

ME2948

ME2949

ME2955

Lab Name:	Alliance Technical Group, LLC	Contract:	68HERH20D0011				
Lab Code:	ACE	Case No.:	51900	MA No. :		SDG No.:	ME2948
Matrix:	Water	Lab Sample ID:	Q1186-03				
% Solids:		Date Received:	01/24/2025				
Analytical Method:	CN						
Concentration Units	(µg/L, mg/L, mg/kg dry weight, µg, or µg/cm²):			ug/L			

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	7.2	J	01/29/2025	1052

NOTE: Hardness (total) is reported in mg/L

Comments:



































LB1344

Test results

Aquakem 7.2AQ1

Page:

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

Reviewed by : NF Instrument ID : Konelab

1/29/2025 11:55

Test: CNEPA-NEW

Sample Id	Result	Dil. 1 +	Response	Errors
ICV001 ICV001	95.000	0.0	0.086	
ICB001 ICB001	-0.255	0.0	0.000	
CCV001 CCV001	236.328	0.0	0.212	
CCB001 CCB001	-0.233	0.0	0.000	
NF PB166303BL PBW303	0.430	0.0	0.001	
Q1176-01 ME2931	1797.914	0.0	1.609	Test limit high
Q1176-02 ME2933	-0.731	0.0	0.000	
Q1176-03 ME2937	0.159	0.0	0.001	
Q1176-04 ME2945	-0.437	0.0	0.000	
Q1176-05 ME2942	-0.426	0.0	0.000	
Q1176-06 ME2943	-0.444	0.0	0.000	
Q1176-07 ME2940	-0.032	0.0	0.001	
Q1176-08 ME2941	-0.200	0.0	0.001	
Q1176-09 ME2944	-0.265	0.0	0.000	
Q1176-10 ME2944D	-0.339	0.0	0.000	
Q1176-11 ME2944S	94.581	0.0	0.085	
Q1176-12 ME2938	6.840	0.0	0.007	
Q1176-13 ME2939	1.559	0.0	0.002	
Q1176-14 ME2932	-0.406	0.0	0.000	
Q1176-15 ME2936	-0.653	0.0	0.000	
Q1176-16 ME2934	-0.644	0.0	0.000	
Q1176-17 ME2935	-0.342	0.0	0.000	
Q1176-18 ME2950	-0.420	0.0	0.000	
Q1176-19 ME2951	-0.259	0.0	0.000	
Q1176-20 ME2953	6.825	0.0	0.007	
Q1176-21 ME2954	11.010	0.0	0.011	
CCV002 CCV002	236.511	0.0	0.212	
CCB002 CCB002	-0.223	0.0	0.000	
NF PB166327BL PBW327	-0.420	0.0	0.000	
Q1186-01 ME2948	0.121	0.0	0.001	
Q1186-03 ME2955	7.196	0.0	0.007	
Q1186-04 ME2956	-0.092	0.0	0.001	
Q1186-05 ME2957	0.222	0.0	0.001	
Q1186-06 ME2960	0.004	0.0	0.001	
Q1186-07 ME2961	-0.068	0.0	0.001	
Q1186-08 ME2962	-0.487	0.0	0.000	
Q1186-09 ME2959	-0.115	0.0	0.001	
Q1186-10 ME2959D	0.147	0.0	0.001	
Q1186-11 ME2959S	81.109	0.0	0.073	
Q1186-12 ME2963	2.386	0.0	0.003	
Q1186-13 ME2967	1.965	0.0	0.002	
Q1186-14 ME2965	19.932	0.0	0.019	
Q1186-15 ME2966	18.922	0.0	0.018	
Q1186-16 ME2958	-0.208	0.0	0.001	
Q1186-17 ME2968	40.964	0.0	0.037	
Q1186-18 ME2974	1.855	0.0	0.002	
Q1186-19 ME2977	-0.179	0.0	0.001	
Q1186-20 ME2980	7.959	0.0	0.008	
Q1186-02 ME2949	1.949	0.0	0.002	
CCV003 CCV003	248.649	0.0	0.223	
CCB003 CCB003	0.254	0.0	0.001	
NF Q1176-01DLX5 ME2931	351.774	0.0	0.315	
CCV004 CCV004	240.003	0.0	0.215	
CCB004 CCB004	-0.246	0.0	0.000	

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Test results	Aquakem 7.2AQ1	Page:
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CHEMTECH CONSULTING GROUP INC  
284 Sheffield Street, Mountainside, NJ 07092

1/29/2025 11:55

Reviewed by :	<u>NF</u>	Instrument ID : Konelab
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Test: CNEPA-NEW

Sample Id	Result	Dil. 1 +	Response	Ô□,,
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N	54
Mean	64.897
SD	252.8092
CV%	389.55

Aquakem v. 7.2AQ1

Results from time period:

Wed Jan 29 09:19:51 2025

Wed Jan 29 11:45:23 2025

Sample Id	Sam/	Test short name	Test	Result	Result unit	Result date and time	Stat
S0.0	A	CNEPA-NEW	P	-0.5298	µg/l	1/29/2025 9:19:51	
S5.0	A	CNEPA-NEW	P	4.3117	µg/l	1/29/2025 9:19:52	
S10.0	A	CNEPA-NEW	P	9.3447	µg/l	1/29/2025 9:19:53	
S100.0	A	CNEPA-NEW	P	102.5068	µg/l	1/29/2025 9:19:54	
S250.0	A	CNEPA-NEW	P	249.6959	µg/l	1/29/2025 9:19:55	
S500.0	A	CNEPA-NEW	P	499.6707	µg/l	1/29/2025 9:19:56	
ICV001 ICV001	S	CNEPA-NEW	P	95.0002	µg/l	1/29/2025 10:29:21	
ICB001 ICB001	S	CNEPA-NEW	P	-0.255	µg/l	1/29/2025 10:29:22	
CCV001 CCV001	S	CNEPA-NEW	P	236.3283	µg/l	1/29/2025 10:29:24	
CCB001 CCB001	S	CNEPA-NEW	P	-0.2332	µg/l	1/29/2025 10:29:27	
PB166303BL PBW303	S	CNEPA-NEW	P	0.4298	µg/l	1/29/2025 10:29:29	
Q1176-01 ME2931	S	CNEPA-NEW	P	1797.914	µg/l	1/29/2025 10:29:30	
Q1176-02 ME2933	S	CNEPA-NEW	P	-0.7313	µg/l	1/29/2025 10:36:55	
Q1176-03 ME2937	S	CNEPA-NEW	P	0.159	µg/l	1/29/2025 10:36:56	
Q1176-04 ME2945	S	CNEPA-NEW	P	-0.4375	µg/l	1/29/2025 10:36:57	
Q1176-05 ME2942	S	CNEPA-NEW	P	-0.4263	µg/l	1/29/2025 10:36:58	
Q1176-06 ME2943	S	CNEPA-NEW	P	-0.4435	µg/l	1/29/2025 10:36:59	
Q1176-07 ME2940	S	CNEPA-NEW	P	-0.0325	µg/l	1/29/2025 10:37:00	
Q1176-08 ME2941	S	CNEPA-NEW	P	-0.2003	µg/l	1/29/2025 10:37:01	
Q1176-09 ME2944	S	CNEPA-NEW	P	-0.2649	µg/l	1/29/2025 10:37:02	
Q1176-10 ME2944D	S	CNEPA-NEW	P	-0.339	µg/l	1/29/2025 10:37:03	
Q1176-11 ME2944S	S	CNEPA-NEW	P	94.5807	µg/l	1/29/2025 10:37:05	
Q1176-12 ME2938	S	CNEPA-NEW	P	6.8401	µg/l	1/29/2025 10:44:30	
Q1176-13 ME2939	S	CNEPA-NEW	P	1.5585	µg/l	1/29/2025 10:44:31	
Q1176-14 ME2932	S	CNEPA-NEW	P	-0.4059	µg/l	1/29/2025 10:44:32	
Q1176-15 ME2936	S	CNEPA-NEW	P	-0.6527	µg/l	1/29/2025 10:44:33	
Q1176-16 ME2934	S	CNEPA-NEW	P	-0.6437	µg/l	1/29/2025 10:44:34	
Q1176-17 ME2935	S	CNEPA-NEW	P	-0.3415	µg/l	1/29/2025 10:44:35	
Q1176-18 ME2950	S	CNEPA-NEW	P	-0.4197	µg/l	1/29/2025 10:44:36	
Q1176-19 ME2951	S	CNEPA-NEW	P	-0.2587	µg/l	1/29/2025 10:44:37	
Q1176-20 ME2953	S	CNEPA-NEW	P	6.8246	µg/l	1/29/2025 10:44:38	
Q1176-21 ME2954	S	CNEPA-NEW	P	11.0103	µg/l	1/29/2025 10:44:39	
CCV002 CCV002	S	CNEPA-NEW	P	236.5114	µg/l	1/29/2025 10:52:05	
CCB002 CCB002	S	CNEPA-NEW	P	-0.2225	µg/l	1/29/2025 10:52:06	
PB166327BL PBW327	S	CNEPA-NEW	P	-0.4197	µg/l	1/29/2025 10:52:07	
Q1186-01 ME2948	S	CNEPA-NEW	P	0.1207	µg/l	1/29/2025 10:52:08	
Q1186-03 ME2955	S	CNEPA-NEW	P	7.1964	µg/l	1/29/2025 10:52:10	
Q1186-04 ME2956	S	CNEPA-NEW	P	-0.0916	µg/l	1/29/2025 10:52:11	
Q1186-05 ME2957	S	CNEPA-NEW	P	0.2216	µg/l	1/29/2025 10:52:12	

Q1186-06 ME2960	S	CNEPA-NEW	P	0.0041 µg/l	1/29/2025 10:52:13
Q1186-07 ME2961	S	CNEPA-NEW	P	-0.0678 µg/l	1/29/2025 10:52:14
Q1186-08 ME2962	S	CNEPA-NEW	P	-0.4872 µg/l	1/29/2025 10:52:15
Q1186-09 ME2959	S	CNEPA-NEW	P	-0.1145 µg/l	1/29/2025 10:59:38
Q1186-10 ME2959D	S	CNEPA-NEW	P	0.147 µg/l	1/29/2025 10:59:39
Q1186-11 ME2959S	S	CNEPA-NEW	P	81.1085 µg/l	1/29/2025 10:59:40
Q1186-12 ME2963	S	CNEPA-NEW	P	2.3861 µg/l	1/29/2025 10:59:42
Q1186-13 ME2967	S	CNEPA-NEW	P	1.9649 µg/l	1/29/2025 10:59:43
Q1186-14 ME2965	S	CNEPA-NEW	P	19.9324 µg/l	1/29/2025 10:59:44
Q1186-15 ME2966	S	CNEPA-NEW	P	18.9218 µg/l	1/29/2025 10:59:45
Q1186-16 ME2958	S	CNEPA-NEW	P	-0.2082 µg/l	1/29/2025 10:59:46
Q1186-17 ME2968	S	CNEPA-NEW	P	40.9638 µg/l	1/29/2025 10:59:47
Q1186-18 ME2974	S	CNEPA-NEW	P	1.8549 µg/l	1/29/2025 10:59:48
Q1186-19 ME2977	S	CNEPA-NEW	P	-0.1789 µg/l	1/29/2025 11:04:53
Q1186-20 ME2980	S	CNEPA-NEW	P	7.9592 µg/l	1/29/2025 11:04:54
Q1186-02 ME2949	S	CNEPA-NEW	P	1.9495 µg/l	1/29/2025 11:04:55
CCV003 CCV003	S	CNEPA-NEW	P	248.6495 µg/l	1/29/2025 11:04:56
CCB003 CCB003	S	CNEPA-NEW	P	0.2542 µg/l	1/29/2025 11:04:57
Q1176-01DLX5 ME2931	S	CNEPA-NEW	P	351.7744 µg/l	1/29/2025 11:45:19
CCV004 CCV004	S	CNEPA-NEW	P	240.0026 µg/l	1/29/2025 11:45:20
CCB004 CCB004	S	CNEPA-NEW	P	-0.2461 µg/l	1/29/2025 11:45:22

Calibration results

Aquakem 7.2AQ1

Page:

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

Reviewed by : NF Instrument ID : Konelab

1/29/2025 9:21

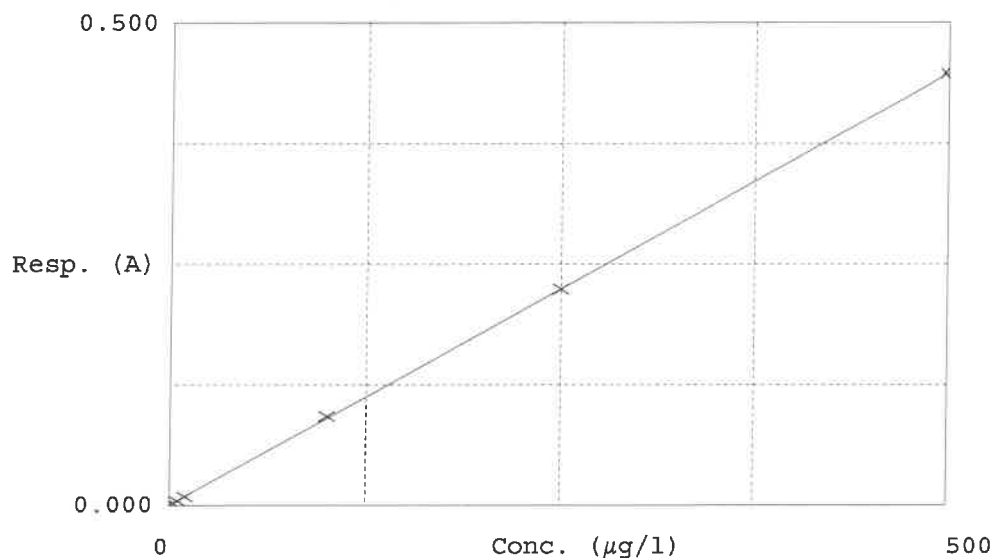
Test CNEPA-NEW

Accepted 1/29/2025 9:21

~~Factor~~ Slope ~~1118~~ 0.000894 NF  
~~Bias~~ Intercept 0.001 01.30.2025

Coeff. of det. 0.999961

Errors



Calibrator	Response	Calc. con.	Conc.	Re Errors
150.0 0.0PPBCN	0.000	-0.5298	0.0000	
25.0 5.0PPBCN	0.005	4.3117	5.0000	-13.8
35.0 10PPBCN	0.009	9.3447	10.0000	-6.6
45.0 100PPBCN	0.092	102.5068	100.0000	2.5
55.0 250PPBCN	0.224	249.6959	250.0000	-0.1
65.0 500PPBCN	0.448	499.6707	500.0000	-0.1

NF  
01.29.2025

## Prep Standard - Chemical Standard Summary

**Order ID :** Q1186

**Test :** Cyanide

**Prepbatch ID :** PB166327,

**Sequence ID/Qc Batch ID:** LB134471,

**Standard ID :**

WP110103,WP110390,WP110391,WP111286,WP111294,WP111295,WP111387,WP111661,WP111663,WP111664WP111662,WP111665,WP111666,WP111667,WP111668,WP111669,WP111688,

**Chemical ID :**

M5673,M6121,W2668,W2882,W3001,W3012,W3019,W3101,W3112,W3113,W3121,W3139,W3154,





<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
539	CN BUFFER	<a href="#">WP110103</a>	10/08/2024	04/08/2025	Rubina Mughal	WETCHEM_S CALE_5 (WC SC-5)	None	Iwona Zarych  10/08/2024
<b><u>FROM</u></b> 138.00000gram of W2668 + 862.00000ml of W3112 = Final Quantity: 1000.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3214	Magnesium Chloride For Cyanide 2.5M(51%W/V)	<a href="#">WP110390</a>	10/24/2024	04/24/2025	Niha Farheen Shaik	WETCHEM_SCALE_5 (WCS-5)	None	Iwona Zarych 10/24/2024
<u>FROM</u>	500.00000ml of W3112 + 510.00000gram of W3001 = Final Quantity: 1000.000 ml							

## Wet Chemistry STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1714	Sulfuric Acid, 50% (v/v)	<a href="#">WP110391</a>	10/24/2024	04/24/2025	Niha Farheen Shaik	None	None	Iwona Zarych 10/24/2024

**FROM** 1000.00000ml of M5673 + 1000.00000ml of W3112 = Final Quantity: 2000.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
2816	CN-EPA Pyridine-Burbituric Acid solution	<a href="#">WP111286</a>	01/02/2025	04/30/2025	Niha Farheen Shaik	WETCHEM_S CALE_5 (WC SC-5)	Glass Pipette-A	Iwona Zarych 01/02/2025

**FROM** 15.00000gram of W2882 + 15.00000ml of M6121 + 75.00000ml of W3019 + 895.00000ml of W3112 = Final Quantity: 1000.000 ml



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
11	Sodium hydroxide absorbing solution 0.25 N	<a href="#">WP111294</a>	01/07/2025	07/07/2025	Niha Farheen Shaik	WETCHEM_SCALE_5 (WC-5)	None	Iwona Zarych 01/07/2025
<b><u>FROM</u></b>	21.00000L of W3112 + 210.00000gram of W3113 = Final Quantity: 21.000 L							

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3850	Cyanide MS-MSD spiking solution, 5PPM	<a href="#">WP111295</a>	01/07/2025	07/07/2025	Niha Farheen Shaik	None	WETCHEM_PIPETTE_3	Iwona Zarych
<u>FROM</u>		1.00000ml of W3154 + 199.00000ml of WP111294 = Final Quantity: 200.000 ml						



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1581	Sodium hydroxide solution, 1.25N	<a href="#">WP111387</a>	01/14/2025	07/14/2025	Rubina Mughal	WETCHEM_S CALE_8 (WC SC-7)	None	Jignesh Parikh  01/14/2025
<b><u>FROM</u></b> 50.00000gram of W3113 + 950.00000ml of W3112 = Final Quantity: 1000.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1585	Cyanide Intermediate standard solution, 10PPM	<a href="#">WP111661</a>	01/28/2025	01/29/2025	Niha Farheen Shaik	None	WETCHEM_PIPETTE_3 (WC)	Iwona Zarych 01/30/2025
<b><u>FROM</u></b> 1.00000ml of W3154 + 79.00000ml of W3112 + 20.00000ml of WP111387 = Final Quantity: 100.000 ml								

## Wet Chemistry STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1592	Cyanide CCV Std, 250 PPB	<a href="#">WP111663</a>	01/28/2025	01/29/2025	Niha Farheen Shaik	None	Glass Pipette-A	Iwona Zarych 01/30/2025

**FROM** 2.50000ml of WP111661 + 97.50000ml of WP111294 = Final Quantity: 0.100 L

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1588	Cyanide Cal Std, 100 PPB	<a href="#">WP111665</a>	01/28/2025	01/29/2025	Niha Farheen Shaik	None	WETCHEM_FIPETTE_3 (WC)	Iwona Zarych 01/30/2025

**FROM** 1.00000ml of WP111661 + 99.00000ml of WP111294 = Final Quantity: 0.100 L



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1589	Cyanide Cal Std, 10 PPB	<a href="#">WP111666</a>	01/28/2025	01/29/2025	Niha Farheen Shaik	None	WETCHEM_PIPETTE_3	Iwona Zarych
<p><b><u>FROM</u></b> 4.00000ml of WP111664 + 96.00000ml of WP111294 = Final Quantity: 0.100 L</p>								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1590	Cyanide Cal Std, 5 PPB	<a href="#">WP111667</a>	01/28/2025	01/29/2025	Niha Farheen Shaik	None	WETCHEM_PIPETTE_3 (WC)	Iwona Zarych 01/30/2025
<b><u>FROM</u></b> 2.00000ml of WP111664 + 98.00000ml of WP111294 = Final Quantity: 0.100 L								

## Wet Chemistry STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1591	Cyanide blank std, 0 PPB	<a href="#">WP111668</a>	01/28/2025	01/29/2025	Niha Farheen Shaik	None	None	Iwona Zarych
								01/30/2025

**FROM** 100.00000ml of WP111294 = Final Quantity: 0.100 L

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1763	Cyanide ICV Std	<a href="#">WP111669</a>	01/28/2025	01/29/2025	Niha Farheen Shaik	None	WETCHEM_FIPETTE_3	Iwona Zarych
							(WC)	01/30/2025

**FROM** 0.50000ml of W3012 + 49.50000ml of WP111294 = Final Quantity: 50.000 ml



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1582	Chloramine T solution, 0.014M	<a href="#">WP111688</a>	01/29/2025	01/30/2025	Niha Farheen Shaik	WETCHEM_SCALE_5 (WCS-5)	None	Iwona Zarych 01/30/2025
<b><u>FROM</u></b> 0.08000gram of W3139 + 20.00000ml of W3112 = Final Quantity: 20.000 ml								



## CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9673-33 / Sulfuric Acid, Instra-Analyzed (cs/6c2.5L)	23D2462010	03/20/2028	09/21/2023 / mohan	09/05/2023 / mohan	M5673

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9530-33 / Hydrochloric Acid, Instra-Analyzed (cs/6x2.5L)	0000275677	05/13/2025	11/13/2024 / Eman	10/13/2024 / Eman	M6121

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	J3818-5 / SODIUM PHOSPHATE, MONOBAS/HYD, CRYST, ACS, 2.5 KG	0000225799	12/03/2025	04/05/2021 / Alexander	02/10/2020 / apatel	W2668

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	EM-BX0035-3 / Barbituric Acid, 100 gms	1.00132.0100	04/30/2025	12/07/2021 / jaswal	11/30/2021 / apatel	W2882

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	01237-10KG / Magnesium Chloride Hexahydrate ACS 10KG	002251-03319	06/06/2027	01/23/2023 / lwona	06/06/2022 / lwona	W3001

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	/ ICV-CN	ICV6-400	12/31/2025	01/08/2025 / lwona	02/20/2020 / lwona	W3012

## CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
SIGMA ALDRICH	270970-1L / Pyridine 1L	SHBQ2113	04/03/2028	04/03/2023 / lwona	04/03/2023 / lwona	W3019

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	470112-662 / TEST STRIPES, NITRATE/NITRITE, PK50	402403	04/30/2026	05/02/2024 / lwona	04/10/2024 / lwona	W3101

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 / lwona	07/03/2024 / lwona	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 / lwona	07/08/2024 / lwona	W3113

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	HC446507	07/25/2029	07/25/2024 / lwona	07/25/2024 / lwona	W3121

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	JTE494-6 / CHLORAMINE-T BAKER 250GM	10239484	09/09/2029	09/09/2024 / lwona	09/09/2024 / lwona	W3139

**CHEMICAL RECEIPT LOG BOOK**

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	RC2543-4 / CYANIDE STD 1000PPM 4OZ	1411J58	05/31/2025	12/02/2024 / lwona	12/02/2024 / lwona	W3154

W2918  
W3001  
rec. 06/06/22  
exp. 06/06/27

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## Chem-Impex International, Inc.

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**Tel:** (630) 766-2112  
**E-mail:** sales@chemimpex.com  
**Shipping and Correspondence:**  
935 Dillon Drive  
Wood Dale, IL 60191

**Fax:** (630) 766-2218  
**Web site:** www.chemimpex.com  
**Manufacturing site:**  
825 Dillon Drive  
Wood Dale, IL 60191

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### Certificate of Analysis

<b>Catalogue Number</b>	01237
<b>Product</b>	<b>Magnesium chloride hexahydrate</b>
<b>Lot Number</b>	002251-03319 Magnesium chloride•6H <sub>2</sub> O
<b>CAS Number</b>	7791-18-6
<b>Molecular Formula</b>	MgCl <sub>2</sub> •6H <sub>2</sub> O
<b>Molecular Weight</b>	203.3

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<b>Appearance</b>	Colorless crystals, very deliquescent
<b>Heavy Metals</b>	< 5 ppm
<b>Anion</b>	Nitrate : < 0.001% Phosphate : < 5 ppm Sulfate : < 0.002%
<b>Cation</b>	Ammonium : < 0.002% Barium : < 0.005% Calcium : 0.0006% Iron : < 5 ppm Manganese : 1.8 ppm Potassium : 0.0006% Sodium : 0.0008% Strontium : 0.0015%
<b>Insoluble material</b>	0.0025%
<b>Assay by titration</b>	100.29%
<b>Grade</b>	ACS reagent
<b>Storage</b>	Store at RT
<b>Country of Origin</b>	India

## ***Certificate of Analysis***

**Catalog Number: 01237**

**Lot Number: 002251-03319**

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**Remarks**

See material safety data sheet for additional information

For laboratory use only

**The foregoing is a copy of the Certificate of Analysis as provided by our supplier**



**Bala Kumar**  
**Quality Control Manager**

W3019  
rec 4/3/23

3050 Spruce Street, Saint Louis, MO 63103, USA

Website: [www.sigmaaldrich.com](http://www.sigmaaldrich.com)Email USA: [techserv@sial.com](mailto:techserv@sial.com)Outside USA: [eurtechserv@sial.com](mailto:eurtechserv@sial.com)

## Certificate of Analysis

Product Name:

Pyridine - anhydrous, 99.8%

Product Number:

270970

Batch Number:

SHBQ2113

Brand:

SIAL

CAS Number:

110-86-1

MDL Number:

MFCD00011732

Formula:

C<sub>5</sub>H<sub>5</sub>N

Formula Weight:

79.10 g/mol

Quality Release Date:

15 DEC 2022



Test	Specification	Result
Appearance (Color)	Colorless	Colorless
Appearance (Form)	Liquid	Liquid
Infrared Spectrum	Conforms to Structure	Conforms
Purity (GC)	≥ 99.75 %	99.99 %
Water (by Karl Fischer)	≤ 0.003 %	0.002 %
Residue on Evaporation	≤ 0.0005 %	< 0.0001 %

  
Larry Coers, Director

Quality Control

Sheboygan Falls, WI US

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at [Sigma-Aldrich.com](http://Sigma-Aldrich.com). For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.





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

Instructions for QATS Reference Material: *Inorganic ICV Solutions*

QATS LABORATORY INORGANIC REFERENCE MATERIAL  
INITIAL CALIBRATION VERIFICATION SOLUTIONS  
(ICV1, ICV5, AND ICV6)

**NOTE:** These instructions are for advisory purposes only. If any apparent conflict exists between these instructions and the analytical protocol or your contract, disregard these instructions.

**APPLICATION:** For use with the CLP SFAM01.0 SOW and revisions.

**CAUTION:** Read instructions carefully before opening bottle(s) and proceeding with the analyses.

Contains Metals in Dilute Acidic or  
Cyanide in Basic Aqueous Solutions  
**HAZARDOUS MATERIAL**

Safety Data Sheets  
Available Upon Request

W2160, W2161, W2162,  
W2163, W2164 Receive by  
AP on 9/2/2016

**(A) SAMPLE DESCRIPTION**

Enclosed is a set of one (1) or more Aqueous Inorganic Reference Materials containing various analyte concentrations. ICV1 and ICV5 are in a matrix of dilute nitric acid. ICV6 is in a matrix of dilute basic solution. **For the reference material source in reporting ICVs use "USEPA". For the reference material lot number for the ICV1, ICV5, and ICV6 solutions use "ICV1-1014", "ICV5-0415", and "ICV6-0400", respectively.**

**(B) BREAKAGE OR MISSING ITEMS**

Check the contents of the shipment carefully for any broken, leaking, or missing items. Check that the seal is intact on each bottle. Refer to the enclosed chain of custody record. Report any problems to Mr. Keith Strout, APTIM Federal Services, LLC, at (702) 895-8722. If requested, return the chain-of-custody record with appropriate annotations and signatures to the address provided below.

QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY  
APTIM Federal Services, LLC  
2700 Chandler Avenue - Building C  
Las Vegas, NV 89120

**(C) ANALYSIS OF SAMPLES**

The Initial Calibration Verification Solutions (ICVs) are to be used to evaluate the accuracy of the initial calibrations of ICP, AA, and Cyanide colorimetric instruments, and are to be used with the CLP SOWs and revisions. The values for each element in the ICVs are listed below in µg/L (ppb) for the resulting solution(s) after the dilution of the concentrate(s) according to the following instructions. Use Class 'A' glassware to prepare the solution(s).

**ICV1-1014** For ICP-AES analysis, use a 10-fold dilution by pipetting 10 mL of the ICV1 concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid.





Instructions for QATS Reference Material: *Inorganic ICV Solutions*

- ICV1-1014** For ICP-MS analysis, use a 50-fold dilution by pipetting 2 mL of the ICV1 concentrate into a 100 mL volumetric flask and dilute to volume with 1% (v/v) nitric acid.
- ICV5-0415** For the cold vapor analysis of mercury by AA, use a 100-fold dilution by pipetting 1 mL of the ICV5 concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid. The ICV5 concentrate is prepared in 0.05% (w/v)  $K_2Cr_2O_7$  and 5% (v/v) nitric acid.
- ICV6-0400** For the analysis of cyanide, use a 100-fold dilution by pipetting 1 mL of the ICV6 concentrate into a 100 mL volumetric flask and dilute to volume with Type II water. Distill this solution along with the samples before analysis. The cyanide concentrate is prepared from  $K_3Fe(CN)_6$ , Type II water, and 0.1 % sodium hydroxide, and will decompose rapidly if exposed to light.

**NOTE:** USE TYPE II WATER AND HIGH-PURITY ACIDS FOR ALL DILUTIONS.

**(D) CERTIFIED CONCENTRATIONS OF QATS ICV1, ICV5, AND ICV6 SOLUTIONS**

ICV1-1014		
Element	Concentration (µg/L) (after 10-fold dilution)	Concentration (µg/L) (after 50-fold dilution)
Al	2500	500
Sb	1000	200
As	1000	200
Ba	520	100
Be	510	100
Cd	510	100
Ca	10000	2000
Cr	520	100
Co	520	100
Cu	510	100
Fe	10000	2000
Pb	1000	200
Mg	6000	1200
Mn	520	100
Ni	530	110
K	9900	2000
Se	1000	200
Ag	250	50
Na	10000	2000
Tl	1000	210
V	500	100
Zn	1000	200

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



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

 **avantor**™



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

## Certificate of Analysis

Test	Specification	Result
ACS – Assay (H <sub>2</sub> SO <sub>4</sub> )	95.0 – 98.0 %	96.1 %
Appearance	Passes Test	Passes Test
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Substances Reducing Permanganate (as SO <sub>2</sub> )	≤ 2 ppm	< 2 ppm
Ammonium (NH <sub>4</sub> )	≤ 1 ppm	1 ppm
Chloride (Cl)	≤ 0.1 ppm	< 0.1 ppm
Nitrate (NO <sub>3</sub> )	≤ 0.2 ppm	< 0.1 ppm
Phosphate (PO <sub>4</sub> )	≤ 0.5 ppm	< 0.1 ppm
Trace Impurities – Aluminum (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



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

Test	Specification	Result
Trace Impurities – Sodium (Na)	$\leq 500.0$ ppb	5.4 ppb
Trace Impurities – Strontium (Sr)	$\leq 5.0$ ppb	< 0.2 ppb
Trace Impurities – Tin (Sn)	$\leq 5.0$ ppb	< 0.8 ppb
Trace Impurities – Zinc (Zn)	$\leq 5.0$ ppb	0.4 ppb

For Laboratory, Research, or Manufacturing Use

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

  
Jamie Ethier  
Vice President Global Quality

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

avantor™



R → 16/13/24  
Met dig

M 6121

Material No.: 9530-33  
Batch No.: 0000275677  
Manufactured Date: 2020/12/16  
Retest Date: 2025/12/15  
Revision No: 1

## Certificate of Analysis

Test	Specification	Result
ACS – Assay (as HCl) (by acid-base titrn)	36.5 – 38.0 %	37.6
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	1
ACS – Specific Gravity at 60°/60°F	1.185 – 1.192	1.190
ACS – Bromide (Br)	≤ 0.005 %	< 0.005
ACS – Extractable Organic Substances	≤ 5 ppm	1
ACS – Free Chlorine (as Cl <sub>2</sub> )	≤ 0.5 ppm	< 0.5
Phosphate (PO <sub>4</sub> )	≤ 0.05 ppm	< 0.03
Sulfate (SO <sub>4</sub> )	≤ 0.5 ppm	< 0.3
Sulfite (SO <sub>3</sub> )	≤ 0.8 ppm	0.3
Ammonium (NH <sub>4</sub> )	≤ 3 ppm	< 1
Trace Impurities – Arsenic (As)	≤ 0.010 ppm	< 0.003
Trace Impurities – Aluminum (Al)	≤ 10.0 ppb	< 0.2
Arsenic and Antimony (as As)	≤ 5 ppb	< 3
Trace Impurities – Barium (Ba)	≤ 1.0 ppb	< 0.2
Trace Impurities – Beryllium (Be)	≤ 1.0 ppb	< 0.2
Trace Impurities – Bismuth (Bi)	≤ 10.0 ppb	< 1.0
Trace Impurities – Boron (B)	≤ 20.0 ppb	< 5.0
Trace Impurities – Cadmium (Cd)	≤ 1.0 ppb	< 0.3
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	29.7
Trace Impurities – Chromium (Cr)	≤ 1.0 ppb	< 0.4
Trace Impurities – Cobalt (Co)	≤ 1.0 ppb	< 0.3
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1
Trace Impurities – Gallium (Ga)	≤ 1.0 ppb	< 0.2

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

Avantor Performance Materials, LLC

100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700

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

Test	Specification	Result
Trace Impurities – Germanium (Ge)	<= 3.0 ppb	< 2.0
Trace Impurities – Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities – Iron (Fe)	<= 15.0 ppb	< 1
Trace Impurities – Lead (Pb)	<= 1.0 ppb	< 0.5
Trace Impurities – Lithium (Li)	<= 1.0 ppb	0.2
Trace Impurities – Magnesium (Mg)	<= 10.0 ppb	0.4
Trace Impurities – Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities – Mercury (Hg)	<= 0.5 ppb	0.1
Trace Impurities – Molybdenum (Mo)	<= 10.0 ppb	< 5.0
Trace Impurities – Nickel (Ni)	<= 4.0 ppb	< 0.3
Trace Impurities – Niobium (Nb)	<= 1.0 ppb	< 0.2
Trace Impurities – Potassium (K)	<= 9.0 ppb	< 2.0
Trace Impurities – Selenium (Se), For Information Only	ppb	1.0
Trace Impurities – Silicon (Si)	<= 100.0 ppb	< 10.0
Trace Impurities – Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities – Sodium (Na)	<= 100.0 ppb	< 5.0
Trace Impurities – Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities – Tantalum (Ta)	<= 1.0 ppb	< 0.9
Trace Impurities – Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities – Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities – Titanium (Ti)	<= 1.0 ppb	0.2
Trace Impurities – Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities – Zinc (Zn)	<= 5.0 ppb	0.3
Trace Impurities – Zirconium (Zr)	<= 1.0 ppb	< 0.1

For Laboratory, Research or Manufacturing Use  
Product Information (not specifications):  
Appearance (clear, fuming liquid)  
Meets ACS Specifications

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

  
Jamie Ethier  
Vice President Global Quality

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

Avantor Performance Materials, LLC  
100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700



# Certificate of Analysis

1.00132.0000 Barbituric acid for analysis EMSURE®  
Batch N020065932

	Spec. Values		Batch Values	
Assay (acidimetric)	≥ 99	%	99.6	%
Identity (IR-spectrum)	passes test		passes test	
Chloride (Cl)	≤ 40	ppm	≤ 40	ppm
Heavy metals (as Pb)	≤ 50	ppm	≤ 50	ppm
Fe (Iron)	≤ 10	ppm	≤ 10	ppm
Sulfated ash	≤ 0.1	%	≤ 0.1	%
Loss on Drying (105 °C)	≤ 0.1	%	≤ 0.1	%
Suitability as reagent (for cyanide determination)	passes test		passes test	

Date of release (DD.MM.YYYY) 17.04.2020  
Minimum shelf life (DD.MM.YYYY) 30.04.2025

Ioannis Chartomatsidis  
Responsible laboratory manager quality control

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

Sodium Phosphate, Monobasic, Monohydrate,  
Crystal  
BAKER ANALYZED® A.C.S. Reagent

(sodium dihydrogen phosphate, monohydrate)



Material No.: 3818-05  
Batch No.: 0000225799  
Manufactured Date: 2018/12/05  
Retest Date: 2025/12/03  
Revision No: 1

## Certificate of Analysis

Meets ACS Reagent Chemical Requirements,

Test	Specification	Result
Assay ( $\text{NaH}_2\text{PO}_4 \cdot \text{H}_2\text{O}$ )	98.0 – 102.0 %	99.5
pH of 5% Solution at 25°C	4.1 – 4.5	4.3
Insoluble Matter	$\leq 0.01$ %	$< 0.01$
Chloride (Cl)	$\leq 5$ ppm	$< 5$
ACS – Sulfate ( $\text{SO}_4$ )	$\leq 0.003$ %	$< 0.003$
Calcium (Ca)	$\leq 0.005$ %	$< 0.005$
Potassium (K)	$\leq 0.01$ %	$< 0.01$
Heavy Metals (as Pb)	$\leq 0.001$ %	$< 0.001$
Trace Impurities – Iron (Fe)	$\leq 0.001$ %	$< 0.001$

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

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

  
Jamie Ethier  
Vice President Global Quality

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



# 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:

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

Storage: Room Temperature

Pellets

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

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.



## Sodium Hydroxide (Pellets)

**Material:** 0583  
**Grade:** ACS GRADE  
**Batch Number:** 23B1556310

Chemical Formula: NaOH  
Molecular Weight: 40  
CAS #: 1310-73-2  
Appearance:

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

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.



W3139 Received on 9/9/24 by IZ

Product No.: A12044  
Product: Chloramine-T trihydrate, 98%  
Lot No.: 10239484

Appearance:	White powder
Melting Point:	166°C(dec)
Assay (Iodometric titration):	100.5%
Identification (FTIR):	Conforms

Order our products online [thermofisher.com/chemicals](https://thermofisher.com/chemicals)

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

Products are processed under ISO 9001:2015 quality management systems and samples are tested for conformance to the noted specifications. Certain data may have been supplied by third parties. We disclaim the implied warranties of merchantability and fitness for a particular purpose, and the accuracy of third party data or information associated with the product. Products are for research and development use only. Products are not for direct administration to humans or animals. It is the responsibility of the final formulator or end user to determine suitability, and to qualify and/or validate each product for its intended use.



# Certificate of Analysis

## Cyanide Standard, 1000 ppm CN<sup>-</sup>

**Lot Number:** 1411J58**Product Number:** 2543**Manufacture Date:** NOV 22, 2024**Expiration Date:** MAY 2025

This standard is prepared using accurate volumetric techniques from material that has been assayed against Silver Nitrate solution certified traceable to NIST Standard Reference Material 999. The certified value reported is the prepared value based upon the method of preparation of the material. The uncertainty in the prepared value is the combined uncertainty based on the stability of the assayed Potassium Cyanide, and the uncertainty in the mass and volume measurements.

Use 0.16% (w/v) (0.04 N) Sodium Hydroxide or 0.225 % (w/v) (0.04 N) Potassium Hydroxide to make dilutions of this standard. Restandardize weekly if extreme accuracy is required.

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Potassium Cyanide	151-50-8	ACS
Sodium Hydroxide	1310-73-2	Reagent

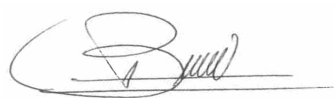
Test	Specification	Result
Appearance	Colorless liquid	Passed
Cyanide (CN <sup>-</sup> )	995-1005 ppm	1000 ppm

Specification	Reference
Stock Standard Cyanide Solution	APHA (4500-CN- F)
Stock Cyanide Solution	APHA (4500-CN- E)
Stock Cyanide Solution	APHA (4500-CN- K)
Stock Cyanide Solution	APHA (4500-CN- H)
Cyanide Reference Solution (1000 mg/L)	EPA (SW-846) (7.3.3.2)
Cyanide Calibration Stock Solution (1,000 mg/L CN <sup>-</sup> )	EPA (SW-846) (9213)
Stock Cyanide Solution	EPA (335.3)
Stock Cyanide Solution	EPA (335.2)
Cyanide Solution Stock	ASTM (D 4282)
Simple Cyanide Solution, Stock (1.0 g/L CN <sup>-</sup> )	ASTM (D 4374)

Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
2543-16	500 mL amber poly	6 months
2543-32	1 L amber poly	6 months
2543-4	120 mL amber poly	6 months

**Recommended Storage:** 2°C - 8°C (36°F - 46°F)

A handwritten signature in black ink, appearing to read 'L. Briceno', is written over a horizontal line.

Luis Briceno (11/22/2024)  
Operations Supervisor

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

SOP ID : MSFAM01.1-Cyanide-2

SDG No : ME2948

Matrix : WATER

Pipette ID : WC

Balance ID : N/A

Hood ID : HOOD#1

Block ID : MC-1, MC-2

Weigh By : N/A

Start Digest Date: 01/28/2025 Time : 09:00 Temp : 123 °C

End Digest Date: 01/28/2025 Time : 10:30 Temp : 127 °C

II batch 01/28/2025 11:00 124 °C  
01/28/2025 12:30 126 °C  
III batch 01/28/2025 13:00 123 °C  
01/28/2025 14:30 127 °C

Digestion tube ID : M5595

Block Thermometer ID : WC CYANIDE

Filter paper ID : N/A

Prep Technician Signature: *RB*

pH Meter ID : N/A

Supervisor Signature: *12*

Standard Name	MLS USED	STD REF. # FROM LOG
PBW	50.0ML	W3112
MATRIX SPIKE SOLUTION	1.0ML	WP111295
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Chemical Used	ML/SAMPLE USED	Lot Number
0.25N NaOH	50.0ML	WP111294
50% v/v H2SO4	5.0ML	WP110391
51% w/v MgCL2	2.0ML	WP110390
pH Paper 0-14	N/A	W3121
Nitrate/Nitrite Strip	N/A	W3101
Lead Acetate strip	N/A	W3134
KI-starch paper	N/A	W3155
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

LAB SAMPLE ID	CLIENT SAMPLE ID	Wt(g)/Vol(ml)	Comment
S0	S0	50.0ML	WP111668 I batch
S5.0	S5.0	50.0ML	WP111667 "
S10.0	S10.0	50.0ML	WP111666 "
S100.0	S100.0	50.0ML	WP111665 "
S250.0	S250.0	50.0ML	WP111664 "
S500.0	S500.0	50.0ML	WP111662 "
ICV	ICV	50.0ML	WP111669 "
ICB	ICB	50.0ML	WP111294 "
CCV	CCV	50.0ML	WP111663 "
CCB	CCB	50.0ML	WP111294 "
Midrange	Midrange	N/A	N/A
HIGHSTD	HIGHSTD	N/A	N/A
LOWSTD	LOWSTD	N/A	N/A

Extraction Conformance/Non-Conformance Comments:

MIDI-DISTILLATION\_AQUEOUS; I-ST BATCH MC-2 START TEMP:123 C; MC-2 END TEMP: 126 C; II-ND BATCH MC-2 START TEMP:124 C; MC-2 END TEMP: 127 C, III-RD BATCH MC-2 START TEMP:123 C; MC-2 END TEMP: 126 C. Block therm ID : *WC CYANIDE-2*

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
01/28/2025, 14:45	<i>RB / 62C</i>	<i>NF(WC)</i>
	Preparation Group	Analysis Group

Lab Sample ID	Client Sample ID	Initial Vol (ml)	Final Vol (ml)	pH	Sulfide	Oxidizing	Nitrate/Nitrite	Comment	Prep Pos
PB166327BL	PBW327	50	50	>10	Negative	Negative	Negative	N/A II batch	N/A
Q1186-01	ME2948	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1186-02	ME2949	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1186-03	ME2955	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1186-04	ME2956	50	50	>10	Negative	Negative	Negative	N/A III batch	N/A
Q1186-05	ME2957	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1186-06	ME2960	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1186-07	ME2961	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1186-08	ME2962	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1186-09	ME2959	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1186-10	ME2959D	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1186-11	ME2959S	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1186-12	ME2963	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1186-13	ME2967	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1186-14	ME2965	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1186-15	ME2966	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1186-16	ME2958	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1186-17	ME2968	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1186-18	ME2974	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1186-19	ME2977	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1186-20	ME2980	50	50	>10	Negative	Negative	Negative	N/A "	N/A

**Instrument ID:** KONELAB

**Daily Analysis Runlog For Sequence/QC Batch ID # LB134471**

Review By	Niha Farheen Shaik	Review On	1/30/2025 9:38:57 AM
Supervise By	Iwona Zarych	Supervise On	1/30/2025 9:52:35 AM

STD. NAME	STD REF.#
ICAL Standard	WP111668,WP111667,WP111666,WP111665,WP111664,WP111662
ICV Standard	WP111669
CCV Standard	WP111663
ICSA Standard	
CRI Standard	
LCS Standard	
Chk Standard	WP110103,WP111286,WP111688

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0.0	S0	CAL1	01/29/25 09:19		Niha	OK
2	S5.0	S01	CAL2	01/29/25 09:19		Niha	OK
3	S10.0	S02	CAL3	01/29/25 09:19		Niha	OK
4	S100.0	S03	CAL4	01/29/25 09:19		Niha	OK
5	S250.0	S04	CAL5	01/29/25 09:19		Niha	OK
6	S500.0	S05	CAL6	01/29/25 09:19		Niha	OK
7	ICV001	ICV001	ICV	01/29/25 10:29		Niha	OK
8	ICB001	ICB001	ICB	01/29/25 10:29		Niha	OK
9	CCV001	CCV001	CCV	01/29/25 10:29		Niha	OK
10	CCB001	CCB001	CCB	01/29/25 10:29		Niha	OK
11	PB166303BL	PBW303	MB	01/29/25 10:29		Niha	OK
12	Q1176-01	ME2931	SAM	01/29/25 10:29	High	Niha	Dilution
13	Q1176-02	ME2933	SAM	01/29/25 10:36		Niha	OK
14	Q1176-03	ME2937	SAM	01/29/25 10:36		Niha	OK
15	Q1176-04	ME2945	SAM	01/29/25 10:36		Niha	OK
16	Q1176-05	ME2942	SAM	01/29/25 10:36		Niha	OK
17	Q1176-06	ME2943	SAM	01/29/25 10:36		Niha	OK
18	Q1176-07	ME2940	SAM	01/29/25 10:37		Niha	OK

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ICV Standard	WP111669		
CCV Standard	WP111663		
ICSA Standard			
CRI Standard			
LCS Standard			
Chk Standard	WP110103,WP111286,WP111688		

19	Q1176-08	ME2941	SAM	01/29/25 10:37		Niha	OK
20	Q1176-09	ME2944	SAM	01/29/25 10:37		Niha	OK
21	Q1176-10	ME2944D	DUP	01/29/25 10:37		Niha	OK
22	Q1176-11	ME2944S	MS	01/29/25 10:37		Niha	OK
23	Q1176-12	ME2938	SAM	01/29/25 10:44		Niha	OK
24	Q1176-13	ME2939	SAM	01/29/25 10:44		Niha	OK
25	Q1176-14	ME2932	SAM	01/29/25 10:44		Niha	OK
26	Q1176-15	ME2936	SAM	01/29/25 10:44		Niha	OK
27	Q1176-16	ME2934	SAM	01/29/25 10:44		Niha	OK
28	Q1176-17	ME2935	SAM	01/29/25 10:44		Niha	OK
29	Q1176-18	ME2950	SAM	01/29/25 10:44		Niha	OK
30	Q1176-19	ME2951	SAM	01/29/25 10:44		Niha	OK
31	Q1176-20	ME2953	SAM	01/29/25 10:44		Niha	OK
32	Q1176-21	ME2954	SAM	01/29/25 10:44		Niha	OK
33	CCV002	CCV002	CCV	01/29/25 10:52		Niha	OK
34	CCB002	CCB002	CCB	01/29/25 10:52		Niha	OK
35	PB166327BL	PBW327	MB	01/29/25 10:52		Niha	OK
36	Q1186-01	ME2948	SAM	01/29/25 10:52		Niha	OK
37	Q1186-03	ME2955	SAM	01/29/25 10:52		Niha	OK
38	Q1186-04	ME2956	SAM	01/29/25 10:52		Niha	OK

Instrument ID: KONELAB

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ICV Standard	WP111669		
CCV Standard	WP111663		
ICSA Standard			
CRI Standard			
LCS Standard			
Chk Standard	WP110103,WP111286,WP111688		

39	Q1186-05	ME2957	SAM	01/29/25 10:52		Niha	OK
40	Q1186-06	ME2960	SAM	01/29/25 10:52		Niha	OK
41	Q1186-07	ME2961	SAM	01/29/25 10:52		Niha	OK
42	Q1186-08	ME2962	SAM	01/29/25 10:52		Niha	OK
43	Q1186-09	ME2959	SAM	01/29/25 10:59		Niha	OK
44	Q1186-10	ME2959D	DUP	01/29/25 10:59		Niha	OK
45	Q1186-11	ME2959S	MS	01/29/25 10:59		Niha	OK
46	Q1186-12	ME2963	SAM	01/29/25 10:59		Niha	OK
47	Q1186-13	ME2967	SAM	01/29/25 10:59		Niha	OK
48	Q1186-14	ME2965	SAM	01/29/25 10:59		Niha	OK
49	Q1186-15	ME2966	SAM	01/29/25 10:59		Niha	OK
50	Q1186-16	ME2958	SAM	01/29/25 10:59		Niha	OK
51	Q1186-17	ME2968	SAM	01/29/25 10:59		Niha	OK
52	Q1186-18	ME2974	SAM	01/29/25 10:59		Niha	OK
53	Q1186-19	ME2977	SAM	01/29/25 11:04		Niha	OK
54	Q1186-20	ME2980	SAM	01/29/25 11:04		Niha	OK
55	Q1186-02	ME2949	SAM	01/29/25 11:04		Niha	OK
56	CCV003	CCV003	CCV	01/29/25 11:04		Niha	OK
57	CCB003	CCB003	CCB	01/29/25 11:04		Niha	OK
58	Q1176-01DL	ME2931	SAM	01/29/25 11:45	Report 5X	Niha	Confirms



**Instrument ID:** KONELAB

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ICV Standard	WP111669
CCV Standard	WP111663
ICSA Standard	
CRI Standard	
LCS Standard	
Chk Standard	WP110103,WP111286,WP111688

59	CCV004	CCV004	CCV	01/29/25 11:45		Niha	OK
60	CCB004	CCB004	CCB	01/29/25 11:45		Niha	OK