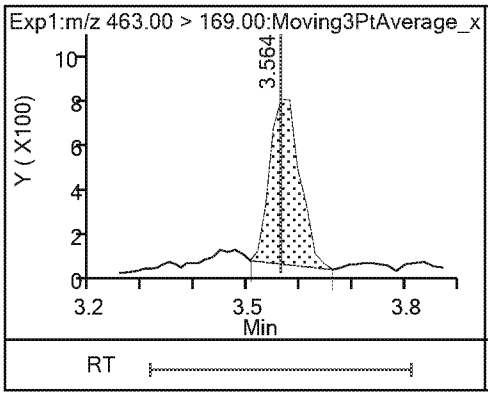
* 7 13C4 PFOS



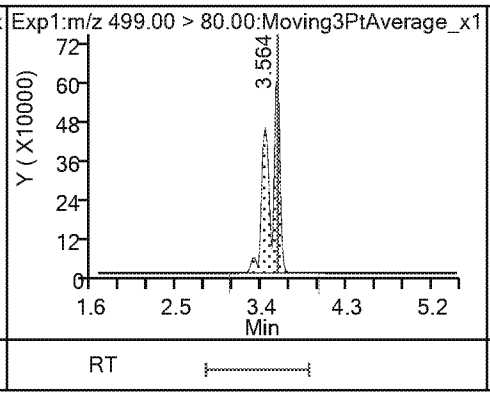
9 Perfluorononanoic acid



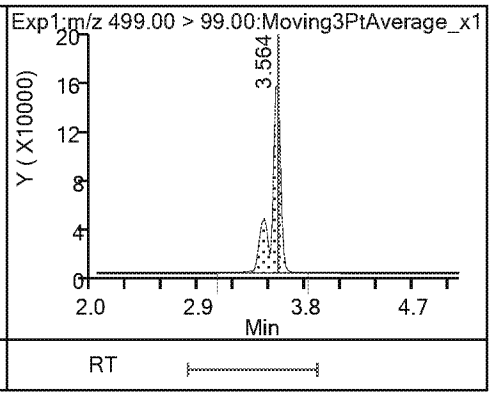
9 Perfluorononanoic acid



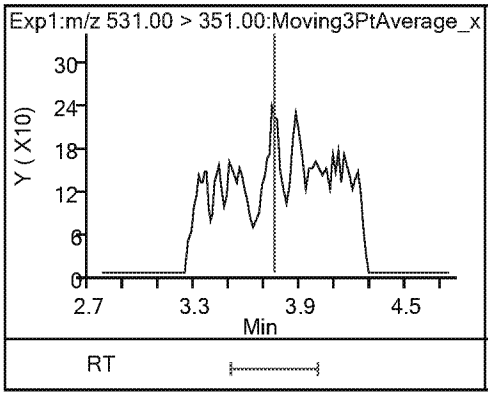
8 Perfluorooctanesulfonic acid



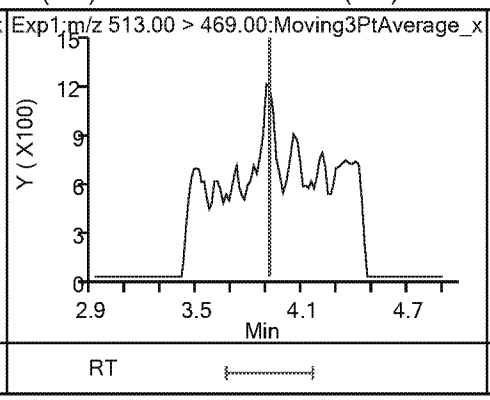
8 Perfluorooctanesulfonic acid



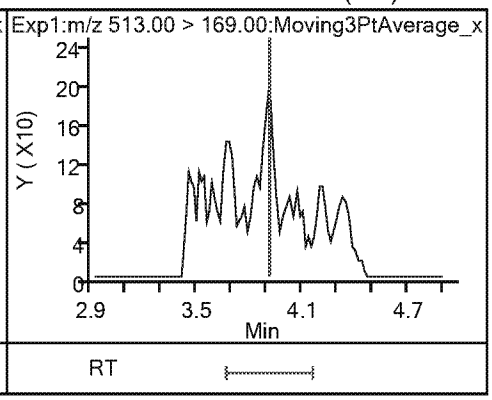
23 9-Chlorohexadecafluoro-3-oxanonane1(ND)



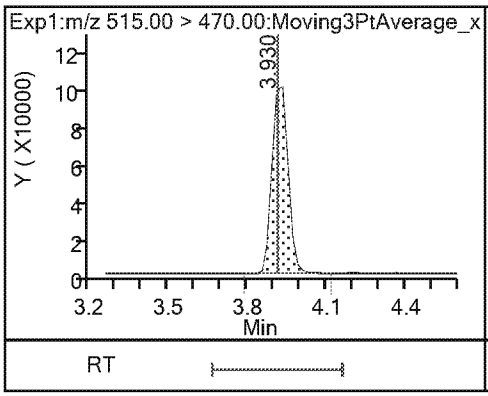
14 Perfluorodecanoic acid (ND)



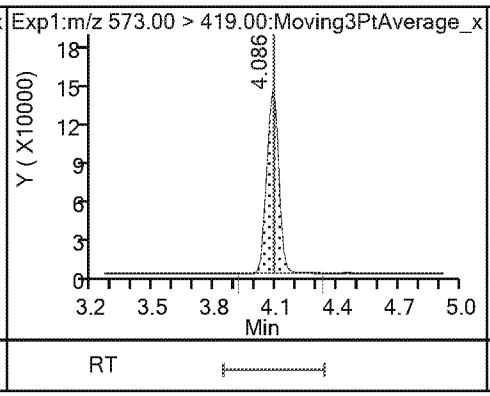
14 Perfluorodecanoic acid (ND)



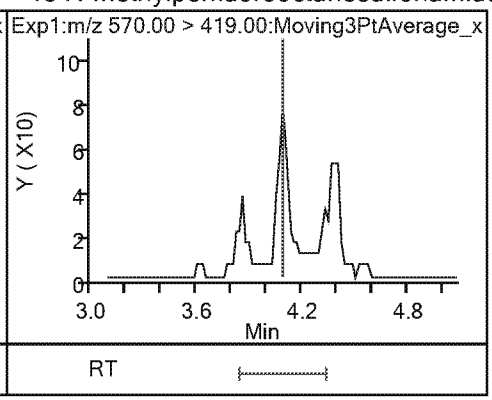
$ 10 13C2 PFDA



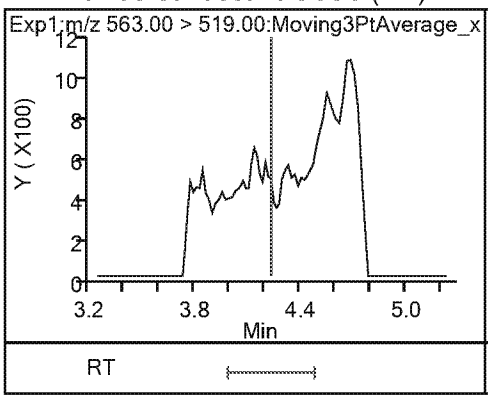
* 12 d3-NMeFOSAA



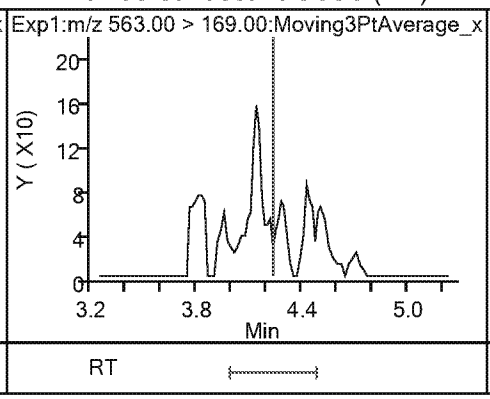
15 N-methylperfluorooctanesulfonamido (ND)



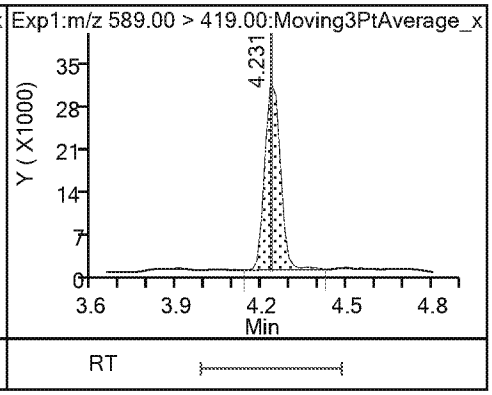
17 Perfluoroundecanoic acid (ND)



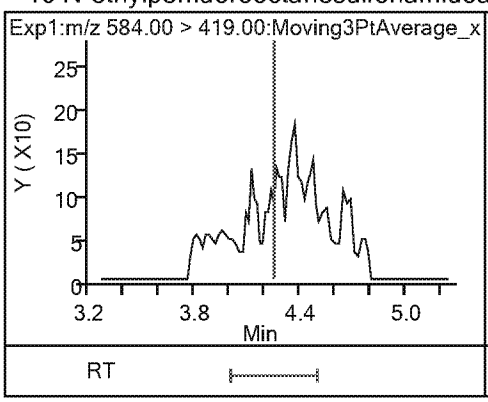
17 Perfluoroundecanoic acid (ND)



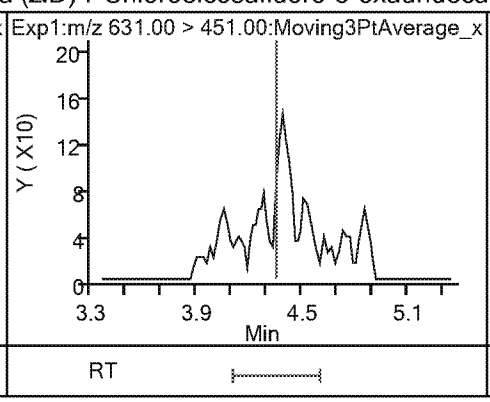
$ 11 d5-NEtFOSAA



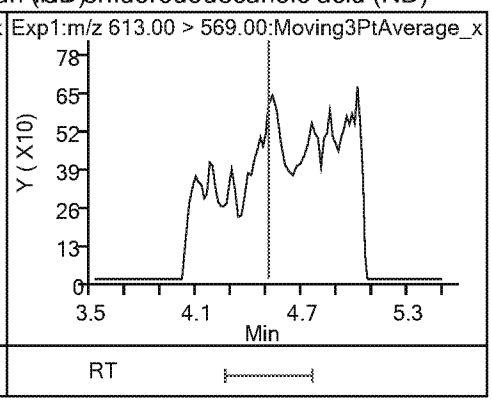
16 N-ethylperfluorooctanesulfonamidoa (ND)



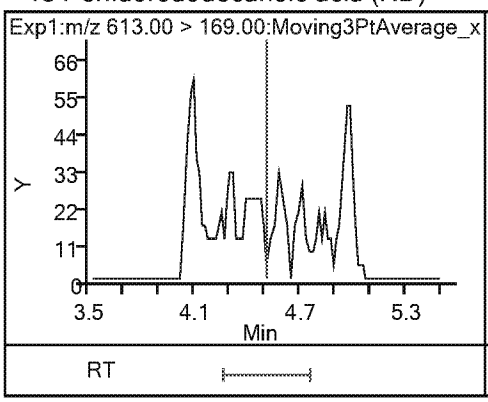
21 11-Chloroeicosafluoro-3-oxaundecan (ND)



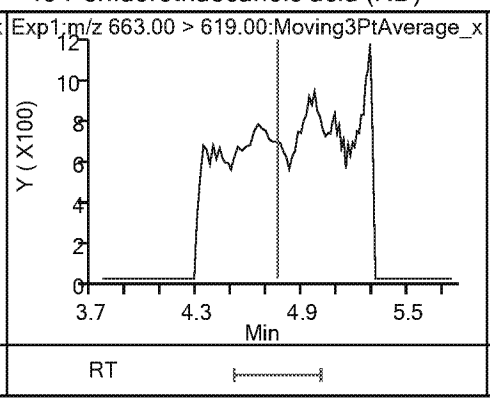
18 Perfluorododecanoic acid (ND)



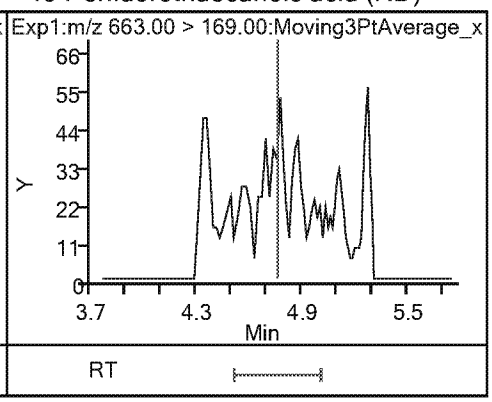
18 Perfluorododecanoic acid (ND)



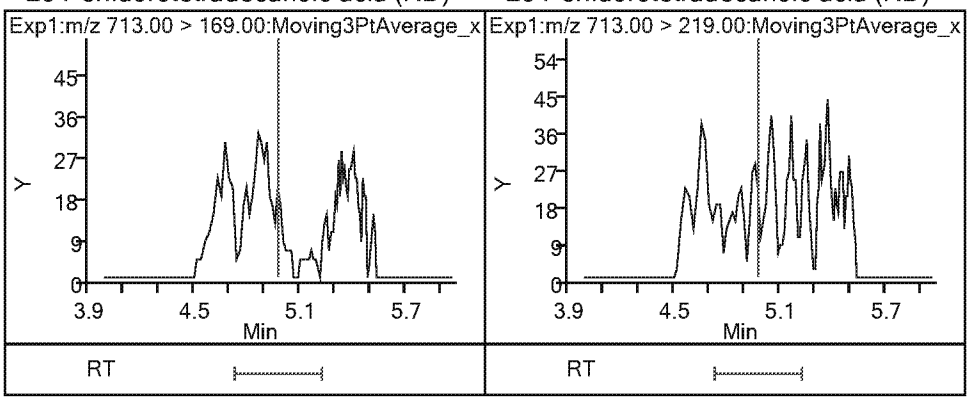
19 Perfluorotridecanoic acid (ND)



19 Perfluorotridecanoic acid (ND)



20 Perfluorotetradecanoic acid (ND) 20 Perfluorotetradecanoic acid (ND)



Eurofins TestAmerica, Sacramento
Recovery Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190405-74359.b\2019.04.05_537.1A_029.d
Lims ID: 320-48794-A-3-A
Client ID: C0AQ9
Sample Type: Client
Inject. Date: 05-Apr-2019 14:26:23 ALS Bottle#: 17 Worklist Smp#: 4
Injection Vol: 10.0 ul Dil. Factor: 5.0000
Sample Info: 320-48794-a-3-a 5X
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190405-74359.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Apr-2019 15:06:06 Calib Date: 04-Apr-2019 16:11:08
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: CTX0314

First Level Reviewer: Ex. 4 CBI Date: 05-Apr-2019 15:03:46

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	2.50	0.4692	93.84
$ 25 13C3 HFPO-DA	2.50	0.6085	121.70
$ 10 13C2 PFDA	2.50	0.5213	104.26
$ 11 d5-NEtFOSAA	2.50	0.5291	105.83

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: C0AR5
Lab Sample ID: 320-48794-4
Matrix: Water
Lab File ID: 2019.04.04_537AA_007.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 16:45
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 290.4(mL)
Date Analyzed: 04/04/2019 19:29
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 286182
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	3.6		1.7	0.82
335-67-1	Perfluorooctanoic acid	3.3	J	5.2	2.3
375-95-1	Perfluorononanoic acid	ND		1.7	0.40
355-46-4	Perfluorohexanesulfonic acid	1.6	J	1.7	0.55
375-85-9	Perfluoroheptanoic acid	3.0		2.6	1.1
375-73-5	Perfluorobutanesulfonic acid	1.3	J	1.7	0.69

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	107		70-130
STL00996	13C2 PFDA	110		70-130

Eurofins TestAmerica, Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190404-74319.b\2019.04.04_537AA_007.d
Lims ID: 320-48794-A-4-A
Client ID: C0AR5
Sample Type: Client
Inject. Date: 04-Apr-2019 19:29:44 ALS Bottle#: 1 Worklist Smp#: 3
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-48794-a-4-a (#285397)
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190404-74319.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Apr-2019 11:24:35 Calib Date: 04-Apr-2019 16:11:08
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: CTX0314

First Level Reviewer: Ex. 4 CBI Date: 05-Apr-2019 10:58:06
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.992	1.992	0.0	1.000	58116	0.0376	Target=1.41	87.4	
298.90 > 99.00	1.992	1.992	0.0	1.000	41037		1.42(0.00-0.00)	16.7	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.347	2.347	0.0	0.739	537162	0.4163	Target=10.46	45.8	
313.00 > 119.00	2.347	2.347	0.0	0.739	52734		10.19(0.00-0.00)	48.8	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.347	2.347	0.0	1.000	3605606	2.67		6018	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.474	2.474	0.0	1.000	161529	2.66		605	
4 Perfluoroheptanoic acid									M
363.00 > 319.00	2.778	2.778	0.0	1.000	108287	0.0881	Target=2.41	7.6	M
363.00 > 169.00	2.778	2.778	0.0	1.000	51561		2.10(0.00-0.00)	89.1	
3 Perfluorohexanesulfonic acid									M
399.00 > 80.00	2.799	2.778	0.021	1.000	85449	0.0456	Target=2.91	18.3	M
399.00 > 99.00	2.799	2.778	0.021	1.000	31842		2.68(0.00-0.00)	10.6	M
* 5 13C2 PFOA									
415.00 > 370.00	3.177	3.177	0.0		2898820	2.50		11366	
6 Perfluorooctanoic acid									M
413.00 > 369.00	3.177	3.177	0.0	1.000	111437	0.0947	Target=1.70	9.6	M
413.00 > 169.00	3.177	3.177	0.0	1.000	73945		1.51(0.00-0.00)	76.1	M
* 7 13C4 PFOS									
503.00 > 80.00	3.549	3.550	-0.001		3126503	2.39		2312	
8 Perfluorooctanesulfonic acid									M
499.00 > 80.00	3.431	3.564	-0.133	0.967	143158	0.1036	Target=4.63	54.2	M
499.00 > 99.00	3.549	3.564	-0.015	1.000	23817		6.01(0.00-0.00)	12.9	M
$ 10 13C2 PFDA									
515.00 > 470.00	3.914	3.915	-0.001	1.000	1974551	2.74		8341	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.073	4.074	-0.001		619147	2.50		2781	
15 N-methylperfluorooctanesulfonamido									M
570.00 > 419.00	4.089	4.090	-0.001	1.004	1949	0.008406		14.2	M
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.233	4.234	-0.001	1.039	674937	2.67		444	
16 N-ethylperfluorooctanesulfonamidoa									M
584.00 > 419.00	4.233	4.234	-0.001	1.000	1791	0.007966		5.5	M

QC Flag Legend

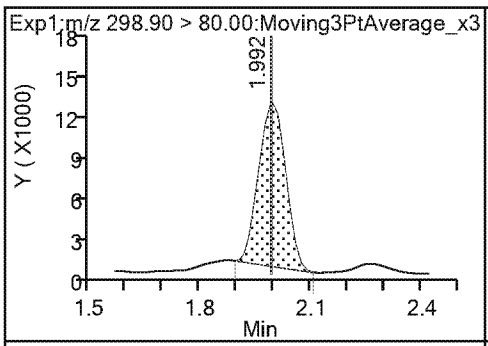
Review Flags

M - Manually Integrated

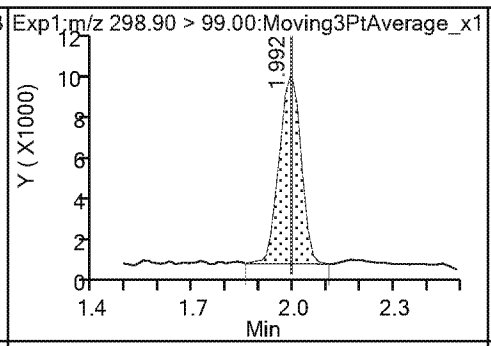
Eurofins TestAmerica, Sacramento

Data File:	\\chromna\Sacramento\ChromData\A8_N\20190404-74319.b\2019.04.04_537AA_007.d				
Injection Date:	04-Apr-2019 19:29:44	Instrument ID:	A8_N		
Lims ID:	320-48794-A-4-A	Lab Sample ID:	320-48794-4		
Client ID:	C0AR5				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	1	Worklist Smp#:	3
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

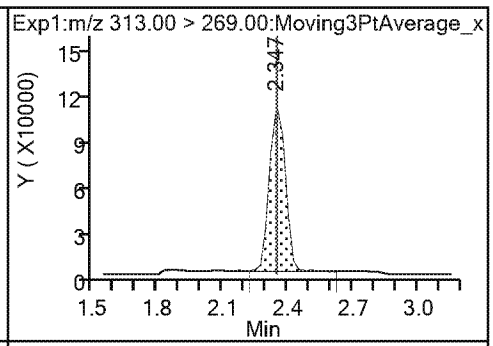
1 Perfluorobutanesulfonic acid



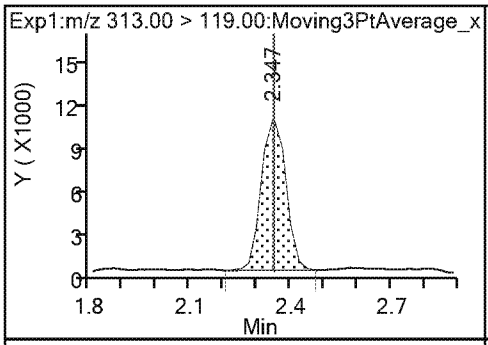
1 Perfluorobutanesulfonic acid



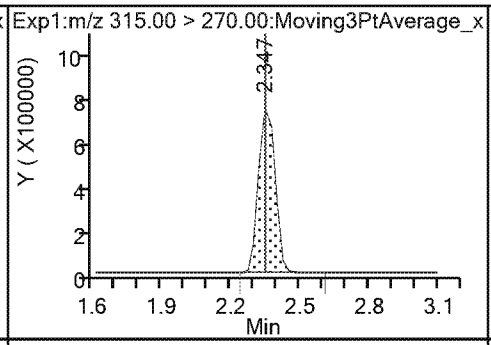
13 Perfluorohexanoic acid



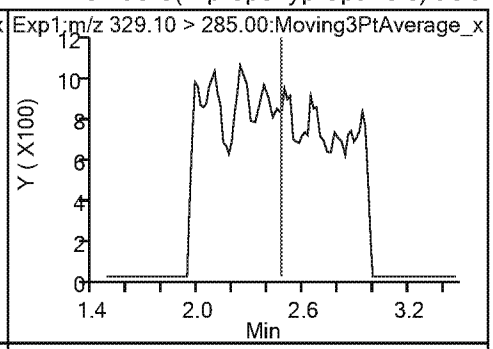
13 Perfluorohexanoic acid



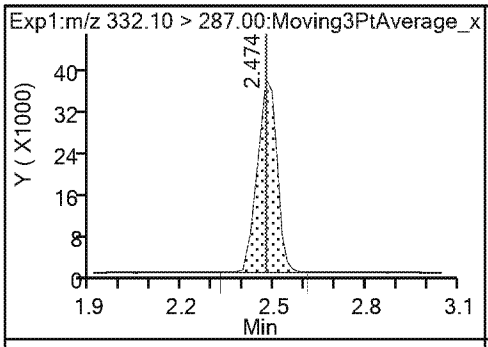
$ 2 13C2 PFHxA



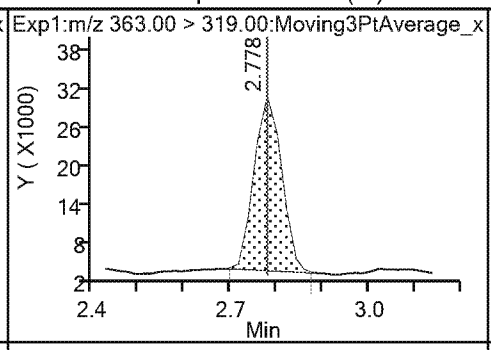
22 Perfluoro(2-propoxypropanoic) acid (ND)



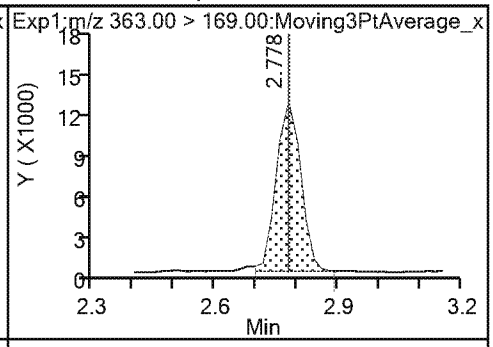
$ 25 13C3 HFPO-DA



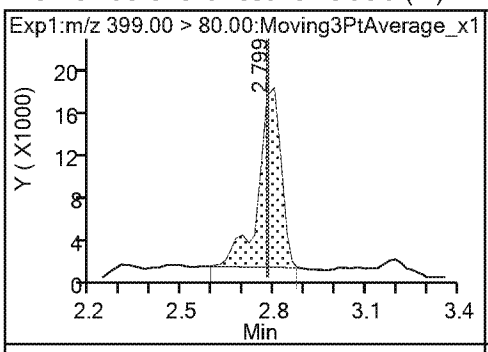
4 Perfluoroheptanoic acid (M)



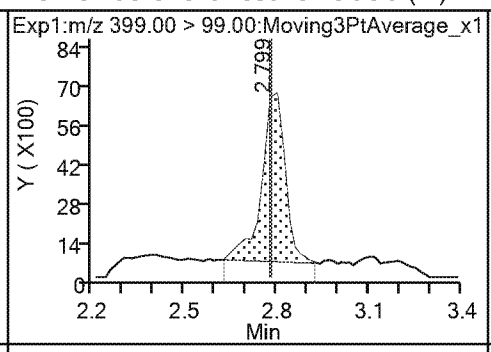
4 Perfluoroheptanoic acid



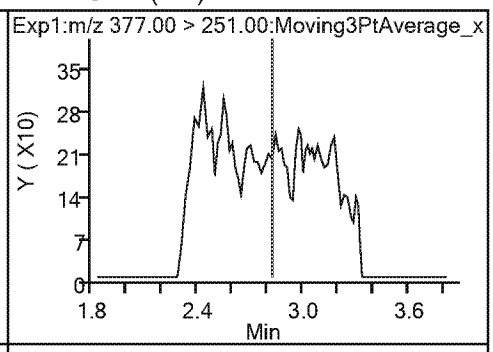
3 Perfluorohexanesulfonic acid (M)



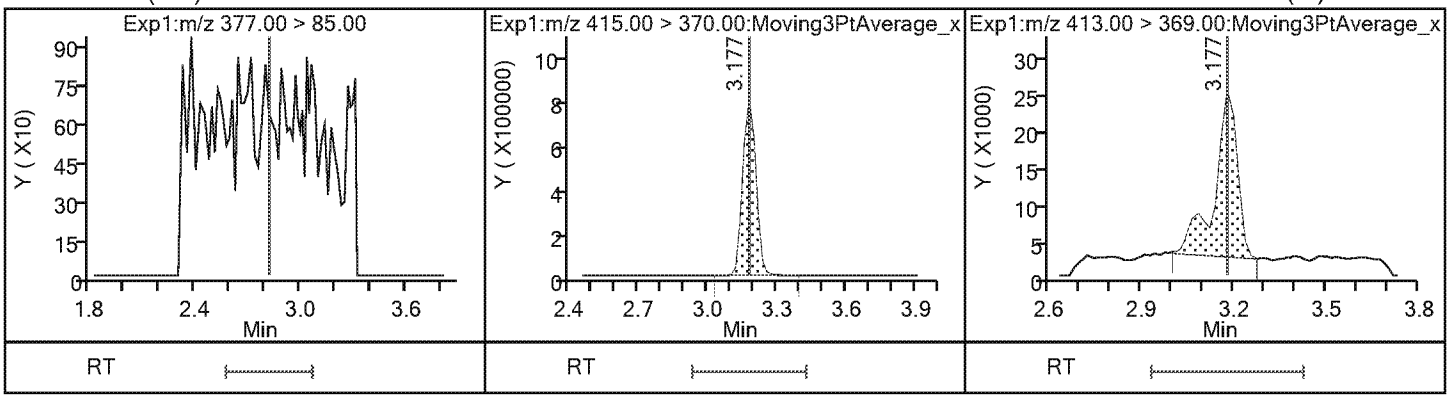
3 Perfluorohexanesulfonic acid (M)



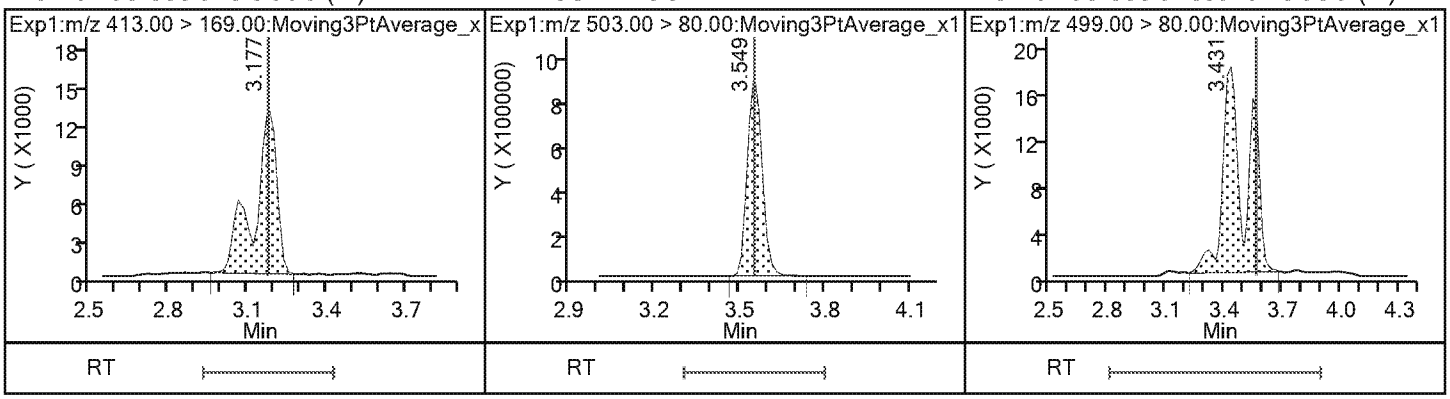
24 DONA (ND)



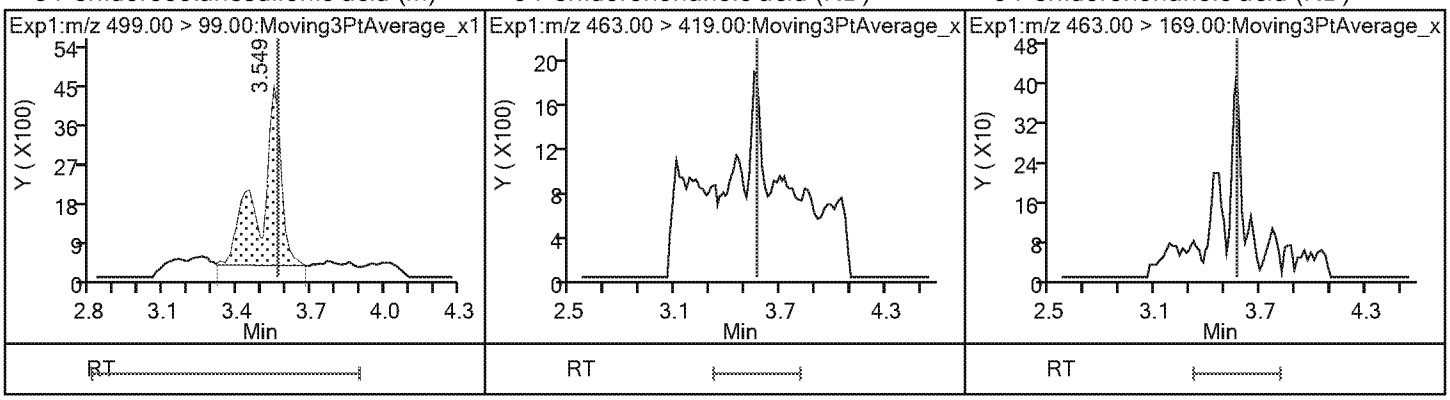
24 DONA (ND) * 5 13C2 PFOA 6 Perfluorooctanoic acid (M)



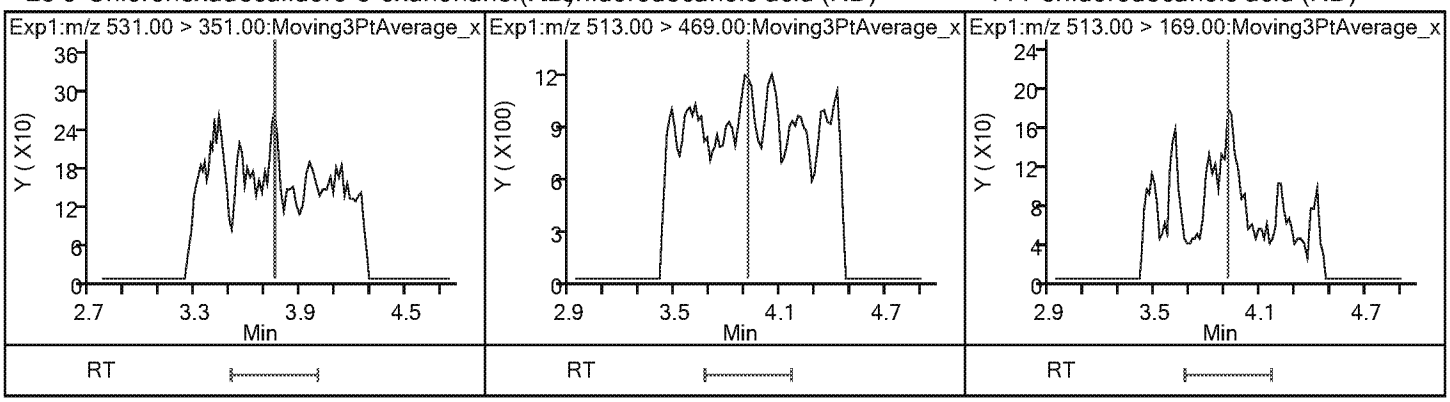
6 Perfluorooctanoic acid (M) * 7 13C4 PFOS 8 Perfluorooctanesulfonic acid (M)



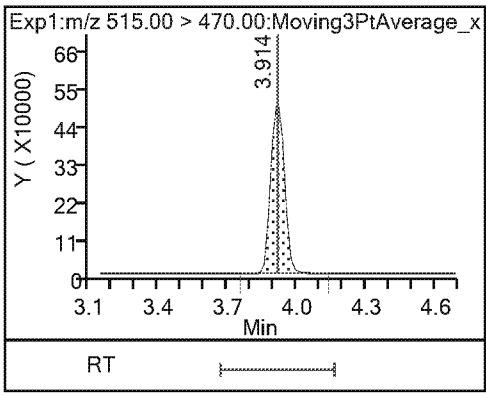
8 Perfluorooctanesulfonic acid (M) 9 Perfluorononanoic acid (ND) 9 Perfluorononanoic acid (ND)



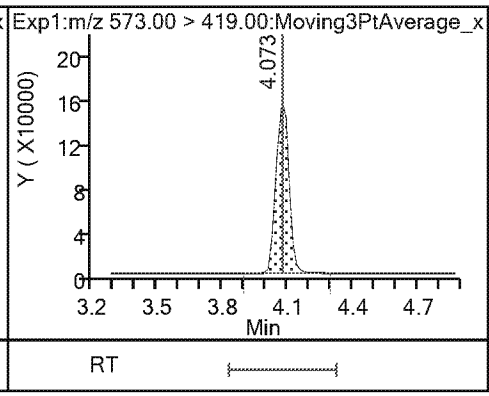
23 9-Chlorohexadecafluoro-3-oxanonane1(ND) 14 Perfluorodecanoic acid (ND) 14 Perfluorodecanoic acid (ND)



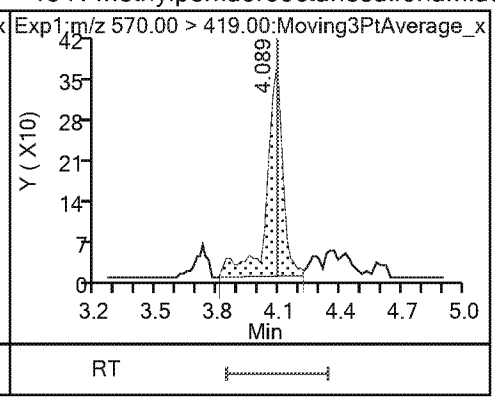
$ 10 13C2 PFDA



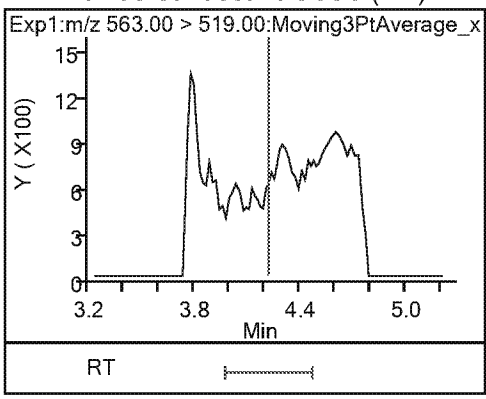
* 12 d3-NMeFOSAA



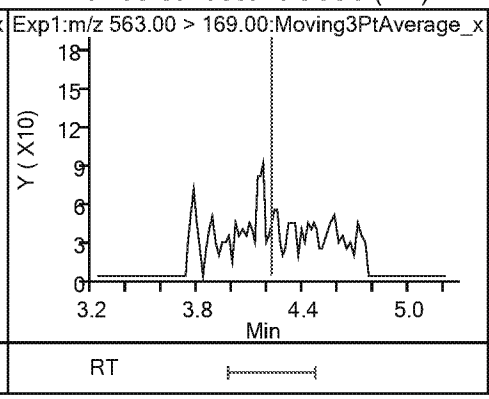
15 N-methylperfluorooctanesulfonamido (M)



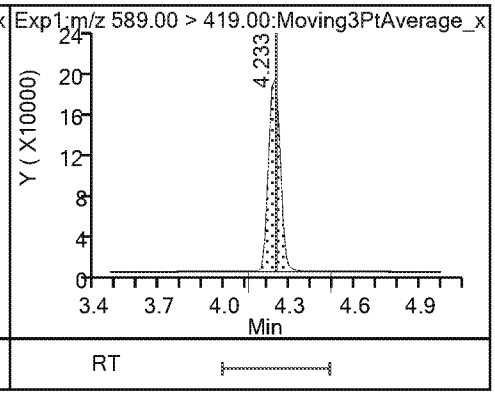
17 Perfluoroundecanoic acid (ND)



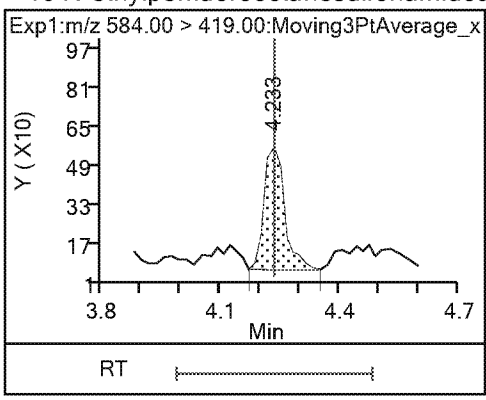
17 Perfluoroundecanoic acid (ND)



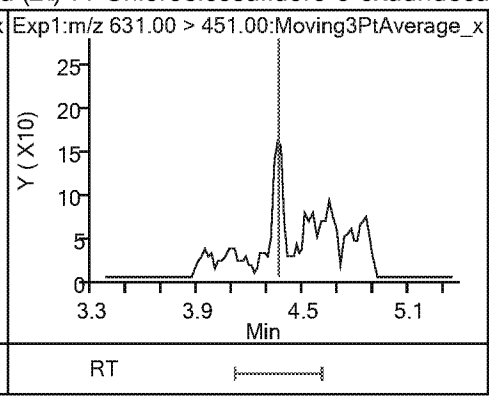
$ 11 d5-NEtFOSAA



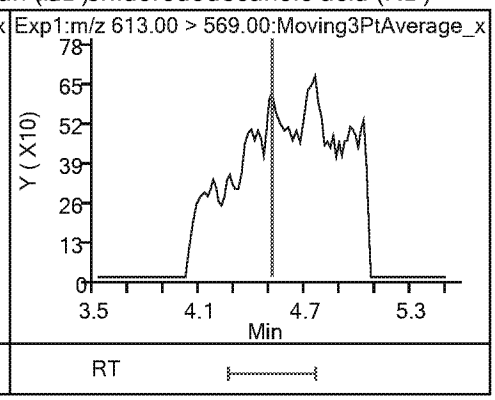
16 N-ethylperfluorooctanesulfonamidoa (M)



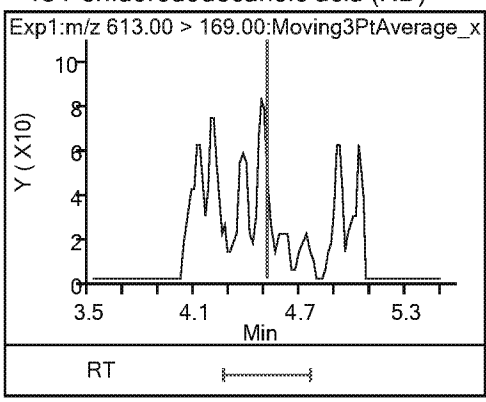
21 11-Chloroeicosafluoro-3-oxaundecan (ND)



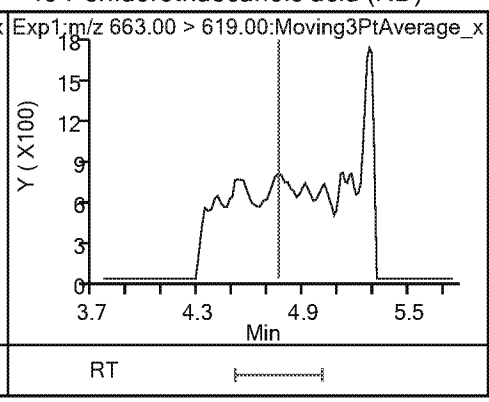
18 Perfluorododecanoic acid (ND)



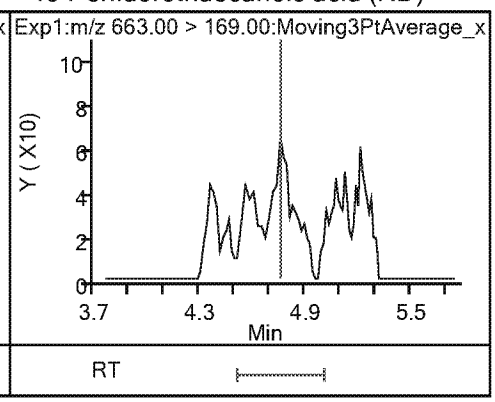
18 Perfluorododecanoic acid (ND)



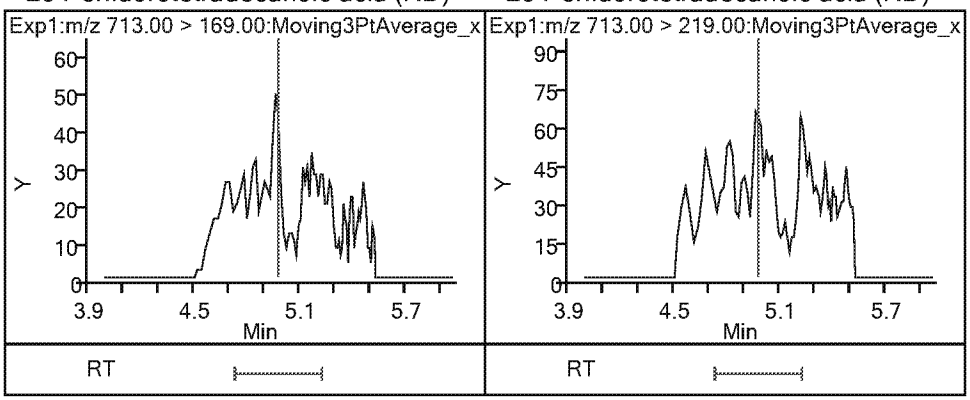
19 Perfluorotridecanoic acid (ND)



19 Perfluorotridecanoic acid (ND)



20 Perfluorotetradecanoic acid (ND) 20 Perfluorotetradecanoic acid (ND)



Eurofins TestAmerica, Sacramento
Recovery Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190404-74319.b\2019.04.04_537AA_007.d
Lims ID: 320-48794-A-4-A
Client ID: C0AR5
Sample Type: Client
Inject. Date: 04-Apr-2019 19:29:44 ALS Bottle#: 1 Worklist Smp#: 3
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-48794-a-4-a (#285397)
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190404-74319.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Apr-2019 11:24:35 Calib Date: 04-Apr-2019 16:11:08
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: CTX0314

First Level Reviewer: Ex. 4 CBI Date: 05-Apr-2019 10:58:06

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	2.50	2.67	106.70
$ 25 13C3 HFPO-DA	2.50	2.66	106.43
$ 10 13C2 PFDA	2.50	2.74	109.69
$ 11 d5-NEtFOSAA	2.50	2.67	106.66

Eurofins TestAmerica, Sacramento

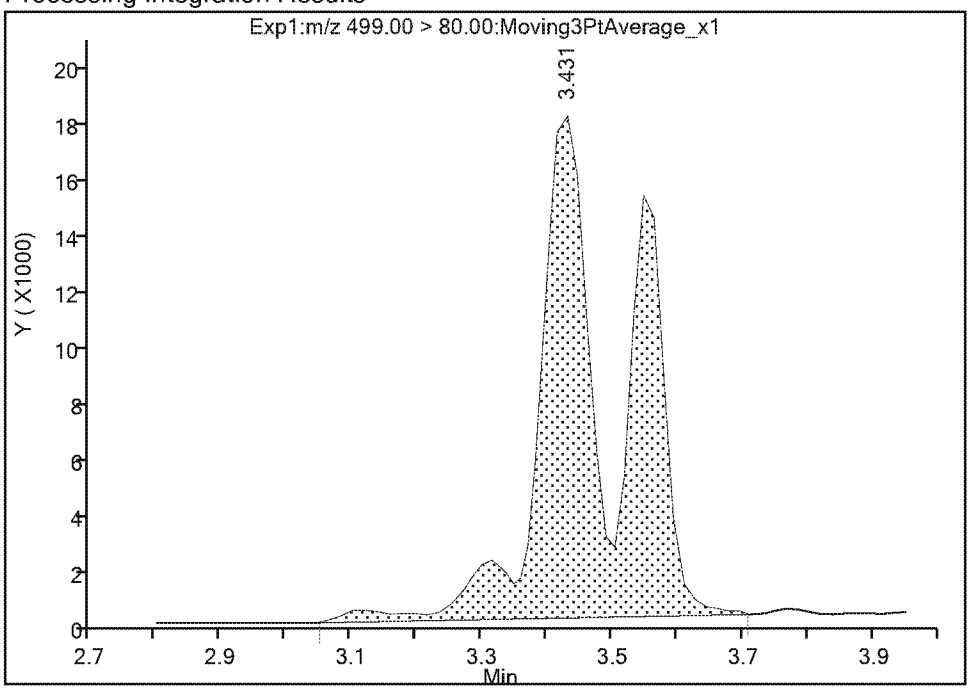
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190404-74319.b\2019.04.04_537AA_007.d				
Injection Date:	04-Apr-2019 19:29:44	Instrument ID:	A8_N		
Lims ID:	320-48794-A-4-A	Lab Sample ID:	320-48794-4		
Client ID:	C0AR5				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	1	Worklist Smp#:	3
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

8 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 1

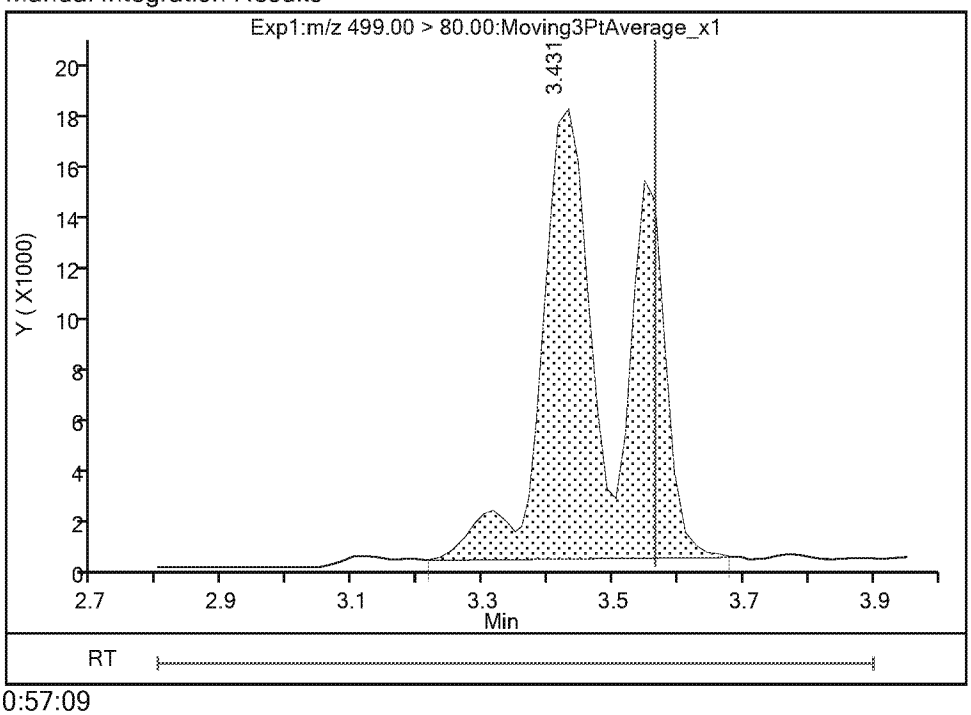
Processing Integration Results

RT: 3.43
Area: 149605
Amount: 0.108264
Amount Units: ng/ml



Manual Integration Results

RT: 3.43
Area: 143158
Amount: 0.103599
Amount Units: ng/ml



Reviewe Ex. 4 CBI 05-Apr-2019 10:57:09
Audit Action: Manually Integrated Audit Reason: Baseline

Eurofins TestAmerica, Sacramento

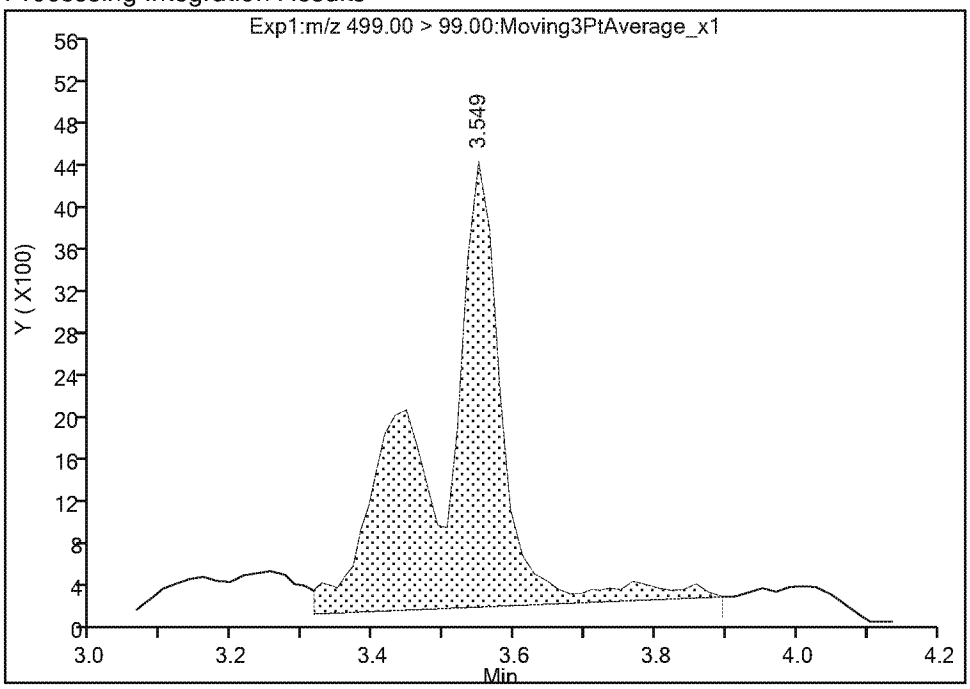
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190404-74319.b\2019.04.04_537AA_007.d				
Injection Date:	04-Apr-2019 19:29:44	Instrument ID:	A8_N		
Lims ID:	320-48794-A-4-A	Lab Sample ID:	320-48794-4		
Client ID:	C0AR5				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	1	Worklist Smp#:	3
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

8 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 2

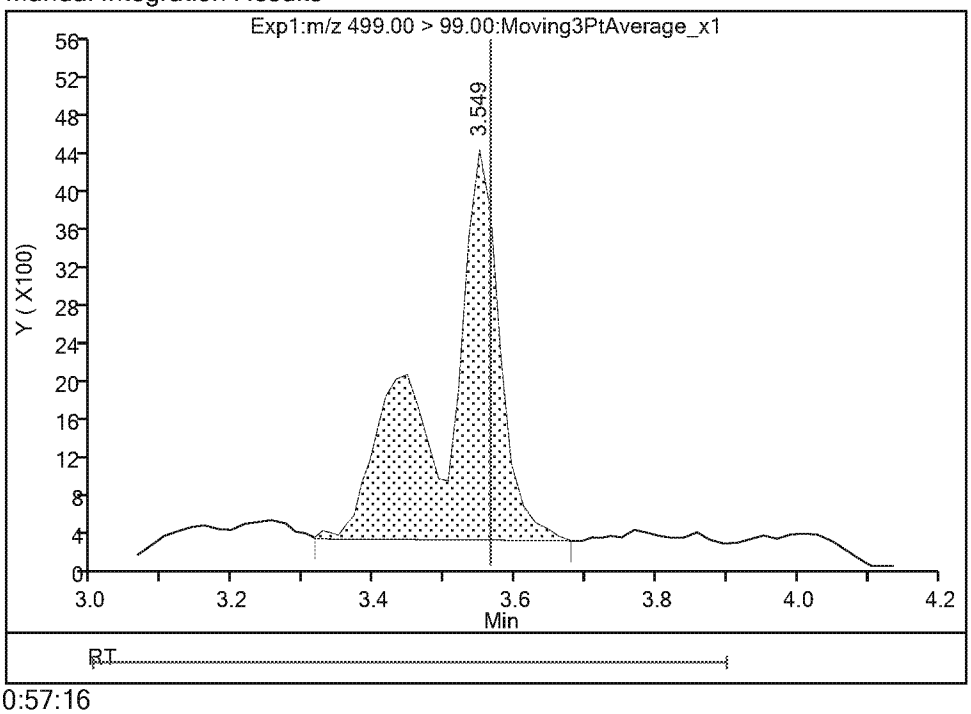
Processing Integration Results

RT: 3.55
Area: 28433
Amount: 0.108264
Amount Units: ng/ml



Manual Integration Results

RT: 3.55
Area: 23817
Amount: 0.103599
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 05-Apr-2019 10:57:16
Audit Action: Manually Integrated Audit Reason: Baseline

Eurofins TestAmerica, Sacramento

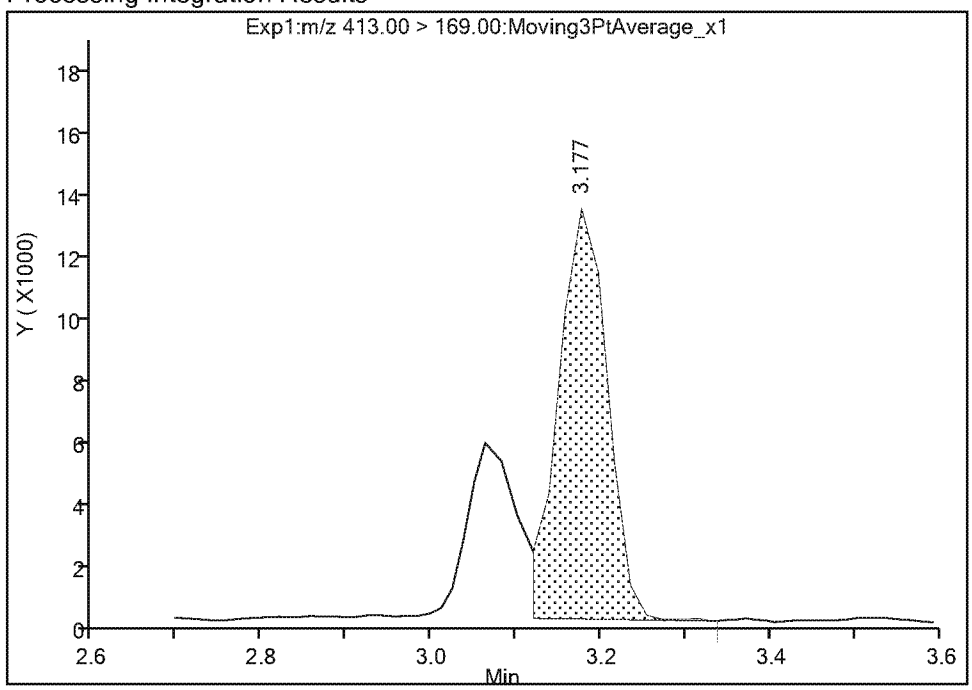
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190404-74319.b\2019.04.04_537AA_007.d				
Injection Date:	04-Apr-2019 19:29:44	Instrument ID:	A8_N		
Lims ID:	320-48794-A-4-A	Lab Sample ID:	320-48794-4		
Client ID:	C0AR5				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	1	Worklist Smp#:	3
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

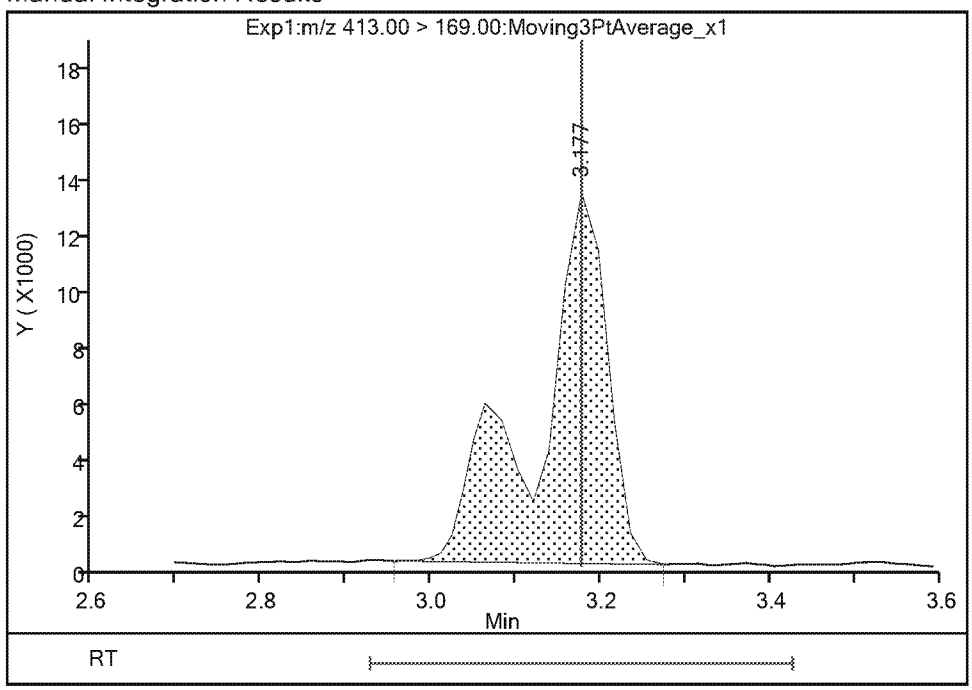
Processing Integration Results

RT: 3.18
Area: 51670
Amount: 0.085621
Amount Units: ng/ml



Manual Integration Results

RT: 3.18
Area: 73945
Amount: 0.094737
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 05-Apr-2019 10:55:53
Audit Action: Manually Integrated Audit Reason: Isomers

Eurofins TestAmerica, Sacramento

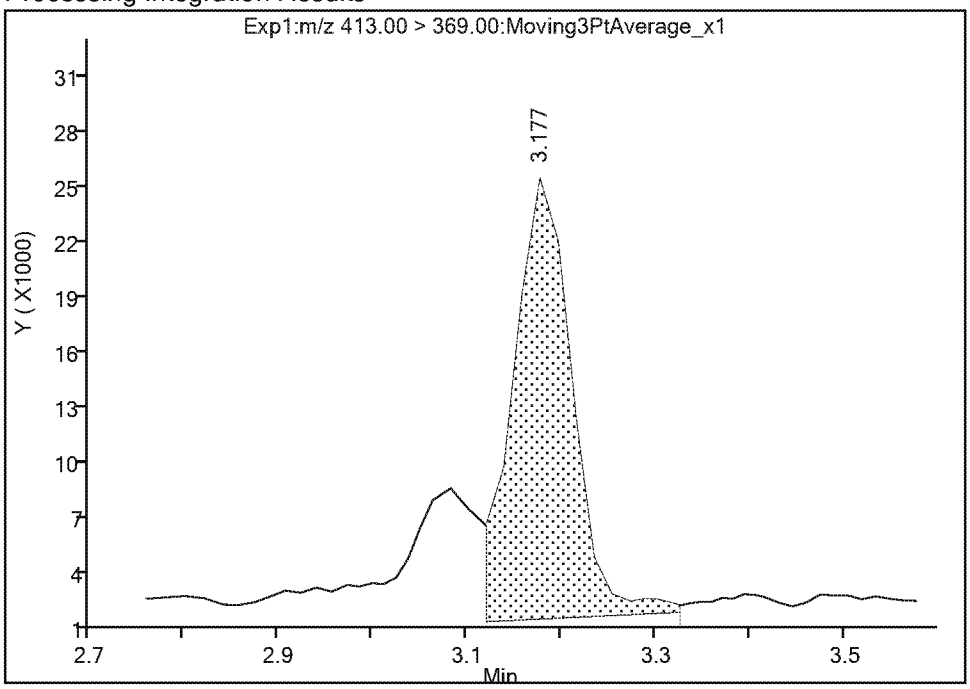
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190404-74319.b\2019.04.04_537AA_007.d				
Injection Date:	04-Apr-2019 19:29:44	Instrument ID:	A8_N		
Lims ID:	320-48794-A-4-A	Lab Sample ID:	320-48794-4		
Client ID:	C0AR5				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	1	Worklist Smp#:	3
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

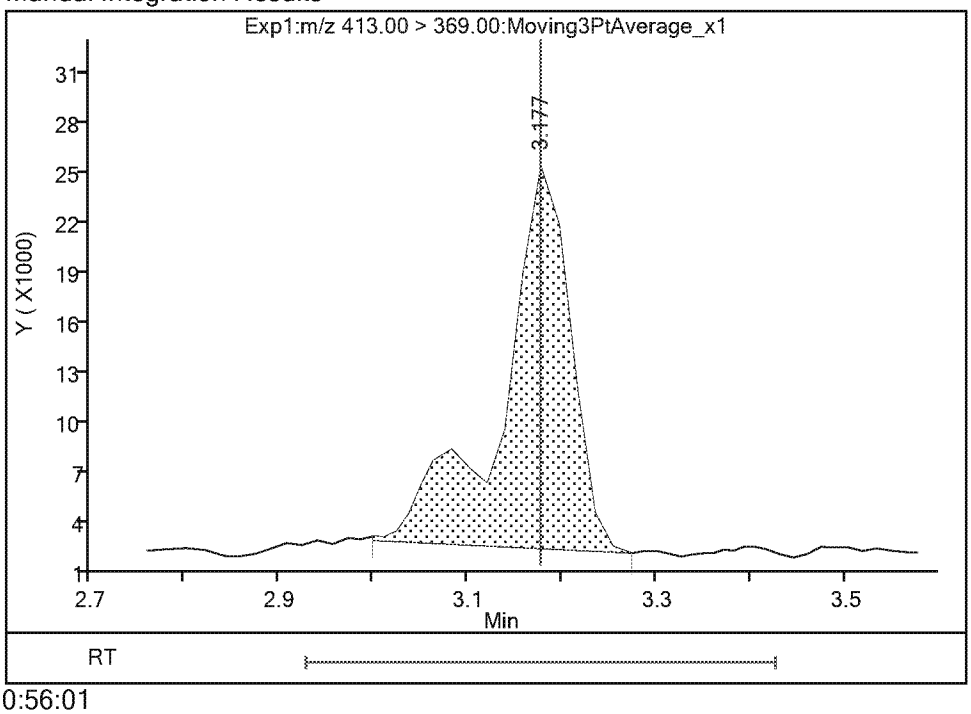
Processing Integration Results

RT: 3.18
Area: 100714
Amount: 0.085621
Amount Units: ng/ml



Manual Integration Results

RT: 3.18
Area: 111437
Amount: 0.094737
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 05-Apr-2019 10:56:01
Audit Action: Manually Integrated Audit Reason: Isomers

Eurofins TestAmerica, Sacramento

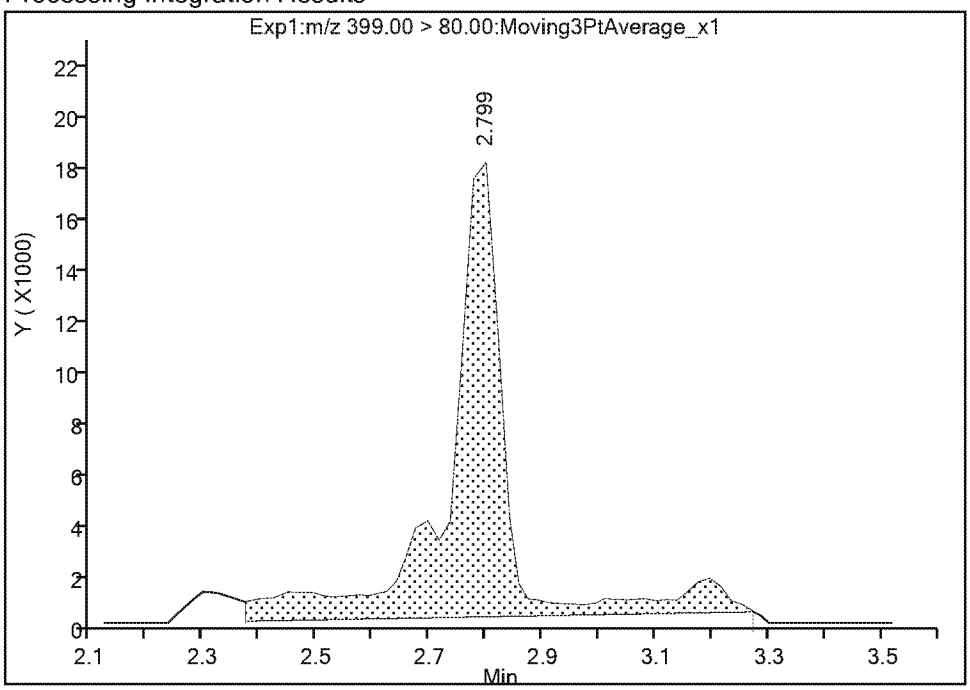
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190404-74319.b\2019.04.04_537AA_007.d				
Injection Date:	04-Apr-2019 19:29:44	Instrument ID:	A8_N		
Lims ID:	320-48794-A-4-A	Lab Sample ID:	320-48794-4		
Client ID:	C0AR5				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	1	Worklist Smp#:	3
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

3 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

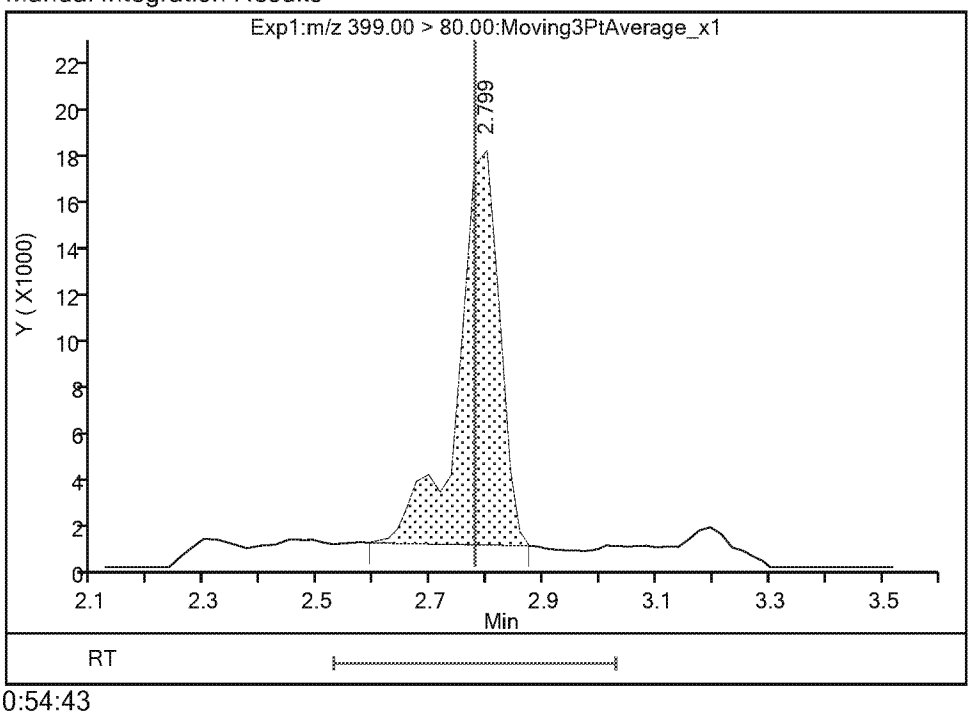
Processing Integration Results

RT: 2.80
Area: 124604
Amount: 0.066472
Amount Units: ng/ml



Manual Integration Results

RT: 2.80
Area: 85449
Amount: 0.045584
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 05-Apr-2019 10:54:43
Audit Action: Manually Integrated Audit Reason: Baseline

Eurofins TestAmerica, Sacramento

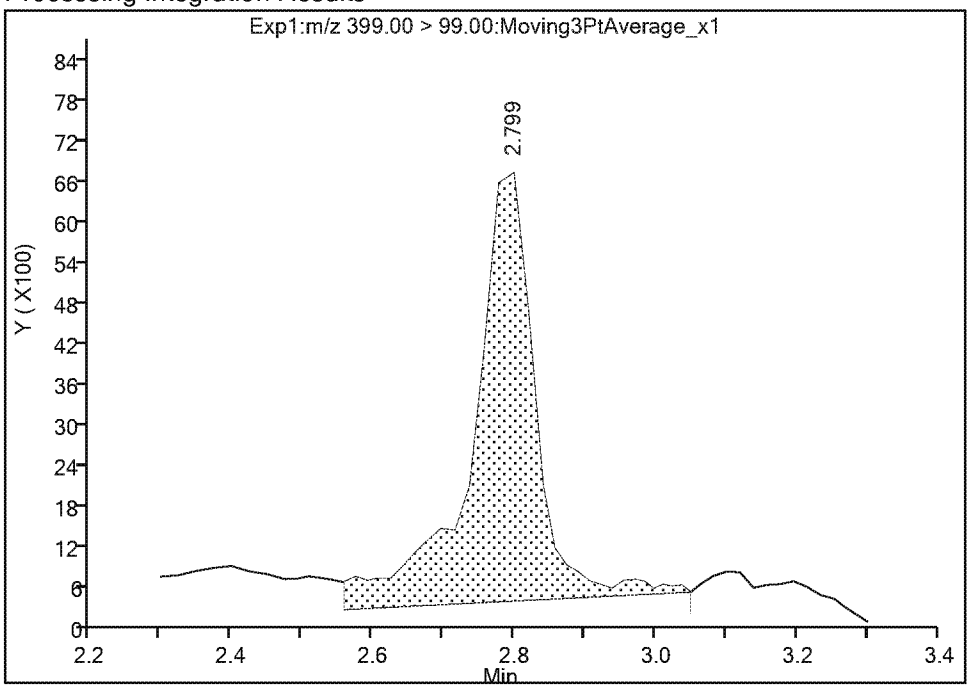
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190404-74319.b\2019.04.04_537AA_007.d				
Injection Date:	04-Apr-2019 19:29:44	Instrument ID:	A8_N		
Lims ID:	320-48794-A-4-A	Lab Sample ID:	320-48794-4		
Client ID:	C0AR5				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	1	Worklist Smp#:	3
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

3 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 2

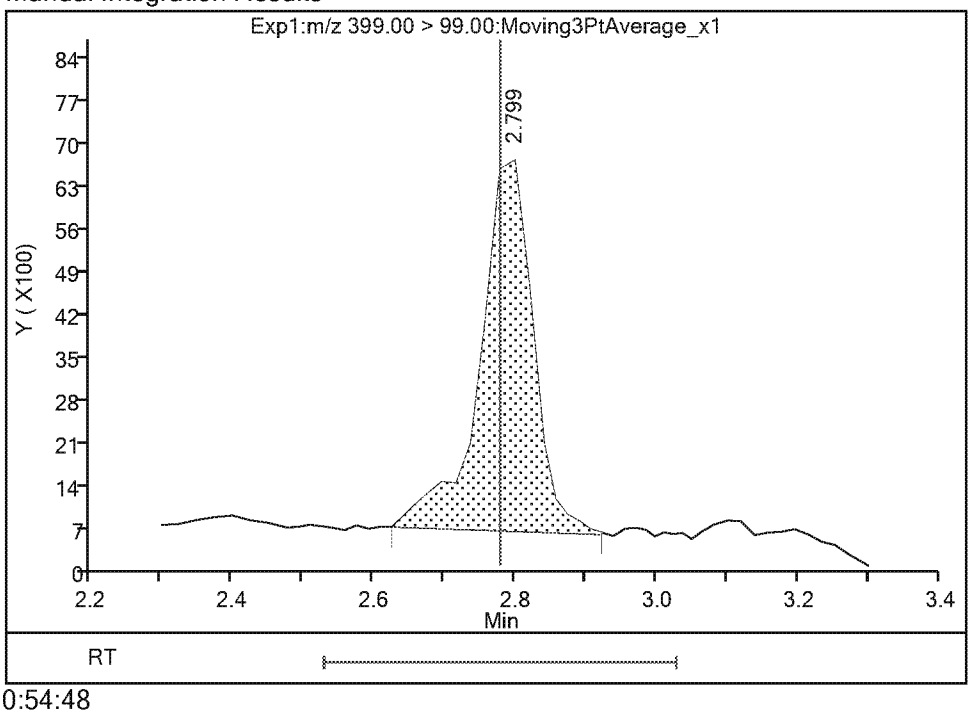
Processing Integration Results

RT: 2.80
Area: 39660
Amount: 0.066472
Amount Units: ng/ml



Manual Integration Results

RT: 2.80
Area: 31842
Amount: 0.045584
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 05-Apr-2019 10:54:48
Audit Action: Manually Integrated Audit Reason: Baseline

Eurofins TestAmerica, Sacramento

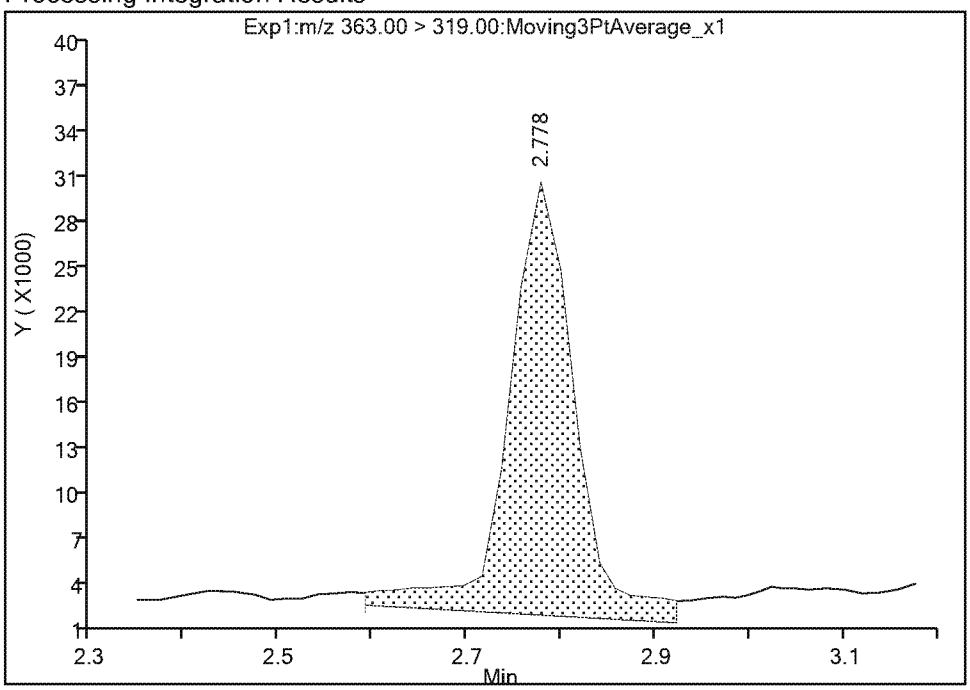
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190404-74319.b\2019.04.04_537AA_007.d				
Injection Date:	04-Apr-2019 19:29:44	Instrument ID:	A8_N		
Lims ID:	320-48794-A-4-A	Lab Sample ID:	320-48794-4		
Client ID:	C0AR5				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	1	Worklist Smp#:	3
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

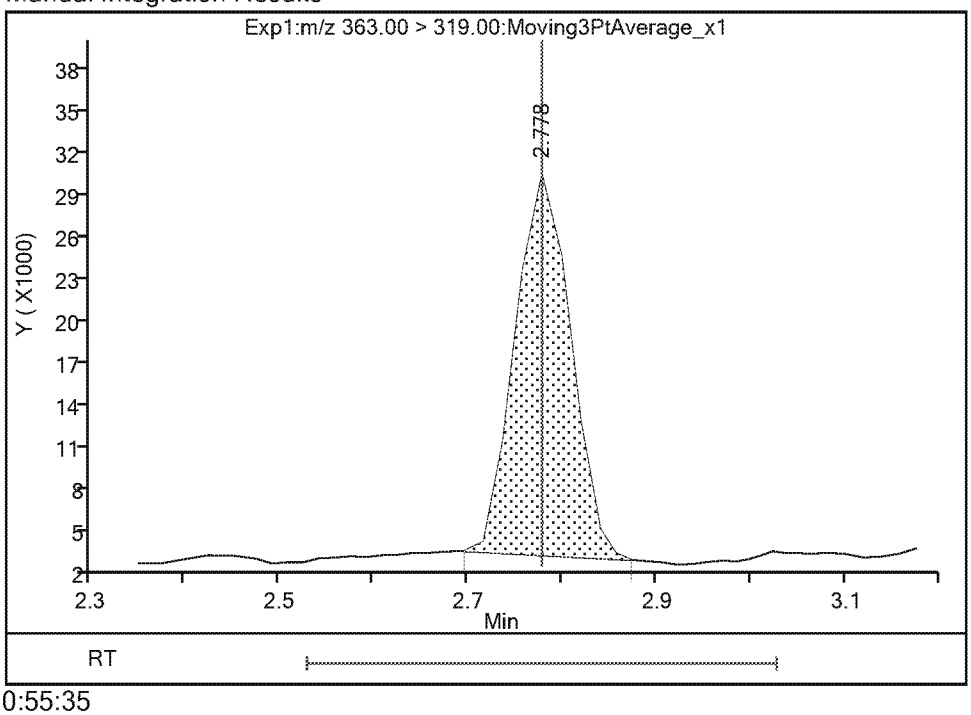
Processing Integration Results

RT: 2.78
Area: 136661
Amount: 0.111204
Amount Units: ng/ml



Manual Integration Results

RT: 2.78
Area: 108287
Amount: 0.088116
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 05-Apr-2019 10:55:35
Audit Action: Manually Integrated Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: C0AR9
Lab Sample ID: 320-48794-5
Matrix: Water
Lab File ID: 2019.04.02_537A_024.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 10:21
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 275.3(mL)
Date Analyzed: 04/03/2019 07:43
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 285757
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	48		1.8	0.86
335-67-1	Perfluorooctanoic acid	32		5.4	2.5
375-95-1	Perfluorononanoic acid	20		1.8	0.43
355-46-4	Perfluorohexanesulfonic acid	12		1.8	0.58
375-85-9	Perfluoroheptanoic acid	14		2.7	1.2
375-73-5	Perfluorobutanesulfonic acid	5.9		1.8	0.73

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	102		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_024.d
Lims ID: 320-48794-B-5-A
Client ID: C0AR9
Sample Type: Client
Inject. Date: 03-Apr-2019 07:43:39 ALS Bottle#: 14 Worklist Smp#: 21
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-48794-B-5-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 11:03:28 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 11:00:22
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.992	1.992	0.0	1.000	248889	0.1618	Target=1.47	151	
298.90 > 99.00	1.992	1.992	0.0	1.000	172037		1.45(0.00-0.00)	121	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.347	2.347	0.0	0.739	737275	0.5783	Target=11.08	70.3	
313.00 > 119.00	2.347	2.347	0.0	0.739	70864		10.40(0.00-0.00)	99.7	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.347	2.347	0.0	1.000	3048684	2.26		6205	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.474	2.490	-0.016	1.000	186578	3.04		715	
4 Perfluoroheptanoic acid									M
363.00 > 319.00	2.778	2.778	0.0	1.000	473737	0.3766	Target=2.42	38.7	M
363.00 > 169.00	2.778	2.778	0.0	1.000	196590		2.41(0.00-0.00)	307	
3 Perfluorohexanesulfonic acid									M
399.00 > 80.00	2.799	2.798	0.001	1.000	583989	0.3230	Target=2.92	148	M
399.00 > 99.00	2.778	2.798	-0.020	0.993	185709		3.14(0.00-0.00)	117	M
* 5 13C2 PFOA									
415.00 > 370.00	3.177	3.177	0.0		2910258	2.50		8594	
6 Perfluorooctanoic acid									M
413.00 > 369.00	3.177	3.177	0.0	1.000	1050306	0.8855	Target=1.75	94.9	M
413.00 > 169.00	3.177	3.177	0.0	1.000	607938		1.73(0.00-0.00)	1444	M
8 Perfluorooctanesulfonic acid									
499.00 > 80.00	3.564	3.564	0.0	1.000	1788594	1.33	Target=4.69	900	
499.00 > 99.00	3.564	3.564	0.0	1.000	350713		5.10(0.00-0.00)	526	
* 7 13C4 PFOS									
503.00 > 80.00	3.564	3.565	-0.001		3037180	2.39		3410	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
9 Perfluorononanoic acid									
463.00 > 419.00	3.579	3.580	-0.001	1.000	466893	0.5376	Target=3.96	140	
463.00 > 169.00	3.579	3.580	-0.001	1.000	114623		4.07(0.00-0.00)	520	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.768	3.769	-0.001	1.000	3486	0.001605		5.4	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.933	3.915	0.018	1.000	50404	0.0739	Target=5.01	20.0	
513.00 > 169.00	3.933	3.915	0.018	1.000	10234		4.93(0.00-0.00)	65.5	
$ 10 13C2 PFDA									
515.00 > 470.00	3.933	3.934	-0.001	1.000	1823681	2.54		5857	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.089	4.090	-0.001		572665	2.50		2577	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.249	4.250	-0.001	1.039	471889	2.02		243	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.370	4.375	-0.005	1.000	3214	0.001188		19.4	

QC Flag Legend

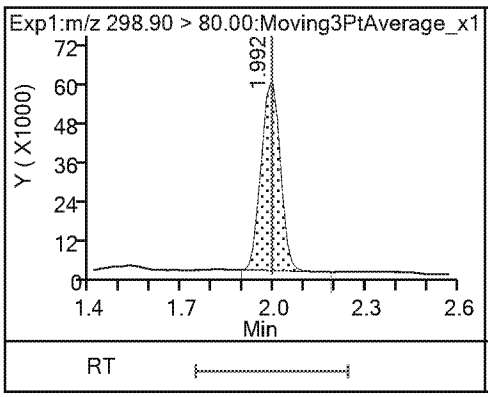
Review Flags

M - Manually Integrated

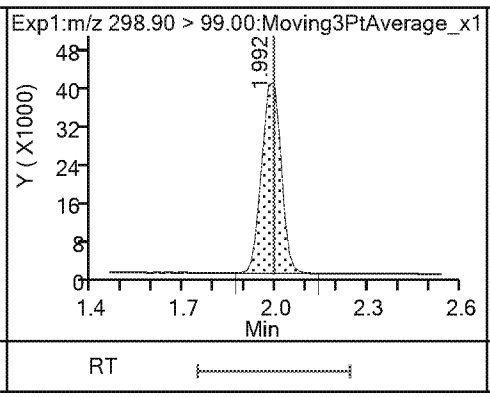
TestAmerica Sacramento

Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_024.d				
Injection Date:	03-Apr-2019 07:43:39	Instrument ID:	A8_N		
Lims ID:	320-48794-B-5-A	Lab Sample ID:	320-48794-5		
Client ID:	C0AR9				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	14	Worklist Smp#:	21
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

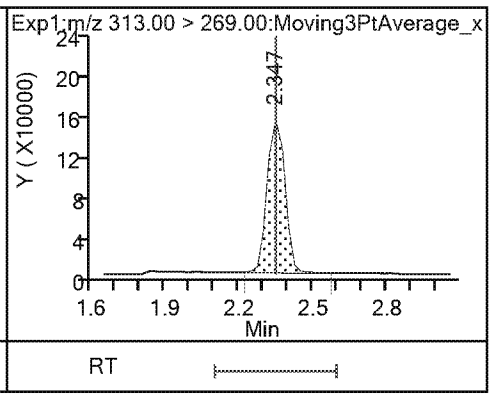
1 Perfluorobutanesulfonic acid



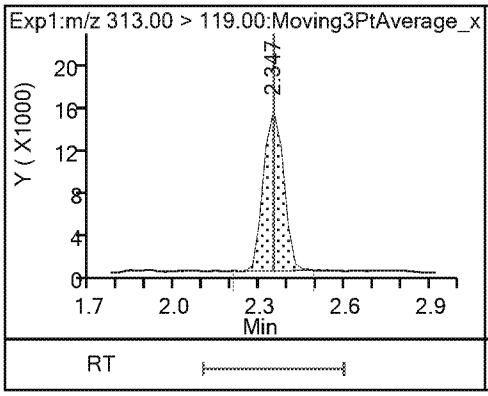
1 Perfluorobutanesulfonic acid



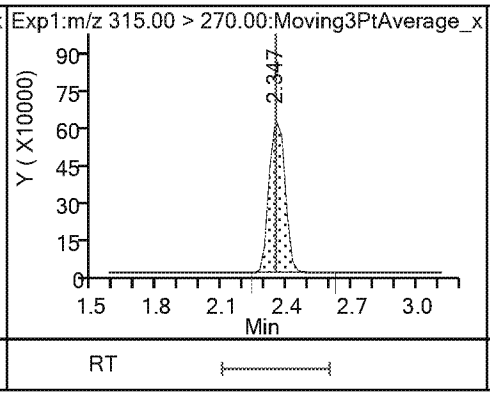
13 Perfluorohexanoic acid



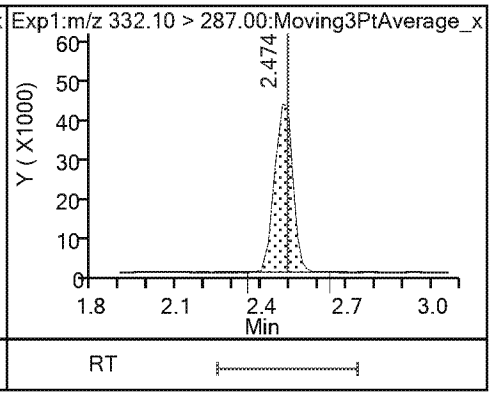
13 Perfluorohexanoic acid



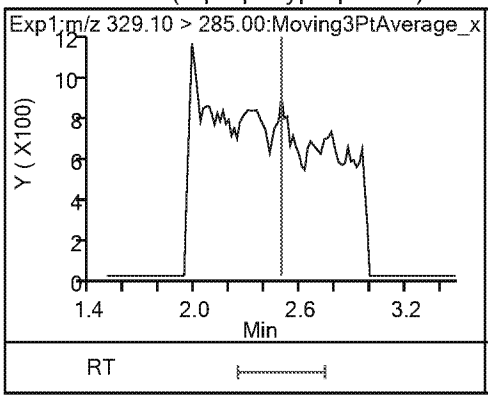
$ 2 13C2 PFHxA



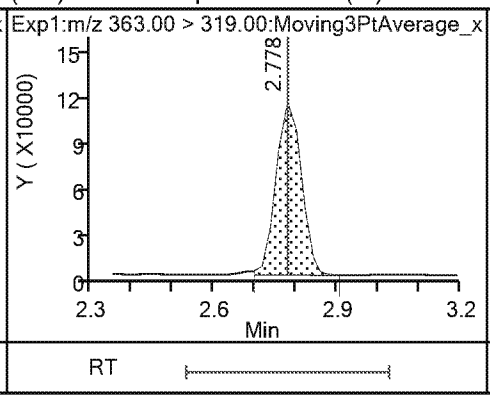
$ 25 13C3 HFPO-DA



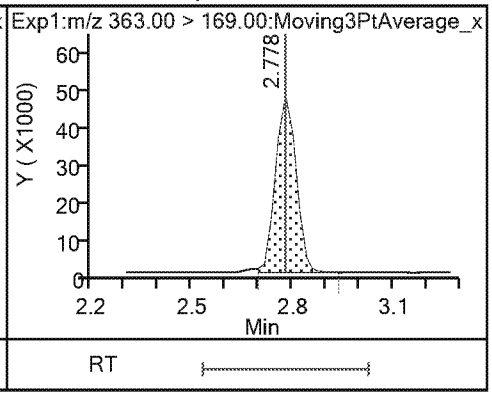
22 Perfluoro(2-propoxypropanoic) acid (ND)



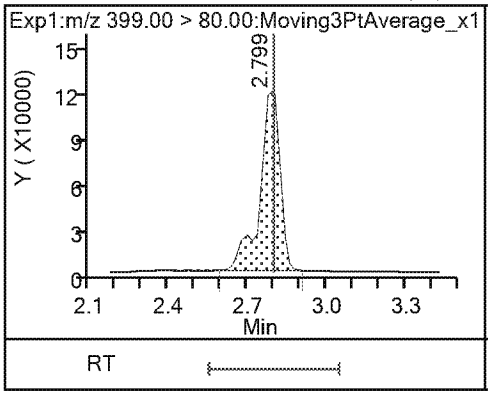
4 Perfluoroheptanoic acid (M)



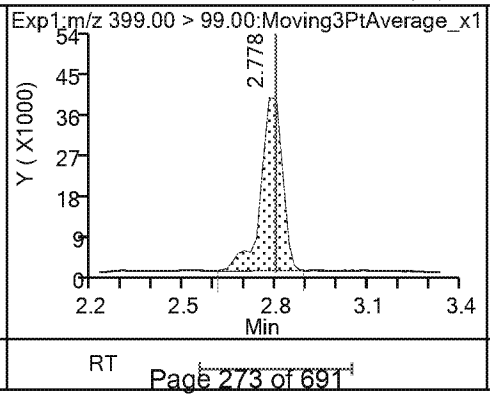
4 Perfluoroheptanoic acid



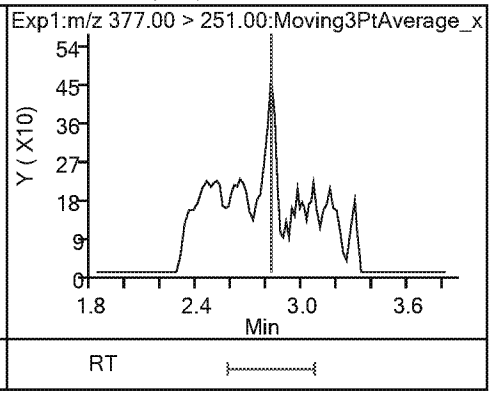
3 Perfluorohexanesulfonic acid (M)



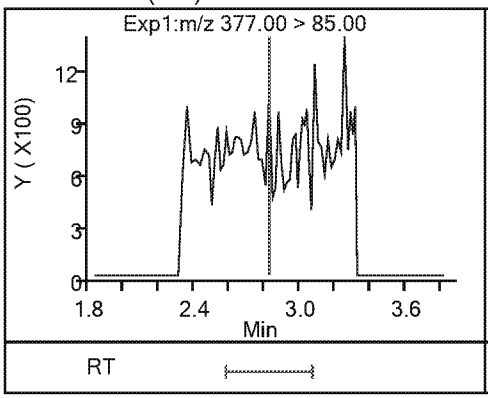
3 Perfluorohexanesulfonic acid (M)



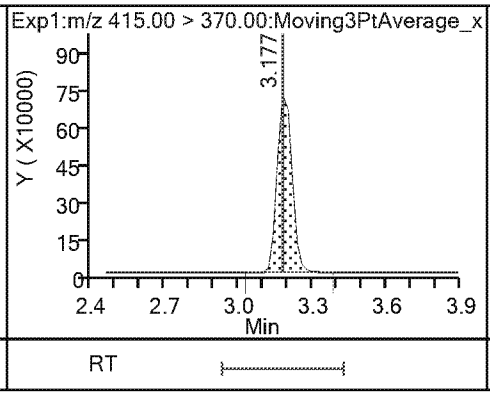
24 DONA (ND)



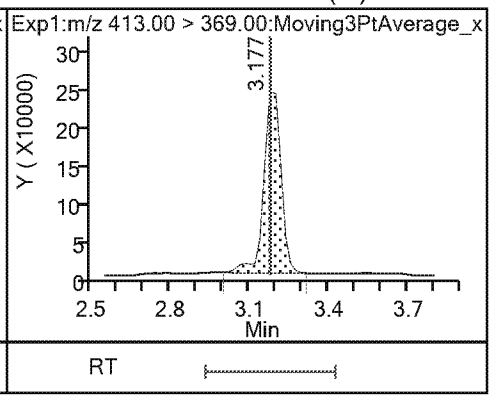
24 DONA (ND)



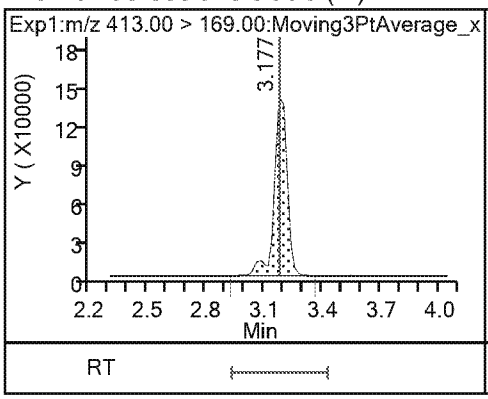
* 5 13C2 PFOA



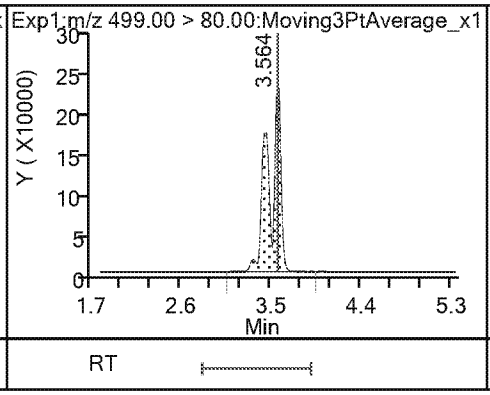
6 Perfluorooctanoic acid (M)



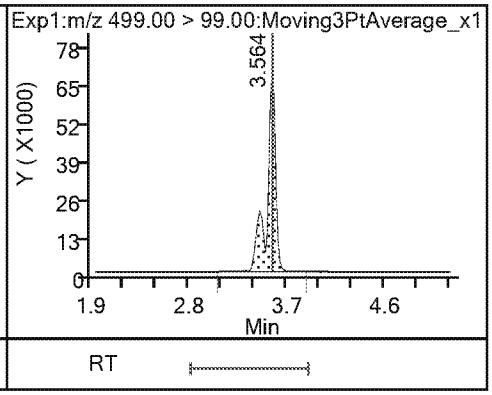
6 Perfluorooctanoic acid (M)



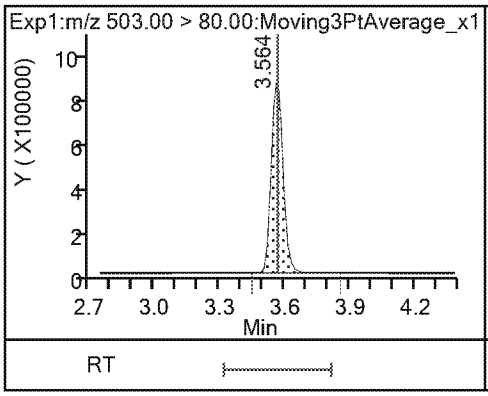
8 Perfluorooctanesulfonic acid



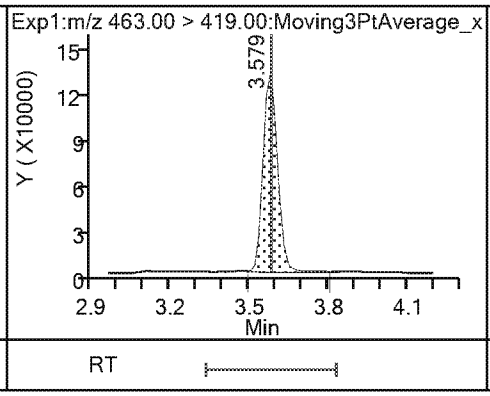
8 Perfluorooctanesulfonic acid



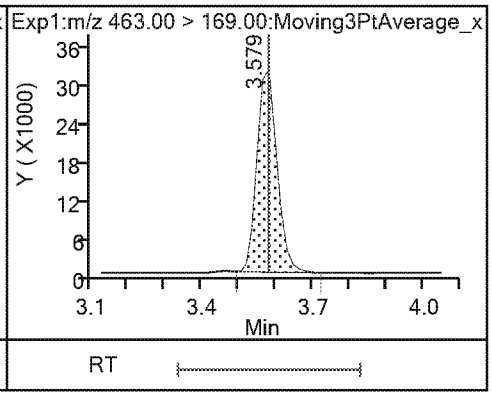
* 7 13C4 PFOS



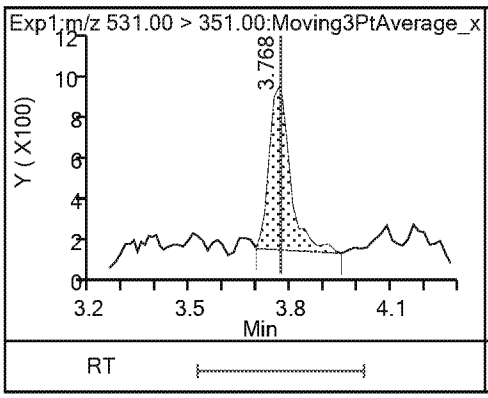
9 Perfluorononanoic acid



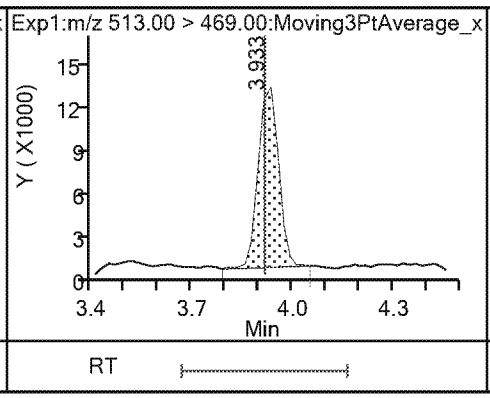
9 Perfluorononanoic acid



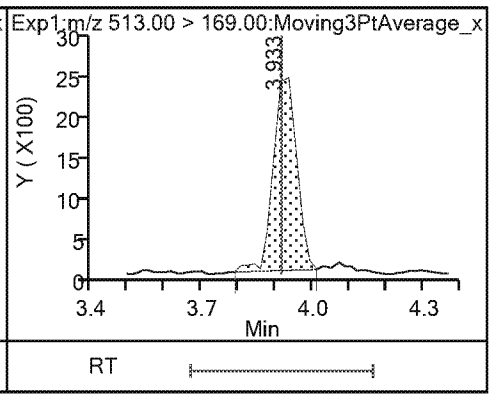
23 9-Chlorohexadecafluoro-3-oxanonane



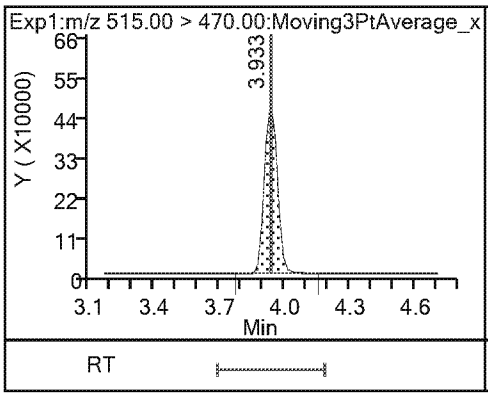
14 Perfluorodecanoic acid



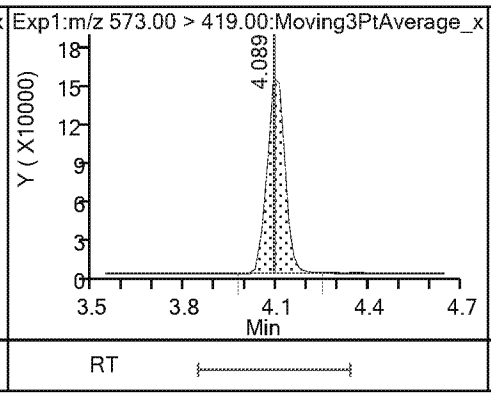
14 Perfluorodecanoic acid



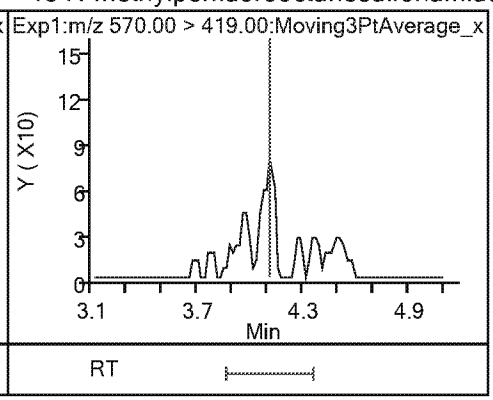
$ 10 13C2 PFDA



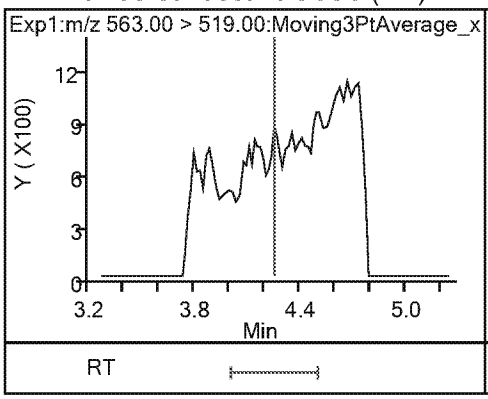
* 12 d3-NMeFOSAA



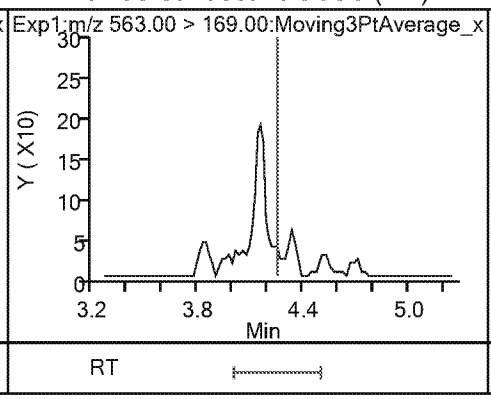
15 N-methylperfluorooctanesulfonamido (ND)



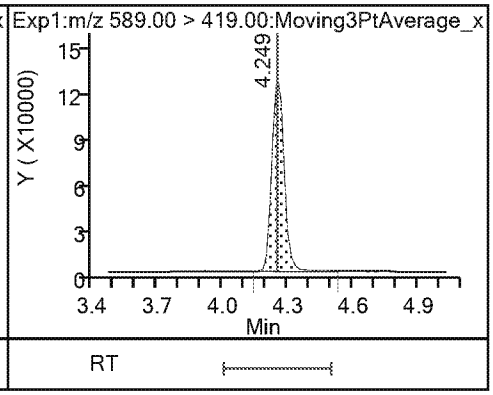
17 Perfluoroundecanoic acid (ND)



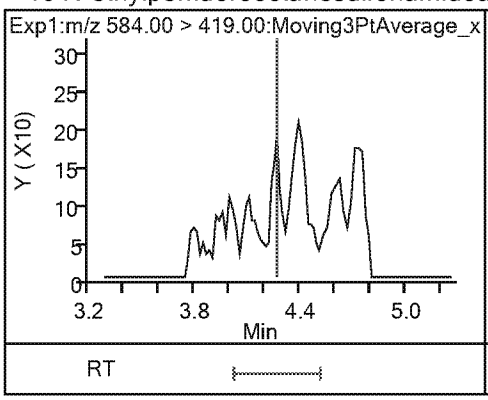
17 Perfluoroundecanoic acid (ND)



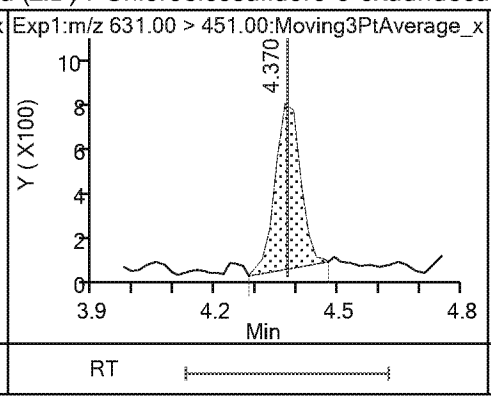
$ 11 d5-NEtFOSAA



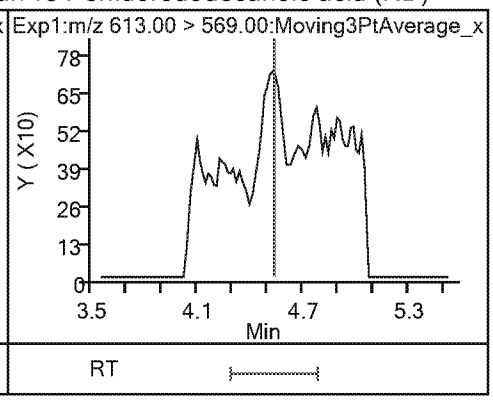
16 N-ethylperfluorooctanesulfonamidoa (ND)



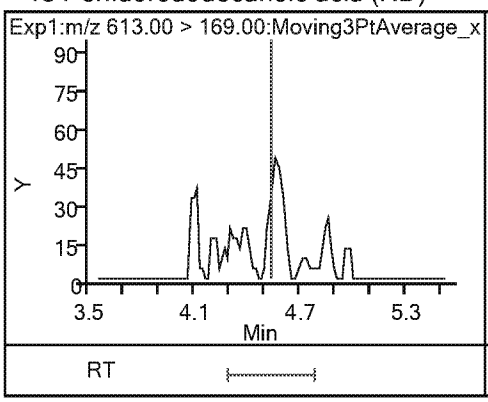
2 (ND) 11-Chloroeicosafluoro-3-oxaundecan



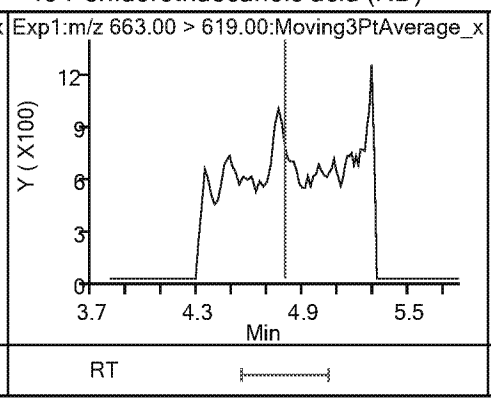
18 Perfluorododecanoic acid (ND)



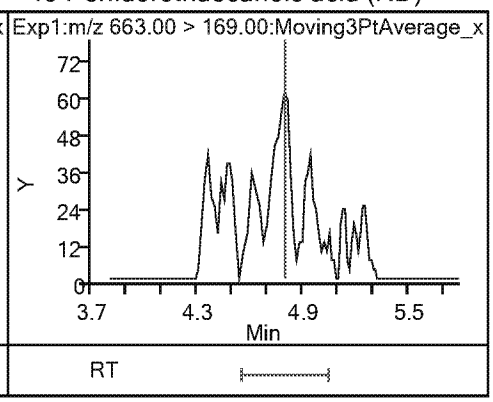
18 Perfluorododecanoic acid (ND)



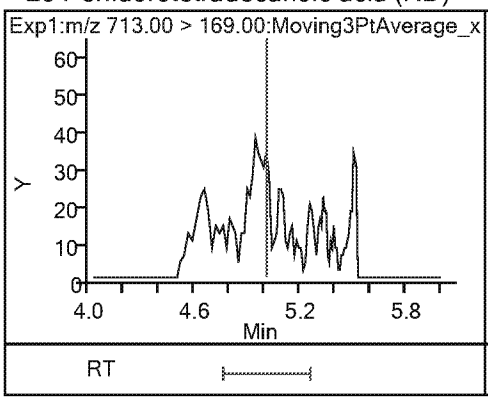
19 Perfluorotridecanoic acid (ND)



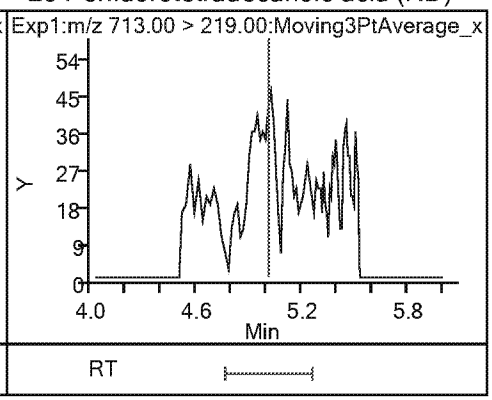
19 Perfluorotridecanoic acid (ND)



20 Perfluorotetradecanoic acid (ND)



20 Perfluorotetradecanoic acid (ND)



TestAmerica Sacramento
Recovery Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_024.d
Lims ID: 320-48794-B-5-A
Client ID: C0AR9
Sample Type: Client
Inject. Date: 03-Apr-2019 07:43:39 ALS Bottle#: 14 Worklist Smp#: 21
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-48794-B-5-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 11:03:28 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 11:00:22

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	2.50	2.26	90.46
$ 25 13C3 HFPO-DA	2.50	3.04	121.72
$ 10 13C2 PFDA	2.50	2.54	101.64
$ 11 d5-NEtFOSAA	2.50	2.02	80.80

TestAmerica Sacramento

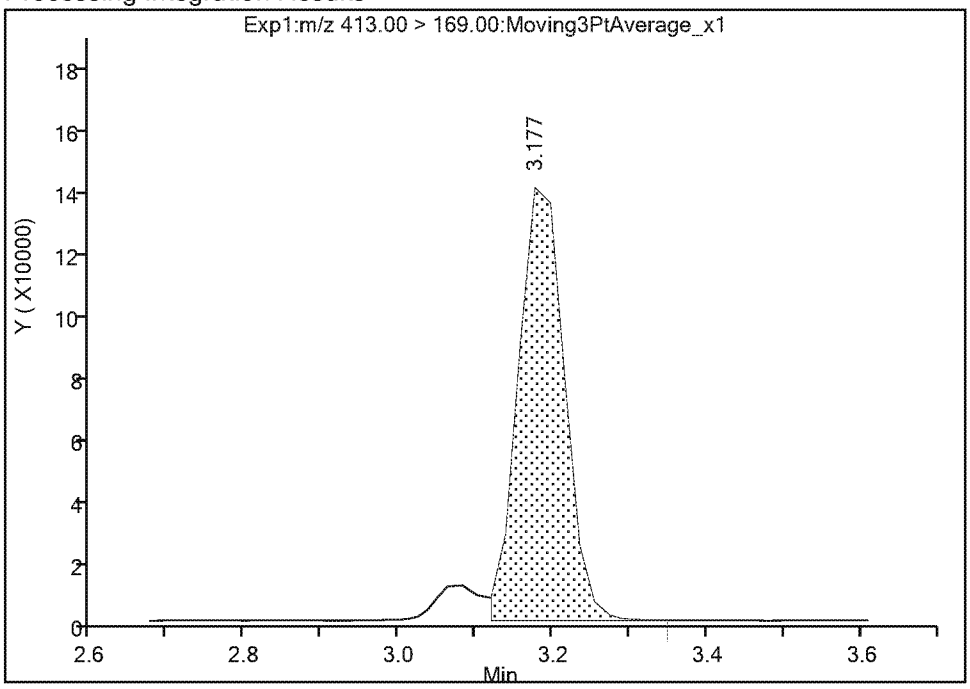
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_024.d				
Injection Date:	03-Apr-2019 07:43:39	Instrument ID:	A8_N		
Lims ID:	320-48794-B-5-A	Lab Sample ID:	320-48794-5		
Client ID:	C0AR9				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	14	Worklist Smp#:	21
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

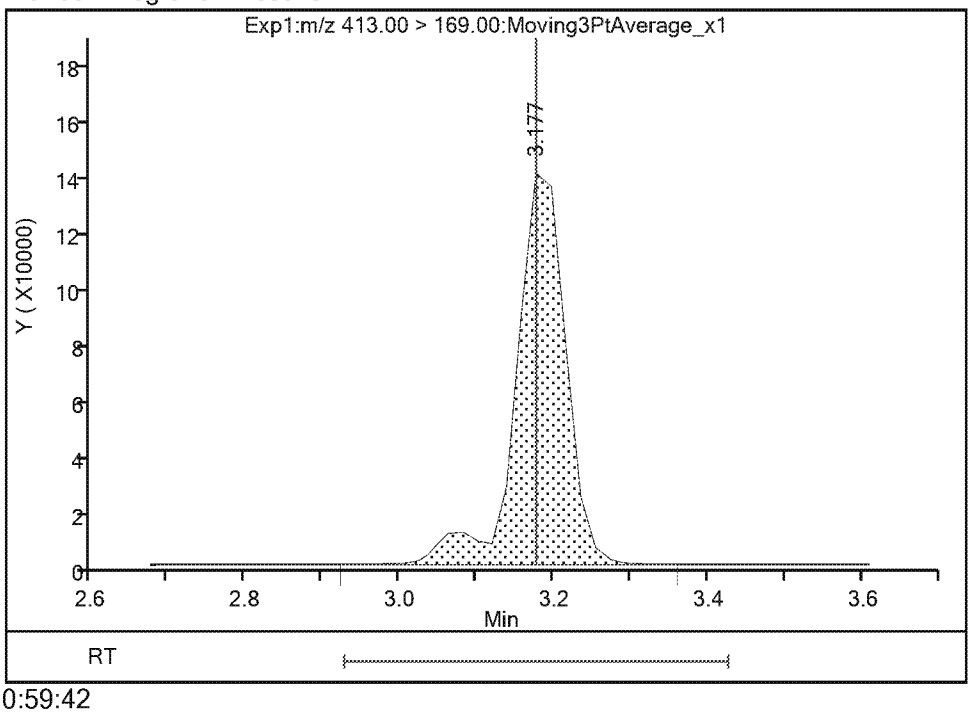
Processing Integration Results

RT: 3.18
Area: 560908
Amount: 0.865257
Amount Units: ng/ml



Manual Integration Results

RT: 3.18
Area: 607938
Amount: 0.885452
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 10:59:42
Audit Action: Manually Integrated Audit Reason: Isomers

TestAmerica Sacramento

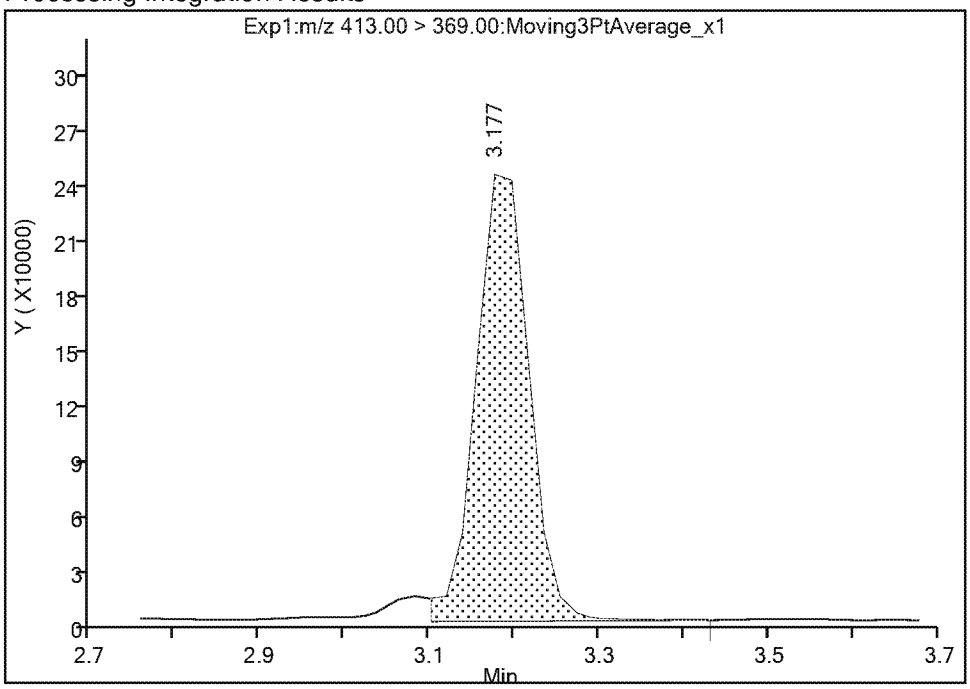
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_024.d				
Injection Date:	03-Apr-2019 07:43:39	Instrument ID:	A8_N		
Lims ID:	320-48794-B-5-A	Lab Sample ID:	320-48794-5		
Client ID:	C0AR9				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	14	Worklist Smp#:	21
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

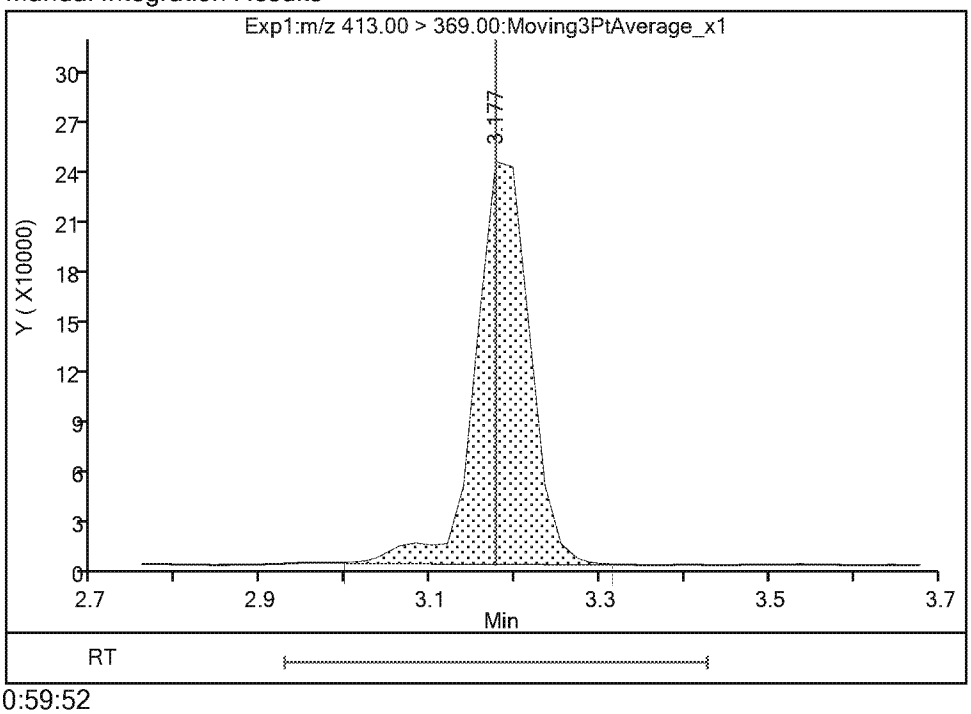
Processing Integration Results

RT: 3.18
Area: 1026351
Amount: 0.865257
Amount Units: ng/ml



Manual Integration Results

RT: 3.18
Area: 1050306
Amount: 0.885452
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 10:59:52
Audit Action: Manually Integrated Audit Reason: Isomers

TestAmerica Sacramento

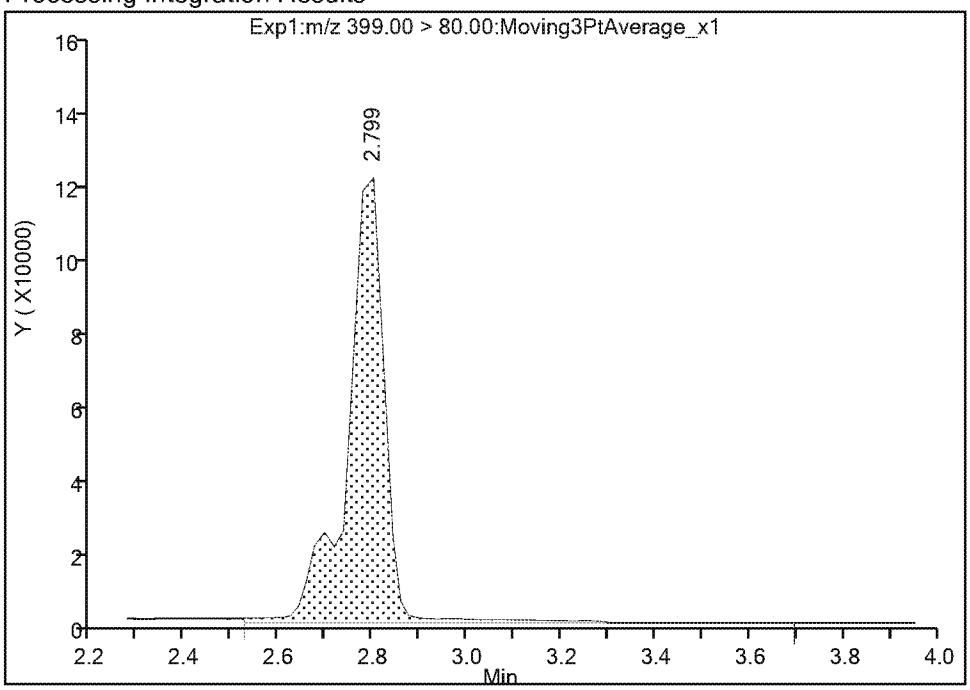
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_024.d				
Injection Date:	03-Apr-2019 07:43:39	Instrument ID:	A8_N		
Lims ID:	320-48794-B-5-A	Lab Sample ID:	320-48794-5		
Client ID:	C0AR9				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	14	Worklist Smp#:	21
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

3 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

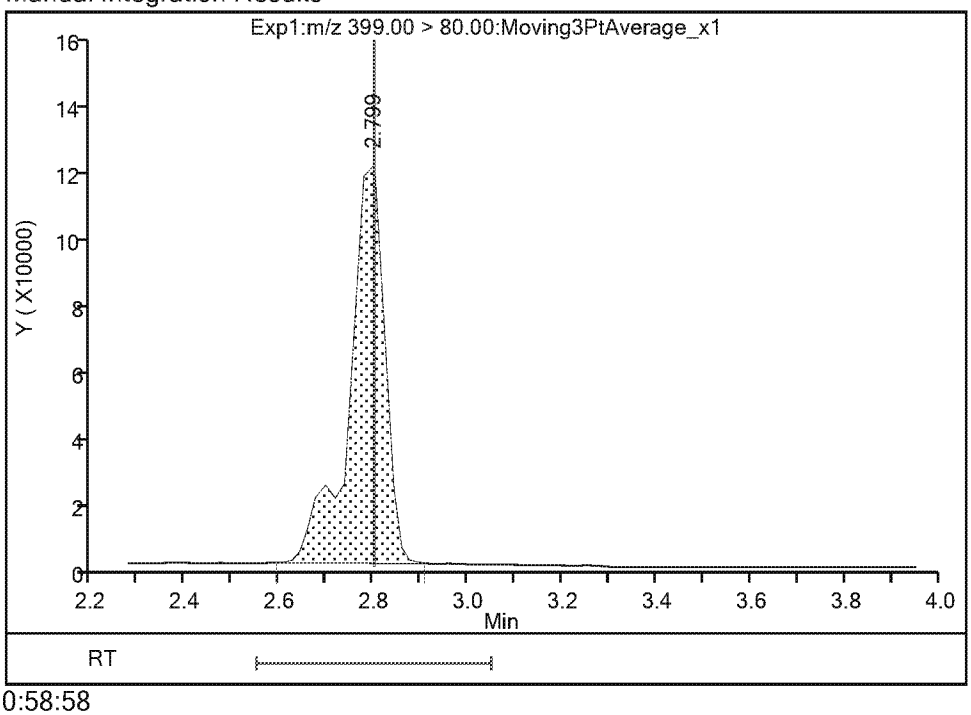
Processing Integration Results

RT: 2.80
Area: 622399
Amount: 0.344291
Amount Units: ng/ml



Manual Integration Results

RT: 2.80
Area: 583989
Amount: 0.323043
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 10:58:58
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento

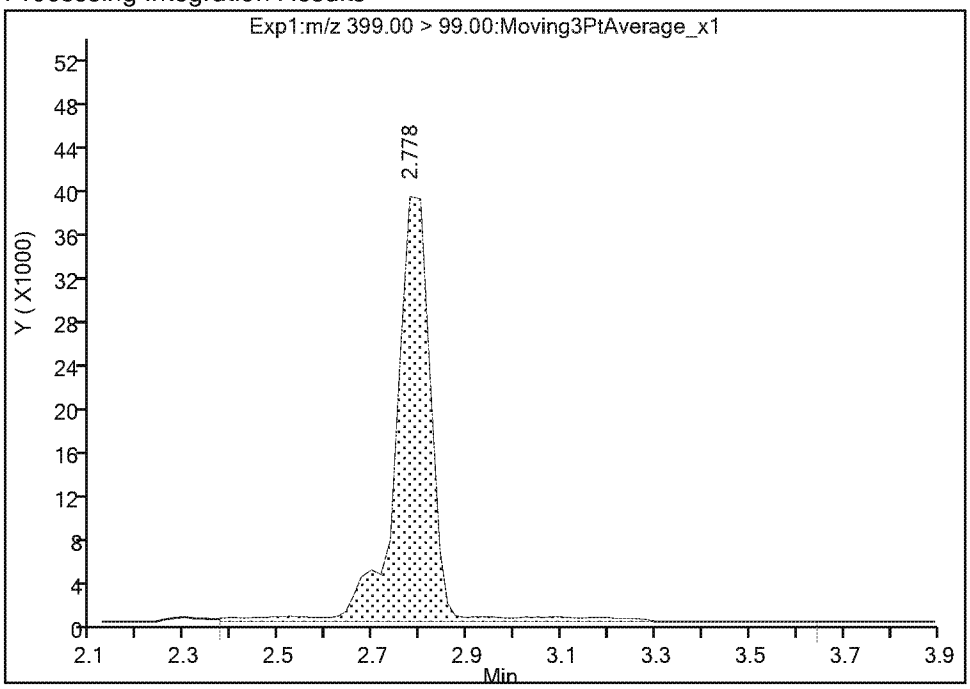
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_024.d				
Injection Date:	03-Apr-2019 07:43:39	Instrument ID:	A8_N		
Lims ID:	320-48794-B-5-A	Lab Sample ID:	320-48794-5		
Client ID:	C0AR9				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	14	Worklist Smp#:	21
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

3 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 2

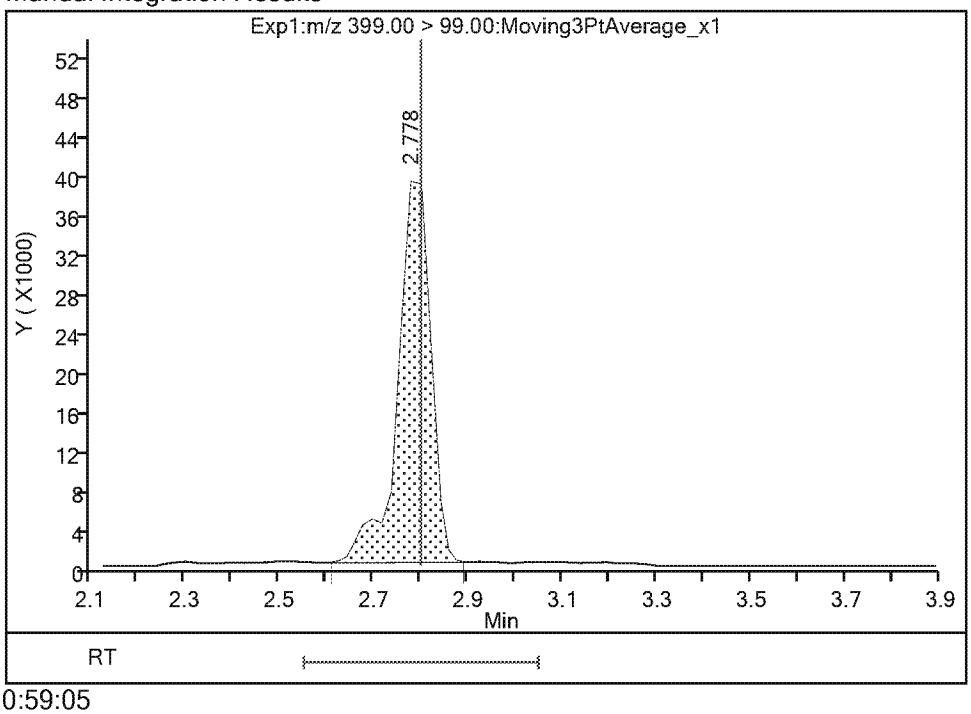
Processing Integration Results

RT: 2.78
Area: 203954
Amount: 0.344291
Amount Units: ng/ml



Manual Integration Results

RT: 2.78
Area: 185709
Amount: 0.323043
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 10:59:05
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento

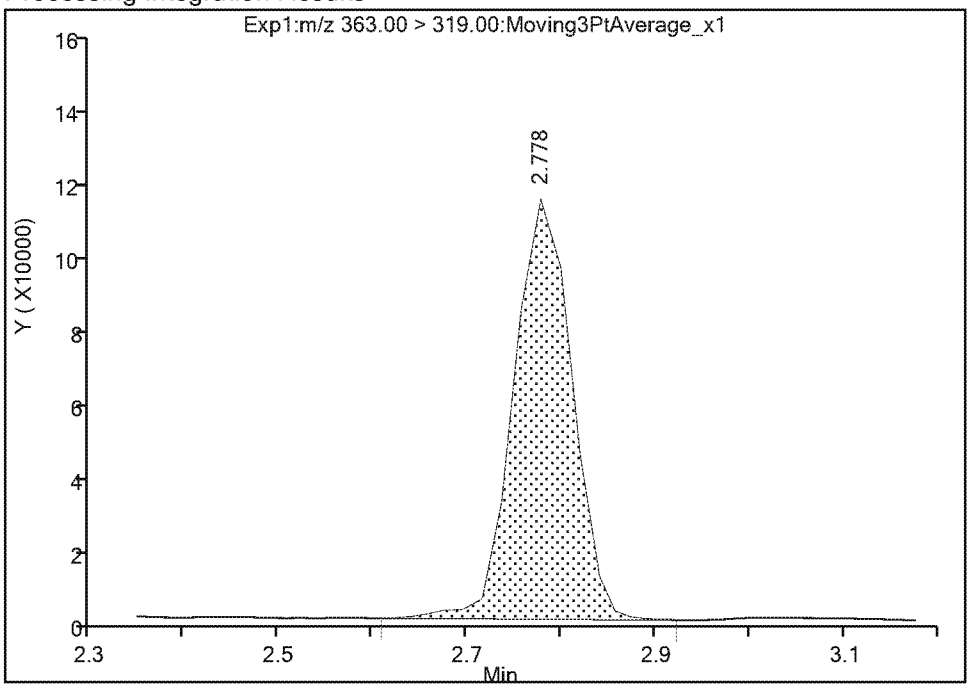
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_024.d				
Injection Date:	03-Apr-2019 07:43:39	Instrument ID:	A8_N		
Lims ID:	320-48794-B-5-A	Lab Sample ID:	320-48794-5		
Client ID:	C0AR9				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	14	Worklist Smp#:	21
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

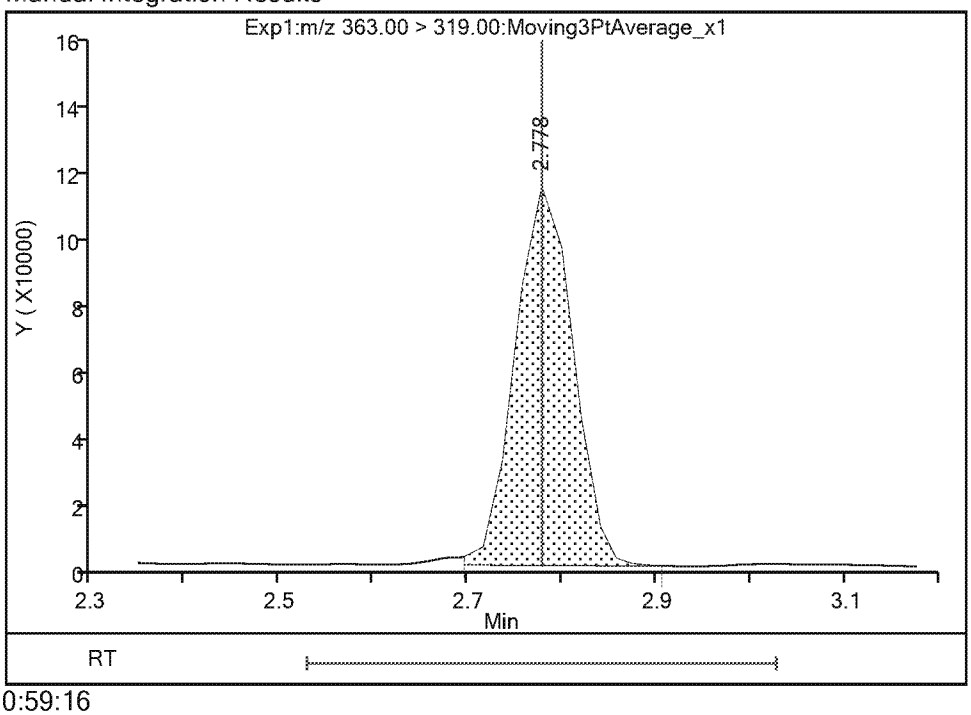
Processing Integration Results

RT: 2.78
Area: 479405
Amount: 0.381132
Amount Units: ng/ml



Manual Integration Results

RT: 2.78
Area: 473737
Amount: 0.376626
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 10:59:16
Audit Action: Manually Integrated Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: C0AS0
Lab Sample ID: 320-48794-6
Matrix: Water
Lab File ID: 2019.04.02_537A_025.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 10:23
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 288.4(mL)
Date Analyzed: 04/03/2019 07:51
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 285757
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	140		1.7	0.82
335-67-1	Perfluorooctanoic acid	19		5.2	2.3
375-95-1	Perfluorononanoic acid	39		1.7	0.41
355-46-4	Perfluorohexanesulfonic acid	23		1.7	0.55
375-85-9	Perfluoroheptanoic acid	5.8		2.6	1.1
375-73-5	Perfluorobutanesulfonic acid	4.3		1.7	0.69

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	104		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_025.d
Lims ID: 320-48794-A-6-A
Client ID: C0AS0
Sample Type: Client
Inject. Date: 03-Apr-2019 07:51:06 ALS Bottle#: 15 Worklist Smp#: 22
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-48794-A-6-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 11:03:28 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 11:02:02
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.992	1.992	0.0	1.000	184209	0.1238	Target=1.47	278	
298.90 > 99.00	1.992	1.992	0.0	1.000	121741		1.51(0.00-0.00)	111	
13 Perfluorohexanoic acid									M
313.00 > 269.00	2.347	2.347	0.0	0.734	446831	0.3561	Target=11.08	71.2	M
313.00 > 119.00	2.347	2.347	0.0	0.734	42457		10.52(0.00-0.00)	58.4	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.347	2.347	0.0	1.000	3065930	2.31		5440	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.490	2.490	0.0	1.000	195080	3.23		1210	
4 Perfluoroheptanoic acid									M
363.00 > 319.00	2.778	2.778	0.0	1.000	207884	0.1679	Target=2.42	21.6	M
363.00 > 169.00	2.778	2.778	0.0	1.000	86590		2.40(0.00-0.00)	161	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	2.799	2.798	0.001	1.000	1157536	0.6615	Target=2.92	554	
399.00 > 99.00	2.799	2.798	0.001	1.000	352885		3.28(0.00-0.00)	237	
* 5 13C2 PFOA									
415.00 > 370.00	3.196	3.177	0.019		2864154	2.50		9624	
6 Perfluorooctanoic acid									M
413.00 > 369.00	3.196	3.177	0.019	1.000	654638	0.5608	Target=1.75	74.2	M
413.00 > 169.00	3.196	3.177	0.019	1.000	363204		1.80(0.00-0.00)	838	M
8 Perfluorooctanesulfonic acid									
499.00 > 80.00	3.564	3.564	0.0	1.000	5383798	4.14	Target=4.69	2179	
499.00 > 99.00	3.564	3.564	0.0	1.000	1208448		4.46(0.00-0.00)	1572	
* 7 13C4 PFOS									
503.00 > 80.00	3.564	3.565	-0.001		2939700	2.39		3428	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
9 Perfluorononanoic acid									
463.00 > 419.00	3.578	3.580	-0.002	1.000	957480	1.12	Target=3.96	389	
463.00 > 169.00	3.578	3.580	-0.002	1.000	238443		4.02(0.00-0.00)	1494	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.766	3.769	-0.003	1.000	3959	0.001883		7.5	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.930	3.915	0.015	1.000	34350	0.0512	Target=5.01	15.9	
513.00 > 169.00	3.930	3.915	0.015	1.000	6227		5.52(0.00-0.00)	33.9	
$ 10 13C2 PFDA									
515.00 > 470.00	3.930	3.934	-0.004	1.000	1835508	2.60		7840	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.092	4.090	0.002		545253	2.50		3158	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.253	4.250	0.003	1.039	487398	2.19		269	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.377	4.375	0.002	1.000	6059	0.002314		43.2	

QC Flag Legend

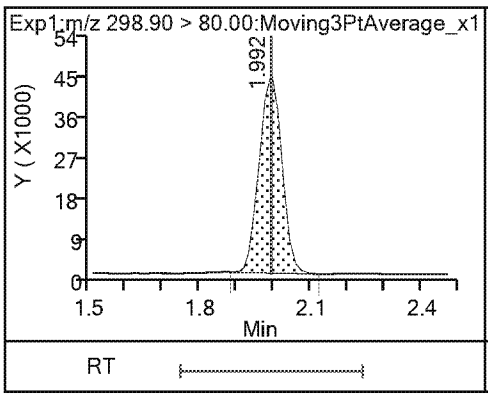
Review Flags

M - Manually Integrated

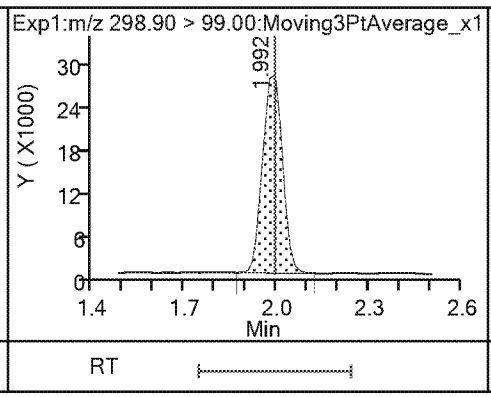
TestAmerica Sacramento

Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_025.d				
Injection Date:	03-Apr-2019 07:51:06	Instrument ID:	A8_N		
Lims ID:	320-48794-A-6-A	Lab Sample ID:	320-48794-6		
Client ID:	C0AS0				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	15	Worklist Smp#:	22
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

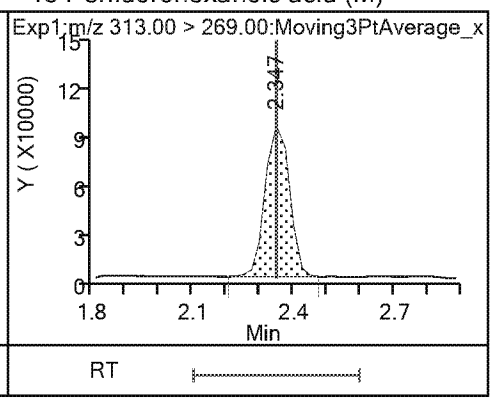
1 Perfluorobutanesulfonic acid



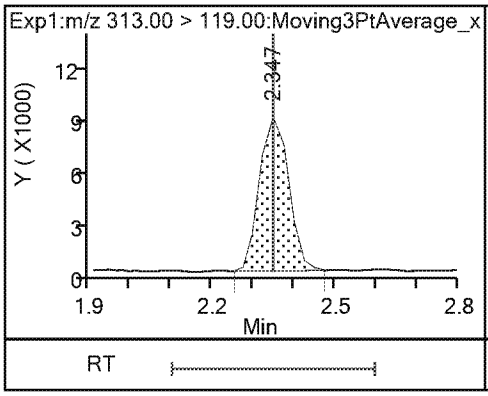
1 Perfluorobutanesulfonic acid



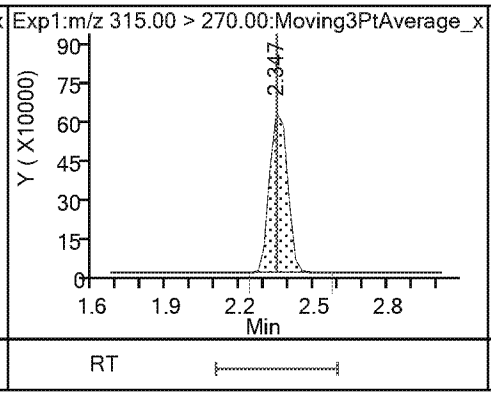
13 Perfluorohexanoic acid (M)



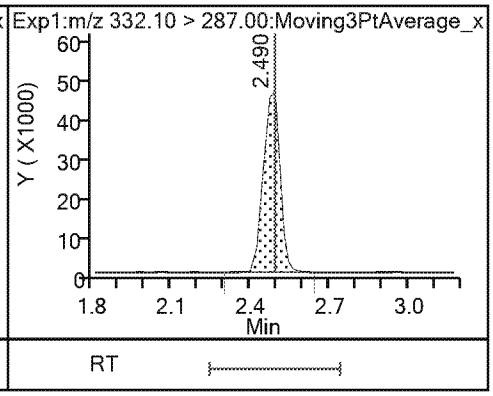
13 Perfluorohexanoic acid



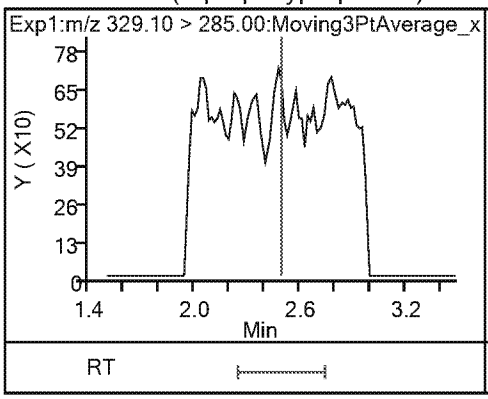
$ 2 13C2 PFHxA



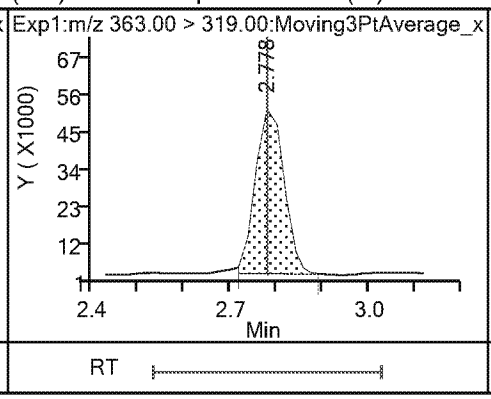
$ 25 13C3 HFPO-DA



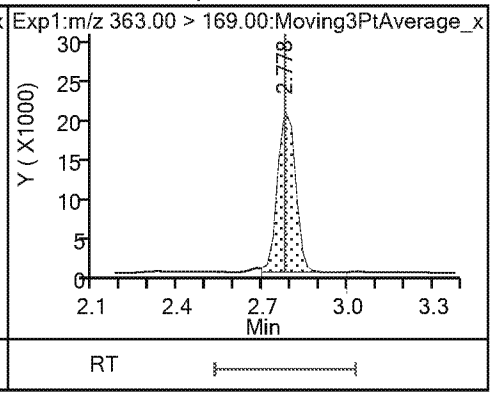
22 Perfluoro(2-propoxypropanoic) acid (ND)



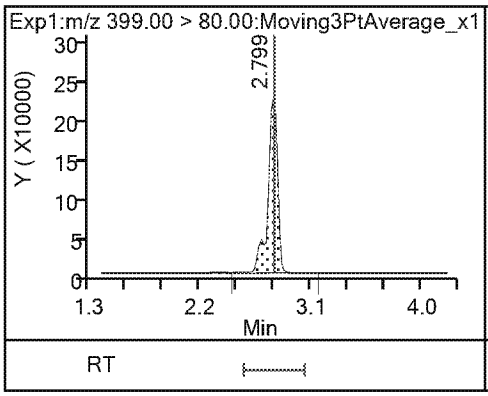
4 Perfluoroheptanoic acid (M)



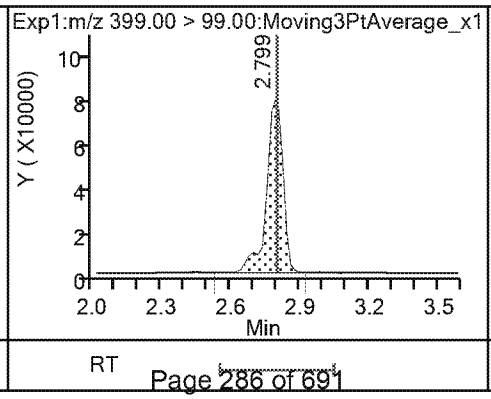
4 Perfluoroheptanoic acid



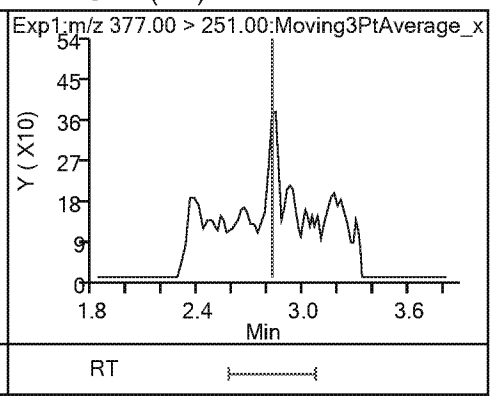
3 Perfluorohexanesulfonic acid



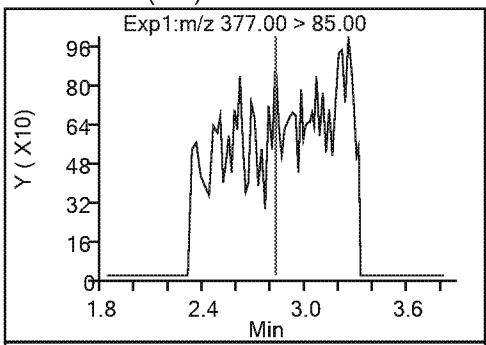
3 Perfluorohexanesulfonic acid



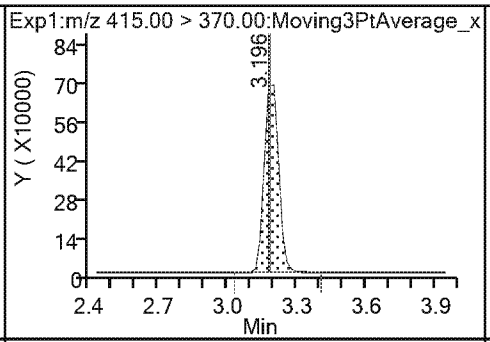
24 DONA (ND)



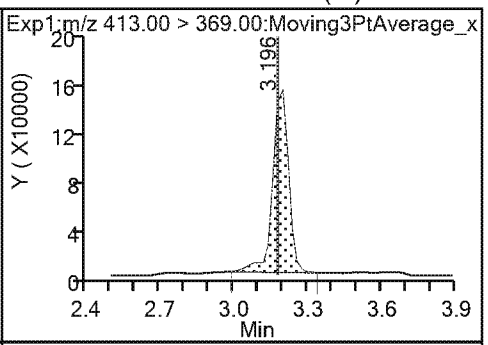
24 DONA (ND)



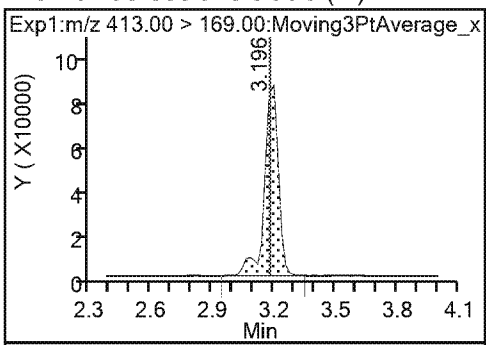
* 5 13C2 PFOA



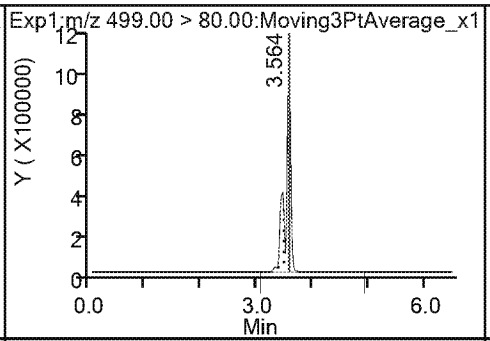
6 Perfluorooctanoic acid (M)



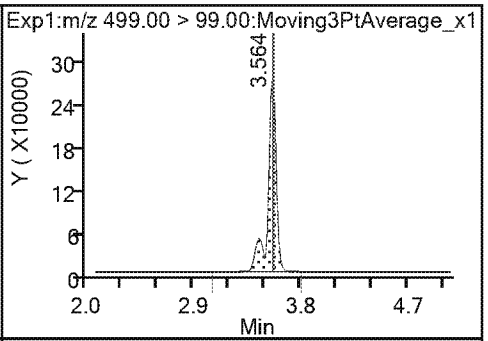
6 Perfluorooctanoic acid (M)



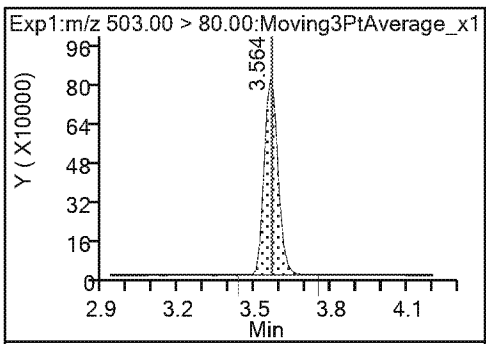
8 Perfluorooctanesulfonic acid



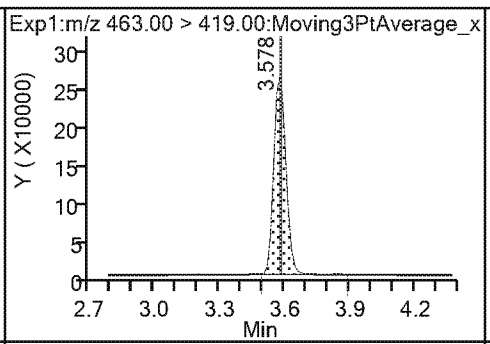
8 Perfluorooctanesulfonic acid



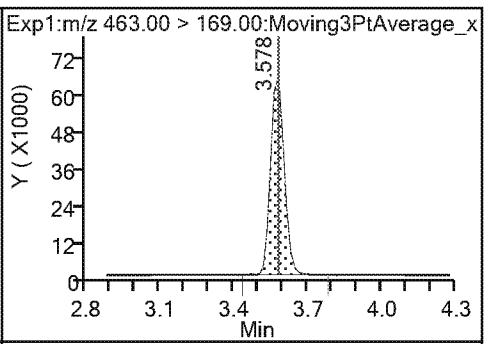
* 7 13C4 PFOS



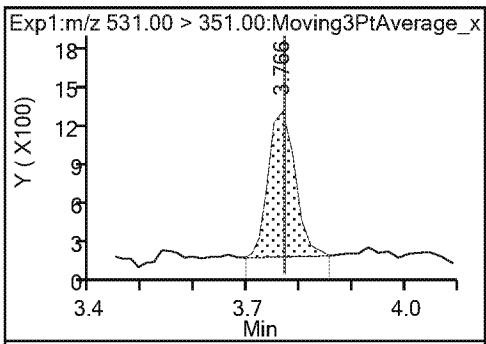
9 Perfluorononanoic acid



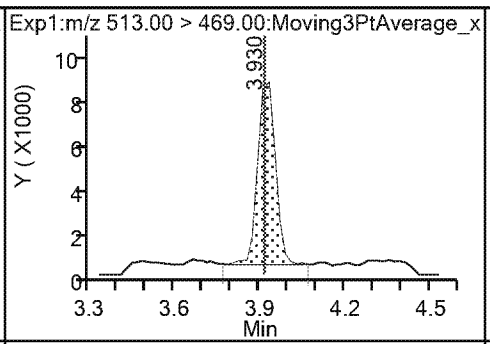
9 Perfluorononanoic acid



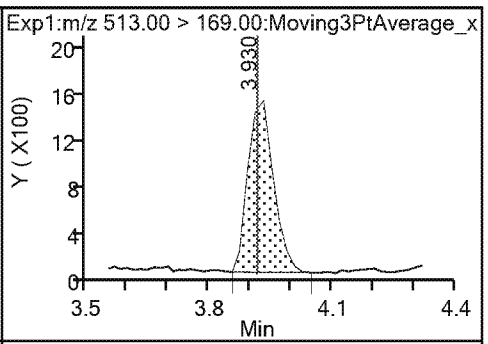
23 9-Chlorohexadecafluoro-3-oxanonane



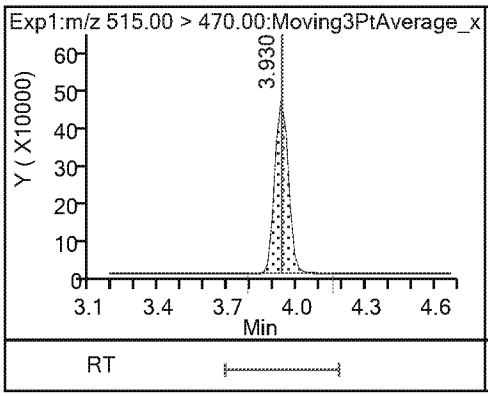
14 Perfluorodecanoic acid



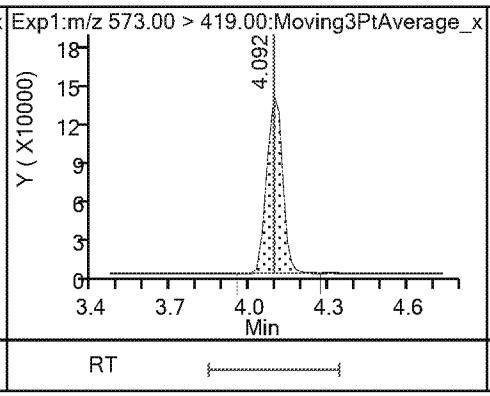
14 Perfluorodecanoic acid



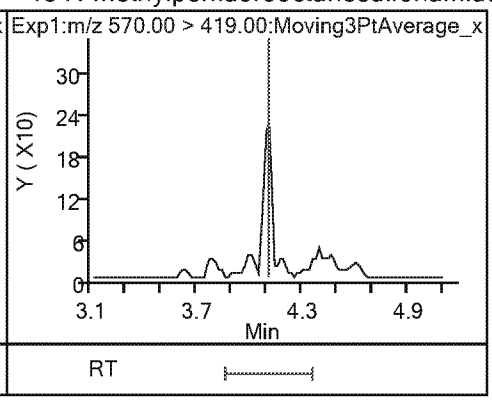
$ 10 13C2 PFDA



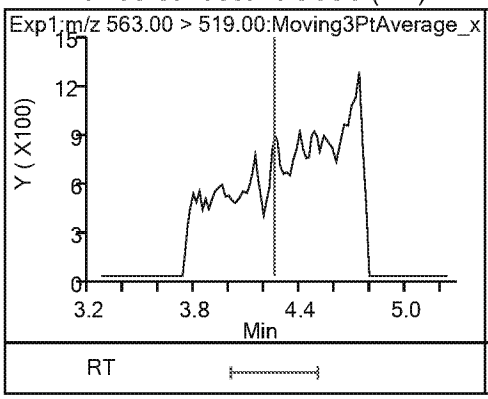
* 12 d3-NMeFOSAA



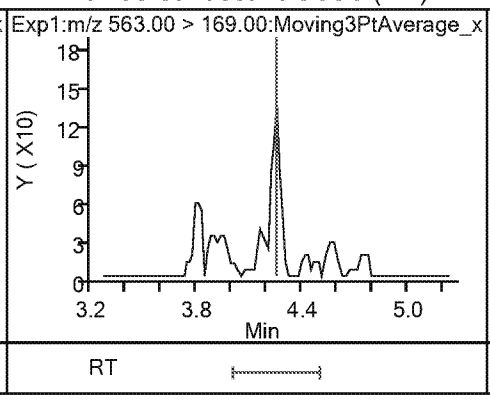
15 N-methylperfluorooctanesulfonamido (ND)



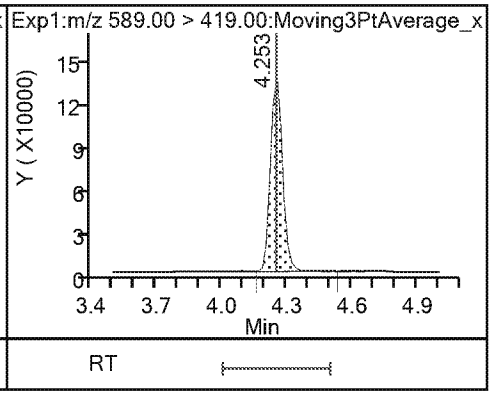
17 Perfluoroundecanoic acid (ND)



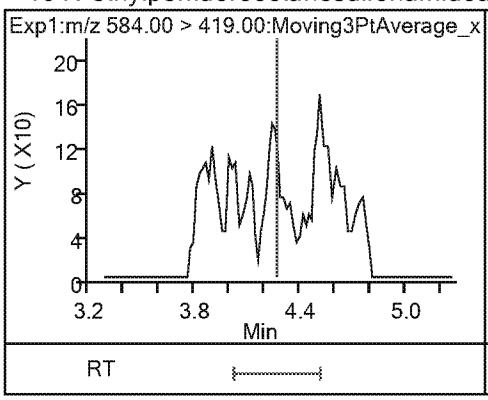
17 Perfluoroundecanoic acid (ND)



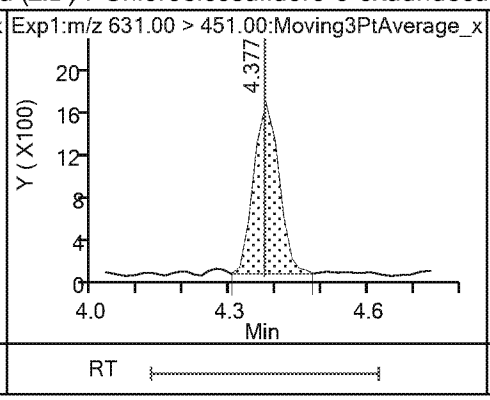
$ 11 d5-NEtFOSAA



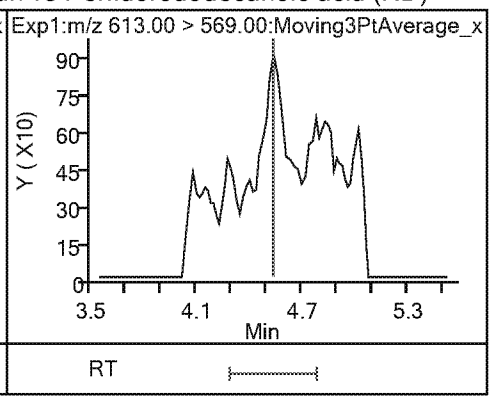
16 N-ethylperfluorooctanesulfonamidoa (ND)



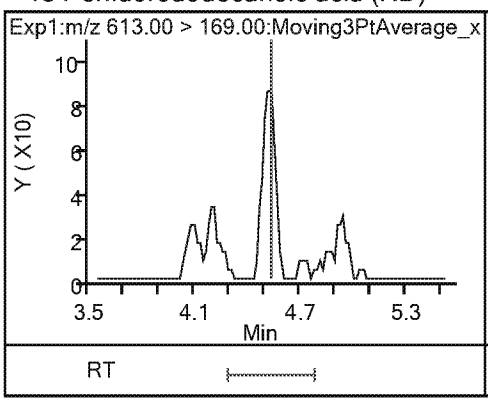
2 (ND) 11-Chloroeicosafluoro-3-oxaundecan



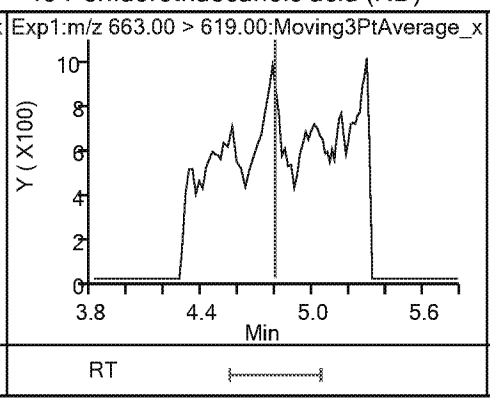
18 Perfluorododecanoic acid (ND)



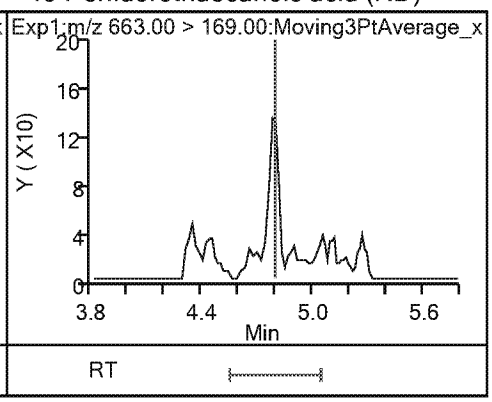
18 Perfluorododecanoic acid (ND)



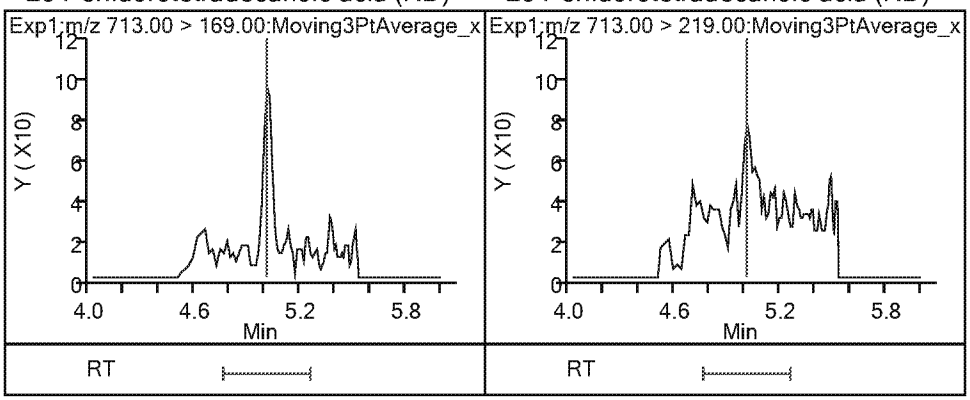
19 Perfluorotridecanoic acid (ND)



19 Perfluorotridecanoic acid (ND)



20 Perfluorotetradecanoic acid (ND) 20 Perfluorotetradecanoic acid (ND)



TestAmerica Sacramento
Recovery Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_025.d
Lims ID: 320-48794-A-6-A
Client ID: C0AS0
Sample Type: Client
Inject. Date: 03-Apr-2019 07:51:06 ALS Bottle#: 15 Worklist Smp#: 22
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-48794-A-6-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 11:03:28 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 11:02:02

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	2.50	2.31	92.44
$ 25 13C3 HFPO-DA	2.50	3.23	129.32
$ 10 13C2 PFDA	2.50	2.60	103.95
$ 11 d5-NEtFOSAA	2.50	2.19	87.65

TestAmerica Sacramento

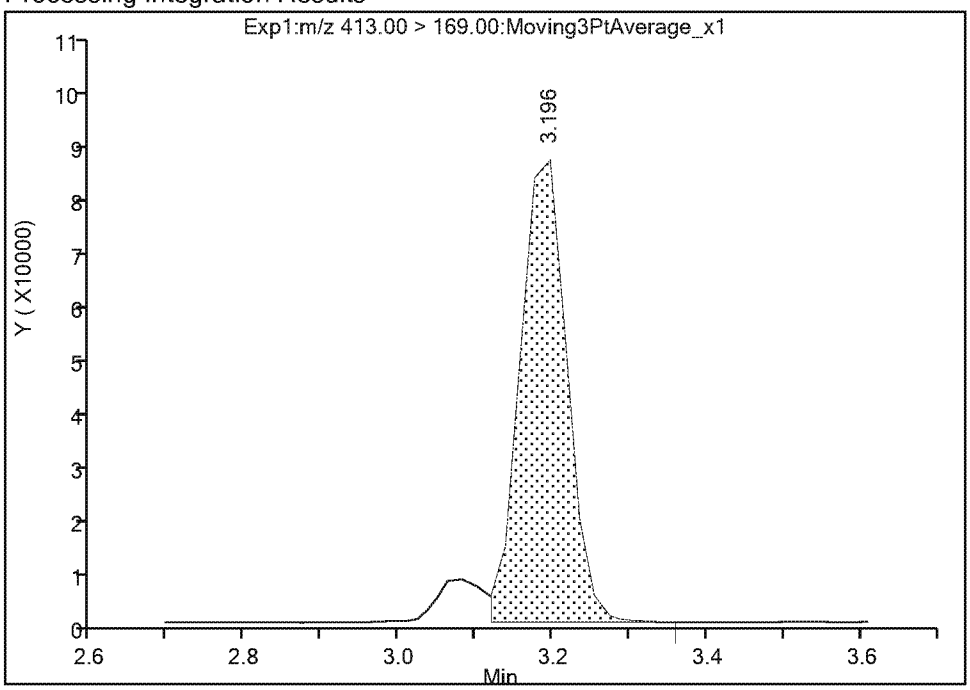
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_025.d				
Injection Date:	03-Apr-2019 07:51:06	Instrument ID:	A8_N		
Lims ID:	320-48794-A-6-A	Lab Sample ID:	320-48794-6		
Client ID:	C0AS0				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	15	Worklist Smp#:	22
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

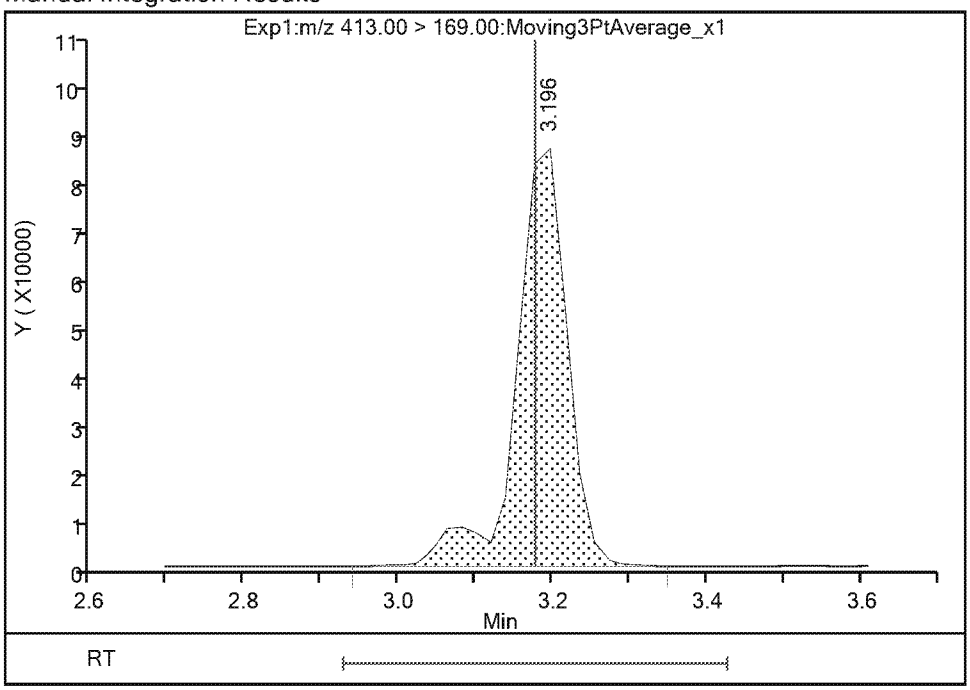
Processing Integration Results

RT: 3.20
Area: 332579
Amount: 0.538881
Amount Units: ng/ml



Manual Integration Results

RT: 3.20
Area: 363204
Amount: 0.560771
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 11:01:18
Audit Action: Manually Integrated Audit Reason: Isomers

TestAmerica Sacramento

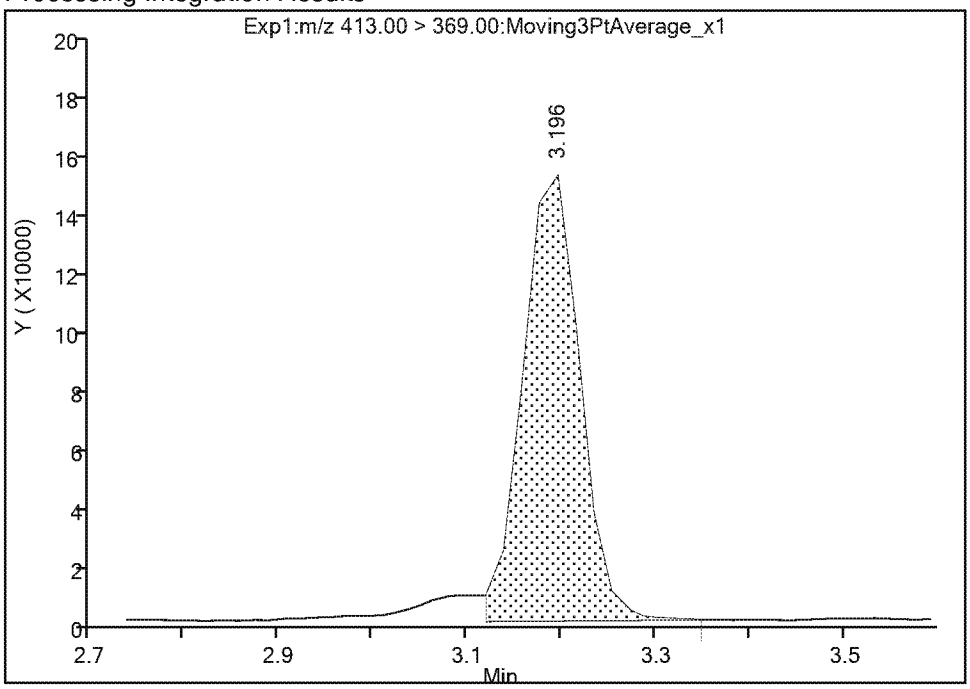
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_025.d				
Injection Date:	03-Apr-2019 07:51:06	Instrument ID:	A8_N		
Lims ID:	320-48794-A-6-A	Lab Sample ID:	320-48794-6		
Client ID:	C0AS0				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	15	Worklist Smp#:	22
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

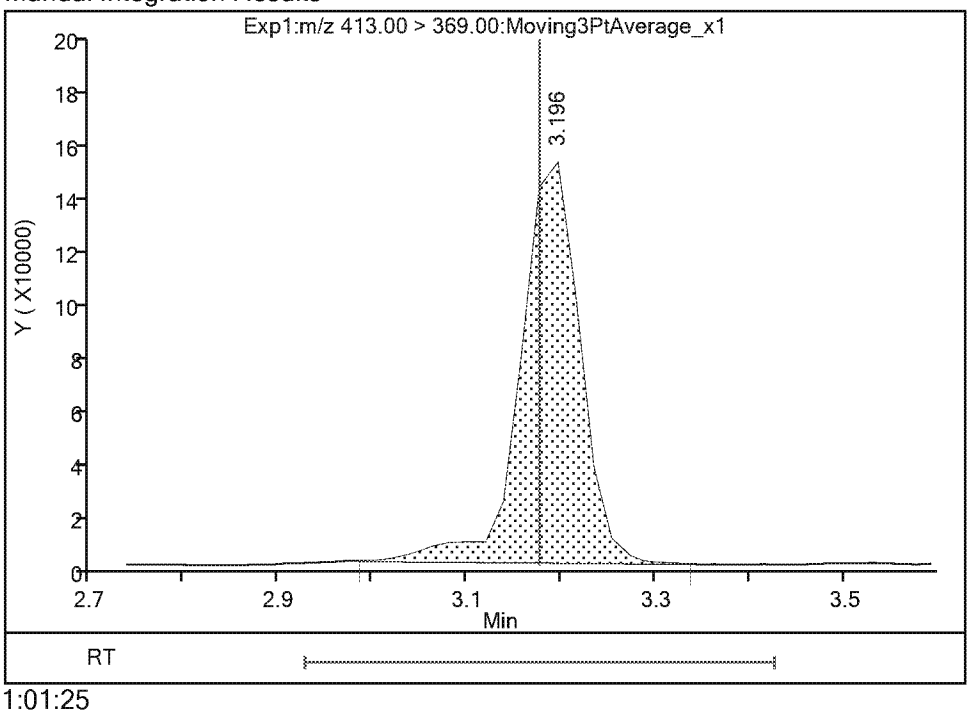
Processing Integration Results

RT: 3.20
Area: 629084
Amount: 0.538881
Amount Units: ng/ml



Manual Integration Results

RT: 3.20
Area: 654638
Amount: 0.560771
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 11:01:25
Audit Action: Manually Integrated Audit Reason: Isomers

TestAmerica Sacramento

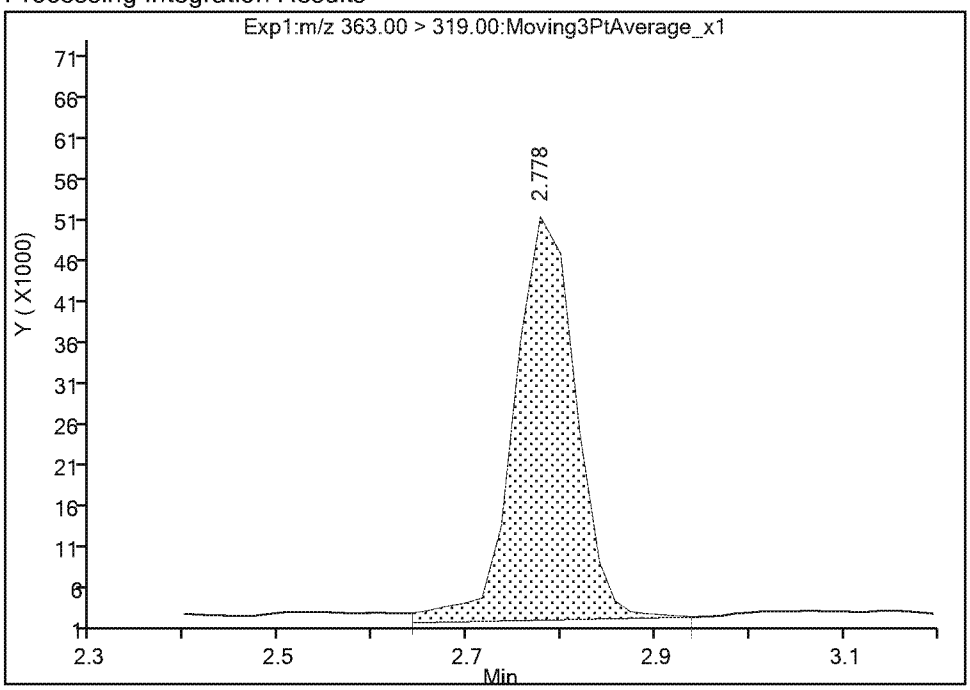
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_025.d				
Injection Date:	03-Apr-2019 07:51:06	Instrument ID:	A8_N		
Lims ID:	320-48794-A-6-A	Lab Sample ID:	320-48794-6		
Client ID:	C0AS0				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	15	Worklist Smp#:	22
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

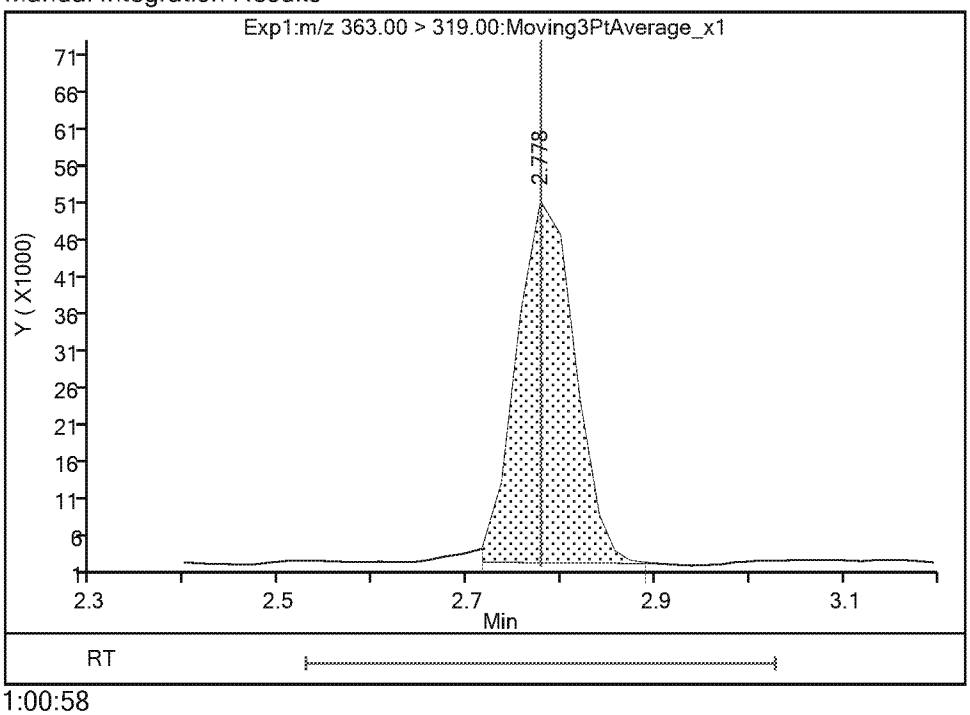
Processing Integration Results

RT: 2.78
Area: 223952
Amount: 0.180910
Amount Units: ng/ml



Manual Integration Results

RT: 2.78
Area: 207884
Amount: 0.167930
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 11:00:58
Audit Action: Manually Integrated Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: C0AS1
Lab Sample ID: 320-48794-7
Matrix: Water
Lab File ID: 2019.04.02_537A_026.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 10:27
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 285.4(mL)
Date Analyzed: 04/03/2019 07:58
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 285757
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	95		1.8	0.83
335-67-1	Perfluorooctanoic acid	20		5.3	2.4
375-95-1	Perfluorononanoic acid	19		1.8	0.41
355-46-4	Perfluorohexanesulfonic acid	19		1.8	0.56
375-85-9	Perfluoroheptanoic acid	7.3		2.6	1.1
375-73-5	Perfluorobutanesulfonic acid	12		1.8	0.70

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	103		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_026.d
Lims ID: 320-48794-A-7-A
Client ID: C0AS1
Sample Type: Client
Inject. Date: 03-Apr-2019 07:58:33 ALS Bottle#: 16 Worklist Smp#: 23
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-48794-A-7-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 11:03:28 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303
First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 11:03:28
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.992	1.992	0.0	1.000	519761	0.3346	Target=1.47	570	
298.90 > 99.00	1.992	1.992	0.0	1.000	345678		1.50(0.00-0.00)	301	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.347	2.347	0.0	0.739	478209	0.3733	Target=11.08	58.9	
313.00 > 119.00	2.347	2.347	0.0	0.739	44533		10.74(0.00-0.00)	64.4	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.347	2.347	0.0	1.000	3037932	2.24		5309	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.490	2.490	0.0	1.000	192818	3.13		902	
4 Perfluoroheptanoic acid									M
363.00 > 319.00	2.778	2.778	0.0	1.000	264870	0.2096	Target=2.42	23.1	M
363.00 > 169.00	2.778	2.778	0.0	1.000	112949		2.35(0.00-0.00)	187	
3 Perfluorohexanesulfonic acid									M
399.00 > 80.00	2.799	2.798	0.001	1.000	996638	0.5459	Target=2.92	372	M
399.00 > 99.00	2.799	2.798	0.001	1.000	331048		3.01(0.00-0.00)	208	M
* 5 13C2 PFOA									
415.00 > 370.00	3.177	3.177	0.0		2924175	2.50		9929	
6 Perfluorooctanoic acid									M
413.00 > 369.00	3.177	3.177	0.0	1.000	689316	0.5784	Target=1.75	69.3	M
413.00 > 169.00	3.177	3.177	0.0	1.000	417983		1.65(0.00-0.00)	873	M
8 Perfluorooctanesulfonic acid									
499.00 > 80.00	3.564	3.564	0.0	1.000	3686280	2.72	Target=4.69	3969	
499.00 > 99.00	3.564	3.564	0.0	1.000	776954		4.74(0.00-0.00)	890	
* 7 13C4 PFOS									
503.00 > 80.00	3.564	3.565	-0.001		3067489	2.39		4359	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
9 Perfluorononanoic acid									
463.00 > 419.00	3.578	3.580	-0.002	1.000	481021	0.5512	Target=3.96	153	
463.00 > 169.00	3.578	3.580	-0.002	1.000	122708		3.92(0.00-0.00)	443	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.766	3.769	-0.003	1.000	2494	0.001137		4.3	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.930	3.915	0.015	1.000	16022	0.0234	Target=5.01	6.3	
513.00 > 169.00	3.911	3.915	-0.004	0.995	3372		4.75(0.00-0.00)	15.9	
$ 10 13C2 PFDA									
515.00 > 470.00	3.930	3.934	-0.004	1.000	1860783	2.58		7830	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.102	4.090	0.012		574772	2.50		2909	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.247	4.250	-0.003	1.035	489952	2.09		266	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.386	4.375	0.011	1.000	2433	0.000891		20.5	

QC Flag Legend

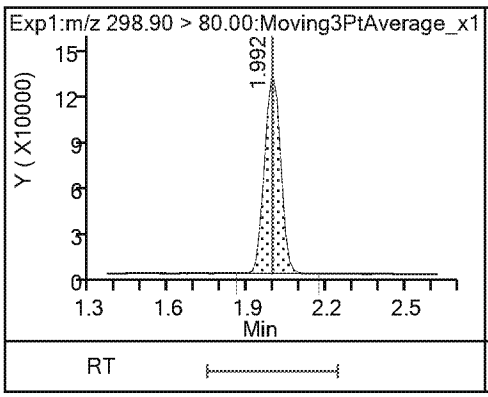
Review Flags

M - Manually Integrated

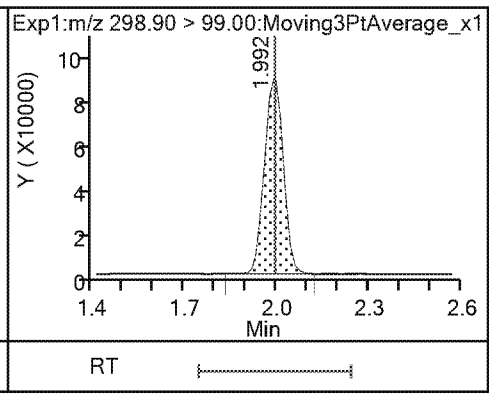
TestAmerica Sacramento

Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_026.d				
Injection Date:	03-Apr-2019 07:58:33	Instrument ID:	A8_N		
Lims ID:	320-48794-A-7-A	Lab Sample ID:	320-48794-7		
Client ID:	C0AS1				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	16	Worklist Smp#:	23
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

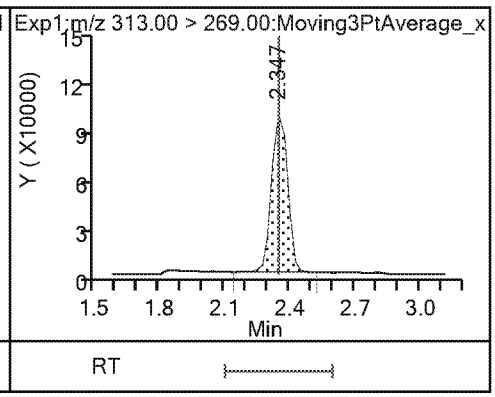
1 Perfluorobutanesulfonic acid



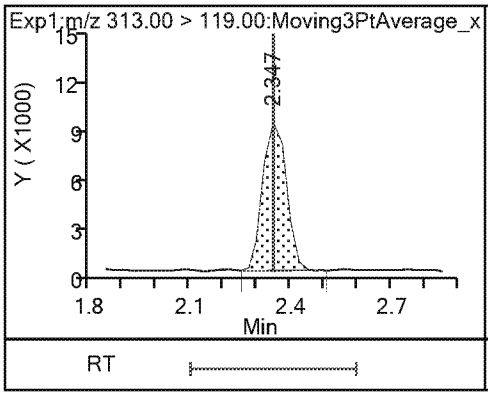
1 Perfluorobutanesulfonic acid



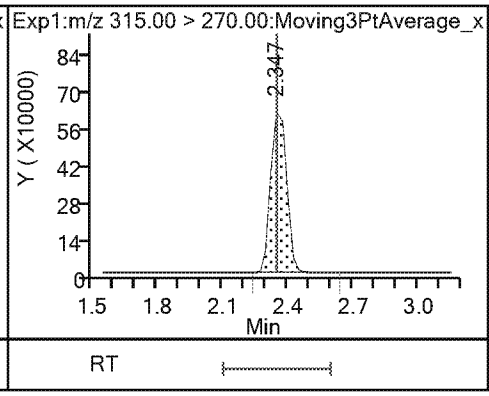
13 Perfluorohexanoic acid



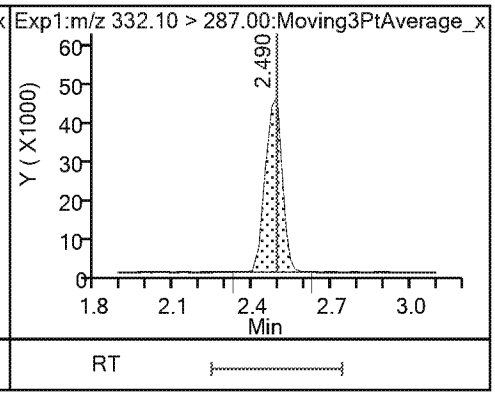
13 Perfluorohexanoic acid



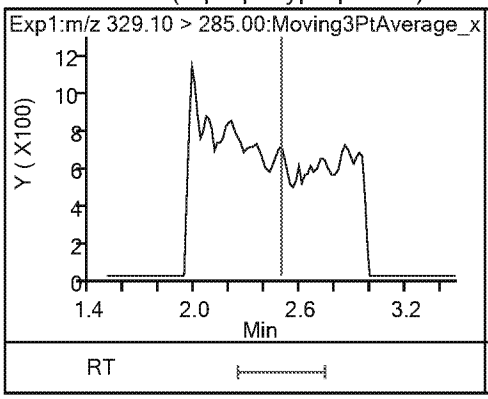
$ 2 13C2 PFHxA



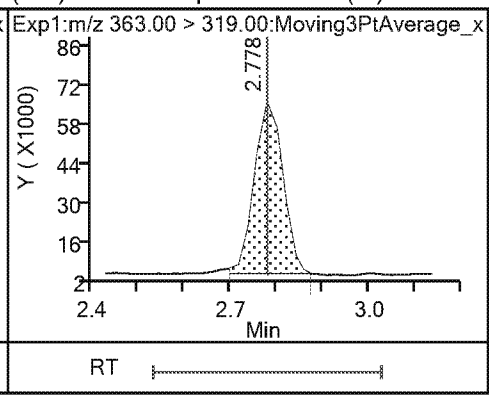
$ 25 13C3 HFPO-DA



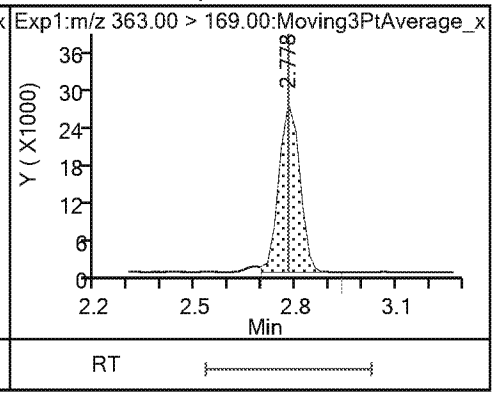
22 Perfluoro(2-propoxypropanoic) acid (ND)



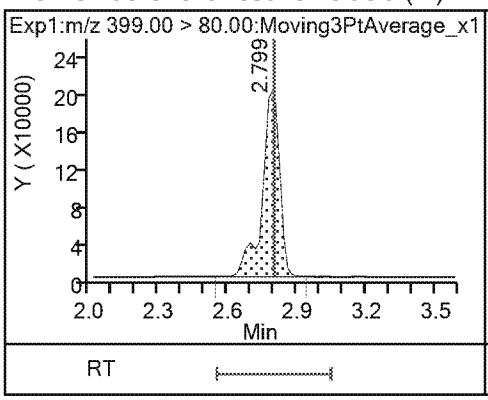
4 Perfluoroheptanoic acid (M)



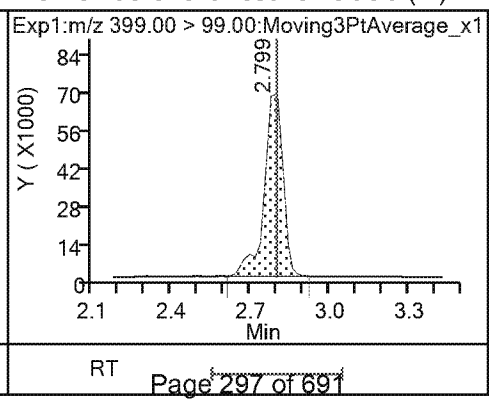
4 Perfluoroheptanoic acid



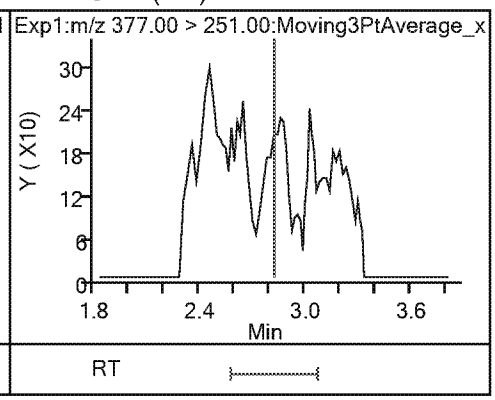
3 Perfluorohexanesulfonic acid (M)



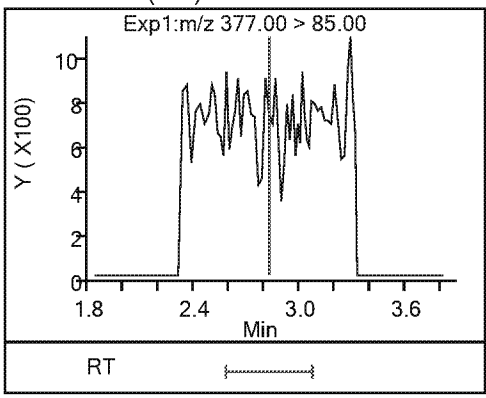
3 Perfluorohexanesulfonic acid (M)



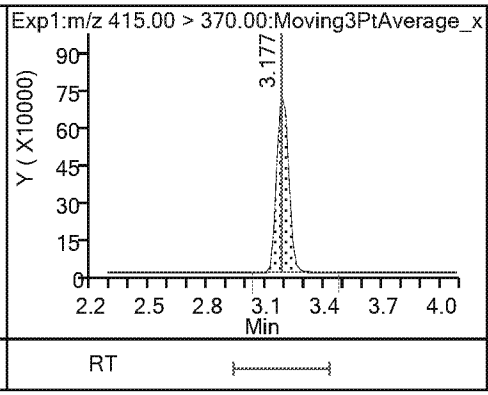
24 DONA (ND)



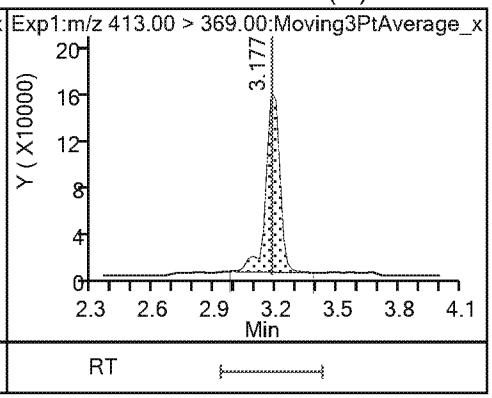
24 DONA (ND)



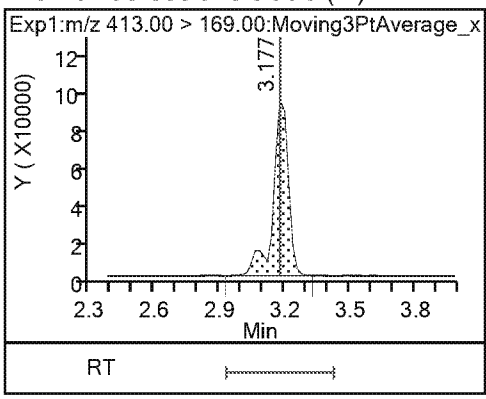
* 5 13C2 PFOA



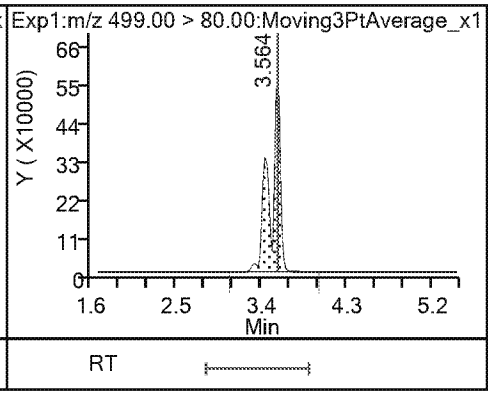
6 Perfluorooctanoic acid (M)



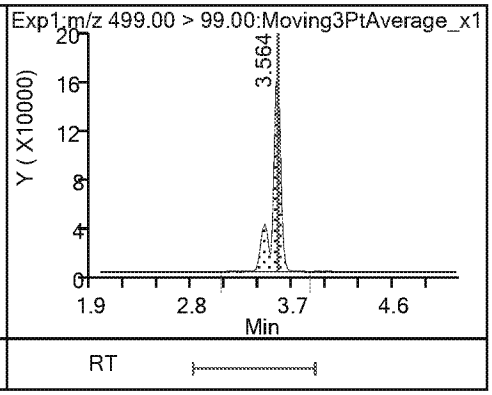
6 Perfluorooctanoic acid (M)



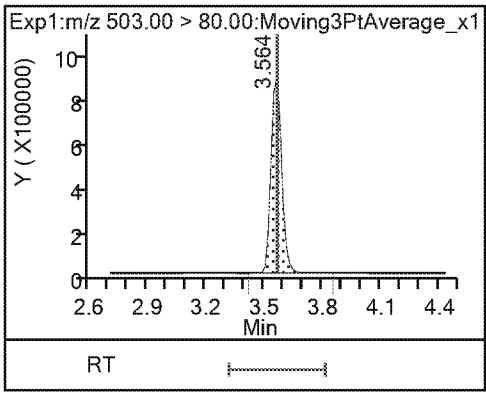
8 Perfluorooctanesulfonic acid



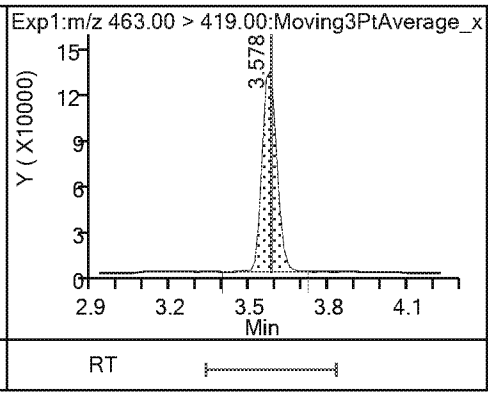
8 Perfluorooctanesulfonic acid



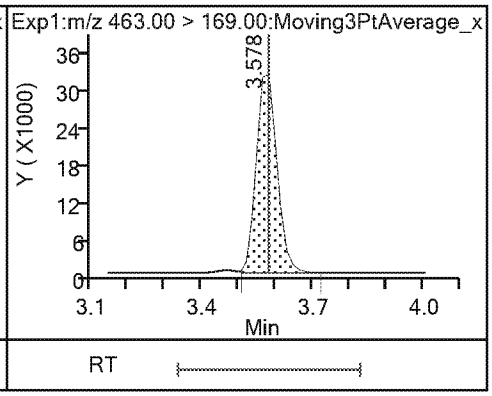
* 7 13C4 PFOS



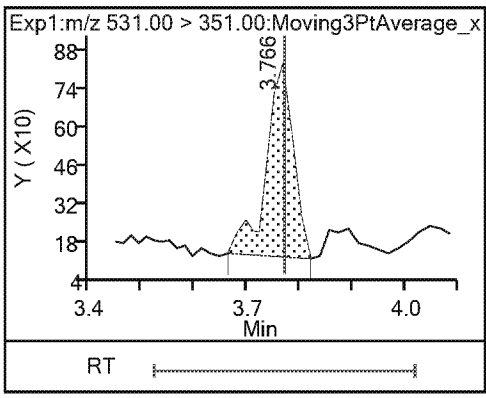
9 Perfluorononanoic acid



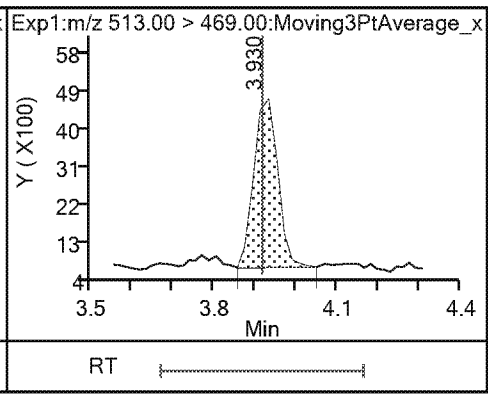
9 Perfluorononanoic acid



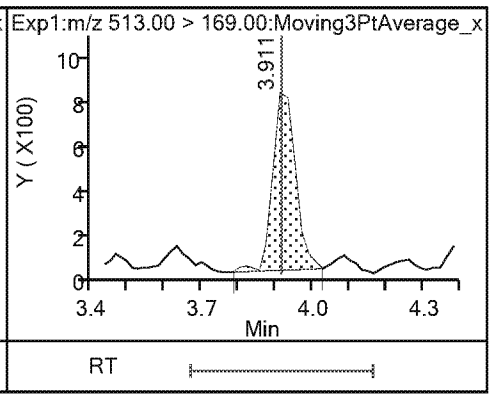
23 9-Chlorohexadecafluoro-3-oxanonane



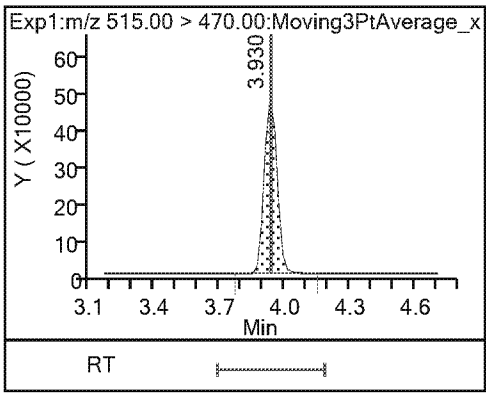
14 Perfluorodecanoic acid



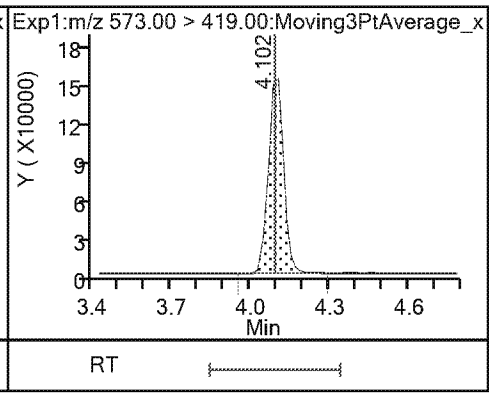
14 Perfluorodecanoic acid



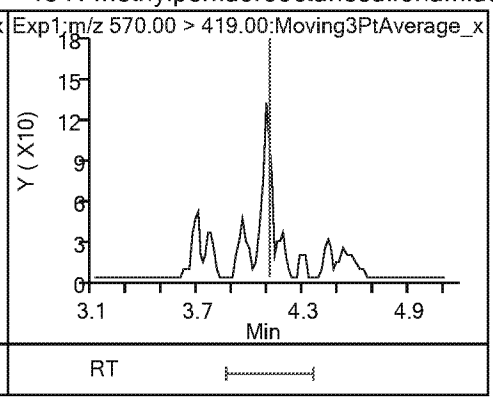
$ 10 13C2 PFDA



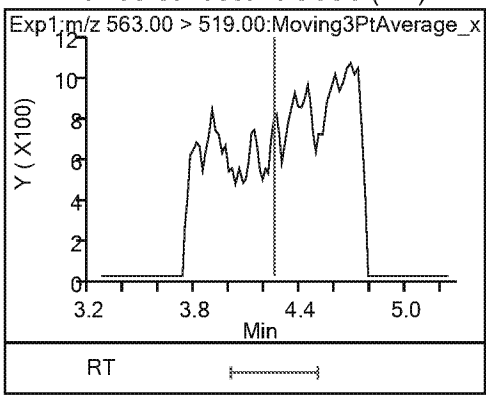
* 12 d3-NMeFOSAA



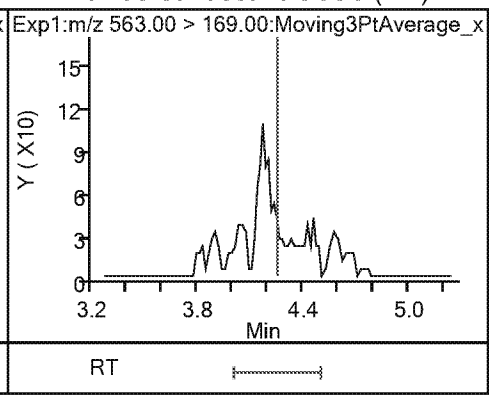
15 N-methylperfluorooctanesulfonamido (ND)



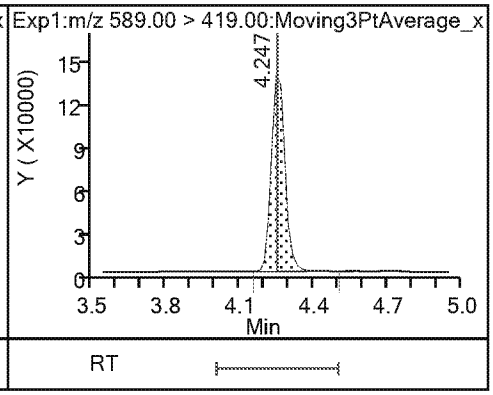
17 Perfluoroundecanoic acid (ND)



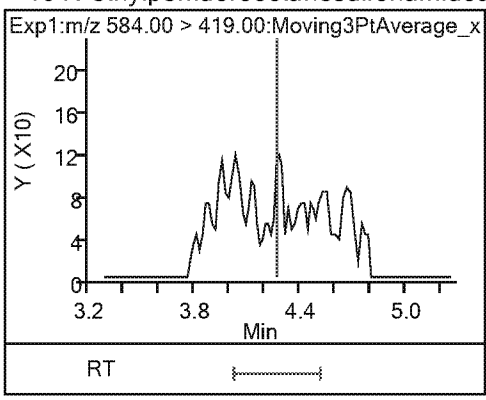
17 Perfluoroundecanoic acid (ND)



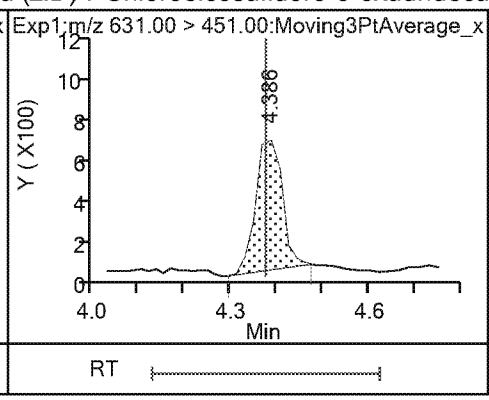
$ 11 d5-NEtFOSAA



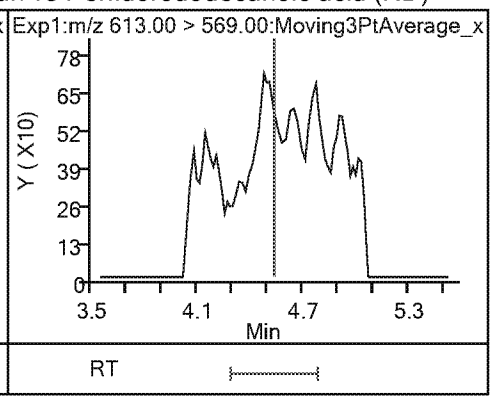
16 N-ethylperfluorooctanesulfonamidoa (ND)



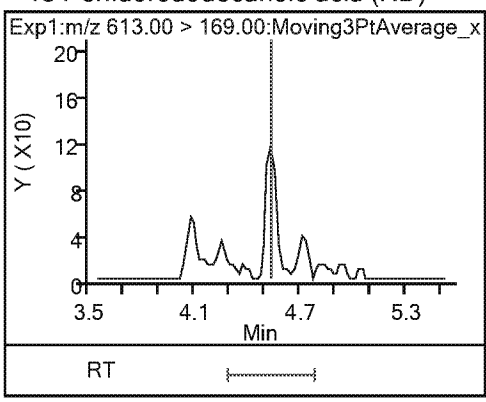
21 11-Chloroeicosafluoro-3-oxaundecan



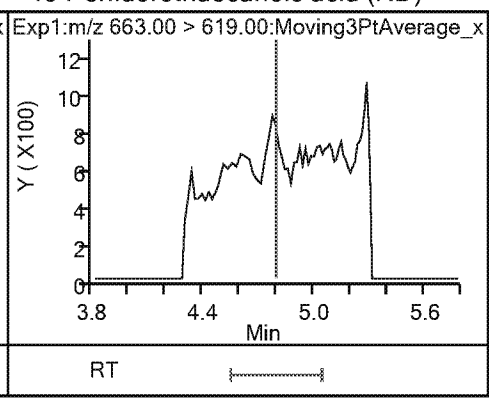
18 Perfluorododecanoic acid (ND)



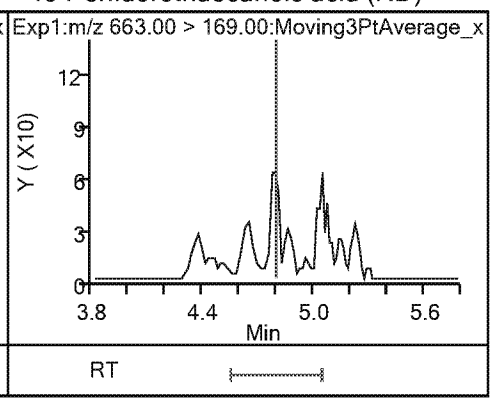
18 Perfluorododecanoic acid (ND)



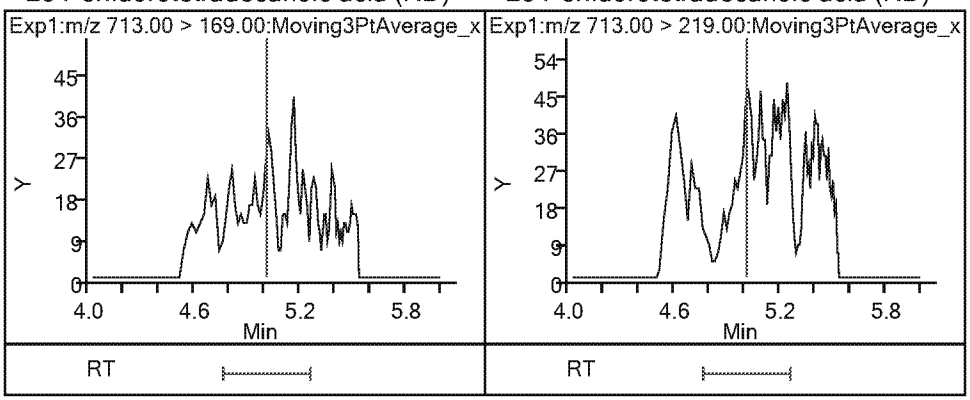
19 Perfluorotridecanoic acid (ND)



19 Perfluorotridecanoic acid (ND)



20 Perfluorotetradecanoic acid (ND) 20 Perfluorotetradecanoic acid (ND)



TestAmerica Sacramento
Recovery Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_026.d
Lims ID: 320-48794-A-7-A
Client ID: C0AS1
Sample Type: Client
Inject. Date: 03-Apr-2019 07:58:33 ALS Bottle#: 16 Worklist Smp#: 23
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-48794-A-7-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 11:03:28 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 11:03:28

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	2.50	2.24	89.71
$ 25 13C3 HFPO-DA	2.50	3.13	125.19
$ 10 13C2 PFDA	2.50	2.58	103.22
$ 11 d5-NEtFOSAA	2.50	2.09	83.59

TestAmerica Sacramento

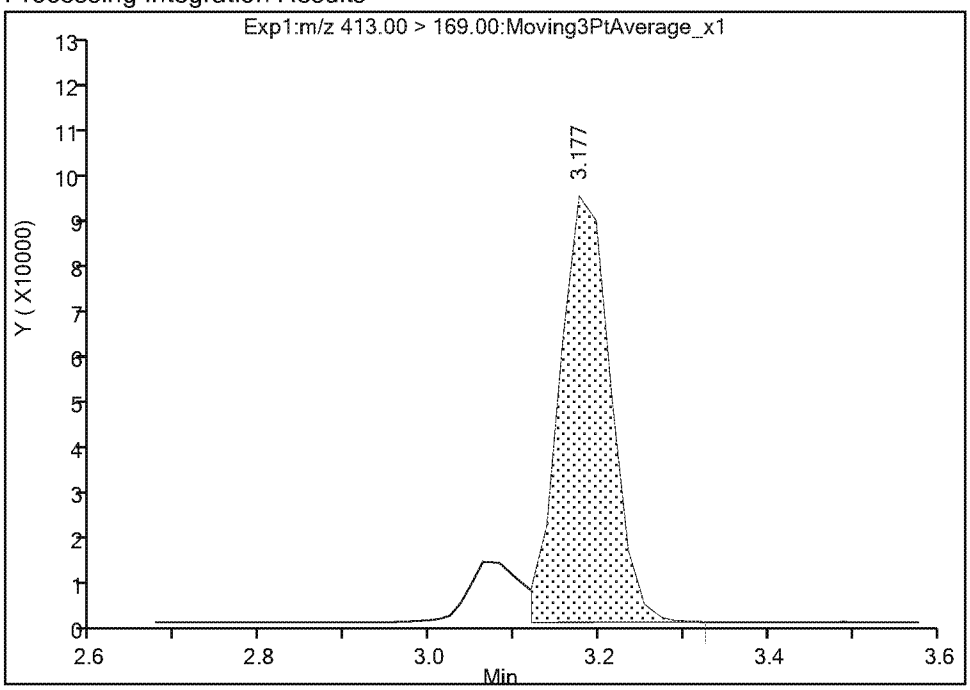
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_026.d				
Injection Date:	03-Apr-2019 07:58:33	Instrument ID:	A8_N		
Lims ID:	320-48794-A-7-A	Lab Sample ID:	320-48794-7		
Client ID:	C0AS1				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	16	Worklist Smp#:	23
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

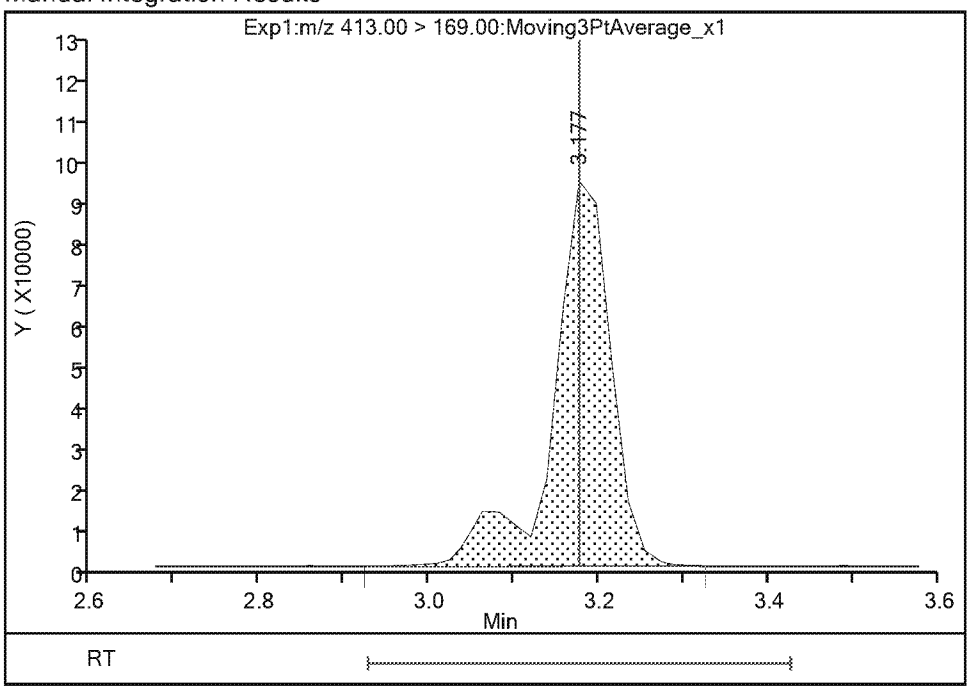
Processing Integration Results

RT: 3.18
Area: 365178
Amount: 0.549212
Amount Units: ng/ml



Manual Integration Results

RT: 3.18
Area: 417983
Amount: 0.578357
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 11:02:58
Audit Action: Manually Integrated Audit Reason: Isomers

TestAmerica Sacramento

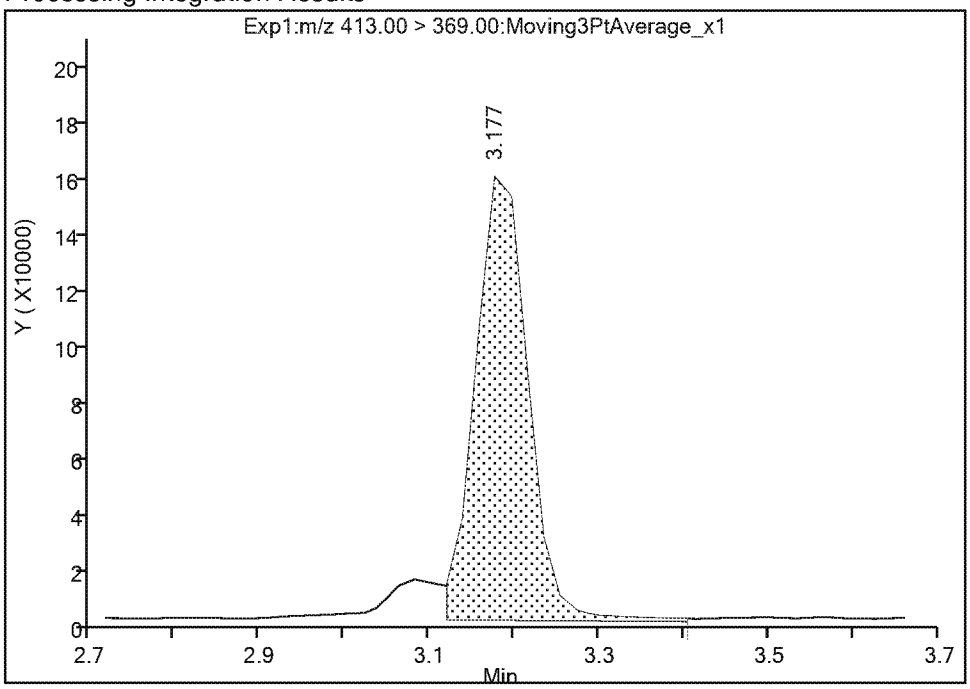
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_026.d				
Injection Date:	03-Apr-2019 07:58:33	Instrument ID:	A8_N		
Lims ID:	320-48794-A-7-A	Lab Sample ID:	320-48794-7		
Client ID:	C0AS1				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	16	Worklist Smp#:	23
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

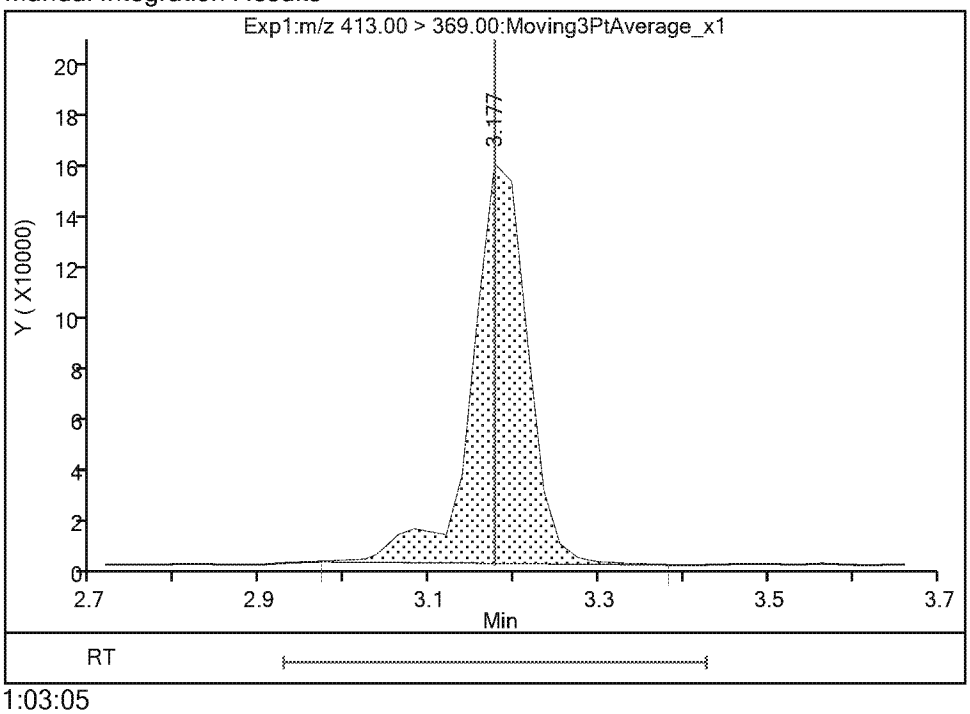
Processing Integration Results

RT: 3.18
Area: 654580
Amount: 0.549212
Amount Units: ng/ml



Manual Integration Results

RT: 3.18
Area: 689316
Amount: 0.578357
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 11:03:05
Audit Action: Manually Integrated Audit Reason: Isomers

TestAmerica Sacramento

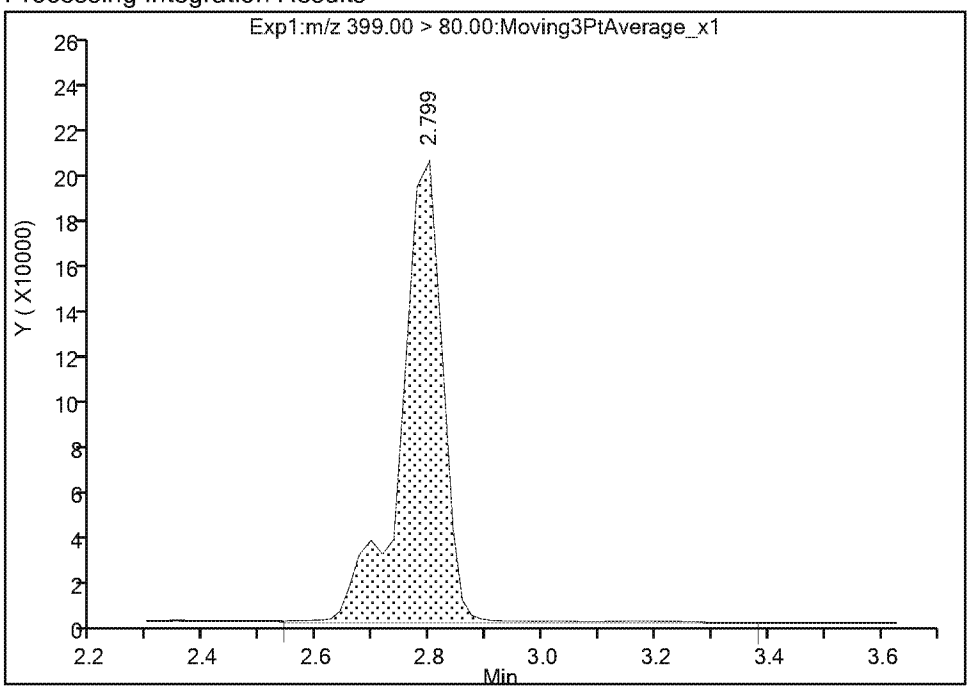
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_026.d				
Injection Date:	03-Apr-2019 07:58:33	Instrument ID:	A8_N		
Lims ID:	320-48794-A-7-A	Lab Sample ID:	320-48794-7		
Client ID:	C0AS1				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	16	Worklist Smp#:	23
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

3 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

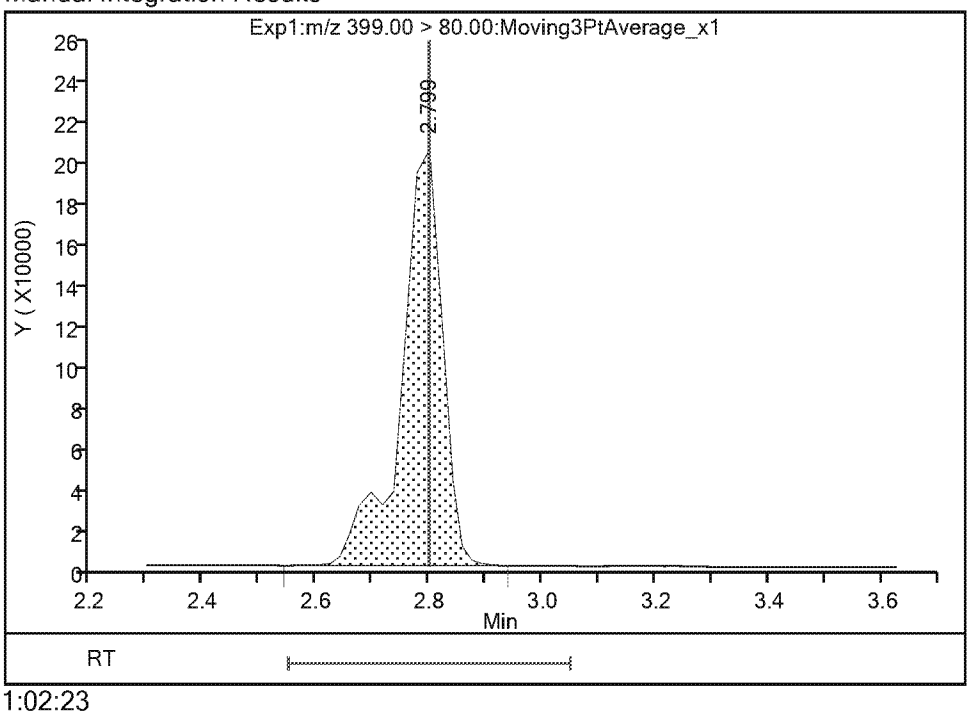
Processing Integration Results

RT: 2.80
Area: 1019028
Amount: 0.558123
Amount Units: ng/ml



Manual Integration Results

RT: 2.80
Area: 996638
Amount: 0.545860
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 11:02:23
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento

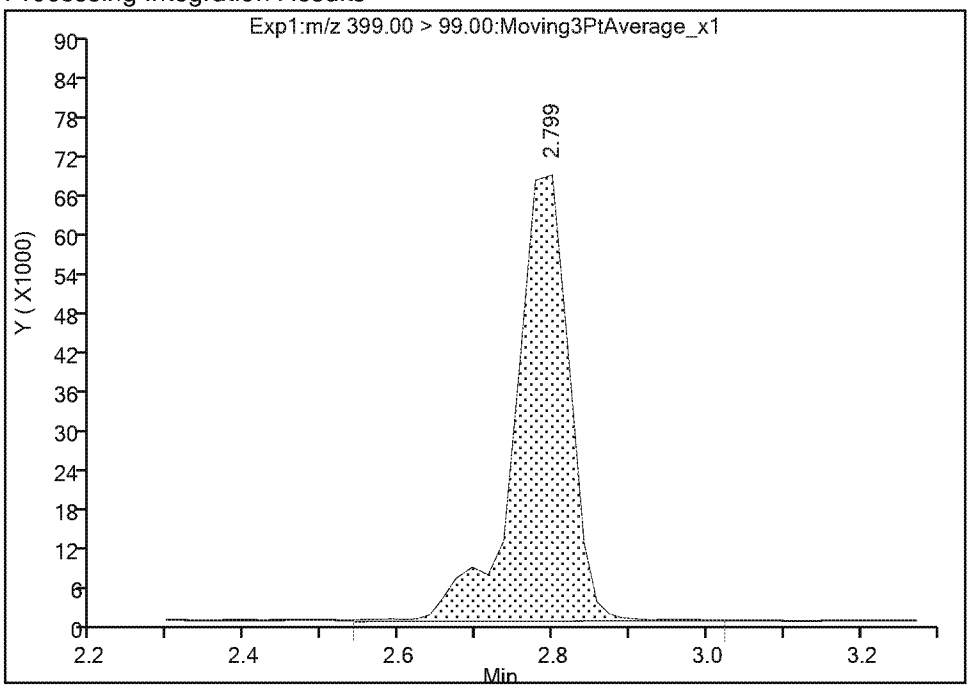
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_026.d				
Injection Date:	03-Apr-2019 07:58:33	Instrument ID:	A8_N		
Lims ID:	320-48794-A-7-A	Lab Sample ID:	320-48794-7		
Client ID:	C0AS1				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	16	Worklist Smp#:	23
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

3 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 2

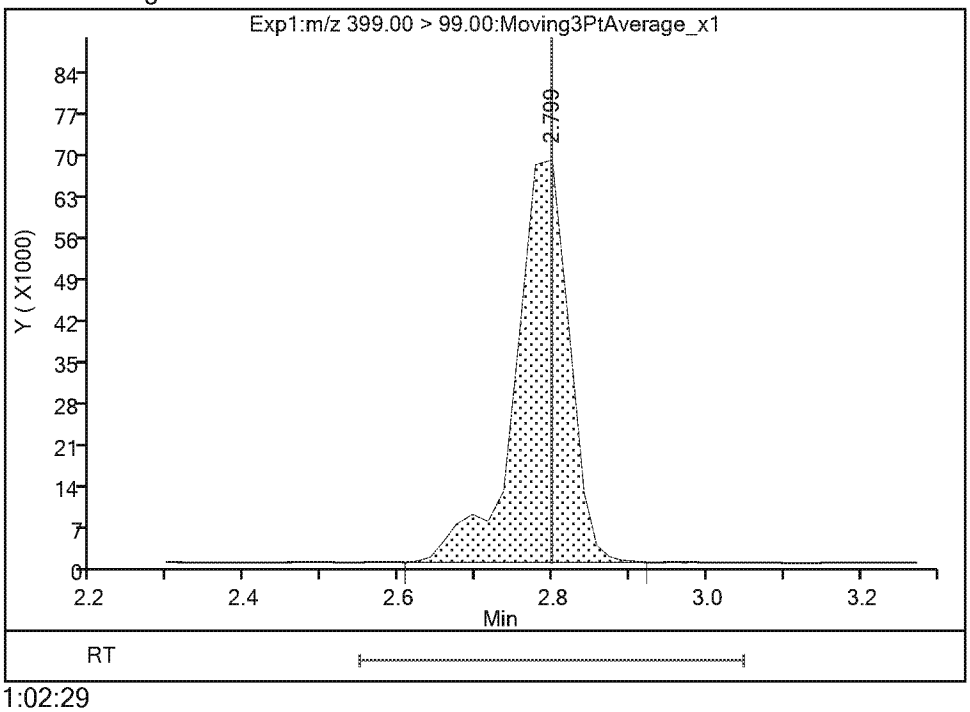
Processing Integration Results

RT: 2.80
Area: 335582
Amount: 0.558123
Amount Units: ng/ml



Manual Integration Results

RT: 2.80
Area: 331048
Amount: 0.545860
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 11:02:29
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento

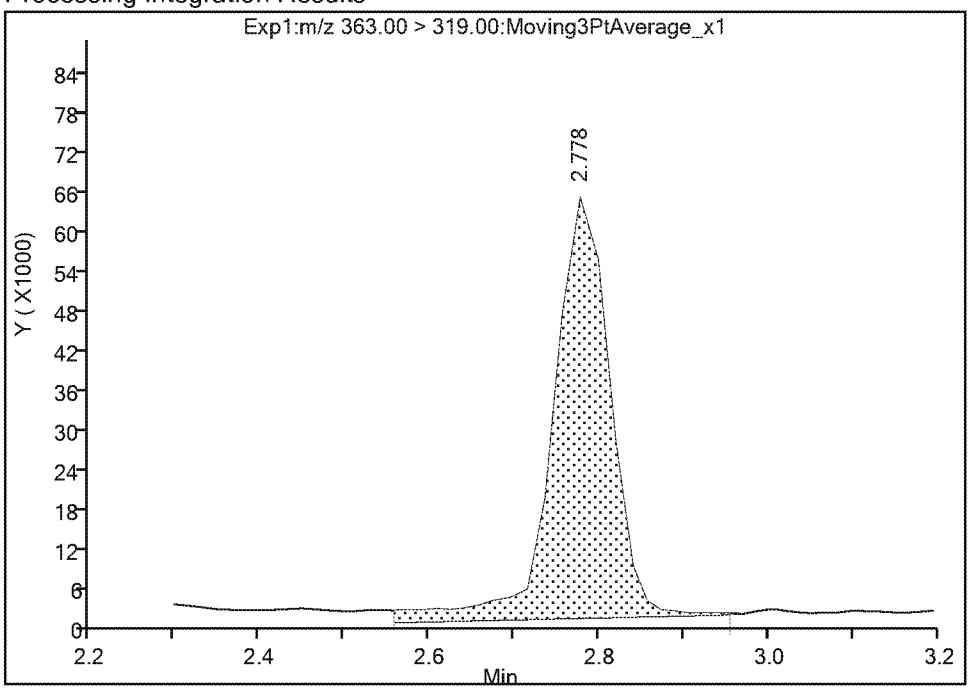
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_026.d				
Injection Date:	03-Apr-2019 07:58:33	Instrument ID:	A8_N		
Lims ID:	320-48794-A-7-A	Lab Sample ID:	320-48794-7		
Client ID:	C0AS1				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	16	Worklist Smp#:	23
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

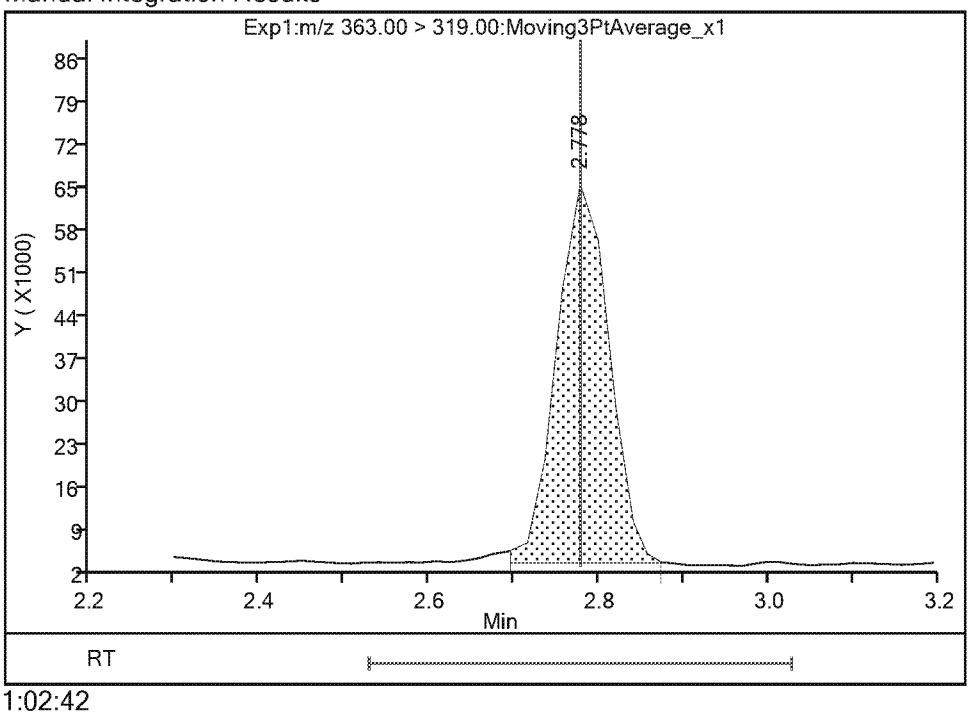
Processing Integration Results

RT: 2.78
Area: 297611
Amount: 0.235478
Amount Units: ng/ml



Manual Integration Results

RT: 2.78
Area: 264870
Amount: 0.209572
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 11:02:42
Audit Action: Manually Integrated Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: C0AS4
Lab Sample ID: 320-48794-8
Matrix: Water
Lab File ID: 2019.04.02_537A_029.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 12:53
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 278.4(mL)
Date Analyzed: 04/03/2019 08:20
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 285758
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	ND		1.8	0.85
335-67-1	Perfluorooctanoic acid	ND		5.4	2.4
375-95-1	Perfluorononanoic acid	ND		1.8	0.42
355-46-4	Perfluorohexanesulfonic acid	ND		1.8	0.57
375-85-9	Perfluoroheptanoic acid	ND		2.7	1.2
375-73-5	Perfluorobutanesulfonic acid	ND		1.8	0.72

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	104		70-130
STL00996	13C2 PFDA	106		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_029.d
Lims ID: 320-48794-A-8-A
Client ID: C0AS4
Sample Type: Client
Inject. Date: 03-Apr-2019 08:20:57 ALS Bottle#: 17 Worklist Smp#: 26
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-48794-A-8-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 11:42:11 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

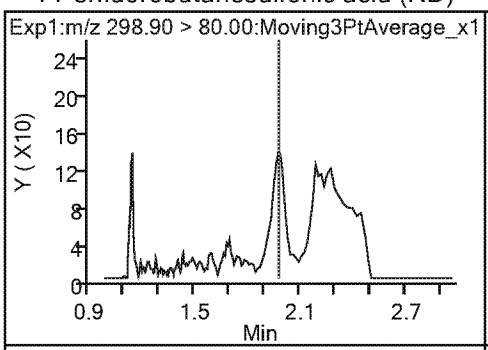
First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 11:04:43
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	2.348	2.347	0.001	1.000	3322356	2.61		6118	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.474	2.473	0.001	1.000	188486	3.26		1378	
* 5 13C2 PFOA									
415.00 > 370.00	3.177	3.177	0.0		2745659	2.50		6560	
* 7 13C4 PFOS									
503.00 > 80.00	3.564	3.549	0.016		2859345	2.39		7975	
$ 10 13C2 PFDA									
515.00 > 470.00	3.930	3.911	0.019	1.000	1799398	2.66		6456	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.086	4.070	0.016		527312	2.50		4204	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.247	4.236	0.011	1.039	510230	2.37		279	

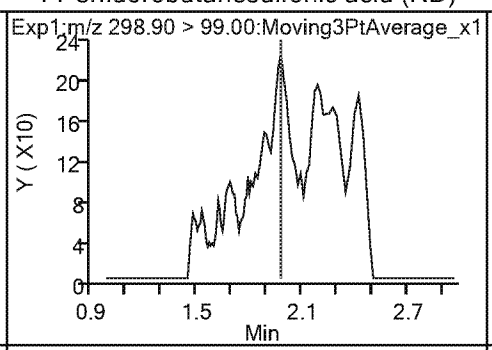
TestAmerica Sacramento

Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_029.d				
Injection Date:	03-Apr-2019 08:20:57	Instrument ID:	A8_N		
Lims ID:	320-48794-A-8-A	Lab Sample ID:	320-48794-8		
Client ID:	C0AS4				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	17	Worklist Smp#:	26
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

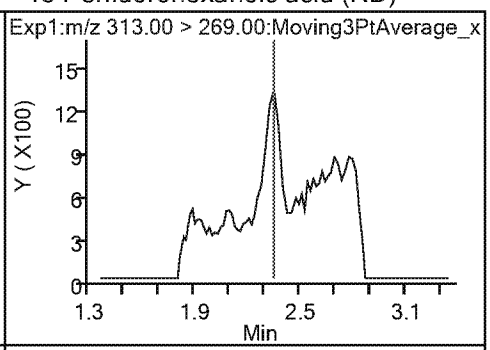
1 Perfluorobutanesulfonic acid (ND)



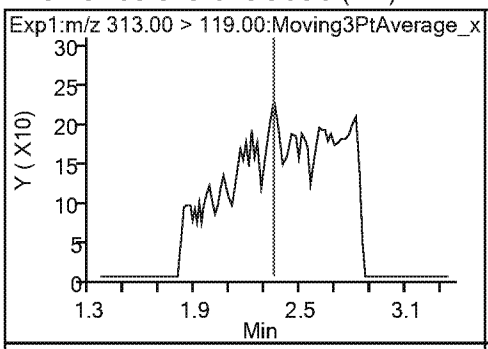
1 Perfluorobutanesulfonic acid (ND)



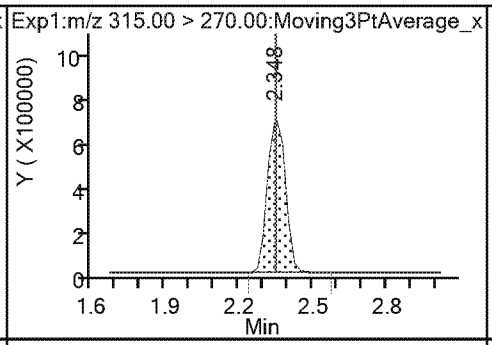
13 Perfluorohexanoic acid (ND)



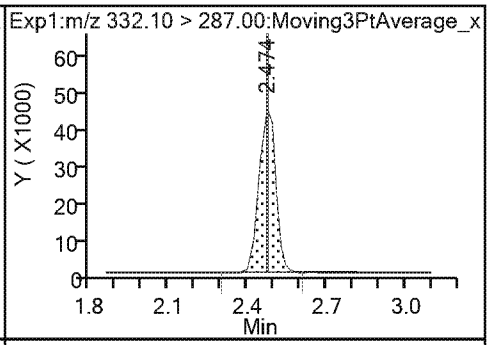
13 Perfluorohexanoic acid (ND)



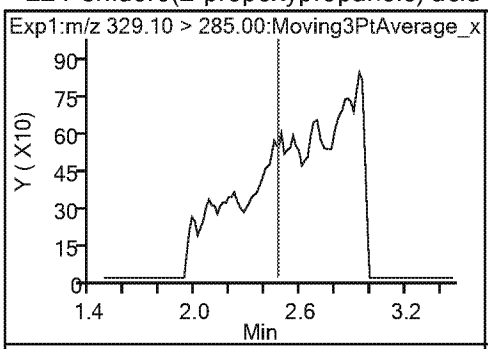
$ 2 13C2 PFHxA



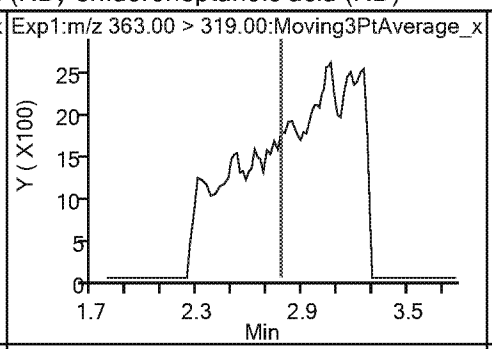
$ 25 13C3 HFPO-DA



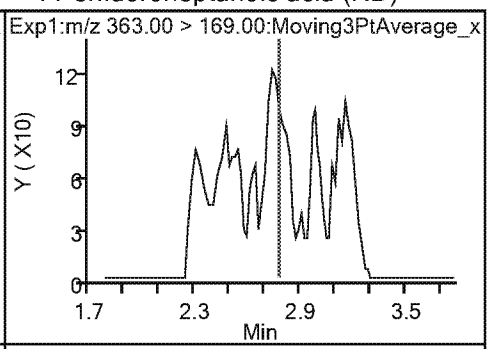
22 Perfluoro(2-propoxypropanoic) acid (ND)



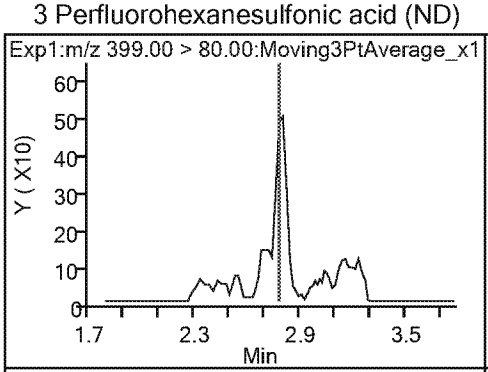
4 Perfluoroheptanoic acid (ND)



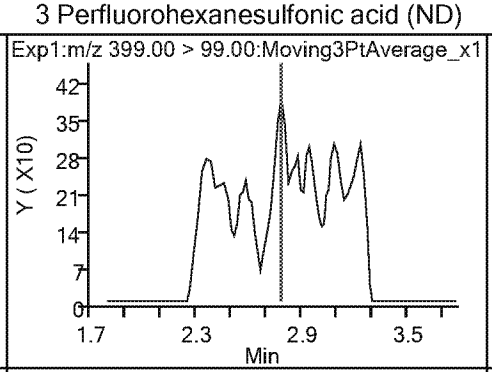
4 Perfluoroheptanoic acid (ND)



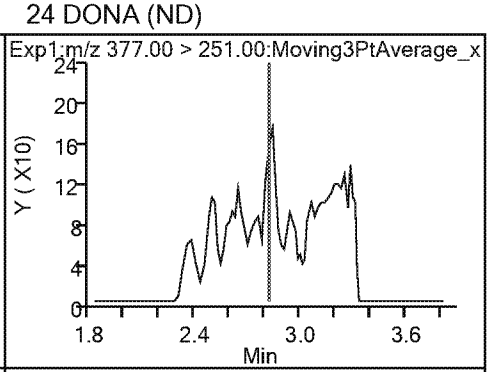
3 Perfluorohexanesulfonic acid (ND)



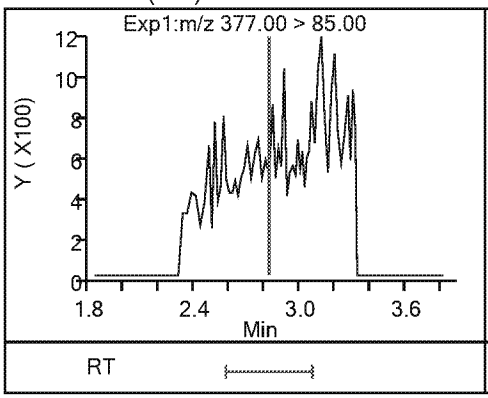
3 Perfluorohexanesulfonic acid (ND)



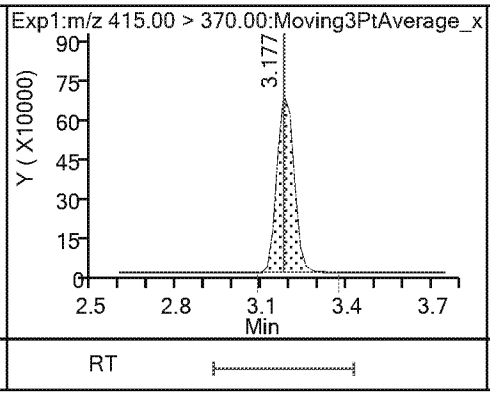
24 DONA (ND)



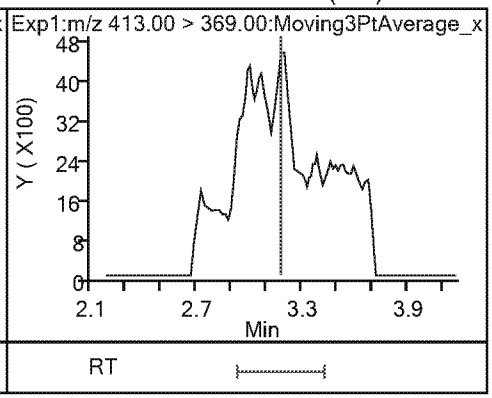
24 DONA (ND)



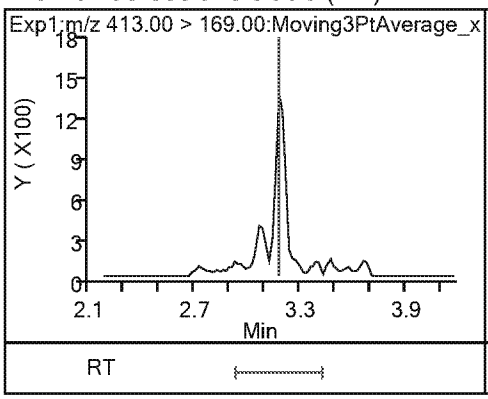
* 5 13C2 PFOA



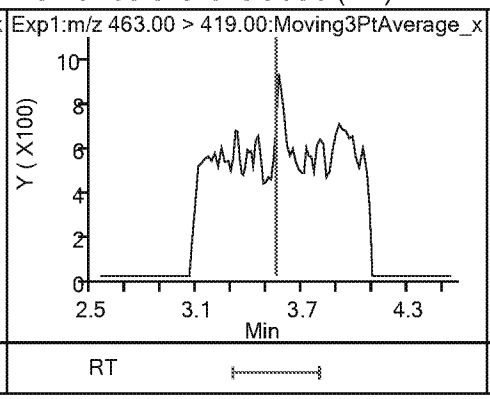
6 Perfluorooctanoic acid (ND)



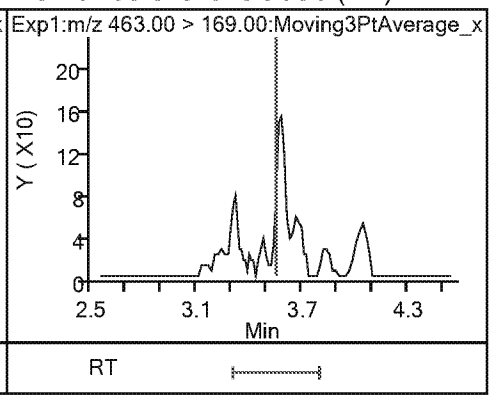
6 Perfluorooctanoic acid (ND)



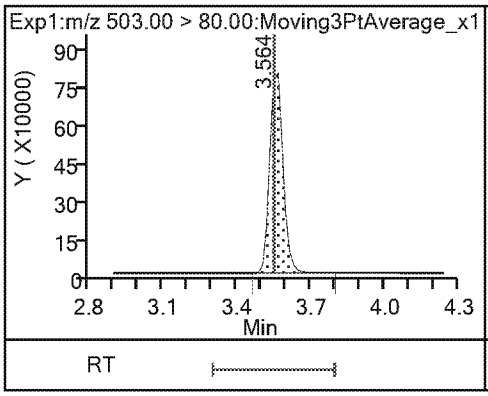
9 Perfluorononanoic acid (ND)



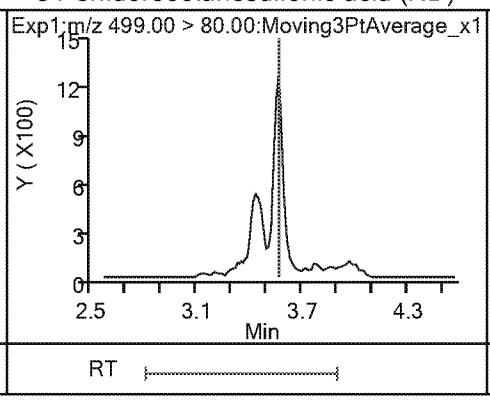
9 Perfluorononanoic acid (ND)



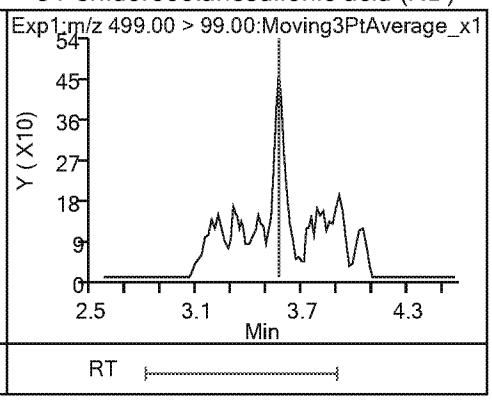
* 7 13C4 PFOS



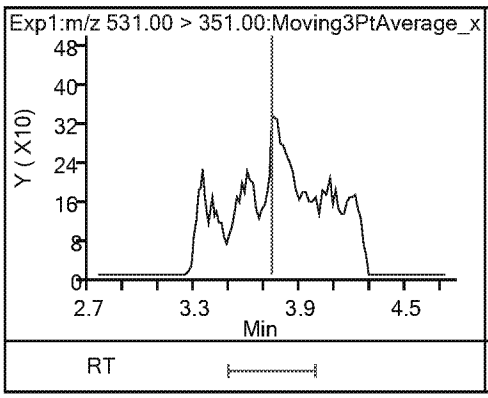
8 Perfluorooctanesulfonic acid (ND)



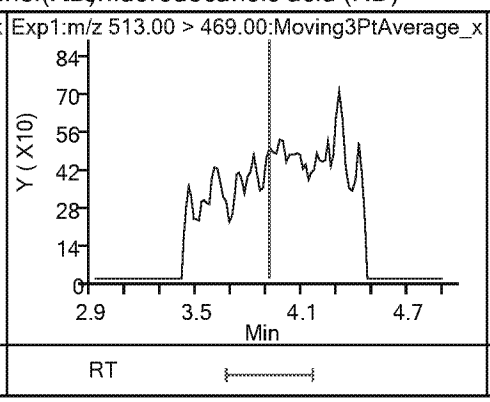
8 Perfluorooctanesulfonic acid (ND)



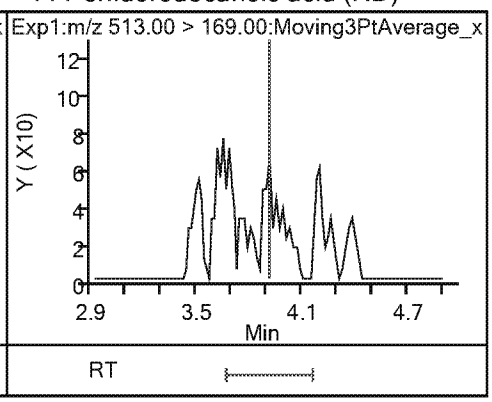
23 9-Chlorohexadecafluoro-3-oxanonane1(ND)



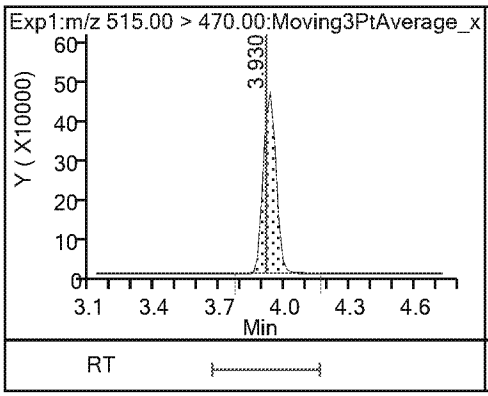
14 Perfluorodecanoic acid (ND)



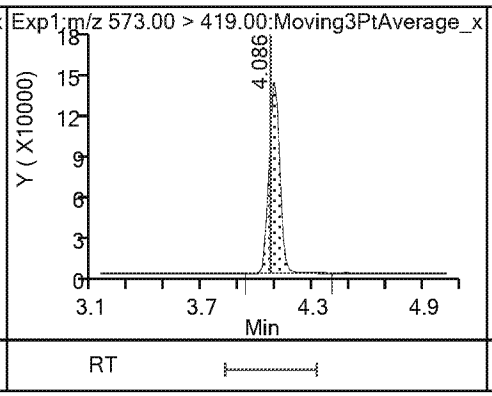
14 Perfluorodecanoic acid (ND)



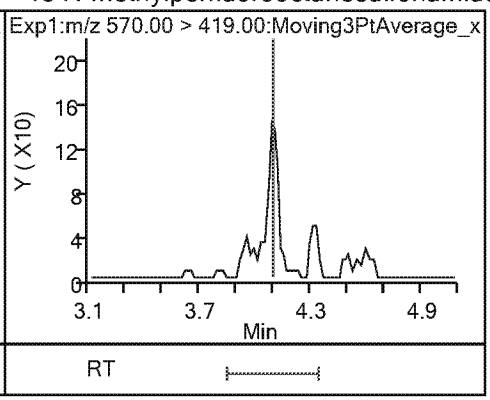
$ 10 13C2 PFDA



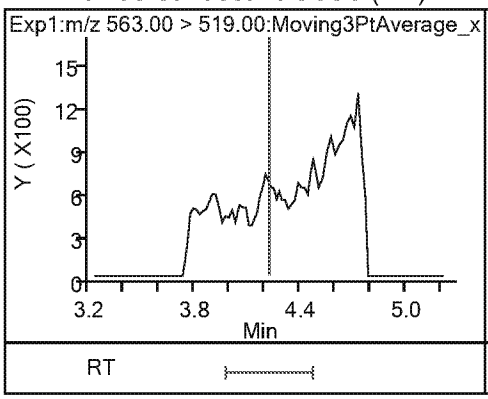
* 12 d3-NMeFOSAA



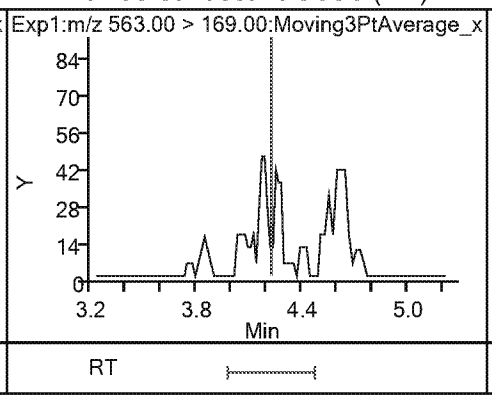
15 N-methylperfluorooctanesulfonamido (ND)



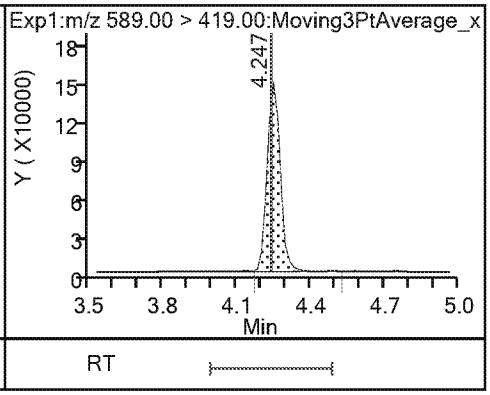
17 Perfluoroundecanoic acid (ND)



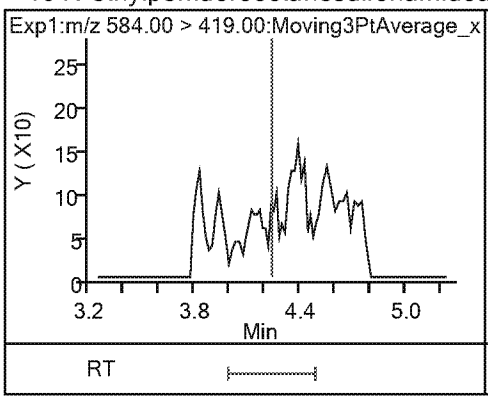
17 Perfluoroundecanoic acid (ND)



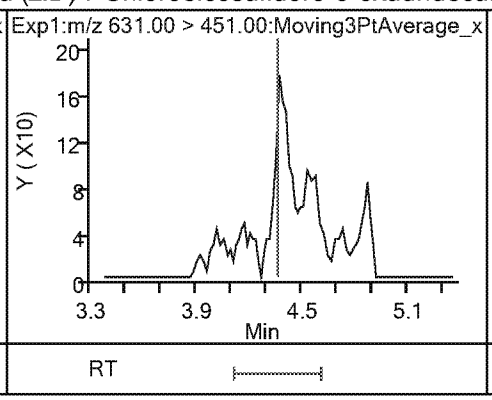
$ 11 d5-NEtFOSAA



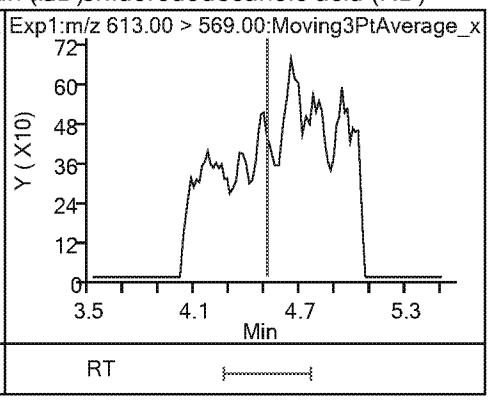
16 N-ethylperfluorooctanesulfonamidoa (ND)



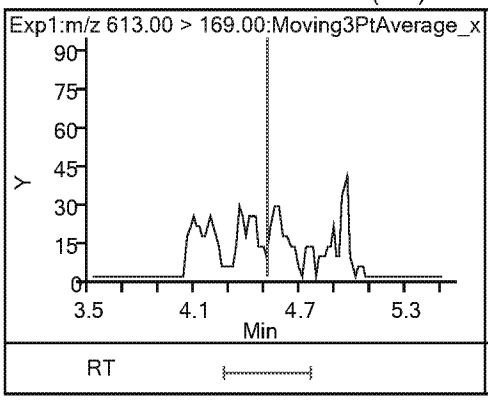
21 11-Chloroeicosafluoro-3-oxaundecan (ND)



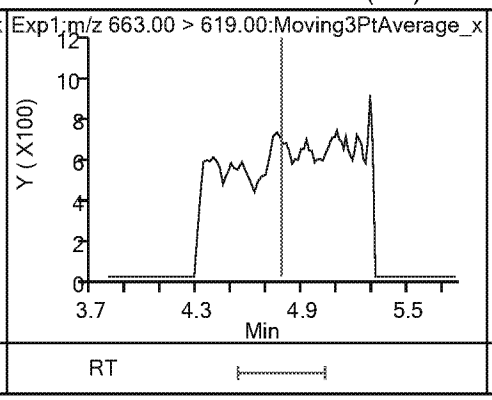
18 Perfluorododecanoic acid (ND)



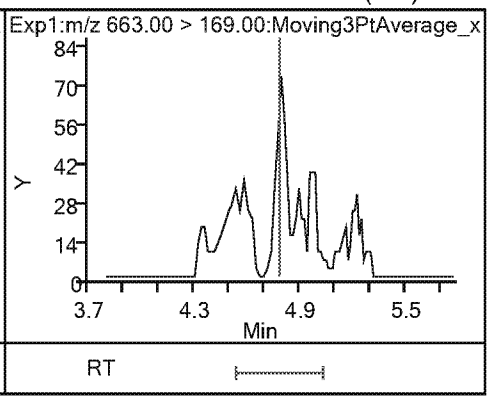
18 Perfluorododecanoic acid (ND)



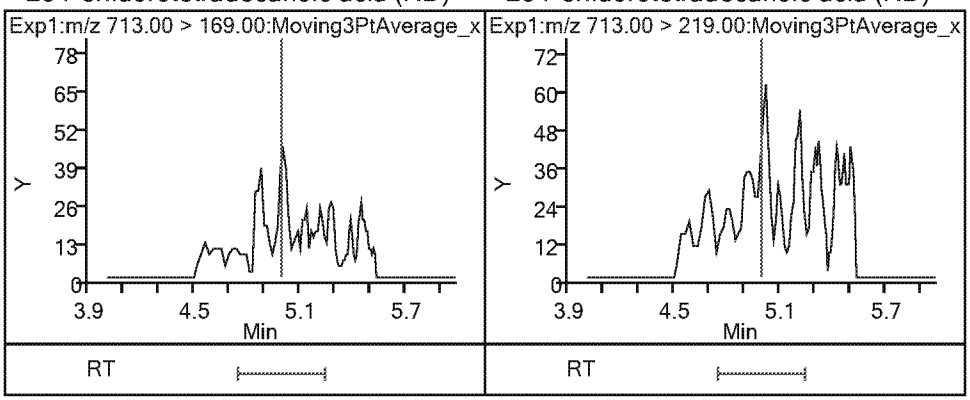
19 Perfluorotridecanoic acid (ND)



19 Perfluorotridecanoic acid (ND)



20 Perfluorotetradecanoic acid (ND) 20 Perfluorotetradecanoic acid (ND)



TestAmerica Sacramento
Recovery Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_029.d
Lims ID: 320-48794-A-8-A
Client ID: C0AS4
Sample Type: Client
Inject. Date: 03-Apr-2019 08:20:57 ALS Bottle#: 17 Worklist Smp#: 26
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-48794-A-8-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 11:42:11 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 11:04:43

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	2.50	2.61	104.49
$ 25 13C3 HFPO-DA	2.50	3.26	130.34
$ 10 13C2 PFDA	2.50	2.66	106.30
$ 11 d5-NEtFOSAA	2.50	2.37	94.88

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: C0AS5
Lab Sample ID: 320-48794-9
Matrix: Water
Lab File ID: 2019.04.02_537A_030.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 14:05
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 290.1(mL)
Date Analyzed: 04/03/2019 08:28
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 285758
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	ND		1.7	0.82
335-67-1	Perfluorooctanoic acid	ND		5.2	2.3
375-95-1	Perfluorononanoic acid	ND		1.7	0.41
355-46-4	Perfluorohexanesulfonic acid	ND		1.7	0.55
375-85-9	Perfluoroheptanoic acid	ND		2.6	1.1
375-73-5	Perfluorobutanesulfonic acid	ND		1.7	0.69

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	103		70-130
STL00996	13C2 PFDA	108		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_030.d
Lims ID: 320-48794-A-9-A
Client ID: C0AS5
Sample Type: Client
Inject. Date: 03-Apr-2019 08:28:24 ALS Bottle#: 18 Worklist Smp#: 27
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-48794-A-9-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 11:42:11 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

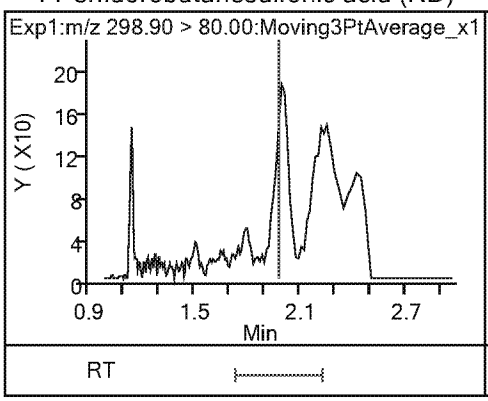
First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 11:39:02
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	2.347	2.347	0.0	1.000	3330656	2.58		5655	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.490	2.473	0.017	1.000	178448	3.04		1383	
* 5 13C2 PFOA									
415.00 > 370.00	3.196	3.177	0.019		2789165	2.50		6203	
* 7 13C4 PFOS									
503.00 > 80.00	3.563	3.549	0.015		2967038	2.39		9026	
$ 10 13C2 PFDA									
515.00 > 470.00	3.949	3.911	0.038	1.000	1862167	2.71		8592	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.108	4.070	0.038		540813	2.50		2861	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.252	4.236	0.016	1.035	493962	2.24		260	

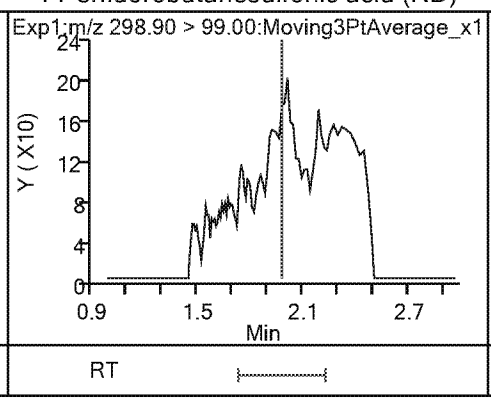
TestAmerica Sacramento

Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_030.d				
Injection Date:	03-Apr-2019 08:28:24	Instrument ID:	A8_N		
Lims ID:	320-48794-A-9-A	Lab Sample ID:	320-48794-9		
Client ID:	C0AS5				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	18	Worklist Smp#:	27
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

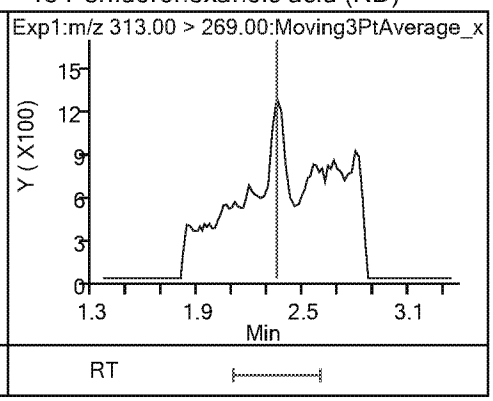
1 Perfluorobutanesulfonic acid (ND)



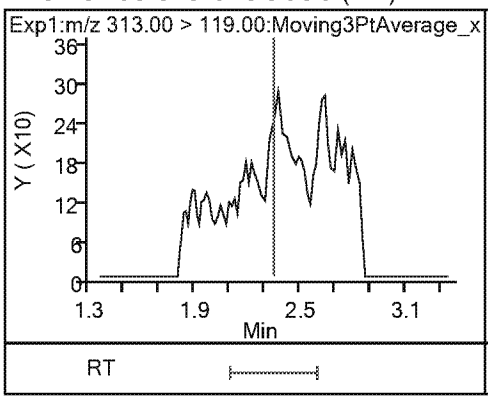
1 Perfluorobutanesulfonic acid (ND)



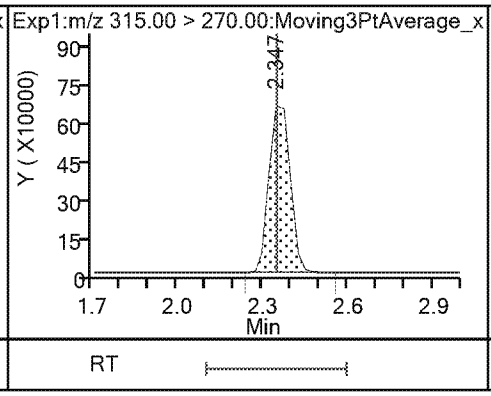
13 Perfluorohexanoic acid (ND)



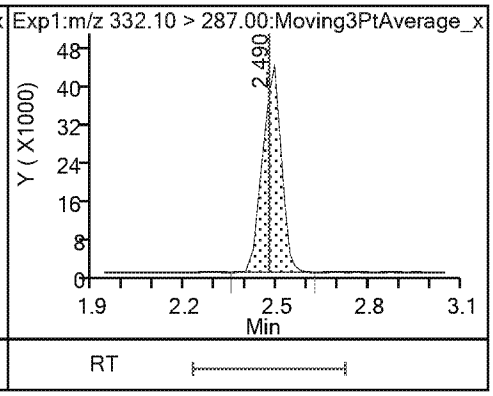
13 Perfluorohexanoic acid (ND)



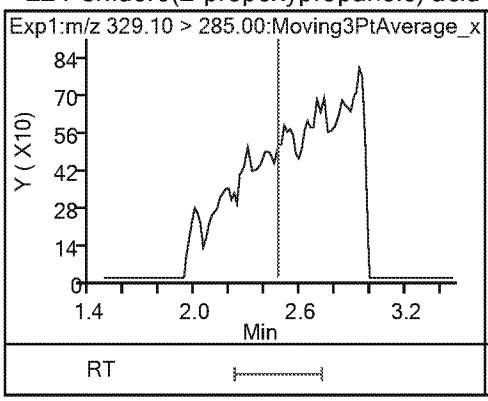
$ 2 13C2 PFHxA



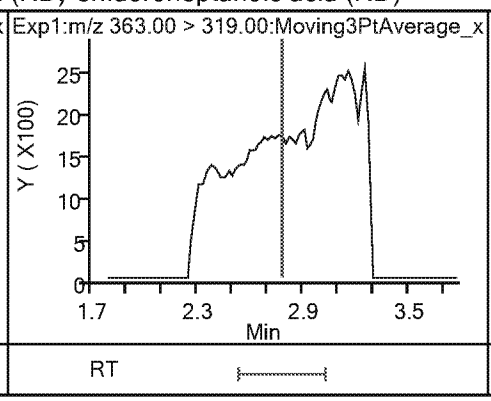
$ 25 13C3 HFPO-DA



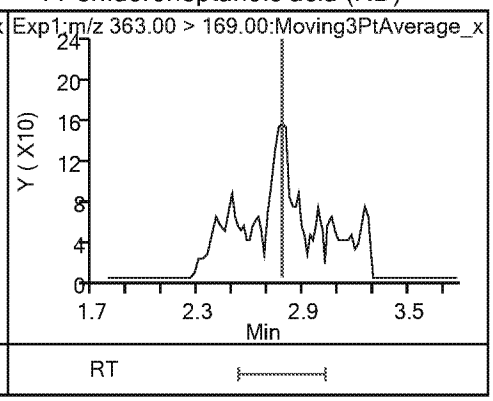
22 Perfluoro(2-propoxypropanoic) acid (ND)



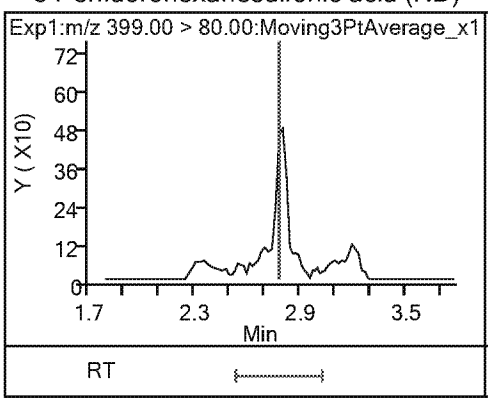
4 Perfluoroheptanoic acid (ND)



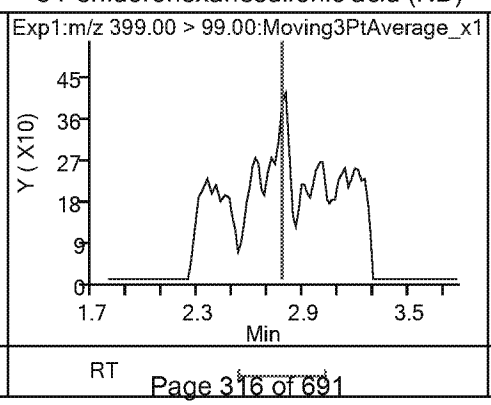
4 Perfluoroheptanoic acid (ND)



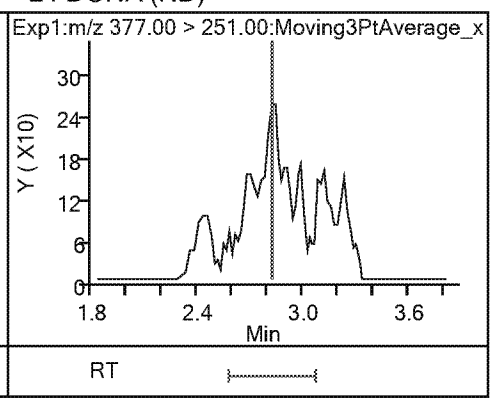
3 Perfluorohexanesulfonic acid (ND)



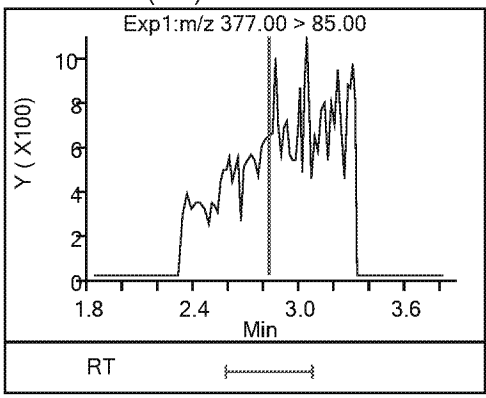
3 Perfluorohexanesulfonic acid (ND)



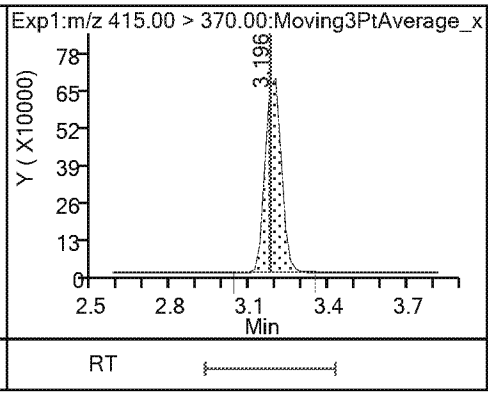
24 DONA (ND)



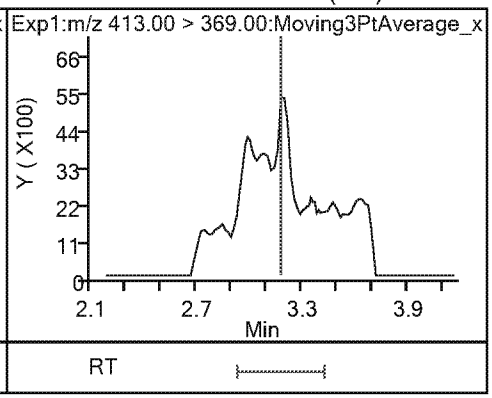
24 DONA (ND)



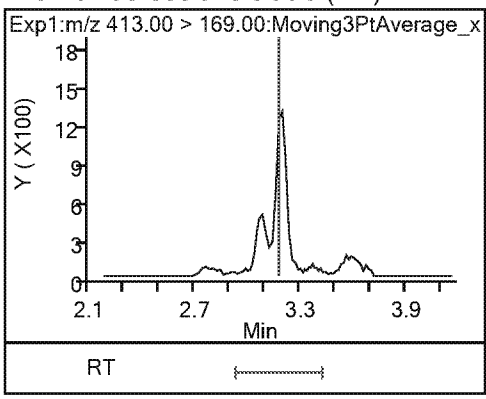
* 5 13C2 PFOA



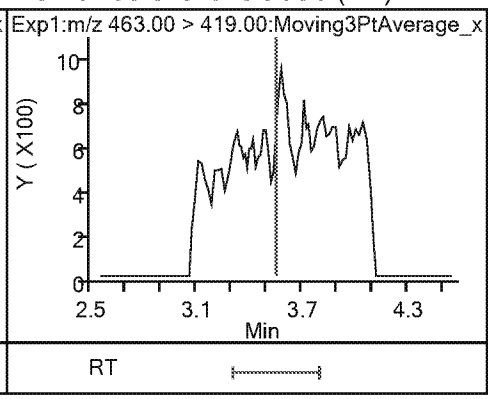
6 Perfluorooctanoic acid (ND)



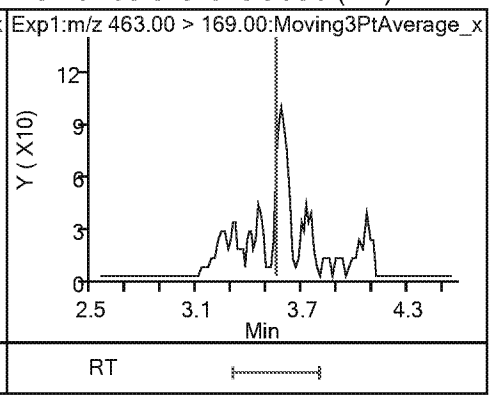
6 Perfluorooctanoic acid (ND)



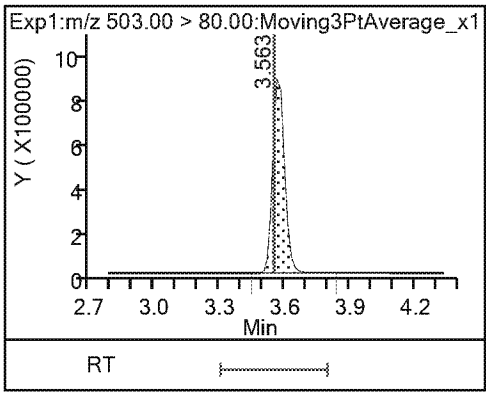
9 Perfluorononanoic acid (ND)



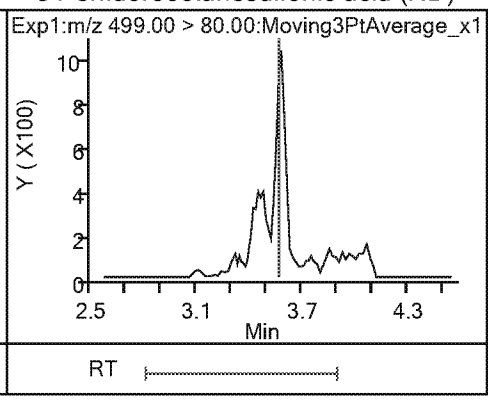
9 Perfluorononanoic acid (ND)



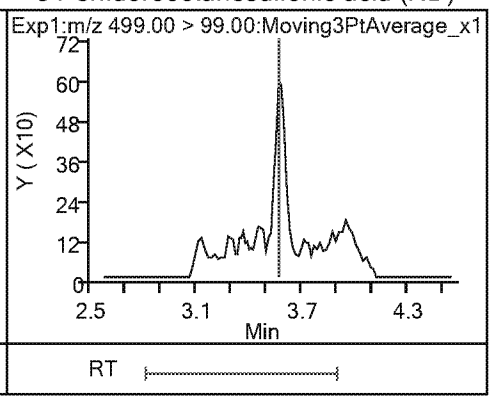
* 7 13C4 PFOS



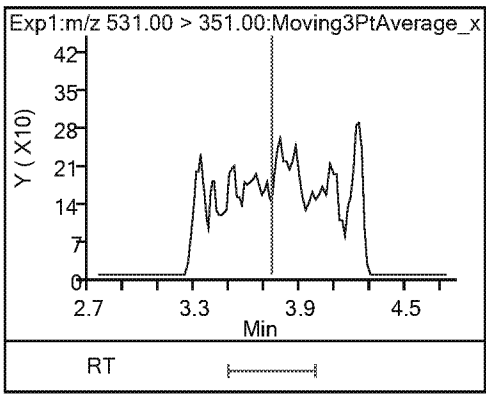
8 Perfluorooctanesulfonic acid (ND)



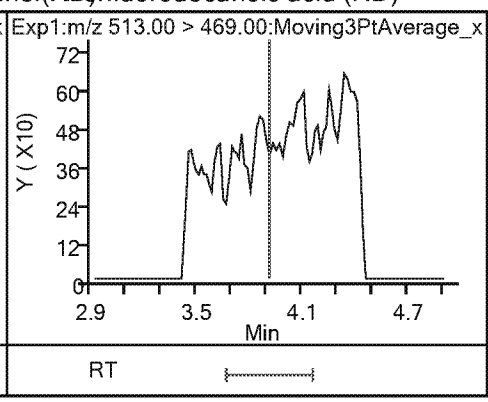
8 Perfluorooctanesulfonic acid (ND)



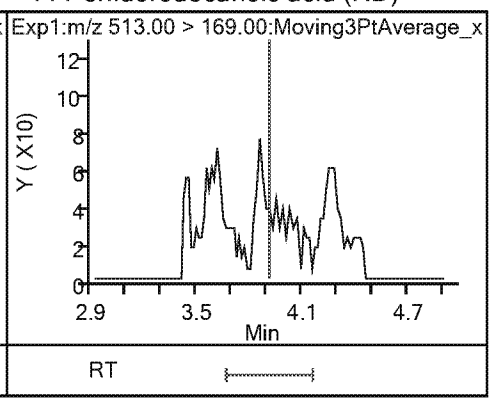
23 9-Chlorohexadecafluoro-3-oxanonane1(ND)



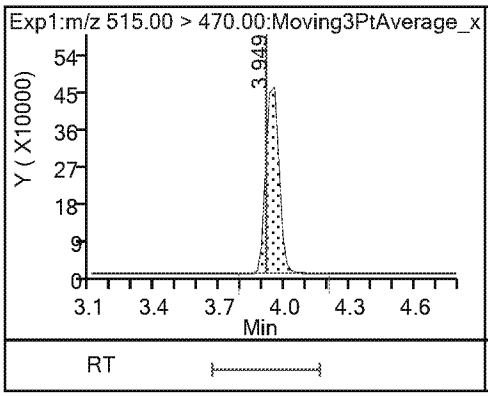
14 Perfluorodecanoic acid (ND)



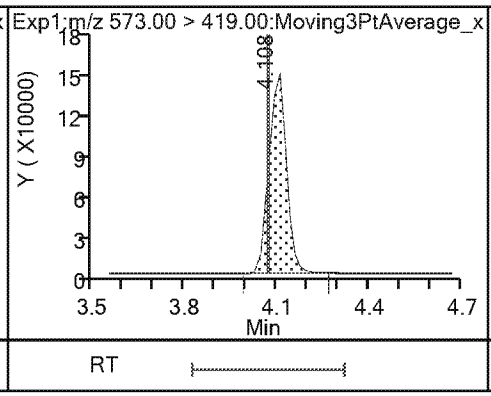
14 Perfluorodecanoic acid (ND)



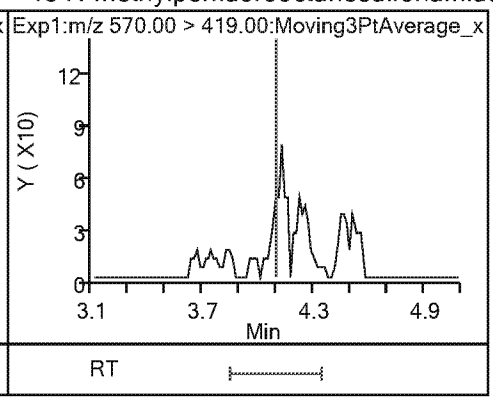
$ 10 13C2 PFDA



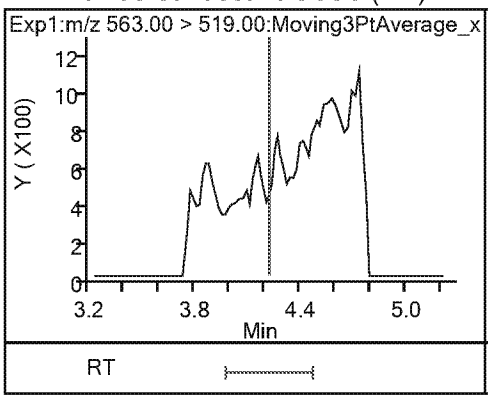
* 12 d3-NMeFOSAA



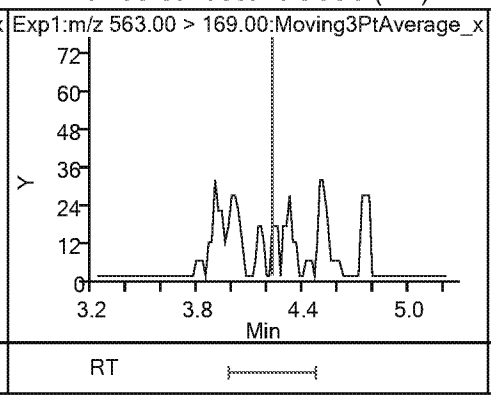
15 N-methylperfluorooctanesulfonamido (ND)



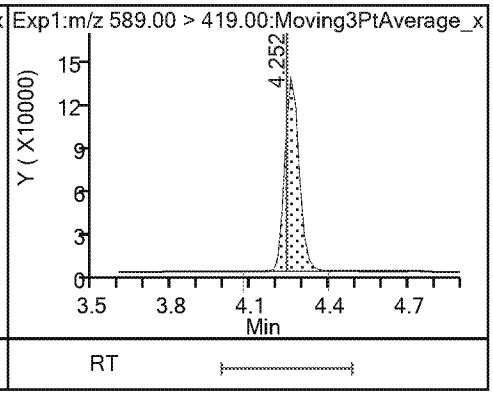
17 Perfluoroundecanoic acid (ND)



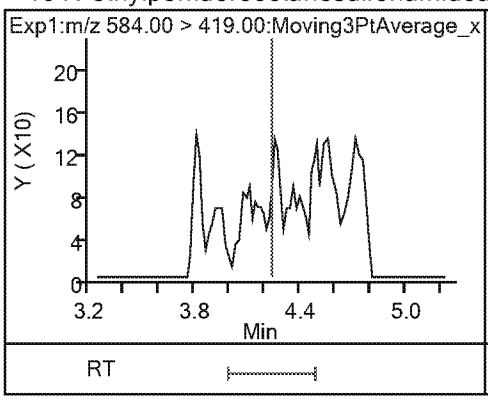
17 Perfluoroundecanoic acid (ND)



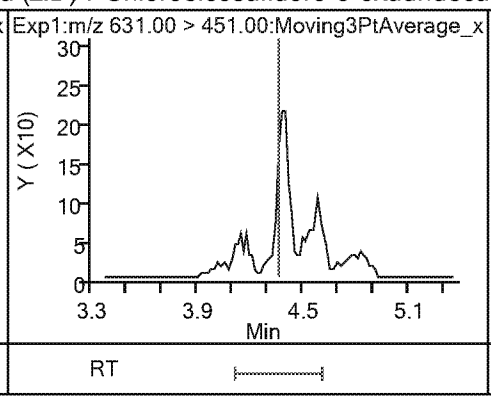
$ 11 d5-NEtFOSAA



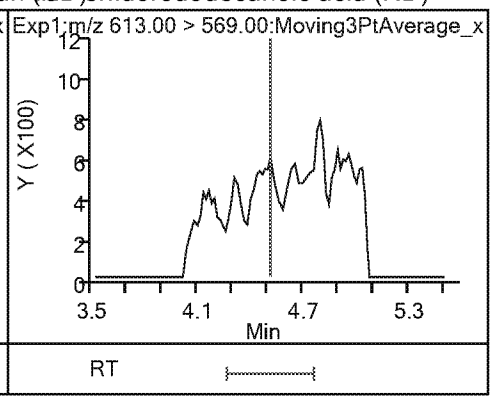
16 N-ethylperfluorooctanesulfonamidoa (ND)



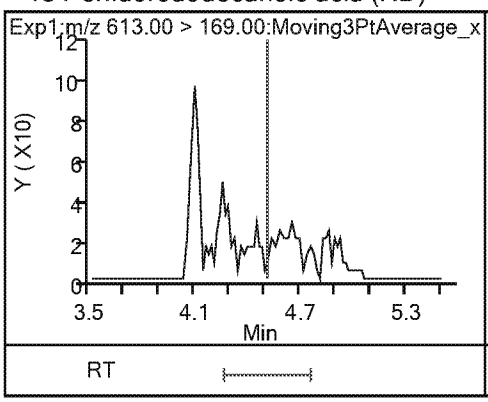
21 11-Chloroeicosafluoro-3-oxaundecan (ND)



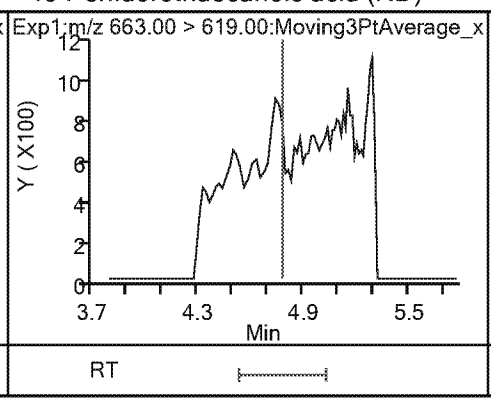
18 Perfluorododecanoic acid (ND)



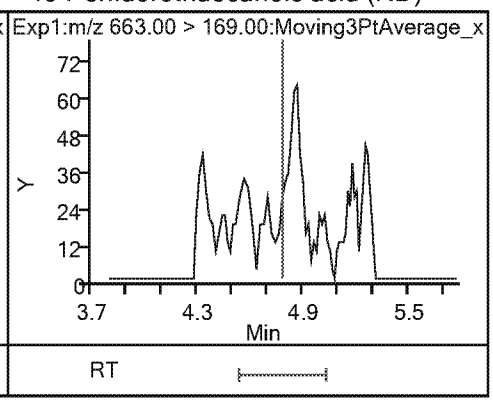
18 Perfluorododecanoic acid (ND)



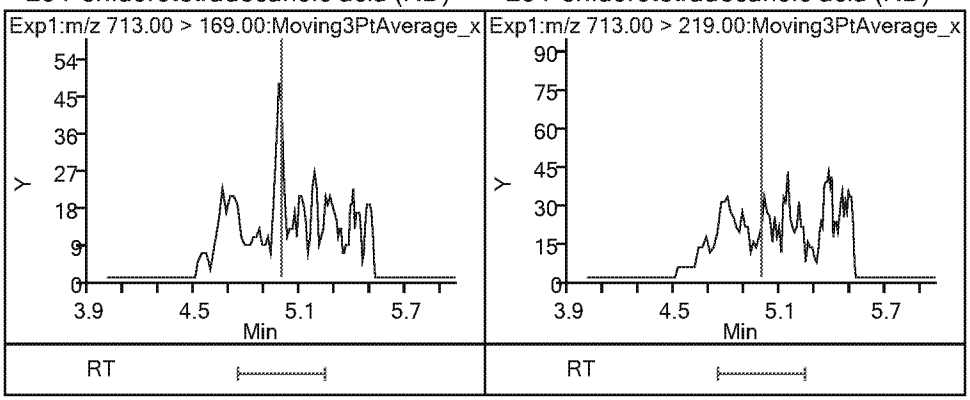
19 Perfluorotridecanoic acid (ND)



19 Perfluorotridecanoic acid (ND)



20 Perfluorotetradecanoic acid (ND) 20 Perfluorotetradecanoic acid (ND)



TestAmerica Sacramento
Recovery Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_030.d
Lims ID: 320-48794-A-9-A
Client ID: C0AS5
Sample Type: Client
Inject. Date: 03-Apr-2019 08:28:24 ALS Bottle#: 18 Worklist Smp#: 27
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-48794-A-9-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 11:42:11 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

First Level Reviewer: **Ex. 4 CBI** Date: 03-Apr-2019 11:39:02

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	2.50	2.58	103.12
$ 25 13C3 HFPO-DA	2.50	3.04	121.47
$ 10 13C2 PFDA	2.50	2.71	108.30
$ 11 d5-NEtFOSAA	2.50	2.24	89.56

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: C0AS6
Lab Sample ID: 320-48794-10
Matrix: Water
Lab File ID: 2019.04.02_537A_031.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 15:33
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 272.8(mL)
Date Analyzed: 04/03/2019 08:35
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 285758
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	ND		1.8	0.87
335-67-1	Perfluorooctanoic acid	ND		5.5	2.5
375-95-1	Perfluorononanoic acid	ND		1.8	0.43
355-46-4	Perfluorohexanesulfonic acid	ND		1.8	0.59
375-85-9	Perfluoroheptanoic acid	ND		2.7	1.2
375-73-5	Perfluorobutanesulfonic acid	ND		1.8	0.73

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	98		70-130
STL00996	13C2 PFDA	104		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_031.d
Lims ID: 320-48794-A-10-A
Client ID: C0AS6
Sample Type: Client
Inject. Date: 03-Apr-2019 08:35:52 ALS Bottle#: 19 Worklist Smp#: 28
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-48794-A-10-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 13:07:26 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

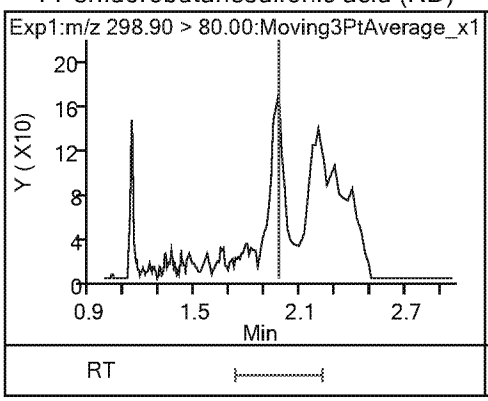
First Level Reviewer: **Ex. 4 CBI** Date: 03-Apr-2019 11:39:18
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	2.322	2.347	-0.025	1.000	3233304	2.46		6471	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.474	2.473	0.001	1.000	179060	3.00		1081	
* 5 13C2 PFOA									
415.00 > 370.00	3.177	3.177	0.0		2836843	2.50		7143	
* 7 13C4 PFOS									
503.00 > 80.00	3.549	3.549	0.001		2893743	2.39		9156	
$ 10 13C2 PFDA									
515.00 > 470.00	3.930	3.911	0.019	1.000	1825729	2.61		6366	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.086	4.070	0.016		540369	2.50		3819	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.247	4.236	0.011	1.039	503893	2.29		267	

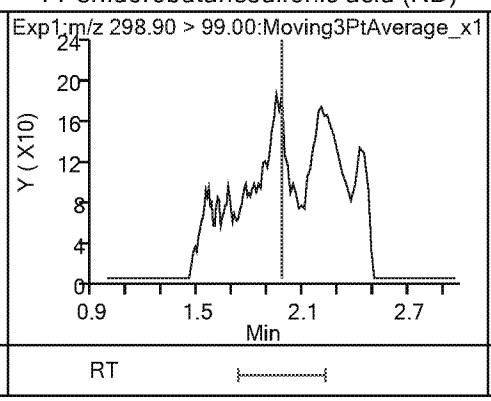
TestAmerica Sacramento

Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_031.d				
Injection Date:	03-Apr-2019 08:35:52	Instrument ID:	A8_N		
Lims ID:	320-48794-A-10-A	Lab Sample ID:	320-48794-10		
Client ID:	C0AS6				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	19	Worklist Smp#:	28
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

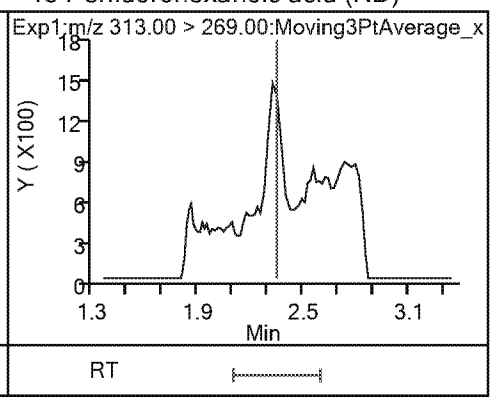
1 Perfluorobutanesulfonic acid (ND)



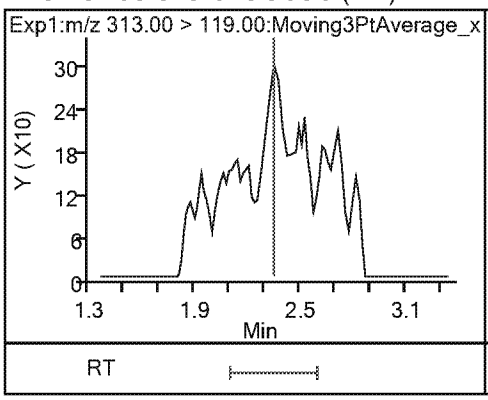
1 Perfluorobutanesulfonic acid (ND)



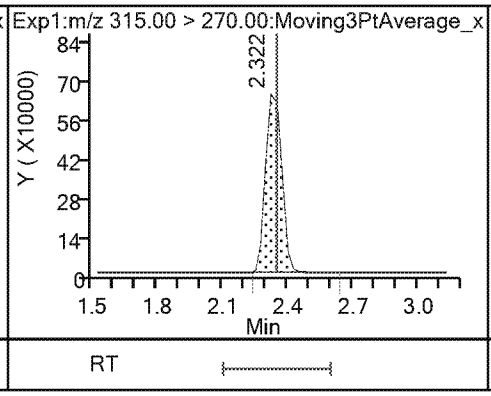
13 Perfluorohexanoic acid (ND)



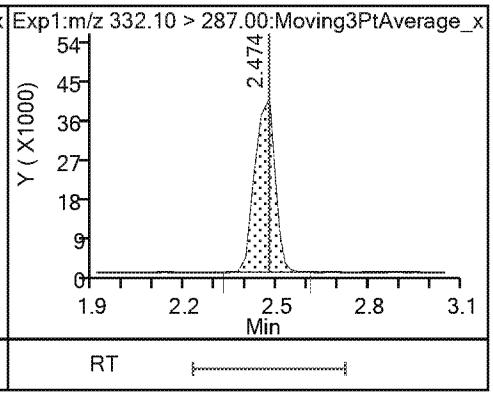
13 Perfluorohexanoic acid (ND)



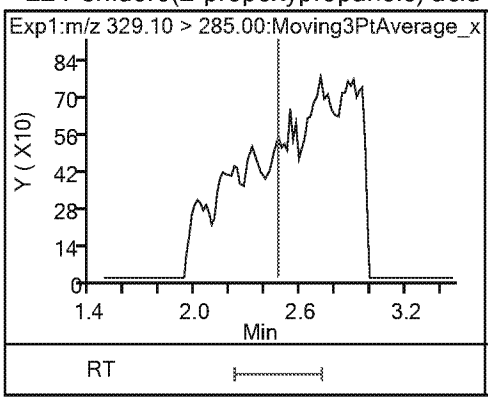
$ 2 13C2 PFHxA



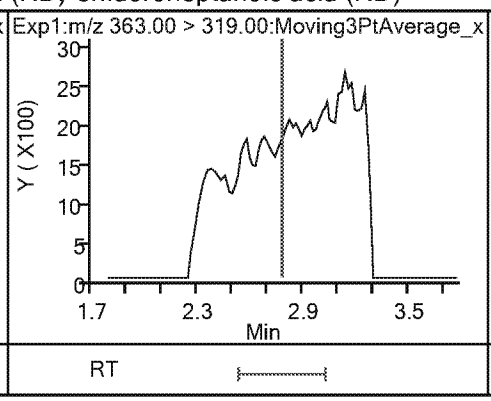
$ 25 13C3 HFPO-DA



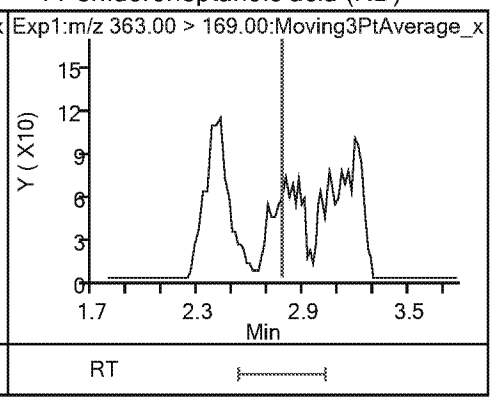
22 Perfluoro(2-propoxypropanoic) acid (ND)



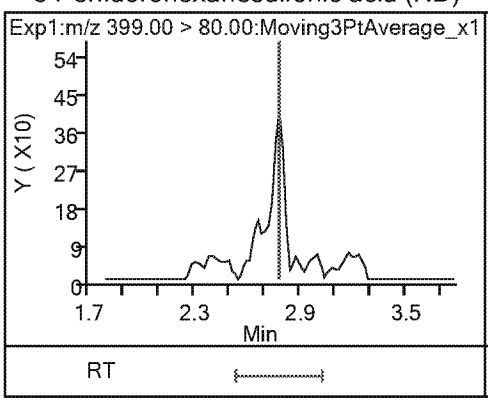
4 Perfluoroheptanoic acid (ND)



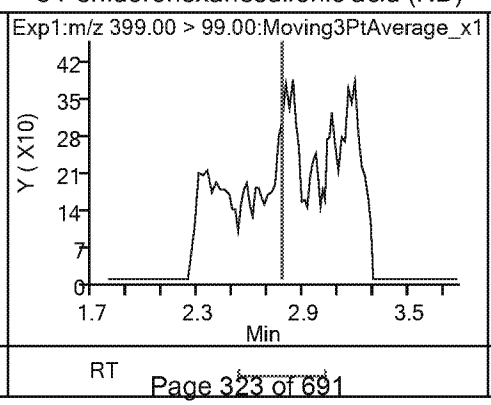
4 Perfluoroheptanoic acid (ND)



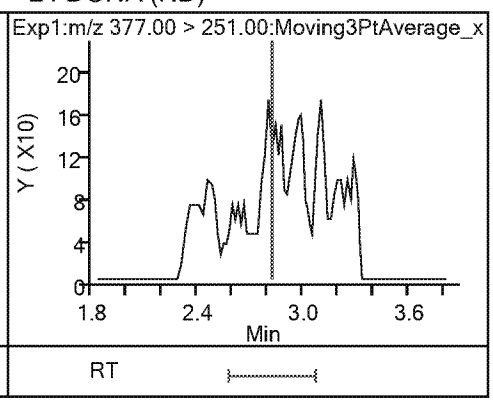
3 Perfluorohexanesulfonic acid (ND)



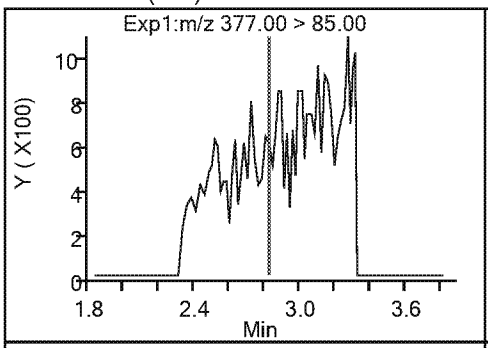
3 Perfluorohexanesulfonic acid (ND)



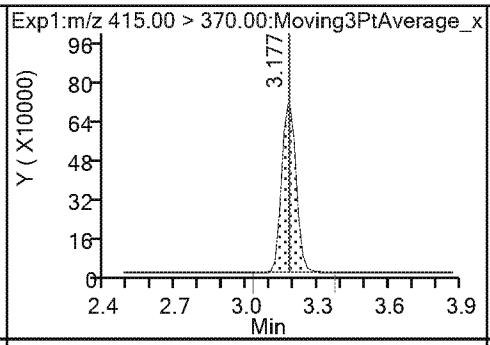
24 DONA (ND)



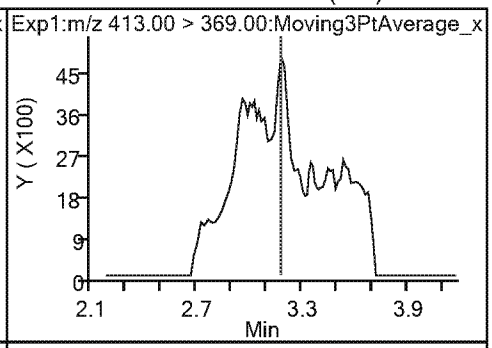
24 DONA (ND)



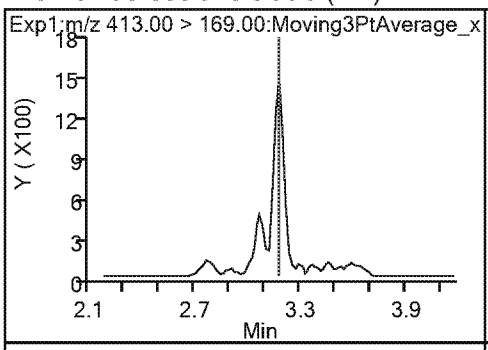
* 5 13C2 PFOA



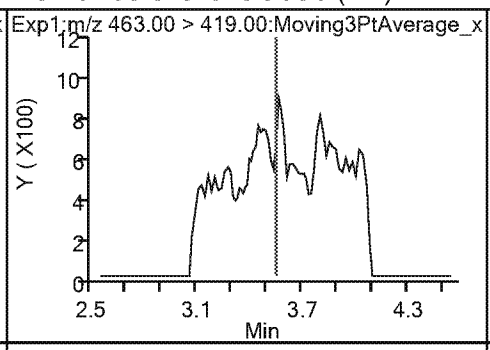
6 Perfluorooctanoic acid (ND)



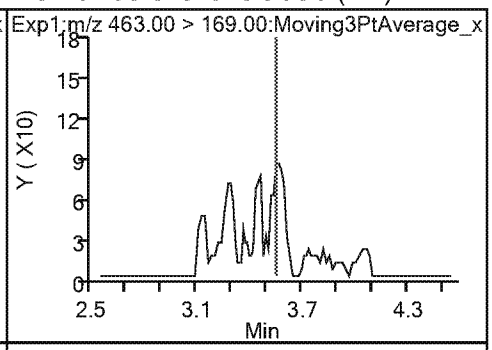
6 Perfluorooctanoic acid (ND)



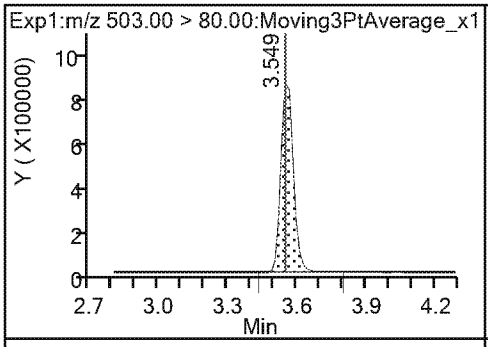
9 Perfluorononanoic acid (ND)



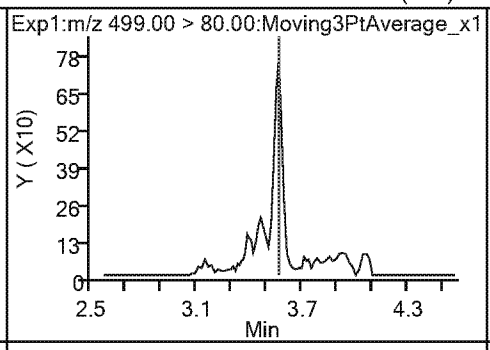
9 Perfluorononanoic acid (ND)



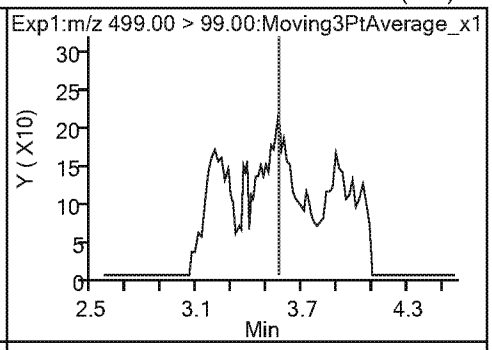
* 7 13C4 PFOS



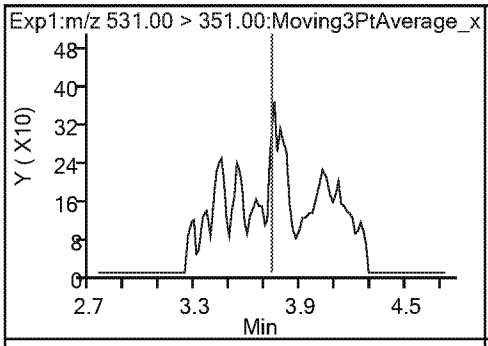
8 Perfluorooctanesulfonic acid (ND)



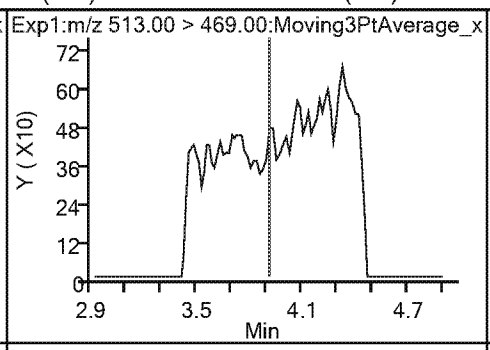
8 Perfluorooctanesulfonic acid (ND)



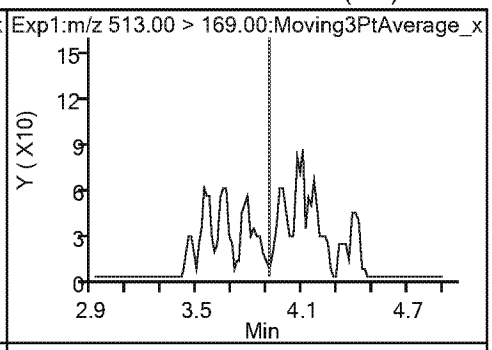
23 9-Chlorohexadecafluoro-3-oxanonane1(ND)



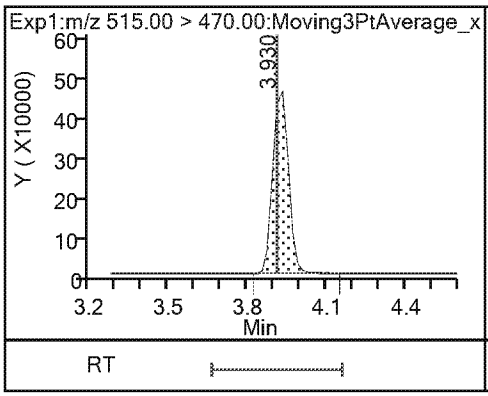
14 Perfluorodecanoic acid (ND)



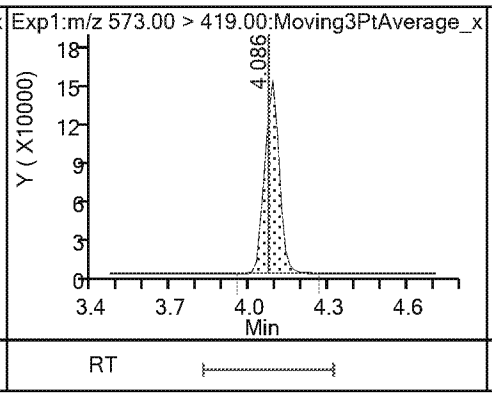
14 Perfluorodecanoic acid (ND)



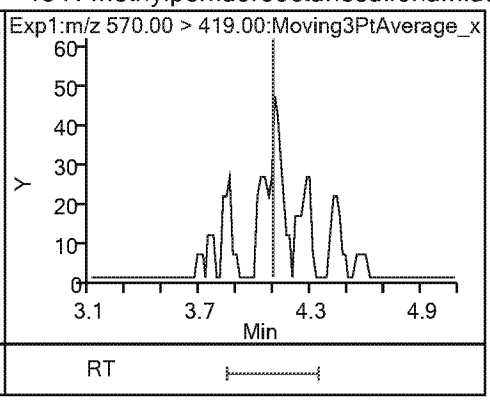
$ 10 13C2 PFDA



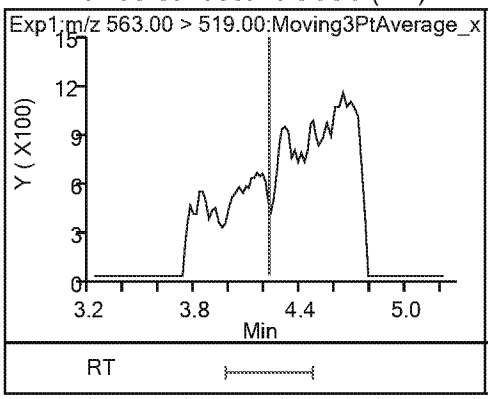
* 12 d3-NMeFOSAA



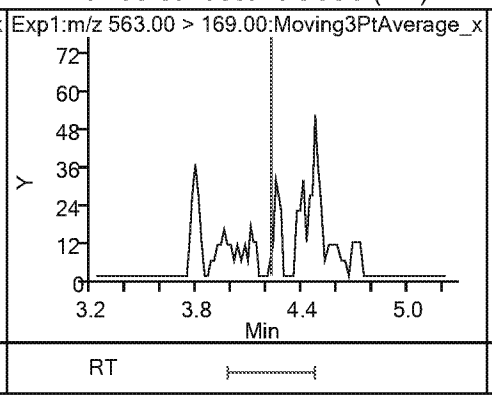
15 N-methylperfluorooctanesulfonamido (ND)



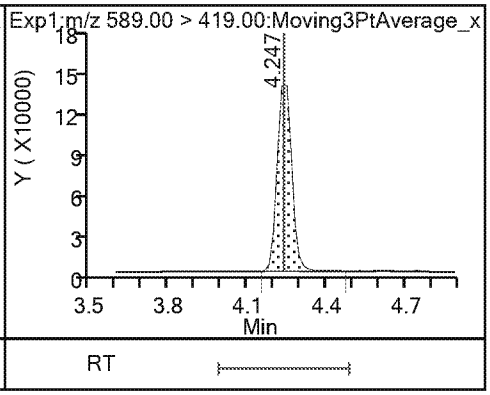
17 Perfluoroundecanoic acid (ND)



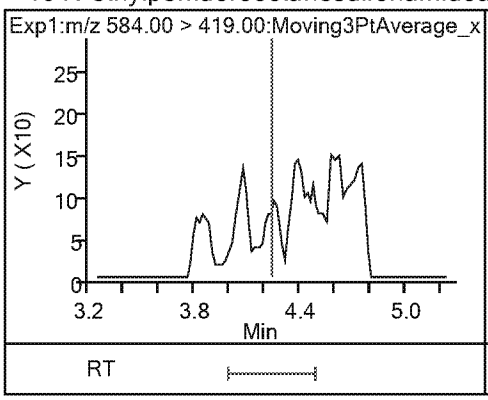
17 Perfluoroundecanoic acid (ND)



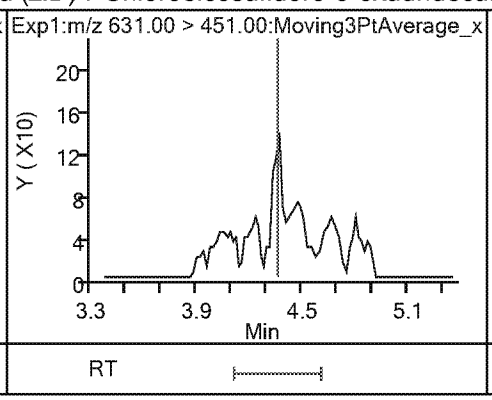
$ 11 d5-NEtFOSAA



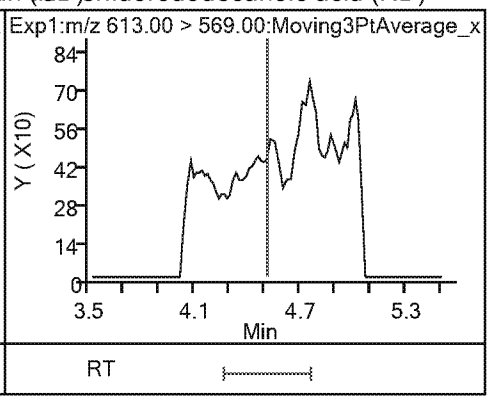
16 N-ethylperfluorooctanesulfonamidoa (ND)



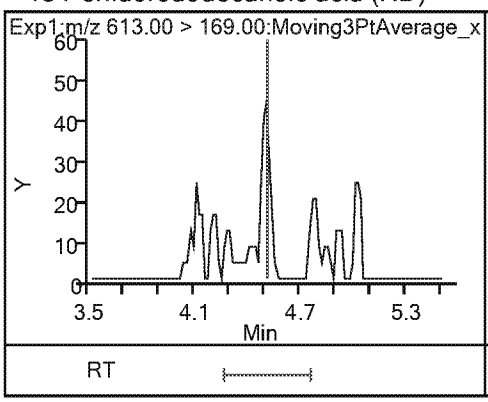
21 11-Chloroeicosafluoro-3-oxaundecan (ND)



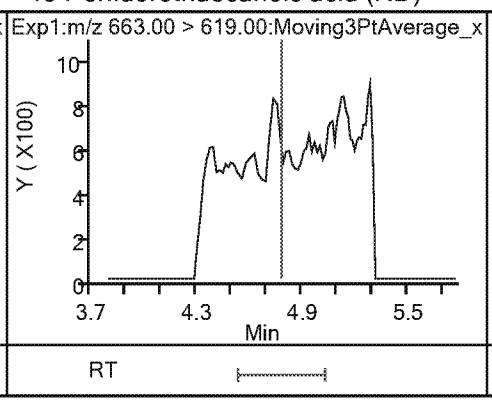
18 Perfluorododecanoic acid (ND)



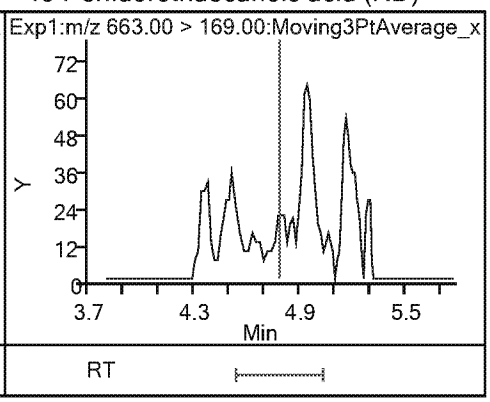
18 Perfluorododecanoic acid (ND)



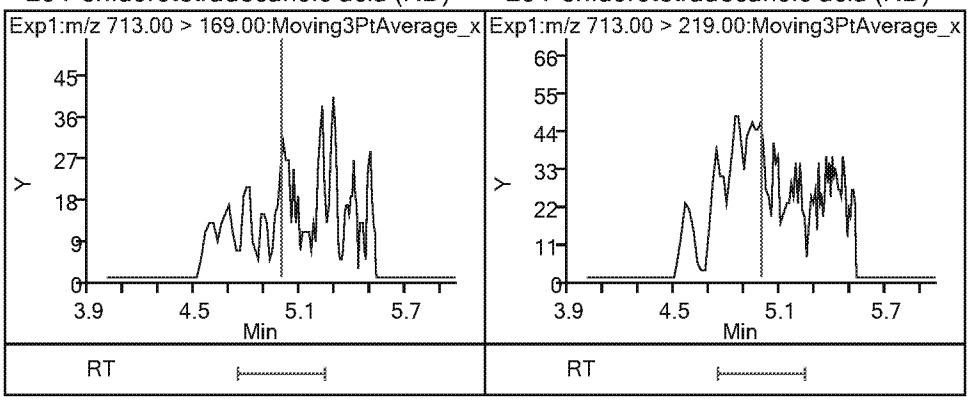
19 Perfluorotridecanoic acid (ND)



19 Perfluorotridecanoic acid (ND)



20 Perfluorotetradecanoic acid (ND) 20 Perfluorotetradecanoic acid (ND)



TestAmerica Sacramento
Recovery Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_031.d
Lims ID: 320-48794-A-10-A
Client ID: C0AS6
Sample Type: Client
Inject. Date: 03-Apr-2019 08:35:52 ALS Bottle#: 19 Worklist Smp#: 28
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-48794-A-10-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 13:07:26 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

First Level Reviewer: **Ex. 4 CBI** Date: 03-Apr-2019 11:39:18

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	2.50	2.46	98.42
$ 25 13C3 HFPO-DA	2.50	3.00	119.84
$ 10 13C2 PFDA	2.50	2.61	104.39
$ 11 d5-NEtFOSAA	2.50	2.29	91.44

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: C0AW5
Lab Sample ID: 320-48794-11
Matrix: Water
Lab File ID: 2019.04.02_537A_032.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 16:50
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 275.1(mL)
Date Analyzed: 04/03/2019 08:43
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 285758
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	ND		1.8	0.86
335-67-1	Perfluorooctanoic acid	ND		5.5	2.5
375-95-1	Perfluorononanoic acid	ND		1.8	0.43
355-46-4	Perfluorohexanesulfonic acid	ND		1.8	0.58
375-85-9	Perfluoroheptanoic acid	ND		2.7	1.2
375-73-5	Perfluorobutanesulfonic acid	ND		1.8	0.73

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	99		70-130
STL00996	13C2 PFDA	106		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_032.d
Lims ID: 320-48794-A-11-A
Client ID: C0AW5
Sample Type: Client
Inject. Date: 03-Apr-2019 08:43:18 ALS Bottle#: 20 Worklist Smp#: 29
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-48794-A-11-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 13:07:26 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

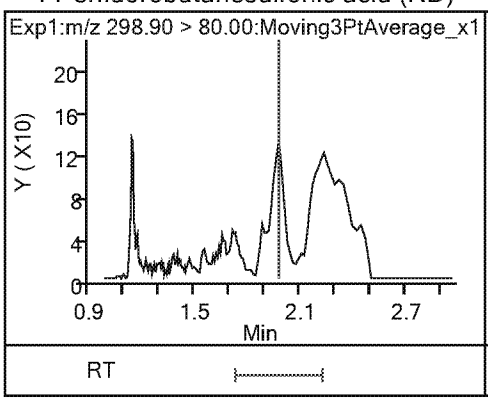
First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 11:39:34
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	2.347	2.347	0.0	1.000	3217418	2.47		5024	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.473	2.473	0.0	1.000	177377	3.00		1324	
* 5 13C2 PFOA									
415.00 > 370.00	3.177	3.177	0.0		2809703	2.50		5697	
* 7 13C4 PFOS									
503.00 > 80.00	3.549	3.549	0.001		2842311	2.39		9915	
$ 10 13C2 PFDA									
515.00 > 470.00	3.914	3.911	0.003	1.000	1833416	2.65		8893	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.073	4.070	0.002		534472	2.50		3615	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.233	4.236	-0.003	1.039	508866	2.33		270	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.351	4.358	-0.007	1.000	1089	0.000430		13.6	

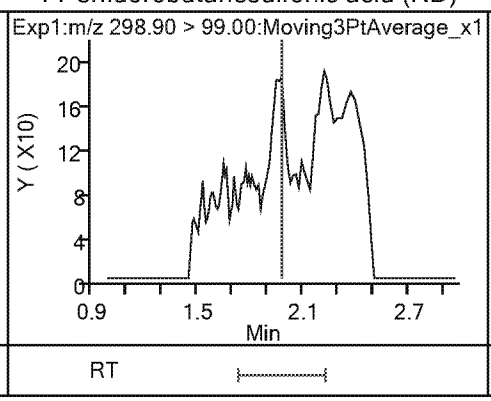
TestAmerica Sacramento

Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_032.d				
Injection Date:	03-Apr-2019 08:43:18	Instrument ID:	A8_N		
Lims ID:	320-48794-A-11-A	Lab Sample ID:	320-48794-11		
Client ID:	C0AW5				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	20	Worklist Smp#:	29
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

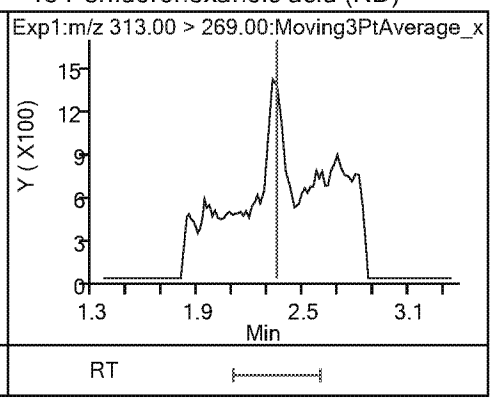
1 Perfluorobutanesulfonic acid (ND)



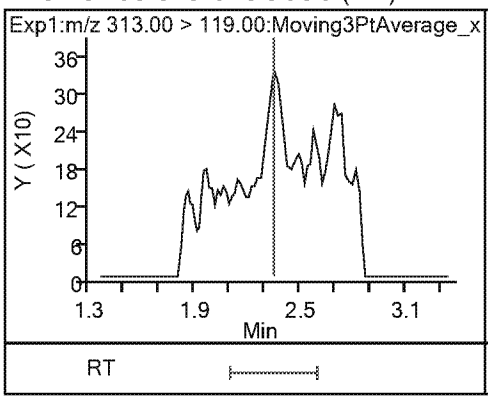
1 Perfluorobutanesulfonic acid (ND)



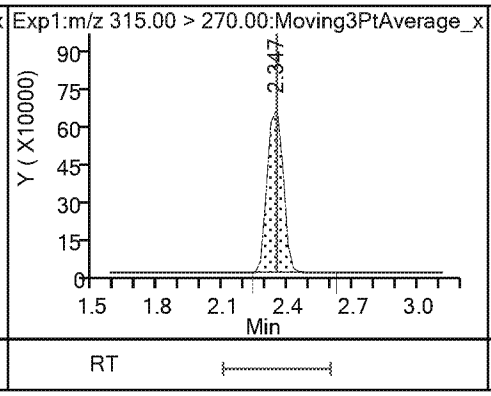
13 Perfluorohexanoic acid (ND)



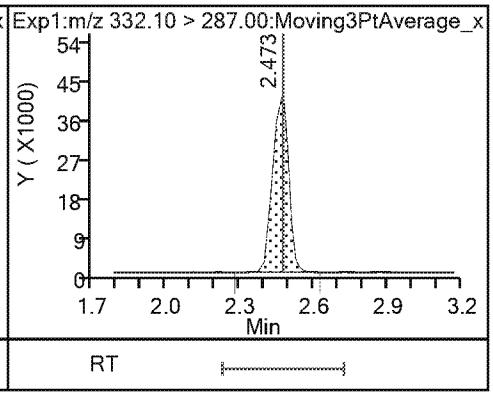
13 Perfluorohexanoic acid (ND)



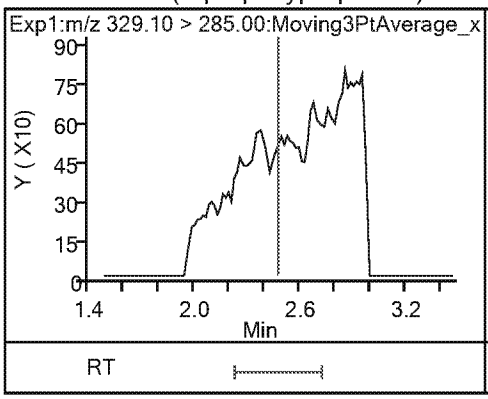
$ 2 13C2 PFHxA



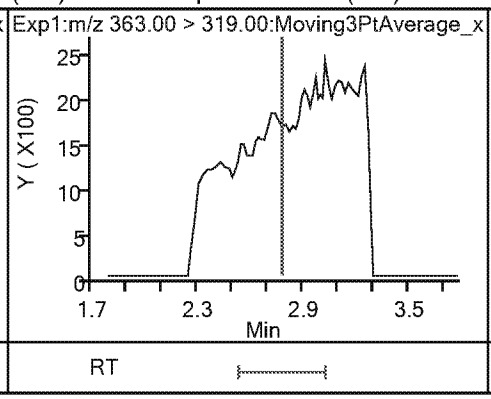
$ 25 13C3 HFPO-DA



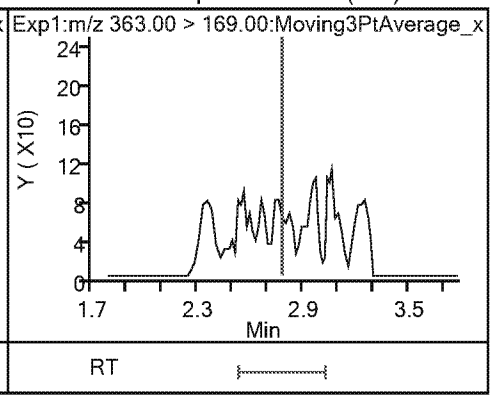
22 Perfluoro(2-propoxypropanoic) acid (ND)



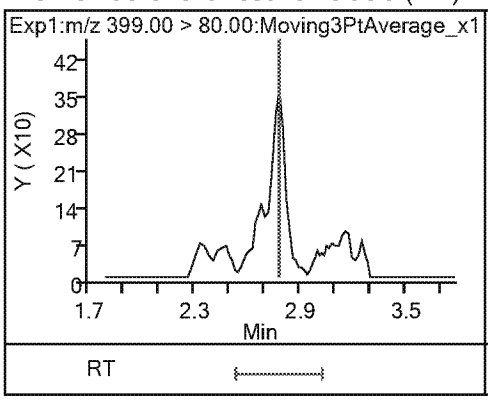
4 Perfluoroheptanoic acid (ND)



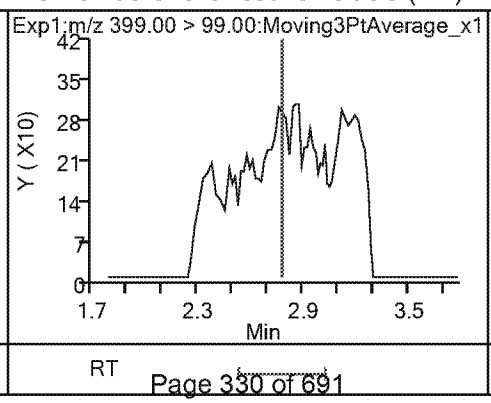
4 Perfluoroheptanoic acid (ND)



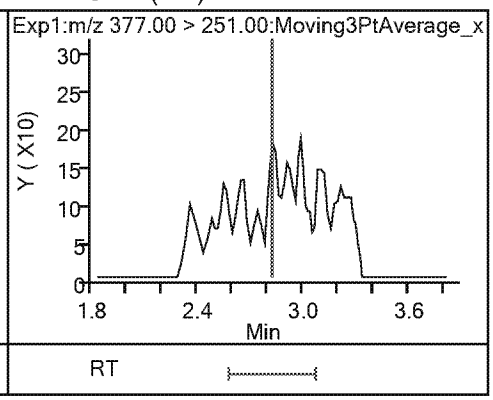
3 Perfluorohexanesulfonic acid (ND)



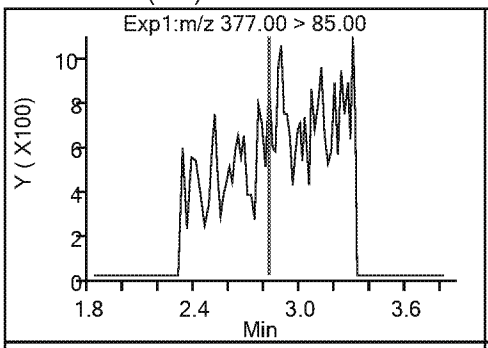
3 Perfluorohexanesulfonic acid (ND)



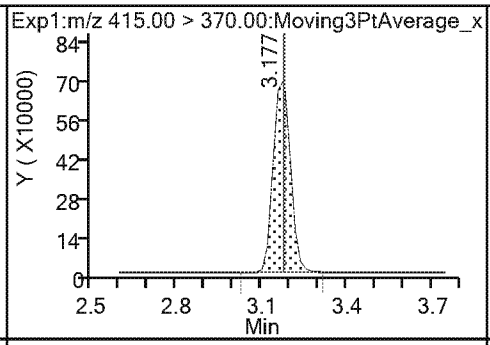
24 DONA (ND)



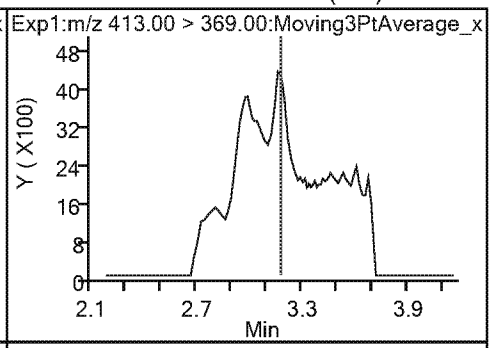
24 DONA (ND)



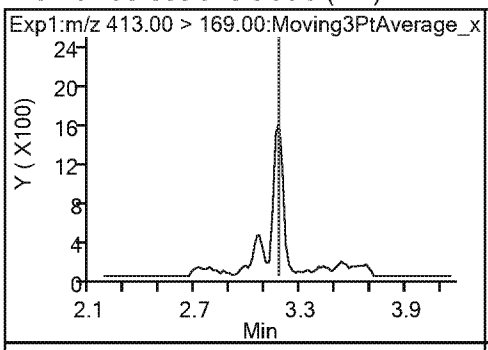
* 5 13C2 PFOA



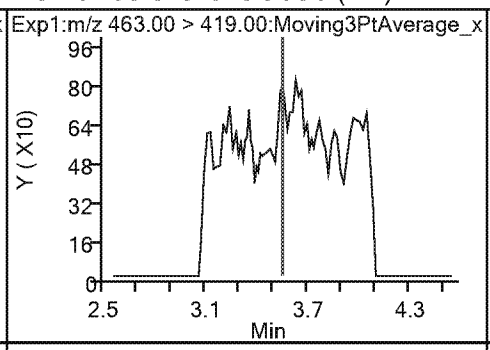
6 Perfluorooctanoic acid (ND)



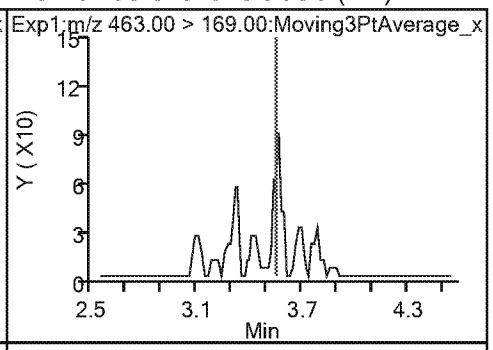
6 Perfluorooctanoic acid (ND)



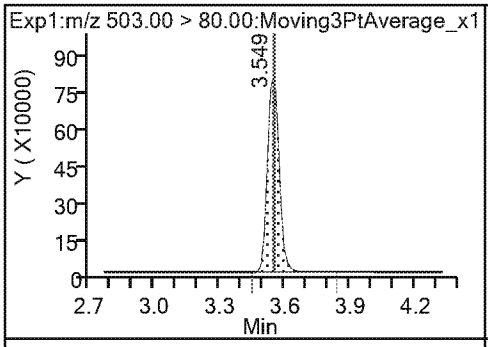
9 Perfluorononanoic acid (ND)



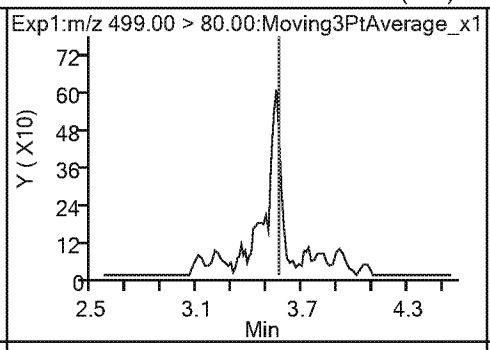
9 Perfluorononanoic acid (ND)



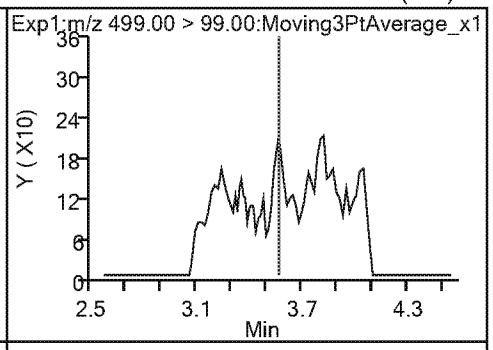
* 7 13C4 PFOS



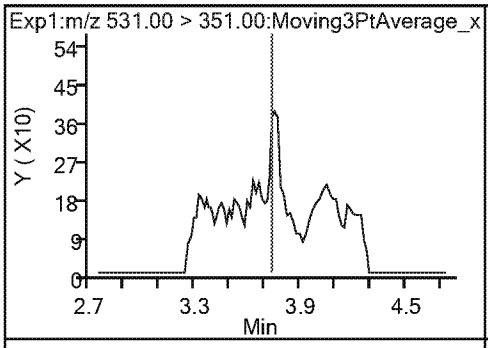
8 Perfluorooctanesulfonic acid (ND)



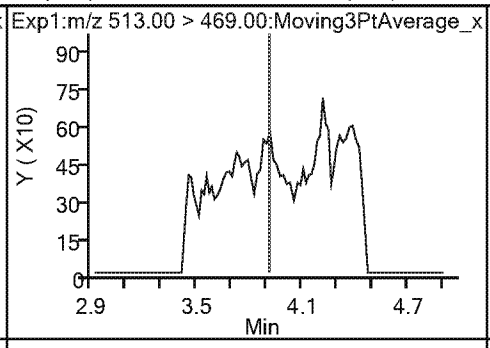
8 Perfluorooctanesulfonic acid (ND)



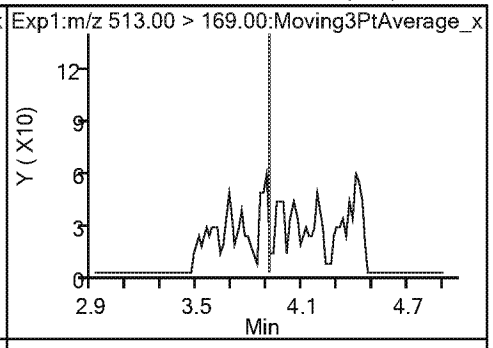
23 9-Chlorohexadecafluoro-3-oxanonane1 (ND)



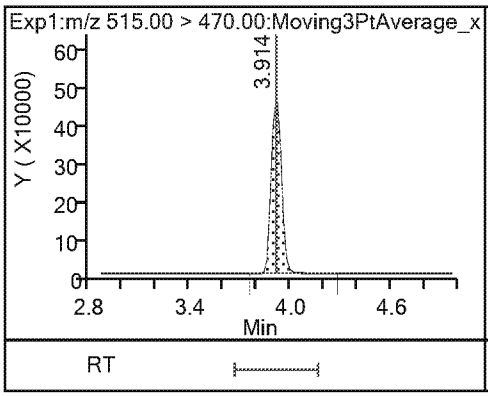
14 Perfluorodecanoic acid (ND)



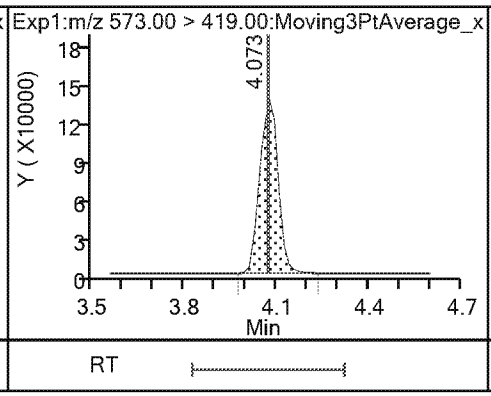
14 Perfluorodecanoic acid (ND)



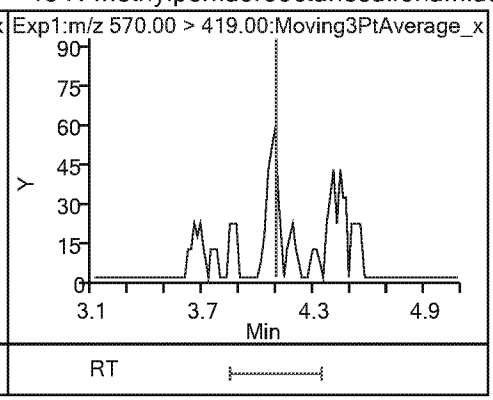
$ 10 13C2 PFDA



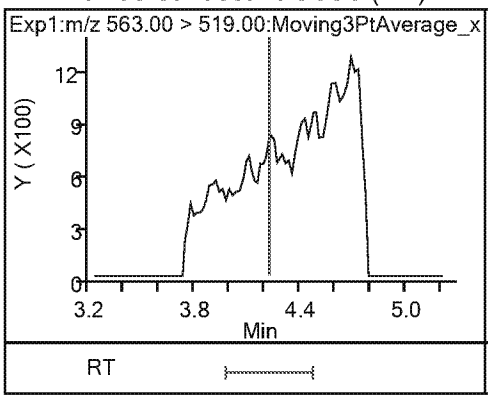
* 12 d3-NMeFOSAA



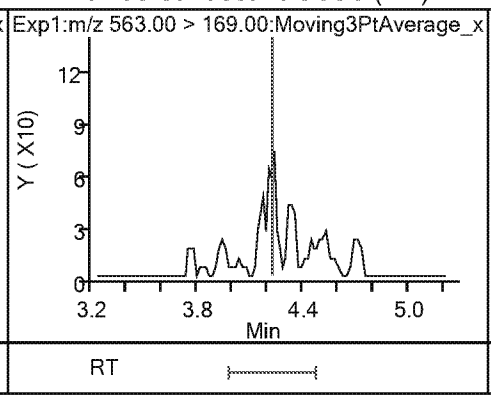
15 N-methylperfluorooctanesulfonamido (ND)



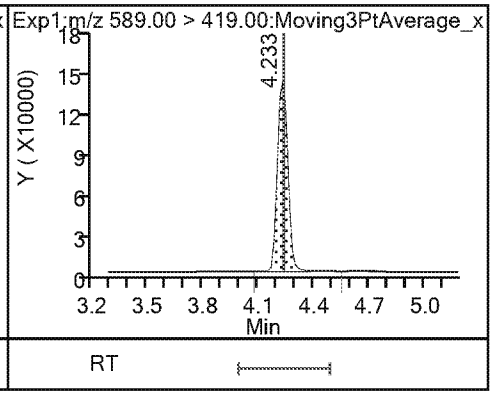
17 Perfluoroundecanoic acid (ND)



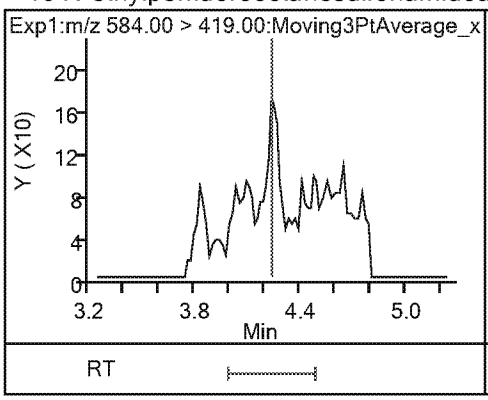
17 Perfluoroundecanoic acid (ND)



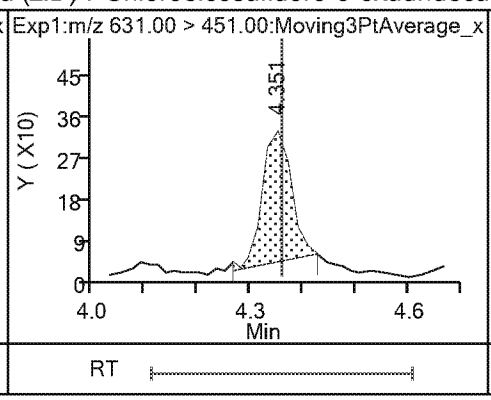
$ 11 d5-NEtFOSAA



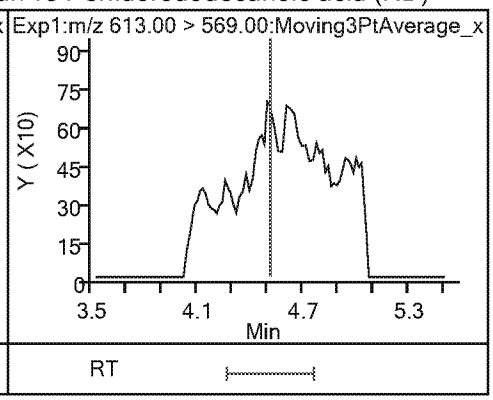
16 N-ethylperfluorooctanesulfonamidoa (ND)



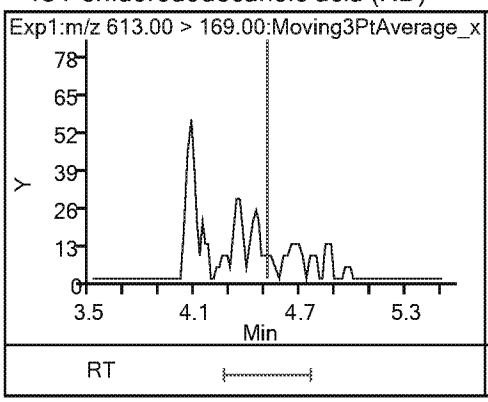
2 (ND) 11-Chloroeicosafluoro-3-oxaundecan



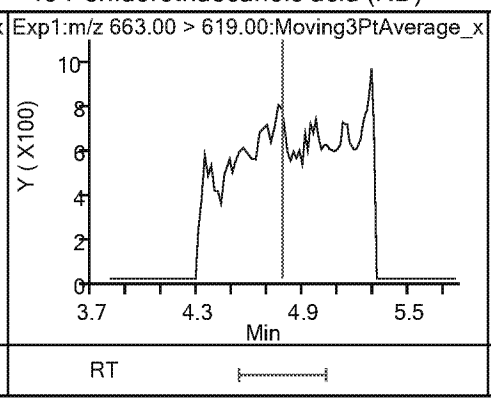
18 Perfluorododecanoic acid (ND)



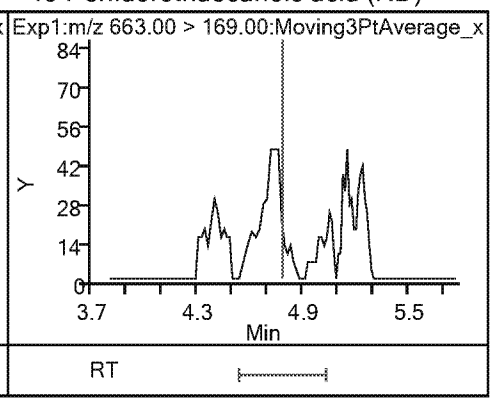
18 Perfluorododecanoic acid (ND)



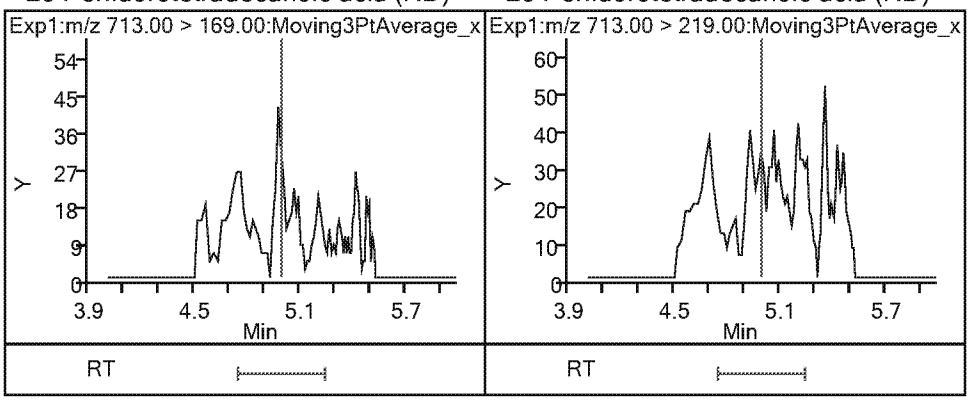
19 Perfluorotridecanoic acid (ND)



19 Perfluorotridecanoic acid (ND)



20 Perfluorotetradecanoic acid (ND) 20 Perfluorotetradecanoic acid (ND)



TestAmerica Sacramento
Recovery Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_032.d
Lims ID: 320-48794-A-11-A
Client ID: C0AW5
Sample Type: Client
Inject. Date: 03-Apr-2019 08:43:18 ALS Bottle#: 20 Worklist Smp#: 29
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-48794-A-11-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 13:07:26 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 11:39:34

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	2.50	2.47	98.89
$ 25 13C3 HFPO-DA	2.50	3.00	119.86
$ 10 13C2 PFDA	2.50	2.65	105.84
$ 11 d5-NEtFOSAA	2.50	2.33	93.36

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: C0AX2
Lab Sample ID: 320-48794-12
Matrix: Water
Lab File ID: 2019.04.02_537A_033.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 10:22
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 273.9(mL)
Date Analyzed: 04/03/2019 08:50
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 285758
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	ND		1.8	0.87
335-67-1	Perfluorooctanoic acid	ND		5.5	2.5
375-95-1	Perfluorononanoic acid	ND		1.8	0.43
355-46-4	Perfluorohexanesulfonic acid	ND		1.8	0.58
375-85-9	Perfluoroheptanoic acid	ND		2.7	1.2
375-73-5	Perfluorobutanesulfonic acid	ND		1.8	0.73

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	100		70-130
STL00996	13C2 PFDA	106		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_033.d
Lims ID: 320-48794-A-12-A
Client ID: C0AX2
Sample Type: Client
Inject. Date: 03-Apr-2019 08:50:44 ALS Bottle#: 21 Worklist Smp#: 30
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-48794-A-12-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 13:07:26 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

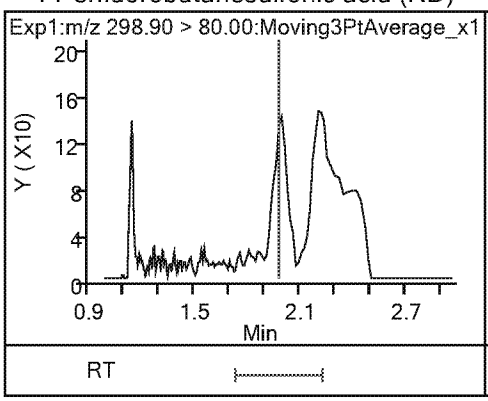
First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 11:39:52
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	2.347	2.347	0.0	1.000	3233383	2.51		6501	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.474	2.473	0.001	1.000	185455	3.16		1335	
* 5 13C2 PFOA									
415.00 > 370.00	3.177	3.177	0.0		2783494	2.50		6929	
* 7 13C4 PFOS									
503.00 > 80.00	3.564	3.549	0.016		2933302	2.39		6580	
$ 10 13C2 PFDA									
515.00 > 470.00	3.933	3.911	0.022	1.000	1815192	2.64		6552	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.089	4.070	0.019		552833	2.50		3741	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.249	4.236	0.013	1.039	520423	2.31		293	

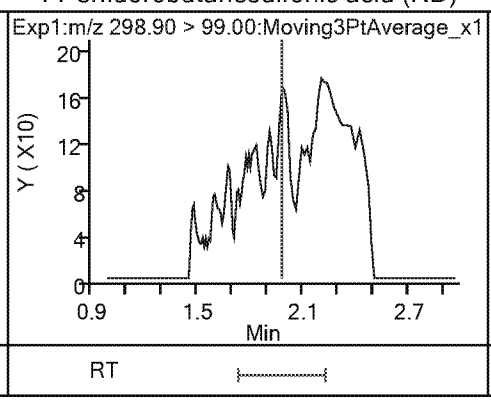
TestAmerica Sacramento

Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_033.d				
Injection Date:	03-Apr-2019 08:50:44	Instrument ID:	A8_N		
Lims ID:	320-48794-A-12-A	Lab Sample ID:	320-48794-12		
Client ID:	C0AX2				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	21	Worklist Smp#:	30
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

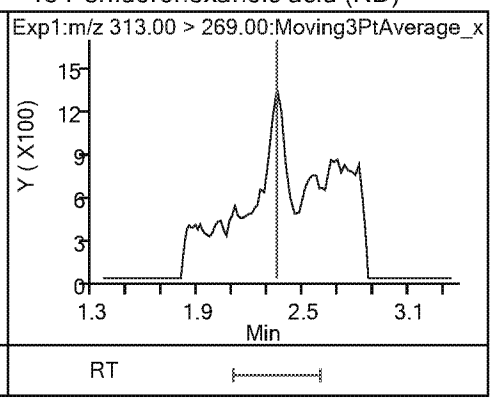
1 Perfluorobutanesulfonic acid (ND)



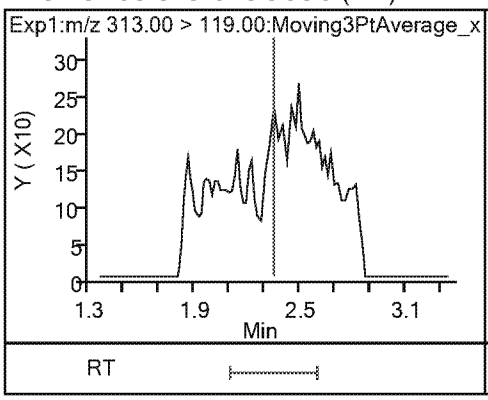
1 Perfluorobutanesulfonic acid (ND)



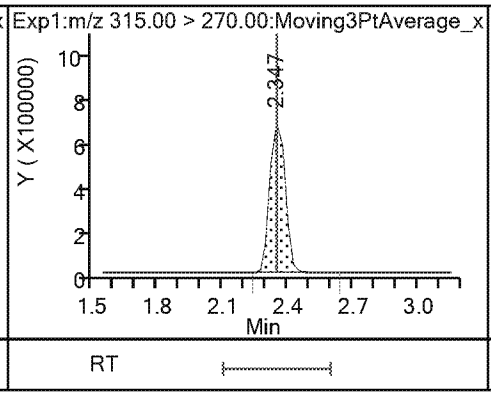
13 Perfluorohexanoic acid (ND)



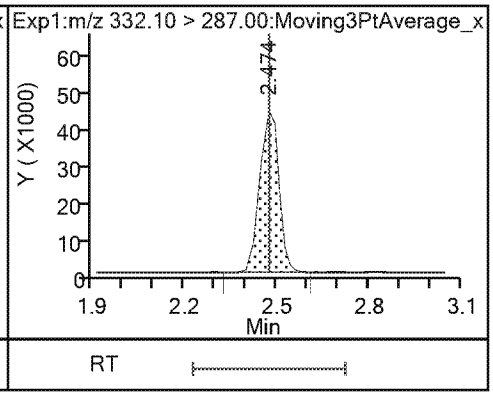
13 Perfluorohexanoic acid (ND)



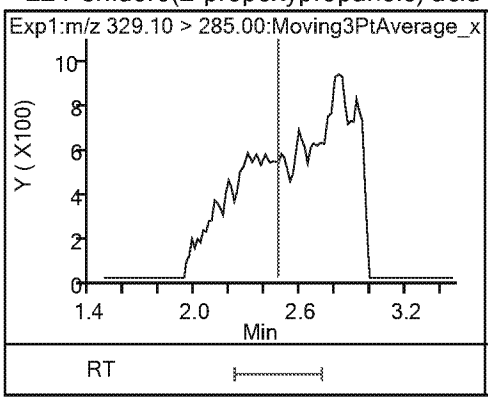
$ 2 13C2 PFHxA



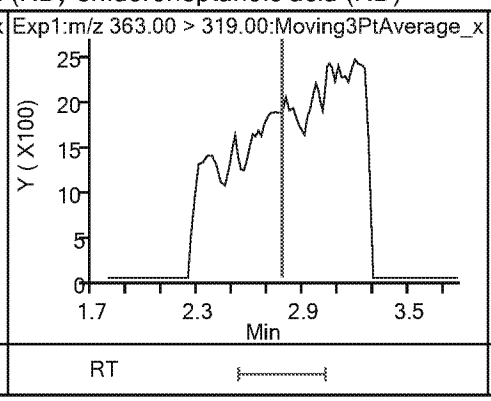
$ 25 13C3 HFPO-DA



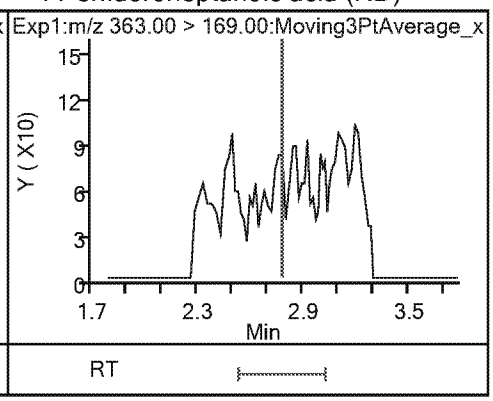
22 Perfluoro(2-propoxypropanoic) acid (ND)



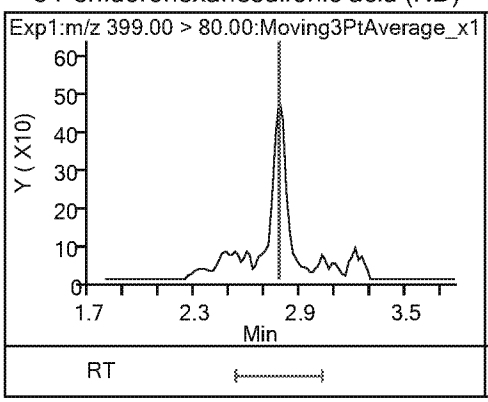
4 Perfluoroheptanoic acid (ND)



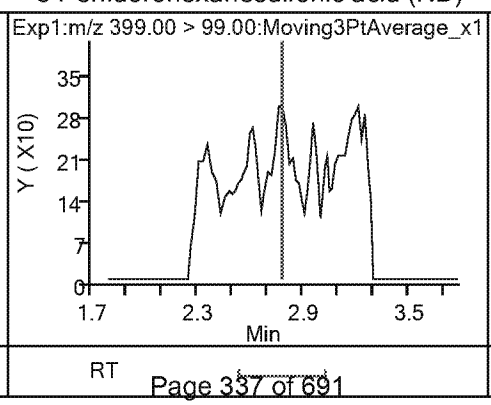
4 Perfluoroheptanoic acid (ND)



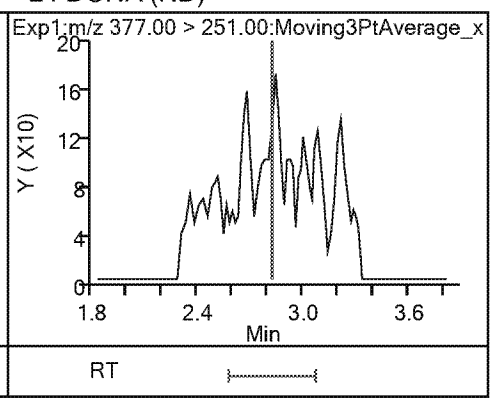
3 Perfluorohexanesulfonic acid (ND)



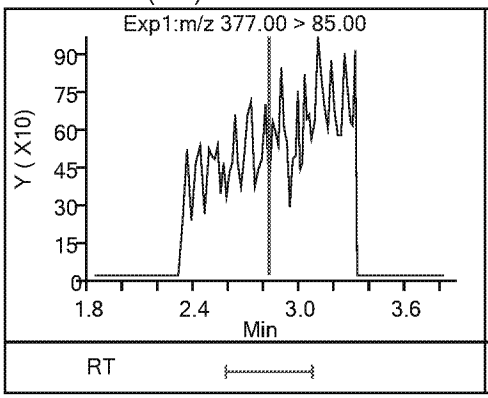
3 Perfluorohexanesulfonic acid (ND)



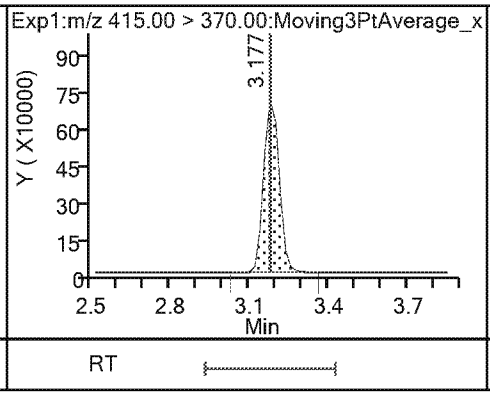
24 DONA (ND)



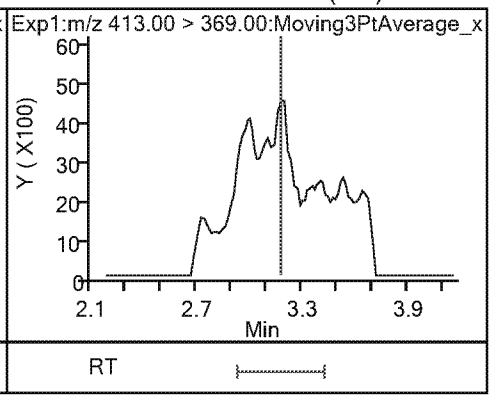
24 DONA (ND)



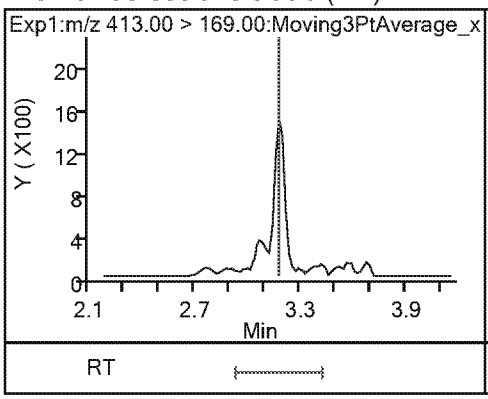
* 5 13C2 PFOA



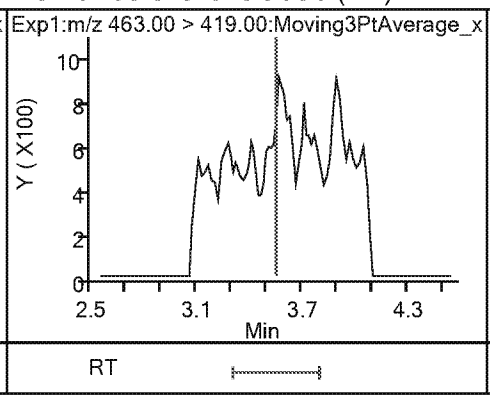
6 Perfluorooctanoic acid (ND)



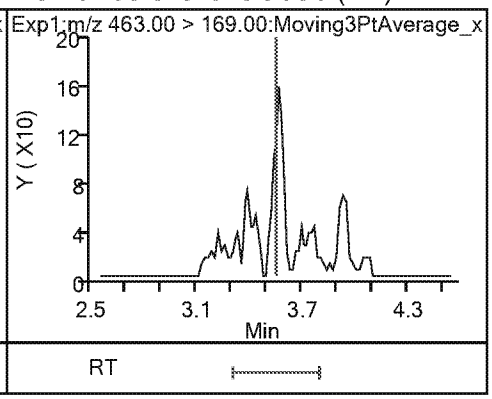
6 Perfluorooctanoic acid (ND)



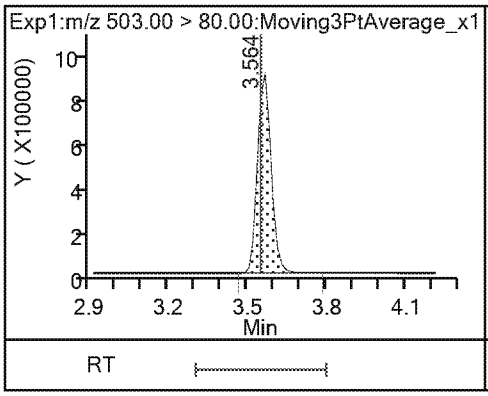
9 Perfluorononanoic acid (ND)



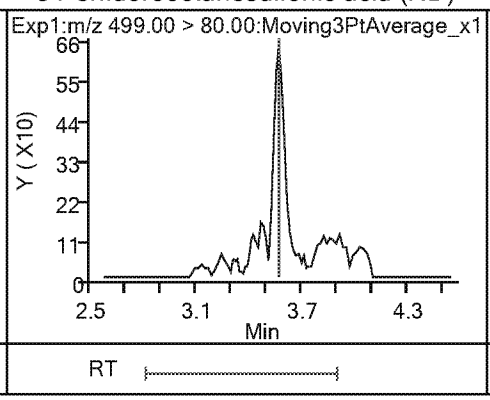
9 Perfluorononanoic acid (ND)



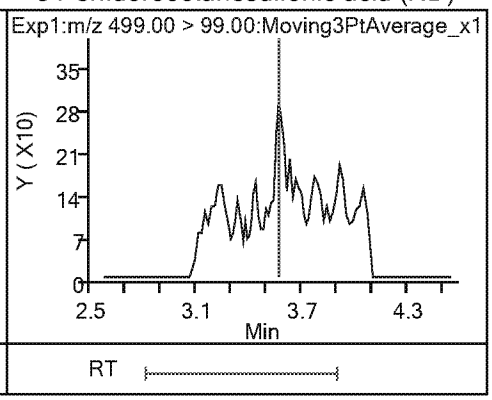
* 7 13C4 PFOS



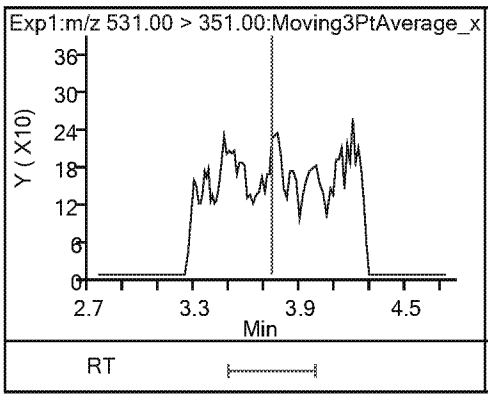
8 Perfluorooctanesulfonic acid (ND)



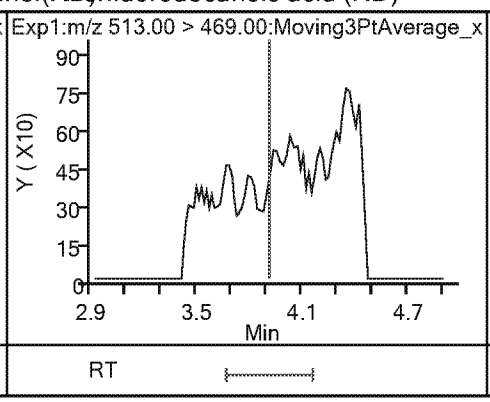
8 Perfluorooctanesulfonic acid (ND)



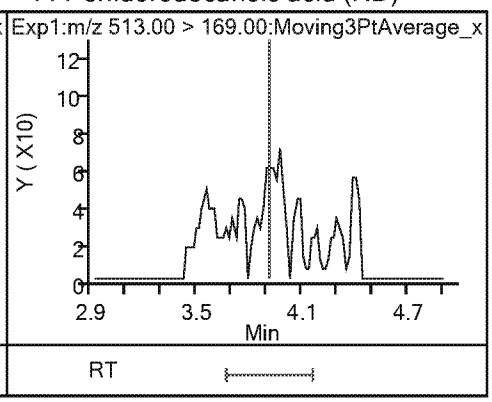
23 9-Chlorohexadecafluoro-3-oxanonane1(ND)



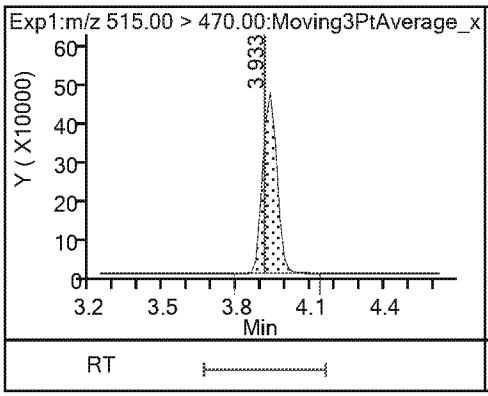
14 Perfluorodecanoic acid (ND)



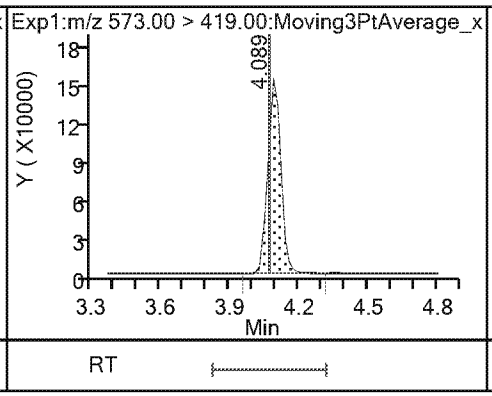
14 Perfluorodecanoic acid (ND)



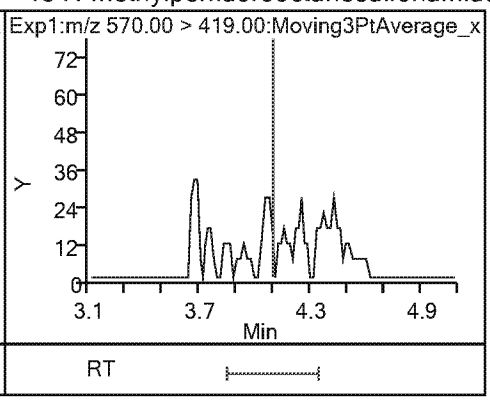
$ 10 13C2 PFDA



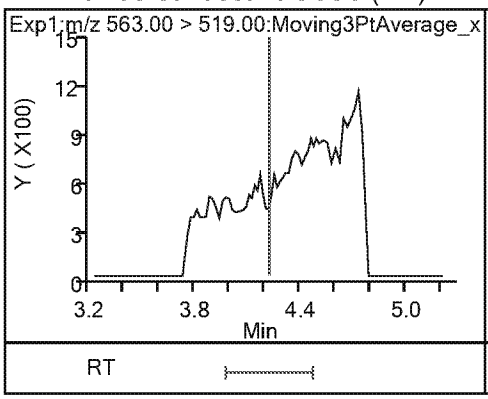
* 12 d3-NMeFOSAA



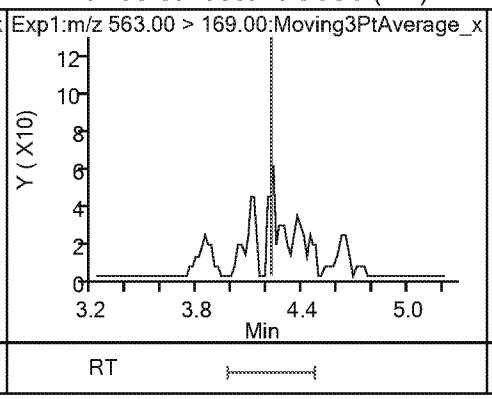
15 N-methylperfluorooctanesulfonamido (ND)



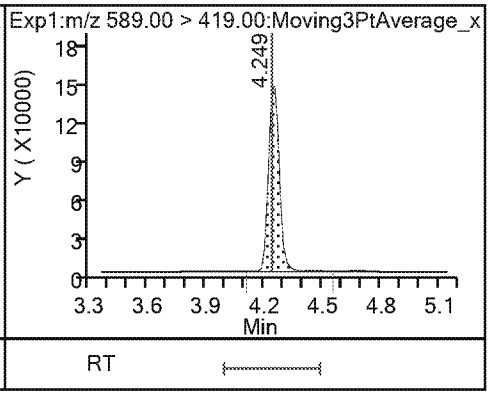
17 Perfluoroundecanoic acid (ND)



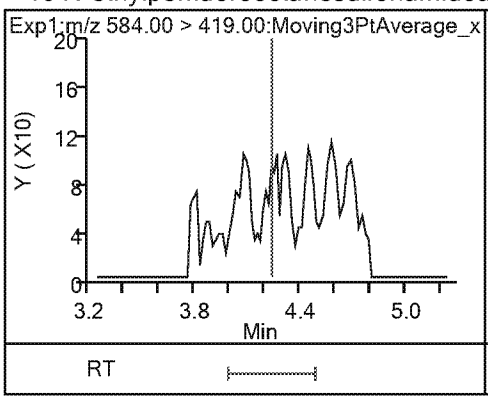
17 Perfluoroundecanoic acid (ND)



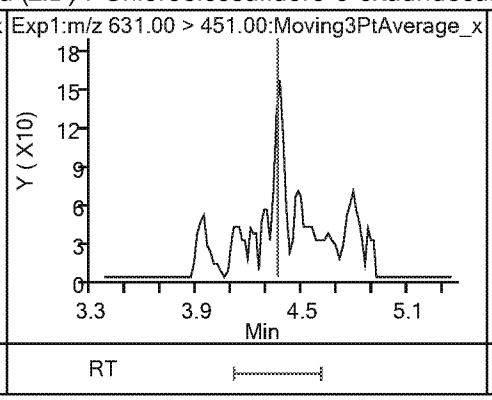
$ 11 d5-NEtFOSAA



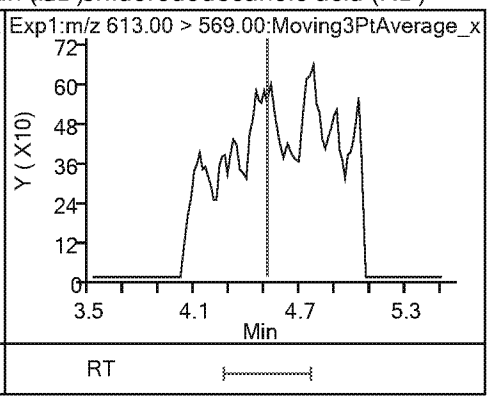
16 N-ethylperfluorooctanesulfonamidoa (ND)



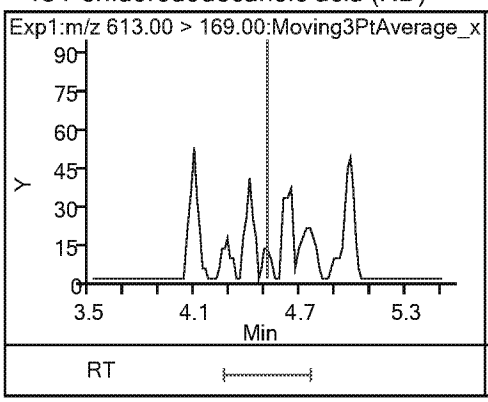
21 11-Chloroeicosafluoro-3-oxaundecan (ND)



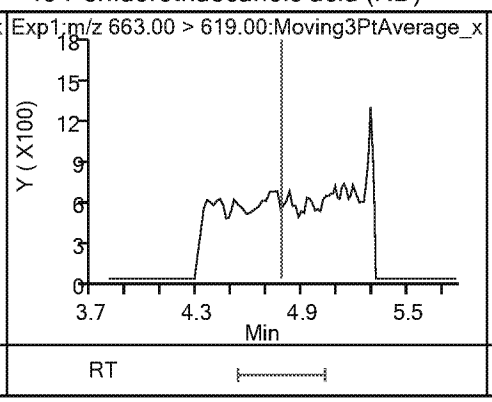
18 Perfluorododecanoic acid (ND)



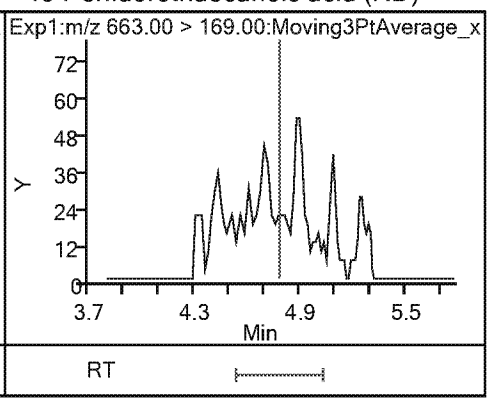
18 Perfluorododecanoic acid (ND)



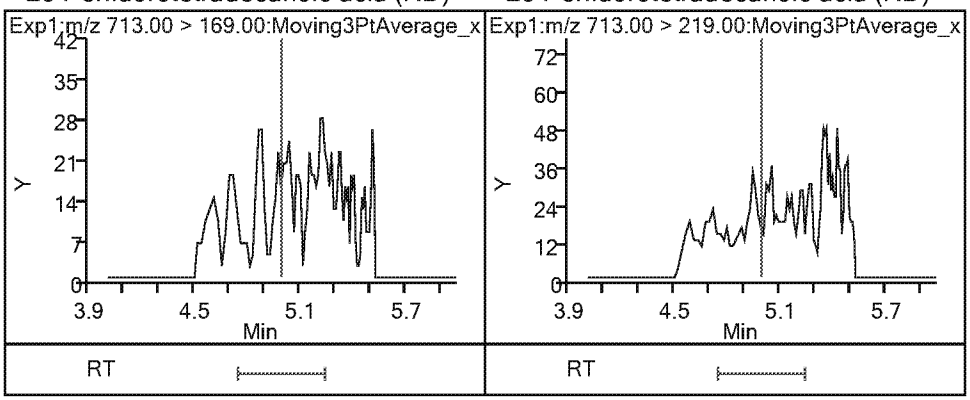
19 Perfluorotridecanoic acid (ND)



19 Perfluorotridecanoic acid (ND)



20 Perfluorotetradecanoic acid (ND) 20 Perfluorotetradecanoic acid (ND)



TestAmerica Sacramento
Recovery Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_033.d
Lims ID: 320-48794-A-12-A
Client ID: C0AX2
Sample Type: Client
Inject. Date: 03-Apr-2019 08:50:44 ALS Bottle#: 21 Worklist Smp#: 30
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-48794-A-12-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 13:07:26 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 11:39:52

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	2.50	2.51	100.31
$ 25 13C3 HFPO-DA	2.50	3.16	126.50
$ 10 13C2 PFDA	2.50	2.64	105.78
$ 11 d5-NEtFOSAA	2.50	2.31	92.31

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: C0AX3
Lab Sample ID: 320-48794-13
Matrix: Water
Lab File ID: 2019.04.02_537A_034.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 10:25
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 279(mL)
Date Analyzed: 04/03/2019 08:58
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 285758
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	ND		1.8	0.85
335-67-1	Perfluorooctanoic acid	ND		5.4	2.4
375-95-1	Perfluorononanoic acid	ND		1.8	0.42
355-46-4	Perfluorohexanesulfonic acid	ND		1.8	0.57
375-85-9	Perfluoroheptanoic acid	ND		2.7	1.2
375-73-5	Perfluorobutanesulfonic acid	ND		1.8	0.72

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	102		70-130
STL00996	13C2 PFDA	109		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_034.d
Lims ID: 320-48794-A-13-A
Client ID: C0AX3
Sample Type: Client
Inject. Date: 03-Apr-2019 08:58:10 ALS Bottle#: 22 Worklist Smp#: 31
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-48794-A-13-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 13:07:26 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

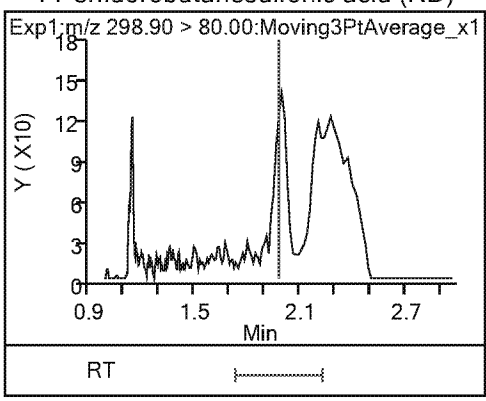
First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 11:40:12
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	2.347	2.347	0.0	1.000	3318675	2.54		7277	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.474	2.473	0.001	1.000	206453	3.47		1185	
* 5 13C2 PFOA									
415.00 > 370.00	3.177	3.177	0.0		2820860	2.50		10646	
* 7 13C4 PFOS									
503.00 > 80.00	3.564	3.549	0.016		2865917	2.39		10147	
$ 10 13C2 PFDA									
515.00 > 470.00	3.930	3.911	0.019	1.000	1893334	2.72		7567	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.102	4.070	0.032		565790	2.50		3284	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.247	4.236	0.011	1.035	524909	2.27		282	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.367	4.358	0.009	1.000	1564	0.000613		12.4	

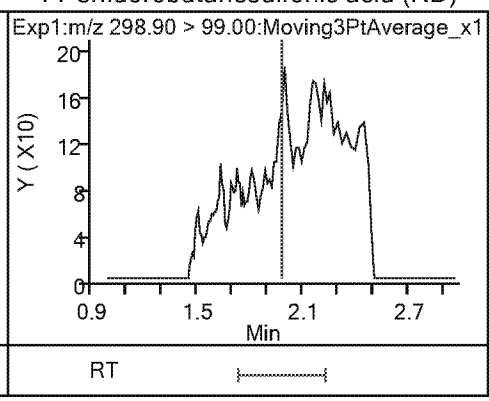
TestAmerica Sacramento

Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_034.d				
Injection Date:	03-Apr-2019 08:58:10	Instrument ID:	A8_N		
Lims ID:	320-48794-A-13-A	Lab Sample ID:	320-48794-13		
Client ID:	C0AX3				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	22	Worklist Smp#:	31
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

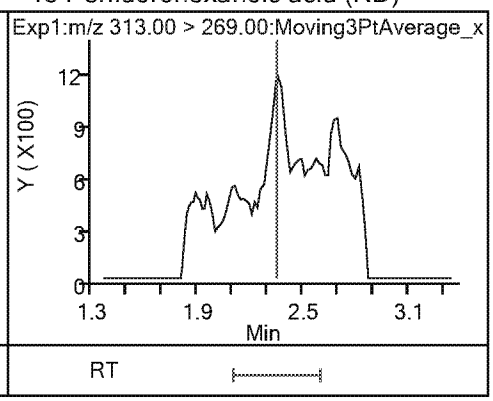
1 Perfluorobutanesulfonic acid (ND)



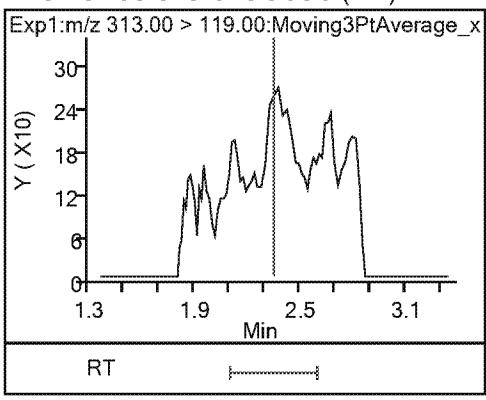
1 Perfluorobutanesulfonic acid (ND)



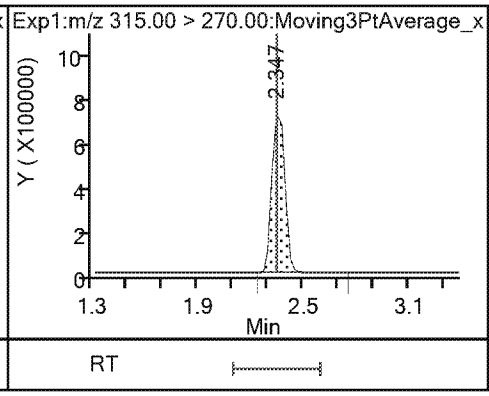
13 Perfluorohexanoic acid (ND)



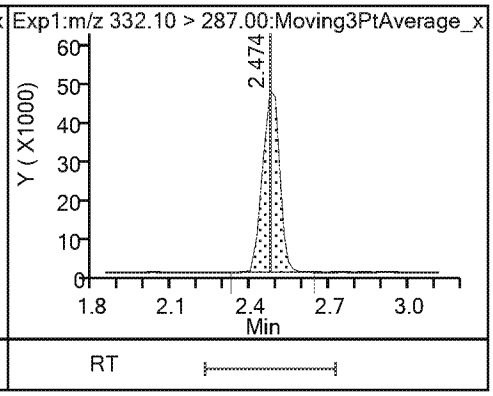
13 Perfluorohexanoic acid (ND)



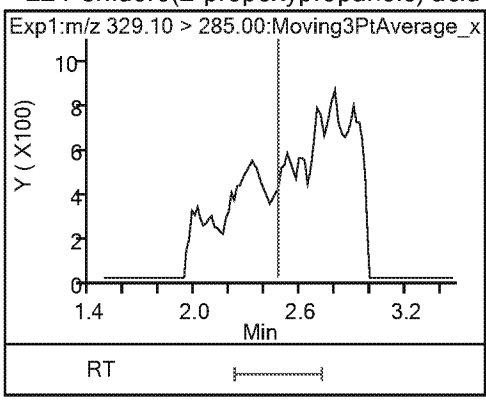
$ 2 13C2 PFHxA



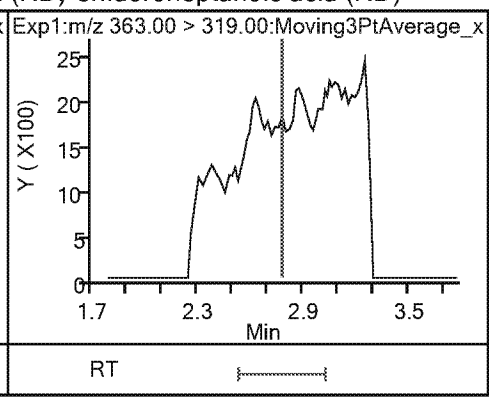
$ 25 13C3 HFPO-DA



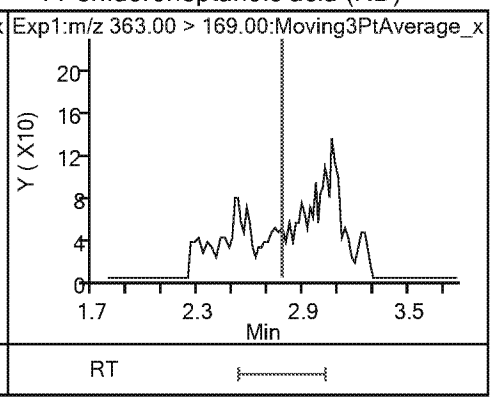
22 Perfluoro(2-propoxypropanoic) acid (ND)



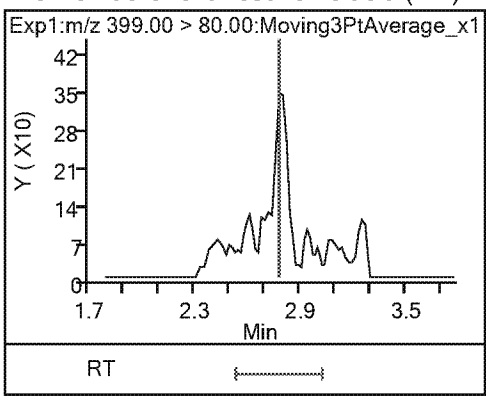
4 Perfluoroheptanoic acid (ND)



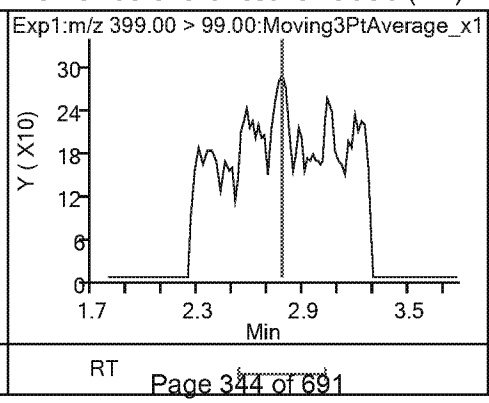
4 Perfluoroheptanoic acid (ND)



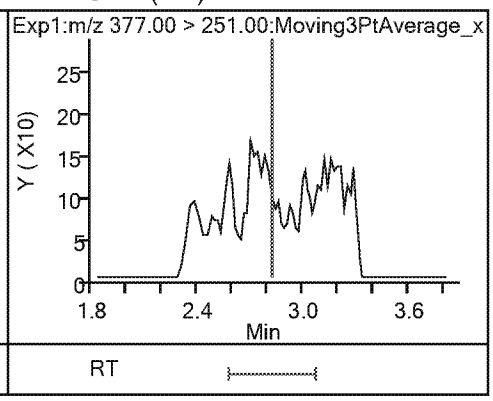
3 Perfluorohexanesulfonic acid (ND)



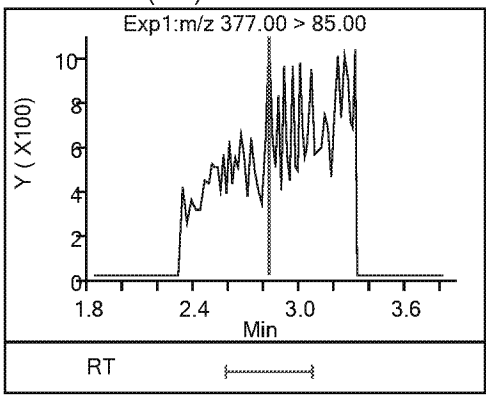
3 Perfluorohexanesulfonic acid (ND)



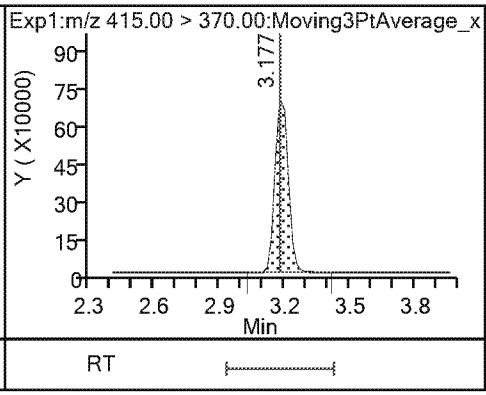
24 DONA (ND)



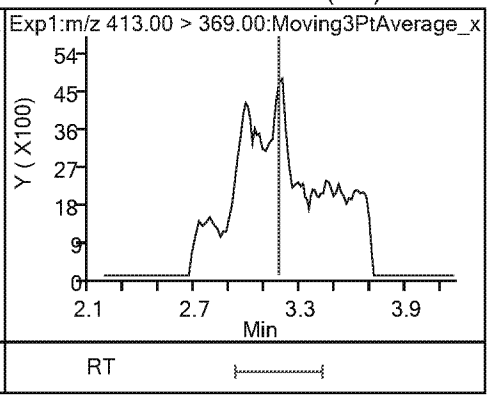
24 DONA (ND)



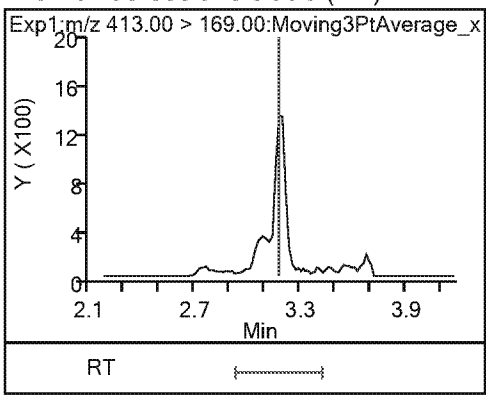
* 5 13C2 PFOA



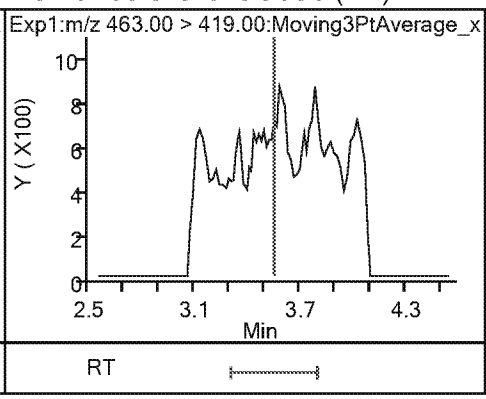
6 Perfluorooctanoic acid (ND)



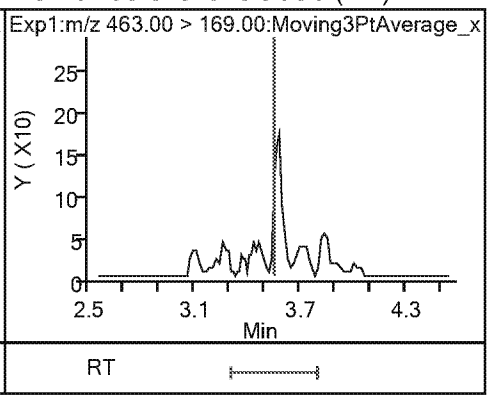
6 Perfluorooctanoic acid (ND)



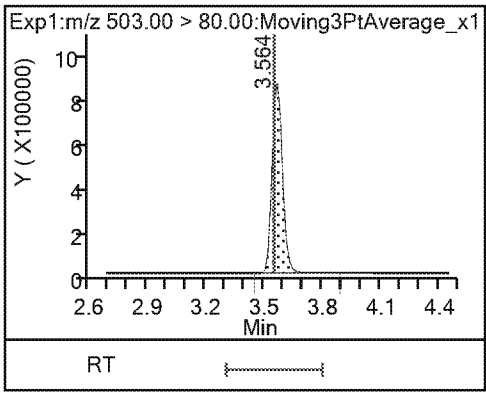
9 Perfluorononanoic acid (ND)



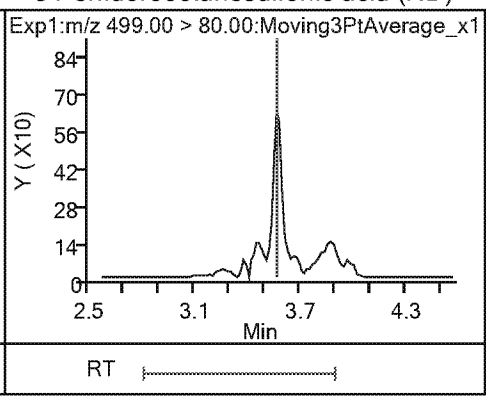
9 Perfluorononanoic acid (ND)



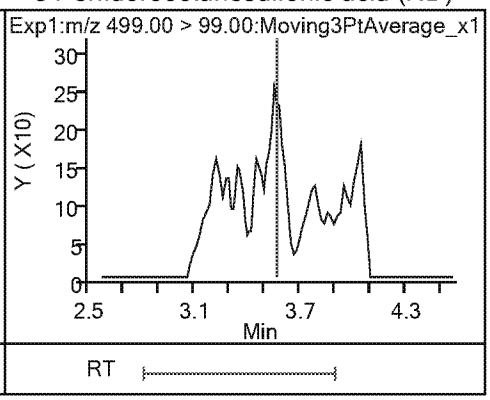
* 7 13C4 PFOS



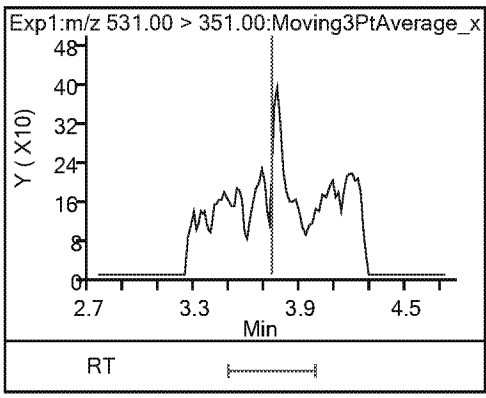
8 Perfluorooctanesulfonic acid (ND)



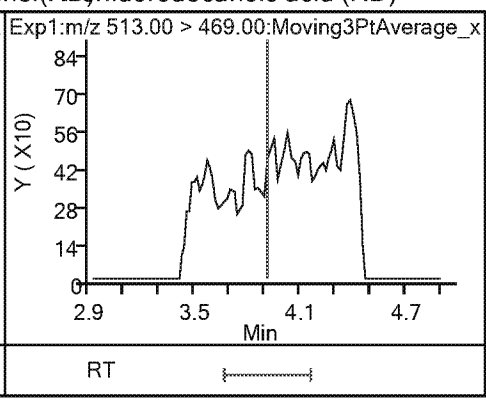
8 Perfluorooctanesulfonic acid (ND)



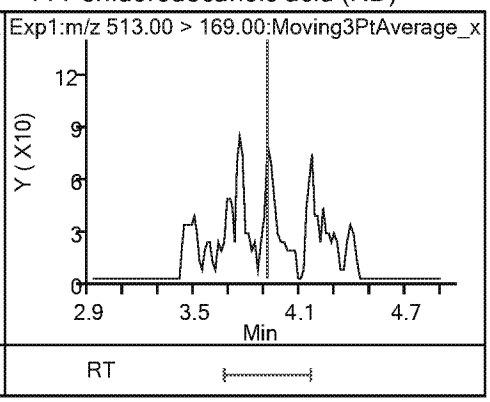
23 9-Chlorohexadecafluoro-3-oxanonane1 (ND)



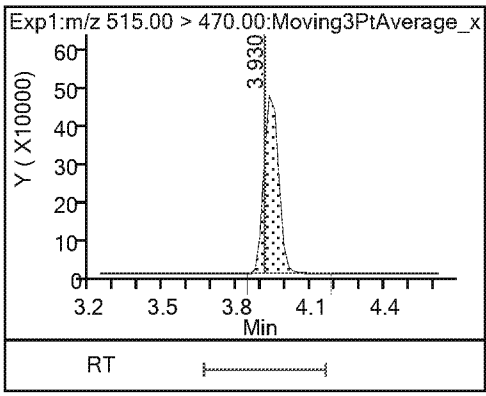
14 Perfluorodecanoic acid (ND)



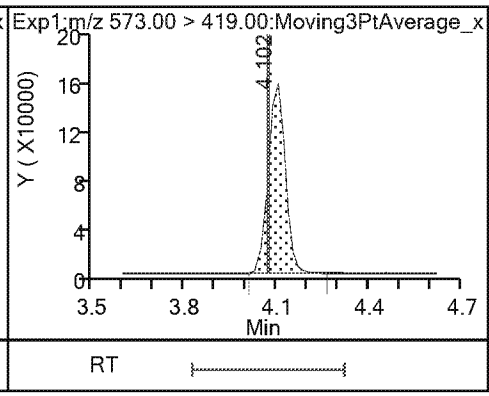
14 Perfluorodecanoic acid (ND)



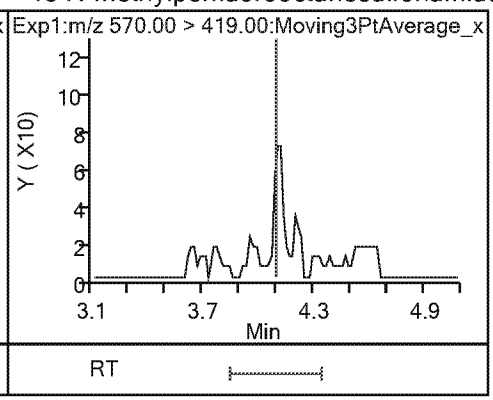
$ 10 13C2 PFDA



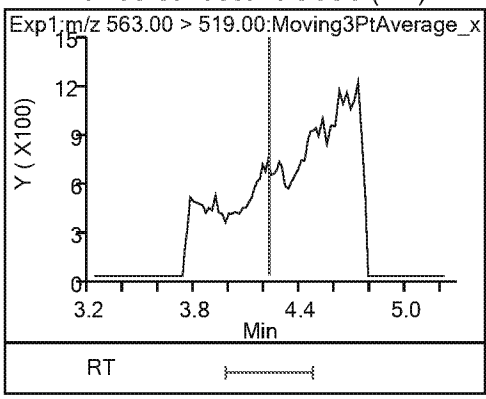
* 12 d3-NMeFOSAA



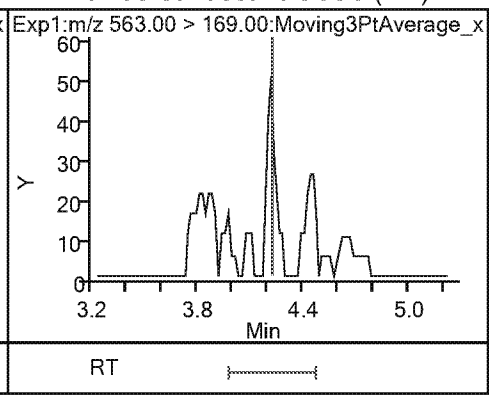
15 N-methylperfluorooctanesulfonamido (ND)



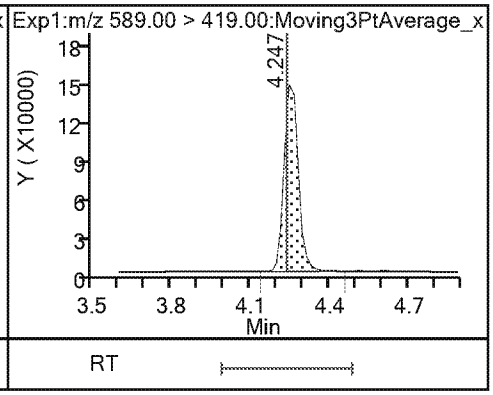
17 Perfluoroundecanoic acid (ND)



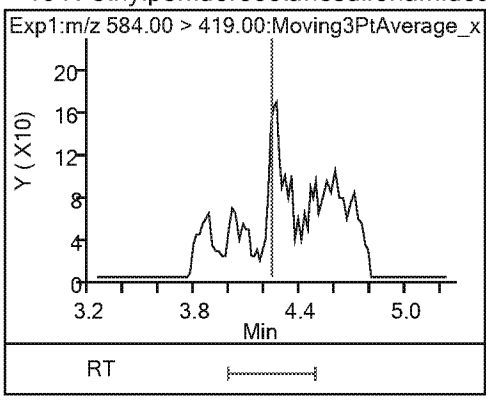
17 Perfluoroundecanoic acid (ND)



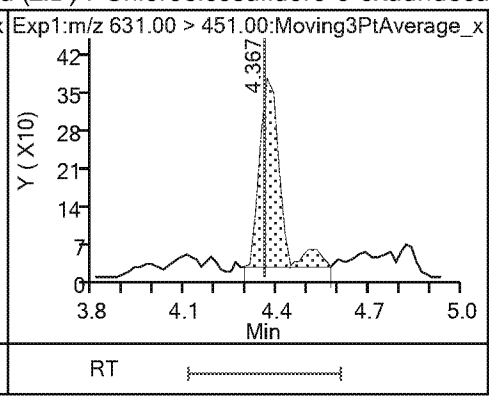
$ 11 d5-NEtFOSAA



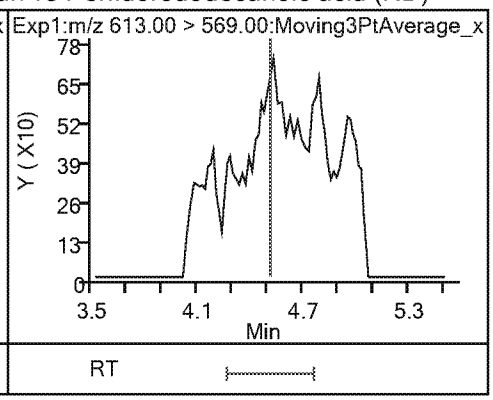
16 N-ethylperfluorooctanesulfonamidoa (ND)



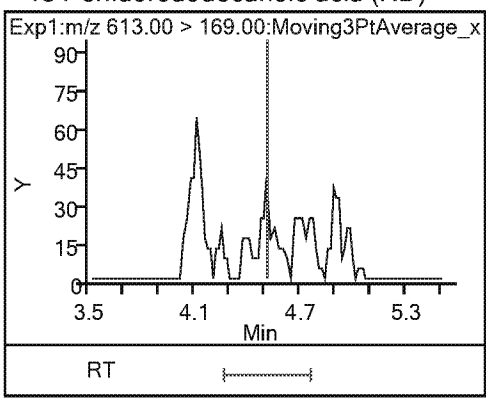
2 (ND) 11-Chloroeicosafluoro-3-oxaundecan



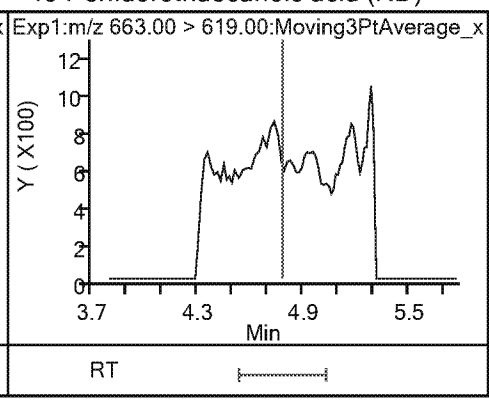
18 Perfluorododecanoic acid (ND)



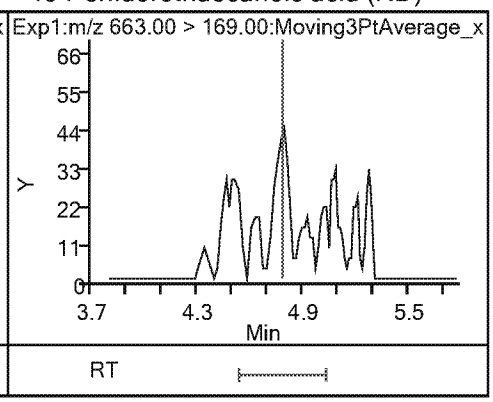
18 Perfluorododecanoic acid (ND)



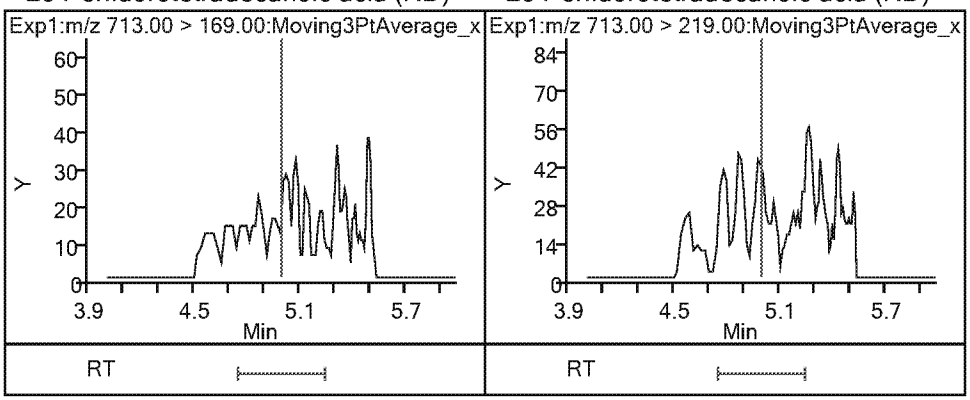
19 Perfluorotridecanoic acid (ND)



19 Perfluorotridecanoic acid (ND)



20 Perfluorotetradecanoic acid (ND) 20 Perfluorotetradecanoic acid (ND)



TestAmerica Sacramento
Recovery Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_034.d
Lims ID: 320-48794-A-13-A
Client ID: C0AX3
Sample Type: Client
Inject. Date: 03-Apr-2019 08:58:10 ALS Bottle#: 22 Worklist Smp#: 31
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-48794-A-13-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 13:07:26 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

First Level Reviewer: **Ex. 4 CBI** Date: 03-Apr-2019 11:40:12

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	2.50	2.54	101.59
$ 25 13C3 HFPO-DA	2.50	3.47	138.96
$ 10 13C2 PFDA	2.50	2.72	108.87
$ 11 d5-NEtFOSAA	2.50	2.27	90.97

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: C0AX4
Lab Sample ID: 320-48794-14
Matrix: Water
Lab File ID: 2019.04.02_537A_035.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 10:30
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 279.4(mL)
Date Analyzed: 04/03/2019 09:05
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 285758
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	ND		1.8	0.85
335-67-1	Perfluorooctanoic acid	ND		5.4	2.4
375-95-1	Perfluorononanoic acid	ND		1.8	0.42
355-46-4	Perfluorohexanesulfonic acid	ND		1.8	0.57
375-85-9	Perfluoroheptanoic acid	ND		2.7	1.2
375-73-5	Perfluorobutanesulfonic acid	ND		1.8	0.72

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	100		70-130
STL00996	13C2 PFDA	107		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_035.d
Lims ID: 320-48794-A-14-A
Client ID: C0AX4
Sample Type: Client
Inject. Date: 03-Apr-2019 09:05:37 ALS Bottle#: 23 Worklist Smp#: 32
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-48794-A-14-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 11:42:11 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

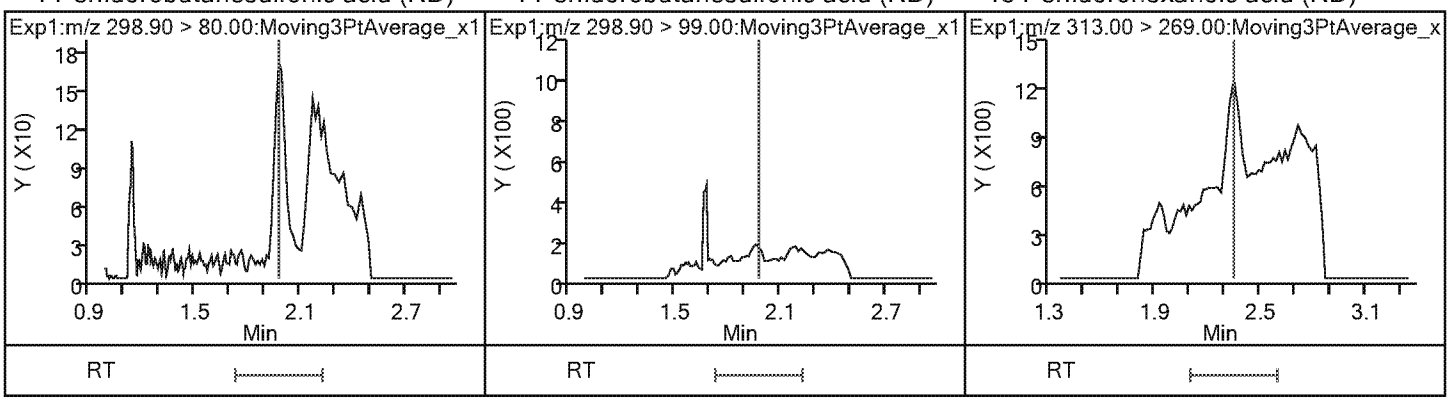
First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 11:40:27
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	2.347	2.347	0.0	1.000	3268738	2.50		5865	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.473	2.473	0.0	1.000	171963	2.89		1274	
* 5 13C2 PFOA									
415.00 > 370.00	3.177	3.177	0.0		2825106	2.50		11541	
* 7 13C4 PFOS									
503.00 > 80.00	3.549	3.549	0.001		2907618	2.39		8385	
$ 10 13C2 PFDA									
515.00 > 470.00	3.930	3.911	0.019	1.000	1862430	2.67		8049	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.092	4.070	0.022		530571	2.50		3611	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.236	4.236	0.0	1.035	502060	2.32		255	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.358	4.358	0.0	1.000	2688	0.001038		21.6	

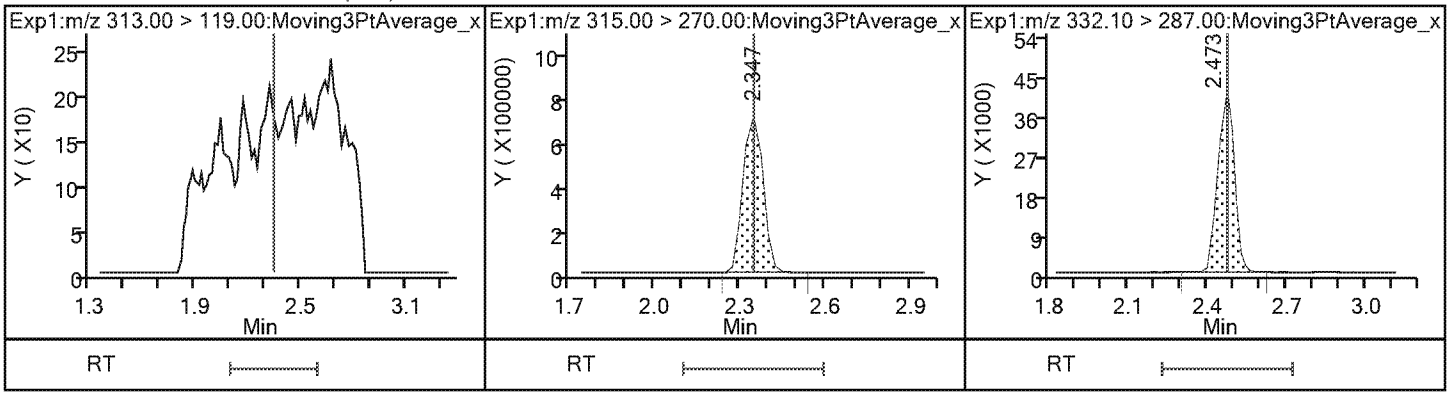
TestAmerica Sacramento

Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_035.d				
Injection Date:	03-Apr-2019 09:05:37	Instrument ID:	A8_N		
Lims ID:	320-48794-A-14-A	Lab Sample ID:	320-48794-14		
Client ID:	C0AX4				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	23	Worklist Smp#:	32
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

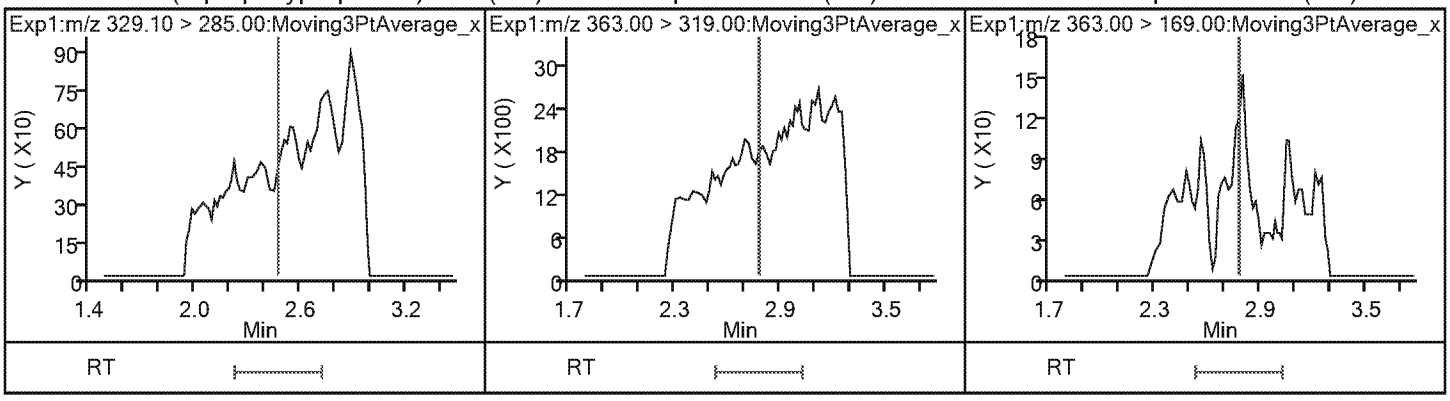
1 Perfluorobutanesulfonic acid (ND) | 1 Perfluorobutanesulfonic acid (ND) | 13 Perfluorohexanoic acid (ND)



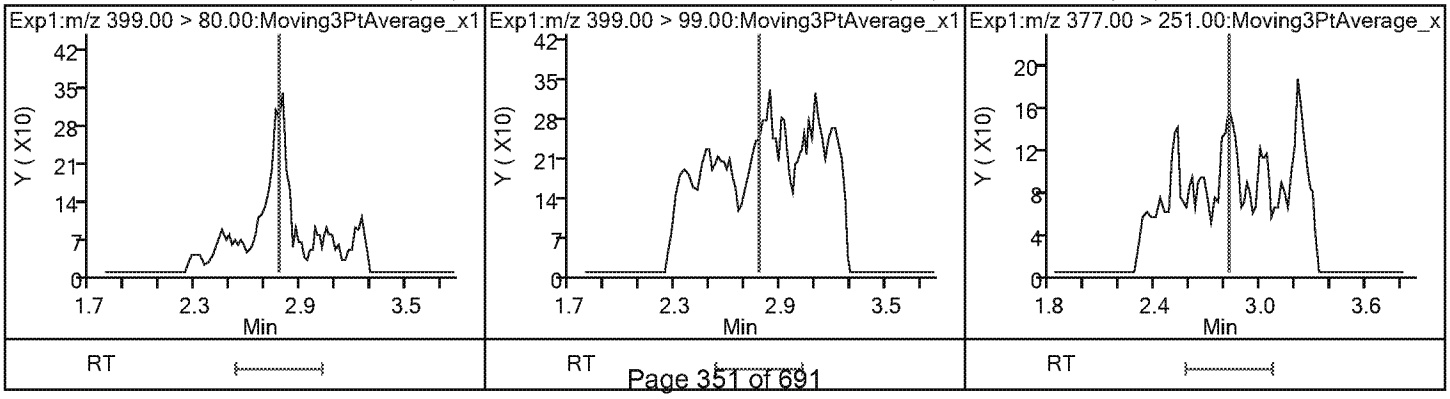
13 Perfluorohexanoic acid (ND) | $ 2 13C2 PFHxA | $ 25 13C3 HFPO-DA



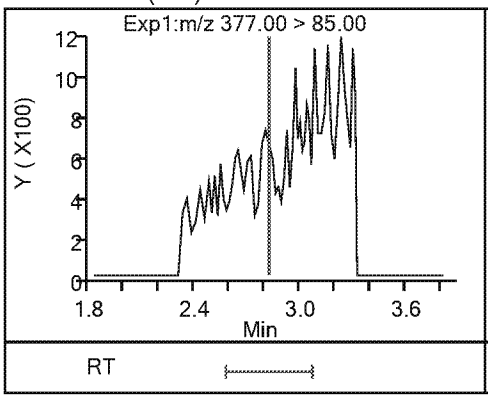
22 Perfluoro(2-propoxypropanoic) acid (ND) | 4 Perfluoroheptanoic acid (ND) | 4 Perfluoroheptanoic acid (ND)



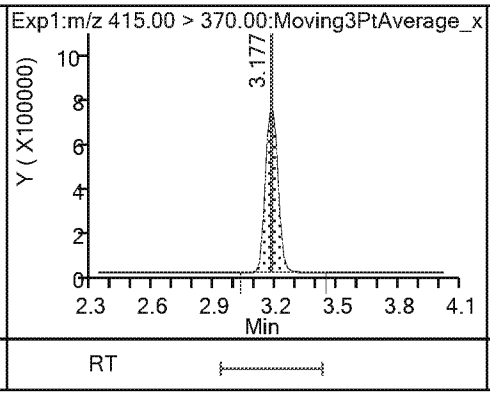
3 Perfluorohexanesulfonic acid (ND) | 3 Perfluorohexanesulfonic acid (ND) | 24 DONA (ND)



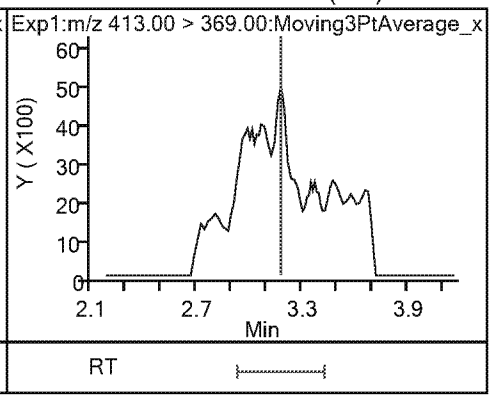
24 DONA (ND)



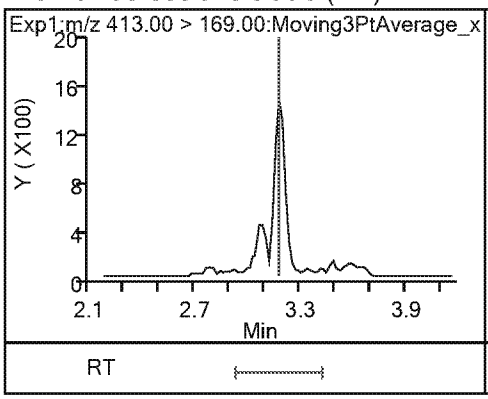
* 5 13C2 PFOA



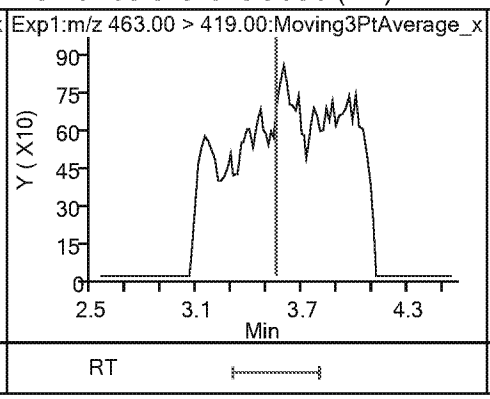
6 Perfluorooctanoic acid (ND)



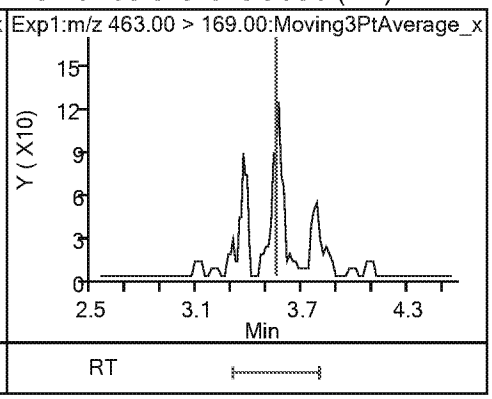
6 Perfluorooctanoic acid (ND)



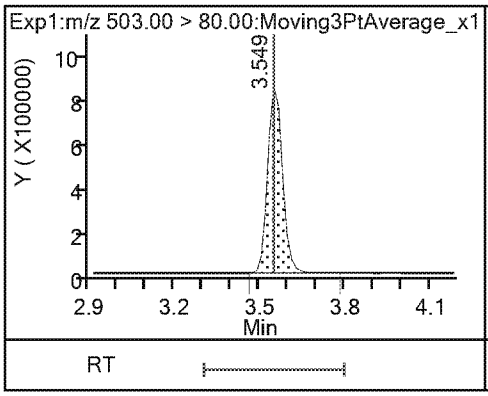
9 Perfluorononanoic acid (ND)



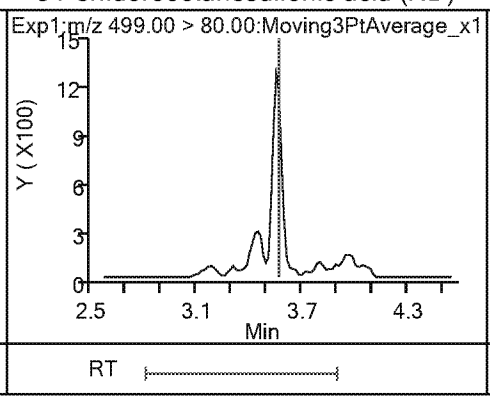
9 Perfluorononanoic acid (ND)



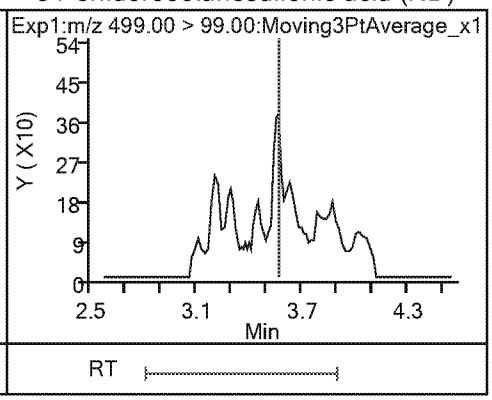
* 7 13C4 PFOS



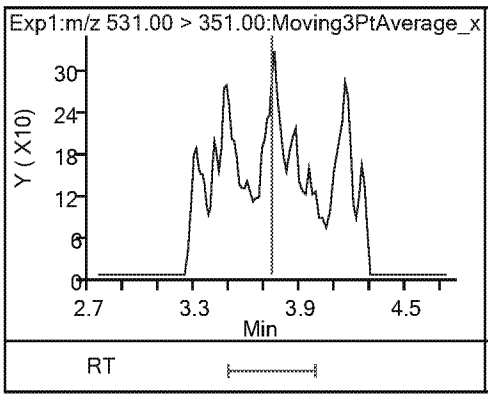
8 Perfluorooctanesulfonic acid (ND)



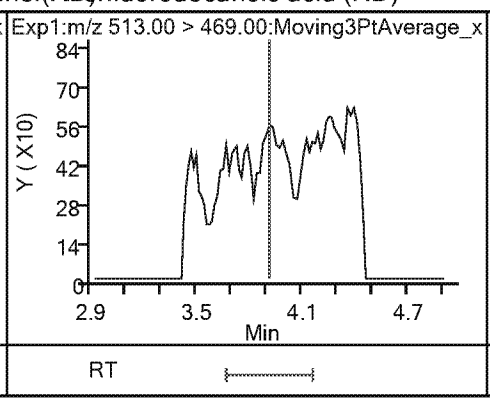
8 Perfluorooctanesulfonic acid (ND)



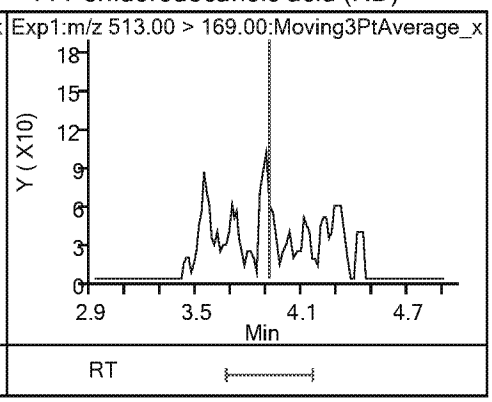
23 9-Chlorohexadecafluoro-3-oxanonane1(ND)



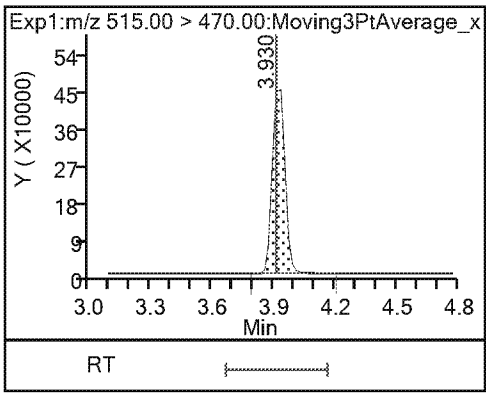
14 Perfluorodecanoic acid (ND)



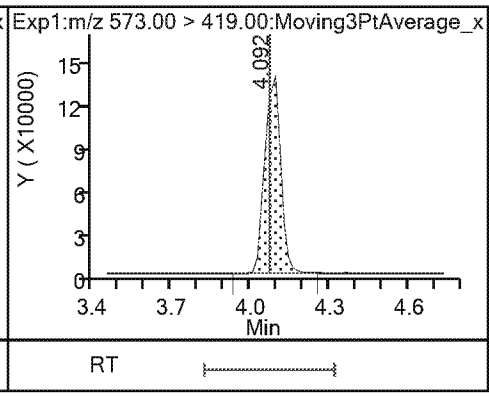
14 Perfluorodecanoic acid (ND)



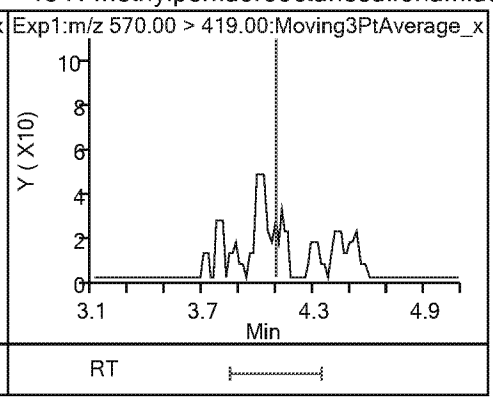
$ 10 13C2 PFDA



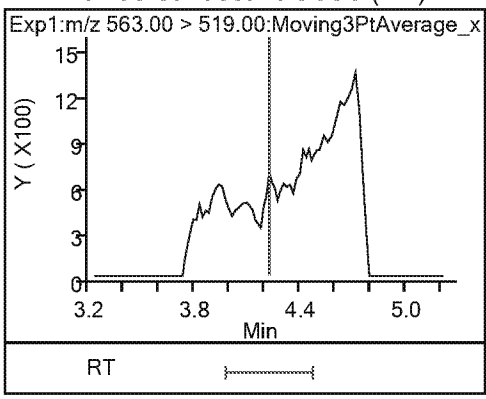
* 12 d3-NMeFOSAA



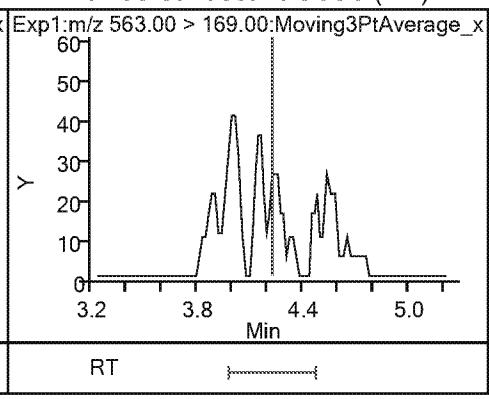
15 N-methylperfluorooctanesulfonamido (ND)



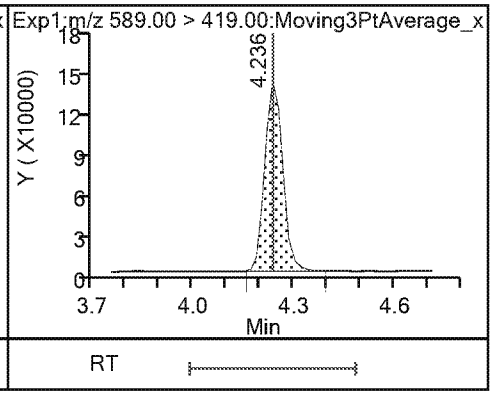
17 Perfluoroundecanoic acid (ND)



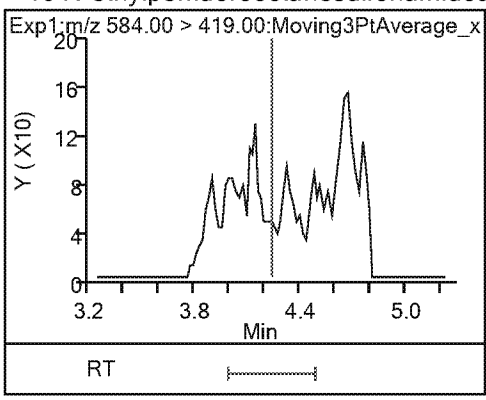
17 Perfluoroundecanoic acid (ND)



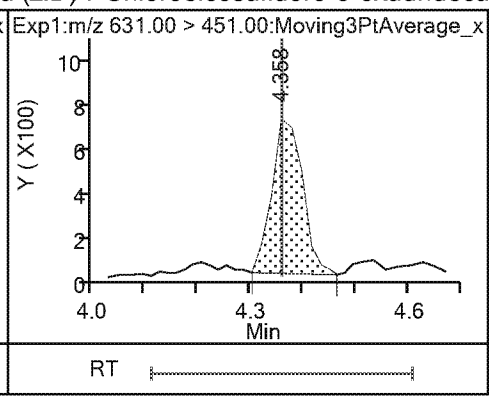
$ 11 d5-NEtFOSAA



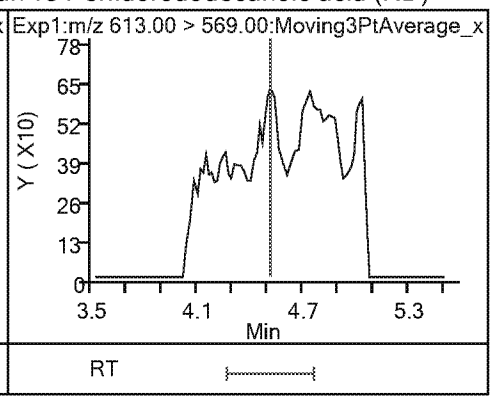
16 N-ethylperfluorooctanesulfonamidoa (ND)



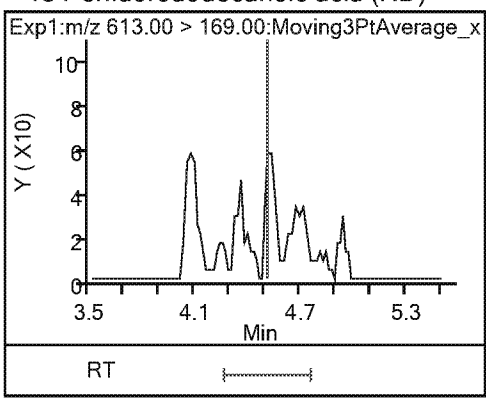
21 11-Chloroeicosafluoro-3-oxaundecan



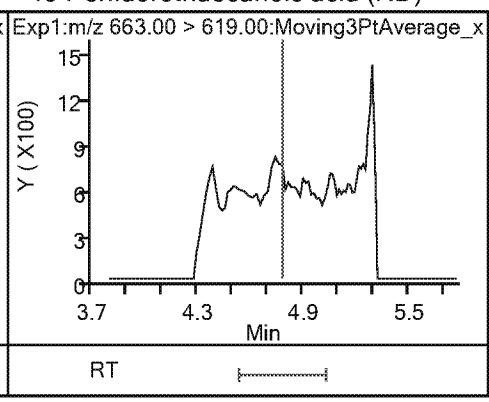
18 Perfluorododecanoic acid (ND)



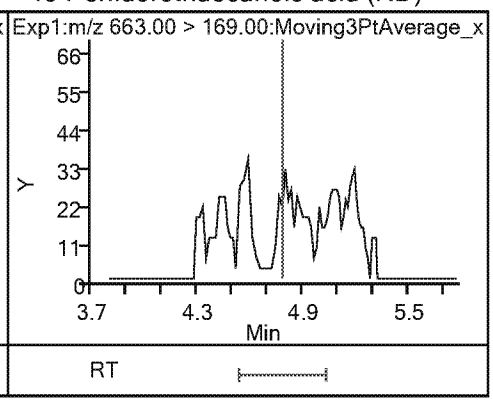
18 Perfluorododecanoic acid (ND)



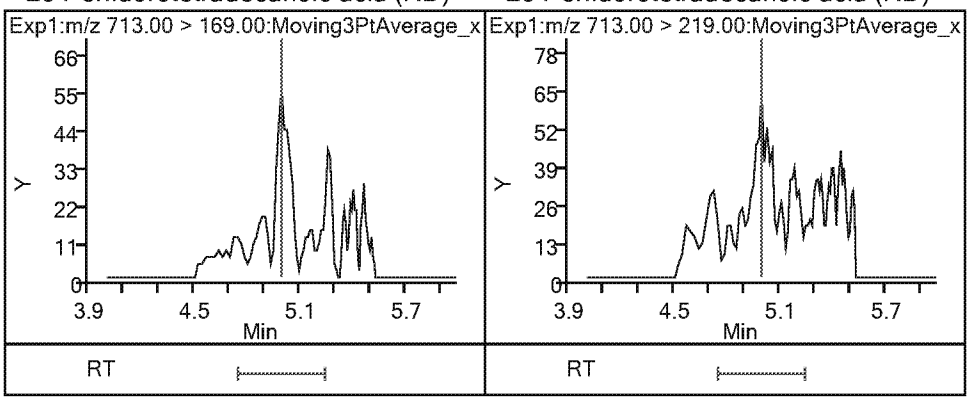
19 Perfluorotridecanoic acid (ND)



19 Perfluorotridecanoic acid (ND)



20 Perfluorotetradecanoic acid (ND) 20 Perfluorotetradecanoic acid (ND)



TestAmerica Sacramento
Recovery Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_035.d
Lims ID: 320-48794-A-14-A
Client ID: C0AX4
Sample Type: Client
Inject. Date: 03-Apr-2019 09:05:37 ALS Bottle#: 23 Worklist Smp#: 32
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-48794-A-14-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 11:42:11 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 11:40:27

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	2.50	2.50	99.91
$ 25 13C3 HFPO-DA	2.50	2.89	115.57
$ 10 13C2 PFDA	2.50	2.67	106.93
$ 11 d5-NEtFOSAA	2.50	2.32	92.79

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: C0AX9
Lab Sample ID: 320-48794-15
Matrix: Water
Lab File ID: 2019.04.02_537A_036.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 12:48
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 265.3(mL)
Date Analyzed: 04/03/2019 09:13
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 285758
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
335-67-1	Perfluorooctanoic acid	5.8		5.7	2.5
375-95-1	Perfluorononanoic acid	1.7	J	1.9	0.44
355-46-4	Perfluorohexanesulfonic acid	2.9		1.9	0.60
375-85-9	Perfluoroheptanoic acid	28		2.8	1.2
375-73-5	Perfluorobutanesulfonic acid	38		1.9	0.75

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	93		70-130
STL00996	13C2 PFDA	104		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_036.d
Lims ID: 320-48794-B-15-A
Client ID: C0AX9
Sample Type: Client
Inject. Date: 03-Apr-2019 09:13:04 ALS Bottle#: 24 Worklist Smp#: 33
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-48794-B-15-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 11:42:11 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 11:42:11
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.992	1.975	0.017	1.000	1412584	1.01	Target=1.47	1537	
298.90 > 99.00	1.976	1.975	0.001	0.992	962068		1.47(0.00-0.00)	835	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.347	2.347	0.0	0.739	1891865	1.47	Target=11.08	224	
313.00 > 119.00	2.347	2.347	0.0	0.739	184190		10.27(0.00-0.00)	245	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.347	2.347	0.0	1.000	3166334	2.32		5510	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.473	2.473	0.0	1.000	187224	3.02		805	
4 Perfluoroheptanoic acid									M
363.00 > 319.00	2.777	2.778	-0.001	1.000	949712	0.7464	Target=2.42	88.9	M
363.00 > 169.00	2.777	2.778	-0.001	1.000	396383		2.40(0.00-0.00)	908	
3 Perfluorohexanesulfonic acid									M
399.00 > 80.00	2.777	2.778	-0.001	1.000	125390	0.0760	Target=2.92	47.3	M
399.00 > 99.00	2.777	2.778	-0.001	1.000	38896		3.22(0.00-0.00)	29.8	M
* 5 13C2 PFOA									
415.00 > 370.00	3.176	3.177	-0.001		2943921	2.50		9678	
6 Perfluorooctanoic acid									M
413.00 > 369.00	3.176	3.177	-0.001	1.000	185516	0.1546	Target=1.75	18.5	M
413.00 > 169.00	3.176	3.177	-0.001	1.000	116490		1.59(0.00-0.00)	313	M
9 Perfluorononanoic acid									
463.00 > 419.00	3.563	3.549	0.015	1.000	40388	0.0460	Target=3.96	12.1	
463.00 > 169.00	3.563	3.549	0.015	1.000	9629		4.19(0.00-0.00)	106	
* 7 13C4 PFOS									
503.00 > 80.00	3.548	3.549	0.0		2771278	2.39		2119	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
8 Perfluorooctanesulfonic acid									E
499.00 > 80.00	3.563	3.564	-0.001	1.004	28902691	23.6	Target=4.69	4082	E
499.00 > 99.00	3.563	3.564	-0.001	1.004	5455113		5.30(0.00-0.00)	3487	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.911	3.911	0.0	1.000	23024	0.0334	Target=5.01	8.4	
513.00 > 169.00	3.911	3.911	0.0	1.000	5353		4.30(0.00-0.00)	41.8	
$ 10 13C2 PFDA									
515.00 > 470.00	3.930	3.911	0.019	1.000	1887868	2.60		6092	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.092	4.070	0.022		546786	2.50		3262	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.237	4.236	0.001	1.036	516305	2.31		262	

QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount

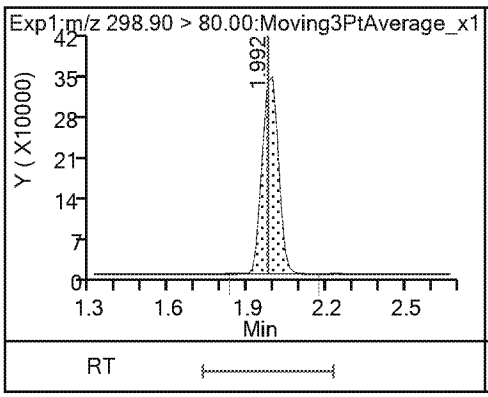
Review Flags

M - Manually Integrated

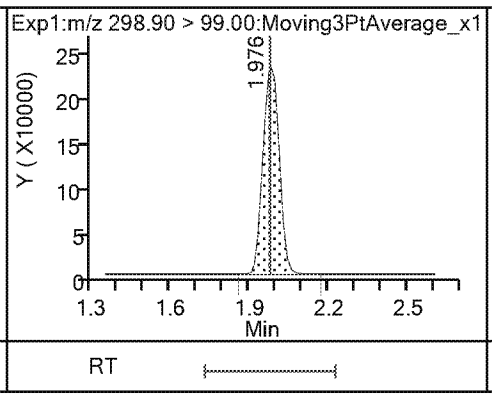
TestAmerica Sacramento

Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_036.d				
Injection Date:	03-Apr-2019 09:13:04	Instrument ID:	A8_N		
Lims ID:	320-48794-B-15-A	Lab Sample ID:	320-48794-15		
Client ID:	C0AX9				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	24	Worklist Smp#:	33
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

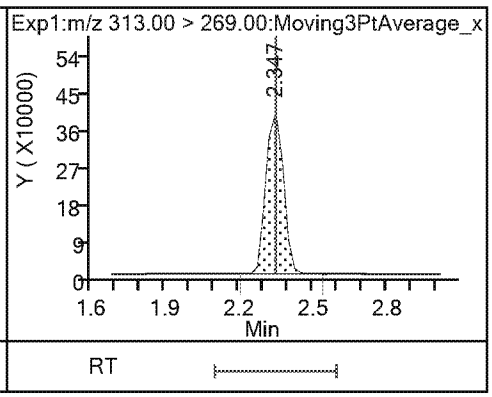
1 Perfluorobutanesulfonic acid



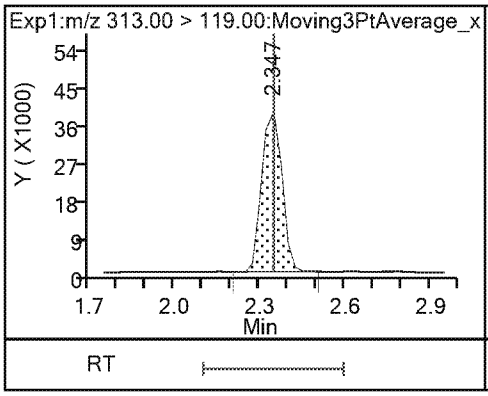
1 Perfluorobutanesulfonic acid



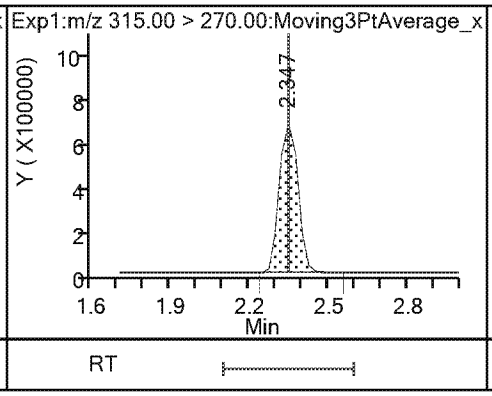
13 Perfluorohexanoic acid



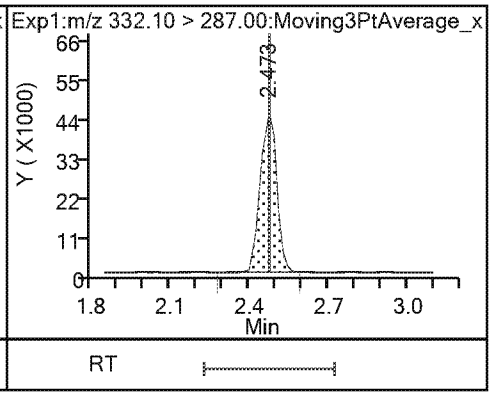
13 Perfluorohexanoic acid



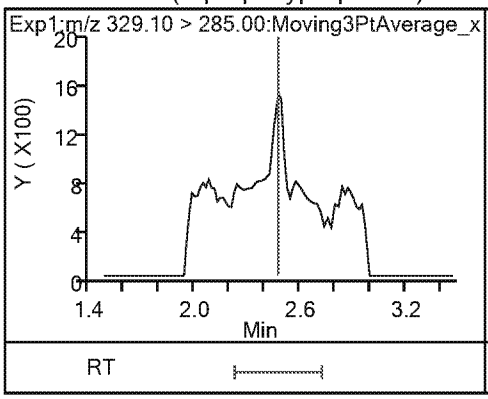
$ 2 13C2 PFHxA



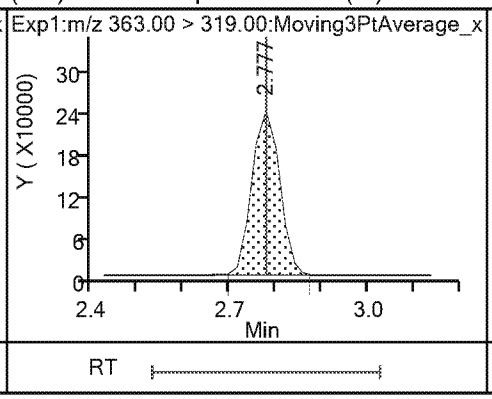
$ 25 13C3 HFPO-DA



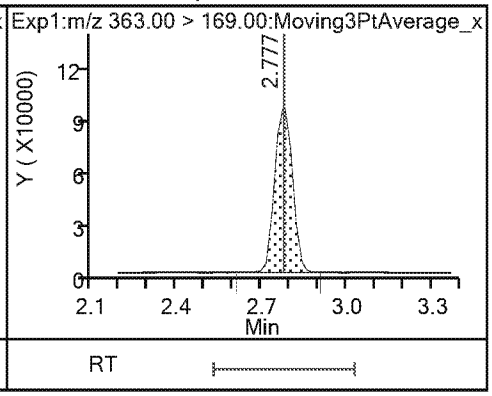
22 Perfluoro(2-propoxypropanoic) acid (ND)



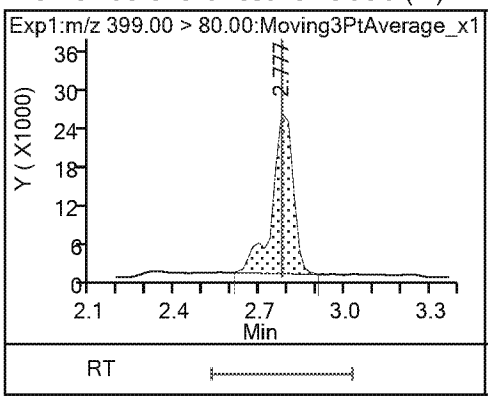
4 Perfluoroheptanoic acid (M)



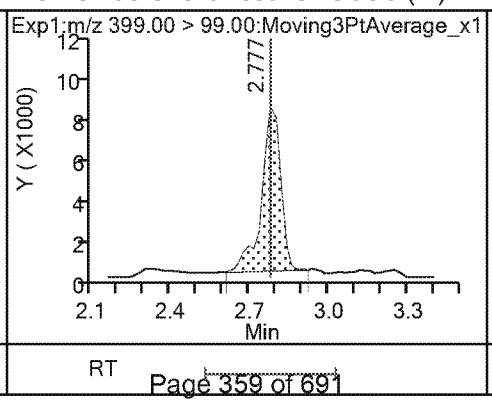
4 Perfluoroheptanoic acid



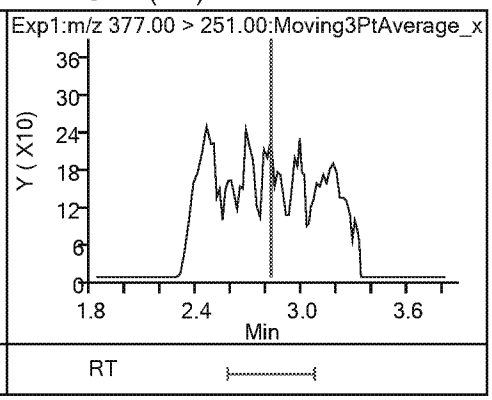
3 Perfluorohexanesulfonic acid (M)



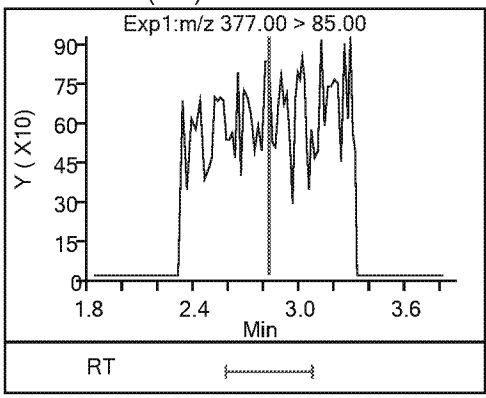
3 Perfluorohexanesulfonic acid (M)



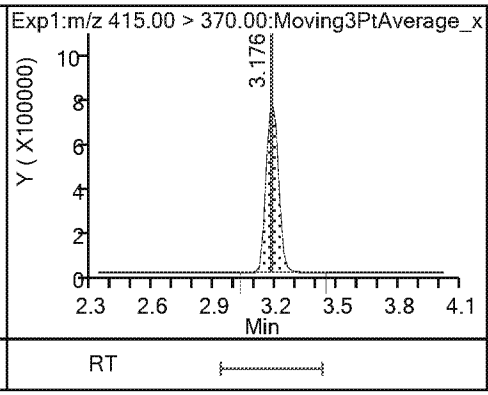
24 DONA (ND)



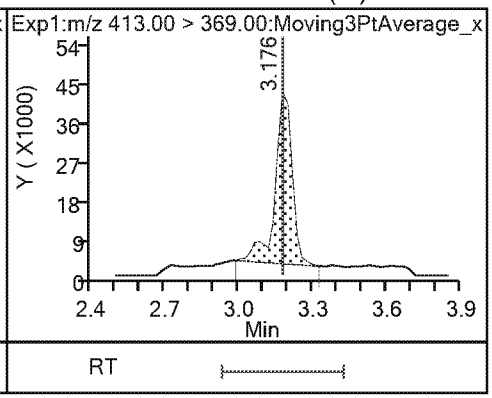
24 DONA (ND)



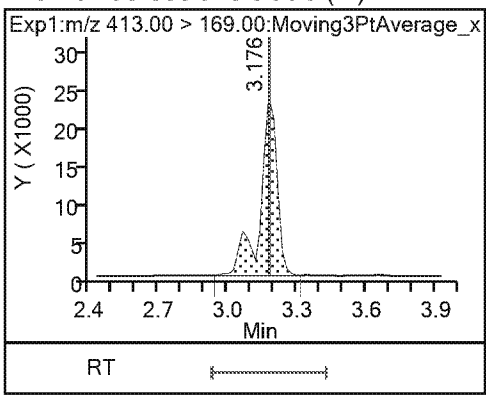
* 5 13C2 PFOA



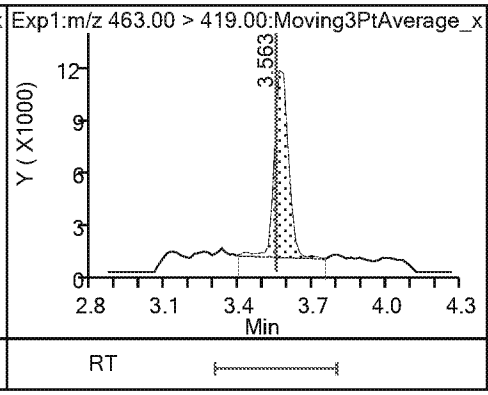
6 Perfluorooctanoic acid (M)



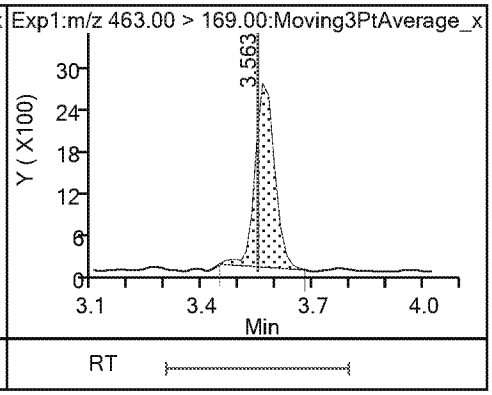
6 Perfluorooctanoic acid (M)



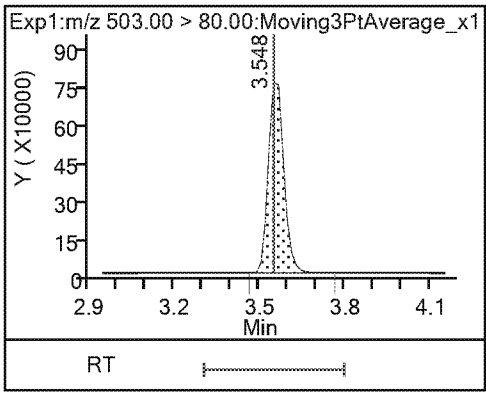
9 Perfluorononanoic acid



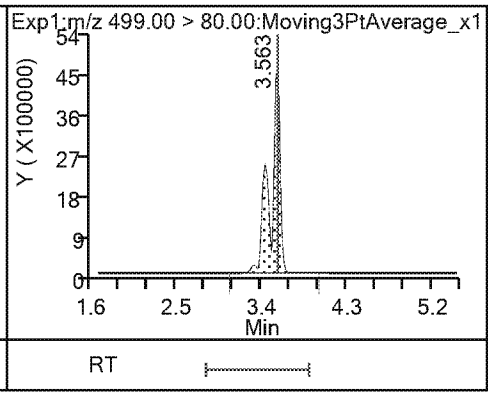
9 Perfluorononanoic acid



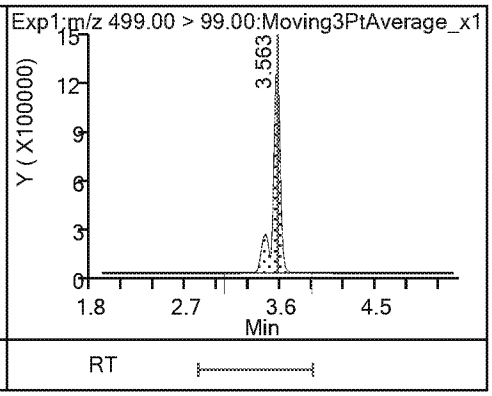
* 7 13C4 PFOS



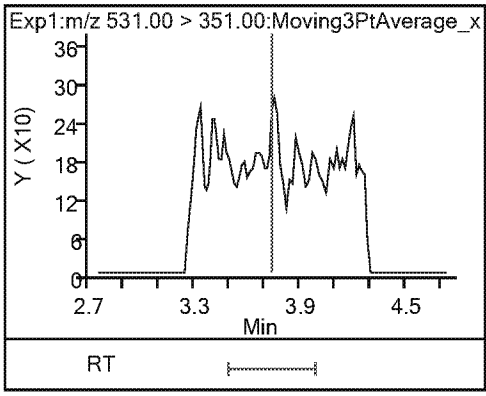
8 Perfluorooctanesulfonic acid



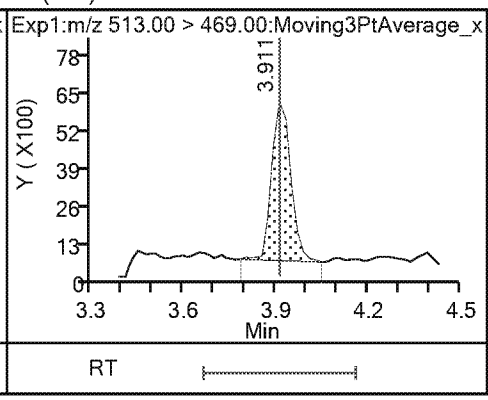
8 Perfluorooctanesulfonic acid



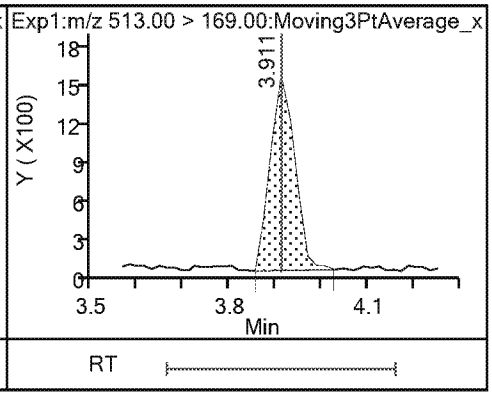
23 9-Chlorohexadecafluoro-3-oxanonane1(ND)



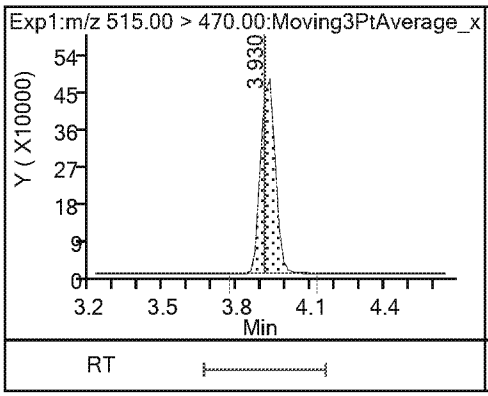
14 Perfluorodecanoic acid



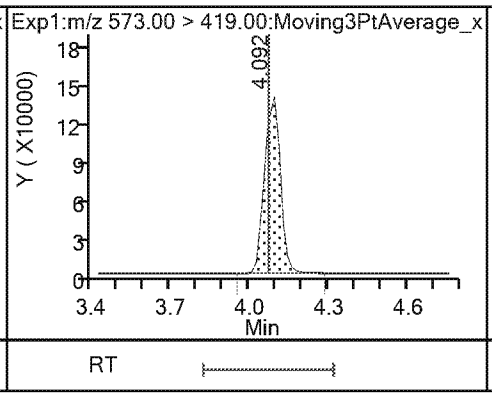
14 Perfluorodecanoic acid



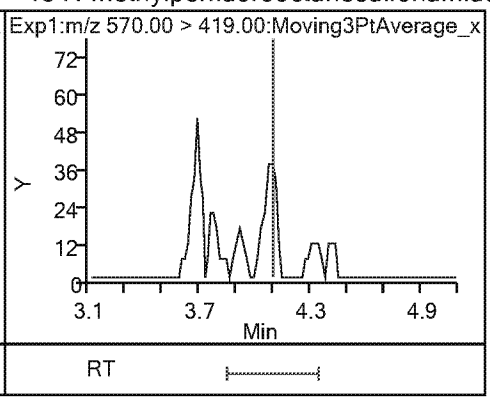
$ 10 13C2 PFDA



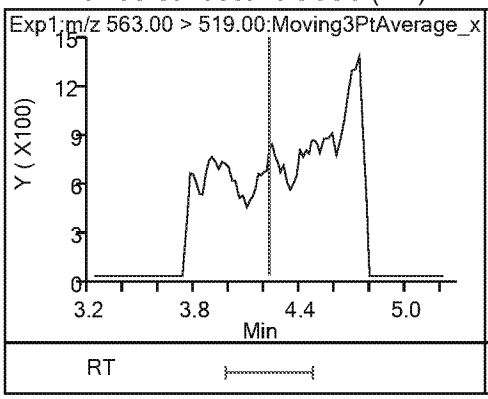
* 12 d3-NMeFOSAA



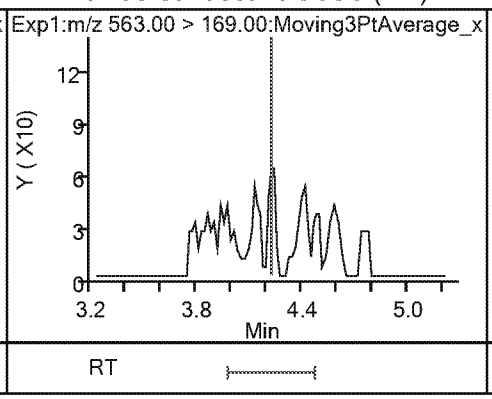
15 N-methylperfluorooctanesulfonamido (ND)



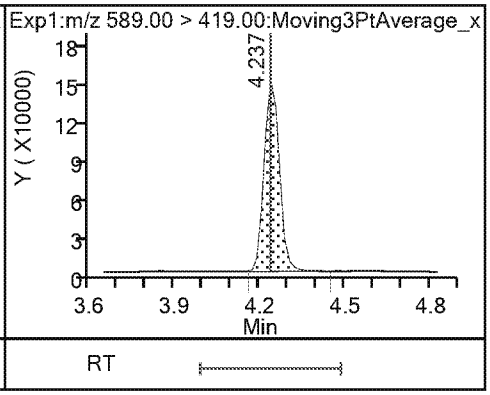
17 Perfluoroundecanoic acid (ND)



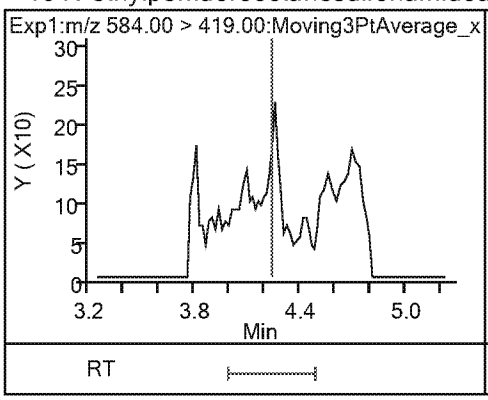
17 Perfluoroundecanoic acid (ND)



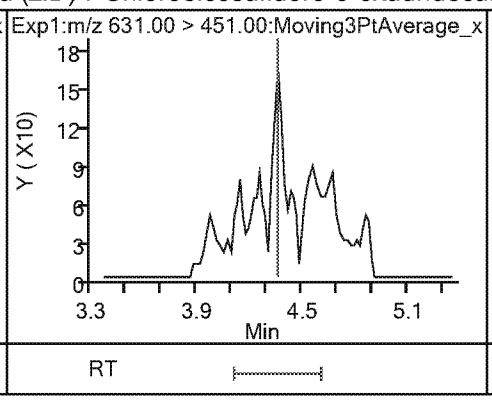
$ 11 d5-NEtFOSAA



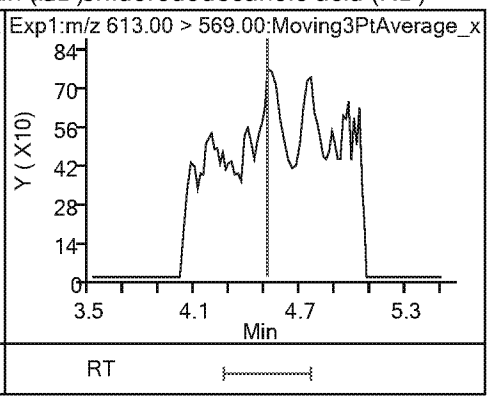
16 N-ethylperfluorooctanesulfonamidoa (ND)



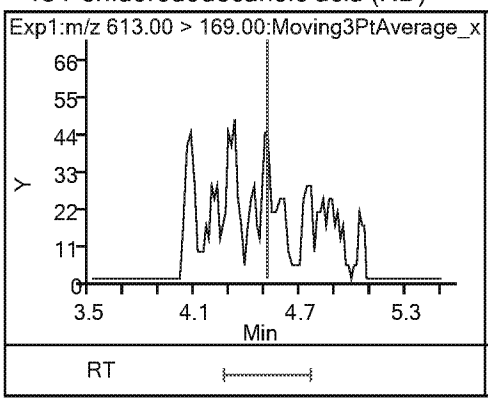
21 11-Chloroeicosafluoro-3-oxaundecan (ND)



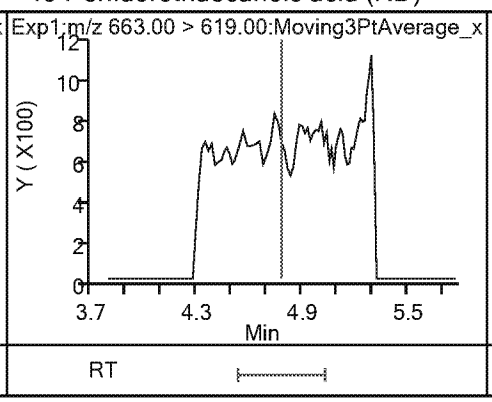
18 Perfluorododecanoic acid (ND)



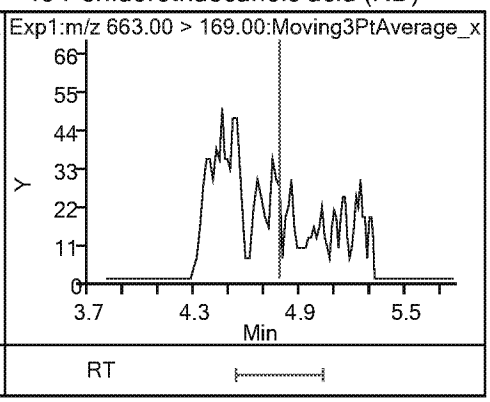
18 Perfluorododecanoic acid (ND)



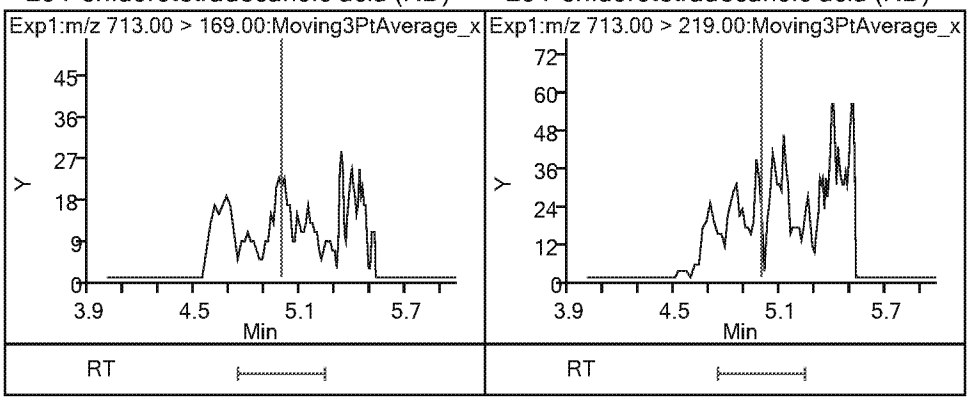
19 Perfluorotridecanoic acid (ND)



19 Perfluorotridecanoic acid (ND)



20 Perfluorotetradecanoic acid (ND) 20 Perfluorotetradecanoic acid (ND)



TestAmerica Sacramento
Recovery Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_036.d
Lims ID: 320-48794-B-15-A
Client ID: C0AX9
Sample Type: Client
Inject. Date: 03-Apr-2019 09:13:04 ALS Bottle#: 24 Worklist Smp#: 33
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-48794-B-15-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 11:42:11 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 11:42:11

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	2.50	2.32	92.88
$ 25 13C3 HFPO-DA	2.50	3.02	120.75
$ 10 13C2 PFDA	2.50	2.60	104.02
$ 11 d5-NEtFOSAA	2.50	2.31	92.59

TestAmerica Sacramento

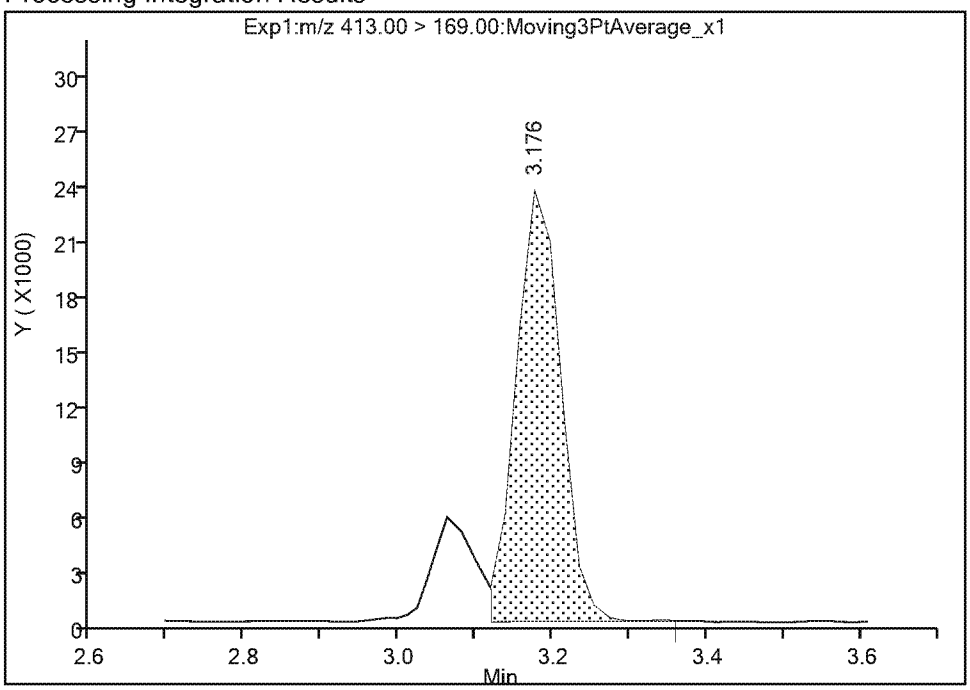
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_036.d				
Injection Date:	03-Apr-2019 09:13:04	Instrument ID:	A8_N		
Lims ID:	320-48794-B-15-A	Lab Sample ID:	320-48794-15		
Client ID:	C0AX9				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	24	Worklist Smp#:	33
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

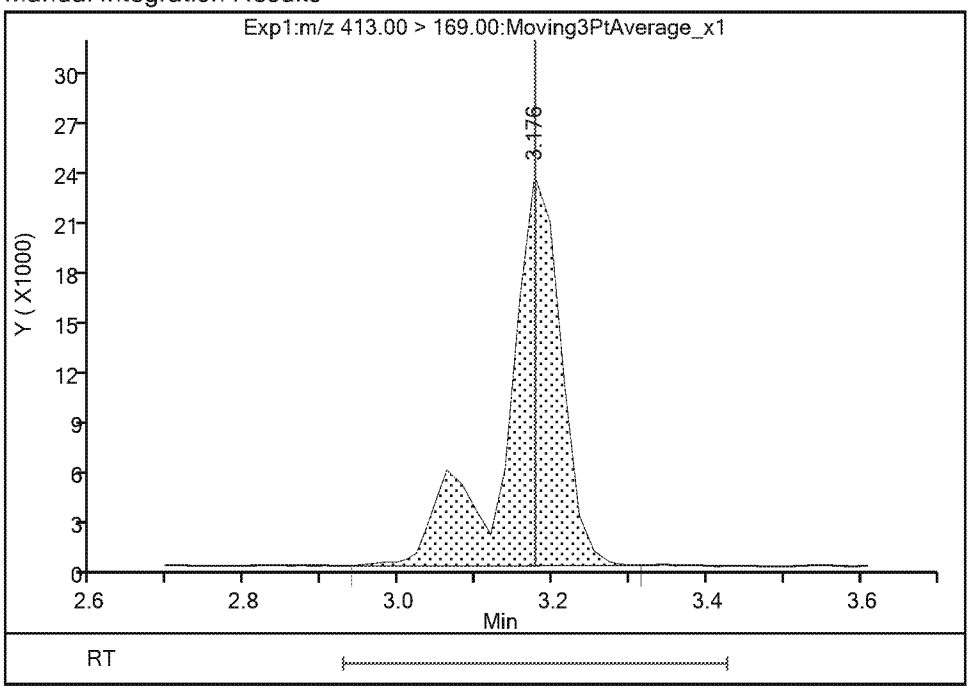
Processing Integration Results

RT: 3.18
Area: 94173
Amount: 0.143412
Amount Units: ng/ml



Manual Integration Results

RT: 3.18
Area: 116490
Amount: 0.154609
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 11:41:23
Audit Action: Manually Integrated Audit Reason: Isomers

TestAmerica Sacramento

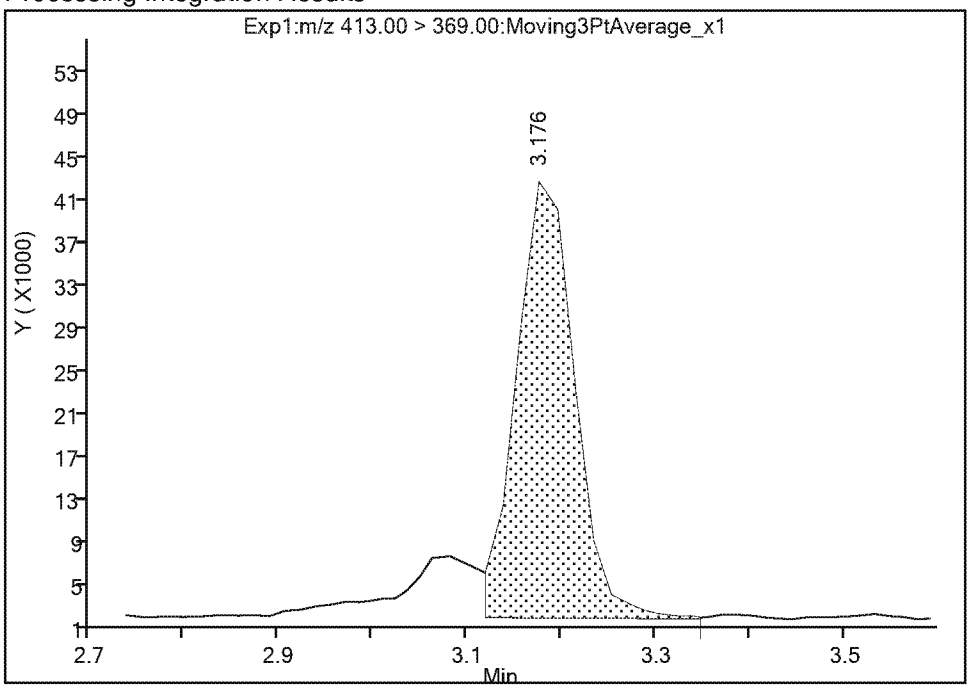
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_036.d				
Injection Date:	03-Apr-2019 09:13:04	Instrument ID:	A8_N		
Lims ID:	320-48794-B-15-A	Lab Sample ID:	320-48794-15		
Client ID:	C0AX9				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	24	Worklist Smp#:	33
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

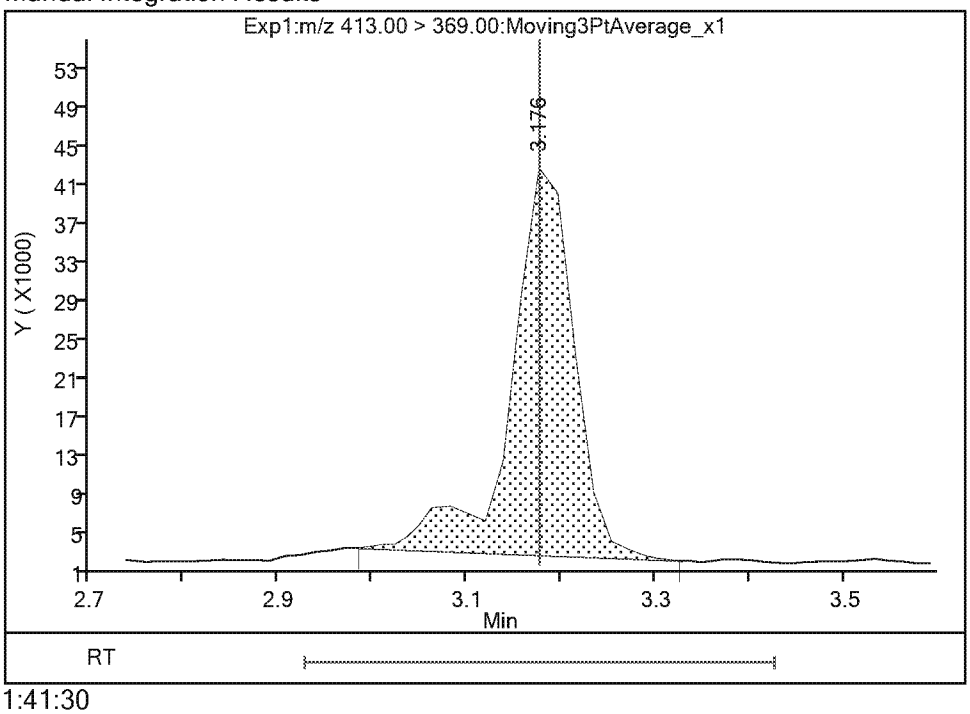
Processing Integration Results

RT: 3.18
Area: 172080
Amount: 0.143412
Amount Units: ng/ml



Manual Integration Results

RT: 3.18
Area: 185516
Amount: 0.154609
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 11:41:30
Audit Action: Manually Integrated Audit Reason: Isomers

TestAmerica Sacramento

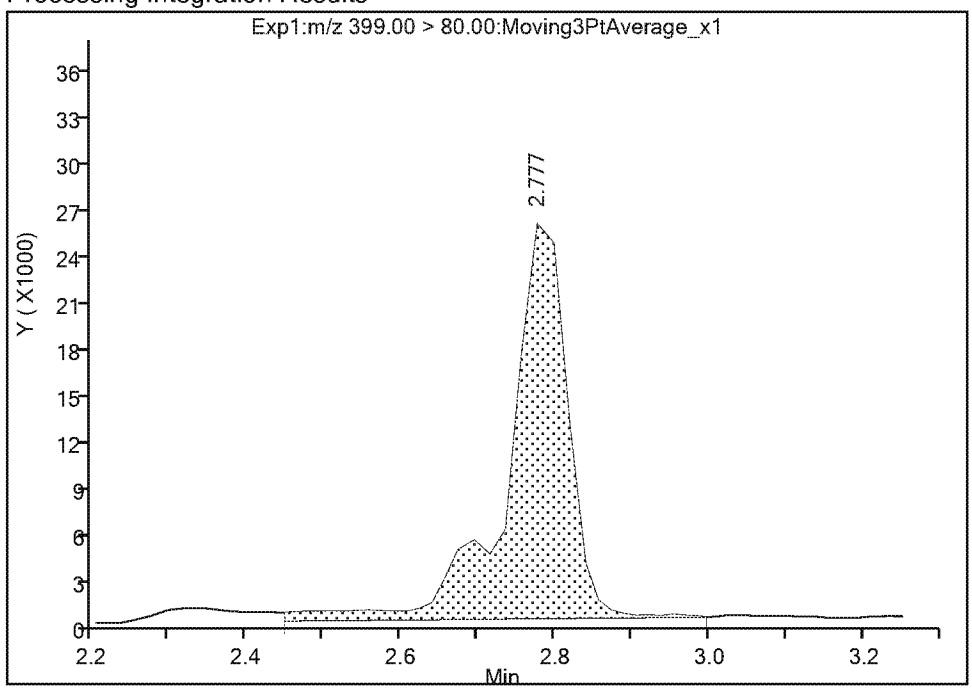
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_036.d				
Injection Date:	03-Apr-2019 09:13:04	Instrument ID:	A8_N		
Lims ID:	320-48794-B-15-A	Lab Sample ID:	320-48794-15		
Client ID:	C0AX9				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	24	Worklist Smp#:	33
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

3 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

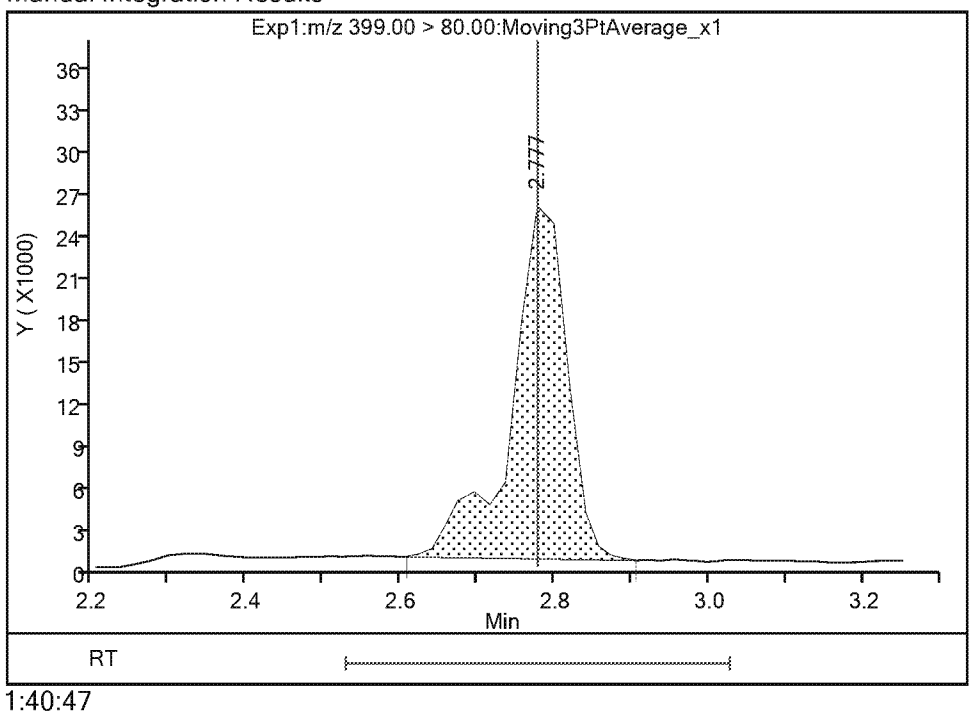
Processing Integration Results

RT: 2.78
Area: 137536
Amount: 0.083380
Amount Units: ng/ml



Manual Integration Results

RT: 2.78
Area: 125390
Amount: 0.076017
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 11:40:47
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento

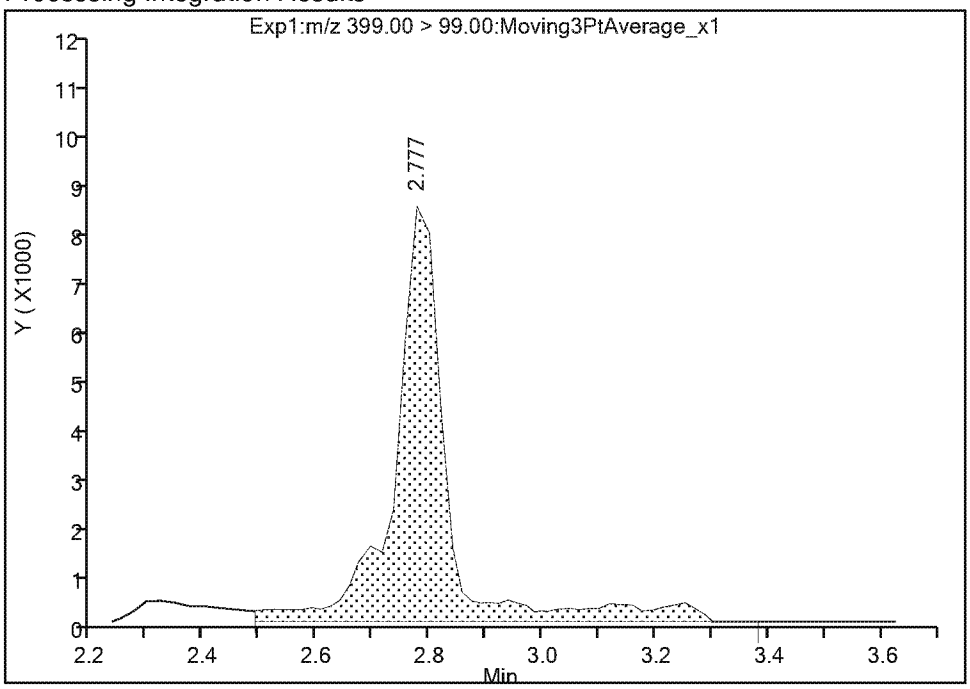
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_036.d				
Injection Date:	03-Apr-2019 09:13:04	Instrument ID:	A8_N		
Lims ID:	320-48794-B-15-A	Lab Sample ID:	320-48794-15		
Client ID:	C0AX9				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	24	Worklist Smp#:	33
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

3 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 2

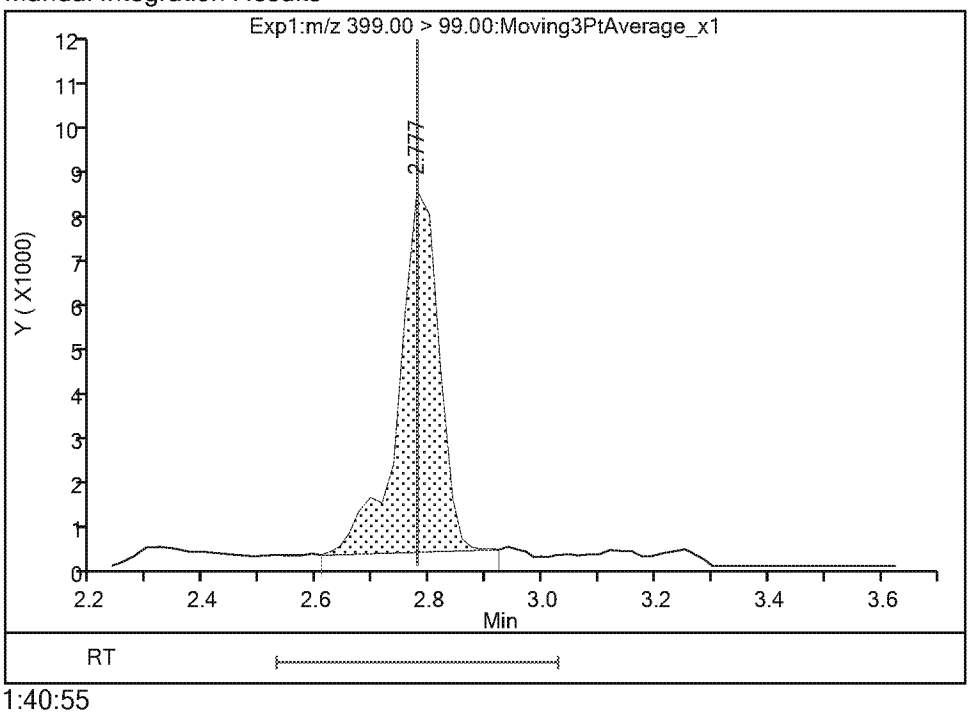
Processing Integration Results

RT: 2.78
Area: 52164
Amount: 0.083380
Amount Units: ng/ml



Manual Integration Results

RT: 2.78
Area: 38896
Amount: 0.076017
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 11:40:55
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento

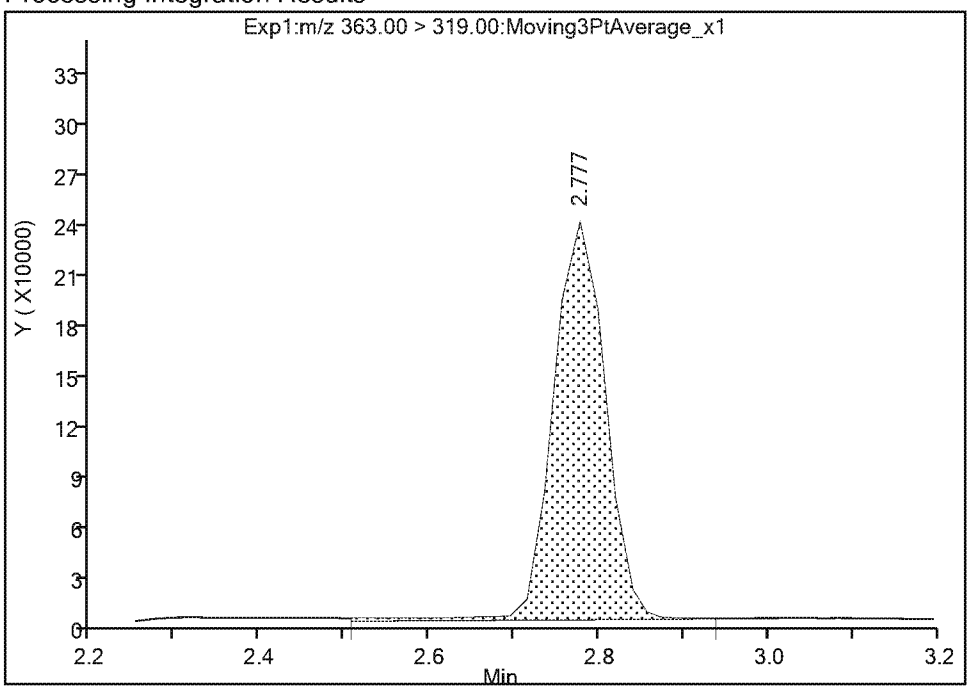
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_036.d				
Injection Date:	03-Apr-2019 09:13:04	Instrument ID:	A8_N		
Lims ID:	320-48794-B-15-A	Lab Sample ID:	320-48794-15		
Client ID:	C0AX9				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	24	Worklist Smp#:	33
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

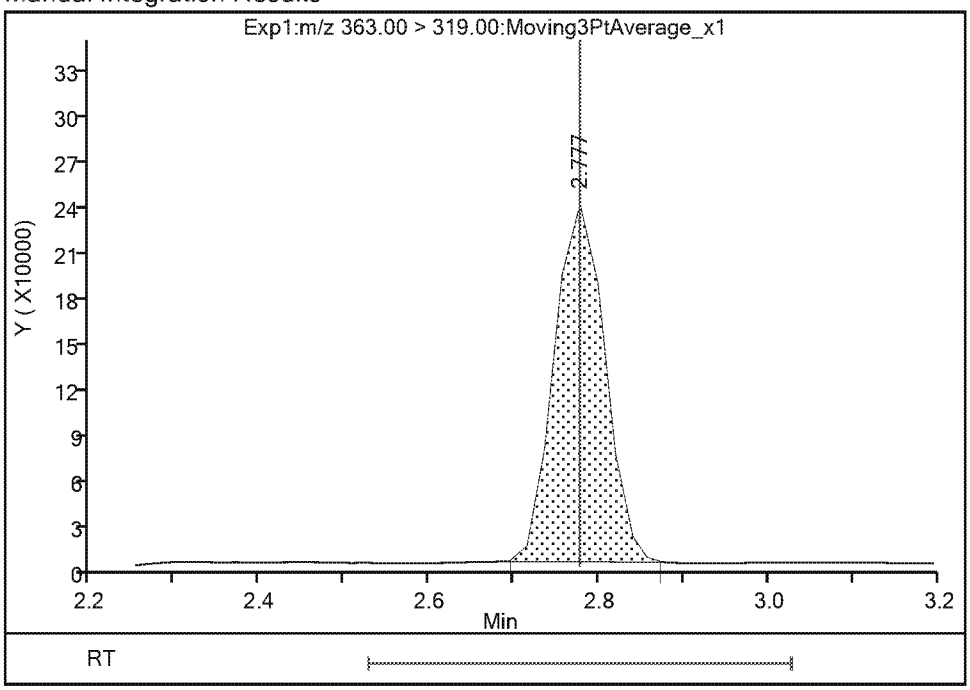
Processing Integration Results

RT: 2.78
Area: 984774
Amount: 0.773953
Amount Units: ng/ml



Manual Integration Results

RT: 2.78
Area: 949712
Amount: 0.746397
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 11:41:07
Audit Action: Manually Integrated Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID: C0AX9 DL
Lab Sample ID: 320-48794-15 DL
Matrix: Water
Lab File ID: 2019.04.05_537.1A_030.d
Analysis Method: 537 DW
Date Collected: 03/26/2019 12:48
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 265.3(mL)
Date Analyzed: 04/05/2019 14:35
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 5
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 286379
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	940		9.4	4.5

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	104		70-130

Eurofins TestAmerica, Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190405-74359.b\2019.04.05_537.1A_030.d
Lims ID: 320-48794-B-15-A
Client ID: C0AX9
Sample Type: Client
Inject. Date: 05-Apr-2019 14:35:50 ALS Bottle#: 18 Worklist Smp#: 5
Injection Vol: 10.0 ul Dil. Factor: 5.0000
Sample Info: 320-48794-b-15-a 5X
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190405-74359.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Apr-2019 15:06:06 Calib Date: 04-Apr-2019 16:11:08
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: CTX0314

First Level Reviewer: Ex. 4 CBI Date: 05-Apr-2019 15:05:01
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.993	1.994	-0.001	1.000	319050	0.2149	Target=1.41	1111	
298.90 > 99.00	1.993	1.994	-0.001	1.000	214594		1.49(0.00-0.00)	93.6	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.348	2.349	-0.001	0.739	422622	0.2998	Target=10.46	81.6	
313.00 > 119.00	2.348	2.349	-0.001	0.739	40022		10.56(0.00-0.00)	48.3	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.348	2.349	-0.001	1.000	694725	0.4704		2814	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.474	2.475	-0.001	1.000	44541	0.6715		302	
4 Perfluoroheptanoic acid									
363.00 > 319.00	2.778	2.776	0.002	1.000	213534	0.1590	Target=2.41	23.5	
363.00 > 169.00	2.778	2.776	0.002	1.000	91661		2.33(0.00-0.00)	233	
3 Perfluorohexanesulfonic acid									M
399.00 > 80.00	2.799	2.776	0.023	1.000	25529	0.0142	Target=2.91	26.1	M
399.00 > 99.00	2.778	2.776	0.002	0.993	10073		2.53(0.00-0.00)	3.4	M
* 5 13C2 PFOA									
415.00 > 370.00	3.177	3.177	0.0		3167162	2.50		11009	
6 Perfluorooctanoic acid									M
413.00 > 369.00	3.177	3.177	0.0	1.000	42468	0.0330	Target=1.70	4.9	M
413.00 > 169.00	3.177	3.177	0.0	1.000	25457		1.67(0.00-0.00)	29.2	M
* 7 13C4 PFOS									
503.00 > 80.00	3.564	3.548	0.016		3003369	2.39		7098	
9 Perfluorononanoic acid									M
463.00 > 419.00	3.564	3.562	0.002	1.000	9538	0.0102	Target=3.78	4.8	
463.00 > 169.00	3.564	3.562	0.002	1.000	2567		3.72(0.00-0.00)	19.1	M

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
8 Perfluorooctanesulfonic acid									
499.00 > 80.00	3.564	3.564	0.0	1.000	6653044	5.01	Target=4.63	2522	
499.00 > 99.00	3.564	3.564	0.0	1.000	1237578		5.38(0.00-0.00)	865	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.914	3.911	0.003	1.000	5897	0.007957	Target=4.93	2.1	
513.00 > 169.00	3.914	3.911	0.003	1.000	868		6.79(0.00-0.00)	3.8	
$ 10 13C2 PFDA									
515.00 > 470.00	3.933	3.911	0.022	1.000	408058	0.5187		3313	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.089	4.088	0.001		534233	2.50		2985	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.234	4.232	0.002	1.035	111464	0.5104		66.6	

QC Flag Legend

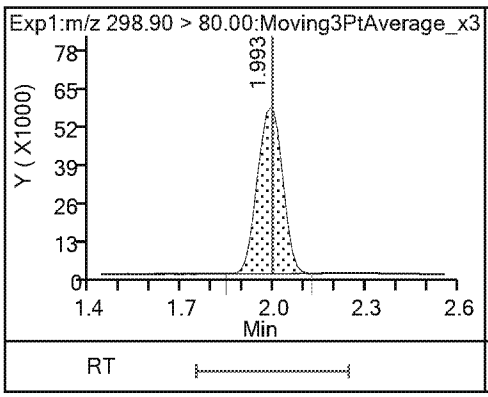
Review Flags

M - Manually Integrated

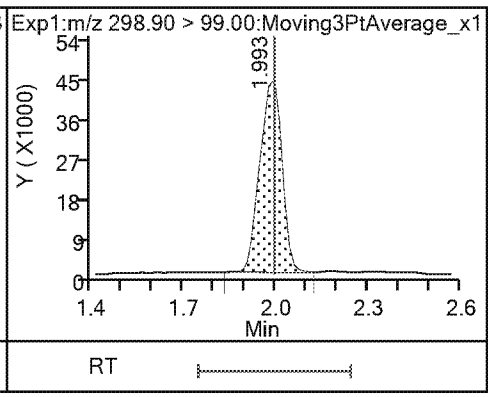
Eurofins TestAmerica, Sacramento

Data File:	\\chromna\Sacramento\ChromData\A8_N\20190405-74359.b\2019.04.05_537.1A_030.d				
Injection Date:	05-Apr-2019 14:35:50	Instrument ID:	A8_N		
Lims ID:	320-48794-B-15-A	Lab Sample ID:	320-48794-15		
Client ID:	C0AX9				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	18	Worklist Smp#:	5
Injection Vol:	10.0 ul	Dil. Factor:	5.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

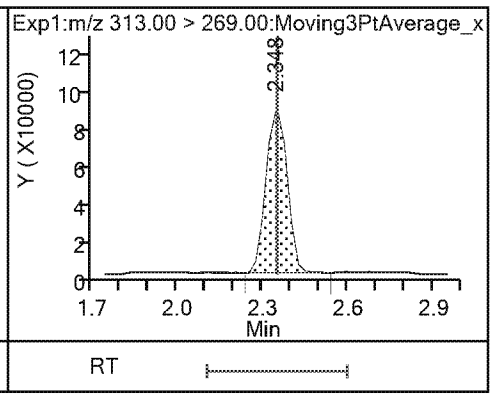
1 Perfluorobutanesulfonic acid



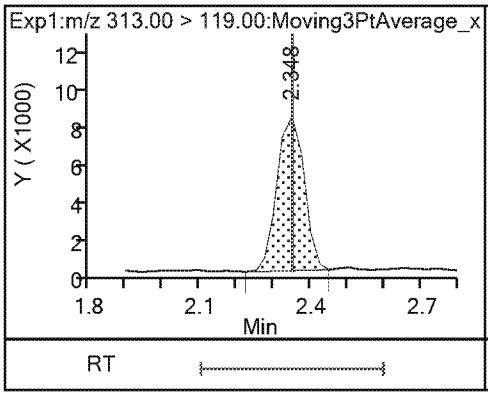
1 Perfluorobutanesulfonic acid



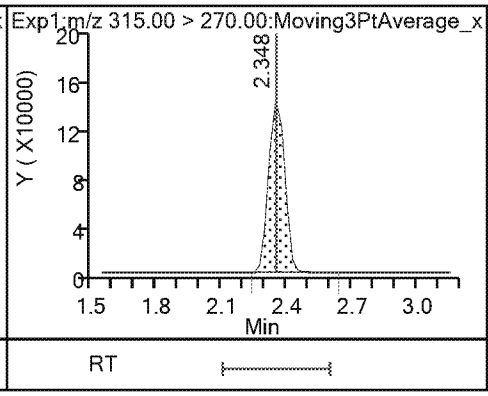
13 Perfluorohexanoic acid



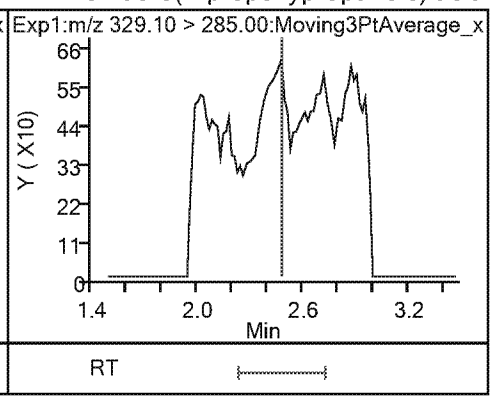
13 Perfluorohexanoic acid



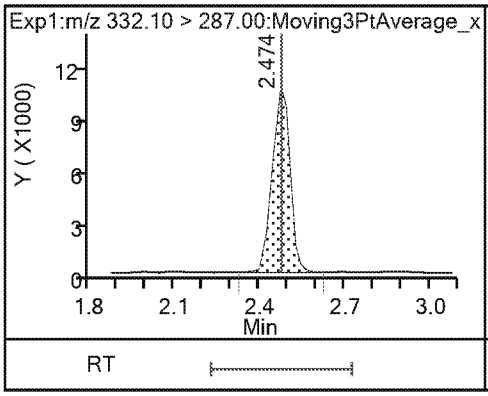
$ 2 13C2 PFHxA



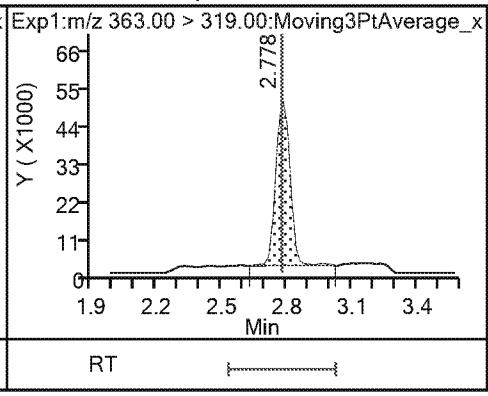
22 Perfluoro(2-propoxypropanoic) acid (ND)



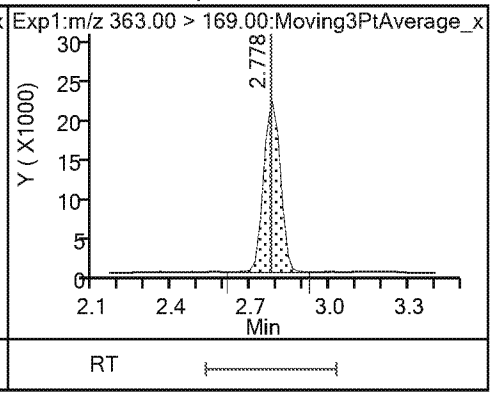
$ 25 13C3 HFPO-DA



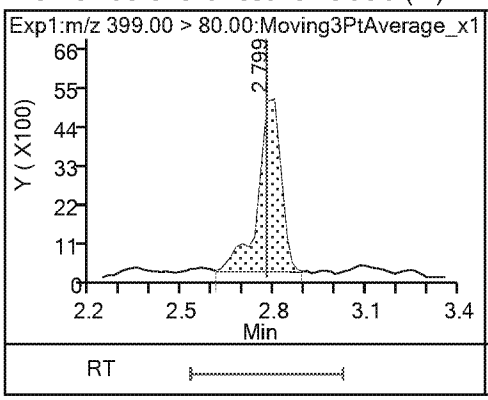
4 Perfluoroheptanoic acid



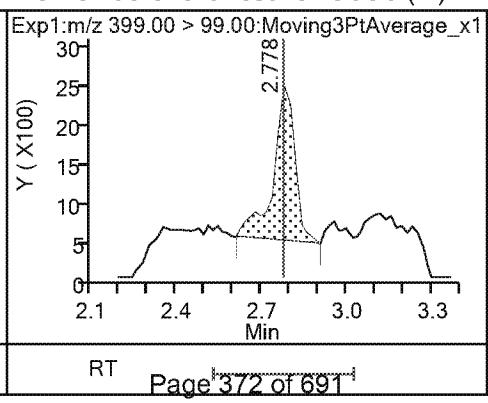
4 Perfluoroheptanoic acid



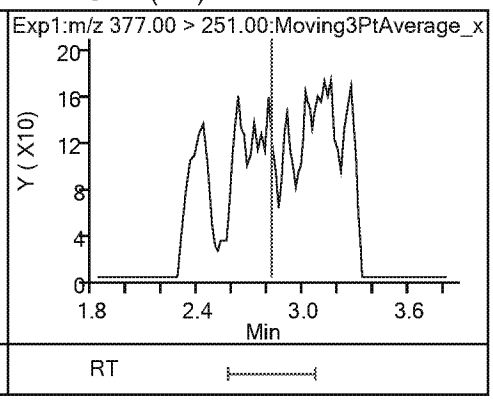
3 Perfluorohexanesulfonic acid (M)



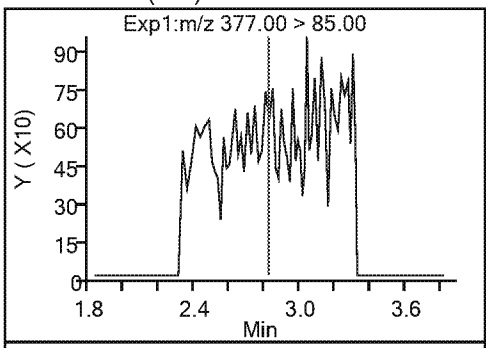
3 Perfluorohexanesulfonic acid (M)



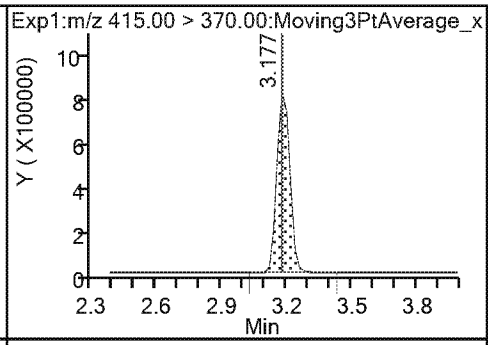
24 DONA (ND)



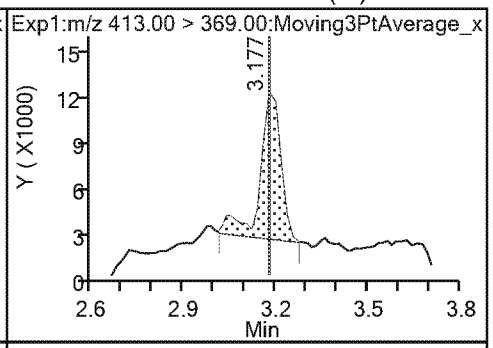
24 DONA (ND)



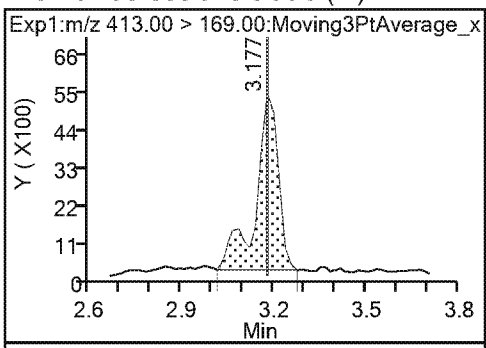
* 5 13C2 PFOA



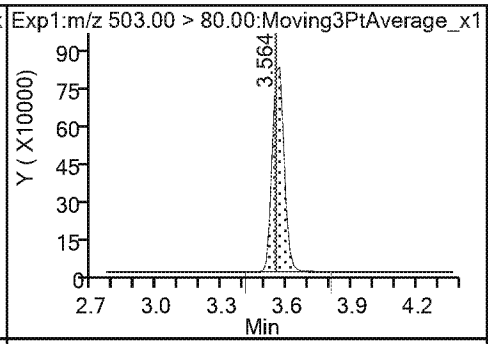
6 Perfluorooctanoic acid (M)



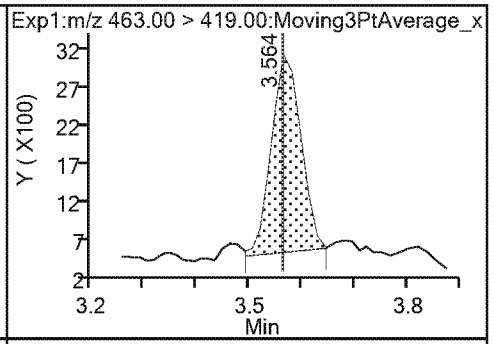
6 Perfluorooctanoic acid (M)



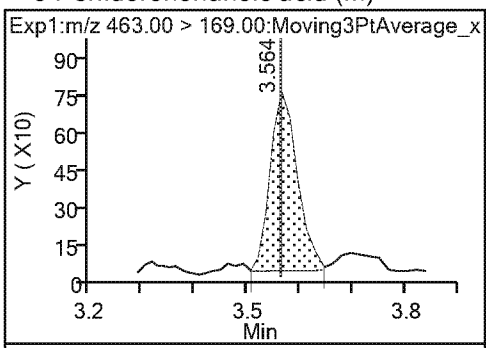
* 7 13C4 PFOS



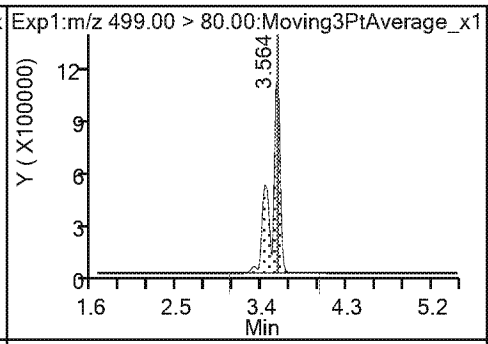
9 Perfluorononanoic acid



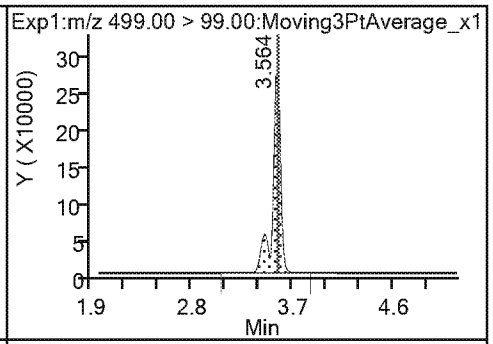
9 Perfluorononanoic acid (M)



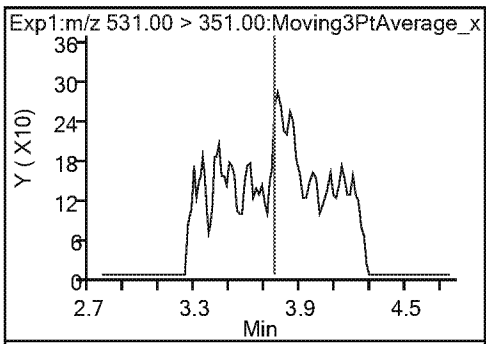
8 Perfluorooctanesulfonic acid



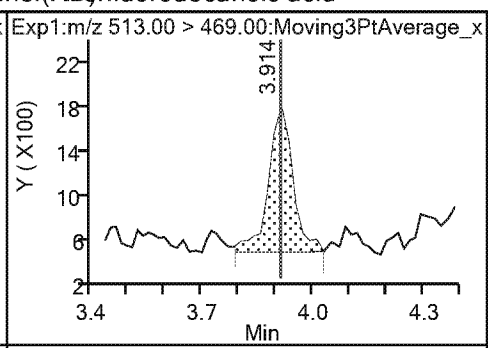
8 Perfluorooctanesulfonic acid



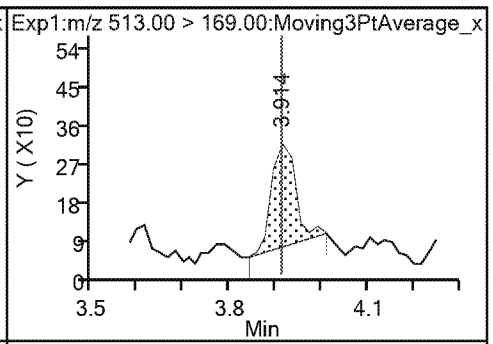
23 9-Chlorohexadecafluoro-3-oxanonane1(ND)



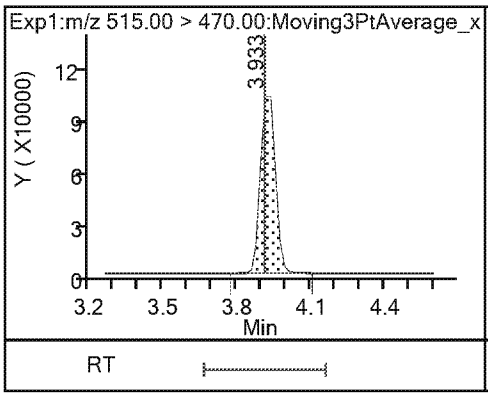
14 Perfluorodecanoic acid



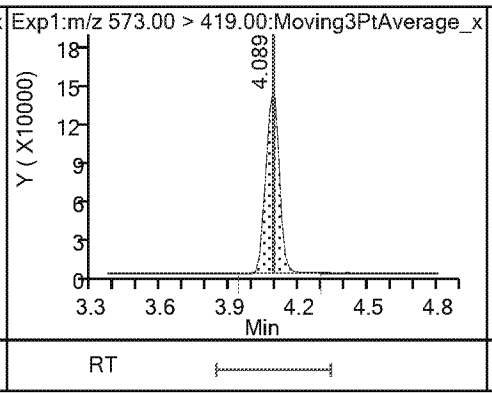
14 Perfluorodecanoic acid



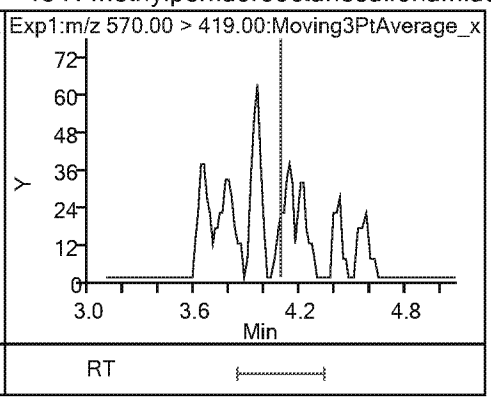
$ 10 13C2 PFDA



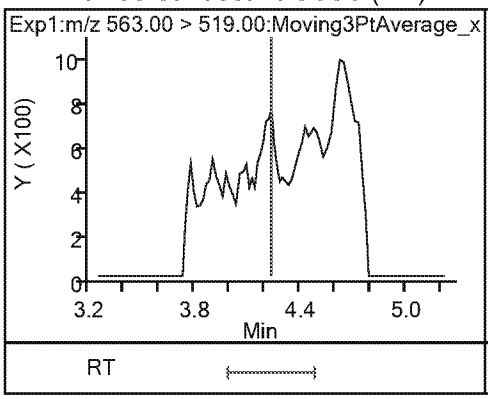
* 12 d3-NMeFOSAA



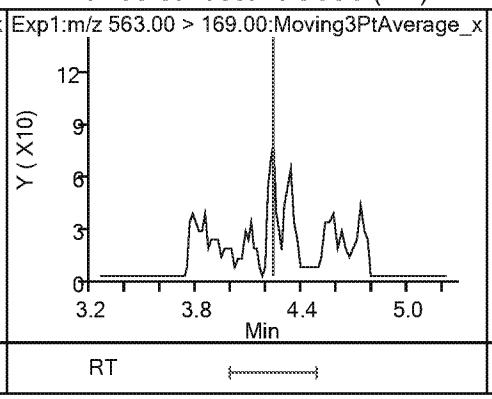
15 N-methylperfluorooctanesulfonamido (ND)



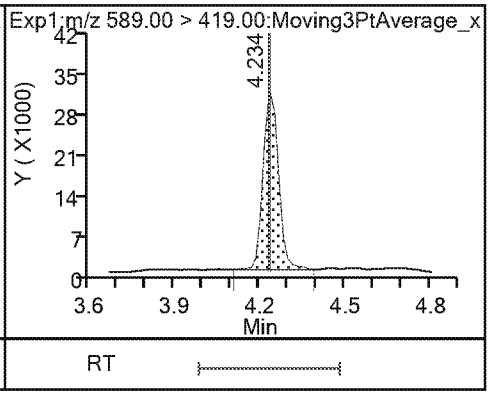
17 Perfluoroundecanoic acid (ND)



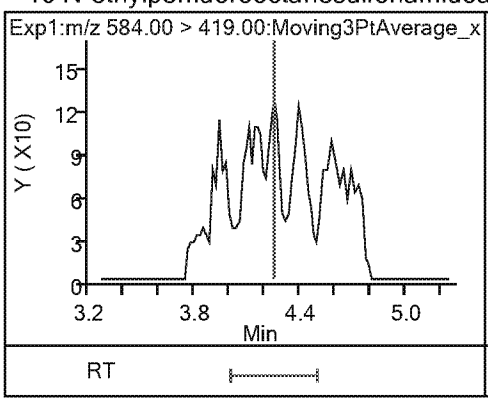
17 Perfluoroundecanoic acid (ND)



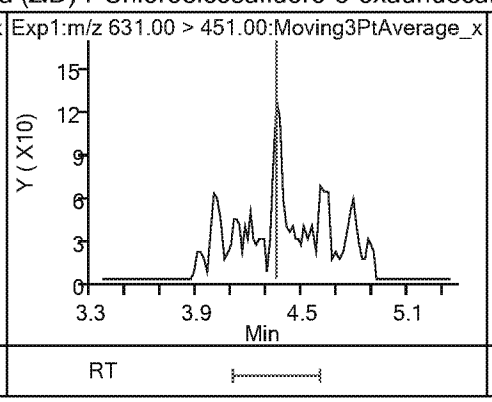
$ 11 d5-NEtFOSAA



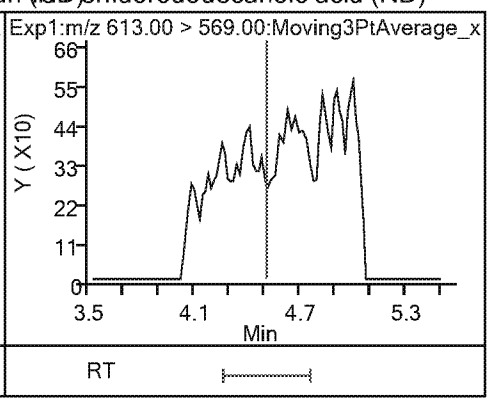
16 N-ethylperfluorooctanesulfonamidoa (ND)



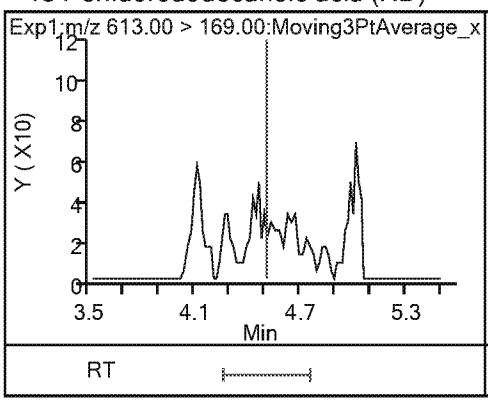
21 11-Chloroeicosafluoro-3-oxaundecan (ND)



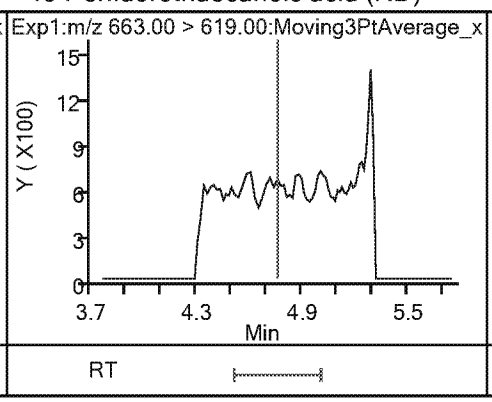
18 Perfluorododecanoic acid (ND)



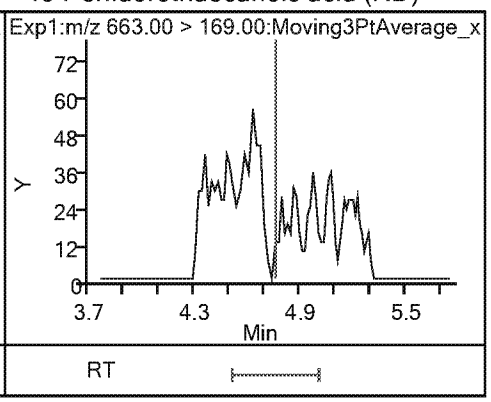
18 Perfluorododecanoic acid (ND)



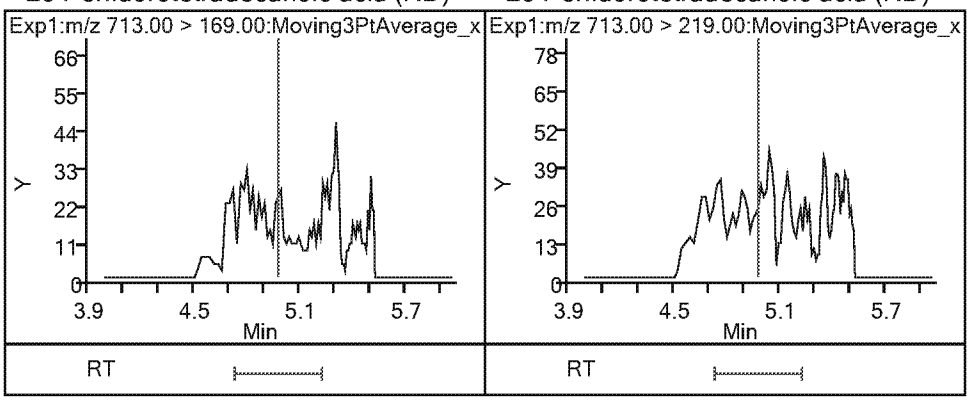
19 Perfluorotridecanoic acid (ND)



19 Perfluorotridecanoic acid (ND)



20 Perfluorotetradecanoic acid (ND) 20 Perfluorotetradecanoic acid (ND)



Eurofins TestAmerica, Sacramento
Recovery Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190405-74359.b\2019.04.05_537.1A_030.d
Lims ID: 320-48794-B-15-A
Client ID: C0AX9
Sample Type: Client
Inject. Date: 05-Apr-2019 14:35:50 ALS Bottle#: 18 Worklist Smp#: 5
Injection Vol: 10.0 ul Dil. Factor: 5.0000
Sample Info: 320-48794-b-15-a 5X
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190405-74359.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Apr-2019 15:06:06 Calib Date: 04-Apr-2019 16:11:08
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: CTX0314

First Level Reviewer: Ex. 4 CBI Date: 05-Apr-2019 15:05:01

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	2.50	0.4704	94.09
$ 25 13C3 HFPO-DA	2.50	0.6715	134.31
$ 10 13C2 PFDA	2.50	0.5187	103.74
$ 11 d5-NEtFOSAA	2.50	0.5104	102.07

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1 Analy Batch No.: 284068

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/26/2019 15:43 Calibration End Date: 03/26/2019 16:27 Calibration ID: 44434

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-284068/2	2019.03.26_537.1CURVE_003.d
Level 2	IC 320-284068/3	2019.03.26_537.1CURVE_004.d
Level 3	IC 320-284068/4	2019.03.26_537.1CURVE_005.d
Level 4	IC 320-284068/5	2019.03.26_537.1CURVE_006.d
Level 5	IC 320-284068/6	2019.03.26_537.1CURVE_007.d
Level 6	IC 320-284068/7	2019.03.26_537.1CURVE_008.d
Level 7	IC 320-284068/8	2019.03.26_537.1CURVE_009.d

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perfluorobutanesulfonic acid	1.1509 1.2666	1.1698 1.2359	1.1909	1.2109	1.2463	Ave		1.2102				3.5		30.0			
Perfluorohexanoic acid	1.2177 1.1118	1.0671 1.1065	1.0188	1.0537	1.0902	Ave		1.0951				5.8		30.0			
Perfluoroheptanoic acid	1.1131 1.0846	1.0547 1.0338	1.1112	1.0504	1.1158	Ave		1.0805				3.2		30.0			
Perfluorohexanesulfonic acid	1.3563 1.5161	1.3626 1.4580	1.3748	1.4063	1.4837	Ave		1.4226				4.5		30.0			
Perfluorooctanoic acid	0.9582 1.0437	1.0387 1.0380	1.0178	0.9924	1.0440	Ave		1.0190				3.2		30.0			
Perfluorooctanesulfonic acid	1.1388 1.0916	1.0001 1.0587	1.0140	1.0330	1.0634	Ave		1.0571				4.5		30.0			
Perfluorononanoic acid	0.7601 0.7633	0.7467 0.7253	0.7269	0.7620	0.7384	Ave		0.7461				2.2		30.0			
Perfluorodecanoic acid	0.6650 0.5962	0.5535 0.5917	0.5401	0.5628	0.5936	Ave		0.5861				7.0		30.0			
N-methylperfluorooctanesulfonamidoacetic acid	1.0264 0.8855	0.9962 0.9082	0.8573	0.8869	0.8972	Ave		0.9225				6.8		30.0			
Perfluoroundecanoic acid	0.4732 0.4619	0.4442 0.4722	0.4254	0.4488	0.4531	Ave		0.4541				3.7		30.0			
N-ethylperfluorooctanesulfonamidoacetic acid	0.8926 0.8560	0.9124 0.8737	0.8733	0.8781	0.8371	Ave		0.8747				2.8		30.0			
Perfluorododecanoic acid	0.4198 0.4678	0.4591 0.4665	0.4070	0.4315	0.4412	Ave		0.4418				5.4		30.0			
Perfluorotridecanoic acid	0.3826 0.3566	0.3680 0.3697	0.3620	0.3543	0.3669	Ave		0.3657				2.6		30.0			
Perfluorotetradecanoic acid	0.1003 0.1007	0.1004 0.0987	0.0975	0.0999	0.1097	Ave		0.1010				3.9		30.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1 Analy Batch No.: 284068

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/26/2019 15:43 Calibration End Date: 03/26/2019 16:27 Calibration ID: 44434

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5		B	M1	M2								
13C2 PFHxA	1.1875 1.1760	1.1472 1.1226	1.1503	1.1805	1.1421	Ave		1.1580				2.1		30.0			
13C2 PFDA	0.6139 0.6227	0.6213 0.6254	0.6009	0.6074	0.6240	Ave		0.6165				1.5		30.0			
d5-NEtFOSAA	0.9725 1.0108	0.9827 1.0891	0.9832	1.0802	1.0202	Ave		1.0198				4.6		30.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1 Analy Batch No.: 284068

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/26/2019 15:43 Calibration End Date: 03/26/2019 16:27 Calibration ID: 44434

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-284068/2	2019.03.26_537.1CURVE_003.d
Level 2	IC 320-284068/3	2019.03.26_537.1CURVE_004.d
Level 3	IC 320-284068/4	2019.03.26_537.1CURVE_005.d
Level 4	IC 320-284068/5	2019.03.26_537.1CURVE_006.d
Level 5	IC 320-284068/6	2019.03.26_537.1CURVE_007.d
Level 6	IC 320-284068/7	2019.03.26_537.1CURVE_008.d
Level 7	IC 320-284068/8	2019.03.26_537.1CURVE_009.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
Perfluorobutanesulfonic acid	PFOS	Ave	35646 6606172	69120 14066321	350580	1318902	3621326	0.0221 4.42	0.0442 8.84	0.221	0.884	2.21
Perfluorohexanoic acid	13PF OA	Ave	39667 6311134	66461 13485841	330270	1243561	3453163	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoroheptanoic acid	13PF OA	Ave	36258 6156902	65686 12600231	360236	1239748	3534265	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorohexanesulfonic acid	PFOS	Ave	43243 8140366	82882 17082127	416620	1576828	4438004	0.0228 4.55	0.0455 9.10	0.228	0.910	2.28
Perfluorooctanoic acid	13PF OA	Ave	31211 5924611	64691 12651138	329937	1171209	3307030	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorooctanesulfonic acid	PFOS	Ave	37028 5977181	62037 12649287	313355	1181093	3243646	0.0232 4.64	0.0464 9.28	0.232	0.928	2.32
Perfluorononanoic acid	13PF OA	Ave	24760 4333151	46504 8839596	235652	899343	2338932	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorodecanoic acid	13PF OA	Ave	21662 3384295	34473 7210903	175094	664242	1880414	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
N-methylperfluorooctanesulfonamidoacetic acid	d3NM FOS	Ave	5862 868166	10476 1867963	48032	174425	496894	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoroundecanoic acid	13PF OA	Ave	15414 2622209	27662 5754895	137917	529625	1435345	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
N-ethylperfluorooctanesulfonamidoacetic acid	d3NM FOS	Ave	5098 839250	9595 1797021	48929	172707	463603	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorododecanoic acid	13PF OA	Ave	13673 2655739	28592 5685209	131951	509270	1397518	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorotridecanoic acid	13PF OA	Ave	12464 2024331	22921 4505505	117361	418150	1162241	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorotetradecanoic acid	13PF OA	Ave	3268 571520	6251 1202433	31622	117943	347516	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
13C2 PFHxA	13PF OA	Ave	3868188 3337796	3572198 3420348	3728924	3483202	3617818	2.50 2.50	2.50 2.50	2.50	2.50	2.50

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1 Analy Batch No.: 284068

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/26/2019 15:43 Calibration End Date: 03/26/2019 16:27 Calibration ID: 44434

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
13C2 PFDA	13PF OA	Ave	1999559 1767371	1934795 1905552	1948071	1792048	1976412	2.50 2.50	2.50 2.50	2.50	2.50	2.50
d5-NEtFOSAA	d3NM FOS	Ave	555454 495489	516719 560044	550849	531116	565031	2.50 2.50	2.50 2.50	2.50	2.50	2.50

Curve Type Legend:
Ave = Average ISTD

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
READBACK PERCENT ERROR

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1 Analy Batch No.: 284068

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/26/2019 15:43 Calibration End Date: 03/26/2019 16:27 Calibration ID: 44434

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-284068/2	2019.03.26_537.1CURVE_003.d
Level 2	IC 320-284068/3	2019.03.26_537.1CURVE_004.d
Level 3	IC 320-284068/4	2019.03.26_537.1CURVE_005.d
Level 4	IC 320-284068/5	2019.03.26_537.1CURVE_006.d
Level 5	IC 320-284068/6	2019.03.26_537.1CURVE_007.d
Level 6	IC 320-284068/7	2019.03.26_537.1CURVE_008.d
Level 7	IC 320-284068/8	2019.03.26_537.1CURVE_009.d

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 # LVL 7 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1 LVL 7	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
Perfluorobutanesulfonic acid	-4.9 2.1	-3.3	-1.6	0.1	3.0	4.7	50 30	30	30	30	30	30
Perfluorohexanoic acid	11.2 1.0	-2.6	-7.0	-3.8	-0.5	1.5	50 30	30	30	30	30	30
Perfluoroheptanoic acid	3.0 -4.3	-2.4	2.8	-2.8	3.3	0.4	50 30	30	30	30	30	30
Perfluorohexanesulfonic acid	-4.7 2.5	-4.2	-3.4	-1.1	4.3	6.6	50 30	30	30	30	30	30
Perfluorooctanoic acid	-6.0 1.9	1.9	-0.1	-2.6	2.5	2.4	50 30	30	30	30	30	30
Perfluorooctanesulfonic acid	7.7 0.2	-5.4	-4.1	-2.3	0.6	3.3	50 30	30	30	30	30	30
Perfluorononanoic acid	1.9 -2.8	0.1	-2.6	2.1	-1.0	2.3	50 30	30	30	30	30	30
Perfluorodecanoic acid	13.5 0.9	-5.6	-7.9	-4.0	1.3	1.7	50 30	30	30	30	30	30
N-methylperfluorooctanesulfonamidoacetic acid	11.3 -1.6	8.0	-7.1	-3.9	-2.7	-4.0	50 30	30	30	30	30	30
Perfluoroundecanoic acid	4.2 4.0	-2.2	-6.3	-1.2	-0.2	1.7	50 30	30	30	30	30	30
N-ethylperfluorooctanesulfonamidoacetic acid	2.0 -0.1	4.3	-0.2	0.4	-4.3	-2.1	50 30	30	30	30	30	30
Perfluorododecanoic acid	-5.0 5.6	3.9	-7.9	-2.3	-0.1	5.9	50 30	30	30	30	30	30
Perfluorotridecanoic acid	4.6 1.1	0.6	-1.0	-3.1	0.3	-2.5	50 30	30	30	30	30	30
Perfluorotetradecanoic acid	-0.7 -2.3	-0.7	-3.5	-1.1	8.6	-0.3	50 30	30	30	30	30	30
13C2 PFHxA	2.5 -3.1	-0.9	-0.7	1.9	-1.4	1.6	30 30	30	30	30	30	30

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
READBACK PERCENT ERROR

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1 Analy Batch No.: 284068

SDG No.:

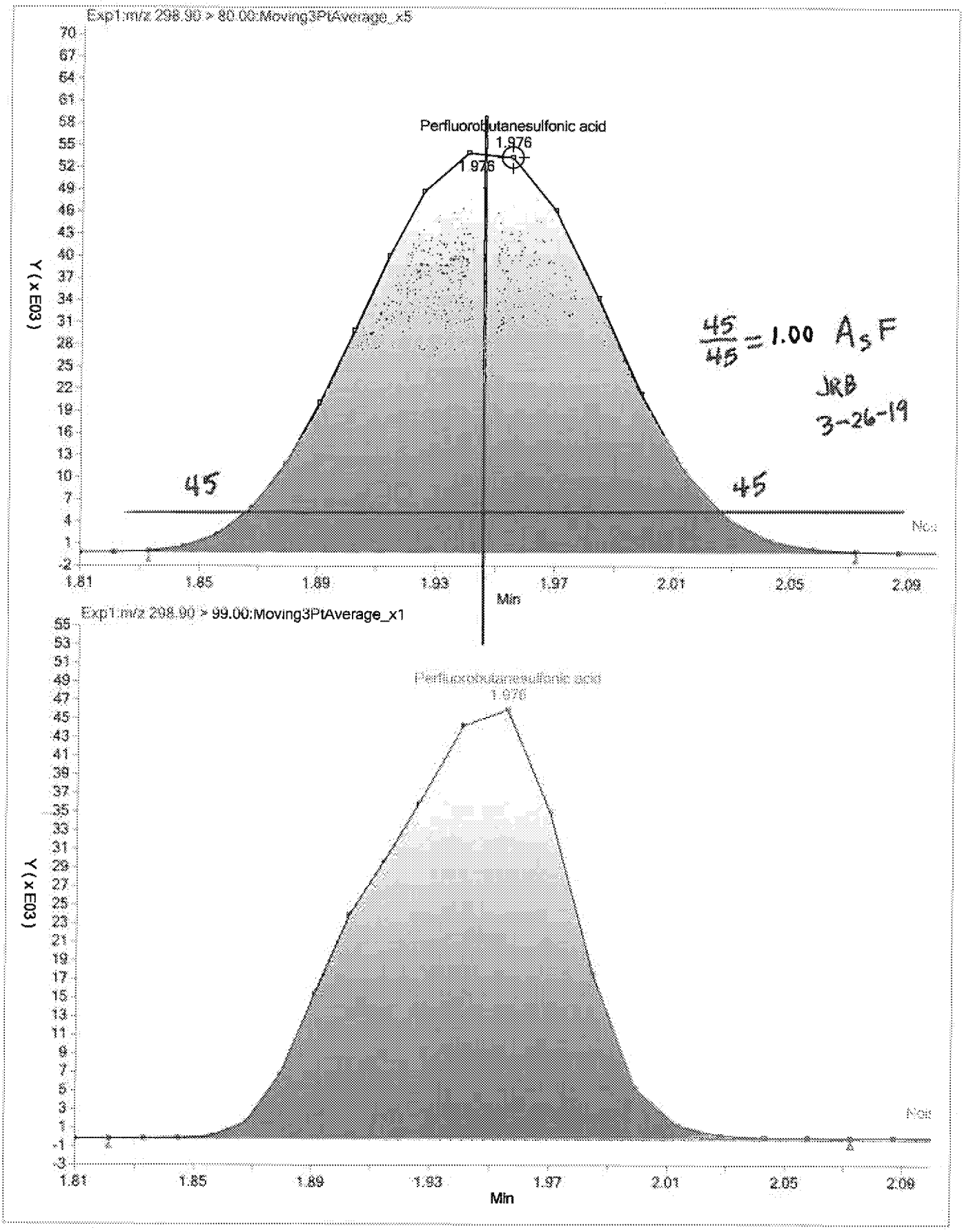
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/26/2019 15:43 Calibration End Date: 03/26/2019 16:27 Calibration ID: 44434

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 # LVL 7 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1 LVL 7	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
13C2 PFDA	-0.4 1.4	0.8	-2.5	-1.5	1.2	1.0	30 30	30	30	30	30	30
d5-NEtFOSAA	-4.6 6.8	-3.6	-3.6	5.9	0.0	-0.9	30 30	30	30	30	30	30

Chromatogram

IC L3 EXP1

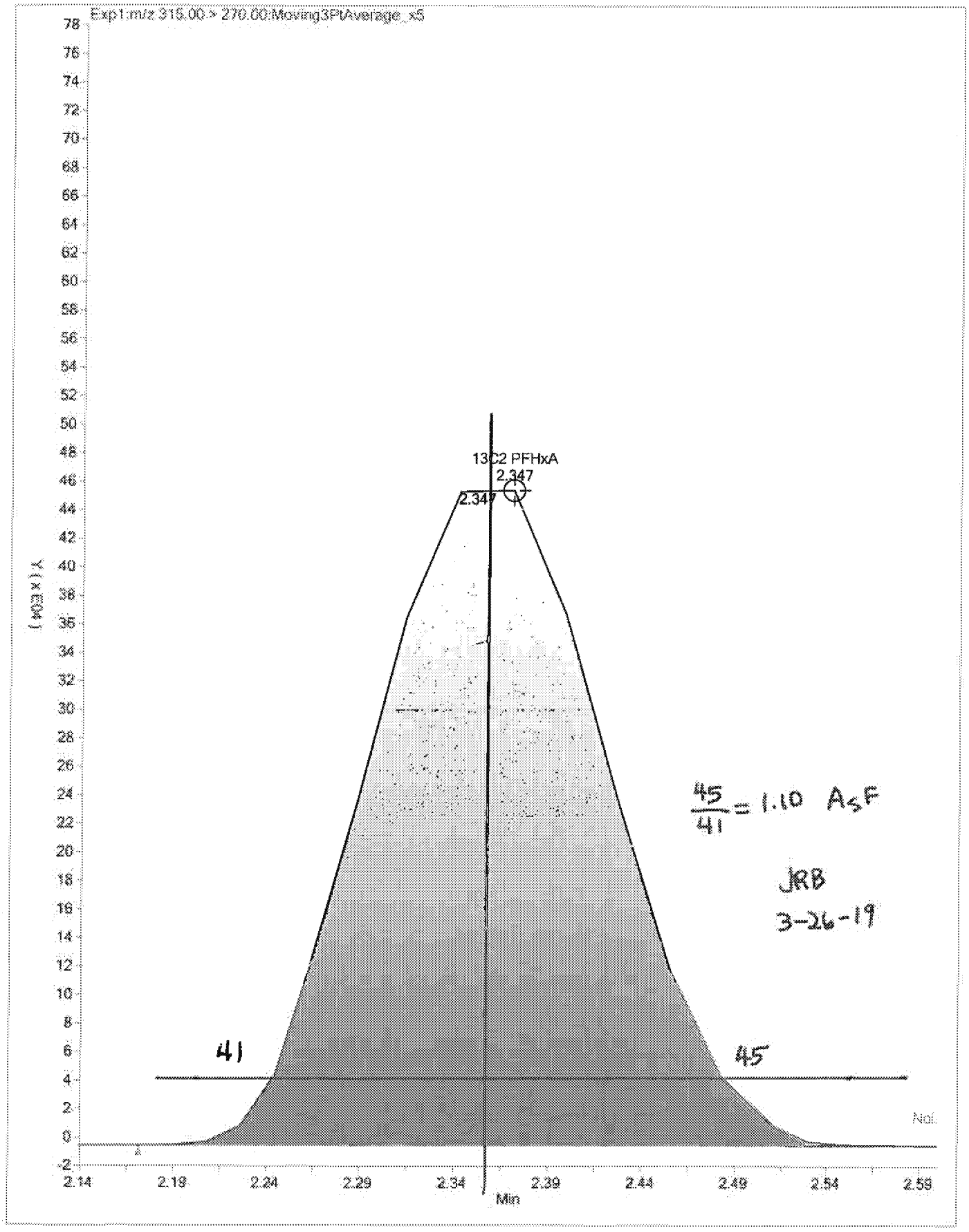


Chrom

Printed: 3/26/2019 5:03:58 PM

Chromatogram

IC L3 EXP1



Chrom

Printed: 3/26/2019 5:04:57 PM

Report Date: 26-Mar-2019 16:49:06 Chrom Revision: 2.3 24-Mar-2019 20:11:00 Page: 1

TestAmerica Laboratories
Istd/Surrogate Recovery Report

Worklist Name: 26MAR2019_ICAL_537.1FULL Worklist Num: 73803
Instrument: A8_N Method: 537_A8_N
Batch Directory: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b
Limit Group: LC 537 ICAL
Analysis Type: SemiVOA
Inj Volume: 10.00 Inj Vol Units: ul

Lims Batch: 284068
CCV IS Mode: Select Ical Level, Cal Level: 3
Non-Cal IS Mode: Last Ccal Sample

$ 2 13C2 PFHxA
$ 25 13C3 HFPO-DA
$ 10 13C2 PFDA
$ 11 d5-NEtFOSAA

Lab ID Inj Date	$ 2	$ 25	$ 10	$ 11	* 3 13C2 PFOA		* 7 13C4 PFOS		* 12 d3-NMeFOSAA	
# 1 RB 26-Mar-2019 15:35:51										
IS Std										
# 2 IC L1 26-Mar-2019 15:43:19	2.32 100.00	2.47 100.00	3.93 100.00	4.25 100.00	3257405>	3.18 100.0*	3349512>	3.55 100.0*	571139>	4.09 100.0*
# 3 IC L2 26-Mar-2019 15:50:48	2.32 99.06	2.45 96.65	3.91 100.80	4.23 96.36	3113965>	3.16 95.6*	3195037>	3.55 95.4*	525798>	4.09 92.1*
# 4 IC L3 26-Mar-2019 15:58:13	2.32 99.33	2.47 97.66	3.91 97.47	4.25 96.41	3241757>	3.18 99.5*	3183475>	3.55 95.0*	560282>	4.09 98.1*
# 5 IC L4 26-Mar-2019 16:05:40	2.32 101.90	2.45 94.29	3.91 98.52	4.24 105.90	2950550>	3.16 90.6*	2944756>	3.55 87.9*	491680>	4.09 86.1*
# 6 IC L5 26-Mar-2019 16:13:07	2.32 98.63	2.47 104.60	3.92 101.20	4.24 100.00	3167554>	3.16 97.2*	3142392>	3.55 93.8*	553836>	4.09 97.0*
# 7 IC L6 26-Mar-2019 16:20:32	2.32 101.60	2.45 110.10	3.92 101.00	4.24 99.11	2838322>	3.17 87.1*	2820303>	3.55 84.2*	490219>	4.09 85.8*
# 8 IC L7 26-Mar-2019 16:27:57	2.32 96.94	2.45 95.61	3.93 101.40	4.24 106.80	3046929>	3.17 93.5*	3077033>	3.55 91.9*	514209>	4.09 90.0*

13C2 PFOA

$$RPD = \frac{3257405 - 2838322}{\left(\frac{3257405 + 2838322}{2}\right)} \times 100 = 13.8$$

13C4 PFOS

$$RPD = \frac{3349512 - 2820303}{\left(\frac{3349512 + 2820303}{2}\right)} \times 100 = 17.2$$

d3-NMeFOSAA

$$RPD = \frac{571139 - 490219}{\left(\frac{571139 + 490219}{2}\right)} \times 100 = 15.2$$

JRB
3-26-19

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_003.d
Lims ID: IC L1
Client ID:
Sample Type: IC Calib Level: 1
Inject. Date: 26-Mar-2019 15:43:19 ALS Bottle#: 1 Worklist Smp#: 2
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: L1_537
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub13

Method: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 26-Mar-2019 17:25:50 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0323

First Level Reviewer: Ex. 4 CBI Date: 26-Mar-2019 15:57:29
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.976	1.973	0.003	1.000	35646	0.0210	Target=1.00	62.9	
298.90 > 99.00	1.976	1.973	0.003	1.000	24268		1.47(0.00-0.00)	37.5	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.322	2.322	0.0	0.731	39667	0.0278	Target=1.00	11.2	
313.00 > 119.00	2.322	2.322	0.0	0.731	3344		11.86(0.00-0.00)	5.6	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.322	2.322	0.0	1.000	3868188	2.56		6488	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.474	2.459	0.015	1.000	173447	2.53		906	
22 Perfluoro(2-propoxypropanoic) acid									M
329.10 > 285.00	2.474	2.463	0.011	1.000	10191	0.0303		4.6	M
4 Perfluoroheptanoic acid									M
363.00 > 319.00	2.757	2.760	-0.003	1.000	36258	0.0258	Target=1.00	3.3	M
363.00 > 169.00	2.757	2.760	-0.003	1.000	14234		2.55(0.00-0.00)	47.0	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	2.778	2.772	0.006	1.000	43243	0.0217	Target=1.00	132	
399.00 > 99.00	2.778	2.772	0.006	1.000	15475		2.79(0.00-0.00)	11.8	
24 DONA									
377.00 > 251.00	2.799	2.801	-0.002	1.000	86598	0.0230	Target=1.00	241	
377.00 > 85.00	2.799	2.801	-0.002	1.000	59506		1.46(0.00-0.00)	3133	
* 5 13C2 PFOA									
415.00 > 370.00	3.177	3.167	0.010		3257405	2.50		8116	
6 Perfluorooctanoic acid									M
413.00 > 369.00	3.177	3.172	0.005	1.000	31211	0.0235	Target=1.00	3.4	M
413.00 > 169.00	3.177	3.172	0.005	1.000	19397		1.61(0.00-0.00)	49.4	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
8 Perfluorooctanesulfonic acid									
499.00 > 80.00	3.549	3.549	0.0	1.000	37028	0.0250	Target=1.00	32.0	
499.00 > 99.00	3.549	3.549	0.0	1.000	8501		4.36(0.00-0.00)	13.2	
* 7 13C4 PFOS									
503.00 > 80.00	3.549	3.549	0.0		3349512	2.39		8748	
9 Perfluorononanoic acid									
463.00 > 419.00	3.564	3.560	0.004	1.000	24760	0.0255	Target=1.00	10.6	
463.00 > 169.00	3.564	3.560	0.004	1.000	6280		3.94(0.00-0.00)	71.5	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.750	3.749	0.001	1.000	51873	0.0217		110	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.911	3.912	-0.001	1.000	21662	0.0284	Target=1.00	11.1	
513.00 > 169.00	3.911	3.912	-0.001	1.000	3311		6.54(0.00-0.00)	19.1	
$ 10 13C2 PFDA									
515.00 > 470.00	3.930	3.918	0.012	1.000	1999559	2.49		7618	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.086	4.089	-0.003		571139	2.50		4167	
15 N-methylperfluorooctanesulfonamido									
570.00 > 419.00	4.086	4.089	-0.003	1.000	5862	0.0278		150	
17 Perfluoroundecanoic acid									
563.00 > 519.00	4.247	4.236	0.011	1.000	15414	0.0261	Target=1.00	7.1	
563.00 > 169.00	4.247	4.236	0.011	1.000	3105		4.96(0.00-0.00)	29.8	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.247	4.238	0.009	1.039	555454	2.38		252	
16 N-ethylperfluorooctanesulfonamidoa									
584.00 > 419.00	4.263	4.252	0.011	1.004	5098	0.0255		17.9	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.367	4.373	-0.006	1.000	69696	0.0234		755	
18 Perfluorododecanoic acid									
613.00 > 569.00	4.528	4.518	0.010	1.000	13673	0.0238	Target=1.00	5.6	
613.00 > 169.00	4.528	4.518	0.010	1.000	3555		3.85(0.00-0.00)	43.4	
19 Perfluorotridecanoic acid									
663.00 > 619.00	4.790	4.779	0.011	1.000	12464	0.0262	Target=1.00	5.0	
663.00 > 169.00	4.790	4.779	0.011	1.000	4185		2.98(0.00-0.00)	49.0	
20 Perfluorotetradecanoic acid									
713.00 > 169.00	5.001	5.004	-0.003	1.000	3268	0.0248	Target=1.00	68.7	
713.00 > 219.00	5.001	5.004	-0.003	1.000	2504		1.31(0.00-0.00)	25.3	

QC Flag Legend

Review Flags

M - Manually Integrated

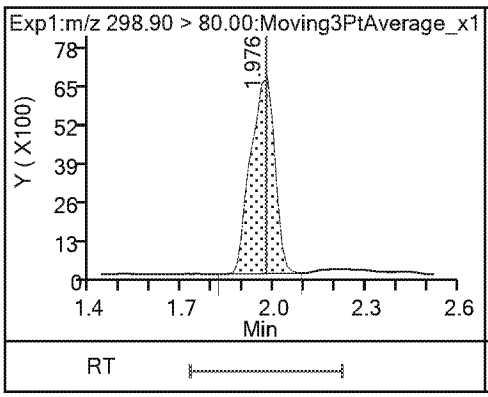
Reagents:

LC537_NC_L1_00004 Amount Added: 1.00 Units: mL

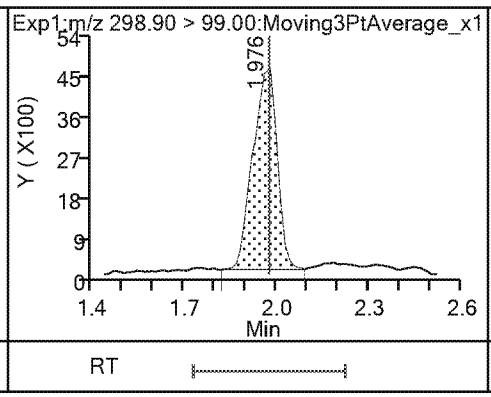
TestAmerica Sacramento

Data File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_003.d
Injection Date: 26-Mar-2019 15:43:19 Instrument ID: A8_N
Lims ID: IC L1
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 2
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

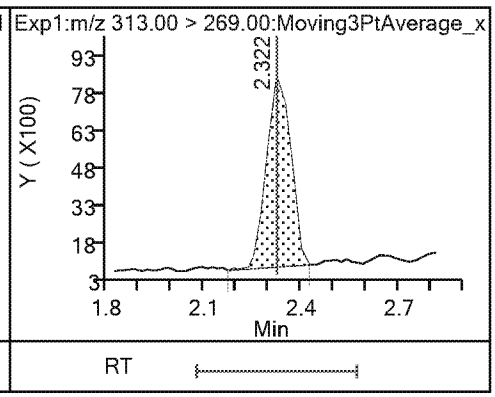
1 Perfluorobutanesulfonic acid



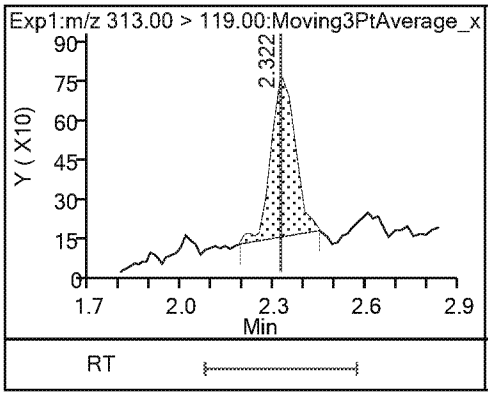
1 Perfluorobutanesulfonic acid



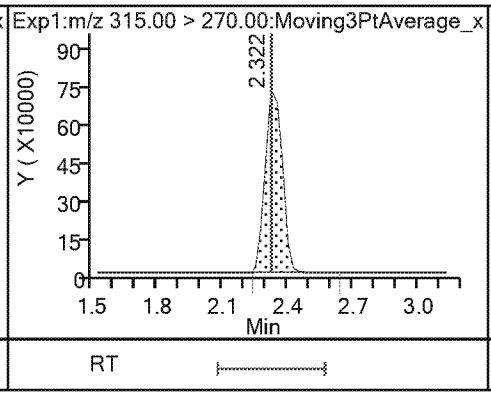
13 Perfluorohexanoic acid



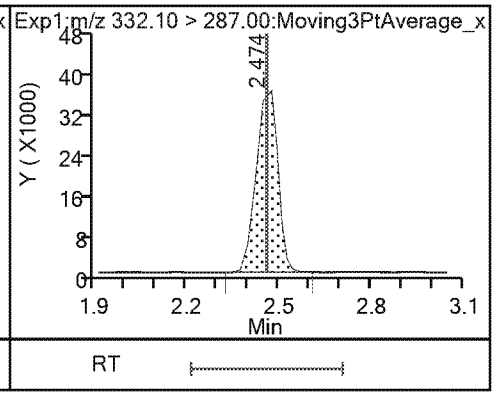
13 Perfluorohexanoic acid



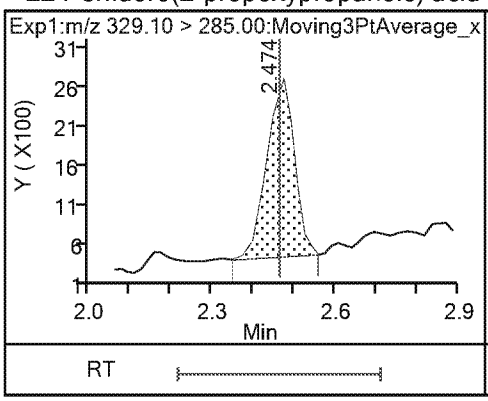
$ 2 13C2 PFHxA



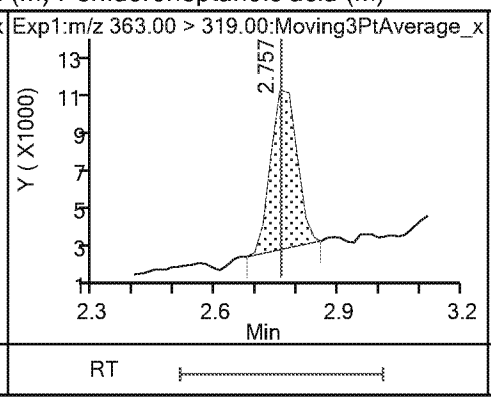
$ 25 13C3 HFPO-DA



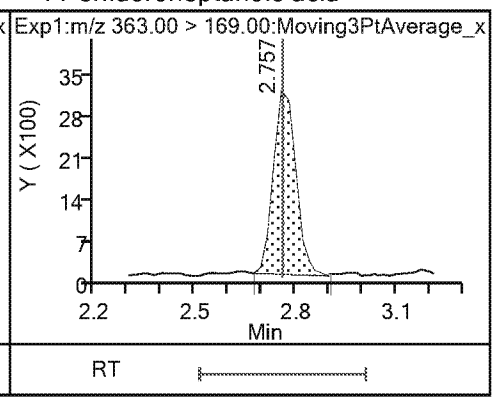
22 Perfluoro(2-propoxypropanoic) acid (M)



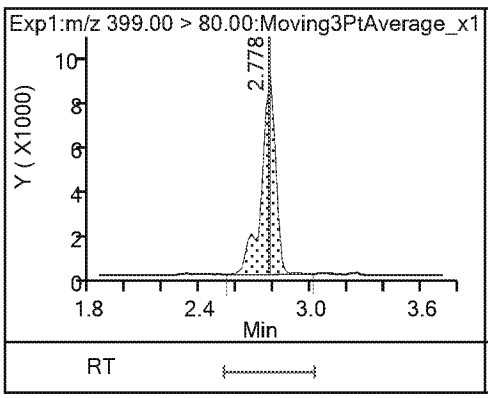
4 Perfluoroheptanoic acid (M)



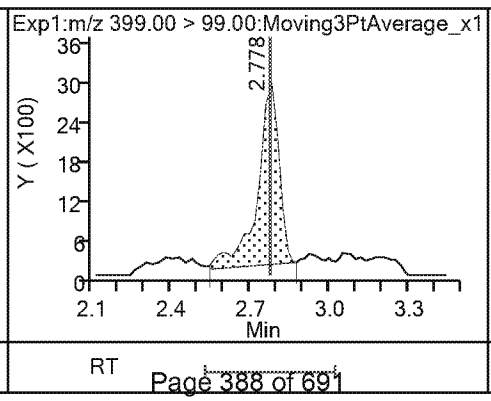
4 Perfluoroheptanoic acid



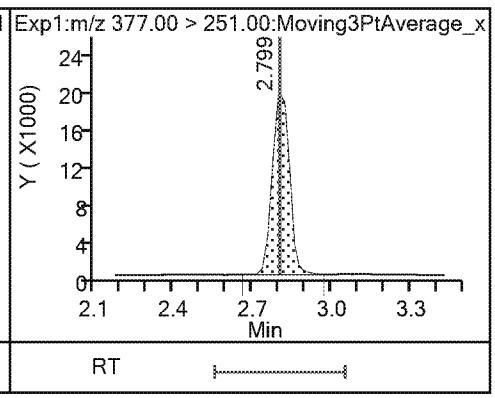
3 Perfluorohexanesulfonic acid



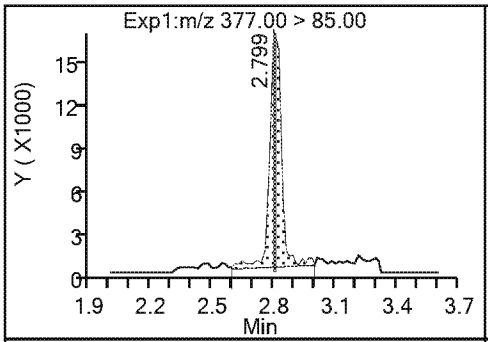
3 Perfluorohexanesulfonic acid



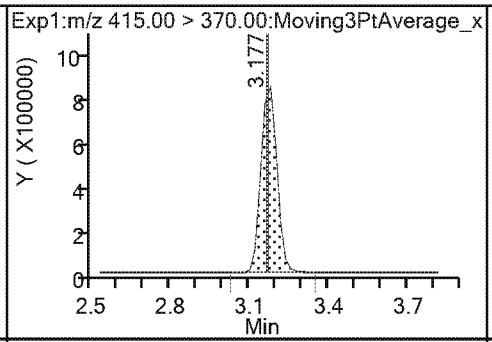
24 DONA



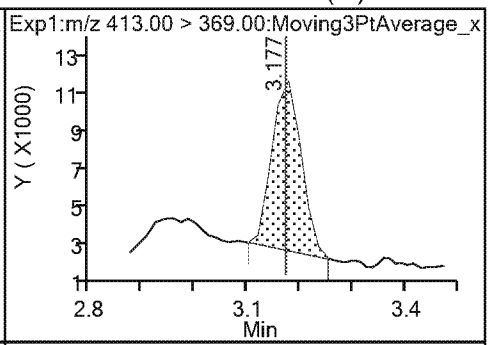
24 DONA



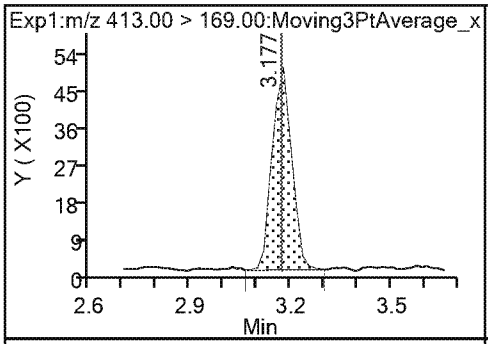
* 5 13C2 PFOA



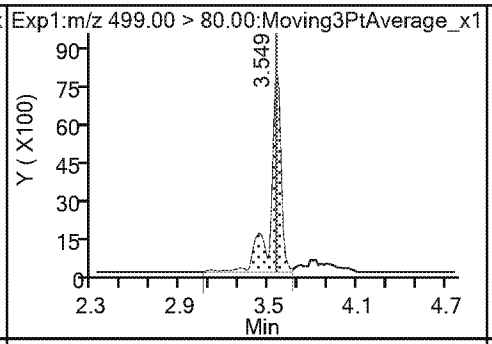
6 Perfluorooctanoic acid (M)



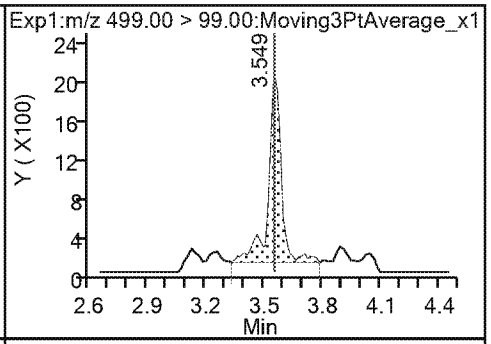
6 Perfluorooctanoic acid



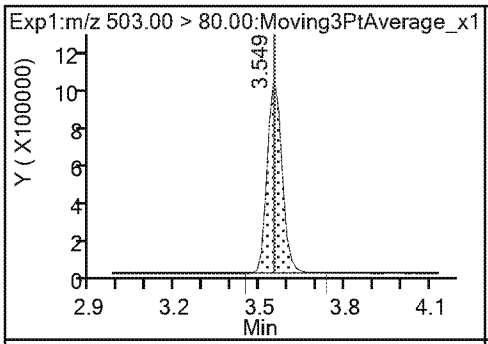
8 Perfluorooctanesulfonic acid



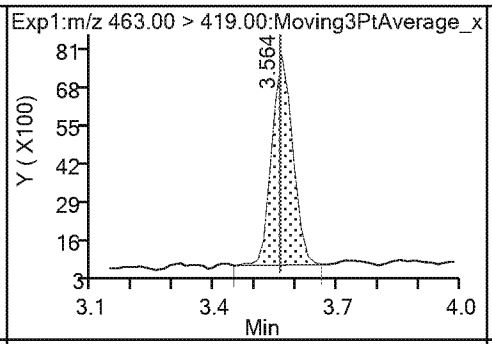
8 Perfluorooctanesulfonic acid



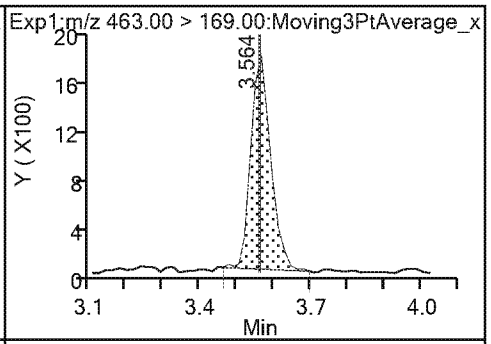
* 7 13C4 PFOS



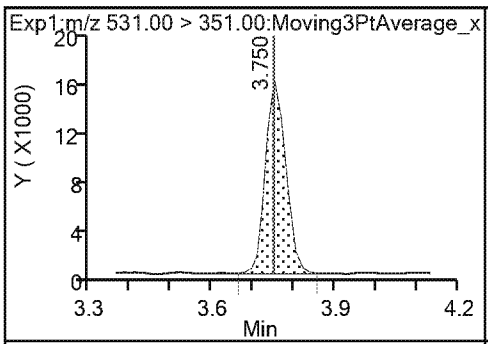
9 Perfluorononanoic acid



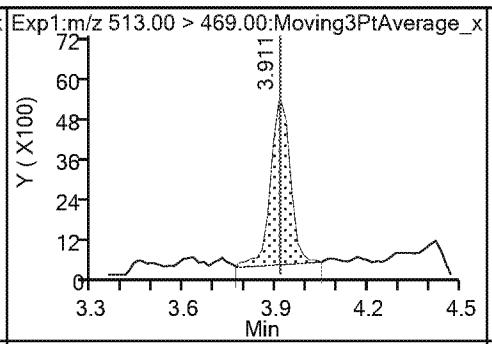
9 Perfluorononanoic acid



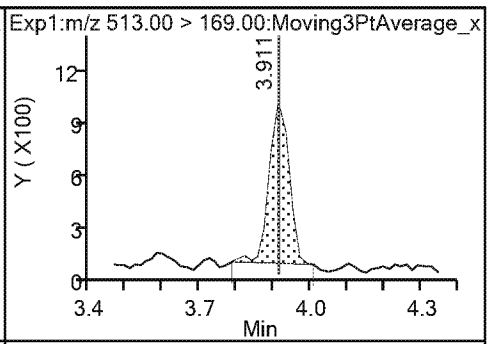
23 9-Chlorohexadecafluoro-3-oxanonane



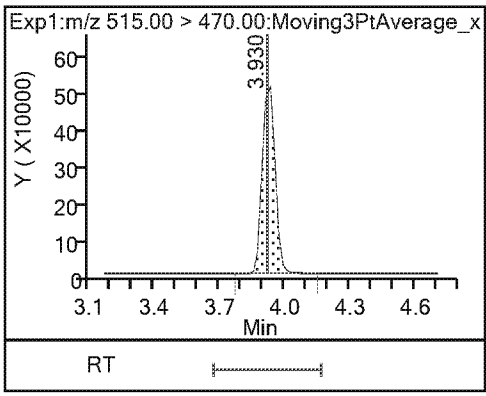
14 Perfluorodecanoic acid



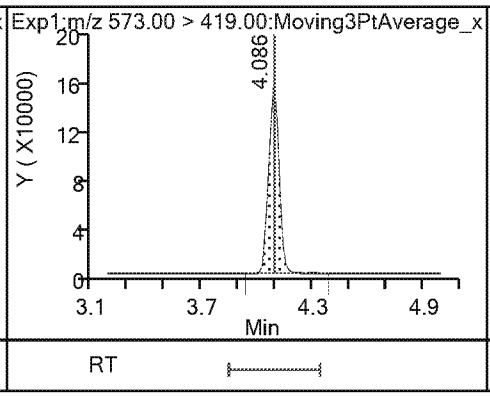
14 Perfluorodecanoic acid



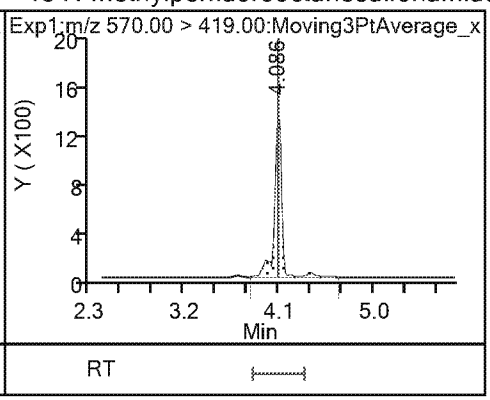
$ 10 13C2 PFDA



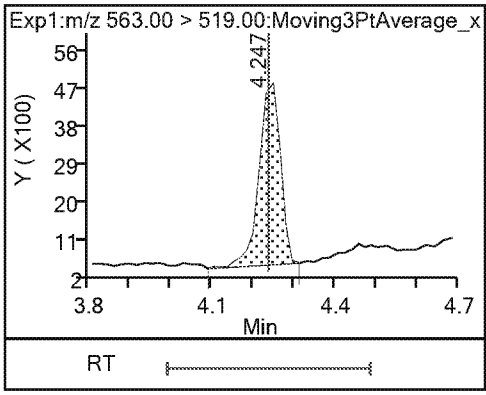
* 12 d3-NMeFOSAA



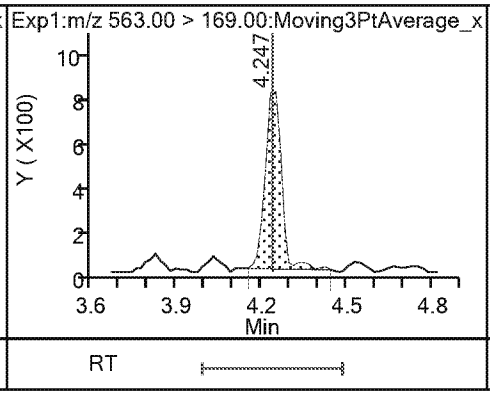
15 N-methylperfluorooctanesulfonamido



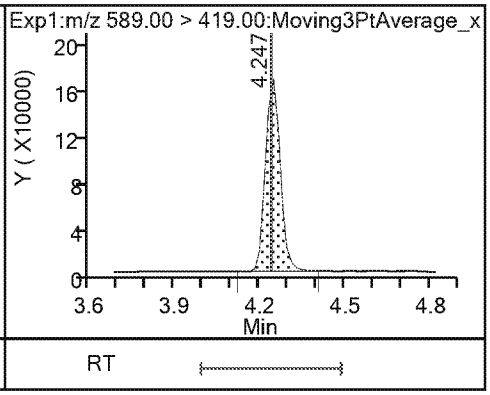
17 Perfluoroundecanoic acid



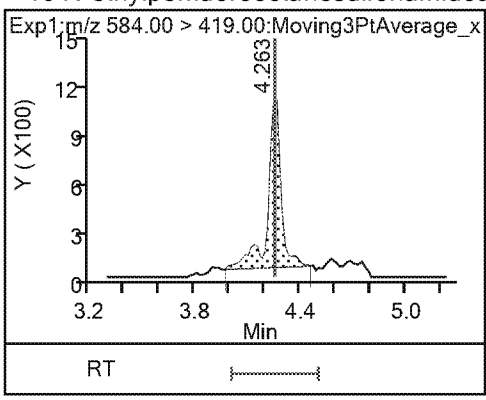
17 Perfluoroundecanoic acid



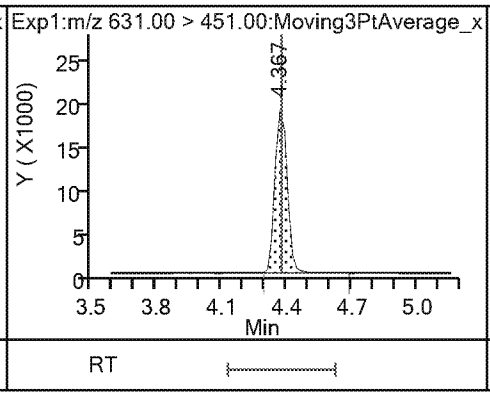
$ 11 d5-NEtFOSAA



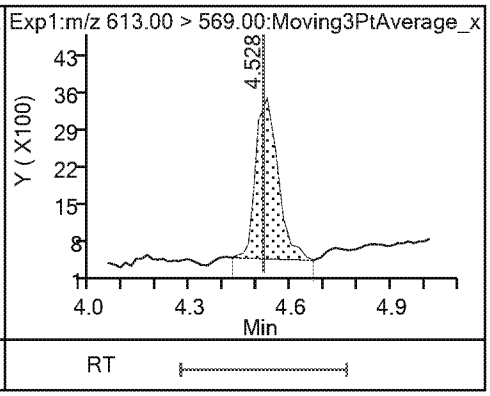
16 N-ethylperfluorooctanesulfonamidoa



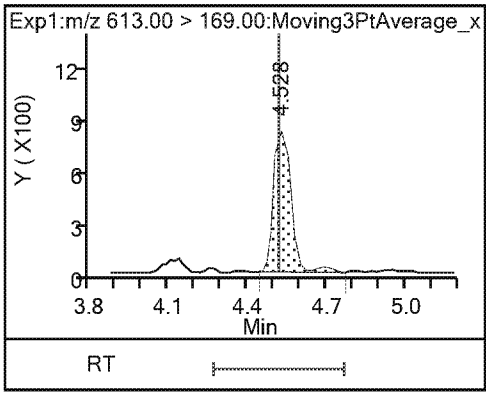
21 11-Chloroeicosafluoro-3-oxaundecan



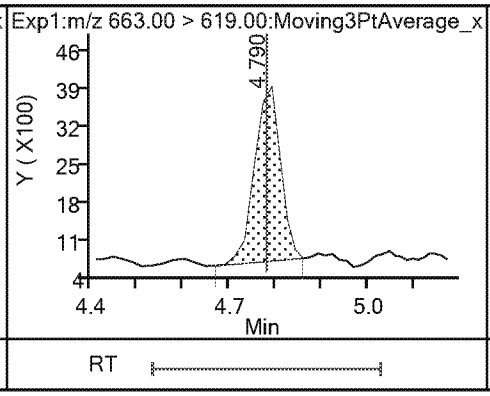
18 Perfluorododecanoic acid



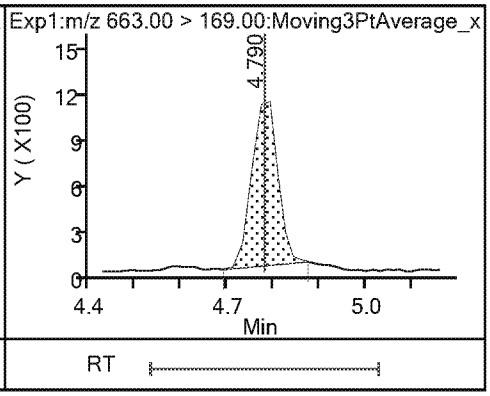
18 Perfluorododecanoic acid



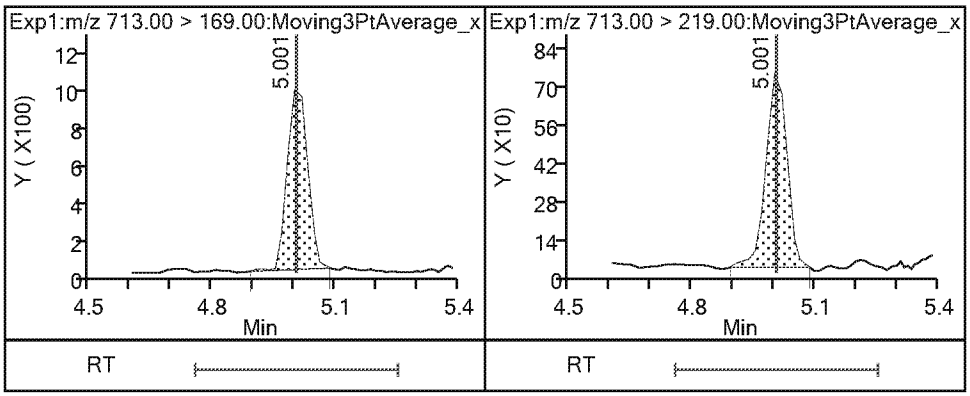
19 Perfluorotridecanoic acid



19 Perfluorotridecanoic acid



20 Perfluorotetradecanoic acid 20 Perfluorotetradecanoic acid



TestAmerica Sacramento

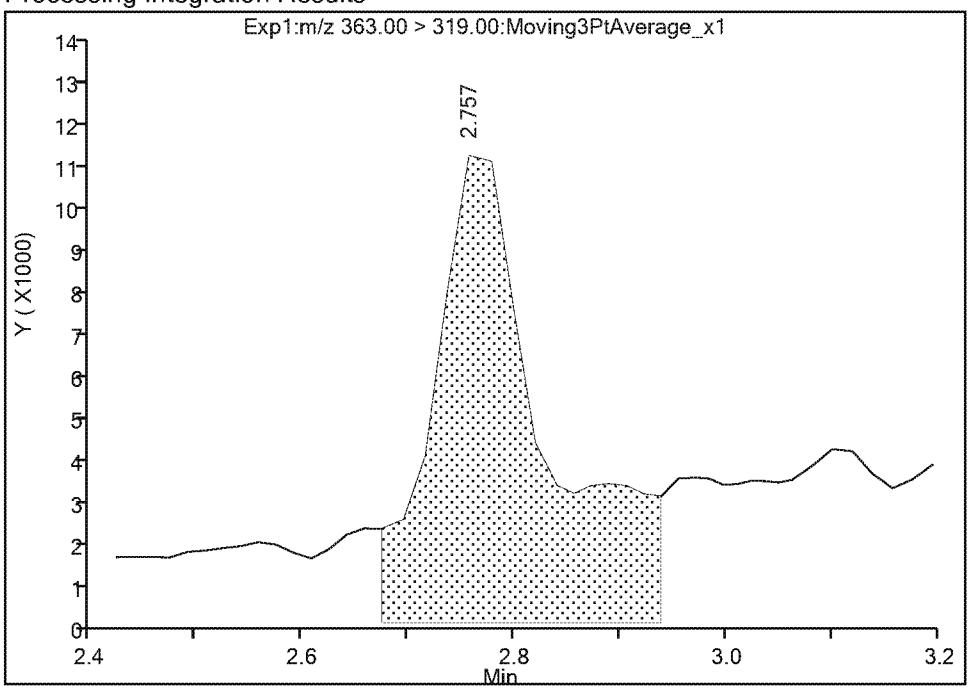
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_003.d				
Injection Date:	26-Mar-2019 15:43:19	Instrument ID:	A8_N		
Lims ID:	IC L1				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	1	Worklist Smp#:	2
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

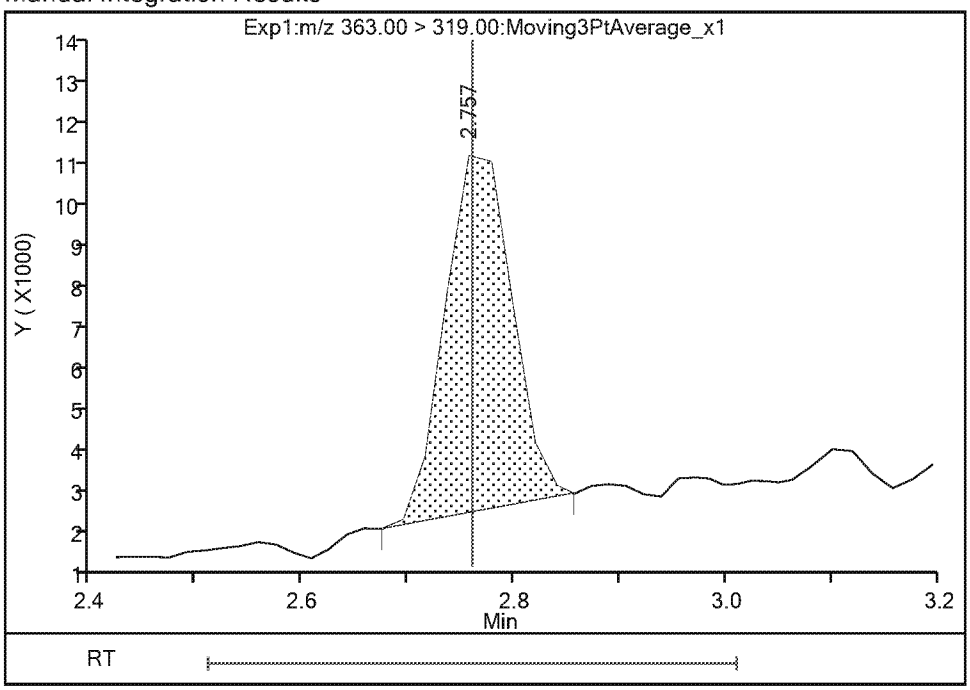
Processing Integration Results

RT: 2.76
Area: 79928
Amount: 0.025000
Amount Units: ng/ml



Manual Integration Results

RT: 2.76
Area: 36258
Amount: 0.025754
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 26-Mar-2019 15:56:31
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento

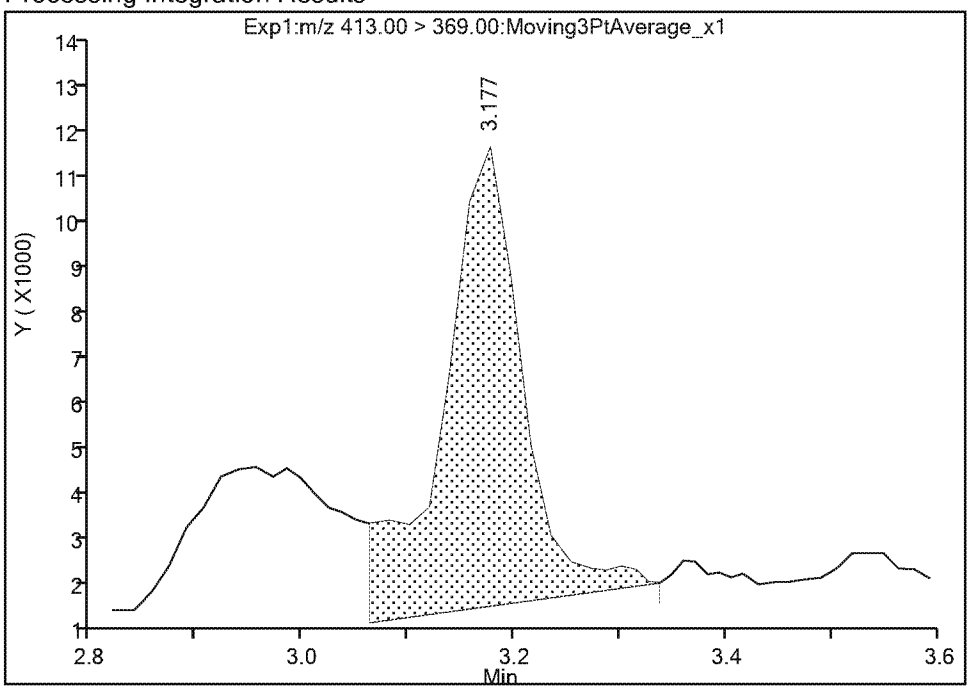
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_003.d				
Injection Date:	26-Mar-2019 15:43:19	Instrument ID:	A8_N		
Lims ID:	IC L1				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	1	Worklist Smp#:	2
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

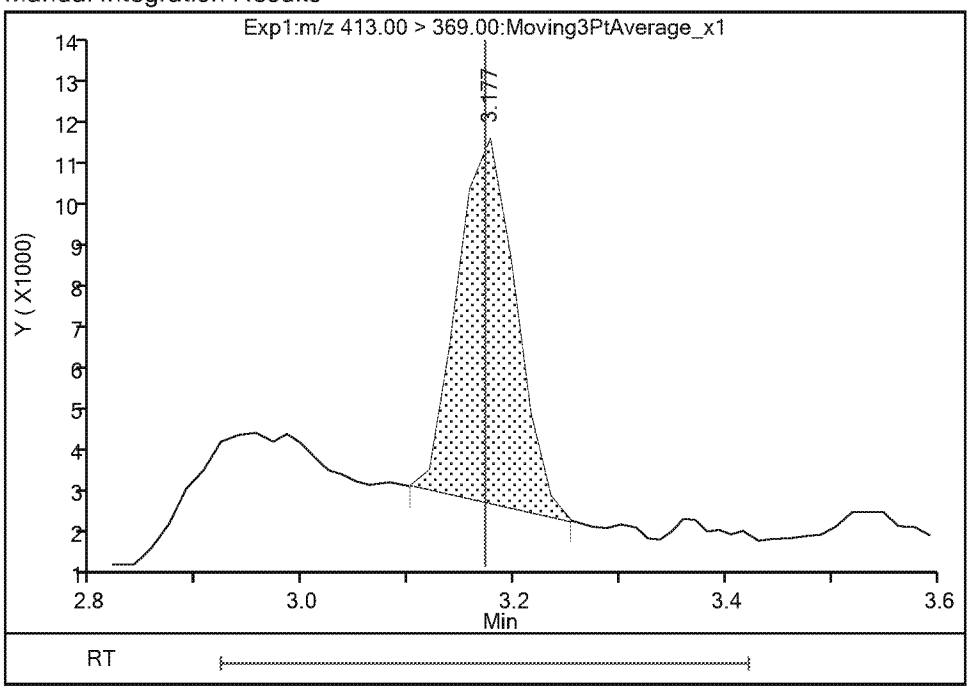
Processing Integration Results

RT: 3.18
Area: 49343
Amount: 0.025000
Amount Units: ng/ml



Manual Integration Results

RT: 3.18
Area: 31211
Amount: 0.023508
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 26-Mar-2019 15:56:43
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_004.d
Lims ID: IC L2
Client ID:
Sample Type: IC Calib Level: 2
Inject. Date: 26-Mar-2019 15:50:48 ALS Bottle#: 2 Worklist Smp#: 3
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: L2_537
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub13

Method: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 26-Mar-2019 17:25:51 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0323

First Level Reviewer: Ex. 4 CBI Date: 26-Mar-2019 16:45:54
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.959	1.973	-0.014	1.000	69120	0.0427	Target=1.00	122	
298.90 > 99.00	1.959	1.973	-0.014	1.000	45213		1.53(0.00-0.00)	66.8	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.322	2.322	0.0	0.735	66461	0.0487	Target=1.00	20.0	
313.00 > 119.00	2.322	2.322	0.0	0.735	7718		8.61(0.00-0.00)	13.3	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.322	2.322	0.0	1.000	3572198	2.48		5028	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.448	2.459	-0.011	1.000	158522	2.42		685	
22 Perfluoro(2-propoxypropanoic) acid									
329.10 > 285.00	2.448	2.463	-0.015	1.000	15082	0.0469		6.2	
4 Perfluoroheptanoic acid									
363.00 > 319.00	2.757	2.760	-0.003	1.000	65686	0.0488	Target=1.00	5.6	
363.00 > 169.00	2.757	2.760	-0.003	1.000	25909		2.54(0.00-0.00)	91.0	
3 Perfluorohexanesulfonic acid									M
399.00 > 80.00	2.757	2.772	-0.015	1.000	82882	0.0436	Target=1.00	479	
399.00 > 99.00	2.757	2.772	-0.015	1.000	28261		2.93(0.00-0.00)	21.5	M
24 DONA									
377.00 > 251.00	2.798	2.801	-0.003	1.000	164698	0.0458	Target=1.00	530	
377.00 > 85.00	2.798	2.801	-0.003	1.000	106282		1.55(0.00-0.00)	4004	
* 5 13C2 PFOA									
415.00 > 370.00	3.158	3.167	-0.009		3113965	2.50		9485	
6 Perfluorooctanoic acid									M
413.00 > 369.00	3.158	3.172	-0.014	1.000	64691	0.0510	Target=1.00	6.3	M
413.00 > 169.00	3.158	3.172	-0.014	1.000	35507		1.82(0.00-0.00)	95.3	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
8 Perfluorooctanesulfonic acid									M
499.00 > 80.00	3.549	3.549	0.0	1.000	62037	0.0439	Target=1.00	60.4	M
499.00 > 99.00	3.549	3.549	0.0	1.000	16474		3.77(0.00-0.00)	27.2	M
* 7 13C4 PFOS									
503.00 > 80.00	3.549	3.549	0.0		3195037	2.39		9029	
9 Perfluorononanoic acid									
463.00 > 419.00	3.549	3.560	-0.011	1.000	46504	0.0500	Target=1.00	19.9	
463.00 > 169.00	3.549	3.560	-0.011	1.000	12080		3.85(0.00-0.00)	247	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.750	3.749	0.001	1.000	102910	0.0450		221	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.911	3.912	-0.001	1.000	34473	0.0472	Target=1.00	19.3	
513.00 > 169.00	3.911	3.912	-0.001	1.000	6884		5.01(0.00-0.00)	38.0	
$ 10 13C2 PFDA									
515.00 > 470.00	3.911	3.918	-0.007	1.000	1934795	2.52		8202	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.086	4.089	-0.003		525798	2.50		4923	
15 N-methylperfluorooctanesulfonamido									
570.00 > 419.00	4.086	4.089	-0.003	1.000	10476	0.0540		221	
17 Perfluoroundecanoic acid									
563.00 > 519.00	4.230	4.236	-0.006	1.000	27662	0.0489	Target=1.00	11.7	
563.00 > 169.00	4.230	4.236	-0.006	1.000	5757		4.80(0.00-0.00)	62.2	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.230	4.238	-0.008	1.035	516719	2.41		220	
16 N-ethylperfluorooctanesulfonamidoa									
584.00 > 419.00	4.246	4.252	-0.006	1.004	9595	0.0522		25.4	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.367	4.373	-0.006	1.000	124549	0.0438		1007	
18 Perfluorododecanoic acid									
613.00 > 569.00	4.527	4.518	0.009	1.000	28592	0.0520	Target=1.00	12.1	
613.00 > 169.00	4.503	4.518	-0.015	0.995	6256		4.57(0.00-0.00)	80.6	
19 Perfluorotridecanoic acid									
663.00 > 619.00	4.772	4.779	-0.007	1.000	22921	0.0503	Target=1.00	9.2	
663.00 > 169.00	4.772	4.779	-0.007	1.000	7625		3.01(0.00-0.00)	104	
20 Perfluorotetradecanoic acid									
713.00 > 169.00	5.000	5.004	-0.004	1.000	6251	0.0497	Target=1.00	125	
713.00 > 219.00	5.000	5.004	-0.004	1.000	4160		1.50(0.00-0.00)	48.8	

QC Flag Legend

Review Flags

M - Manually Integrated

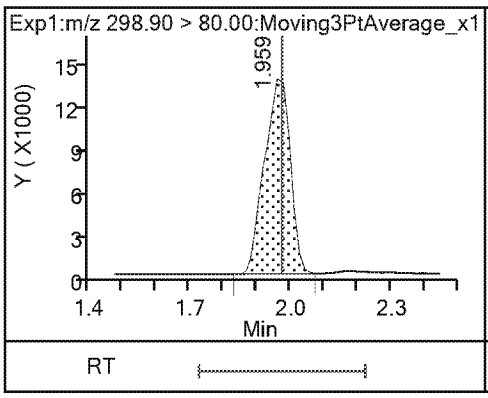
Reagents:

LC537_NC_L2_00004 Amount Added: 1.00 Units: mL

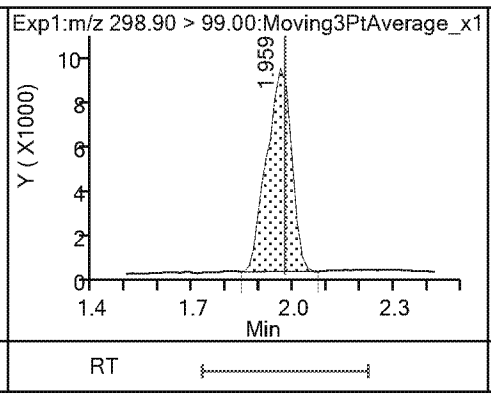
TestAmerica Sacramento

Data File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_004.d
Injection Date: 26-Mar-2019 15:50:48 Instrument ID: A8_N
Lims ID: IC L2
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 3
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

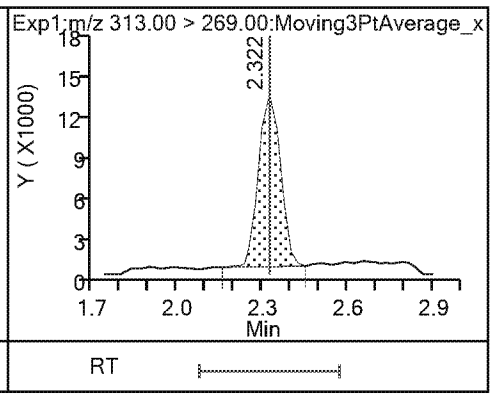
1 Perfluorobutanesulfonic acid



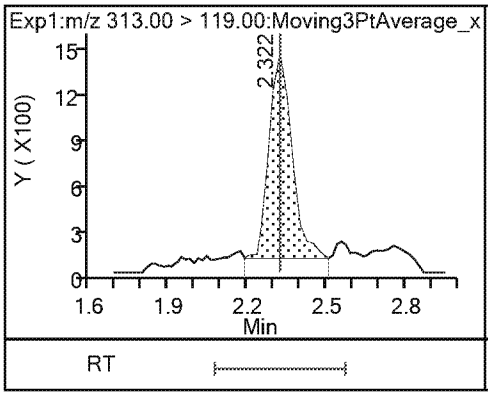
1 Perfluorobutanesulfonic acid



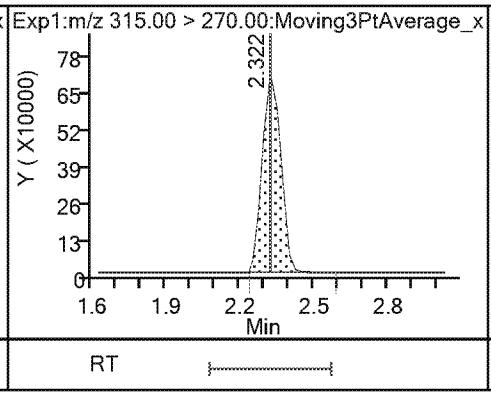
13 Perfluorohexanoic acid



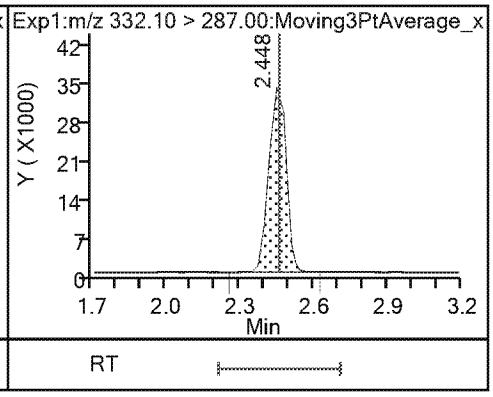
13 Perfluorohexanoic acid



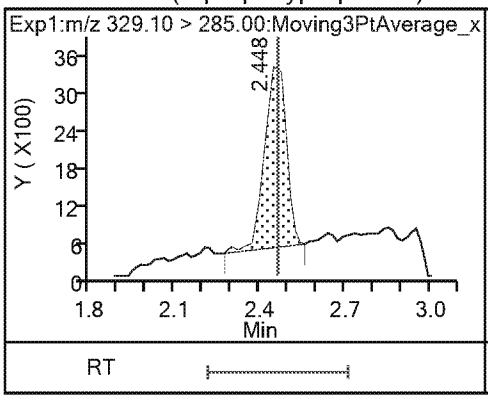
$ 2 13C2 PFHxA



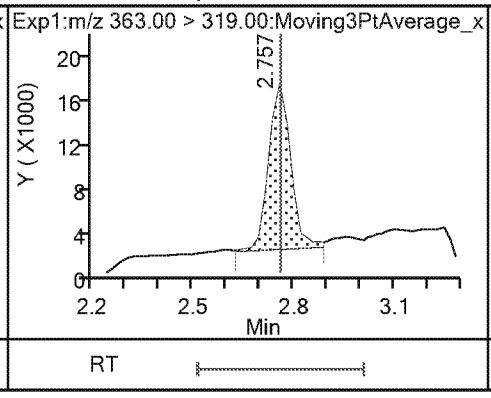
$ 25 13C3 HFPO-DA



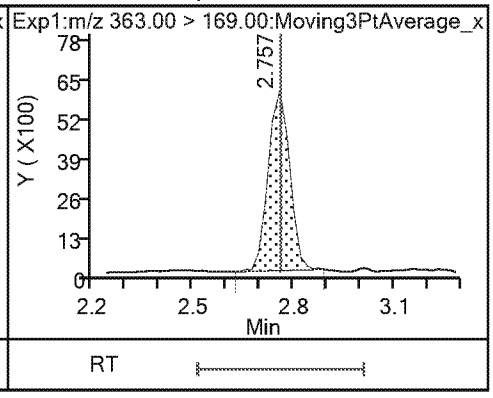
22 Perfluoro(2-propoxypropanoic) acid



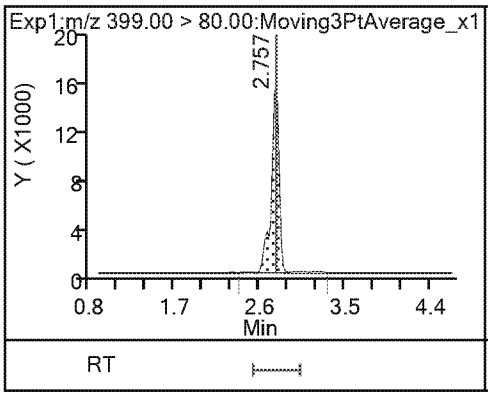
4 Perfluoroheptanoic acid



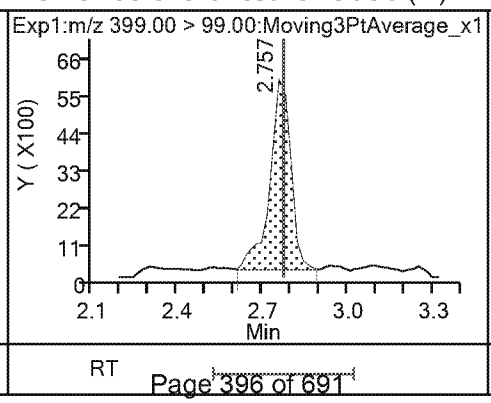
4 Perfluoroheptanoic acid



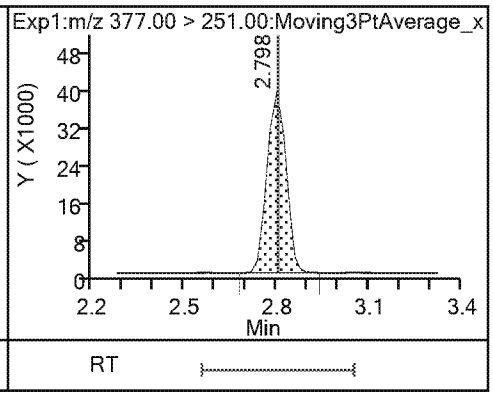
3 Perfluorohexanesulfonic acid



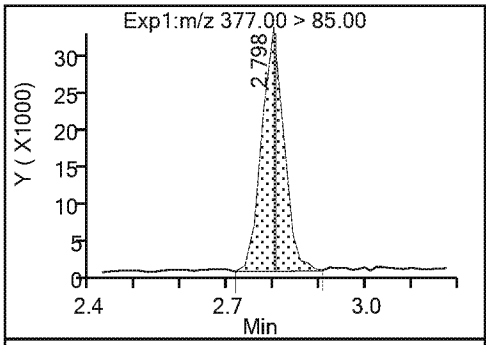
3 Perfluorohexanesulfonic acid (M)



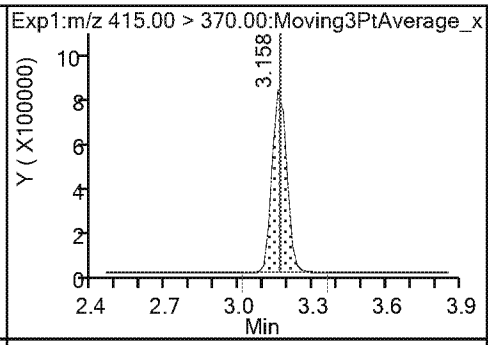
24 DONA



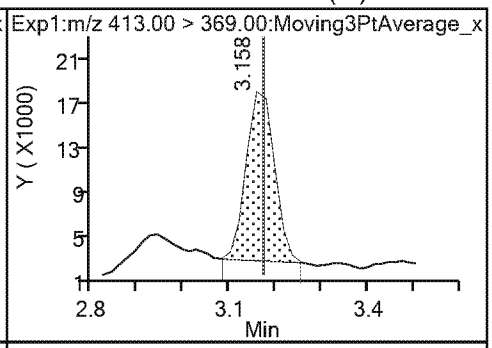
24 DONA



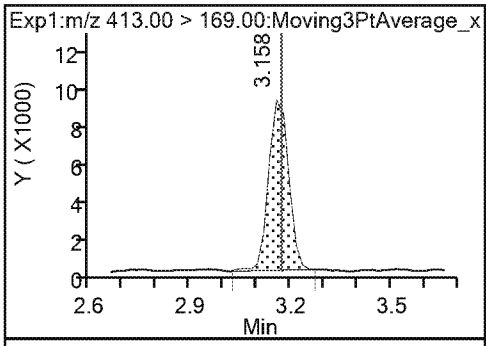
* 5 13C2 PFOA



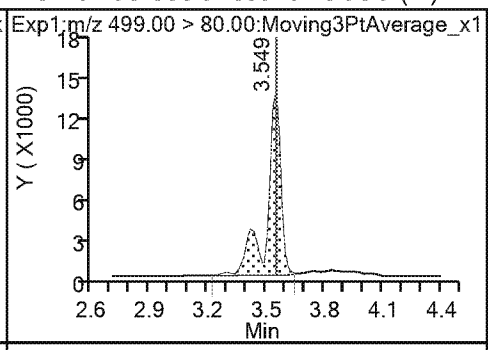
6 Perfluorooctanoic acid (M)



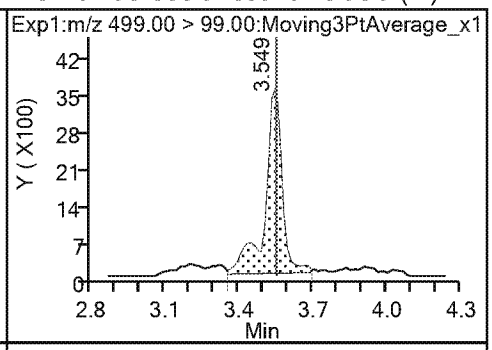
6 Perfluorooctanoic acid



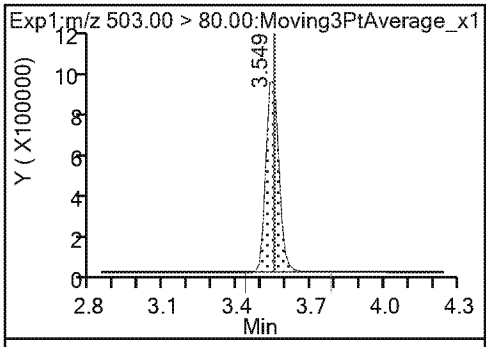
8 Perfluorooctanesulfonic acid (M)



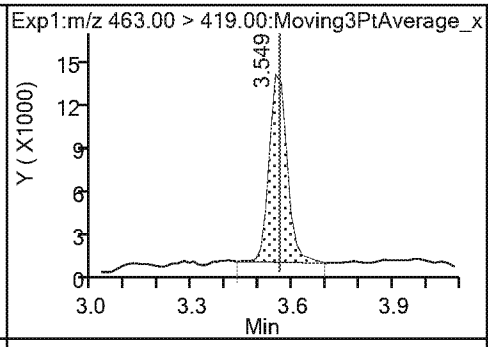
8 Perfluorooctanesulfonic acid (M)



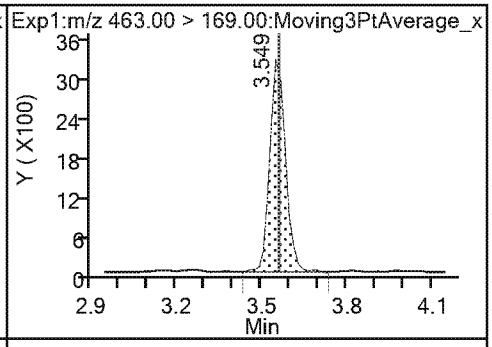
* 7 13C4 PFOS



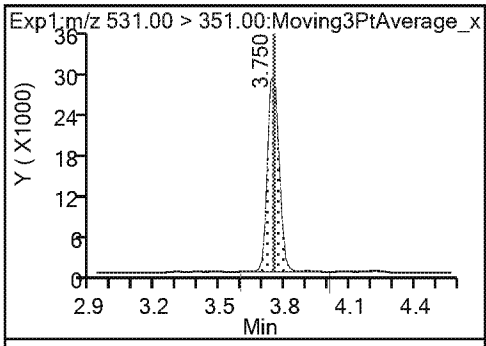
9 Perfluorononanoic acid



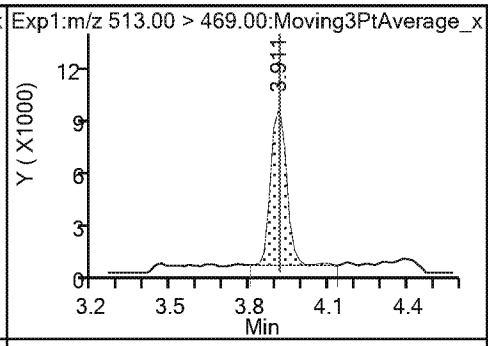
9 Perfluorononanoic acid



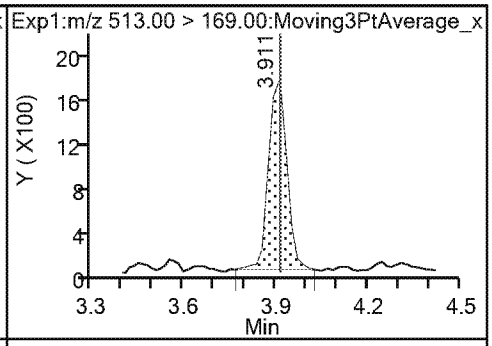
23 9-Chlorohexadecafluoro-3-oxanonane



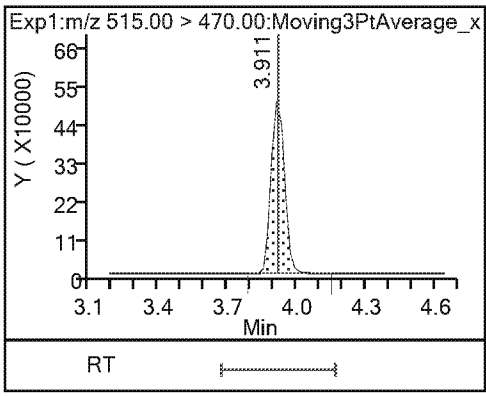
14 Perfluorodecanoic acid



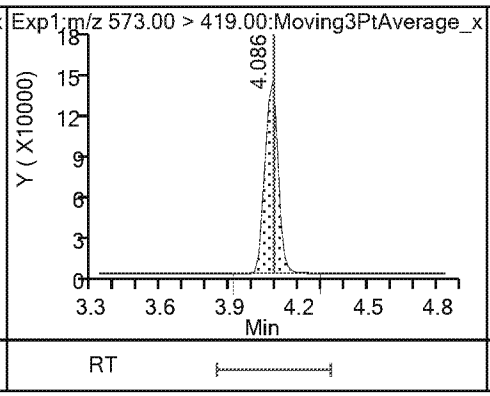
14 Perfluorodecanoic acid



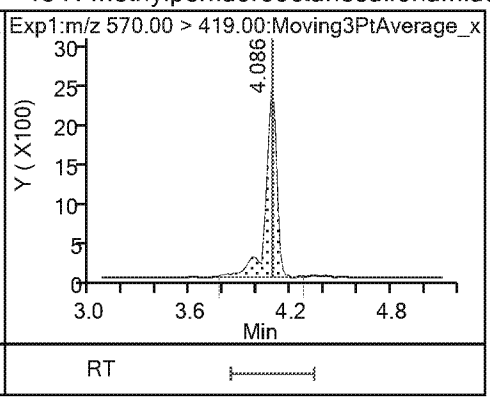
$ 10 13C2 PFDA



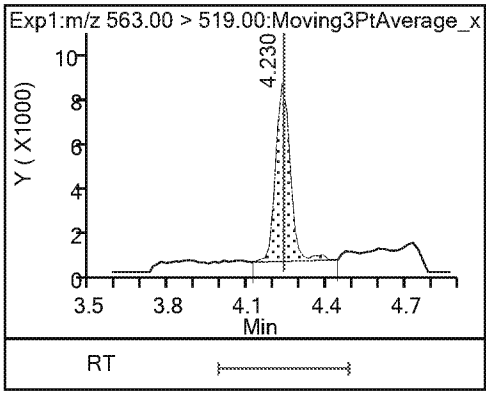
* 12 d3-NMeFOSAA



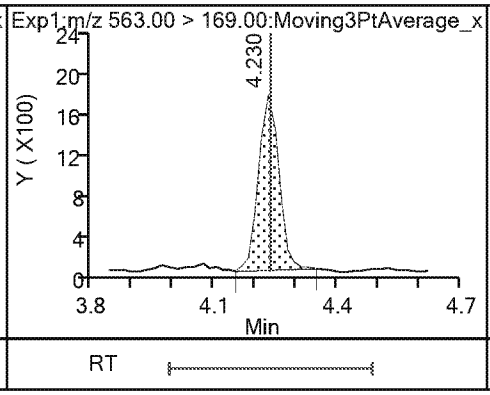
15 N-methylperfluorooctanesulfonamido



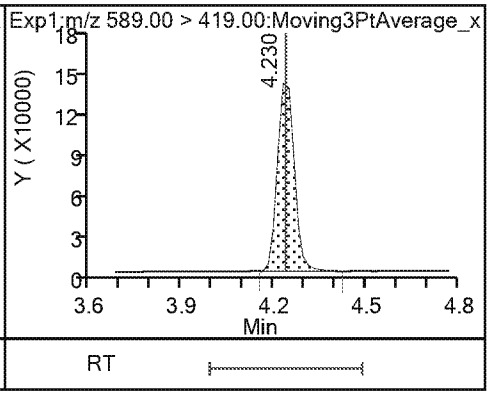
17 Perfluoroundecanoic acid



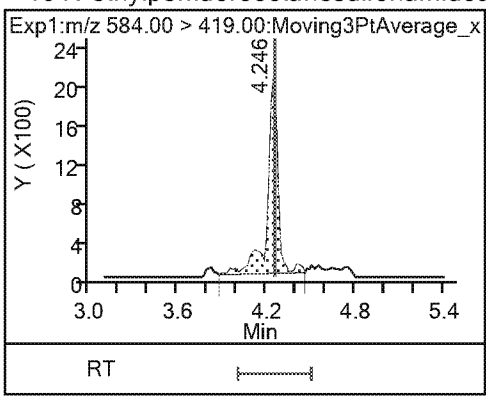
17 Perfluoroundecanoic acid



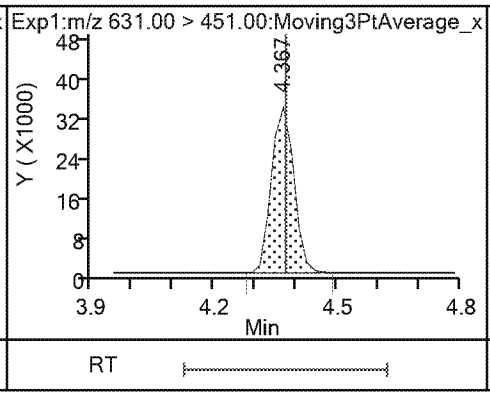
$ 11 d5-NEtFOSAA



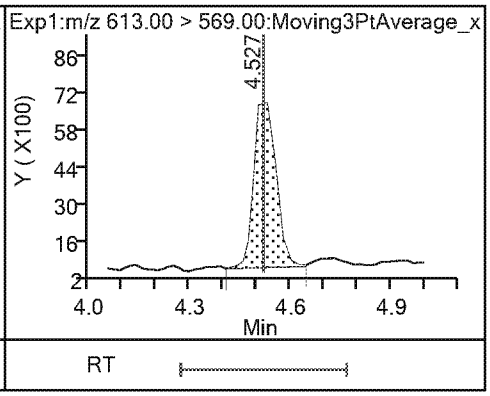
16 N-ethylperfluorooctanesulfonamidoa



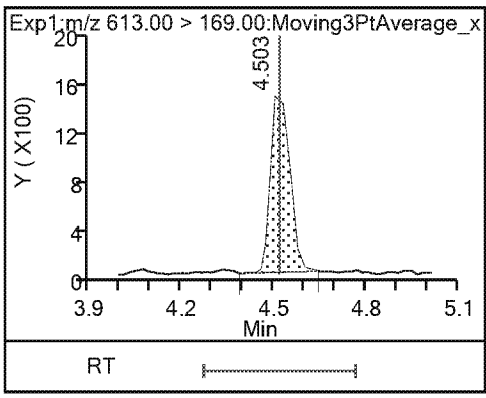
21 11-Chloroeicosafluoro-3-oxaundecan



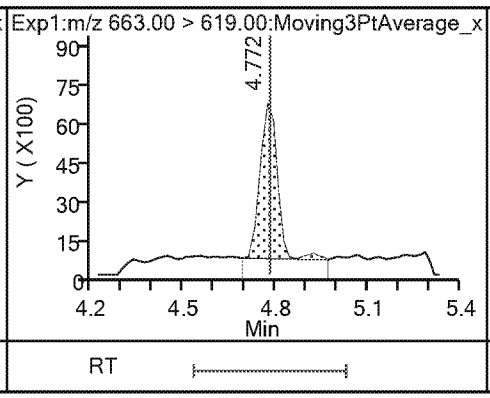
18 Perfluorododecanoic acid



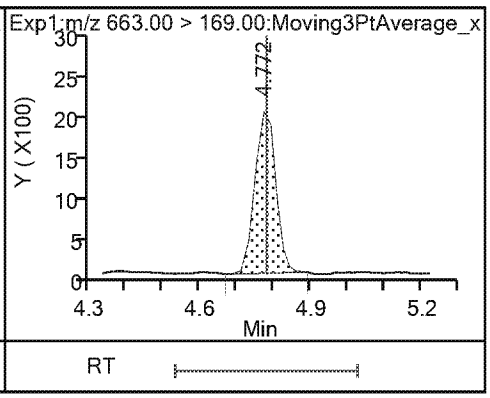
18 Perfluorododecanoic acid



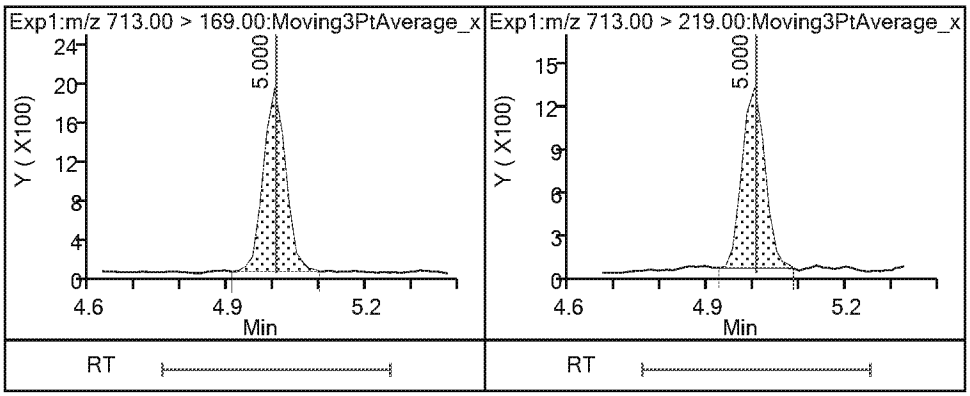
19 Perfluorotridecanoic acid



19 Perfluorotridecanoic acid



20 Perfluorotetradecanoic acid 20 Perfluorotetradecanoic acid



TestAmerica Sacramento

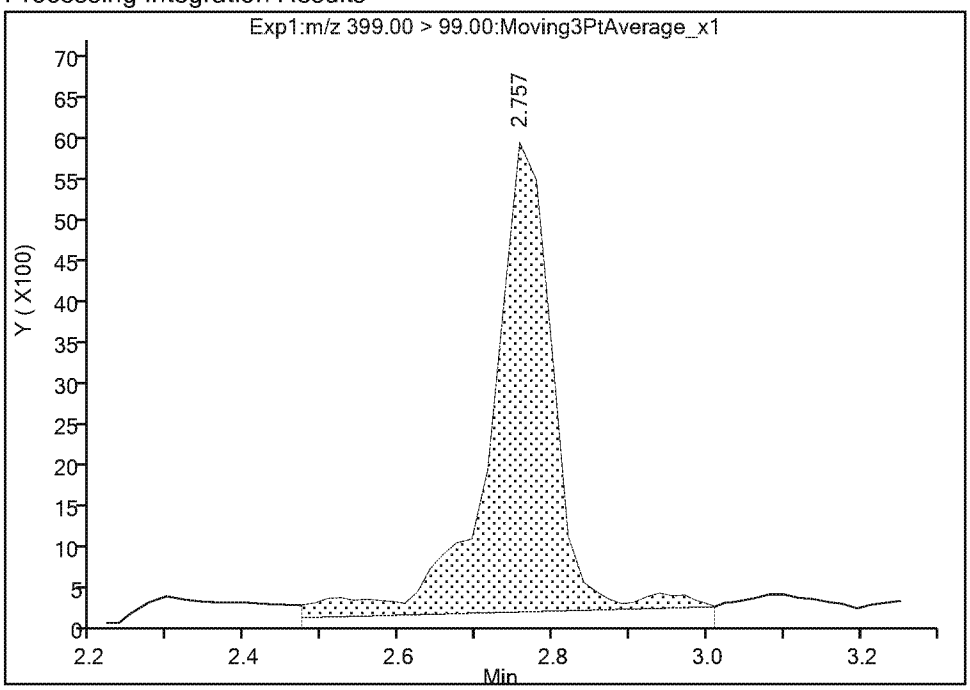
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_004.d				
Injection Date:	26-Mar-2019 15:50:48	Instrument ID:	A8_N		
Lims ID:	IC L2				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	2	Worklist Smp#:	3
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

3 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 2

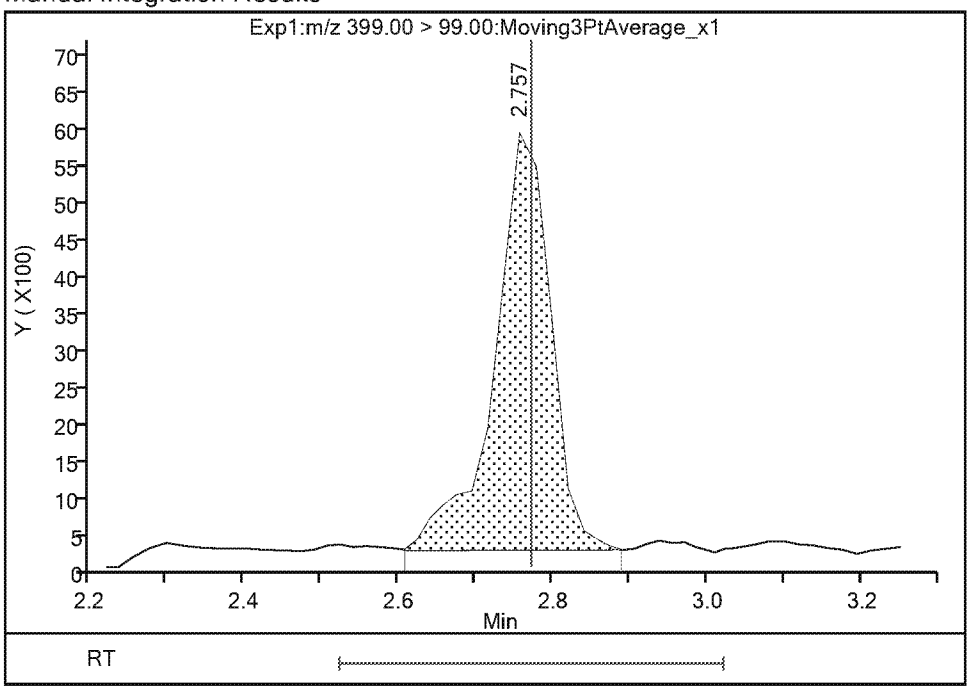
Processing Integration Results

RT: 2.76
Area: 32168
Amount: 0.043582
Amount Units: ng/ml



Manual Integration Results

RT: 2.76
Area: 28261
Amount: 0.043582
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 26-Mar-2019 16:44:50
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento

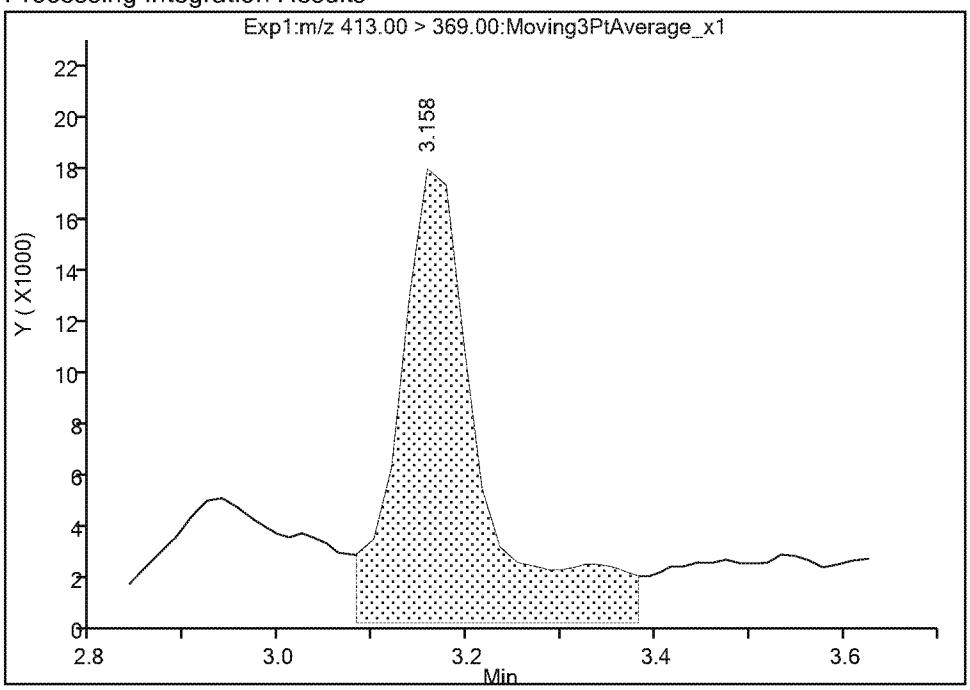
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_004.d				
Injection Date:	26-Mar-2019 15:50:48	Instrument ID:	A8_N		
Lims ID:	IC L2				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	2	Worklist Smp#:	3
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

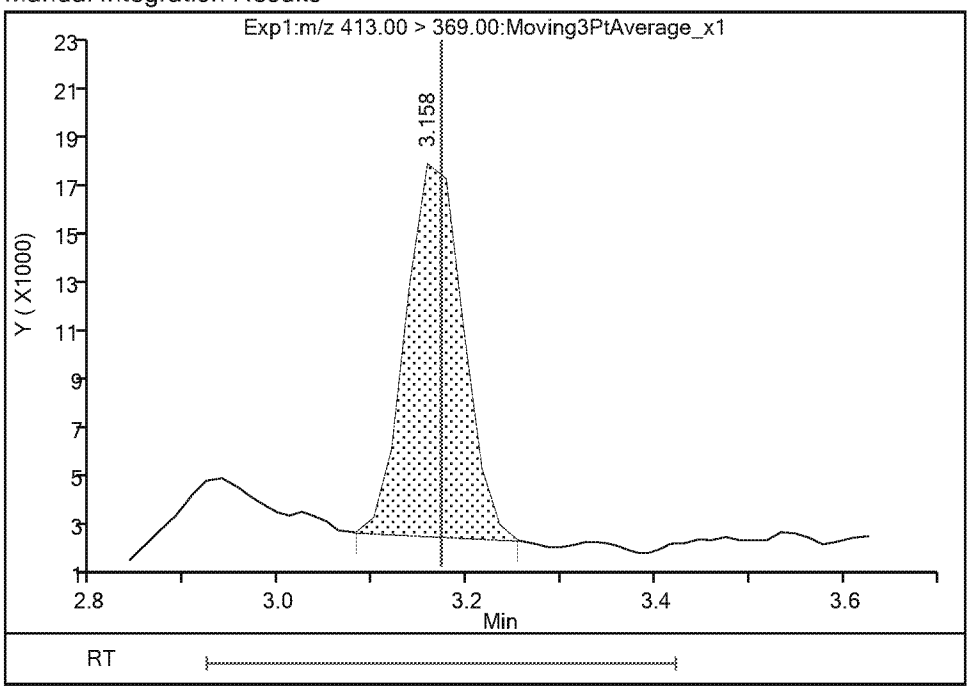
Processing Integration Results

RT: 3.16
Area: 106818
Amount: 0.076871
Amount Units: ng/ml



Manual Integration Results

RT: 3.16
Area: 64691
Amount: 0.050970
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 26-Mar-2019 16:45:03
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento

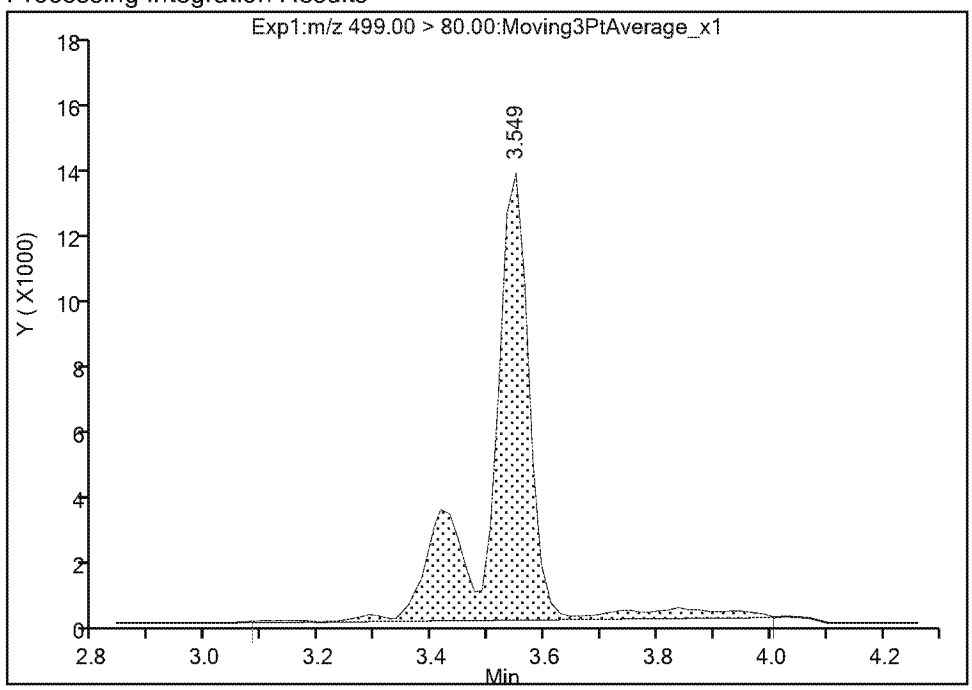
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_004.d				
Injection Date:	26-Mar-2019 15:50:48	Instrument ID:	A8_N		
Lims ID:	IC L2				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	2	Worklist Smp#:	3
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

8 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 1

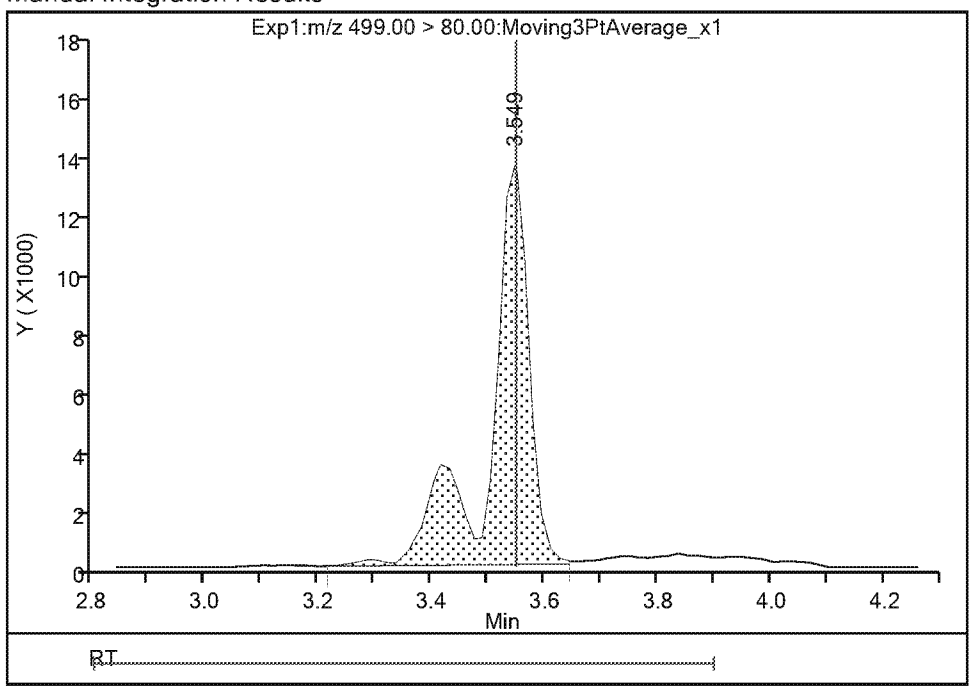
Processing Integration Results

RT: 3.55
Area: 66050
Amount: 0.046334
Amount Units: ng/ml



Manual Integration Results

RT: 3.55
Area: 62037
Amount: 0.043899
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 26-Mar-2019 16:45:24
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento

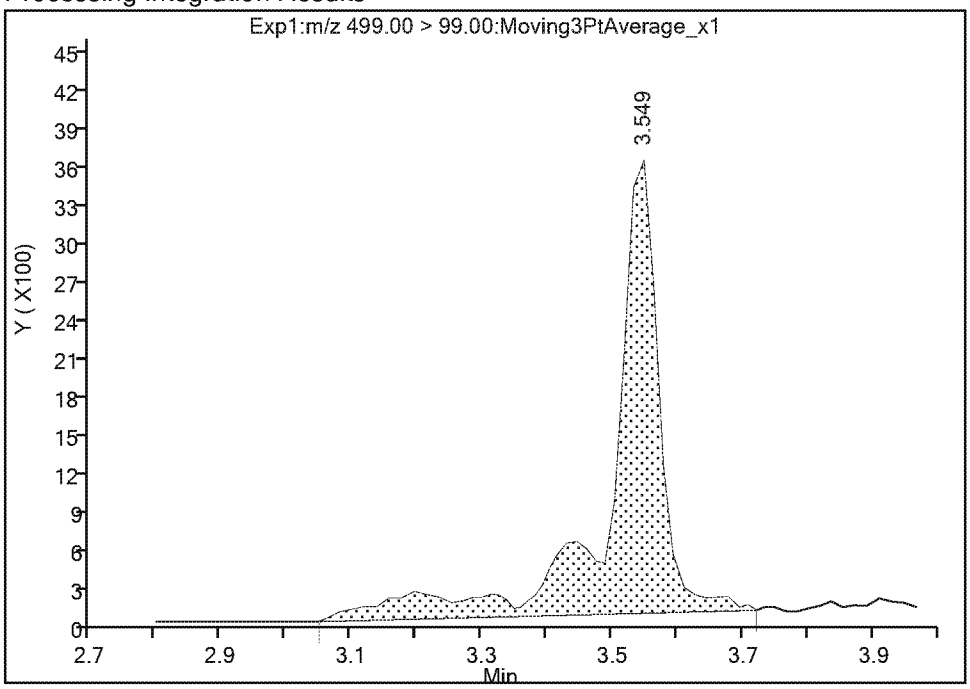
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_004.d				
Injection Date:	26-Mar-2019 15:50:48	Instrument ID:	A8_N		
Lims ID:	IC L2				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	2	Worklist Smp#:	3
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

8 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 2

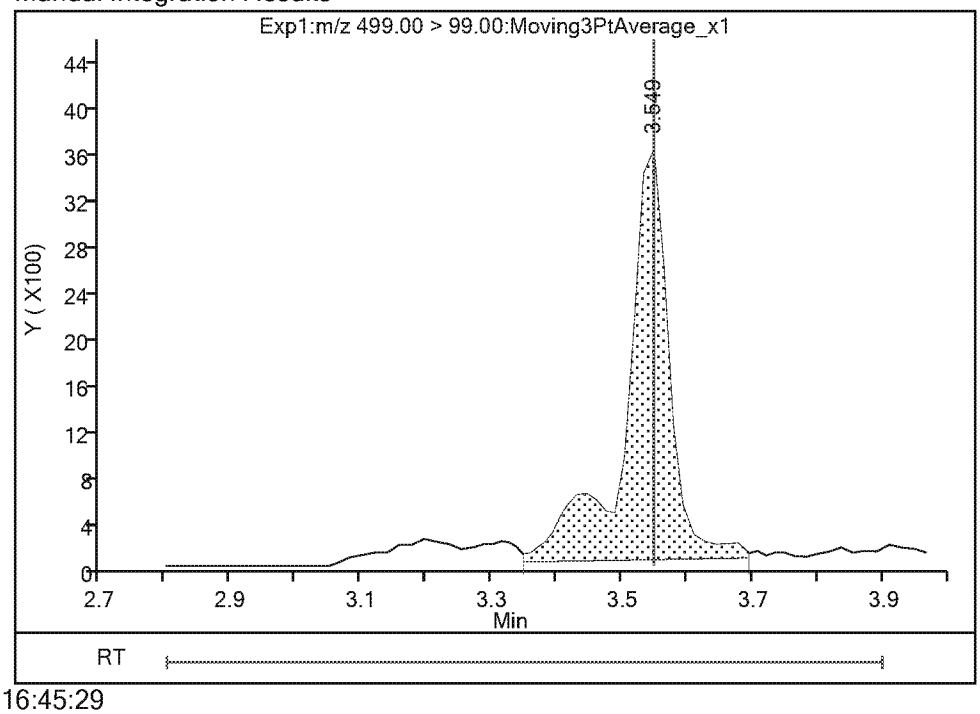
Processing Integration Results

RT: 3.55
Area: 18619
Amount: 0.046334
Amount Units: ng/ml



Manual Integration Results

RT: 3.55
Area: 16474
Amount: 0.043899
Amount Units: ng/ml



Reviewer: Ex. 4 CBI, 26-Mar-2019 16:45:29
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_005.d
Lims ID: IC L3
Client ID:
Sample Type: IC Calib Level: 3
Inject. Date: 26-Mar-2019 15:58:13 ALS Bottle#: 3 Worklist Smp#: 4
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: L3_537
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub13

Method: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 26-Mar-2019 17:25:53 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0323

First Level Reviewer: Ex. 4 CBI Date: 26-Mar-2019 16:46:40
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.976	1.973	0.003	1.000	350580	0.2175	Target=1.00	631	
298.90 > 99.00	1.976	1.973	0.003	1.000	232515		1.51(0.00-0.00)	353	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.322	2.322	0.0	0.731	330270	0.2326	Target=1.00	104	
313.00 > 119.00	2.322	2.322	0.0	0.731	31548		10.47(0.00-0.00)	57.3	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.322	2.322	0.0	1.000	3728924	2.48		6162	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.473	2.459	0.014	1.000	166745	2.44		983	
22 Perfluoro(2-propoxypropanoic) acid									
329.10 > 285.00	2.473	2.463	0.010	1.000	76460	0.2283		33.0	
4 Perfluoroheptanoic acid									
363.00 > 319.00	2.757	2.760	-0.003	1.000	360236	0.2571	Target=1.00	31.8	
363.00 > 169.00	2.757	2.760	-0.003	1.000	136524		2.64(0.00-0.00)	360	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	2.778	2.772	0.006	1.000	416620	0.2199	Target=1.00	1158	
399.00 > 99.00	2.778	2.772	0.006	1.000	145609		2.86(0.00-0.00)	107	
24 DONA									
377.00 > 251.00	2.798	2.801	-0.003	1.000	875293	0.2336	Target=1.00	2165	
377.00 > 85.00	2.798	2.801	-0.003	1.000	556316		1.57(0.00-0.00)	33639	
* 5 13C2 PFOA									
415.00 > 370.00	3.177	3.167	0.010		3241757	2.50		11659	
6 Perfluorooctanoic acid									
413.00 > 369.00	3.177	3.172	0.005	1.000	329937	0.2497	Target=1.00	31.0	
413.00 > 169.00	3.177	3.172	0.005	1.000	184610		1.79(0.00-0.00)	386	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
8 Perfluorooctanesulfonic acid									
499.00 > 80.00	3.549	3.549	0.0	1.000	313355	0.2225	Target=1.00	930	
499.00 > 99.00	3.549	3.549	0.0	1.000	71681		4.37(0.00-0.00)	113	
* 7 13C4 PFOS									
503.00 > 80.00	3.549	3.549	0.0		3183475	2.39		10790	
9 Perfluorononanoic acid									
463.00 > 419.00	3.563	3.560	0.003	1.000	235652	0.2436	Target=1.00	100	
463.00 > 169.00	3.563	3.560	0.003	1.000	59572		3.96(0.00-0.00)	534	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.750	3.749	0.001	1.000	529702	0.2327		924	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.911	3.912	-0.001	1.000	175094	0.2304	Target=1.00	92.3	
513.00 > 169.00	3.911	3.912	-0.001	1.000	37669		4.65(0.00-0.00)	300	
$ 10 13C2 PFDA									
515.00 > 470.00	3.911	3.918	-0.007	1.000	1948071	2.44		5376	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.086	4.089	-0.003		560282	2.50		4330	
15 N-methylperfluorooctanesulfonamido									
570.00 > 419.00	4.086	4.089	-0.003	1.000	48032	0.2323		290	
17 Perfluoroundecanoic acid									
563.00 > 519.00	4.230	4.236	-0.006	1.000	137917	0.2342	Target=1.00	66.4	
563.00 > 169.00	4.230	4.236	-0.006	1.000	29375		4.70(0.00-0.00)	291	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.246	4.238	0.008	1.039	550849	2.41		232	
16 N-ethylperfluorooctanesulfonamidoa									
584.00 > 419.00	4.246	4.252	-0.006	1.000	48929	0.2496		113	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.367	4.373	-0.006	1.000	664318	0.2343		3148	
18 Perfluorododecanoic acid									
613.00 > 569.00	4.527	4.518	0.009	1.000	131951	0.2303	Target=1.00	59.6	
613.00 > 169.00	4.527	4.518	0.009	1.000	39792		3.32(0.00-0.00)	493	
19 Perfluorotridecanoic acid									
663.00 > 619.00	4.772	4.779	-0.007	1.000	117361	0.2475	Target=1.00	47.0	
663.00 > 169.00	4.772	4.779	-0.007	1.000	39837		2.95(0.00-0.00)	529	
20 Perfluorotetradecanoic acid									
713.00 > 169.00	5.000	5.004	-0.004	1.000	31622	0.2414	Target=1.00	620	
713.00 > 219.00	5.000	5.004	-0.004	1.000	23356		1.35(0.00-0.00)	286	

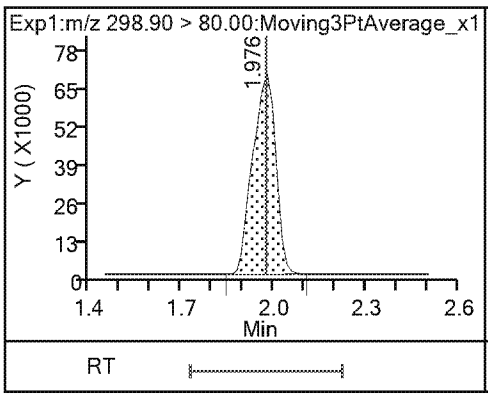
Reagents:

LC537_NC_L3_00004 Amount Added: 1.00 Units: mL

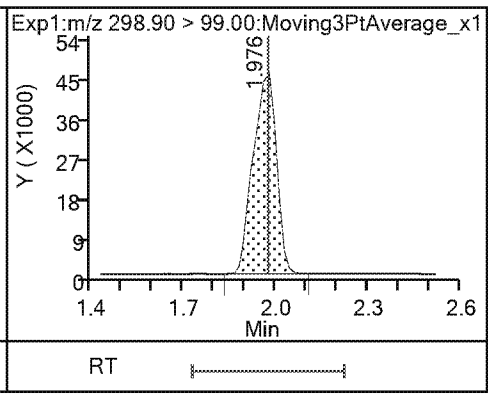
TestAmerica Sacramento

Data File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_005.d
Injection Date: 26-Mar-2019 15:58:13 Instrument ID: A8_N
Lims ID: IC L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 4
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

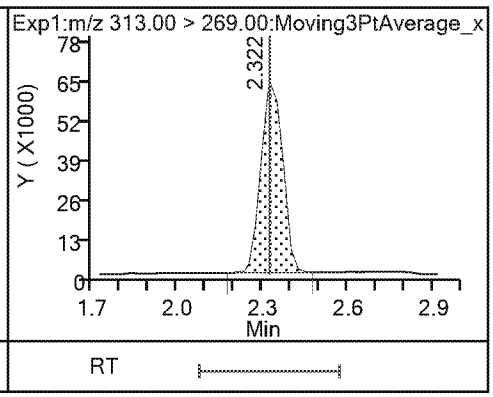
1 Perfluorobutanesulfonic acid



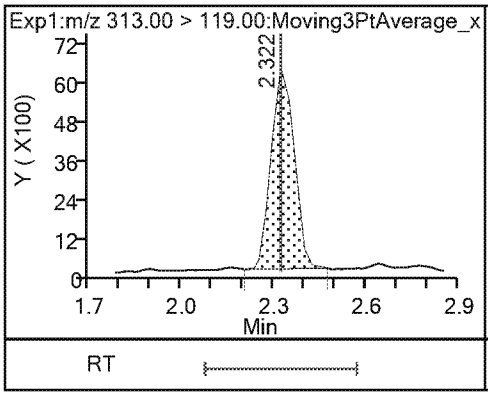
1 Perfluorobutanesulfonic acid



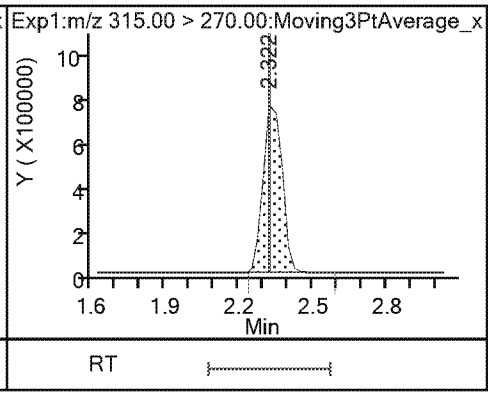
13 Perfluorohexanoic acid



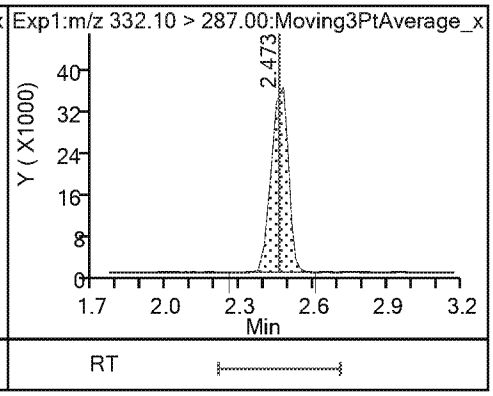
13 Perfluorohexanoic acid



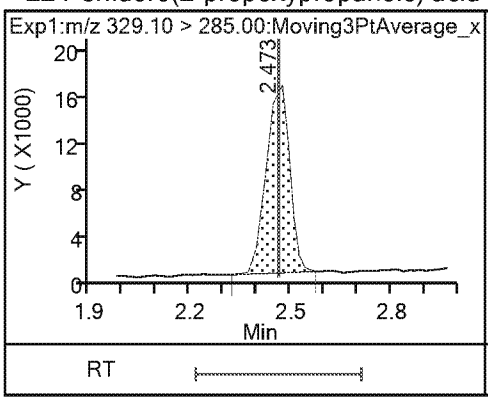
$ 2 13C2 PFHxA



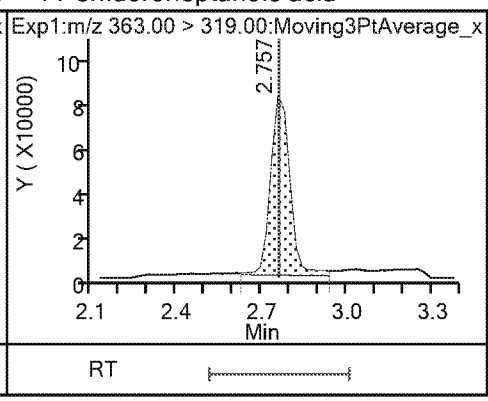
$ 25 13C3 HFPO-DA



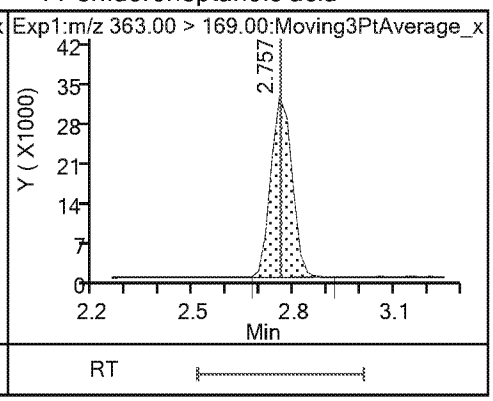
22 Perfluoro(2-propoxypropanoic) acid



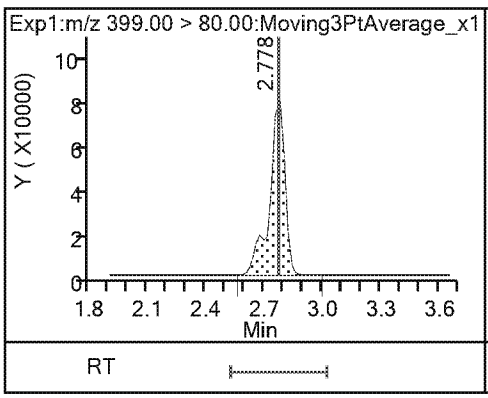
4 Perfluoroheptanoic acid



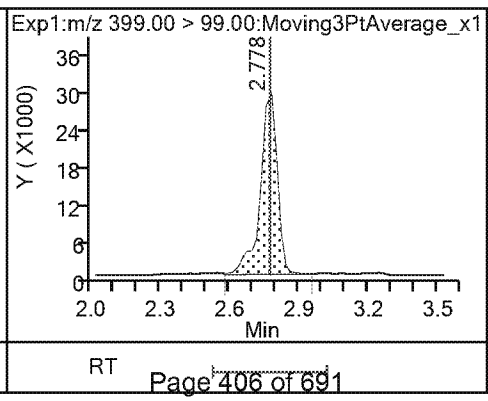
4 Perfluoroheptanoic acid



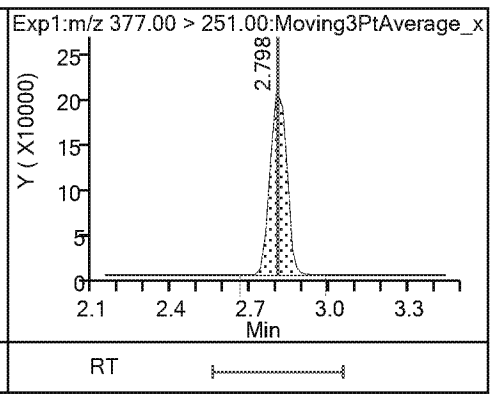
3 Perfluorohexanesulfonic acid



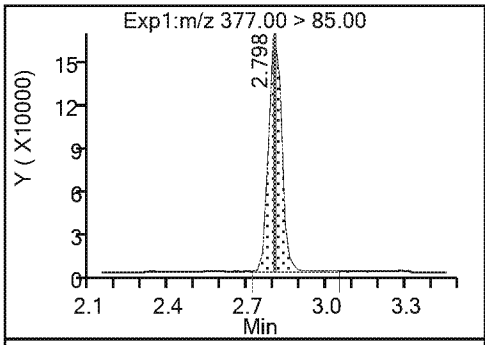
3 Perfluorohexanesulfonic acid



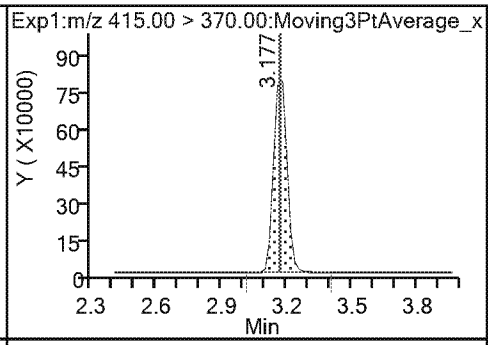
24 DONA



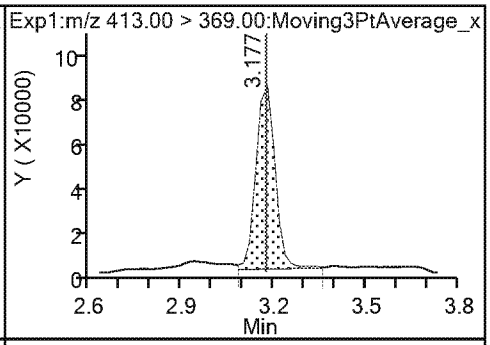
24 DONA



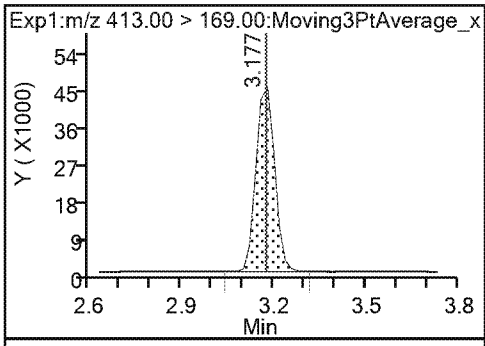
* 5 13C2 PFOA



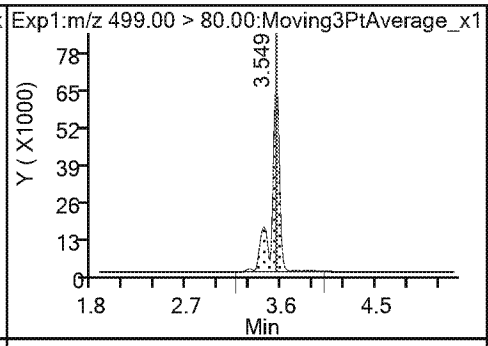
6 Perfluorooctanoic acid



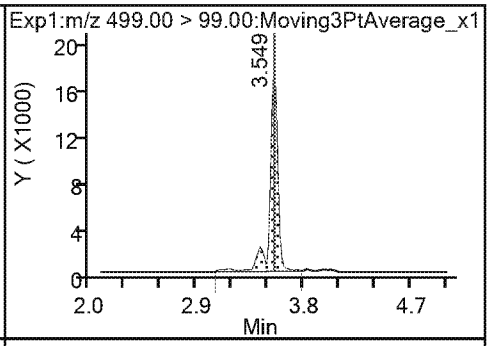
6 Perfluorooctanoic acid



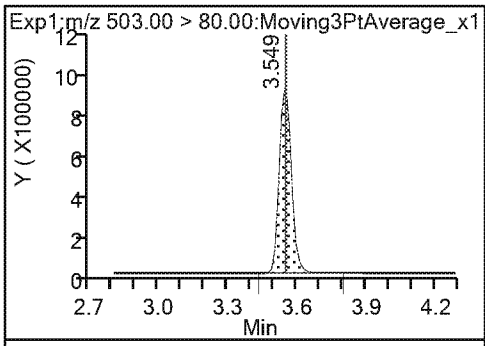
8 Perfluorooctanesulfonic acid



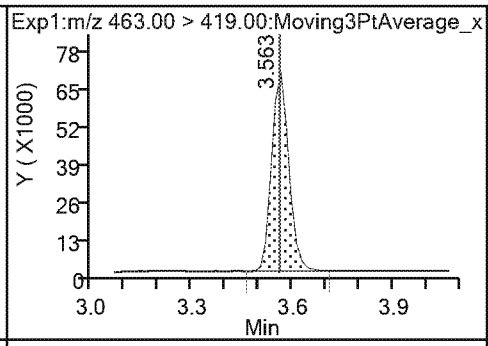
8 Perfluorooctanesulfonic acid



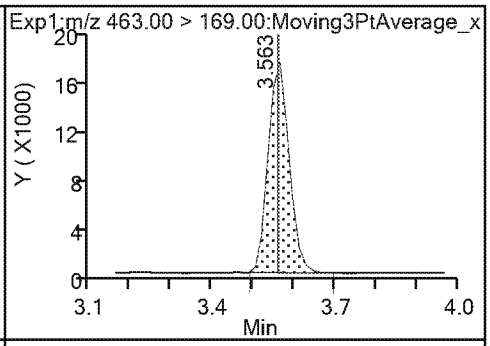
* 7 13C4 PFOS



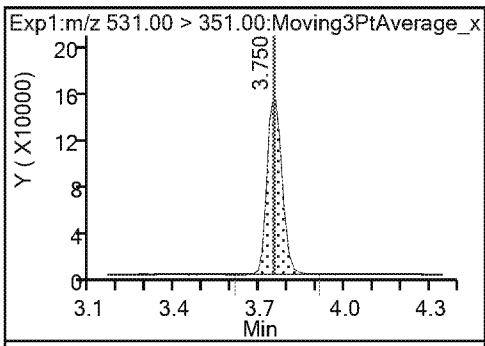
9 Perfluorononanoic acid



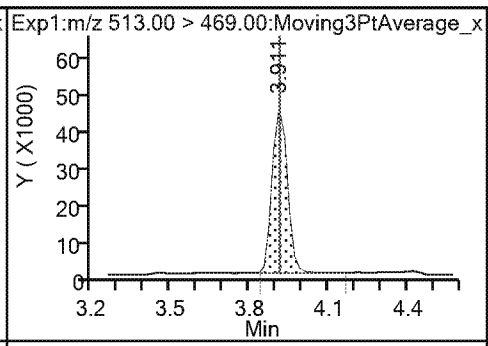
9 Perfluorononanoic acid



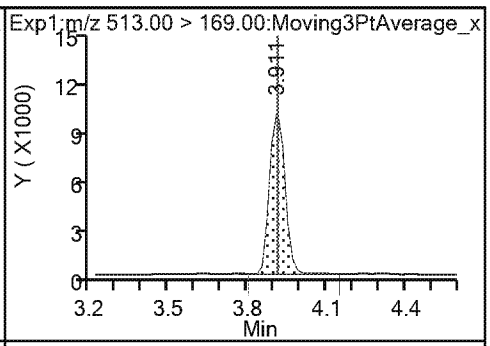
23 9-Chlorohexadecafluoro-3-oxanonane



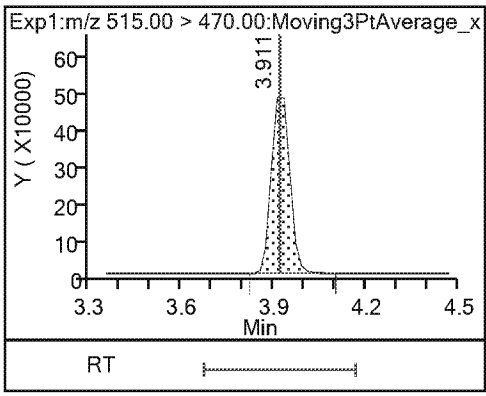
14 Perfluorodecanoic acid



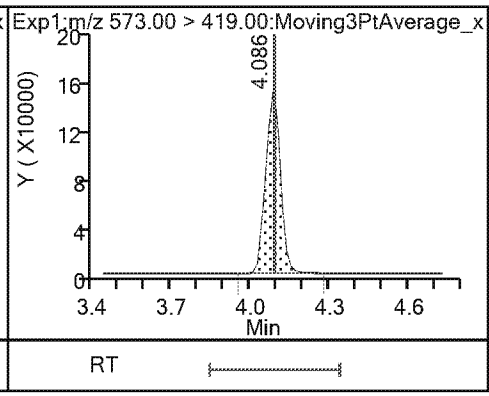
14 Perfluorodecanoic acid



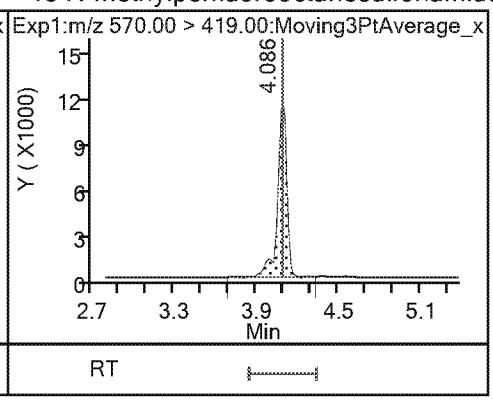
$ 10 13C2 PFDA



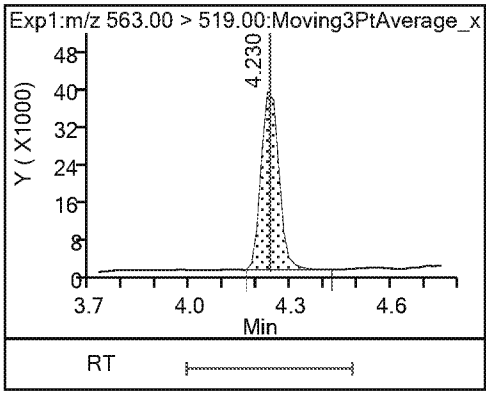
* 12 d3-NMeFOSAA



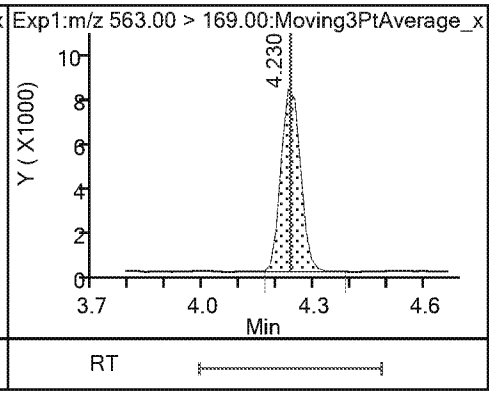
15 N-methylperfluorooctanesulfonamido



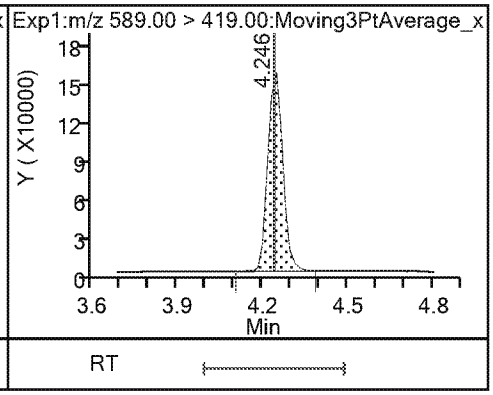
17 Perfluoroundecanoic acid



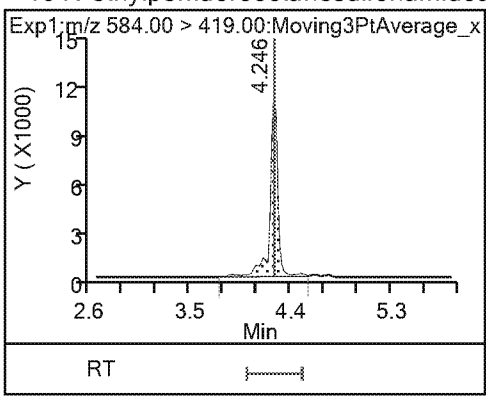
17 Perfluoroundecanoic acid



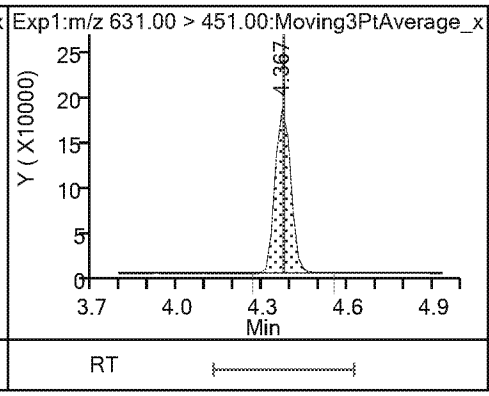
$ 11 d5-NEtFOSAA



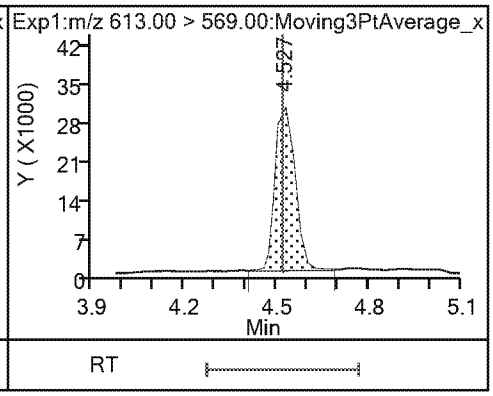
16 N-ethylperfluorooctanesulfonamidoa



21 11-Chloroeicosafluoro-3-oxaundecan



18 Perfluorododecanoic acid



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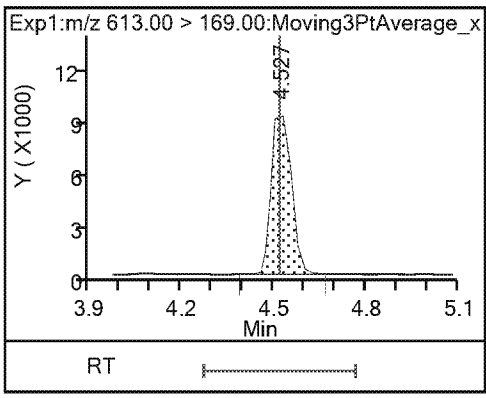
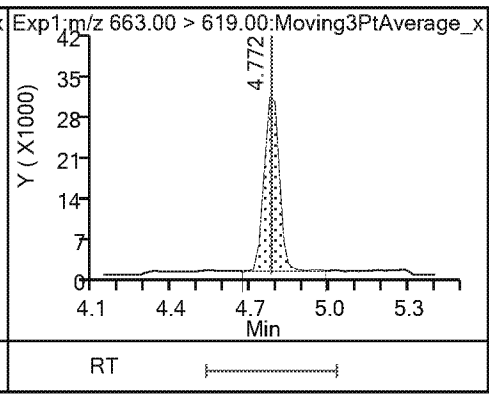


19 Perfluorotridecanoic acid



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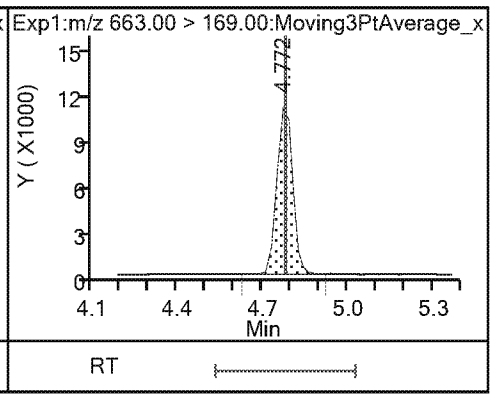
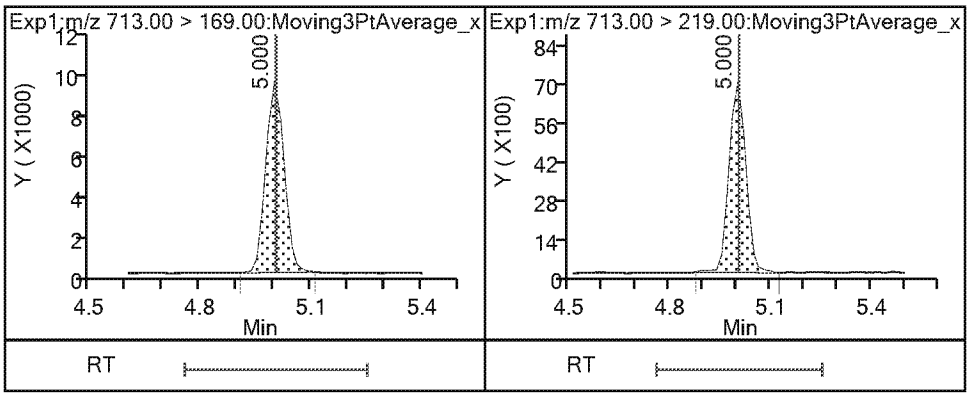


20 Perfluorotetradecanoic acid 20 Perfluorotetradecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_006.d
Lims ID: IC L4
Client ID:
Sample Type: ICISAV Calib Level: 4
Inject. Date: 26-Mar-2019 16:05:40 ALS Bottle#: 4 Worklist Smp#: 5
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: L4_537
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub13

Method: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 26-Mar-2019 17:25:54 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0323

First Level Reviewer: Ex. 4 CBI Date: 26-Mar-2019 16:47:56
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.976	1.973	0.003	1.000	1318902	0.8845	Target=1.00	2420	
298.90 > 99.00	1.959	1.973	-0.014	0.992	873352		1.51(0.00-0.00)	1578	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.322	2.322	0.0	0.735	1243561	0.9622	Target=1.00	374	
313.00 > 119.00	2.322	2.322	0.0	0.735	119197		10.43(0.00-0.00)	207	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.322	2.322	0.0	1.000	3483202	2.55		5925	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.448	2.459	-0.011	1.000	146535	2.36		902	
22 Perfluoro(2-propoxypropanoic) acid									
329.10 > 285.00	2.448	2.463	-0.015	1.000	285630	0.9371		119	
4 Perfluoroheptanoic acid									
363.00 > 319.00	2.757	2.760	-0.003	1.000	1239748	0.9722	Target=1.00	116	
363.00 > 169.00	2.757	2.760	-0.003	1.000	506207		2.45(0.00-0.00)	1496	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	2.778	2.772	0.006	1.000	1576828	0.8996	Target=1.00	7278	
399.00 > 99.00	2.757	2.772	-0.015	0.993	548685		2.87(0.00-0.00)	470	
24 DONA									
377.00 > 251.00	2.798	2.801	-0.003	1.000	3377202	0.99	Target=1.00	5064	
377.00 > 85.00	2.798	2.801	-0.003	1.000	2093227		1.61(0.00-0.00)	94501	
* 5 13C2 PFOA									
415.00 > 370.00	3.157	3.167	-0.010		2950550	2.50		9482	
6 Perfluorooctanoic acid									
413.00 > 369.00	3.176	3.172	0.004	1.006	1171209	0.9739	Target=1.00	115	
413.00 > 169.00	3.176	3.172	0.004	1.006	656228		1.78(0.00-0.00)	1236	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
8 Perfluorooctanesulfonic acid									
499.00 > 80.00	3.548	3.549	-0.001	1.000	1181093	0.9068	Target=1.00	1372	
499.00 > 99.00	3.548	3.549	-0.001	1.000	258600		4.57(0.00-0.00)	386	
* 7 13C4 PFOS									
503.00 > 80.00	3.548	3.549	-0.001		2944756	2.39		9052	
9 Perfluorononanoic acid									
463.00 > 419.00	3.563	3.560	0.003	1.000	899343	1.02	Target=1.00	365	
463.00 > 169.00	3.563	3.560	0.003	1.000	232060		3.88(0.00-0.00)	2105	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.750	3.749	0.001	1.000	2011375	0.9552		3191	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.911	3.912	-0.001	1.000	664242	0.9602	Target=1.00	361	
513.00 > 169.00	3.911	3.912	-0.001	1.000	132281		5.02(0.00-0.00)	737	
$ 10 13C2 PFDA									
515.00 > 470.00	3.911	3.918	-0.007	1.000	1792048	2.46		5235	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.092	4.089	0.003		491680	2.50		4347	
15 N-methylperfluorooctanesulfonamido									
570.00 > 419.00	4.092	4.089	0.003	1.000	174425	0.9614		1150	
17 Perfluoroundecanoic acid									
563.00 > 519.00	4.236	4.236	0.0	1.000	529625	0.9882	Target=1.00	237	
563.00 > 169.00	4.236	4.236	0.0	1.000	108314		4.89(0.00-0.00)	1187	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.236	4.238	-0.002	1.035	531116	2.65		229	
16 N-ethylperfluorooctanesulfonamidoa									
584.00 > 419.00	4.252	4.252	0.0	1.004	172707	1.00		318	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.377	4.373	0.004	1.000	2481699	0.9463		9926	
18 Perfluorododecanoic acid									
613.00 > 569.00	4.510	4.518	-0.008	1.000	509270	0.9766	Target=1.00	231	
613.00 > 169.00	4.510	4.518	-0.008	1.000	151486		3.36(0.00-0.00)	1825	
19 Perfluorotridecanoic acid									
663.00 > 619.00	4.779	4.779	0.0	1.000	418150	0.9687	Target=1.00	174	
663.00 > 169.00	4.779	4.779	0.0	1.000	147660		2.83(0.00-0.00)	1643	
20 Perfluorotetradecanoic acid									
713.00 > 169.00	5.007	5.004	0.003	1.000	117943	0.9891	Target=1.00	1621	
713.00 > 219.00	5.007	5.004	0.003	1.000	84538		1.40(0.00-0.00)	830	

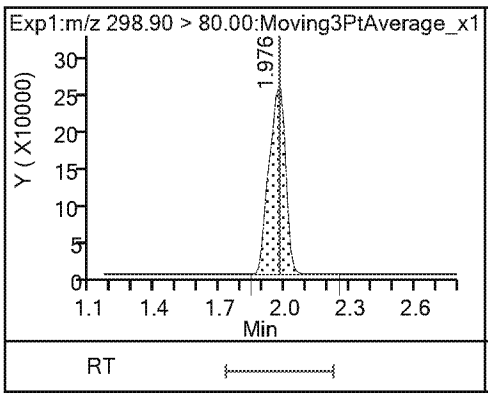
Reagents:

LC537_NC_L4_00003 Amount Added: 1.00 Units: mL

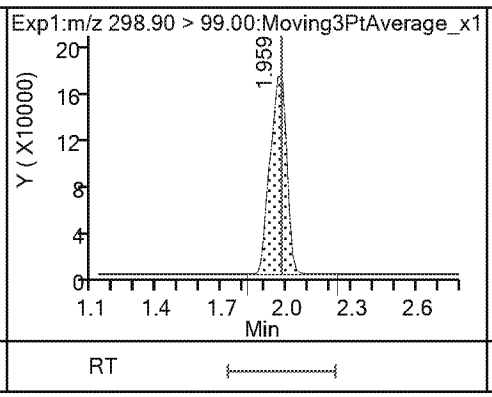
TestAmerica Sacramento

Data File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_006.d
Injection Date: 26-Mar-2019 16:05:40 Instrument ID: A8_N
Lims ID: IC L4
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 5
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

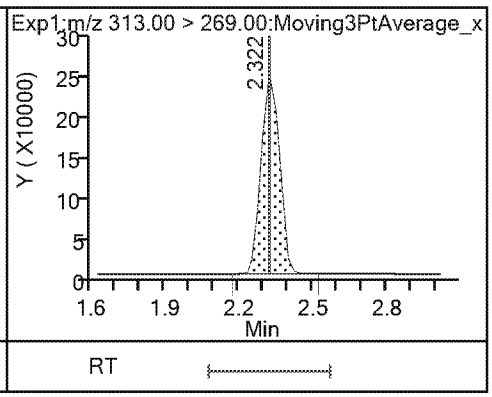
1 Perfluorobutanesulfonic acid



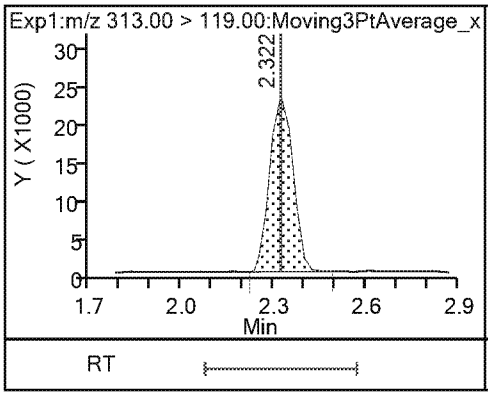
1 Perfluorobutanesulfonic acid



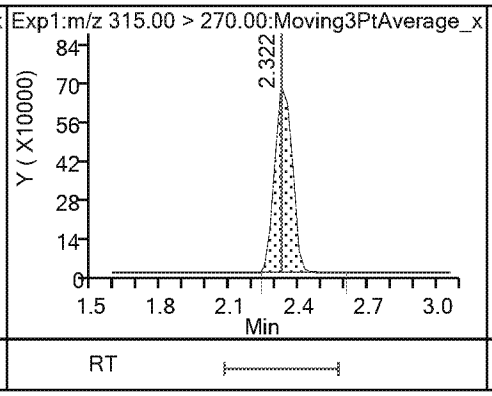
13 Perfluorohexanoic acid



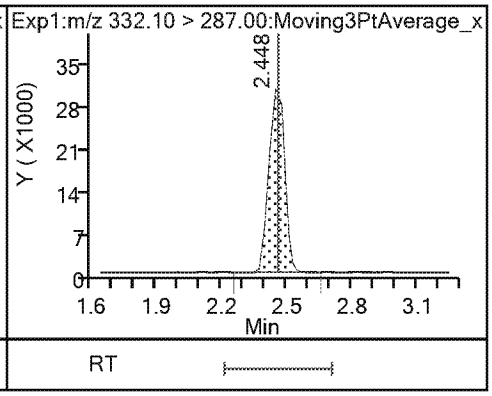
13 Perfluorohexanoic acid



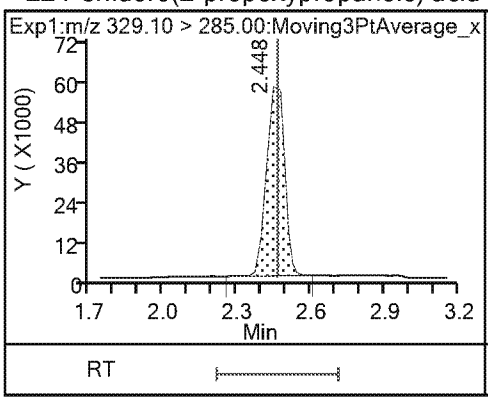
$ 2 13C2 PFHxA



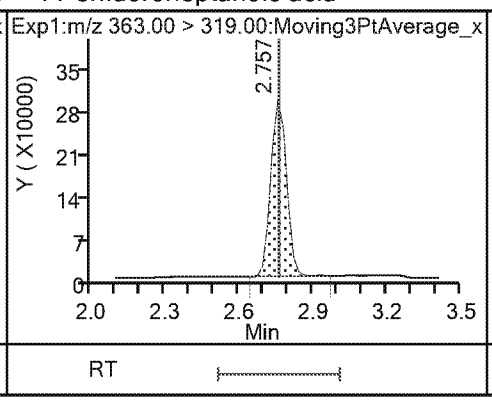
$ 25 13C3 HFPO-DA



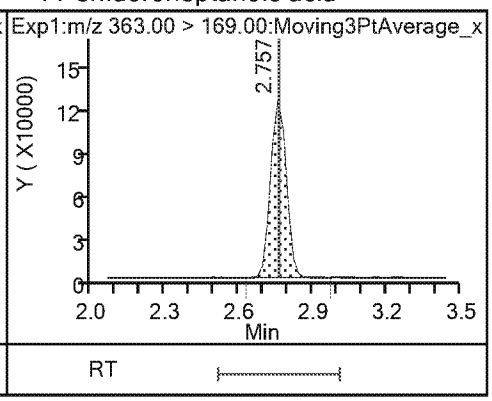
22 Perfluoro(2-propoxypropanoic) acid



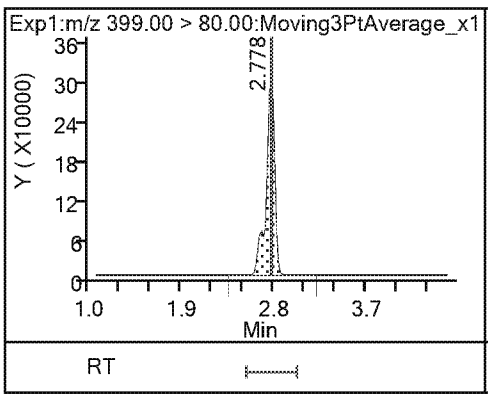
4 Perfluoroheptanoic acid



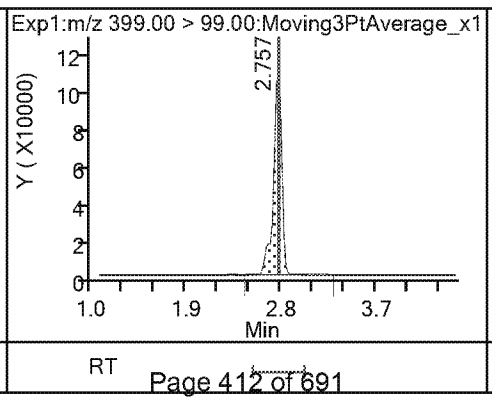
4 Perfluoroheptanoic acid



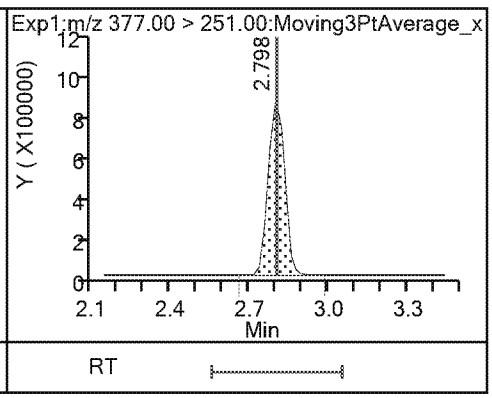
3 Perfluorohexanesulfonic acid



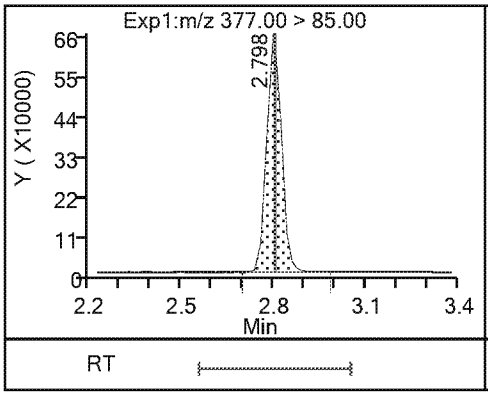
3 Perfluorohexanesulfonic acid



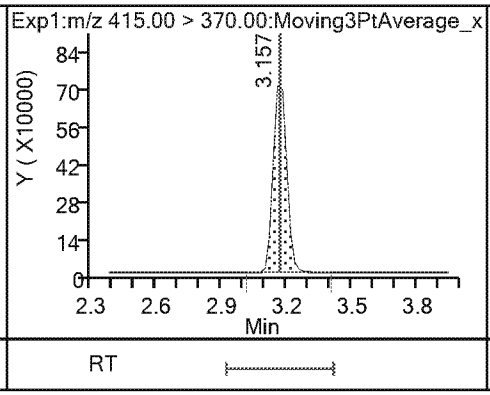
24 DONA



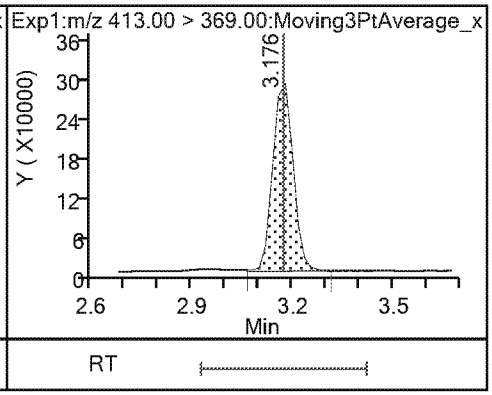
24 DONA



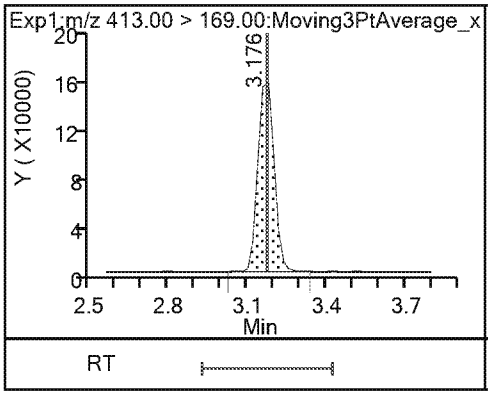
* 5 13C2 PFOA



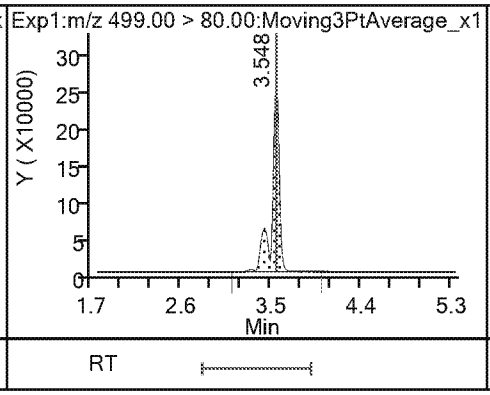
6 Perfluorooctanoic acid



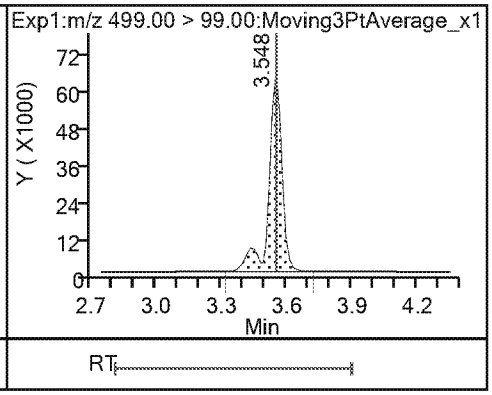
6 Perfluorooctanoic acid



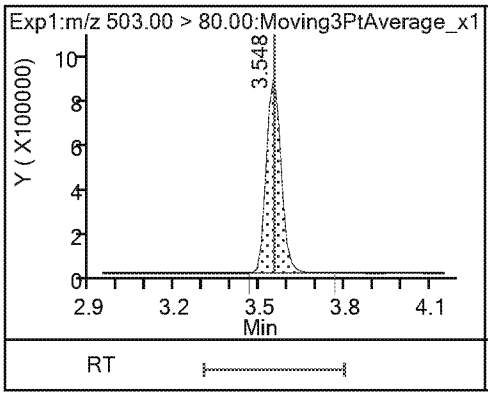
8 Perfluorooctanesulfonic acid



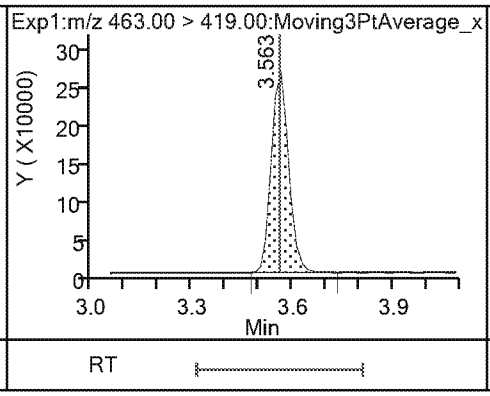
8 Perfluorooctanesulfonic acid



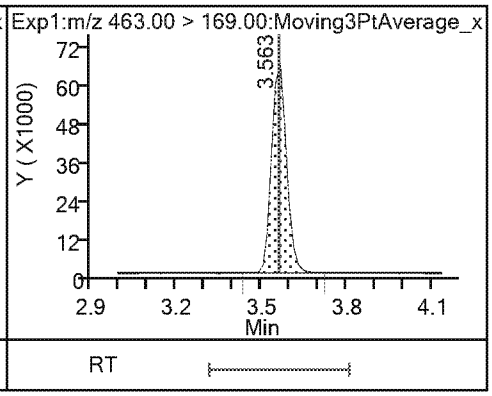
* 7 13C4 PFOS



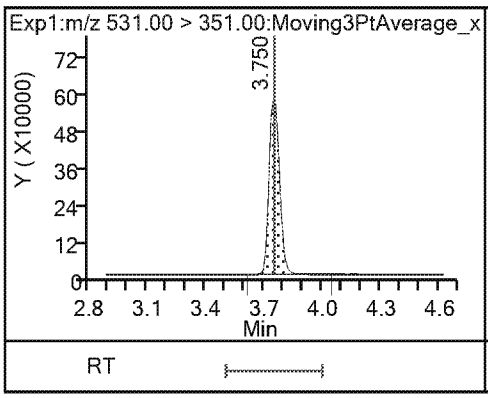
9 Perfluorononanoic acid



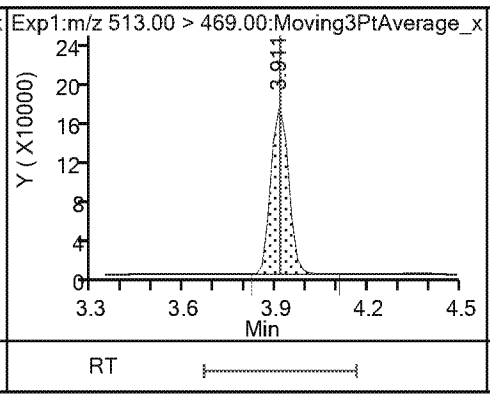
9 Perfluorononanoic acid



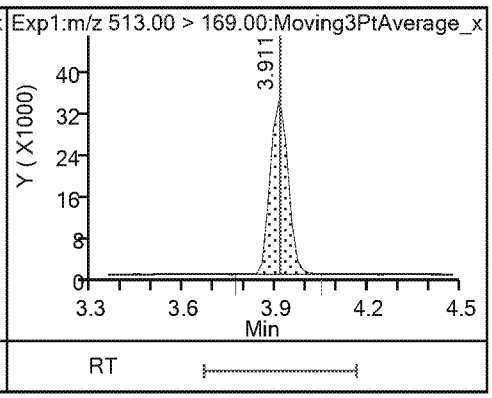
23 9-Chlorohexadecafluoro-3-oxanonane



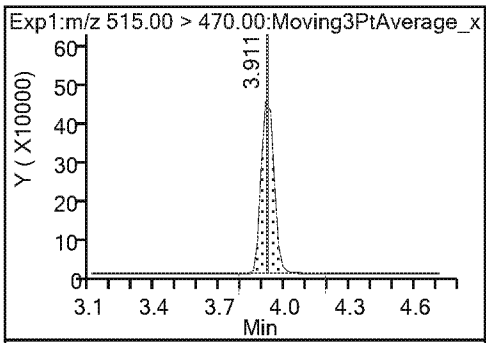
14 Perfluorodecanoic acid



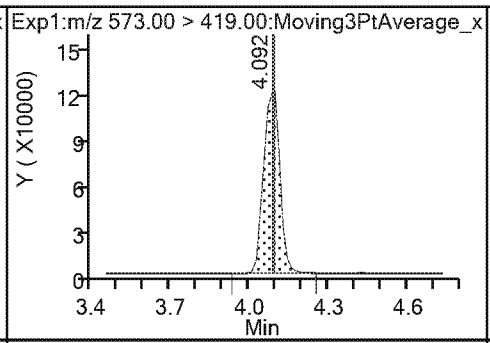
14 Perfluorodecanoic acid



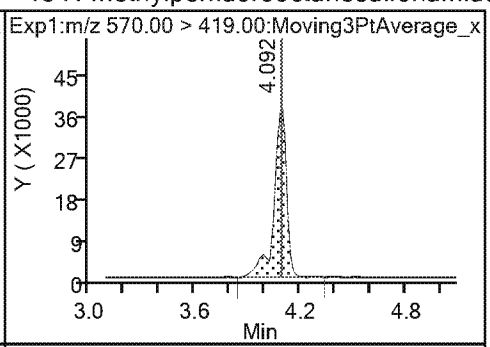
$ 10 13C2 PFDA



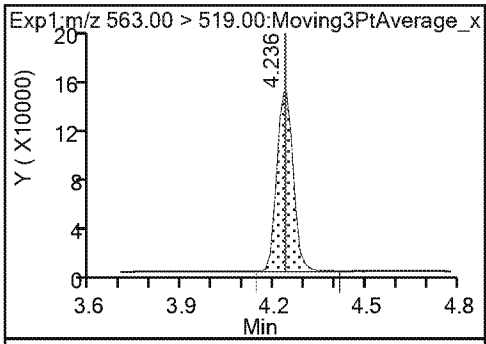
* 12 d3-NMeFOSAA



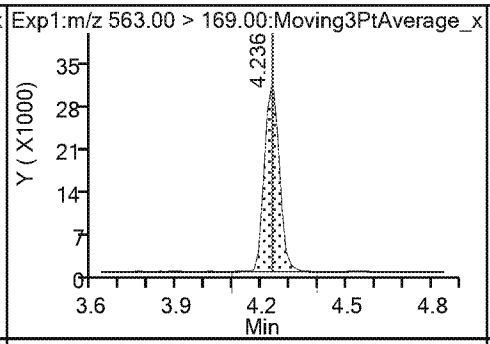
15 N-methylperfluorooctanesulfonamido



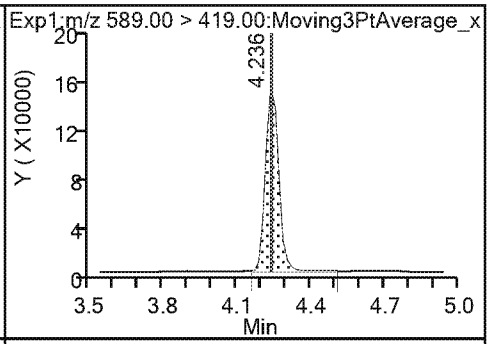
17 Perfluoroundecanoic acid



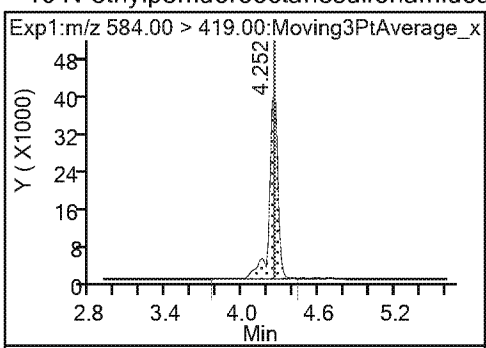
17 Perfluoroundecanoic acid



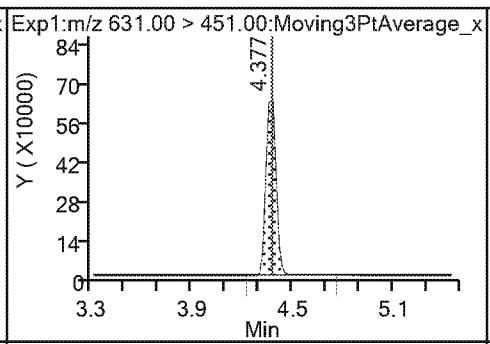
$ 11 d5-NEtFOSAA



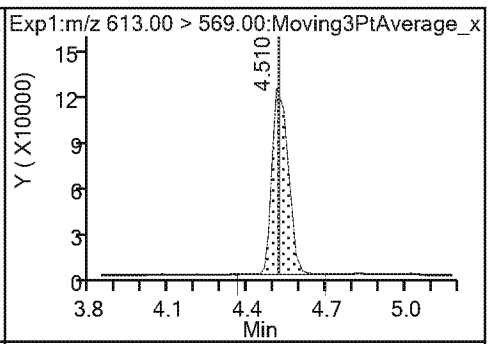
16 N-ethylperfluorooctanesulfonamidoa



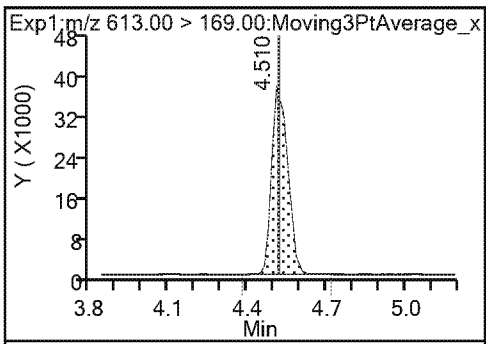
21 11-Chloroeicosafluoro-3-oxaundecan



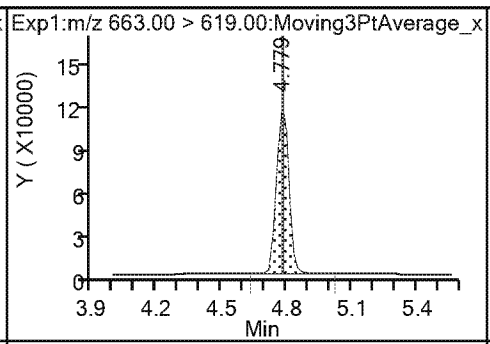
18 Perfluorododecanoic acid



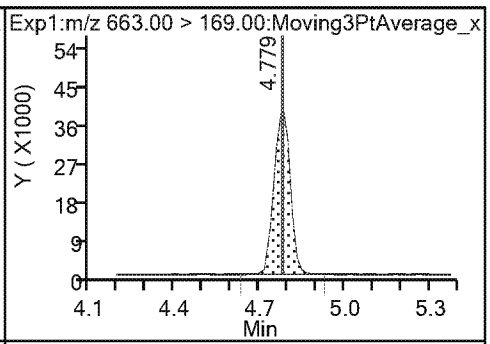
18 Perfluorododecanoic acid



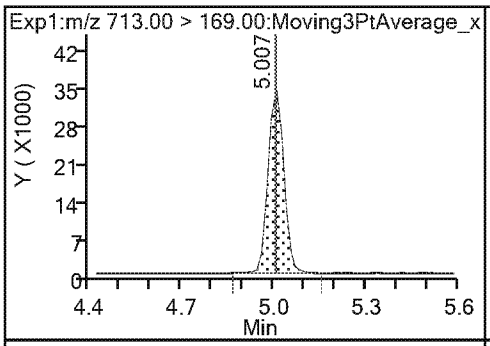
19 Perfluorotridecanoic acid



19 Perfluorotridecanoic acid

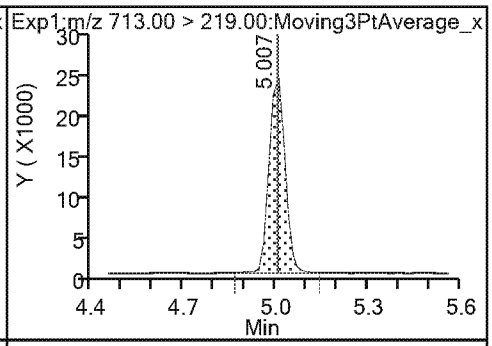


20 Perfluorotetradecanoic acid



RT

20 Perfluorotetradecanoic acid



RT

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_007.d
Lims ID: IC L5
Client ID:
Sample Type: IC Calib Level: 5
Inject. Date: 26-Mar-2019 16:13:07 ALS Bottle#: 5 Worklist Smp#: 6
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: L5_537
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub13

Method: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 26-Mar-2019 17:25:55 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0323

First Level Reviewer: Ex. 4 CBI Date: 26-Mar-2019 16:48:22
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.975	1.973	0.002	1.000	3621326	2.28	Target=1.00	5981	
298.90 > 99.00	1.975	1.973	0.002	1.000	2441689		1.48(0.00-0.00)	3609	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.322	2.322	0.0	0.735	3453163	2.49	Target=1.00	984	
313.00 > 119.00	2.322	2.322	0.0	0.735	315108		10.96(0.00-0.00)	571	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.322	2.322	0.0	1.000	3617818	2.47		5737	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.473	2.459	0.014	1.000	174436	2.61		995	
22 Perfluoro(2-propoxypropanoic) acid									
329.10 > 285.00	2.473	2.463	0.010	1.000	816470	2.50		362	
4 Perfluoroheptanoic acid									
363.00 > 319.00	2.757	2.760	-0.003	1.000	3534265	2.58	Target=1.00	304	
363.00 > 169.00	2.757	2.760	-0.003	1.000	1433047		2.47(0.00-0.00)	3742	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	2.778	2.772	0.006	1.000	4438004	2.37	Target=1.00	4101	
399.00 > 99.00	2.757	2.772	-0.015	0.993	1509320		2.94(0.00-0.00)	1088	
24 DONA									
377.00 > 251.00	2.798	2.801	-0.003	1.000	9161656	2.50	Target=1.00	11480	
377.00 > 85.00	2.798	2.801	-0.003	1.000	5673867		1.61(0.00-0.00)	355418	
* 5 13C2 PFOA									
415.00 > 370.00	3.157	3.167	-0.010		3167554	2.50		10990	
6 Perfluorooctanoic acid									
413.00 > 369.00	3.176	3.172	0.004	1.006	3307030	2.56	Target=1.00	319	
413.00 > 169.00	3.176	3.172	0.004	1.006	1834471		1.80(0.00-0.00)	3012	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
8 Perfluorooctanesulfonic acid									
499.00 > 80.00	3.552	3.549	0.003	1.000	3243646	2.33	Target=1.00	3013	
499.00 > 99.00	3.552	3.549	0.003	1.000	694959		4.67(0.00-0.00)	1218	
* 7 13C4 PFOS									
503.00 > 80.00	3.552	3.549	0.003		3142392	2.39		8361	
9 Perfluorononanoic acid									
463.00 > 419.00	3.552	3.560	-0.008	1.000	2338932	2.47	Target=1.00	943	
463.00 > 169.00	3.552	3.560	-0.008	1.000	606138		3.86(0.00-0.00)	4995	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.738	3.749	-0.011	1.000	5450956	2.43		7098	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.917	3.912	0.005	1.000	1880414	2.53	Target=1.00	950	
513.00 > 169.00	3.917	3.912	0.005	1.000	366632		5.13(0.00-0.00)	1941	
$ 10 13C2 PFDA									
515.00 > 470.00	3.917	3.918	-0.001	1.000	1976412	2.53		6697	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.092	4.089	0.003		553836	2.50		3766	
15 N-methylperfluorooctanesulfonamido									
570.00 > 419.00	4.092	4.089	0.003	1.000	496894	2.43		8171	
17 Perfluoroundecanoic acid									
563.00 > 519.00	4.236	4.236	0.0	1.000	1435345	2.49	Target=1.00	719	
563.00 > 169.00	4.236	4.236	0.0	1.000	289408		4.96(0.00-0.00)	3562	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.236	4.238	-0.002	1.035	565031	2.50		256	
16 N-ethylperfluorooctanesulfonamidoa									
584.00 > 419.00	4.252	4.252	0.0	1.004	463603	2.39		985	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.377	4.373	0.004	1.000	7002977	2.50		11085	
18 Perfluorododecanoic acid									
613.00 > 569.00	4.510	4.518	-0.008	1.000	1397518	2.50	Target=1.00	571	
613.00 > 169.00	4.510	4.518	-0.008	1.000	404463		3.46(0.00-0.00)	3924	
19 Perfluorotridecanoic acid									
663.00 > 619.00	4.779	4.779	0.0	1.000	1162241	2.51	Target=1.00	428	
663.00 > 169.00	4.779	4.779	0.0	1.000	402558		2.89(0.00-0.00)	3060	
20 Perfluorotetradecanoic acid									
713.00 > 169.00	5.007	5.004	0.003	1.000	347516	2.71	Target=1.00	2893	
713.00 > 219.00	4.991	5.004	-0.013	0.997	243413		1.43(0.00-0.00)	1838	

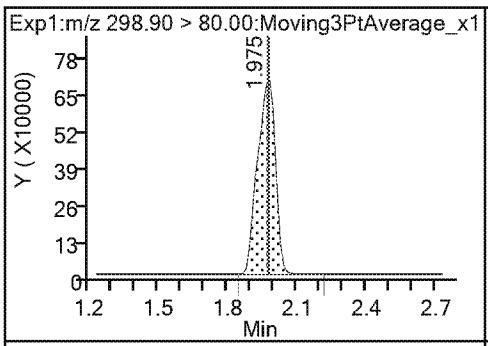
Reagents:

LC537_NC_L5_00003 Amount Added: 1.00 Units: mL

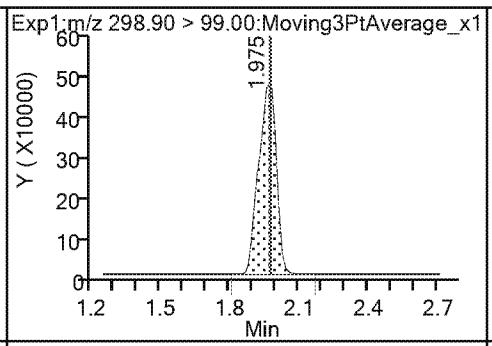
TestAmerica Sacramento

Data File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_007.d
Injection Date: 26-Mar-2019 16:13:07 Instrument ID: A8_N
Lims ID: IC L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 6
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

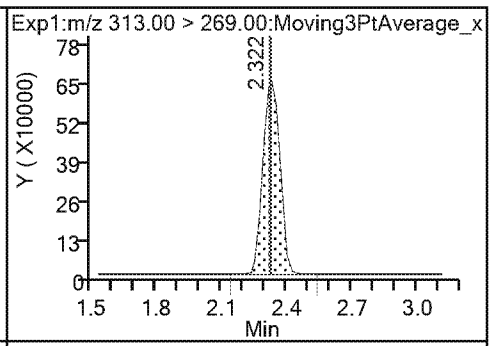
1 Perfluorobutanesulfonic acid



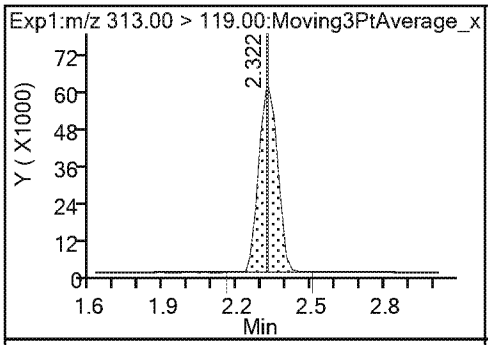
1 Perfluorobutanesulfonic acid



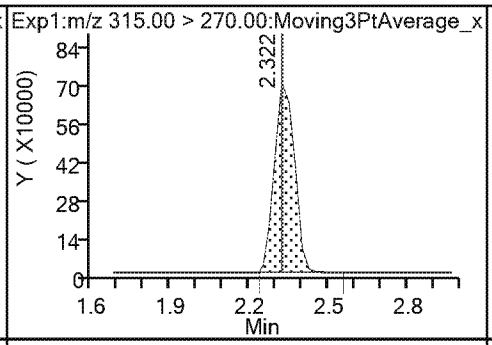
13 Perfluorohexanoic acid



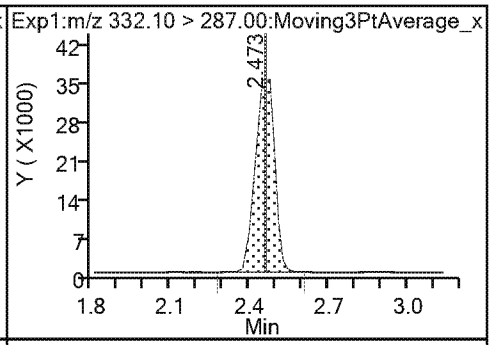
13 Perfluorohexanoic acid



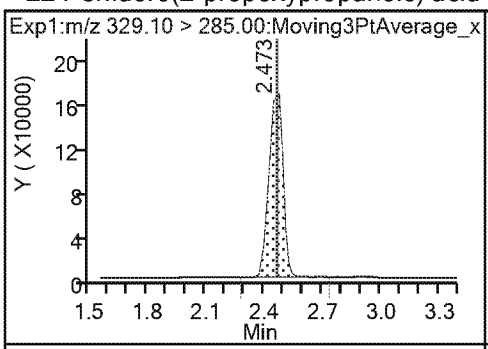
$ 2 13C2 PFHxA



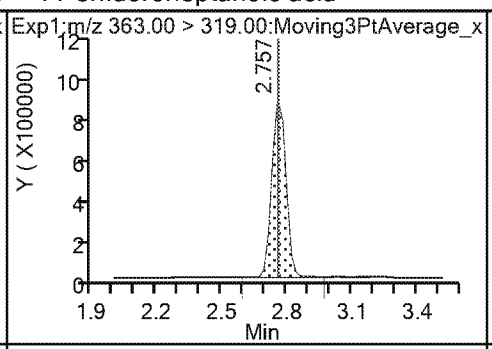
$ 25 13C3 HFPO-DA



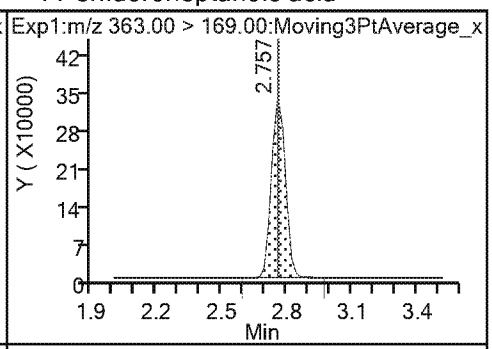
22 Perfluoro(2-propoxypropanoic) acid



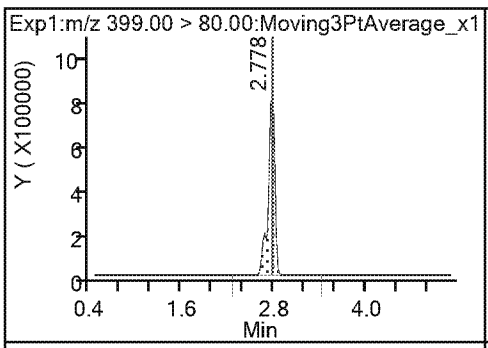
4 Perfluoroheptanoic acid



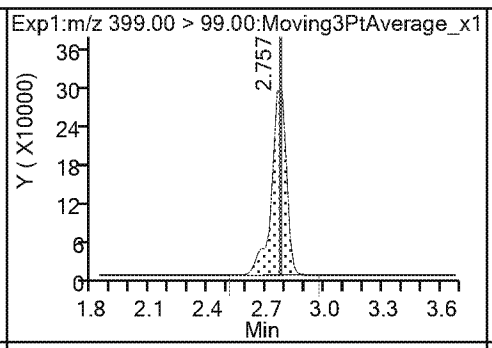
4 Perfluoroheptanoic acid



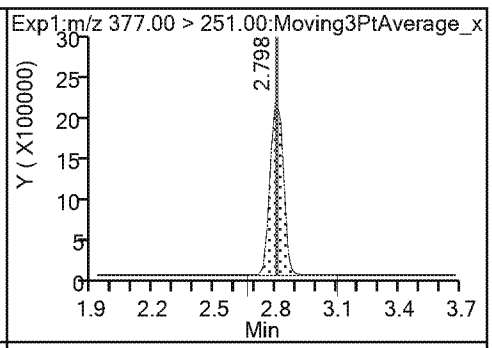
3 Perfluorohexanesulfonic acid



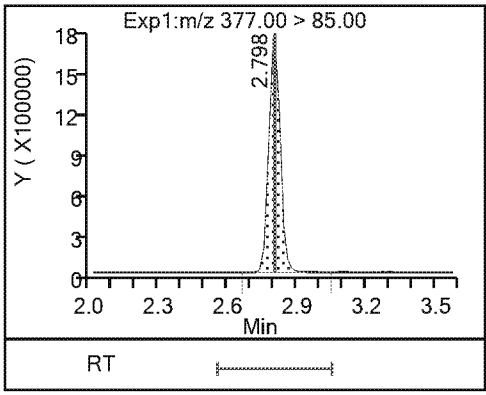
3 Perfluorohexanesulfonic acid



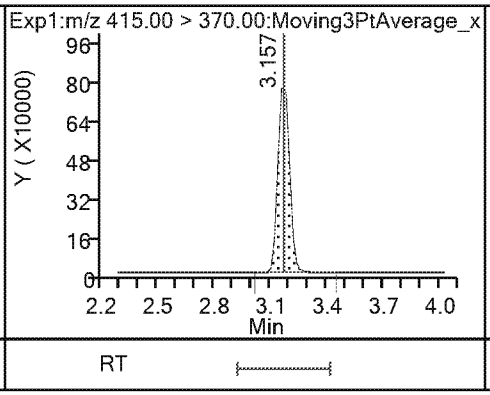
24 DONA



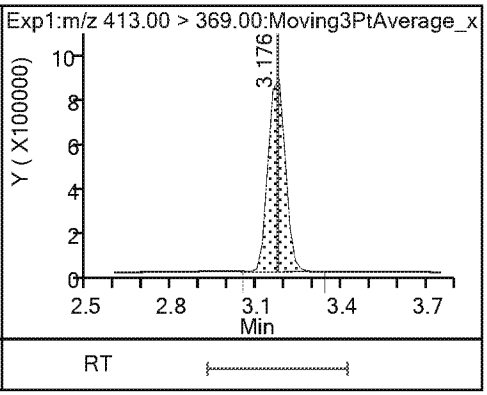
24 DONA



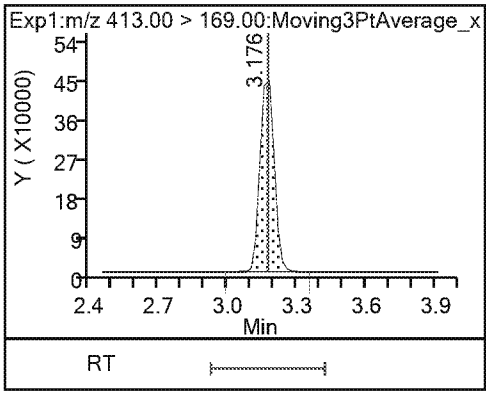
* 5 13C2 PFOA



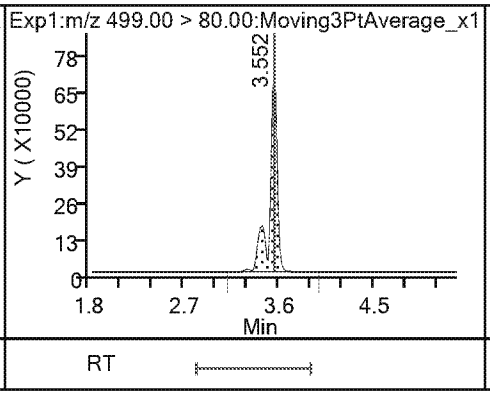
6 Perfluorooctanoic acid



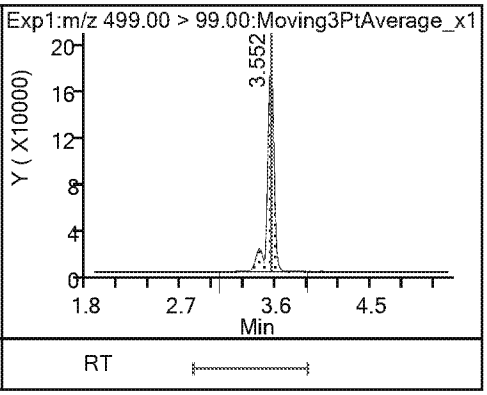
6 Perfluorooctanoic acid



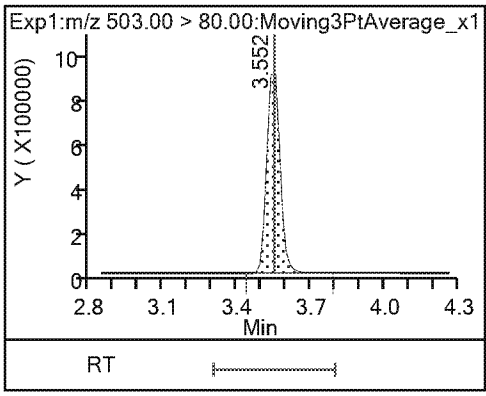
8 Perfluorooctanesulfonic acid



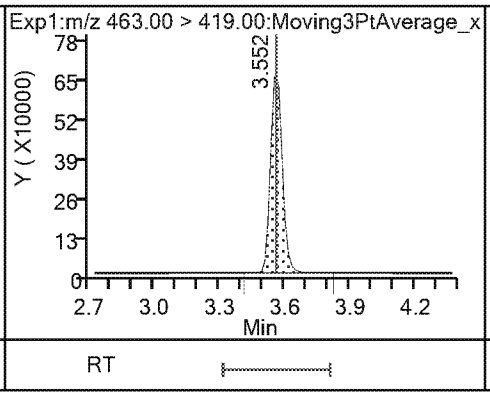
8 Perfluorooctanesulfonic acid



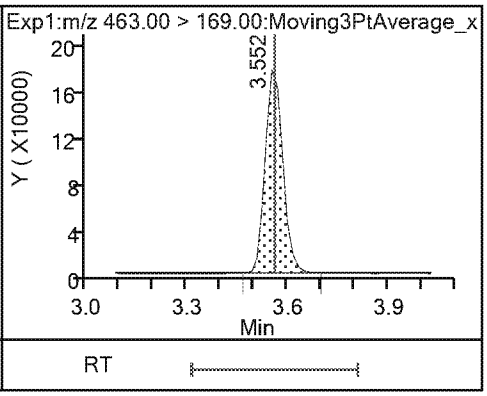
* 7 13C4 PFOS



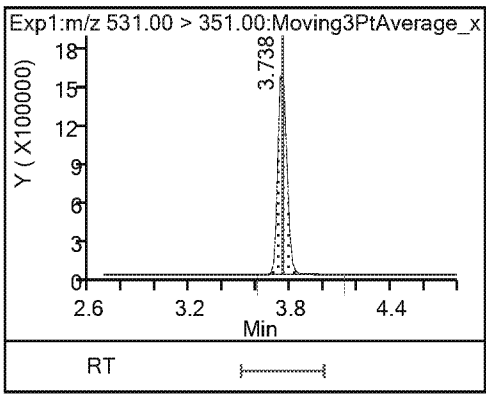
9 Perfluorononanoic acid



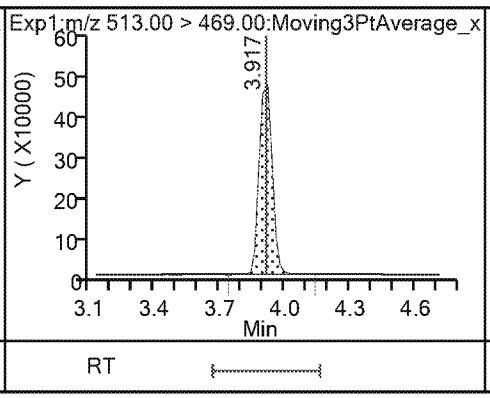
9 Perfluorononanoic acid



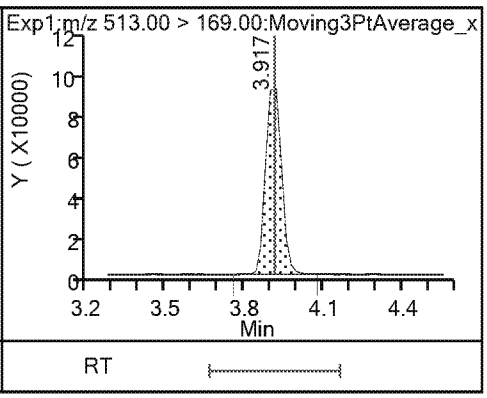
23 9-Chlorohexadecafluoro-3-oxanonane



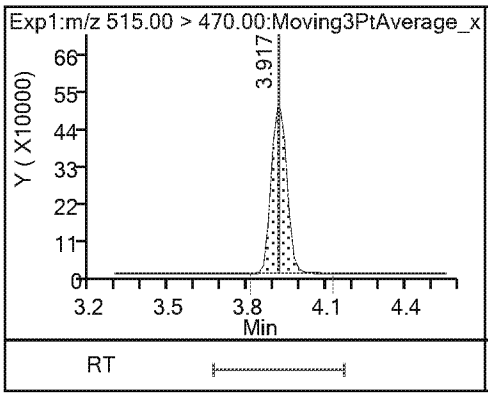
14 Perfluorodecanoic acid



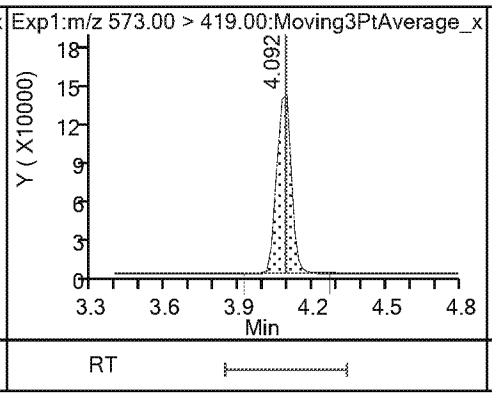
14 Perfluorodecanoic acid



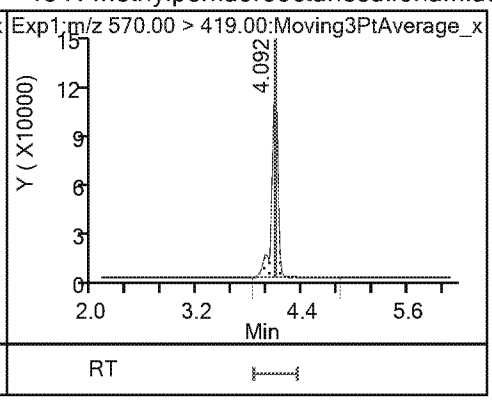
$ 10 13C2 PFDA



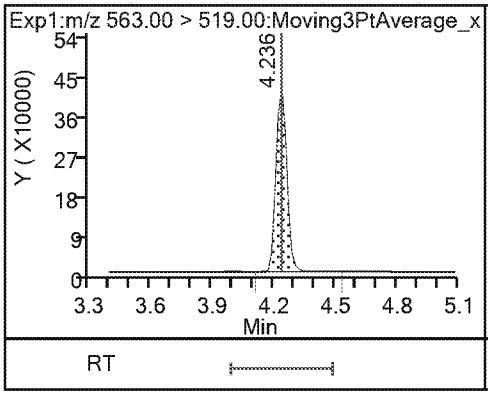
* 12 d3-NMeFOSAA



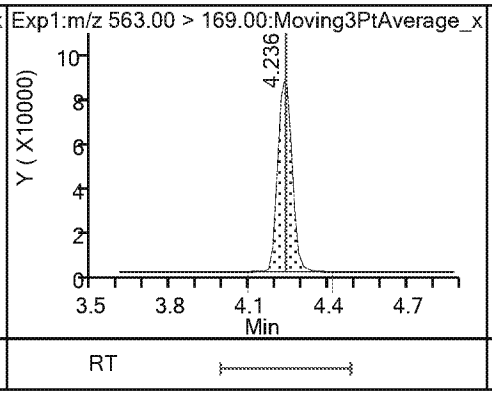
15 N-methylperfluorooctanesulfonamido



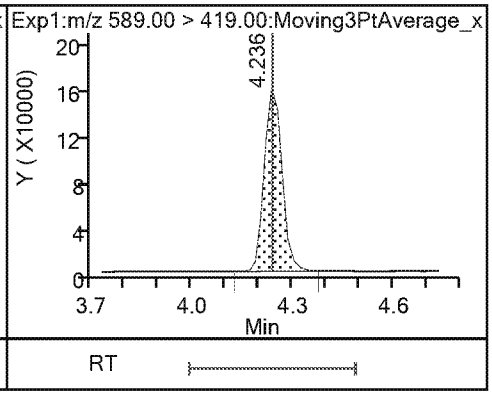
17 Perfluoroundecanoic acid



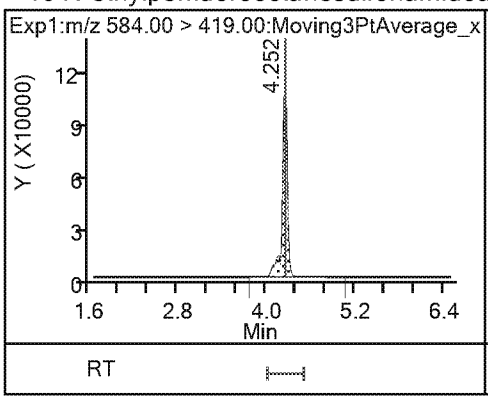
17 Perfluoroundecanoic acid



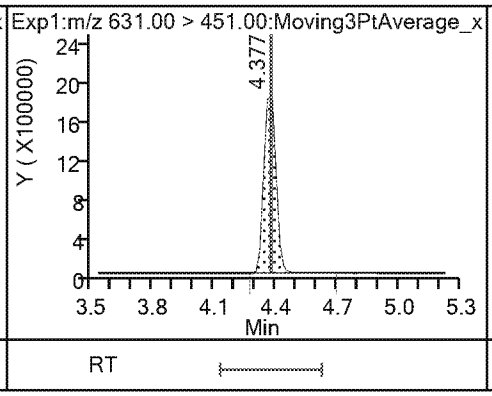
$ 11 d5-NEtFOSAA



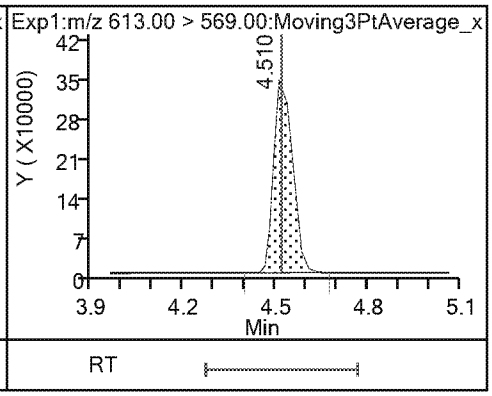
16 N-ethylperfluorooctanesulfonamidoa



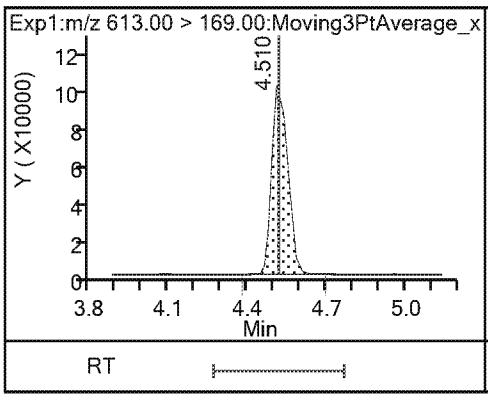
21 11-Chloroeicosafluoro-3-oxaundecan



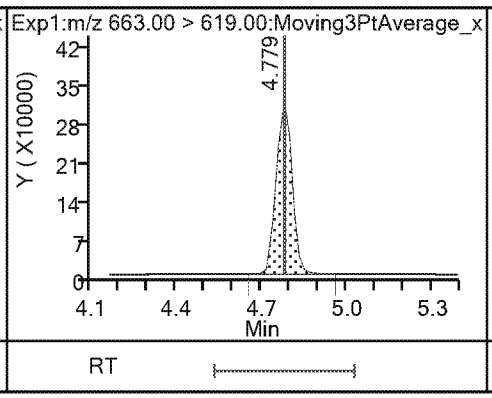
18 Perfluorododecanoic acid



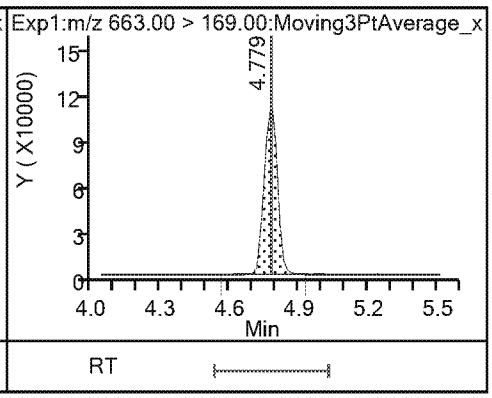
18 Perfluorododecanoic acid



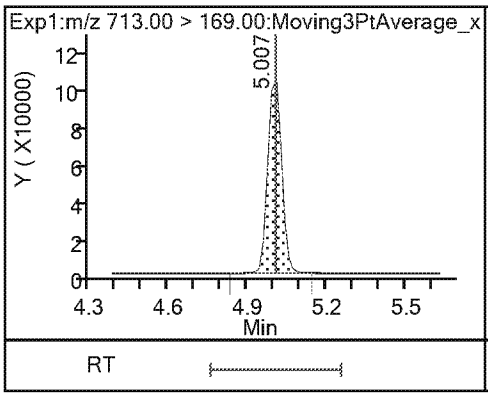
19 Perfluorotridecanoic acid



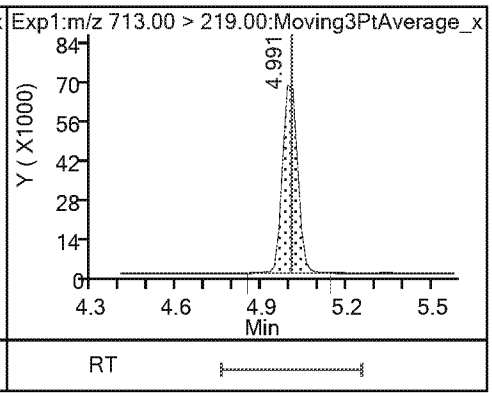
19 Perfluorotridecanoic acid



20 Perfluorotetradecanoic acid



20 Perfluorotetradecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_008.d
Lims ID: IC L6
Client ID:
Sample Type: IC Calib Level: 6
Inject. Date: 26-Mar-2019 16:20:32 ALS Bottle#: 6 Worklist Smp#: 7
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: L6_537
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub13

Method: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 26-Mar-2019 17:25:56 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0323

First Level Reviewer: Ex. 4 CBI Date: 26-Mar-2019 16:48:44
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.976	1.973	0.003	1.000	6606172	4.63	Target=1.00	9842	
298.90 > 99.00	1.976	1.973	0.003	1.000	4345694		1.52(0.00-0.00)	5602	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.322	2.322	0.0	0.733	6311134	5.08	Target=1.00	1809	
313.00 > 119.00	2.322	2.322	0.0	0.733	584923		10.79(0.00-0.00)	1057	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.322	2.322	0.0	1.000	3337796	2.54		5622	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.448	2.459	-0.011	1.000	164643	2.75		919	
22 Perfluoro(2-propoxypropanoic) acid									
329.10 > 285.00	2.473	2.463	0.010	1.010	1424104	4.86		579	
4 Perfluoroheptanoic acid									
363.00 > 319.00	2.766	2.760	0.006	1.000	6156902	5.02	Target=1.00	537	
363.00 > 169.00	2.766	2.760	0.006	1.000	2550462		2.41(0.00-0.00)	5552	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	2.766	2.772	-0.006	1.000	8140366	4.85	Target=1.00	4672	
399.00 > 99.00	2.766	2.772	-0.006	1.000	2683843		3.03(0.00-0.00)	3278	
24 DONA									
377.00 > 251.00	2.807	2.801	0.006	1.000	16098897	4.91	Target=1.00	14342	
377.00 > 85.00	2.807	2.801	0.006	1.000	10000377		1.61(0.00-0.00)	613199	
* 5 13C2 PFOA									
415.00 > 370.00	3.169	3.167	0.002		2838322	2.50		13035	
6 Perfluorooctanoic acid									
413.00 > 369.00	3.169	3.172	-0.003	1.000	5924611	5.12	Target=1.00	567	
413.00 > 169.00	3.169	3.172	-0.003	1.000	3370951		1.76(0.00-0.00)	3933	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
8 Perfluorooctanesulfonic acid									
499.00 > 80.00	3.552	3.549	0.003	1.000	5977181	4.79	Target=1.00	6100	
499.00 > 99.00	3.552	3.549	0.003	1.000	1252454		4.77(0.00-0.00)	1398	
* 7 13C4 PFOS									
503.00 > 80.00	3.552	3.549	0.003		2820303	2.39		8328	
9 Perfluorononanoic acid									
463.00 > 419.00	3.567	3.560	0.007	1.000	4333151	5.12	Target=1.00	1748	
463.00 > 169.00	3.567	3.560	0.007	1.000	1089340		3.98(0.00-0.00)	12373	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.754	3.749	0.005	1.000	9974853	4.95		8757	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.917	3.912	0.005	1.000	3384295	5.09	Target=1.00	1656	
513.00 > 169.00	3.917	3.912	0.005	1.000	646327		5.24(0.00-0.00)	2566	
$ 10 13C2 PFDA									
515.00 > 470.00	3.917	3.918	-0.001	1.000	1767371	2.53		5370	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.092	4.089	0.003		490219	2.50		2961	
15 N-methylperfluorooctanesulfonamido									
570.00 > 419.00	4.092	4.089	0.003	1.000	868166	4.80		4000	
17 Perfluoroundecanoic acid									
563.00 > 519.00	4.236	4.236	0.0	1.000	2622209	5.09	Target=1.00	1142	
563.00 > 169.00	4.236	4.236	0.0	1.000	540175		4.85(0.00-0.00)	7321	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.236	4.238	-0.002	1.035	495489	2.48		216	
16 N-ethylperfluorooctanesulfonamidoa									
584.00 > 419.00	4.252	4.252	0.0	1.004	839250	4.89		1193	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.378	4.373	0.005	1.000	12543276	4.99		15507	
18 Perfluorododecanoic acid									
613.00 > 569.00	4.511	4.518	-0.007	1.000	2655739	5.29	Target=1.00	982	
613.00 > 169.00	4.511	4.518	-0.007	1.000	752487		3.53(0.00-0.00)	5959	
19 Perfluorotridecanoic acid									
663.00 > 619.00	4.780	4.779	0.001	1.000	2024331	4.88	Target=1.00	732	
663.00 > 169.00	4.780	4.779	0.001	1.000	733141		2.76(0.00-0.00)	4075	
20 Perfluorotetradecanoic acid									
713.00 > 169.00	5.008	5.004	0.004	1.000	571520	4.98	Target=1.00	2902	
713.00 > 219.00	5.008	5.004	0.004	1.000	410241		1.39(0.00-0.00)	2290	

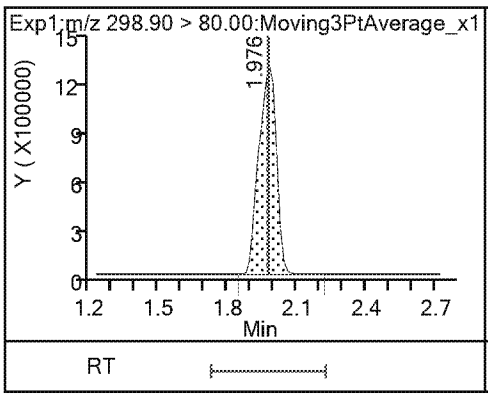
Reagents:

LC537_NC_L6_00003 Amount Added: 1.00 Units: mL

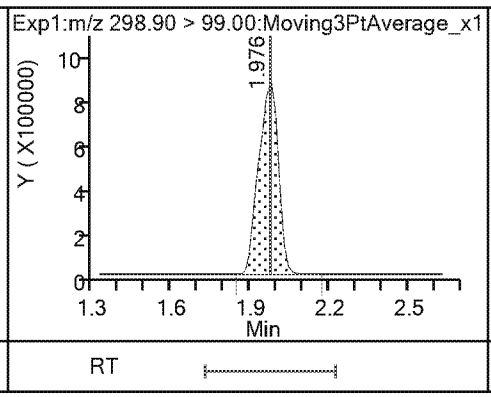
TestAmerica Sacramento

Data File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_008.d
Injection Date: 26-Mar-2019 16:20:32 Instrument ID: A8_N
Lims ID: IC L6
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 6 Worklist Smp#: 7
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

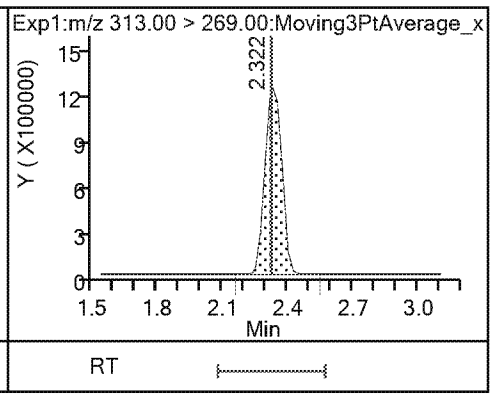
1 Perfluorobutanesulfonic acid



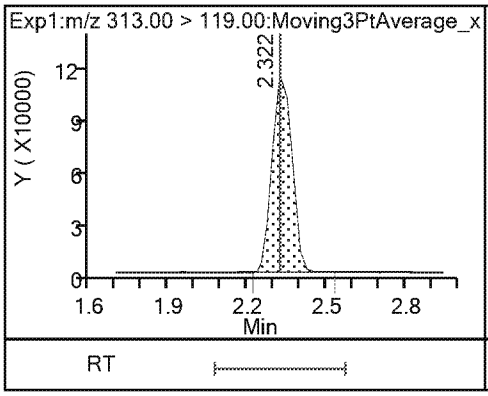
1 Perfluorobutanesulfonic acid



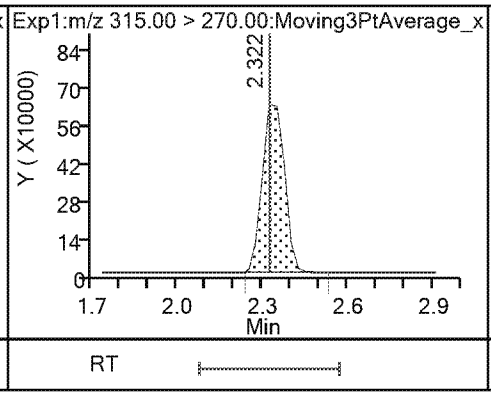
13 Perfluorohexanoic acid



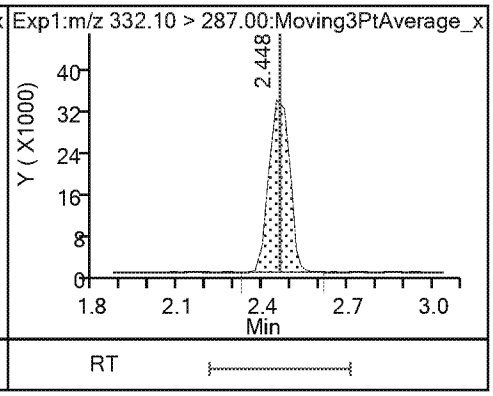
13 Perfluorohexanoic acid



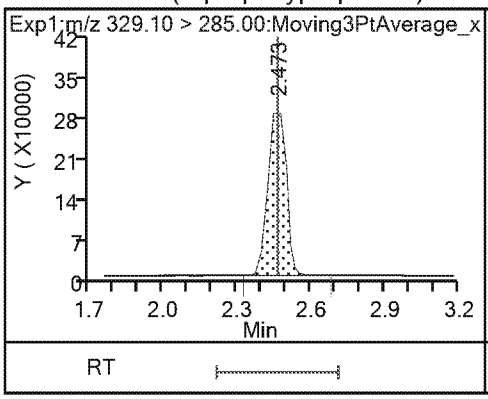
$ 2 13C2 PFHxA



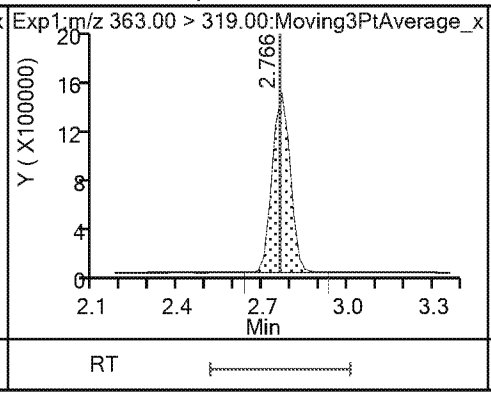
$ 25 13C3 HFPO-DA



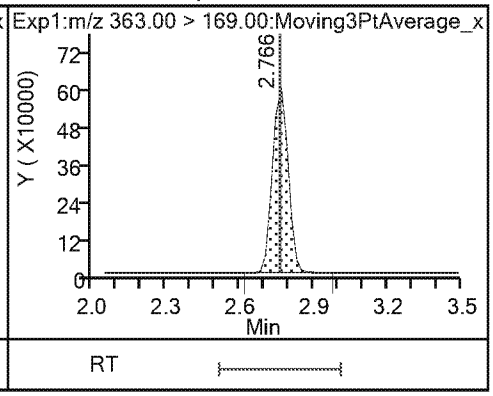
22 Perfluoro(2-propoxypropanoic) acid



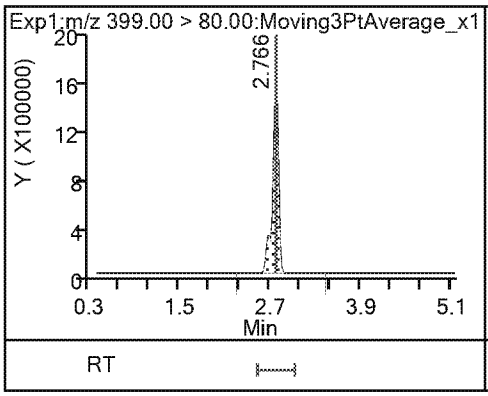
4 Perfluoroheptanoic acid



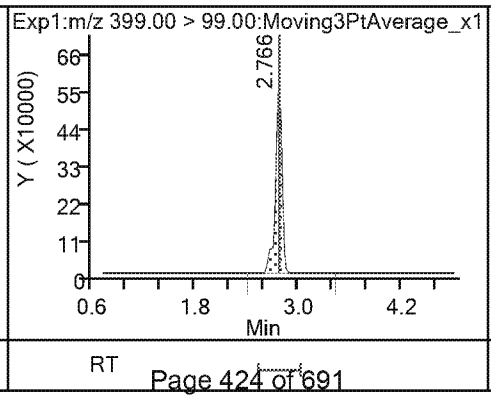
4 Perfluoroheptanoic acid



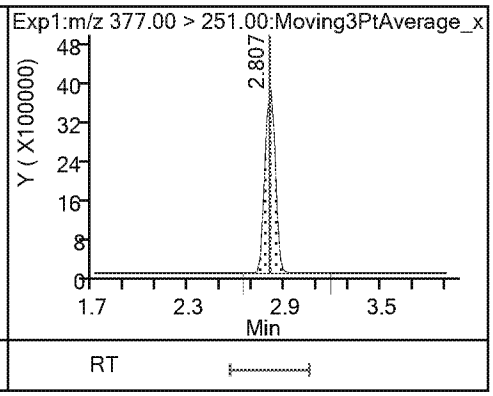
3 Perfluorohexanesulfonic acid



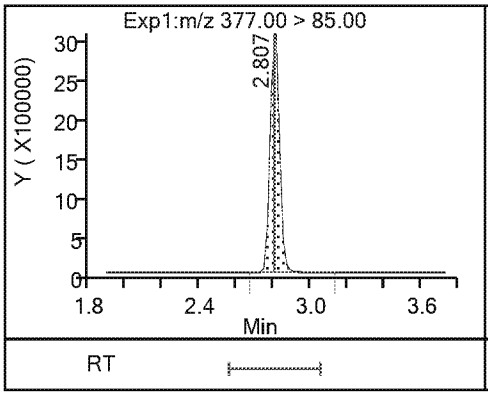
3 Perfluorohexanesulfonic acid



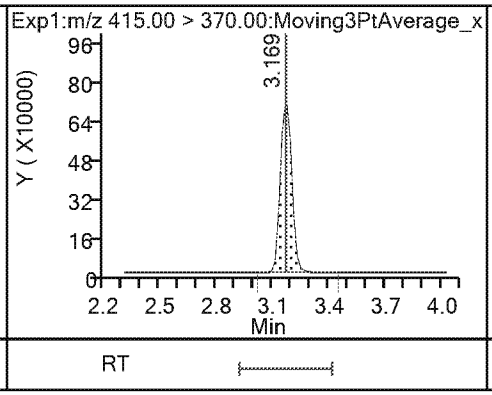
24 DONA



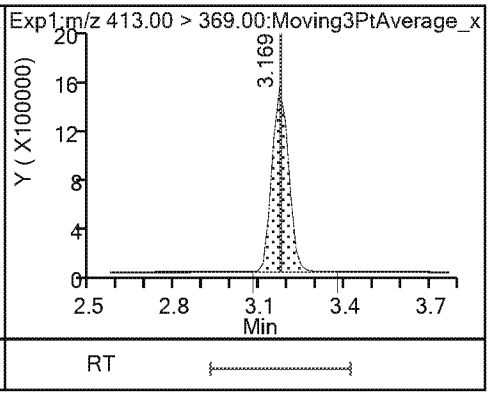
24 DONA



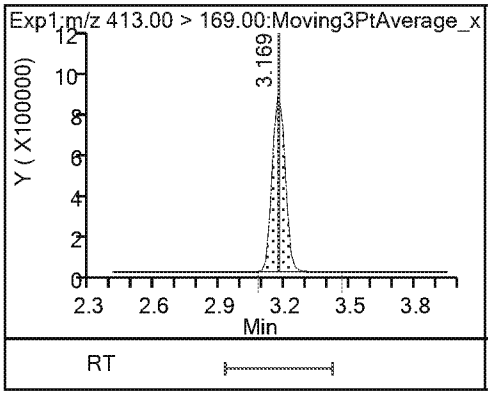
* 5 13C2 PFOA



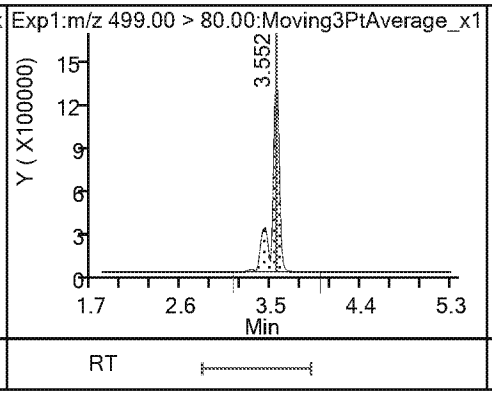
6 Perfluorooctanoic acid



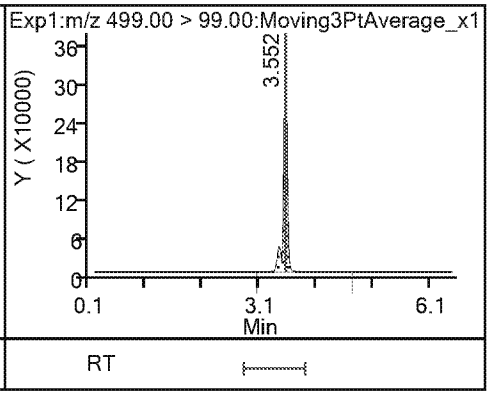
6 Perfluorooctanoic acid



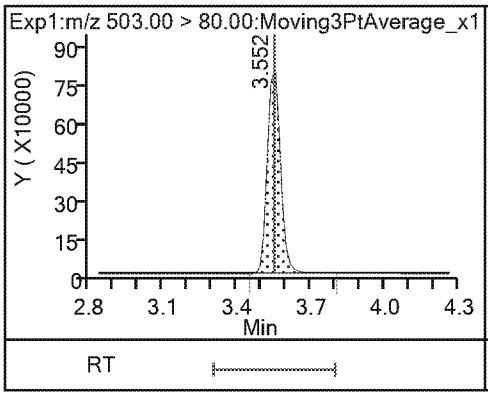
8 Perfluorooctanesulfonic acid



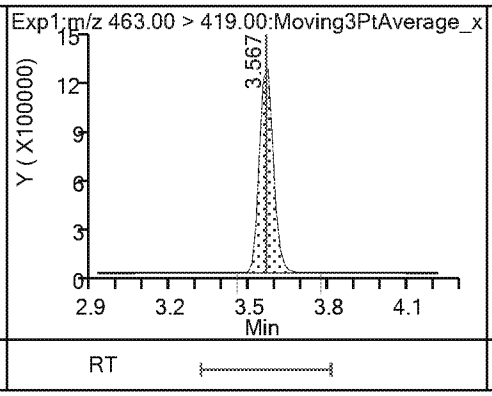
8 Perfluorooctanesulfonic acid



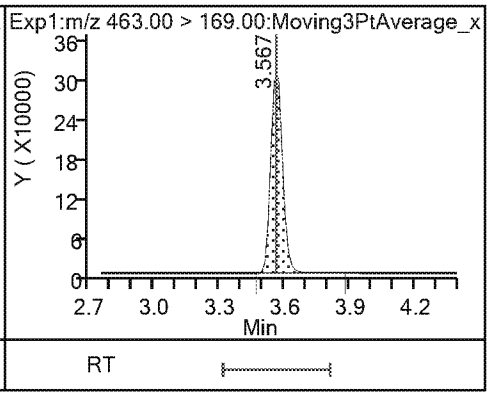
* 7 13C4 PFOS



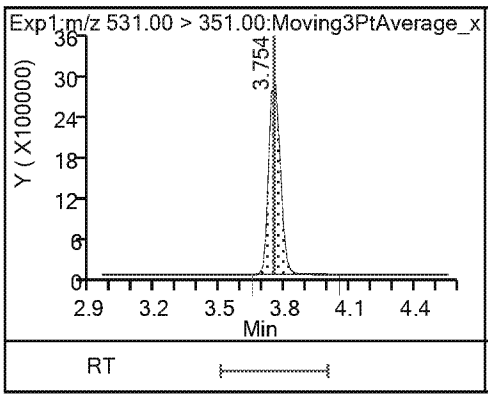
9 Perfluorononanoic acid



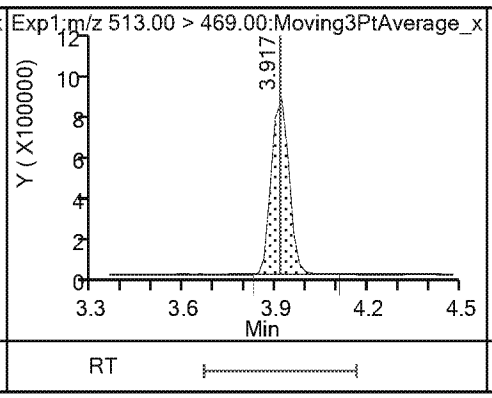
9 Perfluorononanoic acid



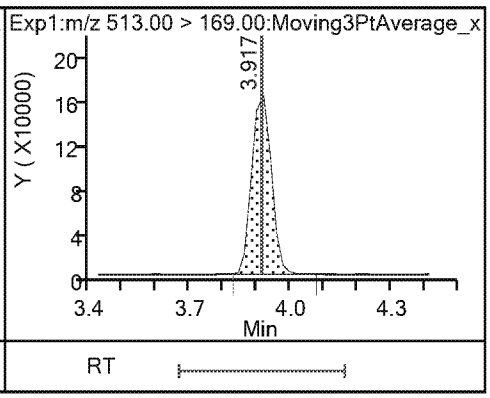
23 9-Chlorohexadecafluoro-3-oxanonane



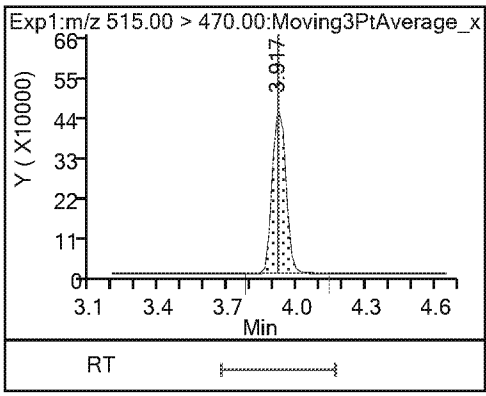
14 Perfluorodecanoic acid



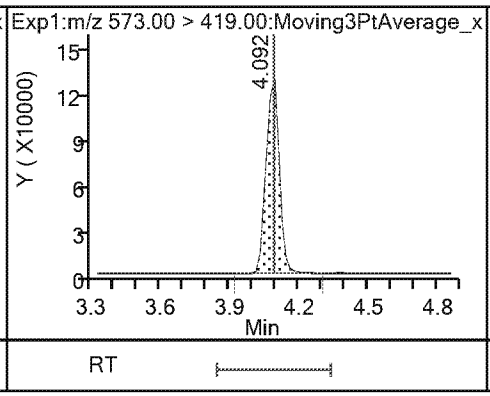
14 Perfluorodecanoic acid



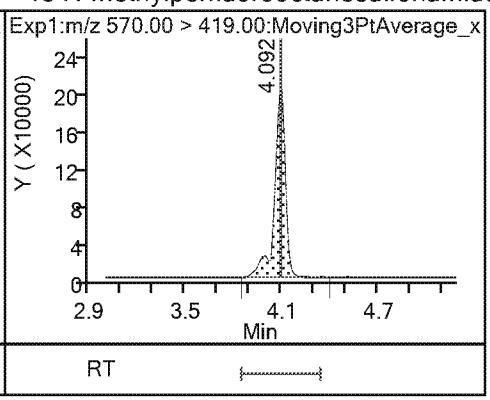
$ 10 13C2 PFDA



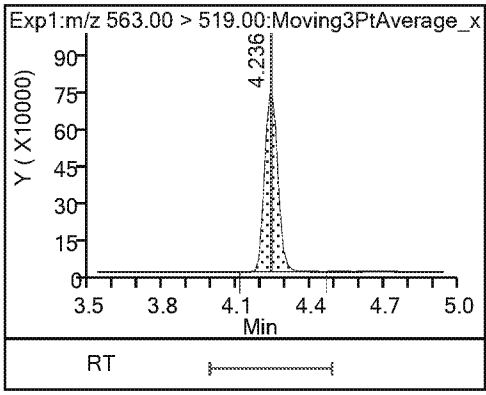
* 12 d3-NMeFOSAA



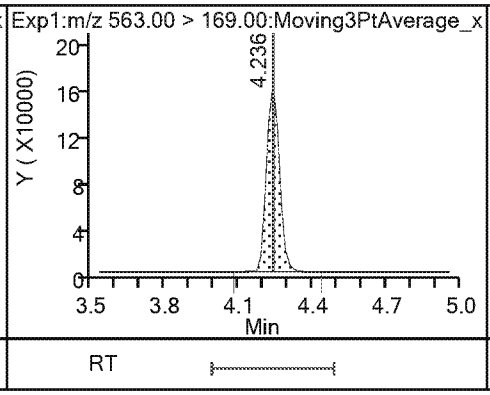
15 N-methylperfluorooctanesulfonamido



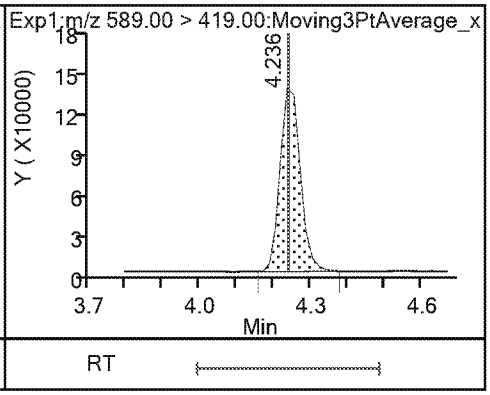
17 Perfluoroundecanoic acid



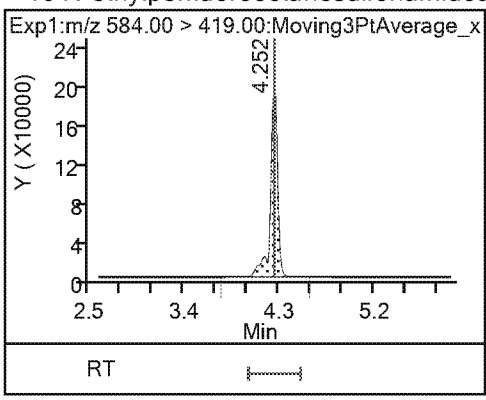
17 Perfluoroundecanoic acid



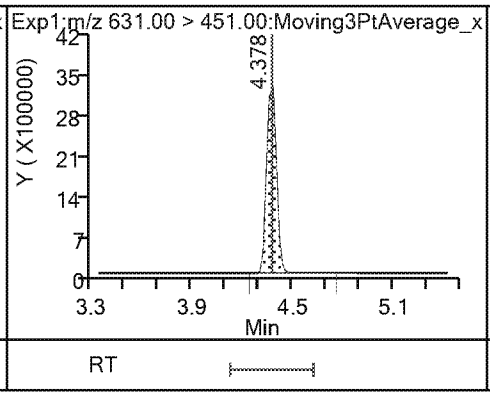
$ 11 d5-NEtFOSAA



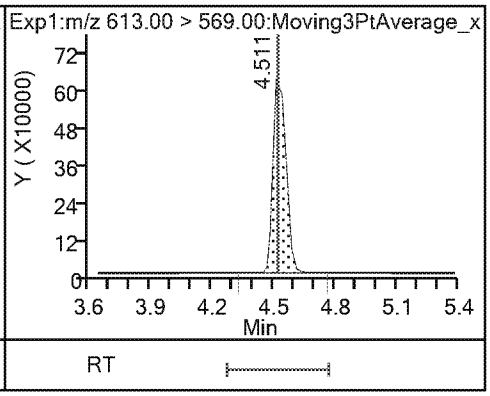
16 N-ethylperfluorooctanesulfonamidoa



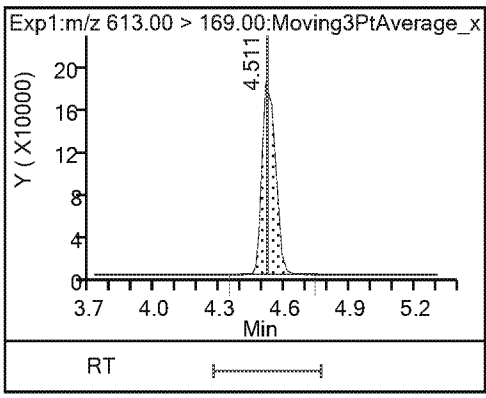
21 11-Chloroeicosafluoro-3-oxaundecan



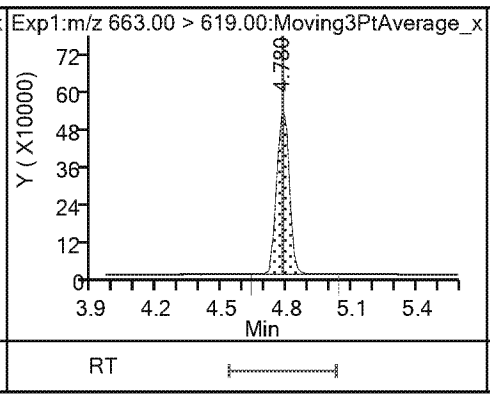
18 Perfluorododecanoic acid



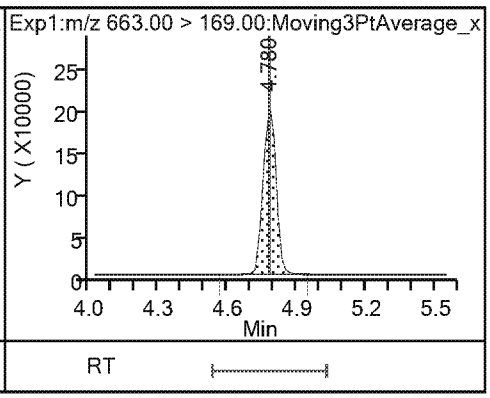
18 Perfluorododecanoic acid



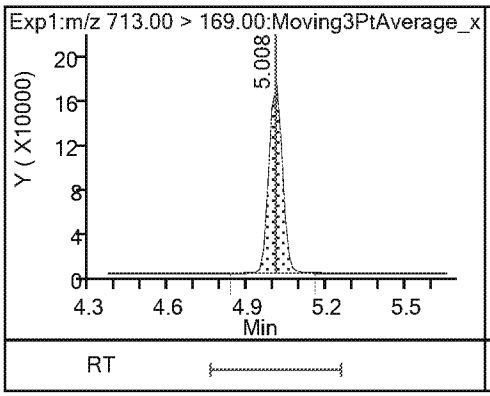
19 Perfluorotridecanoic acid



19 Perfluorotridecanoic acid



20 Perfluorotetradecanoic acid



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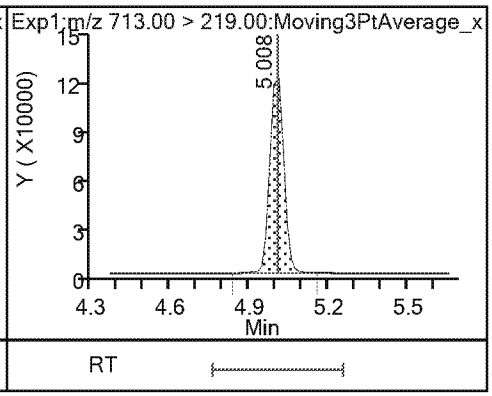


TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d
Lims ID: IC L7
Client ID:
Sample Type: IC Calib Level: 7
Inject. Date: 26-Mar-2019 16:27:57 ALS Bottle#: 7 Worklist Smp#: 8
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: L7_537
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub13

Method: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 26-Mar-2019 17:25:57 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0323

First Level Reviewer: Ex. 4 CBI Date: 26-Mar-2019 16:55:43
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.976	1.973	0.003	1.000	14066321	9.03	Target=1.00	20550	
298.90 > 99.00	1.976	1.973	0.003	1.000	9590298		1.47(0.00-0.00)	12438	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.322	2.322	0.0	0.732	13485841	10.1	Target=1.00	4055	
313.00 > 119.00	2.322	2.322	0.0	0.732	1217182		11.08(0.00-0.00)	2143	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.322	2.322	0.0	1.000	3420348	2.42		5069	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.448	2.459	-0.011	1.000	153433	2.39		710	
22 Perfluoro(2-propoxypropanoic) acid									
329.10 > 285.00	2.448	2.463	-0.015	1.000	3244347	10.3		1375	
4 Perfluoroheptanoic acid									
363.00 > 319.00	2.770	2.760	0.010	1.000	12600231	9.57	Target=1.00	1052	
363.00 > 169.00	2.770	2.760	0.010	1.000	5211652		2.42(0.00-0.00)	7196	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	2.770	2.772	-0.002	1.000	17082127	9.33	Target=1.00	10879	
399.00 > 99.00	2.770	2.772	-0.002	1.000	5856635		2.92(0.00-0.00)	2571	
24 DONA									
377.00 > 251.00	2.811	2.801	0.010	1.000	29991217	8.52	Target=1.00	12042	
377.00 > 85.00	2.811	2.801	0.010	1.000	20028874		1.50(0.00-0.00)	804860	
* 5 13C2 PFOA									
415.00 > 370.00	3.171	3.167	0.004		3046929	2.50		9345	
6 Perfluorooctanoic acid									
413.00 > 369.00	3.171	3.172	-0.001	1.000	12651138	10.2	Target=1.00	1323	
413.00 > 169.00	3.171	3.172	-0.001	1.000	7238942		1.75(0.00-0.00)	6235	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
8 Perfluorooctanesulfonic acid									
499.00 > 80.00	3.547	3.549	-0.002	1.000	12649287	9.29	Target=1.00	3271	
499.00 > 99.00	3.547	3.549	-0.002	1.000	2698638		4.69(0.00-0.00)	5940	
* 7 13C4 PFOS									
503.00 > 80.00	3.547	3.549	-0.002		3077033	2.39		8964	
9 Perfluorononanoic acid									
463.00 > 419.00	3.562	3.560	0.002	1.000	8839596	9.72	Target=1.00	3077	
463.00 > 169.00	3.562	3.560	0.002	1.000	2230490		3.96(0.00-0.00)	13505	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.749	3.749	0.0	1.000	20049652	9.11		14250	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.909	3.912	-0.003	1.000	7210903	10.1	Target=1.00	3252	
513.00 > 169.00	3.909	3.912	-0.003	1.000	1438538		5.01(0.00-0.00)	4614	
$ 10 13C2 PFDA									
515.00 > 470.00	3.928	3.918	0.010	1.000	1905552	2.54		5883	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.090	4.089	0.001		514209	2.50		2317	
15 N-methylperfluorooctanesulfonamido									
570.00 > 419.00	4.090	4.089	0.001	1.000	1867963	9.84		4194	
17 Perfluoroundecanoic acid									
563.00 > 519.00	4.235	4.236	-0.001	1.000	5754895	10.4	Target=1.00	2849	
563.00 > 169.00	4.235	4.236	-0.001	1.000	1155982		4.98(0.00-0.00)	4584	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.235	4.238	-0.003	1.035	560044	2.67		231	
16 N-ethylperfluorooctanesulfonamidoa									
584.00 > 419.00	4.251	4.252	-0.001	1.004	1797021	9.99		1772	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.377	4.373	0.004	1.000	24677216	9.01		284633	
18 Perfluorododecanoic acid									
613.00 > 569.00	4.510	4.518	-0.008	1.000	5685209	10.6	Target=1.00	1937	
613.00 > 169.00	4.510	4.518	-0.008	1.000	1598160		3.56(0.00-0.00)	8346	
19 Perfluorotridecanoic acid									
663.00 > 619.00	4.778	4.779	-0.001	1.000	4505505	10.1	Target=1.00	1559	
663.00 > 169.00	4.778	4.779	-0.001	1.000	1544394		2.92(0.00-0.00)	5260	
20 Perfluorotetradecanoic acid									
713.00 > 169.00	5.007	5.004	0.003	1.000	1202433	9.77	Target=1.00	3983	
713.00 > 219.00	5.007	5.004	0.003	1.000	847858		1.42(0.00-0.00)	2757	

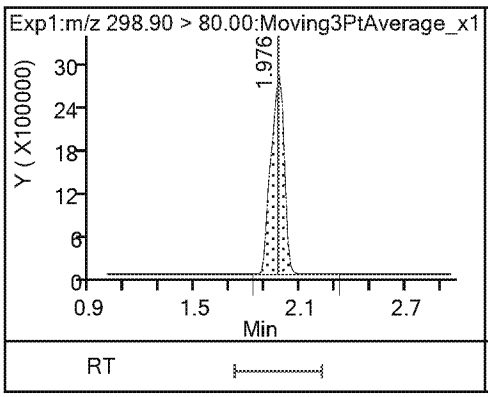
Reagents:

LC537_NC_L7_00003 Amount Added: 1.00 Units: mL

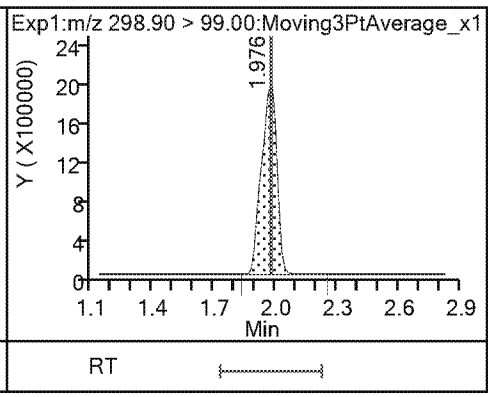
TestAmerica Sacramento

Data File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d
Injection Date: 26-Mar-2019 16:27:57 Instrument ID: A8_N
Lims ID: IC L7
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 7 Worklist Smp#: 8
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

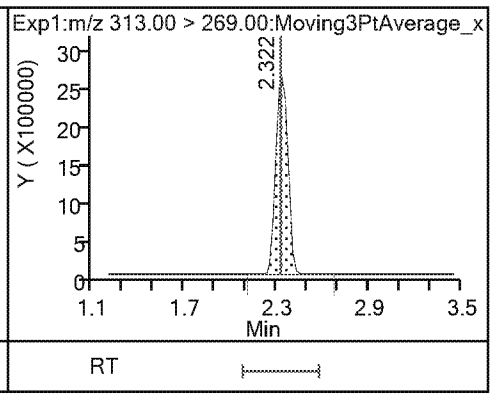
1 Perfluorobutanesulfonic acid



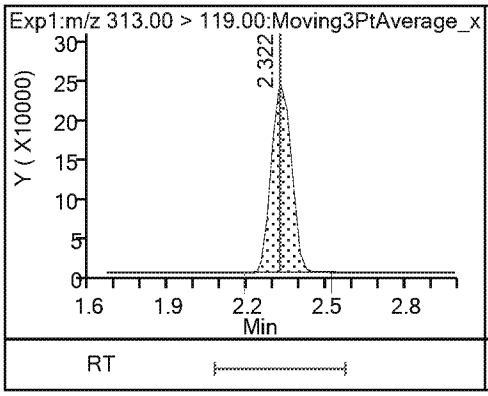
1 Perfluorobutanesulfonic acid



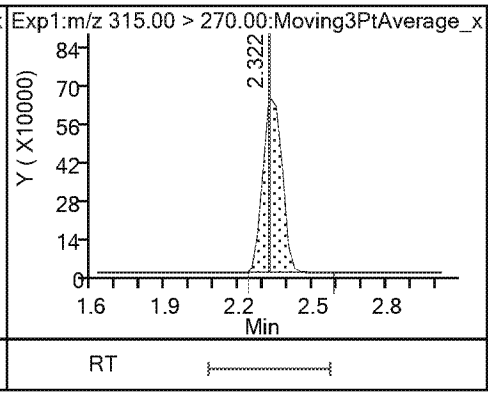
13 Perfluorohexanoic acid



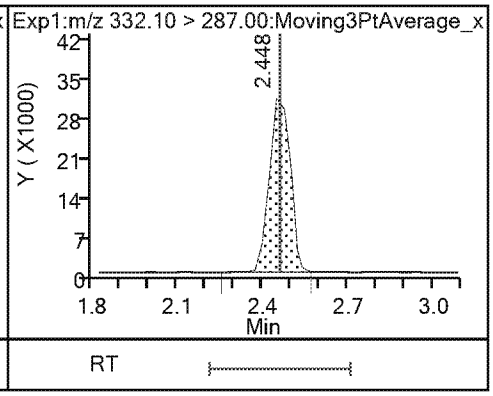
13 Perfluorohexanoic acid



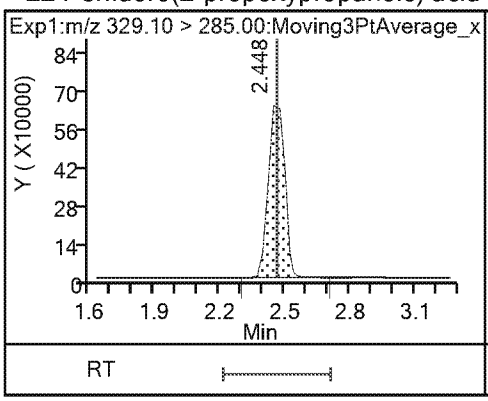
$ 2 13C2 PFHxA



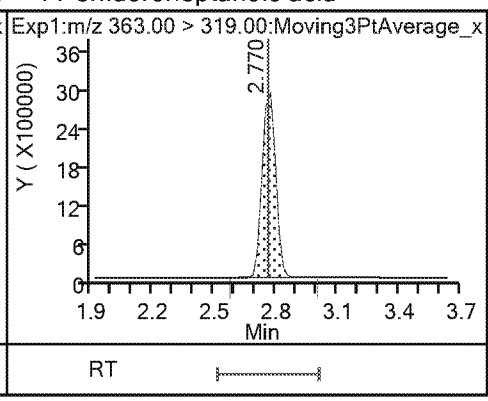
$ 25 13C3 HFPO-DA



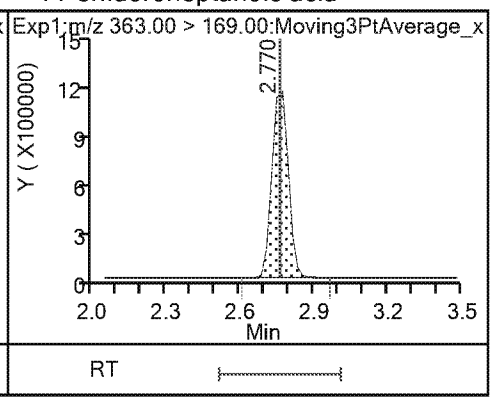
22 Perfluoro(2-propoxypropanoic) acid



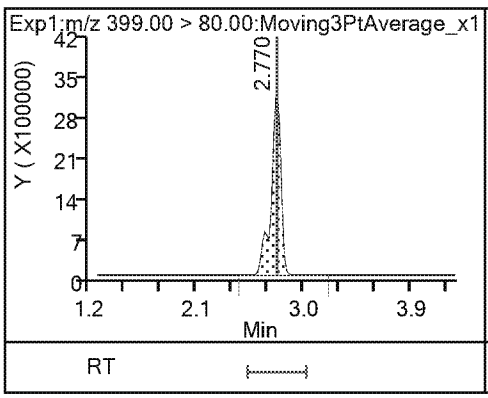
4 Perfluoroheptanoic acid



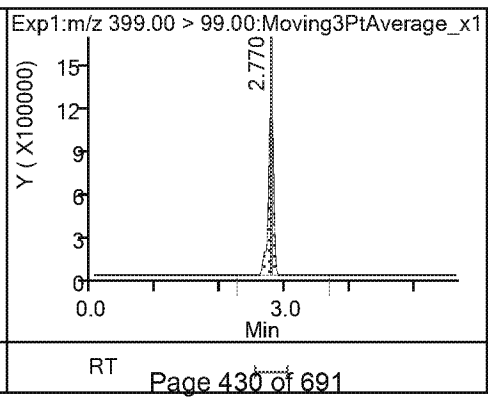
4 Perfluoroheptanoic acid



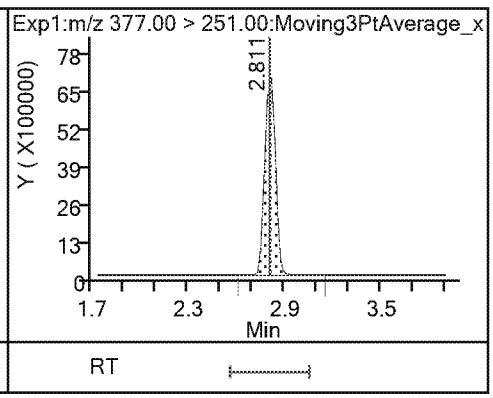
3 Perfluorohexanesulfonic acid



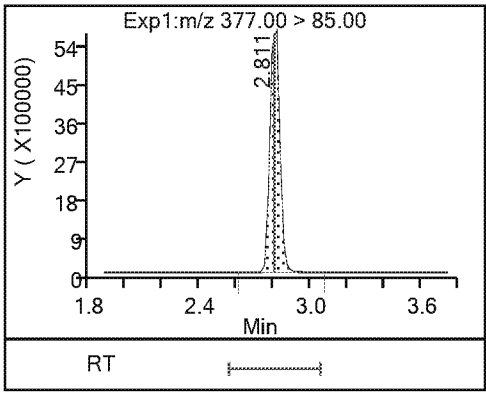
3 Perfluorohexanesulfonic acid



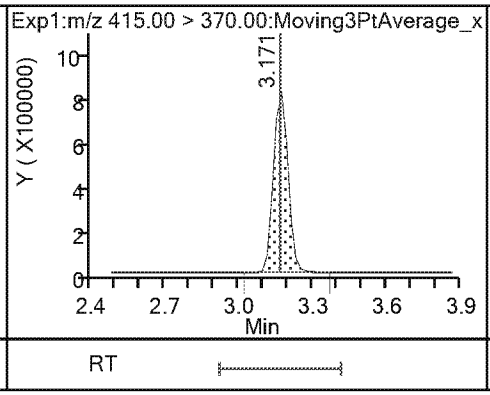
24 DONA



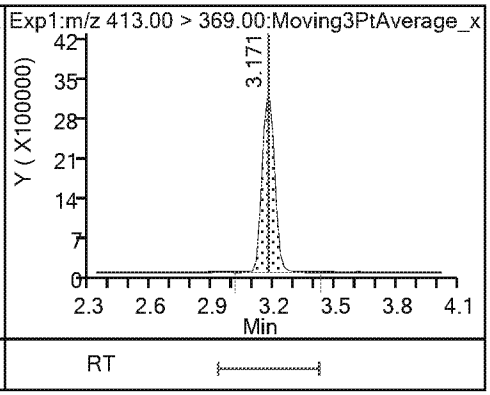
24 DONA



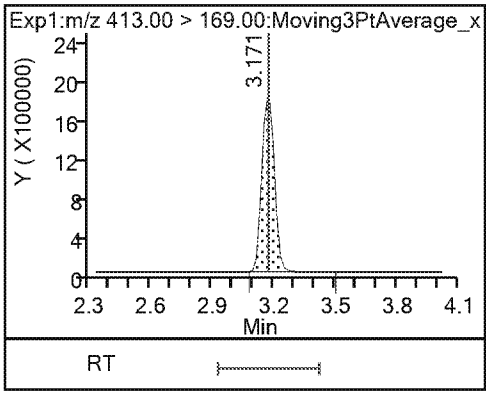
* 5 13C2 PFOA



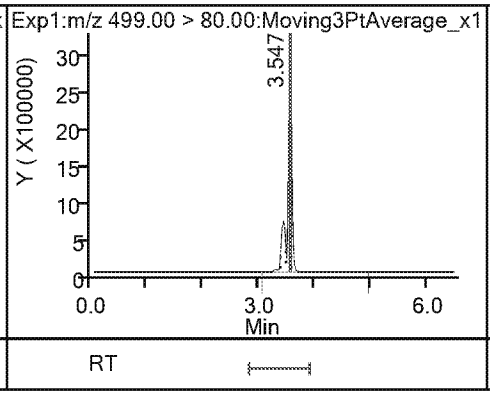
6 Perfluorooctanoic acid



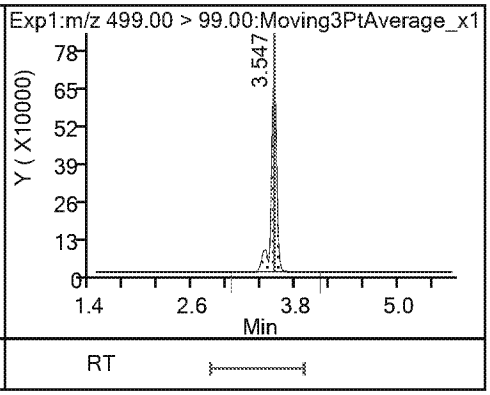
6 Perfluorooctanoic acid



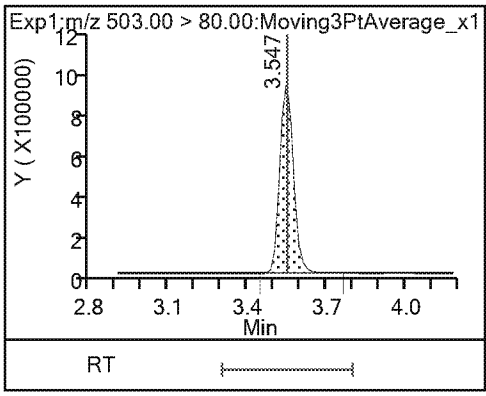
8 Perfluorooctanesulfonic acid



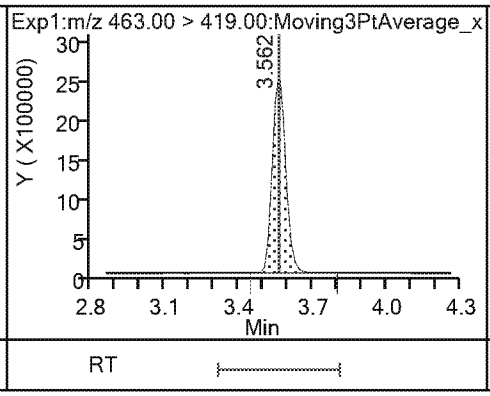
8 Perfluorooctanesulfonic acid



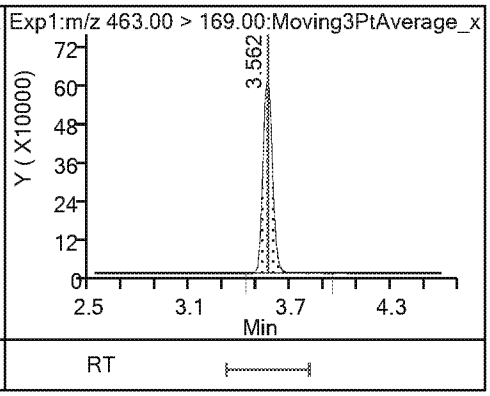
* 7 13C4 PFOS



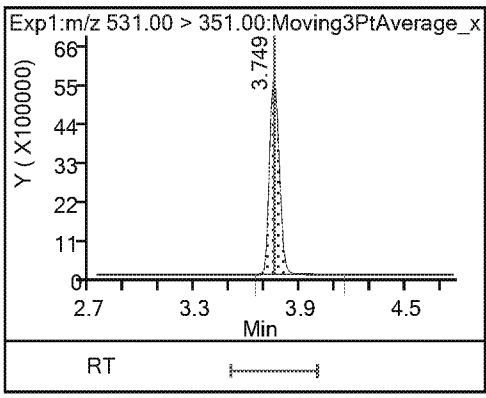
9 Perfluorononanoic acid



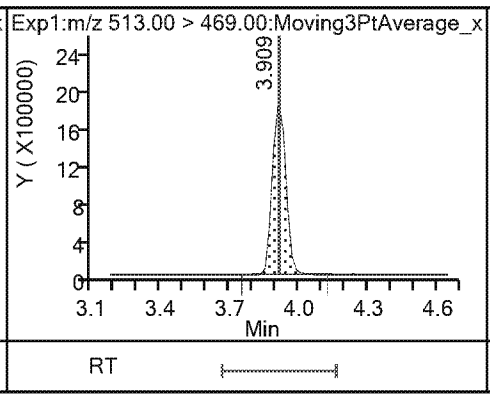
9 Perfluorononanoic acid



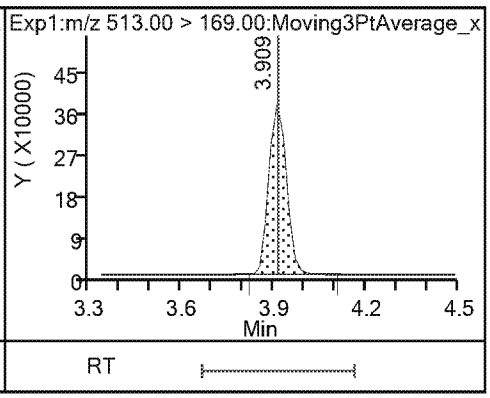
23 9-Chlorohexadecafluoro-3-oxanonane



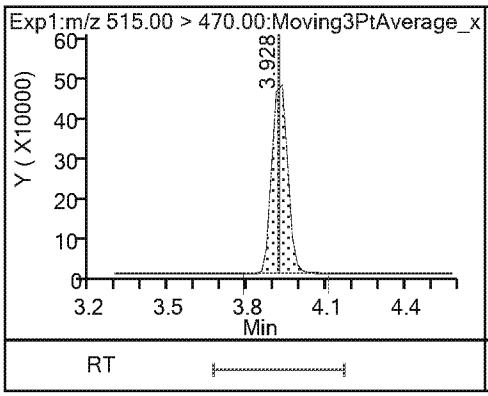
14 Perfluorodecanoic acid



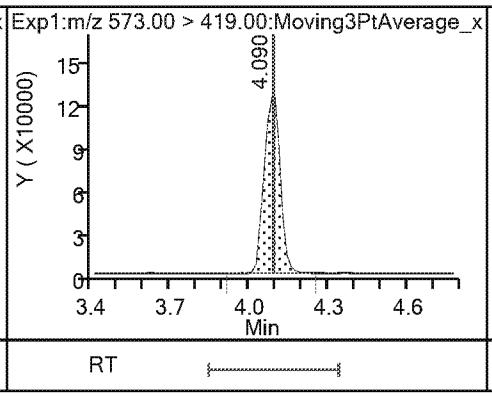
14 Perfluorodecanoic acid



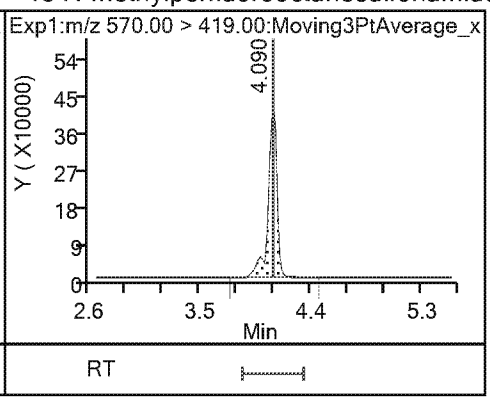
$ 10 13C2 PFDA



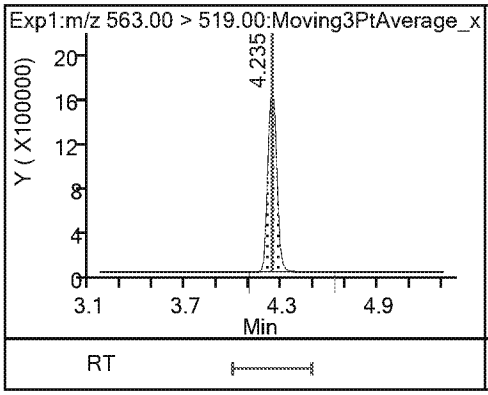
* 12 d3-NMeFOSAA



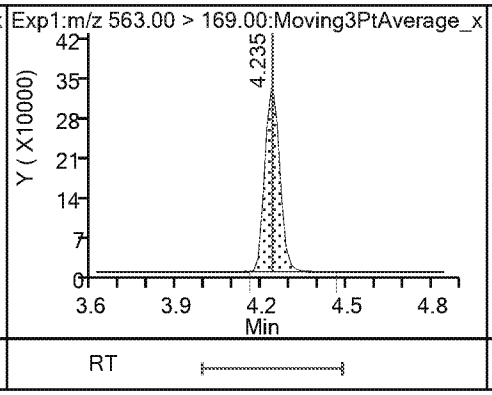
15 N-methylperfluorooctanesulfonamido



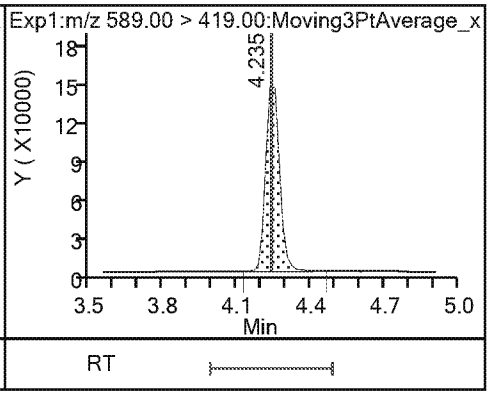
17 Perfluoroundecanoic acid



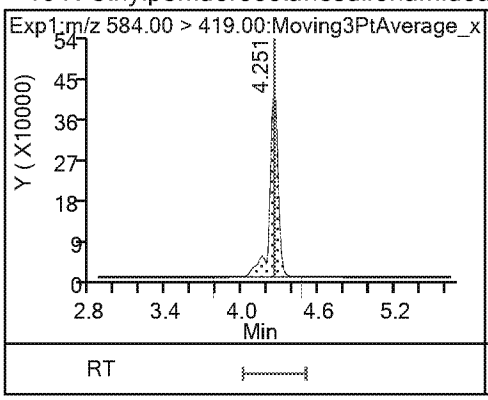
17 Perfluoroundecanoic acid



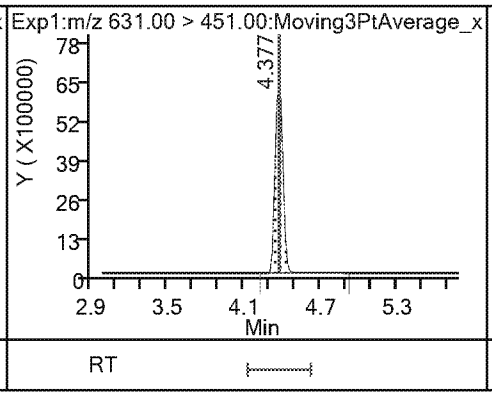
$ 11 d5-NEtFOSAA



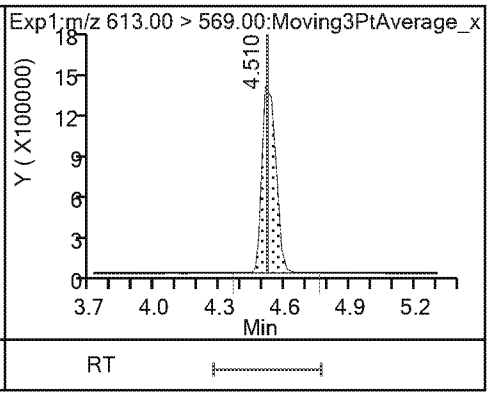
16 N-ethylperfluorooctanesulfonamidoa



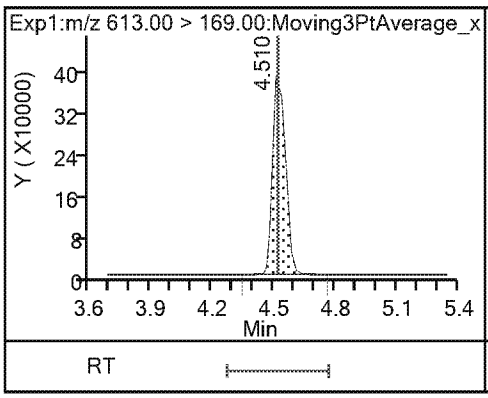
21 11-Chloroeicosafluoro-3-oxaundecan



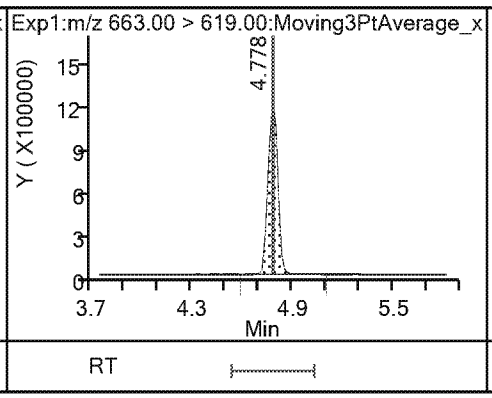
18 Perfluorododecanoic acid



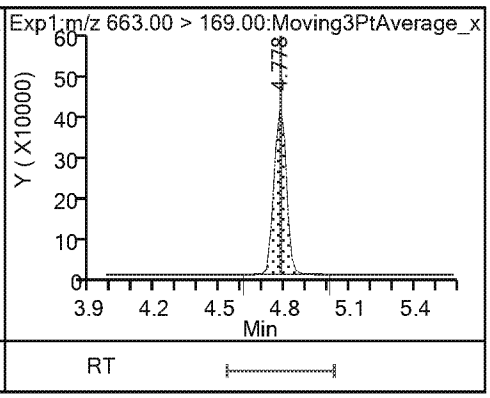
18 Perfluorododecanoic acid



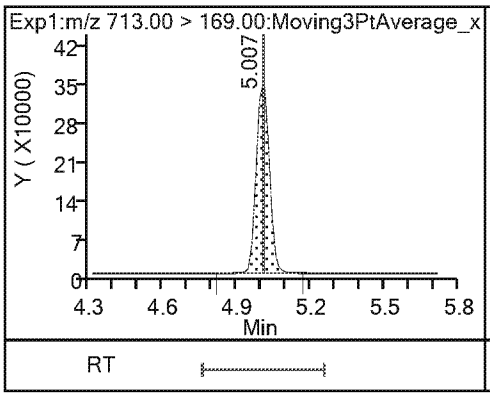
19 Perfluorotridecanoic acid



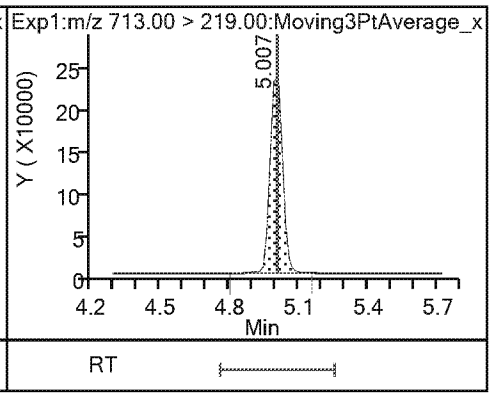
19 Perfluorotridecanoic acid



20 Perfluorotetradecanoic acid



20 Perfluorotetradecanoic acid



Calibration / Perfluorobutanesulfonic acid

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

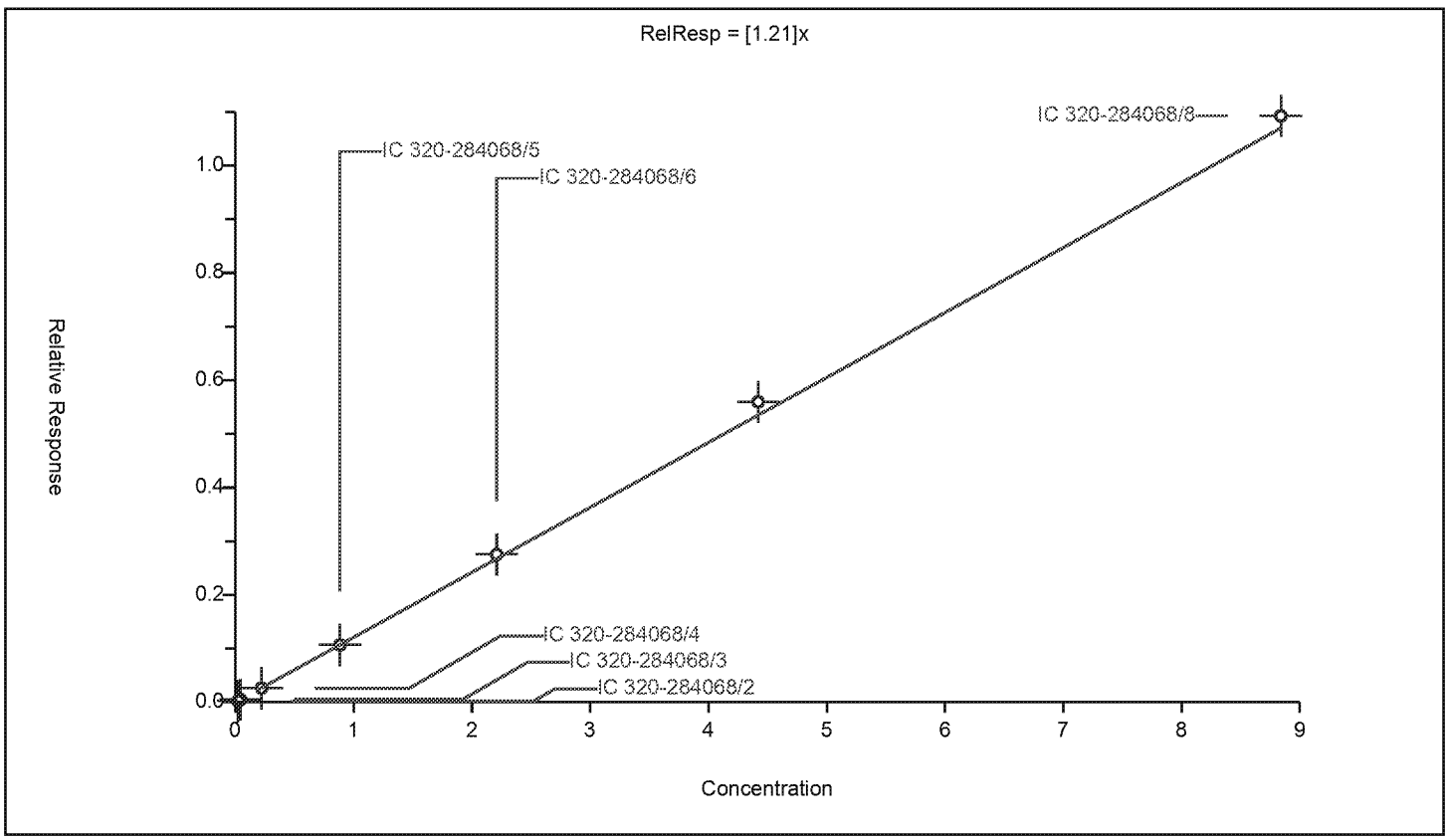
Curve Coefficients

Intercept:	0
Slope:	1.21

Error Coefficients

Standard Error:	6540000
Relative Standard Error:	3.5
Correlation Coefficient:	0.999
Coefficient of Determination (Adjusted):	0.999

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-284068/2	0.0221	0.025435	2.39	3349512.0	1.150893	Y
2	IC 320-284068/3	0.0442	0.051704	2.39	3195037.0	1.169778	Y
3	IC 320-284068/4	0.221	0.263199	2.39	3183475.0	1.190944	Y
4	IC 320-284068/5	0.884	1.070437	2.39	2944756.0	1.210902	Y
5	IC 320-284068/6	2.21	2.754261	2.39	3142392.0	1.246272	Y
6	IC 320-284068/7	4.42	5.598246	2.39	2820303.0	1.266572	Y
7	IC 320-284068/8	8.84	10.925625	2.39	3077033.0	1.23593	Y



Calibration

/ 13C2 PFHxA

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

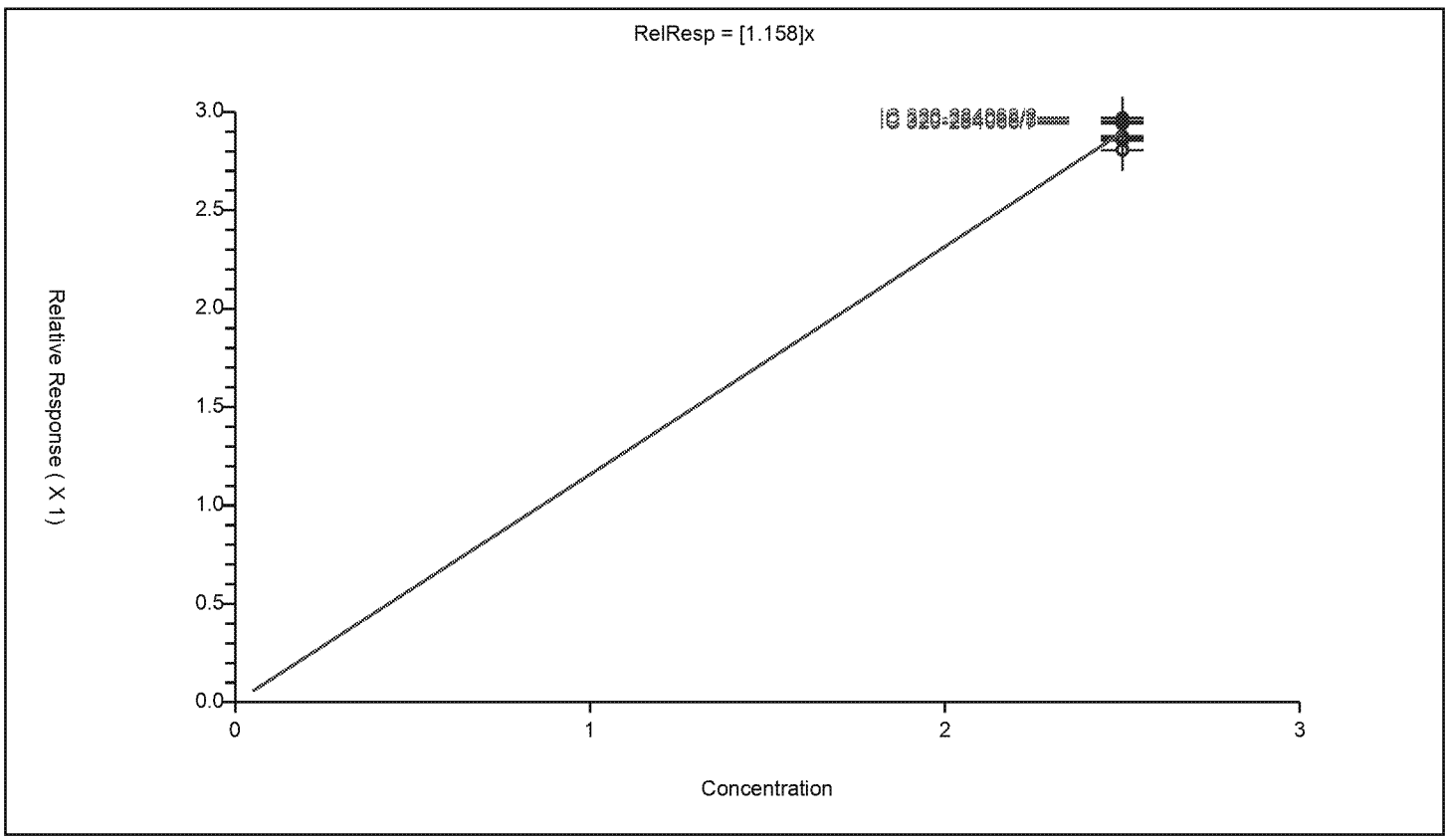
Curve Coefficients

Intercept:	0
Slope:	1.158

Error Coefficients

Standard Error:	3870000
Relative Standard Error:	2.1
Correlation Coefficient:	0.00000000000000000000
Coefficient of Determination (Adjusted):	0

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-284068/8	2.5	2.80639	2.5	3046929.0	1.122556	Y
2	IC 320-284068/7	2.5	2.939938	2.5	2838322.0	1.175975	Y
3	IC 320-284068/6	2.5	2.855372	2.5	3167554.0	1.142149	Y
4	IC 320-284068/2	2.5	2.968765	2.5	3257405.0	1.187506	Y
5	IC 320-284068/3	2.5	2.867885	2.5	3113965.0	1.147154	Y
6	IC 320-284068/4	2.5	2.875697	2.5	3241757.0	1.150279	Y
7	IC 320-284068/5	2.5	2.951316	2.5	2950550.0	1.180526	Y



Calibration

/ Perfluorohexanoic acid

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

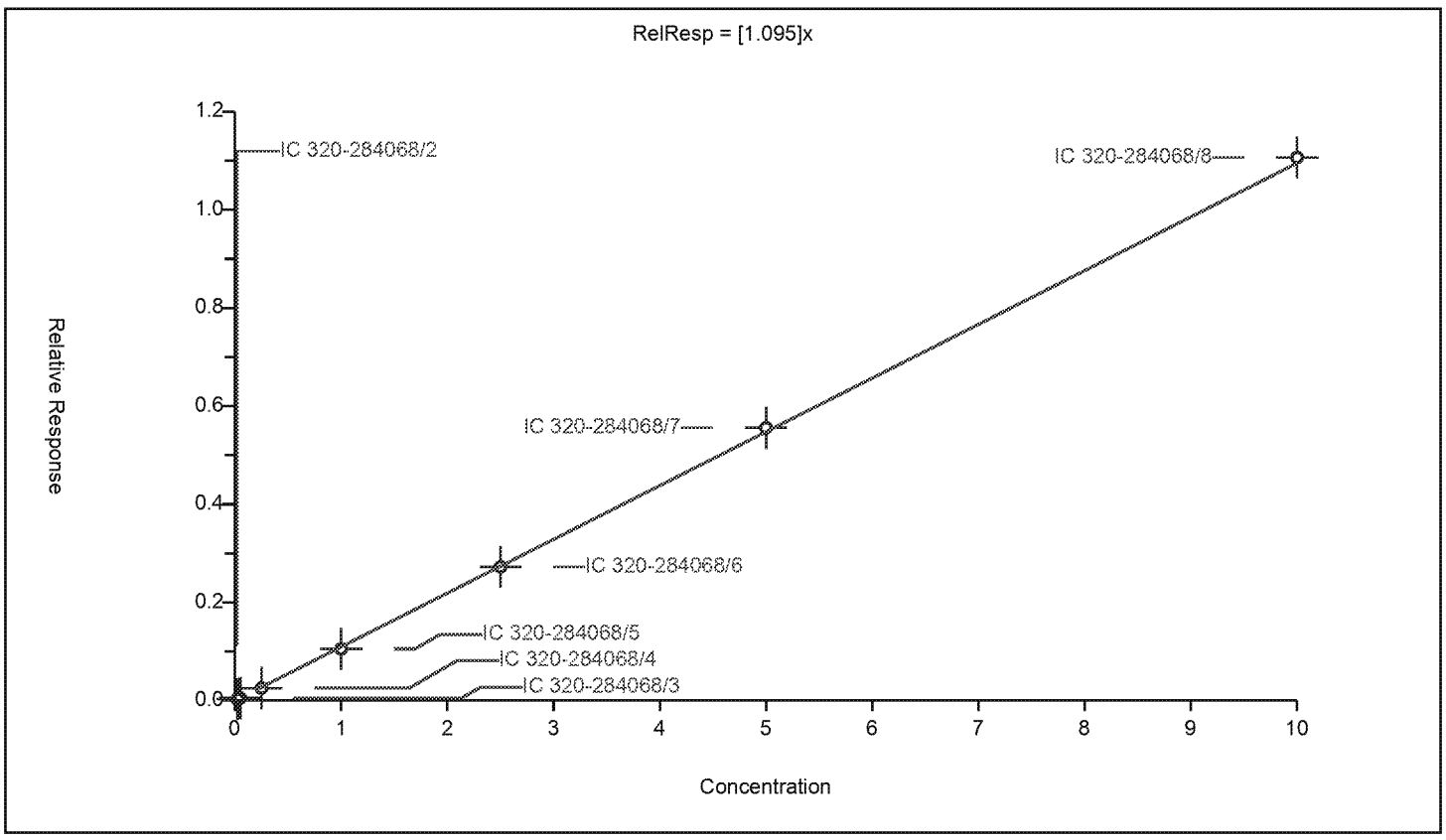
Curve Coefficients

Intercept:	0
Slope:	1.095

Error Coefficients

Standard Error:	6260000
Relative Standard Error:	5.8
Correlation Coefficient:	0.999
Coefficient of Determination (Adjusted):	0.996

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-284068/2	0.025	0.030444	2.5	3257405.0	1.217748	Y
2	IC 320-284068/3	0.05	0.053357	2.5	3113965.0	1.067144	Y
3	IC 320-284068/4	0.25	0.2547	2.5	3241757.0	1.018799	Y
4	IC 320-284068/5	1.0	1.053669	2.5	2950550.0	1.053669	Y
5	IC 320-284068/6	2.5	2.725418	2.5	3167554.0	1.090167	Y
6	IC 320-284068/7	5.0	5.55886	2.5	2838322.0	1.111772	Y
7	IC 320-284068/8	10.0	11.065109	2.5	3046929.0	1.106511	Y



Calibration / Perfluoroheptanoic acid

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

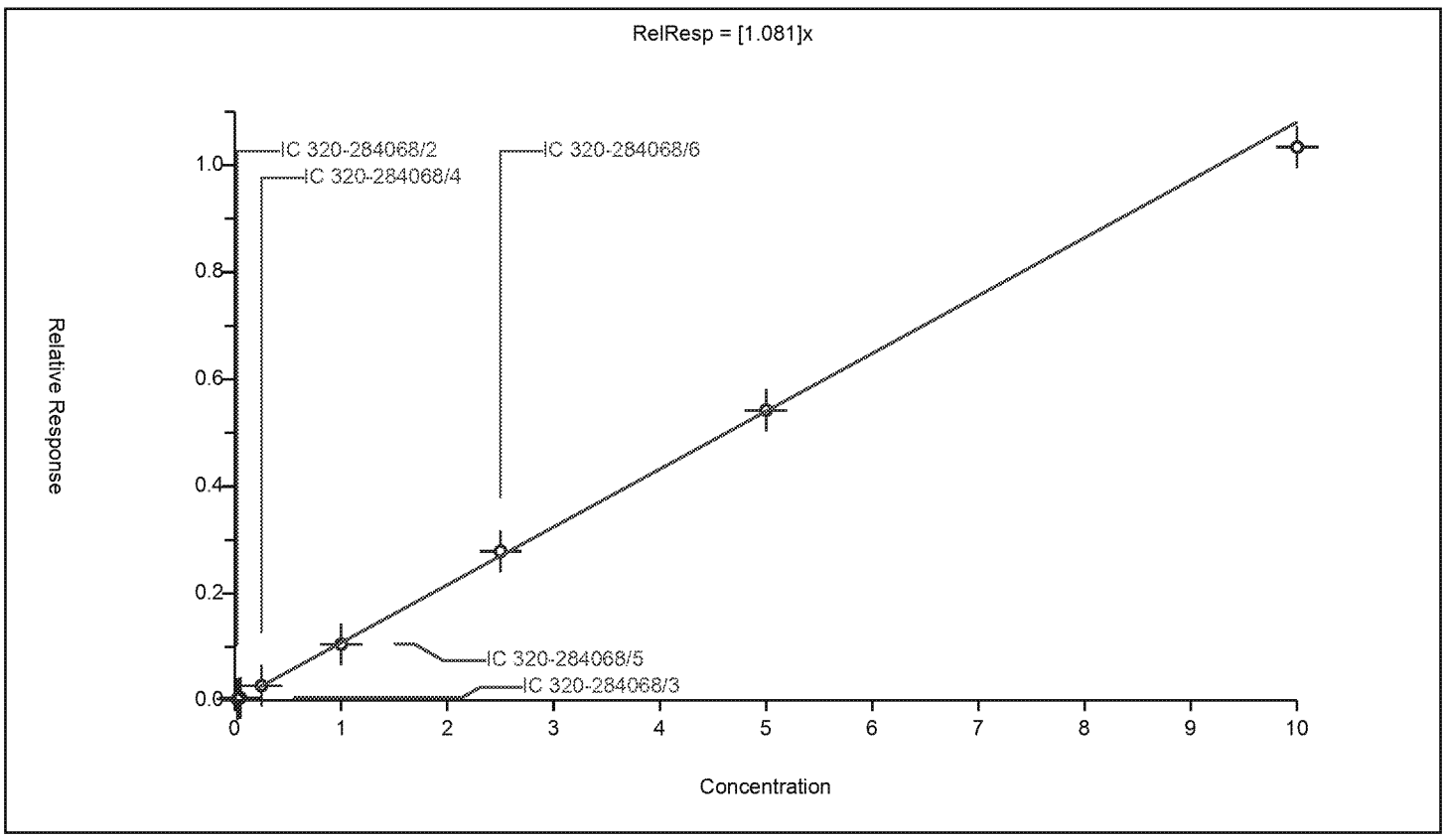
Curve Coefficients

Intercept:	0
Slope:	1.081

Error Coefficients

Standard Error:	5930000
Relative Standard Error:	3.2
Correlation Coefficient:	0.999
Coefficient of Determination (Adjusted):	0.999

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-284068/2	0.025	0.027827	2.5	3257405.0	1.113095	Y
2	IC 320-284068/3	0.05	0.052735	2.5	3113965.0	1.0547	Y
3	IC 320-284068/4	0.25	0.277809	2.5	3241757.0	1.111237	Y
4	IC 320-284068/5	1.0	1.050438	2.5	2950550.0	1.050438	Y
5	IC 320-284068/6	2.5	2.789428	2.5	3167554.0	1.115771	Y
6	IC 320-284068/7	5.0	5.423012	2.5	2838322.0	1.084602	Y
7	IC 320-284068/8	10.0	10.338468	2.5	3046929.0	1.033847	Y



Calibration

/ Perfluorohexanesulfonic acid

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

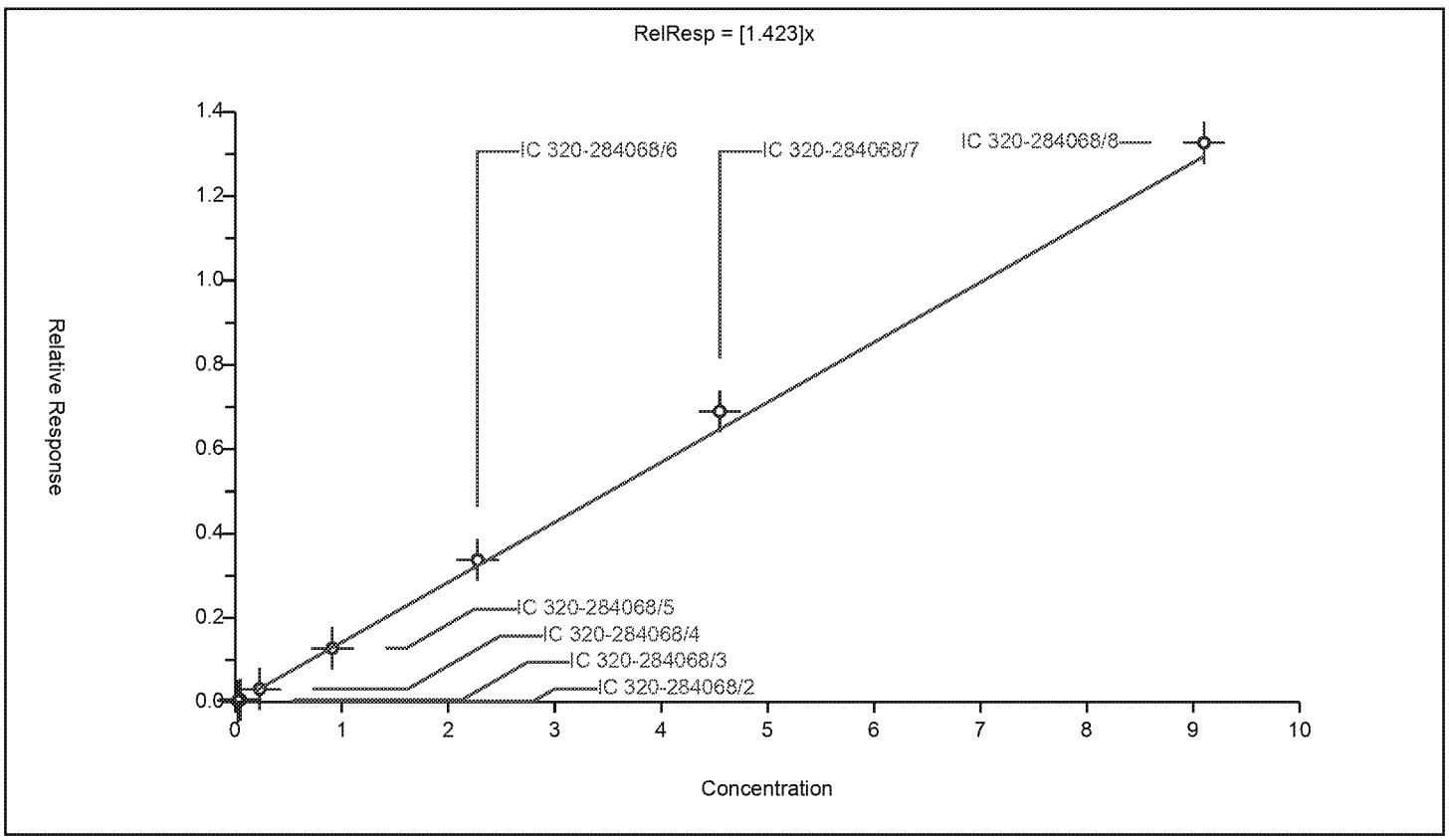
Curve Coefficients

Intercept:	0
Slope:	1.423

Error Coefficients

Standard Error:	7960000
Relative Standard Error:	4.5
Correlation Coefficient:	0.999
Coefficient of Determination (Adjusted):	0.998

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-284068/2	0.02275	0.030855	2.39	3349512.0	1.356284	Y
2	IC 320-284068/3	0.0455	0.061999	2.39	3195037.0	1.362608	Y
3	IC 320-284068/4	0.2275	0.312778	2.39	3183475.0	1.37485	Y
4	IC 320-284068/5	0.91	1.279773	2.39	2944756.0	1.406344	Y
5	IC 320-284068/6	2.275	3.3754	2.39	3142392.0	1.483692	Y
6	IC 320-284068/7	4.55	6.898363	2.39	2820303.0	1.516124	Y
7	IC 320-284068/8	9.1	13.268068	2.39	3077033.0	1.458029	Y



Calibration

/ Perfluorooctanoic acid

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

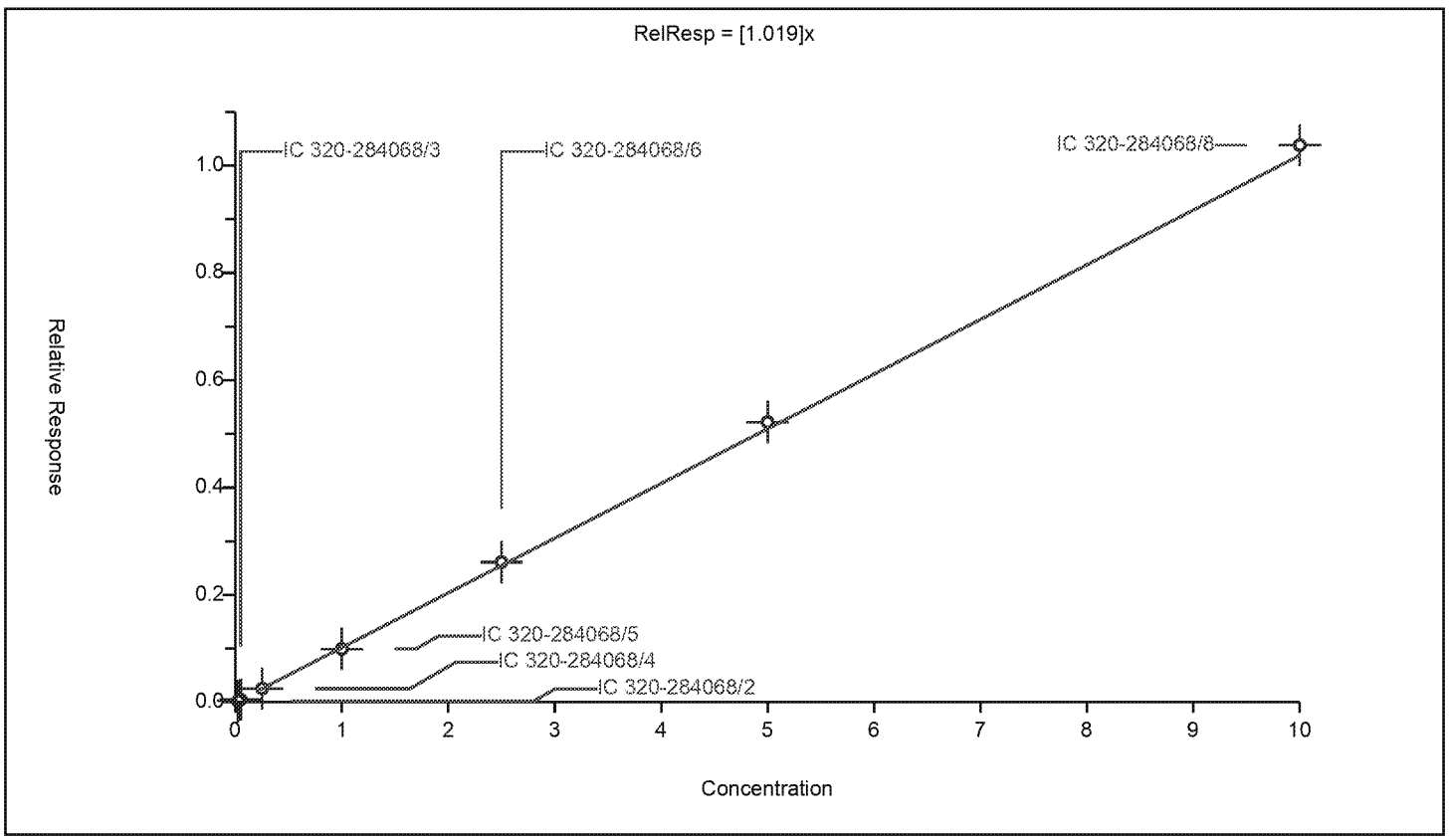
Curve Coefficients

Intercept:	0
Slope:	1.019

Error Coefficients

Standard Error:	5880000
Relative Standard Error:	3.2
Correlation Coefficient:	0.999
Coefficient of Determination (Adjusted):	0.999

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-284068/2	0.025	0.023954	2.5	3257405.0	0.958155	Y
2	IC 320-284068/3	0.05	0.051936	2.5	3113965.0	1.038724	Y
3	IC 320-284068/4	0.25	0.254443	2.5	3241757.0	1.017772	Y
4	IC 320-284068/5	1.0	0.992365	2.5	2950550.0	0.992365	Y
5	IC 320-284068/6	2.5	2.610082	2.5	3167554.0	1.044033	Y
6	IC 320-284068/7	5.0	5.21841	2.5	2838322.0	1.043682	Y
7	IC 320-284068/8	10.0	10.380237	2.5	3046929.0	1.038024	Y



Calibration / Perfluorooctanesulfonic acid

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

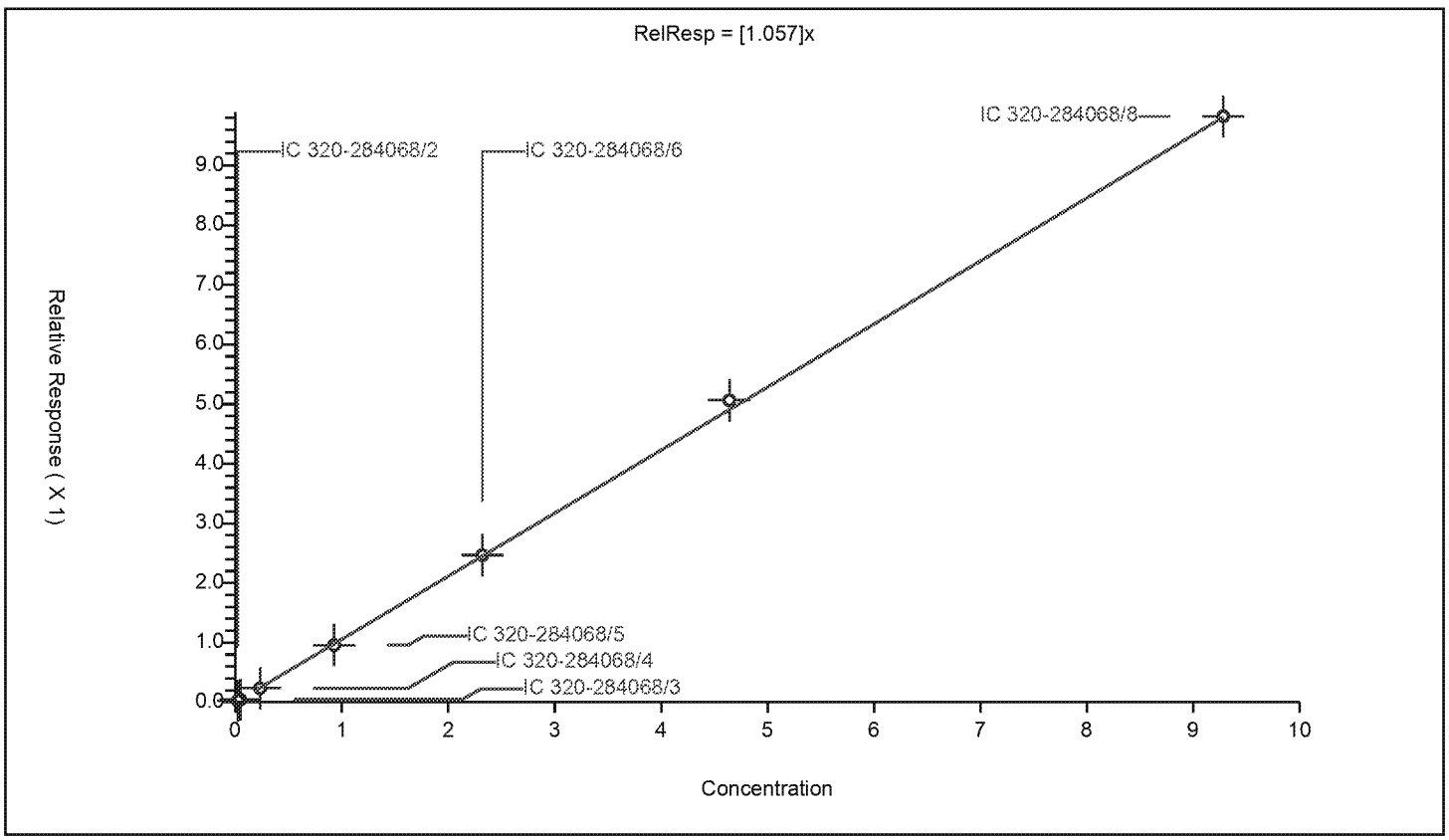
Curve Coefficients

Intercept:	0
Slope:	1.057

Error Coefficients

Standard Error:	5880000
Relative Standard Error:	4.5
Correlation Coefficient:	0.999
Coefficient of Determination (Adjusted):	0.997

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-284068/2	0.0232	0.026421	2.39	3349512.0	1.138829	Y
2	IC 320-284068/3	0.0464	0.046406	2.39	3195037.0	1.000126	Y
3	IC 320-284068/4	0.232	0.235252	2.39	3183475.0	1.014017	Y
4	IC 320-284068/5	0.928	0.95859	2.39	2944756.0	1.032963	Y
5	IC 320-284068/6	2.32	2.46701	2.39	3142392.0	1.063367	Y
6	IC 320-284068/7	4.64	5.065223	2.39	2820303.0	1.091643	Y
7	IC 320-284068/8	9.28	9.824983	2.39	3077033.0	1.058727	Y



Calibration / Perfluorononanoic acid

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

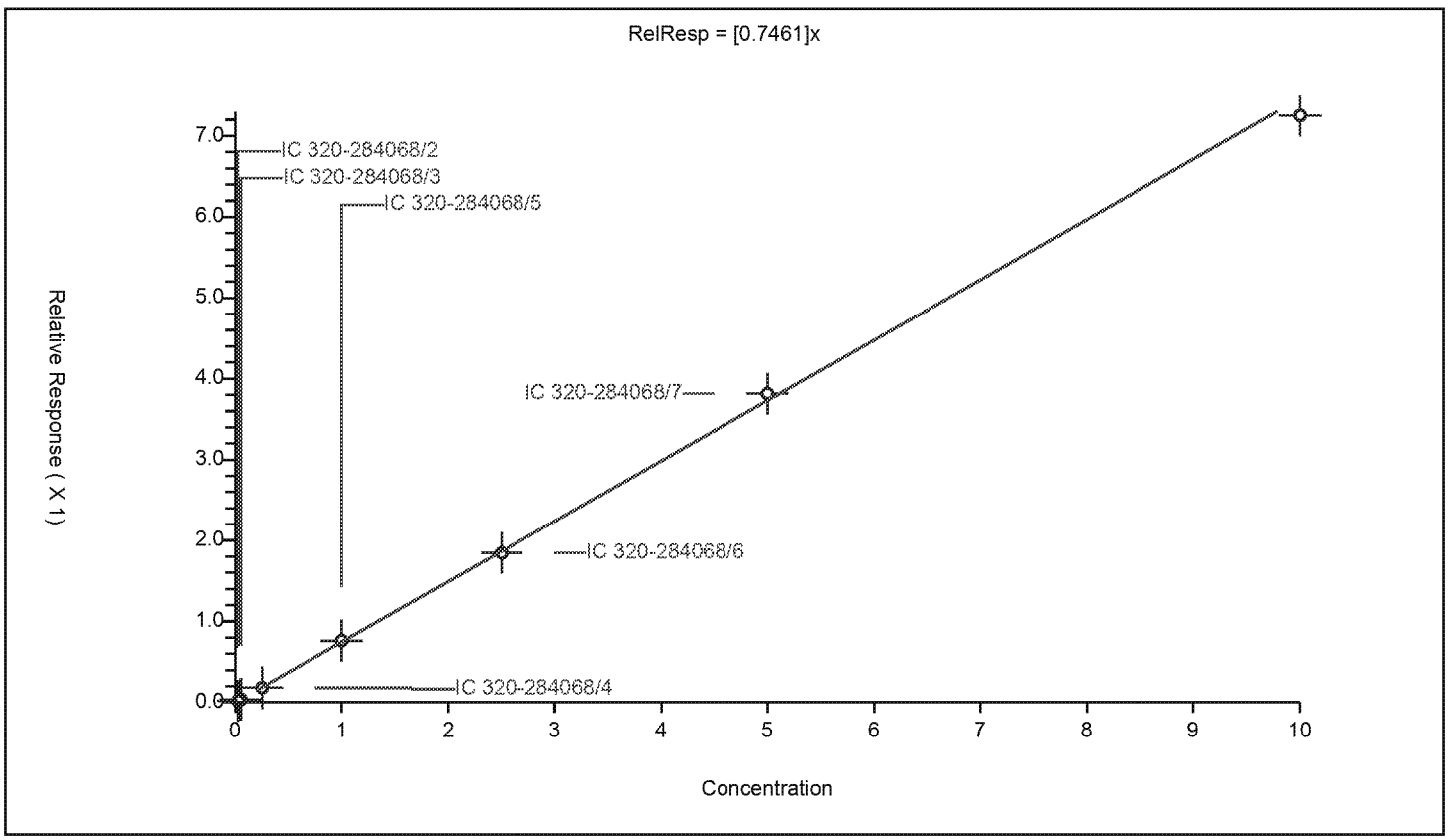
Curve Coefficients

Intercept:	0
Slope:	0.7461

Error Coefficients

Standard Error:	4150000
Relative Standard Error:	2.2
Correlation Coefficient:	1.000
Coefficient of Determination (Adjusted):	0.999

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-284068/2	0.025	0.019003	2.5	3257405.0	0.760114	Y
2	IC 320-284068/3	0.05	0.037335	2.5	3113965.0	0.746701	Y
3	IC 320-284068/4	0.25	0.181732	2.5	3241757.0	0.726927	Y
4	IC 320-284068/5	1.0	0.762013	2.5	2950550.0	0.762013	Y
5	IC 320-284068/6	2.5	1.846008	2.5	3167554.0	0.738403	Y
6	IC 320-284068/7	5.0	3.816649	2.5	2838322.0	0.76333	Y
7	IC 320-284068/8	10.0	7.252873	2.5	3046929.0	0.725287	Y



Calibration

/ Perfluorodecanoic acid

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

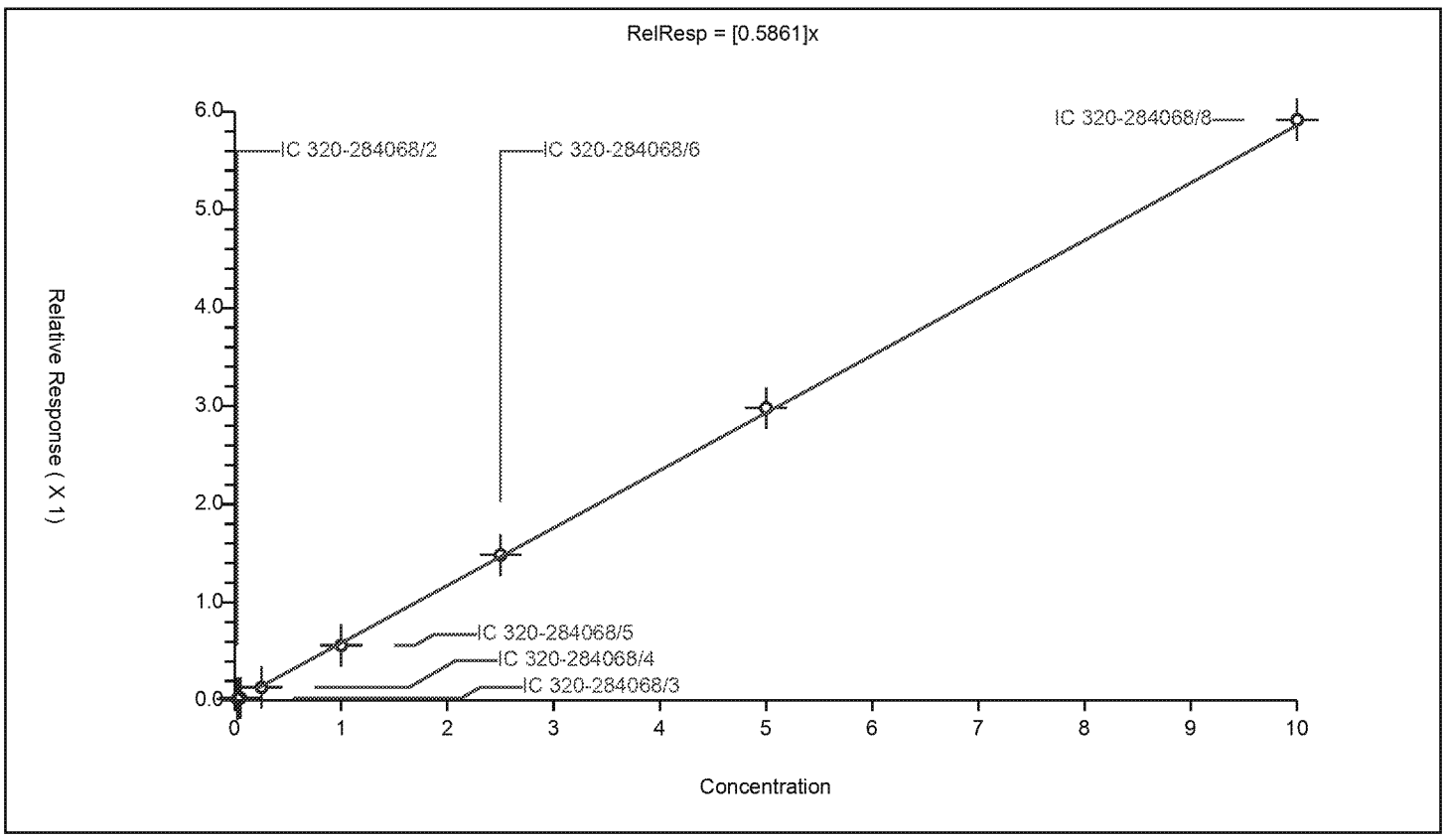
Curve Coefficients

Intercept:	0
Slope:	0.5861

Error Coefficients

Standard Error:	3350000
Relative Standard Error:	7.0
Correlation Coefficient:	0.999
Coefficient of Determination (Adjusted):	0.994

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-284068/2	0.025	0.016625	2.5	3257405.0	0.665008	Y
2	IC 320-284068/3	0.05	0.027676	2.5	3113965.0	0.553523	Y
3	IC 320-284068/4	0.25	0.13503	2.5	3241757.0	0.540121	Y
4	IC 320-284068/5	1.0	0.562812	2.5	2950550.0	0.562812	Y
5	IC 320-284068/6	2.5	1.484122	2.5	3167554.0	0.593649	Y
6	IC 320-284068/7	5.0	2.980894	2.5	2838322.0	0.596179	Y
7	IC 320-284068/8	10.0	5.916533	2.5	3046929.0	0.591653	Y



Calibration

/ 13C2 PFDA

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

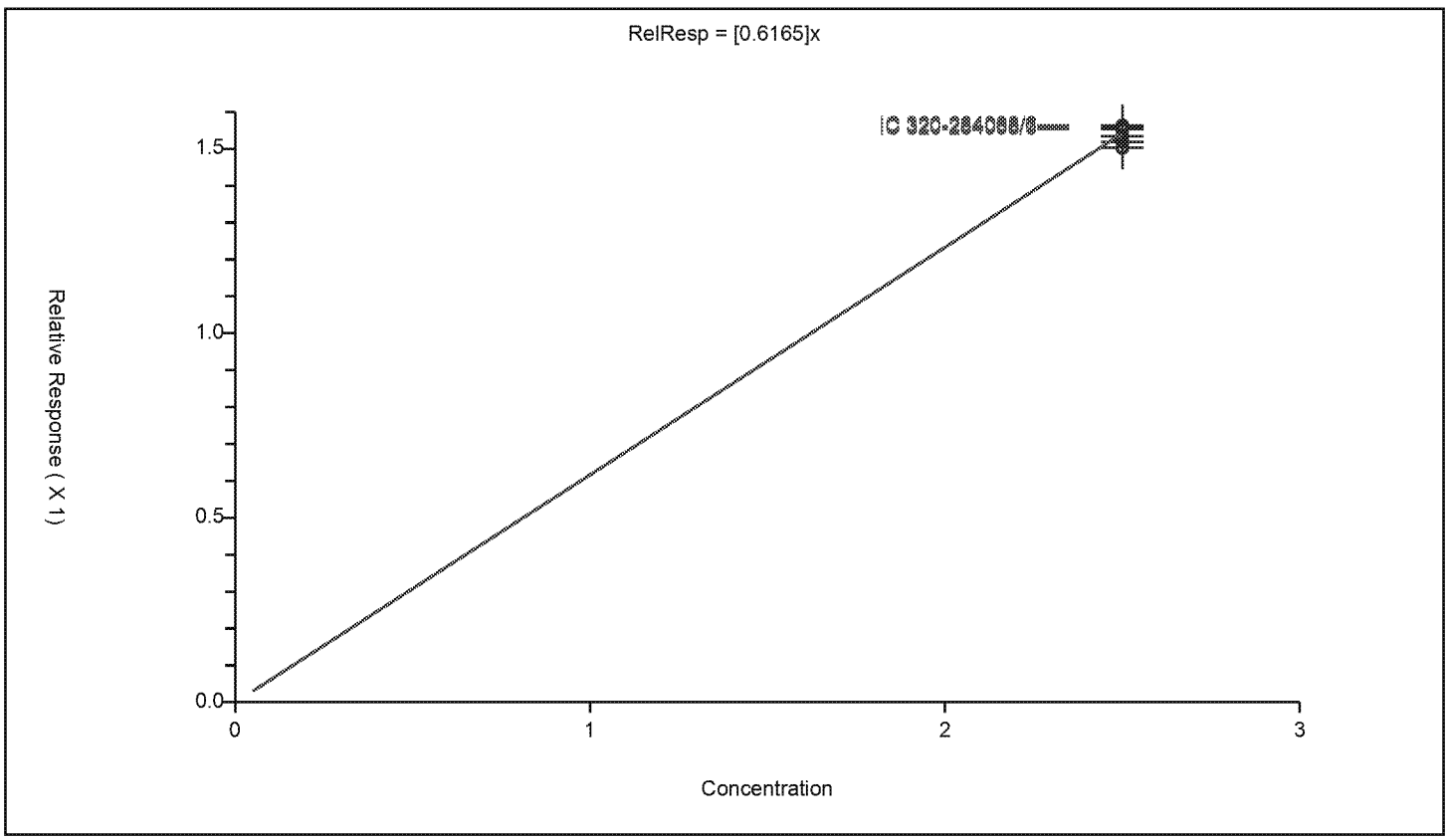
Curve Coefficients

Intercept:	0
Slope:	0.6165

Error Coefficients

Standard Error:	2060000
Relative Standard Error:	1.5
Correlation Coefficient:	NA
Coefficient of Determination (Adjusted):	0

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-284068/8	2.5	1.563502	2.5	3046929.0	0.625401	Y
2	IC 320-284068/7	2.5	1.556704	2.5	2838322.0	0.622682	Y
3	IC 320-284068/6	2.5	1.559888	2.5	3167554.0	0.623955	Y
4	IC 320-284068/2	2.5	1.534626	2.5	3257405.0	0.61385	Y
5	IC 320-284068/3	2.5	1.553321	2.5	3113965.0	0.621328	Y
6	IC 320-284068/4	2.5	1.502327	2.5	3241757.0	0.600931	Y
7	IC 320-284068/5	2.5	1.518402	2.5	2950550.0	0.607361	Y



Calibration / **N-methylperfluorooctanesulfonamidoacetic acid**

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

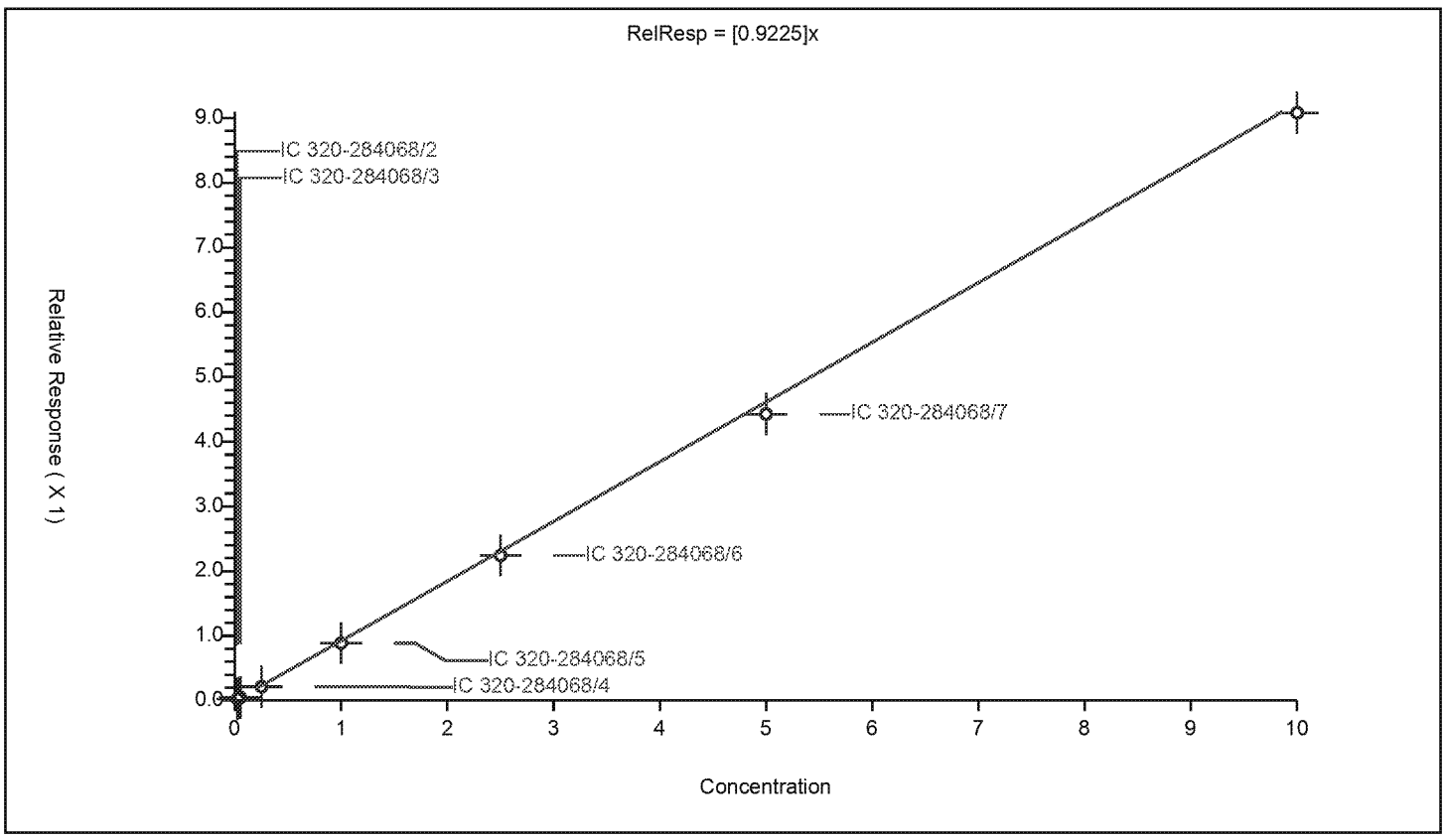
Curve Coefficients

Intercept:	0
Slope:	0.9225

Error Coefficients

Standard Error:	868000
Relative Standard Error:	6.8
Correlation Coefficient:	0.998
Coefficient of Determination (Adjusted):	0.994

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-284068/2	0.025	0.025659	2.5	571139.0	1.02637	Y
2	IC 320-284068/3	0.05	0.04981	2.5	525798.0	0.9962	Y
3	IC 320-284068/4	0.25	0.214321	2.5	560282.0	0.857283	Y
4	IC 320-284068/5	1.0	0.886883	2.5	491680.0	0.886883	Y
5	IC 320-284068/6	2.5	2.242965	2.5	553836.0	0.897186	Y
6	IC 320-284068/7	5.0	4.42744	2.5	490219.0	0.885488	Y
7	IC 320-284068/8	10.0	9.08173	2.5	514209.0	0.908173	Y



Calibration

/ d5-NEtFOSAA

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

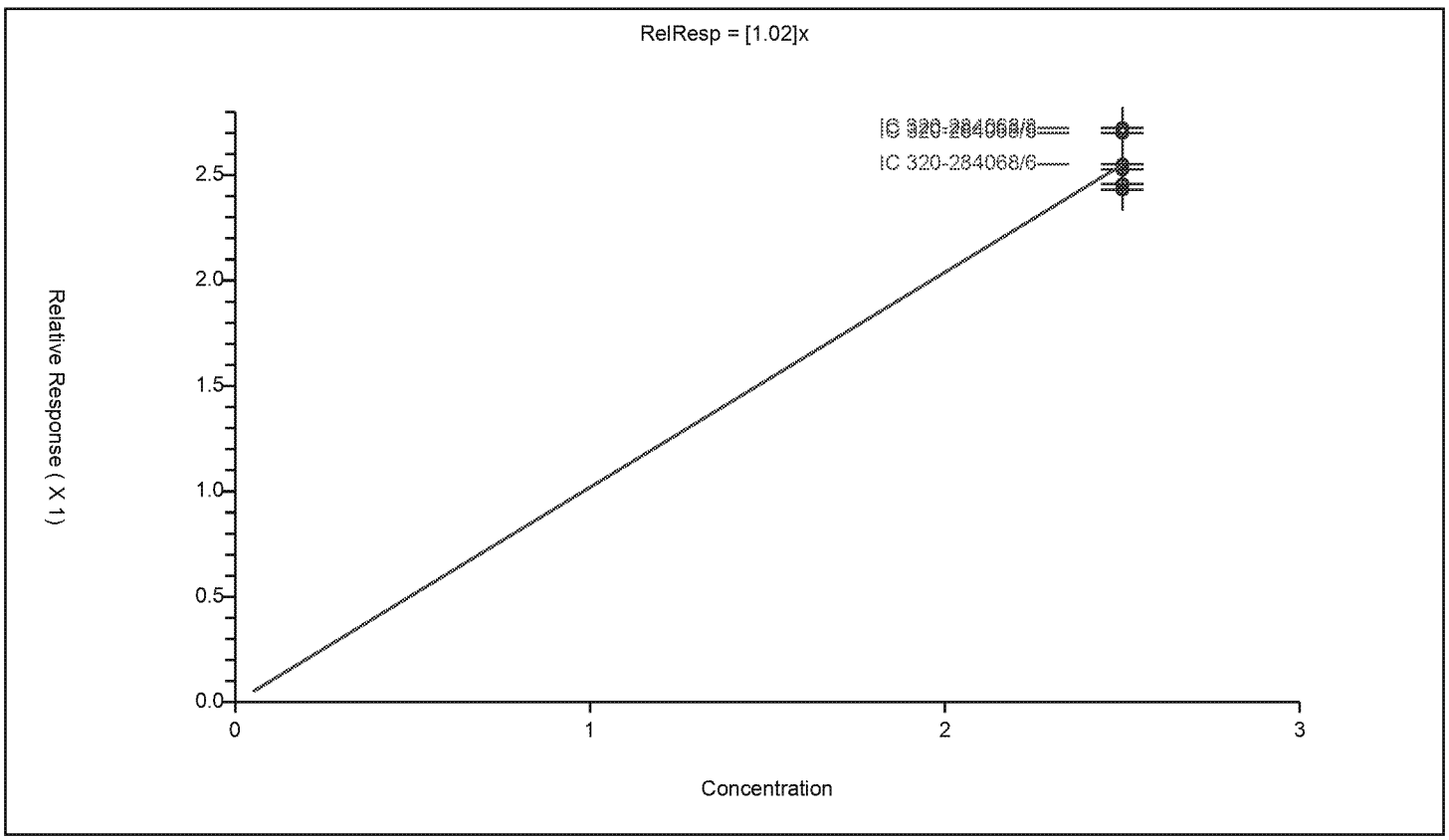
Curve Coefficients

Intercept:	0
Slope:	1.02

Error Coefficients

Standard Error:	583000
Relative Standard Error:	4.6
Correlation Coefficient:	NA
Coefficient of Determination (Adjusted):	0

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-284068/8	2.5	2.722842	2.5	514209.0	1.089137	Y
2	IC 320-284068/7	2.5	2.526876	2.5	490219.0	1.01075	Y
3	IC 320-284068/6	2.5	2.550534	2.5	553836.0	1.020214	Y
4	IC 320-284068/5	2.5	2.700517	2.5	491680.0	1.080207	Y
5	IC 320-284068/2	2.5	2.431343	2.5	571139.0	0.972537	Y
6	IC 320-284068/3	2.5	2.456832	2.5	525798.0	0.982733	Y
7	IC 320-284068/4	2.5	2.45791	2.5	560282.0	0.983164	Y



Calibration

/ Perfluoroundecanoic acid

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

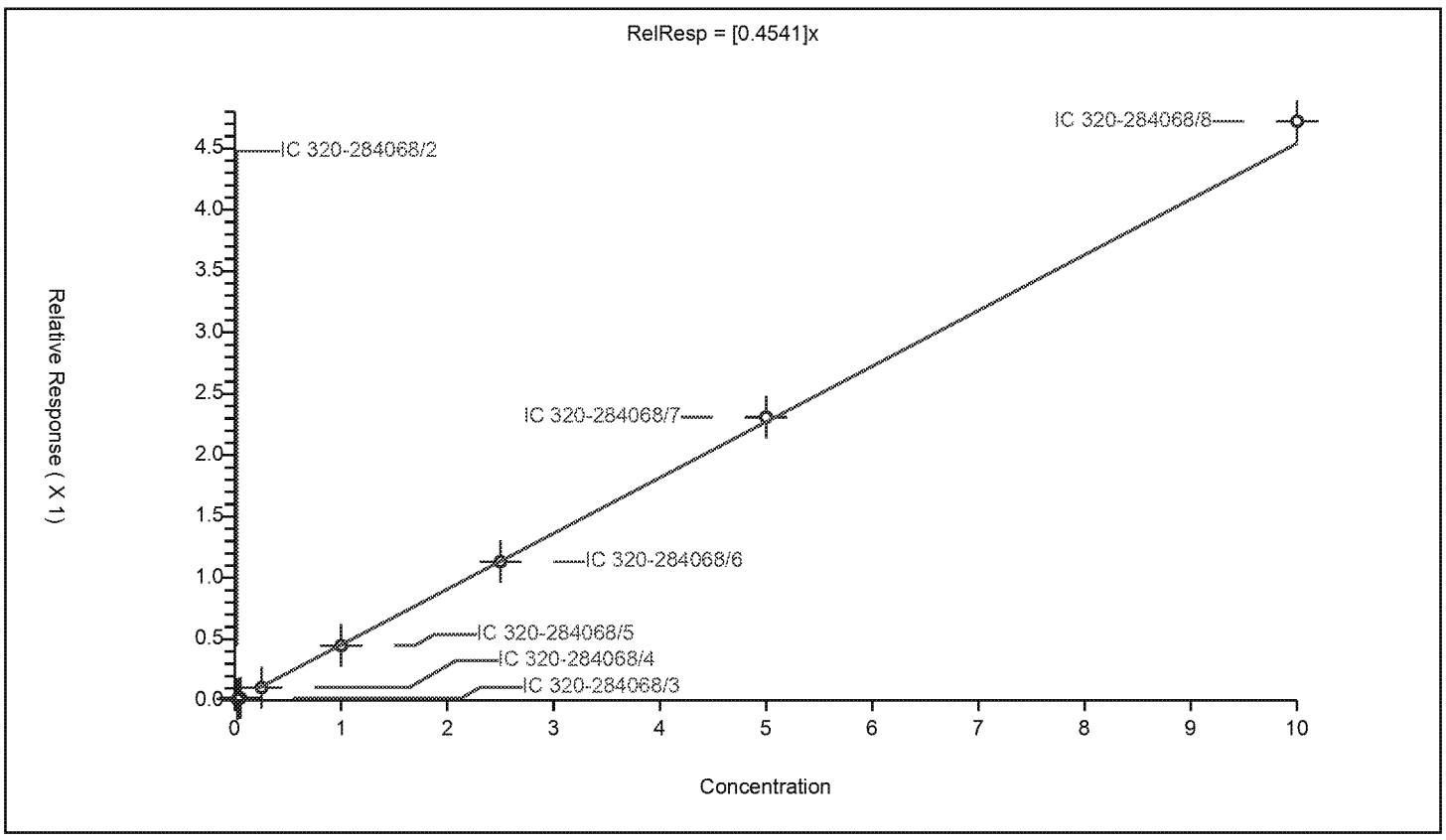
Curve Coefficients

Intercept:	0
Slope:	0.4541

Error Coefficients

Standard Error:	2660000
Relative Standard Error:	3.7
Correlation Coefficient:	0.998
Coefficient of Determination (Adjusted):	0.998

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-284068/2	0.025	0.01183	2.5	3257405.0	0.473199	Y
2	IC 320-284068/3	0.05	0.022208	2.5	3113965.0	0.44416	Y
3	IC 320-284068/4	0.25	0.10636	2.5	3241757.0	0.425439	Y
4	IC 320-284068/5	1.0	0.448751	2.5	2950550.0	0.448751	Y
5	IC 320-284068/6	2.5	1.13285	2.5	3167554.0	0.45314	Y
6	IC 320-284068/7	5.0	2.309647	2.5	2838322.0	0.461929	Y
7	IC 320-284068/8	10.0	4.721881	2.5	3046929.0	0.472188	Y



Calibration / **N-ethylperfluorooctanesulfonamidoacetic acid**

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

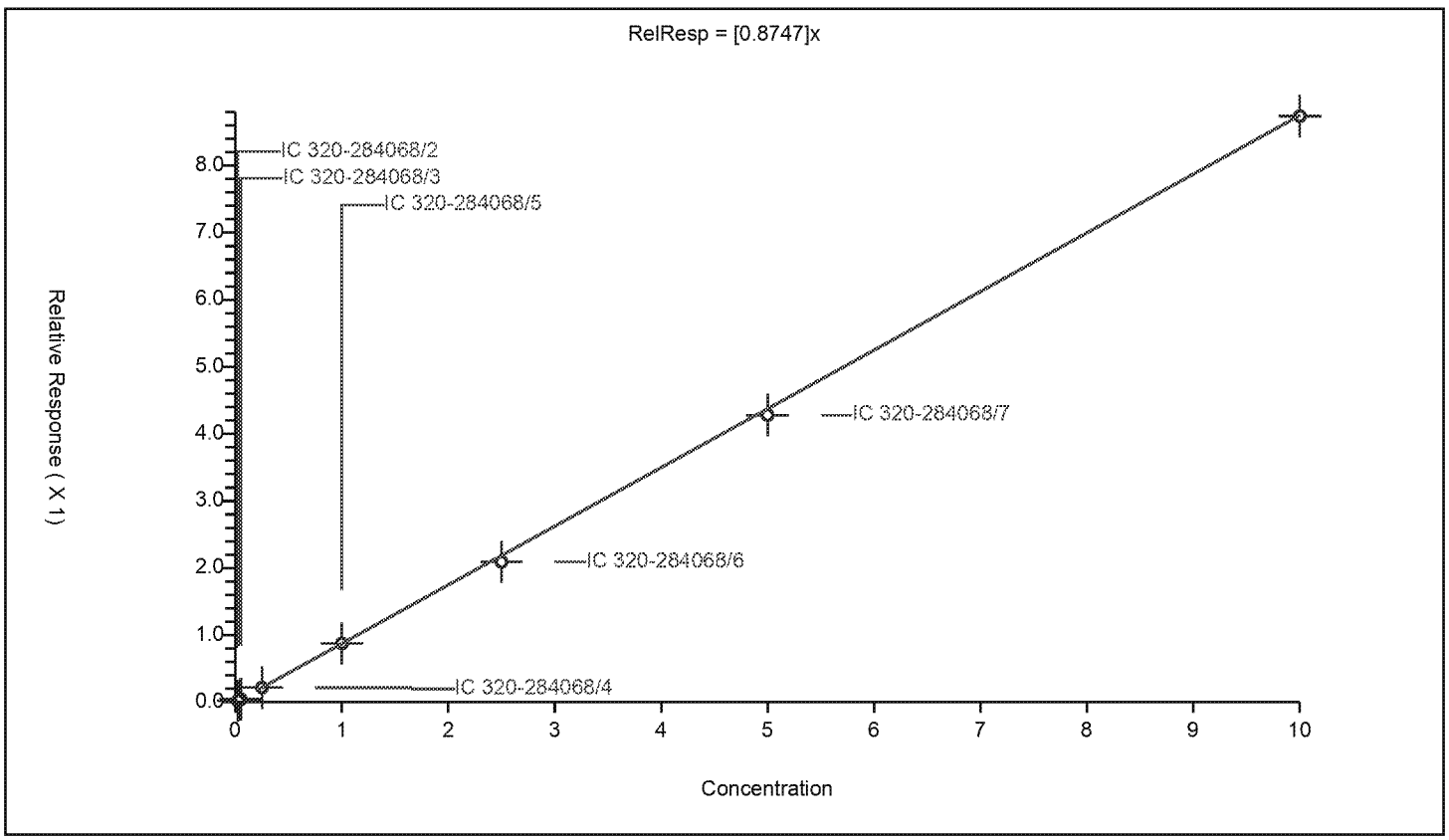
Curve Coefficients

Intercept:	0
Slope:	0.8747

Error Coefficients

Standard Error:	835000
Relative Standard Error:	2.8
Correlation Coefficient:	0.999
Coefficient of Determination (Adjusted):	0.999

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-284068/2	0.025	0.022315	2.5	571139.0	0.892602	Y
2	IC 320-284068/3	0.05	0.045621	2.5	525798.0	0.912423	Y
3	IC 320-284068/4	0.25	0.218323	2.5	560282.0	0.873292	Y
4	IC 320-284068/5	1.0	0.878147	2.5	491680.0	0.878147	Y
5	IC 320-284068/6	2.5	2.092691	2.5	553836.0	0.837076	Y
6	IC 320-284068/7	5.0	4.279975	2.5	490219.0	0.855995	Y
7	IC 320-284068/8	10.0	8.736822	2.5	514209.0	0.873682	Y



Calibration

/ Perfluorododecanoic acid

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

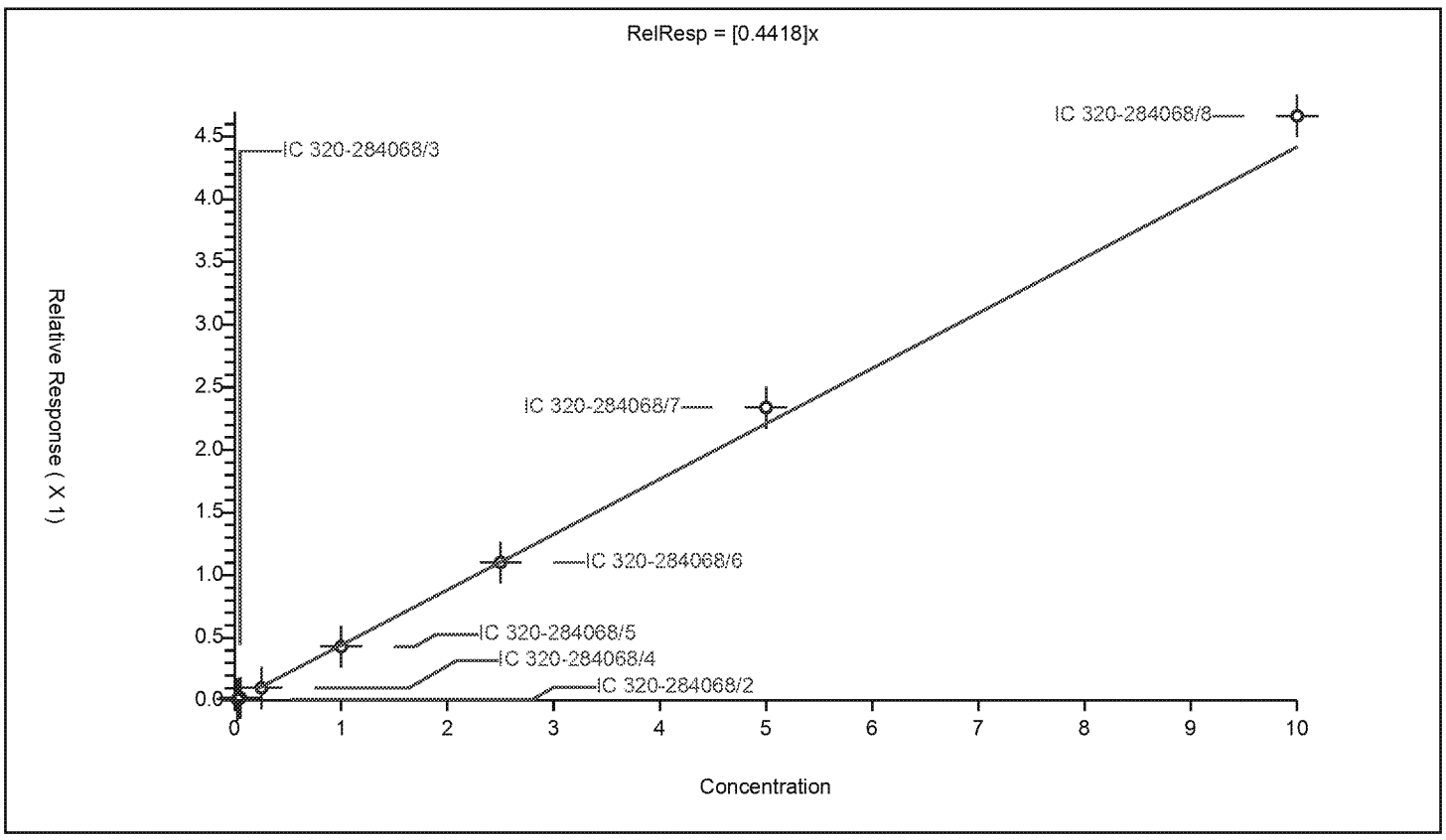
Curve Coefficients

Intercept:	0
Slope:	0.4418

Error Coefficients

Standard Error:	2630000
Relative Standard Error:	5.4
Correlation Coefficient:	0.999
Coefficient of Determination (Adjusted):	0.997

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-284068/2	0.025	0.010494	2.5	3257405.0	0.419751	Y
2	IC 320-284068/3	0.05	0.022955	2.5	3113965.0	0.459093	Y
3	IC 320-284068/4	0.25	0.101759	2.5	3241757.0	0.407035	Y
4	IC 320-284068/5	1.0	0.431504	2.5	2950550.0	0.431504	Y
5	IC 320-284068/6	2.5	1.102995	2.5	3167554.0	0.441198	Y
6	IC 320-284068/7	5.0	2.339181	2.5	2838322.0	0.467836	Y
7	IC 320-284068/8	10.0	4.664704	2.5	3046929.0	0.46647	Y



Calibration

/ Perfluorotridecanoic acid

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

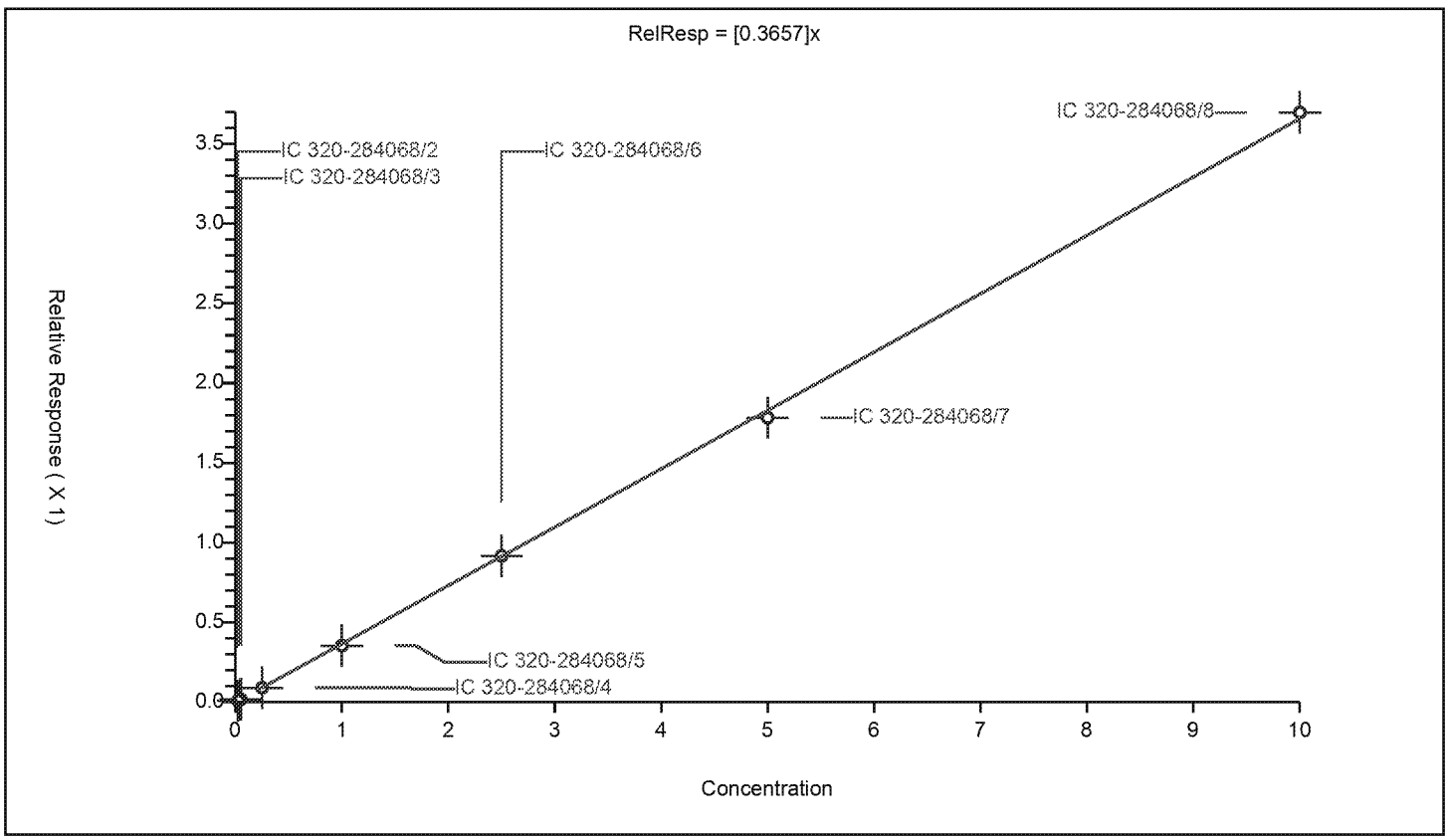
Curve Coefficients

Intercept:	0
Slope:	0.3657

Error Coefficients

Standard Error:	2080000
Relative Standard Error:	2.6
Correlation Coefficient:	0.997
Coefficient of Determination (Adjusted):	0.999

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-284068/2	0.025	0.009566	2.5	3257405.0	0.382636	Y
2	IC 320-284068/3	0.05	0.018402	2.5	3113965.0	0.368036	Y
3	IC 320-284068/4	0.25	0.090507	2.5	3241757.0	0.362029	Y
4	IC 320-284068/5	1.0	0.354298	2.5	2950550.0	0.354298	Y
5	IC 320-284068/6	2.5	0.917302	2.5	3167554.0	0.366921	Y
6	IC 320-284068/7	5.0	1.783035	2.5	2838322.0	0.356607	Y
7	IC 320-284068/8	10.0	3.696759	2.5	3046929.0	0.369676	Y



Calibration / Perfluorotetradecanoic acid

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

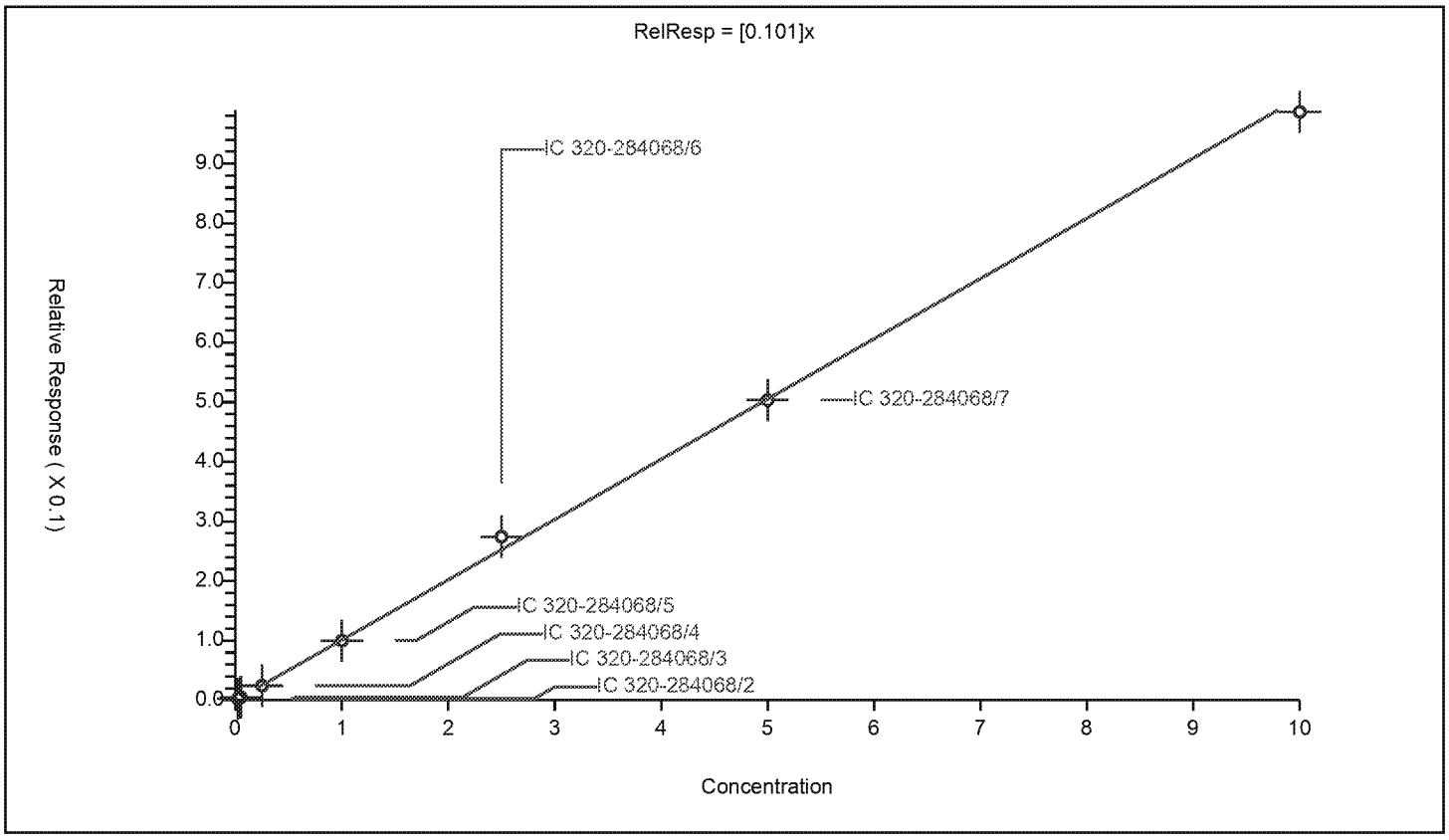
Curve Coefficients

Intercept:	0
Slope:	0.101

Error Coefficients

Standard Error:	564000
Relative Standard Error:	3.9
Correlation Coefficient:	0.997
Coefficient of Determination (Adjusted):	0.998

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-284068/2	0.025	0.002508	2.5	3257405.0	0.100325	Y
2	IC 320-284068/3	0.05	0.005019	2.5	3113965.0	0.10037	Y
3	IC 320-284068/4	0.25	0.024386	2.5	3241757.0	0.097546	Y
4	IC 320-284068/5	1.0	0.099933	2.5	2950550.0	0.099933	Y
5	IC 320-284068/6	2.5	0.274278	2.5	3167554.0	0.109711	Y
6	IC 320-284068/7	5.0	0.503396	2.5	2838322.0	0.100679	Y
7	IC 320-284068/8	10.0	0.986594	2.5	3046929.0	0.098659	Y



FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1 Analy Batch No.: 286141

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 04/04/2019 15:14 Calibration End Date: 04/04/2019 16:11 Calibration ID: 44584

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-286141/2	2019.04.04_537ICAL_003.d
Level 2	IC 320-286141/3	2019.04.04_537ICAL_004.d
Level 3	IC 320-286141/4	2019.04.04_537ICAL_005.d
Level 4	IC 320-286141/5	2019.04.04_537ICAL_006.d
Level 5	IC 320-286141/6	2019.04.04_537ICAL_007.d
Level 6	IC 320-286141/7	2019.04.04_537ICAL_008.d
Level 7	IC 320-286141/8	2019.04.04_537ICAL_009.d

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perfluorobutanesulfonic acid	1.1455 1.2424	1.1158 1.2378	1.1248	1.1805	1.2214	Ave		1.1812				4.5		30.0			
Perfluorohexanoic acid	1.2371 1.1176	1.0879 1.0876	1.0599	1.1073	1.0927	Ave		1.1129				5.2		30.0			
Perfluoroheptanoic acid	0.9742 1.0999	1.0562 1.0366	1.0309	1.1209	1.1002	Ave		1.0598				4.8		30.0			
Perfluorohexanesulfonic acid	1.4617 1.5204	1.3416 1.4665	1.3513	1.4123	1.4769	Ave		1.4329				4.7		30.0			
Perfluorooctanoic acid	0.9750 1.0460	1.0096 1.0131	1.0084	1.0411	1.0079	Ave		1.0144				2.3		30.0			
Perfluorooctanesulfonic acid	1.0954 1.0967	1.0625 1.0857	0.9806	1.0327	1.0408	Ave		1.0563				4.0		30.0			
Perfluorononanoic acid	0.6755 0.7740	0.7511 0.7302	0.7229	0.7540	0.7651	Ave		0.7390				4.5		30.0			
Perfluorodecanoic acid	0.5771 0.5993	0.5875 0.6033	0.5479	0.5900	0.5900	Ave		0.5850				3.1		30.0			
N-methylperfluorooctanesulfonamidoacetic acid	1.0197 0.9277	0.9715 0.9174	0.8925	0.9295	0.8950	Ave		0.9362				4.8		30.0			
Perfluoroundecanoic acid	0.4528 0.4459	0.4333 0.4591	0.4343	0.4398	0.4465	Ave		0.4445				2.1		30.0			
N-ethylperfluorooctanesulfonamidoacetic acid	1.1483 0.8748	0.8889 0.8519	0.8863	0.8187	0.8860	Ave		0.9078				12.0		30.0			
Perfluorododecanoic acid	0.4185 0.4655	0.4373 0.4687	0.4322	0.4418	0.4553	Ave		0.4456				4.1		30.0			
Perfluorotridecanoic acid	0.3520 0.3523	0.3709 0.3410	0.3287	0.3312	0.3399	Ave		0.3452				4.2		30.0			
Perfluorotetradecanoic acid	0.0917 0.0921	0.0832 0.0901	0.0877	0.0878	0.0889	Ave		0.0888				3.4		30.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1 Analy Batch No.: 286141

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 04/04/2019 15:14 Calibration End Date: 04/04/2019 16:11 Calibration ID: 44584

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5		B	M1	M2								
13C2 PFHxA	1.1879 1.1947	1.1422 1.1207	1.1667	1.1935	1.1540	Ave		1.1657				2.4		30.0			
13C2 PFDA	0.6274 0.6177	0.6085 0.6494	0.6193	0.6227	0.6019	Ave		0.6210				2.4		30.0			
d5-NEtFOSAA	0.9519 1.0441	0.9957 1.0225	1.0447	1.0223	1.0728	Ave		1.0220				3.8		30.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1 Analy Batch No.: 286141

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 04/04/2019 15:14 Calibration End Date: 04/04/2019 16:11 Calibration ID: 44584

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-286141/2	2019.04.04_537ICAL_003.d
Level 2	IC 320-286141/3	2019.04.04_537ICAL_004.d
Level 3	IC 320-286141/4	2019.04.04_537ICAL_005.d
Level 4	IC 320-286141/5	2019.04.04_537ICAL_006.d
Level 5	IC 320-286141/6	2019.04.04_537ICAL_007.d
Level 6	IC 320-286141/7	2019.04.04_537ICAL_008.d
Level 7	IC 320-286141/8	2019.04.04_537ICAL_009.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
Perfluorobutanesulfonic acid	PFOS	Ave	34283 6676217	70736 14397998	365410	1363203	3776349	0.0221 4.42	0.0442 8.84	0.221	0.884	2.21
Perfluorohexanoic acid	13PF OA	Ave	39603 6570391	73839 13870209	366230	1365572	3660025	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoroheptanoic acid	13PF OA	Ave	31188 6466379	71686 13219525	356195	1382413	3685336	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorohexanesulfonic acid	PFOS	Ave	45033 8410185	87547 17559900	451894	1678854	4700666	0.0228 4.55	0.0455 9.10	0.228	0.910	2.28
Perfluorooctanoic acid	13PF OA	Ave	31214 6149648	68527 12919792	348416	1283975	3375931	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorooctanesulfonic acid	PFOS	Ave	34416 6186361	70706 13257205	334429	1251855	3378099	0.0232 4.64	0.0464 9.28	0.232	0.928	2.32
Perfluorononanoic acid	13PF OA	Ave	21625 4550656	50983 9311450	249795	929844	2562840	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorodecanoic acid	13PF OA	Ave	18475 3523695	39873 7693278	189332	727647	1976324	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
N-methylperfluorooctanesulfonamidoacetic acid	d3NMFOS	Ave	5346 849063	10728 1913012	46521	178574	453306	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoroundecanoic acid	13PF OA	Ave	14494 2621382	29412 5855184	150059	542352	1495680	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
N-ethylperfluorooctanesulfonamidoacetic acid	d3NMFOS	Ave	6020 800676	9816 1776540	46195	157284	448780	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorododecanoic acid	13PF OA	Ave	13396 2736549	29680 5976840	149335	544869	1525011	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorotridecanoic acid	13PF OA	Ave	11270 2071195	25173 4348983	113579	408471	1138610	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorotetradecanoic acid	13PF OA	Ave	2935 541723	5648 1148949	30288	108220	297747	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
13C2 PFHxA	13PF OA	Ave	3802843 3512098	3876289 3572961	4031385	3679673	3865341	2.50 2.50	2.50 2.50	2.50	2.50	2.50

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1 Analy Batch No.: 286141

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 04/04/2019 15:14 Calibration End Date: 04/04/2019 16:11 Calibration ID: 44584

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
13C2 PFDA	13PF OA	Ave	2008530 1815745	2065239 2070372	2139876	1919819	2016255	2.50 2.50	2.50 2.50	2.50	2.50	2.50
d5-NEtFOSAA	d3NM FOS	Ave	499069 477831	549768 533085	544536	490987	543402	2.50 2.50	2.50 2.50	2.50	2.50	2.50

Curve Type Legend:
Ave = Average ISTD

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
READBACK PERCENT ERROR

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1 Analy Batch No.: 286141

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 04/04/2019 15:14 Calibration End Date: 04/04/2019 16:11 Calibration ID: 44584

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-286141/2	2019.04.04_537ICAL_003.d
Level 2	IC 320-286141/3	2019.04.04_537ICAL_004.d
Level 3	IC 320-286141/4	2019.04.04_537ICAL_005.d
Level 4	IC 320-286141/5	2019.04.04_537ICAL_006.d
Level 5	IC 320-286141/6	2019.04.04_537ICAL_007.d
Level 6	IC 320-286141/7	2019.04.04_537ICAL_008.d
Level 7	IC 320-286141/8	2019.04.04_537ICAL_009.d

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 # LVL 7 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1 LVL 7	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
Perfluorobutanesulfonic acid	-3.0 4.8	-5.5	-4.8	-0.1	3.4	5.2	50 30	30	30	30	30	30
Perfluorohexanoic acid	11.2 -2.3	-2.2	-4.8	-0.5	-1.8	0.4	50 30	30	30	30	30	30
Perfluoroheptanoic acid	-8.1 -2.2	-0.3	-2.7	5.8	3.8	3.8	50 30	30	30	30	30	30
Perfluorohexanesulfonic acid	2.0 2.3	-6.4	-5.7	-1.4	3.1	6.1	50 30	30	30	30	30	30
Perfluorooctanoic acid	-3.9 -0.1	-0.5	-0.6	2.6	-0.6	3.1	50 30	30	30	30	30	30
Perfluorooctanesulfonic acid	3.7 2.8	0.6	-7.2	-2.2	-1.5	3.8	50 30	30	30	30	30	30
Perfluorononanoic acid	-8.6 -1.2	1.6	-2.2	2.0	3.5	4.7	50 30	30	30	30	30	30
Perfluorodecanoic acid	-1.4 3.1	0.4	-6.3	0.9	0.9	2.4	50 30	30	30	30	30	30
N-methylperfluorooctanesulfonamidoacetic acid	8.9 -2.0	3.8	-4.7	-0.7	-4.4	-0.9	50 30	30	30	30	30	30
Perfluoroundecanoic acid	1.9 3.3	-2.5	-2.3	-1.1	0.5	0.3	50 30	30	30	30	30	30
N-ethylperfluorooctanesulfonamidoacetic acid	26.5 -6.2	-2.1	-2.4	-9.8	-2.4	-3.6	50 30	30	30	30	30	30
Perfluorododecanoic acid	-6.1 5.2	-1.9	-3.0	-0.8	2.2	4.5	50 30	30	30	30	30	30
Perfluorotridecanoic acid	2.0 -1.2	7.5	-4.8	-4.0	-1.5	2.1	50 30	30	30	30	30	30
Perfluorotetradecanoic acid	3.3 1.5	-6.3	-1.3	-1.2	0.1	3.8	50 30	30	30	30	30	30
13C2 PFHxA	1.9 -3.9	-2.0	0.1	2.4	-1.0	2.5	30 30	30	30	30	30	30

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
READBACK PERCENT ERROR

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1 Analy Batch No.: 286141

SDG No.:

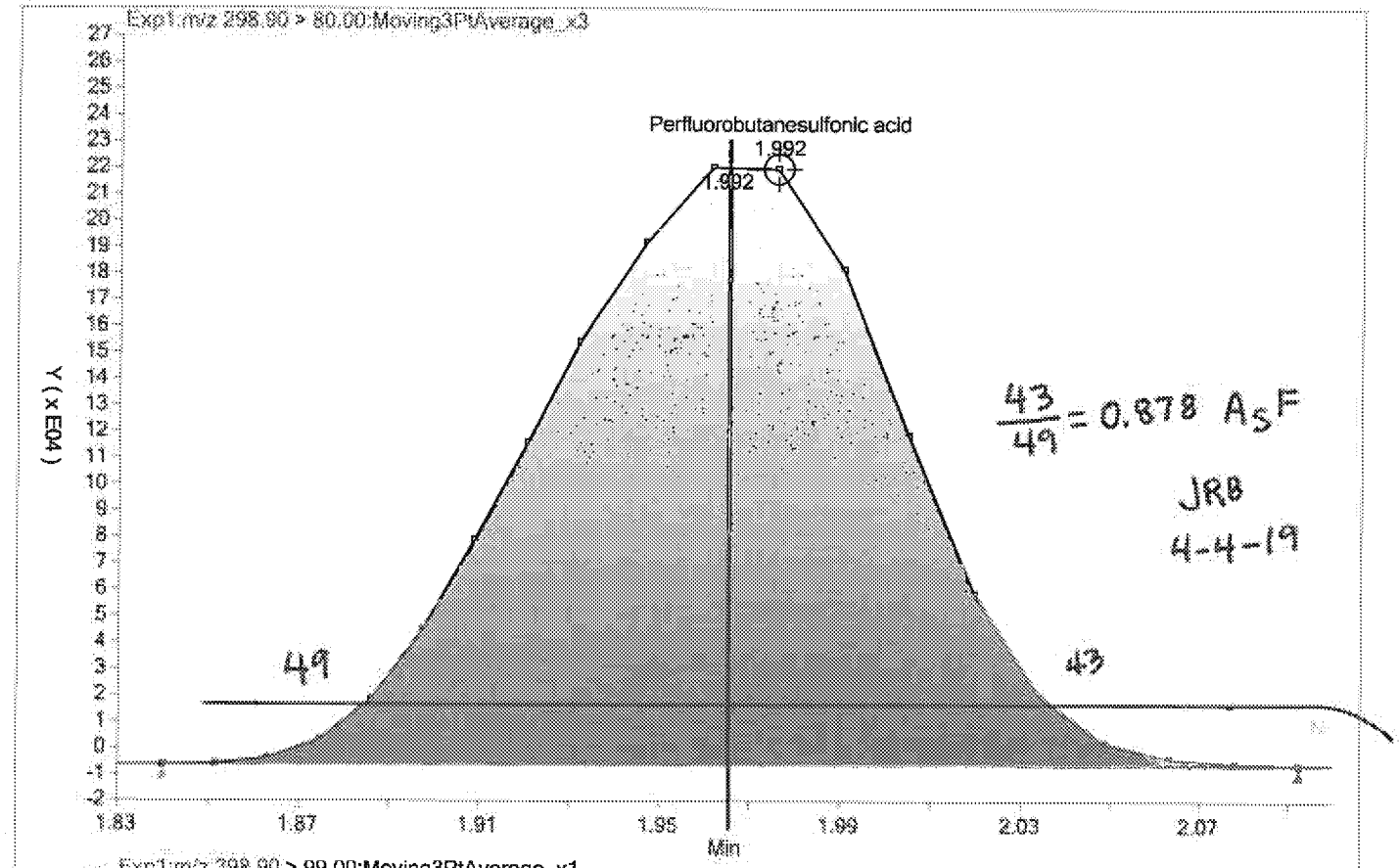
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

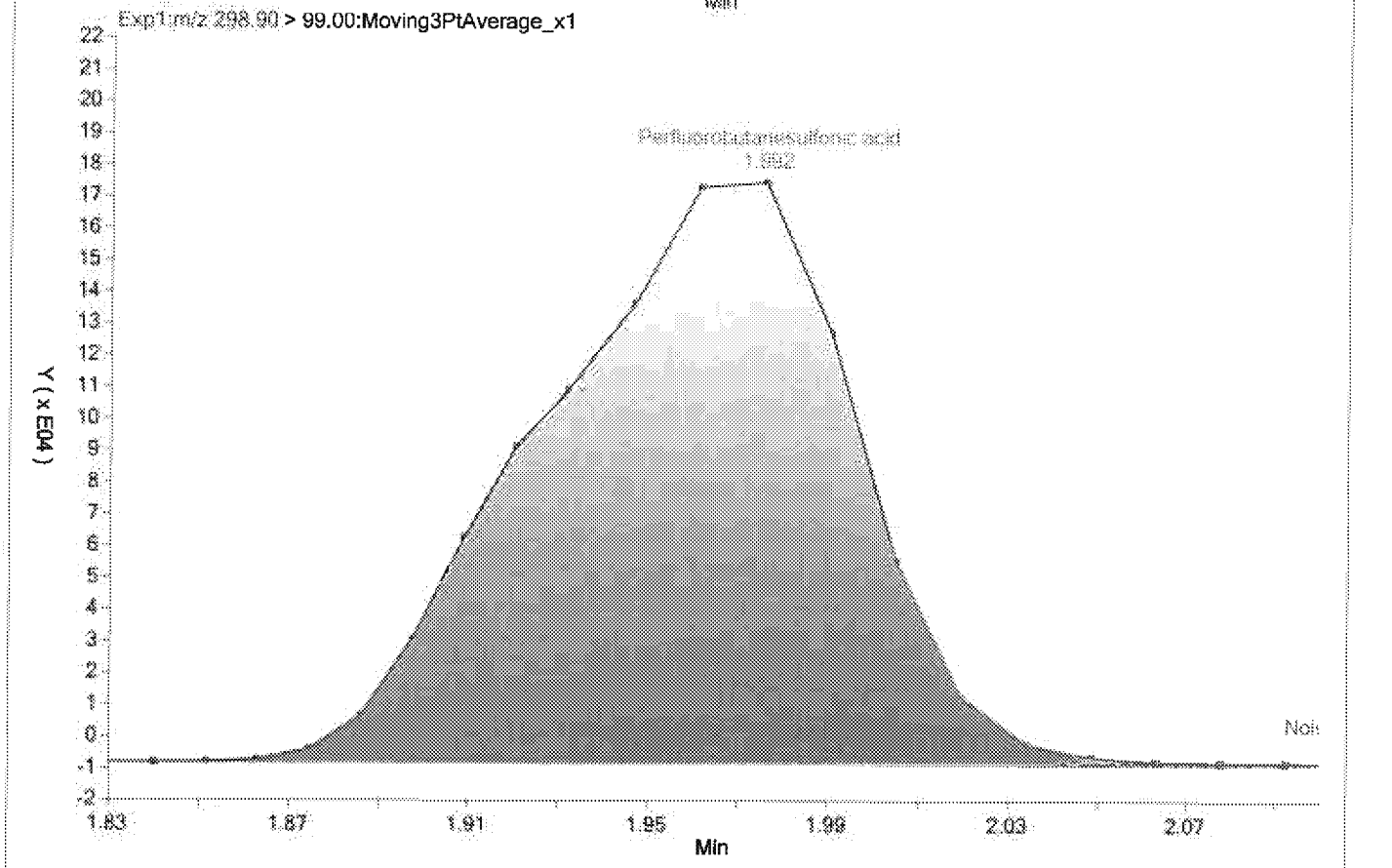
Calibration Start Date: 04/04/2019 15:14 Calibration End Date: 04/04/2019 16:11 Calibration ID: 44584

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 # LVL 7 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1 LVL 7	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
13C2 PFDA	1.0 4.6	-2.0	-0.3	0.3	-3.1	-0.5	30 30	30	30	30	30	30
d5-NEtFOSAA	-6.9 0.1	-2.6	2.2	0.0	5.0	2.2	30 30	30	30	30	30	30

Chromatogram

IC L4 EXP1



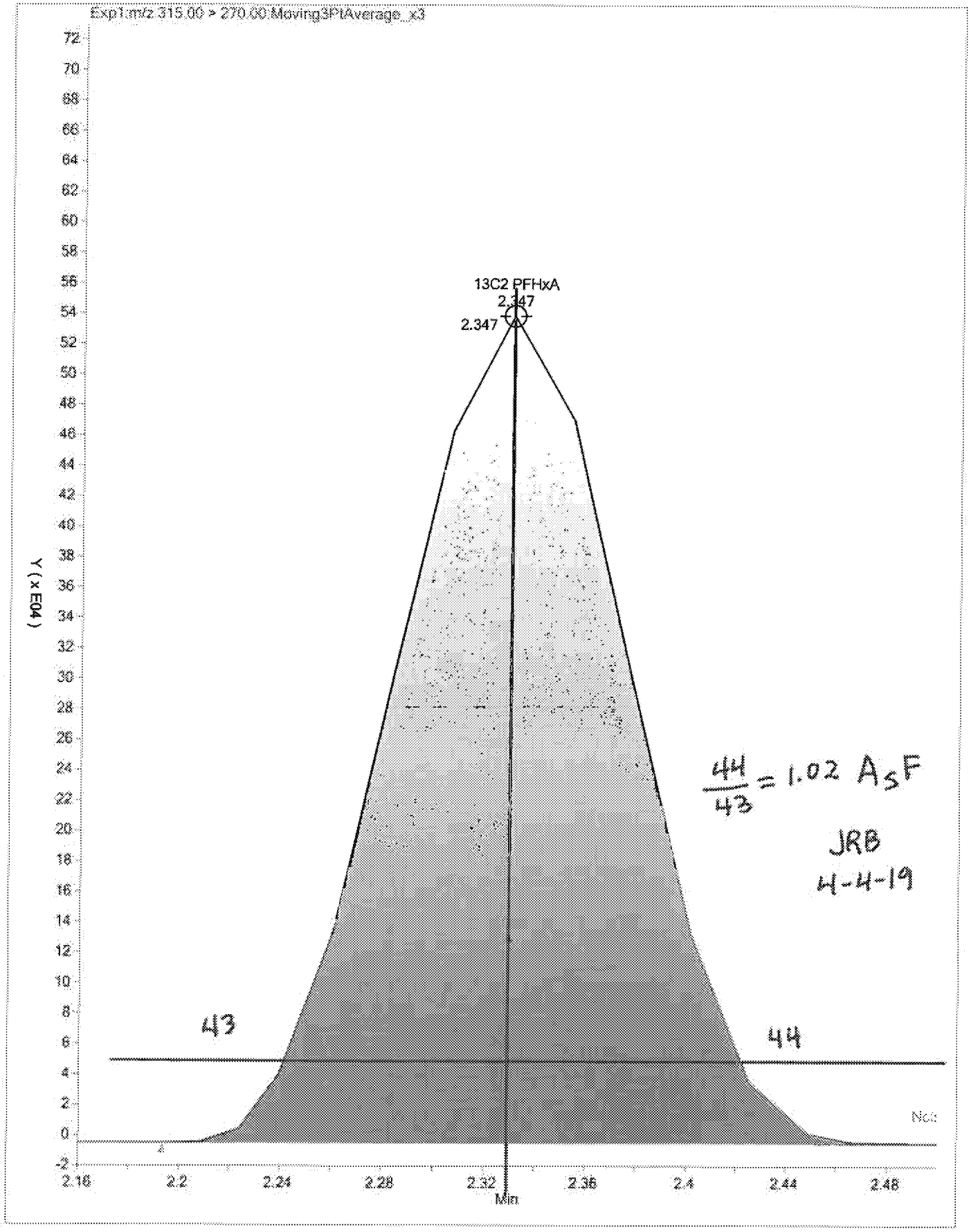


Chrom

Printed: 4/4/2019 4:27:50 PM

Chromatogram

IC L4 EXP1



Chrom

Printed: 4/4/2019 4:28:33 PM

Report Date: 04-Apr-2019 16:30:14 Chrom Revision: 2.3 24-Mar-2019 20:11:00 Page: 1

TestAmerica Laboratories
Istd/Surrogate Recovery Report

Worklist Name: 04APR2019_ICAL_537.1FULL Worklist Num: 74310
Instrument: A8_N Method: 537_A8_N
Batch Directory: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b
Limit Group: LC 537 ICAL
Analysis Type: SemiVOA
Inj Volume: 10.00 Inj Vol Units: ul

Lims Batch: 286141
CCV IS Mode: Select Ical Level, Cal Level: 3
Non-Cal IS Mode: Last Ccal Sample

$ 2 13C2 PFHxA
$ 25 13C3 HFPO-DA
$ 10 13C2 PFDA
$ 11 d5-NEtFOSAA

Lab ID Inj Date	$ 2	$ 25	$ 10	$ 11	* 5 13C2 PFOA	* 7 13C4 PFOS	* 12 d3-NMeFOSAA
IS Std					3470982 3.18	3333456 3.55	523350 4.09
# 1 RB 04-Apr-2019 15:04:54					3.18 3162121 91.1	3.56 3129834 93.9	4.09 447905 85.6
IS Std							
# 2 IC L1 04-Apr-2019 15:14:19	2.35 101.90	2.49 103.70	3.93 101.00	4.25 93.14	3.20 3201298> 100.0*	3.56 3236558> 100.0*	4.09 524272> 100.0*
# 3 IC L2 04-Apr-2019 15:23:44	2.35 97.99	2.49 98.82	3.93 98.00	4.25 97.43	3.18 3393730> 106.0*	3.56 3427796> 105.9*	4.09 552133> 105.3*
# 4 IC L3 04-Apr-2019 15:33:14	2.35 100.10	2.47 99.39	3.93 99.73	4.24 102.20	3.18 3455285> 107.9*	3.56 3513279> 108.5*	4.09 521234> 99.4*
# 5 IC L4 04-Apr-2019 15:42:43	2.35 102.40	2.47 109.10	3.92 100.30	4.23 100.00	3.18 3083165> 96.3*	3.55 3122011> 96.5*	4.09 480279> 91.6*
# 6 IC L5 04-Apr-2019 15:52:12	2.35 99.00	2.49 98.94	3.93 96.93	4.25 105.00	3.20 3349568> 104.6*	3.56 3343739> 103.3*	4.09 506515> 96.6*
# 7 IC L6 04-Apr-2019 16:01:40	2.35 102.50	2.47 96.37	3.93 99.47	4.24 102.20	3.19 2939637> 91.8*	3.57 2905553> 89.8*	4.09 457634> 87.3*
# 8 IC L7 04-Apr-2019 16:11:08	2.35 96.14	2.47 93.74	3.94 104.60	4.24 100.10	3.19 3188191> 99.6*	3.57 3144931> 97.2*	4.10 521333> 99.4*

13C2 PFOA

$$RPD = \frac{3456285 - 2939637}{\left(\frac{3456285 + 2939637}{2}\right)} \times 100 = 16.1$$

13C4 PFOS

$$RPD = \frac{3513279 - 2905553}{\left(\frac{3513279 + 2905553}{2}\right)} \times 100 = 18.9$$

d3-NMeFOSAA

$$RPD = \frac{552133 - 457634}{\left(\frac{552133 + 457634}{2}\right)} \times 100 = 18.7$$

JRB
4-4-19

Eurofins TestAmerica, Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_003.d
Lims ID: IC L1
Client ID:
Sample Type: IC Calib Level: 1
Inject. Date: 04-Apr-2019 15:14:19 ALS Bottle#: 1 Worklist Smp#: 2
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: L1_537
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub13

Method: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 04-Apr-2019 16:55:30 Calib Date: 04-Apr-2019 16:11:08
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: CTX0339

First Level Reviewer: Ex. 4 CBI Date: 04-Apr-2019 16:24:49
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	2.008	1.992	0.016	1.000	34283	0.0214	Target=1.00	204	
298.90 > 99.00	1.992	1.992	0.0	0.992	22650		1.51(0.00-0.00)	10.1	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.347	2.347	0.0	0.734	39603	0.0278	Target=1.00	10.2	
313.00 > 119.00	2.347	2.347	0.0	0.734	3841		10.31(0.00-0.00)	4.5	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.347	2.347	0.0	1.000	3802843	2.55		5756	
22 Perfluoro(2-propoxypropanoic) acid									
329.10 > 285.00	2.490	2.478	0.012	1.000	8850	0.0256		5.3	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.490	2.481	0.009	1.000	173799	2.59		1277	
4 Perfluoroheptanoic acid									M
363.00 > 319.00	2.778	2.780	-0.002	1.000	31188	0.0230	Target=1.00	3.4	M
363.00 > 169.00	2.778	2.780	-0.002	1.000	14504		2.15(0.00-0.00)	26.4	
3 Perfluorohexanesulfonic acid									M
399.00 > 80.00	2.798	2.792	0.006	1.000	45033	0.0232	Target=1.00	71.8	
399.00 > 99.00	2.798	2.792	0.006	1.000	13865		3.25(0.00-0.00)	5.2	M
24 DONA									
377.00 > 251.00	2.840	2.825	0.015	1.000	84245	0.0228	Target=1.00	184	
377.00 > 85.00	2.819	2.825	-0.006	0.993	54993		1.53(0.00-0.00)	5511	
* 5 13C2 PFOA									
415.00 > 370.00	3.196	3.186	0.010		3201298	2.50		10698	
6 Perfluorooctanoic acid									
413.00 > 369.00	3.196	3.186	0.010	1.000	31214	0.0240	Target=1.00	3.9	
413.00 > 169.00	3.196	3.186	0.010	1.000	19438		1.61(0.00-0.00)	25.2	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
* 7 13C4 PFOS									
503.00 > 80.00	3.564	3.562	0.002		3236558	2.39		8026	
8 Perfluorooctanesulfonic acid									M
499.00 > 80.00	3.564	3.564	0.0	1.000	34416	0.0241	Target=1.00	116	
499.00 > 99.00	3.564	3.564	0.0	1.000	7797		4.41(0.00-0.00)	8.0	M
9 Perfluorononanoic acid									
463.00 > 419.00	3.578	3.577	0.001	1.000	21625	0.0229	Target=1.00	14.7	
463.00 > 169.00	3.578	3.577	0.001	1.000	6649		3.25(0.00-0.00)	58.7	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.769	3.755	0.014	1.000	52950	0.0230		109	
14 Perfluorodecanoic acid									M
513.00 > 469.00	3.915	3.915	0.0	1.000	18475	0.0247	Target=1.00	7.3	M
513.00 > 169.00	3.915	3.915	0.0	1.000	3120		5.92(0.00-0.00)	11.5	
$ 10 13C2 PFDA									
515.00 > 470.00	3.934	3.931	0.003	1.000	2008530	2.53		8101	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.090	4.091	-0.001		524272	2.50		2958	
15 N-methylperfluorooctanesulfonamido									
570.00 > 419.00	4.090	4.091	-0.001	1.000	5346	0.0272		75.2	
17 Perfluoroundecanoic acid									
563.00 > 519.00	4.234	4.236	-0.002	1.000	14494	0.0255	Target=1.00	6.8	
563.00 > 169.00	4.234	4.236	-0.002	1.000	2868		5.05(0.00-0.00)	31.0	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.250	4.243	0.007	1.039	499069	2.33		323	
16 N-ethylperfluorooctanesulfonamidoa									M
584.00 > 419.00	4.250	4.252	-0.002	1.000	6020	0.0316		18.2	M
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.375	4.369	0.006	1.000	66233	0.0230		453	
18 Perfluorododecanoic acid									
613.00 > 569.00	4.508	4.508	0.0	1.000	13396	0.0235	Target=1.00	10.5	
613.00 > 169.00	4.508	4.508	0.0	1.000	3807		3.52(0.00-0.00)	37.5	
19 Perfluorotridecanoic acid									
663.00 > 619.00	4.777	4.772	0.005	1.000	11270	0.0255	Target=1.00	4.4	
663.00 > 169.00	4.777	4.772	0.005	1.000	3562		3.16(0.00-0.00)	33.8	
20 Perfluorotetradecanoic acid									M
713.00 > 169.00	4.989	4.985	0.004	1.000	2935	0.0258	Target=1.00	61.4	
713.00 > 219.00	4.989	4.985	0.004	1.000	2080		1.41(0.00-0.00)	19.2	M

QC Flag Legend

Review Flags

M - Manually Integrated

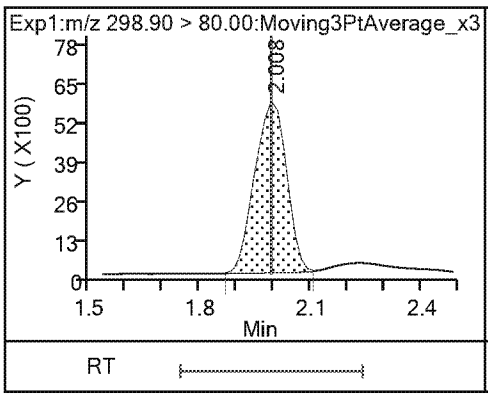
Reagents:

LC537_NC_L1_00004 Amount Added: 1.00 Units: mL

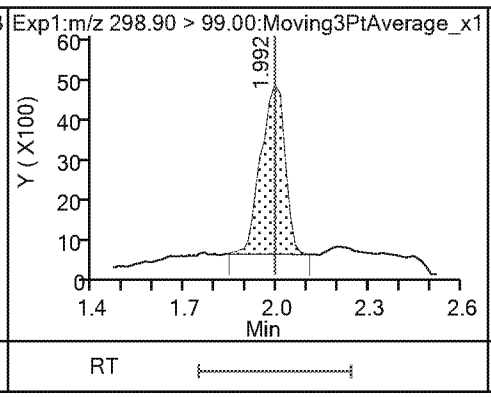
Eurofins TestAmerica, Sacramento

Data File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_003.d
Injection Date: 04-Apr-2019 15:14:19 Instrument ID: A8_N
Lims ID: IC L1
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 2
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

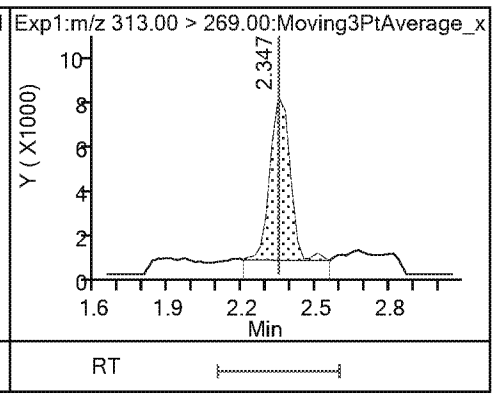
1 Perfluorobutanesulfonic acid



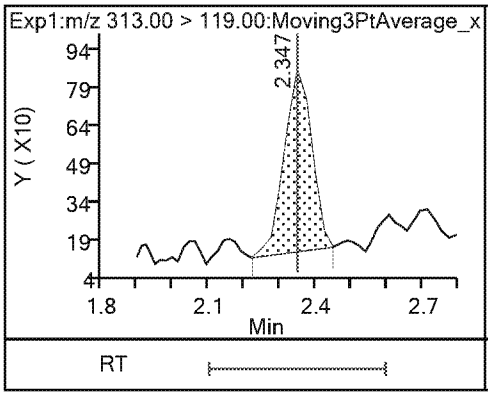
1 Perfluorobutanesulfonic acid



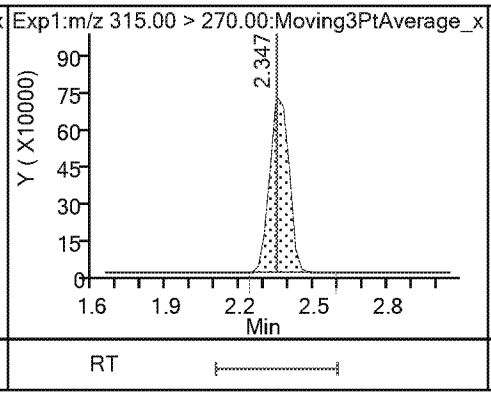
13 Perfluorohexanoic acid



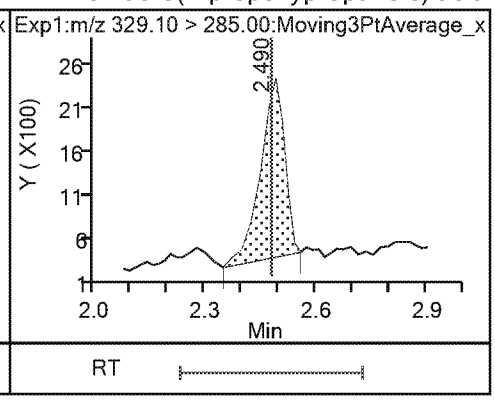
13 Perfluorohexanoic acid



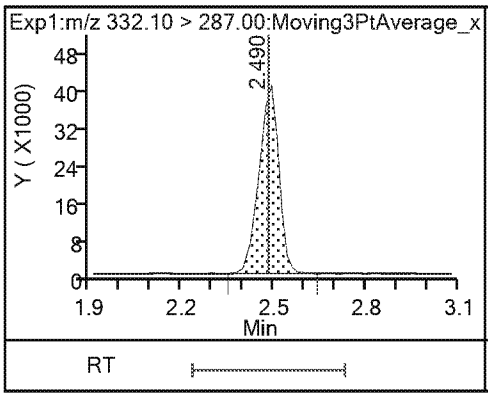
$ 2 13C2 PFHxA



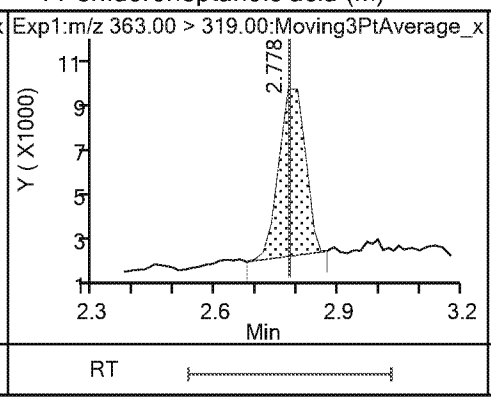
22 Perfluoro(2-propoxypropanoic) acid



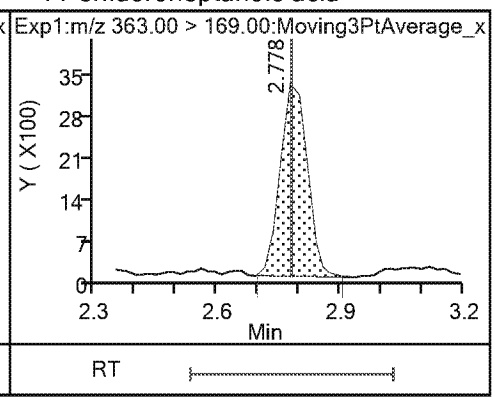
$ 25 13C3 HFPO-DA



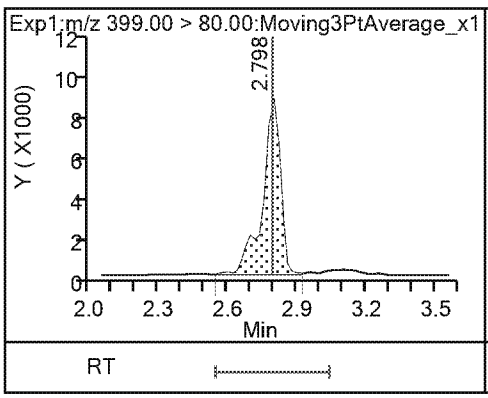
4 Perfluoroheptanoic acid (M)



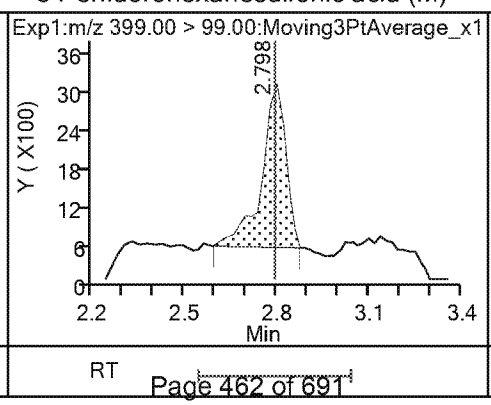
4 Perfluoroheptanoic acid



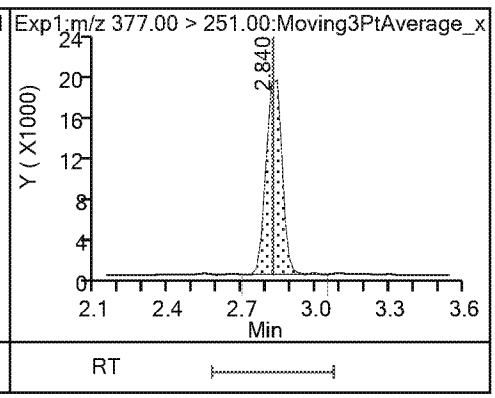
3 Perfluorohexanesulfonic acid



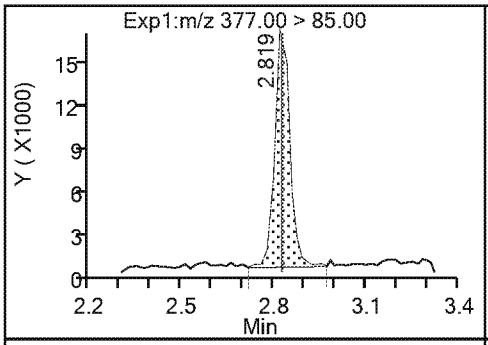
3 Perfluorohexanesulfonic acid (M)



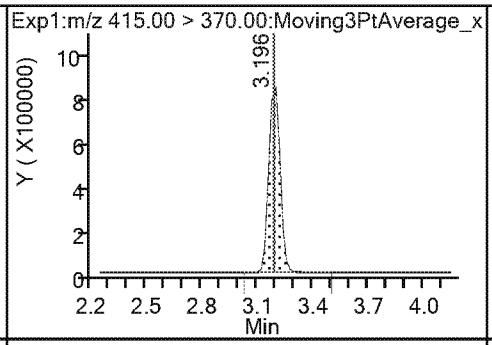
24 DONA



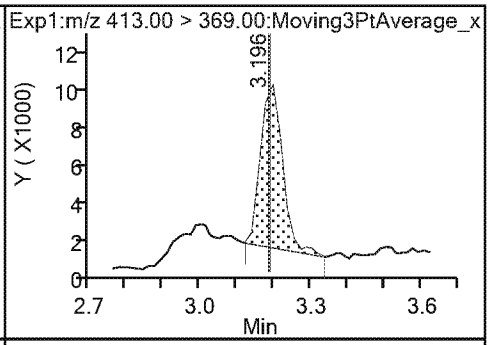
24 DONA



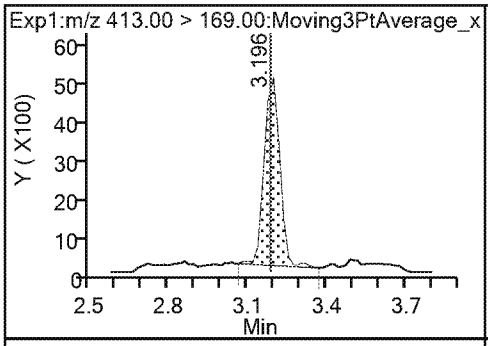
* 5 13C2 PFOA



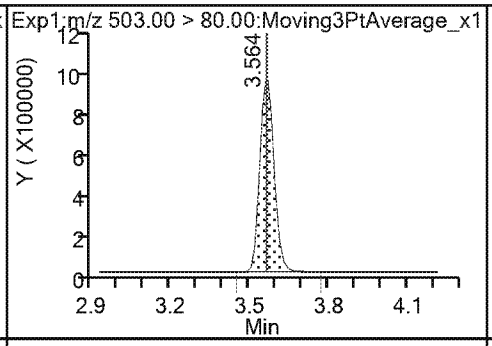
6 Perfluorooctanoic acid



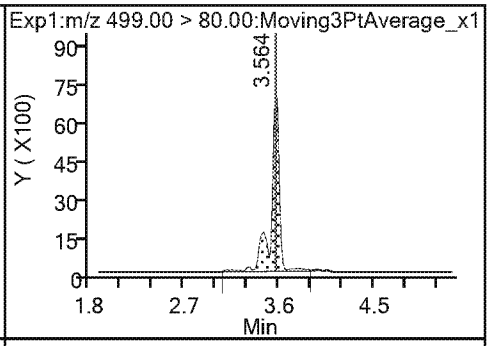
6 Perfluorooctanoic acid



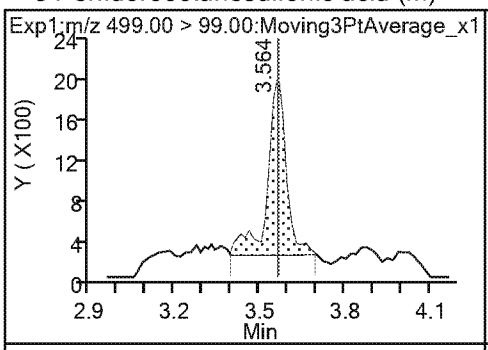
* 7 13C4 PFOS



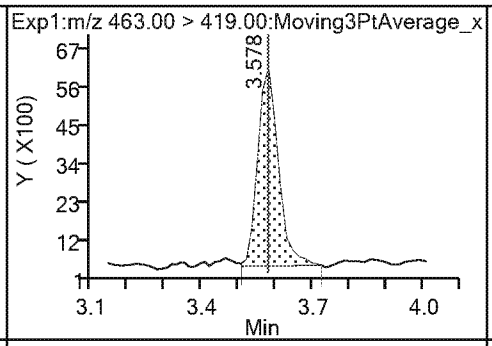
8 Perfluorooctanesulfonic acid



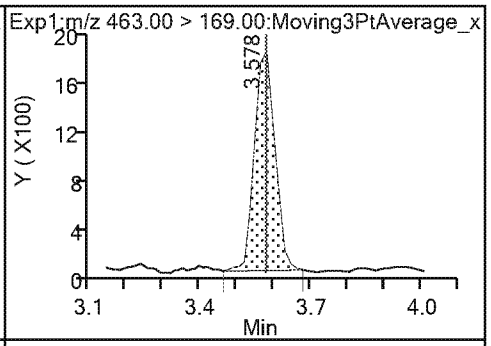
8 Perfluorooctanesulfonic acid (M)



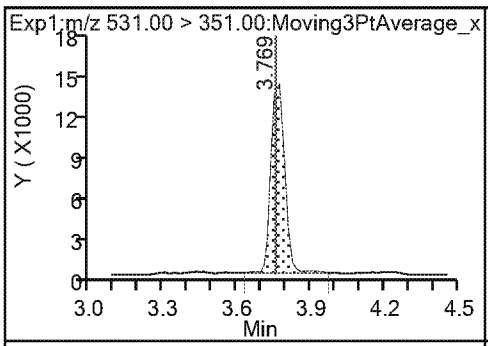
9 Perfluorononanoic acid



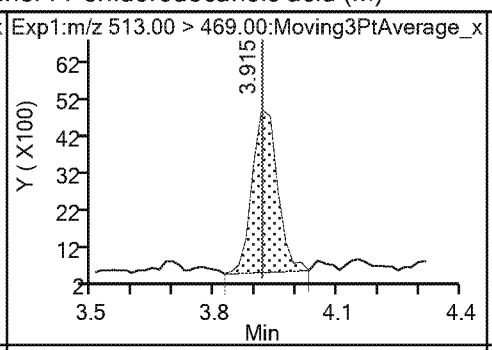
9 Perfluorononanoic acid



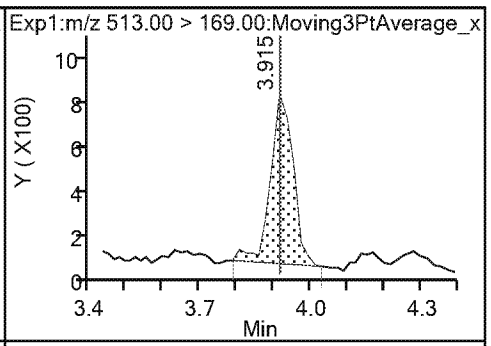
23 9-Chlorohexadecafluoro-3-oxanonane



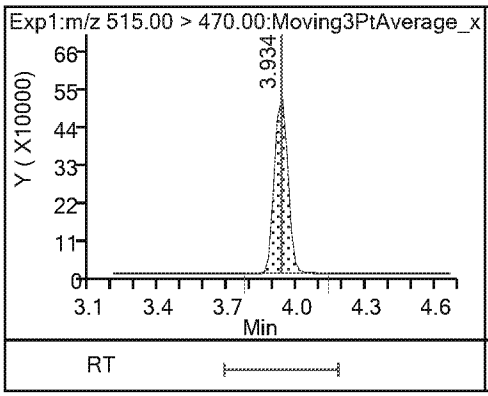
14 Perfluorodecanoic acid (M)



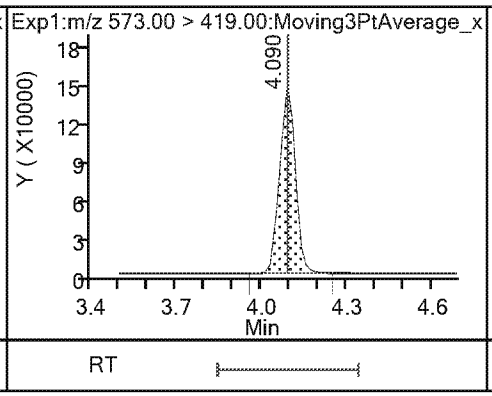
14 Perfluorodecanoic acid



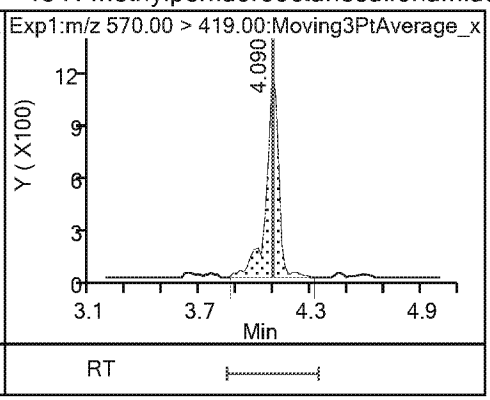
$ 10 13C2 PFDA



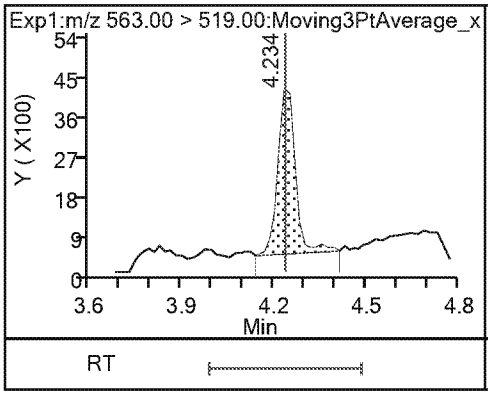
* 12 d3-NMeFOSAA



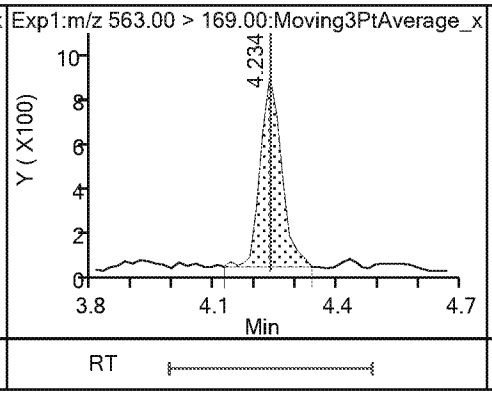
15 N-methylperfluorooctanesulfonamido



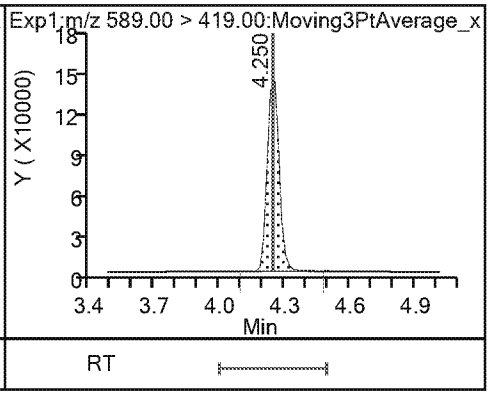
17 Perfluoroundecanoic acid



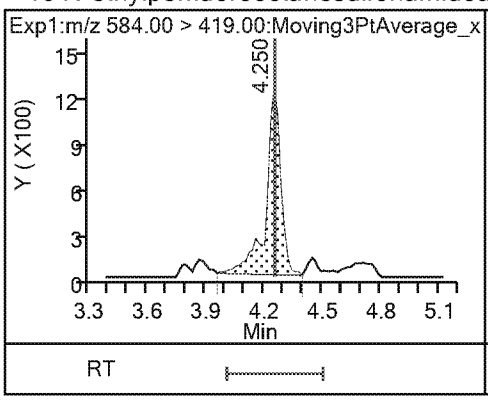
17 Perfluoroundecanoic acid



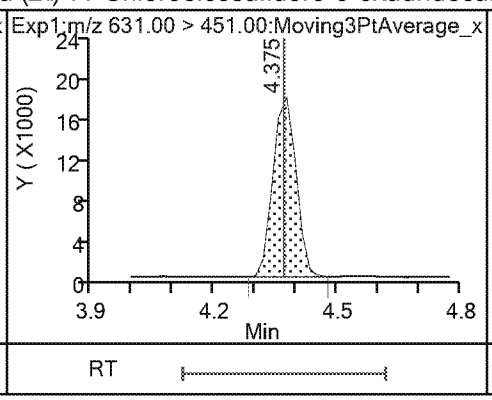
$ 11 d5-NEtFOSAA



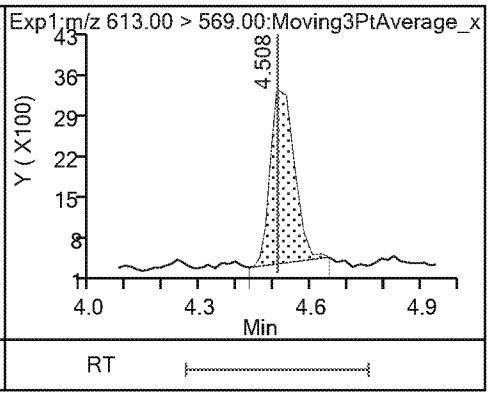
16 N-ethylperfluorooctanesulfonamidoa (2/1)



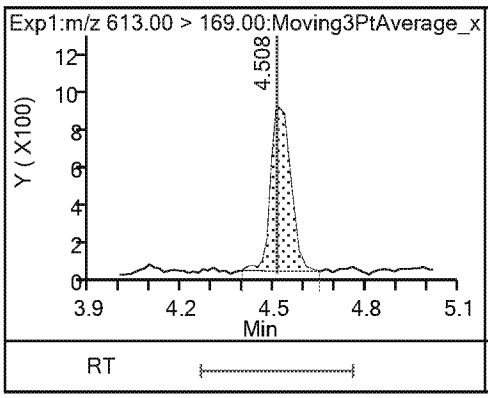
11-Chloroeicosafluoro-3-oxaundecan



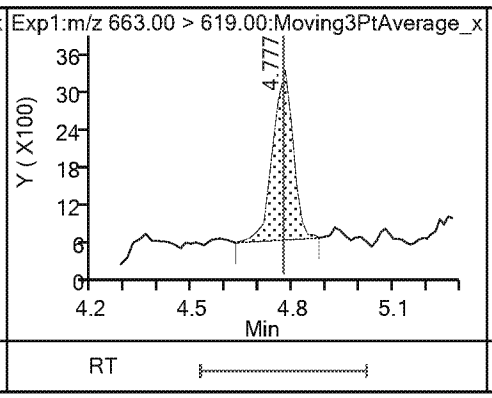
18 Perfluorododecanoic acid



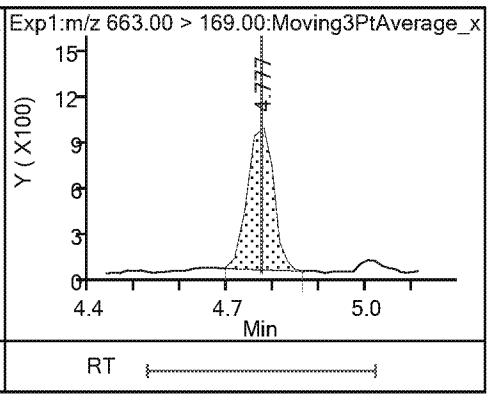
18 Perfluorododecanoic acid



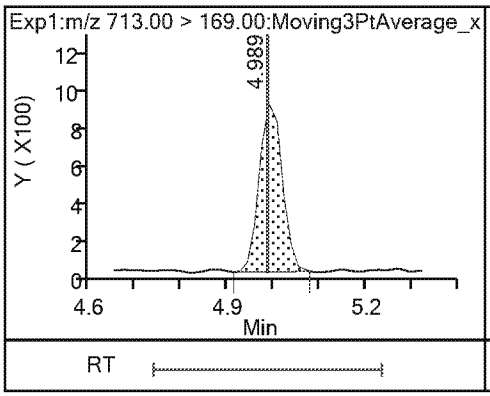
19 Perfluorotridecanoic acid



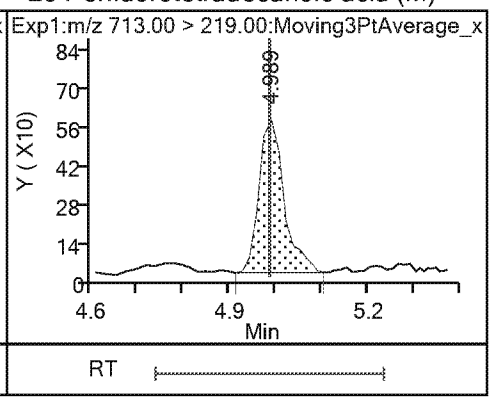
19 Perfluorotridecanoic acid



20 Perfluorotetradecanoic acid



20 Perfluorotetradecanoic acid (M)



Eurofins TestAmerica, Sacramento

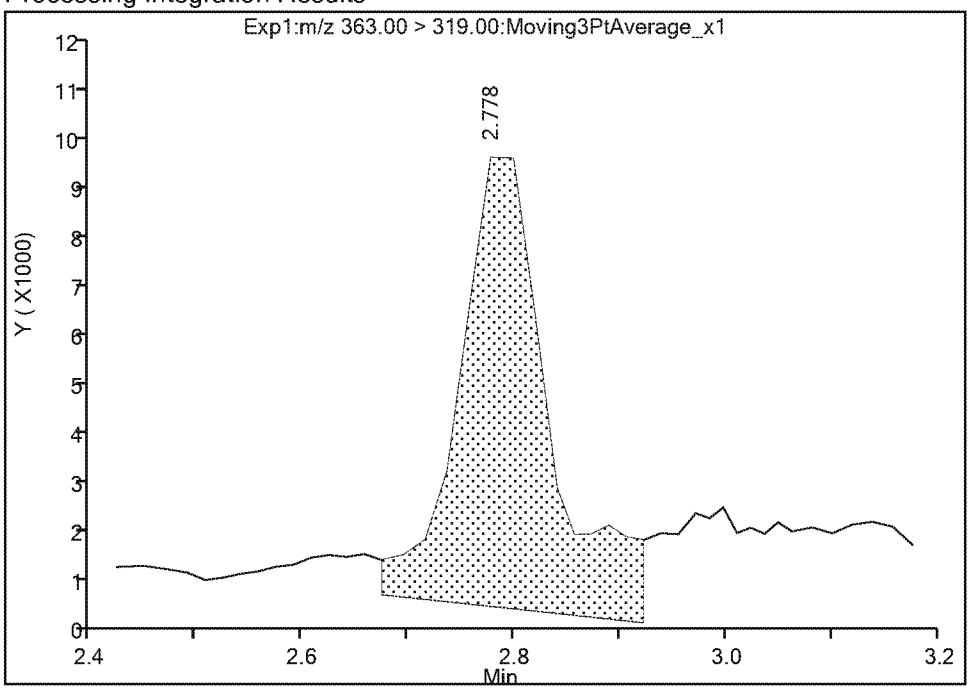
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_003.d				
Injection Date:	04-Apr-2019 15:14:19	Instrument ID:	A8_N		
Lims ID:	IC L1				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	1	Worklist Smp#:	2
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

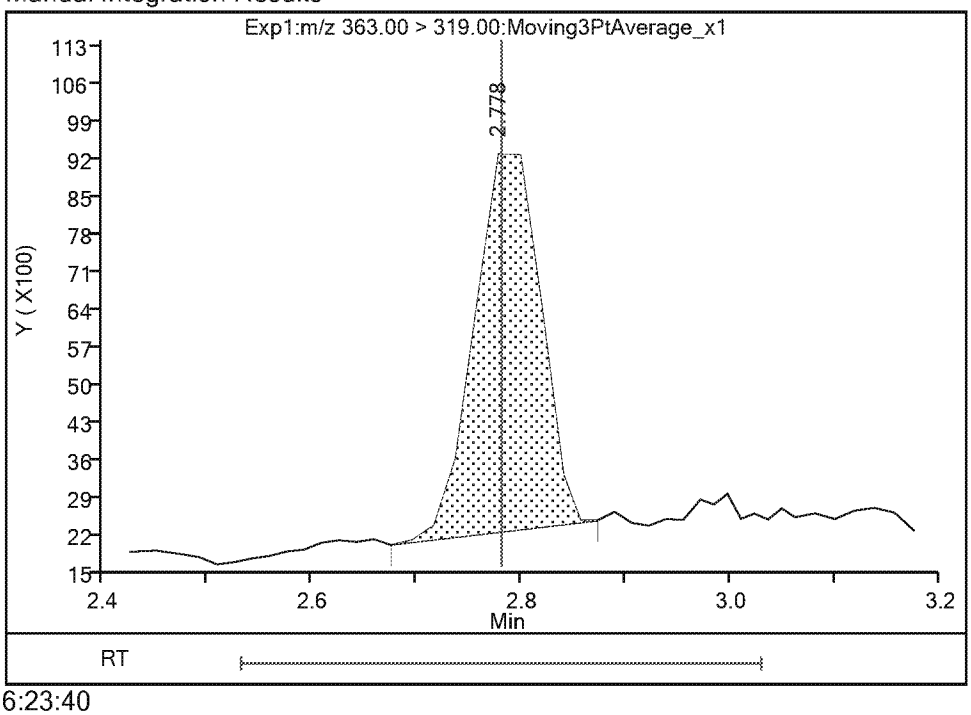
Processing Integration Results

RT: 2.78
Area: 48362
Amount: 0.030357
Amount Units: ng/ml



Manual Integration Results

RT: 2.78
Area: 31188
Amount: 0.022981
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 04-Apr-2019 16:23:40
Audit Action: Manually Integrated Audit Reason: Baseline

Eurofins TestAmerica, Sacramento

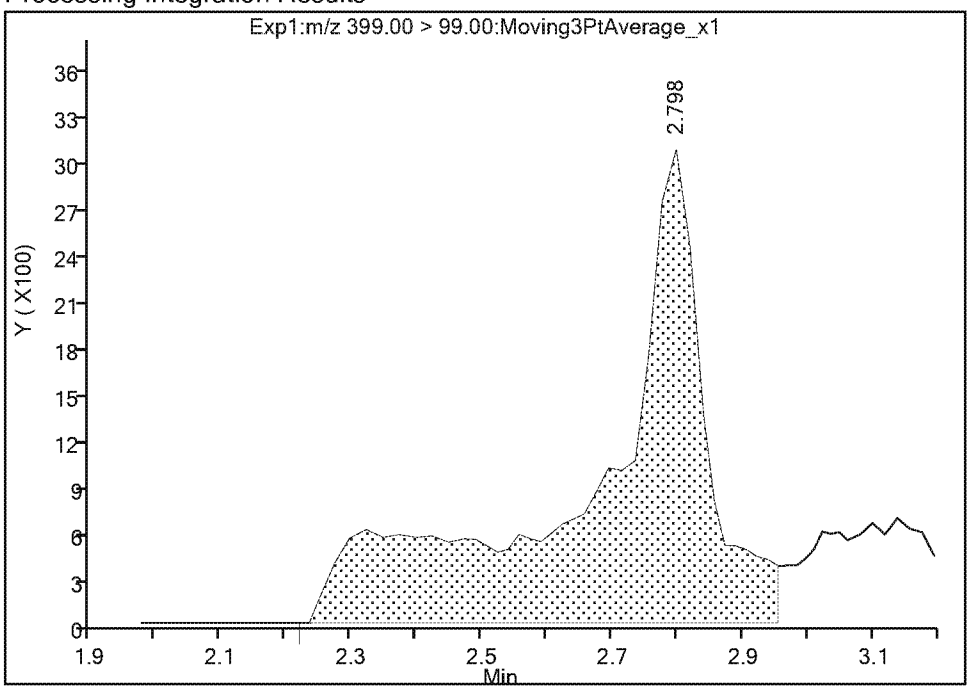
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_003.d				
Injection Date:	04-Apr-2019 15:14:19	Instrument ID:	A8_N		
Lims ID:	IC L1				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	1	Worklist Smp#:	2
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

3 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 2

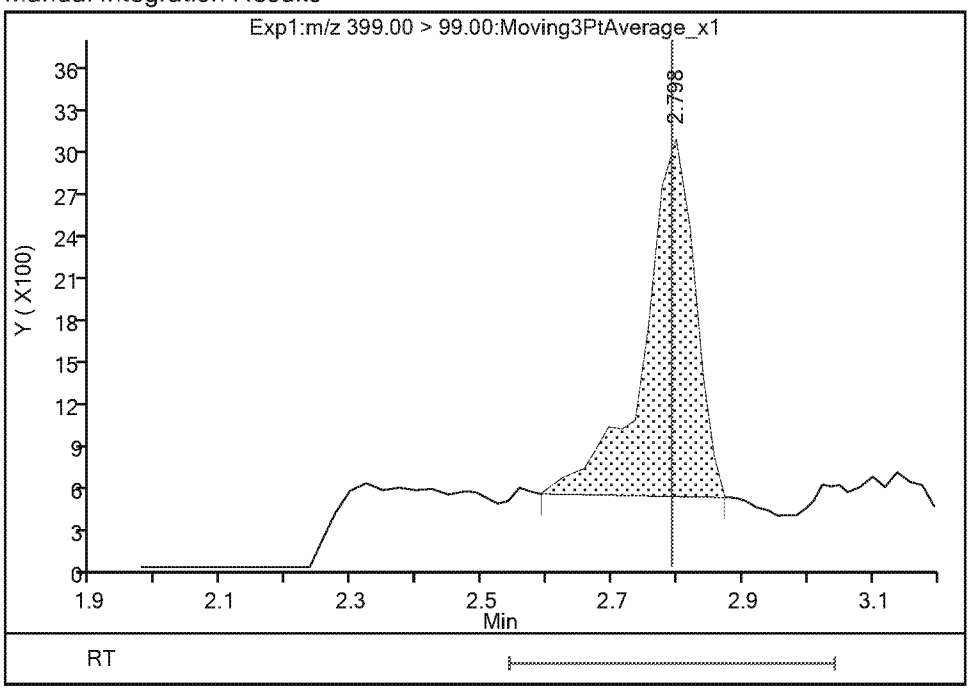
Processing Integration Results

RT: 2.80
Area: 35414
Amount: 0.023207
Amount Units: ng/ml



Manual Integration Results

RT: 2.80
Area: 13865
Amount: 0.023207
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 04-Apr-2019 16:23:32
Audit Action: Manually Integrated Audit Reason: Baseline

Eurofins TestAmerica, Sacramento

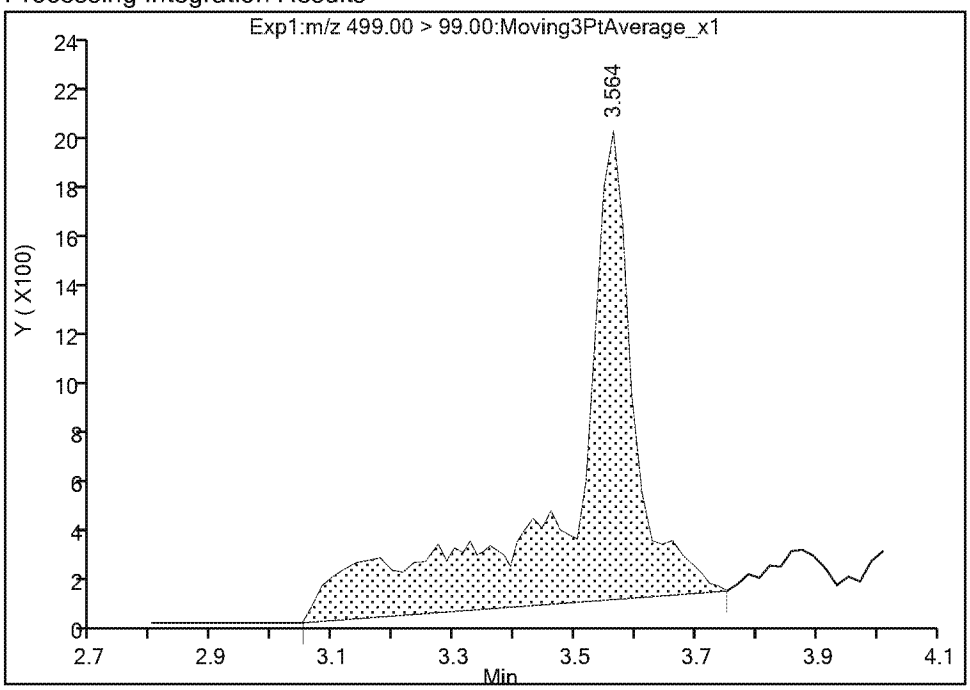
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_003.d				
Injection Date:	04-Apr-2019 15:14:19	Instrument ID:	A8_N		
Lims ID:	IC L1				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	1	Worklist Smp#:	2
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

8 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 2

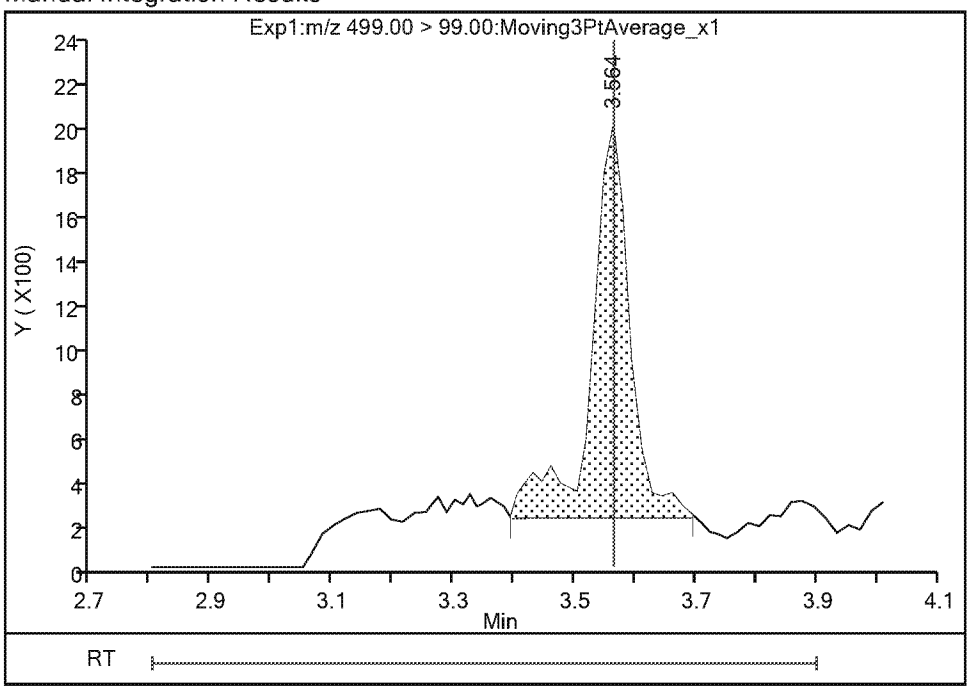
Processing Integration Results

RT: 3.56
Area: 14476
Amount: 0.024059
Amount Units: ng/ml



Manual Integration Results

RT: 3.56
Area: 7797
Amount: 0.024059
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 04-Apr-2019 16:23:56
Audit Action: Manually Integrated Audit Reason: Baseline

Eurofins TestAmerica, Sacramento

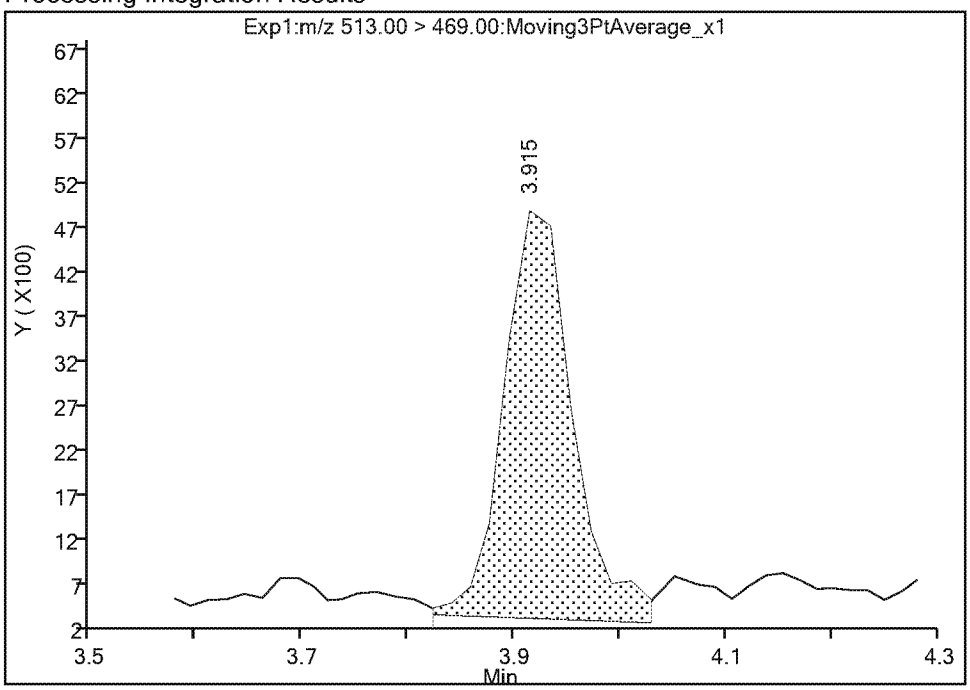
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_003.d				
Injection Date:	04-Apr-2019 15:14:19	Instrument ID:	A8_N		
Lims ID:	IC L1				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	1	Worklist Smp#:	2
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

14 Perfluorodecanoic acid, CAS: 335-76-2

Signal: 1

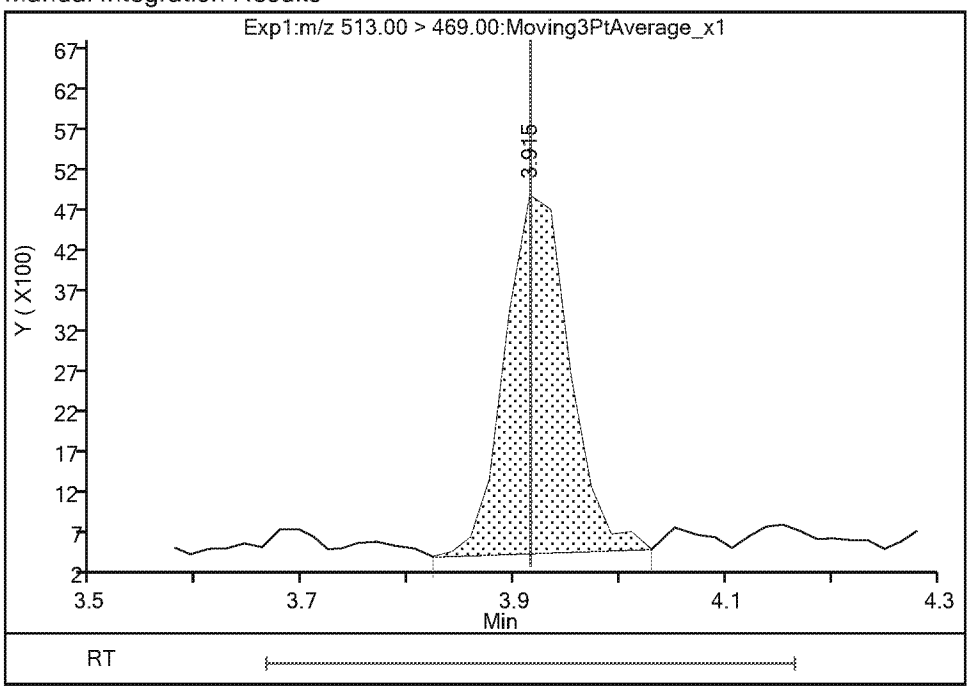
Processing Integration Results

RT: 3.91
Area: 20413
Amount: 0.026852
Amount Units: ng/ml



Manual Integration Results

RT: 3.91
Area: 18475
Amount: 0.024662
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 04-Apr-2019 16:24:12
Audit Action: Manually Integrated Audit Reason: Baseline

Eurofins TestAmerica, Sacramento

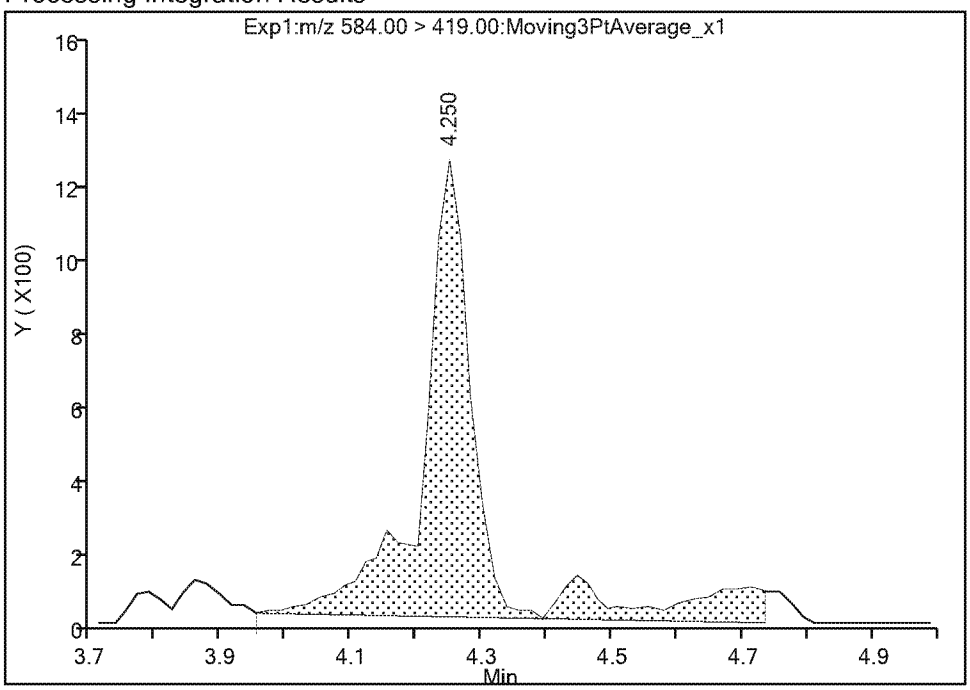
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_003.d				
Injection Date:	04-Apr-2019 15:14:19	Instrument ID:	A8_N		
Lims ID:	IC L1				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	1	Worklist Smp#:	2
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

16 N-ethylperfluorooctanesulfonamidoacetic acid, CAS: 2991-50-6

Signal: 1

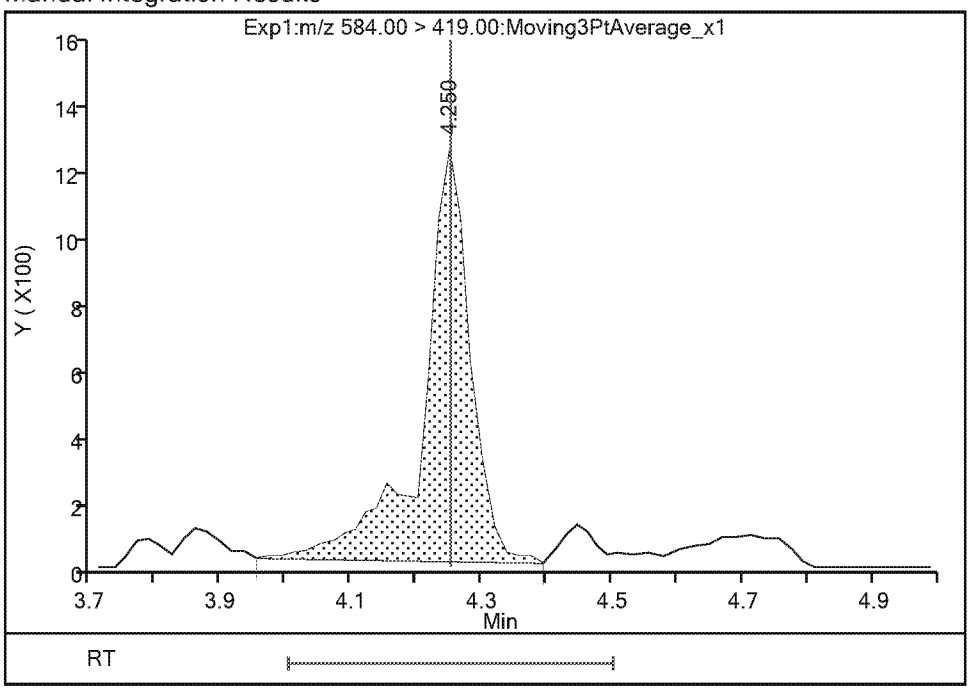
Processing Integration Results

RT: 4.25
Area: 7184
Amount: 0.036461
Amount Units: ng/ml



Manual Integration Results

RT: 4.25
Area: 6020
Amount: 0.031621
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 04-Apr-2019 16:24:23
Audit Action: Manually Integrated Audit Reason: Baseline

Eurofins TestAmerica, Sacramento

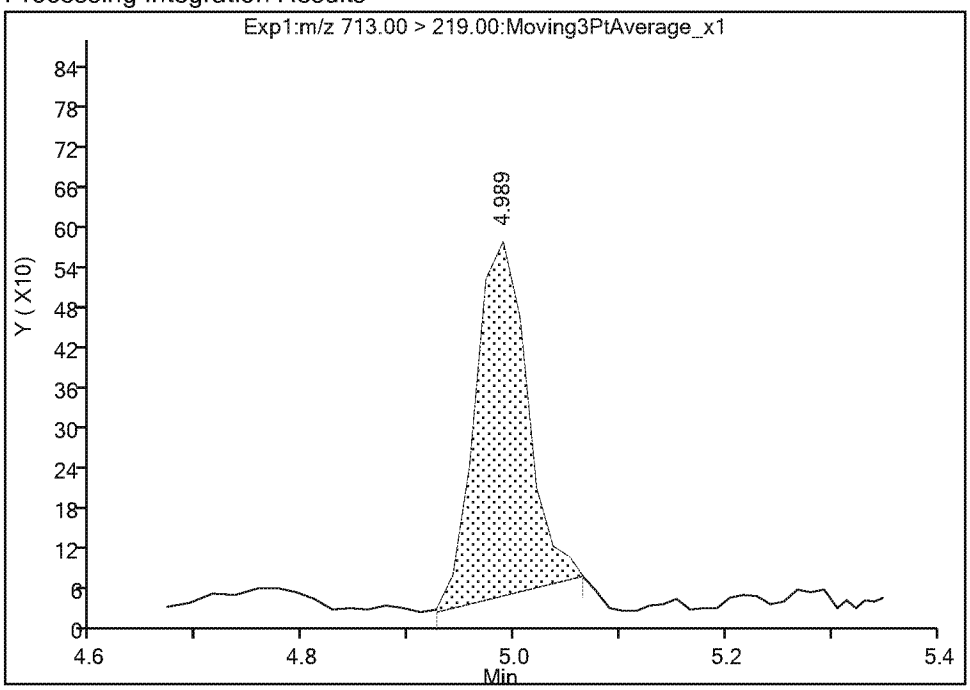
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_003.d				
Injection Date:	04-Apr-2019 15:14:19	Instrument ID:	A8_N		
Lims ID:	IC L1				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	1	Worklist Smp#:	2
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

20 Perfluorotetradecanoic acid, CAS: 376-06-7

Signal: 2

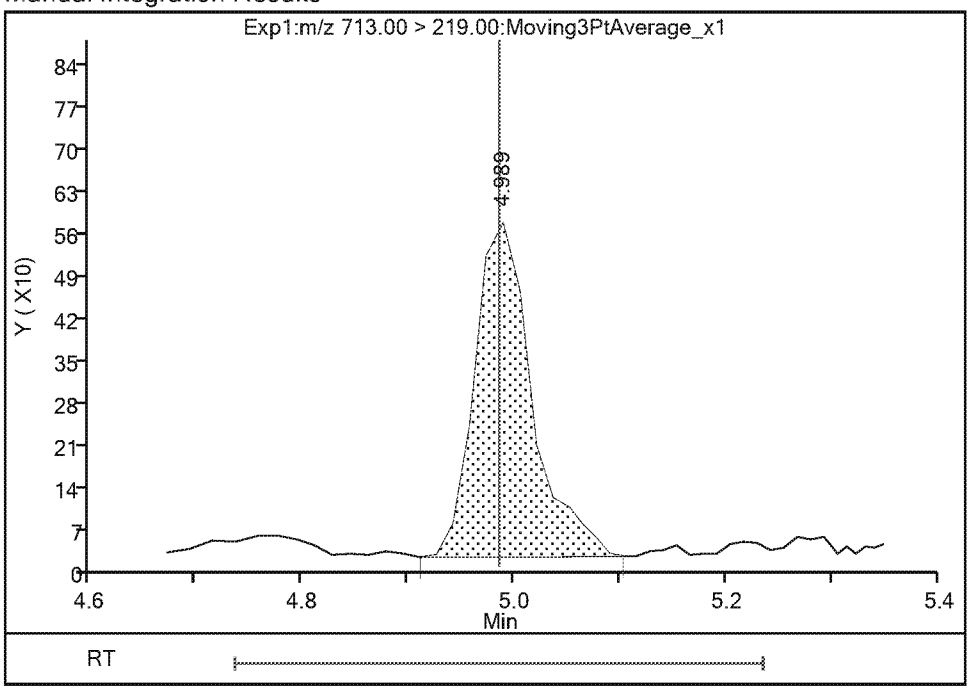
Processing Integration Results

RT: 4.99
Area: 1810
Amount: 0.025818
Amount Units: ng/ml



Manual Integration Results

RT: 4.99
Area: 2080
Amount: 0.025818
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 04-Apr-2019 16:24:35
Audit Action: Manually Integrated Audit Reason: Baseline

Eurofins TestAmerica, Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_004.d
Lims ID: IC L2
Client ID:
Sample Type: IC Calib Level: 2
Inject. Date: 04-Apr-2019 15:23:44 ALS Bottle#: 2 Worklist Smp#: 3
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: L2_537
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub13

Method: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 04-Apr-2019 16:55:32 Calib Date: 04-Apr-2019 16:11:08
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: CTX0339

First Level Reviewer: Ex. 4 CBI Date: 04-Apr-2019 16:25:50
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.992	1.992	0.0	1.000	70736	0.0418	Target=1.00	440	
298.90 > 99.00	1.992	1.992	0.0	1.000	49506		1.43(0.00-0.00)	21.9	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.348	2.347	0.001	0.739	73839	0.0489	Target=1.00	19.4	
313.00 > 119.00	2.348	2.347	0.001	0.739	8551		8.64(0.00-0.00)	10.8	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.348	2.347	0.001	1.000	3876289	2.45		7349	
22 Perfluoro(2-propoxypropanoic) acid									
329.10 > 285.00	2.474	2.478	-0.004	0.993	18526	0.0505		9.7	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.491	2.481	0.010	1.000	175588	2.47		835	
4 Perfluoroheptanoic acid									M
363.00 > 319.00	2.778	2.780	-0.002	1.000	71686	0.0498	Target=1.00	7.5	M
363.00 > 169.00	2.778	2.780	-0.002	1.000	32263		2.22(0.00-0.00)	68.9	
3 Perfluorohexanesulfonic acid									M
399.00 > 80.00	2.799	2.792	0.007	1.000	87547	0.0426	Target=1.00	125	
399.00 > 99.00	2.799	2.792	0.007	1.000	26544		3.30(0.00-0.00)	10.0	M
24 DONA									
377.00 > 251.00	2.820	2.825	-0.005	1.000	179300	0.0458	Target=1.00	428	
377.00 > 85.00	2.820	2.825	-0.005	1.000	113300		1.58(0.00-0.00)	11329	
* 5 13C2 PFOA									
415.00 > 370.00	3.177	3.186	-0.009		3393730	2.50		8200	
6 Perfluorooctanoic acid									
413.00 > 369.00	3.177	3.186	-0.009	1.000	68527	0.0498	Target=1.00	8.1	
413.00 > 169.00	3.177	3.186	-0.009	1.000	38784		1.77(0.00-0.00)	55.1	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
* 7 13C4 PFOS									
503.00 > 80.00	3.564	3.562	0.002		3427796	2.39		8711	
8 Perfluorooctanesulfonic acid									M
499.00 > 80.00	3.564	3.564	0.0	1.000	70706	0.0467	Target=1.00	258	
499.00 > 99.00	3.564	3.564	0.0	1.000	15121		4.68(0.00-0.00)	15.1	M
9 Perfluorononanoic acid									
463.00 > 419.00	3.579	3.577	0.002	1.000	50983	0.0508	Target=1.00	32.0	
463.00 > 169.00	3.564	3.577	-0.013	0.996	14117		3.61(0.00-0.00)	115	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.751	3.755	-0.004	1.000	103961	0.0426		259	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.914	3.915	-0.001	1.000	39873	0.0502	Target=1.00	15.5	
513.00 > 169.00	3.914	3.915	-0.001	1.000	8640		4.61(0.00-0.00)	30.2	
$ 10 13C2 PFDA									
515.00 > 470.00	3.933	3.931	0.002	1.000	2065239	2.45		7207	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.089	4.091	-0.002		552133	2.50		4505	
15 N-methylperfluorooctanesulfonamido									
570.00 > 419.00	4.089	4.091	-0.002	1.000	10728	0.0519		178	
17 Perfluoroundecanoic acid									
563.00 > 519.00	4.233	4.236	-0.003	1.000	29412	0.0487	Target=1.00	14.5	
563.00 > 169.00	4.233	4.236	-0.003	1.000	6313		4.66(0.00-0.00)	92.6	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.249	4.243	0.006	1.039	549768	2.44		337	
16 N-ethylperfluorooctanesulfonamidoa									
584.00 > 419.00	4.249	4.252	-0.003	1.000	9816	0.0490		21.9	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.370	4.369	0.001	1.000	142099	0.0465		1301	
18 Perfluorododecanoic acid									
613.00 > 569.00	4.506	4.508	-0.002	1.000	29680	0.0491	Target=1.00	22.6	
613.00 > 169.00	4.506	4.508	-0.002	1.000	8265		3.59(0.00-0.00)	80.8	
19 Perfluorotridecanoic acid									
663.00 > 619.00	4.775	4.772	0.003	1.000	25173	0.0537	Target=1.00	10.2	
663.00 > 169.00	4.775	4.772	0.003	1.000	7558		3.33(0.00-0.00)	83.0	
20 Perfluorotetradecanoic acid									
713.00 > 169.00	4.988	4.985	0.003	1.000	5648	0.0469	Target=1.00	134	
713.00 > 219.00	4.988	4.985	0.003	1.000	3944		1.43(0.00-0.00)	39.6	

QC Flag Legend

Review Flags

M - Manually Integrated

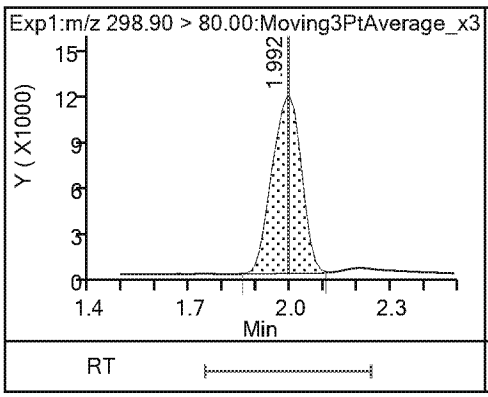
Reagents:

LC537_NC_L2_00004 Amount Added: 1.00 Units: mL

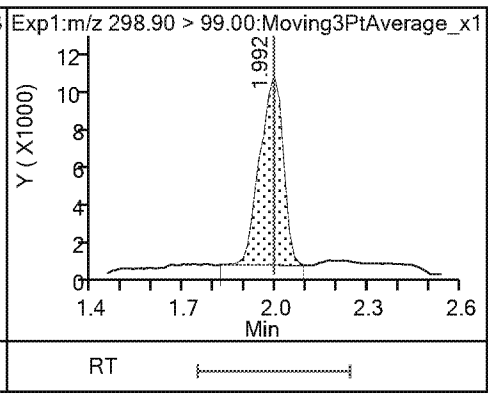
Eurofins TestAmerica, Sacramento

Data File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_004.d
Injection Date: 04-Apr-2019 15:23:44 Instrument ID: A8_N
Lims ID: IC L2
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 3
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

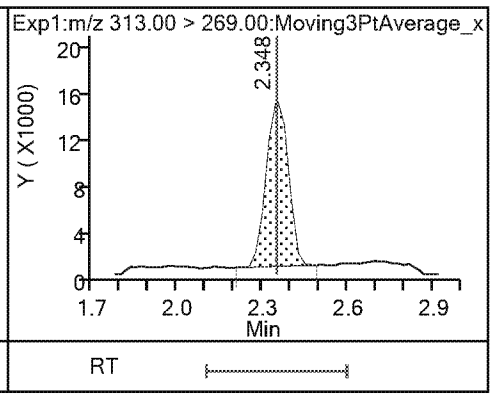
1 Perfluorobutanesulfonic acid



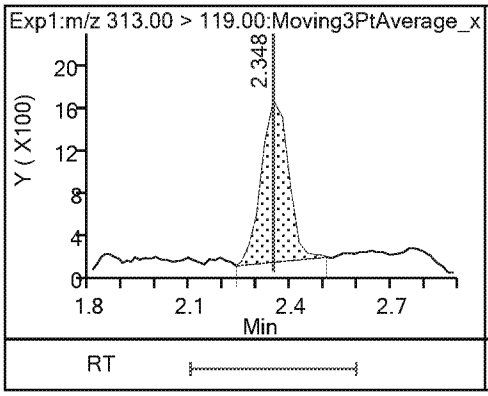
1 Perfluorobutanesulfonic acid



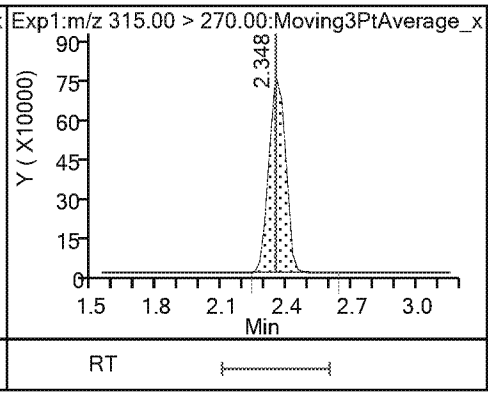
13 Perfluorohexanoic acid



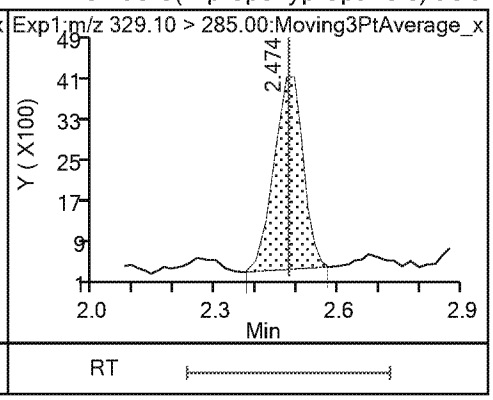
13 Perfluorohexanoic acid



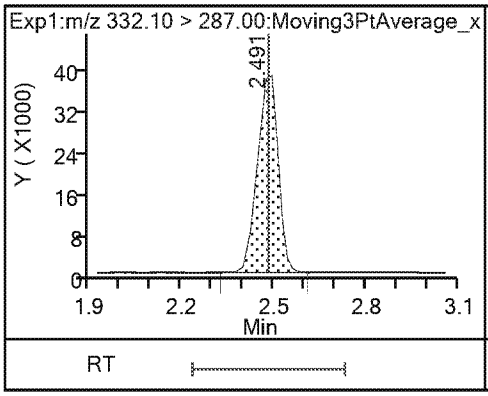
$ 2 13C2 PFHxA



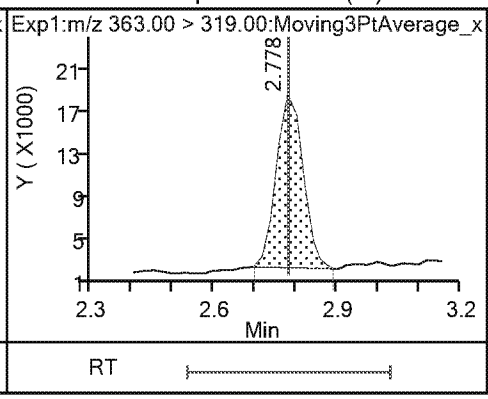
22 Perfluoro(2-propoxypropanoic) acid



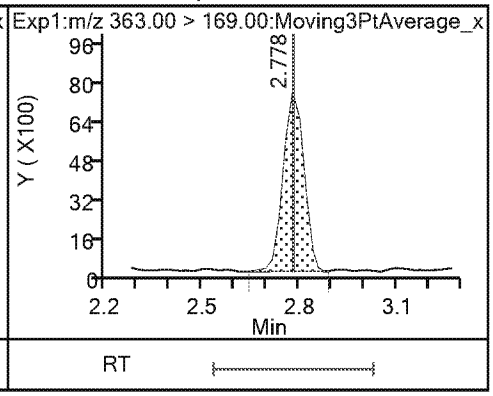
$ 25 13C3 HFPO-DA



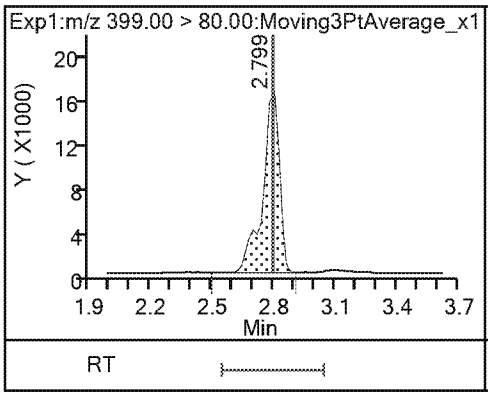
4 Perfluoroheptanoic acid (M)



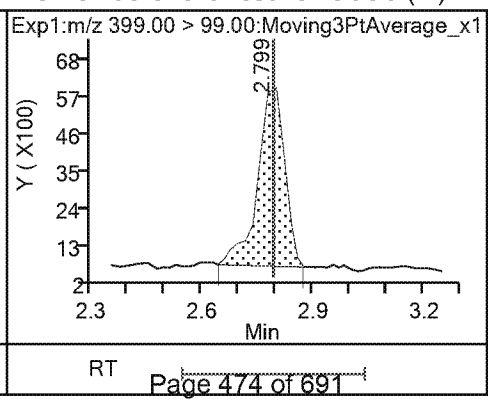
4 Perfluoroheptanoic acid



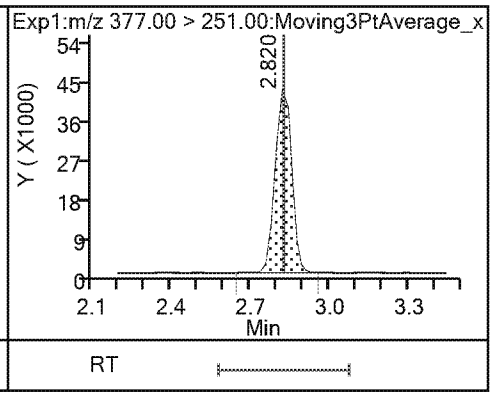
3 Perfluorohexanesulfonic acid



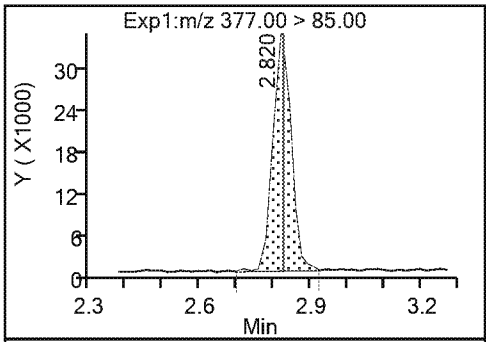
3 Perfluorohexanesulfonic acid (M)



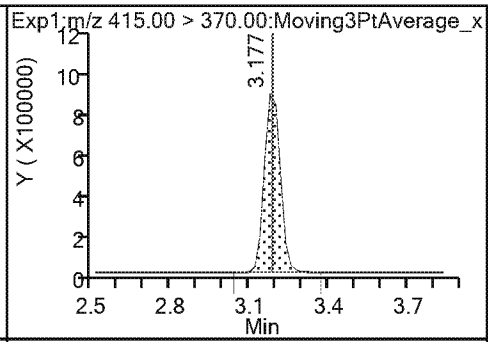
24 DONA



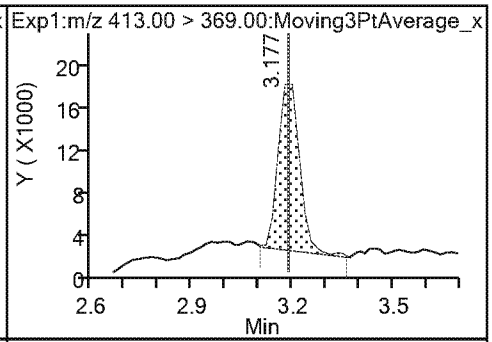
24 DONA



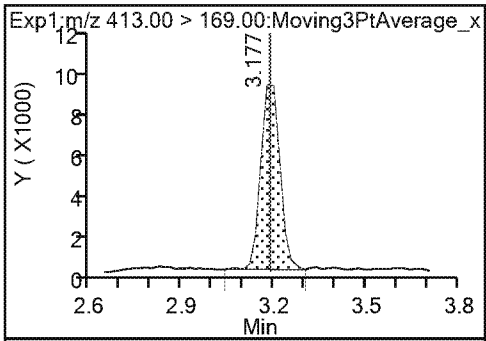
* 5 13C2 PFOA



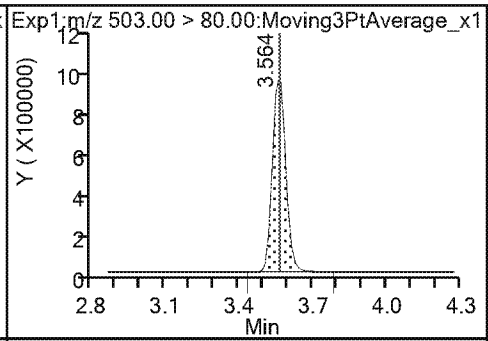
6 Perfluorooctanoic acid



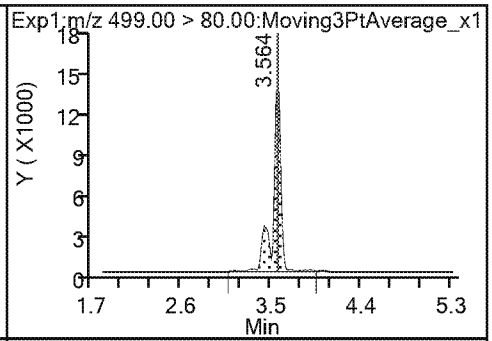
6 Perfluorooctanoic acid



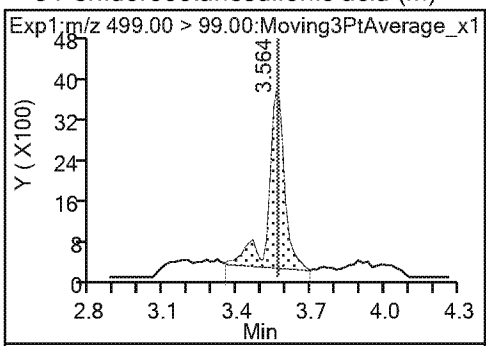
* 7 13C4 PFOS



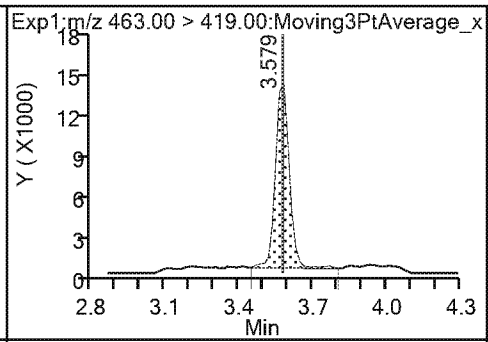
8 Perfluorooctanesulfonic acid



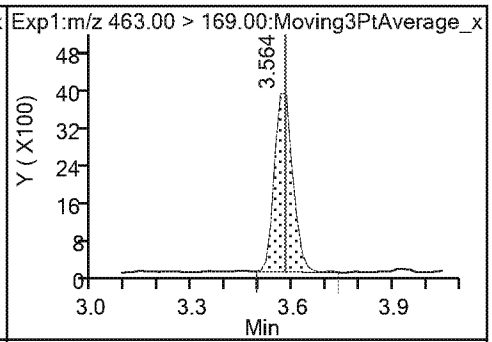
8 Perfluorooctanesulfonic acid (M)



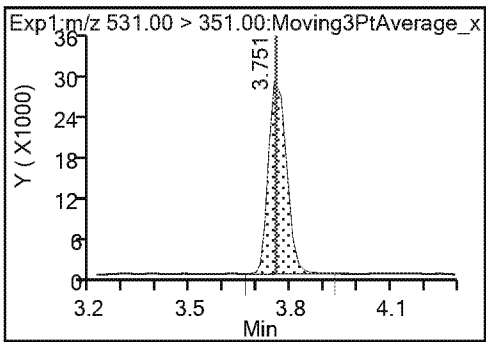
9 Perfluorononanoic acid



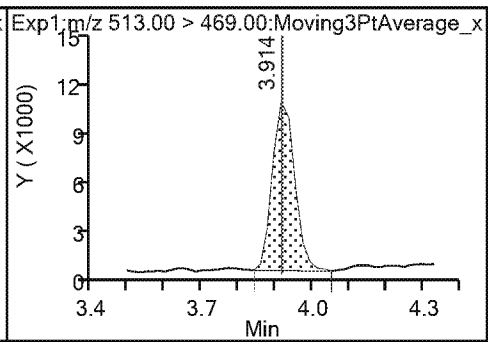
9 Perfluorononanoic acid



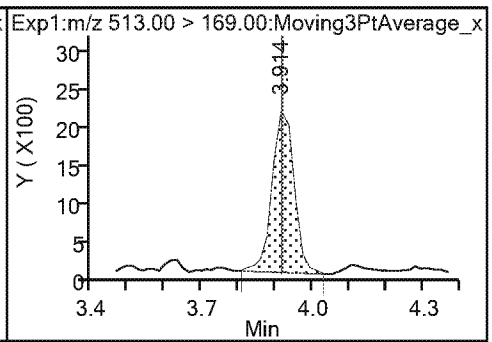
23 9-Chlorohexadecafluoro-3-oxanonane



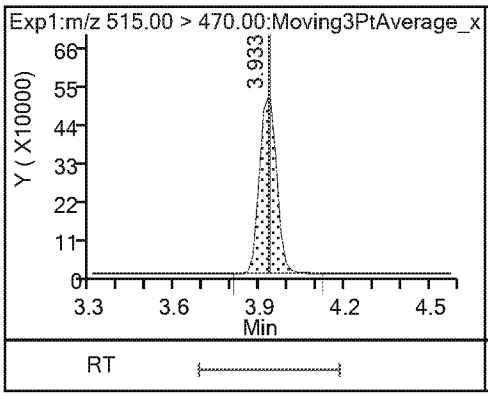
14 Perfluorodecanoic acid



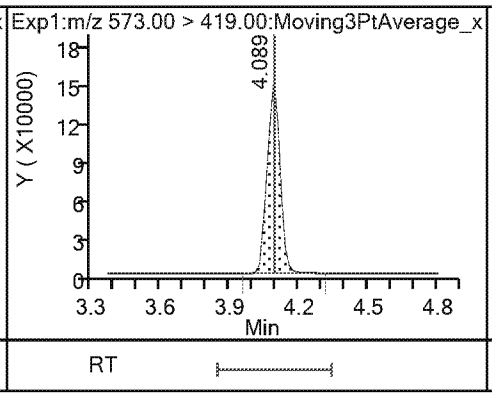
14 Perfluorodecanoic acid



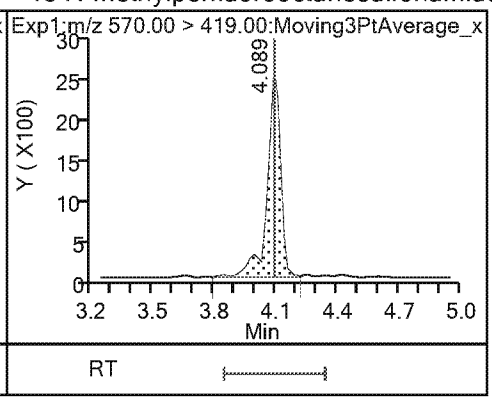
$ 10 13C2 PFDA



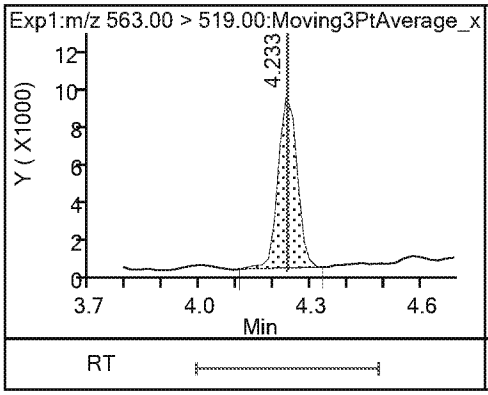
* 12 d3-NMeFOSAA



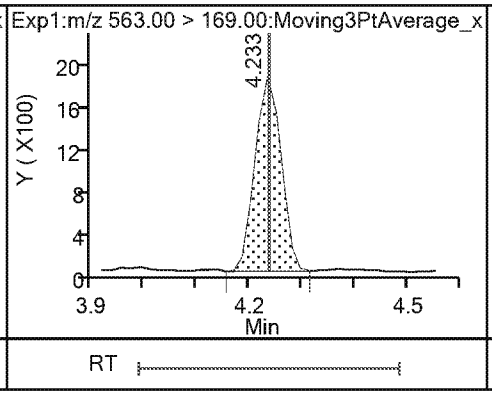
15 N-methylperfluorooctanesulfonamido



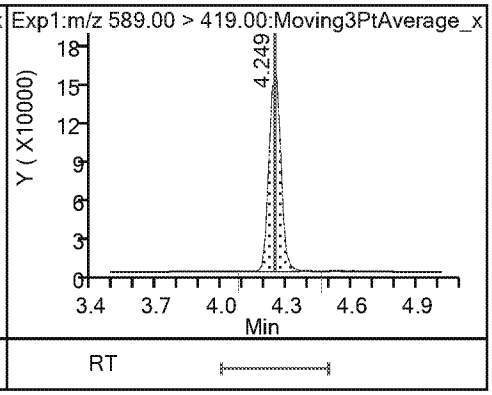
17 Perfluoroundecanoic acid



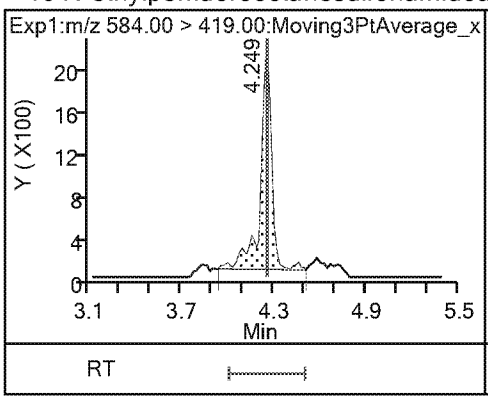
17 Perfluoroundecanoic acid



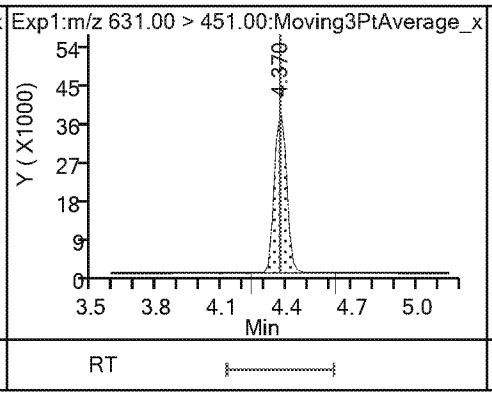
$ 11 d5-NEtFOSAA



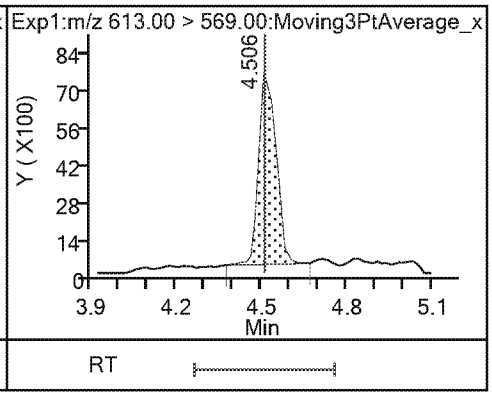
16 N-ethylperfluorooctanesulfonamidoa



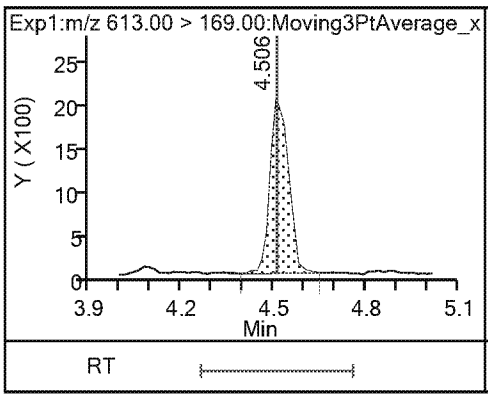
21 11-Chloroeicosafluoro-3-oxaundecan



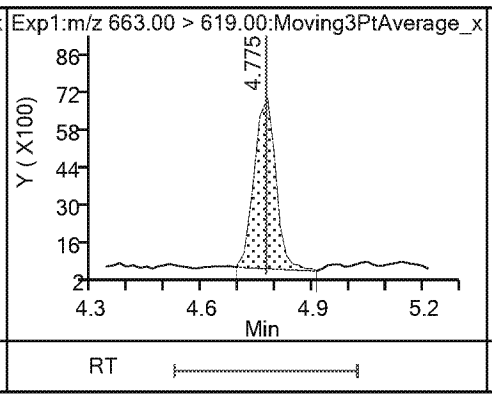
18 Perfluorododecanoic acid



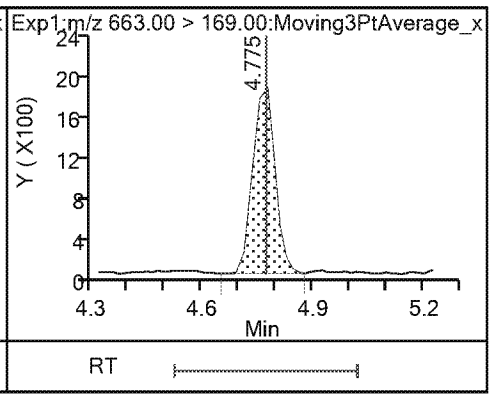
18 Perfluorododecanoic acid



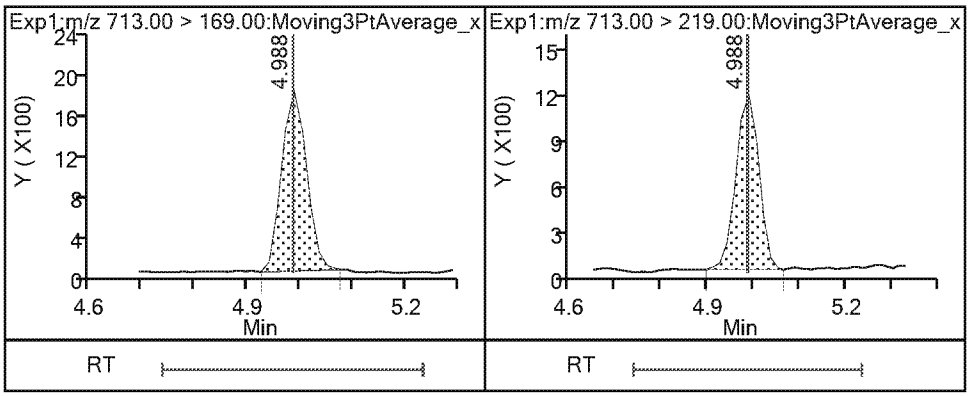
19 Perfluorotridecanoic acid



19 Perfluorotridecanoic acid



20 Perfluorotetradecanoic acid 20 Perfluorotetradecanoic acid



Eurofins TestAmerica, Sacramento

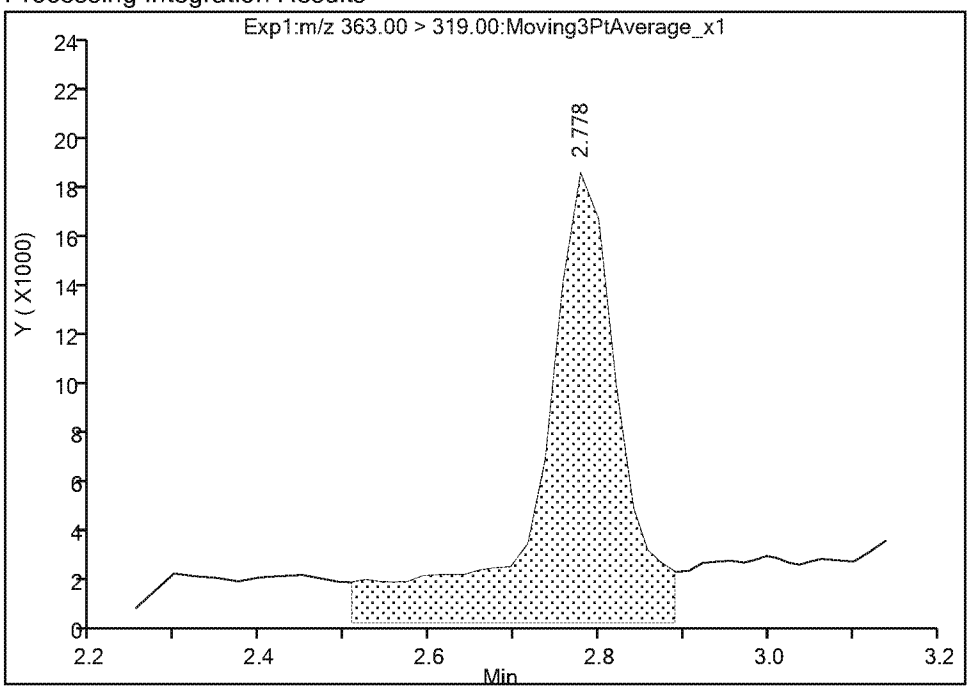
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_004.d				
Injection Date:	04-Apr-2019 15:23:44	Instrument ID:	A8_N		
Lims ID:	IC L2				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	2	Worklist Smp#:	3
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

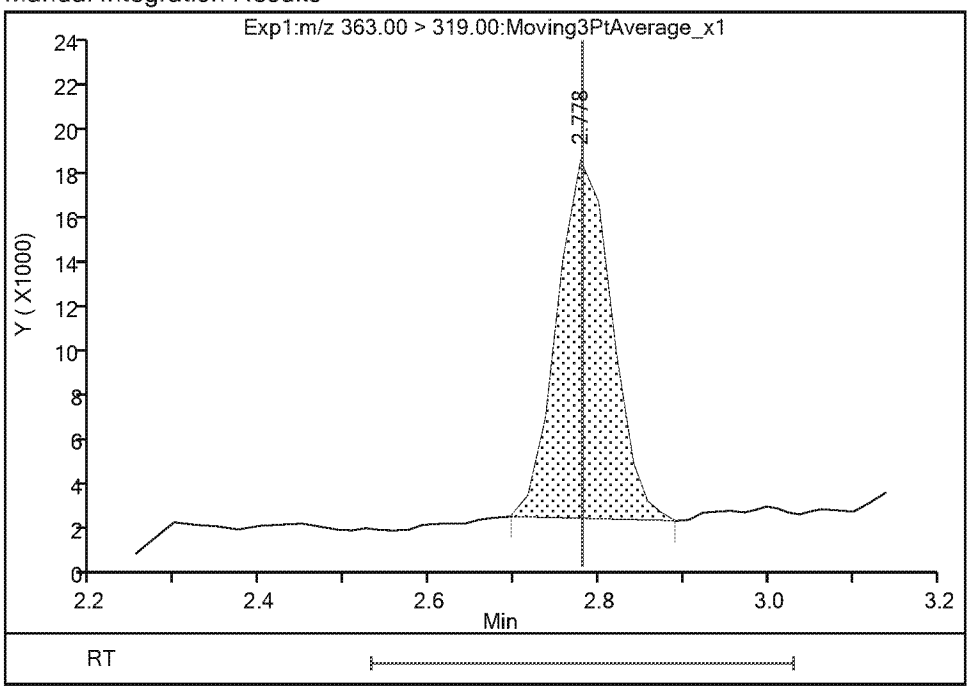
Processing Integration Results

RT: 2.78
Area: 118172
Amount: 0.074565
Amount Units: ng/ml



Manual Integration Results

RT: 2.78
Area: 71686
Amount: 0.049826
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 04-Apr-2019 16:25:14
Audit Action: Manually Integrated Audit Reason: Baseline

Eurofins TestAmerica, Sacramento

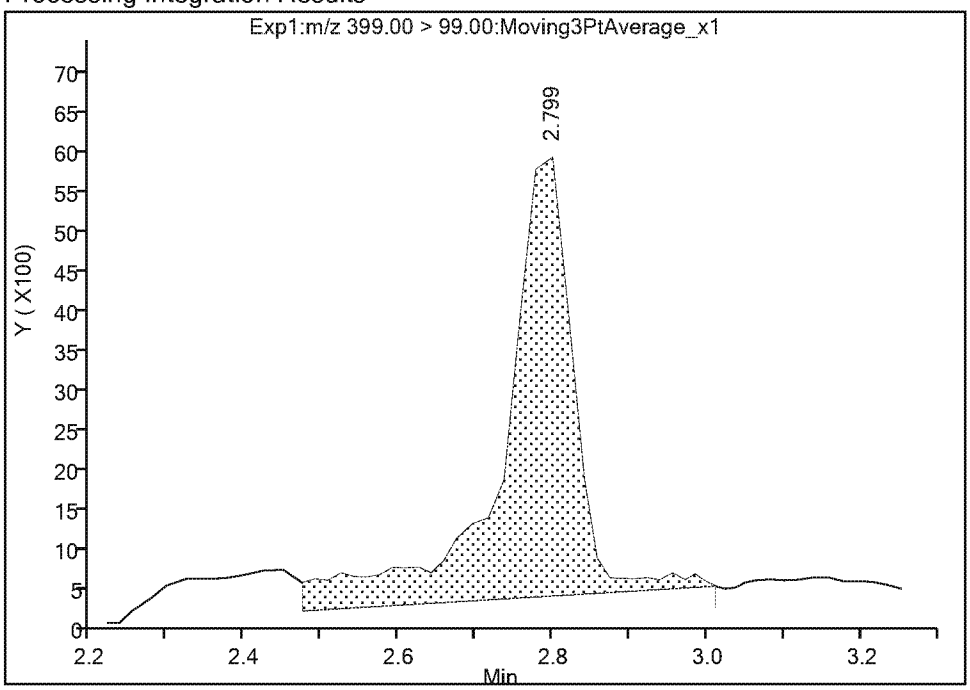
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_004.d				
Injection Date:	04-Apr-2019 15:23:44	Instrument ID:	A8_N		
Lims ID:	IC L2				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	2	Worklist Smp#:	3
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

3 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 2

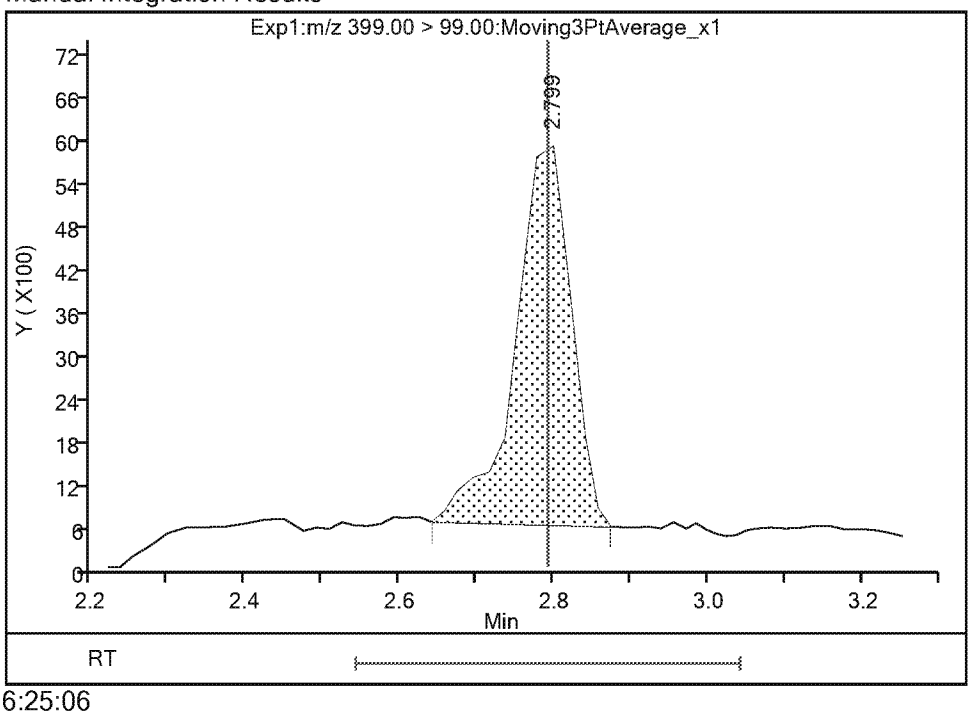
Processing Integration Results

RT: 2.80
Area: 35655
Amount: 0.042599
Amount Units: ng/ml



Manual Integration Results

RT: 2.80
Area: 26544
Amount: 0.042599
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 04-Apr-2019 16:25:06
Audit Action: Manually Integrated Audit Reason: Baseline

Eurofins TestAmerica, Sacramento

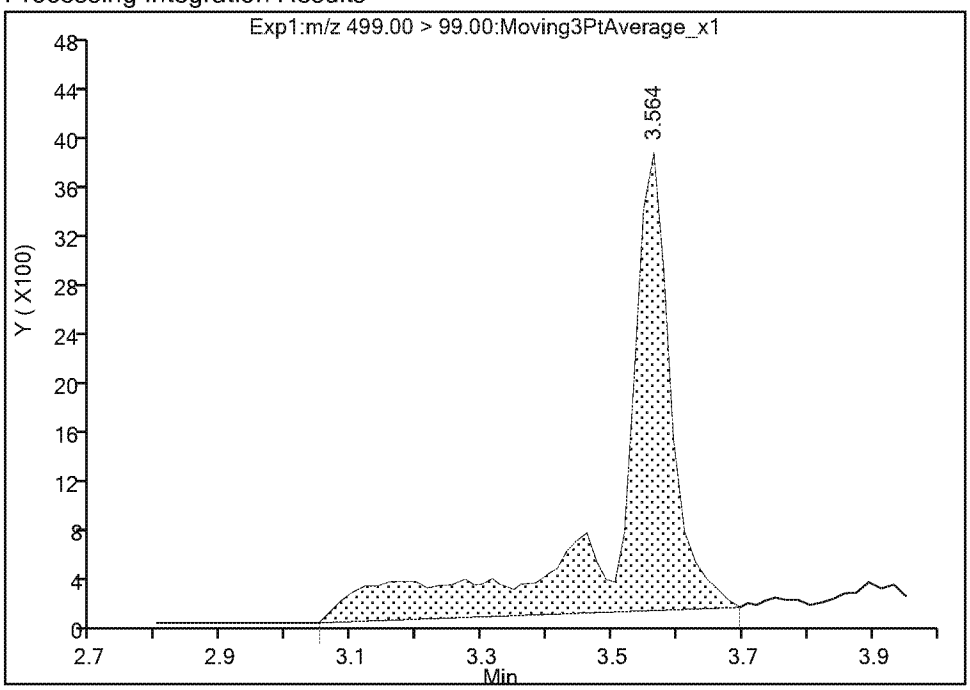
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_004.d				
Injection Date:	04-Apr-2019 15:23:44	Instrument ID:	A8_N		
Lims ID:	IC L2				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	2	Worklist Smp#:	3
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

8 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 2

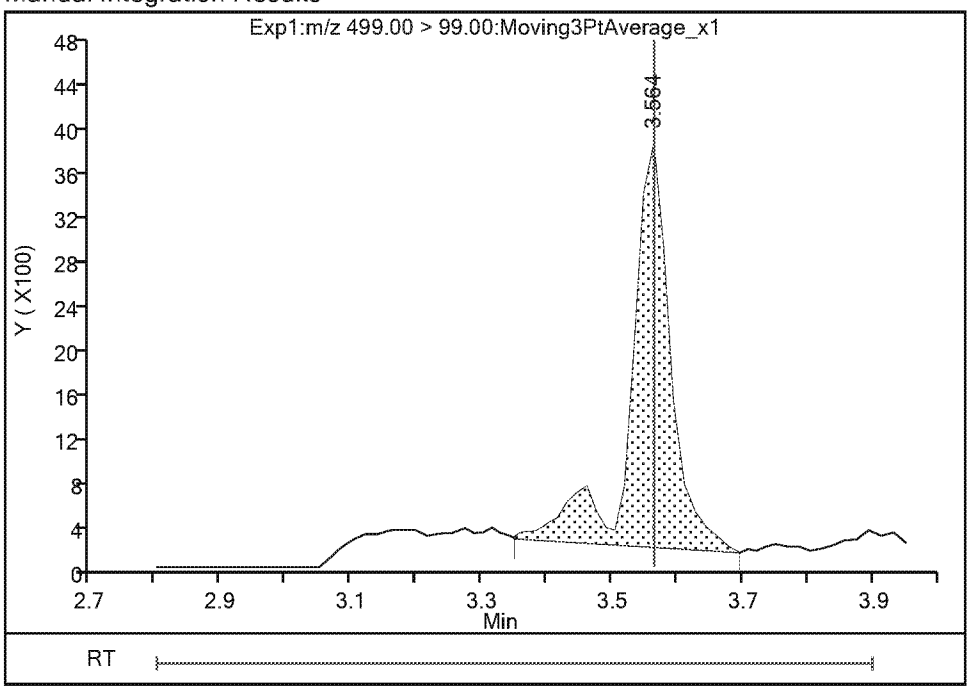
Processing Integration Results

RT: 3.56
Area: 21573
Amount: 0.046670
Amount Units: ng/ml



Manual Integration Results

RT: 3.56
Area: 15121
Amount: 0.046670
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 04-Apr-2019 16:25:27
Audit Action: Manually Integrated Audit Reason: Baseline

Eurofins TestAmerica, Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_005.d
Lims ID: IC L3
Client ID:
Sample Type: IC Calib Level: 3
Inject. Date: 04-Apr-2019 15:33:14 ALS Bottle#: 3 Worklist Smp#: 4
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: L3_537
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub13

Method: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 04-Apr-2019 16:55:34 Calib Date: 04-Apr-2019 16:11:08
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: CTX0339

First Level Reviewer: Ex. 4 CBI Date: 04-Apr-2019 16:26:49
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.992	1.992	0.0	1.000	365410	0.2105	Target=1.00	2183	
298.90 > 99.00	1.992	1.992	0.0	1.000	250250		1.46(0.00-0.00)	108	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.347	2.347	0.0	0.739	366230	0.2381	Target=1.00	94.7	
313.00 > 119.00	2.347	2.347	0.0	0.739	34034		10.76(0.00-0.00)	37.8	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.347	2.347	0.0	1.000	4031385	2.50		5923	
22 Perfluoro(2-propoxypropanoic) acid									
329.10 > 285.00	2.473	2.478	-0.005	1.000	92927	0.2486		48.4	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.473	2.481	-0.008	1.000	179792	2.48		849	
4 Perfluoroheptanoic acid									M
363.00 > 319.00	2.778	2.780	-0.002	1.000	356195	0.2432	Target=1.00	38.9	M
363.00 > 169.00	2.778	2.780	-0.002	1.000	146717		2.43(0.00-0.00)	351	
3 Perfluorohexanesulfonic acid									M
399.00 > 80.00	2.778	2.792	-0.014	1.000	451894	0.2145	Target=1.00	600	
399.00 > 99.00	2.778	2.792	-0.014	1.000	149945		3.01(0.00-0.00)	53.0	M
24 DONA									
377.00 > 251.00	2.819	2.825	-0.006	1.000	921694	0.2310	Target=1.00	1691	
377.00 > 85.00	2.819	2.825	-0.006	1.000	571044		1.61(0.00-0.00)	86149	
* 5 13C2 PFOA									
415.00 > 370.00	3.177	3.186	-0.009		3455285	2.50		8922	
6 Perfluorooctanoic acid									
413.00 > 369.00	3.177	3.186	-0.009	1.000	348416	0.2485	Target=1.00	44.4	
413.00 > 169.00	3.177	3.186	-0.009	1.000	196093		1.78(0.00-0.00)	236	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
* 7 13C4 PFOS									
503.00 > 80.00	3.563	3.562	0.001		3513279	2.39		8608	
8 Perfluorooctanesulfonic acid									M
499.00 > 80.00	3.563	3.564	-0.001	1.000	334429	0.2154	Target=1.00	842	
499.00 > 99.00	3.563	3.564	-0.001	1.000	71669		4.67(0.00-0.00)	60.5	M
9 Perfluorononanoic acid									
463.00 > 419.00	3.578	3.577	0.001	1.000	249795	0.2446	Target=1.00	158	
463.00 > 169.00	3.563	3.577	-0.014	0.996	65860		3.79(0.00-0.00)	526	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.750	3.755	-0.005	1.000	561352	0.2247		1215	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.911	3.915	-0.004	1.000	189332	0.2342	Target=1.00	76.8	
513.00 > 169.00	3.911	3.915	-0.004	1.000	40144		4.72(0.00-0.00)	125	
$ 10 13C2 PFDA									
515.00 > 470.00	3.930	3.931	-0.001	1.000	2139876	2.49		8623	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.092	4.091	0.001		521234	2.50		5287	
15 N-methylperfluorooctanesulfonamido									
570.00 > 419.00	4.092	4.091	0.001	1.000	46521	0.2383		612	
17 Perfluoroundecanoic acid									
563.00 > 519.00	4.236	4.236	0.0	1.000	150059	0.2442	Target=1.00	67.0	
563.00 > 169.00	4.236	4.236	0.0	1.000	30703		4.89(0.00-0.00)	379	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.236	4.243	-0.007	1.035	544536	2.56		309	
16 N-ethylperfluorooctanesulfonamidoa									
584.00 > 419.00	4.252	4.252	0.0	1.004	46195	0.2441		113	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.377	4.369	0.008	1.000	709990	0.2267		4131	
18 Perfluorododecanoic acid									
613.00 > 569.00	4.510	4.508	0.002	1.000	149335	0.2425	Target=1.00	101	
613.00 > 169.00	4.510	4.508	0.002	1.000	41671		3.58(0.00-0.00)	539	
19 Perfluorotridecanoic acid									
663.00 > 619.00	4.779	4.772	0.007	1.000	113579	0.2381	Target=1.00	50.8	
663.00 > 169.00	4.779	4.772	0.007	1.000	38818		2.93(0.00-0.00)	542	
20 Perfluorotetradecanoic acid									
713.00 > 169.00	4.991	4.985	0.006	1.000	30288	0.2469	Target=1.00	509	
713.00 > 219.00	4.976	4.985	-0.009	0.997	21732		1.39(0.00-0.00)	215	

QC Flag Legend

Review Flags

M - Manually Integrated

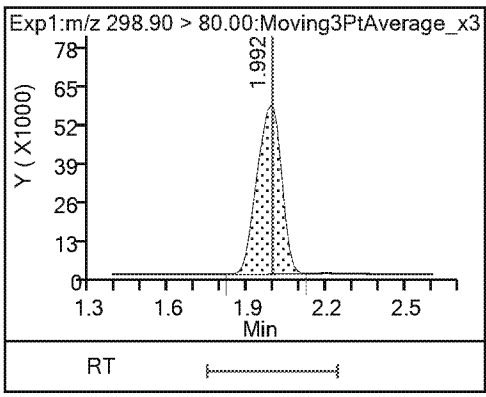
Reagents:

LC537_NC_L3_00004 Amount Added: 1.00 Units: mL

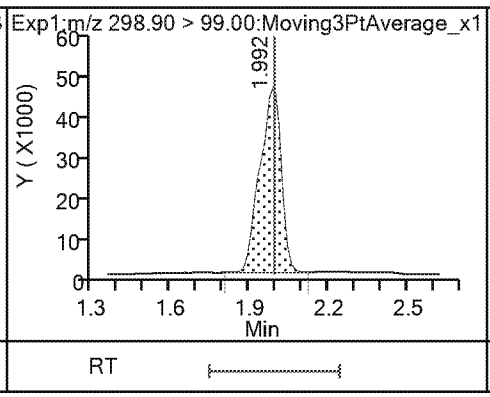
Eurofins TestAmerica, Sacramento

Data File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_005.d
Injection Date: 04-Apr-2019 15:33:14 Instrument ID: A8_N
Lims ID: IC L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 4
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

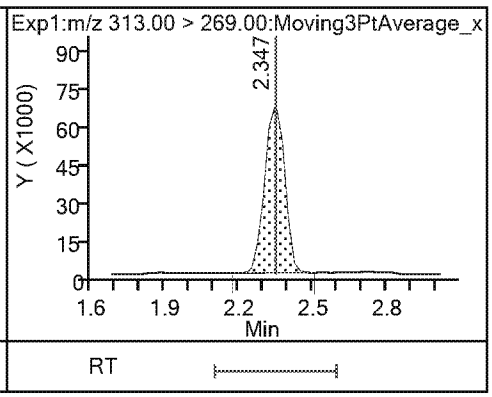
1 Perfluorobutanesulfonic acid



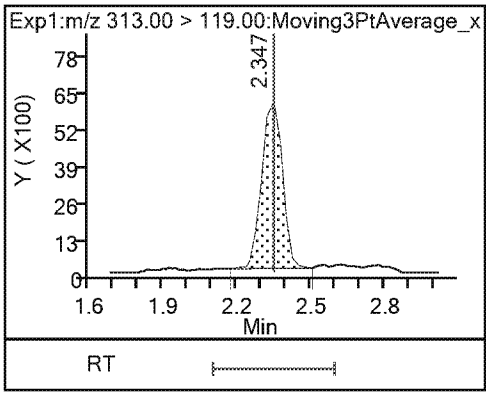
1 Perfluorobutanesulfonic acid



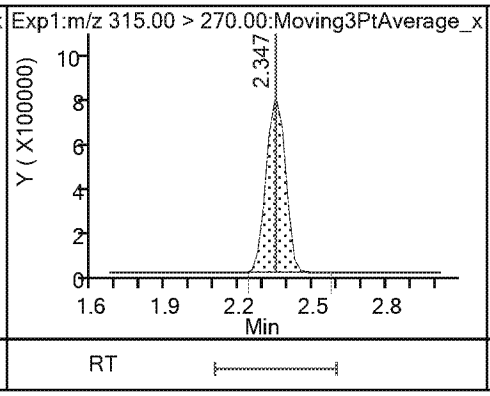
13 Perfluorohexanoic acid



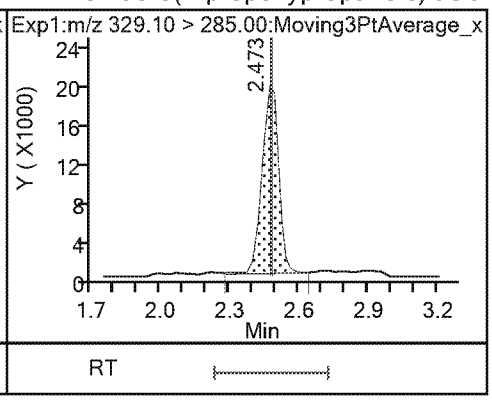
13 Perfluorohexanoic acid



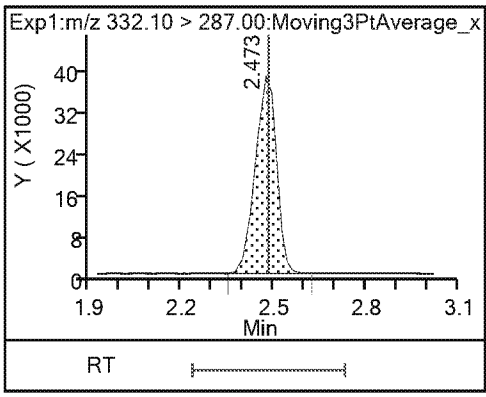
$ 2 13C2 PFHxA



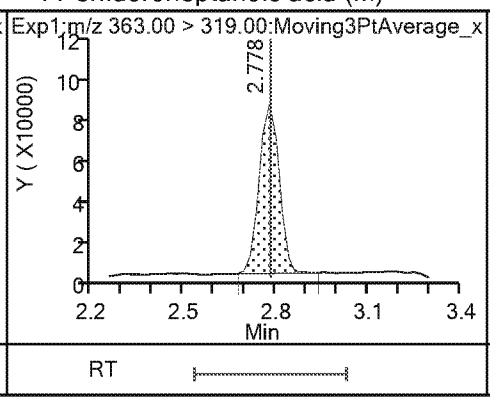
22 Perfluoro(2-propoxypropanoic) acid



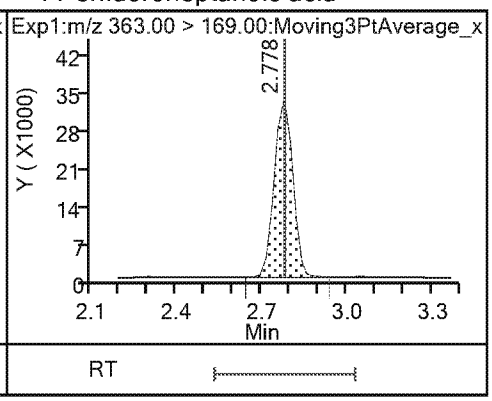
$ 25 13C3 HFPO-DA



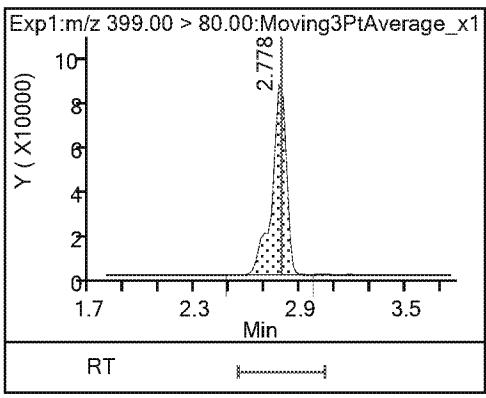
4 Perfluoroheptanoic acid (M)



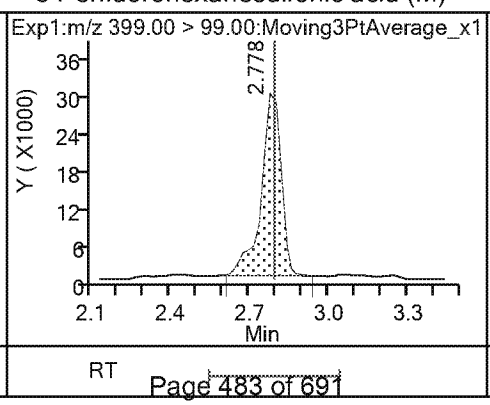
4 Perfluoroheptanoic acid



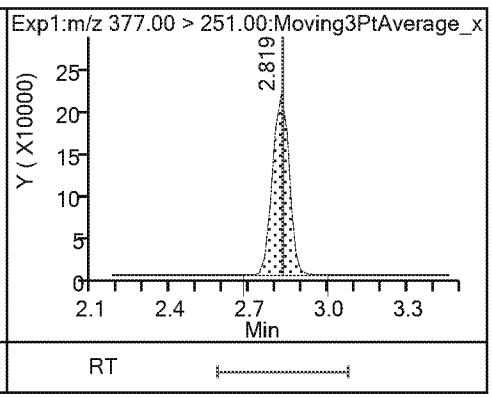
3 Perfluorohexanesulfonic acid



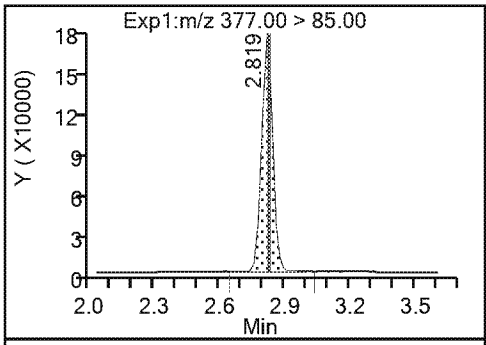
3 Perfluorohexanesulfonic acid (M)



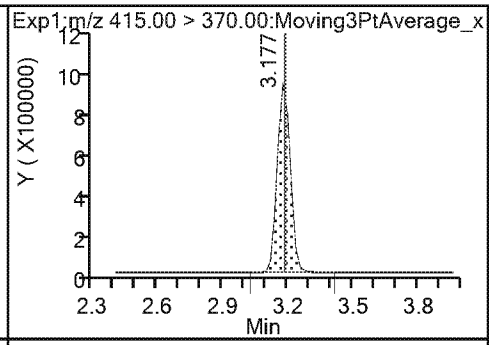
24 DONA



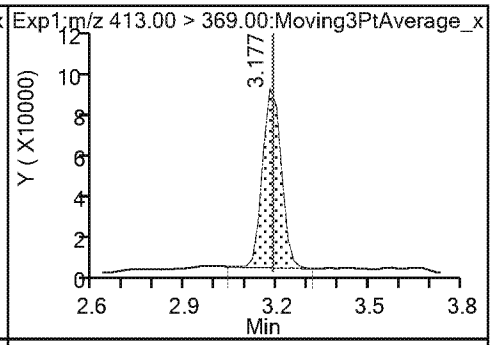
24 DONA



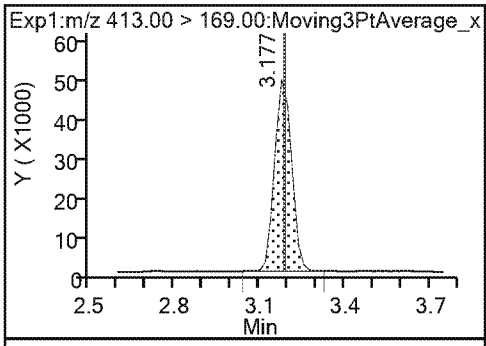
* 5 13C2 PFOA



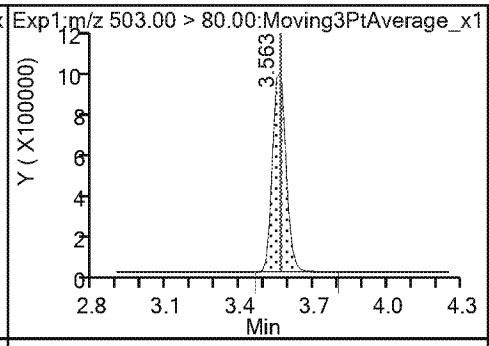
6 Perfluorooctanoic acid



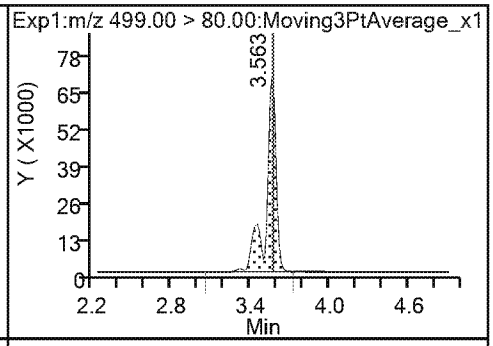
6 Perfluorooctanoic acid



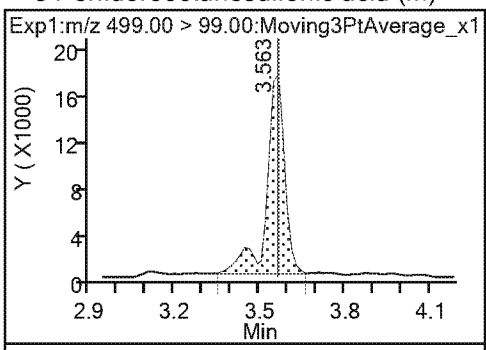
* 7 13C4 PFOS



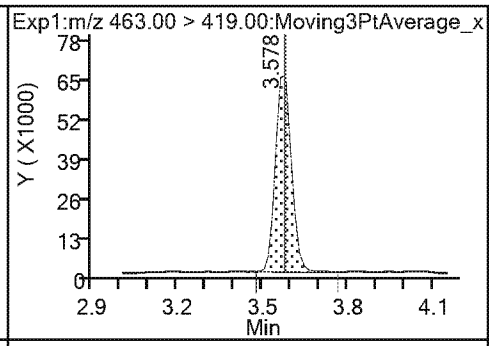
8 Perfluorooctanesulfonic acid



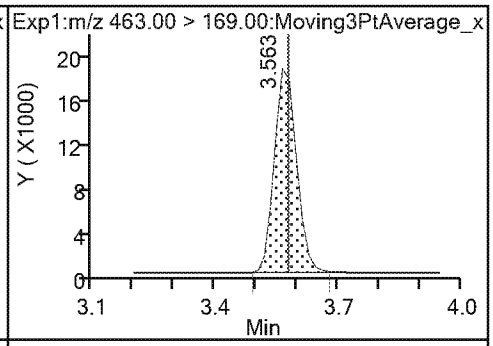
8 Perfluorooctanesulfonic acid (M)



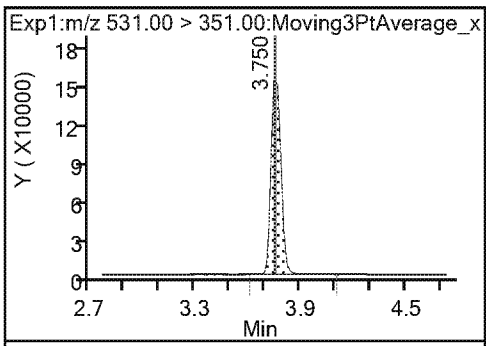
9 Perfluorononanoic acid



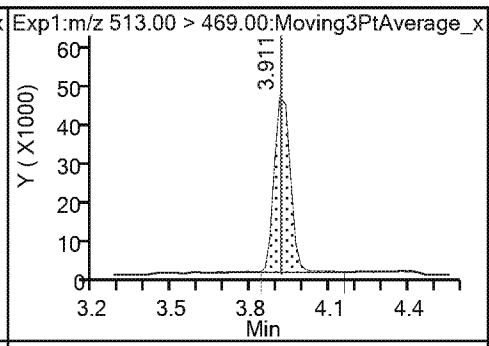
9 Perfluorononanoic acid



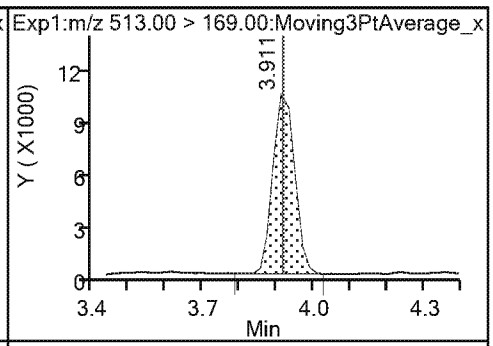
23 9-Chlorohexadecafluoro-3-oxanonane



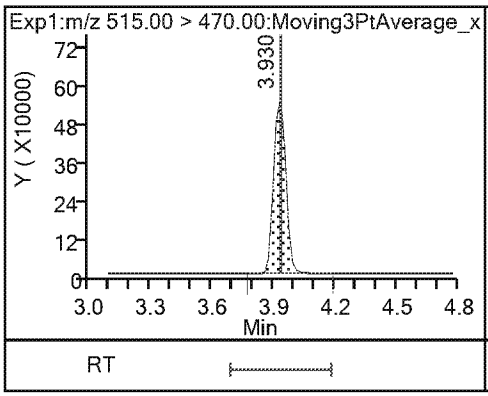
14 Perfluorodecanoic acid



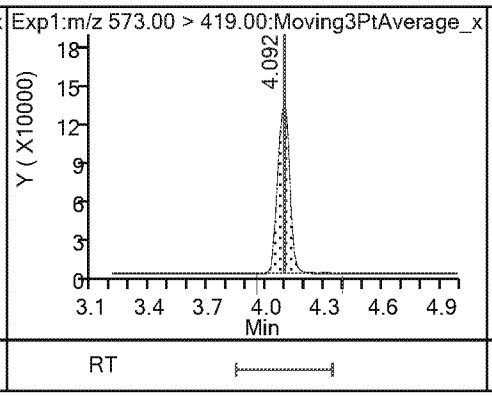
14 Perfluorodecanoic acid



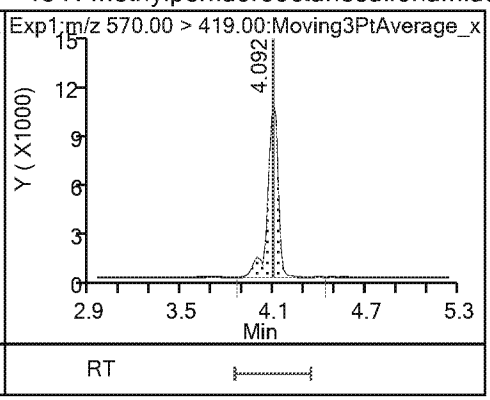
$ 10 13C2 PFDA



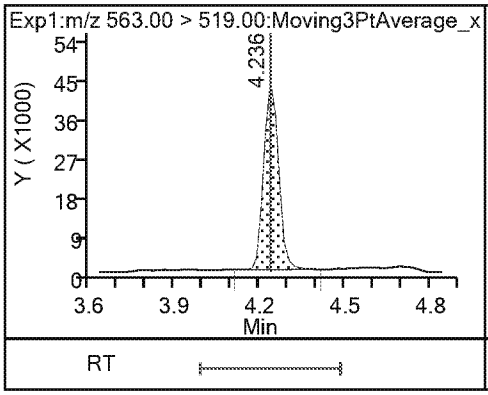
* 12 d3-NMeFOSAA



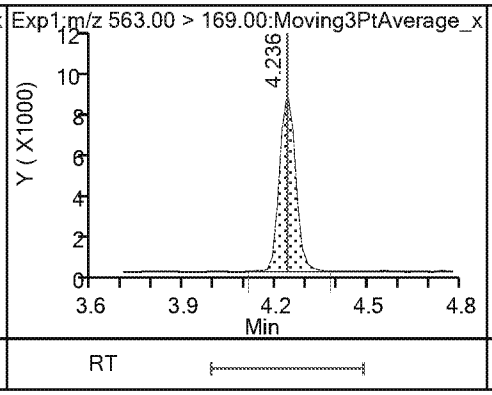
15 N-methylperfluorooctanesulfonamido



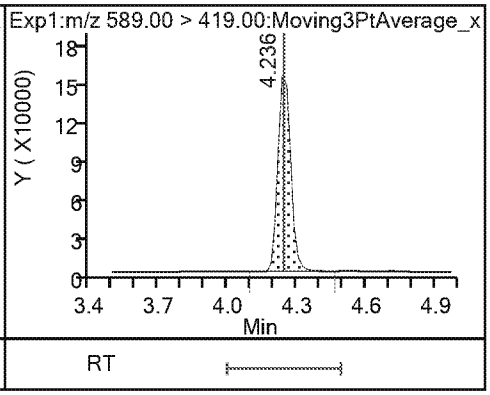
17 Perfluoroundecanoic acid



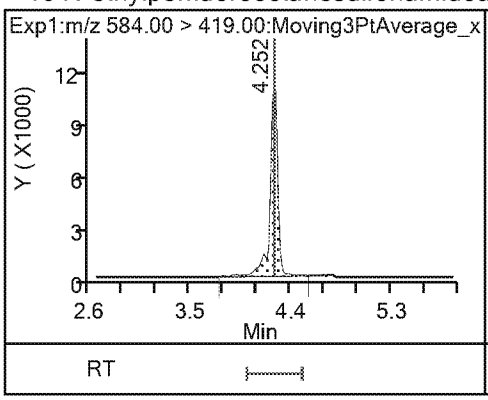
17 Perfluoroundecanoic acid



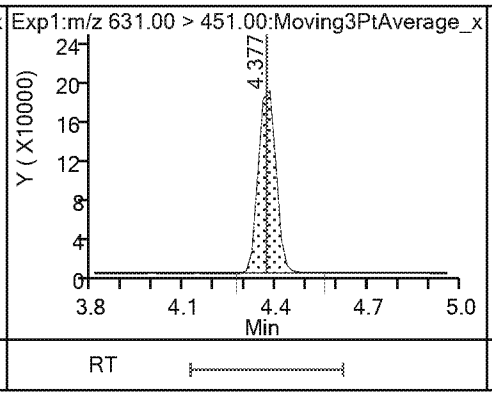
$ 11 d5-NEtFOSAA



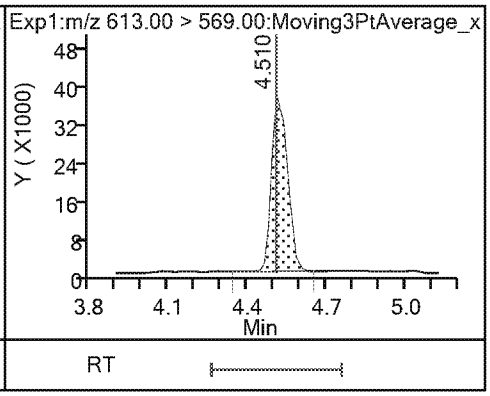
16 N-ethylperfluorooctanesulfonamidoa



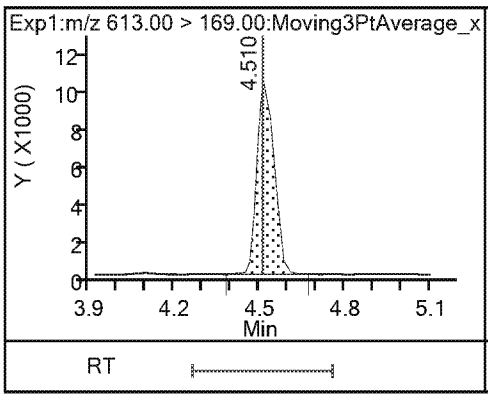
21 11-Chloroeicosafluoro-3-oxaundecan



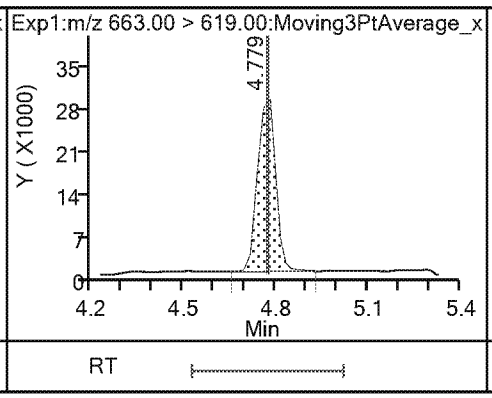
18 Perfluorododecanoic acid



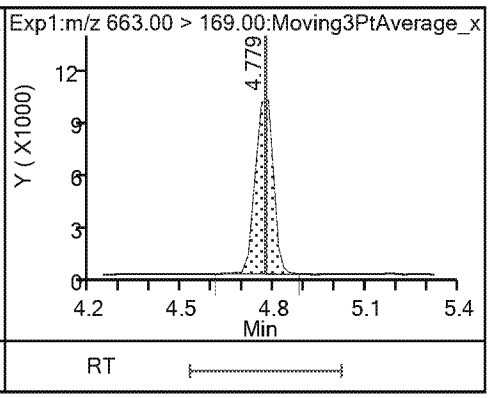
18 Perfluorododecanoic acid



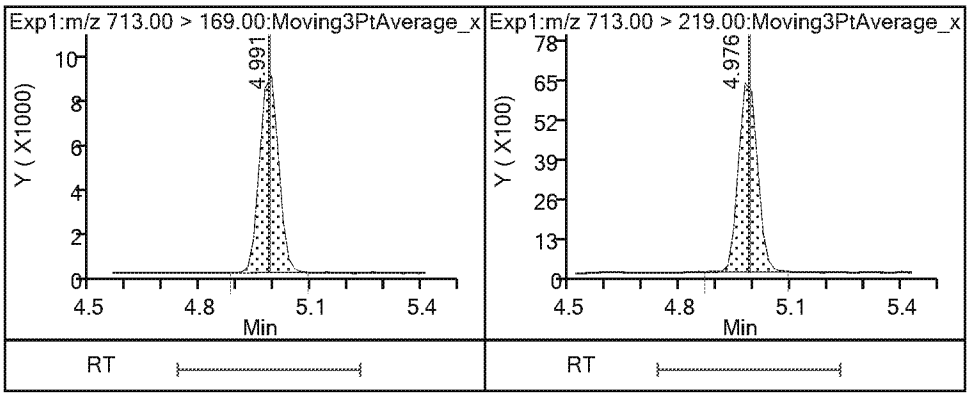
19 Perfluorotridecanoic acid



19 Perfluorotridecanoic acid



20 Perfluorotetradecanoic acid 20 Perfluorotetradecanoic acid



Eurofins TestAmerica, Sacramento

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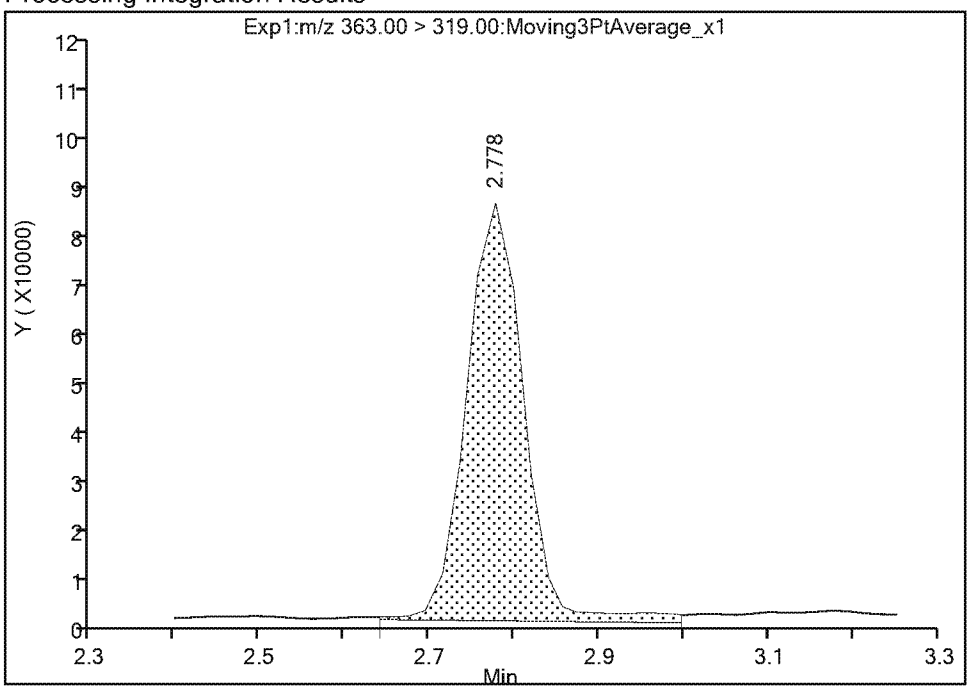
Lims ID:	IC L3				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	3	Worklist Smp#:	4
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

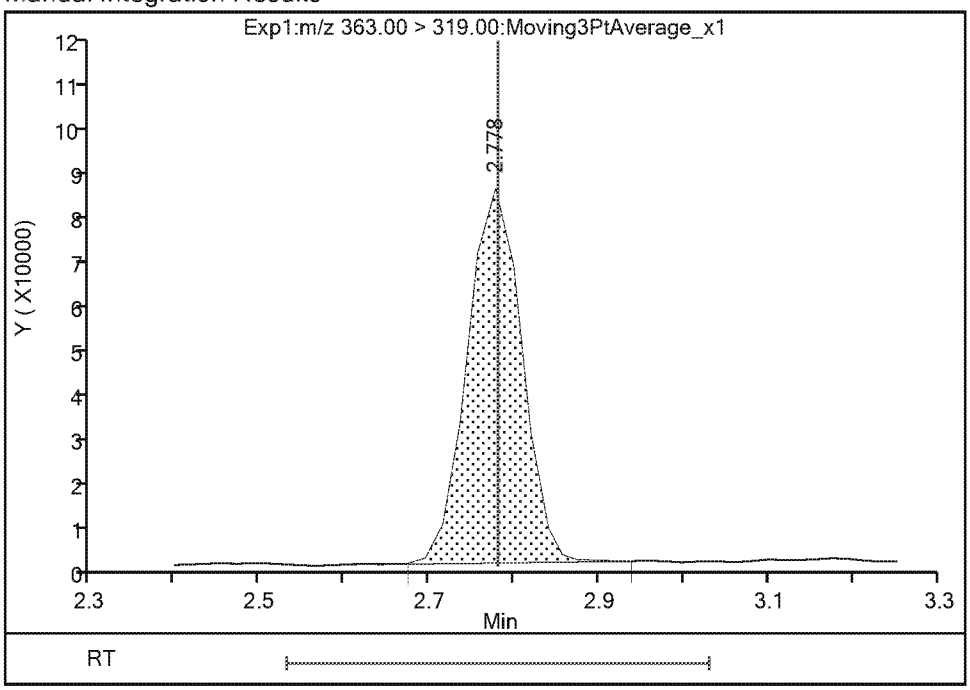
Processing Integration Results

RT: 2.78
Area: 379849
Amount: 0.256943
Amount Units: ng/ml



Manual Integration Results

RT: 2.78
Area: 356195
Amount: 0.243166
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 04-Apr-2019 16:26:15
Audit Action: Manually Integrated Audit Reason: Baseline

Eurofins TestAmerica, Sacramento

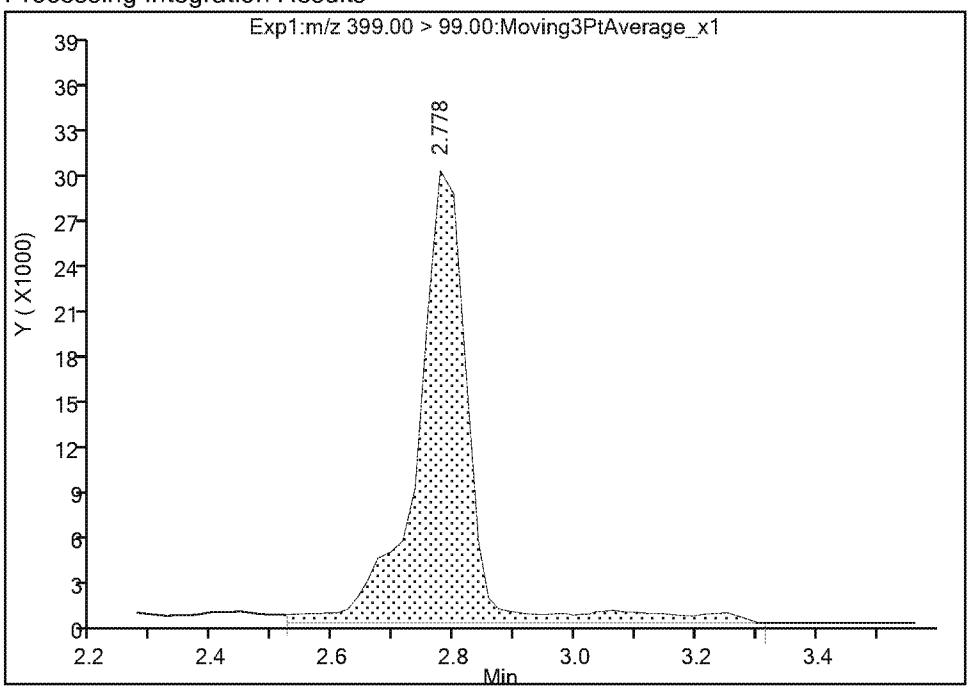
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_005.d				
Injection Date:	04-Apr-2019 15:33:14	Instrument ID:	A8_N		
Lims ID:	IC L3				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	3	Worklist Smp#:	4
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

3 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 2

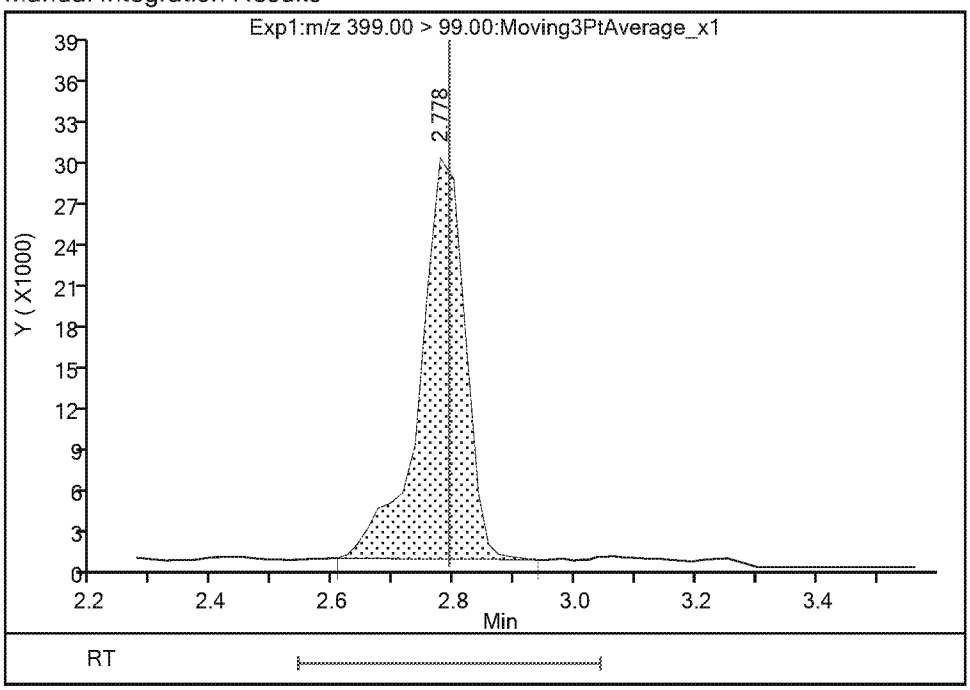
Processing Integration Results

RT: 2.78
Area: 175830
Amount: 0.214532
Amount Units: ng/ml



Manual Integration Results

RT: 2.78
Area: 149945
Amount: 0.214532
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 04-Apr-2019 16:26:06
Audit Action: Manually Integrated Audit Reason: Baseline

Eurofins TestAmerica, Sacramento

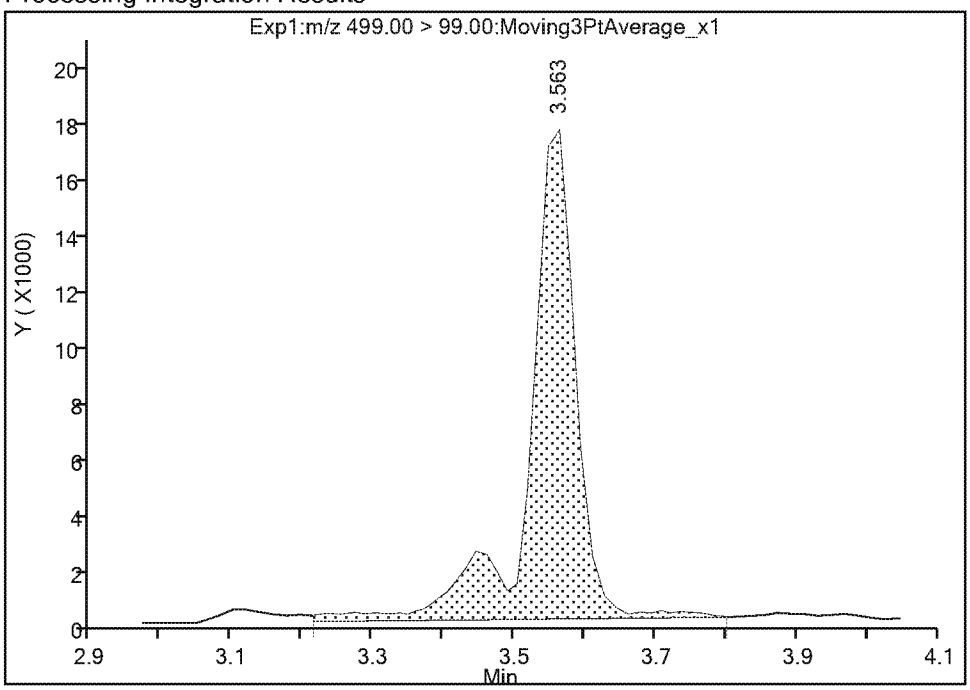
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_005.d				
Injection Date:	04-Apr-2019 15:33:14	Instrument ID:	A8_N		
Lims ID:	IC L3				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	3	Worklist Smp#:	4
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

8 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 2

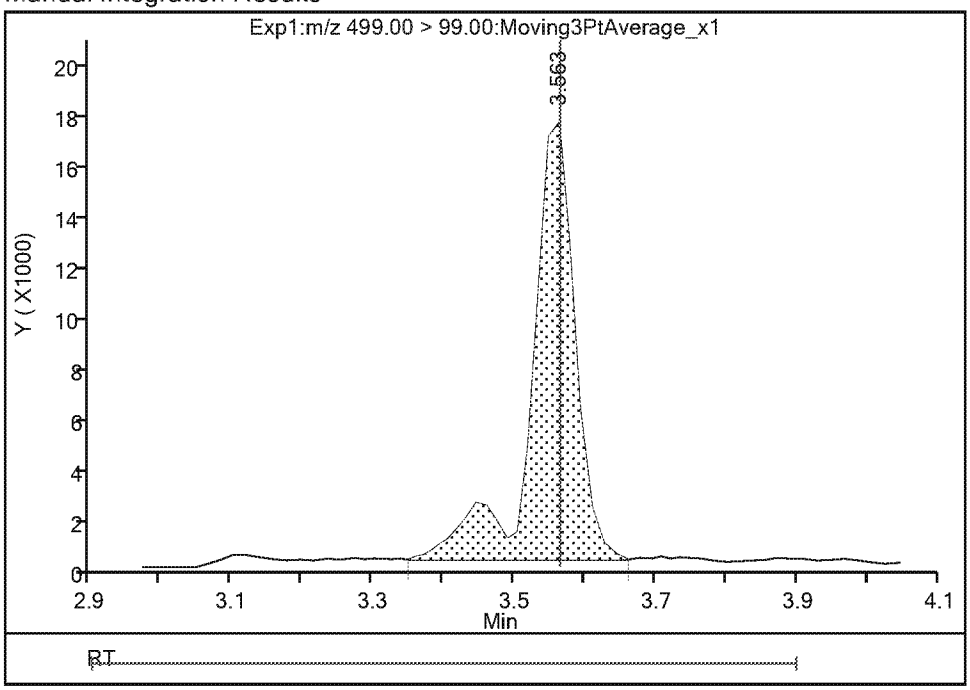
Processing Integration Results

RT: 3.56
Area: 77363
Amount: 0.215371
Amount Units: ng/ml



Manual Integration Results

RT: 3.56
Area: 71669
Amount: 0.215371
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 04-Apr-2019 16:26:28
Audit Action: Manually Integrated Audit Reason: Baseline

Eurofins TestAmerica, Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_006.d
Lims ID: IC L4
Client ID:
Sample Type: ICISAV Calib Level: 4
Inject. Date: 04-Apr-2019 15:42:43 ALS Bottle#: 4 Worklist Smp#: 5
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: L4_537
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub13

Method: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 04-Apr-2019 16:55:36 Calib Date: 04-Apr-2019 16:11:08
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: CTX0339

First Level Reviewer: Ex. 4 CBI Date: 04-Apr-2019 16:28:58
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.976	1.992	-0.016	1.000	1363203	0.8835	Target=1.00	7845	
298.90 > 99.00	1.992	1.992	0.0	1.008	933248		1.46(0.00-0.00)	403	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.347	2.347	0.0	0.739	1365572	0.99	Target=1.00	348	
313.00 > 119.00	2.347	2.347	0.0	0.739	127087		10.75(0.00-0.00)	153	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.347	2.347	0.0	1.000	3679673	2.56		5904	
22 Perfluoro(2-propoxypropanoic) acid									
329.10 > 285.00	2.473	2.478	-0.005	1.000	321670	0.9643		175	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.473	2.481	-0.008	1.000	176033	2.73		840	
4 Perfluoroheptanoic acid									
363.00 > 319.00	2.778	2.780	-0.002	1.000	1382413	1.06	Target=1.00	145	
363.00 > 169.00	2.778	2.780	-0.002	1.000	556614		2.48(0.00-0.00)	1044	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	2.778	2.792	-0.014	1.000	1678854	0.8969	Target=1.00	43948	
399.00 > 99.00	2.778	2.792	-0.014	1.000	585566		2.87(0.00-0.00)	203	
24 DONA									
377.00 > 251.00	2.819	2.825	-0.006	1.000	3537322	0.99	Target=1.00	6096	
377.00 > 85.00	2.819	2.825	-0.006	1.000	2123134		1.67(0.00-0.00)	225500	
* 5 13C2 PFOA									
415.00 > 370.00	3.177	3.186	-0.009		3083165	2.50		7679	
6 Perfluorooctanoic acid									
413.00 > 369.00	3.177	3.186	-0.009	1.000	1283975	1.03	Target=1.00	152	
413.00 > 169.00	3.177	3.186	-0.009	1.000	720080		1.78(0.00-0.00)	999	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
* 7 13C4 PFOS									
503.00 > 80.00	3.550	3.562	-0.012		3122011	2.39		12969	
8 Perfluorooctanesulfonic acid									
499.00 > 80.00	3.565	3.564	0.001	1.004	1251855	0.9072	Target=1.00	5434	
499.00 > 99.00	3.550	3.564	-0.014	1.000	265687		4.71(0.00-0.00)	263	
9 Perfluorononanoic acid									
463.00 > 419.00	3.565	3.577	-0.012	1.000	929844	1.02	Target=1.00	547	
463.00 > 169.00	3.565	3.577	-0.012	1.000	249000		3.73(0.00-0.00)	1720	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.752	3.755	-0.003	1.000	2112907	0.9517		4597	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.915	3.915	0.0	1.000	727647	1.01	Target=1.00	281	
513.00 > 169.00	3.915	3.915	0.0	1.000	146207		4.98(0.00-0.00)	542	
$ 10 13C2 PFDA									
515.00 > 470.00	3.915	3.931	-0.016	1.000	1919819	2.51		7649	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.090	4.091	-0.001		480279	2.50		4393	
15 N-methylperfluorooctanesulfonamido									
570.00 > 419.00	4.090	4.091	-0.001	1.000	178574	0.99		1829	
17 Perfluoroundecanoic acid									
563.00 > 519.00	4.234	4.236	-0.002	1.000	542352	0.9893	Target=1.00	263	
563.00 > 169.00	4.234	4.236	-0.002	1.000	114266		4.75(0.00-0.00)	1392	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.234	4.243	-0.009	1.035	490987	2.50		292	
16 N-ethylperfluorooctanesulfonamidoa									
584.00 > 419.00	4.250	4.252	-0.002	1.004	157284	0.9018		363	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.356	4.369	-0.013	1.000	2602188	0.9350		6818	
18 Perfluorododecanoic acid									
613.00 > 569.00	4.508	4.508	0.0	1.000	544869	0.99	Target=1.00	391	
613.00 > 169.00	4.508	4.508	0.0	1.000	154449		3.53(0.00-0.00)	2003	
19 Perfluorotridecanoic acid									
663.00 > 619.00	4.757	4.772	-0.015	1.000	408471	0.9596	Target=1.00	156	
663.00 > 169.00	4.757	4.772	-0.015	1.000	145846		2.80(0.00-0.00)	1270	
20 Perfluorotetradecanoic acid									
713.00 > 169.00	4.973	4.985	-0.012	1.000	108220	0.9885	Target=1.00	1296	
713.00 > 219.00	4.973	4.985	-0.012	1.000	77630		1.39(0.00-0.00)	774	

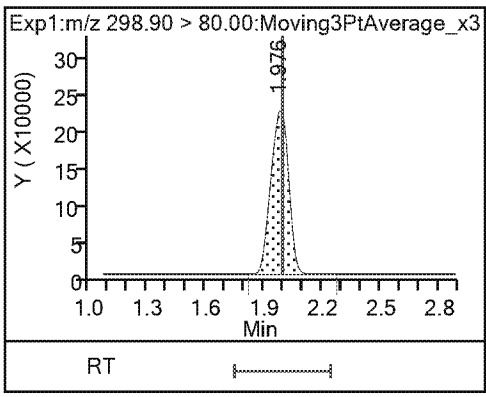
Reagents:

LC537_NC_L4_00003 Amount Added: 1.00 Units: mL

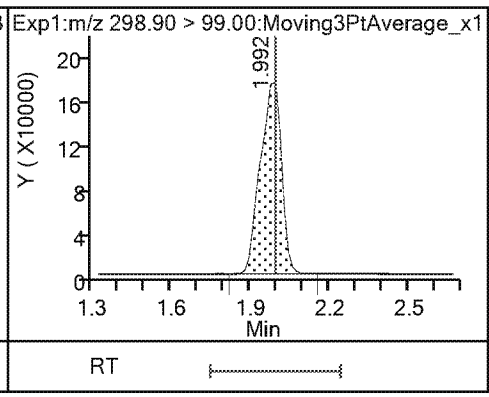
Eurofins TestAmerica, Sacramento

Data File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_006.d
Injection Date: 04-Apr-2019 15:42:43 Instrument ID: A8_N
Lims ID: IC L4
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 5
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

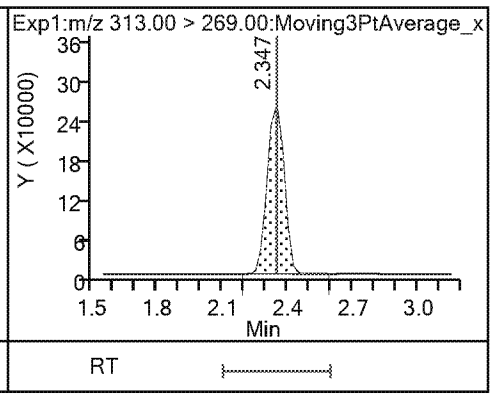
1 Perfluorobutanesulfonic acid



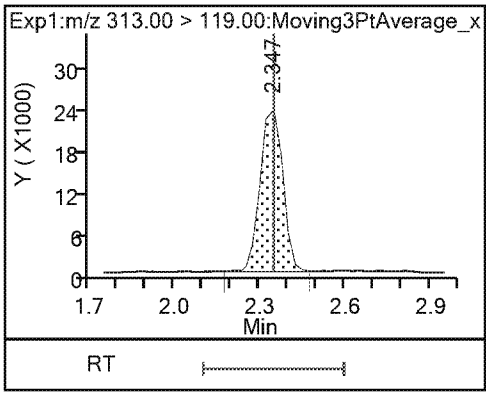
1 Perfluorobutanesulfonic acid



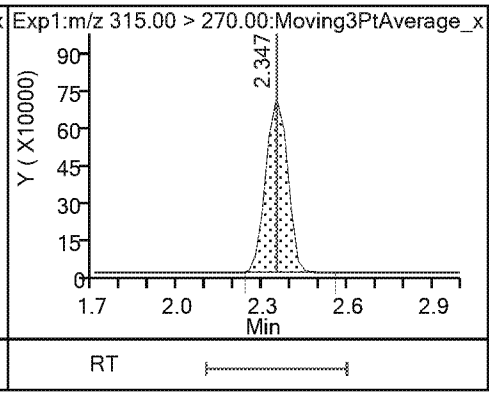
13 Perfluorohexanoic acid



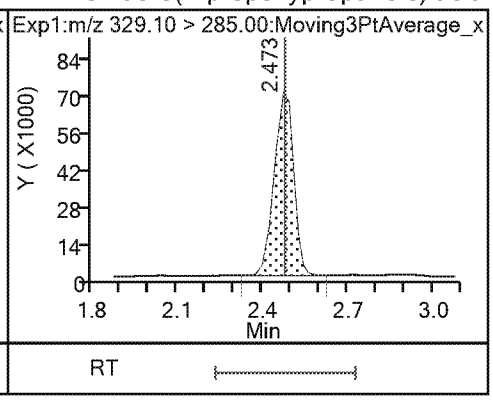
13 Perfluorohexanoic acid



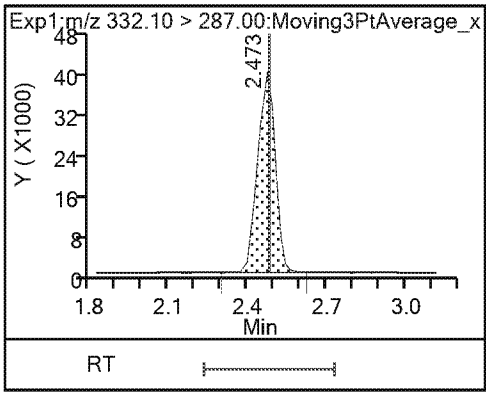
$ 2 13C2 PFHxA



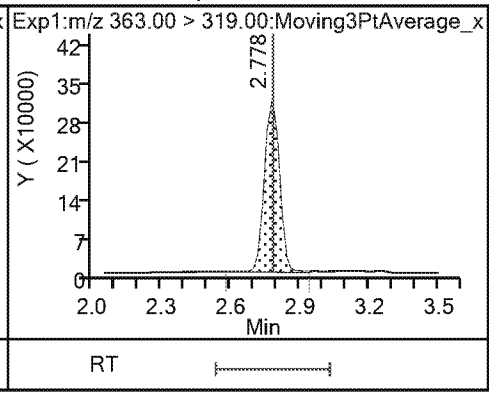
22 Perfluoro(2-propoxypropanoic) acid



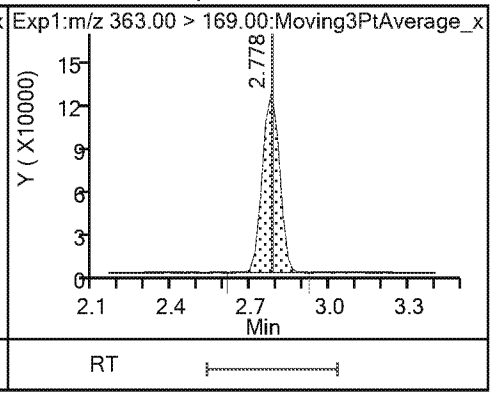
$ 25 13C3 HFPO-DA



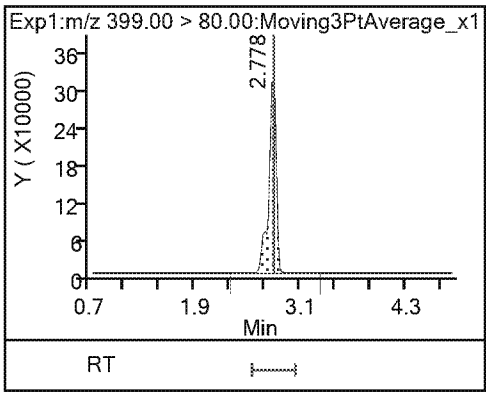
4 Perfluoroheptanoic acid



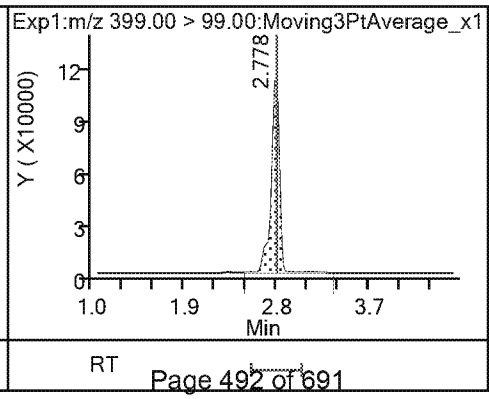
4 Perfluoroheptanoic acid



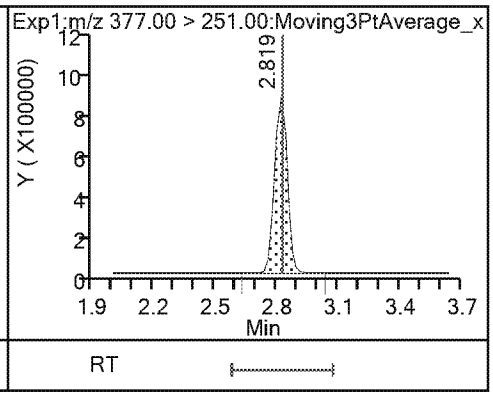
3 Perfluorohexanesulfonic acid



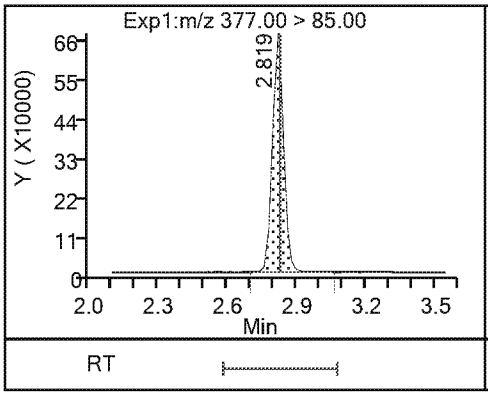
3 Perfluorohexanesulfonic acid



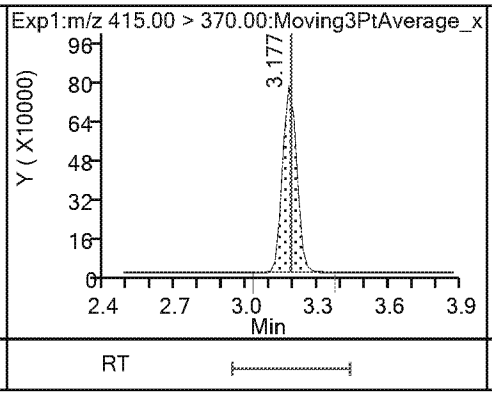
24 DONA



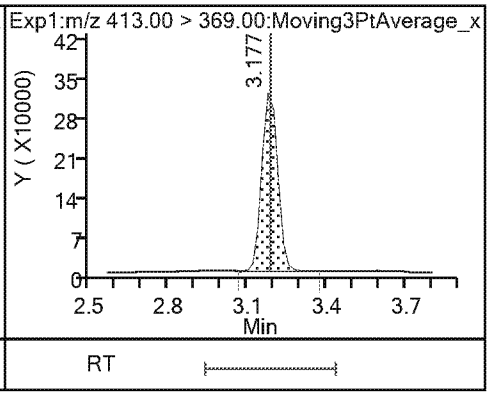
24 DONA



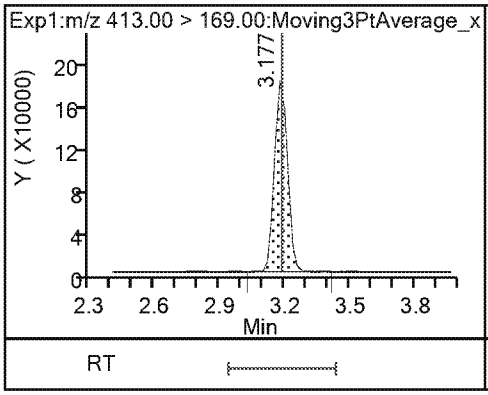
* 5 13C2 PFOA



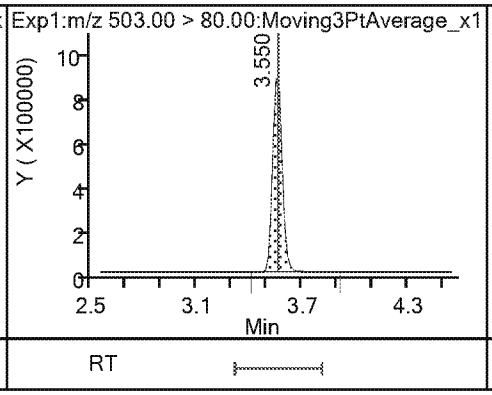
6 Perfluorooctanoic acid



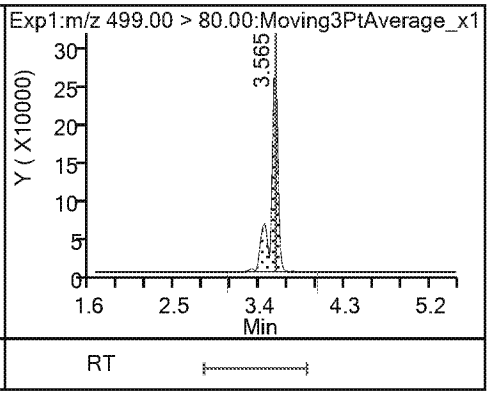
6 Perfluorooctanoic acid



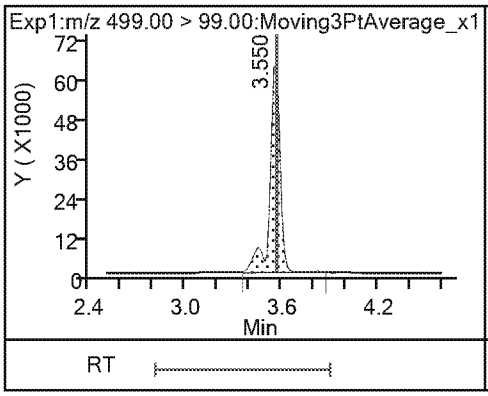
* 7 13C4 PFOS



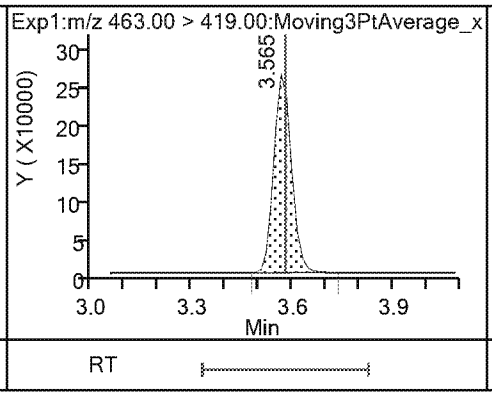
8 Perfluorooctanesulfonic acid



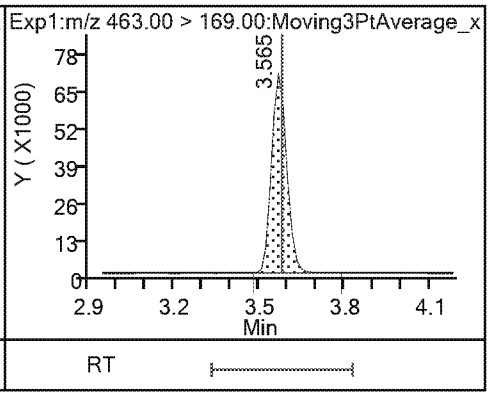
8 Perfluorooctanesulfonic acid



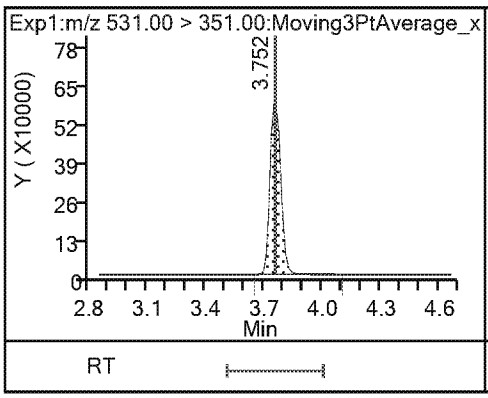
9 Perfluorononanoic acid



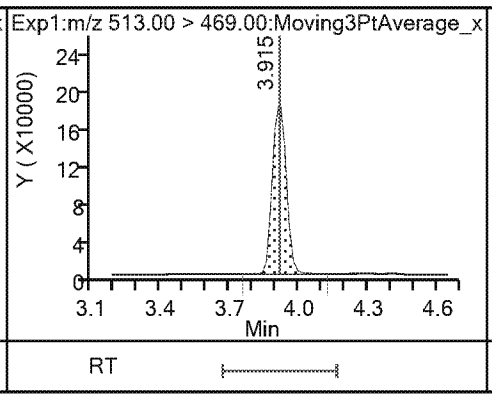
9 Perfluorononanoic acid



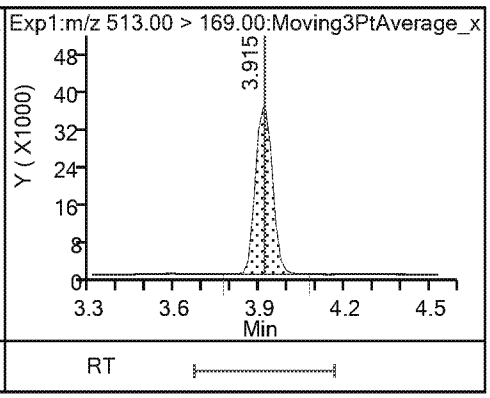
23 9-Chlorohexadecafluoro-3-oxanonane



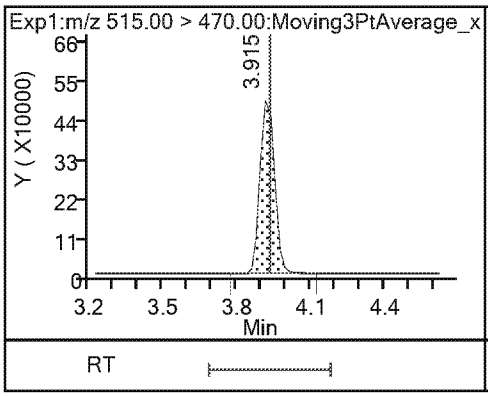
14 Perfluorodecanoic acid



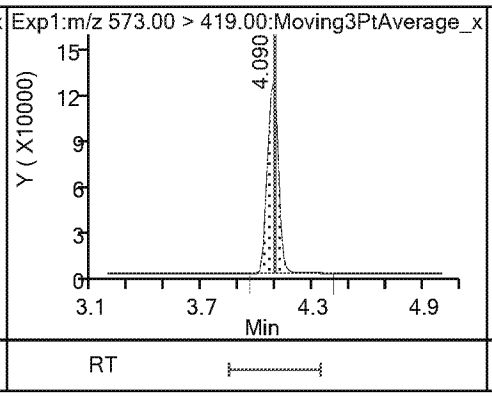
14 Perfluorodecanoic acid



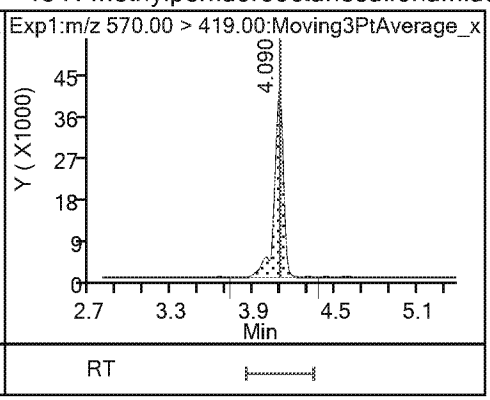
$ 10 13C2 PFDA



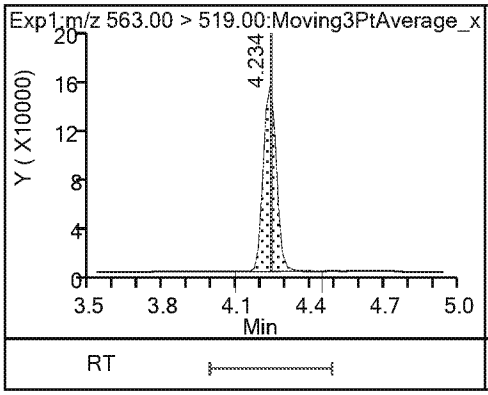
* 12 d3-NMeFOSAA



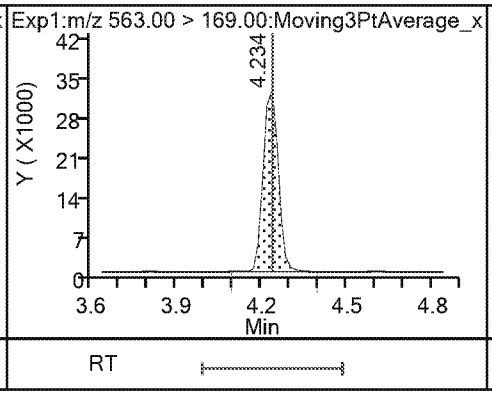
15 N-methylperfluorooctanesulfonamido



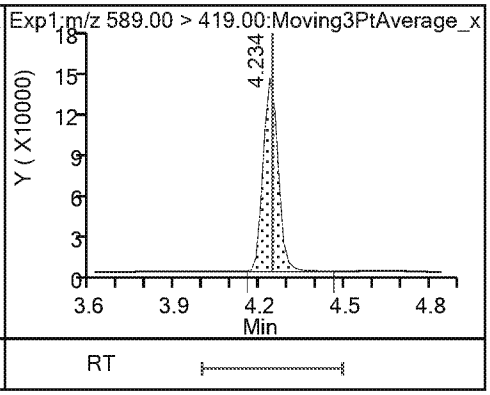
17 Perfluoroundecanoic acid



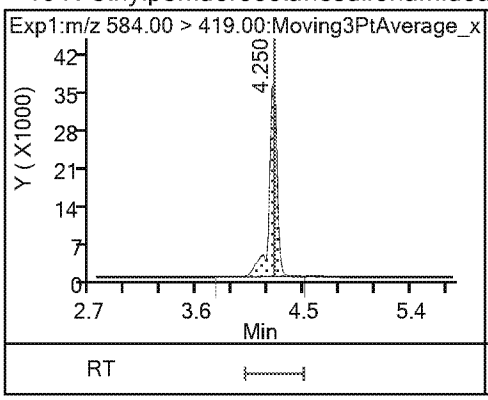
17 Perfluoroundecanoic acid



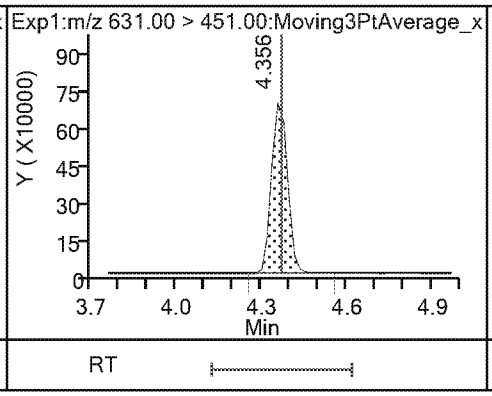
$ 11 d5-NEtFOSAA



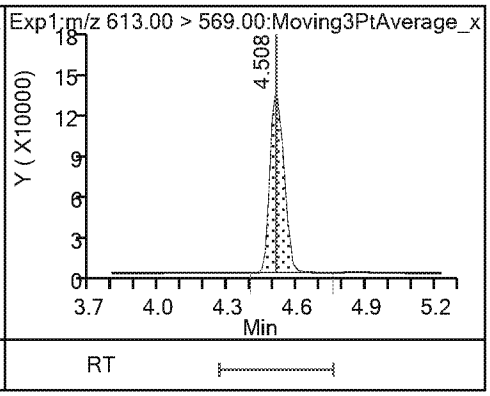
16 N-ethylperfluorooctanesulfonamidoa



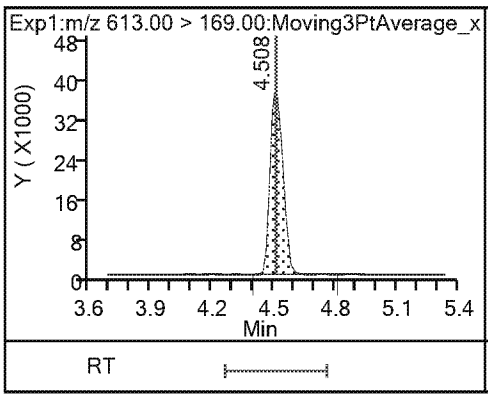
21 11-Chloroeicosafluoro-3-oxaundecan



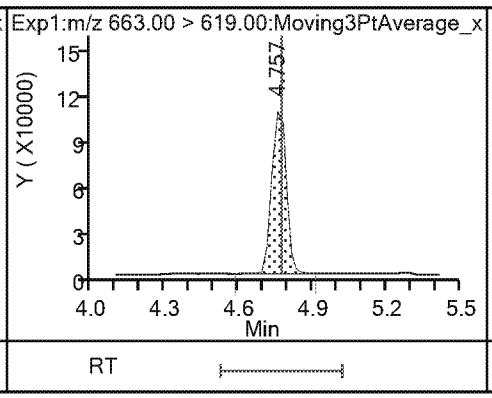
18 Perfluorododecanoic acid



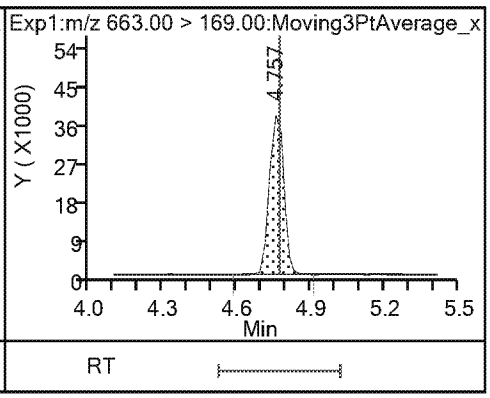
18 Perfluorododecanoic acid



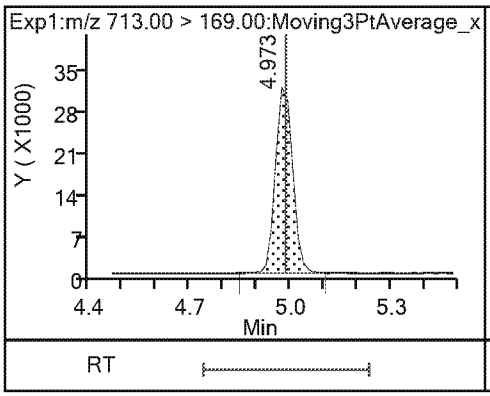
19 Perfluorotridecanoic acid



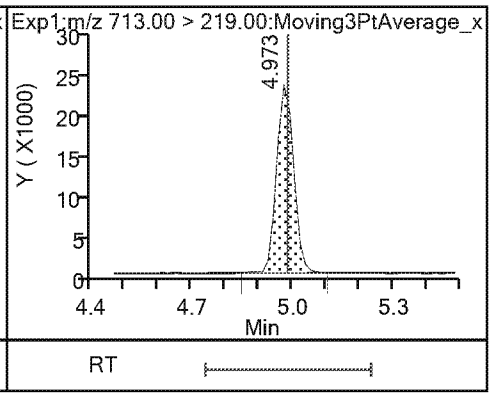
19 Perfluorotridecanoic acid



20 Perfluorotetradecanoic acid



20 Perfluorotetradecanoic acid



Eurofins TestAmerica, Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_007.d
Lims ID: IC L5
Client ID:
Sample Type: IC Calib Level: 5
Inject. Date: 04-Apr-2019 15:52:12 ALS Bottle#: 5 Worklist Smp#: 6
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: L5_537
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub13

Method: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 04-Apr-2019 16:55:37 Calib Date: 04-Apr-2019 16:11:08
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: CTX0339

First Level Reviewer: Ex. 4 CBI Date: 04-Apr-2019 16:29:28
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.992	1.992	0.0	1.000	3776349	2.29	Target=1.00	22354	
298.90 > 99.00	1.992	1.992	0.0	1.000	2533143		1.49(0.00-0.00)	1145	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.347	2.347	0.0	0.734	3660025	2.45	Target=1.00	926	
313.00 > 119.00	2.347	2.347	0.0	0.734	345240		10.60(0.00-0.00)	399	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.347	2.347	0.0	1.000	3865341	2.47		6719	
22 Perfluoro(2-propoxypropanoic) acid									
329.10 > 285.00	2.490	2.478	0.012	1.000	983748	2.71		587	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.490	2.481	0.009	1.000	173505	2.47		1212	
4 Perfluoroheptanoic acid									
363.00 > 319.00	2.778	2.780	-0.002	1.000	3685336	2.60	Target=1.00	372	
363.00 > 169.00	2.778	2.780	-0.002	1.000	1545418		2.38(0.00-0.00)	2931	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	2.798	2.792	0.006	1.000	4700666	2.34	Target=1.00	3388	
399.00 > 99.00	2.798	2.792	0.006	1.000	1564451		3.00(0.00-0.00)	562	
24 DONA									
377.00 > 251.00	2.819	2.825	-0.006	1.000	9636789	2.49	Target=1.00	11334	
377.00 > 85.00	2.819	2.825	-0.006	1.000	6001600		1.61(0.00-0.00)	889424	
* 5 13C2 PFOA									
415.00 > 370.00	3.196	3.186	0.010		3349568	2.50		7639	
6 Perfluorooctanoic acid									
413.00 > 369.00	3.196	3.186	0.010	1.000	3375931	2.48	Target=1.00	408	
413.00 > 169.00	3.196	3.186	0.010	1.000	1960449		1.72(0.00-0.00)	1985	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
* 7 13C4 PFOS									
503.00 > 80.00	3.564	3.562	0.002		3343739	2.39		9322	
8 Perfluorooctanesulfonic acid									
499.00 > 80.00	3.564	3.564	0.0	1.000	3378099	2.29	Target=1.00	3412	
499.00 > 99.00	3.564	3.564	0.0	1.000	721941		4.68(0.00-0.00)	860	
9 Perfluorononanoic acid									
463.00 > 419.00	3.578	3.577	0.001	1.000	2562840	2.59	Target=1.00	1613	
463.00 > 169.00	3.578	3.577	0.001	1.000	689702		3.72(0.00-0.00)	4513	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.752	3.755	-0.003	1.000	5708869	2.40		6088	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.915	3.915	0.0	1.000	1976324	2.52	Target=1.00	773	
513.00 > 169.00	3.915	3.915	0.0	1.000	403080		4.90(0.00-0.00)	1594	
$ 10 13C2 PFDA									
515.00 > 470.00	3.934	3.931	0.003	1.000	2016255	2.42		6185	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.090	4.091	-0.001		506515	2.50		3776	
15 N-methylperfluorooctanesulfonamido									
570.00 > 419.00	4.090	4.091	-0.001	1.000	453306	2.39		2333	
17 Perfluoroundecanoic acid									
563.00 > 519.00	4.234	4.236	-0.002	1.000	1495680	2.51	Target=1.00	658	
563.00 > 169.00	4.234	4.236	-0.002	1.000	314031		4.76(0.00-0.00)	3283	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.250	4.243	0.007	1.039	543402	2.62		307	
16 N-ethylperfluorooctanesulfonamidoa									
584.00 > 419.00	4.250	4.252	-0.002	1.000	448780	2.44		1170	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.376	4.369	0.007	1.000	7311295	2.45		10071	
18 Perfluorododecanoic acid									
613.00 > 569.00	4.509	4.508	0.001	1.000	1525011	2.55	Target=1.00	1217	
613.00 > 169.00	4.509	4.508	0.001	1.000	428853		3.56(0.00-0.00)	3907	
19 Perfluorotridecanoic acid									
663.00 > 619.00	4.778	4.772	0.006	1.000	1138610	2.46	Target=1.00	445	
663.00 > 169.00	4.778	4.772	0.006	1.000	389256		2.93(0.00-0.00)	2428	
20 Perfluorotetradecanoic acid									
713.00 > 169.00	4.991	4.985	0.006	1.000	297747	2.50	Target=1.00	2067	
713.00 > 219.00	4.991	4.985	0.006	1.000	214502		1.39(0.00-0.00)	1624	

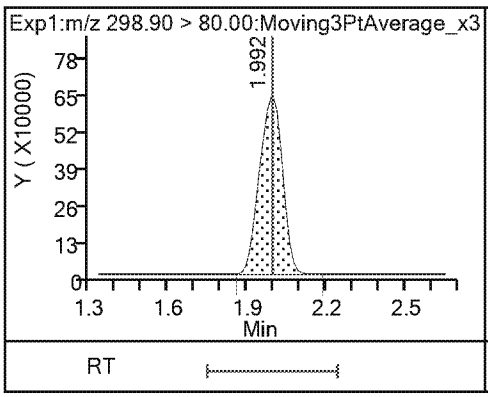
Reagents:

LC537_NC_L5_00003 Amount Added: 1.00 Units: mL

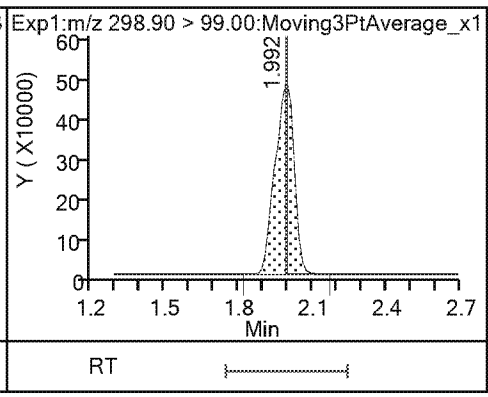
Eurofins TestAmerica, Sacramento

Data File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_007.d
Injection Date: 04-Apr-2019 15:52:12 Instrument ID: A8_N
Lims ID: IC L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 6
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

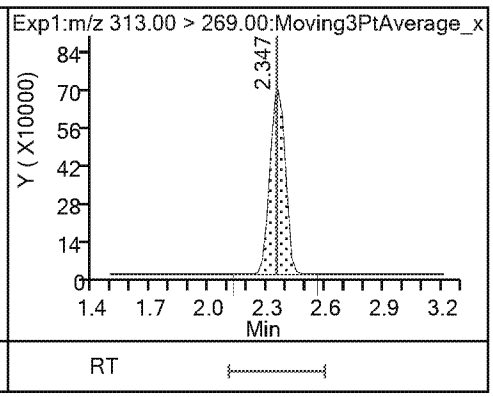
1 Perfluorobutanesulfonic acid



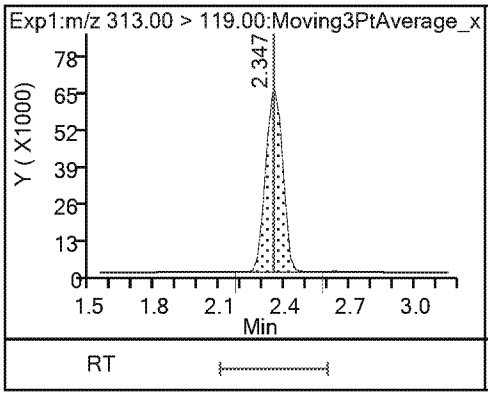
1 Perfluorobutanesulfonic acid



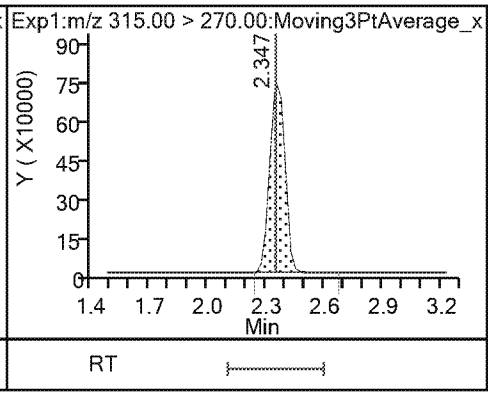
13 Perfluorohexanoic acid



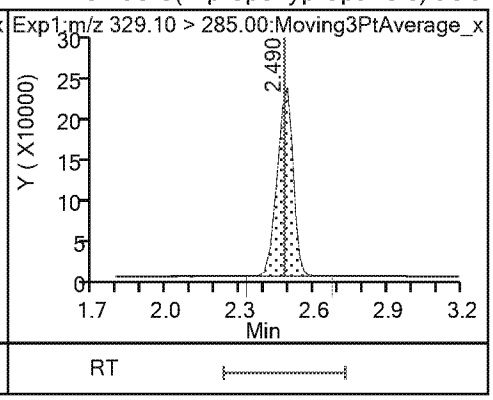
13 Perfluorohexanoic acid



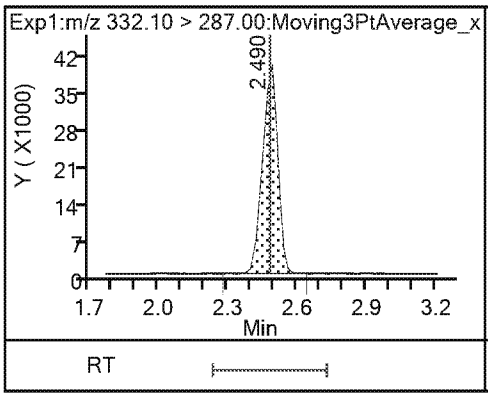
$ 2 13C2 PFHxA



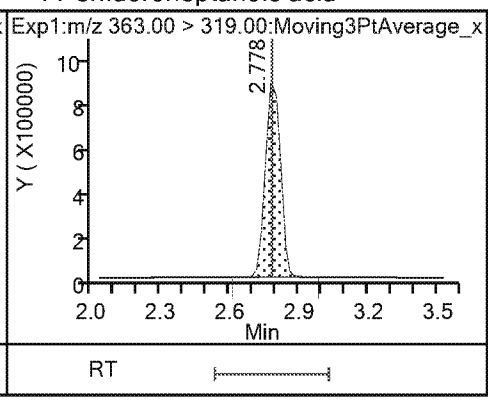
22 Perfluoro(2-propoxypropanoic) acid



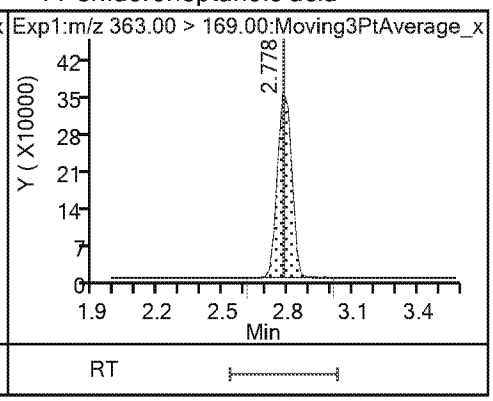
$ 25 13C3 HFPO-DA



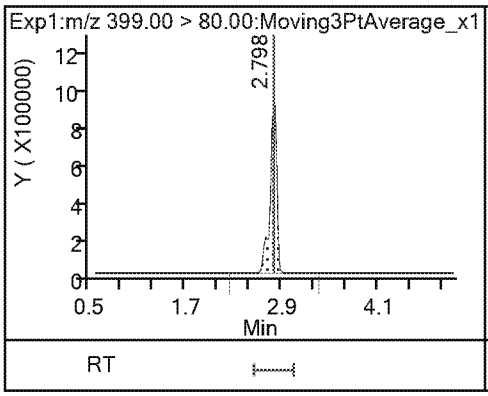
4 Perfluoroheptanoic acid



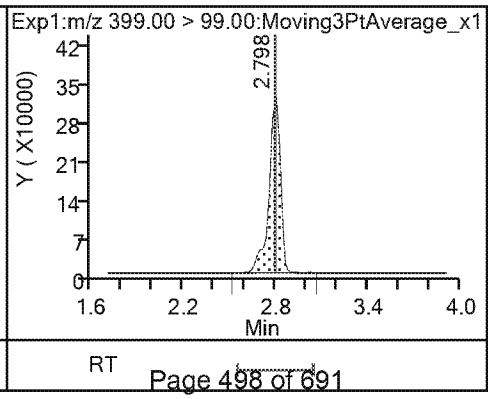
4 Perfluoroheptanoic acid



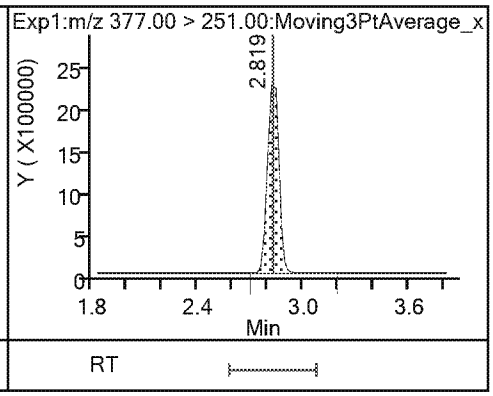
3 Perfluorohexanesulfonic acid



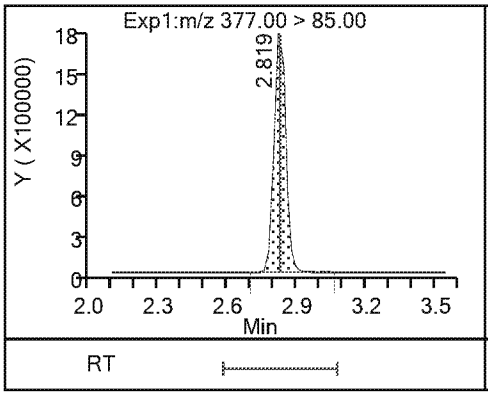
3 Perfluorohexanesulfonic acid



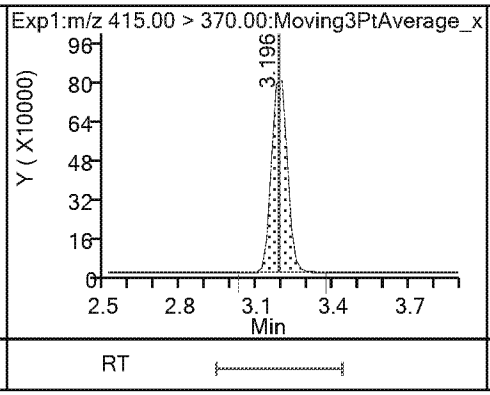
24 DONA



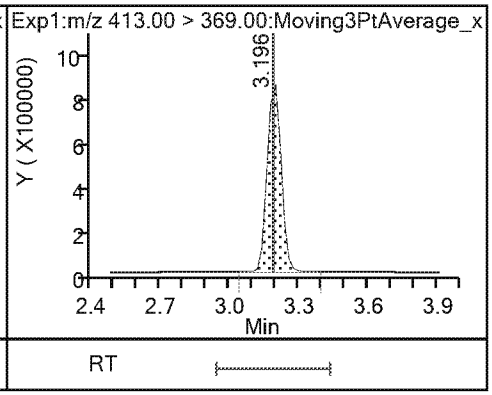
24 DONA



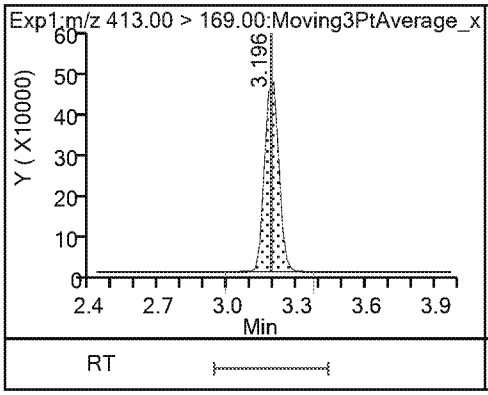
* 5 13C2 PFOA



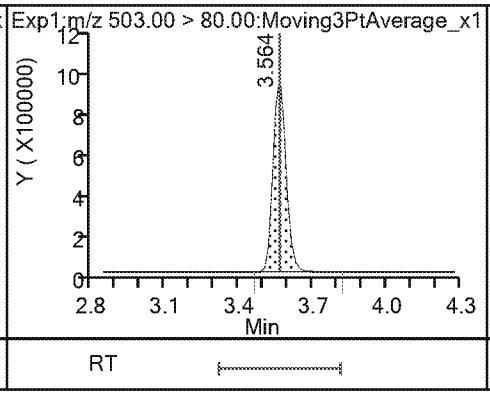
6 Perfluorooctanoic acid



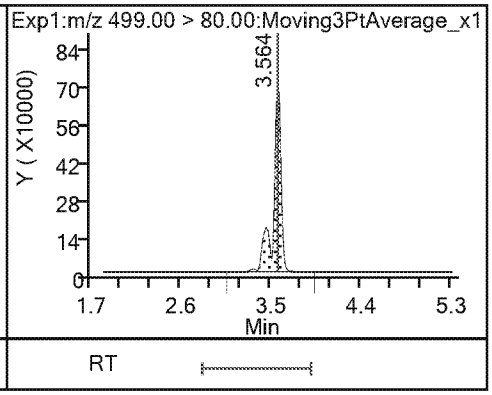
6 Perfluorooctanoic acid



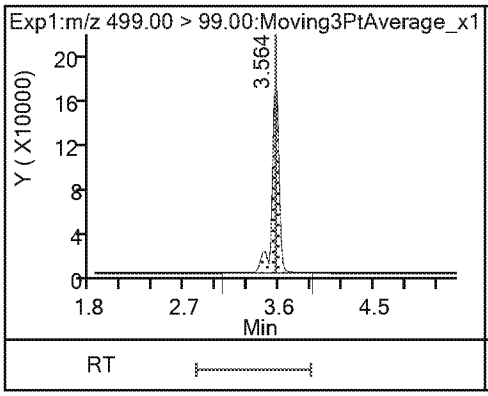
* 7 13C4 PFOS



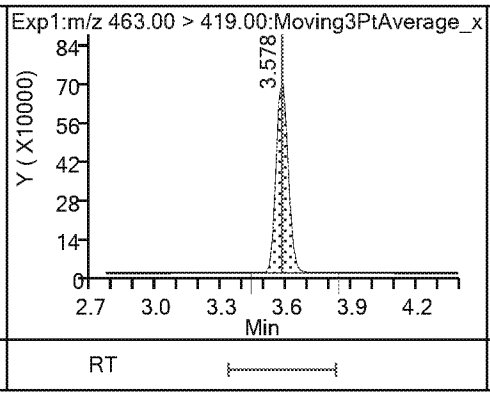
8 Perfluorooctanesulfonic acid



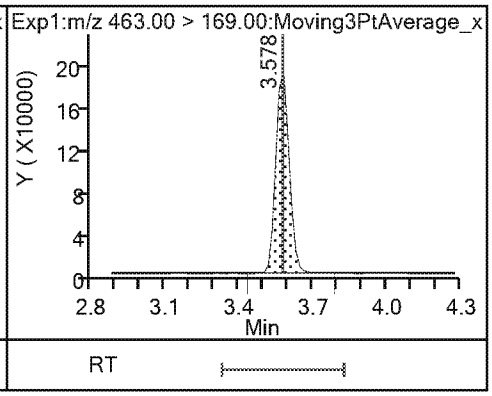
8 Perfluorooctanesulfonic acid



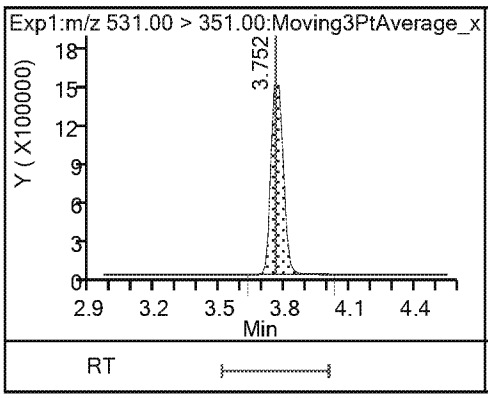
9 Perfluorononanoic acid



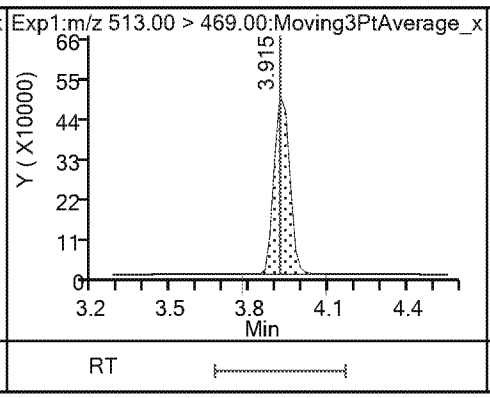
9 Perfluorononanoic acid



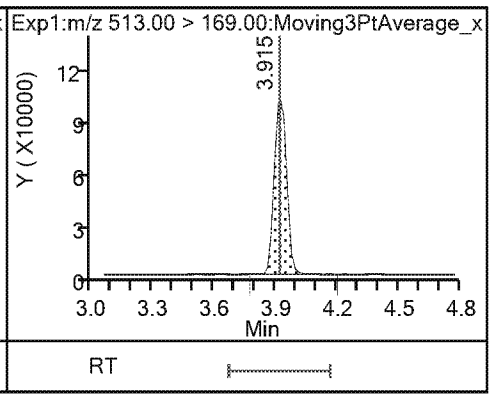
23 9-Chlorohexadecafluoro-3-oxanonane



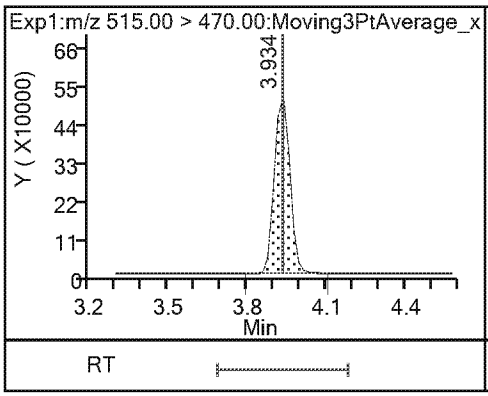
14 Perfluorodecanoic acid



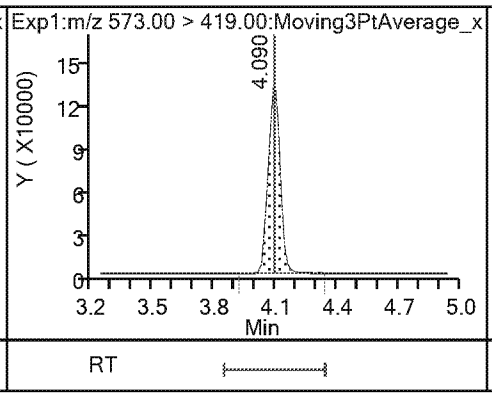
14 Perfluorodecanoic acid



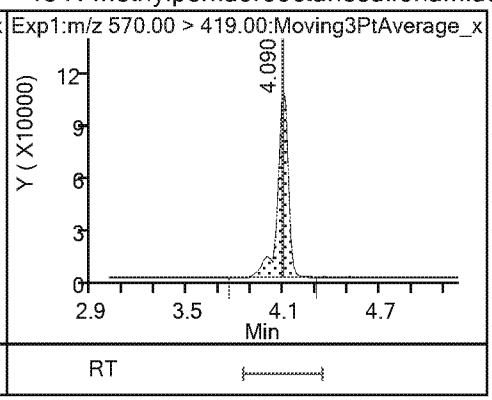
$ 10 13C2 PFDA



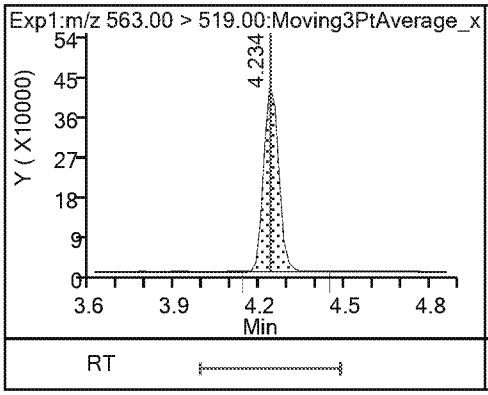
* 12 d3-NMeFOSAA



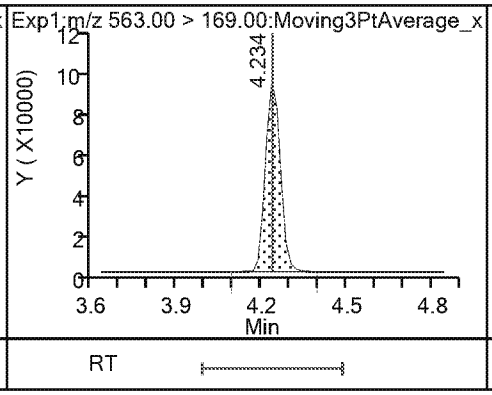
15 N-methylperfluorooctanesulfonamido



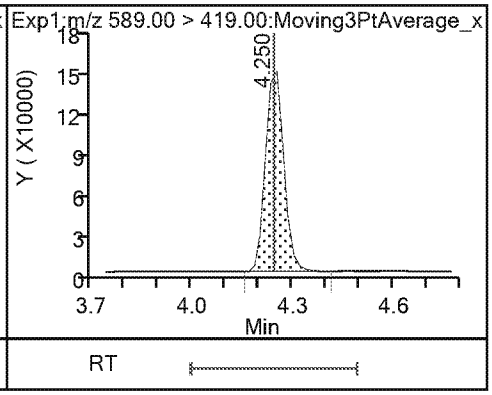
17 Perfluoroundecanoic acid



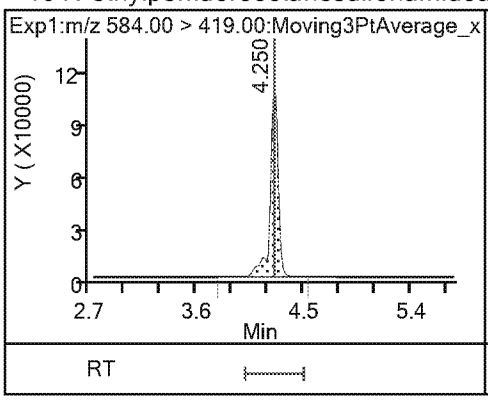
17 Perfluoroundecanoic acid



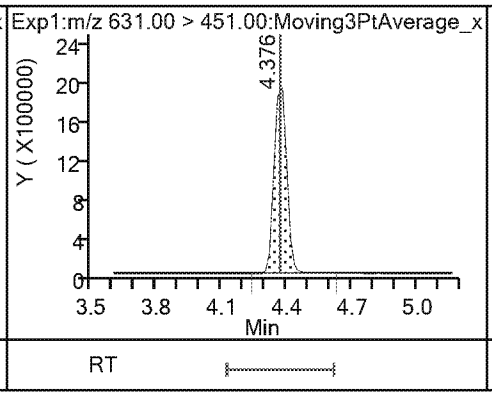
$ 11 d5-NEtFOSAA



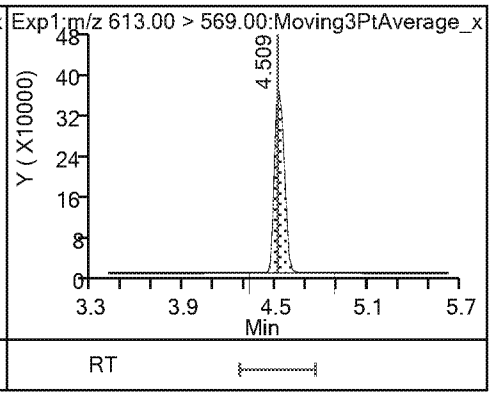
16 N-ethylperfluorooctanesulfonamidoa



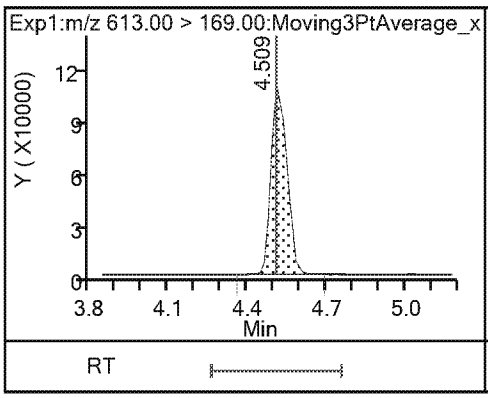
21 11-Chloroeicosafluoro-3-oxaundecan



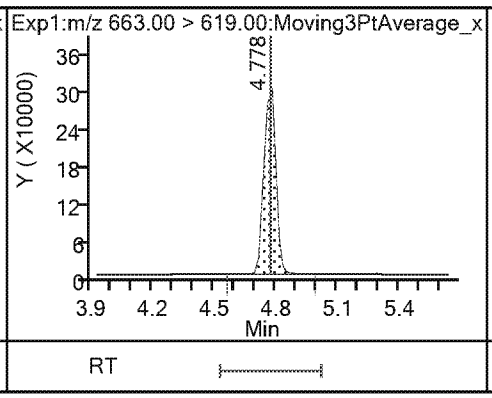
18 Perfluorododecanoic acid



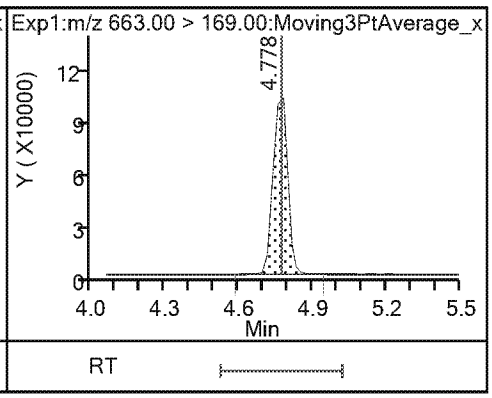
18 Perfluorododecanoic acid



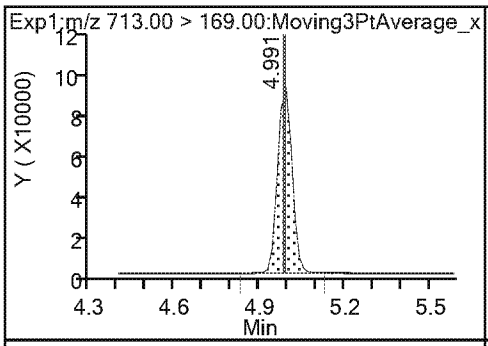
19 Perfluorotridecanoic acid



19 Perfluorotridecanoic acid

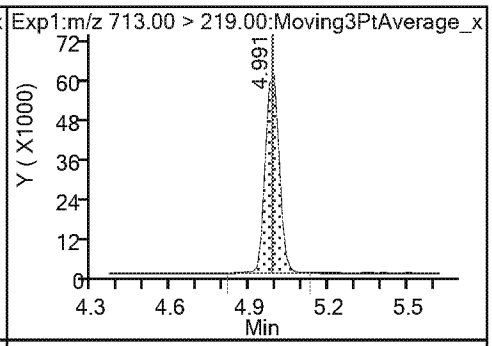


20 Perfluorotetradecanoic acid



RT

20 Perfluorotetradecanoic acid



RT

Eurofins TestAmerica, Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_008.d
Lims ID: IC L6
Client ID:
Sample Type: IC Calib Level: 6
Inject. Date: 04-Apr-2019 16:01:40 ALS Bottle#: 6 Worklist Smp#: 7
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: L6_537
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub13

Method: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 04-Apr-2019 16:55:39 Calib Date: 04-Apr-2019 16:11:08
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: CTX0339

First Level Reviewer: Ex. 4 CBI Date: 04-Apr-2019 16:29:50
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.992	1.992	0.0	1.000	6676217	4.65	Target=1.00	36107	
298.90 > 99.00	1.992	1.992	0.0	1.000	4609145		1.45(0.00-0.00)	2211	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.347	2.347	0.0	0.735	6570391	5.02	Target=1.00	1619	
313.00 > 119.00	2.347	2.347	0.0	0.735	598149		10.98(0.00-0.00)	719	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.347	2.347	0.0	1.000	3512098	2.56		5264	
22 Perfluoro(2-propoxypropanoic) acid									
329.10 > 285.00	2.473	2.478	-0.005	1.000	1435848	4.51		792	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.473	2.481	-0.008	1.000	148313	2.41		757	
4 Perfluoroheptanoic acid									
363.00 > 319.00	2.790	2.780	0.010	1.000	6466379	5.19	Target=1.00	639	
363.00 > 169.00	2.790	2.780	0.010	1.000	2764828		2.34(0.00-0.00)	4869	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	2.790	2.792	-0.002	1.000	8410185	4.83	Target=1.00	5573	
399.00 > 99.00	2.790	2.792	-0.002	1.000	2797868		3.01(0.00-0.00)	1185	
24 DONA									
377.00 > 251.00	2.832	2.825	0.007	1.000	16773676	4.94	Target=1.00	14238	
377.00 > 85.00	2.832	2.825	0.007	1.000	10948485		1.53(0.00-0.00)	1549852	
* 5 13C2 PFOA									
415.00 > 370.00	3.194	3.186	0.008		2939637	2.50		11910	
6 Perfluorooctanoic acid									
413.00 > 369.00	3.194	3.186	0.008	1.000	6149648	5.16	Target=1.00	719	
413.00 > 169.00	3.194	3.186	0.008	1.000	3566513		1.72(0.00-0.00)	3932	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
* 7 13C4 PFOS									
503.00 > 80.00	3.565	3.562	0.003		2905553	2.39		8654	
8 Perfluorooctanesulfonic acid									
499.00 > 80.00	3.565	3.564	0.001	1.000	6186361	4.82	Target=1.00	3736	
499.00 > 99.00	3.565	3.564	0.001	1.000	1316094		4.70(0.00-0.00)	1253	
9 Perfluorononanoic acid									
463.00 > 419.00	3.579	3.577	0.002	1.000	4550656	5.24	Target=1.00	2650	
463.00 > 169.00	3.565	3.577	-0.012	0.996	1144302		3.98(0.00-0.00)	6910	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.751	3.755	-0.004	1.000	10431945	5.05		16508	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.914	3.915	-0.001	1.000	3523695	5.12	Target=1.00	1351	
513.00 > 169.00	3.914	3.915	-0.001	1.000	711450		4.95(0.00-0.00)	2641	
$ 10 13C2 PFDA									
515.00 > 470.00	3.934	3.931	0.003	1.000	1815745	2.49		6368	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.091	4.091	0.0		457634	2.50		3052	
15 N-methylperfluorooctanesulfonamido									
570.00 > 419.00	4.091	4.091	0.0	1.000	849063	4.95		3452	
17 Perfluoroundecanoic acid									
563.00 > 519.00	4.235	4.236	-0.001	1.000	2621382	5.02	Target=1.00	1174	
563.00 > 169.00	4.235	4.236	-0.001	1.000	582119		4.50(0.00-0.00)	4247	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.235	4.243	-0.008	1.035	477831	2.55		288	
16 N-ethylperfluorooctanesulfonamidoa									
584.00 > 419.00	4.251	4.252	-0.001	1.004	800676	4.82		8869	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.360	4.369	-0.009	1.000	12854899	4.96		15055	
18 Perfluorododecanoic acid									
613.00 > 569.00	4.511	4.508	0.003	1.000	2736549	5.22	Target=1.00	1681	
613.00 > 169.00	4.511	4.508	0.003	1.000	775700		3.53(0.00-0.00)	5056	
19 Perfluorotridecanoic acid									
663.00 > 619.00	4.761	4.772	-0.011	1.000	2071195	5.10	Target=1.00	737	
663.00 > 169.00	4.761	4.772	-0.011	1.000	700166		2.96(0.00-0.00)	3351	
20 Perfluorotetradecanoic acid									
713.00 > 169.00	4.992	4.985	0.007	1.000	541723	5.19	Target=1.00	3108	
713.00 > 219.00	4.977	4.985	-0.008	0.997	385474		1.41(0.00-0.00)	1972	

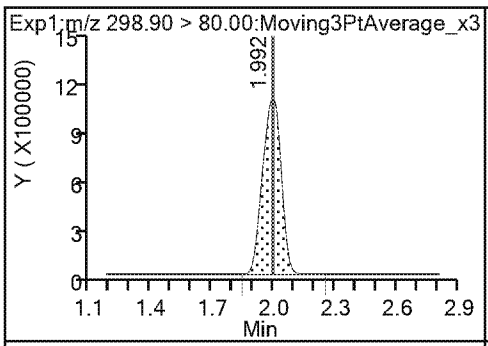
Reagents:

LC537_NC_L6_00003 Amount Added: 1.00 Units: mL

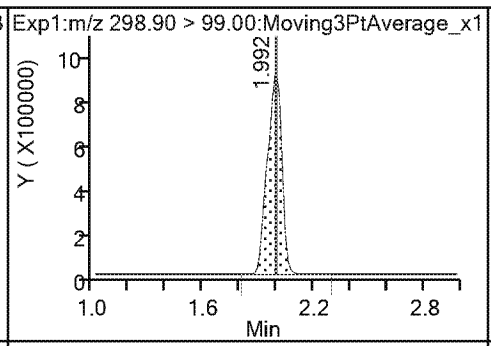
Eurofins TestAmerica, Sacramento

Data File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_008.d
Injection Date: 04-Apr-2019 16:01:40 Instrument ID: A8_N
Lims ID: IC L6
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 6 Worklist Smp#: 7
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

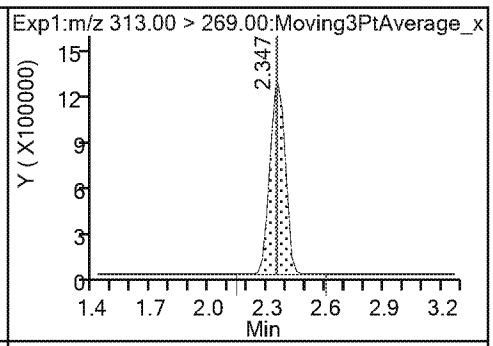
1 Perfluorobutanesulfonic acid



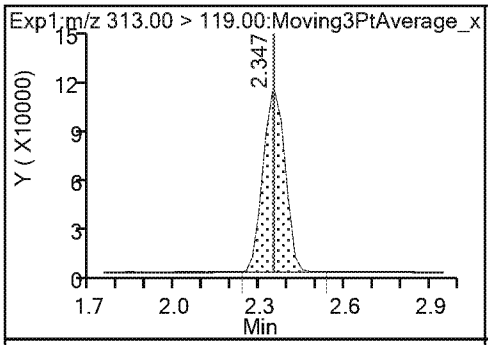
1 Perfluorobutanesulfonic acid



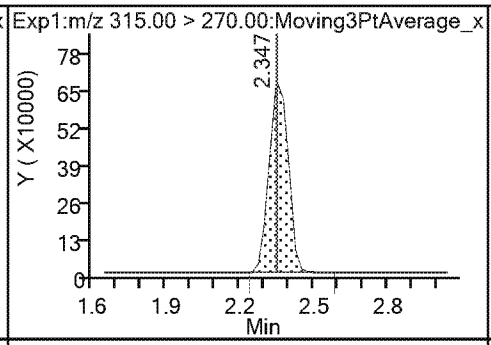
13 Perfluorohexanoic acid



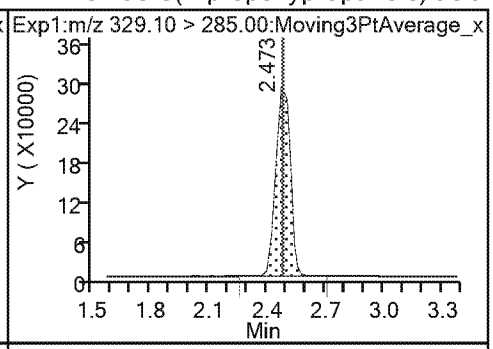
13 Perfluorohexanoic acid



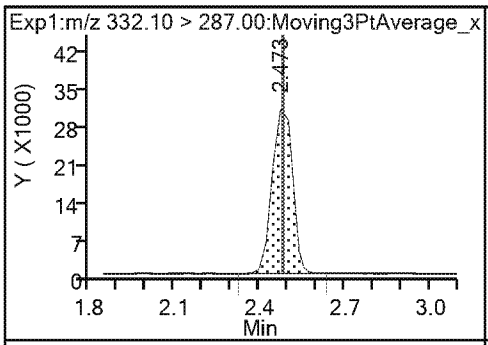
$ 2 13C2 PFHxA



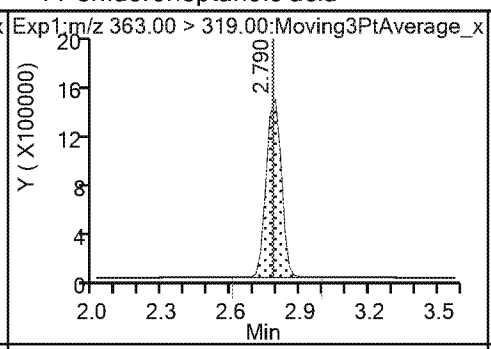
22 Perfluoro(2-propoxypropanoic) acid



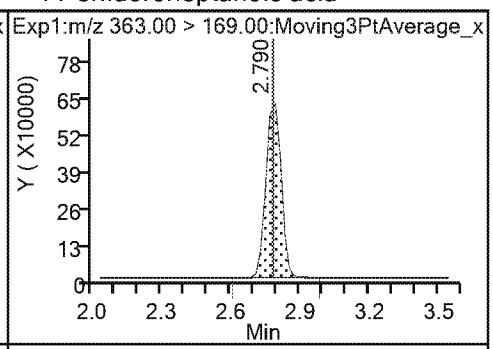
$ 25 13C3 HFPO-DA



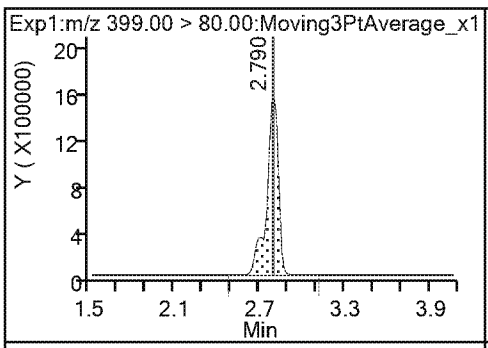
4 Perfluoroheptanoic acid



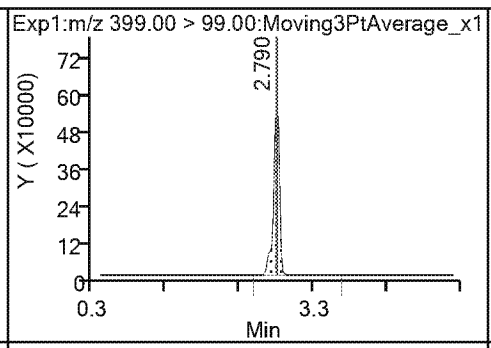
4 Perfluoroheptanoic acid



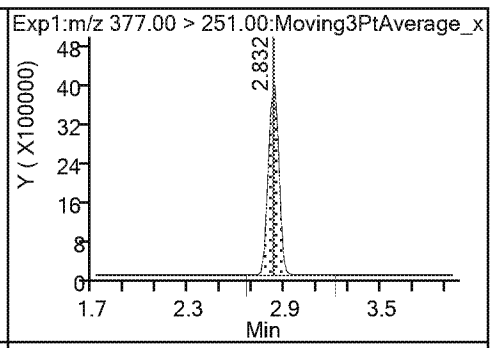
3 Perfluorohexanesulfonic acid



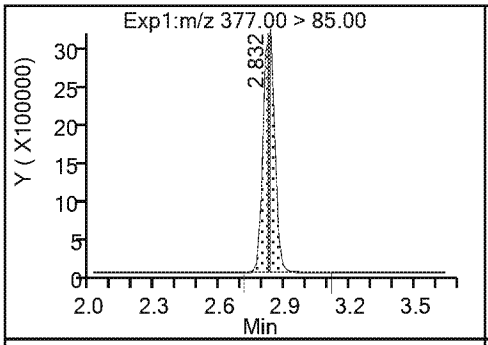
3 Perfluorohexanesulfonic acid



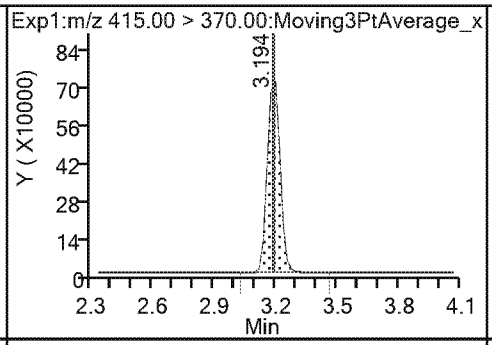
24 DONA



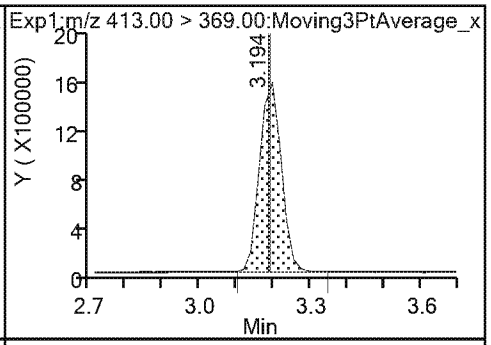
24 DONA



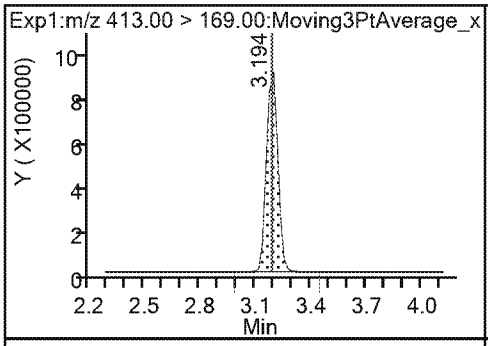
* 5 13C2 PFOA



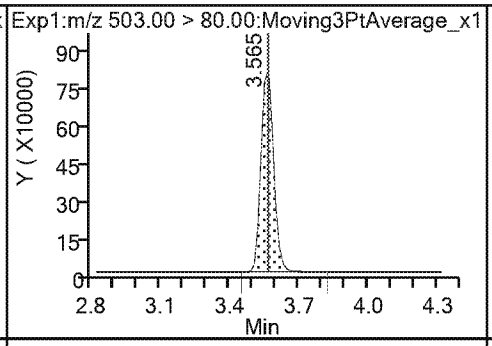
6 Perfluorooctanoic acid



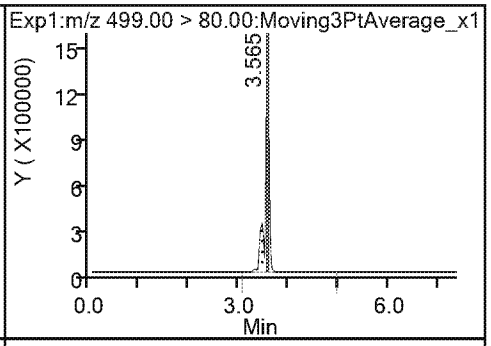
6 Perfluorooctanoic acid



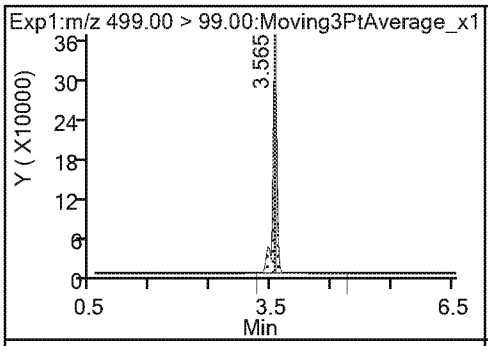
* 7 13C4 PFOS



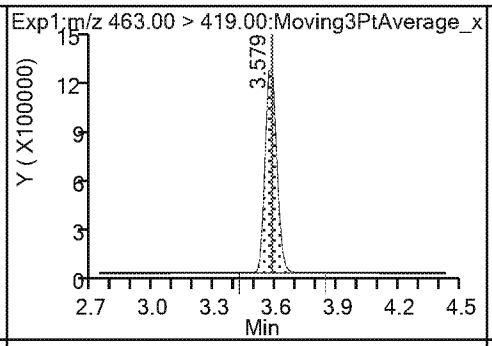
8 Perfluorooctanesulfonic acid



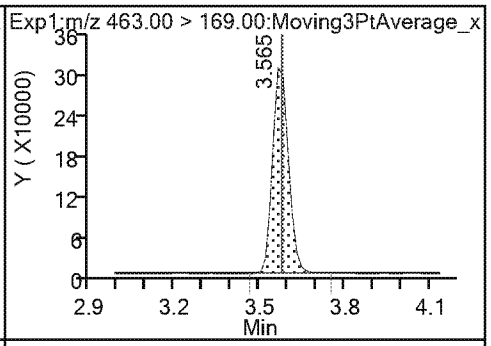
8 Perfluorooctanesulfonic acid



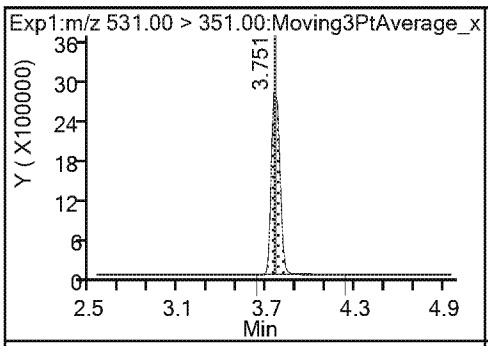
9 Perfluorononanoic acid



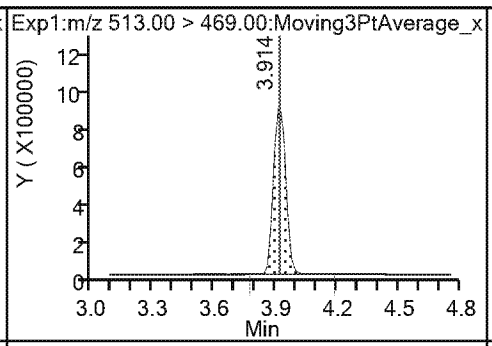
9 Perfluorononanoic acid



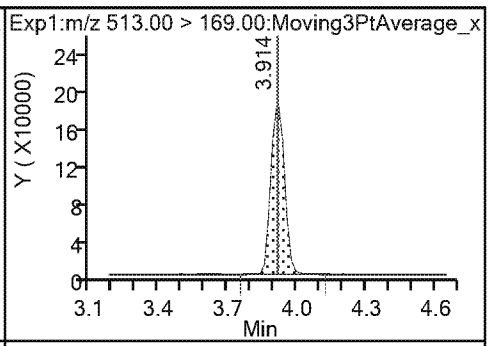
23 9-Chlorohexadecafluoro-3-oxanonane



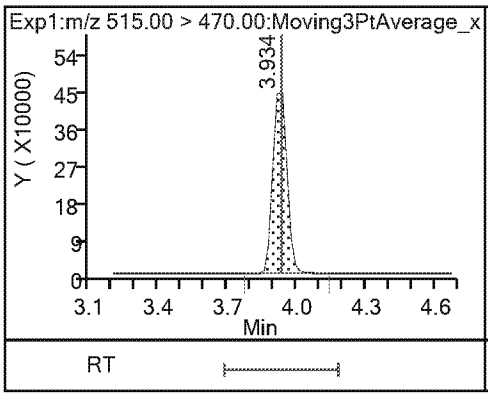
14 Perfluorodecanoic acid



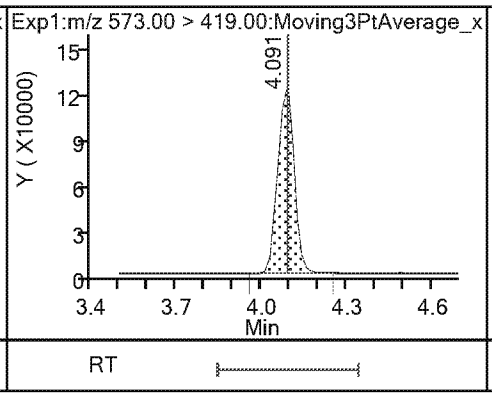
14 Perfluorodecanoic acid



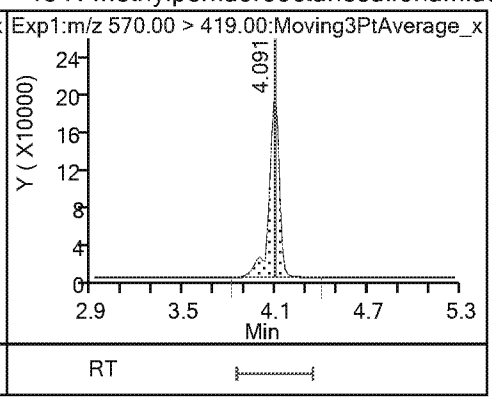
$ 10 13C2 PFDA



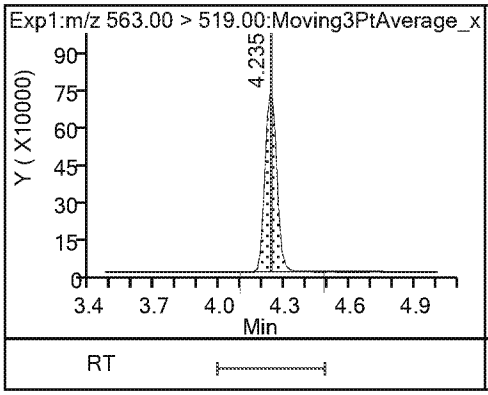
* 12 d3-NMeFOSAA



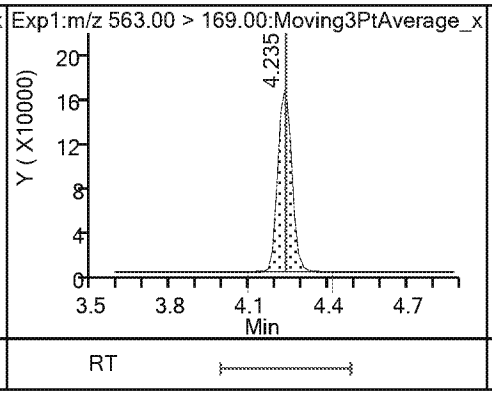
15 N-methylperfluorooctanesulfonamido



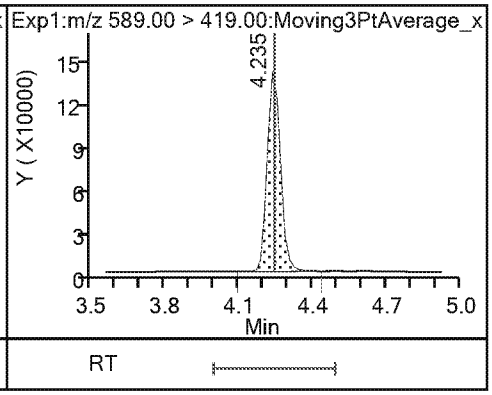
17 Perfluoroundecanoic acid



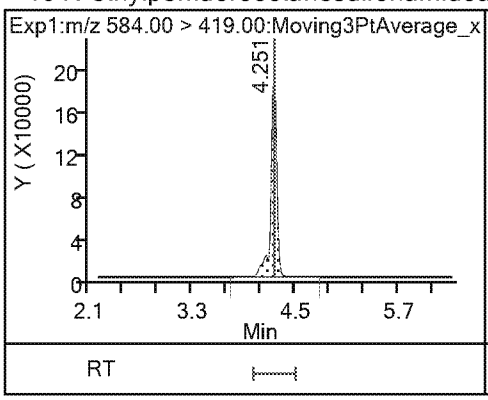
17 Perfluoroundecanoic acid



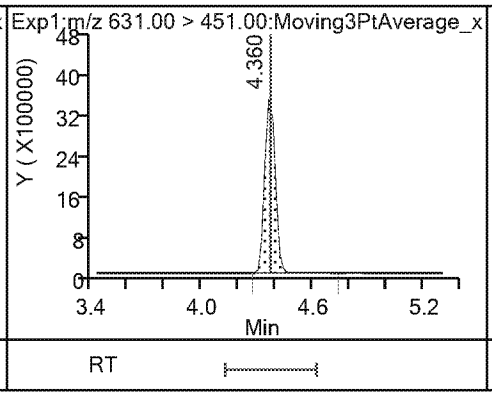
$ 11 d5-NEtFOSAA



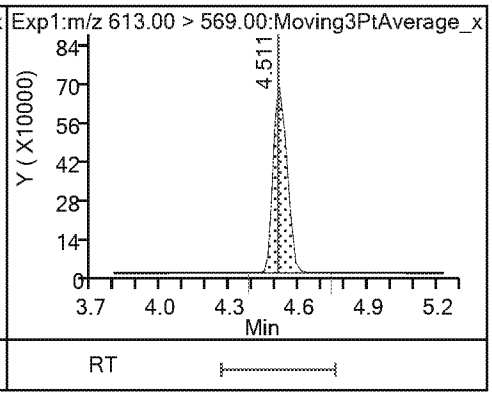
16 N-ethylperfluorooctanesulfonamidoa



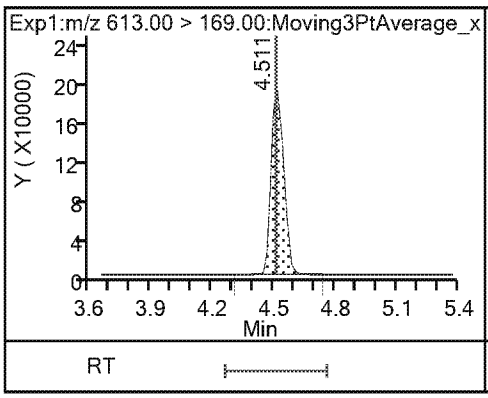
21 11-Chloroeicosafluoro-3-oxaundecan



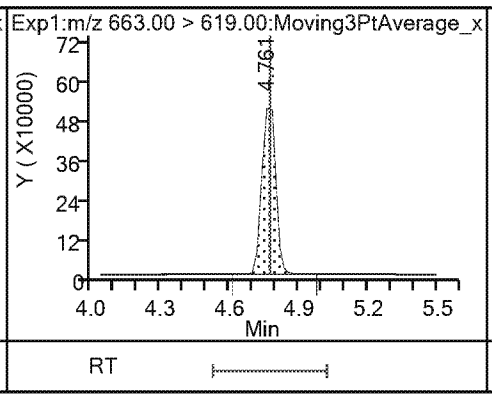
18 Perfluorododecanoic acid



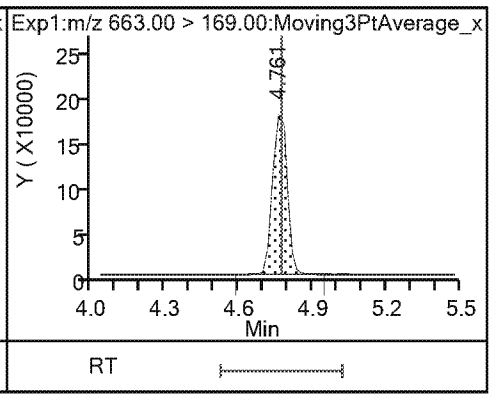
18 Perfluorododecanoic acid



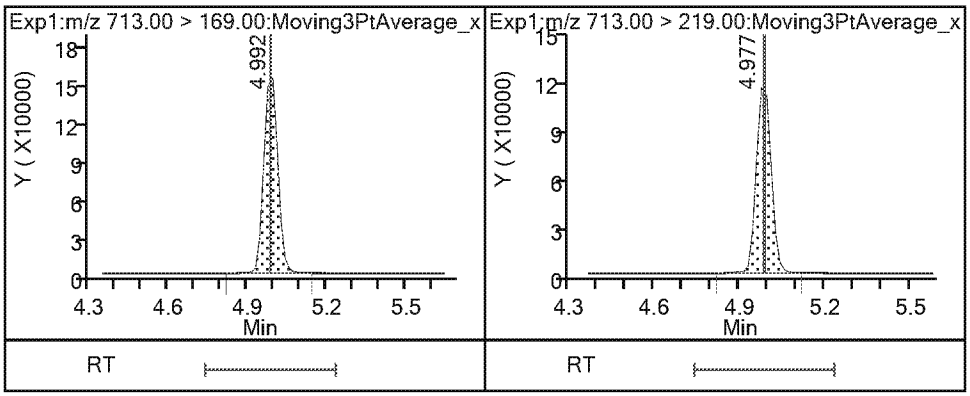
19 Perfluorotridecanoic acid



19 Perfluorotridecanoic acid



20 Perfluorotetradecanoic acid 20 Perfluorotetradecanoic acid



Eurofins TestAmerica, Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_009.d
Lims ID: IC L7
Client ID:
Sample Type: IC Calib Level: 7
Inject. Date: 04-Apr-2019 16:11:08 ALS Bottle#: 7 Worklist Smp#: 8
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: L7_537
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub13

Method: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 04-Apr-2019 16:55:41 Calib Date: 04-Apr-2019 16:11:08
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: CTX0339

First Level Reviewer: Ex. 4 CBI Date: 04-Apr-2019 16:31:01
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.992	1.992	0.0	1.000	14397998	9.26	Target=1.00	72636	
298.90 > 99.00	1.992	1.992	0.0	1.000	10176582		1.41(0.00-0.00)	4987	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.347	2.347	0.0	0.737	13870209	9.77	Target=1.00	3914	
313.00 > 119.00	2.347	2.347	0.0	0.737	1325645		10.46(0.00-0.00)	1521	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.347	2.347	0.0	1.000	3572961	2.40		5077	
22 Perfluoro(2-propoxypropanoic) acid									
329.10 > 285.00	2.473	2.478	-0.005	1.000	3523651	10.2		1632	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.473	2.481	-0.008	1.000	156465	2.34		717	
4 Perfluoroheptanoic acid									
363.00 > 319.00	2.782	2.780	0.002	1.000	13219525	9.78	Target=1.00	1222	
363.00 > 169.00	2.782	2.780	0.002	1.000	5489907		2.41(0.00-0.00)	6621	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	2.803	2.792	0.011	1.000	17559900	9.31	Target=1.00	5588	
399.00 > 99.00	2.803	2.792	0.011	1.000	6025884		2.91(0.00-0.00)	1596	
24 DONA									
377.00 > 251.00	2.824	2.825	-0.001	1.000	31823463	8.64	Target=1.00	13107	
377.00 > 85.00	2.824	2.825	-0.001	1.000	20598782		1.54(0.00-0.00)	1438238	
* 5 13C2 PFOA									
415.00 > 370.00	3.186	3.186	0.0		3188191	2.50		10135	
6 Perfluorooctanoic acid									
413.00 > 369.00	3.186	3.186	0.0	1.000	12919792	9.99	Target=1.00	1414	
413.00 > 169.00	3.186	3.186	0.0	1.000	7620812		1.70(0.00-0.00)	6956	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
* 7 13C4 PFOS									
503.00 > 80.00	3.568	3.562	0.006		3144931	2.39		9899	
8 Perfluorooctanesulfonic acid									
499.00 > 80.00	3.568	3.564	0.004	1.000	13257205	9.54	Target=1.00	3803	
499.00 > 99.00	3.568	3.564	0.004	1.000	2860922		4.63(0.00-0.00)	1838	
9 Perfluorononanoic acid									
463.00 > 419.00	3.583	3.577	0.006	1.000	9311450	9.88	Target=1.00	5319	
463.00 > 169.00	3.583	3.577	0.006	1.000	2460163		3.78(0.00-0.00)	8339	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.759	3.755	0.004	1.000	20803124	9.30		20009	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.922	3.915	0.007	1.000	7693278	10.3	Target=1.00	2924	
513.00 > 169.00	3.922	3.915	0.007	1.000	1559921		4.93(0.00-0.00)	4058	
$ 10 13C2 PFDA									
515.00 > 470.00	3.941	3.931	0.010	1.000	2070372	2.61		8282	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.099	4.091	0.008		521333	2.50		2204	
15 N-methylperfluorooctanesulfonamido									
570.00 > 419.00	4.099	4.091	0.008	1.000	1913012	9.80		36472	
17 Perfluoroundecanoic acid									
563.00 > 519.00	4.244	4.236	0.008	1.000	5855184	10.3	Target=1.00	2520	
563.00 > 169.00	4.244	4.236	0.008	1.000	1239174		4.73(0.00-0.00)	5125	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.244	4.243	0.001	1.035	533085	2.50		315	
16 N-ethylperfluorooctanesulfonamidoa									
584.00 > 419.00	4.260	4.252	0.008	1.004	1776540	9.38		2140	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.368	4.369	-0.001	1.000	26084042	9.30		199576	
18 Perfluorododecanoic acid									
613.00 > 569.00	4.505	4.508	-0.003	1.000	5976840	10.5	Target=1.00	2725	
613.00 > 169.00	4.505	4.508	-0.003	1.000	1714413		3.49(0.00-0.00)	8418	
19 Perfluorotridecanoic acid									
663.00 > 619.00	4.775	4.772	0.003	1.000	4348983	9.88	Target=1.00	1368	
663.00 > 169.00	4.754	4.772	-0.018	0.996	1514187		2.87(0.00-0.00)	5035	
20 Perfluorotetradecanoic acid									
713.00 > 169.00	4.973	4.985	-0.012	1.000	1148949	10.1	Target=1.00	3715	
713.00 > 219.00	4.973	4.985	-0.012	1.000	817951		1.40(0.00-0.00)	2810	

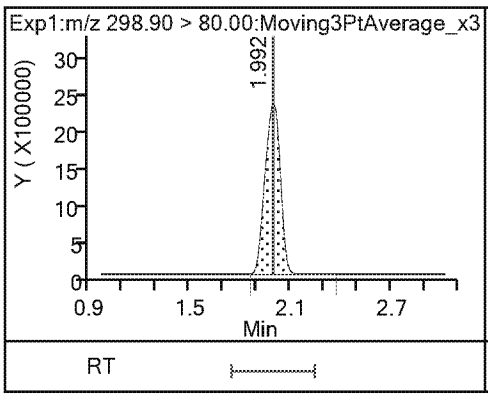
Reagents:

LC537_NC_L7_00003 Amount Added: 1.00 Units: mL

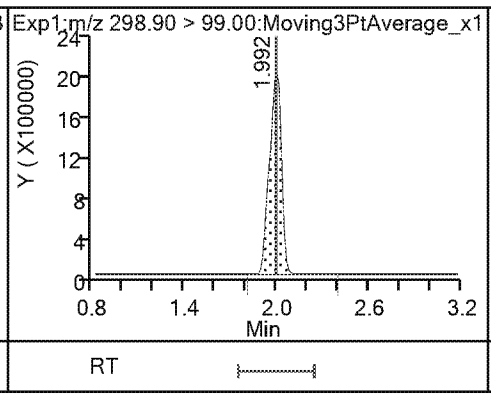
Eurofins TestAmerica, Sacramento

Data File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_009.d
Injection Date: 04-Apr-2019 16:11:08 Instrument ID: A8_N
Lims ID: IC L7
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 7 Worklist Smp#: 8
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

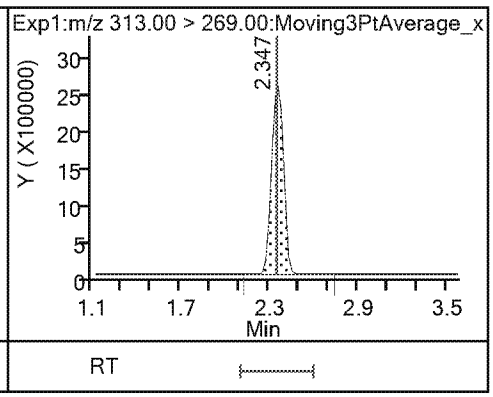
1 Perfluorobutanesulfonic acid



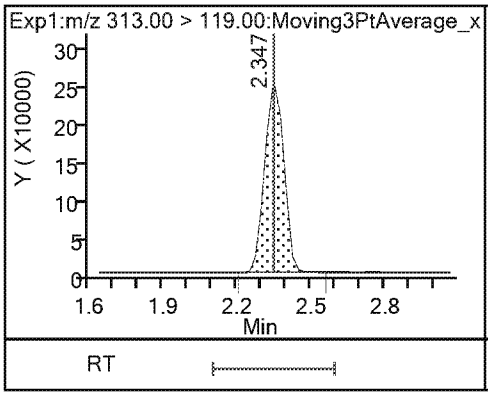
1 Perfluorobutanesulfonic acid



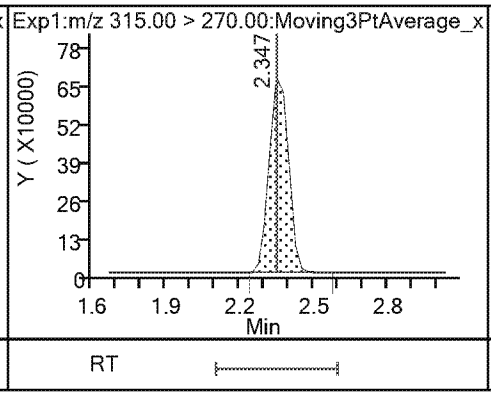
13 Perfluorohexanoic acid



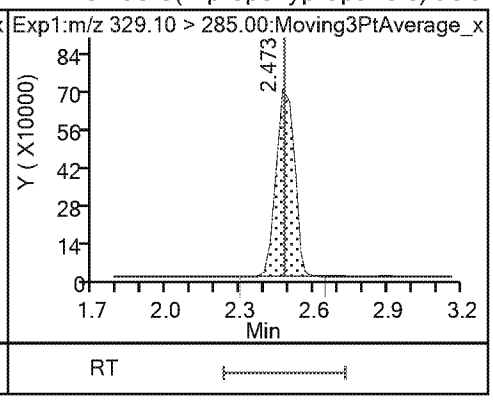
13 Perfluorohexanoic acid



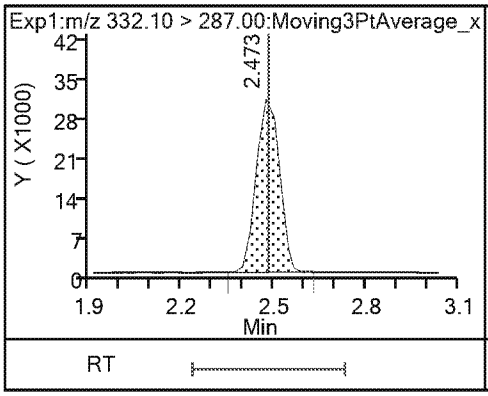
$ 2 13C2 PFHxA



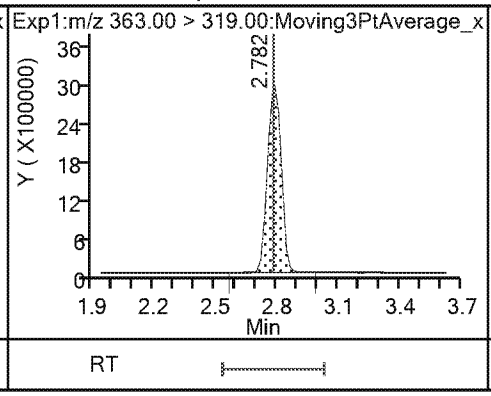
22 Perfluoro(2-propoxypropanoic) acid



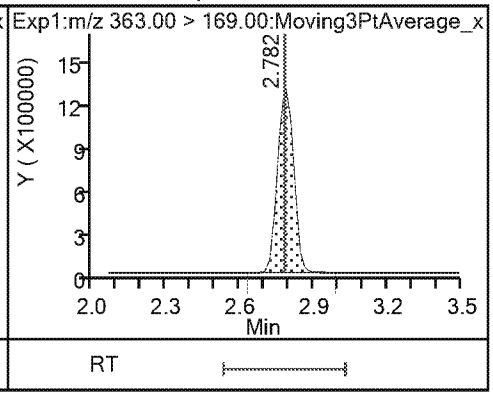
$ 25 13C3 HFPO-DA



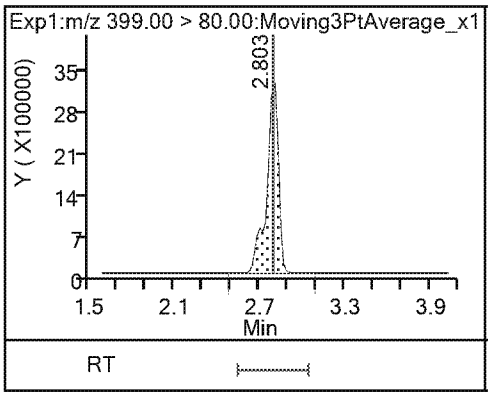
4 Perfluoroheptanoic acid



4 Perfluoroheptanoic acid



3 Perfluorohexanesulfonic acid



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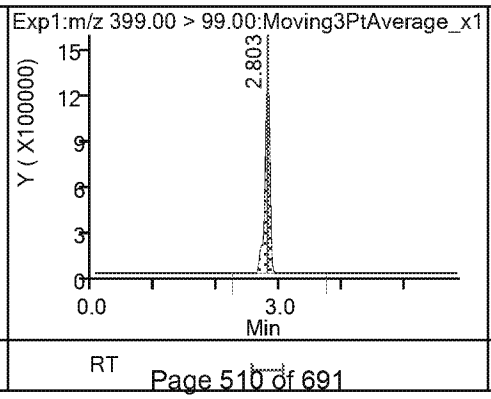
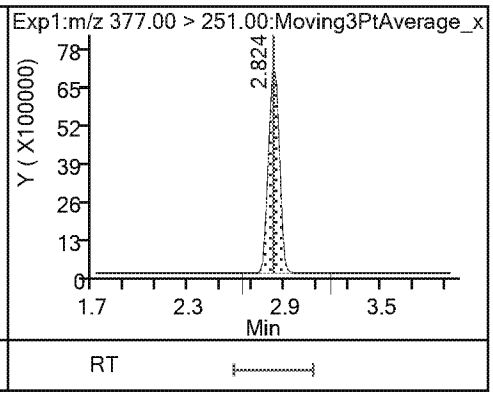
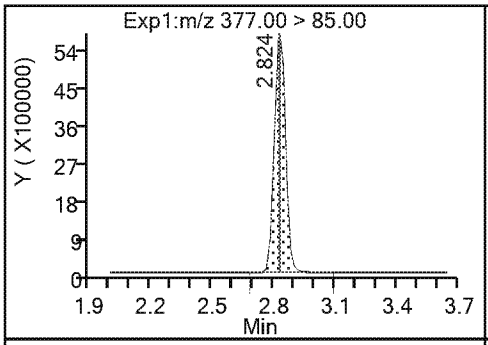


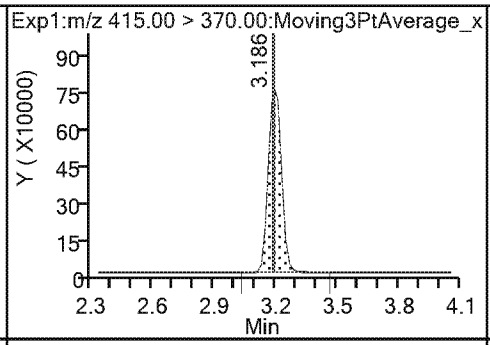
24 DONA



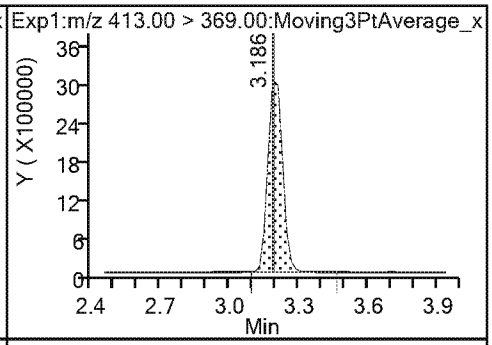
24 DONA



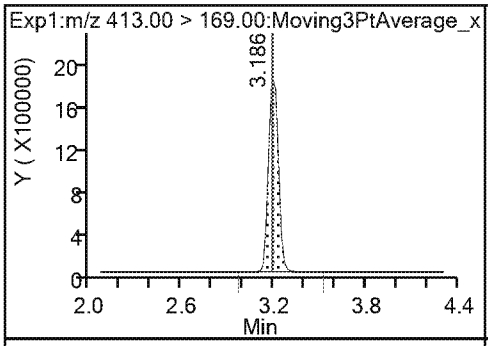
* 5 13C2 PFOA



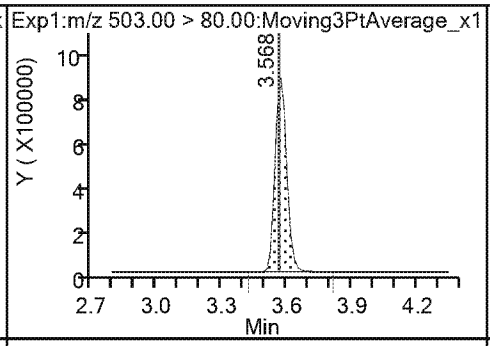
6 Perfluorooctanoic acid



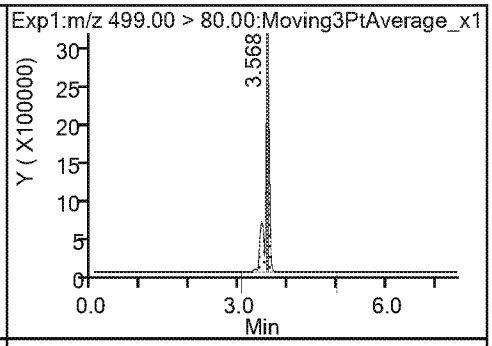
6 Perfluorooctanoic acid



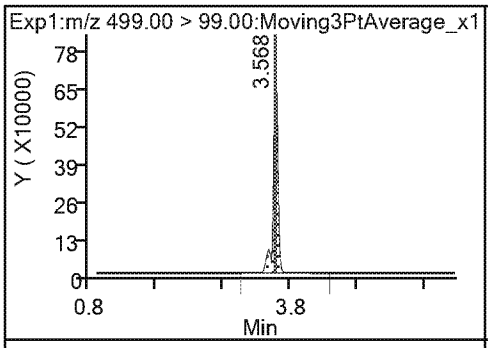
* 7 13C4 PFOS



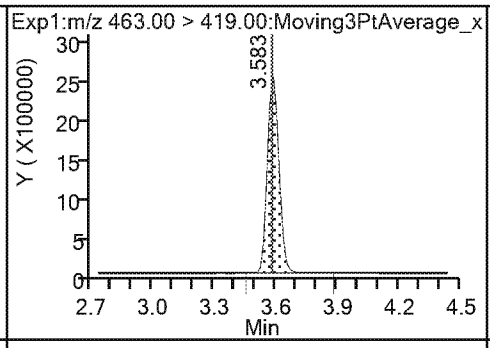
8 Perfluorooctanesulfonic acid



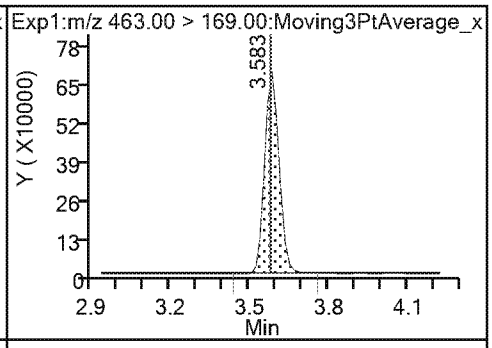
8 Perfluorooctanesulfonic acid



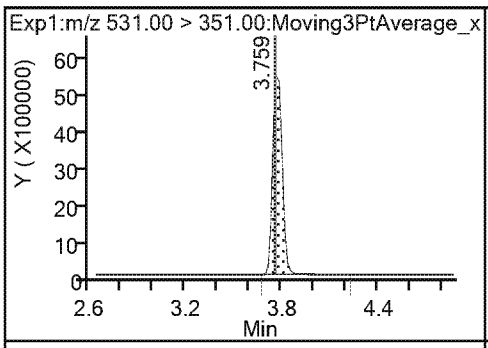
9 Perfluorononanoic acid



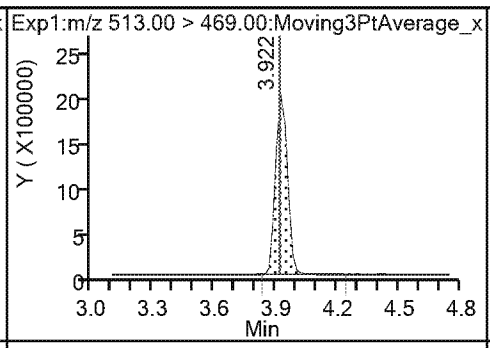
9 Perfluorononanoic acid



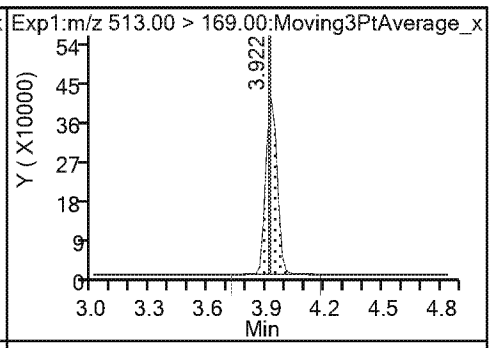
23 9-Chlorohexadecafluoro-3-oxanonane



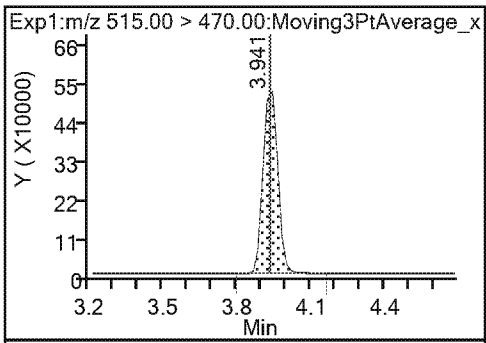
14 Perfluorodecanoic acid



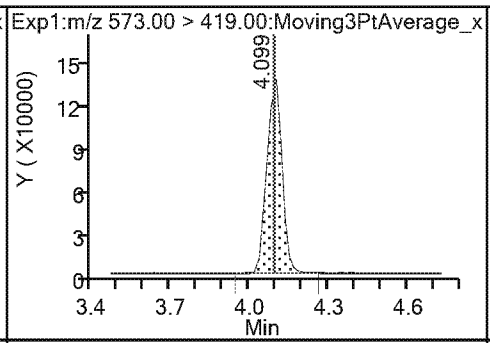
14 Perfluorodecanoic acid



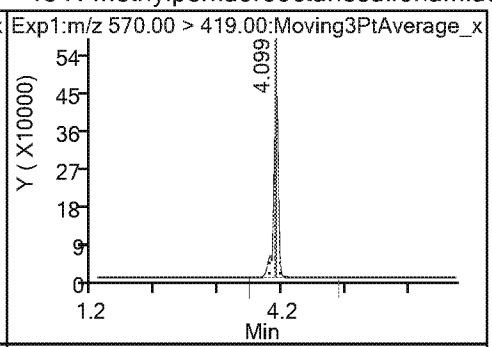
$ 10 13C2 PFDA



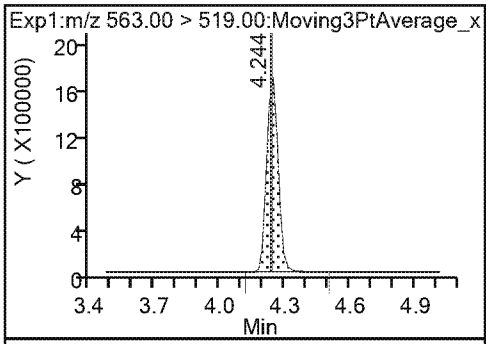
* 12 d3-NMeFOSAA



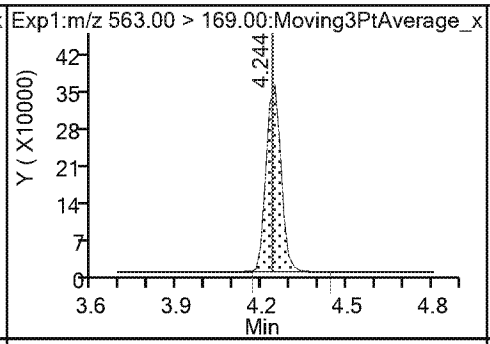
15 N-methylperfluorooctanesulfonamido



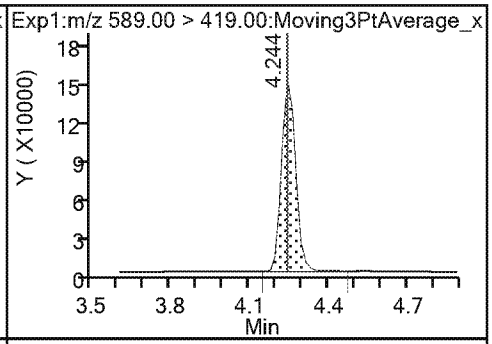
17 Perfluoroundecanoic acid



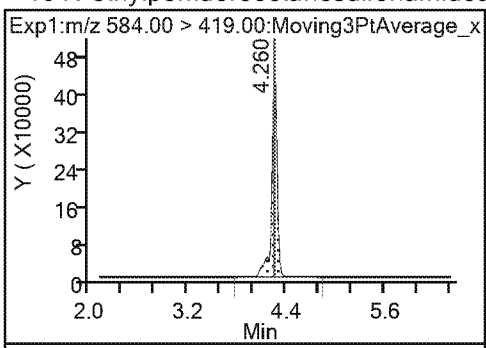
17 Perfluoroundecanoic acid



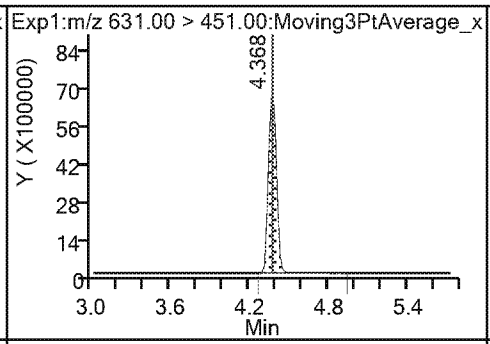
$ 11 d5-NEtFOSAA



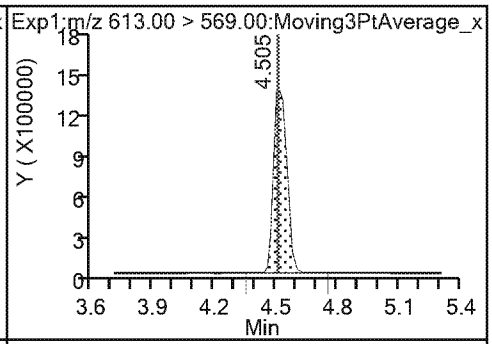
16 N-ethylperfluorooctanesulfonamidoa



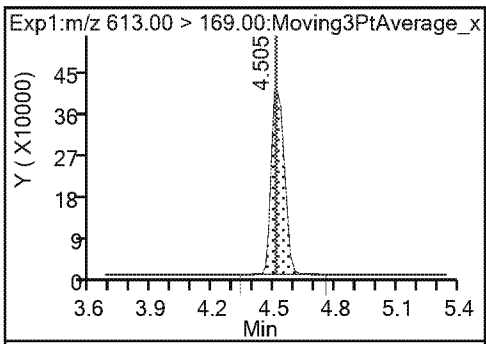
21 11-Chloroeicosafluoro-3-oxaundecan



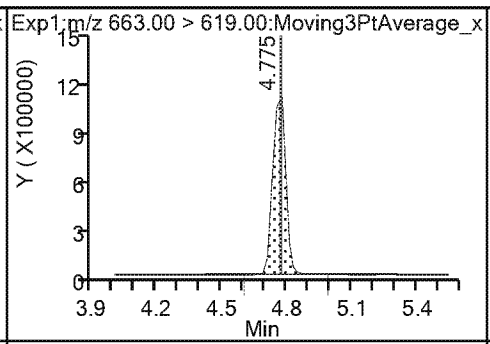
18 Perfluorododecanoic acid



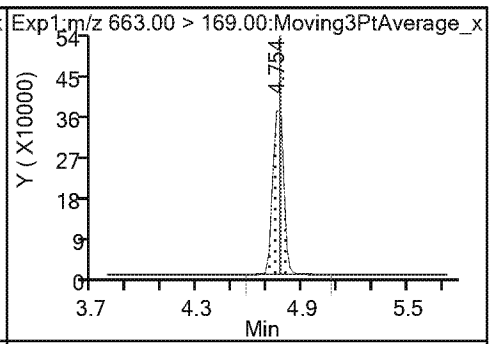
18 Perfluorododecanoic acid



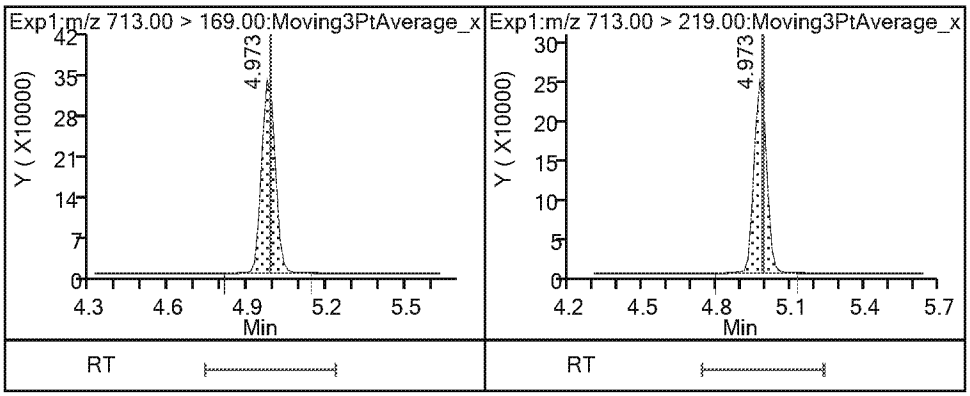
19 Perfluorotridecanoic acid



19 Perfluorotridecanoic acid



20 Perfluorotetradecanoic acid 20 Perfluorotetradecanoic acid



Calibration

/ Perfluorobutanesulfonic acid

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

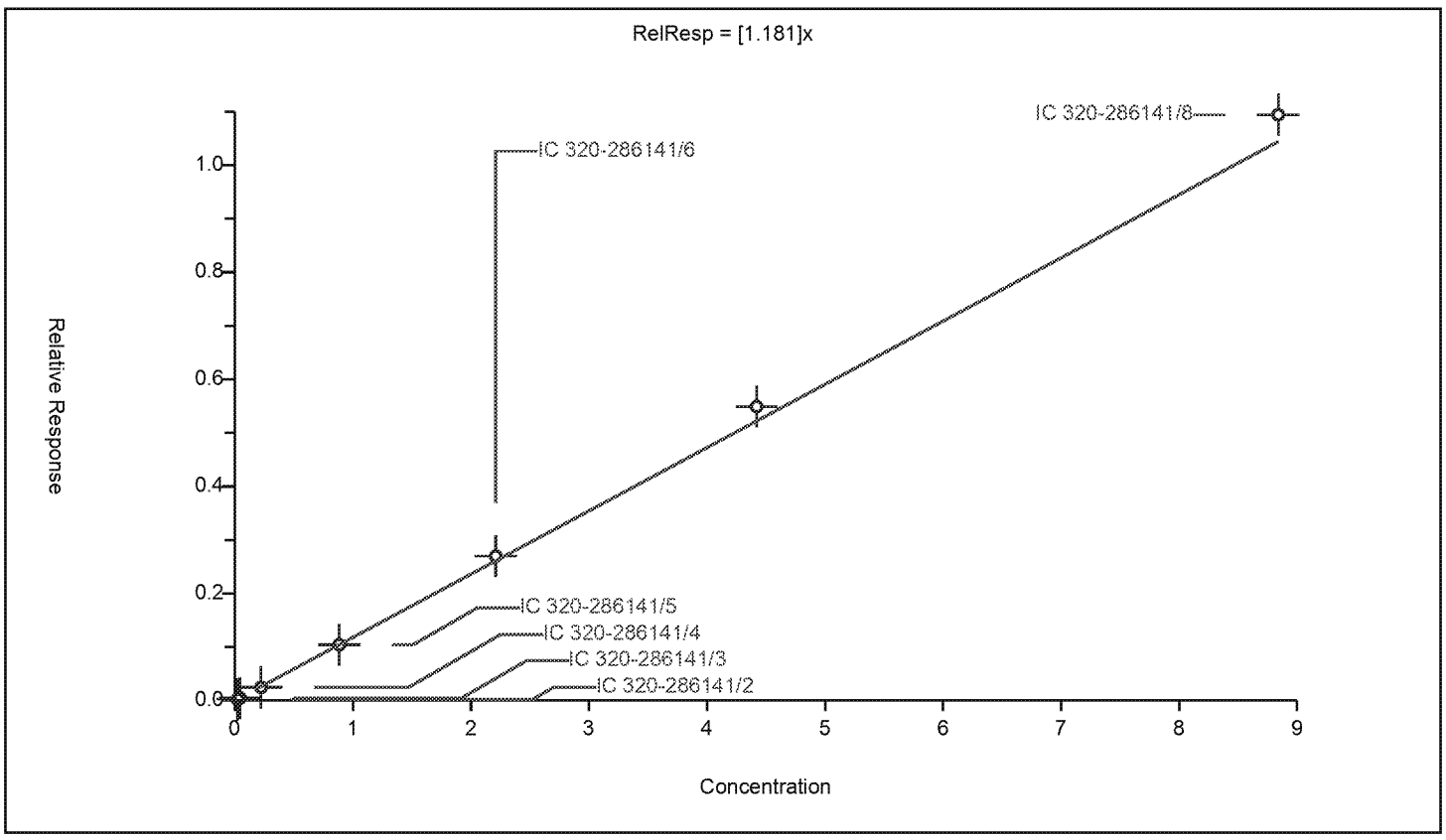
Curve Coefficients

Intercept:	0
Slope:	1.181

Error Coefficients

Standard Error:	6680000
Relative Standard Error:	4.5
Correlation Coefficient:	0.998
Coefficient of Determination (Adjusted):	0.998

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-286141/2	0.0221	0.025316	2.39	3236558.0	1.145516	Y
2	IC 320-286141/3	0.0442	0.04932	2.39	3427796.0	1.115838	Y
3	IC 320-286141/4	0.221	0.24858	2.39	3513279.0	1.124795	Y
4	IC 320-286141/5	0.884	1.043576	2.39	3122011.0	1.180516	Y
5	IC 320-286141/6	2.21	2.699216	2.39	3343739.0	1.221365	Y
6	IC 320-286141/7	4.42	5.491608	2.39	2905553.0	1.242445	Y
7	IC 320-286141/8	8.84	10.941803	2.39	3144931.0	1.237761	Y



Calibration

/ 13C2 PFHxA

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

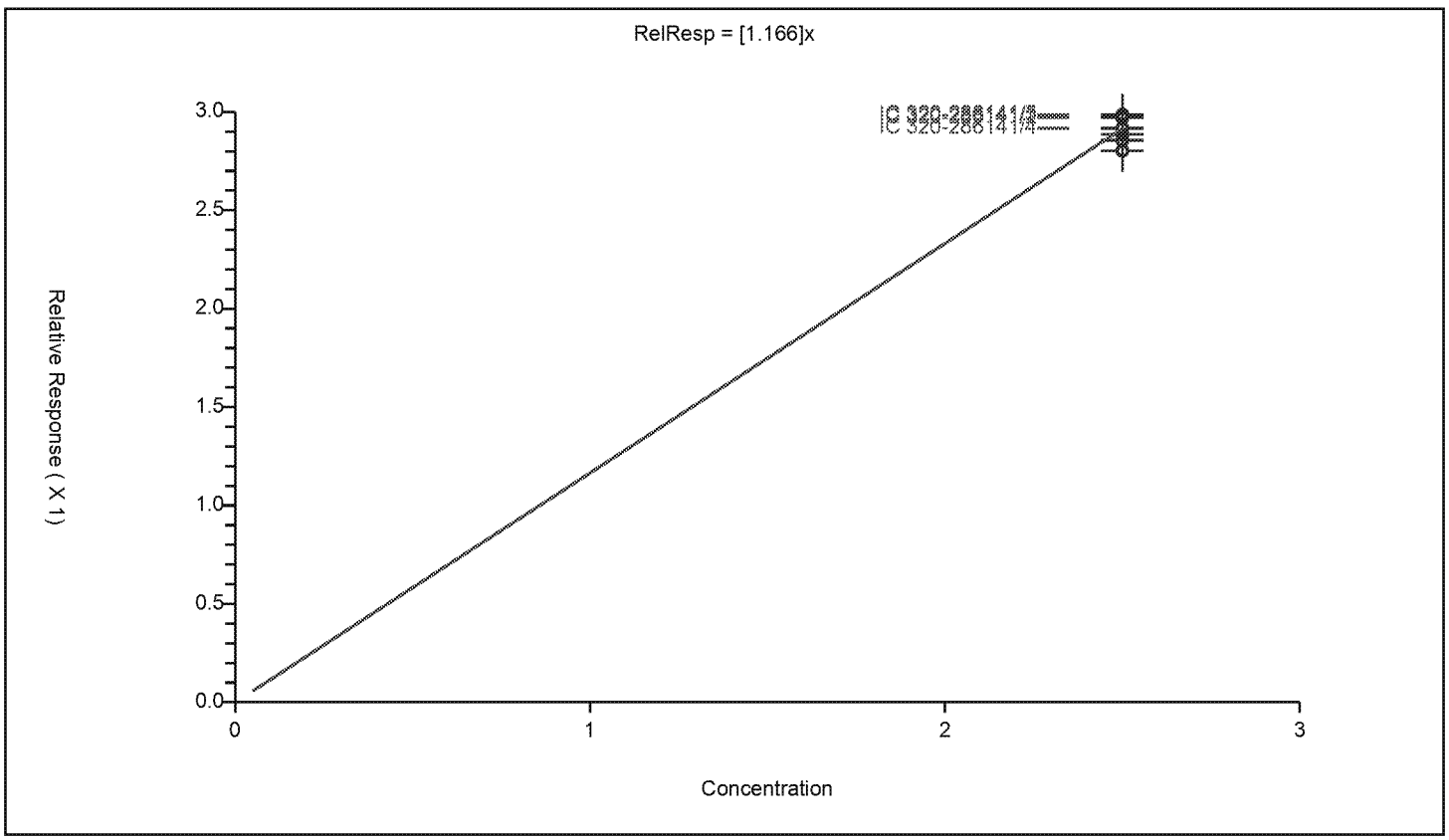
Curve Coefficients

Intercept:	0
Slope:	1.166

Error Coefficients

Standard Error:	4070000
Relative Standard Error:	2.4
Correlation Coefficient:	0.00000000000000000000
Coefficient of Determination (Adjusted):	0

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-286141/2	2.5	2.969766	2.5	3201298.0	1.187907	Y
2	IC 320-286141/3	2.5	2.855478	2.5	3393730.0	1.142191	Y
3	IC 320-286141/4	2.5	2.916825	2.5	3455285.0	1.16673	Y
4	IC 320-286141/5	2.5	2.983682	2.5	3083165.0	1.193473	Y
5	IC 320-286141/6	2.5	2.884955	2.5	3349568.0	1.153982	Y
6	IC 320-286141/7	2.5	2.986847	2.5	2939637.0	1.194739	Y
7	IC 320-286141/8	2.5	2.801715	2.5	3188191.0	1.120686	Y



Calibration

/ Perfluorohexanoic acid

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

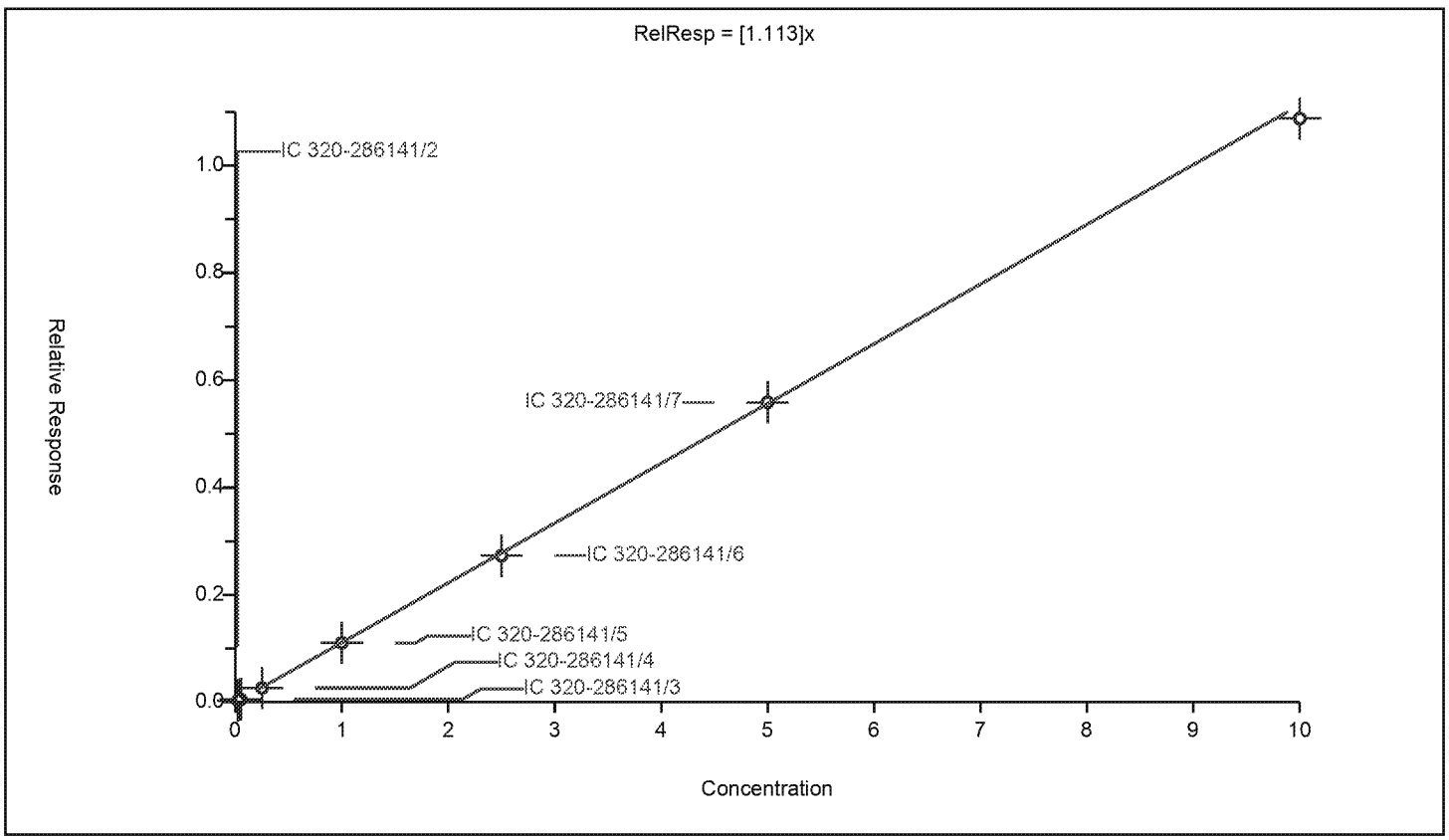
Curve Coefficients

Intercept:	0
Slope:	1.113

Error Coefficients

Standard Error:	6470000
Relative Standard Error:	5.2
Correlation Coefficient:	0.999
Coefficient of Determination (Adjusted):	0.997

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-286141/2	0.025	0.030927	2.5	3201298.0	1.237092	Y
2	IC 320-286141/3	0.05	0.054394	2.5	3393730.0	1.087874	Y
3	IC 320-286141/4	0.25	0.264978	2.5	3455285.0	1.059913	Y
4	IC 320-286141/5	1.0	1.107281	2.5	3083165.0	1.107281	Y
5	IC 320-286141/6	2.5	2.731714	2.5	3349568.0	1.092686	Y
6	IC 320-286141/7	5.0	5.587757	2.5	2939637.0	1.117551	Y
7	IC 320-286141/8	10.0	10.876237	2.5	3188191.0	1.087624	Y



Calibration / Perfluoroheptanoic acid

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

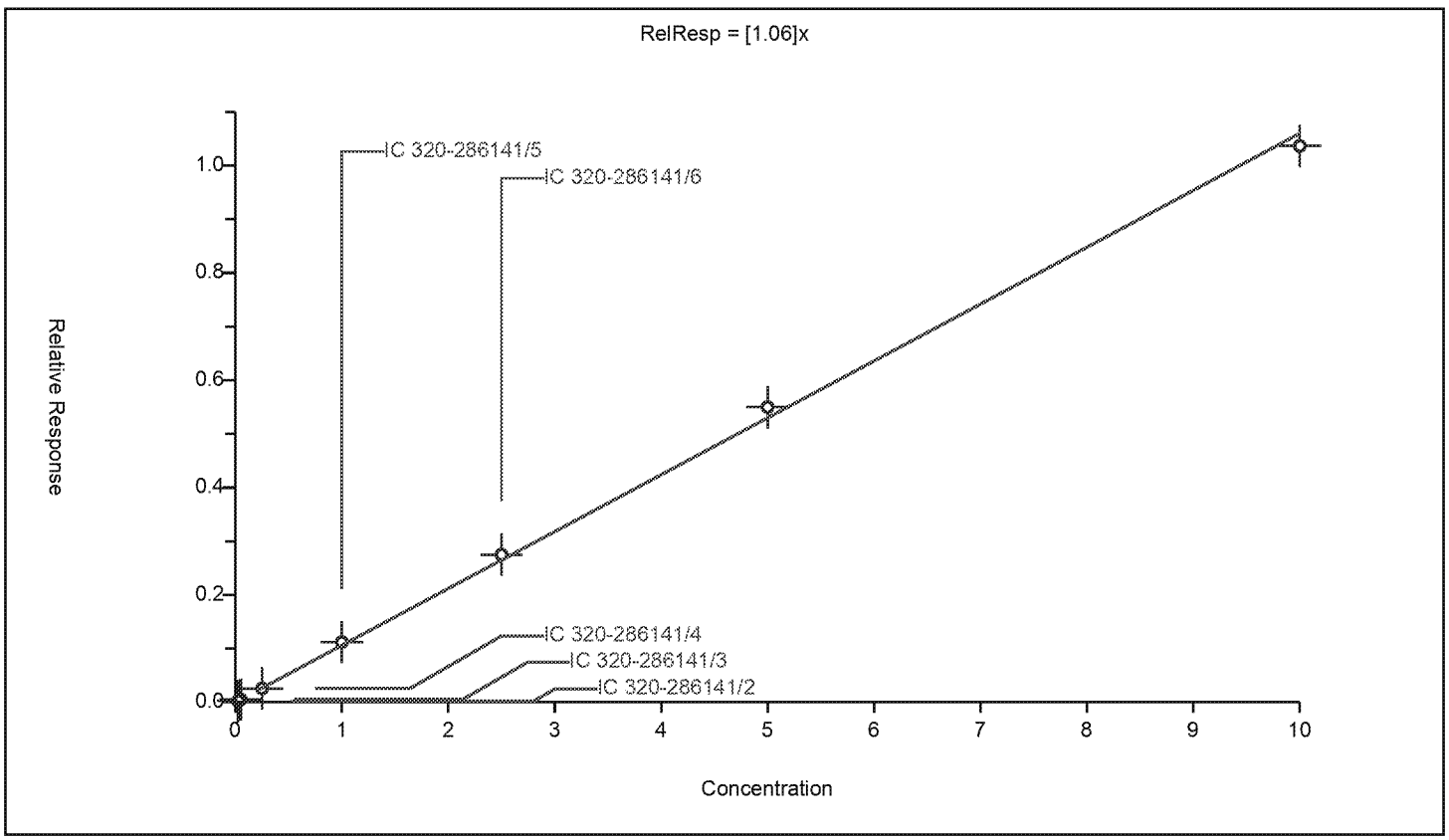
Curve Coefficients

Intercept:	0
Slope:	1.06

Error Coefficients

Standard Error:	6220000
Relative Standard Error:	4.8
Correlation Coefficient:	0.999
Coefficient of Determination (Adjusted):	0.997

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-286141/2	0.025	0.024356	2.5	3201298.0	0.97423	Y
2	IC 320-286141/3	0.05	0.052808	2.5	3393730.0	1.056154	Y
3	IC 320-286141/4	0.25	0.257718	2.5	3455285.0	1.03087	Y
4	IC 320-286141/5	1.0	1.120937	2.5	3083165.0	1.120937	Y
5	IC 320-286141/6	2.5	2.750605	2.5	3349568.0	1.100242	Y
6	IC 320-286141/7	5.0	5.499301	2.5	2939637.0	1.09986	Y
7	IC 320-286141/8	10.0	10.366008	2.5	3188191.0	1.036601	Y



Calibration / Perfluorohexanesulfonic acid

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

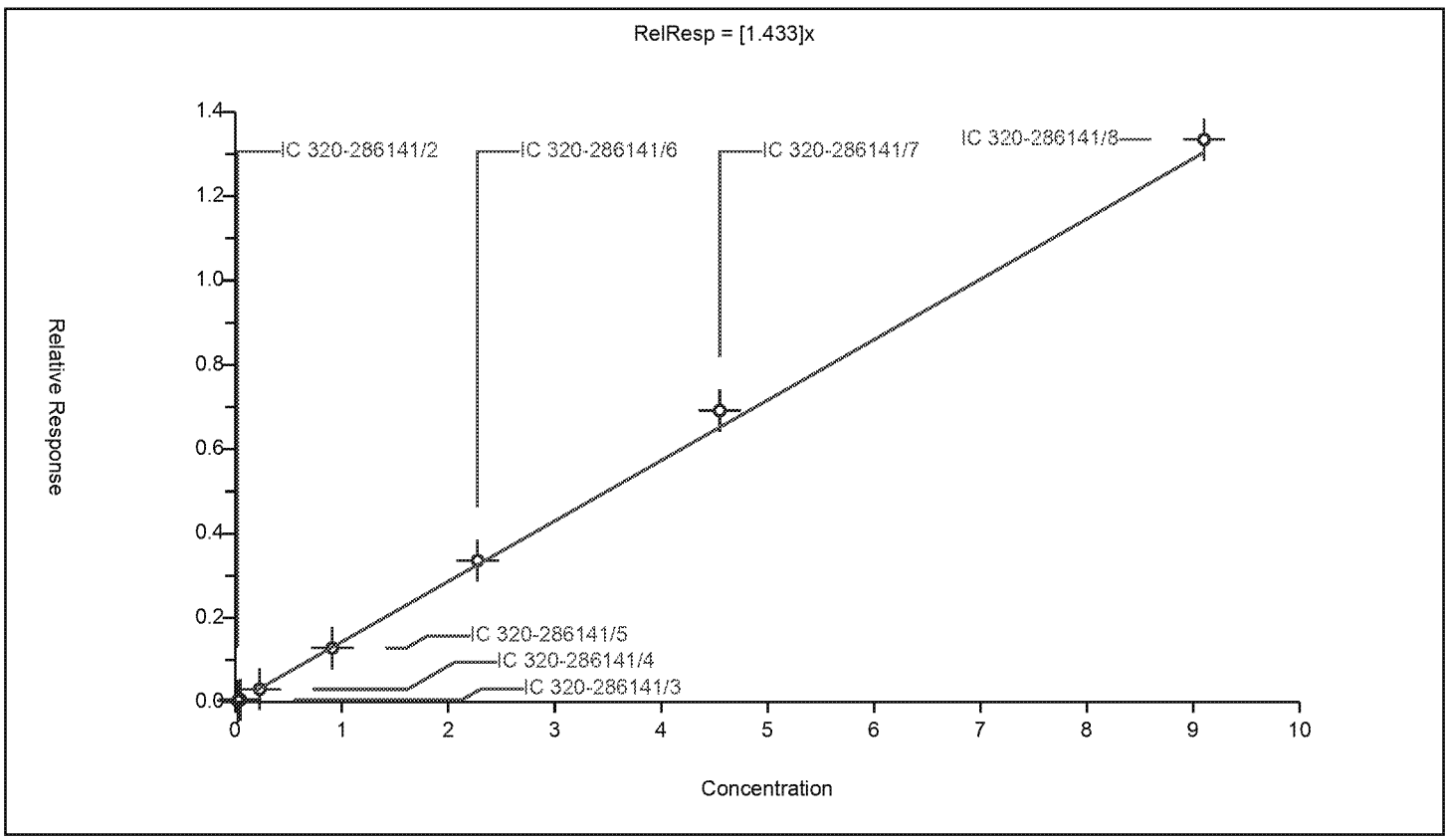
Curve Coefficients

Intercept:	0
Slope:	1.433

Error Coefficients

Standard Error:	8210000
Relative Standard Error:	4.7
Correlation Coefficient:	0.999
Coefficient of Determination (Adjusted):	0.997

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-286141/2	0.02275	0.033254	2.39	3236558.0	1.461719	Y
2	IC 320-286141/3	0.0455	0.061041	2.39	3427796.0	1.341568	Y
3	IC 320-286141/4	0.2275	0.307413	2.39	3513279.0	1.351265	Y
4	IC 320-286141/5	0.91	1.285217	2.39	3122011.0	1.412326	Y
5	IC 320-286141/6	2.275	3.359889	2.39	3343739.0	1.476874	Y
6	IC 320-286141/7	4.55	6.917906	2.39	2905553.0	1.520419	Y
7	IC 320-286141/8	9.1	13.3447	2.39	3144931.0	1.466451	Y



Calibration

/ Perfluorooctanoic acid

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

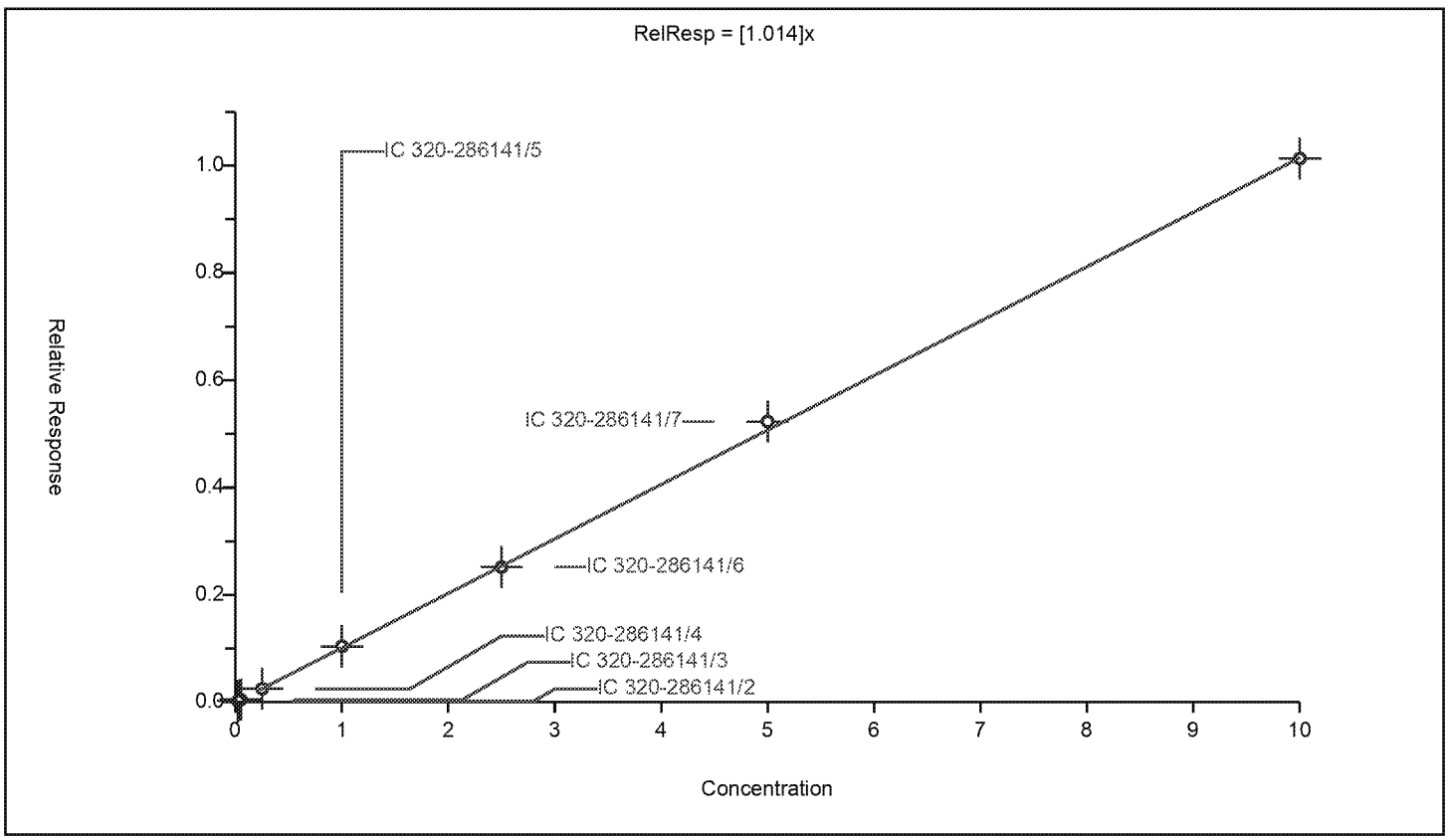
Curve Coefficients

Intercept:	0
Slope:	1.014

Error Coefficients

Standard Error:	6030000
Relative Standard Error:	2.3
Correlation Coefficient:	0.999
Coefficient of Determination (Adjusted):	0.999

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-286141/2	0.025	0.024376	2.5	3201298.0	0.975042	Y
2	IC 320-286141/3	0.05	0.050481	2.5	3393730.0	1.009612	Y
3	IC 320-286141/4	0.25	0.252089	2.5	3455285.0	1.008357	Y
4	IC 320-286141/5	1.0	1.041118	2.5	3083165.0	1.041118	Y
5	IC 320-286141/6	2.5	2.519676	2.5	3349568.0	1.007871	Y
6	IC 320-286141/7	5.0	5.229938	2.5	2939637.0	1.045988	Y
7	IC 320-286141/8	10.0	10.130974	2.5	3188191.0	1.013097	Y



Calibration

/ Perfluorooctanesulfonic acid

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

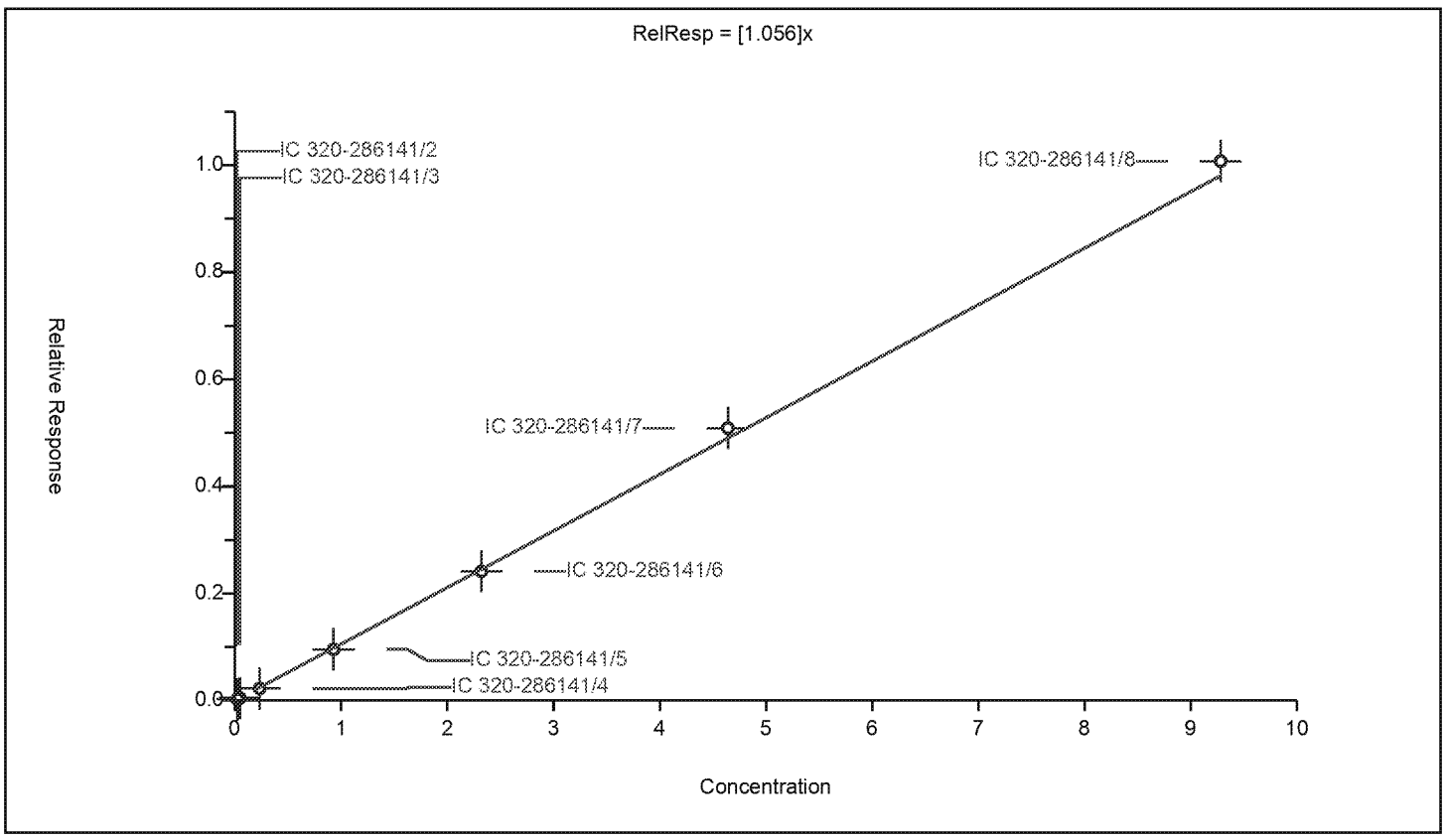
Curve Coefficients

Intercept:	0
Slope:	1.056

Error Coefficients

Standard Error:	6150000
Relative Standard Error:	4.0
Correlation Coefficient:	0.999
Coefficient of Determination (Adjusted):	0.998

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-286141/2	0.0232	0.025414	2.39	3236558.0	1.095436	Y
2	IC 320-286141/3	0.0464	0.049299	2.39	3427796.0	1.062481	Y
3	IC 320-286141/4	0.232	0.227504	2.39	3513279.0	0.980621	Y
4	IC 320-286141/5	0.928	0.958335	2.39	3122011.0	1.032689	Y
5	IC 320-286141/6	2.32	2.414559	2.39	3343739.0	1.040758	Y
6	IC 320-286141/7	4.64	5.088671	2.39	2905553.0	1.096696	Y
7	IC 320-286141/8	9.28	10.074854	2.39	3144931.0	1.085652	Y



Calibration / Perfluorononanoic acid

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

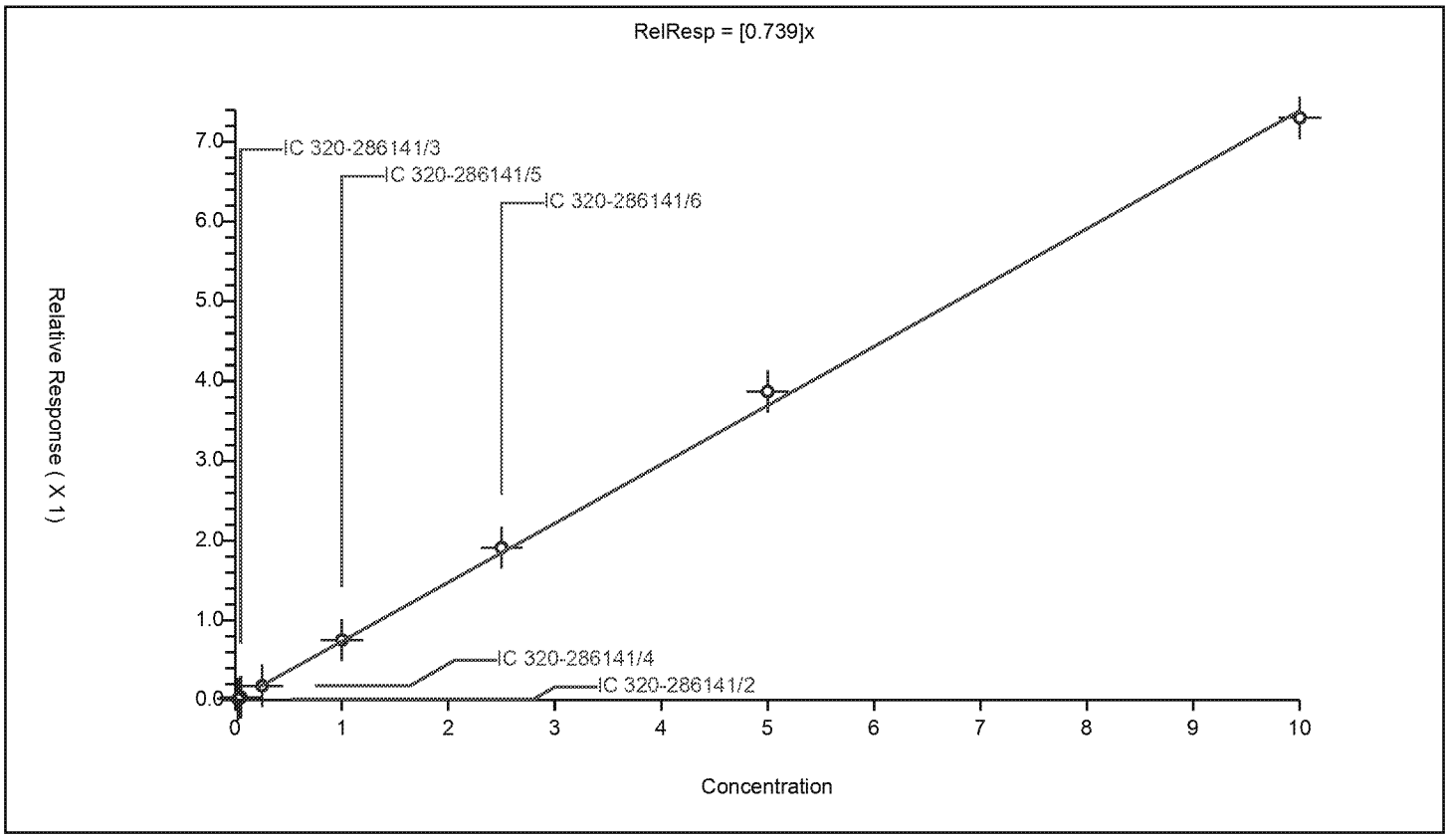
Curve Coefficients

Intercept:	0
Slope:	0.739

Error Coefficients

Standard Error:	4380000
Relative Standard Error:	4.5
Correlation Coefficient:	0.999
Coefficient of Determination (Adjusted):	0.998

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-286141/2	0.025	0.016888	2.5	3201298.0	0.675507	Y
2	IC 320-286141/3	0.05	0.037557	2.5	3393730.0	0.751135	Y
3	IC 320-286141/4	0.25	0.180734	2.5	3455285.0	0.722936	Y
4	IC 320-286141/5	1.0	0.753969	2.5	3083165.0	0.753969	Y
5	IC 320-286141/6	2.5	1.912814	2.5	3349568.0	0.765126	Y
6	IC 320-286141/7	5.0	3.870083	2.5	2939637.0	0.774017	Y
7	IC 320-286141/8	10.0	7.301515	2.5	3188191.0	0.730152	Y



Calibration

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

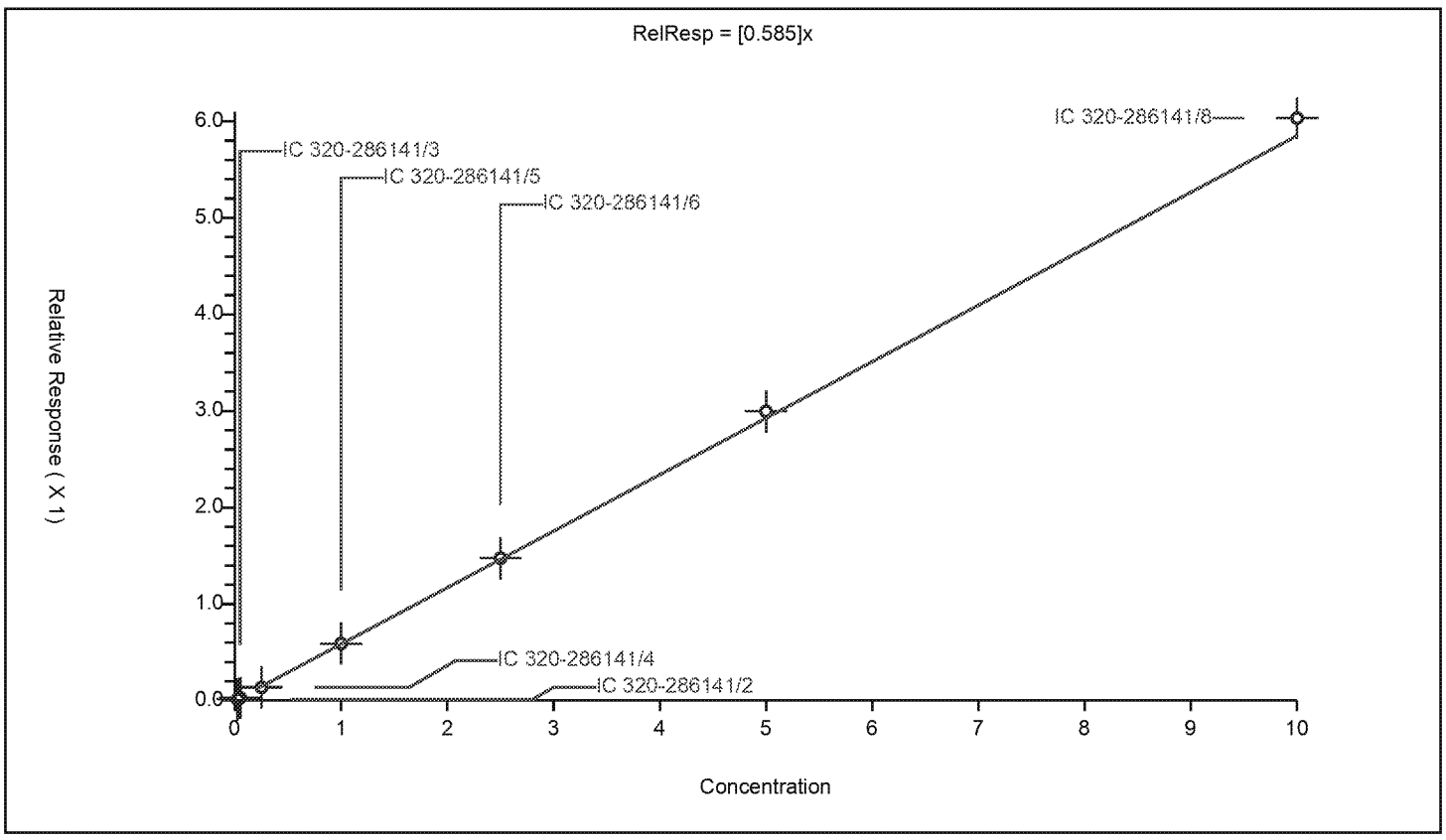
Curve Coefficients

Intercept:	0
Slope:	0.585

Error Coefficients

Standard Error:	3560000
Relative Standard Error:	3.1
Correlation Coefficient:	0.998
Coefficient of Determination (Adjusted):	0.999

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-286141/2	0.025	0.014428	2.5	3201298.0	0.57711	Y
2	IC 320-286141/3	0.05	0.029373	2.5	3393730.0	0.587451	Y
3	IC 320-286141/4	0.25	0.136987	2.5	3455285.0	0.547949	Y
4	IC 320-286141/5	1.0	0.590016	2.5	3083165.0	0.590016	Y
5	IC 320-286141/6	2.5	1.475059	2.5	3349568.0	0.590024	Y
6	IC 320-286141/7	5.0	2.996709	2.5	2939637.0	0.599342	Y
7	IC 320-286141/8	10.0	6.032636	2.5	3188191.0	0.603264	Y



Calibration

/ 13C2 PFDA

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

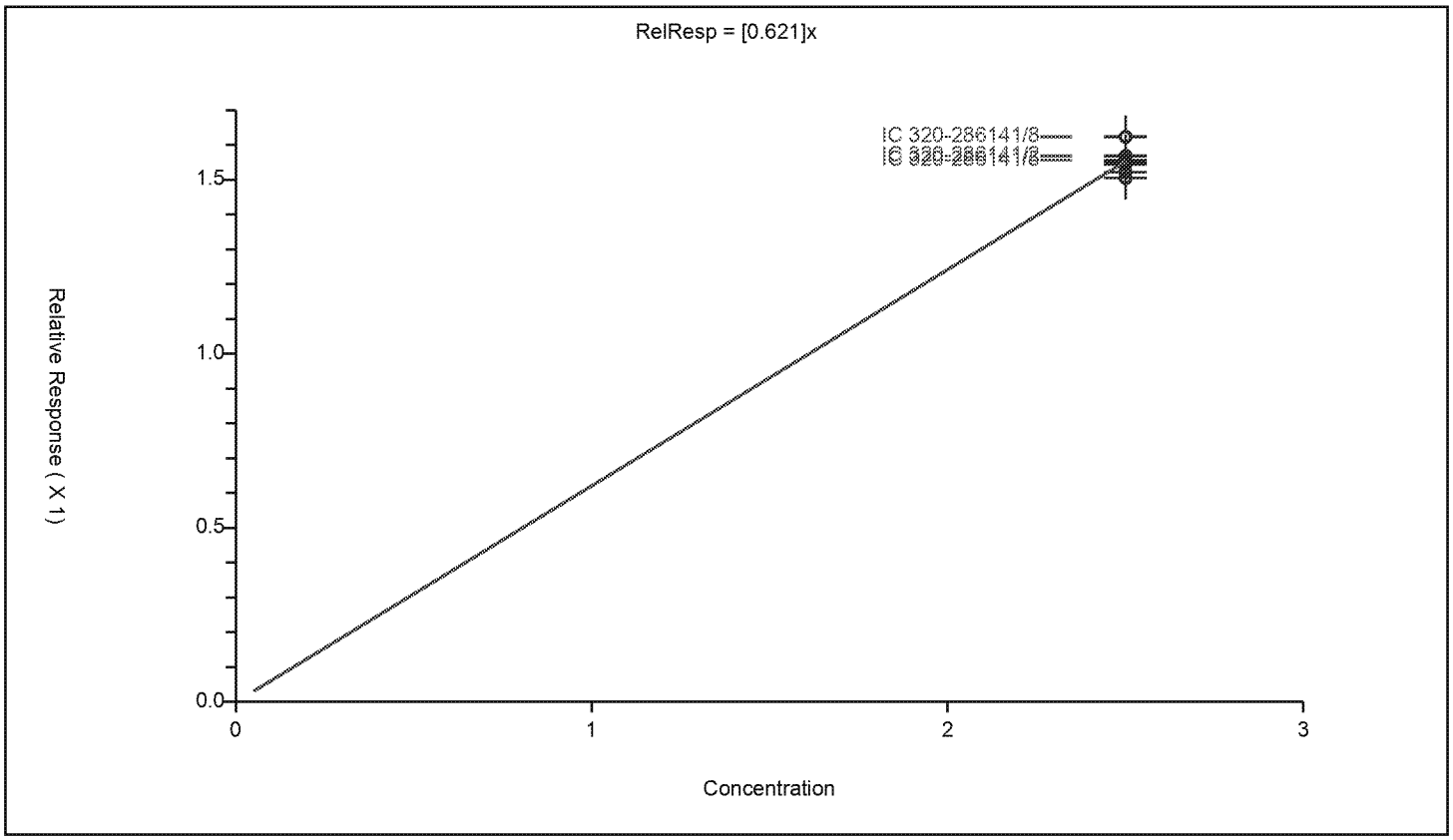
Curve Coefficients

Intercept:	0
Slope:	0.621

Error Coefficients

Standard Error:	2170000
Relative Standard Error:	2.4
Correlation Coefficient:	0.00000000000000000000
Coefficient of Determination (Adjusted):	0.000000000000000111

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-286141/2	2.5	1.568528	2.5	3201298.0	0.627411	Y
2	IC 320-286141/3	2.5	1.521364	2.5	3393730.0	0.608545	Y
3	IC 320-286141/4	2.5	1.548263	2.5	3455285.0	0.619305	Y
4	IC 320-286141/5	2.5	1.556695	2.5	3083165.0	0.622678	Y
5	IC 320-286141/6	2.5	1.504862	2.5	3349568.0	0.601945	Y
6	IC 320-286141/7	2.5	1.544192	2.5	2939637.0	0.617677	Y
7	IC 320-286141/8	2.5	1.623469	2.5	3188191.0	0.649388	Y



Calibration / **N-methylperfluorooctanesulfonamidoacetic acid**

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

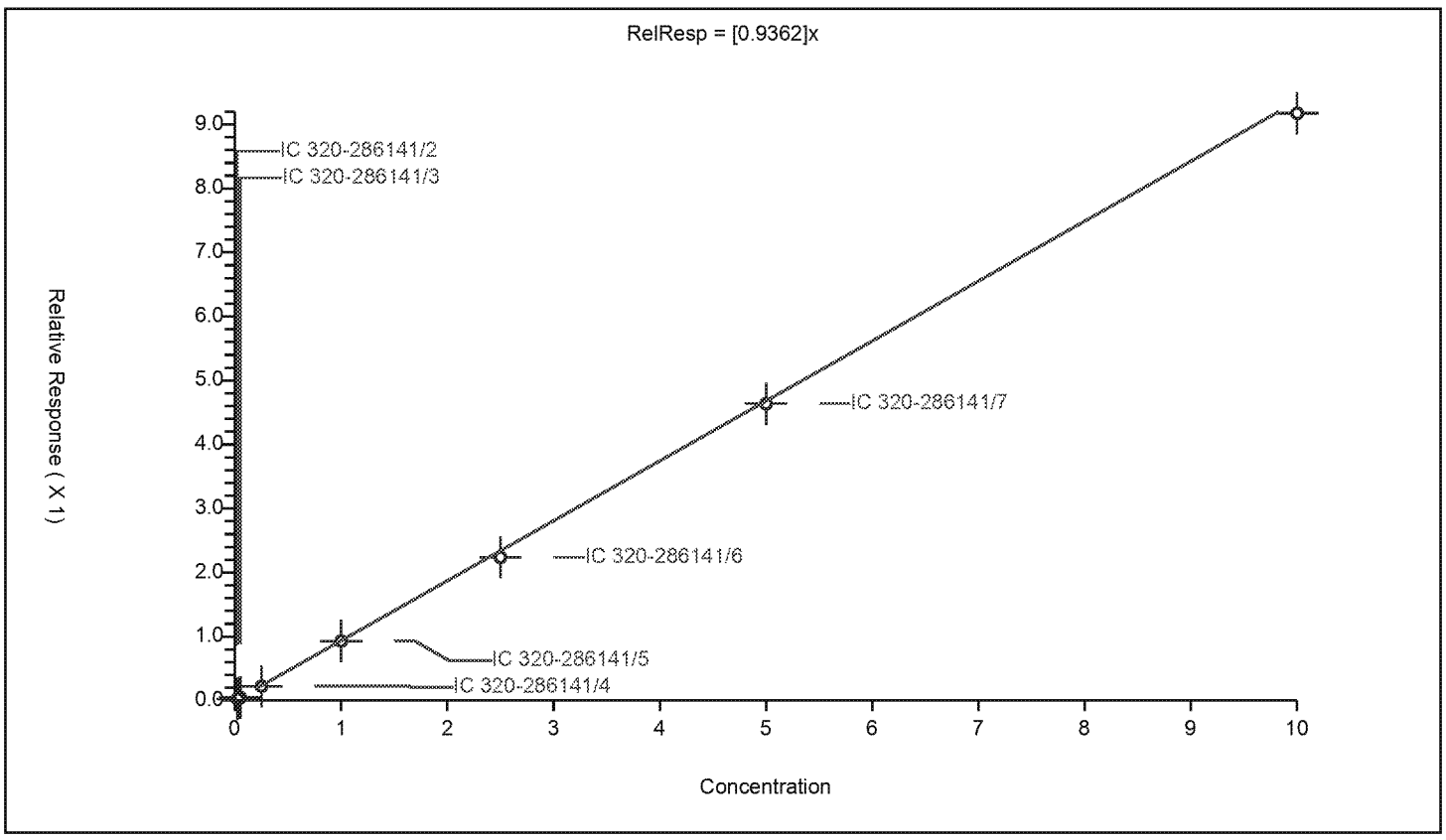
Curve Coefficients

Intercept:	0
Slope:	0.9362

Error Coefficients

Standard Error:	878000
Relative Standard Error:	4.8
Correlation Coefficient:	0.997
Coefficient of Determination (Adjusted):	0.997

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-286141/2	0.025	0.025492	2.5	524272.0	1.0197	Y
2	IC 320-286141/3	0.05	0.048575	2.5	552133.0	0.971505	Y
3	IC 320-286141/4	0.25	0.223129	2.5	521234.0	0.892517	Y
4	IC 320-286141/5	1.0	0.929533	2.5	480279.0	0.929533	Y
5	IC 320-286141/6	2.5	2.237377	2.5	506515.0	0.894951	Y
6	IC 320-286141/7	5.0	4.63833	2.5	457634.0	0.927666	Y
7	IC 320-286141/8	10.0	9.173657	2.5	521333.0	0.917366	Y



Calibration

/ Perfluoroundecanoic acid

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

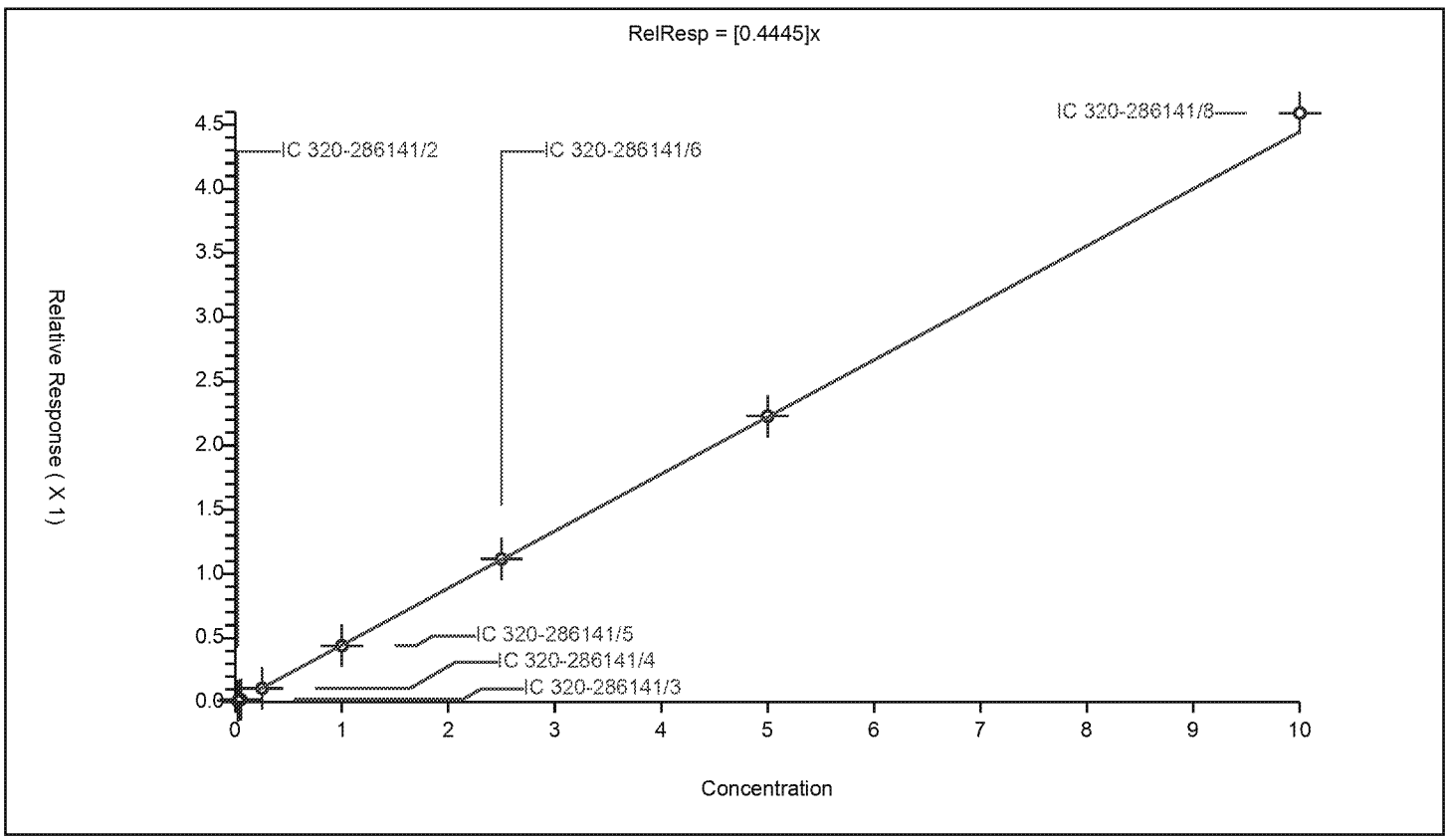
Curve Coefficients

Intercept:	0
Slope:	0.4445

Error Coefficients

Standard Error:	2700000
Relative Standard Error:	2.1
Correlation Coefficient:	0.997
Coefficient of Determination (Adjusted):	0.999

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-286141/2	0.025	0.011319	2.5	3201298.0	0.452754	Y
2	IC 320-286141/3	0.05	0.021666	2.5	3393730.0	0.433329	Y
3	IC 320-286141/4	0.25	0.108572	2.5	3455285.0	0.434288	Y
4	IC 320-286141/5	1.0	0.439769	2.5	3083165.0	0.439769	Y
5	IC 320-286141/6	2.5	1.116323	2.5	3349568.0	0.446529	Y
6	IC 320-286141/7	5.0	2.229342	2.5	2939637.0	0.445868	Y
7	IC 320-286141/8	10.0	4.591306	2.5	3188191.0	0.459131	Y



Calibration

/ d5-NEtFOSAA

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

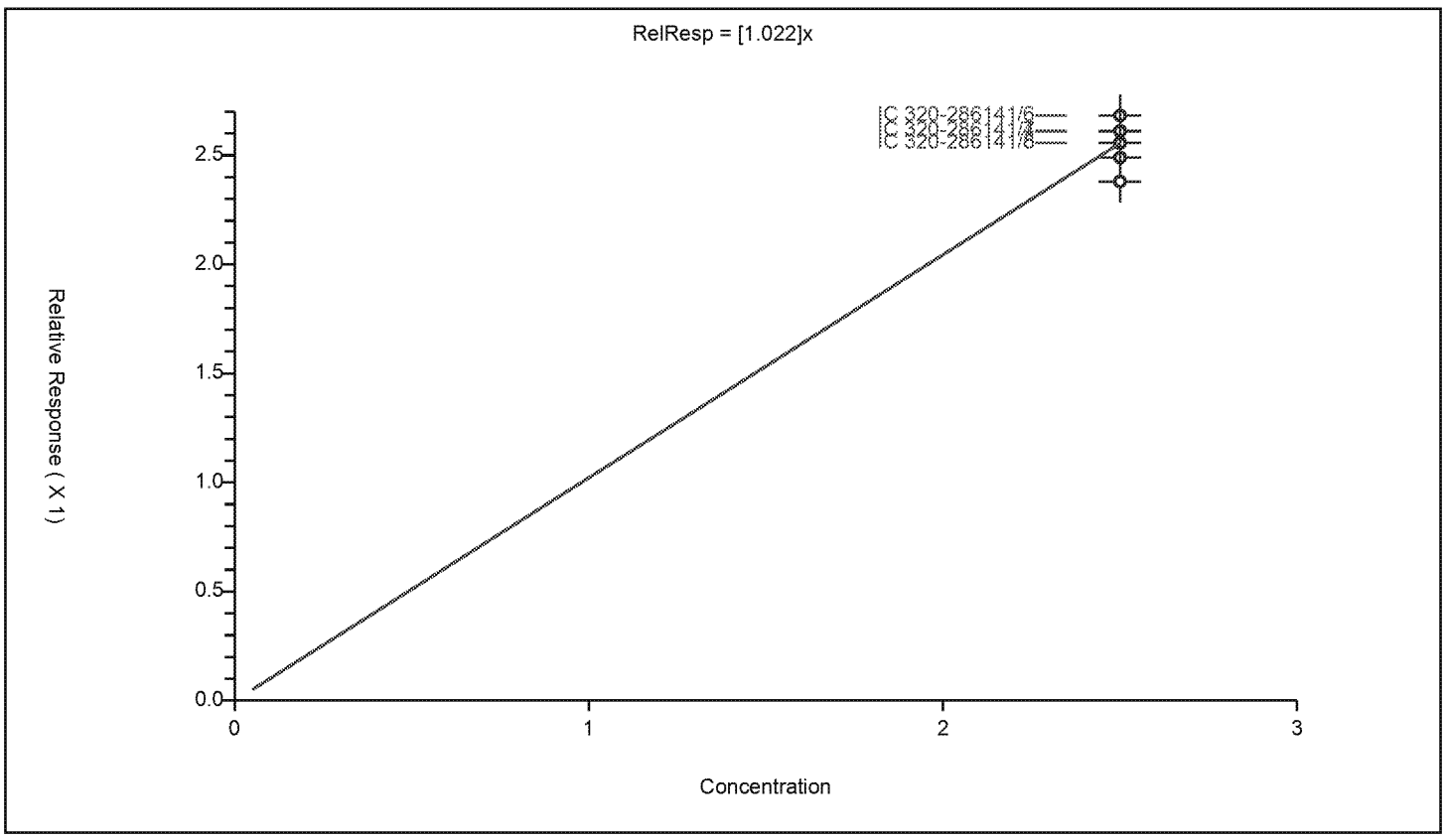
Curve Coefficients

Intercept:	0
Slope:	1.022

Error Coefficients

Standard Error:	562000
Relative Standard Error:	3.8
Correlation Coefficient:	NA
Coefficient of Determination (Adjusted):	0.000000000000000222

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-286141/2	2.5	2.379819	2.5	524272.0	0.951928	Y
2	IC 320-286141/3	2.5	2.489292	2.5	552133.0	0.995717	Y
3	IC 320-286141/4	2.5	2.611764	2.5	521234.0	1.044705	Y
4	IC 320-286141/5	2.5	2.555738	2.5	480279.0	1.022295	Y
5	IC 320-286141/6	2.5	2.682063	2.5	506515.0	1.072825	Y
6	IC 320-286141/7	2.5	2.610334	2.5	457634.0	1.044134	Y
7	IC 320-286141/8	2.5	2.556356	2.5	521333.0	1.022542	Y



Calibration / **N-ethylperfluorooctanesulfonamidoacetic acid**

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

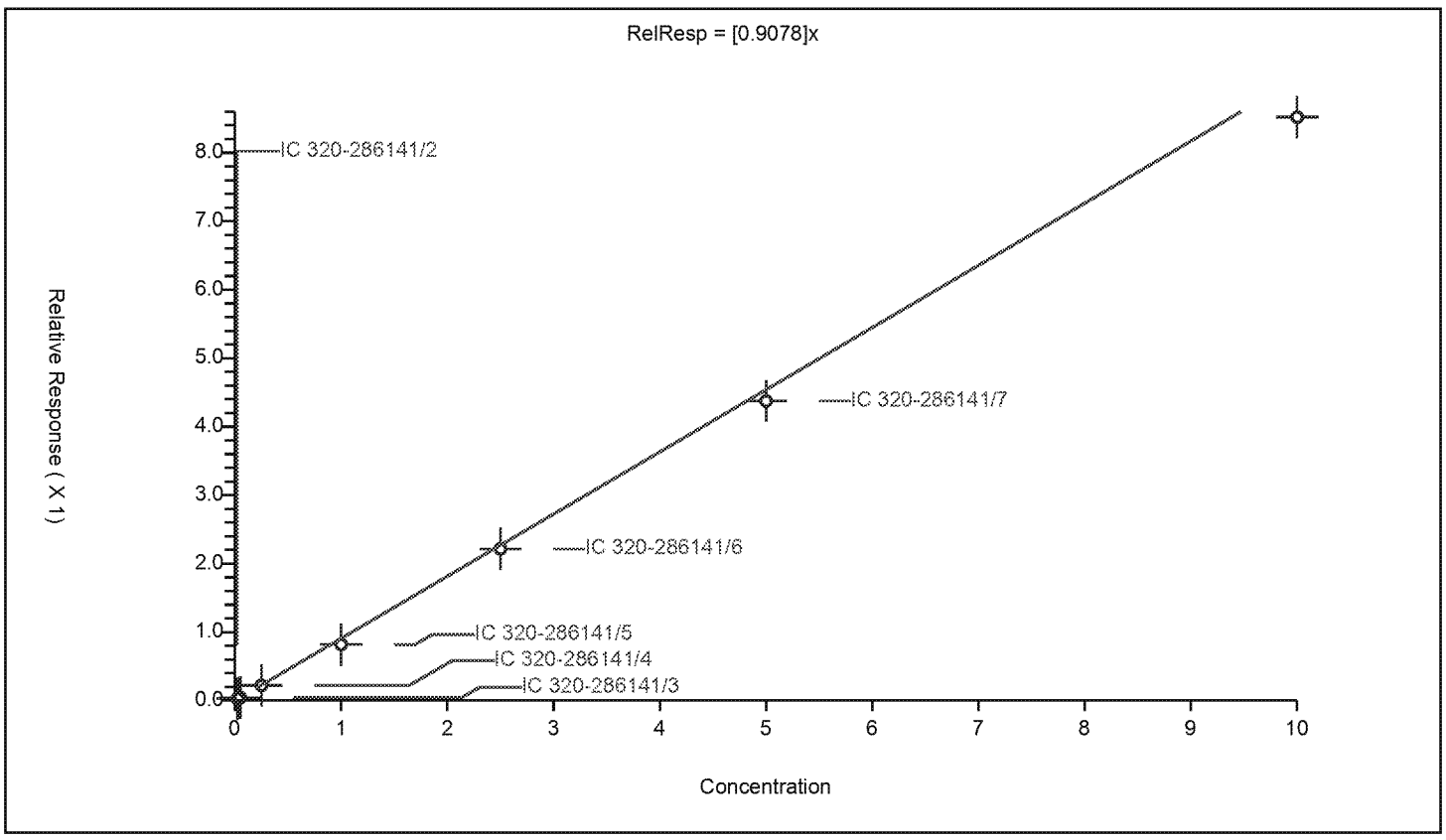
Curve Coefficients

Intercept:	0
Slope:	0.9078

Error Coefficients

Standard Error:	819000
Relative Standard Error:	12.0
Correlation Coefficient:	0.997
Coefficient of Determination (Adjusted):	0.980

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-286141/2	0.025	0.028706	2.5	524272.0	1.148259	Y
2	IC 320-286141/3	0.05	0.044446	2.5	552133.0	0.888916	Y
3	IC 320-286141/4	0.25	0.221566	2.5	521234.0	0.886262	Y
4	IC 320-286141/5	1.0	0.818712	2.5	480279.0	0.818712	Y
5	IC 320-286141/6	2.5	2.215038	2.5	506515.0	0.886015	Y
6	IC 320-286141/7	5.0	4.373998	2.5	457634.0	0.8748	Y
7	IC 320-286141/8	10.0	8.519219	2.5	521333.0	0.851922	Y



Calibration / Perfluorododecanoic acid

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

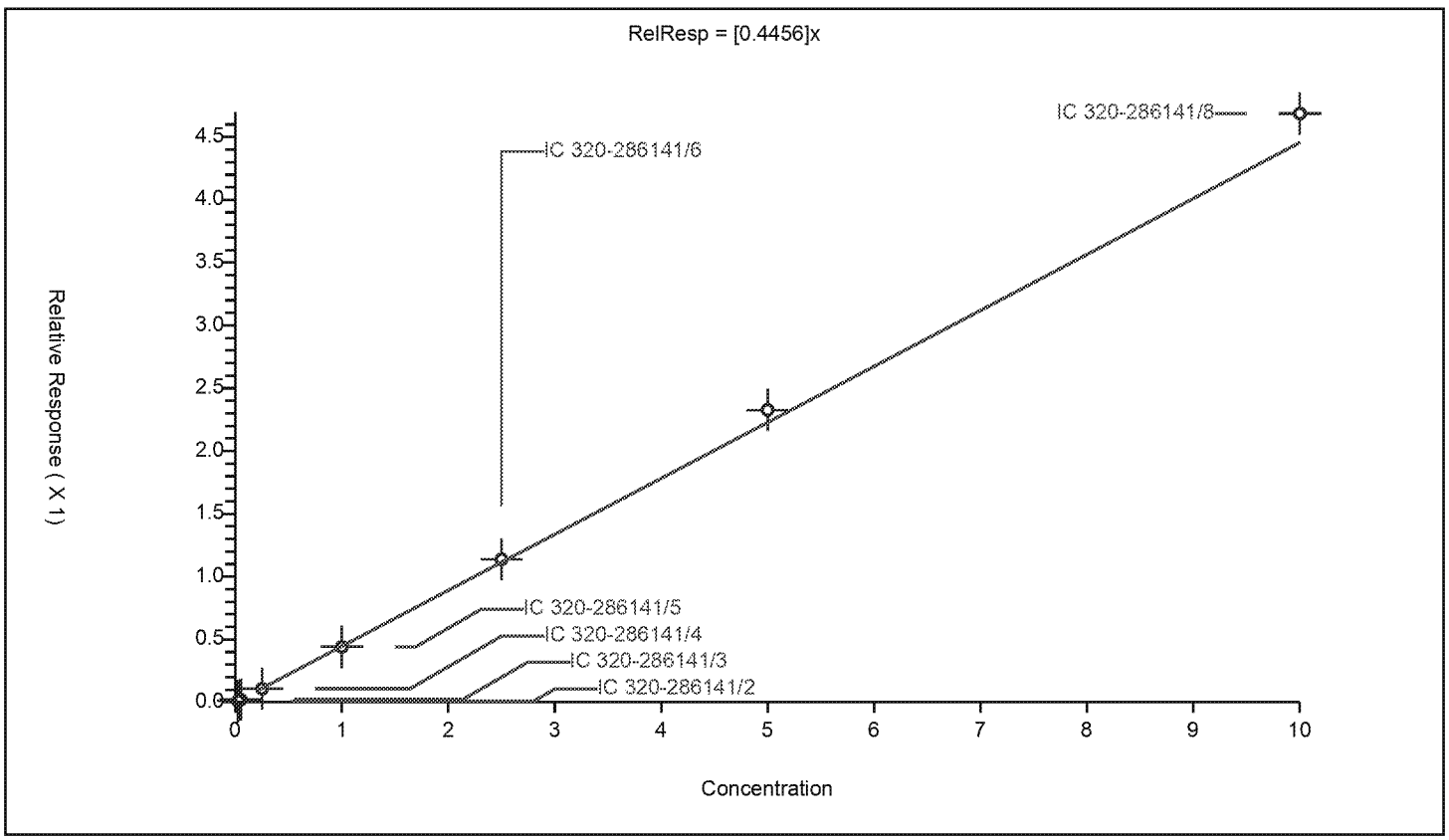
Curve Coefficients

Intercept:	0
Slope:	0.4456

Error Coefficients

Standard Error:	2760000
Relative Standard Error:	4.1
Correlation Coefficient:	0.998
Coefficient of Determination (Adjusted):	0.998

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-286141/2	0.025	0.010461	2.5	3201298.0	0.418455	Y
2	IC 320-286141/3	0.05	0.021864	2.5	3393730.0	0.437277	Y
3	IC 320-286141/4	0.25	0.108048	2.5	3455285.0	0.432193	Y
4	IC 320-286141/5	1.0	0.44181	2.5	3083165.0	0.44181	Y
5	IC 320-286141/6	2.5	1.138215	2.5	3349568.0	0.455286	Y
6	IC 320-286141/7	5.0	2.327285	2.5	2939637.0	0.465457	Y
7	IC 320-286141/8	10.0	4.686702	2.5	3188191.0	0.46867	Y



Calibration

/ Perfluorotridecanoic acid

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

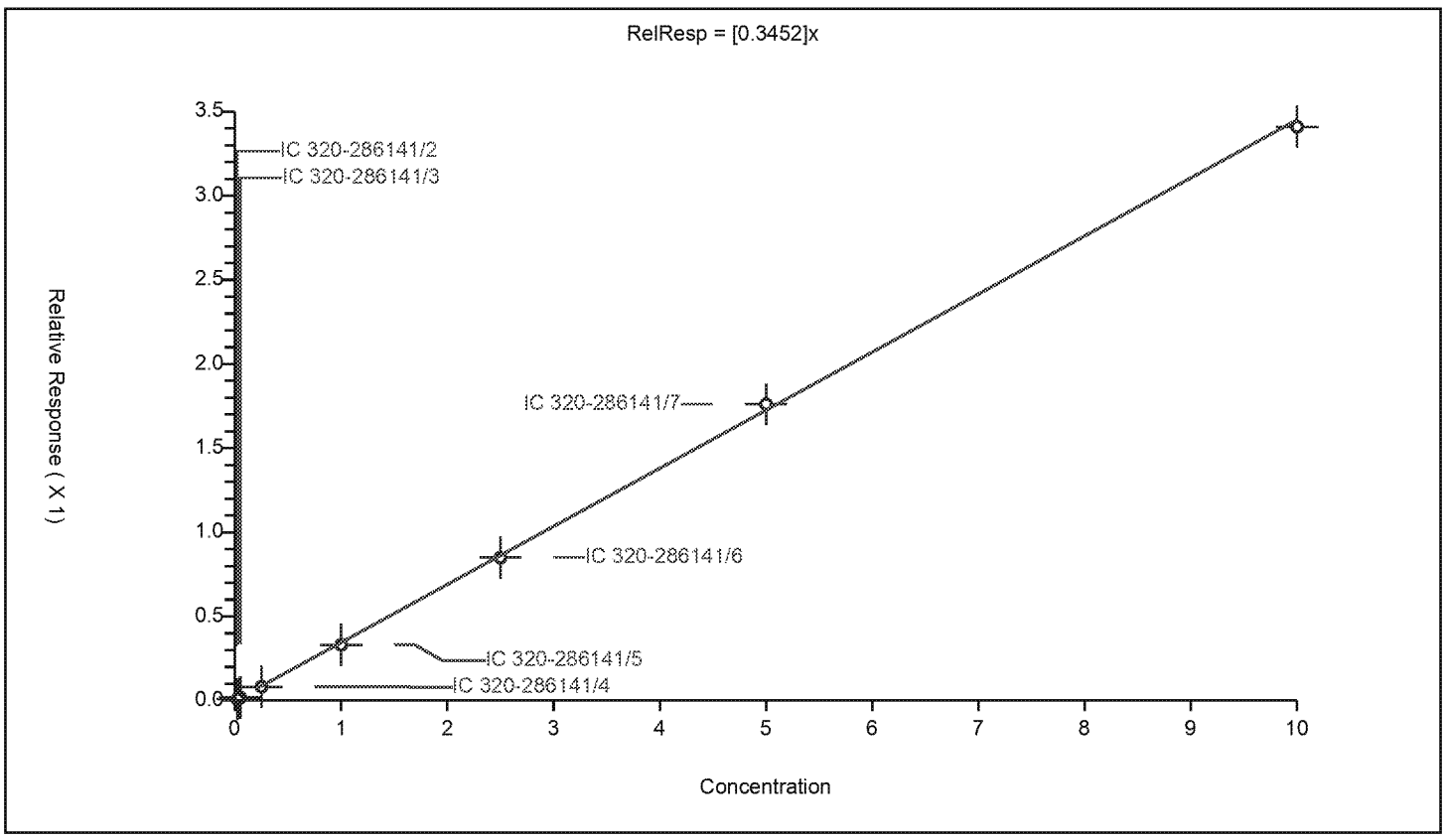
Curve Coefficients

Intercept:	0
Slope:	0.3452

Error Coefficients

Standard Error:	2030000
Relative Standard Error:	4.2
Correlation Coefficient:	0.999
Coefficient of Determination (Adjusted):	0.998

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-286141/2	0.025	0.008801	2.5	3201298.0	0.352045	Y
2	IC 320-286141/3	0.05	0.018544	2.5	3393730.0	0.370875	Y
3	IC 320-286141/4	0.25	0.082178	2.5	3455285.0	0.328711	Y
4	IC 320-286141/5	1.0	0.331211	2.5	3083165.0	0.331211	Y
5	IC 320-286141/6	2.5	0.849819	2.5	3349568.0	0.339927	Y
6	IC 320-286141/7	5.0	1.761438	2.5	2939637.0	0.352288	Y
7	IC 320-286141/8	10.0	3.410228	2.5	3188191.0	0.341023	Y



Calibration / Perfluorotetradecanoic acid

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ISTD
Response Base:	AREA
RF Rounding:	0

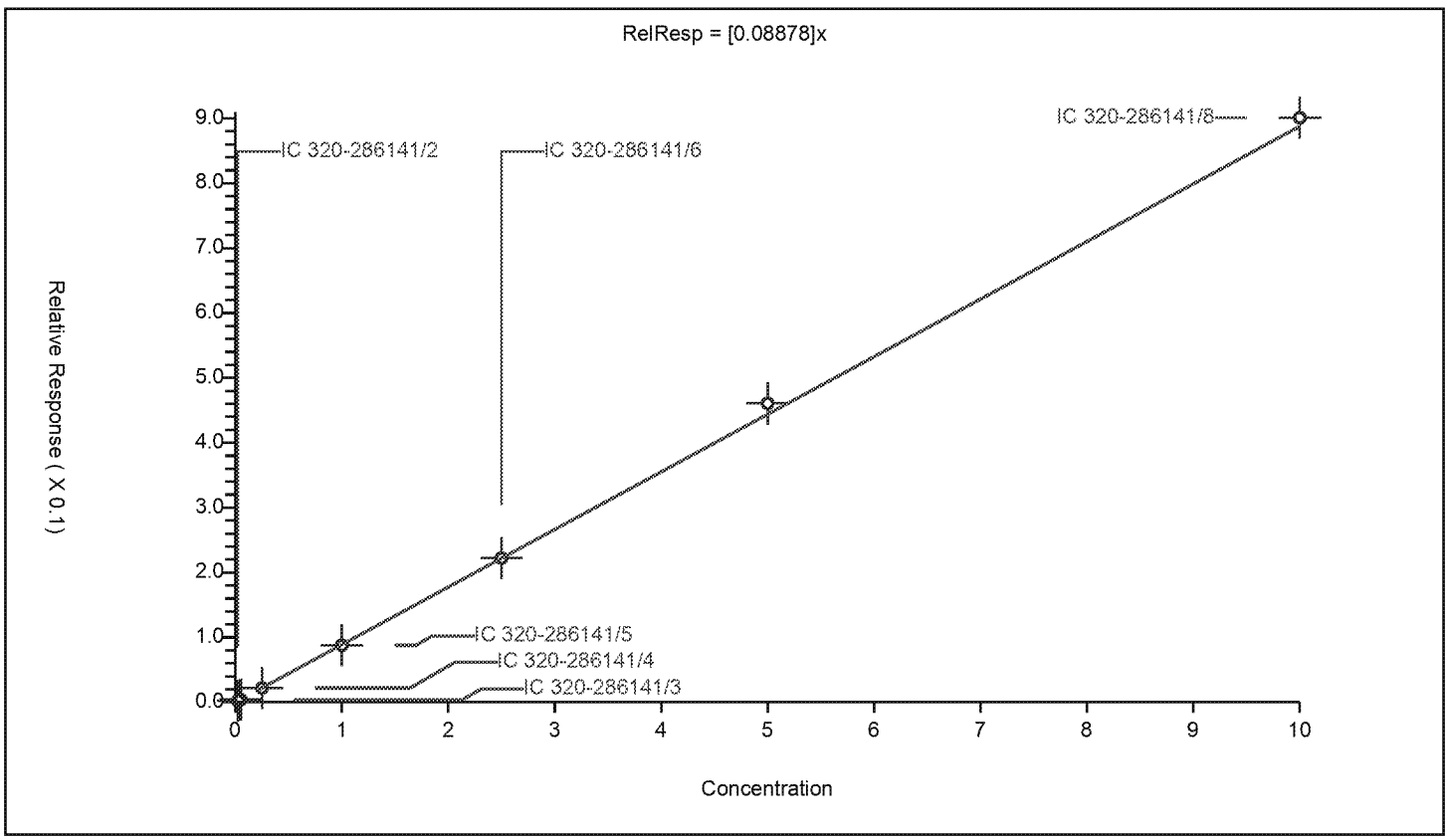
Curve Coefficients

Intercept:	0
Slope:	0.08878

Error Coefficients

Standard Error:	535000
Relative Standard Error:	3.4
Correlation Coefficient:	0.999
Coefficient of Determination (Adjusted):	0.999

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-286141/2	0.025	0.002292	2.5	3201298.0	0.091682	Y
2	IC 320-286141/3	0.05	0.004161	2.5	3393730.0	0.083212	Y
3	IC 320-286141/4	0.25	0.021914	2.5	3455285.0	0.087657	Y
4	IC 320-286141/5	1.0	0.087751	2.5	3083165.0	0.087751	Y
5	IC 320-286141/6	2.5	0.222228	2.5	3349568.0	0.088891	Y
6	IC 320-286141/7	5.0	0.460706	2.5	2939637.0	0.092141	Y
7	IC 320-286141/8	10.0	0.900941	2.5	3188191.0	0.090094	Y



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Lab Sample ID: CCVL 320-284068/10 Calibration Date: 03/26/2019 16:42

Instrument ID: A8_N Calib Start Date: 03/26/2019 15:43

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 03/26/2019 16:27

Lab File ID: 2019.03.26_537.1CURVE_011.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid	Ave	1.210	1.174		0.0429	0.0442	-3.0	50.0
Perfluorohexanoic acid	Ave	1.095	1.155		0.0527	0.0500	5.5	50.0
Perfluoro(2-propoxypropanoic) acid	Ave	0.2582	0.2560		0.0496	0.0500	-0.9	50.0
Perfluoroheptanoic acid	Ave	1.081	1.062		0.0491	0.0500	-1.7	50.0
Perfluorohexanesulfonic acid	Ave	1.423	1.411		0.0451	0.0455	-0.8	50.0
DONA	Ave	2.890	2.924		0.0477	0.0471	1.2	50.0
Perfluorooctanoic acid	Ave	1.019	0.9681			0.0500	-5.0	50.0
Perfluorononanoic acid	Ave	0.7461	0.7306		0.0490	0.0500	-2.1	50.0
Perfluorooctanesulfonic acid	Ave	1.057	1.097		0.0482	0.0464	3.8	50.0
9-Chlorohexadecafluoro-3-oxa nonane-1-sulfonate	Ave	1.709	1.740		0.0474	0.0466	1.8	50.0
Perfluorodecanoic acid	Ave	0.5861	0.6261		0.0534	0.0500	6.8	50.0
N-methylperfluorooctanesulfo namidoacetic acid	Ave	0.9225	1.097		0.0594	0.0500	18.9	50.0
Perfluoroundecanoic acid	Ave	0.4541	0.4389		0.0483	0.0500	-3.3	50.0
N-ethylperfluorooctanesulfon amidoacetic acid	Ave	0.8747	0.9024		0.0516	0.0500	3.2	50.0
11-Chloroeicosafluoro-3-oxau ndecane-1-sulfonate	Ave	2.128	2.179		0.0482	0.0471	2.4	50.0
Perfluorododecanoic acid	Ave	0.4418	0.4474		0.0506	0.0500	1.2	50.0
Perfluorotridecanoic acid	Ave	0.3657	0.4352		0.0595	0.0500	19.0	50.0
Perfluorotetradecanoic acid	Ave	0.1010	0.1295		0.0641	0.0500	28.2	50.0
13C2 PFHxA	Ave	1.158	1.157		2.50	2.50	-0.1	30.0
13C2 PFDA	Ave	0.6165	0.6462		2.62	2.50	4.8	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_011.d
Lims ID: CCVL
Client ID:
Sample Type: CCVL
Inject. Date: 26-Mar-2019 16:42:48 ALS Bottle#: 2 Worklist Smp#: 10
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: CCV L2
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub13

Method: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 26-Mar-2019 17:33:27 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0323

First Level Reviewer: Ex. 4 CBI Date: 26-Mar-2019 17:30:29
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.960	1.973	-0.013	1.000	64824	0.0429	Target=1.47	99.2	
298.90 > 99.00	1.960	1.973	-0.013	1.000	43530		1.49(0.00-0.00)	69.5	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.322	2.322	0.0	0.735	68578	0.0527	Target=11.08	21.6	
313.00 > 119.00	2.322	2.322	0.0	0.735	7328		9.36(0.00-0.00)	12.0	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.322	2.322	0.0	1.000	3433440	2.50		5924	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.448	2.459	-0.011	1.000	142163	2.27		939	
22 Perfluoro(2-propoxypropanoic) acid									
329.10 > 285.00	2.448	2.463	-0.015	1.000	15196	0.0496		5.8	
4 Perfluoroheptanoic acid									M
363.00 > 319.00	2.757	2.760	-0.003	1.000	63032	0.0491	Target=2.42	5.9	M
363.00 > 169.00	2.757	2.760	-0.003	1.000	26733		2.36(0.00-0.00)	77.4	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	2.757	2.772	-0.015	1.000	80202	0.0451	Target=2.92	206	
399.00 > 99.00	2.757	2.772	-0.015	1.000	29642		2.71(0.00-0.00)	22.6	
24 DONA									
377.00 > 251.00	2.798	2.801	-0.003	1.000	163530	0.0477	Target=1.50	461	
377.00 > 85.00	2.798	2.801	-0.003	1.000	101355		1.61(0.00-0.00)	3686	
* 5 13C2 PFOA									
415.00 > 370.00	3.158	3.167	-0.009		2968052	2.50		9075	
6 Perfluorooctanoic acid									M
413.00 > 369.00	3.158	3.172	-0.014	1.000	57465	0.0475	Target=1.75	5.9	M
413.00 > 169.00	3.158	3.172	-0.014	1.000	35147		1.63(0.00-0.00)	78.4	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
8 Perfluorooctanesulfonic acid									M
499.00 > 80.00	3.549	3.549	0.0	1.000	63591	0.0482	Target=4.69	70.2	M
499.00 > 99.00	3.549	3.549	0.0	1.000	14180		4.48(0.00-0.00)	24.2	M
* 7 13C4 PFOS									
503.00 > 80.00	3.549	3.549	0.0		2984661	2.39		9847	
9 Perfluorononanoic acid									
463.00 > 419.00	3.549	3.560	-0.011	1.000	43371	0.0490	Target=3.96	17.5	
463.00 > 169.00	3.549	3.560	-0.011	1.000	12384		3.50(0.00-0.00)	187	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.750	3.749	0.001	1.000	101265	0.0474		204	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.911	3.912	-0.001	1.000	37168	0.0534	Target=5.01	20.8	
513.00 > 169.00	3.911	3.912	-0.001	1.000	5815		6.39(0.00-0.00)	44.3	
$ 10 13C2 PFDA									
515.00 > 470.00	3.911	3.918	-0.007	1.000	1917822	2.62		6041	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.086	4.089	-0.003		526979	2.50		3430	
15 N-methylperfluorooctanesulfonamido									
570.00 > 419.00	4.086	4.089	-0.003	1.000	11559	0.0594		300	
17 Perfluoroundecanoic acid									
563.00 > 519.00	4.230	4.236	-0.006	1.000	26054	0.0483	Target=4.98	12.3	
563.00 > 169.00	4.230	4.236	-0.006	1.000	5640		4.62(0.00-0.00)	76.5	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.246	4.238	0.008	1.039	527127	2.45		217	
16 N-ethylperfluorooctanesulfonamidoa									
584.00 > 419.00	4.246	4.252	-0.006	1.000	9511	0.0516		30.0	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.367	4.373	-0.006	1.000	128158	0.0482		668	
18 Perfluorododecanoic acid									
613.00 > 569.00	4.503	4.518	-0.015	1.000	26556	0.0506	Target=3.56	12.4	
613.00 > 169.00	4.503	4.518	-0.015	1.000	8619		3.08(0.00-0.00)	119	
19 Perfluorotridecanoic acid									
663.00 > 619.00	4.772	4.779	-0.007	1.000	25831	0.0595	Target=2.92	10.4	
663.00 > 169.00	4.772	4.779	-0.007	1.000	7663		3.37(0.00-0.00)	84.8	
20 Perfluorotetradecanoic acid									
713.00 > 169.00	5.001	5.004	-0.003	1.000	7687	0.0641	Target=1.42	114	
713.00 > 219.00	5.001	5.004	-0.003	1.000	4463		1.72(0.00-0.00)	54.9	

QC Flag Legend

Review Flags

M - Manually Integrated

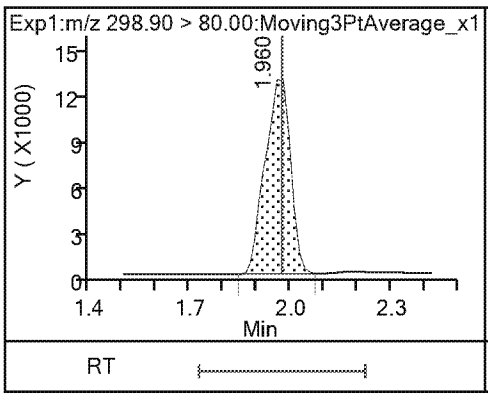
Reagents:

LC537_NC_L2_00004 Amount Added: 1.00 Units: mL

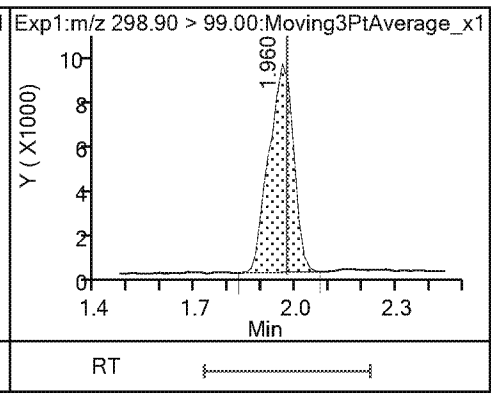
TestAmerica Sacramento

Data File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_011.d
Injection Date: 26-Mar-2019 16:42:48 Instrument ID: A8_N
Lims ID: CCVL
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 10
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

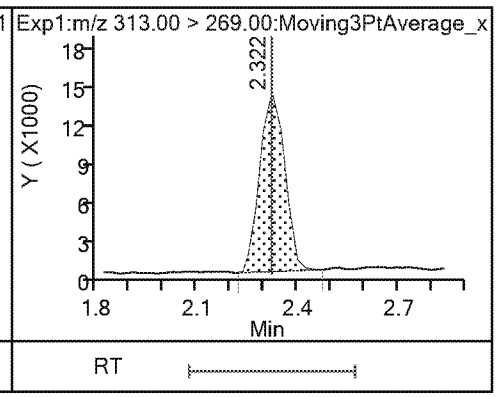
1 Perfluorobutanesulfonic acid



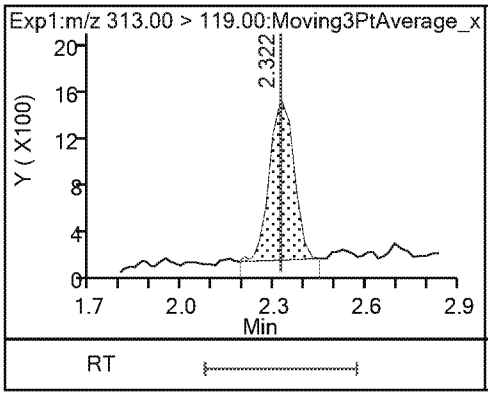
1 Perfluorobutanesulfonic acid



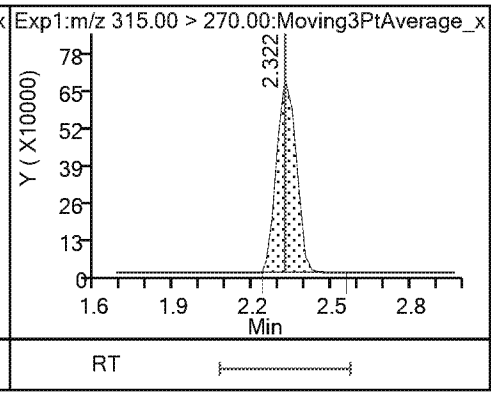
13 Perfluorohexanoic acid



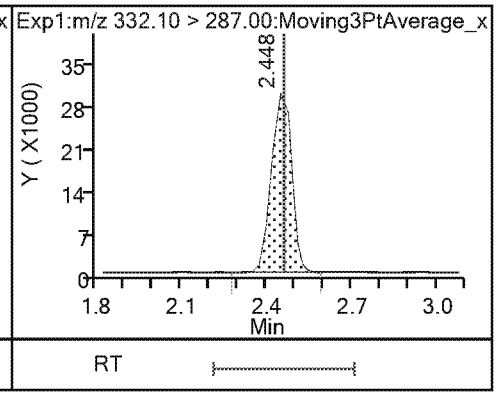
13 Perfluorohexanoic acid



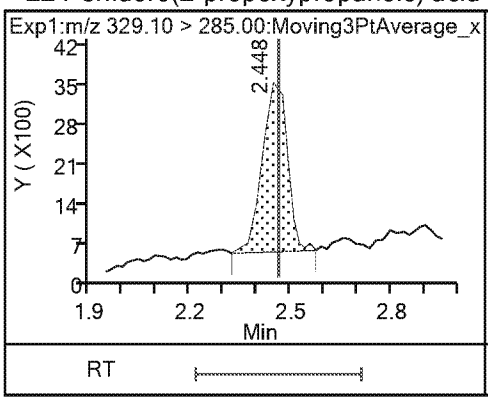
$ 2 13C2 PFHxA



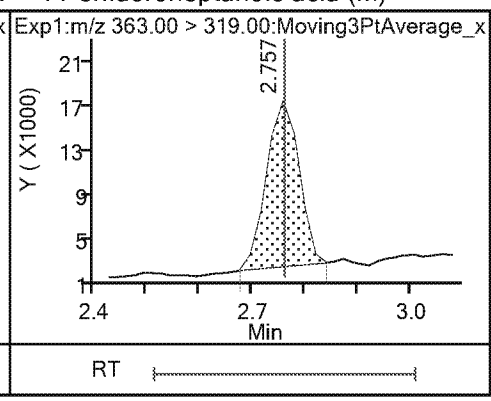
$ 25 13C3 HFPO-DA



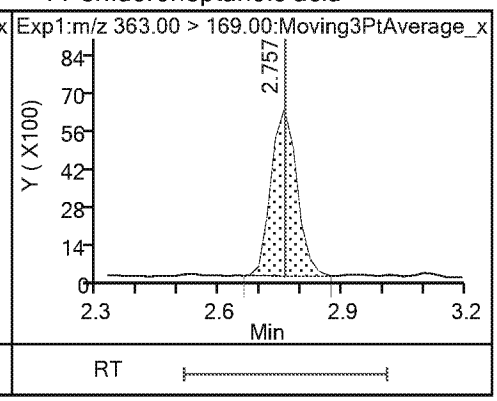
22 Perfluoro(2-propoxypropanoic) acid



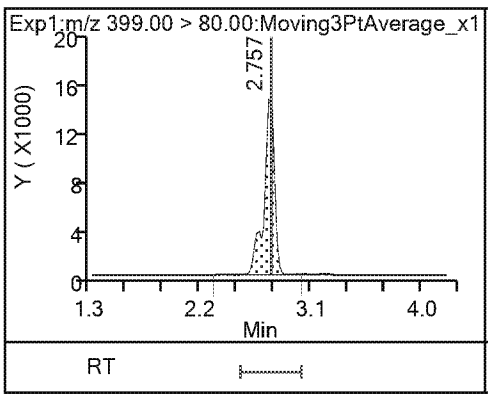
4 Perfluoroheptanoic acid (M)



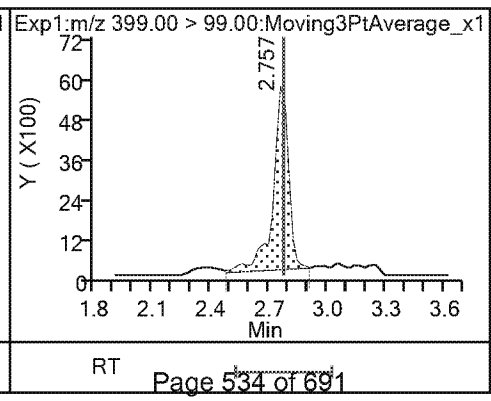
4 Perfluoroheptanoic acid



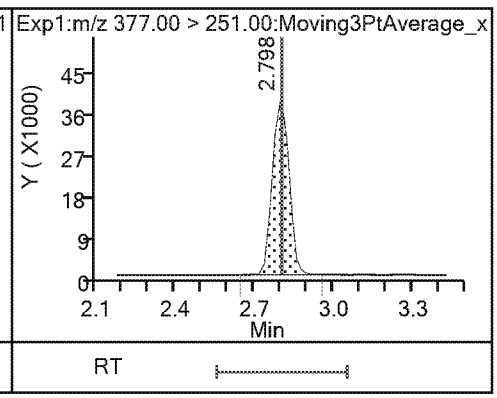
3 Perfluorohexanesulfonic acid



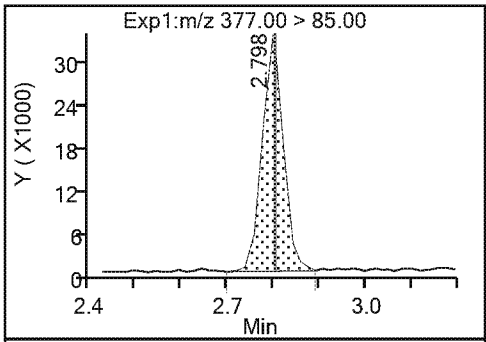
3 Perfluorohexanesulfonic acid



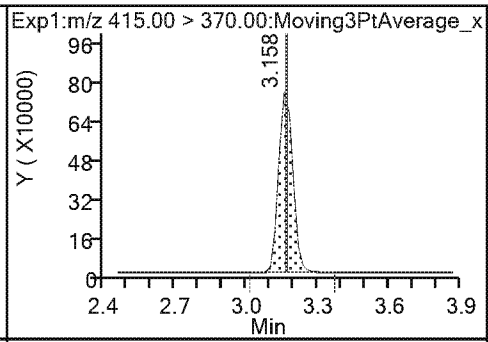
24 DONA



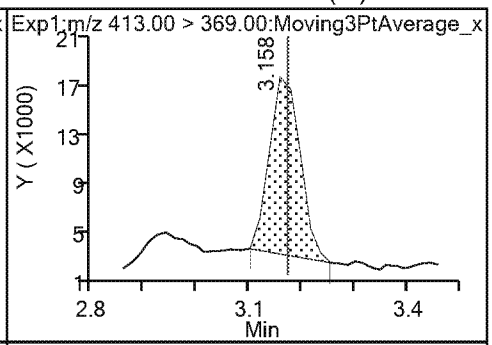
24 DONA



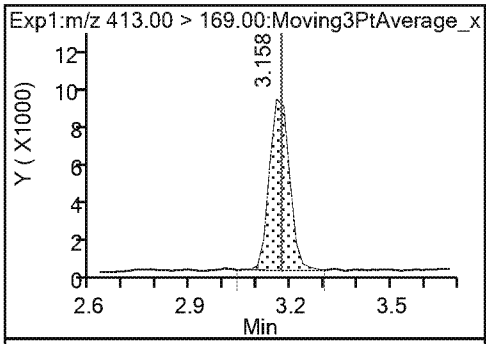
* 5 13C2 PFOA



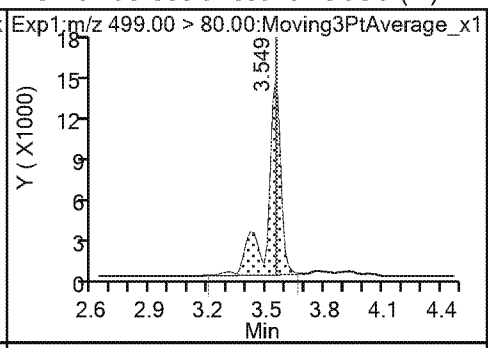
6 Perfluorooctanoic acid (M)



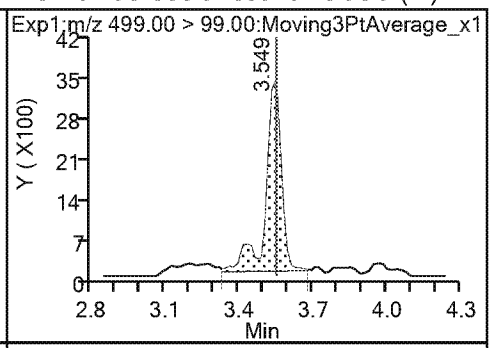
6 Perfluorooctanoic acid



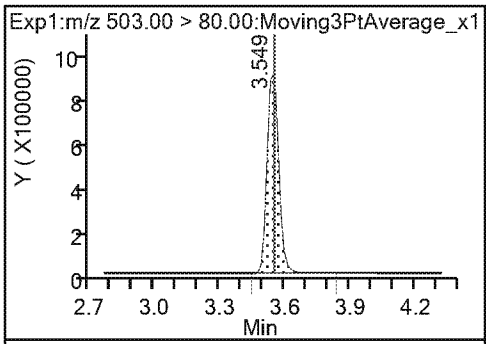
8 Perfluorooctanesulfonic acid (M)



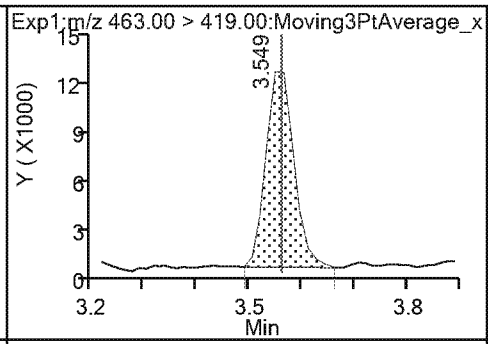
8 Perfluorooctanesulfonic acid (M)



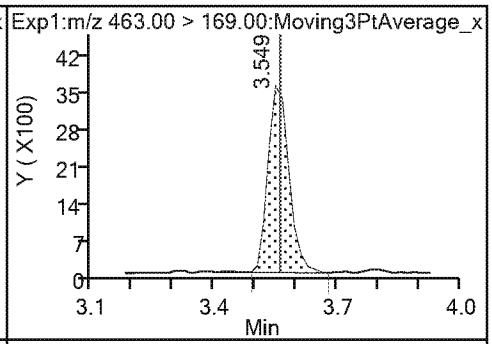
* 7 13C4 PFOS



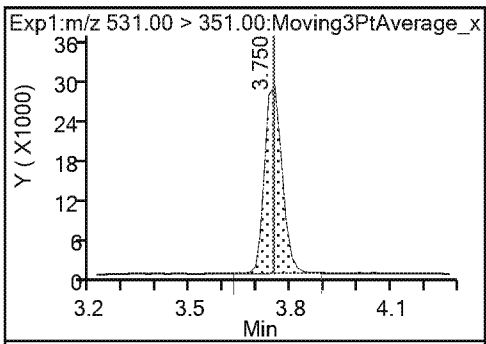
9 Perfluorononanoic acid



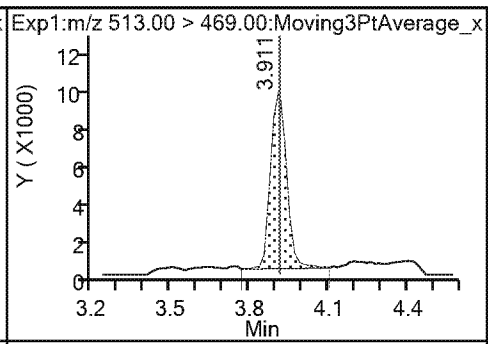
9 Perfluorononanoic acid



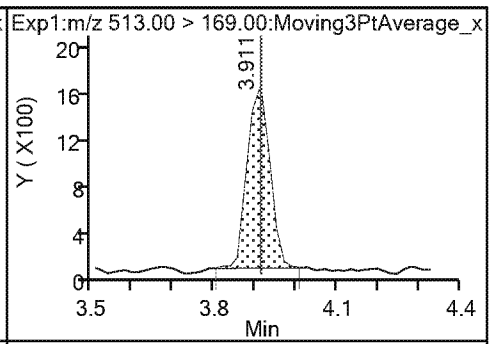
23 9-Chlorohexadecafluoro-3-oxanonane



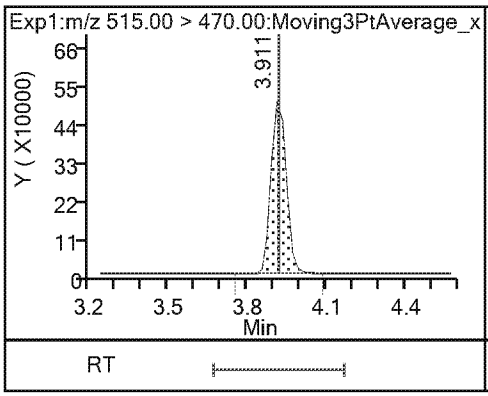
14 Perfluorodecanoic acid



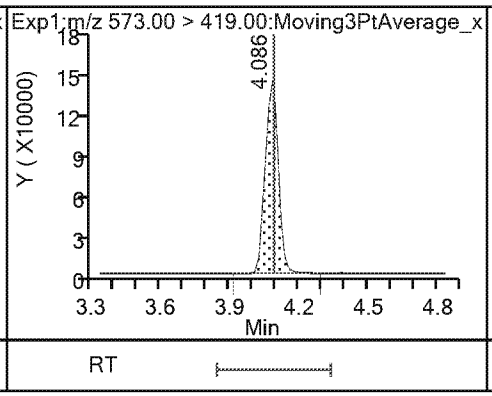
14 Perfluorodecanoic acid



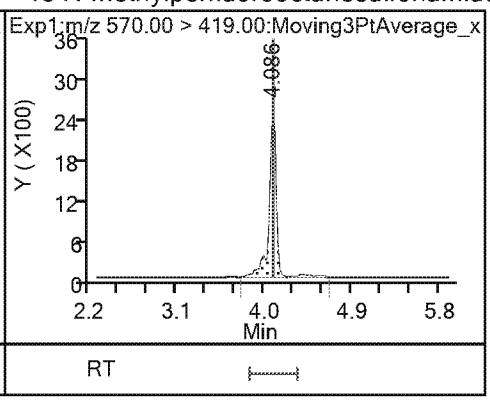
$ 10 13C2 PFDA



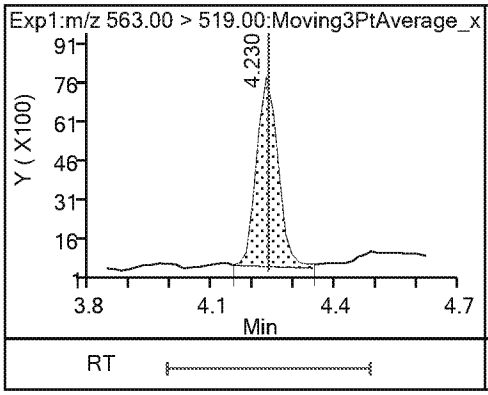
* 12 d3-NMeFOSAA



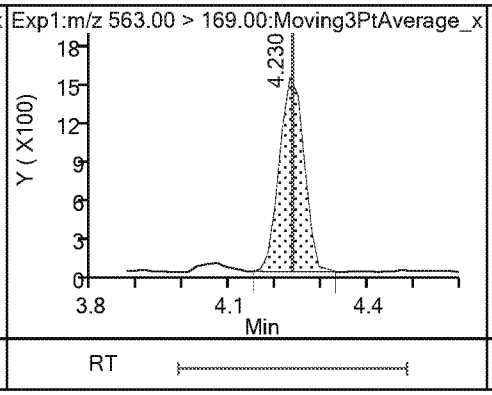
15 N-methylperfluorooctanesulfonamido



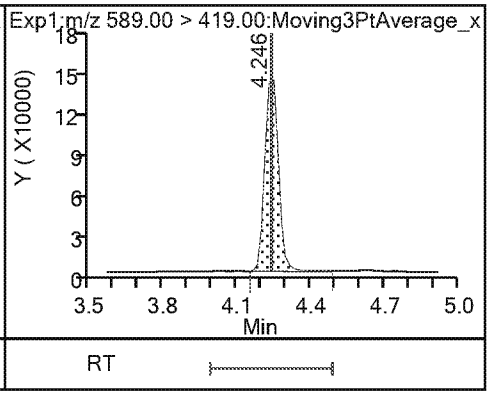
17 Perfluoroundecanoic acid



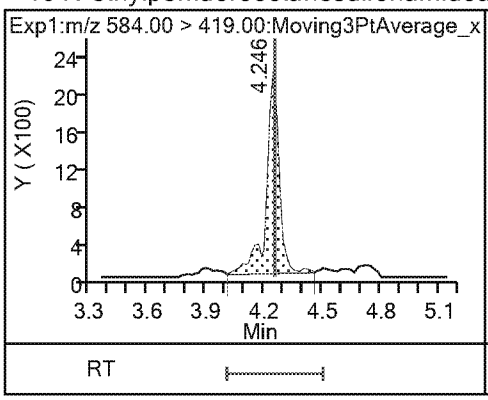
17 Perfluoroundecanoic acid



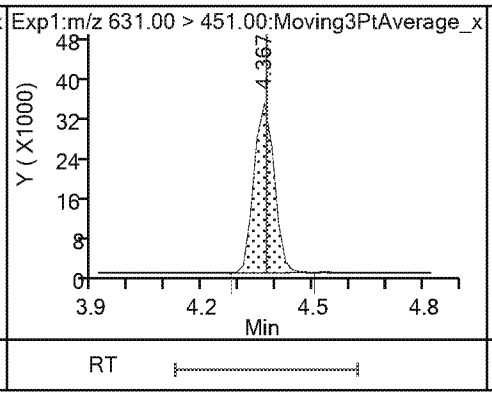
$ 11 d5-NEtFOSAA



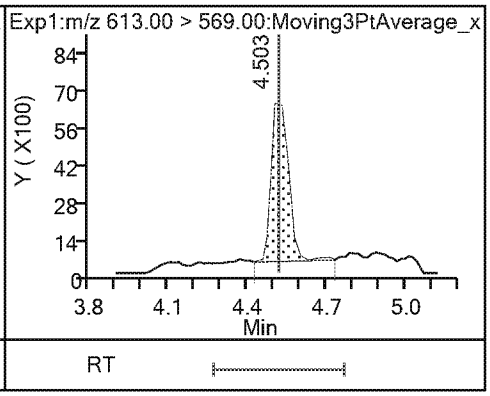
16 N-ethylperfluorooctanesulfonamidoa



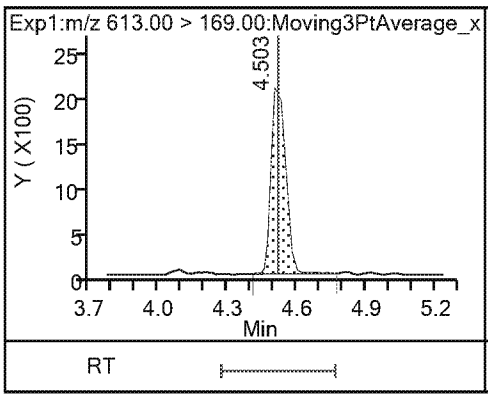
21 11-Chloroeicosafluoro-3-oxaundecan



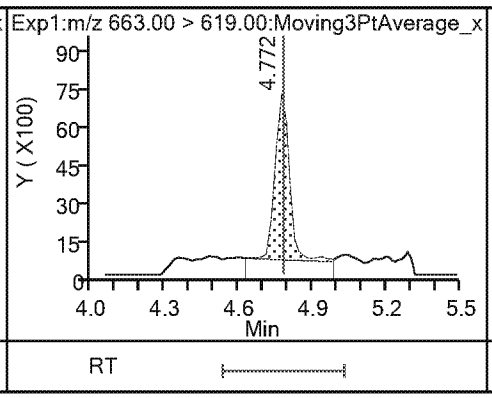
18 Perfluorododecanoic acid



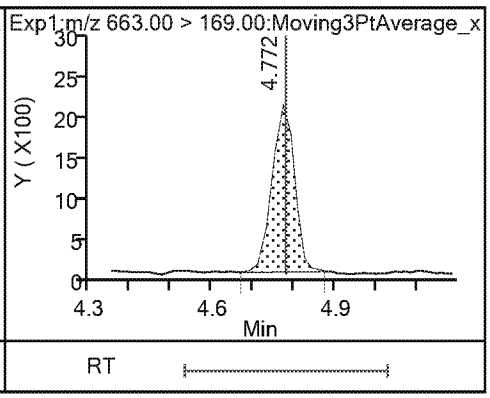
18 Perfluorododecanoic acid



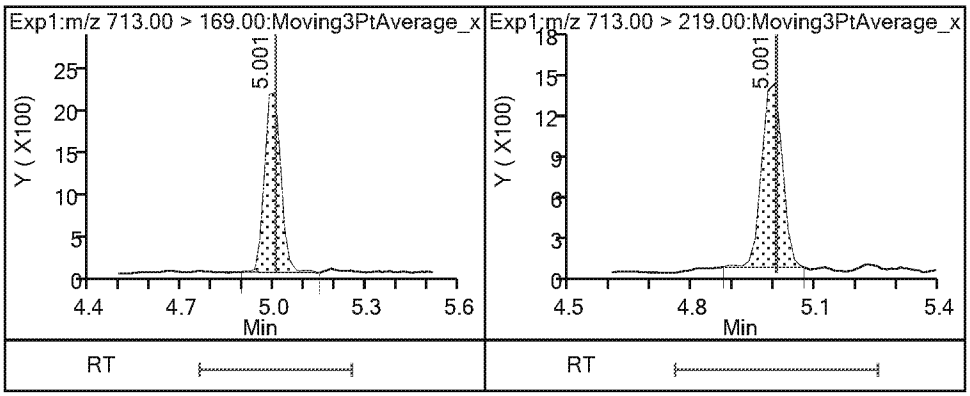
19 Perfluorotridecanoic acid



19 Perfluorotridecanoic acid



20 Perfluorotetradecanoic acid 20 Perfluorotetradecanoic acid



TestAmerica Sacramento

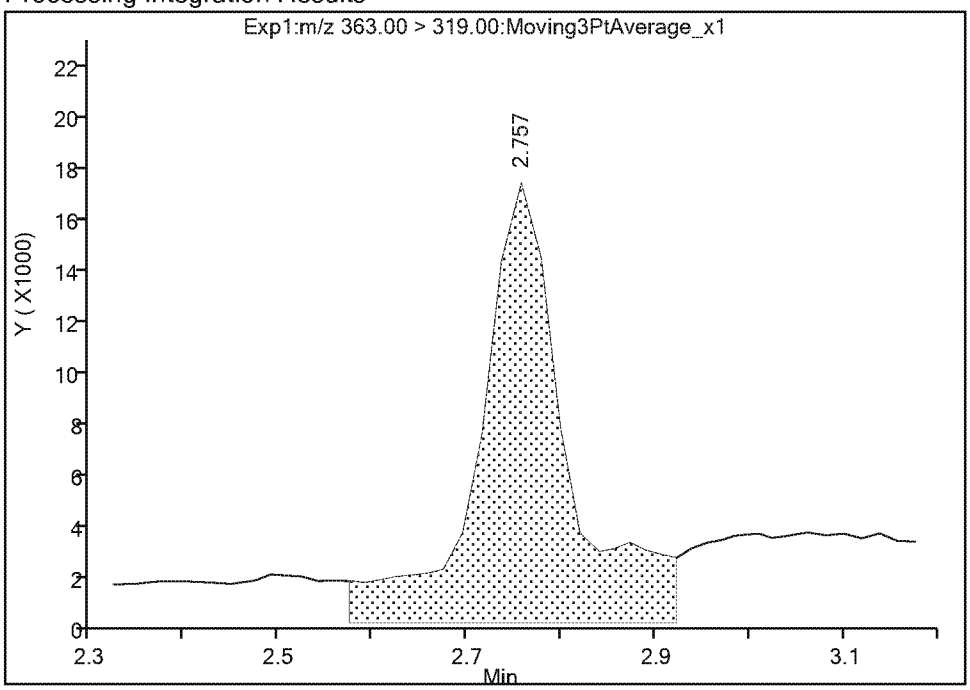
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_011.d				
Injection Date:	26-Mar-2019 16:42:48	Instrument ID:	A8_N		
Lims ID:	CCVL				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	2	Worklist Smp#:	10
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

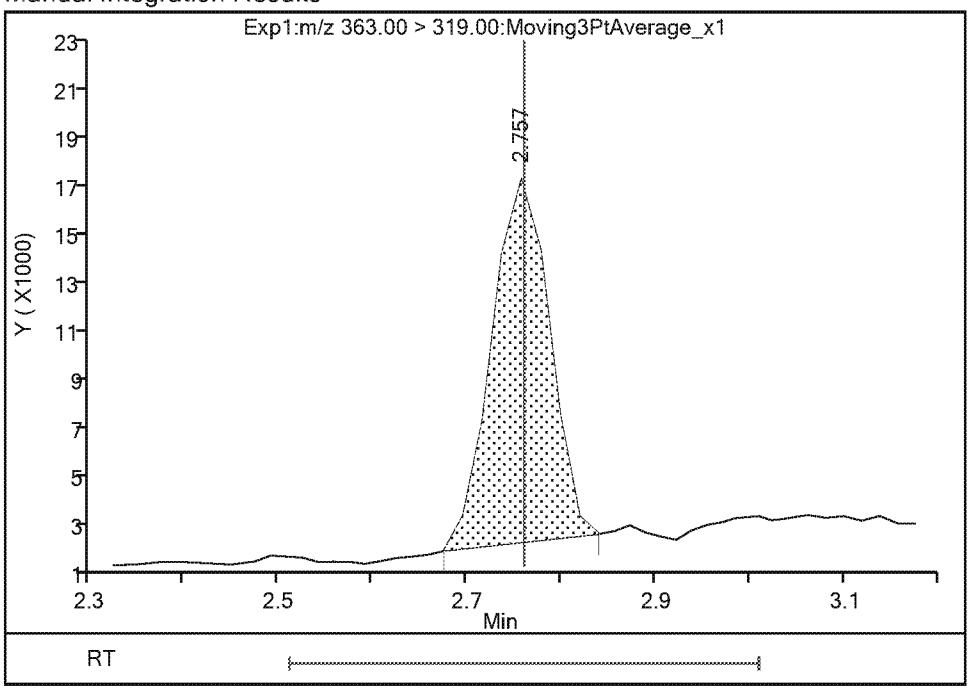
Processing Integration Results

RT: 2.76
Area: 111754
Amount: 0.087116
Amount Units: ng/ml



Manual Integration Results

RT: 2.76
Area: 63032
Amount: 0.049135
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 26-Mar-2019 17:29:04
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento

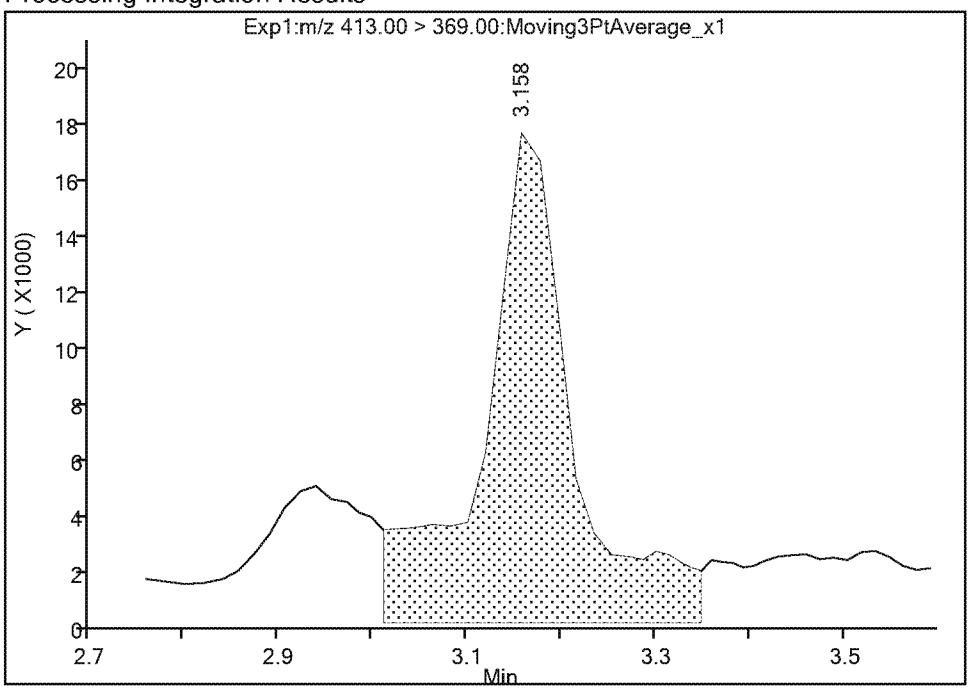
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_011.d				
Injection Date:	26-Mar-2019 16:42:48	Instrument ID:	A8_N		
Lims ID:	CCVL				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	2	Worklist Smp#:	10
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

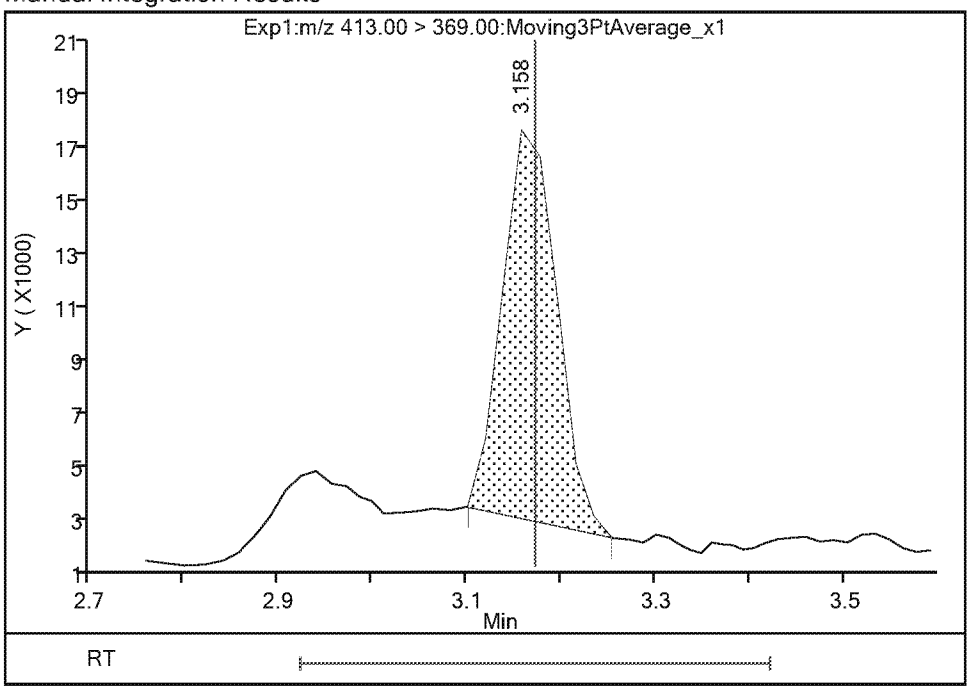
Processing Integration Results

RT: 3.16
Area: 116139
Amount: 0.096004
Amount Units: ng/ml



Manual Integration Results

RT: 3.16
Area: 57465
Amount: 0.047502
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 26-Mar-2019 17:29:17
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento

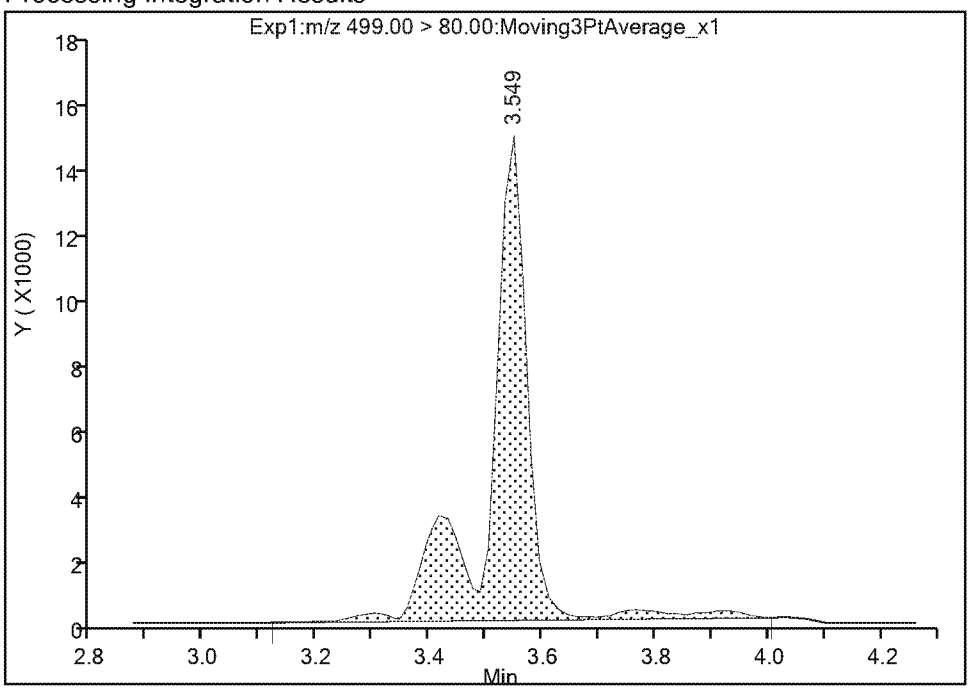
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_011.d				
Injection Date:	26-Mar-2019 16:42:48	Instrument ID:	A8_N		
Lims ID:	CCVL				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	2	Worklist Smp#:	10
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

8 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 1

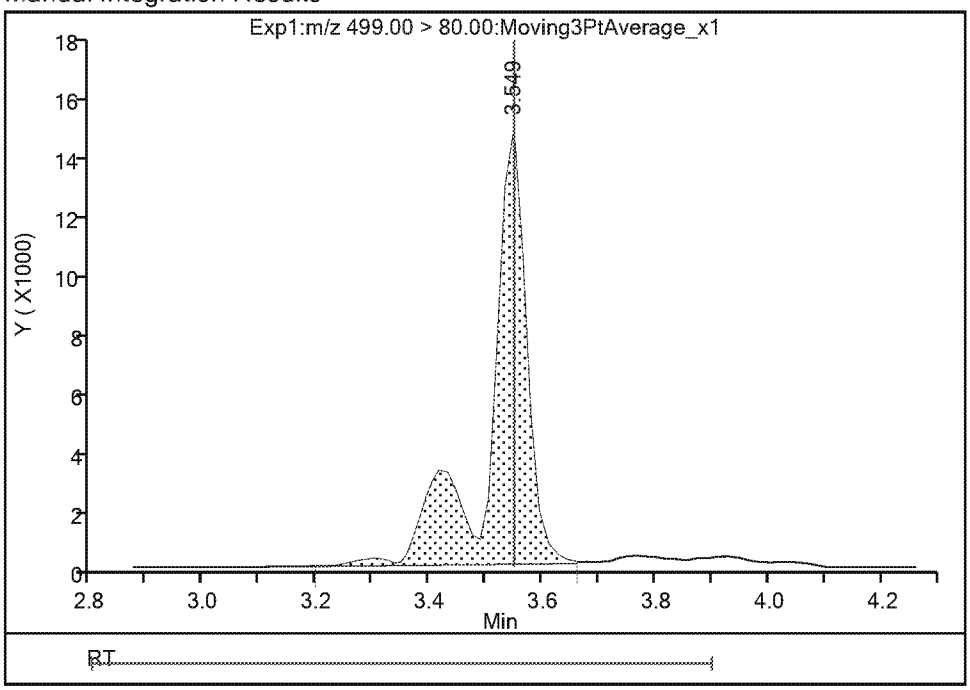
Processing Integration Results

RT: 3.55
Area: 66700
Amount: 0.050526
Amount Units: ng/ml



Manual Integration Results

RT: 3.55
Area: 63591
Amount: 0.048171
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 26-Mar-2019 17:29:33
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento

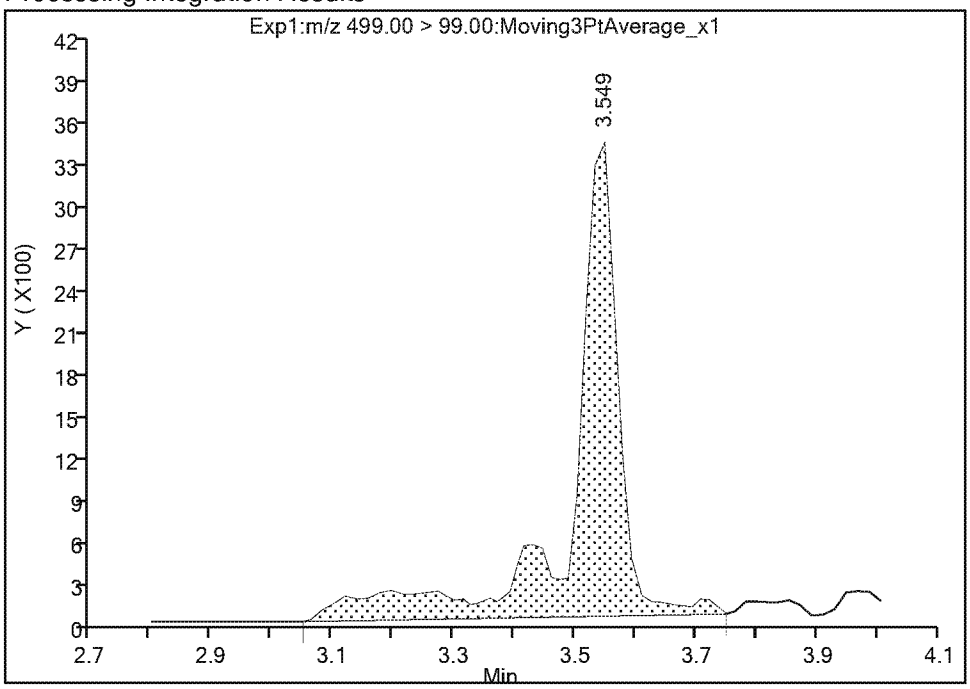
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_011.d				
Injection Date:	26-Mar-2019 16:42:48	Instrument ID:	A8_N		
Lims ID:	CCVL				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	2	Worklist Smp#:	10
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

8 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 2

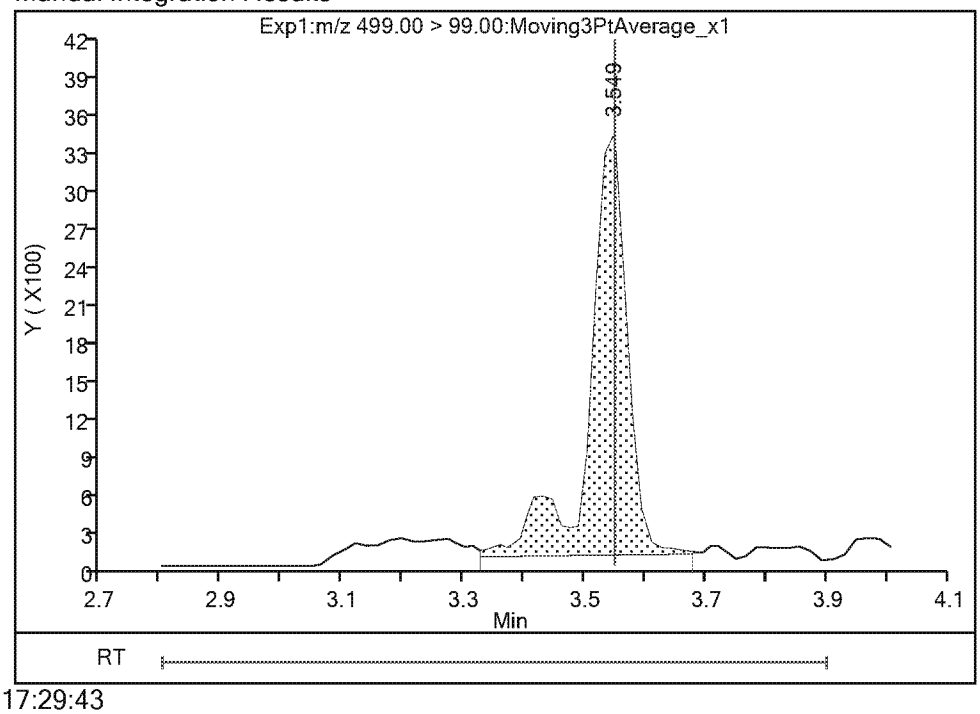
Processing Integration Results

RT: 3.55
Area: 17895
Amount: 0.050526
Amount Units: ng/ml



Manual Integration Results

RT: 3.55
Area: 14180
Amount: 0.048171
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 26-Mar-2019 17:29:43
Audit Action: Manually Integrated Audit Reason: Baseline

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Lab Sample ID: ICV 320-284068/12 Calibration Date: 03/26/2019 16:57

Instrument ID: A8_N Calib Start Date: 03/26/2019 15:43

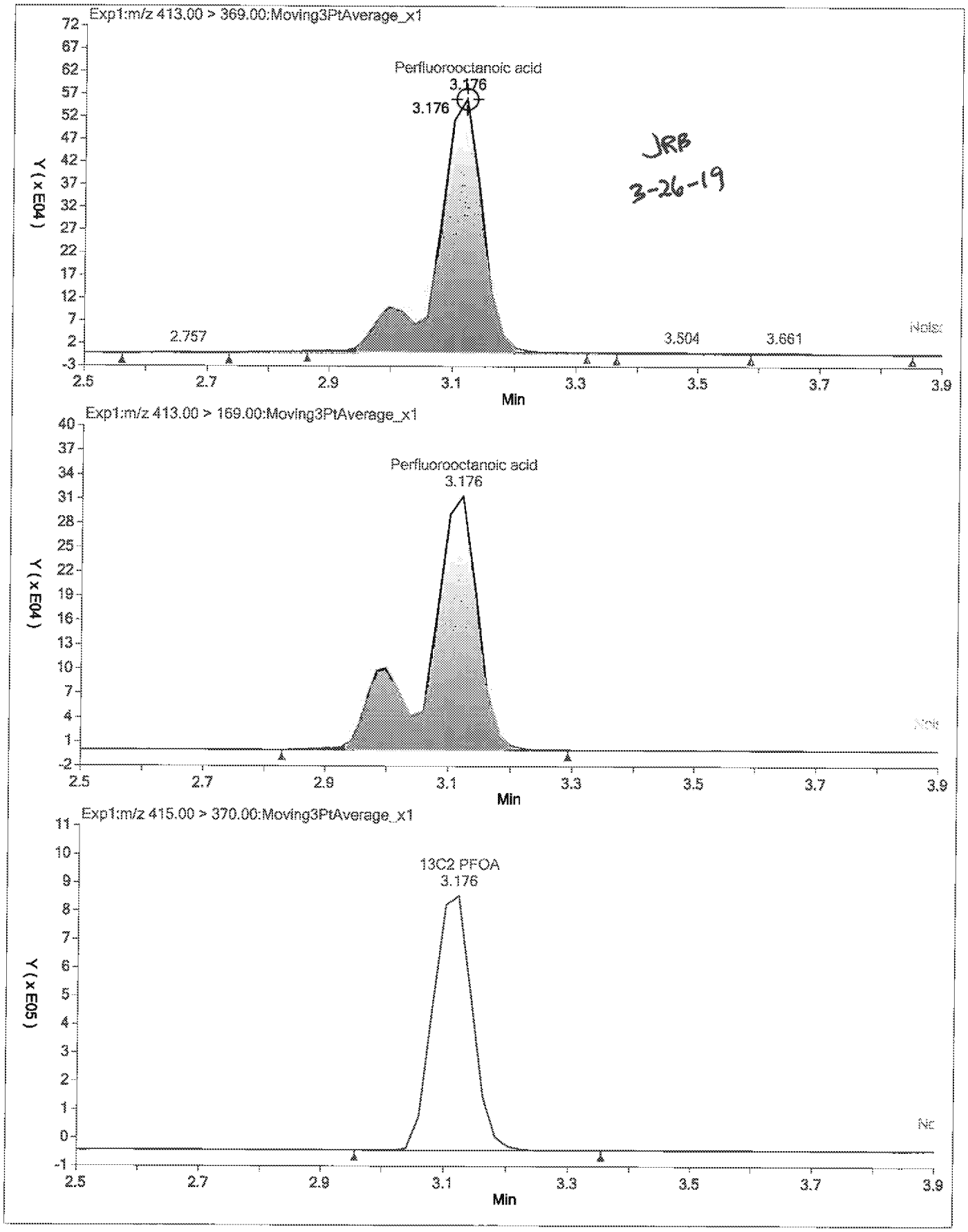
GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 03/26/2019 16:27

Lab File ID: 2019.03.26_537.1CURVE_013.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid	Ave	1.210	1.262		1.85	1.77	4.3	30.0
Perfluorohexanoic acid	Ave	1.095	1.115		2.04	2.00	1.8	30.0
Perfluoro(2-propoxypropanoic) acid	Ave	0.2582	0.2364		1.83	2.00	-8.5	30.0
Perfluoroheptanoic acid	Ave	1.081	1.129		2.09	2.00	4.5	30.0
Perfluorohexanesulfonic acid	Ave	1.423	1.434		1.84	1.82	0.8	30.0
DONA	Ave	2.890	2.695		1.76	1.88	-6.7	30.0
Perfluorooctanoic acid	Ave	1.019	0.9869		1.94	2.00	-3.1	30.0
Perfluorooctanesulfonic acid	Ave	1.057	1.101		1.93	1.85	4.1	30.0
Perfluorononanoic acid	Ave	0.7461	0.7389		1.98	2.00	-1.0	30.0
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonate	Ave	1.709	1.540		1.68	1.86	-9.9	30.0
Perfluorodecanoic acid	Ave	0.5861	0.5962		2.03	2.00	1.7	30.0
N-methylperfluorooctanesulfonamidoacetic acid	Ave	0.9225	0.9579		2.08	2.00	3.8	30.0
Perfluoroundecanoic acid	Ave	0.4541	0.4532		2.00	2.00	-0.2	30.0
N-ethylperfluorooctanesulfonamidoacetic acid	Ave	0.8747	0.9125		2.09	2.00	4.3	30.0
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonate	Ave	2.128	1.932		1.71	1.88	-9.2	30.0
Perfluorododecanoic acid	Ave	0.4418	0.4673		2.12	2.00	5.8	30.0
Perfluorotridecanoic acid	Ave	0.3657	0.3611		1.97	2.00	-1.3	30.0
Perfluorotetradecanoic acid	Ave	0.1010	0.0990		1.96	2.00	-2.0	30.0
13C2 PFHxA	Ave	1.158	1.157		2.50	2.50	-0.0	30.0
13C2 PFDA	Ave	0.6165	0.6225		2.52	2.50	1.0	30.0

Chromatogram

TPFOA EXP1



Chrom

Printed: 3/26/2019 5:34:57 PM

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_013.d
Lims ID: ICV
Client ID:
Sample Type: ICV
Inject. Date: 26-Mar-2019 16:57:39 ALS Bottle#: 9 Worklist Smp#: 12
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: ICV
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist:

Method: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 26-Mar-2019 17:33:33 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0323

First Level Reviewer: Ex. 4 CBI Date: 26-Mar-2019 17:31:14
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.976	1.973	0.003	1.000	3048260	1.85	Target=1.47	5103	
298.90 > 99.00	1.960	1.973	-0.013	0.992	2012426		1.51(0.00-0.00)	2873	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.322	2.322	0.0	0.735	2874164	2.04	Target=11.08	888	
313.00 > 119.00	2.322	2.322	0.0	0.735	265404		10.83(0.00-0.00)	434	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.322	2.322	0.0	1.000	3729737	2.50		6561	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.448	2.459	-0.011	1.000	165081	2.43		867	
22 Perfluoro(2-propoxypropanoic) acid									
329.10 > 285.00	2.473	2.463	0.010	1.010	609557	1.83		256	
4 Perfluoroheptanoic acid									
363.00 > 319.00	2.757	2.760	-0.003	1.000	2910738	2.09	Target=2.42	248	
363.00 > 169.00	2.757	2.760	-0.003	1.000	1211706		2.40(0.00-0.00)	3391	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	2.778	2.772	0.006	1.000	3570445	1.84	Target=2.92	5483	
399.00 > 99.00	2.778	2.772	0.006	1.000	1173529		3.04(0.00-0.00)	867	
24 DONA									
377.00 > 251.00	2.798	2.801	-0.003	1.000	6547038	1.76	Target=1.50	7987	
377.00 > 85.00	2.798	2.801	-0.003	1.000	3970421		1.65(0.00-0.00)	188409	
* 5 13C2 PFOA									
415.00 > 370.00	3.158	3.167	-0.009		3223407	2.50		9254	
6 Perfluorooctanoic acid									
413.00 > 369.00	3.177	3.172	0.005	1.006	2544981	1.94	Target=1.75	239	
413.00 > 169.00	3.158	3.172	-0.014	1.000	1493889		1.70(0.00-0.00)	2446	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
8 Perfluorooctanesulfonic acid									
499.00 > 80.00	3.550	3.549	0.001	1.000	2780898	1.93	Target=4.69	2296	
499.00 > 99.00	3.550	3.549	0.001	1.000	580770		4.79(0.00-0.00)	993	
* 7 13C4 PFOS									
503.00 > 80.00	3.550	3.549	0.001		3261680	2.39		4801	
9 Perfluorononanoic acid									
463.00 > 419.00	3.565	3.560	0.005	1.000	1905454	1.98	Target=3.96	857	
463.00 > 169.00	3.550	3.560	-0.010	0.996	495474		3.85(0.00-0.00)	4362	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.751	3.749	0.002	1.000	3916567	1.68		5874	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.915	3.912	0.003	1.000	1537338	2.03	Target=5.01	855	
513.00 > 169.00	3.915	3.912	0.003	1.000	300398		5.12(0.00-0.00)	1967	
$ 10 13C2 PFDA									
515.00 > 470.00	3.915	3.918	-0.003	1.000	2006554	2.52		6150	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.090	4.089	0.001		570963	2.50		3635	
15 N-methylperfluorooctanesulfonamido									
570.00 > 419.00	4.090	4.089	0.001	1.000	437538	2.08		3506	
17 Perfluoroundecanoic acid									
563.00 > 519.00	4.234	4.236	-0.002	1.000	1168552	2.00	Target=4.98	499	
563.00 > 169.00	4.234	4.236	-0.002	1.000	233111		5.01(0.00-0.00)	2126	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.234	4.238	-0.004	1.035	558444	2.40		234	
16 N-ethylperfluorooctanesulfonamidoa									
584.00 > 419.00	4.250	4.252	-0.002	1.004	416792	2.09		1324	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.356	4.373	-0.017	1.000	4967455	1.71		15036	
18 Perfluorododecanoic acid									
613.00 > 569.00	4.508	4.518	-0.010	1.000	1205065	2.12	Target=3.56	511	
613.00 > 169.00	4.508	4.518	-0.010	1.000	348179		3.46(0.00-0.00)	4320	
19 Perfluorotridecanoic acid									
663.00 > 619.00	4.776	4.779	-0.003	1.000	931207	1.97	Target=2.92	369	
663.00 > 169.00	4.776	4.779	-0.003	1.000	322614		2.89(0.00-0.00)	2756	
20 Perfluorotetradecanoic acid									
713.00 > 169.00	4.989	5.004	-0.015	1.000	255385	1.96	Target=1.42	2202	
713.00 > 219.00	4.989	5.004	-0.015	1.000	178784		1.43(0.00-0.00)	1515	

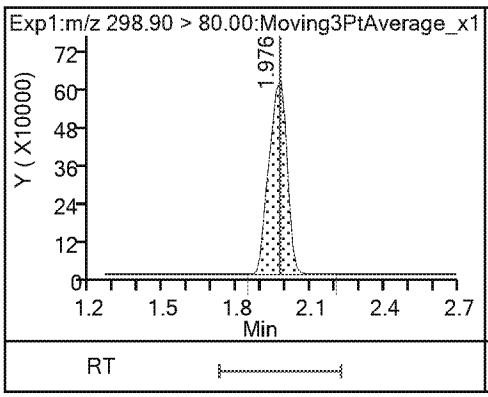
Reagents:

LC537_NC_ICV_00003 Amount Added: 1.00 Units: mL

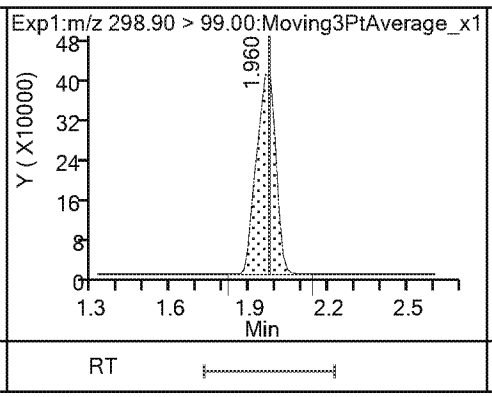
TestAmerica Sacramento

Data File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_013.d
Injection Date: 26-Mar-2019 16:57:39 Instrument ID: A8_N
Lims ID: ICV
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 9 Worklist Smp#: 12
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

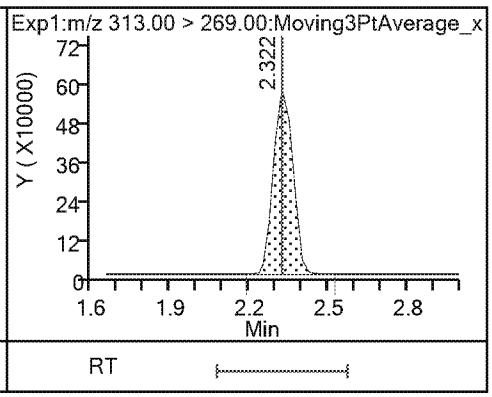
1 Perfluorobutanesulfonic acid



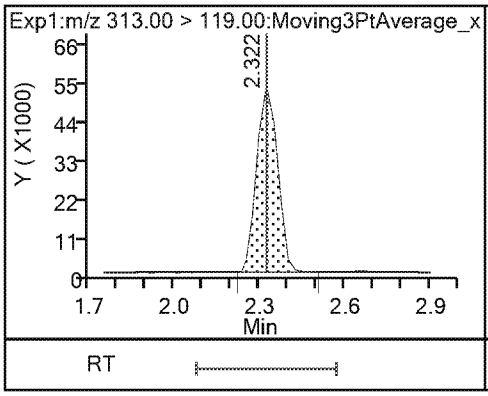
1 Perfluorobutanesulfonic acid



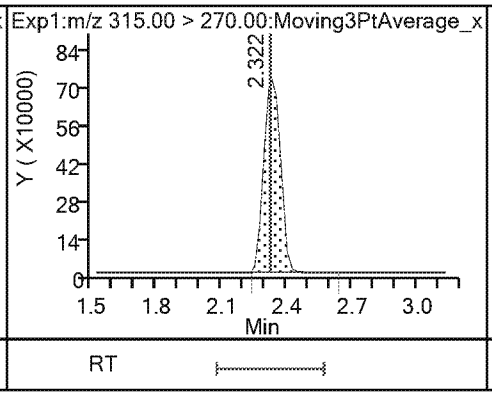
13 Perfluorohexanoic acid



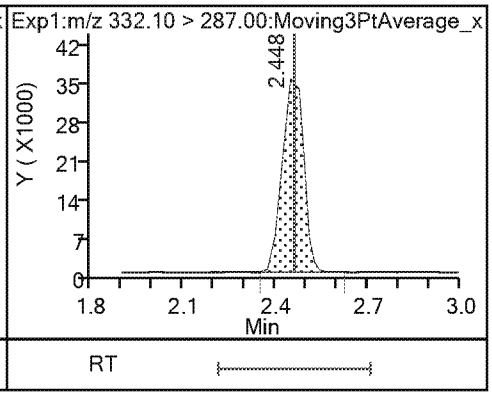
13 Perfluorohexanoic acid



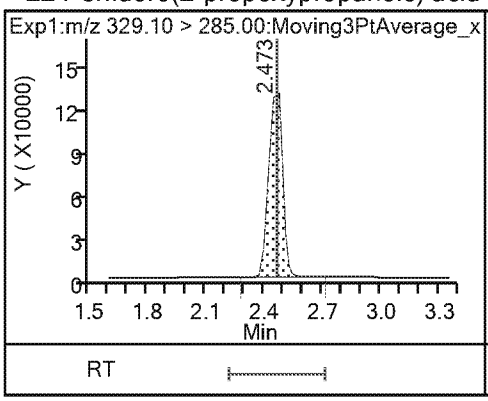
$ 2 13C2 PFHxA



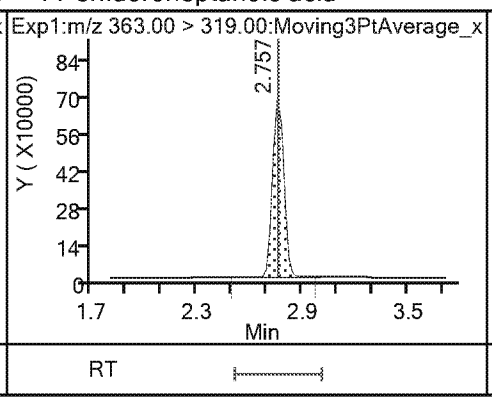
$ 25 13C3 HFPO-DA



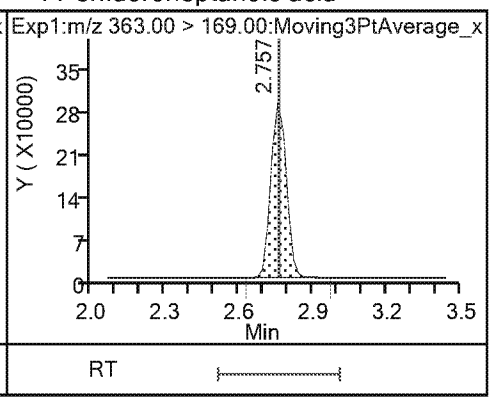
22 Perfluoro(2-propoxypropanoic) acid



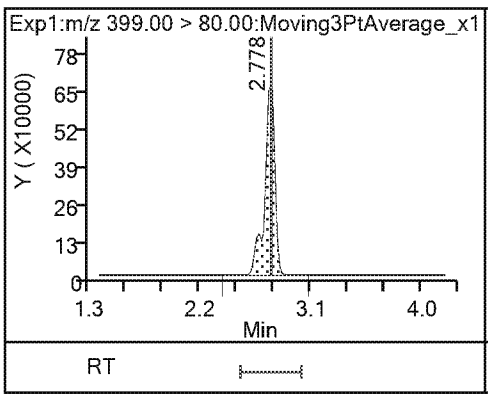
4 Perfluoroheptanoic acid



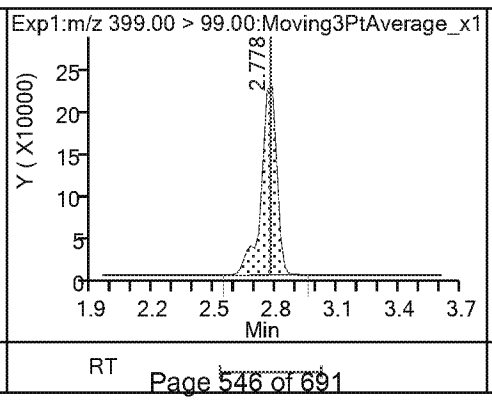
4 Perfluoroheptanoic acid



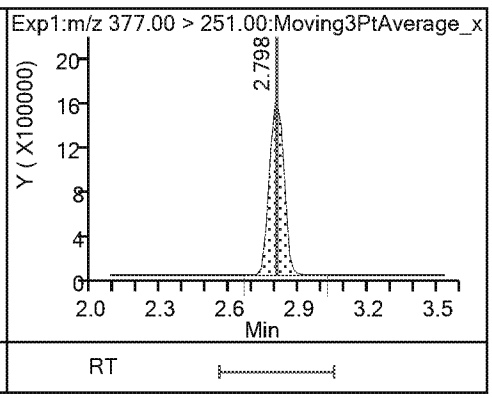
3 Perfluorohexanesulfonic acid



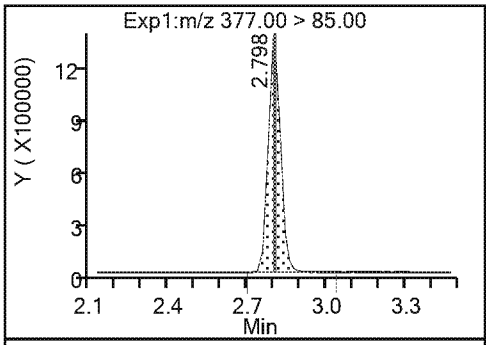
3 Perfluorohexanesulfonic acid



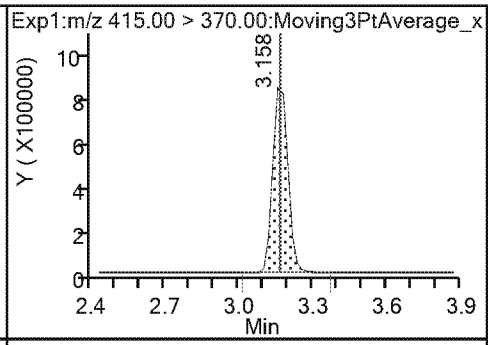
24 DONA



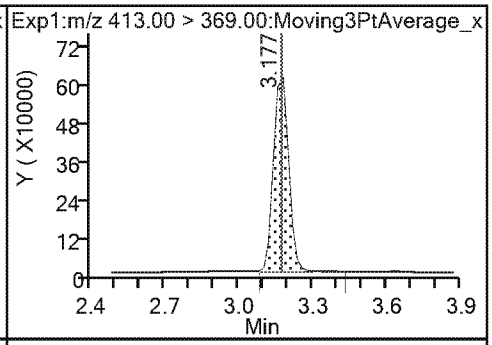
24 DONA



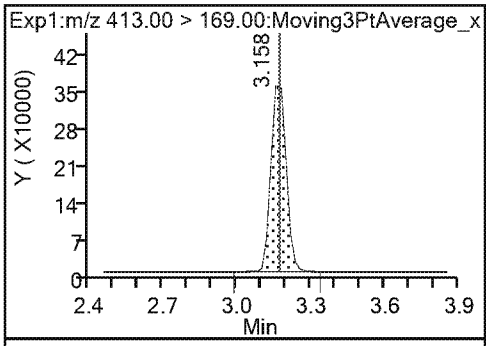
* 5 13C2 PFOA



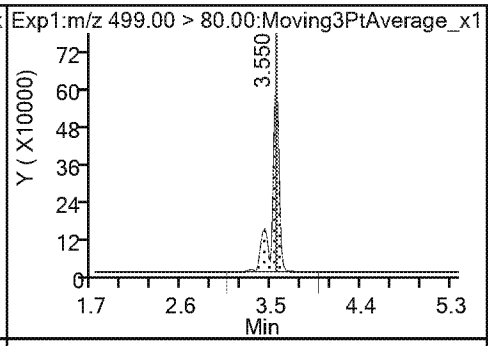
6 Perfluorooctanoic acid



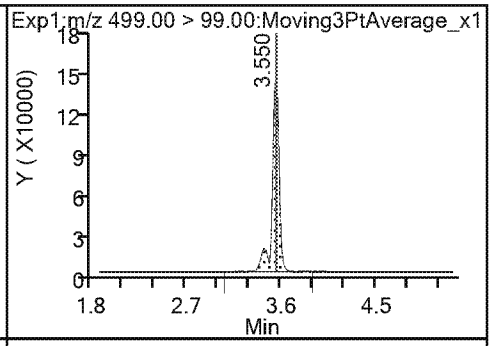
6 Perfluorooctanoic acid



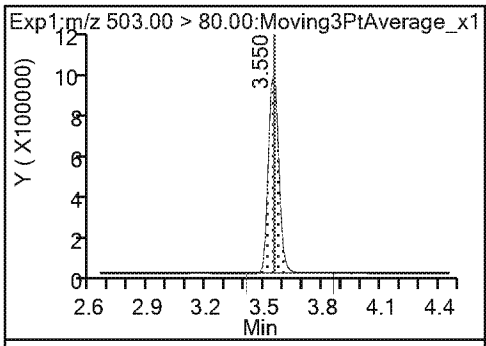
8 Perfluorooctanesulfonic acid



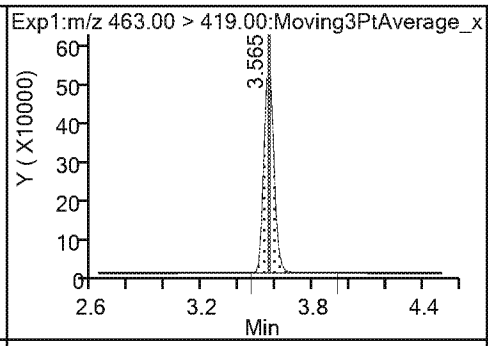
8 Perfluorooctanesulfonic acid



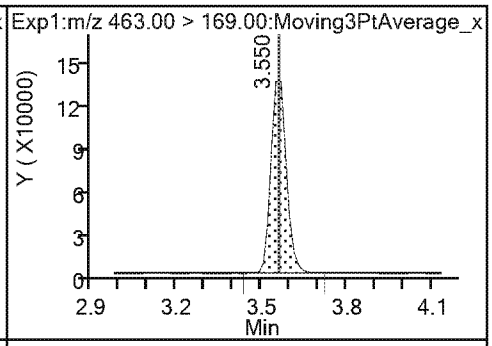
* 7 13C4 PFOS



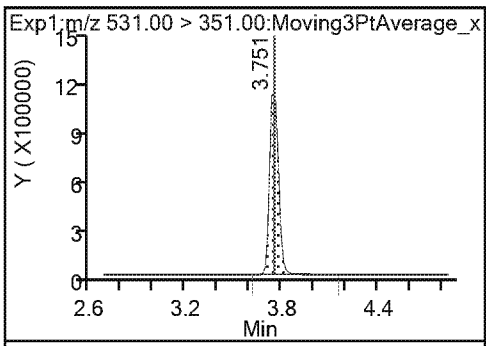
9 Perfluorononanoic acid



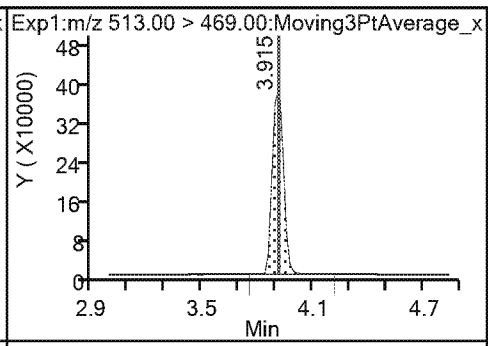
9 Perfluorononanoic acid



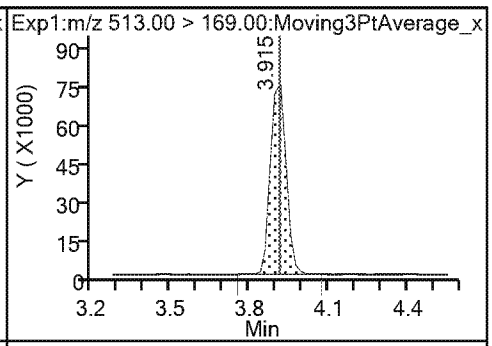
23 9-Chlorohexadecafluoro-3-oxanonane



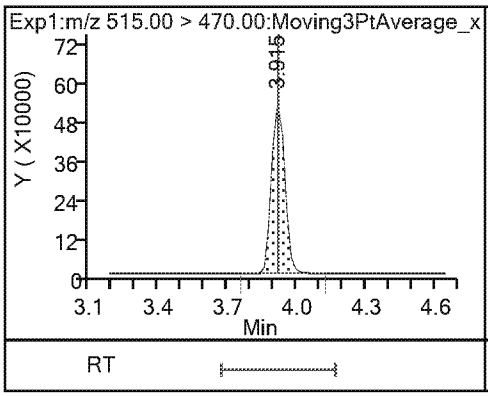
14 Perfluorodecanoic acid



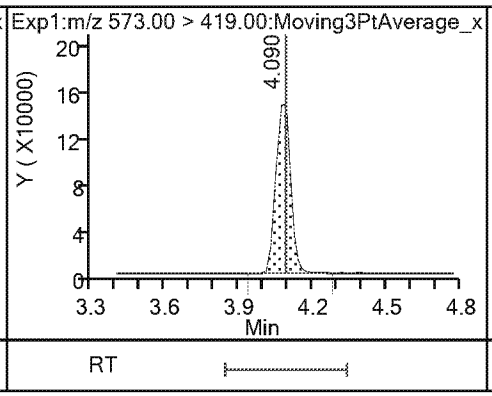
14 Perfluorodecanoic acid



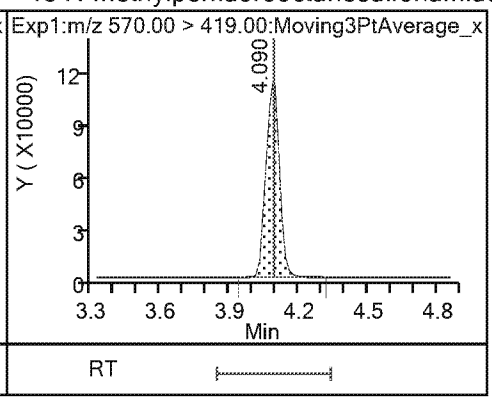
$ 10 13C2 PFDA



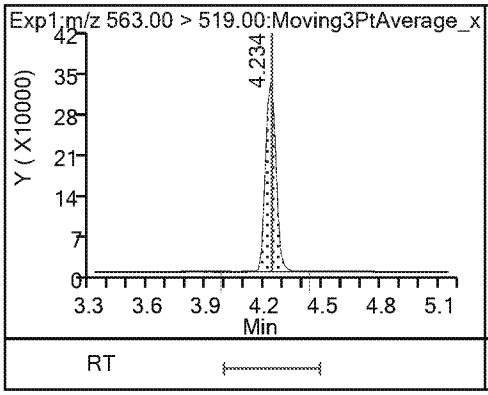
* 12 d3-NMeFOSAA



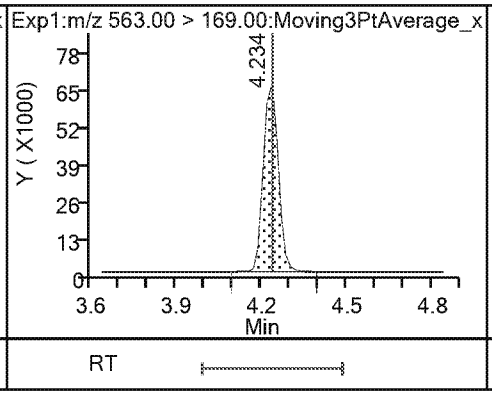
15 N-methylperfluorooctanesulfonamido



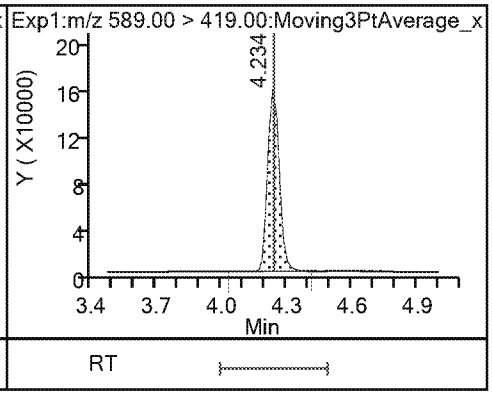
17 Perfluoroundecanoic acid



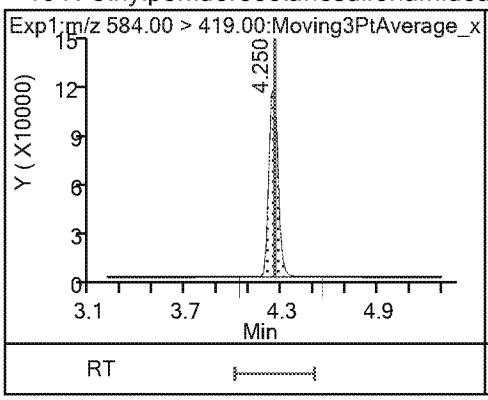
17 Perfluoroundecanoic acid



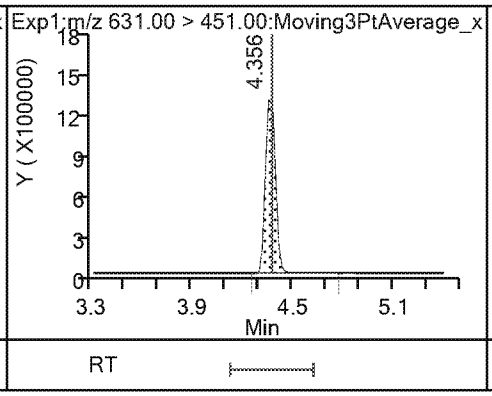
$ 11 d5-NEtFOSAA



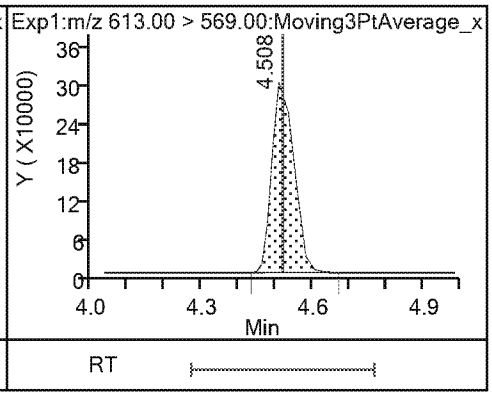
16 N-ethylperfluorooctanesulfonamidoa



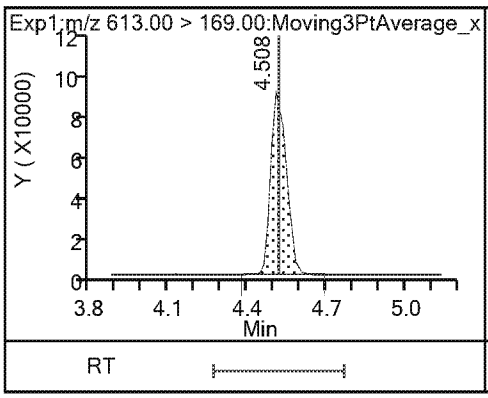
21 11-Chloroeicosafluoro-3-oxaundecan



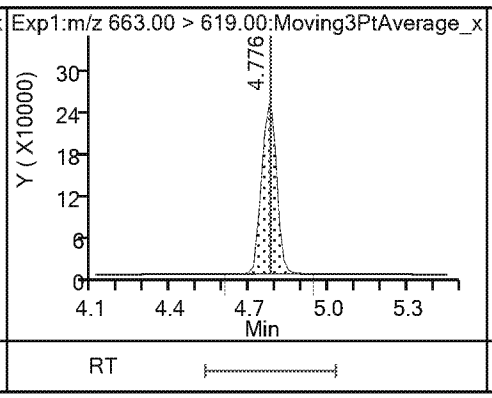
18 Perfluorododecanoic acid



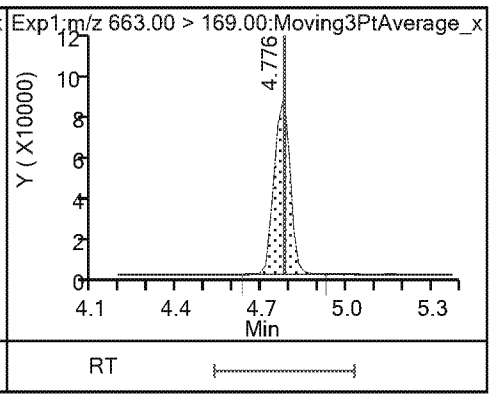
18 Perfluorododecanoic acid



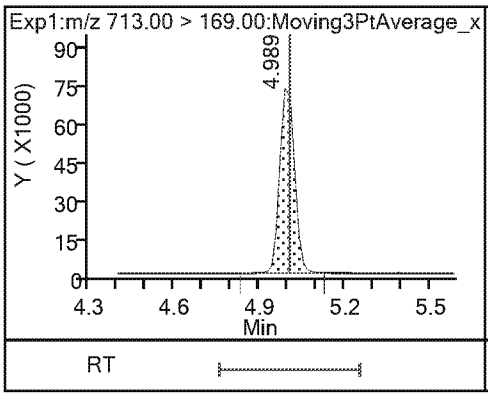
19 Perfluorotridecanoic acid



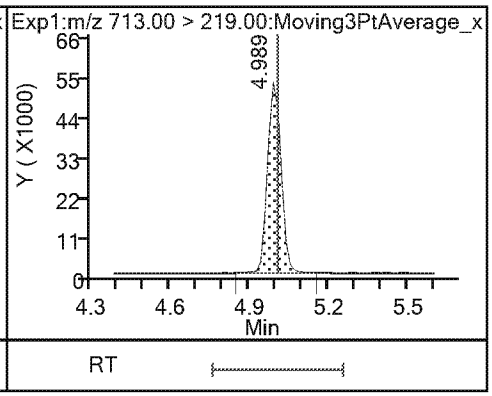
19 Perfluorotridecanoic acid



20 Perfluorotetradecanoic acid



20 Perfluorotetradecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Lab Sample ID: CCVL 320-285473/1 Calibration Date: 04/03/2019 05:14

Instrument ID: A8_N Calib Start Date: 03/26/2019 15:43

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 03/26/2019 16:27

Lab File ID: 2019.04.02_537A_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid	Ave	1.210	1.090		0.0398	0.0442	-10.0	50.0
Perfluorohexanoic acid	Ave	1.095	1.097		0.0501	0.0500	0.2	50.0
Perfluoro(2-propoxypropanoic) acid	Ave	0.2582	0.2783		0.0539	0.0500	7.8	50.0
Perfluoroheptanoic acid	Ave	1.081	0.9863		0.0456	0.0500	-8.7	50.0
Perfluorohexanesulfonic acid	Ave	1.423	1.275		0.0408	0.0455	-10.3	50.0
DONA	Ave	2.890	2.844		0.0464	0.0471	-1.6	50.0
Perfluorooctanoic acid	Ave	1.019	0.9290			0.0500	-8.8	50.0
Perfluorononanoic acid	Ave	0.7461	0.7502		0.0503	0.0500	0.5	50.0
Perfluorooctanesulfonic acid	Ave	1.057	1.003		0.0440	0.0464	-5.1	50.0
9-Chlorohexadecafluoro-3-oxa nonane-1-sulfonate	Ave	1.709	1.554		0.0424	0.0466	-9.1	50.0
Perfluorodecanoic acid	Ave	0.5861	0.6031		0.0514	0.0500	2.9	50.0
N-methylperfluorooctanesulfo namidoacetic acid	Ave	0.9225	0.9116		0.0494	0.0500	-1.2	50.0
Perfluoroundecanoic acid	Ave	0.4541	0.4110		0.0453	0.0500	-9.5	50.0
N-ethylperfluorooctanesulfon amidoacetic acid	Ave	0.8747	0.8653		0.0495	0.0500	-1.1	50.0
11-Chloroeicosafluoro-3-oxau ndecane-1-sulfonate	Ave	2.128	2.008		0.0444	0.0471	-5.7	50.0
Perfluorododecanoic acid	Ave	0.4418	0.3706		0.0419	0.0500	-16.1	50.0
Perfluorotridecanoic acid	Ave	0.3657	0.3450		0.0472	0.0500	-5.7	50.0
Perfluorotetradecanoic acid	Ave	0.1010	0.0963		0.0476	0.0500	-4.7	50.0
13C2 PFHxA	Ave	1.158	1.120		2.42	2.50	-3.3	30.0
13C2 PFDA	Ave	0.6165	0.5880		2.38	2.50	-4.6	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_004.d
Lims ID: CCVL
Client ID:
Sample Type: CCVL
Inject. Date: 03-Apr-2019 05:14:24 ALS Bottle#: 2 Worklist Smp#: 1
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: CCVL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub13

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 09:09:28 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0328

First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 09:09:28
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	2.008	2.008	0.0	1.000	60347	0.0398	Target=1.47	397	
298.90 > 99.00	2.008	2.008	0.0	1.000	41331		1.46(0.00-0.00)	111	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.373	2.373	0.0	0.742	67444	0.0501	Target=11.08	27.0	
313.00 > 119.00	2.373	2.373	0.0	0.742	6264		10.77(0.00-0.00)	13.7	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.373	2.373	0.0	1.000	3443100	2.42		5970	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.490	2.490	0.0	1.000	188448	2.91		1559	
22 Perfluoro(2-propoxypropanoic) acid									M
329.10 > 285.00	2.490	2.490	0.0	1.000	17109	0.0539		7.9	M
4 Perfluoroheptanoic acid									M
363.00 > 319.00	2.799	2.799	0.0	1.000	60625	0.0456	Target=2.42	9.1	M
363.00 > 169.00	2.799	2.799	0.0	1.000	24333		2.49(0.00-0.00)	113	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	2.819	2.819	0.0	1.000	72716	0.0408	Target=2.92	389	
399.00 > 99.00	2.799	2.819	-0.020	0.993	25649		2.84(0.00-0.00)	26.0	
24 DONA									
377.00 > 251.00	2.840	2.840	0.0	1.000	164705	0.0464	Target=1.50	486	
377.00 > 85.00	2.840	2.840	0.0	1.000	103046		1.60(0.00-0.00)	4493	
* 5 13C2 PFOA									
415.00 > 370.00	3.196	3.196	0.0		3073419	2.50		8313	
6 Perfluorooctanoic acid									M
413.00 > 369.00	3.215	3.215	0.0	1.006	57104	0.0456	Target=1.75	6.6	M
413.00 > 169.00	3.215	3.215	0.0	1.006	33412		1.71(0.00-0.00)	133	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
8 Perfluorooctanesulfonic acid									M
499.00 > 80.00	3.593	3.593	0.0	1.004	58309	0.0440	Target=4.69	252	M
499.00 > 99.00	3.578	3.593	-0.015	1.000	14150		4.12(0.00-0.00)	40.4	M
* 7 13C4 PFOS									
503.00 > 80.00	3.578	3.578	0.0		2994662	2.39		13364	
9 Perfluorononanoic acid									M
463.00 > 419.00	3.593	3.593	0.0	1.000	46112	0.0503	Target=3.96	23.2	M
463.00 > 169.00	3.593	3.593	0.0	1.000	11274		4.09(0.00-0.00)	173	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.784	3.784	0.0	1.000	90715	0.0424		156	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.949	3.949	0.0	1.000	37070	0.0514	Target=5.01	22.9	
513.00 > 169.00	3.949	3.949	0.0	1.000	6495		5.71(0.00-0.00)	56.7	
$ 10 13C2 PFDA									
515.00 > 470.00	3.949	3.949	0.0	1.000	1807172	2.38		8015	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.124	4.124	0.0		508291	2.50		2867	
15 N-methylperfluorooctanesulfonamido									
570.00 > 419.00	4.124	4.124	0.0	1.000	9267	0.0494		195	
17 Perfluoroundecanoic acid									M
563.00 > 519.00	4.269	4.269	0.0	1.000	25266	0.0453	Target=4.98	11.8	M
563.00 > 169.00	4.269	4.269	0.0	1.000	5636		4.48(0.00-0.00)	120	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.269	4.269	0.0	1.035	548129	2.64		262	
16 N-ethylperfluorooctanesulfonamidoa									M
584.00 > 419.00	4.283	4.283	0.0	1.003	8796	0.0495		37.0	M
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.396	4.396	0.0	1.000	118507	0.0444		1338	
18 Perfluorododecanoic acid									
613.00 > 569.00	4.558	4.558	0.0	1.000	22777	0.0419	Target=3.56	13.4	
613.00 > 169.00	4.558	4.558	0.0	1.000	6247		3.65(0.00-0.00)	97.4	
19 Perfluorotridecanoic acid									
663.00 > 619.00	4.817	4.817	0.0	1.000	21209	0.0472	Target=2.92	10.2	
663.00 > 169.00	4.817	4.817	0.0	1.000	7759		2.73(0.00-0.00)	100	
20 Perfluorotetradecanoic acid									
713.00 > 169.00	5.027	5.027	0.0	1.000	5917	0.0476	Target=1.42	118	
713.00 > 219.00	5.027	5.027	0.0	1.000	4261		1.39(0.00-0.00)	51.5	

QC Flag Legend

Review Flags

M - Manually Integrated

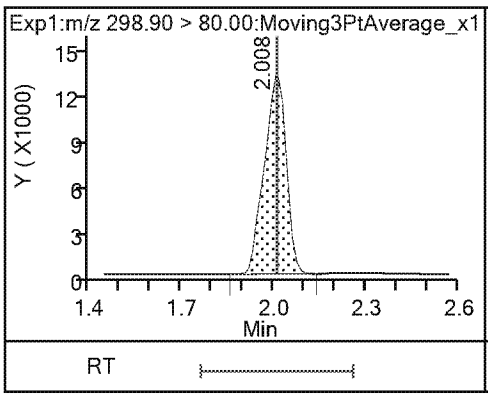
Reagents:

LC537_NC_L2_00004 Amount Added: 1.00 Units: mL

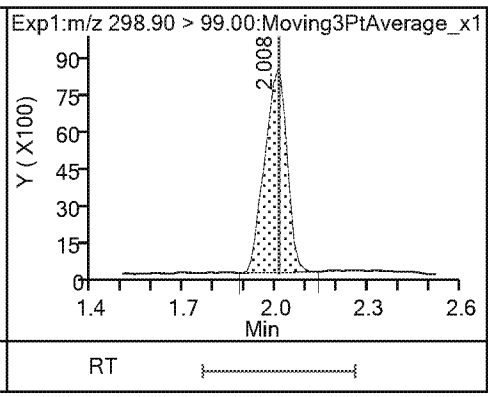
TestAmerica Sacramento

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_004.d
Injection Date: 03-Apr-2019 05:14:24 Instrument ID: A8_N
Lims ID: CCVL
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 1
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

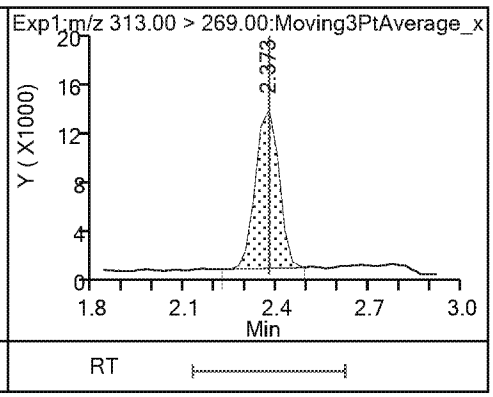
1 Perfluorobutanesulfonic acid



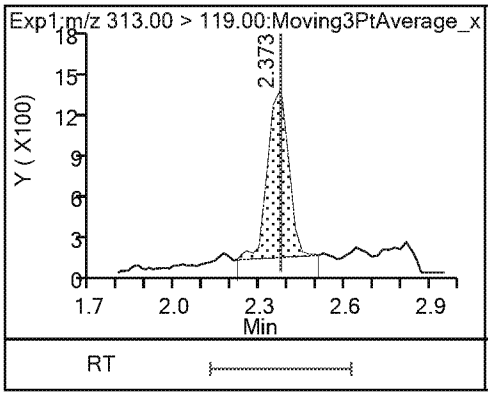
1 Perfluorobutanesulfonic acid



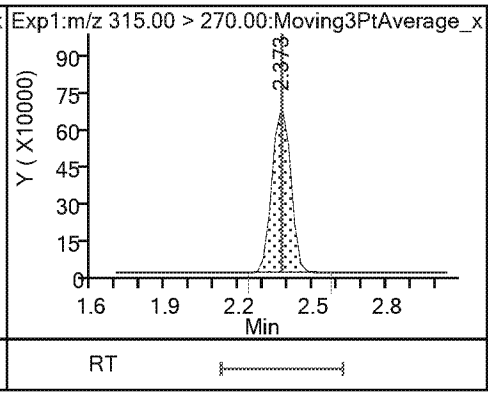
13 Perfluorohexanoic acid



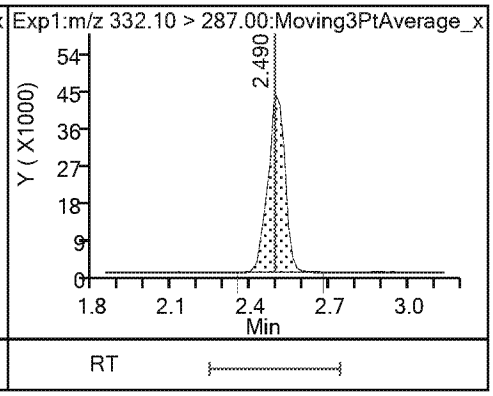
13 Perfluorohexanoic acid



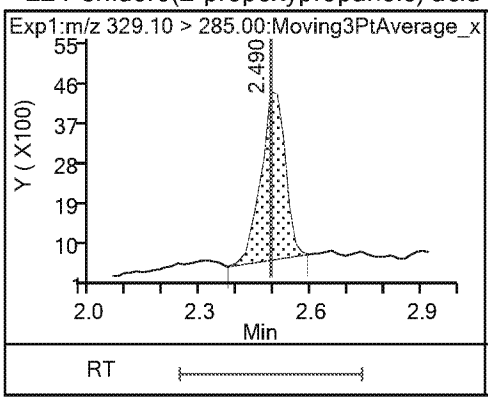
$ 2 13C2 PFHxA



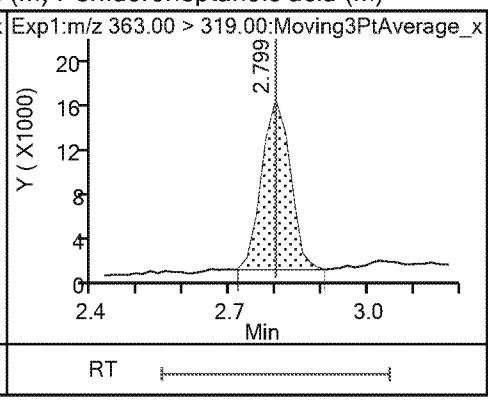
$ 25 13C3 HFPO-DA



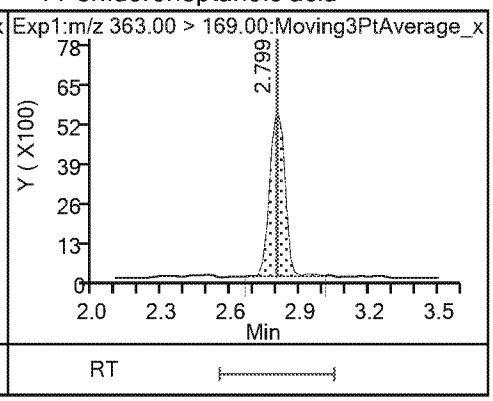
22 Perfluoro(2-propoxypropanoic) acid (M)



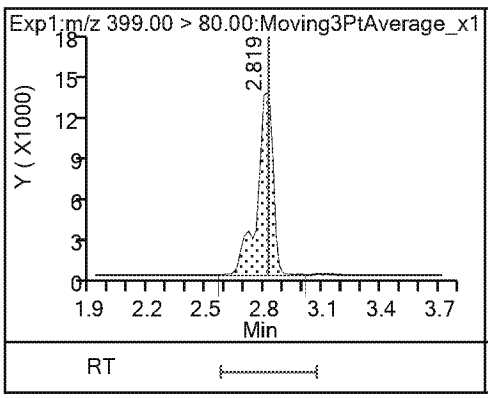
4 Perfluoroheptanoic acid (M)



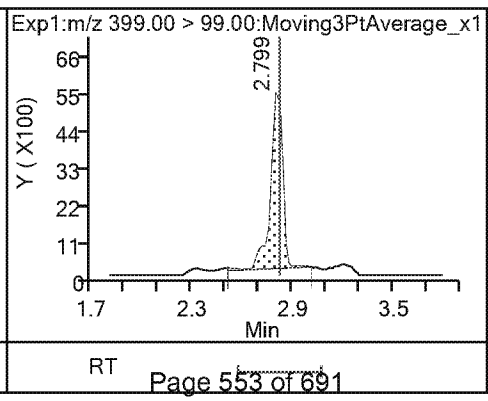
4 Perfluoroheptanoic acid



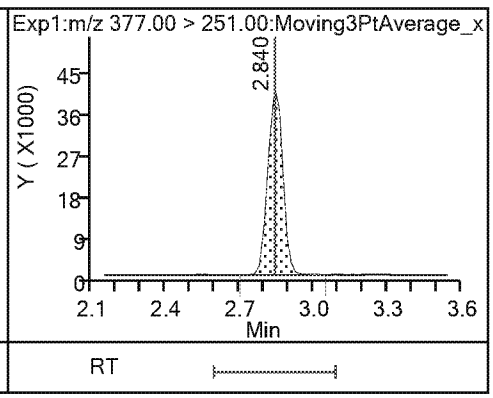
3 Perfluorohexanesulfonic acid



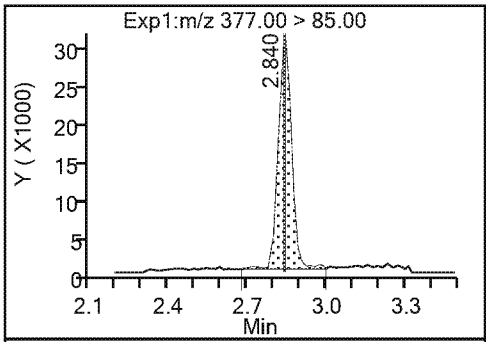
3 Perfluorohexanesulfonic acid



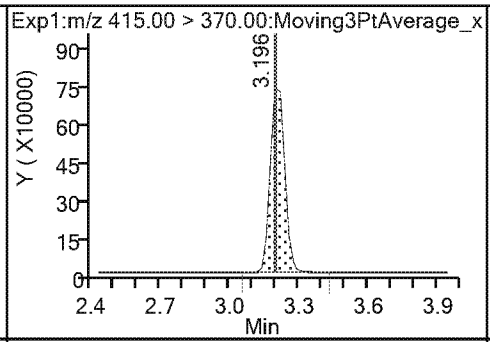
24 DONA



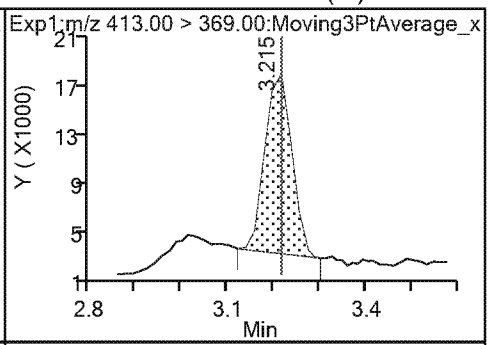
24 DONA



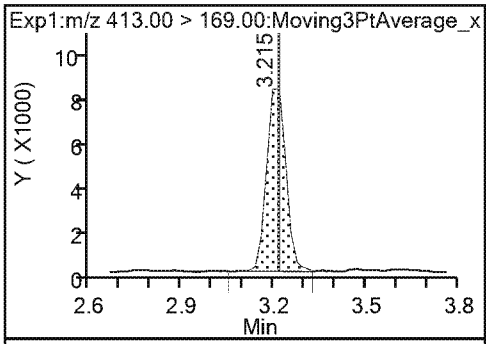
* 5 13C2 PFOA



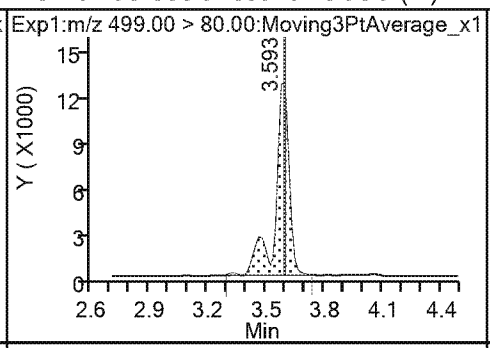
6 Perfluorooctanoic acid (M)



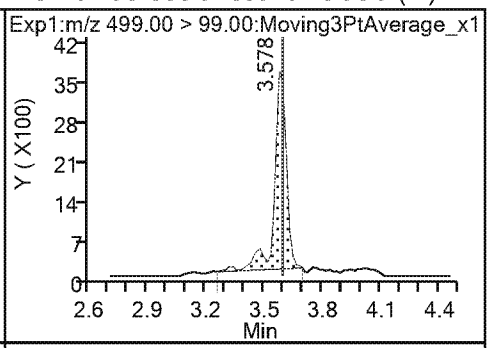
6 Perfluorooctanoic acid



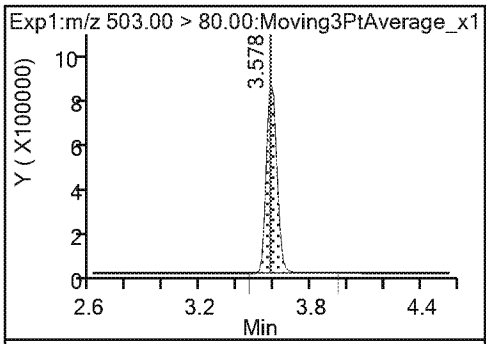
8 Perfluorooctanesulfonic acid (M)



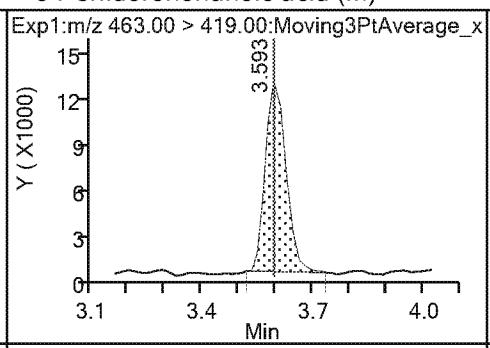
8 Perfluorooctanesulfonic acid (M)



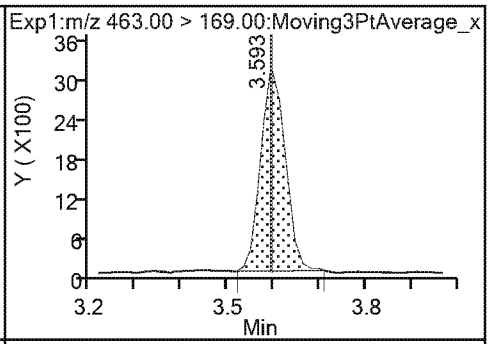
* 7 13C4 PFOS



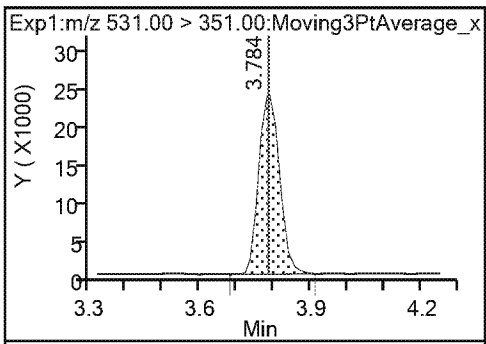
9 Perfluorononanoic acid (M)



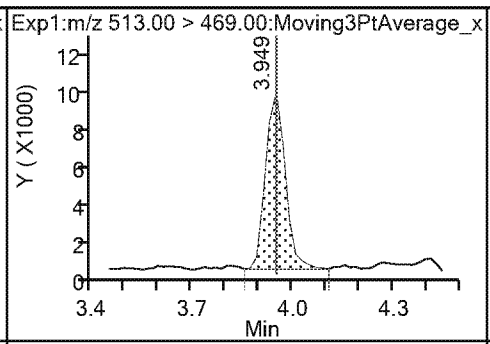
9 Perfluorononanoic acid



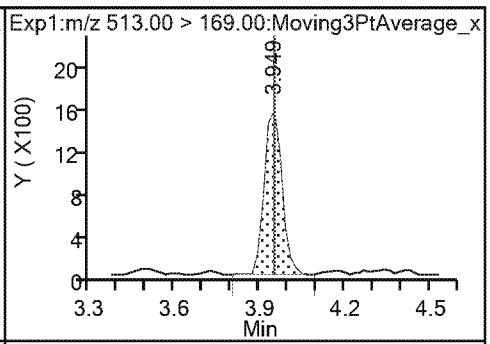
23 9-Chlorohexadecafluoro-3-oxanonane



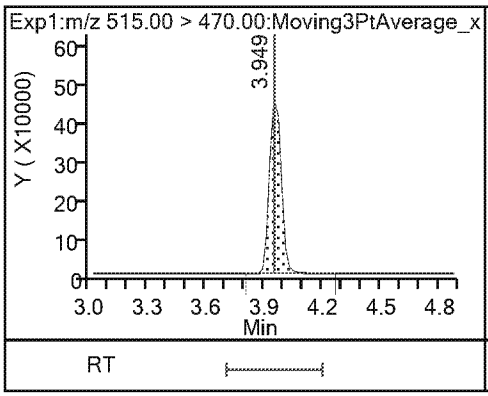
14 Perfluorodecanoic acid



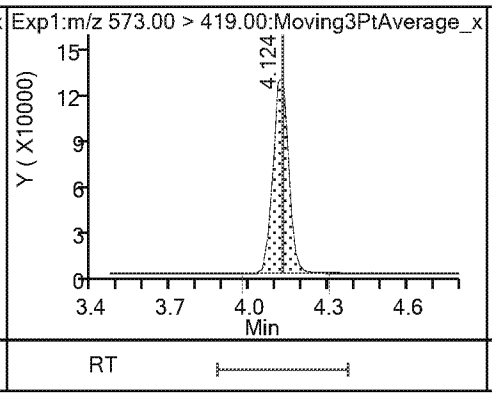
14 Perfluorodecanoic acid



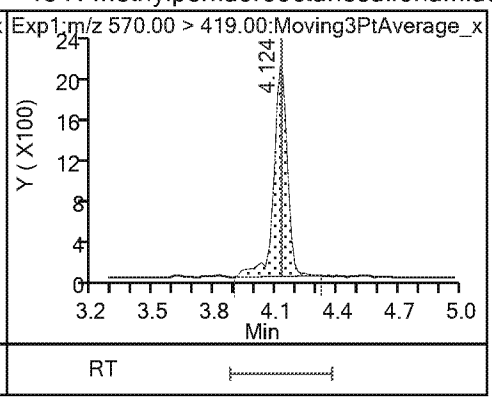
$ 10 13C2 PFDA



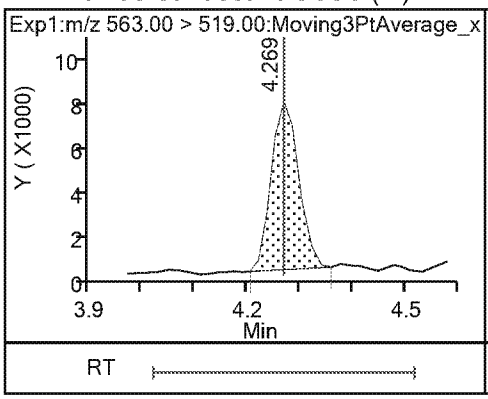
* 12 d3-NMeFOSAA



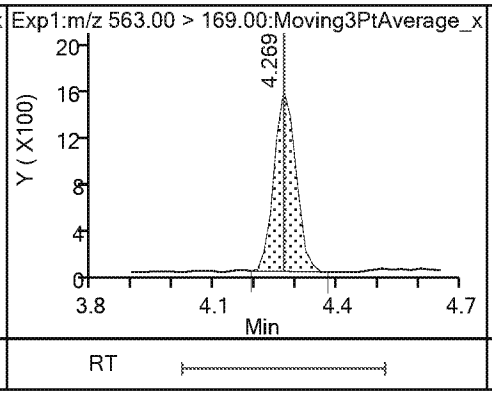
15 N-methylperfluorooctanesulfonamido



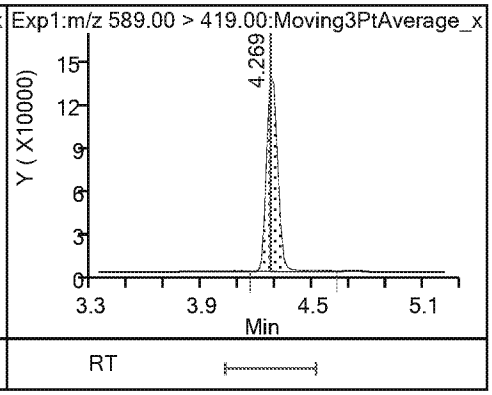
17 Perfluoroundecanoic acid (M)



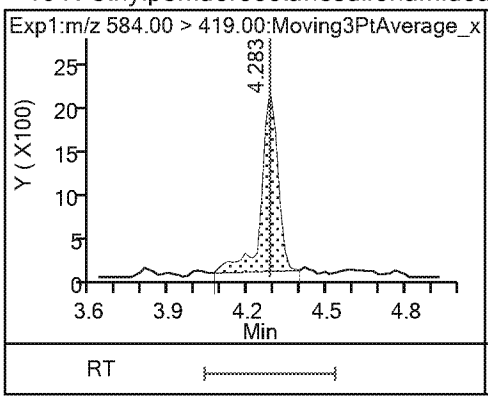
17 Perfluoroundecanoic acid



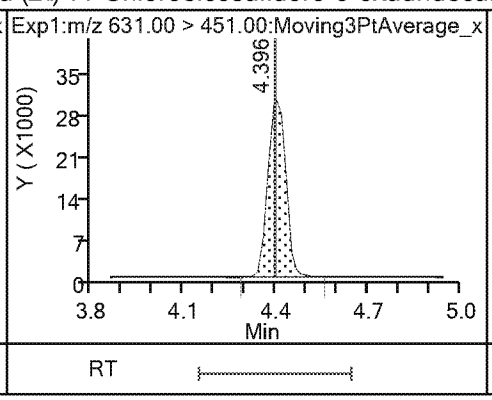
$ 11 d5-NEtFOSAA



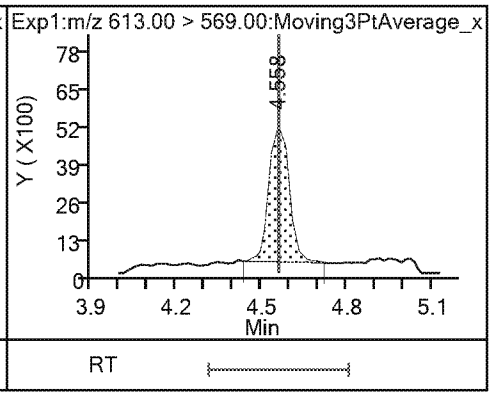
16 N-ethylperfluorooctanesulfonamidoa (M)



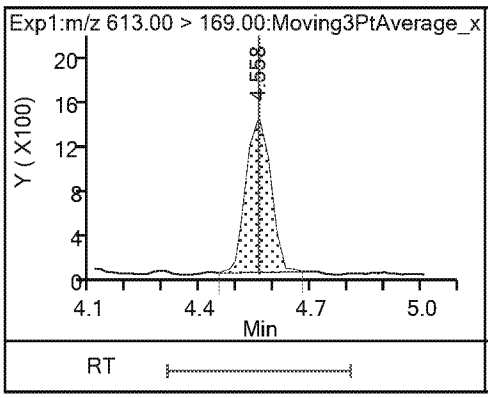
11-Chloroeicosafluoro-3-oxaundecan



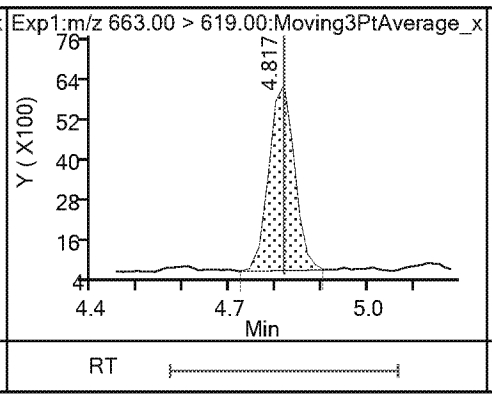
18 Perfluorododecanoic acid



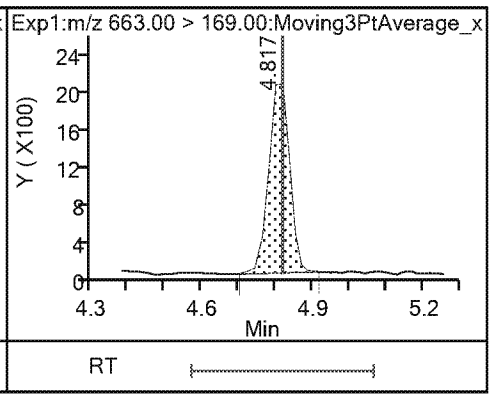
18 Perfluorododecanoic acid



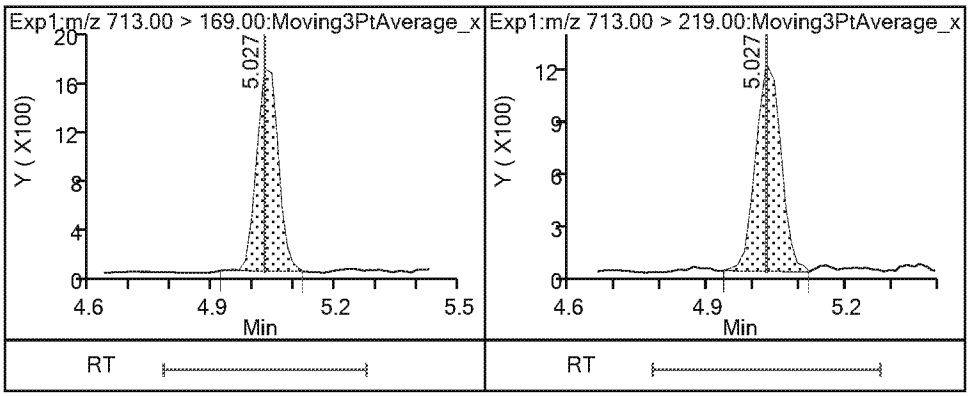
19 Perfluorotridecanoic acid



19 Perfluorotridecanoic acid



20 Perfluorotetradecanoic acid 20 Perfluorotetradecanoic acid



TestAmerica Sacramento

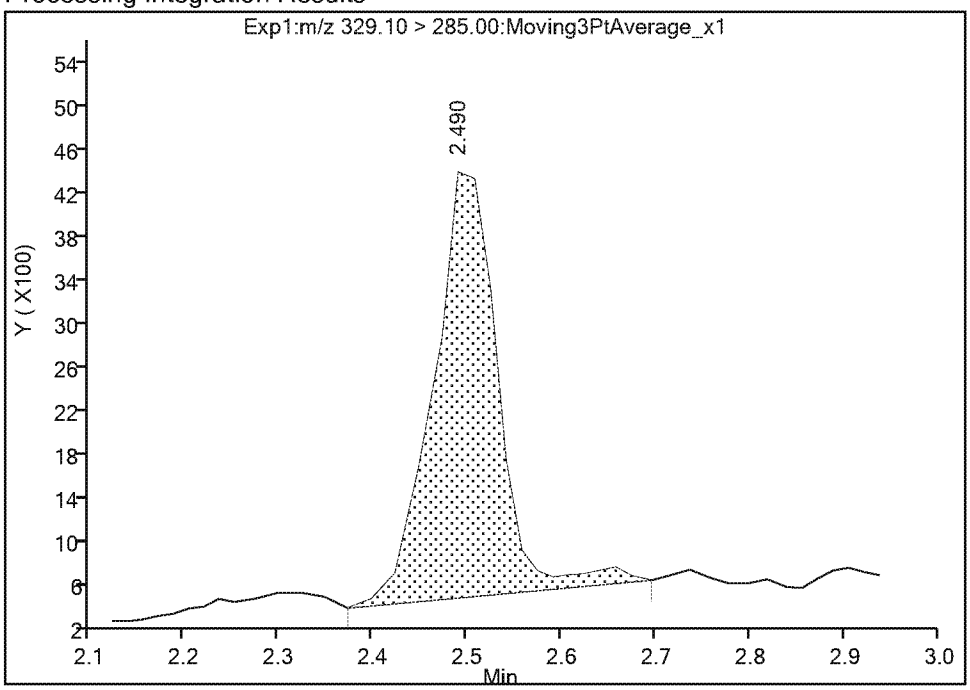
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_004.d				
Injection Date:	03-Apr-2019 05:14:24	Instrument ID:	A8_N		
Lims ID:	CCVL				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	2	Worklist Smp#:	1
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

22 Perfluoro(2-propoxypropanoic) acid, CAS: 13252-13-6

Signal: 1

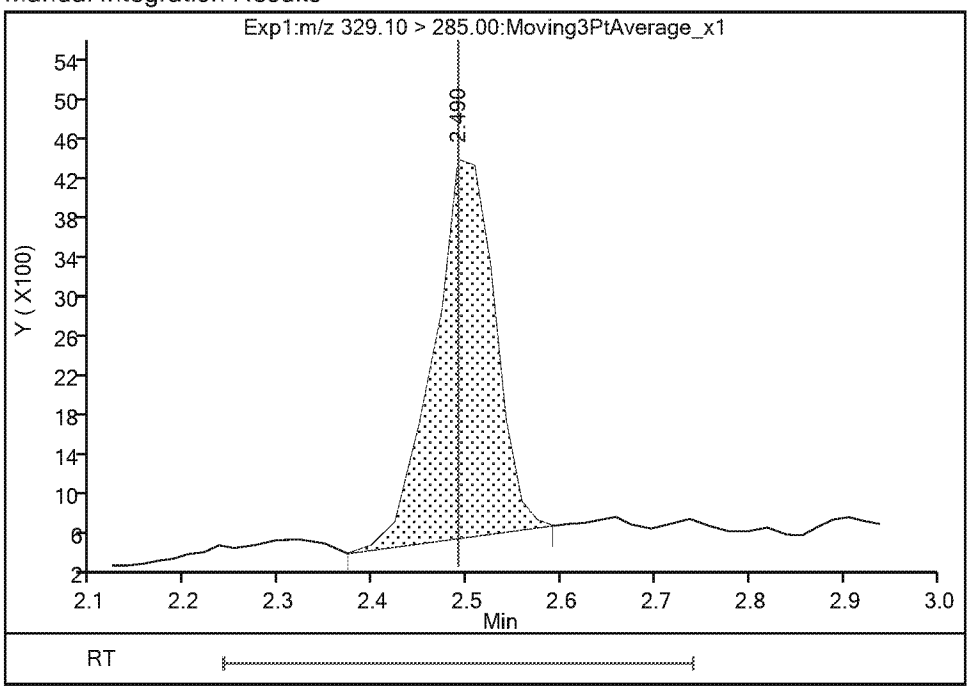
Processing Integration Results

RT: 2.49
Area: 18451
Amount: 0.058117
Amount Units: ng/ml



Manual Integration Results

RT: 2.49
Area: 17109
Amount: 0.053890
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 09:08:01
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento

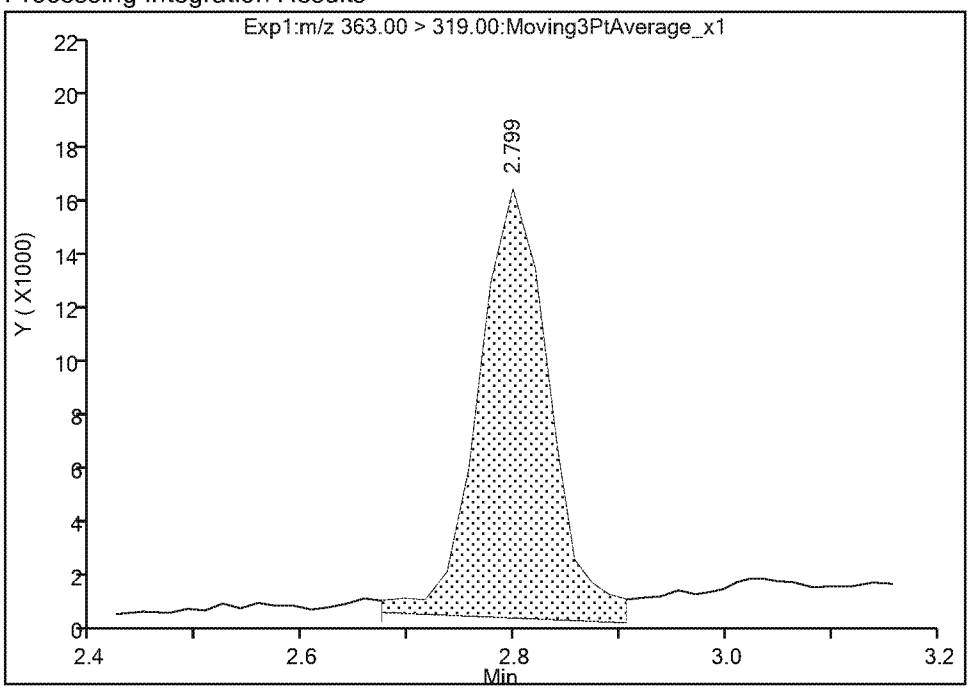
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_004.d				
Injection Date:	03-Apr-2019 05:14:24	Instrument ID:	A8_N		
Lims ID:	CCVL				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	2	Worklist Smp#:	1
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

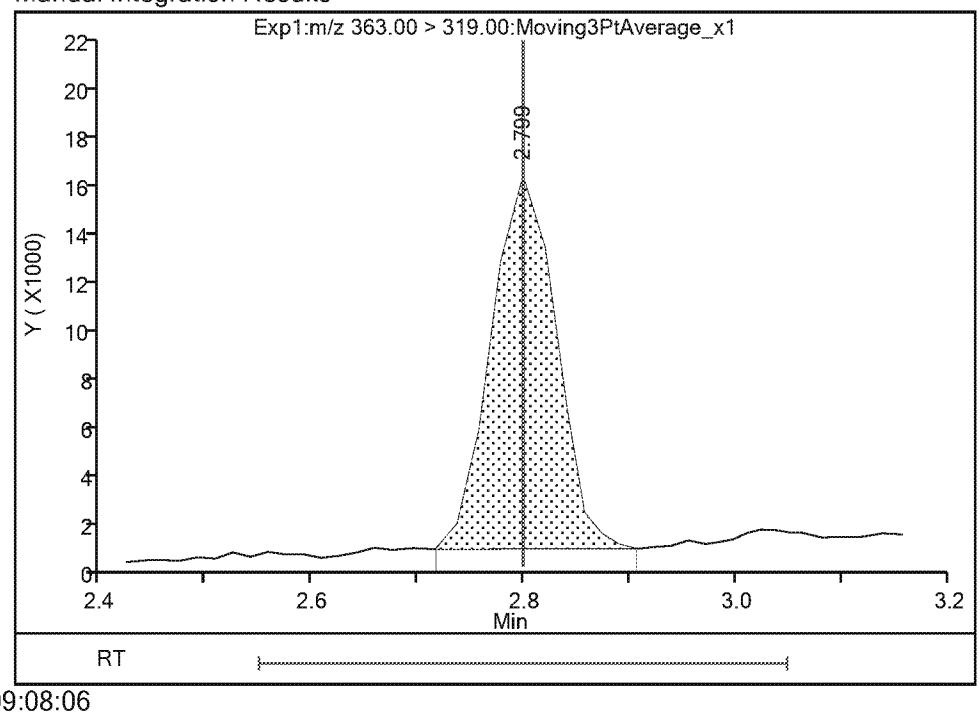
Processing Integration Results

RT: 2.80
Area: 69207
Amount: 0.052099
Amount Units: ng/ml



Manual Integration Results

RT: 2.80
Area: 60625
Amount: 0.045639
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 09:08:06
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento

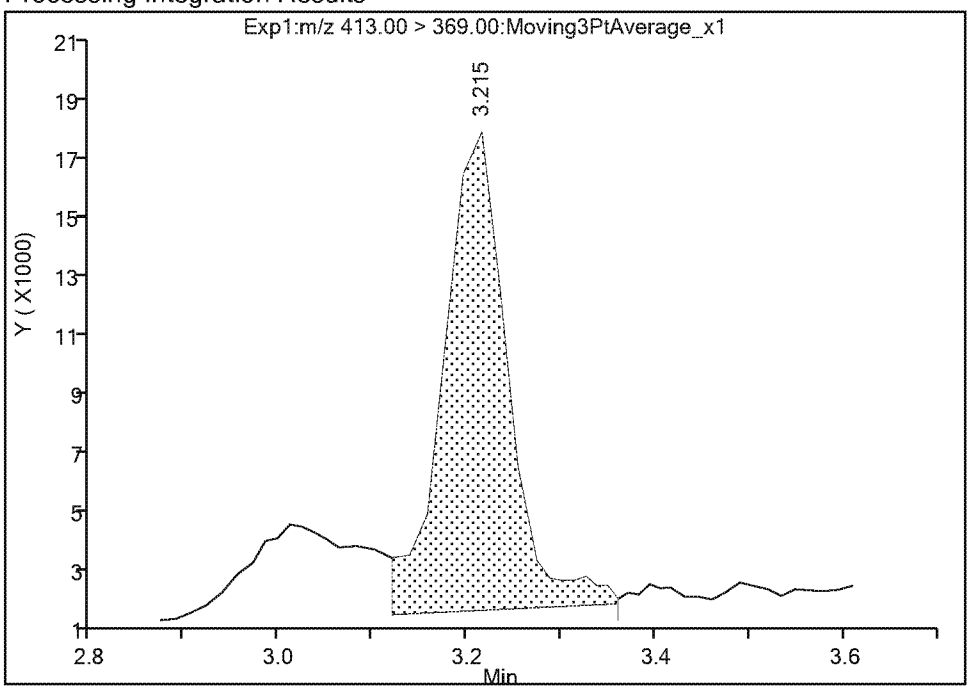
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_004.d				
Injection Date:	03-Apr-2019 05:14:24	Instrument ID:	A8_N		
Lims ID:	CCVL				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	2	Worklist Smp#:	1
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

Processing Integration Results

RT: 3.21
Area: 74288
Amount: 0.059303
Amount Units: ng/ml



Manual Integration Results

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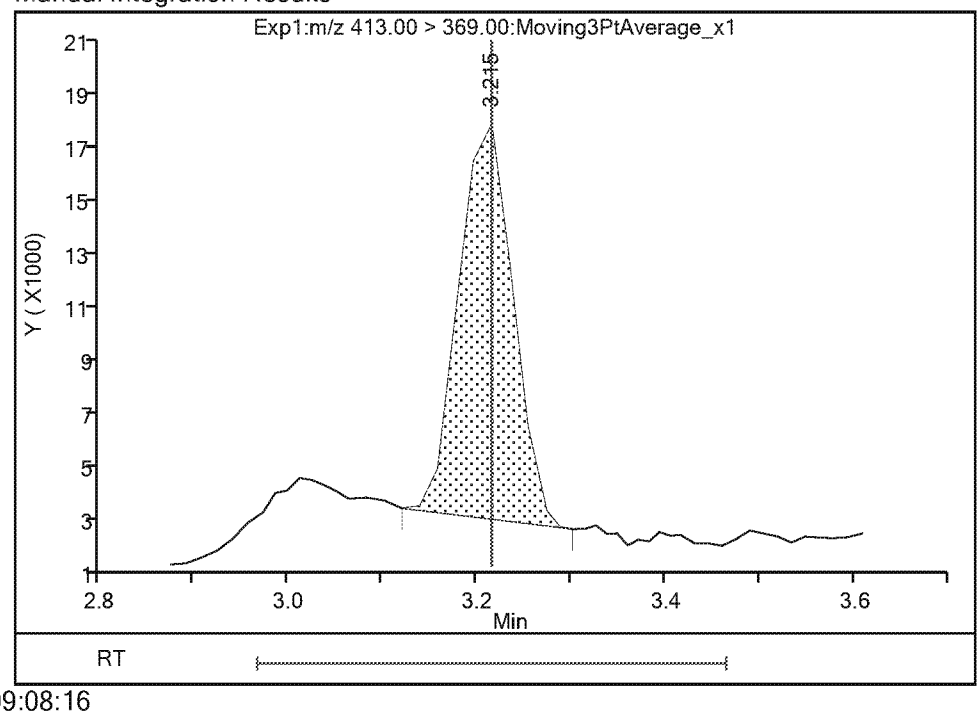
Area: 57104
Amount: 0.045585
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 09:08:16
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento

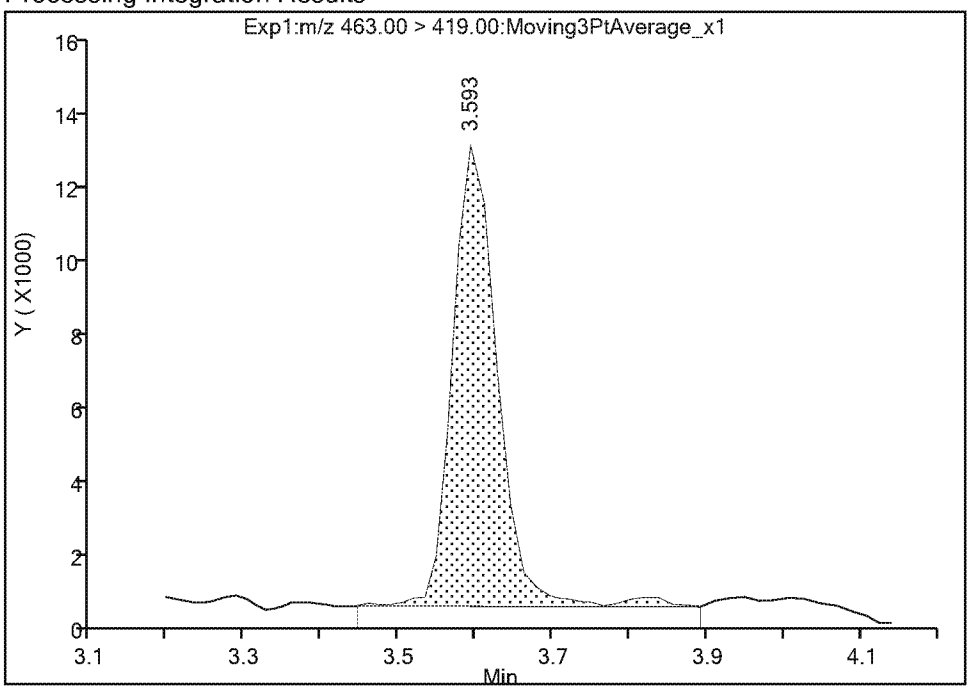
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_004.d				
Injection Date:	03-Apr-2019 05:14:24	Instrument ID:	A8_N		
Lims ID:	CCVL				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	2	Worklist Smp#:	1
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

9 Perfluorononanoic acid, CAS: 375-95-1

Signal: 1

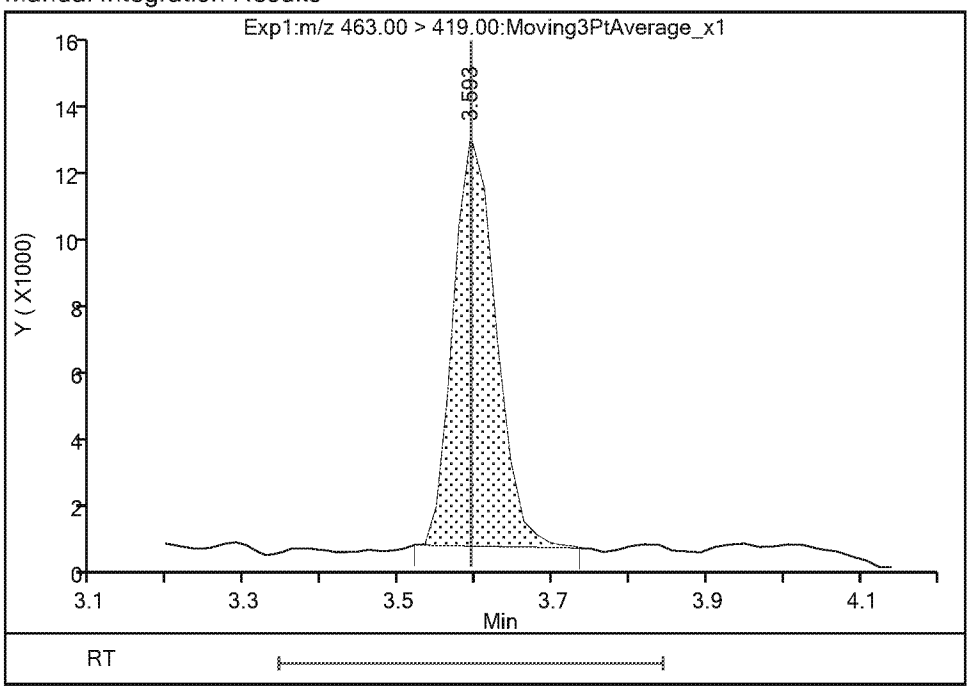
Processing Integration Results

RT: 3.59
Area: 49479
Amount: 0.053943
Amount Units: ng/ml



Manual Integration Results

RT: 3.59
Area: 46112
Amount: 0.050272
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 09:08:40
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento

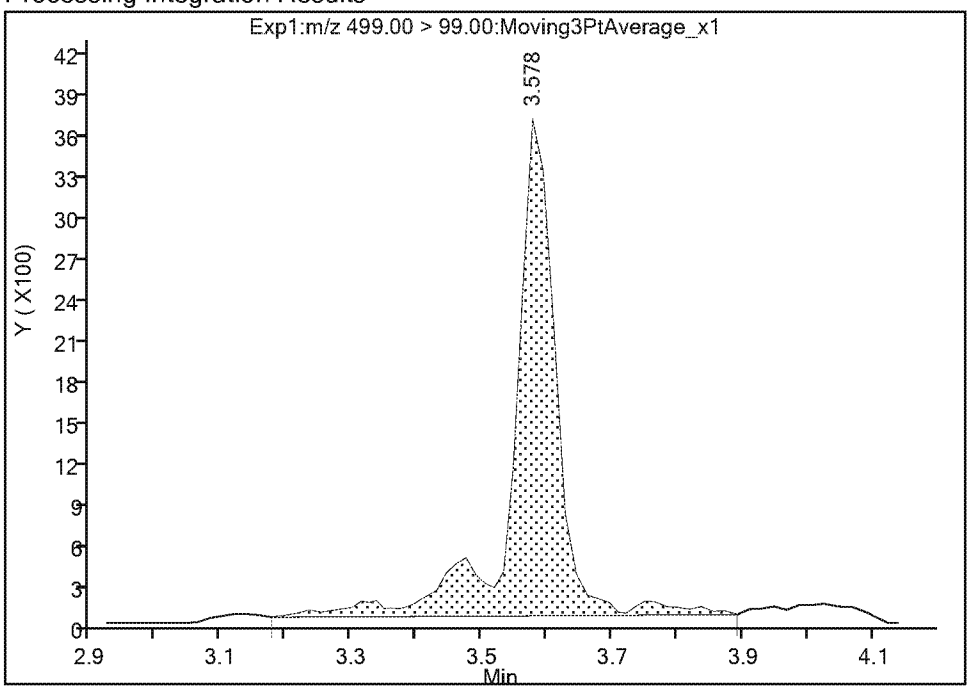
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_004.d				
Injection Date:	03-Apr-2019 05:14:24	Instrument ID:	A8_N		
Lims ID:	CCVL				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	2	Worklist Smp#:	1
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

8 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 2

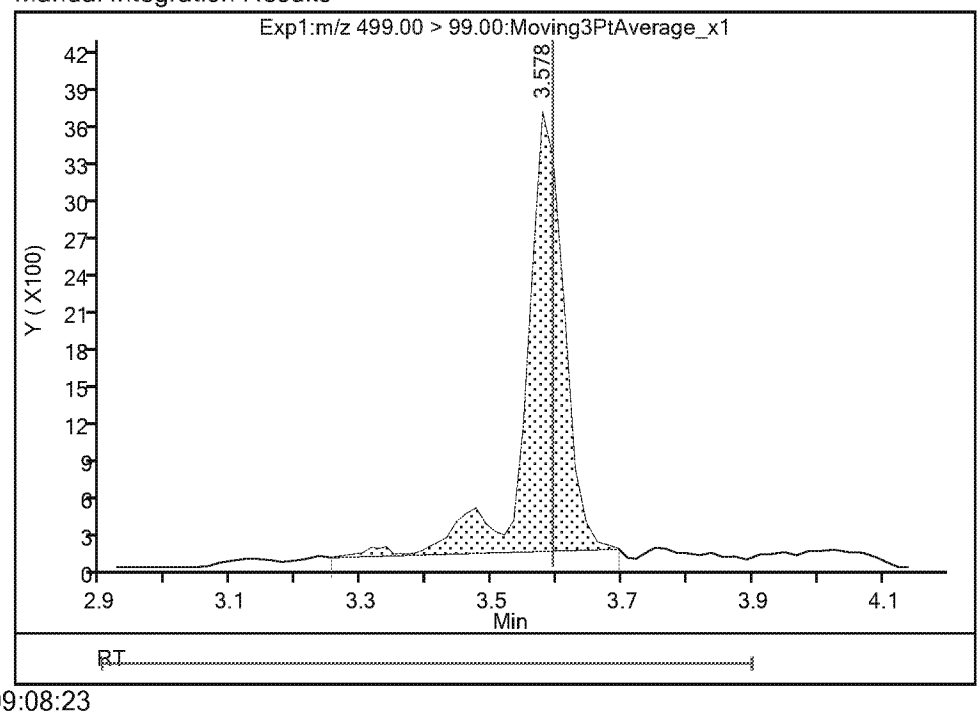
Processing Integration Results

RT: 3.58
Area: 16429
Amount: 0.046341
Amount Units: ng/ml



Manual Integration Results

RT: 3.58
Area: 14150
Amount: 0.044022
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 09:08:23
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento

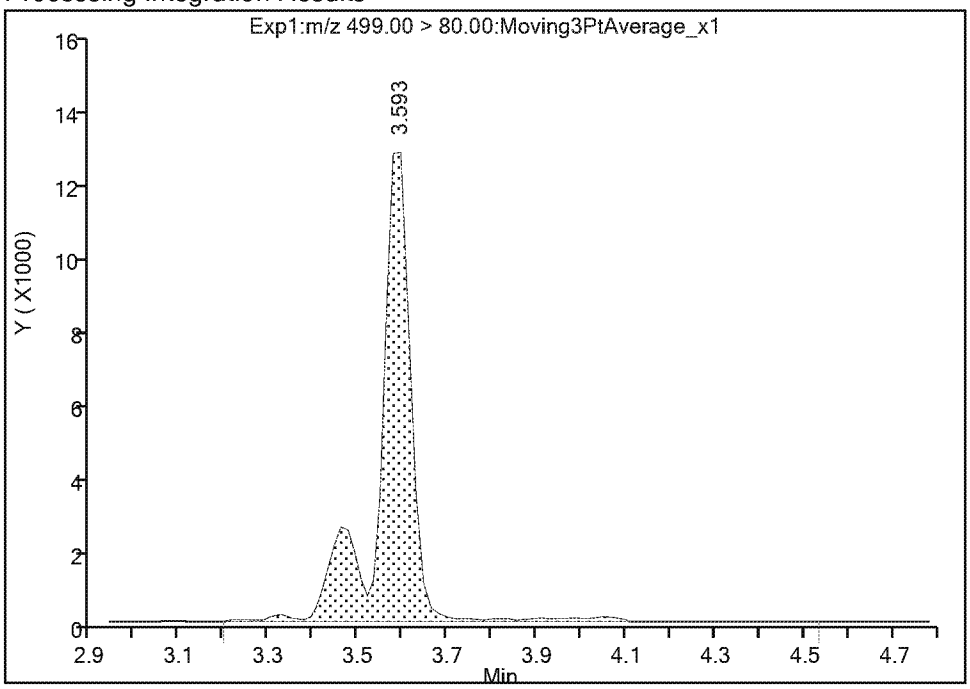
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_004.d				
Injection Date:	03-Apr-2019 05:14:24	Instrument ID:	A8_N		
Lims ID:	CCVL				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	2	Worklist Smp#:	1
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

8 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 1

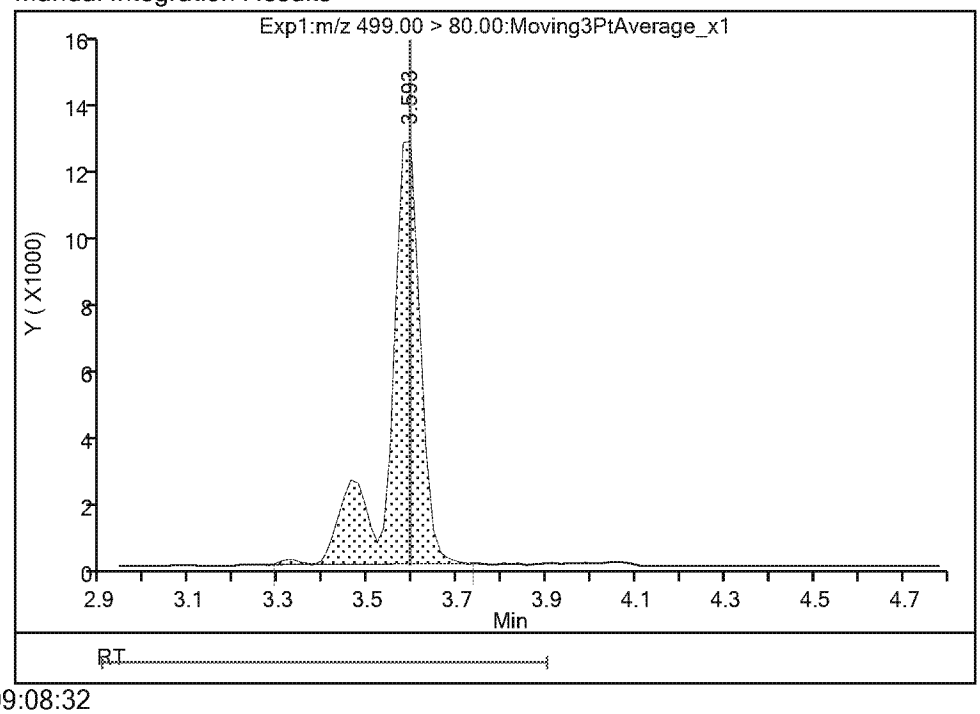
Processing Integration Results

RT: 3.59
Area: 61381
Amount: 0.046341
Amount Units: ng/ml



Manual Integration Results

RT: 3.59
Area: 58309
Amount: 0.044022
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 09:08:32
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento

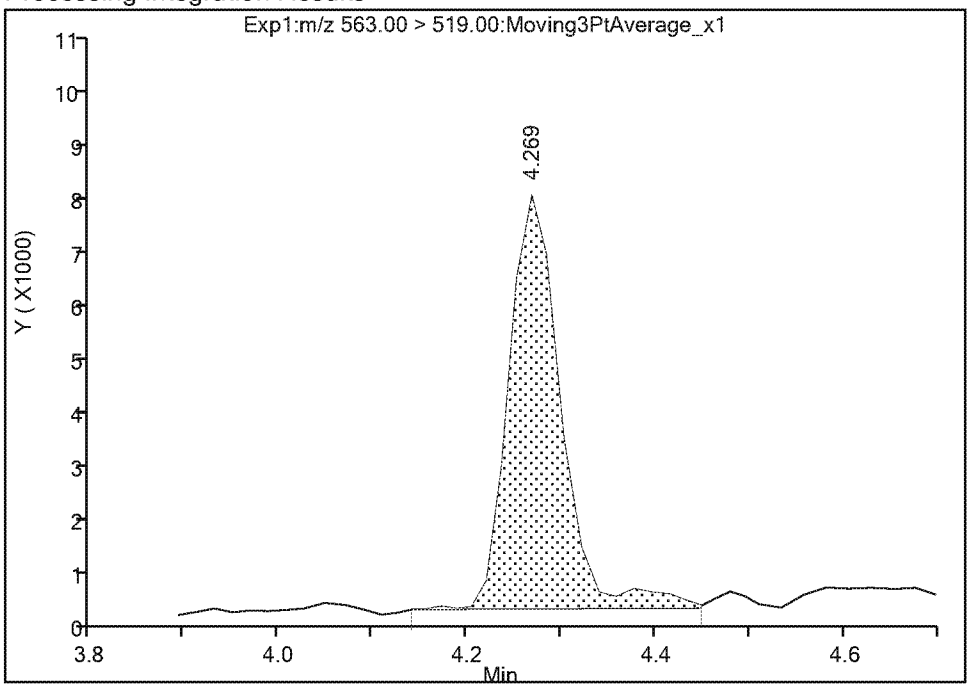
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_004.d				
Injection Date:	03-Apr-2019 05:14:24	Instrument ID:	A8_N		
Lims ID:	CCVL				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	2	Worklist Smp#:	1
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

17 Perfluoroundecanoic acid, CAS: 2058-94-8

Signal: 1

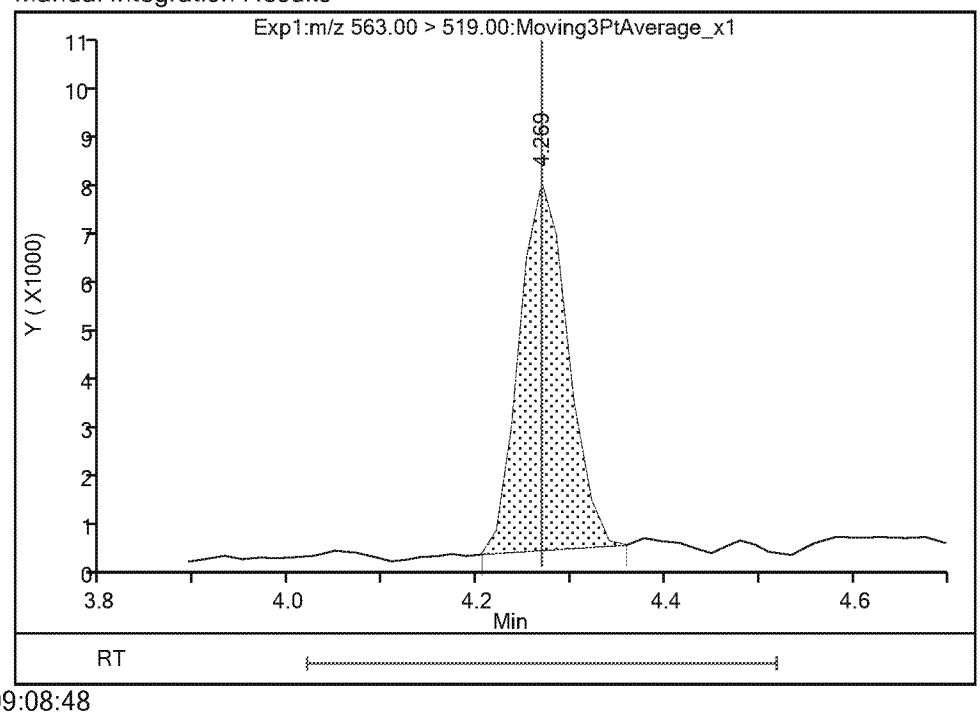
Processing Integration Results

RT: 4.27
Area: 27733
Amount: 0.049676
Amount Units: ng/ml



Manual Integration Results

RT: 4.27
Area: 25266
Amount: 0.045257
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 09:08:48
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento

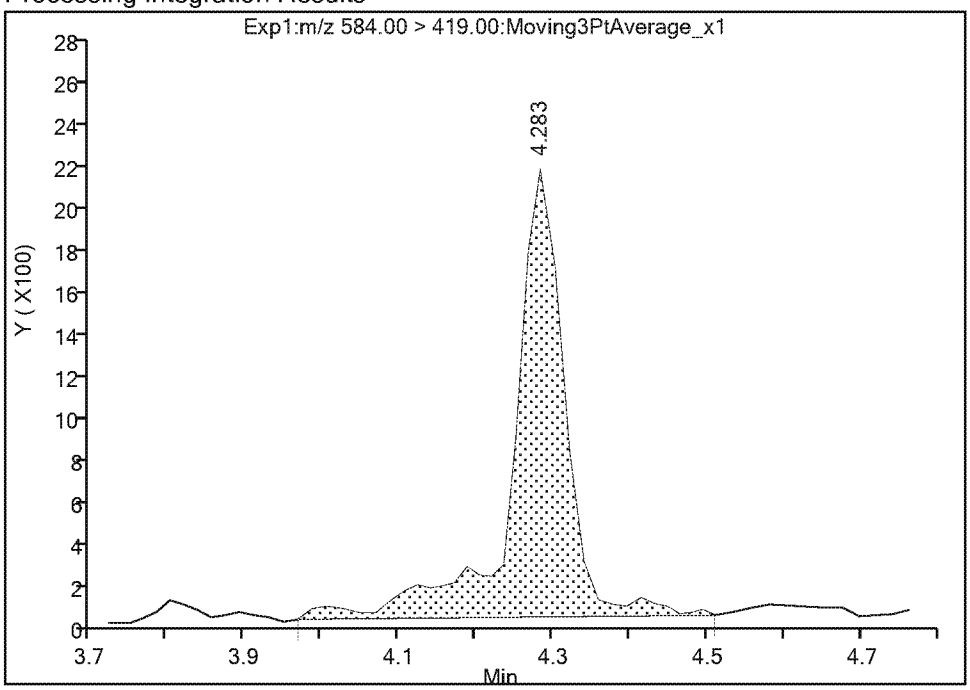
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_004.d				
Injection Date:	03-Apr-2019 05:14:24	Instrument ID:	A8_N		
Lims ID:	CCVL				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	2	Worklist Smp#:	1
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

16 N-ethylperfluorooctanesulfonamidoacetic acid, CAS: 2991-50-6

Signal: 1

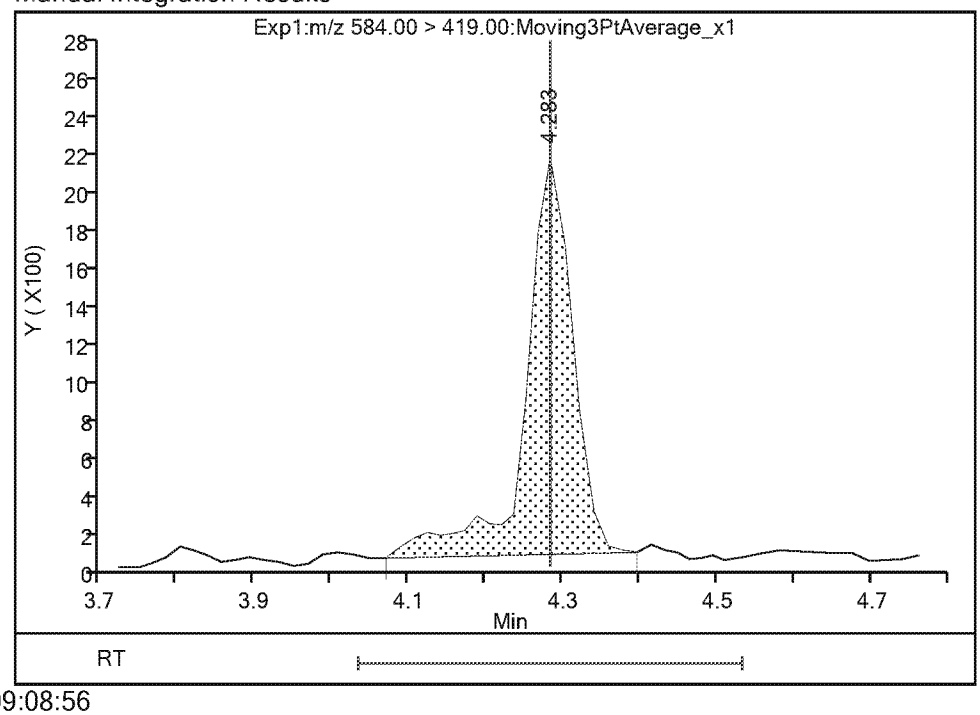
Processing Integration Results

RT: 4.28
Area: 9975
Amount: 0.056087
Amount Units: ng/ml



Manual Integration Results

RT: 4.28
Area: 8796
Amount: 0.049457
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 03-Apr-2019 09:08:56
Audit Action: Manually Integrated Audit Reason: Baseline

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Lab Sample ID: CCV 320-285757/12 Calibration Date: 04/03/2019 06:36

Instrument ID: A8_N Calib Start Date: 03/26/2019 15:43

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 03/26/2019 16:27

Lab File ID: 2019.04.02_537A_015.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid	Ave	1.210	1.202		0.878	0.884	-0.7	30.0
Perfluorohexanoic acid	Ave	1.095	1.059		0.967	1.00	-3.3	30.0
Perfluoro(2-propoxypropanoic) acid	Ave	0.2582	0.2884		1.12	1.00	11.7	30.0
Perfluoroheptanoic acid	Ave	1.081	1.074		0.994	1.00	-0.6	30.0
Perfluorohexanesulfonic acid	Ave	1.423	1.434		0.917	0.910	0.8	30.0
DONA	Ave	2.890	2.924		0.953	0.942	1.2	30.0
Perfluorooctanoic acid	Ave	1.019	1.017		0.998	1.00	-0.2	30.0
Perfluorooctanesulfonic acid	Ave	1.057	1.069		0.938	0.928	1.1	30.0
Perfluorononanoic acid	Ave	0.7461	0.7428		0.996	1.00	-0.4	30.0
9-Chlorohexadecafluoro-3-oxa nonane-1-sulfonate	Ave	1.709	1.747		0.953	0.932	2.3	30.0
Perfluorodecanoic acid	Ave	0.5861	0.5536		0.945	1.00	-5.5	30.0
N-methylperfluorooctanesulfo namidoacetic acid	Ave	0.9225	0.9373		1.02	1.00	1.6	30.0
Perfluoroundecanoic acid	Ave	0.4541	0.4437		0.977	1.00	-2.3	30.0
N-ethylperfluorooctanesulfon amidoacetic acid	Ave	0.8747	0.8562		0.979	1.00	-2.1	30.0
11-Chloroeicosafluoro-3-oxau ndecane-1-sulfonate	Ave	2.128	2.286		1.01	0.942	7.4	30.0
Perfluorododecanoic acid	Ave	0.4418	0.4262		0.965	1.00	-3.5	30.0
Perfluorotridecanoic acid	Ave	0.3657	0.3730		1.02	1.00	2.0	30.0
Perfluorotetradecanoic acid	Ave	0.1010	0.0963		0.953	1.00	-4.7	30.0
13C2 PFHxA	Ave	1.158	1.115		2.41	2.50	-3.7	30.0
13C2 PFDA	Ave	0.6165	0.5911		2.40	2.50	-4.1	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_015.d
Lims ID: CCV L4
Client ID:
Sample Type: CCVIS
Inject. Date: 03-Apr-2019 06:36:28 ALS Bottle#: 4 Worklist Smp#: 12
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: CCV L4
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub13

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 10:33:12 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 10:33:12
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.992	1.992	0.0	1.000	1224533	0.8780	Target=1.47	3732	
298.90 > 99.00	1.992	1.992	0.0	1.000	812901		1.51(0.00-0.00)	1719	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.347	2.347	0.0	0.739	1232903	0.9669	Target=11.08	453	
313.00 > 119.00	2.347	2.347	0.0	0.739	116876		10.55(0.00-0.00)	238	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.347	2.347	0.0	1.000	3245488	2.41		5340	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.490	2.490	0.0	1.000	202248	3.30		1341	
22 Perfluoro(2-propoxypropanoic) acid									
329.10 > 285.00	2.490	2.490	0.0	1.000	335747	1.12		153	
4 Perfluoroheptanoic acid									
363.00 > 319.00	2.778	2.778	0.0	1.000	1250356	0.99	Target=2.42	180	
363.00 > 169.00	2.778	2.778	0.0	1.000	502715		2.49(0.00-0.00)	2137	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	2.798	2.798	0.0	1.000	1504017	0.9174	Target=2.92	11490	
399.00 > 99.00	2.778	2.798	-0.020	0.993	504504		2.98(0.00-0.00)	563	
24 DONA									
377.00 > 251.00	2.819	2.819	0.0	1.000	3206678	0.9531	Target=1.50	5132	
377.00 > 85.00	2.819	2.819	0.0	1.000	1977367		1.62(0.00-0.00)	92648	
* 5 13C2 PFOA									
415.00 > 370.00	3.177	3.177	0.0		2910846	2.50		9304	
6 Perfluorooctanoic acid									
413.00 > 369.00	3.177	3.177	0.0	1.000	1183643	1.00	Target=1.75	124	
413.00 > 169.00	3.177	3.177	0.0	1.000	654675		1.81(0.00-0.00)	2206	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
8 Perfluorooctanesulfonic acid									
499.00 > 80.00	3.565	3.564	0.001	1.000	1142815	0.9381	Target=4.69	1981	
499.00 > 99.00	3.565	3.564	0.001	1.000	239750		4.77(0.00-0.00)	393	
* 7 13C4 PFOS									
503.00 > 80.00	3.565	3.565	0.0		2754389	2.39		6822	
9 Perfluorononanoic acid									
463.00 > 419.00	3.580	3.580	0.0	1.000	864821	1.00	Target=3.96	422	
463.00 > 169.00	3.580	3.580	0.0	1.000	219718		3.94(0.00-0.00)	3364	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.769	3.769	0.0	1.000	1876957	0.9530		2087	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.915	3.915	0.0	1.000	644601	0.9445	Target=5.01	363	
513.00 > 169.00	3.915	3.915	0.0	1.000	135127		4.77(0.00-0.00)	814	
$ 10 13C2 PFDA									
515.00 > 470.00	3.934	3.934	0.0	1.000	1720626	2.40		7252	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.090	4.090	0.0		496011	2.50		2807	
15 N-methylperfluorooctanesulfonamido									
570.00 > 419.00	4.106	4.106	0.0	1.004	185964	1.02		1503	
17 Perfluoroundecanoic acid									
563.00 > 519.00	4.250	4.250	0.0	1.000	516581	0.9770	Target=4.98	253	
563.00 > 169.00	4.250	4.250	0.0	1.000	102613		5.03(0.00-0.00)	1093	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.250	4.250	0.0	1.039	493762	2.44		308	
16 N-ethylperfluorooctanesulfonamidoa									
584.00 > 419.00	4.266	4.266	0.0	1.004	169870	0.9788		368	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.375	4.375	0.0	1.000	2482065	1.01		3899	
18 Perfluorododecanoic acid									
613.00 > 569.00	4.532	4.532	0.0	1.000	496193	0.9645	Target=3.56	291	
613.00 > 169.00	4.532	4.532	0.0	1.000	136709		3.63(0.00-0.00)	1185	
19 Perfluorotridecanoic acid									
663.00 > 619.00	4.793	4.793	0.0	1.000	434313	1.02	Target=2.92	184	
663.00 > 169.00	4.793	4.793	0.0	1.000	142633		3.04(0.00-0.00)	1091	
20 Perfluorotetradecanoic acid									
713.00 > 169.00	5.005	5.005	0.0	1.000	112113	0.9531	Target=1.42	708	
713.00 > 219.00	5.005	5.005	0.0	1.000	80652		1.39(0.00-0.00)	515	

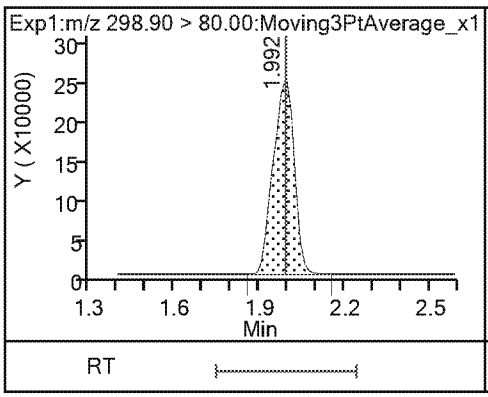
Reagents:

LC537_NC_L4_00003 Amount Added: 1.00 Units: mL

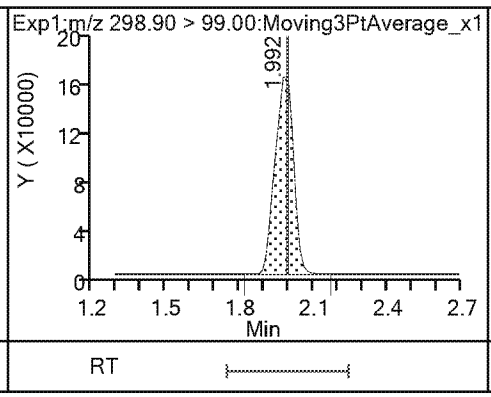
TestAmerica Sacramento

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_015.d
Injection Date: 03-Apr-2019 06:36:28 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 12
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

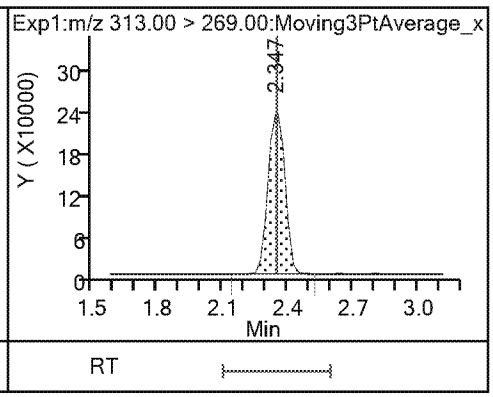
1 Perfluorobutanesulfonic acid



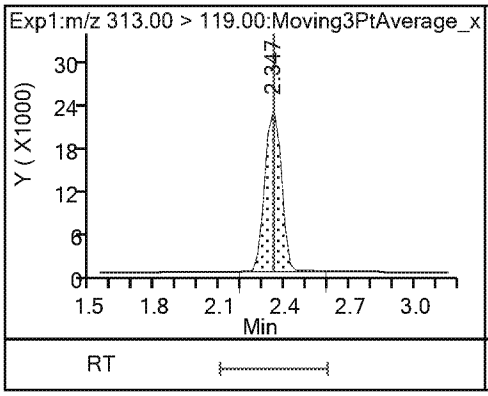
1 Perfluorobutanesulfonic acid



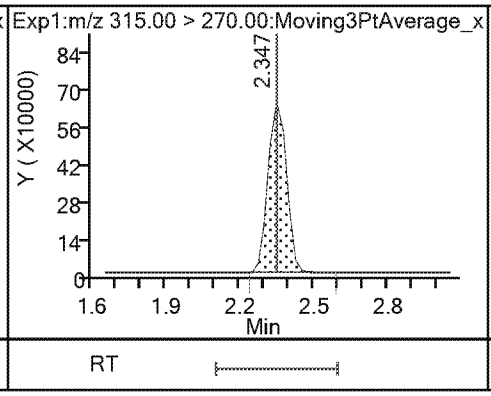
13 Perfluorohexanoic acid



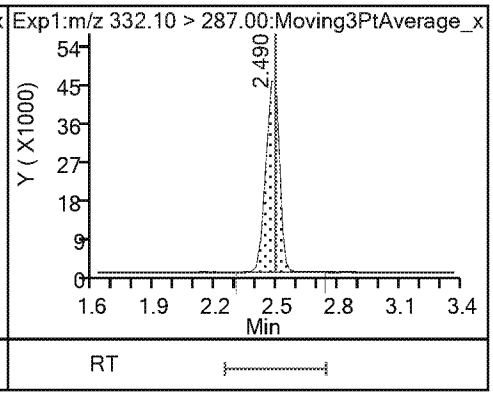
13 Perfluorohexanoic acid



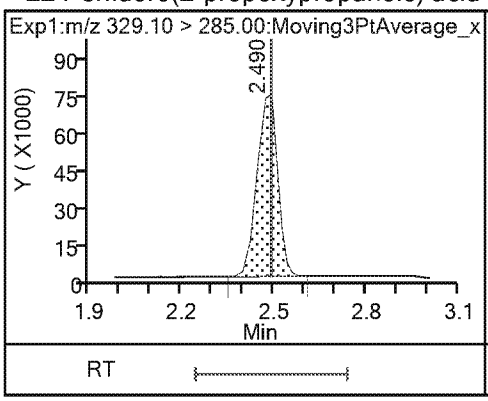
$ 2 13C2 PFHxA



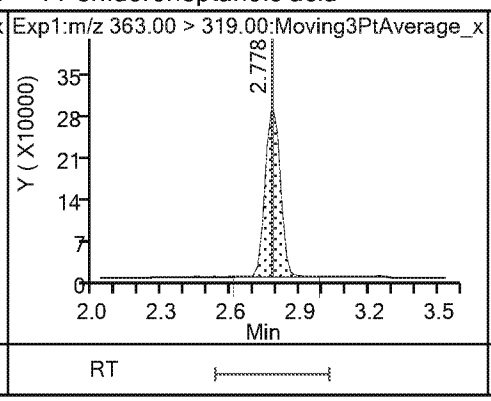
$ 25 13C3 HFPO-DA



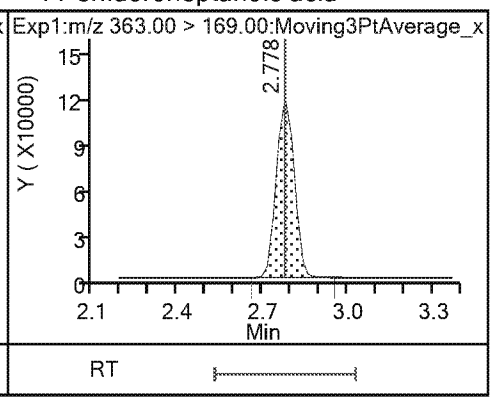
22 Perfluoro(2-propoxypropanoic) acid



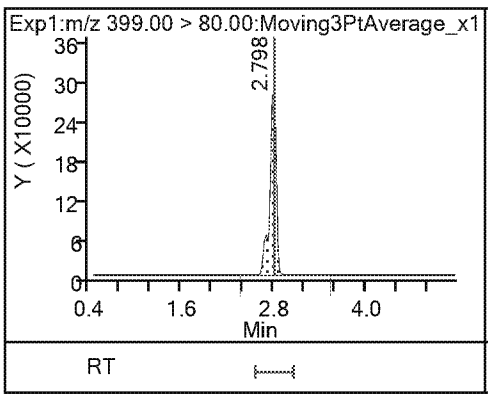
4 Perfluoroheptanoic acid



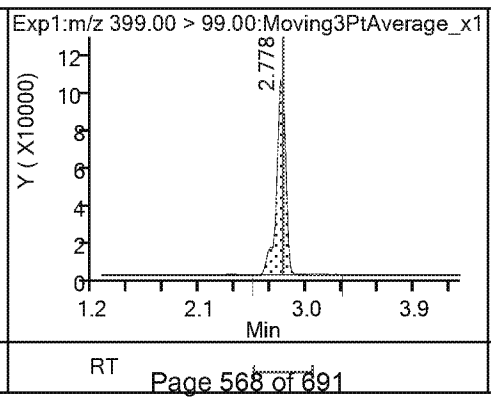
4 Perfluoroheptanoic acid



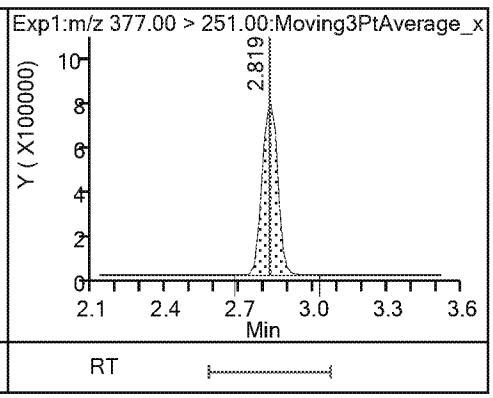
3 Perfluorohexanesulfonic acid



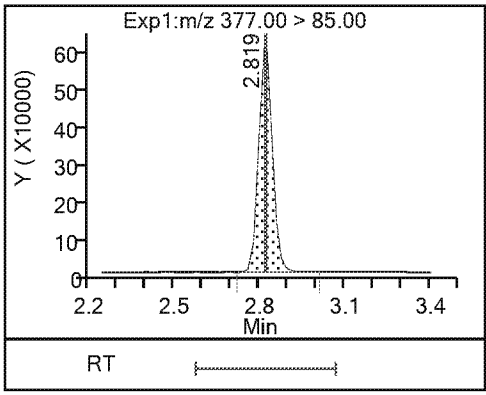
3 Perfluorohexanesulfonic acid



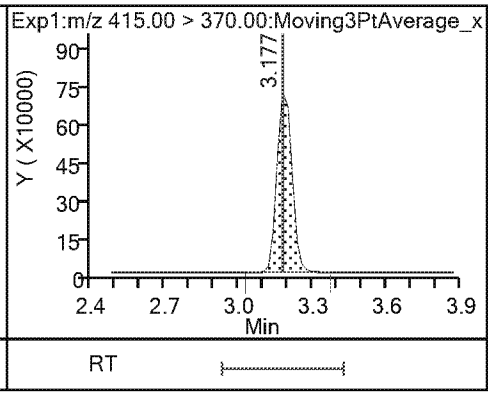
24 DONA



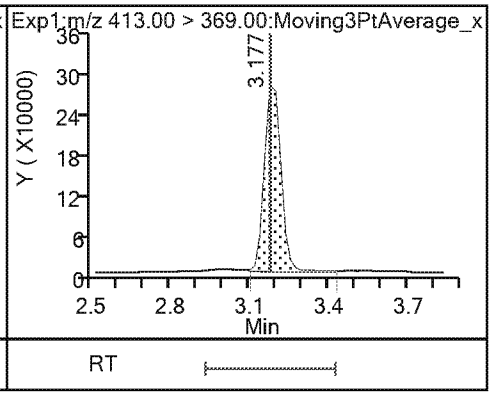
24 DONA



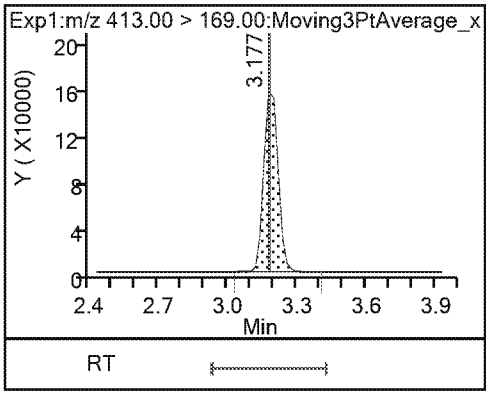
* 5 13C2 PFOA



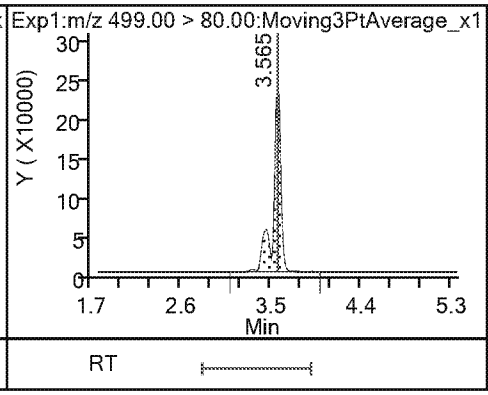
6 Perfluorooctanoic acid



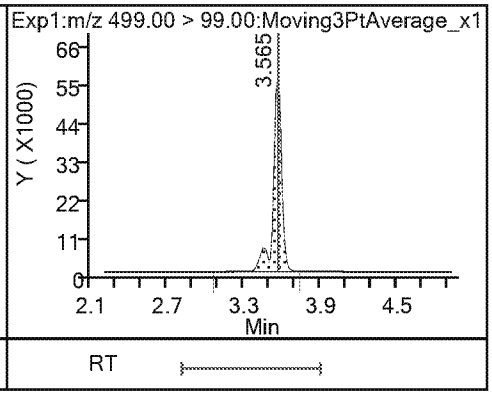
6 Perfluorooctanoic acid



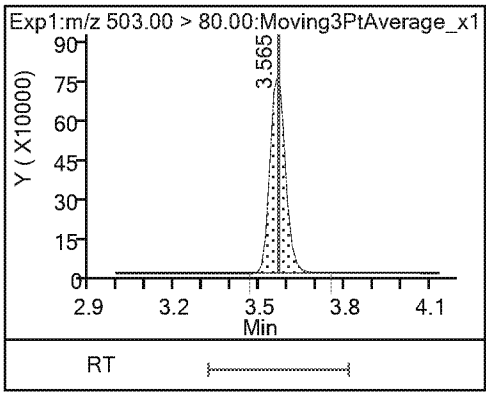
8 Perfluorooctanesulfonic acid



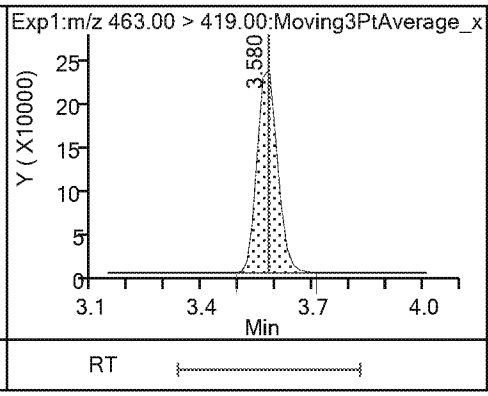
8 Perfluorooctanesulfonic acid



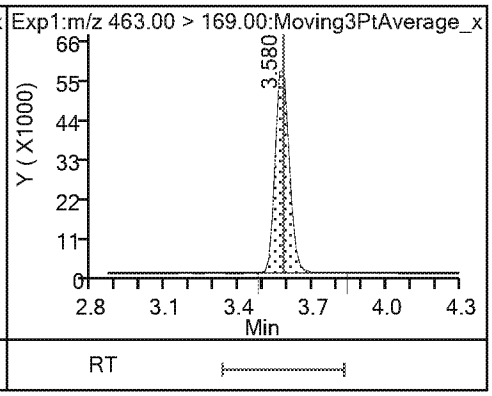
* 7 13C4 PFOS



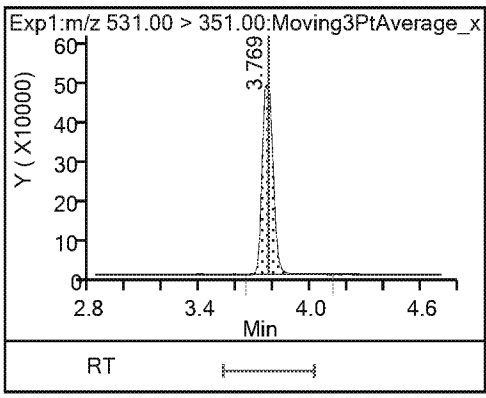
9 Perfluorononanoic acid



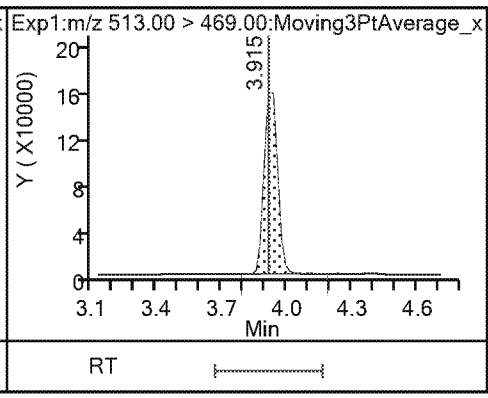
9 Perfluorononanoic acid



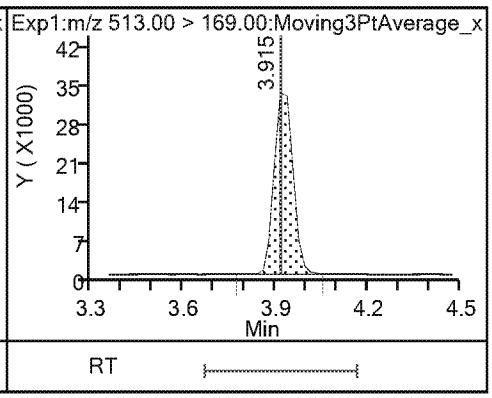
23 9-Chlorohexadecafluoro-3-oxanonane



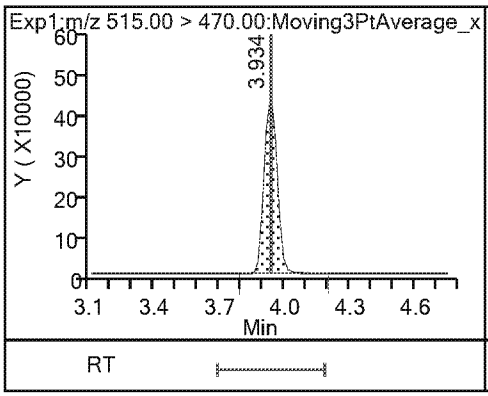
14 Perfluorodecanoic acid



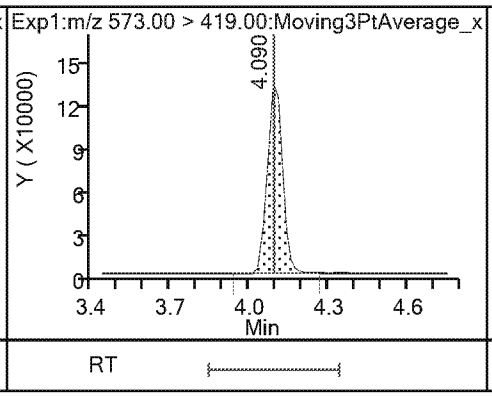
14 Perfluorodecanoic acid



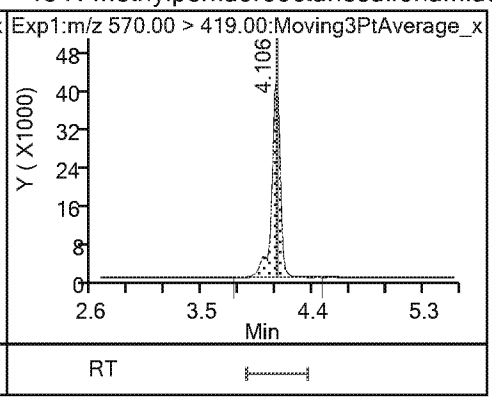
$ 10 13C2 PFDA



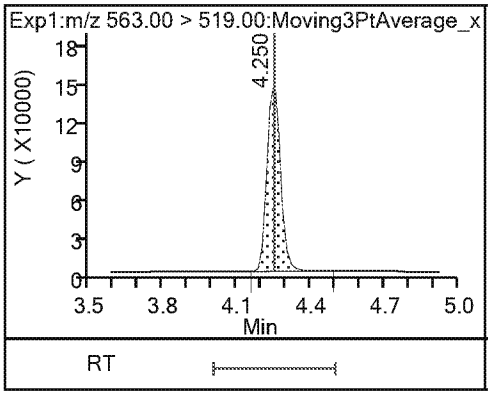
* 12 d3-NMeFOSAA



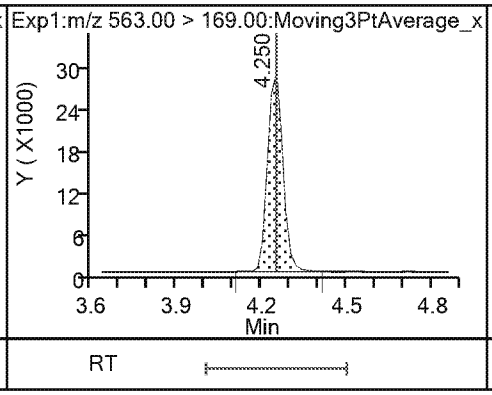
15 N-methylperfluorooctanesulfonamido



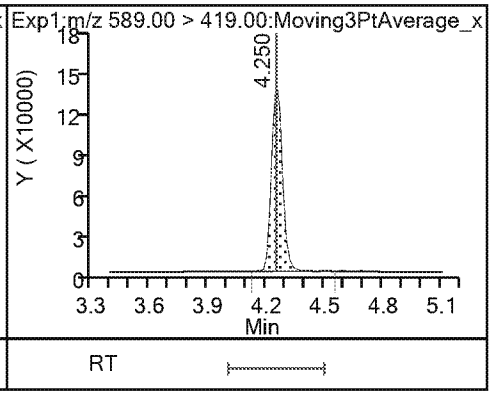
17 Perfluoroundecanoic acid



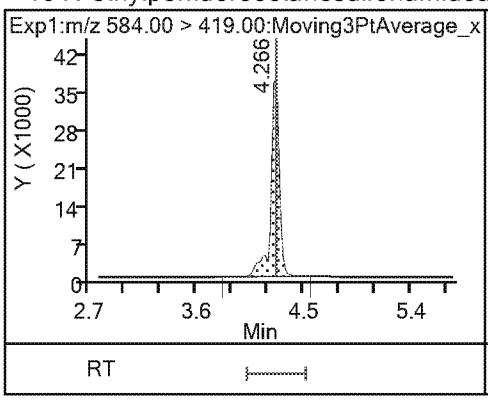
17 Perfluoroundecanoic acid



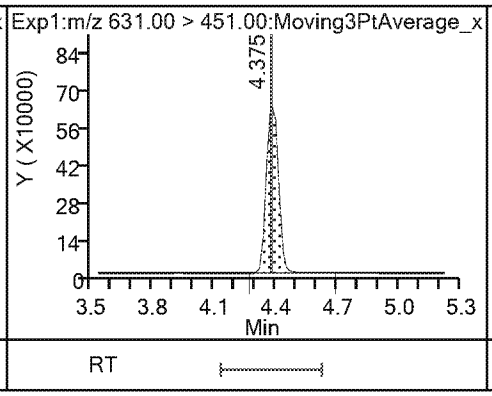
$ 11 d5-NEtFOSAA



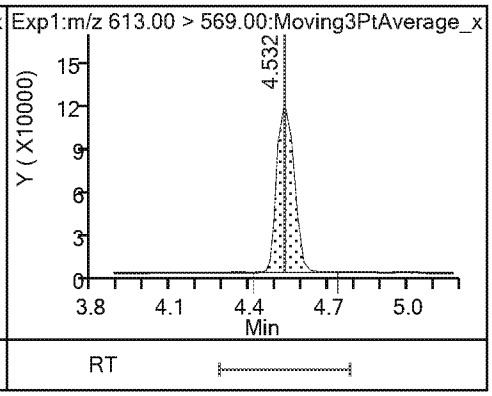
16 N-ethylperfluorooctanesulfonamidoa



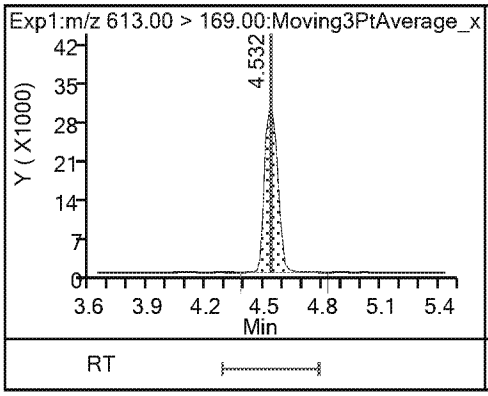
21 11-Chloroeicosafluoro-3-oxaundecan



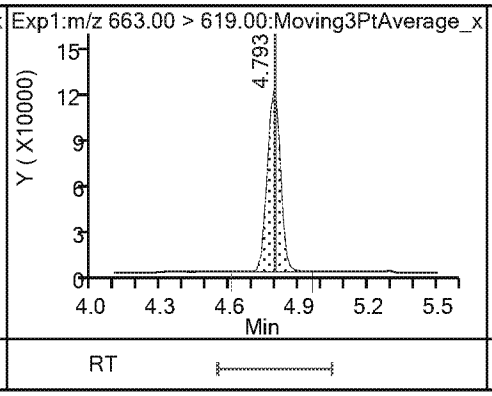
18 Perfluorododecanoic acid



18 Perfluorododecanoic acid



19 Perfluorotridecanoic acid



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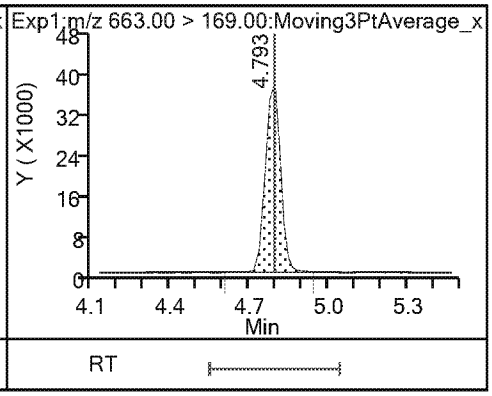
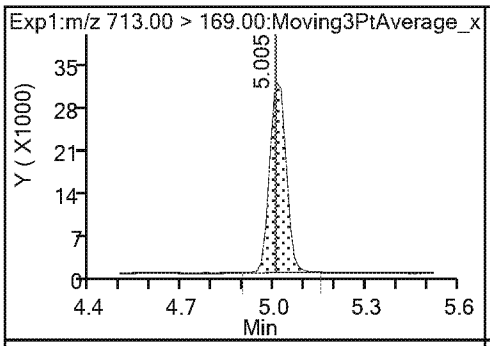
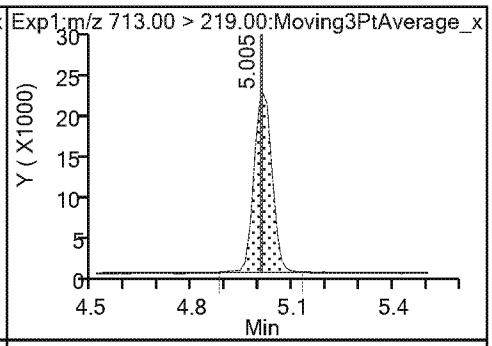


20 Perfluorotetradecanoic acid



RT

20 Perfluorotetradecanoic acid



RT

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Lab Sample ID: CCV 320-285757/24 Calibration Date: 04/03/2019 08:05

Instrument ID: A8_N Calib Start Date: 03/26/2019 15:43

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 03/26/2019 16:27

Lab File ID: 2019.04.02_537A_027.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid	Ave	1.210	1.247		4.55	4.42	3.0	30.0
Perfluorohexanoic acid	Ave	1.095	1.134		5.18	5.00	3.6	30.0
Perfluoro(2-propoxypropanoic) acid	Ave	0.2582	0.2908		5.63	5.00	12.6	30.0
Perfluoroheptanoic acid	Ave	1.081	1.074		4.97	5.00	-0.6	30.0
Perfluorohexanesulfonic acid	Ave	1.423	1.474		4.71	4.55	3.6	30.0
DONA	Ave	2.890	3.069		5.00	4.71	6.2	30.0
Perfluorooctanoic acid	Ave	1.019	1.054		5.17	5.00	3.5	30.0
Perfluorooctanesulfonic acid	Ave	1.057	1.108		4.87	4.64	4.9	30.0
Perfluorononanoic acid	Ave	0.7461	0.7898		5.29	5.00	5.9	30.0
9-Chlorohexadecafluoro-3-oxa nonane-1-sulfonate	Ave	1.709	1.768		4.82	4.66	3.4	30.0
Perfluorodecanoic acid	Ave	0.5861	0.6235		5.32	5.00	6.4	30.0
N-methylperfluorooctanesulfo namidoacetic acid	Ave	0.9225	0.8815		4.78	5.00	-4.4	30.0
Perfluoroundecanoic acid	Ave	0.4541	0.4753		5.23	5.00	4.7	30.0
N-ethylperfluorooctanesulfon amidoacetic acid	Ave	0.8747	0.8236		4.71	5.00	-5.9	30.0
11-Chloroeicosafluoro-3-oxau ndecane-1-sulfonate	Ave	2.128	2.267		5.02	4.71	6.5	30.0
Perfluorododecanoic acid	Ave	0.4418	0.4662		5.28	5.00	5.5	30.0
Perfluorotridecanoic acid	Ave	0.3657	0.3831		5.24	5.00	4.7	30.0
Perfluorotetradecanoic acid	Ave	0.1010	0.0969		4.80	5.00	-4.1	30.0
13C2 PFHxA	Ave	1.158	1.182		2.55	2.50	2.1	30.0
13C2 PFDA	Ave	0.6165	0.6252		2.54	2.50	1.4	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Lab Sample ID: CCV 320-285758/24 Calibration Date: 04/03/2019 08:05

Instrument ID: A8_N Calib Start Date: 03/26/2019 15:43

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 03/26/2019 16:27

Lab File ID: 2019.04.02_537A_027.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid	Ave	1.210	1.247		4.55	4.42	3.0	30.0
Perfluorohexanoic acid	Ave	1.095	1.134		5.18	5.00	3.6	30.0
Perfluoro(2-propoxypropanoic) acid	Ave	0.2582	0.2908		5.63	5.00	12.6	30.0
Perfluoroheptanoic acid	Ave	1.081	1.074		4.97	5.00	-0.6	30.0
Perfluorohexanesulfonic acid	Ave	1.423	1.474		4.71	4.55	3.6	30.0
DONA	Ave	2.890	3.069		5.00	4.71	6.2	30.0
Perfluorooctanoic acid	Ave	1.019	1.054		5.17	5.00	3.5	30.0
Perfluorooctanesulfonic acid	Ave	1.057	1.108		4.87	4.64	4.9	30.0
Perfluorononanoic acid	Ave	0.7461	0.7898		5.29	5.00	5.9	30.0
9-Chlorohexadecafluoro-3-oxa nonane-1-sulfonate	Ave	1.709	1.768		4.82	4.66	3.4	30.0
Perfluorodecanoic acid	Ave	0.5861	0.6235		5.32	5.00	6.4	30.0
N-methylperfluorooctanesulfo namidoacetic acid	Ave	0.9225	0.8815		4.78	5.00	-4.4	30.0
Perfluoroundecanoic acid	Ave	0.4541	0.4753		5.23	5.00	4.7	30.0
N-ethylperfluorooctanesulfon amidoacetic acid	Ave	0.8747	0.8236		4.71	5.00	-5.9	30.0
11-Chloroeicosafluoro-3-oxau ndecane-1-sulfonate	Ave	2.128	2.267		5.02	4.71	6.5	30.0
Perfluorododecanoic acid	Ave	0.4418	0.4662		5.28	5.00	5.5	30.0
Perfluorotridecanoic acid	Ave	0.3657	0.3831		5.24	5.00	4.7	30.0
Perfluorotetradecanoic acid	Ave	0.1010	0.0969		4.80	5.00	-4.1	30.0
13C2 PFHxA	Ave	1.158	1.182		2.55	2.50	2.1	30.0
13C2 PFDA	Ave	0.6165	0.6252		2.54	2.50	1.4	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_027.d
Lims ID: CCV L6
Client ID:
Sample Type: CCVIS
Inject. Date: 03-Apr-2019 08:05:58 ALS Bottle#: 6 Worklist Smp#: 24
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: CCV L6
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub13

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 11:04:03 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 10:29:23
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.992	1.992	0.0	1.000	6114692	4.55	Target=1.47	27968	
298.90 > 99.00	1.976	1.992	-0.016	0.992	4080243		1.50(0.00-0.00)	7804	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.348	2.348	0.0	0.739	5968054	5.18	Target=11.08	2184	
313.00 > 119.00	2.348	2.348	0.0	0.739	552398		10.80(0.00-0.00)	893	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.348	2.348	0.0	1.000	3109212	2.55		6838	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.474	2.474	0.0	1.000	172953	3.12		1023	
22 Perfluoro(2-propoxypropanoic) acid									
329.10 > 285.00	2.474	2.474	0.0	1.000	1529901	5.63		720	
4 Perfluoroheptanoic acid									
363.00 > 319.00	2.774	2.774	0.0	1.000	5651154	4.97	Target=2.42	759	
363.00 > 169.00	2.774	2.774	0.0	1.000	2411467		2.34(0.00-0.00)	6258	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	2.774	2.774	0.0	1.000	7440269	4.71	Target=2.92	6749	
399.00 > 99.00	2.774	2.774	0.0	1.000	2566185		2.90(0.00-0.00)	1622	
24 DONA									
377.00 > 251.00	2.816	2.816	0.0	1.000	15210477	5.00	Target=1.50	13348	
377.00 > 85.00	2.816	2.816	0.0	1.000	9712527		1.57(0.00-0.00)	391863	
* 5 13C2 PFOA									
415.00 > 370.00	3.175	3.175	0.0		2630608	2.50		7782	
6 Perfluorooctanoic acid									
413.00 > 369.00	3.175	3.175	0.0	1.000	5546357	5.17	Target=1.75	630	
413.00 > 169.00	3.175	3.175	0.0	1.000	3152795		1.76(0.00-0.00)	5053	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
8 Perfluorooctanesulfonic acid									
499.00 > 80.00	3.562	3.564	-0.002	1.000	5706782	4.87	Target=4.69	8100	
499.00 > 99.00	3.562	3.564	-0.002	1.000	1224951		4.66(0.00-0.00)	1764	
* 7 13C4 PFOS									
503.00 > 80.00	3.562	3.562	0.0		2651814	2.39		8020	
9 Perfluorononanoic acid									
463.00 > 419.00	3.577	3.577	0.0	1.000	4155432	5.29	Target=3.96	2048	
463.00 > 169.00	3.562	3.577	-0.015	0.996	1060328		3.92(0.00-0.00)	7543	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.751	3.751	0.0	1.000	9140751	4.82		7433	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.911	3.911	0.0	1.000	3280278	5.32	Target=5.01	1802	
513.00 > 169.00	3.911	3.911	0.0	1.000	647575		5.07(0.00-0.00)	2949	
$ 10 13C2 PFDA									
515.00 > 470.00	3.930	3.930	0.0	1.000	1644533	2.54		7929	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.087	4.087	0.0		492323	2.50		2925	
15 N-methylperfluorooctanesulfonamido									
570.00 > 419.00	4.087	4.087	0.0	1.000	867927	4.78		3990	
17 Perfluoroundecanoic acid									
563.00 > 519.00	4.232	4.232	0.0	1.000	2500699	5.23	Target=4.98	1098	
563.00 > 169.00	4.232	4.232	0.0	1.000	505682		4.95(0.00-0.00)	3606	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.248	4.248	0.0	1.039	478332	2.38		259	
16 N-ethylperfluorooctanesulfonamidoa									
584.00 > 419.00	4.248	4.248	0.0	1.000	810904	4.71		1456	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.371	4.371	0.0	1.000	11845778	5.02		25544	
18 Perfluorododecanoic acid									
613.00 > 569.00	4.531	4.531	0.0	1.000	2452496	5.28	Target=3.56	1202	
613.00 > 169.00	4.507	4.531	-0.024	0.995	714393		3.43(0.00-0.00)	5115	
19 Perfluorotridecanoic acid									
663.00 > 619.00	4.776	4.776	0.0	1.000	2015506	5.24	Target=2.92	785	
663.00 > 169.00	4.776	4.776	0.0	1.000	672355		3.00(0.00-0.00)	3974	
20 Perfluorotetradecanoic acid									
713.00 > 169.00	5.004	5.004	0.0	1.000	509956	4.80	Target=1.42	3072	
713.00 > 219.00	5.004	5.004	0.0	1.000	365704		1.39(0.00-0.00)	1899	

Reagents:

LC537_NC_L6_00003 Amount Added: 1.00 Units: mL

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_027.d
Lims ID: CCV L6
Client ID:
Sample Type: CCVIS
Inject. Date: 03-Apr-2019 08:05:58 ALS Bottle#: 6 Worklist Smp#: 24
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: CCV L6
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub13

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 11:04:03 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 10:29:23
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.992	1.992	0.0	1.000	6114692	4.55	Target=1.47	27968	
298.90 > 99.00	1.976	1.992	-0.016	0.992	4080243		1.50(0.00-0.00)	7804	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.348	2.348	0.0	0.739	5968054	5.18	Target=11.08	2184	
313.00 > 119.00	2.348	2.348	0.0	0.739	552398		10.80(0.00-0.00)	893	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.348	2.348	0.0	1.000	3109212	2.55		6838	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.474	2.474	0.0	1.000	172953	3.12		1023	
22 Perfluoro(2-propoxypropanoic) acid									
329.10 > 285.00	2.474	2.474	0.0	1.000	1529901	5.63		720	
4 Perfluoroheptanoic acid									
363.00 > 319.00	2.774	2.774	0.0	1.000	5651154	4.97	Target=2.42	759	
363.00 > 169.00	2.774	2.774	0.0	1.000	2411467		2.34(0.00-0.00)	6258	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	2.774	2.774	0.0	1.000	7440269	4.71	Target=2.92	6749	
399.00 > 99.00	2.774	2.774	0.0	1.000	2566185		2.90(0.00-0.00)	1622	
24 DONA									
377.00 > 251.00	2.816	2.816	0.0	1.000	15210477	5.00	Target=1.50	13348	
377.00 > 85.00	2.816	2.816	0.0	1.000	9712527		1.57(0.00-0.00)	391863	
* 5 13C2 PFOA									
415.00 > 370.00	3.175	3.175	0.0		2630608	2.50		7782	
6 Perfluorooctanoic acid									
413.00 > 369.00	3.175	3.175	0.0	1.000	5546357	5.17	Target=1.75	630	
413.00 > 169.00	3.175	3.175	0.0	1.000	3152795		1.76(0.00-0.00)	5053	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
8 Perfluorooctanesulfonic acid									
499.00 > 80.00	3.562	3.564	-0.002	1.000	5706782	4.87	Target=4.69	8100	
499.00 > 99.00	3.562	3.564	-0.002	1.000	1224951		4.66(0.00-0.00)	1764	
* 7 13C4 PFOS									
503.00 > 80.00	3.562	3.562	0.0		2651814	2.39		8020	
9 Perfluorononanoic acid									
463.00 > 419.00	3.577	3.577	0.0	1.000	4155432	5.29	Target=3.96	2048	
463.00 > 169.00	3.562	3.577	-0.015	0.996	1060328		3.92(0.00-0.00)	7543	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.751	3.751	0.0	1.000	9140751	4.82		7433	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.911	3.911	0.0	1.000	3280278	5.32	Target=5.01	1802	
513.00 > 169.00	3.911	3.911	0.0	1.000	647575		5.07(0.00-0.00)	2949	
$ 10 13C2 PFDA									
515.00 > 470.00	3.930	3.930	0.0	1.000	1644533	2.54		7929	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.087	4.087	0.0		492323	2.50		2925	
15 N-methylperfluorooctanesulfonamido									
570.00 > 419.00	4.087	4.087	0.0	1.000	867927	4.78		3990	
17 Perfluoroundecanoic acid									
563.00 > 519.00	4.232	4.232	0.0	1.000	2500699	5.23	Target=4.98	1098	
563.00 > 169.00	4.232	4.232	0.0	1.000	505682		4.95(0.00-0.00)	3606	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.248	4.248	0.0	1.039	478332	2.38		259	
16 N-ethylperfluorooctanesulfonamidoa									
584.00 > 419.00	4.248	4.248	0.0	1.000	810904	4.71		1456	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.371	4.371	0.0	1.000	11845778	5.02		25544	
18 Perfluorododecanoic acid									
613.00 > 569.00	4.531	4.531	0.0	1.000	2452496	5.28	Target=3.56	1202	
613.00 > 169.00	4.507	4.531	-0.024	0.995	714393		3.43(0.00-0.00)	5115	
19 Perfluorotridecanoic acid									
663.00 > 619.00	4.776	4.776	0.0	1.000	2015506	5.24	Target=2.92	785	
663.00 > 169.00	4.776	4.776	0.0	1.000	672355		3.00(0.00-0.00)	3974	
20 Perfluorotetradecanoic acid									
713.00 > 169.00	5.004	5.004	0.0	1.000	509956	4.80	Target=1.42	3072	
713.00 > 219.00	5.004	5.004	0.0	1.000	365704		1.39(0.00-0.00)	1899	

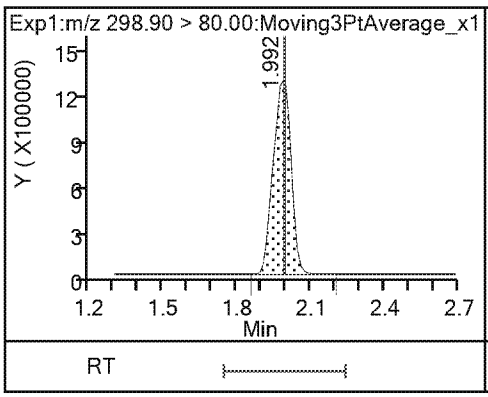
Reagents:

LC537_NC_L6_00003 Amount Added: 1.00 Units: mL

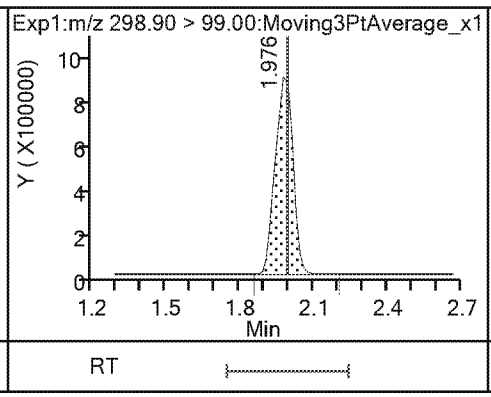
TestAmerica Sacramento

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_027.d
Injection Date: 03-Apr-2019 08:05:58 Instrument ID: A8_N
Lims ID: CCV L6
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 6 Worklist Smp#: 24
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

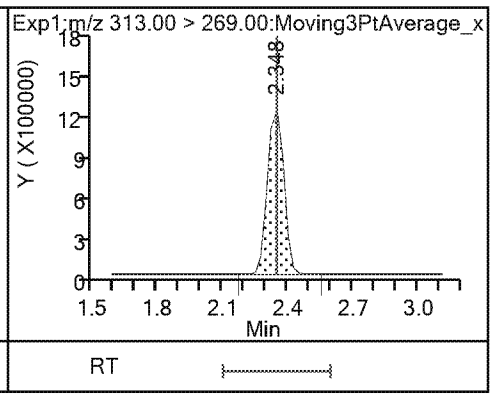
1 Perfluorobutanesulfonic acid



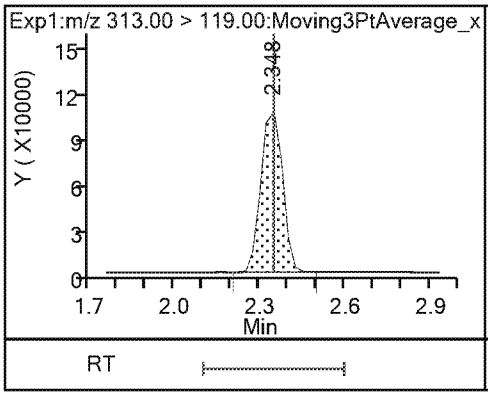
1 Perfluorobutanesulfonic acid



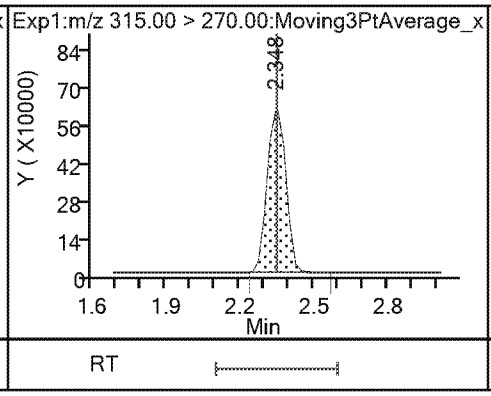
13 Perfluorohexanoic acid



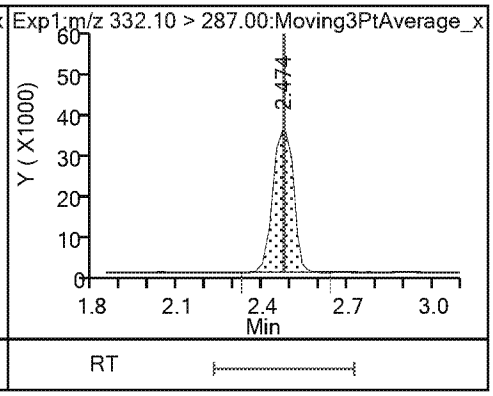
13 Perfluorohexanoic acid



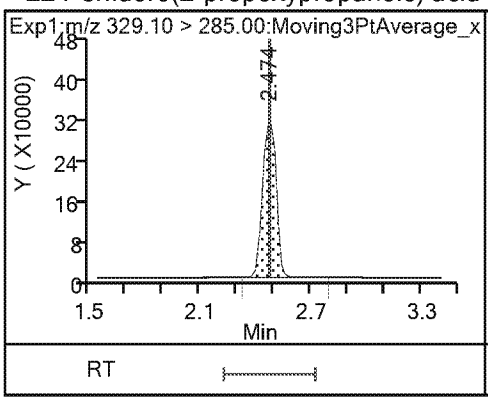
$ 2 13C2 PFHxA



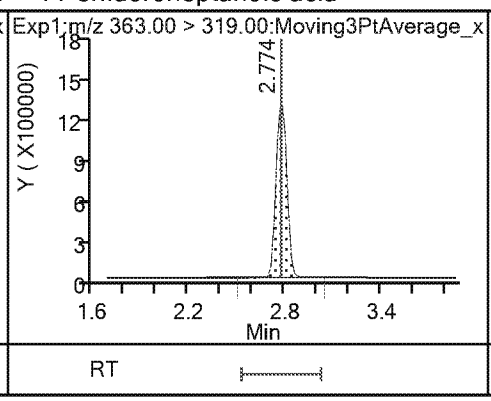
$ 25 13C3 HFPO-DA



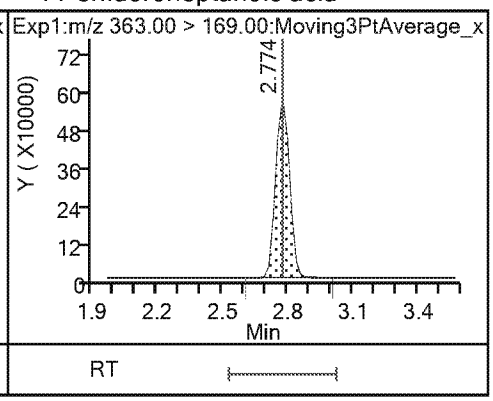
22 Perfluoro(2-propoxypropanoic) acid



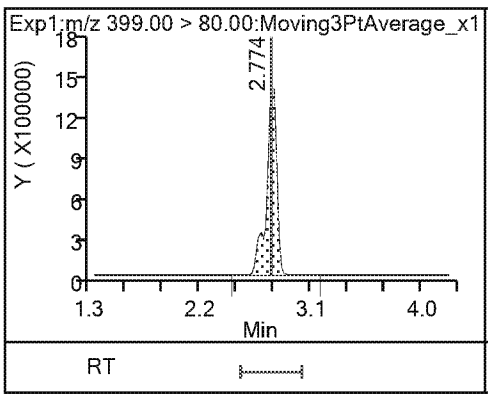
4 Perfluoroheptanoic acid



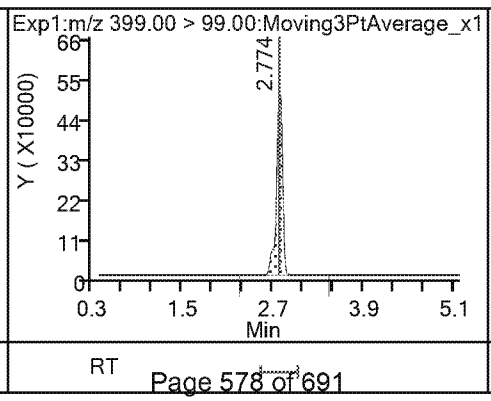
4 Perfluoroheptanoic acid



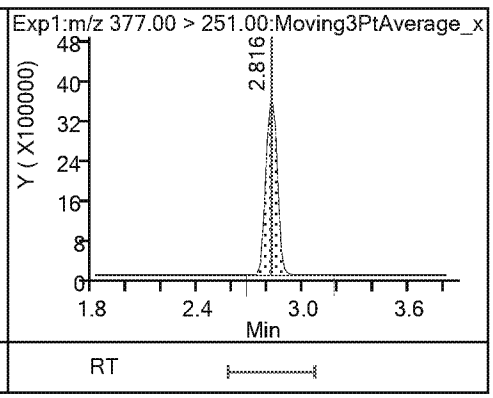
3 Perfluorohexanesulfonic acid



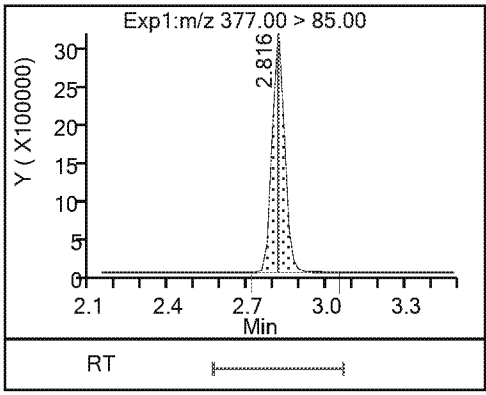
3 Perfluorohexanesulfonic acid



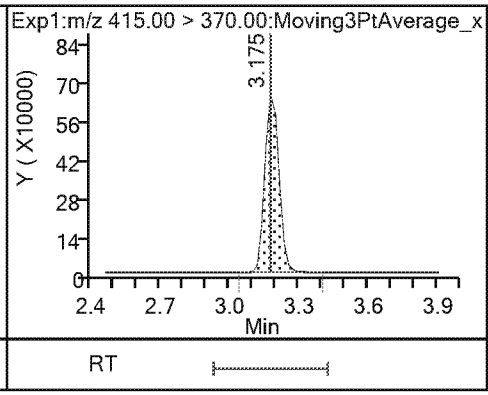
24 DONA



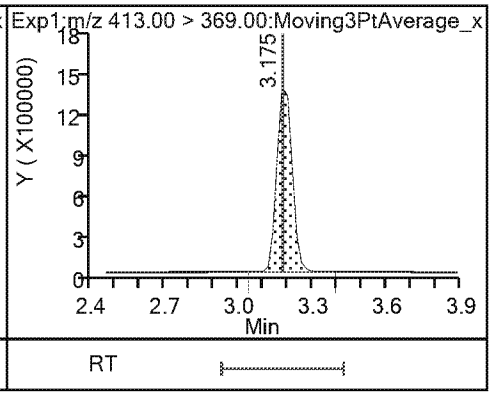
24 DONA



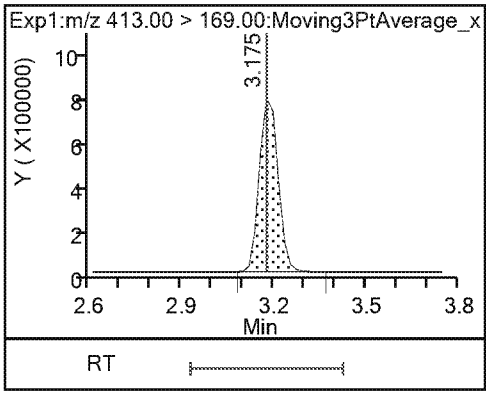
* 5 13C2 PFOA



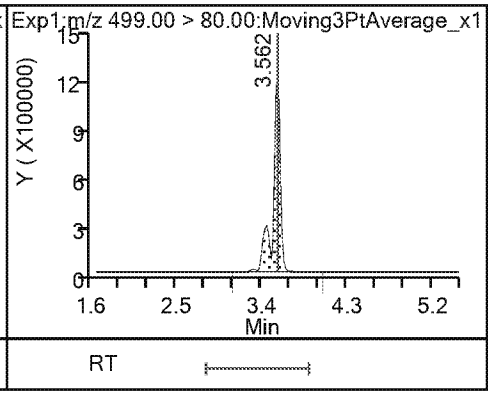
6 Perfluorooctanoic acid



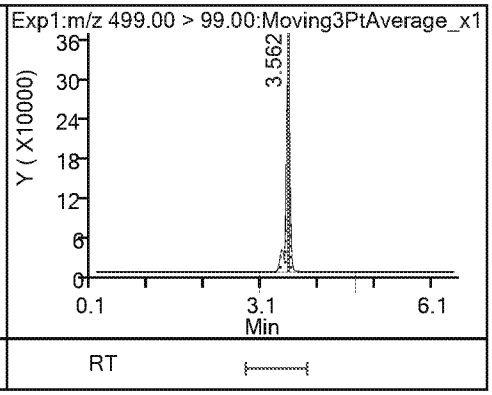
6 Perfluorooctanoic acid



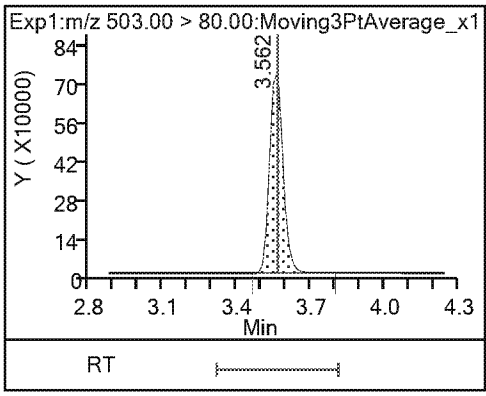
8 Perfluorooctanesulfonic acid



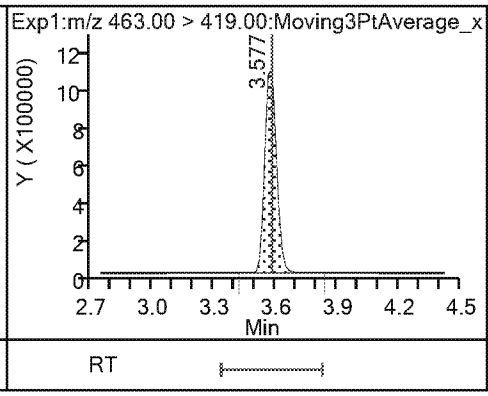
8 Perfluorooctanesulfonic acid



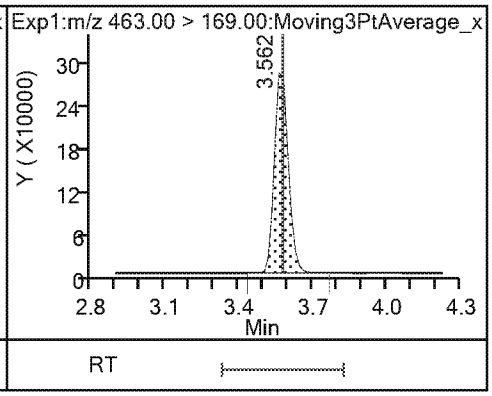
* 7 13C4 PFOS



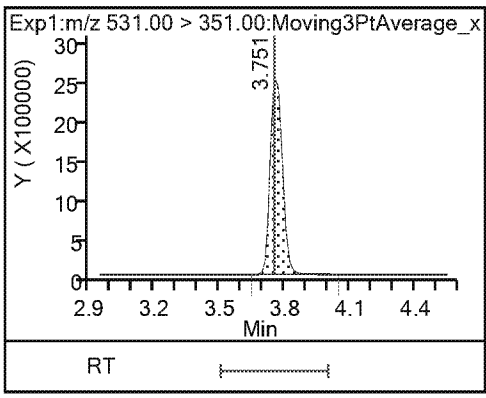
9 Perfluorononanoic acid



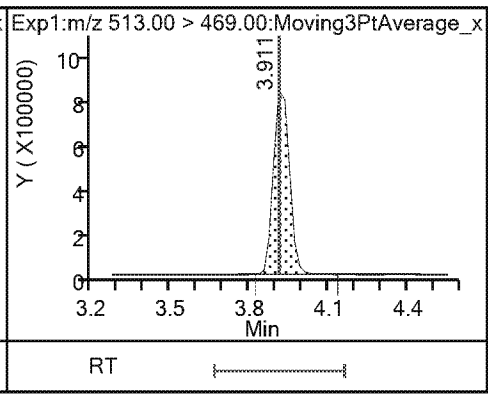
9 Perfluorononanoic acid



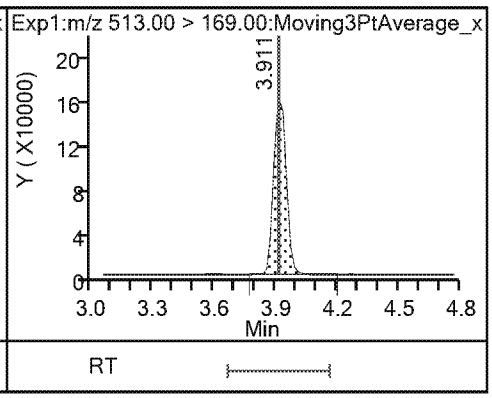
23 9-Chlorohexadecafluoro-3-oxanonane



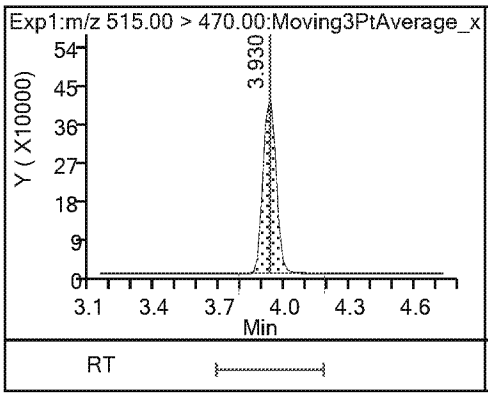
14 Perfluorodecanoic acid



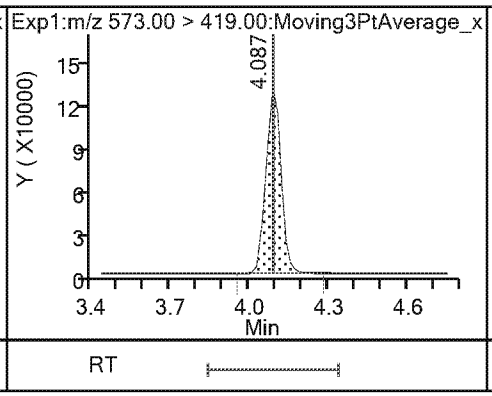
14 Perfluorodecanoic acid



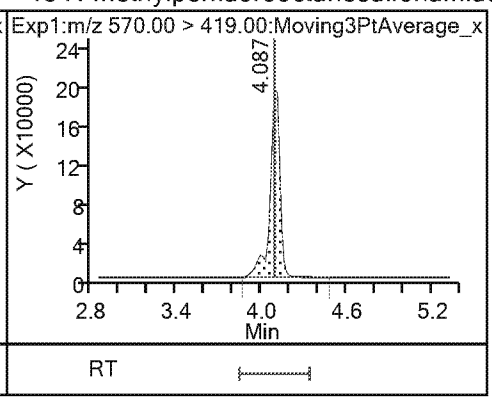
$ 10 13C2 PFDA



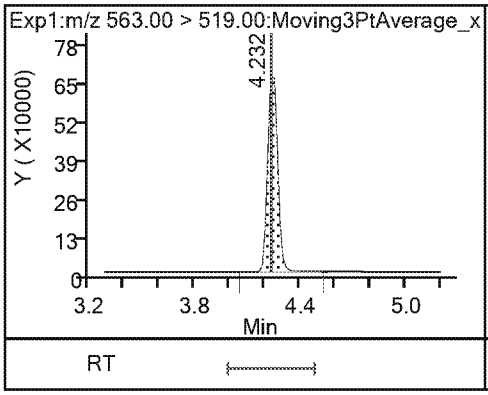
* 12 d3-NMeFOSAA



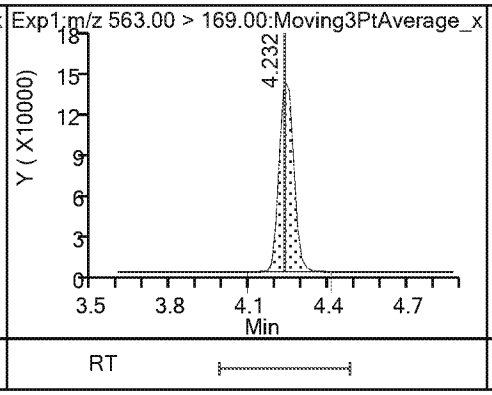
15 N-methylperfluorooctanesulfonamido



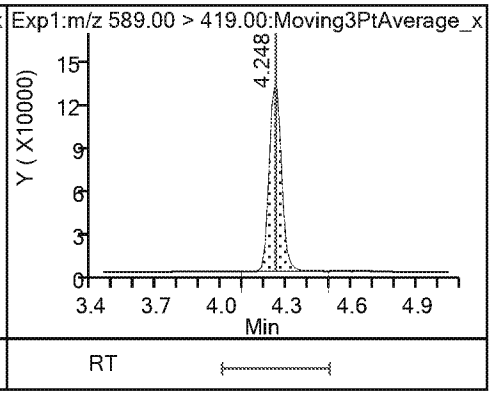
17 Perfluoroundecanoic acid



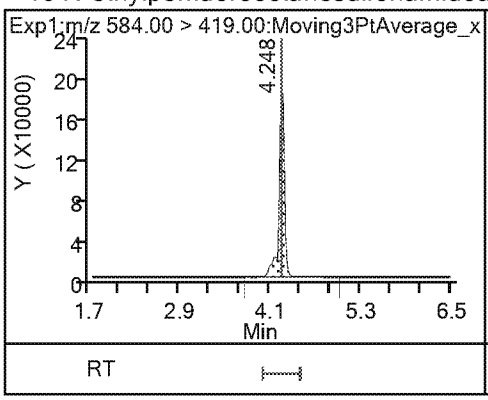
17 Perfluoroundecanoic acid



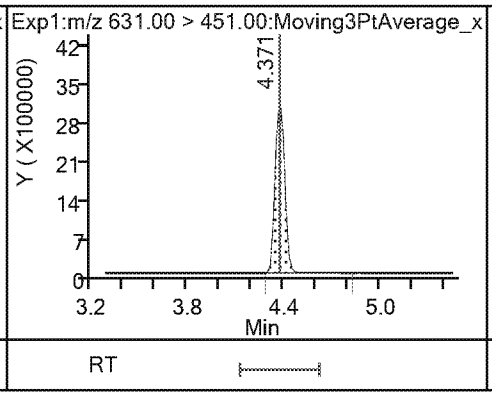
$ 11 d5-NEtFOSAA



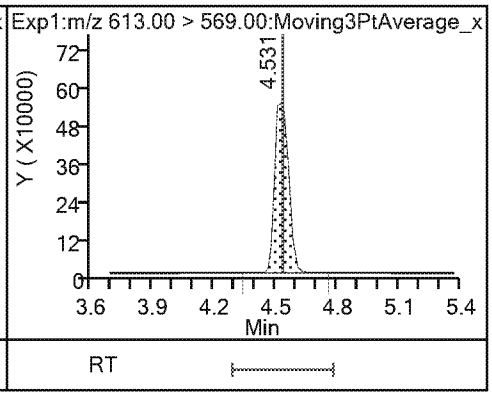
16 N-ethylperfluorooctanesulfonamidoa



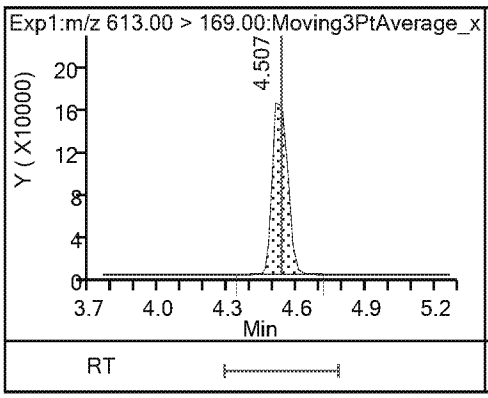
21 11-Chloroeicosafluoro-3-oxaundecan



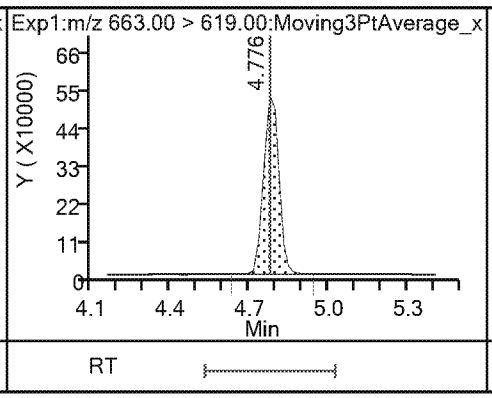
18 Perfluorododecanoic acid



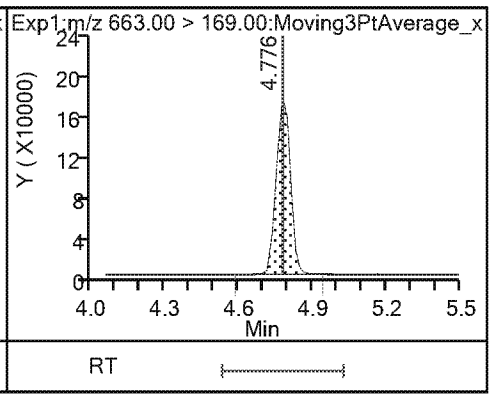
18 Perfluorododecanoic acid



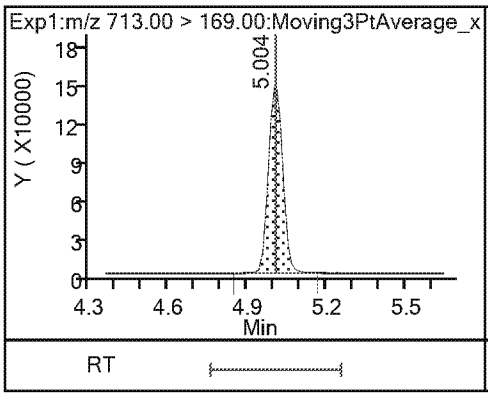
19 Perfluorotridecanoic acid



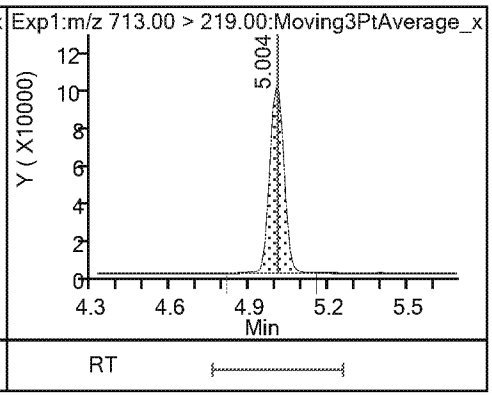
19 Perfluorotridecanoic acid



20 Perfluorotetradecanoic acid



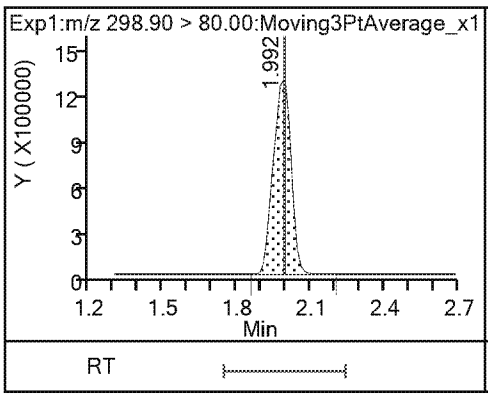
20 Perfluorotetradecanoic acid



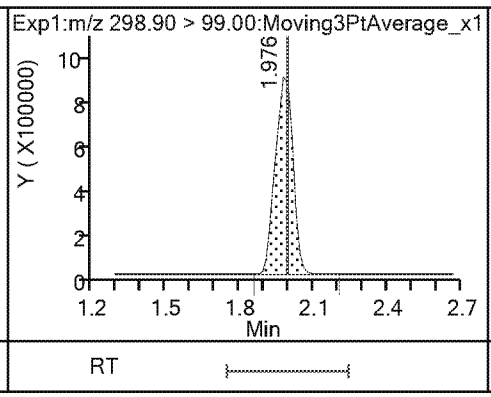
TestAmerica Sacramento

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_027.d
Injection Date: 03-Apr-2019 08:05:58 Instrument ID: A8_N
Lims ID: CCV L6
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 6 Worklist Smp#: 24
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

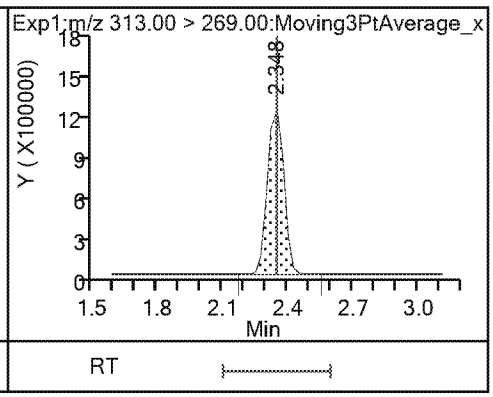
1 Perfluorobutanesulfonic acid



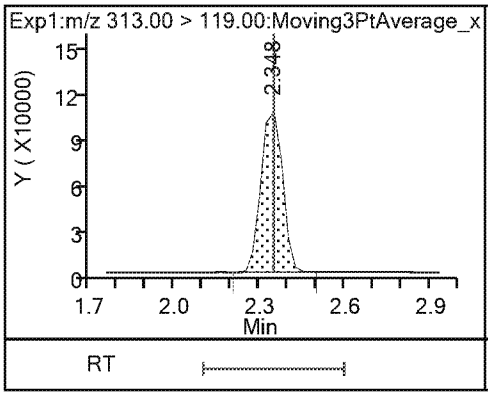
1 Perfluorobutanesulfonic acid



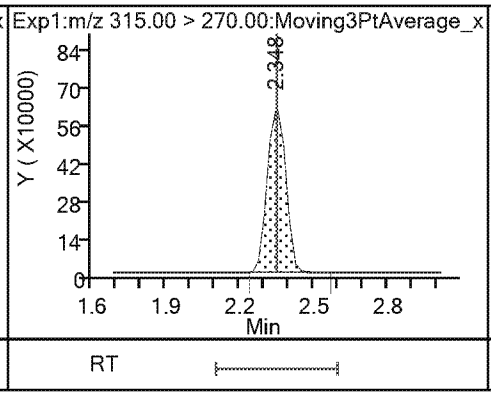
13 Perfluorohexanoic acid



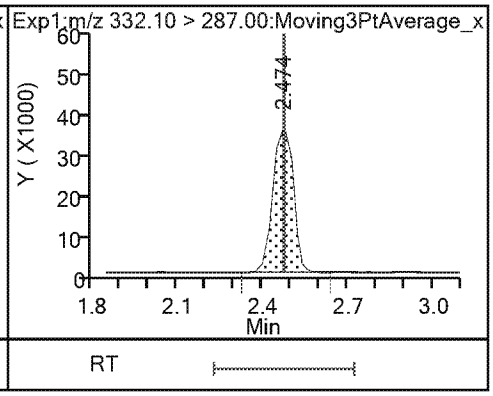
13 Perfluorohexanoic acid



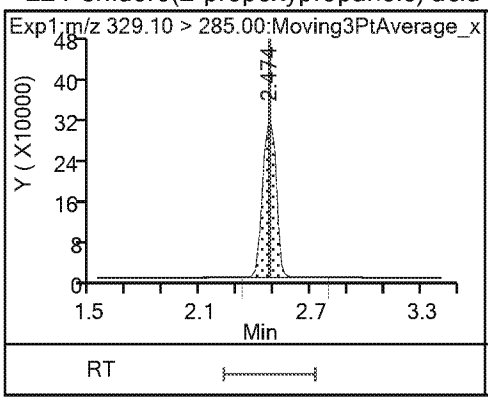
$ 2 13C2 PFHxA



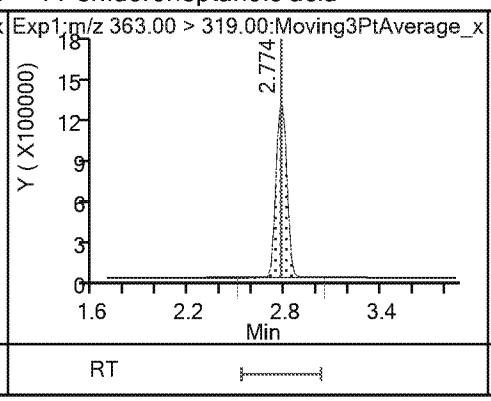
$ 25 13C3 HFPO-DA



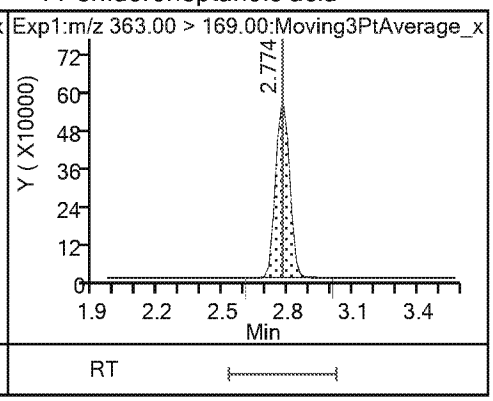
22 Perfluoro(2-propoxypropanoic) acid



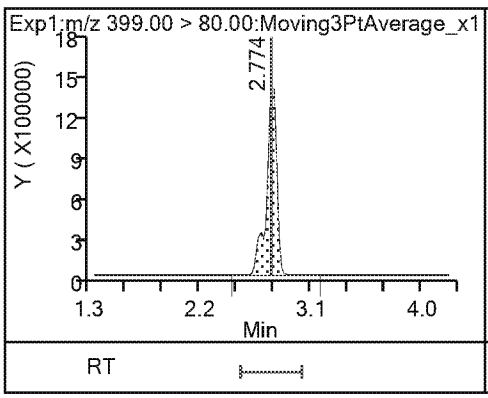
4 Perfluoroheptanoic acid



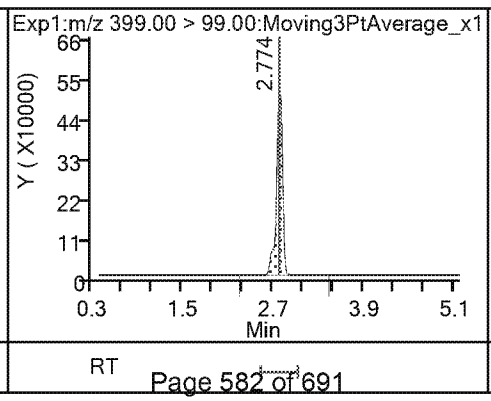
4 Perfluoroheptanoic acid



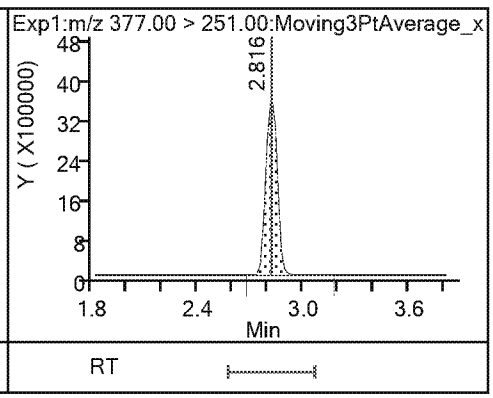
3 Perfluorohexanesulfonic acid



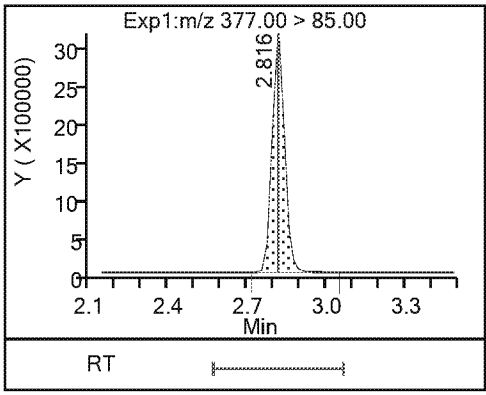
3 Perfluorohexanesulfonic acid



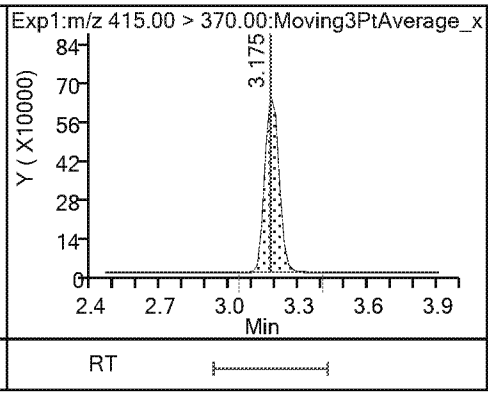
24 DONA



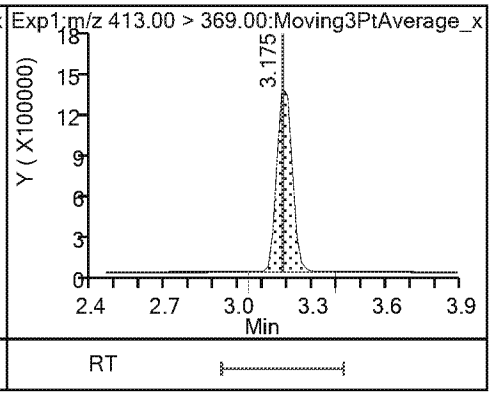
24 DONA



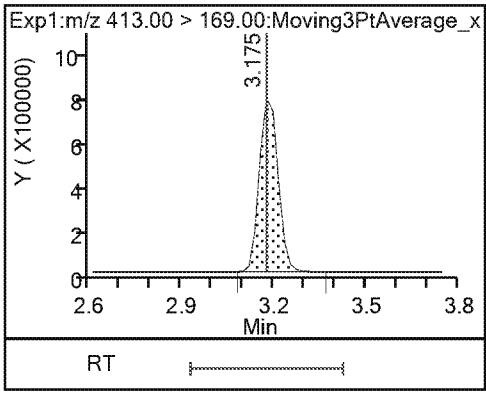
* 5 13C2 PFOA



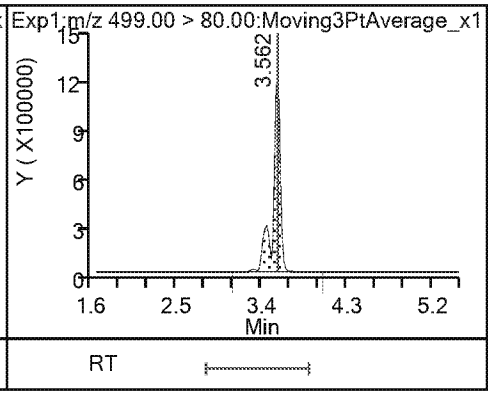
6 Perfluorooctanoic acid



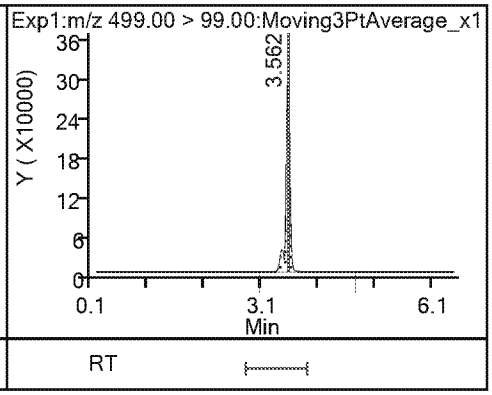
6 Perfluorooctanoic acid



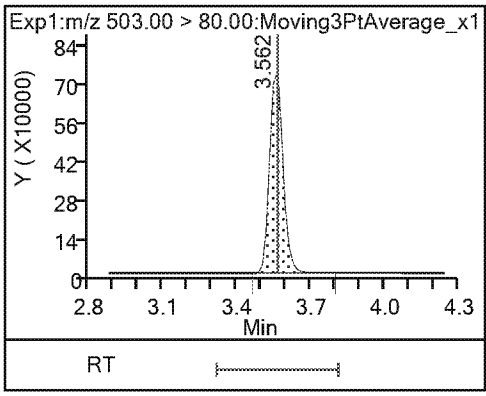
8 Perfluorooctanesulfonic acid



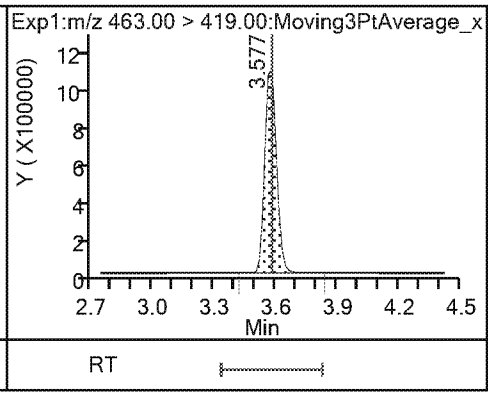
8 Perfluorooctanesulfonic acid



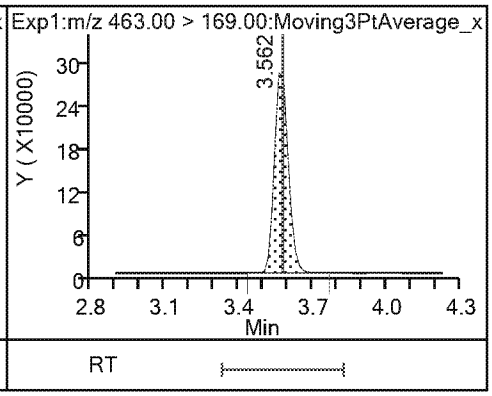
* 7 13C4 PFOS



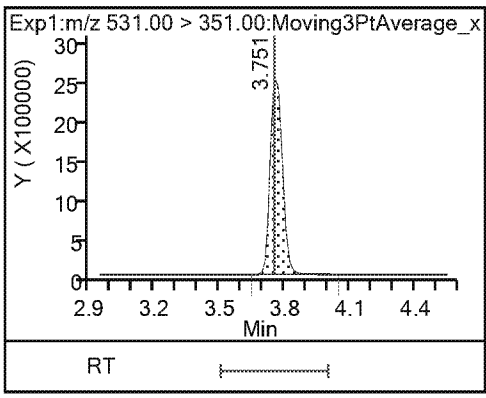
9 Perfluorononanoic acid



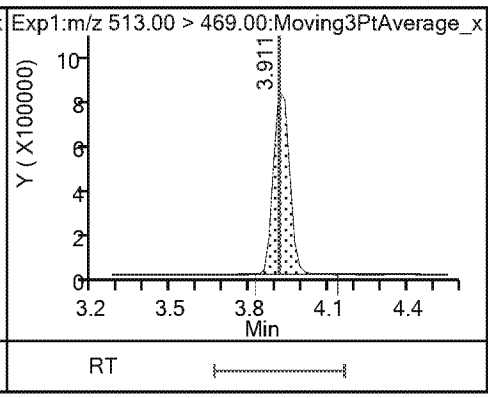
9 Perfluorononanoic acid



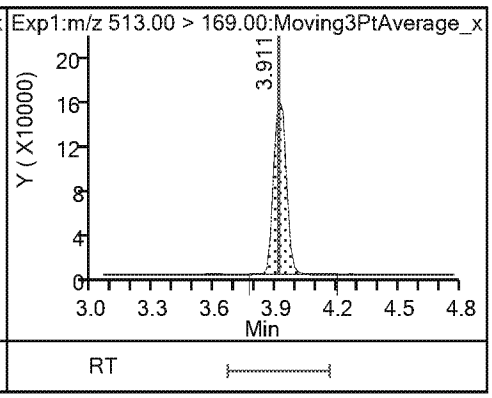
23 9-Chlorohexadecafluoro-3-oxanonane



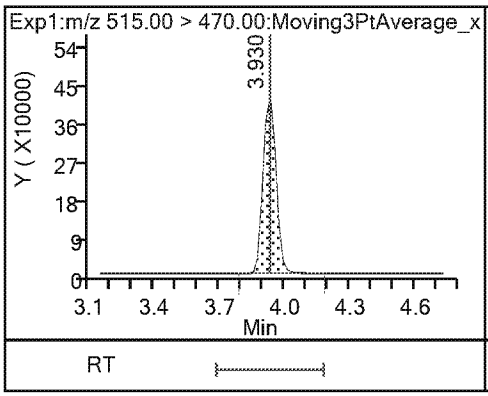
14 Perfluorodecanoic acid



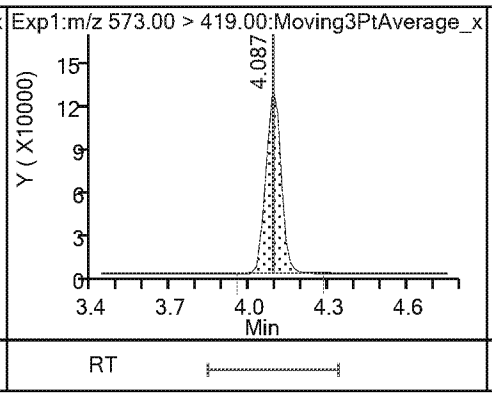
14 Perfluorodecanoic acid



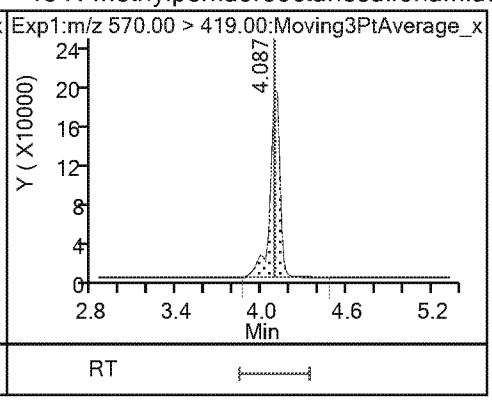
$ 10 13C2 PFDA



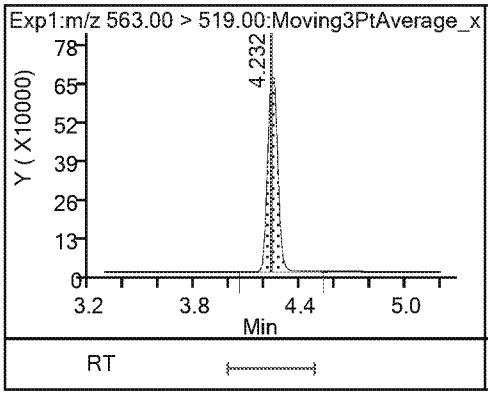
* 12 d3-NMeFOSAA



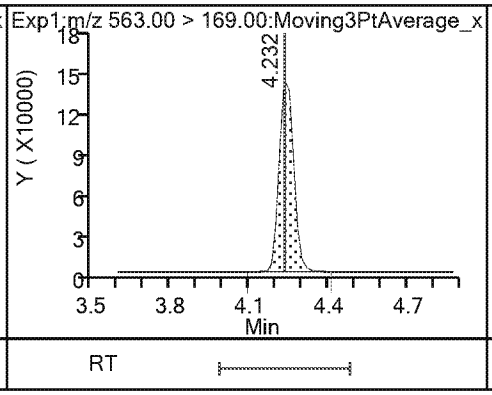
15 N-methylperfluorooctanesulfonamido



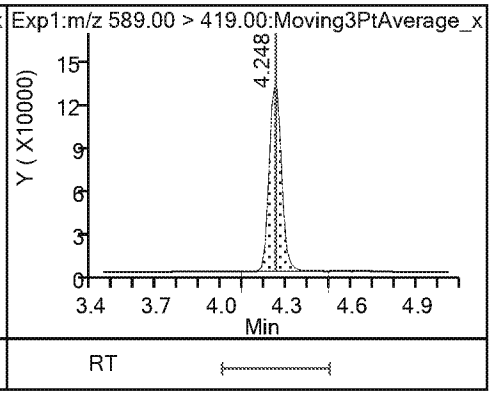
17 Perfluoroundecanoic acid



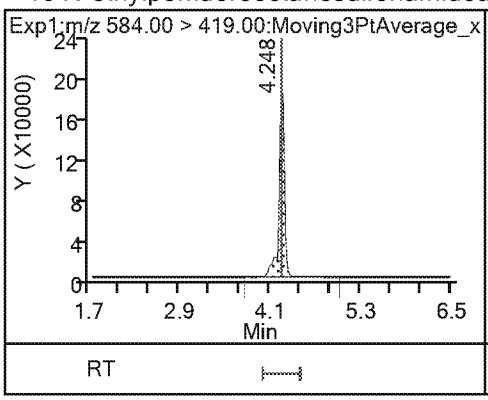
17 Perfluoroundecanoic acid



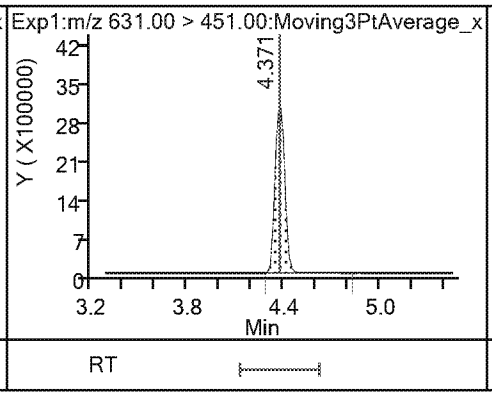
$ 11 d5-NEtFOSAA



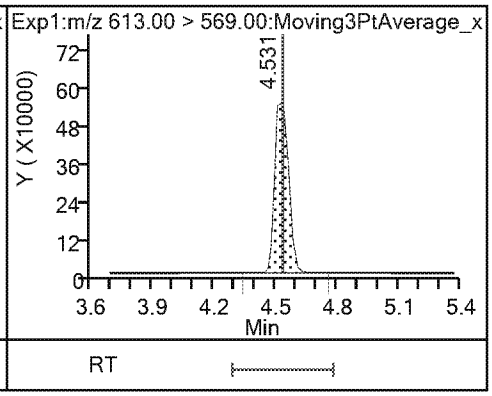
16 N-ethylperfluorooctanesulfonamidoa



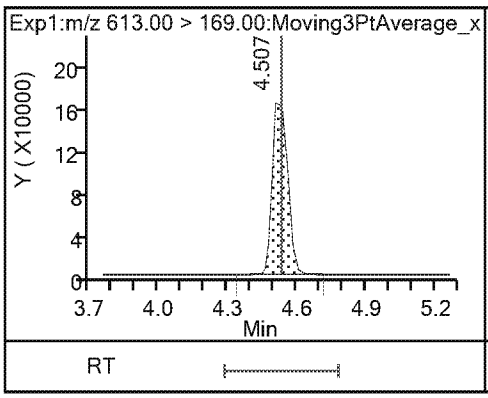
21 11-Chloroeicosafluoro-3-oxaundecan



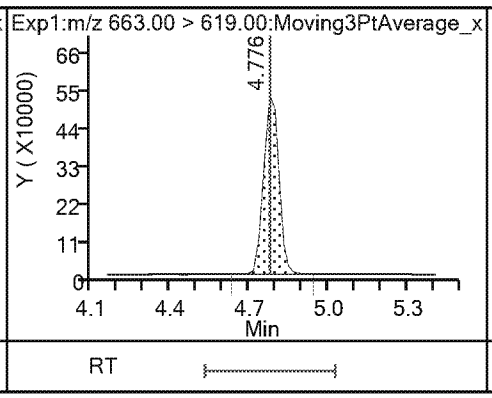
18 Perfluorododecanoic acid



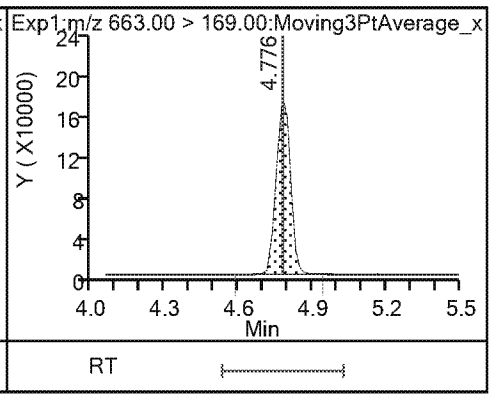
18 Perfluorododecanoic acid



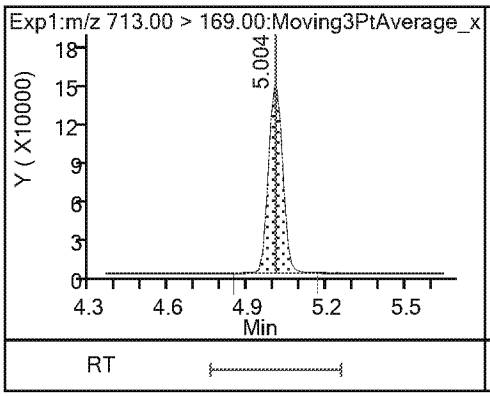
19 Perfluorotridecanoic acid



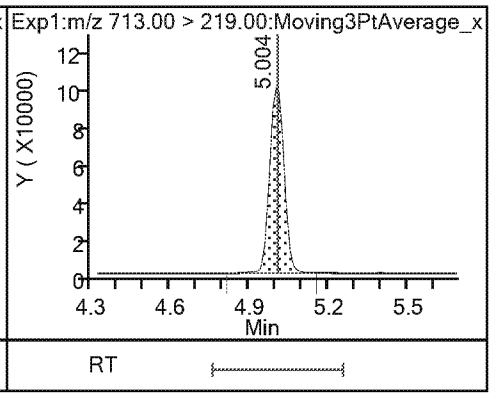
19 Perfluorotridecanoic acid



20 Perfluorotetradecanoic acid



20 Perfluorotetradecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Lab Sample ID: CCV 320-285758/34 Calibration Date: 04/03/2019 09:20

Instrument ID: A8_N Calib Start Date: 03/26/2019 15:43

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 03/26/2019 16:27

Lab File ID: 2019.04.02_537A_037.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid	Ave	1.210	1.212		0.885	0.884	0.1	30.0
Perfluorohexanoic acid	Ave	1.095	1.045		0.954	1.00	-4.6	30.0
Perfluoro(2-propoxypropanoic) acid	Ave	0.2582	0.2742		1.06	1.00	6.2	30.0
Perfluoroheptanoic acid	Ave	1.081	1.040		0.963	1.00	-3.7	30.0
Perfluorohexanesulfonic acid	Ave	1.423	1.391		0.890	0.910	-2.2	30.0
DONA	Ave	2.890	2.953		0.963	0.942	2.2	30.0
Perfluorooctanoic acid	Ave	1.019	1.004		0.985	1.00	-1.5	30.0
Perfluorononanoic acid	Ave	0.7461	0.7453		0.999	1.00	-0.1	30.0
Perfluorooctanesulfonic acid	Ave	1.057	1.048		0.920	0.928	-0.9	30.0
9-Chlorohexadecafluoro-3-oxa nonane-1-sulfonate	Ave	1.709	1.692		0.923	0.932	-1.0	30.0
Perfluorodecanoic acid	Ave	0.5861	0.5461		0.932	1.00	-6.8	30.0
N-methylperfluorooctanesulfo namidoacetic acid	Ave	0.9225	0.9046		0.981	1.00	-1.9	30.0
Perfluoroundecanoic acid	Ave	0.4541	0.4370		0.962	1.00	-3.8	30.0
N-ethylperfluorooctanesulfon amidoacetic acid	Ave	0.8747	0.8357		0.955	1.00	-4.5	30.0
11-Chloroeicosafluoro-3-oxau ndecane-1-sulfonate	Ave	2.128	2.195		0.971	0.942	3.1	30.0
Perfluorododecanoic acid	Ave	0.4418	0.4356		0.986	1.00	-1.4	30.0
Perfluorotridecanoic acid	Ave	0.3657	0.3625		0.991	1.00	-0.9	30.0
Perfluorotetradecanoic acid	Ave	0.1010	0.0916		0.906	1.00	-9.4	30.0
13C2 PFHxA	Ave	1.158	1.110		2.40	2.50	-4.2	30.0
13C2 PFDA	Ave	0.6165	0.5808		2.36	2.50	-5.8	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_037.d
Lims ID: CCV L4
Client ID:
Sample Type: CCVIS
Inject. Date: 03-Apr-2019 09:20:30 ALS Bottle#: 4 Worklist Smp#: 34
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: CCV L4
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub13

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 11:16:14 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 11:05:12
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.978	1.978	0.0	1.000	1274222	0.8851	Target=1.47	6280	
298.90 > 99.00	1.978	1.978	0.0	1.000	842542		1.51(0.00-0.00)	2302	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.349	2.349	0.0	0.740	1237890	0.9545	Target=11.08	474	
313.00 > 119.00	2.349	2.349	0.0	0.740	120388		10.28(0.00-0.00)	223	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.349	2.349	0.0	1.000	3285402	2.40		5315	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.475	2.475	0.0	1.000	174254	2.79		1015	
22 Perfluoro(2-propoxypropanoic) acid									
329.10 > 285.00	2.475	2.475	0.0	1.000	324717	1.06		145	
4 Perfluoroheptanoic acid									
363.00 > 319.00	2.780	2.780	0.0	1.000	1231722	0.9625	Target=2.42	176	
363.00 > 169.00	2.780	2.780	0.0	1.000	488288		2.52(0.00-0.00)	2165	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	2.780	2.780	0.0	1.000	1505642	0.8897	Target=2.92	3972	
399.00 > 99.00	2.780	2.780	0.0	1.000	532454		2.83(0.00-0.00)	1316	
24 DONA									
377.00 > 251.00	2.821	2.821	0.0	1.000	3294652	0.9628	Target=1.50	6482	
377.00 > 85.00	2.821	2.821	0.0	1.000	1990107		1.66(0.00-0.00)	90790	
* 5 13C2 PFOA									
415.00 > 370.00	3.174	3.174	0.0		2960738	2.50		11106	
6 Perfluorooctanoic acid									
413.00 > 369.00	3.174	3.174	0.0	1.000	1189086	0.9854	Target=1.75	124	
413.00 > 169.00	3.174	3.174	0.0	1.000	646098		1.84(0.00-0.00)	2085	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
9 Perfluorononanoic acid									
463.00 > 419.00	3.562	3.562	0.0	1.000	882674	1.00	Target=3.96	451	
463.00 > 169.00	3.562	3.562	0.0	1.000	225213		3.92(0.00-0.00)	2447	
* 7 13C4 PFOS									
503.00 > 80.00	3.548	3.548	0.0		2843301	2.39		9786	
8 Perfluorooctanesulfonic acid									
499.00 > 80.00	3.562	3.564	-0.002	1.004	1156738	0.9198	Target=4.69	2838	
499.00 > 99.00	3.562	3.564	-0.002	1.004	244209		4.74(0.00-0.00)	502	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.749	3.749	0.0	1.000	1876218	0.9228		2423	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.910	3.910	0.0	1.000	646695	0.9316	Target=5.01	360	
513.00 > 169.00	3.910	3.910	0.0	1.000	131577		4.91(0.00-0.00)	784	
$ 10 13C2 PFDA									
515.00 > 470.00	3.929	3.929	0.0	1.000	1719697	2.36		7458	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.091	4.091	0.0		490734	2.50		1983	
15 N-methylperfluorooctanesulfonamido									
570.00 > 419.00	4.091	4.091	0.0	1.000	177565	0.9806		1435	
17 Perfluoroundecanoic acid									
563.00 > 519.00	4.235	4.235	0.0	1.000	517507	0.9623	Target=4.98	258	
563.00 > 169.00	4.235	4.235	0.0	1.000	104234		4.96(0.00-0.00)	1933	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.251	4.251	0.0	1.039	492761	2.46		280	
16 N-ethylperfluorooctanesulfonamidoa									
584.00 > 419.00	4.251	4.251	0.0	1.000	164043	0.9554		387	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.376	4.376	0.0	1.000	2459576	0.9714		7990	
18 Perfluorododecanoic acid									
613.00 > 569.00	4.509	4.509	0.0	1.000	515930	0.9860	Target=3.56	294	
613.00 > 169.00	4.509	4.509	0.0	1.000	147235		3.50(0.00-0.00)	1669	
19 Perfluorotridecanoic acid									
663.00 > 619.00	4.778	4.778	0.0	1.000	429277	0.99	Target=2.92	185	
663.00 > 169.00	4.778	4.778	0.0	1.000	146230		2.94(0.00-0.00)	1248	
20 Perfluorotetradecanoic acid									
713.00 > 169.00	5.006	5.006	0.0	1.000	108450	0.9064	Target=1.42	1368	
713.00 > 219.00	5.006	5.006	0.0	1.000	76836		1.41(0.00-0.00)	791	

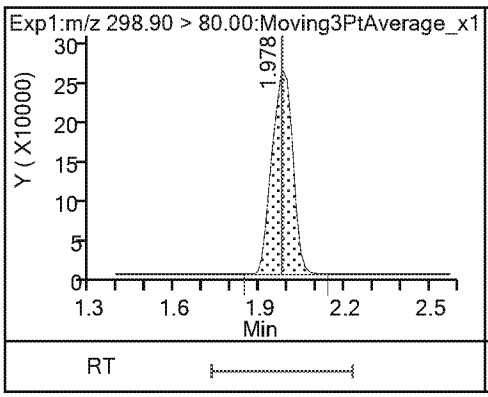
Reagents:

LC537_NC_L4_00003 Amount Added: 1.00 Units: mL

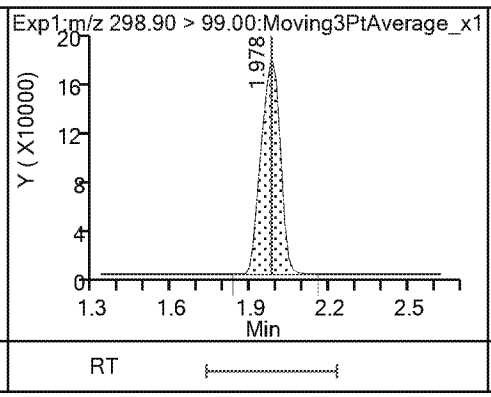
TestAmerica Sacramento

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_037.d
Injection Date: 03-Apr-2019 09:20:30 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 34
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

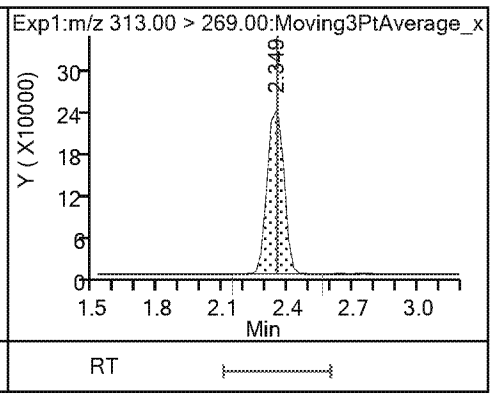
1 Perfluorobutanesulfonic acid



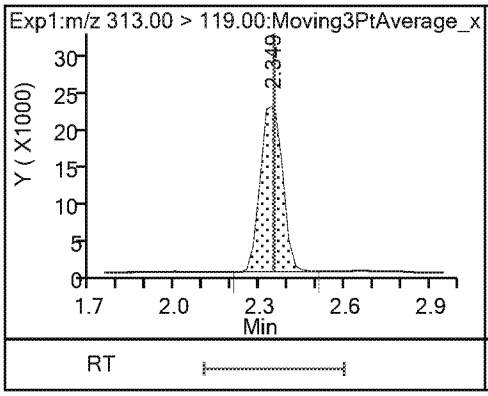
1 Perfluorobutanesulfonic acid



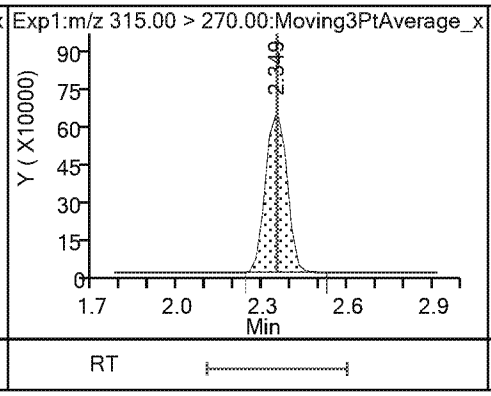
13 Perfluorohexanoic acid



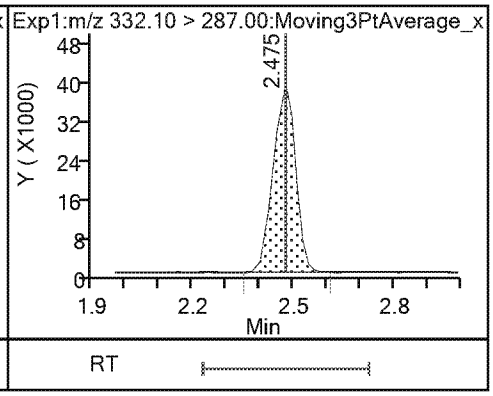
13 Perfluorohexanoic acid



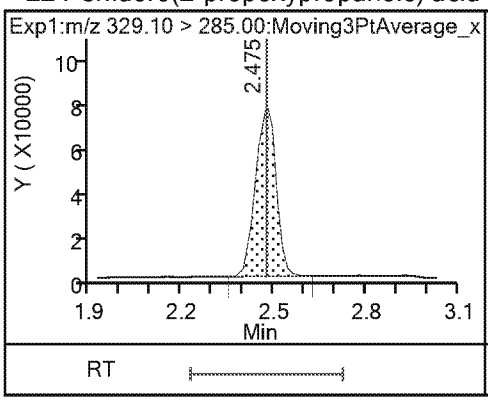
$ 2 13C2 PFHxA



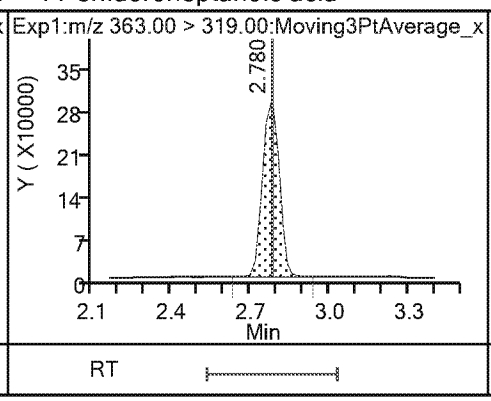
$ 25 13C3 HFPO-DA



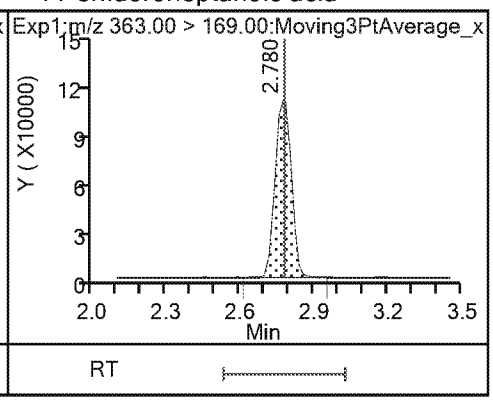
22 Perfluoro(2-propoxypropanoic) acid



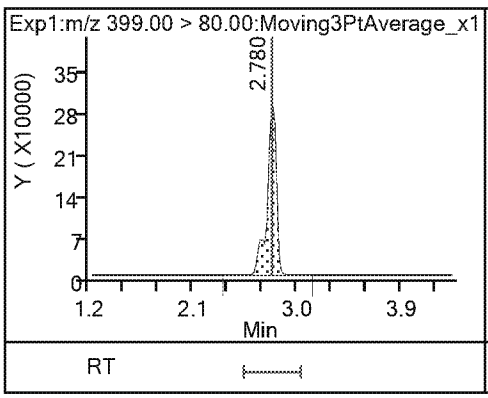
4 Perfluoroheptanoic acid



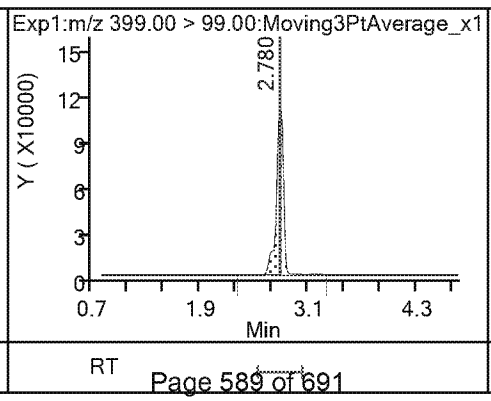
4 Perfluoroheptanoic acid



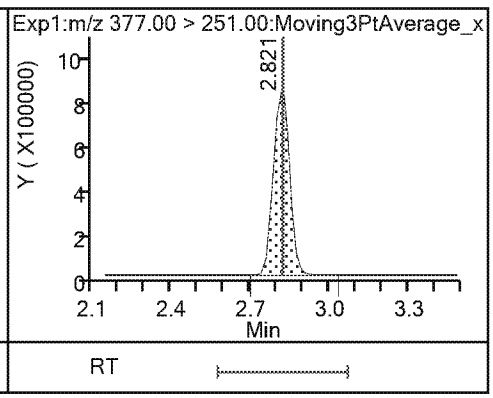
3 Perfluorohexanesulfonic acid



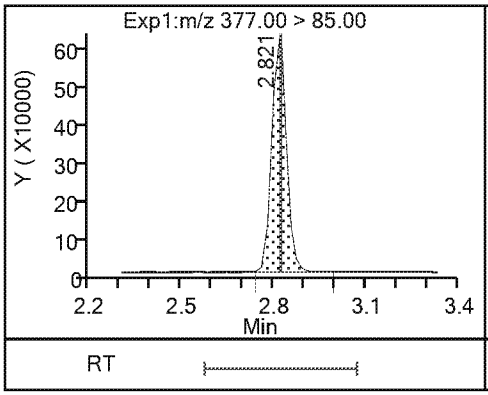
3 Perfluorohexanesulfonic acid



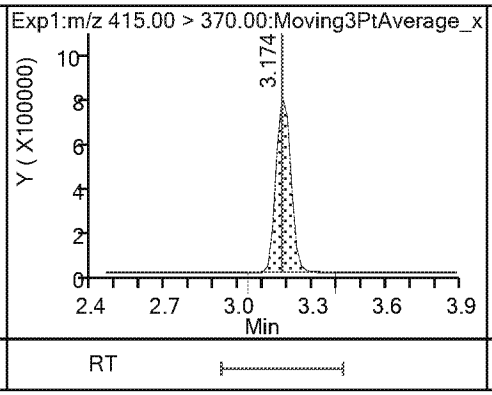
24 DONA



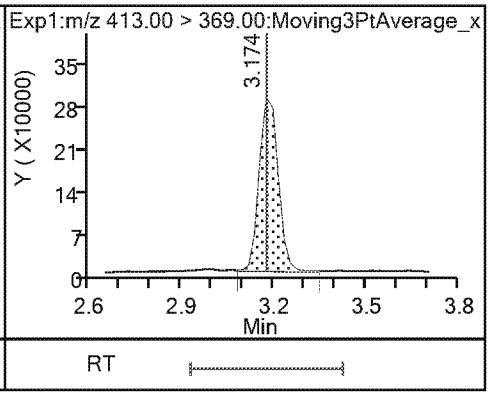
24 DONA



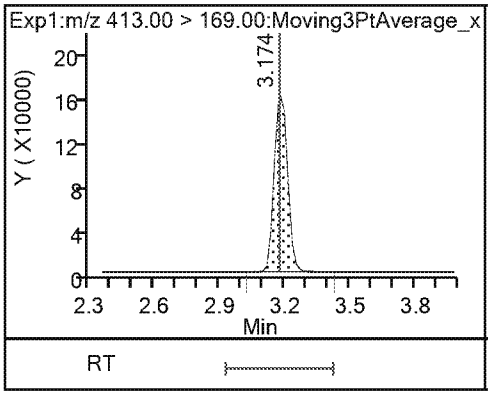
* 5 13C2 PFOA



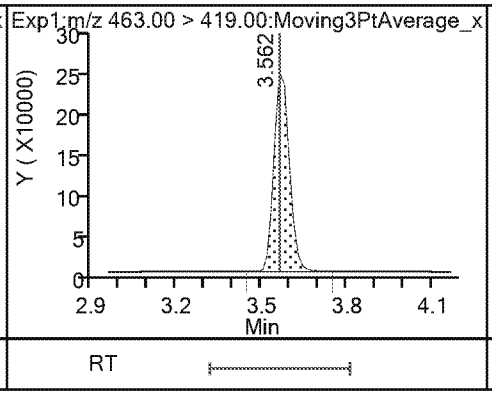
6 Perfluorooctanoic acid



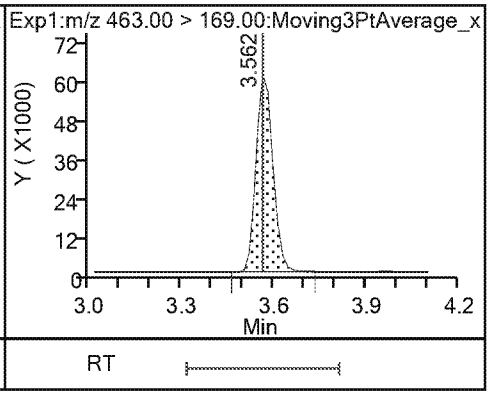
6 Perfluorooctanoic acid



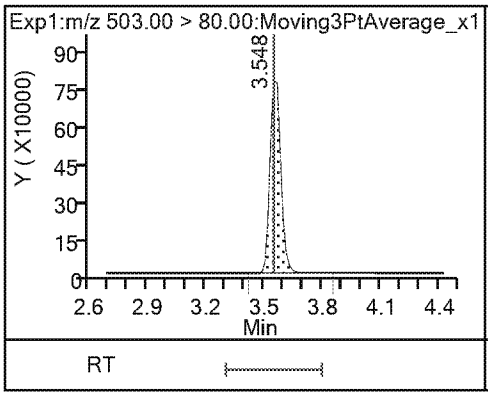
9 Perfluorononanoic acid



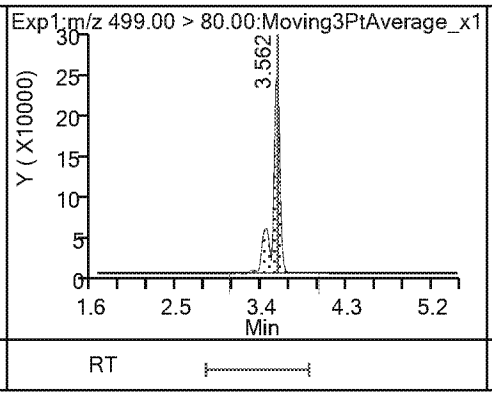
9 Perfluorononanoic acid



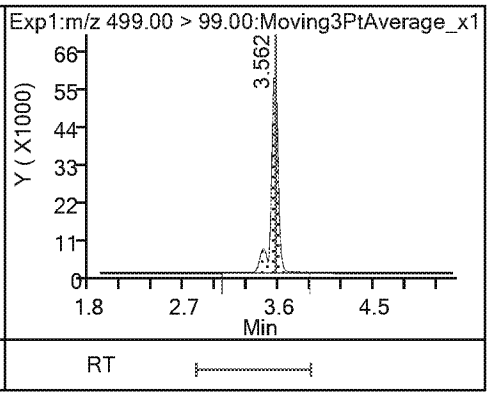
* 7 13C4 PFOS



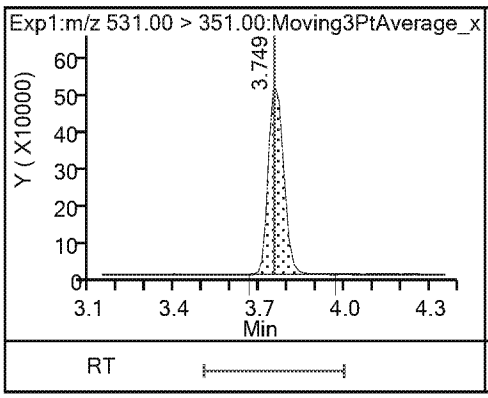
8 Perfluorooctanesulfonic acid



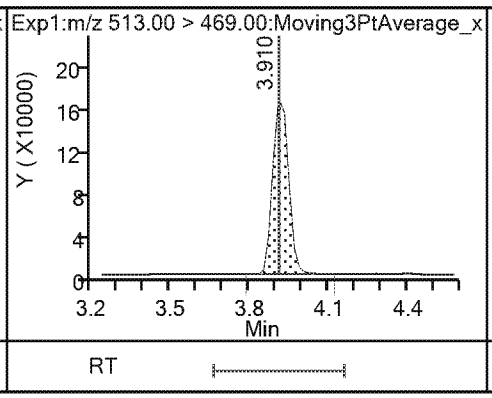
8 Perfluorooctanesulfonic acid



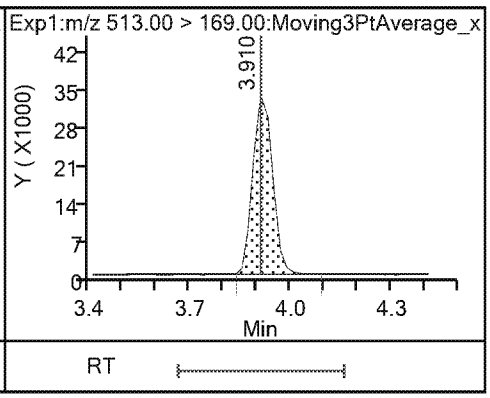
23 9-Chlorohexadecafluoro-3-oxanonane



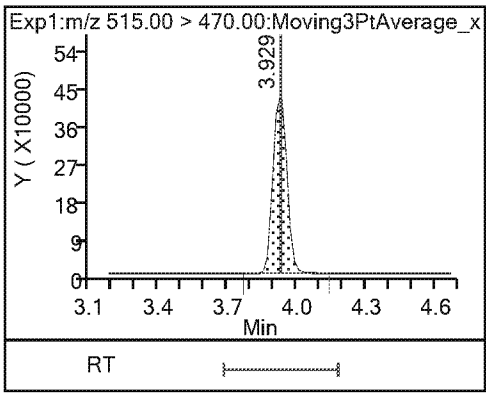
14 Perfluorodecanoic acid



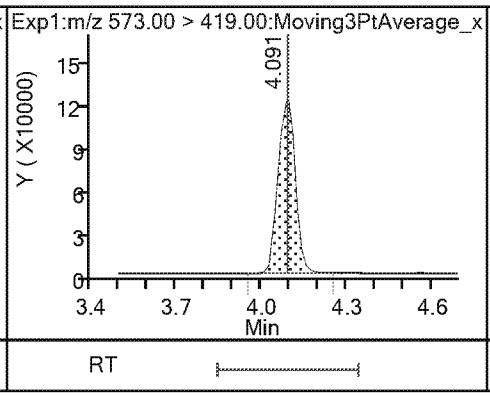
14 Perfluorodecanoic acid



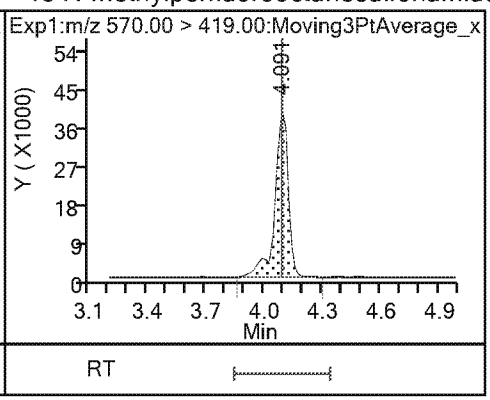
$ 10 13C2 PFDA



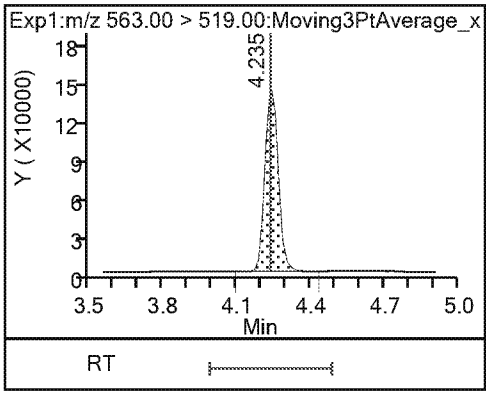
* 12 d3-NMeFOSAA



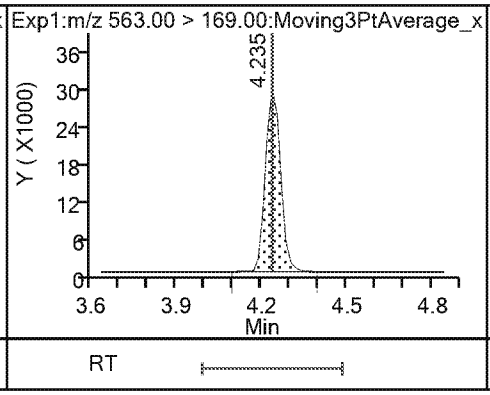
15 N-methylperfluorooctanesulfonamido



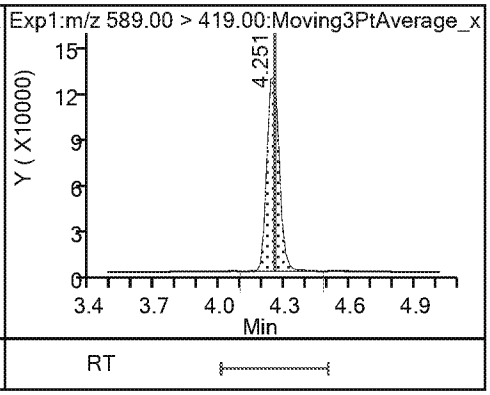
17 Perfluoroundecanoic acid



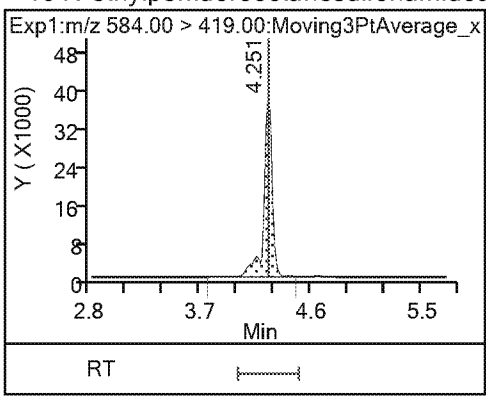
17 Perfluoroundecanoic acid



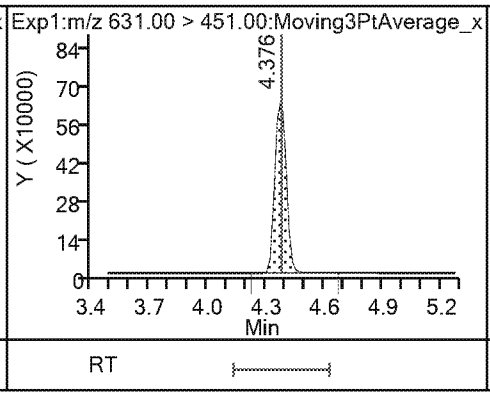
$ 11 d5-NEtFOSAA



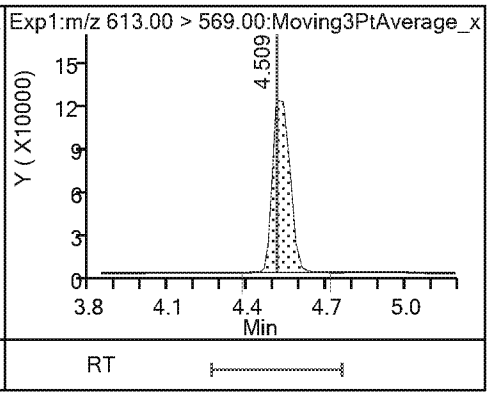
16 N-ethylperfluorooctanesulfonamidoa



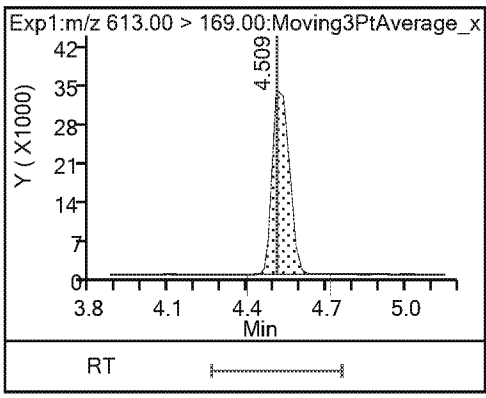
21 11-Chloroeicosafluoro-3-oxaundecan



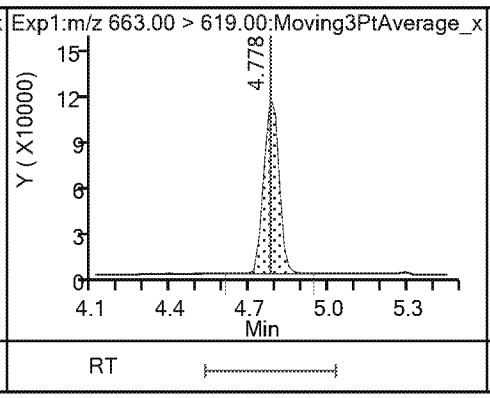
18 Perfluorododecanoic acid



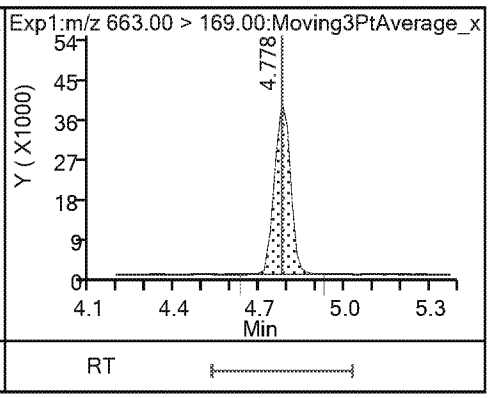
18 Perfluorododecanoic acid



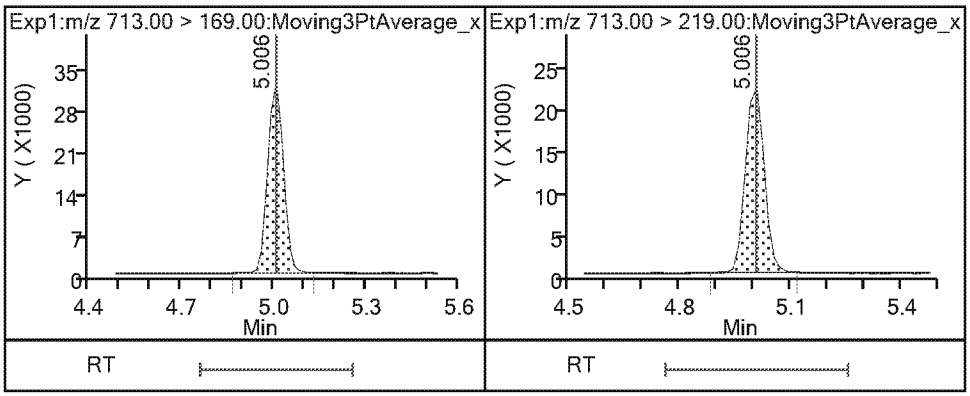
19 Perfluorotridecanoic acid



19 Perfluorotridecanoic acid



20 Perfluorotetradecanoic acid 20 Perfluorotetradecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Lab Sample ID: CCVL 320-286141/10 Calibration Date: 04/04/2019 16:29

Instrument ID: A8_N Calib Start Date: 04/04/2019 15:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 04/04/2019 16:11

Lab File ID: 2019.04.04_537ICAL_011.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid	Ave	1.181	1.111		0.0416	0.0442	-5.9	50.0
Perfluorohexanoic acid	Ave	1.113	1.130		0.0508	0.0500	1.5	50.0
Perfluoro(2-propoxypropanoic) acid	Ave	0.2705	0.2518		0.0465	0.0500	-6.9	50.0
Perfluoroheptanoic acid	Ave	1.060	1.129		0.0532	0.0500	6.5	50.0
Perfluorohexanesulfonic acid	Ave	1.433	1.388		0.0441	0.0455	-3.1	50.0
DONA	Ave	2.887	2.959		0.0483	0.0471	2.5	50.0
Perfluorooctanoic acid	Ave	1.014	0.9819			0.0500	-3.2	50.0
Perfluorononanoic acid	Ave	0.7390	0.7663		0.0518	0.0500	3.7	50.0
Perfluorooctanesulfonic acid	Ave	1.056	1.109		0.0487	0.0464	5.0	50.0
9-Chlorohexadecafluoro-3-oxa nonane-1-sulfonate	Ave	1.700	1.646		0.0451	0.0466	-3.2	50.0
Perfluorodecanoic acid	Ave	0.5850	0.5948		0.0508	0.0500	1.7	50.0
N-methylperfluorooctanesulfo namidoacetic acid	Ave	0.9362	1.070		0.0571	0.0500	14.2	50.0
Perfluoroundecanoic acid	Ave	0.4445	0.4094		0.0460	0.0500	-7.9	50.0
N-ethylperfluorooctanesulfon amidoacetic acid	Ave	0.9078	0.9906		0.0546	0.0500	9.1	50.0
11-Chloroeicosafluoro-3-oxau ndecane-1-sulfonate	Ave	2.131	2.042		0.0451	0.0471	-4.2	50.0
Perfluorododecanoic acid	Ave	0.4456	0.4433		0.0497	0.0500	-0.5	50.0
Perfluorotridecanoic acid	Ave	0.3452	0.3407		0.0494	0.0500	-1.3	50.0
Perfluorotetradecanoic acid	Ave	0.0888	0.0903		0.0509	0.0500	1.7	50.0
13C2 PFHxA	Ave	1.166	1.105		2.37	2.50	-5.2	30.0
13C2 PFDA	Ave	0.6210	0.5957		2.40	2.50	-4.1	30.0

Eurofins TestAmerica, Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_011.d
Lims ID: CCVL
Client ID:
Sample Type: CCVL
Inject. Date: 04-Apr-2019 16:29:59 ALS Bottle#: 2 Worklist Smp#: 10
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: CCV L2
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub13

Method: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 04-Apr-2019 16:55:43 Calib Date: 04-Apr-2019 16:11:08
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: CTX0339

First Level Reviewer: Ex. 4 CBI Date: 04-Apr-2019 16:54:28
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.993	1.992	0.001	1.000	69433	0.0416	Target=1.41	384	
298.90 > 99.00	1.993	1.992	0.001	1.000	46369		1.50(0.00-0.00)	20.5	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.348	2.347	0.001	0.735	75664	0.0508	Target=10.46	21.1	
313.00 > 119.00	2.348	2.347	0.001	0.735	6960		10.87(0.00-0.00)	8.3	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.348	2.347	0.001	1.000	3700356	2.37		5433	
22 Perfluoro(2-propoxypropanoic) acid									
329.10 > 285.00	2.491	2.478	0.013	1.000	16861	0.0465		9.7	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.491	2.481	0.010	1.000	188689	2.69		1139	
4 Perfluoroheptanoic acid									
363.00 > 319.00	2.778	2.780	-0.002	1.000	75567	0.0532	Target=2.41	7.3	
363.00 > 169.00	2.778	2.780	-0.002	1.000	32577		2.32(0.00-0.00)	70.6	
3 Perfluorohexanesulfonic acid									M
399.00 > 80.00	2.799	2.792	0.007	1.000	89277	0.0441	Target=2.91	128	
399.00 > 99.00	2.799	2.792	0.007	1.000	31325		2.85(0.00-0.00)	13.5	M
24 DONA									
377.00 > 251.00	2.840	2.825	0.015	1.000	186665	0.0483	Target=1.54	374	
377.00 > 85.00	2.820	2.825	-0.005	0.993	107298		1.74(0.00-0.00)	7712	
* 5 13C2 PFOA									
415.00 > 370.00	3.196	3.186	0.010		3347956	2.50		8273	
6 Perfluorooctanoic acid									M
413.00 > 369.00	3.196	3.186	0.010	1.000	65747	0.0484	Target=1.70	8.6	M
413.00 > 169.00	3.196	3.186	0.010	1.000	40858		1.61(0.00-0.00)	58.9	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
* 7 13C4 PFOS									
503.00 > 80.00	3.564	3.562	0.002		3378268	2.39		10014	
8 Perfluorooctanesulfonic acid									M
499.00 > 80.00	3.579	3.564	0.015	1.004	72758	0.0487	Target=4.63	343	
499.00 > 99.00	3.579	3.564	0.015	1.004	15209		4.78(0.00-0.00)	13.7	M
9 Perfluorononanoic acid									
463.00 > 419.00	3.579	3.577	0.002	1.000	51312	0.0518	Target=3.78	30.1	
463.00 > 169.00	3.579	3.577	0.002	1.000	12516		4.10(0.00-0.00)	102	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.770	3.755	0.015	1.000	108414	0.0451		255	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.934	3.915	0.019	1.000	39830	0.0508	Target=4.93	15.2	
513.00 > 169.00	3.934	3.915	0.019	1.000	7368		5.41(0.00-0.00)	22.1	
$ 10 13C2 PFDA									
515.00 > 470.00	3.934	3.931	0.003	1.000	1994239	2.40		10675	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.091	4.091	0.0		542383	2.50		2955	
15 N-methylperfluorooctanesulfonamido									
570.00 > 419.00	4.091	4.091	0.0	1.000	11602	0.0571		166	
17 Perfluoroundecanoic acid									
563.00 > 519.00	4.236	4.236	0.0	1.000	27411	0.0460	Target=4.73	13.5	
563.00 > 169.00	4.236	4.236	0.0	1.000	7615		3.60(0.00-0.00)	91.7	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.236	4.243	-0.007	1.035	554511	2.50		356	
16 N-ethylperfluorooctanesulfonamidoa									
584.00 > 419.00	4.253	4.252	0.0	1.004	10746	0.0546		29.9	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.359	4.369	-0.011	1.000	135927	0.0451		1196	
18 Perfluorododecanoic acid									
613.00 > 569.00	4.510	4.508	0.002	1.000	29684	0.0497	Target=3.49	22.2	
613.00 > 169.00	4.510	4.508	0.002	1.000	8743		3.40(0.00-0.00)	92.9	
19 Perfluorotridecanoic acid									
663.00 > 619.00	4.760	4.772	-0.012	1.000	22812	0.0494	Target=2.87	9.5	
663.00 > 169.00	4.760	4.772	-0.012	1.000	7704		2.96(0.00-0.00)	77.0	
20 Perfluorotetradecanoic acid									
713.00 > 169.00	4.976	4.985	-0.009	1.000	6046	0.0509	Target=1.40	103	
713.00 > 219.00	4.976	4.985	-0.009	1.000	3934		1.54(0.00-0.00)	40.0	

QC Flag Legend

Review Flags

M - Manually Integrated

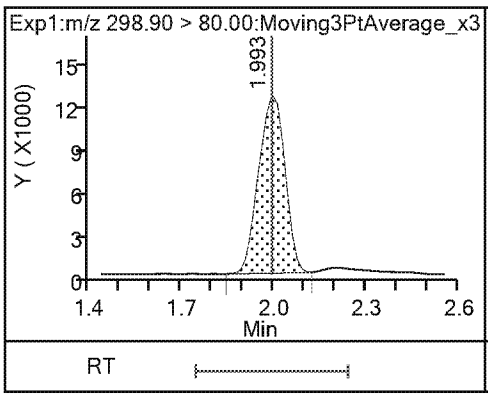
Reagents:

LC537_NC_L2_00004 Amount Added: 1.00 Units: mL

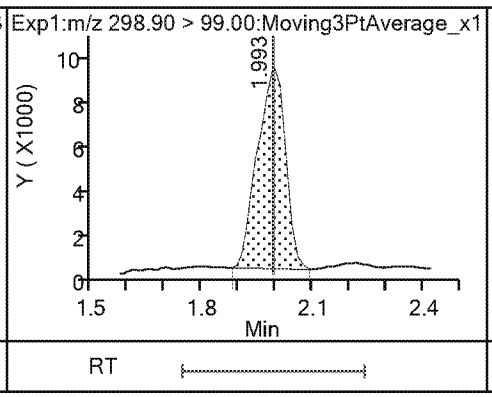
Eurofins TestAmerica, Sacramento

Data File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_011.d
Injection Date: 04-Apr-2019 16:29:59 Instrument ID: A8_N
Lims ID: CCVL
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 10
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

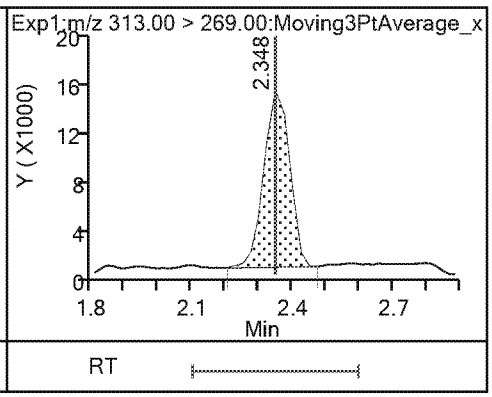
1 Perfluorobutanesulfonic acid



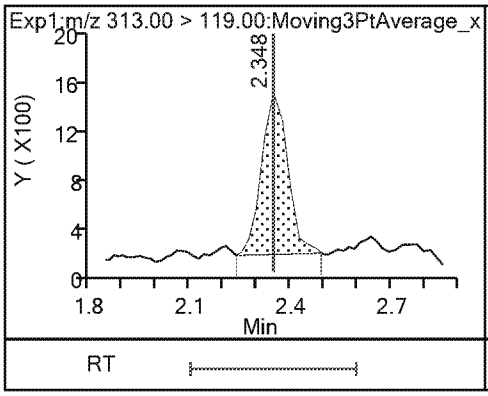
1 Perfluorobutanesulfonic acid



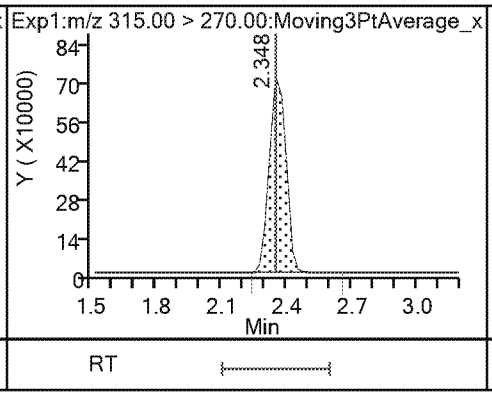
13 Perfluorohexanoic acid



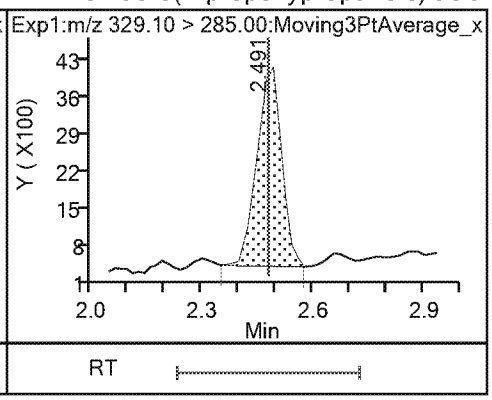
13 Perfluorohexanoic acid



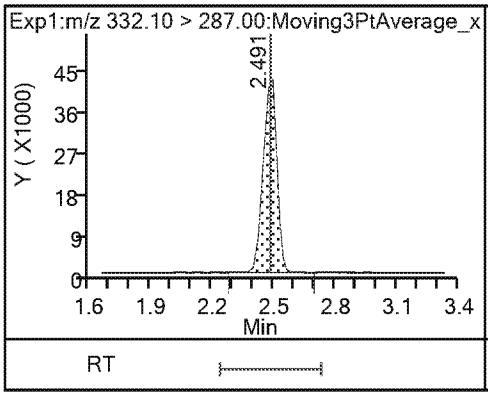
$ 2 13C2 PFHxA



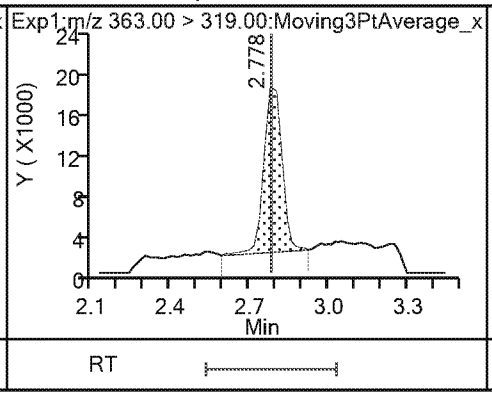
22 Perfluoro(2-propoxypropanoic) acid



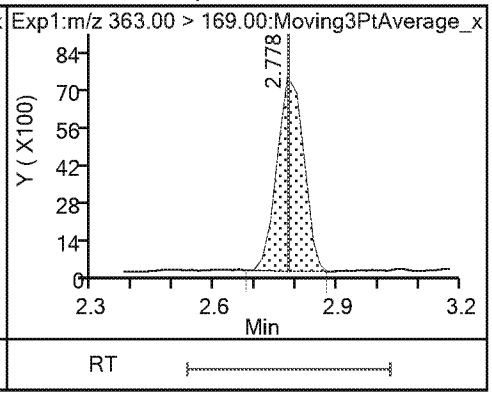
$ 25 13C3 HFPO-DA



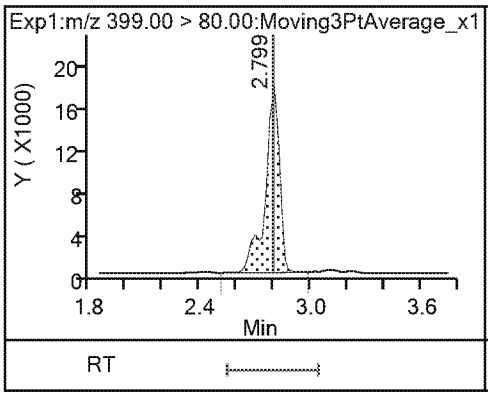
4 Perfluoroheptanoic acid



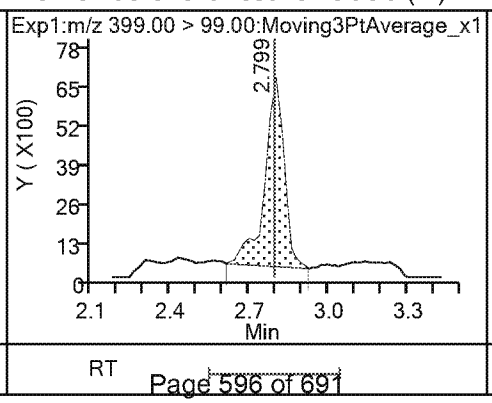
4 Perfluoroheptanoic acid



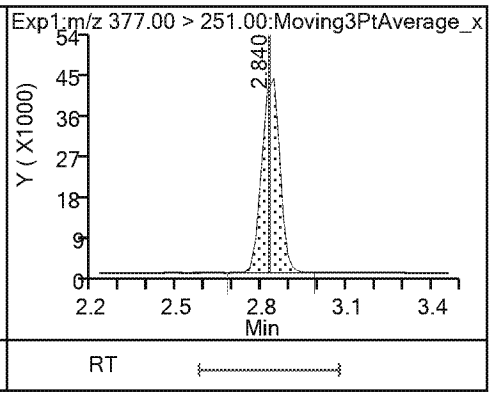
3 Perfluorohexanesulfonic acid



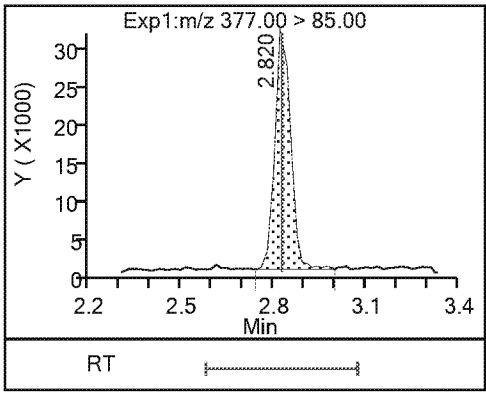
3 Perfluorohexanesulfonic acid (M)



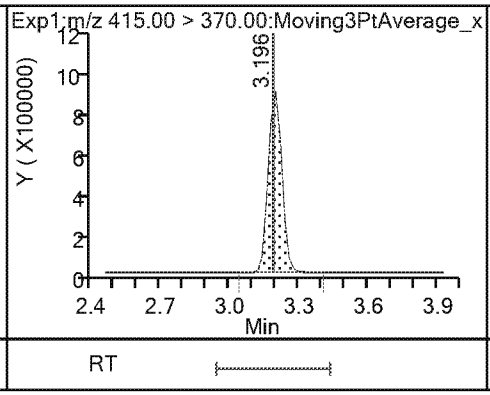
24 DONA



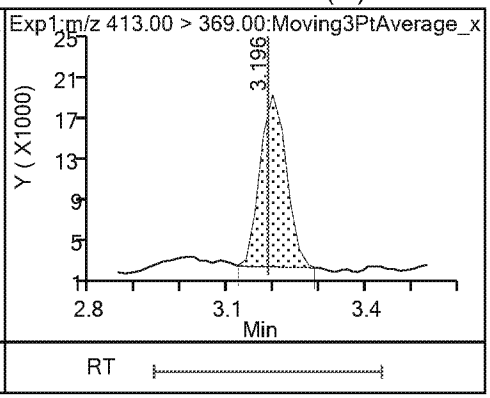
24 DONA



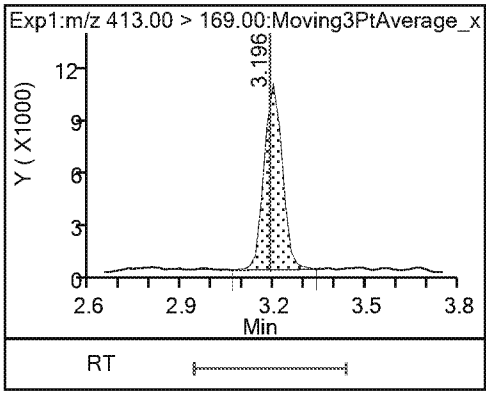
* 5 13C2 PFOA



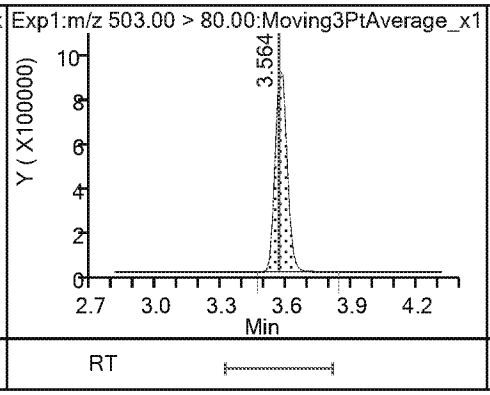
6 Perfluorooctanoic acid (M)



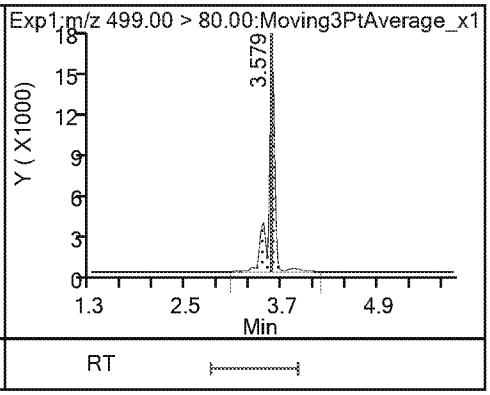
6 Perfluorooctanoic acid



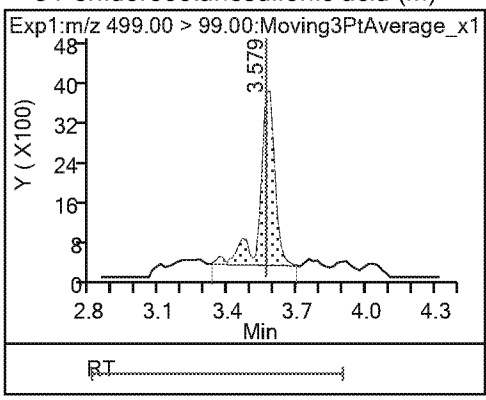
* 7 13C4 PFOS



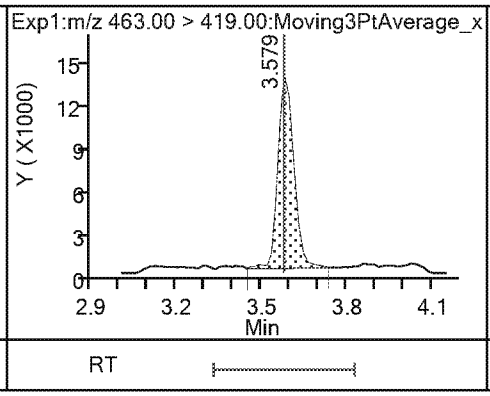
8 Perfluorooctanesulfonic acid



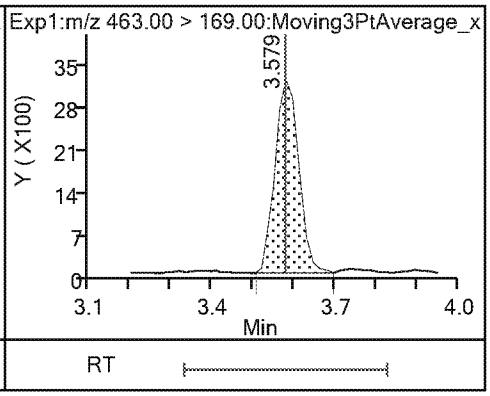
8 Perfluorooctanesulfonic acid (M)



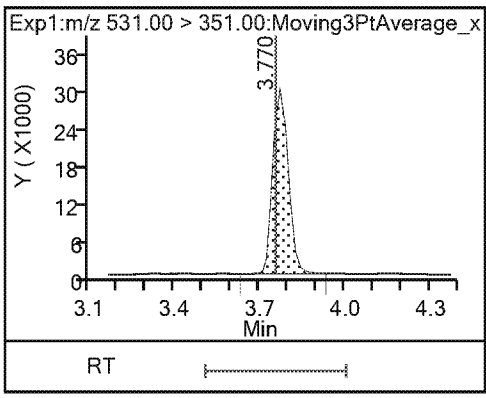
9 Perfluorononanoic acid



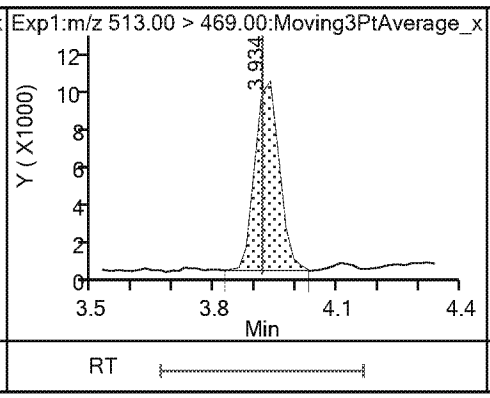
9 Perfluorononanoic acid



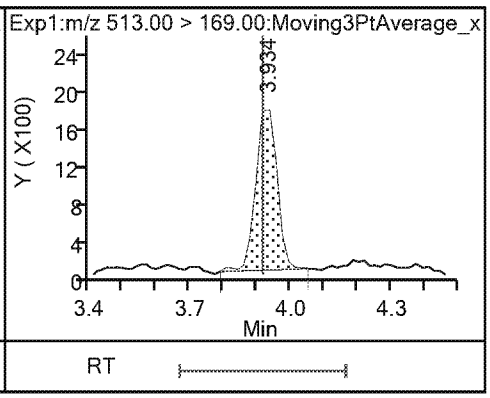
23 9-Chlorohexadecafluoro-3-oxanonane



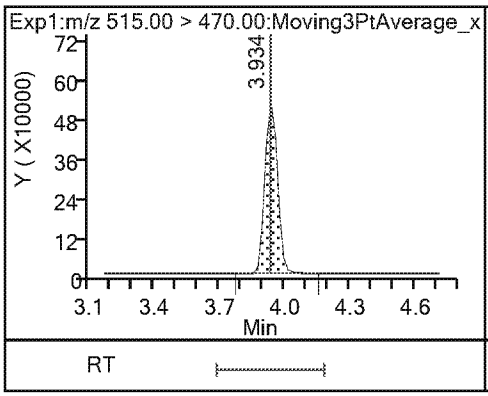
14 Perfluorodecanoic acid



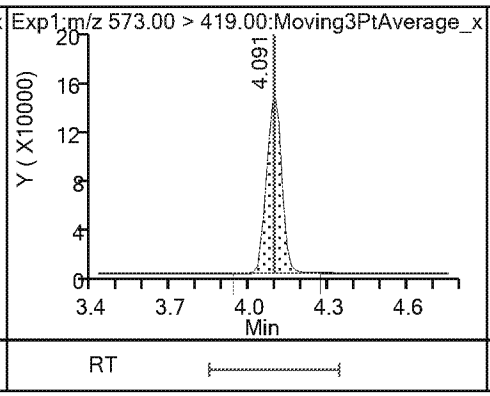
14 Perfluorodecanoic acid



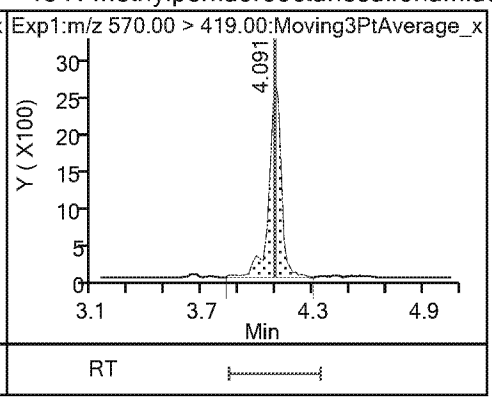
$ 10 13C2 PFDA



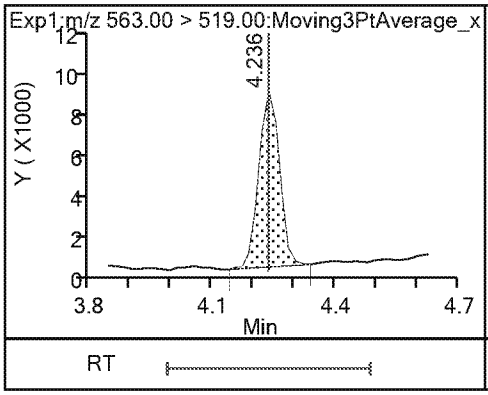
* 12 d3-NMeFOSAA



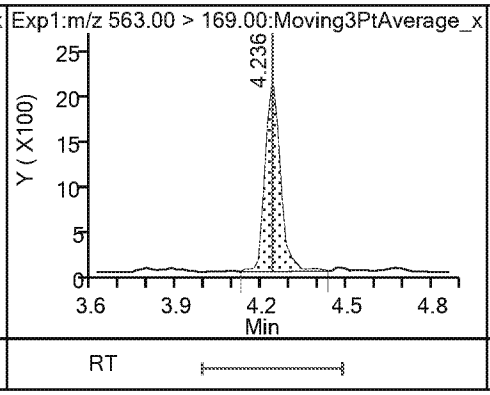
15 N-methylperfluorooctanesulfonamido



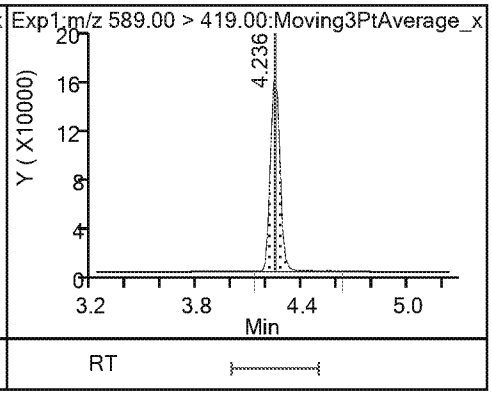
17 Perfluoroundecanoic acid



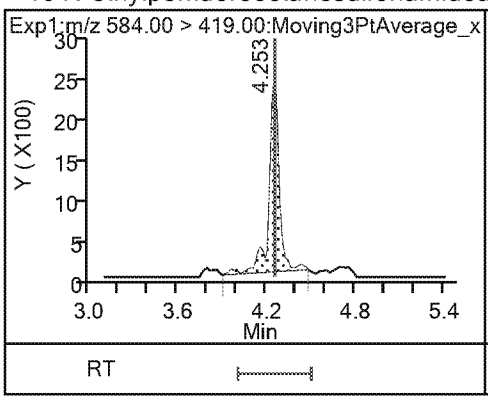
17 Perfluoroundecanoic acid



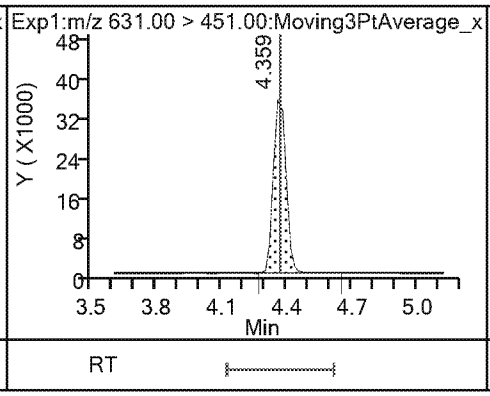
$ 11 d5-NEtFOSAA



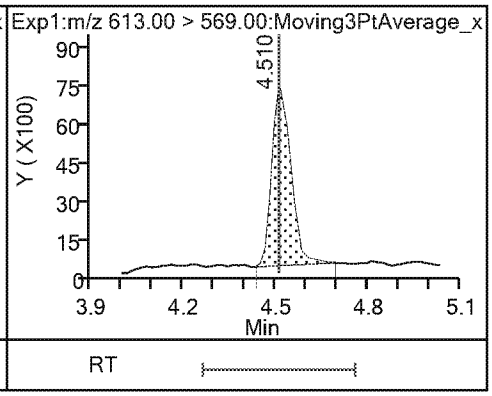
16 N-ethylperfluorooctanesulfonamidoa



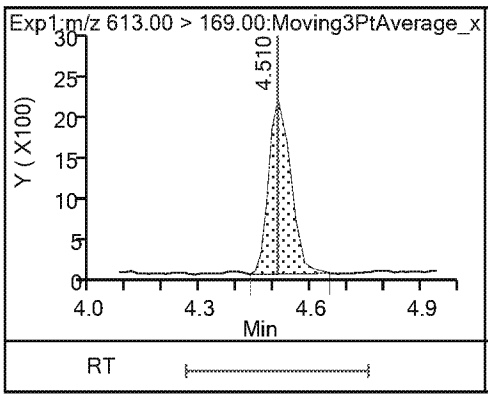
21 11-Chloroeicosafluoro-3-oxaundecan



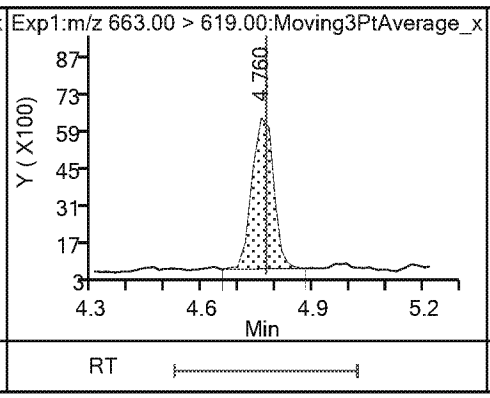
18 Perfluorododecanoic acid



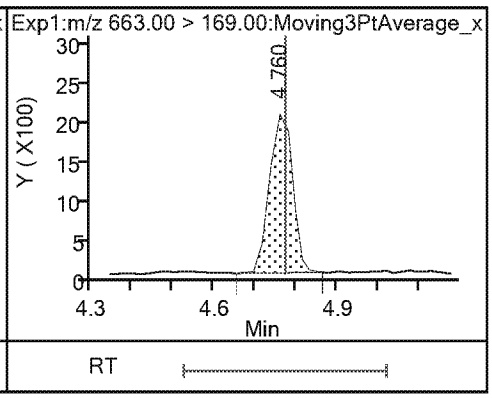
18 Perfluorododecanoic acid



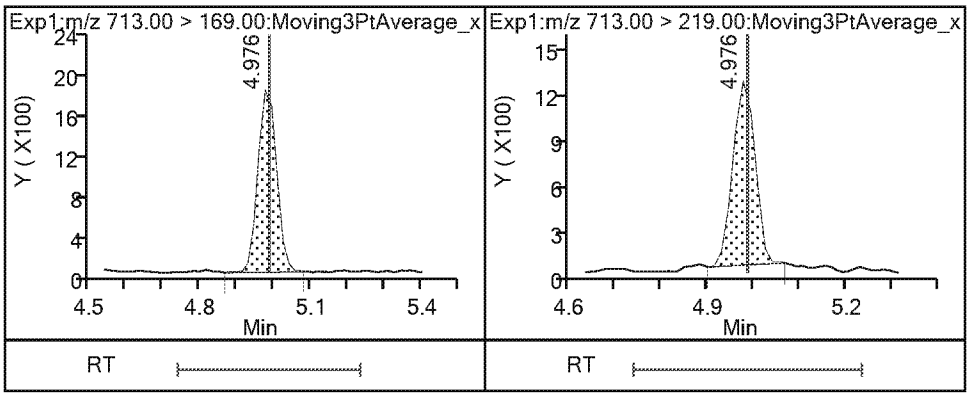
19 Perfluorotridecanoic acid



19 Perfluorotridecanoic acid



20 Perfluorotetradecanoic acid 20 Perfluorotetradecanoic acid



Eurofins TestAmerica, Sacramento

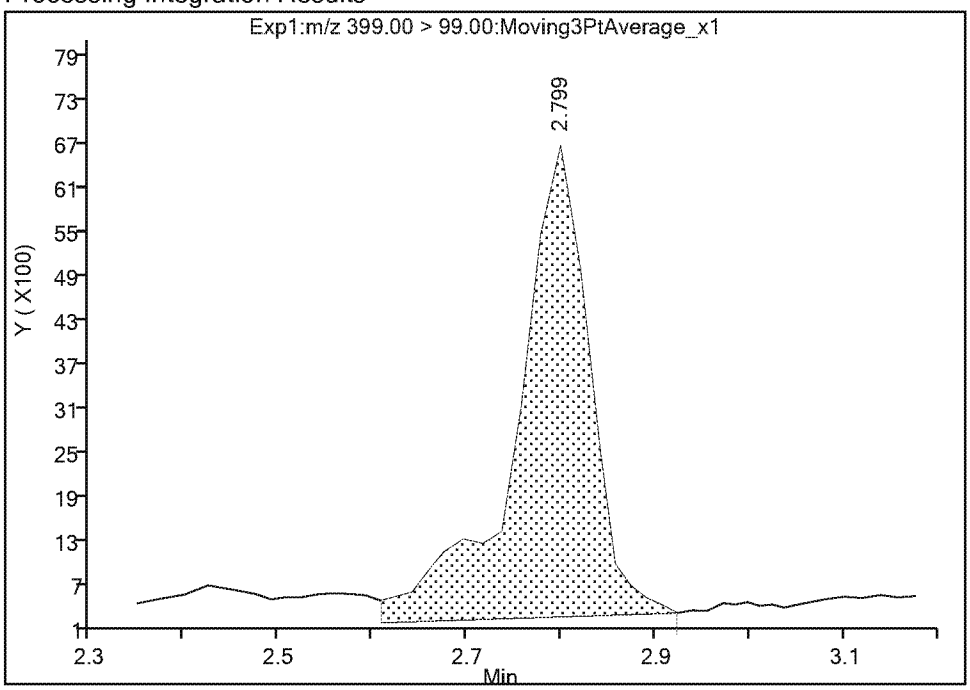
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_011.d				
Injection Date:	04-Apr-2019 16:29:59	Instrument ID:	A8_N		
Lims ID:	CCVL				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	2	Worklist Smp#:	10
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

3 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 2

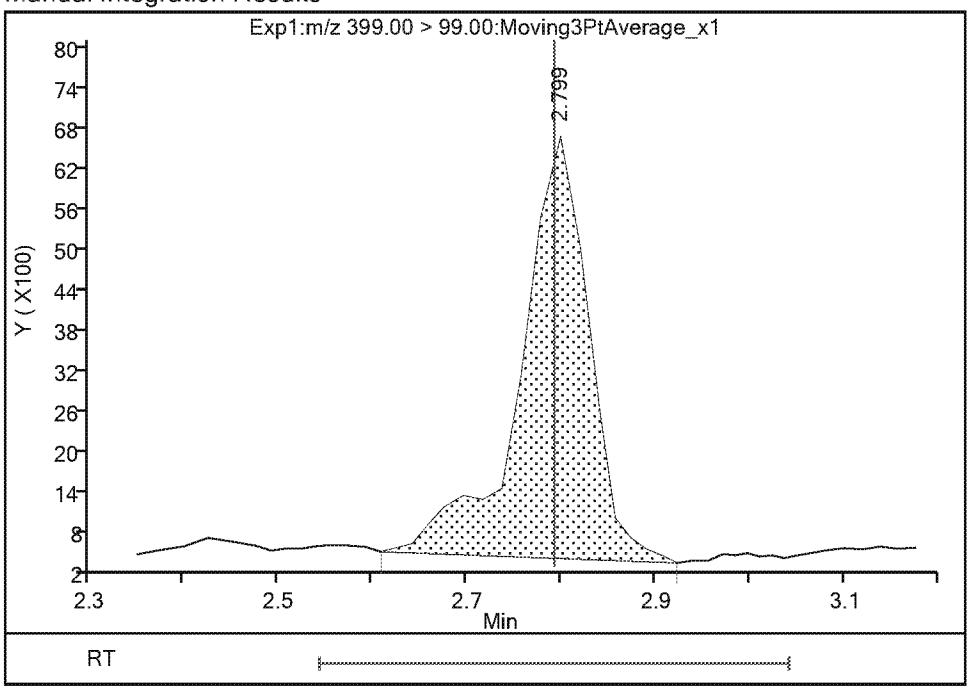
Processing Integration Results

RT: 2.80
Area: 34148
Amount: 0.044077
Amount Units: ng/ml



Manual Integration Results

RT: 2.80
Area: 31325
Amount: 0.044077
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 04-Apr-2019 16:42:54
Audit Action: Manually Integrated Audit Reason: Baseline

Eurofins TestAmerica, Sacramento

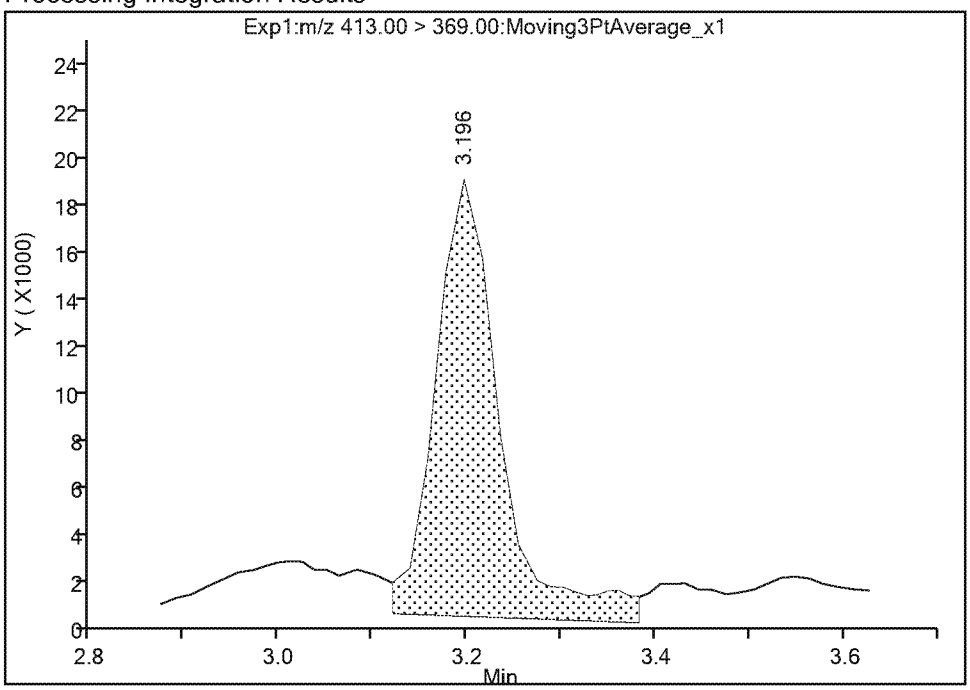
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_011.d				
Injection Date:	04-Apr-2019 16:29:59	Instrument ID:	A8_N		
Lims ID:	CCVL				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	2	Worklist Smp#:	10
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

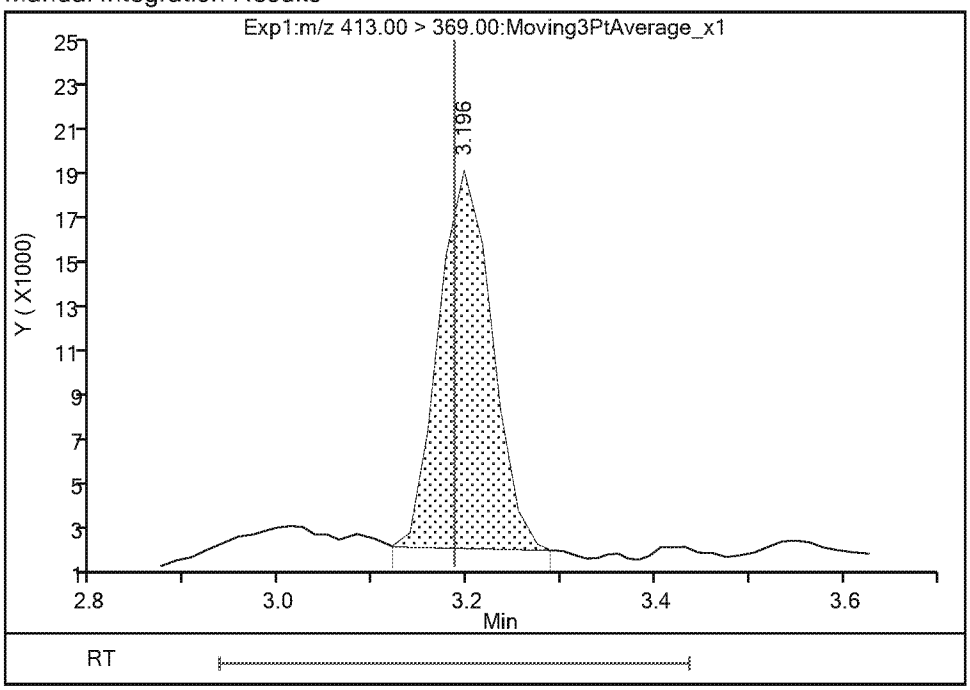
Processing Integration Results

RT: 3.20
Area: 85610
Amount: 0.063017
Amount Units: ng/ml



Manual Integration Results

RT: 3.20
Area: 65747
Amount: 0.048396
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 04-Apr-2019 16:43:07
Audit Action: Manually Integrated Audit Reason: Baseline

Eurofins TestAmerica, Sacramento

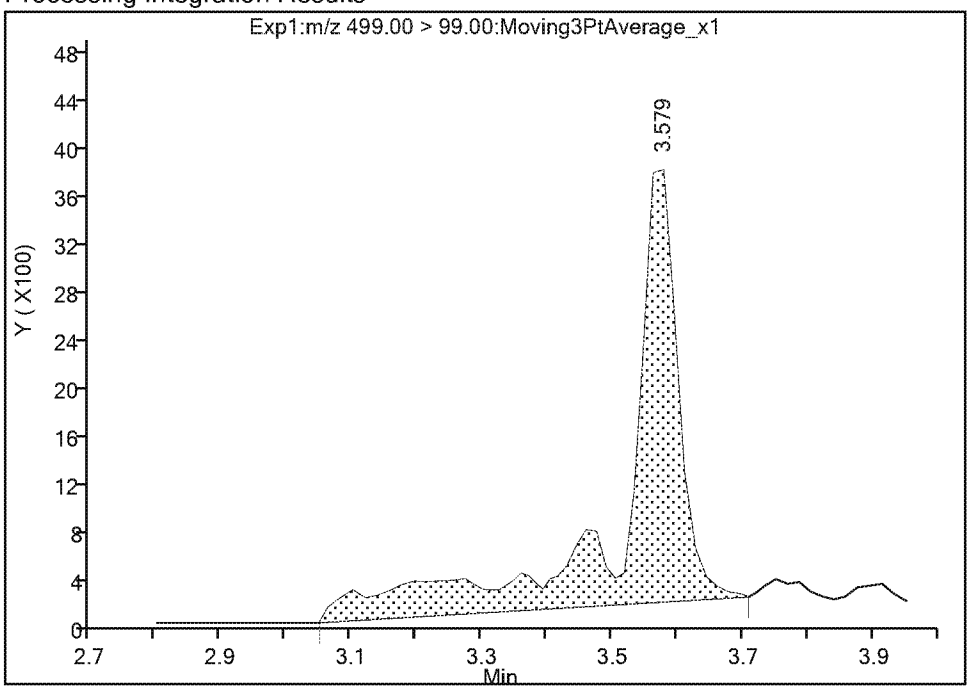
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_011.d				
Injection Date:	04-Apr-2019 16:29:59	Instrument ID:	A8_N		
Lims ID:	CCVL				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	2	Worklist Smp#:	10
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

8 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 2

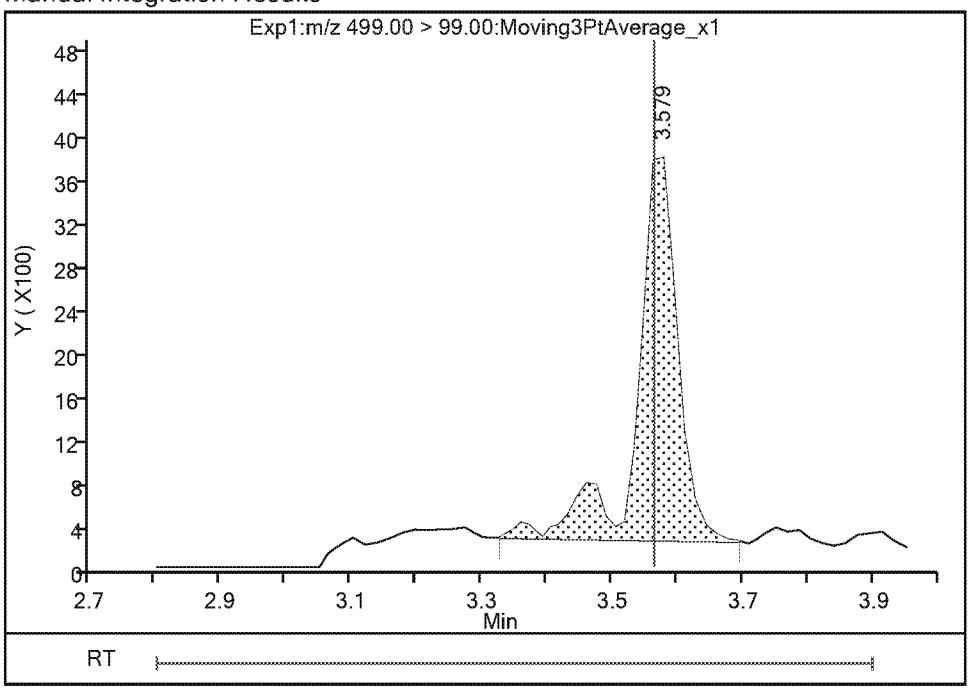
Processing Integration Results

RT: 3.58
Area: 21044
Amount: 0.048729
Amount Units: ng/ml



Manual Integration Results

RT: 3.58
Area: 15209
Amount: 0.048729
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 04-Apr-2019 16:43:20
Audit Action: Manually Integrated Audit Reason: Baseline

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Lab Sample ID: ICV 320-286141/12 Calibration Date: 04/04/2019 16:48

Instrument ID: A8_N Calib Start Date: 04/04/2019 15:14

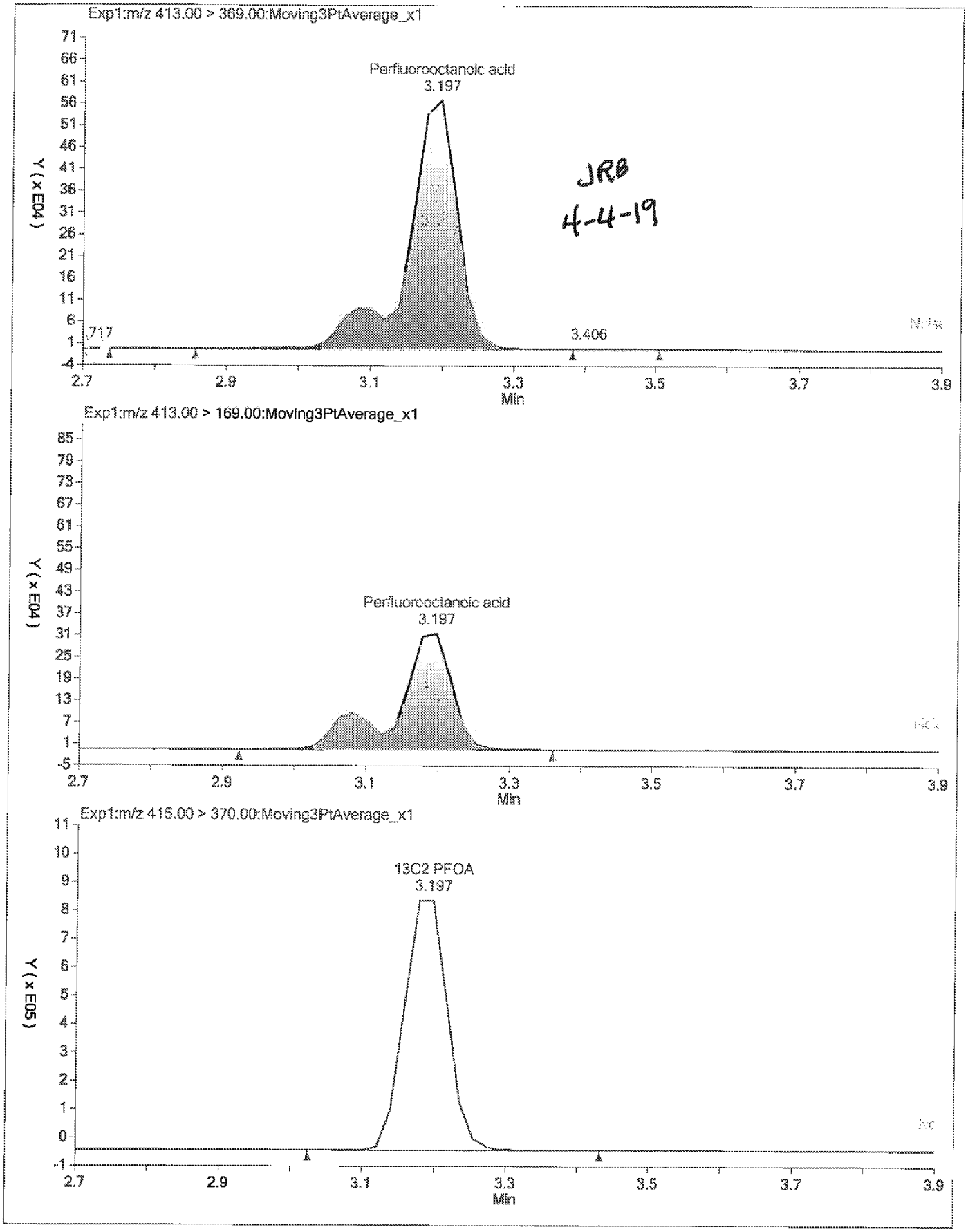
GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 04/04/2019 16:11

Lab File ID: 2019.04.04_537ICAL_013.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid	Ave	1.181	1.175		1.76	1.77	-0.5	30.0
Perfluorohexanoic acid	Ave	1.113	1.104		1.98	2.00	-0.8	30.0
Perfluoro(2-propoxypropanoic) acid	Ave	0.2705	0.2422		1.79	2.00	-10.5	30.0
Perfluoroheptanoic acid	Ave	1.060	1.110		2.10	2.00	4.8	30.0
Perfluorohexanesulfonic acid	Ave	1.433	1.435		1.83	1.82	0.2	30.0
DONA	Ave	2.887	2.584		1.69	1.88	-10.5	30.0
Perfluorooctanoic acid	Ave	1.014	1.021		2.01	2.00	0.7	30.0
Perfluorooctanesulfonic acid	Ave	1.056	1.082		1.90	1.85	2.4	30.0
Perfluorononanoic acid	Ave	0.7390	0.7516		2.03	2.00	1.7	30.0
9-Chlorohexadecafluoro-3-oxa nonane-1-sulfonate	Ave	1.700	1.517		1.66	1.86	-10.7	30.0
Perfluorodecanoic acid	Ave	0.5850	0.5958		2.04	2.00	1.8	30.0
N-methylperfluorooctanesulfo namidoacetic acid	Ave	0.9362	0.9635		2.06	2.00	2.9	30.0
Perfluoroundecanoic acid	Ave	0.4445	0.4548		2.05	2.00	2.3	30.0
N-ethylperfluorooctanesulfon amidoacetic acid	Ave	0.9078	0.9399		2.07	2.00	3.5	30.0
11-Chloroeicosafluoro-3-oxau ndecane-1-sulfonate	Ave	2.131	1.987		1.76	1.88	-6.7	30.0
Perfluorododecanoic acid	Ave	0.4456	0.4645		2.08	2.00	4.2	30.0
Perfluorotridecanoic acid	Ave	0.3452	0.3399		1.97	2.00	-1.5	30.0
Perfluorotetradecanoic acid	Ave	0.0888	0.0908		2.05	2.00	2.3	30.0
13C2 PFHxA	Ave	1.166	1.133		2.43	2.50	-2.8	30.0
13C2 PFDA	Ave	0.6210	0.6330		2.55	2.50	1.9	30.0

Chromatogram

TPFOA EXP1



Chrom

Printed: 4/4/2019 4:39:35 PM

Eurofins TestAmerica, Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_013.d
Lims ID: ICV
Client ID:
Sample Type: ICV
Inject. Date: 04-Apr-2019 16:48:50 ALS Bottle#: 9 Worklist Smp#: 12
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: ICV
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist:

Method: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 04-Apr-2019 17:04:16 Calib Date: 04-Apr-2019 16:11:08
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: CTX0339

First Level Reviewer: Ex. 4 CBI Date: 04-Apr-2019 17:03:53
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	2.008	1.992	0.016	1.000	2838977	1.76	Target=1.41	15010	
298.90 > 99.00	2.008	1.992	0.016	1.000	1958606		1.45(0.00-0.00)	905	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.347	2.347	0.0	0.734	2858326	1.98	Target=10.46	797	
313.00 > 119.00	2.347	2.347	0.0	0.734	274268		10.42(0.00-0.00)	399	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.372	2.347	0.025	1.000	3664104	2.43		5948	
22 Perfluoro(2-propoxypropanoic) acid									
329.10 > 285.00	2.490	2.478	0.012	1.000	626709	1.79		412	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.490	2.481	0.009	1.000	187259	2.76		1253	
4 Perfluoroheptanoic acid									
363.00 > 319.00	2.798	2.780	0.018	1.000	2873367	2.10	Target=2.41	308	
363.00 > 169.00	2.778	2.780	-0.002	0.993	1220938		2.35(0.00-0.00)	2105	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	2.798	2.792	0.006	1.000	3571852	1.83	Target=2.91	3173	
399.00 > 99.00	2.798	2.792	0.006	1.000	1210644		2.95(0.00-0.00)	503	
24 DONA									
377.00 > 251.00	2.840	2.825	0.015	1.000	6299514	1.69	Target=1.54	9871	
377.00 > 85.00	2.819	2.825	-0.006	0.993	4063218		1.55(0.00-0.00)	399376	
* 5 13C2 PFOA									
415.00 > 370.00	3.196	3.186	0.010		3235073	2.50		8607	
6 Perfluorooctanoic acid									
413.00 > 369.00	3.196	3.186	0.010	1.000	2643606	2.01	Target=1.70	317	
413.00 > 169.00	3.196	3.186	0.010	1.000	1508246		1.75(0.00-0.00)	1807	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
* 7 13C4 PFOS									
503.00 > 80.00	3.554	3.562	-0.008		3261224	2.39		5155	
8 Perfluorooctanesulfonic acid									
499.00 > 80.00	3.554	3.564	-0.010	1.000	2732920	1.90	Target=4.63	4587	
499.00 > 99.00	3.554	3.564	-0.010	1.000	593444		4.61(0.00-0.00)	473	
9 Perfluorononanoic acid									
463.00 > 419.00	3.569	3.577	-0.008	1.000	1945104	2.03	Target=3.78	1086	
463.00 > 169.00	3.569	3.577	-0.008	1.000	515703		3.77(0.00-0.00)	3024	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.755	3.755	0.0	1.000	3859116	1.66		7672	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.919	3.915	0.004	1.000	1541910	2.04	Target=4.93	610	
513.00 > 169.00	3.919	3.915	0.004	1.000	314723		4.90(0.00-0.00)	909	
$ 10 13C2 PFDA									
515.00 > 470.00	3.919	3.931	-0.012	1.000	2047628	2.55		5491	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.094	4.091	0.003		504834	2.50		2566	
15 N-methylperfluorooctanesulfonamido									
570.00 > 419.00	4.094	4.091	0.003	1.000	389140	2.06		2816	
17 Perfluoroundecanoic acid									
563.00 > 519.00	4.238	4.236	0.002	1.000	1177050	2.05	Target=4.73	611	
563.00 > 169.00	4.238	4.236	0.002	1.000	252408		4.66(0.00-0.00)	2945	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.238	4.243	-0.005	1.035	512298	2.48		347	
16 N-ethylperfluorooctanesulfonamidoa									
584.00 > 419.00	4.254	4.252	0.002	1.004	379596	2.07		2934	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.360	4.369	-0.009	1.000	5108499	1.76		15011	
18 Perfluorododecanoic acid									
613.00 > 569.00	4.512	4.508	0.004	1.000	1202200	2.08	Target=3.49	838	
613.00 > 169.00	4.512	4.508	0.004	1.000	346198		3.47(0.00-0.00)	3431	
19 Perfluorotridecanoic acid									
663.00 > 619.00	4.780	4.772	0.008	1.000	879782	1.97	Target=2.87	336	
663.00 > 169.00	4.780	4.772	0.008	1.000	304936		2.89(0.00-0.00)	1957	
20 Perfluorotetradecanoic acid									
713.00 > 169.00	4.993	4.985	0.008	1.000	235108	2.05	Target=1.40	2008	
713.00 > 219.00	4.993	4.985	0.008	1.000	168162		1.40(0.00-0.00)	1148	

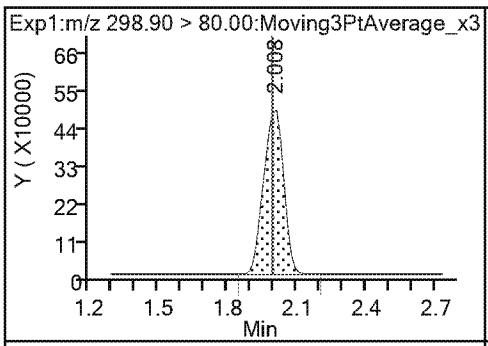
Reagents:

LC537_NC_ICV_00003 Amount Added: 1.00 Units: mL

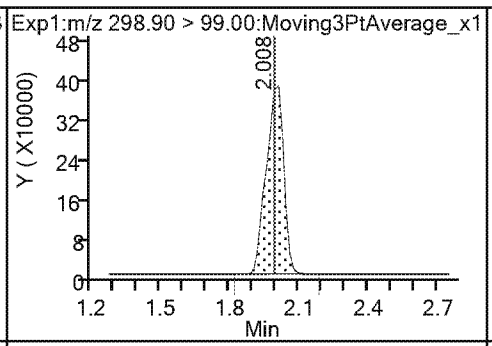
Eurofins TestAmerica, Sacramento

Data File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_013.d
Injection Date: 04-Apr-2019 16:48:50 Instrument ID: A8_N
Lims ID: ICV
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 9 Worklist Smp#: 12
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

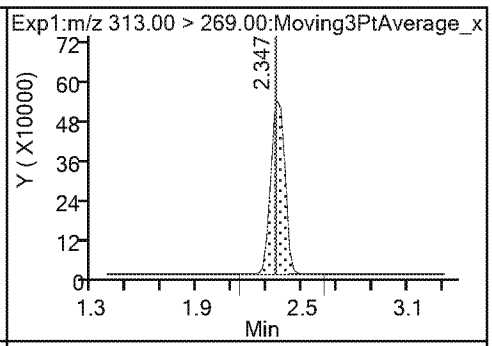
1 Perfluorobutanesulfonic acid



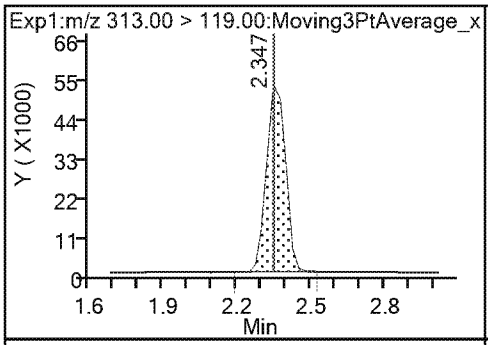
1 Perfluorobutanesulfonic acid



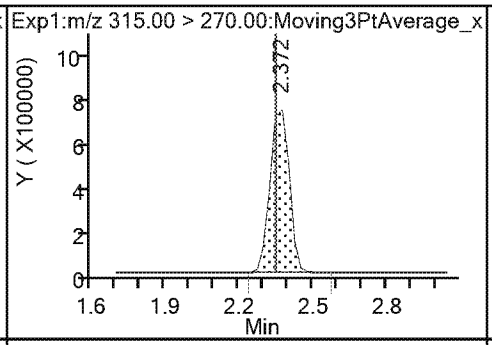
13 Perfluorohexanoic acid



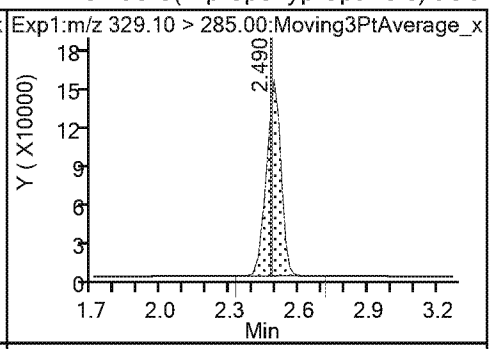
13 Perfluorohexanoic acid



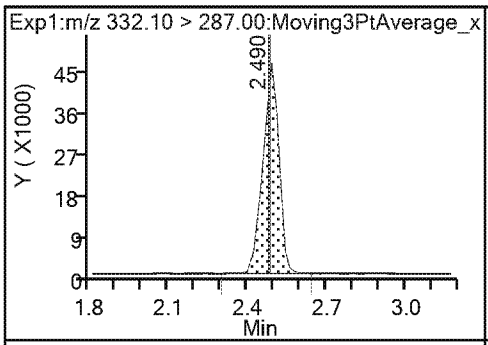
$ 2 13C2 PFHxA



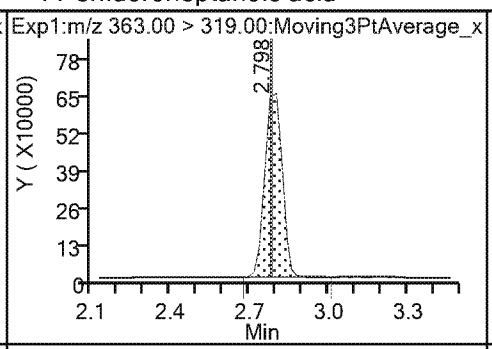
22 Perfluoro(2-propoxypropanoic) acid



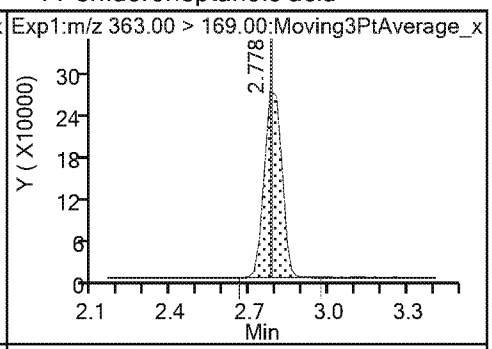
$ 25 13C3 HFPO-DA



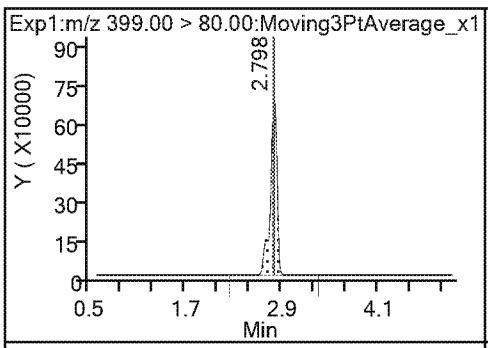
4 Perfluoroheptanoic acid



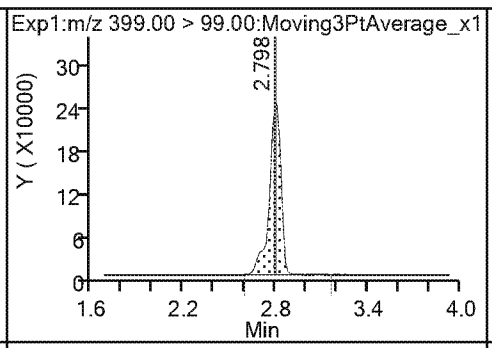
4 Perfluoroheptanoic acid



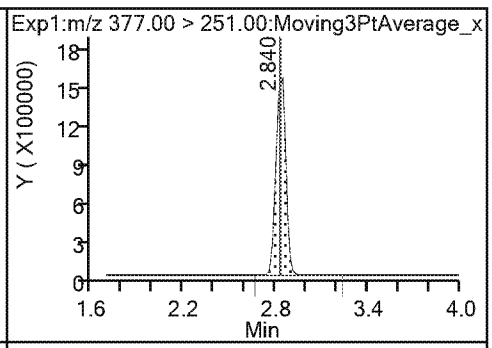
3 Perfluorohexanesulfonic acid



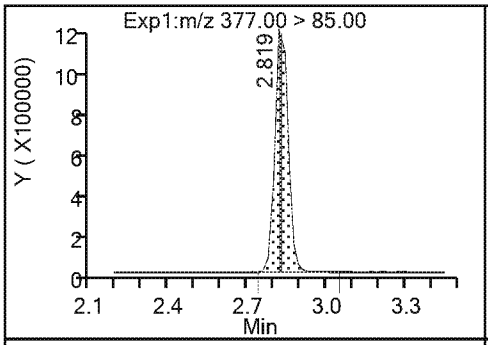
3 Perfluorohexanesulfonic acid



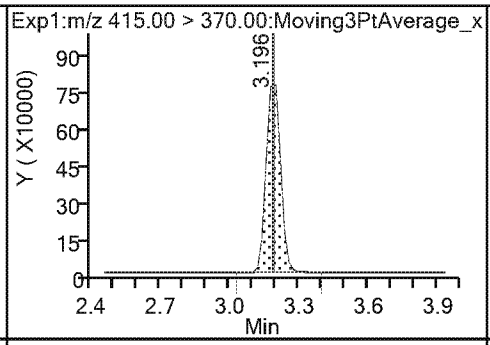
24 DONA



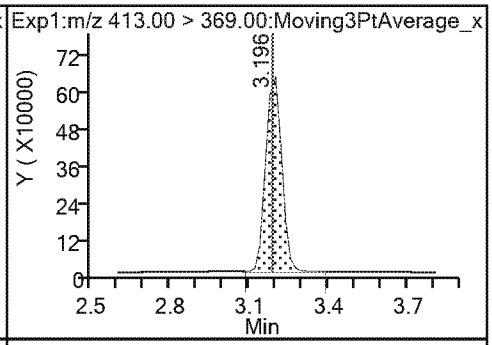
24 DONA



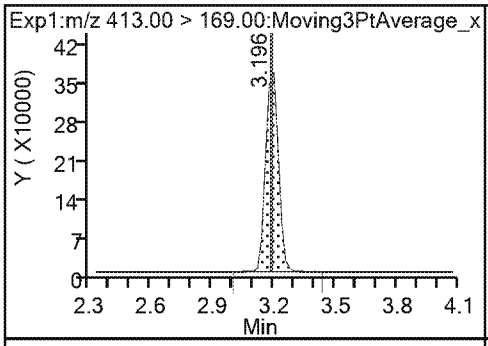
* 5 13C2 PFOA



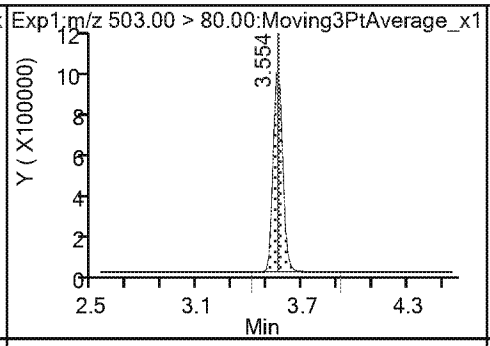
6 Perfluorooctanoic acid



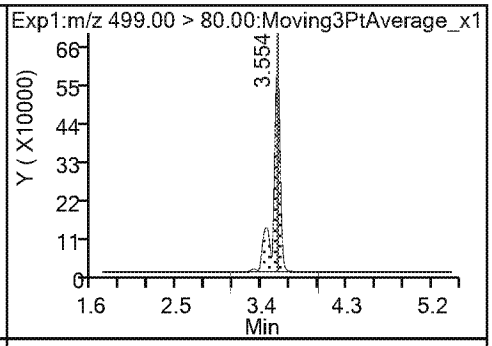
6 Perfluorooctanoic acid



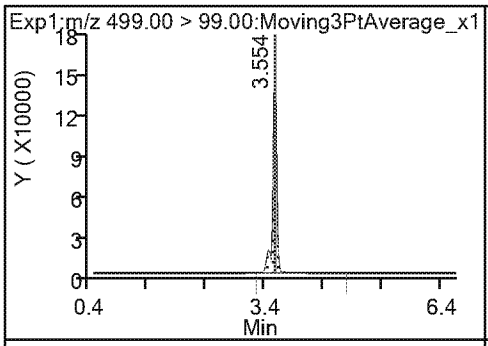
* 7 13C4 PFOS



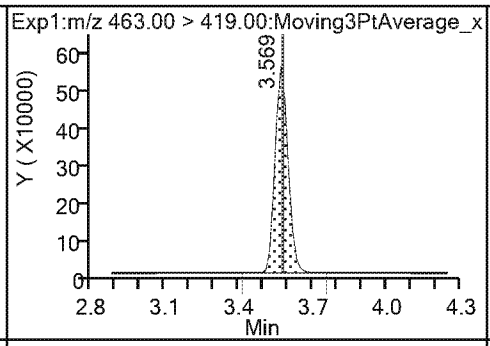
8 Perfluorooctanesulfonic acid



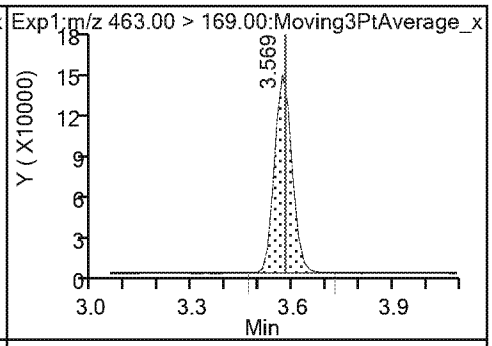
8 Perfluorooctanesulfonic acid



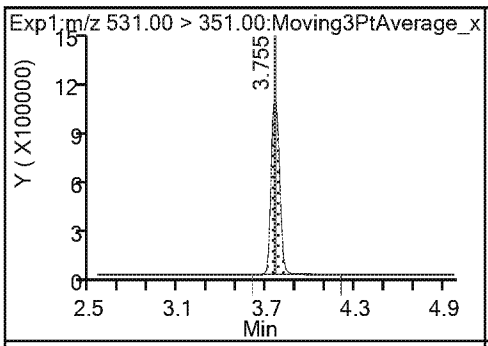
9 Perfluorononanoic acid



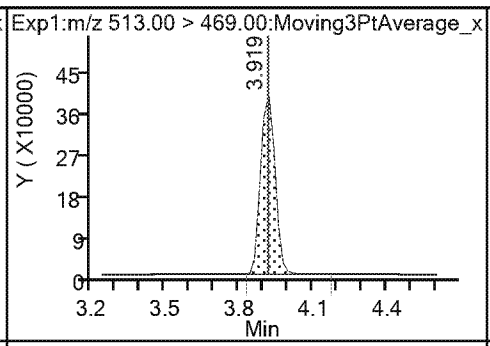
9 Perfluorononanoic acid



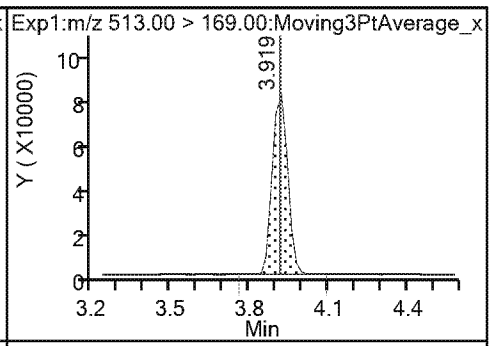
23 9-Chlorohexadecafluoro-3-oxanonane



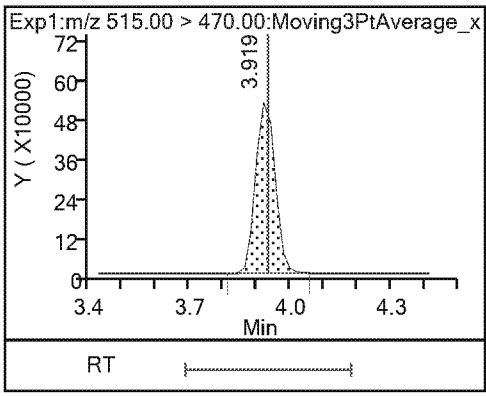
14 Perfluorodecanoic acid



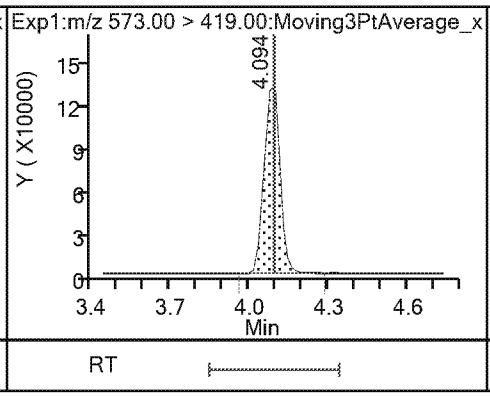
14 Perfluorodecanoic acid



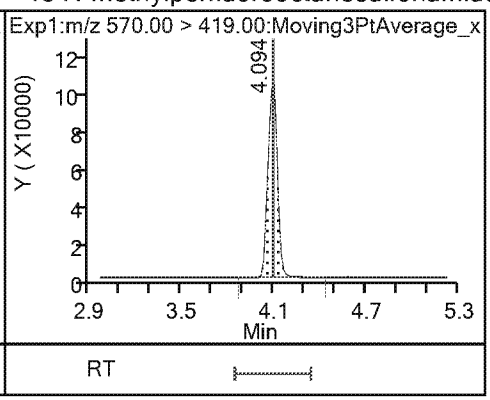
$ 10 13C2 PFDA



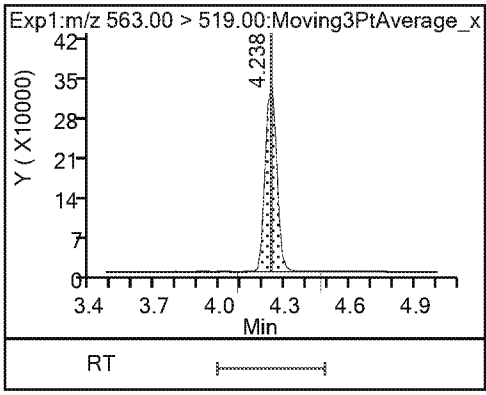
* 12 d3-NMeFOSAA



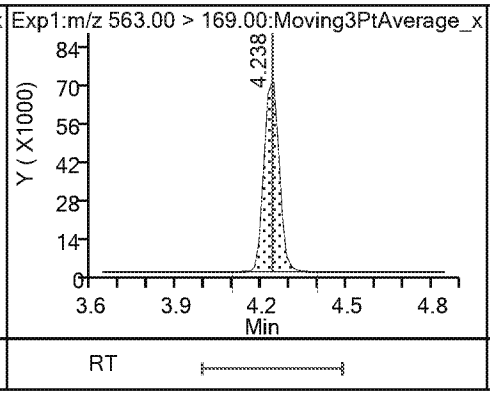
15 N-methylperfluorooctanesulfonamido



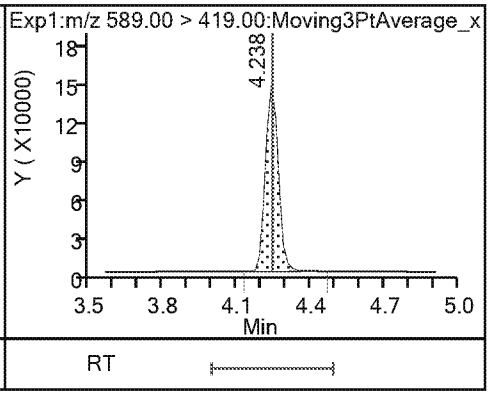
17 Perfluoroundecanoic acid



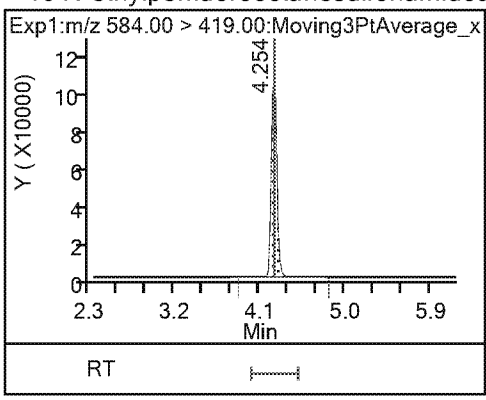
17 Perfluoroundecanoic acid



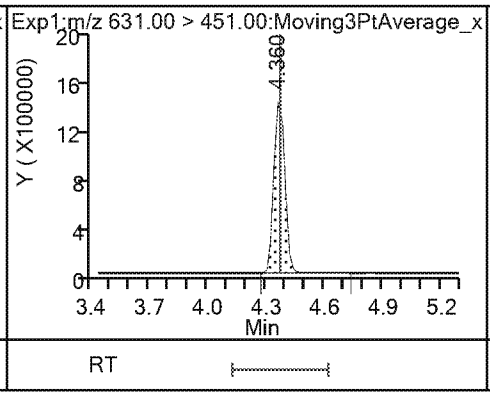
$ 11 d5-NEtFOSAA



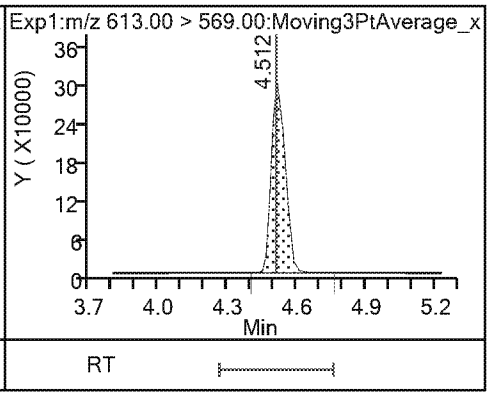
16 N-ethylperfluorooctanesulfonamidoa



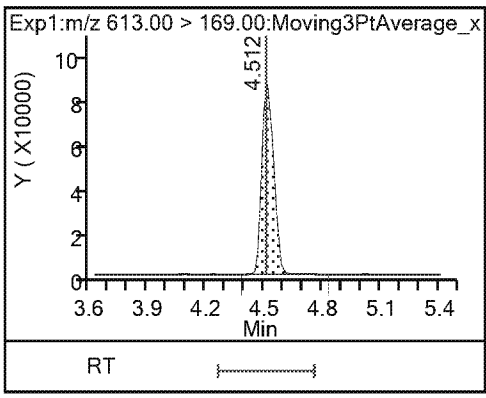
21 11-Chloroeicosafluoro-3-oxaundecan



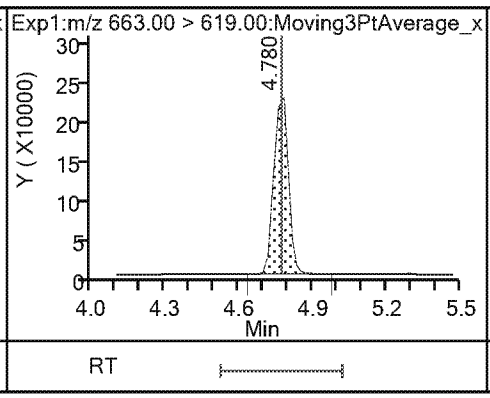
18 Perfluorododecanoic acid



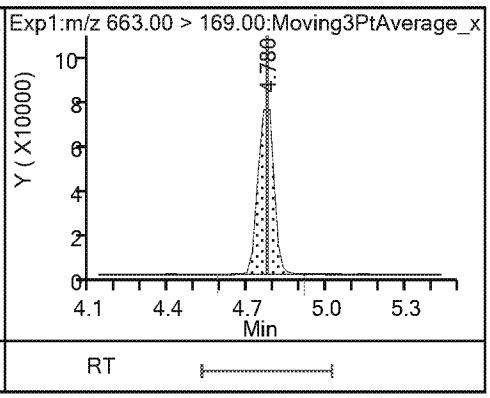
18 Perfluorododecanoic acid



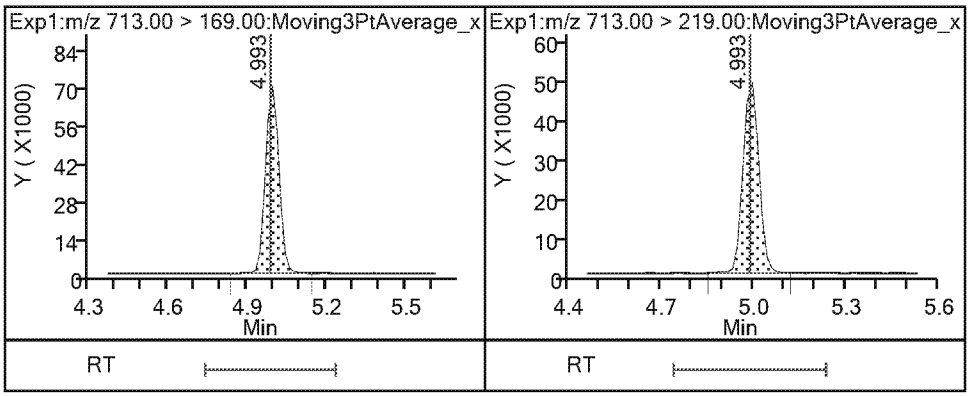
19 Perfluorotridecanoic acid



19 Perfluorotridecanoic acid



20 Perfluorotetradecanoic acid 20 Perfluorotetradecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Lab Sample ID: CCV 320-286182/1 Calibration Date: 04/04/2019 19:10

Instrument ID: A8_N Calib Start Date: 04/04/2019 15:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 04/04/2019 16:11

Lab File ID: 2019.04.04_537AA_005.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid	Ave	1.181	1.184		0.886	0.884	0.3	30.0
Perfluorohexanoic acid	Ave	1.113	1.067		0.959	1.00	-4.1	30.0
Perfluoro(2-propoxypropanoic) acid	Ave	0.2705	0.2802		1.04	1.00	3.6	30.0
Perfluoroheptanoic acid	Ave	1.060	1.051		0.992	1.00	-0.8	30.0
Perfluorohexanesulfonic acid	Ave	1.433	1.458		0.926	0.910	1.8	30.0
DONA	Ave	2.887	2.947		0.962	0.942	2.1	30.0
Perfluorooctanoic acid	Ave	1.014	1.023		1.01	1.00	0.8	30.0
Perfluorooctanesulfonic acid	Ave	1.056	1.025		0.900	0.928	-3.0	30.0
Perfluorononanoic acid	Ave	0.7390	0.7601		1.03	1.00	2.9	30.0
9-Chlorohexadecafluoro-3-oxa nonane-1-sulfonate	Ave	1.700	1.742		0.955	0.932	2.5	30.0
Perfluorodecanoic acid	Ave	0.5850	0.5791		0.990	1.00	-1.0	30.0
N-methylperfluorooctanesulfo namidoacetic acid	Ave	0.9362	0.8686		0.928	1.00	-7.2	30.0
Perfluoroundecanoic acid	Ave	0.4445	0.4438		0.998	1.00	-0.2	30.0
N-ethylperfluorooctanesulfon amidoacetic acid	Ave	0.9078	0.8551		0.942	1.00	-5.8	30.0
11-Chloroeicosafluoro-3-oxau ndecane-1-sulfonate	Ave	2.131	2.130		0.942	0.942	-0.0	30.0
Perfluorododecanoic acid	Ave	0.4456	0.4368		0.980	1.00	-2.0	30.0
Perfluorotridecanoic acid	Ave	0.3452	0.3262		0.945	1.00	-5.5	30.0
Perfluorotetradecanoic acid	Ave	0.0888	0.0877		0.987	1.00	-1.3	30.0
13C2 PFHxA	Ave	1.166	1.183		2.54	2.50	1.5	30.0
13C2 PFDA	Ave	0.6210	0.6342		2.55	2.50	2.1	30.0

Eurofins TestAmerica, Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190404-74319.b\2019.04.04_537AA_005.d
Lims ID: CCV L4
Client ID:
Sample Type: CCVIS
Inject. Date: 04-Apr-2019 19:10:49 ALS Bottle#: 30 Worklist Smp#: 1
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: CCV L4
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub13

Method: \\chromna\Sacramento\ChromData\A8_N\20190404-74319.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Apr-2019 11:24:35 Calib Date: 04-Apr-2019 16:11:08
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: CTX0314

First Level Reviewer: Ex. 4 CBI Date: 05-Apr-2019 10:54:05
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.992	1.992	0.0	1.000	1286904	0.8865	Target=1.41	8246	
298.90 > 99.00	1.992	1.992	0.0	1.000	868190		1.48(0.00-0.00)	372	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.347	2.347	0.0	0.739	1253829	0.9590	Target=10.46	326	
313.00 > 119.00	2.347	2.347	0.0	0.739	119853		10.46(0.00-0.00)	152	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.347	2.347	0.0	1.000	3474951	2.54		6640	
22 Perfluoro(2-propoxypropanoic) acid									
329.10 > 285.00	2.474	2.474	0.0	1.000	329148	1.04		173	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.474	2.474	0.0	1.000	155354	2.53		977	
4 Perfluoroheptanoic acid									
363.00 > 319.00	2.778	2.778	0.0	1.000	1234991	0.99	Target=2.41	130	
363.00 > 169.00	2.778	2.778	0.0	1.000	528611		2.34(0.00-0.00)	1129	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	2.778	2.778	0.0	1.000	1631096	0.9261	Target=2.91	1767	
399.00 > 99.00	2.778	2.778	0.0	1.000	536237		3.04(0.00-0.00)	238	
24 DONA									
377.00 > 251.00	2.819	2.819	0.0	1.000	3261175	0.9616	Target=1.54	4902	
377.00 > 85.00	2.819	2.819	0.0	1.000	2047648		1.59(0.00-0.00)	220470	
* 5 13C2 PFOA									
415.00 > 370.00	3.177	3.177	0.0		2937146	2.50		7825	
6 Perfluorooctanoic acid									
413.00 > 369.00	3.177	3.177	0.0	1.000	1201299	1.01	Target=1.70	157	
413.00 > 169.00	3.177	3.177	0.0	1.000	698124		1.72(0.00-0.00)	940	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
* 7 13C4 PFOS									
503.00 > 80.00	3.550	3.550	0.0		2937469	2.39		12032	
8 Perfluorooctanesulfonic acid									
499.00 > 80.00	3.550	3.564	-0.014	1.000	1168921	0.9003	Target=4.63	1566	
499.00 > 99.00	3.550	3.564	-0.014	1.000	252117		4.64(0.00-0.00)	256	
9 Perfluorononanoic acid									
463.00 > 419.00	3.565	3.565	0.0	1.000	893019	1.03	Target=3.78	562	
463.00 > 169.00	3.565	3.565	0.0	1.000	238987		3.74(0.00-0.00)	1921	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.752	3.752	0.0	1.000	1995461	0.9553		3214	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.915	3.915	0.0	1.000	680386	0.9899	Target=4.93	300	
513.00 > 169.00	3.915	3.915	0.0	1.000	148682		4.58(0.00-0.00)	527	
$ 10 13C2 PFDA									
515.00 > 470.00	3.915	3.915	0.0	1.000	1862623	2.55		8236	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.074	4.074	0.0		453116	2.50		1901	
15 N-methylperfluorooctanesulfonamido									
570.00 > 419.00	4.090	4.090	0.0	1.004	157430	0.9278		1582	
17 Perfluoroundecanoic acid									
563.00 > 519.00	4.218	4.218	0.0	1.000	521372	1.00	Target=4.73	247	
563.00 > 169.00	4.218	4.218	0.0	1.000	110425		4.72(0.00-0.00)	890	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.234	4.234	0.0	1.039	451597	2.44		290	
16 N-ethylperfluorooctanesulfonamidoa									
584.00 > 419.00	4.234	4.234	0.0	1.000	154988	0.9419		422	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.356	4.356	0.0	1.000	2465815	0.9416		9255	
18 Perfluorododecanoic acid									
613.00 > 569.00	4.508	4.508	0.0	1.000	513150	0.9802	Target=3.49	373	
613.00 > 169.00	4.492	4.508	-0.016	0.997	148054		3.47(0.00-0.00)	1336	
19 Perfluorotridecanoic acid									
663.00 > 619.00	4.757	4.757	0.0	1.000	383177	0.9449	Target=2.87	153	
663.00 > 169.00	4.757	4.757	0.0	1.000	141510		2.71(0.00-0.00)	1194	
20 Perfluorotetradecanoic acid									
713.00 > 169.00	4.973	4.973	0.0	1.000	102973	0.9873	Target=1.40	1679	
713.00 > 219.00	4.973	4.973	0.0	1.000	73936		1.39(0.00-0.00)	577	

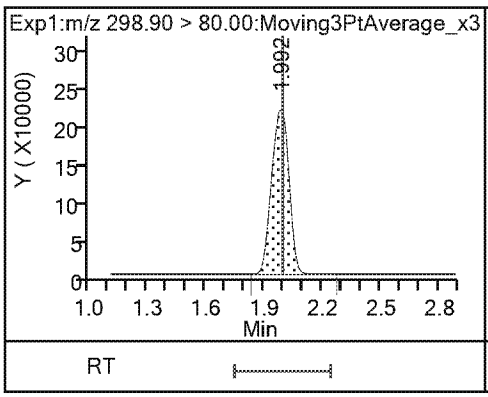
Reagents:

LC537_NC_L4_00003 Amount Added: 1.00 Units: mL

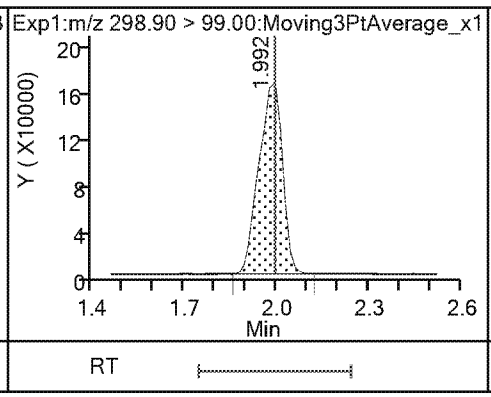
Eurofins TestAmerica, Sacramento

Data File: \\chromna\Sacramento\ChromData\A8_N\20190404-74319.b\2019.04.04_537AA_005.d
Injection Date: 04-Apr-2019 19:10:49 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 30 Worklist Smp#: 1
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

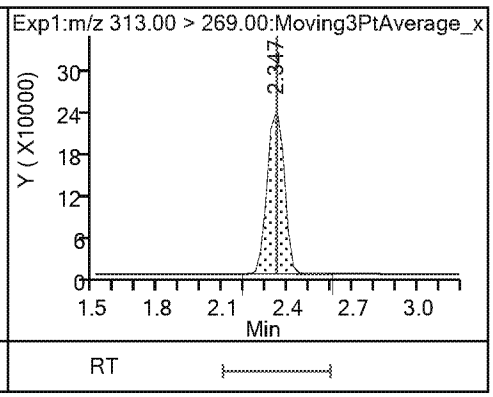
1 Perfluorobutanesulfonic acid



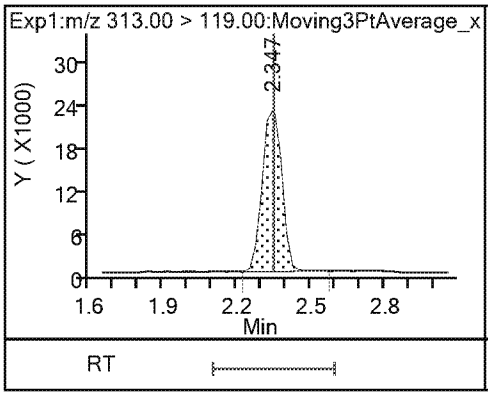
1 Perfluorobutanesulfonic acid



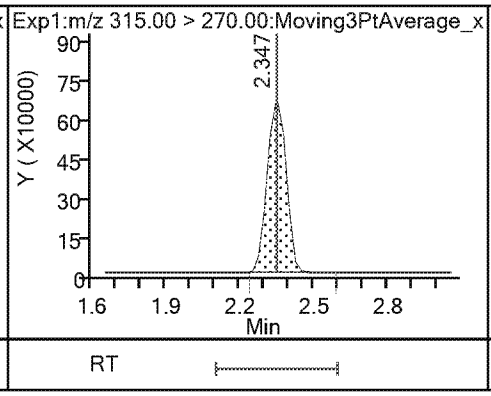
13 Perfluorohexanoic acid



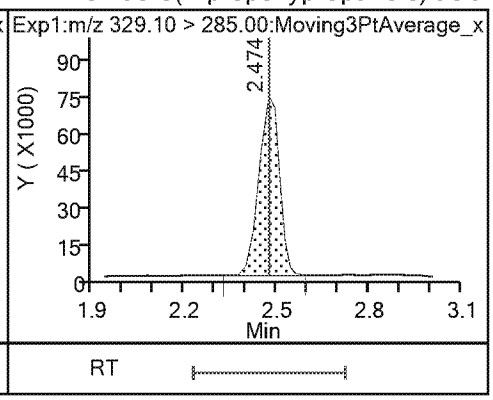
13 Perfluorohexanoic acid



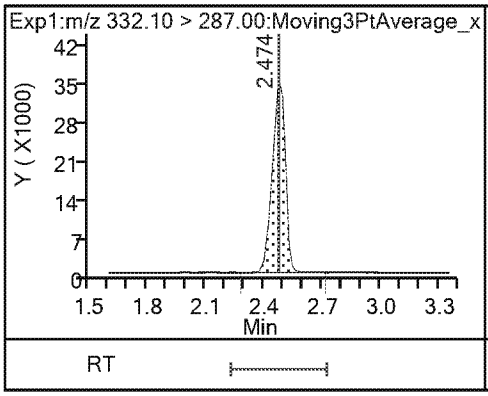
$ 2 13C2 PFHxA



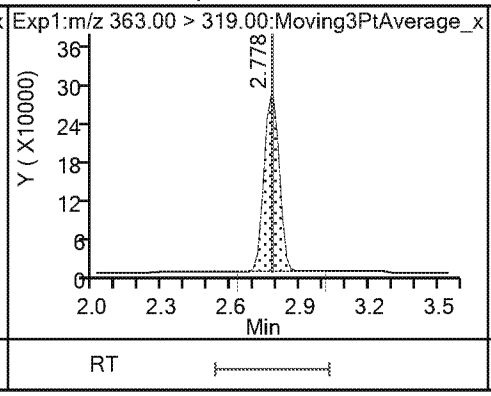
22 Perfluoro(2-propoxypropanoic) acid



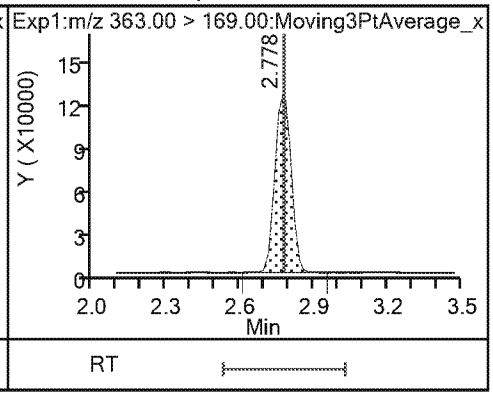
$ 25 13C3 HFPO-DA



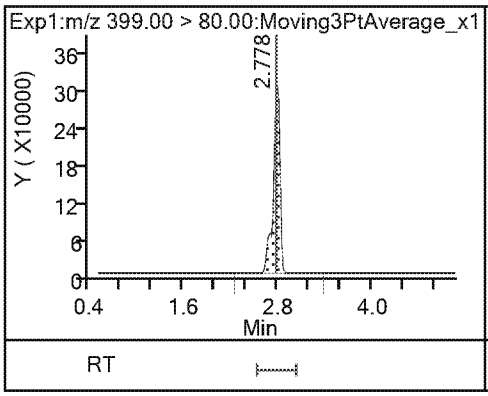
4 Perfluoroheptanoic acid



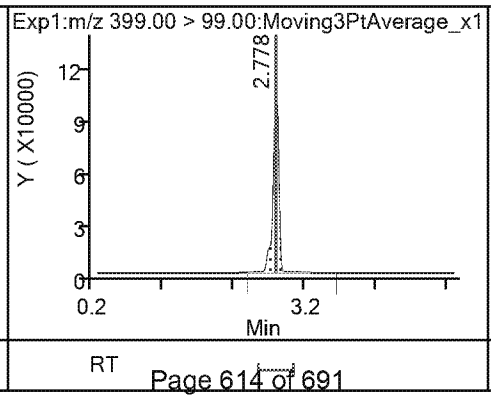
4 Perfluoroheptanoic acid



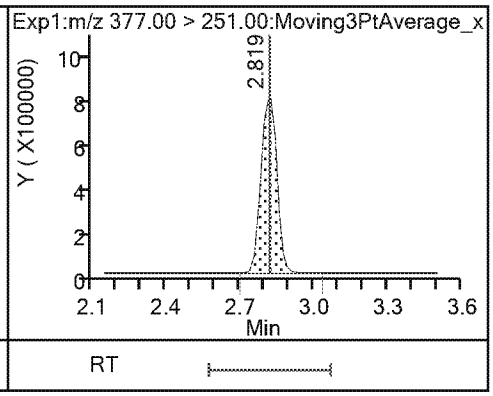
3 Perfluorohexanesulfonic acid



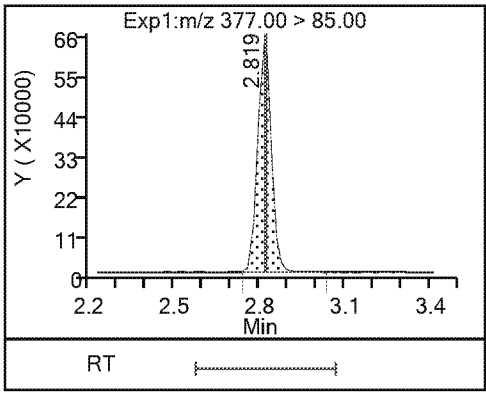
3 Perfluorohexanesulfonic acid



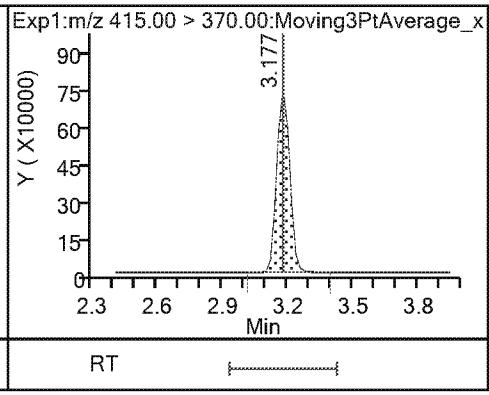
24 DONA



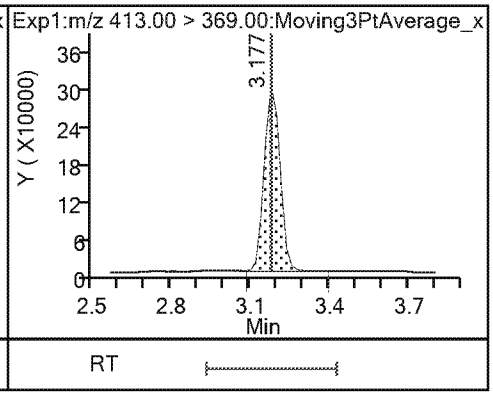
24 DONA



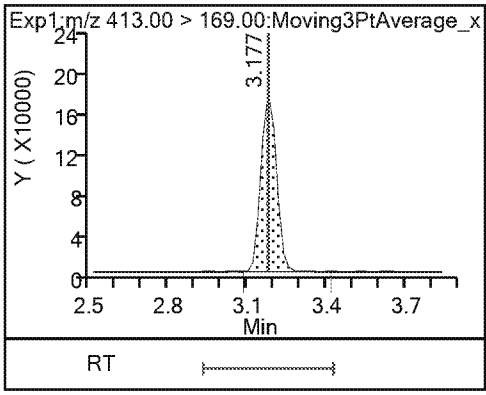
* 5 13C2 PFOA



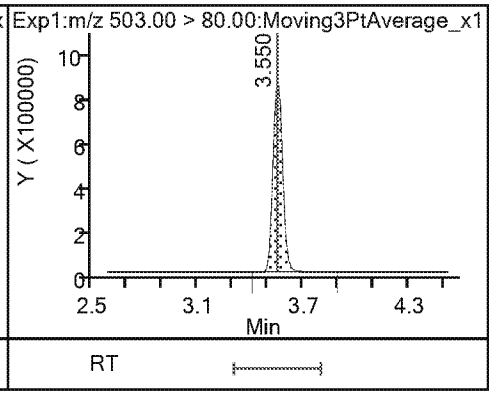
6 Perfluorooctanoic acid



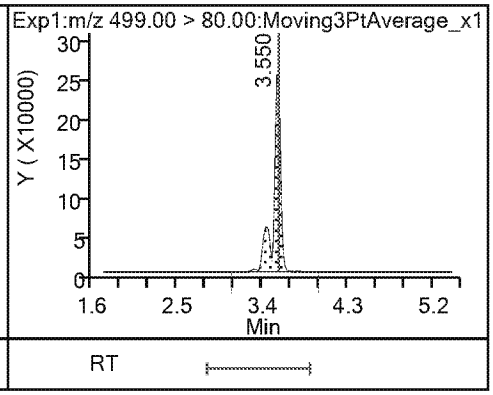
6 Perfluorooctanoic acid



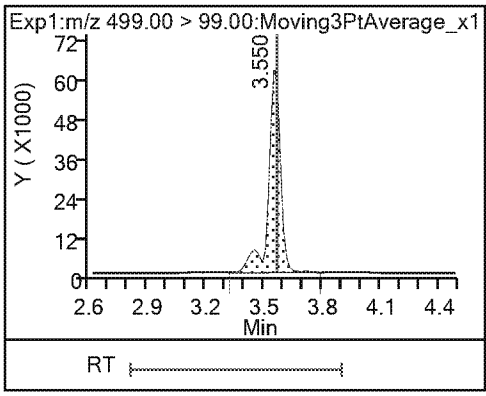
* 7 13C4 PFOS



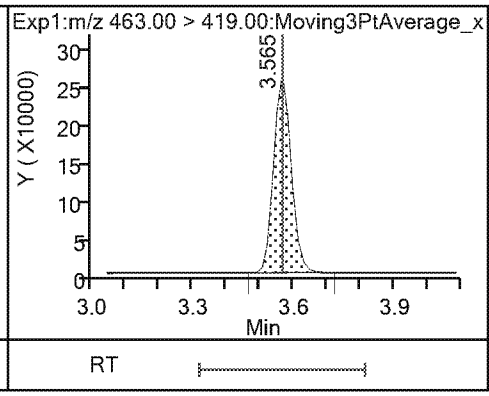
8 Perfluorooctanesulfonic acid



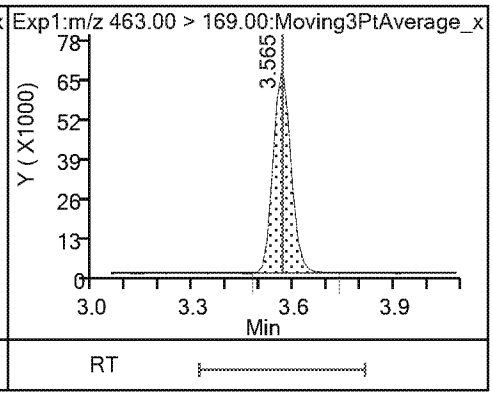
8 Perfluorooctanesulfonic acid



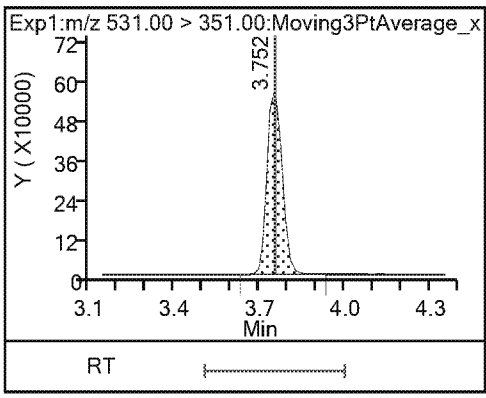
9 Perfluorononanoic acid



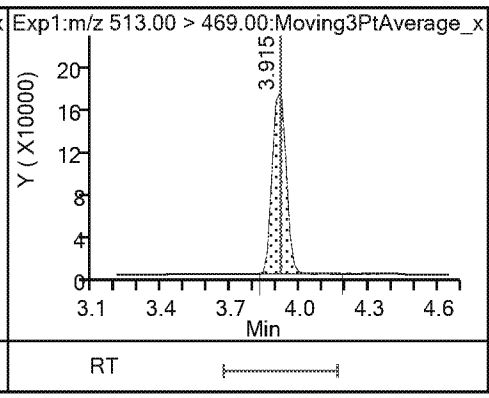
9 Perfluorononanoic acid



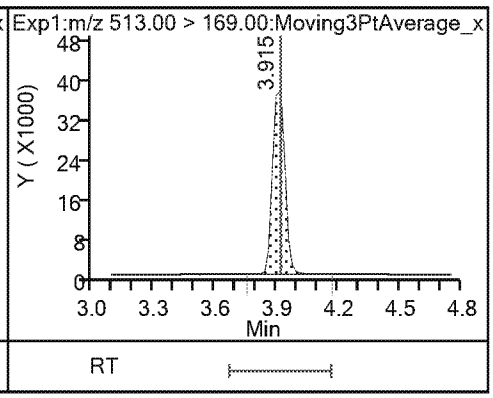
23 9-Chlorohexadecafluoro-3-oxanonane



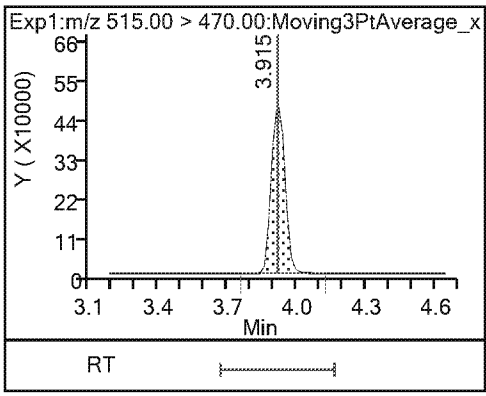
14 Perfluorodecanoic acid



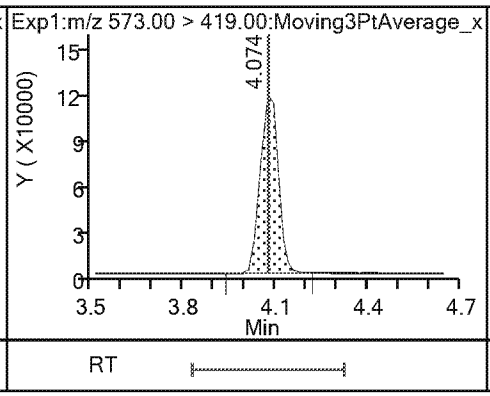
14 Perfluorodecanoic acid



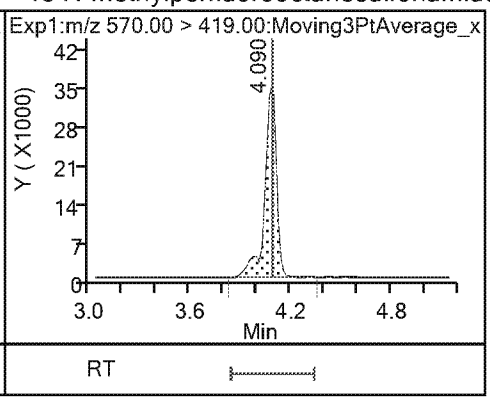
$ 10 13C2 PFDA



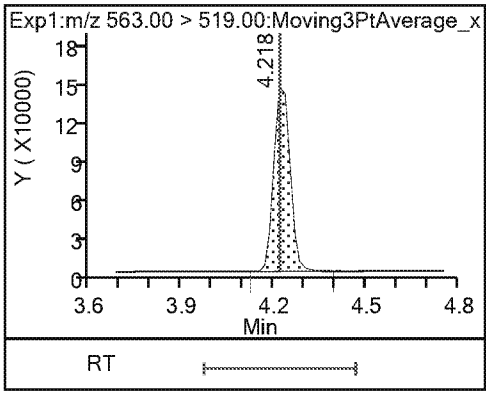
* 12 d3-NMeFOSAA



15 N-methylperfluorooctanesulfonamido



17 Perfluoroundecanoic acid



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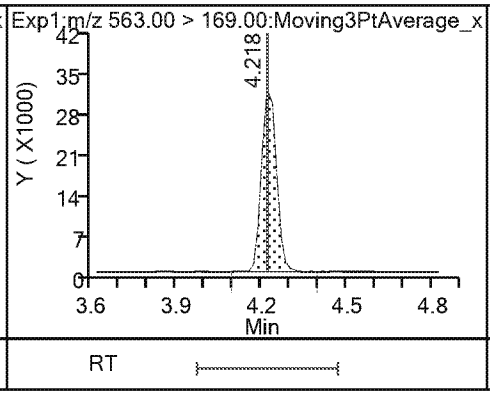
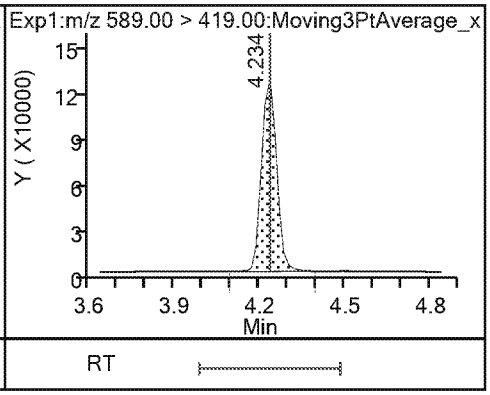
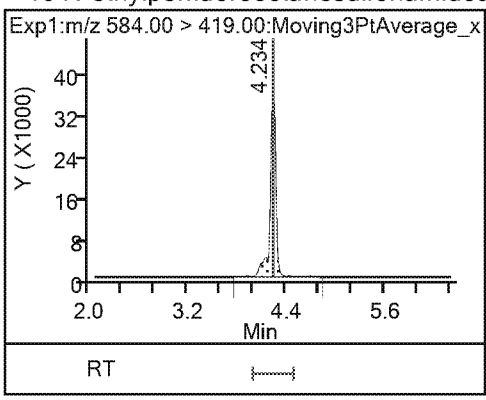


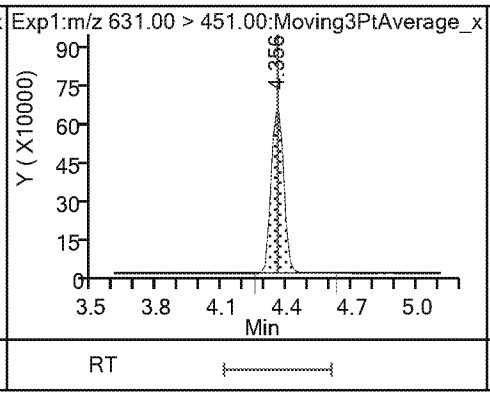
$ 11 d5-NEtFOSAA



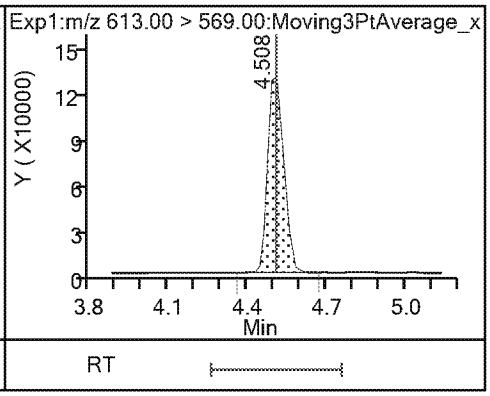
16 N-ethylperfluorooctanesulfonamidoa



21 11-Chloroeicosafluoro-3-oxaundecan



18 Perfluorododecanoic acid



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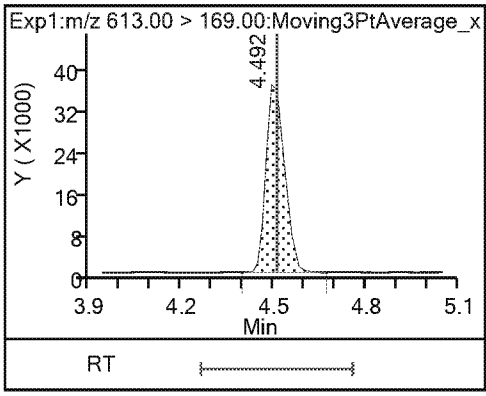
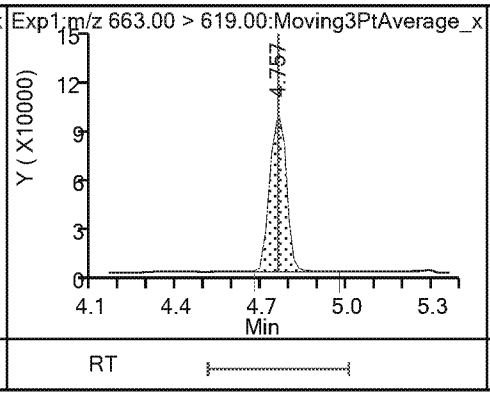
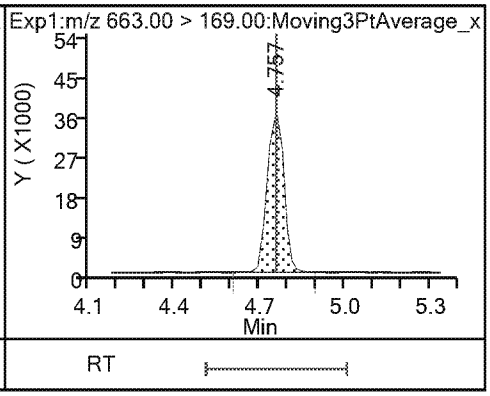


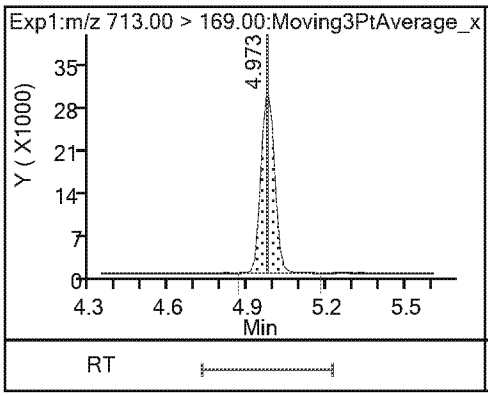
19 Perfluorotridecanoic acid



19 Perfluorotridecanoic acid



20 Perfluorotetradecanoic acid



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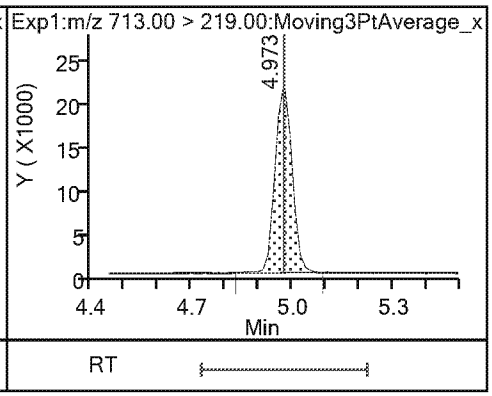


FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Lab Sample ID: CCV 320-286182/8 Calibration Date: 04/04/2019 20:17

Instrument ID: A8_N Calib Start Date: 04/04/2019 15:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 04/04/2019 16:11

Lab File ID: 2019.04.04_537AA_012.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid	Ave	1.181	1.276		4.78	4.42	8.0	30.0
Perfluorohexanoic acid	Ave	1.113	1.093		4.91	5.00	-1.8	30.0
Perfluoro(2-propoxypropanoic) acid	Ave	0.2705	0.2748		5.08	5.00	1.6	30.0
Perfluoroheptanoic acid	Ave	1.060	1.068		5.04	5.00	0.8	30.0
Perfluorohexanesulfonic acid	Ave	1.433	1.548		4.92	4.55	8.1	30.0
DONA	Ave	2.887	2.958		4.83	4.71	2.5	30.0
Perfluorooctanoic acid	Ave	1.014	1.041		5.13	5.00	2.6	30.0
Perfluorooctanesulfonic acid	Ave	1.056	1.079		4.74	4.64	2.1	30.0
Perfluorononanoic acid	Ave	0.7390	0.7410		5.01	5.00	0.3	30.0
9-Chlorohexadecafluoro-3-oxa nonane-1-sulfonate	Ave	1.700	1.842		5.05	4.66	8.4	30.0
Perfluorodecanoic acid	Ave	0.5850	0.6009		5.14	5.00	2.7	30.0
N-methylperfluorooctanesulfo namidoacetic acid	Ave	0.9362	0.9363		5.00	5.00	0.0	30.0
N-ethylperfluorooctanesulfon amidoacetic acid	Ave	0.9078	0.8885		4.89	5.00	-2.1	30.0
Perfluoroundecanoic acid	Ave	0.4445	0.4400		4.95	5.00	-1.0	30.0
11-Chloroeicosafluoro-3-oxau ndecane-1-sulfonate	Ave	2.131	2.272		5.02	4.71	6.6	30.0
Perfluorododecanoic acid	Ave	0.4456	0.4088		4.59	5.00	-8.3	30.0
Perfluorotridecanoic acid	Ave	0.3452	0.3252		4.71	5.00	-5.8	30.0
Perfluorotetradecanoic acid	Ave	0.0888	0.0868		4.89	5.00	-2.3	30.0
13C2 PFHxA	Ave	1.166	1.155		2.48	2.50	-0.9	30.0
13C2 PFDA	Ave	0.6210	0.6171		2.48	2.50	-0.6	30.0

Eurofins TestAmerica, Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190404-74319.b\2019.04.04_537AA_012.d
Lims ID: CCV L6
Client ID:
Sample Type: CCVIS
Inject. Date: 04-Apr-2019 20:17:09 ALS Bottle#: 31 Worklist Smp#: 8
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: CCV L6
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub13

Method: \\chromna\Sacramento\ChromData\A8_N\20190404-74319.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Apr-2019 11:24:44 Calib Date: 04-Apr-2019 16:11:08
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: CTX0314

First Level Reviewer: Ex. 4 CBI Date: 05-Apr-2019 10:54:26
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.976	1.976	0.0	1.000	6555452	4.78	Target=1.41	40056	
298.90 > 99.00	1.976	1.976	0.0	1.000	4451289		1.47(0.00-0.00)	1946	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.323	2.323	0.0	0.731	6368637	4.91	Target=10.46	1473	
313.00 > 119.00	2.323	2.323	0.0	0.731	588772		10.82(0.00-0.00)	677	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.348	2.348	0.0	1.000	3364774	2.48		7687	
22 Perfluoro(2-propoxypropanoic) acid									
329.10 > 285.00	2.474	2.474	0.0	1.000	1600717	5.08		781	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.474	2.474	0.0	1.000	161660	2.65		882	
4 Perfluoroheptanoic acid									
363.00 > 319.00	2.775	2.775	0.0	1.000	6223503	5.04	Target=2.41	579	
363.00 > 169.00	2.775	2.775	0.0	1.000	2569794		2.42(0.00-0.00)	3959	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	2.775	2.775	0.0	1.000	8189000	4.92	Target=2.91	3941	
399.00 > 99.00	2.775	2.775	0.0	1.000	2743121		2.99(0.00-0.00)	985	
24 DONA									
377.00 > 251.00	2.816	2.816	0.0	1.000	16231195	4.83	Target=1.54	11782	
377.00 > 85.00	2.816	2.816	0.0	1.000	10189358		1.59(0.00-0.00)	583590	
* 5 13C2 PFOA									
415.00 > 370.00	3.176	3.176	0.0		2912806	2.50		7173	
6 Perfluorooctanoic acid									
413.00 > 369.00	3.176	3.176	0.0	1.000	6065429	5.13	Target=1.70	758	
413.00 > 169.00	3.176	3.176	0.0	1.000	3491110		1.74(0.00-0.00)	3089	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
* 7 13C4 PFOS									
503.00 > 80.00	3.545	3.545	0.0		2777861	2.39		5870	
8 Perfluorooctanesulfonic acid									
499.00 > 80.00	3.545	3.564	-0.019	1.000	5818567	4.74	Target=4.63	3458	
499.00 > 99.00	3.545	3.564	-0.019	1.000	1223831		4.75(0.00-0.00)	1174	
9 Perfluorononanoic acid									
463.00 > 419.00	3.560	3.560	0.0	1.000	4316725	5.01	Target=3.78	2453	
463.00 > 169.00	3.545	3.560	-0.015	0.996	1107210		3.90(0.00-0.00)	5285	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.733	3.733	0.0	1.000	9976377	5.05		11203	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.890	3.890	0.0	1.000	3500591	5.14	Target=4.93	1385	
513.00 > 169.00	3.890	3.890	0.0	1.000	693138		5.05(0.00-0.00)	2147	
$ 10 13C2 PFDA									
515.00 > 470.00	3.909	3.909	0.0	1.000	1797566	2.48		9120	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.068	4.068	0.0		433692	2.50		2789	
15 N-methylperfluorooctanesulfonamido									
570.00 > 419.00	4.068	4.068	0.0	1.000	812108	5.00		1977	
17 Perfluoroundecanoic acid									
563.00 > 519.00	4.219	4.219	0.0	1.000	2563239	4.95	Target=4.73	1136	
563.00 > 169.00	4.219	4.219	0.0	1.000	555012		4.62(0.00-0.00)	3472	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.219	4.219	0.0	1.037	461408	2.60		330	
16 N-ethylperfluorooctanesulfonamidoa									
584.00 > 419.00	4.219	4.219	0.0	1.000	770650	4.89		4429	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.338	4.338	0.0	1.000	12439415	5.02		13126	
18 Perfluorododecanoic acid									
613.00 > 569.00	4.493	4.493	0.0	1.000	2381544	4.59	Target=3.49	1570	
613.00 > 169.00	4.493	4.493	0.0	1.000	679817		3.50(0.00-0.00)	4454	
19 Perfluorotridecanoic acid									
663.00 > 619.00	4.736	4.736	0.0	1.000	1894667	4.71	Target=2.87	625	
663.00 > 169.00	4.736	4.736	0.0	1.000	653996		2.90(0.00-0.00)	3727	
20 Perfluorotetradecanoic acid									
713.00 > 169.00	4.958	4.958	0.0	1.000	505379	4.89	Target=1.40	3551	
713.00 > 219.00	4.958	4.958	0.0	1.000	361763		1.40(0.00-0.00)	2360	

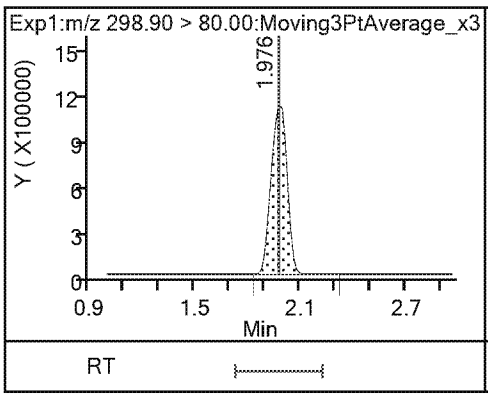
Reagents:

LC537_NC_L6_00003 Amount Added: 1.00 Units: mL

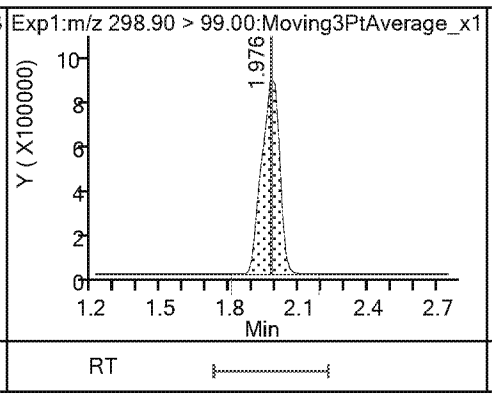
Eurofins TestAmerica, Sacramento

Data File: \\chromna\Sacramento\ChromData\A8_N\20190404-74319.b\2019.04.04_537AA_012.d
Injection Date: 04-Apr-2019 20:17:09 Instrument ID: A8_N
Lims ID: CCV L6
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 31 Worklist Smp#: 8
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

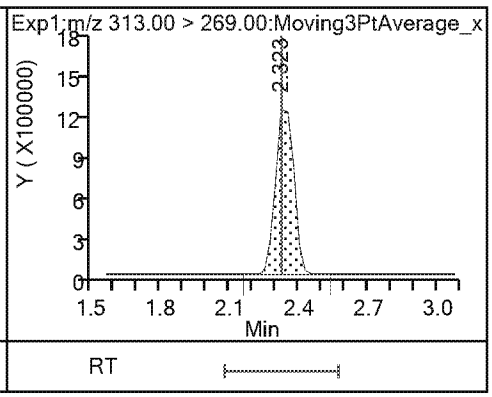
1 Perfluorobutanesulfonic acid



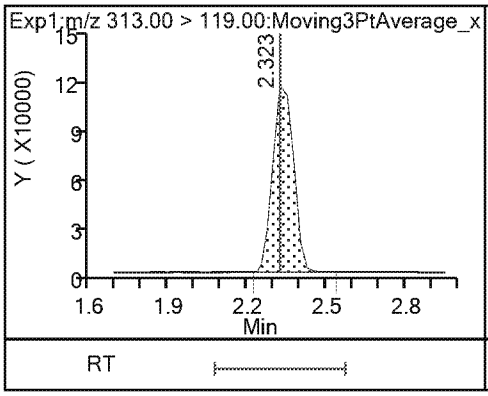
1 Perfluorobutanesulfonic acid



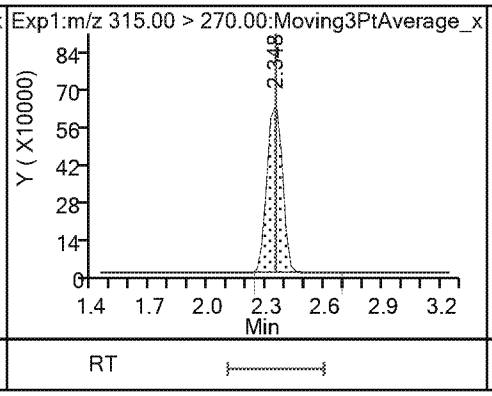
13 Perfluorohexanoic acid



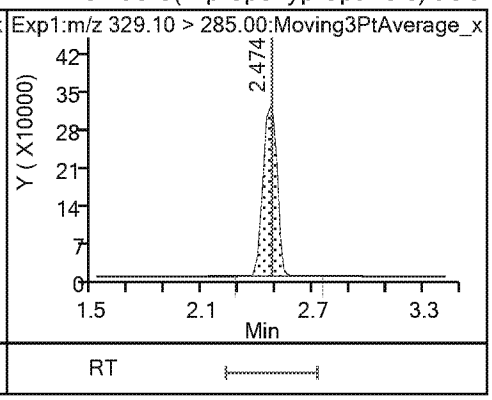
13 Perfluorohexanoic acid



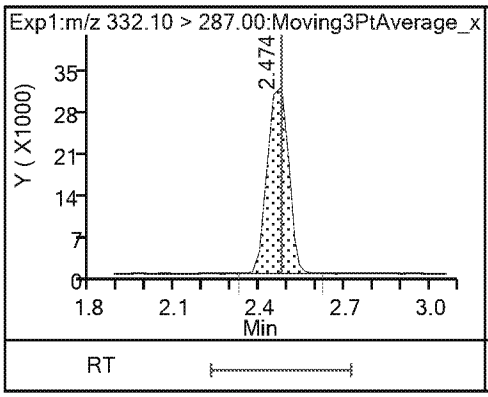
$ 2 13C2 PFHxA



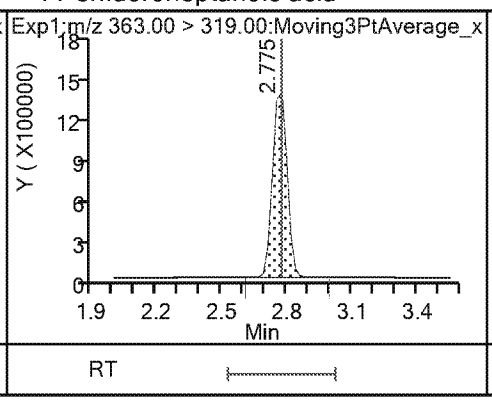
22 Perfluoro(2-propoxypropanoic) acid



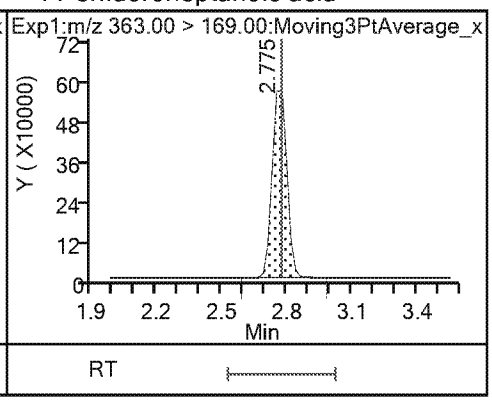
$ 25 13C3 HFPO-DA



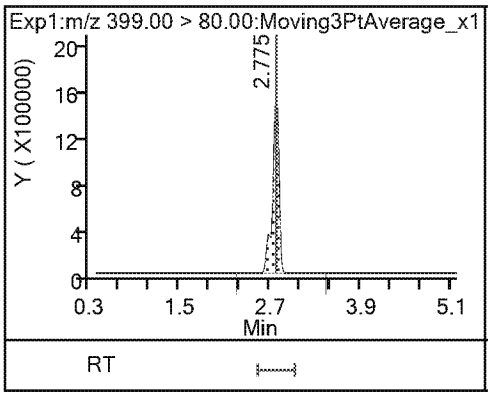
4 Perfluoroheptanoic acid



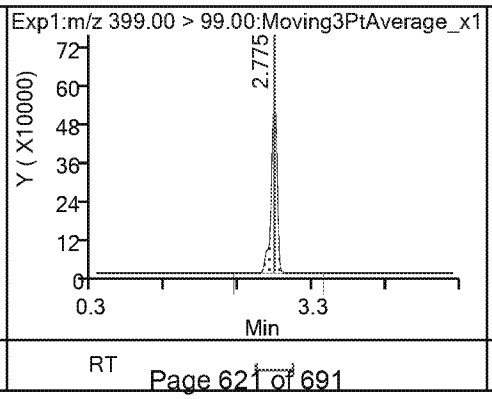
4 Perfluoroheptanoic acid



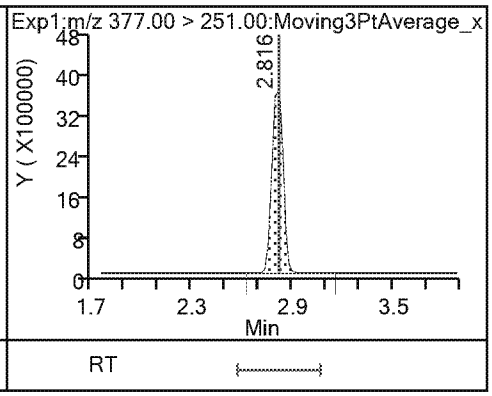
3 Perfluorohexanesulfonic acid



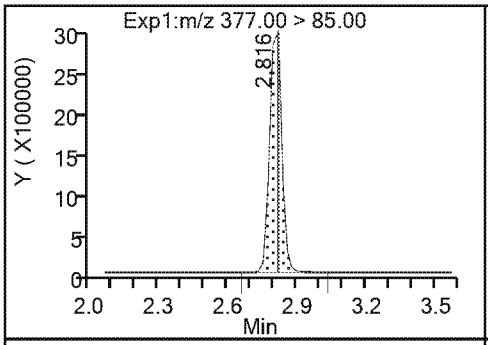
3 Perfluorohexanesulfonic acid



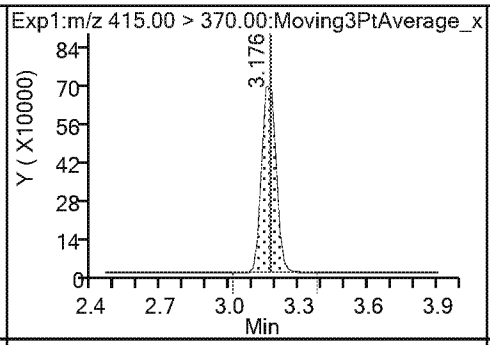
24 DONA



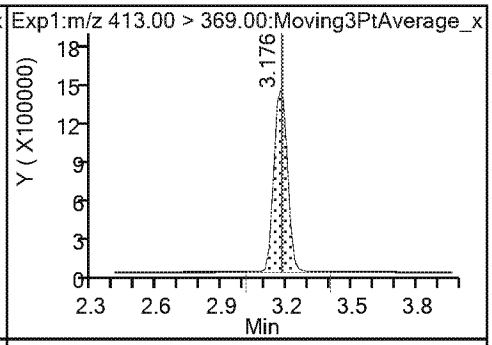
24 DONA



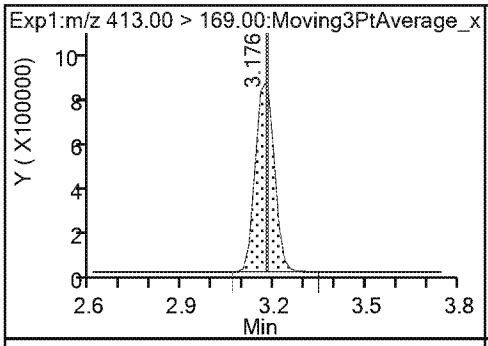
* 5 13C2 PFOA



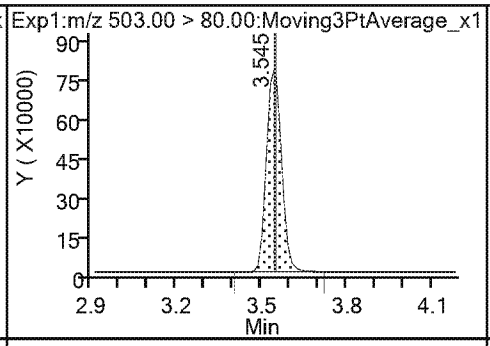
6 Perfluorooctanoic acid



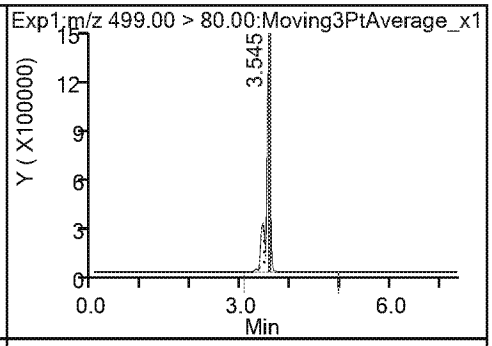
6 Perfluorooctanoic acid



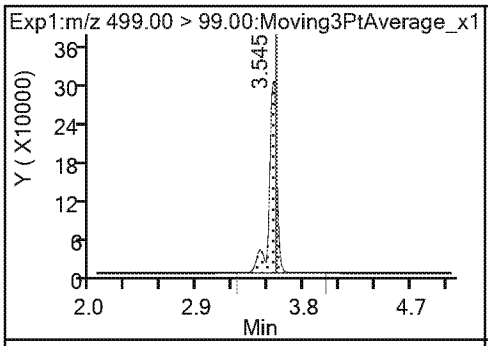
* 7 13C4 PFOS



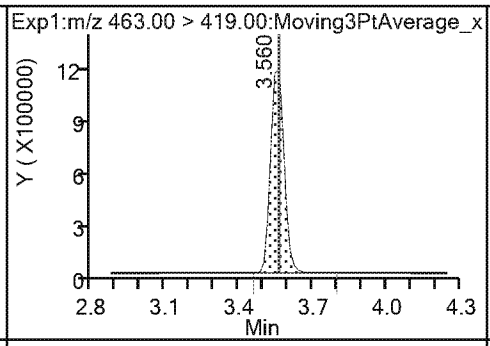
8 Perfluorooctanesulfonic acid



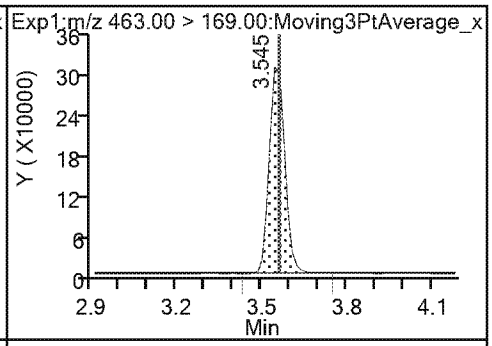
8 Perfluorooctanesulfonic acid



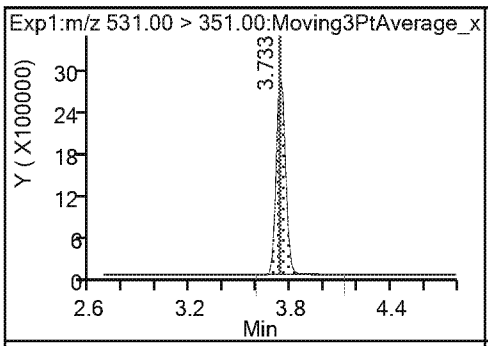
9 Perfluorononanoic acid



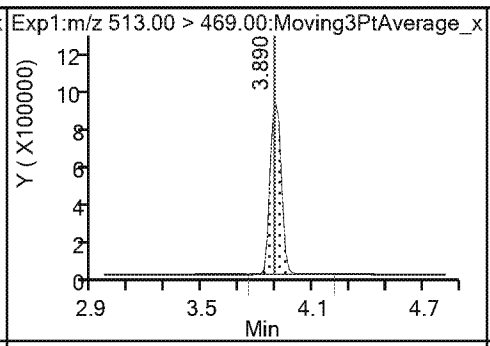
9 Perfluorononanoic acid



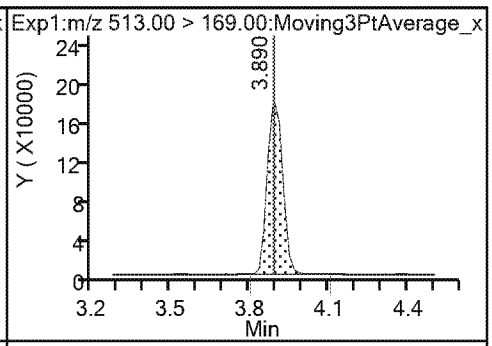
23 9-Chlorohexadecafluoro-3-oxanonane



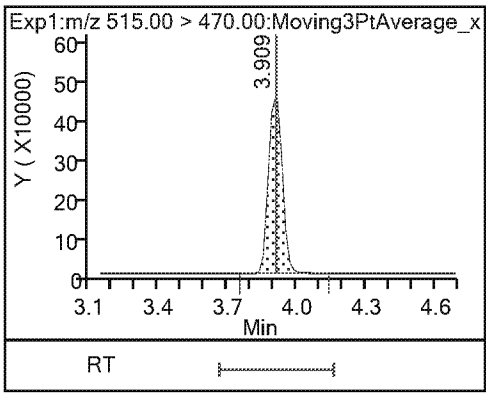
14 Perfluorodecanoic acid



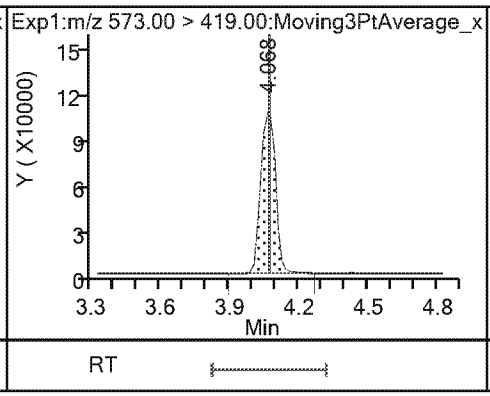
14 Perfluorodecanoic acid



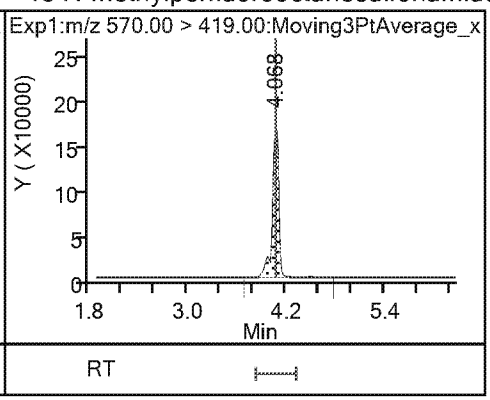
$ 10 13C2 PFDA



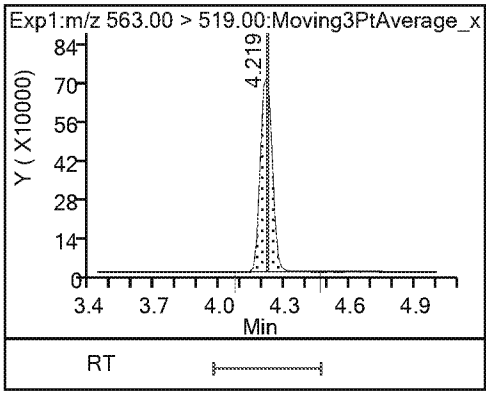
* 12 d3-NMeFOSAA



15 N-methylperfluorooctanesulfonamido



17 Perfluoroundecanoic acid



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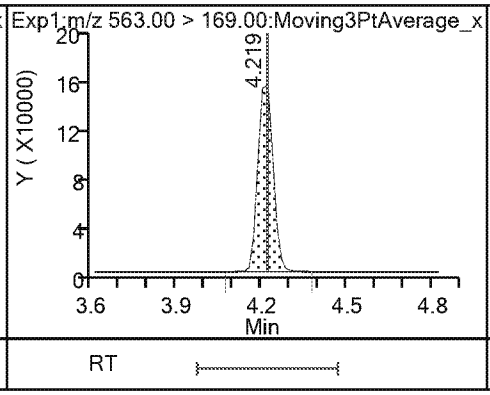
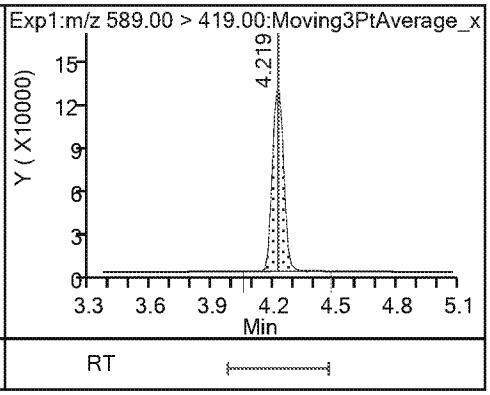
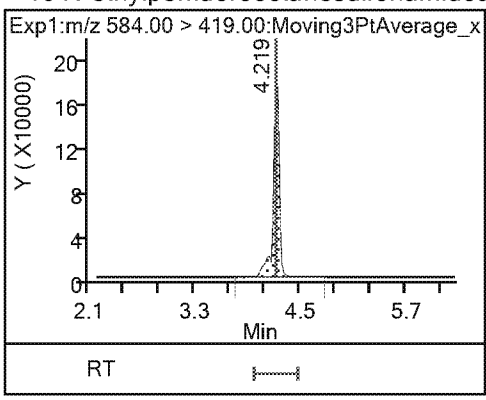


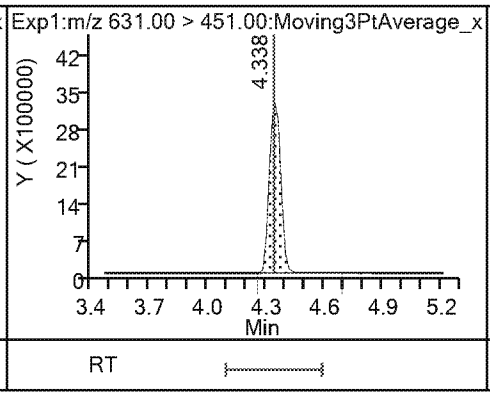
$ 11 d5-NEtFOSAA



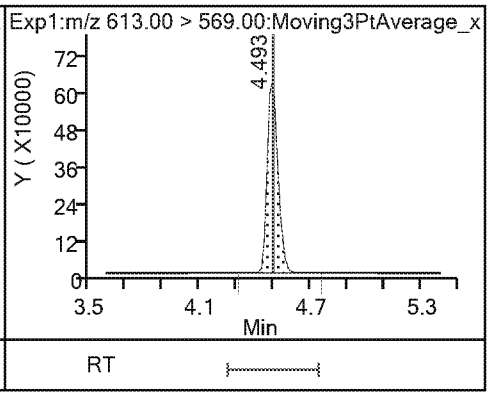
16 N-ethylperfluorooctanesulfonamidoa



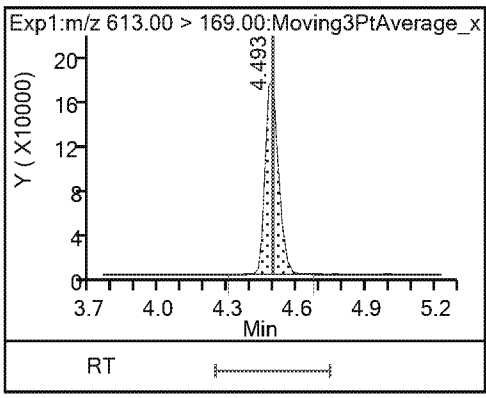
21 11-Chloroeicosafluoro-3-oxaundecan



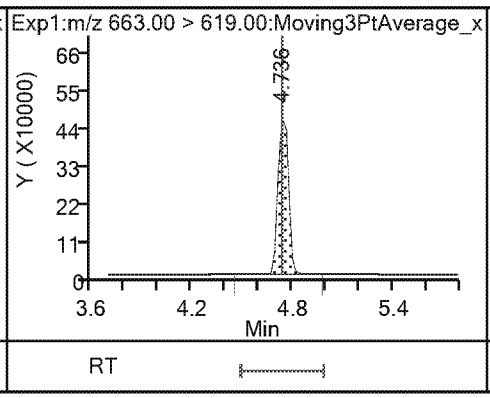
18 Perfluorododecanoic acid



18 Perfluorododecanoic acid



19 Perfluorotridecanoic acid



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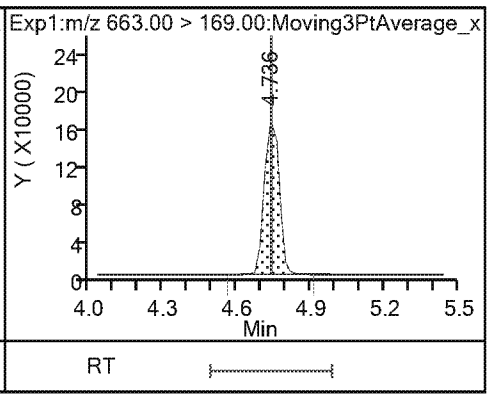
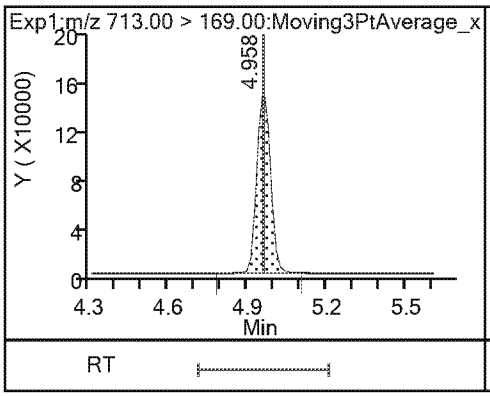
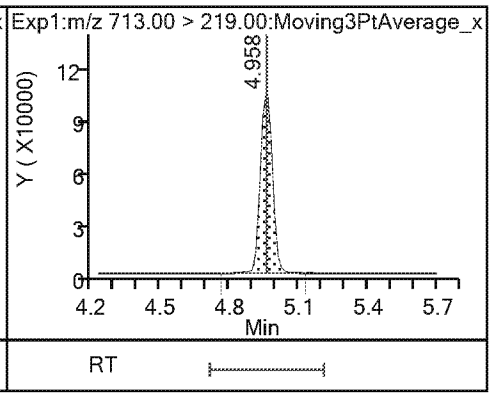


20 Perfluorotetradecanoic acid



20 Perfluorotetradecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Lab Sample ID: CCVL 320-286320/1 Calibration Date: 04/05/2019 11:55

Instrument ID: A8_N Calib Start Date: 04/04/2019 15:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 04/04/2019 16:11

Lab File ID: 2019.04.05_537.1A_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid	Ave	1.181	1.165		0.0436	0.0442	-1.4	50.0
Perfluorohexanoic acid	Ave	1.113	1.077		0.0484	0.0500	-3.2	50.0
Perfluoro(2-propoxypropanoic) acid	Ave	0.2705	0.2925		0.0541	0.0500	8.1	50.0
Perfluoroheptanoic acid	Ave	1.060	1.009		0.0476	0.0500	-4.8	50.0
Perfluorohexanesulfonic acid	Ave	1.433	1.356		0.0431	0.0455	-5.4	50.0
DONA	Ave	2.887	2.687		0.0438	0.0471	-6.9	50.0
Perfluorooctanoic acid	Ave	1.014	0.9495			0.0500	-6.4	50.0
Perfluorooctanesulfonic acid	Ave	1.056	1.101		0.0484	0.0464	4.3	50.0
Perfluorononanoic acid	Ave	0.7390	0.7067		0.0478	0.0500	-4.4	50.0
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonate	Ave	1.700	1.634		0.0448	0.0466	-3.8	50.0
Perfluorodecanoic acid	Ave	0.5850	0.5990		0.0512	0.0500	2.4	50.0
N-methylperfluorooctanesulfonamidoacetic acid	Ave	0.9362	0.9375		0.0501	0.0500	0.1	50.0
Perfluoroundecanoic acid	Ave	0.4445	0.4386		0.0493	0.0500	-1.3	50.0
N-ethylperfluorooctanesulfonamidoacetic acid	Ave	0.9078	0.9788		0.0539	0.0500	7.8	50.0
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonate	Ave	2.131	2.073		0.0458	0.0471	-2.7	50.0
Perfluorododecanoic acid	Ave	0.4456	0.4322		0.0485	0.0500	-3.0	50.0
Perfluorotridecanoic acid	Ave	0.3452	0.3587		0.0520	0.0500	3.9	50.0
Perfluorotetradecanoic acid	Ave	0.0888	0.0908		0.0512	0.0500	2.3	50.0
13C2 PFHxA	Ave	1.166	1.145		2.46	2.50	-1.7	30.0
13C2 PFDA	Ave	0.6210	0.6441		2.59	2.50	3.7	30.0

Eurofins TestAmerica, Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190405-74345.b\2019.04.05_537.1A_004.d
Lims ID: CCVL
Client ID:
Sample Type: CCVL
Inject. Date: 05-Apr-2019 11:55:04 ALS Bottle#: 2 Worklist Smp#: 1
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: CCVL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub13

Method: \\chromna\Sacramento\ChromData\A8_N\20190405-74345.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Apr-2019 14:38:23 Calib Date: 04-Apr-2019 16:11:08
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: CTX0314

First Level Reviewer: Ex. 4 CBI Date: 05-Apr-2019 14:29:42
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.977	1.976	0.001	1.000	64535	0.0436	Target=1.41	333	
298.90 > 99.00	1.977	1.976	0.001	1.000	43381		1.49(0.00-0.00)	18.5	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.348	2.347	0.001	0.740	66666	0.0484	Target=10.46	17.0	
313.00 > 119.00	2.323	2.347	-0.024	0.732	6267		10.64(0.00-0.00)	7.4	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.348	2.347	0.001	1.000	3545075	2.46		5858	
22 Perfluoro(2-propoxypropanoic) acid									
329.10 > 285.00	2.474	2.473	0.001	1.000	18105	0.0541		9.5	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.474	2.473	0.001	1.000	173379	2.67		985	
4 Perfluoroheptanoic acid									M
363.00 > 319.00	2.779	2.766	0.013	1.000	62489	0.0476	Target=2.41	6.7	M
363.00 > 169.00	2.779	2.766	0.013	1.000	28216		2.21(0.00-0.00)	70.3	
3 Perfluorohexanesulfonic acid									M
399.00 > 80.00	2.779	2.786	-0.007	1.000	77346	0.0431	Target=2.91	77.8	M
399.00 > 99.00	2.779	2.786	-0.007	1.000	26292		2.94(0.00-0.00)	9.2	M
24 DONA									
377.00 > 251.00	2.820	2.807	0.013	1.000	156695	0.0438	Target=1.54	383	
377.00 > 85.00	2.820	2.807	0.013	1.000	100894		1.55(0.00-0.00)	6928	
* 5 13C2 PFOA									
415.00 > 370.00	3.174	3.169	0.005		3095391	2.50		7924	
6 Perfluorooctanoic acid									M
413.00 > 369.00	3.174	3.169	0.005	1.000	58784	0.0468	Target=1.70	7.9	M
413.00 > 169.00	3.174	3.169	0.005	1.000	35742		1.64(0.00-0.00)	53.7	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
* 7 13C4 PFOS									
503.00 > 80.00	3.545	3.544	0.001		2995972	2.39		8003	
9 Perfluorononanoic acid									
463.00 > 419.00	3.560	3.558	0.002	1.000	43751	0.0478	Target=3.78	25.2	
463.00 > 169.00	3.560	3.558	0.002	1.000	11079		3.95(0.00-0.00)	94.2	
8 Perfluorooctanesulfonic acid									
499.00 > 80.00	3.545	3.564	-0.019	1.000	64067	0.0484	Target=4.63	199	
499.00 > 99.00	3.545	3.564	-0.019	1.000	14446		4.43(0.00-0.00)	12.4	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.749	3.747	0.002	1.000	95462	0.0448		216	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.909	3.906	0.003	1.000	37081	0.0512	Target=4.93	17.7	
513.00 > 169.00	3.909	3.906	0.003	1.000	7673		4.83(0.00-0.00)	21.7	
$ 10 13C2 PFDA									
515.00 > 470.00	3.909	3.906	0.003	1.000	1993701	2.59		9631	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.068	4.087	-0.019		486052	2.50		2929	
15 N-methylperfluorooctanesulfonamido									
570.00 > 419.00	4.090	4.087	0.003	1.005	9113	0.0501		141	
17 Perfluoroundecanoic acid									
563.00 > 519.00	4.219	4.216	0.003	1.000	27152	0.0493	Target=4.73	13.3	
563.00 > 169.00	4.219	4.216	0.003	1.000	6032		4.50(0.00-0.00)	92.2	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.235	4.232	0.003	1.041	533151	2.68		296	
16 N-ethylperfluorooctanesulfonamidoa									M
584.00 > 419.00	4.235	4.232	0.003	1.000	9515	0.0539		33.2	M
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.357	4.350	0.007	1.000	122373	0.0458		1165	
18 Perfluorododecanoic acid									
613.00 > 569.00	4.493	4.505	-0.012	1.000	26755	0.0485	Target=3.49	17.9	
613.00 > 169.00	4.493	4.505	-0.012	1.000	7077		3.78(0.00-0.00)	76.6	
19 Perfluorotridecanoic acid									
663.00 > 619.00	4.758	4.755	0.003	1.000	22208	0.0520	Target=2.87	8.3	
663.00 > 169.00	4.758	4.755	0.003	1.000	7229		3.07(0.00-0.00)	78.6	
20 Perfluorotetradecanoic acid									
713.00 > 169.00	4.990	4.971	0.019	1.000	5623	0.0512	Target=1.40	132	
713.00 > 219.00	4.974	4.971	0.003	0.997	3984		1.41(0.00-0.00)	52.0	

QC Flag Legend

Review Flags

M - Manually Integrated

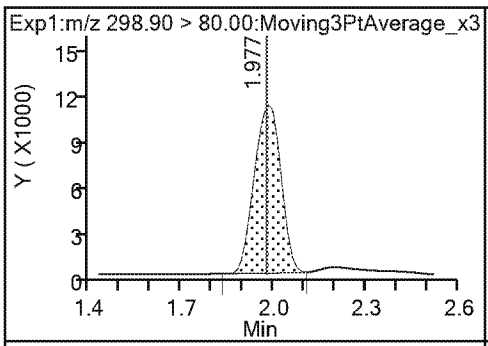
Reagents:

LC537_NC_L2_00004 Amount Added: 1.00 Units: mL

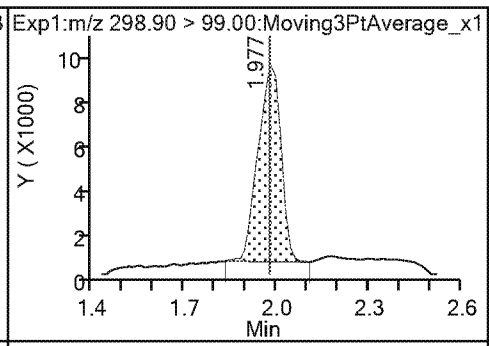
Eurofins TestAmerica, Sacramento

Data File: \\chromna\Sacramento\ChromData\A8_N\20190405-74345.b\2019.04.05_537.1A_004.d
Injection Date: 05-Apr-2019 11:55:04 Instrument ID: A8_N
Lims ID: CCVL
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 1
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

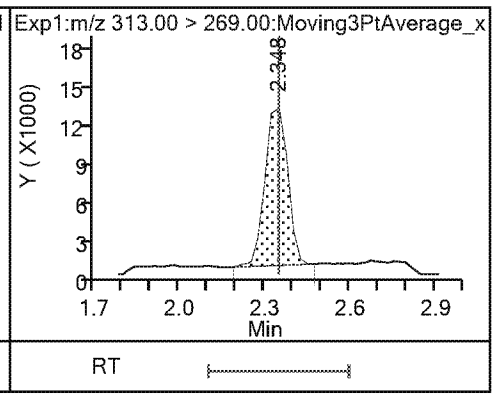
1 Perfluorobutanesulfonic acid



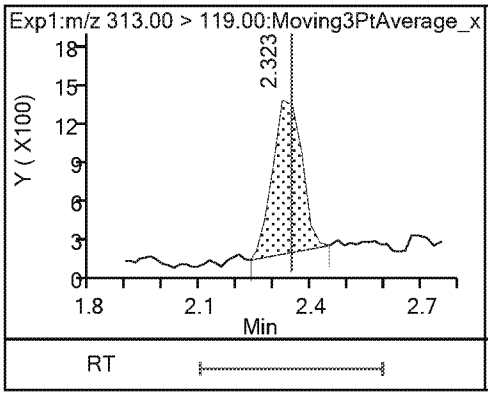
1 Perfluorobutanesulfonic acid



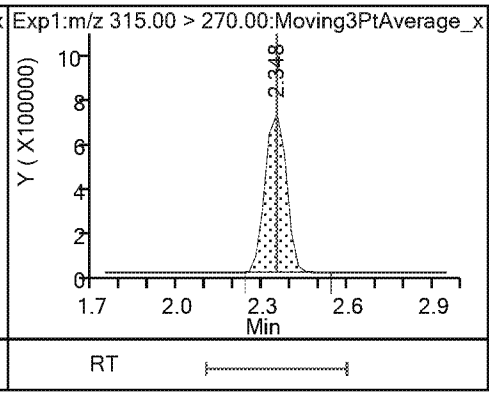
13 Perfluorohexanoic acid



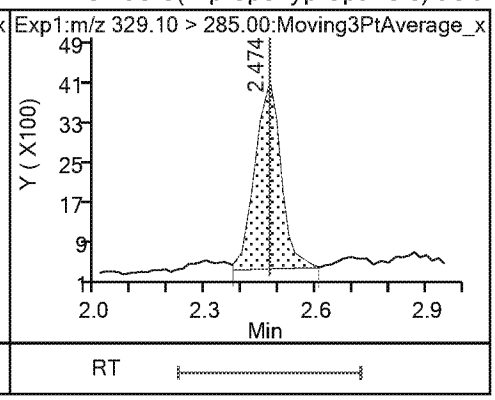
13 Perfluorohexanoic acid



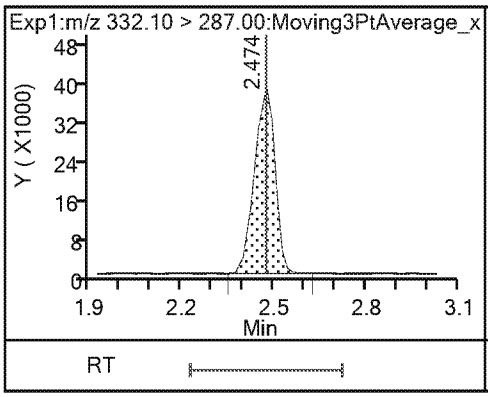
$ 2 13C2 PFHxA



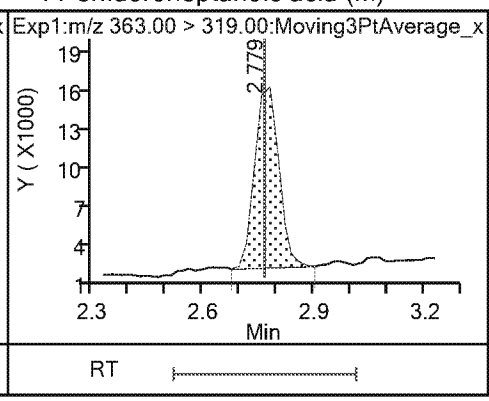
22 Perfluoro(2-propoxypropanoic) acid



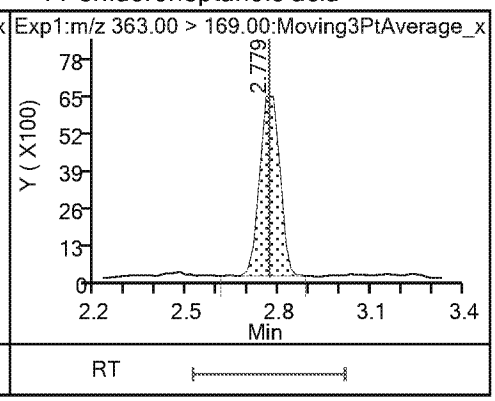
$ 25 13C3 HFPO-DA



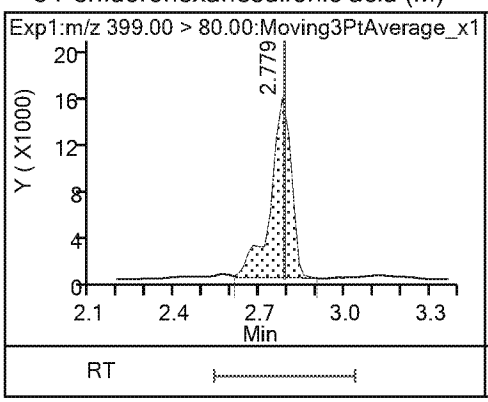
4 Perfluoroheptanoic acid (M)



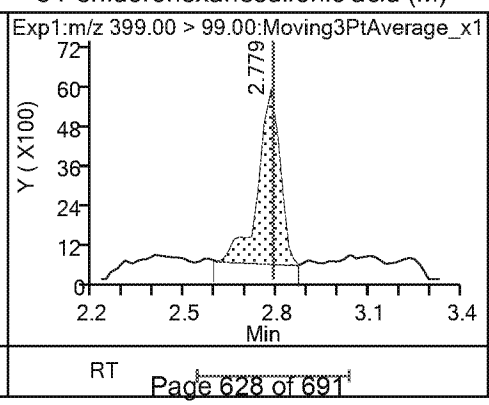
4 Perfluoroheptanoic acid



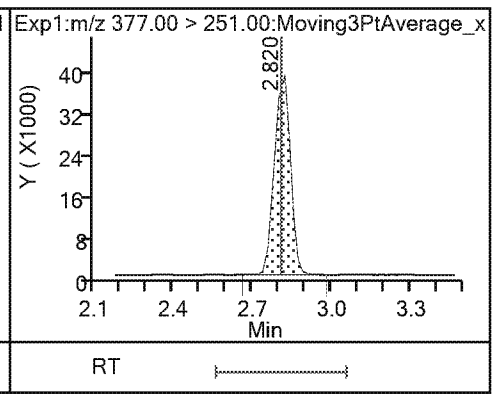
3 Perfluorohexanesulfonic acid (M)



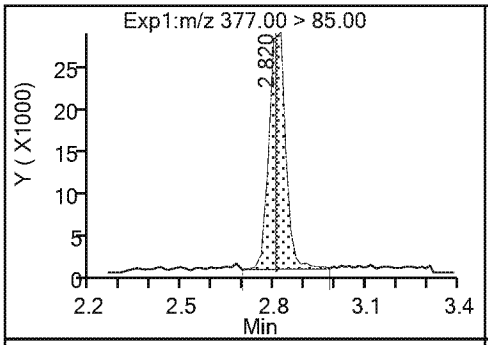
3 Perfluorohexanesulfonic acid (M)



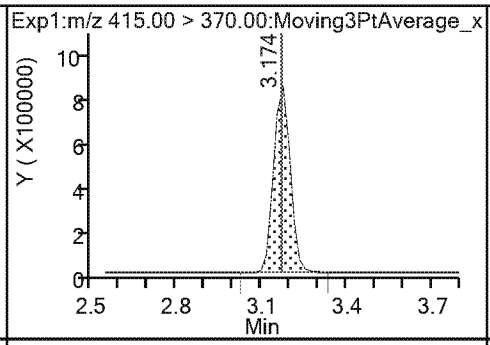
24 DONA



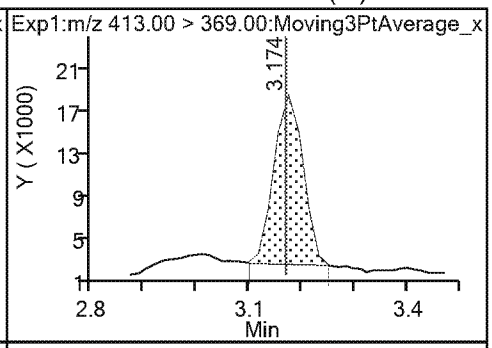
24 DONA



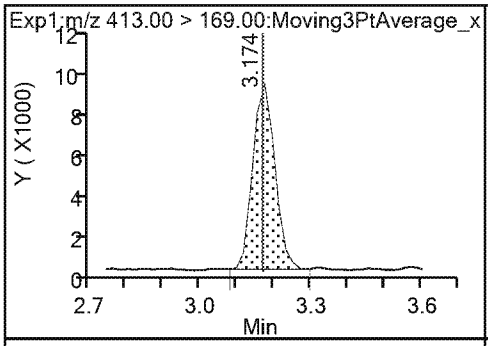
* 5 13C2 PFOA



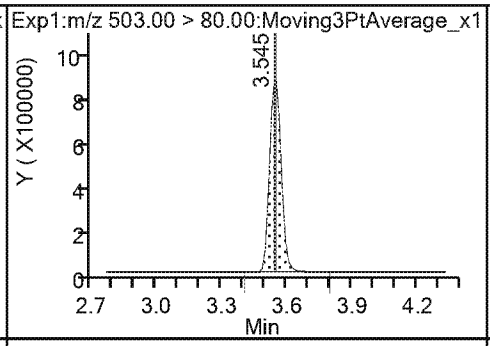
6 Perfluorooctanoic acid (M)



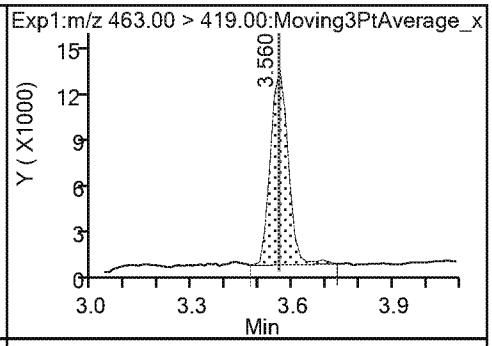
6 Perfluorooctanoic acid



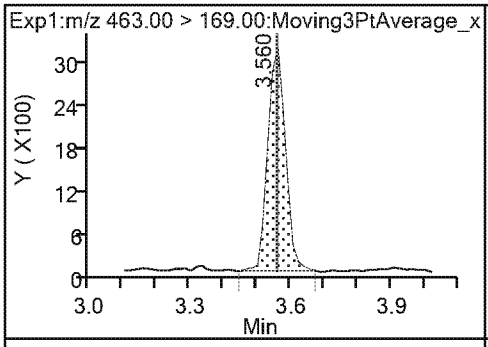
* 7 13C4 PFOS



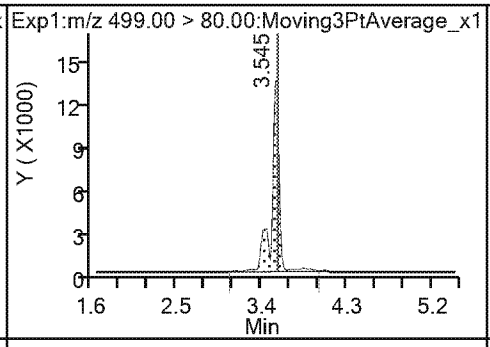
9 Perfluorononanoic acid



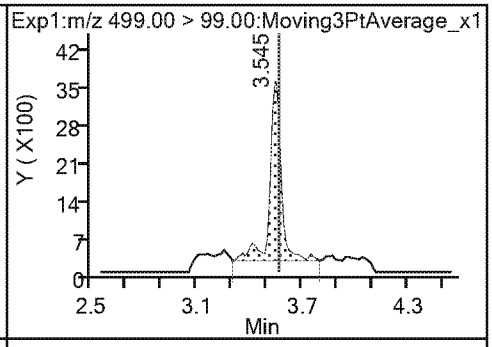
9 Perfluorononanoic acid



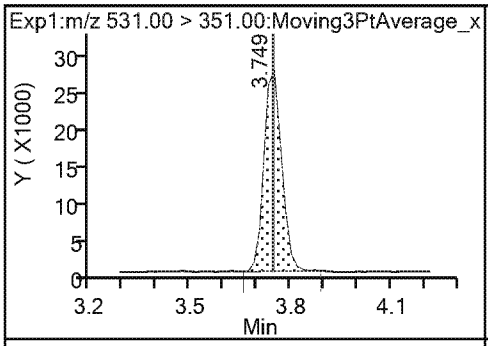
8 Perfluorooctanesulfonic acid



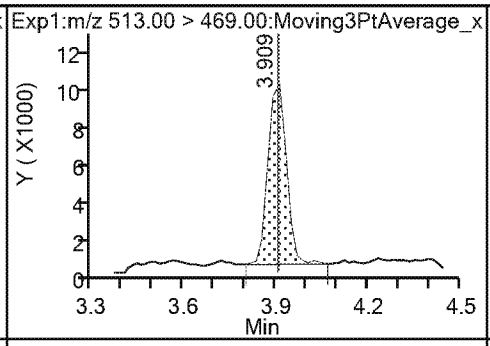
8 Perfluorooctanesulfonic acid



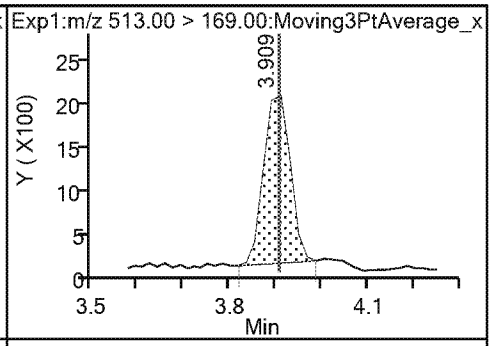
23 9-Chlorohexadecafluoro-3-oxanonane



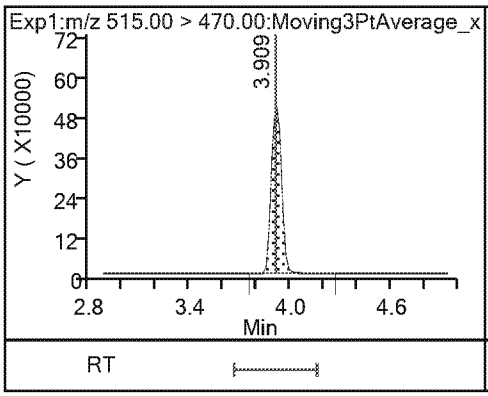
14 Perfluorodecanoic acid



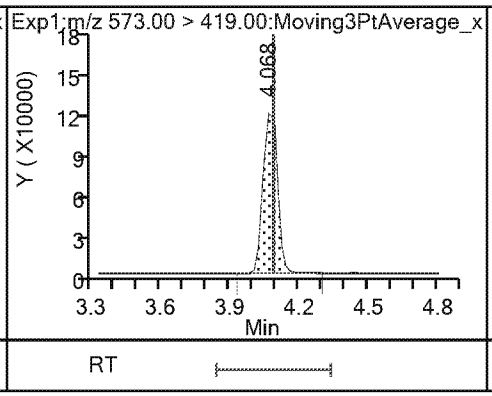
14 Perfluorodecanoic acid



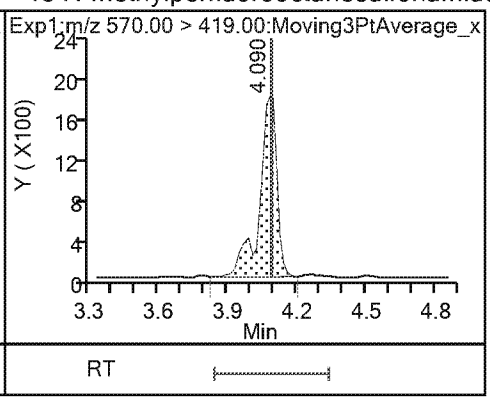
$ 10 13C2 PFDA



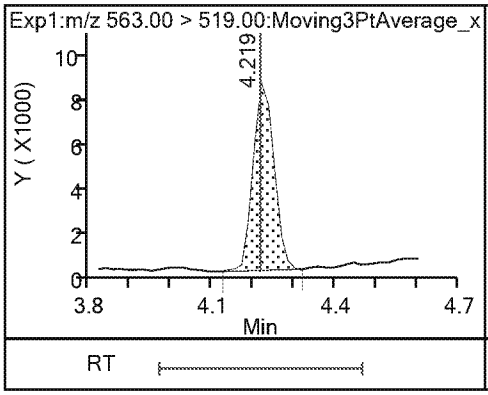
* 12 d3-NMeFOSAA



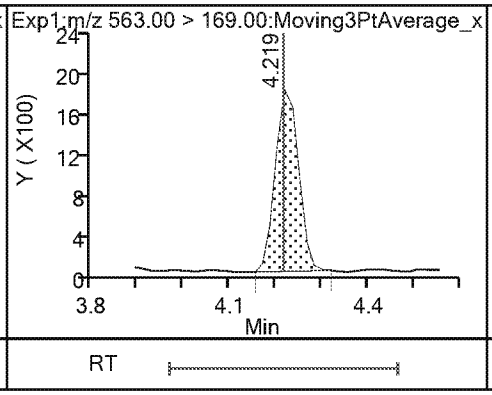
15 N-methylperfluorooctanesulfonamido



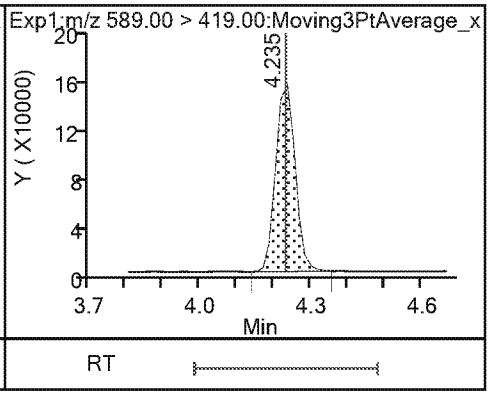
17 Perfluoroundecanoic acid



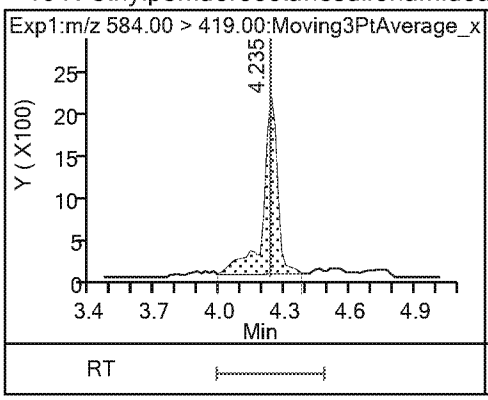
17 Perfluoroundecanoic acid



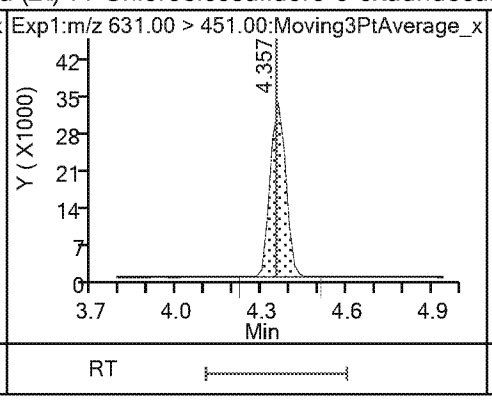
$ 11 d5-NEtFOSAA



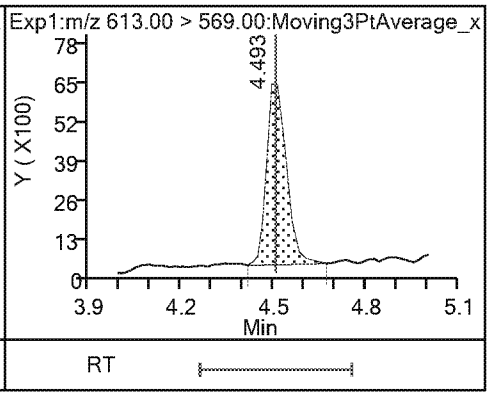
16 N-ethylperfluorooctanesulfonamidoa (2/1)



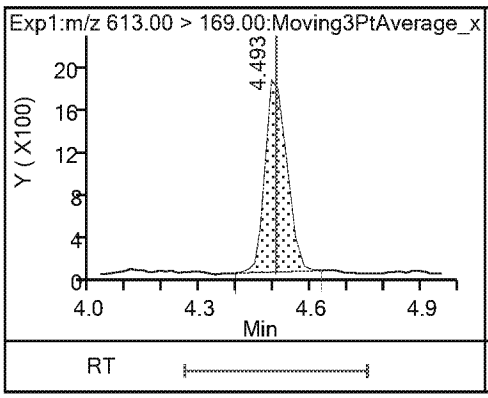
11-Chloroeicosafluoro-3-oxaundecan



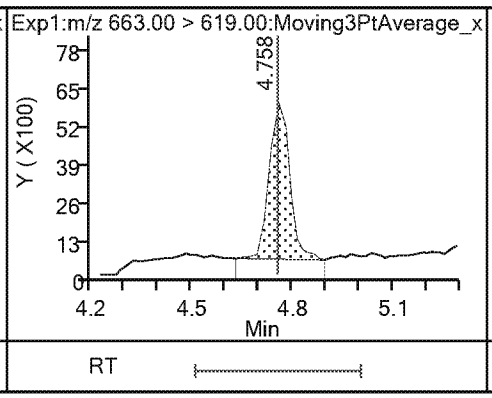
18 Perfluorododecanoic acid



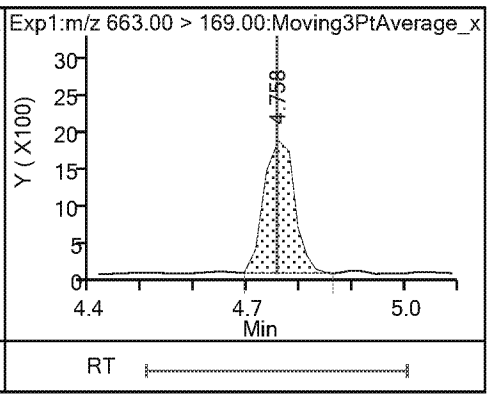
18 Perfluorododecanoic acid



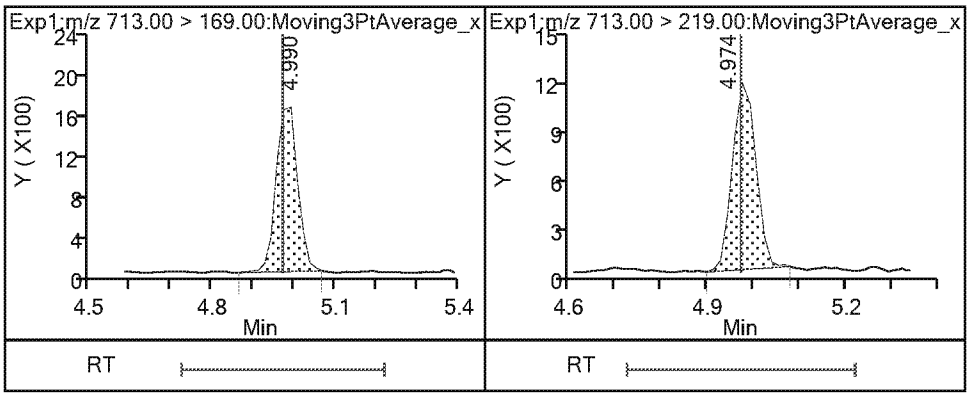
19 Perfluorotridecanoic acid



19 Perfluorotridecanoic acid



20 Perfluorotetradecanoic acid 20 Perfluorotetradecanoic acid



Eurofins TestAmerica, Sacramento

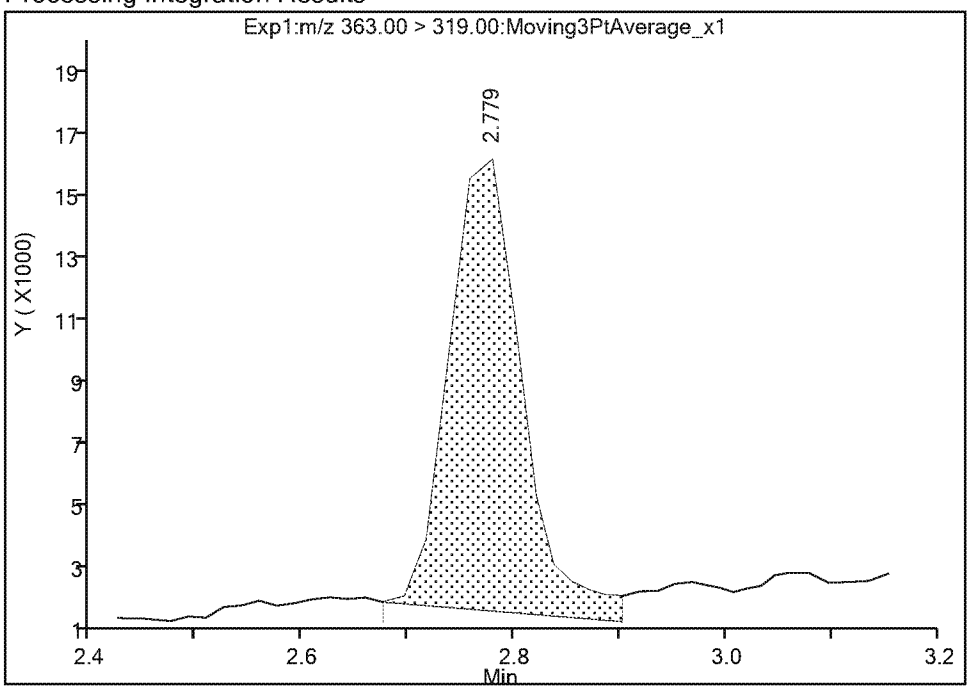
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190405-74345.b\2019.04.05_537.1A_004.d				
Injection Date:	05-Apr-2019 11:55:04	Instrument ID:	A8_N		
Lims ID:	CCVL				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	2	Worklist Smp#:	1
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

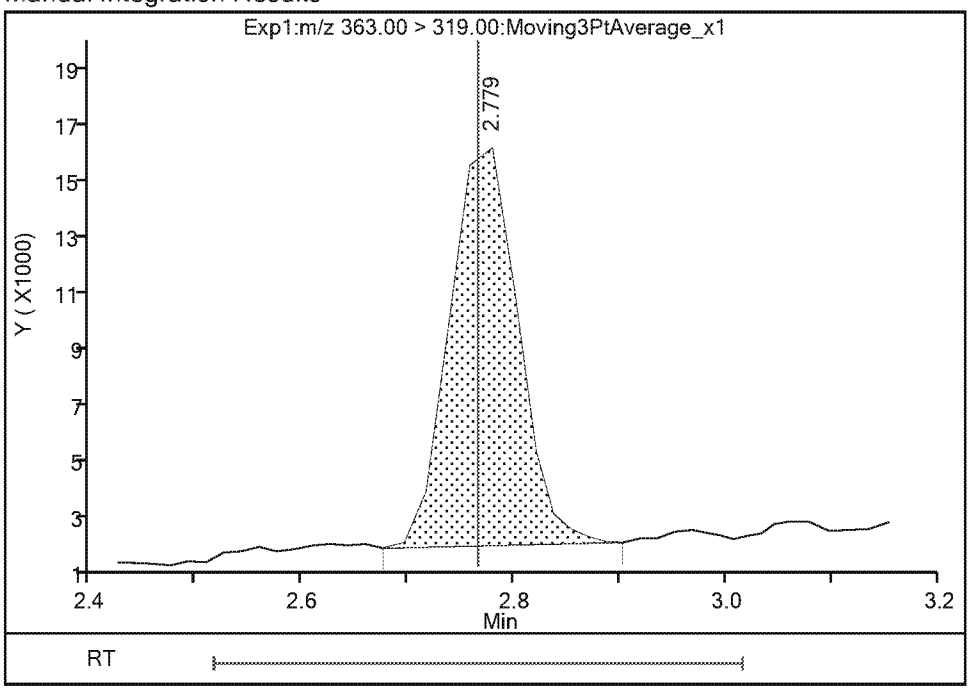
Processing Integration Results

RT: 2.78
Area: 68046
Amount: 0.051854
Amount Units: ng/ml



Manual Integration Results

RT: 2.78
Area: 62489
Amount: 0.047620
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 05-Apr-2019 14:28:57
Audit Action: Manually Integrated Audit Reason: Baseline

Eurofins TestAmerica, Sacramento

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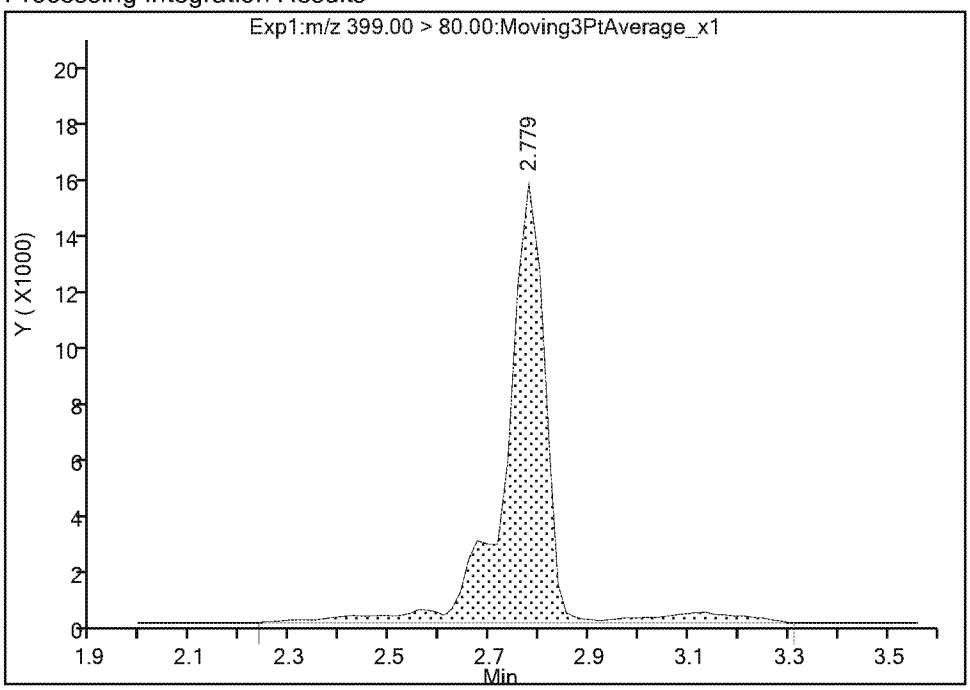
Injection Date:	05-Apr-2019 11:55:04	Instrument ID:	A8_N		
Lims ID:	CCVL				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	2	Worklist Smp#:	1
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

3 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

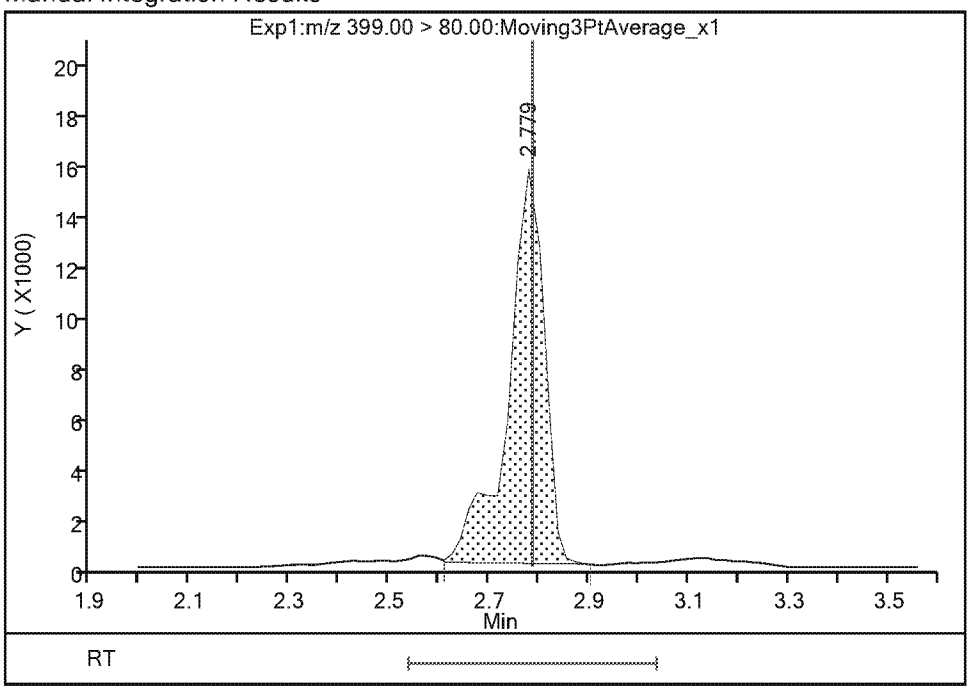
Processing Integration Results

RT: 2.78
Area: 88750
Amount: 0.049408
Amount Units: ng/ml



Manual Integration Results

RT: 2.78
Area: 77346
Amount: 0.043059
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 05-Apr-2019 14:28:42
Audit Action: Manually Integrated Audit Reason: Baseline

Eurofins TestAmerica, Sacramento

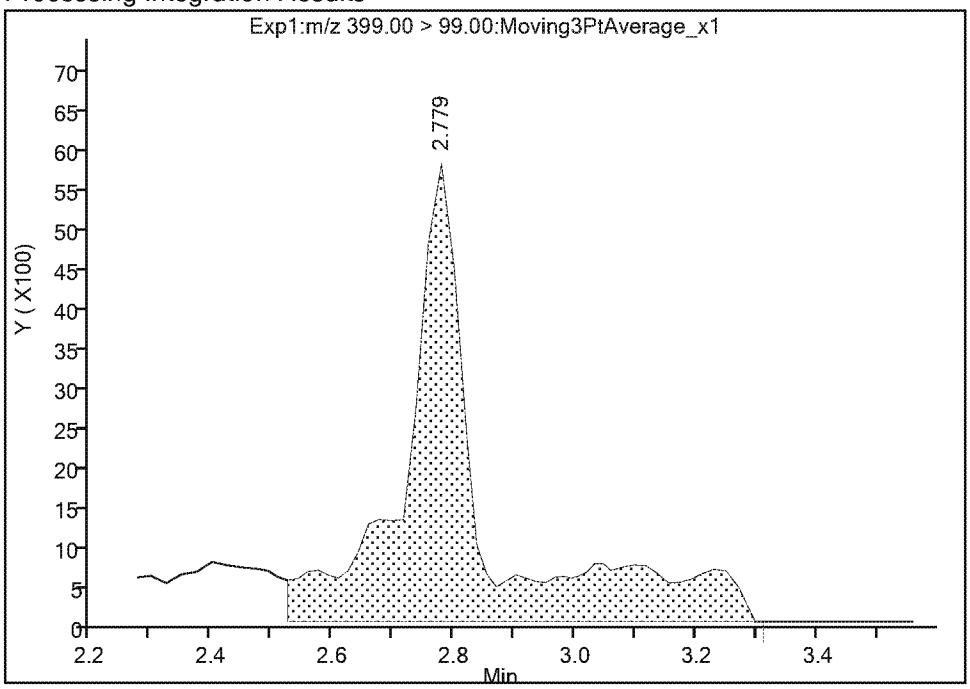
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190405-74345.b\2019.04.05_537.1A_004.d				
Injection Date:	05-Apr-2019 11:55:04	Instrument ID:	A8_N		
Lims ID:	CCVL				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	2	Worklist Smp#:	1
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

3 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 2

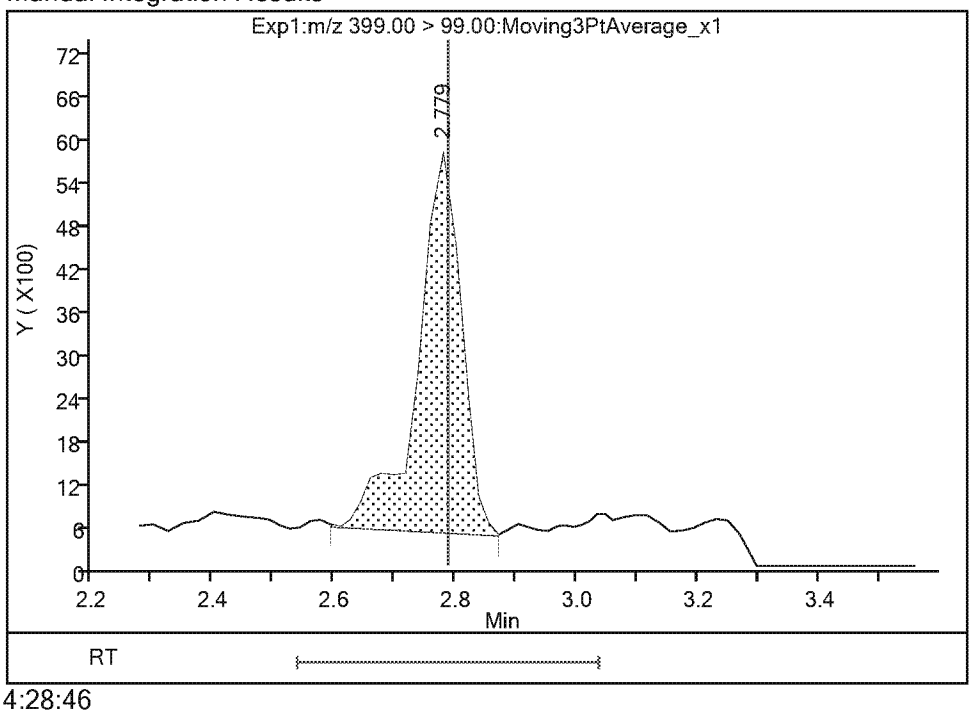
Processing Integration Results

RT: 2.78
Area: 50945
Amount: 0.049408
Amount Units: ng/ml



Manual Integration Results

RT: 2.78
Area: 26292
Amount: 0.043059
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 05-Apr-2019 14:28:46
Audit Action: Manually Integrated Audit Reason: Baseline

Eurofins TestAmerica, Sacramento

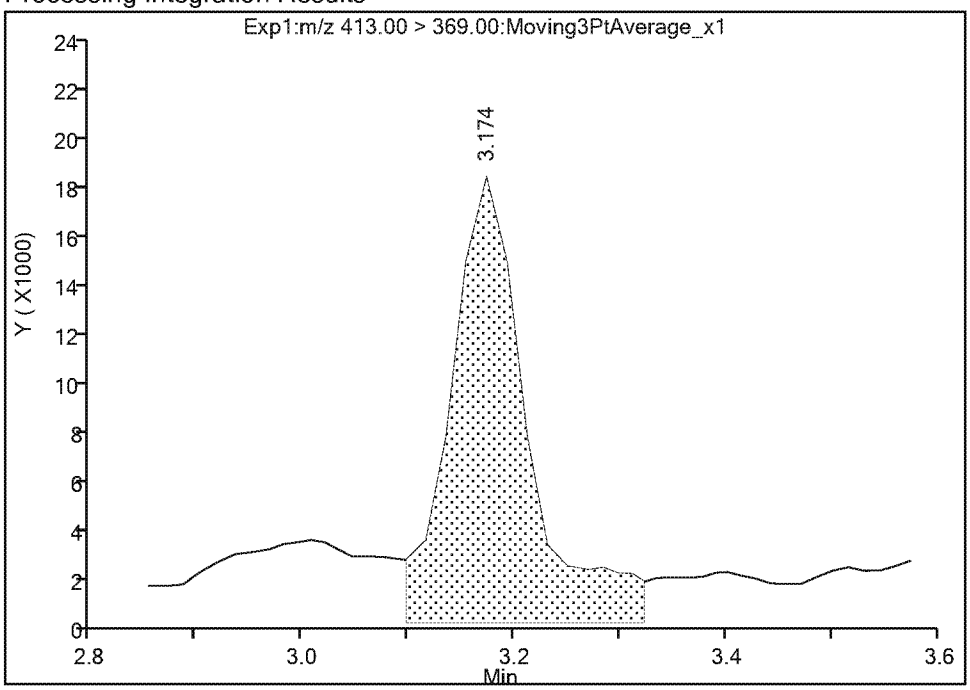
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190405-74345.b\2019.04.05_537.1A_004.d				
Injection Date:	05-Apr-2019 11:55:04	Instrument ID:	A8_N		
Lims ID:	CCVL				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	2	Worklist Smp#:	1
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

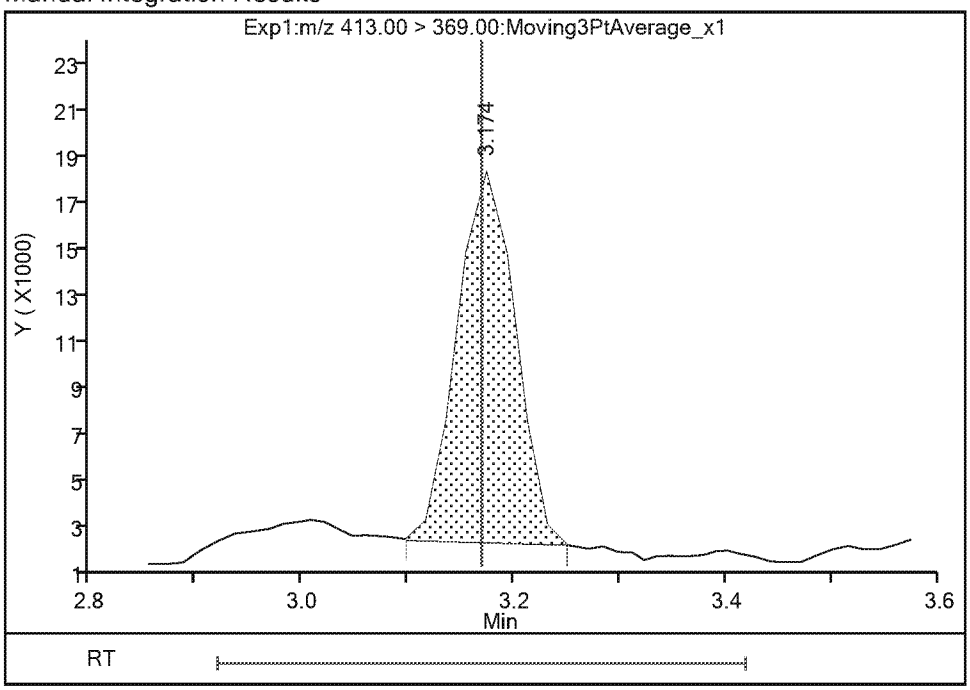
Processing Integration Results

RT: 3.17
Area: 89208
Amount: 0.071023
Amount Units: ng/ml



Manual Integration Results

RT: 3.17
Area: 58784
Amount: 0.046801
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 05-Apr-2019 14:29:07
Audit Action: Manually Integrated Audit Reason: Baseline

Eurofins TestAmerica, Sacramento

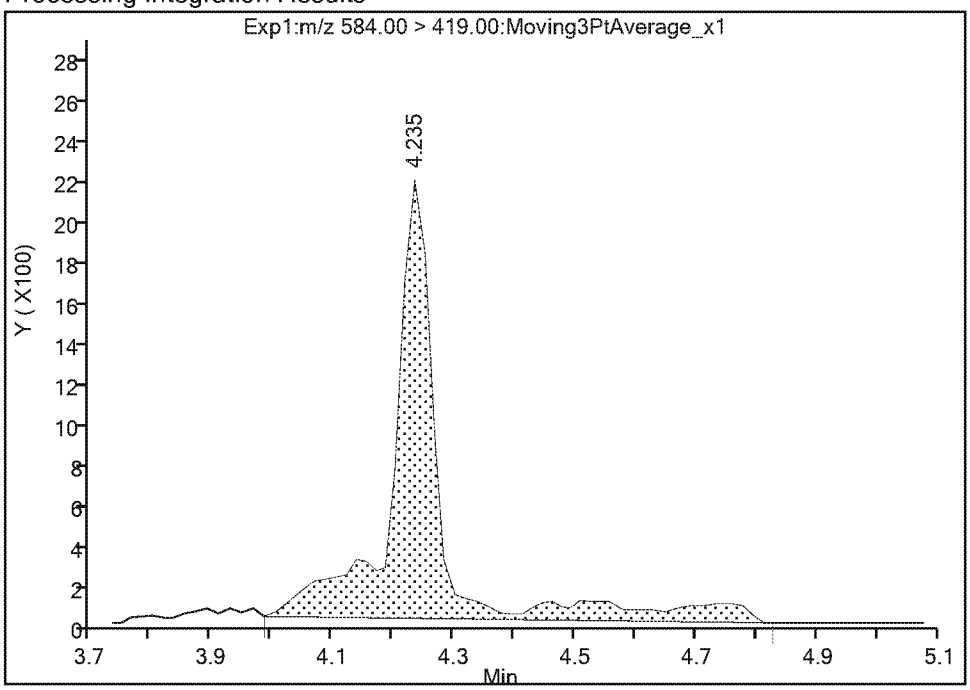
Data File:	\\chromna\Sacramento\ChromData\A8_N\20190405-74345.b\2019.04.05_537.1A_004.d				
Injection Date:	05-Apr-2019 11:55:04	Instrument ID:	A8_N		
Lims ID:	CCVL				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	2	Worklist Smp#:	1
Injection Vol:	10.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

16 N-ethylperfluorooctanesulfonamidoacetic acid, CAS: 2991-50-6

Signal: 1

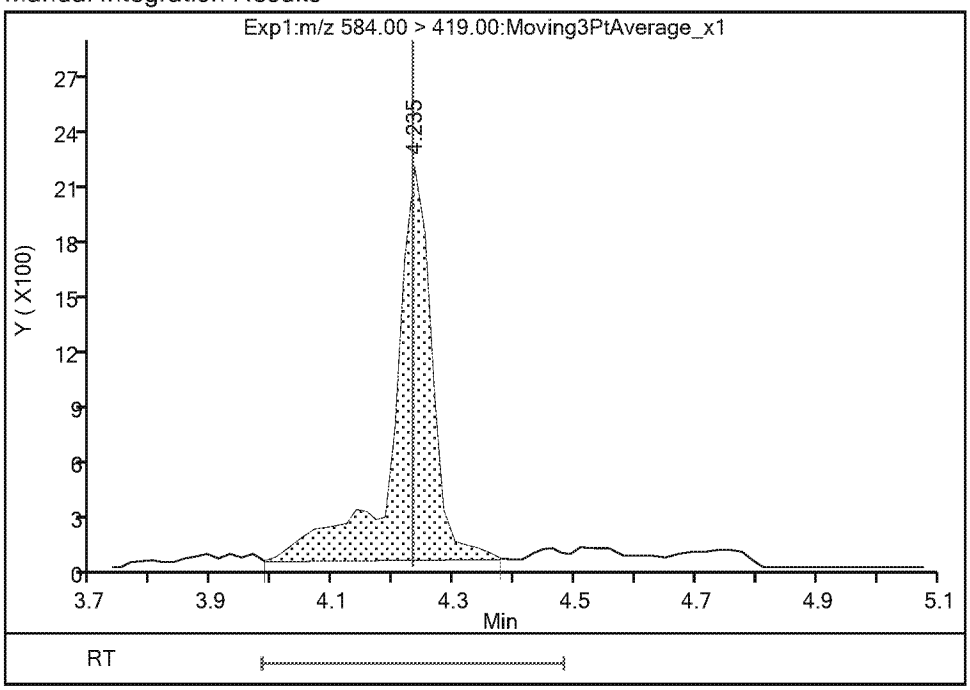
Processing Integration Results

RT: 4.23
Area: 11448
Amount: 0.064860
Amount Units: ng/ml



Manual Integration Results

RT: 4.23
Area: 9515
Amount: 0.053908
Amount Units: ng/ml



Reviewer: Ex. 4 CBI 05-Apr-2019 14:29:28
Audit Action: Manually Integrated Audit Reason: Baseline

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Lab Sample ID: CCV 320-286379/1 Calibration Date: 04/05/2019 13:58

Instrument ID: A8_N Calib Start Date: 04/04/2019 15:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 04/04/2019 16:11

Lab File ID: 2019.04.05_537.1A_026.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid	Ave	1.181	1.260		4.72	4.42	6.7	30.0
Perfluorohexanoic acid	Ave	1.113	1.083		4.87	5.00	-2.7	30.0
Perfluoro(2-propoxypropanoic) acid	Ave	0.2705	0.2653		4.90	5.00	-1.9	30.0
Perfluoroheptanoic acid	Ave	1.060	1.066		5.03	5.00	0.6	30.0
Perfluorohexanesulfonic acid	Ave	1.433	1.446		4.59	4.55	0.9	30.0
DONA	Ave	2.887	2.826		4.61	4.71	-2.1	30.0
Perfluorooctanoic acid	Ave	1.014	1.023		5.04	5.00	0.8	30.0
Perfluorooctanesulfonic acid	Ave	1.056	1.071		4.70	4.64	1.4	30.0
Perfluorononanoic acid	Ave	0.7390	0.7405		5.01	5.00	0.2	30.0
9-Chlorohexadecafluoro-3-oxa nonane-1-sulfonate	Ave	1.700	1.774		4.86	4.66	4.4	30.0
Perfluorodecanoic acid	Ave	0.5850	0.5962		5.10	5.00	1.9	30.0
N-methylperfluorooctanesulfo namidoacetic acid	Ave	0.9362	0.9040		4.83	5.00	-3.4	30.0
Perfluoroundecanoic acid	Ave	0.4445	0.4703		5.29	5.00	5.8	30.0
N-ethylperfluorooctanesulfon amidoacetic acid	Ave	0.9078	0.8495		4.68	5.00	-6.4	30.0
11-Chloroeicosafluoro-3-oxau ndecane-1-sulfonate	Ave	2.131	2.197		4.86	4.71	3.1	30.0
Perfluorododecanoic acid	Ave	0.4456	0.4587		5.15	5.00	2.9	30.0
Perfluorotridecanoic acid	Ave	0.3452	0.3450		5.00	5.00	-0.0	30.0
Perfluorotetradecanoic acid	Ave	0.0888	0.0895		5.04	5.00	0.9	30.0
13C2 PFHxA	Ave	1.166	1.120		2.40	2.50	-3.9	30.0
13C2 PFDA	Ave	0.6210	0.6335		2.55	2.50	2.0	30.0

Eurofins TestAmerica, Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190405-74359.b\2019.04.05_537.1A_026.d
Lims ID: CCV L6
Client ID:
Sample Type: CCVIS
Inject. Date: 05-Apr-2019 13:58:07 ALS Bottle#: 6 Worklist Smp#: 1
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: CCV L6
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub13

Method: \\chromna\Sacramento\ChromData\A8_N\20190405-74359.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Apr-2019 15:06:06 Calib Date: 04-Apr-2019 16:11:08
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: CTX0314

First Level Reviewer: Ex. 4 CBI Date: 05-Apr-2019 14:58:48
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.994	1.994	0.0	1.000	6623125	4.72	Target=1.41	36558	
298.90 > 99.00	1.994	1.994	0.0	1.000	4491938		1.47(0.00-0.00)	1934	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.349	2.349	0.0	0.739	6454834	4.87	Target=10.46	1413	
313.00 > 119.00	2.349	2.349	0.0	0.739	609479		10.59(0.00-0.00)	722	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.349	2.349	0.0	1.000	3338390	2.40		6916	
22 Perfluoro(2-propoxypropanoic) acid									
329.10 > 285.00	2.475	2.475	0.0	1.000	1580830	4.90		867	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.475	2.475	0.0	1.000	176430	2.83		971	
4 Perfluoroheptanoic acid									
363.00 > 319.00	2.776	2.776	0.0	1.000	6354767	5.03	Target=2.41	721	
363.00 > 169.00	2.776	2.776	0.0	1.000	2569741		2.47(0.00-0.00)	4008	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	2.776	2.776	0.0	1.000	7825244	4.59	Target=2.91	6282	
399.00 > 99.00	2.776	2.776	0.0	1.000	2642659		2.96(0.00-0.00)	1000	
24 DONA									
377.00 > 251.00	2.817	2.817	0.0	1.000	15865763	4.61	Target=1.54	12140	
377.00 > 85.00	2.817	2.817	0.0	1.000	9971621		1.59(0.00-0.00)	783302	
* 5 13C2 PFOA									
415.00 > 370.00	3.177	3.177	0.0		2979789	2.50		10093	
6 Perfluorooctanoic acid									
413.00 > 369.00	3.177	3.177	0.0	1.000	6094352	5.04	Target=1.70	800	
413.00 > 169.00	3.177	3.177	0.0	1.000	3382552		1.80(0.00-0.00)	3110	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
* 7 13C4 PFOS									
503.00 > 80.00	3.548	3.548	0.0		2842140	2.39		11290	
9 Perfluorononanoic acid									
463.00 > 419.00	3.562	3.562	0.0	1.000	4412811	5.01	Target=3.78	2358	
463.00 > 169.00	3.562	3.562	0.0	1.000	1132278		3.90(0.00-0.00)	6118	
8 Perfluorooctanesulfonic acid									
499.00 > 80.00	3.548	3.564	-0.016	1.000	5907997	4.70	Target=4.63	2764	
499.00 > 99.00	3.548	3.564	-0.016	1.000	1246696		4.74(0.00-0.00)	1070	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.751	3.751	0.0	1.000	9830767	4.86		14682	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.911	3.911	0.0	1.000	3552931	5.10	Target=4.93	1551	
513.00 > 169.00	3.911	3.911	0.0	1.000	703141		5.05(0.00-0.00)	2307	
$ 10 13C2 PFDA									
515.00 > 470.00	3.911	3.911	0.0	1.000	1887830	2.55		7995	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.088	4.088	0.0		511432	2.50		2958	
15 N-methylperfluorooctanesulfonamido									
570.00 > 419.00	4.088	4.088	0.0	1.000	924705	4.83		3551	
17 Perfluoroundecanoic acid									
563.00 > 519.00	4.232	4.232	0.0	1.000	2802491	5.29	Target=4.73	1313	
563.00 > 169.00	4.232	4.232	0.0	1.000	558891		5.01(0.00-0.00)	3549	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.232	4.232	0.0	1.035	522367	2.50		282	
16 N-ethylperfluorooctanesulfonamidoa									
584.00 > 419.00	4.248	4.248	0.0	1.004	868878	4.68		5607	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.351	4.351	0.0	1.000	12306032	4.86		128779	
18 Perfluorododecanoic acid									
613.00 > 569.00	4.506	4.506	0.0	1.000	2733445	5.15	Target=3.49	1506	
613.00 > 169.00	4.506	4.506	0.0	1.000	746927		3.66(0.00-0.00)	4385	
19 Perfluorotridecanoic acid									
663.00 > 619.00	4.756	4.756	0.0	1.000	2055826	5.00	Target=2.87	707	
663.00 > 169.00	4.756	4.756	0.0	1.000	685824		3.00(0.00-0.00)	3349	
20 Perfluorotetradecanoic acid									
713.00 > 169.00	4.972	4.972	0.0	1.000	533639	5.04	Target=1.40	4295	
713.00 > 219.00	4.972	4.972	0.0	1.000	376959		1.42(0.00-0.00)	2247	

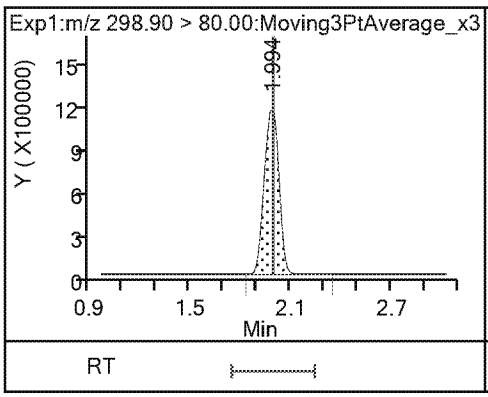
Reagents:

LC537_NC_L6_00003 Amount Added: 1.00 Units: mL

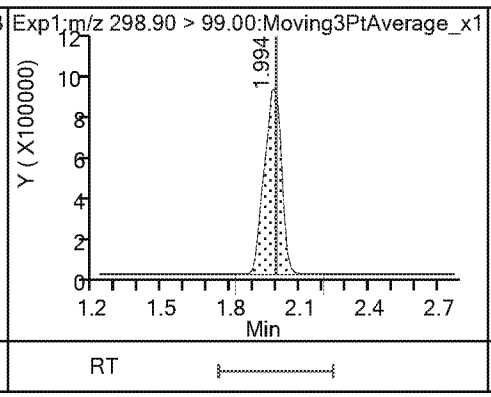
Eurofins TestAmerica, Sacramento

Data File: \\chromna\Sacramento\ChromData\A8_N\20190405-74359.b\2019.04.05_537.1A_026.d
Injection Date: 05-Apr-2019 13:58:07 Instrument ID: A8_N
Lims ID: CCV L6
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 6 Worklist Smp#: 1
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

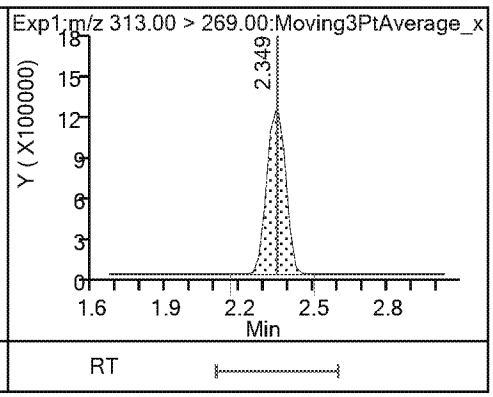
1 Perfluorobutanesulfonic acid



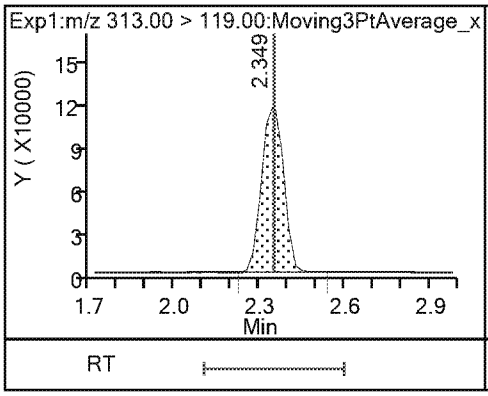
1 Perfluorobutanesulfonic acid



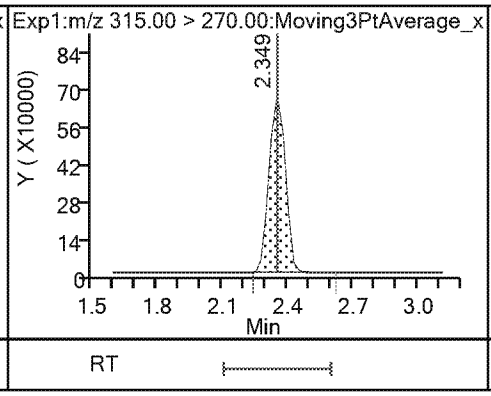
13 Perfluorohexanoic acid



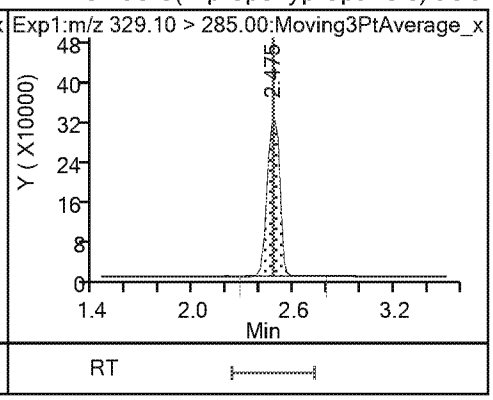
13 Perfluorohexanoic acid



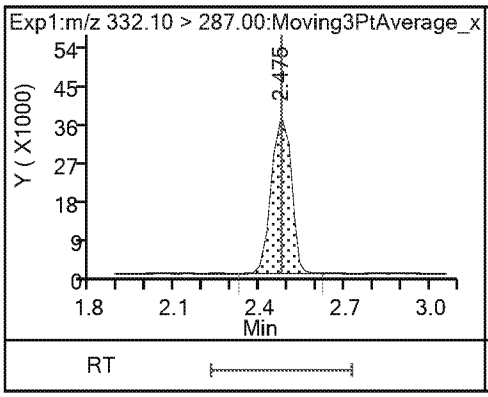
$ 2 13C2 PFHxA



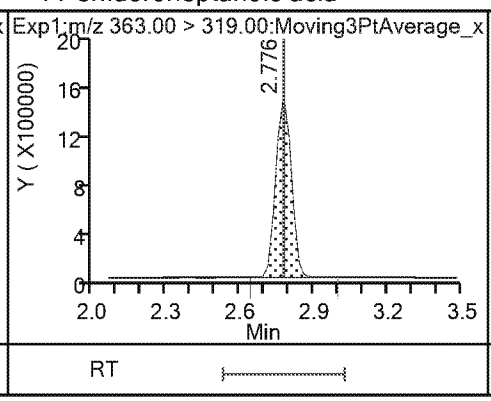
22 Perfluoro(2-propoxypropanoic) acid



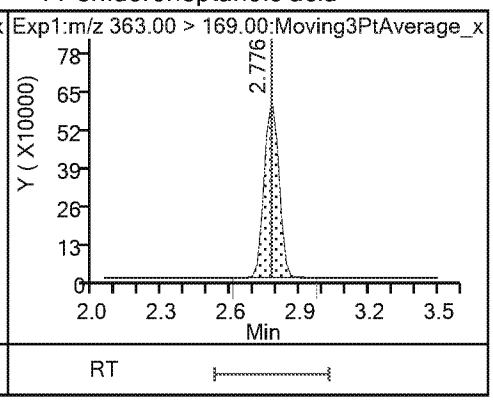
$ 25 13C3 HFPO-DA



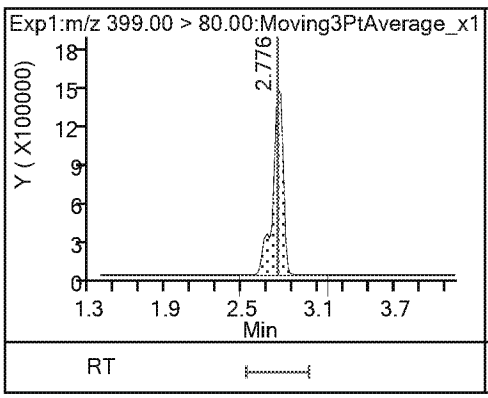
4 Perfluoroheptanoic acid



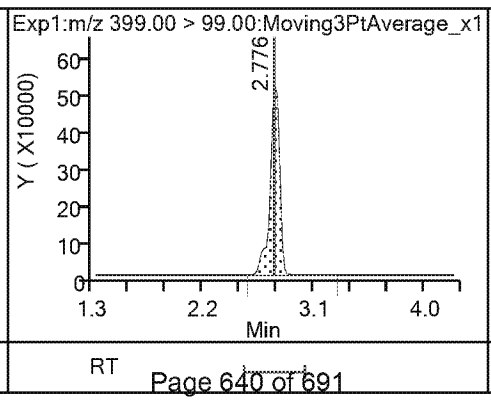
4 Perfluoroheptanoic acid



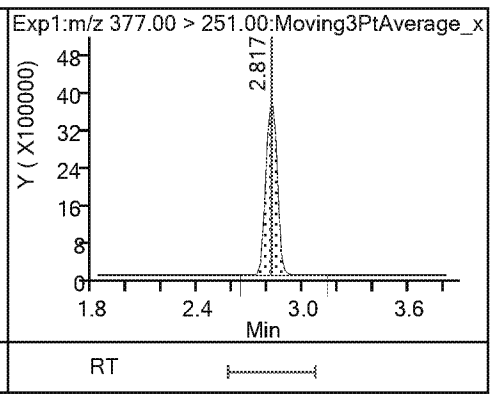
3 Perfluorohexanesulfonic acid



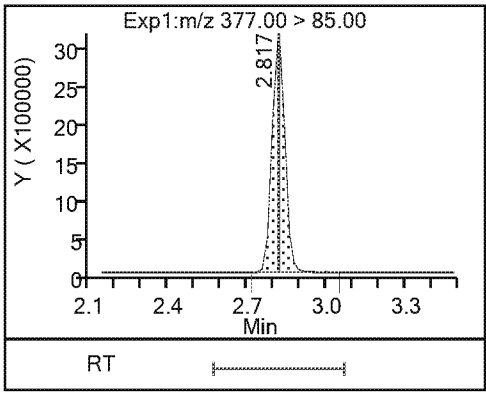
3 Perfluorohexanesulfonic acid



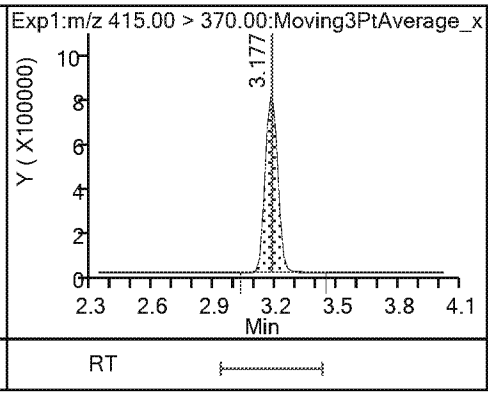
24 DONA



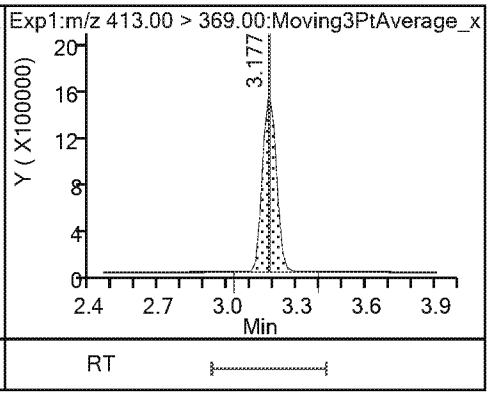
24 DONA



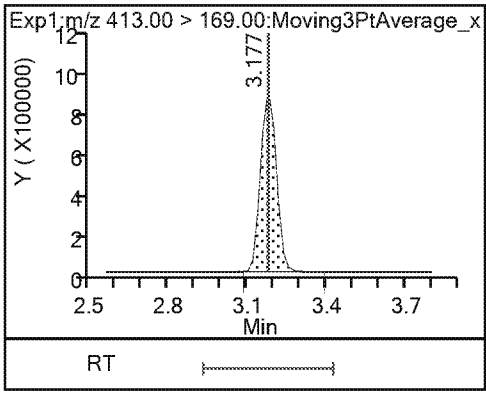
* 5 13C2 PFOA



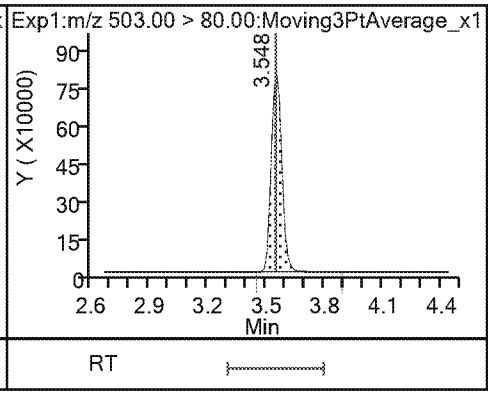
6 Perfluorooctanoic acid



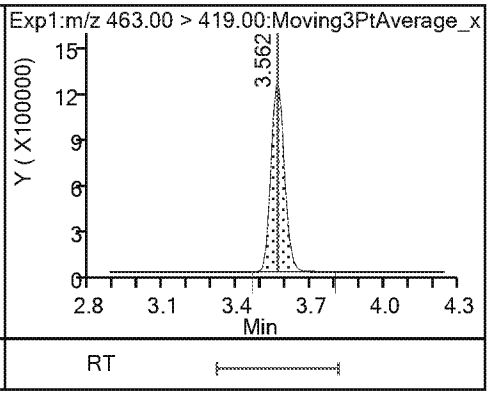
6 Perfluorooctanoic acid



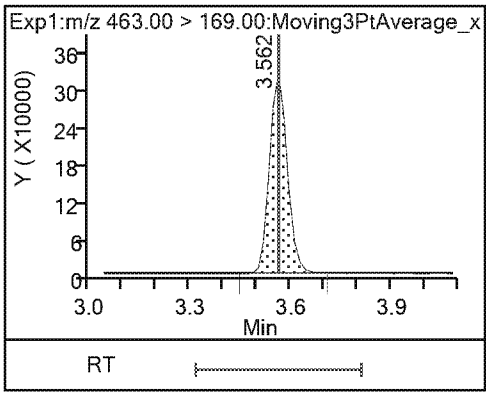
* 7 13C4 PFOS



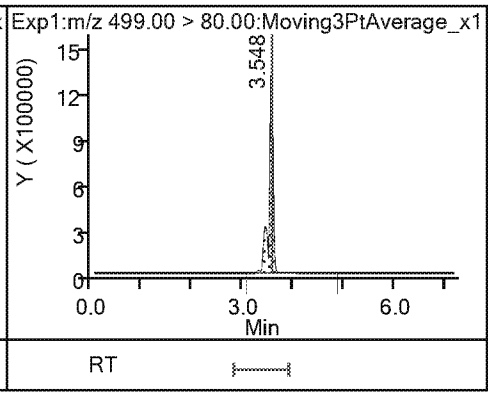
9 Perfluorononanoic acid



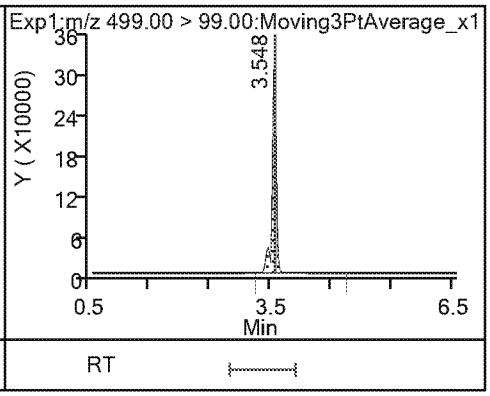
9 Perfluorononanoic acid



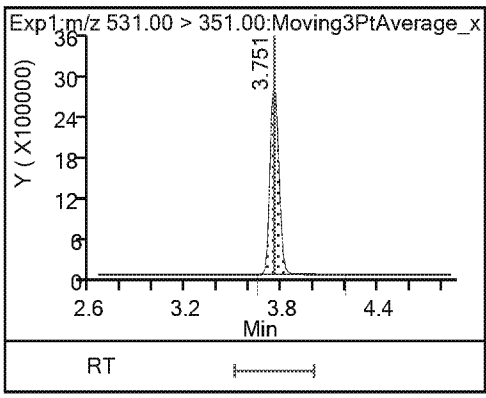
8 Perfluorooctanesulfonic acid



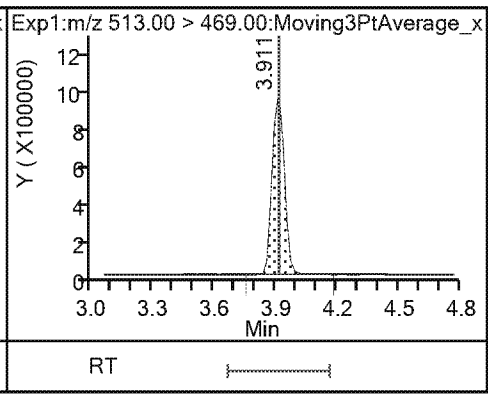
8 Perfluorooctanesulfonic acid



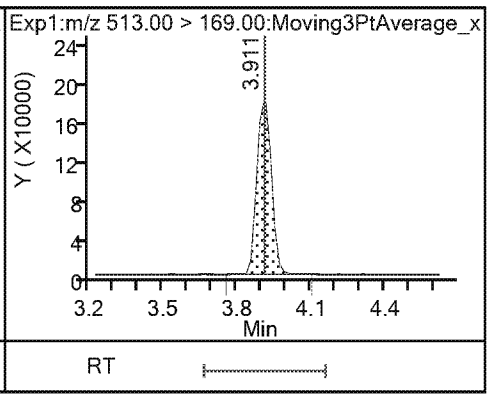
23 9-Chlorohexadecafluoro-3-oxanonane



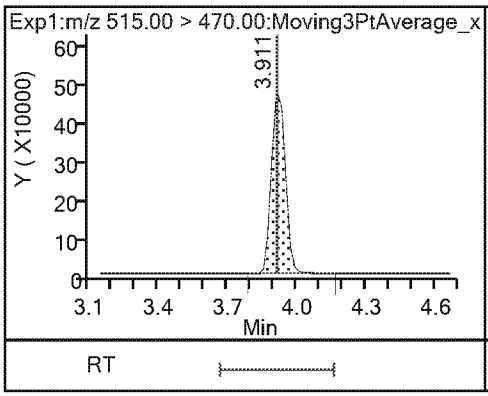
14 Perfluorodecanoic acid



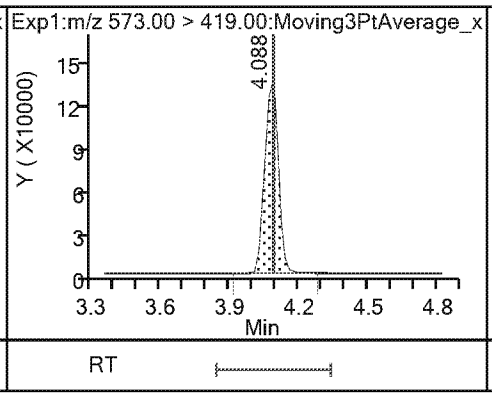
14 Perfluorodecanoic acid



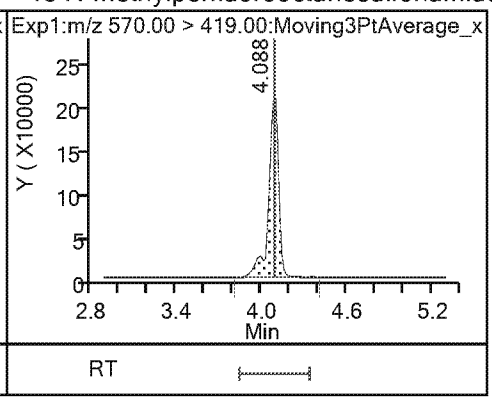
$ 10 13C2 PFDA



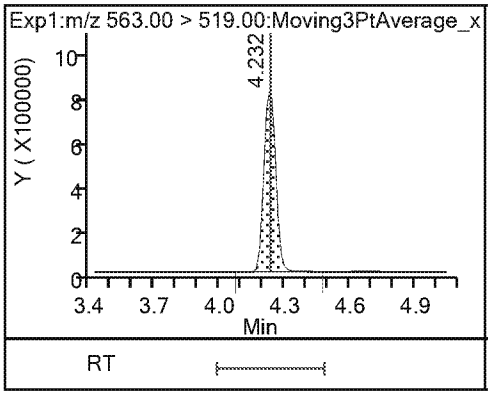
* 12 d3-NMeFOSAA



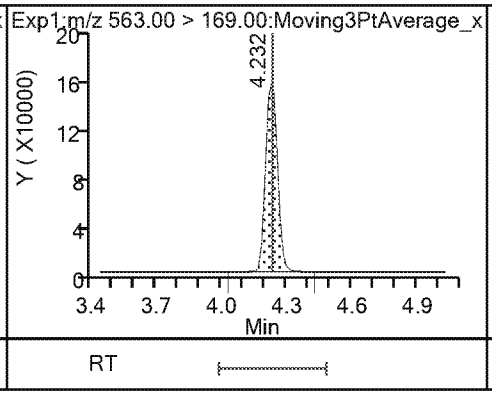
15 N-methylperfluorooctanesulfonamido



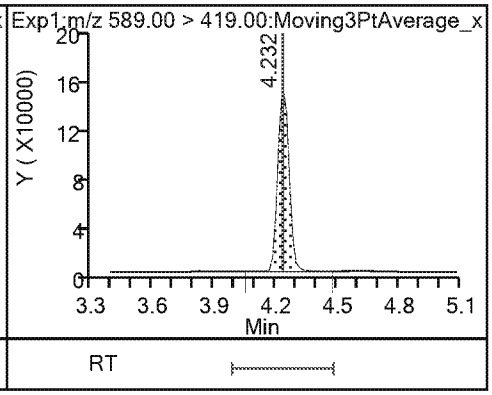
17 Perfluoroundecanoic acid



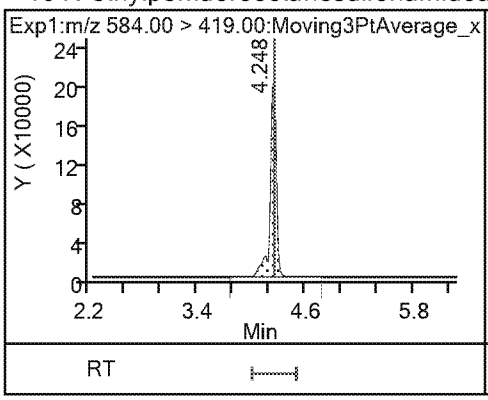
17 Perfluoroundecanoic acid



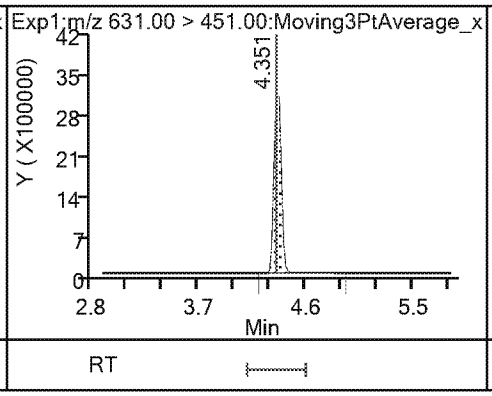
$ 11 d5-NEtFOSAA



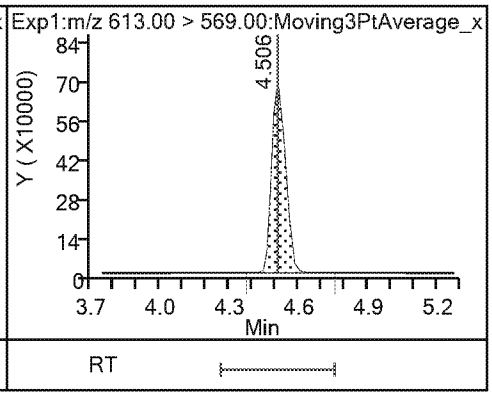
16 N-ethylperfluorooctanesulfonamidoa



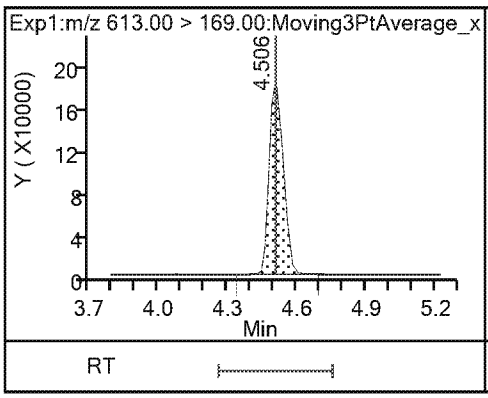
21 11-Chloroeicosafluoro-3-oxaundecan



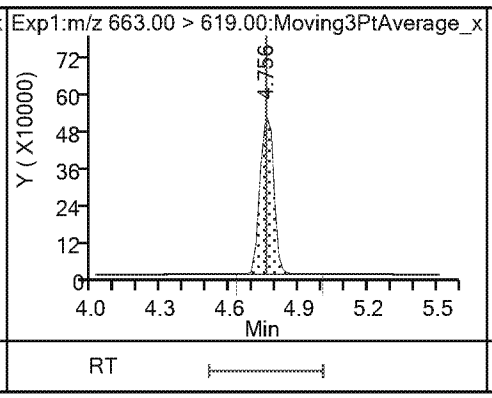
18 Perfluorododecanoic acid



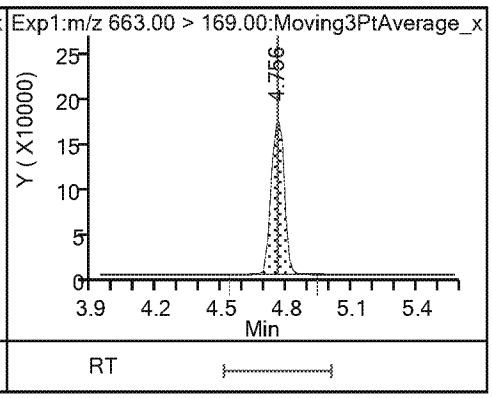
18 Perfluorododecanoic acid



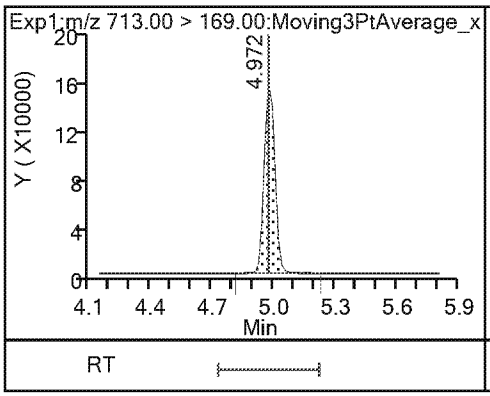
19 Perfluorotridecanoic acid



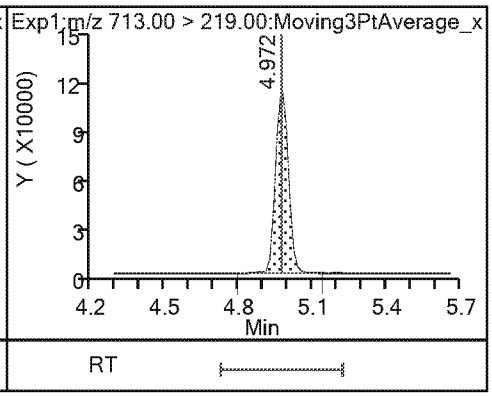
19 Perfluorotridecanoic acid



20 Perfluorotetradecanoic acid



20 Perfluorotetradecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Lab Sample ID: CCV 320-286379/6 Calibration Date: 04/05/2019 14:45

Instrument ID: A8_N Calib Start Date: 04/04/2019 15:14

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 04/04/2019 16:11

Lab File ID: 2019.04.05_537.1A_031.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid	Ave	1.181	1.236		0.925	0.884	4.6	30.0
Perfluorohexanoic acid	Ave	1.113	1.018		0.915	1.00	-8.5	30.0
Perfluoro(2-propoxypropanoic) acid	Ave	0.2705	0.2626		0.971	1.00	-2.9	30.0
Perfluoroheptanoic acid	Ave	1.060	1.107		1.04	1.00	4.5	30.0
Perfluorohexanesulfonic acid	Ave	1.433	1.465		0.930	0.910	2.2	30.0
DONA	Ave	2.887	2.779		0.907	0.942	-3.7	30.0
Perfluorooctanoic acid	Ave	1.014	1.002		0.988	1.00	-1.2	30.0
Perfluorooctanesulfonic acid	Ave	1.056	1.036		0.910	0.928	-1.9	30.0
Perfluorononanoic acid	Ave	0.7390	0.7324		0.991	1.00	-0.9	30.0
9-Chlorohexadecafluoro-3-oxa nonane-1-sulfonate	Ave	1.700	1.732		0.950	0.932	1.9	30.0
Perfluorodecanoic acid	Ave	0.5850	0.5949		1.02	1.00	1.7	30.0
N-methylperfluorooctanesulfo namidoacetic acid	Ave	0.9362	0.8952		0.956	1.00	-4.4	30.0
Perfluoroundecanoic acid	Ave	0.4445	0.4429		0.996	1.00	-0.4	30.0
N-ethylperfluorooctanesulfon amidoacetic acid	Ave	0.9078	0.8895		0.980	1.00	-2.0	30.0
11-Chloroeicosafluoro-3-oxau ndecane-1-sulfonate	Ave	2.131	2.154		0.953	0.942	1.1	30.0
Perfluorododecanoic acid	Ave	0.4456	0.4281		0.961	1.00	-3.9	30.0
Perfluorotridecanoic acid	Ave	0.3452	0.3338		0.967	1.00	-3.3	30.0
Perfluorotetradecanoic acid	Ave	0.0888	0.0854		0.962	1.00	-3.8	30.0
13C2 PFHxA	Ave	1.166	1.141		2.45	2.50	-2.1	30.0
13C2 PFDA	Ave	0.6210	0.6184		2.49	2.50	-0.4	30.0

Eurofins TestAmerica, Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190405-74359.b\2019.04.05_537.1A_031.d
Lims ID: CCV L4
Client ID:
Sample Type: CCVIS
Inject. Date: 05-Apr-2019 14:45:18 ALS Bottle#: 4 Worklist Smp#: 6
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: CCV L4
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub13

Method: \\chromna\Sacramento\ChromData\A8_N\20190405-74359.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Apr-2019 15:06:12 Calib Date: 04-Apr-2019 16:11:08
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190404-74310.b\2019.04.04_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: CTX0314

First Level Reviewer: Ex. 4 CBI Date: 05-Apr-2019 14:59:06
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.976	1.976	0.0	1.000	1333583	0.9248	Target=1.41	6877	
298.90 > 99.00	1.976	1.976	0.0	1.000	888035		1.50(0.00-0.00)	362	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.348	2.348	0.0	0.739	1249822	0.9151	Target=10.46	312	
313.00 > 119.00	2.322	2.348	-0.026	0.731	116694		10.71(0.00-0.00)	136	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.348	2.348	0.0	1.000	3501334	2.45		6005	
22 Perfluoro(2-propoxypropanoic) acid									
329.10 > 285.00	2.474	2.474	0.0	1.000	322300	0.9709		175	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.474	2.474	0.0	1.000	183377	2.85		1023	
4 Perfluoroheptanoic acid									
363.00 > 319.00	2.778	2.778	0.0	1.000	1359128	1.04	Target=2.41	147	
363.00 > 169.00	2.778	2.778	0.0	1.000	536224		2.53(0.00-0.00)	1081	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	2.778	2.778	0.0	1.000	1627418	0.9303	Target=2.91	1835	
399.00 > 99.00	2.778	2.778	0.0	1.000	556803		2.92(0.00-0.00)	204	
24 DONA									
377.00 > 251.00	2.820	2.820	0.0	1.000	3212637	0.9068	Target=1.54	5024	
377.00 > 85.00	2.820	2.820	0.0	1.000	2061752		1.56(0.00-0.00)	200065	
* 5 13C2 PFOA									
415.00 > 370.00	3.177	3.177	0.0		3068176	2.50		10192	
6 Perfluorooctanoic acid									
413.00 > 369.00	3.177	3.177	0.0	1.000	1230067	0.9880	Target=1.70	142	
413.00 > 169.00	3.177	3.177	0.0	1.000	687447		1.79(0.00-0.00)	1027	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
* 7 13C4 PFOS									
503.00 > 80.00	3.549	3.549	0.0		2917818	2.39		10756	
9 Perfluorononanoic acid									
463.00 > 419.00	3.564	3.564	0.0	1.000	898888	0.99	Target=3.78	564	
463.00 > 169.00	3.564	3.564	0.0	1.000	232128		3.87(0.00-0.00)	1468	
8 Perfluorooctanesulfonic acid									
499.00 > 80.00	3.549	3.564	-0.015	1.000	1173772	0.9102	Target=4.63	2651	
499.00 > 99.00	3.549	3.564	-0.015	1.000	254428		4.61(0.00-0.00)	266	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.751	3.751	0.0	1.000	1970329	0.9496		3203	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.895	3.895	0.0	1.000	730048	1.02	Target=4.93	325	
513.00 > 169.00	3.895	3.895	0.0	1.000	146116		5.00(0.00-0.00)	508	
$ 10 13C2 PFDA									
515.00 > 470.00	3.914	3.914	0.0	1.000	1897333	2.49		9775	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.073	4.073	0.0		497222	2.50		2158	
15 N-methylperfluorooctanesulfonamido									
570.00 > 419.00	4.089	4.089	0.0	1.004	178044	0.9562		1363	
17 Perfluoroundecanoic acid									
563.00 > 519.00	4.217	4.217	0.0	1.000	543533	1.00	Target=4.73	288	
563.00 > 169.00	4.217	4.217	0.0	1.000	111888		4.86(0.00-0.00)	980	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.233	4.233	0.0	1.039	527676	2.60		324	
16 N-ethylperfluorooctanesulfonamidoa									
584.00 > 419.00	4.233	4.233	0.0	1.000	176914	0.9798		405	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.352	4.352	0.0	1.000	2477678	0.9525		6451	
18 Perfluorododecanoic acid									
613.00 > 569.00	4.491	4.491	0.0	1.000	525400	0.9608	Target=3.49	300	
613.00 > 169.00	4.491	4.491	0.0	1.000	143983		3.65(0.00-0.00)	1235	
19 Perfluorotridecanoic acid									
663.00 > 619.00	4.756	4.756	0.0	1.000	409630	0.9670	Target=2.87	164	
663.00 > 169.00	4.756	4.756	0.0	1.000	139970		2.93(0.00-0.00)	1172	
20 Perfluorotetradecanoic acid									
713.00 > 169.00	4.972	4.972	0.0	1.000	104779	0.9617	Target=1.40	1471	
713.00 > 219.00	4.972	4.972	0.0	1.000	77111		1.36(0.00-0.00)	926	

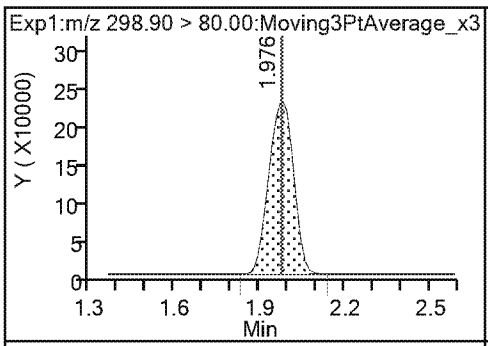
Reagents:

LC537_NC_L4_00003 Amount Added: 1.00 Units: mL

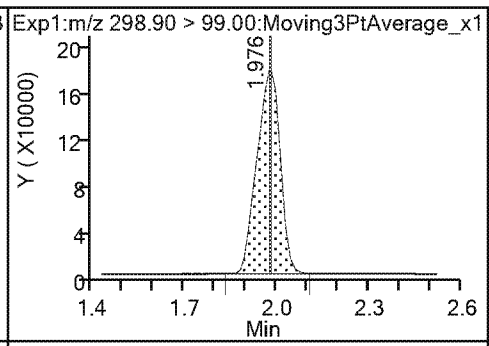
Eurofins TestAmerica, Sacramento

Data File: \\chromna\Sacramento\ChromData\A8_N\20190405-74359.b\2019.04.05_537.1A_031.d
Injection Date: 05-Apr-2019 14:45:18 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 6
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

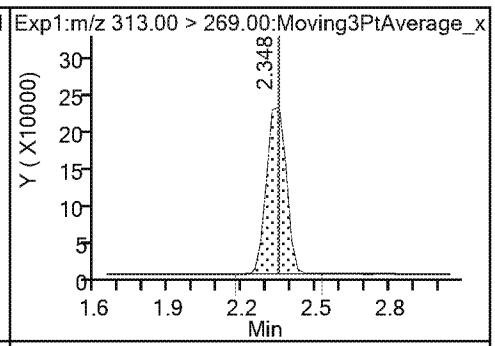
1 Perfluorobutanesulfonic acid



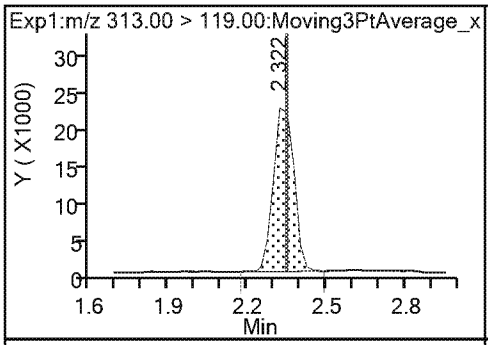
1 Perfluorobutanesulfonic acid



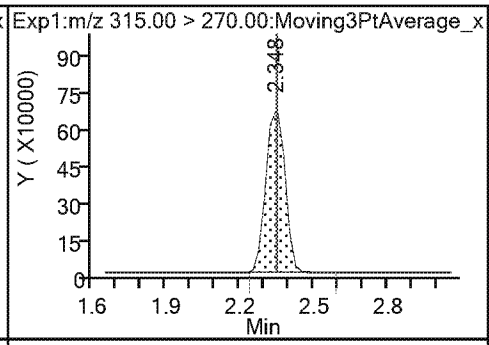
13 Perfluorohexanoic acid



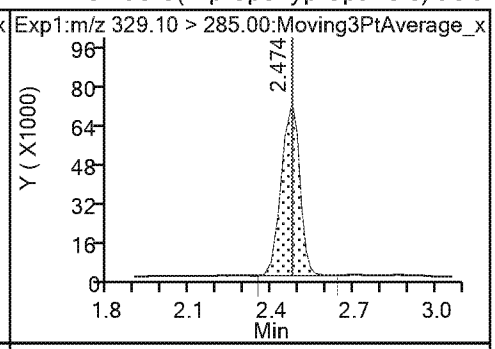
13 Perfluorohexanoic acid



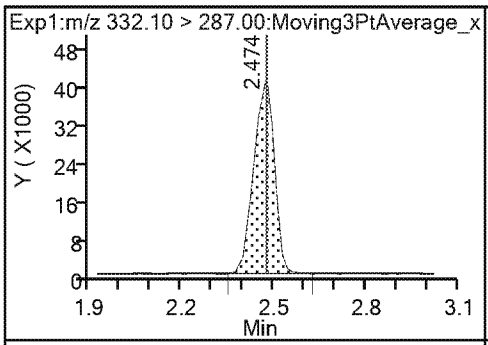
$ 2 13C2 PFHxA



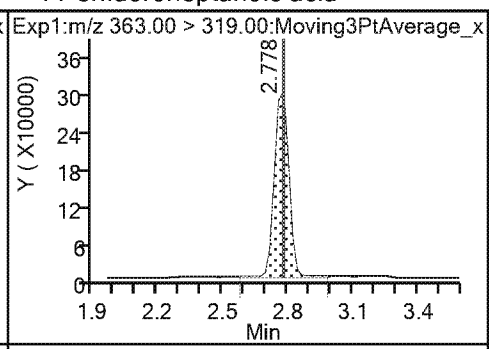
22 Perfluoro(2-propoxypropanoic) acid



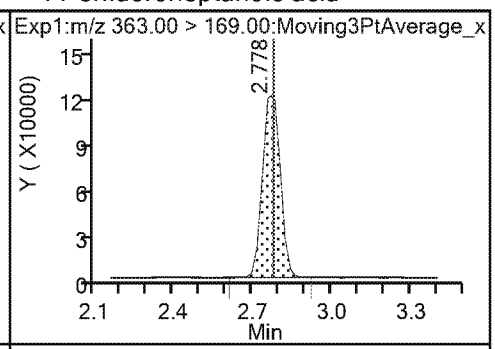
$ 25 13C3 HFPO-DA



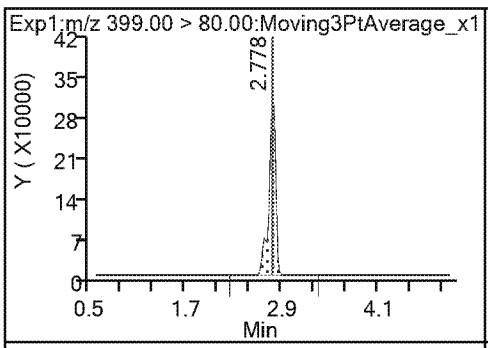
4 Perfluoroheptanoic acid



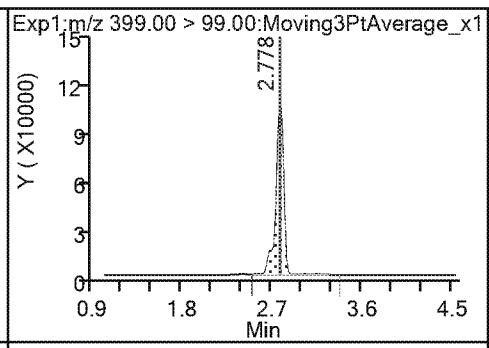
4 Perfluoroheptanoic acid



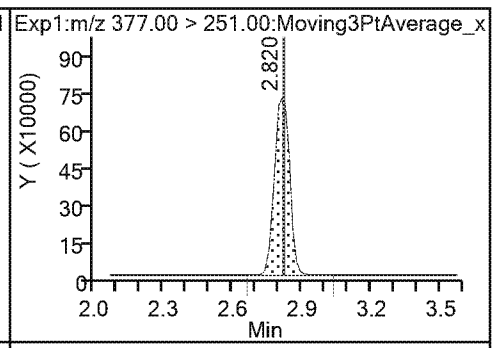
3 Perfluorohexanesulfonic acid



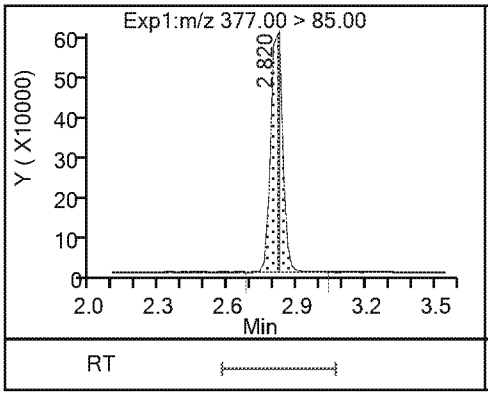
3 Perfluorohexanesulfonic acid



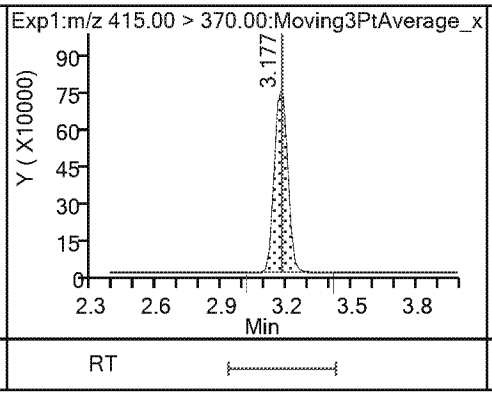
24 DONA



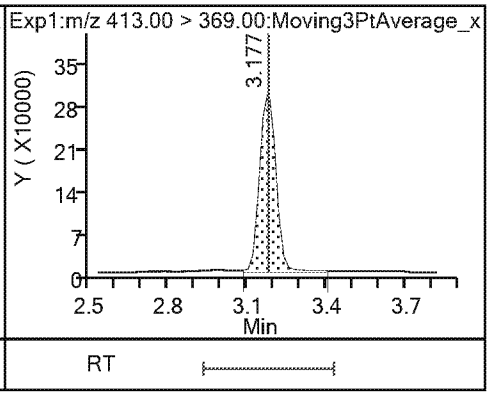
24 DONA



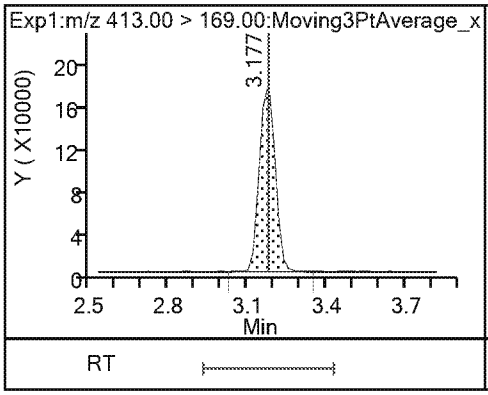
* 5 13C2 PFOA



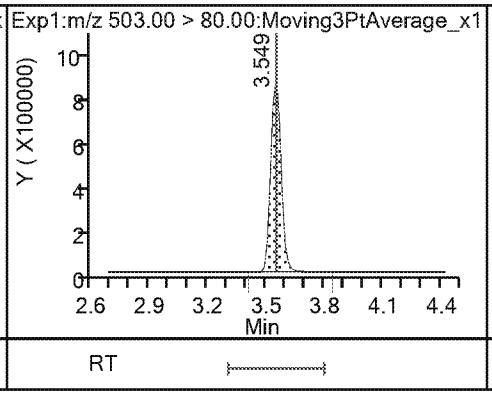
6 Perfluorooctanoic acid



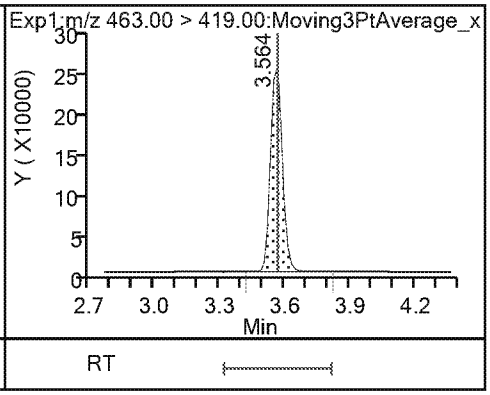
6 Perfluorooctanoic acid



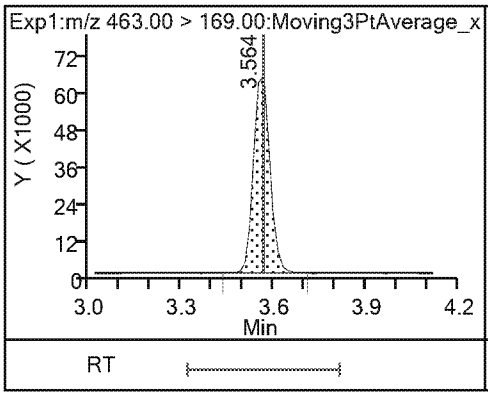
* 7 13C4 PFOS



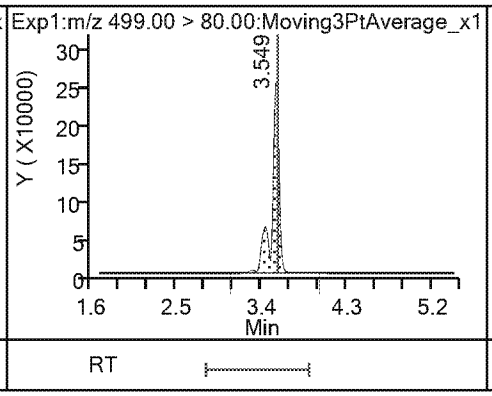
9 Perfluorononanoic acid



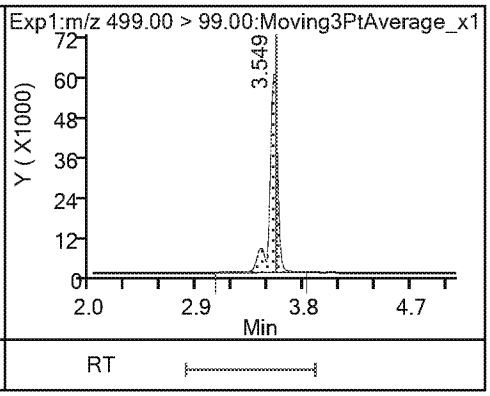
9 Perfluorononanoic acid



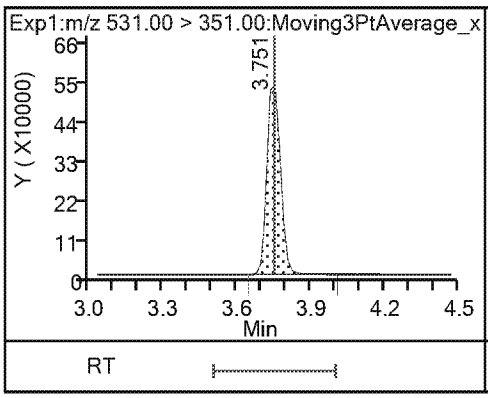
8 Perfluorooctanesulfonic acid



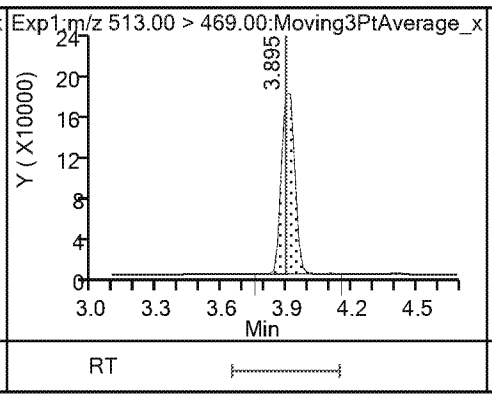
8 Perfluorooctanesulfonic acid



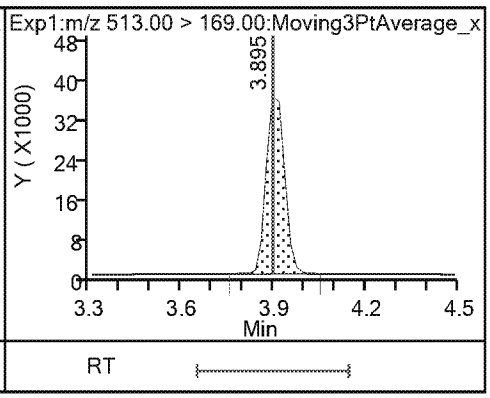
23 9-Chlorohexadecafluoro-3-oxanonane



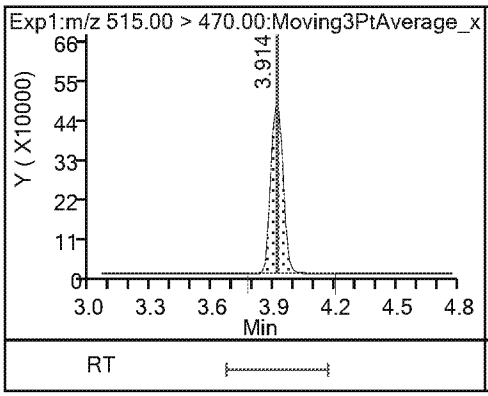
14 Perfluorodecanoic acid



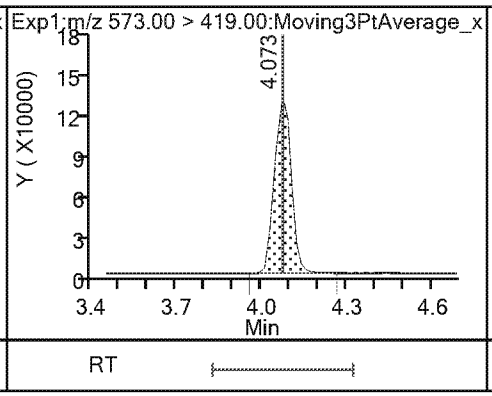
14 Perfluorodecanoic acid



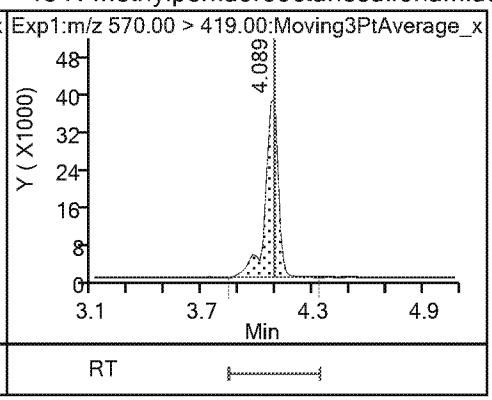
$ 10 13C2 PFDA



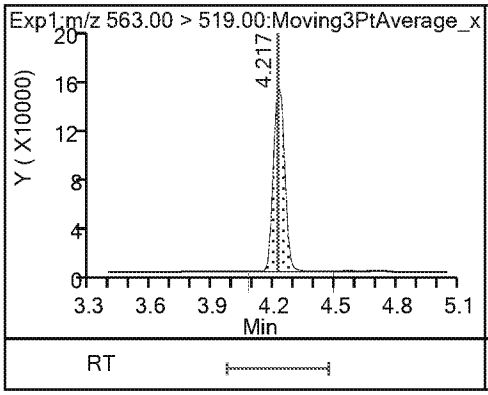
* 12 d3-NMeFOSAA



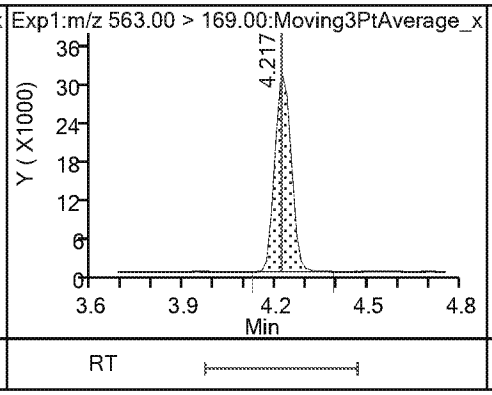
15 N-methylperfluorooctanesulfonamido



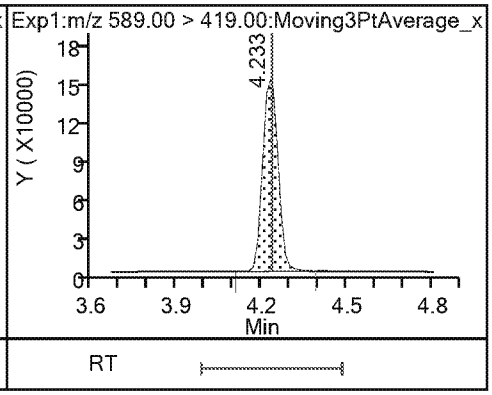
17 Perfluoroundecanoic acid



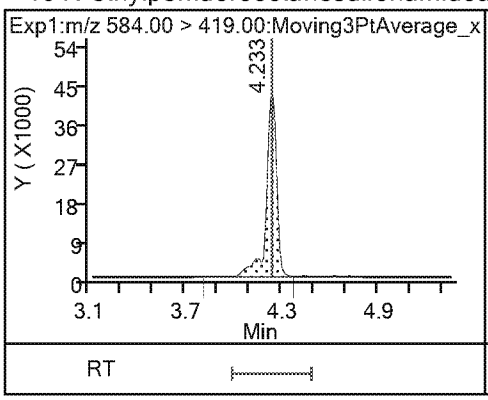
17 Perfluoroundecanoic acid



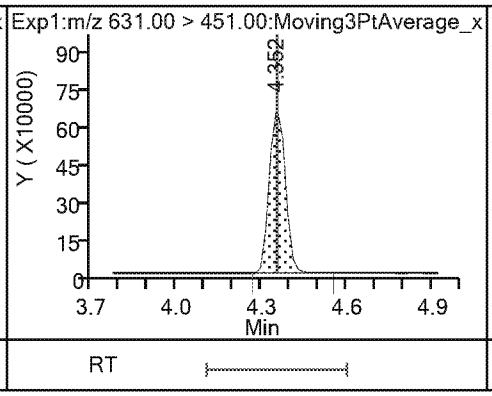
$ 11 d5-NEtFOSAA



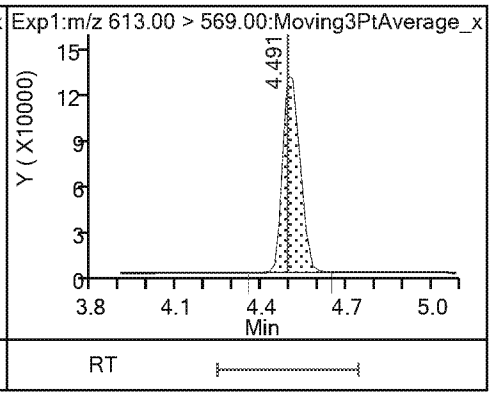
16 N-ethylperfluorooctanesulfonamidoa



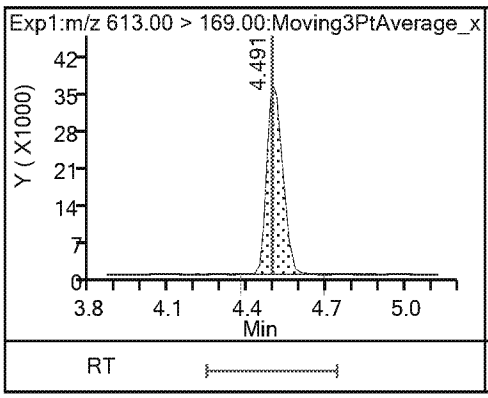
21 11-Chloroeicosafluoro-3-oxaundecan



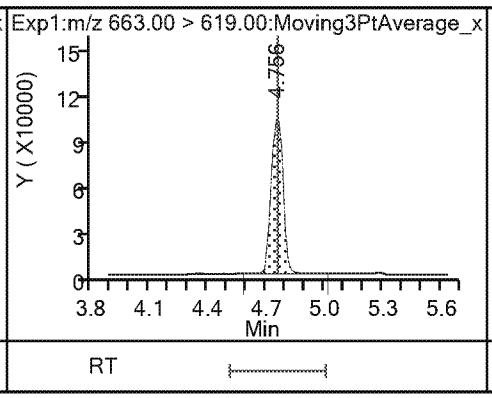
18 Perfluorododecanoic acid



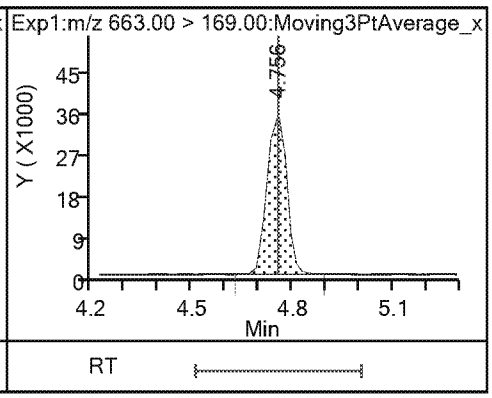
18 Perfluorododecanoic acid



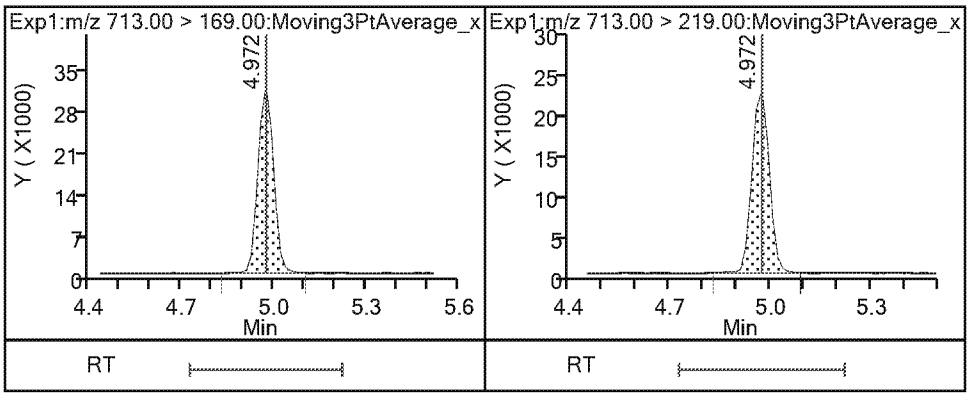
19 Perfluorotridecanoic acid



19 Perfluorotridecanoic acid



20 Perfluorotetradecanoic acid 20 Perfluorotetradecanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID:
Lab Sample ID: MB 320-285397/1-A
Matrix: Water
Lab File ID: 2019.04.02_537A_017.d
Analysis Method: 537 DW
Date Collected:
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 250(mL)
Date Analyzed: 04/03/2019 06:51
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 285757
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	ND		2.0	0.95
335-67-1	Perfluorooctanoic acid	ND		6.0	2.7
375-95-1	Perfluorononanoic acid	ND		2.0	0.47
355-46-4	Perfluorohexanesulfonic acid	ND		2.0	0.64
375-85-9	Perfluoroheptanoic acid	ND		3.0	1.3
375-73-5	Perfluorobutanesulfonic acid	ND		2.0	0.80

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	98		70-130
STL00996	13C2 PFDA	101		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_017.d
Lims ID: MB 320-285397/1-A
Client ID:
Sample Type: MB
Inject. Date: 03-Apr-2019 06:51:25 ALS Bottle#: 7 Worklist Smp#: 14
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: MB 320-285397/1-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 09:59:47 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0328

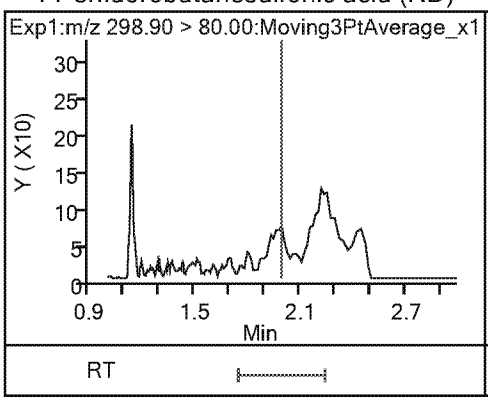
First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 09:59:47
Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	2.348	2.347	0.001	1.000	3214730	2.45		6936	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.474	2.490	-0.016	1.000	165450	2.77		1147	
* 5 13C2 PFOA									
415.00 > 370.00	3.177	3.177	0.0		2830167	2.50		9142	
* 7 13C4 PFOS									
503.00 > 80.00	3.564	3.565	-0.001		2886220	2.39		6940	
$ 10 13C2 PFDA									
515.00 > 470.00	3.930	3.934	-0.004	1.000	1768666	2.53		8981	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.086	4.090	-0.004		537326	2.50		4607	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.247	4.250	-0.003	1.039	473389	2.16		249	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.386	4.375	0.011	1.000	2220	0.000864		8.5	

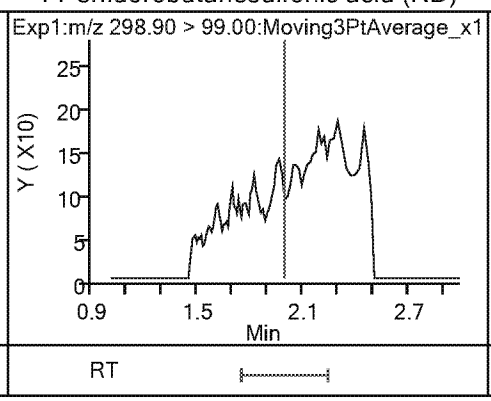
TestAmerica Sacramento

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_017.d
Injection Date: 03-Apr-2019 06:51:25 Instrument ID: A8_N
Lims ID: MB 320-285397/1-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 7 Worklist Smp#: 14
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

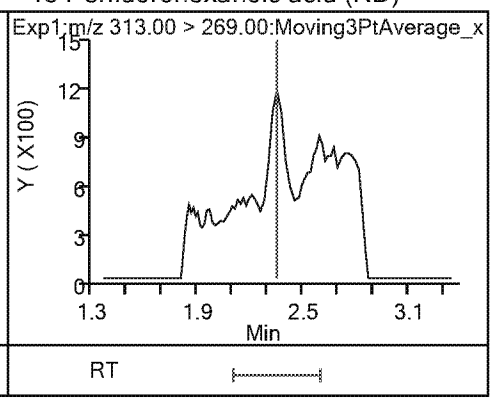
1 Perfluorobutanesulfonic acid (ND)



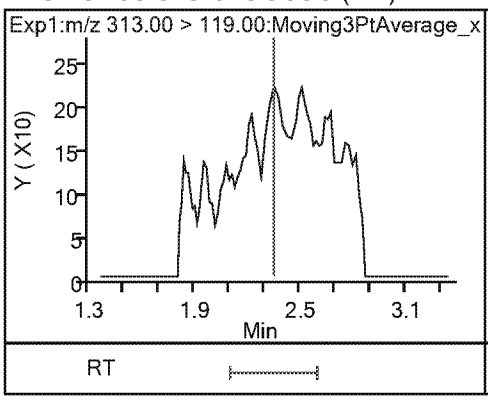
1 Perfluorobutanesulfonic acid (ND)



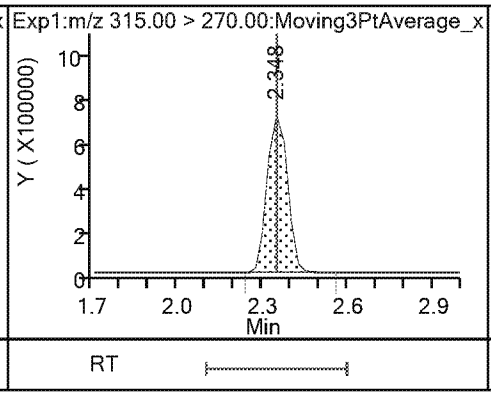
13 Perfluorohexanoic acid (ND)



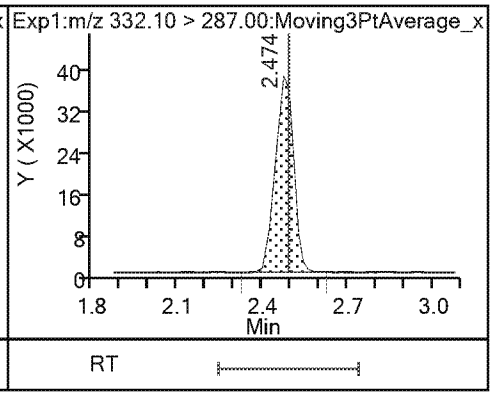
13 Perfluorohexanoic acid (ND)



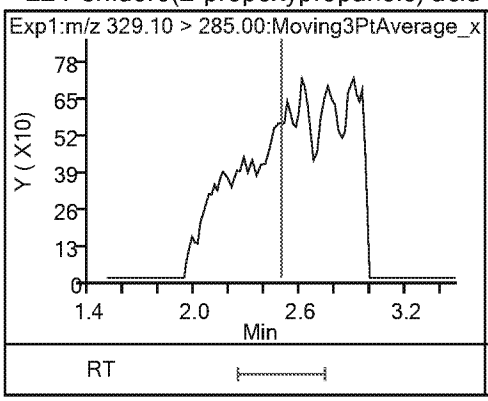
$ 2 13C2 PFHxA



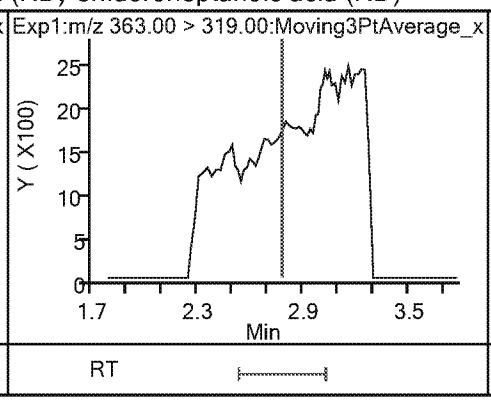
$ 25 13C3 HFPO-DA



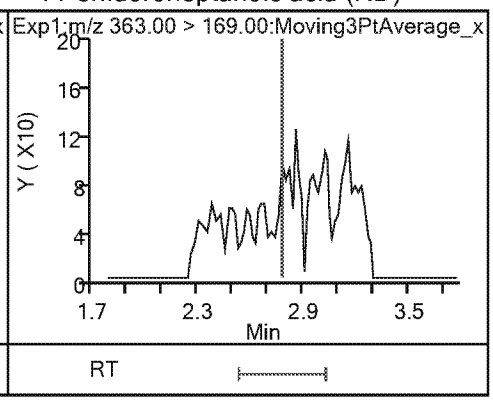
22 Perfluoro(2-propoxypropanoic) acid (ND)



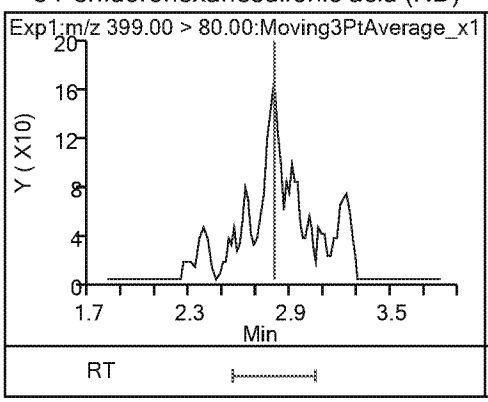
4 Perfluoroheptanoic acid (ND)



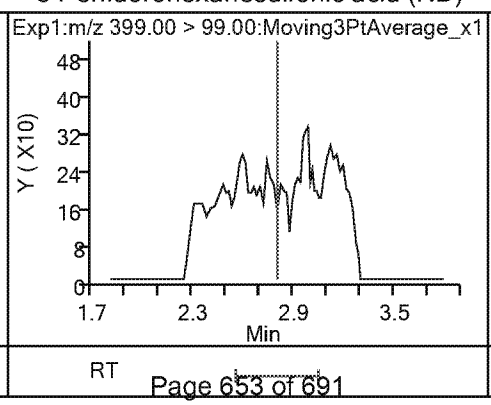
4 Perfluoroheptanoic acid (ND)



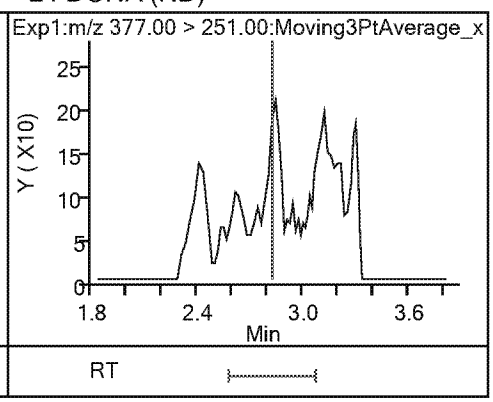
3 Perfluorohexanesulfonic acid (ND)



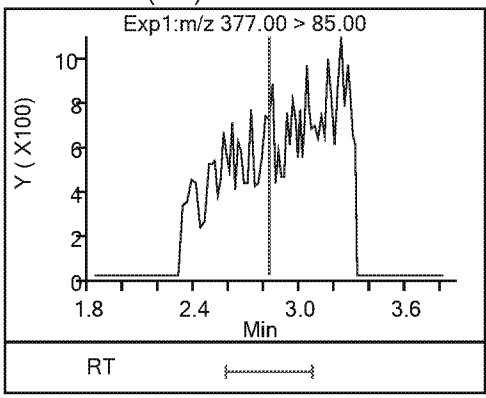
3 Perfluorohexanesulfonic acid (ND)



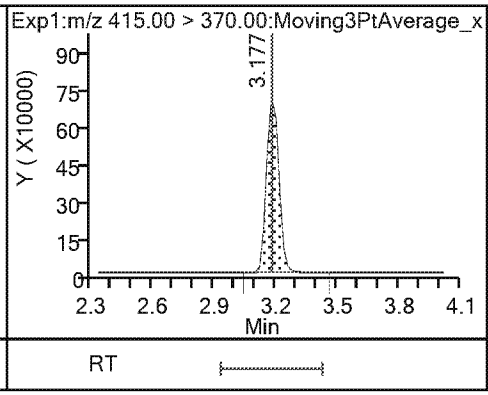
24 DONA (ND)



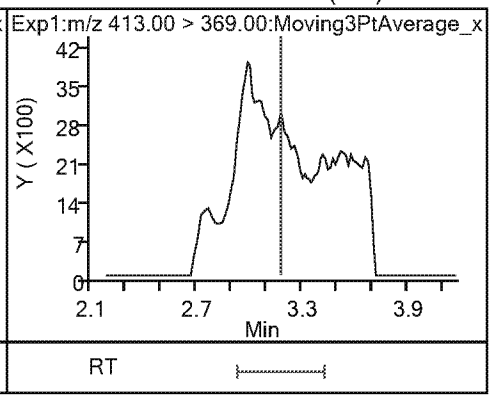
24 DONA (ND)



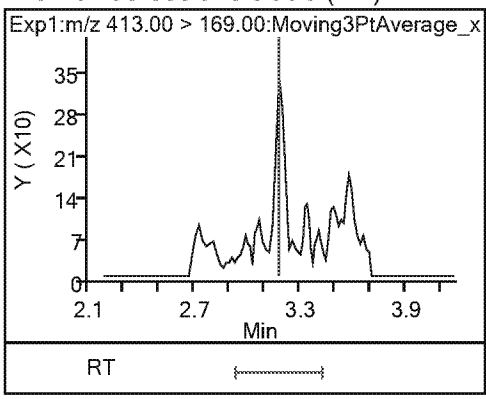
* 5 13C2 PFOA



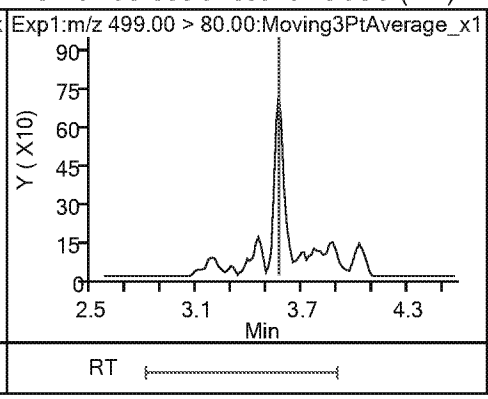
6 Perfluorooctanoic acid (ND)



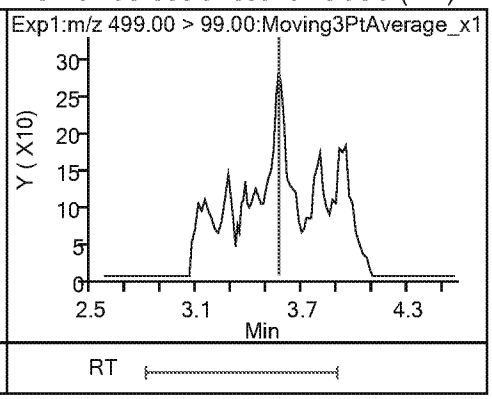
6 Perfluorooctanoic acid (ND)



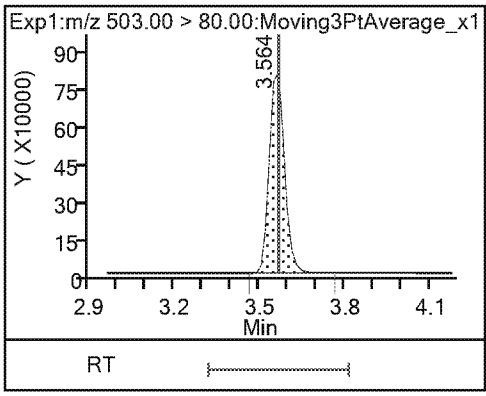
8 Perfluorooctanesulfonic acid (ND)



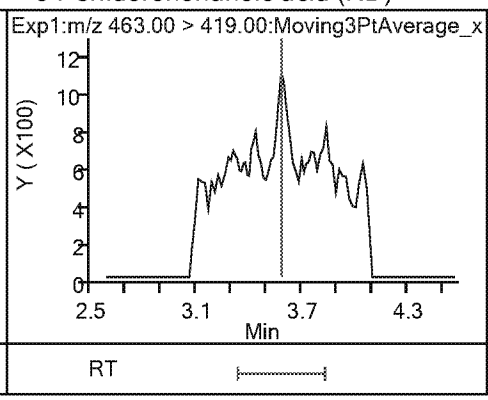
8 Perfluorooctanesulfonic acid (ND)



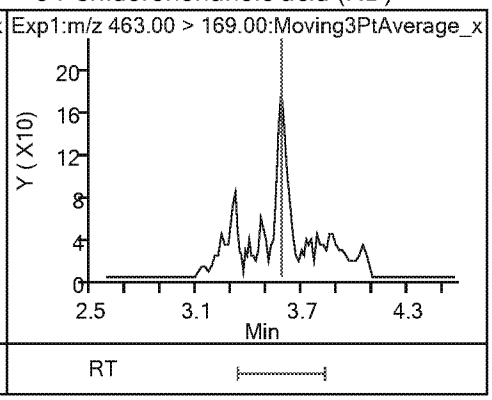
* 7 13C4 PFOS



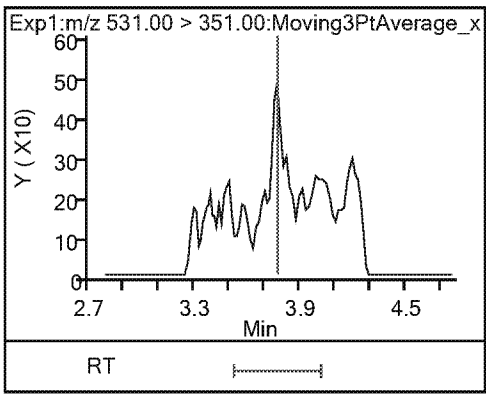
9 Perfluorononanoic acid (ND)



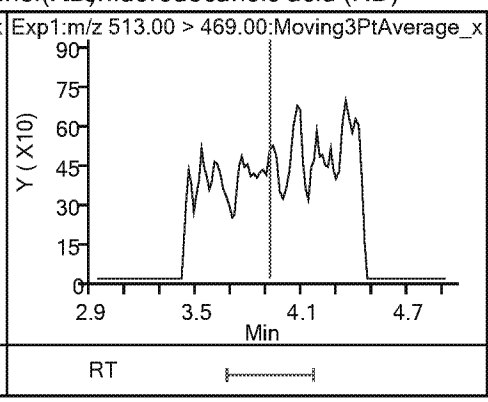
9 Perfluorononanoic acid (ND)



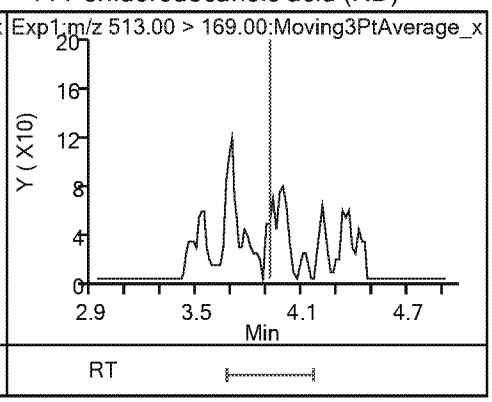
23 9-Chlorohexadecafluoro-3-oxanonane1(ND)



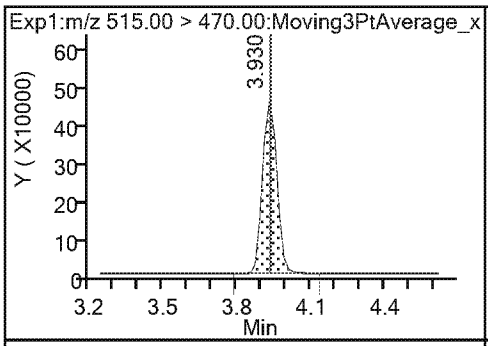
14 Perfluorodecanoic acid (ND)



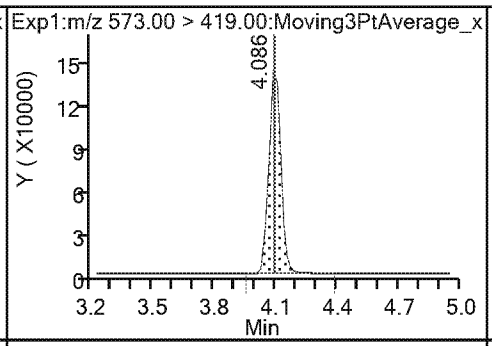
14 Perfluorodecanoic acid (ND)



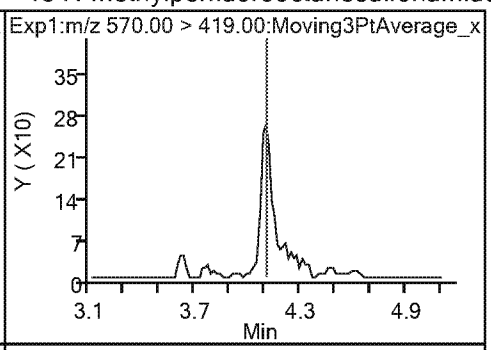
$ 10 13C2 PFDA



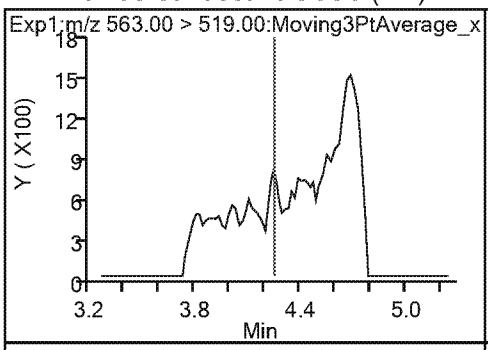
* 12 d3-NMeFOSAA



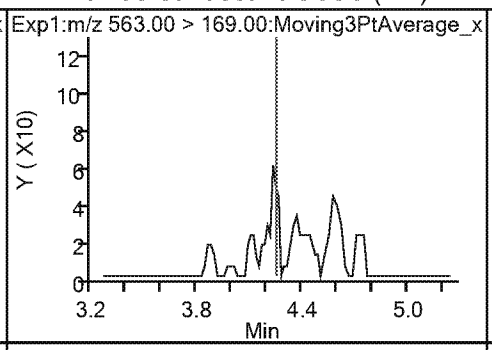
15 N-methylperfluorooctanesulfonamido (ND)



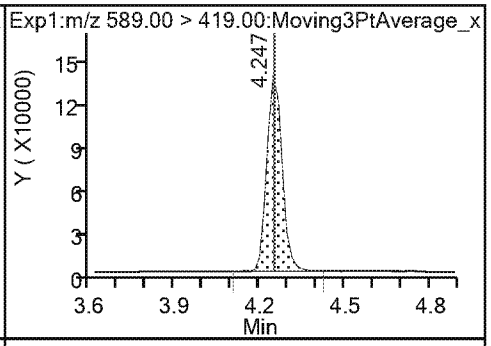
17 Perfluoroundecanoic acid (ND)



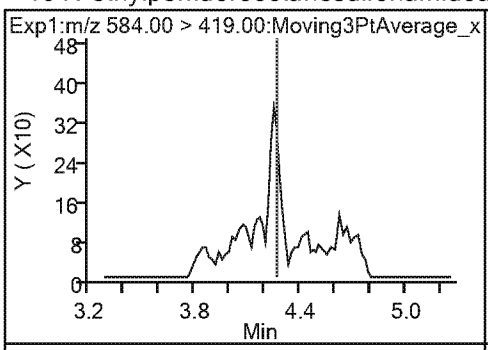
17 Perfluoroundecanoic acid (ND)



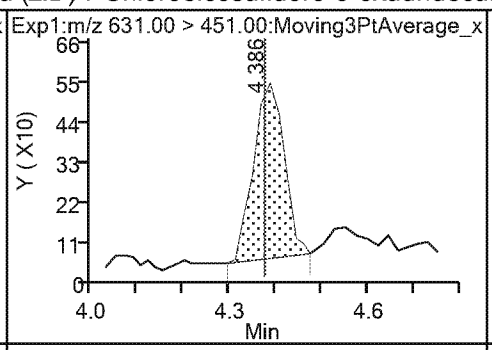
$ 11 d5-NEtFOSAA



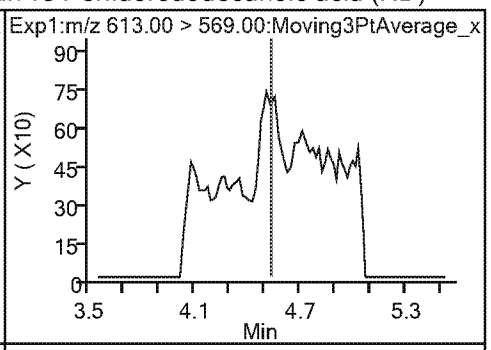
16 N-ethylperfluorooctanesulfonamidoa (ND)



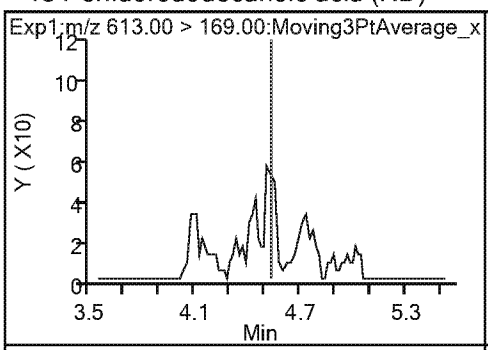
21 11-Chloroeicosafluoro-3-oxaundecan



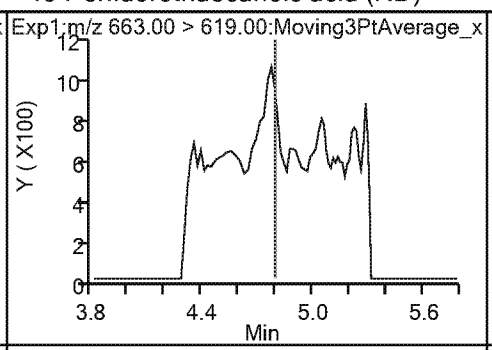
18 Perfluorododecanoic acid (ND)



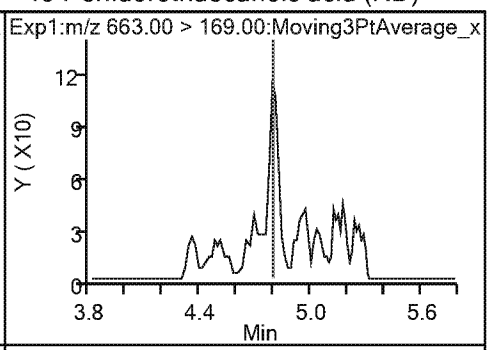
18 Perfluorododecanoic acid (ND)



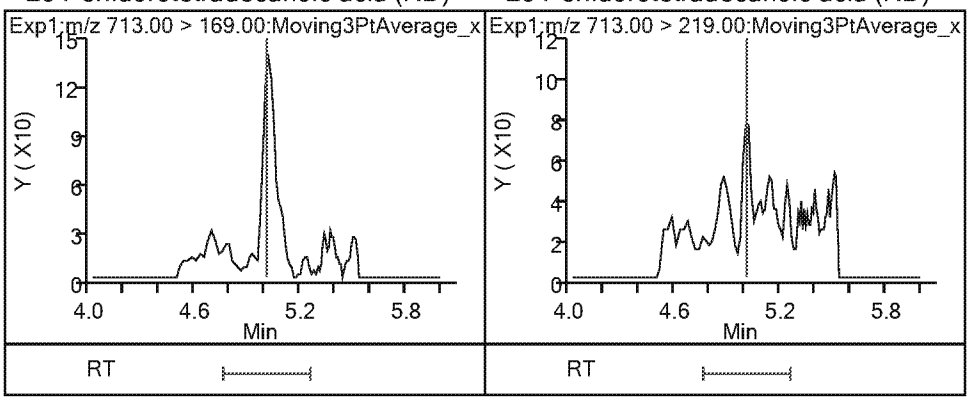
19 Perfluorotridecanoic acid (ND)



19 Perfluorotridecanoic acid (ND)



20 Perfluorotetradecanoic acid (ND) 20 Perfluorotetradecanoic acid (ND)



TestAmerica Sacramento
Recovery Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_017.d
Lims ID: MB 320-285397/1-A
Client ID:
Sample Type: MB
Inject. Date: 03-Apr-2019 06:51:25 ALS Bottle#: 7 Worklist Smp#: 14
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: MB 320-285397/1-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 09:59:47 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0328

First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 09:59:47

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	2.50	2.45	98.09
$ 25 13C3 HFPO-DA	2.50	2.77	110.99
$ 10 13C2 PFDA	2.50	2.53	101.37
$ 11 d5-NEtFOSAA	2.50	2.16	86.39

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID:
Lab Sample ID: LCS 320-285397/2-A
Matrix: Water
Lab File ID: 2019.04.02_537A_018.d
Analysis Method: 537 DW
Date Collected:
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 250(mL)
Date Analyzed: 04/03/2019 06:58
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 285757
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	184		2.0	0.95
335-67-1	Perfluorooctanoic acid	206		6.0	2.7
375-95-1	Perfluorononanoic acid	200		2.0	0.47
355-46-4	Perfluorohexanesulfonic acid	181		2.0	0.64
375-85-9	Perfluoroheptanoic acid	195		3.0	1.3
375-73-5	Perfluorobutanesulfonic acid	171		2.0	0.80

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	97		70-130
STL00996	13C2 PFDA	102		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_018.d
Lims ID: LCS 320-285397/2-A
Client ID:
Sample Type: LCS
Inject. Date: 03-Apr-2019 06:58:54 ALS Bottle#: 8 Worklist Smp#: 15
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: LCS 320-285397/2-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 10:28:36 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 10:24:17
Ratio Calibration: None

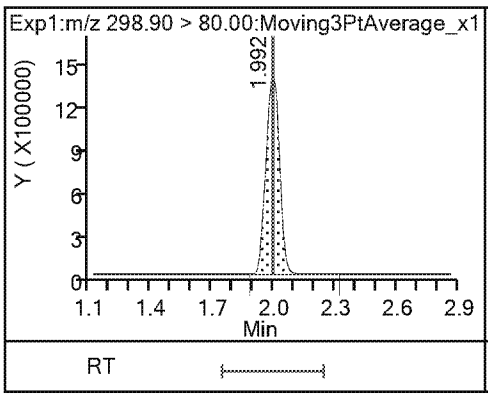
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.992	1.992	0.0	1.000	6056366	4.27	Target=1.47	34222	
298.90 > 99.00	1.992	1.992	0.0	1.000	4103925		1.48(0.00-0.00)	9278	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.347	2.347	0.0	0.735	5968857	4.87	Target=11.08	2026	
313.00 > 119.00	2.347	2.347	0.0	0.735	577177		10.34(0.00-0.00)	930	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.347	2.347	0.0	1.000	3156447	2.44		5045	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.473	2.490	-0.017	1.000	166024	2.82		1140	
22 Perfluoro(2-propoxypropanoic) acid									
329.10 > 285.00	2.498	2.490	0.008	1.010	1558490	5.40		797	
4 Perfluoroheptanoic acid									
363.00 > 319.00	2.790	2.778	0.012	1.000	5902712	4.88	Target=2.42	858	
363.00 > 169.00	2.790	2.778	0.012	1.000	2388898		2.47(0.00-0.00)	5256	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	2.790	2.798	-0.008	1.000	7555317	4.53	Target=2.92	6189	
399.00 > 99.00	2.790	2.798	-0.008	1.000	2566784		2.94(0.00-0.00)	1879	
24 DONA									
377.00 > 251.00	2.832	2.819	0.013	1.000	15147553	4.69	Target=1.50	12747	
377.00 > 85.00	2.832	2.819	0.013	1.000	9591833		1.58(0.00-0.00)	341623	
* 5 13C2 PFOA									
415.00 > 370.00	3.194	3.177	0.017		2796041	2.50		6845	
6 Perfluorooctanoic acid									
413.00 > 369.00	3.194	3.177	0.017	1.000	5880297	5.16	Target=1.75	670	
413.00 > 169.00	3.194	3.177	0.017	1.000	3257157		1.81(0.00-0.00)	4980	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
8 Perfluorooctanesulfonic acid									
499.00 > 80.00	3.565	3.564	0.001	1.000	5702544	4.60	Target=4.69	16638	
499.00 > 99.00	3.565	3.564	0.001	1.000	1189419		4.79(0.00-0.00)	2002	
* 7 13C4 PFOS									
503.00 > 80.00	3.565	3.565	0.0		2799830	2.39		15675	
9 Perfluorononanoic acid									
463.00 > 419.00	3.579	3.580	-0.001	1.000	4171991	5.00	Target=3.96	2122	
463.00 > 169.00	3.579	3.580	-0.001	1.000	1045773		3.99(0.00-0.00)	8852	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.772	3.769	0.003	1.000	9121053	4.56		8943	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.917	3.915	0.002	1.000	3484678	5.32	Target=5.01	1961	
513.00 > 169.00	3.917	3.915	0.002	1.000	659217		5.29(0.00-0.00)	5576	
$ 10 13C2 PFDA									
515.00 > 470.00	3.936	3.934	0.002	1.000	1758867	2.55		6108	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.094	4.090	0.004		535482	2.50		3105	
15 N-methylperfluorooctanesulfonamido									
570.00 > 419.00	4.094	4.106	-0.012	1.000	864788	4.38		4066	
17 Perfluoroundecanoic acid									
563.00 > 519.00	4.239	4.250	-0.011	1.000	2530375	4.98	Target=4.98	962	
563.00 > 169.00	4.239	4.250	-0.011	1.000	523038		4.84(0.00-0.00)	5061	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.255	4.250	0.005	1.039	475714	2.18		239	
16 N-ethylperfluorooctanesulfonamidoa									
584.00 > 419.00	4.255	4.266	-0.011	1.000	832029	4.44		1565	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.382	4.375	0.007	1.000	12103073	4.85		19626	
18 Perfluorododecanoic acid									
613.00 > 569.00	4.515	4.532	-0.017	1.000	2490984	5.04	Target=3.56	1298	
613.00 > 169.00	4.515	4.532	-0.017	1.000	713717		3.49(0.00-0.00)	5094	
19 Perfluorotridecanoic acid									
663.00 > 619.00	4.781	4.793	-0.012	1.000	2125068	5.20	Target=2.92	805	
663.00 > 169.00	4.781	4.793	-0.012	1.000	716129		2.97(0.00-0.00)	4215	
20 Perfluorotetradecanoic acid									
713.00 > 169.00	5.011	5.005	0.006	1.000	525297	4.65	Target=1.42	2863	
713.00 > 219.00	5.011	5.005	0.006	1.000	376791		1.39(0.00-0.00)	2099	

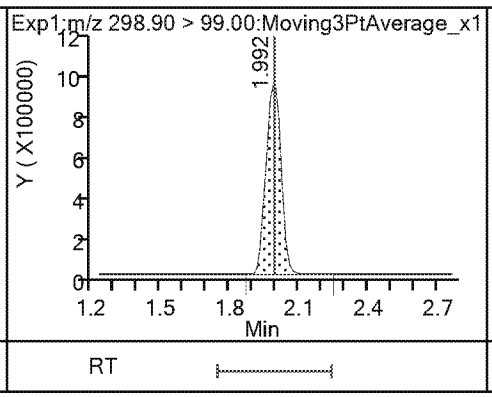
TestAmerica Sacramento

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_018.d
Injection Date: 03-Apr-2019 06:58:54 Instrument ID: A8_N
Lims ID: LCS 320-285397/2-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 8 Worklist Smp#: 15
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

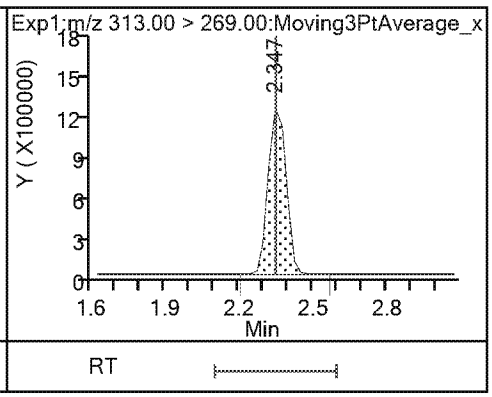
1 Perfluorobutanesulfonic acid



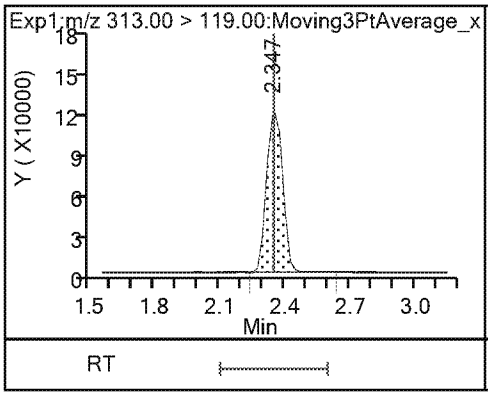
1 Perfluorobutanesulfonic acid



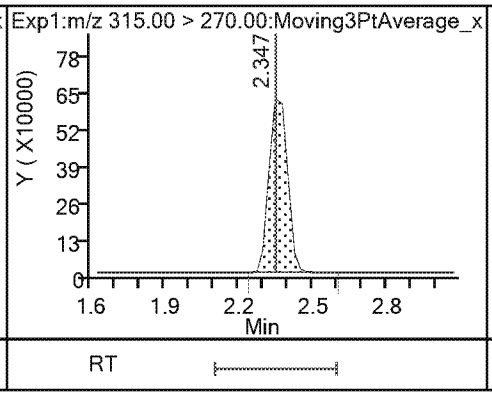
13 Perfluorohexanoic acid



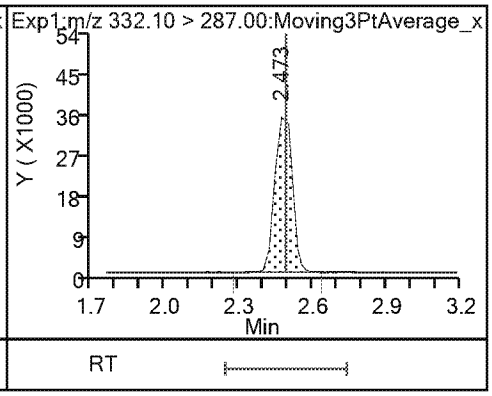
13 Perfluorohexanoic acid



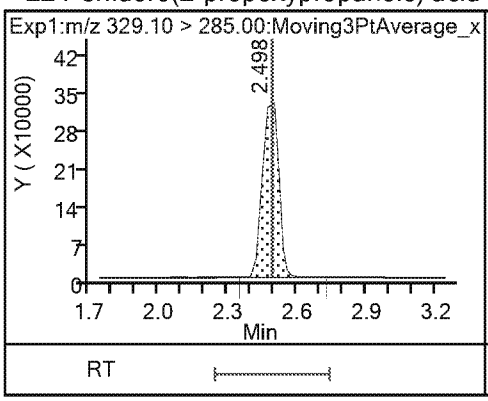
$ 2 13C2 PFHxA



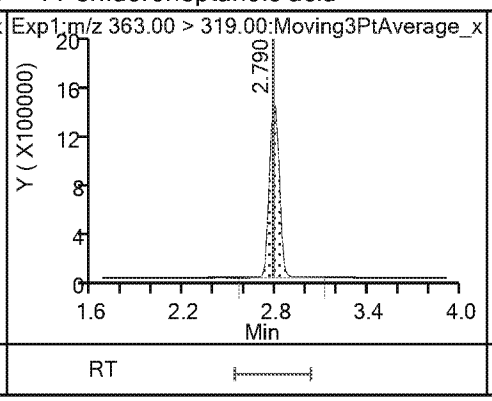
$ 25 13C3 HFPO-DA



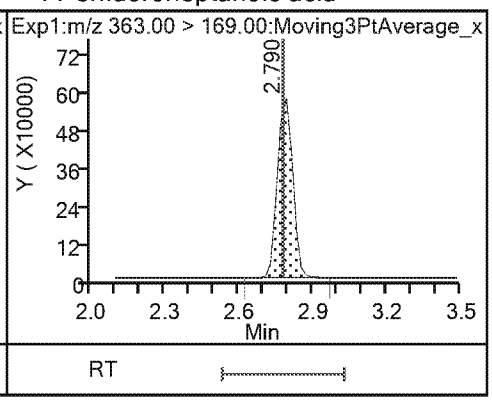
22 Perfluoro(2-propoxypropanoic) acid



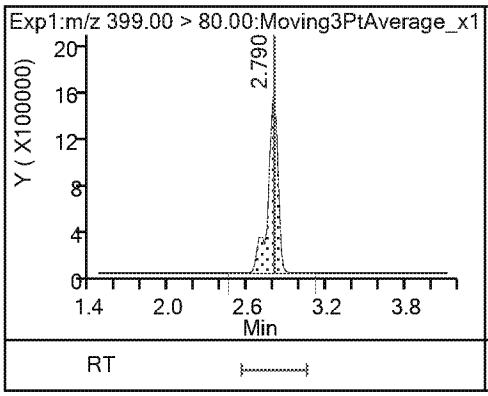
4 Perfluoroheptanoic acid



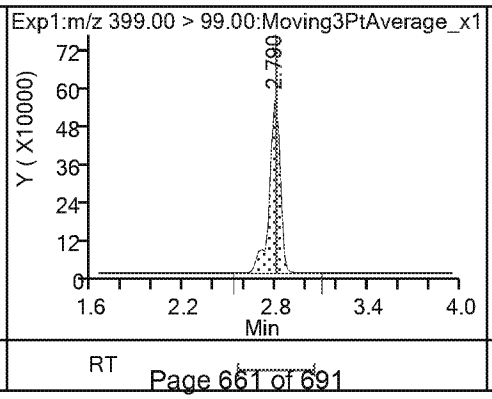
4 Perfluoroheptanoic acid



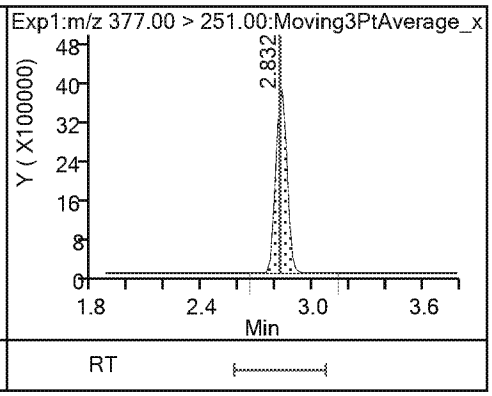
3 Perfluorohexanesulfonic acid



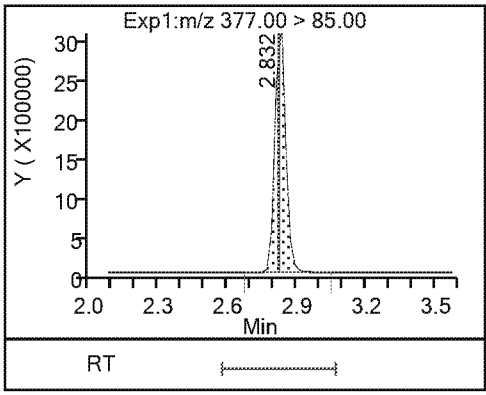
3 Perfluorohexanesulfonic acid



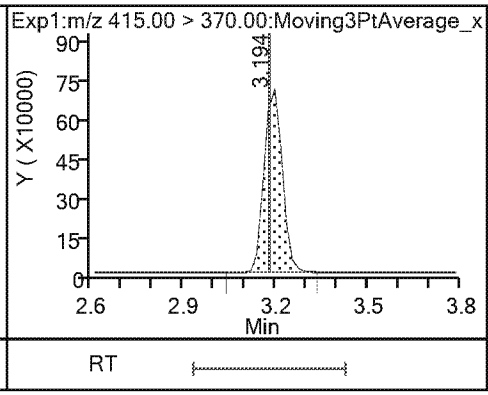
24 DONA



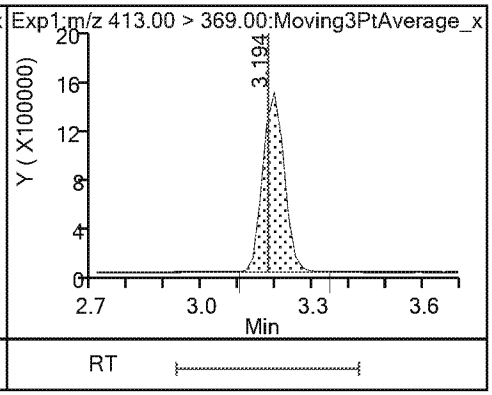
24 DONA



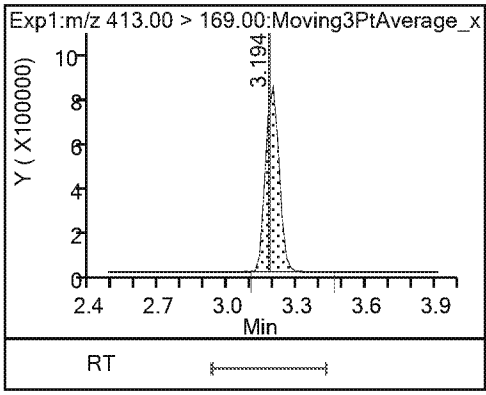
* 5 13C2 PFOA



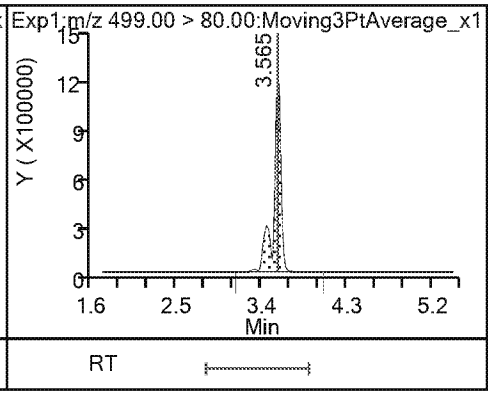
6 Perfluorooctanoic acid



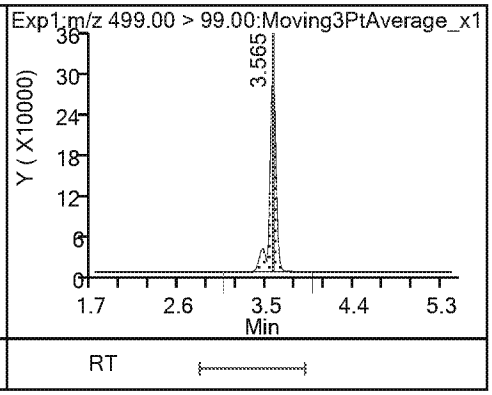
6 Perfluorooctanoic acid



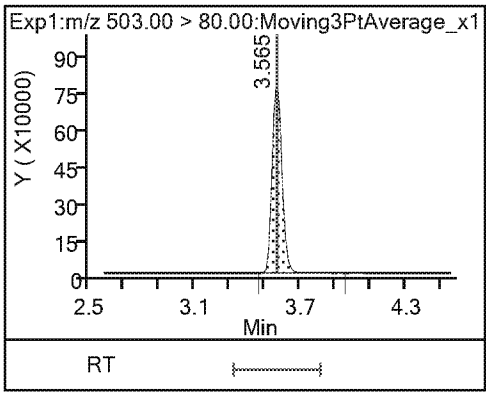
8 Perfluorooctanesulfonic acid



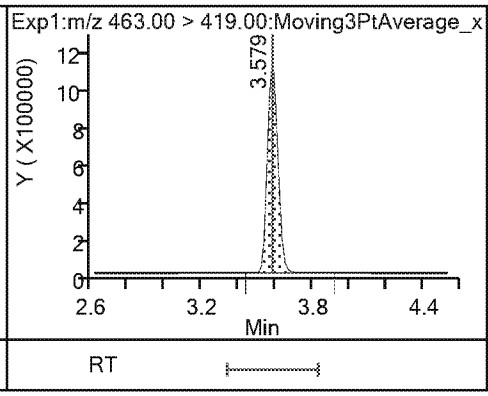
8 Perfluorooctanesulfonic acid



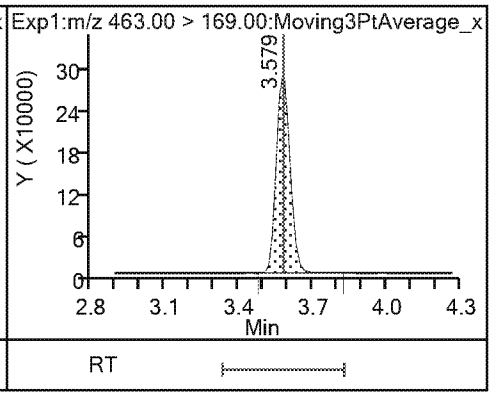
* 7 13C4 PFOS



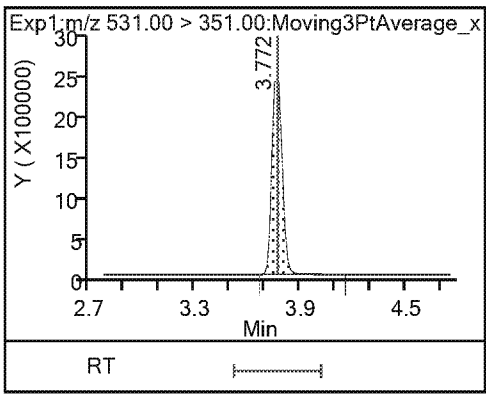
9 Perfluorononanoic acid



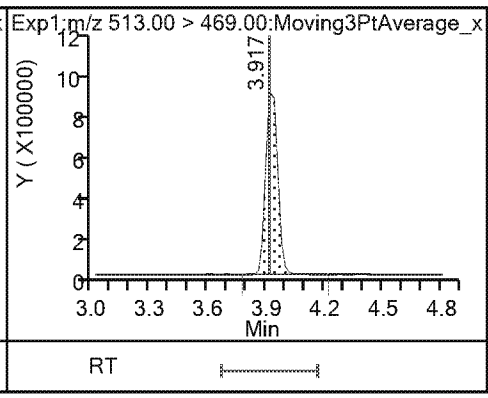
9 Perfluorononanoic acid



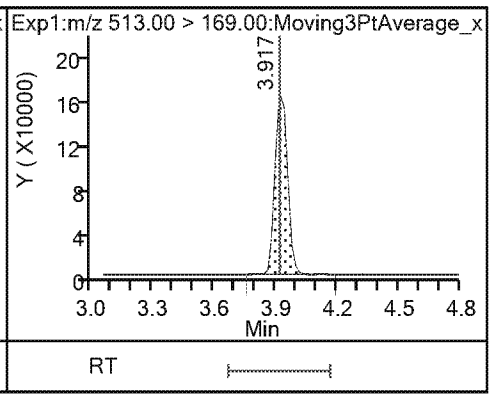
23 9-Chlorohexadecafluoro-3-oxanonane



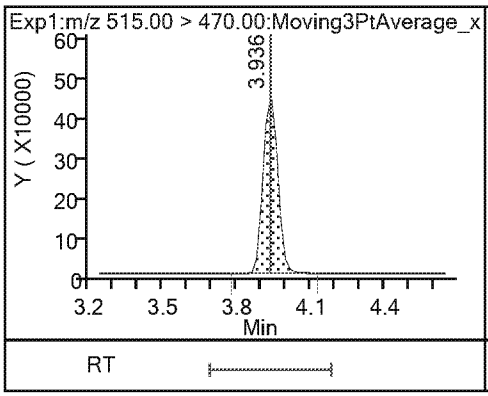
14 Perfluorodecanoic acid



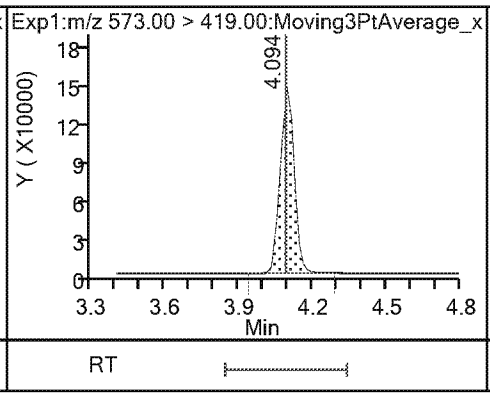
14 Perfluorodecanoic acid



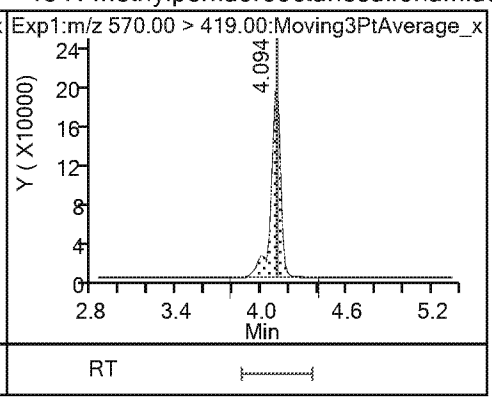
$ 10 13C2 PFDA



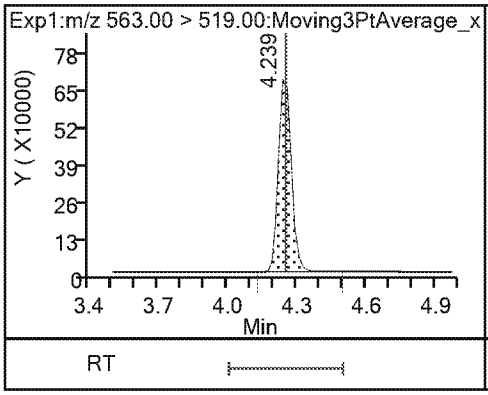
* 12 d3-NMeFOSAA



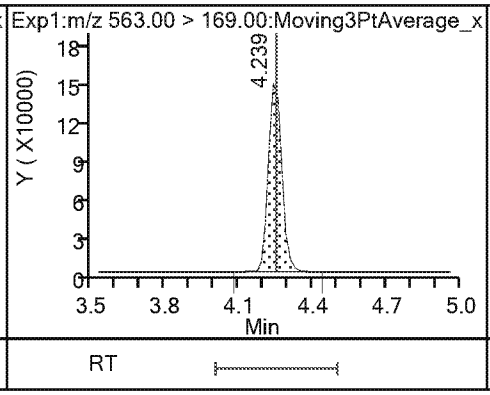
15 N-methylperfluorooctanesulfonamido



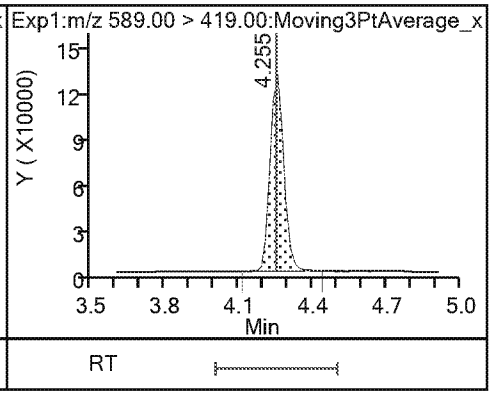
17 Perfluoroundecanoic acid



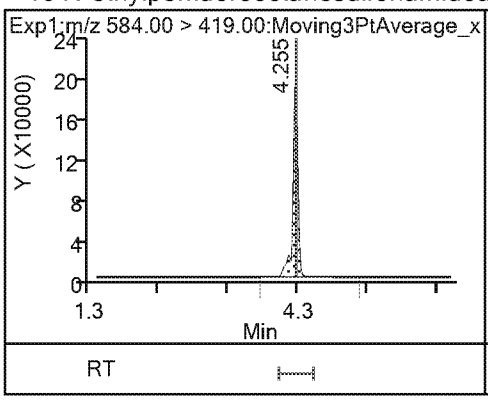
17 Perfluoroundecanoic acid



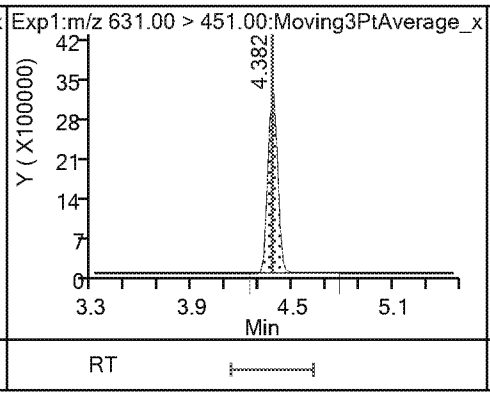
$ 11 d5-NEtFOSAA



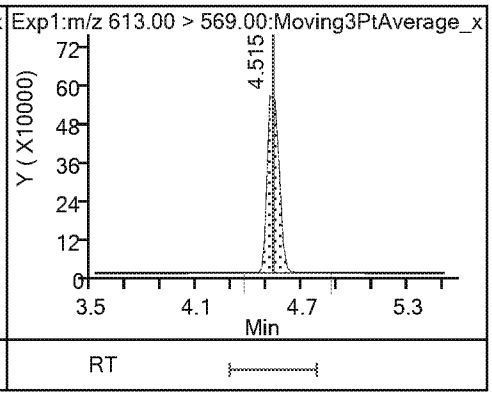
16 N-ethylperfluorooctanesulfonamidoa



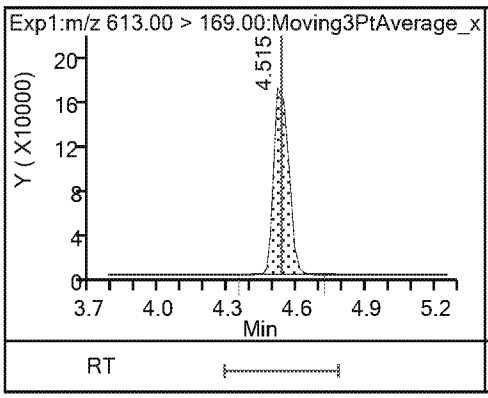
21 11-Chloroeicosafluoro-3-oxaundecan



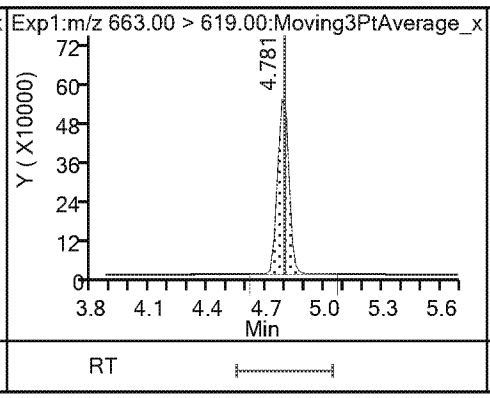
18 Perfluorododecanoic acid



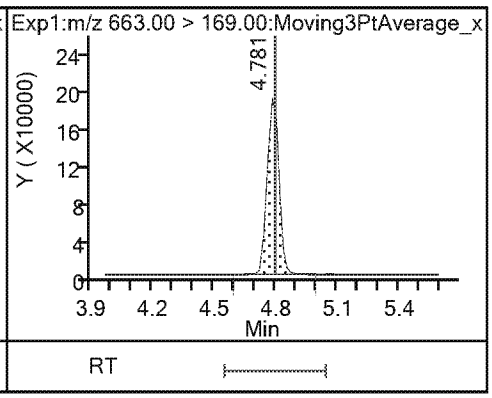
18 Perfluorododecanoic acid



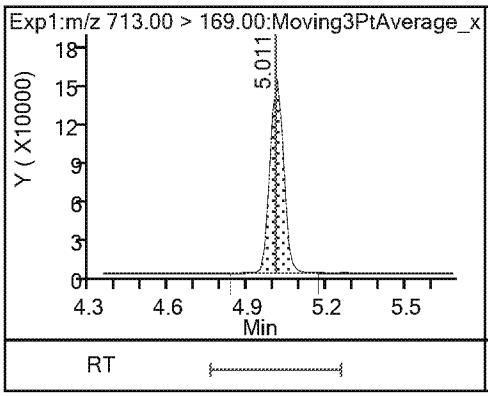
19 Perfluorotridecanoic acid



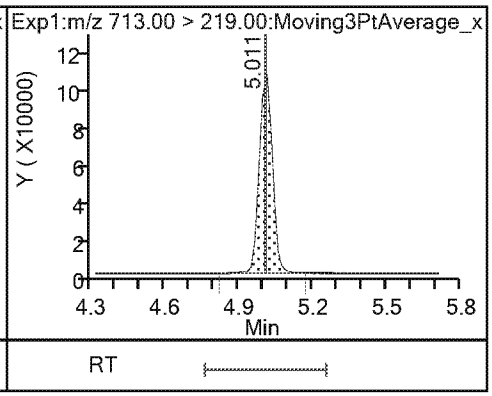
19 Perfluorotridecanoic acid



20 Perfluorotetradecanoic acid



20 Perfluorotetradecanoic acid



TestAmerica Sacramento
Recovery Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_018.d
Lims ID: LCS 320-285397/2-A
Client ID:
Sample Type: LCS
Inject. Date: 03-Apr-2019 06:58:54 ALS Bottle#: 8 Worklist Smp#: 15
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: LCS 320-285397/2-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 10:28:36 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 10:24:17

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	2.50	2.44	97.49
$ 25 13C3 HFPO-DA	2.50	2.82	112.74
$ 10 13C2 PFDA	2.50	2.55	102.04
$ 11 d5-NEtFOSAA	2.50	2.18	87.11

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento
Job No.: 320-48794-1
SDG No.:
Client Sample ID:
Lab Sample ID: LCSD 320-285397/3-A
Matrix: Water
Lab File ID: 2019.04.02_537A_019.d
Analysis Method: 537 DW
Date Collected:
Extraction Method: 537 DW
Date Extracted: 04/01/2019 15:03
Sample wt/vol: 250(mL)
Date Analyzed: 04/03/2019 07:06
Con. Extract Vol.: 10.00(mL)
Dilution Factor: 1
Injection Volume: 10(uL)
GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 285757
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid	181		2.0	0.95
335-67-1	Perfluorooctanoic acid	200		6.0	2.7
375-95-1	Perfluorononanoic acid	200		2.0	0.47
355-46-4	Perfluorohexanesulfonic acid	178		2.0	0.64
375-85-9	Perfluoroheptanoic acid	194		3.0	1.3
375-73-5	Perfluorobutanesulfonic acid	153		2.0	0.80

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	103		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_019.d
Lims ID: LCSD 320-285397/3-A
Client ID:
Sample Type: LCSD
Inject. Date: 03-Apr-2019 07:06:23 ALS Bottle#: 9 Worklist Smp#: 16
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: LCSD 320-285397/3-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 10:28:36 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 10:24:54
Ratio Calibration: None

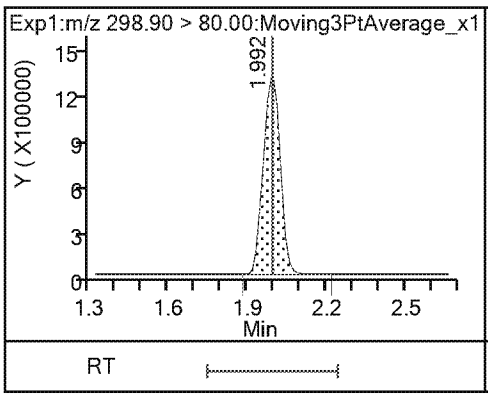
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.992	1.992	0.0	1.000	5467811	3.83	Target=1.47	26082	
298.90 > 99.00	1.992	1.992	0.0	1.000	3639852		1.50(0.00-0.00)	8410	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.347	2.347	0.0	0.736	5803611	4.72	Target=11.08	2168	
313.00 > 119.00	2.347	2.347	0.0	0.736	553151		10.49(0.00-0.00)	893	
$ 2 13C2 PFHxA									
315.00 > 270.00	2.347	2.347	0.0	1.000	3008627	2.31		6050	
$ 25 13C3 HFPO-DA									
332.10 > 287.00	2.473	2.490	-0.017	1.000	176093	2.98		1036	
22 Perfluoro(2-propoxypropanoic) acid									
329.10 > 285.00	2.494	2.490	0.004	1.008	1612976	5.56		813	
4 Perfluoroheptanoic acid									
363.00 > 319.00	2.786	2.778	0.008	1.000	5884195	4.85	Target=2.42	763	
363.00 > 169.00	2.786	2.778	0.008	1.000	2413061		2.44(0.00-0.00)	5797	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	2.786	2.798	-0.012	1.000	7451539	4.45	Target=2.92	6752	
399.00 > 99.00	2.786	2.798	-0.012	1.000	2529490		2.95(0.00-0.00)	3398	
24 DONA									
377.00 > 251.00	2.828	2.819	0.009	1.000	15499319	4.77	Target=1.50	13667	
377.00 > 85.00	2.828	2.819	0.009	1.000	9690167		1.60(0.00-0.00)	523800	
* 5 13C2 PFOA									
415.00 > 370.00	3.190	3.177	0.013		2808979	2.50		7371	
6 Perfluorooctanoic acid									
413.00 > 369.00	3.190	3.177	0.013	1.000	5721654	5.00	Target=1.75	642	
413.00 > 169.00	3.190	3.177	0.013	1.000	3225616		1.77(0.00-0.00)	6320	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
8 Perfluorooctanesulfonic acid									
499.00 > 80.00	3.563	3.564	-0.001	1.000	5641714	4.53	Target=4.69	5152	
499.00 > 99.00	3.563	3.564	-0.001	1.000	1221331		4.62(0.00-0.00)	1459	
* 7 13C4 PFOS									
503.00 > 80.00	3.563	3.565	-0.002		2816152	2.39		12579	
9 Perfluorononanoic acid									
463.00 > 419.00	3.578	3.580	-0.002	1.000	4190145	5.00	Target=3.96	2140	
463.00 > 169.00	3.578	3.580	-0.002	1.000	1063221		3.94(0.00-0.00)	6695	
23 9-Chlorohexadecafluoro-3-oxanonane									
531.00 > 351.00	3.769	3.769	0.0	1.000	9237078	4.59		8149	
14 Perfluorodecanoic acid									
513.00 > 469.00	3.934	3.915	0.019	1.000	3337260	5.07	Target=5.01	1893	
513.00 > 169.00	3.914	3.915	-0.001	0.995	661087		5.05(0.00-0.00)	3098	
$ 10 13C2 PFDA									
515.00 > 470.00	3.934	3.934	0.0	1.000	1791703	2.59		7587	
* 12 d3-NMeFOSAA									
573.00 > 419.00	4.092	4.090	0.002		542593	2.50		3367	
15 N-methylperfluorooctanesulfonamido									
570.00 > 419.00	4.108	4.106	0.002	1.004	881448	4.40		3751	
17 Perfluoroundecanoic acid									
563.00 > 519.00	4.252	4.250	0.002	1.000	2593503	5.08	Target=4.98	1115	
563.00 > 169.00	4.252	4.250	0.002	1.000	525225		4.94(0.00-0.00)	3731	
$ 11 d5-NEtFOSAA									
589.00 > 419.00	4.252	4.250	0.002	1.039	482081	2.18		258	
16 N-ethylperfluorooctanesulfonamidoa									
584.00 > 419.00	4.268	4.266	0.002	1.004	843966	4.45		3625	
21 11-Chloroeicosafluoro-3-oxaundecan									
631.00 > 451.00	4.380	4.375	0.005	1.000	11806799	4.71		102147	
18 Perfluorododecanoic acid									
613.00 > 569.00	4.536	4.532	0.004	1.000	2453705	4.94	Target=3.56	1116	
613.00 > 169.00	4.536	4.532	0.004	1.000	690548		3.55(0.00-0.00)	5367	
19 Perfluorotridecanoic acid									
663.00 > 619.00	4.798	4.793	0.005	1.000	2118191	5.15	Target=2.92	788	
663.00 > 169.00	4.781	4.793	-0.012	0.996	722182		2.93(0.00-0.00)	3879	
20 Perfluorotetradecanoic acid									
713.00 > 169.00	5.009	5.005	0.004	1.000	539506	4.75	Target=1.42	2662	
713.00 > 219.00	5.009	5.005	0.004	1.000	385759		1.40(0.00-0.00)	2277	

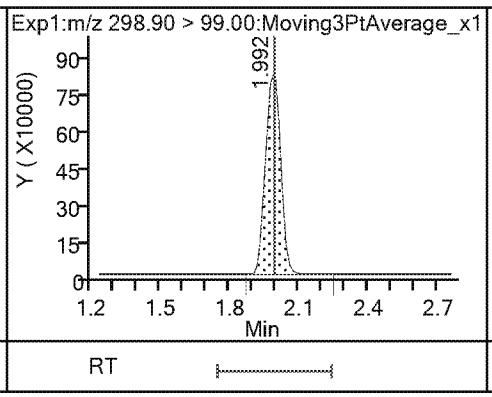
TestAmerica Sacramento

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_019.d
Injection Date: 03-Apr-2019 07:06:23 Instrument ID: A8_N
Lims ID: LCSD 320-285397/3-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 9 Worklist Smp#: 16
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

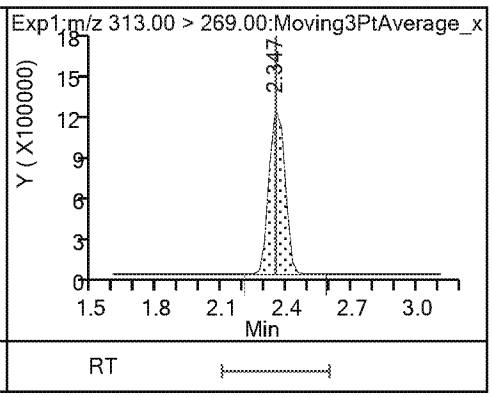
1 Perfluorobutanesulfonic acid



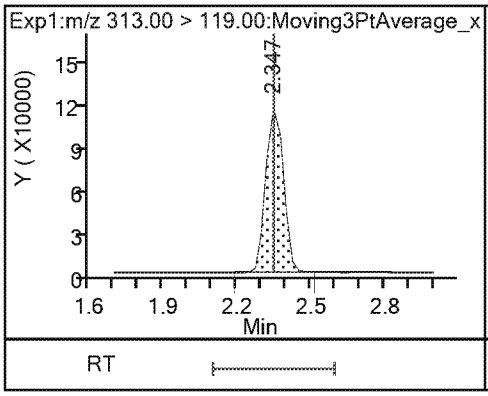
1 Perfluorobutanesulfonic acid



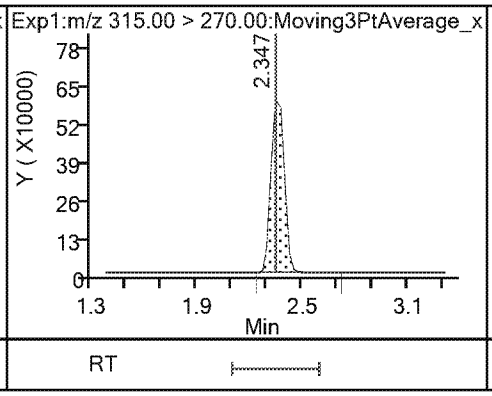
13 Perfluorohexanoic acid



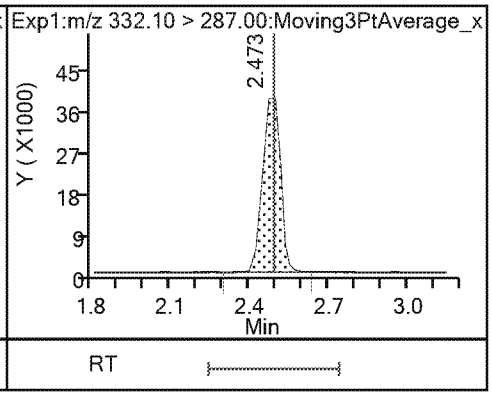
13 Perfluorohexanoic acid



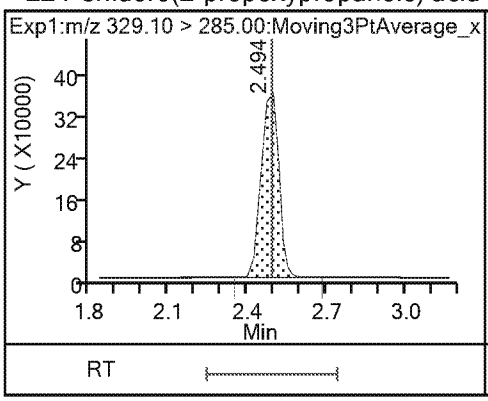
$ 2 13C2 PFHxA



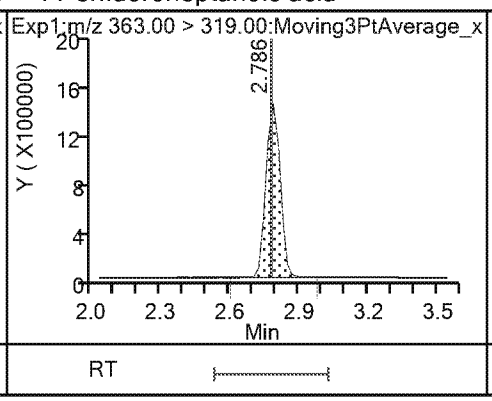
$ 25 13C3 HFPO-DA



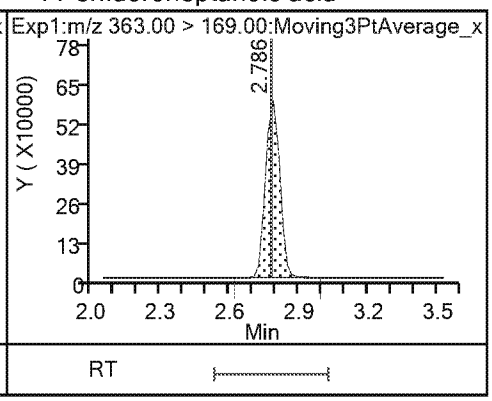
22 Perfluoro(2-propoxypropanoic) acid



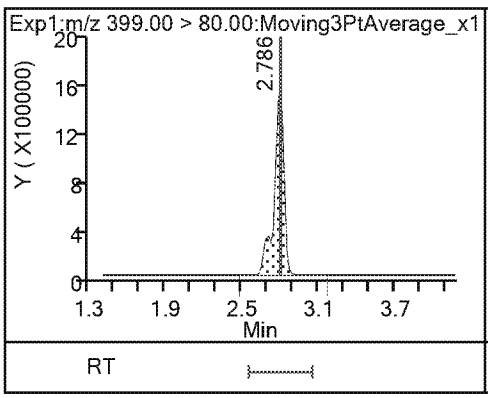
4 Perfluoroheptanoic acid



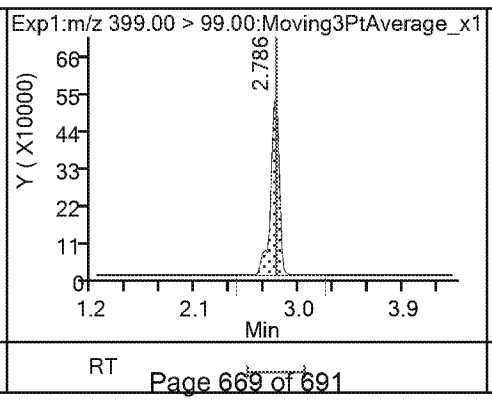
4 Perfluoroheptanoic acid



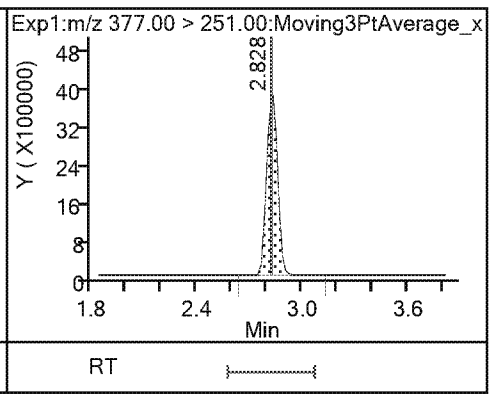
3 Perfluorohexanesulfonic acid



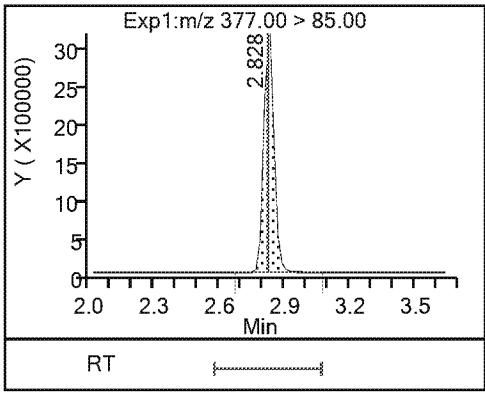
3 Perfluorohexanesulfonic acid



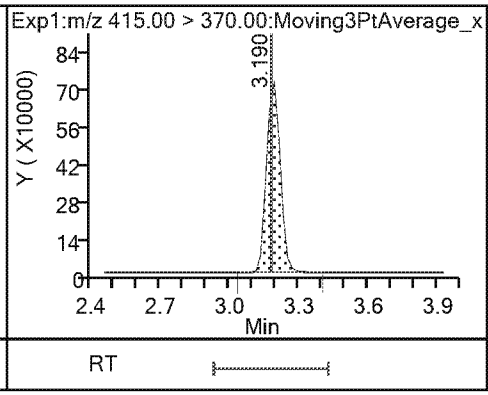
24 DONA



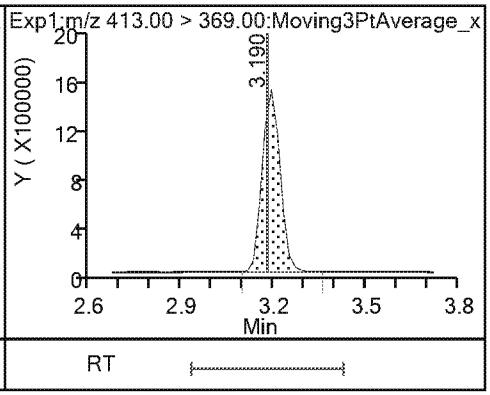
24 DONA



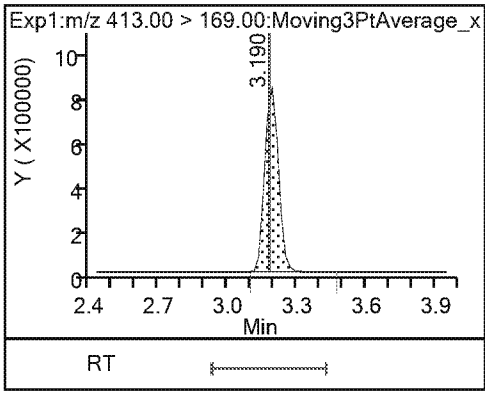
* 5 13C2 PFOA



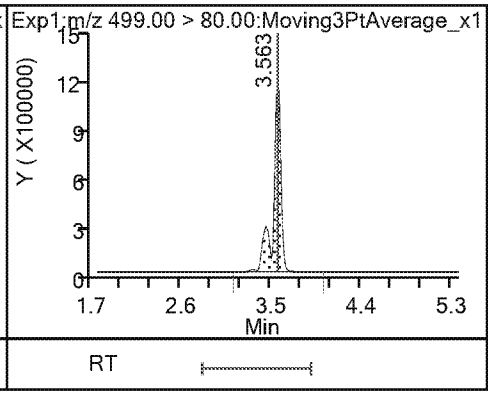
6 Perfluorooctanoic acid



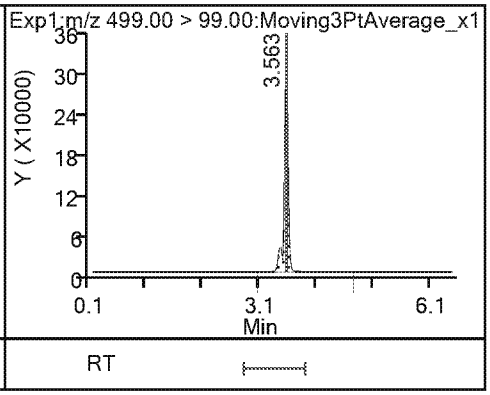
6 Perfluorooctanoic acid



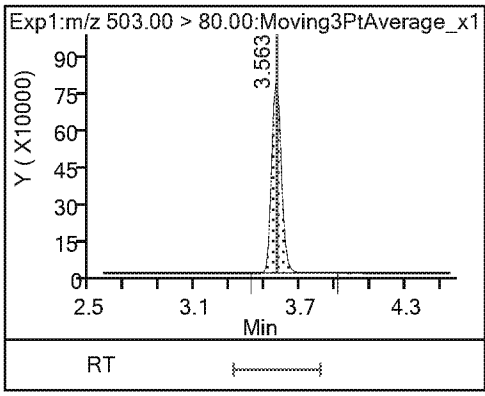
8 Perfluorooctanesulfonic acid



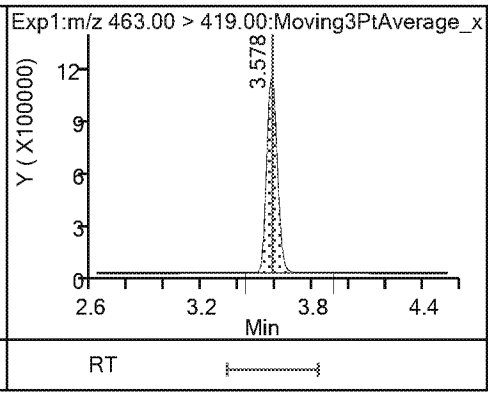
8 Perfluorooctanesulfonic acid



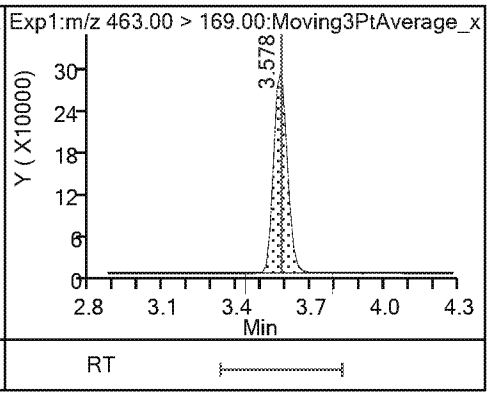
* 7 13C4 PFOS



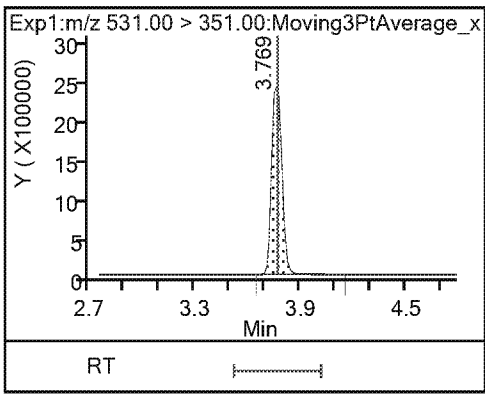
9 Perfluorononanoic acid



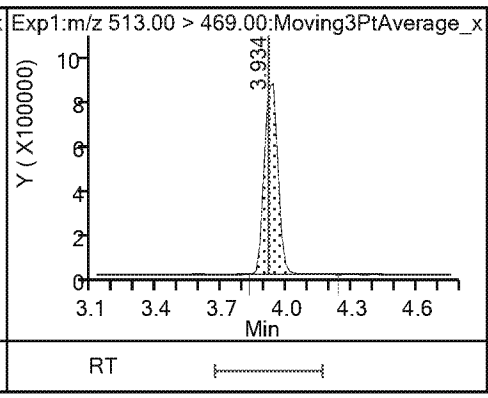
9 Perfluorononanoic acid



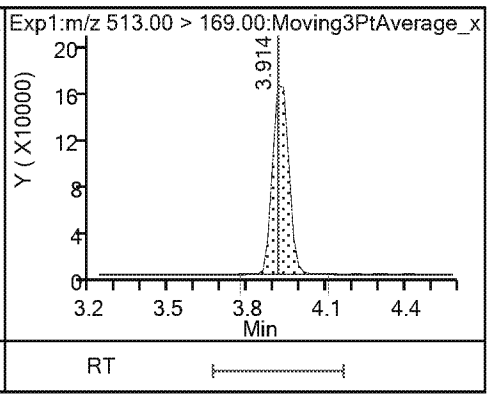
23 9-Chlorohexadecafluoro-3-oxanonane



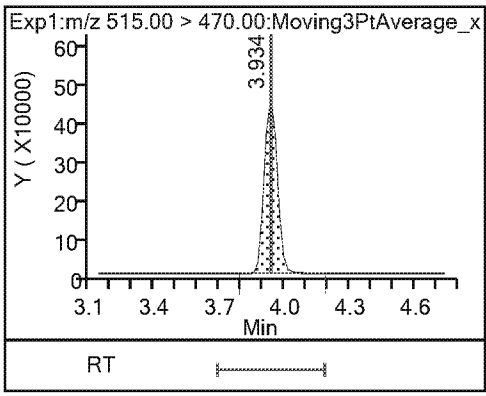
14 Perfluorodecanoic acid



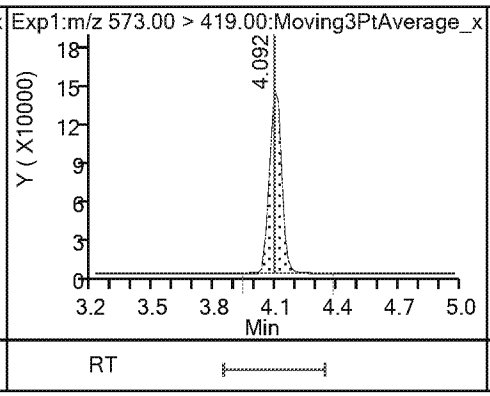
14 Perfluorodecanoic acid



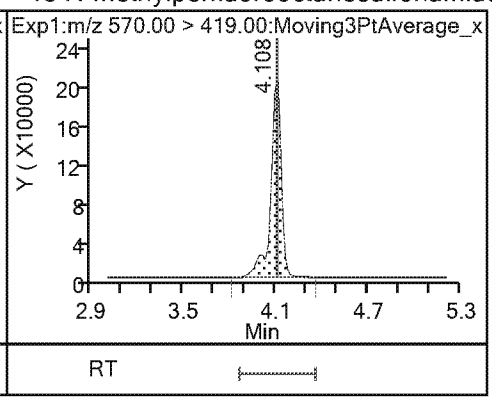
$ 10 13C2 PFDA



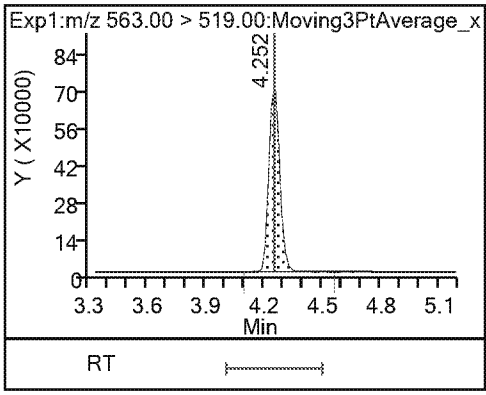
* 12 d3-NMeFOSAA



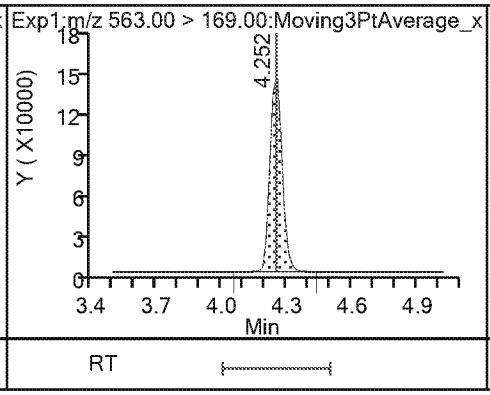
15 N-methylperfluorooctanesulfonamido



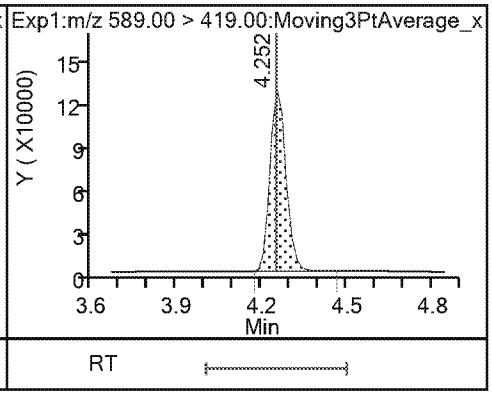
17 Perfluoroundecanoic acid



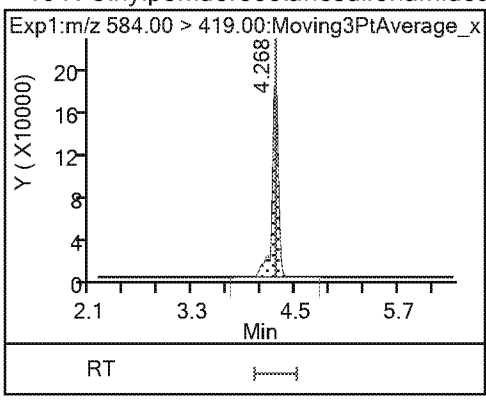
17 Perfluoroundecanoic acid



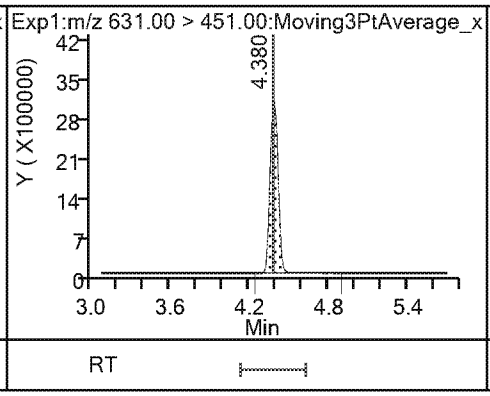
$ 11 d5-NEtFOSAA



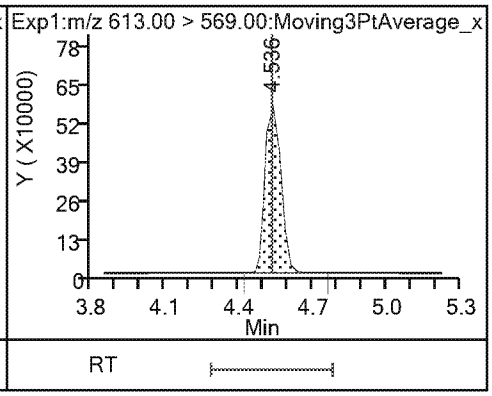
16 N-ethylperfluorooctanesulfonamidoa



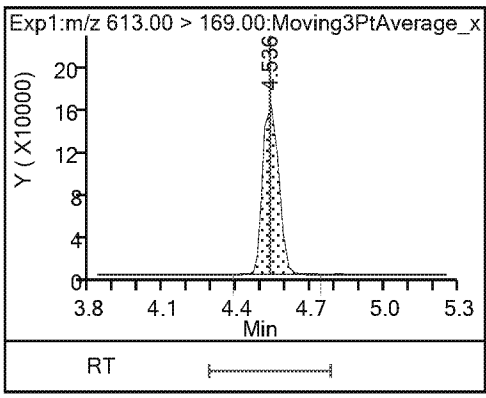
21 11-Chloroeicosafluoro-3-oxaundecan



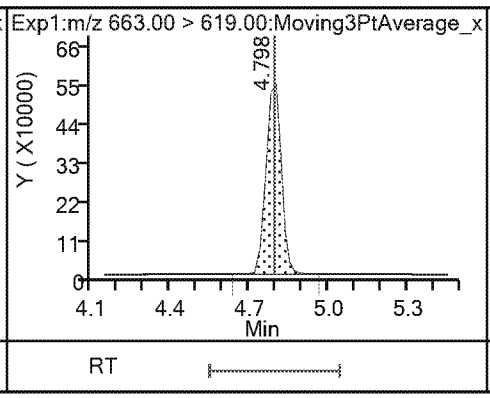
18 Perfluorododecanoic acid



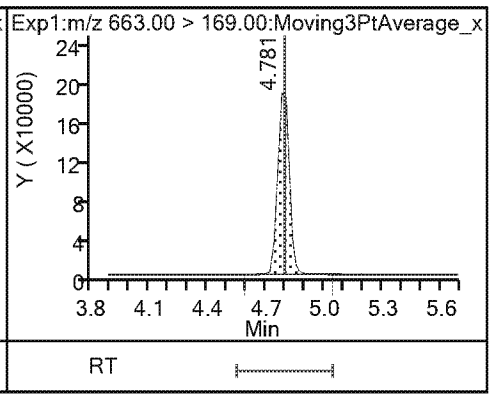
18 Perfluorododecanoic acid



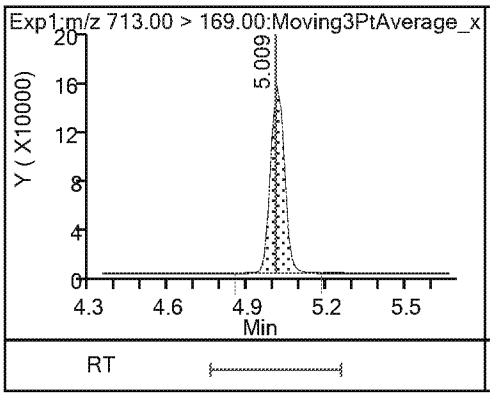
19 Perfluorotridecanoic acid



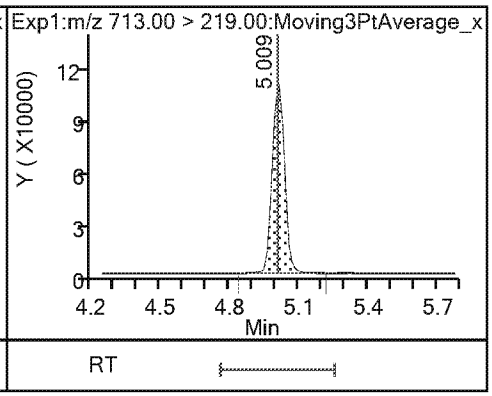
19 Perfluorotridecanoic acid



20 Perfluorotetradecanoic acid



20 Perfluorotetradecanoic acid



TestAmerica Sacramento
Recovery Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\2019.04.02_537A_019.d
Lims ID: LCSD 320-285397/3-A
Client ID:
Sample Type: LCSD
Inject. Date: 03-Apr-2019 07:06:23 ALS Bottle#: 9 Worklist Smp#: 16
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: LCSD 320-285397/3-A
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\chromna\Sacramento\ChromData\A8_N\20190401-74140.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 03-Apr-2019 10:28:36 Calib Date: 26-Mar-2019 16:27:57
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20190326-73803.b\2019.03.26_537.1CURVE_009.d

Column 1 : Det: EXP1
Process Host: CTX0303

First Level Reviewer: Ex. 4 CBI Date: 03-Apr-2019 10:24:54

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	2.50	2.31	92.49
$ 25 13C3 HFPO-DA	2.50	2.98	119.02
$ 10 13C2 PFDA	2.50	2.59	103.46
$ 11 d5-NEtFOSAA	2.50	2.18	87.12

LCMS ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Instrument ID: A8_N Start Date: 03/26/2019 15:43

Analysis Batch Number: 284068 End Date: 03/26/2019 17:05

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-284068/2		03/26/2019 15:43	1	2019.03.26_537.1CURVE_003.d	GeminiC18 3x100 3(mm)
IC 320-284068/3		03/26/2019 15:50	1	2019.03.26_537.1CURVE_004.d	GeminiC18 3x100 3(mm)
IC 320-284068/4		03/26/2019 15:58	1	2019.03.26_537.1CURVE_005.d	GeminiC18 3x100 3(mm)
IC 320-284068/5 ICISAV		03/26/2019 16:05	1	2019.03.26_537.1CURVE_006.d	GeminiC18 3x100 3(mm)
IC 320-284068/6		03/26/2019 16:13	1	2019.03.26_537.1CURVE_007.d	GeminiC18 3x100 3(mm)
IC 320-284068/7		03/26/2019 16:20	1	2019.03.26_537.1CURVE_008.d	GeminiC18 3x100 3(mm)
IC 320-284068/8		03/26/2019 16:27	1	2019.03.26_537.1CURVE_009.d	GeminiC18 3x100 3(mm)
ZZZZZ		03/26/2019 16:35	1		GeminiC18 3x100 3(mm)
CCVL 320-284068/10		03/26/2019 16:42	1	2019.03.26_537.1CURVE_011.d	GeminiC18 3x100 3(mm)
ICB 320-284068/11		03/26/2019 16:50	1		GeminiC18 3x100 3(mm)
ICV 320-284068/12		03/26/2019 16:57	1	2019.03.26_537.1CURVE_013.d	GeminiC18 3x100 3(mm)
ZZZZZ		03/26/2019 17:05	1		GeminiC18 3x100 3(mm)

537 DW

LCMS ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Instrument ID: A8_N Start Date: 04/03/2019 05:14

Analysis Batch Number: 285473 End Date: 04/03/2019 05:44

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-285473/1		04/03/2019 05:14	1	2019.04.02_537A_004.d	GeminiC18 3x100 3(mm)
CCV 320-285473/5 CCVIS		04/03/2019 05:44	1		GeminiC18 3x100 3(mm)

537 DW

LCMS ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Instrument ID: A8_N Start Date: 04/03/2019 06:36

Analysis Batch Number: 285757 End Date: 04/03/2019 08:05

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-285757/12 CCVIS		04/03/2019 06:36	1	2019.04.02_537A_015.d	GeminiC18 3x100 3(mm)
ZZZZZ		04/03/2019 06:43	1		GeminiC18 3x100 3(mm)
MB 320-285397/1-A		04/03/2019 06:51	1	2019.04.02_537A_017.d	GeminiC18 3x100 3(mm)
LCS 320-285397/2-A		04/03/2019 06:58	1	2019.04.02_537A_018.d	GeminiC18 3x100 3(mm)
LCSD 320-285397/3-A		04/03/2019 07:06	1	2019.04.02_537A_019.d	GeminiC18 3x100 3(mm)
320-48794-1		04/03/2019 07:13	1	2019.04.02_537A_020.d	GeminiC18 3x100 3(mm)
320-48794-2		04/03/2019 07:21	1	2019.04.02_537A_021.d	GeminiC18 3x100 3(mm)
320-48794-3		04/03/2019 07:28	1	2019.04.02_537A_022.d	GeminiC18 3x100 3(mm)
ZZZZZ		04/03/2019 07:36	1		GeminiC18 3x100 3(mm)
320-48794-5		04/03/2019 07:43	1	2019.04.02_537A_024.d	GeminiC18 3x100 3(mm)
320-48794-6		04/03/2019 07:51	1	2019.04.02_537A_025.d	GeminiC18 3x100 3(mm)
320-48794-7		04/03/2019 07:58	1	2019.04.02_537A_026.d	GeminiC18 3x100 3(mm)
CCV 320-285757/24 CCVIS		04/03/2019 08:05	1	2019.04.02_537A_027.d	GeminiC18 3x100 3(mm)

537 DW

LCMS ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Instrument ID: A8_N Start Date: 04/03/2019 08:05

Analysis Batch Number: 285758 End Date: 04/03/2019 09:20

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-285758/24 CCVIS		04/03/2019 08:05	1	2019.04.02_537A_027.d	GeminiC18 3x100 3(mm)
ZZZZZ		04/03/2019 08:13	1		GeminiC18 3x100 3(mm)
320-48794-8		04/03/2019 08:20	1	2019.04.02_537A_029.d	GeminiC18 3x100 3(mm)
320-48794-9		04/03/2019 08:28	1	2019.04.02_537A_030.d	GeminiC18 3x100 3(mm)
320-48794-10		04/03/2019 08:35	1	2019.04.02_537A_031.d	GeminiC18 3x100 3(mm)
320-48794-11		04/03/2019 08:43	1	2019.04.02_537A_032.d	GeminiC18 3x100 3(mm)
320-48794-12		04/03/2019 08:50	1	2019.04.02_537A_033.d	GeminiC18 3x100 3(mm)
320-48794-13		04/03/2019 08:58	1	2019.04.02_537A_034.d	GeminiC18 3x100 3(mm)
320-48794-14		04/03/2019 09:05	1	2019.04.02_537A_035.d	GeminiC18 3x100 3(mm)
320-48794-15		04/03/2019 09:13	1	2019.04.02_537A_036.d	GeminiC18 3x100 3(mm)
CCV 320-285758/34 CCVIS		04/03/2019 09:20	1	2019.04.02_537A_037.d	GeminiC18 3x100 3(mm)

537 DW

LCMS ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Instrument ID: A8_N Start Date: 04/04/2019 15:14

Analysis Batch Number: 286141 End Date: 04/04/2019 16:48

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-286141/2		04/04/2019 15:14	1	2019.04.04_537ICAL_003.d	GeminiC18 3x100 3(mm)
IC 320-286141/3		04/04/2019 15:23	1	2019.04.04_537ICAL_004.d	GeminiC18 3x100 3(mm)
IC 320-286141/4		04/04/2019 15:33	1	2019.04.04_537ICAL_005.d	GeminiC18 3x100 3(mm)
IC 320-286141/5 ICISAV		04/04/2019 15:42	1	2019.04.04_537ICAL_006.d	GeminiC18 3x100 3(mm)
IC 320-286141/6		04/04/2019 15:52	1	2019.04.04_537ICAL_007.d	GeminiC18 3x100 3(mm)
IC 320-286141/7		04/04/2019 16:01	1	2019.04.04_537ICAL_008.d	GeminiC18 3x100 3(mm)
IC 320-286141/8		04/04/2019 16:11	1	2019.04.04_537ICAL_009.d	GeminiC18 3x100 3(mm)
ZZZZZ		04/04/2019 16:20	1		GeminiC18 3x100 3(mm)
CCVL 320-286141/10		04/04/2019 16:29	1	2019.04.04_537ICAL_011.d	GeminiC18 3x100 3(mm)
ICB 320-286141/11		04/04/2019 16:39	1		GeminiC18 3x100 3(mm)
ICV 320-286141/12		04/04/2019 16:48	1	2019.04.04_537ICAL_013.d	GeminiC18 3x100 3(mm)

537 DW

LCMS ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Instrument ID: A8_N Start Date: 04/04/2019 19:10

Analysis Batch Number: 286182 End Date: 04/04/2019 20:17

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-286182/1 CCVIS		04/04/2019 19:10	1	2019.04.04_537A A_005.d	GeminiC18 3x100 3(mm)
ZZZZZ		04/04/2019 19:20	1		GeminiC18 3x100 3(mm)
320-48794-4		04/04/2019 19:29	1	2019.04.04_537A A_007.d	GeminiC18 3x100 3(mm)
ZZZZZ		04/04/2019 19:39	5		GeminiC18 3x100 3(mm)
ZZZZZ		04/04/2019 19:48	5		GeminiC18 3x100 3(mm)
ZZZZZ		04/04/2019 19:58	5		GeminiC18 3x100 3(mm)
ZZZZZ		04/04/2019 20:07	1		GeminiC18 3x100 3(mm)
CCV 320-286182/8 CCVIS		04/04/2019 20:17	1	2019.04.04_537A A_012.d	GeminiC18 3x100 3(mm)

537 DW

LCMS ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Instrument ID: A8_N Start Date: 04/05/2019 11:55

Analysis Batch Number: 286320 End Date: 04/05/2019 12:51

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-286320/1		04/05/2019 11:55	1	2019.04.05_537.1A_004.d	GeminiC18 3x100 3(mm)
CCV 320-286320/2 CCVIS		04/05/2019 12:04	1		GeminiC18 3x100 3(mm)
ZZZZZ		04/05/2019 12:13	1		GeminiC18 3x100 3(mm)
ZZZZZ		04/05/2019 12:23	1		GeminiC18 3x100 3(mm)
ZZZZZ		04/05/2019 12:32	1		GeminiC18 3x100 3(mm)
ZZZZZ		04/05/2019 12:42	5		GeminiC18 3x100 3(mm)
CCV 320-286320/7 CCVIS		04/05/2019 12:51	1		GeminiC18 3x100 3(mm)

537 DW

LCMS ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 320-48794-1

SDG No.:

Instrument ID: A8_N Start Date: 04/05/2019 13:58

Analysis Batch Number: 286379 End Date: 04/05/2019 14:45

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-286379/1 CCVIS		04/05/2019 13:58	1	2019.04.05_537.1A_026.d	GeminiC18 3x100 3(mm)
ZZZZZ		04/05/2019 14:07	1		GeminiC18 3x100 3(mm)
320-48794-1 DL		04/05/2019 14:16	5	2019.04.05_537.1A_028.d	GeminiC18 3x100 3(mm)
320-48794-3 DL		04/05/2019 14:26	5	2019.04.05_537.1A_029.d	GeminiC18 3x100 3(mm)
320-48794-15 DL		04/05/2019 14:35	5	2019.04.05_537.1A_030.d	GeminiC18 3x100 3(mm)
CCV 320-286379/6 CCVIS		04/05/2019 14:45	1	2019.04.05_537.1A_031.d	GeminiC18 3x100 3(mm)

537 DW

LCMS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Sacramen Job No.: 320-48794-1

SDG No.:

Batch Number: 285397 Batch Start Date: 04/01/19 15:03 Batch Analyst: Ex. 4 CBI

Batch Method: 537 DW Batch End Date: 04/02/19 13:31

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00100
MB 320-285397/1		537 DW, 537 DW				250 mL	10.00 mL	7 SU	500 uL
LCS 320-285397/2		537 DW, 537 DW				250 mL	10.00 mL	7 SU	500 uL
LCSD 320-285397/3		537 DW, 537 DW				250 mL	10.00 mL	7 SU	500 uL
320-48794-A-1	C0AP3	537 DW, 537 DW	T	303.14 g	28.46 g	274.7 mL	10.00 mL	7 SU	500 uL
320-48794-A-2	C0AP4	537 DW, 537 DW	T	294.24 g	28.10 g	266.1 mL	10.00 mL	7 SU	500 uL
320-48794-A-3	C0AQ9	537 DW, 537 DW	T	294.24 g	28.05 g	266.2 mL	10.00 mL	7 SU	500 uL
320-48794-A-4	C0AR5	537 DW, 537 DW	T	318.33 g	27.90 g	290.4 mL	10.00 mL	7 SU	500 uL
320-48794-B-5	C0AR9	537 DW, 537 DW	T	303.43 g	28.18 g	275.3 mL	10.00 mL	7 SU	500 uL
320-48794-A-6	C0AS0	537 DW, 537 DW	T	317.23 g	28.86 g	288.4 mL	10.00 mL	7 SU	500 uL
320-48794-A-7	C0AS1	537 DW, 537 DW	T	313.67 g	28.23 g	285.4 mL	10.00 mL	7 SU	500 uL
320-48794-A-8	C0AS4	537 DW, 537 DW	T	306.38 g	28.03 g	278.4 mL	10.00 mL	7 SU	500 uL
320-48794-A-9	C0AS5	537 DW, 537 DW	T	317.56 g	27.45 g	290.1 mL	10.00 mL	7 SU	500 uL
320-48794-A-10	C0AS6	537 DW, 537 DW	T	300.51 g	27.73 g	272.8 mL	10.00 mL	7 SU	500 uL
320-48794-A-11	C0AW5	537 DW, 537 DW	T	302.66 g	27.52 g	275.1 mL	10.00 mL	7 SU	500 uL
320-48794-A-12	C0AX2	537 DW, 537 DW	T	302.66 g	28.81 g	273.9 mL	10.00 mL	7 SU	500 uL
320-48794-A-13	C0AX3	537 DW, 537 DW	T	306.49 g	27.46 g	279 mL	10.00 mL	7 SU	500 uL
320-48794-A-14	C0AX4	537 DW, 537 DW	T	307.19 g	27.79 g	279.4 mL	10.00 mL	7 SU	500 uL
320-48794-B-15	C0AX9	537 DW, 537 DW	T	294.24 g	28.93 g	265.3 mL	10.00 mL	7 SU	500 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-SU 00101	LC537HSP 00002	AnalysisComment			
MB 320-285397/1		537 DW, 537 DW		500 uL		Chlorine ND			
LCS 320-285397/2		537 DW, 537 DW		500 uL	500 uL	Chlorine ND			

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Sacramen Job No.: 320-48794-1

SDG No.:

Batch Number: 285397 Batch Start Date: 04/01/19 15:03 Batch Analyst: Ex. 4 CBI

Batch Method: 537 DW Batch End Date: 04/02/19 13:31

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-SU 00101	LC537HSP 00002	AnalysisComment			
LCSD 320-285397/3		537 DW, 537 DW		500 uL	500 uL	Chlorine ND			
320-48794-A-1	C0AP3	537 DW, 537 DW	T	500 uL		Chlorine ND			
320-48794-A-2	C0AP4	537 DW, 537 DW	T	500 uL		Chlorine ND			
320-48794-A-3	C0AQ9	537 DW, 537 DW	T	500 uL		Chlorine ND			
320-48794-A-4	C0AR5	537 DW, 537 DW	T	500 uL		Chlorine ND			
320-48794-B-5	C0AR9	537 DW, 537 DW	T	500 uL		Chlorine ND			
320-48794-A-6	C0AS0	537 DW, 537 DW	T	500 uL		Chlorine ND			
320-48794-A-7	C0AS1	537 DW, 537 DW	T	500 uL		Chlorine ND			
320-48794-A-8	C0AS4	537 DW, 537 DW	T	500 uL		Chlorine ND			
320-48794-A-9	C0AS5	537 DW, 537 DW	T	500 uL		Chlorine ND			
320-48794-A-10	C0AS6	537 DW, 537 DW	T	500 uL		Chlorine ND			
320-48794-A-11	C0AW5	537 DW, 537 DW	T	500 uL		Chlorine ND			
320-48794-A-12	C0AX2	537 DW, 537 DW	T	500 uL		Chlorine ND			
320-48794-A-13	C0AX3	537 DW, 537 DW	T	500 uL		Chlorine ND			
320-48794-A-14	C0AX4	537 DW, 537 DW	T	500 uL		Chlorine ND			
320-48794-B-15	C0AX9	537 DW, 537 DW	T	500 uL		Chlorine ND			

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Sacramen Job No.: 320-48794-1

SDG No.:

Batch Number: 285397 Batch Start Date: 04/01/19 15:03 Batch Analyst: Ex. 4 CBI

Batch Method: 537 DW Batch End Date: 04/02/19 13:31

Batch Notes	
Analyst ID - Aliquot Step	DTH
Batch Comment	Client labels match TA label, DTH 4/1/19
Analyst ID - Final Volume Step	DTH
Internal Standard ID#	1539785
Manifold ID	AC
Methanol ID	1542277
pH Indicator ID	4718
Pipette ID	I46370G
Analyst ID - IS Reagent Drop	DTH
Analyst ID - IS Reagent Drop Witness	BHT
Analyst ID - SU Reagent Drop	DTH
Analyst ID - SU Reagent Drop Witness	BHT
Analyst ID - TA Reagent Drop	DTH
Analyst ID - TA Reagent Drop Witness	BHT
SPE Cartridge Lot ID	6413968-10
Trizma ID	SLBR5241V
Reagent Water ID	03/20/19

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Test America – Sacramento

Sample Dilution Record

Method ID 537

Analyst (Print Name Ex. 4 CBI

Reagent ID LC537_NC-LO_00003

451

Date 4/3/19

Job #	Sample #	Original F.V. (uL)	Aliquot (uL)	Dilution F.V. (uL)	Dilution Factor
320-48794	1	10000	60	300	5
↓	3/15	↓	↓	↓	↓
					JPM 4/3/19

Comments:

Q:\Document-Management\Forms\QA-747 SampleDilutionRecord.doc 1/29/20187 RE

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Test America – Sacramento

Sample Dilution Record

Method ID 537

Analyst (Print Name) Ex. 4 CBI

Reagent ID LCS37-VC-10-0003

Date 4/5/19

Job #	Sample #	Original F.V. (uL)	Aliquot (uL)	Dilution F.V. (uL)	Dilution Factor
320-48794	1	10,000	60	300	5
↓	3	↓	↓	↓	↓
↓	15		↓	↓	↓
				4/15/19	

Comments:

Q:\Document-Management\Forms\QA-747 SampleDilutionRecord.doc 1/29/20187 RE

Shipping and Receiving Documents

USEPA CLP COC (LAB COPY)

DateShipped: 3/28/2019
CarrierName: FedEx
AirbillNo: 774821719980

CHAIN OF CUSTODY RECORD

DAS #: R35542
Cooler #: 1

No: 3-032819-101512-0026

Lab: TestAmerica Laboratories, Inc. - Sacremento
Lab Contact: Ex. 4 CBI
Lab Phone: 916-374-4383

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
RE-BDE-MW-02	C0AP3	Ground Water/ START-MANERI	Grab	Perfluorinated Compounds (PFCS)(21)	2160 (Trizma), 2255 (Trizma) (2)	RE- BDE-MW-02	03/26/2019 12:48	
RE-BDE-MW-05	C0AP4	Ground Water/ START-MANERI	Grab	Perfluorinated Compounds (PFCS)(21)	1924 (Trizma), 1925 (Trizma) (2)	RE-BDE-MW-05	03/26/2019 14:00	
RE-BDE-MW-14	C0AQ9	Ground Water/ START-MANERI	Grab	Perfluorinated Compounds (PFCS)(21)	2161 (Trizma), 2162 (Trizma) (2)	RE-BDE-MW-14	03/26/2019 15:28	
RE-BDE-TBW-01	C0AR5	Ground Water/ START-MANERI	Grab	Perfluorinated Compounds (PFCS)(21)	2173 (Trizma), 2174 (Trizma) (2)	RE-BDE-TBW-01	03/26/2019 16:45	
RE-BDE-PSW-01	C0AR9	Ground Water/ START-MANERI	Grab	Perfluorinated Compounds (PFCS)(21)	2181 (Trizma), 2182 (Trizma) (2)	RE-BDE-PSW-01	03/26/2019 10:21	
RE-BDE-PSW-02	C0AS0	Ground Water/ START-MANERI	Grab	Perfluorinated Compounds (PFCS)(21)	2183 (Trizma), 2184 (Trizma) (2)	RE-BDE-PSW-02	03/26/2019 10:23	
RE-BDE-PSW-03	C0AS1	Ground Water/ START-MANERI	Grab	Perfluorinated Compounds (PFCS)(21)	2185 (Trizma), 2186 (Trizma) (2)	RE-BDE-PSW-03	03/26/2019 10:27	

Special Instructions:

Shipment for Case Complete? Y

Samples Transferred From Chain of Custody #

Analysis Key

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Environmental samples for analysis	Ex. 4 CBI	3/28/19 1700	Ex. 4 CBI	3/29/19 925	Good

320-48794 Chain of Custody

USEPA CLP COC (LAB COPY)

DateShipped: 3/28/2019
CarrierName: FedEx
AirbillNo: 774821719980

CHAIN OF CUSTODY RECORD

DAS #: R35542
Cooler #: 1

No: 3-032819-101512-0026

Lab: TestAmerica Laboratories, Inc. - Sacremento
Lab Contact: Ex. 4 CBI r
Lab Phone: 916-374-4383

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
RE-BDE-MW-02-FRB	C0AS4	Ground Water/ START-MANERI	Grab	Perfluorinated Compounds (PFCS)(21)	2192 (Trizma) (1)	RE-BDE-MW-02-FRB	03/26/2019 12:53	
RE-BDE-MW-05-FRB	C0AS5	Ground Water/ START-MANERI	Grab	Perfluorinated Compounds (PFCS)(21)	2194 (Trizma) (1)	RE-BDE-MW-05-FRB	03/26/2019 14:05	
RE-BDE-MW-14-FRB	C0AS6	Ground Water/ START-MANERI	Grab	Perfluorinated Compounds (PFCS)(21)	2196 (Trizma) (1)	RE-BDE-MW-14-FRB	03/26/2019 15:33	
RE-BDE-TBW-01-FRB	C0AW5	Ground Water/ START-MANERI	Grab	Perfluorinated Compounds (PFCS)(21)	2234 (Trizma) (1)	RE-BDE-TBW-01-FRB	03/26/2019 16:50	
RE-BDE-PSW-01-FRB	C0AX2	Ground Water/ START-MANERI	Grab	Perfluorinated Compounds (PFCS)(21)	2248 (Trizma) (1)	RE-BDE-PSW-01-FRB	03/26/2019 10:22	
RE-BDE-PSW-02-FRB	C0AX3	Ground Water/ START-MANERI	Grab	Perfluorinated Compounds (PFCS)(21)	2250 (Trizma) (1)	RE-BDE-PSW-02-FRB	03/26/2019 10:25	
RE-BDE-PSW-03-FRB	C0AX4	Ground Water/ START-MANERI	Grab	Perfluorinated Compounds (PFCS)(21)	2252 (Trizma) (1)	RE-BDE-PSW-03-FRB	03/26/2019 10:30	

Special Instructions:

Shipment for Case Complete? Y

Samples Transferred From Chain of Custody #

Analysis Key

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Envir. samples for analysis	Ex. 4 CBI	03/28/19 17:00	Ex. 4 CBI	3/29/19 925	Good

USEPA CLP COC (LAB COPY)

DateShipped: 3/28/2019
CarrierName: FedEx
AirbillNo: 774821719980

CHAIN OF CUSTODY RECORD

DAS #: R35542
Cooler #: 1

No: 3-032819-101512-0026

Lab: TestAmerica Laboratories, Inc. - Sacremento
Lab Contact: Ex. 4 CBI
Lab Phone: 916-374-4383

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
RE-BDE-MW-02D	C0AX9	Ground Water/ START-MANERI	Grab	Perfluorinated Compounds (PFCS)(21)	2262 (Trizma), 2263 (Trizma) (2)	RE-BDE-MW-02D	03/26/2019 12:48	

Special Instructions:

Shipment for Case Complete? Y

Samples Transferred From Chain of Custody #

Analysis Key

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Envir. samples for analysis	Ex. 4 CBI	03/28/19 17:00	Ex. 4 CBI	3/29/19 925	Good

Login Sample Receipt Checklist

Client: Weston Solutions, Inc.

Job Number: 320-48794-1

Login Number: 48794
List Number: 1
Creator: Ex. 4 CBI

List Source: Eurofins TestAmerica, Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal present with no number.
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	