EPA SAMPLE NO.

DUP(20250910)

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: ARC Sayreville MA No. : SDG No.: Q3084

Matrix: Water Lab Sample ID: Q3084-10

% Solids: Date Received: 09/11/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.20	U	09/24/2025	1445

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

Comments:

EPA SAMPLE NO.

EB(20250911)

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: ARC Sayreville MA No. : SDG No.: Q3084

Matrix: Water Lab Sample ID: Q3084-22

% Solids: Date Received: 09/11/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.20	U	09/24/2025	1517

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

Comments:

EPA SAMPLE NO.

FB(20250909)

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: ARC Sayreville MA No. : SDG No.: Q3084

Matrix: Water Lab Sample ID: Q3084-05

% Solids: Date Received: 09/11/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.20	U	09/24/2025	1433

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

Comments:

EPA SAMPLE NO.

FB(20250910)

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: ARC Sayreville MA No. : SDG No.: Q3084

Matrix: Water Lab Sample ID: Q3084-12

% Solids: Date Received: 09/11/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.20	U	09/24/2025	1449

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

Comments:

EPA SAMPLE NO.

FB(20250911)

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: ARC Sayreville MA No. : SDG No.: Q3084

Matrix: Water Lab Sample ID: Q3084-21

% Solids: Date Received: 09/11/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.20	U	09/24/2025	1515

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

Comments:

EPA SAMPLE NO.

MW-1(MCUA)(20250

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: ARC Sayreville MA No. : SDG No.: Q3084

Matrix: Water Lab Sample ID: Q3084-14

% Solids: Date Received: 09/11/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.20	U	09/24/2025	1454

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

Comments:

EPA SAMPLE NO.

MW-2(MCUA)(20250

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: ARC Sayreville MA No. : SDG No.: Q3084

Matrix: Water Lab Sample ID: Q3084-15

% Solids: Date Received: 09/11/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.20	U	09/24/2025	1456

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

Comments:

EPA SAMPLE NO.

PMW-1(20250911)

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: ARC Sayreville MA No. : SDG No.: Q3084

Matrix: Water Lab Sample ID: Q3084-16

% Solids: Date Received: 09/11/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.025	J	09/24/2025	1459

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

Comments:

EPA SAMPLE NO.

PMW-10(20250910)

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: ARC Sayreville MA No. : SDG No.: Q3084

Matrix: Water Lab Sample ID: Q3084-11

% Solids: Date Received: 09/11/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.13	J	09/24/2025	1447

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

Comments:

EPA SAMPLE NO.

PMW-2(20250911)

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: ARC Sayreville MA No. : SDG No.: Q3084

Matrix: Water Lab Sample ID: Q3084-18

% Solids: Date Received: 09/11/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.20	U	09/24/2025	1503

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

Comments:

EPA SAMPLE NO.

PMW-3(20250910)

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: ARC Sayreville MA No. : SDG No.: Q3084

Matrix: Water Lab Sample ID: Q3084-07

% Solids: Date Received: 09/11/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.047	J	09/24/2025	1438

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

Comments:

EPA SAMPLE NO.

PMW-4(20250911)

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: ARC Sayreville MA No. : SDG No.: Q3084

Matrix: Water Lab Sample ID: Q3084-13

% Solids: Date Received: 09/11/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.20	U	09/24/2025	1452

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

Comments:

EPA SAMPLE NO.

PMW-5(20250911)

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: ARC Sayreville MA No. : SDG No.: Q3084

Matrix: Water Lab Sample ID: Q3084-17

% Solids: Date Received: 09/11/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.20	U	09/24/2025	1501

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

Comments:

EPA SAMPLE NO.

PMW-6(20250910)

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: ARC Sayreville MA No. : SDG No.: Q3084

Matrix: Water Lab Sample ID: Q3084-06

% Solids: Date Received: 09/11/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.21		09/24/2025	1435

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

Comments:

EPA SAMPLE NO.

PMW-7D(20250910)

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: ARC Sayreville MA No. : SDG No.: Q3084

Matrix: Water Lab Sample ID: Q3084-09

% Solids: Date Received: 09/11/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.20	U	09/24/2025	1442

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

Comments:

EPA SAMPLE NO.

PMW-7S(20250910)

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: ARC Sayreville MA No. : SDG No.: Q3084

Matrix: Water Lab Sample ID: Q3084-08

% Solids: Date Received: 09/11/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.20	U	09/24/2025	1440

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

Comments:

EPA SAMPLE NO.

PMW-8D(20250909)

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: ARC Sayreville MA No. : SDG No.: Q3084

Matrix: Water Lab Sample ID: Q3084-03

% Solids: Date Received: 09/11/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.11	J	09/24/2025	1429

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

Comments:

EPA SAMPLE NO.

PMW-8S(20250909)

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: ARC Sayreville MA No. : SDG No.: Q3084

Matrix: Water Lab Sample ID: Q3084-04

% Solids: Date Received: 09/11/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.057	J	09/24/2025	1431

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

Comments:

EPA SAMPLE NO.

PMW-9D(20250909)

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: ARC Sayreville MA No. : SDG No.: Q3084

Matrix: Water Lab Sample ID: Q3084-02

% Solids: Date Received: 09/11/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.42		09/24/2025	1426

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

Comments:

EPA SAMPLE NO.

PMW-9S(20250909)

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: ARC Sayreville MA No. : SDG No.: Q3084

Matrix: Water Lab Sample ID: Q3084-01

% Solids: Date Received: 09/11/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.11	J	09/24/2025	1424

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

Comments:

FORM 2 - IN

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: ARC Sayrevill MA No. : S DG No.: Q3084

Initial Calibration Verification Source : MP87328

Continuing Calibration Verification Source : MP87330

Run Batch: LB137291 Analytical Method: CVAA

Concentration Units: µg/L

	Initial Calibration Verification				Continuing Calibration Verification						
	ID: ICV44				ID: CCV33				ID: CCV34		
Analyte	True	Found	%R	%RSD	True	Found	%R	%RSD	Found	%R	%RSD
Mercury	4.0	3.8	96		5.0	5.1	102		5.1	102	

FORM 2 - IN

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: ARC Sayrevill MA No. : S DG No.: Q3084

Initial Calibration Verification Source : MP87328

Continuing Calibration Verification Source : MP87330

Run Batch: LB137291 Analytical Method: CVAA

Concentration Units: µg/L

	Initial Calibration Verification				Continuing Calibration Verification						
	ID:				ID: CCV35				ID:		
Analyte	True	Found	%R	%RSD	True	Found	%R	%RSD	Found	%R	%RSD
Mercury					5.0	5.1	102				

FORM 3 - IN
BLANKS

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: ARC Sayrevil MA No. : SDG No.: Q3084

Preparation Blank Matrix : Water

Preparation Blank Concentration Units (µg/L, mg/L, mg/kg dry weight, or µg): ug/L

Analytical Method: CVAA Preparation Batch: PB169817

Run Batch: LB137291 Preparation Method: 7470A

Analyte	Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank/Leachate Extraction Blank	
	ID: ICB44	Q	ID: CCB33	Q	ID: CCB34	Q	ID: CCB35	Q	ID: PBW817	Q
Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U

EPA SAMPLE NO.

PMW-2(20250911)S

FORM 5A - IN

MATRIX SPIKE SAMPLE RECOVERY

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: ARC Sayrevil MA No. : SDG No.: Q3084

Matrix : Water Analytical Method: CVAA

% Solids:

Concentration Units (µg/L, mg/L or mg/kg dry weight): ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	Q	Sample Result (SR)	Q	Spike Added (SA)	%R	Q
Mercury	75 - 125	1.1		0.2	U	1.0	105	

EPA SAMPLE NO.

PMW-2(20250911)D

FORM 6 - IN
DUPLICATES

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: ARC Sayrevill MA No. : SDG No.: Q3084

Matrix : Water Analytical Method: CVAA

% Solids:

Concentration Units (µg/L, mg/L or mg/kg dry weight): ug/L

Analyte	Control Limit	Sample (S)	Q	Duplicate (D)	Q	RPD	Q
Mercury	0.2	0.2	U	0.045	J		

FORM 9-IN

METHOD DETECTION LIMIT

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: ARC Say MA No.: SDG No.: Q3084

Analytical Method: CVAA Instrument ID: CV1

Preparation Method: 7470A

Concentration Units (µg/L, µg or mg/kg): ug/L

Analyte	Wavelength/Mass	MDL	Date Analyzed
Mercury	253.70	0.022	02/12/2025

FORM 12-IN

ANALYSIS LOG

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: ARC Sayre MA No.: SDG No.: Q3084

Instrument ID: CV1 Analytical Method: CVAA

Start Date: 09/24/2025 End Date: 09/24/2025

Run Batch: LB137291

EPA Sample No.	D/F	Time	Analytes																									
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN		
S0	1.0	1342															X											
S01	1.0	1344															X											
S02	1.0	1349															X											
S03	1.0	1354															X											
S04	1.0	1359															X											
S05	1.0	1404															X											
ICV44	1.0	1410															X											
ICB44	1.0	1412															X											
CCV33	1.0	1415															X											
CCB33	1.0	1417															X											
PBW817	1.0	1422															X											
PMW-9S(202	1.0	1424															X											
PMW-9D(202	1.0	1426															X											
PMW-8D(202	1.0	1429															X											
PMW-8S(202	1.0	1431															X											
FB(2025090	1.0	1433															X											
PMW-6(2025	1.0	1435															X											
PMW-3(2025	1.0	1438															X											
PMW-7S(202	1.0	1440															X											
PMW-7D(202	1.0	1442															X											
DUP(2025091	1.0	1445															X											
PMW-10(202	1.0	1447															X											
FB(2025091	1.0	1449															X											
PMW-4(2025	1.0	1452															X											
MW-1(MCUA)	1.0	1454															X											
MW-2(MCUA)	1.0	1456															X											
PMW-1(2025	1.0	1459															X											
PMW-5(2025	1.0	1501															X											
PMW-2(2025	1.0	1503															X											
PMW-2(2025	1.0	1506															X											
CCV34	1.0	1508															X											
CCB34	1.0	1510															X											
PMW-2(2025	1.0	1512															X											
FB(2025091	1.0	1515															X											
EB(2025091	1.0	1517															X											
CCV35	1.0	1521															X											
CCB35	1.0	1523															X											

FORM 15-IN

INITIAL CALIBRATION

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: ARC Sayrevi MA No.: _____ SDG No.: Q3084

Instrument ID: CV1 Start Date: 09/24/2025

Analytical Method: CVAA Run Batch: LB137291

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Mercury	0	0.0	0	0.2	0.22	9	2.5	2.3	-7

FORM 15-IN

INITIAL CALIBRATION

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: ARC Sayrevi MA No.: SDG No.: Q3084

Instrument ID: CV1 Start Date: 09/24/2025

Analytical Method: CVAA Run Batch: LB137291

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Mercury	5	5.2	3	7.5	7.9	5	10	9.6	-4

FORM 16-IN

INITIAL CALIBRATION SUMMARY

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: ARC Sayreville MA No: SDG No.: Q3084

Instrument ID: CV1 Start Date : 09/24/2025

Analytical Method: CVAA Run Batch : LB137291

Analyte	Corr. Coeff.	Slope	Intercept	Calib. Type	Weighting
Mercury	0.998000	0.000365	-0.022200	Lin. Reg	NONE

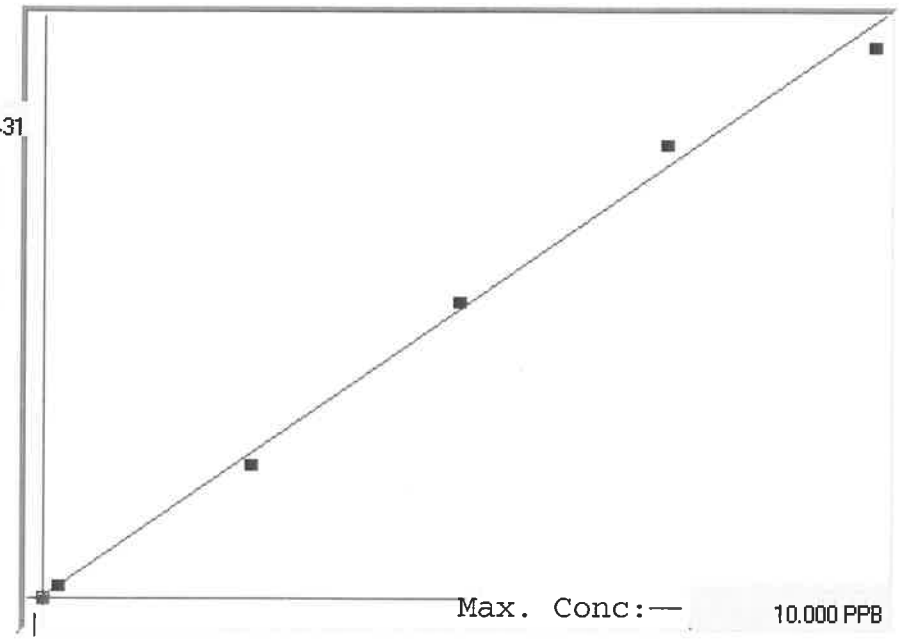
Reviewed By:jaswal
On:9/24/2025 4:47:34 PM
Inst Id :CV1

LB137291

SFAM01.1

INSTRUMENT ID: CV1

Linear



A= 0.0000e+000

B= 3.6462e-004 Slop

C= -2.2156e-002

y= intercept

Rho= 0.9977310

Accept=Accepted

MB
09/24/2025

Std ID	Conc.	Calc.	Dev.	Mean	SD or %RSD	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0.00	0.00	-0.04	-0.04	-59	0.00	-59				
0.05	0.05									
0.20	0.20	0.21	0.01	660	0.0 %	660				
2.50	2.50	2.33	-0.16	6468	0.0 %	6468				
5.00	5.00	5.16	0.16	14234	0.0 %	14234				
7.50	7.50	7.90	0.40	21744	0.0 %	21744				
10.0	10.00	9.61	-0.38	26431	0.0 %	26431				

3/61)

-7

MB
09/24/25

Reviewed By:jaswal
On:9/24/2025 4:47:34 PM
Inst Id :CV1

LB137291

INSTRUMENT ID CV1

Sample ID	Extended ID	µ Abs.	Conc.	Stnd Conc	Method	Units	Date	Type
0	S0	-59	-	0	SFAM01.1	PPB	9/24/2025 13:42	Std
0.2	S01	660	-	0.2	SFAM01.1	PPB	9/24/2025 13:44	Std
2.5	S02	6468	-	2.5	SFAM01.1	PPB	9/24/2025 13:49	Std
5	S03	14234	-	5	SFAM01.1	PPB	9/24/2025 13:54	Std
7.5	S04	21744	-	7.5	SFAM01.1	PPB	9/24/2025 13:59	Std
10	S05	26431	-	10	SFAM01.1	PPB	9/24/2025 14:04	Std
ICV44	ICV44	10593	3.8402	-	SFAM01.1	PPB	9/24/2025 14:10	SMPL
ICB44	ICB44	-190	-0.0914	-	SFAM01.1	PPB	9/24/2025 14:12	SMPL
CCV33	CCV33	14026	5.092	-	SFAM01.1	PPB	9/24/2025 14:15	SMPL
CCB33	CCB33	-222	-0.1031	-	SFAM01.1	PPB	9/24/2025 14:17	SMPL
PB169817BL	PBW817	7	-0.0196	-	SFAM01.1	PPB	9/24/2025 14:22	SMPL
Q3084-01	PMW-9S(20250909)	366	0.1113	-	SFAM01.1	PPB	9/24/2025 14:24	SMPL
Q3084-02	PMW-9D(20250909)	1216	0.4212	-	SFAM01.1	PPB	9/24/2025 14:26	SMPL
Q3084-03	PMW-8D(20250909)	371	0.1131	-	SFAM01.1	PPB	9/24/2025 14:29	SMPL
Q3084-04	PMW-8S(20250909)	216	0.0566	-	SFAM01.1	PPB	9/24/2025 14:31	SMPL
Q3084-05	FB(20250909)	-127	-0.0685	-	SFAM01.1	PPB	9/24/2025 14:33	SMPL
Q3084-06	PMW-6(20250910)	631	0.2079	-	SFAM01.1	PPB	9/24/2025 14:35	SMPL
Q3084-07	PMW-3(20250910)	190	0.0471	-	SFAM01.1	PPB	9/24/2025 14:38	SMPL
Q3084-08	PMW-7S(20250910)	-7	-0.0247	-	SFAM01.1	PPB	9/24/2025 14:40	SMPL
Q3084-09	PMW-7D(20250910)	68	0.0026	-	SFAM01.1	PPB	9/24/2025 14:42	SMPL
Q3084-10	DUP(20250910)	40	-0.0076	-	SFAM01.1	PPB	9/24/2025 14:45	SMPL
Q3084-11	PMW-10(20250910)	426	0.1332	-	SFAM01.1	PPB	9/24/2025 14:47	SMPL
Q3084-12	FB(20250910)	-95	-0.0568	-	SFAM01.1	PPB	9/24/2025 14:49	SMPL
Q3084-13	PMW-4(20250911)	116	0.0201	-	SFAM01.1	PPB	9/24/2025 14:52	SMPL
Q3084-14	MW-1(MCUA)(20250911)	-31	-0.0335	-	SFAM01.1	PPB	9/24/2025 14:54	SMPL
Q3084-15	MW-2(MCUA)(20250911)	-9	-0.0254	-	SFAM01.1	PPB	9/24/2025 14:56	SMPL
Q3084-16	PMW-1(20250911)	129	0.0249	-	SFAM01.1	PPB	9/24/2025 14:59	SMPL
Q3084-17	PMW-5(20250911)	116	0.0201	-	SFAM01.1	PPB	9/24/2025 15:01	SMPL
Q3084-18	PMW-2(20250911)	87	0.0096	-	SFAM01.1	PPB	9/24/2025 15:03	SMPL
Q3084-19	PMW-2(20250911)S	2944	1.0513	-	SFAM01.1	PPB	9/24/2025 15:06	SMPL
CCV34	CCV34	14065	5.1062	-	SFAM01.1	PPB	9/24/2025 15:08	SMPL
CCB34	CCB34	-222	-0.1031	-	SFAM01.1	PPB	9/24/2025 15:10	SMPL
Q3084-20	PMW-2(20250911)D	183	0.0446	-	SFAM01.1	PPB	9/24/2025 15:12	SMPL
Q3084-21	FB(20250911)	-38	-0.036	-	SFAM01.1	PPB	9/24/2025 15:15	SMPL
Q3084-22	EB(20250911)	25	-0.013	-	SFAM01.1	PPB	9/24/2025 15:17	SMPL
CCV35	CCV35	14107	5.1215	-	SFAM01.1	PPB	9/24/2025 15:21	SMPL
CCB35	CCB35	-159	-0.0801	-	SFAM01.1	PPB	9/24/2025 15:23	SMPL

Alliance TECHNICAL GROUP

Water Mercury Preparation Sheet

PB169817

SOP ID : M7470A-Mercury-20, MSFAM01.1-Mercury in Water-2

SDG No : NA

Start Digest Date: 09/24/2025 **Time :** 10:35 **Temp :** 94 °C

Matrix : WATER

End Digest Date: 09/24/2025 **Time :** 12:35 **Temp :** 95 °C

Pippete ID: HG A

Digestion tube ID: M60

Balance ID : N/A

Block thermometer ID: MET-DIG. #1

Filter paper ID : N/A

Dig Technician Signature: MB

pH Strip ID : M6069

Supervisor Signature: MH

Hood ID : #1

Temp : **1.** 94°C **2.** N/A

Block ID: **1.** HOT BLOCK HG -01 **2.** N/A

Standared Name	MLS USED	STD REF. # FROM LOG
ICV	100mL	MP87328
CCV	100mL	MP87330
Matrix Spike	040mL	MP87319
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	MP87071
KMnO4 (5%)	15mL	MP87072
K2S2O8 (5%)	8mL	MP87073
Hydroxylamine HCL (12%)	6mL	MP87149
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	MP87321
0.05 ppb	S0.05	N/A	N/A
0.2 ppb	S0.2	100mL	MP87322
2.5 ppb	S2.5	100mL	MP87323
5.0 ppb	S5.0	100mL	MP87324
7.5 ppb	S7.5	100mL	MP87325
10.0 ppb	S10.0	100mL	MP87327
ICV	ICV	100mL	MP87328
ICB	ICB	100mL	MP87329
CCV	CCV	100mL	MP87330
CCB	CCB	100mL	MP87331
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
09/24/25 13:25	MB Bench dry	MB metrum
	Preparation Group	**Analysis Group**

Alliance TECHNICAL GROUP

Water Mercury Preparation Sheet

PB169817

Lab Sample ID	Client Sample ID	Initial Vol (ml)	Final Vol (ml)	pH	Comment	Prep Pos
PB169817BL	PBW817	100	100	<2	N/A	3-1
Q3084-01	PMW-9S(20250909)	100	100	<2	N/A	2
Q3084-02	PMW-9D(20250909)	100	100	<2	N/A	3
Q3084-03	PMW-8D(20250909)	100	100	<2	N/A	4
Q3084-04	PMW-8S(20250909)	100	100	<2	N/A	5
Q3084-05	FB(20250909)	100	100	<2	N/A	6
Q3084-06	PMW-6(20250910)	100	100	<2	N/A	7
Q3084-07	PMW-3(20250910)	100	100	<2	N/A	8
Q3084-08	PMW-7S(20250910)	100	100	<2	N/A	9
Q3084-09	PMW-7D(20250910)	100	100	<2	N/A	10
Q3084-10	DUP(20250910)	100	100	<2	N/A	11
Q3084-11	PMW-10(20250910)	100	100	<2	N/A	12
Q3084-12	FB(20250910)	100	100	<2	N/A	13
Q3084-13	PMW-4(20250911)	100	100	<2	N/A	14
Q3084-14	MW-1(MCUA)(20250911)	100	100	<2	N/A	15
Q3084-15	MW-2(MCUA)(20250911)	100	100	<2	N/A	16
Q3084-16	PMW-1(20250911)	100	100	<2	N/A	17
Q3084-17	PMW-5(20250911)	100	100	<2	N/A	18
Q3084-18	PMW-2(20250911)	100	100	<2	N/A	19
Q3084-19	Q3084-18MS	100	100	<2	MP87319	20
Q3084-20	Q3084-18MSD	100	100	<2	N/A	21
Q3084-21	FB(20250911)	100	100	<2	N/A	22
Q3084-22	EB(20250911)	100	100	<2	N/A	23

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Prep Standard - Chemical Standard Summary

Order ID : Q3084

Test : Mercury

Prepbatch ID : PB169817,

Sequence ID/Qc Batch ID: LB137291,

Standard ID :
MP87071,MP87072,MP87073,MP87149,MP87319,MP87321,MP87322,MP87323,MP87324,MP87325,MP87327,MP87328,MP87329,MP87330,MP87331,MP87335,

Chemical ID :
M4397,M4916,M5062,M5882,M5884,M6157,M6161,M6187,M6196,M6200,W3112,

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3965	2:1 H2SO4 : HNO3	MP87071	09/04/2025	11/07/2025	Mohan Bera	None	None	Sarabjit Jaswal 09/04/2025

FROM 1600.00000ml of M6157 + 800.00000ml of M6187 = Final Quantity: 3200.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
65	POTASSIUM PERMANGANATE SOLUTION 5 %	MP87072	09/04/2025	03/04/2026	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal 09/04/2025

FROM 100.00000gram of M4916 + 2000.00000ml of W3112 = Final Quantity: 2000.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
66	POTASSIUM PERSULFATE SOLUTION 5 %	MP87073	09/04/2025	03/05/2026	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal 09/04/2025

FROM 100.00000ml of M4397 + 2000.00000ml of W3112 = Final Quantity: 2000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
67	SODIUM CHLORIDE - HYDROXYL- CHLORIDE SOLUTION	MP87149	09/09/2025	02/03/2026	Mohan Bera	METALS_SCALE_2 (M SC-2)	None	Sarabjit Jaswal 09/10/2025

FROM 2000.00000ml of W3112 + 240.00000gram of M5884 + 240.00000ml of M6196 = Final Quantity: 2000.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
871	MERCURY INTERMEDIATE B 250PPB WORKING STD.	MP87319	09/24/2025	09/25/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 09/25/2025

FROM 1.00000ml of M6187 + 2.50000ml of M5062 + 96.50000ml of W3112 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1340	Hg 0.00 PPB STD	MP87321	09/24/2025	09/25/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 09/25/2025

FROM 2.50000ml of M6187 + 247.50000ml of W3112 = Final Quantity: 250.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1341	Hg 0.2 PPB STD	MP87322	09/24/2025	09/25/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 09/25/2025

FROM 2.50000ml of M6187 + 247.30000ml of W3112 + 0.20000ml of MP87319 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1342	Hg 2.5 PPB STD	MP87323	09/24/2025	09/25/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 09/25/2025

FROM 2.50000ml of M6187 + 245.00000ml of W3112 + 2.50000ml of MP87319 = Final Quantity: 250.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1343	Hg 5.0 PPB STD	MP87324	09/24/2025	09/25/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 09/25/2025

FROM 2.50000ml of M6187 + 242.50000ml of W3112 + 5.00000ml of MP87319 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1344	Hg 7.5 PPB STD	MP87325	09/24/2025	09/25/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 09/25/2025

FROM 2.50000ml of M6187 + 240.00000ml of W3112 + 7.50000ml of MP87319 = Final Quantity: 250.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1345	Hg 10.0 PPB STD	MP87327	09/24/2025	09/25/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 09/25/2025

FROM 2.50000ml of M6187 + 237.50000ml of W3112 + 10.00000ml of MP87319 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1346	Hg ICV SOLUTION	MP87328	09/24/2025	09/25/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 09/25/2025

FROM 2.50000ml of M6161 + 2.50000ml of M6187 + 450.00000ml of W3112 = Final Quantity: 250.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1351	ICB (Hg 0.00 PPB SOLUTION)	MP87329	09/24/2025	09/25/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 09/25/2025

FROM 2.50000ml of M6187 + 247.50000ml of W3112 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1358	CCV (Hg 5.0 PPB SOLUTION)	MP87330	09/24/2025	09/25/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 09/25/2025

FROM 485.00000ml of W3112 + 5.00000ml of M6187 + 10.00000ml of MP87319 = Final Quantity: 500.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1352	CCB (Hg 0.00 PPB SOLUTION)	MP87331	09/24/2025	09/25/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 09/25/2025

FROM 495.00000ml of W3112 + 5.00000ml of M6187 = Final Quantity: 500.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
68	STANNOUS CHLORIDE SOLUTION	MP87335	09/24/2025	09/25/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal 09/25/2025

FROM 450.00000ml of W3112 + 50.00000gram of M5882 + 50.00000ml of M6200 = Final Quantity: 500.000 ml

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-3238-05 / Potassium Persulfate (2.5kg)	0000227540	09/24/2025	08/16/2019 / RICHARD	07/17/2019 / RICHARD	M4397

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-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)	24i1262013	11/07/2025	05/07/2025 / RUPESH	02/18/2025 / Mohan	M6157

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	ICV-5 / ICV (HG) STOCK SOLN	ICV 5 0415	12/31/2025	05/01/2025 / mohan	03/30/2024 / mohan	M6161

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)	24H0162012	01/28/2026	08/29/2025 / Sagar	08/08/2025 / Sagar	M6187

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	H330-500 / HYDROXYLAMINE HYDROCHLORIDE ACS 500G	243373	02/03/2026	09/04/2025 / mohan	08/04/2025 / mohan	M6196

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)	24D1562005	02/10/2026	09/11/2025 / Sagar	08/25/2025 / Sagar	M6200

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

Certificate of Analysis

ThermoFisher SCIENTIFIC

M5882 M3

Certificate of Analysis

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Fair Lawn, NJ 07410
201.796.7100 tel
201.796.1329 fax

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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.

Potassium Permanganate
BAKER ANALYZED® A.C.S. Reagent
Suitable for Mercury Determination

avantor™ | J.T.Baker®

M4397
Supplied – 07.17.19
Opened – 08.16.19
exp – 09.24.25

Material No.: 3227-05
Batch No.: 0000227540
Manufactured Date: 2018/09/26
Retest Date: 2025/09/24
Revision No: 1

Certificate of Analysis

Meets ACS Reagent Chemical Requirements,

Test	Specification	Result
ACS - Assay ($KMnO_4$)	>= 99.0 %	99.0
ACS - Insoluble Matter	<= 0.2 %	< 0.1
ACS - Chloride and Chlorate (as Cl)	<= 0.005 %	0.005
ACS - Sulfate (SO_4)	<= 0.02 %	0.02
Trace Impurities - Mercury (Hg)	<= 0.050 ppm	0.004

For Laboratory, Research or Manufacturing Use

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

RS
08.16.19

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

ThermoFisher SCIENTIFIC

M4913-16

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Certificate of Analysis

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

M5062
M5063
M3

1.0 ACCREDITATION / REGISTRATION

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

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	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:

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

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

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

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{1/2}$ 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 Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

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 HNO_3. 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% HNO_3 / LDPE container, stable in 10% HNO_3 packaged in borosilicate glass. 1-100 ppm levels stable in 7% HNO_3 packaged in borosilicate glass. 1000-10,000 ppm solutions are chemically stable for years in 5-10% HNO_3 / LDPE container.

Hg Containing Samples (Preparation and Solution) - Metal (soluble in HNO_3); Oxide (Soluble in HNO_3); 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

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

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

MT884
MB

avantor™ | J.T.Baker®

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)	≥ 99.0 %	100.0 %
pH of 5% Solution at 25°C	5.0 - 9.0	6.3
Insoluble Matter	≤ 0.005 %	0.003 %
Iodide (I)	≤ 0.002 %	< 0.002 %
Bromide (Br)	≤ 0.01 %	< 0.01 %
Chlorate and Nitrate (as NO_3)	≤ 0.003 %	< 0.001 %
ACS - Phosphate (PO_4)	≤ 5 ppm	< 5 ppm
Sulfate (SO_4)	≤ 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)	≤ 0.002 %	< 0.001 %
Magnesium (Mg)	≤ 0.001 %	< 0.001 %
Potassium (K)	≤ 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

James T 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 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 | J.T.Baker

M615 MB

Material No.: 9673-33
Batch No.: 24I1262013
Manufactured Date: 2024-08-07
Retest Date:2029-08-06
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS - Assay (H_2SO_4)	95.0 - 98.0 %	96.2 %
Appearance	Passes Test	Passes Test
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 3 ppm	<1 ppm
ACS - Substances Reducing Permanganate(as SO2)	<= 2 ppm	<2 ppm
Ammonium (NH_4)	<= 1 ppm	<1 ppm
Chloride (Cl)	<= 0.1 ppm	<0.1 ppm
Nitrate (NO_3)	<= 0.2 ppm	0.1 ppm
Phosphate (PO_4)	<= 0.5 ppm	<0.1 ppm
Trace Impurities - Aluminum (Al)	<= 30.0 ppb	<5.0 ppb
Arsenic & Antimony (as As)	<= 4.0 ppb	<2.0 ppb
Trace Impurities - Boron (B)	<= 10.0 ppb	<5.0 ppb
Trace Impurities - Cadmium (Cd)	<= 2.0 ppb	<1.0 ppb
Trace Impurities - Chromium (Cr)	<= 6.0 ppb	<1.0 ppb
Trace Impurities - Cobalt (Co)	<= 0.5 ppb	<0.3 ppb
Trace Impurities - Copper (Cu)	<= 1.0 ppb	<1.0 ppb
Trace Impurities - Gold (Au)	<= 10.0 ppb	<5.0 ppb
Heavy Metals (as Pb)	<= 500.0 ppb	<100.0 ppb
Trace Impurities - Iron (Fe)	<= 50.0 ppb	<1.0 ppb
Trace Impurities - Lead (Pb)	<= 0.5 ppb	<0.5 ppb
Trace Impurities - Magnesium (Mg)	<= 7.0 ppb	<1.0 ppb
Trace Impurities - Manganese (Mn)	<= 1.0 ppb	<1.0 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	<10.0 ppb
Trace Impurities - Selenium (Se)	<= 50.0 ppb	7.2 ppb
Trace Impurities - Silicon (Si)	<= 100.0 ppb	12.8 ppb
Trace Impurities - Silver (Ag)	<= 1.0 ppb	<1.0 ppb

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

avantor™ | J.T.Baker

Material No.: 9673-33
Batch No.: 24I1262013

Test	Specification	Result
Trace Impurities - Sodium (Na)	<= 500.0 ppb	<5.0 ppb
Trace Impurities - Strontium (Sr)	<= 5.0 ppb	<1.0 ppb
Trace Impurities - Tin (Sn)	<= 5.0 ppb	1.1 ppb
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	<1.0 ppb

For Laboratory,Research,or Manufacturing Use

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

J Croak

Jamie Croak
Director Quality Operations, Bioscience Production

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

Nitric Acid 69%
CMOS

M6187
R.D :- 08/08/25

avantor™ | J.T.Baker®

Material No.: 9606-03
Batch No.: 24H0162012
Manufactured Date: 2024-06-28
Retest Date: 2029-06-27
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	< 1.0 ppb
Trace Impurities - Boron (B)	≤ 10.0 ppb	0.1 ppb
Trace Impurities - Cadmium (Cd)	≤ 50 ppb	< 1 ppb
Trace Impurities - Calcium (Ca)	≤ 50.0 ppb	0.3 ppb
Trace Impurities - Chromium (Cr)	≤ 30.0 ppb	0.1 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	< 1 ppb
Trace Impurities - Gold (Au)	≤ 20 ppb	< 1 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities - Iron (Fe)	≤ 40.0 ppb	< 1.0 ppb
Trace Impurities - Lead (Pb)	≤ 20.0 ppb	< 1.0 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	< 1.0 ppb

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

Material No.: 9606-03
Batch No.: 24H0162012

Test	Specification	Result
Trace Impurities – Niobium (Nb)	≤ 50.0 ppb	< 1.0 ppb
Trace Impurities – Potassium (K)	≤ 50 ppb	< 1 ppb
Trace Impurities – Silicon (Si)	≤ 50 ppb	1 ppb
Trace Impurities – Silver (Ag)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Sodium (Na)	≤ 150.0 ppb	< 1.0 ppb
Trace Impurities – Strontium (Sr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities – Tantalum (Ta)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Thallium (Tl)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Tin (Sn)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Titanium (Ti)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Vanadium (V)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Zinc (Zn)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Zirconium (Zr)	≤ 10.0 ppb	< 1.0 ppb
Particle Count – 0.5 µm and greater	≤ 60 par/ml	13 par/ml
Particle Count – 1.0 µm and greater	≤ 10 par/ml	5 par/ml

>>> Continued on page 3 >>>

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

Material No.: 9606-03
Batch No.: 24H0162012

Test	Specification	Result

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

M6200
R.0 → 08/25/25

avantor™ | J.T.Baker®

Material No.: 9530-33
Batch No.: 24D1562005
Manufactured Date: 2024-03-18
Retest Date: 2029-03-17
Revision No.: 0

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 ppm
ACS – Specific Gravity at 60°/60°F	1.185 – 1.192	1.192
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	< 5.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 3.0 ppb
Trace Impurities – Barium (Ba)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Beryllium (Be)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Bismuth (Bi)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Boron (B)	≤ 20.0 ppb	2.2 ppb
Trace Impurities – Cadmium (Cd)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	31.0 ppb
Trace Impurities – Chromium (Cr)	≤ 1.0 ppb	0.5 ppb
Trace Impurities – Cobalt (Co)	≤ 1.0 ppb	0.2 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	< 0.2 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 15 ppb	3 ppb

>>> Continued on page 2 >>>

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

avantor™ | J.T.Baker®

Material No.: 9530-33
Batch No.: 24D1562005

Test	Specification	Result
Trace Impurities - Lead (Pb)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities - Lithium (Li)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities - Magnesium (Mg)	≤ 10.0 ppb	2.2 ppb
Trace Impurities - Manganese (Mn)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities - Mercury (Hg)	≤ 0.5 ppb	< 0.1 ppb
Trace Impurities - Molybdenum (Mo)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities - Nickel (Ni)	≤ 4.0 ppb	0.2 ppb
Trace Impurities - Niobium (Nb)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities - Potassium (K)	≤ 9.0 ppb	< 1.0 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	< 0.3 ppb
Trace Impurities - Sodium (Na)	≤ 100.0 ppb	2.0 ppb
Trace Impurities - Strontium (Sr)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities - Tantalum (Ta)	≤ 1.0 ppb	< 0.9 ppb
Trace Impurities - Thallium (Tl)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities - Tin (Sn)	≤ 5.0 ppb	< 0.4 ppb
Trace Impurities - Titanium (Ti)	≤ 1.0 ppb	0.2 ppb
Trace Impurities - Vanadium (V)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities - Zinc (Zn)	≤ 5.0 ppb	< 0.2 ppb
Trace Impurities - Zirconium (Zr)	≤ 1.0 ppb	< 0.1 ppb

>>> Continued on page 3 >>>

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

avantor™ | J.T.Baker®

Material No.: 9530-33
Batch No.: 24D1562005

Test	Specification	Result

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

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

Jamie Croak
Director Quality Operations, Bioscience Production

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

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QCBatch ID # LB137291

Review By	mohan	Review On	9/24/2025 4:46:37 PM
Supervise By	jaswal	Supervise On	9/24/2025 4:47:34 PM

STD. NAME	STD REF.#
ICAL Standard	MP87321,MP87322,MP87323,MP87324,MP87325,MP87327
ICV Standard	MP87328
CCV Standard	MP87330
ICSA Standard	
CRI Standard	
LCS Standard	
Chk Standard	MP87329,MP87331,MP87335

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	09/24/25 13:42		mohan	OK
2	S0.2	S01	CAL2	09/24/25 13:44		mohan	OK
3	S2.5	S02	CAL3	09/24/25 13:49		mohan	OK
4	S5.0	S03	CAL4	09/24/25 13:54		mohan	OK
5	S7.5	S04	CAL5	09/24/25 13:59		mohan	OK
6	S10	S05	CAL6	09/24/25 14:04		mohan	OK
7	ICV44	ICV44	ICV	09/24/25 14:10		mohan	OK
8	ICB44	ICB44	ICB	09/24/25 14:12		mohan	OK
9	CCV33	CCV33	CCV	09/24/25 14:15		mohan	OK
10	CCB33	CCB33	CCB	09/24/25 14:17		mohan	OK
11	PB169817BL	PBW817	MB	09/24/25 14:22		mohan	OK
12	Q3084-01	PMW-9S(20250909)	SAM	09/24/25 14:24		mohan	OK
13	Q3084-02	PMW-9D(20250909)	SAM	09/24/25 14:26		mohan	OK
14	Q3084-03	PMW-8D(20250909)	SAM	09/24/25 14:29		mohan	OK
15	Q3084-04	PMW-8S(20250909)	SAM	09/24/25 14:31		mohan	OK
16	Q3084-05	FB(20250909)	SAM	09/24/25 14:33		mohan	OK
17	Q3084-06	PMW-6(20250910)	SAM	09/24/25 14:35		mohan	OK
18	Q3084-07	PMW-3(20250910)	SAM	09/24/25 14:38		mohan	OK

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Instrument ID: CV1

Daily Analysis Runlog For Sequence/QCBatch ID # LB137291

Review By	mohan	Review On	9/24/2025 4:46:37 PM
Supervise By	jaswal	Supervise On	9/24/2025 4:47:34 PM

STD. NAME	STD REF.#
ICAL Standard	MP87321,MP87322,MP87323,MP87324,MP87325,MP87327
ICV Standard	MP87328
CCV Standard	MP87330
ICSA Standard	
CRI Standard	
LCS Standard	
Chk Standard	MP87329,MP87331,MP87335

19	Q3084-08	PMW-7S(20250910)	SAM	09/24/25 14:40		mohan	OK
20	Q3084-09	PMW-7D(20250910)	SAM	09/24/25 14:42		mohan	OK
21	Q3084-10	DUP(20250910)	SAM	09/24/25 14:45		mohan	OK
22	Q3084-11	PMW-10(20250910)	SAM	09/24/25 14:47		mohan	OK
23	Q3084-12	FB(20250910)	SAM	09/24/25 14:49		mohan	OK
24	Q3084-13	PMW-4(20250911)	SAM	09/24/25 14:52		mohan	OK
25	Q3084-14	MW-1(MCUA)(202509	SAM	09/24/25 14:54		mohan	OK
26	Q3084-15	MW-2(MCUA)(202509	SAM	09/24/25 14:56		mohan	OK
27	Q3084-16	PMW-1(20250911)	SAM	09/24/25 14:59		mohan	OK
28	Q3084-17	PMW-5(20250911)	SAM	09/24/25 15:01		mohan	OK
29	Q3084-18	PMW-2(20250911)	SAM	09/24/25 15:03		mohan	OK
30	Q3084-19	PMW-2(20250911)S	MS	09/24/25 15:06		mohan	OK
31	CCV34	CCV34	CCV	09/24/25 15:08		mohan	OK
32	CCB34	CCB34	CCB	09/24/25 15:10		mohan	OK
33	Q3084-20	PMW-2(20250911)D	DUP	09/24/25 15:12		mohan	OK
34	Q3084-21	FB(20250911)	SAM	09/24/25 15:15		mohan	OK
35	Q3084-22	EB(20250911)	SAM	09/24/25 15:17		mohan	OK
36	CCV35	CCV35	CCV	09/24/25 15:21		mohan	OK
37	CCB35	CCB35	CCB	09/24/25 15:23		mohan	OK