

ME2984

ME2988

ME2992

Lab Name:	Alliance Technical Group, LLC	Contract:	68HERH20D0011
Lab Code:	ACE	Case No.:	51900
		MA No. :	SDG No.: ME2964
Matrix:	Water	Lab Sample ID:	Q1200-12
% Solids:		Date Received:	01/30/2025
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	10	U	02/06/2025	1103

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

Comments:

ME2994

Lab Name:	Alliance Technical Group, LLC	Contract:	68HERH20D0011
Lab Code:	ACE	Case No.:	51900
MA No. :		SDG No.:	ME2964
Matrix:	Water	Lab Sample ID:	Q1200-13
% Solids:		Date Received:	01/30/2025
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	10	U	02/06/2025	1103

Comments:

ME29A1

Lab Name:	Alliance Technical Group, LLC	Contract:	68HERH20D0011
Lab Code:	ACE	Case No.:	51900
		MA No. :	SDG No.: ME2964
Matrix:	Water	Lab Sample ID:	Q1200-19
% Solids:		Date Received:	01/31/2025
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	10	U	02/06/2025	1103

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

Comments:

Test results

Aquakem 7.2AQ1

Page:

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

2/6/2025 12:04

Reviewed by : NF

Instrument ID : Konelab

Test: CNEPA-NEW

Sample Id	Result	Dil. 1 +	Response	Errors
ICV001 ICV001	95.598	0.0	0.087	
ICB001 ICB001	-0.537	0.0	0.001	
CCV001 CCV001	237.843	0.0	0.216	
CCB001 CCB001	-0.317	0.0	0.001	
PB166574BL PBW574	-0.530	0.0	0.001	
Q1200-01 ME2964	0.361	0.0	0.001	
Q1200-02 ME2964D	0.750	0.0	0.002	
Q1200-03 ME2964S	92.140	0.0	0.084	
Q1200-04 ME2981	-0.908	0.0	0.000	
Q1200-05 ME2982	-0.776	0.0	0.000	
Q1200-06 ME2983	-0.190	0.0	0.001	
Q1200-07 ME2984	0.187	0.0	0.001	
Q1200-08 ME2985	-0.125	0.0	0.001	
Q1200-09 ME2986	-0.119	0.0	0.001	
Q1200-10 ME2987	-0.246	0.0	0.001	
Q1200-11 ME2988	-0.327	0.0	0.001	
Q1200-12 ME2992	-0.210	0.0	0.001	
Q1200-13 ME2994	-0.807	0.0	0.000	
Q1200-14 ME2995	0.163	0.0	0.001	
Q1200-15 ME2999	-0.050	0.0	0.001	
Q1200-16 ME2997	0.105	0.0	0.001	
Q1200-17 ME2998	0.361	0.0	0.001	
Q1200-18 ME29A0	16.132	0.0	0.016	
Q1200-19 ME29A1	0.364	0.0	0.001	
Q1200-20 ME29A2	-0.539	0.0	0.001	
CCV002 CCV002	235.081	0.0	0.213	
CCB002 CCB002	-0.572	0.0	0.001	
PB166575BL PBW575	-0.622	0.0	0.000	
Q1204-01 ME2975	0.234	0.0	0.001	
Q1204-02 ME2975D	0.277	0.0	0.001	
Q1204-03 ME2975S	94.442	0.0	0.086	
Q1204-04 ME2978	1.101	0.0	0.002	
Q1204-05 ME2979	0.242	0.0	0.001	
Q1204-07 ME2991	-0.871	0.0	0.000	
Q1204-09 ME29A4	-0.400	0.0	0.001	
Q1204-10 ME29A5	-0.866	0.0	0.000	
Q1204-11 ME29A7	-0.543	0.0	0.001	
Q1204-12 ME29A8	-0.524	0.0	0.001	
Q1204-13 ME29B0	5.536	0.0	0.006	
Q1204-14 ME29B1	1.288	0.0	0.002	
Q1204-15 ME29A9	-0.309	0.0	0.001	
Q1204-17 ME29B3	0.384	0.0	0.001	
Q1204-18 ME29B4	86.957	0.0	0.079	
Q1204-19 ME29B5	182.799	0.0	0.166	
Q1204-20 ME29B8	-0.078	0.0	0.001	
Q1204-21 ME29B9	0.226	0.0	0.001	
Q1204-22 ME29C0	-0.212	0.0	0.001	
CCV003 CCV003	238.155	0.0	0.216	
CCB003 CCB003	1.563	0.0	0.002	
PB166576BL PBW576	0.037	0.0	0.001	
Q1231-01 ME2933	-0.106	0.0	0.001	
Q1231-02 ME2933D	0.274	0.0	0.001	
Q1231-03 ME2933S	99.134	0.0	0.090	
Q1231-05 ME29C2	4.307	0.0	0.005	
Q1231-06 ME29C3	0.682	0.0	0.002	

NF
02-06-2025

NF
02-06-2025

NF
02-06-2025

N	58
Mean	28.232
SD	67.8430
CV%	240.31

Aquakem v. 7.2AQ1

Results from time period:

Thu Feb 06 09:40:31 2025

Thu Feb 06 12:00:40 2025

Sample Id	Sam/Ctr/cA	Test short name	Test type	Result	Result unit	Result date and time
S0.0	A	CNEPA-NEW	P	-1.3919	µg/l	2/6/2025 9:40:31
S5.0	A	CNEPA-NEW	P	4.6124	µg/l	2/6/2025 9:40:32
S10.0	A	CNEPA-NEW	P	9.1374	µg/l	2/6/2025 9:40:33
S100.0	A	CNEPA-NEW	P	101.0915	µg/l	2/6/2025 9:40:34
S250.0	A	CNEPA-NEW	P	253.4957	µg/l	2/6/2025 9:40:35
S500.0	A	CNEPA-NEW	P	498.055	µg/l	2/6/2025 9:40:36
ICV001 ICV001	S	CNEPA-NEW	P	95.5982	µg/l	2/6/2025 10:47:53
ICB001 ICB001	S	CNEPA-NEW	P	-0.5372	µg/l	2/6/2025 10:47:55
CCV001 CCV001	S	CNEPA-NEW	P	237.8427	µg/l	2/6/2025 10:47:57
CCB001 CCB001	S	CNEPA-NEW	P	-0.3166	µg/l	2/6/2025 10:48:00
PB166574BL PBW574	S	CNEPA-NEW	P	-0.53	µg/l	2/6/2025 10:48:02
Q1200-01 ME2964	S	CNEPA-NEW	P	0.3612	µg/l	2/6/2025 10:48:03
Q1200-02 ME2964D	S	CNEPA-NEW	P	0.7499	µg/l	2/6/2025 10:55:28
Q1200-03 ME2964S	S	CNEPA-NEW	P	92.1395	µg/l	2/6/2025 10:55:29
Q1200-04 ME2981	S	CNEPA-NEW	P	-0.9076	µg/l	2/6/2025 10:55:31
Q1200-05 ME2982	S	CNEPA-NEW	P	-0.776	µg/l	2/6/2025 10:55:32
Q1200-06 ME2983	S	CNEPA-NEW	P	-0.1897	µg/l	2/6/2025 10:55:33
Q1200-07 ME2984	S	CNEPA-NEW	P	0.1873	µg/l	2/6/2025 10:55:34
Q1200-08 ME2985	S	CNEPA-NEW	P	-0.1247	µg/l	2/6/2025 10:55:35
Q1200-09 ME2986	S	CNEPA-NEW	P	-0.1193	µg/l	2/6/2025 10:55:36
Q1200-10 ME2987	S	CNEPA-NEW	P	-0.2462	µg/l	2/6/2025 10:55:37
Q1200-11 ME2988	S	CNEPA-NEW	P	-0.3269	µg/l	2/6/2025 10:55:38
Q1200-12 ME2992	S	CNEPA-NEW	P	-0.21	µg/l	2/6/2025 11:03:03
Q1200-13 ME2994	S	CNEPA-NEW	P	-0.8073	µg/l	2/6/2025 11:03:04
Q1200-14 ME2995	S	CNEPA-NEW	P	0.163	µg/l	2/6/2025 11:03:05
Q1200-15 ME2999	S	CNEPA-NEW	P	-0.0497	µg/l	2/6/2025 11:03:06
Q1200-16 ME2997	S	CNEPA-NEW	P	0.105	µg/l	2/6/2025 11:03:07
Q1200-17 ME2998	S	CNEPA-NEW	P	0.3607	µg/l	2/6/2025 11:03:08
Q1200-18 ME29A0	S	CNEPA-NEW	P	16.1318	µg/l	2/6/2025 11:03:09
Q1200-19 ME29A1	S	CNEPA-NEW	P	0.3641	µg/l	2/6/2025 11:03:10
Q1200-20 ME29A2	S	CNEPA-NEW	P	-0.5392	µg/l	2/6/2025 11:03:11
CCV002 CCV002	S	CNEPA-NEW	P	235.0806	µg/l	2/6/2025 11:10:38
CCB002 CCB002	S	CNEPA-NEW	P	-0.5721	µg/l	2/6/2025 11:10:39
PB166575BL PBW575	S	CNEPA-NEW	P	-0.622	µg/l	2/6/2025 11:10:40
Q1204-01 ME2975	S	CNEPA-NEW	P	0.2336	µg/l	2/6/2025 11:10:41
Q1204-02 ME2975D	S	CNEPA-NEW	P	0.2773	µg/l	2/6/2025 11:10:42
Q1204-03 ME2975S	S	CNEPA-NEW	P	94.4418	µg/l	2/6/2025 11:10:44
Q1204-04 ME2978	S	CNEPA-NEW	P	1.1011	µg/l	2/6/2025 11:10:45
Q1204-05 ME2979	S	CNEPA-NEW	P	0.2423	µg/l	2/6/2025 11:10:46

Q1204-07 ME2991	S	CNEPA-NEW	P	-0.8709 µg/l	2/6/2025 11:10:47
Q1204-09 ME29A4	S	CNEPA-NEW	P	-0.3997 µg/l	2/6/2025 11:10:48
Q1204-10 ME29A5	S	CNEPA-NEW	P	-0.8662 µg/l	2/6/2025 11:18:11
Q1204-11 ME29A7	S	CNEPA-NEW	P	-0.5434 µg/l	2/6/2025 11:18:12
Q1204-12 ME29A8	S	CNEPA-NEW	P	-0.5235 µg/l	2/6/2025 11:18:13
Q1204-13 ME29B0	S	CNEPA-NEW	P	5.5358 µg/l	2/6/2025 11:18:14
Q1204-14 ME29B1	S	CNEPA-NEW	P	1.2882 µg/l	2/6/2025 11:18:15
Q1204-15 ME29A9	S	CNEPA-NEW	P	-0.309 µg/l	2/6/2025 11:18:16
Q1204-17 ME29B3	S	CNEPA-NEW	P	0.3838 µg/l	2/6/2025 11:18:17
Q1204-18 ME29B4	S	CNEPA-NEW	P	86.9569 µg/l	2/6/2025 11:18:18
Q1204-19 ME29B5	S	CNEPA-NEW	P	182.7995 µg/l	2/6/2025 11:18:19
Q1204-20 ME29B8	S	CNEPA-NEW	P	-0.0782 µg/l	2/6/2025 11:18:20
Q1204-21 ME29B9	S	CNEPA-NEW	P	0.2263 µg/l	2/6/2025 11:18:21
Q1204-22 ME29C0	S	CNEPA-NEW	P	-0.2117 µg/l	2/6/2025 11:25:46
CCV003 CCV003	S	CNEPA-NEW	P	238.155 µg/l	2/6/2025 11:25:49
CCB003 CCB003	S	CNEPA-NEW	P	1.563 µg/l	2/6/2025 11:25:50
PB166576BL PBW576	S	CNEPA-NEW	P	0.0366 µg/l	2/6/2025 11:25:51
Q1231-01 ME2933	S	CNEPA-NEW	P	-0.1061 µg/l	2/6/2025 11:25:52
Q1231-02 ME2933D	S	CNEPA-NEW	P	0.2738 µg/l	2/6/2025 11:25:53
Q1231-03 ME2933S	S	CNEPA-NEW	P	99.1344 µg/l	2/6/2025 11:25:54
Q1231-05 ME29C2	S	CNEPA-NEW	P	4.3075 µg/l	2/6/2025 11:25:56
Q1231-06 ME29C3	S	CNEPA-NEW	P	0.6824 µg/l	2/6/2025 11:31:57
Q1231-07 ME29C4	S	CNEPA-NEW	P	-0.2076 µg/l	2/6/2025 11:31:58
CCV004 CCV004	S	CNEPA-NEW	P	249.6997 µg/l	2/6/2025 11:32:03
CCB004 CCB004	S	CNEPA-NEW	P	2.003 µg/l	2/6/2025 11:32:04

Calibration results

Aquakem 7.2AQ1

Page: 1

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

2/6/2025 9:41

Reviewed by : NF

Instrument ID : Konelab

Test CNEPA-NEW

Accepted

2/6/2025 9:41

~~Slope~~ ~~Bias~~
intercept

~~-1108~~
0.001

0.000902

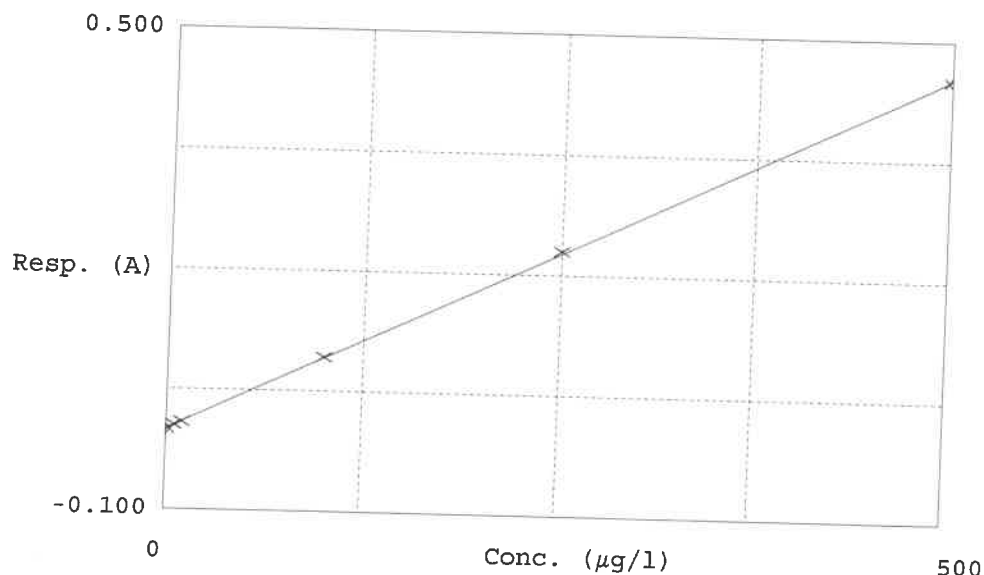
NF

02-07-2025

Coeff. of det.

0.999899

Errors



Calibrator	Response	Calc. con.	Conc.	Re Errors
1500 0.0PPBCN	-0.000	-1.3919	0.0000	
250 0.5.0PPBCN	0.005	4.6124	5.0000	-7.8
350 1.0PPBCN	0.009	9.1374	10.0000	-8.6
450 0.100PPBCN	0.092	101.0915	100.0000	1.1
550 0.250PPBCN	0.230	253.4957	250.0000	1.4
650 0.500PPBCN	0.450	498.0550	500.0000	-0.4

NF

02-06-2025

Prep Standard - Chemical Standard Summary

Order ID : Q1200

Test : Cyanide

Prepbatch ID : PB166574,

Sequence ID/Qc Batch ID: LB134600,

Standard ID :

WP110103,WP110390,WP110391,WP111286,WP111294,WP111295,WP111387,WP111785,WP111786,WP111787,WP111788,WP111789,WP111790,WP111791,WP111792,WP111793,WP111810,

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	WP110103	10/08/2024	04/08/2025	Rubina Mughal	WETCHEM_S CALE_5 (WC SC-5)	None	Iwona Zarych 10/08/2024
<u>FROM</u> 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)	WP110390	10/24/2024	04/24/2025	Niha Farheen Shaik	WETCHEM_S CALE_5 (WC SC-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)	WP110391	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	WP111286	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	WP111294	01/07/2025	07/07/2025	Niha Farheen Shaik	WETCHEM_S CALE_5 (WC SC-5)	None	Iwona Zarych 01/07/2025
<u>FROM</u>	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	WP111295	01/07/2025	07/07/2025	Niha Farheen Shaik	None	WETCHEM_FIPETTE_3 (WC)	Iwona Zarych 01/07/2025
<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	WP111387	01/14/2025	07/14/2025	Rubina Mughal	WETCHEM_SCALE_8 (WC SC-7)	None	Jignesh Parikh 01/14/2025
<u>FROM</u> 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	WP111785	02/05/2025	02/06/2025	Niha Farheen Shaik	None	WETCHEM_PIPETTE_3	Iwona Zarych 02/07/2025
FROM 1.00000ml of W3154 + 79.00000ml of W3112 + 20.00000ml of WP111387 = Final Quantity: 100.000 ml (WC)								

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>
1586	Cyanide Cal Std, 500 PPB	WP111786	02/05/2025	02/06/2025	Niha Farheen Shaik	None	Glass Pipette-A	Iwona Zarych 02/07/2025

FROM 5.00000ml of WP111785 + 95.00000ml 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>
1587	Cyanide Cal Std, 250 PPB	WP111787	02/05/2025	02/06/2025	Niha Farheen Shaik	None	Glass Pipette-A	Iwona Zarych 02/07/2025

FROM 2.50000ml of WP111785 + 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	WP111788	02/05/2025	02/06/2025	Niha Farheen Shaik	None	WETCHEM_PIPETTE_3	Iwona Zarych 02/07/2025
<u>FROM</u> 1.00000ml of WP111785 + 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	WP111789	02/05/2025	02/06/2025	Niha Farheen Shaik	None	Glass Pipette-A	Iwona Zarych 02/07/2025
<u>FROM</u> 4.00000ml of WP111787 + 96.00000ml 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>
1590	Cyanide Cal Std, 5 PPB	WP111790	02/05/2025	02/06/2025	Niha Farheen Shaik	None	Glass Pipette-A	Iwona Zarych 02/07/2025

FROM 2.00000ml of WP111787 + 98.00000ml 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>
1591	Cyanide blank std, 0 PPB	WP111791	02/05/2025	02/06/2025	Niha Farheen Shaik	None	None	Iwona Zarych 02/07/2025

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	WP111792	02/05/2025	02/06/2025	Niha Farheen Shaik	None	WETCHEM_PIPETTE_3 (WC)	Iwona Zarych 02/07/2025
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>
1592	Cyanide CCV Std, 250 PPB	WP111793	02/05/2025	02/06/2025	Niha Farheen Shaik	None	WETCHEM_PIPETTE_3 (WC)	Iwona Zarych 02/07/2025
<u>FROM</u> 2.50000ml of WP111785 + 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>
1582	Chloramine T solution, 0.014M	WP111810	02/06/2025	02/07/2025	Niha Farheen Shaik	WETCHEM_SCALE_5 (WCS-5)	None	Iwona Zarych 02/07/2025
<u>FROM</u>	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

Chem-Impex International, Inc.

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

Certificate of Analysis

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

Appearance	Colorless crystals, very deliquescent
Heavy Metals	< 5 ppm
Anion	Nitrate : < 0.001% Phosphate : < 5 ppm Sulfate : < 0.002%
Cation	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%
Insoluble material	0.0025%
Assay by titration	100.29%
Grade	ACS reagent
Storage	Store at RT
Country of Origin	India

Certificate of Analysis

Catalog Number: 01237

Lot Number: 002251-03319

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.comEmail USA: techserv@sial.comOutside USA: eurtechserv@sial.com

Certificate of Analysis

Product Name:

Pyridine - anhydrous, 99.8%

Product Number:

270970

Batch Number:

SHBQ2113

Brand:

SIAL

CAS Number:

110-86-1

MDL Number:

MFCD00011732

Formula:

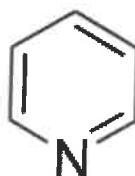
C₅H₅N

Formula Weight:

79.10 g/mol

Quality Release Date:

15 DEC 2022



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


Larry Coers, Director

Quality Control

Sheboygan Falls, WI US

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. 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 ⁻	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 ₂ SO 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 SO ₂)	≤ 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



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


Jamie Ethier
Vice President Global Quality

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



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 ₂)	<= 0.5 ppm	< 0.5
Phosphate (PO ₄)	<= 0.05 ppm	< 0.03
Sulfate (SO ₄)	<= 0.5 ppm	< 0.3
Sulfite (SO ₃)	<= 0.8 ppm	0.3
Ammonium (NH ₄)	<= 3 ppm	< 1
Trace Impurities - Arsenic (As)	<= 0.010 ppm	< 0.003
Trace Impurities - Aluminum (Al)	<= 10.0 ppb	< 0.2
Arsenic and Antimony (as As)	<= 5 ppb	< 3
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 10.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 20.0 ppb	< 5.0
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	29.7
Trace Impurities - Chromium (Cr)	<= 1.0 ppb	< 0.4
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 1.0 ppb	< 0.2

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

Avantor Performance Materials, LLC

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

Material No.: 9530-33

Batch No.: 0000275677

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

For Laboratory, Research or Manufacturing Use

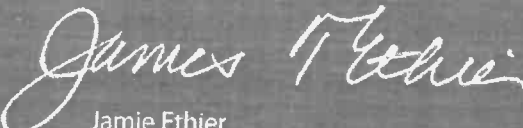
Product Information (not specifications):

Appearance (clear, fuming liquid)

Meets ACS Specifications

Country of Origin: US

Packaging Site: Phillipsburg Mfg Ctr & DC



Jamie Ethier
Vice President Global Quality

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

Avantor Performance Materials, LLC

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



Certificate of Analysis

1.00132.0000 Barbituric acid for analysis EMSURE®
Batch N020065932

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

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

Ioannis Chartomatsidis
Responsible laboratory manager quality control

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

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

(sodium dihydrogen phosphate, monohydrate)



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

Certificate of Analysis

Meets ACS Reagent Chemical Requirements,

Test	Specification	Result
Assay ($\text{NaH}_2\text{PO}_4 \cdot \text{H}_2\text{O}$)	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)	$\leq 5 \text{ ppm}$	< 5
ACS – Sulfate (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

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Certificate of Analysis

Cyanide Standard, 1000 ppm CN⁻

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

This standard is prepared using accurate volumetric techniques from material that has been assayed against Silver Nitrate solution 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

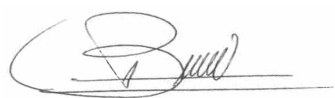
Test	Specification	Result
Appearance	Colorless liquid	Passed
Cyanide (CN ⁻)	995-1005 ppm	1000 ppm

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

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

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

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

A handwritten signature in black ink, appearing to read 'Luis 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 : ME2964

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: 02/05/2025 Time : 09:30 Temp : 123 °C

End Digest Date: 02/05/2025 Time : 11:00 Temp : 127 °C

II batch 02/05/2025 11:30 124 °C
02/05/2025 13:00 126 °C

Digestion tube ID : M5595

Block Thermometer ID : WC CYANIDE

Filter paper ID : N/A

Prep Technician Signature: *SB*

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	WP111791 <i>II batch</i>
S5.0	S5.0	50.0ML	WP111790 <i>u</i>
S10.0	S10.0	50.0ML	WP111789 <i>u</i>
S100.0	S100.0	50.0ML	WP111788 <i>u</i>
S250.0	S250.0	50.0ML	WP111787 <i>u</i>
S500.0	S500.0	50.0ML	WP111786 <i>u</i>
ICV	ICV	50.0ML	WP111792 <i>u</i>
ICB	ICB	50.0ML	WP111294 <i>u</i>
CCV	CCV	50.0ML	WP111793 <i>u</i>
CCB	CCB	50.0ML	WP111294 <i>v</i>
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 Block Therm.ID: WC-CYANIDE-2,

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
02-05-2025, 13:15	<i>SB / WC</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
PB166574BL	PBW574	50	50	>10	Negative	Negative	Negative	N/A I batch	N/A
Q1200-01	ME2964	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1200-02	ME2964D	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1200-03	ME2964S	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1200-04	ME2981	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1200-05	ME2982	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1200-06	ME2983	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1200-07	ME2984	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1200-08	ME2985	50	50	>10	Negative	Negative	Negative	N/A II batch	N/A
Q1200-09	ME2986	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1200-10	ME2987	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1200-11	ME2988	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1200-12	ME2992	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1200-13	ME2994	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1200-14	ME2995	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1200-15	ME2999	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1200-16	ME2997	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1200-17	ME2998	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1200-18	ME29A0	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1200-19	ME29A1	50	50	>10	Negative	Negative	Negative	N/A "	N/A
Q1200-20	ME29A2	50	50	>10	Negative	Negative	Negative	N/A "	N/A

Instrument ID: KONELAB

Daily Analysis Runlog For Sequence/QC Batch ID # LB134600

Review By	Niha Farheen Shaik	Review On	2/7/2025 10:04:08 AM
Supervise By	Iwona Zarych	Supervise On	2/7/2025 11:53:20 AM

STD. NAME	STD REF.#
ICAL Standard	WP111791,WP111790,WP111789,WP111788,WP111787,WP111786
ICV Standard	WP111792
CCV Standard	WP111793
ICSA Standard	
CRI Standard	
LCS Standard	
Chk Standard	WP110103,WP111286,WP111810

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0.0	S0	CAL1	02/06/25 09:40		Niha	OK
2	S5.0	S01	CAL2	02/06/25 09:40		Niha	OK
3	S10.0	S02	CAL3	02/06/25 09:40		Niha	OK
4	S100.0	S03	CAL4	02/06/25 09:40		Niha	OK
5	S250.0	S04	CAL5	02/06/25 09:40		Niha	OK
6	S500.0	S05	CAL6	02/06/25 09:40		Niha	OK
7	ICV001	ICV001	ICV	02/06/25 10:47		Niha	OK
8	ICB001	ICB001	ICB	02/06/25 10:47		Niha	OK
9	CCV001	CCV001	CCV	02/06/25 10:47		Niha	OK
10	CCB001	CCB001	CCB	02/06/25 10:48		Niha	OK
11	PB166574BL	PBW574	MB	02/06/25 10:48		Niha	OK
12	Q1200-01	ME2964	SAM	02/06/25 10:48		Niha	OK
13	Q1200-02	ME2964D	DUP	02/06/25 10:55		Niha	OK
14	Q1200-03	ME2964S	MS	02/06/25 10:55		Niha	OK
15	Q1200-04	ME2981	SAM	02/06/25 10:55		Niha	OK
16	Q1200-05	ME2982	SAM	02/06/25 10:55		Niha	OK
17	Q1200-06	ME2983	SAM	02/06/25 10:55		Niha	OK
18	Q1200-07	ME2984	SAM	02/06/25 10:55		Niha	OK

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ICV Standard	WP111792		
CCV Standard	WP111793		
ICSA Standard			
CRI Standard			
LCS Standard			
Chk Standard	WP110103,WP111286,WP111810		

19	Q1200-08	ME2985	SAM	02/06/25 10:55		Niha	OK
20	Q1200-09	ME2986	SAM	02/06/25 10:55		Niha	OK
21	Q1200-10	ME2987	SAM	02/06/25 10:55		Niha	OK
22	Q1200-11	ME2988	SAM	02/06/25 10:55		Niha	OK
23	Q1200-12	ME2992	SAM	02/06/25 11:03		Niha	OK
24	Q1200-13	ME2994	SAM	02/06/25 11:03		Niha	OK
25	Q1200-14	ME2995	SAM	02/06/25 11:03		Niha	OK
26	Q1200-15	ME2999	SAM	02/06/25 11:03		Niha	OK
27	Q1200-16	ME2997	SAM	02/06/25 11:03		Niha	OK
28	Q1200-17	ME2998	SAM	02/06/25 11:03		Niha	OK
29	Q1200-18	ME29A0	SAM	02/06/25 11:03		Niha	OK
30	Q1200-19	ME29A1	SAM	02/06/25 11:03		Niha	OK
31	Q1200-20	ME29A2	SAM	02/06/25 11:03		Niha	OK
32	CCV002	CCV002	CCV	02/06/25 11:10		Niha	OK
33	CCB002	CCB002	CCB	02/06/25 11:10		Niha	OK
34	PB166575BL	PBW575	MB	02/06/25 11:10		Niha	OK
35	Q1204-01	ME2975	SAM	02/06/25 11:10		Niha	OK
36	Q1204-02	ME2975D	DUP	02/06/25 11:10		Niha	OK
37	Q1204-03	ME2975S	MS	02/06/25 11:10		Niha	OK
38	Q1204-04	ME2978	SAM	02/06/25 11:10		Niha	OK

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STD. NAME	STD REF.#		
ICAL Standard	WP111791,WP111790,WP111789,WP111788,WP111787,WP111786		
ICV Standard	WP111792		
CCV Standard	WP111793		
ICSA Standard			
CRI Standard			
LCS Standard			
Chk Standard	WP110103,WP111286,WP111810		

39	Q1204-05	ME2979	SAM	02/06/25 11:10		Niha	OK
40	Q1204-07	ME2991	SAM	02/06/25 11:10		Niha	OK
41	Q1204-09	ME29A4	SAM	02/06/25 11:10		Niha	OK
42	Q1204-10	ME29A5	SAM	02/06/25 11:18		Niha	OK
43	Q1204-11	ME29A7	SAM	02/06/25 11:18		Niha	OK
44	Q1204-12	ME29A8	SAM	02/06/25 11:18		Niha	OK
45	Q1204-13	ME29B0	SAM	02/06/25 11:18		Niha	OK
46	Q1204-14	ME29B1	SAM	02/06/25 11:18		Niha	OK
47	Q1204-15	ME29A9	SAM	02/06/25 11:18		Niha	OK
48	Q1204-17	ME29B3	SAM	02/06/25 11:18		Niha	OK
49	Q1204-18	ME29B4	SAM	02/06/25 11:18		Niha	OK
50	Q1204-19	ME29B5	SAM	02/06/25 11:18		Niha	OK
51	Q1204-20	ME29B8	SAM	02/06/25 11:18		Niha	OK
52	Q1204-21	ME29B9	SAM	02/06/25 11:18		Niha	OK
53	Q1204-22	ME29C0	SAM	02/06/25 11:25		Niha	OK
54	CCV003	CCV003	CCV	02/06/25 11:25		Niha	OK
55	CCB003	CCB003	CCB	02/06/25 11:25		Niha	OK
56	PB166576BL	PBW576	MB	02/06/25 11:25		Niha	OK
57	Q1231-01	ME2993	SAM	02/06/25 11:25		Niha	OK
58	Q1231-02	ME2993D	DUP	02/06/25 11:25		Niha	OK

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ICV Standard	WP111792		
CCV Standard	WP111793		
ICSA Standard			
CRI Standard			
LCS Standard			
Chk Standard	WP110103,WP111286,WP111810		

59	Q1231-03	ME2993S	MS	02/06/25 11:25		Niha	OK
60	Q1231-05	ME29C2	SAM	02/06/25 11:25		Niha	OK
61	Q1231-06	ME29C3	SAM	02/06/25 11:31		Niha	OK
62	Q1231-07	ME29C4	SAM	02/06/25 11:31		Niha	OK
63	CCV004	CCV004	CCV	02/06/25 11:32		Niha	OK
64	CCB004	CCB004	CCB	02/06/25 11:32		Niha	OK