

### DATA PACKAGE GENERAL CHEMISTRY

**PROJECT NAME: RAYMARK SUPERFUND SITE** 

NOBIS GROUP
585 Middlesex Street

Lowell, MA - 01851

Phone No: 978-683-0891

ORDER ID: Q2259

**ATTENTION: Adam Roy** 





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14.3) Internal COC





#### **Cover Page**

Order ID: Q2259

**Project ID:** Raymark Superfund Site

Client: Nobis Group

#### **Client Sample Number**

Q2259-01	OU4-PCS-TC-36-060525
Q2259-02	OU4-PCS-TC-36-060525
Q2259-03	OU4-PCS-TC-37-060525
Q2259-04	OU4-PCS-TC-37-060525
Q2259-05	OU4-TS-29-060525
Q2259-06	OU4-TS-30-060525

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: 6/17/2025

NYDOH CERTIFICATION NO - 11376 NJDEP CERTIFICATION NO - 20012

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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 Order ID # Q2259 Test Name: Cyanide

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

6 Solid samples were received on 06/06/2025.

#### **B. Parameters:**

According to the Chain of Custody document, the following analyses were requested: Cyanide, Herbicide Group1, Mercury, Metals ICP-TAL, METALS-TAL, PCB, Pesticide-TCL, SPLP Extraction, SPLP Mercury, SPLP MetalGroup3, 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		
Signature		

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#### DATA REPORTING QUALIFIERS- INORGANIC

For reporting results, the following "Results Qualifiers" are used:

	_							
J	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).							
U	Indicates the analyte was analyzed for, but not detected.							
ND	Indicates the analyte was analyzed for, but not detected							
E	Indicates the reported value is estimated because of the presence of interference							
M	Indicates Duplicate injection precision not met.							
N	Indicates the spiked sample recovery is not within control limits.							
S	Indicates the reported value was determined by the Method of Standard Addition (MSA).							
*	Indicates that the duplicate analysis is not within control limits.							
+	Indicates the correlation coefficient for the MSA is less than 0.995.							
D	Indicates the reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.							
M	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  Indicates the analyte's concentration exceeds the calibrated range of the							
OR	Indicates the analyte's concentration exceeds the calibrated range of the instrument for that specific analysis.							
Q	Indicates the LCS did not meet the control limits requirements							

QA Control # A3040961

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Sample Analysis Out Of Hold Time

## ALLIANCE 284 Sheffield Street, Mountainside New Jersey 07092 NEW JERSEY LAB ID#: 20012: NEW YORK LAB ID#: 11376

#### GENERAL CHEMISTRY CONFORMANCE/NON-CONFORMANCE SUMMARY

ORDE	ER ID: Q2259 MAT	TRIX: Solid			
METH	HOD: 9012B				
1.	Blank Contamination - If yes, list compounds and concentrations in ea	Nach blank:	A	NO ✓	YES
2.	Matrix Spike Duplicate Recoveries Met Criteria				$\checkmark$
	If not met, list those compounds and their recoveries which fall outsid range.	e the acceptable			
	The Blank Spike met requirements for all samples.				
3.	Sample Duplicate Analysis Met QC Criteria				$\checkmark$
	If not met, list those compounds and their recoveries which fall outsid range.	e the acceptable			
4.	Digestion Holding Time Met				$\checkmark$
	If not met, list number of days exceeded for each sample:				
ADDIT	TIONAL COMMENTS:				
QA RE	VIEW	Date			

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#### APPENDIX A

#### **QA REVIEW GENERAL DOCUMENTATION**

**Project #: Q2259** 

	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)	<u> </u>
Check chain-of-custody for proper relinquish/return of samples	<u> </u>
Is the chain of custody signed and complete	<u> </u>
Check internal chain-of-custody for proper relinquish/return of samples /sample extracts	<del>'</del>
Collect information for each project id from server. Were all requirements followed	<u> </u>
COVER PAGE:	
Do numbers of samples correspond to the number of samples in the Chain of Custody on login page	<u> </u>
Do lab numbers and client Ids on cover page agree with the Chain of Custody	<u> </u>
CHAIN OF CUSTODY:	
Do requested analyses on Chain of Custody agree with form I results	<u> </u>
Do requested analyses on Chain of Custody agree with the log-in page	<u>√</u> <u>√</u> <u>√</u>
Were the correct method log-in for analysis according to the Analytical Request and Chain of Castody	<u> </u>
Were the samples received within hold time	<u> </u>
Were any problems found with the samples at arrival recorded in the Sample Management Laboratory Chronicle	<u> </u>
ANALYTICAL:	
Was method requirement followed?	<u> </u>
Was client requirement followed?	<u> </u>
Does the case narrative summarize all QC failure?	<del>'</del> <del>'</del> <del>'</del> <del>'</del>
All runlogs and manual integration are reviewed for requirements	<u> </u>
All manual calculations and /or hand notations verified	<u> </u>

QA Review Signature: SOHIL JODHANI Date: 06/17/2025

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Contact:

Adam Roy

#### LAB CHRONICLE

OrderID:Q2259OrderDate:6/6/2025 10:57:00 AMClient:Nobis GroupProject:Raymark Superfund Site

Location: D21,VOA Ref. #2 Soil

LabID	ClientID	Matrix	Test	Method	Sample Date	Prep Date	Anal Date	Received
Q2259-01	OU4-PCS-TC-36-0605 25	SOIL			06/05/25 11:25			06/06/25
			Cyanide	9012B		06/09/25	06/09/25 13:11	
Q2259-03	OU4-PCS-TC-37-0605 25	SOIL			06/05/25 11:35			06/06/25
			Cyanide	9012B		06/09/25	06/09/25 13:11	

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# SAMPLE DATA



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#### **Report of Analysis**

Client: Nobis Group Date Collected: 06/05/25 11:25 Project: Raymark Superfund Site Date Received: 06/06/25 Client Sample ID: OU4-PCS-TC-36-060525 SDG No.: Q2259 Lab Sample ID: Q2259-01 Matrix: **SOIL** % Solid: 94.3

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units(Dry Weight	t) Prep Date	Date Ana.	Ana Met.	
Cyanide	0.12	J	1	0.044	0.21	0.26	mg/Kg	06/09/25 10:00	06/09/25 13:11	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

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#### **Report of Analysis**

Client: Nobis Group Date Collected: 06/05/25 11:35 Project: Raymark Superfund Site Date Received: 06/06/25 Client Sample ID: OU4-PCS-TC-37-060525 SDG No.: Q2259 Lab Sample ID: Q2259-03 Matrix: **SOIL** % Solid: 94.3

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units(Dry Weight	Prep Date	Date Ana.	Ana Met.
Cyanide	0.089	J	1	0.043	0.20	0.25	mg/Kg	06/09/25 10:00	06/09/25 13:11	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

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# QC RESULT SUMMARY



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#### **Initial and Continuing Calibration Verification**

Client: Nobis Group SDG No.: Q2259

Project: Raymark Superfund Site RunNo.: LB136063

Analyte		Units	Result	True Value	% Recovery	Acceptance Window (%R)	Analysis Date
Sample ID: Cyanide	ICV1	mg/L	0.095	0.099	96	90-110	06/09/2025
Sample ID: Cyanide	CCV1	mg/L	0.24	0.25	96	90-110	06/09/2025
Sample ID: Cyanide	CCV2	mg/L	0.23	0.25	92	90-110	06/09/2025
Sample ID: Cyanide	CCV3	mg/L	0.24	0.25	96	90-110	06/09/2025

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#### **Initial and Continuing Calibration Blank Summary**

Client:	Nobis Group	SDG No.:	Q2259

Project: Raymark Superfund Site RunNo.: LB136063

Analyte		Units	Result	Acceptance Limits	Conc Qual	MDL	RDL	Analysis Date
Sample ID: Cyanide	ICB1	mg/L	< 0.0025	0.0025	U	0.00096	0.005	06/09/2025
Sample ID: Cyanide	CCB1	mg/L	< 0.0025	0.0025	U	0.00096	0.005	06/09/2025
Sample ID: Cyanide	CCB2	mg/L	< 0.0025	0.0025	U	0.00096	0.005	06/09/2025
Sample ID:	ССВ3	mg/L	< 0.0025	0.0025	U	0.00096	0.005	06/09/2025

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#### **Preparation Blank Summary**

Client: Nobis Group SDG No.: Q2259

Raymark Superfund Site **Project:** 

Analyte	Units	Result	Acceptance Limits	Conc Qual	MDL	RDL	Analysis Date
Sample ID: Cyanide	PB168361BL mg/Kg	< 0.1250	0.1250	U	0.042	0.25	06/09/2025

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#### **Matrix Spike Summary**

Client: Nobis Group SDG No.: Q2259

Project: Raymark Superfund Site Sample ID: Q2259-06

Client ID: OU4-TS-30-060525MS Percent Solids for Spike Sample: 79

Analyte	Units	Acceptance Limit %R	Spiked Result	Conc. Qualifier	Sample Result	Conc. Qualifier	Spike Added	Dilution Factor	% Rec	Qual	Analysis Date
Cvanide	mg/Kg	75-125	2.40		0.096	J	2.5	1	92		06/09/2025

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#### **Matrix Spike Summary**

Client: Nobis Group SDG No.: Q2259

Project: Raymark Superfund Site Sample ID: Q2259-06

Client ID: OU4-TS-30-060525MSD Percent Solids for Spike Sample: 79

		Acceptance	Spiked	Conc.	Sample	Conc.	Spike	Dilution	%		Analysis
Analyte	Units	Limit %R	Result	Qualifier	Result	Qualifier	Added	Factor	Rec	Qual	Date
Cyanide	mg/Kg	75-125	2.40		0.096	J	2.5	1	92		06/09/2025

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#### **Duplicate Sample Summary**

Client: Nobis Group SDG No.: Q2259

Project: Raymark Superfund Site Sample ID: Q2259-06

Client ID: OU4-TS-30-060525DUP Percent Solids for Spike Sample: 79

		Acceptance	Sample	Conc.	Duplicate	Conc.	Dilution	RPD/		Analysis	
Analyte	Units	Limit	Result	Qualifier	Result	Qualifier	Factor	AD	Qual	Date	
Cvanide	mg/Kg	+/-20	0.096	J	0.097	J	1	1		06/09/2025	

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#### **Duplicate Sample Summary**

Client: Nobis Group SDG No.: Q2259

**Project:** Raymark Superfund Site Sample ID: Q2259-06

Client ID: OU4-TS-30-060525MSD Percent Solids for Spike Sample: 79

Analyte	Units	Acceptance Limit	Sample Result	Conc. Qualifier	Duplicate Result	Conc. Qualifier	Dilution Factor	RPD/ AD	Qual	Analysis Date	
Cvanide	mg/Kg	+/-20	2.40		2.40		1	0		06/09/2025	

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#### **Laboratory Control Sample Summary**

Client: Nobis Group SDG No.: Q2259

Project: Raymark Superfund Site Run No.: LB136063

Analyte		Units	True Value	Result	Conc. Qualifier	% Recovery	Dilution Factor	Acceptance Limit %R	Analysis Date
Sample ID	PB168361BS								
Cvanide		mσ/Kσ	5	4 70		94	1	85-115	06/09/2025

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## RAW DATA

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

Reviewed by : Reviewed by : Reviewed Instrument ID : Konelab

6/9/2025 13:21

Test: Total CN

Sample Id	Result	Dil. 1 +	Response	Errors	
ICV1 ICB1 CCV1 CCB1 PB168347BL PB168347BS LOWPB168347 HIGHPB168347 Q2243-02 Q2243-02DUP Q2243-02MS Q2243-02MS Q2243-02MSD PB168361BL PB168361BS CCV2 CCB2 Q2259-01 Q2259-01 Q2259-05 Q2259-06 Q2259-06 Q2259-06MS Q2259-06MSD CCV3 CCB3	95.393 0.880 237.625 0.620 0.583 95.810 9.979 479.472 4.585 4.356 39.843 39.062 0.722 93.774 228.232 0.602 2.281 1.751 2.245 1.537 1.544 38.504 38.959 237.053 0.906		0.079 0.001 0.197 0.001 0.079 0.008 0.397 0.004 0.004 0.033 0.033 0.001 0.078 0.189 0.001 0.002 0.002 0.002 0.002 0.002 0.002 0.002 0.002 0.0032 0.032 0.032 0.032	99% (90-110) 95% (90-110)	0610912025 RM

N Mean SD CV%

25 66.253 115.1547 173.81

Q2259-GENCHEM

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Aquakem v. 7.2AQ1 Results from time period:

Mon Jun 09 12:55:49 2025 Mon Jun 09 13:18:41 2025

Mon Jun 09 13	:18:41 202	25			
Sample Id	Sam/C	tr/c/ Test sho	ort r Test	type Result Result (	ınit Result date and time Stat
0.0PPBCN	Α	Total CI		0.5227 µg/l	6/9/2025 9:48:16
5.0PPBCN	Α	Total CN	N P	4.676 μg/l	6/9/2025 9:48:17
10PPBCN	Α	Total CN	V P	10.4764 μg/l	6/9/2025 9:48:18
50PPBCN	Α	Total CN	I ₽	49.6698 µg/l	6/9/2025 9:48:19
100PPBCN	Α	Total CN	I P	101.1189 μg/l	6/9/2025 9:48:20
250PPBCN	Α	Total CN	l P	247.4667 μg/l	6/9/2025 9:48:21
500PPBCN	Α	Total CN	l P	501.0696 μg/l	6/9/2025 9:48:22
ICV1	S	Total CN	Р	95.3933 µg/l	6/9/2025 12:55:50
ICB1	S	Total CN	Р	0.8797 μg/l	6/9/2025 12:55:51
CCV1	S	Total CN	Р	237.6246 µg/l	6/9/2025 12:55:54
CCB1	S	Total CN	Р	0.6199 μg/l	6/9/2025 12:55:56
PB168347BL	S	Total CN	Р	0.5834 μg/l	6/9/2025 12:55:58
PB168347BS	S	Total CN	Р	95.8097 µg/l	6/9/2025 12:55:59
LOWPB168347	S	Total CN	Р	9.9789 µg/l	6/9/2025 13:03:25
HIGHPB168347	S	Total CN	Р	479.4719 μg/l	6/9/2025 13:03:28
Q2243-02	S	Total CN	Р	4.5847 µg/l	6/9/2025 13:03:29
Q2243-02DUP	S	Total CN	Р	4.3561 µg/l	6/9/2025 13:03:30
Q2243-02MS	S	Total CN	Р	39.8433 µg/l	6/9/2025 13:03:31
Q2243-02MSD	S	Total CN	Р	39.0624 μg/l	6/9/2025 13:03:32
PB168361BL	S	Total CN	Р	0.7219 µg/l	6/9/2025 13:03:34
PB168361BS	S	Total CN	Р	93.7741 µg/l	6/9/2025 13:10:57
CCV2	S	Total CN	Р	228.2317 µg/l	6/9/2025 13:10:59
CCB2	S	Total CN	Р	0.602 µg/l	6/9/2025 13:11:01
Q2259-01	S	Total CN	Р	2.2807 μg/l	6/9/2025 13:11:02
Q2259-03	S	Total CN	Р	1.7509 μg/l	6/9/2025 13:11:03
Q2259-05	S	Total CN	Р	2.2445 μg/l	6/9/2025 13:11:04
Q2259-06	S	Total CN	Р	1.5368 µg/l	6/9/2025 13:11:06
Q2259-06DUP	S	Total CN	Р	1.5439 µg/l	6/9/2025 13:18:31
Q2259-06MS	S	Total CN	Р	38.5041 μg/l	6/9/2025 13:18:35
Q2259-06MSD	S	Total CN	Р	38.9593 µg/l	6/9/2025 13:18:36
CCV3	S	Total CN	P	237.0526 µg/l	6/9/2025 13:18:38
CCB3	S	Total CN	Р	0.9061 µg/l	6/9/2025 13:18:40
				ro	V. V. ZVZV 10.10.40

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Calibration results

Aquakem 7.2AQ1

LB:LB136063 Page:

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

Reviewed by :  $\underline{RM}$  Instrument ID : Konelab

6/9/2025 9:54

Test Total CN

Accepted

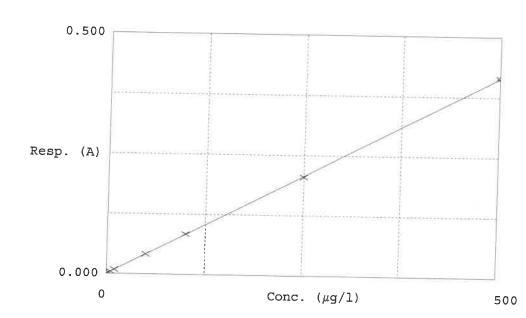
6/9/2025 9:54

Factor Bias

1209

Coeff. of det. 0.999954

Errors



	Calibrator	Response	Calc. con.	Conc.	Errors
1 2 3 4 5 6 7	0.0PPBCN 5.0PPBCN 10PPBCN 50PPBCN 100PPBCN 250PPBCN 500PPBCN	0.001 0.004 0.009 0.041 0.084 0.205 0.415	0.5227 4.6760 10.4764 49.6698 101.1189 247.4667 501.0696	0.0000 5.0000 10.0000 50.0000 100.0000 250.0000	-6.5 4.0 -0.7 1.1 -1.0

06/09/2025 RM

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PB168361



SOP ID:	M9012B-Total.	Amenable and	Deactive	Cyanida-20
501 ID 1	MIDUIZO-TOLOI,	Afficiable and	Keachve	CVanine-711

SDG No:

N/A

Start Digest Date: 06/09/2025

Time: 10:00

Temp: 124 °C

Matrix:

SOIL

WC

End Digest Date: 06/09/2025

Time: 11:30

Temp: 126 °C

Pippete ID:

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:

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Standared Name	MLS USED	STD REF. # FROM LOG	
LCSS	1.0ML	WP112995	
MS/MSD SPIKE SOL.	0.40ML	WP113319	
PBS003	50.0ML	W3112	
N/A	N/A	N/A	
N/A	N/A	N/A	

Chemical Used	ML/SAMPLE USED	Lot Number
0.25N NaOH	50.0ML	WP111294
50% v/v H2SO4	5.0ML	WP112826
51% w/v MgCL2	2.0ML	WP112827
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	N/A	AS PER PB168347
ICB	ICB	N/A	N/A
CCV	CCV	N/A	N/A
ССВ	ССВ	N/A	N/A
Midrange	Midrange	N/A	N/A
HIGHSTD	HIGHSTD	N/A	AS PER PB168347
LOWSTD	LOWSTD	N/A	AS PER PB168347

#### **Extraction Conformance/Non-Conformance Comments:**

N/A

Date / Time Prepped Sample Relinquishe	By/Location Received By/Location
6/09/2025 11.40 - 50/6	e RMCWC7
Preparation Group	Analysis Group



#### Soll/Sludge Cyanide Preparation Sheet

PB168361

Lab Sample ID	Client Sample ID	Initial Weight (g)	Final Vol (ml)	pH	Sulfide	Oxidizing	Nitrate/ Nitrite	Comment	Prep
PB168361BL	PBS361	1.00	50	N/A	N/A	N/A	N/A	N/A	N/A
PB168361BS	LCS361	1.00	50	N/A	N/A	N/A	N/A	N/A	N/A
Q2259-01	OU4-PCS-TC-36-060525	1.02	50	N/A	N/A	N/A	N/A	N/A	N/A
Q2259-03	OU4-PCS-TC-37-060525	1.04	50	N/A	N/A	N/A	N/A	N/A	N/A
Q2259-05	OU4-TS-29-060525	1.04	50	N/A	N/A	N/A	N/A	N/A	N/A
Q2259-06	OU4-TS-30-060525	1.01	50	N/A	N/A	N/A	N/A	N/A	N/A
Q2259-06DUP	OU4-TS-30-060525DUP	1.01	50	N/A	N/A	N/A	N/A	N/A	N/A
)2259-06MS	OU4-TS-30-060525MS	1.02	50	N/A	N/A	N/A	N/A	N/A	N/A
2259-06MSD	OU4-TS-30-060525MSD	1.01	50	N/A	N/A	N/A	N/A	N/A	N/A

# WORKLIST(Hardcopy Internal Chain)

	25 07:33:51	Method	9012B	9012B	9012B	9012B
	Date: 06-09-2025 07:33:51	Collect Date Method	06/05/2025 9012B	06/05/2025 9012R	06/05/2025 9012B	06/05/2025 9012B
	0	Raw Sample Storage Location	D21	D21	D21	D21
<b>(</b>	stillation	Customer	NOBI03	NOBI03	NOBI03	NOBI03
WORKLIST(Hardcopy Internal Chain)	Department: Distillation	Preservative	Cool 4 deg C	Cool 4 deg C	Cool 4 deg C	Cool 4 deg C
WORKLIST(H	WorkList ID: 190019	Test	Cyanide	Cyanide	Cyanide	Cyanide
	WorkList	Matrix Test	Solid	Solid	Solid	Solid
	CN Q2259 SOLIDS	Customer Sample	OU4-PCS-TC-36-060525	OU4-PCS-TC-37-060525	OU4-TS-29-060525	OU4-TS-30-060525
Q2259-0	MorkList Name:	Sample	Q2259-01	Q2259-03	Q2259-05	Q2259-06

Date/Time 06/09/2025 Raw Sample Received by:

Raw Sample Relinquished by:

Page 1 of 1

Date/Time 06/09/202

Raw Sample Relinquished by: Raw Sample Received by:

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**Instrument ID:** 

**KONELAB** 

#### Daily Analysis Runlog For Sequence/QCBatch ID # LB136063

Review By	rub	ina	Review On	6/10/2025 10:17:15 AM	
Supervise By	lwc	ona	Supervise On	6/10/2025 11:45:46 AM	
SubDirectory	LB	136063	Test	Cyanide	
STD. NAME STD REF.#					
ICAL Standard	ICAL Standard WP113433,WP113434,WP113435,WP113436,WP113437,WP			13438,WP113439	
ICV Standard		W3012			
CCV Standard		WP113434			
ICSA Standard		N/A			
CRI Standard		N/A			
LCS Standard	WP112995				
Chk Standard	WP112643,WP112900,WP113441				

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	0.0PPBCN	0.0PPBCN	CAL1	06/09/25 09:48		rubina	ок
2	5.0PPBCN	5.0PPBCN	CAL2	06/09/25 09:48		rubina	ок
3	10PPBCN	10PPBCN	CAL3	06/09/25 09:48		rubina	ок
4	50PPBCN	50PPBCN	CAL4	06/09/25 09:48		rubina	ок
5	100PPBCN	100PPBCN	CAL5	06/09/25 09:48		rubina	ок
6	250PPBCN	250PPBCN	CAL6	06/09/25 09:48		rubina	ок
7	500PPBCN	500PPBCN	CAL7	06/09/25 09:48		rubina	ок
8	ICV1	ICV1	ICV	06/09/25 12:55		rubina	ок
9	ICB1	ICB1	ICB	06/09/25 12:55		rubina	ок
10	CCV1	CCV1	CCV	06/09/25 12:55		rubina	ок
11	CCB1	CCB1	ССВ	06/09/25 12:55		rubina	ОК
12	PB168347BL	PB168347BL	MB	06/09/25 12:55		rubina	ОК
13	PB168347BS	PB168347BS	LCS	06/09/25 12:55		rubina	ОК
14	LOWPB168347	LOWPB168347	SAM	06/09/25 13:03		rubina	ОК
15	HIGHPB168347	HIGHPB168347	SAM	06/09/25 13:03		rubina	ок
16	Q2243-02	WATER-TREATMENT	SAM	06/09/25 13:03		rubina	ок
17	Q2243-02DUP	WATER-TREATMENT	DUP	06/09/25 13:03		rubina	ОК
18	Q2243-02MS	WATER-TREATMENT	MS	06/09/25 13:03		rubina	OK

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**Instrument ID:** 

KONELAB

#### Daily Analysis Runlog For Sequence/QCBatch ID # LB136063

Review By	rub	ina	Review On	6/10/2025 10:17:15 AM	
Supervise By	lwc	ona	Supervise On	6/10/2025 11:45:46 AM	
SubDirectory	LB	136063	Test	Cyanide	
STD. NAME STD REF.#					
ICAL Standard	WP113433,WP113434,WP113435,WP113436,WP113437,WP113438,WP1			13438,WP113439	
ICV Standard		W3012			
CCV Standard		WP113434			
ICSA Standard		N/A			
CRI Standard		N/A			
LCS Standard	WP112995				
Chk Standard		WP112643,WP112900,\	NP113441		

19	Q2243-02MSD	WATER-TREATMENT	MSD	06/09/25 13:03	rubina	ОК
20	PB168361BL	PB168361BL	MB	06/09/25 13:03	rubina	ОК
21	PB168361BS	PB168361BS	LCS	06/09/25 13:10	rubina	ОК
22	CCV2	CCV2	CCV	06/09/25 13:10	rubina	ОК
23	CCB2	CCB2	ССВ	06/09/25 13:11	rubina	ОК
24	Q2259-01	OU4-PCS-TC-36-0609	SAM	06/09/25 13:11	rubina	ОК
25	Q2259-03	OU4-PCS-TC-37-060	SAM	06/09/25 13:11	rubina	ОК
26	Q2259-05	OU4-TS-29-060525	SAM	06/09/25 13:11	rubina	ОК
27	Q2259-06	OU4-TS-30-060525	SAM	06/09/25 13:11	rubina	ОК
28	Q2259-06DUP	OU4-TS-30-060525DI	DUP	06/09/25 13:18	rubina	ОК
29	Q2259-06MS	OU4-TS-30-060525M	MS	06/09/25 13:18	rubina	ОК
30	Q2259-06MSD	OU4-TS-30-060525M	MSD	06/09/25 13:18	rubina	ОК
31	CCV3	CCV3	CCV	06/09/25 13:18	rubina	ОК
32	ССВ3	CCB3	ССВ	06/09/25 13:18	rubina	OK

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#### **Prep Standard - Chemical Standard Summary**

Order ID: Q2259

Test: Cyanide, Percent Solids

Prepbatch ID: PB168361,

Sequence ID/Qc Batch ID: LB136063,

#### Standard ID:

WP111294,WP112643,WP112826,WP112827,WP112900,WP112995,WP113319,WP113432,WP113433,WP113434,WP113435,WP113436,WP113437,WP113438,WP113439,WP113441,

#### Chemical ID:

M6041, M6151, W2668, W3012, W3019, W3112, W3113, W3139, W3152, W3173, W3203, W3214, W3172, W3172,

Q2259-GENCHEM **30 of 65** 

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Recipe ID	NAME.	NO.	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By Iwona Zarych
11	,	<u>WP111294</u>	01/07/2025	07/07/2025		WETCHEM_S		
	solution 0.25 N				Shaik	CALE_5 (WC		01/07/2025
EDOM	21 00000L of W3112 + 210 00000gra	m of \M/3113	3 = Final Oua	untity: 21 000 L	•	SC-5)		

<u>FROM</u>	21.00000L of W3112 + 210.00000gram of W3113 = Final Quantity: 21.000 L

Recipe ID	NAME.	NO.	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By Iwona Zarych
539	CN BUFFER	<u>WP112643</u>	04/09/2025	10/09/2025	Niha Farheen Shaik	WETCHEM_S CALE 5 (WC	None	0.4/00/0005
					Stiaik	SC-5)		04/09/2025

FROM 138.00000gram of W2668 + 862.00000ml of W3112 = Final Quantity: 1000.000 ml

Q2259-GENCHEM 31 of 65

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Recipe ID 1714	NAME Sulfuric Acid, 50% (v/v)	NO. WP112826	Prep Date 04/25/2025	Expiration Date 10/25/2025	<u>Prepared</u> <u>By</u> Rubina Mughal	ScaleID None	PipetteID None	Supervised By Iwona Zarych
								04/25/2025
EDOM	1000 00000ml of M6041 + 1000 000	Oml of W31	12 = Final O	uantity: 2000 0	00 ml			

<u>FROM</u>	1000.00000mi of M6041 + $1000.00000$ mi of W3112 = Final Quantity: 2000.000 mi	

Recipe ID	NAME_	NO.	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By Iwona Zarych
3214	-3	WP112827	04/25/2025	10/25/2025	Rubina Mughal	WETCHEM_S		·
	2.5M(51%W/V)					CALE_8 (WC		04/25/2025

FROM 500.00000ml of W3112 + 510.00000gram of W3152 = Final Quantity: 1000.000 ml

Q2259-GENCHEM **32 of 65** 



Recipe				Expiration	Prepared			Supervised By		
<u>ID</u>	NAME	NO.	Prep Date	<u>Date</u>	Ву	<u>ScaleID</u>	<u>PipetteID</u>	Iwona Zarych		
607	PYRIDINE-BARBITURIC ACID	WP112900	05/01/2025	08/18/2025	Rubina Mughal	WETCHEM_S	Glass	,		
						CALE_8 (WC	Pipette-A	05/01/2025		
FROM	145 00000ml of W3112 + 15 00000gram of W3203 + 15 00000ml of M6151 + 75 00000ml of W3019 = Final Quantity: 250 000									

ROM	145.00000ml of W3112 + 15.00000gram of W3203 + 15.00000ml of M6151 + 75.00000ml of W3019 = Final Quantity: 250.000
	ml

Recipe ID	NAME	<u>NO.</u>	Prep Date	Expiration Date	<u>Prepared</u> <u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By  Jignesh Parikh
3371	Cyanide LCS Spike Solution, 5PPM	<u>WP112995</u>	05/07/2025	07/07/2025	lwona Zarych	None	WETCHEM_P IPETTE_3 (WC)	ŭ

FROM 1.00000ml of W3173 + 199.00000ml of WP111294 = Final Quantity: 200.000 ml

Q2259-GENCHEM 33 of 65

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Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By Iwona Zarych		
3850	Cyanide MS-MSD spiking solution, 5PPM	<u>WP113319</u>	06/02/2025	07/07/2025	Rubina Mughal	None	WETCHEM_F IPETTE_3	06/02/2025		
FROM	(WC)									

Recipe ID	<u>NAME</u>	NO.	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipettelD</u>	Supervised By Iwona Zarych
3456	Cyanide Intermediate Working Std, 5PPM	WP113432	06/09/2025	06/10/2025	Rubina Mughal	None	WETCHEM_F IPETTE_3 (WC)	06/10/2025

FROM 0.25000ml of W3214 + 49.75000ml of WP111294 = Final Quantity: 50.000 ml

Q2259-GENCHEM **34 of 65** 



Recipe ID	<u>NAME</u>	<u>NO.</u>	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipettelD</u>	Supervised By Iwona Zarych		
4	Calibation standard 500 ppb	WP113433	06/09/2025	06/10/2025	Rubina Mughal	None	WETCHEM_P IPETTE_3	,		
FROM	FROM 45.00000ml of WP111294 + 5.00000ml of WP113432 = Final Quantity: 50.000 ml									

Recipe ID	NAME	<u>NO.</u>	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By Iwona Zarych
3761	Calibration-CCV CN Standard 250 ppb	<u>WP113434</u>	06/09/2025	06/10/2025	Rubina Mughal	None	WETCHEM_F IPETTE_3	06/10/2025

**FROM** 2.50000ml of WP113432 + 47.50000ml of WP111294 = Final Quantity: 50.000 ml

Q2259-GENCHEM 35 of 65



Recipe ID	NAME.	NO.	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipettelD</u>	Supervised By Iwona Zarych			
6	Calibration Standard 100 ppb	<u>WP113435</u>	06/09/2025	06/10/2025	Rubina Mughal	None	WETCHEM_P IPETTE_3	06/10/2025			
FROM	(WC)										

Recipe ID	<u>NAME</u>	<u>NO.</u>	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipetteID</u>	Supervised By Iwona Zarvch
7	Calibration Standard 50 ppb	<u>WP113436</u>	06/09/2025	06/10/2025	Rubina Mughal	None	WETCHEM_F IPETTE_3	, .

FROM 0.50000ml of WP113432 + 49.50000ml of WP111294 = Final Quantity: 50.000 ml

Q2259-GENCHEM 36 of 65



### Wet Chemistry STANDARD PREPARATION LOG

Recipe				Expiration	Prepared			Supervised By
<u>ID</u>	<u>NAME</u>	NO.	Prep Date	<u>Date</u>	Ву	<u>ScaleID</u>	<u>PipetteID</u>	Iwona Zarych
8	Calibration Standard 10 ppb	WP113437	06/09/2025	06/10/2025	Rubina Mughal	None	WETCHEM_F	
							IPETTE_3	06/10/2025
FROM	1.00000ml of WP113433 + 49.00000ml of WP111294 = Final Quantity: 50.000 ml							

Recipe ID	<u>NAME</u>	<u>NO.</u>	Prep Date	Expiration Date	Prepared By	<u>ScaleID</u>	<u>PipettelD</u>	Supervised By Iwona Zarvch
9	Calibration Standard 5 ppb	WP113438	06/09/2025	06/10/2025	Rubina Mughal	None	WETCHEM_F IPETTE_3	, .

FROM 0.50000ml of WP113433 + 49.50000ml of WP111294 = Final Quantity: 50.000 ml

Q2259-GENCHEM **37 of 65** 



### Wet Chemistry STANDARD PREPARATION LOG

Recipe				Expiration	<u>Prepared</u>			Supervised By
<u>ID</u>	<u>NAME</u>	NO.	Prep Date	<u>Date</u>	<u>By</u>	<u>ScaleID</u>	<u>PipetteID</u>	lwona Zarych
167	0 ppb CN calibration std	WP113439	06/09/2025	06/10/2025	Rubina Mughal	None	None	•
								06/10/2025
FROM	<b>ROM</b> 50.0000ml of WP111294 = Final Quantity: 50.000 ml							

		Iwona Zarych
1582 Chloramine T solution, 0.014M <u>WP113441</u> 06/09/2025 06/10/2025 Rubina Mughal WETCHEM_S	Glass	
CALE_5 (WC SC-5)	Pipette-A	06/10/2025

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

Q2259-GENCHEM 38 of 65



### **CHEMICAL RECEIPT LOG BOOK**

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	08/16/2024 / mohan	08/16/2024 / mohan	M6041
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)	22G2862015	08/18/2025	02/18/2025 / Sagar	01/15/2025 / Sagar	M6151
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, CRYS, 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 #
EPA	/ ICV-CN	ICV6-400	12/31/2025	01/08/2025 / lwona	02/20/2020 / Iwona	W3012
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 / Iwona	04/03/2023 / Iwona	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 / Iwona	07/03/2024 / Iwona	W3112

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### **CHEMICAL RECEIPT LOG BOOK**

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	PC19510-7 / Sodium Hydroxide Pellets 12 Kg	23B1556310	12/31/2025	07/08/2024 / Iwona	07/08/2024 / Iwona	W3113
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 / Iwona	09/09/2024 / Iwona	W3139
Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	01237-10KG / Megnasium Chloride Hexahydrate ACS 10KG	002126-2019-201	11/25/2029	11/25/2024 / Iwona	11/25/2024 / Iwona	W3152
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	45010168	07/17/2025	01/24/2025 / Iwona	01/24/2025 / Iwona	W3173
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	WXBF3271V	05/16/2029	04/21/2025 / Iwona	04/21/2025 / Iwona	W3203
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	1505H73	11/30/2025	05/21/2025 / Iwona	05/21/2025 / Iwona	W3214

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W3019 lec 4/3/23

3050 Spruce Street, Saint Louis, MO 63103, USA

Website: www.sigmaaldrich.com Email USA: techserv@sial.com Outside USA: eurtechserv@sial.com

Product Name:

# **Certificate of Analysis**

Pyridine - anhydrous, 99.8%

**Product Number:** 

270970

**Batch Number:** 

SHBQ2113

Brand:

SIAL

CAS Number:

110-86-1

MDL Number:

MFCD00011732

Formula:

C5H5N

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. 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.





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

R: 02/20/20

**APTIM** 

### Instructions for QATS Reference Material: Inorganic ICV Solutions

For ICP-MS use: dilute the ICV1 concentrate 50-fold with 1% (v/v) nitric acid; pipet 2 mL of the concentrate into a 100 mL volumetric flask and dilute to volume with 1% (v/v) nitric acid.

W3017

ICV5-0415

For the cold vapor analysis of mercury by AA: dilute the ICV5 concentrate 100-fold with 2% (v/v) nitric acid; pipet 1 mL of the 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<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub> and 5% (v/v) nitric acid.

W3013 W3014 W3015

ICV6-0400

For the analysis of cyanide: dilute the ICV6 concentrate 100-fold with Type II water; pipet 1 mL of the 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<sub>3</sub>Fe(CN)<sub>6</sub>, 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)
Ai	2520	504
Sb	1010	202
As	997	199
Ва	518	104
Be	514	103
Cd	514	103
Ca	10000	2000
Cr	517	103
Co	521	104
Cu	505	101
Fe	10100	2020
Pb	1030	206
Mg	5990	1198
Mn	524	105
Ni	525	105
K	9940	1988
Se	1030	206
Ag	252	50
Na	10100	2020
TI	1040	208
V	504	101
Zn	1010	202

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

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





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 SO2)	≤ 2 ppm	< 2 ppm
Ammonium (NH <sub>4</sub> )	≤ 1 ppm	1 ppm
Chloride (CI)	≤ 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 (AI)	≤ 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
Frace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Frace Impurities – Gold (Au)	≤ 10.0 ppb	0.5 ppb
Heavy Metals (as Pb)	≤ 500.0 ppb	< 100.0 ppb
race Impurities – Iron (Fe)	≤ 50.0 ppb	1.3 ppb
race Impurities – Lead (Pb)	≤ 0.5 ppb	< 0.5 ppb
race Impurities - Magnesium (Mg)	≤ 7.0 ppb	0.8 ppb
race Impurities – Manganese (Mn)	≤ 1.0 ppb	< 0.4 ppb
race Impurities – Mercury (Hg)	≤ 0.5 ppb	< 0.1 ppb
race Impurities – Nickel (Ni)	≤ 2.0 ppb	0.3 ppb
race Impurities – Potassium (K)	≤ 500.0 ppb	< 2.0 ppb
race Impurities - Selenium (Se)	≤ 50.0 ppb	< 0.1 ppb
race Impurities – Silicon (Si)	≤ 100.0 ppb	31.5 ppb
race Impurities – Silver (Ag)	≤ 1.0 ppb	< 0.3 ppb

>>> Continued on page 2 >>>

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





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

Test	Coocification	D 1
	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

James Techie Jamie Ethier Vice President Global Quality

Q2259-GENCHEM-





M 6151

R-> 1/15/25

Material No.: 9530-33 Batch No.: 22G2862015

Manufactured Date: 2022-06-15

Retest Date: 2027-06-14

Revision No.: 0

# Certificate of Analysis

Test	Specification	Result
ACS - Assay (as HCI) (by acid-base titrn)	36.5 - 38.0 %	
ACS - Color (APHA)	≤ 10	37.9 %
ACS - Residue after Ignition	≤ 3 ppm	5
ACS - Specific Gravity at 60°/60°F	≥ 3 ppm 1.185 – 1.192	< 1 ppm
ACS – Bromide (Br)	≤ 0.005 %	1.191
ACS - Extractable Organic Substances		< 0.005 %
ACS - Free Chlorine (as Cl <sub>2</sub> )	≤ 5 ppm	< 1 ppm
Phosphate (PO <sub>4</sub> )	≤ 0.5 ppm	< 0.5 ppm
Sulfate (SO <sub>4</sub> )	≤ 0.05 ppm	< 0.03 ppm
Sulfite (SO <sub>3</sub> )	≤ 0.5 ppm	< 0.3 ppm
Ammonium (NH <sub>4</sub> )	≤ 0.8 ppm	0.3 ppm
Trace Impurities - Arsenic (As)	≤ 3 ppm	< 1 ppm
Trace Impurities – Aluminum (AI)	≤ 0.010 ppm	< 0.003 ppm
Arsenic and Antimony (as As)	≤ 10.0 ppb	1.3 ppb
Trace Impurities - Barium (Ba)	≤ 5.0 ppb	< 3.0 ppb
Trace Impurities – Beryllium (Be)	≤ 1.0 ppb	0.2 ppb
Trace Impurities – Bismuth (Bi)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Boron (B)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Cadmium (Cd)	≤ 20.0 ppb	< 5.0 ppb
	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities - Calcium (Ca)	≤ 50.0 ppb	163.0 ppb
Trace Impurities – Chromium (Cr)	≤ 1.0 ppb	0.7 ppb
Frace Impurities - Cobalt (Co)	≤ 1.0 ppb	< 0.3 ppb
Frace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Frace Impurities – Gallium (Ga)	≤ 1.0 ppb	< 0.2 ppb
race Impurities – Germanium (Ge)	≤ 3.0 ppb	< 2.0 ppb
race Impurities – Gold (Au)	≤ 4.0 ppb	0.6 ppb
leavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
race Impurities – Iron (Fe)	≤ 15 ppb	6 ppb

>>> Continued on page 2 >>>

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





Material No.: 9530-33 Batch No.: 22G2862015

Trace Impurities – Lead (Pb)	Test	Specification	Result
Trace Impurities – Lithium (Li) ≤ 1.0 ppb < 0.2 ppb  Trace Impurities – Magnesium (Mg) ≤ 10.0 ppb 2.9 ppb  Trace Impurities – Manganese (Mn) ≤ 1.0 ppb < 0.4 ppb  Trace Impurities – Mercury (Hg) ≤ 0.5 ppb 0.1 ppb  Trace Impurities – Molybdenum (Mo) ≤ 10.0 ppb < 3.0 ppb  Trace Impurities – Nickel (Ni) ≤ 4.0 ppb < 0.3 ppb  Trace Impurities – Nickel (Ni) ≤ 1.0 ppb 0.8 ppb  Trace Impurities – Niobium (Nb) ≤ 1.0 ppb 0.8 ppb  Trace Impurities – Potassium (K) ≤ 9.0 ppb < 2.0 ppb  Trace Impurities – Selenium (Se), For Information Only  Trace Impurities – Silicon (Si) ≤ 100.0 ppb 1.0 ppb  Trace Impurities – Silicon (Si) ≤ 1.0 ppb 0.5 ppb  Trace Impurities – Sodium (Na) ≤ 100.0 ppb 2.3 ppb  Trace Impurities – Sodium (Na) ≤ 10.0 ppb 1.6 ppb  Trace Impurities – Tantalum (Ta) ≤ 1.0 ppb 1.6 ppb  Trace Impurities – Tantalum (Ti) ≤ 5.0 ppb 4.0 ppb  Trace Impurities – Titanium (Ti) ≤ 5.0 ppb 1.5 ppb  Trace Impurities – Titanium (Ti) ≤ 1.0 ppb 1.5 ppb  Trace Impurities – Titanium (Ti) ≤ 5.0 ppb 0.2 ppb  Trace Impurities – Titanium (Ti) ≤ 5.0 ppb 0.8 ppb	Trace Impurities – Lead (Pb)	≤ 1.0 ppb	
Trace Impurities - Magnesium (Mg) ≤ 10.0 ppb 2.9 ppb  Trace Impurities - Manganese (Mn) ≤ 1.0 ppb < 0.4 ppb  Trace Impurities - Mercury (Hg) ≤ 0.5 ppb 0.1 ppb  Trace Impurities - Molybdenum (Mo) ≤ 10.0 ppb < 3.0 ppb  Trace Impurities - Nickel (Ni) ≤ 4.0 ppb < 0.3 ppb  Trace Impurities - Nickel (Ni) ≤ 1.0 ppb 0.8 ppb  Trace Impurities - Potassium (K) ≤ 9.0 ppb < 2.0 ppb  Trace Impurities - Selenium (Se), For Information Only  Trace Impurities - Selenium (Se), For Information Only  Trace Impurities - Silicon (Si) ≤ 100.0 ppb < 10.0 ppb  Trace Impurities - Silver (Ag) ≤ 1.0 ppb 0.5 ppb  Trace Impurities - Sodium (Na) ≤ 100.0 ppb 2.3 ppb  Trace Impurities - Sodium (Na) ≤ 10.0 ppb 0.5 ppb  Trace Impurities - Tantalum (Ta) ≤ 1.0 ppb 1.6 ppb  Trace Impurities - Tantalum (Ta) ≤ 1.0 ppb 4.0 ppb  Trace Impurities - Tin (Sn) ≤ 5.0 ppb 4.0 ppb  Trace Impurities - Titanium (Ti) ≤ 5.0 ppb 5.0 ppb 1.5 ppb  Trace Impurities - Titanium (Ti) ≤ 1.0 ppb 0.2 ppb  Trace Impurities - Titanium (Ti) ≤ 1.0 ppb 0.2 ppb  Trace Impurities - Titanium (Ti) ≤ 1.0 ppb 0.8 ppb	Trace Impurities - Lithium (Li)	≤ 1.0 ppb	• •
Trace Impurities - Manganese (Mn)       ≤ 1.0 ppb       < 0.4 ppb	Trace Impurities – Magnesium (Mg)	≤ 10.0 ppb	• •
Trace Impurities - Mercury (Hg)       ≤ 0.5 ppb       0.1 ppb         Trace Impurities - Molybdenum (Mo)       ≤ 10.0 ppb       < 3.0 ppb	Trace Impurities - Manganese (Mn)	≤ 1.0 ppb	-
Trace Impurities - Molybdenum (Mo) ≤ 10.0 ppb < 3.0 ppb  Trace Impurities - Nickel (Ni) ≤ 4.0 ppb < 0.3 ppb  Trace Impurities - Niobium (Nb) ≤ 1.0 ppb	Trace Impurities - Mercury (Hg)	≤ 0.5 ppb	
Trace Impurities - Nickel (Ni) ≤ 4.0 ppb < 0.3 ppb  Trace Impurities - Niobium (Nb) ≤ 1.0 ppb	Trace Impurities – Molybdenum (Mo)	≤ 10.0 ppb	
Trace Impurities - Niobium (Nb) ≤ 1.0 ppb 0.8 ppb  Trace Impurities - Potassium (K) ≤ 9.0 ppb < 2.0 ppb  Trace Impurities - Selenium (Se), For Information Only  Trace Impurities - Silicon (Si) ≤ 100.0 ppb < 10.0 ppb  Trace Impurities - Silver (Ag) ≤ 1.0 ppb 0.5 ppb  Trace Impurities - Sodium (Na) ≤ 100.0 ppb 2.3 ppb  Trace Impurities - Strontium (Sr) ≤ 1.0 ppb 2.3 ppb  Trace Impurities - Strontium (Sr) ≤ 1.0 ppb 4.0 ppb  Trace Impurities - Tantalum (Ta) ≤ 1.0 ppb 1.6 ppb  Trace Impurities - Thallium (Tl) ≤ 5.0 ppb 4.0 ppb  Trace Impurities - Tin (Sn) 5.0 ppb 1.5 ppb  Trace Impurities - Titanium (Ti) 5.0 ppb 5.0 ppb 6.2 ppb  Trace Impurities - Titanium (Ti) 5.0 ppb 6.2 ppb  Trace Impurities - Vanadium (V) 5.0 ppb 6.8 ppb  Trace Impurities - Zirconium (Zr) 5.0 ppb 6.8 ppb	Trace Impurities - Nickel (Ni)	≤ 4.0 ppb	• •
Trace Impurities - Potassium (K)       ≤ 9.0 ppb       < 2.0 ppb	Trace Impurities - Niobium (Nb)	≤ 1.0 ppb	
Trace Impurities – Selenium (Se), For Information Only  Trace Impurities – Silicon (Si)  ≤ 100.0 ppb  < 10.0 ppb  7 race Impurities – Silver (Ag)  Trace Impurities – Sodium (Na)  Trace Impurities – Sodium (Na)  5 100.0 ppb  2.3 ppb  7 race Impurities – Strontium (Sr)  7 race Impurities – Tantalum (Ta)  Trace Impurities – Thallium (Tl)  5 1.0 ppb  6 2.0 ppb  7 race Impurities – Tin (Sn)  7 race Impurities – Titanium (Ti)  7 race Impurities – Titanium (Ti)  7 race Impurities – Vanadium (V)  7 race Impurities – Zinc (Zn)  7 race Impurities – Zirconium (Zz)  7 race Impurities – Zirconium (Zz)  7 race Impurities – Zirconium (Zz)	Trace Impurities - Potassium (K)	≤ 9.0 ppb	
Trace Impurities - Silicon (Si)       ≤ 100.0 ppb       < 10.0 ppb	Trace Impurities – Selenium (Se), For Information Only		
Trace Impurities - Silver (Ag)       ≤ 1.0 ppb       0.5 ppb         Trace Impurities - Sodium (Na)       ≤ 100.0 ppb       2.3 ppb         Trace Impurities - Strontium (Sr)       ≤ 1.0 ppb       < 0.2 ppb	Trace Impurities - Silicon (Si)	≤ 100.0 ppb	
Trace Impurities - Sodium (Na)       ≤ 100.0 ppb       2.3 ppb         Trace Impurities - Strontium (Sr)       ≤ 1.0 ppb       < 0.2 ppb	Trace Impurities - Silver (Ag)	≤ 1.0 ppb	
Trace Impurities - Strontium (Sr)       ≤ 1.0 ppb       < 0.2 ppb	Trace Impurities – Sodium (Na)	≤ 100.0 ppb	
Trace Impurities - Tantalum (Ta)       ≤ 1.0 ppb       1.6 ppb         Trace Impurities - Thallium (Tl)       ≤ 5.0 ppb       < 2.0 ppb	Trace Impurities - Strontium (Sr)	≤ 1.0 ppb	
Trace Impurities – Thallium (TI) $\leq 5.0 \text{ ppb}$ $< 2.0 \text{ ppb}$ Trace Impurities – Tin (Sn) $\leq 5.0 \text{ ppb}$ $4.0 \text{ ppb}$ Trace Impurities – Titanium (Ti) $\leq 1.0 \text{ ppb}$ $1.5 \text{ ppb}$ Trace Impurities – Vanadium (V) $\leq 1.0 \text{ ppb}$ $< 0.2 \text{ ppb}$ Trace Impurities – Zinc (Zn) $\leq 5.0 \text{ ppb}$ $0.8 \text{ ppb}$	Trace Impurities – Tantalum (Ta)	≤ 1.0 ppb	• • •
Trace Impurities - Tin (Sn)       ≤ 5.0 ppb       4.0 ppb         Trace Impurities - Titanium (Ti)       ≤ 1.0 ppb       1.5 ppb         Trace Impurities - Vanadium (V)       ≤ 1.0 ppb       < 0.2 ppb	Trace Impurities - Thallium (TI)	≤ 5.0 ppb	
Trace Impurities - Titanium (Ti)       ≤ 1.0 ppb       1.5 ppb         Trace Impurities - Vanadium (V)       ≤ 1.0 ppb       < 0.2 ppb	Trace Impurities - Tin (Sn)	≤ 5.0 ppb	••
Trace Impurities – Vanadium (V) ≤ 1.0 ppb < 0.2 ppb  Trace Impurities – Zinc (Zn) ≤ 5.0 ppb 0.8 ppb  Trace Impurities – Zirconium (Zr)	Trace Impurities - Titanium (Ti)	≤ 1.0 ppb	
Trace Impurities – Zinc (Zn) ≤ 5.0 ppb  Trace Impurities – Zirconium (Zr)	Trace Impurities - Vanadium (V)	≤ 1.0 ppb	
Trace Impurities - Zirconium (Zr)	Trace Impurities - Zinc (Zn)	≤ 5.0 ppb	
	Trace Impurities - Zirconium (Zr)		

>>> Continued on page 3 >>>

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





Material No.: 9530-33 Batch No.: 22G2862015

Test Specification Result

For Laboratory, Research, or Manufacturing Use Product Information (not specifications): Appearance (clear, furning liquid) Meets ACS Specifications Storage Condition: Store below 25 °C.

Country of Origin: USA

Packaging Site: Phillipsburg Mfg Ctr & DC



Q2259-GENCHEM

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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,

Specification	Result
98.0 - 102.0 %	99.5
4.1 - 4.5	4.3
<= 0.01 %	< 0.01
<= 5 ppm	< 5
<= 0.003 %	< 0.003
<= 0.005 %	<0.005
<= 0.01 %	< 0.01
<= 0.001 %	< 0.001
<= 0.001 %	< 0.001
	98.0 - 102.0 %  4.1 - 4.5  <= 0.01 %  <= 5 ppm  <= 0.003 %  <= 0.005 %  <= 0.01 %  <= 0.01 %

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

Country of Origin: IN

Packaging Site: Paris Mfg Ctr & DC



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



12/14/2022

12/31/2025

# **Sodium Hydroxide (Pellets)**

Material: 0583

Grade: ACS GRADE Batch Number: 23B1556310

Chemical Formula: NaOH Molecular Weight: 40

CAS #: 1310-73-2

Appearance: Storage: Room Temperature

**Pellets** 

TEST	SPECIFICATION	ANALYSIS	DISPOSITION
Calcium	<= 0.005 %	<0.005 %	PASS
Chloride	<= 0.005 %	0.002 %	PASS
Heavy Metals	<= 0.002 %	<0.002 %	PASS
Iron	<= 0.001 %	<0.001 %	PASS
Magnesium	<= 0.002 %	<0.002 %	PASS
Mercury	<= 0.1 ppm	<0.1 ppm	PASS
Nickel	<= 0.001 %	<0.001 %	PASS
Nitrogen Compounds	<= 0.001 %	<0.001 %	PASS
Phosphate	<= 0.001 %	<0.001 %	PASS
Potassium	<= 0.02 %	<0.02 %	PASS
Purity	>= 97.0 %	99.2 %	PASS
Sodium Carbonate	<= 1.0 %	0.5 %	PASS
Sulfate	<= 0.003 %	<0.003 %	PASS

Manufacture Date:

**Expiration Date:** 

Internal ID #: 710

### Signature Additional Information

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

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

Product meets analytical specifications of the grades listed.

VWR International LLC, Radnor Corporate Center, Suite 200, 100 Matsonford Road, Radnor, PA 19087, USA

Date Printed: 02/15/2023

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# **Sodium Hydroxide (Pellets)**

Material: 0583

Grade: ACS GRADE Batch Number: 23B1556310

Chemical Formula: NaOH Molecular Weight: 40

CAS #: 1310-73-2

Appearance:

**Pellets** 

Spec Set: 0583ACS

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

Storage: Room Temperature

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.

VWR International LLC, Radnor Corporate Center, Suite 200, 100 Matsonford Road, Radnor, PA 19087, USA

Date Printed: 02/15/2023

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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

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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.

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# Chem-Impex International, Inc.

Tel: (630) 766-2112 Fax: (630) 766-2218

E-mail: sales@chemimpex.com Web site: www.chemimpex.com

825 Dillon Drive

Shipping and Correspondence: Manufacturing site:

Wood Dale, IL 60191 Wood Dale, IL 60191

## Certificate of Analysis

Catalogue Number 01237

935 Dillon Drive

**Lot Number** 002126-2019-201

Product Magnesium chloride hexahydrate

Magnesium chloride•6H<sub>2</sub>O

CAS Number 7791-18-6 Molecular Formula MgCl₂•6H₂O

Molecular Weight 203.3

**Appearance** White crystals

**Solubility** 167 g in 100 mL water

Melting Point $\sim 115$  °CHeavy Metals4.393 ppm

**Anion** Nitrate  $(NO_3) : < 0.001\%$ 

 $\begin{aligned} & Phosphate \; (PO_4): < 5 \; ppm \\ & Sulfate \; (SO_4): \; < 0.002\% \end{aligned}$ 

Cation Ammonium (NH<sub>4</sub>) : < 0.002%

Barium (Ba) : 0.005% Calcium (Ca) : 0.01% Iron (Fe) : 4.5 ppm

Manganese (Mn): 0.624 ppm Potassium (K): 0.004% Sodium (Na): 0.000003% Strontium (Sr): 0.005%

Insoluble material0.0021%Assay by titration100.83%GradeACS reagentStorageStore at RT

Page 1 of 2

Q2259-GENCHEM **52 of 65** 

Catalog Number: 01237 Lot Number: 002126-2019-201

**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** 

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### Part of TCP Analytical Group

Jackson's Pointe Commerce Park-Building 1000 1010 Jackson's Pointe Court, Zelienople, PA 16063

### **Certificate of Analysis**

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

Product Code: LC13545 Manufacture Date: January 16, 2025

Lot Number: **45010168** Expiration Date: July 17, 2025

Test	Specification	Result	
Appearance (clarity)	clear solution	clear solution	
Appearance (color)	colorless	colorless	
Concentration (CN)	0.990 - 1.010mg/mL	1.000mg/mL	
Concentration (CN)	990 - 1,010ppm	1,000ppm	
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

\*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 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



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3050 Spruce Street, Saint Louis, MO 63103, USA

Website: www.sigmaaldrich.com techserv@sial.com Email USA:

Outside USA: eurtechserv@sial.com

# Certificate of Analysis

Barbituric acid - ReagentPlus®, 99%

Product Name:

**Product Number:** 185698 Batch Number: WXBF3271V

Brand: SIAL CAS Number: 67-52-7 Formula: C4H4N2O3 Formula Weight: 128,09 g/mol Quality Release Date: 16 MAY 2024

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Test	Specification	Result	
Appearance (Colour)	White to Off-White	White	
Appearance (Form)	Pow der	Pow der	
Infrared spectrum	Conforms to Structure	Conforms	
Purity (Titration by NaOH)	98.5 - 101.5 %	100.4 %	
GC (area %)	> 98 %	100 %	
VPCT			

Kang Chen Quality Manager Wuxi, China CN

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. 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.

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Version Number: 1

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448 West Fork Dr Arlington, TX 76012 http://www.riccachemical.com 1-888-GO-RICCA

customerservice@riccachemical.com

# Certificate of Analysis

Cyanide Standard, 1000 ppm CN

Lot Number: 1505H73 Product Number: 2543

Manufacture Date: MAY 08, 2025

Expiration Date: NOV 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 (from ACS)	

Test	Specification	Result
Appearance	Colorless liquid	Passed
Cyanide (CN)	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-)	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)	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)

Version: 1.3 Lot Number: 1505H73 Product Number: 2543 Page 1 of 2

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Ernest Mahan (05/08/2025)

Plant Manager

This test report shall not be reproduced, except in full, without the written approval of Ricca Chemical Company.

Version: 1.3 Lot Number: 1505H73 Product Number: 2543 Page 2 of 2

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### PERCENT SOLID

Supervisor: Iwona Analyst: jignesh

**Date:** 6/9/2025

OVENTEMP OUT Celsius(°C): 103 OVENTEMP IN Celsius(°C): 108

**Time IN:** 17:25 Time OUT: 08:27 Out Date: 06/07/2025 **In Date:** 06/06/2025

Weight Check 1.0g: 1.00 Weight Check 1.0g: 1.00 Weight Check 10g: 10.00 Weight Check 10g: 10.00 OvenID: M OVEN#1

BalanceID: M SC-4 Thermometer ID: % SOLID- OVEN

oc:LB136040

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
Q2246-01	BU-03-060525	1	1.15	10.12	11.27	11.17	99.0	
Q2246-02	BU-03-060525	2	1.19	10.04	11.23	11.1	98.7	
Q2247-01	GAS-PIPE-1	3	1.00	1.00	2.00	2.00	100.0	wipe sample
Q2247-02	GAS-PIPE-2	4	1.00	1.00	2.00	2.00	100.0	wipe sample
Q2248-01	TR-05-060525	5	1.18	10.36	11.54	10.88	93.6	
Q2248-02	TR-05-060525-E2	6	1.13	10.59	11.72	10.74	90.7	
Q2251-07	BP-VPB-182-GW-780-782	7	1.12	10.70	11.82	2.46	12.5	sludge sample
Q2258-05	SVOC-GPC-BLANK	8	1.00	1.00	2.00	2.00	100.0	
Q2258-06	PEST-GPC-BLANK	9	1.00	1.00	2.00	2.00	100.0	
Q2258-07	PEST-GPC-BLANK-SPIKE	10	1.00	1.00	2.00	2.00	100.0	
Q2258-08	PCB-GPC-BLANK	11	1.00	1.00	2.00	2.00	100.0	
Q2258-09	PCB-GPC-BLANK-SPIKE	12	1.00	1.00	2.00	2.00	100.0	
Q2258-10	SVOC-GPC2-BLANK	13	1.00	1.00	2.00	2.00	100.0	
Q2258-11	PEST-GPC2-BLANK	14	1.00	1.00	2.00	2.00	100.0	
Q2258-12	PEST-GPC2-BLANK-SPIKE	15	1.00	1.00	2.00	2.00	100.0	
Q2258-13	PCB-GPC2-BLANK	16	1.00	1.00	2.00	2.00	100.0	
Q2258-14	PCB-GCP2-BLANK-SPIKE	17	1.00	1.00	2.00	2.00	100.0	
Q2259-01	OU4-PCS-TC-36-060525	18	1.14	10.79	11.93	11.31	94.3	
Q2259-03	OU4-PCS-TC-37-060525	19	1.14	10.14	11.28	10.7	94.3	
Q2259-05	OU4-TS-29-060525	20	1.18	10.17	11.35	8.87	75.6	
Q2259-06	OU4-TS-30-060525	21	1.14	10.73	11.87	9.62	79.0	
Q2260-01	TP10-MHG-WC	22	1.13	10.84	11.97	10.95	90.6	
Q2260-02	TP10-MHG-VOC	23	1.16	10.66	11.82	10.84	90.8	
Q2260-03	TP10-MHG-EPH	24	1.13	10.75	11.88	10.68	88.8	
Q2262-01	ARS20-0032	25	1.14	11.40	12.54	12.22	97.2	
Q2262-03	ARS20-0001	26	1.18	9.85	11.03	10.38	93.4	
Q2265-01	TP-MHL-WC	27	1.15	10.83	11.98	10.43	85.7	
Q2265-02	TP-MHL-VOC	28	1.14	10.32	11.46	9.7	82.9	

Q2259-GENCHEM 58 of 65



### PERCENT SOLID

Supervisor: Iwona
Analyst: jignesh

**Date:** 6/9/2025

OVENTEMP IN Celsius(°C): 108 OVENTEMP OUT Celsius(°C): 103

Time IN: 17:25 Time OUT: 08:27

In Date: 06/06/2025 Out Date: 06/07/2025

Weight Check 1.0g: 1.00
Weight Check 10g: 10.00
Weight Check 10g: 10.00
OvenID: M OVEN#1

Weight Check 1.0g: 10.00
BalanceID: M SC-4

Thermometer ID: % SOLID- OVEN

**QC:**LB136040

Lab ID	Client SampleID	Dish #	Dish Wt(g) (A)	Sample Wt(g)	Sample	Dish+Dry Sample Wt(g)(C)	% Solid	Comments
Q2265-03	TP-MHL-EPH	29	1.18	10.48	11.66	9.77	82.0	
Q2266-01	WC-3	30	1.16	10.74	11.9	10.68	88.6	
Q2266-02	WC-3-EPH	31	1.15	11.18	12.33	10.15	80.5	
Q2266-03	WC-3-VOC	32	1.13	10.74	11.87	10.02	82.8	
Q2266-05	WC-4	33	1.19	10.47	11.66	10.36	87.6	
Q2266-06	WC-4-EPH	34	1.15	10.46	11.61	10.31	87.6	
Q2266-07	WC-4-VOC	35	1.19	10.71	11.9	10.74	89.2	

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

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12

# WORKLIST(Hardcopy Internal Chain)

	06-06-2025 08:11:33	Method		Chemtech -SO	Chemtech -SO	Chemtech -SO	O dootmod O		Chemtech -SO	Chemtech -SO	Chemtech -SO	Chemtech -SO	Chemtech		Chemitech -SO	Chemtech -SO	Chemtech -SO	Chemtech -SO	Chemtech -SO	Chemtech -SO	Chomtoch	Orientech-20	Chemtech -SO	Chemtech -SO	Chemtech -SO	Chemtech -SO	Chemtech -SO	
0		Collect Date		06/05/2025	06/05/2025	06/05/2025	06/05/2025	200730/30	CZ0Z/CD/D0	06/05/2025	06/04/2025	05/30/2025	05/30/2025	05/30/2026	02/20/2023	05/30/2025	05/30/2025	05/30/2025	05/30/2025	05/30/2025	05/30/2025	05/20/20	CZ0Z/06/C0	06/05/2025	06/05/2025	06/05/2025	06/05/2025	7
ahogal a	Da	Raw Sample Storage Location		D11	D11	D11	D11	D11		ווס	L31	D31	D31	D31		D31	D31	D31	D31	D31	D31	D34		D21	D21	D21	D21	>1/20/20
	Wet-Chemistry	Customer		PSEG05	PSEG05	PSEG03	PSEG03	PSEG05	DOEGOE	COECA	IETR06	CHEM02	CHEM02	CHEM02	Series Control	CHEMUZ	CHEM02	CHEM02	CHEM02	CHEM02	CHEM02	CHEM02	S S S S S S S S S S S S S S S S S S S	NOBIOS	NOBI03	NOBI03	NOBI03	Date/Time
WORKLIST(Hardcopy Internal Chain)	Department :	Preservative	O soft V load	o fian + iooo	Cool 4 deg C	Cool 4 deg C	Cool 4 deg C	Cool 4 deg C	Cool 4 dea C	Cop / loo	o con the con the control of the con	Cool 4 deg C	Cool 4 deg C	Cool 4 deg C	Conl 4 den C	O Report	Cool 4 deg C	Cool 4 deg C	Cool 4 deg C	Cool 4 deg C	Cool 4 deg C	Cool 4 deg C	Cool 4 dea C		Cool 4 deg C	Cool 4 deg C	Cool 4 deg C	
WORKLIST(H	ID: 189986	Test	Percent Solids	Percent Colido	Doroca do	Spilos Illas	Percent Solids	Percent Solids	Percent Solids	Percent Solids	Percent Solide	Spilos alessos	Percent Solids	Percent Solids	Percent Solids		rercent Solids	refeent Solids	Percent Solids	spilos ilias	Percent Solids	Percent Solids	Percent Solids	Percent Solide		rercent solids	Percent Solids	
	WorkList ID :	Matrix	Solid	Solid	i igo		Solid	Solid	Solid	Solid	Solid		Solid	Solid	Solid	Colid	סווס	D			Solid	Solid	Solid	Solid	rijo0	Dillo C	Solid	1
	%1-060625	Customer Sample	BU-03-060525	BU-03-060525	GAS-PIPE-1	CAS DIDE 2	2-1-1-505	IR-05-060525	TR-05-060525-E2	BP-VPB-182-GW-780-782	SVOC-GPC-BLANK	PEST_GDC_BLANK	TOT OF C-DEAINY	PEST-GPC-BLANK-SPIKE	PCB-GPC-BLANK	PCB-GPC-BLANK-SPIKE	SVOC-GPC2-BLANK	PEST-GPC2-BLANK	PEST-GPC2-BLANK-SPIKE	PCR-GDC2 DI ANIV	VD-OL-OC-PLAINV	PCB-GCP2-BLANK-SPIKE	OU4-PCS-TC-36-060525	OU4-PCS-TC-37-060525	OU4-TS-29-060525	OI 14_TC-30 060525		0610010 15120
Q2259-G	NOTALIST Name	Sample	Q2246-01	Q2246-02	Q2247-01	02247-02	20 0000	ZZZ48-U1	Q2248-02	Q2251-07	Q2258-05	Q2258-06	O2258 07	70-05750 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	QZZ58-08	Q2258-09	Q2258-10	Q2258-11	Q2258-12	Q2258-13	77 0000	47-22-14	Q2259-01	Q2259-03	Q2259-05	05259-06		Date/Time 0 6 /

Raw Sample Relinquished by:

Raw Sample Received by:

Page 1 of 2

Raw Sample Received by:

Date/Time 06/06/1









# WORKLIST(Hardcopy Internal Chain)

	06-06-2025 08:11:33 ect Date Method		Chemtech -SO	Chemtech -SO		Chemtech -SO	Chemtech -SO	Chemtech -SO	Chomtoch	OC- IDOM	Chemtech -SO	Chemtech -SO	Chemtech -SO		Chemtech -SO	Chemtech -SO	Chemtach - on		Chemtech -SO	Or- userniech -SO
0	Date: 06-06-2025 08:11: e Collect Date Method		06/06/2025	06/06/2025	10000	06/06/2025	06/06/2025	06/06/2025	06/06/2025		06/06/2025	06/06/2025	06/06/2025	- 1	06/06/2025	06/06/2025	06/06/2025	- 1	06/06/2025	- 1
ahogel d	Raw Sample Storage Location		D31	D31	D34		N31	N31	D41		D41	D41	D41	041	5	D41	D41	177	D41	
r dei	Customer		PSEG03	PSEG03	PSEG03		PSEG03	PSEG03	PSEG03		PSEG03	PSEG03	PSEG03	PSEG03		PSEG03	PSEG03	PSEG03	PSEG03	
WORKLIST(Hardcopy Internal Chain)			Cool 4 deg C	Cool 4 deg C	Cool 4 deg C	Cool 4 dea C		Cool 4 deg C	Cool 4 deg C	Cool 4 dea C	O Sport	Cool 4 deg C	Cool 4 deg C	Cool 4 deg C	0 200	O fian 4 roop	Cool 4 deg C	Cool 4 deg C	Cool 4 deg C	
WORKLIST(Ha	Test	Porcont Collec	Spilos and	Percent Solids	Percent Solids	Percent Solids	Percent Colida	Spilos lists	Percent Solids	Percent Solids	- File O two crop	recent solids	Percent Solids	Percent Solids	Percent Solids		Percent Solids	Percent Solids	Percent Solids	
WorkList ID:	Matrix	Solid		Solid	Solid	Solid	Solid		Solid	Solid	rijo		Dilos	Solid	Solid		pilos	Solid	Solid	
%1-060625	Customer Sample	TP10-MHG-WC	TP40-MHC VOC	DOA-DI MALOL LI	I PTU-MHG-EPH	ARS20-0032	ARS20-0001	JW. IHM-GT		TP-MHL-VOC	TP-MHL-EPH	WC-3		WC-3-EPH	WC-3-VOC	WC-4		WC-4-EPH	WC-4-VOC	
: MorkList Name :	Sample	Q2260-01	Q2260-02	03260	00-00-00-00-00-00-00-00-00-00-00-00-00-	Q2262-01	Q2262-03	02265-01	10000	77-69270	Q2265-03	Q2266-01	00000	20-02-22	Q2266-03	Q2266-05	90 3300	22202-00	Q2266-07	

Date/Time 06/06/25

Raw Sample Received by:

Raw Sample Relinquished by:





Page 2 of 2

Raw Sample Received by:

Raw Sample Relinquished by:



# SHIPPING DOCUMENTS

http://www.contestlabs.com

Doc # 381 Rev 4\_01/08/2020

Q225°

Chemtech	Phone: (908) 789-8900				CHAIN	OF CUSTOD	Y RECO	RD		uce Street ongmeadov		28									Page1 of1
	Fax: (908) 789-8922		Re	quested Turna	round Ti			Dissolv	ed Meta	ls Samples				_	ANA	LYSIS	REQ	UEST	ED		
284 Sheffield Street, Mounta	ainside, NJ 07092		5-Day		10-Day	<b>√</b>	0	F	Field Filt	ered		M/O	Τ	T	1	1	1	1	I		<sup>2</sup> Preservation Code
Company Name:	Nobis Group		PFAS 10-Day	(std)	Due Dat	e:	0		Lab to Fi	lter											Tere in on
Address:	55 Technology Dr Suite 101, Lowe	ell, MA 01851		Rush-Approval	Required			Orthog	shosphat	e Samples	3	1							l		Total Number Of:
Phone:	978-703-6014		1-Day		3-Day		0	F	ield Filt	ered		1									
Project Name:	Raymark		2-Day		4-Day		0		Lab to Fi	lter								6010		6020	VIALS
Project Location:	Stratford, CT					Data Del	very											9		9	GLASS
Project Number:	95700		Format:	PDF 🗸	EXCEL	1		P	CB O	1LY		1						100			PLASTIC
Project Manager:	Adam Roy		Other:				SOXH	IET		-	_							+ 무		Metals	BACTERIA
Con-Test Quote Name/Number:			CLP Like Dat	a Pkg Required	d: 🔲	No	COAL	LLI		Ļ	7				S	١,,		+		×	ENCORE
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Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	COMP/GRAB	<sup>1</sup> Matrix Code	Conc Code	VIALS	GLASS	PLASTIC	BACTERIA	ENCORE	RCP	% Solids	PAHs	Herbicides	Pesticides	PCBs	Metals	Cyanide	SPLP	Glassware in the fridge? Y / N
	OU4-PCS-TC-36-060525	6/5/25	11:25	G	so		3	2	1			Х	Х	Х	Х	х	Х	Х	х	Х	Glassware in freezer? Y / N
	OU4-PCS-TC-37-060525	6/5/25	11:35	G	so		3	2	1			Х	Х	Х	Х	Х	Х	Х	Х	Х	Prepackaged Cooler? Y / N
	OU4-TS-29-060525	6/5/25	13:30	G	so			1										X			*Contest is not responsible for
	OU4-TS-30-060525	6/5/25	13:35	G	so		3	1										Х		$\vdash$	missing samples from prepacked coolers
			.0.0,0										_								propulation desired
																					1 Matrix Codes: GW = Ground Water WW = Waste Water DW = Drinking Water A = Air S = Soil SL = Sludge SOL = Solid O = Other (please
																					define)
Relinquished by (signature)	Date/Time   5/2-   13:45   Date/Time:   G 5/25   13:4		nts:		<u>I</u>	I			l	<u> </u>											<sup>2</sup> Preservation Codes: I = Iced H = HCL
Relinquished by: (signature)	Data /Times		n Limit Regui	ram sale		_			quireme	anto.	_	_	= 0		_						M = Methanol
Received by: (signature)	Date/Time:	МА	Committee (Committee)	1 517 151 152				TO THE INC	equil ente	MCP Certif		rm Req	uired		sible s	ample	conc		ion w	indicate ithin the	e
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Received by: (signature)	Date/Time:									M	A State DW	/ Requi	red								X = Sodium Hydroxide
1-15		Other:	L		PWSID #									N	ELAC .	and A	IHA-L	AP, LL	C Acc	redited	T = Sodium
Relinquished by: (signature)	Date/Time:	Project Entity								_	_						Othe	parameters.			Thiosulfate
eceived by: (signature)	Date/Time:		Government Federal City		Municipa 21 J Brownfie				MWRA School MBTA			WR	ГА							natograr LAP,LLC	
ab Comments:									Chain o analy	of Custody rses the la	y is a leg aborator	al doo y will	ume perf	orm. orm.	Any i	ist be missii oject	coming inf	plete ormat	and a tion is y to a	ccurate not th	n on the Chain of Custody. The e and is used to determine what he laboratory's responsibility. With missing information, but will



### 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
Many Vards	44070
New York	11376
Pennsylvania	68-00548
,	
Soil Permit	525-24-234-08441
Texas	T104704488

QA Control Code: A2070148

Q2259-GENCHEM **64 of 65** 



284 Sheffield Street, Mountainside, New Jersey 07092, Phone: 908 789 8900,

Fax: 908 789 8922

### LOGIN REPORT/SAMPLE TRANSFER

Order ID: Q2259

NOBI03

Order Date: 6/6/2025 10:57:00 AM

Project Mgr:

Client Name: Nobis Group

Project Name: Raymark Superfund Site

Report Type: Level 4

Client Contact: Adam Roy

Receive DateTime: 6/6/2025 10:04:00 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
Q2259-01	OU4-PCS-TC-36-060525	Solid 06/05/202	5 11:25						
				VOCMS Group3		8260D	10 Bus. Days		
Q2259-03	OU4-PCS-TC-37-060525	Solid 06/05/202	5 11:35						
				VOCMS Group3		8260D	10 Bus. Days		

Relinguished By:

Date / Time:

Received By:

Date / Time : 🕖

E 11:36 Pf 16

Storage Area: VOA Refridgerator Room