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

# Prep Standard - Chemical Standard Summary

**Order ID :** Q1048

**Test :** Ammonia,Residual Chlorine

**Prepbatch ID :** PB165991,

**Sequence ID/Qc Batch ID:** LB134218,LB134227,

**Standard ID :**
WP108709,WP108840,WP110019,WP110149,WP110150,WP110335,WP110416,WP111091,WP111092,WP111317,WP111318,WP111325,WP111326,WP111327,WP111328,WP111329,WP111330,WP111331,WP111332,WP111333,WP111334,WP111350,WP111351,WP111352,

**Chemical ID :**
M5673,W1992,W1993,W2666,W2700,W2858,W3112,W3113,W3130,W3131,W3132,W3133,W3143,W3147,W3155,

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# Wet Chemistry STANDARD PREPARATION LOG

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 290 | Phenol reagent for Ammonia | WP108709 | 07/11/2024 | 01/11/2025 | Rubina Mughal | WETCHEM_SCALE_5 (WCSC-5) | None | Mohan Bera 07/17/2024 |

**FROM** 3.20000gram of W3113 + 8.30000gram of W2858 + 88.80000ml of W3112 = Final Quantity: 100.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 635 | EDTA BUFFER FOR AMMONIA | WP108840 | 07/26/2024 | 01/26/2025 | Rubina Mughal | WETCHEM_SCALE_5 (WCSC-5) | None | Iwona Zarych 07/26/2024 |

**FROM** 5.50000gram of W3113 + 50.00000gram of W3132 + 950.00000ml of W3112 = Final Quantity: 1000.000 ml

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# Wet Chemistry STANDARD PREPARATION LOG

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 289 | Sodium Hypochlorite for Ammonia | WP110019 | 10/02/2024 | 01/31/2025 | Rubina Mughal | None | None | Iwona Zarych 10/04/2024 |

**FROM** 50.00000ml of W3112 + 50.00000ml of W3143 = Final Quantity: 100.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 153 | Ammonia Stock Std. (1000 ppm) | WP110149 | 10/11/2024 | 04/08/2025 | Rubina Mughal | WETCHEM_SCALE_5 (WCSC-5) | None | Iwona Zarych 10/14/2024 |

**FROM** 3.81900gram of W1993 + 996.18100ml of W3112 = Final Quantity: 1000.000 ml

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# Wet Chemistry STANDARD PREPARATION LOG

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 1895 | Ammonia Stock Std, 1000PPM-SS | WP110150 | 10/11/2024 | 04/08/2025 | Rubina Mughal | WETCHEM_SCALE_5 (WCSC-5) | None | Iwona Zarych 10/14/2024 |

**FROM** 3.81900gram of W1992 + 996.18100ml of W3112 = Final Quantity: 1000.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 1597 | 0.04 N H2SO4 | WP110335 | 10/22/2024 | 04/22/2025 | Rubina Mughal | None | WETCHEM_PIPETTE_3 (WC) | Iwona Zarych 10/22/2024 |

**FROM** 1.00000ml of M5673 + 999.00000ml of W3112 = Final Quantity: 1000.000 ml

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# Wet Chemistry STANDARD PREPARATION LOG

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 740 | sodium nitroferricyanide for ammonia | WP110416 | 10/25/2024 | 04/25/2025 | Rubina Mughal | WETCHEM_SCALE_5 (WCSC-5) | None | Iwona Zarych 10/25/2024 |

**FROM** 0.05000gram of W2666 + 99.95000ml of W3112 = Final Quantity: 100.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 1322 | Ammonia Intermediate Std, 50PPM | WP111091 | 12/16/2024 | 01/16/2025 | Rubina Mughal | None | WETCHEM_PIPETTE_3 (WC) | Iwona Zarych 12/16/2024 |

**FROM** 95.00000ml of W3112 + 5.00000ml of WP110149 = Final Quantity: 100.000 ml

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# Wet Chemistry STANDARD PREPARATION LOG

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 1639 | Ammonia Intermediate Std-Second source, 50PPM | WP111092 | 12/16/2024 | 01/16/2025 | Rubina Mughal | WETCHEM_SCALE_5 (WCSC-5) | None | Iwona Zarych 12/16/2024 |

**FROM** 95.00000ml of W3112 + 5.00000ml of WP110150 = Final Quantity: 100.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 1796 | NaOH, 0.1N | WP111317 | 01/09/2025 | 07/09/2025 | Rubina Mughal | WETCHEM_SCALE_7 (WCSC-6) | None | Iwona Zarych 01/09/2025 |

**FROM** 4.00000gram of W3113 + 996.00000ml of W3112 = Final Quantity: 1000.000 ml

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# Wet Chemistry STANDARD PREPARATION LOG

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 1471 | NaOH Solution, 6N | WP111318 | 01/09/2025 | 07/09/2025 | Rubina Mughal | WETCHEM_SCALE_7 (WCSC-6) | None | Iwona Zarych 01/09/2025 |

**FROM** 240.00000gram of W3113 + 760.00000ml of W3112 = Final Quantity: 1000.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 1494 | BORATE BUFFER | WP111325 | 01/09/2025 | 01/10/2025 | Rubina Mughal | None | None | Iwona Zarych 01/09/2025 |

**FROM** 100.00000L of W3112 + 9.50000gram of W2700 + 88.00000ml of WP111317 = Final Quantity: 100.000 L

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# Wet Chemistry STANDARD PREPARATION LOG

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 3443 | Residual chlorine std, Intermediate 10PPM | WP111326 | 01/09/2025 | 01/10/2025 | Niha Farheen Shaik | None | None | Iwona Zarych 01/13/2025 |

**FROM** 42.75000ml of W3112 + 7.25000ml of W3130 = Final Quantity: 50.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 3444 | Residual chlorine std, Intermediate-SS 10PPM | WP111327 | 01/09/2025 | 01/10/2025 | Niha Farheen Shaik | None | None | Iwona Zarych 01/13/2025 |

**FROM** 42.50000ml of W3112 + 7.50000ml of W3131 = 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 |
|---|---|---|---|---|---|---|---|---|
| 3710 | Chlorine Calibration std, 0.0ppm | WP111328 | 01/09/2025 | 01/10/2025 | Niha Farheen Shaik | None | None | Iwona Zarych 01/13/2025 |

**FROM** 50.00000ml of W3112 = Final Quantity: 50.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 3707 | Chlorine Calibration std, 0.1ppm | WP111329 | 01/09/2025 | 01/10/2025 | Niha Farheen Shaik | None | WETCHEM_PIPETTE_3 (WC) | Iwona Zarych 01/13/2025 |

**FROM** 49.50000ml of W3112 + 0.50000ml of WP111326 = 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 |
|---|---|---|---|---|---|---|---|---|
| 3708 | Chlorine Calibration std, 0.2ppm | WP111330 | 01/09/2025 | 01/10/2025 | Niha Farheen Shaik | None | WETCHEM_PIPETTE_3 (WC) | Iwona Zarych 01/13/2025 |

**FROM** 49.00000ml of W3112 + 1.00000ml of WP111326 = Final Quantity: 50.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 3709 | Chlorine Calibration std, 0.8ppm | WP111331 | 01/09/2025 | 01/10/2025 | Niha Farheen Shaik | None | WETCHEM_PIPETTE_3 (WC) | Iwona Zarych 01/13/2025 |

**FROM** 46.00000ml of W3112 + 4.00000ml of WP111326 = 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 |
|---|---|---|---|---|---|---|---|---|
| 3711 | Chlorine Calibration std, 1.6ppm | WP111332 | 01/09/2025 | 01/10/2025 | Niha Farheen Shaik | None | Glass Pipette-A | Iwona Zarych 01/13/2025 |

**FROM** 42.00000ml of W3112 + 8.00000ml of WP111326 = Final Quantity: 50.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 3799 | Residual Chlorine Calibration and CCV std, 0.4PPM | WP111333 | 01/09/2025 | 01/10/2025 | Niha Farheen Shaik | None | Glass Pipette-A | Iwona Zarych 01/13/2025 |

**FROM** 96.00000ml of W3112 + 4.00000ml of WP111326 = Final Quantity: 100.000 ml

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# Wet Chemistry STANDARD PREPARATION LOG

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 3452 | Residual chlorine ICV-LCS, 0.4PPM | WP111334 | 01/09/2025 | 01/10/2025 | Niha Farheen Shaik | None | Glass Pipette-A | Iwona Zarych 01/13/2025 |

**FROM** 48.00000ml of W3112 + 2.00000ml of WP111327 = Final Quantity: 50.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 275 | Ammonia Calibration Std. (2 ppm) | WP111350 | 01/10/2025 | 01/11/2025 | Rubina Mughal | None | WETCHEM_PIPETTE_3 (WC) | Iwona Zarych 01/13/2025 |

**FROM** 48.00000ml of W3112 + 2.00000ml of WP111091 = 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 |
|---|---|---|---|---|---|---|---|---|
| 285 | Ammonia CCV Std. (1 ppm) | WP111351 | 01/10/2025 | 01/11/2025 | Rubina Mughal | None | WETCHEM_PIPETTE_3 (WC) | Iwona Zarych 01/13/2025 |

**FROM** 49.00000ml of W3112 + 1.00000ml of WP111091 = Final Quantity: 50.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 286 | Ammonia ICV Std. (1 ppm) | WP111352 | 01/10/2025 | 01/11/2025 | Rubina Mughal | None | WETCHEM_PIPETTE_3 (WC) | Iwona Zarych 01/13/2025 |

**FROM** 49.00000ml of W3112 + 1.00000ml of WP111092 = Final Quantity: 50.000 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-9673-33 / Sulfuric Acid, Instra-Analyzed (cs/6c2.5L) | 23D2462010 | 03/20/2028 | 09/21/2023 / mohan | 09/05/2023 / mohan | M5673 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | J0660-1 / AMMONIUM CHLORIDE, ACS, 500G | WL13B | 04/08/2025 | 04/08/2015 / apatel | 04/08/2015 / apatel | W1992 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | J0660-1 / AMMONIUM CHLORIDE, ACS, 500G | XE09B | 04/08/2025 | 04/08/2015 / apatel | 04/08/2015 / apatel | W1993 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | 87683 / Sodium Nitroferricyanide 250g | W12F013 | 02/10/2030 | 02/10/2020 / apatel | 02/10/2020 / apatel | W2666 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | J3568-1 / Sodium Borate, 500 gms | 2019111354 | 04/23/2025 | 04/23/2020 / apatel | 03/11/2020 / apatel | W2700 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | P1060-10 / PHENOL, ACS, 500G | M13H048 | 01/07/2026 | 07/07/2021 / apatel | 07/07/2021 / apatel | W2858 |

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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 | 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 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| HACH | 14268-10 / Chlorine Std, Pk of 16 | A4144 | 01/31/2026 | 07/25/2024 / Iwona | 07/25/2024 / Iwona | W3130 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| HACH | 14268-10 / Chlorine Std, Pk of 16 | A4166 | 02/28/2026 | 07/25/2024 / Iwona | 07/25/2024 / Iwona | W3131 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | PC05050-1 / EDTA, disodium salt, dihydrate 1 lb | 2ND0156 | 07/10/2026 | 07/26/2024 / Iwona | 07/26/2024 / Iwona | W3132 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | 140476 / Test Paper,PH Short Range 9.0/10.0 | L23 | 08/22/2029 | 08/22/2024 / Iwona | 08/22/2024 / Iwona | W3133 |

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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. | J9416-1 / Sodium Hypochlorite 500 ml | 2407F34 | 01/31/2025 | 09/30/2024 / Iwona | 09/30/2024 / Iwona | W3143 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| HACH | 14064-99 / Total Chlorine Powder Pillows | A4230 | 08/31/2029 | 10/01/2024 / Iwona | 10/01/2024 / Iwona | W3147 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | 140730 / TEST PAPER,POT.IOD-STRCH,PK100,CS12 | 14-860 | 12/02/2029 | 12/02/2024 / Iwona | 12/02/2024 / Iwona | W3155 |

# Certificate of Analysis

***Date of Release:*** ***12/18/2013***

***Product:*** ***Ammonium Chloride GR ACS*** ***Catalog No.:*** ***AX1270 all size codes***

***Grade:*** ***Meets ACS Specifications*** ***CAS #:*** ***12125-02-9***

***Country of Origin:*** ***India*** ***FW:*** ***53.49***

***Lot No.:*** ***WL13B*** $ClH_4N$

| | Requirement | | | |
|---|---|---|---|---|
| **Characteristic** | **Minimum** | **Maximum** | **Results** | **UOM** |
| Assay (argentometric) | 99.5 | | 99.9 | % |
| Calcium (Ca) | | 0.001 | 0.0001 | % |
| Form | White crystals | | White crystals | |
| Heavy metals (as Pb) | | 5 | 5 | ppm |
| Identification | To pass test | | Passes | |
| Insoluble matter | | 0.005 | 0.002 | % |
| Iron (Fe) | | 2 | 2 | ppm |
| Loss on drying (105 C) | | 0.5 | 0.21 | % |
| Magnesium (Mg) | | 5 | 0.6 | ppm |
| pH of a 5% solution at 25 C | 4.5 | 5.5 | 4.76 | |
| Phosphate (PO4) | | 2 | 2 | ppm |
| Residue after ignition | | 0.01 | 0.002 | % |
| Sulfate (SO4) | | 0.002 | 0.002 | % |

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# Certificate of Analysis

***Date of Release:*** ***5/12/2014***

***Product:*** ***Ammonium Chloride GR ACS*** ***Catalog No.:*** ***AX1270 all size codes***

***Grade:*** ***Meets ACS Specifications*** ***CAS #:*** ***12125-02-9***

***Country of Origin:*** ***India*** ***FW:*** ***53.49***

***Lot No.:*** ***XE09B*** $ClH_4N$

| Characteristic | Requirement Minimum | Maximum | Results | UOM |
|---|---|---|---|---|
| Assay (argentometric) | 99.5 | | 99.8 | % |
| Calcium (Ca) | | 0.001 | 0.0001 | % |
| Form | White crystals | | White crystals | |
| Heavy metals (as Pb) | | 5 | 5 | ppm |
| Identification | To pass test | | Passes | |
| Insoluble matter | | 0.005 | 0.002 | % |
| Iron (Fe) | | 2 | 2 | ppm |
| Loss on drying (105 C) | | 0.5 | 0.22 | % |
| Magnesium (Mg) | | 5 | 0.7 | ppm |
| pH of a 5% solution at 25 C | 4.5 | 5.5 | 4.95 | |
| Phosphate (PO4) | | 2 | 2 | ppm |
| Residue after ignition | | 0.01 | 0.002 | % |
| Sulfate (SO4) | | 0.002 | 0.002 | % |

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ThermoFisher SCIENTIFIC

# Certificate of Analysis

W2858 Received by AP on 07/07/2021

Product No.: 33213

Product: Phenol, ACS, 99+%, stab.

Lot No.: M13H048

| Test | Limits | Results |
|---|---|---|
| Assay | 99.0 % min | 99.8 % |
| Freezing point | 40.5ºC min | 40.5 ºC |
| Clarity of solution | To pass test | Passes |
| Residue after evaporation | 0.05 % max | < 0.05 % |
| Water | 0.5 % max | 0.2 % |

Retest date: January 7, 2026

ThermoFisher SCIENTIFIC

# Certificate of Analysis

W2666 Recived on 02/10/2020 by AP

Product No.: 87683

Product: Sodium pentacyanonitrosylferrate(III) dihydrate, ACS, 99.0-102.0%

Lot No.: W12F013

| Test | Limits | Results |
|---|---|---|
| Assay | 99.0 - 102.0 % | 99.67 % |
| Insoluble | 0.01 % max | 0.0079 % |
| Chloride | 0.02 % max | Not detected |
| Sulfate | To pass test | Passes test |
| Aqueous solubility | To pass test | Passes test |
| Limit on Ferricyanide | To pass test | Passes test |
| Limit on Ferrocyanide | To pass test | Passes test |



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# Certificate Of Analysis

Date of Release: 11/14/2019

W2700 Recived by AP on 3/11/2020

Name: **Sodium Borate, Decahydrate**
ACS

Item No: **SX0355 All Sizes**
Lot / Batch No: **2019111354**
Country of Origin: **India**

| Item | Specifications | Analysis |
|---|---|---|
| Assay (Na2B4O7 • 10H2O) | 99.5 - 105.0% | 101.7% |
| Calcium (Ca) | 0.005% max. | 0.003% |
| Chloride (Cl) | 0.001% max. | <0.001% |
| Color | White | Passes Test |
| Form | Crystals | Passes Test |
| Heavy Metals (as Pb) | 0.001% max. | <0.001% |
| Insoluble Matter | 0.005% max. | 0.002% |
| Iron (Fe) | 5 ppm max. | <5 ppm |
| pH of a 0.01 M solution at 25C | 9.15 - 9.20 | 9.17 |
| Phosphate (PO4) | 0.001% max. | <0.001% |
| Sulfate (SO4) | 0.005% max. | <0.005% |

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

9673- 33

avantor™ | J.T.Baker®

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

# Certificate of Analysis

| Test | Specification | Result |
|---|---|---|
| ACS – Assay ($H_2SO_4$) | 95.0 – 98.0 % | 96.1 % |
| Appearance | Passes Test | Passes Test |
| ACS – Color (APHA) | ≤ 10 | 5 |
| ACS – Residue after Ignition | ≤ 3 ppm | < 1 ppm |
| ACS – Substances Reducing Permanganate (as SO2) | ≤ 2 ppm | < 2 ppm |
| Ammonium ($NH_4$) | ≤ 1 ppm | 1 ppm |
| Chloride (Cl) | ≤ 0.1 ppm | < 0.1 ppm |
| Nitrate ($NO_3$) | ≤ 0.2 ppm | < 0.1 ppm |
| Phosphate ($PO_4$) | ≤ 0.5 ppm | < 0.1 ppm |
| Trace Impurities – Aluminum (Al) | ≤ 30.0 ppb | < 5.0 ppb |
| Arsenic and Antimony (as As) | ≤ 4.0 ppb | < 2.0 ppb |
| Trace Impurities – Boron (B) | ≤ 10.0 ppb | 8.5 ppb |
| Trace Impurities – Cadmium (Cd) | ≤ 2.0 ppb | < 0.3 ppb |
| Trace Impurities – Chromium (Cr) | ≤ 6.0 ppb | < 0.4 ppb |
| Trace Impurities – Cobalt (Co) | ≤ 0.5 ppb | < 0.3 ppb |
| Trace Impurities – Copper (Cu) | ≤ 1.0 ppb | < 0.1 ppb |
| Trace Impurities – Gold (Au) | ≤ 10.0 ppb | 0.5 ppb |
| Heavy Metals (as Pb) | ≤ 500.0 ppb | < 100.0 ppb |
| Trace Impurities – Iron (Fe) | ≤ 50.0 ppb | 1.3 ppb |
| Trace Impurities – Lead (Pb) | ≤ 0.5 ppb | < 0.5 ppb |
| Trace Impurities – Magnesium (Mg) | ≤ 7.0 ppb | 0.8 ppb |
| Trace Impurities – Manganese (Mn) | ≤ 1.0 ppb | < 0.4 ppb |
| Trace Impurities – Mercury (Hg) | ≤ 0.5 ppb | < 0.1 ppb |
| Trace Impurities – Nickel (Ni) | ≤ 2.0 ppb | 0.3 ppb |
| Trace Impurities – Potassium (K) | ≤ 500.0 ppb | < 2.0 ppb |
| Trace Impurities – Selenium (Se) | ≤ 50.0 ppb | < 0.1 ppb |
| Trace Impurities – Silicon (Si) | ≤ 100.0 ppb | 31.5 ppb |
| Trace Impurities – Silver (Ag) | ≤ 1.0 ppb | < 0.3 ppb |

>>> Continued on page 2 >>>

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

avantor™ | J.T.Baker®

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

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

For Laboratory,Research,or Manufacturing Use

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

James T Ethier

Jamie Ethier
Vice President Global Quality

# 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.

Loveland, CO 80539
(970) 669-3050

An ISO 9001 Certified Company

# *Certificate of Analysis*

**PRODUCT:** Chlorine Solution Ampule 50-75 mg/l

**PRODUCT NUMBER:** 1426810

**LOT NUMBER:** A4144

**MANUFACTURE DATE:** 05/28/2024

**DATE OF ANALYSIS:** 05/30/2024

| TEST | SPECIFICATIONS | RESULTS |
|---|---|---|
| Standard Deviation for the ampules sampled | 0 to 0.4 mg/L | 0.10 mg/L |
| Mean Chlorine Concentration ampules sampled. | 50 to 75 mg/L | 60.9 mg/L |

The expiration date is Jan 2026

Certified by: Scott Als

Analytical Services Chemist

Loveland, CO 80539
(970) 669-3050

An ISO 9001 Certified Company

# *Certificate of Analysis*

**PRODUCT:** Chlorine Solution Ampule 50-75 mg/l

**PRODUCT NUMBER:** 1426810

**LOT NUMBER:** A4166

**MANUFACTURE DATE:** 06/24/2024

**DATE OF ANALYSIS:** 06/25/2024

| TEST | SPECIFICATIONS | RESULTS |
|---|---|---|
| Standard Deviation for the ampules sampled | 0 to 0.4 mg/L | 0.10 mg/L |
| Mean Chlorine Concentration ampules sampled. | 50 to 75 mg/L | 61.9 mg/L |

The expiration date is Feb 2026

Certified by: Scott Als

Analytical Services Chemist

spectrum® CHEMICAL MFG CORP

# Certificate Of Analysis

| | | | |
|---|---|---|---|
| Item Number | ED150 | Lot Number | 2ND0156 |
| Item | Edetate Disodium, Dihydrate, USP | CAS Number | 6381-92-6 |
| Molecular Formula | $C_{10}H_{14}N_2Na_2O_8 \cdot 2H_2O$ | Molecular Weight | 372.24 |

| TEST | SPECIFICATION | | RESULT |
|---|---|---|---|
| | MIN | MAX | |
| ASSAY (DRIED BASIS) | 99.0 | 101.0 % | 99.5 % |
| pH OF A 5% SOLUTION @ 25°C | 4.0 | 6.0 | 4.6 |
| LOSS ON DRYING | 8.7 | 11.4 % | 8.90 % |
| CALCIUM (Ca) | NO PRECIPITATE IS FORMED | | NO PRECIPITATE IS FORMED |
| ELEMENTAL IMPURITIES: | | | . |
| NICKEL (Ni) | AS REPORTED | | <0.3 ppm |
| CHROMIUM (Cr) | AS REPORTED | | <0.3 ppm |
| NITRILOTRIACETIC ACID[$n[(HOCOCH_2)_3N]$] | | 0.1 % | <0.10 % |
| IDENTIFICATION A | MATCHES REFERENCE | | MATCHES REFERENCE |
| IDENTIFICATION B | RED COLOR IS DISCHARGED, LEAVING A YELLOWISH SOLUTION | | RED COLOR IS DISCHARGED, LEAVING A YELLOWISH SOLUTION |
| IDENTIFICATION C | MEETS THE REQUIREMENTS FOR SODIUM | | MEETS THE REQUIREMENTS FOR SODIUM |
| CERTIFIED HALAL | | | CERTIFIED HALAL |
| EXPIRATION DATE | | | 10-JUL-2026 |
| DATE OF MANUFACTURE | | | 11-JUL-2023 |
| APPEARANCE | | | WHITE CRYSTALLINE POWDER |
| RESIDUAL SOLVENTS | | AS REPORTED | NO RESIDUAL SOLVENTS PRESENT |
| MONOGRAPH EDITION | | | USP 2024 |

Certificate of Analysis Results Entered By:

CACEVEDO
Charmian Acevedo
22-MAY-24 08:12:30

Certificate of Analysis Results Approved By:

GHERRERA
Genaro Herrera
22-MAY-24 12:32:01

Spectrum Chemical Mfg Corp
755 Jersey Avenue
New Brunswick 08901 NJ

**All pharmaceutical ingredients are tested using current edition of applicable pharmacopeia.**

**Read and understand label and SDS before handling any chemicals. All Spectrum's chemicals are for manufacturing, processing, repacking or research purposes by experienced personnel only. It is the customer's responsibility to provide adequate hazardous material training and ensure that appropriate Personal Protective Equipment (PPE) is used before handling any chemical.**

The Elemental Impurities standards implemented by USP and other Pharmaceutical Compendia reflect a growing understanding of the toxicology of trace levels of elemental impurities that can remain in drug substances originating from either raw materials or manufacturing processes. Identifying and quantifying impurities can be critical to predicting the best possible patient outcomes. Elemental Impurities has been a requirement of all products meeting USP/NF, EP and BP monographs since January 1, 2018. More information can be found in USP sections <232> Elemental Impurities – Limits and <233> Elemental Impurities – Procedures. Data for drug substances furnished by Spectrum Chemical Mfg. Corp can be used to ensure that patient daily exposures by oral administration to the selected elements are not exceeded in the formulation of pharmaceutical products.

RICCA CHEMICAL COMPANY®

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customerservice@riccachemical.com

# Certificate of Analysis

## Sodium Hypochlorite Solution, 5% available Chlorine

**Lot Number:** 2407F34 **Product Number:** 7495.5

**Manufacture Date:** JUL 12, 2024
**Expiration Date:** JAN 2025

This solution is subject to slow decomposition upon exposure to air. Keep container tightly capped. Refrigeration may improve stability. When used in the Phenate method for Ammonia, APHA recommends replacing this solution about every 2 months.

| Name | CAS# | Grade |
|---|---|---|
| Water | 7732-18-5 | Commercial |
| Sodium Hypochlorite | 7681-52-9 | Commercial |

| Test | Specification | Result | NIST SRM# |
|---|---|---|---|
| Appearance | Colorless to greenish-yellow liquid | Passed | |
| Assay (vs. Sodium Thiosulfate/Starch) | 4.75-5.25 % (w/w) $Cl_2$ | 5.05 % (w/w) $Cl_2$ | 136 |

| Specification | Reference |
|---|---|
| Sodium Hypochlorite, 5% | APHA (4500-NH3 F) |
| Sodium Hypochlorite | ASTM (D 4785) |

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) |
|---|---|---|
| 7495.5-1 | 4 L black poly | 6 months |
| 7495.5-16 | 500 mL amber poly | 6 months |
| 7495.5-32 | 1 L amber poly | 6 months |
| 7495.5-8 | 250 mL amber poly | 6 months |

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

Jose Pena (07/12/2024)
Operations Manager

Loveland, CO 80539
(970) 669-3050

An ISO 9001 Certified Company

# *Certificate of Analysis*

**PRODUCT:** DPD Total Chlorine Reagent

**PRODUCT NUMBER:** 1406499

**LOT NUMBER:** A4230

**MANUFACTURE DATE:** 08/27/2024

**DATE OF ANALYSIS:** 08/28/2024

| TEST | SPECIFICATIONS | RESULTS |
|---|---|---|
| Percent Recovery for a 2.5 ppm Standard. Chlorine concentration determined using DPD compared to the actual concentration. | 93 to 107 % | 95.7 % |
| pH of reagent in 50 mL of DI water. | 6.2 to 6.5 | 6.40 |
| Percent Recovery for a 5.0 ppm Standard. Chlorine concentration determined using DPD compared to the actual concentration. | 93 to 107 % | 96.2 % |
| Hardness Blank: 1000 ppm as Calcium Carbonate Hardness standard vs DI water measured at 530 nm in 1 cm cells. | 0 to 0.009 abs | 0.0020 abs |

The expiration date is Aug 2029

Certified by: Scott Als

Analytical Services Chemist