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# Prep Standard - Chemical Standard Summary

**Order ID :** Q2683

**Test :** Ammonia,BOD5,COD,Field pH,TDS,TSS

**Prepbatch ID :** PB169011,

**Sequence ID/Qc Batch ID:** LB136596,LB136600,LB136615,LB136616,LB136626,LB136639,

**Standard ID :**
WP111660,WP111745,WP112611,WP112612,WP112828,WP112832,WP113231,WP113232,WP113233,WP113234,WP113235,WP113236,WP113237,WP113238,WP113240,WP113852,WP113878,WP113885,WP113886,WP113887,WP113888,WP113889,WP113929,WP114019,WP114020,WP114021,WP114022,WP114023,WP114071,WP114072,WP114073,WP114084,WP114085,WP114086,

**Chemical ID :**
M6041,W2653,W2654,W2663,W2666,W2784,W3093,W3103,W3105,W3109,W3112,W3113,W3132,W3133,W3144,W3149,W3155,W3169,W3174,W3178,W3191,W3195,W3196,W3201,W3212,W3217,W3219,W3228,

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# Wet Chemistry STANDARD PREPARATION LOG

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 635 | EDTA BUFFER FOR AMMONIA | WP111660 | 01/28/2025 | 07/28/2025 | Rubina Mughal | WETCHEM_SCALE_8 (WCSC-7) | None | Iwona Zarych 01/28/2025 |

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

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 289 | Sodium Hypochlorite for Ammonia | WP111745 | 02/03/2025 | 07/31/2025 | Rubina Mughal | None | None | Iwona Zarych 02/03/2025 |

**FROM** 50.00000ml of W3112 + 50.00000ml of W3174 = 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 |
|---|---|---|---|---|---|---|---|---|
| 153 | Ammonia Stock Std. (1000 ppm) | WP112611 | 04/07/2025 | 10/07/2025 | Rubina Mughal | WETCHEM_SCALE_8 (WCSC-7) | None | Iwona Zarych 04/07/2025 |

**FROM** 3.81900gram of W3196 + 996.18100ml of W3112 = Final Quantity: 1000.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 1895 | Ammonia Stock Std, 1000PPM-SS | WP112612 | 04/07/2025 | 10/07/2025 | Rubina Mughal | WETCHEM_SCALE_8 (WCSC-7) | None | Iwona Zarych 04/07/2025 |

**FROM** 3.81900gram of W3195 + 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 |
|---|---|---|---|---|---|---|---|---|
| 1597 | 0.04 N H2SO4 | WP112828 | 04/25/2025 | 10/25/2025 | Rubina Mughal | None | WETCHEM_PIPETTE_3 (WC) | Iwona Zarych 04/25/2025 |

**FROM** 1.00000ml of M6041 + 999.00000ml of W3112 = Final Quantity: 1000.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 1841 | Sulfuric Acid, 1N | WP112832 | 04/25/2025 | 10/25/2025 | Rubina Mughal | None | WETCHEM_PIPETTE_3 (WC) | Iwona Zarych 04/25/2025 |

**FROM** 2.80000ml of M6041 + 97.20000ml of W3112 = 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 |
|---|---|---|---|---|---|---|---|---|
| 2456 | COD Stock std, 1000ppm | WP113231 | 05/28/2025 | 06/04/2025 | Iwona Zarych | WETCHEM_SCALE_5 (WCSC-5) | None | Jignesh Parikh 05/28/2025 |

**FROM** 0.08500gram of W2784 + 100.00000ml of W3112 = Final Quantity: 100.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 2457 | COD Stock std-SS, 1000ppm | WP113232 | 05/28/2025 | 06/04/2025 | Iwona Zarych | WETCHEM_SCALE_5 (WCSC-5) | None | Jignesh Parikh 05/28/2025 |

**FROM** 0.08500gram of W3169 + 100.00000ml of W3112 = 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 |
|---|---|---|---|---|---|---|---|---|
| 139 | COD calibration std. 0 ppm | WP113233 | 05/28/2025 | 06/04/2025 | Iwona Zarych | None | None | Jignesh Parikh 05/28/2025 |

**FROM** 10.00000ml of W3112 = Final Quantity: 10.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 138 | COD calibration std. 10 ppm | WP113234 | 05/28/2025 | 06/04/2025 | Iwona Zarych | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 05/28/2025 |

**FROM** 9.90000ml of W3112 + 0.10000ml of WP113231 = Final Quantity: 10.000 ml

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# Wet Chemistry STANDARD PREPARATION LOG

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 137 | COD calibration std. 50 ppm | WP113235 | 05/28/2025 | 06/04/2025 | Iwona Zarych | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 05/28/2025 |

**FROM** 9.50000ml of W3112 + 0.50000ml of WP113231 = Final Quantity: 10.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 4161 | COD calibration std. 75 ppm | WP113236 | 05/28/2025 | 06/04/2025 | Iwona Zarych | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 05/28/2025 |

**FROM** 9.25000ml of W3112 + 0.75000ml of WP113231 = Final Quantity: 10.000 ml

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# Wet Chemistry STANDARD PREPARATION LOG

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 136 | COD calibration std. 100 ppm | WP113237 | 05/28/2025 | 06/04/2025 | Iwona Zarych | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 05/28/2025 |

**FROM** 9.00000ml of W3112 + 1.00000ml of WP113231 = Final Quantity: 10.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 135 | COD calibration std. 150 ppm | WP113238 | 05/28/2025 | 06/04/2025 | Iwona Zarych | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 05/28/2025 |

**FROM** 8.50000ml of W3112 + 1.50000ml of WP113231 = Final Quantity: 10.000 ml

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# Wet Chemistry STANDARD PREPARATION LOG

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 2459 | COD ICV-LCS std, 50ppm | WP113240 | 05/28/2025 | 06/04/2025 | Iwona Zarych | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 05/28/2025 |

**FROM** 9.50000ml of W3112 + 0.50000ml of WP113232 = Final Quantity: 10.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 740 | sodium nitroferricyanide for ammonia | WP113852 | 07/09/2025 | 08/09/2025 | Rubina Mughal | WETCHEM_SCALE_5 (WCSC-5) | None | Iwona Zarych 07/09/2025 |

**FROM** 0.05000gram of W2666 + 99.95000ml of W3112 = 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 |
|---|---|---|---|---|---|---|---|---|
| 1571 | Sodium hydroxide, 1N | WP113878 | 07/09/2025 | 12/31/2025 | Iwona Zarych | WETCHEM_SCALE_7 (WCSC-6) | None | Jignesh Parikh 07/09/2025 |

**FROM** 4.00000gram of W3113 + 96.00000ml of W3112 = Final Quantity: 100.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 1796 | NaOH, 0.1N | WP113885 | 07/10/2025 | 12/31/2025 | Rubina Mughal | WETCHEM_SCALE_8 (WCSC-7) | None | Iwona Zarych 07/10/2025 |

**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 |
|---|---|---|---|---|---|---|---|---|
| 1494 | BORATE BUFFER | WP113886 | 07/10/2025 | 12/31/2025 | Rubina Mughal | WETCHEM_SCALE_8 (WCSC-7) | None | Iwona Zarych 07/10/2025 |

**FROM** 0.90250L of W3112 + 9.50000gram of W3201 + 88.00000ml of WP113885 = Final Quantity: 1.000 L

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 1471 | NaOH Solution, 6N | WP113887 | 07/10/2025 | 12/31/2025 | Rubina Mughal | WETCHEM_SCALE_8 (WCSC-7) | None | Iwona Zarych 07/10/2025 |

**FROM** 240.00000gram of W3113 + 760.00000ml 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 |
|---|---|---|---|---|---|---|---|---|
| 1322 | Ammonia Intermediate Std, 50PPM | WP113888 | 07/10/2025 | 08/10/2025 | Rubina Mughal | None | WETCHEM_PIPETTE_3 (WC) | Iwona Zarych 07/10/2025 |

**FROM** 95.00000ml of W3112 + 5.00000ml of WP112611 = Final Quantity: 100.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 1639 | Ammonia Intermediate Std-Second source, 50PPM | WP113889 | 07/10/2025 | 08/10/2025 | Rubina Mughal | None | WETCHEM_PIPETTE_3 (WC) | Iwona Zarych 07/10/2025 |

**FROM** 95.00000ml of W3112 + 5.00000ml of WP112612 = 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 |
|---|---|---|---|---|---|---|---|---|
| 290 | Phenol reagent for Ammonia | WP113929 | 07/14/2025 | 12/31/2025 | Rubina Mughal | WETCHEM_SCALE_8 (WCSC-7) | None | Iwona Zarych 07/15/2025 |

**FROM** 3.20000gram of W3113 + 8.30000gram of W2663 + 88.80000ml of W3112 = Final Quantity: 100.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 2456 | COD Stock std, 1000ppm | WP114019 | 07/22/2025 | 07/29/2025 | Iwona Zarych | WETCHEM_SCALE_5 (WCSC-5) | None | Jignesh Parikh 07/22/2025 |

**FROM** 0.08500gram of W3219 + 100.00000ml of W3112 = 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 |
|---|---|---|---|---|---|---|---|---|
| 2457 | COD Stock std-SS, 1000ppm | WP114020 | 07/22/2025 | 07/29/2025 | Iwona Zarych | WETCHEM_SCALE_5 (WCSC-5) | None | Jignesh Parikh 07/22/2025 |

**FROM** 0.08500gram of W3169 + 100.00000ml of W3112 = Final Quantity: 100.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 2458 | COD CCV std, 50ppm | WP114021 | 07/22/2025 | 07/29/2025 | Iwona Zarych | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 07/22/2025 |

**FROM** 9.50000ml of W3112 + 0.50000ml of WP114019 = Final Quantity: 10.000 ml

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# Wet Chemistry STANDARD PREPARATION LOG

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 2459 | COD ICV-LCS std, 50ppm | WP114022 | 07/22/2025 | 07/29/2025 | Iwona Zarych | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 07/22/2025 |

**FROM** 9.50000ml of W3112 + 0.50000ml of WP114020 = Final Quantity: 10.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 4162 | RL CHECK | WP114023 | 07/22/2025 | 07/29/2025 | Iwona Zarych | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 07/22/2025 |

**FROM** 9.90000ml of W3112 + 0.10000ml of WP114019 = Final Quantity: 10.000 ml

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# Wet Chemistry STANDARD PREPARATION LOG

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 127 | BOD Dilution fluid | WP114071 | 07/24/2025 | 07/25/2025 | Rubina Mughal | None | None | Iwona Zarych 07/28/2025 |

**FROM** 18.00000L of W3112 + 3.00000PILLOW of W3144 = Final Quantity: 18.000 L

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 129 | Glutamic acid-glucose mix for BOD | WP114072 | 07/24/2025 | 07/25/2025 | Rubina Mughal | WETCHEM_SCALE_7 (WCSC-6) | None | Iwona Zarych 07/28/2025 |

**FROM** 0.15000gram of W2653 + 0.15000gram of W2654 + 1000.00000ml 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 |
|---|---|---|---|---|---|---|---|---|
| 128 | polyseed seed control | WP114073 | 07/24/2025 | 07/25/2025 | Rubina Mughal | None | None | Iwona Zarych 07/28/2025 |

**FROM** 1.00000PILLOW of W3212 + 300.00000ml of WP114071 = Final Quantity: 300.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 275 | Ammonia Calibration Std. (2 ppm) | WP114084 | 07/25/2025 | 07/26/2025 | Rubina Mughal | None | WETCHEM_PIPETTE_3 (WC) | Iwona Zarych 07/28/2025 |

**FROM** 48.00000ml of W3112 + 2.00000ml of WP113888 = 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) | WP114085 | 07/25/2025 | 07/26/2025 | Rubina Mughal | None | WETCHEM_PIPETTE_3 (WC) | Iwona Zarych 07/28/2025 |

**FROM** 49.00000ml of W3112 + 1.00000ml of WP113888 = 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) | WP114086 | 07/25/2025 | 07/26/2025 | Rubina Mughal | None | WETCHEM_PIPETTE_3 (WC) | Iwona Zarych 07/28/2025 |

**FROM** 49.00000ml of W3112 + 1.00000ml of WP113889 = 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 | 08/16/2024 / mohan | 08/16/2024 / mohan | M6041 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | AC156212500 / GLUTAMIC ACID BIOCHEM REG, 250G | A0405990 | 01/24/2030 | 01/24/2020 / apatel | 01/24/2020 / apatel | W2653 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | D16-500 / DEXTROSE ANHYDROUS ACS REAGENT, 500G(New) | 186122A | 01/24/2030 | 01/24/2020 / apatel | 01/24/2020 / apatel | W2654 |

| 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 | 2HD0179 | 01/27/2030 | 01/27/2020 / apatel | 01/27/2020 / apatel | W2663 |

| 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. | P243-500 / Potassium Hydrogen Phthalate, 500 gms | 201089 | 06/30/2025 | 12/23/2020 / apatel | 12/16/2020 / apatel | W2784 |

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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. | 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. | 4620-32 / MANGANOUS SULFATE SOLUTION-364 | 2403J02 | 03/31/2026 | 04/22/2024 / Iwona | 04/22/2024 / Iwona | W3103 |

| 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 # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | AL04100-4 / Alkaline Iodide Azide, 1 L | 1405D67 | 04/30/2026 | 05/23/2024 / Iwona | 05/23/2024 / Iwona | W3109 |

| 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. | 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 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| HACH | 1486266 / BOD Nutrient Buffer Pillows, 6 mL concentrate to make 6 L, 50/pk | A4169 | 06/30/2029 | 11/20/2024 / rubina | 10/01/2024 / Iwona | W3144 |

| 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. | 140730 / TEST PAPER,POT.IOD-STRCH,PK100,CS12 | 14-860 | 12/02/2029 | 12/02/2024 / Iwona | 12/02/2024 / Iwona | W3155 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | P243-500 / Potassium Hydrogen Phthalate, 500 gms | 24H0956262 | 04/28/2026 | 01/03/2025 / Iwona | 01/03/2025 / Iwona | W3169 |

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

# 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 | 2501J28 | 07/31/2025 | 01/24/2025 / Iwona | 01/24/2025 / Iwona | W3174 |

| 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 |

| 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 | 24L0356561 | 08/31/2027 | 03/19/2025 / Iwona | 03/19/2025 / Iwona | W3195 |

| 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 | MKCV1009 | 09/30/2026 | 03/19/2025 / Iwona | 03/19/2025 / Iwona | W3196 |

| 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 | BCCL9613 | 05/31/2029 | 04/16/2025 / Iwona | 04/16/2025 / Iwona | W3201 |

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

# CHEMICAL RECEIPT LOG BOOK

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | 136742-80 / POLYSEED | 132409 | 09/30/2026 | 05/21/2025 / Iwona | 05/21/2025 / Iwona | W3212 |

| 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 | 2504D34 | 03/31/2027 | 07/02/2025 / jignesh | 06/26/2025 / Iwona | W3217 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | P243-500 / Potassium Hydrogen Phthalate, 500 gms | 2025040493 | 06/30/2030 | 06/26/2025 / Iwona | 06/26/2025 / Iwona | W3219 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| Environmental Express LTD | B1010 / COD Digestion Vials Low Level 0-150Mg/L | 5GE0517 | 05/31/2030 | 07/14/2025 / Iwona | 07/11/2025 / Iwona | W3228 |

spectrum® CHEMICAL MFG CORP

# Certificate Of Analysis

| | | | |
|---|---|---|---|
| Item Number | P1060 | Lot Number | 2HD0179 |
| Item | Phenol, Loose Crystal, Reagent, ACS | | |
| CAS Number | 108-95-2 | | |
| Molecular Formula | $C_6H_6O$ | Molecular Weight | 94.11 |

| Test | Specification | | Result |
|---|---|---|---|
| | min | max | |
| ASSAY ($C_6H_5OH$) | 99.0 % | | 100.02 % |
| FREEZING POINT (DRY) | 40.5 C | | 40.5°C |
| CLARITY OF SOLUTION | TO PASS TEST | | PASSES TEST |
| RESIDUE AFTER EVAPORATION | | 0.05 % | <0.05 % |
| WATER | | 0.5 % | 0.0087 % |
| DATE OF MANUFACTURE | | | 06-MAR-2018 |

Spectrum Chemical Mfg Corp
755 Jersey Avenue
New Brunswick 08901 NJ

Certificate Of Analysis Results Certified by

Ibad Tirmizi
Director of Quality
Spectrum Chemical Mfg. Corp.

**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.**

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%

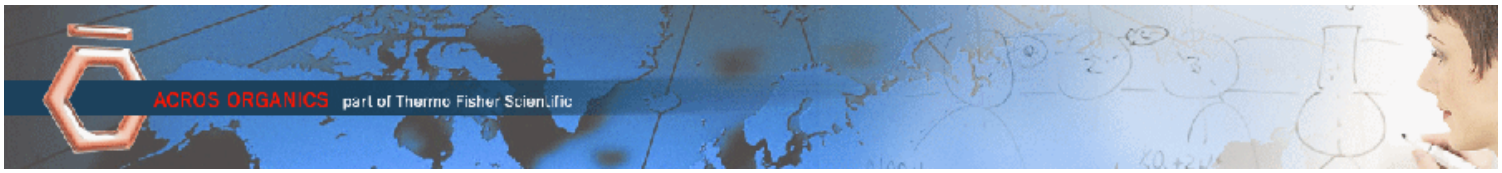
Lot No.: W12F013

| 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 |



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

This is to certify that units of the lot number above were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. Thermo Fisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Products are for research use or further manufacturing. Not for direct administration to humans or animals. It is the responsibility of the purchaser, formulator or those performing further manufacturing to determine suitability based upon the intended use of the end product. Products are tested to meet the analytical requirements of the noted grade. The above information is the actual analytical results obtained.




ACROS ORGANICS

| | |
|---|---|
| **Version** | 0 |
| **Molecular weight** | 147.13 |
| **Molecular formula** | C5 H9 N O4 |
| **CAS No** | 56-86-0 |
| **Linear formula** | HO2CCH2CH2CH(NH2)CO2H |
| **Flash point (°C)** | |

# Certificate of Analysis

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| | | | |
|---|---|---|---|
| **Catalog Number** | 15621 | **Quality Test / Release Date** | 13 March 2019 |
| **Lot Number** | A0405990 | **Suggested Retest Date** | March 2022 |

| | |
|---|---|
| **Description** | L(+)-Glutamic acid,99% |
| **Country of Origin** | CHINA |
| **Declaration of Origin** | plant |

| | |
|---|---|
| **Origin Comment** | The product is made by fermentation of sugar molasses |

| Result Name | Specifications | Test Value |
|---|---|---|
| Appearance (Color) | White | White |
| Appearance (Form) | Powder | Powder |
| Infrared spectrum | Conforms | Conforms |
| Titration with NaOH | 98.5 to 100.5 % (On dried substance) | 99.32 % (On dried substance) |
| Loss on drying | =<0.5 % (105°C, 3 hrs) | 0.002 % (105°C, 3 hrs) |
| Heavy metals (as Pb) | =<10 ppm | =<10 ppm |
| Sulfated ash | =<0.1 % | 0.08 % |
| Other amino acids | not detectable | not detectable |
| Specific optical rotation | +30.5° to +32.5° (20°C, 589 nm) (on dried substance) | +32° (20°C, 589 nm) (on dried substance) |
| Specific optical rotation | (c=10, 2N HCl) | (c=10, 2N HCl) |
| Chloride (Cl) | =<200 ppm | =<200 ppm |
| Iron (Fe) | =<30 ppm | =<10 ppm |
| Sulfate (SO4) | =<300 ppm | =<200 ppm |
| Ammonium (NH4) | =<200 ppm | =<200 ppm |
| Arsenic oxide (As2O3) | =<1 ppm | =<1 ppm |


L. Van den Broek, QA Manager Issued: 24 January 2020

Acros Organics
ENA23, zone 1, nr 1350, Janssen Pharmaceuticalaan 3a, B-2440 Geel, Belgium
Tel +32 14/57.52.11 - Fax +32 14/59.34.34 Internet: http://www.acros.com
1 Reagent Lane, Fair Lawn, NJ 07410,USA Fax 201-796-1329

ThermoFisher SCIENTIFIC

# Certificate of Analysis

1 Reagent Lane
Fair Lawn, NJ 07410
201.796.7100 tel
201.796.1329 fax

Thermo Fisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2015 by SAI Global Certificate Number CERT – 0120632

This is to certify that units of the lot number below were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. Thermo Fisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Products are for research use or further manufacturing. Not for direct administration to humans or animals. It is the responsibility of the final formulator and end user to determine suitability based upon the intended use of the end product. Products are tested to meet the analytical requirements of the noted grade. The following information is the actual analytical results obtained.

| | | | |
|---|---|---|---|
| Catalog Number | D16 | Quality Test / Release Date | 03/19/2019 |
| Lot Number | 186122A | | |
| Description | DEXTROSE, ANHYDROUS, A.C.S. | | |
| Country of Origin | United States | Suggested Retest Date | Mar/2022 |
| Chemical Origin | Organic - Plant | | |
| BSE/TSE Comment | No animal products are used as starting raw material ingredients, or used in processing, including lubricants, processing aids, or any other material that might migrate to the finished product. | | |
| Chemical Comment | | | |

| N/A | | | |
|---|---|---|---|
| Result Name | Units | Specifications | Test Value |
| APPEARANCE | | REPORT | White, granular powder |
| TITRATABLE ACID | MEQ/G | <= 0.002 | <0.002 |
| STARCH | | = PASS TEST | pass test |
| SPECIFIC ROTATION @ 25 C | DEGREES (+ OR -) | Inclusive Between +52.5 - +53.0 | 53.0 |
| SULFATE & SULFITE | % | <= 0.005 | <0.005 |
| IRON (Fe) | ppm | <= 5 | <5 |
| CHLORIDE | % | <= 0.01 | <0.01 |
| IGNITION RESIDUE | % | <= 0.02 | <0.02 |
| IDENTIFICATION | PASS/FAIL | = PASS TEST | pass test |
| HEAVY METALS (as Pb) | ppm | <= 5 | <5 |
| LOSS ON DRYING @ 105 C | % | <= 0.2 | <0.2 |
| INSOLUBLE MATTER | % | <= 0.005 | 0.002 |

Teresa Bailey-Wyche

Quality Assurance Specialist - Certificate of Analysis Fair Lawn

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of this catalog number listed above.
If there are any questions with this certificate, please call at (800) 227-6701.
*Based on suggested storage condition.

ThermoFisher SCIENTIFIC



# Certificate of Analysis

1 Reagent Lane
Fair Lawn, NJ 07410
201.796.7100 tel
201.796.1329 fax

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| | | | |
|---|---|---|---|
| Catalog Number | P243 | Quality Test / Release Date | 06/19/2020 |
| Lot Number | 201089 | | |
| Description | POTASSIUM HYDROGEN PHTHALATE,ACIDIMETRIC STANDARD, A.C.S. | | |
| Country of Origin | Spain | Suggested Retest Date | Jun/2025 |
| Chemical Origin | Organic - non animal | | |
| BSE/TSE Comment | No animal products are used as starting raw material ingredients, or used in processing, including lubricants, processing aids, or any other material that might migrate to the finished product. | | |

| N/A | | | |
|---|---|---|---|
| Result Name | Units | Specifications | Test Value |
| APPEARANCE | | REPORT | WHITE CRYSTALS |
| ASSAY POTASSIUM HYDROGEN PHTHALATE | % | Inclusive Between 99.95 - 100.05 | 100.03 |
| CHLORINE COMPOUNDS | % | <= 0.003 | <0.003 |
| HEAVY METALS (as Pb) | ppm | <= 5 | <5 |
| IDENTIFICATION | PASS/FAIL | = PASS TEST | PASS TEST |
| INSOLUBLE MATTER | % | <= 0.005 | <0.005 |
| IRON (Fe) | ppm | <= 5 | <5 |
| PH OF 0.05M SOLUTION | | Inclusive Between 4.00 - 4.02 | 4.00 |
| SODIUM (Na) | % | <= 0.005 | <0.005 |
| SULFUR COMPOUNDS | % | <= 0.002 | <0.002% |
| TRACEABLE TO NIST | SOD CARBONATE | = LOT 351a | 351a |
| TRACEABLE TO NIST KHP STD | POT. ACID PHTHALATE | = LOT 84L | 84L |

Julian Burton

Julian Burton - Quality Control Manager – Fair Lawn

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of this catalog number listed above.
If there are any questions with this certificate, please call at (800) 227-6701.
*Based on suggested storage condition.

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

M 6041-46
MS

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

RICCA CHEMICAL COMPANY®

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

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

RICCA CHEMICAL COMPANY®
W3103 Received on 4/22/24 by IZ

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

# Certificate of Analysis

## Manganous Sulfate Solution, 364 g/L

**Lot Number:** 2403J02 **Product Number:** 4620

**Manufacture Date:** MAR 15, 2024
**Expiration Date:** MAR 2026

| Name | CAS# | Grade |
|---|---|---|
| Water | 7732-18-5 | ACS/ASTM/USP/EP |
| Manganous Sulfate Monohydrate | 10034-96-5 | Reagent |
| Sulfuric Acid | 7664-93-9 | ACS |

| Test | Specification | Result |
|---|---|---|
| Appearance | Pink liquid | Passed |
| Assay (by Refractive Index) | 360-368 g/L | 367 g/L |

| Specification | Reference |
|---|---|
| Manganous Sulfate Solution | ASTM (D 888 A) |
| Manganous Sulfate Solution | ASTM (D 888 A) |
| Manganous Sulfate Solution | APHA (4500-O E) |
| Manganous Sulfate Solution | APHA (4500-O F) |
| Manganous Sulfate Solution | APHA (4500-O D) |
| Manganous Sulfate Solution | APHA (4500-O E) |
| Manganous Sulfate Solution | APHA (4500-O F) |
| Manganous Sulfate Solution | APHA (4500-O D) |
| Manganous Sulfate Solution | APHA (4500-O C) |
| Manganous Sulfate Solution | APHA (4500-O C) |
| Manganous Sulfate Solution | EPA (360.2) |
| Manganous Sulfate Solution | EPA (360.2) |

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) |
|---|---|---|
| 4620-32 | 1 L natural poly | 24 months |

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

Jose Pena (03/15/2024)

Operations Manager

This document is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

RICCA CHEMICAL COMPANY®

1490 Lammers Pike
Batesville, IN 47006
http://www.riccachemical.com
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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."

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# Certificate of Analysis

## Alkaline-Iodide-Azide, Pomeroy Formulation for Dissolved Oxygen (DO) Analysis

**Lot Number:** 1405D67 **Product Number:** 535

**Manufacture Date:** APR 05, 2024
**Expiration Date:** APR 2026

This solution is intended for use with samples with high Dissolved Oxygen content (above 15 mg/L) and for samples with high concentrations of organic material.

| Name | CAS# | Grade |
|---|---|---|
| Water | 7732-18-5 | ACS/ASTM/USP/EP |
| Sodium Iodide | 7681-82-5 | ACS |
| Sodium Hydroxide | 1310-73-2 | ACS |
| Sodium Azide | 26628-22-8 | Reagent |

| Test | Specification | Result |
|---|---|---|
| Appearance | Colorless liquid | Passed |
| Free Iodine | To Pass Test | Passed |

| Specification | Reference |
|---|---|
| Alkaline Iodide-Sodium Azide Solution II | ASTM (D 888 A) |

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) |
|---|---|---|
| 535-32 | 1 L natural poly | 24 months |

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

Heidi J Green (04/05/2024)
Operations Manager

# 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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# 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.

Loveland, CO 80539
(970) 669-3050

An ISO 9001 Certified Company

# *Certificate of Analysis*

## *This is a Component of 1486266 / LOT A4169*

**PRODUCT:** BOD Nutrient Buffer Pillows

**PRODUCT NUMBER:** 1486227

**LOT NUMBER:** A4169

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

**DATE OF ANALYSIS:** 07/03/2024

| TEST | SPECIFICATIONS | RESULTS |
|---|---|---|
| Calcium Concentration of a diluted pillow | 0.93 to 1.29 ppm | 0.960 ppm |
| Magnesium Concentration of a diluted pillow | 0.35 to 0.48 ppm | 0.390 ppm |
| pH in a 6 L of DI water | 7.1 to 7.6 | 7.37 |
| Ammonia Concentration of a diluted pillow | 0.57 to 0.79 ppm | 0.593 ppm |
| Iron Concentration of a diluted pillow | 0.27 to 0.36 ppm | 0.311 ppm |
| Sterility | To Pass | Passed |
| Phosphorus Concentration of a diluted pillow | 7.6 to 10.3 ppm | 8.32 ppm |
| Five Day Change in Dissolved Oxygen Concentration | -0.2 to 0.2 ppm | 0.03 ppm |

The expiration date is Jun 2029

Certified by: Scott Als

Analytical Services Chemist

RICCA CHEMICAL COMPANY®

W3149 Received on 10/16/24 by IZ

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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

# Certificate of Analysis

| | |
|---|---|
| Material | BDH9260-500G |
| Material Description | BDH POTASS HYDRGN PHTHLTE 500G |
| Grade | ACS GRADE |
| Batch | 24H0956262 |
| Reassay Date | 04/28/2026 |
| CAS Number | 877-24-7 |
| Molecular Formula | HOOCC6H4COOK |
| Molecular Mass | 204.22 |
| Date of Manufacture | 04/29/2023 |
| Storage | Room Temperature |

| Characteristics | Specifications | Measured Values |
|---|---|---|
| Appearance | White crystals. | White crystals. |
| Assay (dried basis) | 99.95 - 100.05 % | 99.98 % |
| Chlorine Compounds | <= 0.003 % | <0.003 % |
| Heavy Metals (as Pb) | <= 5 ppm | <5 ppm |
| Insoluble Matter | <= 0.005 % | 0.003 % |
| Iron | <= 5 ppm | <5 ppm |
| pH (0.05M, Water) @25C | 4.00 - 4.02 | 4.00 |
| Sodium | <= 0.005 % | <0.005 % |
| Sulfur Compounds | <= 0.002 % | <0.002 % |

Internal ID #: 322

## Signature

We certify that this batch conforms to the specifications listed above.

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.

RICCA CHEMICAL COMPANY®

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# Certificate of Analysis

## Sodium Hypochlorite Solution, 5% available Chlorine

**Lot Number:** 2501J28 **Product Number:** 7495.5

**Manufacture Date:** JAN 17, 2025
**Expiration Date:** JUL 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) $Cl_2$ | 5.17 % (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 (01/17/2025)
Operations Manager

RICCA CHEMICAL COMPANY®

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# 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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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 |

W3195 Received on 03/19/2025 by IZ

# Certificate of Analysis

| | |
|---|---|
| Material | BDH9208-500G |
| Material Description | BDH AMMONIUM CHLORIDE ACS 500G |
| Grade | U S P REAGENT (ACS GRADE) |
| Batch | 24L0356561 |
| Reassay Date | 08/31/2027 |
| CAS Number | 12125-02-9 |
| Molecular Formula | NH4Cl |
| Molecular Mass | 53.49 |
| Date of Manufacture | 08/01/2024 |
| Storage | Room Temperature |

| Characteristics | Specifications | Measured Values |
|---|---|---|
| Appearance | White granular powder | White granular powder |
| Calcium | <= 0.001 % | 0.001 % |
| Heavy Metals (as Pb) | <= 0.0005 % | <0.0002 % |
| Insolubles | <= 0.005 % | 0.001 % |
| Iron | <= 0.0002 % | <0.0002 % |
| Magnesium | <= 0.0005 % | 0.0001 % |
| pH (5%, Water) @25C | 4.5 - 5.5 | 4.8 |
| Phosphate | <= 0.0002 % | <0.0002 % |
| Purity | >= 99.5 % | 99.8 % |
| Residue on Ignition | <= 0.01 % | 0.003 % |
| Sulfate | <= 0.002 % | <0.002 % |

Extra Description: Meets Reagent Specifications for testing USP/NF monographs

Internal ID #: 710

## Signature

We certify that this batch conforms to the specifications listed above.

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

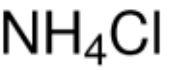
Product meets analytical specifications of the grades listed.

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

W3196 Received on 03/19/2025 by IZ

# Certificate of Analysis

Product Name:
Ammonium chloride - ACS reagent, ≥99.5%



| | |
|---|---|
| **Product Number:** | **213330** |
| **Batch Number:** | **MKCV1009** |
| Brand: | SIGALD |
| CAS Number: | 12125-02-9 |
| MDL Number: | MFCD00011420 |
| Formula: | H4ClN |
| Formula Weight: | 53.49 g/mol |
| Quality Release Date: | 23 OCT 2023 |
| Recommended Retest Date: | SEP 2026 |

| Test | Specification | Result |
|---|---|---|
| Appearance (Color) | White | White |
| Appearance (Form) | Powder or Crystals or Chunk(s) | Crystals |
| Titration by AgNO3 | ≥ 99.5 % | 100.2 % |
| pH @ 25 Deg c (5% Solution) | 4.5 - 5.5 | 4.9 |
| Insoluble Matter 10%, H2O | ≤ 0.005 % | 0.001 % |
| Residue on ignition (Ash) | ≤ 0.01 % | < 0.01 % |
| Calcium (Ca) | ≤ 0.001 % | < 0.001 % |
| Magnesium (Mg) | ≤ 5 ppm | 1 ppm |
| Heavy Metals by ICP | ≤ 5 ppm | < 1 ppm |
| Iron (Fe) | ≤ 2 ppm | < 1 ppm |
| Phosphate (PO4) | ≤ 2 ppm | < 2 ppm |
| Sulfate (SO4) | ≤ 0.002 % | < 0.002 % |
| Meets ACS Requirements | Current ACS Specification | Conforms |
| Recommended Retest Period 3 Years | ---------- | ---------- |

Larry Coers, Director

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 Number:** **213330**
**Batch Number:** **MKCV1009**

---

Quality Control
Milwaukee, WI US

3050 Spruce Street, Saint Louis, MO 63103, USA
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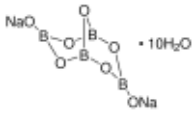
W3201 Received on 4/16/25 by IZ

# Certificate of Analysis

Product Name:
Sodium tetraborate decahydrate - ACS reagent, ≥99.5%



| | |
|---|---|
| **Product Number:** | **S9640** |
| **Batch Number:** | **BCCL9613** |
| Brand: | SIGALD |
| CAS Number: | 1303-96-4 |
| Formula: | B4Na2O7 · 10H2O |
| Formula Weight: | 381,37 g/mol |
| Quality Release Date: | 05 JUL 2024 |
| Recommended Retest Date: | MAY 2029 |

| Test | Specification | Result |
|---|---|---|
| Appearance (Color) | White | White |
| Appearance (Form) | Powder or Crystals | Powder |
| Titration with NaOH | 99.5 - 105.0 % | 100.7 % |
| pH | 9.15 - 9.20 | 9.20 |
| 0.01 m Solution at 25 Deg C | | |
| Meets ACS Requirements | Corresponds to Requirements | Corresponds |
| ACS Specifications | Corresponds to Requirements | Corresponds |
| Insoluble Matter <= 0.005% / Heavy | | |
| Metals (As Pb) <= 0.001% | | |
| Calcium (Ca) | ≤ 50 mg/kg | < 50 mg/kg |
| Iron (Fe) | ≤ 5 mg/kg | < 5 mg/kg |
| Total Sulfur | ≤ 50 mg/kg | < 50 mg/kg |
| as SO4 (ICP) | | |
| Chloride (Cl) | ≤ 10 mg/kg | < 10 mg/kg |
| Phosphate (PO4) | ≤ 10 mg/kg | < 10 mg/kg |

Dr.Reinhold Schwenninger
Quality Assurance
Buchs,Switzerland CH

N3212 Received on 5/21/25 by 12

POLYSEED®

# CERTIFICATE OF ANALYSIS

PO BOX 130549 Spring, TX 77393
Phone: (281) 298-9410 Fax: (281) 298-9411

**FINISHED PRODUCT, LOT NUMBER, MFG. /EXP DATE:**
PolySeed® • Part No. P-110 • Lot 132409 • Mfg. Date: 09/2024 • Exp. Date: 09/2026

**FORMULATION:**
The formulation for this product contains a range of naturally occurring microorganisms, which are known to be non-pathogenic to man or animals.

**VIABLE COUNT, FINAL TEST RESULT:**
The product has been fully tested in accordance with Finished Product Specifications and contains a minimum viable count of $4.00 \times 10^9$ cfu/g.

**GLUCOSE/GLUTAMIC-ACID RESULTS:**
Tested results within acceptable range 198 +/- 30.5 mg/L (167.5 - 228.5 mg/L). GGA Lot# 43100020 – Average Test Result: 202.1

See www.polyseed.com for details.

**SEED CONTROL FACTOR:**
Tested results within acceptable range 0.6 – 1.0 see www.polyseed.com for details

**SALMONELLA TEST RESULT:**
The product has been shown to be Salmonella negative using procedures recommended in the Microbiology Laboratory Guidebook, published by the USDA Food Safety and Inspection Service.

The purpose of this document is to ensure that the Finished Product conforms to the above specification.

**Signature:** _____ **Date**: 09/13/2024

***Quality Control Department***

POLYSEED.Ref.1.19 Revised Jan 24

InterLab®
International Laboratory Supply

ISO 9002
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DNV Certification, Inc.
REGISTERED FIRM

RICCA CHEMICAL COMPANY®

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

# Certificate of Analysis

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

**Lot Number:** 2504D34 **Product Number:** 1551

**Manufacture Date:** APR 03, 2025
**Expiration Date:** MAR 2027

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 (from ACS) |

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

| Test | Certified Value | Uncertainty | NIST SRM# |
|---|---|---|---|
| pH at 25°C (Method: SQCP027, SQCP033) | 7.003 | 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 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) |
|---|---|---|
| 1551-2.5 | 10 L Cubitainer® | 24 months |
| 1551-20 | 20 x 20 mL pack | 24 months |
| 1551-32 | 1 L natural poly | 24 months |
| 1551-5 | 20 L Cubitainer® | 24 months |

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

Jose Pena (04/03/2025)
Operations Manager

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

# Certificate Of Analysis

Date of Release: 4/8/2025

Name: **Potassium Hydrogen Phthalate**
ACS

Item No: **PX1476 All Sizes**
Lot / Batch No: **2025040493**
Country of Origin: **USA**

| Item | Specifications | Analysis |
|---|---|---|
| Assay (Dried Basis) | 99.95-100.05% | 99.98% |
| Chlorine compounds (as Cl) | 0.003% max. | <0.003% |
| Color | White | Passes Test |
| Form | Crystals | Passes Test |
| Heavy metals (by ICP-OES) | 5 ppm max. | <5 ppm |
| Insoluble Matter | 0.005% max. | <0.005% |
| Iron (Fe) | 5 ppm max. | <5 ppm |
| pH of a 0.05m solution @ 25.0C | 4.00-4.02 | 4.00 |
| Sodium (Na) | 0.005% max. | <0.005% |
| Sulfur compounds (as S) | 0.002% max. | <0.002% |

Joe Schoellkopff
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Quality Control Manager

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

EMD Millipore is a division of Merck KGaA, Darmstadt, Germany

EMD Millipore Corporation
400 Summit Drive
Burlington, MA 01803
U.S.A.

W 3228
W 3229
W 3230

Rec. on 7/11/25 by 12

environmental express®

2345A Charleston Regional
Charleston, South Carolina 29492
environmentalexpress.com
+1 843.881.6560

May 12, 2025

**CERTIFICATE OF ANALYSIS**

Environmental Express certifies that the following COD Reagent Vials have been rigorously checked against NIST Traceable standards and also compared for conformance to another major brand name product. Environmental Express COD Vial performance is evaluated using bench top spectrophotometers. Acceptance guidelines are strict and ensure dependable, quality results.

Environmental Express further certifies that the COD products listed below are recognized by the United States Environmental Protection Agency (USEPA) as equivalent to an approved Water Pollutant Testing Procedure for COD (Federal Register, Vol. 45, No. 78, Monday, April 20th, 1980, page 26811) and as such can be used for National Pollution Discharge Elimination System (NPDES) reporting.

| Cat. No. | Lot No. | Product Description | Expiration Date |
|---|---|---|---|
| B1010 | 5GE0517 | COD Reagent Vials, 0 - 150 ppm | May-30 |