eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Rita Schmon-Stasik
Leidos, Inc.
Picatinny Arsenal
356 Ninth Avenue
Suite 106
Dover NJ 07801

Generated 6/2/2023 1:39 PM

JOB DESCRIPTION

RVAAP FWGW Spring 2023

JOB NUMBER

280-176808-1

Eurofins Denver
4955 Yarrow Street
Arvada CO 80002

See page two for job notes and contact information.

Eurofins Denver

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins TestAmerica Project Manager.

Authorization

Generated
6/2/2023 1:39 PM

Authorized for release by
Megan E McElheny, Project Manager I
Megan.Mcelheny@et.eurofinsus.com
Designee for
Patrick J McEntee, Client Service Manager
Patrick.McEntee@et.eurofinsus.com
303 736-0107

Table of Contents

Table of Contents

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
J1	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
M	Manual integrated compound.
Q	One or more quality control criteria failed.
U	Undetected at the Limit of Detection.

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
CFU	Colony Forming Unit
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)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
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)
TNTC	Too Numerous To Count

CASE NARRATIVE

Client: Leidos, Inc.

Project: RVAAP FWGW Spring 2023

Report Number: 280-176808-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 5/19/2023 9:20 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.2º C.

EXPLOSIVES (HPLC)
Samples FWGmw-007-230401-GW (280-176808-1), FWGmw-004-230401-GW (280-176808-2) and FWGmw-004-230402-GW (280-176808-3) were analyzed for Explosives (HPLC) in accordance with 8330B. The samples were prepared on 05/23/2023 and analyzed on 05/24/2023.

The following samples: FWGmw-007-230401-GW (280-176808-1), FWGmw-004-230401-GW (280-176808-2), FWGmw-004-230401-GW (280-176808-2[MS]), FWGmw-004-230401-GW (280-176808-2[MSD]) and FWGmw-004-230402-GW (280-176808-3) in preparation batch 280-613446 and analytical batch 280-613677, were re-extracted due to LCSD low recovery for m-Nitrotoluene(73-125%R) at 70%R. LCS in re-extraction failed lower than the original extraction. Only the in hold data have been reported.

1,3,5-Trinitrobenzene, 3-Nitrotoluene, HMX and RDX failed the recovery criteria low for the MS/MSD of sample FWGmw-004-230401-GWMS (280-176808-2) in batch 280-613677.

In preparation batch 280-613446, the following sample: FWGmw-004-230401-GW (280-176808-2[MSD]) was decanted prior to preparation.

In preparation batch 280-613933, the following sample required filtration to reduce matrix interferences: FWGmw-007-230401-GW (280-176808-1).

In preparation batch 280-613933, the following sample: FWGmw-004-230402-GW (280-176808-3) was decanted prior to preparation.

In preparation batch 280-613933, the following samples were re-prepared outside of preparation holding time due to low LCS recovery from initial extraction: FWGmw-007-230401-GW (280-176808-1), FWGmw-004-230401-GW (280-176808-2), FWGmw-004-230401-GW (280-176808-2[MS]), FWGmw-004-230401-GW (280-176808-2[MSD]) and FWGmw-004-230402-GW (280-176808-3).

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

Detection Summary

Client: Leidos, Inc. Job ID: 280-176808-1
Project/Site: RVAAP FWGW Spring 2023

Client Sample ID: FWGmw-007-230401-GW Lab Sample ID: 280-176808-1

No Detections.

Client Sample ID: FWGmw-004-230401-GW Lab Sample ID: 280-176808-2

No Detections.

Client Sample ID: FWGmw-004-230402-GW Lab Sample ID: 280-176808-3

No Detections.

This Detection Summary does not include radiochemical test results.

Method: EPA 8330B - Nitroaromatics and Nitramines (HPLC)

Client Sample ID: FWGmw-007-230401-GW **Lab Sample ID: 280-176808-1**
Date Collected: 05/18/23 08:55 **Matrix: Water**
Date Received: 05/19/23 09:20

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	0.20	U	0.20	0.20	0.082	ug/L		05/24/23 20:06	1
1,3-Dinitrobenzene	0.098	U	0.11	0.098	0.036	ug/L		05/24/23 20:06	1
2,4,6-Trinitrotoluene	0.098	U	0.11	0.098	0.044	ug/L		05/24/23 20:06	1
2,4-Dinitrotoluene	0.078	U	0.098	0.078	0.027	ug/L		05/24/23 20:06	1
2,6-Dinitrotoluene	0.078	U	0.098	0.078	0.039	ug/L		05/24/23 20:06	1
2-Amino-4,6-dinitrotoluene	0.098	U	0.11	0.098	0.049	ug/L		05/24/23 20:06	1
2-Nitrotoluene	0.20	U	0.20	0.20	0.083	ug/L		05/24/23 20:06	1
3-Nitrotoluene	0.34	U Q	0.39	0.34	0.19	ug/L		05/24/23 20:06	1
4-Amino-2,6-dinitrotoluene	0.12	U	0.15	0.12	0.056	ug/L		05/24/23 20:06	1
4-Nitrotoluene	0.39	U	0.40	0.39	0.098	ug/L		05/24/23 20:06	1
HMX	0.20	U	0.20	0.20	0.085	ug/L		05/24/23 20:06	1
Nitrobenzene	0.20	U	0.20	0.20	0.089	ug/L		05/24/23 20:06	1
Nitroglycerin	2.0	U	2.0	2.0	0.90	ug/L		05/24/23 20:06	1
PETN	0.98	U	1.1	0.98	0.44	ug/L		05/24/23 20:06	1
RDX	0.20	U	0.20	0.20	0.050	ug/L		05/24/23 20:06	1
Tetryl	0.098	U	0.11	0.098	0.031	ug/L		05/24/23 20:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dinitrobenzene	*89*	*M*	*83 - 119*	*05/23/23 13:00*	*05/24/23 20:06*	*1*

Client Sample ID: FWGmw-004-230401-GW **Lab Sample ID: 280-176808-2**
Date Collected: 05/18/23 10:03 **Matrix: Water**
Date Received: 05/19/23 09:20

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	0.20	U	0.21	0.20	0.085	ug/L		05/24/23 21:38	1
1,3-Dinitrobenzene	0.10	U	0.11	0.10	0.037	ug/L		05/24/23 21:38	1
2,4,6-Trinitrotoluene	0.10	U	0.11	0.10	0.045	ug/L		05/24/23 21:38	1
2,4-Dinitrotoluene	0.080	U	0.10	0.080	0.028	ug/L		05/24/23 21:38	1
2,6-Dinitrotoluene	0.080	U	0.10	0.080	0.040	ug/L		05/24/23 21:38	1
2-Amino-4,6-dinitrotoluene	0.10	U	0.11	0.10	0.051	ug/L		05/24/23 21:38	1
2-Nitrotoluene	0.20	U	0.21	0.20	0.086	ug/L		05/24/23 21:38	1
3-Nitrotoluene	0.35	U J1 Q	0.40	0.35	0.20	ug/L		05/24/23 21:38	1
4-Amino-2,6-dinitrotoluene	0.12	U	0.15	0.12	0.058	ug/L		05/24/23 21:38	1
4-Nitrotoluene	0.40	U	0.41	0.40	0.10	ug/L		05/24/23 21:38	1
HMX	0.20	U M	0.21	0.20	0.088	ug/L		05/24/23 21:38	1
Nitrobenzene	0.20	U	0.21	0.20	0.092	ug/L		05/24/23 21:38	1
Nitroglycerin	2.0	U	2.1	2.0	0.93	ug/L		05/24/23 21:38	1
PETN	1.0	U	1.1	1.0	0.45	ug/L		05/24/23 21:38	1
RDX	0.20	U	0.21	0.20	0.052	ug/L		05/24/23 21:38	1
Tetryl	0.10	U	0.11	0.10	0.032	ug/L		05/24/23 21:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dinitrobenzene	*92*	*M*	*83 - 119*	*05/23/23 13:00*	*05/24/23 21:38*	*1*

Client Sample ID: FWGmw-004-230402-GW **Lab Sample ID: 280-176808-3**
Date Collected: 05/18/23 10:03 **Matrix: Water**
Date Received: 05/19/23 09:20

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	0.20	U	0.21	0.20	0.083	ug/L		05/24/23 22:01	1
1,3-Dinitrobenzene	0.098	U	0.11	0.098	0.036	ug/L		05/24/23 22:01	1

Method: EPA 8330B - Nitroaromatics and Nitramines (HPLC) (Continued)

Client Sample ID: FWGmw-004-230402-GW **Lab Sample ID: 280-176808-3**
Date Collected: 05/18/23 10:03 **Matrix: Water**
Date Received: 05/19/23 09:20

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2,4,6-Trinitrotoluene	0.098	U	0.11	0.098	0.044	ug/L		05/24/23 22:01	1
2,4-Dinitrotoluene	0.079	U	0.098	0.079	0.027	ug/L		05/24/23 22:01	1
2,6-Dinitrotoluene	0.079	U	0.098	0.079	0.039	ug/L		05/24/23 22:01	1
2-Amino-4,6-dinitrotoluene	0.098	U	0.11	0.098	0.050	ug/L		05/24/23 22:01	1
2-Nitrotoluene	0.20	U	0.21	0.20	0.084	ug/L		05/24/23 22:01	1
3-Nitrotoluene	0.34	U Q	0.39	0.34	0.19	ug/L		05/24/23 22:01	1
4-Amino-2,6-dinitrotoluene	0.12	U	0.15	0.12	0.057	ug/L		05/24/23 22:01	1
4-Nitrotoluene	0.39	U	0.40	0.39	0.098	ug/L		05/24/23 22:01	1
HMX	0.20	U M	0.21	0.20	0.086	ug/L		05/24/23 22:01	1
Nitrobenzene	0.20	U	0.21	0.20	0.089	ug/L		05/24/23 22:01	1
Nitroglycerin	2.0	U	2.1	2.0	0.91	ug/L		05/24/23 22:01	1
PETN	0.98	U	1.1	0.98	0.44	ug/L		05/24/23 22:01	1
RDX	0.20	U	0.21	0.20	0.051	ug/L		05/24/23 22:01	1
Tetryl	0.098	U	0.11	0.098	0.031	ug/L		05/24/23 22:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dinitrobenzene	*99*		*83 - 119*	*05/23/23 13:00*	*05/24/23 22:01*	*1*

Default Detection Limits

Client: Leidos, Inc.
Job ID: 280-176808-1
Project/Site: RVAAP FWGW Spring 2023

Method: 8330B - Nitroaromatics and Nitramines (HPLC)

Prep: 3535

Analyte	LOQ	DL	Units
1,3,5-Trinitrobenzene	0.21	0.084	ug/L
1,3-Dinitrobenzene	0.11	0.037	ug/L
2,4,6-Trinitrotoluene	0.11	0.045	ug/L
2,4-Dinitrotoluene	0.10	0.027	ug/L
2,6-Dinitrotoluene	0.10	0.040	ug/L
2-Amino-4,6-dinitrotoluene	0.11	0.051	ug/L
2-Nitrotoluene	0.21	0.086	ug/L
3-Nitrotoluene	0.40	0.20	ug/L
4-Amino-2,6-dinitrotoluene	0.15	0.058	ug/L
4-Nitrotoluene	0.41	0.10	ug/L
HMX	0.21	0.088	ug/L
Nitrobenzene	0.21	0.091	ug/L
Nitroglycerin	2.1	0.92	ug/L
PETN	1.1	0.45	ug/L
RDX	0.21	0.052	ug/L
Tetryl	0.11	0.032	ug/L

Surrogate Summary

Client: Leidos, Inc.
Project/Site: RVAAP FWGW Spring 2023

Job ID: 280-176808-1

Method: 8330B - Nitroaromatics and Nitramines (HPLC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	12DNB1 (83-119)							
280-176808-1	FWGmw-007-230401-GW	89 M							
280-176808-2	FWGmw-004-230401-GW	92 M							
280-176808-2 MS	FWGmw-004-230401-GW	85 M							
280-176808-2 MSD	FWGmw-004-230401-GW	85 M							
280-176808-3	FWGmw-004-230402-GW	99							
LCS 280-613446/2-A	Lab Control Sample	99							
LCSD 280-613446/3-A	Lab Control Sample Dup	88							
MB 280-613446/1-A	Method Blank	91							

Surrogate Legend

12DNB = 1,2-Dinitrobenzene

Method: 8330B - Nitroaromatics and Nitramines (HPLC)

Lab Sample ID: MB 280-613446/1-A
Matrix: Water
Analysis Batch: 613677

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 613446

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	0.20	U M	0.21	0.20	0.084	ug/L		05/24/23 17:26	1
1,3-Dinitrobenzene	0.10	U	0.11	0.10	0.037	ug/L		05/24/23 17:26	1
2,4,6-Trinitrotoluene	0.10	U	0.11	0.10	0.045	ug/L		05/24/23 17:26	1
2,4-Dinitrotoluene	0.080	U	0.10	0.080	0.027	ug/L		05/24/23 17:26	1
2,6-Dinitrotoluene	0.080	U	0.10	0.080	0.040	ug/L		05/24/23 17:26	1
2-Amino-4,6-dinitrotoluene	0.10	U	0.11	0.10	0.051	ug/L		05/24/23 17:26	1
2-Nitrotoluene	0.20	U	0.21	0.20	0.086	ug/L		05/24/23 17:26	1
3-Nitrotoluene	0.35	U	0.40	0.35	0.20	ug/L		05/24/23 17:26	1
4-Amino-2,6-dinitrotoluene	0.12	U	0.15	0.12	0.058	ug/L		05/24/23 17:26	1
4-Nitrotoluene	0.40	U	0.41	0.40	0.10	ug/L		05/24/23 17:26	1
HMX	0.20	U	0.21	0.20	0.088	ug/L		05/24/23 17:26	1
Nitrobenzene	0.20	U	0.21	0.20	0.091	ug/L		05/24/23 17:26	1
Nitroglycerin	2.0	U	2.1	2.0	0.92	ug/L		05/24/23 17:26	1
PETN	1.0	U	1.1	1.0	0.45	ug/L		05/24/23 17:26	1
RDX	0.20	U	0.21	0.20	0.052	ug/L		05/24/23 17:26	1
Tetryl	0.10	U	0.11	0.10	0.032	ug/L		05/24/23 17:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dinitrobenzene	*91*		*83 - 119*	*05/23/23 13:00*	*05/24/23 17:26*	*1*

Lab Sample ID: LCS 280-613446/2-A
Matrix: Water
Analysis Batch: 613677

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 613446

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1,3,5-Trinitrobenzene			2.00	2.24		ug/L		112	73 - 125		
1,3-Dinitrobenzene			2.00	2.15		ug/L		107	78 - 120		
2,4,6-Trinitrotoluene			2.00	2.08		ug/L		104	71 - 123		
2,4-Dinitrotoluene			2.00	2.08		ug/L		104	78 - 120		
2,6-Dinitrotoluene			2.00	2.13		ug/L		106	77 - 127		
2-Amino-4,6-dinitrotoluene			2.00	2.02		ug/L		101	79 - 120		
2-Nitrotoluene			2.00	1.73		ug/L		87	70 - 127		
3-Nitrotoluene			2.00	1.72		ug/L		86	73 - 125		
4-Amino-2,6-dinitrotoluene			2.00	2.00		ug/L		100	76 - 125		
4-Nitrotoluene			2.00	1.74		ug/L		87	71 - 127		
HMX			2.00	1.88		ug/L		94	65 - 135		
Nitrobenzene			2.00	1.93		ug/L		96	65 - 134		
Nitroglycerin			20.0	21.3		ug/L		107	74 - 127		
PETN			20.0	23.1		ug/L		115	73 - 127		
RDX			2.00	2.12		ug/L		106	68 - 130		
Tetryl			2.00	2.31		ug/L		116	64 - 128		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dinitrobenzene	*99*		*83 - 119*

Method: 8330B - Nitroaromatics and Nitramines (HPLC) (Continued)

Lab Sample ID: LCSD 280-613446/3-A
Client Sample ID: Lab Control Sample Dup
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 613677
Prep Batch: 613446

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,3,5-Trinitrobenzene			2.00	2.03		ug/L		101	73 - 125	10	20
1,3-Dinitrobenzene			2.00	1.86		ug/L		93	78 - 120	14	20
2,4,6-Trinitrotoluene			2.00	1.77		ug/L		89	71 - 123	16	20
2,4-Dinitrotoluene			2.00	1.74		ug/L		87	78 - 120	18	20
2,6-Dinitrotoluene			2.00	1.81		ug/L		91	77 - 127	16	20
2-Amino-4,6-dinitrotoluene			2.00	1.73		ug/L		87	79 - 120	15	20
2-Nitrotoluene			2.00	1.45		ug/L		73	70 - 127	17	20
3-Nitrotoluene			2.00	1.40	Q	ug/L		70	73 - 125	21	20
4-Amino-2,6-dinitrotoluene			2.00	1.71		ug/L		85	76 - 125	16	20
4-Nitrotoluene			2.00	1.43		ug/L		72	71 - 127	19	20
HMX			2.00	1.74		ug/L		87	65 - 135	8	20
Nitrobenzene			2.00	1.66		ug/L		83	65 - 134	15	20
Nitroglycerin			20.0	19.2		ug/L		96	74 - 127	11	20
PETN			20.0	20.4		ug/L		102	73 - 127	12	20
RDX			2.00	1.82		ug/L		91	68 - 130	15	20
Tetryl			2.00	1.99		ug/L		99	64 - 128	15	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dinitrobenzene	*88*		*83 - 119*

Lab Sample ID: 280-176808-2 MS
Client Sample ID: FWGmw-004-230401-GW
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 613677
Prep Batch: 613446

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
1,3,5-Trinitrobenzene	0.20	U	1.94	1.89	M	ug/L		97	73 - 125		
1,3-Dinitrobenzene	0.10	U	1.94	1.85		ug/L		95	78 - 120		
2,4,6-Trinitrotoluene	0.10	U	1.94	1.72		ug/L		89	71 - 123		
2,4-Dinitrotoluene	0.080	U	1.94	1.66		ug/L		85	78 - 120		
2,6-Dinitrotoluene	0.080	U	1.94	1.72		ug/L		89	77 - 127		
2-Amino-4,6-dinitrotoluene	0.10	U	1.94	1.66		ug/L		86	79 - 120		
2-Nitrotoluene	0.20	U	1.94	1.45		ug/L		75	70 - 127		
3-Nitrotoluene	0.35	U J1 Q	1.94	1.36	J1	ug/L		70	73 - 125		
4-Amino-2,6-dinitrotoluene	0.12	U	1.94	1.67		ug/L		86	76 - 125		
4-Nitrotoluene	0.40	U	1.94	1.41		ug/L		73	71 - 127		
HMX	0.20	U M	1.94	1.76	M	ug/L		90	65 - 135		
Nitrobenzene	0.20	U	1.94	1.60		ug/L		82	65 - 134		
Nitroglycerin	2.0	U	19.4	18.1		ug/L		93	74 - 127		
PETN	1.0	U	19.4	19.8		ug/L		102	73 - 127		
RDX	0.20	U	1.94	1.73	M	ug/L		89	68 - 130		
Tetryl	0.10	U	1.94	1.94		ug/L		100	64 - 128		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dinitrobenzene	*85*	*M*	*83 - 119*

Method: 8330B - Nitroaromatics and Nitramines (HPLC) (Continued)

Lab Sample ID: 280-176808-2 MSD **Client Sample ID: FWGmw-004-230401-GW**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 613677 **Prep Batch: 613446**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,3,5-Trinitrobenzene	0.20	U	2.13	2.11	M	ug/L		99	73 - 125	11	20
1,3-Dinitrobenzene	0.10	U	2.13	2.02		ug/L		95	78 - 120	9	20
2,4,6-Trinitrotoluene	0.10	U	2.13	1.89		ug/L		89	71 - 123	9	20
2,4-Dinitrotoluene	0.080	U	2.13	1.84		ug/L		86	78 - 120	10	20
2,6-Dinitrotoluene	0.080	U	2.13	1.90		ug/L		89	77 - 127	10	20
2-Amino-4,6-dinitrotoluene	0.10	U	2.13	1.84		ug/L		86	79 - 120	10	20
2-Nitrotoluene	0.20	U	2.13	1.61		ug/L		76	70 - 127	10	20
3-Nitrotoluene	0.35	U J1 Q	2.13	1.63	M	ug/L		76	73 - 125	18	20
4-Amino-2,6-dinitrotoluene	0.12	U	2.13	1.83		ug/L		86	76 - 125	9	20
4-Nitrotoluene	0.40	U	2.13	1.52		ug/L		71	71 - 127	8	20
HMX	0.20	U M	2.13	1.91	M	ug/L		89	65 - 135	8	20
Nitrobenzene	0.20	U	2.13	1.76		ug/L		82	65 - 134	10	20
Nitroglycerin	2.0	U	21.3	19.7		ug/L		92	74 - 127	9	20
PETN	1.0	U	21.3	21.5		ug/L		101	73 - 127	9	20
RDX	0.20	U	2.13	1.92	M	ug/L		90	68 - 130	10	20
Tetryl	0.10	U	2.13	2.07		ug/L		97	64 - 128	6	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dinitrobenzene	*85*	*M*	*83 - 119*

HPLC/IC

Prep Batch: 613446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176808-1	FWGmw-007-230401-GW	Total/NA	Water	3535	
280-176808-2	FWGmw-004-230401-GW	Total/NA	Water	3535	
280-176808-3	FWGmw-004-230402-GW	Total/NA	Water	3535	
MB 280-613446/1-A	Method Blank	Total/NA	Water	3535	
LCS 280-613446/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 280-613446/3-A	Lab Control Sample Dup	Total/NA	Water	3535	
280-176808-2 MS	FWGmw-004-230401-GW	Total/NA	Water	3535	
280-176808-2 MSD	FWGmw-004-230401-GW	Total/NA	Water	3535	

Analysis Batch: 613677

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-176808-1	FWGmw-007-230401-GW	Total/NA	Water	8330B	613446
280-176808-2	FWGmw-004-230401-GW	Total/NA	Water	8330B	613446
280-176808-3	FWGmw-004-230402-GW	Total/NA	Water	8330B	613446
MB 280-613446/1-A	Method Blank	Total/NA	Water	8330B	613446
LCS 280-613446/2-A	Lab Control Sample	Total/NA	Water	8330B	613446
LCSD 280-613446/3-A	Lab Control Sample Dup	Total/NA	Water	8330B	613446
280-176808-2 MS	FWGmw-004-230401-GW	Total/NA	Water	8330B	613446
280-176808-2 MSD	FWGmw-004-230401-GW	Total/NA	Water	8330B	613446

Lab Chronicle

Client: Leidos, Inc. Job ID: 280-176808-1
Project/Site: RVAAP FWGW Spring 2023

Client Sample ID: FWGmw-007-230401-GW — Lab Sample ID: 280-176808-1

Date Collected: 05/18/23 08:55 — **Matrix: Water**
Date Received: 05/19/23 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			512.3 mL	5 mL	613446	05/23/23 13:00	EH	EET DEN
Total/NA	Analysis	8330B		1	1 mL	1 mL	613677	05/24/23 20:06	JZ	EET DEN

Client Sample ID: FWGmw-004-230401-GW — Lab Sample ID: 280-176808-2

Date Collected: 05/18/23 10:03 — **Matrix: Water**
Date Received: 05/19/23 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			497.1 mL	5 mL	613446	05/23/23 13:00	EH	EET DEN
Total/NA	Analysis	8330B		1	1 mL	1 mL	613677	05/24/23 21:38	JZ	EET DEN

Client Sample ID: FWGmw-004-230402-GW — Lab Sample ID: 280-176808-3

Date Collected: 05/18/23 10:03 — **Matrix: Water**
Date Received: 05/19/23 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			508.8 mL	5 mL	613446	05/23/23 13:00	EH	EET DEN
Total/NA	Analysis	8330B		1	1 mL	1 mL	613677	05/24/23 22:01	JZ	EET DEN

Laboratory References:
EET DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: Leidos, Inc. Job ID: 280-176808-1
Project/Site: RVAAP FWGW Spring 2023

Laboratory: Eurofins Denver

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23

Method Summary

Client: Leidos, Inc. Job ID: 280-176808-1
Project/Site: RVAAP FWGW Spring 2023

Method	Method Description	Protocol	Laboratory
8330B	Nitroaromatics and Nitramines (HPLC)	EPA	EET DEN
3535	Solid-Phase Extraction (SPE)	SW846	EET DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Leidos, Inc.
Job ID: 280-176808-1
Project/Site: RVAAP FWGW Spring 2023

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-176808-1	FWGmw-007-230401-GW	Water	05/18/23 08:55	05/19/23 09:20
280-176808-2	FWGmw-004-230401-GW	Water	05/18/23 10:03	05/19/23 09:20
280-176808-3	FWGmw-004-230402-GW	Water	05/18/23 10:03	05/19/23 09:20

HPLC/IC MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins Denver Job No.: 280-176808-1

SDG No.:

Instrument ID: CHHPLC_X3 Analysis Batch Number: 601664

Lab Sample ID: IC 280-601664/11 Client Sample ID:

Date Analyzed: 02/08/23 15:38 Lab File ID: 02080011.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HMX	6.55	Baseline Smoothing	LV5D	02/08/23 16:28

Lab Sample ID: IC 280-601664/12 Client Sample ID:

Date Analyzed: 02/08/23 16:01 Lab File ID: 02080012.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HMX	6.55	Baseline Smoothing	LV5D	02/08/23 16:28

Lab Sample ID: IC 280-601664/13 Client Sample ID:

Date Analyzed: 02/08/23 16:24 Lab File ID: 02080013.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HMX	6.54	Baseline Smoothing	LV5D	02/08/23 16:55
RDX	7.56	Baseline Smoothing	LV5D	02/08/23 19:09

Lab Sample ID: IC 280-601664/14 Client Sample ID:

Date Analyzed: 02/08/23 16:47 Lab File ID: 02080014.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HMX	6.55	Baseline Smoothing	LV5D	02/08/23 17:11
RDX	7.56	Baseline Smoothing	LV5D	02/08/23 19:09

Lab Sample ID: IC 280-601664/15 Client Sample ID:

Date Analyzed: 02/08/23 17:10 Lab File ID: 02080015.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
RDX	7.57	Baseline Smoothing	LV5D	02/08/23 19:09

8330B

HPLC/IC MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins Denver Job No.: 280-176808-1

SDG No.:

Instrument ID: CHHPLC_X3 Analysis Batch Number: 601664

Lab Sample ID: IC 280-601664/16 Client Sample ID:

Date Analyzed: 02/08/23 17:33 Lab File ID: 02080016.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
RDX	7.56	Baseline Smoothing	LV5D	02/08/23 19:09
PETN	14.55	Baseline Smoothing	LV5D	02/08/23 19:08

Lab Sample ID: IC 280-601664/17 Client Sample ID:

Date Analyzed: 02/08/23 17:56 Lab File ID: 02080017.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HMX	6.55	Baseline Smoothing	LV5D	02/08/23 19:07
RDX	7.57	Baseline Smoothing	LV5D	02/08/23 19:09
PETN	14.58	Baseline Smoothing	LV5D	02/08/23 19:08

Lab Sample ID: IC 280-601664/18 Client Sample ID:

Date Analyzed: 02/08/23 18:19 Lab File ID: 02080018.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HMX	6.55	Baseline Smoothing	LV5D	02/08/23 19:09
RDX	7.56	Baseline Smoothing	LV5D	02/08/23 19:09
PETN	14.59	Baseline Smoothing	LV5D	02/08/23 19:08

Lab Sample ID: IC 280-601664/19 Client Sample ID:

Date Analyzed: 02/08/23 18:42 Lab File ID: 02080019.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HMX	6.55	Baseline Smoothing	LV5D	02/08/23 19:09
RDX	7.56	Baseline Smoothing	LV5D	02/08/23 19:08
PETN	14.58	Unspecified		

HPLC/IC MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins Denver Job No.: 280-176808-1

SDG No.:

Instrument ID: CHHPLC_X3 Analysis Batch Number: 601664

Lab Sample ID: ICV 280-601664/20 Client Sample ID:

Date Analyzed: 02/08/23 19:05 Lab File ID: 02080020.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HMX	6.55	Baseline Smoothing	LV5D	02/08/23 19:31
RDX	7.56	Baseline Smoothing	LV5D	02/08/23 19:32

HPLC/IC MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins Denver Job No.: 280-176808-1

SDG No.:

Instrument ID: CHHPLC_X3 Analysis Batch Number: 613677

Lab Sample ID: CCV 280-613677/7 Client Sample ID:

Date Analyzed: 05/24/23 17:03 Lab File ID: 05240007.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HMX	6.55	Baseline	LV5D	05/24/23 17:30

Lab Sample ID: MB 280-613446/1-A Client Sample ID:

Date Analyzed: 05/24/23 17:26 Lab File ID: 05240011.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,3,5-Trinitrobenzene		Invalid Compound ID	LV5D	05/24/23 17:49

Lab Sample ID: 280-176808-1 Client Sample ID: FWGmw-007-230401-GW

Date Analyzed: 05/24/23 20:06 Lab File ID: 05240018.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,2-Dinitrobenzene	8.52	Baseline	LV5D	05/24/23 20:34
HMX		Baseline	LV5D	05/24/23 20:34

Lab Sample ID: 280-176808-2 MS Client Sample ID: FWGmw-004-230401-GW MS

Date Analyzed: 05/24/23 20:29 Lab File ID: 05240019.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HMX	6.55	Baseline	K8YG	05/25/23 08:02
RDX	7.57	Baseline	K8YG	05/25/23 08:02
1,2-Dinitrobenzene	8.53	Baseline	K8YG	05/25/23 08:02
1,3,5-Trinitrobenzene	8.65	Baseline	K8YG	05/25/23 08:02

HPLC/IC MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins Denver Job No.: 280-176808-1

SDG No.:

Instrument ID: CHHPLC_X3 Analysis Batch Number: 613677

Lab Sample ID: 280-176808-2 MSD Client Sample ID: FWGmw-004-230401-GW MSD

Date Analyzed: 05/24/23 20:52 Lab File ID: 05240020.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HMX	6.55	Baseline	K8YG	05/25/23 08:08
RDX	7.57	Baseline	K8YG	05/25/23 08:09
1,2-Dinitrobenzene	8.52	Baseline	K8YG	05/25/23 08:10
1,3,5-Trinitrobenzene	8.65	Baseline	K8YG	05/25/23 08:10
3-Nitrotoluene	13.48	Baseline	K8YG	05/25/23 08:10

Lab Sample ID: 280-176808-2 Client Sample ID: FWGmw-004-230401-GW

Date Analyzed: 05/24/23 21:38 Lab File ID: 05240022.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,2-Dinitrobenzene	8.52	Baseline	K8YG	05/25/23 08:11
HMX		Invalid Compound ID	K8YG	05/25/23 08:11

Lab Sample ID: 280-176808-3 Client Sample ID: FWGmw-004-230402-GW

Date Analyzed: 05/24/23 22:01 Lab File ID: 05240023.D GC Column: UltraCarb5uOD ID: 4.6(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HMX		Invalid Compound ID	K8YG	05/25/23 08:12

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins Denver Job No.: 280-176808-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
8330 LCS_00121	07/21/23	01/21/23	Acetonitrile, Lot Acetonitrile_00073	50 mL	8330_NG_Stk_00118	0.6 mL	Nitroglycerin	100 ug/mL
					8330_NG_Stk_00120	0.4 mL	Nitroglycerin	100 ug/mL
					8330_PETN_Stk_00128	1 mL	PETN	100 ug/mL
					8330LCSMix1_00136	0.5 mL	1,3,5-Trinitrobenzene	10 ug/mL
							1,3-Dinitrobenzene	10 ug/mL
							2,4,6-Trinitrotoluene	10 ug/mL
							2,4-Dinitrotoluene	10 ug/mL
							HMX	10 ug/mL
							Nitrobenzene	10 ug/mL
							RDX	10 ug/mL
					8330LCSmix2_00034	0.5 mL	2,6-Dinitrotoluene	10 ug/mL
							2-Amino-4,6-dinitrotoluene	10 ug/mL
							2-Nitrotoluene	10 ug/mL
							3-Nitrotoluene	10 ug/mL
							4-Amino-2,6-dinitrotoluene	10 ug/mL
							4-Nitrotoluene	10 ug/mL
							Tetryl	10 ug/mL
.8330_NG_Stk_00118	12/24/23		Restek, Lot A0188553		(Purchased Reagent)		Nitroglycerin	5000 ug/mL
.8330_NG_Stk_00120	01/21/24		Restek, Lot A0188553		(Purchased Reagent)		Nitroglycerin	5000 ug/mL
.8330_PETN_Stk_00128	01/21/24		Restek, Lot A0187506		(Purchased Reagent)		PETN	5000 ug/mL
.8330LCSMix1_00136	10/19/23		Restek, Lot A0171502		(Purchased Reagent)		1,3,5-Trinitrobenzene	1000 ug/mL
							1,3-Dinitrobenzene	1000 ug/mL
							2,4,6-Trinitrotoluene	1000 ug/mL
							2,4-Dinitrotoluene	1000 ug/mL
							HMX	1000 ug/mL
							Nitrobenzene	1000 ug/mL
							RDX	1000 ug/mL
.8330LCSmix2_00034	01/21/24		Restek, Lot A0186475		(Purchased Reagent)		2,6-Dinitrotoluene	1000 ug/mL
							2-Amino-4,6-dinitrotoluene	1000 ug/mL
							2-Nitrotoluene	1000 ug/mL
							3-Nitrotoluene	1000 ug/mL
							4-Amino-2,6-dinitrotoluene	1000 ug/mL
							4-Nitrotoluene	1000 ug/mL
							Tetryl	1000 ug/mL
8330 LCS_00126	04/26/24	04/26/23	Acetonitrile, Lot Acetonitrile_00077	100 mL	3,5-DNA Stock_00042	1 mL	3,5-Dinitroaniline	10 ug/mL
					8330_NG_Stk_00130	1 mL	Nitroglycerin	100 ug/mL
					8330_NG_Stk_00131	1 mL	Nitroglycerin	100 ug/mL
					8330_PETN_Stk_00135	1 mL	PETN	100 ug/mL
					8330_PETN_Stk_00136	1 mL	PETN	100 ug/mL
					8330LCSMix1_00141	1 mL	1,3,5-Trinitrobenzene	10 ug/mL
							1,3-Dinitrobenzene	10 ug/mL
							2,4,6-Trinitrotoluene	10 ug/mL
							2,4-Dinitrotoluene	10 ug/mL
							HMX	10 ug/mL
							Nitrobenzene	10 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins Denver Job No.: 280-176808-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							RDX	10 ug/mL
					8330LCSmix2_00039	1 mL	2,6-Dinitrotoluene	10 ug/mL
							2-Amino-4,6-dinitrotoluene	10 ug/mL
							2-Nitrotoluene	10 ug/mL
							3-Nitrotoluene	10 ug/mL
							4-Amino-2,6-dinitrotoluene	10 ug/mL
							4-Nitrotoluene	10 ug/mL
							Tetryl	10 ug/mL
					PicricARestek_00114	1 mL	2,4,6-Trinitrophenol	10 ug/mL
.3,5-DNA Stock_00042	04/26/24		Restek, Lot A0185772		(Purchased Reagent)		3,5-Dinitroaniline	1000 ug/mL
.8330_NG_Stk_00130	04/26/24		Restek, Lot A0194013		(Purchased Reagent)		Nitroglycerin	5000 ug/mL
.8330_NG_Stk_00131	04/26/24		Restek, Lot A0194013		(Purchased Reagent)		Nitroglycerin	5000 ug/mL
.8330_PETN_Stk_00135	04/26/24		Restek, Lot A0188550		(Purchased Reagent)		PETN	5000 ug/mL
.8330_PETN_Stk_00136	04/26/24		Restek, Lot A0188550		(Purchased Reagent)		PETN	5000 ug/mL
.8330LCSMix1_00141	04/26/24		Restek, Lot A0183848		(Purchased Reagent)		1,3,5-Trinitrobenzene	1000 ug/mL
							1,3-Dinitrobenzene	1000 ug/mL
							2,4,6-Trinitrotoluene	1000 ug/mL
							2,4-Dinitrotoluene	1000 ug/mL
							HMX	1000 ug/mL
							Nitrobenzene	1000 ug/mL
							RDX	1000 ug/mL
.8330LCSmix2_00039	04/26/24		Restek, Lot A0192237		(Purchased Reagent)		2,6-Dinitrotoluene	1000 ug/mL
							2-Amino-4,6-dinitrotoluene	1000 ug/mL
							2-Nitrotoluene	1000 ug/mL
							3-Nitrotoluene	1000 ug/mL
							4-Amino-2,6-dinitrotoluene	1000 ug/mL
							4-Nitrotoluene	1000 ug/mL
							Tetryl	1000 ug/mL
.PicricARestek_00114	04/26/24		Restek, Lot A0183202		(Purchased Reagent)		2,4,6-Trinitrophenol	1000 ug/mL
8330IntermStk_00075	08/07/23	02/03/23	Acetonitrile, Lot ACN_238	10 mL	8330_NG1000_00007	1 mL	Nitroglycerin	100 ug/mL
					8330_PETN1000_00011	1 mL	PETN	100 ug/mL
					833035DNAStk_00053	1 mL	3,5-Dinitroaniline	10 ug/mL
					8330ICALStock_00034	1 mL	1,3,5-Trinitrobenzene	10 ug/mL
							1,3-Dinitrobenzene	10 ug/mL
							2,4,6-Trinitrotoluene	10 ug/mL
							2,4-Dinitrotoluene	10 ug/mL
							2,6-Dinitrotoluene	10 ug/mL
							2-Amino-4,6-dinitrotoluene	10 ug/mL
							2-Nitrotoluene	10 ug/mL
							3-Nitrotoluene	10 ug/mL
							4-Amino-2,6-dinitrotoluene	10 ug/mL
							4-Nitrotoluene	10 ug/mL
							HMX	10 ug/mL
							Nitrobenzene	10 ug/mL
							RDX	10 ug/mL
							Tetryl	10 ug/mL
							1,2-Dinitrobenzene	10 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins Denver Job No.: 280-176808-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					8330PAStkPS_00070	1 mL	2,4,6-Trinitrophenol	10 ug/mL
.8330_NG1000_00007	02/03/24		Restek, Lot A0175997		(Purchased Reagent)		Nitroglycerin	1000 ug/mL
.8330_PETN1000_00011	02/03/24		Restek, Lot A0187142		(Purchased Reagent)		PETN	1000 ug/mL
.833035DNAStk_00053	10/06/23		Accustandard, Lot 222011692-01		(Purchased Reagent)		3,5-Dinitroaniline	100 ug/mL
.8330ICALStock_00034	02/03/24	02/03/23	Acetonitrile, Lot ACN_238	10 mL	8330 Stock_TS_00023	1 mL	1,3,5-Trinitrobenzene	100 ug/mL
							1,3-Dinitrobenzene	100 ug/mL
							2,4,6-Trinitrotoluene	100 ug/mL
							2,4-Dinitrotoluene	100 ug/mL
							2,6-Dinitrotoluene	100 ug/mL
							2-Amino-4,6-dinitrotoluene	100 ug/mL
							2-Nitrotoluene	100 ug/mL
							3-Nitrotoluene	100 ug/mL
							4-Amino-2,6-dinitrotoluene	100 ug/mL
							4-Nitrotoluene	100 ug/mL
							HMX	100 ug/mL
							Nitrobenzene	100 ug/mL
							RDX	100 ug/mL
							Tetryl	100 ug/mL
					8330SurrStock_00172	1 mL	1,2-Dinitrobenzene	100 ug/mL
..8330 Stock_TS_00023	02/03/24		Agilent, Lot 0006684308		(Purchased Reagent)		1,3,5-Trinitrobenzene	1000 ug/mL
							1,3-Dinitrobenzene	1000 ug/mL
							2,4,6-Trinitrotoluene	1000 ug/mL
							2,4-Dinitrotoluene	1000 ug/mL
							2,6-Dinitrotoluene	1000 ug/mL
							2-Amino-4,6-dinitrotoluene	1000 ug/mL
							2-Nitrotoluene	1000 ug/mL
							3-Nitrotoluene	1000 ug/mL
							4-Amino-2,6-dinitrotoluene	1000 ug/mL
							4-Nitrotoluene	1000 ug/mL
							HMX	1000 ug/mL
							Nitrobenzene	1000 ug/mL
							RDX	1000 ug/mL
							Tetryl	1000 ug/mL
..8330SurrStock_00172	02/03/24		AccuStandard, Lot 219051500		(Purchased Reagent)		1,2-Dinitrobenzene	1000 ug/mL
.8330PAStkPS_00070	08/07/23		AccuStandard, Lot 218031154-03		(Purchased Reagent)		2,4,6-Trinitrophenol	100 ug/mL
8330IntermStk_00076	09/23/23	03/23/23	Acetonitrile, Lot ACN_237	10 mL	8330_NG1000_00010	1 mL	Nitroglycerin	100 ug/mL
					8330_PETN1000_00010	1 mL	PETN	100 ug/mL
					8330ICALStock_00034	1 mL	1,3,5-Trinitrobenzene	10 ug/mL
							1,3-Dinitrobenzene	10 ug/mL
							2,4,6-Trinitrotoluene	10 ug/mL
							2,4-Dinitrotoluene	10 ug/mL
							2,6-Dinitrotoluene	10 ug/mL
							2-Amino-4,6-dinitrotoluene	10 ug/mL
							2-Nitrotoluene	10 ug/mL
							3-Nitrotoluene	10 ug/mL
							4-Amino-2,6-dinitrotoluene	10 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins Denver Job No.: 280-176808-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							4-Nitrotoluene	10 ug/mL
							HMX	10 ug/mL
							Nitrobenzene	10 ug/mL
							RDX	10 ug/mL
							Tetryl	10 ug/mL
							1,2-Dinitrobenzene	10 ug/mL
.8330_NG1000_00010	03/23/24		Restek, Lot A0187280		(Purchased Reagent)		Nitroglycerin	1000 ug/mL
.8330_PETN1000_00010	03/23/24		Restek, Lot A0187142		(Purchased Reagent)		PETN	1000 ug/mL
.8330ICALStock_00034	02/03/24	02/03/23	Acetonitrile, Lot ACN_238	10 mL	8330 Stock_TS_00023	1 mL	1,3,5-Trinitrobenzene	100 ug/mL
							1,3-Dinitrobenzene	100 ug/mL
							2,4,6-Trinitrotoluene	100 ug/mL
							2,4-Dinitrotoluene	100 ug/mL
							2,6-Dinitrotoluene	100 ug/mL
							2-Amino-4,6-dinitrotoluene	100 ug/mL
							2-Nitrotoluene	100 ug/mL
							3-Nitrotoluene	100 ug/mL
							4-Amino-2,6-dinitrotoluene	100 ug/mL
							4-Nitrotoluene	100 ug/mL
							HMX	100 ug/mL
							Nitrobenzene	100 ug/mL
							RDX	100 ug/mL
							Tetryl	100 ug/mL
					8330SurrStock_00172	1 mL	1,2-Dinitrobenzene	100 ug/mL
..8330 Stock_TS_00023	02/03/24		Agilent, Lot 0006684308		(Purchased Reagent)		1,3,5-Trinitrobenzene	1000 ug/mL
							1,3-Dinitrobenzene	1000 ug/mL
							2,4,6-Trinitrotoluene	1000 ug/mL
							2,4-Dinitrotoluene	1000 ug/mL
							2,6-Dinitrotoluene	1000 ug/mL
							2-Amino-4,6-dinitrotoluene	1000 ug/mL
							2-Nitrotoluene	1000 ug/mL
							3-Nitrotoluene	1000 ug/mL
							4-Amino-2,6-dinitrotoluene	1000 ug/mL
							4-Nitrotoluene	1000 ug/mL
							HMX	1000 ug/mL
							Nitrobenzene	1000 ug/mL
							RDX	1000 ug/mL
							Tetryl	1000 ug/mL
..8330SurrStock_00172	02/03/24		AccuStandard, Lot 219051500		(Purchased Reagent)		1,2-Dinitrobenzene	1000 ug/mL
8330Surrogate_00138	08/02/23	02/02/23	Acetonitrile, Lot Acetonitrile_00074	500 mL	8330SurrStkSS_00245	1 mL	1,2-Dinitrobenzene	10 ug/mL
					8330SurrStkSS_00246	1 mL	1,2-Dinitrobenzene	10 ug/mL
					8330SurrStkSS_00247	1 mL	1,2-Dinitrobenzene	10 ug/mL
					8330SurrStkSS_00248	1 mL	1,2-Dinitrobenzene	10 ug/mL
					8330SurrStkSS_00249	1 mL	1,2-Dinitrobenzene	10 ug/mL
.8330SurrStkSS_00245	02/02/24		Restek, Lot A0192220		(Purchased Reagent)		1,2-Dinitrobenzene	1000 ug/mL
.8330SurrStkSS_00246	02/02/24		Restek, Lot A0192220		(Purchased Reagent)		1,2-Dinitrobenzene	1000 ug/mL
.8330SurrStkSS_00247	02/02/24		Restek, Lot A0192220		(Purchased Reagent)		1,2-Dinitrobenzene	1000 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins Denver Job No.: 280-176808-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.8330SurrStkSS_00248	02/02/24		Restek, Lot A0192220		(Purchased Reagent)		1,2-Dinitrobenzene	1000 ug/mL
.8330SurrStkSS_00249	02/02/24		Restek, Lot A0192220		(Purchased Reagent)		1,2-Dinitrobenzene	1000 ug/mL
8330Surrogate_00144	11/17/23	05/17/23	Acetonitrile, Lot Acetonitrile_00078	500 mL	8330SurrStkSS_00269	1 mL	1,2-Dinitrobenzene	10 ug/mL
							1,2-Dinitrobenzene (Surr)	10 ug/mL
					8330SurrStkSS_00270	1 mL	1,2-Dinitrobenzene	10 ug/mL
							1,2-Dinitrobenzene (Surr)	10 ug/mL
					8330SurrStkSS_00271	1 mL	1,2-Dinitrobenzene	10 ug/mL
							1,2-Dinitrobenzene (Surr)	10 ug/mL
					8330SurrStkSS_00272	1 mL	1,2-Dinitrobenzene	10 ug/mL
							1,2-Dinitrobenzene (Surr)	10 ug/mL
					8330SurrStkSS_00273	1 mL	1,2-Dinitrobenzene	10 ug/mL
							1,2-Dinitrobenzene (Surr)	10 ug/mL
.8330SurrStkSS_00269	05/17/24		Restek, Lot A0194831		(Purchased Reagent)		1,2-Dinitrobenzene	1000 ug/mL
							1,2-Dinitrobenzene (Surr)	1000 ug/mL
.8330SurrStkSS_00270	05/17/24		Restek, Lot A0194831		(Purchased Reagent)		1,2-Dinitrobenzene	1000 ug/mL
							1,2-Dinitrobenzene (Surr)	1000 ug/mL
.8330SurrStkSS_00271	05/17/24		Restek, Lot A0194831		(Purchased Reagent)		1,2-Dinitrobenzene	1000 ug/mL
							1,2-Dinitrobenzene (Surr)	1000 ug/mL
.8330SurrStkSS_00272	05/17/24		Restek, Lot A0194831		(Purchased Reagent)		1,2-Dinitrobenzene	1000 ug/mL
							1,2-Dinitrobenzene (Surr)	1000 ug/mL
.8330SurrStkSS_00273	05/17/24		Restek, Lot A0197062		(Purchased Reagent)		1,2-Dinitrobenzene	1000 ug/mL
							1,2-Dinitrobenzene (Surr)	1000 ug/mL

Reagent

3,5-DNA Stock_00042

110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31661 **Lot No.:** A0185772

Description : 3,5-Dinitroaniline Standard

3, 5-Dinitroaniline Std 1000µg/mL, Acetonitrile, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : December 31, 2026 **Storage:** 10°C or colder

Ship: Ambient

C E R T I F I E D V A L U E S

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	3,5-Dinitroaniline	1,008.0 µg/mL	+/- 10.1543 µg/mL	Gravimetric
	CAS # 618-87-1 (Lot 10311HS)		+/- 31.5977 µg/mL	Unstressed
	Purity 99%		+/- 31.5977 µg/mL	Stressed

Solvent: Acetonitrile
CAS # 75-05-8
Purity 99%

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

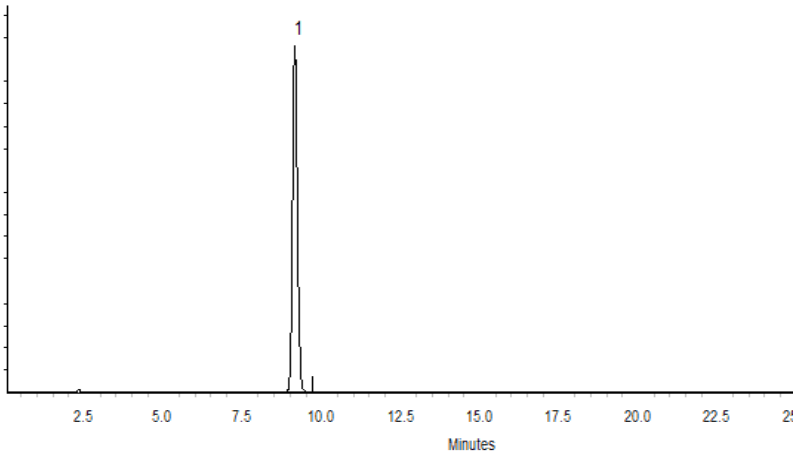
Flow Rate:
1.0 ml/min.

Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210nm & 254nm



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Morgan Craighead - Mix Technician

Date Mixed: 27-May-2022 **Balance:** 1128353505

Marlina Cowan - Operations Tech I

Date Passed: 02-Jun-2022

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/µECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k\sqrt{U^2_{gravimetric} + U^2_{homogeneity} + U^2_{storage\ stability} + U^2_{shipping\ stability}}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer) -20°C or colder (Deep Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.

Reagent

8330 LCS_00121

Preliminary Report

Eurofins Denver

LCS, Lab Control Sample Report

Sample Path: \\chromfs\Denver\ChromData\CHHPLC_X\20230121-117963.b\01210012.D

Lims ID: 8330 LCS 121 Inj. Date: 21-Jan-2023 14:04:20

Worklist ID: 280-0117963-012 Instrument: CHHPLC_X3

Method: 8330_X3

Compound	Amount Added	Amount Recovered	%Rec	Limits 1 3535	Limits 2 3535	Limits 3 3535
4 HMX	0.5000	0.4694	93.9	65-135	66-115	
8 RDX	0.5000	0.4904	98.1	68-130	69-122	
9 2,4,6-Trinitrophenol	0.5000	0.5399	108.0	80-120	63-135	
11 1,3,5-Trinitrobenzene	0.5000	0.5414	108.3	73-125	62-127	
12 1,3-Dinitrobenzene	0.5000	0.5314	106.3	78-120	59-131	
13 Nitrobenzene	0.5000	0.5214	104.3	65-134	46-144	
15 Tetryl	0.5000	0.5279	105.6	64-128	56-131	
16 Nitroglycerin	5.00	5.40	107.9	74-127	70-125	
17 2,4,6-Trinitrotoluene	0.5000	0.4569	91.4	71-123	46-139	
18 4-Amino-2,6-dinitrotolu	0.5000	0.5716	114.3	76-125	43-120	
19 2-Amino-4,6-dinitrotolu	0.5000	0.4927	98.5	79-120	46-124	
20 2,6-Dinitrotoluene	0.5000	0.5185	103.7	77-127	51-130	
21 2,4-Dinitrotoluene	0.5000	0.5353	107.1	78-120	53-127	
22 o-Nitrotoluene	0.5000	0.5106	102.1	70-127	37-138	
23 p-Nitrotoluene	0.5000	0.4984	99.7	71-127	41-137	
24 m-Nitrotoluene	0.5000	0.4984	99.7	73-125	31-140	
25 PETN	5.00	5.27	105.5	73-127	67-127	

Samples for Limit Group: 1, Lims Prep Method: 3535

280-171404-A-21-A 280-171267-A-1-A 280-171267-A-2-A
280-171267-A-3-A 280-171267-A-4-A 280-171267-A-5-A
280-171267-A-6-A 280-171267-A-7-A

Samples for Limit Group: 2, Lims Prep Method: 3535

550-196288-AO-1-A 570-123967-A-1-A

Samples for Limit Group: 3, Lims Prep Method: 3535

280-171237-A-1-A 280-171237-A-2-A 280-171237-A-3-A
280-171237-A-4-A

Reagent

8330 LCS_00126

Preliminary Report

Eurofins Denver

LCS, Lab Control Sample Report

Sample Path: \\chromfs\Denver\ChromData\CHHPLC_X\20230426-120796.b\04260006.D

Lims ID: C18column:B16162 Inj. Date: 26-Apr-2023 15:04:00

Worklist ID: 280-0120796-006 Instrument: CHHPLC_X3

Method: 8330_X3

Compound	Amount Added	Amount Recovered	%Rec	Limits 1 0B_Sonc_	Limits 2 0B_Sonc_
4 HMX	0.5000	0.4359	87.2	80-120	74-124
8 RDX	0.5000	0.4718	94.4	80-124	67-129
9 2,4,6-Trinitrophenol	0.5000	0.5241	104.8	38-154	
11 1,3,5-Trinitrobenzene	0.5000	0.5064	101.3	80-120	80-116
12 1,3-Dinitrobenzene	0.5000	0.5004	100.1	80-120	73-119
13 Nitrobenzene	0.5000	0.5010	100.2	76-122	67-129
14 3,5-Dinitroaniline	0.5000	0.4725	94.5	80-120	86-118
15 Tetryl	0.5000	0.5711	114.2	80-120	68-135
16 Nitroglycerin	5.00	5.04	100.8	75-120	73-124
17 2,4,6-Trinitrotoluene	0.5000	0.4643	92.9	80-120	71-120
18 4-Amino-2,6-dinitrotolu	0.5000	0.4973	99.5	80-120	64-127
19 2-Amino-4,6-dinitrotolu	0.5000	0.4766	95.3	78-120	71-123
20 2,6-Dinitrotoluene	0.5000	0.4994	99.9	80-120	79-117
21 2,4-Dinitrotoluene	0.5000	0.4894	97.9	80-120	75-121
22 o-Nitrotoluene	0.5000	0.4896	97.9	80-124	70-124
23 p-Nitrotoluene	0.5000	0.4868	97.4	80-120	71-124
24 m-Nitrotoluene	0.5000	0.4890	97.8	80-122	67-129
25 PETN	5.00	5.34	106.9	80-120	72-128

Samples for Limit Group: 1, Lims Prep Method: 8330B_Sonc_10g

280-174348-A-25-B	280-174348-A-26-B	280-174348-A-27-B
280-174348-A-28-B	280-174348-A-29-B	280-174348-A-30-D
280-174348-A-31-B	280-174348-A-16-B	280-174348-A-18-B
280-174348-A-19-B	280-174348-A-20-B	280-174348-A-22-B
280-174348-A-24-B	280-174485-A-7-B	280-174485-A-8-B
280-174485-A-9-B	280-174482-A-1-B	280-174482-A-2-B
280-174482-A-3-B	280-174482-A-4-B	280-174482-A-5-B
280-174482-A-6-B	280-174482-A-7-B	280-174482-A-8-B
280-174482-A-9-D	280-174482-A-10-B	280-174482-A-11-B
280-174482-A-12-B	280-174482-A-13-B	280-174482-A-14-B
280-174482-A-15-B	280-174482-A-16-B	280-174482-A-17-B
280-174482-A-18-B	280-174482-A-19-C	

Samples for Limit Group: 2, Lims Prep Method: 8330B_Sonc_10g

280-174408-A-1-I	280-174408-A-2-I

Reagent

8330 Stock_TS_00023

Agilent

Trusted Answers

ISO 17034

Reference Material Certificate

Product Information Sheet

Product Name: Stock Standard

Product Number: NAIM-833E-1

Storage Conditions: Store at Room Temperature (15° to 30°C).

Lot Number: 0006684308

Lot Issue Date: 01-Jun-2022

Expiration Date: 30-Jun-2025

Component Name	CERTIFIED VALUES Concentration	Expanded Uncertainty	CAS#	Analyte Lot
HMX	1001	± 5 µg/mL	002691-41-0	RM06237
RDX	1001	± 5 µg/mL	000121-82-4	RM10915
1,3,5-trinitrobenzene	1001	± 5 µg/mL	000099-35-4	RM17843
m-dinitrobenzene	1002	± 5 µg/mL	000099-65-0	RM14290
nitrobenzene	1002	± 5 µg/mL	000098-95-3	RM11472
2,4,6-trinitrotoluene (TNT)	1001	± 5 µg/mL	000118-96-7	RM16204
2,4-dinitrotoluene	1002	± 5 µg/mL	000121-14-2	RM10279
tetryl	1003	± 5 µg/mL	000479-45-8	RM14651
2,6-dinitrotoluene	1003	± 5 µg/mL	000606-20-2	RM16636
2-nitrotoluene	1003	± 5 µg/mL	000088-72-2	NT01996
3-nitrotoluene	1002	± 5 µg/mL	000099-08-1	NT02212
4-nitrotoluene	1003	± 5 µg/mL	000099-99-0	NT02096
2-amino-4,6-dinitrotoluene	1003	± 5 µg/mL	035572-78-2	RM04232
4-amino-2,6-dinitrotoluene	1004	± 5 µg/mL	019406-51-0	RM04226

Matrix: acetonitrile

Description:

This document is prepared in accordance with ISO 17034 and Guide 31. This analytical reference material standard was manufactured and verified in accordance with an ISO 9001 registered quality system and analyte concentrations were verified by an ISO 17025 accredited laboratory. The concentration and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed above.

Traceability:

The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z540.3, ISO 9001, ISO 17025, and ISO 17034. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 1088.

Homogeneity:

This analytical reference standard was unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Instructions for Use:

Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening the container and should be processed without delay for the certified values to be valid within the stated uncertainties.

Reagent

8330_NG_Stk_00118

RESTEK®
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Composition

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 568871 **Lot No.:** A0188553

Description : Custom Nitroglycerin Standard

Custom Nitroglycerin Standard 5,000µg/mL, Acetonitrile, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : August 31, 2025 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Nitroglycerin	5,016.0 µg/mL	+/- 46.6461	µg/mL	Gravimetric
	CAS # 55-63-0 (Lot 200507JLM)		+/- 277.1256	µg/mL	Unstressed
	Purity 99%		+/- 322.4378	µg/mL	Stressed

Solvent: Acetonitrile
CAS # 75-05-8
Purity 99%

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

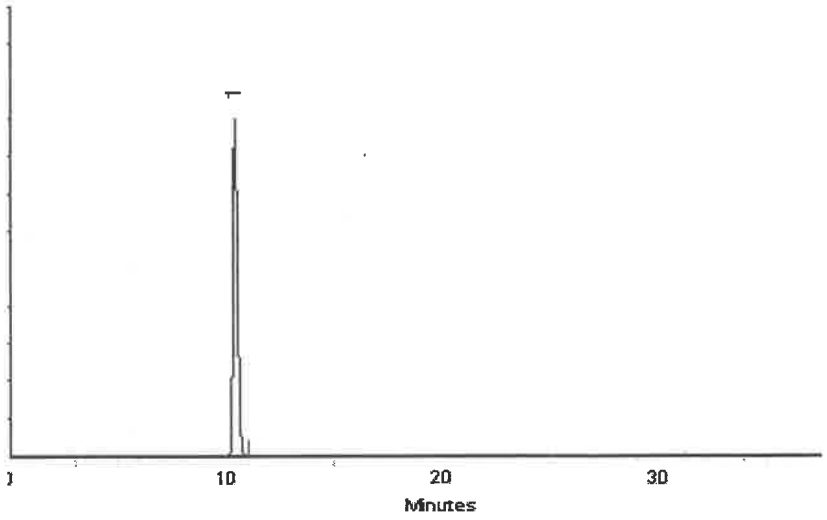
Flow Rate:
1.0 ml/min.

Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210nm & 254nm



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Matt Fragassi - Mix Technician

Date Mixed: 15-Aug-2022 **Balance:** 1128353505

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 16-Aug-2022

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k\sqrt{U^2_{gravimetric} + U^2_{homogeneity} + U^2_{storage\ stability} + U^2_{shipping\ stability}}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer) -20°C or colder (Deep Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.

Reagent

8330_NG_Stk_00120

RESTEK®
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Composition

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 568871 **Lot No.:** A0188553

Description : Custom Nitroglycerin Standard

Custom Nitroglycerin Standard 5,000µg/mL, Acetonitrile, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : August 31, 2025 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Nitroglycerin	5,016.0 µg/mL	+/- 46.6461	µg/mL	Gravimetric
	CAS # 55-63-0 (Lot 200507JLM)		+/- 277.1256	µg/mL	Unstressed
	Purity 99%		+/- 322.4378	µg/mL	Stressed

Solvent: Acetonitrile
CAS # 75-05-8
Purity 99%

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

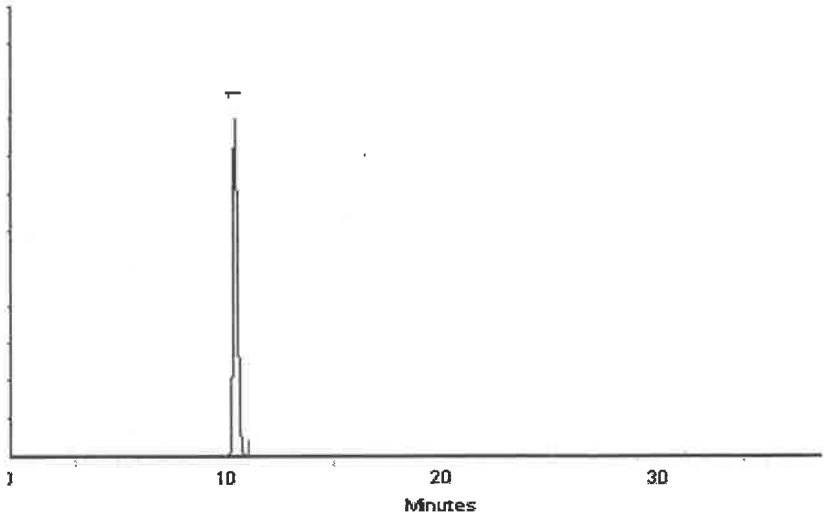
Flow Rate:
1.0 ml/min.

Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210nm & 254nm



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Matt Fragassi - Mix Technician

Date Mixed: 15-Aug-2022 **Balance:** 1128353505

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 16-Aug-2022

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k\sqrt{U^2_{gravimetric} + U^2_{homogeneity} + U^2_{storage\ stability} + U^2_{shipping\ stability}}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer) -20°C or colder (Deep Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.

Reagent

8330_NG_Stk_00130

RESTEK
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: 1-814-353-1300
Fax: 1-814-353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

chromatographic

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 568871 **Lot No.:** A0194013

Description : Custom Nitroglycerin Standard

Custom Nitroglycerin Standard 5,000µg/mL, Acetonitrile, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : January 31, 2026 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Nitroglycerin	55-63-0	200507JLM	99%	5,036.0 µg/mL	+/- 237.6858

* Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent: Acetonitrile
CAS # 75-05-8
Purity 99%

Quality Confirmation Test

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

Flow Rate:
1.0 ml/min.

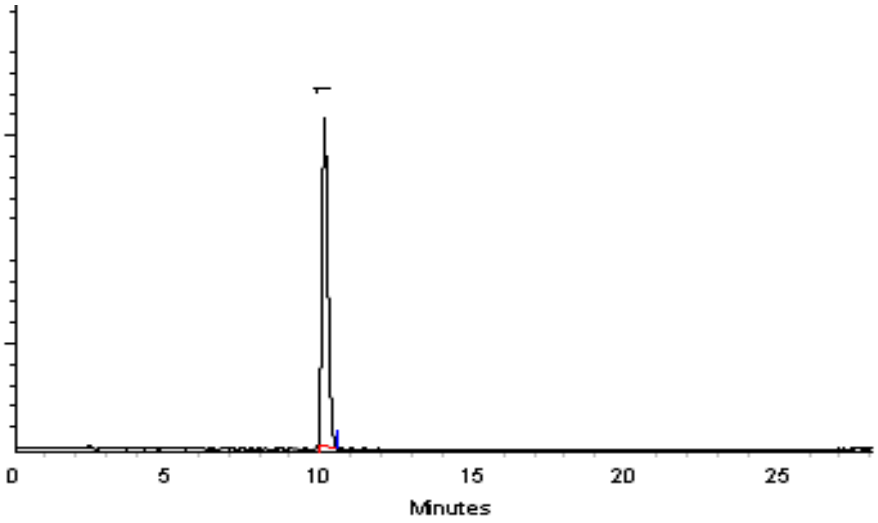
Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210nm & 254nm

Inj. Vol
5µl



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Brandon Reish - Operations Technician II

Date Mixed: 27-Jan-2023 **Balance Serial #** B251644995

Christie Mills - Operations Tech II - ARM QC

Date Passed: 31-Jan-2023

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/µECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified expanded uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ uncertainty} = k\sqrt{u^2_{gravimetric} + u^2_{homogeneity} + u^2_{storage\ stability} + u^2_{shipping\ stability}}$$

  k is a coverage factor of 2, which gives a level of confidence of approximately 95%.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

Reagent

8330_NG_Stk_00131

RESTEK
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: 1-814-353-1300
Fax: 1-814-353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

chromatographic

ACCREDITED ISO 17034 Accredited Reference Material Producer Certificate #3222.01

ACCREDITED ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 568871 **Lot No.:** A0194013

Description : Custom Nitroglycerin Standard

Custom Nitroglycerin Standard 5,000µg/mL, Acetonitrile, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : January 31, 2026 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Nitroglycerin	55-63-0	200507JLM	99%	5,036.0 µg/mL	+/- 237.6858

* Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent: Acetonitrile
CAS # 75-05-8
Purity 99%

Quality Confirmation Test

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

Flow Rate:
1.0 ml/min.

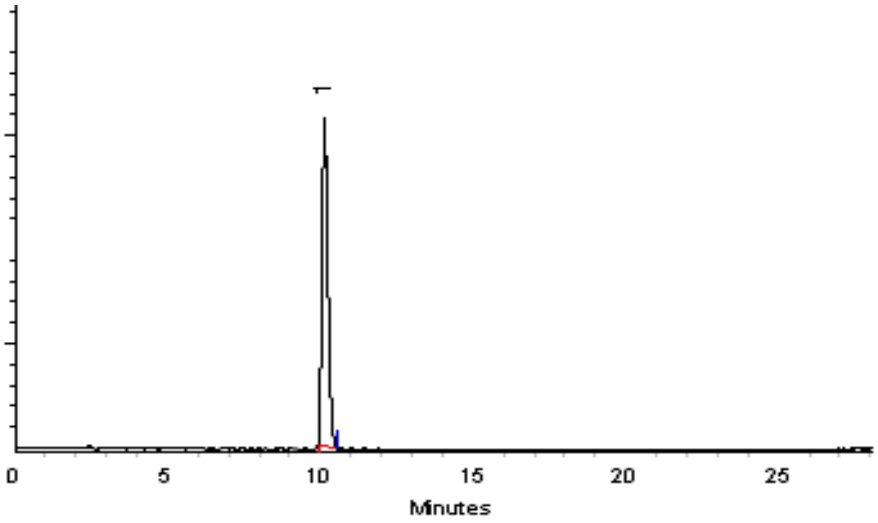
Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210nm & 254nm

Inj. Vol
5µl



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Brandon Reish - Operations Technician II

Date Mixed: 27-Jan-2023 **Balance Serial #** B251644995

Christie Mills - Operations Tech II - ARM QC

Date Passed: 31-Jan-2023

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/µECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified expanded uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ uncertainty} = k\sqrt{u^2_{gravimetric} + u^2_{homogeneity} + u^2_{storage\ stability} + u^2_{shipping\ stability}}$$

  k is a coverage factor of 2, which gives a level of confidence of approximately 95%.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

Reagent

8330_NG1000_00007

RESTEK®
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31498 **Lot No.:** A0175997

Description : Nitroglycerin Standard

Nitroglycerin Standard 1,000µg/mL, Methanol, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : September 30, 2026 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	Nitroglycerin	1,000.0 µg/mL	+/- 5.9397 µg/mL	Gravimetric
	CAS # 55-63-0 (Lot 200507JLM)		+/- 54.7830 µg/mL	Unstressed
	Purity 99%		+/- 63.8824 µg/mL	Stressed

Solvent: Methanol
CAS # 67-56-1
Purity 99%

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k\sqrt{U^2_{gravimetric} + U^2_{homogeneity} + U^2_{storage\ stability} + U^2_{shipping\ stability}}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer) -20°C or colder (Deep Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.

Reagent

8330_NG1000_00010

RESTEK®
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31498 **Lot No.:** A0187280

Description : Nitroglycerin Standard

Nitroglycerin Standard 1,000µg/mL, Methanol, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : July 31, 2027 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Nitroglycerin	1,004.0 µg/mL	+/- 5.9635	µg/mL	Gravimetric
	CAS # 55-63-0 (Lot 200507JLM)		+/- 55.0021	µg/mL	Unstressed
	Purity 99%		+/- 64.1379	µg/mL	Stressed

Solvent: Methanol
CAS # 67-56-1
Purity 99%

Reagent

8330_PETN_Stk_00128

RESTEK®
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Composition

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 568872 **Lot No.:** A0187506

Description : Custom PETN Standard

Custom PETN Standard 5,000µg/mL, Acetonitrile, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : July 31, 2025 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound		Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)			
1	PETN		5,028.0 µg/mL	+/-	46.7577	µg/mL	Gravimetric
	CAS # 78-11-5	(Lot 051108JLM)		+/-	277.7886	µg/mL	Unstressed
	Purity 99%			+/-	323.2092	µg/mL	Stressed

Solvent: Acetonitrile
CAS # 75-05-8
Purity 99%

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

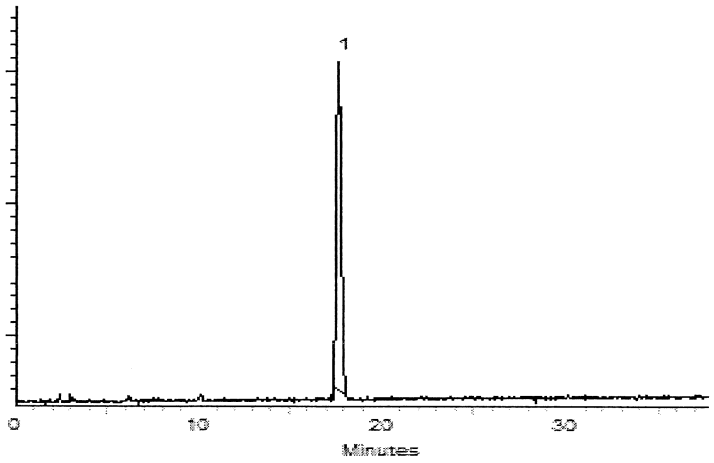
Flow Rate:
1.0 ml/min.

Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210nm & 254nm



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Miranda Kline

Miranda Kline - Operations Technician I **Date Mixed:** 19-Jul-2022 **Balance:** B345965662

Fang-Yun Weaver - Operations Lead Tech - ARM QC **Date Passed:** 22-Jul-2022

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k\sqrt{U^2_{gravimetric} + U^2_{homogeneity} + U^2_{storage\ stability} + U^2_{shipping\ stability}}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer) -20°C or colder (Deep Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.

Reagent

8330_PETN_Stk_00135

RESTEK®
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Composition

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 568872 **Lot No.:** A0188550

Description : Custom PETN Standard

Custom PETN Standard 5,000µg/mL, Acetonitrile, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : August 31, 2025 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound		Grav. Conc. (weight/volume)		Expanded Uncertainty (95% C.L.; K=2)		
1	PETN		5,000.0	µg/mL	+/- 46.4973	µg/mL	Gravimetric
	CAS # 78-11-5	(Lot 051108JLM)			+/- 276.2417	µg/mL	Unstressed
	Purity 99%				+/- 321.4093	µg/mL	Stressed

Solvent: Acetonitrile
CAS # 75-05-8
Purity 99%

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

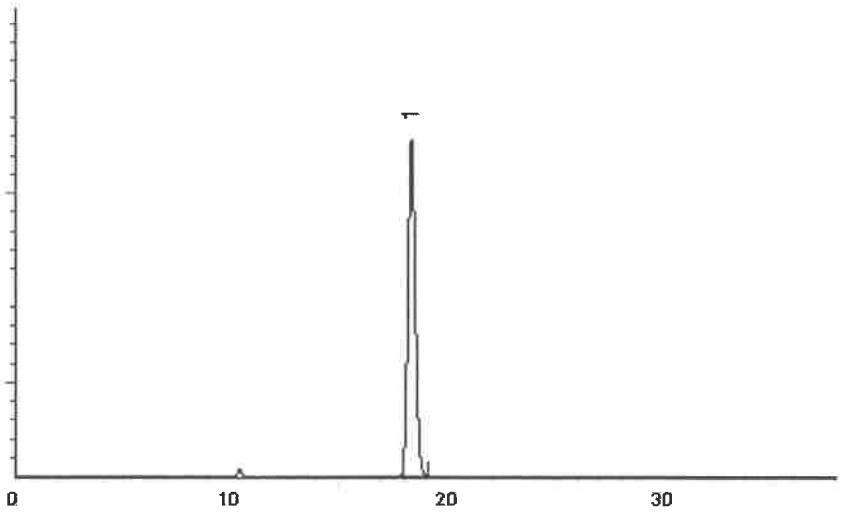
Flow Rate:
1.0 ml/min.

Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210nm & 254nm



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Matt Fragassi - Mix Technician

Date Mixed: 15-Aug-2022 **Balance:** 1128353505

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 16-Aug-2022

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k\sqrt{U^2_{gravimetric} + U^2_{homogeneity} + U^2_{storage\ stability} + U^2_{shipping\ stability}}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer) -20°C or colder (Deep Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.

Reagent

8330_PETN_Stk_00136

RESTEK®
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Composition

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 568872 **Lot No.:** A0188550

Description : Custom PETN Standard

Custom PETN Standard 5,000µg/mL, Acetonitrile, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : August 31, 2025 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound		Grav. Conc. (weight/volume)		Expanded Uncertainty (95% C.L.; K=2)		
1	PETN		5,000.0	µg/mL	+/- 46.4973	µg/mL	Gravimetric
	CAS # 78-11-5	(Lot 051108JLM)			+/- 276.2417	µg/mL	Unstressed
	Purity 99%				+/- 321.4093	µg/mL	Stressed

Solvent: Acetonitrile
CAS # 75-05-8
Purity 99%

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

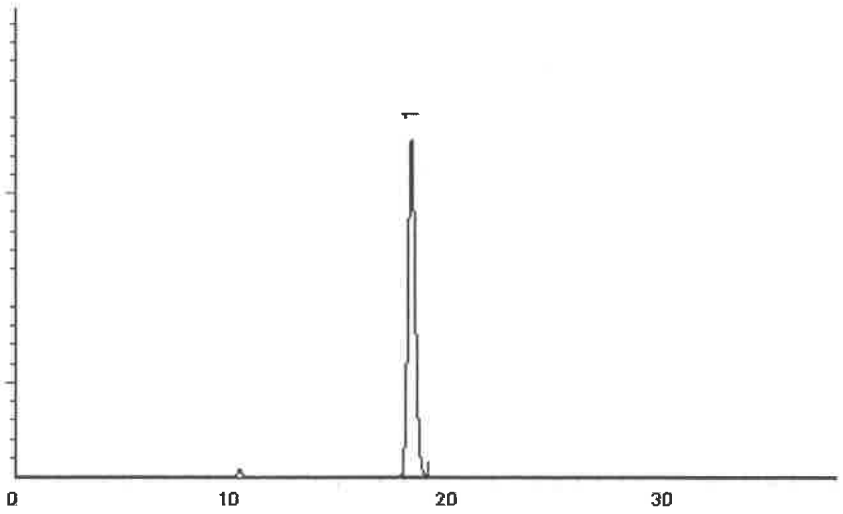
Flow Rate:
1.0 ml/min.

Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210nm & 254nm



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Matt Fragassi - Mix Technician

Date Mixed: 15-Aug-2022 **Balance:** 1128353505

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 16-Aug-2022

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k\sqrt{U^2_{gravimetric} + U^2_{homogeneity} + U^2_{storage\ stability} + U^2_{shipping\ stability}}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer) -20°C or colder (Deep Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.

Reagent

8330_PETN1000_00010

RESTEK®
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ilac-MRA

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31600 **Lot No.:** A0187142

Description : PETN Standard

PETN Standard 1000µg/mL, Methanol, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : July 31, 2027 **Storage:** 10°C or colder

Handling: Sonicate prior to use. **Ship:** Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
I	PETN	1,001.0 µg/mL	+/- 5.9456	µg/mL	Gravimetric
	CAS # 78-11-5 (Lot 051108JLM)		+/- 54.8378	µg/mL	Unstressed
	Purity 99%		+/- 63.9463	µg/mL	Stressed

Solvent: Methanol
CAS # 67-56-1
Purity 99%

Reagent

8330_PETN1000_00011

RESTEK®
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31600 **Lot No.:** A0187142

Description : PETN Standard

PETN Standard 1000µg/mL, Methanol, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : July 31, 2027 **Storage:** 10°C or colder

Handling: Sonicate prior to use. **Ship:** Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
I	PETN	1,001.0 µg/mL	+/- 5.9456	µg/mL	Gravimetric
	CAS # 78-11-5 (Lot 051108JLM)		+/- 54.8378	µg/mL	Unstressed
	Purity 99%		+/- 63.9463	µg/mL	Stressed

Solvent: Methanol
CAS # 67-56-1
Purity 99%

Reagent

833035DNAStk_00053

125 Market Street
New Haven, CT 06513
USA

AccuStandard®

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

CERTIFICATE OF ANALYSIS

Catalog No: M-8330-ADD-4
Description: 3,5-Dinitroaniline
Lot: 222011692-01
Solvent: Methanol (50%)
Acetonitrile (50%)
Hazards: *Refer to SDS for complete safety information*

Signal Word: Danger

Date Certified: Sep 6, 2022
Expiration: Oct 6, 2023
Sample Size: 1 mL
Components: 1
Storage Condition: Ambient (>5 °C)

Certified Reference Material

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER AR-1463

ilac-MRA

Component	CAS #	Purity % (GC/MS)	Prepared Concentration[2] (µg/mL)	Certified Analyte Concentration[1] (µg/mL)
3,5-Dinitroaniline	618-87-1	100.0	100.6	100.6

This Certified Reference Material was verified in accordance with ISO/IEC 17025

A product with a suffix (-1A, -2B, etc. or -01, -02, etc.) on its lot number has had its expiration date extended and is identical to the same lot number without the suffix.

[2] All weights are traceable through NIST, Test No. 684/289871-17

[1] Certified Analyte Concentration = Purity x Prepared Concentration.

The Uncertainty associated with the certified concentration reported on this certificate is ±2.4%. This value is the combined expanded uncertainty and represents an estimated standard deviation equal to the positive square root of the total variation of the uncertainty of components. A normal distribution is assumed and a coverage factor of K=2 is chosen using approximately a 95% confidence level.

Labels and certificates follow U.S. Conventions in reporting numerical values: A comma (,) is used to separate units of one-thousand or greater. A period (.) is used as a decimal place marker.

Hazard Information: Please refer to the SDS for information regarding the hazards associated with using this material.

This product was prepared according to in-house procedures and is guaranteed to be homogeneous.

Certified By: Larry Decker, Organic QC Manager

For use in routine laboratory analysis.

Reagent

8330LCSMix1_00136

RESTEK
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31450 **Lot No.:** A0183848

Description : 8330 Calibration Mix #1

8330 Calibration Std #1 1000µg/mL, Acetonitrile, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : April 30, 2027 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	HMX **CAS #** 2691-41-0 (Lot 210324JLM) **Purity** 99%	1,008.0 µg/mL	+/- 5.9872 µg/mL +/- 55.2213 µg/mL +/- 64.3934 µg/mL	Gravimetric Unstressed Stressed
2	RDX **CAS #** 121-82-4 (Lot 080228JLM) **Purity** 99%	1,007.0 µg/mL	+/- 5.9813 µg/mL +/- 55.1665 µg/mL +/- 64.3295 µg/mL	Gravimetric Unstressed Stressed
3	1,3,5-Trinitrobenzene **CAS #** 99-35-4 (Lot A6TDK) **Purity** 99%	1,008.0 µg/mL	+/- 5.9872 µg/mL +/- 55.2213 µg/mL +/- 64.3934 µg/mL	Gravimetric Unstressed Stressed
4	1,3-Dinitrobenzene **CAS #** 99-65-0 (Lot 1-DXX-24-1) **Purity** 99%	1,006.0 µg/mL	+/- 5.9753 µg/mL +/- 55.1117 µg/mL +/- 64.2657 µg/mL	Gravimetric Unstressed Stressed
5	Nitrobenzene **CAS #** 98-95-3 (Lot 10224044) **Purity** 99%	1,007.0 µg/mL	+/- 5.9813 µg/mL +/- 55.1665 µg/mL +/- 64.3295 µg/mL	Gravimetric Unstressed Stressed
6	2,4,6-Trinitrotoluene **CAS #** 118-96-7 (Lot D11836200) **Purity** 99%	1,002.0 µg/mL	+/- 5.9516 µg/mL +/- 54.8926 µg/mL +/- 64.0101 µg/mL	Gravimetric Unstressed Stressed
7	2,4-Dinitrotoluene **CAS #** 121-14-2 (Lot MKAA0690V) **Purity** 99%	1,005.0 µg/mL	+/- 5.9694 µg/mL +/- 55.0569 µg/mL +/- 64.2018 µg/mL	Gravimetric Unstressed Stressed

Solvent: Acetonitrile
CAS # 75-05-8
Purity 99%

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

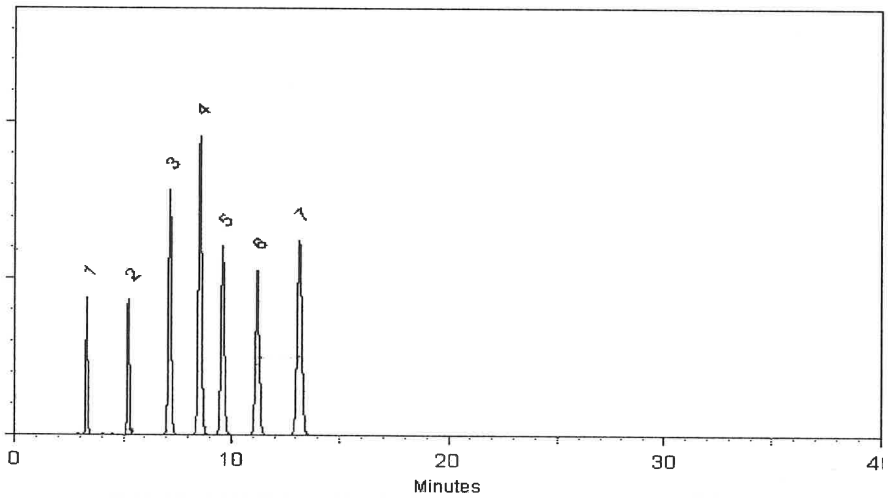
Flow Rate:
1.0 ml/min.

Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210nm & 254nm



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Tom Suckar - Mix Technician

Date Mixed: 08-Apr-2022 **Balance:** B251644995

Feng-Yan Lo - QC Analyst

Date Passed: 13-Apr-2022

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k\sqrt{U^2_{gravimetric} + U^2_{homogeneity} + U^2_{storage\ stability} + U^2_{shipping\ stability}}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer) -20°C or colder (Deep Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.

Reagent

8330LCSMix1_00141

RESTEK®
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31450 **Lot No.:** A0183848

Description : 8330 Calibration Mix #1

8330 Calibration Std #1 1000µg/mL, Acetonitrile, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : April 30, 2027 **Storage:** 10°C or colder

Ship: Ambient

C E R T I F I E D V A L U E S

Elution Order	Compound		Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	HMX		1,008.0 µg/mL	+/- 5.9872 µg/mL		Gravimetric
	CAS # 2691-41-0	(Lot 210324JLM)		+/- 55.2213 µg/mL		Unstressed
	Purity 99%			+/- 64.3934 µg/mL		Stressed
2	RDX		1,007.0 µg/mL	+/- 5.9813 µg/mL		Gravimetric
	CAS # 121-82-4	(Lot 080228JLM)		+/- 55.1665 µg/mL		Unstressed
	Purity 99%			+/- 64.3295 µg/mL		Stressed
3	1,3,5-Trinitrobenzene		1,008.0 µg/mL	+/- 5.9872 µg/mL		Gravimetric
	CAS # 99-35-4	(Lot A6TDK)		+/- 55.2213 µg/mL		Unstressed
	Purity 99%			+/- 64.3934 µg/mL		Stressed
4	1,3-Dinitrobenzene		1,006.0 µg/mL	+/- 5.9753 µg/mL		Gravimetric
	CAS # 99-65-0	(Lot 1-DXX-24-1)		+/- 55.1117 µg/mL		Unstressed
	Purity 99%			+/- 64.2657 µg/mL		Stressed
5	Nitrobenzene		1,007.0 µg/mL	+/- 5.9813 µg/mL		Gravimetric
	CAS # 98-95-3	(Lot 10224044)		+/- 55.1665 µg/mL		Unstressed
	Purity 99%			+/- 64.3295 µg/mL		Stressed
6	2,4,6-Trinitrotoluene		1,002.0 µg/mL	+/- 5.9516 µg/mL		Gravimetric
	CAS # 118-96-7	(Lot D11836200)		+/- 54.8926 µg/mL		Unstressed
	Purity 99%			+/- 64.0101 µg/mL		Stressed
7	2,4-Dinitrotoluene		1,005.0 µg/mL	+/- 5.9694 µg/mL		Gravimetric
	CAS # 121-14-2	(Lot MKAA0690V)		+/- 55.0569 µg/mL		Unstressed
	Purity 99%			+/- 64.2018 µg/mL		Stressed

Solvent: Acetonitrile
CAS # 75-05-8
Purity 99%

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

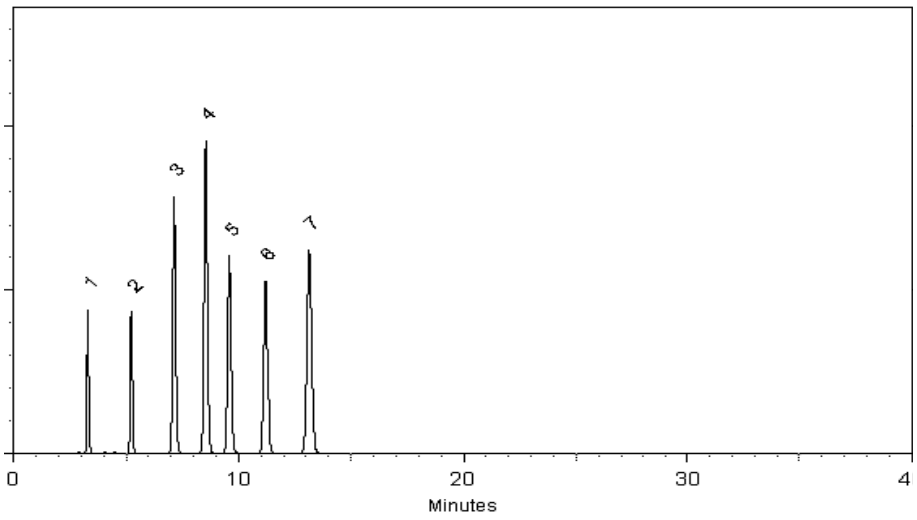
Flow Rate:
1.0 ml/min.

Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210nm & 254nm



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Tom Suckar - Mix Technician

Date Mixed: 08-Apr-2022 **Balance:** B251644995

Fang-Yun Lo - QC Analyst

Date Passed: 13-Apr-2022

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k\sqrt{U^2_{gravimetric} + U^2_{homogeneity} + U^2_{storage\ stability} + U^2_{shipping\ stability}}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer) -20°C or colder (Deep Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.

Reagent

8330LCSmix2_00034

4

RESTEK® CERTIFIED REFERENCE MATERIAL

110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

Certificate of Analysis

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31451 **Lot No.:** A0186475

Description : 8330 Calibration Mix #2

8330 Calibration Std #2 1000µg/mL, Acetonitrile, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : June 30, 2027 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	Tetryl **CAS #** 479-45-8 **Purity** 99% (Lot 211028JLM)	1,004.0 µg/mL	+/- 5.9635 µg/mL +/- 55.0021 µg/mL +/- 64.1379 µg/mL	Gravimetric Unstressed Stressed
2	4-Amino-2,6-dinitrotoluene **CAS #** 19406-51-0 **Purity** 99% (Lot ER070908-01)	1,002.0 µg/mL	+/- 5.9516 µg/mL +/- 54.8926 µg/mL +/- 64.0101 µg/mL	Gravimetric Unstressed Stressed
3	2-Amino-4,6-dinitrotoluene **CAS #** 35572-78-2 **Purity** 99% (Lot 29550-55)	1,002.0 µg/mL	+/- 5.9516 µg/mL +/- 54.8926 µg/mL +/- 64.0101 µg/mL	Gravimetric Unstressed Stressed
4	2,6-Dinitrotoluene **CAS #** 606-20-2 **Purity** 99% (Lot BCBB8606)	1,004.0 µg/mL	+/- 5.9635 µg/mL +/- 55.0021 µg/mL +/- 64.1379 µg/mL	Gravimetric Unstressed Stressed
5	2-Nitrotoluene **CAS #** 88-72-2 **Purity** 99% (Lot BCBZ7826)	1,002.0 µg/mL	+/- 5.9516 µg/mL +/- 54.8926 µg/mL +/- 64.0101 µg/mL	Gravimetric Unstressed Stressed
6	4-Nitrotoluene **CAS #** 99-99-0 **Purity** 99% (Lot BCCB0171)	1,002.0 µg/mL	+/- 5.9516 µg/mL +/- 54.8926 µg/mL +/- 64.0101 µg/mL	Gravimetric Unstressed Stressed
7	3-Nitrotoluene **CAS #** 99-08-1 **Purity** 99% (Lot FBO01)	1,000.0 µg/mL	+/- 5.9397 µg/mL +/- 54.7830 µg/mL +/- 63.8824 µg/mL	Gravimetric Unstressed Stressed

Solvent: Acetonitrile
CAS # 75-05-8
Purity 99%

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

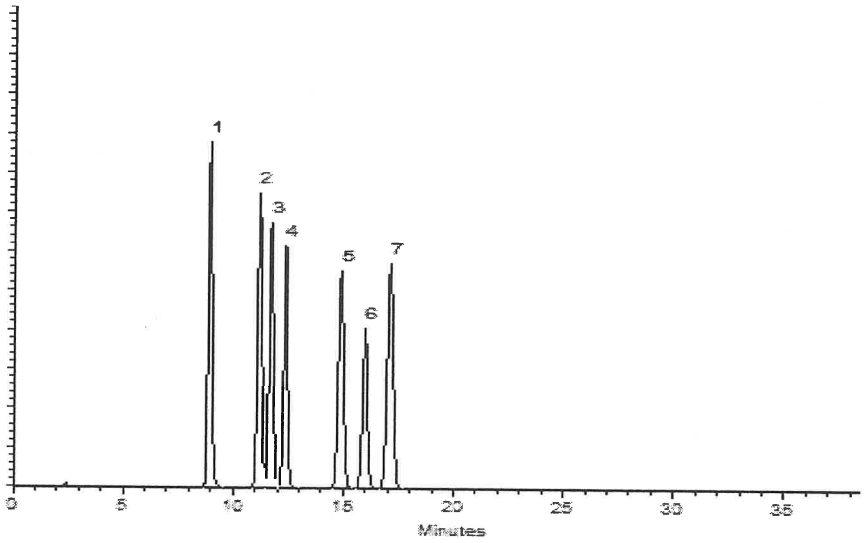
Flow Rate:
1.0 ml/min.

Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210nm & 254nm



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Ashley Frantz - Quoting Technician

Date Mixed: 21-Jun-2022 **Balance:** 1128360905

Christie Mills - Operations Tech II - ARM QC

Date Passed: 29-Jun-2022

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k\sqrt{U^2_{gravimetric} + U^2_{homogeneity} + U^2_{storage\ stability} + U^2_{shipping\ stability}}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer) -20°C or colder (Deep Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.

Reagent

8330LCSmix2_00039

RESTEK
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: 1-814-353-1300
Fax: 1-814-353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

chromatographic plus

ACCREDITED ISO 17034 Accredited Reference Material Producer Certificate #3222.01

ACCREDITED ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31451 **Lot No.:** A0192237

Description : 8330 Calibration Mix #2

8330 Calibration Std #2 1000µg/mL, Acetonitrile, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : December 31, 2027 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	Tetryl	479-45-8	211028JLM	99%	1,006.0 µg/mL	+/- 46.9317
2	4-Amino-2,6-dinitrotoluene	19406-51-0	ER070908-01	99%	1,004.0 µg/mL	+/- 46.8384
3	2-Amino-4,6-dinitrotoluene	35572-78-2	A210503-001	99%	1,006.0 µg/mL	+/- 46.9317
4	2,6-Dinitrotoluene	606-20-2	BCCG1833	99%	1,004.0 µg/mL	+/- 46.8384
5	2-Nitrotoluene	88-72-2	BCBZ7826	99%	1,008.0 µg/mL	+/- 47.0250
6	4-Nitrotoluene	99-99-0	BCCB0171	99%	1,002.0 µg/mL	+/- 46.7451
7	3-Nitrotoluene	99-08-1	07329LG	99%	1,008.0 µg/mL	+/- 47.0250

* Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent: Acetonitrile
CAS # 75-05-8
Purity 99%

Quality Confirmation Test

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

Flow Rate:
1.0 ml/min.

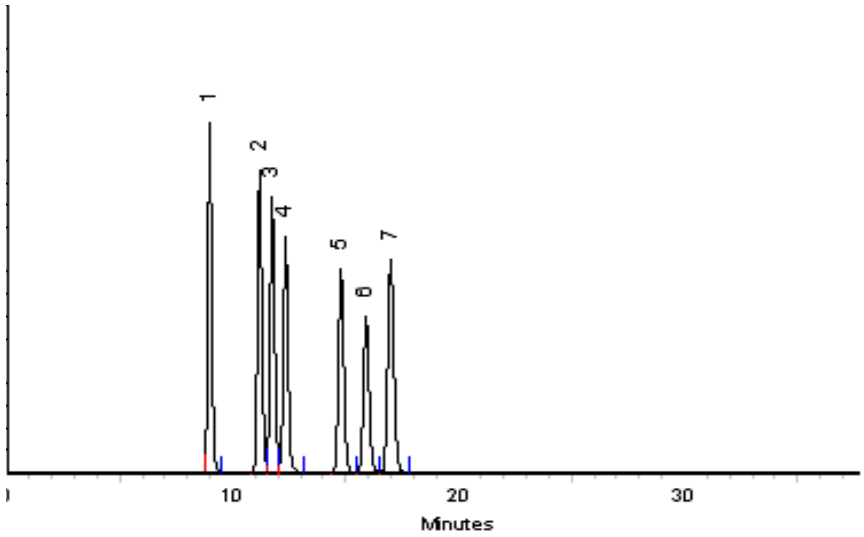
Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210nm & 254nm

Inj. Vol
5µl



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

John Friedline - Operations Technician I

Date Mixed: 05-Dec-2022 **Balance Serial #** 1128342314

Christie Mills - Operations Tech II - ARM QC

Date Passed: 07-Dec-2022

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/µECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified expanded uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ uncertainty} = k\sqrt{u^2_{gravimetric} + u^2_{homogeneity} + u^2_{storage\ stability} + u^2_{shipping\ stability}}$$

  k is a coverage factor of 2, which gives a level of confidence of approximately 95%.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

Reagent

8330PAStkPS_00070

125 Market Street
New Haven, CT 06513
USA

AccuStandard®

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

CERTIFICATE OF ANALYSIS

Catalog No: M-8330-ADD-3
Description: Picric acid
Lot: 218031154-03
Solvent: Acetonitrile (50%)
Methanol (50%)
Hazards: *Refer to SDS for complete safety information*

Signal Word: Danger

Date Certified: Jul 7, 2021
Expiration: Aug 7, 2023
Sample Size: 1 mL
Components: 1
Storage Condition: Ambient (>5 °C)

Certified Reference Material

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER AR-1463

ilac-MRA

Component	CAS #	Purity % (HPLC)	Prepared Concentration² (µg/mL)	Certified Analyte Concentration¹ (µg/mL)
Picric acid	88-89-1	99.1	100.1	99.2

31499

This Certified Reference Material was verified in accordance with ISO/IEC 17025

A product with a suffix (-1A, -2B, etc. or -01, -02, etc.) on its lot number has had its expiration date extended and is identical to the same lot number without the suffix.

² All weights are traceable through NIST, Test No. 822-275872-11

¹ Certified Analyte Concentration = Purity x Prepared Concentration.

The Uncertainty associated with the certified concentration reported on this certificate is ±2.4%. This value is the combined expanded uncertainty and represents an estimated standard deviation equal to the positive square root of the total variation of the uncertainty of components. A normal distribution is assumed and a coverage factor of K=2 is chosen using approximately a 95% confidence level.

Labels and certificates follow U.S. Conventions in reporting numerical values: A comma (,) is used to separate units of one-thousand or greater. A period (.) is used as a decimal place marker.

Hazard Information: Please refer to the SDS for information regarding the hazards associated with using this material.

This product was prepared according to in-house procedures and is guaranteed to be homogeneous.

Certified By: _____
Larry Decker, Organic QC Manager

For use in routine laboratory analysis.

AccuStandard is accredited to ISO 17034, ISO/IEC 17025 and certified to ISO 9001:2015

QR-ORG/INO-001
Rev. 7/20

Reagent

8330Surrogate_00138

Preliminary Report

Eurofins Denver

LCS, Lab Control Sample Report

Sample Path: \\chromfs\Denver\ChromData\CHHPLC_X\20230202-118305.b\02020011.D

Lims ID: Surr138 Inj. Date: 02-Feb-2023 19:11:17

Worklist ID: 280-0118305-011 Instrument: CHHPLC_X3

Method: 8330_X3

Compound	Amount Added	Amount Recovered	%Rec	Limits 1 0B_Sonc_
$ 10 1,2-Dinitrobenzene	0.5000	0.5112	102.2	78-119

Samples for Limit Group: 1, Lims Prep Method: 8330B_Sonc_10g

280-171573-C-4-B	280-171573-C-5-B	280-171573-C-6-B
280-171573-C-7-B	280-171573-C-8-B	280-171573-C-9-D
280-171573-C-10-B	280-171573-C-11-B	280-171573-B-12-B
280-171573-B-13-B	280-171573-B-14-B	280-171573-B-15-B
280-171573-B-16-B	280-171573-C-42-B	280-171573-B-43-B
280-171586-A-1-C	280-171586-A-2-C	280-171586-A-3-C
280-171586-A-4-C	280-171586-A-5-C	280-171586-A-6-J
280-171586-A-7-C		

Reagent

8330Surrogate_00144

Preliminary Report

Eurofins Denver

LCS, Lab Control Sample Report

Sample Path: \\chromfs\Denver\ChromData\CHHPLC_X\20230517-121556.b\05170006.D

Lims ID: C18column:B16162 Inj. Date: 17-May-2023 17:57:37

Worklist ID: 280-0121556-006 Instrument: CHHPLC_X3

Method: 8330_X3

Compound	Amount Added	Amount Recovered	%Rec	Limits 1 3535	Limits 2 3535	Limits 3 3535
$ 10 1,2-Dinitrobenzene	0.5000	0.5038	100.8	83-119	63-127	

Samples for Limit Group: 1, Lims Prep Method: 3535

280-176194-A-9-A	280-176284-C-2-A	280-176284-B-3-A
280-176284-C-5-A	280-176284-C-7-A	280-176434-I-1-A
280-176434-E-4-A	280-176434-B-7-A	280-176284-B-4-C
280-176434-H-2-A	280-176524-B-1-A	280-176524-A-2-A
280-176524-A-3-A	280-176524-A-4-A	280-176335-A-1-A
280-176335-A-2-A	280-176335-B-3-A	280-176335-A-4-A

Samples for Limit Group: 2, Lims Prep Method: 3535

570-137880-R-1-A	570-137880-S-2-A	570-137880-S-3-A
570-137880-R-4-A	570-138095-R-2-A	570-138095-S-3-A
570-138095-R-4-A	570-138095-S-5-A	550-201994-O-1-A
550-201994-O-3-A		

Samples for Limit Group: 3, Lims Prep Method: 3535

380-47016-AV-1-A	380-47022-Q-1-A	280-176543-B-1-A
280-176543-B-2-A		

Reagent

8330SurrStkSS_00245

RESTEK
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: 1-814-353-1300
Fax: 1-814-353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

chromatographic plus

ilac-MRA A2LA ACCREDITED ISO 17034 Accredited Reference Material Producer Certificate #3222.01

ilac-MRA A2LA ACCREDITED ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31453 **Lot No.:** A0192220

Description : 8330 Surrogate Mix

8330 Surrogate Mix 1000 µg/mL, Methanol, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : December 31, 2027 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	1,2-Dinitrobenzene	528-29-0	MKCH6067	99%	1,000.0 µg/mL	+/- 56.1888

* Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent: Methanol
CAS # 67-56-1
Purity 99%

Quality Confirmation Test

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

Flow Rate:
1.0 ml/min.

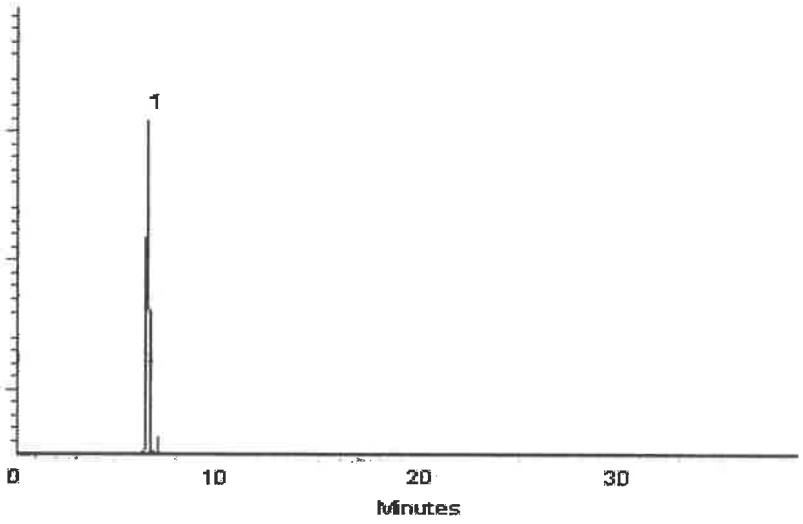
Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210nm & 254nm

Inj. Vol
2µl



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Alicia Leathers - Operation Technician I **Date Mixed:** 04-Dec-2022 **Balance Serial #** 1128353505

Jennifer Pollino - Operations Tech III - ARM QC **Date Passed:** 06-Dec-2022

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified expanded uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ uncertainty} = k\sqrt{u^2_{gravimetric} + u^2_{homogeneity} + u^2_{storage\ stability} + u^2_{shipping\ stability}}$$

  k is a coverage factor of 2, which gives a level of confidence of approximately 95%.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

Reagent

8330SurrStkSS_00246

RESTEK
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: 1-814-353-1300
Fax: 1-814-353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

chromatographic plus

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31453 **Lot No.:** A0192220

Description : 8330 Surrogate Mix

8330 Surrogate Mix 1000 µg/mL, Methanol, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : December 31, 2027 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	1,2-Dinitrobenzene	528-29-0	MKCH6067	99%	1,000.0 µg/mL	+/- 56.1888

* Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent: Methanol
CAS # 67-56-1
Purity 99%

Quality Confirmation Test

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

Flow Rate:
1.0 ml/min.

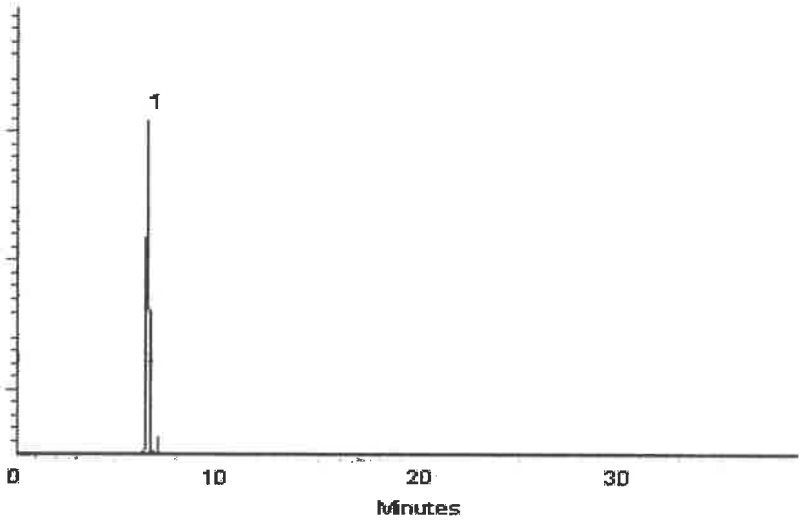
Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210nm & 254nm

Inj. Vol
2µl



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Alicia Leathers - Operation Technician I **Date Mixed:** 04-Dec-2022 **Balance Serial #** 1128353505

Jennifer Pollino - Operations Tech III - ARM QC **Date Passed:** 06-Dec-2022

Manufactured under Restek's ISO 9001:2015
Registered Quality System
Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified expanded uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ uncertainty} = k\sqrt{u^2_{gravimetric} + u^2_{homogeneity} + u^2_{storage\ stability} + u^2_{shipping\ stability}}$$

  k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

Reagent

8330SurrStkSS_00247

RESTEK
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: 1-814-353-1300
Fax: 1-814-353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

chromatographic plus

ilac-MRA A2LA ACCREDITED ISO 17034 Accredited Reference Material Producer Certificate #3222.01

ilac-MRA A2LA ACCREDITED ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31453 **Lot No.:** A0192220

Description : 8330 Surrogate Mix

8330 Surrogate Mix 1000 µg/mL, Methanol, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : December 31, 2027 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	1,2-Dinitrobenzene	528-29-0	MKCH6067	99%	1,000.0 µg/mL	+/- 56.1888

* Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent: Methanol
CAS # 67-56-1
Purity 99%

Quality Confirmation Test

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

Flow Rate:
1.0 ml/min.

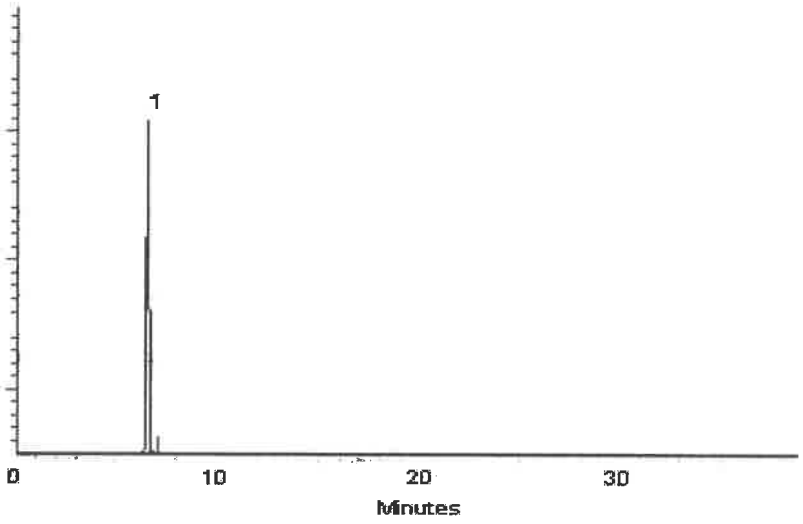
Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210nm & 254nm

Inj. Vol
2µl



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Alicia Leathers - Operation Technician I

Date Mixed: 04-Dec-2022 **Balance Serial #** 1128353505

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 06-Dec-2022

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified expanded uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ uncertainty} = k\sqrt{u^2_{gravimetric} + u^2_{homogeneity} + u^2_{storage\ stability} + u^2_{shipping\ stability}}$$

  k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

Reagent

8330SurrStkSS_00248

RESTEK
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: 1-814-353-1300
Fax: 1-814-353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

chromatographic plus

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31453 **Lot No.:** A0192220

Description : 8330 Surrogate Mix

8330 Surrogate Mix 1000 µg/mL, Methanol, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : December 31, 2027 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	1,2-Dinitrobenzene	528-29-0	MKCH6067	99%	1,000.0 µg/mL	+/- 56.1888

* Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent: Methanol
CAS # 67-56-1
Purity 99%

Quality Confirmation Test

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

Flow Rate:
1.0 ml/min.

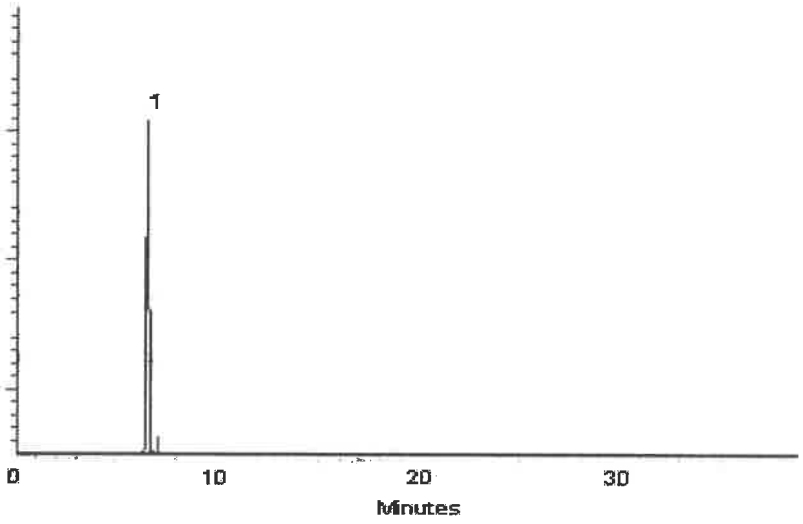
Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210nm & 254nm

Inj. Vol
2µl



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Alicia Leathers - Operation Technician I **Date Mixed:** 04-Dec-2022 **Balance Serial #** 1128353505

Jennifer Pollino - Operations Tech III - ARM QC **Date Passed:** 06-Dec-2022

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified expanded uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ uncertainty} = k\sqrt{u^2_{gravimetric} + u^2_{homogeneity} + u^2_{storage\ stability} + u^2_{shipping\ stability}}$$

  k is a coverage factor of 2, which gives a level of confidence of approximately 95%.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

Reagent

8330SurrStkSS_00249

RESTEK
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: 1-814-353-1300
Fax: 1-814-353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

chromatographic plus

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31453 **Lot No.:** A0192220

Description : 8330 Surrogate Mix

8330 Surrogate Mix 1000 µg/mL, Methanol, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : December 31, 2027 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	1,2-Dinitrobenzene	528-29-0	MKCH6067	99%	1,000.0 µg/mL	+/- 56.1888

* Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent: Methanol
CAS # 67-56-1
Purity 99%

Quality Confirmation Test

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

Flow Rate:
1.0 ml/min.

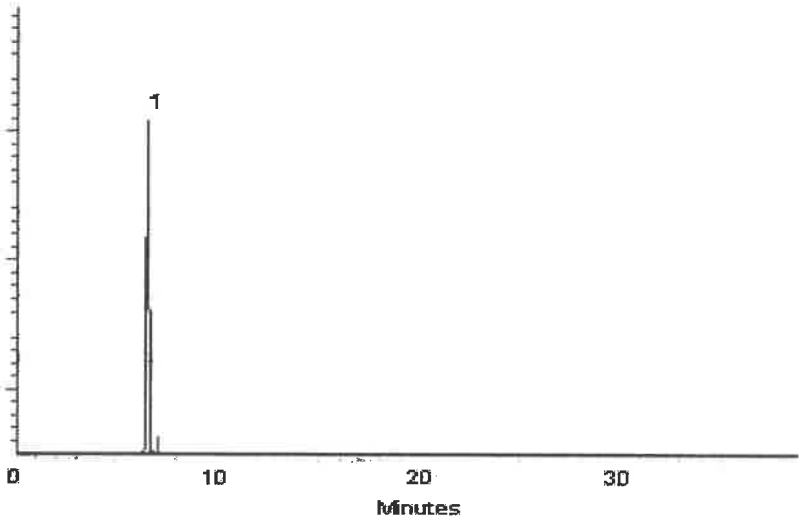
Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210nm & 254nm

Inj. Vol
2µl



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Alicia Leathers - Operation Technician I **Date Mixed:** 04-Dec-2022 **Balance Serial #** 1128353505

Jennifer Pollino - Operations Tech III - ARM QC **Date Passed:** 06-Dec-2022

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified expanded uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ uncertainty} = k\sqrt{u^2_{gravimetric} + u^2_{homogeneity} + u^2_{storage\ stability} + u^2_{shipping\ stability}}$$

  k is a coverage factor of 2, which gives a level of confidence of approximately 95%.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

Reagent

8330SurrStkSS_00269

RESTEK
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: 1-814-353-1300
Fax: 1-814-353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

Certificate of Analysis

chromatographic plus

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31453 **Lot No.:** A0194831

Description : 8330 Surrogate Mix

8330 Surrogate Mix 1000 µg/mL, Methanol, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : February 29, 2028 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	1,2-Dinitrobenzene	528-29-0	MKCH6067	99%	1,004.8 µg/mL	+/- 56.4585

* Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent: Methanol
CAS # 67-56-1
Purity 99%

Quality Confirmation Test

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

Flow Rate:
1.0 ml/min.

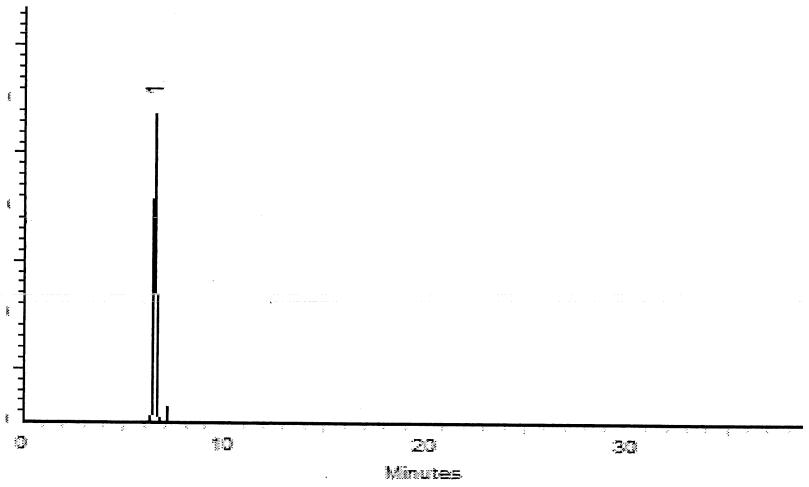
Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210nm & 254nm

Inj. Vol
2µl



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Stacey Wanner - Operations Technician I **Date Mixed:** 20-Feb-2023 **Balance Serial #** B442140311

Jennifer Pollino - Operations Tech III - ARM QC **Date Passed:** 21-Feb-2023

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified expanded uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ uncertainty} = k\sqrt{u^2_{gravimetric} + u^2_{homogeneity} + u^2_{storage\ stability} + u^2_{shipping\ stability}}$$

  k is a coverage factor of 2, which gives a level of confidence of approximately 95%.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

Reagent

8330SurrStkSS_00270

RESTEK
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: 1-814-353-1300
Fax: 1-814-353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

Certificate of Analysis

chromatographic plus

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31453 **Lot No.:** A0194831

Description : 8330 Surrogate Mix

8330 Surrogate Mix 1000 µg/mL, Methanol, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : February 29, 2028 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	1,2-Dinitrobenzene	528-29-0	MKCH6067	99%	1,004.8 µg/mL	+/- 56.4585

* Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent: Methanol
CAS # 67-56-1
Purity 99%

Quality Confirmation Test

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

Flow Rate:
1.0 ml/min.

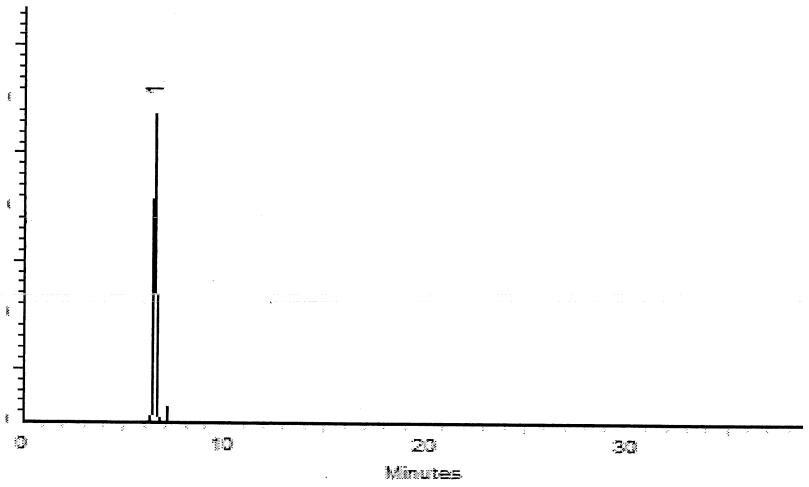
Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210nm & 254nm

Inj. Vol
2µl



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Stacey Wanner - Operations Technician I **Date Mixed:** 20-Feb-2023 **Balance Serial #** B442140311

Jennifer Pollino - Operations Tech III - ARM QC **Date Passed:** 21-Feb-2023

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified expanded uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ uncertainty} = k\sqrt{u^2_{gravimetric} + u^2_{homogeneity} + u^2_{storage\ stability} + u^2_{shipping\ stability}}$$

  k is a coverage factor of 2, which gives a level of confidence of approximately 95%.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

Reagent

8330SurrStkSS_00271

RESTEK
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: 1-814-353-1300
Fax: 1-814-353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

Certificate of Analysis

chromatographic plus

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31453 **Lot No.:** A0194831

Description : 8330 Surrogate Mix

8330 Surrogate Mix 1000 µg/mL, Methanol, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : February 29, 2028 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	1,2-Dinitrobenzene	528-29-0	MKCH6067	99%	1,004.8 µg/mL	+/- 56.4585

* Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent: Methanol
CAS # 67-56-1
Purity 99%

Quality Confirmation Test

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

Flow Rate:
1.0 ml/min.

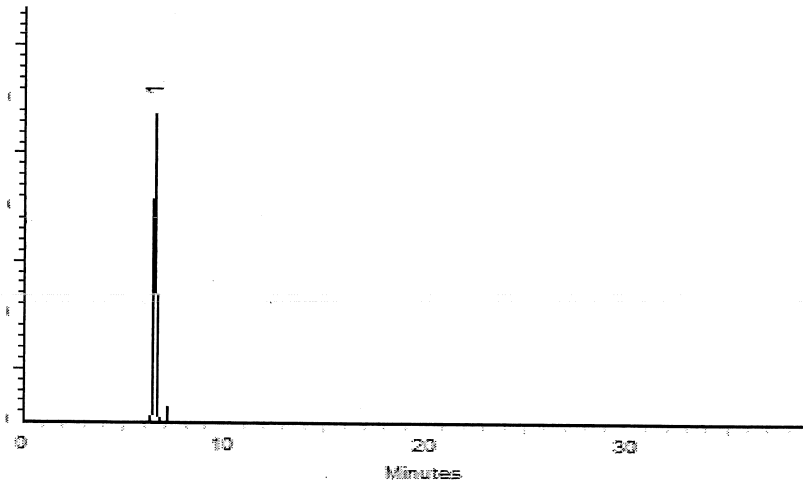
Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210nm & 254nm

Inj. Vol
2µl



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Stacey Wanner - Operations Technician I **Date Mixed:** 20-Feb-2023 **Balance Serial #** B442140311

Jennifer Pollino - Operations Tech III - ARM QC **Date Passed:** 21-Feb-2023

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified expanded uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ uncertainty} = k\sqrt{u^2_{gravimetric} + u^2_{homogeneity} + u^2_{storage\ stability} + u^2_{shipping\ stability}}$$

  k is a coverage factor of 2, which gives a level of confidence of approximately 95%.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

Reagent

8330SurrStkSS_00272

RESTEK
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: 1-814-353-1300
Fax: 1-814-353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

Certificate of Analysis

chromatographic plus

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31453 **Lot No.:** A0194831

Description : 8330 Surrogate Mix

8330 Surrogate Mix 1000 µg/mL, Methanol, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : February 29, 2028 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	1,2-Dinitrobenzene	528-29-0	MKCH6067	99%	1,004.8 µg/mL	+/- 56.4585

* Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent: Methanol
CAS # 67-56-1
Purity 99%

Quality Confirmation Test

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

Flow Rate:
1.0 ml/min.

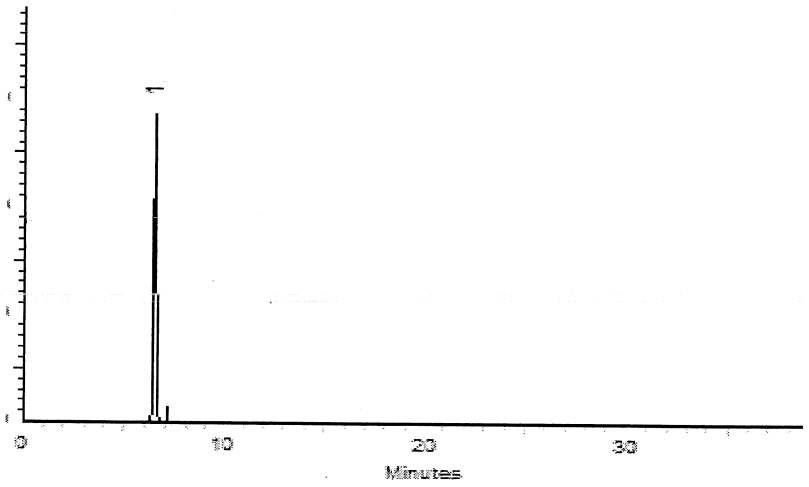
Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210nm & 254nm

Inj. Vol
2µl



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Stacey Wanner - Operations Technician I **Date Mixed:** 20-Feb-2023 **Balance Serial #** B442140311

Jennifer Pollino - Operations Tech III - ARM QC **Date Passed:** 21-Feb-2023

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified expanded uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ uncertainty} = k\sqrt{u^2_{gravimetric} + u^2_{homogeneity} + u^2_{storage\ stability} + u^2_{shipping\ stability}}$$

  k is a coverage factor of 2, which gives a level of confidence of approximately 95%.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

Reagent

8330SurrStkSS_00273

RESTEK
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: 1-814-353-1300
Fax: 1-814-353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

chromatographic plus

ACCREDITED ISO 17034 Accredited Reference Material Producer Certificate #3222.01

ACCREDITED ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31453 **Lot No.:** A0197062

Description : 8330 Surrogate Mix

8330 Surrogate Mix 1000 µg/mL, Methanol, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : April 30, 2028 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	CAS #	Lot #	Purity	Grav. Conc. (weight/volume)	Expanded Uncertainty * (95% C.L.; K=2)
1	1,2-Dinitrobenzene	528-29-0	STBK9056	99%	1,001.6 µg/mL	+/- 56.2801

* Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent: Methanol
CAS # 67-56-1
Purity 99%

Quality Confirmation Test

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

Flow Rate:
1.0 ml/min.

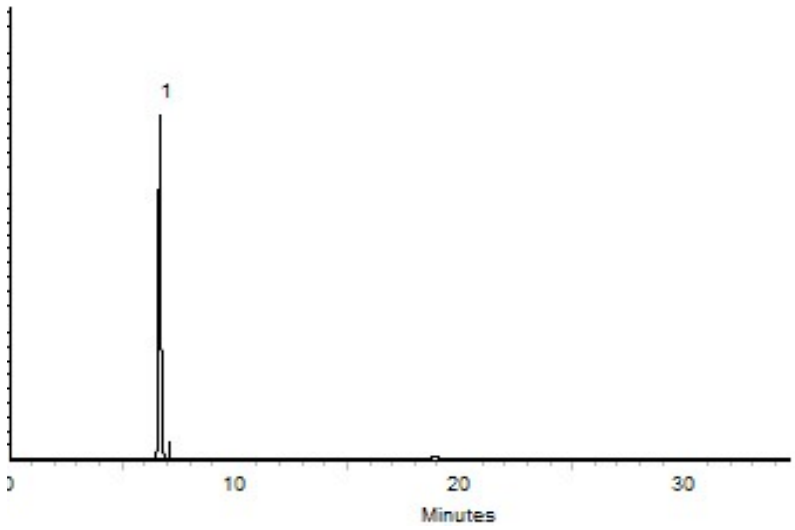
Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210nm & 254nm

Inj. Vol
2.0µl



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Penelope Riglin - Operations Tech I

Date Mixed: 17-Apr-2023 **Balance Serial #** 1128360905

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 19-Apr-2023

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/µECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified expanded uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ uncertainty} = k\sqrt{u^2_{gravimetric} + u^2_{homogeneity} + u^2_{storage\ stability} + u^2_{shipping\ stability}}$$

  k is a coverage factor of 2, which gives a level of confidence of approximately 95%.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

Reagent

8330SurrStock_00172

125 Market Street
New Haven, CT 06513
USA

AccuStandard®

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

CERTIFICATE OF ANALYSIS

Catalog No: M-8330-SS
Description: 1,2-Dinitrobenzene
Lot: 219051500
Solvent: Methanol
Hazards: *Refer to SDS for complete safety information*

Signal Word: Danger

Date Certified: May 22, 2019
Expiration: May 22, 2029
Sample Size: 1 mL
Components: 1
Storage Condition: Ambient (>5 °C)

Certified Reference Material

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER AR-1463

ilac-MRA

Component	CAS #	Purity % (GC/FID)	Prepared Concentration[2] (µg/mL)	Certified Analyte Concentration[1] (µg/mL)
1,2-Dinitrobenzene	528-29-0	100.0	1002	1002

This Certified Reference Material was verified in accordance with ISO/IEC 17025

A product with a suffix (-1A, -2B, etc. or -01, -02, etc.) on its lot number has had its expiration date extended and is identical to the same lot number without the suffix.

[2] All weights are traceable through NIST, Test No. 684/289871-17

[1] Certified Analyte Concentration = Purity x Prepared Concentration.

The Uncertainty associated with the certified concentration reported on this certificate is ±2.4%. This value is the combined expanded uncertainty and represents an estimated standard deviation equal to the positive square root of the total variation of the uncertainty of components. A normal distribution is assumed and a coverage factor of K=2 is chosen using approximately a 95% confidence level.

Labels and certificates follow U.S. Conventions in reporting numerical values: A comma (,) is used to separate units of one-thousand or greater. A period (.) is used as a decimal place marker.

Hazard Information: Please refer to the SDS for information regarding the hazards associated with using this material.

This product was prepared according to in-house procedures and is guaranteed to be homogeneous.

Certified By: Larry Decker, Organic QC Manager

For use in routine laboratory analysis.

Reagent

PicricARestek_00114

RESTEK®
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31499 **Lot No.:** A0183202

Description : Picric Acid Standard

Picric Acid Standard 1000µg/mL, Methanol, 1mL/1000µg/mL *PGI BOX REQUIRED* SHIP FED EX GROUND ONLY

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : March 31, 2027 **Storage:** 10°C or colder

Ship: Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Picric Acid	1,004.0 µg/mL	+/- 5.9635	µg/mL	Gravimetric
	CAS # 88-89-1 (Lot 06130CU)		+/- 55.0021	µg/mL	Unstressed
	Purity 99%		+/- 64.1379	µg/mL	Stressed

Solvent: Methanol
CAS # 67-56-1
Purity 99%

Column:
250mm x 4.6mm
Ultra C18 (cat.# 9174575)

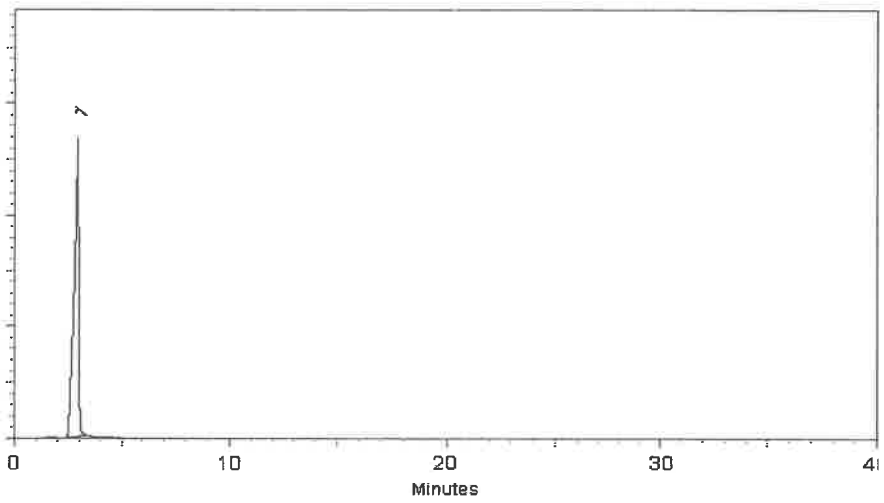
Flow Rate:
1.0 ml/min.

Mobile Phase A:
water:methanol (44:56 V/V)

Mobile Phase B:

Mobile Phase Composition:
100%A

Det. Type:
Wavelength: 210nm & 254nm



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Brandon Reish - Mix Technician

Date Mixed: 23-Mar-2022 **Balance:** 1128360905

Amanda Miller - Operations Tech-ARM QC

Date Passed: 28-Mar-2022

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k\sqrt{U^2_{gravimetric} + U^2_{homogeneity} + U^2_{storage\ stability} + U^2_{shipping\ stability}}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer) -20°C or colder (Deep Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.

8330B_DOD5

Nitroaromatics and Nitramines (HPLC)

FORM II
HPLC/IC SURROGATE RECOVERY

Lab Name: Eurofins Denver Job No.: 280-176808-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): UltraCarb5u ID: 4.6 (mm)

Client Sample ID	Lab Sample ID	12DNB1	#
FWGmw-007-230401-GW	280-176808-1	89	M
FWGmw-004-230401-GW	280-176808-2	92	M
FWGmw-004-230402-GW	280-176808-3	99	
	MB 280-613446/1-A	91	
	LCS 280-613446/2-A	99	
	LCSD 280-613446/3-A	88	
FWGmw-004-230401-GW MS	280-176808-2 MS	85	M
FWGmw-004-230401-GW MSD	280-176808-2 MSD	85	M

	QC LIMITS
12DNB = 1,2-Dinitrobenzene	83-119

Column to be used to flag recovery values

FORM II 8330B

FORM III
HPLC/IC LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins Denver Job No.: 280-176808-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 05240012.D

Lab ID: LCS 280-613446/2-A Client ID:

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
1,3,5-Trinitrobenzene	2.00	2.24	112	73-125	
1,3-Dinitrobenzene	2.00	2.15	107	78-120	
2,4,6-Trinitrotoluene	2.00	2.08	104	71-123	
2,4-Dinitrotoluene	2.00	2.08	104	78-120	
2,6-Dinitrotoluene	2.00	2.13	106	77-127	
2-Amino-4,6-dinitrotoluene	2.00	2.02	101	79-120	
2-Nitrotoluene	2.00	1.73	87	70-127	
3-Nitrotoluene	2.00	1.72	86	73-125	
4-Amino-2,6-dinitrotoluene	2.00	2.00	100	76-125	
4-Nitrotoluene	2.00	1.74	87	71-127	
HMX	2.00	1.88	94	65-135	
Nitrobenzene	2.00	1.93	96	65-134	
Nitroglycerin	20.0	21.3	107	74-127	
PETN	20.0	23.1	115	73-127	
RDX	2.00	2.12	106	68-130	
Tetryl	2.00	2.31	116	64-128	

Column to be used to flag recovery and RPD values

FORM III 8330B

FORM III
HPLC/IC LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: Eurofins Denver Job No.: 280-176808-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 05240013.D

Lab ID: LCSD 280-613446/3-A Client ID:

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
1,3,5-Trinitrobenzene	2.00	2.03	101	10	20	73-125	
1,3-Dinitrobenzene	2.00	1.86	93	14	20	78-120	
2,4,6-Trinitrotoluene	2.00	1.77	89	16	20	71-123	
2,4-Dinitrotoluene	2.00	1.74	87	18	20	78-120	
2,6-Dinitrotoluene	2.00	1.81	91	16	20	77-127	
2-Amino-4,6-dinitrotoluene	2.00	1.73	87	15	20	79-120	
2-Nitrotoluene	2.00	1.45	73	17	20	70-127	
3-Nitrotoluene	2.00	1.40	70	21	20	73-125	Q
4-Amino-2,6-dinitrotoluene	2.00	1.71	85	16	20	76-125	
4-Nitrotoluene	2.00	1.43	72	19	20	71-127	
HMX	2.00	1.74	87	8	20	65-135	
Nitrobenzene	2.00	1.66	83	15	20	65-134	
Nitroglycerin	20.0	19.2	96	11	20	74-127	
PETN	20.0	20.4	102	12	20	73-127	
RDX	2.00	1.82	91	15	20	68-130	
Tetryl	2.00	1.99	99	15	20	64-128	

Column to be used to flag recovery and RPD values

FORM III 8330B

FORM III
HPLC/IC MATRIX SPIKE RECOVERY

Lab Name: Eurofins Denver Job No.: 280-176808-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 05240019.D

Lab ID: 280-176808-2 MS Client ID: FWGmw-004-230401-GW MS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC	QC LIMITS REC	#
1,3,5-Trinitrobenzene	1.94	0.20 U	1.89	97	73-125	M
1,3-Dinitrobenzene	1.94	0.10 U	1.85	95	78-120	
2,4,6-Trinitrotoluene	1.94	0.10 U	1.72	89	71-123	
2,4-Dinitrotoluene	1.94	0.080 U	1.66	85	78-120	
2,6-Dinitrotoluene	1.94	0.080 U	1.72	89	77-127	
2-Amino-4,6-dinitrotoluene	1.94	0.10 U	1.66	86	79-120	
2-Nitrotoluene	1.94	0.20 U	1.45	75	70-127	
3-Nitrotoluene	1.94	0.35 U	1.36	70	73-125	J1
4-Amino-2,6-dinitrotoluene	1.94	0.12 U	1.67	86	76-125	
4-Nitrotoluene	1.94	0.40 U	1.41	73	71-127	
HMX	1.94	0.20 U	1.76	90	65-135	M
Nitrobenzene	1.94	0.20 U	1.60	82	65-134	
Nitroglycerin	19.4	2.0 U	18.1	93	74-127	
PETN	19.4	1.0 U	19.8	102	73-127	
RDX	1.94	0.20 U	1.73	89	68-130	M
Tetryl	1.94	0.10 U	1.94	100	64-128	

Column to be used to flag recovery and RPD values

FORM III 8330B

FORM III
HPLC/IC MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Eurofins Denver Job No.: 280-176808-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 05240020.D

Lab ID: 280-176808-2 MSD Client ID: FWGmw-004-230401-GW MSD

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
1,3,5-Trinitrobenzene	2.13	2.11	99	11	20	73-125	M
1,3-Dinitrobenzene	2.13	2.02	95	9	20	78-120	
2,4,6-Trinitrotoluene	2.13	1.89	89	9	20	71-123	
2,4-Dinitrotoluene	2.13	1.84	86	10	20	78-120	
2,6-Dinitrotoluene	2.13	1.90	89	10	20	77-127	
2-Amino-4,6-dinitrotoluene	2.13	1.84	86	10	20	79-120	
2-Nitrotoluene	2.13	1.61	76	10	20	70-127	
3-Nitrotoluene	2.13	1.63	76	18	20	73-125	M
4-Amino-2,6-dinitrotoluene	2.13	1.83	86	9	20	76-125	
4-Nitrotoluene	2.13	1.52	71	8	20	71-127	
HMX	2.13	1.91	89	8	20	65-135	M
Nitrobenzene	2.13	1.76	82	10	20	65-134	
Nitroglycerin	21.3	19.7	92	9	20	74-127	
PETN	21.3	21.5	101	9	20	73-127	
RDX	2.13	1.92	90	10	20	68-130	M
Tetryl	2.13	2.07	97	6	20	64-128	

Column to be used to flag recovery and RPD values

FORM III 8330B

FORM IV
HPLC/IC METHOD BLANK SUMMARY

Lab Name: Eurofins Denver Job No.: 280-176808-1

SDG No.:

Lab Sample ID: MB 280-613446/1-A

Matrix: Water Date Extracted: 05/23/2023 13:00

Lab File ID:(1) 05240011.D Lab File ID:(2)

Date Analyzed:(1) 05/24/2023 17:26 Date Analyzed:(2)

Instrument ID:(1) CHHPLC_X3 Instrument ID:(2)

GC Column:(1) UltraCarb5uO ID: 4.6(mm) GC Column:(2) ID:

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
	LCS 280-613446/2-A	05/24/2023 17:49	
	LCSD 280-613446/3-A	05/24/2023 18:11	
FWGmw-007-230401-GW	280-176808-1	05/24/2023 20:06	
FWGmw-004-230401-GW MS	280-176808-2 MS	05/24/2023 20:29	
FWGmw-004-230401-GW MSD	280-176808-2 MSD	05/24/2023 20:52	
FWGmw-004-230401-GW	280-176808-2	05/24/2023 21:38	
FWGmw-004-230402-GW	280-176808-3	05/24/2023 22:01	

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Denver | Job No.: 280-176808-1

SDG No.:

Client Sample ID: FWGmw-007-230401-GW | Lab Sample ID: 280-176808-1

Matrix: Water | Lab File ID: 05240018.D

Analysis Method: 8330B | Date Collected: 05/18/2023 08:55

Extraction Method: 3535 | Date Extracted: 05/23/2023 13:00

Sample wt/vol: 512.3(mL) | Date Analyzed: 05/24/2023 20:06

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 100(uL) | GC Column: UltraCarb5uODS ID: 4.6(mm)

% Moisture: % Solids: | GPC Cleanup:(Y/N) N

Cleanup Factor:

Analysis Batch No.: 613677 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
99-35-4	1,3,5-Trinitrobenzene	0.20	U	0.20	0.20	0.082
99-65-0	1,3-Dinitrobenzene	0.098	U	0.11	0.098	0.036
118-96-7	2,4,6-Trinitrotoluene	0.098	U	0.11	0.098	0.044
121-14-2	2,4-Dinitrotoluene	0.078	U	0.098	0.078	0.027
606-20-2	2,6-Dinitrotoluene	0.078	U	0.098	0.078	0.039
35572-78-2	2-Amino-4,6-dinitrotoluene	0.098	U	0.11	0.098	0.049
88-72-2	2-Nitrotoluene	0.20	U	0.20	0.20	0.083
99-08-1	3-Nitrotoluene	0.34	U Q	0.39	0.34	0.19
19406-51-0	4-Amino-2,6-dinitrotoluene	0.12	U	0.15	0.12	0.056
99-99-0	4-Nitrotoluene	0.39	U	0.40	0.39	0.098
2691-41-0	HMX	0.20	U	0.20	0.20	0.085
98-95-3	Nitrobenzene	0.20	U	0.20	0.20	0.089
55-63-0	Nitroglycerin	2.0	U	2.0	2.0	0.90
78-11-5	PETN	0.98	U	1.1	0.98	0.44
121-82-4	RDX	0.20	U	0.20	0.20	0.050
479-45-8	Tetryl	0.098	U	0.11	0.098	0.031

CAS NO.	SURROGATE	%REC	Q	LIMITS
528-29-0	1,2-Dinitrobenzene	89	M	83-119

Eurofins Denver
Target Compound Quantitation Report

Data File: \\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\05240018.D
Lims ID: 280-176808-B-1-A
Client ID: FWGmw-007-230401-GW
Sample Type: Client
Inject. Date: 24-May-2023 20:06:44 ALS Bottle#: 18 Worklist Smp#: 18
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: 280-176808-B-1-A
Operator ID: JZ/JG Instrument ID: CHHPLC_X3

Method: \\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 25-May-2023 11:51:40 Calib Date: 24-Feb-2023 17:41:20
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromfs\Denver\ChromData\CHHPLC_X\20230224-118952.b\02240018.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX1654

First Level Reviewer: LV5D Date: 24-May-2023 20:34:43

	Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	OnCol Amt ug/mL	Flags
1	Triamine Trinitrobenzene	1		2.444			ND	
3	TNX	1		6.430			ND	
2	2,6-diamino-4-nitrotoluene	1		6.431			ND	
4	HMX	1		6.550			ND	M
5	2,4-diamino-6-nitrotoluene	1		6.618			ND	
6	DNX	1		6.757			ND	
7	MNX	1		7.190			ND	
8	RDX	1		7.570			ND	
9	2,4,6-Trinitrophenol	1	7.955	7.963	-0.008	2921	0.0385	M
$ 10	1,2-Dinitrobenzene	1	8.522	8.523	-0.001	22597	0.1789	M
11	1,3,5-Trinitrobenzene	1		8.650			ND	
12	1,3-Dinitrobenzene	1		9.270			ND	
13	Nitrobenzene	1		9.636			ND	
14	3,5-Dinitroaniline	1		9.870			ND	
15	Tetryl	1		10.003			ND	
16	Nitroglycerin	2		10.456			ND	
17	2,4,6-Trinitrotoluene	1		10.896			ND	
18	4-Amino-2,6-dinitrotoluene	1		11.090			ND	
19	2-Amino-4,6-dinitrotoluene	1		11.343			ND	
20	2,6-Dinitrotoluene	1		11.490			ND	
21	2,4-Dinitrotoluene	1		11.663			ND	
22	o-Nitrotoluene	1		12.483			ND	
23	p-Nitrotoluene	1		12.903			ND	
24	m-Nitrotoluene	1		13.476			ND	
25	PETN	2		14.636			ND	
26	Ammonium Picrate	1		0.000			ND	

QC Flag Legend
Processing Flags

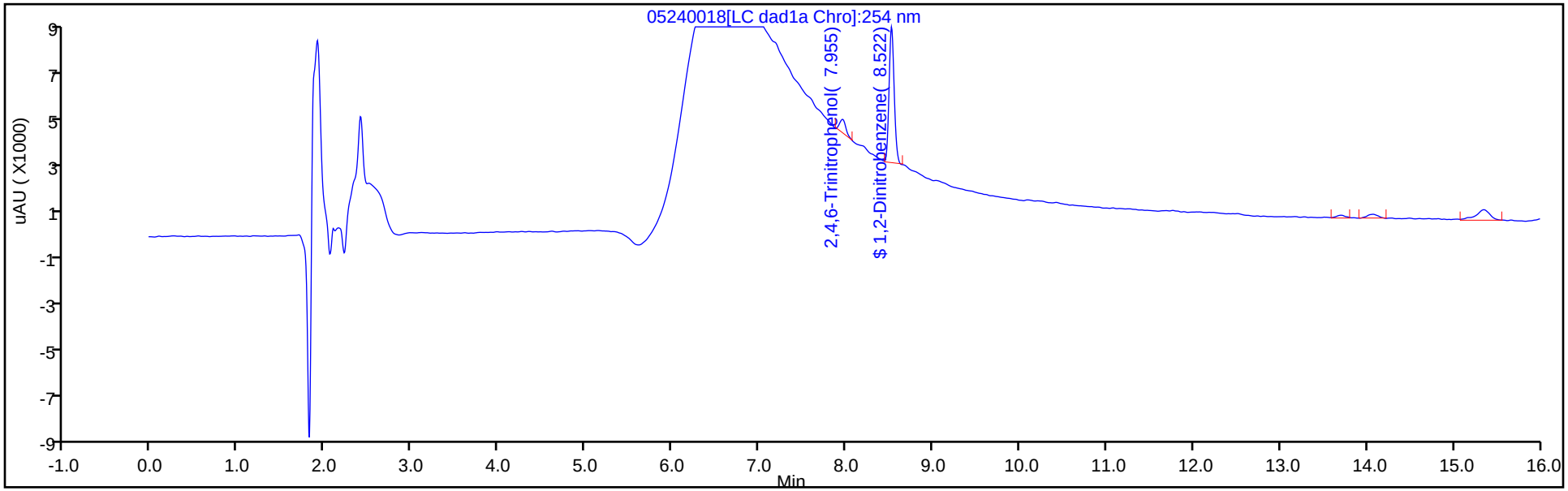
Review Flags
M - Manually Integrated

Report Date: 25-May-2023 11:51:46 Chrom Revision: 2.3 23-May-2023 13:55:56

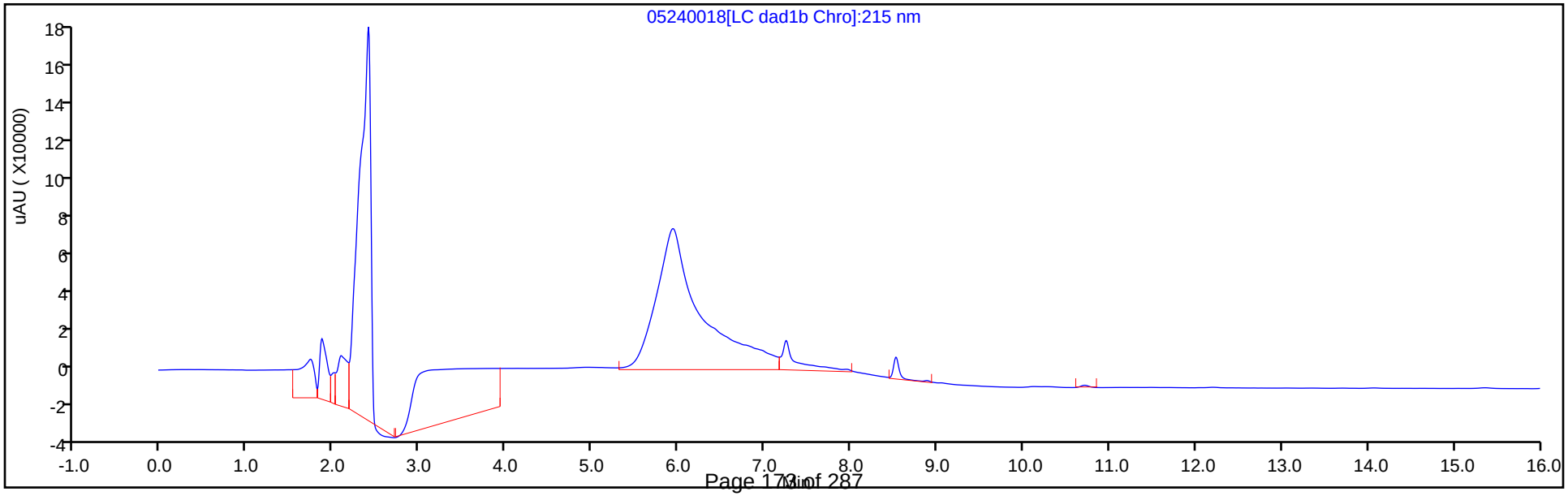
Eurofins Denver

Data File:	\\chromfs\denver\chromdata\chhplc_x\20230524-121799.b\05240018.d				
Injection Date:	24-May-2023 20:06:44	Instrument ID:	CHHPLC_X3	Operator ID:	JZ/JG
Lims ID:	280-176808-B-1-A	Lab Sample ID:	280-176808-1	Worklist Smp#:	18
Client ID:	FWGmw-007-230401-GW				
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	18
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Eurofins Denver
Recovery Report

Data File:	\\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\05240018.D				
Lims ID:	280-176808-B-1-A				
Client ID:	FWGmw-007-230401-GW				
Sample Type:	Client				
Inject. Date:	24-May-2023 20:06:44	ALS Bottle#:	18	Worklist Smp#:	18
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Sample Info:	280-176808-B-1-A				
Operator ID:	JZ/JG	Instrument ID:	CHHPLC_X3		
Method:	\\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\8330_X3.m				
Limit Group:	GCSV - 8330				
Last Update:	25-May-2023 11:51:40	Calib Date:	24-Feb-2023 17:41:20		
Integrator:	Falcon				
Quant Method:	External Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromfs\Denver\ChromData\CHHPLC_X\20230224-118952.b\02240018.D				
Column 1 :	UltraCarb5uODS (20) (4.60 mm)		Det: LC DAD1B, 254 nm		
Process Host:	CTX1654				
First Level Reviewer: LV5D		Date:	24-May-2023 20:34:43		

Compound	Amount Added	Amount Recovered	% Rec.
$ 10 1,2-Dinitrobenzene	0.2000	0.1789	89.45

Manual Integration/User Assign Peak Report

Eurofins Denver

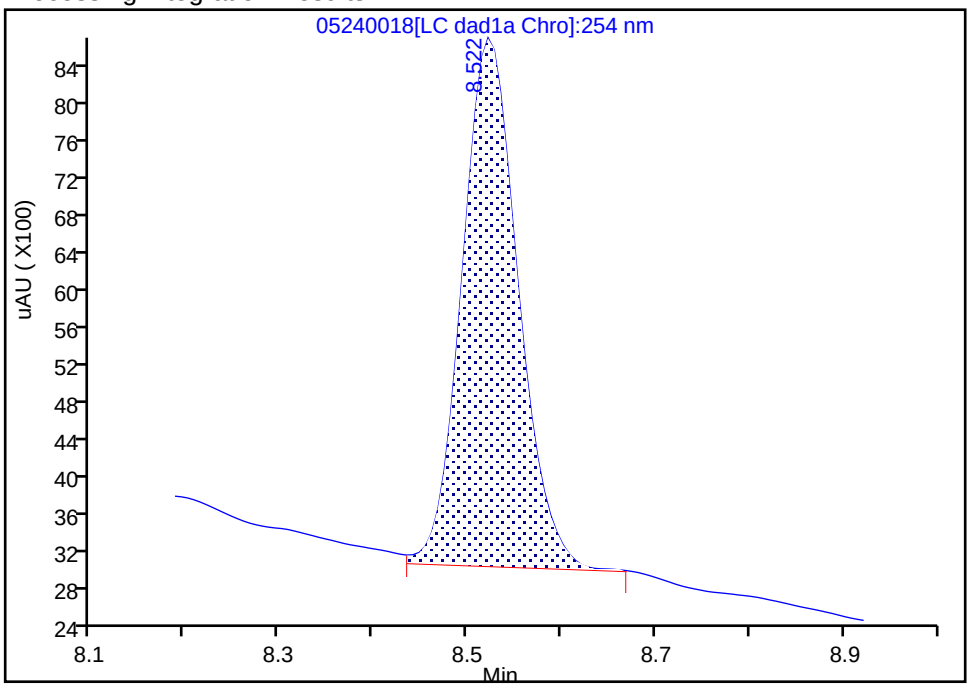
Data File:	\\chromfs\denver\chromdata\chhplc_x\20230524-121799.b\05240018.d				
Injection Date:	24-May-2023 20:06:44	Instrument ID:	CHHPLC_X3		
Lims ID:	280-176808-B-1-A	Lab Sample ID:	280-176808-1		
Client ID:	FWGmw-007-230401-GW				
Operator ID:	JZ/JG	ALS Bottle#:	18	Worklist Smp#:	18
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

$ 10 1,2-Dinitrobenzene, CAS: 528-29-0

Signal: 1

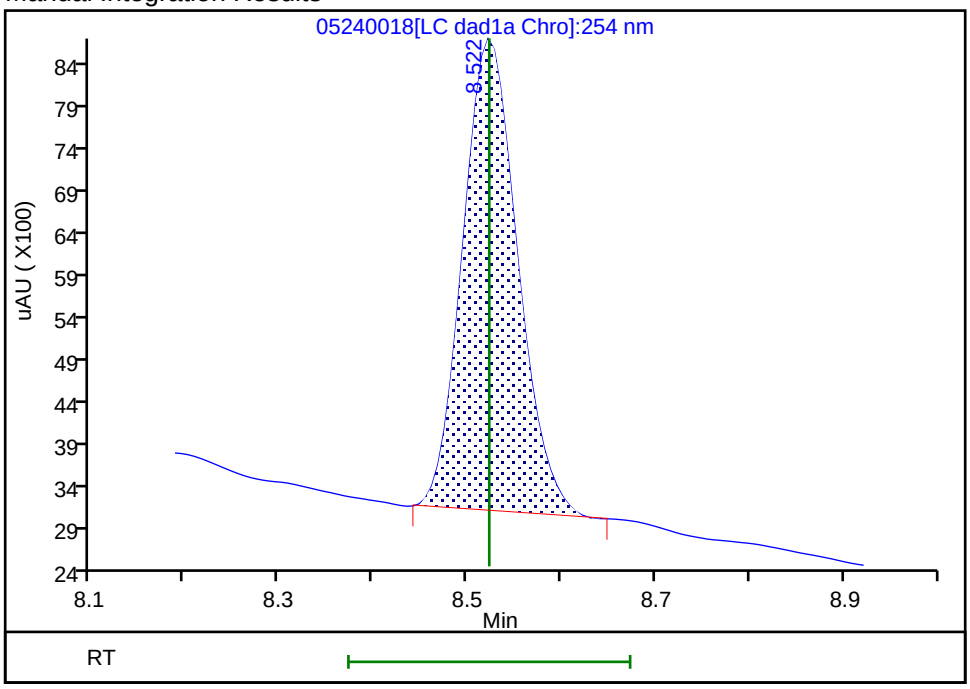
Processing Integration Results

RT: 8.52
Area: 23235
Amount: 0.183954
Amount Units: ug/mL



Manual Integration Results

RT: 8.52
Area: 22597
Amount: 0.178903
Amount Units: ug/mL



Reviewer: LV5D, 24-May-2023 20:34:40 -06:00:00 (UTC)

Audit Action: Manually Integrated Audit Reason: Baseline

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Denver | Job No.: 280-176808-1

SDG No.:

Client Sample ID: FWGmw-004-230401-GW | Lab Sample ID: 280-176808-2

Matrix: Water | Lab File ID: 05240022.D

Analysis Method: 8330B | Date Collected: 05/18/2023 10:03

Extraction Method: 3535 | Date Extracted: 05/23/2023 13:00

Sample wt/vol: 497.1(mL) | Date Analyzed: 05/24/2023 21:38

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 100(uL) | GC Column: UltraCarb5uODS ID: 4.6(mm)

% Moisture: % Solids: | GPC Cleanup:(Y/N) N

Cleanup Factor:

Analysis Batch No.: 613677 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
99-35-4	1,3,5-Trinitrobenzene	0.20	U	0.21	0.20	0.085
99-65-0	1,3-Dinitrobenzene	0.10	U	0.11	0.10	0.037
118-96-7	2,4,6-Trinitrotoluene	0.10	U	0.11	0.10	0.045
121-14-2	2,4-Dinitrotoluene	0.080	U	0.10	0.080	0.028
606-20-2	2,6-Dinitrotoluene	0.080	U	0.10	0.080	0.040
35572-78-2	2-Amino-4,6-dinitrotoluene	0.10	U	0.11	0.10	0.051
88-72-2	2-Nitrotoluene	0.20	U	0.21	0.20	0.086
99-08-1	3-Nitrotoluene	0.35	U J1 Q	0.40	0.35	0.20
19406-51-0	4-Amino-2,6-dinitrotoluene	0.12	U	0.15	0.12	0.058
99-99-0	4-Nitrotoluene	0.40	U	0.41	0.40	0.10
2691-41-0	HMX	0.20	U M	0.21	0.20	0.088
98-95-3	Nitrobenzene	0.20	U	0.21	0.20	0.092
55-63-0	Nitroglycerin	2.0	U	2.1	2.0	0.93
78-11-5	PETN	1.0	U	1.1	1.0	0.45
121-82-4	RDX	0.20	U	0.21	0.20	0.052
479-45-8	Tetryl	0.10	U	0.11	0.10	0.032

CAS NO.	SURROGATE	%REC	Q	LIMITS
528-29-0	1,2-Dinitrobenzene	92	M	83-119

Eurofins Denver
Target Compound Quantitation Report

Data File: \\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\05240022.D
Lims ID: 280-176808-A-2-A
Client ID: FWGmw-004-230401-GW
Sample Type: Client
Inject. Date: 24-May-2023 21:38:25 ALS Bottle#: 22 Worklist Smp#: 22
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: 280-176808-A-2-A
Operator ID: JZ/JG Instrument ID: CHHPLC_X3

Method: \\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 25-May-2023 11:51:48 Calib Date: 24-Feb-2023 17:41:20
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromfs\Denver\ChromData\CHHPLC_X\20230224-118952.b\02240018.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX1654

First Level Reviewer: K8YG Date: 25-May-2023 08:11:56

	Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	OnCol Amt ug/mL	Flags
	4 HMX	1		6.550			ND	U
	8 RDX	1		7.570			ND	
$	10 1,2-Dinitrobenzene	1	8.523	8.523	0.000	23240	0.1840	M
	11 1,3,5-Trinitrobenzene	1		8.650			ND	
	12 1,3-Dinitrobenzene	1		9.270			ND	
	13 Nitrobenzene	1		9.636			ND	
	15 Tetryl	1		10.003			ND	
	16 Nitroglycerin	2		10.456			ND	
	17 2,4,6-Trinitrotoluene	1		10.896			ND	
	18 4-Amino-2,6-dinitrotoluene	1		11.090			ND	
	19 2-Amino-4,6-dinitrotoluene	1		11.343			ND	
	20 2,6-Dinitrotoluene	1		11.490			ND	
	21 2,4-Dinitrotoluene	1		11.663			ND	
	22 o-Nitrotoluene	1		12.483			ND	
	23 p-Nitrotoluene	1		12.903			ND	
	24 m-Nitrotoluene	1		13.476			ND	
	25 PETN	2		14.636			ND	

QC Flag Legend

Processing Flags
Review Flags
M - Manually Integrated
U - Marked Undetected

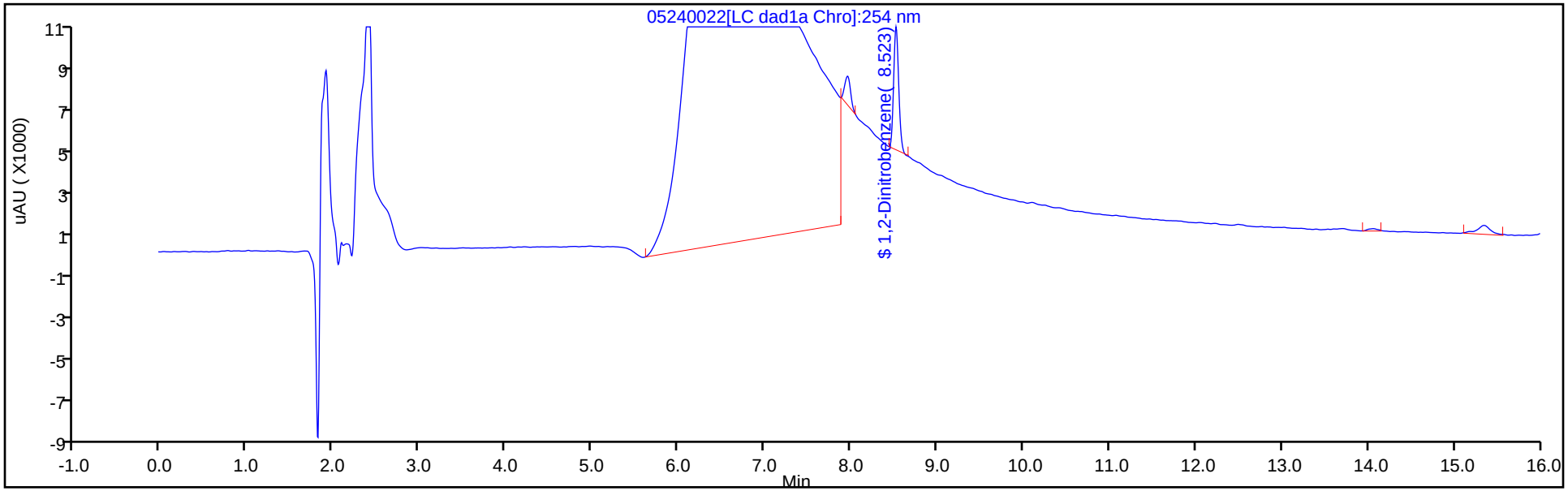
Report Date: 25-May-2023 11:51:49 Chrom Revision: 2.3 23-May-2023 13:55:56

Eurofins Denver

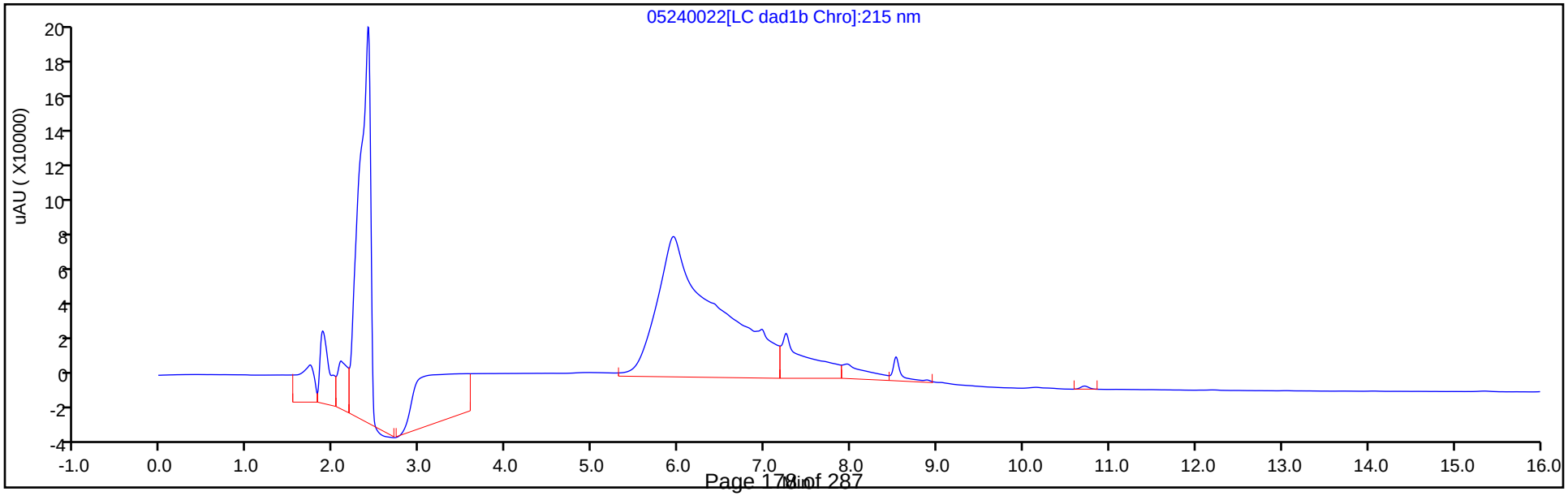
Data File: \\chromfs\denver\chromdata\chhplc_x\20230524-121799.b\05240022.d

Injection Date:	24-May-2023 21:38:25	Instrument ID:	CHHPLC_X3	Operator ID:	JZ/JG
Lims ID:	280-176808-A-2-A	Lab Sample ID:	280-176808-2	Worklist Smp#:	22
Client ID:	FWGmw-004-230401-GW				
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	22
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Report Date: 25-May-2023 11:51:49 Chrom Revision: 2.3 23-May-2023 13:55:56

Eurofins Denver
Recovery Report

Data File:	\\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\05240022.D				
Lims ID:	280-176808-A-2-A				
Client ID:	FWGmw-004-230401-GW				
Sample Type:	Client				
Inject. Date:	24-May-2023 21:38:25	ALS Bottle#:	22	Worklist Smp#:	22
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Sample Info:	280-176808-A-2-A				
Operator ID:	JZ/JG	Instrument ID:	CHHPLC_X3		
Method:	\\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\8330_X3.m				
Limit Group:	GCSV - 8330				
Last Update:	25-May-2023 11:51:48	Calib Date:	24-Feb-2023 17:41:20		
Integrator:	Falcon				
Quant Method:	External Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromfs\Denver\ChromData\CHHPLC_X\20230224-118952.b\02240018.D				
Column 1 :	UltraCarb5uODS (20) (4.60 mm)		Det: LC DAD1B, 254 nm		
Process Host:	CTX1654				

First Level Reviewer: K8YG Date: 25-May-2023 08:11:56

Compound	Amount Added	Amount Recovered	% Rec.
$ 10 1,2-Dinitrobenzene	0.2000	0.1840	92.00

Manual Integration/User Assign Peak Report

Eurofins Denver

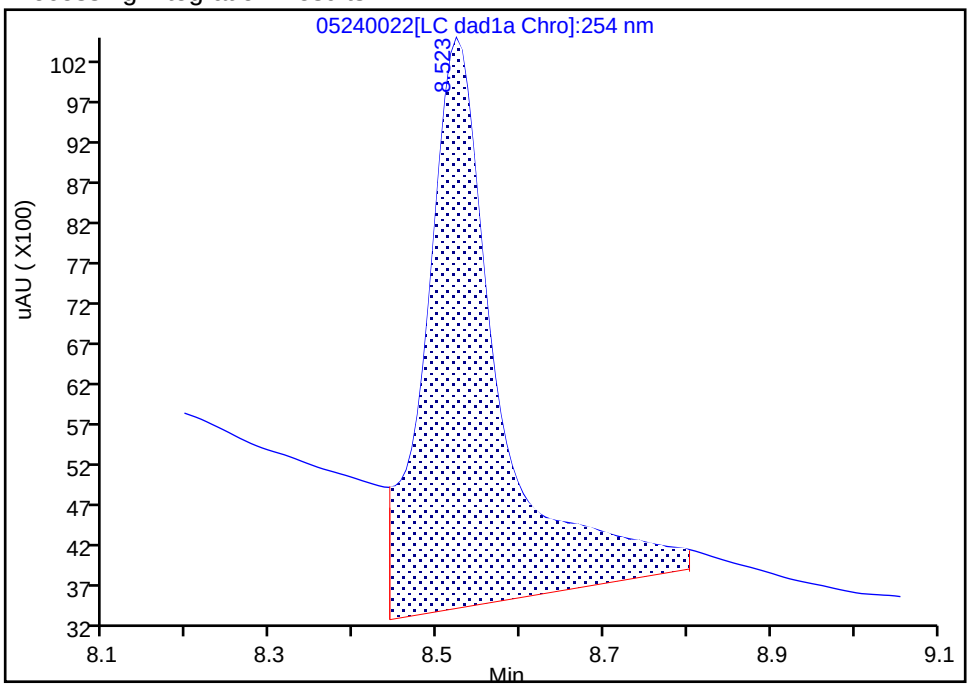
Data File:	\\chromfs\denver\chromdata\chhplc_x\20230524-121799.b\05240022.d				
Injection Date:	24-May-2023 21:38:25	Instrument ID:	CHHPLC_X3		
Lims ID:	280-176808-A-2-A	Lab Sample ID:	280-176808-2		
Client ID:	FWGmw-004-230401-GW				
Operator ID:	JZ/JG	ALS Bottle#:	22	Worklist Smp#:	22
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

$ 10 1,2-Dinitrobenzene, CAS: 528-29-0

Signal: 1

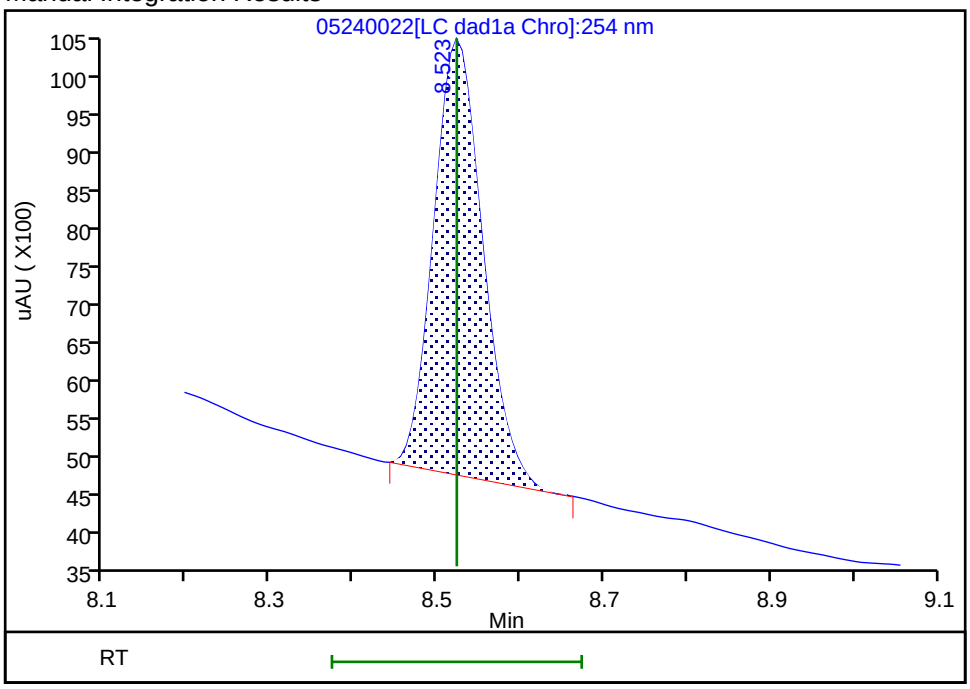
Processing Integration Results

RT: 8.52
Area: 43574
Amount: 0.344980
Amount Units: ug/mL



Manual Integration Results

RT: 8.52
Area: 23240
Amount: 0.183994
Amount Units: ug/mL



Reviewer: K8YG, 25-May-2023 08:11:46 -06:00:00 (UTC)

Audit Action: Manually Integrated Audit Reason: Baseline

User Disabled Compound Report

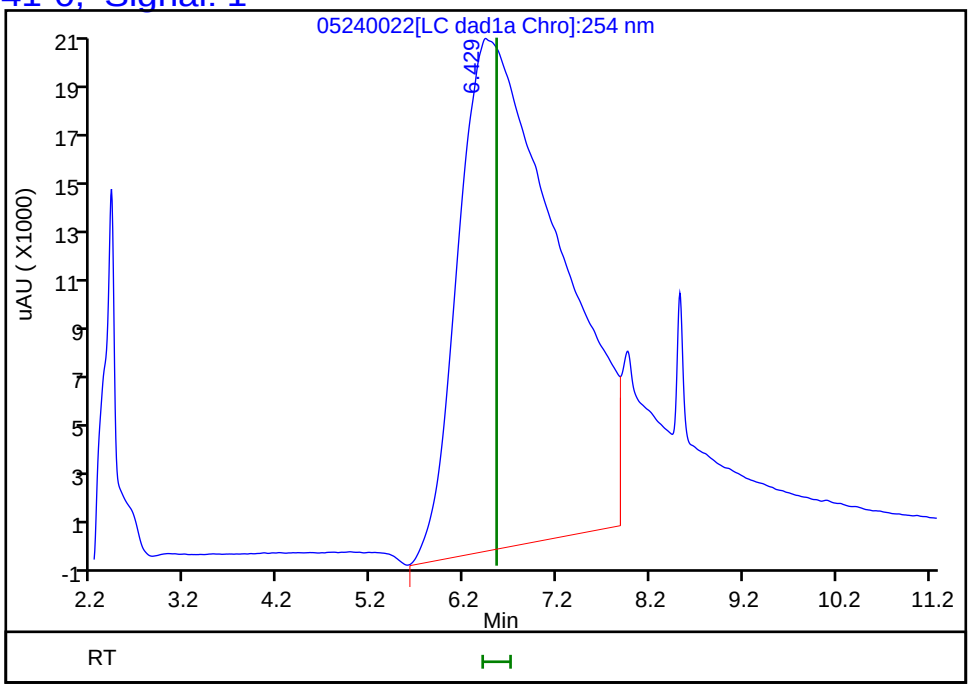
Eurofins Denver

Data File: \\chromfs\denver\chromdata\chhplc_x\20230524-121799.b\05240022.d
Injection Date: 24-May-2023 21:38:25 Instrument ID: CHHPLC_X3
Lims ID: 280-176808-A-2-A Lab Sample ID: 280-176808-2
Client ID: FWGmw-004-230401-GW
Operator ID: JZ/JG ALS Bottle#: 22 Worklist Smp#: 22
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Method: 8330_X3 Limit Group: GCSV - 8330

Column: UltraCarb5uODS (20) (4.60 mm) Detector LC DAD1B, 254 nm

4 HMX, CAS: 2691-41-0, Signal: 1

RT: 6.43
Response: 1507941
Amount: 16.122857



Reviewer: K8YG, 25-May-2023 08:11:56
Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Denver | Job No.: 280-176808-1

SDG No.:

Client Sample ID: FWGmw-004-230402-GW | Lab Sample ID: 280-176808-3

Matrix: Water | Lab File ID: 05240023.D

Analysis Method: 8330B | Date Collected: 05/18/2023 10:03

Extraction Method: 3535 | Date Extracted: 05/23/2023 13:00

Sample wt/vol: 508.8(mL) | Date Analyzed: 05/24/2023 22:01

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 100(uL) | GC Column: UltraCarb5uODS ID: 4.6(mm)

% Moisture: % Solids: | GPC Cleanup:(Y/N) N

Cleanup Factor:

Analysis Batch No.: 613677 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
99-35-4	1,3,5-Trinitrobenzene	0.20	U	0.21	0.20	0.083
99-65-0	1,3-Dinitrobenzene	0.098	U	0.11	0.098	0.036
118-96-7	2,4,6-Trinitrotoluene	0.098	U	0.11	0.098	0.044
121-14-2	2,4-Dinitrotoluene	0.079	U	0.098	0.079	0.027
606-20-2	2,6-Dinitrotoluene	0.079	U	0.098	0.079	0.039
35572-78-2	2-Amino-4,6-dinitrotoluene	0.098	U	0.11	0.098	0.050
88-72-2	2-Nitrotoluene	0.20	U	0.21	0.20	0.084
99-08-1	3-Nitrotoluene	0.34	U Q	0.39	0.34	0.19
19406-51-0	4-Amino-2,6-dinitrotoluene	0.12	U	0.15	0.12	0.057
99-99-0	4-Nitrotoluene	0.39	U	0.40	0.39	0.098
2691-41-0	HMX	0.20	U M	0.21	0.20	0.086
98-95-3	Nitrobenzene	0.20	U	0.21	0.20	0.089
55-63-0	Nitroglycerin	2.0	U	2.1	2.0	0.91
78-11-5	PETN	0.98	U	1.1	0.98	0.44
121-82-4	RDX	0.20	U	0.21	0.20	0.051
479-45-8	Tetryl	0.098	U	0.11	0.098	0.031

CAS NO.	SURROGATE	%REC	Q	LIMITS
528-29-0	1,2-Dinitrobenzene	99		83-119

Eurofins Denver
Target Compound Quantitation Report

Data File: \\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\05240023.D
Lims ID: 280-176808-B-3-A
Client ID: FWGmw-004-230402-GW
Sample Type: Client
Inject. Date: 24-May-2023 22:01:21 ALS Bottle#: 23 Worklist Smp#: 23
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: 280-176808-B-3-A
Operator ID: JZ/JG Instrument ID: CHHPLC_X3

Method: \\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 25-May-2023 11:51:48 Calib Date: 24-Feb-2023 17:41:20
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromfs\Denver\ChromData\CHHPLC_X\20230224-118952.b\02240018.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX1654

First Level Reviewer: K8YG Date: 25-May-2023 08:12:19

	Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	OnCol Amt ug/mL	Flags
	4 HMX	1		6.550			ND	U
	8 RDX	1		7.570			ND	
$	10 1,2-Dinitrobenzene	1	8.524	8.523	0.001	25079	0.1986	
	11 1,3,5-Trinitrobenzene	1		8.650			ND	
	12 1,3-Dinitrobenzene	1		9.270			ND	
	13 Nitrobenzene	1		9.636			ND	
	15 Tetryl	1		10.003			ND	
	16 Nitroglycerin	2		10.456			ND	
	17 2,4,6-Trinitrotoluene	1		10.896			ND	
	18 4-Amino-2,6-dinitrotoluene	1		11.090			ND	
	19 2-Amino-4,6-dinitrotoluene	1		11.343			ND	
	20 2,6-Dinitrotoluene	1		11.490			ND	
	21 2,4-Dinitrotoluene	1		11.663			ND	
	22 o-Nitrotoluene	1		12.483			ND	
	23 p-Nitrotoluene	1		12.903			ND	
	24 m-Nitrotoluene	1		13.476			ND	
	25 PETN	2		14.636			ND	

QC Flag Legend

Processing Flags
Review Flags
U - Marked Undetected

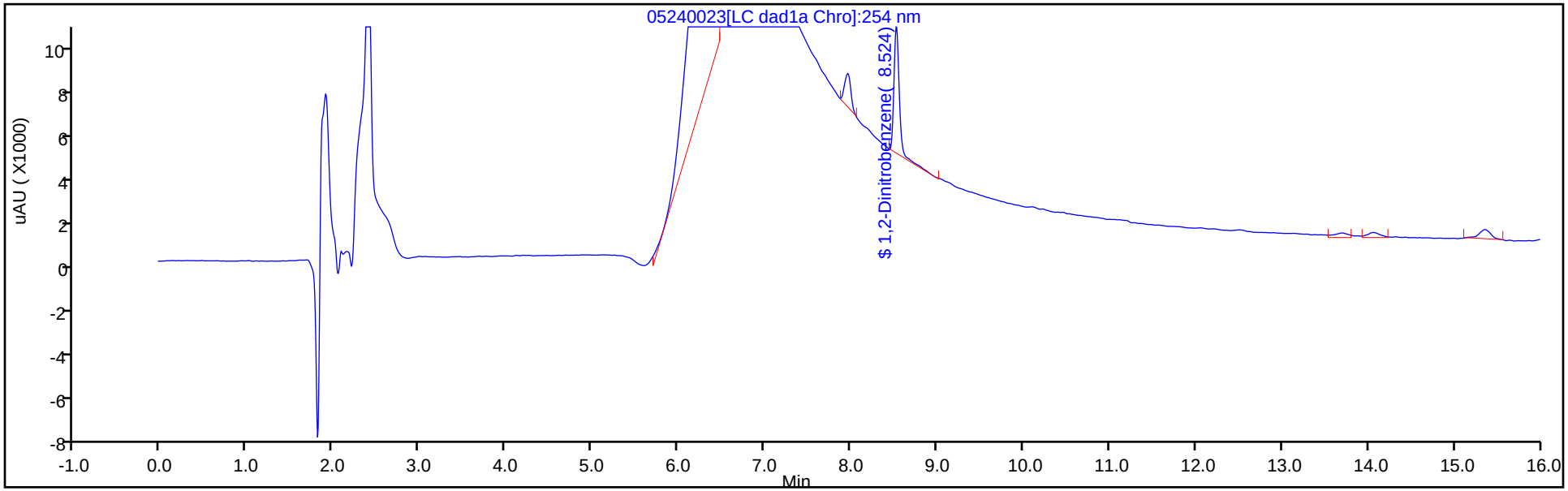
Report Date: 25-May-2023 11:51:50 Chrom Revision: 2.3 23-May-2023 13:55:56

Eurofins Denver

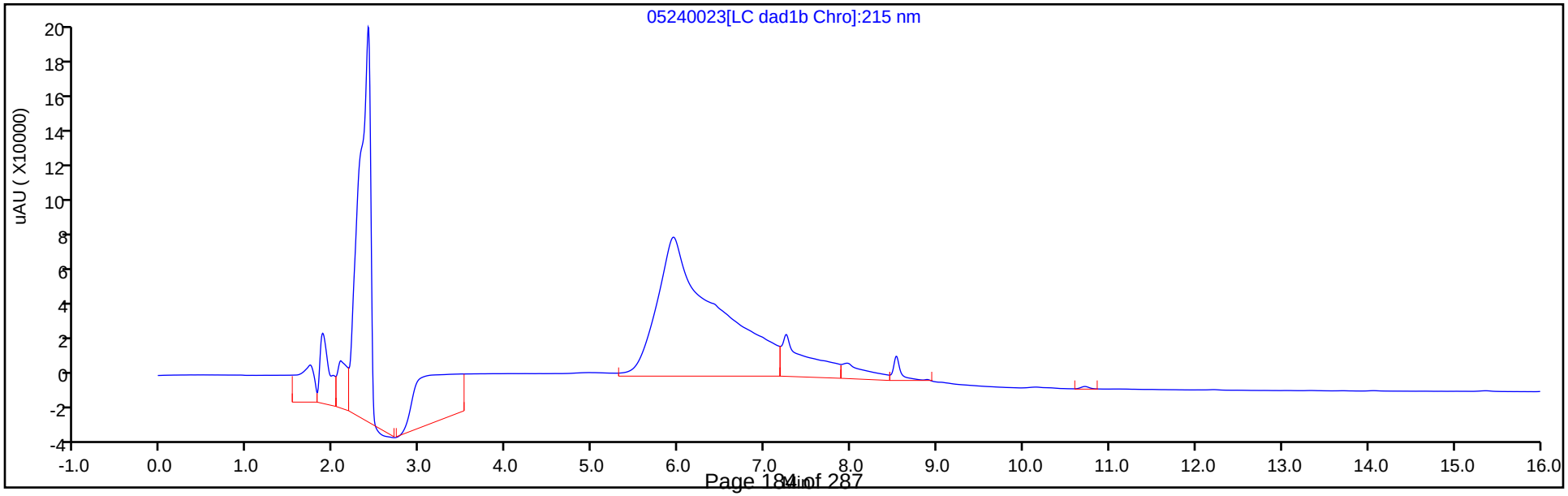
Data File: \\chromfs\denver\chromdata\chhplc_x\20230524-121799.b\05240023.d

Injection Date:	24-May-2023 22:01:21	Instrument ID:	CHHPLC_X3	Operator ID:	JZ/JG
Lims ID:	280-176808-B-3-A	Lab Sample ID:	280-176808-3	Worklist Smp#:	23
Client ID:	FWGmw-004-230402-GW				
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	23
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Eurofins Denver
Recovery Report

Data File:	\\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\05240023.D				
Lims ID:	280-176808-B-3-A				
Client ID:	FWGmw-004-230402-GW				
Sample Type:	Client				
Inject. Date:	24-May-2023 22:01:21	ALS Bottle#:	23	Worklist Smp#:	23
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Sample Info:	280-176808-B-3-A				
Operator ID:	JZ/JG	Instrument ID:	CHHPLC_X3		
Method:	\\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\8330_X3.m				
Limit Group:	GCSV - 8330				
Last Update:	25-May-2023 11:51:48	Calib Date:	24-Feb-2023 17:41:20		
Integrator:	Falcon				
Quant Method:	External Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromfs\Denver\ChromData\CHHPLC_X\20230224-118952.b\02240018.D				
Column 1 :	UltraCarb5uODS (20) (4.60 mm)		Det: LC DAD1B, 254 nm		
Process Host:	CTX1654				

First Level Reviewer: K8YG Date: 25-May-2023 08:12:19

Compound	Amount Added	Amount Recovered	% Rec.
$ 10 1,2-Dinitrobenzene	0.2000	0.1986	99.28

User Disabled Compound Report

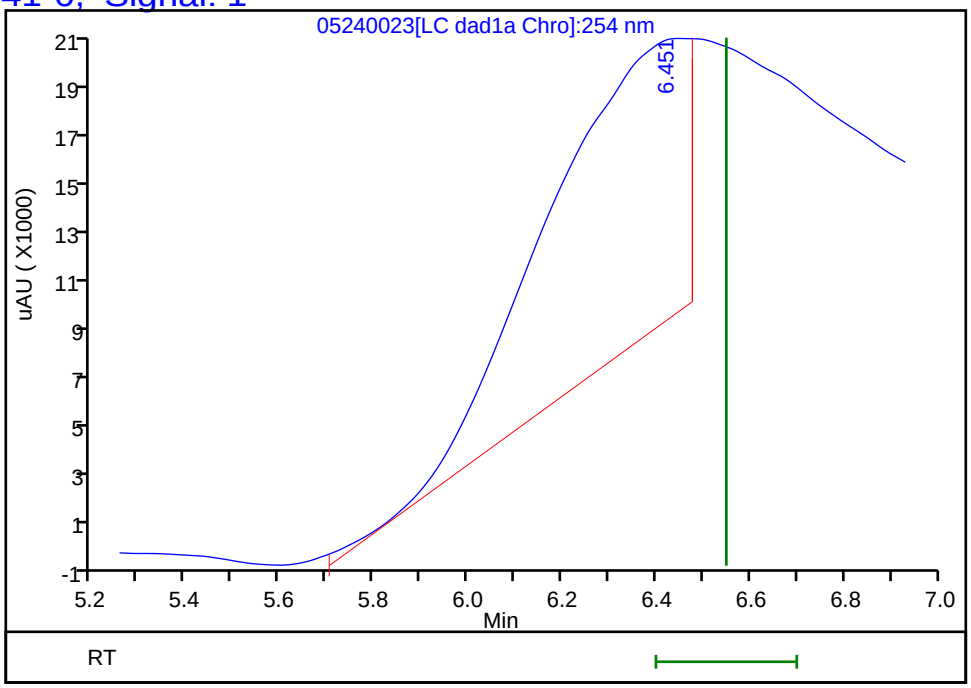
Eurofins Denver

Data File: \\chromfs\denver\chromdata\chhplc_x\20230524-121799.b\05240023.d

Injection Date:	24-May-2023 22:01:21	Instrument ID:	CHHPLC_X3		
Lims ID:	280-176808-B-3-A	Lab Sample ID:	280-176808-3		
Client ID:	FWGmw-004-230402-GW				
Operator ID:	JZ/JG	ALS Bottle#:	23	Worklist Smp#:	23
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

4 HMX, CAS: 2691-41-0, Signal: 1

RT: 6.45
Response: 238577
Amount: 2.550858



Reviewer: K8YG, 25-May-2023 08:12:19
Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

FORM VI
HPLC/IC BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RETENTION TIME SUMMARY

Lab Name: Eurofins Denver Job No.: 280-176808-1 Analy Batch No.: 601664

SDG No.:

Instrument ID: CHHPLC_X3 GC Column: UltraCarb5u ID: 4.6(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/08/2023 15:38 Calibration End Date: 02/08/2023 18:42 Calibration ID: 76877

Calibration Files

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 280-601664/19	02080019.D
Level 2	IC 280-601664/18	02080018.D
Level 3	IC 280-601664/17	02080017.D
Level 4	IC 280-601664/16	02080016.D
Level 5	IC 280-601664/15	02080015.D
Level 6	IC 280-601664/14	02080014.D
Level 7	IC 280-601664/13	02080013.D
Level 8	IC 280-601664/12	02080012.D
Level 9	IC 280-601664/11	02080011.D

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7	LVL 8	LVL 9		RT WINDOW	AVG RT
HMX	6.550	6.549	6.547	6.544	6.548	6.548	6.544	6.547	6.546		6.394 - 6.694	6.547
RDX	7.563	7.563	7.567	7.564	7.568	7.562	7.564	7.567	7.559		7.414 - 7.714	7.564
Picric acid	8.050	8.049	8.047	8.044	8.041	8.028	8.018	8.014	7.966		7.894 - 8.194	8.029
1,3,5-Trinitrobenzene	8.643	8.643	8.647	8.644	8.641	8.642	8.638	8.647	8.639		8.494 - 8.794	8.643
1,3-Dinitrobenzene	9.263	9.256	9.260	9.257	9.255	9.255	9.251	9.260	9.246		9.107 - 9.407	9.256
Nitrobenzene	9.636	9.636	9.633	9.631	9.628	9.628	9.624	9.634	9.619		9.481 - 9.781	9.630
3,5-Dinitroaniline	9.836	9.836	9.840	9.831	9.828	9.828	9.824	9.840	9.819		9.681 - 9.981	9.831
Tetryl	9.983	9.982	9.987	9.977	9.975	9.968	9.971	9.987	9.966		9.827 - 10.127	9.977
Nitroglycerin	10.450	10.449	10.453	10.437	10.441	10.435	10.437	10.454	10.426		10.287 - 10.587	10.442
2,4,6-Trinitrotoluene	10.876	10.876	10.880	10.864	10.868	10.868	10.864	10.880	10.859		10.764 - 10.964	10.871
4-Amino-2,6-dinitrotoluene	11.043	11.042	11.040	11.031	11.028	11.022	11.024	11.040	11.013		10.931 - 11.131	11.031
2-Amino-4,6-dinitrotoluene	11.296	11.289	11.293	11.277	11.275	11.275	11.271	11.287	11.259		11.177 - 11.377	11.280
2,6-Dinitrotoluene	11.470	11.469	11.467	11.451	11.455	11.448	11.451	11.467	11.439		11.351 - 11.551	11.457
2,4-Dinitrotoluene	11.636	11.636	11.633	11.617	11.621	11.615	11.617	11.634	11.606		11.517 - 11.717	11.624
2-Nitrotoluene	12.456	12.456	12.453	12.437	12.441	12.435	12.431	12.447	12.426		12.287 - 12.587	12.442
4-Nitrotoluene	12.863	12.869	12.867	12.844	12.848	12.842	12.844	12.860	12.833		12.694 - 12.994	12.852
3-Nitrotoluene	13.430	13.442	13.433	13.411	13.415	13.408	13.404	13.420	13.399		13.261 - 13.561	13.418
PETN	14.583	14.589	14.580	14.551	14.555	14.548	14.544	14.567	14.539		14.401 - 14.701	14.562
1,2-Dinitrobenzene	8.517	8.516	8.520	8.517	8.515	8.515	8.511	8.521	8.506		8.367 - 8.667	8.515

FORM VI
HPLC/IC BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins Denver | Job No.: 280-176808-1 | Analy Batch No.: 601664

SDG No.:

Instrument ID: CHHPLC_X3 | GC Column: UltraCarb5u ID: 4.6(mm) | Heated Purge: (Y/N) N

Calibration Start Date: 02/08/2023 15:38 | Calibration End Date: 02/08/2023 18:42 | Calibration ID: 76877

Calibration Files

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 280-601664/19	02080019.D
Level 2	IC 280-601664/18	02080018.D
Level 3	IC 280-601664/17	02080017.D
Level 4	IC 280-601664/16	02080016.D
Level 5	IC 280-601664/15	02080015.D
Level 6	IC 280-601664/14	02080014.D
Level 7	IC 280-601664/13	02080013.D
Level 8	IC 280-601664/12	02080012.D
Level 9	IC 280-601664/11	02080011.D

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD /RSE	#	MAX %RSD /RSE	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 5 LVL 9	LVL 2 LVL 6	LVL 3 LVL 7	LVL 4 LVL 8		B	M1	M2								
HMX	96200 93960 91737	98050 92130	92960 91317	93870 91529	Ave		93528.1492				2.5		20.0			
RDX	120300 102168 106491	109800 103248	104720 102589	101120 106983	Ave		106379.808				5.5		20.0			
Picric acid	67300 77436 78734	74600 77483	75360 77481	76400 77676	Ave		75829.9476				4.5		20.0			
1,3,5-Trinitrobenzene	219600 217528 217838	215650 218445	213580 218654	213990 219038	Ave		217147.032				1.0		20.0			
1,3-Dinitrobenzene	290200 296196 297242	292450 296278	293280 294821	292490 296615	Ave		294396.925				0.8		20.0			
Nitrobenzene	190500 190360 192956	190800 192660	192100 189984	190190 191651	Ave		191244.543				0.6		20.0			
3,5-Dinitroaniline	214700 228212 230510	218850 227498	228520 228160	227230 229927	Lin2	-154.28261	229201.890							1.0000		0.9900
Tetryl	161100 165680 166480	153650 171658	163060 165663	164380 165416	Ave		164120.706				3.0		20.0			

Note: The M1 coefficient is the same as Ave CF for an Ave curve type. RSD is calculated for Ave curve types. RSE is used for all other types.

FORM VI
HPLC/IC BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins Denver Job No.: 280-176808-1 Analy Batch No.: 601664

SDG No.:

Instrument ID: CHHPLC_X3 GC Column: UltraCarb5u ID: 4.6(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/08/2023 15:38 Calibration End Date: 02/08/2023 18:42 Calibration ID: 76877

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD /RSE	#	MAX %RSD /RSE	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 5 LVL 9	LVL 2 LVL 6	LVL 3 LVL 7	LVL 4 LVL 8		B	M1	M2								
Nitroglycerin	61590 64985 65842	59395 66398	63298 66047	63170 65903	Ave		64069.9243				3.7		20.0			
2,4,6-Trinitrotoluene	216700 210476 209648	213100 208335	214160 208960	207870 210110	Ave		211039.889				1.4		20.0			
4-Amino-2,6-dinitrotoluene	167000 152884 152878	155300 152868	157500 150916	154070 150980	Ave		154932.802				3.2		20.0			
2-Amino-4,6-dinitrotoluene	221400 198056 200205	201050 198963	201440 196574	197650 197356	Ave		201410.398				3.8		20.0			
2,6-Dinitrotoluene	148600 143452 140114	145550 140035	142180 142239	139670 142869	Ave		142745.397				2.0		20.0			
2,4-Dinitrotoluene	314100 293052 294340	299250 294023	297440 290757	295390 291656	Ave		296667.471				2.4		20.0			
2-Nitrotoluene	137700 124752 126235	130550 125108	132460 124116	125480 124668	Ave		127896.490				3.7		20.0			
4-Nitrotoluene	126300 108612 108849	119650 108228	111680 107359	108570 107671	Ave		111879.808				5.9		20.0			
3-Nitrotoluene	147300 137292 138526	153100 136790	141920 136640	136660 136203	Ave		140492.289				4.2		20.0			
PETN	72730 68498 68809	67310 68653	68114 68586	68161 68748	Ave		68845.4251				2.2		20.0			
1,2-Dinitrobenzene	118800 127432 129675	124550 128775	125560 126837	127270 127879	Ave		126308.705				2.5		20.0			

Note: The M1 coefficient is the same as Ave CF for an Ave curve type. RSD is calculated for Ave curve types. RSE is used for all other types.

FORM VI
HPLC/IC BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins Denver Job No.: 280-176808-1 Analy Batch No.: 601664

SDG No.:

Instrument ID: CHHPLC_X3 GC Column: UltraCarb5u ID: 4.6(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/08/2023 15:38 Calibration End Date: 02/08/2023 18:42 Calibration ID: 76877

Calibration Files

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 280-601664/19	02080019.D
Level 2	IC 280-601664/18	02080018.D
Level 3	IC 280-601664/17	02080017.D
Level 4	IC 280-601664/16	02080016.D
Level 5	IC 280-601664/15	02080015.D
Level 6	IC 280-601664/14	02080014.D
Level 7	IC 280-601664/13	02080013.D
Level 8	IC 280-601664/12	02080012.D
Level 9	IC 280-601664/11	02080011.D

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (UG/ML)				
		LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5
HMX	Ave	962	1961	4648	9387	23490	0.0100	0.0200	0.0500	0.100	0.250
		36852	63922	91529	229343		0.400	0.700	1.00	2.50	
RDX	Ave	1203	2196	5236	10112	25542	0.0100	0.0200	0.0500	0.100	0.250
		41299	71812	106983	266228		0.400	0.700	1.00	2.50	
Picric acid	Ave	673	1492	3768	7640	19359	0.0100	0.0200	0.0500	0.100	0.250
		30993	54237	77676	196834		0.400	0.700	1.00	2.50	
1,3,5-Trinitrobenzene	Ave	2196	4313	10679	21399	54382	0.0100	0.0200	0.0500	0.100	0.250
		87378	153058	219038	544595		0.400	0.700	1.00	2.50	
1,3-Dinitrobenzene	Ave	2902	5849	14664	29249	74049	0.0100	0.0200	0.0500	0.100	0.250
		118511	206375	296615	743106		0.400	0.700	1.00	2.50	
Nitrobenzene	Ave	1905	3816	9605	19019	47590	0.0100	0.0200	0.0500	0.100	0.250
		77064	132989	191651	482389		0.400	0.700	1.00	2.50	
3,5-Dinitroaniline	Lin2	2147	4377	11426	22723	57053	0.0100	0.0200	0.0500	0.100	0.250
		90999	159712	229927	576276		0.400	0.700	1.00	2.50	
Tetryl	Ave	1611	3073	8153	16438	41420	0.0100	0.0200	0.0500	0.100	0.250
		68663	115964	165416	416200		0.400	0.700	1.00	2.50	
Nitroglycerin	Ave	6159	11879	31649	63170	162463	0.100	0.200	0.500	1.00	2.50
		265593	462332	659032	1646056		4.00	7.00	10.0	25.0	
2,4,6-Trinitrotoluene	Ave	2167	4262	10708	20787	52619	0.0100	0.0200	0.0500	0.100	0.250
		83334	146272	210110	524120		0.400	0.700	1.00	2.50	
4-Amino-2,6-dinitrotoluene	Ave	1670	3106	7875	15407	38221	0.0100	0.0200	0.0500	0.100	0.250
		61147	105641	150980	382195		0.400	0.700	1.00	2.50	
2-Amino-4,6-dinitrotoluene	Ave	2214	4021	10072	19765	49514	0.0100	0.0200	0.0500	0.100	0.250
		79585	137602	197356	500512		0.400	0.700	1.00	2.50	
2,6-Dinitrotoluene	Ave	1486	2911	7109	13967	35863	0.0100	0.0200	0.0500	0.100	0.250

FORM VI
HPLC/IC BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins Denver Job No.: 280-176808-1 Analy Batch No.: 601664

SDG No.:

Instrument ID: CHHPLC_X3 GC Column: UltraCarb5u ID: 4.6(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/08/2023 15:38 Calibration End Date: 02/08/2023 18:42 Calibration ID: 76877

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (UG/ML)				
		LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5
		56014	99567	142869	350285		0.400	0.700	1.00	2.50	
2,4-Dinitrotoluene	Ave	3141 117609	5985 203530	14872 291656	29539 735849	73263	0.0100 0.400	0.0200 0.700	0.0500 1.00	0.100 2.50	0.250
2-Nitrotoluene	Ave	1377 50043	2611 86881	6623 124668	12548 315588	31188	0.0100 0.400	0.0200 0.700	0.0500 1.00	0.100 2.50	0.250
4-Nitrotoluene	Ave	1263 43291	2393 75151	5584 107671	10857 272123	27153	0.0100 0.400	0.0200 0.700	0.0500 1.00	0.100 2.50	0.250
3-Nitrotoluene	Ave	1473 54716	3062 95648	7096 136203	13666 346314	34323	0.0100 0.400	0.0200 0.700	0.0500 1.00	0.100 2.50	0.250
PETN	Ave	7273 274612	13462 480104	34057 687477	68161 1720221	171245	0.100 4.00	0.200 7.00	0.500 10.0	1.00 25.0	2.50
1,2-Dinitrobenzene	Ave	1188 51510	2491 88786	6278 127879	12727 324188	31858	0.0100 0.400	0.0200 0.700	0.0500 1.00	0.100 2.50	0.250

Curve Type Legend
Ave = Average
Lin2 = Linear 1/conc^2

Eurofins Denver
Target Compound Quantitation Report

Data File: \\chromfs\Denver\ChromData\CHHPLC_X\20230208-118465.b\02080011.D
Lims ID: IC INT 9
Client ID:
Sample Type: IC Calib Level: 9
Inject. Date: 08-Feb-2023 15:38:53 ALS Bottle#: 11 Worklist Smp#: 11
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: IC INT 9
Operator ID: JZ/MAR Instrument ID: CHHPLC_X3
Sublist: chrom-8330_X3*sub26

Method: \\chromfs\Denver\ChromData\CHHPLC_X\20230208-118465.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 09-Feb-2023 12:48:02 Calib Date: 08-Feb-2023 18:42:13
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromfs\Denver\ChromData\CHHPLC_X\20230208-118465.b\02080019.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX1604

First Level Reviewer: LV5D Date: 08-Feb-2023 16:28:55

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
4 HMX	1	6.546	6.544	0.002	229343	2.50	2.45	M
8 RDX	1	7.559	7.564	-0.005	266228	2.50	2.50	
9 2,4,6-Trinitrophenol	1	7.966	8.044	-0.078	196834	2.50	2.60	
$ 10 1,2-Dinitrobenzene	1	8.506	8.517	-0.011	324188	2.50	2.57	
11 1,3,5-Trinitrobenzene	1	8.639	8.644	-0.005	544595	2.50	2.51	
12 1,3-Dinitrobenzene	1	9.246	9.257	-0.011	743106	2.50	2.52	
13 Nitrobenzene	1	9.619	9.631	-0.012	482389	2.50	2.52	
14 3,5-Dinitroaniline	1	9.819	9.831	-0.012	576276	2.50	2.51	
15 Tetryl	1	9.966	9.977	-0.011	416200	2.50	2.54	
16 Nitroglycerin	2	10.426	10.437	-0.011	1646056	25.0	25.7	
17 2,4,6-Trinitrotoluene	1	10.859	10.864	-0.005	524120	2.50	2.48	
18 4-Amino-2,6-dinitrotoluene	1	11.013	11.031	-0.018	382195	2.50	2.47	
19 2-Amino-4,6-dinitrotoluene	1	11.259	11.277	-0.018	500512	2.50	2.49	
20 2,6-Dinitrotoluene	1	11.439	11.451	-0.012	350285	2.50	2.45	
21 2,4-Dinitrotoluene	1	11.606	11.617	-0.011	735849	2.50	2.48	
22 o-Nitrotoluene	1	12.426	12.437	-0.011	315588	2.50	2.47	
23 p-Nitrotoluene	1	12.833	12.844	-0.011	272123	2.50	2.43	
24 m-Nitrotoluene	1	13.399	13.411	-0.012	346314	2.50	2.47	
25 PETN	2	14.539	14.551	-0.012	1720221	25.0	25.0	

QC Flag Legend

Processing Flags
Review Flags
M - Manually Integrated

Reagents:

8330IntermStk_00075 Amount Added: 250.00 Units: uL

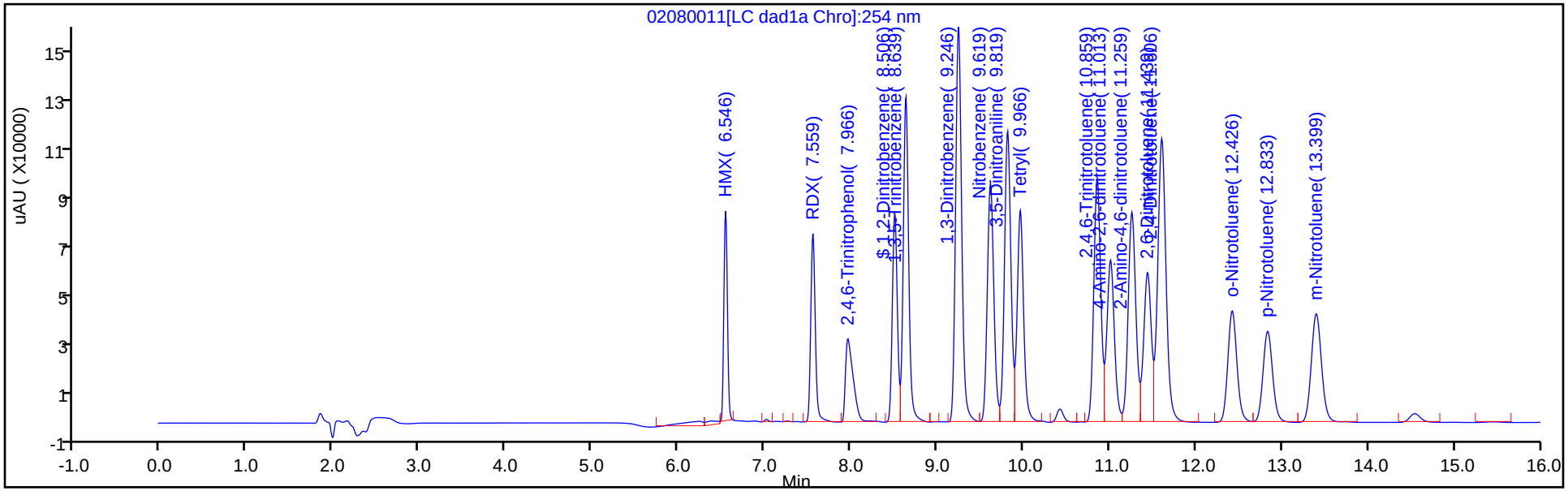
Report Date: 09-Feb-2023 12:48:02 Chrom Revision: 2.3 01-Feb-2023 13:23:06

Eurofins Denver

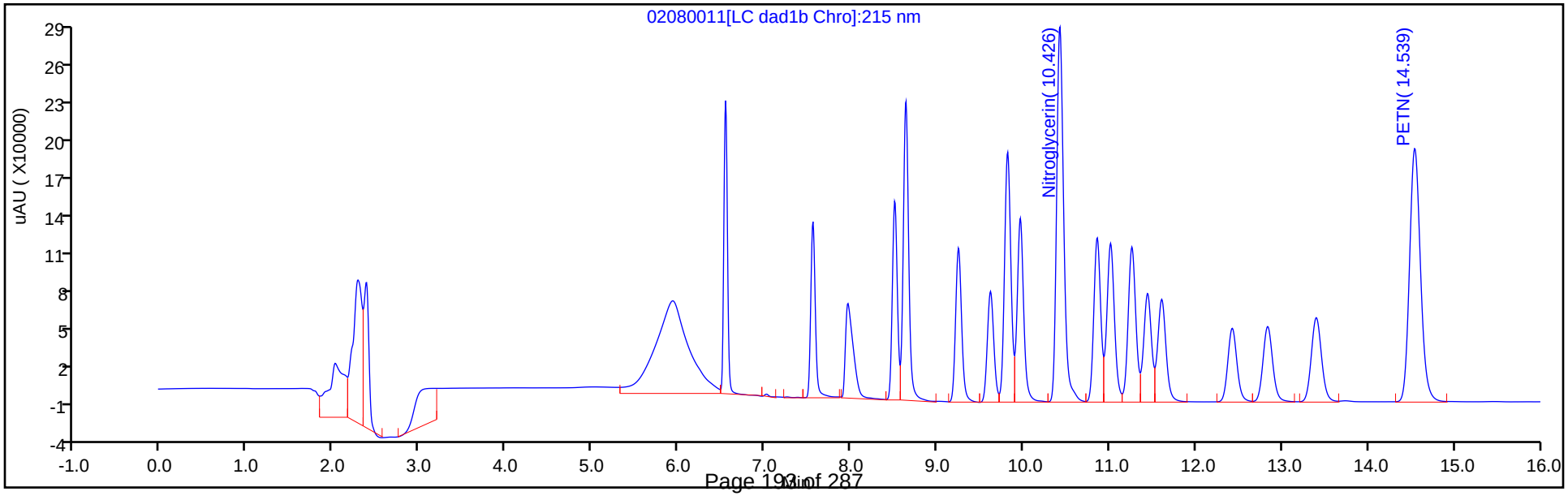
Data File: \\chromfs\denver\chromdata\chhplc_x\20230208-118465.b\02080011.d

Injection Date:	08-Feb-2023 15:38:53	Instrument ID:	CHHPLC_X3	Operator ID:	JZ/MAR
Lims ID:	IC INT 9			Worklist Smp#:	11
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	11
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Manual Integration/User Assign Peak Report

Eurofins Denver

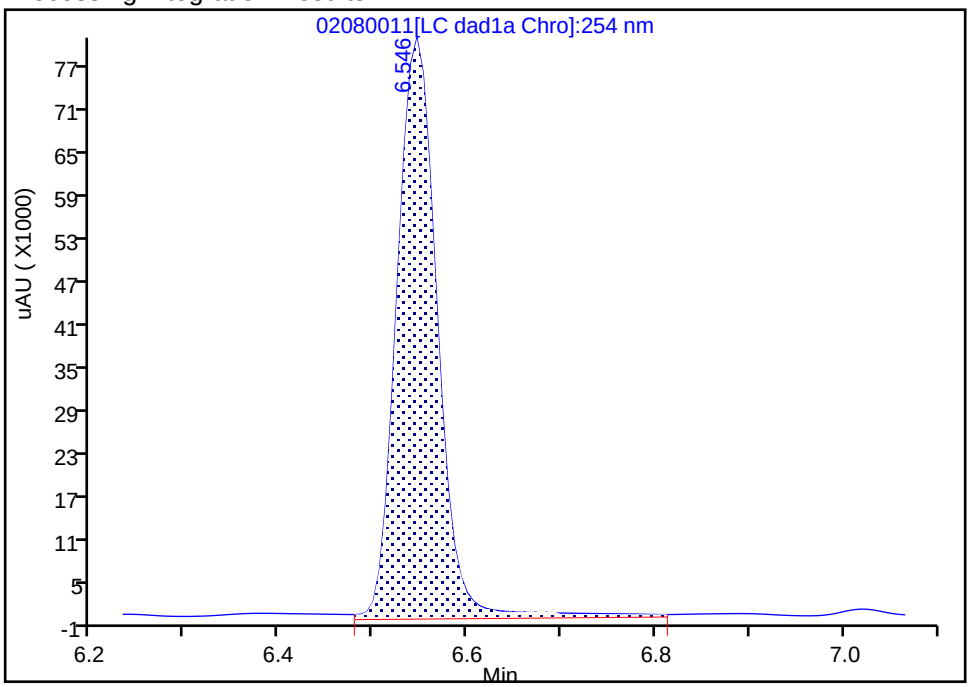
Data File:	\\chromfs\denver\chromdata\chhplc_x\20230208-118465.b\02080011.d				
Injection Date:	08-Feb-2023 15:38:53	Instrument ID:	CHHPLC_X3		
Lims ID:	IC INT 9				
Client ID:					
Operator ID:	JZ/MAR	ALS Bottle#:	11	Worklist Smp#:	11
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

4 HMX, CAS: 2691-41-0

Signal: 1

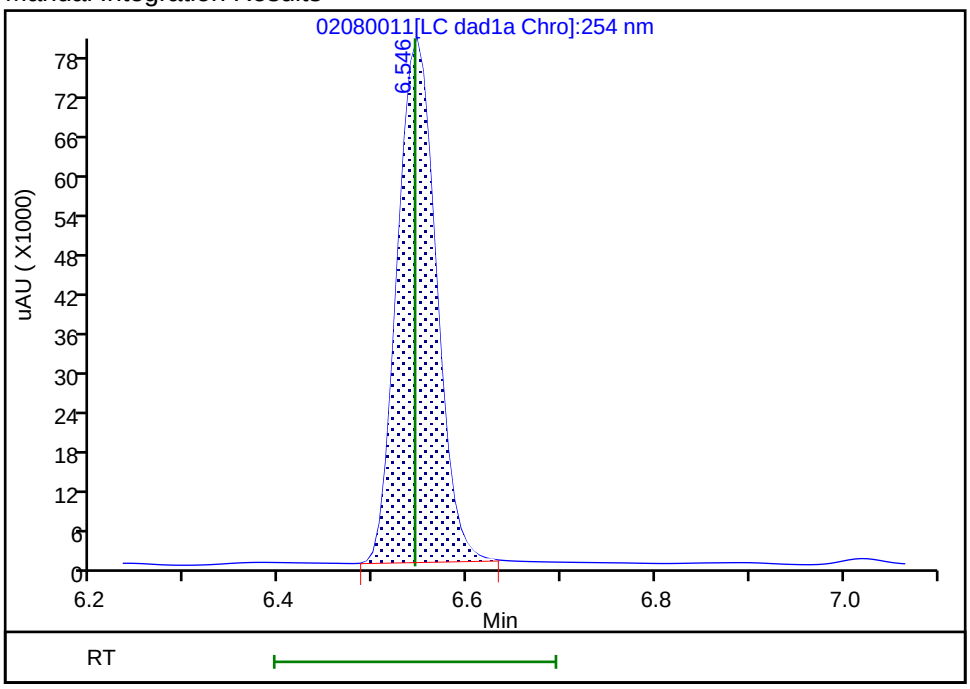
Processing Integration Results

RT: 6.55
Area: 245170
Amount: 2.586222
Amount Units: ug/mL



Manual Integration Results

RT: 6.55
Area: 229343
Amount: 2.452128
Amount Units: ug/mL



Reviewer: LV5D, 08-Feb-2023 16:28:37

Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

Eurofins Denver
Target Compound Quantitation Report

Data File: \\chromfs\Denver\ChromData\CHHPLC_X\20230208-118465.b\02080012.D
Lims ID: IC INT 8
Client ID:
Sample Type: IC Calib Level: 8
Inject. Date: 08-Feb-2023 16:01:51 ALS Bottle#: 12 Worklist Smp#: 12
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: IC INT 8
Operator ID: JZ/MAR Instrument ID: CHHPLC_X3
Sublist: chrom-8330_X3*sub26

Method: \\chromfs\Denver\ChromData\CHHPLC_X\20230208-118465.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 09-Feb-2023 12:48:03 Calib Date: 08-Feb-2023 18:42:13
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromfs\Denver\ChromData\CHHPLC_X\20230208-118465.b\02080019.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX1604

First Level Reviewer: LV5D Date: 08-Feb-2023 16:28:33

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
4 HMX	1	6.547	6.544	0.003	91529	1.00	0.9786	M
8 RDX	1	7.567	7.564	0.003	106983	1.00	1.01	
9 2,4,6-Trinitrophenol	1	8.014	8.044	-0.030	77676	1.00	1.02	
$ 10 1,2-Dinitrobenzene	1	8.521	8.517	0.004	127879	1.00	1.01	
11 1,3,5-Trinitrobenzene	1	8.647	8.644	0.003	219038	1.00	1.01	
12 1,3-Dinitrobenzene	1	9.260	9.257	0.003	296615	1.00	1.01	
13 Nitrobenzene	1	9.634	9.631	0.003	191651	1.00	1.00	
14 3,5-Dinitroaniline	1	9.840	9.831	0.009	229927	1.00	1.00	
15 Tetryl	1	9.987	9.977	0.010	165416	1.00	1.01	
16 Nitroglycerin	2	10.454	10.437	0.017	659032	10.0	10.3	
17 2,4,6-Trinitrotoluene	1	10.880	10.864	0.016	210110	1.00	1.00	
18 4-Amino-2,6-dinitrotoluene	1	11.040	11.031	0.009	150980	1.00	0.9745	
19 2-Amino-4,6-dinitrotoluene	1	11.287	11.277	0.010	197356	1.00	0.9799	
20 2,6-Dinitrotoluene	1	11.467	11.451	0.016	142869	1.00	1.00	
21 2,4-Dinitrotoluene	1	11.634	11.617	0.017	291656	1.00	0.9831	
22 o-Nitrotoluene	1	12.447	12.437	0.010	124668	1.00	0.9748	
23 p-Nitrotoluene	1	12.860	12.844	0.016	107671	1.00	0.9624	
24 m-Nitrotoluene	1	13.420	13.411	0.009	136203	1.00	0.9695	
25 PETN	2	14.567	14.551	0.016	687477	10.0	9.99	

QC Flag Legend

Processing Flags
Review Flags
M - Manually Integrated

Reagents:

8330IntermStk_00075 Amount Added: 100.00 Units: uL

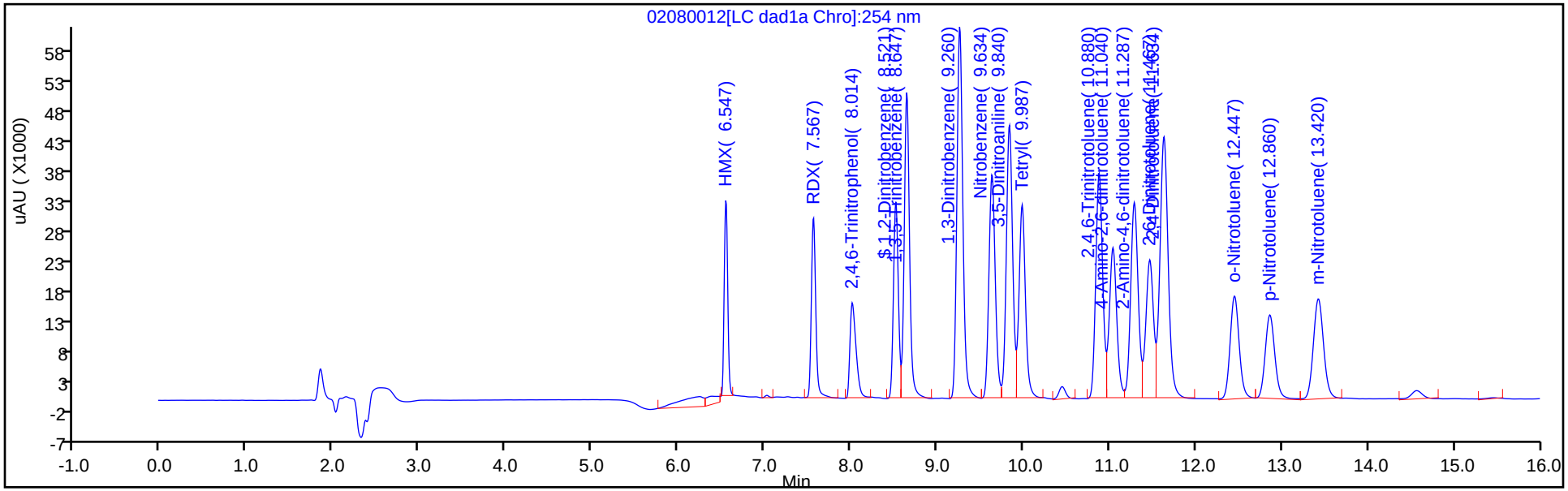
Report Date: 09-Feb-2023 12:48:03 Chrom Revision: 2.3 01-Feb-2023 13:23:06

Eurofins Denver

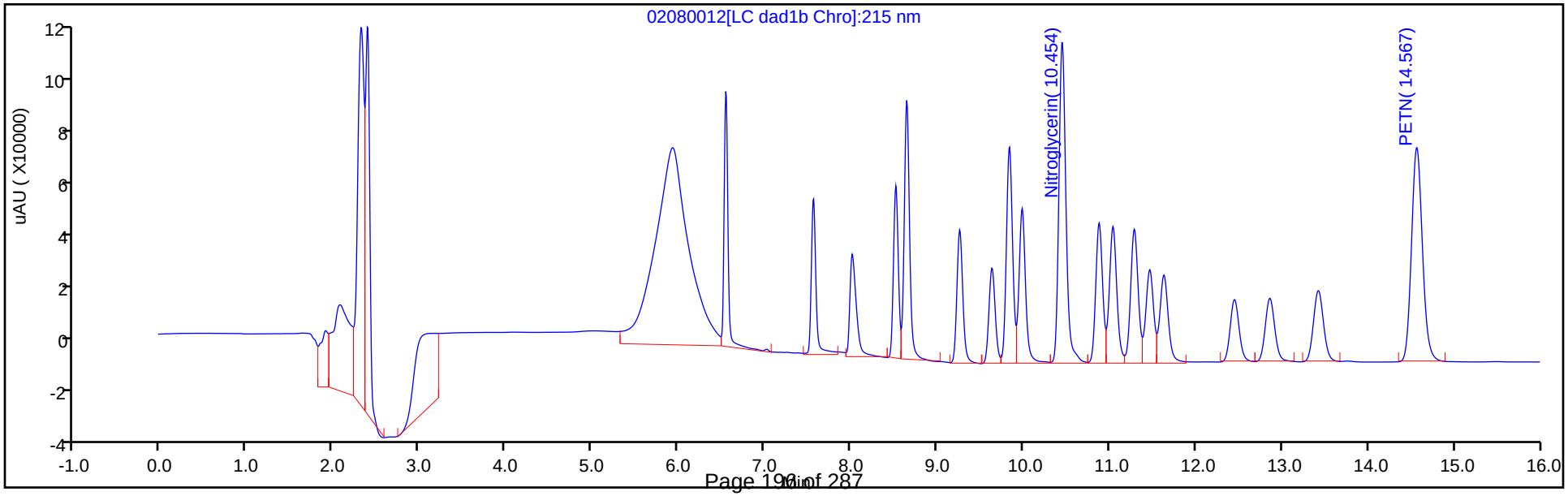
Data File: \\chromfs\denver\chromdata\chhplc_x\20230208-118465.b\02080012.d

Injection Date:	08-Feb-2023 16:01:51	Instrument ID:	CHHPLC_X3	Operator ID:	JZ/MAR
Lims ID:	IC INT 8			Worklist Smp#:	12
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	12
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Manual Integration/User Assign Peak Report

Eurofins Denver

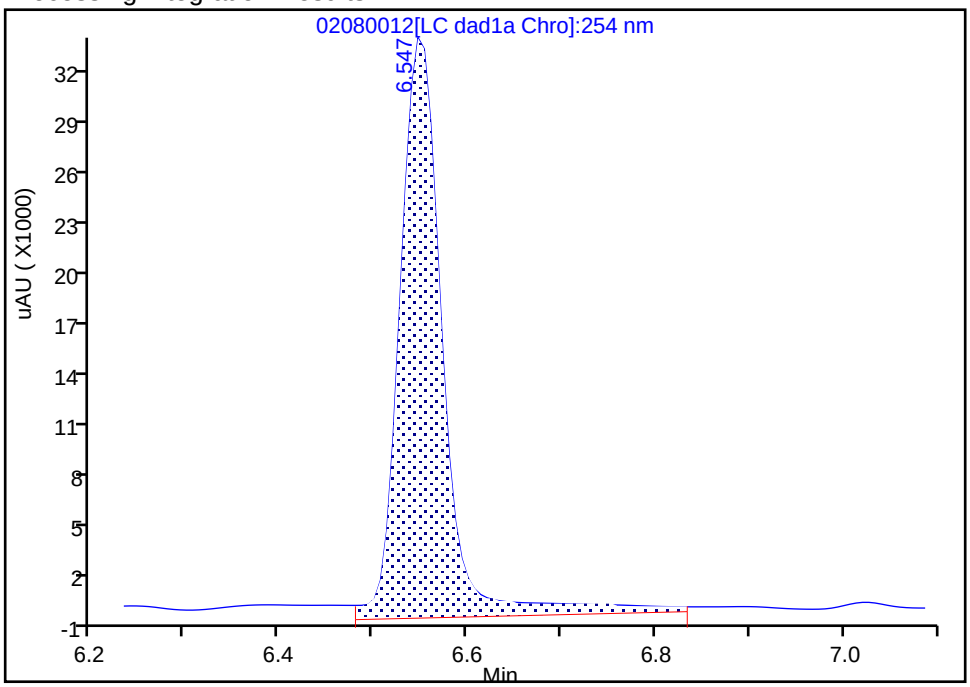
Data File:	\\chromfs\denver\chromdata\chhplc_x\20230208-118465.b\02080012.d				
Injection Date:	08-Feb-2023 16:01:51	Instrument ID:	CHHPLC_X3		
Lims ID:	IC INT 8				
Client ID:					
Operator ID:	JZ/MAR	ALS Bottle#:	12	Worklist Smp#:	12
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

4 HMX, CAS: 2691-41-0

Signal: 1

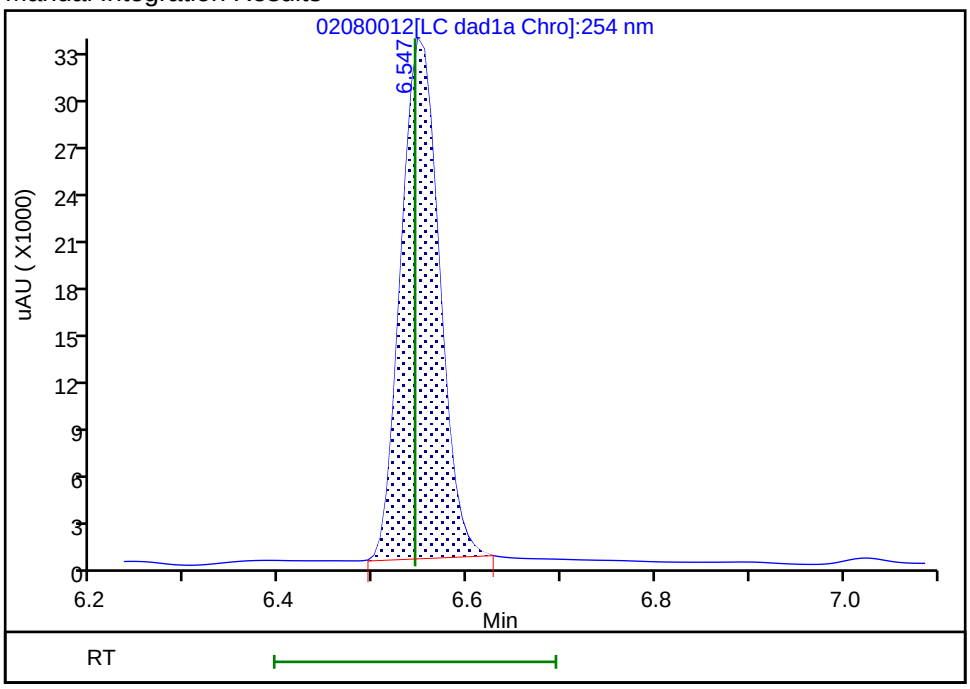
Processing Integration Results

RT: 6.55
Area: 107005
Amount: 1.043580
Amount Units: ug/mL



Manual Integration Results

RT: 6.55
Area: 91529
Amount: 0.978625
Amount Units: ug/mL



Reviewer: LV5D, 08-Feb-2023 16:28:16

Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

Eurofins Denver
Target Compound Quantitation Report

Data File: \\chromfs\Denver\ChromData\CHHPLC_X\20230208-118465.b\02080013.D
Lims ID: IC INT 7
Client ID:
Sample Type: IC Calib Level: 7
Inject. Date: 08-Feb-2023 16:24:45 ALS Bottle#: 13 Worklist Smp#: 13
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: IC INT 7
Operator ID: JZ/MAR Instrument ID: CHHPLC_X3
Sublist: chrom-8330_X3*sub26

Method: \\chromfs\Denver\ChromData\CHHPLC_X\20230208-118465.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 09-Feb-2023 12:48:04 Calib Date: 08-Feb-2023 18:42:13
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromfs\Denver\ChromData\CHHPLC_X\20230208-118465.b\02080019.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX1604

First Level Reviewer: LV5D Date: 08-Feb-2023 16:55:38

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
4 HMX	1	6.544	6.544	0.000	63922	0.7000	0.6835	M
8 RDX	1	7.564	7.564	0.000	71812	0.7000	0.6751	M
9 2,4,6-Trinitrophenol	1	8.018	8.044	-0.026	54237	0.7000	0.7152	
$ 10 1,2-Dinitrobenzene	1	8.511	8.517	-0.006	88786	0.7000	0.7029	
11 1,3,5-Trinitrobenzene	1	8.638	8.644	-0.006	153058	0.7000	0.7049	
12 1,3-Dinitrobenzene	1	9.251	9.257	-0.006	206375	0.7000	0.7010	
13 Nitrobenzene	1	9.624	9.631	-0.007	132989	0.7000	0.6954	
14 3,5-Dinitroaniline	1	9.824	9.831	-0.007	159712	0.7000	0.6975	
15 Tetryl	1	9.971	9.977	-0.006	115964	0.7000	0.7066	
16 Nitroglycerin	2	10.437	10.437	0.000	462332	7.00	7.22	
17 2,4,6-Trinitrotoluene	1	10.864	10.864	0.000	146272	0.7000	0.6931	
18 4-Amino-2,6-dinitrotoluene	1	11.024	11.031	-0.007	105641	0.7000	0.6819	
19 2-Amino-4,6-dinitrotoluene	1	11.271	11.277	-0.006	137602	0.7000	0.6832	
20 2,6-Dinitrotoluene	1	11.451	11.451	0.000	99567	0.7000	0.6975	
21 2,4-Dinitrotoluene	1	11.617	11.617	0.000	203530	0.7000	0.6861	
22 o-Nitrotoluene	1	12.431	12.437	-0.006	86881	0.7000	0.6793	
23 p-Nitrotoluene	1	12.844	12.844	0.000	75151	0.7000	0.6717	
24 m-Nitrotoluene	1	13.404	13.411	-0.007	95648	0.7000	0.6808	
25 PETN	2	14.544	14.551	-0.007	480104	7.00	6.97	

QC Flag Legend

Processing Flags
Review Flags
M - Manually Integrated

Reagents:

8330IntermStk_00075 Amount Added: 70.00 Units: uL

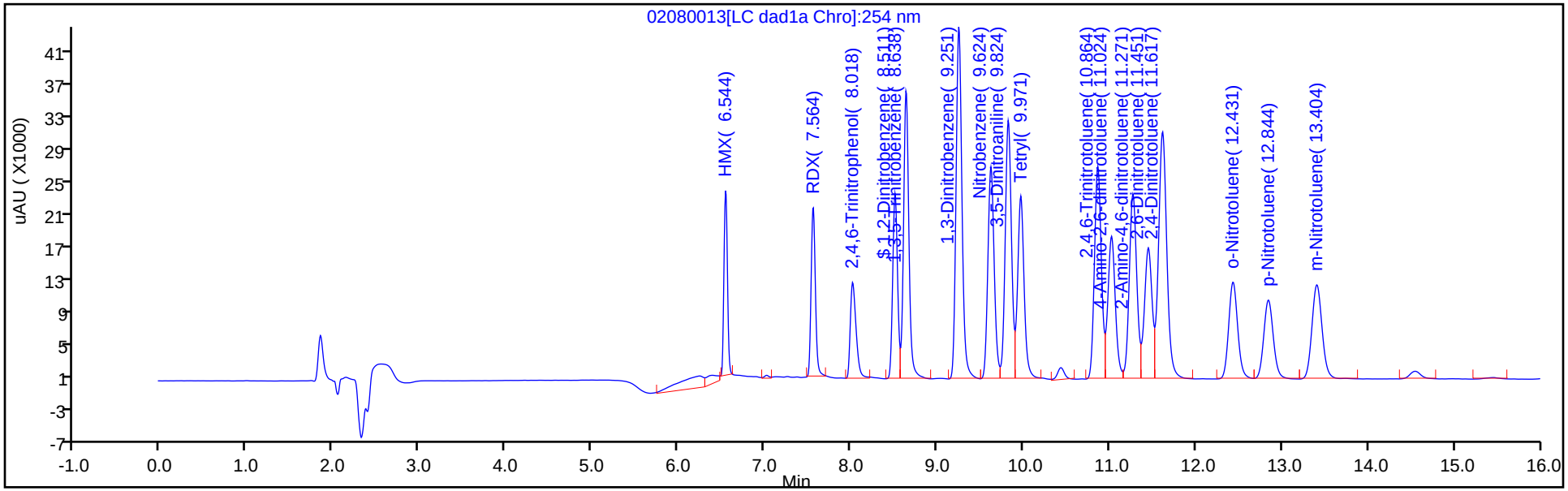
Report Date: 09-Feb-2023 12:48:04 Chrom Revision: 2.3 01-Feb-2023 13:23:06

Eurofins Denver

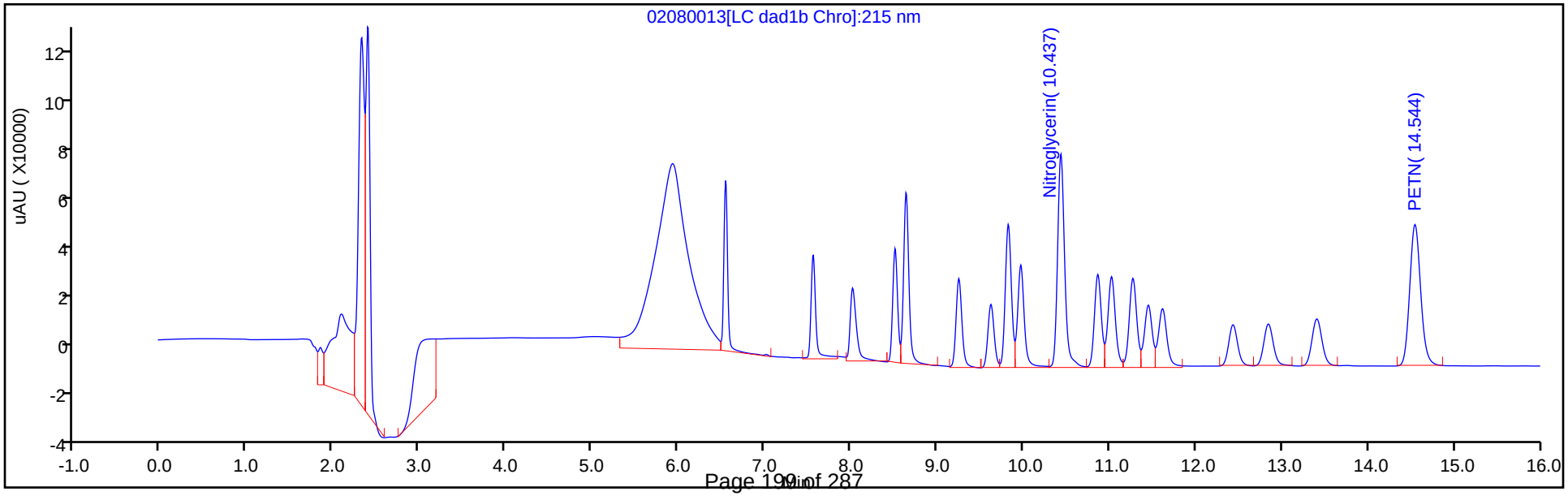
Data File: \\chromfs\denver\chromdata\chhplc_x\20230208-118465.b\02080013.d

Injection Date:	08-Feb-2023 16:24:45	Instrument ID:	CHHPLC_X3	Operator ID:	JZ/MAR
Lims ID:	IC INT 7			Worklist Smp#:	13
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	13
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Manual Integration/User Assign Peak Report

Eurofins Denver

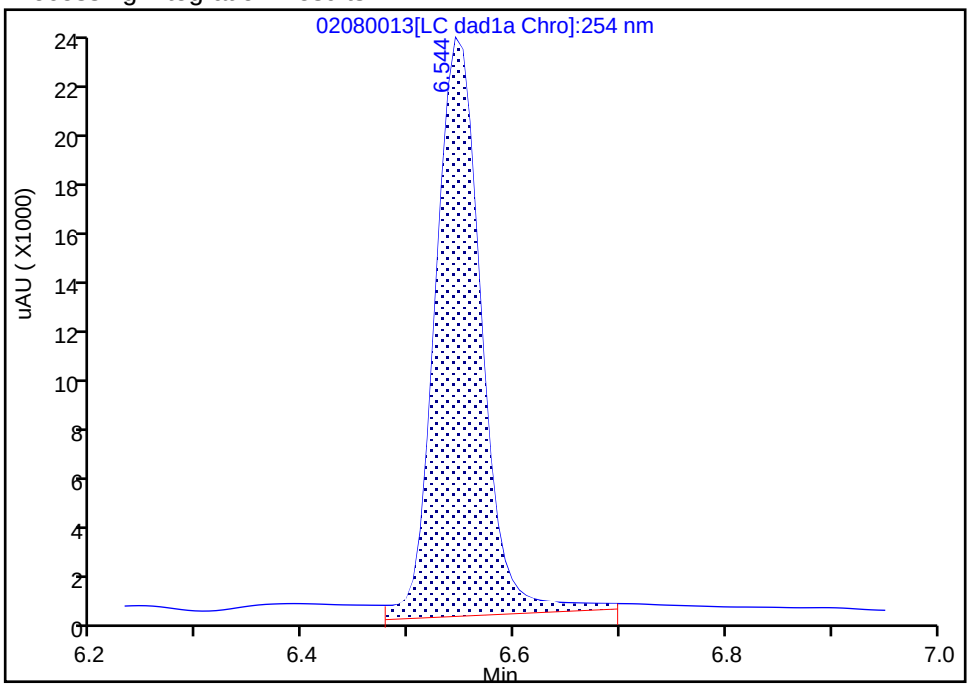
Data File:	\\chromfs\denver\chromdata\chhplc_x\20230208-118465.b\02080013.d				
Injection Date:	08-Feb-2023 16:24:45	Instrument ID:	CHHPLC_X3		
Lims ID:	IC INT 7				
Client ID:					
Operator ID:	JZ/MAR	ALS Bottle#:	13	Worklist Smp#:	13
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

4 HMX, CAS: 2691-41-0

Signal: 1

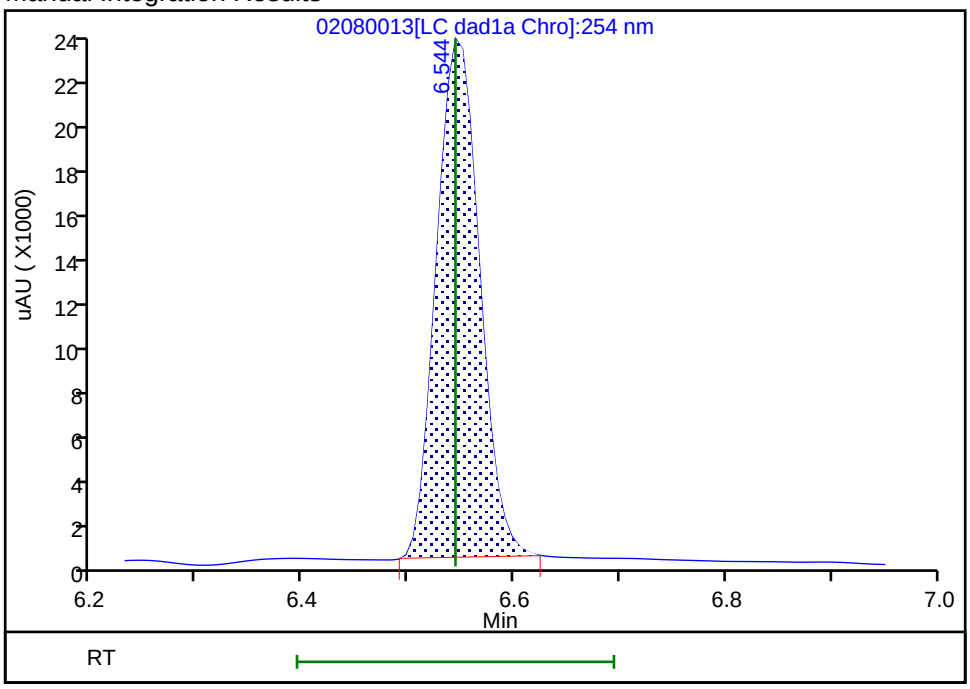
Processing Integration Results

RT: 6.54
Area: 70424
Amount: 0.744251
Amount Units: ug/mL



Manual Integration Results

RT: 6.54
Area: 63922
Amount: 0.683452
Amount Units: ug/mL



Reviewer: LV5D, 08-Feb-2023 16:55:19

Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

Manual Integration/User Assign Peak Report

Eurofins Denver

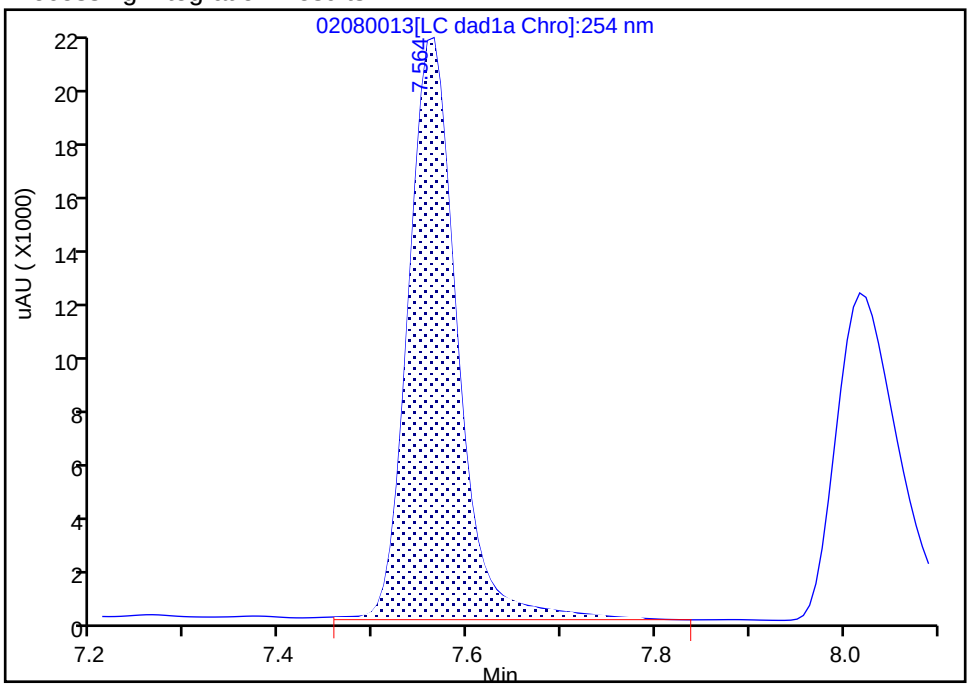
Data File:	\\chromfs\denver\chromdata\chhplc_x\20230208-118465.b\02080013.d				
Injection Date:	08-Feb-2023 16:24:45	Instrument ID:	CHHPLC_X3		
Lims ID:	IC INT 7				
Client ID:					
Operator ID:	JZ/MAR	ALS Bottle#:	13	Worklist Smp#:	13
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

8 RDX, CAS: 121-82-4

Signal: 1

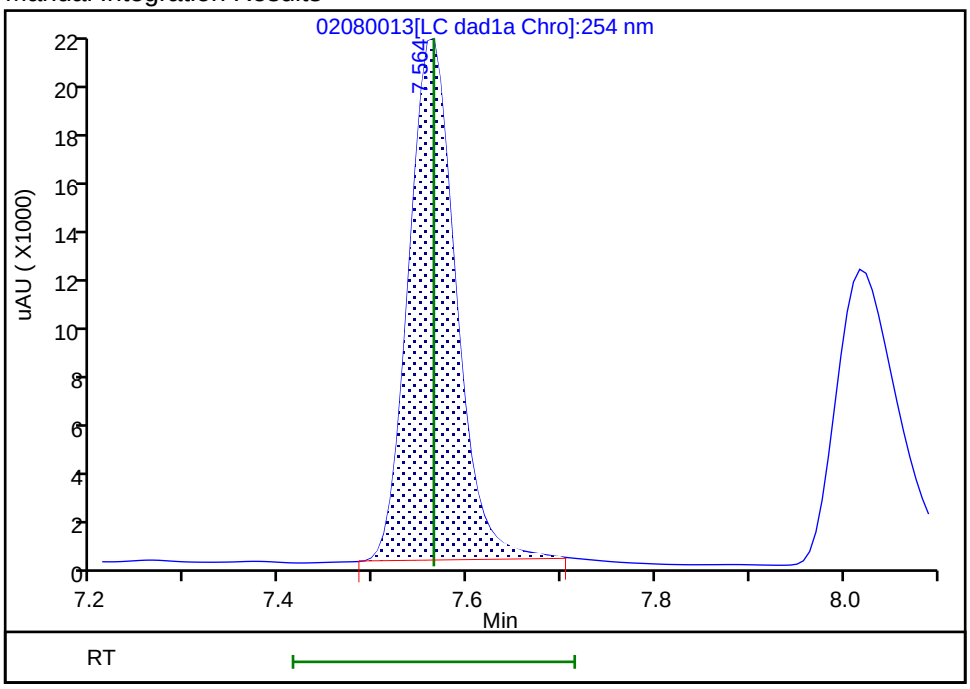
Processing Integration Results

RT: 7.56
Area: 75013
Amount: 0.701791
Amount Units: ug/mL



Manual Integration Results

RT: 7.56
Area: 71812
Amount: 0.675053
Amount Units: ug/mL



Reviewer: LV5D, 08-Feb-2023 19:09:56
Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

Eurofins Denver
Target Compound Quantitation Report

Data File: \\chromfs\Denver\ChromData\CHHPLC_X\20230208-118465.b\02080014.D
Lims ID: IC INT 6
Client ID:
Sample Type: IC Calib Level: 6
Inject. Date: 08-Feb-2023 16:47:39 ALS Bottle#: 14 Worklist Smp#: 14
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: IC INT 6
Operator ID: JZ/MAR Instrument ID: CHHPLC_X3
Sublist: chrom-8330_X3*sub26

Method: \\chromfs\Denver\ChromData\CHHPLC_X\20230208-118465.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 09-Feb-2023 12:48:05 Calib Date: 08-Feb-2023 18:42:13
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromfs\Denver\ChromData\CHHPLC_X\20230208-118465.b\02080019.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX1604

First Level Reviewer: LV5D Date: 08-Feb-2023 17:11:22

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
4 HMX	1	6.548	6.544	0.004	36852	0.4000	0.3940	M
8 RDX	1	7.562	7.564	-0.002	41299	0.4000	0.3882	M
9 2,4,6-Trinitrophenol	1	8.028	8.044	-0.016	30993	0.4000	0.4087	
$ 10 1,2-Dinitrobenzene	1	8.515	8.517	-0.002	51510	0.4000	0.4078	
11 1,3,5-Trinitrobenzene	1	8.642	8.644	-0.002	87378	0.4000	0.4024	
12 1,3-Dinitrobenzene	1	9.255	9.257	-0.002	118511	0.4000	0.4026	
13 Nitrobenzene	1	9.628	9.631	-0.003	77064	0.4000	0.4030	
14 3,5-Dinitroaniline	1	9.828	9.831	-0.003	90999	0.4000	0.3977	
15 Tetryl	1	9.968	9.977	-0.009	68663	0.4000	0.4184	
16 Nitroglycerin	2	10.435	10.437	-0.002	265593	4.00	4.15	
17 2,4,6-Trinitrotoluene	1	10.868	10.864	0.004	83334	0.4000	0.3949	
18 4-Amino-2,6-dinitrotoluene	1	11.022	11.031	-0.009	61147	0.4000	0.3947	
19 2-Amino-4,6-dinitrotoluene	1	11.275	11.277	-0.002	79585	0.4000	0.3951	
20 2,6-Dinitrotoluene	1	11.448	11.451	-0.003	56014	0.4000	0.3924	
21 2,4-Dinitrotoluene	1	11.615	11.617	-0.002	117609	0.4000	0.3964	
22 o-Nitrotoluene	1	12.435	12.437	-0.002	50043	0.4000	0.3913	
23 p-Nitrotoluene	1	12.842	12.844	-0.002	43291	0.4000	0.3869	
24 m-Nitrotoluene	1	13.408	13.411	-0.003	54716	0.4000	0.3895	
25 PETN	2	14.548	14.551	-0.003	274612	4.00	3.99	

QC Flag Legend

Processing Flags
Review Flags
M - Manually Integrated

Reagents:

8330IntermStk_00075 Amount Added: 40.00 Units: uL

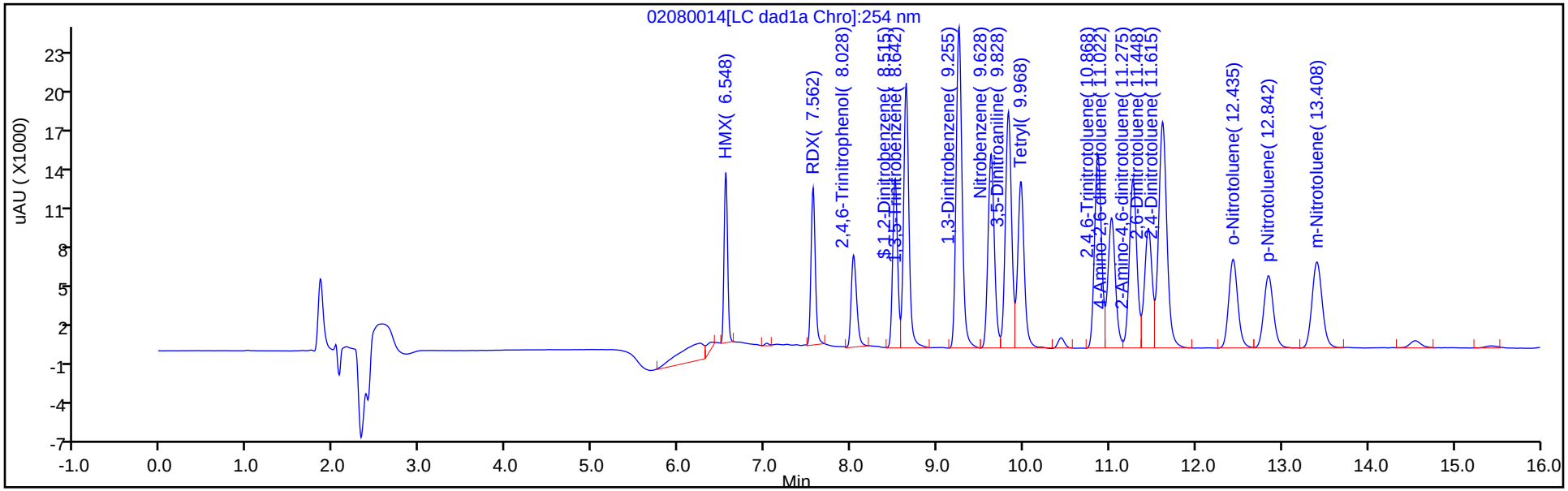
Report Date: 09-Feb-2023 12:48:05 Chrom Revision: 2.3 01-Feb-2023 13:23:06

Eurofins Denver

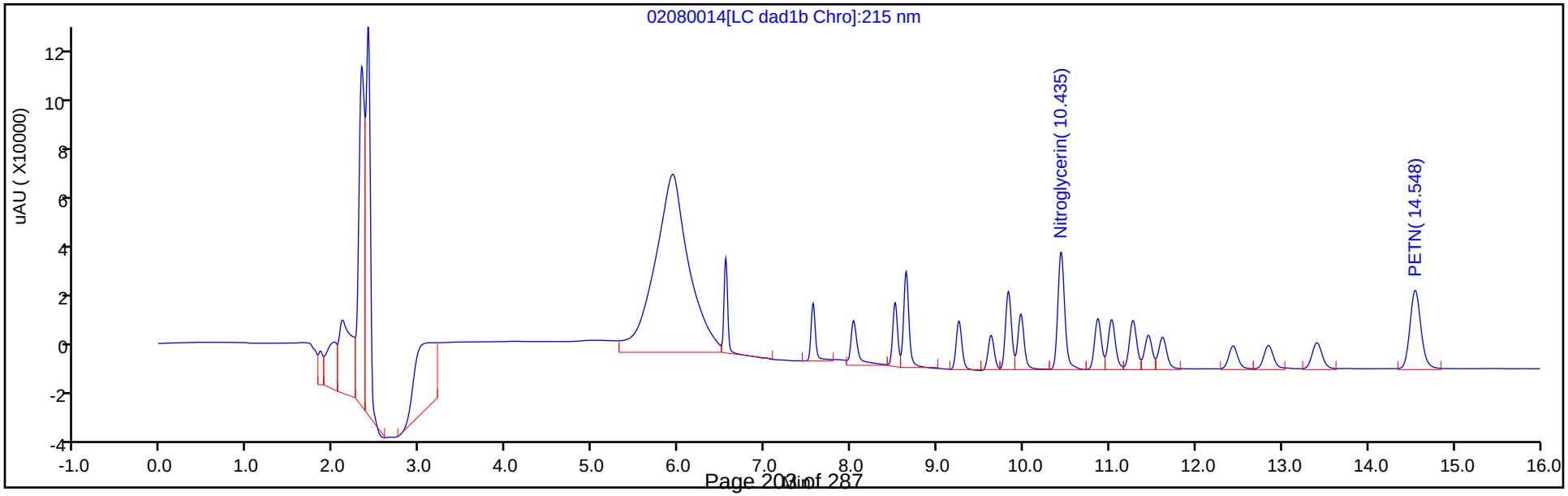
Data File: \\chromfs\denver\chromdata\chhplc_x\20230208-118465.b\02080014.d

Injection Date:	08-Feb-2023 16:47:39	Instrument ID:	CHHPLC_X3	Operator ID:	JZ/MAR
Lims ID:	IC INT 6			Worklist Smp#:	14
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	14
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Manual Integration/User Assign Peak Report

Eurofins Denver

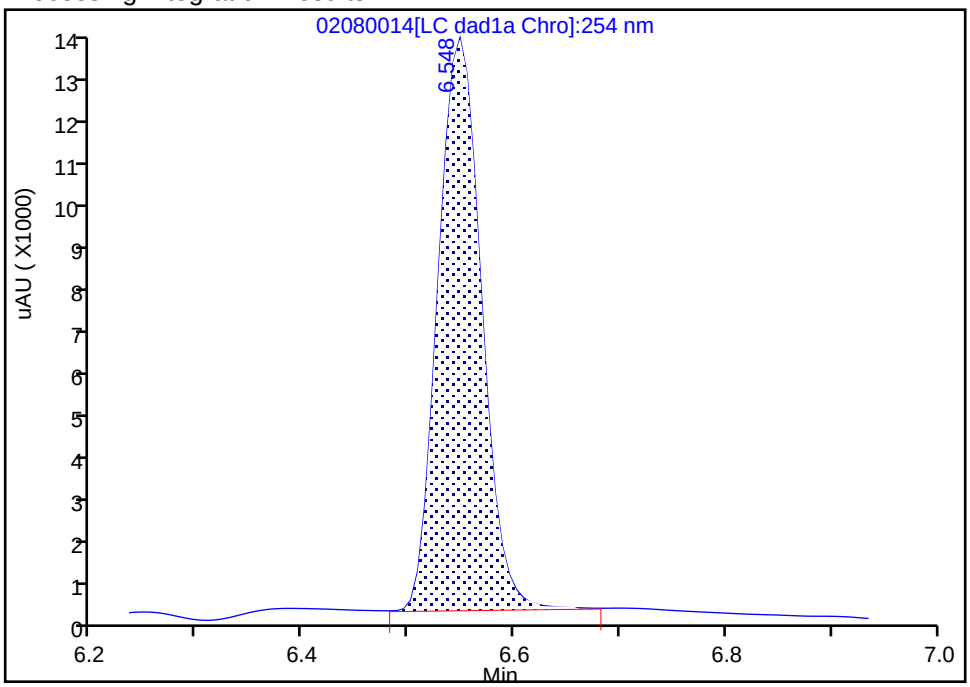
Data File:	\\chromfs\denver\chromdata\chhplc_x\20230208-118465.b\02080014.d				
Injection Date:	08-Feb-2023 16:47:39	Instrument ID:	CHHPLC_X3		
Lims ID:	IC INT 6				
Client ID:					
Operator ID:	JZ/MAR	ALS Bottle#:	14	Worklist Smp#:	14
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

4 HMX, CAS: 2691-41-0

Signal: 1

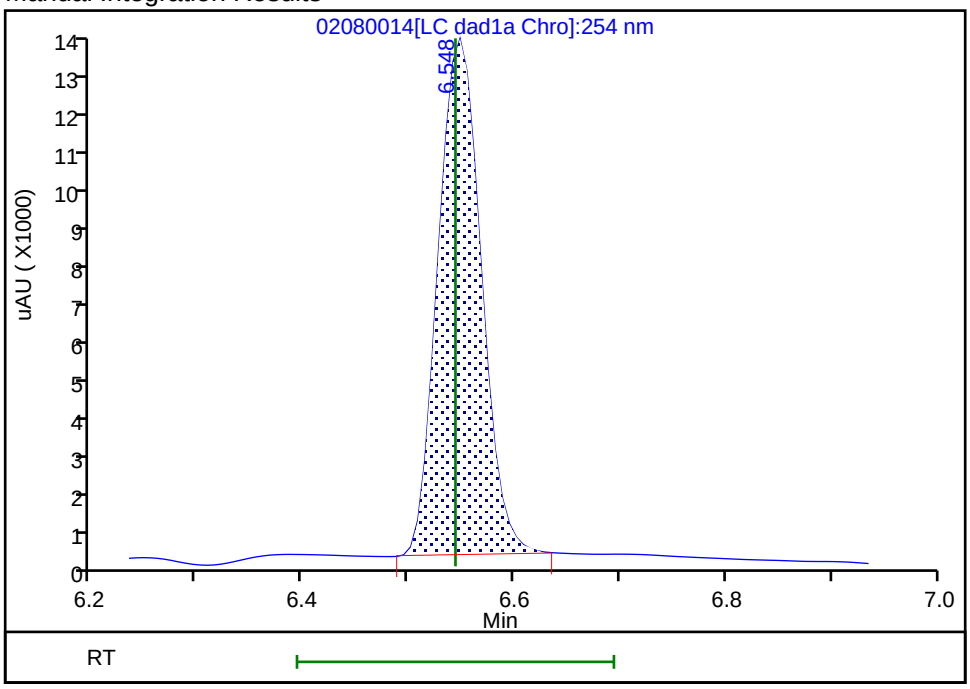
Processing Integration Results

RT: 6.55
Area: 37332
Amount: 0.405878
Amount Units: ug/mL



Manual Integration Results

RT: 6.55
Area: 36852
Amount: 0.394020
Amount Units: ug/mL



Reviewer: LV5D, 08-Feb-2023 17:11:10
Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

Manual Integration/User Assign Peak Report

Eurofins Denver

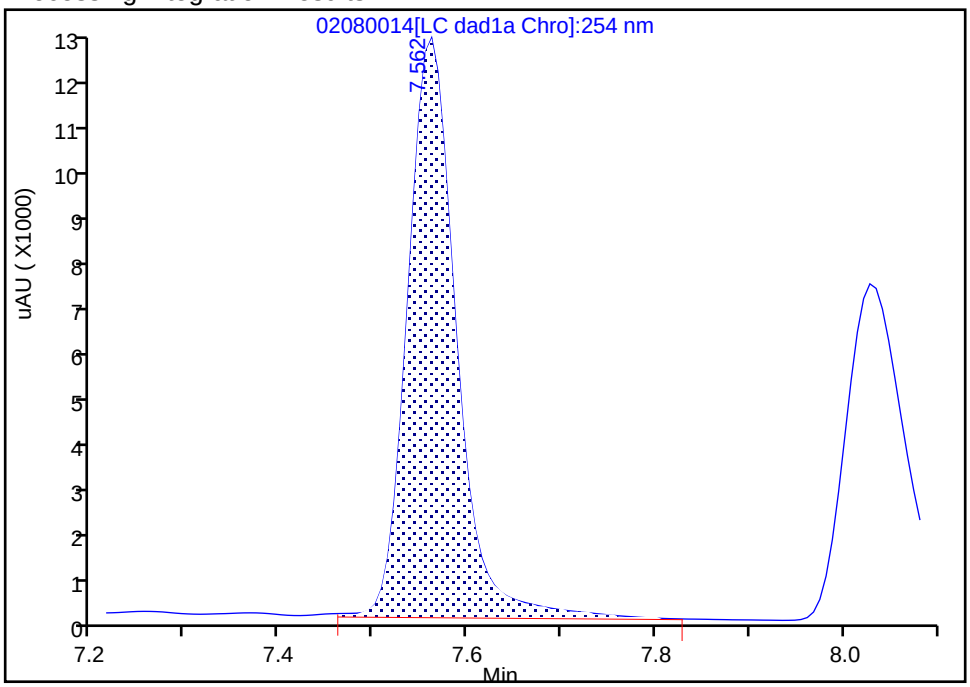
Data File:	\\chromfs\denver\chromdata\chhplc_x\20230208-118465.b\02080014.d				
Injection Date:	08-Feb-2023 16:47:39	Instrument ID:	CHHPLC_X3		
Lims ID:	IC INT 6				
Client ID:					
Operator ID:	JZ/MAR	ALS Bottle#:	14	Worklist Smp#:	14
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

8 RDX, CAS: 121-82-4

Signal: 1

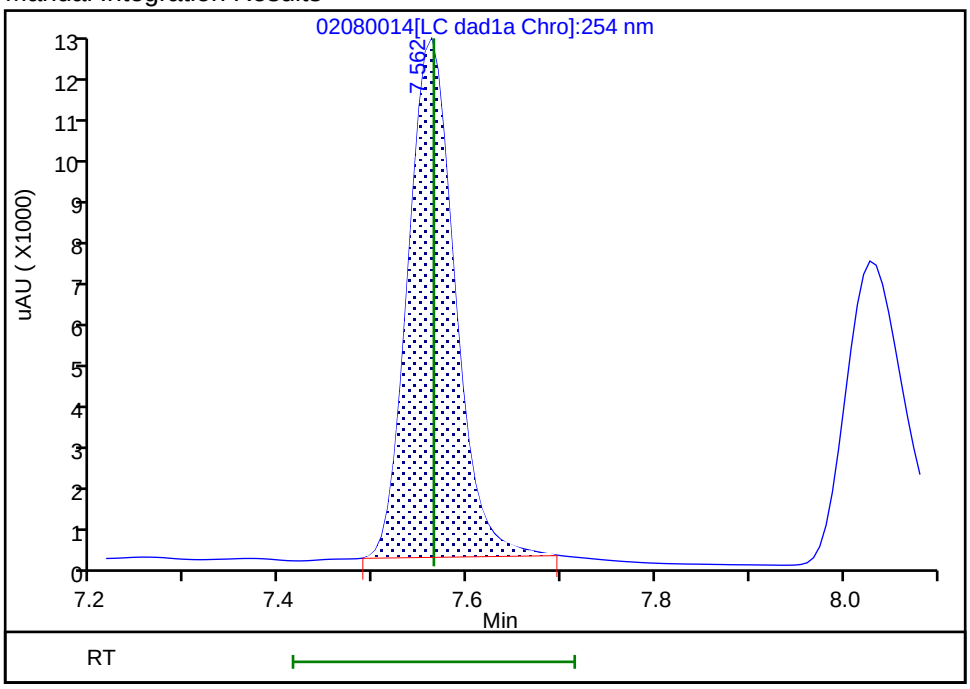
Processing Integration Results

RT: 7.56
Area: 43581
Amount: 0.405322
Amount Units: ug/mL



Manual Integration Results

RT: 7.56
Area: 41299
Amount: 0.388222
Amount Units: ug/mL



Reviewer: LV5D, 08-Feb-2023 19:09:51
Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

Eurofins Denver
Target Compound Quantitation Report

Data File: \\chromfs\Denver\ChromData\CHHPLC_X\20230208-118465.b\02080015.D
Lims ID: IC INT 5
Client ID:
Sample Type: IC Calib Level: 5
Inject. Date: 08-Feb-2023 17:10:30 ALS Bottle#: 15 Worklist Smp#: 15
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: IC INT 5
Operator ID: JZ/MAR Instrument ID: CHHPLC_X3
Sublist: chrom-8330_X3*sub26

Method: \\chromfs\Denver\ChromData\CHHPLC_X\20230208-118465.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 09-Feb-2023 12:48:05 Calib Date: 08-Feb-2023 18:42:13
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromfs\Denver\ChromData\CHHPLC_X\20230208-118465.b\02080019.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX1604

First Level Reviewer: LV5D Date: 08-Feb-2023 17:44:54

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
4 HMX	1	6.548	6.544	0.004	23490	0.2500	0.2512	
8 RDX	1	7.568	7.564	0.004	25542	0.2500	0.2401	M
9 2,4,6-Trinitrophenol	1	8.041	8.044	-0.003	19359	0.2500	0.2553	
$ 10 1,2-Dinitrobenzene	1	8.515	8.517	-0.002	31858	0.2500	0.2522	
11 1,3,5-Trinitrobenzene	1	8.641	8.644	-0.003	54382	0.2500	0.2504	
12 1,3-Dinitrobenzene	1	9.255	9.257	-0.002	74049	0.2500	0.2515	
13 Nitrobenzene	1	9.628	9.631	-0.003	47590	0.2500	0.2488	
14 3,5-Dinitroaniline	1	9.828	9.831	-0.003	57053	0.2500	0.2496	
15 Tetryl	1	9.975	9.977	-0.002	41420	0.2500	0.2524	
16 Nitroglycerin	2	10.441	10.437	0.004	162463	2.50	2.54	
17 2,4,6-Trinitrotoluene	1	10.868	10.864	0.004	52619	0.2500	0.2493	
18 4-Amino-2,6-dinitrotoluene	1	11.028	11.031	-0.003	38221	0.2500	0.2467	
19 2-Amino-4,6-dinitrotoluene	1	11.275	11.277	-0.002	49514	0.2500	0.2458	
20 2,6-Dinitrotoluene	1	11.455	11.451	0.004	35863	0.2500	0.2512	
21 2,4-Dinitrotoluene	1	11.621	11.617	0.004	73263	0.2500	0.2470	
22 o-Nitrotoluene	1	12.441	12.437	0.004	31188	0.2500	0.2439	
23 p-Nitrotoluene	1	12.848	12.844	0.004	27153	0.2500	0.2427	
24 m-Nitrotoluene	1	13.415	13.411	0.004	34323	0.2500	0.2443	
25 PETN	2	14.555	14.551	0.004	171245	2.50	2.49	

QC Flag Legend

Processing Flags
Review Flags
M - Manually Integrated

Reagents:

8330IntermStk_00075 Amount Added: 25.00 Units: uL

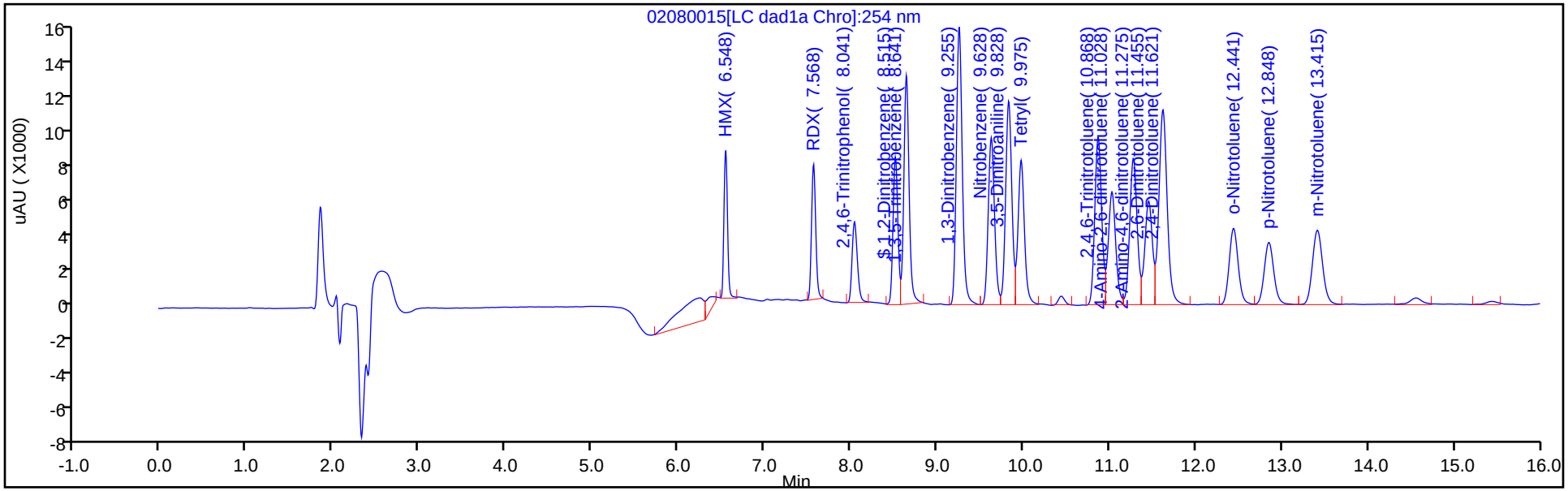
Report Date: 09-Feb-2023 12:48:06 Chrom Revision: 2.3 01-Feb-2023 13:23:06

Eurofins Denver

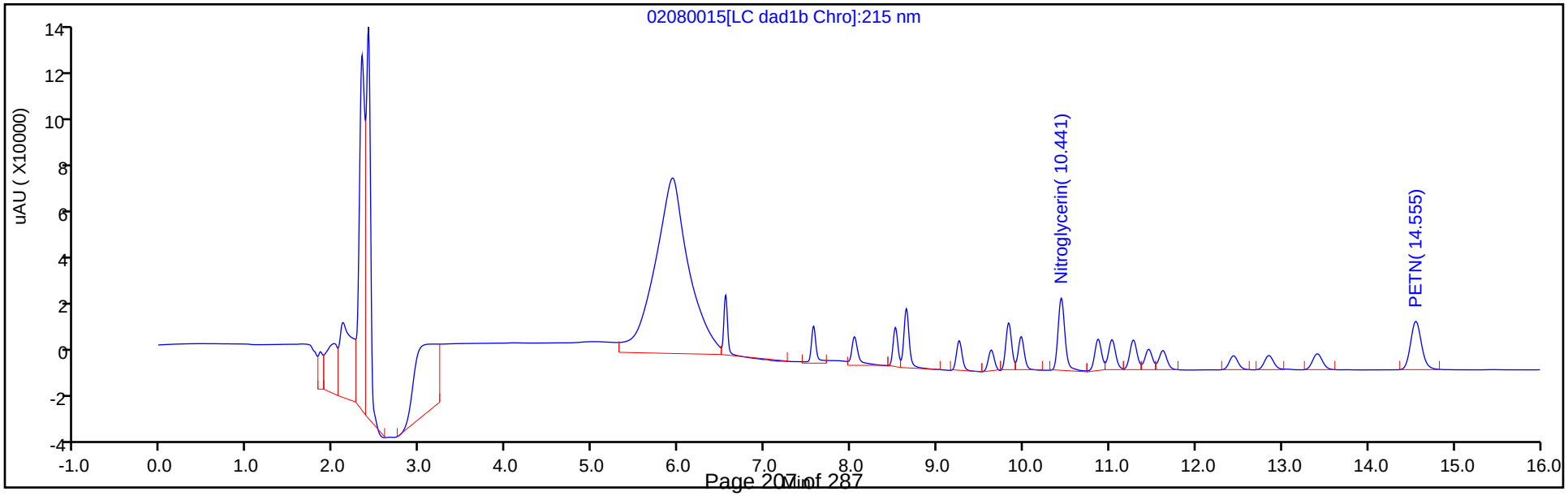
Data File: \\chromfs\denver\chromdata\chhplc_x\20230208-118465.b\02080015.d

Injection Date:	08-Feb-2023 17:10:30	Instrument ID:	CHHPLC_X3	Operator ID:	JZ/MAR
Lims ID:	IC INT 5			Worklist Smp#:	15
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	15
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Manual Integration/User Assign Peak Report

Eurofins Denver

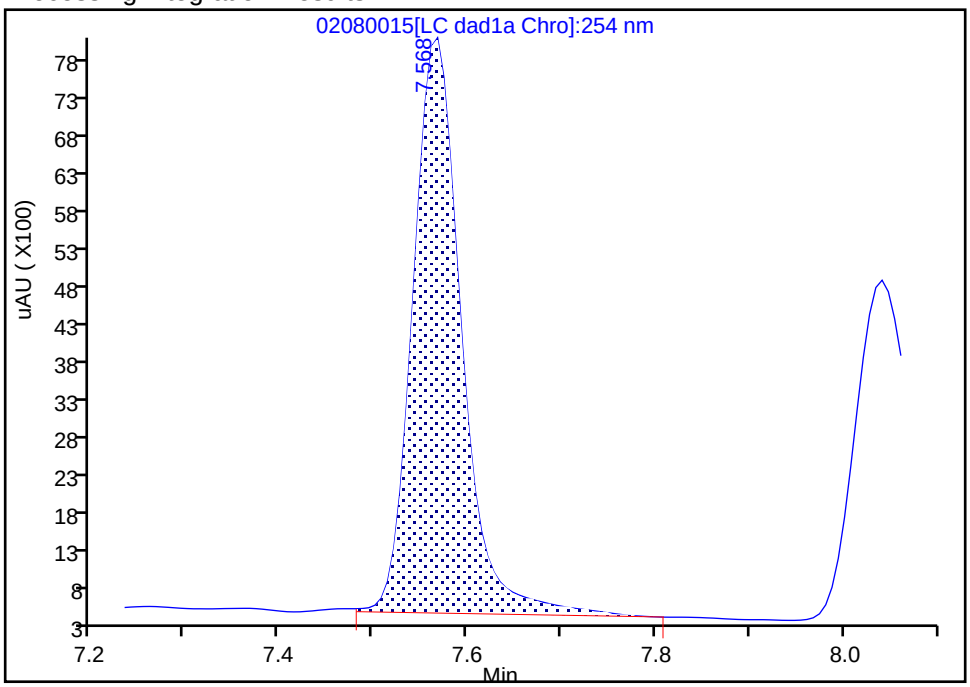
Data File:	\\chromfs\denver\chromdata\chhplc_x\20230208-118465.b\02080015.d				
Injection Date:	08-Feb-2023 17:10:30	Instrument ID:	CHHPLC_X3		
Lims ID:	IC INT 5				
Client ID:					
Operator ID:	JZ/MAR	ALS Bottle#:	15	Worklist Smp#:	15
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

8 RDX, CAS: 121-82-4

Signal: 1

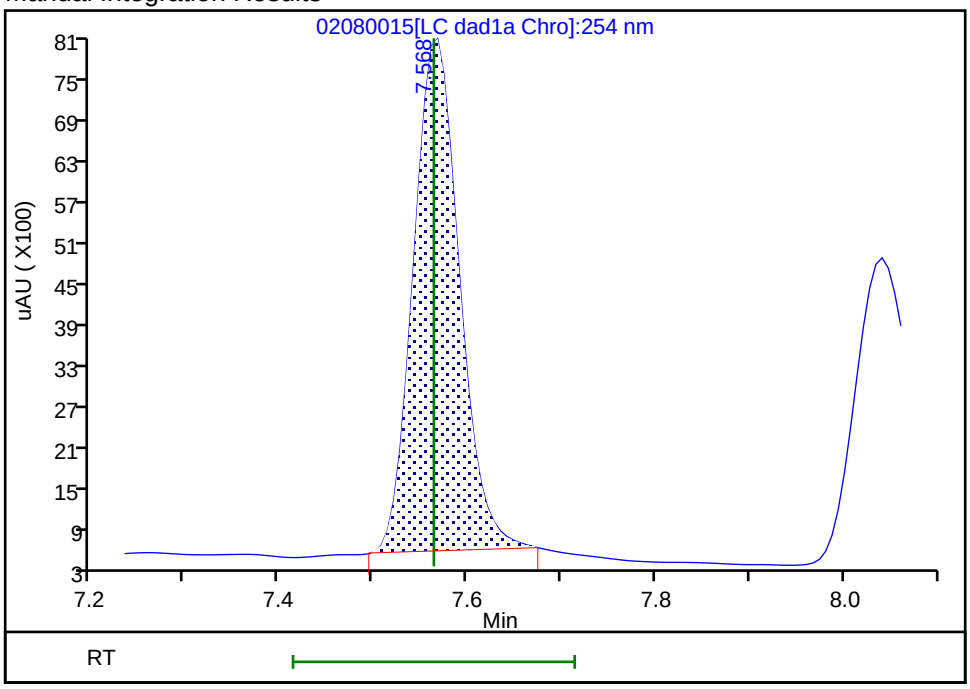
Processing Integration Results

RT: 7.57
Area: 27559
Amount: 0.254192
Amount Units: ug/mL



Manual Integration Results

RT: 7.57
Area: 25542
Amount: 0.240102
Amount Units: ug/mL



Reviewer: LV5D, 08-Feb-2023 19:09:46
Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

Eurofins Denver
Target Compound Quantitation Report

Data File: \\chromfs\Denver\ChromData\CHHPLC_X\20230208-118465.b\02080016.D
Lims ID: IC INT 4
Client ID:
Sample Type: IC Calib Level: 4
Inject. Date: 08-Feb-2023 17:33:25 ALS Bottle#: 16 Worklist Smp#: 16
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: IC INT 4
Operator ID: JZ/MAR Instrument ID: CHHPLC_X3
Sublist: chrom-8330_X3*sub26

Method: \\chromfs\Denver\ChromData\CHHPLC_X\20230208-118465.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 09-Feb-2023 12:48:06 Calib Date: 08-Feb-2023 18:42:13
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromfs\Denver\ChromData\CHHPLC_X\20230208-118465.b\02080019.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX1604

First Level Reviewer: LV5D Date: 08-Feb-2023 18:05:31

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
4 HMX	1	6.544	6.544	0.000	9387	0.1000	0.1004	
8 RDX	1	7.564	7.564	0.000	10112	0.1000	0.0951	M
9 2,4,6-Trinitrophenol	1	8.044	8.044	0.000	7640	0.1000	0.1008	
$ 10 1,2-Dinitrobenzene	1	8.517	8.517	0.000	12727	0.1000	0.1008	
11 1,3,5-Trinitrobenzene	1	8.644	8.644	0.000	21399	0.1000	0.0985	
12 1,3-Dinitrobenzene	1	9.257	9.257	0.000	29249	0.1000	0.0994	
13 Nitrobenzene	1	9.631	9.631	0.000	19019	0.1000	0.0994	
14 3,5-Dinitroaniline	1	9.831	9.831	0.000	22723	0.1000	0.0998	
15 Tetryl	1	9.977	9.977	0.000	16438	0.1000	0.1002	
16 Nitroglycerin	2	10.437	10.437	0.000	63170	1.00	0.9860	
17 2,4,6-Trinitrotoluene	1	10.864	10.864	0.000	20787	0.1000	0.0985	
18 4-Amino-2,6-dinitrotoluene	1	11.031	11.031	0.000	15407	0.1000	0.0994	
19 2-Amino-4,6-dinitrotoluene	1	11.277	11.277	0.000	19765	0.1000	0.0981	
20 2,6-Dinitrotoluene	1	11.451	11.451	0.000	13967	0.1000	0.0978	
21 2,4-Dinitrotoluene	1	11.617	11.617	0.000	29539	0.1000	0.0996	
22 o-Nitrotoluene	1	12.437	12.437	0.000	12548	0.1000	0.0981	
23 p-Nitrotoluene	1	12.844	12.844	0.000	10857	0.1000	0.0970	
24 m-Nitrotoluene	1	13.411	13.411	0.000	13666	0.1000	0.0973	
25 PETN	2	14.551	14.551	0.000	68161	1.00	0.99	M

QC Flag Legend

Processing Flags
Review Flags
M - Manually Integrated

Reagents:

8330IntermStk_00075 Amount Added: 10.00 Units: uL

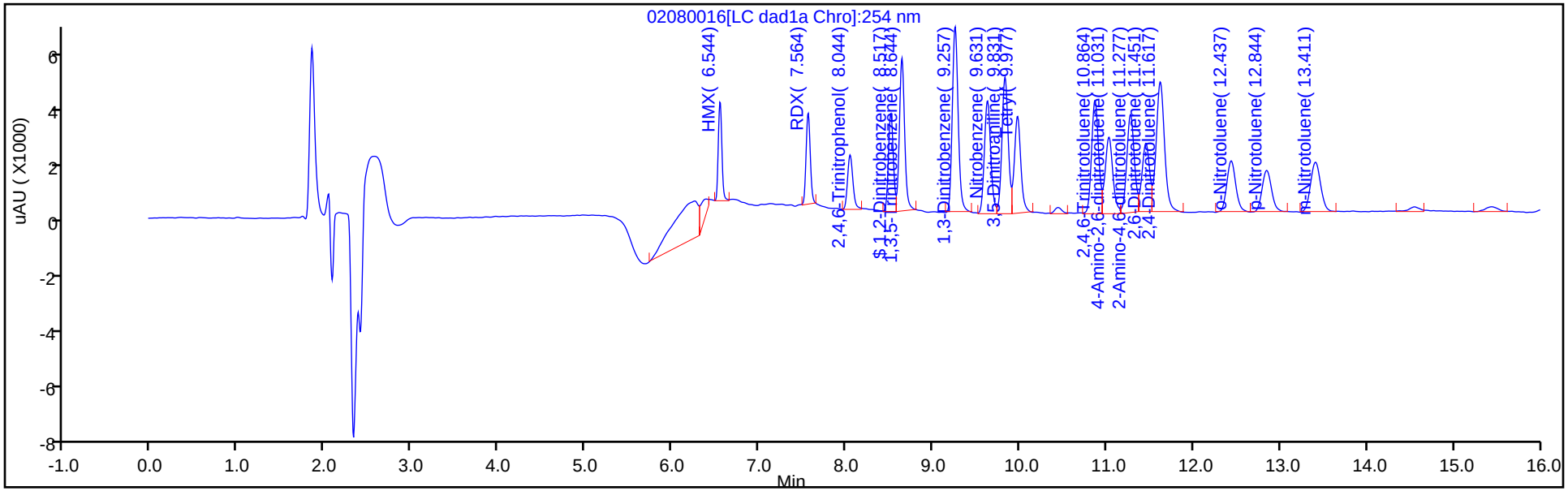
Report Date: 09-Feb-2023 12:48:06 Chrom Revision: 2.3 01-Feb-2023 13:23:06

Eurofins Denver

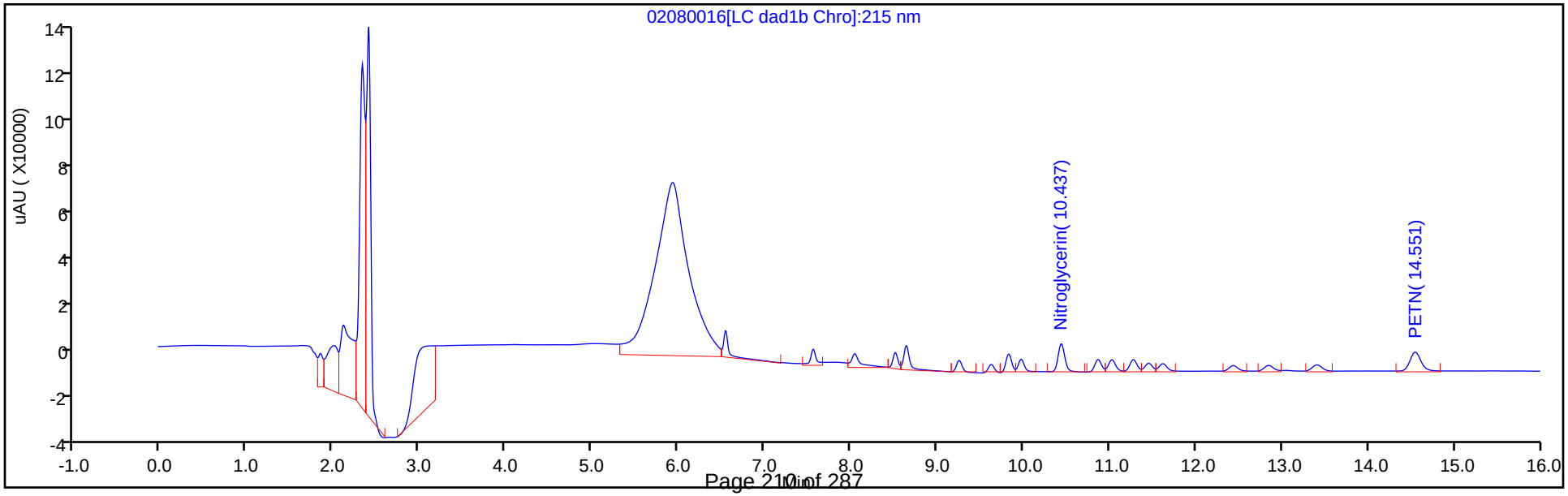
Data File: \\chromfs\denver\chromdata\chhplc_x\20230208-118465.b\02080016.d

Injection Date:	08-Feb-2023 17:33:25	Instrument ID:	CHHPLC_X3	Operator ID:	JZ/MAR
Lims ID:	IC INT 4			Worklist Smp#:	16
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	16
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Manual Integration/User Assign Peak Report

Eurofins Denver

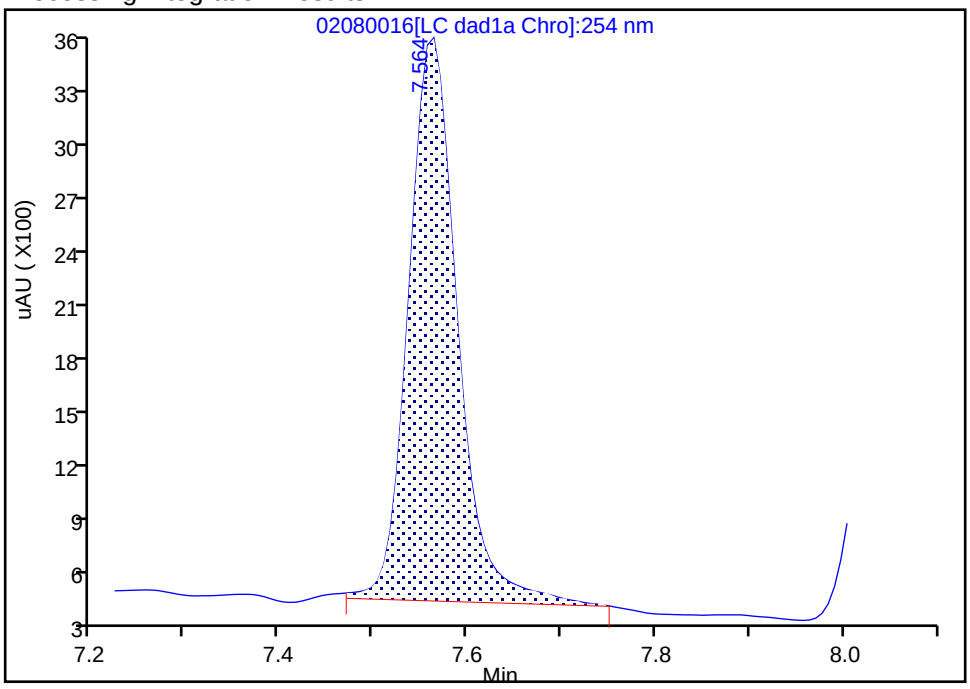
Data File:	\\chromfs\denver\chromdata\chhplc_x\20230208-118465.b\02080016.d				
Injection Date:	08-Feb-2023 17:33:25	Instrument ID:	CHHPLC_X3		
Lims ID:	IC INT 4				
Client ID:					
Operator ID:	JZ/MAR	ALS Bottle#:	16	Worklist Smp#:	16
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

8 RDX, CAS: 121-82-4

Signal: 1

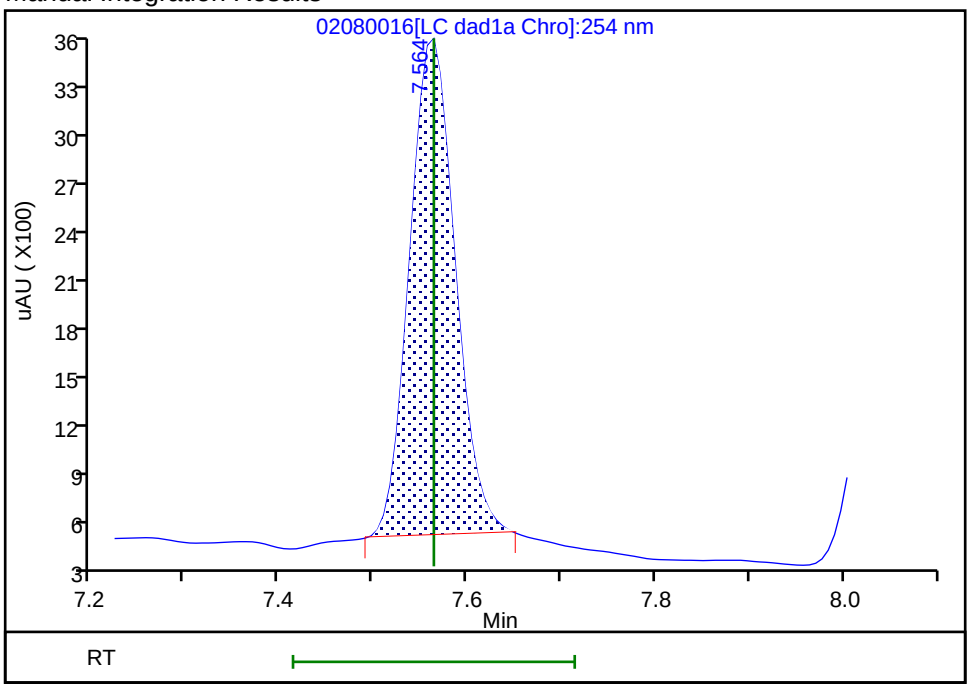
Processing Integration Results

RT: 7.56
Area: 11152
Amount: 0.101776
Amount Units: ug/mL



Manual Integration Results

RT: 7.56
Area: 10112
Amount: 0.095056
Amount Units: ug/mL



Reviewer: LV5D, 08-Feb-2023 19:09:38
Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

Manual Integration/User Assign Peak Report

Eurofins Denver

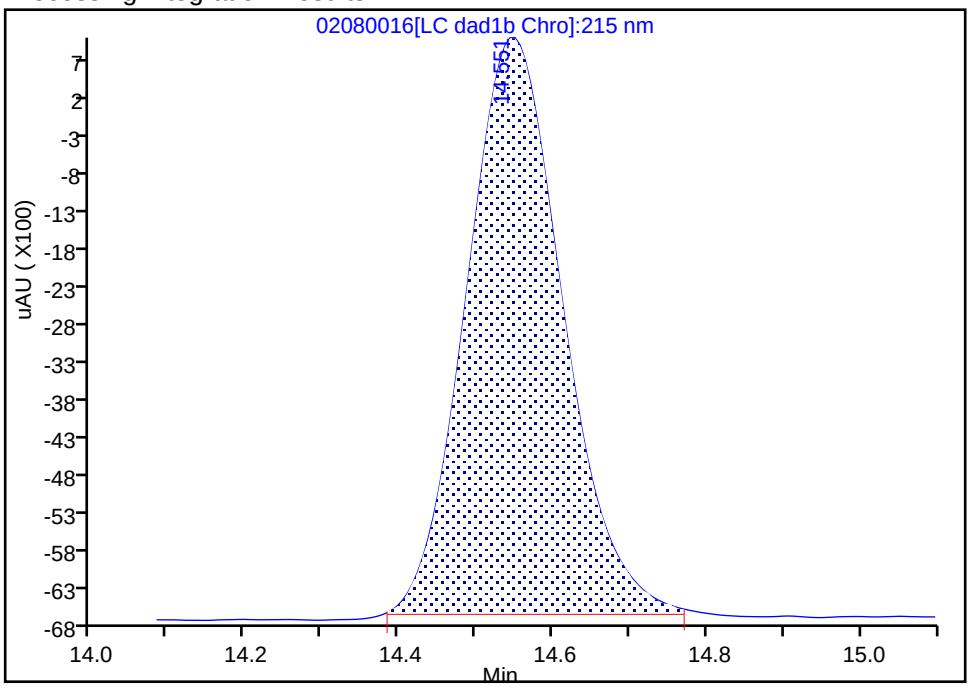
Data File:	\\chromfs\denver\chromdata\chhplc_x\20230208-118465.b\02080016.d				
Injection Date:	08-Feb-2023 17:33:25	Instrument ID:	CHHPLC_X3		
Lims ID:	IC INT 4				
Client ID:					
Operator ID:	JZ/MAR	ALS Bottle#:	16	Worklist Smp#:	16
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1C, 215 nm		

25 PETN, CAS: 78-11-5

Signal: 1

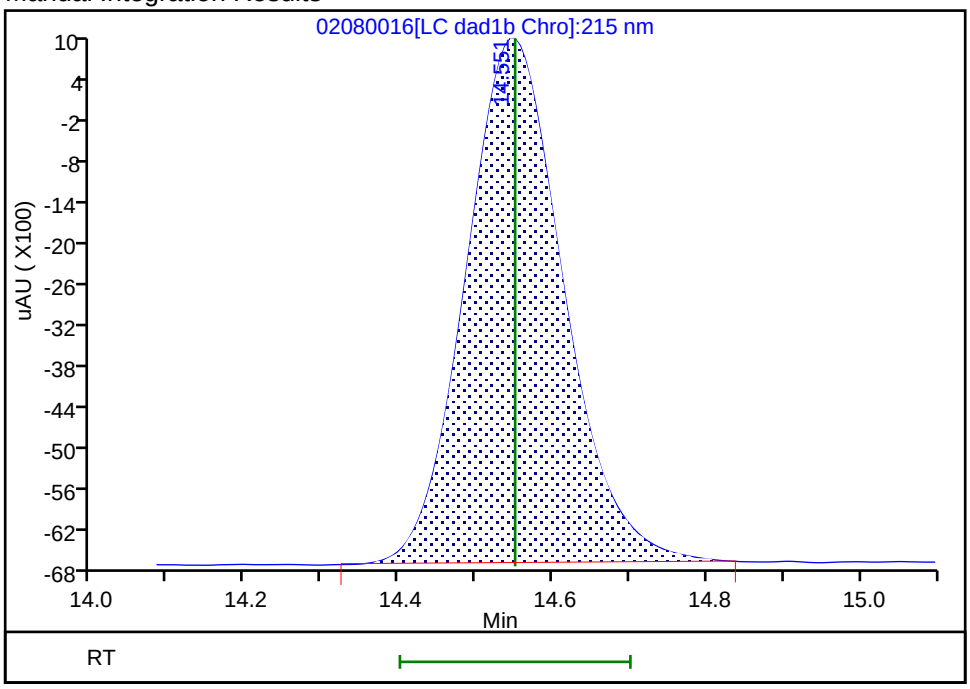
Processing Integration Results

RT: 14.55
Area: 66752
Amount: 0.971802
Amount Units: ug/mL



Manual Integration Results

RT: 14.55
Area: 68161
Amount: 0.990059
Amount Units: ug/mL



Reviewer: LV5D, 08-Feb-2023 19:08:31

Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

Eurofins Denver
Target Compound Quantitation Report

Data File: \\chromfs\Denver\ChromData\CHHPLC_X\20230208-118465.b\02080017.D
Lims ID: IC INT 3
Client ID:
Sample Type: IC Calib Level: 3
Inject. Date: 08-Feb-2023 17:56:21 ALS Bottle#: 17 Worklist Smp#: 17
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: IC INT 3
Operator ID: JZ/MAR Instrument ID: CHHPLC_X3
Sublist: chrom-8330_X3*sub26

Method: \\chromfs\Denver\ChromData\CHHPLC_X\20230208-118465.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 09-Feb-2023 12:48:07 Calib Date: 08-Feb-2023 18:42:13
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromfs\Denver\ChromData\CHHPLC_X\20230208-118465.b\02080019.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX1604

First Level Reviewer: LV5D Date: 08-Feb-2023 19:07:50

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
4 HMX	1	6.547	6.544	0.003	4648	0.0500	0.0497	M
8 RDX	1	7.567	7.564	0.003	5236	0.0500	0.0492	M
9 2,4,6-Trinitrophenol	1	8.047	8.044	0.003	3768	0.0500	0.0497	
$ 10 1,2-Dinitrobenzene	1	8.520	8.517	0.003	6278	0.0500	0.0497	
11 1,3,5-Trinitrobenzene	1	8.647	8.644	0.003	10679	0.0500	0.0492	
12 1,3-Dinitrobenzene	1	9.260	9.257	0.003	14664	0.0500	0.0498	
13 Nitrobenzene	1	9.633	9.631	0.002	9605	0.0500	0.0502	
14 3,5-Dinitroaniline	1	9.840	9.831	0.009	11426	0.0500	0.0505	
15 Tetryl	1	9.987	9.977	0.010	8153	0.0500	0.0497	
16 Nitroglycerin	2	10.453	10.437	0.016	31649	0.5000	0.4940	
17 2,4,6-Trinitrotoluene	1	10.880	10.864	0.016	10708	0.0500	0.0507	
18 4-Amino-2,6-dinitrotoluene	1	11.040	11.031	0.009	7875	0.0500	0.0508	
19 2-Amino-4,6-dinitrotoluene	1	11.293	11.277	0.016	10072	0.0500	0.0500	
20 2,6-Dinitrotoluene	1	11.467	11.451	0.016	7109	0.0500	0.0498	
21 2,4-Dinitrotoluene	1	11.633	11.617	0.016	14872	0.0500	0.0501	
22 o-Nitrotoluene	1	12.453	12.437	0.016	6623	0.0500	0.0518	
23 p-Nitrotoluene	1	12.867	12.844	0.023	5584	0.0500	0.0499	
24 m-Nitrotoluene	1	13.433	13.411	0.022	7096	0.0500	0.0505	
25 PETN	2	14.580	14.551	0.029	34057	0.5000	0.4947	M

QC Flag Legend

Processing Flags
Review Flags
M - Manually Integrated

Reagents:

8330IntermStk_00075 Amount Added: 5.00 Units: uL

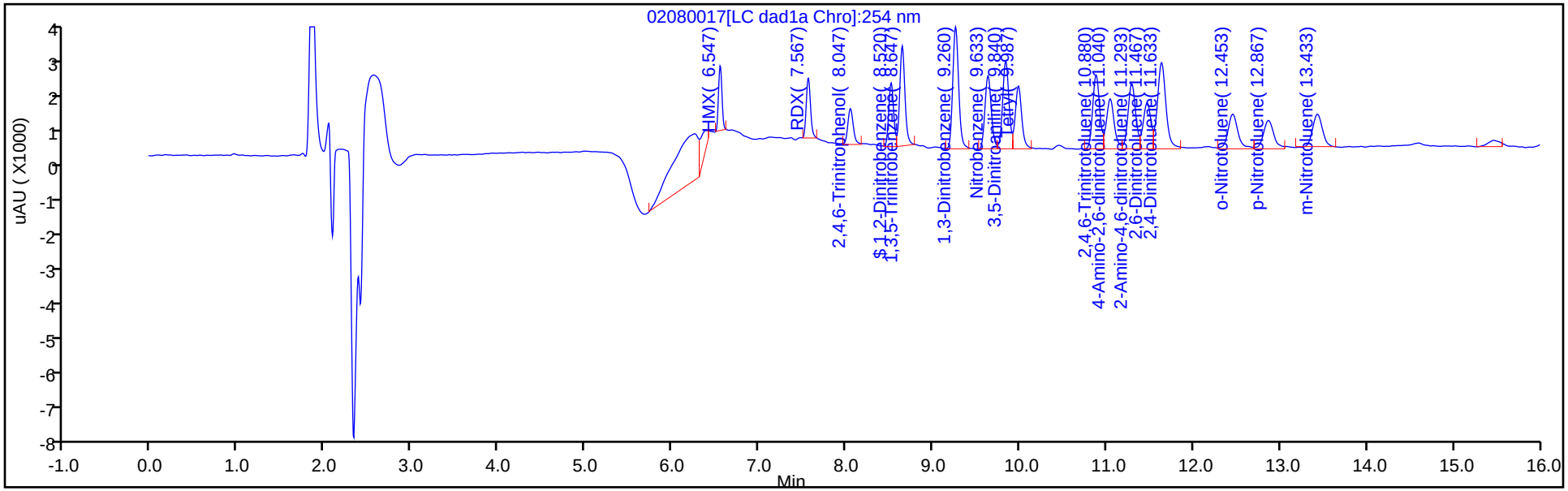
Report Date: 09-Feb-2023 12:48:07 Chrom Revision: 2.3 01-Feb-2023 13:23:06

Eurofins Denver

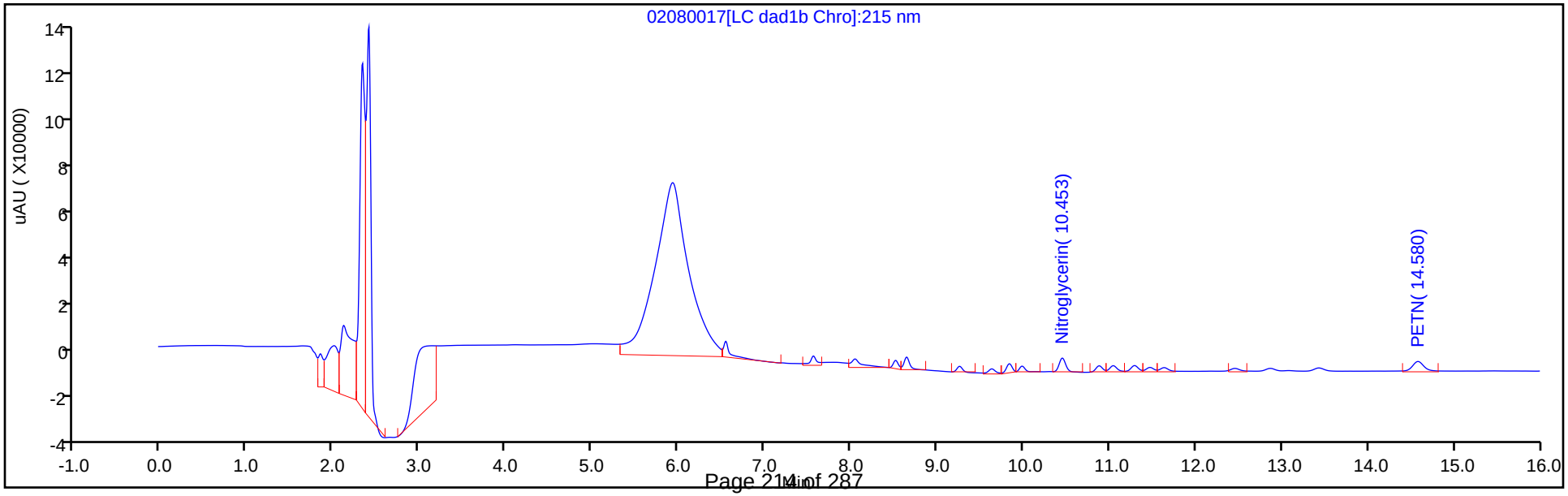
Data File: \\chromfs\denver\chromdata\chhplc_x\20230208-118465.b\02080017.d

Injection Date:	08-Feb-2023 17:56:21	Instrument ID:	CHHPLC_X3	Operator ID:	JZ/MAR
Lims ID:	IC INT 3			Worklist Smp#:	17
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	17
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Manual Integration/User Assign Peak Report

Eurofins Denver

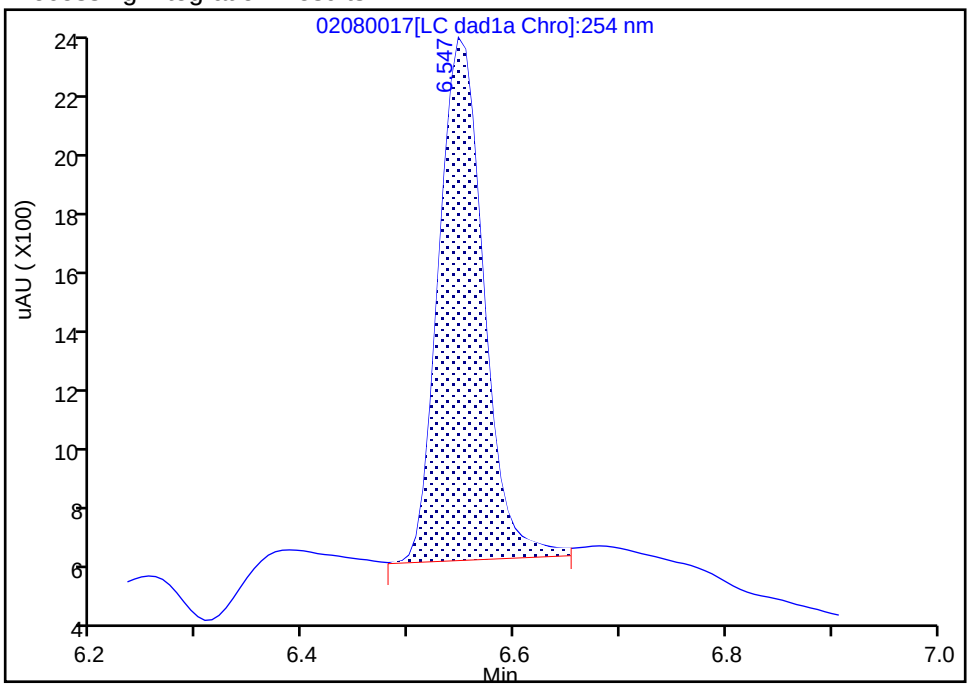
Data File:	\\chromfs\denver\chromdata\chhplc_x\20230208-118465.b\02080017.d				
Injection Date:	08-Feb-2023 17:56:21	Instrument ID:	CHHPLC_X3		
Lims ID:	IC INT 3				
Client ID:					
Operator ID:	JZ/MAR	ALS Bottle#:	17	Worklist Smp#:	17
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

4 HMX, CAS: 2691-41-0

Signal: 1

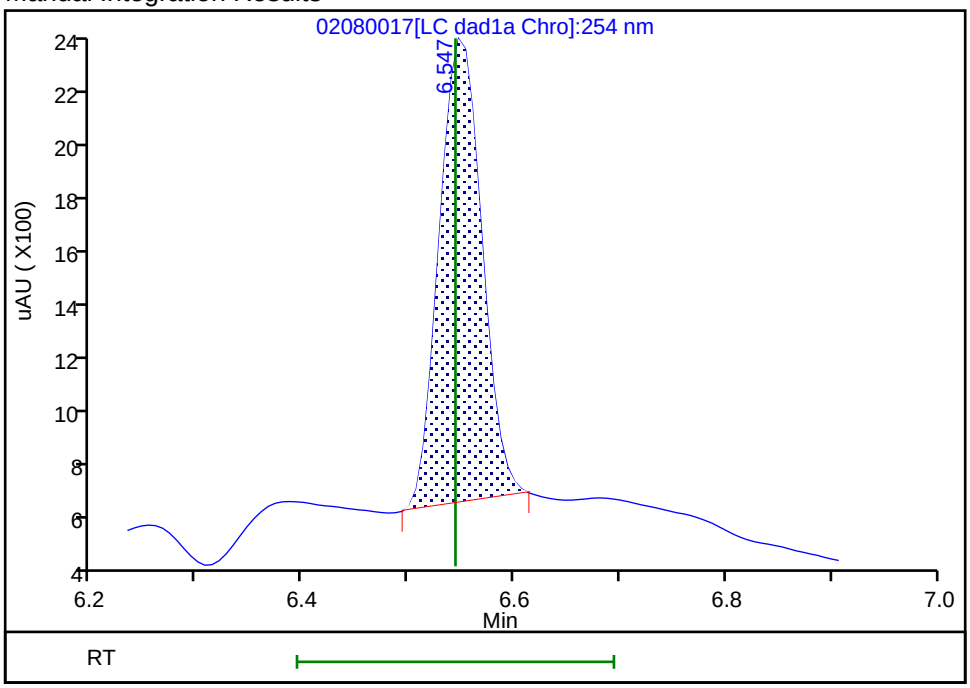
Processing Integration Results

RT: 6.55
Area: 4942
Amount: 0.050700
Amount Units: ug/mL



Manual Integration Results

RT: 6.55
Area: 4648
Amount: 0.049696
Amount Units: ug/mL



Reviewer: LV5D, 08-Feb-2023 19:07:46

Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

Manual Integration/User Assign Peak Report

Eurofins Denver

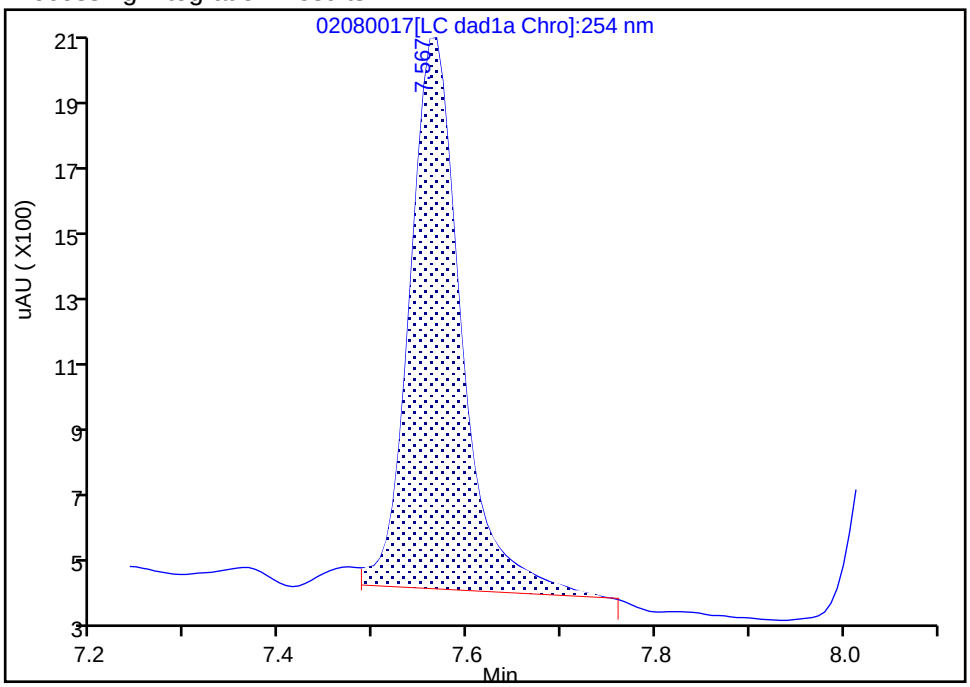
Data File:	\\chromfs\denver\chromdata\chhplc_x\20230208-118465.b\02080017.d				
Injection Date:	08-Feb-2023 17:56:21	Instrument ID:	CHHPLC_X3		
Lims ID:	IC INT 3				
Client ID:					
Operator ID:	JZ/MAR	ALS Bottle#:	17	Worklist Smp#:	17
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

8 RDX, CAS: 121-82-4

Signal: 1

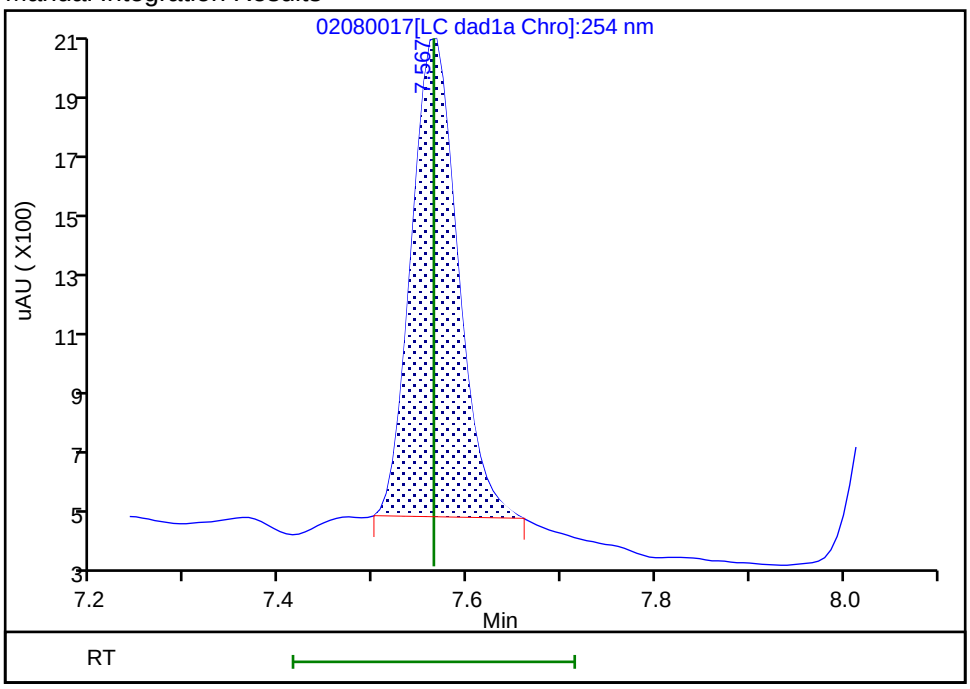
Processing Integration Results

RT: 7.57
Area: 6041
Amount: 0.054246
Amount Units: ug/mL



Manual Integration Results

RT: 7.57
Area: 5236
Amount: 0.049220
Amount Units: ug/mL



Reviewer: LV5D, 08-Feb-2023 19:09:26
Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

Manual Integration/User Assign Peak Report

Eurofins Denver

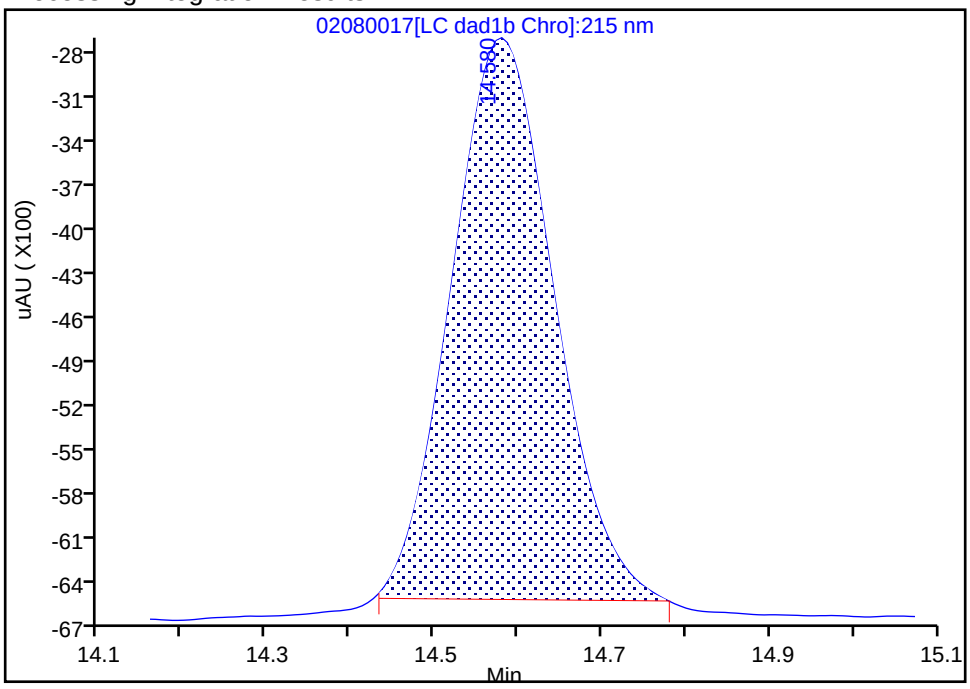
Data File:	\\chromfs\denver\chromdata\chhplc_x\20230208-118465.b\02080017.d				
Injection Date:	08-Feb-2023 17:56:21	Instrument ID:	CHHPLC_X3		
Lims ID:	IC INT 3				
Client ID:					
Operator ID:	JZ/MAR	ALS Bottle#:	17	Worklist Smp#:	17
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1C, 215 nm		

25 PETN, CAS: 78-11-5

Signal: 1

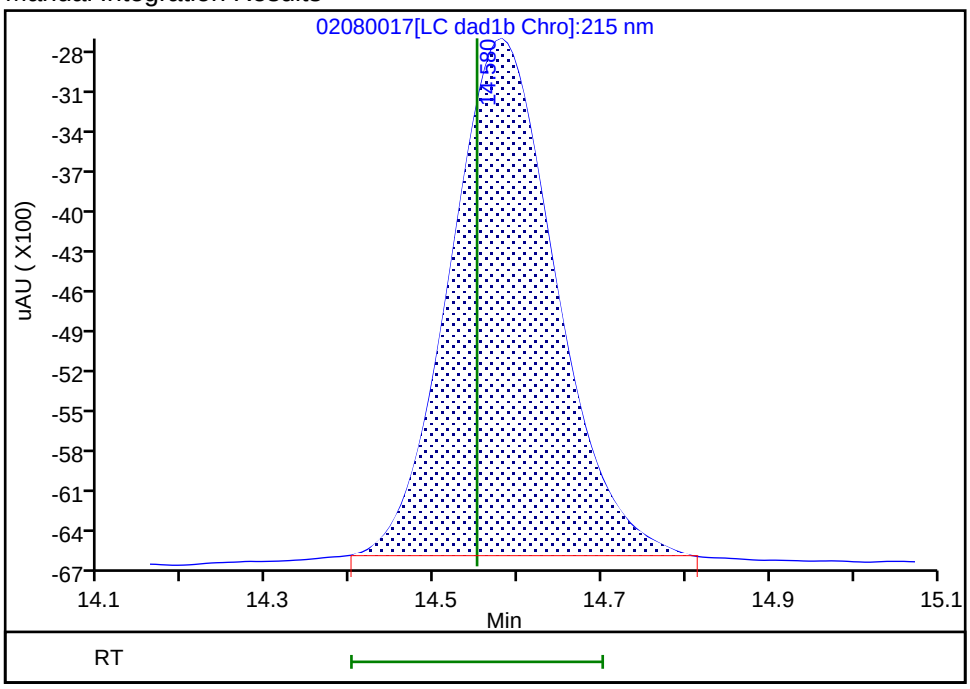
Processing Integration Results

RT: 14.58
Area: 32403
Amount: 0.474274
Amount Units: ug/mL



Manual Integration Results

RT: 14.58
Area: 34057
Amount: 0.494688
Amount Units: ug/mL



Reviewer: LV5D, 08-Feb-2023 19:08:23

Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

Eurofins Denver
Target Compound Quantitation Report

Data File: \\chromfs\Denver\ChromData\CHHPLC_X\20230208-118465.b\02080018.D
Lims ID: IC INT 2
Client ID:
Sample Type: IC Calib Level: 2
Inject. Date: 08-Feb-2023 18:19:14 ALS Bottle#: 18 Worklist Smp#: 18
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: IC INT 2
Operator ID: JZ/MAR Instrument ID: CHHPLC_X3
Sublist: chrom-8330_X3*sub26

Method: \\chromfs\Denver\ChromData\CHHPLC_X\20230208-118465.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 09-Feb-2023 12:48:08 Calib Date: 08-Feb-2023 18:42:13
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromfs\Denver\ChromData\CHHPLC_X\20230208-118465.b\02080019.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX1604

First Level Reviewer: LV5D Date: 08-Feb-2023 19:08:08

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
4 HMX	1	6.549	6.544	0.005	1961	0.0200	0.0210	M
8 RDX	1	7.563	7.564	-0.001	2196	0.0200	0.0206	M
9 2,4,6-Trinitrophenol	1	8.049	8.044	0.005	1492	0.0200	0.0197	
$ 10 1,2-Dinitrobenzene	1	8.516	8.517	-0.001	2491	0.0200	0.0197	
11 1,3,5-Trinitrobenzene	1	8.643	8.644	-0.001	4313	0.0200	0.0199	
12 1,3-Dinitrobenzene	1	9.256	9.257	-0.001	5849	0.0200	0.0199	
13 Nitrobenzene	1	9.636	9.631	0.005	3816	0.0200	0.0200	
14 3,5-Dinitroaniline	1	9.836	9.831	0.005	4377	0.0200	0.0198	
15 Tetryl	1	9.982	9.977	0.005	3073	0.0200	0.0187	
16 Nitroglycerin	2	10.449	10.437	0.012	11879	0.2000	0.1854	
17 2,4,6-Trinitrotoluene	1	10.876	10.864	0.012	4262	0.0200	0.0202	
18 4-Amino-2,6-dinitrotoluene	1	11.042	11.031	0.011	3106	0.0200	0.0200	
19 2-Amino-4,6-dinitrotoluene	1	11.289	11.277	0.012	4021	0.0200	0.0200	
20 2,6-Dinitrotoluene	1	11.469	11.451	0.018	2911	0.0200	0.0204	
21 2,4-Dinitrotoluene	1	11.636	11.617	0.019	5985	0.0200	0.0202	
22 o-Nitrotoluene	1	12.456	12.437	0.019	2611	0.0200	0.0204	
23 p-Nitrotoluene	1	12.869	12.844	0.025	2393	0.0200	0.0214	
24 m-Nitrotoluene	1	13.442	13.411	0.031	3062	0.0200	0.0218	
25 PETN	2	14.589	14.551	0.038	13462	0.2000	0.1955	M

QC Flag Legend

Processing Flags
Review Flags
M - Manually Integrated

Reagents:

8330IntermStk_00075 Amount Added: 2.00 Units: uL

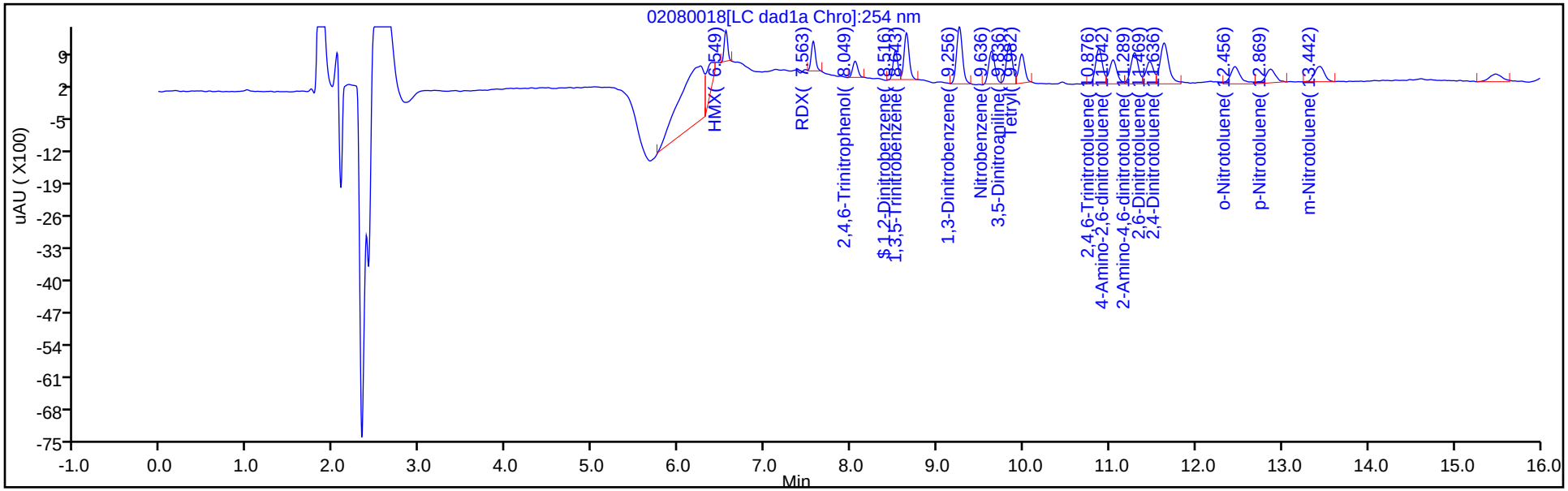
Report Date: 09-Feb-2023 12:48:08 Chrom Revision: 2.3 01-Feb-2023 13:23:06

Eurofins Denver

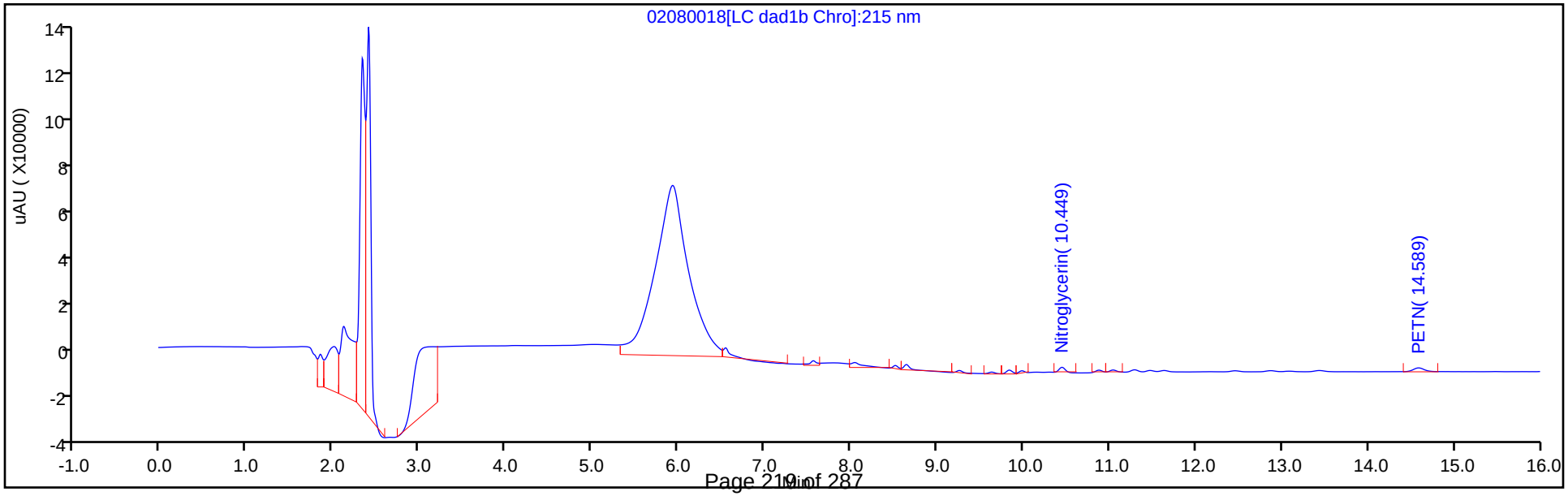
Data File: \\chromfs\denver\chromdata\chhplc_x\20230208-118465.b\02080018.d

Injection Date:	08-Feb-2023 18:19:14	Instrument ID:	CHHPLC_X3	Operator ID:	JZ/MAR
Lims ID:	IC INT 2			Worklist Smp#:	18
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	18
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Manual Integration/User Assign Peak Report

Eurofins Denver

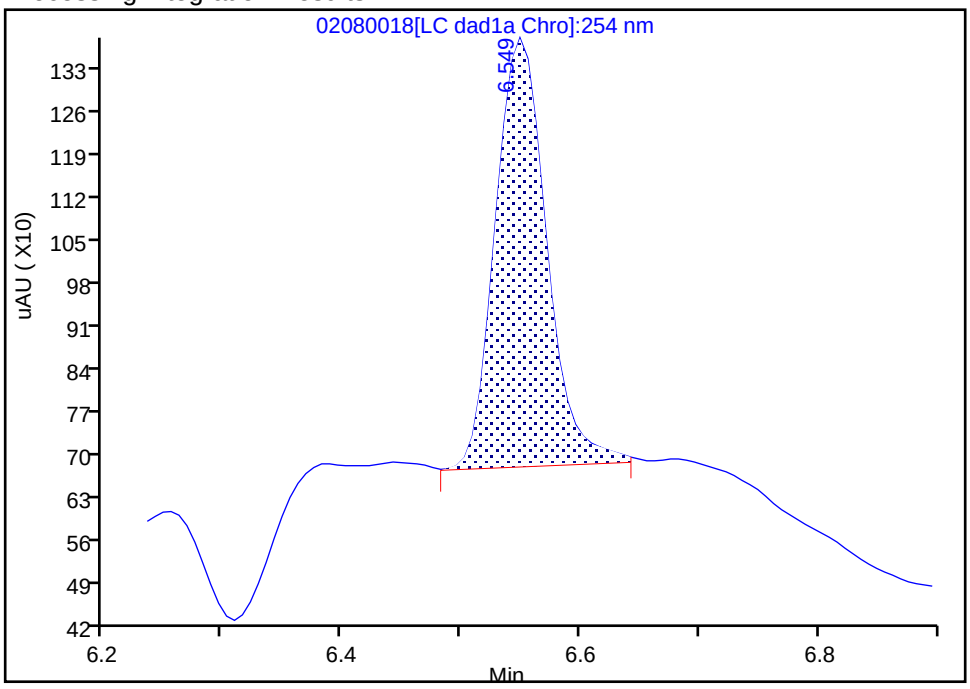
Data File:	\\chromfs\denver\chromdata\chhplc_x\20230208-118465.b\02080018.d				
Injection Date:	08-Feb-2023 18:19:14	Instrument ID:	CHHPLC_X3		
Lims ID:	IC INT 2				
Client ID:					
Operator ID:	JZ/MAR	ALS Bottle#:	18	Worklist Smp#:	18
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

4 HMX, CAS: 2691-41-0

Signal: 1

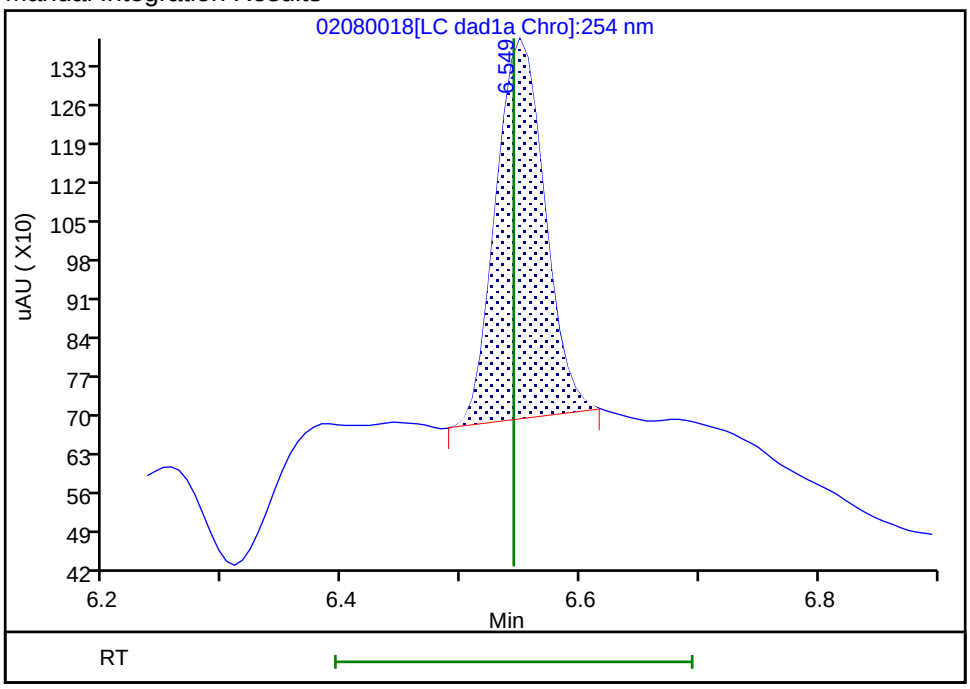
Processing Integration Results

RT: 6.55
Area: 2102
Amount: 0.022288
Amount Units: ug/mL



Manual Integration Results

RT: 6.55
Area: 1961
Amount: 0.020967
Amount Units: ug/mL



Reviewer: LV5D, 08-Feb-2023 19:09:07
Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

Manual Integration/User Assign Peak Report

Eurofins Denver

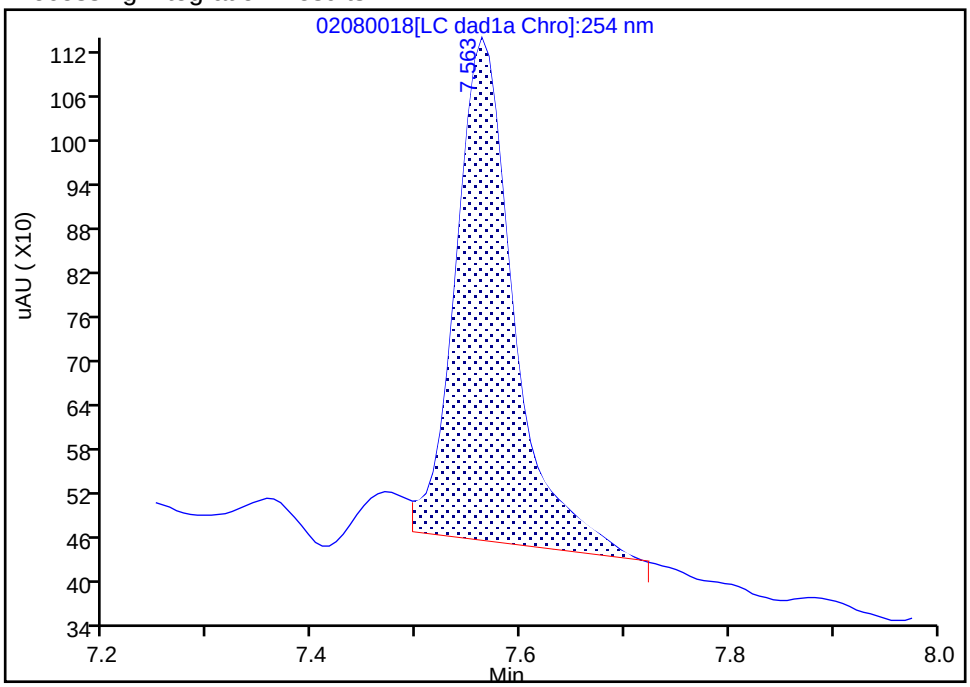
Data File:	\\chromfs\denver\chromdata\chhplc_x\20230208-118465.b\02080018.d				
Injection Date:	08-Feb-2023 18:19:14	Instrument ID:	CHHPLC_X3		
Lims ID:	IC INT 2				
Client ID:					
Operator ID:	JZ/MAR	ALS Bottle#:	18	Worklist Smp#:	18
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

8 RDX, CAS: 121-82-4

Signal: 1

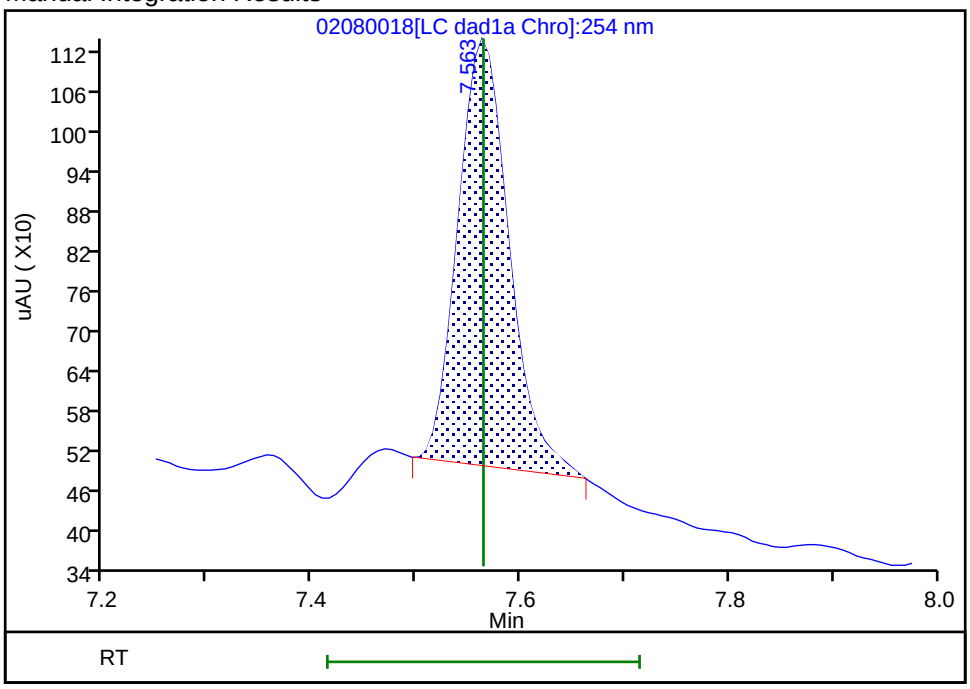
Processing Integration Results

RT: 7.56
Area: 2668
Amount: 0.023407
Amount Units: ug/mL



Manual Integration Results

RT: 7.56
Area: 2196
Amount: 0.020643
Amount Units: ug/mL



Reviewer: LV5D, 08-Feb-2023 19:09:19
Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

Manual Integration/User Assign Peak Report

Eurofins Denver

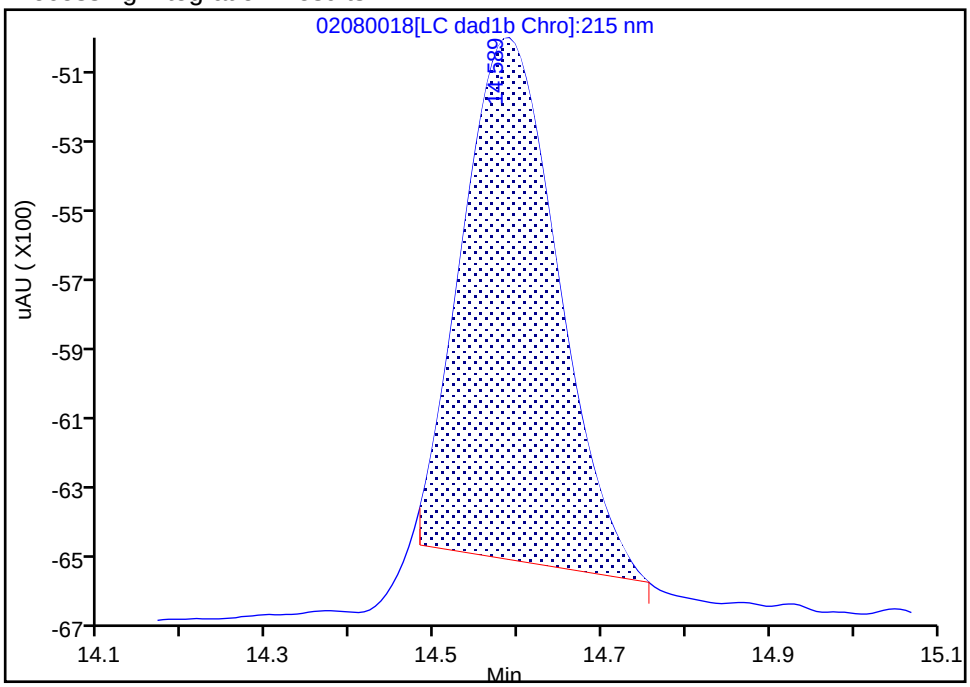
Data File: \\chromfs\denver\chromdata\chhplc_x\20230208-118465.b\02080018.d
Injection Date: 08-Feb-2023 18:19:14 Instrument ID: CHHPLC_X3
Lims ID: IC INT 2
Client ID:
Operator ID: JZ/MAR ALS Bottle#: 18 Worklist Smp#: 18
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Method: 8330_X3 Limit Group: GCSV - 8330
Column: UltraCarb5uODS (20) (4.60 mm) Detector LC DAD1C, 215 nm

25 PETN, CAS: 78-11-5

Signal: 1

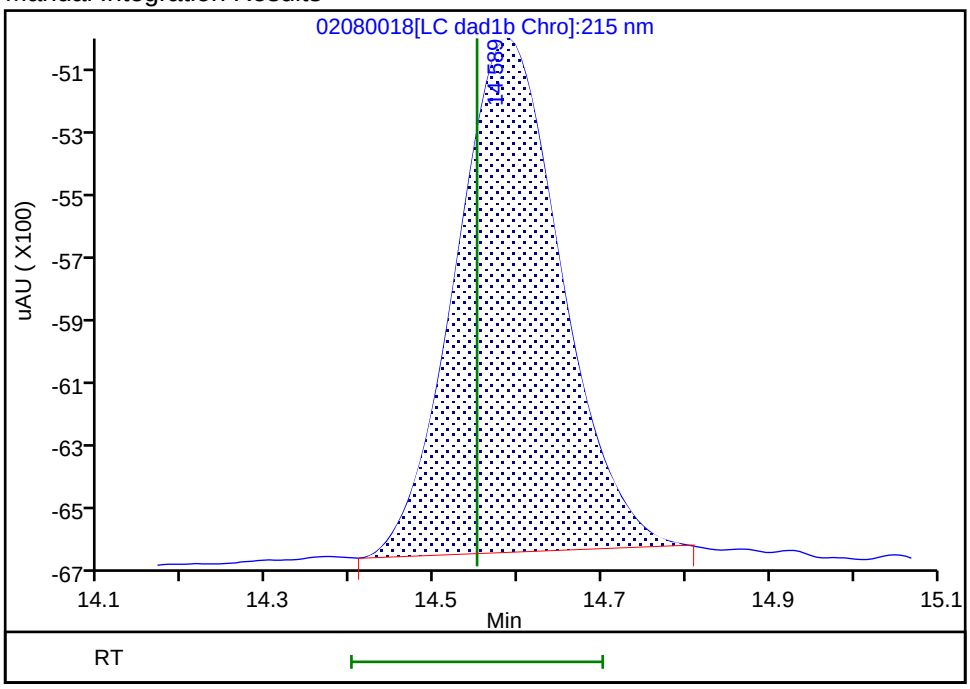
Processing Integration Results

RT: 14.59
Area: 11186
Amount: 0.166814
Amount Units: ug/mL



Manual Integration Results

RT: 14.59
Area: 13462
Amount: 0.195540
Amount Units: ug/mL



Reviewer: LV5D, 08-Feb-2023 19:08:19
Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

Eurofins Denver
Target Compound Quantitation Report

Data File: \\chromfs\Denver\ChromData\CHHPLC_X\20230208-118465.b\02080019.D
Lims ID: IC INT 1
Client ID:
Sample Type: IC Calib Level: 1
Inject. Date: 08-Feb-2023 18:42:13 ALS Bottle#: 19 Worklist Smp#: 19
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: IC INT 1
Operator ID: JZ/MAR Instrument ID: CHHPLC_X3
Sublist: chrom-8330_X3*sub26

Method: \\chromfs\Denver\ChromData\CHHPLC_X\20230208-118465.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 09-Feb-2023 12:48:08 Calib Date: 08-Feb-2023 18:42:13
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromfs\Denver\ChromData\CHHPLC_X\20230208-118465.b\02080019.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX1604

First Level Reviewer: LV5D Date: 08-Feb-2023 19:08:17

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
4 HMX	1	6.550	6.544	0.006	962	0.0100	0.0103	M
8 RDX	1	7.563	7.564	-0.001	1203	0.0100	0.0113	M
9 2,4,6-Trinitrophenol	1	8.050	8.044	0.006	673	0.0100	0.008875	
$ 10 1,2-Dinitrobenzene	1	8.517	8.517	0.000	1188	0.0100	0.009406	
11 1,3,5-Trinitrobenzene	1	8.643	8.644	-0.001	2196	0.0100	0.0101	
12 1,3-Dinitrobenzene	1	9.263	9.257	0.006	2902	0.0100	0.009857	
13 Nitrobenzene	1	9.636	9.631	0.005	1905	0.0100	0.0100	
14 3,5-Dinitroaniline	1	9.836	9.831	0.005	2147	0.0100	0.0100	
15 Tetryl	1	9.983	9.977	0.006	1611	0.0100	0.009816	
16 Nitroglycerin	2	10.450	10.437	0.013	6159	0.1000	0.0961	
17 2,4,6-Trinitrotoluene	1	10.876	10.864	0.012	2167	0.0100	0.0103	
18 4-Amino-2,6-dinitrotoluene	1	11.043	11.031	0.012	1670	0.0100	0.0108	
19 2-Amino-4,6-dinitrotoluene	1	11.296	11.277	0.019	2214	0.0100	0.0110	
20 2,6-Dinitrotoluene	1	11.470	11.451	0.019	1486	0.0100	0.0104	
21 2,4-Dinitrotoluene	1	11.636	11.617	0.019	3141	0.0100	0.0106	
22 o-Nitrotoluene	1	12.456	12.437	0.019	1377	0.0100	0.0108	
23 p-Nitrotoluene	1	12.863	12.844	0.019	1263	0.0100	0.0113	
24 m-Nitrotoluene	1	13.430	13.411	0.019	1473	0.0100	0.0105	
25 PETN	2	14.583	14.551	0.032	7273	0.1000	0.1056	M

QC Flag Legend

Processing Flags
Review Flags
M - Manually Integrated

Reagents:

8330IntermStk_00075 Amount Added: 1.00 Units: uL

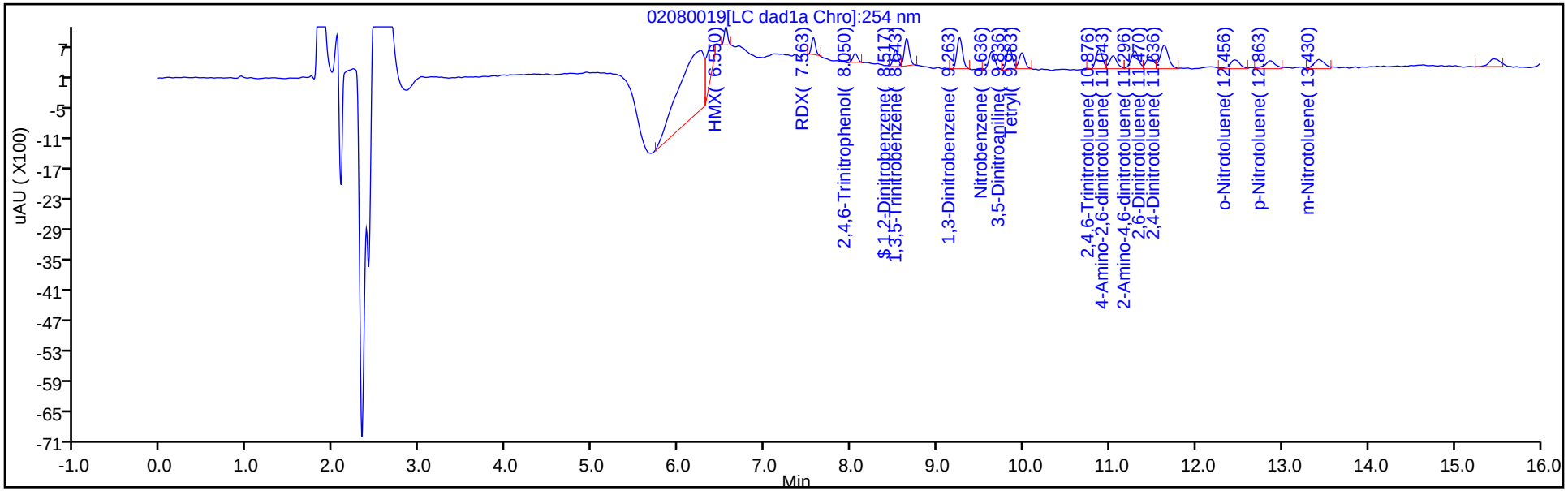
Report Date: 09-Feb-2023 12:48:08 Chrom Revision: 2.3 01-Feb-2023 13:23:06

Eurofins Denver

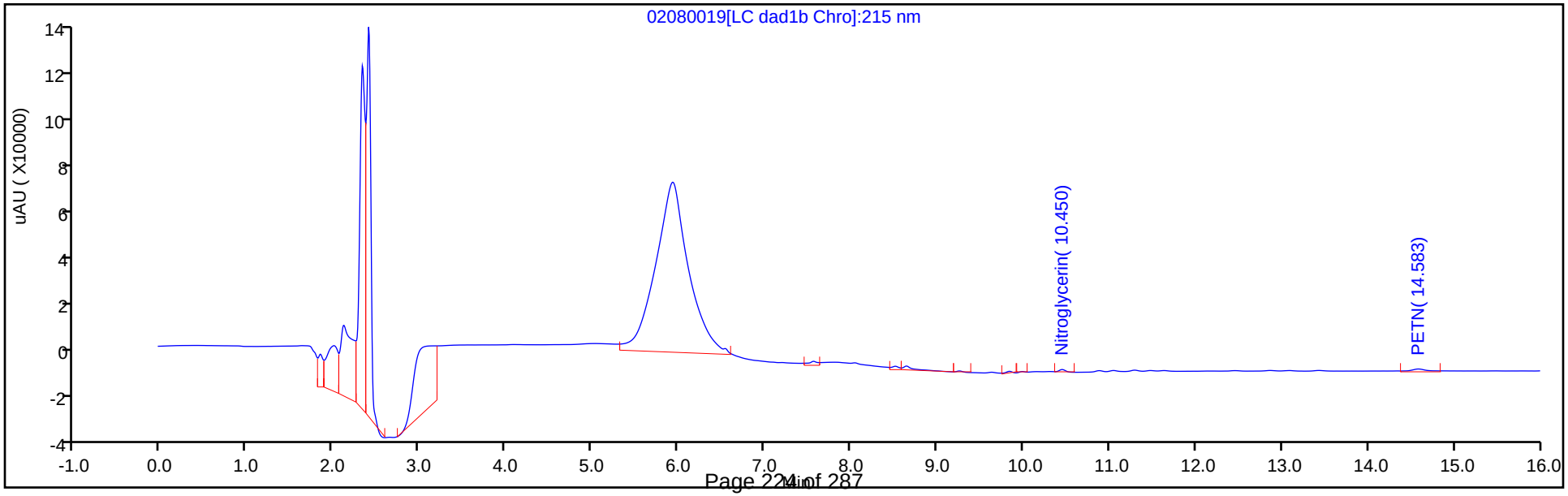
Data File: \\chromfs\denver\chromdata\chhplc_x\20230208-118465.b\02080019.d

Injection Date:	08-Feb-2023 18:42:13	Instrument ID:	CHHPLC_X3	Operator ID:	JZ/MAR
Lims ID:	IC INT 1			Worklist Smp#:	19
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	19
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Manual Integration/User Assign Peak Report

Eurofins Denver

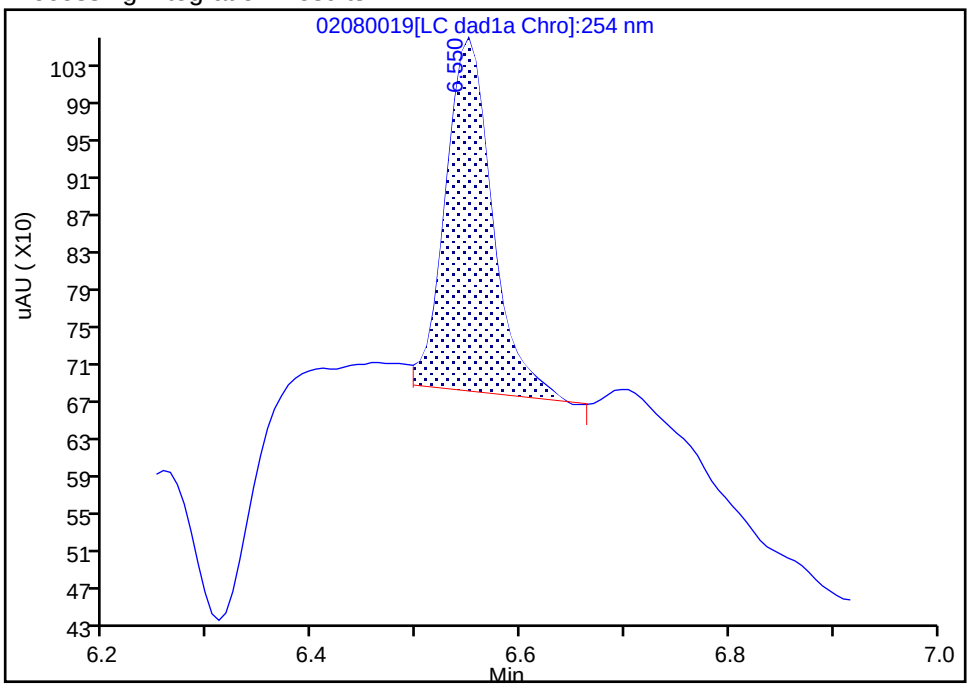
Data File:	\\chromfs\denver\chromdata\chhplc_x\20230208-118465.b\02080019.d				
Injection Date:	08-Feb-2023 18:42:13	Instrument ID:	CHHPLC_X3		
Lims ID:	IC INT 1				
Client ID:					
Operator ID:	JZ/MAR	ALS Bottle#:	19	Worklist Smp#:	19
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

4 HMX, CAS: 2691-41-0

Signal: 1

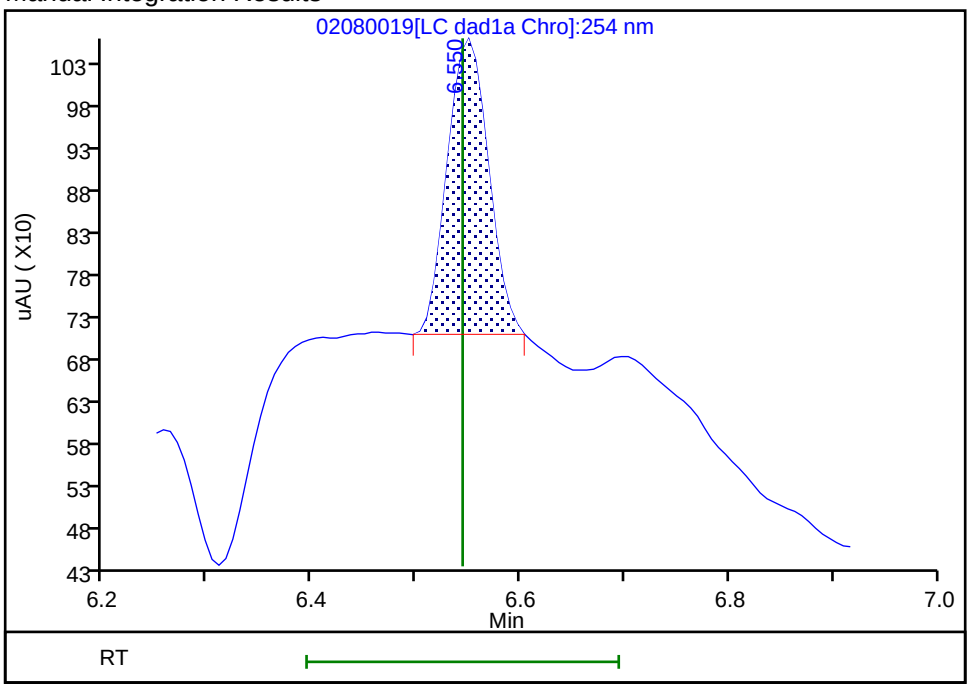
Processing Integration Results

RT: 6.55
Area: 1188
Amount: 0.012270
Amount Units: ug/mL



Manual Integration Results

RT: 6.55
Area: 962
Amount: 0.010286
Amount Units: ug/mL



Reviewer: LV5D, 08-Feb-2023 19:09:00
Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

Manual Integration/User Assign Peak Report

Eurofins Denver

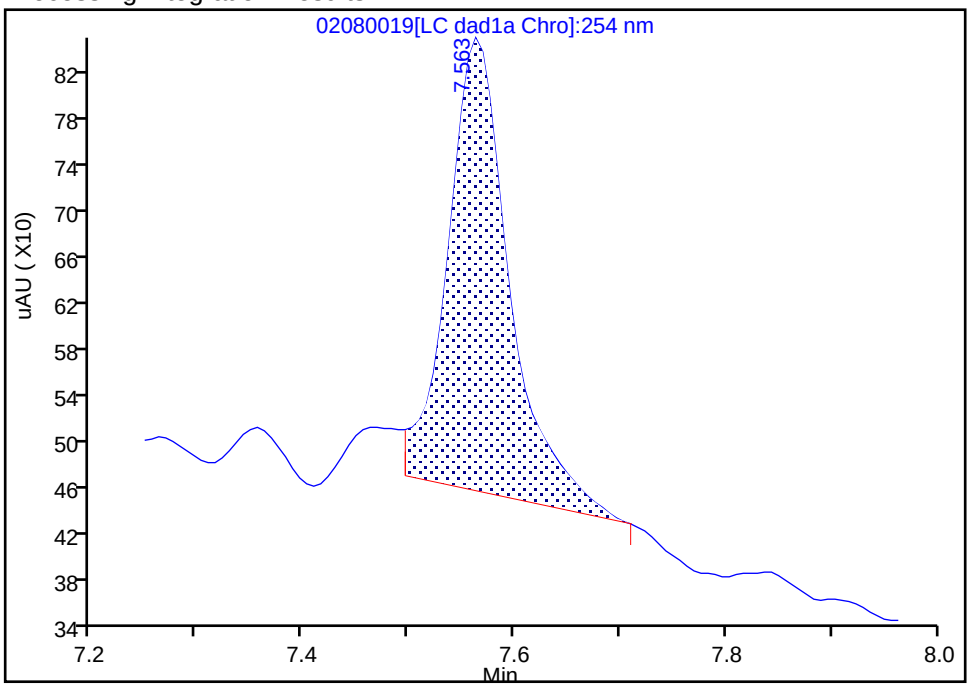
Data File:	\\chromfs\denver\chromdata\chhplc_x\20230208-118465.b\02080019.d				
Injection Date:	08-Feb-2023 18:42:13	Instrument ID:	CHHPLC_X3		
Lims ID:	IC INT 1				
Client ID:					
Operator ID:	JZ/MAR	ALS Bottle#:	19	Worklist Smp#:	19
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

8 RDX, CAS: 121-82-4

Signal: 1

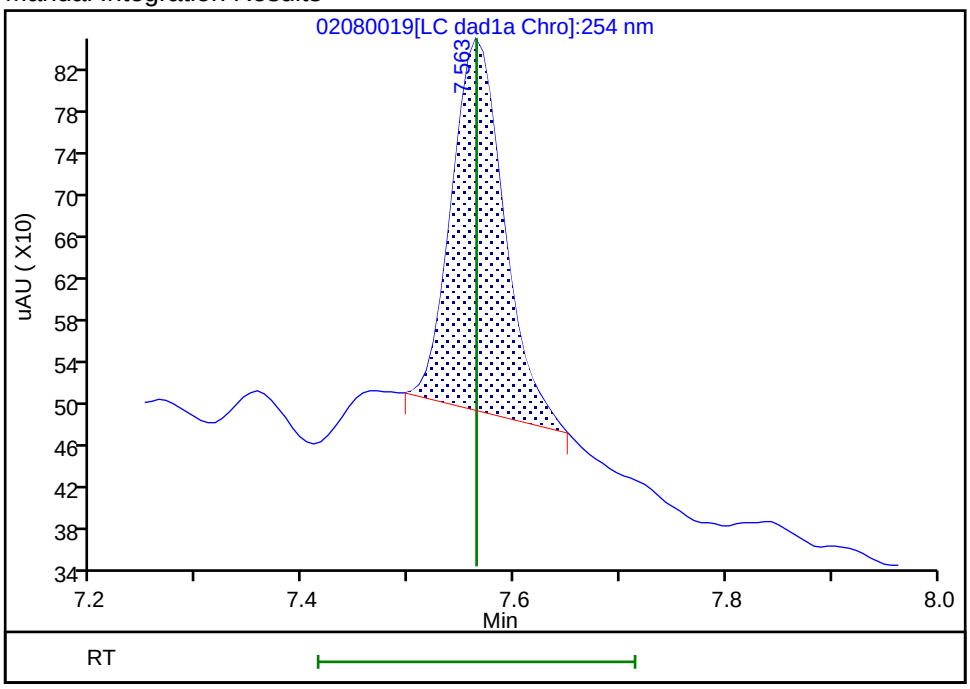
Processing Integration Results

RT: 7.56
Area: 1576
Amount: 0.013341
Amount Units: ug/mL



Manual Integration Results

RT: 7.56
Area: 1203
Amount: 0.011309
Amount Units: ug/mL



Reviewer: LV5D, 08-Feb-2023 19:08:52
Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

FORM VII
HPLC/IC CONTINUING CALIBRATION DATA

Lab Name: Eurofins Denver Job No.: 280-176808-1

SDG No.:

Lab Sample ID: ICV 280-601664/20 Calibration Date: 02/08/2023 19:05

Instrument ID: CHHPLC_X3 Calib Start Date: 02/08/2023 15:38

GC Column: UltraCarb5uODS ID: 4.60(mm) Calib End Date: 02/08/2023 18:42

Lab File ID: 02080020.D Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
HMX	Ave	93528	88148		471	500	-5.8	20.0
RDX	Ave	106380	105642		497	500	-0.7	20.0
Picric acid	Ave	75830	83408		550	500	10.0	20.0
1,3,5-Trinitrobenzene	Ave	217147	243558		561	500	12.2	20.0
1,3-Dinitrobenzene	Ave	294397	317476		539	500	7.8	20.0
Nitrobenzene	Ave	191245	205682		538	500	7.5	20.0
3,5-Dinitroaniline	Lin2		223846		489	500	-2.2	20.0
Tetryl	Ave	164121	182414		556	500	11.1	20.0
Nitroglycerin	Ave	64070	67923		5300	5000	6.0	20.0
2,4,6-Trinitrotoluene	Ave	211040	213428		506	500	1.1	20.0
4-Amino-2,6-dinitrotoluene	Ave	154933	158824		513	500	2.5	20.0
2-Amino-4,6-dinitrotoluene	Ave	201410	204888		509	500	1.7	20.0
2,6-Dinitrotoluene	Ave	142745	147024		515	500	3.0	20.0
2,4-Dinitrotoluene	Ave	296667	301684		508	500	1.7	20.0
2-Nitrotoluene	Ave	127896	128960		504	500	0.8	20.0
4-Nitrotoluene	Ave	111880	111646		499	500	-0.2	20.0
3-Nitrotoluene	Ave	140492	138998		495	500	-1.1	20.0
PETN	Ave	68845	76520		5560	5000	11.1	20.0
1,2-Dinitrobenzene	Ave	126309	125412		496	500	-0.7	20.0

FORM VII
HPLC/IC CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: Eurofins Denver Job No.: 280-176808-1

SDG No.:

Lab Sample ID: ICV 280-601664/20 Calibration Date: 02/08/2023 19:05

Instrument ID: CHHPLC_X3 Calib Start Date: 02/08/2023 15:38

GC Column: UltraCarb5uODS ID: 4.60(mm) Calib End Date: 02/08/2023 18:42

Lab File ID: 02080020.D

Analyte	RT	RT WINDOW	
		FROM	TO
HMX	6.55	6.39	6.69
RDX	7.56	7.41	7.71
Picric acid	8.02	7.89	8.19
1,3,5-Trinitrobenzene	8.65	8.49	8.79
1,3-Dinitrobenzene	9.26	9.11	9.41
Nitrobenzene	9.64	9.48	9.78
3,5-Dinitroaniline	9.84	9.68	9.98
Tetryl	9.99	9.83	10.13
Nitroglycerin	10.46	10.29	10.59
2,4,6-Trinitrotoluene	10.88	10.76	10.96
4-Amino-2,6-dinitrotoluene	11.05	10.93	11.13
2-Amino-4,6-dinitrotoluene	11.30	11.18	11.38
2,6-Dinitrotoluene	11.48	11.35	11.55
2,4-Dinitrotoluene	11.64	11.52	11.72
2-Nitrotoluene	12.46	12.29	12.59
4-Nitrotoluene	12.88	12.69	12.99
3-Nitrotoluene	13.44	13.26	13.56
PETN	14.60	14.40	14.70
1,2-Dinitrobenzene	8.52	8.37	8.67

Eurofins Denver
Target Compound Quantitation Report

Data File: \\chromfs\Denver\ChromData\CHHPLC_X\20230208-118465.b\02080020.D
Lims ID: ICV INT
Client ID:
Sample Type: ICV
Inject. Date: 08-Feb-2023 19:05:10 ALS Bottle#: 20 Worklist Smp#: 20
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: ICV INT
Operator ID: JZ/MAR Instrument ID: CHHPLC_X3
Sublist:

Method: \\chromfs\Denver\ChromData\CHHPLC_X\20230208-118465.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 09-Feb-2023 13:03:49 Calib Date: 08-Feb-2023 18:42:13
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromfs\Denver\ChromData\CHHPLC_X\20230208-118465.b\02080019.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX1604

First Level Reviewer: LV5D Date: 08-Feb-2023 19:31:36

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
4 HMX	1	6.549	6.544	0.005	44074	0.5000	0.4712	M
8 RDX	1	7.563	7.564	-0.001	52821	0.5000	0.4965	M
9 2,4,6-Trinitrophenol	1	8.023	8.044	-0.021	41704	0.5000	0.5500	
$ 10 1,2-Dinitrobenzene	1	8.523	8.517	0.006	62706	0.5000	0.4965	
11 1,3,5-Trinitrobenzene	1	8.649	8.644	0.005	121779	0.5000	0.5608	
12 1,3-Dinitrobenzene	1	9.263	9.257	0.006	158738	0.5000	0.5392	
13 Nitrobenzene	1	9.636	9.631	0.005	102841	0.5000	0.5377	
14 3,5-Dinitroaniline	1	9.843	9.831	0.012	111923	0.5000	0.4890	
15 Tetryl	1	9.989	9.977	0.012	91207	0.5000	0.5557	
16 Nitroglycerin	2	10.456	10.437	0.019	339614	5.00	5.30	
17 2,4,6-Trinitrotoluene	1	10.883	10.864	0.019	106714	0.5000	0.5057	
18 4-Amino-2,6-dinitrotoluene	1	11.049	11.031	0.018	79412	0.5000	0.5126	
19 2-Amino-4,6-dinitrotoluene	1	11.296	11.277	0.019	102444	0.5000	0.5086	
20 2,6-Dinitrotoluene	1	11.476	11.451	0.025	73512	0.5000	0.5150	
21 2,4-Dinitrotoluene	1	11.643	11.617	0.026	150842	0.5000	0.5085	
22 o-Nitrotoluene	1	12.463	12.437	0.026	64480	0.5000	0.5042	
23 p-Nitrotoluene	1	12.876	12.844	0.032	55823	0.5000	0.4990	
24 m-Nitrotoluene	1	13.443	13.411	0.032	69499	0.5000	0.4947	
25 PETN	2	14.596	14.551	0.045	382602	5.00	5.56	

QC Flag Legend

Processing Flags
Review Flags
M - Manually Integrated

Reagents:

8330Surrogate_00138	Amount Added:	50.00	Units: uL
8330 LCS_00121	Amount Added:	50.00	Units: uL
3,5-DNA LCS_00043	Amount Added:	50.00	Units: uL

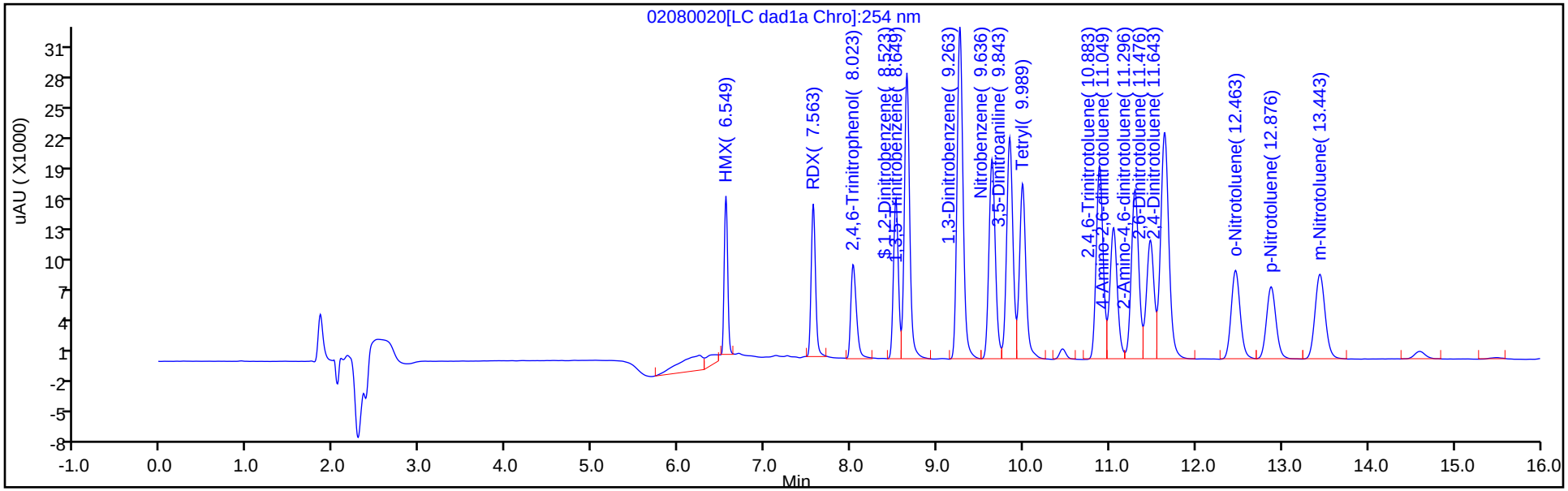
Report Date: 09-Feb-2023 13:04:01 Chrom Revision: 2.3 01-Feb-2023 13:23:06

Eurofins Denver

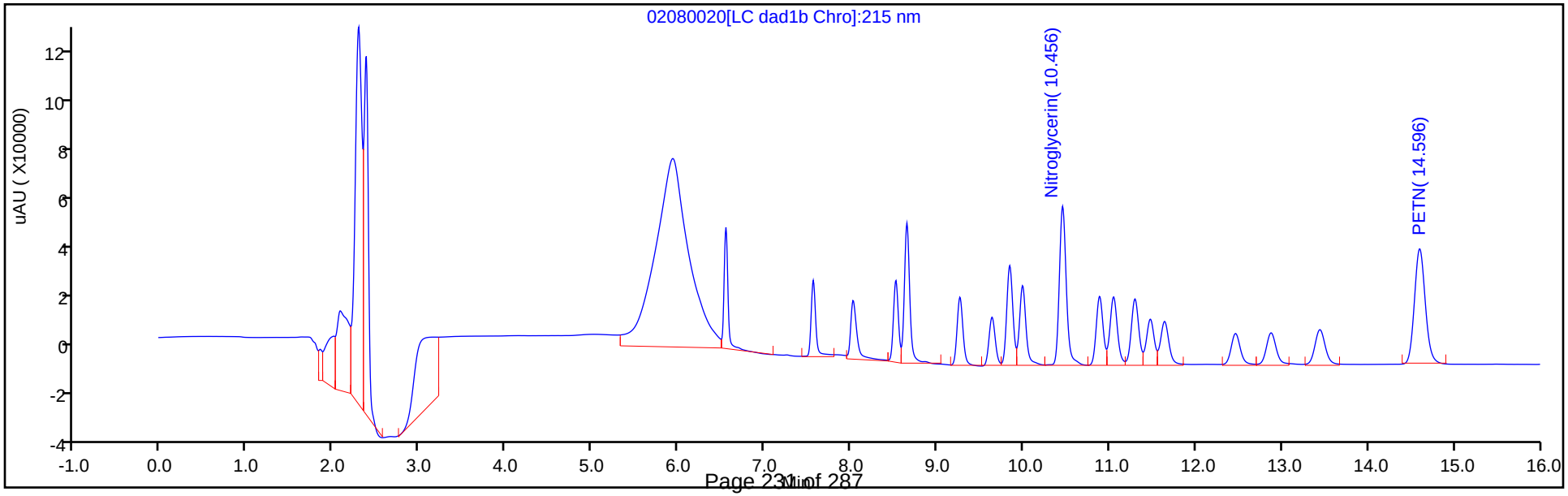
Data File: \\chromfs\denver\chromdata\chhplc_x\20230208-118465.b\02080020.d

Injection Date:	08-Feb-2023 19:05:10	Instrument ID:	CHHPLC_X3	Operator ID:	JZ/MAR
Lims ID:	ICV INT			Worklist Smp#:	20
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	20
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Manual Integration/User Assign Peak Report

Eurofins Denver

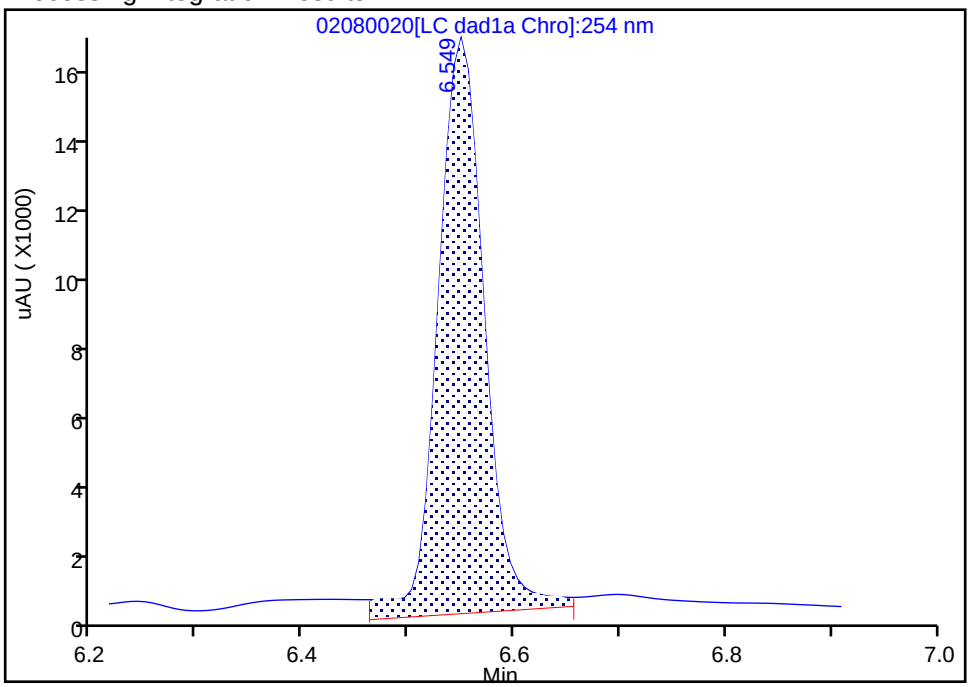
Data File:	\\chromfs\denver\chromdata\chhplc_x\20230208-118465.b\02080020.d				
Injection Date:	08-Feb-2023 19:05:10	Instrument ID:	CHHPLC_X3		
Lims ID:	ICV INT				
Client ID:					
Operator ID:	JZ/MAR	ALS Bottle#:	20	Worklist Smp#:	20
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

4 HMX, CAS: 2691-41-0

Signal: 1

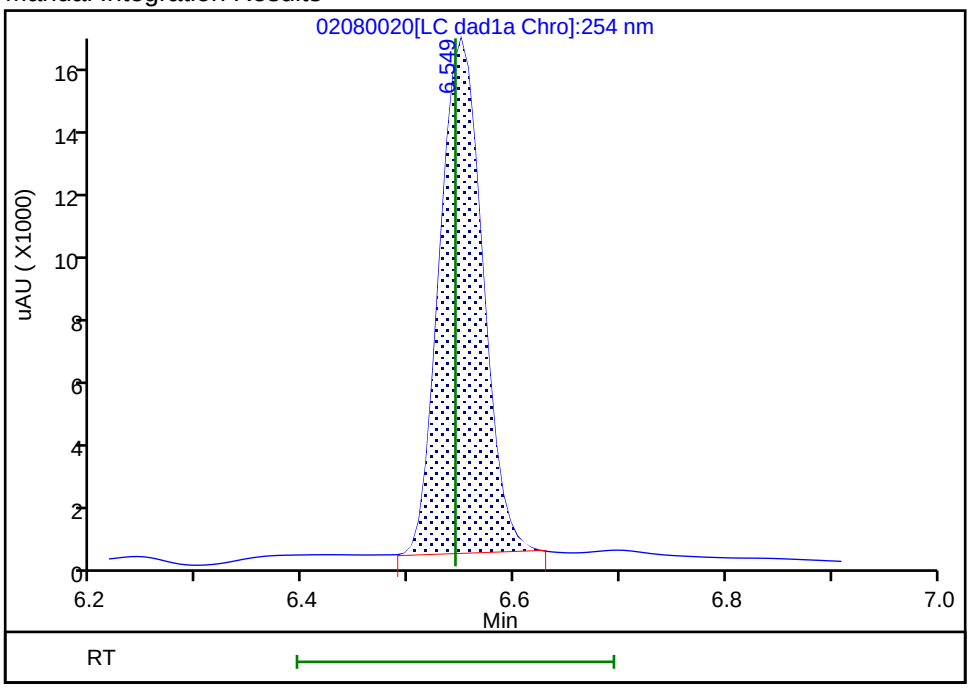
Processing Integration Results

RT: 6.55
Area: 49010
Amount: 0.524013
Amount Units: ug/mL



Manual Integration Results

RT: 6.55
Area: 44074
Amount: 0.471238
Amount Units: ug/mL



Reviewer: LV5D, 08-Feb-2023 19:31:27

Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

Manual Integration/User Assign Peak Report

Eurofins Denver

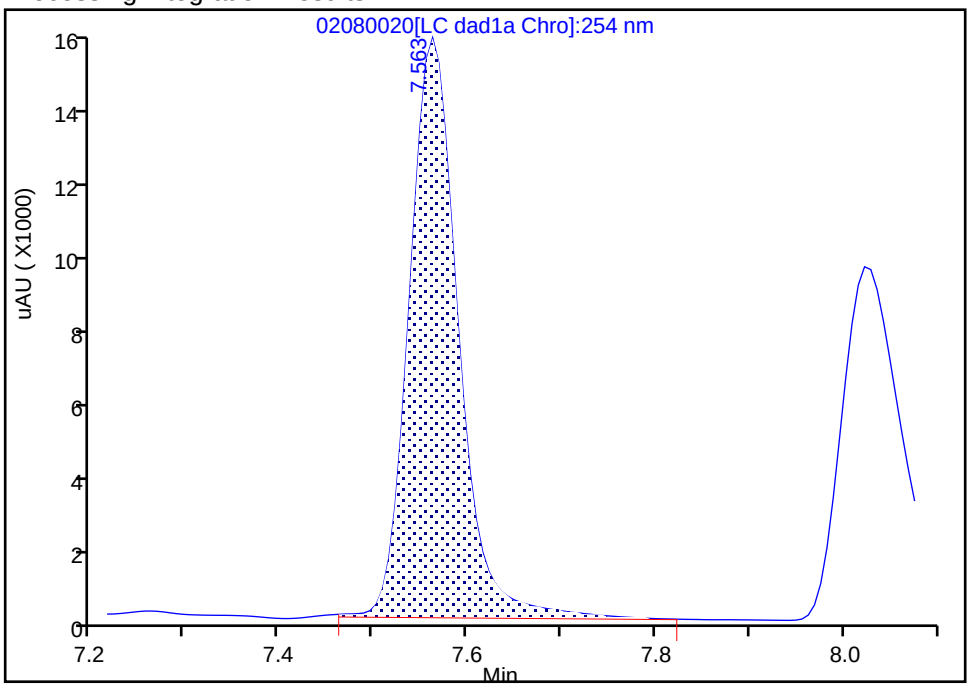
Data File:	\\chromfs\denver\chromdata\chhplc_x\20230208-118465.b\02080020.d				
Injection Date:	08-Feb-2023 19:05:10	Instrument ID:	CHHPLC_X3		
Lims ID:	ICV INT				
Client ID:					
Operator ID:	JZ/MAR	ALS Bottle#:	20	Worklist Smp#:	20
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

8 RDX, CAS: 121-82-4

Signal: 1

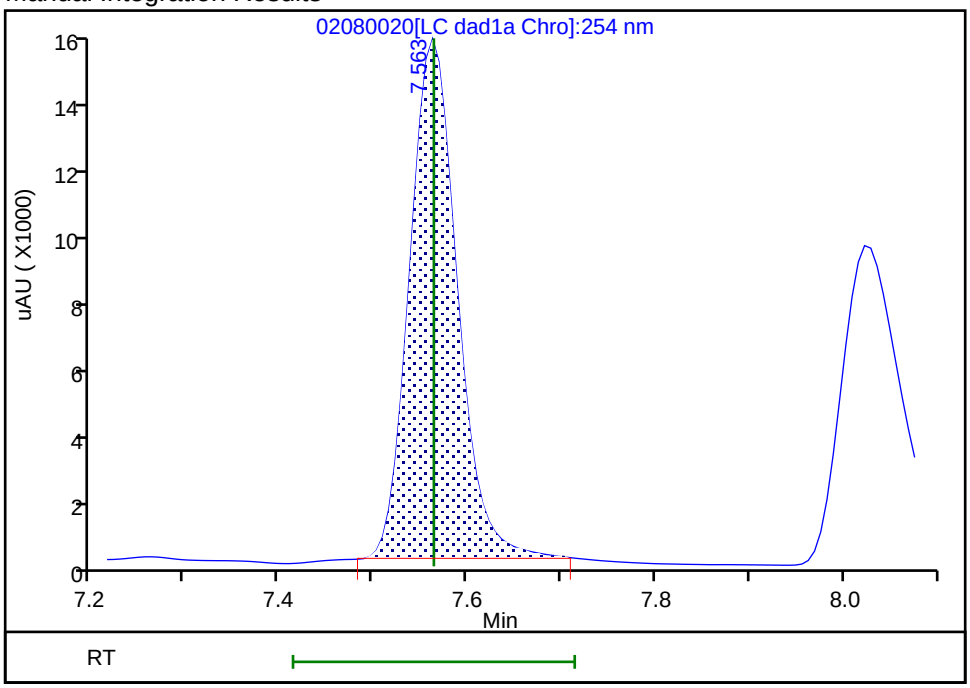
Processing Integration Results

RT: 7.56
Area: 54996
Amount: 0.516978
Amount Units: ug/mL



Manual Integration Results

RT: 7.56
Area: 52821
Amount: 0.496532
Amount Units: ug/mL



Reviewer: LV5D, 08-Feb-2023 19:32:23
Audit Action: Manually Integrated Audit Reason: Baseline Smoothing

FORM VII
HPLC/IC CONTINUING CALIBRATION DATA

Lab Name: Eurofins Denver Job No.: 280-176808-1

SDG No.:

Lab Sample ID: CCV 280-613677/7 Calibration Date: 05/24/2023 17:03

Instrument ID: CHHPLC_X3 Calib Start Date: 02/08/2023 15:38

GC Column: UltraCarb5uODS ID: 4.60(mm) Calib End Date: 02/08/2023 18:42

Lab File ID: 05240007.D Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
HMX	Ave	93528	100712		269	250	7.7	20.0
RDX	Ave	106380	117632		276	250	10.6	20.0
Picric acid	Ave	75830	88516		292	250	16.7	20.0
1,3,5-Trinitrobenzene	Ave	217147	238968		275	250	10.0	20.0
1,3-Dinitrobenzene	Ave	294397	326452		277	250	10.9	20.0
Nitrobenzene	Ave	191245	208928		273	250	9.2	20.0
3,5-Dinitroaniline	Lin2		248264		271	250	8.6	20.0
Tetryl	Ave	164121	157564		240	250	-4.0	20.0
Nitroglycerin	Ave	64070	71412		2790	2500	11.5	20.0
2,4,6-Trinitrotoluene	Ave	211040	224476		266	250	6.4	20.0
4-Amino-2,6-dinitrotoluene	Ave	154933	168756		272	250	8.9	20.0
2-Amino-4,6-dinitrotoluene	Ave	201410	216752		269	250	7.6	20.0
2,6-Dinitrotoluene	Ave	142745	160516		281	250	12.4	20.0
2,4-Dinitrotoluene	Ave	296667	327588		276	250	10.4	20.0
2-Nitrotoluene	Ave	127896	136476		267	250	6.7	20.0
4-Nitrotoluene	Ave	111880	116700		261	250	4.3	20.0
3-Nitrotoluene	Ave	140492	148720		265	250	5.9	20.0
PETN	Ave	68845	77533		2820	2500	12.6	20.0
1,2-Dinitrobenzene	Ave	126309	147096		291	250	16.5	20.0

FORM VII
HPLC/IC CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: Eurofins Denver Job No.: 280-176808-1

SDG No.:

Lab Sample ID: CCV 280-613677/7 Calibration Date: 05/24/2023 17:03

Instrument ID: CHHPLC_X3 Calib Start Date: 02/08/2023 15:38

GC Column: UltraCarb5uODS ID: 4.60(mm) Calib End Date: 02/08/2023 18:42

Lab File ID: 05240007.D

Analyte	RT	RT WINDOW	
		FROM	TO
HMX	6.55	6.40	6.70
RDX	7.57	7.42	7.72
Picric acid	7.96	7.81	8.11
1,3,5-Trinitrobenzene	8.65	8.50	8.80
1,3-Dinitrobenzene	9.27	9.12	9.42
Nitrobenzene	9.64	9.49	9.79
3,5-Dinitroaniline	9.87	9.72	10.02
Tetryl	10.00	9.85	10.15
Nitroglycerin	10.46	10.31	10.61
2,4,6-Trinitrotoluene	10.90	10.80	11.00
4-Amino-2,6-dinitrotoluene	11.09	10.99	11.19
2-Amino-4,6-dinitrotoluene	11.34	11.24	11.44
2,6-Dinitrotoluene	11.49	11.39	11.59
2,4-Dinitrotoluene	11.66	11.56	11.76
2-Nitrotoluene	12.48	12.33	12.63
4-Nitrotoluene	12.90	12.75	13.05
3-Nitrotoluene	13.48	13.33	13.63
PETN	14.64	14.49	14.79
1,2-Dinitrobenzene	8.52	8.37	8.67

Eurofins Denver
Target Compound Quantitation Report

Data File: \\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\05240007.D
Lims ID: CCV INT
Client ID:
Sample Type: CCV
Inject. Date: 24-May-2023 17:03:09 ALS Bottle#: 7 Worklist Smp#: 7
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: CCV INT
Operator ID: JZ/JG Instrument ID: CHHPLC_X3
Sublist: chrom-8330_X3*sub26

Method: \\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 25-May-2023 11:51:40 Calib Date: 24-Feb-2023 17:41:20
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromfs\Denver\ChromData\CHHPLC_X\20230224-118952.b\02240018.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX1654

First Level Reviewer: LV5D Date: 24-May-2023 17:31:00

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
4 HMX	1	6.550	6.550	0.000	25178	0.2500	0.2692	M
8 RDX	1	7.570	7.570	0.000	29408	0.2500	0.2764	
9 2,4,6-Trinitrophenol	1	7.963	7.963	0.000	22129	0.2500	0.2918	
$ 10 1,2-Dinitrobenzene	1	8.523	8.523	0.000	36774	0.2500	0.2911	
11 1,3,5-Trinitrobenzene	1	8.650	8.650	0.000	59742	0.2500	0.2751	
12 1,3-Dinitrobenzene	1	9.270	9.270	0.000	81613	0.2500	0.2772	
13 Nitrobenzene	1	9.636	9.636	0.000	52232	0.2500	0.2731	
14 3,5-Dinitroaniline	1	9.870	9.870	0.000	62066	0.2500	0.2715	
15 Tetryl	1	10.003	10.003	0.000	39391	0.2500	0.2400	
16 Nitroglycerin	2	10.456	10.456	0.000	178531	2.50	2.79	
17 2,4,6-Trinitrotoluene	1	10.896	10.896	0.000	56119	0.2500	0.2659	
18 4-Amino-2,6-dinitrotoluene	1	11.090	11.090	0.000	42189	0.2500	0.2723	
19 2-Amino-4,6-dinitrotoluene	1	11.343	11.343	0.000	54188	0.2500	0.2690	
20 2,6-Dinitrotoluene	1	11.490	11.490	0.000	40129	0.2500	0.2811	
21 2,4-Dinitrotoluene	1	11.663	11.663	0.000	81897	0.2500	0.2761	
22 o-Nitrotoluene	1	12.483	12.483	0.000	34119	0.2500	0.2668	
23 p-Nitrotoluene	1	12.903	12.903	0.000	29175	0.2500	0.2608	
24 m-Nitrotoluene	1	13.476	13.476	0.000	37180	0.2500	0.2646	
25 PETN	2	14.636	14.636	0.000	193833	2.50	2.82	

QC Flag Legend

Processing Flags
Review Flags
M - Manually Integrated

Reagents:

8330IntermStk_00076 Amount Added: 25.00 Units: uL

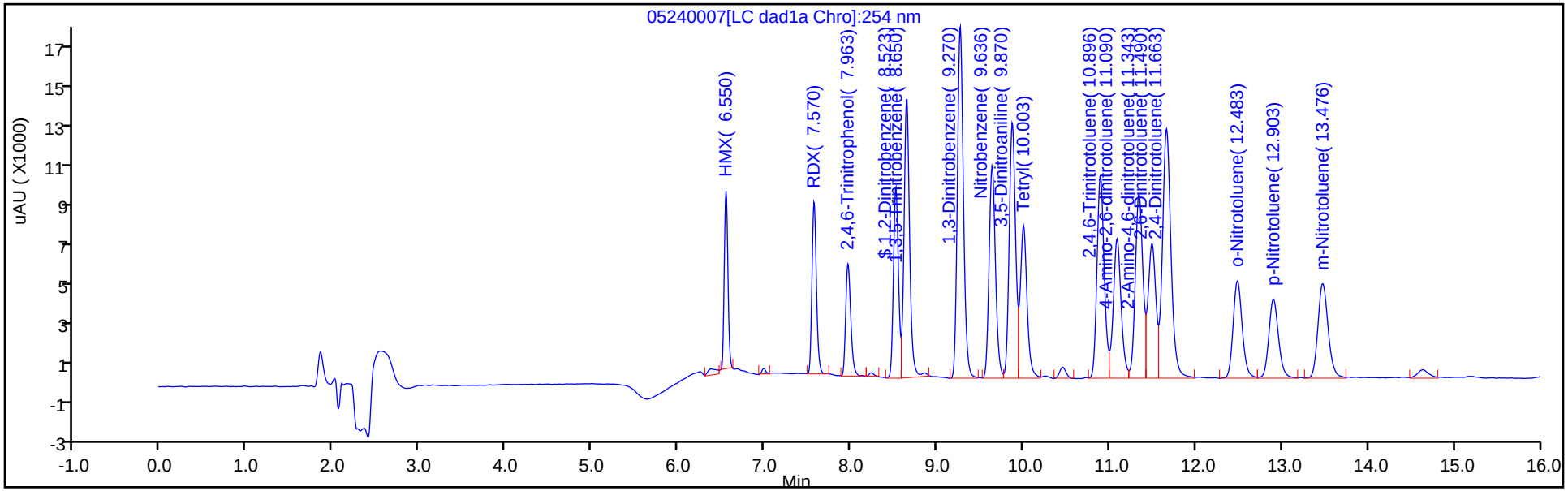
Report Date: 25-May-2023 11:51:40 Chrom Revision: 2.3 23-May-2023 13:55:56

Eurofins Denver

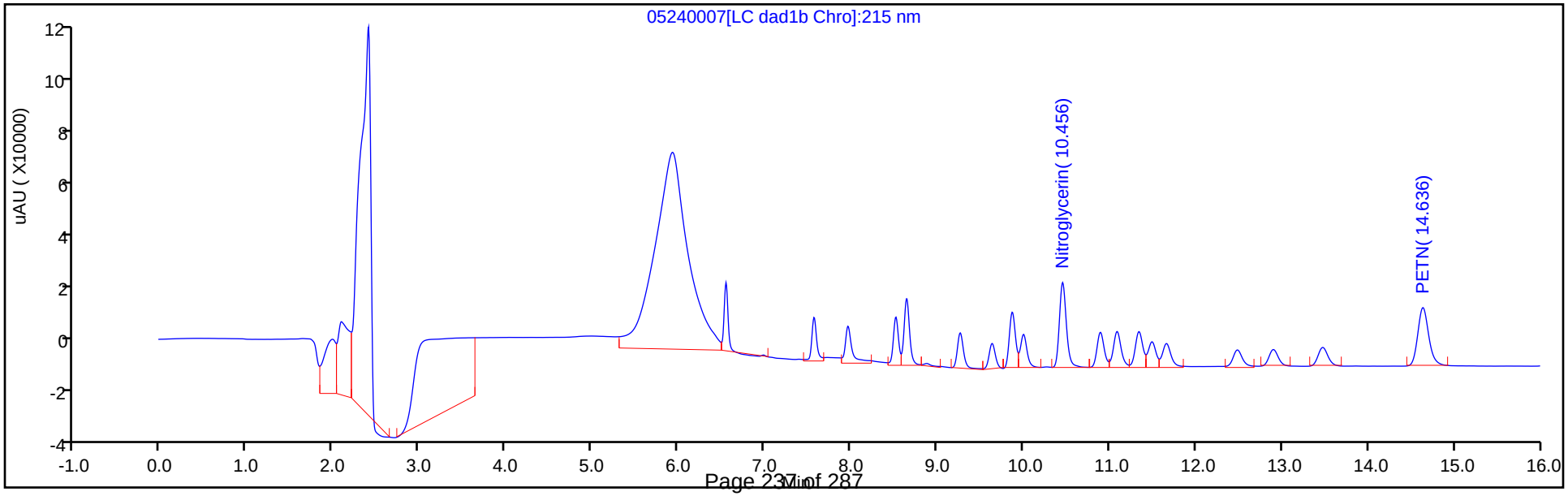
Data File: \\chromfs\denver\chromdata\chhplc_x\20230524-121799.b\05240007.d

Injection Date:	24-May-2023 17:03:09	Instrument ID:	CHHPLC_X3	Operator ID:	JZ/JG
Lims ID:	CCV INT			Worklist Smp#:	7
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	7
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Manual Integration/User Assign Peak Report

Eurofins Denver

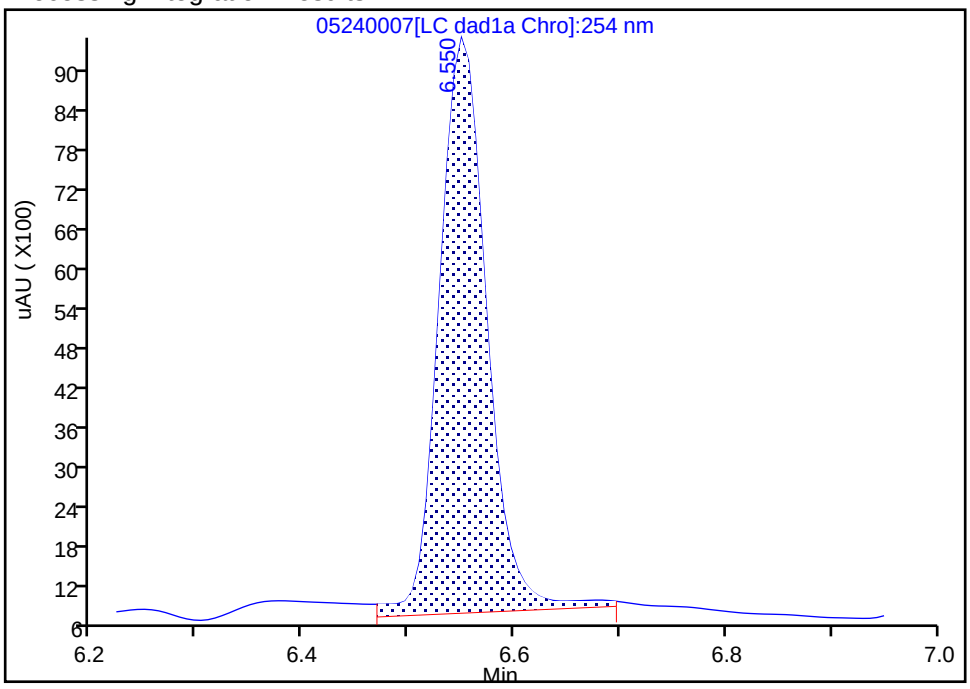
Data File:	\\chromfs\denver\chromdata\chhplc_x\20230524-121799.b\05240007.d				
Injection Date:	24-May-2023 17:03:09	Instrument ID:	CHHPLC_X3		
Lims ID:	CCV INT				
Client ID:					
Operator ID:	JZ/JG	ALS Bottle#:	7	Worklist Smp#:	7
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

4 HMX, CAS: 2691-41-0

Signal: 1

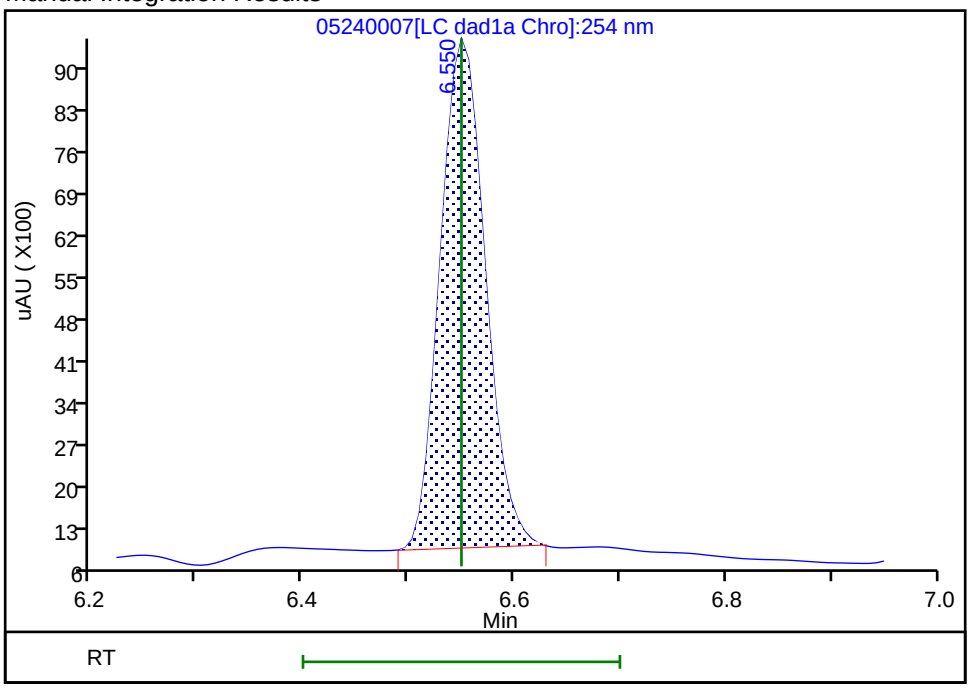
Processing Integration Results

RT: 6.55
Area: 27295
Amount: 0.291837
Amount Units: ug/mL



Manual Integration Results

RT: 6.55
Area: 25178
Amount: 0.269202
Amount Units: ug/mL



Reviewer: LV5D, 24-May-2023 17:30:58 -06:00:00 (UTC)

Audit Action: Manually Integrated Audit Reason: Baseline

FORM VII
HPLC/IC CONTINUING CALIBRATION DATA

Lab Name: Eurofins Denver | Job No.: 280-176808-1

SDG No.:

Lab Sample ID: CCV 280-613677/21 | Calibration Date: 05/24/2023 21:15

Instrument ID: CHHPLC_X3 | Calib Start Date: 02/08/2023 15:38

GC Column: UltraCarb5uODS ID: 4.60(mm) | Calib End Date: 02/08/2023 18:42

Lab File ID: 05240021.D | Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
HMX	Ave	93528	109576		293	250	17.2	20.0
RDX	Ave	106380	118400		278	250	11.3	20.0
Picric acid	Ave	75830	88216		291	250	16.3	20.0
1,3,5-Trinitrobenzene	Ave	217147	241068		278	250	11.0	20.0
1,3-Dinitrobenzene	Ave	294397	329256		280	250	11.8	20.0
Nitrobenzene	Ave	191245	206316		270	250	7.9	20.0
3,5-Dinitroaniline	Lin2		252696		276	250	10.5	20.0
Tetryl	Ave	164121	155872		237	250	-5.0	20.0
Nitroglycerin	Ave	64070	71791		2800	2500	12.1	20.0
2,4,6-Trinitrotoluene	Ave	211040	227012		269	250	7.6	20.0
4-Amino-2,6-dinitrotoluene	Ave	154933	168004		271	250	8.4	20.0
2-Amino-4,6-dinitrotoluene	Ave	201410	214832		267	250	6.7	20.0
2,6-Dinitrotoluene	Ave	142745	161964		284	250	13.5	20.0
2,4-Dinitrotoluene	Ave	296667	329996		278	250	11.2	20.0
2-Nitrotoluene	Ave	127896	133820		262	250	4.6	20.0
4-Nitrotoluene	Ave	111880	115328		258	250	3.1	20.0
3-Nitrotoluene	Ave	140492	147008		262	250	4.6	20.0
PETN	Ave	68845	77992		2830	2500	13.3	20.0
1,2-Dinitrobenzene	Ave	126309	146660		290	250	16.1	20.0

FORM VII
HPLC/IC CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: Eurofins Denver Job No.: 280-176808-1

SDG No.:

Lab Sample ID: CCV 280-613677/21 Calibration Date: 05/24/2023 21:15

Instrument ID: CHHPLC_X3 Calib Start Date: 02/08/2023 15:38

GC Column: UltraCarb5uODS ID: 4.60(mm) Calib End Date: 02/08/2023 18:42

Lab File ID: 05240021.D

Analyte	RT	RT WINDOW	
		FROM	TO
HMX	6.55	6.40	6.70
RDX	7.57	7.42	7.72
Picric acid	7.97	7.81	8.11
1,3,5-Trinitrobenzene	8.65	8.50	8.80
1,3-Dinitrobenzene	9.27	9.12	9.42
Nitrobenzene	9.65	9.49	9.79
3,5-Dinitroaniline	9.88	9.72	10.02
Tetryl	10.01	9.85	10.15
Nitroglycerin	10.46	10.31	10.61
2,4,6-Trinitrotoluene	10.90	10.80	11.00
4-Amino-2,6-dinitrotoluene	11.09	10.99	11.19
2-Amino-4,6-dinitrotoluene	11.35	11.24	11.44
2,6-Dinitrotoluene	11.50	11.39	11.59
2,4-Dinitrotoluene	11.67	11.56	11.76
2-Nitrotoluene	12.49	12.33	12.63
4-Nitrotoluene	12.91	12.75	13.05
3-Nitrotoluene	13.48	13.33	13.63
PETN	14.64	14.49	14.79
1,2-Dinitrobenzene	8.53	8.37	8.67

Eurofins Denver
Target Compound Quantitation Report

Data File: \\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\05240021.D
Lims ID: CCV INT
Client ID:
Sample Type: CCV
Inject. Date: 24-May-2023 21:15:32 ALS Bottle#: 7 Worklist Smp#: 21
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: CCV INT
Operator ID: JZ/JG Instrument ID: CHHPLC_X3
Sublist: chrom-8330_X3*sub26

Method: \\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 25-May-2023 11:51:48 Calib Date: 24-Feb-2023 17:41:20
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromfs\Denver\ChromData\CHHPLC_X\20230224-118952.b\02240018.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX1654

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
4 HMX	1	6.552	6.550	0.002	27394	0.2500	0.2929	
8 RDX	1	7.572	7.570	0.002	29600	0.2500	0.2782	
9 2,4,6-Trinitrophenol	1	7.972	7.963	0.009	22054	0.2500	0.2908	
$ 10 1,2-Dinitrobenzene	1	8.526	8.523	0.003	36665	0.2500	0.2903	
11 1,3,5-Trinitrobenzene	1	8.652	8.650	0.002	60267	0.2500	0.2775	
12 1,3-Dinitrobenzene	1	9.272	9.270	0.002	82314	0.2500	0.2796	
13 Nitrobenzene	1	9.645	9.636	0.009	51579	0.2500	0.2697	
14 3,5-Dinitroaniline	1	9.879	9.870	0.009	63174	0.2500	0.2763	
15 Tetryl	1	10.005	10.003	0.002	38968	0.2500	0.2374	
16 Nitroglycerin	2	10.459	10.456	0.003	179477	2.50	2.80	
17 2,4,6-Trinitrotoluene	1	10.899	10.896	0.003	56753	0.2500	0.2689	
18 4-Amino-2,6-dinitrotoluene	1	11.092	11.090	0.002	42001	0.2500	0.2711	
19 2-Amino-4,6-dinitrotoluene	1	11.345	11.343	0.002	53708	0.2500	0.2667	
20 2,6-Dinitrotoluene	1	11.499	11.490	0.009	40491	0.2500	0.2837	
21 2,4-Dinitrotoluene	1	11.665	11.663	0.002	82499	0.2500	0.2781	
22 o-Nitrotoluene	1	12.485	12.483	0.002	33455	0.2500	0.2616	
23 p-Nitrotoluene	1	12.905	12.903	0.002	28832	0.2500	0.2577	
24 m-Nitrotoluene	1	13.479	13.476	0.003	36752	0.2500	0.2616	
25 PETN	2	14.639	14.636	0.003	194979	2.50	2.83	

Reagents:

8330IntermStk_00076 Amount Added: 25.00 Units: uL

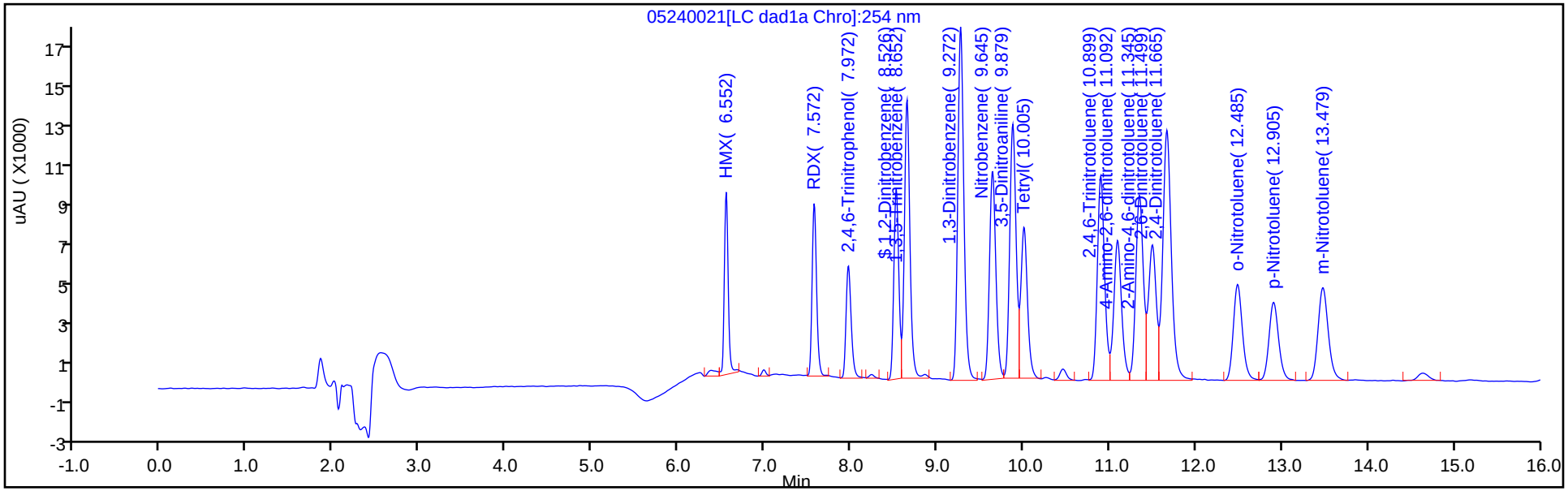
Report Date: 25-May-2023 11:51:48 Chrom Revision: 2.3 23-May-2023 13:55:56

Eurofins Denver

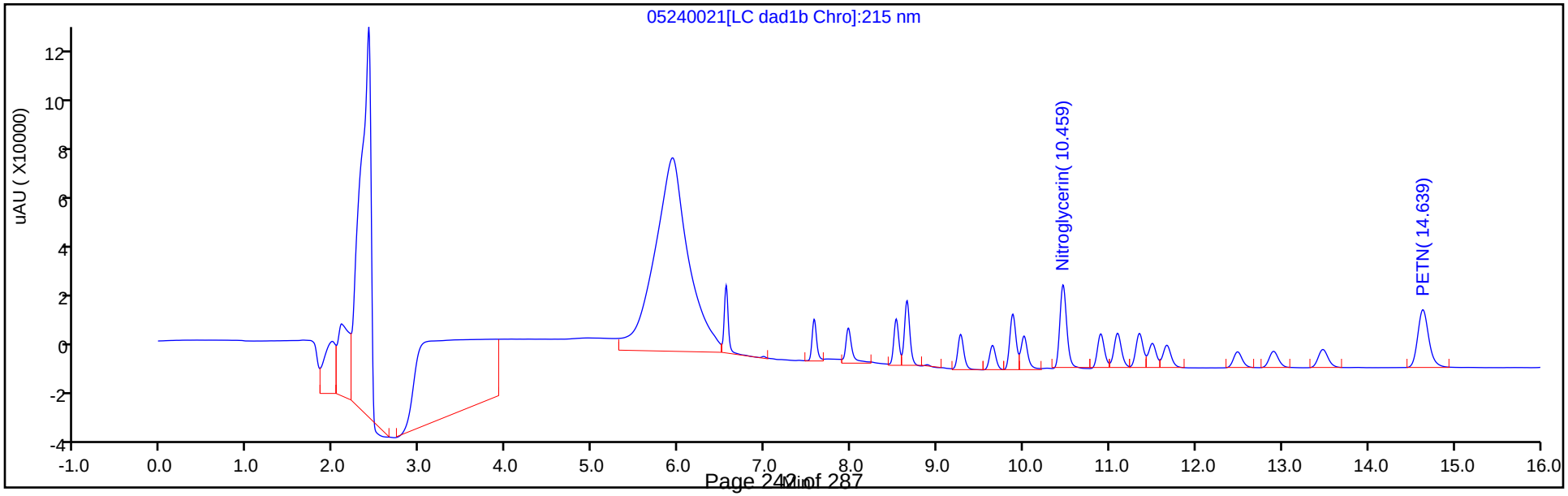
Data File: \\chromfs\denver\chromdata\chhplc_x\20230524-121799.b\05240021.d

Injection Date:	24-May-2023 21:15:32	Instrument ID:	CHHPLC_X3	Operator ID:	JZ/JG
Lims ID:	CCV INT			Worklist Smp#:	21
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	7
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



FORM VII
HPLC/IC CONTINUING CALIBRATION DATA

Lab Name: Eurofins Denver Job No.: 280-176808-1

SDG No.:

Lab Sample ID: CCV 280-613677/26 Calibration Date: 05/24/2023 23:10

Instrument ID: CHHPLC_X3 Calib Start Date: 02/08/2023 15:38

GC Column: UltraCarb5uODS ID: 4.60(mm) Calib End Date: 02/08/2023 18:42

Lab File ID: 05240026.D Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
HMX	Ave	93528	103476		277	250	10.6	20.0
RDX	Ave	106380	119340		280	250	12.2	20.0
Picric acid	Ave	75830	88244		291	250	16.4	20.0
1,3,5-Trinitrobenzene	Ave	217147	241940		279	250	11.4	20.0
1,3-Dinitrobenzene	Ave	294397	328300		279	250	11.5	20.0
Nitrobenzene	Ave	191245	204612		267	250	7.0	20.0
3,5-Dinitroaniline	Lin2		250916		274	250	9.7	20.0
Tetryl	Ave	164121	157208		239	250	-4.2	20.0
Nitroglycerin	Ave	64070	71898		2810	2500	12.2	20.0
2,4,6-Trinitrotoluene	Ave	211040	226688		269	250	7.4	20.0
4-Amino-2,6-dinitrotoluene	Ave	154933	169432		273	250	9.4	20.0
2-Amino-4,6-dinitrotoluene	Ave	201410	216656		269	250	7.6	20.0
2,6-Dinitrotoluene	Ave	142745	161548		283	250	13.2	20.0
2,4-Dinitrotoluene	Ave	296667	327576		276	250	10.4	20.0
2-Nitrotoluene	Ave	127896	132560		259	250	3.6	20.0
4-Nitrotoluene	Ave	111880	114084		255	250	2.0	20.0
3-Nitrotoluene	Ave	140492	145144		258	250	3.3	20.0
PETN	Ave	68845	77862		2830	2500	13.1	20.0
1,2-Dinitrobenzene	Ave	126309	145604		288	250	15.3	20.0

FORM VII
HPLC/IC CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: Eurofins Denver Job No.: 280-176808-1

SDG No.:

Lab Sample ID: CCV 280-613677/26 Calibration Date: 05/24/2023 23:10

Instrument ID: CHHPLC_X3 Calib Start Date: 02/08/2023 15:38

GC Column: UltraCarb5uODS ID: 4.60(mm) Calib End Date: 02/08/2023 18:42

Lab File ID: 05240026.D

Analyte	RT	RT WINDOW	
		FROM	TO
HMX	6.56	6.40	6.70
RDX	7.58	7.42	7.72
Picric acid	7.97	7.81	8.11
1,3,5-Trinitrobenzene	8.65	8.50	8.80
1,3-Dinitrobenzene	9.27	9.12	9.42
Nitrobenzene	9.64	9.49	9.79
3,5-Dinitroaniline	9.87	9.72	10.02
Tetryl	10.01	9.85	10.15
Nitroglycerin	10.46	10.31	10.61
2,4,6-Trinitrotoluene	10.89	10.80	11.00
4-Amino-2,6-dinitrotoluene	11.09	10.99	11.19
2-Amino-4,6-dinitrotoluene	11.35	11.24	11.44
2,6-Dinitrotoluene	11.49	11.39	11.59
2,4-Dinitrotoluene	11.67	11.56	11.76
2-Nitrotoluene	12.49	12.33	12.63
4-Nitrotoluene	12.91	12.75	13.05
3-Nitrotoluene	13.48	13.33	13.63
PETN	14.65	14.49	14.79
1,2-Dinitrobenzene	8.52	8.37	8.67

Report Date: 25-May-2023 11:51:52 Chrom Revision: 2.3 23-May-2023 13:55:56

Eurofins Denver
Target Compound Quantitation Report

Data File: \\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\05240026.D
Lims ID: CCV INT
Client ID:
Sample Type: CCV
Inject. Date: 24-May-2023 23:10:05 ALS Bottle#: 7 Worklist Smp#: 26
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: CCV INT
Operator ID: JZ/JG Instrument ID: CHHPLC_X3
Sublist: chrom-8330_X3*sub26

Method: \\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 25-May-2023 11:51:52 Calib Date: 24-Feb-2023 17:41:20
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromfs\Denver\ChromData\CHHPLC_X\20230224-118952.b\02240018.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX1654

First Level Reviewer: LV5D Date: 25-May-2023 11:21:38

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
4 HMX	1	6.555	6.550	0.005	25869	0.2500	0.2766	
8 RDX	1	7.575	7.570	0.005	29835	0.2500	0.2805	
9 2,4,6-Trinitrophenol	1	7.968	7.963	0.005	22061	0.2500	0.2909	
$ 10 1,2-Dinitrobenzene	1	8.521	8.523	-0.002	36401	0.2500	0.2882	
11 1,3,5-Trinitrobenzene	1	8.648	8.650	-0.002	60485	0.2500	0.2785	
12 1,3-Dinitrobenzene	1	9.268	9.270	-0.002	82075	0.2500	0.2788	
13 Nitrobenzene	1	9.641	9.636	0.005	51153	0.2500	0.2675	
14 3,5-Dinitroaniline	1	9.874	9.870	0.004	62729	0.2500	0.2744	
15 Tetryl	1	10.008	10.003	0.005	39302	0.2500	0.2395	
16 Nitroglycerin	2	10.461	10.456	0.005	179746	2.50	2.81	
17 2,4,6-Trinitrotoluene	1	10.894	10.896	-0.002	56672	0.2500	0.2685	
18 4-Amino-2,6-dinitrotoluene	1	11.094	11.090	0.004	42358	0.2500	0.2734	
19 2-Amino-4,6-dinitrotoluene	1	11.348	11.343	0.005	54164	0.2500	0.2689	
20 2,6-Dinitrotoluene	1	11.494	11.490	0.004	40387	0.2500	0.2829	
21 2,4-Dinitrotoluene	1	11.668	11.663	0.005	81894	0.2500	0.2760	
22 o-Nitrotoluene	1	12.488	12.483	0.005	33140	0.2500	0.2591	
23 p-Nitrotoluene	1	12.908	12.903	0.005	28521	0.2500	0.2549	
24 m-Nitrotoluene	1	13.481	13.476	0.005	36286	0.2500	0.2583	
25 PETN	2	14.648	14.636	0.012	194656	2.50	2.83	

QC Flag Legend
Processing Flags

Reagents:
8330IntermStk_00076 Amount Added: 25.00 Units: uL

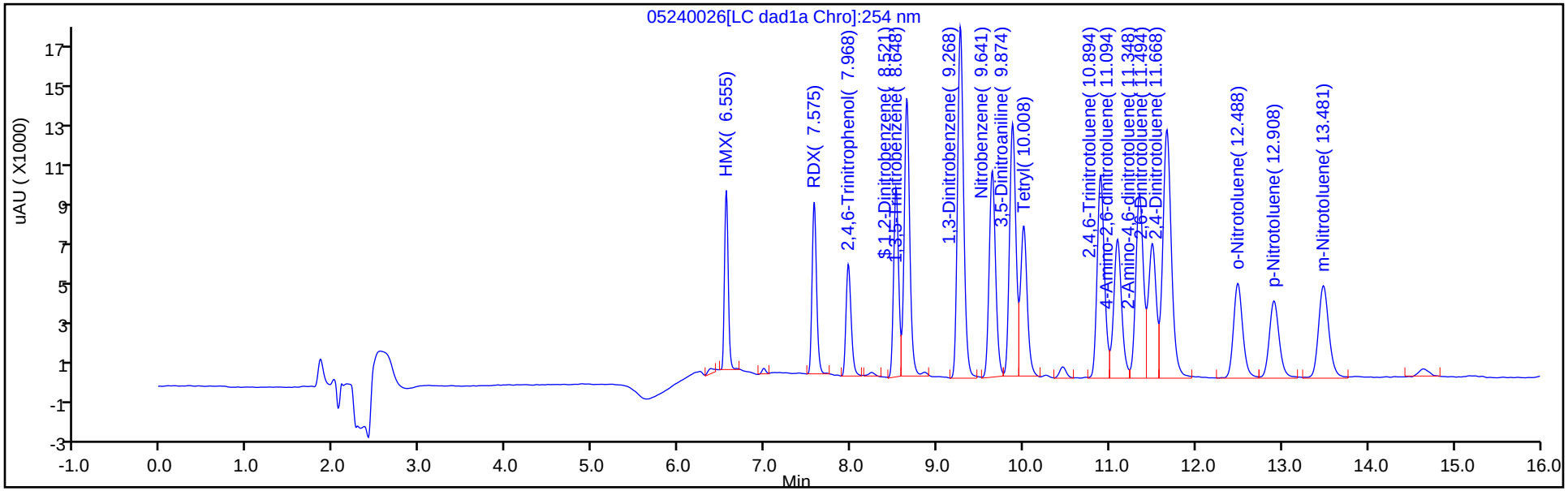
Report Date: 25-May-2023 11:51:53 Chrom Revision: 2.3 23-May-2023 13:55:56

Eurofins Denver

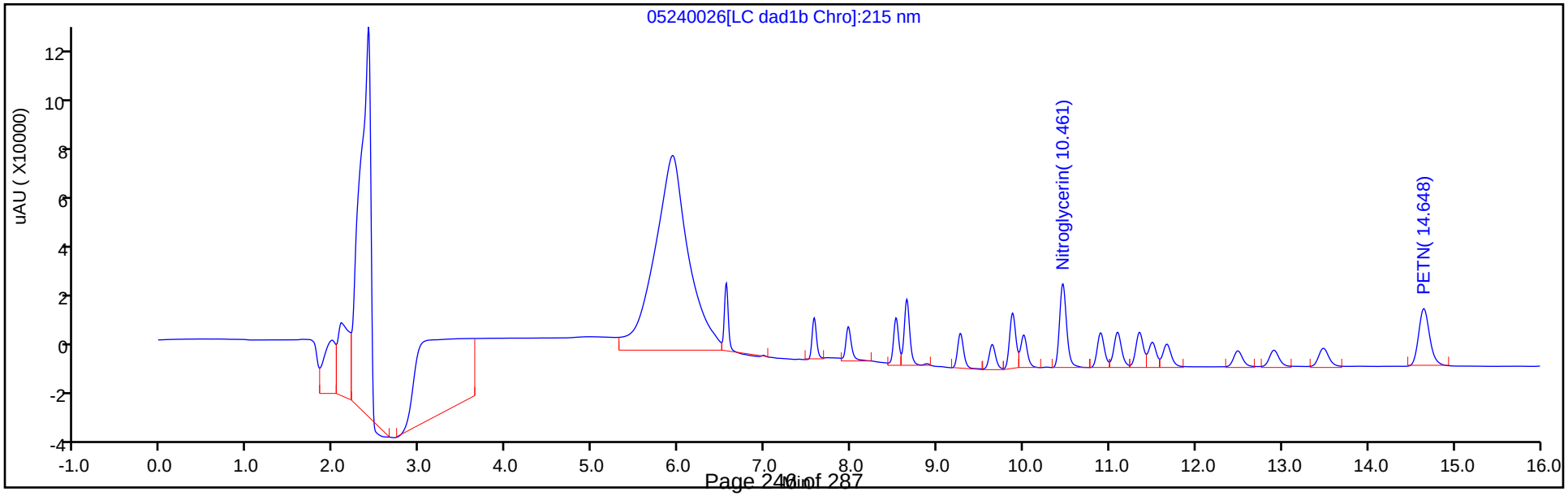
Data File: \\chromfs\denver\chromdata\chhplc_x\20230524-121799.b\05240026.d

Injection Date:	24-May-2023 23:10:05	Instrument ID:	CHHPLC_X3	Operator ID:	JZ/JG
Lims ID:	CCV INT			Worklist Smp#:	26
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	7
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Denver | Job No.: 280-176808-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 280-613446/1-A

Matrix: Water | Lab File ID: 05240011.D

Analysis Method: 8330B | Date Collected:

Extraction Method: 3535 | Date Extracted: 05/23/2023 13:00

Sample wt/vol: 500(mL) | Date Analyzed: 05/24/2023 17:26

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 100(uL) | GC Column: UltraCarb5uODS ID: 4.6(mm)

% Moisture: % Solids: | GPC Cleanup:(Y/N) N

Cleanup Factor:

Analysis Batch No.: 613677 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
99-35-4	1,3,5-Trinitrobenzene	0.20	U M	0.21	0.20	0.084
99-65-0	1,3-Dinitrobenzene	0.10	U	0.11	0.10	0.037
118-96-7	2,4,6-Trinitrotoluene	0.10	U	0.11	0.10	0.045
121-14-2	2,4-Dinitrotoluene	0.080	U	0.10	0.080	0.027
606-20-2	2,6-Dinitrotoluene	0.080	U	0.10	0.080	0.040
35572-78-2	2-Amino-4,6-dinitrotoluene	0.10	U	0.11	0.10	0.051
88-72-2	2-Nitrotoluene	0.20	U	0.21	0.20	0.086
99-08-1	3-Nitrotoluene	0.35	U	0.40	0.35	0.20
19406-51-0	4-Amino-2,6-dinitrotoluene	0.12	U	0.15	0.12	0.058
99-99-0	4-Nitrotoluene	0.40	U	0.41	0.40	0.10
2691-41-0	HMX	0.20	U	0.21	0.20	0.088
98-95-3	Nitrobenzene	0.20	U	0.21	0.20	0.091
55-63-0	Nitroglycerin	2.0	U	2.1	2.0	0.92
78-11-5	PETN	1.0	U	1.1	1.0	0.45
121-82-4	RDX	0.20	U	0.21	0.20	0.052
479-45-8	Tetryl	0.10	U	0.11	0.10	0.032

CAS NO.	SURROGATE	%REC	Q	LIMITS
528-29-0	1,2-Dinitrobenzene	91		83-119

Eurofins Denver
Target Compound Quantitation Report

Data File: \\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\05240011.D
Lims ID: MB 280-613446/1-A
Client ID:
Sample Type: MB
Inject. Date: 24-May-2023 17:26:04 ALS Bottle#: 11 Worklist Smp#: 11
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: MB 280-613446/1-A
Operator ID: JZ/JG Instrument ID: CHHPLC_X3

Method: \\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 25-May-2023 11:51:40 Calib Date: 24-Feb-2023 17:41:20
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromfs\Denver\ChromData\CHHPLC_X\20230224-118952.b\02240018.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX1654

First Level Reviewer: LV5D Date: 24-May-2023 17:49:34

	Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
	1 Triamine Trinitrobenzene	1		2.444				ND	
	3 TNX	1		6.430				ND	U
	2 2,6-diamino-4-nitrotoluene	1		6.431				ND	
	4 HMX	1		6.550				ND	
	5 2,4-diamino-6-nitrotoluene	1		6.618				ND	
	6 DNX	1		6.757				ND	
	7 MNX	1		7.190				ND	
	8 RDX	1		7.570				ND	
	9 2,4,6-Trinitrophenol	1		7.963				ND	
$	10 1,2-Dinitrobenzene	1	8.525	8.523	0.002	23005	0.2000	0.1821	
	11 1,3,5-Trinitrobenzene	1		8.650				ND	U
	12 1,3-Dinitrobenzene	1		9.270				ND	
	13 Nitrobenzene	1		9.636				ND	
	14 3,5-Dinitroaniline	1		9.870				ND	
	15 Tetryl	1		10.003				ND	
	16 Nitroglycerin	2		10.456				ND	
	17 2,4,6-Trinitrotoluene	1		10.896				ND	
	18 4-Amino-2,6-dinitrotoluene	1		11.090				ND	
	19 2-Amino-4,6-dinitrotoluene	1		11.343				ND	
	20 2,6-Dinitrotoluene	1		11.490				ND	
	21 2,4-Dinitrotoluene	1		11.663				ND	
	22 o-Nitrotoluene	1		12.483				ND	7
	23 p-Nitrotoluene	1		12.903				ND	
	24 m-Nitrotoluene	1		13.476				ND	
	25 PETN	2		14.636				ND	
	26 Ammonium Picrate	1		0.000				ND	

QC Flag Legend

Processing Flags
7 - Failed Limit of Detection

Review Flags
U - Marked Undetected

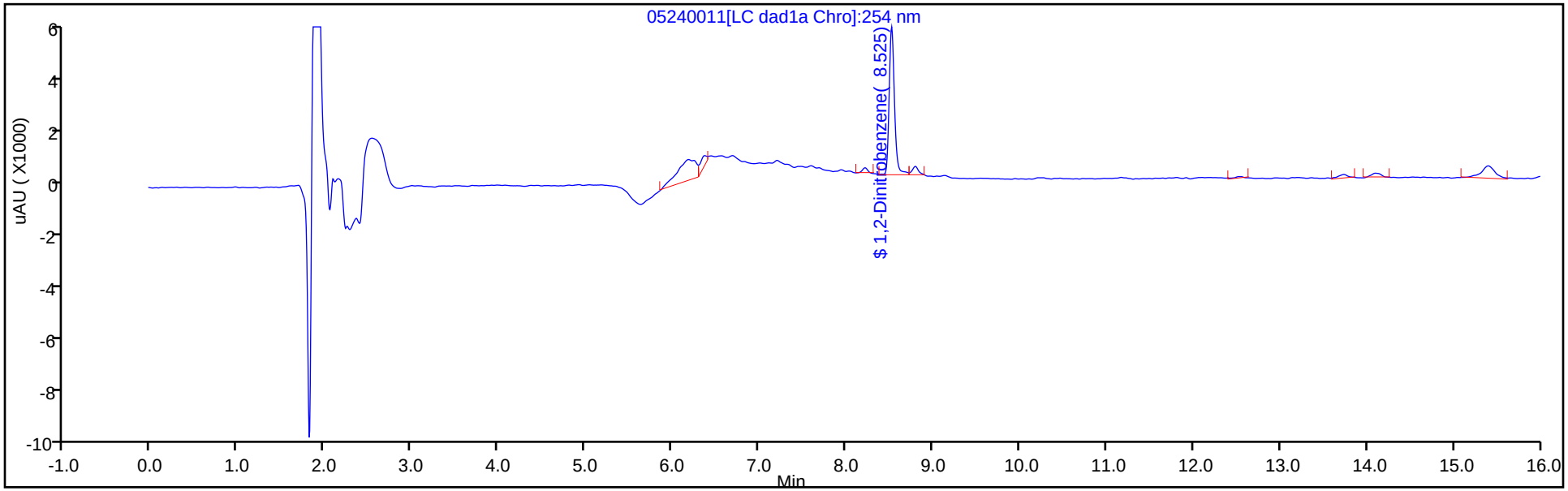
Report Date: 25-May-2023 11:51:41 Chrom Revision: 2.3 23-May-2023 13:55:56

Eurofins Denver

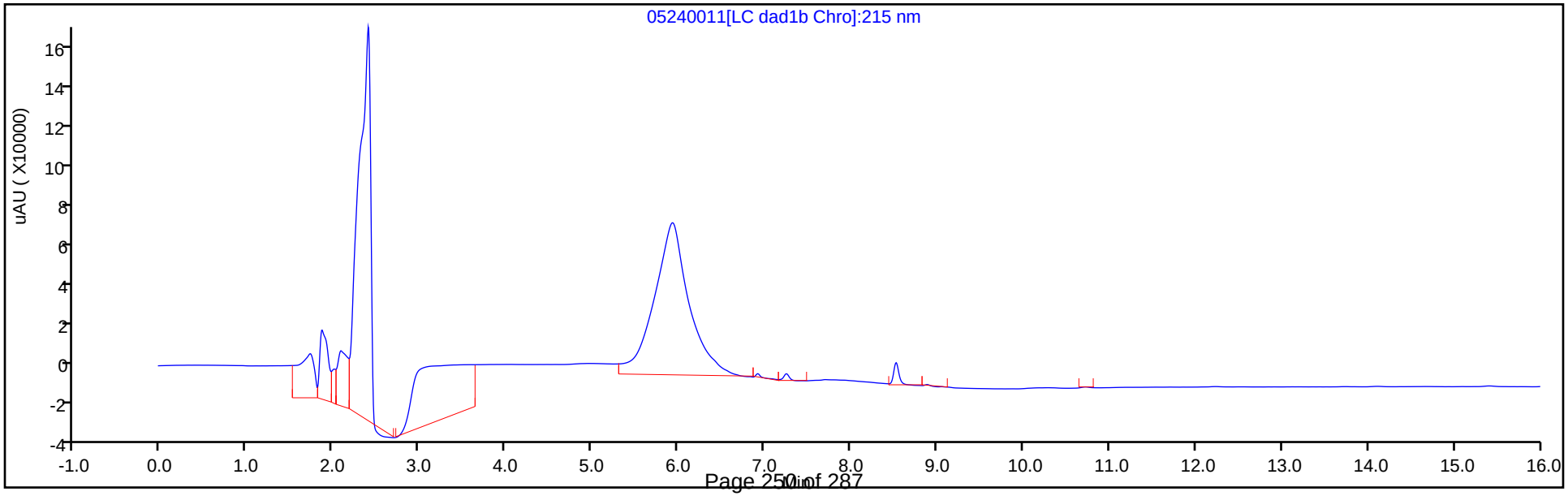
Data File: \\chromfs\denver\chromdata\chhplc_x\20230524-121799.b\05240011.d

Injection Date:	24-May-2023 17:26:04	Instrument ID:	CHHPLC_X3	Operator ID:	JZ/JG
Lims ID:	MB 280-613446/1-A			Worklist Smp#:	11
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	11
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Eurofins Denver
Recovery Report

Data File:	\\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\05240011.D				
Lims ID:	MB 280-613446/1-A				
Client ID:					
Sample Type:	MB				
Inject. Date:	24-May-2023 17:26:04	ALS Bottle#:	11	Worklist Smp#:	11
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Sample Info:	MB 280-613446/1-A				
Operator ID:	JZ/JG	Instrument ID:	CHHPLC_X3		
Method:	\\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\8330_X3.m				
Limit Group:	GCSV - 8330				
Last Update:	25-May-2023 11:51:40	Calib Date:	24-Feb-2023 17:41:20		
Integrator:	Falcon				
Quant Method:	External Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromfs\Denver\ChromData\CHHPLC_X\20230224-118952.b\02240018.D				
Column 1 :	UltraCarb5uODS (20) (4.60 mm)		Det: LC DAD1B, 254 nm		
Process Host:	CTX1654				

First Level Reviewer: LV5D Date: 24-May-2023 17:49:34

Compound	Amount Added	Amount Recovered	% Rec.
$ 10 1,2-Dinitrobenzene	0.2000	0.1821	91.07

User Disabled Compound Report

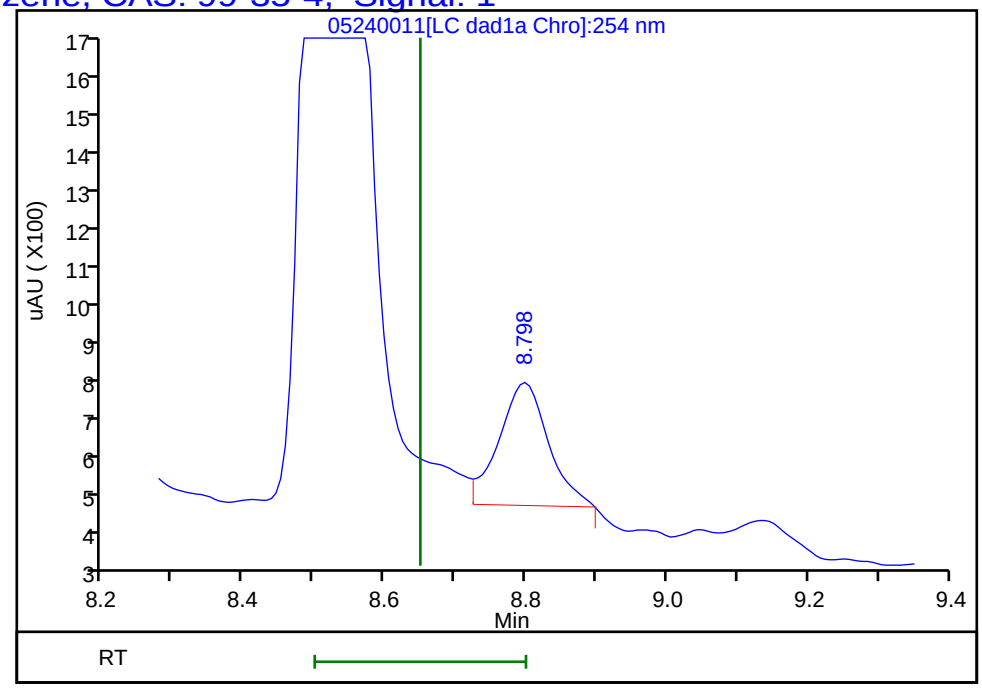
Eurofins Denver

Data File: \\chromfs\denver\chromdata\chhplc_x\20230524-121799.b\05240011.d
Injection Date: 24-May-2023 17:26:04 Instrument ID: CHHPLC_X3
Lims ID: MB 280-613446/1-A
Client ID:
Operator ID: JZ/JG ALS Bottle#: 11 Worklist Smp#: 11
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Method: 8330_X3 Limit Group: GCSV - 8330

Column: UltraCarb5uODS (20) (4.60 mm) Detector LC DAD1B, 254 nm

11 1,3,5-Trinitrobenzene, CAS: 99-35-4, Signal: 1

RT: 8.80
Response: 1464
Amount: 0.006742



Reviewer: LV5D, 24-May-2023 17:49:34
Audit Action: Marked Compound Undetected Audit Reason: Invalid Compound ID

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Denver | Job No.: 280-176808-1

SDG No.:

Client Sample ID: | Lab Sample ID: LCS 280-613446/2-A

Matrix: Water | Lab File ID: 05240012.D

Analysis Method: 8330B | Date Collected:

Extraction Method: 3535 | Date Extracted: 05/23/2023 13:00

Sample wt/vol: 500(mL) | Date Analyzed: 05/24/2023 17:49

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 100(uL) | GC Column: UltraCarb5uODS ID: 4.6(mm)

% Moisture: % Solids: | GPC Cleanup:(Y/N) N

Cleanup Factor:

Analysis Batch No.: 613677 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
99-35-4	1,3,5-Trinitrobenzene	2.24		0.21	0.20	0.084
99-65-0	1,3-Dinitrobenzene	2.15		0.11	0.10	0.037
118-96-7	2,4,6-Trinitrotoluene	2.08		0.11	0.10	0.045
121-14-2	2,4-Dinitrotoluene	2.08		0.10	0.080	0.027
606-20-2	2,6-Dinitrotoluene	2.13		0.10	0.080	0.040
35572-78-2	2-Amino-4,6-dinitrotoluene	2.02		0.11	0.10	0.051
88-72-2	2-Nitrotoluene	1.73		0.21	0.20	0.086
99-08-1	3-Nitrotoluene	1.72		0.40	0.35	0.20
19406-51-0	4-Amino-2,6-dinitrotoluene	2.00		0.15	0.12	0.058
99-99-0	4-Nitrotoluene	1.74		0.41	0.40	0.10
2691-41-0	HMX	1.88		0.21	0.20	0.088
98-95-3	Nitrobenzene	1.93		0.21	0.20	0.091
55-63-0	Nitroglycerin	21.3		2.1	2.0	0.92
78-11-5	PETN	23.1		1.1	1.0	0.45
121-82-4	RDX	2.12		0.21	0.20	0.052
479-45-8	Tetryl	2.31		0.11	0.10	0.032

CAS NO.	SURROGATE	%REC	Q	LIMITS
528-29-0	1,2-Dinitrobenzene	99		83-119

Eurofins Denver
Target Compound Quantitation Report

Data File: \\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\05240012.D
Lims ID: LCS 280-613446/2-A
Client ID:
Sample Type: LCS
Inject. Date: 24-May-2023 17:49:00 ALS Bottle#: 12 Worklist Smp#: 12
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: LCS 280-613446/2-A
Operator ID: JZ/JG Instrument ID: CHHPLC_X3

Method: \\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 25-May-2023 11:51:40 Calib Date: 24-Feb-2023 17:41:20
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromfs\Denver\ChromData\CHHPLC_X\20230224-118952.b\02240018.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX1654

First Level Reviewer: LV5D Date: 24-May-2023 18:20:40

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
4 HMX	1	6.551	6.550	0.001	17580	0.2000	0.1880	
8 RDX	1	7.571	7.570	0.001	22532	0.2000	0.2118	
9 2,4,6-Trinitrophenol	1	7.958	7.963	-0.005	17439	0.2000	0.2300	
$ 10 1,2-Dinitrobenzene	1	8.525	8.523	0.002	24900	0.2000	0.1971	
11 1,3,5-Trinitrobenzene	1	8.651	8.650	0.001	48579	0.2000	0.2237	
12 1,3-Dinitrobenzene	1	9.271	9.270	0.001	63149	0.2000	0.2145	
13 Nitrobenzene	1	9.645	9.636	0.009	36853	0.2000	0.1927	
14 3,5-Dinitroaniline	1	9.878	9.870	0.008	44449	0.2000	0.1946	
15 Tetryl	1	10.011	10.003	0.008	37943	0.2000	0.2312	
16 Nitroglycerin	2	10.465	10.456	0.009	136547	2.00	2.13	
17 2,4,6-Trinitrotoluene	1	10.905	10.896	0.009	43810	0.2000	0.2076	
18 4-Amino-2,6-dinitrotoluene	1	11.098	11.090	0.008	30930	0.2000	0.1996	
19 2-Amino-4,6-dinitrotoluene	1	11.351	11.343	0.008	40617	0.2000	0.2017	
20 2,6-Dinitrotoluene	1	11.505	11.490	0.015	30380	0.2000	0.2128	
21 2,4-Dinitrotoluene	1	11.671	11.663	0.008	61632	0.2000	0.2077	
22 o-Nitrotoluene	1	12.498	12.483	0.015	22145	0.2000	0.1731	
23 p-Nitrotoluene	1	12.911	12.903	0.008	19440	0.2000	0.1738	
24 m-Nitrotoluene	1	13.485	13.476	0.009	24138	0.2000	0.1718	
25 PETN	2	14.658	14.636	0.022	158724	2.00	2.31	

QC Flag Legend
Processing Flags

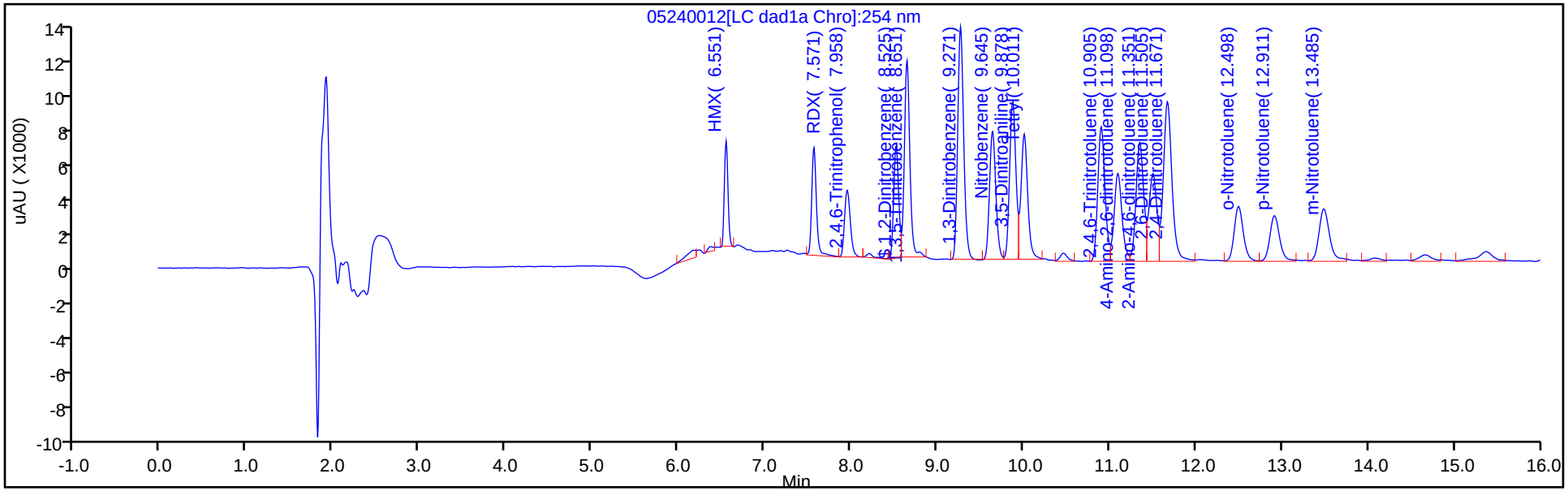
Report Date: 25-May-2023 11:51:42 Chrom Revision: 2.3 23-May-2023 13:55:56

Eurofins Denver

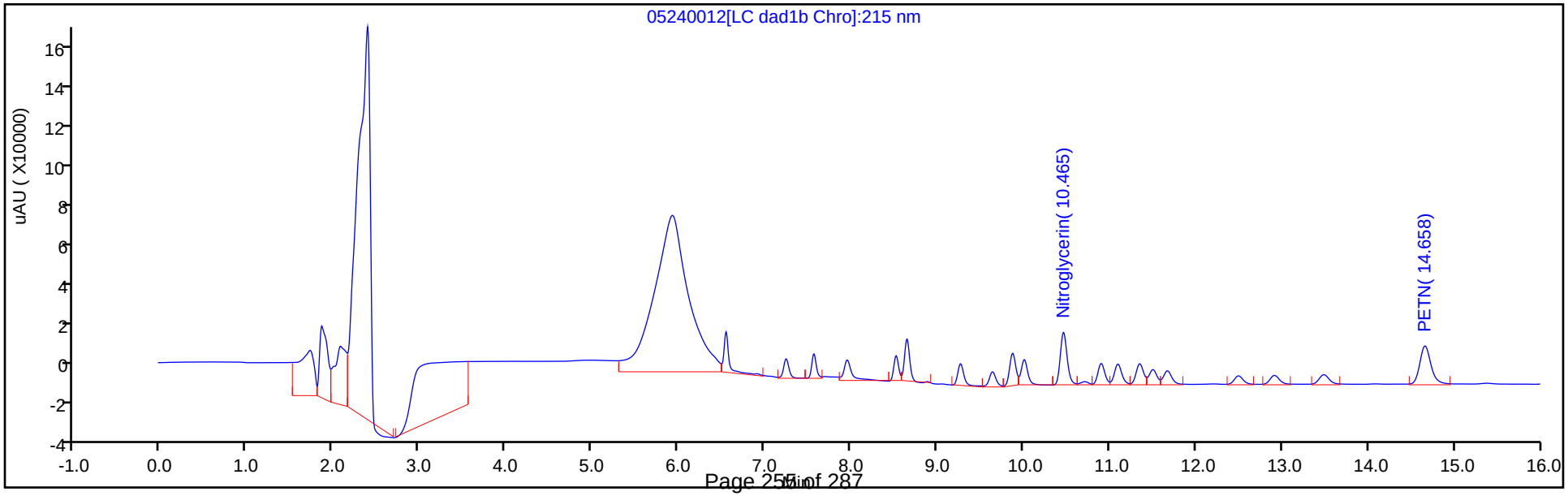
Data File: \\chromfs\denver\chromdata\chhplc_x\20230524-121799.b\05240012.d

Injection Date:	24-May-2023 17:49:00	Instrument ID:	CHHPLC_X3	Operator ID:	JZ/JG
Lims ID:	LCS 280-613446/2-A			Worklist Smp#:	12
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	12
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Eurofins Denver
Recovery Report

Data File:	\\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\05240012.D				
Lims ID:	LCS 280-613446/2-A				
Client ID:					
Sample Type:	LCS				
Inject. Date:	24-May-2023 17:49:00	ALS Bottle#:	12	Worklist Smp#:	12
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Sample Info:	LCS 280-613446/2-A				
Operator ID:	JZ/JG	Instrument ID:	CHHPLC_X3		
Method:	\\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\8330_X3.m				
Limit Group:	GCSV - 8330				
Last Update:	25-May-2023 11:51:40	Calib Date:	24-Feb-2023 17:41:20		
Integrator:	Falcon				
Quant Method:	External Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromfs\Denver\ChromData\CHHPLC_X\20230224-118952.b\02240018.D				
Column 1 :	UltraCarb5uODS (20) (4.60 mm)		Det: LC DAD1B, 254 nm		
Process Host:	CTX1654				
First Level Reviewer: LV5D		Date:	24-May-2023 18:20:40		

Compound	Amount Added	Amount Recovered	% Rec.
$ 10 1,2-Dinitrobenzene	0.2000	0.1971	98.57

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Denver | Job No.: 280-176808-1

SDG No.:

Client Sample ID: | Lab Sample ID: LCSD 280-613446/3-A

Matrix: Water | Lab File ID: 05240013.D

Analysis Method: 8330B | Date Collected:

Extraction Method: 3535 | Date Extracted: 05/23/2023 13:00

Sample wt/vol: 500(mL) | Date Analyzed: 05/24/2023 18:11

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 100(uL) | GC Column: UltraCarb5uODS ID: 4.6(mm)

% Moisture: % Solids: | GPC Cleanup:(Y/N) N

Cleanup Factor:

Analysis Batch No.: 613677 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
99-35-4	1,3,5-Trinitrobenzene	2.03		0.21	0.20	0.084
99-65-0	1,3-Dinitrobenzene	1.86		0.11	0.10	0.037
118-96-7	2,4,6-Trinitrotoluene	1.77		0.11	0.10	0.045
121-14-2	2,4-Dinitrotoluene	1.74		0.10	0.080	0.027
606-20-2	2,6-Dinitrotoluene	1.81		0.10	0.080	0.040
35572-78-2	2-Amino-4,6-dinitrotoluene	1.73		0.11	0.10	0.051
88-72-2	2-Nitrotoluene	1.45		0.21	0.20	0.086
99-08-1	3-Nitrotoluene	1.40	Q	0.40	0.35	0.20
19406-51-0	4-Amino-2,6-dinitrotoluene	1.71		0.15	0.12	0.058
99-99-0	4-Nitrotoluene	1.43		0.41	0.40	0.10
2691-41-0	HMX	1.74		0.21	0.20	0.088
98-95-3	Nitrobenzene	1.66		0.21	0.20	0.091
55-63-0	Nitroglycerin	19.2		2.1	2.0	0.92
78-11-5	PETN	20.4		1.1	1.0	0.45
121-82-4	RDX	1.82		0.21	0.20	0.052
479-45-8	Tetryl	1.99		0.11	0.10	0.032

CAS NO.	SURROGATE	%REC	Q	LIMITS
528-29-0	1,2-Dinitrobenzene	88		83-119

Eurofins Denver
Target Compound Quantitation Report

Data File: \\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\05240013.D
Lims ID: LCSD 280-613446/3-A
Client ID:
Sample Type: LCSD
Inject. Date: 24-May-2023 18:11:55 ALS Bottle#: 13 Worklist Smp#: 13
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: LCSD 280-613446/3-A
Operator ID: JZ/JG Instrument ID: CHHPLC_X3

Method: \\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 25-May-2023 11:51:40 Calib Date: 24-Feb-2023 17:41:20
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromfs\Denver\ChromData\CHHPLC_X\20230224-118952.b\02240018.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX1654

First Level Reviewer: K8YG Date: 25-May-2023 10:46:06

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
4 HMX	1	6.551	6.550	0.001	16248	0.2000	0.1737	
8 RDX	1	7.571	7.570	0.001	19317	0.2000	0.1816	
9 2,4,6-Trinitrophenol	1	7.958	7.963	-0.005	17365	0.2000	0.2290	
$ 10 1,2-Dinitrobenzene	1	8.525	8.523	0.002	22265	0.2000	0.1763	
11 1,3,5-Trinitrobenzene	1	8.645	8.650	-0.005	44065	0.2000	0.2029	
12 1,3-Dinitrobenzene	1	9.271	9.270	0.001	54814	0.2000	0.1862	
13 Nitrobenzene	1	9.638	9.636	0.002	31688	0.2000	0.1657	
14 3,5-Dinitroaniline	1	9.871	9.870	0.001	38831	0.2000	0.1701	
15 Tetryl	1	10.005	10.003	0.002	32645	0.2000	0.1989	
16 Nitroglycerin	2	10.458	10.456	0.002	122777	2.00	1.92	
17 2,4,6-Trinitrotoluene	1	10.891	10.896	-0.005	37448	0.2000	0.1774	
18 4-Amino-2,6-dinitrotoluene	1	11.091	11.090	0.001	26466	0.2000	0.1708	
19 2-Amino-4,6-dinitrotoluene	1	11.345	11.343	0.002	34845	0.2000	0.1730	
20 2,6-Dinitrotoluene	1	11.491	11.490	0.001	25846	0.2000	0.1811	
21 2,4-Dinitrotoluene	1	11.658	11.663	-0.005	51490	0.2000	0.1736	
22 o-Nitrotoluene	1	12.485	12.483	0.002	18595	0.2000	0.1454	
23 p-Nitrotoluene	1	12.898	12.903	-0.005	16050	0.2000	0.1435	
24 m-Nitrotoluene	1	13.471	13.476	-0.005	19644	0.2000	0.1398	
25 PETN	2	14.625	14.636	-0.011	140548	2.00	2.04	

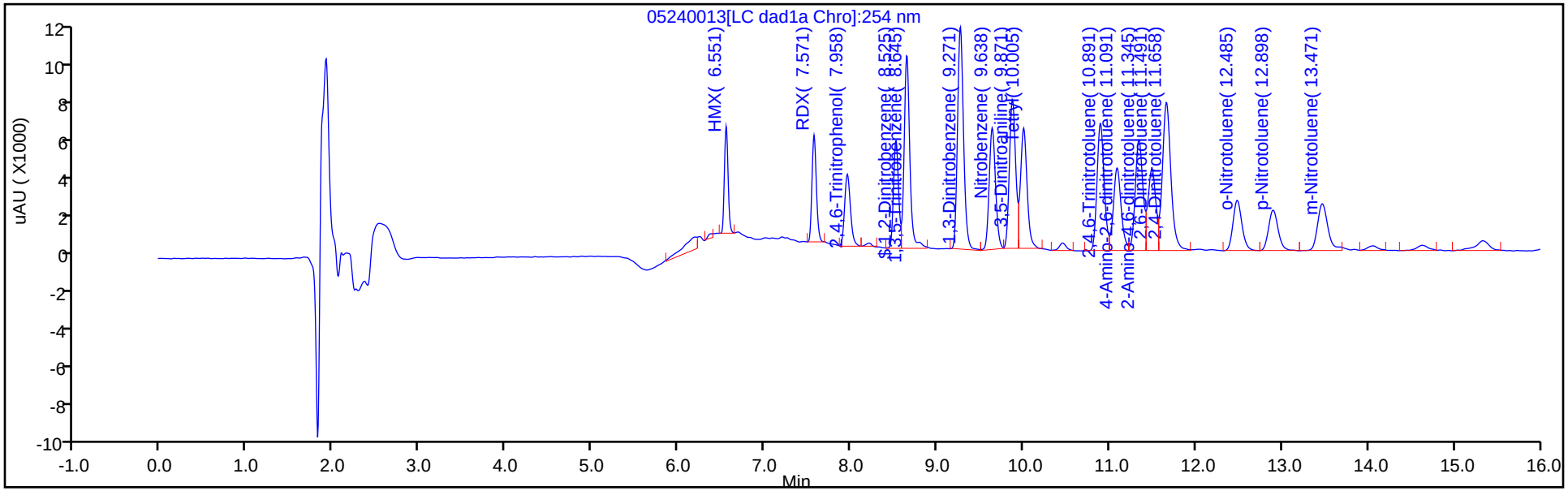
Report Date: 25-May-2023 11:51:42 Chrom Revision: 2.3 23-May-2023 13:55:56

Eurofins Denver

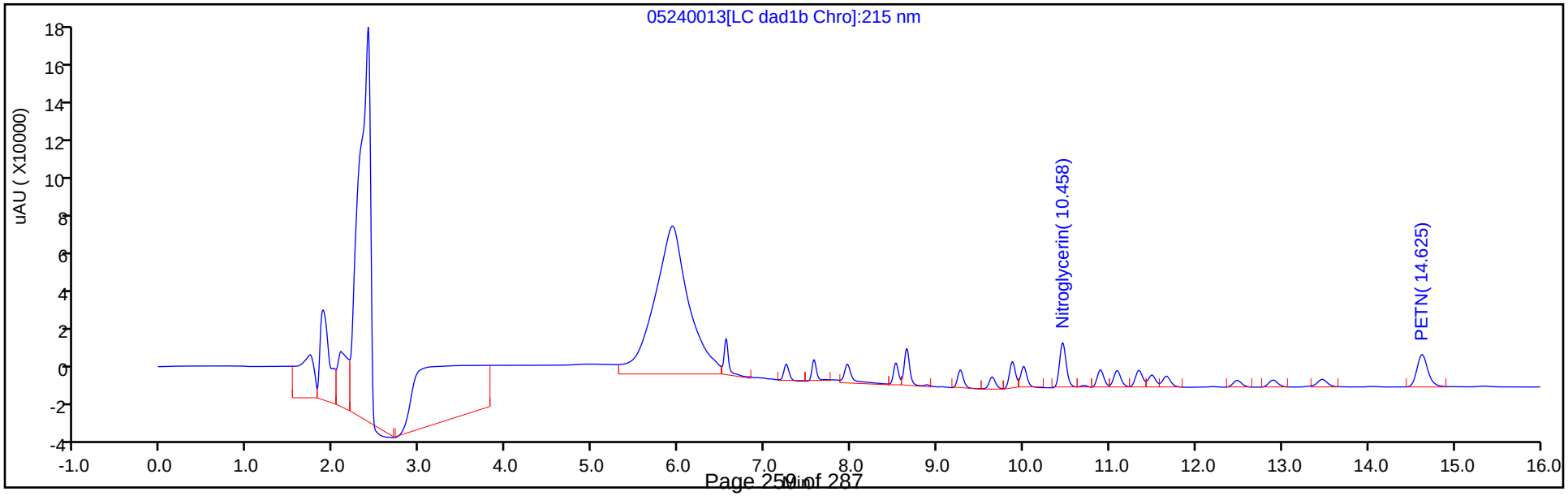
Data File: \\chromfs\denver\chromdata\chhplc_x\20230524-121799.b\05240013.d

Injection Date:	24-May-2023 18:11:55	Instrument ID:	CHHPLC_X3	Operator ID:	JZ/JG
Lims ID:	LCSD 280-613446/3-A			Worklist Smp#:	13
Client ID:					
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	13
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Eurofins Denver
Recovery Report

Data File: \\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\05240013.D
Lims ID: LCSD 280-613446/3-A
Client ID:
Sample Type: LCSD
Inject. Date: 24-May-2023 18:11:55 ALS Bottle#: 13 Worklist Smp#: 13
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: LCSD 280-613446/3-A
Operator ID: JZ/JG Instrument ID: CHHPLC_X3

Method: \\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 25-May-2023 11:51:40 Calib Date: 24-Feb-2023 17:41:20
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromfs\Denver\ChromData\CHHPLC_X\20230224-118952.b\02240018.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX1654

First Level Reviewer: K8YG Date: 25-May-2023 10:46:06

Compound	Amount Added	Amount Recovered	% Rec.
$ 10 1,2-Dinitrobenzene	0.2000	0.1763	88.14

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Denver | Job No.: 280-176808-1

SDG No.:

Client Sample ID: FWGmw-004-230401-GW MS | Lab Sample ID: 280-176808-2 MS

Matrix: Water | Lab File ID: 05240019.D

Analysis Method: 8330B | Date Collected: 05/18/2023 10:03

Extraction Method: 3535 | Date Extracted: 05/23/2023 13:00

Sample wt/vol: 515(mL) | Date Analyzed: 05/24/2023 20:29

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 100(uL) | GC Column: UltraCarb5uODS ID: 4.6(mm)

% Moisture: % Solids: | GPC Cleanup:(Y/N) N

Cleanup Factor:

Analysis Batch No.: 613677 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
99-35-4	1,3,5-Trinitrobenzene	1.89	M	0.20	0.19	0.082
99-65-0	1,3-Dinitrobenzene	1.85		0.11	0.097	0.036
118-96-7	2,4,6-Trinitrotoluene	1.72		0.11	0.097	0.044
121-14-2	2,4-Dinitrotoluene	1.66		0.097	0.078	0.027
606-20-2	2,6-Dinitrotoluene	1.72		0.097	0.078	0.039
35572-78-2	2-Amino-4,6-dinitrotoluene	1.66		0.11	0.097	0.049
88-72-2	2-Nitrotoluene	1.45		0.20	0.19	0.083
99-08-1	3-Nitrotoluene	1.36	J1	0.39	0.34	0.19
19406-51-0	4-Amino-2,6-dinitrotoluene	1.67		0.15	0.12	0.056
99-99-0	4-Nitrotoluene	1.41		0.40	0.39	0.097
2691-41-0	HMX	1.76	M	0.20	0.19	0.085
98-95-3	Nitrobenzene	1.60		0.20	0.19	0.088
55-63-0	Nitroglycerin	18.1		2.0	1.9	0.89
78-11-5	PETN	19.8		1.1	0.97	0.43
121-82-4	RDX	1.73	M	0.20	0.19	0.050
479-45-8	Tetryl	1.94		0.11	0.097	0.031

CAS NO.	SURROGATE	%REC	Q	LIMITS
528-29-0	1,2-Dinitrobenzene	85	M	83-119

Eurofins Denver
Target Compound Quantitation Report

Data File: \\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\05240019.D
Lims ID: 280-176808-B-2-A MS
Client ID: FWGmw-004-230401-GW
Sample Type: MS
Inject. Date: 24-May-2023 20:29:40 ALS Bottle#: 19 Worklist Smp#: 19
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: 280-176808-B-2-A MS
Operator ID: JZ/JG Instrument ID: CHHPLC_X3

Method: \\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 25-May-2023 11:51:40 Calib Date: 24-Feb-2023 17:41:20
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromfs\Denver\ChromData\CHHPLC_X\20230224-118952.b\02240018.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX1654

First Level Reviewer: K8YG Date: 25-May-2023 08:03:04

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
4 HMX	1	6.551	6.550	0.001	16917	0.2000	0.1809	M
8 RDX	1	7.571	7.570	0.001	18943	0.2000	0.1781	M
9 2,4,6-Trinitrophenol	1	7.951	7.963	-0.012	21807	0.2000	0.2876	M
$ 10 1,2-Dinitrobenzene	1	8.525	8.523	0.002	21592	0.2000	0.1709	Ma
11 1,3,5-Trinitrobenzene	1	8.651	8.650	0.001	42309	0.2000	0.1948	Ma
12 1,3-Dinitrobenzene	1	9.271	9.270	0.001	55995	0.2000	0.1902	
13 Nitrobenzene	1	9.644	9.636	0.008	31436	0.2000	0.1644	
14 3,5-Dinitroaniline	1	9.878	9.870	0.008	37655	0.2000	0.1650	
15 Tetryl	1	10.011	10.003	0.008	32874	0.2000	0.2003	
16 Nitroglycerin	2	10.464	10.456	0.008	119139	2.00	1.86	
17 2,4,6-Trinitrotoluene	1	10.898	10.896	0.002	37355	0.2000	0.1770	
18 4-Amino-2,6-dinitrotoluene	1	11.098	11.090	0.008	26594	0.2000	0.1716	
19 2-Amino-4,6-dinitrotoluene	1	11.351	11.343	0.008	34483	0.2000	0.1712	
20 2,6-Dinitrotoluene	1	11.498	11.490	0.008	25345	0.2000	0.1776	
21 2,4-Dinitrotoluene	1	11.664	11.663	0.001	50724	0.2000	0.1710	
22 o-Nitrotoluene	1	12.491	12.483	0.008	19107	0.2000	0.1494	
23 p-Nitrotoluene	1	12.904	12.903	0.001	16247	0.2000	0.1452	
24 m-Nitrotoluene	1	13.478	13.476	0.002	19609	0.2000	0.1396	
25 PETN	2	14.644	14.636	0.008	140290	2.00	2.04	

QC Flag Legend

Processing Flags
Review Flags
M - Manually Integrated
a - User Assigned ID

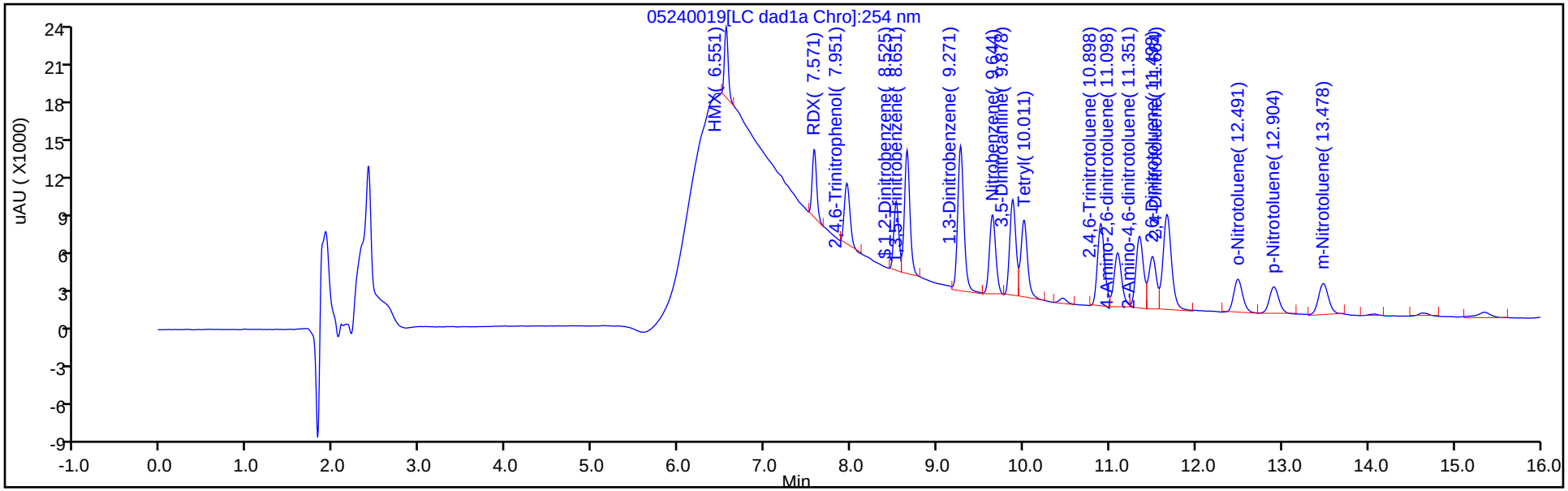
Report Date: 25-May-2023 11:51:47 Chrom Revision: 2.3 23-May-2023 13:55:56

Eurofins Denver

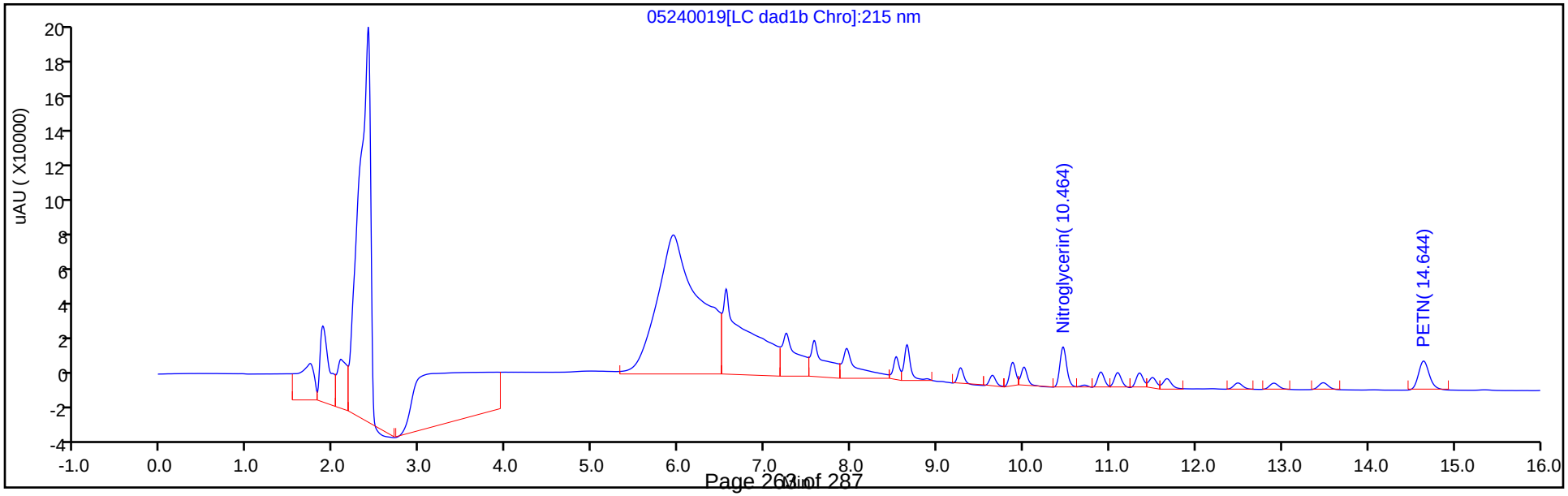
Data File: \\chromfs\denver\chromdata\chhplc_x\20230524-121799.b\05240019.d

Injection Date:	24-May-2023 20:29:40	Instrument ID:	CHHPLC_X3	Operator ID:	JZ/JG
Lims ID:	280-176808-B-2-A MS			Worklist Smp#:	19
Client ID:	FWGmw-004-230401-GW				
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	19
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Eurofins Denver
Recovery Report

Data File:	\\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\05240019.D				
Lims ID:	280-176808-B-2-A MS				
Client ID:	FWGmw-004-230401-GW				
Sample Type:	MS				
Inject. Date:	24-May-2023 20:29:40	ALS Bottle#:	19	Worklist Smp#:	19
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Sample Info:	280-176808-B-2-A MS				
Operator ID:	JZ/JG	Instrument ID:	CHHPLC_X3		
Method:	\\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\8330_X3.m				
Limit Group:	GCSV - 8330				
Last Update:	25-May-2023 11:51:40	Calib Date:	24-Feb-2023 17:41:20		
Integrator:	Falcon				
Quant Method:	External Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromfs\Denver\ChromData\CHHPLC_X\20230224-118952.b\02240018.D				
Column 1 :	UltraCarb5uODS (20) (4.60 mm)		Det: LC DAD1B, 254 nm		
Process Host:	CTX1654				

First Level Reviewer: K8YG Date: 25-May-2023 08:03:04

Compound	Amount Added	Amount Recovered	% Rec.
$ 10 1,2-Dinitrobenzene	0.2000	0.1709	85.47

Manual Integration/User Assign Peak Report

Eurofins Denver

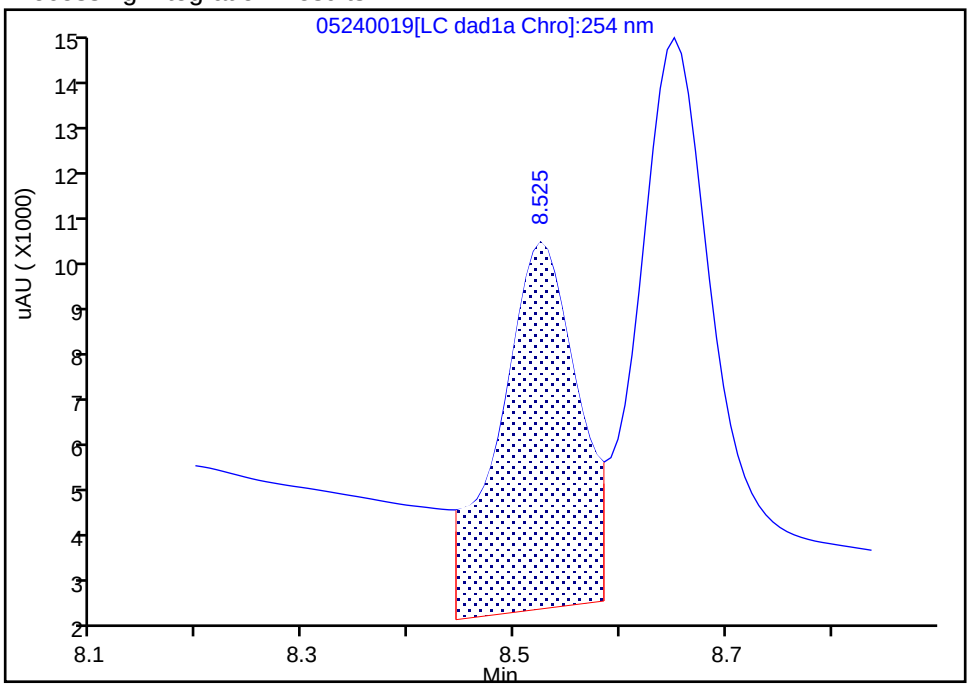
Data File:	\\chromfs\denver\chromdata\chhplc_x\20230524-121799.b\05240019.d				
Injection Date:	24-May-2023 20:29:40	Instrument ID:	CHHPLC_X3		
Lims ID:	280-176808-B-2-A MS				
Client ID:	FWGmw-004-230401-GW				
Operator ID:	JZ/JG	ALS Bottle#:	19	Worklist Smp#:	19
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

$ 10 1,2-Dinitrobenzene, CAS: 528-29-0

Signal: 1

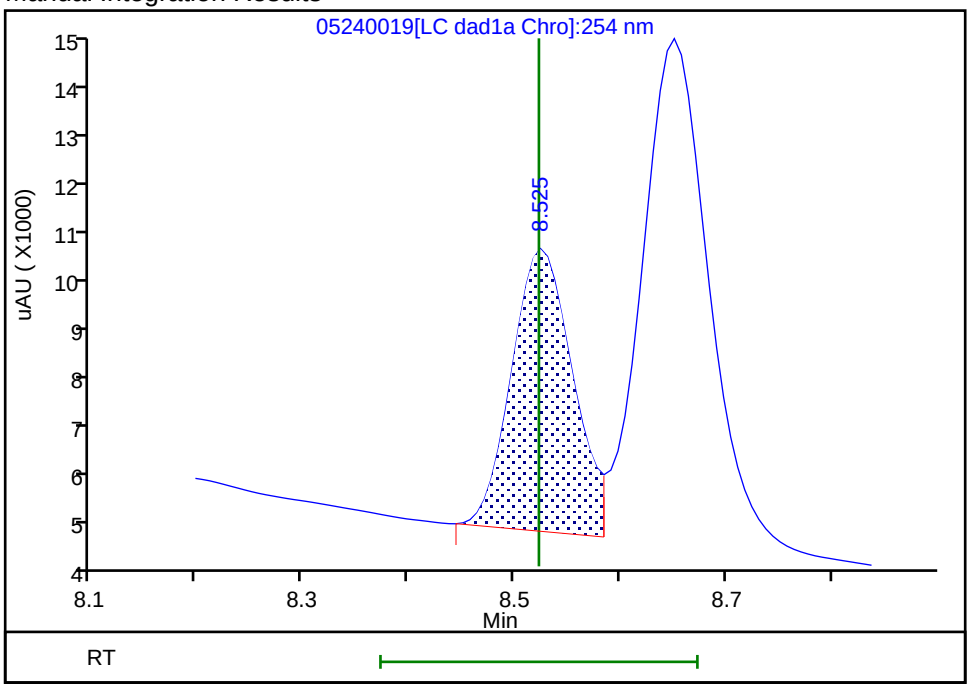
Processing Integration Results

RT: 8.52
Area: 36994
Amount: 0.292886
Amount Units: ug/mL



Manual Integration Results

RT: 8.52
Area: 21592
Amount: 0.170946
Amount Units: ug/mL



Reviewer: K8YG, 25-May-2023 08:02:51 -06:00:00 (UTC)

Audit Action: Manually Integrated/Assigned Compound ID Audit Reason: Baseline

Manual Integration/User Assign Peak Report

Eurofins Denver

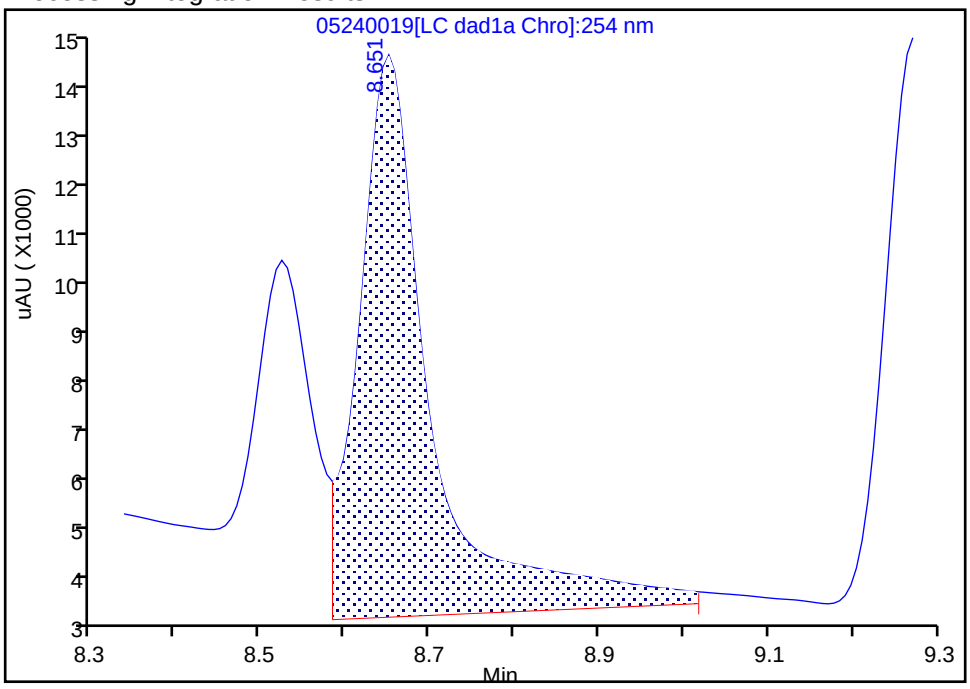
Data File:	\\chromfs\denver\chromdata\chhplc_x\20230524-121799.b\05240019.d				
Injection Date:	24-May-2023 20:29:40	Instrument ID:	CHHPLC_X3		
Lims ID:	280-176808-B-2-A MS				
Client ID:	FWGmw-004-230401-GW				
Operator ID:	JZ/JG	ALS Bottle#:	19	Worklist Smp#:	19
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

11 1,3,5-Trinitrobenzene, CAS: 99-35-4

Signal: 1

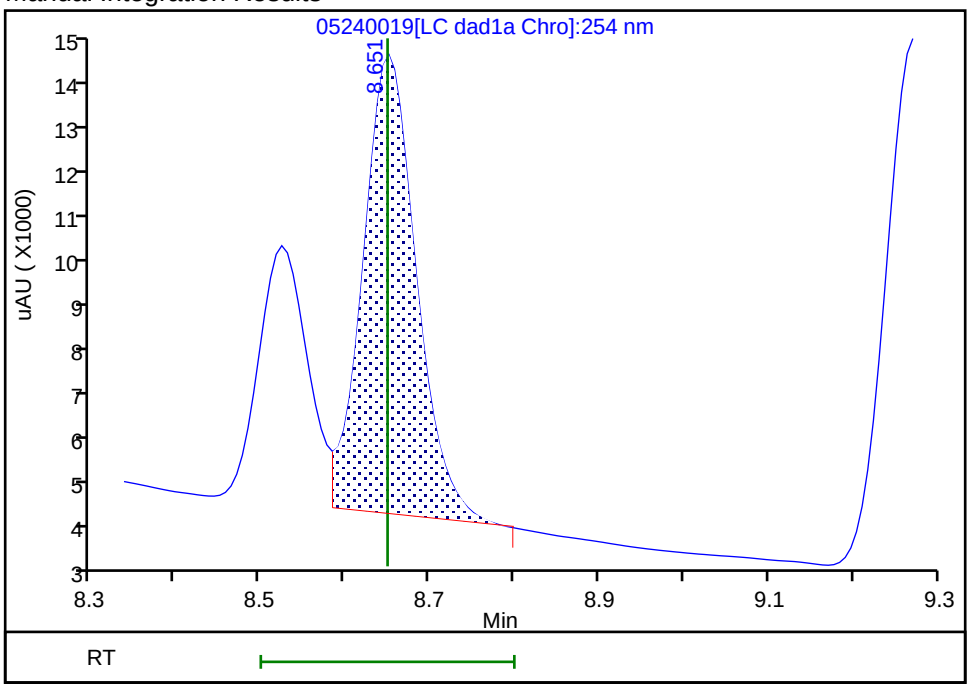
Processing Integration Results

RT: 8.65
Area: 65506
Amount: 0.301667
Amount Units: ug/mL



Manual Integration Results

RT: 8.65
Area: 42309
Amount: 0.194840
Amount Units: ug/mL



Reviewer: K8YG, 25-May-2023 08:02:47 -06:00:00 (UTC)

Audit Action: Split an Integrated Peak Audit Reason: Baseline

Manual Integration/User Assign Peak Report

Eurofins Denver

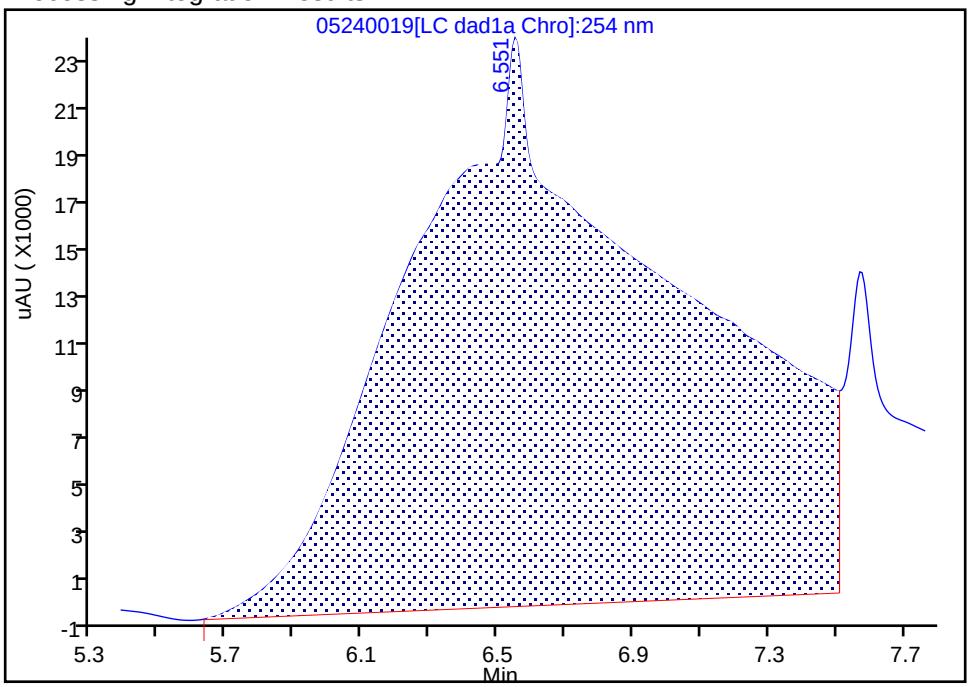
Data File:	\\chromfs\denver\chromdata\chhplc_x\20230524-121799.b\05240019.d				
Injection Date:	24-May-2023 20:29:40	Instrument ID:	CHHPLC_X3		
Lims ID:	280-176808-B-2-A MS				
Client ID:	FWGmw-004-230401-GW				
Operator ID:	JZ/JG	ALS Bottle#:	19	Worklist Smp#:	19
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

4 HMX, CAS: 2691-41-0

Signal: 1

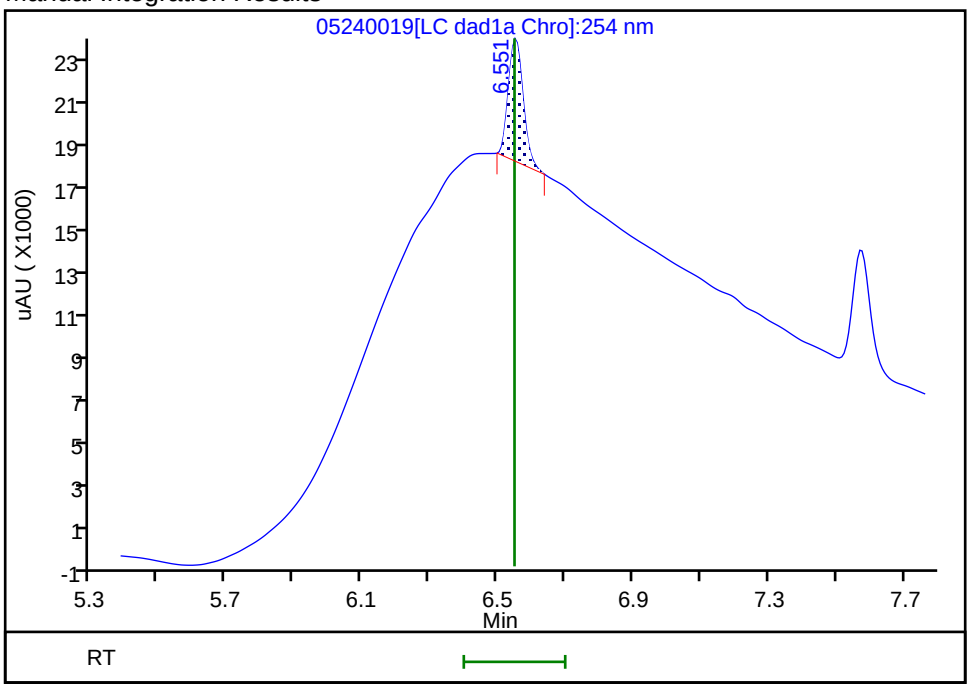
Processing Integration Results

RT: 6.55
Area: 1257479
Amount: 13.444926
Amount Units: ug/mL



Manual Integration Results

RT: 6.55
Area: 16917
Amount: 0.180876
Amount Units: ug/mL



Reviewer: K8YG, 25-May-2023 08:02:09 -06:00:00 (UTC)

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

Eurofins Denver

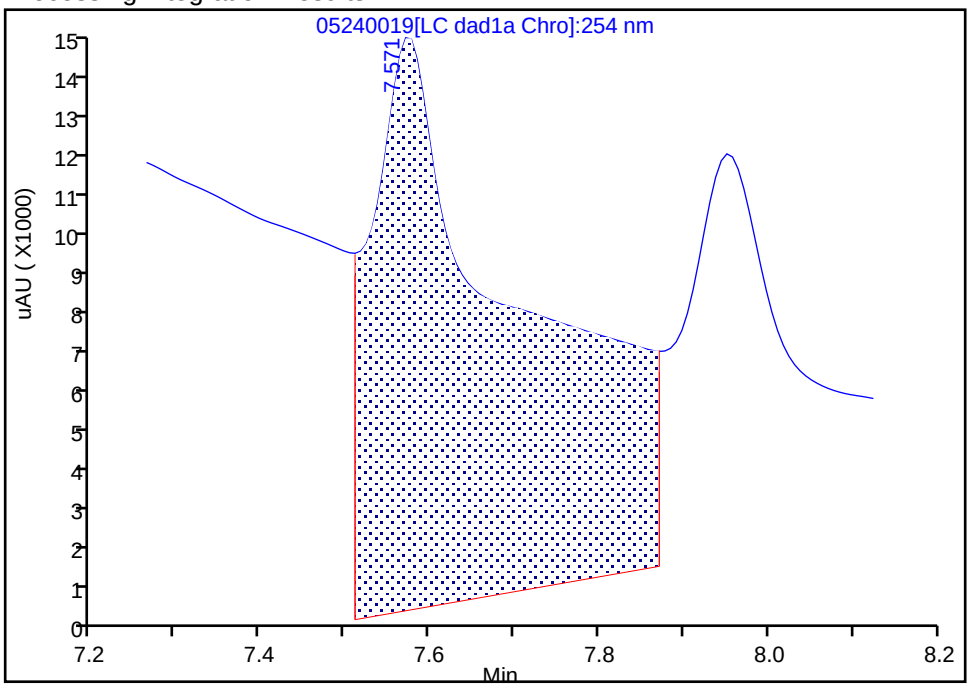
Data File:	\\chromfs\denver\chromdata\chhplc_x\20230524-121799.b\05240019.d				
Injection Date:	24-May-2023 20:29:40	Instrument ID:	CHHPLC_X3		
Lims ID:	280-176808-B-2-A MS				
Client ID:	FWGmw-004-230401-GW				
Operator ID:	JZ/JG	ALS Bottle#:	19	Worklist Smp#:	19
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

8 RDX, CAS: 121-82-4

Signal: 1

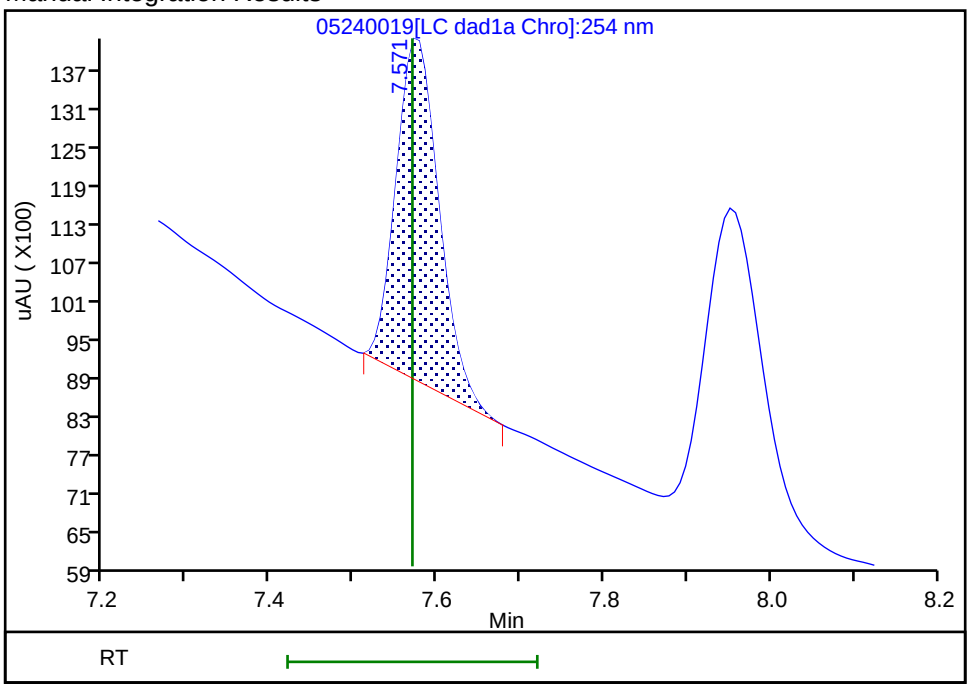
Processing Integration Results

RT: 7.57
Area: 159928
Amount: 1.503368
Amount Units: ug/mL



Manual Integration Results

RT: 7.57
Area: 18943
Amount: 0.178070
Amount Units: ug/mL



Reviewer: K8YG, 25-May-2023 08:02:23 -06:00:00 (UTC)

Audit Action: Manually Integrated Audit Reason: Baseline

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Denver | Job No.: 280-176808-1

SDG No.:

Client Sample ID: FWGmw-004-230401-GW MSD | Lab Sample ID: 280-176808-2 MSD

Matrix: Water | Lab File ID: 05240020.D

Analysis Method: 8330B | Date Collected: 05/18/2023 10:03

Extraction Method: 3535 | Date Extracted: 05/23/2023 13:00

Sample wt/vol: 468.9(mL) | Date Analyzed: 05/24/2023 20:52

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 100(uL) | GC Column: UltraCarb5uODS ID: 4.6(mm)

% Moisture: % Solids: | GPC Cleanup:(Y/N) N

Cleanup Factor:

Analysis Batch No.: 613677 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
99-35-4	1,3,5-Trinitrobenzene	2.11	M	0.22	0.21	0.090
99-65-0	1,3-Dinitrobenzene	2.02		0.12	0.11	0.039
118-96-7	2,4,6-Trinitrotoluene	1.89		0.12	0.11	0.048
121-14-2	2,4-Dinitrotoluene	1.84		0.11	0.085	0.029
606-20-2	2,6-Dinitrotoluene	1.90		0.11	0.085	0.043
35572-78-2	2-Amino-4,6-dinitrotoluene	1.84		0.12	0.11	0.054
88-72-2	2-Nitrotoluene	1.61		0.22	0.21	0.091
99-08-1	3-Nitrotoluene	1.63	M	0.43	0.37	0.21
19406-51-0	4-Amino-2,6-dinitrotoluene	1.83		0.16	0.13	0.062
99-99-0	4-Nitrotoluene	1.52		0.44	0.43	0.11
2691-41-0	HMX	1.91	M	0.22	0.21	0.093
98-95-3	Nitrobenzene	1.76		0.22	0.21	0.097
55-63-0	Nitroglycerin	19.7		2.2	2.1	0.98
78-11-5	PETN	21.5		1.2	1.1	0.48
121-82-4	RDX	1.92	M	0.22	0.21	0.055
479-45-8	Tetryl	2.07		0.12	0.11	0.034

CAS NO.	SURROGATE	%REC	Q	LIMITS
528-29-0	1,2-Dinitrobenzene	85	M	83-119

Eurofins Denver
Target Compound Quantitation Report

Data File: \\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\05240020.D
Lims ID: 280-176808-B-2-B MSD
Client ID: FWGmw-004-230401-GW
Sample Type: MSD
Inject. Date: 24-May-2023 20:52:35 ALS Bottle#: 20 Worklist Smp#: 20
Injection Vol: 100.0 ul Dil. Factor: 1.0000
Sample Info: 280-176808-B-2-B MSD
Operator ID: JZ/JG Instrument ID: CHHPLC_X3

Method: \\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\8330_X3.m
Limit Group: GCSV - 8330
Last Update: 25-May-2023 11:51:40 Calib Date: 24-Feb-2023 17:41:20
Integrator: Falcon
Quant Method: External Standard Quant By: Initial Calibration
Last ICal File: \\chromfs\Denver\ChromData\CHHPLC_X\20230224-118952.b\02240018.D

Column 1 : UltraCarb5uODS (20) (4.60 mm) Det: LC DAD1B, 254 nm
Process Host: CTX1654

First Level Reviewer: K8YG Date: 25-May-2023 08:11:07

Compound	Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/mL	OnCol Amt ug/mL	Flags
4 HMX	1	6.548	6.550	-0.002	16723	0.2000	0.1788	M
8 RDX	1	7.568	7.570	-0.002	19106	0.2000	0.1796	M
9 2,4,6-Trinitrophenol	1	7.948	7.963	-0.015	22386	0.2000	0.2952	M
$ 10 1,2-Dinitrobenzene	1	8.522	8.523	-0.001	21495	0.2000	0.1702	M
11 1,3,5-Trinitrobenzene	1	8.648	8.650	-0.002	43039	0.2000	0.1982	Ma
12 1,3-Dinitrobenzene	1	9.268	9.270	-0.002	55838	0.2000	0.1897	
13 Nitrobenzene	1	9.642	9.636	0.006	31490	0.2000	0.1647	
14 3,5-Dinitroaniline	1	9.875	9.870	0.005	38272	0.2000	0.1677	
15 Tetryl	1	10.008	10.003	0.005	31908	0.2000	0.1944	
16 Nitroglycerin	2	10.462	10.456	0.006	118430	2.00	1.85	
17 2,4,6-Trinitrotoluene	1	10.895	10.896	-0.001	37390	0.2000	0.1772	
18 4-Amino-2,6-dinitrotoluene	1	11.095	11.090	0.005	26519	0.2000	0.1712	
19 2-Amino-4,6-dinitrotoluene	1	11.348	11.343	0.005	34765	0.2000	0.1726	
20 2,6-Dinitrotoluene	1	11.495	11.490	0.005	25437	0.2000	0.1782	
21 2,4-Dinitrotoluene	1	11.662	11.663	-0.001	51057	0.2000	0.1721	
22 o-Nitrotoluene	1	12.488	12.483	0.005	19320	0.2000	0.1511	
23 p-Nitrotoluene	1	12.902	12.903	-0.001	15976	0.2000	0.1428	
24 m-Nitrotoluene	1	13.475	13.476	-0.001	21423	0.2000	0.1525	M
25 PETN	2	14.635	14.636	-0.001	139110	2.00	2.02	

QC Flag Legend

Processing Flags
Review Flags
M - Manually Integrated
a - User Assigned ID

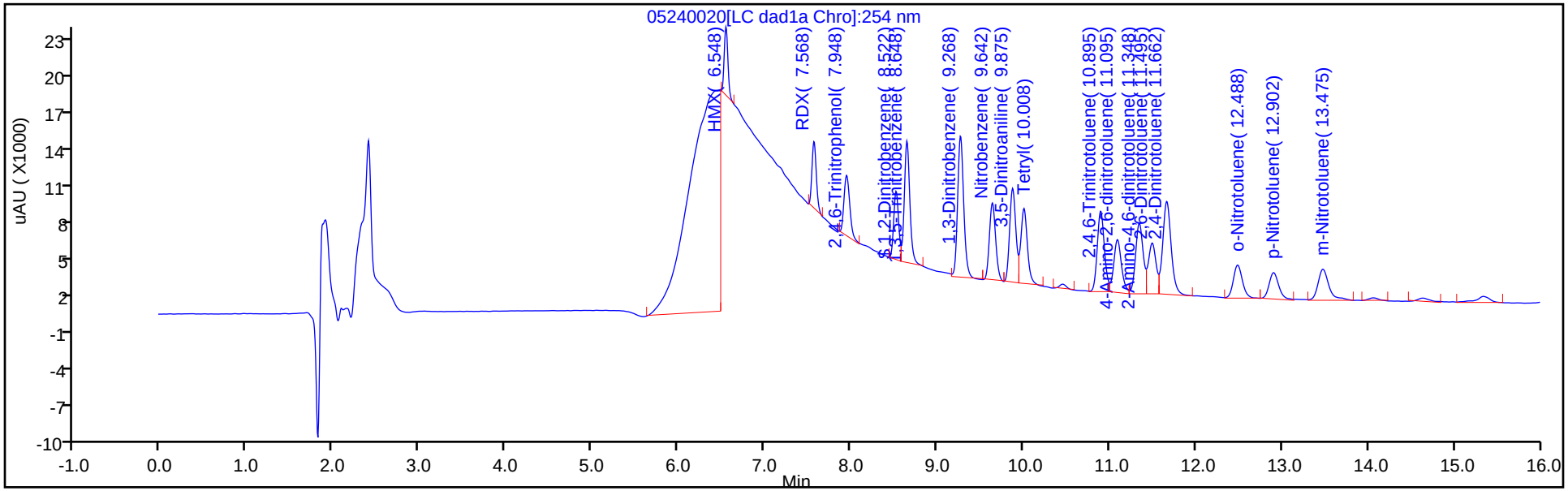
Report Date: 25-May-2023 11:51:47 Chrom Revision: 2.3 23-May-2023 13:55:56

Eurofins Denver

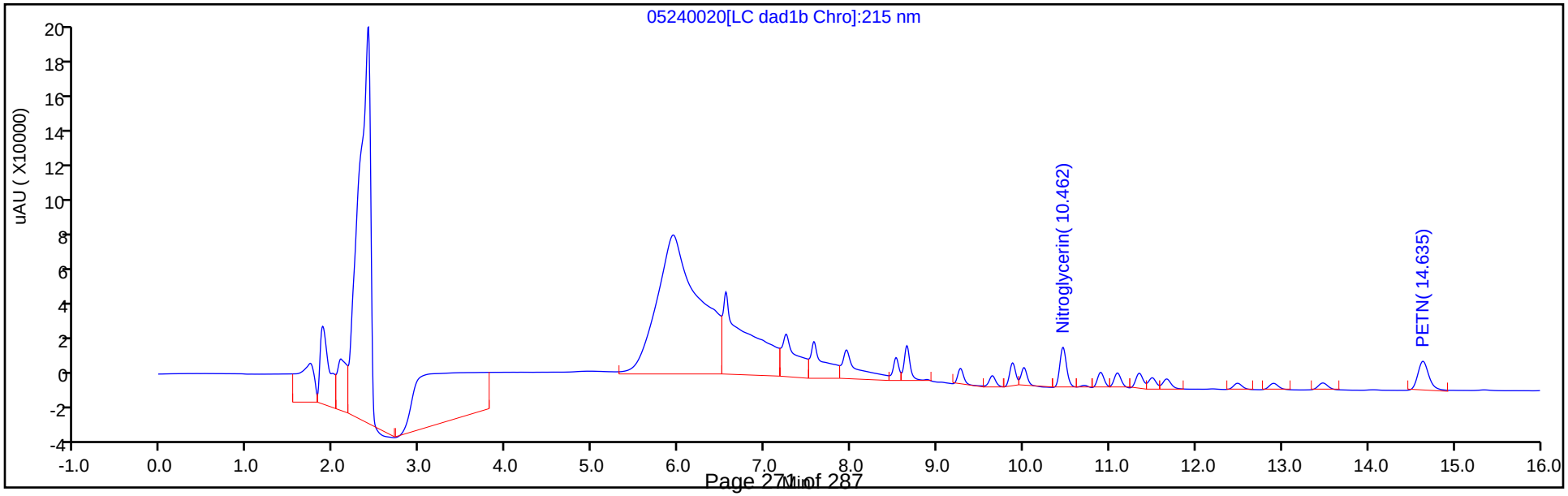
Data File: \\chromfs\denver\chromdata\chhplc_x\20230524-121799.b\05240020.d

Injection Date:	24-May-2023 20:52:35	Instrument ID:	CHHPLC_X3	Operator ID:	JZ/JG
Lims ID:	280-176808-B-2-B MSD			Worklist Smp#:	20
Client ID:	FWGmw-004-230401-GW				
Injection Vol:	100.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	20
Method:	8330_X3	Limit Group:	GCSV - 8330		

Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Column: UltraCarb5uODS (20) (4.60 mm) Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



Eurofins Denver
Recovery Report

Data File:	\\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\05240020.D				
Lims ID:	280-176808-B-2-B MSD				
Client ID:	FWGmw-004-230401-GW				
Sample Type:	MSD				
Inject. Date:	24-May-2023 20:52:35	ALS Bottle#:	20	Worklist Smp#:	20
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Sample Info:	280-176808-B-2-B MSD				
Operator ID:	JZ/JG	Instrument ID:	CHHPLC_X3		
Method:	\\chromfs\Denver\ChromData\CHHPLC_X\20230524-121799.b\8330_X3.m				
Limit Group:	GCSV - 8330				
Last Update:	25-May-2023 11:51:40	Calib Date:	24-Feb-2023 17:41:20		
Integrator:	Falcon				
Quant Method:	External Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromfs\Denver\ChromData\CHHPLC_X\20230224-118952.b\02240018.D				
Column 1 :	UltraCarb5uODS (20) (4.60 mm)		Det: LC DAD1B, 254 nm		
Process Host:	CTX1654				

First Level Reviewer: K8YG Date: 25-May-2023 08:11:07

Compound	Amount Added	Amount Recovered	% Rec.
$ 10 1,2-Dinitrobenzene	0.2000	0.1702	85.09

Manual Integration/User Assign Peak Report

Eurofins Denver

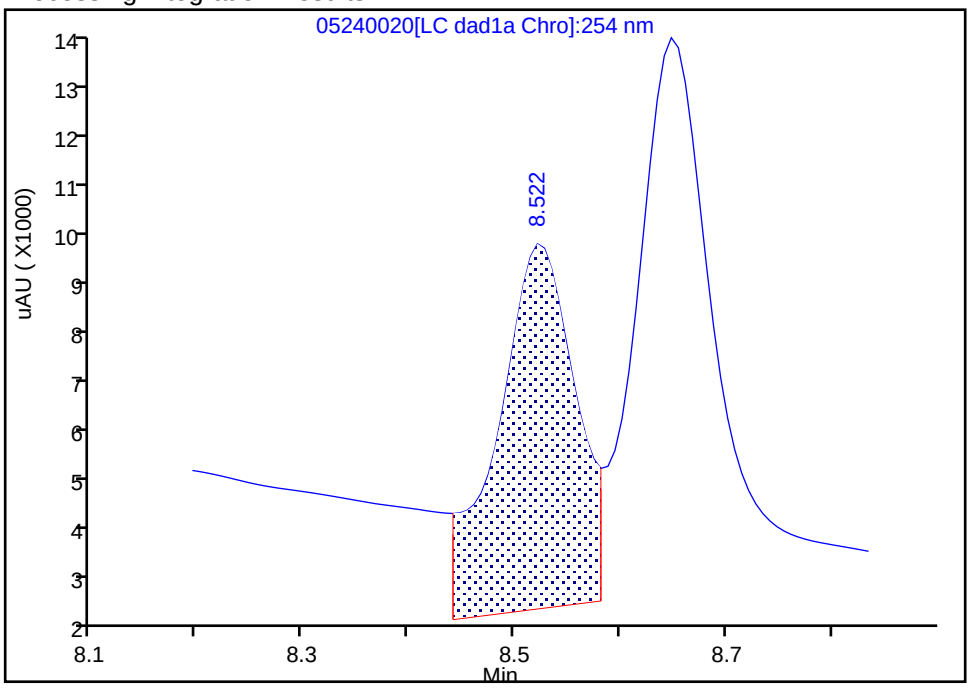
Data File:	\\chromfs\denver\chromdata\chhplc_x\20230524-121799.b\05240020.d				
Injection Date:	24-May-2023 20:52:35	Instrument ID:	CHHPLC_X3		
Lims ID:	280-176808-B-2-B MSD				
Client ID:	FWGmw-004-230401-GW				
Operator ID:	JZ/JG	ALS Bottle#:	20	Worklist Smp#:	20
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

$ 10 1,2-Dinitrobenzene, CAS: 528-29-0

Signal: 1

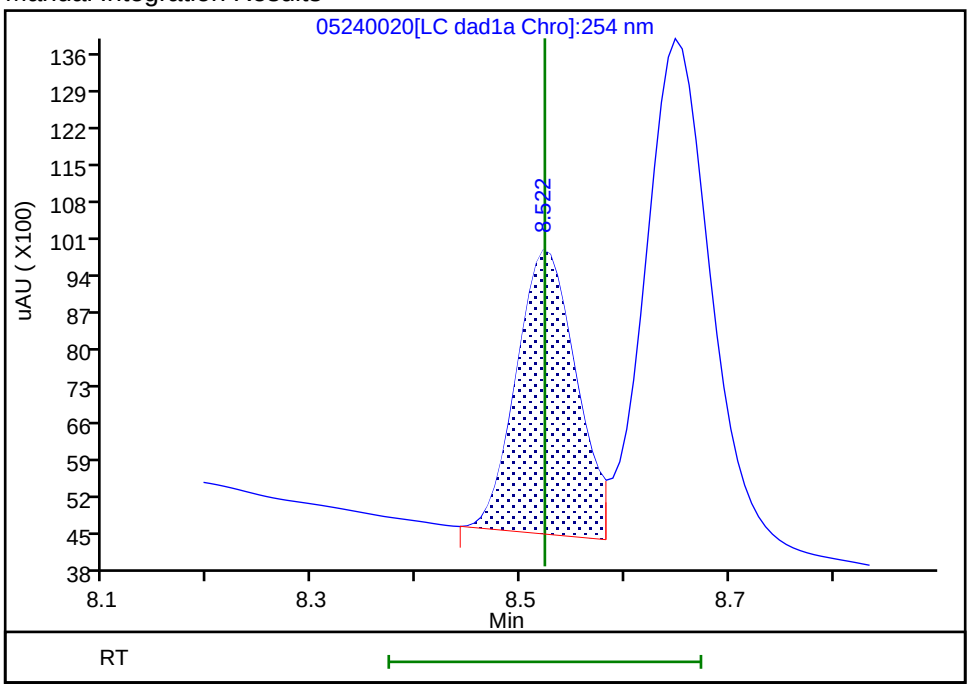
Processing Integration Results

RT: 8.52
Area: 36300
Amount: 0.287391
Amount Units: ug/mL



Manual Integration Results

RT: 8.52
Area: 21495
Amount: 0.170178
Amount Units: ug/mL



Reviewer: K8YG, 25-May-2023 08:10:24 -06:00:00 (UTC)

Audit Action: Split an Integrated Peak Audit Reason: Baseline

Eurofins Denver

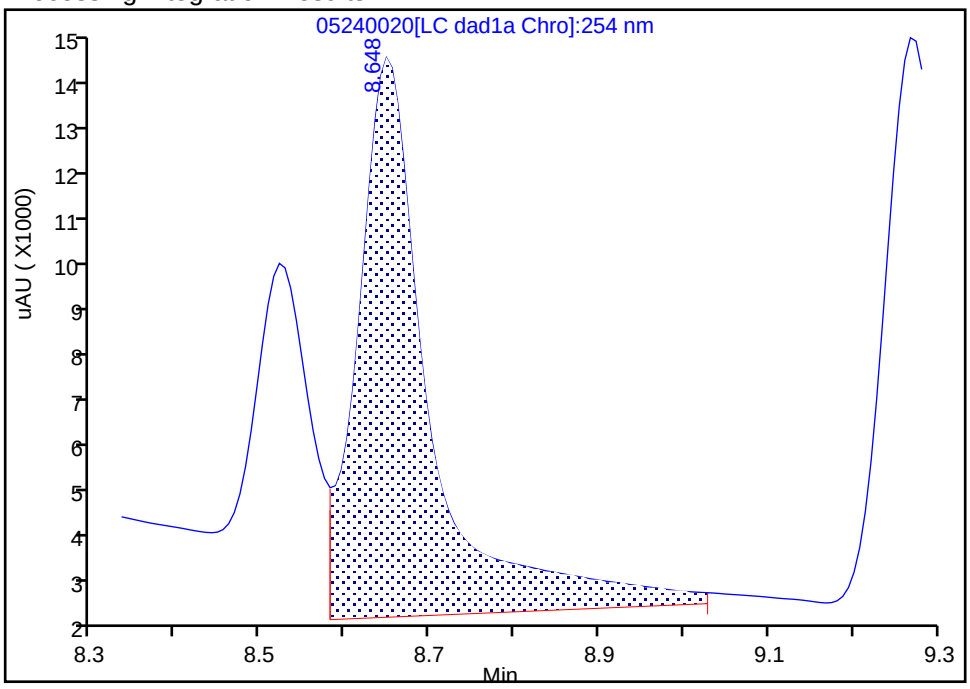
Data File:	\\chromfs\denver\chromdata\chhplc_x\20230524-121799.b\05240020.d				
Injection Date:	24-May-2023 20:52:35	Instrument ID:	CHHPLC_X3		
Lims ID:	280-176808-B-2-B MSD				
Client ID:	FWGmw-004-230401-GW				
Operator ID:	JZ/JG	ALS Bottle#:	20	Worklist Smp#:	20
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

11 1,3,5-Trinitrobenzene, CAS: 99-35-4

Signal: 1

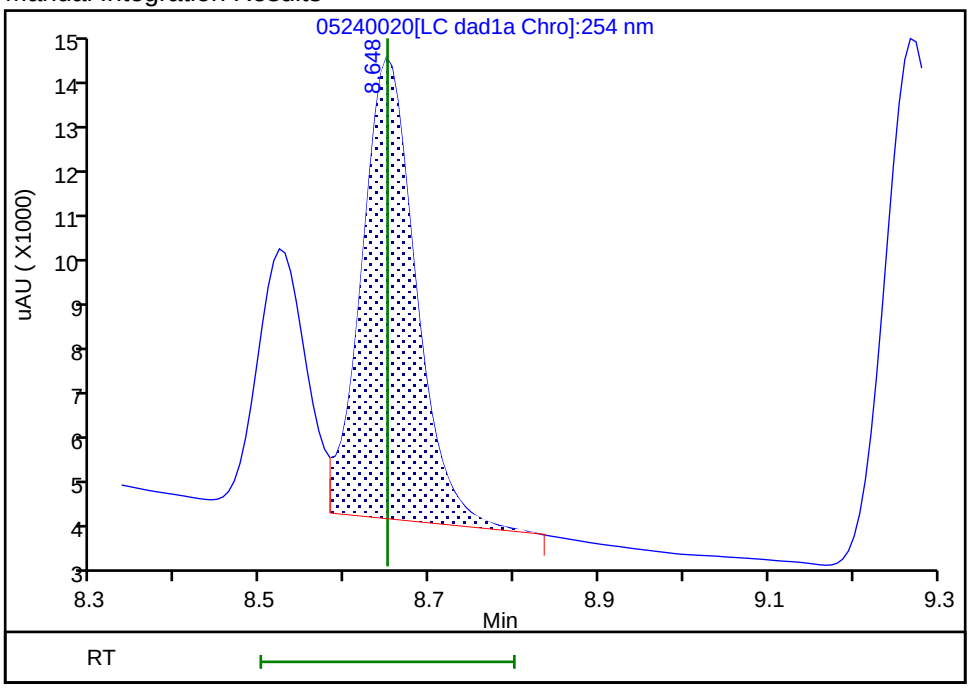
Processing Integration Results

RT: 8.65
Area: 65690
Amount: 0.302514
Amount Units: ug/mL



Manual Integration Results

RT: 8.65
Area: 43039
Amount: 0.198202
Amount Units: ug/mL



Reviewer: K8YG, 25-May-2023 08:10:27 -06:00:00 (UTC)
Audit Action: Manually Integrated/Assigned Compound ID Audit Reason: Baseline

Manual Integration/User Assign Peak Report

Eurofins Denver

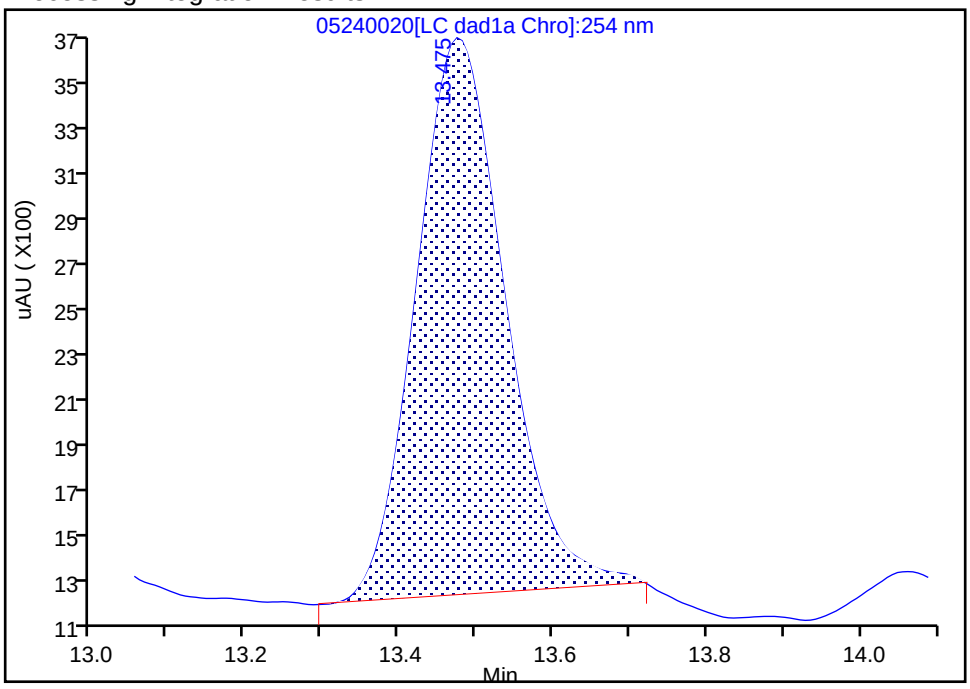
Data File:	\\chromfs\denver\chromdata\chhplc_x\20230524-121799.b\05240020.d				
Injection Date:	24-May-2023 20:52:35	Instrument ID:	CHHPLC_X3		
Lims ID:	280-176808-B-2-B MSD				
Client ID:	FWGmw-004-230401-GW				
Operator ID:	JZ/JG	ALS Bottle#:	20	Worklist Smp#:	20
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

24 m-Nitrotoluene, CAS: 99-08-1

Signal: 1

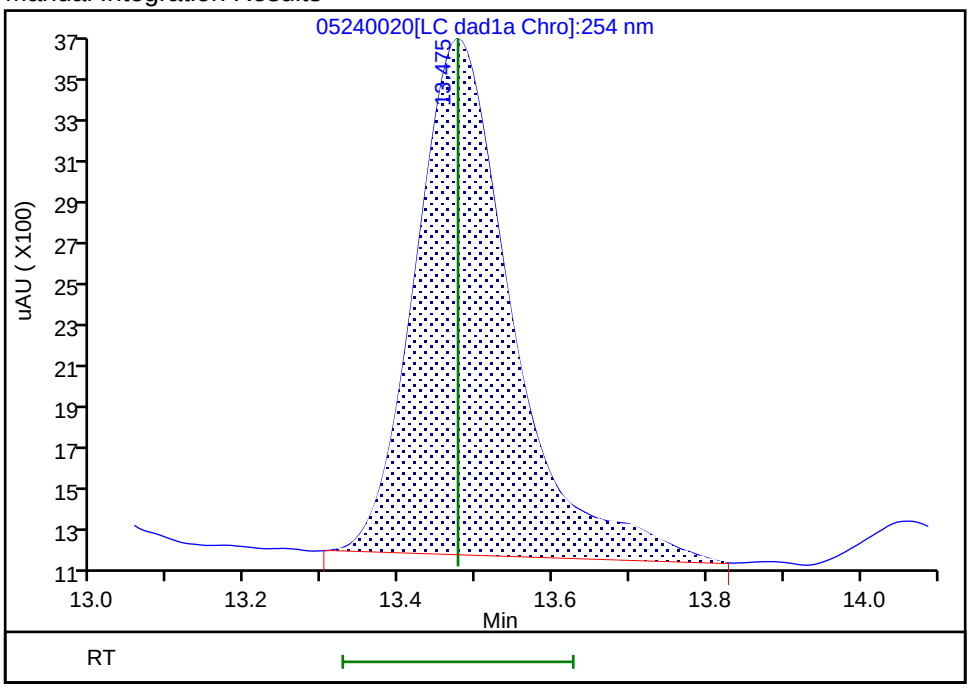
Processing Integration Results

RT: 13.47
Area: 19373
Amount: 0.137894
Amount Units: ug/mL



Manual Integration Results

RT: 13.47
Area: 21423
Amount: 0.152485
Amount Units: ug/mL



Reviewer: K8YG, 25-May-2023 08:10:59 -06:00:00 (UTC)

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

Eurofins Denver

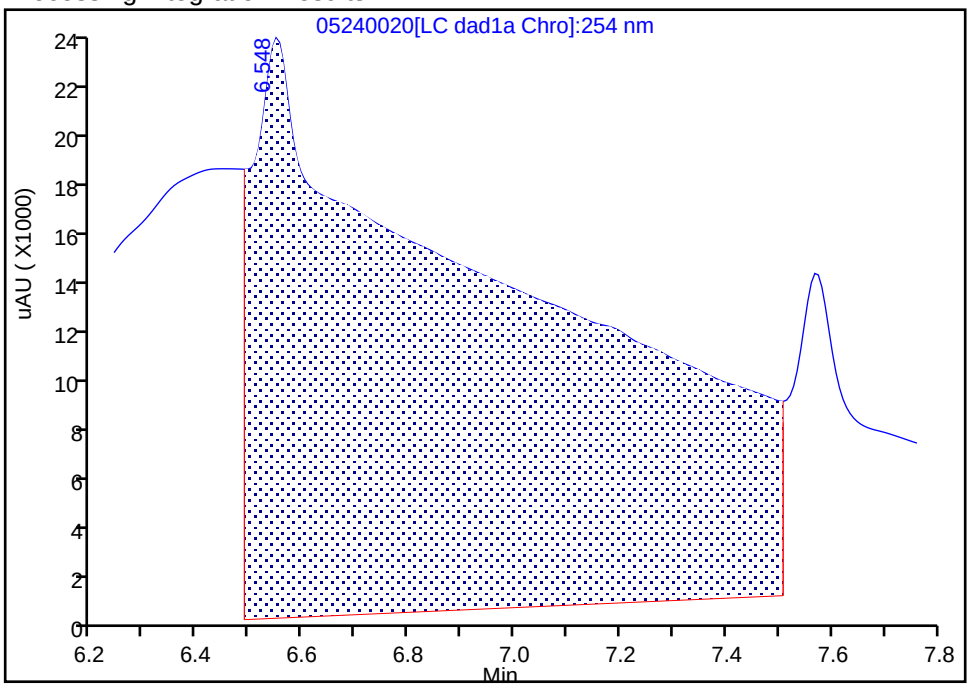
Data File:	\\chromfs\denver\chromdata\chhplc_x\20230524-121799.b\05240020.d				
Injection Date:	24-May-2023 20:52:35	Instrument ID:	CHHPLC_X3		
Lims ID:	280-176808-B-2-B MSD				
Client ID:	FWGmw-004-230401-GW				
Operator ID:	JZ/JG	ALS Bottle#:	20	Worklist Smp#:	20
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

4 HMX, CAS: 2691-41-0

Signal: 1

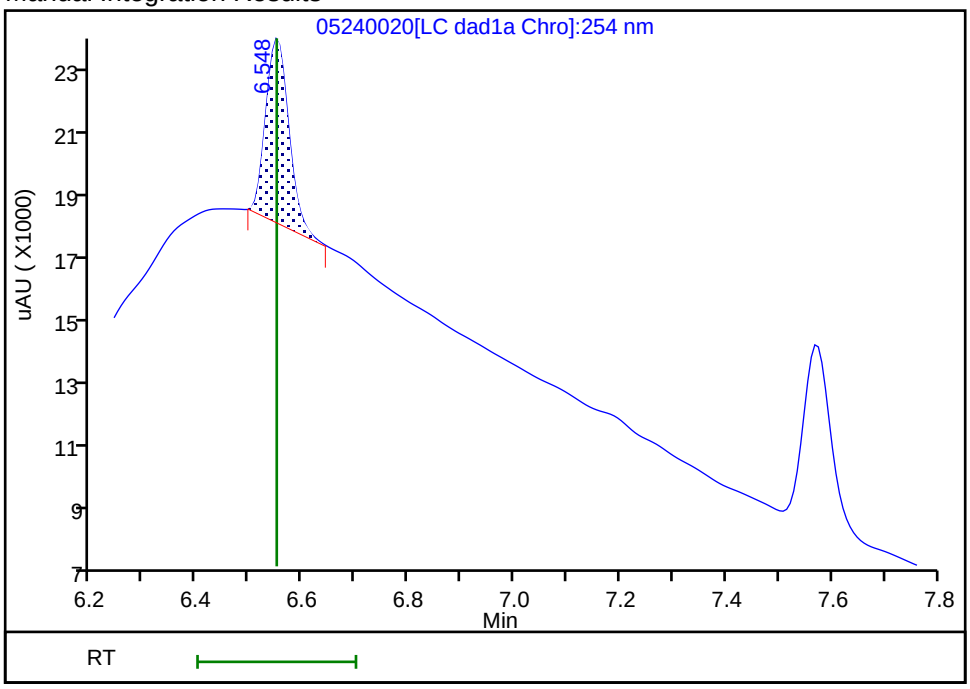
Processing Integration Results

RT: 6.55
Area: 782082
Amount: 8.361996
Amount Units: ug/mL



Manual Integration Results

RT: 6.55
Area: 16723
Amount: 0.178802
Amount Units: ug/mL



Reviewer: K8YG, 25-May-2023 08:08:49 -06:00:00 (UTC)

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

Eurofins Denver

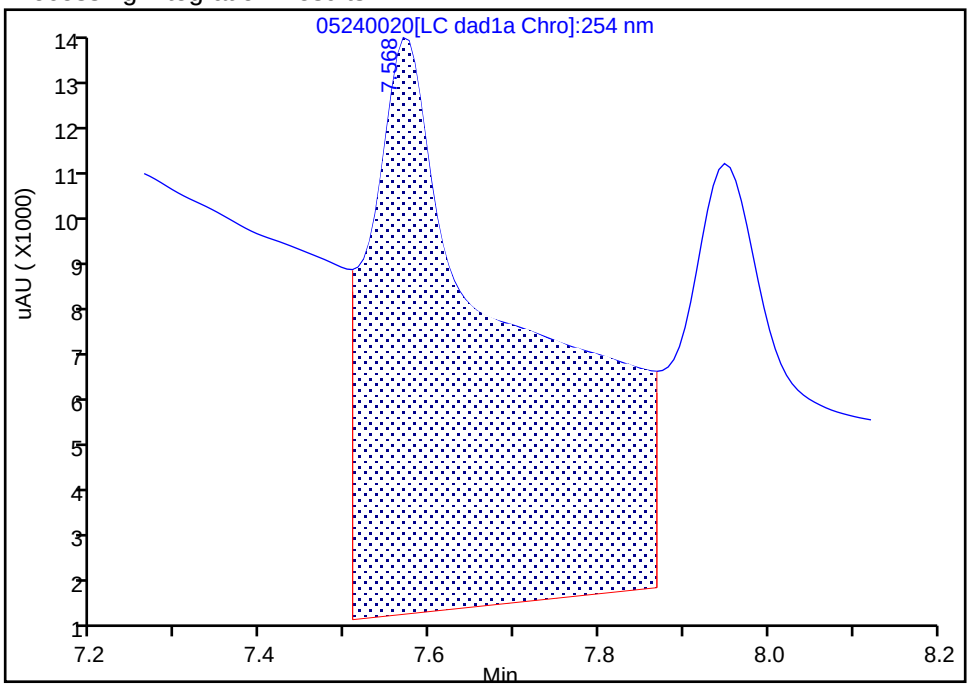
Data File:	\\chromfs\denver\chromdata\chhplc_x\20230524-121799.b\05240020.d				
Injection Date:	24-May-2023 20:52:35	Instrument ID:	CHHPLC_X3		
Lims ID:	280-176808-B-2-B MSD				
Client ID:	FWGmw-004-230401-GW				
Operator ID:	JZ/JG	ALS Bottle#:	20	Worklist Smp#:	20
Injection Vol:	100.0 ul	Dil. Factor:	1.0000		
Method:	8330_X3	Limit Group:	GCSV - 8330		
Column:	UltraCarb5uODS (20) (4.60 mm)	Detector	LC DAD1B, 254 nm		

8 RDX, CAS: 121-82-4

Signal: 1

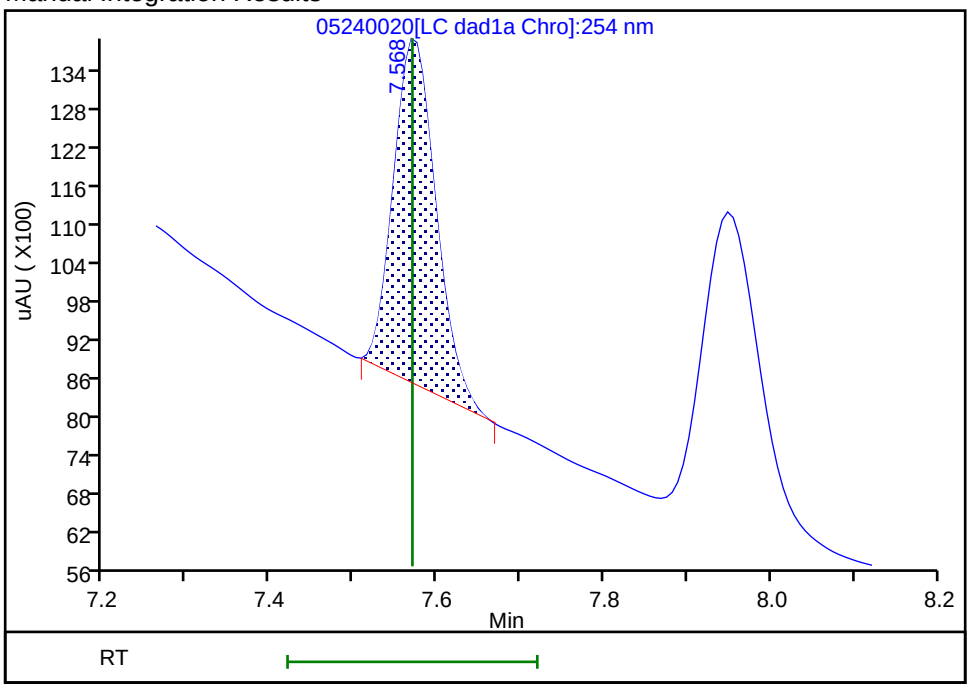
Processing Integration Results

RT: 7.57
Area: 149460
Amount: 1.404966
Amount Units: ug/mL



Manual Integration Results

RT: 7.57
Area: 19106
Amount: 0.179602
Amount Units: ug/mL



Reviewer: K8YG, 25-May-2023 08:09:22 -06:00:00 (UTC)

Audit Action: Manually Integrated Audit Reason: Baseline

HPLC/IC ANALYSIS RUN LOG

Lab Name: Eurofins Denver Job No.: 280-176808-1

SDG No.:

Instrument ID: CHHPLC_X3 Start Date: 02/08/2023 15:38

Analysis Batch Number: 601664 End Date: 02/08/2023 19:05

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 280-601664/11		02/08/2023 15:38	1	02080011.D	UltraCarb5uODS 4.6(mm)
IC 280-601664/12		02/08/2023 16:01	1	02080012.D	UltraCarb5uODS 4.6(mm)
IC 280-601664/13		02/08/2023 16:24	1	02080013.D	UltraCarb5uODS 4.6(mm)
IC 280-601664/14		02/08/2023 16:47	1	02080014.D	UltraCarb5uODS 4.6(mm)
IC 280-601664/15		02/08/2023 17:10	1	02080015.D	UltraCarb5uODS 4.6(mm)
IC 280-601664/16		02/08/2023 17:33	1	02080016.D	UltraCarb5uODS 4.6(mm)
IC 280-601664/17		02/08/2023 17:56	1	02080017.D	UltraCarb5uODS 4.6(mm)
IC 280-601664/18		02/08/2023 18:19	1	02080018.D	UltraCarb5uODS 4.6(mm)
IC 280-601664/19		02/08/2023 18:42	1	02080019.D	UltraCarb5uODS 4.6(mm)
ICV 280-601664/20		02/08/2023 19:05	1	02080020.D	UltraCarb5uODS 4.6(mm)

HPLC/IC ANALYSIS RUN LOG

Lab Name: Eurofins Denver Job No.: 280-176808-1

SDG No.:

Instrument ID: CHHPLC_X3 Start Date: 05/24/2023 17:03

Analysis Batch Number: 613677 End Date: 05/24/2023 23:10

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 280-613677/7		05/24/2023 17:03	1	05240007.D	UltraCarb5uODS 4.6(mm)
MB 280-613446/1-A		05/24/2023 17:26	1	05240011.D	UltraCarb5uODS 4.6(mm)
LCS 280-613446/2-A		05/24/2023 17:49	1	05240012.D	UltraCarb5uODS 4.6(mm)
LCSD 280-613446/3-A		05/24/2023 18:11	1	05240013.D	UltraCarb5uODS 4.6(mm)
ZZZZZ		05/24/2023 18:34	1		UltraCarb5uODS 4.6(mm)
ZZZZZ		05/24/2023 18:57	1		UltraCarb5uODS 4.6(mm)
ZZZZZ		05/24/2023 19:20	1		UltraCarb5uODS 4.6(mm)
ZZZZZ		05/24/2023 19:43	1		UltraCarb5uODS 4.6(mm)
280-176808-1	FWGmw-007-230401-GW	05/24/2023 20:06	1	05240018.D	UltraCarb5uODS 4.6(mm)
280-176808-2 MS	FWGmw-004-230401-GW MS	05/24/2023 20:29	1	05240019.D	UltraCarb5uODS 4.6(mm)
280-176808-2 MSD	FWGmw-004-230401-GW MSD	05/24/2023 20:52	1	05240020.D	UltraCarb5uODS 4.6(mm)
CCV 280-613677/21		05/24/2023 21:15	1	05240021.D	UltraCarb5uODS 4.6(mm)
280-176808-2	FWGmw-004-230401-GW	05/24/2023 21:38	1	05240022.D	UltraCarb5uODS 4.6(mm)
280-176808-3	FWGmw-004-230402-GW	05/24/2023 22:01	1	05240023.D	UltraCarb5uODS 4.6(mm)
ZZZZZ		05/24/2023 22:24	1		UltraCarb5uODS 4.6(mm)
ZZZZZ		05/24/2023 22:47	1		UltraCarb5uODS 4.6(mm)
CCV 280-613677/26		05/24/2023 23:10	1	05240026.D	UltraCarb5uODS 4.6(mm)

HPLC/IC BATCH WORKSHEET

Lab Name: Eurofins Denver Job No.: 280-176808-1

SDG No.:

Batch Number: 601664 Batch Start Date: 02/08/23 15:38 Batch Analyst: Zhang, Jian

Batch Method: 8330B Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	FinalAmount	3,5-DNA LCS 00043	8330 LCS 00121	8330IntermStk 00075	8330Surrogate 00138	
IC 280-601664/11		8330B		1 mL			250 uL		
IC 280-601664/12		8330B		1 mL			100 uL		
IC 280-601664/13		8330B		1 mL			70 uL		
IC 280-601664/14		8330B		1 mL			40 uL		
IC 280-601664/15		8330B		1 mL			25 uL		
IC 280-601664/16		8330B		1 mL			10 uL		
IC 280-601664/17		8330B		1 mL			5 uL		
IC 280-601664/18		8330B		1 mL			2 uL		
IC 280-601664/19		8330B		1 mL			1 uL		
ICV 280-601664/20		8330B		1 mL	50 uL	50 uL		50 uL	

Batch Notes	
Methanol ID	221054

Basis	Basis Description

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.

HPLC/IC BATCH WORKSHEET

Lab Name: Eurofins Denver Job No.: 280-176808-1

SDG No.:

Batch Number: 613446 Batch Start Date: 05/23/23 13:00 Batch Analyst: Hermanova, Eva

Batch Method: 3535 Batch End Date: 05/23/23 16:15

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	8330 LCS 00126	8330Surrogate 00144
MB 280-613446/1		3535, 8330B				500 mL	5 mL		0.1 mL
LCS 280-613446/2		3535, 8330B				500 mL	5 mL	0.1 mL	0.1 mL
LCSD 280-613446/3		3535, 8330B				500 mL	5 mL	0.1 mL	0.1 mL
280-176808-B-1	FWGmw-007-230401-GW	3535, 8330B	T	796.5 g	284.2 g	512.3 mL	5 mL		0.1 mL
280-176808-B-2 MS	FWGmw-004-230401-GW	3535, 8330B	T	798.6 g	283.6 g	515 mL	5 mL	0.1 mL	0.1 mL
280-176808-B-2 MSD	FWGmw-004-230401-GW	3535, 8330B	T	754.7 g	285.8 g	468.9 mL	5 mL	0.1 mL	0.1 mL
280-176808-A-2	FWGmw-004-230401-GW	3535, 8330B	T	782.6 g	285.5 g	497.1 mL	5 mL		0.1 mL
280-176808-B-3	FWGmw-004-230402-GW	3535, 8330B	T	794.9 g	286.1 g	508.8 mL	5 mL		0.1 mL

Batch Notes	
First Start time	05/23/2023 13:10
First End time	05/23/2023 15:55
SPE Cartridge Type	Sep-Pak Porapak Rdx
SPE Cartridge Lot ID	005332286A
Balance ID	24350888
Manifold ID	Manifold: B
QC Bottle Lot ID	0420301F
Pipette/Syringe/Dispenser ID	Dobby/DOD/Pugsley
Solvent Name	CaCl2
Solvent Lot #	CaCl2_Sol_00085
Rinse Solvent Name	Acetonotrile
Rinse Solvent Lot	Acetonitrile_00078
Acid Name	0.1% AAinACN
Acid ID	0.1% AAinACN_00207
Analyst ID - Spike Analyst	EH (Trainee); AA (Trainer)
Analyst ID - Spike Witness Analyst	Reviewer: DL
Batch Comment	DV-OP-0017

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.

HPLC/IC BATCH WORKSHEET

Lab Name: Eurofins Denver Job No.: 280-176808-1

SDG No.:

Batch Number: 613446 Batch Start Date: 05/23/23 13:00 Batch Analyst: Hermanova, Eva

Batch Method: 3535 Batch End Date: 05/23/23 16:15

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.

Shipping and Receiving Documents

leidos

Chain of Custody Record

MR 5/18/23

Page 1 of 2

COC No.: RVAAP-345-TA

Date: 5/18/2023

Name Leidos
Address: 8866 Commons Blvd. Suite 201, Twinsburg, OH 44087
Phone Number: (330) 405-5802
Project Manager: Jed Thomas
Project: RVAAP FWGW Sampling Spring 2023
Job/P.O. No.: P010216426
Sampler (Signature) Melissa Rego (Printed Name) Melissa Rego

Laboratory Name: TA- Denver
Address: 4955 Yarrow Street
Arvada, CO 80002
Phone: 303-736-0107
Contact: Patrick McEntee

Requested Parameters

Laboratory No.	Sample ID	Site Type	Depth	Date	Time	Matrix	Explosives (6)(A)	Temperature Blank	Total Number of Containers	OBSERVATIONS, COMMENTS SPECIAL INSTRUCTIONS
	FWGmw-007-230401-GW	NA	NA	5/18/23	0855	W	2		2	

MR 5/18/23

Relinquished by	Date	Received by	Date
Signature: Charles Spurr	5/18/23	Signature	5-19-23
Printed Name: Charles Spurr	Time: 1700	Printed Name	Time: 0920
Company: Leidos		Company	
Relinquished by	Date	Received by	Date
Signature		Signature	
Printed Name	Time	Printed Name	Time
Company		Company	

Notes: Total Number of Containers: 2

A. Cool, 4C
B. HCl, pH<2, Cool, 4C
C. HNO3, pH<2, Cool, 4C
D. NaOH, pH>12, Cool 4C

1. SW 8260B
2. SW 8270D
3. SW 8270D SIM
4. SW 8082A
5. SW 8081B
6. SW 8330
7. SW 6010/6020/7470
8. SW 9012B
9. SW 9034
10. SW 9056/9056A
11. SW 6860
12. EPA 353.2
13. SW 7196
14. SM2320B

Notes:

Shipment Method: ~~Courier~~ FedEx (S 5/18/23)

818036574445

Temperature Blank

Lab:
Leidos
8866 Commons Drive
Twinsburg, OH 44087
(330) 405-5802

Leidos White Laboratory Pink Project Manager Yellow Project QAO Goldenrod Field Project Manager

1.1 cf 0.1 18 14

280-176808 Chain of Custody

leidos

Chain of Custody Record

2 of 2

~~Page 1 of 1~~ MR 5/18/23

COC No.: RVAAP-~~346~~-TA

Date: 5/18/2023

Name Leidos
Address: 8866 Commons Blvd. Suite 201, Twinsburg, OH 44087
Phone Number: (330) 405-5802
Project Manager: Jed Thomas
Project: RVAAP FWGW Sampling Event Spring 2023
Job/P.O. No.: P010216426
Sampler (Signature) Melissa Rege (Printed Name) Melissa Rege

Laboratory Name: TA- Denver
Address: 4955 Yarrow Street
Arvada, CO 80002
Phone: 303-736-0107
Contact: Patrick McEntee

Laboratory No.	Sample ID	Site Type	Depth	Date	Time	Matrix	Requested Parameters: Explosives (6)(A)	Temperature Blank	Total Number of Containers	OBSERVATIONS, COMMENTS SPECIAL INSTRUCTIONS
	FWGmw-004-230401-GW	NA	NA	5/18/23	1003	W	2		2	
	FWGmw-004-230401-GWMSD	NA	NA	5/18/23	1003	W	4		4	extra volume for MS/MSD
	FWGmw-004-230402-GW	NA	NA	5/18/23	1003	W	2		2	

MR 5/18/23

Relinquished by	Date	Received by	Date	Notes: Total Number of Containers: 8	Shipment Method: ~~Courier~~
Signature:	5/18/23	Signature:	5-19-23	A. Cool, 4C B. HCl, pH<2, Cool, 4C C. HNO3, pH<2, Cool, 4C D. NaOH, pH>12, Cool 4C	↳ 5/18/23
Printed Name: Charles Spurr	Time: 1700	Printed Name:	Time: 0920	1. SW 8260B Notes: 2. SW 8270D 3. SW 8270D SIM 4. SW 8082A 5. SW 8081B	FedEx
Company: Leidos		Company:		6. SW 8330 7. SW 6010/6020/7470 8. SW 9012B 9. SW 9034 10. SW 9056/9056A	818036574445
Relinquished by	Date	Received by	Date	11. SW 6860 12. EPA 353.2 13. SW 7196 14. SM2320B	Temperature Blank
Signature:		Signature:			Lab:
Printed Name:	Time:	Printed Name:	Time:		Leidos 8866 Commons Drive Twinsburg, OH 44087 (330) 405-5802
Company:		Company:			

Leidos

White Laboratory Pink Project Manager Yellow Project QAO Goldenrod Field Project Manager

1.1 & 0.1 1814

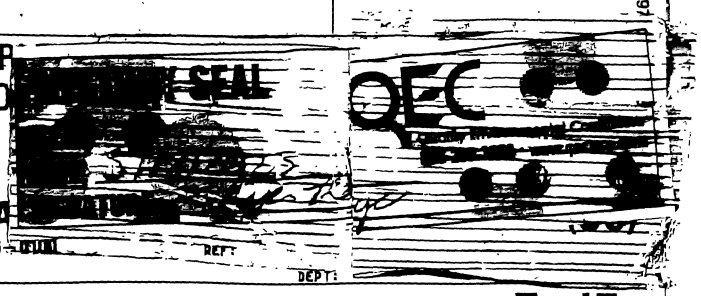
ORIGIN ID:CAKA

SHIP DATE: 18MAY23
ACTWGT: 51.05 LB
CAD: /SSFE2420
DIMS: 24x13x13 IN

Part # 156297

TO SAMP
EURO
4955
ARVA
(303) 736-

REF:
DEPT:



FedEx
Express

J232023040502uv

TRK# 0667 8180 3657 4445

FRI – 19 MAY 10:30A
PRIORITY OVERNIGHT

NX LAAA

80002
CO-US DEN

280-176808 Waybill

Login Sample Receipt Checklist

Client: Leidos, Inc.

Job Number: 280-176808-1

Login Number: 176808
List Number: 1
Creator: Roehsner, Karen P

List Source: Eurofins Denver

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	
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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	