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# Prep Standard - Chemical Standard Summary

**Order ID :** Q2289

**Test :** Anions Group1,COD,Oil and Grease,pH,Phosphorus-Total,TKN,TSS

**Prepbatch ID :** PB168445,PB168478,

**Sequence ID/Qc Batch ID:** LB136120,LB136131,LB136134,LB136145,LB136153,LB136167,LB136172,

**Standard ID :**

EP2622,WP111323,WP111385,WP111660,WP111745,WP112079,WP112611,WP112612,WP112615,WP112782,WP112783,WP112796,WP112828,WP112831,WP112913,WP112914,WP113112,WP113113,WP113135,WP113186,WP113187,WP113188,WP113189,WP113190,WP113191,WP113192,WP113193,WP113194,WP113195,WP113231,WP113232,WP113233,WP113234,WP113235,WP113236,WP113237,WP113238,WP113240,WP113378,WP113429,WP113443,WP113444,WP113445,WP113446,WP113448,WP113450,WP113465,WP113466,WP113503,WP113504,WP113505,WP113506,WP113507,WP113517,WP113518,WP113519,WP113520,WP113521,WP113522,WP113523,WP113524,WP113525,WP113526,WP113527,WP113528,

**Chemical ID :**

E3551,E3917,M6041,M6069,M6151,W2306,W2647,W2650,W2664,W2666,W2784,W2788,W2817,W2858,W2871,W2983,W3035,W3071,W3074,W3093,W3112,W3113,W3128,W3132,W3140,W3148,W3161,W3163,W3169,W3174,W3178,W3180,W3191,W3195,W3196,W3197,W3198,W3199,W3200,W3204,W3206,W3215,WO 112784,

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# Extractions STANDARD PREPARATION LOG

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 3923 | Baked Sodium Sulfate | EP2622 | 06/13/2025 | 12/04/2025 | RUPESHKUMAR SHAH | Extraction_SCALE_2 (EX-SC-2) | None | Riteshkumar Patel 06/16/2025 |

**FROM** 4000.00000gram of E3551 = Final Quantity: 4000.000 gram

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 1571 | Sodium hydroxide, 1N | WP111323 | 01/09/2025 | 07/09/2025 | Rubina Mughal | WETCHEM_SCALE_8 (WC SC-7) | None | Iwona Zarych 01/09/2025 |

**FROM** 4.00000gram of W3113 + 96.00000ml 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 |
|---|---|---|---|---|---|---|---|---|
| 290 | Phenol reagent for Ammonia | WP111385 | 01/13/2025 | 07/13/2025 | Rubina Mughal | WETCHEM_SCALE_8 (WCSC-7) | None | Iwona Zarych 01/13/2025 |

**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 | 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

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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 | 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

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 1338 | TKN DISTILLING BUFFER | WP112079 | 02/27/2025 | 08/27/2025 | Rubina Mughal | WETCHEM_SCALE_8 (WCSC-7) | None | Iwona Zarych 02/27/2025 |

**FROM** 0.47500L of W3112 + 25.00000gram of W3148 + 500.00000gram of W3113 = Final Quantity: 1.000 L

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# Wet Chemistry STANDARD PREPARATION LOG

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 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 |
|---|---|---|---|---|---|---|---|---|
| 1211 | 11 N sulfuric acid | WP112615 | 04/03/2025 | 10/07/2025 | Niha Farheen Shaik | None | None | Iwona Zarych 04/07/2025 |

**FROM** 306.00000ml of M6041 + 694.00000ml of W3112 = Final Quantity: 1000.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 229 | 1:1 HCL | WP112782 | 04/22/2025 | 08/18/2025 | Jignesh Parikh | None | None | Iwona Zarych 04/22/2025 |

**FROM** 500.00000ml of M6151 + 500.00000ml of W3112 = Final Quantity: 1.000 L

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# Wet Chemistry STANDARD PREPARATION LOG

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 2470 | 1664A SPIKING SOLN | WP112783 | 04/22/2025 | 10/03/2025 | Jignesh Parikh | WETCHEM_SCALE_8 (WCSC-7) | None | Iwona Zarych 04/22/2025 |

**FROM** 1000.00000ml of E3917 + 4.00000gram of W2817 + 4.00000gram of W2871 = Final Quantity: 1000.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 4035 | IC ELUENT CONCENTRATE FOR IC-1 | WP112796 | 04/22/2025 | 10/22/2025 | Iwona Zarych | WETCHEM_SCALE_5 (WCSC-5) | None | Jignesh Parikh 04/22/2025 |

**FROM** 2.10000gram of W2647 + 84.75000gram of W3163 + 913.15000ml 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 |
|---|---|---|---|---|---|---|---|---|
| 126 | 5N sulfuric acid | WP112831 | 04/25/2025 | 10/25/2025 | Rubina Mughal | None | None | Iwona Zarych 04/25/2025 |

**FROM** 140.00000ml of M6041 + 860.00000ml of W3112 = Final Quantity: 1.000 L

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# Wet Chemistry STANDARD PREPARATION LOG

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 115 | Phosphate Stock Std. (50 ppm) | WP112913 | 05/01/2025 | 11/01/2025 | Iwona Zarych | WETCHEM_SCALE_5 (WCSC-5) | None | Jignesh Parikh 05/06/2025 |

**FROM** 0.11000gram of W3198 + 500.00000ml of W3112 = Final Quantity: 500.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 2790 | Phosphate Stock std, 50PPM-SS | WP112914 | 05/01/2025 | 11/01/2025 | Iwona Zarych | WETCHEM_SCALE_5 (WCSC-5) | None | Jignesh Parikh 05/06/2025 |

**FROM** 0.11000gram of W3206 + 500.00000ml of W3112 = Final Quantity: 500.000 ml

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# Wet Chemistry STANDARD PREPARATION LOG

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 648 | Ammonium molybdate solution | WP113112 | 05/16/2025 | 11/16/2025 | Iwona Zarych | WETCHEM_SCALE_5 (WCSC-5) | None | Jignesh Parikh 05/16/2025 |

**FROM** 20.00000gram of W2664 + 480.00000ml of W3112 = Final Quantity: 500.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 588 | Potassium Antimonyl Tartrate | WP113113 | 05/16/2025 | 11/16/2025 | Iwona Zarych | WETCHEM_SCALE_5 (WCSC-5) | None | Jignesh Parikh 05/16/2025 |

**FROM** 1.37150gram of W2306 + 500.00000ml of W3112 = Final Quantity: 500.000 ml

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# Wet Chemistry STANDARD PREPARATION LOG

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 619 | TKN digestion solution | WP113135 | 05/20/2025 | 11/20/2025 | Rubina Mughal | WETCHEM_SCALE_8 (WCSC-7) | None | Iwona Zarych 05/20/2025 |

**FROM** 134.00000gram of W2983 + 134.00000ml of M6041 + 7.30000gram of W3199 + 725.00000ml of W3112 = Final Quantity: 1000.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 2487 | Anions 300/9056 calibration standard 1 | WP113186 | 05/22/2025 | 05/23/2025 | Iwona Zarych | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 05/22/2025 |

**FROM** 10.00000ml of W3112 = 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 |
|---|---|---|---|---|---|---|---|---|
| 24 | Anions 300/9056 calibration standard 2 | WP113187 | 05/22/2025 | 05/23/2025 | Iwona Zarych | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 05/22/2025 |

**FROM** 0.20000ml of W3180 + 9.80000ml of W3112 = Final Quantity: 10.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 25 | Anions 300/9056 calibration standard 3 | WP113188 | 05/22/2025 | 05/23/2025 | Iwona Zarych | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 05/22/2025 |

**FROM** 0.40000ml of W3180 + 9.60000ml of W3112 = 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 |
|---|---|---|---|---|---|---|---|---|
| 26 | Anions 300/9056 calibration standard 4 | WP113189 | 05/22/2025 | 05/23/2025 | Iwona Zarych | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 05/22/2025 |

**FROM** 0.50000ml of W3180 + 9.50000ml of W3112 = Final Quantity: 10.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 3680 | Anions 300/9056 calibration standard 5-CCV | WP113190 | 05/22/2025 | 05/23/2025 | Iwona Zarych | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 05/22/2025 |

**FROM** 5.00000ml of W3180 + 95.00000ml of W3112 = 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 |
|---|---|---|---|---|---|---|---|---|
| 3679 | Anions 300/9056 calibration standard 6 | WP113191 | 05/22/2025 | 05/23/2025 | Iwona Zarych | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 05/22/2025 |

**FROM** 2.00000ml of W3180 + 8.00000ml of W3112 = Final Quantity: 10.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 3681 | Anions 300/9056 calibration standard 7 | WP113192 | 05/22/2025 | 05/23/2025 | Iwona Zarych | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 05/22/2025 |

**FROM** 2.50000ml of W3180 + 7.50000ml of W3112 = 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 |
|---|---|---|---|---|---|---|---|---|
| 3233 | Anions 300/9056 ICV-LCS std | WP113193 | 05/22/2025 | 05/23/2025 | Iwona Zarych | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 05/22/2025 |

**FROM** 45.00000ml of W3112 + 5.00000ml of W3197 = Final Quantity: 50.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 4036 | IC ELUENT FOR IC-1 | WP113194 | 05/22/2025 | 06/22/2025 | Iwona Zarych | None | Glass Pipette-A | Jignesh Parikh 05/22/2025 |

**FROM** 1980.00000ml of W3112 + 20.00000ml of WP112796 = Final Quantity: 2000.000 ml

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# Wet Chemistry STANDARD PREPARATION LOG

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 4037 | IC H2SO4 FOR IC-1 | WP113195 | 05/22/2025 | 06/22/2025 | Iwona Zarych | None | Glass Pipette-A | Jignesh Parikh 05/22/2025 |

**FROM** 5.60000ml of M6041 + 994.40000ml of W3112 = Final Quantity: 1000.000 ml

| 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

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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 | 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

| 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

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# Wet Chemistry STANDARD PREPARATION LOG

| 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

| 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

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# Wet Chemistry STANDARD PREPARATION LOG

| 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

| 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

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# Wet Chemistry STANDARD PREPARATION LOG

| 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

| 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

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# Wet Chemistry STANDARD PREPARATION LOG

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 1213 | Phenolphthalein indicator | WP113378 | 06/04/2025 | 12/04/2025 | Iwona Zarych | WETCHEM_SCALE_5 (WCSC-5) | None | Jignesh Parikh 06/05/2025 |

**FROM** 0.10000gram of W2650 + 50.00000ml of W2788 + 50.00000ml of W3112 = Final Quantity: 100.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 740 | sodium nitroferricyanide for ammonia | WP113429 | 06/06/2025 | 07/06/2025 | Iwona Zarych | WETCHEM_SCALE_5 (WCSC-5) | None | Jignesh Parikh 06/06/2025 |

**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 |
|---|---|---|---|---|---|---|---|---|
| 2456 | COD Stock std, 1000ppm | WP113443 | 06/09/2025 | 06/16/2025 | Iwona Zarych | WETCHEM_SCALE_5 (WCSC-5) | None | Jignesh Parikh 06/11/2025 |

**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 | WP113444 | 06/09/2025 | 06/16/2025 | Iwona Zarych | WETCHEM_SCALE_5 (WCSC-5) | None | Jignesh Parikh 06/11/2025 |

**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 |
|---|---|---|---|---|---|---|---|---|
| 2458 | COD CCV std, 50ppm | WP113445 | 06/09/2025 | 06/16/2025 | Iwona Zarych | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 06/11/2025 |

**FROM** 9.50000ml of W3112 + 0.50000ml of WP113443 = Final Quantity: 10.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 2459 | COD ICV-LCS std, 50ppm | WP113446 | 06/09/2025 | 06/16/2025 | Iwona Zarych | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 06/11/2025 |

**FROM** 9.50000ml of W3112 + 0.50000ml of WP113444 = Final Quantity: 10.000 ml

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Fax : 908 789 8922

# Wet Chemistry STANDARD PREPARATION LOG

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 4162 | RL CHECK | WP113448 | 06/09/2025 | 06/16/2025 | Iwona Zarych | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 06/11/2025 |

**FROM** 9.90000ml of W3112 + 0.10000ml of WP113443 = Final Quantity: 10.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 1322 | Ammonia Intermediate Std, 50PPM | WP113450 | 06/09/2025 | 07/09/2025 | Rubina Mughal | None | WETCHEM_PIPETTE_3 (WC) | Iwona Zarych 06/10/2025 |

**FROM** 95.00000ml of W3112 + 5.00000ml of WP112611 = 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 |
|---|---|---|---|---|---|---|---|---|
| 3680 | Anions 300/9056 calibration standard 5-CCV | WP113465 | 06/11/2025 | 06/12/2025 | Iwona Zarych | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 06/11/2025 |

**FROM** 45.00000ml of W3112 + 5.00000ml of W3180 = Final Quantity: 50.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 3233 | Anions 300/9056 ICV-LCS std | WP113466 | 06/11/2025 | 06/12/2025 | Iwona Zarych | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 06/11/2025 |

**FROM** 45.00000ml of W3112 + 5.00000ml of W3197 = 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 |
|---|---|---|---|---|---|---|---|---|
| 295 | TKN Calibration Std (10 ppm) | WP113503 | 06/12/2025 | 06/19/2025 | Rubina Mughal | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 06/13/2025 |

**FROM** 49.50000ml of W3112 + 0.50000ml of WP112611 = Final Quantity: 50.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 297 | TKN CCV STD 5 ppm | WP113504 | 06/12/2025 | 06/19/2025 | Rubina Mughal | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 06/13/2025 |

**FROM** 49.75000ml of W3112 + 0.25000ml of WP112611 = 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 |
|---|---|---|---|---|---|---|---|---|
| 296 | TKN ICV STD 5 ppm | WP113505 | 06/12/2025 | 06/19/2025 | Rubina Mughal | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 06/13/2025 |

**FROM** 49.75000ml of W3112 + 0.25000ml of WP112612 = Final Quantity: 50.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 298 | TKN LCS STD 5 ppm | WP113506 | 06/12/2025 | 06/19/2025 | Rubina Mughal | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 06/13/2025 |

**FROM** 49.75000ml of W3112 + 0.25000ml of WP112612 = 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 |
|---|---|---|---|---|---|---|---|---|
| 3590 | TKN LOD-MDL 0.25PPM | WP113507 | 06/12/2025 | 06/19/2025 | Rubina Mughal | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 06/13/2025 |

**FROM** 99.50000ml of W3112 + 0.50000ml of WP113450 = Final Quantity: 100.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 122 | calibration std. 0 ppm | WP113517 | 06/13/2025 | 06/20/2025 | Iwona Zarych | None | None | Jignesh Parikh 06/13/2025 |

**FROM** 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 |
|---|---|---|---|---|---|---|---|---|
| 121 | calibration std. phosphate 0.05 ppm | WP113518 | 06/13/2025 | 06/20/2025 | Iwona Zarych | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 06/13/2025 |

**FROM** 99.90000ml of W3112 + 0.10000ml of WP112913 = Final Quantity: 100.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 120 | calibration std. phosphate 0.1 ppm | WP113519 | 06/13/2025 | 06/20/2025 | Iwona Zarych | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 06/13/2025 |

**FROM** 99.80000ml of W3112 + 0.20000ml of WP112913 = 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 |
|---|---|---|---|---|---|---|---|---|
| 119 | calibration std. phosphate 0.3 ppm | WP113520 | 06/13/2025 | 06/20/2025 | Iwona Zarych | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 06/13/2025 |

**FROM** 99.40000ml of W3112 + 0.60000ml of WP112913 = Final Quantity: 100.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 118 | calibration std. phosphate 0.5 ppm | WP113521 | 06/13/2025 | 06/20/2025 | Iwona Zarych | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 06/13/2025 |

**FROM** 99.00000ml of W3112 + 1.00000ml of WP112913 = 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 |
|---|---|---|---|---|---|---|---|---|
| 117 | calibration std. phosphate 1 ppm | WP113522 | 06/13/2025 | 06/20/2025 | Iwona Zarych | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 06/13/2025 |

**FROM** 98.00000ml of W3112 + 2.00000ml of WP112913 = Final Quantity: 100.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 124 | phosphate CCV std. | WP113523 | 06/13/2025 | 06/20/2025 | Iwona Zarych | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 06/13/2025 |

**FROM** 99.00000ml of W3112 + 1.00000ml of WP112913 = 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 |
|---|---|---|---|---|---|---|---|---|
| 3805 | Phosphate ICV-LCS Std | WP113524 | 06/13/2025 | 06/20/2025 | Iwona Zarych | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 06/13/2025 |

**FROM** 99.00000ml of W3112 + 1.00000ml of WP112914 = Final Quantity: 100.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 3907 | Phosphate MDL-LOD-LOQ spike solution, 5ppm | WP113525 | 06/13/2025 | 06/20/2025 | Iwona Zarych | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 06/13/2025 |

**FROM** 9.00000ml of W3112 + 1.00000ml of WP112913 = 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 |
|---|---|---|---|---|---|---|---|---|
| 3814 | Phosphate LOD-MDL Std 0.025ppm | WP113526 | 06/13/2025 | 06/20/2025 | Iwona Zarych | None | WETCHEM_PIPETTE_3 (WC) | Jignesh Parikh 06/13/2025 |

**FROM** 99.50000ml of W3112 + 0.50000ml of WP113525 = Final Quantity: 100.000 ml

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 590 | Ascorbic Acid | WP113527 | 06/13/2025 | 06/14/2025 | Iwona Zarych | WETCHEM_SCALE_5 (WCSC-5) | None | Jignesh Parikh 06/13/2025 |

**FROM** 0.52800gram of W3074 + 30.00000ml of W3112 = Final Quantity: 30.000 ml

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# Wet Chemistry STANDARD PREPARATION LOG

| Recipe ID | NAME | NO. | Prep Date | Expiration Date | Prepared By | ScaleID | PipetteID | Supervised By |
|---|---|---|---|---|---|---|---|---|
| 658 | Combined reagent | WP113528 | 06/13/2025 | 06/14/2025 | Iwona Zarych | None | Glass Pipette-A | Jignesh Parikh 06/13/2025 |

**FROM** 15.00000ml of WP113112 + 30.00000ml of WP113527 + 5.00000ml of WP113113 + 50.00000ml of WP112831 = Final Quantity: 100.000 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 # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | PC19631-100 / SODIUM SULFATE, ANHYDROUS, PEST GRADE, 1 | 313201 | 12/04/2025 | 01/03/2024 / Rajesh | 07/20/2023 / Rajesh | E3551 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| Seidler Chemical | BA-9254-03 / Acetone, Ultra Resi (cs/4x4L) | 24H2762008 | 10/03/2025 | 04/03/2025 / Rajesh | 03/31/2025 / Rajesh | E3917 |

| 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. | 140440 / TEST PAPERS,PH,0-2.5,.2SENSI, 100PK | 80A0441 | 02/29/2028 | 09/03/2024 / jignesh | 08/19/2024 / Jaswal | M6069 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| Seidler Chemical | BA-9530-33 / Hydrochloric Acid, Instra-Analyzed (cs/6x2.5L) | 22G2862015 | 08/18/2025 | 02/18/2025 / Sagar | 01/15/2025 / Sagar | M6151 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | A1561-500GM / POTASSIUM ANTIMONY TARTRATE TRIHYDRATE, 500G | 2GH0057 | 12/11/2027 | 12/11/2017 / apatel | 12/11/2017 / apatel | W2306 |

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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. | J3506-5 / SODIUM BICARBONATE, PWD, ACS, 2.5KG | 0000240594 | 06/03/2026 | 02/24/2020 / AMANDEEP | 01/20/2020 / apatel | W2647 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | J2870-1 / PHENOLPHTHALEIN, INDICATOR F/TITRATION, 500G | 0000235350 | 06/04/2025 | 01/31/2020 / AMANDEEP | 01/20/2020 / apatel | W2650 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | J07716-1 / Ammonium Molybdate 500G | 0000234410 | 02/11/2026 | 02/10/2020 / AMANDEEP | 01/31/2020 / apatel | W2664 |

| 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 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | PC16721-3 / Isopropanol, 99% | C20F23007 | 06/23/2025 | 12/30/2020 / apatel | 12/30/2020 / apatel | W2788 |

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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. | A12244 / Stearic acid, 98%, 100 g | U20E006 | 04/02/2026 | 04/02/2021 / apatel | 04/02/2021 / apatel | W2817 |

| 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 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| Seidler Chemical | H223-57 / Hexadecane, 99.0% | 0000266903 | 05/04/2027 | 09/07/2021 / apatel | 08/26/2021 / apatel | W2871 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | J3278-5 / Potassium Sulfate, 2.5 Kgs | SLCM9788 | 11/21/2027 | 11/21/2022 / Iwona | 11/21/2022 / Iwona | W2983 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | BDH0214-500G / Ammonium Persulfate Crystal, 500g | MKCR9319 | 06/30/2028 | 03/05/2024 / Iwona | 06/06/2023 / Iwona | W3035 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | AL14455-3 / buffer solution pH 7 yellow | 4308H30 | 07/31/2025 | 01/02/2024 / JIGNESH | 12/06/2023 / Iwona | W3071 |

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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. | J0938-7 / Ascorbic Acid, 500 gms | MKCS4627 | 09/30/2025 | 01/16/2024 / Iwona | 01/16/2024 / Iwona | W3074 |

| 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 # |
|---|---|---|---|---|---|---|
| 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 # |
|---|---|---|---|---|---|---|
| Environmental Express LTD | B1010 / COD Digestion Vials Low Level 0-150Mg/L | 13821 | 10/31/2027 | 05/20/2025 / Iwona | 07/25/2024 / Iwona | W3128 |

| 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 |

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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. | 140444 / TEST PAPERS,PH 0-14,.5 SENSI,100PK | 10D0142 | 09/17/2029 | 09/17/2024 / Iwona | 09/17/2024 / Iwona | W3140 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | J3946-1 / Sodium Thiosulfate Pentahydrate, 500 gms | MKCW3077 | 07/31/2029 | 10/07/2024 / Iwona | 10/07/2024 / Iwona | W3148 |

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

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | EM-SX0395-3 / SODIUM CARBONATE ANHYDR 2.5KG | 24E3156178 | 09/30/2027 | 12/10/2024 / Iwona | 12/10/2024 / Iwona | W3163 |

| 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 |

| 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 |

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# CHEMICAL RECEIPT LOG BOOK

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | AL14055-3 / PH 4 BUFFER SOLUTION | 2411A93 | 10/30/2026 | 04/01/2025 / JIGNESH | 01/27/2025 / jignesh | W3178 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| Inorganic Ventures | 300-CAL-A-500ML / 300.0 Calibration Standard, 500 ml | V2-MEB742616 | 02/19/2026 | 02/19/2025 / Iwona | 01/27/2025 / Iwona | W3180 |

| 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 # |
|---|---|---|---|---|---|---|
| Inorganic Ventures | 300-CAL-A-500ML / 300.0 Calibration Standard, 500 ml | 040525 | 04/05/2027 | 04/08/2025 / Iwona | 04/08/2025 / Iwona | W3197 |

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. | J3246-1 / POTAS PHOSPHATE, MONO, CRYS, ACS, 500G | MKCW6723 | 10/31/2028 | 04/11/2025 / Iwona | 04/11/2025 / Iwona | W3198 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | 0330-500G / Cupric Sulfate Pentahydrate | 24H0956271 | 05/31/2027 | 04/11/2025 / Iwona | 04/11/2025 / Iwona | W3199 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| RICCA CHEMICAL COMPANY | 1615-16 / pH 12.00 Buffer | 2504F20 | 09/30/2026 | 04/11/2025 / Iwona | 04/11/2025 / Iwona | W3200 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| Seidler Chemical | BA-9262-03 / Hexane, Ultra-Resi (cs/4x4L) | 25c0362005 | 04/30/2026 | 04/22/2025 / jignesh | 04/18/2025 / jignesh | W3204 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | J3246-1 / POTAS PHOSPHATE, MONO, CRYS, ACS, 500G | MKCX1379 | 01/31/2029 | 04/29/2025 / Iwona | 04/29/2025 / Iwona | W3206 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|---|---|---|---|---|---|---|
| PCI Scientific Supply, Inc. | 140444 / TEST PAPERS,PH 0-14,.5 SENSI,100PK | 10D3242 | 12/31/2028 | 06/09/2025 / Iwona | 06/09/2025 / Iwona | W3215 |

# CERTIFICATE OF ANALYSIS



**Printed:** 12/8/2017

**Customer No :** 30017 **Customer :** PCI SCIENTIFIC **Customer PO :** 6035343

**Order Number :** 3008126 **Delivery # :** 58495347

**Catalog :** A1561 Potassium Antimony Tartrate Trihydrate, Reagent, ACS **Lot :** 2GH0057

W2306
Received
12/11/17
AP

**Chemical Formula :** $C_8H_4K_2O_{12}Sb_2.3H_2O$ **Formula Weight :** 667.87

**CAS# :** 28300-74-5

| Test | Limit Min. | Limit Max. | Results |
|---|---|---|---|
| ASSAY ($C_8H_4K_2O_{12}Sb_2.3HO$) | 99.0 | 103.0 % | 101.0 % |
| TITRATABLE ACID OR BASE | -- | 0.020 meq/g | <0.020 meq/g |
| LOSS ON DRYING | -- | 2.7 % | <2.7 % |
| ARSENIC (As) | -- | 0.015 % | <0.015 % |
| APPEARANCE | | | WHITE POWDER |
| DATE OF MANUFACTURE | | | 29-DEC-2015 |

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

**Read and understand label and MSDS/SDS before handling any chemical. All Spectrum's chemicals are for manufacturing, processing, repacking or research purposes by experienced personnel only. The customer must ensure to provide its users adequate hazardous material training and appropriate protective gears before handling our chemicals.**

Certificate of Analysis Results Certified By:

Ibad Tirmizi
Director, Quality Assurance, Quality Control
New Brunswick, NJ 08901

spectrum CHEMICAL MFG CORP
SpectrumChemical.com

*Corporate Office:*
755-769 Jersey Ave.
New Brunswick, NJ 08901
(732) 214-1300

*West Coast Plant:*
14422 S. San Pedro St.
Gardena, CA 90248
(310) 516-8000

Ammonium Molybdate, 4-Hydrate, Crystal
BAKER ANALYZED® A.C.S. Reagent

(ammonium heptamolybdate, tetrahydrate)

Material No.: 0716-01
Batch No.: 0000234410
Manufactured Date: 2019/02/13
Retest Date: 2026/02/11
Revision No: 1

# Certificate of Analysis

Meets ACS Reagent Chemical Requirements,

| Test | Specification | Result |
|---|---|---|
| Assay (as $MoO_3$) | 81.0 - 83.0 % | 81.4 |
| ACS - Insoluble Matter | <= 0.005 % | < 0.001 |
| Chloride (Cl) | <= 0.002 % | < 0.002 |
| Nitrate ($NO_3$) | Passes Test | PT |
| Arsenate, Phosphate and Silicate (as $SiO_2$) | <= 0.001 % | < 0.001 |
| ACS - Phosphate ($PO_4$) | <= 5 ppm | < 5 |
| Sulfate ($SO_4$) | <= 0.02 % | < 0.02 |
| Heavy Metals (as Pb) | <= 0.001 % | < 0.001 |
| Magnesium (Mg) | <= 0.005 % | < 0.001 |
| Potassium (K) | <= 0.01 % | < 0.01 |
| Sodium (Na) | <= 0.01 % | <0.001 |

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

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

Jamie Ethier
Vice President Global Quality

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

Phenolphthalein, Powder
BAKER ANALYZED® A.C.S. Reagent

Material No.: 2870-01
Batch No.: 0000235350
Manufactured Date: 2018/06/06
Retest Date: 2025/06/04
Revision No: 1

# Certificate of Analysis

Meets ACS Reagent Chemical Requirements,

| Test | Specification | Result |
|---|---|---|
| ACS - Clarity of Solution | Passes Test | PT |
| Visual Transition Interval - pH...8.0 (Colorless) | Passes Test | PT |
| Visual Transition Interval - pH...10.0 (Red) | Passes Test | PT |

For Laboratory, Research or Manufacturing Use

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

Jamie Ethier
Vice President Global Quality

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

Sodium Bicarbonate, Powder
BAKER ANALYZED® A.C.S. Reagent

(sodium hydrogen carbonate)

Material No.: 3506-05
Batch No.: 0000240594
Manufactured Date: 2019/06/05
Retest Date: 2026/06/03
Revision No: 1

# Certificate of Analysis

Meets ACS Reagent Chemical Requirements,

| Test | Specification | Result |
|---|---|---|
| Assay ($NaHCO_3$) (dried basis) | 99.7 - 100.3 % | 100.1 |
| Insoluble Matter | <= 0.015 % | < 0.002 |
| Chloride (Cl) | <= 0.003 % | 0.003 |
| Phosphate ($PO_4$) | <= 0.001 % | 0.001 |
| Sulfur Compounds (as $SO_4$) | <= 0.003 % | 0.003 |
| Calcium (Ca) | <= 0.02 % | 0.02 |
| Trace Impurities - Iron (Fe) | <= 0.001 % | 0.001 |
| Magnesium (Mg) | <= 0.005 % | 0.005 |
| Potassium (K) | <= 0.005 % | 0.005 |
| Ammonium ($NH_4$) | <= 5 ppm | 5 |
| Trace Impurities - ACS - Heavy Metals (as Pb) | <= 5 ppm | 5 |

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

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

Jamie Ethier
Vice President Global Quality

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

Hexadecane, 99.0%

Material No.: H223-57
Batch No.: 0000266903
Manufactured Date: 2020/05/05
Retest Date: 2027/05/04
Revision No: 1

# Certificate of Analysis

| Test | Specification | Result |
|---|---|---|
| Assay ($CH_3(CH_2)_{14}CH_3$) (by GC) | >= 99.0 % | 99.3 |
| Infrared Spectrum | Passes Test | PT |

For Laboratory, Research or Manufacturing Use

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

Jamie Ethier
Vice President Global Quality

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

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 |



**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.

ThermoFisher SCIENTIFIC

W2817
Rec. 04/02/2021

Product Specification

**Product Name:** Stearic acid, 98%, Thermo Scientific Chemicals
**Catalog Number:** A12244.14

---

| | |
|---|---|
| **CAS Number:** | 57-11-4 |
| **Molecular Formula:** | C18H36O2 |
| **Molecular Weight:** | 284.48 |
| **InChI Key:** | QIQXTHQIDYTFRH-UHFFFAOYSA-N |
| **SMILES:** | CCCCCCCCCCCCCCCCCC(O)=O |
| **Synonym:** | stearic acid acide stearique hydrofol acid 1855 hydrofol acid 1655 industrene 5016 stearic acid, ion(1-) (8CI) glycon TP glycon DP acidum stearinicul hydrofol acid 150 |

## Product Specification

| | |
|---|---|
| **Appearance (Color):** | White |
| **Form:** | Crystals or powder or crystalline powder or flakes or waxy solid |
| **Assay (Silylated GC):** | ≥97.5% |
| **Melting Point (clear melt):** | 67.0-74.0?C |

---

**Date Of Print:** 11/30/2023

*Product Specifications are subject to amendment and may change over time. Data contained is accurate as of the date printed.*

# CERTIFICATE OF ANALYSIS

| | |
|---|---|
| **Product Name** | ISOPROPYL ALCOHOL, 99% |
| **Grade** | Meets ACS/USP/NF Monographs |
| **Catalog #** | 231000099, zp231000099 |
| **Lot #** | C20F23007 |
| **Date of Manufacture:** | 06/23/20 |
| **Recommended Retest Date:** | Five Years from Date of Manufacture |

W2788 Received on 12/30/2020 by AP

| TEST | MONO GRAPH | SPECIFICATION | RESULT |
|---|---|---|---|
| Assay (corrected for water) | USP | 99.0% min | 99.92% |
| Assay (corrected for water) | ACS | 99.5% min | |
| Solubility in water | ACS+ | To Pass Test | Pass |
| Appearance | ACS+ | Clear, colorless liquid | Pass |
| Color, APHA | ACS | 10 max | 1 |
| Limit of Nonvolatile Residue | USP+ | NMT 2.5 mg (0.005%) | 0.1 mg |
| Residue after Evaporation | ACS+ | 0.001% max | < 0.001% |
| Specific Gravity | USP | 0.783 - 0.787 @25°C | 0.783 |
| Identification A - Infrared Absorption | USP | To Pass Test | Pass |
| Identification B | USP | To Pass Test | Pass |
| Refractive Index @ 20°C | USP | 1.376-1.378 | 1.377 |
| Acidity | USP+ | NMT 0.70 ml of 0.020N NaOH is required | 0.30 mL |
| Titrable Acid or Base | ACS+ | 0.0001 meq/g max | 0.0001 meq/g |
| Carbonyl Compounds | ACS | Propionaldehyde 0.002% max | < 0.002% |
| | | Acetone 0.002% max | None Detected |
| Limit of Volatile Impurities | USP | Diethyl Ether NMT 0.1% | < 0.1% |
| | | Acetone NMT 0.1% | None Detected |
| | | Diisopropyl Ether NMT 0.1% | < 0.1% |
| | | n-Propyl Alcohol NMT 0.1% | < 0.1% |
| | | 2-Butanol NMT 0.1% | < 0.1% |
| | | Total NMT 1.0% | < 0.1% |
| Water, wt% | ACS | NMT 0.2% | 0.05% |
| Water Determination | USP | NMT 0.5% | |

+ This test is performed quarterly

58 Vale Road, Brookfield, Connecticut, 06804, USA | P. 800.243.5360
www.pharmco.com | www.greenfield.com

## Certification and Compliance Statements

| |
|---|
| This lot of Isopropyl Alcohol complies with all of the current requirements listed in the United States Pharmacopeia, American Chemical Society monographs and the National Formulary. |
| No chemicals whatsoever are used as solvents at any point in the manufacture, processing or packaging of Isopropyl Alcohol. Only Class 2 and Class 3 residual solvents may appear as impurities / related substances / low level contaminants in IPA Concentration of Class 2 Option 1 and Class 3 residual solvents is below limits in the current USP/NF General Chapter <467>. |
| This product is not derived, nor does it come in contact with, any materials derived from bovine or other animal sources. |
| This product is for further commercial manufacturing, laboratory or research use, and may be used as an excipient or a process solvent for pharmaceutical purposes. It is not intended for use as an active ingredient in drug manufacturing nor as a medical device or disinfectant. Appropriate/legal use of this product is the responsibility of the user. |

Approved by: D. Simoncelli, Quality Control Chemist

Date of Approval: 06/23/2020

58 Vale Road, Brookfield, Connecticut, 06804, USA | P. 800.243.5360
www.pharmco.com | www.greenfield.com

RICCA CHEMICAL COMPANY®

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

W3071
Rec 12/6/23

# Certificate of Analysis 12

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

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

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

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

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

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

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

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

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

pH measurements were performed in our Batesville, IN laboratory under ISO/IEC 17025 accreditation (ANAB Certificate L2387.02) and are certified traceable to National Institute of Standards and Technology (NIST) Standard Reference Material as indicated above via an unbroken chain of comparisons. The uncertainty is calculated from the uncertainty of the measurement variation from sample to sample, the uncertainty in the NIST Standard Reference Material, and the uncertainty of the measurement process. The uncertainty is multiplied by k=2, corresponding to 95% coverage in a normal distribution. Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

| Part Number | Size / Package Type | Shelf Life (Unopened Container) |
|---|---|---|
| 1551-2.5 | 10 L Cubitainer® | 24 months |
| 1551-5 | 20 L Cubitainer® | 24 months |

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

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

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

Sigma-Aldrich.

~~H2278~~ W2983

Rec. 11/21/22 ,2

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

# Certificate of Analysis

Product Name:
**Potassium sulfate - ReagentPlus®, ≥99.0%**

| | |
|---|---|
| **Product Number:** | **P0772** |
| **Batch Number:** | **SLCM9788** |
| Brand: | SIGALD |
| CAS Number: | 7778-80-5 |
| MDL Number: | MFCD00011388 |
| Formula: | K2O4S |
| Formula Weight: | 174.26 g/mol |
| Quality Release Date: | 03 MAR 2022 |

$K_2SO_4$

| Test | Specification | Result |
|---|---|---|
| Appearance (Color) | White | White |
| Appearance (Form) | Powder | Powder |
| Solubility (Color) | Colorless | Colorless |
| Solubility (Turbidity) 10 g plus 150 mL, H2O | Clear | Clear |
| Titration with NaOH | ≥ 99.0 % | 99.2 % |

Brian Dulle

Brian Dulle, Supervisor
Quality Assurance
St. Louis, Missouri US

Sigma-Aldrich.

W 3035
Lec. 6/6/23 12

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

# Certificate of Analysis

Product Name:
Ammonium persulfate - ACS reagent, ≥98.0%

| | |
|---|---|
| **Product Number:** | **248614** |
| **Batch Number:** | **MKCR9319** |
| Brand: | SIGALD |
| CAS Number: | 7727-54-0 |
| MDL Number: | MFCD00003390 |
| Formula Weight: | 228.20 g/mol |
| Quality Release Date: | 13 OCT 2022 |

$(NH_4)_2S_2O_8$

| Test | Specification | Result |
|---|---|---|
| Appearance (Color) | White to Off White | White |
| Appearance (Form) | Powder or Crystals or Granules or Chunks | Crystals |
| ICP Major Analysis<br>Confirms Sulfur Component | Confirmed | Confirmed |
| Titration by KMNO4 | ≥ 98.0 % | 100.0 % |
| Residue on ignition (Ash) | ≤ 0.05 % | < 0.05 % |
| Insoluble Matter<br>c = 10 %; In Water | ≤ 0.005 % | 0.002 % |
| Chloride and Chlorate (as Cl) | ≤ 0.001 % | < 0.001 % |
| Iron (Fe) | ≤ 0.001 % | < 0.001 % |
| Heavy Metal<br>as Lead | ≤ 0.005 % | < 0.001 % |
| Manganese (Mn) | ≤ 0.5 ppm | < 0.1 ppm |
| Titratable Acid (meq/g) | ≤ 0.04 | < 0.04 |
| Meets ACS Requirements | Current ACS Specification | Conforms |

Larry Coers, Director
Quality Control
Milwaukee, WI US

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 | 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.

PRODUCTOS QUIMICOS MONTERREY, S.A. DE C.V.

MIRADOR 201, COL. MIRADOR
MONTERREY, N.L. MEXICO
CP 64070
TEL +52 81 13 52 57 57
www.pqm.com.mx

# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| PRODUCT : | SODIUM SULFATE CRYSTALS ANHYDROUS | | |
| QUALITY : | ACS (CODE RMB3375) | FORMULA : | $Na_2SO_4$ |
| SPECIFICATION NUMBER : | 6399 | RELEASE DATE: | ABR/21/2023 |
| LOT NUMBER : | 313201 | | |

| TEST | SPECIFICATIONS | LOT VALUES |
|---|---|---|
| Assay ($Na_2SO_4$) | Min. 99.0% | 99.7 % |
| pH of a 5% solution at 25°C | 5.2 - 9.2 | 6.1 |
| Insoluble matter | Max. 0.01% | 0.005 % |
| Loss on ignition | Max. 0.5% | 0.1 % |
| Chloride (Cl) | Max. 0.001% | <0.001 % |
| Nitrogen compounds (as N) | Max. 5 ppm | <5 ppm |
| Phosphate ($PO_4$) | Max. 0.001% | <0.001 % |
| Heavy metals (as Pb) | Max. 5 ppm | <5 ppm |
| Iron (Fe) | Max. 0.001% | <0.001 % |
| Calcium (Ca) | Max. 0.01% | 0.002 % |
| Magnesium (Mg) | Max. 0.005% | 0.001 % |
| Potassium (K) | Max. 0.008% | 0.003 % |
| Extraction-concentration suitability | Passes test | Passes test |
| Appearance | Passes test | Passes test |
| Identification | Passes test | Passes test |
| Solubility and foreing matter | Passes test | Passes test |
| Retained on US Standard No. 10 sieve | Max. 1% | 0.1 % |
| Retained on US Standard No. 60 sieve | Min. 94% | 97.3 % |
| Through US Standard No. 60 sieve | Max. 5% | 2.5 % |
| Through US Standard No. 100 sieve | Max. 10% | 0.1 % |

COMMENTS

QC: PhC Irma Belmares

If you need further details, please call our factory or contact our local distributor.

Recd. by RB on 7/24/23 E3551

Acetone
BAKER RESI-ANALYZED® Reagent
For Organic Residue Analysis

avantor™ | J.T.Baker

Material No.: 9254-03
Batch No.: 24H2762008
Manufactured Date: 2024-04-18
Expiration Date:2027-04-18
Revision No.: 0

# Certificate of Analysis

| Test | Specification | Result |
|---|---|---|
| Assay ($(CH_3)_2CO$) (by GC, corrected forwater) | >= 99.4 % | 100.0 % |
| Color (APHA) | <= 10 | 5 |
| Residue after Evaporation | <= 1.0 ppm | 0.0 ppm |
| Substances Reducing Permanganate | Passes Test | Passes Test |
| Titrable Acid (µeq/g) | <= 0.3 | 0.2 |
| Titrable Base (µeq/g) | <= 0.6 | <0.1 |
| Water ($H_2O$) | <= 0.5 % | <0.1 % |
| FID-Sensitive Impurities (as 2-Octanol)Single Impurity Peak (ng/mL) | <= 5 | 1 |
| ECD Sensitive Impurities (as HeptachlorEpoxide) Single Peak (pg/mL) | <= 10 | 1 |

For Laboratory,Research,or Manufacturing Use
MEETS SPECIFICATIONS WITHIN THE EXPIRATION PERIOD

Country of Origin: United States
Packaging Site: Phillipsburg Mfg Ctr & DC

Recd. by RP on 03/31/25

E3917

JCroak
Jamie Croak
Director Quality Operations, Bioscience Production

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

Avantor Performance Materials LLC

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

R: 8/19/24 M6069

MACHEREY-NAGEL

# Certificate of Analysis

## Product information

| | |
|---|---|
| Product | pH-Fix 0.3-2.3 |
| REF | 92180 |
| LOT | 80A0441 |
| Expiration date: | 29.02.2028 |
| Date of examination: | 23.01.2024 |
| Gradation: | pH 0.3-0.7-1.0-1.3-1.6-1.9-2.3 |

## Confirmation

Hereby we confirm, that the above mentioned product has successfully passed our quality control system in accordance with ISO 9001 and meets the specific quality criteria.

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

MACHEREY-NAGEL GmbH & Co. KG
Valencienner Str. 11
52355 Düren · Germany
*www.mn-net.com*

DE Tel.: +49 24 21 969-0 info@mn-net.com
CH Tel.: +41 62 388 55 00 sales-ch@mn-net.com
FR Tel.: +33 388 68 22 68 sales-fr@mn-net.com
US Tel.: +1 888 321 62 24 sales-us@mn-net.com

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

avantor™ | J.T.Baker®

M6151

R→ 1/15/25

Material No.: 9530-33
Batch No.: 22G2862015
Manufactured Date: 2022-06-15
Retest Date: 2027-06-14
Revision No.: 0

# Certificate of Analysis

| Test | Specification | Result |
|---|---|---|
| ACS – Assay (as HCl) (by acid-base titrn) | 36.5 – 38.0 % | 37.9 % |
| ACS – Color (APHA) | ≤ 10 | 5 |
| ACS – Residue after Ignition | ≤ 3 ppm | < 1 ppm |
| ACS – Specific Gravity at 60°/60°F | 1.185 – 1.192 | 1.191 |
| ACS – Bromide (Br) | ≤ 0.005 % | < 0.005 % |
| ACS – Extractable Organic Substances | ≤ 5 ppm | < 1 ppm |
| ACS – Free Chlorine (as $Cl_2$) | ≤ 0.5 ppm | < 0.5 ppm |
| Phosphate ($PO_4$) | ≤ 0.05 ppm | < 0.03 ppm |
| Sulfate ($SO_4$) | ≤ 0.5 ppm | < 0.3 ppm |
| Sulfite ($SO_3$) | ≤ 0.8 ppm | 0.3 ppm |
| Ammonium ($NH_4$) | ≤ 3 ppm | < 1 ppm |
| Trace Impurities – Arsenic (As) | ≤ 0.010 ppm | < 0.003 ppm |
| Trace Impurities – Aluminum (Al) | ≤ 10.0 ppb | 1.3 ppb |
| Arsenic and Antimony (as As) | ≤ 5.0 ppb | < 3.0 ppb |
| Trace Impurities – Barium (Ba) | ≤ 1.0 ppb | 0.2 ppb |
| Trace Impurities – Beryllium (Be) | ≤ 1.0 ppb | < 0.2 ppb |
| Trace Impurities – Bismuth (Bi) | ≤ 10.0 ppb | < 1.0 ppb |
| Trace Impurities – Boron (B) | ≤ 20.0 ppb | < 5.0 ppb |
| Trace Impurities – Cadmium (Cd) | ≤ 1.0 ppb | < 0.3 ppb |
| Trace Impurities – Calcium (Ca) | ≤ 50.0 ppb | 163.0 ppb |
| Trace Impurities – Chromium (Cr) | ≤ 1.0 ppb | 0.7 ppb |
| Trace Impurities – Cobalt (Co) | ≤ 1.0 ppb | < 0.3 ppb |
| Trace Impurities – Copper (Cu) | ≤ 1.0 ppb | < 0.1 ppb |
| Trace Impurities – Gallium (Ga) | ≤ 1.0 ppb | < 0.2 ppb |
| Trace Impurities – Germanium (Ge) | ≤ 3.0 ppb | < 2.0 ppb |
| Trace Impurities – Gold (Au) | ≤ 4.0 ppb | 0.6 ppb |
| Heavy Metals (as Pb) | ≤ 100 ppb | < 50 ppb |
| Trace Impurities – Iron (Fe) | ≤ 15 ppb | 6 ppb |

>>> Continued on page 2 >>>

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

avantor™ | J.T.Baker®

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

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

>>> Continued on page 3 >>>

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

avantor™ | J.T.Baker®

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

| Test | Specification | Result |
|---|---|---|

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

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

James T Ethier

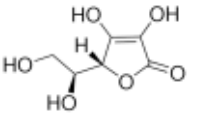
Jamie Ethier
Vice President Global Quality

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

W3074 Rec. on 01/16/24 by IZ

# Certificate of Analysis

Product Name:
L-Ascorbic acid - ACS reagent, ≥99%



| | |
|---|---|
| **Product Number:** | **255564** |
| **Batch Number:** | **MKCS4627** |
| Brand: | SIAL |
| CAS Number: | 50-81-7 |
| MDL Number: | MFCD00064328 |
| Formula: | C6H8O6 |
| Formula Weight: | 176.12 g/mol |
| Quality Release Date: | 21 NOV 2022 |
| Recommended Retest Date: | SEP 2025 |

| Test | Specification | Result |
|---|---|---|
| Appearance (Color) | White | White |
| Appearance (Form)<br>Powder, Crystals, Crystalline Powder, Granules and/or Chunks | Conforms to Requirements | Powder |
| Infrared Spectrum | Conforms to Structure | Conforms |
| Optical Rotation<br>(+ ); c = 10%; Water | 20.5 - 21.5 deg | 20.7 deg |
| Titration by Iodine | ≥ 99.0 % | 99.4 % |
| Residue on Ignition | ≤ 0.10 % | 0.03 % |
| Iron (Fe) | ≤ 0.001 % | < 0.001 % |
| Heavy Metals<br>by ICP-OES | ≤ 0.002 % | 0.001 % |
| Recommended Retest Period<br>3 Years | ---------- | ---------- |
| Meets ACS Requirements | Current ACS Specification | Conforms |

Larry Coers, Director
Quality Control
Milwaukee, WI US

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

# 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.

W3127 rec. 7/25/24 12
W3128 exp. 10/31/27
W3129

**ENVIRONMENTAL EXPRESS**
**Charleston, SC USA**
**www.envexp.com**
**(800) 343-5319**

October 27, 2022

## 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 |
|---|---|---|
| B1010 | 13821 | COD Reagent Vials, 0 - 150 ppm |

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.**

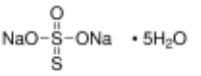
**Read and understand label and SDS before handling any chemicals. All Spectrum's chemicals are for manufacturing, processing, repacking or research purposes by experienced personnel only. It is the customer's responsibility to provide adequate hazardous material training and ensure that appropriate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

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

# Certificate of Analysis

Product Name:
Sodium thiosulfate pentahydrate - ACS reagent, ≥99.5%



| | |
|---|---|
| **Product Number:** | **217247** |
| **Batch Number:** | **MKCW3077** |
| Brand: | SIGALD |
| CAS Number: | 10102-17-7 |
| MDL Number: | MFCD00149186 |
| Formula: | Na2O3S2 · 5H2O |
| Formula Weight: | 248.18 g/mol |
| Quality Release Date: | 12 JUL 2024 |
| Recommended Retest Date: | JUL 2029 |

| Test | Specification | Result |
|---|---|---|
| Appearance (Color) | Colorless or White | White |
| Appearance (Form) | Powder or Crystals or Pellets | Crystals |
| ICP Major Analysis<br>Confirms Sodium and Sulfur Components | Confirmed | Confirmed |
| Titration by Iodine | 99.5 - 101.0 % | 100.2 % |
| pH<br>c = 5%; Water; At 25 Deg C | 6.0 - 8.4 | 6.1 |
| Insoluble Matter<br>c = 10%; Water | ≤ 0.005 % | < 0.001 % |
| Nitrogen Compounds | ≤ 0.002 % | < 0.002 % |
| Sulfate & Sulfite (as SO4) | ≤ 0.1 % | < 0.1 % |
| Sulfide | Pass | Pass |
| Meets ACS Requirements | Current ACS Specification | Conforms |
| Recommended Retest Period<br>5 Years | ---------- | ---------- |

Larry Coers, Director
Quality Control
Milwaukee, WI US

RICCA CHEMICAL COMPANY®

W3161 Rec. on 12/09/24 by IZ

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 2.00 ± 0.01 at 25°C

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

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

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

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

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

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

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

pH measurements were performed in our Pocomoke City, MD laboratory under ISO/IEC 17025 accreditation (ANAB Certificate L2387.01) and are certified traceable to National Institute of Standards and Technology (NIST) Standard Reference Material as indicated above via an unbroken chain of comparisons. The uncertainty is calculated from the uncertainty of the measurement variation from sample to sample, the uncertainty in the NIST Standard Reference Material, and the uncertainty of the measurement process. The uncertainty is multiplied by k=2, corresponding to 95% coverage in a normal distribution. Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

| Part Number | Size / Package Type | Shelf Life (Unopened Container) |
|---|---|---|
| 1493-1 | 4 L natural poly | 24 months |
| 1493-16 | 500 mL natural poly | 24 months |
| 1493-1CT | 4 L Cubitainer® | 24 months |
| 1493-2.5 | 10 L Cubitainer® | 24 months |
| 1493-32 | 1 L natural poly | 24 months |

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

Jose Pena (11/11/2024)
Operations Manager

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

W3163 Rec. on 12/10/24 by IZ

# Certificate of Analysis

| | |
|---|---|
| Material | BDH9284-2.5KG |
| Material Description | BDH SODIUM CARB ANHYD ACS 2.5KG |
| Grade | U S P REAGENT (ACS GRADE) |
| Batch | 24E3156178 |
| Reassay Date | 09/30/2027 |
| CAS Number | 497-19-8 |
| Molecular Formula | Na2CO3 |
| Molecular Mass | 105.99 |
| Date of Manufacture | 09/01/2023 |
| Storage | Room Temperature |

Material is hygroscopic. Protect from Moisture.
Additional Product Description:

| Characteristics | Specifications | Measured Values |
|---|---|---|
| Appearance | Fine white granular powder | Fine white granular powder |
| Calcium | <= 0.03 % | 0.003 % |
| Chloride | <= 0.001 % | 0.0003 % |
| Heavy Metals (as Pb) | <= 0.0005 % | 0.0001 % |
| Insolubles | <= 0.01 % | 0.001 % |
| Iron | <= 0.0005 % | 0.0001 % |
| Loss on Heating | <= 1.0 % | 0.03 % |
| Magnesium | <= 0.005 % | 0.001 % |
| Phosphate | <= 0.001 % | 0.001 % |
| Potassium | <= 0.005 % | 0.003 % |
| Purity | >= 99.5 % | 100.0 % |
| Silica | <= 0.005 % | 0.001 % |
| Sulfur Compounds | <= 0.003 % | 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.

# 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®

1841 Broad Street
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customerservice@riccachemical.com

# 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®

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

# Certificate of Analysis

W3178 58

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

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

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

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

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

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

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

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

pH measurements were performed in our Pocomoke City, MD laboratory under ISO/IEC 17025 accreditation (ANAB Certificate L2387.01) and are certified traceable to National Institute of Standards and Technology (NIST) Standard Reference Material as indicated above via an unbroken chain of comparisons. The uncertainty is calculated from the uncertainty of the measurement variation from sample to sample, the uncertainty in the NIST Standard Reference Material, and the uncertainty of the measurement process. The uncertainty is multiplied by k=2, corresponding to 95% coverage in a normal distribution. Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

| Part Number | Size / Package Type | Shelf Life (Unopened Container) |
|---|---|---|
| 1501-16 | 500 mL natural poly | 24 months |
| 1501-2.5 | 10 L Cubitainer® | 24 months |
| 1501-5 | 20 L Cubitainer® | 24 months |

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

INORGANIC VENTURES™
Refine your results. Redefine your industry.

# Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

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F: 540-585-3012
info@inorganicventures.com

## 1.0 ACCREDITATION / REGISTRATION

**INORGANIC VENTURES** is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

## 2.0 PRODUCT DESCRIPTION

| | |
|---|---|
| Product Code: | Multi Analyte Ion Chromatography Solution |
| Catalog Number: | 300-CAL-A |
| Lot Number: | V2-MEB742616 |
| Matrix: | H2O |
| Value / Analyte(s): | 150 µg/mL ea:<br>Sulfate,<br>100 µg/mL ea:<br>Bromide,<br>50 µg/mL ea:<br>o-Phosphate as P,<br>30 µg/mL ea:<br>Chloride, Nitrite as N,<br>25 µg/mL ea:<br>Nitrate as N,<br>20 µg/mL ea:<br>Fluoride |

## 3.0 CERTIFIED VALUES AND UNCERTAINTIES

| ANALYTE | CERTIFIED VALUE | ANALYTE | CERTIFIED VALUE |
|---|---|---|---|
| **Bromide, Br** | **100.0 ± 0.5 µg/mL** | **Chloride, Cl** | **30.01 ± 0.13 µg/mL** |
| **Fluoride, F-** | **20.00 ± 0.07 µg/mL** | **Nitrate as N, NNO3-** | **25.00 ± 0.10 µg/mL** |
| **Nitrite as N, NNO2-** | **30.00 ± 0.10 µg/mL** | **o-Phosphate as P, PPO4** | **50.00 ± 0.18 µg/mL** |
| **Sulfate, SO4** | **150.0 ± 0.8 µg/mL** | | |

**Density:** 0.999 g/mL (measured at 20 ± 4 ºC)

**Assay Information:**

| ANALYTE | METHOD | NIST SRM# | SRM LOT# |
|---|---|---|---|
| Br | IC Assay | 3184 | 151130 |
| Br | Fajans | 999c | 999c |
| Cl | IC Assay | 3182 | 190830 |
| Cl | Fajans | 999c | 999c |
| F- | IC Assay | 3183 | 140203 |
| NNO3- | IC Assay | 3185 | 170309 |
| NNO2- | IC Assay | Traceable to 40H | 08228TH-H2 |
| NNO2- | Calculated | 40h | 40h |
| PPO4 | IC Assay | 3186 | 170606 |
| SO4 | IC Assay | 3181 | 080603 |

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

### Characterization of CRM/RM by Two or More Methods

**Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:**

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

$X_i$ = mean of Assay Method i with standard uncertainty $u_{char\ i}$

$w_i$ = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

**CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$**

$k$ = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

$u_{bb}$ = bottle to bottle homogeneity standard uncertainty

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

### Characterization of CRM/RM by One Method

**Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:**

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

$X_a$ = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

**CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$**

$k$ = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

$u_{bb}$ = bottle to bottle homogeneity standard uncertainty

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

## 4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

### 4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

### 4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

### 4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

## 5.0 CHROMATOGRAM

N/A

## 6.0 INTENDED USE

**6.1** This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

**6.2** For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, https://www.inorganicventures.com/terms-and-conditions-sale. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

## 7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

### 7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

## 8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

## 9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

## 10.0 QUALITY STANDARD DOCUMENTATION

### 10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

### 10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

### 10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

## 11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

**11.1 Certification Issue Date**

April 02, 2024

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

**11.2 Lot Expiration Date**

- **April 02, 2029**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

**11.3 Period of Validity**

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

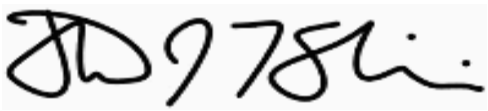
## 12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

**Certificate Prepared By:**

Uyen Truong
Custom Processing Supervisor

**Certificate Approved By:**

Thomas Kozikowski
Stock VS Manager



**Certifying Officer:**

Paul Gaines
Chairman / Senior Technical Director

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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
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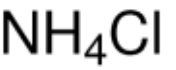
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

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**

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Quality Control
Milwaukee, WI US

Instrument IC-1 Analyst : NF Method: 300.0 / 9056A

| Ident | Con F- | Con CL- | Con NO2 | Con BR- | Con NO3 | Con HPO4 | Con SO4 | Method name | date time | Initial | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|---|
| STD1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | IC1-032125 | 3/21/2025 10:45 | 10 | NF/IZ |
| STD2 | 0.421 | 0.619 | 0.631 | 2.075 | 0.523 | 1.052 | 3.247 | IC1-032125 | 3/21/2025 11:07 | 10 | NF/IZ |
| STD3 | 0.795 | 1.199 | 1.203 | 3.994 | 1.001 | 1.993 | 5.998 | IC1-032125 | 3/21/2025 11:28 | 10 | NF/IZ |
| STD4 | 0.977 | 1.475 | 1.468 | 4.904 | 1.226 | 2.407 | 7.216 | IC1-032125 | 3/21/2025 11:50 | 10 | NF/IZ |
| STD5 | 1.993 | 3.009 | 2.995 | 10.03 | 2.493 | 4.968 | 14.842 | IC1-032125 | 3/21/2025 12:11 | 10 | NF/IZ |
| STD6 | 4.034 | 5.988 | 5.986 | 19.975 | 5.011 | 10.256 | 30.502 | IC1-032125 | 3/21/2025 12:32 | 10 | NF/IZ |
| STD7 | 4.979 | 7.51 | 7.517 | 25.022 | 6.247 | 12.323 | 36.695 | IC1-032125 | 3/21/2025 12:54 | 10 | NF/IZ |
| ICV | 2.031 | 3.038 | 3.08 | 10.364 | 2.568 | 5.199 | 15.269 | IC1-032125 | 3/21/2025 13:37 | 10 | NF/IZ |
| ICB | 0 | 0.122 | 0.08 | 0 | 0 | 0 | 0 | IC1-032125 | 3/21/2025 13:58 | 10 | NF/IZ |
| CCV | 2.034 | 3.119 | 3.093 | 10.383 | 2.559 | 5.188 | 15.179 | IC1-032125 | 4/3/2025 9:38 | 10 | NF/IZ |
| CCB | 0 | 0 | 0 | 0 | 0 | 0 | 0 | IC1-032125 | 4/3/2025 9:59 | 10 | NF/IZ |
| LB135296BSW | 2.028 | 3.121 | 3.103 | 10.387 | 2.561 | 5.226 | 15.185 | IC1-032125 | 4/3/2025 10:43 | 10 | NF/IZ |
| LB135296BLW | 0 | 0 | 0 | 0 | 0 | 0 | 0 | IC1-032125 | 4/3/2025 11:04 | 10 | NF/IZ |
| Q1711-01 | 0.332 | 26.59 | 0 | 0.215 | 0 | 2.108 | 10.666 | IC1-032125 | 4/3/2025 12:29 | 10 | NF/IZ |
| Q1711-02MS | 2.301 | 28.881 | 3.076 | 10.43 | 2.571 | 2.367 | 24.892 | IC1-032125 | 4/3/2025 12:50 | 10 | NF/IZ |
| Q1711-03MSD | 2.172 | 28.857 | 2.983 | 10.101 | 2.479 | 1.573 | 24.485 | IC1-032125 | 4/3/2025 13:12 | 10 | NF/IZ |
| Q1711-04 | 0.275 | 20.1 | 0 | 0.221 | 0 | 0 | 4.529 | IC1-032125 | 4/3/2025 13:55 | 10 | NF/IZ |
| Q1711-08 | 0 | 0.047 | 0 | 0 | 0 | 0 | 0 | IC1-032125 | 4/3/2025 14:16 | 10 | NF/IZ |
| Q1716-01 | 0.433 | 427.687 | 0 | 0.63 | 0.296 | 0 | 54.697 | IC1-032125 | 4/3/2025 14:38 | 10 | NF/IZ |
| Q1711-01DLX10 | 0.054 | 2.364 | 0 | 0 | 0 | 0 | 1.413 | IC1-032125 | 4/3/2025 14:59 | 10 | NF/IZ |
| Q1711-04DLX5 | 0.071 | 3.687 | 0 | 0 | 0 | 0 | 1.238 | IC1-032125 | 4/3/2025 15:21 | 10 | NF/IZ |
| CCV | 2.072 | 3.107 | 3.112 | 10.418 | 2.589 | 5.237 | 15.386 | IC1-032125 | 4/3/2025 15:43 | 10 | NF/IZ |
| CCB | 0 | 0 | 0 | 0 | 0 | 0 | 0 | IC1-032125 | 4/3/2025 17:16 | 10 | NF/IZ |

W3198 Received on 4/11/2025 by IZ

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

# Certificate of Analysis

Product Name:
Potassium phosphate monobasic - ACS reagent, ≥99.0%

$KH_2PO_4$

| | |
|---|---|
| **Product Number:** | **P0662** |
| **Batch Number:** | **MKCW6723** |
| Brand: | SIGALD |
| CAS Number: | 7778-77-0 |
| MDL Number: | MFCD00011401 |
| Formula: | H2KO4P |
| Formula Weight: | 136.09 g/mol |
| Quality Release Date: | 16 OCT 2024 |
| Recommended Retest Date: | OCT 2028 |

| Test | Specification | Result |
|---|---|---|
| Appearance (Color) | White | White |
| Appearance (Form) | Powder or Crystals | Crystals |
| Assay | ≥ 99.0 % | 99.8 % |
| Insoluble Matter | ≤ 0.01 % | < 0.01 % |
| Loss on Drying<br>At 105ºC | ≤ 0.2 % | < 0.1 % |
| pH<br>(c = 5%, 25 deg C) | 4.1 - 4.5 | 4.5 |
| Chloride Content | ≤ 0.001 % | < 0.001 % |
| Sulfate (SO4) | ≤ 0.003 % | < 0.003 % |
| Heavy Metals<br>by ICP | ≤ 0.001 % | < 0.001 % |
| Iron (Fe) | ≤ 0.002 % | < 0.001 % |
| Sodium (Na) | ≤ 0.005 % | < 0.001 % |
| Recommended Retest Period<br>4 Years | ---------- | ---------- |

Larry Coers, Director
Quality Control
Milwaukee, WI US

# Certificate of Analysis

W3199 Received on04/11/2025 by IZ

| | |
|---|---|
| Material | BDH9312-2.5KG |
| Material Description | COPPER SULFATE CRYST 2500GM |
| Grade | U S P REAGENT (ACS GRADE) |
| Batch | 24H0956271 |
| Reassay Date | 05/31/2027 |
| CAS Number | 7758-99-8 |
| Molecular Formula | CuSO4.5H2O |
| Molecular Mass | 249.68 |
| Date of Manufacture | 05/01/2024 |
| Storage | Room Temperature |

| Characteristics | Specifications | Measured Values |
|---|---|---|
| Appearance | Blue crystals | Blue crystals |
| Calcium | <= 0.005 % | 0.003 % |
| Chloride | <= 0.001 % | 0.0001 % |
| Insolubles | <= 0.005 % | 0.001 % |
| Iron | <= 0.003 % | 0.001 % |
| Nickel | <= 0.005 % | 0.003 % |
| Nitrogen Compounds (as N) | <= 0.002 % | 0.001 % |
| Potassium | <= 0.01 % | 0.0004 % |
| Purity | 98.0 - 102.0 % | 99.7 % |
| Sodium | <= 0.02 % | 0.003 % |

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

CUSTOMER PART# BDH9312-2.5KG

Internal ID #: 793

## 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®

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

W3200 Received on 04/11/2025 by IZ

# Certificate of Analysis

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

**Lot Number:** 2504F20 **Product Number:** 1615

**Manufacture Date:** APR 08, 2025
**Expiration Date:** SEP 2026

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

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

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

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

| Test | Certified Value | Uncertainty | NIST SRM# |
|---|---|---|---|
| pH at 25°C (Method: SQCP027, SQCP033) | 12.009 | 0.02 | 186-I-g, 186-II-g, 191d |

pH measurements were performed in our Pocomoke City, MD laboratory under ISO/IEC 17025 accreditation (ANAB Certificate L2387.01) and are certified traceable to National Institute of Standards and Technology (NIST) Standard Reference Material as indicated above via an unbroken chain of comparisons. The uncertainty is calculated from the uncertainty of the measurement variation from sample to sample, the uncertainty in the NIST Standard Reference Material, and the uncertainty of the measurement process. The uncertainty is multiplied by k=2, corresponding to 95% coverage in a normal distribution. Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

| Part Number | Size / Package Type | Shelf Life (Unopened Container) |
|---|---|---|
| 1615-1 | 4 L natural poly | 18 months |
| 1615-16 | 500 mL clear PET-G | 18 months |
| 1615-5 | 20 L Cubitainer® | 18 months |

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

Jose Pena (04/08/2025)
Operations Manager

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

n-Hexane 95%
ULTRA RESI-ANALYZED
For Organic Residue Analysis

avantor™ | J.T.Baker

UU3204
OPEN: 04/22/2025
JB

Material No.: 9262-03
Batch No.: 25C0362005
Manufactured Date: 2025-01-29
Expiration Date:2026-04-30
Revision No.: 0

# Certificate of Analysis

| Test | Specification | Result |
|---|---|---|
| FID-Sensitive Impurities (as 2-Octanol)Single Impurity Peak (ng/mL) | <= 5 | 1 |
| ECD Sensitive Impurities (as HeptachlorEpoxide) Single Peak (pg/mL) | <= 10 | 6 |
| ECD-Sensitive Impurities (as EthyleneDibromide) - Single Impurity Peak (ng/mL) | <= 5 | 5 |
| Assay (Total Saturated $C_6$ Isomers) (byGC, corrected for water) | >= 99.5 % | 100.0 % |
| Assay (as n-Hexane) (by GC, correctedfor water) | >= 95 % | 100 % |
| Color (APHA) | <= 10 | 10 |
| Residue after Evaporation | <= 1.0 ppm | 0.1 ppm |
| Substances Darkened by $H_2SO_4$ | Passes Test | Passes Test |
| Water (by KF, coulometric) | <= 0.05 % | <0.01 % |

For Laboratory,Research,or Manufacturing Use
MEETS SPECIFICATIONS WITHIN THE EXPIRATION PERIOD

Country of Origin: United States
Packaging Site: Phillipsburg Mfg Ctr & DC

JCroak
Jamie Croak
Director Quality Operations, Bioscience Production

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

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

# Certificate of Analysis

Product Name:
Potassium phosphate monobasic - ACS reagent, ≥99.0%

$KH_2PO_4$

| | |
|---|---|
| **Product Number:** | **P0662** |
| **Batch Number:** | **MKCX1379** |
| Brand: | SIGALD |
| CAS Number: | 7778-77-0 |
| MDL Number: | MFCD00011401 |
| Formula: | H2KO4P |
| Formula Weight: | 136.09 g/mol |
| Quality Release Date: | 27 JAN 2025 |
| Recommended Retest Date: | JAN 2029 |

| Test | Specification | Result |
|---|---|---|
| Appearance (Color) | White | White |
| Appearance (Form) | Powder or Crystals | Crystals |
| Assay | ≥ 99.0 % | 99.9 % |
| Insoluble Matter | ≤ 0.01 % | < 0.01 % |
| Loss on Drying<br>At 105ºC | ≤ 0.2 % | < 0.1 % |
| pH<br>(c = 5%, 25 deg C) | 4.1 - 4.5 | 4.5 |
| Chloride Content | ≤ 0.001 % | < 0.001 % |
| Sulfate (SO4) | ≤ 0.003 % | < 0.003 % |
| Heavy Metals<br>by ICP | ≤ 0.001 % | < 0.001 % |
| Iron (Fe) | ≤ 0.002 % | < 0.001 % |
| Sodium (Na) | ≤ 0.005 % | < 0.001 % |
| Recommended Retest Period<br>4 Years | ---------- | ---------- |

Larry Coers, Director
Quality Control
Milwaukee, WI US