

YE8D4

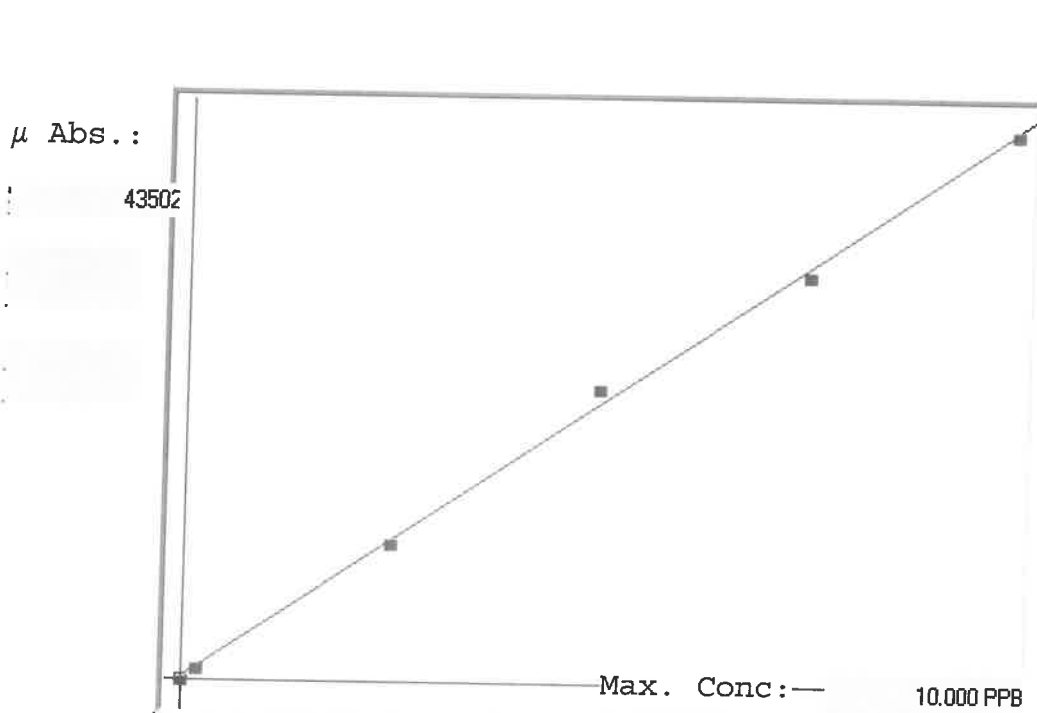
YE8E5

YE8E6

28134860

SFAM01.1

INSTRUMENT ID: CV1



Linear

A= 0.0000e+000

B= 2.3011e-004 slope

C= -5.3637e-002 y-intercept

Rho= 0.9993159

Accept=Accepted

Std ID	Conc.	Calc.	Dev.	Mean	SD or %RSD	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	%D
0.00	0.000	-0.042	-0.042	50	0.000	50					
0.05	0.050										
0.20	0.200	0.164	-0.036	946	0.0 %	946					
2.50	2.500	2.470	-0.030	10966	0.0 %	10966					
5.00	5.000	5.293	0.293	23236	0.0 %	23236					
7.50	7.500	7.359	-0.141	32213	0.0 %	32213					
10.0	10.000	9.956	-0.044	43502	0.0 %	43502					

0/010
= 18
- 1
6
- 2
0

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Sample ID	Extended ID	μ Abs.	Conc.	Std Conc	Method	Units	Date	Type
	0 S0	50	-		0 SFAM01.1	PPB	02/28/2025 13:43	Std
	0.2 S01	946	-		0.2 SFAM01.1	PPB	02/28/2025 13:45	Std
	2.5 S02	10966	-		2.5 SFAM01.1	PPB	02/28/2025 13:47	Std
	5 S03	23236	-		5 SFAM01.1	PPB	02/28/2025 13:50	Std
	7.5 S04	32213	-		7.5 SFAM01.1	PPB	02/28/2025 13:52	Std
	10 S05	43502	-		10 SFAM01.1	PPB	02/28/2025 13:54	Std
ICV024	ICV024	17588	3.9935 -		SFAM01.1	PPB	02/28/2025 13:57	SMPL
ICB024	ICB024	-251	-0.1114 -		SFAM01.1	PPB	02/28/2025 13:59	SMPL
CCV045	CCV045	23261	5.2989 -		SFAM01.1	PPB	02/28/2025 14:02	SMPL
CCB045	CCB045	-246	-0.1102 -		SFAM01.1	PPB	02/28/2025 14:04	SMPL
PB166941BL	PBW941	55	-0.041 -		SFAM01.1	PPB	02/28/2025 14:06	SMPL
Q1106-01	YE8G3	70	-0.0375 -		SFAM01.1	PPB	02/28/2025 14:08	SMPL
Q1106-02	YE8G5	169	-0.0147 -		SFAM01.1	PPB	02/28/2025 14:11	SMPL
Q1106-03	YE8G6	304	0.0163 -		SFAM01.1	PPB	02/28/2025 14:13	SMPL
Q1106-04	YE8G6D	363	0.0299 -		SFAM01.1	PPB	02/28/2025 14:15	SMPL
Q1106-05	YE8G6S	5135	1.128 -		SFAM01.1	PPB	02/28/2025 14:17	SMPL
Q1106-06	YE8H0	416	0.0421 -		SFAM01.1	PPB	02/28/2025 14:20	SMPL
Q1106-07	YE8H1	554	0.0738 -		SFAM01.1	PPB	02/28/2025 14:22	SMPL
Q1106-08	YE8H2	922	0.1585 -		SFAM01.1	PPB	02/28/2025 14:24	SMPL
Q1106-09	YE8H3	353	0.0276 -		SFAM01.1	PPB	02/28/2025 14:27	SMPL
Q1106-10	YE8H4	694	0.1061 -		SFAM01.1	PPB	02/28/2025 14:29	SMPL
Q1106-11	YE8H5	463	0.0529 -		SFAM01.1	PPB	02/28/2025 14:31	SMPL
Q1106-12	YE8H6	274	0.0094 -		SFAM01.1	PPB	02/28/2025 14:33	SMPL
Q1106-13	YE8F6	353	0.0276 -		SFAM01.1	PPB	02/28/2025 14:36	SMPL
Q1106-14	YE8F9	299	0.0152 -		SFAM01.1	PPB	02/28/2025 14:38	SMPL
Q1106-15	YE8G0	357	0.0285 -		SFAM01.1	PPB	02/28/2025 14:40	SMPL
Q1106-16	YE8G1	339	0.0244 -		SFAM01.1	PPB	02/28/2025 14:42	SMPL
Q1106-17	YE8G2	272	0.009 -		SFAM01.1	PPB	02/28/2025 14:45	SMPL
Q1106-18	YE8H9	271	0.0087 -		SFAM01.1	PPB	02/28/2025 14:47	SMPL
Q1106-19	YE8J0	454	0.0508 -		SFAM01.1	PPB	02/28/2025 14:49	SMPL
CCV046	CCV046	23580	5.3723 -		SFAM01.1	PPB	02/28/2025 14:51	SMPL
CCB046	CCB046	-258	-0.113 -		SFAM01.1	PPB	02/28/2025 14:54	SMPL
Q1106-20	YE8J1	206	-0.0062 -		SFAM01.1	PPB	02/28/2025 14:56	SMPL
PB166943BL	PBW943	70	-0.0375 -		SFAM01.1	PPB	02/28/2025 14:58	SMPL
Q1160-01	YE8C9	239	0.0014 -		SFAM01.1	PPB	02/28/2025 15:01	SMPL
Q1160-02	YE8C9D	201	-0.0074 -		SFAM01.1	PPB	02/28/2025 15:03	SMPL
Q1160-03	YE8C9S	5373	1.1827 -		SFAM01.1	PPB	02/28/2025 15:05	SMPL
Q1160-04	YE8D0	338	0.0241 -		SFAM01.1	PPB	02/28/2025 15:07	SMPL
Q1160-05	YE8D3	304	0.0163 -		SFAM01.1	PPB	02/28/2025 15:10	SMPL
PB166945BL	PBW945	97	-0.0313 -		SFAM01.1	PPB	02/28/2025 15:12	SMPL
Q1136-01	YE8F5	82	-0.0348 -		SFAM01.1	PPB	02/28/2025 15:14	SMPL
Q1136-02	YE8F7	125	-0.0249 -		SFAM01.1	PPB	02/28/2025 15:16	SMPL
Q1136-03	YE8F7D	88	-0.0334 -		SFAM01.1	PPB	02/28/2025 15:19	SMPL
Q1136-04	YE8F7S	5497	1.2113 -		SFAM01.1	PPB	02/28/2025 15:21	SMPL
Q1136-05	YE8F8	-20	-0.0582 -		SFAM01.1	PPB	02/28/2025 15:23	SMPL
Q1136-06	YE8E3	41	-0.0442 -		SFAM01.1	PPB	02/28/2025 15:26	SMPL

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Q1136-07	YE8E4	112	-0.0279 -	SFAM01.1 PPB	02/28/2025 15:28 SMPL
Q1136-08	YE8E5	423	0.0437 -	SFAM01.1 PPB	02/28/2025 15:30 SMPL
Q1136-09	YE8E6	4	-0.0527 -	SFAM01.1 PPB	02/28/2025 15:32 SMPL
Q1136-10	YE8E7	63	-0.0391 -	SFAM01.1 PPB	02/28/2025 15:35 SMPL
Q1136-11	YE8E8	92	-0.0325 -	SFAM01.1 PPB	02/28/2025 15:37 SMPL
Q1136-12	YE8D1	116	-0.0269 -	SFAM01.1 PPB	02/28/2025 15:39 SMPL
CCV047	CCV047	23048	5.2499 -	SFAM01.1 PPB	02/28/2025 15:41 SMPL
CCB047	CCB047	-259	-0.1132 -	SFAM01.1 PPB	02/28/2025 15:44 SMPL
Q1136-13	YE8D2	-5	-0.0548 -	SFAM01.1 PPB	02/28/2025 15:46 SMPL
Q1136-14	YE8D4	137	-0.0221 -	SFAM01.1 PPB	02/28/2025 15:48 SMPL
Q1136-15	YE8C3	64	-0.0389 -	SFAM01.1 PPB	02/28/2025 15:51 SMPL
Q1136-17	YE8D5	79	-0.0355 -	SFAM01.1 PPB	02/28/2025 15:53 SMPL
PB166941TB	LEB941	107	-0.029 -	SFAM01.1 PPB	02/28/2025 15:55 SMPL
PB166943TB	LEB943	135	-0.0226 -	SFAM01.1 PPB	02/28/2025 15:57 SMPL
PB166945TB	LEB945	109	-0.0286 -	SFAM01.1 PPB	02/28/2025 16:00 SMPL
CCV048	CCV048	22298	5.0773 -	SFAM01.1 PPB	02/28/2025 16:02 SMPL
CCB048	CCB048	-246	-0.1102 -	SFAM01.1 PPB	02/28/2025 16:04 SMPL

Prep Standard - Chemical Standard Summary

Order ID : Q1136

Test : SPLP Mercury

Prepbatch ID : PB166945,

Sequence ID/Qc Batch ID: LB134860,

Standard ID :

MP84041,MP84563,MP84564,MP84565,MP84566,MP84691,MP84701,MP84702,MP84703,MP84704,MP84705,MP84707,MP84708,MP84709,MP84710,MP84711,MP84712,WP110804,WP110805,WP112058,

Chemical ID :

M4371,M4465,M4916,M5062,M5173,M5532,M5882,M5884,M6041,M6120,M6126,M6151,W3112,

Metals 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>
169	1:1HNO3	MP84041	01/14/2025	07/14/2025	Eman Mughal	None	None	Sarabjit Jaswal
								01/16/2025

FROM 1250.00000ml of M6126 + 1250.00000ml of W3112 = Final Quantity: 2500.000 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>
3965	2:1 H2SO4 : HNO3	MP84563	02/18/2025	06/03/2025	Mohan Bera	None	None	Janvi Patel
								02/19/2025

FROM 1600.00000ml of M6041 + 800.00000ml of M6126 = Final Quantity: 3200.000 ml

Metals 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>
65	POTASSIUM PERMANGANATE SOLUTION 5 %	MP84564	02/18/2025	08/18/2025	Mohan Bera	None	None	Janvi Patel
02/19/2025								

FROM 100.00000gram of M4916 + 2000.00000ml 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>
66	POTASSIUM PERSULFATE SOLUTION 5 %	MP84565	02/18/2025	08/06/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Janvi Patel
02/19/2025								

FROM 100.00000ml of M4465 + 2000.00000ml 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>
67	SODIUM CHLORIDE - HYDROXYL- CHLORIDE SOLUTION	MP84566	02/18/2025	06/25/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Janvi Patel
<u>FROM</u>	2000.00000ml of W3112 + 240.00000gram of M4371 + 240.00000gram of M5884 = 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>
68	STANNOUS CHLORIDE SOLUTION	MP84691	02/28/2025	03/01/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 02/28/2025
<u>FROM</u> 450.00000ml of W3112 + 50.00000gram of M5882 + 50.00000ml of M6151 = Final Quantity: 500.000 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>
871	MERCURY INTERMEDIATE B 250PPB WORKING STD.	MP84701	02/28/2025	03/01/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal 02/28/2025

A)

<u>FROM</u>	
	1.00000ml of M6126 + 2.50000ml of M5062 + 96.50000ml of W3112 = Final Quantity: 100.000 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>
1340	Hg 0.00 PPB STD	MP84702	02/28/2025	03/01/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 02/28/2025
<u>FROM</u> 2.50000ml of M6126 + 247.50000ml of W3112 = Final Quantity: 250.000 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>
1341	Hg 0.2 PPB STD	MP84703	02/28/2025	03/01/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal 02/28/2025
FROM 2.50000ml of M6126 + 247.30000ml of W3112 + 0.20000ml of MP84701 = Final Quantity: 250.000 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>
1342	Hg 2.5 PPB STD	MP84704	02/28/2025	03/01/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 02/28/2025
<u>FROM</u> 2.50000ml of M6126 + 245.00000ml of W3112 + 2.50000ml of MP84701 = Final Quantity: 250.000 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>
1343	Hg 5.0 PPB STD	MP84705	02/28/2025	03/01/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal 02/28/2025
FROM 2.50000ml of M6126 + 242.50000ml of W3112 + 5.00000ml of MP84701 = Final Quantity: 250.000 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>
1344	Hg 7.5 PPB STD	MP84707	02/28/2025	03/01/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 02/28/2025
<u>FROM</u>	2.50000ml of M6126 + 240.00000ml of W3112 + 7.50000ml of MP84701 = Final Quantity: 250.000 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>
1345	Hg 10.0 PPB STD	MP84708	02/28/2025	03/01/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal
FROM 2.50000ml of M6126 + 237.50000ml of W3112 + 10.00000ml of MP84701 = Final Quantity: 250.000 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>
1346	Hg ICV SOLUTION	MP84709	02/28/2025	02/28/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 02/28/2025
<u>FROM</u>	2.50000ml of M5532 + 2.50000ml of M6126 + 245.00000ml of W3112 = Final Quantity: 250.000 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>
1351	ICB (Hg 0.00 PPB SOLUTION)	MP84710	02/28/2025	03/01/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 02/28/2025
<u>FROM</u>	2.50000ml of M6126 + 247.50000ml of W3112 = Final Quantity: 250.000 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>
1358	CCV (Hg 5.0 PPB SOLUTION)	MP84711	02/28/2025	03/01/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 02/28/2025
<u>FROM</u>	485.00000ml of W3112 + 5.00000ml of M6126 + 10.00000ml of MP84701 = Final Quantity: 500.000 ml							

Metals 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>
1352	CCB (Hg 0.00 PPB SOLUTION)	MP84712	02/28/2025	03/01/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 02/28/2025

FROM 495.00000ml of W3112 + 5.00000ml of M6126 = Final Quantity: 500.000 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>
1788	HNO3 for TCLP, 1N	WP110804	11/21/2024	05/13/2025	Jignesh Parikh	None	None	Iwona Zarych 11/21/2024

FROM 64.00000ml of M6120 + 936.00000ml 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>
2700	60-40 wt % Sulfuric acid:nitric acid mixture	WP110805	11/21/2024	05/13/2025	Jignesh Parikh	WETCHEM_SCALE_8 (WC SC-7)	None	Iwona Zarych 11/21/2024
<u>FROM</u> 40.00000gram of M6120 + 60.00000gram of M5173 = Final Quantity: 100.000 gram								

<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>
4051	SPLP FLUID#2	WP112058	02/18/2025	05/13/2025	Jignesh Parikh	None	WETCHEM_PIPETTE_3 (WC)	Iwona Zarych 02/26/2025
<u>FROM</u> 20.00000L of W3112 + 0.09000ml of WP110805 = 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-2196-01 / Hydroxylamine Hydrochloride, Crystal (cs/4x500g)	0000215387	06/25/2025	07/01/2019 / RICHARD	06/07/2019 / RICHARD	M4371

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-3238-05 / Potassium Persulfate (2.5kg)	0000234156	08/06/2025	07/23/2019 /mohan	07/25/2019 / manojkumar	M4465

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-3227-05 / Potassium Permanganate (2.5kg)	210800	03/31/2026	11/30/2022 / mohan	07/28/2021 / mohan	M4916

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	MSHG-10PPM / MERCURY HCl 125mL 10ug/mL	S2-HG709270	09/22/2026	05/28/2022 / mohan	01/27/2022 / mohan	M5062

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)	0000281827	06/02/2025	06/01/2022 /mohan	04/05/2022 / william	M5173

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	ICV-5 / ICV (HG) STOCK SOLN	ICV5-0415	03/15/2025	01/02/2025 /mohan	03/30/2023 / mohan	M5532

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-3980-01 / Stannous Chloride (cs/4x500g)	232820	08/31/2028	04/30/2024 / mohan	04/25/2024 / mohan	M5882

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-3624-05 / Sodium Chloride, Crystal (cs/4x2.5kg)	0000281938	07/06/2026	04/30/2024 / mohan	04/25/2024 / mohan	M5884

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 #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	23I0662003	05/13/2025	11/13/2024 / Eman	10/13/2024 / Eman	M6120

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	24D1062002	06/03/2025	12/03/2024 / Janvi	11/12/2024 / Janvi	M6126

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

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	DIW / DI Water	Daily Lab-Certified	07/03/2029	07/03/2024 / lwona	07/03/2024 / lwona	W3112

M5882
 M3

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 – 0120633

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	T142	Quality Test / Release Date	08/17/2023
Lot Number	232820		
Description	STANNOUS CHLORIDE, DIHYDRATE CERTIFIED ACS (Suitable for Mercury Determination)		
Country of Origin	United States	Suggested Retest Date	Aug/2028
Chemical Origin	Inorganic-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	Clear crystals
ASSAY	%	Inclusive Between 98 - 103	100.65
CALCIUM	%	<= 0.005	0.0017
IDENTIFICATION	PASS/FAIL	= PASS TEST	PASS TEST
IRON (Fe)	%	<= 0.003	0.0011
LEAD (Pb)	%	<= 0.01	0.0006
MERCURY (Hg)	ppm	<= 0.05	<0.05
POTASSIUM (K)	%	<= 0.005	0.0001
SODIUM (Na)	%	<= 0.01	<0.01
SOLUBILITY IN HCL	PASS/FAIL	= PASS TEST	PASS TEST
SULFATE (SO4)	PASS/FAIL	= P.T. (ABOUT 0.003%)	P.T. (ABOUT 0.003%)



Harout Sahagian - Quality Control Supervisor - 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.

M4371

Hydroxylamine Hydrochloride, Crystal
BAKER ANALYZED® A.C.S. Reagent
Suitable for Mercury Determination
(hydroxylammonium chloride)

Rec - 06.07.19



avantortm

Material No.: 2196-01
Batch No.: 0000215387
Manufactured Date: 2018/06/27
Retest Date: 2025/06/25
Revision No: 1

Certificate of Analysis

Meets ACS Reagent Chemical Requirements,

Test	Specification	Result
Assay (NH ₂ OH · HCl) (by KMnO ₄ titrn)	>= 96.0 %	99.1
Clarity of Alcohol Solution	Passes Test	PT
Residue after Ignition	<= 0.050 %	0.017
Titrate Free Acid (meq/g)	<= 0.25	0.19
Ammonium (NH ₄)	Passes Test	PT
Sulfur Compounds (as SO ₄)	<= 0.005 %	< 0.003
Trace Impurities - ACS - Heavy Metals (as Pb)	<= 5 ppm	4
Trace Impurities - Iron (Fe)	<= 5 ppm	< 3
Trace Impurities - Mercury (Hg)	<= 0.050 ppm	< 0.005

For Laboratory, Research or Manufacturing Use

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

ISO

Phillipsburg, NJ 9001:2015, FSSC22000
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Gliwice, Poland 9001:2015, 13485:2012
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2015, 17025:2005
Panoli, India 9001:2015

James Ethier

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

M4913-16

MS

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	P279	Quality Test / Release Date	01/12/2021
Lot Number	210306		
Description	POTASSIUM PERMANGANATE, A.C.S.		
Country of Origin	United States	Suggested Retest Date	Jan/2026

N/A			
Result Name	Units	Specifications	Test Value
APPEARANCE		REPORT	Dark purple to purple green crystals
ASSAY	%	>= 99	99.3
CHLORIDE & CHLORATE	%	<= 0.005	<0.005
IDENTIFICATION	PASS/FAIL	= PASS TEST	pass test
INSOLUBLE MATTER	%	<= 0.2	<0.2
MERCURY (Hg)	ppm	<= 0.05	<0.004
SULFATE (SO4)	%	<= 0.02	<0.02

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.

300 Technology Drive
 Christiansburg, VA 24073 USA
 inorganicventures.com

P: 800-669-6799/540-585-3030
 F: 540-585-3012
 info@inorganicventures.com

MS062
 MS063
 MS

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).



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Mass Spec Solution
 Catalog Number: MSHG-10PPM
 Lot Number: S2-HG709270
 Matrix: 10% (v/v) HCl
 Value / Analyte(s): 10 µg/mL ea:
 Mercury
 Starting Material: Hg metal
 Starting Material Lot#: 1959
 Starting Material Purity: 99.9994%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10.001 ± 0.053 µg/mL
Density: 1.020 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Hg	ICP Assay	3133	160921
Hg	EDTA	928	928
Hg	Calculated		See Sec. 4.2

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:

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

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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

$u_{char} = [\sum ((w_i)^2 (u_{char i})^2)]^{1/2}$ 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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char a}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

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 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Ag	0.000011	M	Eu	<	0.000201	O	Na	0.000004	M	Se	<	0.015915	O	Zn	<	0.001510
O	Al	0.000001	O	Fe		0.000001	M	Nb	<	0.000201	O	Si	0.000005	M	Zr	<	0.000201
M	As	<	0.000402	M	Ga	<	0.000201	M	Nd	<	0.000201	M	Sm	<		0.000201	
M	Au	<	0.003631	M	Gd	<	0.000201	M	Ni	<	0.000402	M	Sn	<		0.001007	
M	B	<	0.001208	M	Ge	<	0.000201	M	Os	<	0.000605	M	Sr	<		0.000201	
M	Ba	<	0.000201	M	Hf	<	0.000201	O	P	<	0.032370	M	Ta	<		0.000201	
M	Be	<	0.000201	s	Hg	<		M	Pb	<	0.000201	M	Tb	<		0.000201	
M	Bi	<	0.000201	M	Ho	<	0.000201	M	Pd	<	0.000403	M	Te	<		0.002216	
O	Ca	0.000007	M	In	<	0.000201	M	Pr	<	0.000201	M	Th	<		0.000201		
M	Cd	<	0.000201	M	Ir	<	0.000201	M	Pt	<	0.000402	M	Ti	<		0.000402	
M	Ce	<	0.000201	O	K		0.000020	M	Rb	<	0.000201	O	Tl	<		0.016508	
M	Co	<	0.000201	M	La	<	0.000201	M	Re	<	0.000201	M	Tm	<		0.000201	
O	Cr	<	0.003021	O	Li	<	0.000107	M	Rh	<	0.000201	M	U	<		0.008058	
M	Cs	<	0.001208	M	Lu	<	0.000201	M	Ru	<	0.000201	M	V	<		0.000201	
M	Cu	<	0.000402	O	Mg		0.000001	O	S	<	0.053950	M	W	<		0.000604	
M	Dy	<	0.000201	M	Mn	<	0.000604	M	Sb	<	0.001208	M	Y	<		0.000201	
M	Er	<	0.000201	M	Mo		0.000009	M	Sc	<	0.000201	M	Yb	<		0.000201	

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 200.59 +2 4 Hg(OH)(aq) 1+

Chemical Compatibility - Stable in HNO₃. Avoid basic media forming insoluble carbonate. The sulfide, basic carbonate, oxalate, phosphate, arsenite, arsenate and iodide are insoluble in water.

Stability - 2-100 ppb levels not stable in 1% HNO₃ / LDPE container, stable in 10% HNO₃ packaged in borosilicate glass. 1-100 ppm levels stable in 7% HNO₃ packaged in borosilicate glass. 1000-10,000 ppm solutions are chemically stable for years in 5-10% HNO₃ / LDPE container.

Hg Containing Samples (Preparation and Solution) - Metal (soluble in HNO₃); Oxide (Soluble in HNO₃); Ores and Organic based (The literature has more references to the preparation of Hg containing samples than any other element. Please consult the literature for your specific sample type, since such preparations are prone to error. Or e-mail our technical staff and we will contact you to discuss your particular sample preparation questions in further detail.).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 202 amu	9 ppt	n/a	186W16O
ICP-OES 184.950 nm	0.03 / 0.005 µg/mL	1	
ICP-OES 194.227 nm	0.03 / 0.005 µg/mL	1	V
ICP-OES 253.652 nm	0.1 / 0.03 µg/mL	1	Ta, Co, Th ,Rh , Fe, U

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

September 22, 2021

- 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

- **September 22, 2026**

- 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
Supervisor, Product Documentation



Certificate Approved By:

Michael Booth
Director, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



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



Material No.: 9530-33
 Batch No.: 0000281827
 Manufactured Date: 2021/03/30
 Retest Date: 2026/03/29
 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	1.189
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	0.5
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	15.0
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

Test	Specification	Result
Trace Impurities – Germanium (Ge)	<= 3.0 ppb	< 2.0
Trace Impurities – Gold (Au)	<= 4.0 ppb	3.0
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities – Iron (Fe)	<= 15.0 ppb	1.0
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	0.2
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	18.0
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	0.4
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



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

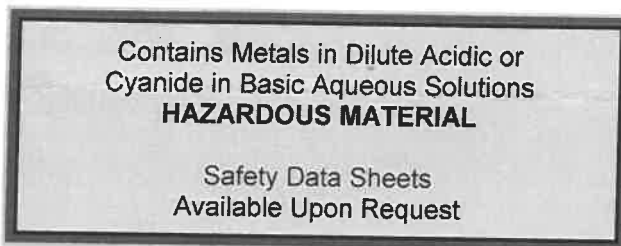
Instructions for QATS Reference Material: *Inorganic ICV Solutions*

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.



15528-32
MS

(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 $\mu\text{g/L}$ (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.





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

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

Sodium Chloride, Crystal
BAKER ANALYZED® A.C.S. Reagent



MS824
MB

Material No.: 3624-01

Batch No.: 0000281938

Manufactured Date: 2021-06-07

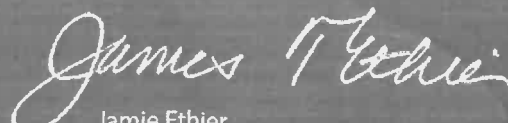
Retest Date: 2026-06-07

Revision No.: 1

Certificate of Analysis

Test	Specification	Result
Assay (NaCl) (by Ag titrn)	$\geq 99.0 \%$	100.0 %
pH of 5% Solution at 25°C	5.0 - 9.0	6.3
Insoluble Matter	$\leq 0.005 \%$	0.003 %
Iodide (I)	$\leq 0.002 \%$	< 0.002 %
Bromide (Br)	$\leq 0.01 \%$	< 0.01 %
Chlorate and Nitrate (as NO ₃)	$\leq 0.003 \%$	< 0.001 %
ACS - Phosphate (PO ₄)	≤ 5 ppm	< 5 ppm
Sulfate (SO ₄)	$\leq 0.004 \%$	< 0.004 %
Barium (Ba)	Passes Test	Passes Test
ACS - Heavy Metals (as Pb)	≤ 5 ppm	< 5 ppm
Iron (Fe)	≤ 2 ppm	< 1 ppm
Calcium (Ca)	$\leq 0.002 \%$	< 0.001 %
Magnesium (Mg)	$\leq 0.001 \%$	< 0.001 %
Potassium (K)	$\leq 0.005 \%$	0.001 %

For Laboratory, Research, or Manufacturing Use
Meets Reagent Specifications for testing USP/NF monographs
Country of Origin: USA
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 Mansford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone 610.386.1700

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

avantor™



M 6041-4b
MS

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

 **avantor™**

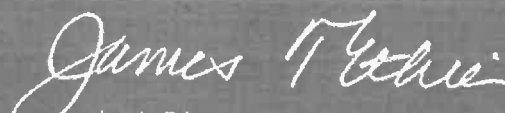


Material No.: 9673-33
Batch No.: 23D2462010

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

Nitric Acid 69%
CMOS

avantor™



R -> 10/13/24
Metali g

Material No.: 9606-03
Batch No.: 2310662003
Manufactured Date: 2023-08-21
Retest Date: 2028-08-19
Revision No.: 0

M 6120

Certificate of Analysis

Test	Specification	Result
Assay (HNO ₃)	69.0 – 70.0 %	69.5 %
Appearance	Passes Test	Passes Test
Color (APHA)	≤ 10	10
Residue after Ignition	≤ 2 ppm	< 2 ppm
Chloride (Cl)	≤ 0.08 ppm	< 0.08 ppm
Phosphate (PO ₄)	≤ 0.10 ppm	< 0.10 ppm
Sulfate (SO ₄)	≤ 0.2 ppm	0.2 ppm
Trace Impurities – Aluminum (Al)	≤ 40.0 ppb	< 40.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 5.0 ppb
Trace Impurities – Barium (Ba)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Beryllium (Be)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Bismuth (Bi)	≤ 20.0 ppb	< 20.0 ppb
Trace Impurities – Boron (B)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Cadmium (Cd)	≤ 50 ppb	< 50 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	< 50.0 ppb
Trace Impurities – Chromium (Cr)	≤ 30.0 ppb	30.0 ppb
Trace Impurities – Cobalt (Co)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Copper (Cu)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Gallium (Ga)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Germanium (Ge)	≤ 20 ppb	< 20 ppb
Trace Impurities – Gold (Au)	≤ 20 ppb	< 20 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 100 ppb
Trace Impurities – Iron (Fe)	≤ 40.0 ppb	< 40.0 ppb
Trace Impurities – Lead (Pb)	≤ 20.0 ppb	< 20.0 ppb
Trace Impurities – Lithium (Li)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Magnesium (Mg)	≤ 20 ppb	< 20 ppb
Trace Impurities – Manganese (Mn)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Nickel (Ni)	≤ 20.0 ppb	< 20.0 ppb

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS



Material No.: 9606-03
Batch No.: 2310662003

Test	Specification	Result
Trace Impurities – Niobium (Nb)	≤ 50.0 ppb	< 50.0 ppb
Trace Impurities – Potassium (K)	≤ 50 ppb	< 50 ppb
Trace Impurities – Silicon (Si)	≤ 50 ppb	< 50 ppb
Trace Impurities – Silver (Ag)	≤ 20.0 ppb	< 20.0 ppb
Trace Impurities – Sodium (Na)	≤ 150.0 ppb	< 150.0 ppb
Trace Impurities – Strontium (Sr)	≤ 30.0 ppb	< 30.0 ppb
Trace Impurities – Tantalum (Ta)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Thallium (Tl)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Tin (Sn)	≤ 20.0 ppb	< 20.0 ppb
Trace Impurities – Titanium (Ti)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Vanadium (V)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Zinc (Zn)	≤ 20.0 ppb	< 20.0 ppb
Trace Impurities – Zirconium (Zr)	≤ 10.0 ppb	< 10.0 ppb
Particle Count – 0.5 µm and greater	≤ 60 par/ml	60 par/ml
Particle Count – 1.0 µm and greater	≤ 10 par/ml	10 par/ml

>>> Continued on page 3 >>>

Nitric Acid 69%
CMOS

 **avantor™**

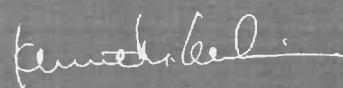


Material No.: 9606-03
Batch No.: 2310662003

Test	Specification	Result
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For Microelectronic Use

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



Ken Koehnlein
Sr. Manager, Quality Assurance

Nitric Acid 69%
CMOS



R → 11/12/24

M6126

Material No.: 9606-03
Batch No.: 24D1062002
Manufactured Date: 2024-03-26
Retest Date: 2029-03-25
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (HNO ₃)	69.0 – 70.0 %	69.7 %
Appearance	Passes Test	Passes Test
Color (APHA)	≤ 10	5
Residue after Ignition	≤ 2 ppm	1 ppm
Chloride (Cl)	≤ 0.08 ppm	< 0.03 ppm
Phosphate (PO ₄)	≤ 0.10 ppm	< 0.03 ppm
Sulfate (SO ₄)	≤ 0.2 ppm	< 0.2 ppm
Trace Impurities – Aluminum (Al)	≤ 40.0 ppb	< 1.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities – Barium (Ba)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Beryllium (Be)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Bismuth (Bi)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities – Boron (B)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Cadmium (Cd)	≤ 50 ppb	< 1 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	2.3 ppb
Trace Impurities – Chromium (Cr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities – Cobalt (Co)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Copper (Cu)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Gallium (Ga)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Germanium (Ge)	≤ 20 ppb	< 10 ppb
Trace Impurities – Gold (Au)	≤ 20 ppb	< 5 ppb
Heavy Metals (as Pb)	≤ 100 ppb	100 ppb
Trace Impurities – Iron (Fe)	≤ 40.0 ppb	< 1.0 ppb
Trace Impurities – Lead (Pb)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities – Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Magnesium (Mg)	≤ 20 ppb	< 1 ppb
Trace Impurities – Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Nickel (Ni)	≤ 20.0 ppb	< 5.0 ppb

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS

 **avantor**TM



Material No.: 9606-03
Batch No.: 24D1062002

Test	Specification	Result
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For Microelectronic Use

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



Jamie Croak
Director Quality Operations, Bioscience Production

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

 **avantor™**



M6151

R → 11/15/25

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

 **avantorsm**



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



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

Test	Specification	Result
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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

A handwritten signature in cursive script that reads 'Jamie Ethier'.
Jamie Ethier
Vice President Global Quality

SOP ID : M7470A-Mercury-19, MSFAM01.1-Mercury in Water-2

SDG No : YE8F7

Matrix : WATER

Pipette ID: HG A

Balance ID : N/A

Filter paper ID : NA

pH Strip ID : M6069

Hood ID : #1

Block ID: 1. HG HOT BLOCK#2 2. N/A

Start Digest Date: 02/24/2025 **Time :** 07:20 **Temp :** 93 °C

End Digest Date: 02/24/2025 **Time :** 09:20 **Temp :** 94 °C

Digestion tube ID: M6054

Block thermometer ID: HG-DIG#2

Dig Technician Signature: *MB*

Supervisor Signature: *JR*

Temp : 1. N/A 2. N/A

Standardized Name	MLS USED	STD REF. # FROM LOG
ICV	100mL	MP84709
CCV	100mL	MP84711
Matrix Spike	0.40mL	MP84701
N/A	N/A	N/A
N/A	N/A	N/A

Chemical Used	ML/SAMPLE USED	Lot Number
HNO3/H2SO4(1:2)	7.5mL	MP84563
KMnO4 (5%)	15.0mL	MP84564
K2S2O8 (5%)	8.0mL	MP84565
Hydroxylamine HCL (12%)	6.0mL	MP84566
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
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
0.0 ppb	S0	100mL	MP84702
0.05 ppb	S0.05	N/A	N/A
0.2 ppb	S0.2	100mL	MP84703
2.5 ppb	S2.5	100mL	MP84704
5.0 ppb	S5.0	100mL	MP84705
7.5 ppb	S7.5	100mL	MP84707
10.0 ppb	S10.0	100mL	MP84708
ICV	ICV	100mL	MP84709
ICB	ICB	100mL	MP84710
CCV	CCV	100mL	MP84711
CCB	CCB	100mL	MP84712
CRI	CRI	N/A	N/A
CHK STD	CHK STD	N/A	N/A

Extraction Conformance/Non-Conformance Comments:

N/A

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
2/22/25 @ 10:15	<i>MB - Prep Lab</i>	<i>MB Metal Lab</i>
	Preparation Group	Analysis Group

Lab Sample ID	Client Sample ID	Initial Vol (ml)	Final Vol (ml)	pH	Comment	Prep Pos
PB166945BL	PBW945	100	100	<2	N/A	2-8
PB166945TB	LEB945	100	100	<2	N/A	9
Q1136-01	YE8F5	100	100	<2	N/A	10
Q1136-02	YE8F7	100	100	<2	N/A	11
Q1136-03	YE8F7D	100	100	<2	N/A	12
Q1136-04	YE8F7S	100	100	<2	MP84701	13
Q1136-05	YE8F8	100	100	<2	N/A	14
Q1136-06	YE8E3	100	100	<2	N/A	15
Q1136-07	YE8E4	100	100	<2	N/A	16
Q1136-08	YE8E5	100	100	<2	N/A	17
Q1136-09	YE8E6	100	100	<2	N/A	18
Q1136-10	YE8E7	100	100	<2	N/A	19
Q1136-11	YE8E8	100	100	<2	N/A	20
Q1136-12	YE8D1	100	100	<2	N/A	21
Q1136-13	YE8D2	100	100	<2	N/A	22
Q1136-14	YE8D4	100	100	<2	N/A	23
Q1136-15	YE8C3	100	100	<2	N/A	24
Q1136-17	YE8D5	100	100	<2	N/A	25

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QC Batch ID # LB134860

Review By	Kareem Khairalla	Review On	3/6/2025 3:30:07 PM
Supervise By	Sarabjit Jaswal	Supervise On	3/7/2025 12:17:44 PM
STD. NAME	STD REF.#		
ICAL Standard	MP84702,MP84703,MP84704,MP84705,MP84707,MP84708		
ICV Standard	MP84709		
CCV Standard	MP84711		
ICSA Standard			
CRI Standard			
LCS Standard			
Chk Standard	MP84710,MP84712,MP84691		

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	02/28/25 13:43		Mohan	OK
2	S0.2	S01	CAL2	02/28/25 13:45		Mohan	OK
3	S2.5	S02	CAL3	02/28/25 13:47		Mohan	OK
4	S5	S03	CAL4	02/28/25 13:50		Mohan	OK
5	S7.5	S04	CAL5	02/28/25 13:52		Mohan	OK
6	S10	S05	CAL6	02/28/25 13:54		Mohan	OK
7	ICV024	ICV024	ICV	02/28/25 13:57		Mohan	OK
8	ICB024	ICB024	ICB	02/28/25 13:59		Mohan	OK
9	CCV045	CCV045	CCV	02/28/25 14:02		Mohan	OK
10	CCB045	CCB045	CCB	02/28/25 14:04		Mohan	OK
11	PB166941BL	PBW941	MB	02/28/25 14:06		Mohan	OK
12	Q1106-01	YE8G3	SAM	02/28/25 14:08		Mohan	OK
13	Q1106-02	YE8G5	SAM	02/28/25 14:11		Mohan	OK
14	Q1106-03	YE8G6	SAM	02/28/25 14:13		Mohan	OK
15	Q1106-04	YE8G6D	DUP	02/28/25 14:15		Mohan	OK
16	Q1106-05	YE8G6S	MS	02/28/25 14:17		Mohan	OK
17	Q1106-06	YE8H0	SAM	02/28/25 14:20		Mohan	OK
18	Q1106-07	YE8H1	SAM	02/28/25 14:22		Mohan	OK

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QC Batch ID # LB134860

Review By	Kareem Khairalla	Review On	3/6/2025 3:30:07 PM
Supervise By	Sarabjit Jaswal	Supervise On	3/7/2025 12:17:44 PM
STD. NAME	STD REF.#		
ICAL Standard	MP84702,MP84703,MP84704,MP84705,MP84707,MP84708		
ICV Standard	MP84709		
CCV Standard	MP84711		
ICSA Standard			
CRI Standard			
LCS Standard			
Chk Standard	MP84710,MP84712,MP84691		

19	Q1106-08	YE8H2	SAM	02/28/25 14:24		Mohan	OK
20	Q1106-09	YE8H3	SAM	02/28/25 14:27		Mohan	OK
21	Q1106-10	YE8H4	SAM	02/28/25 14:29		Mohan	OK
22	Q1106-11	YE8H5	SAM	02/28/25 14:31		Mohan	OK
23	Q1106-12	YE8H6	SAM	02/28/25 14:33		Mohan	OK
24	Q1106-13	YE8F6	SAM	02/28/25 14:36		Mohan	OK
25	Q1106-14	YE8F9	SAM	02/28/25 14:38		Mohan	OK
26	Q1106-15	YE8G0	SAM	02/28/25 14:40		Mohan	OK
27	Q1106-16	YE8G1	SAM	02/28/25 14:42		Mohan	OK
28	Q1106-17	YE8G2	SAM	02/28/25 14:45		Mohan	OK
29	Q1106-18	YE8H9	SAM	02/28/25 14:47		Mohan	OK
30	Q1106-19	YE8J0	SAM	02/28/25 14:49		Mohan	OK
31	CCV046	CCV046	CCV	02/28/25 14:51		Mohan	OK
32	CCB046	CCB046	CCB	02/28/25 14:54		Mohan	OK
33	Q1106-20	YE8J1	SAM	02/28/25 14:56		Mohan	OK
34	PB166943BL	PBW943	MB	02/28/25 14:58		Mohan	OK
35	Q1160-01	YE8C9	SAM	02/28/25 15:01		Mohan	OK
36	Q1160-02	YE8C9D	DUP	02/28/25 15:03		Mohan	OK
37	Q1160-03	YE8C9S	MS	02/28/25 15:05		Mohan	OK
38	Q1160-04	YE8D0	SAM	02/28/25 15:07		Mohan	OK

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QC Batch ID # LB134860

Review By	Kareem Khairalla	Review On	3/6/2025 3:30:07 PM
Supervise By	Sarabjit Jaswal	Supervise On	3/7/2025 12:17:44 PM
STD. NAME	STD REF.#		
ICAL Standard	MP84702,MP84703,MP84704,MP84705,MP84707,MP84708		
ICV Standard	MP84709		
CCV Standard	MP84711		
ICSA Standard			
CRI Standard			
LCS Standard			
Chk Standard	MP84710,MP84712,MP84691		

39	Q1160-05	YE8D3	SAM	02/28/25 15:10		Mohan	OK
40	PB166945BL	PBW945	MB	02/28/25 15:12		Mohan	OK
41	Q1136-01	YE8F5	SAM	02/28/25 15:14		Mohan	OK
42	Q1136-02	YE8F7	SAM	02/28/25 15:16		Mohan	OK
43	Q1136-03	YE8F7D	DUP	02/28/25 15:19		Mohan	OK
44	Q1136-04	YE8F7S	MS	02/28/25 15:21		Mohan	OK
45	Q1136-05	YE8F8	SAM	02/28/25 15:23		Mohan	OK
46	Q1136-06	YE8E3	SAM	02/28/25 15:26		Mohan	OK
47	Q1136-07	YE8E4	SAM	02/28/25 15:28		Mohan	OK
48	Q1136-08	YE8E5	SAM	02/28/25 15:30		Mohan	OK
49	Q1136-09	YE8E6	SAM	02/28/25 15:32		Mohan	OK
50	Q1136-10	YE8E7	SAM	02/28/25 15:35		Mohan	OK
51	Q1136-11	YE8E8	SAM	02/28/25 15:37		Mohan	OK
52	Q1136-12	YE8D1	SAM	02/28/25 15:39		Mohan	OK
53	CCV047	CCV047	CCV	02/28/25 15:41		Mohan	OK
54	CCB047	CCB047	CCB	02/28/25 15:44		Mohan	OK
55	Q1136-13	YE8D2	SAM	02/28/25 15:46		Mohan	OK
56	Q1136-14	YE8D4	SAM	02/28/25 15:48		Mohan	OK
57	Q1136-15	YE8C3	SAM	02/28/25 15:51		Mohan	OK
58	Q1136-17	YE8D5	SAM	02/28/25 15:53		Mohan	OK

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QC Batch ID # LB134860

Review By	Kareem Khairalla	Review On	3/6/2025 3:30:07 PM
Supervise By	Sarabjit Jaswal	Supervise On	3/7/2025 12:17:44 PM
STD. NAME	STD REF.#		
ICAL Standard	MP84702,MP84703,MP84704,MP84705,MP84707,MP84708		
ICV Standard	MP84709		
CCV Standard	MP84711		
ICSA Standard			
CRI Standard			
LCS Standard			
Chk Standard	MP84710,MP84712,MP84691		

59	PB166941TB	LEB941	MB	02/28/25 15:55		Mohan	OK
60	PB166943TB	LEB943	MB	02/28/25 15:57		Mohan	OK
61	PB166945TB	LEB945	MB	02/28/25 16:00		Mohan	OK
62	CCV048	CCV048	CCV	02/28/25 16:02		Mohan	OK
63	CCB048	CCB048	CCB	02/28/25 16:04		Mohan	OK

SOP ID : M1311-TCLP-15
SDG No : YE8F7
Weigh By : JP
Balance ID : WC SC-7
pH Meter ID : WC PH METER-1
Extraction By : JP
Filter By : JP
Pippete ID : WC
Tumbler ID : T-1 / T-2
TCLP Filter ID : 115525

Start Prep Date : 02/20/2025 **Time :** 14:00
End Prep Date : 02/21/2025 **Time :** 07:15
Combination Ratio : 20
ZHE Cleaning Batch : N/A
Initial Room Temperature: 23 °C
Final Room Temperature: 22 °C
TCLP Technician Signature : *JP*
Supervisor By : *12*

Standard Name	MLS USED	STD REF. # FROM LOG
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Chemical Used	ML/SAMPLE U	Lot Number
SPLP FLUID#2	N/A	WP112058
N/A	N/A	N/A
HNO3-TCLP,1N	N/A	WP110804
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
120ml Plastic bottle	N/A	405130101
1:1 HNO3	N/A	MP84041

Extraction Conformance/Non-Conformance Comments:

Matrix spikes are added after filtration and before preservation. TUMBLER T-1 /T-2 checked,30 rpm.

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
02/21/25 11:00	<i>JP</i> / <i>TCLP Room</i>	<i>sl29</i> / <i>met-014</i>
	Preparation Group	Analysis Group

SPLP EXTRACTION LOGPAGE

pb166823

Sample ID	ClientID	TCLP Vessel ID	Sample Wt (g)	Volume Extraction Fluid #1 (mL)	Multi phasic	Phase Miscible	Phases Combined	Final Leachate PH	Metals Leachate Adj. PH	Prep Pos
PB166823TB	LEB823	15	N/A	2000	N/A	N/A	N/A	5.03	1.03	T-2
Q1136-01	YE8F5	01	100.02	2000	N/A	N/A	N/A	4.77	1.44	T-1
Q1136-02	YE8F7	02	100.01	2000	N/A	N/A	N/A	5.33	1.52	T-1
Q1136-03	YE8F7D	02	100.01	2000	N/A	N/A	N/A	5.33	1.52	T-1
Q1136-04	YE8F7S	02	100.01	2000	N/A	N/A	N/A	5.33	1.52	T-1
Q1136-05	YE8F8	03	100.02	2000	N/A	N/A	N/A	5.37	1.36	T-1
Q1136-06	YE8E3	04	100.03	2000	N/A	N/A	N/A	3.77	1.23	T-1
Q1136-07	YE8E4	05	100.03	2000	N/A	N/A	N/A	6.04	1.31	T-1
Q1136-08	YE8E5	06	100.04	2000	N/A	N/A	N/A	6.54	1.40	T-1
Q1136-09	YE8E6	07	100.03	2000	N/A	N/A	N/A	4.66	1.36	T-1
Q1136-10	YE8E7	08	100.02	2000	N/A	N/A	N/A	5.54	1.31	T-1
Q1136-11	YE8E8	09	100.02	2000	N/A	N/A	N/A	5.38	1.48	T-1
Q1136-12	YE8D1	10	100.03	2000	N/A	N/A	N/A	5.72	1.58	T-1
Q1136-13	YE8D2	11	100.02	2000	N/A	N/A	N/A	5.38	1.51	T-2
Q1136-14	YE8D4	12	100.03	2000	N/A	N/A	N/A	6.30	1.63	T-2
Q1136-15	YE8C3	13	100.03	2000	N/A	N/A	N/A	7.00	1.78	T-2
Q1136-17	YE8D5	14	100.02	2000	N/A	N/A	N/A	7.22	1.72	T-2

SampleID	ClientID	Sample Weight (g)	Filter Weight (g)	Filtrate (mL)	Filter + Solid (After 100°C)	% solids	% Dry Solids
PB166823TB	LEB823	N/A	N/A	N/A	N/A	N/A	N/A
Q1136-01	YE8F5	N/A	N/A	N/A	N/A	100	N/A
Q1136-02	YE8F7	N/A	N/A	N/A	N/A	100	N/A
Q1136-03	YE8F7D	N/A	N/A	N/A	N/A	100	N/A
Q1136-04	YE8F7S	N/A	N/A	N/A	N/A	100	N/A
Q1136-05	YE8F8	N/A	N/A	N/A	N/A	100	N/A
Q1136-06	YE8E3	N/A	N/A	N/A	N/A	100	N/A
Q1136-07	YE8E4	N/A	N/A	N/A	N/A	100	N/A
Q1136-08	YE8E5	N/A	N/A	N/A	N/A	100	N/A
Q1136-09	YE8E6	N/A	N/A	N/A	N/A	100	N/A
Q1136-10	YE8E7	N/A	N/A	N/A	N/A	100	N/A
Q1136-11	YE8E8	N/A	N/A	N/A	N/A	100	N/A
Q1136-12	YE8D1	N/A	N/A	N/A	N/A	100	N/A
Q1136-13	YE8D2	N/A	N/A	N/A	N/A	100	N/A
Q1136-14	YE8D4	N/A	N/A	N/A	N/A	100	N/A
Q1136-15	YE8C3	N/A	N/A	N/A	N/A	100	N/A
Q1136-17	YE8D5	N/A	N/A	N/A	N/A	100	N/A

Hot Block ID : WC S-1 /WC S-2

Thermometer ID : FLASHPOINT

SampleID	ClientID	Sample Weight (g)	Volume DI Water (mL)	PH after 5 min stir	PH after 10 min stir	Extraction Fluid 1 or 2	pH Extraction Fluid
PB166823TB	LEB823	N/A	N/A	N/A	N/A	#2	5.03
Q1136-01	YE8F5	N/A	N/A	N/A	N/A	#2	5.03
Q1136-02	YE8F7	N/A	N/A	N/A	N/A	#2	5.03
Q1136-03	YE8F7D	N/A	N/A	N/A	N/A	#2	5.03
Q1136-04	YE8F7S	N/A	N/A	N/A	N/A	#2	5.03
Q1136-05	YE8F8	N/A	N/A	N/A	N/A	#2	5.03
Q1136-06	YE8E3	N/A	N/A	N/A	N/A	#2	5.03
Q1136-07	YE8E4	N/A	N/A	N/A	N/A	#2	5.03
Q1136-08	YE8E5	N/A	N/A	N/A	N/A	#2	5.03
Q1136-09	YE8E6	N/A	N/A	N/A	N/A	#2	5.03
Q1136-10	YE8E7	N/A	N/A	N/A	N/A	#2	5.03
Q1136-11	YE8E8	N/A	N/A	N/A	N/A	#2	5.03
Q1136-12	YE8D1	N/A	N/A	N/A	N/A	#2	5.03
Q1136-13	YE8D2	N/A	N/A	N/A	N/A	#2	5.03
Q1136-14	YE8D4	N/A	N/A	N/A	N/A	#2	5.03
Q1136-15	YE8C3	N/A	N/A	N/A	N/A	#2	5.03
Q1136-17	YE8D5	N/A	N/A	N/A	N/A	#2	5.03