

## **DATA PACKAGE GENERAL CHEMISTRY**

**PROJECT NAME : RAYMARK SUPERFUND SITE**

**NOBIS GROUP**

**585 Middlesex Street**

**Lowell, MA - 01851**

**Phone No: 978-683-0891**

**ORDER ID : P5306**

**ATTENTION : Adam Roy**



**Laboratory Certification ID # 20012**



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## Cover Page

**Order ID :** P5306

**Project ID :** Raymark Superfund Site

**Client :** Nobis Group

### Lab Sample Number

P5306-01  
P5306-02  
P5306-03  
P5306-04  
P5306-05  
P5306-06  
P5306-07  
P5306-08  
P5306-09  
P5306-10  
P5306-11  
P5306-12  
P5306-13  
P5306-14  
P5306-15  
P5306-16  
P5306-17  
P5306-18

### Client Sample Number

OU4-VSL-07-121224  
OU4-VSL-07-121224  
OU4-VSL-08-121224  
OU4-VSL-08-121224  
OU4-VSL-09-121224  
OU4-VSL-09-121224  
OU4-VSL-10-121224  
OU4-VSL-10-121224  
OU4-VSL-11-121224  
OU4-VSL-11-121224  
OU4-VSL-12-121224  
OU4-VSL-12-121224  
OU4-VSL-13-121224  
OU4-VSL-13-121224  
OU4-VSL-14-121224  
OU4-VSL-14-121224  
OU4-VSL-06R-121224  
OU4-VSL-06R-121224

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature : \_\_\_\_\_

Date: 12/25/2024

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012



284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

## **CASE NARRATIVE**

### **Nobis Group**

**Project Name: Raymark Superfund Site**

**Project # N/A**

**Chemtech Project # P5306**

**Test Name: Cyanide**

### **A. Number of Samples and Date of Receipt:**

18 Solid samples were received on 12/17/2024.

### **B. Parameters:**

According to the Chain of Custody document, the following analyses were requested: Cyanide, Herbicide Group1, Mercury, Metals Group6, Metals ICP-TAL, METALS-TAL, PCB, Pesticide-TCL, SPLP Extraction, SPLP Mercury, SPLP MetalGroup3, SPLP MetalGroup6, SVOCMS Group3 and VOCMS Group3. This data package contains results for Cyanide.

### **C. Analytical Techniques:**

The analysis of Cyanide was based on method 9012B.

### **D. QA/ QC Samples:**

The Holding Times were met for all analysis.

The Blank Spike met requirements for all samples.

The Duplicate analysis met criteria for all samples.

The Matrix Spike analysis met criteria for all samples.

The Matrix Spike Duplicate analysis met criteria for all samples.

The Blank analysis did not indicate the presence of lab contamination.

The Calibration met the requirements.

### **E. Additional Comments:**

---

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature\_\_\_\_\_

## DATA REPORTING QUALIFIERS- INORGANIC

For reporting results, the following “ Results Qualifiers” are used:

<b>J</b>	Indicates the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL), but greater than or equal to the Instrument Detection Limit (IDL).
<b>U</b>	Indicates the analyte was analyzed for, but not detected.
<b>ND</b>	Indicates the analyte was analyzed for, but not detected
<b>E</b>	Indicates the reported value is estimated because of the presence of interference
<b>M</b>	Indicates Duplicate injection precision not met.
<b>N</b>	Indicates the spiked sample recovery is not within control limits.
<b>S</b>	Indicates the reported value was determined by the Method of Standard Addition (MSA).
<b>*</b>	Indicates that the duplicate analysis is not within control limits.
<b>+</b>	Indicates the correlation coefficient for the MSA is less than 0.995.
<b>D</b>	Indicates the reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.
<b>M</b>	Method qualifiers “P” for ICP instrument “PM” for ICP when Microwave Digestion is used “CV” for Manual Cold Vapor AA “AV” for automated Cold Vapor AA “CA” for MIDI-Distillation Spectrophotometric “AS” for Semi -Automated Spectrophotometric “C” for Manual Spectrophotometric “T” for Titrimetric “NR” for analyte not required to be analyzed
<b>OR</b>	Indicates the analyte’s concentration exceeds the calibrated range of the instrument for that specific analysis.
<b>Q</b>	Indicates the LCS did not meet the control limits requirements
<b>H</b>	Sample Analysis Out Of Hold Time

**GENERAL CHEMISTRY CONFORMANCE/NON-CONFORMANCE SUMMARY**

CHEMTECH PROJECT NUMBER: P5306

MATRIX: Solid

METHOD: 9012B

	NA	NO	YES
1. Blank Contamination - If yes, list compounds and concentrations in each blank:		✓	
2. Matrix Spike Duplicate Recoveries Met Criteria			✓
If not met, list those compounds and their recoveries which fall outside the acceptable range.			
The Blank Spike met requirements for all samples.			
3. Sample Duplicate Analysis Met QC Criteria			✓
If not met, list those compounds and their recoveries which fall outside the acceptable range.			
4. Digestion Holding Time Met			✓
If not met, list number of days exceeded for each sample:			

ADDITIONAL COMMENTS:

\_\_\_\_\_  
QA REVIEW

\_\_\_\_\_  
Date

## APPENDIX A

### QA REVIEW GENERAL DOCUMENTATION

Project #: P5306

Completed

For thorough review, the report must have the following:

#### GENERAL:

Are all original paperwork present (chain of custody, record of communication,airbill, sample management lab chronicle, login page)

✓

Check chain-of-custody for proper relinquish/return of samples

✓

Is the chain of custody signed and complete

✓

Check internal chain-of-custody for proper relinquish/return of samples /sample extracts

✓

Collect information for each project id from server. Were all requirements followed

✓

#### COVER PAGE:

Do numbers of samples correspond to the number of samples in the Chain of Custody on login page

✓

Do lab numbers and client Ids on cover page agree with the Chain of Custody

✓

#### CHAIN OF CUSTODY:

Do requested analyses on Chain of Custody agree with form I results

✓

Do requested analyses on Chain of Custody agree with the log-in page

✓

Were the correct method log-in for analysis according to the Analytical Request and Chain of Custody

✓

Were the samples received within hold time

✓

Were any problems found with the samples at arrival recorded in the Sample Management Laboratory Chronicle

✓

#### ANALYTICAL:

Was method requirement followed?

✓

Was client requirement followed?

✓

Does the case narrative summarize all QC failure?

✓

All runlogs and manual integration are reviewed for requirements

✓

All manual calculations and /or hand notations verified

✓

QA Review Signature: SOHIL JODHANI

Date: 12/25/2024

## LAB CHRONICLE

<b>OrderID:</b>	P5306	<b>OrderDate:</b>	12/17/2024 10:24:00 AM
<b>Client:</b>	Nobis Group	<b>Project:</b>	Raymark Superfund Site
<b>Contact:</b>	Adam Roy	<b>Location:</b>	L41,L61,VOA Ref. #2 Soil

LabID	ClientID	Matrix	Test	Method	Sample Date	Prep Date	Anal Date	Received
P5306-01	OU4-VSL-07-121224	SOIL	Cyanide	9012B	12/12/24 10:00	12/18/24	12/19/24 13:51	12/17/24
P5306-03	OU4-VSL-08-121224	SOIL	Cyanide	9012B	12/12/24 10:10	12/18/24	12/19/24 13:51	12/17/24
P5306-05	OU4-VSL-09-121224	SOIL	Cyanide	9012B	12/12/24 10:20	12/18/24	12/19/24 13:51	12/17/24
P5306-07	OU4-VSL-10-121224	SOIL	Cyanide	9012B	12/12/24 10:30	12/18/24	12/19/24 13:51	12/17/24
P5306-09	OU4-VSL-11-121224	SOIL	Cyanide	9012B	12/12/24 10:40	12/18/24	12/19/24 13:51	12/17/24
P5306-11	OU4-VSL-12-121224	SOIL	Cyanide	9012B	12/12/24 10:50	12/18/24	12/19/24 13:51	12/17/24
P5306-13	OU4-VSL-13-121224	SOIL	Cyanide	9012B	12/12/24 11:00	12/18/24	12/19/24 13:59	12/17/24



## LAB CHRONICLE

<b>P5306-15</b>	<b>OU4-VSL-14-121224</b>	<b>SOIL</b>			<b>12/12/24</b> <b>11:10</b>		<b>12/17/24</b>
			Cyanide	9012B		12/18/24	12/19/24 13:59



# SAMPLE DATA

1
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## Report of Analysis

Client:	Nobis Group	Date Collected:	12/12/24 10:00
Project:	Raymark Superfund Site	Date Received:	12/17/24
Client Sample ID:	OU4-VSL-07-121224	SDG No.:	P5306
Lab Sample ID:	P5306-01	Matrix:	SOIL
		% Solid:	90.8

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units(Dry Weight)	Prep Date	Date Ana.	Ana Met.
Cyanide	0.22	U	1	0.048	0.22	0.27	mg/Kg	12/18/24 14:00	12/19/24 13:51	9012B

Comments:

U = Not Detected  
LOQ = Limit of Quantitation  
MDL = Method Detection Limit  
LOD = Limit of Detection  
D = Dilution  
Q = indicates LCS control criteria did not meet requirements  
H = Sample Analysis Out Of Hold Time

J = Estimated Value  
B = Analyte Found in Associated Method Blank  
\* = indicates the duplicate analysis is not within control limits.  
E = Indicates the reported value is estimated because of the presence of interference.  
OR = Over Range  
N =Spiked sample recovery not within control limits

## Report of Analysis

Client:	Nobis Group	Date Collected:	12/12/24 10:10
Project:	Raymark Superfund Site	Date Received:	12/17/24
Client Sample ID:	OU4-VSL-08-121224	SDG No.:	P5306
Lab Sample ID:	P5306-03	Matrix:	SOIL
		% Solid:	90.8

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units(Dry Weight)	Prep Date	Date Ana.	Ana Met.
Cyanide	0.21	U	1	0.047	0.21	0.26	mg/Kg	12/18/24 14:00	12/19/24 13:51	9012B

Comments:

U = Not Detected  
LOQ = Limit of Quantitation  
MDL = Method Detection Limit  
LOD = Limit of Detection  
D = Dilution  
Q = indicates LCS control criteria did not meet requirements  
H = Sample Analysis Out Of Hold Time

J = Estimated Value  
B = Analyte Found in Associated Method Blank  
\* = indicates the duplicate analysis is not within control limits.  
E = Indicates the reported value is estimated because of the presence of interference.  
OR = Over Range  
N =Spiked sample recovery not within control limits

## Report of Analysis

Client:	Nobis Group	Date Collected:	12/12/24 10:20
Project:	Raymark Superfund Site	Date Received:	12/17/24
Client Sample ID:	OU4-VSL-09-121224	SDG No.:	P5306
Lab Sample ID:	P5306-05	Matrix:	SOIL
		% Solid:	90.1

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units(Dry Weight)	Prep Date	Date Ana.	Ana Met.
Cyanide	0.22	U	1	0.048	0.22	0.27	mg/Kg	12/18/24 14:00	12/19/24 13:51	9012B

Comments:

U = Not Detected  
LOQ = Limit of Quantitation  
MDL = Method Detection Limit  
LOD = Limit of Detection  
D = Dilution  
Q = indicates LCS control criteria did not meet requirements  
H = Sample Analysis Out Of Hold Time

J = Estimated Value  
B = Analyte Found in Associated Method Blank  
\* = indicates the duplicate analysis is not within control limits.  
E = Indicates the reported value is estimated because of the presence of interference.  
OR = Over Range  
N =Spiked sample recovery not within control limits

## Report of Analysis

Client:	Nobis Group	Date Collected:	12/12/24 10:30
Project:	Raymark Superfund Site	Date Received:	12/17/24
Client Sample ID:	OU4-VSL-10-121224	SDG No.:	P5306
Lab Sample ID:	P5306-07	Matrix:	SOIL
		% Solid:	95

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units(Dry Weight)	Prep Date	Date Ana.	Ana Met.
Cyanide	0.055	J	1	0.045	0.21	0.26	mg/Kg	12/18/24 14:00	12/19/24 13:51	9012B

Comments:

U = Not Detected

LOQ = Limit of Quantitation

MDL = Method Detection Limit

LOD = Limit of Detection

D = Dilution

Q = indicates LCS control criteria did not meet requirements

H = Sample Analysis Out Of Hold Time

J = Estimated Value

B = Analyte Found in Associated Method Blank

\* = indicates the duplicate analysis is not within control limits.

E = Indicates the reported value is estimated because of the presence of interference.

OR = Over Range

N =Spiked sample recovery not within control limits

## Report of Analysis

Client:	Nobis Group	Date Collected:	12/12/24 10:40
Project:	Raymark Superfund Site	Date Received:	12/17/24
Client Sample ID:	OU4-VSL-11-121224	SDG No.:	P5306
Lab Sample ID:	P5306-09	Matrix:	SOIL
		% Solid:	93.6

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units(Dry Weight)	Prep Date	Date Ana.	Ana Met.
Cyanide	0.20	U	1	0.045	0.20	0.25	mg/Kg	12/18/24 14:00	12/19/24 13:51	9012B

Comments:

U = Not Detected  
LOQ = Limit of Quantitation  
MDL = Method Detection Limit  
LOD = Limit of Detection  
D = Dilution  
Q = indicates LCS control criteria did not meet requirements  
H = Sample Analysis Out Of Hold Time

J = Estimated Value  
B = Analyte Found in Associated Method Blank  
\* = indicates the duplicate analysis is not within control limits.  
E = Indicates the reported value is estimated because of the presence of interference.  
OR = Over Range  
N =Spiked sample recovery not within control limits

## Report of Analysis

Client:	Nobis Group	Date Collected:	12/12/24 10:50
Project:	Raymark Superfund Site	Date Received:	12/17/24
Client Sample ID:	OU4-VSL-12-121224	SDG No.:	P5306
Lab Sample ID:	P5306-11	Matrix:	SOIL
		% Solid:	90.8

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units(Dry Weight)	Prep Date	Date Ana.	Ana Met.
Cyanide	0.22	U	1	0.048	0.22	0.27	mg/Kg	12/18/24 14:00	12/19/24 13:51	9012B

Comments:

U = Not Detected  
LOQ = Limit of Quantitation  
MDL = Method Detection Limit  
LOD = Limit of Detection  
D = Dilution  
Q = indicates LCS control criteria did not meet requirements  
H = Sample Analysis Out Of Hold Time

J = Estimated Value  
B = Analyte Found in Associated Method Blank  
\* = indicates the duplicate analysis is not within control limits.  
E = Indicates the reported value is estimated because of the presence of interference.  
OR = Over Range  
N =Spiked sample recovery not within control limits



## Report of Analysis

Client:	Nobis Group	Date Collected:	12/12/24 11:00
Project:	Raymark Superfund Site	Date Received:	12/17/24
Client Sample ID:	OU4-VSL-13-121224	SDG No.:	P5306
Lab Sample ID:	P5306-13	Matrix:	SOIL
		% Solid:	90

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units(Dry Weight)	Prep Date	Date Ana.	Ana Met.
Cyanide	0.22	U	1	0.049	0.22	0.28	mg/Kg	12/18/24 14:00	12/19/24 13:59	9012B

Comments:

U = Not Detected  
LOQ = Limit of Quantitation  
MDL = Method Detection Limit  
LOD = Limit of Detection  
D = Dilution  
Q = indicates LCS control criteria did not meet requirements  
H = Sample Analysis Out Of Hold Time

J = Estimated Value  
B = Analyte Found in Associated Method Blank  
\* = indicates the duplicate analysis is not within control limits.  
E = Indicates the reported value is estimated because of the presence of interference.  
OR = Over Range  
N =Spiked sample recovery not within control limits

## Report of Analysis

Client:	Nobis Group	Date Collected:	12/12/24 11:10
Project:	Raymark Superfund Site	Date Received:	12/17/24
Client Sample ID:	OU4-VSL-14-121224	SDG No.:	P5306
Lab Sample ID:	P5306-15	Matrix:	SOIL
		% Solid:	95.9

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units(Dry Weight)	Prep Date	Date Ana.	Ana Met.
Cyanide	0.20	U	1	0.045	0.20	0.26	mg/Kg	12/18/24 14:00	12/19/24 13:59	9012B

Comments:

U = Not Detected  
LOQ = Limit of Quantitation  
MDL = Method Detection Limit  
LOD = Limit of Detection  
D = Dilution  
Q = indicates LCS control criteria did not meet requirements  
H = Sample Analysis Out Of Hold Time

J = Estimated Value  
B = Analyte Found in Associated Method Blank  
\* = indicates the duplicate analysis is not within control limits.  
E = Indicates the reported value is estimated because of the presence of interference.  
OR = Over Range  
N =Spiked sample recovery not within control limits



# QC RESULT SUMMARY

- 1
- 2
- 3
- 4
- 5
- 6
- 7
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- 9
- 10
- 11
- 12
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- 14

## Initial and Continuing Calibration Verification

**Client:** Nobis Group

**SDG No.:** P5306

**Project:** Raymark Superfund Site

**RunNo.:** LB134018

Analyte	Units	Result	True Value	% Recovery	Acceptance Window (%R)	Analysis Date
Sample ID: <b>ICV1</b> Cyanide	mg/L	0.099	0.099	100	90-110	12/19/2024
Sample ID: <b>CCV1</b> Cyanide	mg/L	0.25	0.25	100	90-110	12/19/2024
Sample ID: <b>CCV2</b> Cyanide	mg/L	0.25	0.25	100	90-110	12/19/2024
Sample ID: <b>CCV3</b> Cyanide	mg/L	0.26	0.25	104	90-110	12/19/2024

### Initial and Continuing Calibration Blank Summary

**Client:** Nobis Group

**SDG No.:** P5306

**Project:** Raymark Superfund Site

**RunNo.:** LB134018

Analyte	Units	Result	Acceptance Limits	Conc Qual	MDL	RDL	Analysis Date
Sample ID: <b>ICB1</b> Cyanide	mg/L	< 0.0025	0.0025	U	0.00099	0.005	12/19/2024
Sample ID: <b>CCB1</b> Cyanide	mg/L	< 0.0025	0.0025	U	0.00099	0.005	12/19/2024
Sample ID: <b>CCB2</b> Cyanide	mg/L	< 0.0025	0.0025	U	0.00099	0.005	12/19/2024
Sample ID: <b>CCB3</b> Cyanide	mg/L	< 0.0025	0.0025	U	0.00099	0.005	12/19/2024

## Preparation Blank Summary

**Client:** Nobis Group

**SDG No.:** P5306

**Project:** Raymark Superfund Site

Analyte	Units	Result	Acceptance Limits	Conc Qual	MDL	RDL	Analysis Date
Sample ID: Cyanide	<b>PB165761BL</b> mg/Kg	< 0.1250	0.1250	U	0.044	0.25	12/19/2024

## Matrix Spike Summary

<b>Client:</b>	Nobis Group	<b>SDG No.:</b>	P5306
<b>Project:</b>	Raymark Superfund Site	<b>Sample ID:</b>	P5306-15
<b>Client ID:</b>	OU4-VSL-14-121224MS	<b>Percent Solids for Spike Sample:</b>	95.9

Analyte	Units	Acceptance Limit %R	Spiked Result	Conc. Qualifier	Sample Result	Conc. Qualifier	Spike Added	Dilution Factor	% Rec	Qual	Analysis Date
Cyanide	mg/Kg	75-125	2.10		0.045	U	2.1	1	100		12/19/2024

## Matrix Spike Summary

<b>Client:</b>	Nobis Group	<b>SDG No.:</b>	P5306
<b>Project:</b>	Raymark Superfund Site	<b>Sample ID:</b>	P5306-15
<b>Client ID:</b>	OU4-VSL-14-121224MSD	<b>Percent Solids for Spike Sample:</b>	95.9

Analyte	Units	Acceptance Limit %R	Spiked Result	Conc. Qualifier	Sample Result	Conc. Qualifier	Spike Added	Dilution Factor	% Rec	Qual	Analysis Date
Cyanide	mg/Kg	75-125	2.10		0.045	U	2	1	105		12/19/2024



## Duplicate Sample Summary

<b>Client:</b> Nobis Group <b>Project:</b> Raymark Superfund Site <b>Client ID:</b> OU4-VSL-14-121224DUP	<b>SDG No.:</b> P5306 <b>Sample ID:</b> P5306-15 <b>Percent Solids for Spike Sample:</b> 95.9
--	---

Analyte	Units	Acceptance Limit	Sample Result	Conc. Qualifier	Duplicate Result	Conc. Qualifier	Dilution Factor	RPD/AD	Qual	Analysis Date
Cyanide	mg/Kg	+/-20	0.045	U	0.044	U	1	0		12/19/2024

### Duplicate Sample Summary

<b>Client:</b>	Nobis Group	<b>SDG No.:</b>	P5306
<b>Project:</b>	Raymark Superfund Site	<b>Sample ID:</b>	P5306-15
<b>Client ID:</b>	OU4-VSL-14-121224MSD	<b>Percent Solids for Spike Sample:</b>	95.9

Analyte	Units	Acceptance Limit	Sample Result	Conc. Qualifier	Duplicate Result	Conc. Qualifier	Dilution Factor	RPD/AD	Qual	Analysis Date
Cyanide	mg/Kg	+/-20	2.10		2.10		1	0		12/19/2024

### Laboratory Control Sample Summary

<b>Client:</b>	Nobis Group	<b>SDG No.:</b>	P5306
<b>Project:</b>	Raymark Superfund Site	<b>Run No.:</b>	LB134018

Analyte	Units	True Value	Result	Conc. Qualifier	% Recovery	Dilution Factor	Acceptance Limit %R	Analysis Date
Sample ID	PB165761BS							
Cyanide	mg/Kg	5	5.00		100	1	85-115	12/19/2024



# RAW DATA

- 1
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- 12
- 13
- 14

Test results

Aquakem 7.2AQ1

Page:

CHEMTECH CONSULTING GROUP INC  
284 Sheffield Street, Mountainside, NJ 07092

12/19/2024 14:30

Reviewed by : NF

Instrument ID : Konelab

Test: Total CN

Sample Id	Result	Dil. 1 +	Response	Errors
ICV1	99.220	0.0	0.070	
ICB1	0.549	0.0	0.002	
CCV1	248.140	0.0	0.173	
CCB1	0.166	0.0	0.002	
PB165761BL	0.008	0.0	0.002	
PB165761BS	99.808	0.0	0.070	
LOWPB165761	9.774	0.0	0.008	
HIGHPB165761	489.842	0.0	0.339	
P5306-01	0.647	0.0	0.002	
P5306-03	0.746	0.0	0.002	
P5306-05	0.156	0.0	0.002	
P5306-07	1.070	0.0	0.002	
P5306-09	0.775	0.0	0.002	
P5306-11	0.123	0.0	0.002	
CCV2	245.139	0.0	0.170	
CCB2	0.050	0.0	0.002	
P5306-13	0.456	0.0	0.002	
P5306-15	0.172	0.0	0.002	
P5306-15DUP	0.510	0.0	0.002	
P5306-15MS	41.649	0.0	0.030	
P5306-15MSD	42.026	0.0	0.031	
CCV3	255.871	0.0	0.178	
CCB3	0.104	0.0	0.002	

97% (90-110) NF  
12.19.2024

N 23  
Mean 66.826  
SD 125.7299  
CV% 188.14

Aquakem v. 7.2AQ1

Results from time period:

Thu Dec 19 11:09:52 2024

Thu Dec 19 14:26:05 2024

Sample Id	Sam/Ctr/c/	Test short r	Test type	Result	Result unit	Result date and time	Stat
ICV1	S	Total CN	P	99.2204	µg/l	12/19/2024 13:44:18	
ICB1	S	Total CN	P	0.5494	µg/l	12/19/2024 13:44:20	
CCV1	S	Total CN	P	248.1405	µg/l	12/19/2024 13:44:22	
CCB1	S	Total CN	P	0.1658	µg/l	12/19/2024 13:44:23	
PB165761BL	S	Total CN	P	0.0079	µg/l	12/19/2024 13:44:25	
PB165761BS	S	Total CN	P	99.8078	µg/l	12/19/2024 13:51:49	
LOWPB165761	S	Total CN	P	9.7737	µg/l	12/19/2024 13:51:50	
HIGHPB165761	S	Total CN	P	489.8416	µg/l	12/19/2024 13:51:52	
P5306-01	S	Total CN	P	0.6474	µg/l	12/19/2024 13:51:54	
P5306-03	S	Total CN	P	0.7457	µg/l	12/19/2024 13:51:55	
P5306-05	S	Total CN	P	0.1561	µg/l	12/19/2024 13:51:56	
P5306-07	S	Total CN	P	1.0705	µg/l	12/19/2024 13:51:57	
P5306-09	S	Total CN	P	0.7745	µg/l	12/19/2024 13:51:58	
P5306-11	S	Total CN	P	0.1228	µg/l	12/19/2024 13:51:59	
CCV2	S	Total CN	P	245.139	µg/l	12/19/2024 13:59:24	
CCB2	S	Total CN	P	0.0497	µg/l	12/19/2024 13:59:25	
P5306-13	S	Total CN	P	0.4558	µg/l	12/19/2024 13:59:26	
P5306-15	S	Total CN	P	0.1717	µg/l	12/19/2024 13:59:27	
P5306-15DUP	S	Total CN	P	0.5096	µg/l	12/19/2024 13:59:28	
P5306-15MS	S	Total CN	P	41.6488	µg/l	12/19/2024 14:26:00	
P5306-15MSD	S	Total CN	P	42.0264	µg/l	12/19/2024 14:26:01	
CCV3	S	Total CN	P	255.8711	µg/l	12/19/2024 14:26:04	
CCB3	S	Total CN	P	0.104	µg/l	12/19/2024 14:26:05	

=====

Calibration results      Aquakem 7.2AQ1      Page: 1

CHEMTECH CONSULTING GROUP INC  
284 Sheffield Street, Mountainside, NJ 07092

12/19/2024 11:28      Reviewed by : NF      Instrument ID : Konelab

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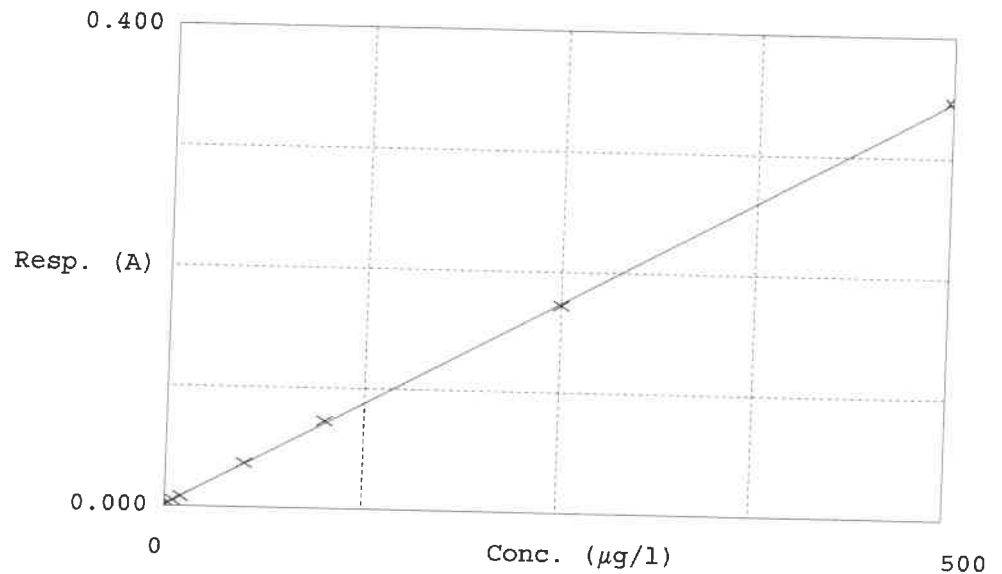
Test      Total CN

Accepted      12/19/2024 11:28

Factor      1453  
Bias      0.002

Coeff. of det.      0.999926

Errors



	Calibrator	Response	Calc. con.	Conc.	Errors
1	0.0PPBCN	0.001	-0.6831	0.0000	
2	5.0PPBCN	0.005	4.7232	5.0000	
3	10PPBCN	0.008	9.3738	10.0000	-5.5
4	50PPBCN	0.037	50.6342	50.0000	-6.3
5	100PPBCN	0.072	102.7678	100.0000	1.3
6	250PPBCN	0.172	247.5715	250.0000	2.8
7	500PPBCN	0.346	500.6126	500.0000	-1.0 0.1

NF  
12.19.2024

SOP ID : M9012B-Total, Amenable and Reactive Cyanide-20

SDG No : N/A

Start Digest Date: 12/18/2024 Time : 14:00 Temp : 123 °C

Matrix : SOIL

End Digest Date: 12/18/2024 Time : 15:30 Temp : 126 °C

Pipette ID : WC

Balance ID : WC SC-7

Hood ID : HOOD#1

Digestion tube ID : M5595

Block Thermometer ID : WC CYANIDE

Block ID : MC-1, MC-2

Filter paper ID : N/A

Prep Technician Signature:

Weigh By : JP

pH Meter ID : N/A

Supervisor Signature:

Standard Name	MLS USED	STD REF. # FROM LOG
LCSS	1ML	WP109549
PBS003	50.0ML	W3112
MS/MSD SPIKE SOL.	0.40ML	WP110899
N/A	N/A	N/A
N/A	N/A	N/A

Chemical Used	ML/SAMPLE USED	Lot Number
0.25N NaOH	50ML	WP108640
50% v/v H2SO4	5ML	WP110391
51% w/v MgCL2	2ML	WP110390
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

LAB SAMPLE ID	CLIENT SAMPLE ID	Wt(g)/Vol(ml)	Comment
S0	S0	N/A	N/A
S5.0	S5.0	N/A	N/A
S10.0	S10.0	N/A	N/A
S100.0	S100.0	N/A	N/A
S250.0	S250.0	N/A	N/A
S500.0	S500.0	N/A	N/A
ICV	ICV	0.5ML	W3011
ICB	ICB	N/A	N/A
CCV	CCV	N/A	N/A
CCB	CCB	N/A	N/A
Midrange	Midrange	N/A	N/A
HIGHSTD	HIGHSTD	5.0ML	WP110899
LOWSTD	LOWSTD	0.1ML	WP110899

Extraction Conformance/Non-Conformance Comments:

N/A

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
12-18-2024, 15:45	JP / cell	NFCWCS
	Preparation Group	Analysis Group



Lab Sample ID	Client Sample ID	Initial Weight (g)	Final Vol (ml)	pH	Sulfide	Oxidizing	Nitrate/ Nitrite	Comment	Prep Pos
P5306-01	OU4-VSL-07-121224	1.01	50	N/A	N/A	N/A	N/A	N/A	N/A
P5306-03	OU4-VSL-08-121224	1.04	50	N/A	N/A	N/A	N/A	N/A	N/A
P5306-05	OU4-VSL-09-121224	1.02	50	N/A	N/A	N/A	N/A	N/A	N/A
P5306-07	OU4-VSL-10-121224	1.02	50	N/A	N/A	N/A	N/A	N/A	N/A
P5306-09	OU4-VSL-11-121224	1.05	50	N/A	N/A	N/A	N/A	N/A	N/A
P5306-11	OU4-VSL-12-121224	1.01	50	N/A	N/A	N/A	N/A	N/A	N/A
P5306-13	OU4-VSL-13-121224	1.00	50	N/A	N/A	N/A	N/A	N/A	N/A
P5306-15	OU4-VSL-14-121224	1.02	50	N/A	N/A	N/A	N/A	N/A	N/A
P5306-15MS	OU4-VSL-14-121224MS	1.01	50	N/A	N/A	N/A	N/A	N/A	N/A
P5306-15MSD	OU4-VSL-14-121224MSD	1.02	50	N/A	N/A	N/A	N/A	N/A	N/A
P5306-15DUP	OU4-VSL-14-121224DUP	1.04	50	N/A	N/A	N/A	N/A	N/A	N/A
PB165761BL	PBS761	1.00	50	N/A	N/A	N/A	N/A	N/A	N/A
PB165761BS	LCS761	1.00	50	N/A	N/A	N/A	N/A	N/A	N/A

# WORKLIST(Hardcopy Internal Chain)

WorkList Name : CN P5306

WorkList ID : 186410

Department : Distillation

Date : 12-17-2024 14:45:35

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
P5306-01	OU4-VSL-07-121224	Solid	Cyanide	Cool 4 deg C	NOBI03	L61	12/12/2024	9012B
P5306-03	OU4-VSL-08-121224	Solid	Cyanide	Cool 4 deg C	NOBI03	L61	12/12/2024	9012B
P5306-05	OU4-VSL-09-121224	Solid	Cyanide	Cool 4 deg C	NOBI03	L61	12/12/2024	9012B
P5306-07	OU4-VSL-10-121224	Solid	Cyanide	Cool 4 deg C	NOBI03	L61	12/12/2024	9012B
P5306-09	OU4-VSL-11-121224	Solid	Cyanide	Cool 4 deg C	NOBI03	L61	12/12/2024	9012B
P5306-11	OU4-VSL-12-121224	Solid	Cyanide	Cool 4 deg C	NOBI03	L61	12/12/2024	9012B
P5306-13	OU4-VSL-13-121224	Solid	Cyanide	Cool 4 deg C	NOBI03	L61	12/12/2024	9012B
P5306-15	OU4-VSL-14-121224	Solid	Cyanide	Cool 4 deg C	NOBI03	L61	12/12/2024	9012B

Date/Time 12-18-2024, 13:00  
 Raw Sample Received by: 2d cacc  
 Raw Sample Relinquished by: CP 8m

Date/Time 12-18-2024, 15:30  
 Raw Sample Received by: CP 8m  
 Raw Sample Relinquished by: 2d cacc

Instrument ID: KONELAB

**Daily Analysis Runlog For Sequence/QC Batch ID # LB134018**

Review By	Niha	Review On	12/23/2024 10:20:17 AM
Supervise By	Iwona	Supervise On	12/23/2024 10:25:47 AM
SubDirectory	LB134018	Test	Cyanide
<b>STD. NAME</b>	<b>STD REF.#</b>		
ICAL Standard	WP111150,WP111151,WP111152,WP111153,WP111154,WP111155,WP111156		
ICV Standard	W3011		
CCV Standard	WP111151		
ICSA Standard	N/A		
CRI Standard	N/A		
LCS Standard	WP109549		
Chk Standard	WP111035,WP110103,WP111158		

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	0.0PPBCN	0.0PPBCN	CAL1	12/19/24 11:28		Niha	OK
2	5.0PPBCN	5.0PPBCN	CAL2	12/19/24 11:28		Niha	OK
3	10PPBCN	10PPBCN	CAL3	12/19/24 11:28		Niha	OK
4	50PPBCN	50PPBCN	CAL4	12/19/24 11:28		Niha	OK
5	100PPBCN	100PPBCN	CAL5	12/19/24 11:28		Niha	OK
6	250PPBCN	250PPBCN	CAL6	12/19/24 11:28		Niha	OK
7	500PPBCN	500PPBCN	CAL7	12/19/24 11:28		Niha	OK
8	ICV1	ICV1	ICV	12/19/24 13:44		Niha	OK
9	ICB1	ICB1	ICB	12/19/24 13:44		Niha	OK
10	CCV1	CCV1	CCV	12/19/24 13:44		Niha	OK
11	CCB1	CCB1	CCB	12/19/24 13:44		Niha	OK
12	PB165761BL	PB165761BL	MB	12/19/24 13:44		Niha	OK
13	PB165761BS	PB165761BS	LCS	12/19/24 13:51		Niha	OK
14	LOWPB165761	LOWPB165761	SAM	12/19/24 13:51		Niha	OK
15	HIGHPB165761	HIGHPB165761	SAM	12/19/24 13:51		Niha	OK
16	P5306-01	OU4-VSL-07-121224	SAM	12/19/24 13:51		Niha	OK
17	P5306-03	OU4-VSL-08-121224	SAM	12/19/24 13:51		Niha	OK
18	P5306-05	OU4-VSL-09-121224	SAM	12/19/24 13:51		Niha	OK

Instrument ID: KONELAB

**Daily Analysis Runlog For Sequence/QC Batch ID # LB134018**

Review By	Niha	Review On	12/23/2024 10:20:17 AM
Supervise By	Iwona	Supervise On	12/23/2024 10:25:47 AM
SubDirectory	LB134018	Test	Cyanide
<b>STD. NAME</b>	<b>STD REF.#</b>		
ICAL Standard	WP111150,WP111151,WP111152,WP111153,WP111154,WP111155,WP111156		
ICV Standard	W3011		
CCV Standard	WP111151		
ICSA Standard	N/A		
CRI Standard	N/A		
LCS Standard	WP109549		
Chk Standard	WP111035,WP110103,WP111158		

19	P5306-07	OU4-VSL-10-121224	SAM	12/19/24 13:51		Niha	OK
20	P5306-09	OU4-VSL-11-121224	SAM	12/19/24 13:51		Niha	OK
21	P5306-11	OU4-VSL-12-121224	SAM	12/19/24 13:51		Niha	OK
22	CCV2	CCV2	CCV	12/19/24 13:59		Niha	OK
23	CCB2	CCB2	CCB	12/19/24 13:59		Niha	OK
24	P5306-13	OU4-VSL-13-121224	SAM	12/19/24 13:59		Niha	OK
25	P5306-15	OU4-VSL-14-121224	SAM	12/19/24 13:59		Niha	OK
26	P5306-15DUP	OU4-VSL-14-121224	DUP	12/19/24 13:59		Niha	OK
27	P5306-15MS	OU4-VSL-14-121224	MS	12/19/24 14:26		Niha	OK
28	P5306-15MSD	OU4-VSL-14-121224	MSD	12/19/24 14:26		Niha	OK
29	CCV3	CCV3	CCV	12/19/24 14:26		Niha	OK
30	CCB3	CCB3	CCB	12/19/24 14:26		Niha	OK

## Prep Standard - Chemical Standard Summary

**Order ID :** P5306  
**Test :** Cyanide,Percent Solids  
**Prepbatch ID :** PB165761,  
**Sequence ID/Qc Batch ID:** LB134018,

**Standard ID :**  
WP108640,WP109549,WP110103,WP110390,WP110391,WP110899,WP111035,WP111149,WP111150,WP111151,WP111152,WP111153,WP111154,WP111155,WP111156,WP111158,

**Chemical ID :**  
E3657,M5673,M6121,W2668,W2882,W3001,W3011,W3019,W3112,W3138,W3139,W3154,

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14

## Wet Chemistry STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
11	Sodium hydroxide absorbing solution 0.25 N	<a href="#">WP108640</a>	07/05/2024	01/05/2025	Rubina Mughal	WETCHEM_SCALE_4 (WC SC-4)	None	Iwona Zarych 07/08/2024
<b>FROM</b> 21.00000L of W3112 + 210.00000gram of E3657 = Final Quantity: 21.000 L								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3371	Cyanide LCS Spike Solution, 5PPM	<a href="#">WP109549</a>	09/06/2024	01/05/2025	Niha Farheen Shaik	None	WETCHEM_FIPETTE_3 (WC)	Iwona Zarych 09/06/2024
<b>FROM</b> 1.00000ml of W3138 + 199.00000ml of WP108640 = Final Quantity: 200.000 ml								

## Wet Chemistry STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
539	CN BUFFER	<a href="#">WP110103</a>	10/08/2024	04/08/2025	Rubina Mughal	WETCHEM_S CALE_5 (WC SC-5)	None	Iwona Zarych  10/08/2024
<b>FROM</b> 138.00000gram of W2668 + 862.00000ml of W3112 = Final Quantity: 1000.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3214	Magnesium Chloride For Cyanide 2.5M(51%W/V)	<a href="#">WP110390</a>	10/24/2024	04/24/2025	Niha Farheen Shaik	WETCHEM_S CALE_5 (WC SC-5)	None	Iwona Zarych  10/24/2024
<b>FROM</b> 500.00000ml of W3112 + 510.00000gram of W3001 = Final Quantity: 1000.000 ml								

## Wet Chemistry STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1714	Sulfuric Acid, 50% (v/v)	<a href="#">WP110391</a>	10/24/2024	04/24/2025	Niha Farheen Shaik	None	None	Iwona Zarych 10/24/2024

**FROM** 1000.00000ml of M5673 + 1000.00000ml of W3112 = Final Quantity: 2000.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3850	Cyanide MS-MSD spiking solution, 5PPM	<a href="#">WP110899</a>	12/02/2024	01/05/2025	Iwona Zarych	None	WETCHEM_FIPETTE_3 (WC)	Jignesh Parikh 12/03/2024

**FROM** 1.00000ml of W3154 + 199.00000ml of WP108640 = Final Quantity: 200.000 ml



## Wet Chemistry STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
607	PYRIDINE-BARBITURIC ACID	<a href="#">WP111035</a>	12/09/2024	04/30/2025	Niha Farheen Shaik	WETCHEM_SCALE_5 (WC SC-5)	Glass Pipette-A	Iwona Zarych 12/10/2024
<b>FROM</b> 145.00000ml of W3112 + 15.00000gram of W2882 + 15.00000ml of M6121 + 75.00000ml of W3019 = Final Quantity: 250.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3456	Cyanide Intermediate Working Std, 5PPM	<a href="#">WP111149</a>	12/19/2024	12/20/2024	Niha Farheen Shaik	None	WETCHEM_FIPETTE_3 (WC)	Iwona Zarych 12/20/2024
<b>FROM</b> 0.25000ml of W3154 + 49.75000ml of WP108640 = Final Quantity: 50.000 ml								

## Wet Chemistry STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
4	Calibration standard 500 ppb	<a href="#">WP111150</a>	12/19/2024	12/20/2024	Niha Farheen Shaik	None	Glass Pipette-A	Iwona Zarych 12/20/2024

**FROM** 45.00000ml of WP108640 + 5.00000ml of WP111149 = Final Quantity: 50.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3761	Calibration-CCV CN Standard 250 ppb	<a href="#">WP111151</a>	12/19/2024	12/20/2024	Niha Farheen Shaik	None	Glass Pipette-A	Iwona Zarych 12/20/2024

**FROM** 2.50000ml of WP111149 + 47.50000ml of WP108640 = Final Quantity: 50.000 ml

## Wet Chemistry STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
6	Calibration Standard 100 ppb	<a href="#">WP111152</a>	12/19/2024	12/20/2024	Niha Farheen Shaik	None	Glass Pipette-A	Iwona Zarych 12/20/2024

**FROM** 1.00000ml of WP111149 + 49.00000ml of WP108640 = Final Quantity: 50.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
7	Calibration Standard 50 ppb	<a href="#">WP111153</a>	12/19/2024	12/20/2024	Niha Farheen Shaik	None	WETCHEM_FIPETTE_3 (WC)	Iwona Zarych 12/20/2024

**FROM** 0.50000ml of WP111149 + 49.50000ml of WP108640 = Final Quantity: 50.000 ml

## Wet Chemistry STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
8	Calibration Standard 10 ppb	<a href="#">WP111154</a>	12/19/2024	12/20/2024	Niha Farheen Shaik	None	WETCHEM_FIPETTE_3 (WC)	Iwona Zarych 12/20/2024
<b>FROM</b> 1.00000ml of WP111150 + 49.00000ml of WP108640 = Final Quantity: 50.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
9	Calibration Standard 5 ppb	<a href="#">WP111155</a>	12/19/2024	12/20/2024	Niha Farheen Shaik	None	WETCHEM_FIPETTE_3 (WC)	Iwona Zarych 12/20/2024
<b>FROM</b> 0.50000ml of WP111150 + 49.50000ml of WP108640 = Final Quantity: 50.000 ml								

## Wet Chemistry STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
167	0 ppb CN calibration std	<a href="#">WP111156</a>	12/19/2024	12/20/2024	Niha Farheen Shaik	None	None	Iwona Zarych 12/20/2024

**FROM** 50.00000ml of WP108640 = Final Quantity: 50.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1582	Chloramine T solution, 0.014M	<a href="#">WP111158</a>	12/19/2024	12/20/2024	Niha Farheen Shaik	WETCHEM_SCALE_5 (WC SC-5)	None	Iwona Zarych 12/20/2024

**FROM** 0.08000gram of W3139 + 20.00000ml of W3112 = Final Quantity: 20.000 ml

## CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	PC19510-5 / Sodium Hydroxide Pellets 2.5 Kg, Pk of 4	23B1556310	12/31/2025	12/04/2023 / Rajesh	12/01/2023 / Rajesh	E3657

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9673-33 / Sulfuric Acid, Instra-Analyzed (cs/6c2.5L)	23D2462010	03/20/2028	09/21/2023 / mohan	09/05/2023 / mohan	M5673

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9530-33 / Hydrochloric Acid, Instra-Analyzed (cs/6x2.5L)	0000275677	05/13/2025	11/13/2024 / Eman	10/13/2024 / Eman	M6121

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	J3818-5 / SODIUM PHOSPHATE, MONOBAS/HYD, CRYST, ACS, 2.5 KG	0000225799	12/03/2025	04/05/2021 / Alexander	02/10/2020 / apatel	W2668

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	EM-BX0035-3 / Barbituric Acid, 100 gms	1.00132.0100	04/30/2025	12/07/2021 / apatel	11/30/2021 / apatel	W2882

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	01237-10KG / Magnesium Chloride Hexahydrate ACS 10KG	002251-03319	06/06/2027	01/23/2023 / lwona	06/06/2022 / lwona	W3001

## CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	/ ICV-CN	ICV6-400	12/31/2024	01/03/2024 / lwona	02/20/2020 / lwona	W3011

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
SIGMA ALDRICH	270970-1L / Pyridine 1L	SHBQ2113	04/03/2028	04/03/2023 / lwona	04/03/2023 / lwona	W3019

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	DIW / DI Water	Daily Lab-Certified	07/03/2029	07/03/2024 / lwona	07/03/2024 / lwona	W3112

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	LC135457 / Cyanide Standard, 1000 PPM, Second Source	44080060	01/30/2025	09/06/2024 / lwona	08/28/2024 / lwona	W3138

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	JTE494-6 / CHLORAMINE-T BAKER 250GM	10239484	09/09/2029	09/09/2024 / lwona	09/09/2024 / lwona	W3139

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	RC2543-4 / CYANIDE STD 1000PPM 4OZ	1411J58	05/31/2025	12/02/2024 / lwona	12/02/2024 / lwona	W3154

W2918  
W3001  
rec. 06/06/22  
exp. 06/06/27

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## Chem-Impex International, Inc.

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**Tel:** (630) 766-2112  
**E-mail:** sales@chemimpex.com  
**Shipping and Correspondence:**  
935 Dillon Drive  
Wood Dale, IL 60191

**Fax:** (630) 766-2218  
**Web site:** www.chemimpex.com  
**Manufacturing site:**  
825 Dillon Drive  
Wood Dale, IL 60191

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### Certificate of Analysis

<b>Catalogue Number</b>	01237
<b>Product</b>	<b>Magnesium chloride hexahydrate</b>
<b>Lot Number</b>	002251-03319 Magnesium chloride•6H <sub>2</sub> O
<b>CAS Number</b>	7791-18-6
<b>Molecular Formula</b>	MgCl <sub>2</sub> •6H <sub>2</sub> O
<b>Molecular Weight</b>	203.3

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<b>Appearance</b>	Colorless crystals, very deliquescent
<b>Heavy Metals</b>	< 5 ppm
<b>Anion</b>	Nitrate : < 0.001% Phosphate : < 5 ppm Sulfate : < 0.002%
<b>Cation</b>	Ammonium : < 0.002% Barium : < 0.005% Calcium : 0.0006% Iron : < 5 ppm Manganese : 1.8 ppm Potassium : 0.0006% Sodium : 0.0008% Strontium : 0.0015%
<b>Insoluble material</b>	0.0025%
<b>Assay by titration</b>	100.29%
<b>Grade</b>	ACS reagent
<b>Storage</b>	Store at RT
<b>Country of Origin</b>	India



## ***Certificate of Analysis***

**Catalog Number: 01237**

**Lot Number: 002251-03319**

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**Remarks**

See material safety data sheet for additional information

For laboratory use only

**The foregoing is a copy of the Certificate of Analysis as provided by our supplier**



**Bala Kumar**  
**Quality Control Manager**

W3019  
rec 4/3/23

3050 Spruce Street, Saint Louis, MO 63103, USA

Website: [www.sigmaaldrich.com](http://www.sigmaaldrich.com)Email USA: [techserv@sial.com](mailto:techserv@sial.com)Outside USA: [eurtechserv@sial.com](mailto:eurtechserv@sial.com)

## Certificate of Analysis

Product Name:

Pyridine - anhydrous, 99.8%

Product Number:

270970

Batch Number:

SHBQ2113

Brand:

SIAL

CAS Number:

110-86-1

MDL Number:

MFCD00011732

Formula:

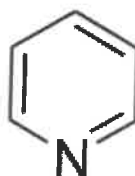
C<sub>5</sub>H<sub>5</sub>N

Formula Weight:


79.10 g/mol

Quality Release Date:

15 DEC 2022



Test	Specification	Result
Appearance (Color)	Colorless	Colorless
Appearance (Form)	Liquid	Liquid
Infrared Spectrum	Conforms to Structure	Conforms
Purity (GC)	≥ 99.75 %	99.99 %
Water (by Karl Fischer)	≤ 0.003 %	0.002 %
Residue on Evaporation	≤ 0.0005 %	< 0.0001 %

  
Larry Coers, Director  
Quality Control  
Sheboygan Falls, WI US

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at [Sigma-Aldrich.com](http://Sigma-Aldrich.com). For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.





# Certificate of Analysis

## Sodium Hydroxide (Pellets)

**Material:** 0583  
**Grade:** ACS GRADE  
**Batch Number:** 23B1556310

**Chemical Formula:** NaOH  
**Molecular Weight:** 40  
**CAS #:** 1310-73-2  
**Appearance:**

**Manufacture Date:** 12/14/2022  
**Expiration Date:** 12/31/2025

**Storage:** Room Temperature

Pellets

TEST	SPECIFICATION	ANALYSIS	DISPOSITION
Calcium	$\leq 0.005 \%$	$< 0.005 \%$	PASS
Chloride	$\leq 0.005 \%$	0.002 %	PASS
Heavy Metals	$\leq 0.002 \%$	$< 0.002 \%$	PASS
Iron	$\leq 0.001 \%$	$< 0.001 \%$	PASS
Magnesium	$\leq 0.002 \%$	$< 0.002 \%$	PASS
Mercury	$\leq 0.1 \text{ ppm}$	$< 0.1 \text{ ppm}$	PASS
Nickel	$\leq 0.001 \%$	$< 0.001 \%$	PASS
Nitrogen Compounds	$\leq 0.001 \%$	$< 0.001 \%$	PASS
Phosphate	$\leq 0.001 \%$	$< 0.001 \%$	PASS
Potassium	$\leq 0.02 \%$	$< 0.02 \%$	PASS
Purity	$\geq 97.0 \%$	99.2 %	PASS
Sodium Carbonate	$\leq 1.0 \%$	0.5 %	PASS
Sulfate	$\leq 0.003 \%$	$< 0.003 \%$	PASS

Internal ID #: 710

### Signature

We certify that this batch conforms to the specifications listed.

This document has been electronically produced and is valid without a signature.

Leona Edwardson, Quality Control Sr. Manager - Solon  
VWR Chemicals, LLC.  
28600 Fountain Parkway, Solon OH 44139 USA

### Additional Information

Analysis may have been rounded to significant digits in specification limits.

Product meets analytical specifications of the grades listed.



Sulfuric Acid  
BAKER INSTRA-ANALYZED® Reagent  
For Trace Metal Analysis  
Low Selenium

avantor™



Material No.: 9673-33  
Batch No.: 23D2462010  
Manufactured Date: 2023-03-22  
Retest Date: 2028-03-20  
Revision No.: 0

## Certificate of Analysis

Test	Specification	Result
ACS – Assay (H <sub>2</sub> SO <sub>4</sub> )	95.0 – 98.0 %	96.1 %
Appearance	Passes Test	Passes Test
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Substances Reducing Permanganate (as SO <sub>2</sub> )	≤ 2 ppm	< 2 ppm
Ammonium (NH <sub>4</sub> )	≤ 1 ppm	1 ppm
Chloride (Cl)	≤ 0.1 ppm	< 0.1 ppm
Nitrate (NO <sub>3</sub> )	≤ 0.2 ppm	< 0.1 ppm
Phosphate (PO <sub>4</sub> )	≤ 0.5 ppm	< 0.1 ppm
Trace Impurities – Aluminum (Al)	≤ 30.0 ppb	< 5.0 ppb
Arsenic and Antimony (as As)	≤ 4.0 ppb	< 2.0 ppb
Trace Impurities – Boron (B)	≤ 10.0 ppb	8.5 ppb
Trace Impurities – Cadmium (Cd)	≤ 2.0 ppb	< 0.3 ppb
Trace Impurities – Chromium (Cr)	≤ 6.0 ppb	< 0.4 ppb
Trace Impurities – Cobalt (Co)	≤ 0.5 ppb	< 0.3 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gold (Au)	≤ 10.0 ppb	0.5 ppb
Heavy Metals (as Pb)	≤ 500.0 ppb	< 100.0 ppb
Trace Impurities – Iron (Fe)	≤ 50.0 ppb	1.3 ppb
Trace Impurities – Lead (Pb)	≤ 0.5 ppb	< 0.5 ppb
Trace Impurities – Magnesium (Mg)	≤ 7.0 ppb	0.8 ppb
Trace Impurities – Manganese (Mn)	≤ 1.0 ppb	< 0.4 ppb
Trace Impurities – Mercury (Hg)	≤ 0.5 ppb	< 0.1 ppb
Trace Impurities – Nickel (Ni)	≤ 2.0 ppb	0.3 ppb
Trace Impurities – Potassium (K)	≤ 500.0 ppb	< 2.0 ppb
Trace Impurities – Selenium (Se)	≤ 50.0 ppb	< 0.1 ppb
Trace Impurities – Silicon (Si)	≤ 100.0 ppb	31.5 ppb
Trace Impurities – Silver (Ag)	≤ 1.0 ppb	< 0.3 ppb

>>> Continued on page 2 >>>



QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY  
"An ISO 9001:2015 Certified Program"

Instructions for QATS Reference Material: *Inorganic ICV Solutions*

QATS LABORATORY INORGANIC REFERENCE MATERIAL  
INITIAL CALIBRATION VERIFICATION SOLUTIONS  
(ICV1, ICV5, AND ICV6)

**NOTE:** These instructions are for advisory purposes only. If any apparent conflict exists between these instructions and the analytical protocol or your contract, disregard these instructions.

**APPLICATION:** For use with the CLP SFAM01.0 SOW and revisions.

**CAUTION:** Read instructions carefully before opening bottle(s) and proceeding with the analyses.

Contains Metals in Dilute Acidic or  
Cyanide in Basic Aqueous Solutions  
**HAZARDOUS MATERIAL**

Safety Data Sheets  
Available Upon Request

W2160, W2161, W2162,  
W2163, W2164 Receive by  
AP on 9/2/2016

(A) **SAMPLE DESCRIPTION**

Enclosed is a set of one (1) or more Aqueous Inorganic Reference Materials containing various analyte concentrations. ICV1 and ICV5 are in a matrix of dilute nitric acid. ICV6 is in a matrix of dilute basic solution. **For the reference material source in reporting ICVs use "USEPA". For the reference material lot number for the ICV1, ICV5, and ICV6 solutions use "ICV1-1014", "ICV5-0415", and "ICV6-0400", respectively.**

(B) **BREAKAGE OR MISSING ITEMS**

Check the contents of the shipment carefully for any broken, leaking, or missing items. Check that the seal is intact on each bottle. Refer to the enclosed chain of custody record. Report any problems to Mr. Keith Strout, APTIM Federal Services, LLC, at (702) 895-8722. If requested, return the chain-of-custody record with appropriate annotations and signatures to the address provided below.

QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY  
APTIM Federal Services, LLC  
2700 Chandler Avenue - Building C  
Las Vegas, NV 89120

(C) **ANALYSIS OF SAMPLES**

The Initial Calibration Verification Solutions (ICVs) are to be used to evaluate the accuracy of the initial calibrations of ICP, AA, and Cyanide colorimetric instruments, and are to be used with the CLP SOWs and revisions. The values for each element in the ICVs are listed below in µg/L (ppb) for the resulting solution(s) after the dilution of the concentrate(s) according to the following instructions. Use Class 'A' glassware to prepare the solution(s).

**ICV1-1014** For ICP-AES analysis, use a 10-fold dilution by pipetting 10 mL of the ICV1 concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid.



Instructions for QATS Reference Material: *Inorganic ICV Solutions*

- ICV1-1014** For ICP-MS analysis, use a 50-fold dilution by pipetting 2 mL of the ICV1 concentrate into a 100 mL volumetric flask and dilute to volume with 1% (v/v) nitric acid.
- ICV5-0415** For the cold vapor analysis of mercury by AA, use a 100-fold dilution by pipetting 1 mL of the ICV5 concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid. The ICV5 concentrate is prepared in 0.05% (w/v)  $K_2Cr_2O_7$  and 5% (v/v) nitric acid.
- ICV6-0400** For the analysis of cyanide, use a 100-fold dilution by pipetting 1 mL of the ICV6 concentrate into a 100 mL volumetric flask and dilute to volume with Type II water. Distill this solution along with the samples before analysis. The cyanide concentrate is prepared from  $K_3Fe(CN)_6$ , Type II water, and 0.1 % sodium hydroxide, and will decompose rapidly if exposed to light.

**NOTE:** USE TYPE II WATER AND HIGH-PURITY ACIDS FOR ALL DILUTIONS.

**(D) CERTIFIED CONCENTRATIONS OF QATS ICV1, ICV5, AND ICV6 SOLUTIONS**

ICV1-1014		
Element	Concentration (µg/L) (after 10-fold dilution)	Concentration (µg/L) (after 50-fold dilution)
Al	2500	500
Sb	1000	200
As	1000	200
Ba	520	100
Be	510	100
Cd	510	100
Ca	10000	2000
Cr	520	100
Co	520	100
Cu	510	100
Fe	10000	2000
Pb	1000	200
Mg	6000	1200
Mn	520	100
Ni	530	110
K	9900	2000
Se	1000	200
Ag	250	50
Na	10000	2000
Tl	1000	210
V	500	100
Zn	1000	200

ICV5-0415		ICV6-0400	
Element	Concentration (µg/L) (after 100-fold dilution)	Analyte	Concentration (µg/L) (after 100-fold dilution)
Hg	4.0	CN <sup>-</sup>	99

Sulfuric Acid  
BAKER INSTRA-ANALYZED® Reagent  
For Trace Metal Analysis  
Low Selenium



Material No.: 9673-33  
Batch No.: 23D2462010

Test	Specification	Result
Trace Impurities – Sodium (Na)	≤ 500.0 ppb	5.4 ppb
Trace Impurities – Strontium (Sr)	≤ 5.0 ppb	< 0.2 ppb
Trace Impurities – Tin (Sn)	≤ 5.0 ppb	< 0.8 ppb
Trace Impurities – Zinc (Zn)	≤ 5.0 ppb	0.4 ppb

For Laboratory, Research, or Manufacturing Use

Country of Origin: USA  
Packaging Site: Phillipsburg Mfg Ctr & DC

  
Jamie Ethier  
Vice President Global Quality

Hydrochloric Acid, 36.5-38.0%  
BAKER INSTRA-ANALYZED® Reagent  
For Trace Metal Analysis



R → 16/13/24  
Met dig

M 6121

Material No.: 9530-33  
Batch No.: 0000275677  
Manufactured Date: 2020/12/16  
Retest Date: 2025/12/15  
Revision No: 1

## Certificate of Analysis

Test	Specification	Result
ACS - Assay (as HCl) (by acid-base titrn)	36.5 - 38.0 %	37.6
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 3 ppm	1
ACS - Specific Gravity at 60°/60°F	1.185 - 1.192	1.190
ACS - Bromide (Br)	<= 0.005 %	< 0.005
ACS - Extractable Organic Substances	<= 5 ppm	1
ACS - Free Chlorine (as Cl <sub>2</sub> )	<= 0.5 ppm	< 0.5
Phosphate (PO <sub>4</sub> )	<= 0.05 ppm	< 0.03
Sulfate (SO <sub>4</sub> )	<= 0.5 ppm	< 0.3
Sulfite (SO <sub>3</sub> )	<= 0.8 ppm	0.3
Ammonium (NH <sub>4</sub> )	<= 3 ppm	< 1
Trace Impurities - Arsenic (As)	<= 0.010 ppm	< 0.003
Trace Impurities - Aluminum (Al)	<= 10.0 ppb	< 0.2
Arsenic and Antimony (as As)	<= 5 ppb	< 3
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 10.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 20.0 ppb	< 5.0
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	29.7
Trace Impurities - Chromium (Cr)	<= 1.0 ppb	< 0.4
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 1.0 ppb	< 0.2

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700

Avantor Performance Materials, LLC

100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700



Test	Specification	Result
Trace Impurities – Germanium (Ge)	<= 3.0 ppb	< 2.0
Trace Impurities – Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities – Iron (Fe)	<= 15.0 ppb	< 1
Trace Impurities – Lead (Pb)	<= 1.0 ppb	< 0.5
Trace Impurities – Lithium (Li)	<= 1.0 ppb	0.2
Trace Impurities – Magnesium (Mg)	<= 10.0 ppb	0.4
Trace Impurities – Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities – Mercury (Hg)	<= 0.5 ppb	0.1
Trace Impurities – Molybdenum (Mo)	<= 10.0 ppb	< 5.0
Trace Impurities – Nickel (Ni)	<= 4.0 ppb	< 0.3
Trace Impurities – Niobium (Nb)	<= 1.0 ppb	< 0.2
Trace Impurities – Potassium (K)	<= 9.0 ppb	< 2.0
Trace Impurities – Selenium (Se), For Information Only	ppb	1.0
Trace Impurities – Silicon (Si)	<= 100.0 ppb	< 10.0
Trace Impurities – Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities – Sodium (Na)	<= 100.0 ppb	< 5.0
Trace Impurities – Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities – Tantalum (Ta)	<= 1.0 ppb	< 0.9
Trace Impurities – Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities – Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities – Titanium (Ti)	<= 1.0 ppb	0.2
Trace Impurities – Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities – Zinc (Zn)	<= 5.0 ppb	0.3
Trace Impurities – Zirconium (Zr)	<= 1.0 ppb	< 0.1

For Laboratory, Research or Manufacturing Use  
Product Information (not specifications):  
Appearance (clear, fuming liquid)  
Meets ACS Specifications

Country of Origin: US  
Packaging Site: Phillipsburg Mfg Ctr & DC

*James Ethier*  
Jamie Ethier  
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700

Avantor Performance Materials, LLC

100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700



# Certificate of Analysis

1.00132.0000 Barbituric acid for analysis EMSURE®  
Batch N020065932

	Spec. Values		Batch Values	
Assay (acidimetric)	≥ 99	%	99.6	%
Identity (IR-spectrum)	passes test		passes test	
Chloride (Cl)	≤ 40	ppm	≤ 40	ppm
Heavy metals (as Pb)	≤ 50	ppm	≤ 50	ppm
Fe (Iron)	≤ 10	ppm	≤ 10	ppm
Sulfated ash	≤ 0.1	%	≤ 0.1	%
Loss on Drying (105 °C)	≤ 0.1	%	≤ 0.1	%
Suitability as reagent (for cyanide determination)	passes test		passes test	

Date of release (DD.MM.YYYY) 17.04.2020  
Minimum shelf life (DD.MM.YYYY) 30.04.2025

Ioannis Chartomatsidis  
Responsible laboratory manager quality control

This document has been produced electronically and is valid without a signature.

Sodium Phosphate, Monobasic, Monohydrate,  
Crystal  
BAKER ANALYZED® A.C.S. Reagent

(sodium dihydrogen phosphate, monohydrate)



Material No.: 3818-05  
Batch No.: 0000225799  
Manufactured Date: 2018/12/05  
Retest Date: 2025/12/03  
Revision No: 1

## Certificate of Analysis

Meets ACS Reagent Chemical Requirements,

Test	Specification	Result
Assay ( $\text{NaH}_2\text{PO}_4 \cdot \text{H}_2\text{O}$ )	98.0 – 102.0 %	99.5
pH of 5% Solution at 25°C	4.1 – 4.5	4.3
Insoluble Matter	$\leq 0.01$ %	$< 0.01$
Chloride (Cl)	$\leq 5$ ppm	$< 5$
ACS – Sulfate ( $\text{SO}_4$ )	$\leq 0.003$ %	$< 0.003$
Calcium (Ca)	$\leq 0.005$ %	$< 0.005$
Potassium (K)	$\leq 0.01$ %	$< 0.01$
Heavy Metals (as Pb)	$\leq 0.001$ %	$< 0.001$
Trace Impurities – Iron (Fe)	$\leq 0.001$ %	$< 0.001$

For Laboratory, Research or Manufacturing Use  
Meets Reagent Specifications for testing USP/NF monographs

Country of Origin: IN  
Packaging Site: Paris Mfg Ctr & DC

  
Jamie Ethier  
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700  
Avantor Performance Materials, LLC  
100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700

## Certificate of Analysis

### Cyanide Standard 1000 ppm (1ml = 1mg CN)

Product Code: **LC13545**

Manufacture Date: August 01, 2024

Lot Number: **44080060**

Expiration Date: January 30, 2025

Test	Specification	Result
Appearance (clarity)	clear solution	clear solution
Appearance (color)	colorless	colorless
Concentration (CN)	0.990 - 1.010mg/mL	1.008mg/mL
Concentration (CN)	990 - 1,010ppm	1,008ppm
Traceable to NIST SRM	Report	999b

**Intended Use** - Product is intended for use in manufacturing procedures and laboratory procedures and protocols.

**Storage Information** - Unless noted on the product label, store the product under normal lab conditions in its tightly closed, original container. Do not pipet directly from the container or return unused portions to the container.

**Instructions for Handling and Use** - Please refer to the associated product label and Safety Data Sheet (SDS) for information regarding safety and handling of this product.

**Preparation** - All products are manufactured and tested according to established, documented procedures and methodology. Production documentation records manufacturing data, raw material traceability and testing history on a per lot basis. Balances, thermometers, and glassware are calibrated before first use and on a regular schedule with references traceable to NIST standards.

\*The suffix of the product code may differ from what is on your product label. The suffix will designate the size and be associated with a numeric digit(s). Visit [LabChem.com](http://LabChem.com) for more information\*

Suffix	1	2	3/3S/36/36S	4/4C	5	6	7	8	9	20	44	200	246	486
Size	500mL or g	1L or 1kg	2.5L/2.5L Coated/6x2.5L/6x2.5L Coated	4L	20L	10L	125mL	25g	100g	20x20mL	4x4L	200L	24x6mL	48x6mL



Michael Monteleone  
Chemistry Supervisor - Quality Control

ISO9001:2015 Registration #0306-01

W3139 Received on 9/9/24 by IZ

Product No.: A12044  
Product: Chloramine-T trihydrate, 98%  
Lot No.: 10239484

Appearance:	White powder
Melting Point:	166°C(dec)
Assay (Iodometric titration):	100.5%
Identification (FTIR):	Conforms

Order our products online [thermofisher.com/chemicals](https://thermofisher.com/chemicals)

**This document has been electronically generated and does not require a signature.**

Products are processed under ISO 9001:2015 quality management systems and samples are tested for conformance to the noted specifications. Certain data may have been supplied by third parties. We disclaim the implied warranties of merchantability and fitness for a particular purpose, and the accuracy of third party data or information associated with the product. Products are for research and development use only. Products are not for direct administration to humans or animals. It is the responsibility of the final formulator or end user to determine suitability, and to qualify and/or validate each product for its intended use.



# Certificate of Analysis

## Cyanide Standard, 1000 ppm CN<sup>-</sup>

**Lot Number:** 1411J58**Product Number:** 2543**Manufacture Date:** NOV 22, 2024**Expiration Date:** MAY 2025

This standard is prepared using accurate volumetric techniques from material that has been assayed against Silver Nitrate solution certified traceable to NIST Standard Reference Material 999. The certified value reported is the prepared value based upon the method of preparation of the material. The uncertainty in the prepared value is the combined uncertainty based on the stability of the assayed Potassium Cyanide, and the uncertainty in the mass and volume measurements.

Use 0.16% (w/v) (0.04 N) Sodium Hydroxide or 0.225 % (w/v) (0.04 N) Potassium Hydroxide to make dilutions of this standard. Restandardize weekly if extreme accuracy is required.

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Potassium Cyanide	151-50-8	ACS
Sodium Hydroxide	1310-73-2	Reagent

Test	Specification	Result
Appearance	Colorless liquid	Passed
Cyanide (CN <sup>-</sup> )	995-1005 ppm	1000 ppm

Specification	Reference
Stock Standard Cyanide Solution	APHA (4500-CN- F)
Stock Cyanide Solution	APHA (4500-CN- E)
Stock Cyanide Solution	APHA (4500-CN- K)
Stock Cyanide Solution	APHA (4500-CN- H)
Cyanide Reference Solution (1000 mg/L)	EPA (SW-846) (7.3.3.2)
Cyanide Calibration Stock Solution (1,000 mg/L CN <sup>-</sup> )	EPA (SW-846) (9213)
Stock Cyanide Solution	EPA (335.3)
Stock Cyanide Solution	EPA (335.2)
Cyanide Solution Stock	ASTM (D 4282)
Simple Cyanide Solution, Stock (1.0 g/L CN <sup>-</sup> )	ASTM (D 4374)

Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
2543-16	500 mL amber poly	6 months
2543-32	1 L amber poly	6 months
2543-4	120 mL amber poly	6 months

**Recommended Storage:** 2°C - 8°C (36°F - 46°F)



# PERCENT SOLID

Supervisor: Iwona  
Analyst: jignesh  
Date: 12/18/2024

OVENTEMP IN Celsius(°C): 107  
Time IN: 17:00  
In Date: 12/17/2024  
Weight Check 1.0g: 1.00  
Weight Check 10g: 10.00  
OvenID: M OVEN#1

OVENTEMP OUT Celsius(°C): 103  
Time OUT: 08:12  
Out Date: 12/18/2024  
Weight Check 1.0g: 1.00  
Weight Check 10g: 10.00  
BalanceID: M SC-4  
Thermometer ID: % SOLID- OVEN

QC:LB133976

Lab ID	Client SampleID	Dish #	Dish Wt (g) (A)	Sample Wt (g)	Dish + Sample Wt (g) (B)	Dish+Dry Sample Wt (g) (C)	% Solid	Comments
P5245-03	72-12016	1	1.15	8.37	9.52	8.99	93.7	
P5299-01	SB-01	2	1.15	8.40	9.55	7.74	78.5	
P5299-02	SB-02	3	1.16	8.70	9.86	7.73	75.5	
P5299-03	SB-01	33	1.13	8.61	9.74	7.05	68.8	
P5299-04	SB-02	4	1.15	8.75	9.9	8.08	79.2	
P5306-01	OU4-VSL-07-121224	5	1.16	8.52	9.68	8.9	90.8	
P5306-03	OU4-VSL-08-121224	6	1.17	8.73	9.9	9.1	90.8	
P5306-05	OU4-VSL-09-121224	7	1.19	8.45	9.64	8.8	90.1	
P5306-07	OU4-VSL-10-121224	8	1.15	8.65	9.8	9.37	95.0	
P5306-09	OU4-VSL-11-121224	9	1.11	8.77	9.88	9.32	93.6	
P5306-11	OU4-VSL-12-121224	10	1.12	8.65	9.77	8.97	90.8	
P5306-13	OU4-VSL-13-121224	11	1.13	8.72	9.85	8.98	90.0	
P5306-15	OU4-VSL-14-121224	12	1.18	8.46	9.64	9.29	95.9	
P5306-17	OU4-VSL-06R-121224	13	1.15	8.80	9.95	9.22	91.7	
P5307-01	1A-1B-1C-ROOF-2	14	1.00	1.00	2.00	2.00	100.0	caluk
P5307-02	2A-2B-2C-ROOF-2	15	1.00	1.00	2.00	2.00	100.0	caluk
P5307-03	3A-3B-3C-1907	16	1.00	1.00	2.00	2.00	100.0	caluk
P5307-04	4A-4B-4C-1907	17	1.00	1.00	2.00	2.00	100.0	caluk
P5307-05	5A-5B-5C-1907	18	1.00	1.00	2.00	2.00	100.0	caluk
P5307-06	6A-6B-6C-1952	19	1.00	1.00	2.00	2.00	100.0	caluk
P5307-07	1907-BLDG-GRAY	20	1.00	1.00	2.00	2.00	100.0	caluk
P5307-08	1952-BLDG	21	1.00	1.00	2.00	2.00	100.0	caluk
P5307-09	9A-9B-9C-1907	22	1.00	1.00	2.00	2.00	100.0	caluk
P5307-10	1907-BLDG-OFF-WHITE	23	1.00	1.00	2.00	2.00	100.0	caluk
P5307-11	11A-11B-11C-1952-BLDG	24	1.00	1.00	2.00	2.00	100.0	caluk
P5307-12	12A-12B-12C-1952	25	1.00	1.00	2.00	2.00	100.0	caluk
P5307-13	13A-13B-13C-1952	26	1.00	1.00	2.00	2.00	100.0	caluk
P5307-14	14A-14B-14C-1907	27	1.00	1.00	2.00	2.00	100.0	caluk



PERCENT SOLID

Supervisor: Iwona  
Analyst: jignesh  
Date: 12/18/2024

OVENTEMP IN Celsius(°C): 107  
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Weight Check 10g: 10.00  
OvenID: M OVEN#1

OVENTEMP OUT Celsius(°C): 103  
Time OUT: 08:12  
Out Date: 12/18/2024  
Weight Check 1.0g: 1.00  
Weight Check 10g: 10.00  
BalanceID: M SC-4  
Thermometer ID: % SOLID- OVEN

QC:LB133976

Lab ID	Client SampleID	Dish #	Dish Wt (g) (A)	Sample Wt (g)	Dish + Sample Wt (g) (B)	Dish+Dry Sample Wt (g) (C)	% Solid	Comments
P5307-15	15A-15B-15C-ROOF-7	28	1.00	1.00	2.00	2.00	100.0	caluk
P5312-01	SOIL-VNJ-222	29	1.15	8.43	9.58	8.55	87.8	
P5312-02	SOIL-VNJ-222	30	1.12	8.66	9.78	9.35	95.0	
P5312-03	CONCRETE-VNJ-222	31	1.00	1.00	2.00	2.00	100.0	CONCRETE sample
P5312-04	CONCRETE-VNJ-222	32	1.00	1.00	2.00	2.00	100.0	CONCRETE sample

$$\% \text{ Solid} = \frac{(C-A) * 100}{(B-A)}$$



# SHIPPING DOCUMENTS

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**Laboratory Certification**

Certified By	License No.
CAS EPA CLP Contract	68HERH20D0011
Connecticut	PH-0830
DOD ELAP (ANAB)	L2219
Maine	2024021
Maryland	296
New Hampshire	255424 Rev 1
New Jersey	20012
New York	11376
Pennsylvania	68-00548
Soil Permit	525-24-234-08441
Texas	T104704488

## LOGIN REPORT/SAMPLE TRANSFER

**Order ID :** P5306 NOBI03

**Order Date :** 12/17/2024 10:24:00 AM

**Project Mgr :**

**Client Name :** Nobis Group

**Project Name :** Raymark Superfund Site

**Report Type :** Level 4

**Client Contact :** Adam Roy

**Receive DateTime :** 12/17/2024 9:50:00 AM

**EDD Type :** EQUIS

**Invoice Name :** Nobis Group

**Purchase Order :**

**Hard Copy Date :**

**Invoice Contact :** Adam Roy


**Date Signoff :**

LAB ID	CLIENT ID	MATRIX	SAMPLE DATE	SAMPLE TIME	TEST	TEST GROUP	METHOD	FAX DATE	DUE DATES
P5306-01	OU4-VSL-07-121224	Solid	12/12/2024	10:00					
					VOCMS Group3		8260D	10 Bus. Days	
P5306-03	OU4-VSL-08-121224	Solid	12/12/2024	10:10					
					VOCMS Group3		8260D	10 Bus. Days	
P5306-05	OU4-VSL-09-121224	Solid	12/12/2024	10:20					
					VOCMS Group3		8260D	10 Bus. Days	
P5306-07	OU4-VSL-10-121224	Solid	12/12/2024	10:30					
					VOCMS Group3		8260D	10 Bus. Days	
P5306-09	OU4-VSL-11-121224	Solid	12/12/2024	10:40					
					VOCMS Group3		8260D	10 Bus. Days	
P5306-11	OU4-VSL-12-121224	Solid	12/12/2024	10:50					
					VOCMS Group3		8260D	10 Bus. Days	
P5306-13	OU4-VSL-13-121224	Solid	12/12/2024	11:00					
					VOCMS Group3		8260D	10 Bus. Days	
P5306-15	OU4-VSL-14-121224	Solid	12/12/2024	<del>11:15</del> 11:10					

## LOGIN REPORT/SAMPLE TRANSFER

<b>Order ID :</b> P5306	NOBI03	<b>Order Date :</b> 12/17/2024 10:24:00 AM	<b>Project Mgr :</b>
<b>Client Name :</b> Nobis Group		<b>Project Name :</b> Raymark Superfund Site	<b>Report Type :</b> Level 4
<b>Client Contact :</b> Adam Roy		<b>Receive DateTime :</b> 12/17/2024 9:50:00 AM	<b>EDD Type :</b> EQUIS
<b>Invoice Name :</b> Nobis Group		<b>Purchase Order :</b>	<b>Hard Copy Date :</b>
<b>Invoice Contact :</b> Adam Roy			<b>Date Signoff :</b>

LAB ID	CLIENT ID	MATRIX	SAMPLE DATE	SAMPLE TIME	TEST	TEST GROUP	METHOD	FAX DATE	DUE DATES
					VOCMS Group3		8260D	10 Bus. Days	

**Relinquished By :**   
**Date / Time :** 12-17-24 1230

**Received By :**   
**Date / Time :** 12-17-24 12:30

**Storage Area :** VOA Refridgerator Room