CHEMIST REVIEW-VALIDATION CHECKLIST

Project: Olin Chemical Superfund Site Method: Hydrazine 8315A HPLC/MS
Project #: OLIN Laboratory and SDG: Lancaster OLN15
Date: 2/9/10 Reviewer: CRicardi

☒ Chemist Review ☐ Full Validation (add page 2)

1. Case Narrative and Data Package Completeness (COC Review)
   - MS/MSD 11DMH out

2. Holding Time and Sample Preservation/Collection 14 days extract / 72 hr analysis
   Collected 8/18 → 8/21
   Analysis 8/24 → 8/25

3. QC Blanks EBK-01 ND MBK-ND (see narrative) 0.01 ug/L
   EBK-02 ND 0.1 ug/kg

4. Laboratory Control Sample Review 70-130 RPD 35
   Soil 8/24 OK
   Aqueous 8/26 OK

5. Field Duplicate Precision RPD 50
   SB 426 5.0/7.0 — <.59 vs. 0.69 J RPD = 26% OK
   Raw data .53 NO QUAL

6. Lab Duplicate Precision
   See LCSD

7. Matrix Spike Results (if applicable) 40-140 RPD 50
   location SB-426 5.0/7.0 Hydrazine 33-41%
   11DMH 93-95 OK within project limits
   MMH 63-71 OK

8. Surrogate Recovery (if applicable)
   NA

9. Internal Standard Recovery (if applicable)
   NA

CHEMIST REVIEW-VALIDATION CHECKLIST

FULL VALIDATION CHECKS

Ten Percent of data sets will have full validation checks completed during chemist review.

- ☒ **Initial Calibration**
- ☒ **Continuing Calibration Verification** ± 30 %

Transcription and Calculation Checks

- ☒ **Instrument Calibration**
- ☐ **Blank Review – raw data/chromatogram check**
- ☐ **Laboratory Control Sample**
- ☐ **Matrix Spike**
- ☒ **Field Sample Results**
- ☐ **Surrogate Recovery** NA
- ☐
- ☐

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Sample Reference List for SDG Number OLN15
with a Data Package Type of I
12670 - Olin Corporation
Project: Olin Wilmington, MA Superfund Site/6107090016

Lab Sample Number	Lab Sample Code	Client Sample Description
5754467	W4126	OC-SB-412-6.0/7.0-XXX Grab Soil
5754468	W4206	OC-SB-420-6.5/8.5-XXX Grab Soil
5754469	W4168	OC-SB-416-8.0/9.0-XXX Grab Soil
5754470	W4218	OC-SB-421-8.0/10-XXX Grab Soil
5754471	W4256	OC-SB-425-6.0/8.0-XXX Grab Soil
5754472	W4120	OC-SB-412-0.0/1.0-XXX Grab Soil
5754473	W4160	OC-SB-416-0.0/1.0-XXX Grab Soil
5754474	WEB01	OC-EBK-001 Grab Water
5754475	W4210	OC-SB-421-0.0/1.0-XXX Grab Soil
5754476	W4240	OC-SB-424-0.0/1.0-XXX Grab Soil
5754477	WEB02	OC-EBK-002 Grab Water
5757305	W4193	OC-SB-419-3.0/5.0-XXX Grab Soil
5757306	W426D	OC-SB-426-5.0/7.0-DUP Grab Soil
5757307	W4265	OC-SB-426-5.0/7.0-XXX Grab Soil
5757308	W4265	OC-SB-426-5.0/7.0-XMS Grab Soil
5757309	W4265	OC-SB-426-5.0/7.0-MSD Grab Soil
5757310	W4317	OC-SB-431-7.0/9.0-XXX Grab Soil
5757311	W4366	OC-SB-436-6.0/8.0-XXX Grab Soil — NO COC
5757312	W4458	OC-SB-445-8.0/10-XXX Grab Soil
5757313	W4436	OC-SB-443-6.0/8.0-XXX Grab Soil
5757314	W4375	OC-SB-437-5.0/7.0-XXX Grab Soil

8/18
8/19
8/20
8/21

SB-426 0.9/1.0
431 0.0
436 0.0
432 14/16
432 5/7

443 0.0
437 0.0
EBK-03

OLN15: 0001

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Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. SW 5754467

Group No. 1158425
MA

OC-SB-412-6.0/7.0-XXX Grab Soil
Wilmington MA Superfund Site

raw data check
CM
3/8/10

Collected: 08/18/2009 12:55

Account Number: 12670

Submitted: 08/20/2009 09:05
Reported: 08/27/2009 at 09:55
Discard: 09/11/2009

Olin Corporation
Suite 200
3855 North Ocoee Street
Cleveland TN 37312

W4126 SDG#: OLN15-01

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**SW-846 8315A modified**		**ng/g**	**ng/g**	**ng/g**	
10346	1,1-Dimethylhydrazine	57-14-7	N.D.	2.3	5.7	1
10346	Hydrazine	302-01-2	0.71 J	0.57	2.3	1
10346	Methylhydrazine	60-34-4	N.D.	2.3	5.7	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	**%**	
00111	Moisture	n.a.	12.4	0.50	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10346	Hydrazines in Soil	SW-846 8315A modified	1	0923610056268	08/25/2009 01:51	Jia Wang	1
00111	Moisture	SM20 2540 G	1	09232820005B	08/20/2009 18:44	Scott W Freisher	1

OLN15 0895

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*=This limit was used in the evaluation of the final result

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. SW 5754468

Group No. 1158425
MA

OC-SB-420-6.5/8.5-XXX Grab Soil
Wilmington MA Superfund Site

Collected: 08/18/2009 16:10

Account Number: 12670

Submitted: 08/20/2009 09:05
Reported: 08/27/2009 at 09:55
Discard: 09/11/2009

Olin Corporation
Suite 200
3855 North Ocoee Street
Cleveland TN 37312

W4206 SDG#: OLN15-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**SW-846 8315A modified**		**ng/g**	**ng/g**	**ng/g**	
10346	1,1-Dimethylhydrazine	57-14-7	N.D.	2.1	5.3	1
10346	Hydrazine	302-01-2	N.D.	0.53	2.1	1
10346	Methylhydrazine	60-34-4	N.D.	2.1	5.3	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	**%**	
00111	Moisture	n.a.	6.0	0.50	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10346	Hydrazines in Soil	SW-846 8315A modified	1	0923610056268	08/25/2009 02:09	Jia Wang	1
00111	Moisture	SM20 2540 G	2	09233820001A	08/21/2009 15:14	Scott W Freisher	1

OLN15 0006

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Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. SW 5754469

Group No. 1158425
MA

OC-SB-416-8.0/9.0-XXX Grab Soil
Wilmington MA Superfund Site

Collected: 08/18/2009 10:45

Account Number: 12670

Submitted: 08/20/2009 09:05
Reported: 08/27/2009 at 09:55
Discard: 09/11/2009

Olin Corporation
Suite 200
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Cleveland TN 37312

W4168 SDG#: OLN15-03

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**SW-846 8315A modified**		**ng/g**	**ng/g**	**ng/g**	
10346	1,1-Dimethylhydrazine	57-14-7	N.D.	2.1	5.3	1
10346	Hydrazine	302-01-2	N.D.	0.53	2.1	1
10346	Methylhydrazine	60-34-4	N.D.	2.1	5.3	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	**%**	
00111	Moisture	n.a.	5.3	0.50	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10346	Hydrazines in Soil	SW-846 8315A modified	1	0923610056268	08/25/2009 02:28	Jia Wang	1
00111	Moisture	SM20 2540 G	2	09233820001B	08/21/2009 15:14	Scott W Freisher	1

OLN15. 0037

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Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. SW 5754470

Group No. 1158425
MA

OC-SB-421-8.0/10-XXX Grab Soil
Wilmington MA Superfund Site

Collected: 08/19/2009 07:45

Account Number: 12670

Submitted: 08/20/2009 09:05
Reported: 08/27/2009 at 09:55
Discard: 09/11/2009

Olin Corporation
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Cleveland TN 37312

W4218 SDG#: OLN15-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**SW-846 8315A modified**		ng/g		ng/g	ng/g	
10346	1,1-Dimethylhydrazine	57-14-7	N.D.		2.2	5.5	1
10346	Hydrazine	302-01-2	0.58	J	0.55	2.2	1
10346	Methylhydrazine	60-34-4	N.D.		2.2	5.5	1
Wet Chemistry	**SM20 2540 G**		%		%	%	
00111	Moisture	n.a.	8.4		0.50	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10346	Hydrazines in Soil	SW-846 8315A modified	1	0923610056268	08/25/2009 02:47	Jia Wang	1
00111	Moisture	SM20 2540 G	2	09233820002A	08/21/2009 14:51	Scott W Freisher	1

OLN15 0038

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Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. SW 5754471

Group No. 1158425
MA

OC-SB-425-6.0/8.0-XXX Grab Soil
Wilmington MA Superfund Site

Collected: 08/19/2009 10:05

Account Number: 12670

Submitted: 08/20/2009 09:05
Reported: 08/27/2009 at 09:55
Discard: 09/11/2009

Olin Corporation
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3855 North Ocoee Street
Cleveland TN 37312

W4256 SDG#: OLN15-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**SW-846 8315A modified**		ng/g		ng/g	ng/g	
10346	1,1-Dimethylhydrazine	57-14-7	N.D.		2.2	5.5	1
10346	Hydrazine	302-01-2	0.70	J	0.55	2.2	1
10346	Methylhydrazine	60-34-4	N.D.		2.2	5.5	1
Wet Chemistry	**SM20 2540 G**		%		%	%	
00111	Moisture	n.a.	9.2		0.50	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10346	Hydrazines in Soil	SW-846 8315A modified	1	0923610056268	08/25/2009 03:06	Jia Wang	1
00111	Moisture	SM20 2540 G	2	09233820002B	08/21/2009 14:51	Scott W Freisher	1

OLN15 0039

*=This limit was used in the evaluation of the final result

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Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. SW 5754472

Group No. 1158426
MA

OC-SB-412-0.0/1.0-XXX Grab Soil
Wilmington MA Superfund Site

Collected: 08/18/2009 12:45

Account Number: 12670

Submitted: 08/20/2009 09:05
Reported: 08/28/2009 at 14:28
Discard: 09/12/2009

Olin Corporation
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Cleveland TN 37312

W4120 SDG#: OLN15-06

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**SW-846 8315A modified**		**ng/g**	**ng/g**	**ng/g**	
10346	1,1-Dimethylhydrazine	57-14-7	N.D.	2.1	5.2	1
10346	Hydrazine	302-01-2	N.D.	0.52	2.1	1
10346	Methylhydrazine	60-34-4	N.D.	2.1	5.2	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	**%**	
00111	Moisture	n.a.	3.3	0.50	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10346	Hydrazines in Soil	SW-846 8315A modified	1	0923610056268	08/25/2009 03:24	Jia Wang	1
00111	Moisture	SM20 2540 G	1	09236820001A	08/24/2009 16:49	Scott W Freisher	1

OLN15.0043

*=This limit was used in the evaluation of the final result

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Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. SW 5754473

Group No. 1158426
MA

OC-SB-416-0.0/1.0-XXX Grab Soil
Wilmington MA Superfund Site

Collected: 08/18/2009 10:35

Account Number: 12670

Submitted: 08/20/2009 09:05
Reported: 08/28/2009 at 14:28
Discard: 09/12/2009

Olin Corporation
Suite 200
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Cleveland TN 37312

W4160 SDG#: OLN15-07

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**SW-846 8315A modified**		**ng/g**	**ng/g**	**ng/g**	
10346	1,1-Dimethylhydrazine	57-14-7	N.D.	2.1	5.2	1
10346	Hydrazine	302-01-2	N.D.	0.52	2.1	1
10346	Methylhydrazine	60-34-4	N.D.	2.1	5.2	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	**%**	
00111	Moisture	n.a.	3.2	0.50	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10346	Hydrazines in Soil	SW-846 8315A modified	1	0923610056268	08/25/2009 03:43	Jia Wang	1
00111	Moisture	SM20 2540 G	1	09236820001A	08/24/2009 16:49	Scott W Freisher	1

OLN15 0044

*=This limit was used in the evaluation of the final result

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Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5754474

Group No. 1158426
MA

OC-EBK-001 Grab Water
Wilmington MA Superfund Site

Collected: 08/18/2009 08:30

Account Number: 12670

Submitted: 08/20/2009 09:05
Reported: 08/28/2009 at 14:28
Discard: 09/12/2009

Olin Corporation
Suite 200
3855 North Ocoee Street
Cleveland TN 37312

WEB01 SDG#: OLN15-08EB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	SW-846 8315A modified		ug/l	ug/l	ug/l	
10342	1,1-Dimethylhydrazine	57-14-7	N.D.	0.25	0.50	1
10342	Hydrazine	302-01-2	N.D.	0.050	0.20	1
10342	Methylhydrazine	60-34-4	N.D.	0.25	0.50	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10342	Hydrazines in Water	SW-846 8315A modified	1	0923810056274	08/26/2009 21:09	Jia Wang	1

OLN15 0845

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*=This limit was used in the evaluation of the final result

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. SW 5754475

Group No. 1158426
MA

OC-SB-421-0.0/1.0-XXX Grab Soil
Wilmington MA Superfund Site

Collected: 08/19/2009 07:40

Account Number: 12670

Submitted: 08/20/2009 09:05
Reported: 08/28/2009 at 14:28
Discard: 09/12/2009

Olin Corporation
Suite 200
3855 North Ocoee Street
Cleveland TN 37312

W4210 SDG#: OLN15-09

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**SW-846 8315A modified**		**ng/g**	**ng/g**	**ng/g**	
10346	1,1-Dimethylhydrazine	57-14-7	N.D.	2.1	5.2	1
10346	Hydrazine	302-01-2	N.D.	0.52	2.1	1
10346	Methylhydrazine	60-34-4	N.D.	2.1	5.2	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	**%**	
00111	Moisture	n.a.	4.6	0.50	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10346	Hydrazines in Soil	SW-846 8315A modified	1	0923610056268	08/25/2009 04:21	Jia Wang	1
00111	Moisture	SM20 2540 G	1	09236820001A	08/24/2009 16:49	Scott W Freisher	1

OLN15 0046

*=This limit was used in the evaluation of the final result

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Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. SW 5754476

Group No. 1158426
MA

OC-SB-424-0.0/1.0-XXX Grab Soil
Wilmington MA Superfund Site

Collected: 08/19/2009 11:35

Account Number: 12670

Submitted: 08/20/2009 09:05
Reported: 08/28/2009 at 14:28
Discard: 09/12/2009

Olin Corporation
Suite 200
3855 North Ocoee Street
Cleveland TN 37312

W4240 SDG#: OLN15-10

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**SW-846 8315A modified**		ng/g	ng/g	ng/g	
10346	1,1-Dimethylhydrazine	57-14-7	N.D.	2.1	5.2	1
10346	Hydrazine	302-01-2	N.D.	0.52	2.1	1
10346	Methylhydrazine	60-34-4	N.D.	2.1	5.2	1
Wet Chemistry	**SM20 2540 G**		%	%	%	
00111	Moisture	n.a.	3.2	0.50	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10346	Hydrazines in Soil	SW-846 8315A modified	1	0923610056268	08/25/2009 04:39	Jia Wang	1
00111	Moisture	SM20 2540 G	1	09236820001A	08/24/2009 16:49	Scott W Freisher	1

OLN15 0047

*=This limit was used in the evaluation of the final result

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Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 5754477

Group No. 1158426
MA

OC-EBK-002 Grab Water
Wilmington MA Superfund Site

Collected: 08/19/2009 09:30

Account Number: 12670

Submitted: 08/20/2009 09:05
Reported: 08/28/2009 at 14:28
Discard: 09/12/2009

Olin Corporation
Suite 200
3855 North Ocoee Street
Cleveland TN 37312

WEB02 SDG#: OLN15-11EB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**SW-846 8315A modified**		**ug/l**	**ug/l**	**ug/l**	
10342	1,1-Dimethylhydrazine	57-14-7	N.D.	0.25	0.50	1
10342	Hydrazine	302-01-2	N.D.	0.050	0.20	1
10342	Methylhydrazine	60-34-4	N.D.	0.25	0.50	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10342	Hydrazines in Water	SW-846 8315A modified	1	0923810056274	08/26/2009 21:28	Jia Wang	1

OLN15 0048

Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

*=This limit was used in the evaluation of the final result

Analysis Report

Lancaster Laboratories

Lancaster Laboratories Sample No. SW 5757306

Group No. 1158830
MA

OC-SB-426-5.0/7.0-DUP Grab Soil
Wilmington MA Superfund Site

Collected: 08/19/2009 14:25

Account Number: 12670

Submitted: 08/22/2009 10:10
Reported: 08/28/2009 at 15:19
Discard: 09/12/2009

Raw data check
CW 2/3/10

Olin Corporation
Suite 200
3855 North Ocoee Street
Cleveland TN 37312

W426D SDG#: OLN15-13FD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics		**SW-846 8315A modified**	**ng/g**	**ng/g**	**ng/g**	
10346	1,1-Dimethylhydrazine	57-14-7	N.D.	2.4	5.9	1
10346	Hydrazine	302-01-2	N.D.	0.59	2.4	1
10346	Methylhydrazine	60-34-4	N.D.	2.4	5.9	1
Wet Chemistry		**SM20 2540 G**	**%**	**%**	**%**	
00111	Moisture	n.a.	15.2	0.50	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10346	Hydrazines in Soil	SW-846 8315A modified	1	0923610056268	08/24/2009 22:25	Jia Wang	1
00111	Moisture	SM20 2540 G	1	09236820002A	08/24/2009 16:37	Scott W Freisher	1

OLN15 0052

Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

*=This limit was used in the evaluation of the final result

Lancaster Laboratories
Quan Summary Report

Workbook Name: TQU01408-24Aug2009-1
Current Workbook Path: C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1
Instrument No. TQU01408
Analyst JW01543

Component Name	Sample ID	Sample Type	Integration Type	Response	Calc Amt	Units	Calc Amt	Units
1,1-Dimethylhydrazine	Conditioner1	Unknown	Method Settings	203	0.173	ng/mL		
1,1-Dimethylhydrazine	Conditioner2	Unknown	Method Settings	NF	NC	ng/mL		
1,1-Dimethylhydrazine	MDL	Unknown	Method Settings	6676	0.363	ng/mL		
1,1-Dimethylhydrazine	Conditioner3	Unknown	Method Settings	613	0.185	ng/mL		
1,1-Dimethylhydrazine	Conditioner4	Unknown	Method Settings	NF	NC	ng/mL		
1,1-Dimethylhydrazine	Conditioner5	Unknown	Method Settings	NF	NC	ng/mL		
1,1-Dimethylhydrazine	Blank	Unknown	Method Settings	NF	NC	ng/mL	NC	ng/g
1,1-Dimethylhydrazine	5757306FD	Unknown	Method Settings	NF	NC	ng/mL	NC	ng/g
1,1-Dimethylhydrazine	5757307BKG	Unknown	Method Settings	NF	NC	ng/mL	NC	ng/g
1,1-Dimethylhydrazine	5757308MS	Unknown	Method Settings	1983114	58.152	ng/mL	581.52	ng/g
1,1-Dimethylhydrazine	~~5757309MDS~~	Unknown	Method Settings	2018458	59.185	ng/mL	591.85	ng/g
1,1-Dimethylhydrazine	LCS 5757309MSD	Unknown	Method Settings	2283246	66.927	ng/mL	669.27	ng/g
1,1-Dimethylhydrazine	LCSD	Unknown	Method Settings	2191080	64.232	ng/mL	642.32	ng/g
1,1-Dimethylhydrazine	ICV	Unknown	Method Settings	2356296	69.063	ng/mL		
1,1-Dimethylhydrazine	Spike Check	Unknown	Method Settings	2493664	73.080	ng/mL		
1,1-Dimethylhydrazine	Conditioner6	Unknown	Method Settings	179	0.173	ng/mL		
1,1-Dimethylhydrazine	Conditioner7	Unknown	Method Settings	NF	NC	ng/mL		
1,1-Dimethylhydrazine	5754467	Unknown	Method Settings	NF	NC	ng/mL	NC	ng/g
1,1-Dimethylhydrazine	5754468	Unknown	Method Settings	NF	NC	ng/mL	NC	ng/g
1,1-Dimethylhydrazine	5754469	Unknown	Method Settings	NF	NC	ng/mL	NC	ng/g
1,1-Dimethylhydrazine	5754470	Unknown	Method Settings	NF	NC	ng/mL	NC	ng/g
1,1-Dimethylhydrazine	5754471	Unknown	Method Settings	NF	NC	ng/mL	NC	ng/g
1,1-Dimethylhydrazine	5754472	Unknown	Method Settings	NF	NC	ng/mL	NC	ng/g
1,1-Dimethylhydrazine	5754473	Unknown	Method Settings	NF	NC	ng/mL	NC	ng/g
1,1-Dimethylhydrazine	5754475	Unknown	Method Settings	NF	NC	ng/mL	NC	ng/g
1,1-Dimethylhydrazine	5754476	Unknown	Method Settings	NF	NC	ng/mL	NC	ng/g
1,1-Dimethylhydrazine	5757305	Unknown	Method Settings	NF	NC	ng/mL	NC	ng/g
1,1-Dimethylhydrazine	5757310	Unknown	Method Settings	NF	NC	ng/mL	NC	ng/g
1,1-Dimethylhydrazine	5757311	Unknown	Method Settings	NF	NC	ng/mL	NC	ng/g
1,1-Dimethylhydrazine	5757312	Unknown	Method Settings	NF	NC	ng/mL	NC	ng/g
1,1-Dimethylhydrazine	5757313	Unknown	Method Settings	NF	NC	ng/mL	NC	ng/g
1,1-Dimethylhydrazine	5757314	Unknown	Method Settings	NF	NC	ng/mL	NC	ng/g

Analyst: JW 1543 8/25/2009
8/26/09

Lancaster Laboratories
Quan Summary Report

Workbook Name: TQU01408-24Aug2009-1
Current Workbook Path: C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1
Instrument No. TQU01408
Analyst JW01543

Component Name	Sample ID	Sample Type	Integration Type	Response	Calc Amt	Units	Calc Amt	Units
Hydrazine	Conditioner1	Unknown	Method Settings	1246	-0.024	ng/mL		
Hydrazine	Conditioner2	Unknown	Method Settings	189	-0.031	ng/mL		
Hydrazine	MDL	Unknown	Method Settings	14138	0.067	ng/mL		
Hydrazine	Conditioner3	Unknown	Method Settings	3545	-0.008	ng/mL		
Hydrazine	Conditioner4	Unknown	Method Settings	301	-0.030	ng/mL		
Hydrazine	Conditioner5	Unknown	Method Settings	162	-0.031	ng/mL		
Hydrazine	Blank	Unknown	Method Settings	6106	0.010	ng/mL	0.10	ng/g
Hydrazine	5757306FD	Unknown	Method Settings	11009	0.045	ng/mL	0.45	ng/g
Hydrazine	5757307BKG	Unknown	Method Settings	13044	0.059	ng/mL	0.59	ng/g
Hydrazine	5757308MS	Unknown	Method Settings	738520	5.154	ng/mL	51.54	ng/g
Hydrazine 5757309MSD	~~5757309MDS~~	Unknown	Method Settings	606980	4.230	ng/mL	42.30	ng/g
Hydrazine	LCS	Unknown	Method Settings	1424161	9.969	ng/mL	99.69	ng/g
Hydrazine	LCSD	Unknown	Method Settings	1454915	10.185	ng/mL	101.85	ng/g
Hydrazine	ICV	Unknown	Method Settings	1744655	12.219	ng/mL		
Hydrazine	Spike Check	Unknown	Method Settings	1501490	10.512	ng/mL		
Hydrazine	Conditioner6	Unknown	Method Settings	1591	-0.021	ng/mL		
Hydrazine	Conditioner7	Unknown	Method Settings	397	-0.030	ng/mL		
Hydrazine	5754467	Unknown	Method Settings	13499	0.062	ng/mL	0.62	ng/g
Hydrazine	5754468	Unknown	Method Settings	10928	0.044	ng/mL	0.44	ng/g
Hydrazine	5754469	Unknown	Method Settings	6990	0.017	ng/mL	0.17	ng/g
Hydrazine	5754470	Unknown	Method Settings	12202	0.053	ng/mL	0.53	ng/g
Hydrazine	5754471	Unknown	Method Settings	13754	0.064	ng/mL	0.64	ng/g
Hydrazine	5754472	Unknown	Method Settings	7412	0.020	ng/mL	0.20	ng/g
Hydrazine	5754473	Unknown	Method Settings	6872	0.016	ng/mL	0.16	ng/g
Hydrazine	5754475	Unknown	Method Settings	8651	0.028	ng/mL	0.28	ng/g
Hydrazine	5754476	Unknown	Method Settings	7906	0.023	ng/mL	0.23	ng/g
Hydrazine	5757305	Unknown	Method Settings	6175	0.011	ng/mL	0.11	ng/g
Hydrazine	5757310	Unknown	Method Settings	8652	0.028	ng/mL	0.28	ng/g
Hydrazine	5757311	Unknown	Method Settings	15175	0.074	ng/mL	0.74	ng/g
Hydrazine	5757312	Unknown	Method Settings	12320	0.054	ng/mL	0.54	ng/g
Hydrazine	5757313	Unknown	Method Settings	8246	0.025	ng/mL	0.25	ng/g
Hydrazine	5757314	Unknown	Method Settings	10377	0.040	ng/mL	0.40	ng/g

Analyst: JW 1543 8/25/2009
[illegible] 8/26/09

Lancaster Laboratories
Quan Summary Report

Workbook Name: TQU01408-24Aug2009-1
Current Workbook Path: C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1
Instrument No. TQU01408
Analyst JW01543

Component Name	Sample ID	Sample Type	Integration Type	Response	Calc Amt	Units	Calc Amt	Units
Monomethylhydrazine	Conditioner1	Unknown	Method Settings	NF	NC	ng/mL		
Monomethylhydrazine	Conditioner2	Unknown	Method Settings	NF	NC	ng/mL		
Monomethylhydrazine	MDL	Unknown	Method Settings	9177	0.413	ng/mL		
Monomethylhydrazine	Conditioner3	Unknown	Method Settings	63	0.162	ng/mL		
Monomethylhydrazine	Conditioner4	Unknown	Method Settings	135	0.164	ng/mL		
Monomethylhydrazine	Conditioner5	Unknown	Method Settings	164	0.165	ng/mL		
Monomethylhydrazine	Blank	Unknown	Method Settings	NF	NC	ng/mL	NC	ng/g
Monomethylhydrazine	5757306FD	Unknown	Method Settings	NF	NC	ng/mL	NC	ng/g
Monomethylhydrazine	5757307BKG	Unknown	Method Settings	NF	NC	ng/mL	NC	ng/g
Monomethylhydrazine	5757308MS	Unknown	Method Settings	1617546	44.683	ng/mL	446.83	ng/g
Monomethylhydrazine	~~5757309MDS~~ 5757307MSD	Unknown	Method Settings	1429278	39.501	ng/mL	395.01	ng/g
Monomethylhydrazine	LCS	Unknown	Method Settings	2516764	69.434	ng/mL	694.34	ng/g
Monomethylhydrazine	LCSD	Unknown	Method Settings	2465509	68.023	ng/mL	680.23	ng/g
Monomethylhydrazine	ICV	Unknown	Method Settings	2651820	73.151	ng/mL		
Monomethylhydrazine	Spike Check	Unknown	Method Settings	2774215	76.520	ng/mL		
Monomethylhydrazine	Conditioner6	Unknown	Method Settings	NF	NC	ng/mL		
Monomethylhydrazine	Conditioner7	Unknown	Method Settings	NF	NC	ng/mL		
Monomethylhydrazine	5754467	Unknown	Method Settings	NF	NC	ng/mL	NC	ng/g
Monomethylhydrazine	5754468	Unknown	Method Settings	NF	NC	ng/mL	NC	ng/g
Monomethylhydrazine	5754469	Unknown	Method Settings	NF	NC	ng/mL	NC	ng/g
Monomethylhydrazine	5754470	Unknown	Method Settings	NF	NC	ng/mL	NC	ng/g
Monomethylhydrazine	5754471	Unknown	Method Settings	560	0.176	ng/mL	1.76	ng/g
Monomethylhydrazine	5754472	Unknown	Method Settings	NF	NC	ng/mL	NC	ng/g
Monomethylhydrazine	5754473	Unknown	Method Settings	NF	NC	ng/mL	NC	ng/g
Monomethylhydrazine	5754475	Unknown	Method Settings	437	0.172	ng/mL	1.72	ng/g
Monomethylhydrazine	5754476	Unknown	Method Settings	NF	NC	ng/mL	NC	ng/g
Monomethylhydrazine	5757305	Unknown	Method Settings	347	0.170	ng/mL	1.70	ng/g
Monomethylhydrazine	5757310	Unknown	Method Settings	NF	NC	ng/mL	NC	ng/g
Monomethylhydrazine	5757311	Unknown	Method Settings	218	0.166	ng/mL	1.66	ng/g
Monomethylhydrazine	5757312	Unknown	Method Settings	NF	NC	ng/mL	NC	ng/g
Monomethylhydrazine	5757313	Unknown	Method Settings	109	0.163	ng/mL	1.63	ng/g
Monomethylhydrazine	5757314	Unknown	Method Settings	804	0.182	ng/mL	1.82	ng/g

Analyst: JW 1543 8/25/2009
8/26/09

Quantify Sample Report

Quantitation Results

Sample ID	Integration Type	Component Name	RT	Response	Calculated Conc	Units
5754467	Method Settings	Hydrazine	8.95	13499	0.062	ng/mL
5754467	Method Settings	1,1-Dimethylhydrazine	N/A	NF	NC	ng/mL
5754467	Method Settings	Monomethylhydrazine	N/A	NF	NC	ng/mL

$$x = \frac{13499\ (.1)}{20078\ (.876)} = 0.074 \text{ or}$$

* Based on low RF

plus 10X prep factor

= .76 OK

Analyst : JW 1543 8/25/2009

8/26/09

GLMS 0022

There is no signature data to report.

Quantify Sample Report

Quantitation Results

Sample ID	Integration Type	Component Name	RT	Response	Calculated Conc	Units
5754468	Method Settings	Hydrazine	8.95	10928	0.044	ng/mL
5754468	Method Settings	1,1-Dimethylhydrazine	N/A	NF	NC	ng/mL
5754468	Method Settings	Monomethylhydrazine	N/A	NF	NC	ng/mL

< MDL

CRC

Analyst : JW 1543 8/25/2009

8/26/09

There is no signature data to report.

Quantify Sample Report

Quantitation Results

Sample ID	Integration Type	Component Name	RT	Response	Calculated Conc	Units
5754469	Method Settings	Hydrazine	8.94	6990	0.017	ng/mL
5754469	Method Settings	1,1-Dimethylhydrazine	N/A	NF	NC	ng/mL
5754469	Method Settings	Monomethylhydrazine	N/A	NF	NC	ng/mL

< MDL
CN

Analyst : JW 1543 8/25/2009

8/26/09

There is no signature data to report.

Quantify Sample Report

Quantitation Results

Sample ID	Integration Type	Component Name	RT	Response	Calculated Conc	Units
5754470	Method Settings	Hydrazine	8.95	12202	0.053	ng/mL
5754470	Method Settings	1,1-Dimethylhydrazine	N/A	NF	NC	ng/mL
5754470	Method Settings	Monomethylhydrazine	N/A	NF	NC	ng/mL

$\frac{0.053}{.916} = 0.57$

OW

< Low STD.

Analyst : JW 1543 8/25/2009

8/26/09

There is no signature data to report.

Quantify Sample Report

Quantitation Results

Sample ID	Integration Type	Component Name	RT	Response	Calculated Conc	Units
5754471	Method Settings	Hydrazine	8.94	13754	0.064	ng/mL
5754471	Method Settings	1,1-Dimethylhydrazine	N/A	NF	NC	ng/mL
5754471	Method Settings	Monomethylhydrazine	4.92	560	0.176	ng/mL

Analyst : JW 1543 8/25/2009

8/26/09

There is no signature data to report.

Quantify Sample Report

Quantitation Results

Sample ID	Integration Type	Component Name	RT	Response	Calculated Conc	Units
5754472	Method Settings	Hydrazine	8.94	7412	0.020	ng/mL
5754472	Method Settings	1,1-Dimethylhydrazine	N/A	NF	NC	ng/mL
5754472	Method Settings	Monomethylhydrazine	N/A	NF	NC	ng/mL

LMDL

Analyst: JW 1543 8/25/2009

8/26/09

There is no signature data to report.

Quantify Sample Report

Quantitation Results

Sample ID	Integration Type	Component Name	RT	Response	Calculated Conc	Units
5754473	Method Settings	Hydrazine	8.95	6872	0.016	ng/mL
5754473	Method Settings	1,1-Dimethylhydrazine	N/A	NF	NC	ng/mL
5754473	Method Settings	Monomethylhydrazine	N/A	NF	NC	ng/mL

<MDL

Analyst: JW 1543 8/25/2009

8/25/09

OLN15 0091

There is no signature data to report.

Quantitation Results

Sample ID	Integration Type	Component Name	RT	Response	Calculated Conc	Units
5754474	Method Settings	Hydrazine	8.94	8392	0.014	ng/mL
5754474	Method Settings	1,1-Dimethylhydrazine	6.64	62	0.168	ng/mL
5754474	Method Settings	Monomethylhydrazine	N/A	NF	NC	ng/mL

< MDL

Analyst : JW 1543 8/27/2009

8/02 8/27/09

There is no signature data to report.

Quantify Sample Report

Quantitation Results

Sample ID	Integration Type	Component Name	RT	Response	Calculated Conc	Units
5754475	Method Settings	Hydrazine	8.95	8651	0.028	ng/mL
5754475	Method Settings	1,1-Dimethylhydrazine	N/A	NF	NC	ng/mL
5754475	Method Settings	Monomethylhydrazine	4.90	437	0.172	ng/mL

LMDL

Analyst : JW 1543 8/25/2009

There is no signature data to report.

Quantify Sample Report

Quantitation Results

Sample ID	Integration Type	Component Name	RT	Response	Calculated Conc	Units
5754476	Method Settings	Hydrazine	8.94	7906	0.023	ng/mL
5754476	Method Settings	1,1-Dimethylhydrazine	N/A	NF	NC	ng/mL
5754476	Method Settings	Monomethylhydrazine	N/A	NF	NC	ng/mL

<MDL

Analyst: JW 1543 8/25/2009

8/26/09

There is no signature data to report.

Quantitation Results

Sample ID	Integration Type	Component Name	RT	Response	Calculated Conc	Units
5754477	Method Settings	Hydrazine	8.95	8472	0.015	ng/mL
5754477	Method Settings	1,1-Dimethylhydrazine	N/A	NF	NC	ng/mL
5754477	Method Settings	Monomethylhydrazine	N/A	NF	NC	ng/mL

<MDL

Analyst : JW 1543 8/27/2009
[illegible] 8/28/09

There is no signature data to report.

Lancaster Laboratories

Workbook Name: TQU01408-24Aug2009-1
Instrument No. TQU01408
Analyst JW01543

Sequence Table

Sample ID	File Name	Sample Type	Path	Position	Inj Vol	Batch No.
Conditioner1	24Aug-Methaonl1	Unknown	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:1	10.00	N/A
Conditioner2	24Aug-Methaonl2	Unknown	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:1	10.00	N/A
MDL	24Aug-100562-70-1	Unknown	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:8	10.00	N/A
Cal1	24Aug-100562-70-2	Standard	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:9	10.00	N/A
Cal2	24Aug-100562-70-3	Standard	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:10	10.00	N/A
Cal3	24Aug-100562-70-4	Standard	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:11	10.00	N/A
Cal4	24Aug-100562-70-5	Standard	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:12	10.00	N/A
Cal5	24Aug-100562-70-6	Standard	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:13	10.00	N/A
Cal6	24Aug-100562-70-7	Standard	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:14	10.00	N/A
Cal7	24Aug-100562-70-8	Standard	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:15	10.00	N/A
Cal8	24Aug-100562-70-9	Standard	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:16	10.00	N/A
Conditioner3	24Aug-Methaonl3	Unknown	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:1	10.00	N/A
Cal3asQC1a	24Aug-100562-70-4QCa	QC	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:11	10.00	N/A
Conditioner4	24Aug-Methaonl4	Unknown	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:1	10.00	N/A
Conditioner5	24Aug-Methaonl5	Unknown	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:1	10.00	N/A
Blank	24Aug-100562-70-12	Unknown	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:17	10.00	0923610056268
5757306FD	24Aug-100562-70-25	Unknown	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:18	10.00	0923610056268
5757307BKG	24Aug-100562-70-26	Unknown	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:19	10.00	0923610056268
5757308MS	24Aug-100562-70-27	Unknown	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:20	10.00	0923610056268
5757309MDS	24Aug-100562-70-28	Unknown	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:21	10.00	0923610056268
LCS	24Aug-100562-70-13	Unknown	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:22	10.00	0923610056268
LCSD	24Aug-100562-70-14	Unknown	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:23	10.00	0923610056268
ICV	24Aug-100562-70-10	Unknown	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:24	10.00	N/A
Cal4asQC2a	24Aug-100562-70-5QCa	QC	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:12	10.00	N/A
Spike Check	24Aug-100562-70-11	Unknown	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:25	10.00	N/A
Conditioner6	24Aug-Methaonl6	Unknown	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:1	10.00	N/A
Conditioner7	24Aug-Methaonl7	Unknown	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:1	10.00	N/A
5754467	24Aug-100562-70-15	Unknown	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:26	10.00	0923610056268
5754468	24Aug-100562-70-16	Unknown	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:27	10.00	0923610056268
5754469	24Aug-100562-70-17	Unknown	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:28	10.00	0923610056268
5754470	24Aug-100562-70-18	Unknown	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:29	10.00	0923610056268
5754471	24Aug-100562-70-19	Unknown	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:30	10.00	0923610056268
5754472	24Aug-100562-70-20	Unknown	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:31	10.00	0923610056268

There is no signature data to report.

Lancaster Laboratories

Sample ID	File Name	Sample Type	Path	Position	Inj Vol	Batch No.
5754473	24Aug-100562-70-21	Unknown	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:32	10.00	0923610056268
Cal5asQC3a	24Aug-100562-70-6QCa	QC	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:13	10.00	N/A
5754475	24Aug-100562-70-22	Unknown	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:33	10.00	0923610056268
5754476	24Aug-100562-70-23	Unknown	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:34	10.00	0923610056268
5757305	24Aug-100562-70-24	Unknown	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:35	10.00	0923610056268
5757310	24Aug-100562-70-29	Unknown	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles\	E:36	10.00	0923610056268
5757311	24Aug-100562-70-30	Unknown	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles\	E:37	10.00	0923610056268
5757312	24Aug-100562-70-31	Unknown	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles\	E:38	10.00	0923610056268
5757313	24Aug-100562-70-32	Unknown	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles\	E:39	10.00	0923610056268
5757314	24Aug-100562-70-33	Unknown	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles\	E:40	10.00	0923610056268
Cal3asQC1b	24Aug-100562-70-4QCb	QC	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles	E:11	10.00	N/A

Analyst : JW 1543 8/25/2009

8/26/09

There is no signature data to report.

Lancaster Laboratories

Component Calibration and Continuing Calibration Verification (CCV) Report

Workbook Name:	TQU01408-24Aug2009-1
Current Workbook Path:	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1
Instrument No.	TQU01408
Analyst	JW01543

Identification

Component Name:	1,1-Dimethylhydrazine
Detector Type:	MS
Filter:	+ c APCI SRM ms2 149.210@cid14.00 [106.269-106.271]
1st Trace Type:	TIC
Operator:	None
2nd Trace Type:	N/A
Mass Range 1 (m/z):	N/A
Mass Range 2 (m/z):	N/A
Base Peak(BP):	N/A
Mass Range(MR):	N/A

Retention Time

Expected RT (min):	6.64000
Window (sec):	20.00000
View Width (min):	3.00000
RT Reference:	No
Adjust Expected RT:	No
Adjust Using:	N/A

Detection Options

Peak Detection Algorithm:	Genesis
Smoothing Points:	1

Genesis Peak Integration

S/N Threshold:	1.00
Valley Detection:	Disabled
Expected Peak Width (sec):	N/A
Genesis Constrain Peak Width:	No
Genesis Peak Height (%):	N/A
Genesis Tailing Factor:	N/A

Genesis Peak Detection

Genesis Identify By:	Nearest RT
Genesis Minimum Peak Height (S/N):	3.00
Genesis Ion Ratio Confirmation:	No
Genesis Window %:	N/A
Genesis Qualifier Ion Coelution (min):	N/A

Genesis Advanced Detection Options

Baseline (Global)

Baseline Noise Tolerance (%):	10.0
Minimum Number of Scans in Baseline:	16
Baseline Noise Rejection Factor:	2.0

Calibration

Component Type:	Target Compound

Internal Standard

ISTD Amount:	N/A
ISTD Units:	N/A

Target Compounds

Concentration of Calibration Standards

Level	Amount
1	0.500 ng/mL
2	1.000 ng/mL
3	2.500 ng/mL
4	5.000 ng/mL
5	12.500 ng/mL
6	25.000 ng/mL
7	50.000 ng/mL
8	125.000 ng/mL

Concentration of CCV Standards

Level	Amount
CCV1	2.500 ng/mL
CCV2	5.000 ng/mL
CCV3	12.500 ng/mL

OLM15.0619

There is no signature data to report.

Lancaster Laboratories

ISTD:	
Weighting:	1/X
Origin:	IgnoreOrigin
Response:	Area
Calibration Curve:	Linear
Target Units:	ng/mL
Number of Cal. Levels:	8
Number of QC Levels:	3

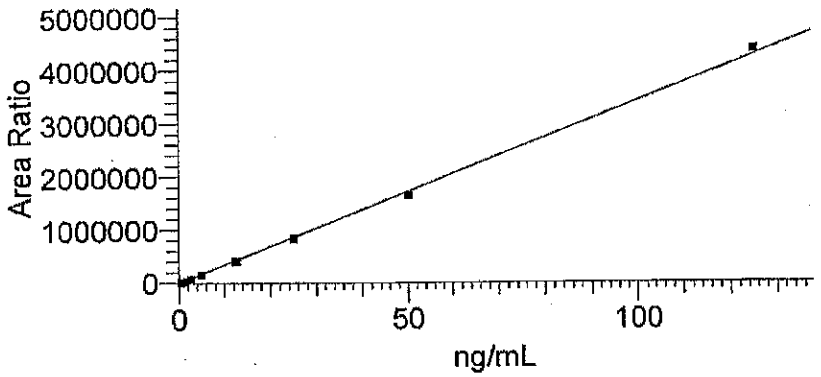
Options

Calibration By: External Standard

ch 2/9/2010 ch

1,1-Dimethylhydrazine

Y = -5723.62+34200.8*X R^2 = 0.9988 W: 1/X



Sample ID	Sample Type	Level	Exclude	Integration Type	Response	Specified Conc	Units	Calc Amt	% Diff
Cal1	Standard	1	N/A	Method Settings	13982	0.500	ng/mL	0.576	15.23
Cal2	Standard	2	N/A	Method Settings	30996	1.000	ng/mL	1.074	7.37
Cal3	Standard	3	N/A	Method Settings	70777	2.500	ng/mL	2.237	-10.53
Cal4	Standard	4	N/A	Method Settings	156953	5.000	ng/mL	4.757	-4.87
Cal5	Standard	5	N/A	Method Settings	405403	12.500	ng/mL	12.021	-3.83
Cal6	Standard	6	N/A	Method Settings	831154	25.000	ng/mL	24.470	-2.12
Cal7	Standard	7	N/A	Method Settings	1637595	50.000	ng/mL	48.049	-3.90
Cal8	Standard	8	N/A	Method Settings	4382835	125.000	ng/mL	128.317	2.65
Cal3asQC1a	QC	CCV1	N/A	Method Settings	70412	2.500	ng/mL	2.226	-10.95
Cal4asQC2a	QC	CCV2	N/A	Method Settings	168336	5.000	ng/mL	5.089	1.79
Cal5asQC3a	QC	CCV3	N/A	Method Settings	451604	12.500	ng/mL	13.372	6.97
Cal3asQC1b	QC	CCV1	N/A	Method Settings	74835	2.500	ng/mL	2.355	-5.78

Analyst : JW 1543 8/25/2009

8/26/09

OLN25, 2120

There is no signature data to report.

Lancaster Laboratories

Component Calibration and Continuing Calibration Verification (CCV) Report

Workbook Name:	TQU01408-24Aug2009-1
Current Workbook Path:	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1
Instrument No.	TQU01408
Analyst	JW01543

Identification

Component Name:	Hydrazine
Detector Type:	MS
Filter:	+ c APCI SRM ms2 209.128@cid17.00 [106.299-106.301]
1st Trace Type:	TIC
Operator:	None
2nd Trace Type:	N/A
Mass Range 1 (m/z):	N/A
Mass Range 2 (m/z):	N/A
Base Peak(BP):	N/A
Mass Range(MR):	N/A

Retention Time

Expected RT (min):	8.94000
Window (sec):	20.00000
View Width (min):	3.00000
RT Reference:	No
Adjust Expected RT:	No
Adjust Using:	N/A

Detection Options

Peak Detection Algorithm:	Genesis
Smoothing Points:	1

Genesis Peak Integration

S/N Threshold:	1.00
Valley Detection:	Disabled
Expected Peak Width (sec):	N/A
Genesis Constrain Peak Width:	No
Genesis Peak Height (%):	N/A
Genesis Tailing Factor:	N/A

Genesis Peak Detection

Genesis Identify By:	Nearest RT
Genesis Minimum Peak Height (S/N):	3.00
Genesis Ion Ratio Confirmation:	No
Genesis Window %:	N/A
Genesis Qualifier Ion Coelution (min):	N/A

Genesis Advanced Detection Options

Baseline (Global)

Baseline Noise Tolerance (%):	10.0
Minimum Number of Scans in Baseline:	16
Baseline Noise Rejection Factor:	2.0

Calibration

Component Type:	Target Compound

Internal Standard

ISTD Amount:	N/A
ISTD Units:	N/A

Target Compounds

Concentration of Calibration Standards

Level	Amount
1	0.100 ng/mL
2	0.200 ng/mL
3	0.500 ng/mL
4	1.000 ng/mL
5	2.500 ng/mL
6	5.000 ng/mL
7	10.000 ng/mL
8	25.000 ng/mL

Concentration of CCV Standards

Level	Amount
CCV1	0.500 ng/mL
CCV2	1.000 ng/mL
CCV3	2.500 ng/mL

There is no signature data to report.

Lancaster Laboratories

ISTD:	
Weighting:	1/X
Origin:	IgnoreOrigin
Response:	Area
Calibration Curve:	Linear
Target Units:	ng/mL
Number of Cal. Levels:	8
Number of QC Levels:	3

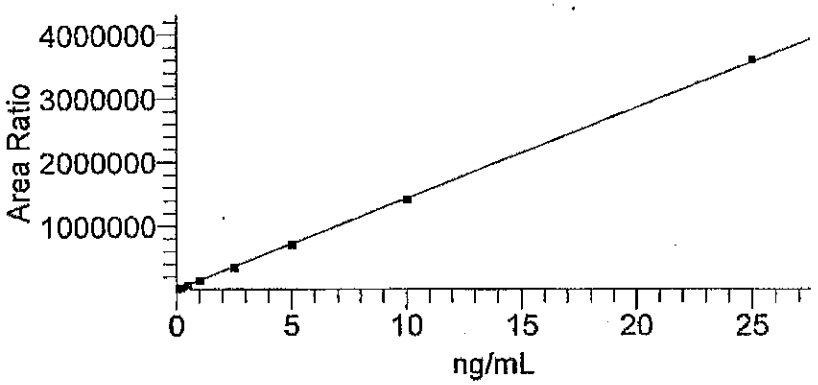
Options

Calibration By: External Standard

CW 2/9/10

Hydrazine

Y = 4626.25+142399*X R^2 = 0.9997 W: 1/X



Sample ID	Sample Type	Level	Exclude	Integration Type	Response	Specified Conc	Units	Calc Amt	% Diff
Cal1	Standard	1	N/A	Method Settings	20078	0.100	ng/mL	0.109	8.51
Cal2	Standard	2	N/A	Method Settings	34164	0.200	ng/mL	0.207	3.72
Cal3	Standard	3	N/A	Method Settings	73508	0.500	ng/mL	0.484	-3.25
Cal4	Standard	4	N/A	Method Settings	142595	1.000	ng/mL	0.969	-3.11
Cal5	Standard	5	N/A	Method Settings	344733	2.500	ng/mL	2.388	-4.46
Cal6	Standard	6	N/A	Method Settings	701484	5.000	ng/mL	4.894	-2.13
Cal7	Standard	7	N/A	Method Settings	1422158	10.000	ng/mL	9.955	-0.45
Cal8	Standard	8	N/A	Method Settings	3606544	25.000	ng/mL	25.295	1.18
Cal3asQC1a	QC	CCV1	N/A	Method Settings	77486	0.500	ng/mL	0.512	2.33
Cal4asQC2a	QC	CCV2	N/A	Method Settings	150968	1.000	ng/mL	1.028	2.77
Cal5asQC3a	QC	CCV3	N/A	Method Settings	353531	2.500	ng/mL	2.450	-1.99
Cal3asQC1b	QC	CCV1	N/A	Method Settings	74888	0.500	ng/mL	0.493	-1.32

Analyst : JW 1543 8/25/2009

9/1/2 9/26/09

01N15 0622

There is no signature data to report.

Lancaster Laboratories

Component Calibration and Continuing Calibration Verification (CCV) Report

Workbook Name:	TQU01408-24Aug2009-1
Current Workbook Path:	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1
Instrument No.	TQU01408
Analyst	JW01543

Identification

Component Name:	Monomethylhydrazine
Detector Type:	MS
Filter:	+ c APCI SRM ms2 135.207@cid20.00 [77.399-77.401]
1st Trace Type:	TIC
Operator:	None
2nd Trace Type:	N/A
Mass Range 1 (m/z):	N/A
Mass Range 2 (m/z):	N/A
Base Peak(BP):	N/A
Mass Range(MR):	N/A

Retention Time

Expected RT (min):	4.94000
Window (sec):	20.00000
View Width (min):	3.00000
RT Reference:	No
Adjust Expected RT:	No
Adjust Using:	N/A

Detection Options

Peak Detection Algorithm:	Genesis
Smoothing Points:	1

Genesis Peak Integration

S/N Threshold:	1.00
Valley Detection:	Disabled
Expected Peak Width (sec):	N/A
Genesis Constrain Peak Width:	No
Genesis Peak Height (%):	N/A
Genesis Tailing Factor:	N/A

Genesis Peak Detection

Genesis Identify By:	Nearest RT
Genesis Minimum Peak Height (S/N):	0.50
Genesis Ion Ratio Confirmation:	No
Genesis Window %:	N/A
Genesis Qualifier Ion Coelution (min):	N/A

Genesis Advanced Detection Options

Baseline (Global)

Baseline Noise Tolerance (%):	10.0
Minimum Number of Scans in Baseline:	16
Baseline Noise Rejection Factor:	2.0

Calibration

Component Type:	Target Compound

Internal Standard

ISTD Amount:	N/A
ISTD Units:	N/A

Target Compounds

Concentration of Calibration Standards

Level	Amount
1	0.500 ng/mL
2	1.000 ng/mL
3	2.500 ng/mL
4	5.000 ng/mL
5	12.500 ng/mL
6	25.000 ng/mL
7	50.000 ng/mL
8	125.000 ng/mL

Concentration of CCV Standards

Level	Amount
CCV1	2.500 ng/mL
CCV2	5.000 ng/mL
CCV3	12.500 ng/mL

01N05 8123

There is no signature data to report.

Lancaster Laboratories

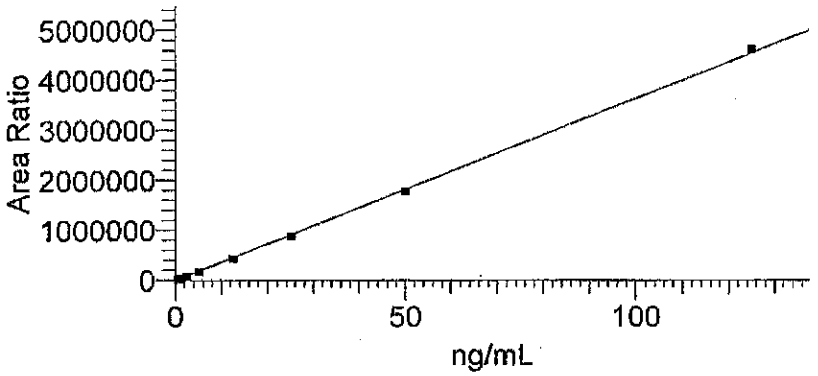
ISTD:
Weighting: 1/X
Origin: IgnoreOrigin
Response: Area
Calibration Curve: Linear
Target Units: ng/mL
Number of Cal. Levels: 8
Number of QC Levels: 3

Options

Calibration By: External Standard

CW 2/9/10

Monomethylhydrazine
Y = -5823.7+36330.8*X R^2 = 0.9992 W: 1/X



Sample ID	Sample Type	Level	Exclude	Integration Type	Response	Specified Conc	Units	Calc Amt	% Diff
Cal1	Standard	1	N/A	Method Settings	15330	0.500	ng/mL	0.582	16.45
Cal2	Standard	2	N/A	Method Settings	32290	1.000	ng/mL	1.049	4.91
Cal3	Standard	3	N/A	Method Settings	76651	2.500	ng/mL	2.270	-9.20
Cal4	Standard	4	N/A	Method Settings	166840	5.000	ng/mL	4.753	-4.95
Cal5	Standard	5	N/A	Method Settings	426493	12.500	ng/mL	11.899	-4.80
Cal6	Standard	6	N/A	Method Settings	877892	25.000	ng/mL	24.324	-2.70
Cal7	Standard	7	N/A	Method Settings	1780317	50.000	ng/mL	49.163	-1.67
Cal8	Standard	8	N/A	Method Settings	4624875	125.000	ng/mL	127.459	1.97
Cal3asQC1a	QC	CCV1	N/A	Method Settings	72449	2.500	ng/mL	2.154	-13.82
Cal4asQC2a	QC	CCV2	N/A	Method Settings	179632	5.000	ng/mL	5.105	2.09
Cal5asQC3a	QC	CCV3	N/A	Method Settings	474188	12.500	ng/mL	13.212	5.70
Cal3asQC1b	QC	CCV1	N/A	Method Settings	77450	2.500	ng/mL	2.292	-8.32

Analyst: JW 1543 8/25/2009
8/26/09

There is no signature data to report.

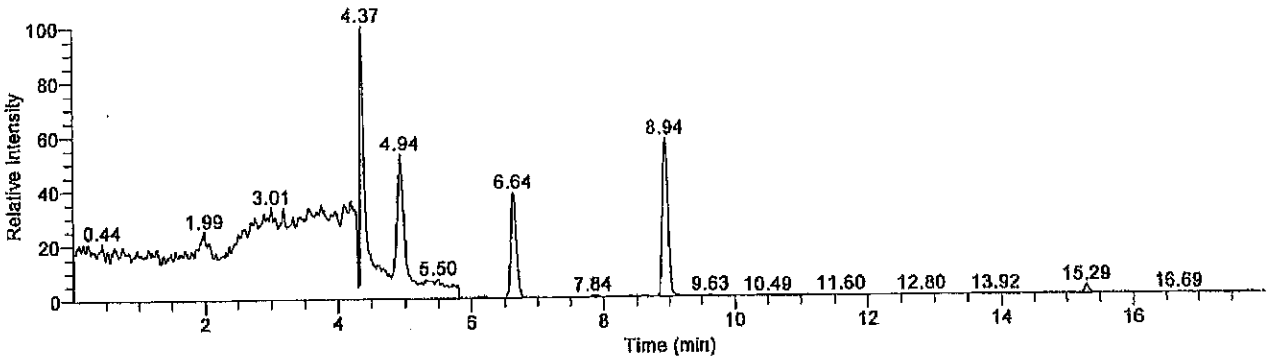
Lancaster Laboratories

Printed: Tuesday, August 25, 2009, 09:37:56
Quantify Sample Report

Current Workbook Path:	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1
Workbook Name:	TQU01408-24Aug2009-1
Analyst	JW01543
Instrument No.	TQU01408
Batch No.	N/A
Data File:	24Aug-100562-70-2.raw
Sample ID:	Cal1
Sample Type:	Standard
Level:	1
Acquisition Date:	Monday, August 24, 2009 6:21:24 PM
Vial:	E:9
Dilution Factor:	1.00000

Sample Chromatogram

24Aug-100562-70-2 - TIC RT: 0.00 - 18.00 NL: 5.91E3

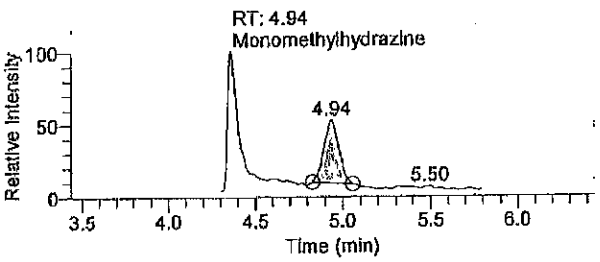


Compound Graphics

Date: 24-Aug-2009, Instrument: Quantum, Vial: E:9, Name: C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-24Aug2009-1\Rawfiles\24Aug-100562-70-2, Comments: , ID: Cal1

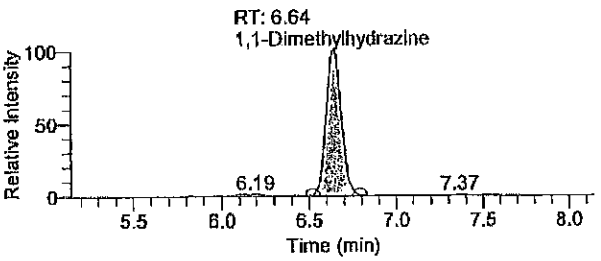
Monomethylhydrazine

24Aug-100562-70-2 - TIC RT: 3.44 - 6.44 NL: 5.91E3
F: + c APCI SRM ms2 135.207@cid20.00 [77.399-77.401]



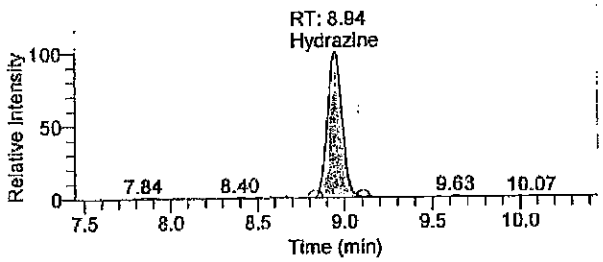
1,1-Dimethylhydrazine

24Aug-100562-70-2 - TIC RT: 5.14 - 8.14 NL: 2.27E3
F: + c APCI SRM ms2 149.210@cid14.00 [106.269-106.271]



Hydrazine

24Aug-100562-70-2 - TIC RT: 7.44 - 10.44 NL: 3.43E3
F: + c APCI SRM ms2 209.128@cid17.00 [106.299-106.301]



01K15. 0125

There is no signature data to report.

Quantify Sample Report

Quantitation Results

Sample ID	Integration Type	Component Name	RT	Response	Calculated Conc	Units
Cal1	Method Settings	Hydrazine	8.94	20078	0.109	ng/mL
Cal1	Method Settings	1,1-Dimethylhydrazine	6.64	13982	0.576	ng/mL
Cal1	Method Settings	Monomethylhydrazine	4.94	15330	0.582	ng/mL

Analyst : JW 1543 8/25/2009

8/26/09

There is no signature data to report.

Quantify Sample Report

Quantitation Results

Sample ID	Integration Type	Component Name	RT	Response	Calculated Conc	Units
Cal8	Method Settings	Hydrazine	8.95	3606544	25.295	ng/mL
Cal8	Method Settings	1,1-Dimethylhydrazine	6.64	4382835	128.317	ng/mL
Cal8	Method Settings	Monomethylhydrazine	4.94	4624875	127.459	ng/mL

Analyst : JW 1543 8/25/2009

8/26/09

There is no signature data to report.

Lancaster Laboratories

Component Calibration and Continuing Calibration Verification (CCV) Report

Workbook Name:	TQU01408-26Aug2009-1
Current Workbook Path:	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-26Aug2009-1
Instrument No.	TQU01408
Analyst	JW01543

Identification

Component Name:	Hydrazine
Detector Type:	MS
Filter:	+ c APCI SRM ms2 209.128@cid17.00 [106.299-106.301]
1st Trace Type:	TIC
Operator:	None
2nd Trace Type:	N/A
Mass Range 1 (m/z):	N/A
Mass Range 2 (m/z):	N/A
Base Peak(BP):	N/A
Mass Range(MR):	N/A

Retention Time

Expected RT (min):	8.94000
Window (sec):	20.00000
View Width (min):	3.00000
RT Reference:	No
Adjust Expected RT:	No
Adjust Using:	N/A

Detection Options

Peak Detection Algorithm:	Genesis
Smoothing Points:	1

Genesis Peak Integration

S/N Threshold:	1.00
Valley Detection:	Disabled
Expected Peak Width (sec):	N/A
Genesis Constrain Peak Width:	No
Genesis Peak Height (%):	N/A
Genesis Tailing Factor:	N/A

Genesis Peak Detection

Genesis Identify By:	Nearest RT
Genesis Minimum Peak Height (S/N):	3.00
Genesis Ion Ratio Confirmation:	No
Genesis Window %:	N/A
Genesis Qualifier Ion Coelution (min):	N/A

Genesis Advanced Detection Options

Baseline (Global)

Baseline Noise Tolerance (%):	10.0
Minimum Number of Scans in Baseline:	16
Baseline Noise Rejection Factor:	2.0

Calibration

Component Type:	Target Compound

Internal Standard

ISTD Amount:	N/A
ISTD Units:	N/A

Target Compounds

Concentration of Calibration Standards

Level	Amount
1	0.100 ng/mL
2	0.200 ng/mL
3	0.500 ng/mL
4	1.000 ng/mL
5	2.500 ng/mL
6	5.000 ng/mL
7	10.000 ng/mL
8	25.000 ng/mL

Concentration of CCV Standards

Level	Amount
CCV1	0.500 ng/mL
CCV2	1.000 ng/mL
CCV3	2.500 ng/mL

OLR15 0156

There is no signature data to report.

Lancaster Laboratories

ISTD:	
Weighting:	1/X
Origin:	IgnoreOrigin
Response:	Area
Calibration Curve:	Linear
Target Units:	ng/mL
Number of Cal. Levels:	8
Number of QC Levels:	3

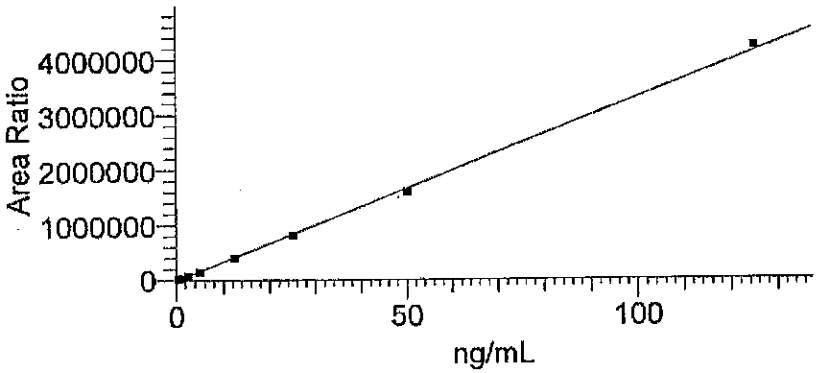
Options

Calibration By:	External Standard

ch 2/9/10

1,1-Dimethylhydrazine

Y = -5492.23+33030.7*X R^2 = 0.9990 W: 1/X



Sample ID	Sample Type	Level	Exclude	Integration Type	Response	Specified Conc	Units	Calc Amt	% Diff
Cal1	Standard	1	N/A	Method Settings	13298	0.500	ng/mL	0.569	13.77
Cal2	Standard	2	N/A	Method Settings	29159	1.000	ng/mL	1.049	4.91
Cal3	Standard	3	N/A	Method Settings	72488	2.500	ng/mL	2.361	-5.57
Cal4	Standard	4	N/A	Method Settings	148904	5.000	ng/mL	4.674	-6.51
Cal5	Standard	5	N/A	Method Settings	394767	12.500	ng/mL	12.118	-3.06
Cal6	Standard	6	N/A	Method Settings	800052	25.000	ng/mL	24.388	-2.45
Cal7	Standard	7	N/A	Method Settings	1586374	50.000	ng/mL	48.194	-3.61
Cal8	Standard	8	N/A	Method Settings	4227313	125.000	ng/mL	128.148	2.52
Cal3asQC1	QC	CCV1	N/A	Method Settings	70276	2.500	ng/mL	2.294	-8.24
Cal4asQC2	QC	CCV2	N/A	Method Settings	151064	5.000	ng/mL	4.740	-5.21
Cal5asQC3	QC	CCV3	N/A	Method Settings	404847	12.500	ng/mL	12.423	-0.62

Analyst : JW 1543 8/27/2009
JW/MC 8/28/09

01R15 0155

There is no signature data to report.

Lancaster Laboratories

ISTD:
Weighting: 1/X
Origin: IgnoreOrigin
Response: Area
Calibration Curve: Linear
Target Units: ng/mL
Number of Cal. Levels: 8
Number of QC Levels: 3

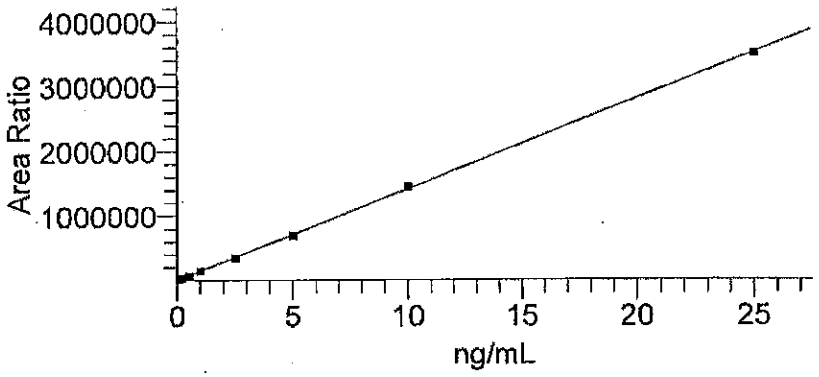
Options

Calibration By: External Standard

CW 2/9/10

Hydrazine

Y = 6395.34+140333*X R^2 = 0.9995 W: 1/X



Sample ID	Sample Type	Level	Exclude	Integration Type	Response	Specified Conc	Units	Calc Amt	% Diff
Cal1	Standard	1	N/A	Method Settings	21696	0.100	ng/mL	0.109	9.03
Cal2	Standard	2	N/A	Method Settings	35084	0.200	ng/mL	0.204	2.22
Cal3	Standard	3	N/A	Method Settings	69603	0.500	ng/mL	0.450	-9.92
Cal4	Standard	4	N/A	Method Settings	148182	1.000	ng/mL	1.010	1.04
Cal5	Standard	5	N/A	Method Settings	345949	2.500	ng/mL	2.420	-3.22
Cal6	Standard	6	N/A	Method Settings	696327	5.000	ng/mL	4.916	-1.67
Cal7	Standard	7	N/A	Method Settings	1451004	10.000	ng/mL	10.294	2.94
Cal8	Standard	8	N/A	Method Settings	3500086	25.000	ng/mL	24.896	-0.42
Cal3asQC1	QC	CCV1	N/A	Method Settings	78500	0.500	ng/mL	0.514	2.76
Cal4asQC2	QC	CCV2	N/A	Method Settings	154572	1.000	ng/mL	1.056	5.59
Cal5asQC3	QC	CCV3	N/A	Method Settings	370167	2.500	ng/mL	2.592	3.69

Analyst : JW 1543 8/27/2009
[illegible] 8/28/09

OLM15 0157

There is no signature data to report.

Lancaster Laboratories

Component Calibration and Continuing Calibration Verification (CCV) Report

Workbook Name:	TQU01408-26Aug2009-1
Current Workbook Path:	C:\XCalibur\Hydrazine Analysis\Aug 2009\TQU01408-26Aug2009-1
Instrument No.	TQU01408
Analyst	JW01543

Identification

Component Name:	Monomethylhydrazine
Detector Type:	MS
Filter:	+ c APCI SRM ms2 135.207@cid20.00 [77.399-77.401]
1st Trace Type:	TIC
Operator:	None
2nd Trace Type:	N/A
Mass Range 1 (m/z):	N/A
Mass Range 2 (m/z):	N/A
Base Peak(BP):	N/A
Mass Range(MR):	N/A

Retention Time

Expected RT (min):	4.94000
Window (sec):	20.00000
View Width (min):	3.00000
RT Reference:	No
Adjust Expected RT:	No
Adjust Using:	N/A

Detection Options

Peak Detection Algorithm:	Genesis
Smoothing Points:	1

Genesis Peak Integration

S/N Threshold:	1.00
Valley Detection:	Disabled
Expected Peak Width (sec):	N/A
Genesis Constrain Peak Width:	No
Genesis Peak Height (%):	N/A
Genesis Tailing Factor:	N/A

Genesis Peak Detection

Genesis Identify By:	Nearest RT
Genesis Minimum Peak Height (S/N):	0.50
Genesis Ion Ratio Confirmation:	No
Genesis Window %:	N/A
Genesis Qualifier Ion Coelution (min):	N/A

Genesis Advanced Detection Options

Baseline (Global)

Baseline Noise Tolerance (%):	10.0
Minimum Number of Scans in Baseline:	16
Baseline Noise Rejection Factor:	2.0

Calibration

Component Type:	Target Compound

Internal Standard

ISTD Amount:	N/A
ISTD Units:	N/A

Target Compounds

Concentration of Calibration Standards

Level	Amount
1	0.500 ng/mL
2	1.000 ng/mL
3	2.500 ng/mL
4	5.000 ng/mL
5	12.500 ng/mL
6	25.000 ng/mL
7	50.000 ng/mL
8	125.000 ng/mL

Concentration of CCV Standards

Level	Amount
CCV1	2.500 ng/mL
CCV2	5.000 ng/mL
CCV3	12.500 ng/mL

01N15 0150

There is no signature data to report.

Lancaster Laboratories

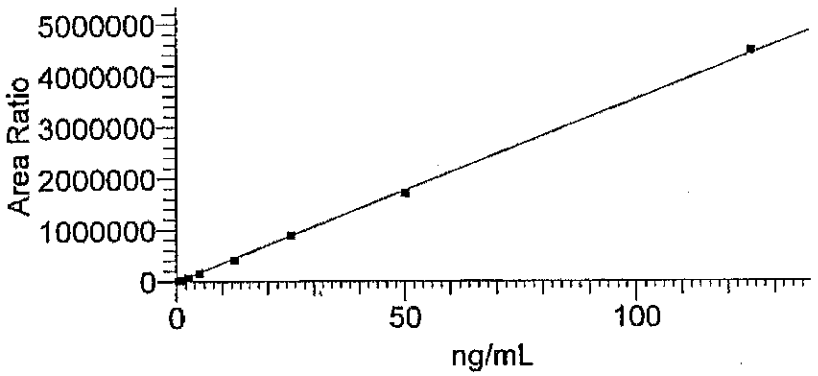
ISTD:	
Weighting:	1/X
Origin:	IgnoreOrigin
Response:	Area
Calibration Curve:	Linear
Target Units:	ng/mL
Number of Cal. Levels:	8
Number of QC Levels:	3

Options

Calibration By:	External Standard

Monomethylhydrazine

Y = -4457.89+35294.9*X R^2 = 0.9993 W: 1/X



Sample ID	Sample Type	Level	Exclude	Integration Type	Response	Specified Conc	Units	Calc Amt	% Diff
Cal1	Standard	1	N/A	Method Settings	15746	0.500	ng/mL	0.572	14.49
Cal2	Standard	2	N/A	Method Settings	32496	1.000	ng/mL	1.047	4.70
Cal3	Standard	3	N/A	Method Settings	73967	2.500	ng/mL	2.222	-11.12
Cal4	Standard	4	N/A	Method Settings	166789	5.000	ng/mL	4.852	-2.96
Cal5	Standard	5	N/A	Method Settings	414606	12.500	ng/mL	11.873	-5.01
Cal6	Standard	6	N/A	Method Settings	886283	25.000	ng/mL	25.237	0.95
Cal7	Standard	7	N/A	Method Settings	1713356	50.000	ng/mL	48.670	-2.66
Cal8	Standard	8	N/A	Method Settings	4478911	125.000	ng/mL	127.026	1.62
Cal3asQC1	QC	CCV1	N/A	Method Settings	80914	2.500	ng/mL	2.419	-3.25
Cal4asQC2	QC	CCV2	N/A	Method Settings	173082	5.000	ng/mL	5.030	0.60
Cal5asQC3	QC	CCV3	N/A	Method Settings	448008	12.500	ng/mL	12.820	2.56

Analyst : JW 1543 8/27/2008
[illegible] 8/28/09

01M15 0159

There is no signature data to report.

Quantitation Results

Sample ID	Integration Type	Component Name	RT	Response	Calculated Conc	Units
Cal5	Method Settings	Hydrazine	8.97	345949	2.420	ng/mL
Cal5	Method Settings	1,1-Dimethylhydrazine	6.65	394767	12.118	ng/mL
Cal5	Method Settings	Monomethylhydrazine	4.95	414606	11.873	ng/mL

Analyst : JW 1543 8/27/2009

GEN15 0165

There is no signature data to report.

CHEMIST REVIEW-VALIDATION CHECKLIST

Project: Olin Chemical Superfund Site Method: Hydrazine 8315 LC/MS
Project #: OLIN Laboratory and SDG: OLN16 LANCASTER
Date: 2/9/10 Reviewer: C Ricardo

☐ Chemist Review ☐ Full Validation (add page 2)

1. Case Narrative and Data Package Completeness (COC Review)

2. Holding Time and Sample Preservation/Collection Collected 8/19 - 8/25
Analysis 8/26, 8/28, 8/27

3. QC Blanks EBK-03 ND MBK - ND Hydrazine 0.17 and .22 Raw data ~~+3~~ ug/kg
EBK-04 ND 1,1DMH Raw .167

4. Laboratory Control Sample Review
8/26 LCS Recoveries within limits RPD within limits

5. Field Duplicate Precision
SB 430 8.0/10 cu ~~.012~~ ND FD ND Orig ND

6. Lab Duplicate Precision
See LCSD

7. Matrix Spike Results (if applicable)
SB-430 8.0/10.0 - Hydrazine 14% 14% (%R)
1,1DMH 65-68
1,2DMH 17-16%

8. Surrogate Recovery (if applicable)
NA

9. Internal Standard Recovery (if applicable)
NA

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Sample Reference List for SDG Number OLN16 with a Data Package Type of I

12670 - Olin Corporation

Project: Olin Wilmington, MA Superfund Site/6107090016

Lab Sample Number	Lab Sample Code	Client Sample Description
5757315	W4260	OC-SB-426-0.0/1.0-XXX Grab Soil
5757316	W4310	OC-SB-431-0.0/1.0-XXX Grab Soil
5757317	W4360	OC-SB-436-0.0/1.0-XXX Grab Soil
5757318	W4450	OC-SB-445-0.0/1.0-XXX Grab Soil
5757319	W4320	OC-SB-432-0.0/1.0-XXX Grab Soil —Check dates
5757320	W4321	OC-SB-432-14/16-XXX Grab Soil
5757321	W4325	OC-SB-432-5.0/7.0-XXX Grab Soil
5757322	W4430	OC-SB-443-0.0/1.0-XXX Grab Soil
5757323	W4370	OC-SB-437-0.0/1.0-XXX Grab Soil
5757324	WEB03	OC-EBK-003 Grab Water
5760556	O4226	OC-SB-422-6.0/8.0-XXX Grab Soil
5760557	O422D	OC-SB-430-8.0/10-DUP Grab Soil
5760558	O4228	OC-SB-430-8.0/10-XXX Grab Soil
5760559	O4228	OC-SB-430-8.0/10-XMS Grab Soil
5760560	O4228	OC-SB-430-8.0/10-MSD Grab Soil
5760566	O4220	OC-SB-422-0.0/1.0-XXX Grab Soil
5760567	O4300	OC-SB-430-0.0/1.0-XXX Grab Soil
5760568	O4460	OC-SB-446-0.0/1.0-XXX Grab Soil
5760569	O4480	OC-SB-448-0.0/1.0-XXX Grab Soil
5760570	OEB04	OC-EBK-004 Grab Water

Lancaster Laboratories

Determination of Hydrazine, Monomethylhydrazine and 1,1-Dimethylhydrazine in Soil Samples

Matrix Spike Recovery

Instrument No.: TQU01408
MS File Name: 26Aug-100562-80-27
MSD File Name: 26Aug-100562-80-28
Batch No.: 0923910056279
MS Injected: 8/27/2009
MS Injected: 8/27/2009
Workbook: TQU01408-27Aug2009-1
MS ID: 5760559MS
MSD ID: 5760560MSD
Dilution Factor: 1

Compound	Specified Spike Level	BKG	MS Conc.	MSD Conc.	MS Recovery	MSD Recovery	Recovery Range	RPD	RPD MAX
	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(%)	(%)	(%)	(%)	(%)
Hydrazine	125	0	17.20	17.23	14	14	11-102	0	30
1,1-Dimethylhydrazine	625	0	424.36	407.97	68	65	10-92	4	30
Monomethylhydrazine	625	0	107.00	101.09	17	16	10-116	6	30

Comments:

Analyst: JW 1543 9/11/2009
Reviewed by: [illegible] 9/11/09

Lancaster Laboratories

Determination of Hydrazine, Monomethylhydrazine and 1,1-Dimethylhydrazine in Soil Samples

Laboratory Control Sample Recovery

Instrument No.: TQU01408
LCS File Name: 26Aug-100562-80-13
LCSD File Name: 26Aug-100562-80-14
Batch No.: 0923910056279
LCS Injected: 8/27/2009
LCSD Injected: 8/27/2009
Workbook: TQU01408-27Aug2009-1
LCS ID: LCS
LCSD ID: LCSD
Dilution Factor: 1

Compound	Spike Level	LCS Conc.	LCSD Conc.	LCS Recovery	LCSD Recovery	Recovery Range	RPD	RPD MAX
	(ng/g)	(ng/g)	(ng/g)	(%)	(%)	(%)	(%)	(%)
Hydrazine	125	94.44	95.46	76	76	70-130	1	30
1,1-Dimethylhydrazine	625	675.87	677.58	108	108	70-130	0	30
Monomethylhydrazine	625	662.34	666.27	106	107	70-130	1	30

Comments:

Analyst: JW 1543 8/30/2009
Reviewed by: 9/1/09

CHEMIST REVIEW-VALIDATION CHECKLIST

Project: Olin Chemical Superfund Site **Method:** Hydrazine 8315 LC/MS
Project #: _____ **Laboratory and SDG:** Lancaster OLN17
Date: 2/9/10 **Reviewer:** C Ricardi

☐ Chemist Review ☐ Full Validation (add page 2)

1. **Case Narrative and Data Package Completeness (COC Review)**
   11DMH - high in MS

2. **Holding Time and Sample Preservation/Collection** Collected 8/25, 8/26, 8/27, 8/28
   Analysis 8/27 -> 9/4 8/31
   9/1

3. **QC Blanks**
   EBK-005 ND Hydrazine MBK - .07 ug/kg 0.19 ug/kg 11DMH .64 ug/kg

4. **Laboratory Control Sample Review**
   Soil LCS 8/28 within limits
   Soil LCS 9/2 within limits

5. **Field Duplicate Precision**
   SB-446 5.0/7.0 Both ND

6. **Lab Duplicate Precision**
   See LCSD

7. **Matrix Spike Results (if applicable)**
   SB-446 5.0/7.0 Recoveries within limits

8. **Surrogate Recovery (if applicable)**
   NA

9. **Internal Standard Recovery (if applicable)**
   NA

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Sample Reference List for SDG Number OLN17 with a Data Package Type of I

12670 - Olin Corporation

Project: Olin Wilmington, MA Superfund Site/6107090016

Lab Sample Number	Lab Sample Code	Client Sample Description
5760561	O446D	OC-SB-446-5.0/7.0-DUP Grab Soil
5760562	O4465	OC-SB-446-5.0/7.0-XXX Grab Soil
5760563	O4465	OC-SB-446-5.0/7.0-XMS Grab Soil
5760564	O4465	OC-SB-446-5.0/7.0-MSD Grab Soil
5760565	O4488	OC-SB-448-8.0/10-XXX Grab Soil
5763095	O4020	OC-SB-402-0.0/1.0-XXX Grab Soil
5763096	O4070	OC-SB-407-0.0/1.0-XXX Grab Soil
5763097	O4030	OC-SB-403-0.0/1.0-XXX Grab Soil
5763098	O4090	OC-SB-409-0.0/1.0-XXX Grab Soil
5763099	O4100	OC-SB-410-0.0/1.0-XXX Grab Soil
5763100	O4110	OC-SB-411-0.0/1.0-XXX Grab Soil
5763101	OEB05	OC-EBK-005 Grab Water
5763102	O4440	OC-SB-444-0.0/1.0-XXX Grab Soil
5763103	O4490	OC-SB-449-0.0/1.0-XXX Grab Soil
5764219	O4510	OC-SB-451-0.0/1.0-XXX Grab Soil
5766205	O4420	OC-SB-442-0.0/1.0-XXX Grab Soil
5766206	O4520	OC-SB-452-0.0/1.0-XXX Grab Soil
5766207	O4580	OC-SB-458-0.0/1.0-XXX Grab Soil
5766208	O4630	OC-SB-463-0.0/1.0-XXX Grab Soil
5766209	O4640	OC-SB-464-0.0/1.0-XXX Grab Soil
5766210	OEB06	OC-EBK-006 Grab Water
5766211	44817	OC-SB-448-17/19-XXX Grab Soil

Lancaster Laboratories

Determination of Hydrazine, Monomethylhydrazine and 1,1-Dimethylhydrazine in Soil Samples

Matrix Spike Recovery

Instrument No.: TQU01408
MS File Name: 28Aug2009-19
MSD File Name: 28Aug2009-20
Batch No.: 0924010056284
MS Injected: 8/28/2009
MS Injected: 8/28/2009
Workbook: TQU01408-28Aug2009-1
MS ID: 5760563MS
MSD ID: 5760564MSD
Dilution Factor: 1

Compound	Specified Spike Level	BKG	MS Conc.	MSD Conc.	MS Recovery	MSD Recovery	Recovery Range	RPD	RPD MAX
	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(%)	(%)	(%)	(%)	(%)
Hydrazine	125	0	78.35	74.90	63	60	11-102	5	30
1,1-Dimethylhydrazine	625	0	595.20	599.50	95	96	10-92	1	30
Monomethylhydrazine	625	0	543.11	527.57	87	84	10-116	3	30

Comments:

Analyst: JW 1543 9/11/2009
Reviewed by: [illegible] 9/11/09

CHEMIST REVIEW-VALIDATION CHECKLIST

Project: Olin Chemical Superfund Site **Method:** Hydrazine 8315 LC/MS
Project #: _____ **Laboratory and SDG:** Lankaster OLN18
Date: 2/9/10 **Reviewer:** C Ricardi

☒ Chemist Review ☐ Full Validation (add page 2)

1. **Case Narrative and Data Package Completeness (COC Review)**

2. **Holding Time and Sample Preservation/Collection** Collected 8/26 - 9/4
   Analysis - 9/3 and 9/4
   9/8 - 9/9 9/11

3. **QC Blanks**
   MBK-ND Raw data Hydrazine 0.17 - 0.19, 0.25 ug/kg

4. **Laboratory Control Sample Review**
   Soil 9/3 - 9/8 - 9/10 All within limits

5. **Field Duplicate Precision**
   OC-SB-410-6.0/8.0 Both ND 0.19 ug/g

6. **Lab Duplicate Precision**
   See LCSD

7. **Matrix Spike Results (if applicable)**
   SB-410 6.0/8.0 Hydrazine 12-13%
   1,1DMH 56-60
   MMH 11-11%

8. **Surrogate Recovery (if applicable)**
   NA

9. **Internal Standard Recovery (if applicable)**
   NA

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Sample Reference List for SDG Number OLN18 with a Data Package Type of I

12670 - Olin Corporation

Project: Olin Wilmington, MA Superfund Site/6107090016

Lab Sample Number	Lab Sample Code	Client Sample Description
5763104	O4027	OC-SB-402-7.5/9.5-XXX Grab Soil
5763105	O4078	OC-SB-407-8.0/10-XXX Grab Soil
5763106	O4036	OC-SB-403-6.0/8.0-XXX Grab Soil
5763107	O4045	OC-SB-404-5.0/7.0-XXX Grab Soil
5763108	O4096	OC-SB-409-6.0/8.0-XXX Grab Soil
5763109	O410D	OC-SB-410-6.0/8.0-DUP Grab Soil
5763110	O4106	OC-SB-410-6.0/8.0-XXX Grab Soil
5763111	O4106	OC-SB-410-6.0/8.0-XMS Grab Soil
5763112	O4106	OC-SB-410-6.0/8.0-MSD Grab Soil
5763113	O4114	OC-SB-411-4.7/6.7-XXX Grab Soil
5763114	O4445	OC-SB-444-5.0/7.0-XXX Grab Soil
5769167	O4590	OC-SB-459-0.0/1.0-XXX Grab Soil
5769168	O4650	OC-SB-465-0.0/1.0-XXX Grab Soil
5769169	O4680	OC-SB-468-0.0/1.0-XXX Grab Soil
5769170	O4710	OC-SB-471-0.0/1.0-XXX Grab Soil
5770779	O4720	OC-SB-472-0.0/1.0-XXX Grab Soil
5770780	47230	OC-SB-472-30/32-XXX Grab Soil
5770781	472-8	OC-SB-472-8.0/10-XXX Grab Soil

Lancaster Laboratories

Determination of Hydrazine, Monomethylhydrazine and 1,1-Dimethylhydrazine in Soil Samples

Matrix Spike Recovery

Instrument No.: TQU01408
MS File Name: 03Sep2009-19
MSD File Name: 03Sep2009-20
Batch No.: 0924610610801
MS Injected: 9/3/2009
MS Injected: 9/3/2009
Workbook: TQU01408-03Sep2009-1
MS ID: 5763111MS
MSD ID: 5763112MSD
Dilution Factor: 1

Compound	Specified Spike Level	BKG	MS Found	MSD Found	MS Recovery	MSD Recovery	Recovery Range	RPD	RPD MAX
	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(%)	(%)	(%)	(%)	(%)
Hydrazine	125	0	16.10	14.61	13	12	11-102	10	30
1,1-Dimethylhydrazine	625	0	372.39	351.32	60	56	10-92	6	30
Monomethylhydrazine	625	0	68.30	69.04	11	11	10-116	1	30

Comments:

Analyst: JW 1543 9/4/2009
Reviewed by: [illegible] 9/9/09

CHEMIST REVIEW-VALIDATION CHECKLIST

Project: Olin Chemical Superfund Site **Method:** Hydrazine 8315 LC/MS
Project #: _____ **Laboratory and SDG:** LANCASTER OLN19
Date: 2/9/10 **Reviewer:** C Ricardi

☒ **Chemist Review** ☐ **Full Validation (add page 2)**

1. **Case Narrative and Data Package Completeness (COC Review)**

   OK

2. **Holding Time and Sample Preservation/Collection** Collected 8/28, Analyzed 9/2

3. **QC Blanks** MBK - ND Raw data 0.19 ug/kg

4. **Laboratory Control Sample Review**

   All within limits

5. **Field Duplicate Precision** SB-451 2.5/4.5 2.9 2.3 RPD = 23% ok

6. **Lab Duplicate Precision**

   See LCSD

7. **Matrix Spike Results (if applicable)** SB-451-2.5/4.5

		RPD
Hydrazine	18-18%	2
11DMH	46-51	11
MMH	22-23%	3

8. **Surrogate Recovery (if applicable)**

   NA

9. **Internal Standard Recovery (if applicable)**

   NA

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Sample Reference List for SDG Number OLN19
with a Data Package Type of I
12670 - Olin Corporation
Project: Olin Wilmington, MA Superfund Site/6107090016

Lab Sample Number	Lab Sample Code	Client Sample Description
5764220	O451D	OC-SB-451-2.5/4.5-DUP Grab Soil
5764221	O4512	OC-SB-451-2.5/4.5-XXX Grab Soil
5764222	O4512	OC-SB-451-2.5/4.5-XMS Grab Soil
5764223	O4512	OC-SB-451-2.5/4.5-MSD Grab Soil

Lancaster Laboratories

Determination of Hydrazine, Monomethylhydrazine and 1,1-Dimethylhydrazine in Soil Samples

Matrix Spike Recovery

Instrument No.: TQU01408
MS File Name: 02Sep2009-19
MSD File Name: 02Sep2009-20
Batch No.: 0924510056295
MS Injected: 9/2/2009
MS Injected: 9/2/2009
Workbook: TQU01408-02Sep2009-1
MS ID: 5764222MS
MSD ID: 5764223MSD
Dilution Factor: 1

Compound	Specified Spike Level	BKG	MS Found	MSD Found	MS Recovery	MSD Recovery	Recovery Range	RPD	RPD MAX
	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(%)	(%)	(%)	(%)	(%)
Hydrazine	125	2.24	24.62	25.10	18	18	11-102	2	30
1,1-Dimethylhydrazine	625	0	285.00	317.49	46	51	10-92	11	30
Monomethylhydrazine	625	0	135.75	140.14	22	22	10-116	3	30

Comments:

Analyst: JW 1543 9/3/2009
Reviewed by: [illegible] 9/4/09

CHEMIST REVIEW-VALIDATION CHECKLIST

Project: Olin Chemical Superfund Site Method: Hydrazine 8315 LC/MS
Project #: Laboratory and SDG: Lancaster OLN20
Date: 2/11/10 Reviewer: C. Riccardi

☒ Chemist Review ☐ Full Validation (add page 2)

1. Case Narrative and Data Package Completeness (COC Review)

2. Holding Time and Sample Preservation/Collection Collected 8/31, 9/1, 9/9, 9/10
Analysis 9/6, 9/8 Grp 2 9/11 Grp 3 9/16

3. QC Blanks
MBK-ND
EBK-208 ND
Rmw 0.17, 0.25, 0.30, 0.34,

4. Laboratory Control Sample Review
- LCS 9/8 OK
- LCS 9/11 OK
- LCS 9/16 OK

5. Field Duplicate Precision
OC-SB-442 8.0/10-XXX 3.4 vs 4.4

6. Lab Duplicate Precision
SEE LLSD

7. Matrix Spike Results (if applicable)
SB-442 8.0/10 All within limits

8. Surrogate Recovery (if applicable)
NA

9. Internal Standard Recovery (if applicable)
NA

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Sample Reference List for SDG Number OLN20 with a Data Package Type of I

12670 - Olin Corporation

Project: Olin Wilmington, MA Superfund Site/6107090016

Lab Sample Number	Lab Sample Code	Client Sample Description
5766212	O442D	OC-SB-442-8.0/10-DUP Grab Soil
5766213	O4428	OC-SB-442-8.0/10-XXX Grab Soil
5766214	O4428	OC-SB-442-8.0/10-XMS Grab Soil
5766215	O4428	OC-SB-442-8.0/10-MSD Grab Soil
5766216	O4525	OC-SB-452-5.0/7.0-XXX Grab Soil
5766217	O4636	OC-SB-463-6.0/8.0-XXX Grab Soil
5766218	O4642	OC-SB-464-5.0/7.0-XXX Grab Soil
5772546	O4500	OC-SB-450-0.0/1.0-XXX Grab Soil -9/9
5772547	O4663	OC-SB-466-30/32-XXX Grab Soil
5772548	O4666	OC-SB-466-6.0/8.0-XXX Grab Soil
5772549	OEB08	OC-EBK-008 Grab Water
5772550	O4508	OC-SB-450-8.0/10-XXX Grab Soil
5774702	O4347	OC-SB-434-7.0/9.0-XXX Grab Soil -9/10

Lancaster Laboratories

Determination of Hydrazine, Monomethylhydrazine and 1,1-Dimethylhydrazine in Soil Samples

Matrix Spike Recovery

Instrument No.: TQU01408
MS File Name: 08Sep2009-19
MSD File Name: 08Sep2009-20
Batch No.: 0925110610808
MS Injected: 9/8/2009
MS Injected: 9/8/2009
Workbook: TQU01408-08Sep2009-1
MS ID: 5766214MS
MSD ID: 5766215MSD
Dilution Factor: 1

Compound	Specified Spike Level	BKG	MS Found	MSD Found	MS Recovery	MSD Recovery	Recovery Range	RPD	RPD MAX
	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(%)	(%)	(%)	(%)	(%)
Hydrazine	125	2.98	71.52	74.12	55	57	11-102	4	30
1,1-Dimethylhydrazine	625	0	549.58	573.36	88	92	10-92	4	30
Monomethylhydrazine	625	0	399.32	421.25	64	67	10-116	5	30

Comments:

Analyst: JW 1543 9/9/2009

Reviewed by: [illegible] 9/10/09

CHEMIST REVIEW-VALIDATION CHECKLIST

Project: Olin Chemical Superfund Site **Method:** Hydrazine 8315 LC/MS
Project #: _____ **Laboratory and SDG:** Lancaster OLN21
Date: 2/11/10 **Reviewer:** C Ricca

☒ **Chemist Review** ☐ **Full Validation (add page 2)**

1. **Case Narrative and Data Package Completeness (COC Review)**

   OK

2. **Holding Time and Sample Preservation/Collection** Collect 9/3 Samples received 6-10°C J estimated

   Analysis 9/11

3. **QC Blanks**

   MBK - ND Raw 0.25

4. **Laboratory Control Sample Review**

   9/11 within limits

5. **Field Duplicate Precision**

   NA

6. **Lab Duplicate Precision**

   SEE LCSD

7. **Matrix Spike Results (if applicable)**

   SB-459 6.0/8.0 Hydrazine - 14-15%
   1,1DMH - 66-73
   MMH - 20-22 %

8. **Surrogate Recovery (if applicable)**

   NA

9. **Internal Standard Recovery (if applicable)**

   NA

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Sample Reference List for SDG Number OLN21 with a Data Package Type of I

12670 - Olin Corporation

Project: Olin Wilmington, MA Superfund Site/6107090016

Lab Sample Number	Lab Sample Code	Client Sample Description
5769171	O459D	OC-SB-459-6.0/8.0-DUP Grab Soil
5769172	O4596	OC-SB-459-6.0/8.0-XXX Grab Soil
5769173	O4596	OC-SB-459-6.0/8.0-XMS Grab Soil
5769174	O4596	OC-SB-459-6.0/8.0-MSD Grab Soil

Lancaster Laboratories

Determination of Hydrazine, Monomethylhydrazine and 1,1-Dimethylhydrazine in Soil Samples

Matrix Spike Recovery

Instrument No.: TQU01408
MS File Name: 10Sep2009-39
MSD File Name: 10Sep2009-40
Batch No.: 0925310610813
MS Injected: 9/11/2009
MS Injected: 9/11/2009
Workbook: TQU01408-10Sep2009-3
MS ID: 5769173MS
MSD ID: 5769174MSD
Dilution Factor: 1

Compound	Specified Spike Level	BKG	MS Found	MSD Found	MS Recovery	MSD Recovery	Recovery Range	RPD	RPD MAX
	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(%)	(%)	(%)	(%)	(%)
Hydrazine	125	7.55	25.50	26.27	14	15	11-102	3	30
1,1-Dimethylhydrazine	625	0	412.69	458.16	66	73	10-92	10	30
Monomethylhydrazine	625	0	123.83	135.23	20	22	10-116	9	30

Comments:

Analyst: JW (SW) 9/11/09

Reviewed by: [illegible] 9/11/09

CHEMIST REVIEW-VALIDATION CHECKLIST

Project: Olin Chemical Superfund Site **Method:** Hydrazine 8315 LC/MS
Project #: _____ **Laboratory and SDG:** LANCASTER OLN22
Date: 2/11/10 **Reviewer:** C Ricardo

☒ **Chemist Review** ☐ **Full Validation (add page 2)**

1. **Case Narrative and Data Package Completeness (COC Review)**

   OK

2. **Holding Time and Sample Preservation/Collection** Collected 9/8, 9/2, analysis 9/10, 9/11 Cooler Temp 6-10 °C J all

3. **QC Blanks**

   Hydrazine MBK-ND Rem .25

4. **Laboratory Control Sample Review**

   9/12 within limits

5. **Field Duplicate Precision**

   SB-465 - 8.0/10 Hydrazine: 200 vs. 210

6. **Lab Duplicate Precision**

   See LCSD

7. **Matrix Spike Results (if applicable)**

   SB-465 8.0/10 Results within limits

8. **Surrogate Recovery (if applicable)**

   NA

9. **Internal Standard Recovery (if applicable)**

   NA

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Sample Reference List for SDG Number OLN22
with a Data Package Type of I
12670 - Olin Corporation
Project: Olin Wilmington, MA Superfund Site/6107090016

Lab Sample Number	Lab Sample Code	Client Sample Description
5769175	O465D	OC-SB-465-8.0/10-DUP Grab Soil - Hi Temp
5769176	O4658	OC-SB-465-8.0/10-XXX Grab Soil - Hi Temp
5769177	O4658	OC-SB-465-8.0/10-XMS Grab Soil
5769178	O4658	OC-SB-465-8.0/10-MSD Grab Soil
5769179	O4688	OC-SB-468-8.0/10-XXX Grab Soil - Hi Temp
5769180	O4713	OC-SB-471-3.0/5.0-XXX Grab Soil - Hi Temp

Lancaster Laboratories

Determination of Hydrazine, Monomethylhydrazine and 1,1-Dimethylhydrazine in Soil Samples

Matrix Spike Recovery

Instrument No.: TQU01408
MS File Name: 10Sep2009-19
MSD File Name: 10Sep2009-20
Batch No.: 0925310610812
MS Injected: 9/11/2009
MS Injected: 9/11/2009
Workbook: TQU01408-10Sep2009-3
MS ID: 5769177MS
MSD ID: 5769178MSD
Dilution Factor: 1

Compound	Specified Spike Level	BKG	MS Found	MSD Found	MS Recovery	MSD Recovery	Recovery Range	RPD	RPD MAX
	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(%)	(%)	(%)	(%)	(%)
Hydrazine	125	186.68	243.60	284.26	46	78	11-102	15	30
1,1-Dimethylhydrazine	625	0	530.52	525.51	85	84	10-92	1	30
Monomethylhydrazine	625	0	312.20	288.12	50	46	10-116	8	30

Comments:

Analyst: JW 1543 9/11/2009

Reviewed by: [illegible] 9/11/09

CHEMIST REVIEW-VALIDATION CHECKLIST

Project: Olin Chemical Superfund Site **Method:** Hydrazine 8315 LC/MS
Project #: _____ **Laboratory and SDG:** LANCASTER OLN23
Date: 2/11/10 **Reviewer:** C Ricardi

☒ **Chemist Review** ☐ **Full Validation (add page 2)**

1. **Case Narrative and Data Package Completeness (COC Review)**

   1,1DMH - high in MS (1)
   Hydrazine/MMH Low MS (2)

2. **Holding Time and Sample Preservation/Collection** Collected 9/10, 9/11, 9/14, 9/15, 9/16

   Analysis - 9/16, 9/22, 9/23

3. **QC Blanks**

   MBK - ND Raw 0.34, 0.18,
   EBK-10 > ND
   EBK-11

4. **Laboratory Control Sample Review**

   9/16 - Within limits
   9/22 - within limits

5. **Field Duplicate Precision**

   SB-456 7.0/9.0 Hydrazine 1.7 J vs. 2.7 RPD ≥ 45 ok

6. **Lab Duplicate Precision**

   SEE LCSD

7. **Matrix Spike Results (if applicable)**

   SB-456 - 7.0/9.0 - All within limits
   SB-413 - 1.0/5.0 - Hydrazine 9-10%
   1,1DMH 56-55
   MMH 6-6 %

8. **Surrogate Recovery (if applicable)**

   NA

9. **Internal Standard Recovery (if applicable)**

   NA

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Sample Reference List for SDG Number OLN23 with a Data Package Type of I

12670 - Olin Corporation

Project: Olin Wilmington, MA Superfund Site/6107090016

Lab Sample Number	Lab Sample Code	Client Sample Description	
5774703	O4270	OC-SB-427-0.0/1.0-XXX Grab Soil	9/10
5774704	O4340	OC-SB-434-0.0/1.0-XXX Grab Soil	
5774705	O4560	OC-SB-456-0.0/1.0-XXX Grab Soil	
5774706	O4561	OC-SB-456-16/18-XXX Grab Soil	9/11
5774707	O456D	OC-SB-456-7.0/9.0-DUP Grab Soil	
5774708	O4567	OC-SB-456-7.0/9.0-XXX Grab Soil	
5774709	O4567	OC-SB-456-7.0/9.0-XMS Grab Soil	
5774710	O4567	OC-SB-456-7.0/9.0-MSD Grab Soil	
5774711	O4570	OC-SB-457-0.0/1.0-XXX Grab Soil	
5774712	O4578	OC-SB-457-8.0/10-XXX Grab Soil	
5779940	O4131	OC-SB-413-1.0/5.0-XXX Grab Soil	9/17
5779941	O4572	OC-SB-457-28/30-XXX Grab Soil	9/14
5779942	O4200	OC-SS-420-0.0/1.0-XXX Grab Soil	9/15
5779943	O4221	OC-SS-422-0.0/1.0-XXX Grab Soil	
5779944	O4240	OC-SS-424-0.0/1.0-XXX Grab Soil	
5779945	O4271	OC-SS-427-0.0/1.0-XXX Grab Soil	
5779946	O4290	OC-SS-429-0.0/1.0-XXX Grab Soil	
5779947	O4310	OC-SS-431-0.0/1.0-XXX Grab Soil	
5779948	O4341	OC-SS-434-0.0/1.0-XXX Grab Soil	
5779949	O4400	OC-SS-440-0.0/1.0-XXX Grab Soil	
5779950	O4501	OC-SS-450-0.0/1.0-XXX Grab Soil	9/16
5779951	O4550	OC-SS-455-0.0/1.0-XXX Grab Soil	
5779952	O4600	OC-SS-460-0.0/1.0-XXX Grab Soil	
5779953	O4130	OC-SB-413-0.0/1.0-XXX Grab Soil	
5779954	OEB10	OC-EBK-010 Grab Water	
5779955	OEB11	OC-EBK-011 Grab Water	

Lancaster Laboratories

Determination of Hydrazine, Monomethylhydrazine and 1,1-Dimethylhydrazine in Soil Samples

Matrix Spike Recovery

Instrument No.: TQU01408
MS File Name: 22Sep2009-18
MSD File Name: 22Sep2009-19
Batch No.: 0926510610833
MS Injected: 9/22/2009
MS Injected: 9/22/2009
Workbook: TQU01408-22Sep2009-1
MS ID: 5779940MS
MSD ID: 5779940MSD
Dilution Factor: 1

Compound	Specified Spike Level	BKG	MS Found	MSD Found	MS Recovery	MSD Recovery	Recovery Range	RPD	RPD MAX
	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(%)	(%)	(%)	(%)	(%)
Hydrazine	125	0	10.85	12.05	9	10	11-102	10	30
1,1-Dimethylhydrazine	625	0	348.45	343.20	56	55	10-92	2	30
Monomethylhydrazine	625	0	35.40	34.87	6	6	10-116	2	30

Comments:

Analyst: JVG 1543 9/24/09

Reviewed by: [illegible] 9/24/09

Lancaster Laboratories

Determination of Hydrazine, Monomethylhydrazine and 1,1-Dimethylhydrazine in Soil Samples

Matrix Spike Recovery

Instrument No.: TQU01408
MS File Name: 16Sep2009-19
MSD File Name: 16Sep2009-20
Batch No.: 0925810610819
MS Injected: 9/16/2009
MS Injected: 9/16/2009
Workbook: TQU01408-16Sep2009-1
MS ID: 5774709MS
MSD ID: 5774710MSD
Dilution Factor: 1

Compound	Specified Spike Level	BKG	MS Found	MSD Found	MS Recovery	MSD Recovery	Recovery Range	RPD	RPD MAX
	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(%)	(%)	(%)	(%)	(%)
Hydrazine	125	2.52	82.88	87.81	64	68	11-102	6	30
1,1-Dimethylhydrazine	625	0	591.77	589.30	95	94	10-92	0	30
Monomethylhydrazine	625	0	535.27	531.59	86	85	10-116	1	30

Comments:

Analyst: JW 1543 9/17/2009

Reviewed by: [illegible] 9/22/09

DRAFT

CHEMIST REVIEW-VALIDATION CHECKLIST

Project: Olin Chemical Superfund Site **Method:** Hydrazine 8315 LC/MS
Project #: _____ **Laboratory and SDG:** Lancaster OLN24
Date: 2/11/10 **Reviewer:** C Ricardi

☒ **Chemist Review** ☐ **Full Validation (add page 2)**

1. **Case Narrative and Data Package Completeness (COC Review)**

   MS outside limits

2. **Holding Time and Sample Preservation/Collection** Collect 9/17, 9/18

   Analysis 9/23

3. **QC Blanks** OIZ-EBK-ND

   MBK-ND Raw 0.18 µg/g, 0.22

4. **Laboratory Control Sample Review**

   9/22 within limits
   9/23 within limits

5. **Field Duplicate Precision**

   NA

6. **Lab Duplicate Precision**

   See LCSD

7. **Matrix Spike Results (if applicable)**

   OC-SS-459 0.0/1.0 Hydrazine - 2-2%
   1,1DMH - 10-12%
   MMH - 1-2%

8. **Surrogate Recovery (if applicable)**

   NA

9. **Internal Standard Recovery (if applicable)**

   NA

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Sample Reference List for SDG Number OLN24 with a Data Package Type of I

12670 - Olin Corporation

Project: Olin Wilmington, MA Superfund Site/6107090016

Lab Sample Number	Lab Sample Code	Client Sample Description
5781371	O4734	OC-SB-473-4.0/6.0-XXX Grab Soil
5781372	SB350	OC-SB-435-0.0/1.0-XXX Grab Soil
5781373	SB351	OC-SB-435-11/15-XXX Grab Soil
5781374	SB356	OC-SB-435-6.0/10-XXX Grab Soil
5781375	SB530	OC-SB-453-0.0/1.0-XXX Grab Soil
5781376	SB531	OC-SB-453-1.0/6.0-XXX Grab Soil
5781377	SB730	OC-SB-473-0.0/1.0-XXX Grab Soil
5781378	SS453	OC-SS-453-0.0/1.0-XXX Grab Soil
5781379	SS457	OC-SS-457-0.0/1.0-XXX Grab Soil
5781380	SS560	OC-SS-456-0.0/1.0-XXX Grab Soil
5781381	SS590	OC-SS-459-0.0/1.0-XXX Grab Soil
5781382	OEB12	OC-EBK-012 Grab Water

Lancaster Laboratories

Determination of Hydrazine, Monomethylhydrazine and 1,1-Dimethylhydrazine in Soil Samples

Matrix Spike Recovery

Instrument No.: TQU01408
MS File Name: 23Sep2009-18
MSD File Name: 23Sep2009-19
Batch No.: 0926610610839
MS Injected: 9/23/2009
MS Injected: 9/23/2009
Workbook: TQU01408-23Sep2009-1
MS ID: 5781381MS
MSD ID: 5781381MSD
Dilution Factor: 1

Compound	Specified Spike Level	BKG	MS Found	MSD Found	MS Recovery	MSD Recovery	Recovery Range	RPD	RPD MAX
	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(%)	(%)	(%)	(%)	(%)
Hydrazine	125	0	2.40	2.82	2	2	11-102	16	30
1,1-Dimethylhydrazine	625	0	59.60	72.03	10	12	10-92	19	30
Monomethylhydrazine	625	0	8.97	11.08	1	2	10-116	21	30

Comments:

Analyst: JW 1543 9/24/2009

Reviewed by: [illegible] 9/25/09