Alliance TECHNICAL GROUP

284 Sheffield Street, Mountainside NJ 07092
Tel. 908-789-8900 Fax: 908-789-8922

# 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<br>**"P"** for ICP instrument<br>**"PM"** for ICP when Microwave Digestion is used<br>**"CV"** for Manual Cold Vapor AA<br>**"AV"** for automated Cold Vapor AA<br>**"CA"** for MIDI-Distillation Spectrophotometric<br>**"AS"** for Semi –Automated Spectrophotometric<br>**"C"** for Manual Spectrophotometric<br>**"T"** for Titrimetric<br>**"NR"** for analyte not required to be analyzed |
| **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 |
| H | Sample Analysis Out Of Hold Time |

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# LAB CHRONICLE

| | | | |
|---|---|---|---|
| **OrderID:** | Q1915 | **OrderDate:** | 4/29/2025 2:29:00 PM |
| **Client:** | CDM Smith | **Project:** | Con Ed UTEN Mount Vernon, NY |
| **Contact:** | Marcie Ann Encinas | **Location:** | L41 |

| LabID | ClientID | Matrix | Test | Method | Sample Date | Prep Date | Anal Date | Received |
|---|---|---|---|---|---|---|---|---|
| **Q1915-01** | **WC-04282025** | **SOIL** | | | **04/28/25 14:15** | | | **04/29/25** |
| | | | Corrosivity | 9045D | | | 04/29/25 18:00 | |
| | | | Ignitability | 1030 | | | 05/01/25 12:38 | |
| | | | Reactive Cyanide | 9012B | | 04/30/25 | 04/30/25 11:54 | |
| | | | Reactive Sulfide | 9034 | | 05/01/25 | 05/01/25 11:20 | |

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# SAMPLE DATA

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# Report of Analysis

| | | | |
|---|---|---|---|
| Client: | CDM Smith | Date Collected: | 04/28/25 14:15 |
| Project: | Con Ed UTEN Mount Vernon, NY | Date Received: | 04/29/25 |
| Client Sample ID: | WC-04282025 | SDG No.: | Q1915 |
| Lab Sample ID: | Q1915-01 | Matrix: | SOIL |
| | | % Solid: | 100 |

| Parameter | Conc. | Qua. | DF | MDL | LOQ / CRQL | Units | Prep Date | Date Ana. | Ana Met. |
|---|---|---|---|---|---|---|---|---|---|
| Corrosivity | 8.41 | H | 1 | 0 | 0 | pH | | 04/29/25 18:00 | 9045D |
| Ignitability | NO | | 1 | 0 | 0 | oC | | 05/01/25 12:38 | 1030 |
| Reactive Cyanide | 0.050 | U | 1 | 0.0084 | 0.050 | mg/Kg | 04/30/25 08:50 | 04/30/25 11:54 | 9012B |
| Reactive Sulfide | 1.58 | J | 1 | 0.20 | 10.0 | mg/Kg | 05/01/25 08:50 | 05/01/25 11:20 | 9034 |

Comments: pH result reported at temperature 22.5 °C

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

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# Initial and Continuing Calibration Verification

**Client:** CDM Smith **SDG No.:** Q1915

**Project:** Con Ed UTEN Mount Vernon, NY **RunNo.:** LB135607

| Analyte | | Units | Result | True Value | % Recovery | Acceptance Window (%R) | Analysis Date |
|---|---|---|---|---|---|---|---|
| Sample ID: | ICV | | | | | | |
| Corrosivity | | pH | 6.99 | 7 | 100 | 90-110 | 04/29/2025 |
| Sample ID: | CCV1 | | | | | | |
| Corrosivity | | pH | 2.01 | 2.00 | 101 | 90-110 | 04/29/2025 |
| Sample ID: | CCV2 | | | | | | |
| Corrosivity | | pH | 12.02 | 12.00 | 100 | 90-110 | 04/29/2025 |

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# Initial and Continuing Calibration Verification

| | | | |
|---|---|---|---|
| **Client:** | CDM Smith | **SDG No.:** | Q1915 |
| **Project:** | Con Ed UTEN Mount Vernon, NY | **RunNo.:** | LB135608 |

| Analyte | Units | Result | True Value | % Recovery | Acceptance Window (%R) | Analysis Date |
|---|---|---|---|---|---|---|
| **Sample ID:** **ICV1** | | | | | | |
| Reactive Cyanide | mg/L | 0.092 | 0.099 | 93 | 85-115 | 04/30/2025 |
| **Sample ID:** **CCV1** | | | | | | |
| Reactive Cyanide | mg/L | 0.25 | 0.25 | 100 | 90-110 | 04/30/2025 |
| **Sample ID:** **CCV2** | | | | | | |
| Reactive Cyanide | mg/L | 0.23 | 0.25 | 92 | 90-110 | 04/30/2025 |
| **Sample ID:** **CCV3** | | | | | | |
| Reactive Cyanide | mg/L | 0.25 | 0.25 | 100 | 90-110 | 04/30/2025 |

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# Initial and Continuing Calibration Blank Summary

**Client:** CDM Smith **SDG No.:** Q1915

**Project:** Con Ed UTEN Mount Vernon, NY **RunNo.:** LB135608

| Analyte | Units | Result | Acceptance Limits | Conc Qual | MDL | RDL | Analysis Date |
|---|---|---|---|---|---|---|---|
| **Sample ID: ICB1** | | | | | | | |
| Reactive Cyanide | mg/L | < 0.0025 | 0.0025 | U | 0.00096 | 0.005 | 04/30/2025 |
| **Sample ID: CCB1** | | | | | | | |
| Reactive Cyanide | mg/L | < 0.0025 | 0.0025 | U | 0.00096 | 0.005 | 04/30/2025 |
| **Sample ID: CCB2** | | | | | | | |
| Reactive Cyanide | mg/L | < 0.0025 | 0.0025 | U | 0.00096 | 0.005 | 04/30/2025 |
| **Sample ID: CCB3** | | | | | | | |
| Reactive Cyanide | mg/L | < 0.0025 | 0.0025 | U | 0.00096 | 0.005 | 04/30/2025 |

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# Preparation Blank Summary

**Client:** CDM Smith **SDG No.:** Q1915

**Project:** Con Ed UTEN Mount Vernon, NY

| Analyte | Units | Result | Acceptance Limits | Conc Qual | MDL | RDL | Analysis Date |
|---|---|---|---|---|---|---|---|
| **Sample ID: PB167792BL** | | | | | | | |
| Reactive Cyanide | mg/Kg | < 0.0250 | 0.0250 | U | 0.0084 | 0.05 | 04/30/2025 |
| **Sample ID: PB167811BL** | | | | | | | |
| Reactive Sulfide | mg/Kg | < 5.0000 | 5.0000 | U | 0.201 | 10 | 05/01/2025 |

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# Duplicate Sample Summary

**Client:** CDM Smith
**Project:** Con Ed UTEN Mount Vernon, NY
**Client ID:** MH-GDUP
**SDG No.:** Q1915
**Sample ID:** Q1905-04
**Percent Solids for Spike Sample:** 100

| Analyte | Units | Acceptance Limit | Sample Result | Conc. Qualifier | Duplicate Result | Conc. Qualifier | Dilution Factor | RPD/ AD | Qual | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|
| Reactive Cyanide | mg/Kg | +/-20 | 0.0083 | U | 0.0083 | U | 1 | 0 | | 04/30/2025 |
| Reactive Sulfide | mg/Kg | +/-20 | 3.16 | J | 3.16 | J | 1 | 0 | | 05/01/2025 |

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# Duplicate Sample Summary

**Client:** CDM Smith
**Project:** Con Ed UTEN Mount Vernon, NY
**Client ID:** MH-EDUP
**SDG No.:** Q1915
**Sample ID:** Q1912-01
**Percent Solids for Spike Sample:** 92.5

| Analyte | Units | Acceptance Limit | Sample Result | Conc. Qualifier | Duplicate Result | Conc. Qualifier | Dilution Factor | RPD/ AD | Qual | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|
| Ignitability | oC | +/-20 | NO | | NO | | 1 | 0 | | 05/01/2025 |

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# Duplicate Sample Summary

**Client:** CDM Smith
**Project:** Con Ed UTEN Mount Vernon, NY
**Client ID:** WC-04282025DUP
**SDG No.:** Q1915
**Sample ID:** Q1915-01
**Percent Solids for Spike Sample:** 100

| Analyte | Units | Acceptance Limit | Sample Result | Conc. Qualifier | Duplicate Result | Conc. Qualifier | Dilution Factor | RPD/ AD | Qual | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|
| Corrosivity | pH | +/-20 | 8.41 | | 8.42 | | 1 | 0.12 | | 04/29/2025 |

# RAW DATA

Reviewed By:Iwona
On:4/30/2025 1:24:28 PM
Inst Id :WC PH METER-1

# Analytical Summary Report

**Analysis Method:** 9045D
**Analyst By :** jignesh
**Parameter:** Corrosivity
**Supervisor Review By :** Iwona
**Run Number:** LB135607
**Slope :** 99.2
**BalanceID:** WC SC-7
**pH Meter ID :** WC PH METER-1

| Calibration Standards | Chemtech Log# |
|---|---|
| PH 4 BUFFER SOLUTION | W3178 |
| BUFFER PH 7.00 GREEN 1PINT PK6 | W3093 |
| PH 10.01 BUFFER,COLOR CD 475ML | W3191 |
| buffer solution pH 7 yellow | W3071 |
| Buffer Solution, PH2 (500ml) | W3161 |
| Buffer Solution, PH12 (500ml) | W3072 |

True Value of ICV = 7.00 Control Limits[+/- 0.1].

True Value of CCV1 = 2.00 Control Limits[+/- 0.1].

True Value of CCV2 = 12.00 Control Limits[+/- 0.1].

| Seq | LabID | DF | Matrix | Weight (gm) | Volume (ml) | Temperature (°C) | Result (pH) | Anal Date | Anal Time |
|---|---|---|---|---|---|---|---|---|---|
| 1 | CAL1 | 1 | Water | NA | NA | 20.3 | 4.01 | 04/29/2025 | 17:25 |
| 2 | CAL2 | 1 | Water | NA | NA | 20.2 | 7.01 | 04/29/2025 | 17:26 |
| 3 | CAL3 | 1 | Water | NA | NA | 20.3 | 10.02 | 04/29/2025 | 17:30 |
| 4 | ICV | 1 | Water | NA | NA | 20.3 | 6.99 | 04/29/2025 | 17:33 |
| 5 | CCV1 | 1 | Water | NA | NA | 20.3 | 2.01 | 04/29/2025 | 17:35 |
| 6 | Q1912-04 | 1 | Solid | 20.02 | 20 | 22.6 | 6.74 | 04/29/2025 | 17:45 |
| 7 | Q1912-08 | 1 | Solid | 20.03 | 20 | 21.9 | 6.46 | 04/29/2025 | 17:50 |
| 8 | Q1915-01 | 1 | Solid | 20.02 | 20 | 22.5 | 8.41 | 04/29/2025 | 18:00 |
| 9 | Q1915-01DUP | 1 | Solid | 20.03 | 20 | 22.6 | 8.42 | 04/29/2025 | 18:01 |
| 10 | CCV2 | 1 | Water | NA | NA | 20.3 | 12.02 | 04/29/2025 | 18:05 |

# WORKLIST(Hardcopy Internal Chain)

VB 135607

**WorkList Name :** corrsovity q1912 **WorkList ID :** 189213 **Department :** Wet-Chemistry **Date :** 04-29-2025 13:35:50

| Sample | Customer Sample | Matrix | Test | Preservative | Customer | Raw Sample Storage Location | Collect Date | Method |
|---|---|---|---|---|---|---|---|---|
| Q1912-04 | MH-E | Solid | Corrosivity | Cool 4 deg C | PSEG03 | L51 | 04/29/2025 | 9045D |
| Q1912-08 | MH-F | Solid | Corrosivity | Cool 4 deg C | PSEG03 | L51 | 04/29/2025 | 9045D |
| Q1915-01 | WC-04282025 | Solid | Corrosivity | Cool 4 deg C | CAMP02 | L41 | 04/28/2025 | 9045D |

**Date/Time** 04/29/25 17:10
**Raw Sample Received by:** SA WOC
**Raw Sample Relinquished by:** JDCSM



**Date/Time** 04/29/25 19:30
**Raw Sample Received by:** JDCSM
**Raw Sample Relinquished by:** SA WOC

Reviewed By:Iwona
On:5/1/2025 3:17:51 PM
Inst Id :FLAME
LB :LB135622

# Analytical Summary Report

**Analysis Method:** 1030 **Reviewed By:** rubina

**Parameter:** Ignitability **Supervisor Review By:** Iwona

**Run Number:** LB135622

| Seq | LabID | ClientID | DF | matrix | Result Status | Burning Rate | Anal Date | Anal Time |
|---|---|---|---|---|---|---|---|---|
| 1 | Q1912-01 | MH-E | 1 | Solid | NO | 0.00 | 05/01/2025 | 12:00 |
| 2 | Q1912-01DUP | MH-EDUP | 1 | Solid | NO | 0.00 | 05/01/2025 | 12:08 |
| 3 | Q1912-04 | MH-E | 1 | Solid | NO | 0.00 | 05/01/2025 | 12:16 |
| 4 | Q1912-05 | MH-F | 1 | Solid | NO | 0.00 | 05/01/2025 | 12:23 |
| 5 | Q1912-08 | MH-F | 1 | Solid | NO | 0.00 | 05/01/2025 | 12:30 |
| 6 | Q1915-01 | WC-04282025 | 1 | Solid | NO | 0.00 | 05/01/2025 | 12:38 |
| 7 | Q1916-01 | WC-12 | 1 | Solid | NO | 0.00 | 05/01/2025 | 12:45 |
| 8 | Q1916-04 | WC-12 | 1 | Solid | NO | 0.00 | 05/01/2025 | 12:52 |
| 9 | Q1917-01 | MH-JJ | 1 | Solid | NO | 0.00 | 05/01/2025 | 13:00 |
| 10 | Q1917-04 | MH-JJ | 1 | Solid | NO | 0.00 | 05/01/2025 | 13:08 |
| 11 | Q1922-01 | MH-R | 1 | Solid | NO | 0.00 | 05/01/2025 | 13:15 |
| 12 | Q1922-04 | MH-R | 1 | Solid | NO | 0.00 | 05/01/2025 | 13:22 |
| 13 | Q1922-05 | MH-S | 1 | Solid | NO | 0.00 | 05/01/2025 | 13:30 |
| 14 | Q1922-08 | MH-S | 1 | Solid | NO | 0.00 | 05/01/2025 | 13:37 |
| 15 | Q1925-01 | AUD-25-0068 | 1 | Solid | NO | 0.00 | 05/01/2025 | 13:45 |
| 16 | Q1925-02 | AUD-25-0069 | 1 | Solid | NO | 0.00 | 05/01/2025 | 13:52 |
| 17 | Q1925-03 | AUD-25-0070 | 1 | Solid | NO | 0.00 | 05/01/2025 | 14:00 |

$$\text{Burning Rate} = \frac{\text{Length(mm)}}{\text{Total Time(sec)}}$$

# WORKLIST(Hardcopy Internal Chain)

LB135622

**WorkList Name :** IGN-04-30 **WorkList ID :** 189242 **Department :** Wet-Chemistry **Date :** 04-30-2025 15:11:23

| Sample | Customer Sample | Matrix | Test | Preservative | Customer | Raw Sample Storage Location | Collect Date | Method |
|---|---|---|---|---|---|---|---|---|
| Q1912-01 | MH-E | Solid | Ignitability | Cool 4 deg C | PSEG03 | L51 | 04/29/2025 | 1030 |
| Q1912-04 | MH-E | Solid | Ignitability | Cool 4 deg C | PSEG03 | L51 | 04/29/2025 | 1030 |
| Q1912-05 | MH-F | Solid | Ignitability | Cool 4 deg C | PSEG03 | L51 | 04/29/2025 | 1030 |
| Q1912-08 | MH-F | Solid | Ignitability | Cool 4 deg C | PSEG03 | L51 | 04/29/2025 | 1030 |
| Q1915-01 | WC-04282025 | Solid | Ignitability | Cool 4 deg C | PSEG03 | L51 | 04/29/2025 | 1030 |
| Q1916-01 | WC-12 | Solid | Ignitability | Cool 4 deg C | CAMP02 | L41 | 04/28/2025 | 1030 |
| Q1916-04 | WC-12 | Solid | Ignitability | Cool 4 deg C | PSEG03 | L41 | 04/30/2025 | 1030 |
| Q1917-01 | MH-JJ | Solid | Ignitability | Cool 4 deg C | PSEG03 | L41 | 04/30/2025 | 1030 |
| Q1917-04 | MH-JJ | Solid | Ignitability | Cool 4 deg C | PSEG03 | L41 | 04/30/2025 | 1030 |
| Q1922-01 | MH-R | Solid | Ignitability | Cool 4 deg C | PSEG03 | L41 | 04/30/2025 | 1030 |
| Q1922-04 | MH-R | Solid | Ignitability | Cool 4 deg C | PSEG03 | L31 | 04/30/2025 | 1030 |
| Q1922-05 | MH-S | Solid | Ignitability | Cool 4 deg C | PSEG03 | L31 | 04/30/2025 | 1030 |
| Q1922-08 | MH-S | Solid | Ignitability | Cool 4 deg C | PSEG03 | L31 | 04/30/2025 | 1030 |
| Q1925-01 | AUD-25-0068 | Solid | Ignitability | Cool 4 deg C | PSEG03 | L31 | 04/30/2025 | 1030 |
| Q1925-02 | AUD-25-0069 | Solid | Ignitability | Cool 4 deg C | PSEG03 | L31 | 04/30/2025 | 1030 |
| Q1925-03 | AUD-25-0070 | Solid | Ignitability | Cool 4 deg C | PSEG03 | L31 | 04/30/2025 | 1030 |

**Date/Time** 05/01/2025 08:20

**Raw Sample Received by:** RM (WC)

**Raw Sample Relinquished by:**



**Date/Time** 05/01/2025 14:20

**Raw Sample Received by:**

**Raw Sample Relinquished by:** RM (WC)

CHEMTECH

**Analytical Summary Report**

Analysis Method: 9034
Parameter: Reactive Sulfide
Run Number: LB135629

ANALYST: rubina
SUPERVISOR REVIEW BY: Iwona
Constant: 16000
Normality1: 0.025
Normality2: 0.025

| Reagent/Standard | Lot/Log # |
|---|---|
| SODIUM THIOSULFATE,0.025N,4LITRE | W3105 |
| IODINE SOLUTION .025N 1L | W3114 |
| Starch Solution, 4L | W3149 |

| Seq | Lab ID | True Value (mg/l) | DF | Initial Weight (g) | Final Volume (ml) | T1 (ml) | T2 Initial | T2 Final | T2 Diff. (ml) | T1 - T2 Diff (mL) | Value Corrected With Blank | Result (ppm) | Anal Date | Anal Time |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | PB167811BL | | 1 | 5.00 | 50 | 2.00 | 0.00 | 1.92 | 1.92 | 0.08 | 0.00 | 0.00 | 05/01/2025 | 11:00 |
| 2 | Q1905-04 | | 1 | 5.06 | 50 | 2.00 | 0.00 | 1.88 | 1.88 | 0.12 | 0.04 | 3.16 | 05/01/2025 | 11:03 |
| 3 | Q1905-04DUP | | 1 | 5.06 | 50 | 2.00 | 0.00 | 1.88 | 1.88 | 0.12 | 0.04 | 3.16 | 05/01/2025 | 11:06 |
| 4 | Q1905-08 | | 1 | 5.04 | 50 | 2.00 | 0.00 | 1.84 | 1.84 | 0.16 | 0.08 | 6.35 | 05/01/2025 | 11:08 |
| 5 | Q1907-02 | | 1 | 5.03 | 50 | 2.00 | 0.00 | 1.90 | 1.90 | 0.10 | 0.02 | 1.59 | 05/01/2025 | 11:11 |
| 6 | Q1912-04 | | 1 | 5.07 | 50 | 2.00 | 0.00 | 1.86 | 1.86 | 0.14 | 0.06 | 4.73 | 05/01/2025 | 11:14 |
| 7 | Q1912-08 | | 1 | 5.01 | 50 | 2.00 | 0.00 | 1.86 | 1.86 | 0.14 | 0.06 | 4.79 | 05/01/2025 | 11:17 |
| 8 | Q1915-01 | | 1 | 5.07 | 50 | 2.00 | 0.00 | 1.90 | 1.90 | 0.10 | 0.02 | 1.58 | 05/01/2025 | 11:20 |
| 9 | Q1916-04 | | 1 | 5.05 | 50 | 2.00 | 0.00 | 1.88 | 1.88 | 0.12 | 0.04 | 3.17 | 05/01/2025 | 11:23 |
| 10 | Q1917-04 | | 1 | 5.07 | 50 | 2.00 | 0.00 | 1.90 | 1.90 | 0.10 | 0.02 | 1.58 | 05/01/2025 | 11:25 |
| 11 | Q1922-04 | | 1 | 5.02 | 50 | 2.00 | 0.00 | 1.86 | 1.86 | 0.14 | 0.06 | 4.78 | 05/01/2025 | 11:27 |
| 12 | Q1922-08 | | 1 | 5.03 | 50 | 2.00 | 0.00 | 1.90 | 1.90 | 0.10 | 0.02 | 1.59 | 05/01/2025 | 11:30 |

**T1 = Titrant1**

**T2 = Titrant2**

**T2 Diff = T2 Final - T2 Initial**

**Value Corrected With Blank = ((T1 - T2 Diff) - Blank Correction(BL))**

**Result = ((T1 * Normality1) - ((T1 - Value Corrected With Blank) * Normality2)) * Constant / Initial Volume**

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# Soil/Sludge Reactive Cyanide Preparation Sheet

PB167792

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

**SDG No :** N/A

**Matrix :** SOIL

**Pippete ID :** N/A

**Balance ID :** WC SC-7

**Hood ID :** HOOD#1

**Block ID :** MC-1, MC-2

**Weigh By :** RM

**Start Digest Date:** 04/30/2025 **Time :** 08:50 **Temp :** N/A

**End Digest Date:** 04/30/2025 **Time :** 10:20 **Temp :** N/A

**Digestion tube ID :** M5595

**Filter paper ID :** N/A

**pH Meter ID :** N/A

**Block Thermometer ID :** N/A

**Prep Technician Signature:** RM

**Supervisor Signature:** JZ

| Standared Name | MLS USED | STD REF. # FROM LOG |
|---|---|---|
| PBS003 | 50.0ML | W3112 |
| N/A | N/A | N/A |
| N/A | N/A | N/A |
| 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 |
| 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 |
| N/A | N/A | N/A |

| LAB SAMPLE ID | CLIENT SAMPLE ID | | Comment |
|---|---|---|---|
| | | | |

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

N/A

| Date / Time | Prepped Sample Relinquished By/Location | Received By/Location |
|---|---|---|
| 04/30/2025 10:35 | RM (WC) | RM (WC) |
| | Preparation Group | Analysis Group |

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## Soil/Sludge Reactive Cyanide Preparation Sheet

**PB167792**

| Lab Sample ID | Client Sample ID | Initial Weight (g) | Final Vol (ml) | pH | Sulfide | Oxidizing | Nitrate/ Nitrite | Comment | Prep Pos |
|---|---|---|---|---|---|---|---|---|---|
| PB167792BL | PBS792 | 5.00 | 50 | N/A | N/A | N/A | N/A | N/A | N/A |
| Q1904-02 | VNJ-210 | 5.07 | 50 | N/A | N/A | N/A | N/A | N/A | N/A |
| Q1905-04 | MH-G | 5.03 | 50 | N/A | N/A | N/A | N/A | N/A | N/A |
| Q1905-04DUP | MH-GDUP | 5.03 | 50 | N/A | N/A | N/A | N/A | N/A | N/A |
| Q1905-08 | MH-H | 5.01 | 50 | N/A | N/A | N/A | N/A | N/A | N/A |
| Q1906-04 | WC-4 | 5.04 | 50 | N/A | N/A | N/A | N/A | N/A | N/A |
| Q1906-08 | WC-5 | 5.01 | 50 | N/A | N/A | N/A | N/A | N/A | N/A |
| Q1906-12 | WC-6 | 5.03 | 50 | N/A | N/A | N/A | N/A | N/A | N/A |
| Q1906-16 | WC-7 | 5.06 | 50 | N/A | N/A | N/A | N/A | N/A | N/A |
| Q1907-02 | CO-8R-WC | 5.03 | 50 | N/A | N/A | N/A | N/A | N/A | N/A |
| Q1912-04 | MH-E | 5.02 | 50 | N/A | N/A | N/A | N/A | N/A | N/A |
| Q1912-08 | MH-F | 5.04 | 50 | N/A | N/A | N/A | N/A | N/A | N/A |
| Q1915-01 | WC-04282025 | 5.01 | 50 | N/A | N/A | N/A | N/A | N/A | N/A |

# WORKLIST(Hardcopy Internal Chain)

**WorkList Name :** rcn-04-30 **WorkList ID :** 189231 **Department :** Distillation **Date :** 04-30-2025 08:14:51

| Sample | Customer Sample | Matrix | Test | Preservative | Customer | Raw Sample Storage Location | Collect Date | Method |
|---|---|---|---|---|---|---|---|---|
| Q1904-02 | VNJ-210 | Solid | Reactive Cyanide | Cool 4 deg C | PSEG03 | L41 | 04/28/2025 | 9012B |
| Q1905-04 | MH-G | Solid | Reactive Cyanide | Cool 4 deg C | PSEG03 | L51 | 04/28/2025 | 9012B |
| Q1905-08 | MH-H | Solid | Reactive Cyanide | Cool 4 deg C | PSEG03 | L51 | 04/28/2025 | 9012B |
| Q1906-04 | WC-4 | Solid | Reactive Cyanide | Cool 4 deg C | PSEG03 | L41 | 04/28/2025 | 9012B |
| Q1906-08 | WC-5 | Solid | Reactive Cyanide | Cool 4 deg C | PSEG03 | L41 | 04/28/2025 | 9012B |
| Q1906-12 | WC-6 | Solid | Reactive Cyanide | Cool 4 deg C | PSEG03 | L41 | 04/28/2025 | 9012B |
| Q1906-16 | WC-7 | Solid | Reactive Cyanide | Cool 4 deg C | PSEG03 | L41 | 04/28/2025 | 9012B |
| Q1907-02 | CO-8R-WC | Solid | Reactive Cyanide | Cool 4 deg C | PSEG03 | L41 | 04/28/2025 | 9012B |
| Q1912-04 | MH-E | Solid | Reactive Cyanide | Cool 4 deg C | WALS01 | L51 | 04/28/2025 | 9012B |
| Q1912-08 | MH-F | Solid | Reactive Cyanide | Cool 4 deg C | PSEG03 | L51 | 04/29/2025 | 9012B |
| Q1915-01 | WC-04282025 | Solid | Reactive Cyanide | Cool 4 deg C | PSEG03 | L51 | 04/29/2025 | 9012B |
| | | | | | CAMP02 | L41 | 04/28/2025 | 9012B |

**Date/Time** 04/30/2025 08:20
**Raw Sample Received by:** RM (WC)
**Raw Sample Relinquished by:** JH Coel C



**Date/Time** 04/30/2025 10:40
**Raw Sample Received by:** JH Coel C
**Raw Sample Relinquished by:** RM (WC)

Alliance TECHNICAL GROUP

## Soil/Sludge Reactive Sulfide Preparation Sheet

PB167811

**SOP ID :** M9030B-Sulfide-12

**SDG No :** N/A

**Start Digest Date:** 05/01/2025 **Time :** 08:50 **Temp :** N/A

**Matrix :** SOIL

**End Digest Date:** 05/01/2025 **Time :** 10:20 **Temp :** N/A

**Pippete ID :** WC

**Balance ID :** WC SC-7

**Hood ID :** HOOD#1 **Digestion tube ID :** M5595 **Block Thermometer ID :** N/A

**Block ID :** MC-1, MC-2 **Filter paper ID :** N/A **Prep Technician Signature:** RM

**Weigh By :** RM **pH Meter ID :** N/A **Supervisor Signature:** JR

| Standared Name | MLS USED | STD REF. # FROM LOG |
|---|---|---|
| PBS003 | 50.0ML | W3112 |
| N/A | N/A | N/A |
| N/A | N/A | N/A |
| N/A | N/A | N/A |
| N/A | N/A | N/A |

| Chemical Used | ML/SAMPLE USED | Lot Number |
|---|---|---|
| 0.5M ZINC ACETATE | 5.0ML | WP111004 |
| FORMALDEHYDE | 2.0ML | W2725 |
| 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 |

**Extraction Conformance/Non-Conformance Comments:** 05/01/2025 RM

N/A

| Date / Time | Prepped Sample Relinquished By/Location | Received By/Location |
|---|---|---|
| | | |
| | Preparation Group | Analysis Group |

Alliance TECHNICAL GROUP

## Soil/Sludge Reactive Sulfide Preparation Sheet

**PB167811**

| Lab Sample ID | Client Sample ID | Initial Weight (g) | Final Vol (ml) | pH | Sulfide | Oxidizing | Nitrate/ Nitrite | Comment | Prep Pos |
|---|---|---|---|---|---|---|---|---|---|
| PB167811BL | PBS811 | 5.00 | 50 | N/A | N/A | N/A | N/A | N/A | N/A |
| Q1905-04DUP | MH-GDUP | 5.06 | 50 | N/A | N/A | N/A | N/A | N/A | N/A |
| Q1905-04 | MH-G | 5.06 | 50 | N/A | N/A | N/A | N/A | N/A | N/A |
| Q1905-08 | MH-H | 5.04 | 50 | N/A | N/A | N/A | N/A | N/A | N/A |
| Q1907-02 | CO-8R-WC | 5.03 | 50 | N/A | N/A | N/A | N/A | N/A | N/A |
| Q1912-04 | MH-E | 5.07 | 50 | N/A | N/A | N/A | N/A | N/A | N/A |
| Q1912-08 | MH-F | 5.01 | 50 | N/A | N/A | N/A | N/A | N/A | N/A |
| Q1915-01 | WC-04282025 | 5.07 | 50 | N/A | N/A | N/A | N/A | N/A | N/A |
| Q1916-04 | WC-12 | 5.05 | 50 | N/A | N/A | N/A | N/A | N/A | N/A |
| Q1917-04 | MH-JJ | 5.07 | 50 | N/A | N/A | N/A | N/A | N/A | N/A |
| Q1922-04 | MH-R | 5.02 | 50 | N/A | N/A | N/A | N/A | N/A | N/A |
| Q1922-08 | MH-S | 5.03 | 50 | N/A | N/A | N/A | N/A | N/A | N/A |

# WORKLIST(Hardcopy Internal Chain)

**WorkList Name :** RSUL 5-01 **WorkList ID :** 189255 **Department :** Distillation **Date :** 05-01-2025 08:17:34

| Sample | Customer Sample | Matrix | Test | Preservative | Customer | Raw Sample Storage Location | Collect Date | Method |
|---|---|---|---|---|---|---|---|---|
| Q1905-04 | MH-G | Solid | Reactive Sulfide | Cool 4 deg C | PSEG03 | L51 | 04/28/2025 | 9034 |
| Q1905-08 | MH-H | Solid | Reactive Sulfide | Cool 4 deg C | PSEG03 | L51 | 04/28/2025 | 9034 |
| Q1907-02 | CO-8R-WC | Solid | Reactive Sulfide | Cool 4 deg C | PSEG03 | L51 | 04/28/2025 | 9034 |
| Q1912-04 | MH-E | Solid | Reactive Sulfide | Cool 4 deg C | WALS01 | L51 | 04/28/2025 | 9034 |
| Q1912-08 | MH-F | Solid | Reactive Sulfide | Cool 4 deg C | PSEG03 | L51 | 04/29/2025 | 9034 |
| Q1915-01 | WC-04282025 | Solid | Reactive Sulfide | Cool 4 deg C | PSEG03 | L51 | 04/29/2025 | 9034 |
| Q1916-04 | WC-12 | Solid | Reactive Sulfide | Cool 4 deg C | CAMP02 | L41 | 04/28/2025 | 9034 |
| Q1917-04 | MH-JJ | Solid | Reactive Sulfide | Cool 4 deg C | PSEG03 | L41 | 04/30/2025 | 9034 |
| Q1922-04 | MH-R | Solid | Reactive Sulfide | Cool 4 deg C | PSEG03 | L41 | 04/30/2025 | 9034 |
| Q1922-08 | MH-S | Solid | Reactive Sulfide | Cool 4 deg C | PSEG03 | L31 | 04/30/2025 | 9034 |
| | | | | | | L31 | 04/30/2025 | 9034 |

**Date/Time** 05/01/2025 08:20

**Raw Sample Received by:** RM (WC)

**Raw Sample Relinquished by:** [signature] (WC)



**Date/Time** 05/01/2025 10:10

**Raw Sample Received by:** [signature] (WC)

**Raw Sample Relinquished by:** RM (WC)

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**Instrument ID:** WC PH METER-1

## Daily Analysis Runlog For Sequence/QCBatch ID # LB135607

| | | | |
|---|---|---|---|
| Review By | jignesh | Review On | 4/30/2025 11:52:39 AM |
| Supervise By | Iwona | Supervise On | 4/30/2025 1:24:28 PM |
| SubDirectory | LB135607 | Test | Corrosivity |

| STD. NAME | STD REF.# |
|---|---|
| ICAL Standard | N/A |
| ICV Standard | N/A |
| CCV Standard | N/A |
| ICSA Standard | N/A |
| CRI Standard | N/A |
| LCS Standard | N/A |
| Chk Standard | W3178,W3093,W3191,W3071,W3161,W3072 |

| Sr# | SampleId | ClientID | QcType | Date | Comment | Operator | Status |
|---|---|---|---|---|---|---|---|
| 1 | CAL1 | CAL1 | CAL | 04/29/25 17:25 | | Jignesh | OK |
| 2 | CAL2 | CAL2 | CAL | 04/29/25 17:26 | | Jignesh | OK |
| 3 | CAL3 | CAL3 | CAL | 04/29/25 17:30 | | Jignesh | OK |
| 4 | ICV | ICV | ICV | 04/29/25 17:33 | | Jignesh | OK |
| 5 | CCV1 | CCV1 | CCV | 04/29/25 17:35 | | Jignesh | OK |
| 6 | Q1912-04 | MH-E | SAM | 04/29/25 17:45 | | Jignesh | OK |
| 7 | Q1912-08 | MH-F | SAM | 04/29/25 17:50 | | Jignesh | OK |
| 8 | Q1915-01 | WC-04282025 | SAM | 04/29/25 18:00 | | Jignesh | OK |
| 9 | Q1915-01DUP | WC-04282025DUP | DUP | 04/29/25 18:01 | | Jignesh | OK |
| 10 | CCV2 | CCV2 | CCV | 04/29/25 18:05 | | Jignesh | OK |

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**Instrument ID:** KONELAB

## Daily Analysis Runlog For Sequence/QCBatch ID # LB135608

| | | | |
|---|---|---|---|
| Review By | rubina | Review On | 5/1/2025 9:02:04 AM |
| Supervise By | Iwona | Supervise On | 5/1/2025 12:51:40 PM |
| SubDirectory | LB135608 | Test | Reactive Cyanide |

| STD. NAME | STD REF.# |
|---|---|
| ICAL Standard | WP112882,WP112883,WP112884,WP112885,WP112886,WP112887,WP112888 |
| ICV Standard | WP112889 |
| CCV Standard | WP112883 |
| ICSA Standard | N/A |
| CRI Standard | N/A |
| LCS Standard | N/A |
| Chk Standard | WP112643,WP111035,WP112890 |

| Sr# | SampleId | ClientID | QcType | Date | Comment | Operator | Status |
|---|---|---|---|---|---|---|---|
| 1 | 0.0PPBCN | 0.0PPBCN | CAL1 | 04/30/25 09:44 | | rubina | OK |
| 2 | 5.0PPBCN | 5.0PPBCN | CAL2 | 04/30/25 09:44 | | rubina | OK |
| 3 | 10PPBCN | 10PPBCN | CAL3 | 04/30/25 09:44 | | rubina | OK |
| 4 | 50PPBCN | 50PPBCN | CAL4 | 04/30/25 09:44 | | rubina | OK |
| 5 | 100PPBCN | 100PPBCN | CAL5 | 04/30/25 09:44 | | rubina | OK |
| 6 | 250PPBCN | 250PPBCN | CAL6 | 04/30/25 09:44 | | rubina | OK |
| 7 | 500PPBCN | 500PPBCN | CAL7 | 04/30/25 09:44 | | rubina | OK |
| 8 | ICV1 | ICV1 | ICV | 04/30/25 11:39 | | rubina | OK |
| 9 | ICB1 | ICB1 | ICB | 04/30/25 11:39 | | rubina | OK |
| 10 | CCV1 | CCV1 | CCV | 04/30/25 11:39 | | rubina | OK |
| 11 | CCB1 | CCB1 | CCB | 04/30/25 11:39 | | rubina | OK |
| 12 | PB167792BL | PB167792BL | MB | 04/30/25 11:39 | | rubina | OK |
| 13 | Q1904-02 | VNJ-210 | SAM | 04/30/25 11:46 | | rubina | OK |
| 14 | Q1905-04 | MH-G | SAM | 04/30/25 11:46 | | rubina | OK |
| 15 | Q1905-04DUP | MH-GDUP | DUP | 04/30/25 11:46 | | rubina | OK |
| 16 | Q1905-08 | MH-H | SAM | 04/30/25 11:46 | | rubina | OK |
| 17 | Q1906-04 | WC-4 | SAM | 04/30/25 11:46 | | rubina | OK |
| 18 | Q1906-08 | WC-5 | SAM | 04/30/25 11:46 | | rubina | OK |

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**Instrument ID:** KONELAB

## Daily Analysis Runlog For Sequence/QCBatch ID # LB135608

| | | | |
|---|---|---|---|
| Review By | rubina | Review On | 5/1/2025 9:02:04 AM |
| Supervise By | Iwona | Supervise On | 5/1/2025 12:51:40 PM |
| SubDirectory | LB135608 | Test | Reactive Cyanide |

| STD. NAME | STD REF.# |
|---|---|
| ICAL Standard | WP112882,WP112883,WP112884,WP112885,WP112886,WP112887,WP112888 |
| ICV Standard | WP112889 |
| CCV Standard | WP112883 |
| ICSA Standard | N/A |
| CRI Standard | N/A |
| LCS Standard | N/A |
| Chk Standard | WP112643,WP111035,WP112890 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 19 | Q1906-12 | WC-6 | SAM | 04/30/25 11:46 | | rubina | OK |
| 20 | Q1906-16 | WC-7 | SAM | 04/30/25 11:46 | | rubina | OK |
| 21 | Q1907-02 | CO-8R-WC | SAM | 04/30/25 11:46 | | rubina | OK |
| 22 | CCV2 | CCV2 | CCV | 04/30/25 11:54 | | rubina | OK |
| 23 | CCB2 | CCB2 | CCB | 04/30/25 11:54 | | rubina | OK |
| 24 | Q1912-04 | MH-E | SAM | 04/30/25 11:54 | | rubina | OK |
| 25 | Q1912-08 | MH-F | SAM | 04/30/25 11:54 | | rubina | OK |
| 26 | Q1915-01 | WC-04282025 | SAM | 04/30/25 11:54 | | rubina | OK |
| 27 | PB167802BL | PB167802BL | MB | 04/30/25 12:01 | | rubina | OK |
| 28 | Q1913-02 | WC-12-A-202504 | SAM | 04/30/25 12:01 | | rubina | OK |
| 29 | Q1913-02DUP | WC-12-A-202504DUP | DUP | 04/30/25 12:01 | | rubina | OK |
| 30 | Q1913-04 | WC-13-A-202504 | SAM | 04/30/25 12:01 | | rubina | OK |
| 31 | CCV3 | CCV3 | CCV | 04/30/25 12:05 | | rubina | OK |
| 32 | CCB3 | CCB3 | CCB | 04/30/25 12:05 | | rubina | OK |

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**Instrument ID:** FLAME

## Daily Analysis Runlog For Sequence/QCBatch ID # LB135622

| | | | |
|---|---|---|---|
| Review By | rubina | Review On | 5/1/2025 3:17:42 PM |
| Supervise By | Iwona | Supervise On | 5/1/2025 3:17:51 PM |
| SubDirectory | LB135622 | Test | Ignitability |

| STD. NAME | STD REF.# |
|---|---|
| ICAL Standard | N/A |
| ICV Standard | N/A |
| CCV Standard | N/A |
| ICSA Standard | N/A |
| CRI Standard | N/A |
| LCS Standard | N/A |
| Chk Standard | N/A |

| Sr# | SampleId | ClientID | QcType | Date | Comment | Operator | Status |
|---|---|---|---|---|---|---|---|
| 1 | Q1912-01 | MH-E | SAM | 05/01/25 12:00 | | rubina | OK |
| 2 | Q1912-01DUP | MH-EDUP | DUP | 05/01/25 12:08 | | rubina | OK |
| 3 | Q1912-04 | MH-E | SAM | 05/01/25 12:16 | | rubina | OK |
| 4 | Q1912-05 | MH-F | SAM | 05/01/25 12:23 | | rubina | OK |
| 5 | Q1912-08 | MH-F | SAM | 05/01/25 12:30 | | rubina | OK |
| 6 | Q1915-01 | WC-04282025 | SAM | 05/01/25 12:38 | | rubina | OK |
| 7 | Q1916-01 | WC-12 | SAM | 05/01/25 12:45 | | rubina | OK |
| 8 | Q1916-04 | WC-12 | SAM | 05/01/25 12:52 | | rubina | OK |
| 9 | Q1917-01 | MH-JJ | SAM | 05/01/25 13:00 | | rubina | OK |
| 10 | Q1917-04 | MH-JJ | SAM | 05/01/25 13:08 | | rubina | OK |
| 11 | Q1922-01 | MH-R | SAM | 05/01/25 13:15 | | rubina | OK |
| 12 | Q1922-04 | MH-R | SAM | 05/01/25 13:22 | | rubina | OK |
| 13 | Q1922-05 | MH-S | SAM | 05/01/25 13:30 | | rubina | OK |
| 14 | Q1922-08 | MH-S | SAM | 05/01/25 13:37 | | rubina | OK |
| 15 | Q1925-01 | AUD-25-0068 | SAM | 05/01/25 13:45 | | rubina | OK |
| 16 | Q1925-02 | AUD-25-0069 | SAM | 05/01/25 13:52 | | rubina | OK |
| 17 | Q1925-03 | AUD-25-0070 | SAM | 05/01/25 14:00 | | rubina | OK |

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**Instrument ID:** TITRAMETRIC

## Daily Analysis Runlog For Sequence/QCBatch ID # LB135629

| | | | |
|---|---|---|---|
| Review By | rubina | Review On | 5/1/2025 2:49:43 PM |
| Supervise By | Iwona | Supervise On | 5/1/2025 3:16:25 PM |
| SubDirectory | LB135629 | Test | Reactive Sulfide |

| STD. NAME | STD REF.# |
|---|---|
| ICAL Standard | N/A |
| ICV Standard | N/A |
| CCV Standard | N/A |
| ICSA Standard | N/A |
| CRI Standard | N/A |
| LCS Standard | N/A |
| Chk Standard | W3105,W3114,W3149 |

| Sr# | SampleId | ClientID | QcType | Date | Comment | Operator | Status |
|---|---|---|---|---|---|---|---|
| 1 | PB167811BL | PB167811BL | MB | 05/01/25 11:00 | | rubina | OK |
| 2 | Q1905-04 | MH-G | SAM | 05/01/25 11:03 | | rubina | OK |
| 3 | Q1905-04DUP | MH-GDUP | DUP | 05/01/25 11:06 | | rubina | OK |
| 4 | Q1905-08 | MH-H | SAM | 05/01/25 11:08 | | rubina | OK |
| 5 | Q1907-02 | CO-8R-WC | SAM | 05/01/25 11:11 | | rubina | OK |
| 6 | Q1912-04 | MH-E | SAM | 05/01/25 11:14 | | rubina | OK |
| 7 | Q1912-08 | MH-F | SAM | 05/01/25 11:17 | | rubina | OK |
| 8 | Q1915-01 | WC-04282025 | SAM | 05/01/25 11:20 | | rubina | OK |
| 9 | Q1916-04 | WC-12 | SAM | 05/01/25 11:23 | | rubina | OK |
| 10 | Q1917-04 | MH-JJ | SAM | 05/01/25 11:25 | | rubina | OK |
| 11 | Q1922-04 | MH-R | SAM | 05/01/25 11:27 | | rubina | OK |
| 12 | Q1922-08 | MH-S | SAM | 05/01/25 11:30 | | rubina | OK |

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# Prep Standard - Chemical Standard Summary

**Order ID :** Q1915

**Test :** Corrosivity,Ignitability,Reactive Cyanide,Reactive Sulfide

**Prepbatch ID :** PB167792,PB167811,

**Sequence ID/Qc Batch ID:** LB135607,LB135608,LB135622,LB135629,

**Standard ID :**
WP111004,WP111035,WP111294,WP111296,WP112643,WP112881,WP112882,WP112883,WP112884,WP112885,WP112886,WP112887,WP112888,WP112889,WP112890,

**Chemical ID :**
M6121,W2668,W2725,W2882,W2926,W3019,W3071,W3072,W3093,W3105,W3112,W3113,W3114,W3138,W3139,W3149,W3154,W3161,W3178,W3191,

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# Wet Chemistry STANDARD PREPARATION LOG

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 160 | 0.5M ZINC ACETATE | WP111004 | 12/09/2024 | 05/13/2025 | Rubina Mughal | WETCHEM_SCALE_8 (WC SC-7) | WETCHEM_PIPETTE_3 (WC) | Iwona Zarych 12/09/2024 |

**FROM** 0.88900L of W3112 + 1.00000ml of M6121 + 110.00000gram of W2926 = Final Quantity: 1000.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 607 | PYRIDINE-BARBITURIC ACID | WP111035 | 12/09/2024 | 04/30/2025 | Niha Farheen Shaik | WETCHEM_SCALE_5 (WC SC-5) | Glass Pipette-A | Iwona Zarych 12/10/2024 |

**FROM** 145.00000ml of W3112 + 15.00000gram of W2882 + 15.00000ml of M6121 + 75.00000ml of W3019 = Final Quantity: 250.000 ml

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# Wet Chemistry STANDARD PREPARATION LOG

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 11 | Sodium hydroxide absorbing solution 0.25 N | WP111294 | 01/07/2025 | 07/07/2025 | Niha Farheen Shaik | WETCHEM_SCALE_5 (WCSC-5) | None | Iwona Zarych 01/07/2025 |

**FROM** 21.00000L of W3112 + 210.00000gram of W3113 = Final Quantity: 21.000 L

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 3371 | Cyanide LCS Spike Solution, 5PPM | WP111296 | 01/07/2025 | 07/07/2025 | Niha Farheen Shaik | None | WETCHEM_PIPETTE_3 (WC) | Iwona Zarych 01/07/2025 |

**FROM** 1.00000ml of W3138 + 199.00000ml of WP111294 = Final Quantity: 200.000 ml

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# Wet Chemistry STANDARD PREPARATION LOG

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 539 | CN BUFFER | WP112643 | 04/09/2025 | 10/09/2025 | Niha Farheen Shaik | WETCHEM_SCALE_5 (WCSC-5) | None | Iwona Zarych 04/09/2025 |

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

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 3456 | Cyanide Intermediate Working Std, 5PPM | WP112881 | 04/30/2025 | 05/01/2025 | Rubina Mughal | None | WETCHEM_PIPETTE_3 (WC) | Iwona Zarych 04/30/2025 |

**FROM** 0.25000ml of W3154 + 49.75000ml of WP111294 = Final Quantity: 50.000 ml

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# Wet Chemistry STANDARD PREPARATION LOG

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 4 | Calibation standard 500 ppb | WP112882 | 04/30/2025 | 05/01/2025 | Rubina Mughal | None | WETCHEM_PIPETTE_3 (WC) | Iwona Zarych 04/30/2025 |

**FROM** 45.00000ml of WP111294 + 5.00000ml of WP112881 = Final Quantity: 50.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 3761 | Calibration-CCV CN Standard 250 ppb | WP112883 | 04/30/2025 | 05/01/2025 | Rubina Mughal | None | WETCHEM_PIPETTE_3 (WC) | Iwona Zarych 04/30/2025 |

**FROM** 2.50000ml of WP112881 + 47.50000ml of WP111294 = Final Quantity: 50.000 ml

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

# Wet Chemistry STANDARD PREPARATION LOG

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 6 | Calibration Standard 100 ppb | WP112884 | 04/30/2025 | 05/01/2025 | Rubina Mughal | None | WETCHEM_PIPETTE_3 (WC) | Iwona Zarych 04/30/2025 |

**FROM** 1.00000ml of WP112881 + 49.00000ml of WP111294 = Final Quantity: 50.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 7 | Calibration Standard 50 ppb | WP112885 | 04/30/2025 | 05/01/2025 | Rubina Mughal | None | WETCHEM_PIPETTE_3 (WC) | Iwona Zarych 04/30/2025 |

**FROM** 0.50000ml of WP112881 + 49.50000ml of WP111294 = Final Quantity: 50.000 ml

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Fax : 908 789 8922

# Wet Chemistry STANDARD PREPARATION LOG

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 8 | Calibration Standard 10 ppb | WP112886 | 04/30/2025 | 05/01/2025 | Rubina Mughal | None | WETCHEM_PIPETTE_3 (WC) | Iwona Zarych 04/30/2025 |

**FROM** 1.00000ml of WP112882 + 49.00000ml of WP111294 = Final Quantity: 50.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 9 | Calibration Standard 5 ppb | WP112887 | 04/30/2025 | 05/01/2025 | Rubina Mughal | None | WETCHEM_PIPETTE_3 (WC) | Iwona Zarych 04/30/2025 |

**FROM** 0.50000ml of WP112882 + 49.50000ml of WP111294 = Final Quantity: 50.000 ml

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Fax : 908 789 8922

# Wet Chemistry STANDARD PREPARATION LOG

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 167 | 0 ppb CN calibration std | WP112888 | 04/30/2025 | 05/01/2025 | Rubina Mughal | None | None | Iwona Zarych 04/30/2025 |

**FROM** 50.00000ml of WP111294 = Final Quantity: 50.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 2168 | RCN ICV STD, 100 PPB | WP112889 | 04/30/2025 | 05/01/2025 | Rubina Mughal | None | WETCHEM_PIPETTE_3 (WC) | Iwona Zarych 04/30/2025 |

**FROM** 1.00000ml of WP111296 + 49.00000ml of WP111294 = Final Quantity: 50.000 ml

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# Wet Chemistry STANDARD PREPARATION LOG

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 1582 | Chloramine T solution, 0.014M | WP112890 | 04/30/2025 | 05/01/2025 | Rubina Mughal | WETCHEM_SCALE_5 (WCSC-5) | Glass Pipette-A | Iwona Zarych 04/30/2025 |

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

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# CHEMICAL RECEIPT LOG BOOK

| 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, 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 # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | EMD-FX0410-5 / FORMALDEHYDE SOLUTION 450ML | 60045 | 06/22/2025 | 08/19/2024 / Iwona | 06/22/2020 / apatel | W2725 |

| 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 / | 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. | J4296-1 / ZINC ACETATE,DIHYD,CRYS,ACS,500G | 383058 | 07/05/2027 | 07/05/2022 / ketankumar | 07/05/2022 / ketankumar | W2926 |

| 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 |

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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. | AL14455-3 / buffer solution pH 7 yellow | 4308H30 | 07/31/2025 | 01/02/2024 / JIGNESH | 12/06/2023 / Iwona | W3071 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | AL14940-1 / Buffer Solution, PH12 (500ml) | 2310P21 | 04/30/2025 | 01/02/2024 / JIGNESH | 12/07/2023 / Iwona | W3072 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | 566002 / BUFFER PH 7.00 GREEN 1PINT PK6 | 44001f99 | 12/31/2025 | 04/03/2024 / jignesh | 04/02/2024 / jignesh | W3093 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | AL69870-8 / SODIUM THIOSULFATE,0.025N,4LITRE | 4403S13 | 09/30/2025 | 04/22/2024 / Iwona | 04/22/2024 / Iwona | W3105 |

| 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 |

| 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 |

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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. | AL35830-4 / IODINE SOLUTION .025N 1L | 2405D89 | 05/31/2025 | 07/10/2024 / Iwona | 07/10/2024 / Iwona | W3114 |

| 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 / Iwona | 08/28/2024 / Iwona | 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 / 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. | AL70850-8 / Starch Solution, 4L | 4408P62 | 08/31/2026 | 10/16/2024 / Iwona | 10/16/2024 / Iwona | W3149 |

| 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 / Iwona | 12/02/2024 / Iwona | W3154 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | AL13850-1 / Buffer Solution, PH2 (500ml) | 2411E26 | 10/31/2026 | 12/09/2024 / Iwona | 12/09/2024 / Iwona | W3161 |

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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. | AL14055-3 / PH 4 BUFFER SOLUTION | 2411A93 | 10/30/2026 | 04/01/2025 / JIGNESH | 01/27/2025 / jignesh | W3178 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | 1601-1 / PH 10.01 BUFFER,COLOR CD 475ML | 2410F80 | 03/31/2026 | 04/01/2025 / JIGNESH | 03/13/2025 / jignesh | W3191 |

RICCA CHEMICAL COMPANY®

1490 Lammers Pike
Batesville, IN 47006
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1-888-GO-RICCA
customerservice@riccachemical.com

W3071
Rec 12/6/23

# Certificate of Analysis 12

## Buffer, Reference Standard, pH 7.00 ± 0.01 at 25°C (Color Coded Yellow)

**Lot Number:** 4308H30 **Product Number:** 1551

**Manufacture Date:** AUG 09, 2023
**Expiration Date:** JUL 2025

The certified value for this product is confirmed in independent testing by a second qualified chemist.
The NIST traceable pH value is certified to ±0.01 at 25 °C only. All other pH values at their corresponding temperatures are accurate to ± 0.05.

| °C | 0 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| pH | 7.12 | 7.09 | 7.06 | 7.04 | 7.02 | 7.00 | 6.99 | 6.98 | 6.98 | 6.97 | 6.97 |

| Name | CAS# | Grade |
|---|---|---|
| Water | 7732-18-5 | ACS/ASTM/USP/EP |
| Sodium Phosphate Dibasic | 7558-79-4 | ACS |
| Potassium Dihydrogen Phosphate | 7778-77-0 | ACS |
| Preservative | Proprietary | |
| Yellow Dye | Proprietary | |
| Sodium Hydroxide | 1310-73-2 | Reagent |

| Test | Specification | Result | |
|---|---|---|---|
| Appearance | Yellow liquid | Passed | *Not a certified value. |

| Test | Certified Value | Uncertainty | NIST SRM# |
|---|---|---|---|
| pH at 25°C (Method: SQCP027, SQCP033) | 7.002 | 0.02 | 186-I-g, 186-II-g, 191d |

| Specification | Reference |
|---|---|
| Commercial Buffer Solutions | ASTM (D 1293 B) |
| Buffer A | ASTM (D 5464) |
| Buffer A | ASTM (D 5128) |

pH measurements were performed in our Batesville, IN laboratory under ISO/IEC 17025 accreditation (ANAB Certificate L2387.02) and are certified traceable to National Institute of Standards and Technology (NIST) Standard Reference Material as indicated above via an unbroken chain of comparisons. The uncertainty is calculated from the uncertainty of the measurement variation from sample to sample, the uncertainty in the NIST Standard Reference Material, and the uncertainty of the measurement process. The uncertainty is multiplied by k=2, corresponding to 95% coverage in a normal distribution. 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) |
|---|---|---|
| 1551-2.5 | 10 L Cubitainer® | 24 months |
| 1551-5 | 20 L Cubitainer® | 24 months |

**Recommended Storage:** 15°C - 30°C (59°F - 86°F)

Paul Brandon (08/09/2023)
Production Manager
This document is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

## This product was tested in an ISO 17025 Accredited Laboratory

Sigma-Aldrich.

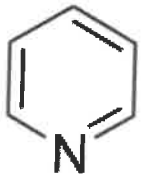
W3019
Rec 4/3/23

3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

# 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: | 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

RICCA CHEMICAL COMPANY®

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W3072
rec. 12/01/23
12

# Certificate of Analysis

## Buffer, Reference Standard, pH 12.00 ± 0.01 at 25°C

**Lot Number:** 2310P21 **Product Number:** 1615

**Manufacture Date:** OCT 24, 2023
**Expiration Date:** APR 2025

The certified value for this product is confirmed in independent testing by a second qualified chemist.

| °C | 15 | 20 | 25 | 30 | 35 | 40 |
|---|---|---|---|---|---|---|
| pH | 12.35 | 12.17 | 11.99 | 11.78 | 11.62 | 11.46 |

| Name | CAS# | Grade |
|---|---|---|
| Water | 7732-18-5 | ACS/ASTM/USP/EP |
| Potassium Chloride | 7447-40-7 | ACS |
| Sodium Hydroxide | 1310-73-2 | Reagent |

| Test | Specification | Result | |
|---|---|---|---|
| Appearance | Colorless liquid | Passed | *Not a certified value. |

| Test | Certified Value | Uncertainty | NIST SRM# |
|---|---|---|---|
| pH at 25°C (Method: SQCP027, SQCP033) | 12.005 | 0.02 | 186-I-g, 186-II-g, 191d |

pH measurements were performed in our Pocomoke City, MD laboratory under ISO/IEC 17025 accreditation (ANAB Certificate L2387.01) and are certified traceable to National Institute of Standards and Technology (NIST) Standard Reference Material as indicated above via an unbroken chain of comparisons. The uncertainty is calculated from the uncertainty of the measurement variation from sample to sample, the uncertainty in the NIST Standard Reference Material, and the uncertainty of the measurement process. The uncertainty is multiplied by k=2, corresponding to 95% coverage in a normal distribution. 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) |
|---|---|---|
| 1615-1 | 4 L natural poly | 18 months |
| 1615-16 | 500 mL clear PET-G | 18 months |
| 1615-32 | 1 L natural poly | 18 months |
| 1615-5 | 20 L Cubitainer® | 18 months |

**Recommended Storage:** 15°C - 30°C (59°F - 86°F)

Sharon Travers (10/24/2023)
Operations Manager
This document is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

## This product was tested in an ISO 17025 Accredited Laboratory

W2723, W2724, W2725, W2726 Received on 6/22/20 by AP

# Certificate of Analysis

| | |
|---|---|
| Date of Release: | 2/26/2020 |
| Name: | Formaldehyde Solution<br>GR ACS<br>Meets ACS Specifications |
| Item No: | FX0410 all size codes |
| Lot / Batch No: | 60045 |
| Country of Origin: | USA |

| Characteristic | Requirement | | Results | Units |
|---|---|---|---|---|
| | Min. | Max. | | |
| Assay | 36.5 | 38.0 | 36.71 | % |
| Chloride (Cl) | | 5 | <5 | ppm |
| Color (APHA) | | 10 | <10 | |
| Form | | | Passes test | |
| Heavy metals (as Pb) | | 5 | <5 | ppm |
| Iron (Fe) | | 5 | 0.6 | ppm |
| Residue after ignition | | 0.005 | <0.0050 | % |
| Sulfate (SO4) | | 0.002 | <0.0020 | % |
| Titrable acid | | 0.006 | <0.0060 | meq/g |

Heather Sinn,
_____
Quality Control Manager
This document has been produced electronically and is valid without a signature.

EMD Millipore Corporation, an affiliate of Merck KGaA, Darmstadt, Germany
290 Concord Road
Billerica, MA 01821
U.S.A

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

avantor™ | J.T.Baker®

R → 10/13/24
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 $Cl_2$) | <= 0.5 ppm | < 0.5 |
| Phosphate ($PO_4$) | <= 0.05 ppm | < 0.03 |
| Sulfate ($SO_4$) | <= 0.5 ppm | < 0.3 |
| Sulfite ($SO_3$) | <= 0.8 ppm | 0.3 |
| Ammonium ($NH_4$) | <= 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 |

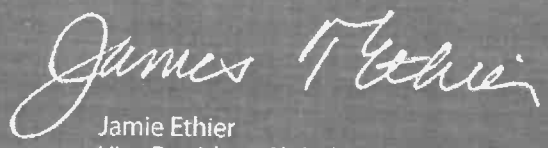
For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700
Avantor Performance Materials, LLC
100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700

Material No.: 9530-33
Batch No.: 0000275677

| 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



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 ($NaH_2PO_4 \cdot H_2O$) | 98.0 - 102.0 % | 99.5 |
| pH of 5% Solution at 25°C | 4.1 - 4.5 | 4.3 |
| Insoluble Matter | <= 0.01 % | < 0.01 |
| Chloride (Cl) | <= 5 ppm | < 5 |
| ACS - Sulfate ($SO_4$) | <= 0.003 % | < 0.003 |
| Calcium (Ca) | <= 0.005 % | <0.005 |
| Potassium (K) | <= 0.01 % | < 0.01 |
| Heavy Metals (as Pb) | <= 0.001 % | < 0.001 |
| Trace Impurities - Iron (Fe) | <= 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

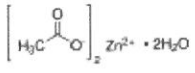
For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700
Avantor Performance Materials, LLC
100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700

3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

W2926
open 7/5/22
received
on
7/5/22

# Certificate of Analysis

Product Name:
Zinc acetate dihydrate - ACS reagent, ≥98%



| | |
|---|---|
| **Product Number:** | **383058** |
| **Batch Number:** | **MKCQ9159** |
| Brand: | SIGALD |
| CAS Number: | 5970-45-6 |
| MDL Number: | MFCD00066961 |
| Formula: | C4H6O4Zn · 2H2O |
| Formula Weight: | 219.51 g/mol |
| Quality Release Date: | 06 JAN 2022 |

| Test | Specification | Result |
|---|---|---|
| Appearance (Color) | White | White |
| Appearance (Form) | Powder or Crystal or Chunk(s) | Powder |
| Infrared Spectrum | Conforms to Structure | Conforms |
| Insoluble Matter | ≤ 0.005 % | 0.003 % |
| Calcium (Ca) | ≤ 0.005 % | 0.003 % |
| Chloride (Cl) | ≤ 5 ppm | < 5 ppm |
| Iron (Fe) | ≤ 5 ppm | < 5 ppm |
| Potassium (K) | ≤ 0.01 % | 0.00 % |
| Magnesium (Mg) | ≤ 0.005 % | 0.003 % |
| Sodium (Na) | ≤ 0.05 % | 0.03 % |
| Lead (Pb) | ≤ 0.002 % | < 0.001 % |
| pH | 6.0 - 7.0 | 6.1 |
| Sulfate (SO4) | ≤ 0.005 % | < 0.005 % |
| Complexometric EDTA | 98.0 - 101.0 % | 100.3 % |
| Meets ACS Requirements | Meets Requirements | Meets Requirements |

Larry Coers, Director
Quality Control
Milwaukee, WI US

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Batesville, IN 47006
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W3093 0941 04/03/2024 LG

# Certificate of Analysis

## Buffer, Reference Standard, pH 7.00 ± 0.01 at 25°C (Color Coded Yellow)

**Lot Number:** 4401F99 **Product Number:** 1551

**Manufacture Date:** JAN 08, 2024
**Expiration Date:** DEC 2025

The certified value for this product is confirmed in independent testing by a second qualified chemist.
The NIST traceable pH value is certified to ±0.01 at 25 °C only. All other pH values at their corresponding temperatures are accurate to ± 0.05.

| °C | 0 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| pH | 7.12 | 7.09 | 7.06 | 7.04 | 7.02 | 7.00 | 6.99 | 6.98 | 6.98 | 6.97 | 6.97 |

| Name | CAS# | Grade |
|---|---|---|
| Water | 7732-18-5 | ACS/ASTM/USP/EP |
| Sodium Phosphate Dibasic | 7558-79-4 | ACS |
| Potassium Dihydrogen Phosphate | 7778-77-0 | ACS |
| Preservative | Proprietary | |
| Yellow Dye | Proprietary | |
| Sodium Hydroxide | 1310-73-2 | |

| Test | Specification | Result | |
|---|---|---|---|
| Appearance | Yellow liquid | Passed | *Not a certified value. |

| Test | Certified Value | Uncertainty | NIST SRM# |
|---|---|---|---|
| pH at 25°C (Method: SQCP027, SQCP033) | 7.004 | 0.02 | 186-I-g, 186-II-g, 191d |

| Specification | Reference |
|---|---|
| Commercial Buffer Solutions | ASTM (D 1293 B) |
| Buffer A | ASTM (D 5464) |
| Buffer A | ASTM (D 5128) |

pH measurements were performed in our Batesville, IN laboratory under ISO/IEC 17025 accreditation (ANAB Certificate L2387.02) and are certified traceable to National Institute of Standards and Technology (NIST) Standard Reference Material as indicated above via an unbroken chain of comparisons. The uncertainty is calculated from the uncertainty of the measurement variation from sample to sample, the uncertainty in the NIST Standard Reference Material, and the uncertainty of the measurement process. The uncertainty is multiplied by k=2, corresponding to 95% coverage in a normal distribution. 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) |
|---|---|---|
| 1551-1 | 4 L natural poly | 24 months |
| 1551-1CT | 4 L Cubitainer® | 24 months |
| 1551-2.5 | 10 L Cubitainer® | 24 months |
| 1551-5 | 20 L Cubitainer® | 24 months |

**Recommended Storage:** 15°C - 30°C (59°F - 86°F)

Paul Brandon (01/08/2024)
Production Manager
This document is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

## This product was tested in an ISO 17025 Accredited Laboratory

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customerservice@riccachemical.com

W3105 Received on 4/22/24 by IZ

# Certificate of Analysis

## Sodium Thiosulfate, 0.0250 Normal (N/40)

**Lot Number:** 4403S13 **Product Number:** 7900

**Manufacture Date:** MAR 29, 2024
**Expiration Date:** SEP 2025

This product is specially formulated to increase its stability. A preservative is added to prevent bacterial contamination. However, all Sodium Thiosulfate solutions are subject to slow chemical deterioration and should be restandardized periodically.

| Name | CAS# | Grade |
|---|---|---|
| Water | 7732-18-5 | ACS/ASTM/USP/EP |
| Sodium Thiosulfate Pentahydrate | 10102-17-7 | ACS |
| Organic Preservative | Proprietary | |
| Sodium Carbonate | 497-19-8 | ACS |

| Test | Specification | Result | NIST SRM# |
|---|---|---|---|
| Appearance | Colorless liquid | Passed | |
| Assay (vs. Potassium Iodate/Starch) | 0.02499-0.02501 N at 20°C | 0.02501 N at 20°C | 136 |

| Specification | Reference |
|---|---|
| Standard Sodium Thiosulfate Solution, 0.0250 N | APHA (4500-S2- F) |
| Standard Sodium Thiosulfate Titrant | APHA (4500-O D) |
| Standard Sodium Thiosulfate Titrant | APHA (4500-O E) |
| Standard Sodium Thiosulfate Titrant | APHA (4500-O F) |
| Standard Sodium Thiosulfate Titrant, 0.025 N | APHA (4500-Cl B) |
| Standard Sodium Thiosulfate Titrant | APHA (4500-O C) |
| Standard Sodium Thiosulfate Titrant, 0.025 M | APHA (5530 C) |
| Standard Sodium Thiosulfate Solution (0.025 N) | EPA (SW-846) (9031) |
| Standard Sodium Thiosulfate solution (0.025 N) | EPA (SW-846) (9034) |

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) |
|---|---|---|
| 7900-1 | 4 L natural poly | 18 months |
| 7900-16 | 500 mL natural poly | 18 months |
| 7900-1CT | 4 L Cubitainer® | 18 months |
| 7900-32 | 1 L natural poly | 18 months |

**Recommended Storage:** 15°C - 30°C (59°F - 86°F)

Paul Brandon (03/29/2024)
Production Manager
This document is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

# 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:

Pellets

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

Storage: Room Temperature

| 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 |

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.

# Certificate of Analysis

# Sodium Hydroxide (Pellets)

**Material:** **0583**

**Grade:** **ACS GRADE**

**Batch Number:** **23B1556310**

| | | | |
|---|---|---|---|
| Chemical Formula: | NaOH | Manufacture Date: | 12/14/2022 |
| Molecular Weight: | 40 | Expiration Date: | 12/31/2025 |
| CAS #: | 1310-73-2 | | |
| Appearance: | | Storage: | Room Temperature |

Pellets

Spec Set: 0583ACS

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.

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Pocomoke City, MD 21851
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customerservice@riccachemical.com

# Certificate of Analysis

## Iodine (Iodine-Iodide), 0.0250 Normal (N/40), 1 mL = 0.4008 mg $S^{2-}$

**Lot Number:** 2405D89 **Product Number:** 3975

**Manufacture Date:** MAY 10, 2024
**Expiration Date:** MAY 2025

| Name | CAS# | Grade |
|---|---|---|
| Water | 7732-18-5 | ACS/ASTM/USP/EP |
| Potassium Iodide | 7681-11-0 | ACS |
| Iodine | 7553-56-2 | ACS |

| Test | Specification | Result | NIST SRM# |
|---|---|---|---|
| Appearance | Dark brown liquid | Passed | |
| Assay (vs. Sodium Thiosulfate/Starch) | 0.02498-0.02502 N at 20°C | 0.02502 N at 20°C | 136 |

| Specification | Reference |
|---|---|
| Standard Iodine Solution, 0.0250 N | APHA (4500-S2- F) |
| Iodine Solution (approximately 0.025 N) | EPA (SW-846) (9031) |
| Standard Iodine Solution, 0.0250 N | EPA (376.1) |
| Iodine Solution (approximately 0.025 N) | EPA (SW-846) (9034) |

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) |
|---|---|---|
| 3975-1 | 4 L amber glass | 12 months |
| 3975-16 | 500 mL amber glass | 12 months |
| 3975-32 | 1 L amber glass | 12 months |

**Recommended Storage:** 15°C - 30°C (59°F - 86°F)

Jose Pena (05/10/2024)
Operations Manager

LabChem
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: 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 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

*Michael Monteleone*
*Chemistry Supervisor - Quality Control*

*ISO9001:2015 Registration #0306-01*

2024080113:32:16bsturges-0-0

ThermoFisher SCIENTIFIC

# Certificate of Analysis

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 |

RICCA CHEMICAL COMPANY®

W3149 Received on 10/16/24 by IZ

1490 Lammers Pike
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# Certificate of Analysis

## Starch Indicator, 0.5% (w/v), Mercury Free, for Iodometric Titrations

**Lot Number:** 4408P62 **Product Number:** 8000

**Manufacture Date:** AUG 28, 2024
**Expiration Date:** AUG 2026

This product is Mercury-free.

| Name | CAS# | Grade |
|---|---|---|
| Water | 7732-18-5 | ACS/ASTM/USP/EP |
| Starch, soluble | 9005-84-9 | ACS |
| Salicylic Acid | 69-72-7 | ACS |

| Test | Specification | Result |
|---|---|---|
| Appearance | White translucent liquid | Passed |
| Suitability for Use | Colorless (Iodine absent) - Blue (Iodine present) | Passed |

| Specification | Reference |
|---|---|
| Starch Solution | APHA (4500-S2- F) |
| Starch Indicator Solution | APHA (4500-Cl B) |
| Starch Indicator | APHA (4500-SO32- B) |
| Starch indicator solution | APHA (2350 B) |
| Starch indicator solution | APHA (2350 E) |
| Starch Solution | APHA (510 B) |
| Starch Solution | APHA (5530 C) |
| Starch Indicator | APHA (4500-Cl C) |
| Starch Indicator | EPA (345.1) |

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) |
|---|---|---|
| 8000-1 | 4 L natural poly | 24 months |
| 8000-16 | 500 mL natural poly | 24 months |
| 8000-32 | 1 L natural poly | 24 months |

**Recommended Storage:** 15°C - 30°C (59°F - 86°F)

Paul Brandon (08/28/2024)
Production Manager

RICCA CHEMICAL COMPANY®
W3154 Rec. on 12/2/24 by IZ

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# Certificate of Analysis

## Cyanide Standard, 1000 ppm $CN^-$

**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 certifiec 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 ($CN^-$) | 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)

Luis Briceno (11/22/2024)
Operations Supervisor

RICCA CHEMICAL COMPANY®

W3161 Rec. on 12/09/24 by IZ

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# Certificate of Analysis

## Buffer, Reference Standard, pH 2.00 ± 0.01 at 25°C

**Lot Number:** 2411E26 **Product Number:** 1493

**Manufacture Date:** NOV 11, 2024
**Expiration Date:** OCT 2026

The certified value for this product is confirmed in independent testing by a second qualified chemist.
The NIST traceable pH value is certified to ±0.01 at 25 °C only. All other pH values at their corresponding temperatures are accurate to ± 0.05.

| °C | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 |
|---|---|---|---|---|---|---|---|---|---|
| pH | 1.93 | 1.98 | 1.98 | 2.00 | 2.01 | 2.03 | 2.03 | 2.04 | 2.04 |

| Name | CAS# | Grade |
|---|---|---|
| Water | 7732-18-5 | ACS/ASTM/USP/EP |
| Potassium Chloride | 7447-40-7 | ACS |
| Hydrochloric Acid | 7647-01-0 | ACS |

| Test | Specification | Result | |
|---|---|---|---|
| Appearance | Colorless liquid | Passed | *Not a certified value. |

| Test | Certified Value | Uncertainty | NIST SRM# |
|---|---|---|---|
| pH at 25°C (Method: SQCP027, SQCP033) | 1.994 | 0.02 | 185i, 186-I-g, 186-II-g |

pH measurements were performed in our Pocomoke City, MD laboratory under ISO/IEC 17025 accreditation (ANAB Certificate L2387.01) and are certified traceable to National Institute of Standards and Technology (NIST) Standard Reference Material as indicated above via an unbroken chain of comparisons. The uncertainty is calculated from the uncertainty of the measurement variation from sample to sample, the uncertainty in the NIST Standard Reference Material, and the uncertainty of the measurement process. The uncertainty is multiplied by k=2, corresponding to 95% coverage in a normal distribution. 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) |
|---|---|---|
| 1493-1 | 4 L natural poly | 24 months |
| 1493-16 | 500 mL natural poly | 24 months |
| 1493-1CT | 4 L Cubitainer® | 24 months |
| 1493-2.5 | 10 L Cubitainer® | 24 months |
| 1493-32 | 1 L natural poly | 24 months |

**Recommended Storage:** 15°C - 30°C (59°F - 86°F)

Jose Pena (11/11/2024)
Operations Manager

## This product was tested in an ISO 17025 Accredited Laboratory

RICCA CHEMICAL COMPANY®

1841 Broad Street
Pocomoke City, MD 21851
http://www.riccachemical.com
1-888-GO-RICCA
customerservice@riccachemical.com

# Certificate of Analysis

W3178 58

## Buffer, Reference Standard, pH 4.00 ± 0.01 at 25°C (Color Coded Red)

**Lot Number:** 2411A93 **Product Number:** 1501 **Manufacture Date:** NOV 04, 2024
**Expiration Date:** OCT 2026

The certified value for this product is confirmed in independent testing by a second qualified chemist.
The NIST Traceable pH value is certified to ±0.01 at 25 °C only. All other pH values at their corresponding temperatures are accurate to ± 0.05.

| °C | 0 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| pH | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.01 | 4.02 | 4.03 | 4.04 | 4.06 |

| Name | CAS# | Grade |
|---|---|---|
| Water | 7732-18-5 | ACS/ASTM/USP/EP |
| Potassium Acid Phthalate | 877-24-7 | Buffer |
| Preservative | Proprietary | Commercial |
| Red Dye | Proprietary | Purified |

| Test | Specification | Result | |
|---|---|---|---|
| Appearance | Red liquid | Passed | *Not a certified value. |

| Test | Certified Value | Uncertainty | NIST SRM# |
|---|---|---|---|
| pH at 25°C (Method: SQCP027, SQCP033) | 4.008 | 0.02 | 185i, 186-I-g, 186-II-g |

| Specification | Reference |
|---|---|
| Commercial Buffer Solutions | ASTM (D 1293 B) |
| Buffer B | ASTM (D 5464) |
| Buffer B | ASTM (D 5128) |

pH measurements were performed in our Pocomoke City, MD laboratory under ISO/IEC 17025 accreditation (ANAB Certificate L2387.01) and are certified traceable to National Institute of Standards and Technology (NIST) Standard Reference Material as indicated above via an unbroken chain of comparisons. The uncertainty is calculated from the uncertainty of the measurement variation from sample to sample, the uncertainty in the NIST Standard Reference Material, and the uncertainty of the measurement process. The uncertainty is multiplied by k=2, corresponding to 95% coverage in a normal distribution. 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) |
|---|---|---|
| 1501-16 | 500 mL natural poly | 24 months |
| 1501-2.5 | 10 L Cubitainer® | 24 months |
| 1501-5 | 20 L Cubitainer® | 24 months |

**Recommended Storage:** 15°C - 30°C (59°F - 86°F)

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customerservice@riccachemical.com

W3191 W3191 Receive Date: 03/18/25 JP

# Certificate of Analysis

## Buffer, Reference Standard, pH 10.00 ± 0.01 at 25°C (Color Coded Blue)

**Lot Number:** 2410F80 **Product Number:** 1601 **Manufacture Date:** OCT 09, 2024

**Expiration Date:** MAR 2026

The certified value for this product is confirmed in independent testing by a second qualified chemist.
The NIST traceable pH value is certified to ±0.01 at 25 °C only. All other pH values at their corresponding temperatures are accurate to ± 0.05.

| °C | 0 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|
| pH | 10.31 | 10.23 | 10.17 | 10.11 | 10.05 | 10.00 | 9.95 | 9.91 | 9.87 | 9.81 |

| Name | CAS# | Grade |
|---|---|---|
| Water | 7732-18-5 | ACS/ASTM/USP/EP |
| Sodium Carbonate | 497-19-8 | ACS |
| Sodium Bicarbonate | 144-55-8 | ACS |
| Sodium Hydroxide | 1310-73-2 | Reagent |
| Preservative | Proprietary | |
| Blue Dye | Proprietary | |

| Test | Specification | Result | |
|---|---|---|---|
| Appearance | Blue liquid | Passed | *Not a certified value. |

| Test | Certified Value | Uncertainty | NIST SRM# |
|---|---|---|---|
| pH at 25°C (Method: SQCP027, SQCP033) | 10.009 | 0.02 | 186-I-g, 186-II-g, 191d |

| Specification | Reference |
|---|---|
| Commercial Buffer Solutions | |
| Buffer C | ASTM (D 1293 B) |
| Buffer C | ASTM (D 5464) |
| | ASTM (D 5128) |

pH measurements were performed in our Pocomoke City, MD laboratory under ISO/IEC 17025 accreditation (ANAB Certificate L2387.01) and are certified traceable to National Institute of Standards and Technology (NIST) Standard Reference Material as indicated above via an unbroken chain of comparisons. The uncertainty is calculated from the uncertainty of the measurement variation from sample to sample, the uncertainty in the NIST Standard Reference Material, and the uncertainty of the measurement process. The uncertainty is multiplied by k=2, corresponding to 95% coverage in a normal distribution. 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) |
|---|---|---|
| 1601-1 | 4 L natural poly | 18 months |
| 1601-16 | 500 mL natural poly | 18 months |
| 1601-1CT | 4 L Cubitainer® | 18 months |
| 1601-2.5 | 10 L Cubitainer® | 18 months |
| 1601-32 | 1 L natural poly | 18 months |
| 1601-5 | 20 L Cubitainer® | 18 months |

# SHIPPING DOCUMENTS

Alliance TECHNICAL GROUP
284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 • Fax (908) 789-8922
www.chemtech.net

ALLIANCE PROJECT NO.
QUOTE NO. Q1915
COC Number 2046745

## CLIENT INFORMATION

REPORT TO BE SENT TO:
COMPANY: CDM Smith
ADDRESS: 110 Fieldcrest Ave #8 6th Flr
CITY Edison STATE: NJ ZIP: 08837
ATTENTION: M Encinas
PHONE: 732 590 4697 FAX:

## CLIENT PROJECT INFORMATION

PROJECT NAME: UTEN UST
PROJECT NO.: LOCATION: Mt Vernon NY
PROJECT MANAGER: M. Encinas
e-mail: EncinasMA@cdmsmith.com
PHONE: 732 590 4697 FAX:

## CLIENT BILLING INFORMATION

BILL TO: CDM Smith PO#:
ADDRESS: 110 Fieldcrest Ave #8 6th Flr
CITY Edison STATE: NJ ZIP: 08837
ATTENTION: M. Encinas PHONE: 732 590 4697

## DATA TURNAROUND INFORMATION

FAX (RUSH) _____ DAYS*
HARDCOPY (DATA PACKAGE): _____ DAYS*
EDD: _____ DAYS*
*TO BE APPROVED BY CHEMTECH
STANDARD HARDCOPY TURNAROUND TIME IS 10 BUSINESS

## DATA DELIVERABLE INFORMATION

❑ Level 1 (Results Only) ❑ Level 4 (QC + Full Raw Data)
❑ Level 2 (Results + QC) ❑ NJ Reduced ❑ US EPA CLP
❑ Level 3 (Results + QC + Raw Data) ❑ NYS ASP A ❑ NYS ASP B
❑ Other _____
❑ EDD FORMAT _____

## ANALYSIS

1. TCLP VOC
2. TCLP SVOC
3. TCLP metals
4. Ignitability
5. Corrosivity
6. Reactivity
7.
8.
9.

| ALLIANCE SAMPLE ID | PROJECT SAMPLE IDENTIFICATION | SAMPLE MATRIX | SAMPLE TYPE COMP | SAMPLE TYPE GRAB | SAMPLE COLLECTION DATE | SAMPLE COLLECTION TIME | # OF BOTTLES | PRESERVATIVES 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | WC 04282025 | Soil | ✓ | VOC only | 4/28/25 | 1415 | 4 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | |
| 2. | | | | | | | | | | | | | | | | | |
| 3. | | | | | | | | | | | | | | | | | |
| 4. | | | | | | | | | | | | | | | | | |
| 5. | | | | | | | | | | | | | | | | | |
| 6. | | | | | | | | | | | | | | | | | |
| 7. | | | | | | | | | | | | | | | | | |
| 8. | | | | | | | | | | | | | | | | | |
| 9. | | | | | | | | | | | | | | | | | |
| 10. | | | | | | | | | | | | | | | | | |

← Specify Preservatives
A-HCl D-NaOH
B-HN03 E-ICE
C-H2SO4 F-OTHER

## SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

| RELINQUISHED BY SAMPLER: | DATE/TIME: | RECEIVED BY: |
|---|---|---|
| 1. | 4/29/25 1345 | 1. 1345 4/29/25 |
| 2. | | 2. |
| 3. | 4-29-25 1650 | 3. |

Conditions of bottles or coolers at receipt: ❑ COMPLIANT ❑ NON COMPLIANT ❑ COOLER TEMP 2.5 °C
Comments: Temp 2.5° CAdjustment factor +1) IR Gun #1

Page _____ of

CLIENT: ❑ Hand Delivered ❑ Other

Shipment Complete ❑ YES ❑ NO



WHITE - ALLIANCE COPY FOR RETURN TO CLIENT YELLOW - ALLIANCE COPY PINK - SAMPLER COPY

284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

# 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 |

QA Control Code: A2070148