

FORM 1 - IN
INORGANIC ANALYSIS DATA SHEET

YE8C9

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

Lab Code: ACE Case No.: 51955 MA No. : SDG No.: YE8D0

Matrix: Water Lab Sample ID: Q1160-01

% Solids: Date Received: 01/22/2025

Analytical Method: ICP_AES

Concentration Units ($\mu\text{g/L}$, mg/L , mg/kg dry weight, μg , or $\mu\text{g/cm}^2$): ug/L

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7429-90-5	Aluminum	1700	*	03/05/2025	1629
7440-36-0	Antimony	60	U	03/05/2025	1629
7440-38-2	Arsenic	10		03/05/2025	1629
7440-39-3	Barium	230		03/05/2025	1629
7440-41-7	Beryllium	5.0	U	03/05/2025	1629
7440-43-9	Cadmium	5.0	U	03/05/2025	1629
7440-70-2	Calcium	7200		03/05/2025	1629
7440-47-3	Chromium	3.6	J	03/05/2025	1629
7440-48-4	Cobalt	3.1	J	03/05/2025	1629
7440-50-8	Copper	13	J	03/05/2025	1629
7439-89-6	Iron	4100		03/05/2025	1629
7439-92-1	Lead	10	U	03/05/2025	1629
7439-95-4	Magnesium	5800		03/05/2025	1629
7439-96-5	Manganese	87		03/05/2025	1629
7440-02-0	Nickel	8.9	J	03/05/2025	1629
7440-09-7	Potassium	5000	U	03/05/2025	1629
7782-49-2	Selenium	35	U	03/05/2025	1629
7440-22-4	Silver	10	U	03/05/2025	1629
7440-23-5	Sodium	6900		03/05/2025	1629
7440-28-0	Thallium	25	U	03/05/2025	1629
7440-62-2	Vanadium	3.9	J	03/05/2025	1629
7440-66-6	Zinc	200		03/05/2025	1629

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

Comments:

FORM 1 - IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

YE8D0

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011
 Lab Code: ACE Case No.: 51955 MA No. : SDG No.: YE8D0
 Matrix: Water Lab Sample ID: Q1160-04
 % Solids: Date Received: 01/23/2025
 Analytical Method: ICP_AES
 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
7429-90-5	Aluminum	200	*	03/05/2025	1645
7440-36-0	Antimony	60	U	03/05/2025	1645
7440-38-2	Arsenic	10	U	03/05/2025	1645
7440-39-3	Barium	220		03/05/2025	1645
7440-41-7	Beryllium	5.0	U	03/05/2025	1645
7440-43-9	Cadmium	5.0	U	03/05/2025	1645
7440-70-2	Calcium	7500		03/05/2025	1645
7440-47-3	Chromium	10	U	03/05/2025	1645
7440-48-4	Cobalt	1.9	J	03/05/2025	1645
7440-50-8	Copper	25	U	03/05/2025	1645
7439-89-6	Iron	360		03/05/2025	1645
7439-92-1	Lead	10	U	03/05/2025	1645
7439-95-4	Magnesium	6000		03/05/2025	1645
7439-96-5	Manganese	47		03/05/2025	1645
7440-02-0	Nickel	3.3	J	03/05/2025	1645
7440-09-7	Potassium	5000	U	03/05/2025	1645
7782-49-2	Selenium	35	U	03/05/2025	1645
7440-22-4	Silver	10	U	03/05/2025	1645
7440-23-5	Sodium	5800		03/05/2025	1645
7440-28-0	Thallium	25	U	03/05/2025	1645
7440-62-2	Vanadium	50	U	03/05/2025	1645
7440-66-6	Zinc	110		03/05/2025	1645

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

Comments:

FORM 1 - IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

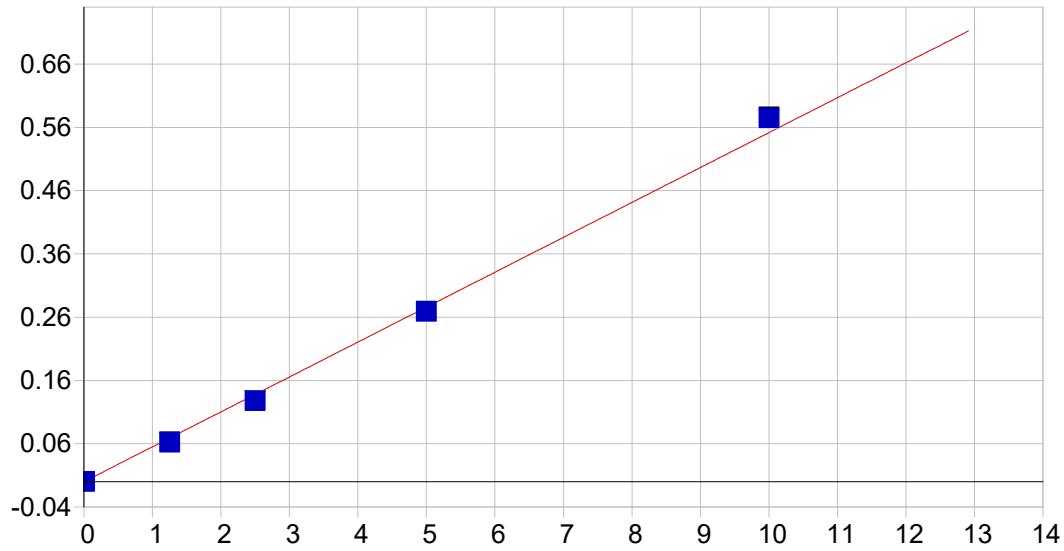
YE8D3

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011
 Lab Code: ACE Case No.: 51955 MA No. : SDG No.: YE8D0
 Matrix: Water Lab Sample ID: Q1160-05
 % Solids: Date Received: 01/23/2025
 Analytical Method: ICP_AES
 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
7429-90-5	Aluminum	200	U*	03/05/2025	1649
7440-36-0	Antimony	14	J	03/05/2025	1649
7440-38-2	Arsenic	12		03/05/2025	1649
7440-39-3	Barium	190	J	03/05/2025	1649
7440-41-7	Beryllium	5.0	U	03/05/2025	1649
7440-43-9	Cadmium	5.0	U	03/05/2025	1649
7440-70-2	Calcium	32000		03/05/2025	1649
7440-47-3	Chromium	10	U	03/05/2025	1649
7440-48-4	Cobalt	1.6	J	03/05/2025	1649
7440-50-8	Copper	25	U	03/05/2025	1649
7439-89-6	Iron	100	U	03/05/2025	1649
7439-92-1	Lead	10	U	03/05/2025	1649
7439-95-4	Magnesium	9000		03/05/2025	1649
7439-96-5	Manganese	350		03/05/2025	1649
7440-02-0	Nickel	21	J	03/05/2025	1649
7440-09-7	Potassium	5000	U	03/05/2025	1649
7782-49-2	Selenium	35	U	03/05/2025	1649
7440-22-4	Silver	10	U	03/05/2025	1649
7440-23-5	Sodium	4100	J	03/05/2025	1649
7440-28-0	Thallium	25	U	03/05/2025	1649
7440-62-2	Vanadium	50	U	03/05/2025	1649
7440-66-6	Zinc	43	J	03/05/2025	1649

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

Comments:

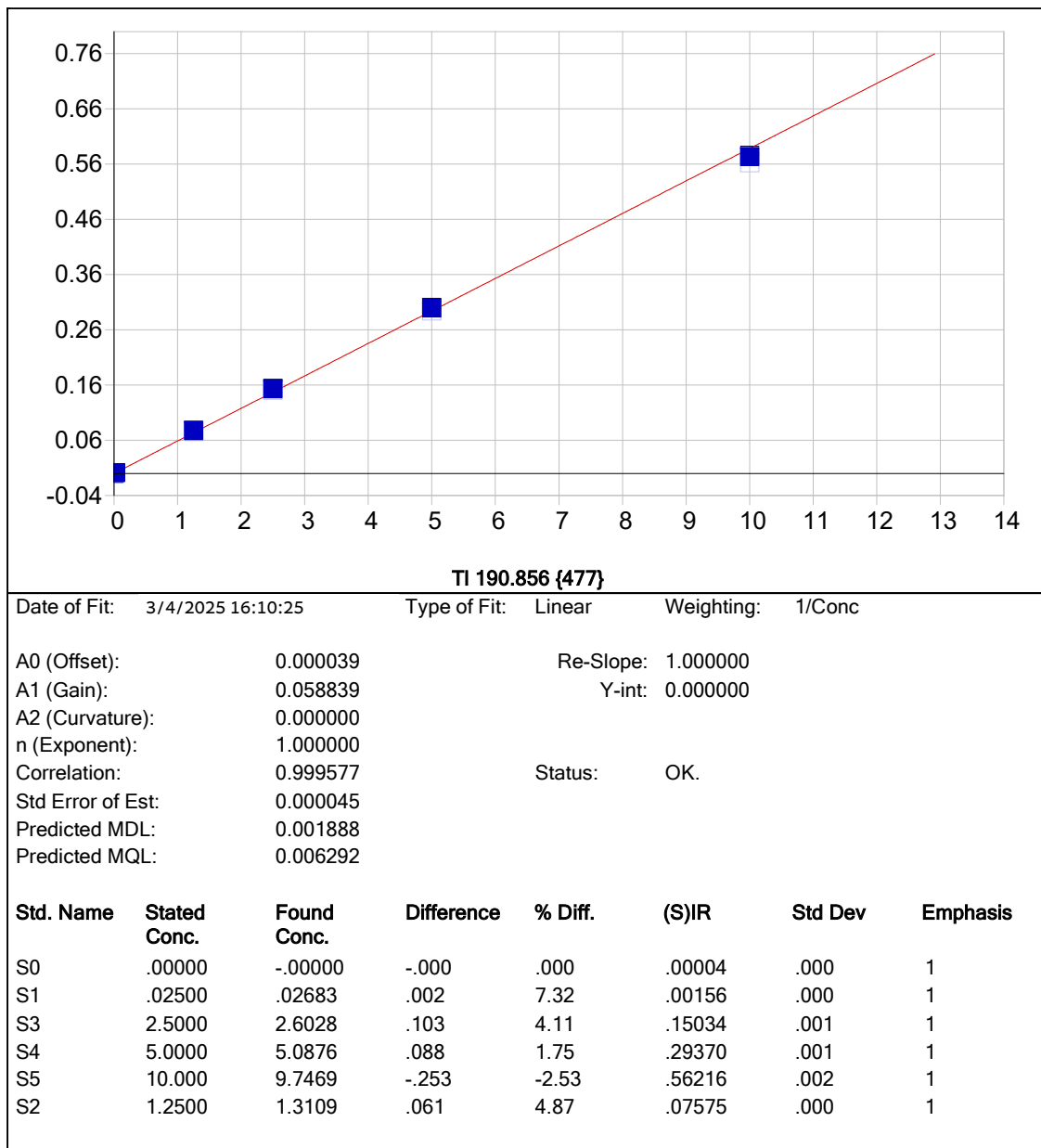


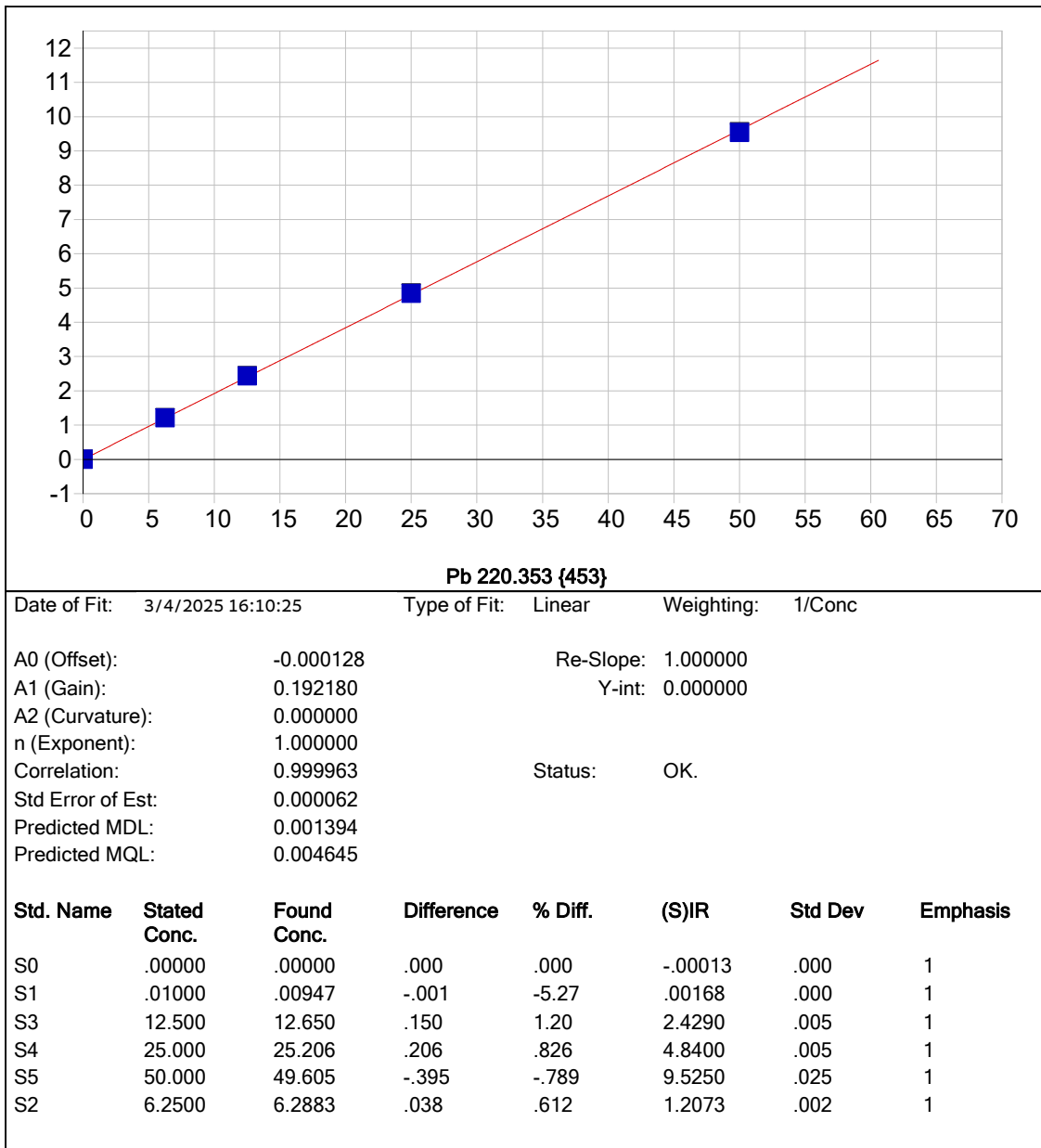
As 189.042 {479}

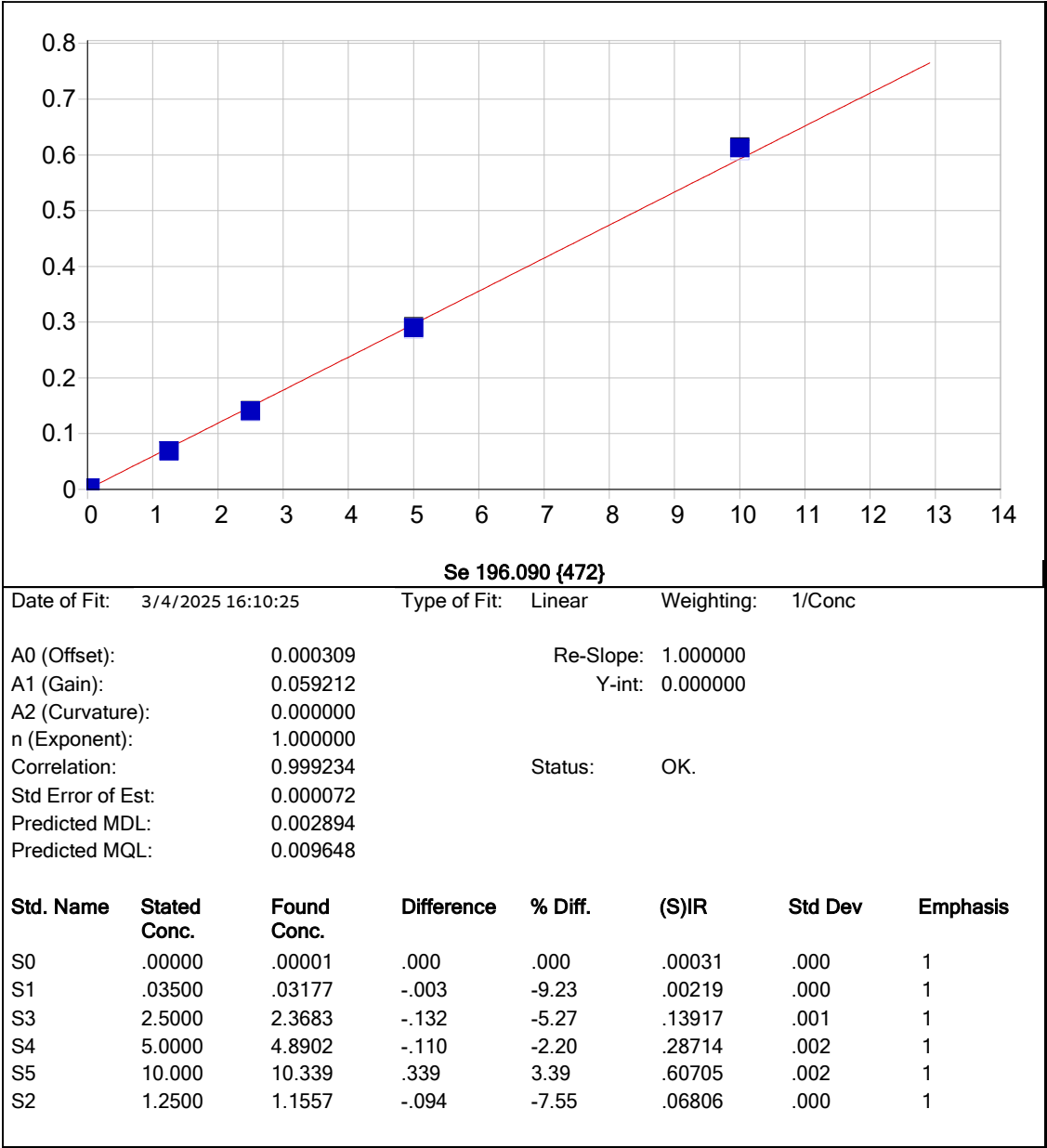
Date of Fit: 3/4/2025 16:10:25 Type of Fit: Linear Weighting: 1/Conc

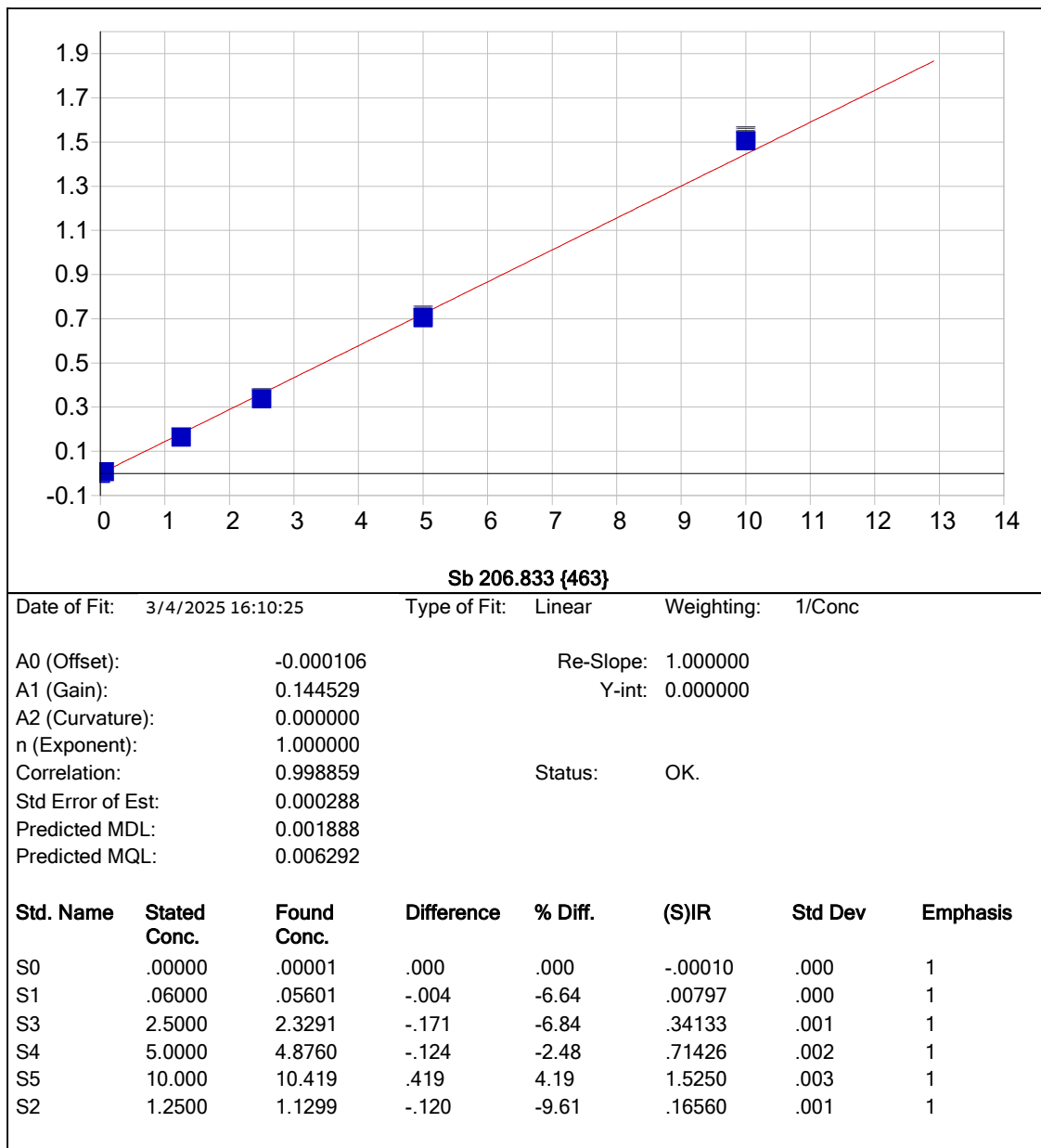
A0 (Offset): -0.000055 Re-Slope: 1.000000
A1 (Gain): 0.055176 Y-int: 0.000000
A2 (Curvature): 0.000000
n (Exponent): 1.000000
Correlation: 0.998803 Status: OK.
Std Error of Est: 0.000045
Predicted MDL: 0.002562
Predicted MQL: 0.008541

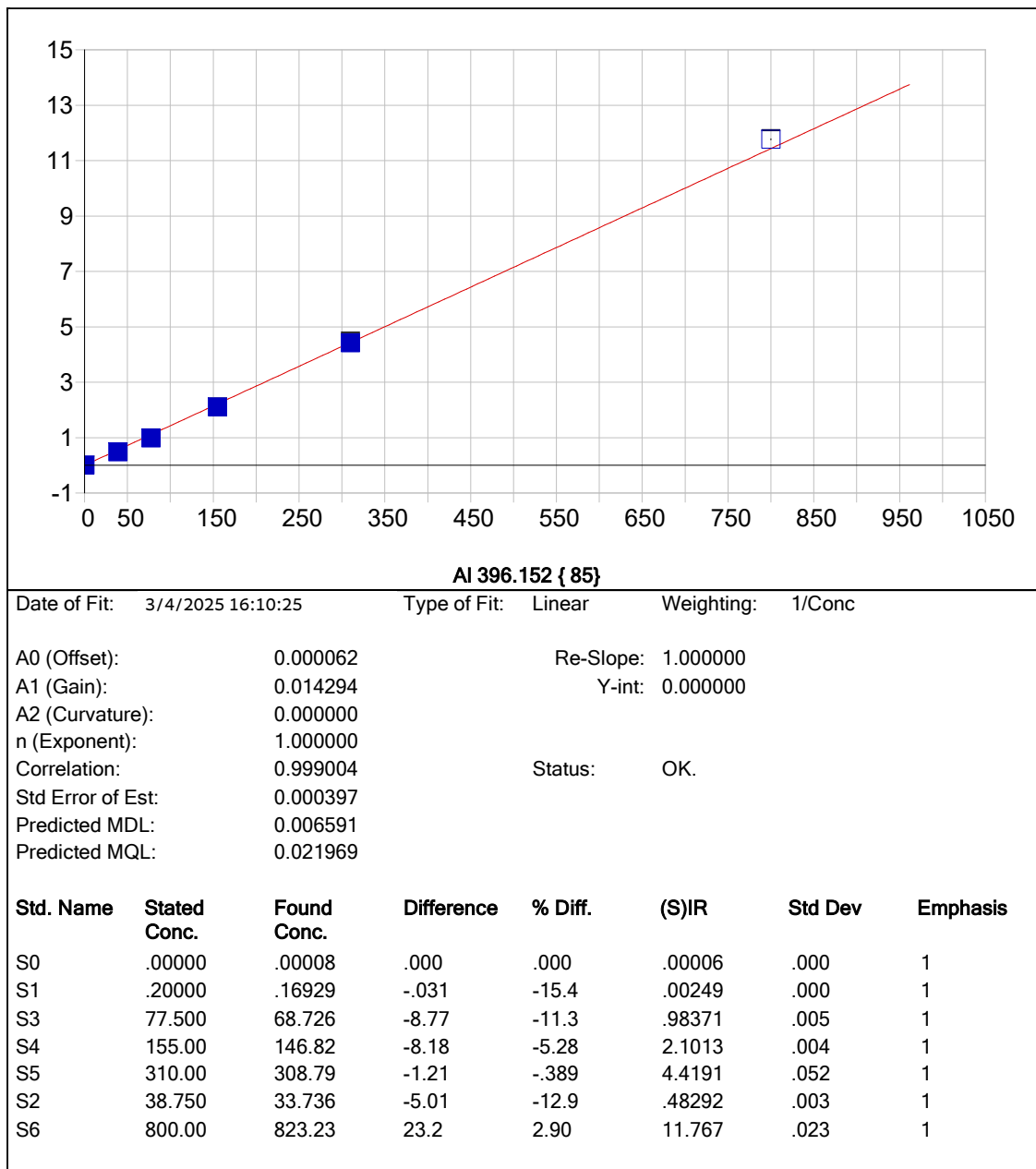
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00006	.000	1
S1	.01000	.00990	-.000	-.976	.00049	.000	1
S3	2.5000	2.3233	-.177	-7.07	.12789	.000	1
S4	5.0000	4.8724	-.128	-2.55	.26829	.001	1
S5	10.000	10.423	.423	4.23	.57405	.002	1
S2	1.2500	1.1317	-.118	-9.46	.06226	.000	1

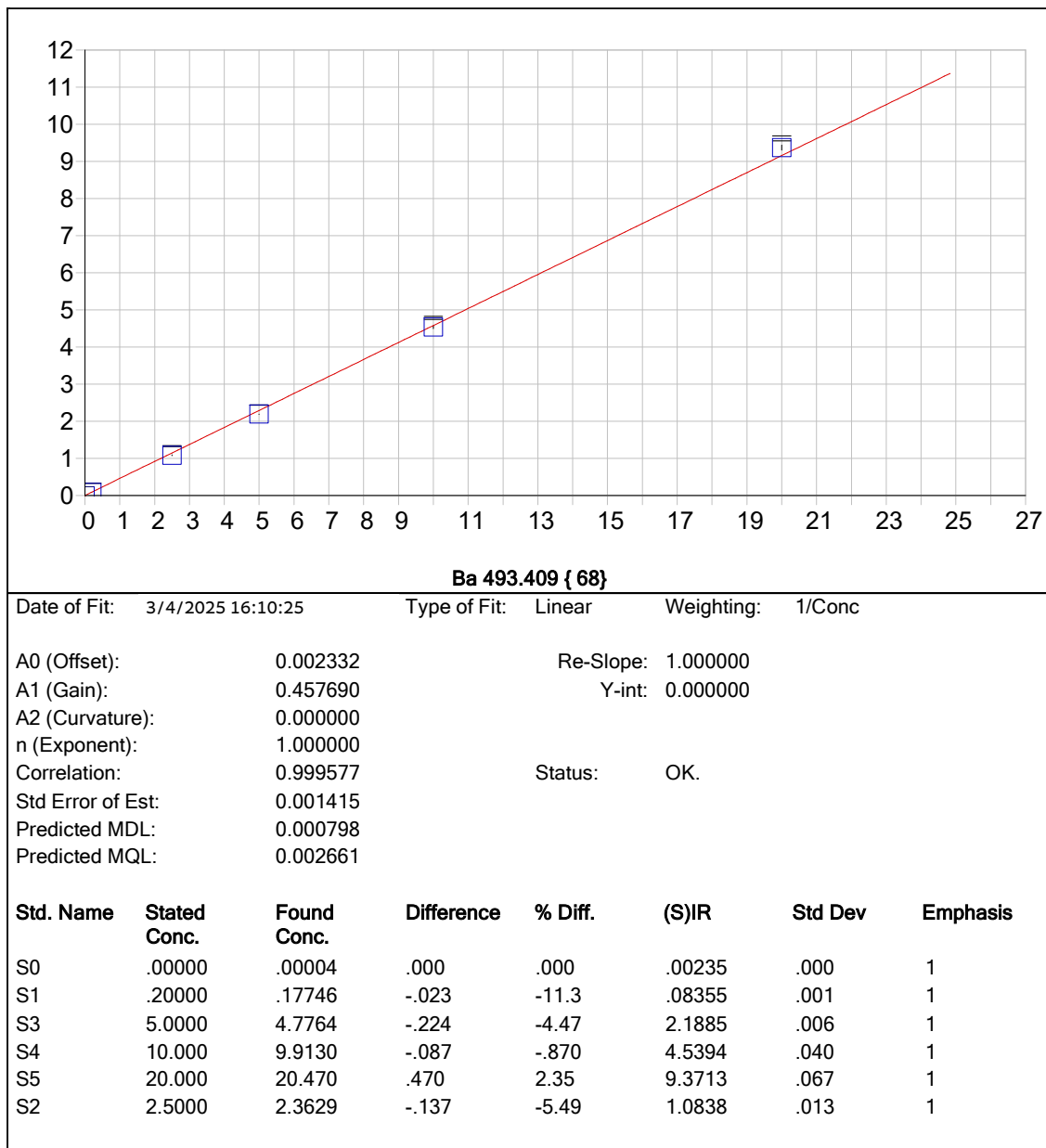


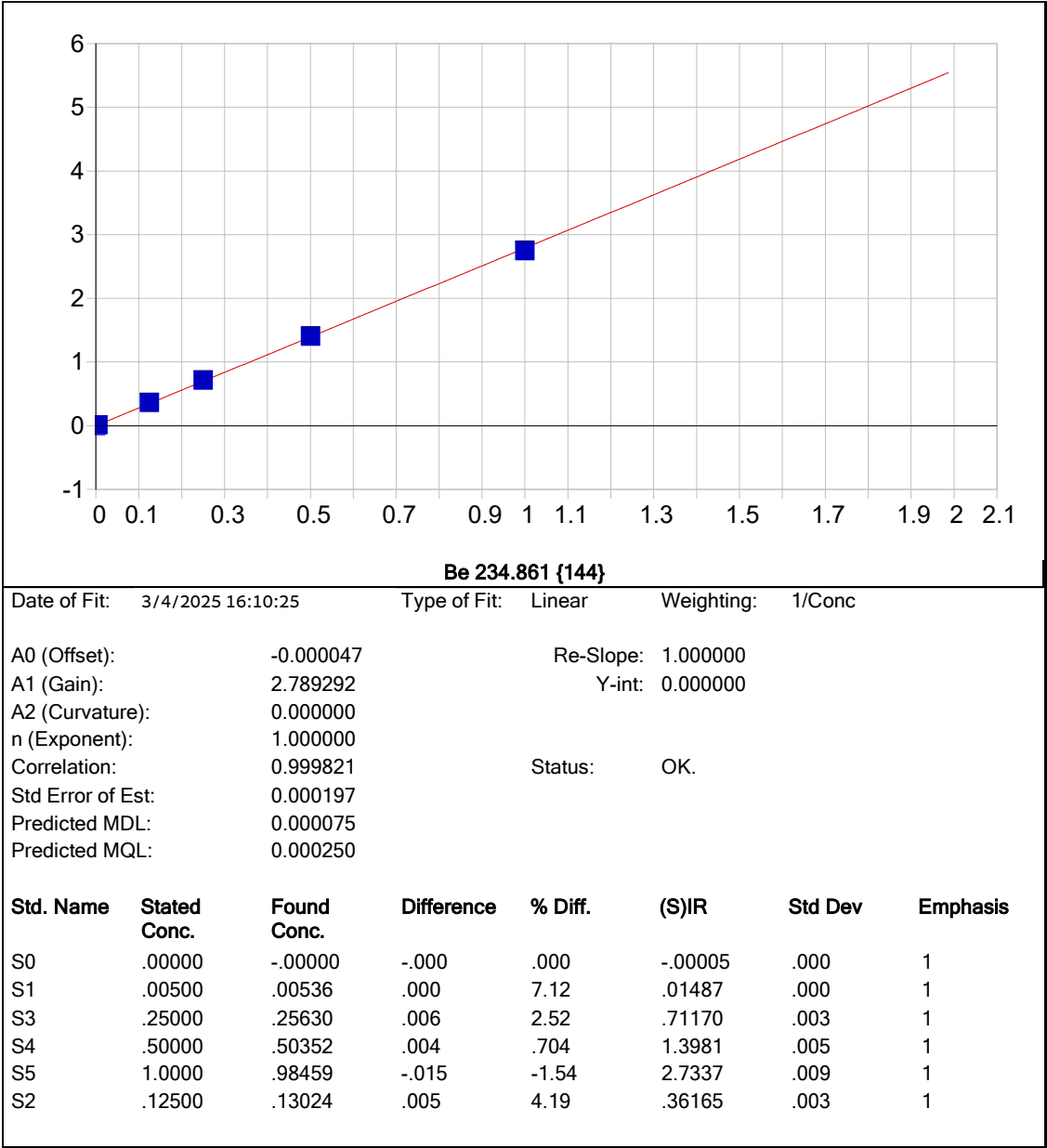


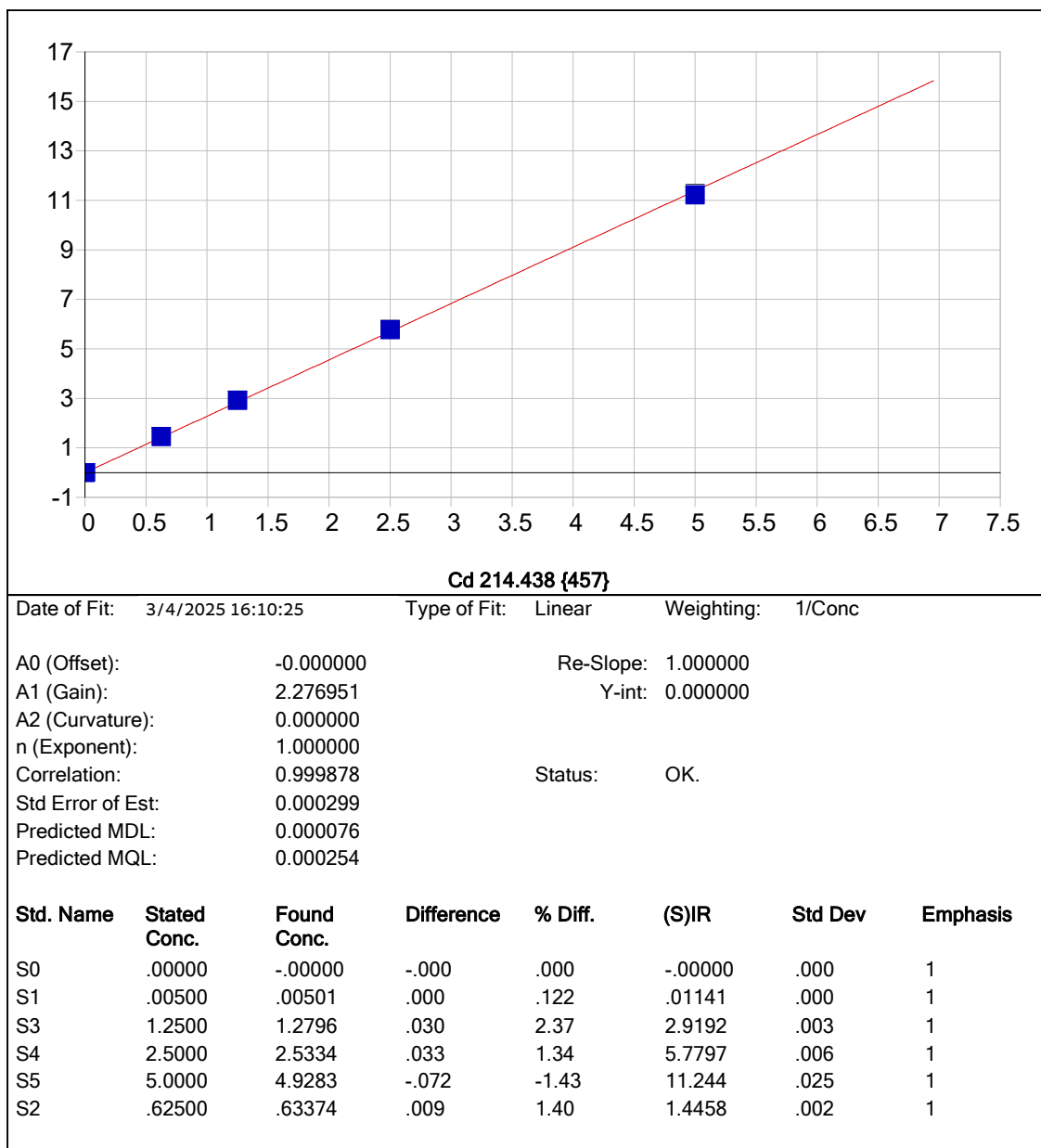


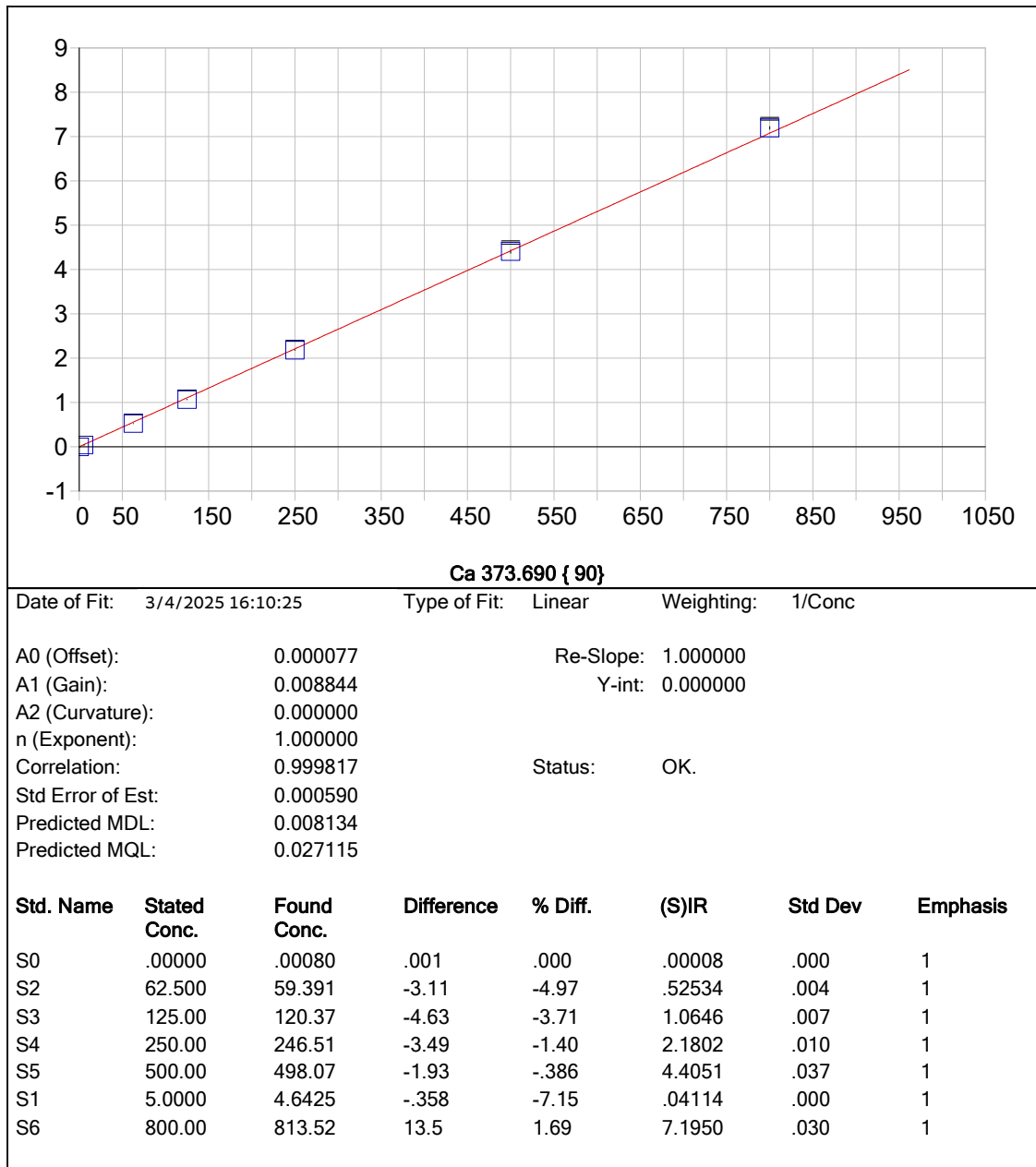


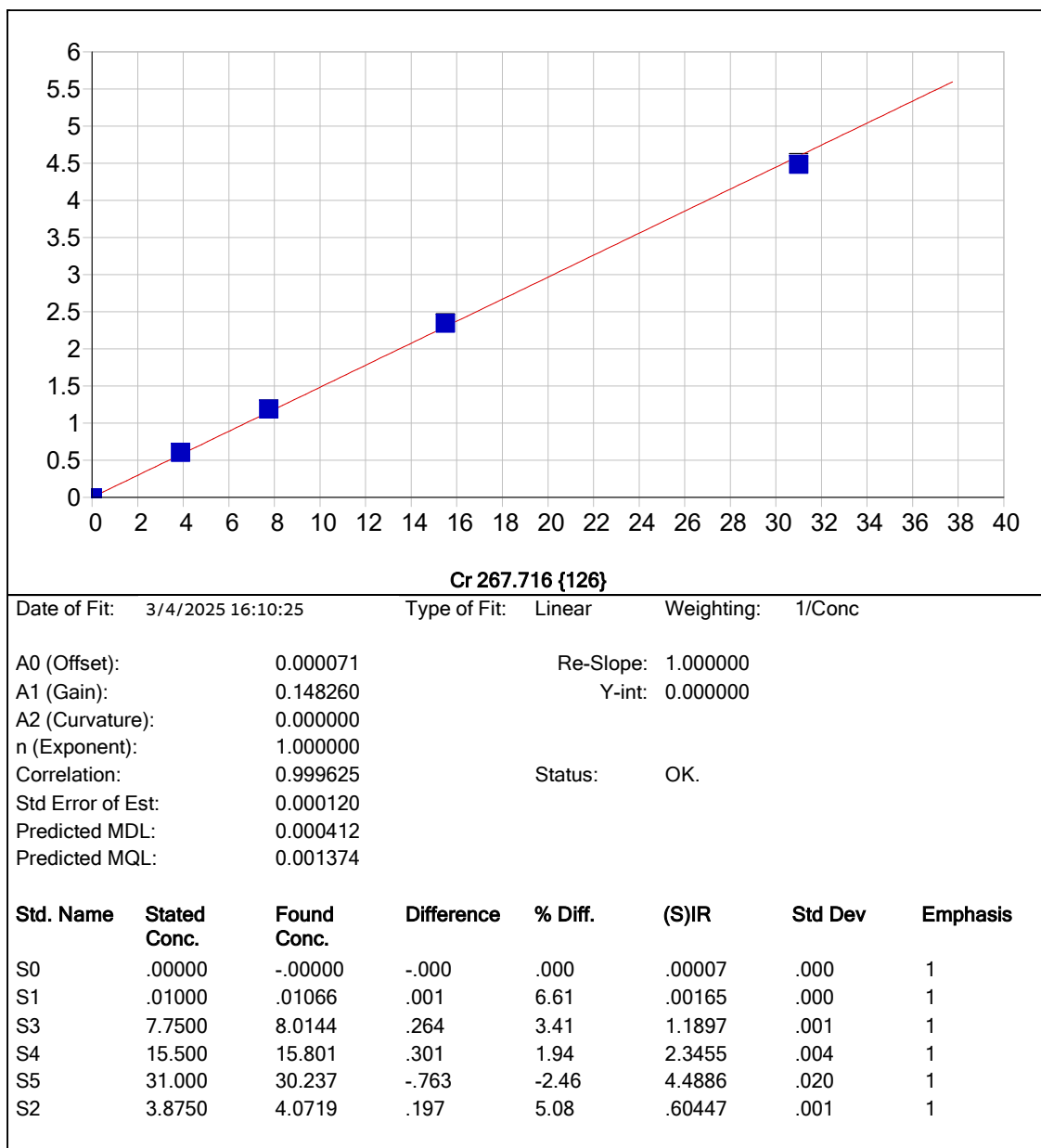


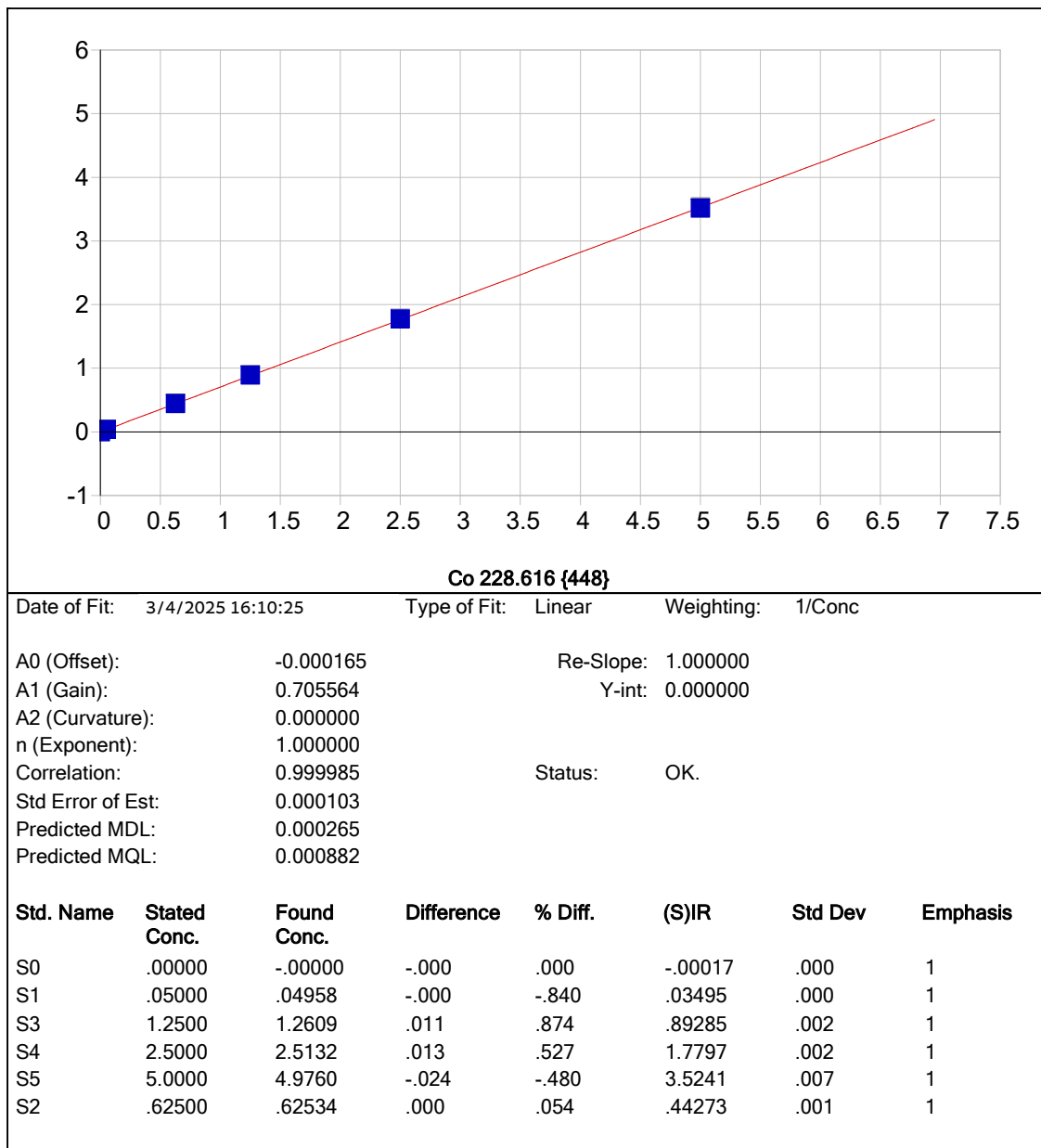


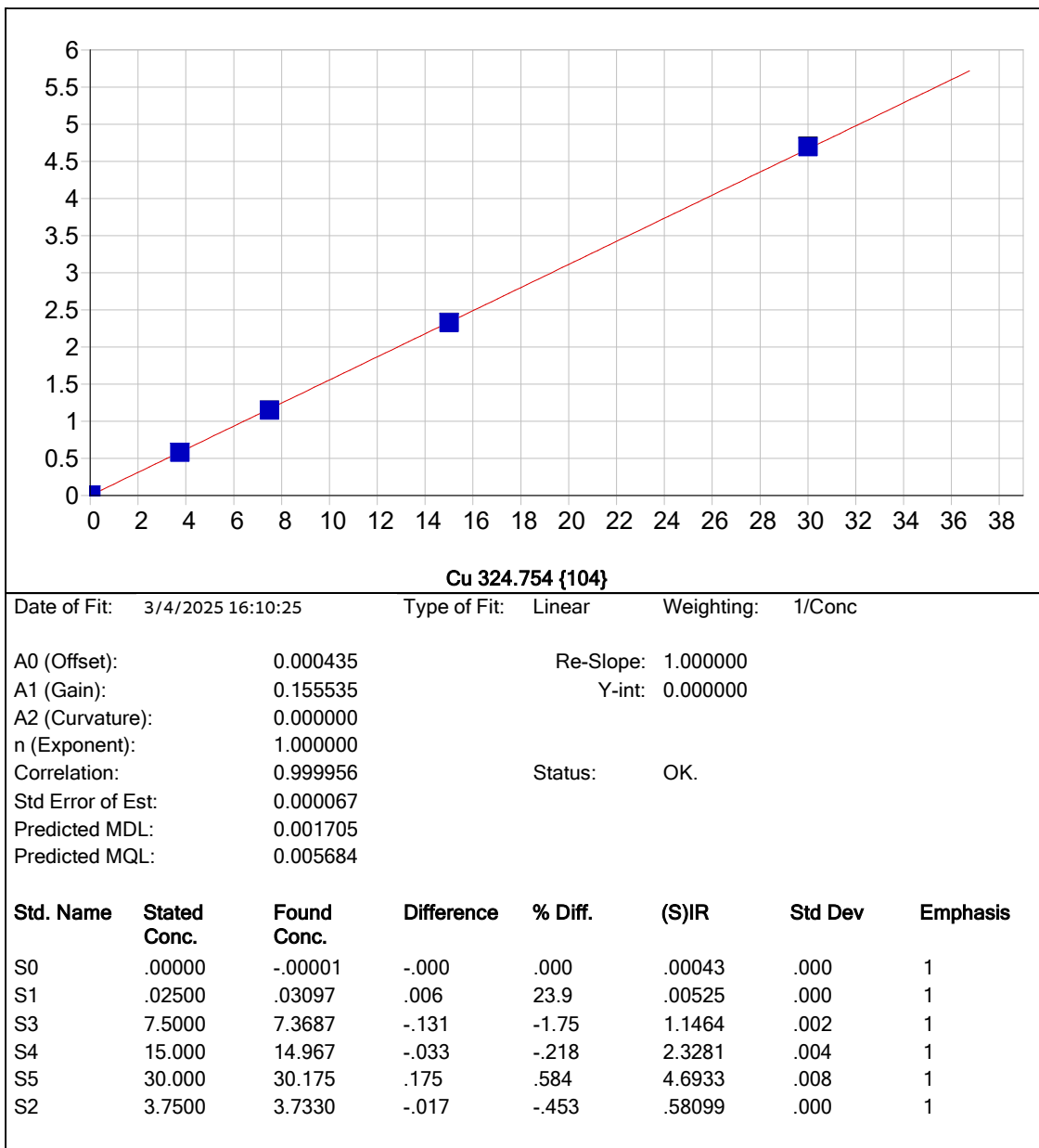


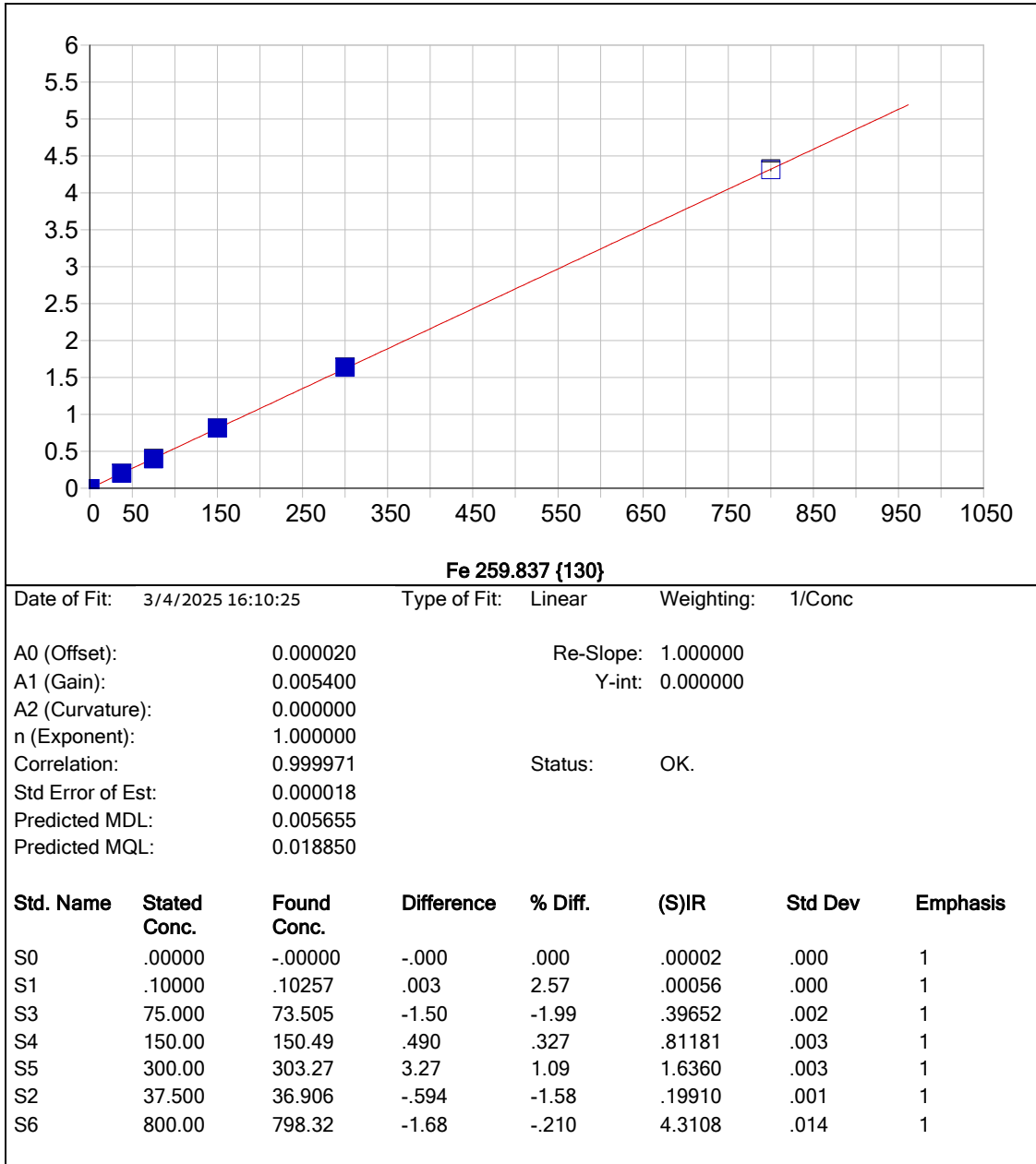


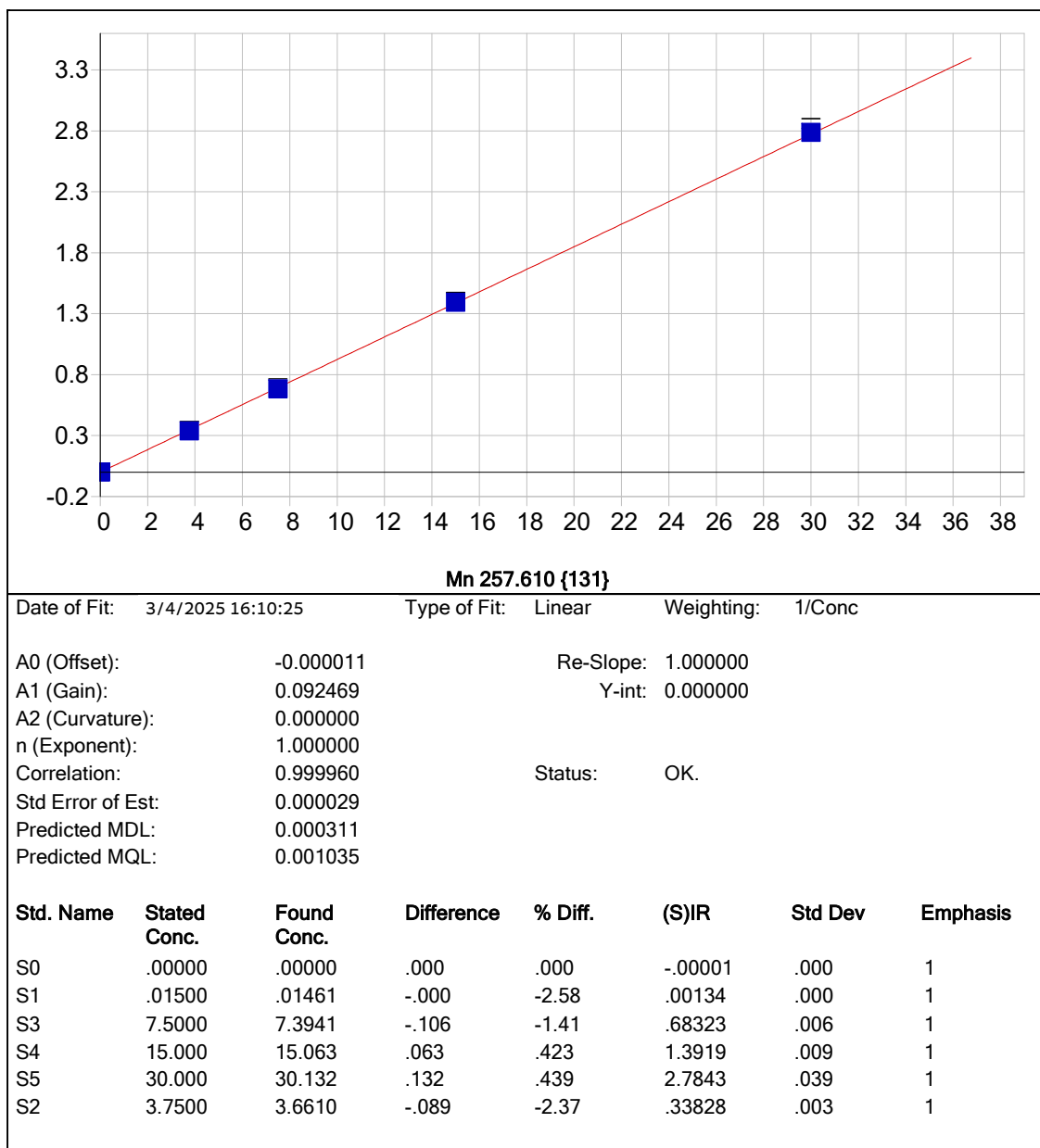


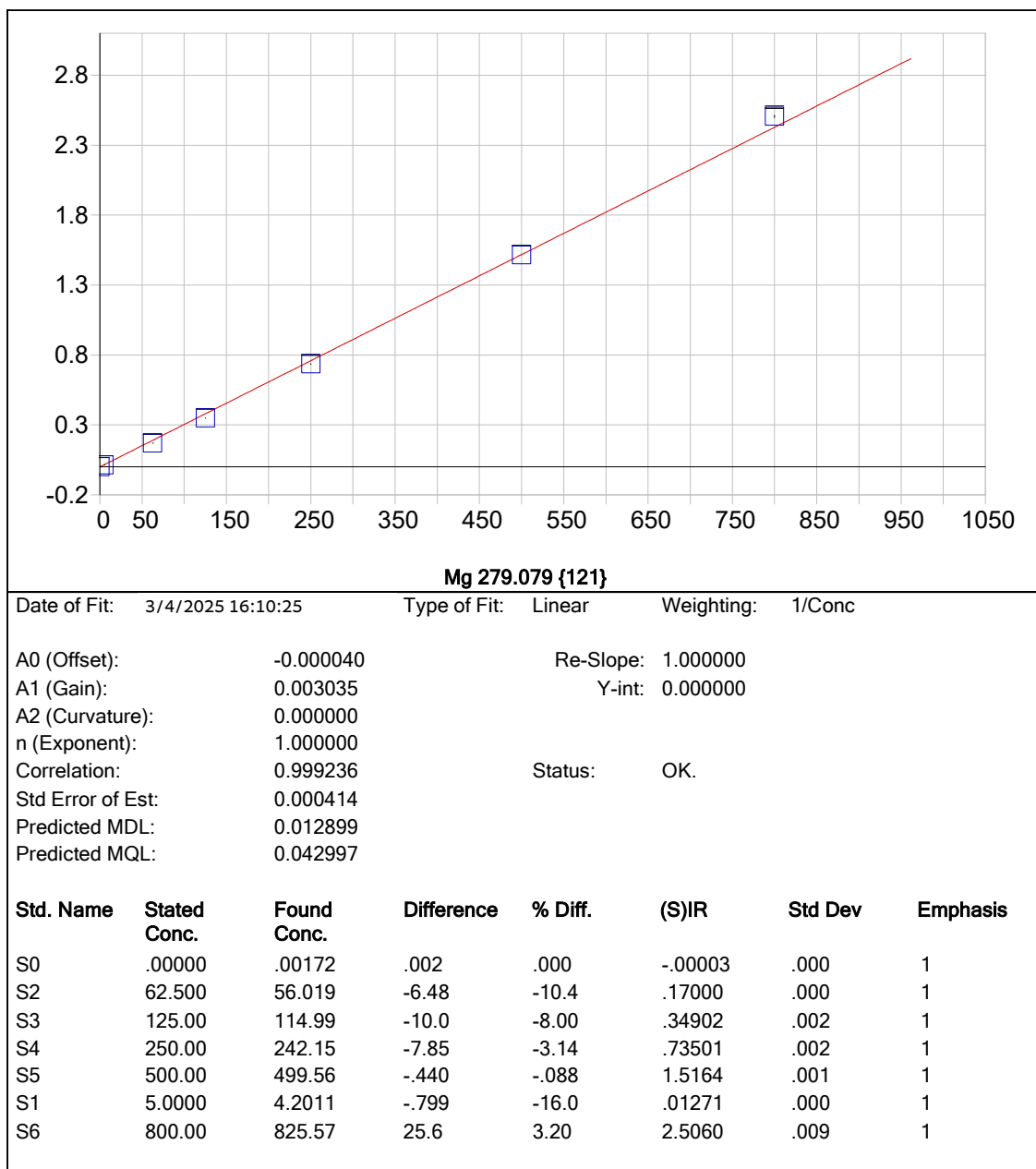


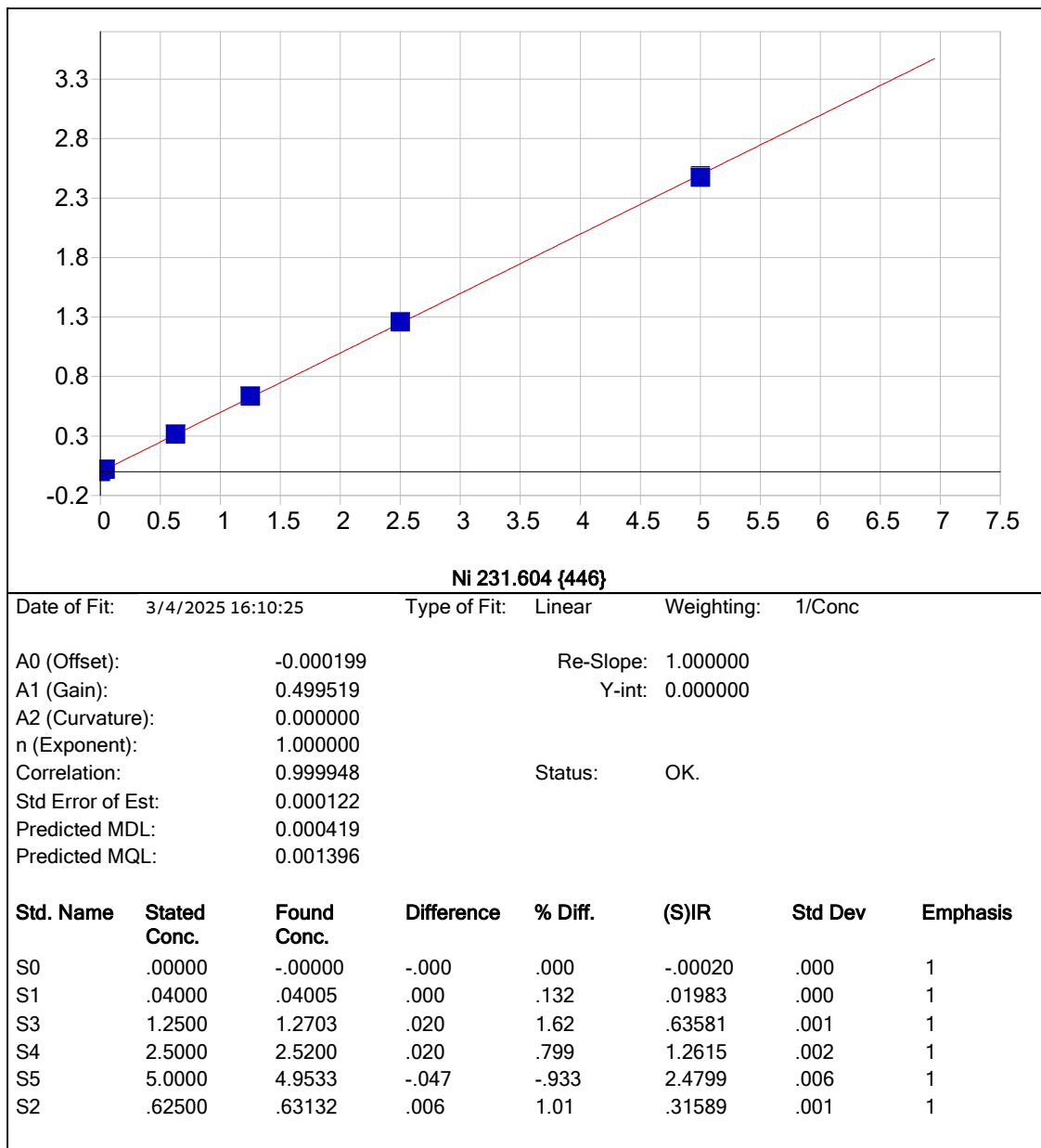


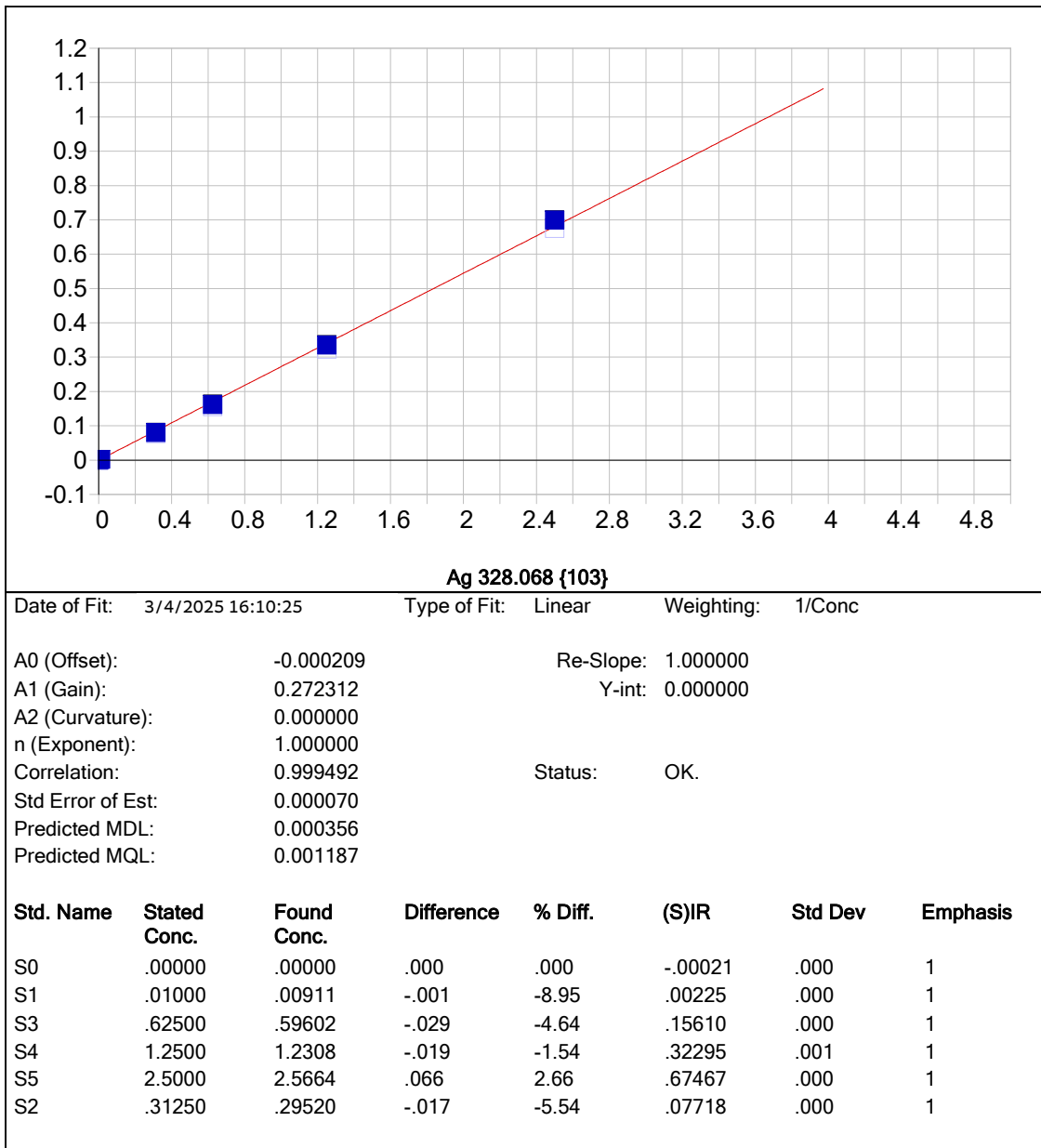


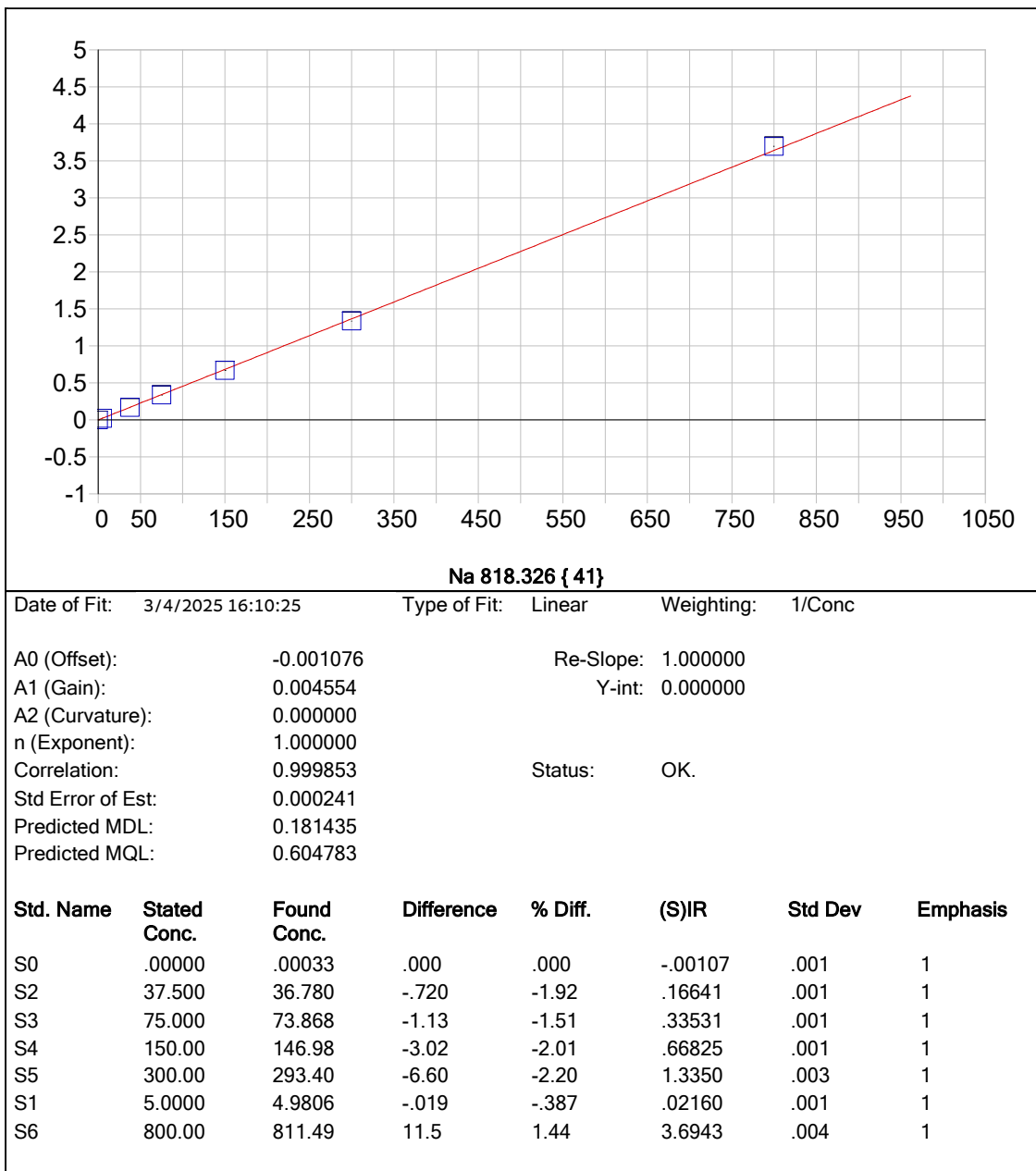


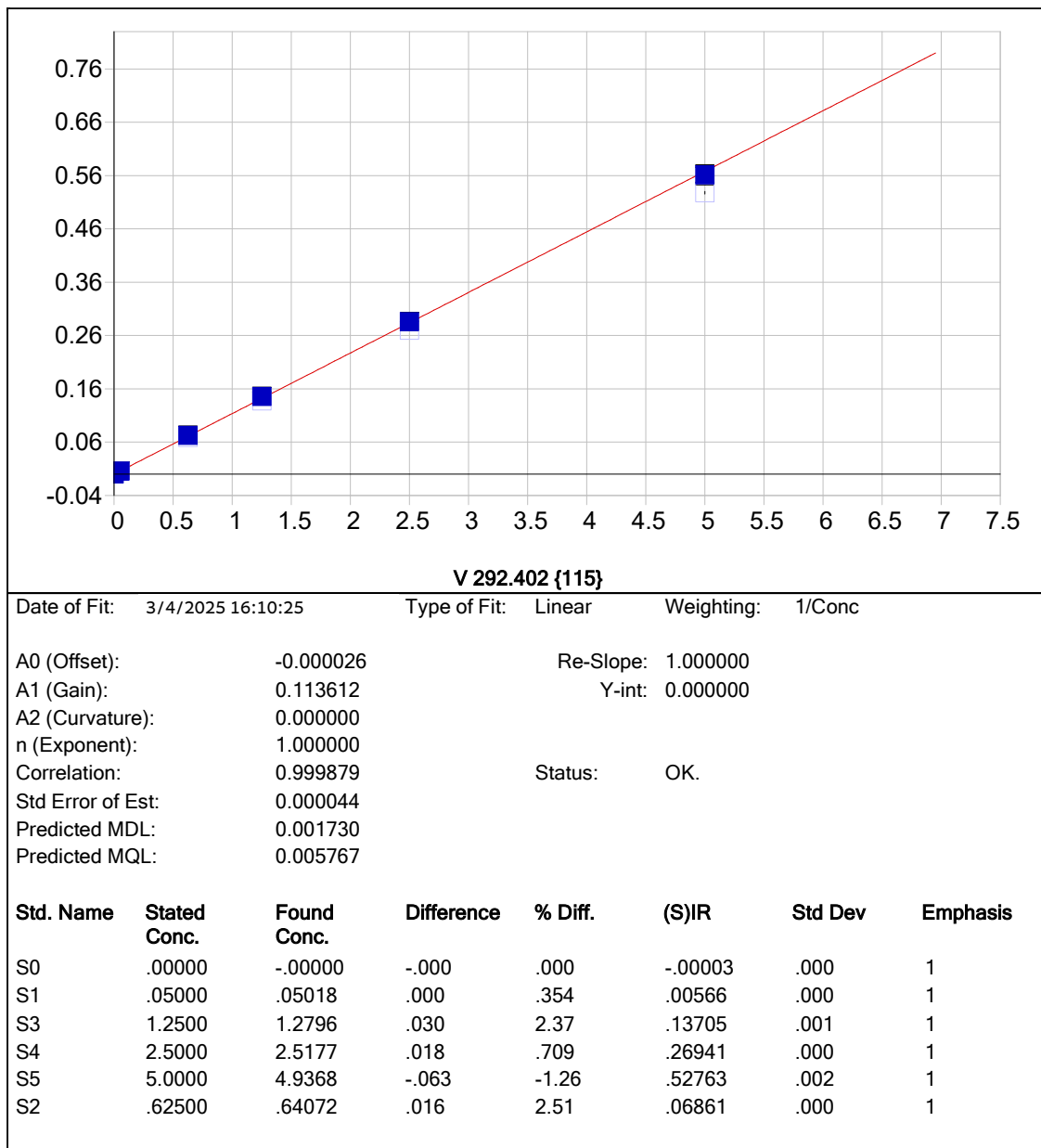


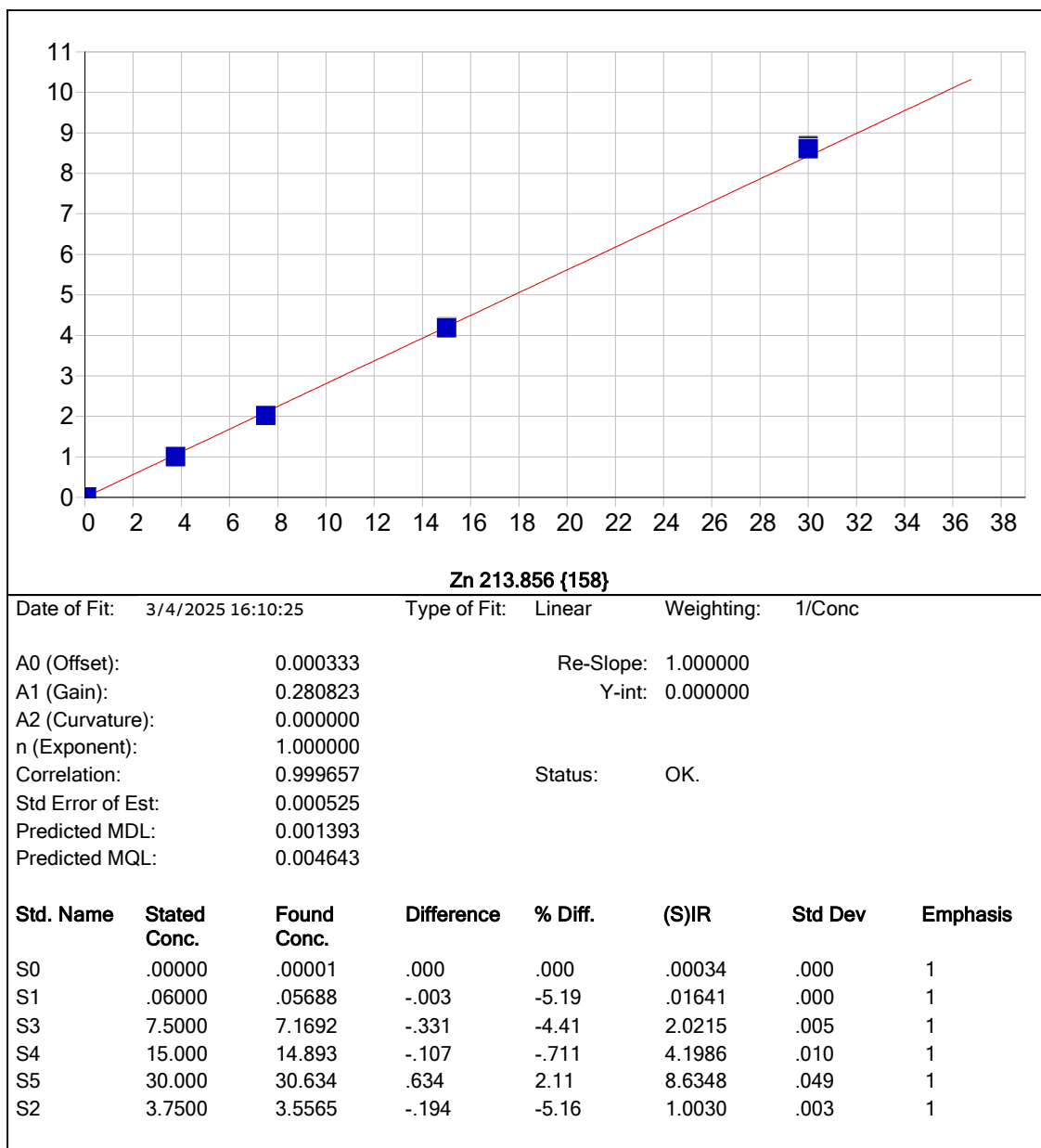


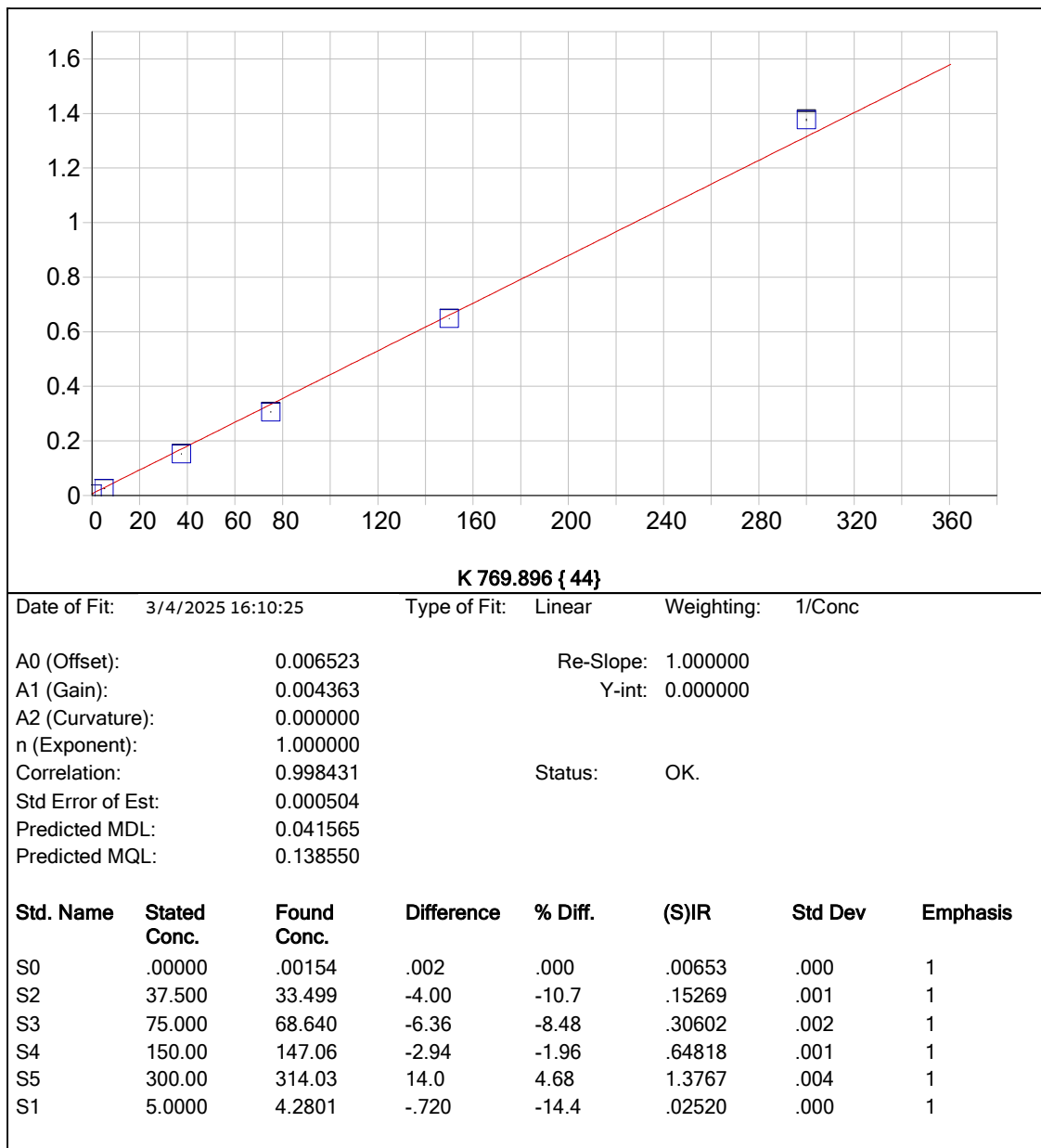


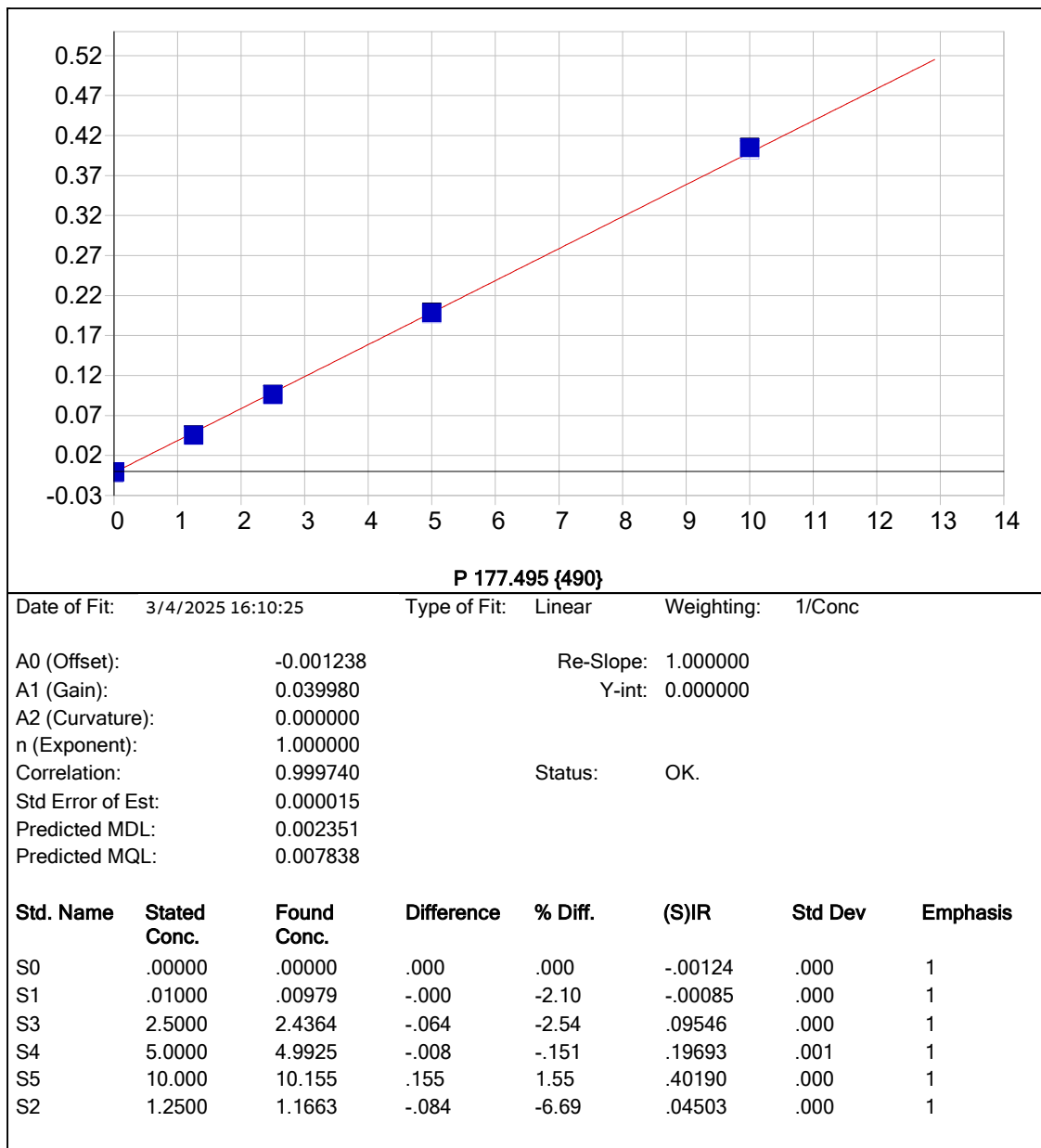


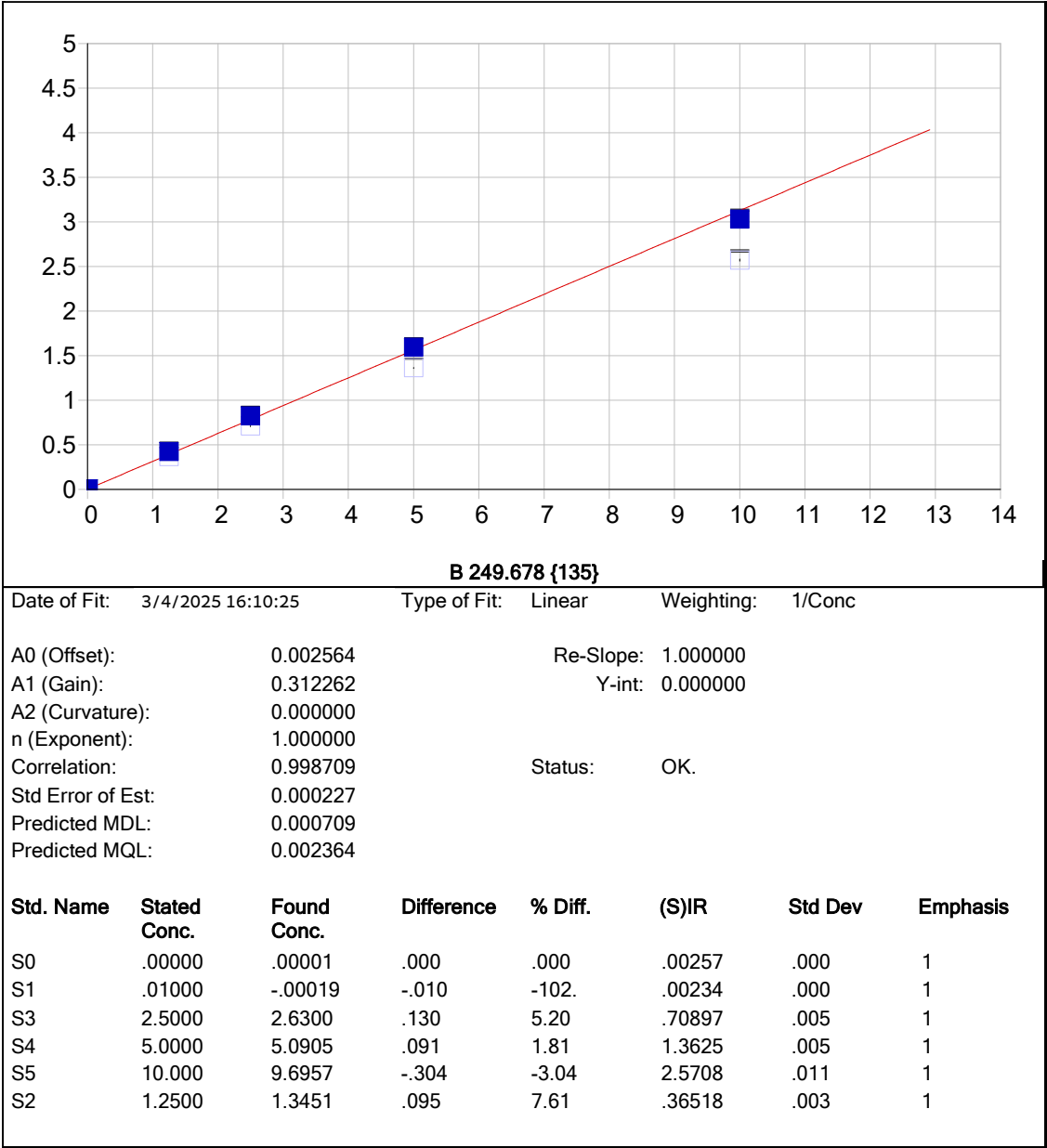


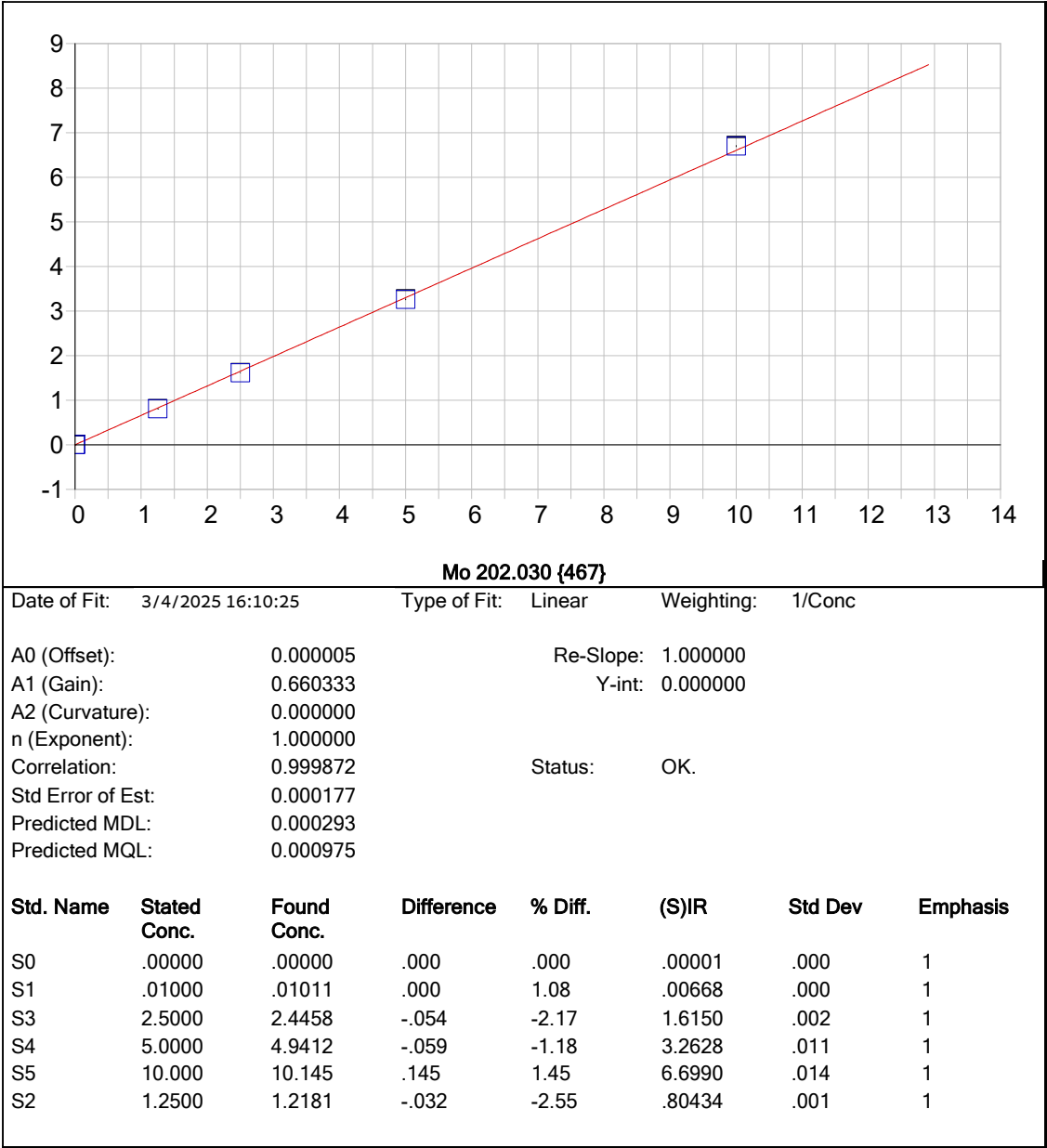


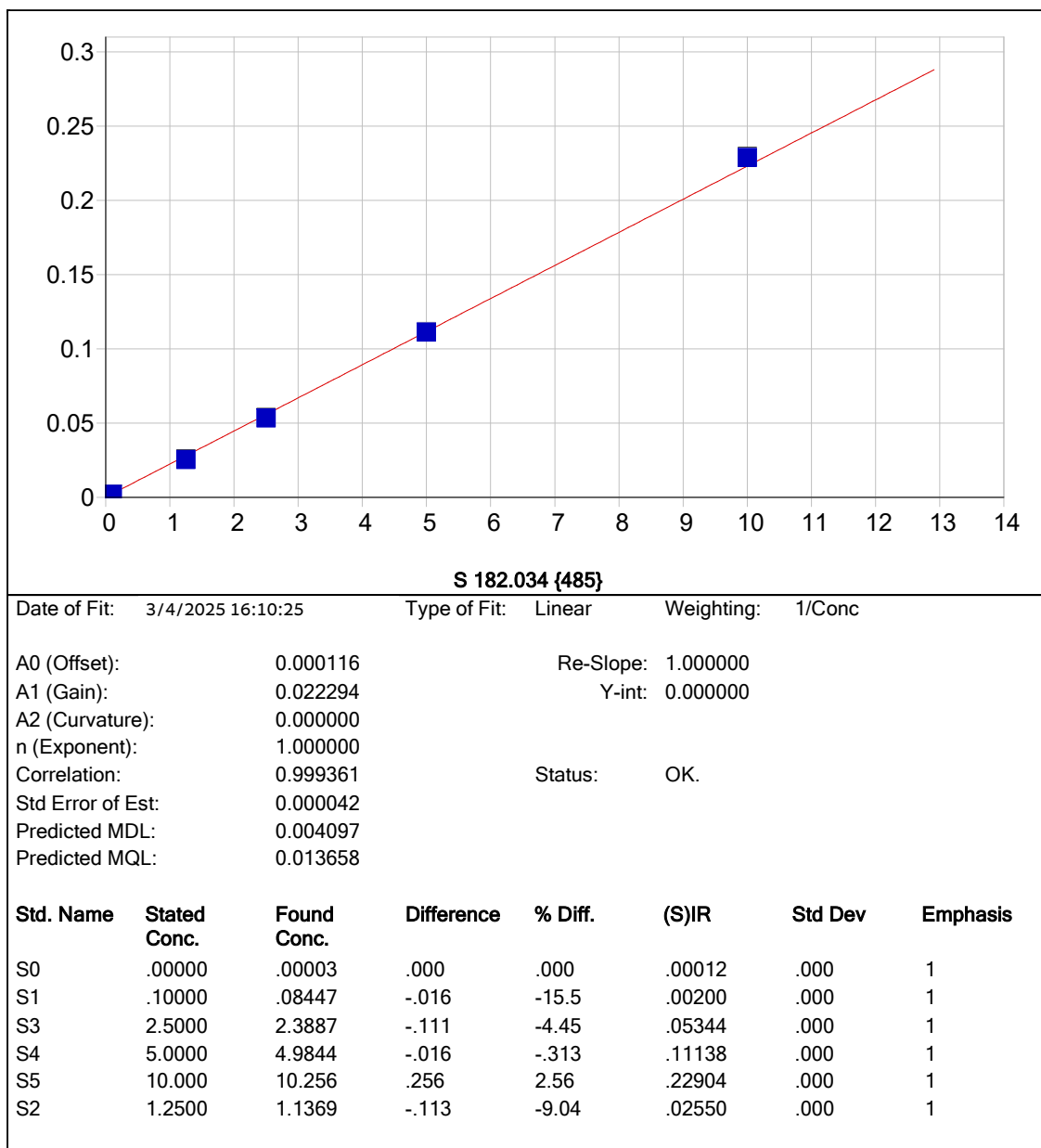


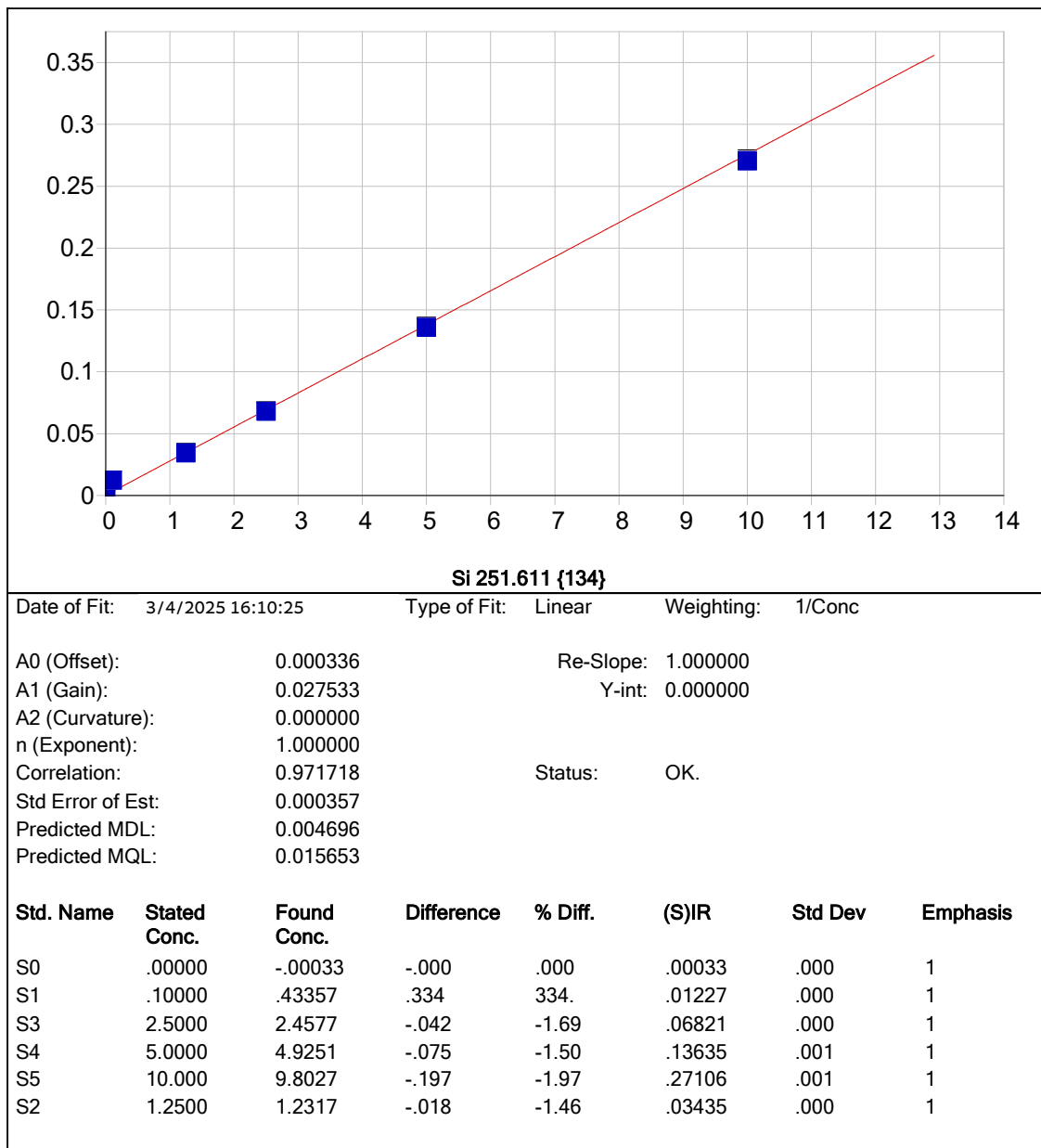


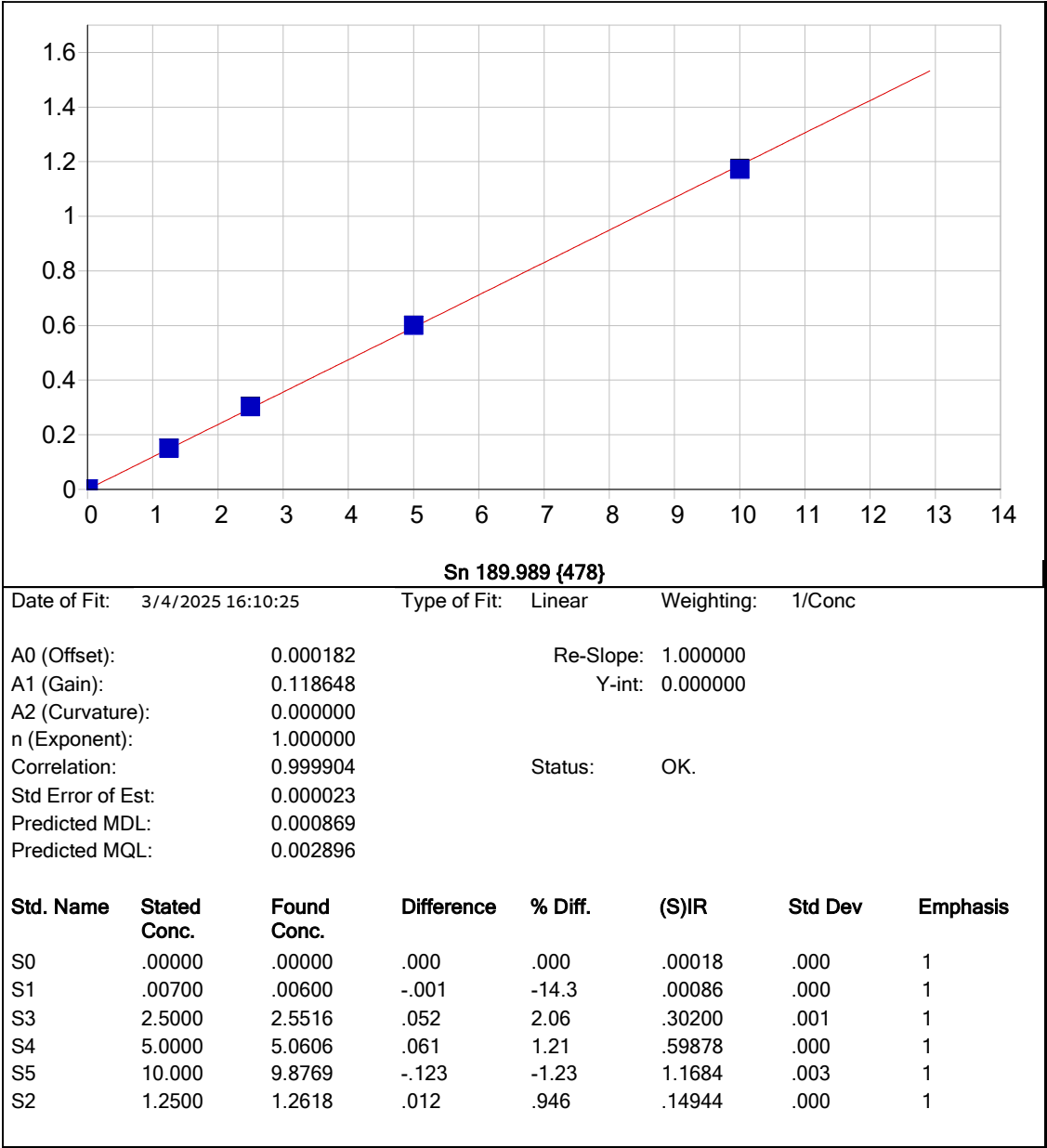


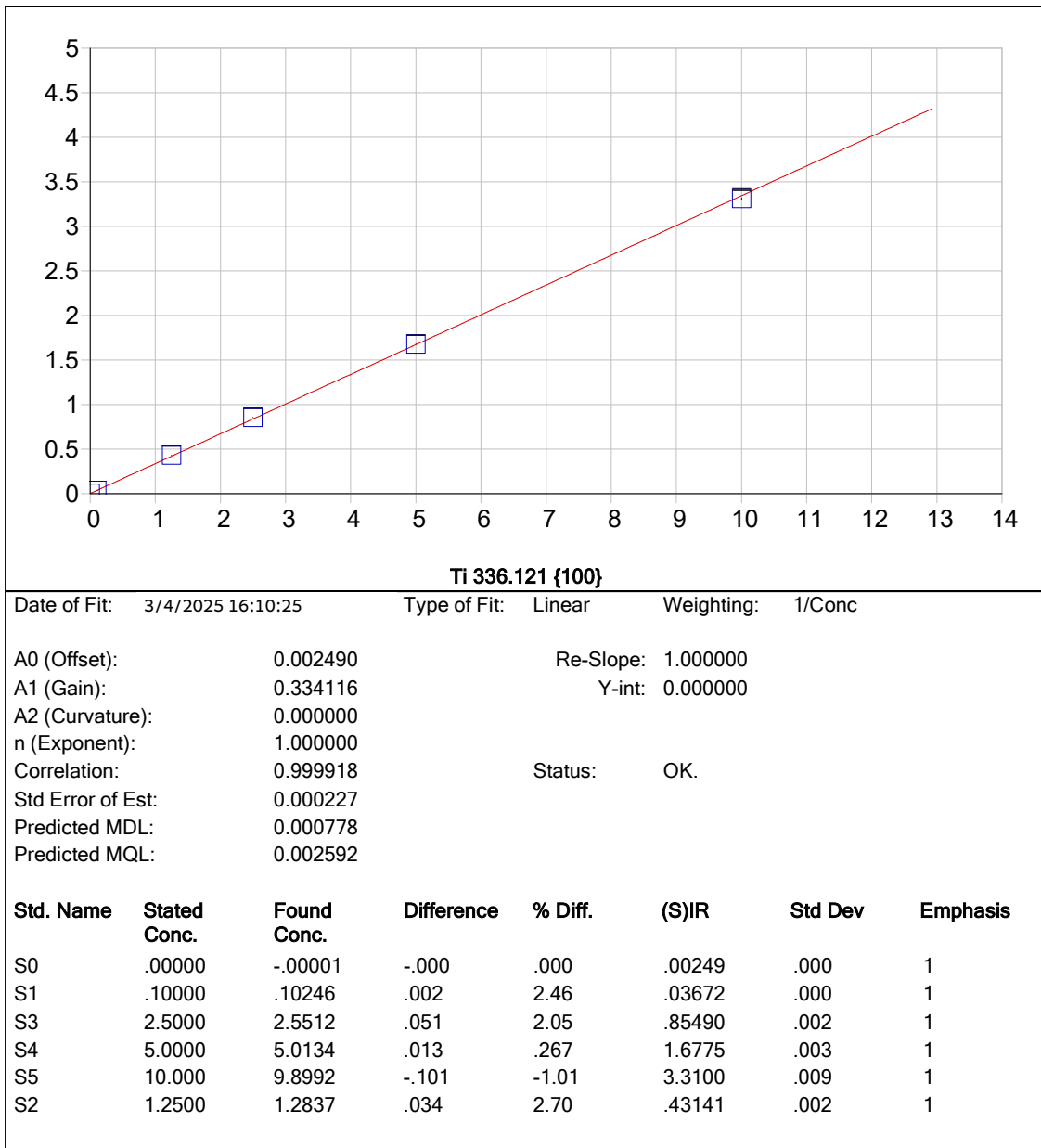


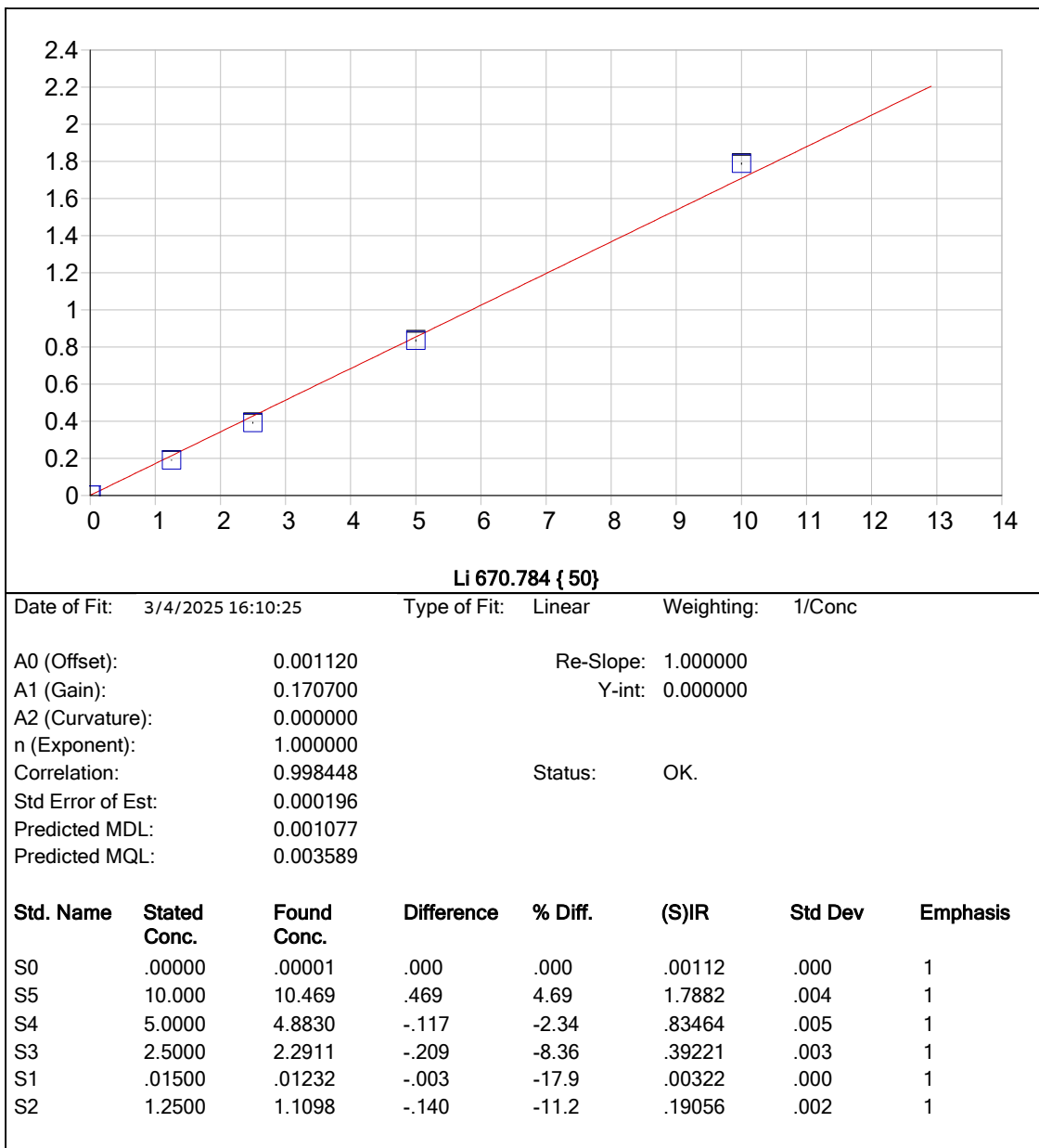


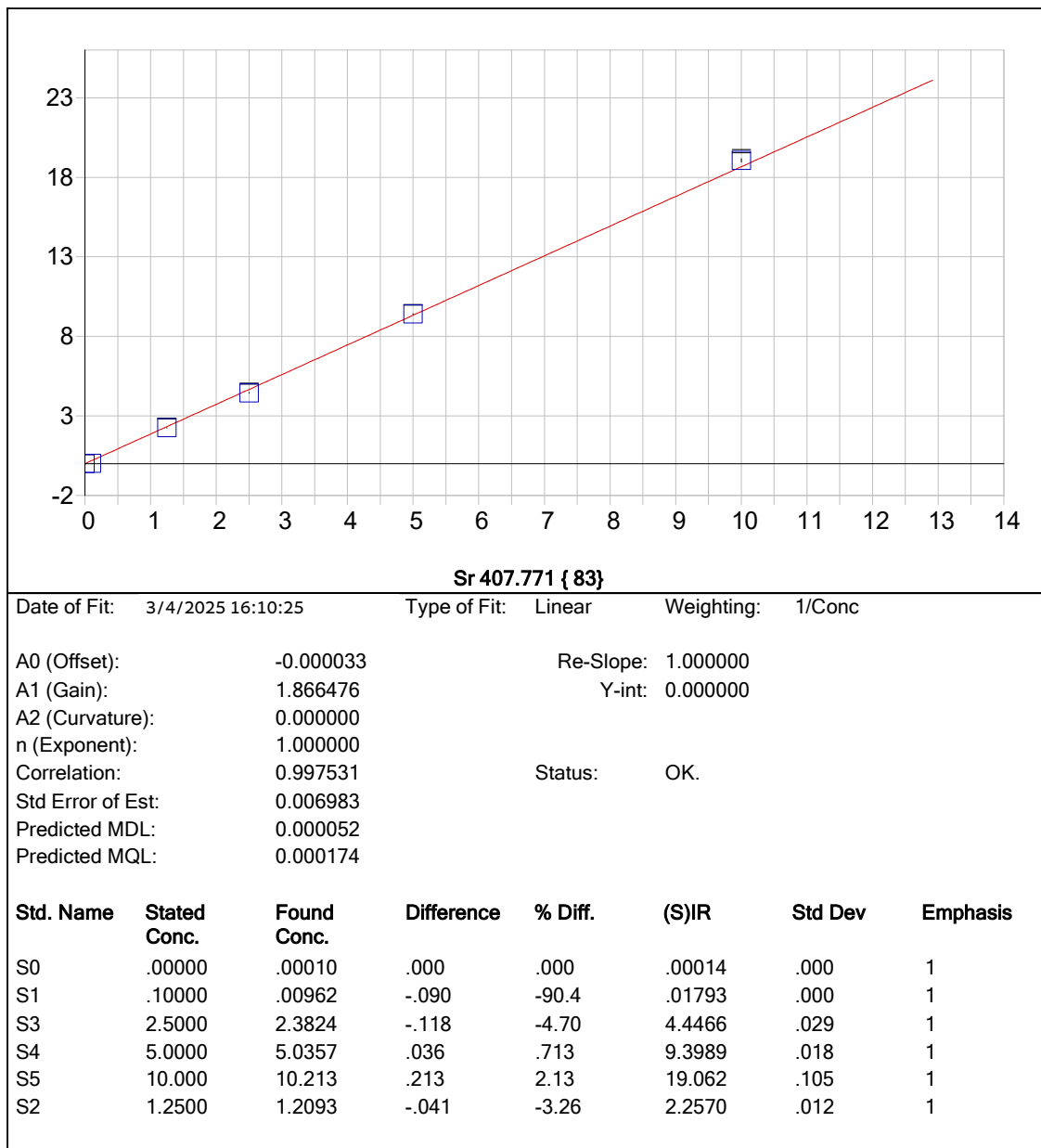


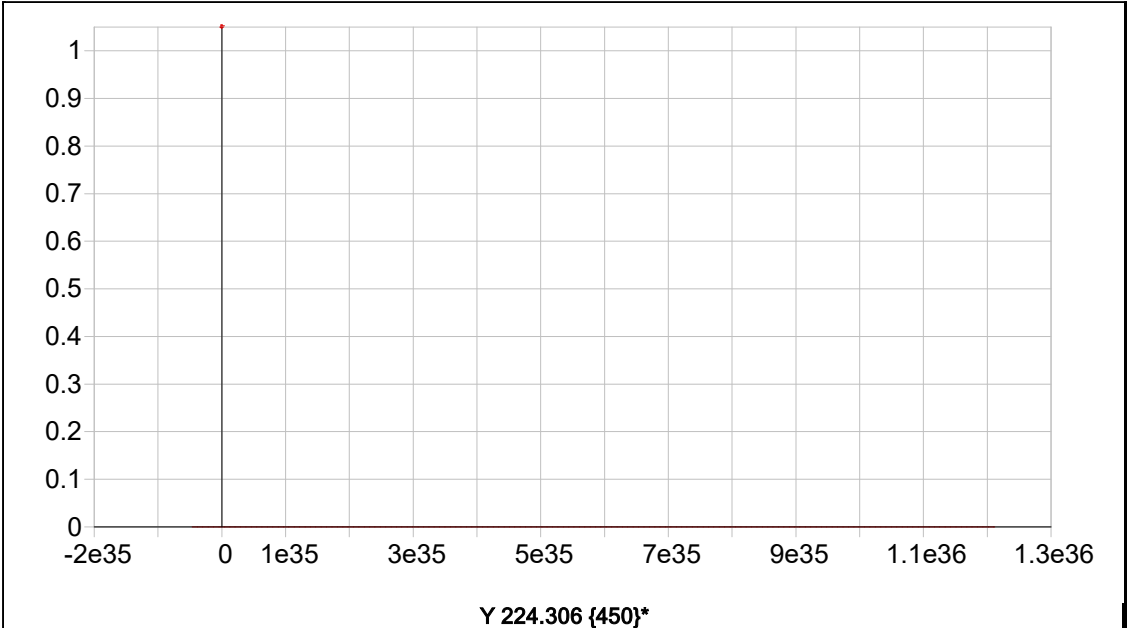












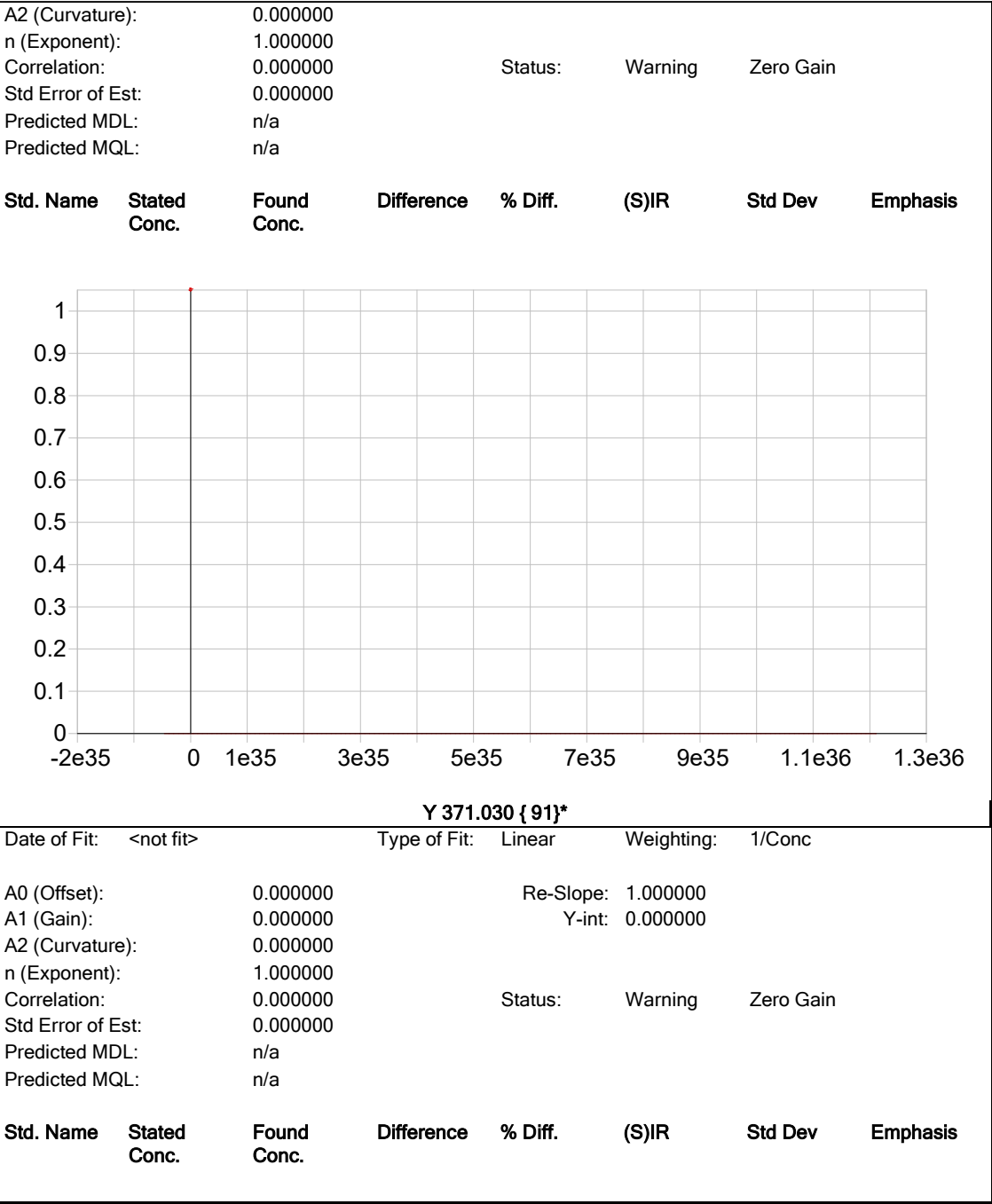
Date of Fit: 3/4/2025 16:10:25 Type of Fit: Linear Weighting: 1/Conc

A0 (Offset):	0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.000000	Status:	Warning Zero Gain
Std Error of Est:	0.000000		
Predicted MDL:	n/a		
Predicted MQL:	n/a		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
							
Y 360.073 { 94}*							

Date of Fit: <not fit> Type of Fit: Linear Weighting: 1/Conc

A0 (Offset):	0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000



A2 (Curvature):		0.000000		Status:	Warning	Zero Gain	
n (Exponent):		1.000000					
Correlation:		0.000000					
Std Error of Est:		0.000000					
Predicted MDL:		n/a					
Predicted MQL:		n/a					
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis

Sample Name: S0 Acquired: 3/4/2025 15:34:47 Type: Cal
Method: EPA SFAM01.0(v66) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S0 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00006	.00004	-.00013	.00031	-.00010	.00006	.00235	-.00005
Stddev	.00003	.00006	.00020	.00008	.00011	.00007	.00030	.00026
%RSD	51.514	144.76	154.91	24.542	105.31	103.67	12.575	531.16

#1	-.00002	.00010	-.00027	.00024	-.00017	.00014	.00209	-.00035
#2	-.00008	-.00001	.00010	.00030	-.00016	.00001	.00229	.00008
#3	-.00006	.00003	-.00021	.00039	.00002	.00004	.00267	.00012

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00000	.00008	.00007	-.00017	.00043	.00002	-.00001	-.00003
Stddev	.00008	.00009	.00003	.00002	.00015	.00000	.00001	.00003
%RSD	10687.	110.64	37.304	14.518	34.771	23.443	114.14	72.980

#1	.00008	.00003	.00010	-.00016	.00044	.00001	-.00002	-.00001
#2	-.00000	.00019	.00007	-.00019	.00028	.00002	-.00002	-.00005
#3	-.00008	.00003	.00005	-.00014	.00058	.00002	.00000	-.00004

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00020	-.00021	-.00107	-.00003	.00034	.00653	-.00124	.00257
Stddev	.00020	.00005	.00055	.00008	.00006	.00016	.00003	.00010
%RSD	99.803	22.240	50.855	293.24	16.732	2.4913	2.6333	3.7176

#1	-.00029	-.00025	-.00151	.00005	.00034	.00660	-.00125	.00262
#2	-.00034	-.00016	-.00046	-.00003	.00039	.00665	-.00127	.00262
#3	.00003	-.00022	-.00125	-.00010	.00027	.00634	-.00120	.00246

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	.00001	.00012	.00033	.00018	.00249	.00112	.00014	
Stddev	.00018	.00003	.00006	.00012	.00004	.00021	.00004	
%RSD	3233.8	21.561	18.069	66.801	1.5179	18.889	24.240	

#1	.00009	.00009	.00031	.00018	.00246	.00130	.00018	
#2	-.00020	.00014	.00039	.00006	.00247	.00117	.00014	
#3	.00013	.00012	.00027	.00031	.00253	.00089	.00012	

Sample Name: S0 Acquired: 3/4/2025 15:34:47 Type: Cal
Method: EPA SFAM01.0(v66) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S0 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3578.4	77251.	16345.	3281.3	5036.2
Stddev	7.4	79.	47.	2.1	14.4
%RSD	.20552	.10277	.28998	.06383	.28524
#1	3571.4	77296.	16291.	3283.5	5019.7
#2	3577.8	77298.	16362.	3279.3	5042.7
#3	3586.1	77159.	16381.	3281.1	5046.2

Sample Name: S1 Acquired: 3/4/2025 15:38:59 Type: Cal
Method: EPA SFAM01.0(v66) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00049	.00156	.00168	.00219	.00797	.00249	.08355	.01487
Stddev	.00004	.00015	.00021	.00019	.00017	.00009	.00056	.00003
%RSD	7.6401	9.5018	12.699	8.5062	2.1799	3.8180	.67361	.18999

#1	.00052	.00173	.00179	.00239	.00815	.00259	.08322	.01490
#2	.00051	.00149	.00181	.00203	.00781	.00241	.08323	.01485
#3	.00045	.00145	.00143	.00214	.00796	.00246	.08420	.01488

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.01141	.04114	.00165	.03495	.00525	.00056	.00134	.01271
Stddev	.00018	.00015	.00005	.00009	.00023	.00003	.00003	.00005
%RSD	1.6050	.37313	2.9349	.24741	4.4606	4.7402	2.2254	.37366

#1	.01124	.04119	.00162	.03490	.00499	.00059	.00137	.01268
#2	.01137	.04096	.00163	.03491	.00545	.00056	.00131	.01269
#3	.01160	.04126	.00171	.03505	.00532	.00054	.00133	.01277

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.01983	.00225	.02160	.00566	.01641	.02520	-.00085	.00234
Stddev	.00016	.00003	.00067	.00013	.00016	.00016	.00004	.00007
%RSD	.81963	1.3853	3.0977	2.3154	.99592	.65274	4.9403	3.0695

#1	.01996	.00227	.02116	.00558	.01622	.02510	-.00083	.00234
#2	.01989	.00222	.02238	.00559	.01653	.02511	-.00082	.00242
#3	.01965	.00227	.02127	.00581	.01646	.02539	-.00090	.00227

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00668	.00200	.01227	.00086	.03672	.00322	.01793
Stddev	.00003	.00013	.00010	.00005	.00020	.00019	.00020
%RSD	.39606	6.3362	.80794	6.1881	.55648	5.9607	1.1036

#1	.00670	.00192	.01235	.00080	.03695	.00325	.01794
#2	.00665	.00193	.01230	.00088	.03665	.00302	.01773
#3	.00669	.00214	.01216	.00090	.03657	.00340	.01812

Sample Name: S1 Acquired: 3/4/2025 15:38:59 Type: Cal
Method: EPA SFAM01.0(v66) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S01 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3580.2	76367.	16041.	3277.2	4915.7
Stddev	1.3	291.	118.	12.1	2.3
%RSD	.03505	.38125	.73483	.37032	.04755
#1	3581.0	76141.	15968.	3263.3	4913.7
#2	3580.8	76695.	15979.	3282.7	4915.3
#3	3578.7	76264.	16177.	3285.6	4918.3

Sample Name: S2 Acquired: 3/4/2025 15:43:13 Type: Cal
Method: EPA SFAM01.0(v66) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S02 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.06226	.07575	1.2073	.06806	.16560	.48292	1.0838	.36165
Stddev	.00016	.00037	.0019	.00019	.00067	.00305	.0128	.00288
%RSD	.25667	.48813	.15788	.27683	.40453	.63240	1.1800	.79536

#1	.06223	.07604	1.2077	.06811	.16631	.47970	1.0710	.36472
#2	.06244	.07587	1.2090	.06821	.16552	.48328	1.0838	.36122
#3	.06212	.07533	1.2053	.06785	.16498	.48577	1.0966	.35902

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.4458	.52534	.60447	.44273	.58099	.19910	.33828	.17000
Stddev	.0024	.00355	.00138	.00052	.00018	.00129	.00339	.00037
%RSD	.16258	.67501	.22893	.11841	.03117	.64724	1.0012	.21999

#1	1.4470	.52176	.60543	.44276	.58083	.19774	.33501	.16964
#2	1.4474	.52541	.60289	.44324	.58095	.19926	.33804	.16998
#3	1.4431	.52885	.60510	.44219	.58119	.20030	.34178	.17039

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.31589	.07718	.16641	.06861	1.0030	.15269	.04503	.36518
Stddev	.00091	.00013	.00091	.00031	.0029	.00117	.00013	.00341
%RSD	.28665	.16915	.54854	.45336	.29371	.76832	.28790	.93411

#1	.31594	.07724	.16577	.06853	.99971	.15157	.04510	.36888
#2	.31676	.07727	.16601	.06836	1.0053	.15259	.04488	.36449
#3	.31495	.07703	.16746	.06896	1.0041	.15391	.04512	.36217

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.80434	.02550	.03435	.14944	.43141	.19056	2.2570
Stddev	.00061	.00007	.00026	.00039	.00161	.00197	.0117
%RSD	.07645	.27342	.75770	.26172	.37204	1.0323	.51772

#1	.80490	.02543	.03407	.14910	.43028	.18877	2.2445
#2	.80444	.02550	.03440	.14987	.43070	.19026	2.2676
#3	.80368	.02557	.03458	.14934	.43324	.19267	2.2591

Sample Name: S2 Acquired: 3/4/2025 15:43:13 Type: Cal
Method: EPA SFAM01.0(v66) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S02 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3441.3	74109.	16209.	3148.1	4455.0
Stddev	5.9	105.	89.	2.5	8.2
%RSD	.17049	.14149	.55155	.07815	.18433
#1	3434.9	74146.	16109.	3146.1	4447.4
#2	3442.4	74191.	16236.	3150.8	4453.8
#3	3446.5	73991.	16281.	3147.3	4463.7

Sample Name: S3 Acquired: 3/4/2025 15:47:16 Type: Cal
Method: EPA SFAM01.0(v66) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S03 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.12789	.15034	2.4290	.13917	.34133	.98371	2.1885	.71170
Stddev	.00042	.00055	.0047	.00092	.00065	.00521	.0057	.00346
%RSD	.32497	.36495	.19170	.66222	.19068	.53008	.26003	.48616

#1	.12749	.15097	2.4257	.13889	.34071	.97812	2.1859	.71461
#2	.12786	.14997	2.4271	.13843	.34128	.98455	2.1950	.71262
#3	.12832	.15009	2.4343	.14020	.34201	.98845	2.1845	.70788

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.9192	1.0646	1.1897	.89285	1.1464	.39652	.68323	.34902
Stddev	.0028	.0073	.0009	.00221	.0020	.00231	.00580	.00214
%RSD	.09692	.69041	.07559	.24765	.17245	.58306	.84837	.61290

#1	2.9178	1.0562	1.1887	.89091	1.1486	.39385	.67669	.34661
#2	2.9172	1.0680	1.1904	.89238	1.1458	.39772	.68530	.34975
#3	2.9224	1.0697	1.1900	.89526	1.1448	.39798	.68771	.35070

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.63581	.15610	.33531	.13705	2.0215	.30602	.09546	.70897
Stddev	.00137	.00023	.00100	.00051	.0050	.00181	.00015	.00498
%RSD	.21494	.14607	.29699	.36970	.24653	.59249	.15818	.70177

#1	.63514	.15625	.33526	.13675	2.0176	.30403	.09562	.71404
#2	.63490	.15583	.33632	.13763	2.0271	.30646	.09531	.70879
#3	.63738	.15620	.33434	.13677	2.0199	.30758	.09544	.70409

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.6150	.05344	.06821	.30200	.85490	.39221	4.4466
Stddev	.0023	.00015	.00014	.00051	.00164	.00332	.0293
%RSD	.14441	.27972	.20654	.16964	.19172	.84676	.65820

#1	1.6147	.05340	.06825	.30151	.85348	.38858	4.4351
#2	1.6129	.05332	.06833	.30196	.85669	.39297	4.4249
#3	1.6175	.05361	.06805	.30254	.85453	.39509	4.4799

Sample Name: S3 Acquired: 3/4/2025 15:47:16 Type: Cal
Method: EPA SFAM01.0(v66) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S03 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3253.1	72182.	16025.	3046.8	4150.9
Stddev	6.2	186.	67.	1.9	5.9
%RSD	.19148	.25827	.41567	.06262	.14318
#1	3256.4	72290.	15948.	3045.0	4154.6
#2	3256.9	72288.	16065.	3046.7	4154.0
#3	3245.9	71966.	16062.	3048.8	4144.0

Sample Name: S4 Acquired: 3/4/2025 15:51:24 Type: Cal
Method: EPA SFAM01.0(v66) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S04 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.26829	.29370	4.8400	.28714	.71426	2.1013	4.5394	1.3981
Stddev	.00095	.00095	.0049	.00162	.00185	.0043	.0399	.0046
%RSD	.35267	.32460	.10159	.56267	.25885	.20634	.87937	.32836

#1	.26772	.29275	4.8455	.28656	.71363	2.1053	4.5855	1.3932
#2	.26777	.29370	4.8361	.28589	.71281	2.0967	4.5156	1.3990
#3	.26939	.29466	4.8384	.28896	.71634	2.1018	4.5171	1.4022

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5.7797	2.1802	2.3455	1.7797	2.3281	.81181	1.3919	.73501
Stddev	.0059	.0098	.0044	.0024	.0041	.00263	.0088	.00243
%RSD	.10257	.45020	.18693	.13509	.17453	.32401	.63334	.33111

#1	5.7866	2.1884	2.3419	1.7823	2.3255	.81301	1.4000	.73682
#2	5.7760	2.1694	2.3443	1.7775	2.3328	.80879	1.3825	.73225
#3	5.7766	2.1829	2.3504	1.7794	2.3261	.81362	1.3934	.73597

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.2615	.32295	.66825	.26941	4.1986	.64818	.19693	1.3625
Stddev	.0017	.00061	.00099	.00046	.0099	.00093	.00071	.0046
%RSD	.13351	.18822	.14885	.17024	.23558	.14348	.35895	.33801

#1	1.2625	.32244	.66932	.26940	4.1978	.64923	.19775	1.3574
#2	1.2596	.32280	.66735	.26895	4.1891	.64746	.19655	1.3664
#3	1.2624	.32362	.66808	.26987	4.2089	.64785	.19650	1.3636

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	3.2628	.11138	.13635	.59878	1.6775	.83464	9.3989	
Stddev	.0107	.00020	.00051	.00041	.0031	.00489	.0183	
%RSD	.32676	.17671	.37140	.06770	.18599	.58590	.19494	

#1	3.2579	.11133	.13680	.59924	1.6808	.84001	9.4191	
#2	3.2555	.11121	.13644	.59856	1.6746	.83043	9.3834	
#3	3.2751	.11160	.13580	.59853	1.6772	.83349	9.3942	

Sample Name: S4 Acquired: 3/4/2025 15:51:24 Type: Cal
Method: EPA SFAM01.0(v66) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S04 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2956.5	66880.	15497.	2833.1	3772.0
Stddev	8.4	111.	14.	10.4	4.7
%RSD	.28576	.16639	.08744	.36821	.12437
#1	2960.4	66808.	15509.	2828.3	3769.2
#2	2962.3	67008.	15483.	2845.0	3777.5
#3	2946.8	66825.	15501.	2825.8	3769.4

Sample Name: S5 Acquired: 3/4/2025 15:55:28 Type: Cal
Method: EPA SFAM01.0(v66) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S05 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.57405	.56216	9.5250	.60705	1.5250	4.4191	9.3713	2.7337
Stddev	.00159	.00207	.0251	.00161	.0033	.0516	.0673	.0086
%RSD	.27695	.36882	.26383	.26591	.21703	1.1677	.71766	.31484

#1	.57251	.56422	9.5328	.60544	1.5214	4.4510	9.2938	2.7436
#2	.57395	.56221	9.4969	.60867	1.5278	4.4466	9.4136	2.7280
#3	.57569	.56007	9.5452	.60704	1.5259	4.3595	9.4066	2.7295

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	11.244	4.4051	4.4886	3.5241	4.6933	1.6360	2.7843	1.5164
Stddev	.025	.0369	.0197	.0069	.0083	.0025	.0393	.0011
%RSD	.22123	.83715	.43986	.19492	.17591	.15337	1.4127	.07238

#1	11.256	4.4258	4.4659	3.5280	4.7014	1.6334	2.8263	1.5176
#2	11.215	4.4270	4.4983	3.5162	4.6935	1.6384	2.7484	1.5158
#3	11.260	4.3625	4.5017	3.5282	4.6849	1.6362	2.7783	1.5157

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.4799	.67467	1.3350	.52763	8.6348	1.3767	.40190	2.5708
Stddev	.0064	.00045	.0028	.00248	.0486	.0036	.00044	.0114
%RSD	.25709	.06670	.20915	.46979	.56336	.25801	.10995	.44328

#1	2.4823	.67519	1.3380	.53021	8.6667	1.3736	.40209	2.5835
#2	2.4727	.67442	1.3345	.52526	8.5788	1.3806	.40222	2.5614
#3	2.4848	.67439	1.3325	.52741	8.6590	1.3761	.40140	2.5676

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6.6990	.22904	.27106	1.1684	3.3100	1.7882	19.062
Stddev	.0142	.00046	.00086	.0032	.0086	.0041	.105
%RSD	.21196	.19909	.31648	.27162	.26067	.22757	.54970

#1	6.6848	.22873	.27173	1.1714	3.3195	1.7835	19.183
#2	6.6990	.22883	.27009	1.1651	3.3028	1.7907	19.006
#3	6.7132	.22956	.27134	1.1687	3.3075	1.7903	18.998

Sample Name: S5 Acquired: 3/4/2025 15:55:28 Type: Cal
Method: EPA SFAM01.0(v66) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S05 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2583.3	62454.	15114.	2592.3	3387.3
Stddev	9.0	86.	53.	11.7	3.1
%RSD	.34875	.13698	.34912	.45143	.09190
#1	2593.7	62467.	15053.	2583.3	3390.7
#2	2578.1	62362.	15143.	2605.6	3386.4
#3	2578.0	62532.	15146.	2588.1	3384.7

Sample Name: S6 Acquired: 3/4/2025 16:00:03 Type: Cal
Method: EPA SFAM01.0(v66) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S06 Custom ID2: Custom ID3:
Comment:

Elem	Al3961	Ca3736	Fe2598	Mg2790	Na8183
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	11.767	7.1950	4.3108	2.5060	3.6943
Stddev	.023	.0300	.0138	.0091	.0040
%RSD	.19491	.41710	.32124	.36213	.10841
#1	11.789	7.1876	4.3230	2.5133	3.6967
#2	11.743	7.2281	4.3136	2.5088	3.6965
#3	11.769	7.1694	4.2957	2.4958	3.6897
Int. Std.	Y_3600	Y_3710			
Units	Cts/S	Cts/S			
Avg	59662.	14579.			
Stddev	129.	25.			
%RSD	.21619	.16858			
#1	59553.	14590.			
#2	59630.	14597.			
#3	59804.	14551.			

Sample Name: ICV001 Acquired: 3/4/2025 17:17:14 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICV001 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9757523	1.059134	.9983013	.9155289	.9089349	2.439686
Stddev	.0024942	.007982	.0006607	.0064169	.0029569	.017388
%RSD	.2556229	.7536789	.0661815	.7008960	.3253176	.7127034

#1	.9783942	1.065001	.9990626	.9229026	.9122557	2.456543
#2	.9754247	1.050044	.9979648	.9124732	.9079621	2.440701
#3	.9734381	1.062357	.9978767	.9112110	.9065870	2.421812

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5227809	.5207138	.4943777	9.115492	.5542646	.4899510
Stddev	.0034528	.0022223	.0011799	.033030	.0010464	.0000507
%RSD	.6604600	.4267800	.2386582	.3623517	.1887832	.0103422

#1	.5267175	.5183640	.4940000	9.149136	.5550321	.4899650
#2	.5213597	.5209958	.4934329	9.114227	.5530727	.4899932
#3	.5202656	.5227817	.4957002	9.083112	.5546889	.4898948

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5236324	9.545833	.4808668	5.436558	.5083980	.2300223
Stddev	.0015670	.016769	.0008333	.005301	.0010673	.0007363
%RSD	.2992559	.1756680	.1732956	.0975020	.2099330	.3201082

#1	.5220772	9.565093	.4817816	5.434010	.5089372	.2294331
#2	.5252110	9.537931	.4806680	5.433012	.5090881	.2308477
#3	.5236090	9.534475	.4801509	5.442652	.5071687	.2297862

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.802175	.5246378	.9341918	9.090877	F 4.108315	4.628924
Stddev	.052676	.0010025	.0059205	.055343	.011933	.024774
%RSD	.5373924	.1910762	.6337525	.6087805	.2904529	.5351937

#1	9.829676	.5236351	.9366023	9.134100	4.104629	4.600688
#2	9.741440	.5256401	.9385267	9.110031	4.098660	4.639071
#3	9.835410	.5246380	.9274463	9.028501	4.121655	4.647014

Sample Name: ICV001 Acquired: 3/4/2025 17:17:14 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICV001 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.635639	F 3.808251	F .0189475	F -.001025	F -.001839	F .0000995
Stddev	.005100	.014496	.0032247	.000516	.000316	.0006314
%RSD	.1100221	.3806550	17.01941	50.32800	17.19854	634.7996

#1	4.641247	3.824467	.0210241	-.001374	-.001934	.0007586
#2	4.634389	3.796549	.0205858	-.001268	-.001486	-.000500
#3	4.631279	3.803736	.0152324	-.000433	-.002096	.000040

Elem	Sr4077
Units	ppm
Avg	F .0012035
Stddev	.0000285
%RSD	2.368484

#1	.0012102
#2	.0012280
#3	.0011722

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3604.087	77803.02	16366.60	3275.122	4892.592
Stddev	7.079	126.75	51.22	5.168	5.908
%RSD	.1964198	.1629125	.3129529	.1577900	.1207462

#1	3597.271	77669.93	16415.77	3269.869	4885.937
#2	3603.587	77922.30	16370.47	3275.296	4894.624
#3	3611.403	77816.83	16313.55	3280.200	4897.216

Sample Name: ICB001 Acquired: 3/4/2025 17:23:05 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICB001 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000596	.0007404	-.000052	.0007103	.0013687	.0022003	.0004262
Stddev	.001317	.0006890	.001639	.0013206	.0004839	.0059819	.0009516
%RSD	221.1703	93.06229	3153.896	185.9323	35.35434	271.8734	223.2466

#1	.000815	.0001838	.000235	.0002331	.0018498	.0073747	-.000671
#2	-.001794	.0015110	.001424	-.000305	.0008820	.0035757	.001027
#3	-.000808	.0005263	-.001815	.002203	.0013744	-.004350	.000923

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000028	-.000037	.0043802	-.000142	.0001045	.0017013	-.003071
Stddev	.000019	.000048	.0043554	.000148	.0001177	.0009294	.003102
%RSD	68.02114	131.4725	99.43355	104.0898	112.6401	54.63020	101.0057

#1	-.000035	-.000027	-.000608	-.000171	-.000001	.0010717	-.006078
#2	-.000007	-.000089	.006321	-.000274	.000082	.0012635	.000117
#3	-.000044	.000006	.007428	.000018	.000232	.0027688	-.003251

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000177	.0125515	.0000947	.0000503	.0970367	-.000148	.0005299
Stddev	.000155	.0021631	.0003189	.0002415	.0829883	.000519	.0013276
%RSD	87.70487	17.23389	336.6411	480.2951	85.52253	350.3249	250.5224

#1	-.000244	.0105756	.0001497	.0002675	.1144349	.000388	.0018820
#2	-.000287	.0122163	-.000248	.0000931	.1699467	-.000647	-.000772
#3	.000000	.0148627	.000383	-.000210	.0067287	-.000186	.000480

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.045200	.0006547	-.000283	.0001078	.0015336	.0064356	-.000518
Stddev	.024865	.0022180	.000620	.0003404	.0042342	.0041949	.000906
%RSD	55.01174	338.8130	219.3874	315.8203	276.0965	65.18337	174.7304

#1	-.073693	.0032141	.000011	.0004126	-.003197	.0067930	-.001522
#2	-.034020	-.000543	-.000995	-.000260	.004968	.0020733	-.000273
#3	-.027887	-.000707	.000136	.000170	.002829	.0104403	.000239

Sample Name: ICB001 Acquired: 3/4/2025 17:23:05 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICB001 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.001039	-.000903	-.000001
Stddev	.000599	.000774	.000049
%RSD	57.64046	85.68663	4084.608

#1	-.000364	-.000024	.000007
#2	-.001249	-.001481	-.000054
#3	-.001505	-.001204	.000043

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3655.831	79486.21	16109.19	3349.315	5140.191
Stddev	10.289	100.07	78.37	5.411	8.477
%RSD	.2814464	.1258942	.4864719	.1615447	.1649220

#1	3666.228	79578.37	16199.02	3343.153	5148.490
#2	3655.614	79500.49	16073.70	3351.502	5140.537
#3	3645.653	79379.76	16054.84	3353.289	5131.546

Sample Name: ICSA001 Acquired: 3/4/2025 17:27:13 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSA001 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000689	-.001196	.0038281	.0165994	.0121148	229.1883
Stddev	.0007743	.001260	.0022444	.0011695	.0028495	2.0034
%RSD	1124.443	105.3159	58.62926	7.045510	23.52060	.8741165

#1	-.000071	-.002171	.0061503	.0153520	.0154010	227.0926
#2	-.000626	-.001645	.0016706	.0167751	.0103306	229.3879
#3	.000904	.000227	.0036634	.0176712	.0106127	231.0844

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0053003	-.000453	.0013161	243.8951	.0531602	.0014963
Stddev	.0007790	.000054	.0000951	1.0670	.0003833	.0002976
%RSD	14.69648	11.97663	7.225449	.4374831	.7210111	19.89099

#1	.0059270	-.000511	.0013161	243.5645	.0531445	.0018318
#2	.0055457	-.000404	.0012210	243.0325	.0527850	.0012642
#3	.0044282	-.000444	.0014112	245.0882	.0535511	.0013928

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.005455	101.1526	.0115480	238.6516	.0042979	-.000781
Stddev	.000808	.5259	.0003312	1.2057	.0007464	.000208
%RSD	14.80449	.5198916	2.867898	.5052092	17.36559	26.68433

#1	-.005962	100.9691	.0111664	238.0069	.0036551	-.000801
#2	-.005880	100.7432	.0117601	237.9054	.0041222	-.000563
#3	-.004524	101.7457	.0117175	240.0426	.0051165	-.000978

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2237193	-.005530	-.006310	-.061088	.0054810	F .4102497
Stddev	.0899429	.000809	.001387	.062419	.0021186	.0023679
%RSD	40.20347	14.62142	21.97214	102.1789	38.65277	.5771863

#1	.2081997	-.004806	-.005719	-.039292	.0079253	.4100892
#2	.3204122	-.005382	-.005318	-.131483	.0043448	.4079661
#3	.1425461	-.006403	-.007895	-.012490	.0041730	.4126938

Sample Name: ICSA001 Acquired: 3/4/2025 17:27:13 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSA001 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0008847	.0255738	.0068683	-.005114	-.003761	.0055475
Stddev	.0003449	.0077007	.0034404	.000825	.000357	.0004357
%RSD	38.98839	30.11188	50.09124	16.13674	9.484753	7.854546

#1	.0012365	.0166853	.0085156	-.004396	-.003982	.0055225
#2	.0005470	.0302356	.0091755	-.006015	-.003350	.0051248
#3	.0008708	.0298004	.0029140	-.004930	-.003952	.0059952

Elem	Sr4077
Units	ppm
Avg	F .1027541
Stddev	.0005091
%RSD	.4954516

#1	.1024423
#2	.1024784
#3	.1033416

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3191.842	68335.57	15478.32	2914.217	3972.032
Stddev	7.999	173.96	50.03	10.974	8.198
%RSD	.2506001	.2545725	.3232489	.3765639	.2064002

#1	3186.949	68314.48	15457.08	2921.630	3963.161
#2	3187.505	68519.12	15442.41	2919.411	3973.605
#3	3201.073	68173.11	15535.47	2901.611	3979.330

Sample Name: ICSAB001 Acquired: 3/4/2025 17:31:29 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSAB001 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0895532	.1100796	.0532360	.0650995	.5613490	224.6757
Stddev	.0029818	.0053782	.0036427	.0023078	.0046070	1.3520
%RSD	3.329645	4.885768	6.842514	3.545083	.8207021	.6017522

#1	.0925701	.1154529	.0554569	.0658028	.5578637	224.0072
#2	.0866077	.1100895	.0490320	.0669738	.5596112	223.7883
#3	.0894818	.1046965	.0552190	.0625218	.5665722	226.2318

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4987148	.5178272	1.018132	239.6125	.5994386	.5139315
Stddev	.0007993	.0000632	.002859	.4830	.0016999	.0004215
%RSD	.1602640	.0122107	.2808214	.2015707	.2835834	.0820087

#1	.4983890	.5177704	1.021317	239.5091	.5981458	.5142390
#2	.4996255	.5178953	1.015788	239.1896	.6013641	.5134511
#3	.4981299	.5178158	1.017290	240.1388	.5988058	.5141045

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5119050	99.63112	.5122889	234.3081	1.031419	.2011393
Stddev	.0004205	.13291	.0023527	.8225	.001059	.0005250
%RSD	.0821445	.1334018	.4592593	.3510514	.1026835	.2610232

#1	.5119341	99.59320	.5096165	234.0566	1.032589	.2009148
#2	.5123101	99.52129	.5140480	233.6406	1.031144	.2007640
#3	.5114707	99.77887	.5132023	235.2270	1.030525	.2017393

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1318018	.5036661	.9861088	-.280740	.0088285	F .9897836
Stddev	.3474414	.0009982	.0059327	.032910	.0016856	.0011623
%RSD	263.6090	.1981885	.6016263	11.72251	19.09229	.1174300

#1	-.076465	.5029310	.9836471	-.318582	.0078415	.9885534
#2	-.061024	.5048025	.9818033	-.264827	.0107748	.9908634
#3	.532894	.5032647	.9928761	-.258811	.0078693	.9899339

Sample Name: ICSAB001 Acquired: 3/4/2025 17:31:29 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSAB001 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .6259309	.0245610	F .5229054	F .6469798	F .6587108	.0047873
Stddev	.0019805	.0035649	.0071188	.0016893	.0013233	.0006499
%RSD	.3164031	14.51441	1.361393	.2611104	.2008841	13.57519
#1	.6242327	.0221334	.5301529	.6488409	.6589825	.0054503
#2	.6254535	.0228958	.5226405	.6465553	.6572728	.0047602
#3	.6281064	.0286537	.5159227	.6455432	.6598771	.0041514

Elem	Sr4077
Units	ppm
Avg	F .1019428
Stddev	.0001289
%RSD	.1264560
#1	.1019508
#2	.1020675
#3	.1018100

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3197.733	69404.19	15714.52	2943.505	3993.566
Stddev	4.382	84.58	30.00	5.571	9.654
%RSD	.1370408	.1218667	.1909115	.1892794	.2417463
#1	3200.512	69311.82	15681.07	2949.302	3985.468
#2	3192.681	69477.85	15739.05	2938.191	3990.980
#3	3200.006	69422.89	15723.43	2943.022	4004.250

Sample Name: CCV001 Acquired: 3/4/2025 17:35:31 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV001 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.783277	4.643900	24.08654	4.756181	4.798694	381.9284
Stddev	.015362	.036916	.02327	.007135	.015568	.9577
%RSD	.3211548	.7949460	.0965919	.1500194	.3244308	.2507467

#1	4.784264	4.686143	24.09250	4.762673	4.801606	382.8012
#2	4.767445	4.617833	24.06088	4.748542	4.781875	382.0801
#3	4.798121	4.627724	24.10625	4.757326	4.812601	380.9040

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.999945	.4894614	2.459426	392.4143	15.24319	2.447529
Stddev	.030742	.0019819	.002210	2.6194	.02714	.002211
%RSD	.3074251	.4049056	.0898406	.6674968	.1780337	.0903217

#1	10.03436	.4905758	2.461277	392.6985	15.25188	2.446493
#2	9.97519	.4871732	2.456980	394.8800	15.26492	2.446026
#3	9.99030	.4906352	2.460022	389.6644	15.21277	2.450067

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.88897	394.6198	14.98056	391.2684	2.445293	1.260010
Stddev	.02805	1.8053	.07025	1.7417	.002304	.003287
%RSD	.1883696	.4574779	.4689247	.4451328	.0942176	.2608517

#1	14.91598	394.0575	14.91160	390.4459	2.442932	1.260432
#2	14.89092	396.6393	15.05202	393.2690	2.445414	1.263066
#3	14.85999	393.1625	14.97805	390.0904	2.447535	1.256533

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	392.2296	2.449349	14.97379	151.4958	4.998382	F 5.837700
Stddev	.3098	.007408	.10322	.8478	.006300	.009705
%RSD	.0789940	.3024296	.6893145	.5596349	.1260416	.1662467

#1	392.2617	2.441665	14.86977	151.4857	5.000490	5.848181
#2	392.5221	2.449938	15.07619	152.3486	4.991298	5.829025
#3	391.9050	2.456445	14.97541	150.6531	5.003358	5.835894

Sample Name: CCV001 Acquired: 3/4/2025 17:35:31 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV001 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.778150	4.917816	4.908993	4.867207	4.936024	5.009632
Stddev	.005411	.010150	.012106	.003298	.012390	.024493
%RSD	.1132355	.2064004	.2466063	.0677517	.2510154	.4889271

#1	4.780736	4.911717	4.903792	4.865545	4.923084	4.994079
#2	4.771931	4.912198	4.900356	4.865070	4.937209	5.037866
#3	4.781782	4.929533	4.922830	4.871004	4.947779	4.996950

Elem	Sr4077
Units	ppm
Avg	5.073647
Stddev	.077853
%RSD	1.534461

#1	5.113932
#2	5.123103
#3	4.983906

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2815.996	64217.45	15206.59	2683.696	3524.671
Stddev	5.646	281.56	51.14	7.454	6.524
%RSD	.2004903	.4384499	.3362975	.2777602	.1851024

#1	2814.912	64078.19	15148.39	2688.802	3524.847
#2	2822.105	64032.65	15244.36	2675.142	3531.105
#3	2810.970	64541.50	15227.00	2687.144	3518.060

Sample Name: CCB001 Acquired: 3/4/2025 17:39:49 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB001 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001639	.0008607	-.000837	-.000573	.0020872	.0030185	.0019393
Stddev	.000435	.0003131	.000175	.000762	.0020032	.0017360	.0005472
%RSD	26.54528	36.37589	20.91142	132.9967	95.97785	57.51315	28.21703

#1	-.001769	.0009997	-.000709	-.001309	.0031030	.0019445	.0025250
#2	-.001154	.0010801	-.001036	-.000621	.0033790	.0020896	.0018517
#3	-.001994	.0005022	-.000765	.000212	-.000220	.0050213	.0014411

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000040	-.000002	.0073259	.0001268	.0002938	.0004610	.0096947
Stddev	.000029	.000010	.0015020	.0001308	.0001663	.0012375	.0066020
%RSD	71.89303	574.3992	20.50258	103.1514	56.58945	268.4338	68.09916

#1	-.000072	.000003	.0087207	.0000011	.0001043	.0008726	.0173181
#2	-.000015	-.000013	.0075212	.0001171	.0004151	.0014403	.0058643
#3	-.000034	.000005	.0057358	.0002621	.0003621	-.000930	.0059018

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002030	.0117241	.0000301	-.000174	.1470418	.0005659	.0019820
Stddev	.0002700	.0125312	.0001371	.000058	.0698594	.0012832	.0004103
%RSD	133.0072	106.8838	455.4212	33.17382	47.50988	226.7693	20.70070

#1	-.000103	.0235217	-.000053	-.000241	.2261155	.0000236	.0016216
#2	.000406	-.001430	-.000045	-.000138	.1213197	-.000357	.0024285
#3	.000306	.013081	.000188	-.000144	.0936902	.002031	.0018959

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.021902	.0025090	.0019566	.0000299	.0001536	.0065354	-.000009
Stddev	.025007	.0002902	.0001840	.0000746	.0004415	.0022408	.000210
%RSD	114.1761	11.56630	9.402027	249.8479	287.4868	34.28674	2216.237

#1	-.017439	.0021871	.0017548	.0000263	-.000040	.0054601	.000184
#2	.000573	.0027507	.0021150	-.000043	.000659	.0050349	-.000233
#3	-.048840	.0025891	.0020002	.000106	-.000158	.0091111	.000020

Sample Name: CCB001 Acquired: 3/4/2025 17:39:49 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB001 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.001545	-.000136	.0000749
Stddev	.000403	.000609	.0000311
%RSD	26.05149	446.0872	41.51306

#1	-.001977	-.000070	.0001067
#2	-.001479	.000436	.0000733
#3	-.001180	-.000775	.0000446

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3672.061	81486.34	16135.11	3401.075	5150.058
Stddev	5.320	250.63	58.63	17.065	2.817
%RSD	.1448855	.3075673	.3633642	.5017457	.0547055

#1	3672.806	81330.91	16092.52	3381.848	5150.419
#2	3676.969	81775.46	16110.83	3406.955	5147.078
#3	3666.407	81352.65	16201.98	3414.423	5152.678

Sample Name: PB166911BL Acquired: 3/4/2025 17:43:59 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBW911 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001343	.0010056	.0005247	-.000743	.0007510	.0113519	.0028732
Stddev	.001438	.0003713	.0009033	.001234	.0015107	.0002190	.0006392
%RSD	107.0867	36.92741	172.1698	166.1250	201.1684	1.928816	22.24797

#1	-.002448	.0011724	-.000412	-.002109	.0017346	.0115779	.0036060
#2	.000283	.0005801	.001390	.000291	-.000988	.0111407	.0025838
#3	-.001863	.0012643	.000596	-.000411	.001507	.0113372	.0024299

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000005	-.000034	.0000177	-.000584	.0001036	.0008024	.0043854
Stddev	.000020	.000009	.0083856	.000385	.0002199	.0008322	.0080948
%RSD	409.0563	26.37201	47390.74	65.96226	212.3220	103.7104	184.5832

#1	.000015	-.000044	.0009508	-.000248	.0003444	.0006098	.0108850
#2	-.000025	-.000028	.0078977	-.001004	.0000531	.0000834	.0069531
#3	-.000004	-.000029	-.008795	-.000500	-.000087	.0017141	-.004682

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0007834	.0072324	.0001082	-.000022	.1853126	-.000013	.0009252
Stddev	.0001869	.0057405	.0001967	.000231	.0999641	.000964	.0011573
%RSD	23.85331	79.37130	181.7814	1069.406	53.94350	7217.763	125.0854

#1	.0006108	.0074023	-.000015	-.000244	.0809276	-.000078	-.000300
#2	.0007575	.0014089	.000005	.000216	.1948360	-.000943	.001076
#3	.0009818	.0128860	.000335	-.000036	.2801743	.000982	.001999

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-1.29683	.0036042	-.002391	-.000114	.0069871	.0113110	-.001286
Stddev	.02071	.0011363	.000537	.000071	.0033686	.0021839	.000591
%RSD	1.596923	31.52782	22.46374	62.59025	48.21231	19.30734	45.97188

#1	-1.31085	.0034524	-.002844	-.000096	.0108741	.0136033	-.001898
#2	-1.30660	.0048088	-.001798	-.000192	.0049151	.0110750	-.001244
#3	-1.27304	.0025514	-.002532	-.000053	.0051722	.0092548	-.000718

Sample Name: PB166911BL Acquired: 3/4/2025 17:43:59 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBW911 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.001520	-.002629	.0000253
Stddev	.000619	.000553	.0000088
%RSD	40.73715	21.03160	34.66438

#1	-.001180	-.003149	.0000166
#2	-.001145	-.002690	.0000341
#3	-.002234	-.002048	.0000252

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3750.723	81744.54	16762.36	3467.477	5326.357
Stddev	17.497	184.46	30.51	16.622	18.293
%RSD	.4665101	.2256564	.1820264	.4793777	.3434456

#1	3769.118	81937.86	16739.16	3486.303	5345.300
#2	3748.763	81725.32	16750.99	3454.827	5324.980
#3	3734.288	81570.45	16796.92	3461.300	5308.792

Sample Name: PB166911BS Acquired: 3/4/2025 17:48:09 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS911 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0179368	.0545362	.0192926	.0647526	.1110369	.3301169	.3616292
Stddev	.0014926	.0002725	.0005069	.0014687	.0016277	.0019615	.0020552
%RSD	8.321515	.4997275	2.627232	2.268212	1.465933	.5941709	.5683123

#1	.0165806	.0547516	.0193238	.0663700	.1108799	.3322574	.3631533
#2	.0176939	.0546273	.0197832	.0643854	.1094933	.3296878	.3624423
#3	.0195360	.0542298	.0187709	.0635022	.1127374	.3284055	.3592918

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0109574	.0098745	9.327481	.0211459	.0980017	.0550549	.1960601
Stddev	.0000844	.0001240	.041994	.0000904	.0002366	.0003509	.0001152
%RSD	.7699514	1.256186	.4502194	.4272491	.2413685	.6374387	.0587632

#1	.0108946	.0097666	9.356171	.0210476	.0979481	.0551708	.1961158
#2	.0110533	.0098469	9.346990	.0212253	.0977966	.0546607	.1961369
#3	.0109243	.0100101	9.279281	.0211648	.0982605	.0553333	.1959276

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0301442	8.554508	.0791466	.0187391	10.02950	.1073704	.1142378
Stddev	.0000741	.021835	.0006478	.0002888	.06705	.0003331	.0034025
%RSD	.2457737	.2552490	.8184335	1.541048	.6685283	.3102630	2.978402

#1	.0300754	8.579358	.0785242	.0186644	10.00254	.1071159	.1169779
#2	.0301345	8.545776	.0798171	.0184951	10.10583	.1077474	.1104294
#3	.0302226	8.538390	.0790985	.0190579	9.98013	.1072479	.1153062

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.250703	.0212375	-.001972	.0201817	.1771263	.8795541	.0125139
Stddev	.041577	.0021602	.000223	.0002318	.0033644	.0025346	.0000994
%RSD	.5734238	10.17183	11.30691	1.148322	1.899419	.2881636	.7942900

#1	7.292630	.0225660	-.002149	.0203796	.1749157	.8811453	.0124145
#2	7.209485	.0224015	-.002044	.0202388	.1809982	.8808857	.0125138
#3	7.249994	.0187448	-.001721	.0199268	.1754651	.8766313	.0126133

Sample Name: PB166911BS Acquired: 3/4/2025 17:48:09 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS911 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2054802	.0221070	.0547619
Stddev	.0010853	.0007827	.0000630
%RSD	.5281747	3.540356	.1150250

#1	.2063964	.0229722	.0548187
#2	.2057627	.0214482	.0547728
#3	.2042816	.0219006	.0546941

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3650.485	78770.99	16577.77	3347.351	5052.915
Stddev	11.815	218.34	68.70	10.070	18.274
%RSD	.3236639	.2771796	.4143932	.3008441	.3616572

#1	3661.692	78975.31	16649.81	3347.844	5071.591
#2	3651.621	78540.92	16513.00	3357.166	5052.083
#3	3638.143	78796.74	16570.50	3337.043	5035.071

Sample Name: PB168913BL Acquired: 3/4/2025 17:52:14 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBW913 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000134	.0007821	.0015176	-.001726	-.000734	.0029565	.0016546
Stddev	.000677	.0015639	.0006248	.000725	.001490	.0060464	.0005231
%RSD	503.6619	199.9624	41.17344	42.02653	203.0353	204.5097	31.61633

#1	-.000733	.0023482	.0017325	-.002479	.000894	-.003008	.0019140
#2	-.000270	-.000780	.0008136	-.001666	-.002028	.009082	.0019972
#3	.000600	.000778	.0020065	-.001032	-.001067	.002796	.0010524

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000041	-.000076	.0061948	-.000251	.0002156	.0014128	.0061474
Stddev	.000042	.000043	.0021337	.000104	.0000995	.0011487	.0035332
%RSD	102.6949	56.43401	34.44252	41.29079	46.14583	81.30381	57.47501

#1	-.000002	-.000049	.0075507	-.000296	.0002990	.0008531	.0021809
#2	-.000035	-.000054	.0072984	-.000324	.0001055	.0006513	.0089575
#3	-.000087	-.000126	.0037354	-.000132	.0002425	.0027341	.0073037

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0008569	.0062505	.0010550	-.000088	.1813444	.0007164	.0003392
Stddev	.0001131	.0103358	.0002280	.000424	.1899671	.0006344	.0004662
%RSD	13.20231	165.3608	21.61134	482.4641	104.7549	88.55276	137.4174

#1	.0007329	-.002324	.0009436	.000167	.0491603	.0001452	.0007332
#2	.0009545	.003348	.0009041	.000147	.3990380	.0006049	.0004598
#3	.0008833	.017727	.0013172	-.000578	.0958349	.0013993	-.000175

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-1.32713	.0041839	-.003586	.0001058	.0059002	.0085354	-.001540
Stddev	.02008	.0010639	.000182	.0000767	.0030241	.0032270	.000339
%RSD	1.513024	25.42788	5.082598	72.44613	51.25397	37.80693	22.02124

#1	-1.30690	.0039456	-.003580	.0000525	.0049817	.0075567	-.001159
#2	-1.32744	.0053466	-.003406	.0001936	.0092771	.0121384	-.001808
#3	-1.34705	.0032593	-.003771	.0000713	.0034419	.0059111	-.001653

Sample Name: PB168913BL Acquired: 3/4/2025 17:52:14 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBW913 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.001311	-.003360	.0000192
Stddev	.000558	.001034	.0000252
%RSD	42.56035	30.78053	131.2343

#1	-.000699	-.004539	.0000466
#2	-.001792	-.002609	-.000003
#3	-.001443	-.002931	.000014

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3704.965	80636.75	17079.58	3409.887	5282.046
Stddev	7.812	657.09	45.90	28.343	15.482
%RSD	.2108647	.8148811	.2687456	.8312138	.2931090

#1	3713.671	80620.10	17131.20	3431.139	5297.309
#2	3702.660	79988.15	17043.36	3377.706	5282.475
#3	3698.566	81302.02	17064.19	3420.816	5266.354

Sample Name: PB168913BS Acquired: 3/4/2025 17:56:24 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS913 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0173637	.0553181	.0200804	.0655415	.1121334	.3420377	.3711617
Stddev	.0000472	.0006276	.0006882	.0005826	.0004143	.0009286	.0019391
%RSD	.2715879	1.134504	3.427110	.8888956	.3695072	.2714780	.5224289

#1	.0174164	.0549954	.0201487	.0653118	.1120294	.3430603	.3694344
#2	.0173495	.0549176	.0193606	.0662039	.1125899	.3418054	.3732591
#3	.0173253	.0560414	.0207319	.0651087	.1117810	.3412473	.3707916

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0110183	.0101110	9.497683	.0215456	.0996129	.0570309	.2043318
Stddev	.0000189	.0000702	.028726	.0001314	.0002768	.0013272	.0074079
%RSD	.1718344	.6942961	.3024510	.6096638	.2779180	2.327095	3.625420

#1	.0110051	.0101077	9.491516	.0216962	.0998902	.0571176	.2011716
#2	.0110400	.0101827	9.528992	.0214860	.0996119	.0583125	.2127957
#3	.0110098	.0100424	9.472542	.0214546	.0993365	.0556625	.1990280

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0316861	8.695119	.0806095	.0191185	10.13795	.1066642	.1155710
Stddev	.0002538	.025975	.0002850	.0002284	.06648	.0014307	.0015496
%RSD	.8008086	.2987305	.3535338	1.194650	.6557990	1.341363	1.340822

#1	.0313963	8.698877	.0806863	.0190960	10.20229	.1050211	.1142981
#2	.0318686	8.719010	.0802940	.0189022	10.14204	.1076351	.1151184
#3	.0317934	8.667469	.0808483	.0193573	10.06951	.1073363	.1172965

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.390756	.0220402	-.002131	.0201233	.1855129	.8887660	.0125893
Stddev	.066466	.0004172	.000426	.0001309	.0044740	.0013997	.0003884
%RSD	.8993182	1.892966	20.00283	.6504853	2.411671	.1574849	3.085157

#1	7.431131	.0225209	-.002212	.0199939	.1906667	.8879008	.0122792
#2	7.427093	.0217721	-.001671	.0202556	.1826273	.8903808	.0124639
#3	7.314042	.0218276	-.002512	.0201203	.1832447	.8880163	.0130250

Sample Name: PB168913BS Acquired: 3/4/2025 17:56:24 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS913 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2072646	.0229000	.0558827
Stddev	.0006366	.0007762	.0001559
%RSD	.3071192	3.389528	.2789886

#1	.2079186	.0237543	.0558175
#2	.2072284	.0227075	.0560607
#3	.2066470	.0222381	.0557701

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3608.157	77835.07	16605.65	3302.737	4949.054
Stddev	10.889	84.05	40.04	12.902	6.436
%RSD	.3017767	.1079878	.2411087	.3906573	.1300442

#1	3607.904	77820.31	16611.46	3315.200	4945.728
#2	3619.170	77759.38	16642.46	3303.575	4956.472
#3	3597.398	77925.53	16563.02	3289.436	4944.961

Sample Name: PB166912BL Acquired: 3/4/2025 18:00:29 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBW912 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0004012	.0003892	.0007915	-.002718	.0006209	-.003204	.0022702
Stddev	.0009102	.0009520	.0005957	.002220	.0008449	.001640	.0011108
%RSD	226.8999	244.6371	75.26664	81.66663	136.0834	51.19817	48.93019

#1	.0013480	-.000127	.0001379	-.000156	-.000323	-.001561	.0024623
#2	.0003228	.001488	.0013041	-.004070	.001307	-.003208	.0010759
#3	-.000467	-.000193	.0009325	-.003928	.000879	-.004842	.0032725

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000006	-.000022	-.001800	-.000284	-.000001	-.000366	.0047279
Stddev	.000100	.000056	.003897	.000277	.000170	.000791	.0009178
%RSD	1688.267	256.0100	216.4849	97.77097	16753.82	215.7343	19.41264

#1	-.000092	.000034	-.002421	-.000493	-.000126	.000540	.0048742
#2	.000104	-.000021	.002370	.000031	.000192	-.000915	.0037457
#3	-.000029	-.000079	-.005350	-.000389	-.000069	-.000724	.0055638

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0017259	-.000068	-.000169	-.000132	.0063867	.0006610	.0020970
Stddev	.0004374	.014114	.000349	.000040	.1377496	.0009330	.0008081
%RSD	25.34235	20687.86	207.2886	30.26111	2156.824	141.1450	38.53441

#1	.0013365	-.014711	-.000567	-.000168	-.109191	.0016823	.0014192
#2	.0021991	.013449	-.000021	-.000089	-.030462	-.000147	.0029912
#3	.0016420	.001057	.000083	-.000138	.158813	.000447	.0018805

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-1.29231	.0035040	-.003831	-.000163	.0121659	.0060335	-.001182
Stddev	.00590	.0009082	.000180	.000259	.0024751	.0038903	.000203
%RSD	.4562216	25.92013	4.697880	158.7519	20.34423	64.47877	17.14931

#1	-1.28609	.0043841	-.003776	-.000267	.0116464	.0096491	-.000957
#2	-1.29782	.0025700	-.003685	-.000353	.0099918	.0065344	-.001351
#3	-1.29301	.0035579	-.004032	.000132	.0148594	.0019170	-.001239

Sample Name: PB166912BL Acquired: 3/4/2025 18:00:29 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBW912 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.001063	-.003667	.0000138
Stddev	.000734	.000709	.0000312
%RSD	69.00660	19.34383	225.6795

#1	-.001330	-.004486	.0000498
#2	-.000233	-.003280	-.000003
#3	-.001626	-.003236	-.000005

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3726.276	80913.44	16682.74	3402.797	5302.754
Stddev	.591	85.97	90.56	2.147	9.241
%RSD	.0158474	.1062538	.5428460	.0631064	.1742772

#1	3726.557	80822.11	16622.98	3400.414	5294.258
#2	3726.674	80992.80	16786.94	3403.394	5312.594
#3	3725.598	80925.42	16638.31	3404.583	5301.411

Sample Name: PB166912BS Acquired: 3/4/2025 18:04:38 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS912 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0171076	.0554193	.0196948	.0654070	.1087742	.3188282	.3525765
Stddev	.0003762	.0002954	.0010421	.0013373	.0012729	.0075653	.0020635
%RSD	2.198939	.5330490	5.291129	2.044634	1.170264	2.372852	.5852545

#1	.0168412	.0555776	.0187388	.0656381	.1078219	.3176774	.3503539
#2	.0175379	.0556017	.0195398	.0666137	.1102200	.3119042	.3529443
#3	.0169436	.0550785	.0208056	.0639691	.1082807	.3269029	.3544314

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0110444	.0099862	9.143752	.0211322	.0979633	.0562579	.1938309
Stddev	.0001607	.0000753	.035024	.0002574	.0004980	.0015427	.0014954
%RSD	1.454900	.7538400	.3830385	1.218204	.5084097	2.742248	.7714961

#1	.0111883	.0100384	9.104207	.0210144	.0977232	.0575481	.1926831
#2	.0110737	.0098999	9.170863	.0209549	.0976307	.0545491	.1955220
#3	.0108710	.0100203	9.156185	.0214275	.0985359	.0566767	.1932874

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0299789	8.377492	.0792053	.0185567	10.18266	.1065800	.1111447
Stddev	.0003391	.012266	.0005354	.0002499	.03024	.0003471	.0005869
%RSD	1.131195	.1464110	.6759446	1.346611	.2969475	.3256216	.5280578

#1	.0295970	8.366170	.0785946	.0182964	10.20360	.1062855	.1117046
#2	.0302447	8.390522	.0795938	.0187947	10.19639	.1069626	.1105340
#3	.0300951	8.375785	.0794273	.0185791	10.14799	.1064920	.1111954

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.046785	.0203169	-.002545	.0197880	.1909622	.8857590	.0128278
Stddev	.049032	.0016731	.000803	.0001885	.0022697	.0055711	.0005449
%RSD	.6958072	8.235162	31.54955	.9523889	1.188544	.6289635	4.247815

#1	6.995119	.0184327	-.001772	.0197222	.1926288	.8870545	.0125595
#2	7.052564	.0208894	-.002487	.0196412	.1883773	.8905681	.0134548
#3	7.092671	.0216287	-.003375	.0200005	.1918806	.8796542	.0124690

Sample Name: PB166912BS Acquired: 3/4/2025 18:04:38 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS912 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2031212	.0219520	.0528752
Stddev	.0004627	.0018113	.0006307
%RSD	.2277862	8.251158	1.192792

#1	.2027274	.0202692	.0523636
#2	.2036308	.0217178	.0526821
#3	.2030053	.0238690	.0535798

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3612.540	78514.63	16242.26	3327.619	4963.514
Stddev	12.037	389.99	132.02	.358	18.399
%RSD	.3332077	.4967087	.8128352	.0107500	.3706774

#1	3621.818	78907.75	16210.84	3328.032	4980.142
#2	3616.863	78127.85	16128.79	3327.417	4966.651
#3	3598.938	78508.29	16387.16	3327.407	4943.748

Sample Name: Q1136-01 Acquired: 3/4/2025 18:21:07 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F5 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0007459	.0010195	.0003624	.0000353	-.000443	.0310448
Stddev	.0012076	.0006429	.0010280	.0014092	.000878	.0051127
%RSD	161.8929	63.06756	283.6566	3995.594	198.2967	16.46870

#1	.0018053	.0005054	.0012418	.0015933	.000566	.0295032
#2	.0010015	.0017404	.0006133	-.001150	-.000859	.0367509
#3	-.000569	.0008127	-.000768	-.000337	-.001036	.0268804

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2187321	.0000708	.0001082	7.704541	-.000547	.0103477
Stddev	.0007396	.0000535	.0000832	.007049	.000251	.0001276
%RSD	.3381364	75.54912	76.93956	.0914871	45.87165	1.233209

#1	.2195771	.0000660	.0002009	7.711198	-.000376	.0102016
#2	.2182021	.0001265	.0000837	7.705269	-.000430	.0104378
#3	.2184171	.0000199	.0000399	7.697157	-.000836	.0104036

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0023377	.0732435	.3004728	4.475223	.0098320	-.000345
Stddev	.0013433	.0038242	.0012949	.008821	.0004098	.000066
%RSD	57.46385	5.221191	.4309366	.1971157	4.167827	19.23944

#1	.0019413	.0772460	.3017284	4.478418	.0102533	-.000268
#2	.0038347	.0696269	.2991420	4.482002	.0094348	-.000387
#3	.0012372	.0728576	.3005479	4.465250	.0098080	-.000379

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.558566	.0011862	.0703462	.5750073	.0059917	.0853404
Stddev	.179800	.0014117	.0004717	.0108196	.0014861	.0010554
%RSD	3.234650	119.0126	.6705725	1.881645	24.80241	1.236656

#1	5.766010	.0016686	.0700024	.5644555	.0044412	.0858441
#2	5.447558	-.000403	.0708840	.5860761	.0061301	.0860496
#3	5.462128	.002293	.0701523	.5744902	.0074037	.0841276

Sample Name: Q1136-01 Acquired: 3/4/2025 18:21:07 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F5 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0011450	F 10.93622	6.487493	-.000225	.0008419	.0041691
Stddev	.0002422	.02674	.014390	.000439	.0006813	.0009130
%RSD	21.14814	.2444641	.2218085	195.3820	80.92388	21.90063

#1	.0011660	10.94702	6.499290	-.000367	.0002234	.0040359
#2	.0013760	10.90577	6.491727	-.000575	.0015721	.0051414
#3	.0008930	10.95586	6.471461	.000268	.0007301	.0033299

Elem	Sr4077
Units	ppm
Avg	.0503843
Stddev	.0001117
%RSD	.2215987

#1	.0504178
#2	.0502598
#3	.0504755

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3659.691	80212.20	16567.11	3351.723	5127.232
Stddev	4.264	102.00	25.80	7.860	3.276
%RSD	.1165074	.1271675	.1557138	.2344915	.0638932

#1	3658.486	80095.29	16565.16	3360.697	5125.636
#2	3656.159	80283.09	16542.35	3348.412	5125.060
#3	3664.427	80258.20	16593.83	3346.061	5131.000

Sample Name: Q1136-02 Acquired: 3/4/2025 18:25:13 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F7 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002443	.0017075	.0002814	-.000072	-.000062	.0047420
Stddev	.002326	.0009953	.0011373	.002541	.001323	.0017119
%RSD	95.20092	58.29008	404.2071	3518.982	2132.294	36.10143

#1	-.000348	.0006585	-.000243	-.002911	.000415	.0033854
#2	-.004946	.0018253	.001586	.000703	.000956	.0041751
#3	-.002036	.0026386	-.000499	.001991	-.001558	.0066654

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2287303	.0000459	.0000032	8.540349	.0002454	.0002413
Stddev	.0008298	.0000241	.0000615	.010162	.0000715	.0002593
%RSD	.3627912	52.45276	1892.429	.1189884	29.12233	107.4744

#1	.2286113	.0000191	.0000698	8.533365	.0003220	-.000018
#2	.2279664	.0000529	-.000008	8.552007	.0002339	.000242
#3	.2296132	.0000657	-.000052	8.535674	.0001804	.000500

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0020129	.0552031	.0210459	2.418827	.0013922	-.000308
Stddev	.0010822	.0054112	.0003738	.011769	.0002176	.000083
%RSD	53.76272	9.802274	1.775996	.4865395	15.63279	27.01492

#1	.0015184	.0505851	.0212694	2.431127	.0011454	-.000311
#2	.0012663	.0611572	.0206144	2.407674	.0014749	-.000389
#3	.0032540	.0538671	.0212539	2.417679	.0015564	-.000223

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.294818	.0009838	.1208162	5.930394	.0531299	.1074794
Stddev	.078926	.0007901	.0008763	.035395	.0033967	.0012428
%RSD	1.837715	80.30676	.7253207	.5968452	6.393104	1.156274

#1	4.245804	.0010092	.1198865	5.890886	.0502167	.1085412
#2	4.252784	.0017609	.1216270	5.941083	.0568607	.1077846
#3	4.385865	.0001814	.1209351	5.959213	.0523123	.1061125

Sample Name: Q1136-02 Acquired: 3/4/2025 18:25:13 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F7 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000092	F 10.60747	2.775803	-.001845	-.001169	-.000587
Stddev	.000144	.02058	.010721	.000392	.000620	.000663
%RSD	156.4327	.1940203	.3862479	21.26736	53.08717	113.0467
#1	-.000081	10.59076	2.784944	-.001581	-.001583	.000110
#2	.000046	10.60120	2.778463	-.001658	-.001468	-.001211
#3	-.000241	10.63046	2.764002	-.002296	-.000455	-.000659

Elem	Sr4077
Units	ppm
Avg	.0643553
Stddev	.0003776
%RSD	.5867368
#1	.0639333
#2	.0644715
#3	.0646612

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3652.337	79513.80	16404.99	3353.281	5104.087
Stddev	10.377	320.93	44.87	17.010	12.116
%RSD	.2841242	.4036181	.2735274	.5072721	.2373867
#1	3662.445	79854.54	16411.07	3345.866	5116.371
#2	3652.856	79217.27	16357.39	3341.238	5103.747
#3	3641.710	79469.59	16446.52	3372.741	5092.145

Sample Name: Q1136-03 Acquired: 3/4/2025 18:29:18 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F7D Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001241	.0010590	.0008028	-.000438	.0014031	-.000228
Stddev	.001125	.0011423	.0004914	.001083	.0006601	.000627
%RSD	90.64722	107.8598	61.20570	247.6273	47.04396	275.2568

#1	-.001110	.0018279	.0004188	-.001334	.0011742	-.000432
#2	-.002426	-.000254	.0013565	-.000745	.0008880	-.000728
#3	-.000188	.001603	.0006331	.000766	.0021472	.000476

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2453863	.0000394	-.000045	8.583123	.0028607	.0002334
Stddev	.0017946	.0000835	.000018	.031180	.0002327	.0002590
%RSD	.7313218	211.8915	39.03022	.3632746	8.135779	110.9625

#1	.2473175	.0001341	-.000026	8.609783	.0027930	.0004885
#2	.2450712	.0000082	-.000062	8.590748	.0031198	.0002410
#3	.2437701	-.000024	-.000048	8.548837	.0026693	-.000029

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0029312	.0356899	.0237299	2.435683	.0025637	-.000129
Stddev	.0009150	.0051935	.0001067	.016464	.0002989	.000152
%RSD	31.21575	14.55171	.4497811	.6759520	11.66073	117.3763

#1	.0038190	.0353318	.0236071	2.440201	.0022655	-.000122
#2	.0029834	.0410531	.0238000	2.449415	.0028634	-.000284
#3	.0019912	.0306847	.0237826	2.417431	.0025624	.000019

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.331572	.0012034	.1178039	5.931486	.0516194	.1052195
Stddev	.172369	.0009399	.0014323	.079874	.0014798	.0010816
%RSD	3.979368	78.10192	1.215831	1.346602	2.866753	1.027949

#1	4.307771	.0003488	.1169245	5.971452	.0533010	.1043089
#2	4.514605	.0022101	.1170306	5.983488	.0510408	.1049347
#3	4.172340	.0010514	.1194567	5.839518	.0505162	.1064151

Sample Name: Q1136-03 Acquired: 3/4/2025 18:29:18 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F7D Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000207	F 10.64341	2.735890	-.001896	-.001499	-.001589
Stddev	.000048	.03231	.007526	.000632	.000503	.000620
%RSD	23.01146	.3035481	.2750707	33.33218	33.57058	38.98829
#1	-.000259	10.61734	2.738203	-.002604	-.002052	-.002264
#2	-.000165	10.63335	2.727479	-.001387	-.001068	-.001046
#3	-.000198	10.67956	2.741988	-.001699	-.001377	-.001458

Elem	Sr4077
Units	ppm
Avg	.0659159
Stddev	.0003955
%RSD	.6000435
#1	.0662533
#2	.0660138
#3	.0654806

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3622.326	79159.38	16676.45	3336.450	5064.857
Stddev	12.297	120.53	106.31	15.084	11.655
%RSD	.3394866	.1522657	.6374569	.4520941	.2301093
#1	3633.922	79220.19	16793.17	3352.320	5074.380
#2	3623.625	79020.56	16650.99	3322.299	5068.331
#3	3609.431	79237.39	16585.19	3334.730	5051.861

Sample Name: Q1136-02LX5 Acquired: 3/4/2025 18:33:23 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F7L Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002278	-.000454	-.000144	.0001769	.0015127	-.004652	.0479725
Stddev	.001032	.000314	.000207	.0032863	.0003898	.002940	.0007514
%RSD	45.32677	69.10594	143.2421	1857.236	25.76588	63.19994	1.566244

#1	-.002172	-.000429	-.000185	.0024279	.0018812	-.008021	.0488214
#2	-.003359	-.000780	.000080	.0016972	.0015522	-.003328	.0473928
#3	-.001302	-.000154	-.000328	-.003594	.0011047	-.002606	.0477034

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000241	-.000018	1.737021	.0001037	.0001377	.0006540	.0124318
Stddev	.0000992	.000000	.003999	.0001670	.0001764	.0024591	.0042198
%RSD	411.5549	1.599682	.2302046	161.0088	128.0849	375.9974	33.94347

#1	-.000075	-.000018	1.736536	.0001437	.0001906	-.002160	.0112159
#2	.000124	-.000018	1.741240	.0002470	.0002816	.001731	.0089535
#3	.000023	-.000017	1.733287	-.000080	-.000059	.002390	.0171261

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0047114	.4936916	.0002516	-.000139	1.009166	.0001946	.0243706
Stddev	.0002373	.0077469	.0000856	.000091	.169901	.0005125	.0007233
%RSD	5.036293	1.569169	34.03217	65.55390	16.83583	263.4137	2.967786

#1	.0044598	.4978598	.0003225	-.000245	.856058	-.000138	.0236001
#2	.0047434	.4847530	.0001565	-.000086	.979490	.000785	.0244767
#3	.0049311	.4984619	.0002758	-.000088	1.191950	-.000063	.0250349

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.133430	.0114289	.0171419	.0000495	2.091560	.5541019	-.000914
Stddev	.021080	.0017129	.0001407	.0000812	.010580	.0028960	.000807
%RSD	1.859880	14.98745	.8206225	163.9604	.5058520	.5226536	88.29672

#1	1.133276	.0128658	.0171755	-.000044	2.082231	.5512571	-.001846
#2	1.154587	.0095334	.0169875	.000101	2.089393	.5540018	-.000440
#3	1.112427	.0118876	.0172628	.000092	2.103056	.5570466	-.000456

Sample Name: Q1136-02LX5 Acquired: 3/4/2025 18:33:23 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F7L Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.001272	-.001692	.0133725
Stddev	.000596	.000389	.0000195
%RSD	46.85801	22.99695	.1457838

#1	-.001960	-.001627	.0133904
#2	-.000912	-.002109	.0133753
#3	-.000944	-.001339	.0133517

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3627.210	78269.26	16348.83	3307.768	5071.795
Stddev	2.697	274.97	54.37	10.305	4.800
%RSD	.0743585	.3513173	.3325487	.3115373	.0946494

#1	3624.870	77971.63	16345.17	3300.569	5072.886
#2	3626.599	78513.84	16404.94	3319.573	5075.956
#3	3630.160	78322.33	16296.38	3303.164	5066.543

Sample Name: Q1136-04 Acquired: 3/4/2025 18:37:32 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F7S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0354359	.0544647	.0194313	.0931132	.0890442	1.629387
Stddev	.0013359	.0014540	.0010559	.0027134	.0021724	.004115
%RSD	3.769869	2.669589	5.433764	2.914128	2.439733	.2525255

#1	.0369759	.0528517	.0190765	.0903673	.0892698	1.633539
#2	.0345884	.0556747	.0206188	.0957930	.0867678	1.625311
#3	.0347435	.0548675	.0185984	.0931793	.0910951	1.629310

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.104036	.0517610	.0478778	8.602371	.2169044	.4835087
Stddev	.009848	.0002210	.0001705	.045507	.0003316	.0004987
%RSD	.4680531	.4270118	.3561537	.5290073	.1528780	.1031418

#1	2.115214	.0519507	.0479197	8.647669	.2172573	.4837643
#2	2.100257	.0515183	.0476902	8.556658	.2168563	.4838278
#3	2.096638	.0518139	.0480234	8.602787	.2165994	.4829340

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2539618	1.018252	.5238261	2.430842	.4943250	.0372146
Stddev	.0006450	.001710	.0045514	.004330	.0004939	.0001742
%RSD	.2539609	.1679533	.8688689	.1781396	.0999092	.4680538

#1	.2535358	1.018572	.5283706	2.434828	.4944236	.0372641
#2	.2536458	1.019779	.5192679	2.431462	.4937893	.0373588
#3	.2547039	1.016404	.5238398	2.426235	.4947622	.0370211

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.533853	.5120076	.5957890	6.377023	.0457276	.1134568
Stddev	.199946	.0036562	.0030820	.059096	.0014014	.0002761
%RSD	3.613144	.7140852	.5172986	.9267079	3.064721	.2433058

#1	5.305242	.5155850	.5923227	6.427048	.0472419	.1131404
#2	5.620204	.5082774	.5982201	6.311817	.0454644	.1135819
#3	5.676112	.5121605	.5968242	6.392205	.0444764	.1136482

Sample Name: Q1136-04 Acquired: 3/4/2025 18:37:32 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F7S Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000016	F 10.94559	2.773442	-.000486	-.002356	-.000308
Stddev	.000262	.02176	.012775	.000355	.000586	.000087
%RSD	1660.391	.1988046	.4606293	73.12898	24.89389	28.35134
#1	-.000194	10.92428	2.787644	-.000333	-.002807	-.000394
#2	-.000138	10.94473	2.762888	-.000893	-.002568	-.000220
#3	.000285	10.96777	2.769791	-.000233	-.001693	-.000309

Elem	Sr4077
Units	ppm
Avg	.0656533
Stddev	.0002388
%RSD	.3637562
#1	.0658243
#2	.0657552
#3	.0653804

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3607.523	78516.68	16813.16	3297.957	5025.473
Stddev	11.456	312.47	87.65	21.723	8.340
%RSD	.3175705	.3979653	.5213161	.6586726	.1659561
#1	3620.735	78204.52	16783.23	3317.667	5032.662
#2	3601.490	78829.46	16911.85	3301.537	5027.428
#3	3600.343	78516.05	16744.39	3274.666	5016.329

Sample Name: Q1136-05 Acquired: 3/4/2025 18:41:29 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F8 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002728	.0014563	.0001815	.0002180	-.000570	.0013538
Stddev	.002417	.0017405	.0011979	.0025769	.000575	.0031590
%RSD	88.60174	119.5159	659.9122	1182.145	100.8615	233.3447

#1	-.000619	-.000553	-.000624	.0029416	-.000997	-.002144
#2	-.005366	.002461	.001558	-.000106	.000084	.002206
#3	-.002200	.002461	-.000389	-.002181	-.000798	.004000

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2187264	.0000463	-.000053	11.22635	-.000111	.0011601
Stddev	.0004883	.0000594	.000044	.03062	.000153	.0001633
%RSD	.2232385	128.3306	81.47675	.2727748	138.2007	14.07151

#1	.2188419	.0000470	-.000041	11.22991	.000020	.0011462
#2	.2181907	-.000013	-.000102	11.19410	-.000279	.0010042
#3	.2191466	.000105	-.000017	11.25503	-.000074	.0013299

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0025233	.0237438	.0548450	2.796959	.0028927	-.000220
Stddev	.0015737	.0006722	.0003637	.009613	.0001685	.000255
%RSD	62.36739	2.831245	.6632144	.3437104	5.825637	116.2888

#1	.0031615	.0229956	.0546329	2.785869	.0027039	-.000508
#2	.0036776	.0242970	.0546371	2.802935	.0030278	-.000130
#3	.0007307	.0239387	.0552650	2.802071	.0029465	-.000021

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.039365	-.000951	.0956217	.5154199	.0054343	.0913727
Stddev	.181371	.001025	.0009055	.0129866	.0012663	.0002389
%RSD	4.490078	107.7871	.9469160	2.519623	23.30116	.2614358

#1	3.888412	.000099	.0952001	.5016122	.0041290	.0911623
#2	3.989123	-.001001	.0966610	.5172579	.0066575	.0916324
#3	4.240560	-.001949	.0950039	.5273896	.0055163	.0913234

Sample Name: Q1136-05 Acquired: 3/4/2025 18:41:29 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F8 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000855	F 10.42044	4.435494	-.001895	-.000655	.0000504
Stddev	.0002447	.01268	.018354	.000587	.000305	.0006973
%RSD	286.3317	.1216820	.4137872	30.96849	46.56712	1383.293
#1	.0000363	10.41267	4.456017	-.002201	-.000595	.0001854
#2	.0003510	10.43507	4.420654	-.002266	-.000384	.0006704
#3	-.000131	10.41358	4.429812	-.001218	-.000985	-.000704

Elem	Sr4077
Units	ppm
Avg	.0829427
Stddev	.0002752
%RSD	.3318350
#1	.0828396
#2	.0827339
#3	.0832546

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3651.234	79485.05	16835.76	3335.350	5117.146
Stddev	3.511	49.82	37.61	13.378	8.229
%RSD	.0961527	.0626733	.2233691	.4011123	.1608135
#1	3647.760	79541.79	16844.51	3344.968	5109.371
#2	3651.162	79448.46	16794.55	3320.072	5116.301
#3	3654.781	79464.92	16868.22	3341.010	5125.764

Sample Name: Q1136-06 Acquired: 3/4/2025 18:45:35 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8E3 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001950	.0019779	.0017261	.0008782	.0005282	.0080998
Stddev	.000820	.0012046	.0006800	.0029857	.0004723	.0021525
%RSD	42.03199	60.90233	39.39718	339.9580	89.41388	26.57523

#1	-.002651	.0007605	.0010965	.0040717	.0002565	.0063799
#2	-.001049	.0020041	.0024472	.0004065	.0002546	.0074057
#3	-.002150	.0031693	.0016345	-.001843	.0010736	.0105137

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2244081	.0000394	.0000709	10.51109	-.000327	.0011233
Stddev	.0020755	.0000315	.0000868	.06389	.000077	.0002329
%RSD	.9249015	80.13820	122.4275	.6078246	23.56534	20.73109

#1	.2221742	.0000467	.0001446	10.43810	-.000343	.0009259
#2	.2247733	.0000665	-.000025	10.55691	-.000244	.0013802
#3	.2262768	.0000048	.000093	10.53825	-.000396	.0010639

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0638279	.1130931	.0457415	2.815161	.0064358	-.000282
Stddev	.0008445	.0064563	.0004362	.002474	.0004246	.000220
%RSD	1.323070	5.708850	.9535012	.0878819	6.598036	78.03435

#1	.0643733	.1073948	.0452436	2.817942	.0069164	-.000534
#2	.0642551	.1201053	.0459254	2.814337	.0061111	-.000174
#3	.0628551	.1117792	.0460556	2.813204	.0062801	-.000136

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.068907	.0001375	.1009236	2.401737	.0070323	.0930860
Stddev	.033586	.0012991	.0010912	.048336	.0015002	.0007629
%RSD	.8254419	945.1377	1.081248	2.012548	21.33229	.8195326

#1	4.050407	-.000109	.0998533	2.346908	.0056681	.0938792
#2	4.107676	-.001021	.1020346	2.420114	.0067899	.0930212
#3	4.048638	.001542	.1008829	2.438190	.0086389	.0923576

Sample Name: Q1136-06 Acquired: 3/4/2025 18:45:35 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8E3 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000332	F 12.52599	4.262223	.0004434	-.000564	-.000593
Stddev	.0001878	.03142	.021120	.0001877	.000244	.000884
%RSD	565.6601	.2508157	.4955065	42.33646	43.37870	149.0416

#1	-.000103	12.56167	4.266133	.0003617	-.000313	-.001320
#2	-.000045	12.50248	4.281114	.0003103	-.000802	-.000850
#3	.000247	12.51381	4.239421	.0006581	-.000576	.000391

Elem	Sr4077
Units	ppm
Avg	.0775730
Stddev	.0006490
%RSD	.8366872

#1	.0770052
#2	.0774333
#3	.0782806

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3681.958	80090.60	16754.33	3350.990	5153.061
Stddev	7.810	267.95	121.36	14.235	11.920
%RSD	.2121225	.3345549	.7243655	.4247936	.2313213

#1	3687.376	80325.92	16679.81	3361.359	5150.048
#2	3685.493	79798.97	16688.81	3334.760	5166.199
#3	3673.005	80146.92	16894.37	3356.850	5142.937

Sample Name: Q1136-07 Acquired: 3/4/2025 18:49:42 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8E4 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0028771	.0006836	.0026253	.0005884	.0026577	2.263554
Stddev	.0008690	.0005004	.0013094	.0028183	.0007383	.025697
%RSD	30.20344	73.20306	49.87546	478.9359	27.77984	1.135259

#1	.0038433	.0011988	.0016742	.0031046	.0028320	2.234030
#2	.0021596	.0006526	.0020830	-.002457	.0018479	2.275745
#3	.0026284	.0001994	.0041187	.001118	.0032933	2.280886

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2963460	.0000949	.0000497	8.713595	.0044895	.0011692
Stddev	.0045401	.0000153	.0000131	.094204	.0002107	.0001820
%RSD	1.532033	16.14786	26.39803	1.081113	4.692467	15.56257

#1	.2911490	.0000996	.0000527	8.608477	.0045026	.0009697
#2	.2995411	.0001072	.0000354	8.790383	.0042726	.0012119
#3	.2983479	.0000777	.0000611	8.741924	.0046934	.0013261

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0200767	4.560862	.0536513	5.196772	.0067936	-.000143
Stddev	.0007941	.048162	.0006673	.023990	.0002360	.000355
%RSD	3.955272	1.055980	1.243773	.4616357	3.474149	247.4692

#1	.0193697	4.505254	.0528849	5.184830	.0065843	.000266
#2	.0199245	4.589238	.0541037	5.224390	.0070494	-.000326
#3	.0209358	4.588095	.0539652	5.181097	.0067470	-.000370

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	17.04695	.0087211	.1471100	-.653826	.0793028	.2597965
Stddev	.04031	.0011860	.0009049	.011616	.0029653	.0017041
%RSD	.2364826	13.59912	.6151507	1.776644	3.739279	.6559202

#1	17.07316	.0075334	.1465136	-.663086	.0777597	.2617311
#2	17.00053	.0087246	.1466650	-.657600	.0827215	.2591406
#3	17.06716	.0099054	.1481513	-.640792	.0774271	.2585179

Sample Name: Q1136-07 Acquired: 3/4/2025 18:49:42 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8E4 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0006315	F 14.22080	5.954356	-.001173	.0256354	.0009987
Stddev	.0003268	.03715	.024296	.000145	.0001604	.0001970
%RSD	51.74795	.2612366	.4080354	12.37605	.6255900	19.72933
#1	.0004017	14.17808	5.939666	-.001006	.0256135	.0010720
#2	.0004872	14.24552	5.941003	-.001248	.0258056	.0011486
#3	.0010056	14.23880	5.982400	-.001267	.0254871	.0007755

Elem	Sr4077
Units	ppm
Avg	.0780896
Stddev	.0008146
%RSD	1.043094
#1	.0771544
#2	.0786442
#3	.0784701

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3680.030	79744.11	16787.41	3349.196	5085.890
Stddev	10.146	467.36	95.42	21.130	7.173
%RSD	.2756934	.5860802	.5683864	.6309030	.1410377
#1	3691.005	80281.26	16680.84	3369.563	5094.072
#2	3670.993	79430.49	16864.92	3327.378	5082.913
#3	3678.093	79520.57	16816.47	3350.647	5080.685

Sample Name: Q1136-08 Acquired: 3/4/2025 18:53:43 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8E5 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0089852	.0005120	.0020455	-.000441	.0014553	3.556112
Stddev	.0010206	.0002112	.0020186	.001786	.0011558	.016255
%RSD	11.35886	41.24963	98.68653	404.6334	79.41467	.4571138

#1	.0098527	.0007385	.0006692	-.001570	.0027712	3.553814
#2	.0092423	.0003204	.0011044	.001618	.0006048	3.541128
#3	.0078606	.0004772	.0043628	-.001372	.0009900	3.573395

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2072981	.0000641	.0001296	7.061671	.0070667	.0005759
Stddev	.0008520	.0000140	.0000065	.023433	.0000643	.0002313
%RSD	.4109825	21.90397	5.016582	.3318295	.9099219	40.16799

#1	.2082332	.0000712	.0001256	7.080786	.0071222	.0006535
#2	.2065659	.0000732	.0001371	7.035529	.0069962	.0003157
#3	.2070951	.0000479	.0001260	7.068700	.0070816	.0007584

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0269217	10.01719	.0143468	5.250453	.0061975	-.000079
Stddev	.0008887	.01753	.0001697	.018127	.0002888	.000072
%RSD	3.301022	.1749757	1.182735	.3452445	4.659949	92.23738

#1	.0278758	10.03378	.0145303	5.266377	.0059941	.000004
#2	.0261174	9.99885	.0141956	5.230726	.0060704	-.000131
#3	.0267719	10.01893	.0143144	5.254255	.0065281	-.000108

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	16.84171	.0084212	.1451805	-.779276	.1696207	.3462104
Stddev	.18200	.0006910	.0020908	.032718	.0017309	.0018481
%RSD	1.080643	8.205846	1.440166	4.198531	1.020466	.5337992

#1	16.72872	.0079858	.1440038	-.807205	.1712929	.3448428
#2	16.74474	.0092180	.1475945	-.743278	.1678365	.3483129
#3	17.05166	.0080598	.1439431	-.787345	.1697327	.3454756

Sample Name: Q1136-08 Acquired: 3/4/2025 18:53:43 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8E5 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0013525	F 12.34218	F 12.88746	-.002553	.0150619	-.001174
Stddev	.0000475	.01131	.03924	.000461	.0007803	.001268
%RSD	3.511260	.0916695	.3044604	18.06852	5.180515	107.9964
#1	.0013718	12.33305	12.93174	-.002024	.0146892	-.000814
#2	.0013873	12.33866	12.85701	-.002874	.0159586	-.000125
#3	.0012984	12.35484	12.87362	-.002760	.0145378	-.002584

Elem	Sr4077
Units	ppm
Avg	.0525010
Stddev	.0002088
%RSD	.3977300
#1	.0523076
#2	.0524730
#3	.0527224

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3618.319	77606.25	16371.39	3294.532	5016.215
Stddev	11.617	24.19	11.51	8.168	16.305
%RSD	.3210515	.0311651	.0702859	.2479257	.3250371
#1	3626.385	77633.57	16368.68	3297.795	5026.347
#2	3623.567	77597.60	16361.47	3285.237	5024.891
#3	3605.004	77587.57	16384.00	3300.564	4997.407

Sample Name: Q1136-09 Acquired: 3/4/2025 18:57:46 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8E6 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0179781	.0008715	-.000692	-.000573	.0051743	.0248737
Stddev	.0021969	.0016400	.001157	.002940	.0014407	.0024997
%RSD	12.21983	188.1855	167.2540	513.3037	27.84377	10.04947

#1	.0154483	-.000969	.000514	.002043	.0035515	.0220293
#2	.0190803	.002179	-.000797	-.000007	.0056687	.0258713
#3	.0194057	.001404	-.001792	-.003755	.0063028	.0267205

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2572652	.0000735	.0121531	8.775677	-.000658	.0189388
Stddev	.0012696	.0000281	.0000295	.016666	.000236	.0000479
%RSD	.4935066	38.21931	.2425813	.1899147	35.84962	.2527117

#1	.2586367	.0000866	.0121221	8.786034	-.000553	.0189319
#2	.2561310	.0000926	.0121808	8.756452	-.000493	.0189898
#3	.2570278	.0000412	.0121563	8.784545	-.000929	.0188948

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0916875	.2341841	.2932943	4.419433	.1905679	-.000055
Stddev	.0012745	.0014002	.0017671	.008455	.0002889	.000141
%RSD	1.390103	.5978867	.6025027	.1913154	.1515797	255.3938

#1	.0917890	.2343237	.2949411	4.426940	.1902456	.000008
#2	.0903652	.2327194	.2914275	4.410273	.1906550	.000043
#3	.0929082	.2355093	.2935144	4.421085	.1908033	-.000216

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.499423	-.000130	.3272578	.9973908	.0075032	.1787714
Stddev	.155214	.000710	.0049981	.0331020	.0008082	.0024279
%RSD	2.822376	545.9401	1.527274	3.318859	10.77201	1.358119

#1	5.597325	.000570	.3306472	1.033955	.0066833	.1769005
#2	5.320461	-.000850	.3296084	.969463	.0082992	.1815151
#3	5.580483	-.000110	.3215177	.988755	.0075270	.1778986

Sample Name: Q1136-09 Acquired: 3/4/2025 18:57:46 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8E6 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0044288	F 12.30294	3.119909	.0002057	-.000793	.0000751
Stddev	.0003001	.00391	.011225	.0006798	.000478	.0004164
%RSD	6.776450	.0317474	.3597961	330.4093	60.32614	554.0673
#1	.0043990	12.30068	3.132864	-.000579	-.000906	.0005475
#2	.0041446	12.30069	3.113793	.000573	-.000268	-.000083
#3	.0047426	12.30745	3.113069	.000623	-.001205	-.000239

Elem	Sr4077
Units	ppm
Avg	.0671135
Stddev	.0002671
%RSD	.3980144
#1	.0673923
#2	.0668599
#3	.0670881

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3629.743	78821.07	16533.37	3306.874	5123.368
Stddev	7.072	161.83	28.07	3.725	10.190
%RSD	.1948389	.2053105	.1698048	.1126395	.1989021
#1	3630.881	78913.14	16564.06	3310.667	5127.902
#2	3636.177	78915.85	16527.07	3303.221	5130.504
#3	3622.171	78634.21	16508.98	3306.736	5111.697

Sample Name: Q1136-10 Acquired: 3/4/2025 19:01:48 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8E7 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002594	.0010407	-.000195	.0003082	.0006883	.1213552
Stddev	.000799	.0018458	.001062	.0005217	.0014131	.0037065
%RSD	30.80488	177.3646	544.4120	169.2571	205.3070	3.054262

#1	-.003196	.0009272	.000458	-.000071	.0004842	.1225274
#2	-.001687	-.000746	-.001420	.000093	.0021923	.1243339
#3	-.002897	.002941	.000377	.000903	-.000612	.1172044

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2423809	.0000562	.0000599	8.702707	-.000449	.0100130
Stddev	.0018562	.0000818	.0000211	.033172	.000301	.0001365
%RSD	.7658065	145.4084	35.28512	.3811632	67.02687	1.362981

#1	.2440467	.0000006	.0000455	8.739287	-.000335	.0098577
#2	.2427161	.0000180	.0000500	8.694256	-.000790	.0100673
#3	.2403800	.0001501	.0000841	8.674579	-.000222	.0101140

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0045496	.2366423	.4837634	4.682626	.0124773	.0000208
Stddev	.0014379	.0042207	.0039288	.020502	.0001581	.0001394
%RSD	31.60441	1.783562	.8121407	.4378273	1.267383	670.4989

#1	.0032842	.2324661	.4880382	4.706062	.0123563	.0001156
#2	.0061132	.2365549	.4829416	4.668012	.0126562	-.000139
#3	.0042515	.2409060	.4803105	4.673805	.0124193	.000086

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.621666	.0006980	.1077113	.4150637	.0083415	.1120411
Stddev	.089623	.0001722	.0015282	.0120416	.0015801	.0007336
%RSD	1.594247	24.67382	1.418779	2.901137	18.94239	.6547805

#1	5.695447	.0005225	.1074772	.4076454	.0076866	.1128840
#2	5.647623	.0008668	.1093430	.4085884	.0101438	.1115467
#3	5.521930	.0007048	.1063136	.4289575	.0071942	.1116925

Sample Name: Q1136-10 Acquired: 3/4/2025 19:01:48 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8E7 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0032772	F 11.65353	6.200803	-.002006	.0120678	.0006016
Stddev	.0000805	.01734	.044737	.000263	.0003529	.0007979
%RSD	2.454850	.1487567	.7214748	13.13128	2.924669	132.6170

#1	.0032622	11.65513	6.244066	-.001967	.0124586	-.000127
#2	.0033640	11.63545	6.203619	-.002286	.0119724	.001454
#3	.0032052	11.67001	6.154724	-.001763	.0117723	.000478

Elem	Sr4077
Units	ppm
Avg	.0600433
Stddev	.0000448
%RSD	.0746550

#1	.0600459
#2	.0599973
#3	.0600868

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3607.645	79420.18	16476.35	3325.838	5053.649
Stddev	2.275	123.81	38.76	3.970	5.235
%RSD	.0630505	.1558939	.2352428	.1193640	.1035847

#1	3605.607	79295.65	16433.43	3329.728	5054.665
#2	3607.228	79543.26	16508.81	3325.992	5058.300
#3	3610.099	79421.62	16486.80	3321.793	5047.980

Sample Name: CCV002 Acquired: 3/4/2025 19:10:12 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV002 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.755896	4.587989	24.00093	4.729530	4.788339	379.8439
Stddev	.019184	.018107	.02845	.020427	.025246	3.0559
%RSD	.4033819	.3946683	.1185332	.4318935	.5272315	.8045182

#1	4.761353	4.568297	23.98886	4.714176	4.767643	377.2385
#2	4.734574	4.591748	23.98050	4.721701	4.780908	383.2075
#3	4.771760	4.603921	24.03342	4.752713	4.816466	379.0856

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.05931	.4987569	2.442195	392.1501	15.20272	2.441246
Stddev	.08680	.0032750	.004580	2.3692	.05805	.003848
%RSD	.8628359	.6566285	.1875243	.6041559	.3818643	.1576259

#1	9.97733	.5023397	2.438101	390.0285	15.13611	2.439264
#2	10.15023	.4980134	2.441345	391.7151	15.22949	2.438792
#3	10.05036	.4959175	2.447141	394.7066	15.24255	2.445680

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.88332	391.3229	15.03568	388.8268	2.439884	1.263020
Stddev	.04406	2.8423	.14140	2.6521	.004682	.002844
%RSD	.2960324	.7263231	.9404217	.6820704	.1918860	.2251449

#1	14.90386	388.1173	14.87241	385.7681	2.438917	1.259997
#2	14.83274	392.3163	15.11891	390.2263	2.435761	1.263422
#3	14.91337	393.5352	15.11571	390.4860	2.444974	1.265641

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	394.3437	2.469730	14.90992	149.5045	5.030191	F 5.903684
Stddev	.2917	.006572	.01640	1.3231	.010916	.015579
%RSD	.0739777	.2661002	.1099634	.8850091	.2170193	.2638885

#1	394.6739	2.474185	14.89132	148.0806	5.036706	5.921672
#2	394.1207	2.472824	14.91618	149.7369	5.036279	5.894495
#3	394.2366	2.462183	14.92227	150.6960	5.017588	5.894885

Sample Name: CCV002 Acquired: 3/4/2025 19:10:12 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV002 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.768266	4.902772	5.004950	4.834159	4.976191	4.967891
Stddev	.013831	.010454	.004451	.005631	.004769	.062511
%RSD	.2900561	.2132280	.0889265	.1164743	.0958385	1.258304

#1	4.761137	4.906389	5.002046	4.830683	4.972370	4.896928
#2	4.759454	4.910937	5.002730	4.831139	4.974666	4.991935
#3	4.784207	4.890989	5.010074	4.840655	4.981536	5.014810

Elem	Sr4077
Units	ppm
Avg	4.908750
Stddev	.066507
%RSD	1.354863

#1	4.833228
#2	4.934449
#3	4.958573

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2807.709	63998.98	14984.83	2659.972	3519.707
Stddev	9.162	263.60	78.38	2.880	7.278
%RSD	.3263015	.4118819	.5230432	.1082729	.2067675

#1	2811.940	64298.44	14895.58	2656.709	3523.292
#2	2813.990	63896.45	15016.49	2662.159	3524.497
#3	2797.196	63802.05	15042.43	2661.048	3511.332

Sample Name: CCB002 Acquired: 3/4/2025 19:14:29 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB002 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000880	.0012578	-.000358	-.000523	-.000785	-.000869	.0002063
Stddev	.000673	.0008810	.000694	.001375	.000133	.003176	.0004696
%RSD	76.53336	70.04383	193.8948	262.6238	16.98067	365.4333	227.6709

#1	-.000356	.0002405	-.001085	.001057	-.000665	-.000775	.0007106
#2	-.001639	.0017613	-.000286	-.001182	-.000763	-.004091	.0001266
#3	-.000643	.0017716	.000297	-.001445	-.000929	.002259	-.000218

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000051	-.000025	.0068577	.0002989	.0002538	.0015030	.0068148
Stddev	.0000717	.000043	.0004203	.0002743	.0001117	.0015468	.0018850
%RSD	1410.771	168.4062	6.129058	91.76367	44.00831	102.9159	27.66033

#1	.0000861	-.000071	.0069725	.0005688	.0001471	.0007031	.0089718
#2	-.000020	-.000017	.0063919	.0000203	.0003699	.0005199	.0059885
#3	-.000051	.000013	.0072086	.0003077	.0002445	.0032860	.0054841

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001799	.0091036	.0001189	-.000051	.1604646	.0008247	.0004940
Stddev	.0002267	.0045791	.0000538	.000278	.1027192	.0017539	.0013121
%RSD	126.0559	50.30027	45.24001	545.6206	64.01361	212.6740	265.6243

#1	.0001908	.0124928	.0001774	.000260	.0419070	-.000779	.0015721
#2	.0004010	.0038943	.0000715	-.000275	.2166928	.000556	-.000967
#3	-.000052	.0109236	.0001079	-.000138	.2227941	.002697	.000877

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0328211	-.000035	.0014947	.0002298	.0017523	.0068487	-.000488
Stddev	.0238270	.001694	.0003589	.0001269	.0049342	.0020860	.000249
%RSD	72.59643	4890.481	24.01200	55.20895	281.5850	30.45776	50.99547

#1	.0362447	-.001875	.0018929	.0003119	.0056335	.0090340	-.000216
#2	.0547511	.001461	.0011962	.0000837	-.003801	.0048788	-.000544
#3	.0074675	.000310	.0013950	.0002938	.003424	.0066334	-.000703

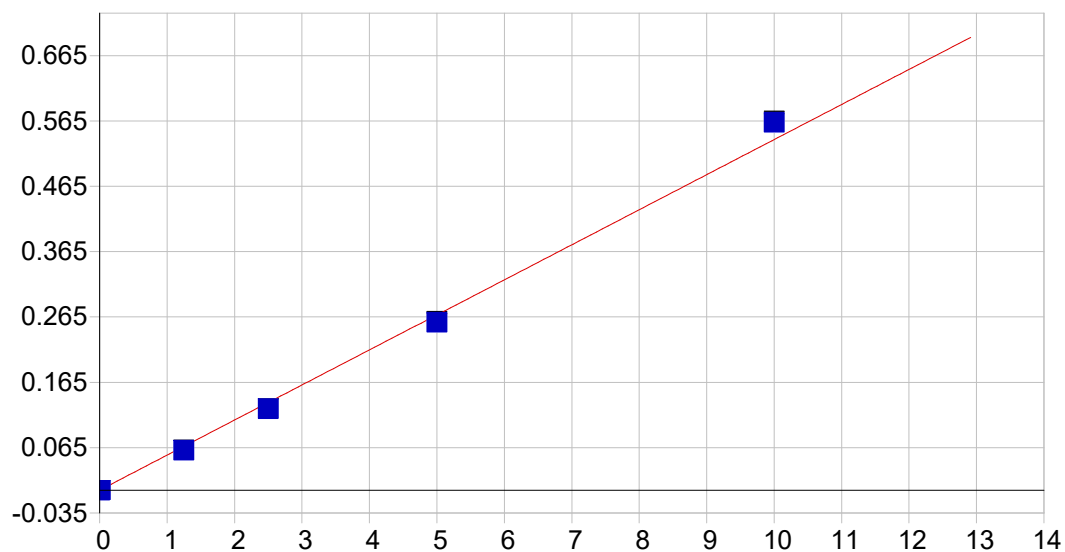
Sample Name: CCB002 Acquired: 3/4/2025 19:14:29 Type: Unk
Method: EPA SFAM01.0(v66) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB002 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.001164	.0001902	.0000784
Stddev	.000580	.0012004	.0000126
%RSD	49.80266	631.2592	16.11835

#1	-.000706	.0014715	.0000872
#2	-.001815	.0000072	.0000639
#3	-.000970	-.000908	.0000840

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3642.130	78159.06	16064.86	3311.722	5116.611
Stddev	.238	171.25	45.26	5.058	7.183
%RSD	.0065243	.2191040	.2817370	.1527218	.1403859

#1	3642.187	78095.46	16023.23	3310.657	5115.157
#2	3641.869	78353.01	16113.04	3307.282	5110.266
#3	3642.334	78028.70	16058.30	3317.228	5124.409

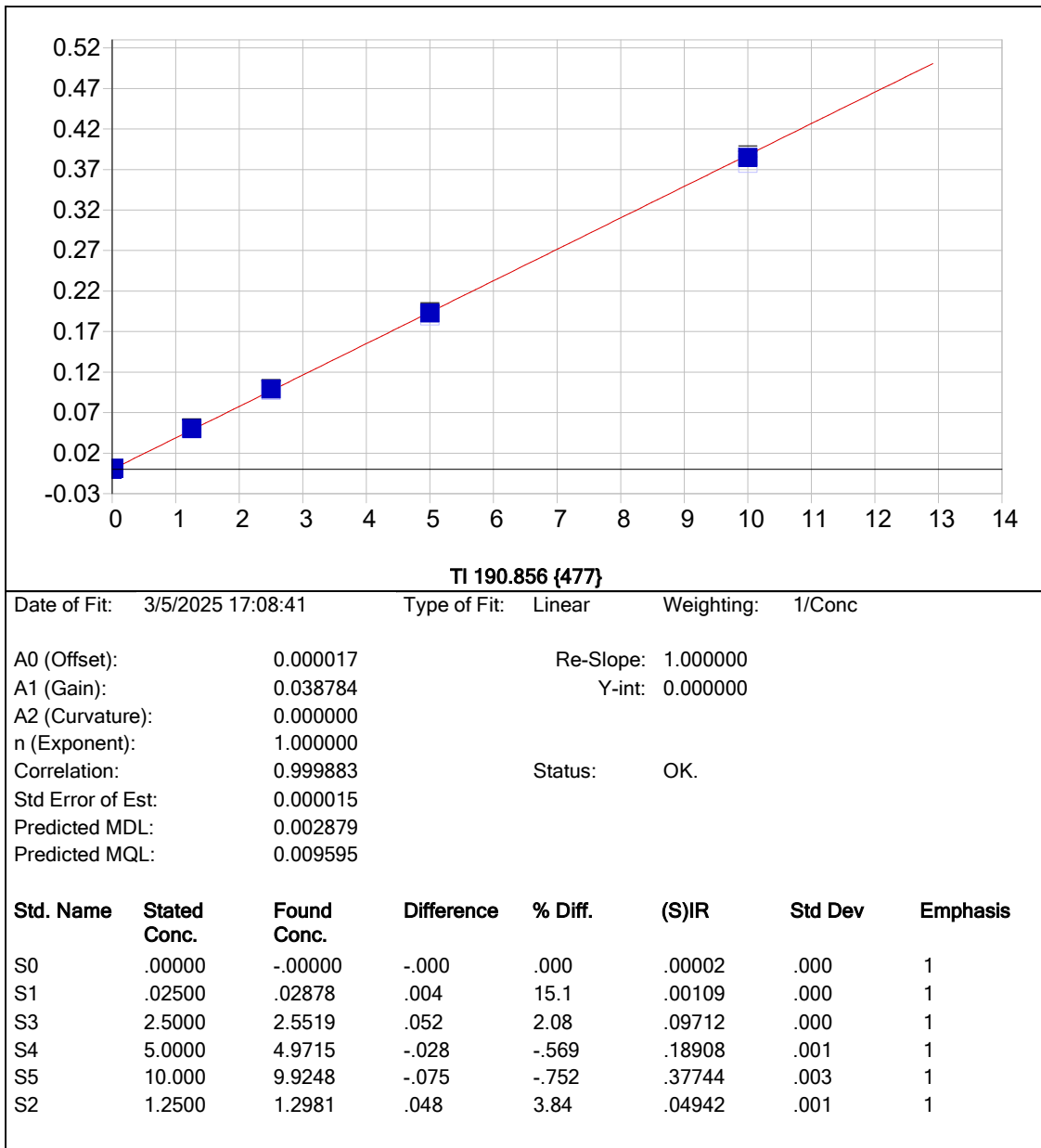


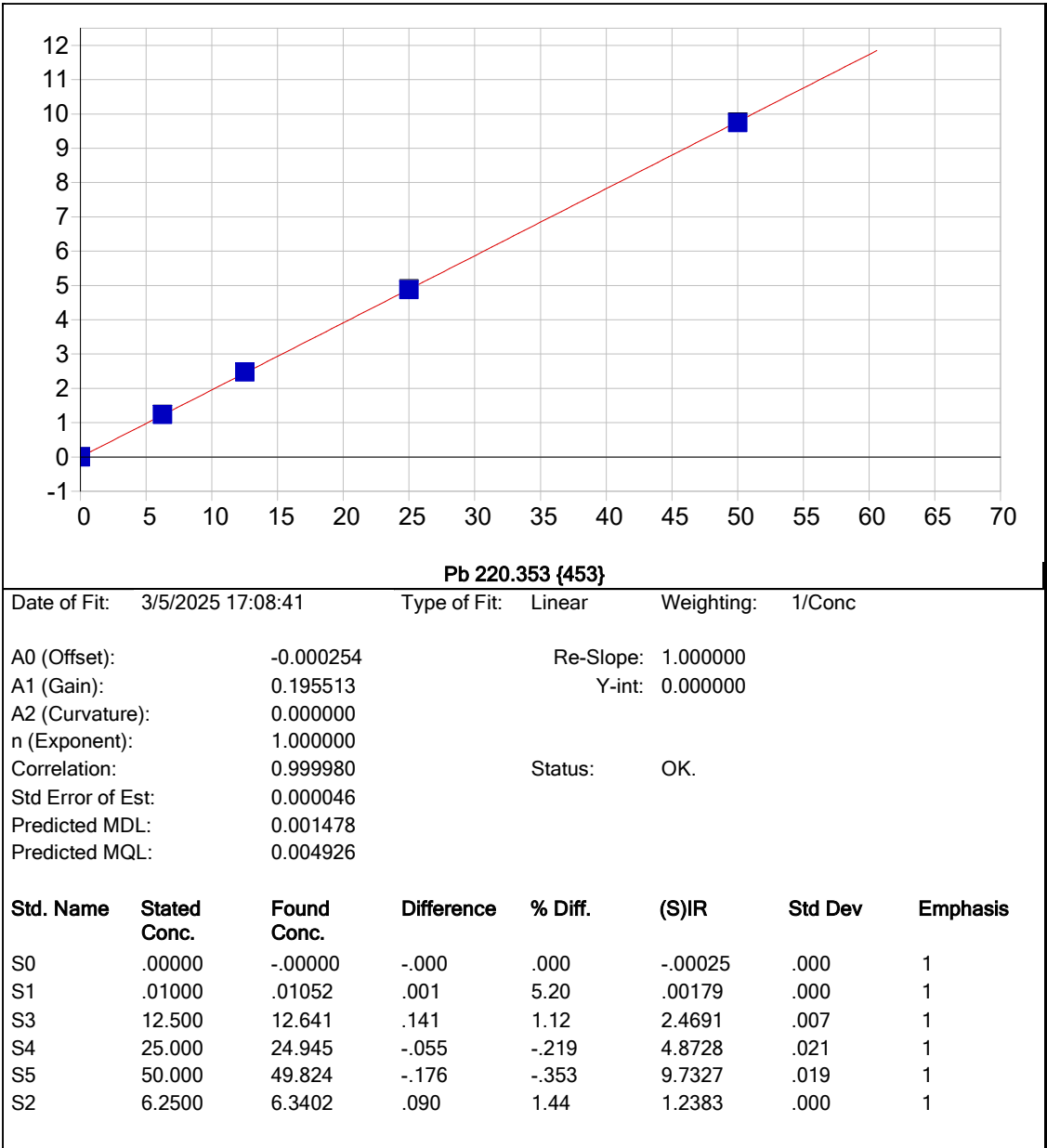
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Date of Fit: 3/5/2025 17:08:41 Type of Fit: Linear Weighting: 1/Conc

A0 (Offset): -0.000175 Re-Slope: 1.000000
A1 (Gain): 0.053674 Y-int: 0.000000
A2 (Curvature): 0.000000
n (Exponent): 1.000000
Correlation: 0.998523 Status: OK.
Std Error of Est: 0.000049
Predicted MDL: 0.002746
Predicted MQL: 0.009153

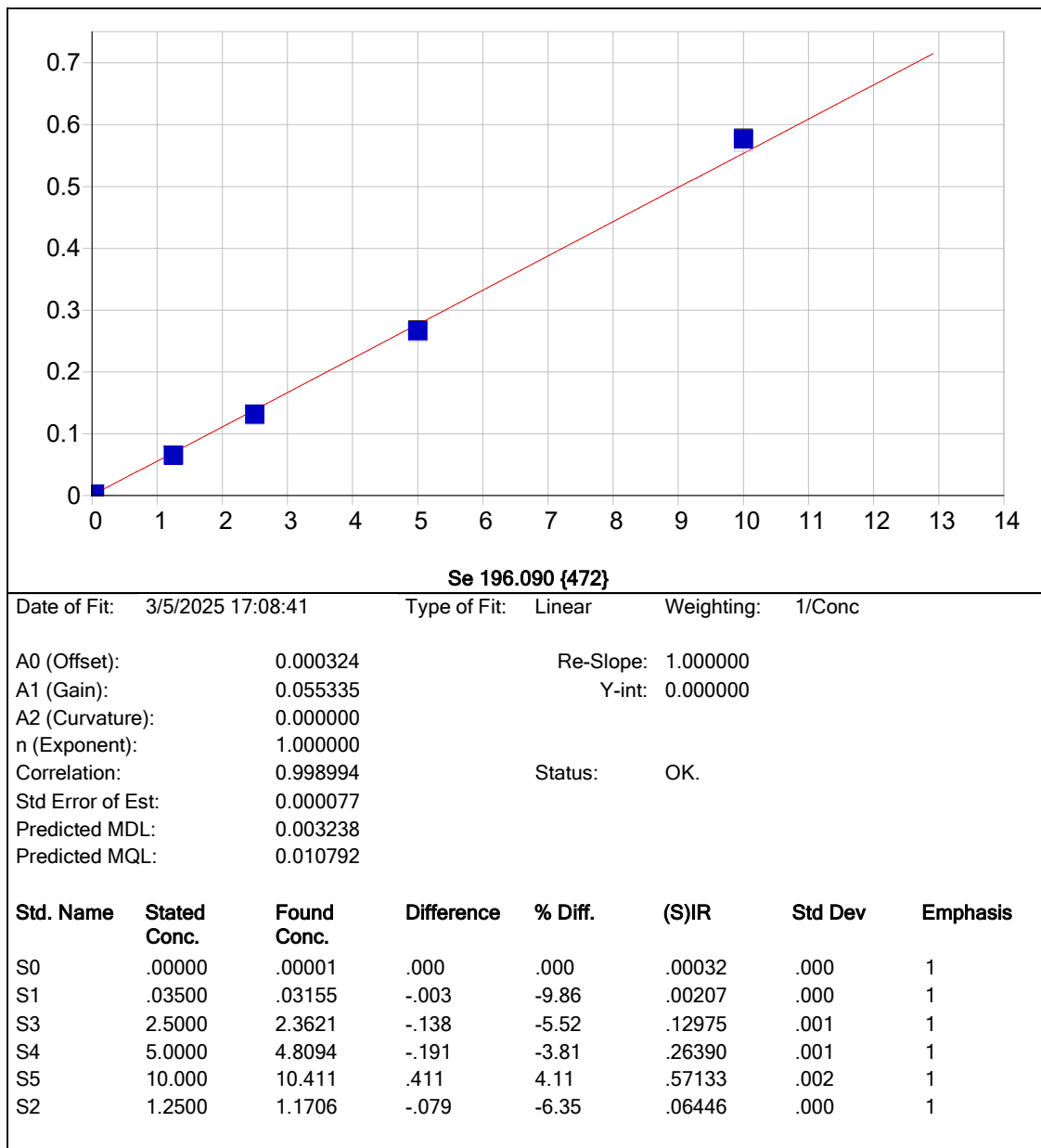
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00018	.000	1
S1	.01000	.01080	.001	8.00	.00040	.000	1
S3	2.5000	2.3243	-.176	-7.03	.12434	.000	1
S4	5.0000	4.7897	-.210	-4.21	.25643	.002	1
S5	10.000	10.495	.495	4.95	.56216	.002	1
S2	1.2500	1.1405	-.110	-8.76	.06092	.000	1

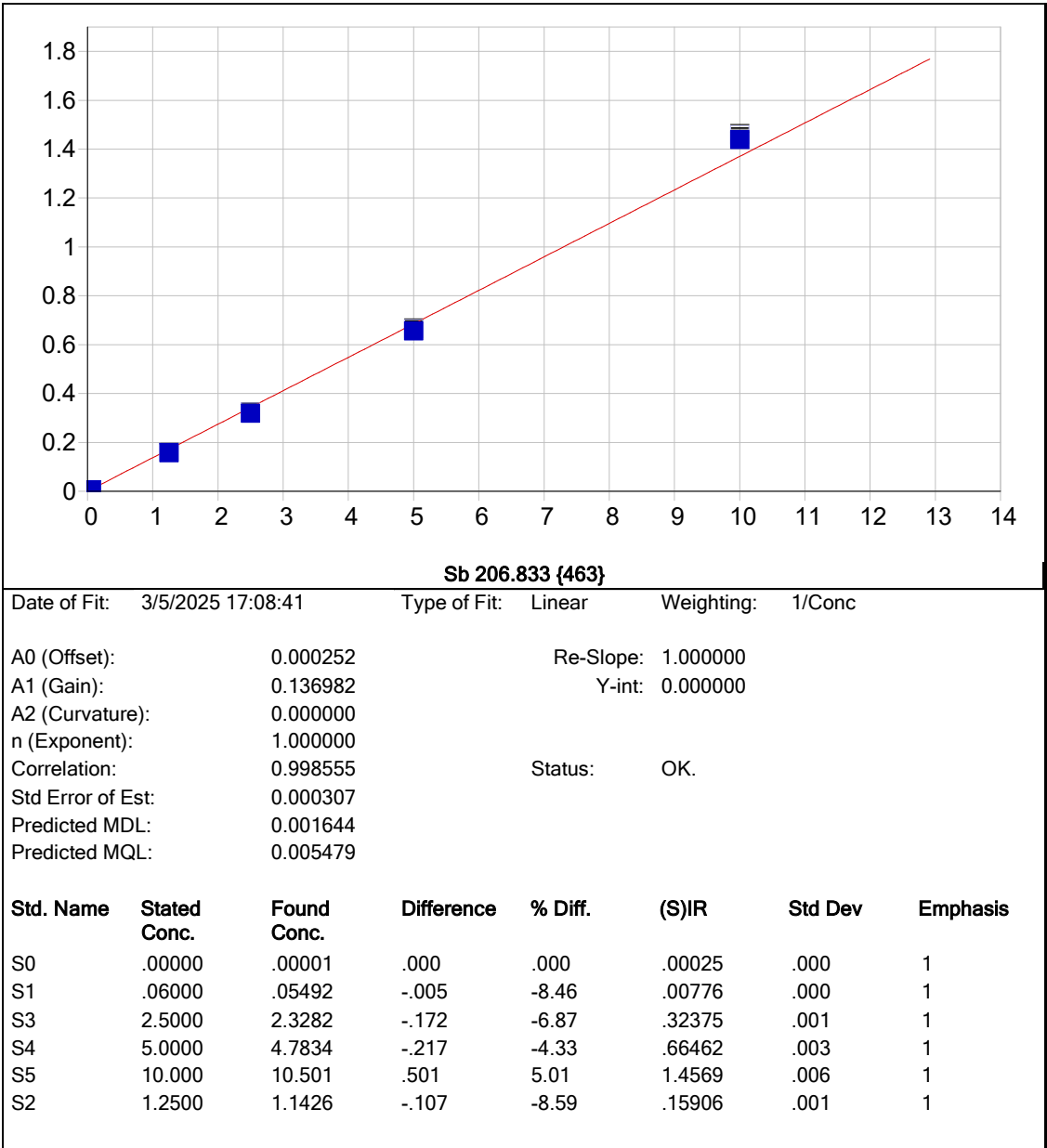


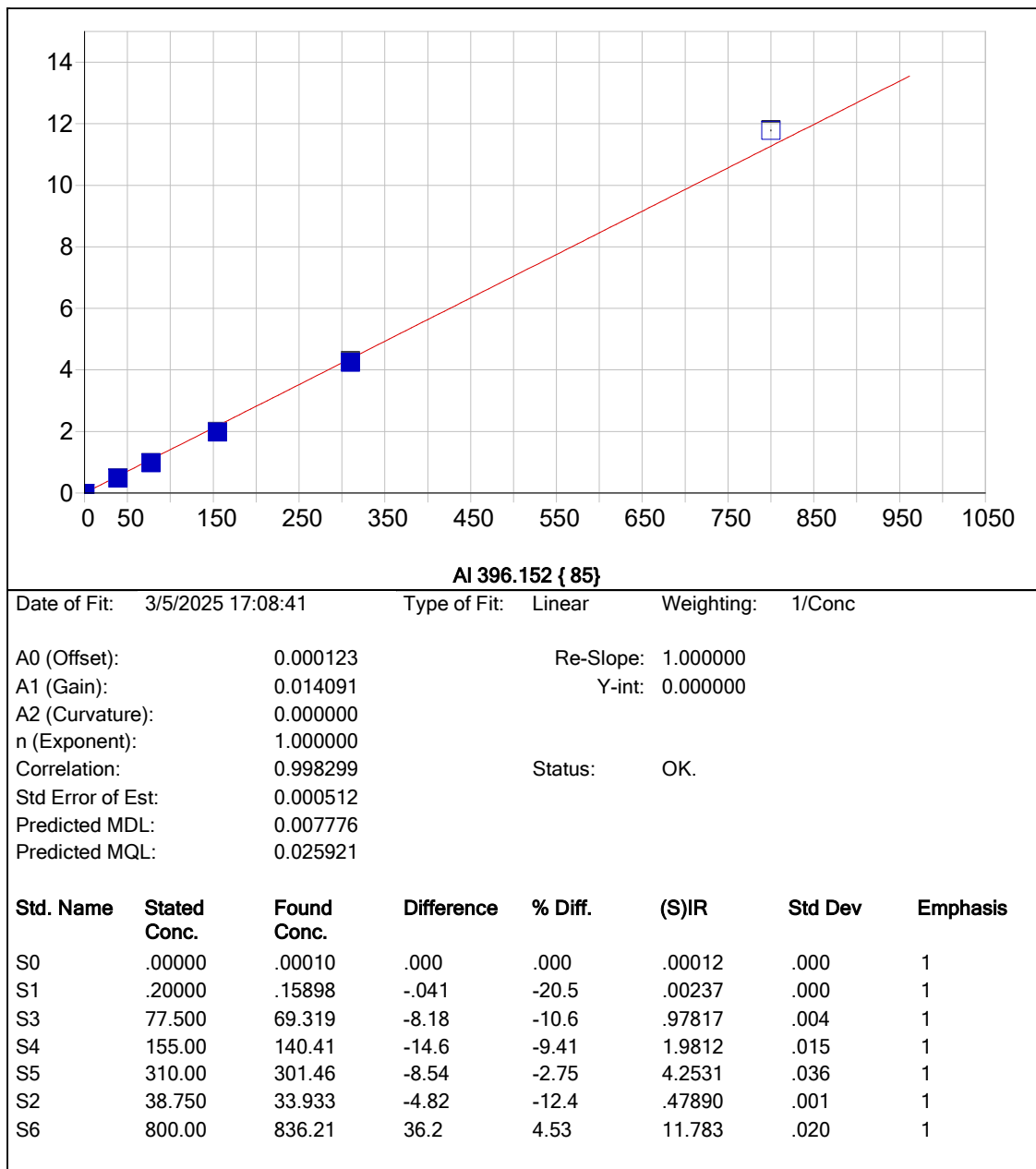


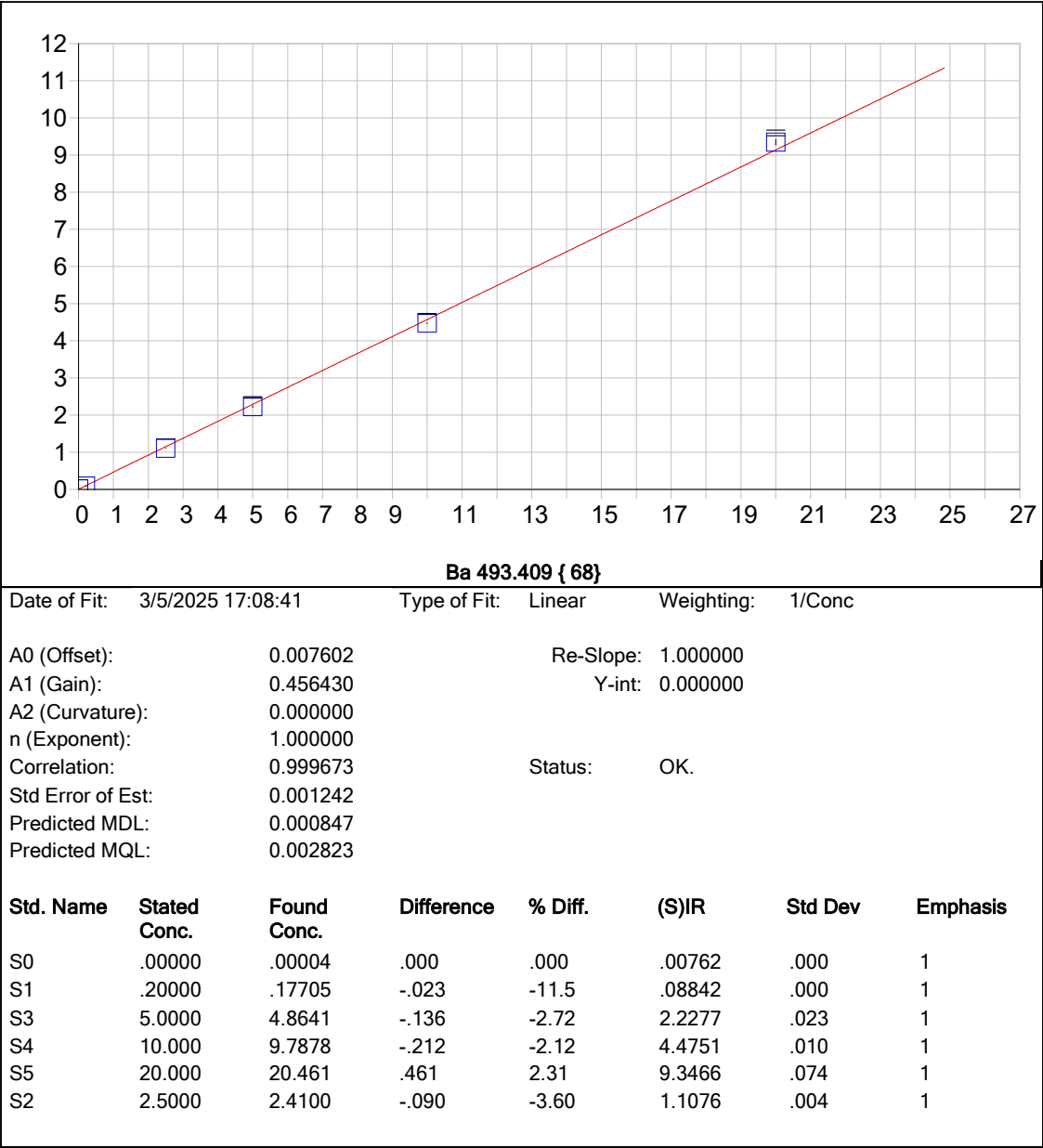
Date of Fit: 3/5/2025 17:08:41 Type of Fit: Linear Weighting: 1/Conc

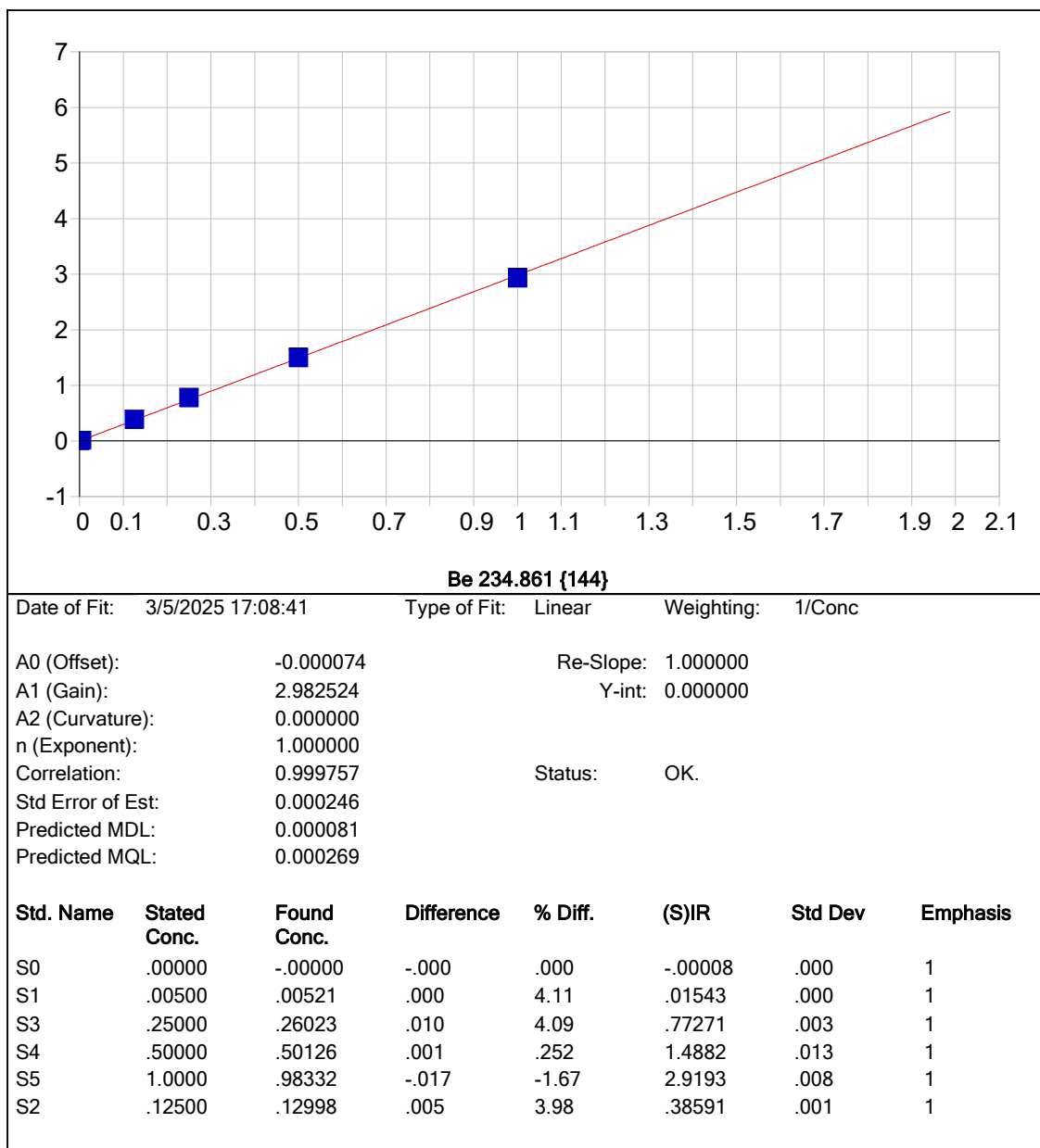
A0 (Offset): -0.000254 Re-Slope: 1.000000
A1 (Gain): 0.195513 Y-int: 0.000000
A2 (Curvature): 0.000000
n (Exponent): 1.000000
Correlation: 0.999980 Status: OK.
Std Error of Est: 0.000046
Predicted MDL: 0.001478
Predicted MQL: 0.004926

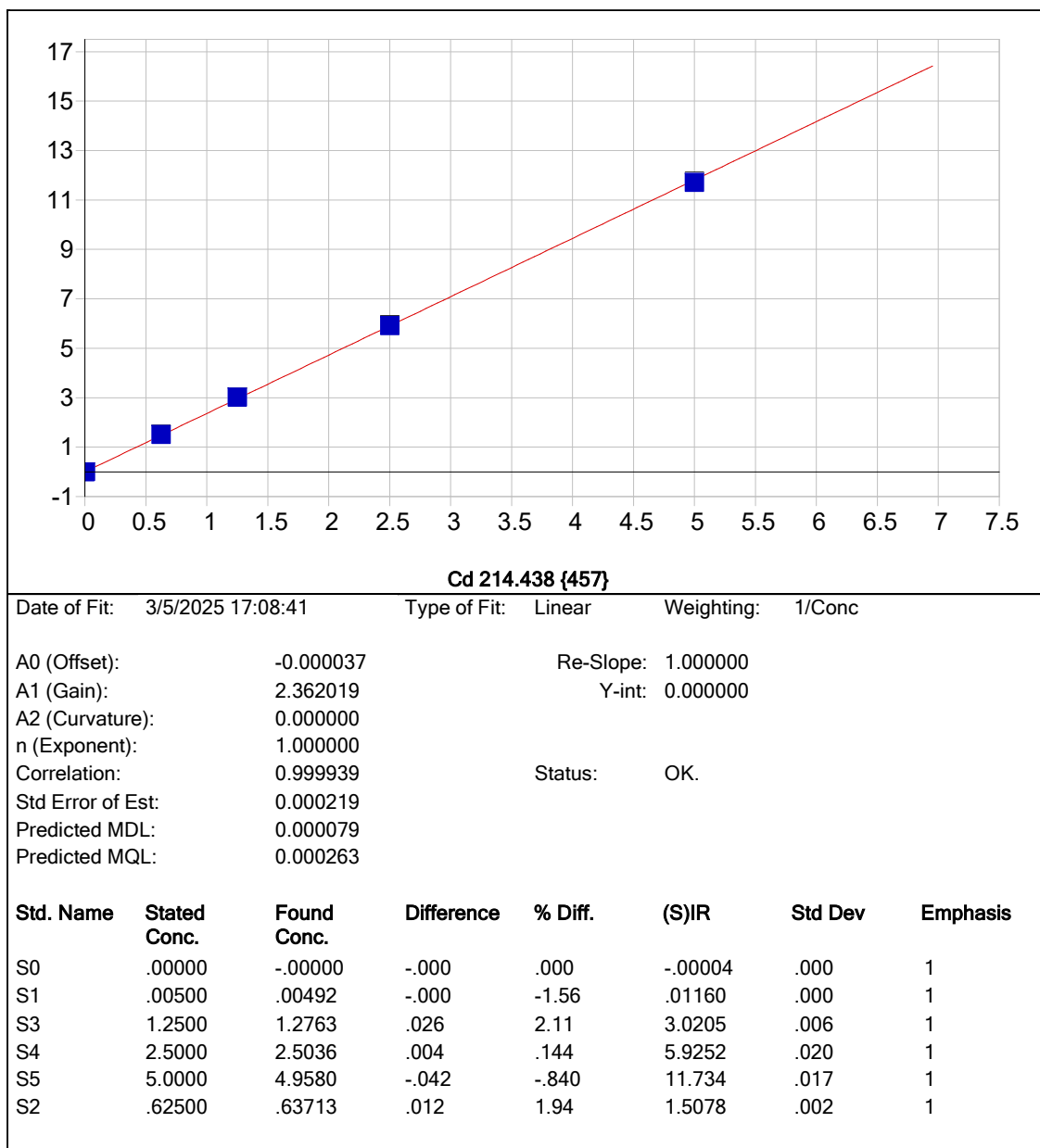


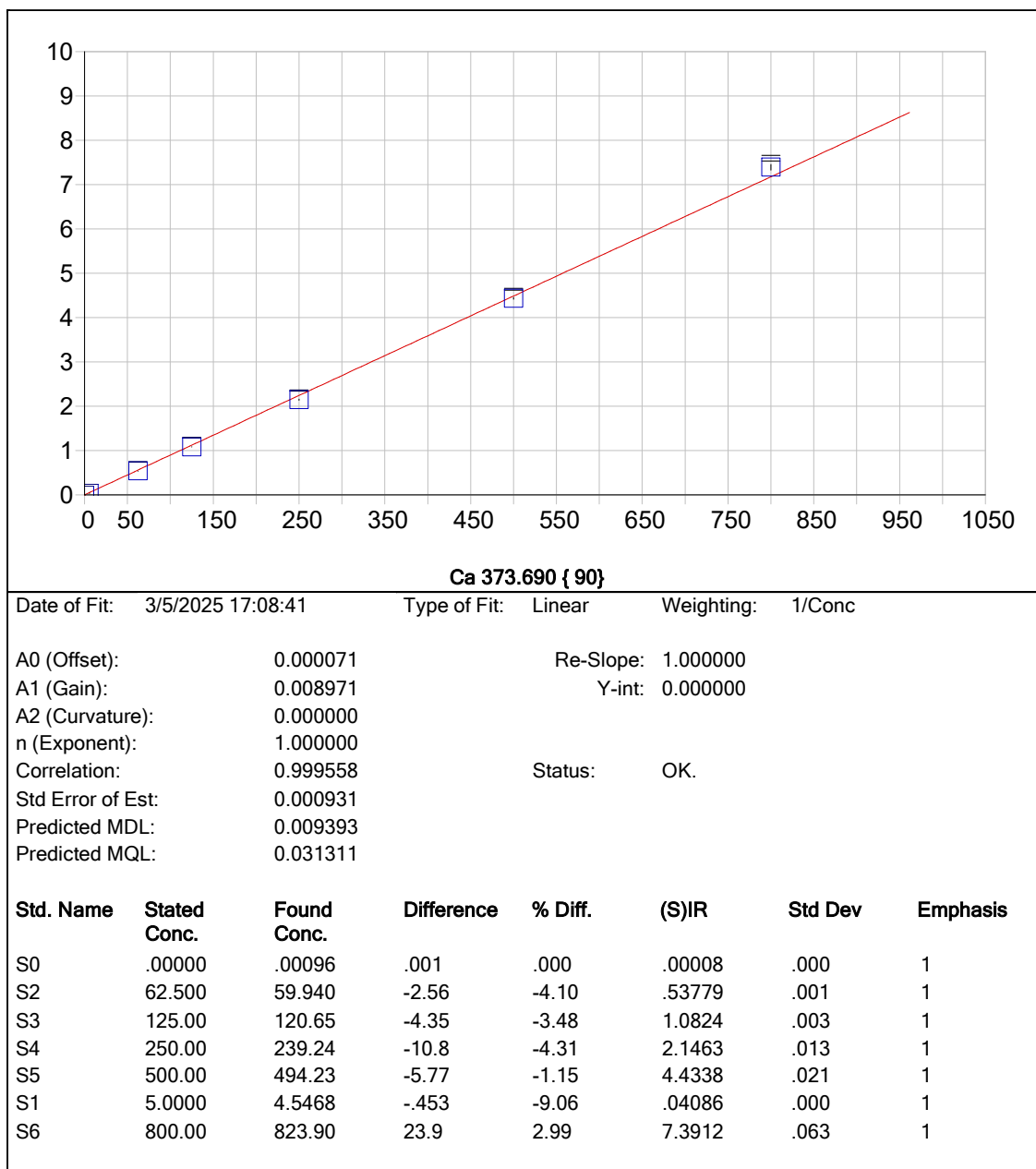


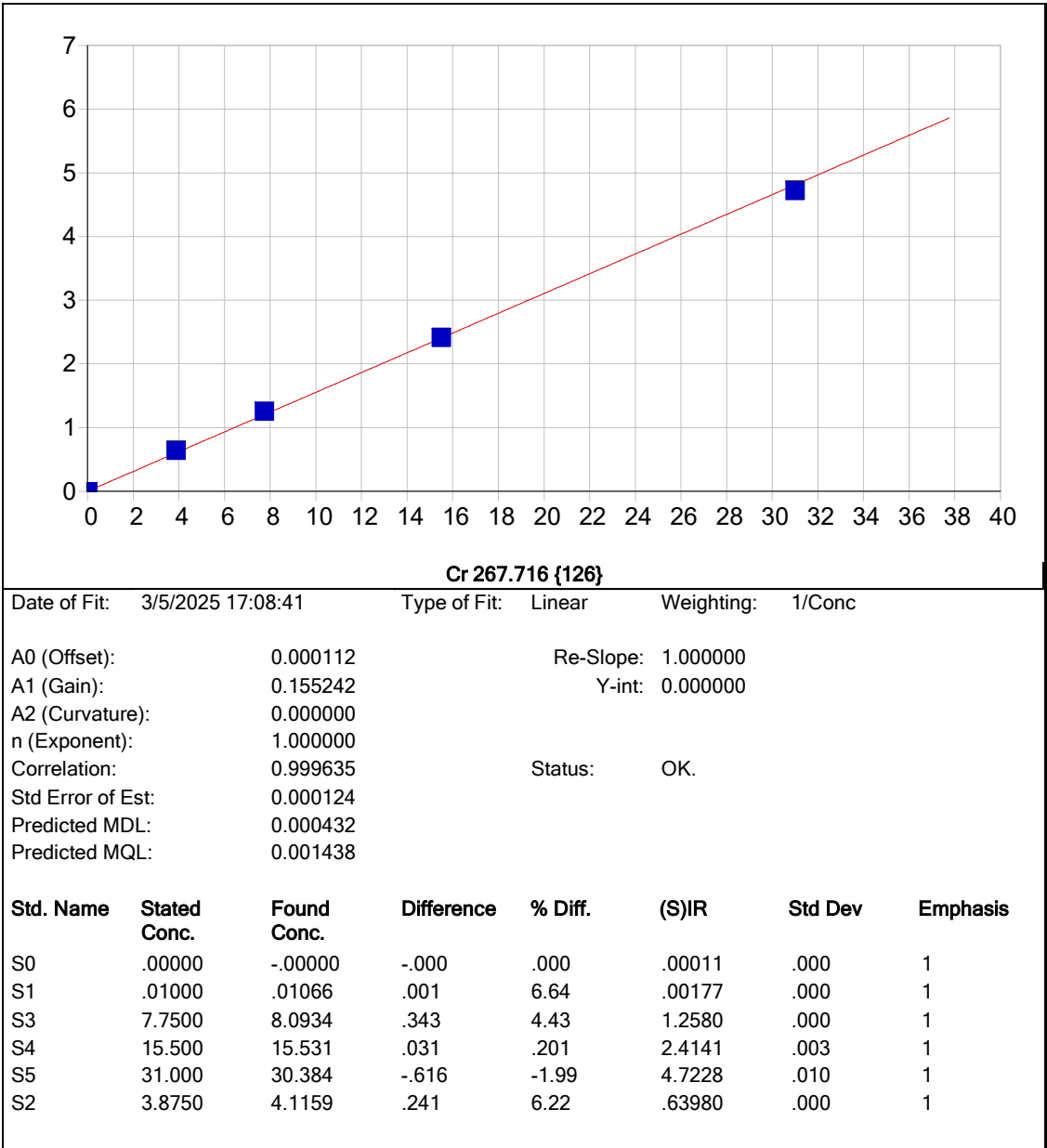


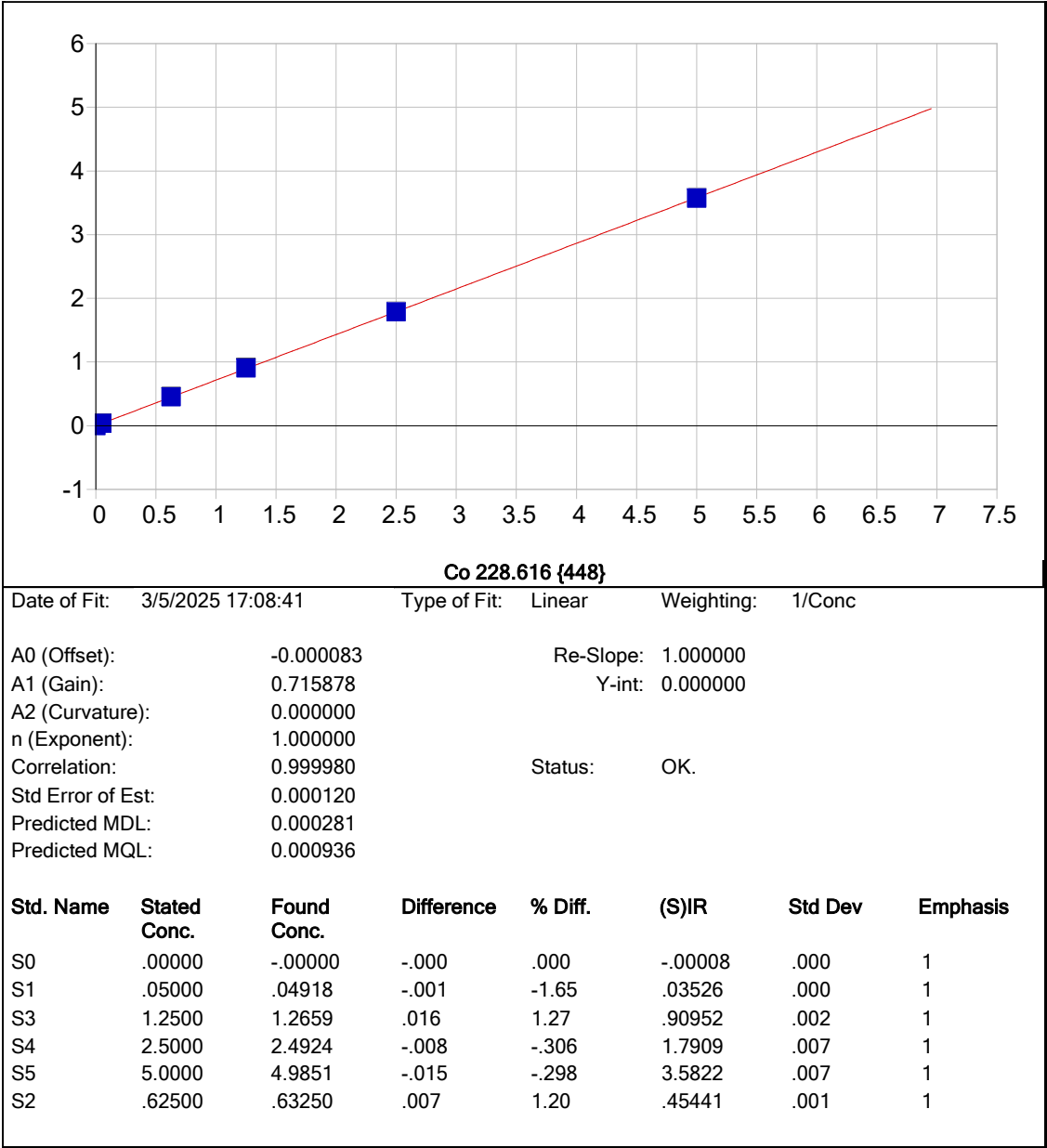


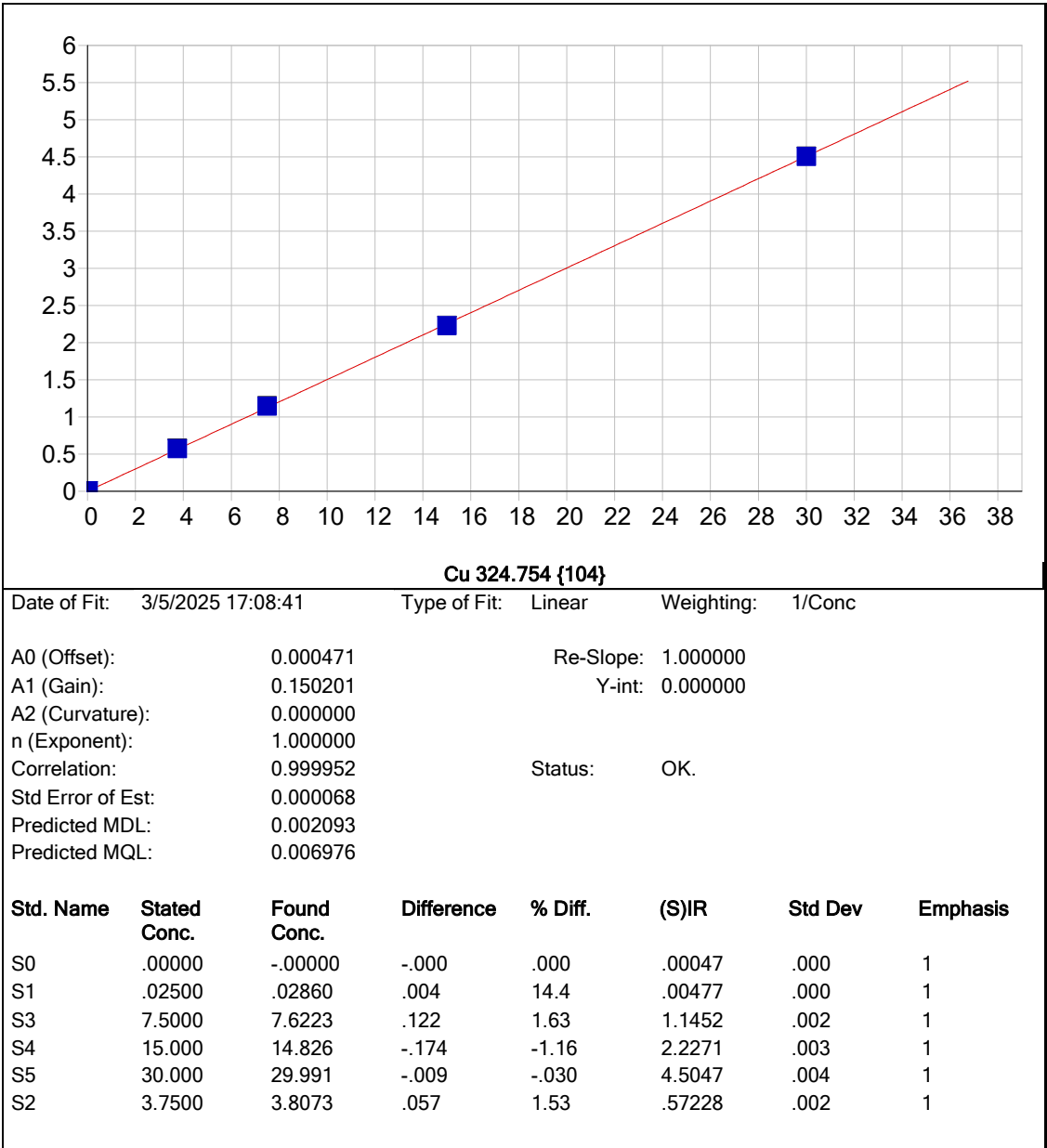


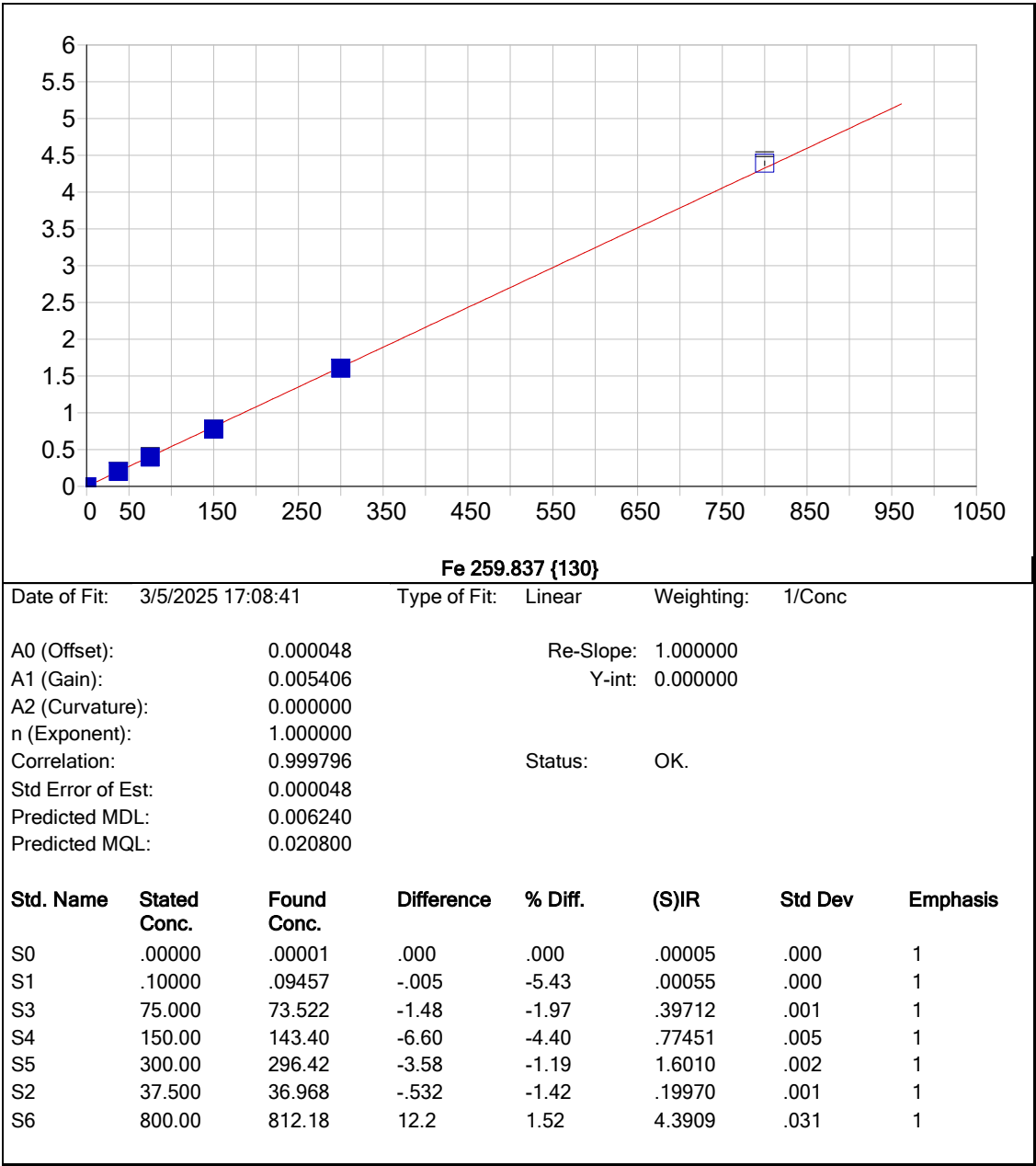


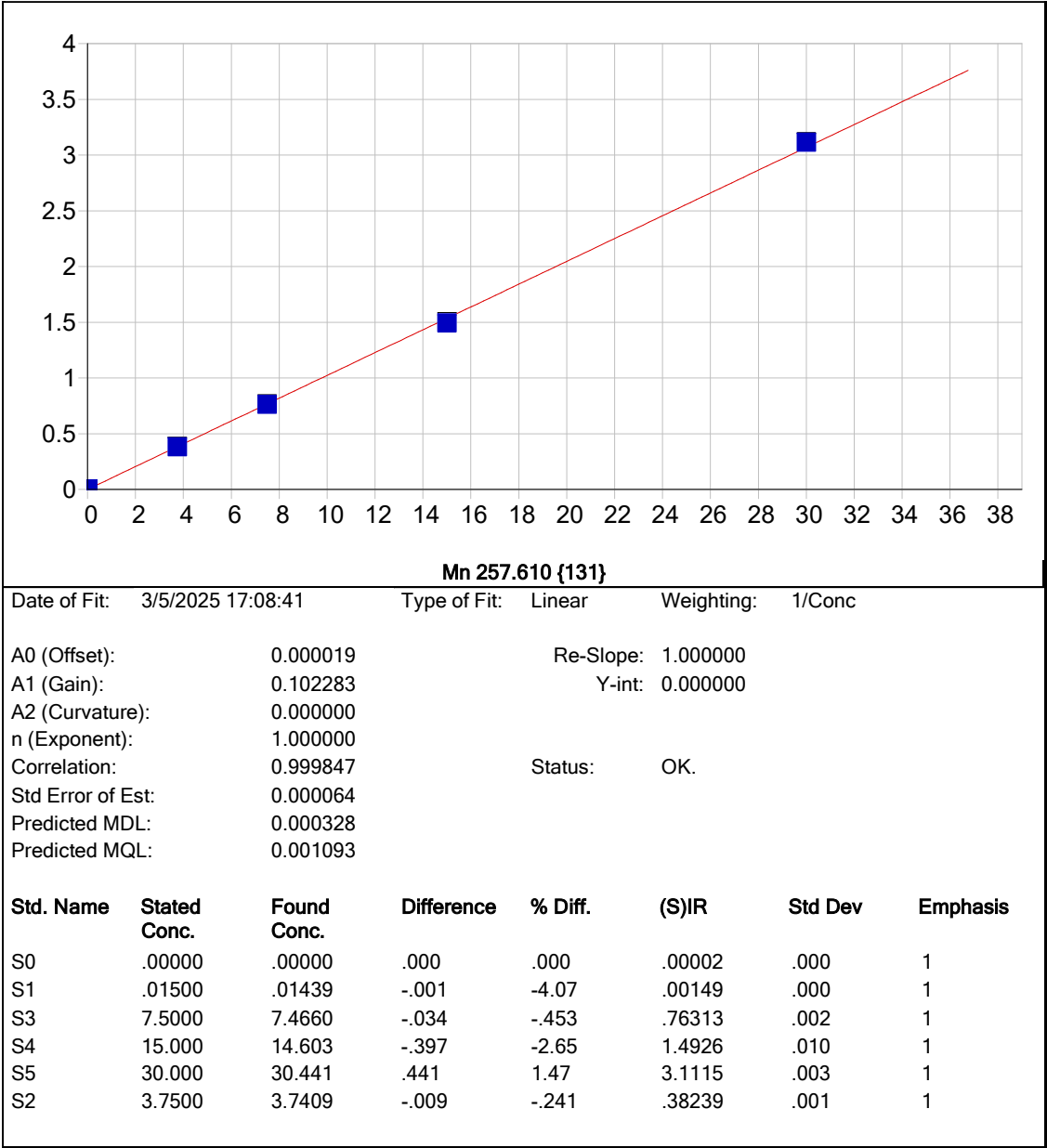


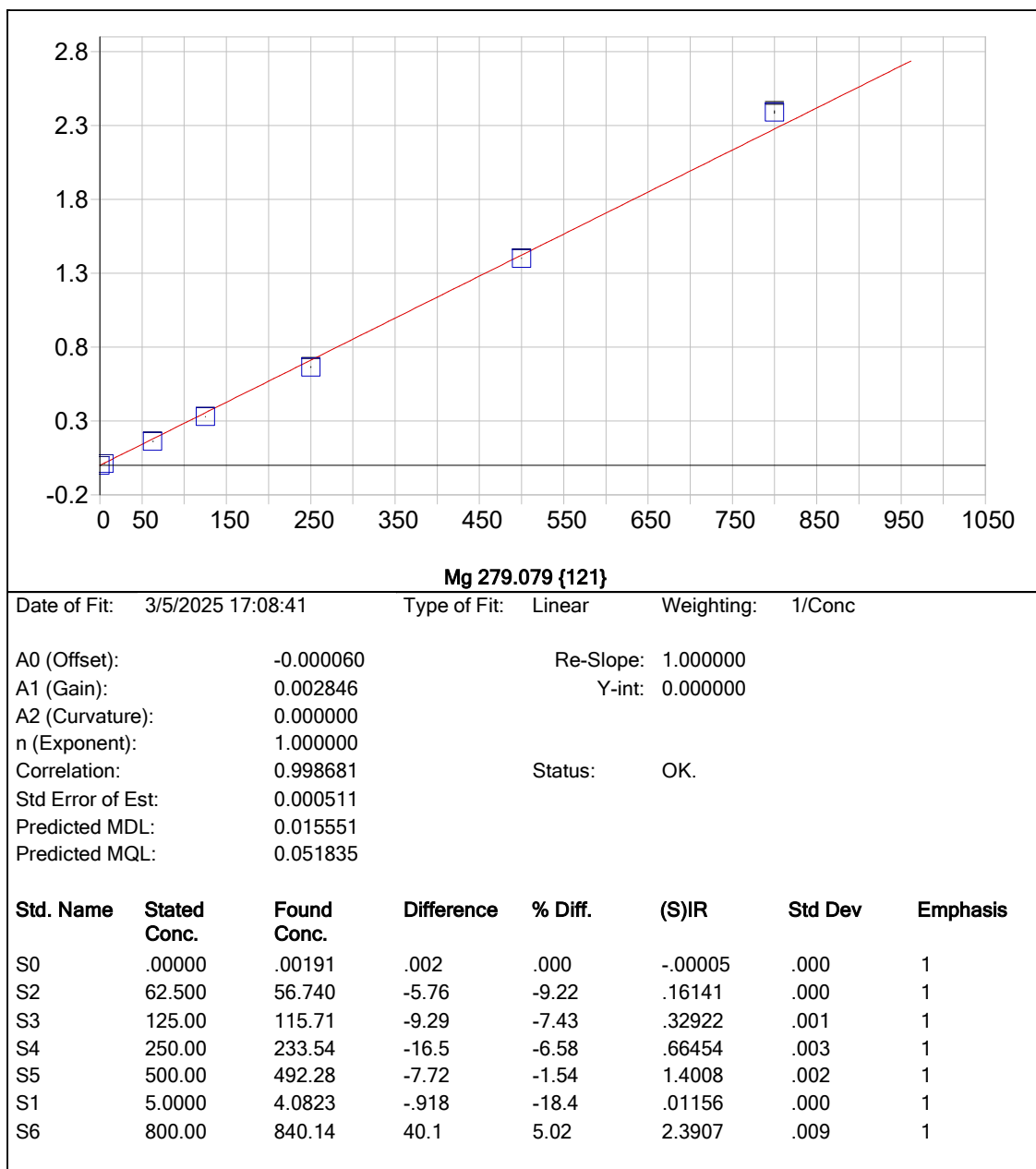


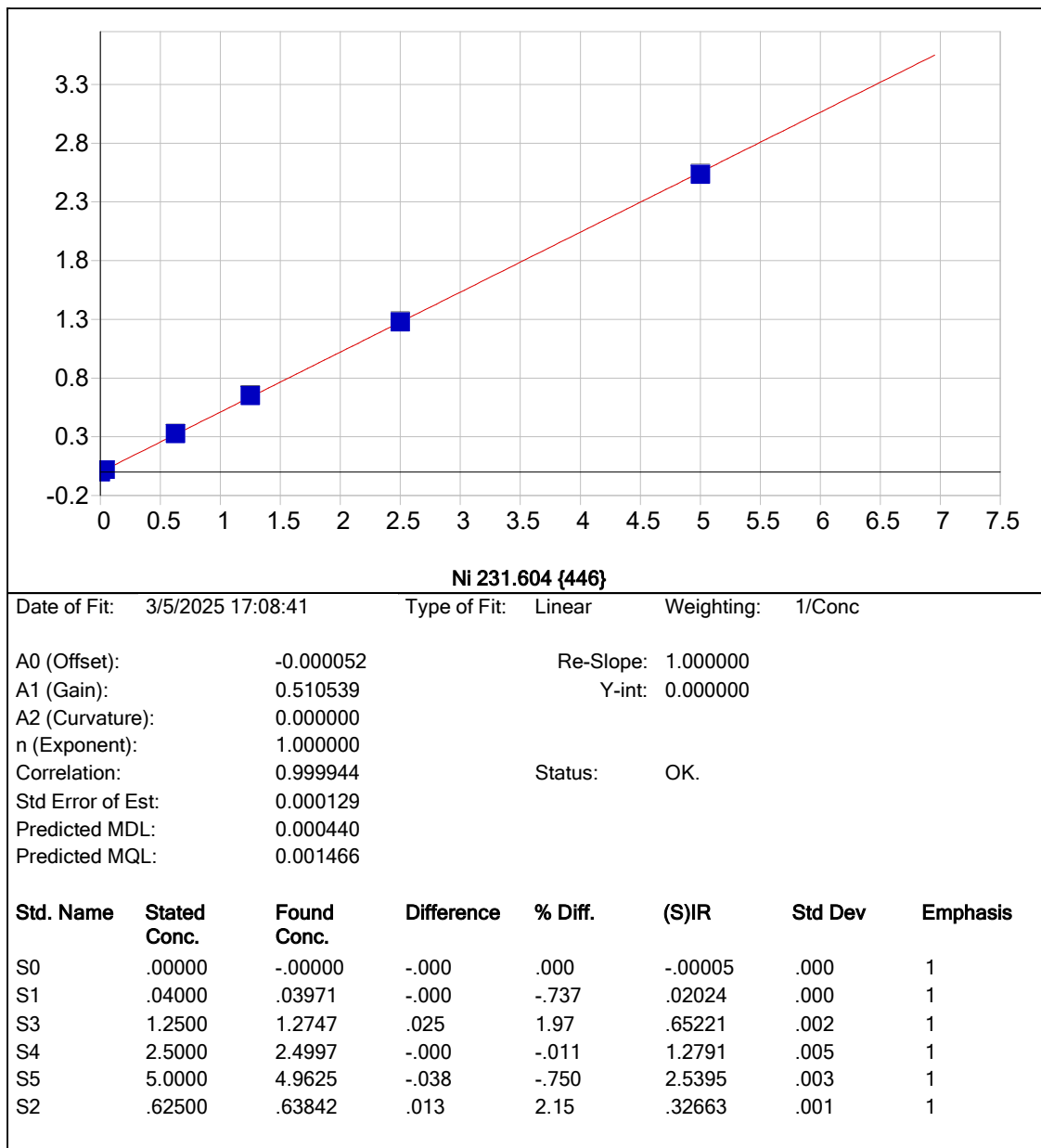


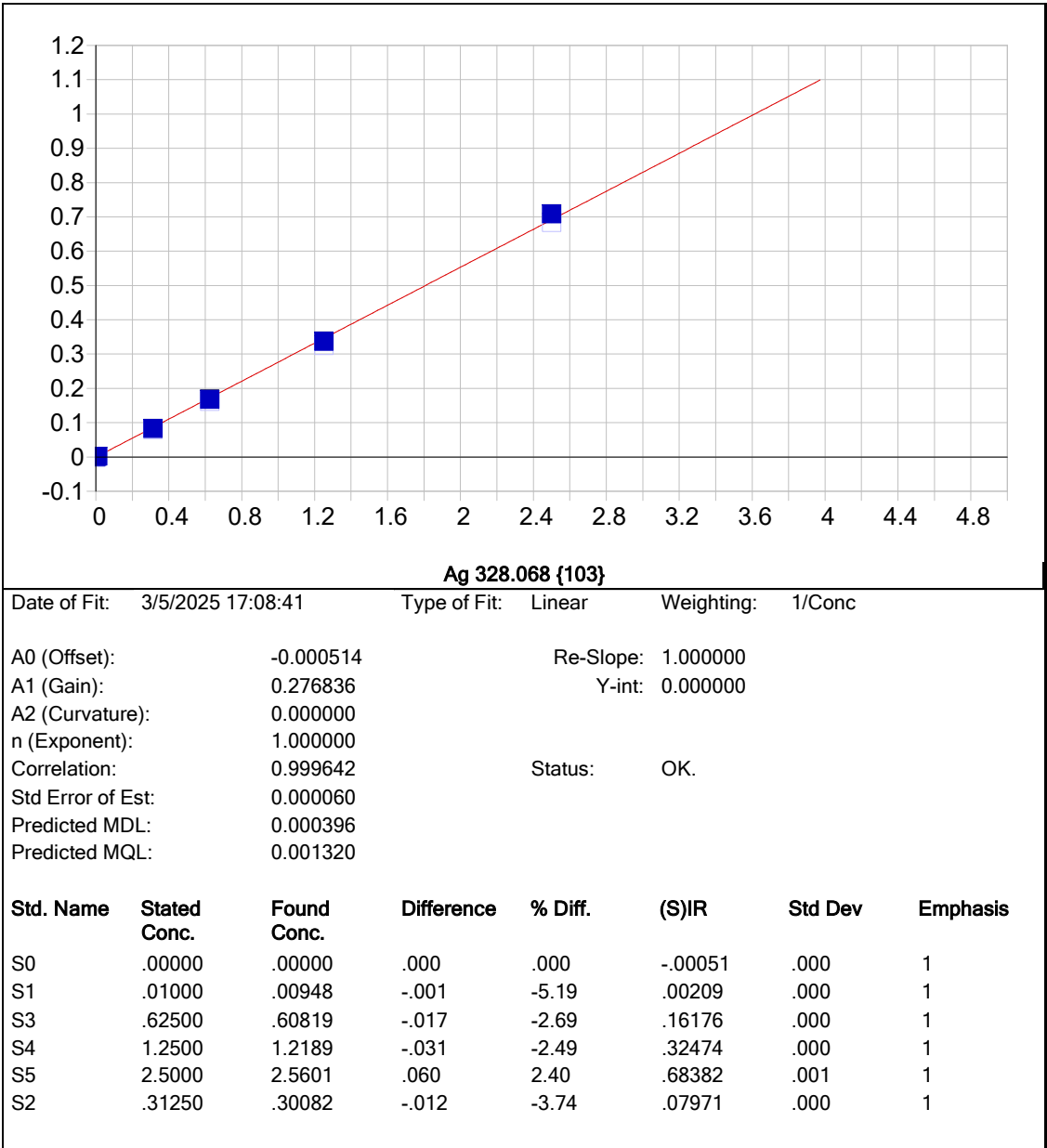


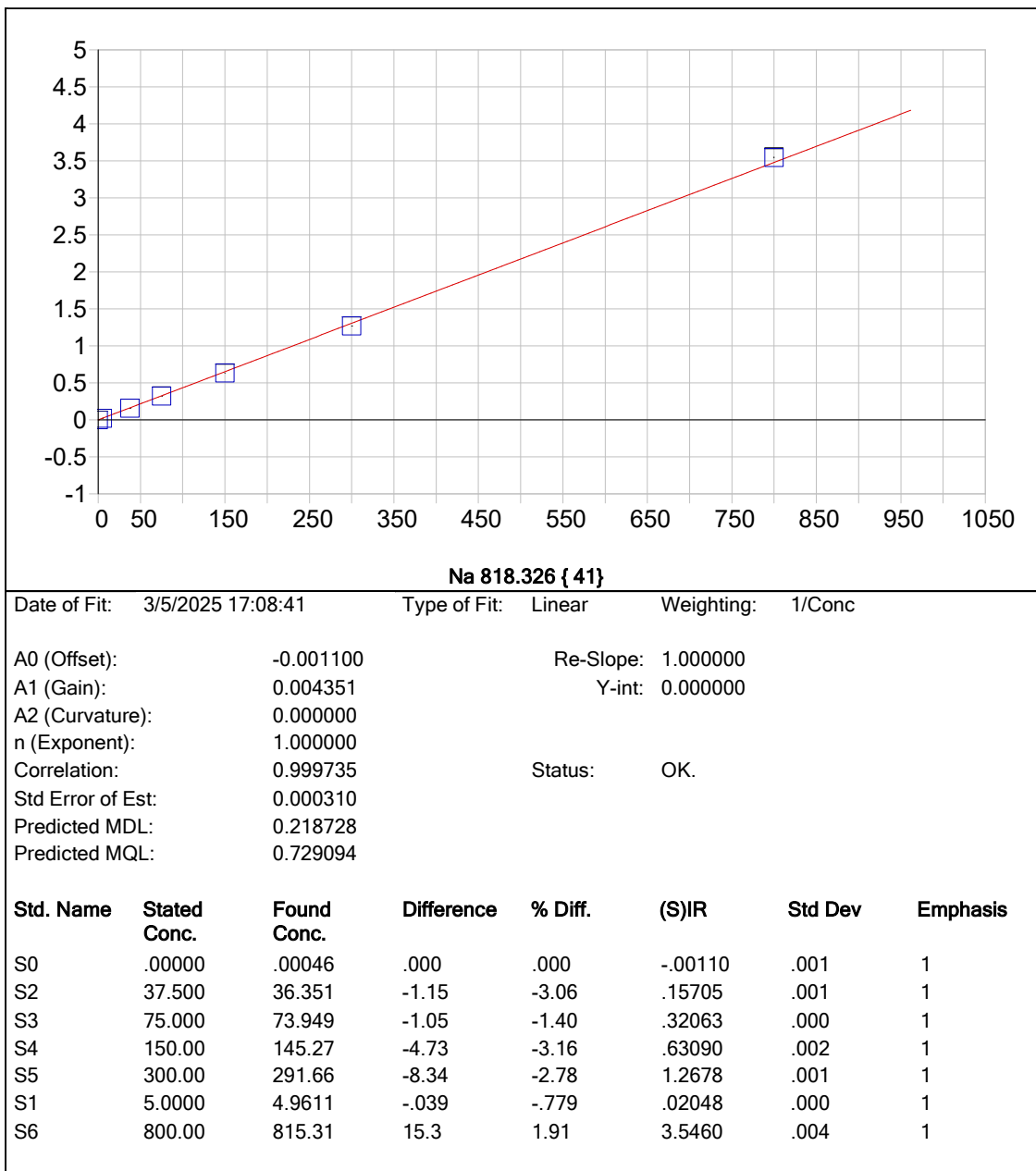


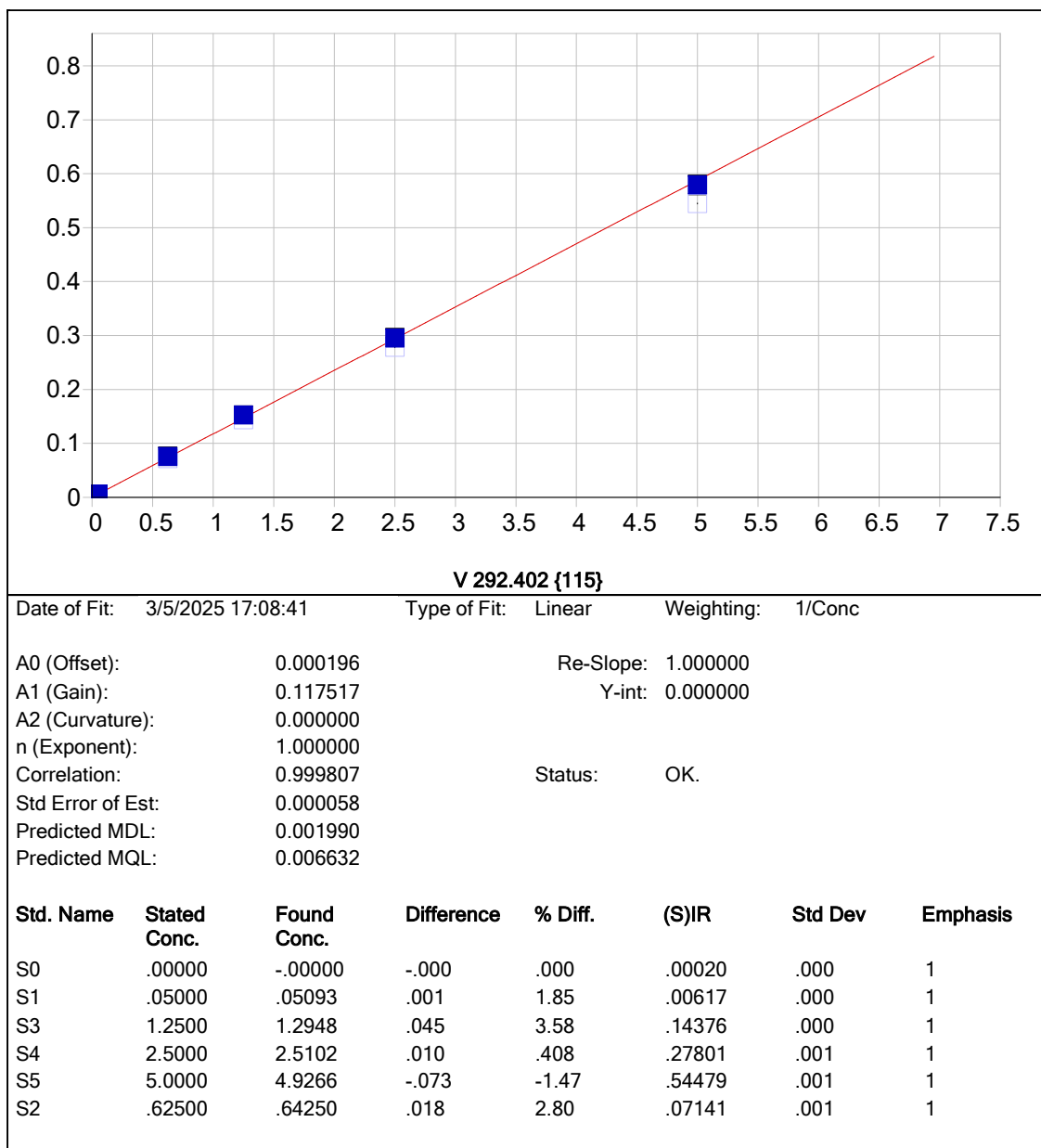


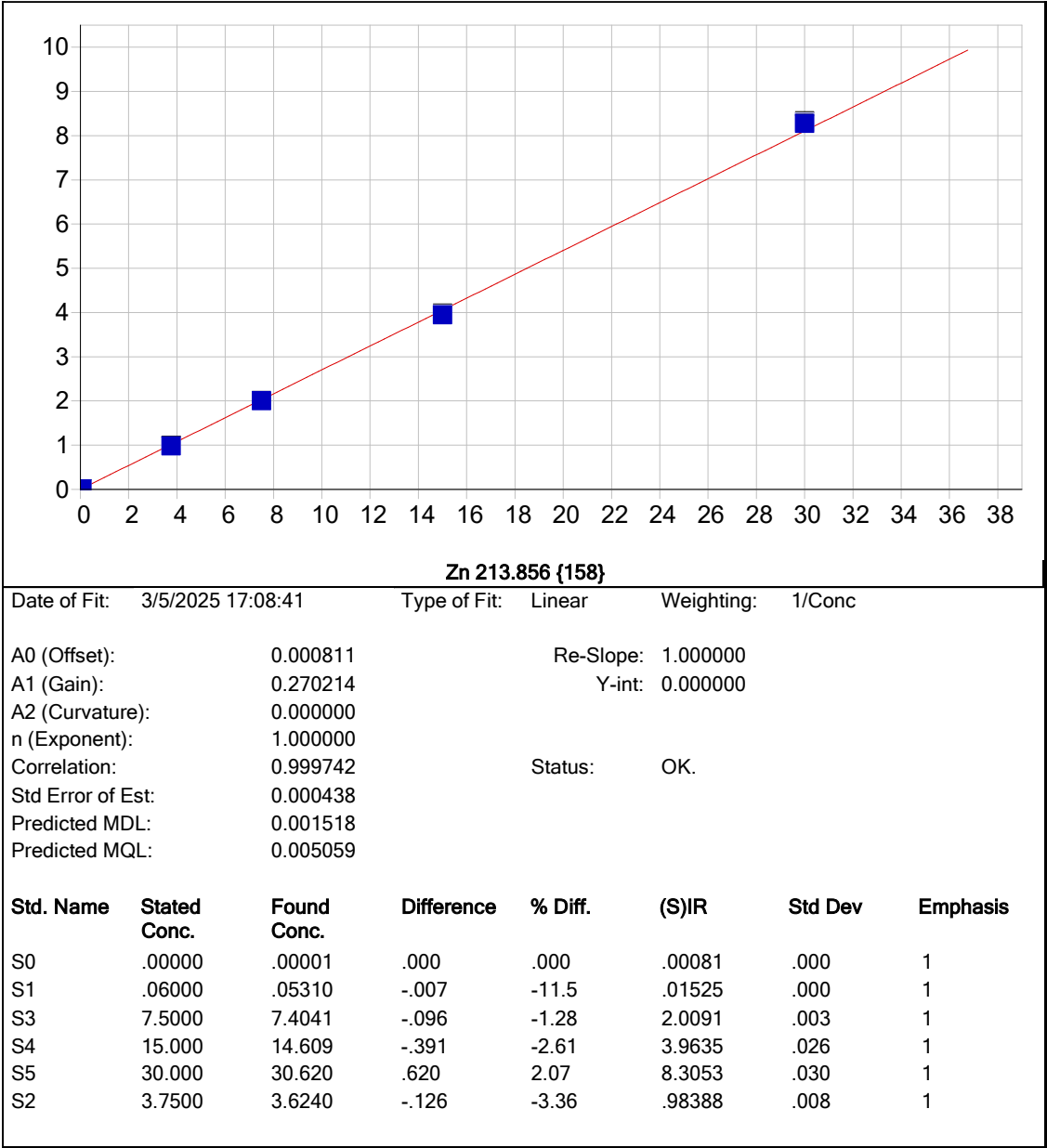


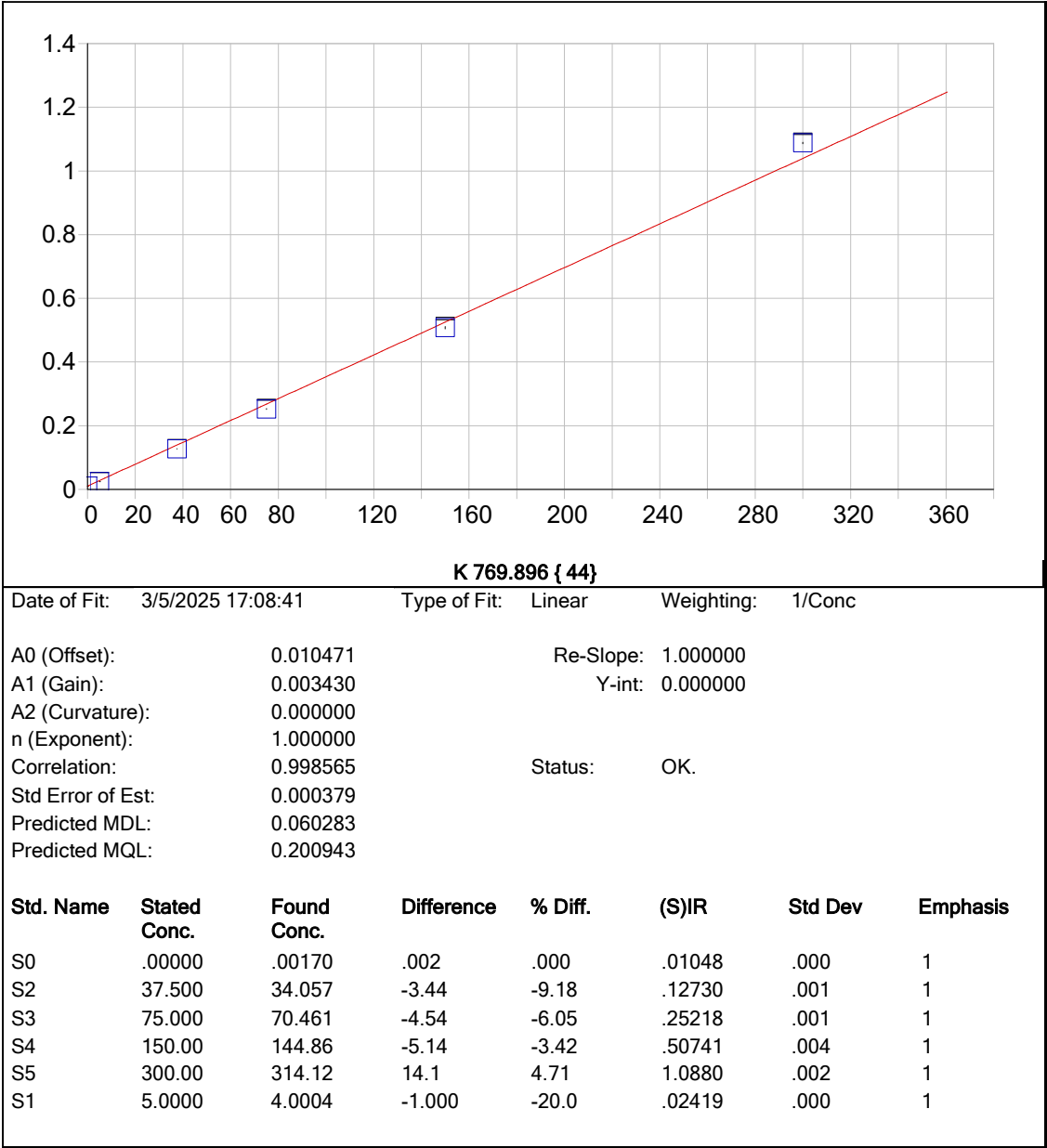


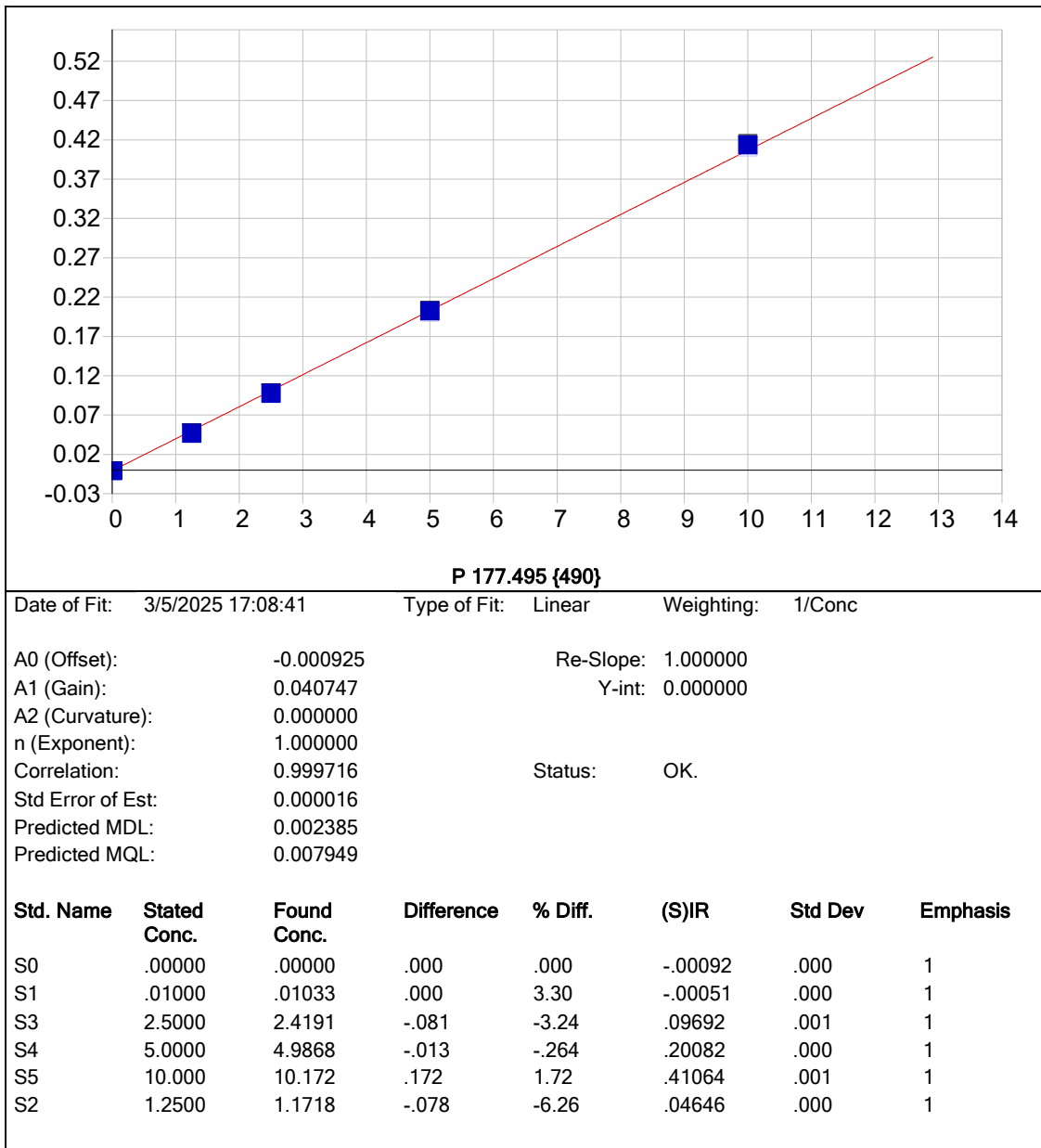


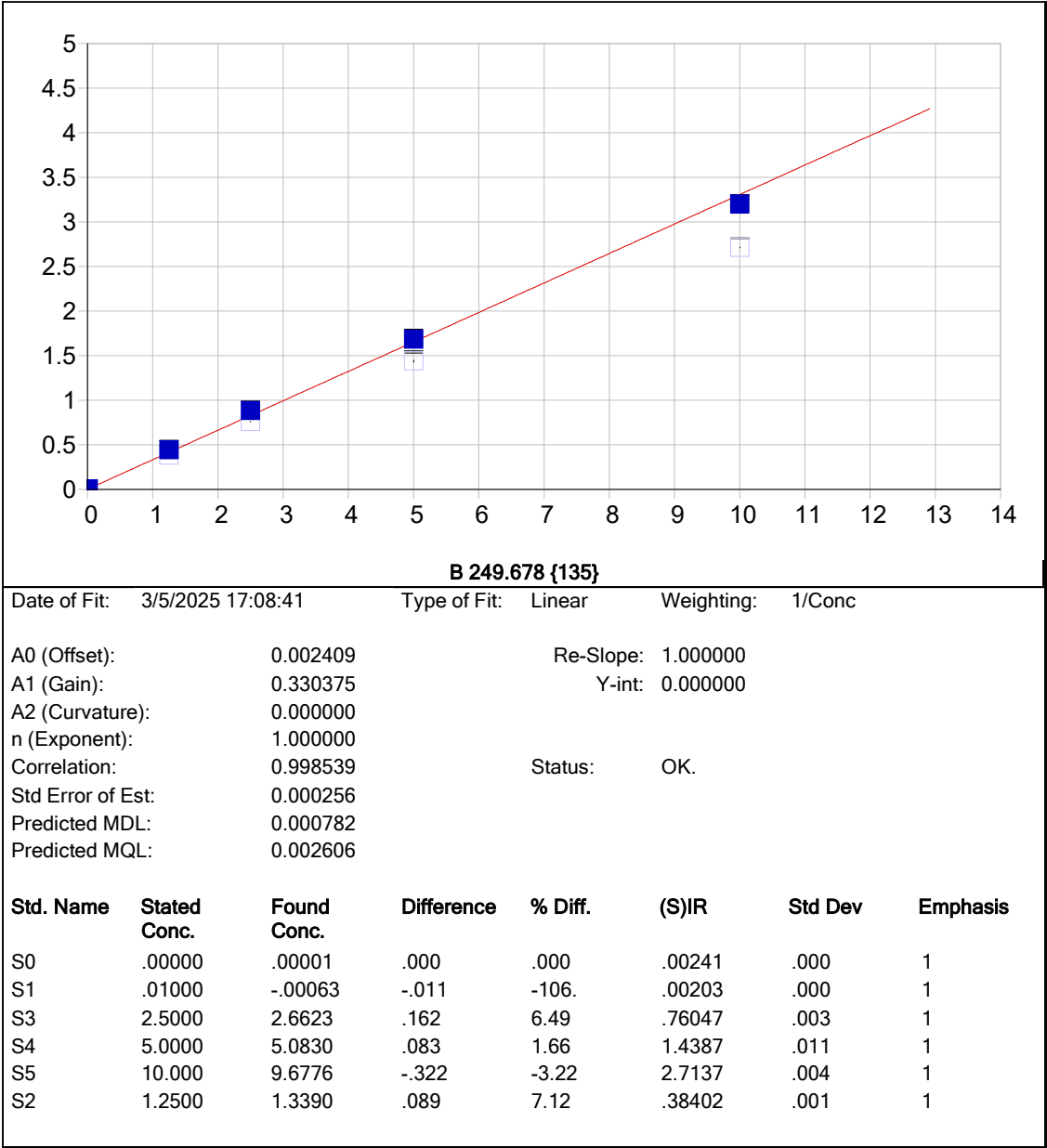


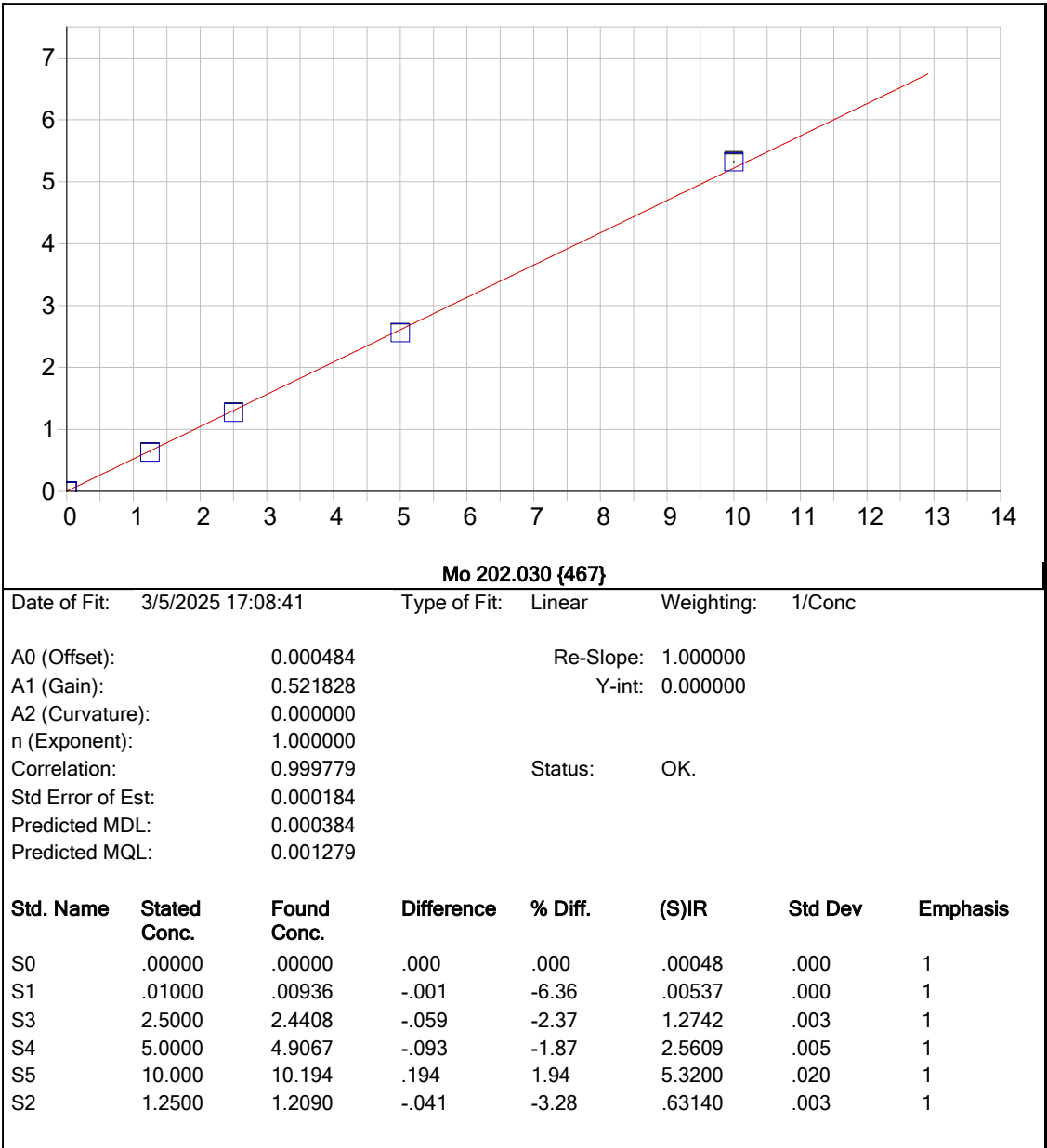


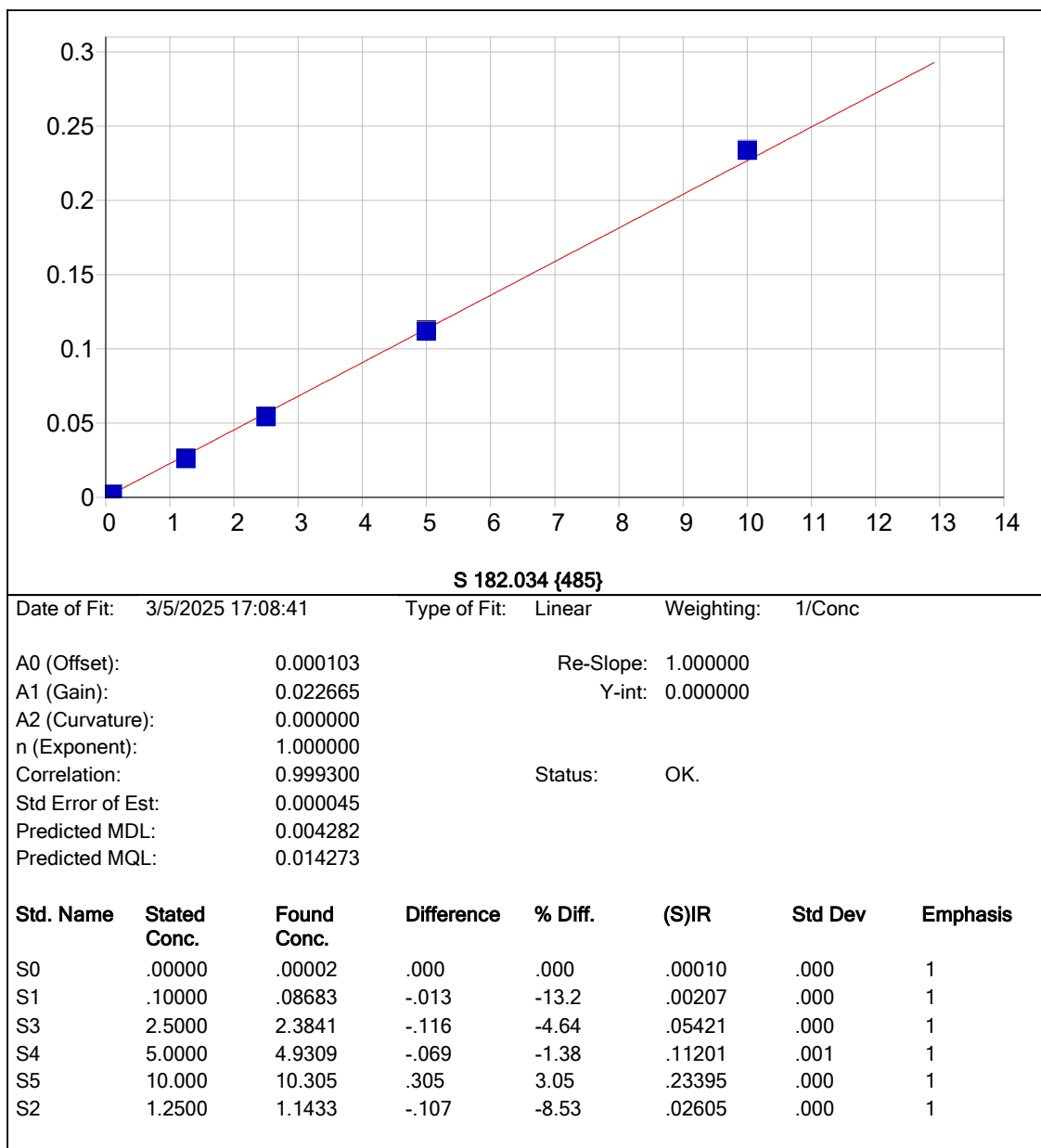


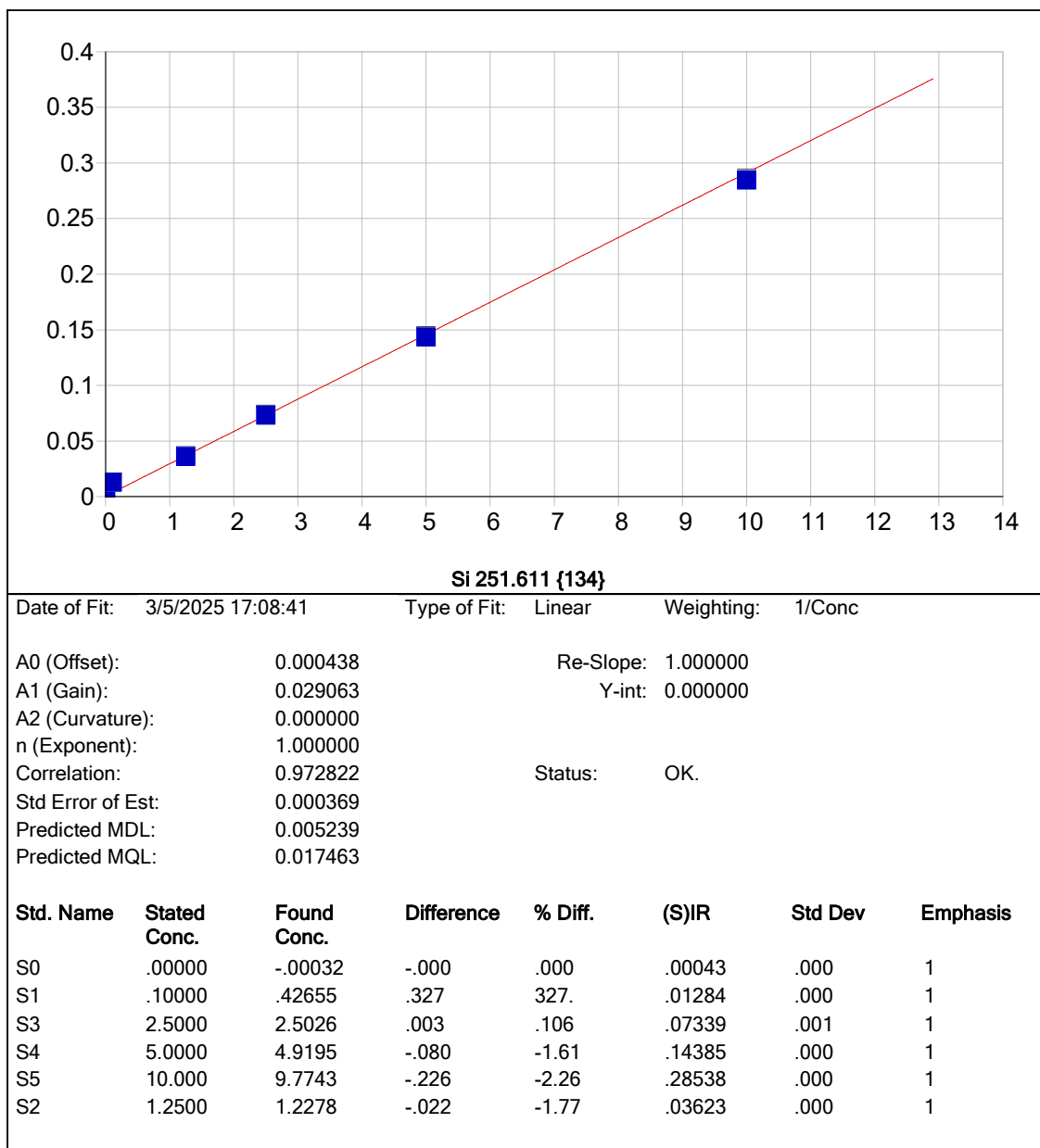


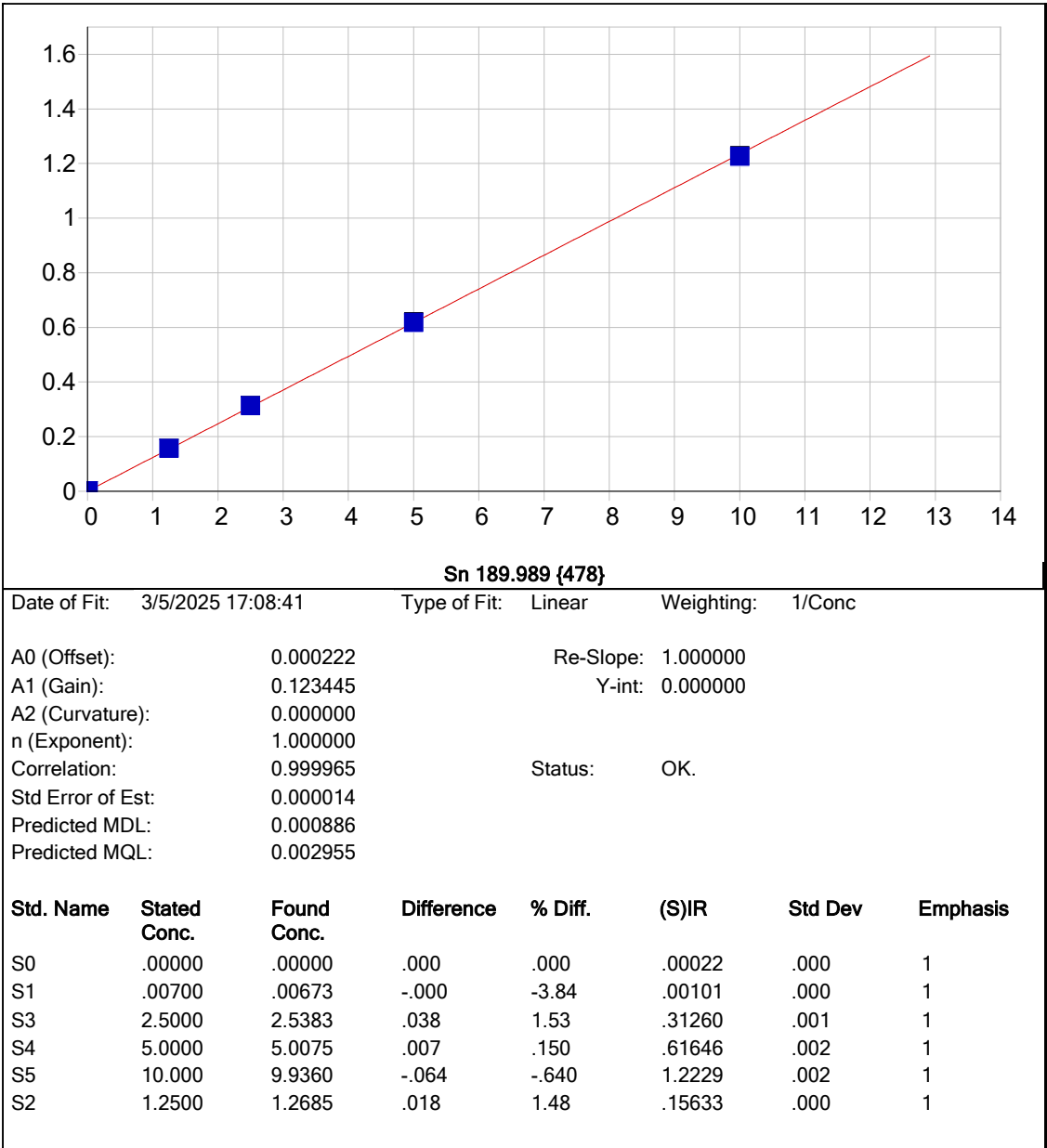


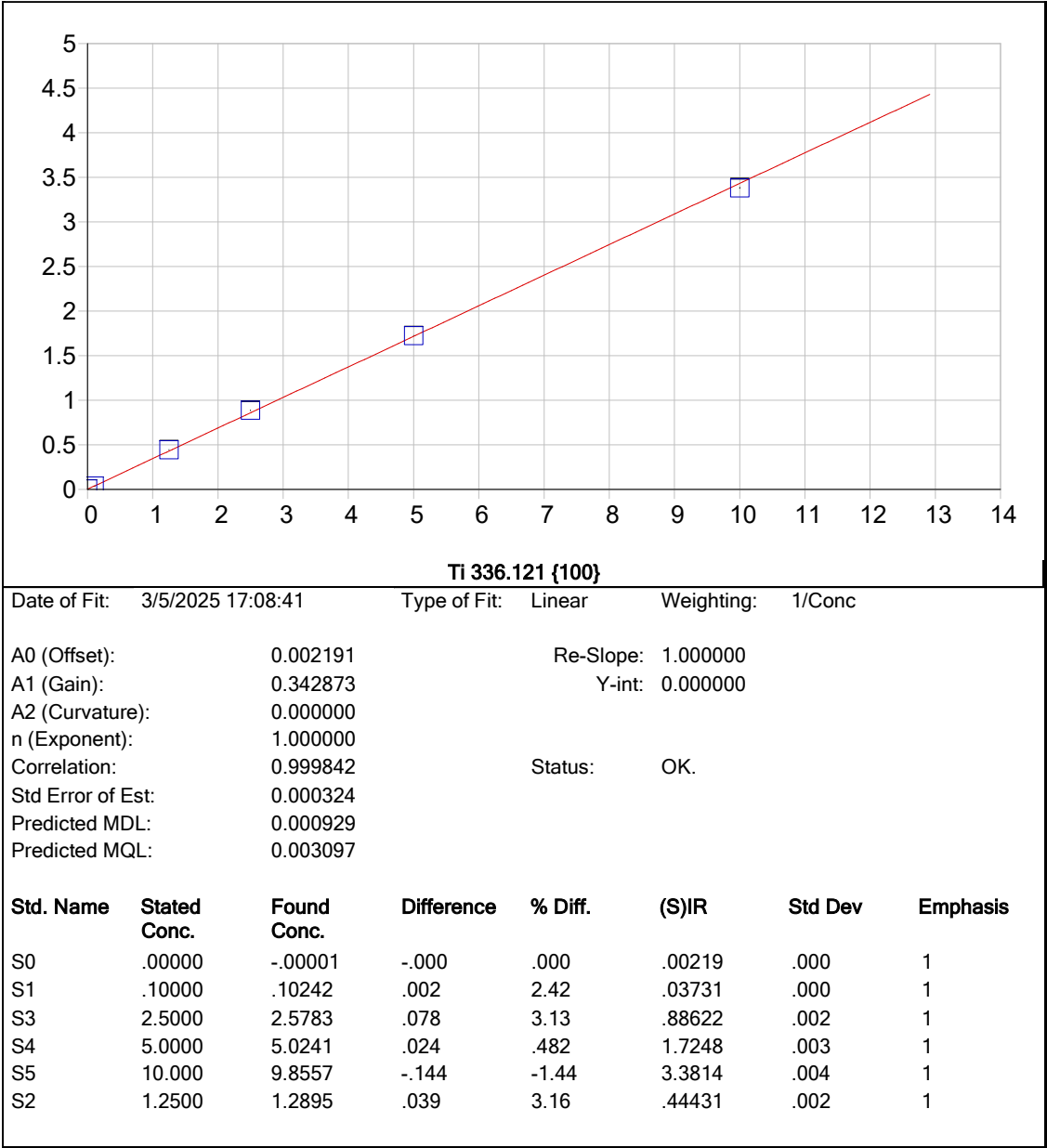


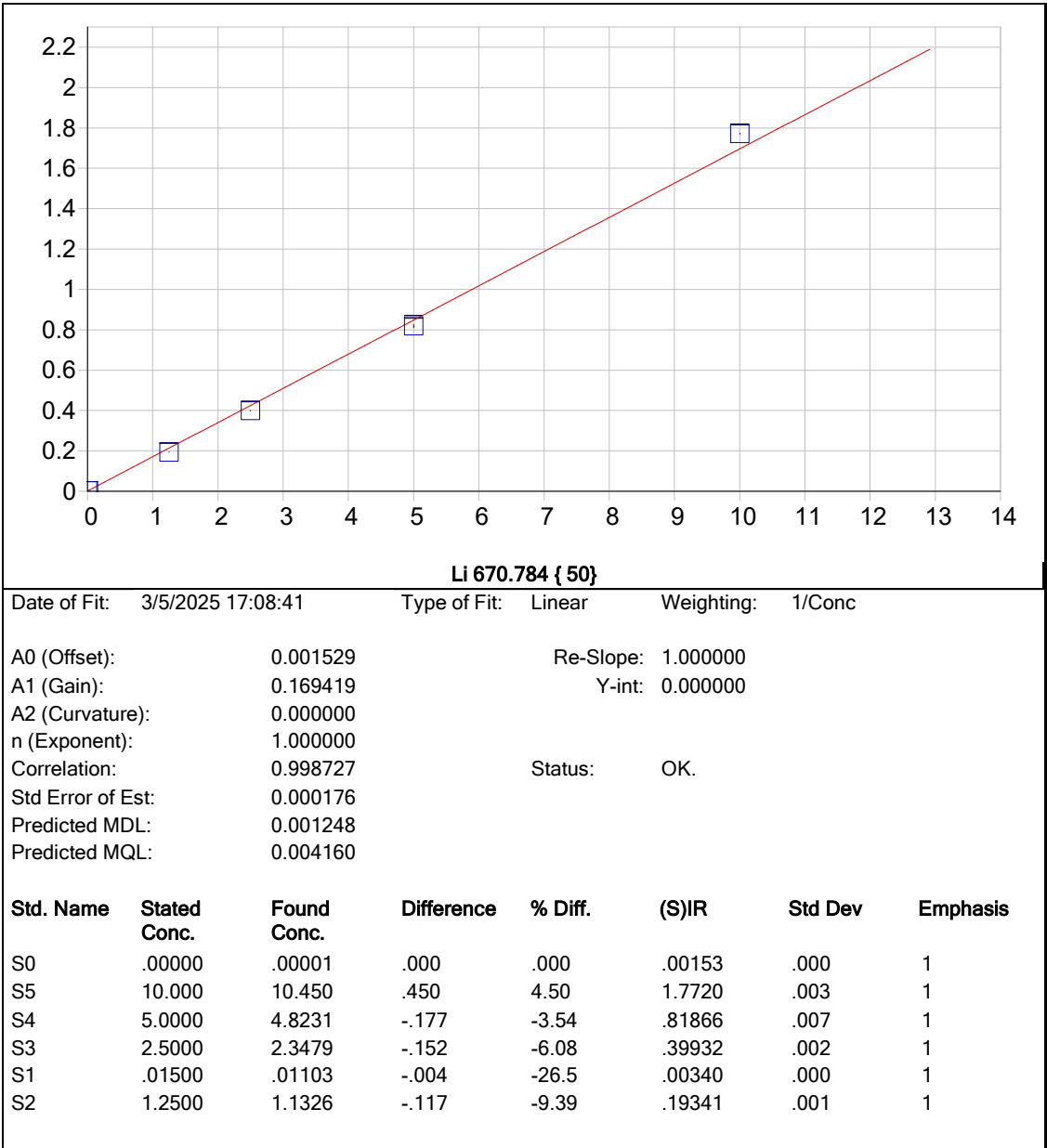


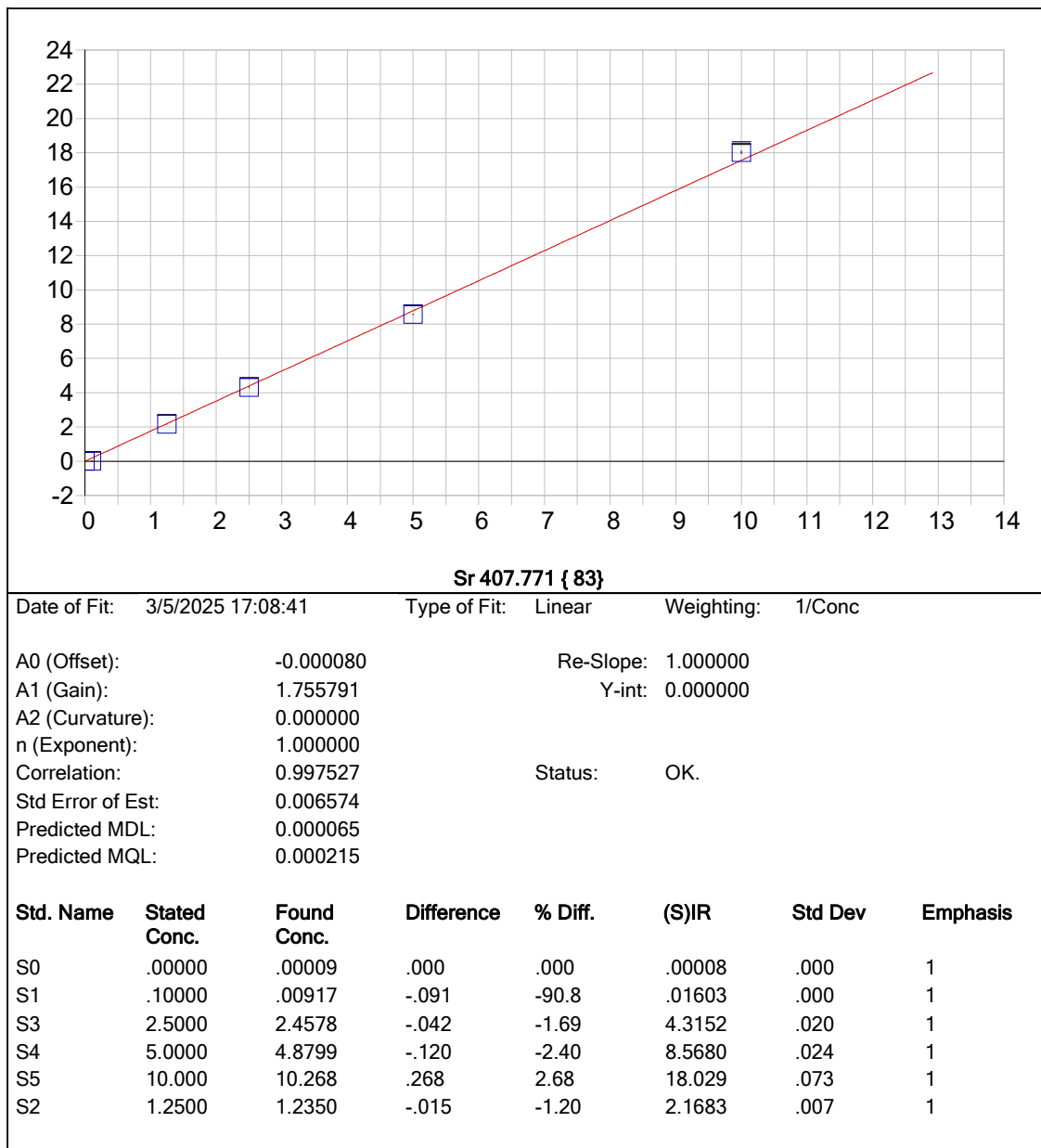


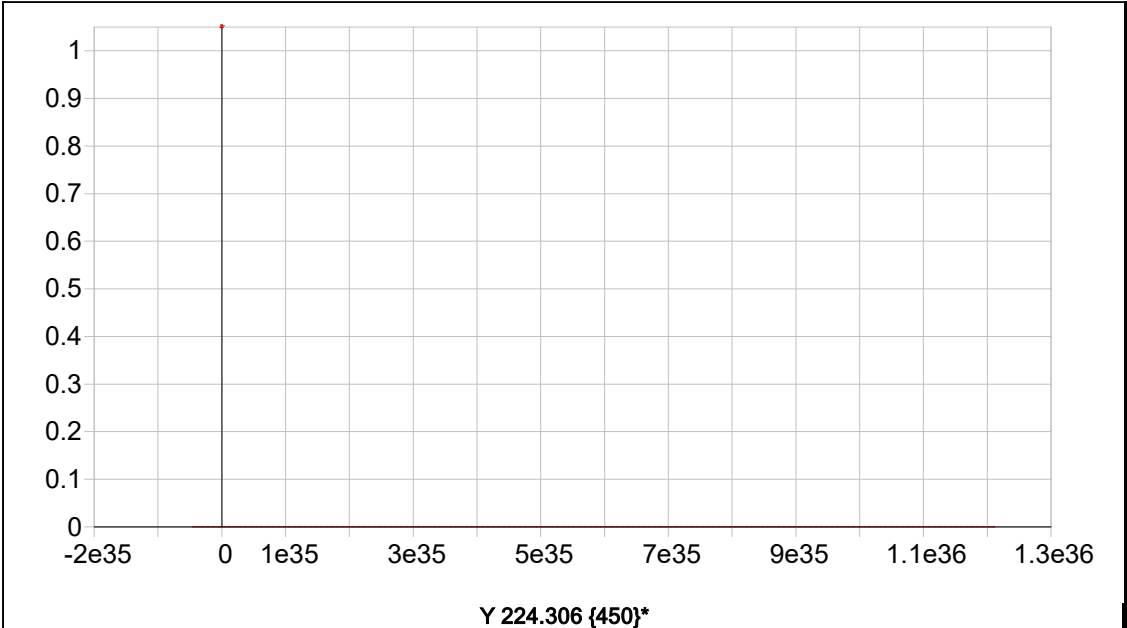












Date of Fit: 3/5/2025 17:08:41 Type of Fit: Linear Weighting: 1/Conc

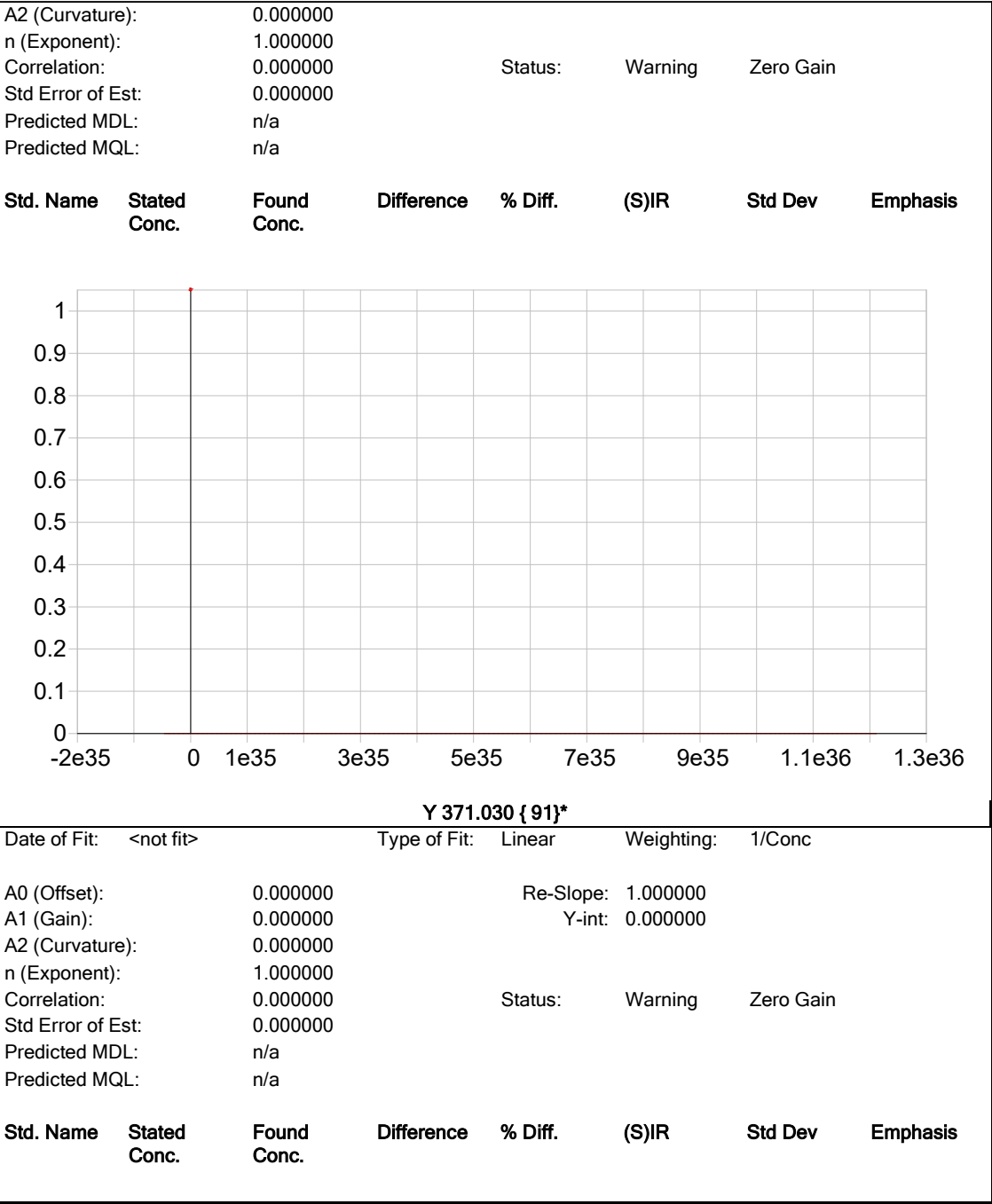
A0 (Offset):	0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.000000	Status:	Warning Zero Gain
Std Error of Est:	0.000000		
Predicted MDL:	n/a		
Predicted MQL:	n/a		

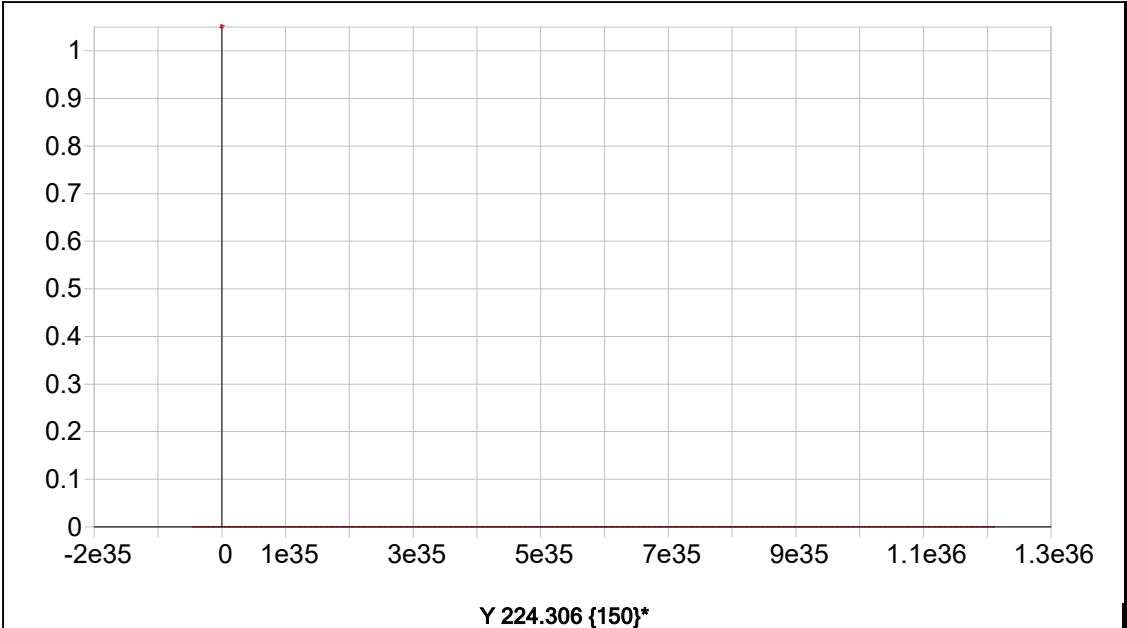
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
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Y 360.073 { 94}*

Date of Fit: <not fit> Type of Fit: Linear Weighting: 1/Conc

A0 (Offset):	0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000





Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000		Re-Slope:	1.000000	
A1 (Gain):	0.000000		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000		Status:	Warning	Zero Gain
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted MQL:	n/a				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
							
ln 230.606 {446}*							

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000	Re-Slope:	1.000000		
A1 (Gain):	0.000000	Y-int:	0.000000		

A2 (Curvature):		0.000000		Status:	Warning	Zero Gain	
n (Exponent):		1.000000					
Correlation:		0.000000					
Std Error of Est:		0.000000					
Predicted MDL:		n/a					
Predicted MQL:		n/a					
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis

Sample Name: S0 Acquired: 3/5/2025 14:34:28 Type: Cal
Method: EPA SFAM01.0(v68) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S0 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00018	.00002	-.00025	.00032	.00025	.00012	.00762	-.00008
Stddev	.00002	.00008	.00011	.00008	.00013	.00008	.00025	.00015
%RSD	10.984	465.57	42.381	24.470	51.083	67.753	3.2427	201.83

#1	-.00016	.00009	-.00018	.00023	.00012	.00003	.00787	-.00023
#2	-.00020	.00003	-.00020	.00038	.00037	.00020	.00738	.00007
#3	-.00017	-.00007	-.00038	.00036	.00027	.00014	.00761	-.00007

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00004	.00008	.00011	-.00008	.00047	.00005	.00002	-.00005
Stddev	.00008	.00003	.00002	.00006	.00022	.00003	.00002	.00003
%RSD	218.75	32.079	15.340	70.578	47.739	55.305	86.237	50.211

#1	-.00013	.00010	.00011	-.00002	.00056	.00002	.00003	-.00006
#2	.00002	.00005	.00013	-.00010	.00064	.00008	.00003	-.00008
#3	-.00000	.00008	.00009	-.00013	.00022	.00004	.00000	-.00002

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00005	-.00051	-.00110	.00020	.00081	.01048	-.00092	.00241
Stddev	.00019	.00007	.00056	.00016	.00015	.00011	.00008	.00007
%RSD	368.67	13.828	51.437	80.736	18.354	1.0624	8.7800	2.7404

#1	-.00022	-.00045	-.00118	.00006	.00088	.01055	-.00100	.00234
#2	.00016	-.00059	-.00050	.00037	.00064	.01053	-.00084	.00244
#3	-.00009	-.00050	-.00162	.00016	.00092	.01035	-.00093	.00246

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	.00048	.00010	.00043	.00022	.00219	.00153	.00008	
Stddev	.00012	.00005	.00005	.00005	.00008	.00016	.00006	
%RSD	23.719	44.630	11.040	20.528	3.8452	10.760	67.657	

#1	.00043	.00010	.00042	.00018	.00218	.00138	.00006	
#2	.00041	.00015	.00038	.00021	.00211	.00150	.00015	
#3	.00062	.00006	.00048	.00027	.00228	.00171	.00004	

Sample Name: S0 Acquired: 3/5/2025 14:34:28 Type: Cal
Method: EPA SFAM01.0(v68) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S0 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3474.3	72469.	14441.	3095.1	4792.9
Stddev	9.6	285.	70.	13.6	15.8
%RSD	.27572	.39373	.48692	.43895	.32994
#1	3466.6	72198.	14374.	3082.2	4778.5
#2	3471.2	72442.	14435.	3093.9	4790.5
#3	3485.0	72767.	14515.	3109.3	4809.9

Sample Name: S1 Acquired: 3/5/2025 14:38:40 Type: Cal
Method: EPA SFAM01.0(v68) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00040	.00109	.00179	.00207	.00776	.00237	.08842	.01543
Stddev	.00009	.00008	.00019	.00027	.00006	.00005	.00019	.00020
%RSD	21.208	7.6932	10.871	12.852	.78720	2.2151	.21910	1.3230

#1	.00043	.00111	.00162	.00184	.00769	.00232	.08860	.01521
#2	.00031	.00100	.00200	.00236	.00778	.00243	.08843	.01549
#3	.00047	.00117	.00175	.00200	.00781	.00235	.08821	.01561

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.01160	.04086	.00177	.03526	.00477	.00055	.00149	.01156
Stddev	.00010	.00016	.00002	.00017	.00023	.00003	.00002	.00006
%RSD	.83424	.39477	1.2956	.47463	4.7576	5.4023	1.0869	.54776

#1	.01168	.04094	.00176	.03518	.00453	.00058	.00151	.01162
#2	.01162	.04096	.00176	.03545	.00499	.00055	.00149	.01150
#3	.01149	.04067	.00180	.03514	.00478	.00052	.00147	.01155

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.02024	.00209	.02048	.00617	.01525	.02419	-.00051	.00203
Stddev	.00025	.00011	.00038	.00024	.00041	.00020	.00005	.00010
%RSD	1.2499	5.4197	1.8672	3.9207	2.6985	.84717	10.130	5.0481

#1	.02019	.00221	.02089	.00599	.01478	.02439	-.00045	.00214
#2	.02052	.00207	.02044	.00608	.01549	.02421	-.00054	.00202
#3	.02002	.00199	.02012	.00644	.01549	.02398	-.00053	.00194

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00537	.00207	.01284	.00101	.03731	.00340	.01603
Stddev	.00008	.00005	.00029	.00004	.00038	.00017	.00003
%RSD	1.4946	2.6092	2.2668	3.7757	1.0094	4.9778	.15926

#1	.00545	.00202	.01250	.00106	.03688	.00357	.01601
#2	.00538	.00213	.01297	.00098	.03750	.00340	.01602
#3	.00529	.00206	.01304	.00100	.03756	.00323	.01605

Sample Name: S1 Acquired: 3/5/2025 14:38:40 Type: Cal
Method: EPA SFAM01.0(v68) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S01 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3421.8	73211.	14501.	3139.0	4597.8
Stddev	3.2	215.	93.	10.5	5.8
%RSD	.09228	.29415	.64060	.33532	.12681
#1	3418.3	72985.	14598.	3150.2	4591.9
#2	3422.6	73234.	14491.	3137.5	4597.8
#3	3424.5	73414.	14413.	3129.3	4603.6

Sample Name: S2 Acquired: 3/5/2025 14:42:51 Type: Cal
Method: EPA SFAM01.0(v68) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S02 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.06092	.04942	1.2383	.06446	.15906	.47890	1.1076	.38591
Stddev	.00008	.00074	.0001	.00018	.00056	.00091	.0044	.00136
%RSD	.13846	1.4932	.01222	.28594	.35358	.19025	.39896	.35128

#1	.06101	.04926	1.2382	.06443	.15936	.47995	1.1127	.38553
#2	.06084	.04878	1.2383	.06430	.15841	.47844	1.1044	.38478
#3	.06091	.05023	1.2385	.06466	.15940	.47832	1.1058	.38741

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.5078	.53779	.63980	.45441	.57228	.19970	.38239	.16141
Stddev	.0023	.00140	.00037	.00055	.00225	.00062	.00066	.00028
%RSD	.15458	.26079	.05745	.12050	.39389	.30895	.17170	.17400

#1	1.5083	.53927	.63940	.45503	.57426	.20041	.38310	.16141
#2	1.5053	.53649	.64011	.45401	.56983	.19938	.38180	.16112
#3	1.5098	.53760	.63990	.45418	.57277	.19931	.38227	.16168

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.32663	.07971	.15705	.07141	.98388	.12730	.04646	.38402
Stddev	.00059	.00021	.00078	.00050	.00806	.00056	.00022	.00051
%RSD	.17953	.26672	.49444	.70644	.81916	.44103	.46842	.13312

#1	.32721	.07965	.15794	.07196	.99319	.12786	.04667	.38343
#2	.32665	.07995	.15648	.07097	.97945	.12674	.04623	.38428
#3	.32604	.07954	.15673	.07129	.97901	.12729	.04647	.38436

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.63140	.02605	.03623	.15633	.44431	.19341	2.1683
Stddev	.00322	.00012	.00025	.00017	.00171	.00077	.0068
%RSD	.51056	.45389	.69234	.10823	.38538	.39815	.31354

#1	.63171	.02593	.03625	.15653	.44576	.19425	2.1756
#2	.62803	.02617	.03597	.15622	.44242	.19324	2.1673
#3	.63446	.02606	.03647	.15625	.44476	.19274	2.1621

Sample Name: S2 Acquired: 3/5/2025 14:42:51 Type: Cal
Method: EPA SFAM01.0(v68) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S02 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3242.1	67362.	14390.	2922.5	4109.7
Stddev	8.8	126.	57.	18.6	11.5
%RSD	.27074	.18773	.39688	.63679	.27875
#1	3233.6	67274.	14376.	2903.4	4096.5
#2	3251.2	67507.	14453.	2940.5	4115.6
#3	3241.6	67305.	14342.	2923.5	4116.9

Sample Name: S3 Acquired: 3/5/2025 14:46:42 Type: Cal
Method: EPA SFAM01.0(v68) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S03 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.12434	.09712	2.4691	.12975	.32375	.97817	2.2277	.77271
Stddev	.00014	.00034	.0070	.00054	.00080	.00358	.0230	.00286
%RSD	.11636	.35058	.28519	.41715	.24763	.36555	1.0315	.37002

#1	.12418	.09751	2.4670	.12993	.32391	.98171	2.2499	.77022
#2	.12436	.09692	2.4633	.12914	.32288	.97823	2.2040	.77209
#3	.12447	.09691	2.4769	.13018	.32445	.97456	2.2292	.77583

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.0205	1.0824	1.2580	.90952	1.1452	.39712	.76313	.32922
Stddev	.0062	.0032	.0005	.00153	.0015	.00101	.00174	.00067
%RSD	.20442	.29387	.03820	.16807	.13133	.25409	.22770	.20389

#1	3.0220	1.0857	1.2585	.90957	1.1470	.39791	.76401	.32959
#2	3.0138	1.0823	1.2576	.90797	1.1445	.39747	.76426	.32962
#3	3.0258	1.0793	1.2580	.91103	1.1442	.39598	.76113	.32845

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.65221	.16176	.32063	.14376	2.0091	.25218	.09692	.76047
Stddev	.00154	.00023	.00037	.00027	.0027	.00124	.00055	.00313
%RSD	.23539	.14468	.11609	.18862	.13457	.49219	.56328	.41122

#1	.65208	.16164	.32100	.14359	2.0112	.25325	.09639	.75741
#2	.65074	.16203	.32062	.14362	2.0101	.25248	.09687	.76033
#3	.65381	.16160	.32026	.14407	2.0061	.25082	.09748	.76366

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.2742	.05421	.07339	.31260	.88622	.39932	4.3152
Stddev	.0026	.00021	.00053	.00064	.00239	.00187	.0201
%RSD	.20750	.38407	.72497	.20606	.26948	.46891	.46583

#1	1.2750	.05425	.07383	.31291	.88806	.40130	4.2987
#2	1.2712	.05398	.07280	.31186	.88353	.39906	4.3376
#3	1.2763	.05439	.07355	.31303	.88708	.39759	4.3095

Sample Name: S3 Acquired: 3/5/2025 14:46:42 Type: Cal
Method: EPA SFAM01.0(v68) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S03 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3093.7	65273.	14030.	2809.6	3884.8
Stddev	6.5	45.	50.	6.2	8.1
%RSD	.21002	.06870	.35786	.21934	.20816
#1	3090.4	65276.	14056.	2809.0	3879.6
#2	3101.2	65317.	14062.	2816.1	3894.1
#3	3089.6	65227.	13972.	2803.8	3880.7

Sample Name: S4 Acquired: 3/5/2025 14:50:38 Type: Cal
Method: EPA SFAM01.0(v68) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S04 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.25643	.18908	4.8728	.26390	.66462	1.9812	4.4751	1.4882
Stddev	.00160	.00132	.0214	.00122	.00347	.0152	.0098	.0125
%RSD	.62290	.69721	.43939	.46275	.52244	.76631	.21958	.84134

#1	.25580	.18884	4.8533	.26330	.66369	1.9982	4.4864	1.4739
#2	.25524	.18790	4.8694	.26310	.66172	1.9761	4.4690	1.4968
#3	.25824	.19051	4.8957	.26531	.66847	1.9692	4.4697	1.4941

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5.9252	2.1463	2.4141	1.7909	2.2271	.77451	1.4926	.66454
Stddev	.0195	.0132	.0028	.0065	.0033	.00541	.0101	.00323
%RSD	.32938	.61250	.11535	.36319	.14998	.69821	.67871	.48531

#1	5.9073	2.1612	2.4155	1.7846	2.2292	.78031	1.5031	.66800
#2	5.9224	2.1408	2.4160	1.7906	2.2289	.77361	1.4916	.66399
#3	5.9460	2.1367	2.4109	1.7976	2.2233	.76961	1.4829	.66162

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.2791	.32474	.63090	.27801	3.9635	.50741	.20082	1.4387
Stddev	.0048	.00048	.00151	.00078	.0259	.00383	.00040	.0111
%RSD	.37770	.14824	.23940	.28053	.65224	.75515	.19936	.76959

#1	1.2743	.32520	.63261	.27714	3.9929	.51174	.20086	1.4260
#2	1.2792	.32477	.63034	.27822	3.9533	.50444	.20040	1.4460
#3	1.2840	.32424	.62975	.27866	3.9444	.50606	.20119	1.4442

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.5609	.11201	.14385	.61646	1.7248	.81866	8.5680
Stddev	.0055	.00058	.00035	.00212	.0026	.00699	.0238
%RSD	.21459	.51644	.24532	.34431	.15246	.85412	.27721

#1	2.5622	.11143	.14367	.61495	1.7275	.82672	8.5940
#2	2.5549	.11199	.14362	.61554	1.7222	.81430	8.5475
#3	2.5657	.11259	.14426	.61888	1.7248	.81495	8.5625

Sample Name: S4 Acquired: 3/5/2025 14:50:38 Type: Cal
Method: EPA SFAM01.0(v68) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S04 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2863.7	63425.	13901.	2699.3	3599.8
Stddev	11.6	216.	79.	7.9	10.9
%RSD	.40391	.34050	.57058	.29321	.30345
#1	2864.8	63269.	13988.	2690.5	3605.5
#2	2874.6	63334.	13832.	2701.8	3606.7
#3	2851.6	63672.	13881.	2705.7	3587.2

Sample Name: S5 Acquired: 3/5/2025 14:54:40 Type: Cal
Method: EPA SFAM01.0(v68) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S05 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.56216	.37744	9.7327	.57133	1.4569	4.2531	9.3466	2.9193
Stddev	.00172	.00302	.0191	.00180	.0064	.0363	.0738	.0076
%RSD	.30682	.79980	.19579	.31448	.43959	.85381	.78976	.26207

#1	.56090	.37598	9.7311	.56956	1.4511	4.2736	9.4211	2.9279
#2	.56145	.38091	9.7145	.57129	1.4560	4.2112	9.2734	2.9166
#3	.56413	.37543	9.7525	.57315	1.4638	4.2745	9.3454	2.9134

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	11.734	4.4338	4.7228	3.5822	4.5047	1.6010	3.1115	1.4008
Stddev	.017	.0206	.0097	.0070	.0040	.0020	.0032	.0018
%RSD	.14347	.46379	.20534	.19534	.08841	.12613	.10157	.13077

#1	11.725	4.4546	4.7340	3.5803	4.5001	1.6003	3.1083	1.4026
#2	11.724	4.4331	4.7163	3.5765	4.5072	1.5994	3.1114	1.3989
#3	11.754	4.4135	4.7183	3.5900	4.5068	1.6032	3.1147	1.4010

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.5395	.68382	1.2678	.54479	8.3053	1.0880	.41064	2.7137
Stddev	.0027	.00063	.0011	.00098	.0303	.0021	.00132	.0044
%RSD	.10733	.09190	.08977	.18006	.36475	.19427	.32141	.16257

#1	2.5395	.68441	1.2676	.54590	8.3177	1.0881	.41178	2.7181
#2	2.5367	.68316	1.2668	.54444	8.2708	1.0859	.41095	2.7136
#3	2.5422	.68389	1.2690	.54403	8.3275	1.0901	.40920	2.7093

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	5.3200	.23395	.28538	1.2229	3.3814	1.7720	18.029	
Stddev	.0197	.00019	.00038	.0016	.0044	.0028	.073	
%RSD	.37087	.08205	.13484	.12808	.13021	.15554	.40377	

#1	5.3001	.23401	.28582	1.2215	3.3865	1.7730	18.004	
#2	5.3204	.23410	.28509	1.2227	3.3783	1.7689	17.971	
#3	5.3396	.23373	.28523	1.2246	3.3796	1.7742	18.110	

Sample Name: S5 Acquired: 3/5/2025 14:54:40 Type: Cal
Method: EPA SFAM01.0(v68) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S05 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2481.3	58576.	13632.	2474.3	3235.2
Stddev	6.5	21.	23.	9.0	3.7
%RSD	.26007	.03601	.16756	.36188	.11520
#1	2486.0	58561.	13634.	2470.0	3235.5
#2	2483.9	58568.	13609.	2484.5	3238.8
#3	2473.9	58601.	13655.	2468.2	3231.3

Sample Name: S6 Acquired: 3/5/2025 14:59:06 Type: Cal
Method: EPA SFAM01.0(v68) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S06 Custom ID2: Custom ID3:
Comment:

Elem	Al3961	Ca3736	Fe2598	Mg2790	Na8183
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	11.783	7.3912	4.3909	2.3907	3.5460
Stddev	.020	.0626	.0312	.0086	.0042
%RSD	.17252	.84732	.71132	.35803	.11779

#1	11.805	7.3232	4.3605	2.3831	3.5451
#2	11.765	7.4465	4.4229	2.4000	3.5506
#3	11.778	7.4039	4.3894	2.3891	3.5424

Int. Std.	Y_3600	Y_3710
Units	Cts/S	Cts/S
Avg	54988.	13253.
Stddev	154.	21.
%RSD	.27975	.16105

#1	55159.	13248.
#2	54861.	13276.
#3	54944.	13234.

Sample Name: ICV002 Acquired: 3/5/2025 15:23:45 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICV002 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.017953	1.086542	1.008888	.9491856	.9021604	2.331069
Stddev	.000302	.012682	.001857	.0023774	.0021723	.004856
%RSD	.0296520	1.167197	.1840815	.2504663	.2407828	.2083149

#1	1.017775	1.097598	1.010394	.9497503	.9036895	2.327307
#2	1.018301	1.072698	1.006813	.9465768	.8996739	2.329349
#3	1.017782	1.089331	1.009456	.9512299	.9031178	2.336551

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4807985	.5286550	.5001740	9.204995	.5630205	.5069390
Stddev	.0037186	.0003526	.0007154	.018494	.0010046	.0006083
%RSD	.7734127	.0667036	.1430367	.2009080	.1784366	.1199941

#1	.4823905	.5285920	.5000693	9.211440	.5624709	.5073811
#2	.4765490	.5290348	.4995166	9.184142	.5624106	.5062452
#3	.4834560	.5283380	.5009360	9.219404	.5641801	.5071906

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5289641	9.647678	.4981502	6.164677	.5148806	.2387577
Stddev	.0009708	.034354	.0010644	.011875	.0005245	.0003674
%RSD	.1835368	.3560871	.2136651	.1926219	.1018765	.1538629

#1	.5278630	9.631789	.4974997	6.177129	.5148910	.2384256
#2	.5293324	9.624146	.4975725	6.153479	.5153998	.2391523
#3	.5296969	9.687101	.4993786	6.163425	.5143509	.2386953

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.912988	.5260871	1.010611	9.403473	F .0024426	F .0420760
Stddev	.153377	.0024421	.006708	.019476	.0015042	.0009903
%RSD	1.547229	.4642076	.6637598	.2071157	61.57934	2.353696

#1	9.974070	.5285798	1.007469	9.383179	.0013465	.0411826
#2	9.738481	.5236989	1.006051	9.405226	.0018239	.0419045
#3	10.02641	.5259825	1.018313	9.422013	.0041575	.0431409

Sample Name: ICV002 Acquired: 3/5/2025 15:23:45 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICV002 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F -.000677	F .0058548	F .0058681	F -.001254	F -.001493	F -.001128
Stddev	.000347	.0011948	.0038393	.000179	.000534	.000267
%RSD	51.23241	20.40756	65.42654	14.27127	35.78232	23.71303
#1	-.000831	.0053044	.0083577	-.001332	-.000978	-.000821
#2	-.000280	.0050343	.0078000	-.001380	-.002045	-.001250
#3	-.000921	.0072256	.0014466	-.001049	-.001457	-.001313

Elem	Sr4077
Units	ppm
Avg	F .0012535
Stddev	.0000106
%RSD	.8475435
#1	.0012636
#2	.0012545
#3	.0012424

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3456.797	71653.18	14659.94	3058.027	4621.188
Stddev	3.309	144.95	47.84	10.181	2.015
%RSD	.0957328	.2022974	.3263640	.3329344	.0435955
#1	3454.758	71795.16	14685.54	3065.544	4620.226
#2	3460.615	71505.43	14604.74	3046.441	4623.503
#3	3455.018	71658.95	14689.54	3062.097	4619.834

Sample Name: ICB002 Acquired: 3/5/2025 15:27:41 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICB002 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0023455	.0012899	.0000739	-.000190	.0006203	-.000007	.0001446
Stddev	.0013807	.0013212	.0002347	.001151	.0005778	.003280	.0005091
%RSD	58.86803	102.4197	317.4901	605.2975	93.14868	44624.44	352.1234
#1	.0007604	.0025598	.0002091	-.000300	.0001634	.003689	.0007271
#2	.0029896	.0013873	.0002097	.001012	.0004276	-.002572	-.000216
#3	.0032864	-.000077	-.000197	-.001283	.0012697	-.001139	-.000078
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000284	.0000097	.0031356	-.000228	.0000161	-.000681	-.002619
Stddev	.0000632	.0000541	.0016914	.000175	.0002478	.000725	.007683
%RSD	222.9256	558.5520	53.93986	76.99400	1543.217	106.3826	293.3161
#1	.0000161	.0000465	.0023221	-.000425	.0002705	-.000959	-.011480
#2	.0000968	-.000052	.0050801	-.000088	.0000022	-.001226	.002202
#3	-.000028	.000035	.0020048	-.000171	-.000225	.000141	.001419
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000145	.0030339	-.000158	.0001146	-.120899	-.001057	-.000642
Stddev	.000165	.0077733	.000417	.0001712	.114820	.001605	.000834
%RSD	114.1274	256.2134	264.6636	149.4758	94.97195	151.9176	129.9549
#1	-.000045	.0009689	.000316	.0002746	-.236666	-.001008	-.000399
#2	-.000335	-.003498	-.000318	-.000066	-.007051	.000524	-.001570
#3	-.000053	.011631	-.000471	.000135	-.118979	-.002686	.000044
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.037758	.0006146	-.000196	-.000259	.0007855	.0040497	-.000139
Stddev	.051227	.0012459	.000705	.000306	.0068893	.0036342	.000477
%RSD	135.6719	202.7195	359.3060	118.4382	877.1023	89.73953	341.8176
#1	-.068324	-.000366	.000306	-.000339	.0058039	-.000140	-.000383
#2	-.066333	.000194	.000108	.000080	.0036218	.005947	-.000445
#3	.021383	.002016	-.001002	-.000516	-.007069	.006343	.000410

Sample Name: ICB002 Acquired: 3/5/2025 15:27:41 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICB002 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000497	-.001340	.0000823
Stddev	.000707	.000689	.0000492
%RSD	142.1388	51.44778	59.75905

#1	-.001053	-.001943	.0000273
#2	-.000737	-.001489	.0000977
#3	.000298	-.000588	.0001220

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3492.602	73305.40	14514.43	3134.409	4798.352
Stddev	2.514	107.94	77.58	9.393	2.730
%RSD	.0719798	.1472513	.5344686	.2996771	.0568872

#1	3491.346	73202.91	14439.10	3141.723	4796.566
#2	3490.963	73418.07	14510.12	3123.816	4796.995
#3	3495.496	73295.22	14594.07	3137.688	4801.494

Sample Name: ICSA002 Acquired: 3/5/2025 15:31:50 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSA002 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0037769	-.005160	.0023437	.0119705	.0065746	216.7620
Stddev	.0017425	.002725	.0012897	.0022582	.0012914	1.3997
%RSD	46.13609	52.80683	55.02873	18.86514	19.64210	.6457502

#1	.0023042	-.006995	.0022007	.0132251	.0071551	216.2091
#2	.0057006	-.002029	.0011315	.0093635	.0050948	215.7232
#3	.0033260	-.006455	.0036990	.0133228	.0074738	218.3538

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0070671	-.000190	.0001556	235.2950	.0526549	.0014303
Stddev	.0005195	.000107	.0000934	.3086	.0005767	.0001354
%RSD	7.350972	56.44135	60.07342	.1311477	1.095215	9.463462

#1	.0075956	-.000176	.0001776	235.6133	.0526214	.0013404
#2	.0065571	-.000303	.0002361	234.9972	.0520958	.0015859
#3	.0070485	-.000090	.0000531	235.2745	.0532477	.0013644

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002539	96.77429	.0111126	229.3974	.0046920	-.002315
Stddev	.000874	.07229	.0001348	.1748	.0000400	.000391
%RSD	34.43164	.0747006	1.212603	.0762120	.8533053	16.90265

#1	-.002113	96.81936	.0111819	229.3667	.0047202	-.002583
#2	-.001960	96.69091	.0111986	229.5856	.0046461	-.002496
#3	-.003544	96.81260	.0109573	229.2400	.0047096	-.001866

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0813398	-.008235	-.007386	-.199845	.0022862	F .4066362
Stddev	.3353192	.001542	.000530	.048426	.0018276	.0006211
%RSD	412.2450	18.72695	7.181652	24.23201	79.94248	.1527367

#1	-.303051	-.009647	-.007926	-.197807	.0037060	.4073522
#2	.313805	-.006589	-.007367	-.152469	.0002241	.4063137
#3	.233266	-.008470	-.006865	-.249257	.0029284	.4062426

Sample Name: ICSA002 Acquired: 3/5/2025 15:31:50 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSA002 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0004898	.0207503	.0020592	-.004832	-.002715	.0042300
Stddev	.0002493	.0058034	.0047185	.001746	.000754	.0013494
%RSD	50.90827	27.96780	229.1367	36.14132	27.77528	31.89993

#1	.0003543	.0140491	-.002111	-.005601	-.001912	.0032855
#2	.0003375	.0241004	.001108	-.002833	-.003408	.0057755
#3	.0007775	.0241013	.007181	-.006062	-.002826	.0036291

Elem	Sr4077
Units	ppm
Avg	F .1000162
Stddev	.0002865
%RSD	.2864051

#1	.0999714
#2	.0997547
#3	.1003223

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3116.633	64511.51	14132.27	2803.519	3792.651
Stddev	6.132	117.24	12.88	11.808	12.712
%RSD	.1967579	.1817411	.0911464	.4211945	.3351806

#1	3115.885	64376.18	14131.06	2800.939	3794.881
#2	3123.105	64575.76	14120.03	2793.214	3804.101
#3	3110.909	64582.58	14145.71	2816.404	3778.971

Sample Name: ICSAB002 Acquired: 3/5/2025 15:36:04 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSAB002 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0970928	.0937214	.0523289	.0548482	.5439589	221.7099
Stddev	.0027207	.0024679	.0023631	.0023280	.0015348	2.0776
%RSD	2.802193	2.633264	4.515801	4.244375	.2821567	.9370922

#1	.0949170	.0922677	.0546140	.0535984	.5428292	221.8329
#2	.0962181	.0923256	.0524777	.0534121	.5457063	219.5735
#3	.1001433	.0965709	.0498949	.0575342	.5433411	223.7233

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4948349	.5086568	.9925617	234.4833	.5912165	.4988430
Stddev	.0016746	.0002494	.0002633	.5009	.0013427	.0004543
%RSD	.3384211	.0490360	.0265276	.2136152	.2271131	.0910644

#1	.4962732	.5089108	.9926510	234.3982	.5926755	.4983356
#2	.4952349	.5084122	.9927687	235.0213	.5900326	.4989813
#3	.4929964	.5086473	.9922654	234.0305	.5909414	.4992120

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5026221	97.38144	.5189971	229.7069	1.002110	.1983804
Stddev	.0020021	.11720	.0019738	.4954	.001788	.0008797
%RSD	.3983287	.1203492	.3803189	.2156867	.1783898	.4434233

#1	.5016833	97.29831	.5168131	229.2949	1.000123	.1973919
#2	.5012620	97.51548	.5206536	230.2567	1.003588	.1990771
#3	.5049211	97.33053	.5195246	229.5691	1.002619	.1986723

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.046131	.4889379	.9799523	-.526446	.0059862	F 1.414832
Stddev	.275860	.0028754	.0069805	.070767	.0022281	.000294
%RSD	597.9990	.5880983	.7123331	13.44244	37.22017	.0207789

#1	-.363481	.4886657	.9719628	-.483572	.0043693	1.414728
#2	.088767	.4919397	.9848711	-.608127	.0050615	1.415164
#3	.136322	.4862081	.9830229	-.487639	.0085277	1.414605

Sample Name: ICSAB002 Acquired: 3/5/2025 15:36:04 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSAB002 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F 1.062896	.0298267	F .8886964	F 1.109835	F 1.127515	.0039716
Stddev	.000980	.0069715	.0048500	.002480	.005326	.0007213
%RSD	.0921706	23.37323	.5457448	.2234846	.4723615	18.16199
#1	1.062119	.0319316	.8930165	1.109048	1.127032	.0044086
#2	1.063997	.0355032	.8896228	1.112613	1.133066	.0043671
#3	1.062572	.0220454	.8834501	1.107844	1.122447	.0031390

Elem	Sr4077
Units	ppm
Avg	F .1020303
Stddev	.0005256
%RSD	.5151538
#1	.1014312
#2	.1022457
#3	.1024140

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3106.012	63610.71	14105.34	2757.996	3803.729
Stddev	5.096	114.50	23.60	9.362	1.847
%RSD	.1640579	.1799936	.1673115	.3394599	.0485446
#1	3108.530	63594.35	14081.89	2768.415	3804.769
#2	3109.359	63505.26	14105.05	2750.289	3804.821
#3	3100.148	63732.50	14129.09	2755.284	3801.597

Sample Name: CCV004 Acquired: 3/5/2025 15:40:06 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV004 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.784442	4.641491	24.13149	4.761084	4.810445	380.6601
Stddev	.020995	.031628	.04448	.014358	.009961	2.8918
%RSD	.4388171	.6814159	.1843163	.3015662	.2070658	.7596815

#1	4.797801	4.630669	24.09118	4.770430	4.818028	383.9959
#2	4.760243	4.616696	24.12410	4.744552	4.799164	379.1222
#3	4.795283	4.677110	24.17921	4.768270	4.814142	378.8621

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.20924	.4869148	2.448287	390.0573	15.34238	2.450297
Stddev	.07998	.0023597	.005940	1.3188	.02696	.003710
%RSD	.7833857	.4846292	.2426127	.3381127	.1757062	.1514153

#1	10.28709	.4844557	2.442874	390.8653	15.36715	2.449820
#2	10.21332	.4871280	2.447344	390.7711	15.34631	2.446848
#3	10.12729	.4891607	2.454641	388.5354	15.31367	2.454222

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.97889	394.8225	15.28973	389.6361	2.450685	1.264723
Stddev	.02300	2.1897	.08009	1.9133	.004167	.001759
%RSD	.1535201	.5546055	.5238236	.4910561	.1700141	.1391164

#1	14.99500	397.1993	15.37023	391.5205	2.447937	1.265951
#2	14.98912	394.3812	15.28890	389.6928	2.448639	1.265510
#3	14.95256	392.8871	15.21005	387.6951	2.455479	1.262707

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	389.8428	2.441783	15.38187	157.1729	4.876232	F 5.869769
Stddev	.3987	.005445	.07391	1.1758	.017942	.011335
%RSD	.1022643	.2229978	.4804830	.7480933	.3679441	.1931127

#1	389.7882	2.440857	15.46589	158.1308	4.856868	5.856905
#2	390.2659	2.436859	15.35281	157.5272	4.879535	5.874111
#3	389.4742	2.447631	15.32691	155.8607	4.892293	5.878292

Sample Name: CCV004 Acquired: 3/5/2025 15:40:06 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV004 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.780271	4.911754	4.882538	4.874401	4.909130	5.195051
Stddev	.017082	.018034	.009394	.018444	.009159	.040343
%RSD	.3573417	.3671571	.1923961	.3783923	.1865727	.7765665

#1	4.778399	4.921162	4.872036	4.863618	4.912708	5.240604
#2	4.764203	4.890962	4.885441	4.863887	4.898722	5.180714
#3	4.798212	4.923139	4.890138	4.895698	4.915960	5.163834

Elem	Sr4077
Units	ppm
Avg	5.189237
Stddev	.036102
%RSD	.6957182

#1	5.172491
#2	5.230672
#3	5.164549

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2723.741	59670.57	13828.85	2531.550	3358.568
Stddev	4.388	192.01	44.48	4.727	2.422
%RSD	.1610942	.3217868	.3216807	.1867126	.0721185

#1	2722.676	59519.32	13880.18	2526.092	3360.579
#2	2728.563	59605.79	13804.87	2534.259	3359.248
#3	2719.983	59886.59	13801.50	2534.299	3355.879

Sample Name: CCB004 Acquired: 3/5/2025 15:44:24 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB004 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0006488	.0017241	.0007093	-.001589	-.000045	-.003132	.0001028
Stddev	.0031932	.0018801	.0002931	.000772	.001386	.004052	.0006257
%RSD	492.1532	109.0488	41.32083	48.54906	3087.243	129.3403	608.9826

#1	.0043269	.0031516	.0009966	-.001640	-.001586	-.000412	-.000424
#2	-.001414	.0024269	.0007204	-.000794	.001099	-.001196	.000794
#3	-.000966	-.000406	.0004108	-.002335	.000353	-.007789	-.000062

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000007	.0000575	-.000119	.0002269	.0001274	.0008159	.0031150
Stddev	.000015	.0000436	.005708	.0000386	.0002155	.0018033	.0027241
%RSD	217.7650	75.91330	4808.310	17.01284	169.2309	221.0133	87.45128

#1	-.000010	.0000976	.006148	.0001908	.0003701	.0028039	.0043694
#2	-.000019	.0000110	-.005022	.0002676	-.000041	-.000715	.0049859
#3	.000009	.0000638	-.001482	.0002225	.000053	.000358	-.000010

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000092	.0091592	-.000222	.0003308	-.051490	-.001026	-.001720
Stddev	.000075	.0044629	.000415	.0002619	.385934	.001164	.000892
%RSD	80.94844	48.72586	186.8259	79.14500	749.5250	113.4907	51.83480

#1	-.000156	.0140807	-.000090	.0000444	.012656	.000236	-.002116
#2	-.000010	.0053749	-.000687	.0005579	.298351	-.001254	-.000699
#3	-.000111	.0080221	.000110	.0003902	-.465478	-.002059	-.002346

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.082181	-.000686	.0045131	.0002714	.0029328	.0075030	-.000719
Stddev	.010165	.002064	.0003145	.0000734	.0012846	.0021582	.000555
%RSD	12.36947	300.7973	6.969038	27.05664	43.80079	28.76415	77.21107

#1	-.093282	-.001878	.0047860	.0002325	.0015394	.0071018	-.000287
#2	-.073326	-.001879	.0045843	.0002255	.0031891	.0055736	-.000525
#3	-.079936	.001697	.0041691	.0003561	.0040699	.0098336	-.001346

Sample Name: CCB004 Acquired: 3/5/2025 15:44:24 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB004 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0002575	-.001033	.0001221
Stddev	.0002384	.001074	.0000286
%RSD	92.55814	103.9983	23.42398

#1	-.000009	-.002247	.0001117
#2	.000333	-.000645	.0001545
#3	.000449	-.000206	.0001002

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3499.564	72694.89	14540.80	3128.837	4801.282
Stddev	2.729	99.51	84.02	9.197	2.452
%RSD	.0779802	.1368905	.5778507	.2939500	.0510615

#1	3496.413	72777.09	14571.01	3123.852	4800.091
#2	3501.113	72723.33	14605.54	3123.209	4799.654
#3	3501.166	72584.26	14445.85	3139.451	4804.102

Sample Name: PB166911TB Acquired: 3/5/2025 15:48:33 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LEB911 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0019726	-.000109	-.000209	-.002614	.0002936	-.003387	.0002611
Stddev	.0021024	.001631	.000588	.000956	.0005332	.002251	.0005390
%RSD	106.5826	1491.048	281.8289	36.58403	181.6032	66.45071	206.4112
#1	.0031569	-.001913	.000291	-.001521	-.000223	-.000797	-.000100
#2	.0032156	.001260	-.000856	-.003023	.000842	-.004867	.000003
#3	-.000455	.000326	-.000061	-.003298	.000261	-.004498	.000881
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000252	.0000159	-.002212	.0000486	.0001025	-.000328	.0011851
Stddev	.0000247	.0001031	.006534	.0000482	.0002280	.000858	.0025235
%RSD	97.80693	649.9610	295.4101	99.22612	222.4177	261.5241	212.9372
#1	.0000207	.0001321	-.007065	-.000007	.0003595	.000386	-.001183
#2	.0000518	-.000020	-.004787	.000075	.0000233	-.001279	.003839
#3	.0000031	-.000065	.005217	.000078	-.000075	-.000090	.000899
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000025	-.001154	-.000076	-.000017	.0550964	-.000656	-.002014
Stddev	.000085	.011258	.000246	.000079	.1653868	.001828	.000932
%RSD	343.0391	975.8393	324.4326	467.0727	300.1772	278.7441	46.30007
#1	.000040	-.013185	.000143	-.000054	.0424088	-.000784	-.002429
#2	.000007	.000600	-.000028	.000074	.2264616	.001233	-.000946
#3	-.000121	.009124	-.000343	-.000071	-.103581	-.002416	-.002667
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.047515	-.000501	.0015069	-.000252	.0014522	.0023354	-.000240
Stddev	.097894	.000784	.0004622	.000191	.0047465	.0044635	.000638
%RSD	206.0282	156.3385	30.67047	75.96686	326.8378	191.1229	265.6920
#1	-.113513	.000393	.0019752	-.000096	.0059982	.0020430	-.000261
#2	-.093991	-.000827	.0014945	-.000195	-.003472	-.001975	-.000868
#3	.064960	-.001070	.0010511	-.000466	.001831	.006938	.000408

Sample Name: PB166911TB Acquired: 3/5/2025 15:48:33 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LEB911 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000149	-.001944	.0000570
Stddev	.000189	.000815	.0000371
%RSD	126.8733	41.93608	65.08263

#1	.000043	-.001014	.0000792
#2	-.000334	-.002534	.0000142
#3	-.000155	-.002284	.0000777

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3528.898	72353.98	14455.08	3109.866	4875.918
Stddev	2.721	1560.10	51.73	64.996	2.611
%RSD	.0771147	2.156202	.3578875	2.090002	.0535590

#1	3531.967	73483.77	14402.33	3156.281	4872.981
#2	3526.780	73004.24	14457.17	3137.733	4877.977
#3	3527.947	70573.94	14505.73	3035.582	4876.797

Sample Name: PB166912TB Acquired: 3/5/2025 15:52:42 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LEB912 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0017705	.0001682	.0002583	.0005032	-.000538	-.007545	-.001126
Stddev	.0005322	.0020328	.0016828	.0020435	.001282	.007038	.000245
%RSD	30.06053	1208.395	651.4933	406.0782	238.3101	93.29172	21.75310

#1	.0014162	.0024258	-.001525	-.001809	.000932	.000577	-.001112
#2	.0015128	-.001517	.000480	.002067	-.001424	-.011343	-.000888
#3	.0023825	-.000404	.001819	.001252	-.001122	-.011868	-.001378

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000055	-.000040	-.003607	-.000109	.0000820	-.001436	-.004265
Stddev	.000111	.000033	.003852	.000438	.0000727	.000653	.006640
%RSD	202.6555	83.06878	106.7916	402.5628	88.68721	45.47762	155.6919

#1	-.000181	-.000075	-.003632	-.000431	.0000315	-.000984	-.008576
#2	-.000012	-.000008	.000257	.000389	.0000492	-.002185	-.007602
#3	.000029	-.000037	-.007447	-.000284	.0001654	-.001140	.003382

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000326	-.004335	.0001077	.0002317	-.062402	-.002289	-.001585
Stddev	.000094	.005494	.0002746	.0001581	.287011	.001335	.000783
%RSD	28.69953	126.7508	255.0361	68.23532	459.9370	58.33410	49.39345

#1	-.000384	.001914	-.000194	.0001971	-.377280	-.003697	-.002352
#2	-.000376	-.006509	.000175	.0000937	.005515	-.001040	-.001614
#3	-.000218	-.008409	.000343	.0004042	.184559	-.002130	-.000787

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.188130	-.001240	-.000006	-.000094	-.000954	.0038213	.0000175
Stddev	.029555	.001803	.000227	.000221	.003195	.0020139	.0005615
%RSD	15.70974	145.4054	4102.111	234.8228	334.7077	52.70214	3205.895

#1	-.177280	.000575	-.000216	.000041	-.003967	.0015929	-.000605
#2	-.165534	-.001264	-.000036	.000026	-.001291	.0055113	.000486
#3	-.221577	-.003032	.000236	-.000350	.002395	.0043597	.000172

Sample Name: PB166912TB Acquired: 3/5/2025 15:52:42 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LEB912 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0001620	-.002692	.0000534
Stddev	.0005198	.000783	.0000579
%RSD	320.8630	29.09679	108.5935

#1	-.000154	-.001872	.0000523
#2	-.000122	-.002773	.0001118
#3	.000762	-.003432	-.000004

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3476.097	73491.91	14250.39	3166.529	4771.338
Stddev	1.456	188.35	41.18	16.296	6.342
%RSD	.0418739	.2562863	.2889951	.5146447	.1329261

#1	3474.507	73319.15	14206.69	3149.233	4764.021
#2	3476.418	73692.71	14288.48	3181.597	4775.264
#3	3477.365	73463.87	14256.02	3168.756	4774.729

Sample Name: PB166913TB Acquired: 3/5/2025 15:56:52 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LEB913 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0015733	.0016516	-.000163	.0006842	.0011148	-.007052	-.000822
Stddev	.0017023	.0005766	.000732	.0035988	.0009650	.008257	.000619
%RSD	108.1973	34.91364	450.4731	526.0124	86.56365	117.0951	75.27620

#1	-.000325	.0015106	-.000696	-.000388	.0000008	-.009879	-.000205
#2	.002083	.0011585	.000672	-.002256	.0016933	.002248	-.000819
#3	.002963	.0022856	-.000464	.004697	.0016505	-.013523	-.001442

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000022	-.000068	-.002264	-.000297	.0001351	-.000690	-.001735
Stddev	.000048	.000102	.005638	.000040	.0000502	.001520	.001998
%RSD	219.6244	150.3906	249.0301	13.57672	37.17694	220.2424	115.1692

#1	-.000024	-.000010	.001381	-.000250	.0001930	-.000976	-.003488
#2	-.000068	-.000185	.000584	-.000322	.0001088	-.002048	-.002158
#3	.000027	-.000008	-.008758	-.000318	.0001035	.000953	.000441

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000266	-.003268	-.000177	.0002585	-.143464	-.001718	-.000884
Stddev	.0001613	.014129	.000154	.0000440	.059492	.000707	.000996
%RSD	607.0844	432.3599	87.18714	17.02657	41.46830	41.17000	112.6261

#1	-.000098	.006736	-.000169	.0002624	-.204794	-.002304	-.000050
#2	-.000031	-.019431	-.000027	.0003004	-.085999	-.001918	-.001986
#3	.000209	.002892	-.000334	.0002127	-.139597	-.000932	-.000616

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.180834	.0005044	-.001140	-.000013	.0015188	.0046431	-.000776
Stddev	.035866	.0015649	.000817	.000035	.0018012	.0013216	.000584
%RSD	19.83344	310.2498	71.69034	278.6267	118.5903	28.46324	75.31413

#1	-.205985	.0014017	-.000809	-.000038	.0007528	.0031423	-.000798
#2	-.196752	.0014140	-.000540	-.000027	.0035764	.0051545	-.000181
#3	-.139764	-.001303	-.002071	.000028	.0002273	.0056326	-.001349

Sample Name: PB166913TB Acquired: 3/5/2025 15:56:52 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LEB913 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0004045	-.002391	.0000582
Stddev	.0008019	.000860	.0000306
%RSD	198.2656	35.94970	52.56419

#1	.0009549	-.001403	.0000789
#2	.0007741	-.002801	.0000727
#3	-.000516	-.002969	.0000231

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3466.514	73025.54	14596.48	3140.256	4773.655
Stddev	7.658	218.36	49.82	9.863	13.895
%RSD	.2209187	.2990137	.3413191	.3140701	.2910725

#1	3470.826	72774.96	14569.61	3130.285	4789.400
#2	3471.044	73175.05	14653.97	3140.478	4768.457
#3	3457.672	73126.61	14565.86	3150.006	4763.109

Sample Name: Q1106-14 Acquired: 3/5/2025 16:01:00 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F9 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0014481	.0007229	-.000021	-.002073	-.000459	.0096734
Stddev	.0010202	.0007156	.001436	.002465	.000585	.0060633
%RSD	70.44972	98.98166	6911.403	118.9109	127.4531	62.67992

#1	.0005369	.0005336	-.000429	-.004434	-.000185	.0108163
#2	.0025503	.0001211	-.001209	-.002270	-.000061	.0031200
#3	.0012571	.0015142	.001576	.000485	-.001130	.0150838

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1982158	.0000468	-.000017	11.32541	-.000507	.0007791
Stddev	.0006610	.0000443	.000012	.02356	.000163	.0002100
%RSD	.3334862	94.53659	75.70895	.2079986	32.08177	26.95777

#1	.1989403	.0000303	-.000003	11.34705	-.000443	.0008282
#2	.1976455	.0000970	-.000028	11.30031	-.000691	.0009603
#3	.1980616	.0000132	-.000019	11.32886	-.000386	.0005489

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0014331	.0162522	.0622093	2.771226	.0020774	.0003846
Stddev	.0018823	.0009852	.0003787	.003962	.0002238	.0002382
%RSD	131.3483	6.062030	.6088053	.1429766	10.77404	61.94673

#1	-.000737	.0173256	.0621046	2.770609	.0019620	.0005771
#2	.002621	.0153892	.0618938	2.775460	.0019348	.0004585
#3	.002416	.0160417	.0626293	2.767608	.0023353	.0001182

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.309943	-.001820	.0962680	-.894073	.0053961	.0963191
Stddev	.018796	.000310	.0004095	.028756	.0014908	.0004489
%RSD	.4360972	17.04341	.4253876	3.216262	27.62680	.4660789

#1	4.293156	-.002176	.0957957	-.917240	.0070589	.0958019
#2	4.306424	-.001615	.0964854	-.903089	.0041790	.0965478
#3	4.330250	-.001668	.0965231	-.861890	.0049504	.0966077

Sample Name: Q1106-14 Acquired: 3/5/2025 16:01:00 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F9 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000058	F 10.57786	5.559839	-.002259	-.000207	-.001979
Stddev	.000102	.03208	.010938	.000510	.000416	.001135
%RSD	175.4427	.3032916	.1967346	22.58701	200.5333	57.33433
#1	.000032	10.61295	5.554035	-.002848	.000091	-.001126
#2	-.000169	10.55003	5.572456	-.001942	-.000683	-.003266
#3	-.000037	10.57060	5.553027	-.001988	-.000030	-.001544

Elem	Sr4077
Units	ppm
Avg	.0847194
Stddev	.0002564
%RSD	.3026866
#1	.0844985
#2	.0846590
#3	.0850006

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3549.761	74983.73	15074.61	3227.919	4870.396
Stddev	3.985	163.50	45.73	9.464	12.059
%RSD	.1122588	.2180409	.3033626	.2931887	.2475973
#1	3553.864	74815.48	15044.17	3235.901	4869.219
#2	3545.906	75142.01	15052.46	3230.393	4858.968
#3	3549.513	74993.71	15127.20	3217.464	4883.000

Sample Name: Q1106-15 Acquired: 3/5/2025 16:05:06 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8G0 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0003819	-.000207	-.000795	.0011995	-.000263	.0042347
Stddev	.0037596	.000160	.002082	.0020620	.000890	.0077350
%RSD	984.4946	77.09362	261.7956	171.9019	338.7729	182.6596

#1	-.003944	-.000029	-.001303	.0015596	-.000340	.0056860
#2	.002228	-.000255	.001494	.0030579	-.001112	.0111412
#3	.002861	-.000337	-.002577	-.001019	.000664	-.004123

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1723676	.0000610	.0001554	9.294944	-.000760	.0120175
Stddev	.0003011	.0000299	.0000209	.027078	.000059	.0002723
%RSD	.1746798	49.07916	13.47383	.2913192	7.765470	2.266321

#1	.1722017	.0000581	.0001796	9.278812	-.000813	.0118910
#2	.1721859	.0000922	.0001433	9.279814	-.000769	.0118314
#3	.1727151	.0000326	.0001434	9.326205	-.000696	.0123301

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0013095	.0192684	.3265044	6.310364	.0093566	.0002157
Stddev	.0011794	.0036841	.0021474	.012687	.0002782	.0005568
%RSD	90.06244	19.11965	.6576889	.2010499	2.973485	258.1539

#1	.0020383	.0194623	.3257143	6.324907	.0092306	-.000392
#2	-.000051	.0154913	.3248639	6.301568	.0096755	.000339
#3	.001942	.0228518	.3289349	6.304615	.0091636	.000701

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.574548	-.002265	.0984608	2.688438	.0047328	.0861580
Stddev	.104111	.002139	.0011447	.025978	.0013708	.0012354
%RSD	2.275881	94.43771	1.162562	.9662880	28.96477	1.433900

#1	4.686780	-.000531	.0979150	2.681476	.0033511	.0875433
#2	4.481122	-.001608	.0976913	2.666650	.0060925	.0857604
#3	4.555741	-.004656	.0997762	2.717187	.0047547	.0851703

Sample Name: Q1106-15 Acquired: 3/5/2025 16:05:06 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8G0 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0004591	F 16.16807	7.147419	-.002224	-.000530	.0036062
Stddev	.0001850	.04719	.017477	.000059	.000496	.0003276
%RSD	40.28467	.2918624	.2445181	2.671121	93.54980	9.083382
#1	.0002556	16.13795	7.158873	-.002234	-.001102	.0032729
#2	.0005048	16.14381	7.156081	-.002278	-.000235	.0039277
#3	.0006169	16.22245	7.127303	-.002160	-.000253	.0036180

Elem	Sr4077
Units	ppm
Avg	.0709716
Stddev	.0003536
%RSD	.4981733
#1	.0708601
#2	.0706872
#3	.0713675

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3521.585	73263.33	15036.03	3157.909	4807.920
Stddev	4.121	130.57	57.33	4.554	7.897
%RSD	.1170134	.1782193	.3812635	.1442140	.1642556
#1	3524.447	73125.70	14979.76	3160.349	4812.964
#2	3523.446	73385.46	15033.99	3160.722	4811.977
#3	3516.862	73278.82	15094.36	3152.654	4798.819

Sample Name: Q1106-16 Acquired: 3/5/2025 16:09:11 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8G1 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000145	.0000124	.0016334	.0005239	.0013184	.0223487
Stddev	.000193	.0047786	.0008242	.0021936	.0016804	.0021225
%RSD	132.5062	38556.03	50.45693	418.7094	127.4623	9.497353

#1	-.000359	.0002146	.0019136	.0030297	-.000473	.0227254
#2	.000014	-.004864	.0022810	-.000409	.001568	.0200631
#3	-.000091	.004687	.0007057	-.001049	.002860	.0242577

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2105119	.0000761	-.000022	28.27313	-.000857	.0001660
Stddev	.0019965	.0000703	.000035	.12022	.000236	.0002188
%RSD	.9483827	92.36066	162.0800	.4251931	27.51948	131.7821

#1	.2094646	.0000613	-.000029	28.27412	-.000949	.0000494
#2	.2128141	.0000144	-.000052	28.39285	-.001034	.0000303
#3	.2092571	.0001526	.000017	28.15242	-.000589	.0004184

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0011190	.1209693	.0168573	4.112027	.0006699	.0004437
Stddev	.0012062	.0055828	.0002060	.004380	.0003860	.0002285
%RSD	107.8019	4.615030	1.222260	.1065226	57.62537	51.50126

#1	.0022629	.1212295	.0168191	4.110896	.0006965	.0006993
#2	-.000141	.1264174	.0170798	4.116863	.0010420	.0002592
#3	.001235	.1152610	.0166730	4.108324	.0002713	.0003726

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.145216	-.000495	.0453586	9.325681	.0041895	.0721348
Stddev	.226997	.001471	.0015416	.036247	.0027947	.0007624
%RSD	3.693882	297.1083	3.398789	.3886845	66.70761	1.056929

#1	5.928119	-.002178	.0451475	9.343924	.0065666	.0714361
#2	6.126568	.000547	.0469950	9.349183	.0011109	.0720203
#3	6.380962	.000146	.0439334	9.283937	.0048910	.0729480

Sample Name: Q1106-16 Acquired: 3/5/2025 16:09:11 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8G1 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0358285	F 16.76881	2.119526	-.002181	.0051727	-.001312
Stddev	.0002476	.04082	.016478	.000367	.0005725	.000359
%RSD	.6909233	.2434284	.7774371	16.84935	11.06766	27.35967
#1	.0359106	16.81127	2.103268	-.002196	.0051526	-.001626
#2	.0360246	16.72986	2.119095	-.001806	.0057550	-.000921
#3	.0355504	16.76531	2.136216	-.002541	.0046105	-.001391

Elem	Sr4077
Units	ppm
Avg	.0978987
Stddev	.0004606
%RSD	.4705309
#1	.0981873
#2	.0981412
#3	.0973674

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3452.336	72678.26	14936.73	3141.445	4653.094
Stddev	6.907	166.47	76.44	11.455	1.575
%RSD	.2000605	.2290522	.5117578	.3646320	.0338569
#1	3460.220	72653.07	14993.60	3151.023	4654.118
#2	3447.354	72525.82	14966.76	3128.756	4653.884
#3	3449.433	72855.89	14849.84	3144.555	4651.280

Sample Name: Q1106-17 Acquired: 3/5/2025 16:13:17 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8G2 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0008770	-.000986	.0004875	-.001742	-.000469	.0522927	.2059101
Stddev	.0017744	.000915	.0016659	.002740	.001687	.0077713	.0013098
%RSD	202.3379	92.83790	341.7374	157.3402	359.3985	14.86120	.6361014

#1	-.000484	-.000625	.0010383	.000815	-.001713	.0460348	.2072166
#2	.000231	-.002026	.0018082	-.001405	-.001147	.0609914	.2045970
#3	.002884	-.000306	-.001384	-.004635	.001451	.0498520	.2059168

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000810	.0000323	7.956813	-.000793	.0056559	-.000119	.0871925
Stddev	.0000285	.0000328	.033381	.000189	.0001368	.000820	.0053296
%RSD	35.21905	101.5413	.4195266	23.87928	2.418271	688.9936	6.112491

#1	.0001134	-.000000	7.967867	-.000600	.0055223	-.001066	.0843070
#2	.0000597	.000065	7.919307	-.000979	.0056498	.000376	.0839279
#3	.0000699	.000032	7.983265	-.000800	.0057956	.000332	.0933428

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5226066	4.216160	.0247420	.0002902	4.407702	-.001043	.0866572
Stddev	.0014694	.014071	.0000611	.0001246	.069874	.001143	.0006002
%RSD	.2811599	.3337472	.2471433	42.95233	1.585262	109.5804	.6926687

#1	.5239624	4.211872	.0247322	.0004309	4.406412	.000234	.0873502
#2	.5210453	4.204732	.0248074	.0002460	4.338483	-.001970	.0863244
#3	.5228120	4.231877	.0246863	.0001936	4.478212	-.001394	.0862971

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-1.81584	.0046932	.0945715	.0000575	9.597184	5.773860	-.001907
Stddev	.03030	.0004487	.0003919	.0000470	.011559	.026239	.000759
%RSD	1.668502	9.560036	.4144336	81.69143	.1204426	.4544398	39.81567

#1	-1.78355	.0042865	.0944537	.0001042	9.588113	5.802797	-.001066
#2	-1.84364	.0051745	.0942520	.0000102	9.610199	5.751617	-.002542
#3	-1.82033	.0046185	.0950088	.0000581	9.593240	5.767166	-.002115

Sample Name: Q1106-17 Acquired: 3/5/2025 16:13:17 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8G2 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0025560	.0012204	.0563580
Stddev	.0009932	.0005543	.0001731
%RSD	38.85638	45.41972	.3071111

#1	.0014975	.0018605	.0562648
#2	.0034675	.0009030	.0562515
#3	.0027029	.0008977	.0565577

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3502.471	72894.76	15065.44	3154.125	4825.467
Stddev	10.856	164.36	61.42	15.581	17.626
%RSD	.3099647	.2254691	.4076613	.4939908	.3652694

#1	3510.254	73039.19	15109.15	3172.112	4839.126
#2	3507.091	72929.16	14995.22	3145.492	4831.705
#3	3490.069	72715.92	15091.94	3144.771	4805.570

Sample Name: Q1106-18 Acquired: 3/5/2025 16:17:23 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8H9 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0027663	.0002609	.0020418	-.000212	.0001665	6.280752
Stddev	.0023486	.0011389	.0013006	.000639	.0005777	.007938
%RSD	84.90333	436.5545	63.69994	301.6526	346.9438	.1263845

#1	.0000844	.0009016	.0007782	-.000661	.0001082	6.279518
#2	.0037579	.0009350	.0033765	-.000494	.0007711	6.289235
#3	.0044565	-.001054	.0019707	.000520	-.000380	6.273503

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2118234	.0001318	.0001271	16.24635	.0081491	.0029460
Stddev	.0010177	.0000724	.0000308	.06762	.0000781	.0001364
%RSD	.4804375	54.92239	24.26492	.4162127	.9577699	4.631097

#1	.2117174	.0002130	.0001301	16.27285	.0080693	.0030296
#2	.2128899	.0000739	.0000948	16.29671	.0082252	.0030199
#3	.2108628	.0001085	.0001563	16.16949	.0081529	.0027886

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0458207	13.14169	.0340757	3.646024	.0177042	-.000470
Stddev	.0021087	.05707	.0001706	.017875	.0004719	.000303
%RSD	4.602120	.4342440	.5007005	.4902668	2.665179	64.57147

#1	.0472081	13.15594	.0340882	3.628745	.0181801	-.000454
#2	.0433941	13.19028	.0338992	3.664441	.0172366	-.000174
#3	.0468599	13.07885	.0342398	3.644886	.0176958	-.000780

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.464915	.0135580	.1213216	-2.08672	.0909052	.3359927
Stddev	.096740	.0012709	.0019587	.01682	.0006571	.0009389
%RSD	1.022096	9.373934	1.614495	.8061990	.7228466	.2794529

#1	9.500420	.0144152	.1211404	-2.06730	.0912290	.3358824
#2	9.538886	.0120979	.1194597	-2.09645	.0901491	.3351138
#3	9.355438	.0141610	.1233646	-2.09642	.0913376	.3369820

Sample Name: Q1106-18 Acquired: 3/5/2025 16:17:23 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8H9 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000060	F 11.80656	F 20.08820	-.001908	.0689182	.0003299
Stddev	.0001130	.01938	.06564	.000398	.0009508	.0004530
%RSD	1873.107	.1641410	.3267694	20.83576	1.379643	137.3428
#1	.0000012	11.78931	20.12787	-.001508	.0699682	.0000270
#2	-.000104	11.80285	20.01244	-.002303	.0686712	.0001119
#3	.000121	11.82753	20.12431	-.001915	.0681153	.0008507

Elem	Sr4077
Units	ppm
Avg	.0866197
Stddev	.0000910
%RSD	.1050514
#1	.0866522
#2	.0866899
#3	.0865169

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3488.390	72452.34	15133.48	3130.475	4736.137
Stddev	4.600	139.39	57.97	16.303	11.991
%RSD	.1318617	.1923836	.3830678	.5207855	.2531707
#1	3490.286	72292.87	15121.70	3139.925	4742.668
#2	3491.738	72550.94	15196.43	3139.850	4743.445
#3	3483.145	72513.21	15082.30	3111.650	4722.299

Sample Name: Q1106-19 Acquired: 3/5/2025 16:21:27 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8J0 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0078214	.0002683	.0025126	.0009404	.0013531	2.585577
Stddev	.0013958	.0004701	.0007586	.0018408	.0007767	.014292
%RSD	17.84578	175.2220	30.19363	195.7543	57.40059	.5527583

#1	.0085297	-.000191	.0033158	.0022218	.0006743	2.569965
#2	.0062135	.000248	.0018082	-.001169	.0011850	2.588749
#3	.0087212	.000748	.0024138	.001768	.0022001	2.598016

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2388868	.0001473	.0001079	11.22501	.0031783	.0024455
Stddev	.0013904	.0000208	.0000276	.04872	.0001941	.0000618
%RSD	.5820161	14.11406	25.58770	.4340283	6.106783	2.525487

#1	.2386212	.0001526	.0000885	11.20019	.0030586	.0024195
#2	.2403908	.0001648	.0000958	11.28114	.0030741	.0025160
#3	.2376484	.0001243	.0001396	11.19369	.0034022	.0024011

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0122283	4.445778	.1277558	4.508342	.0047560	.0000747
Stddev	.0017812	.024575	.0008490	.009287	.0001969	.0001160
%RSD	14.56630	.5527716	.6645715	.2059898	4.139670	155.3095

#1	.0135277	4.423591	.1269954	4.497722	.0049672	.0000484
#2	.0101979	4.472193	.1286719	4.514940	.0045775	.0002016
#3	.0129594	4.441549	.1276001	4.512363	.0047233	-.000026

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.905939	.0115981	.2389384	-1.43159	1.546378	.2254010
Stddev	.146761	.0020516	.0027788	.04096	.004942	.0008691
%RSD	1.481543	17.68915	1.162962	2.861396	.3195687	.3855994

#1	10.05205	.0095842	.2401409	-1.46605	1.551808	.2260775
#2	9.75854	.0115246	.2357609	-1.44242	1.542145	.2257048
#3	9.90723	.0136855	.2409133	-1.38630	1.545182	.2244208

Sample Name: Q1106-19 Acquired: 3/5/2025 16:21:27 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8J0 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0029969	F 12.16589	4.901909	-.002963	.1106602	-.002624
Stddev	.0003047	.02050	.010091	.001012	.0011158	.000719
%RSD	10.16734	.1685240	.2058588	34.15526	1.008341	27.41514

#1	.0027184	12.18474	4.913495	-.004061	.1102172	-.003209
#2	.0029499	12.14406	4.895049	-.002760	.1119296	-.002843
#3	.0033223	12.16887	4.897182	-.002068	.1098340	-.001821

Elem	Sr4077
Units	ppm
Avg	.0763112
Stddev	.0004749
%RSD	.6223001

#1	.0759115
#2	.0768362
#3	.0761860

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3535.585	74271.48	14797.77	3183.770	4786.618
Stddev	4.270	160.76	48.88	7.092	5.649
%RSD	.1207612	.2164498	.3303494	.2227597	.1180178

#1	3530.844	74318.28	14769.50	3176.501	4784.001
#2	3539.128	74092.51	14854.22	3190.671	4793.101
#3	3536.783	74403.64	14769.59	3184.140	4782.752

Sample Name: Q1106-20 Acquired: 3/5/2025 16:25:30 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8J1 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0013196	.0023577	.0000996	.0003504	.0010784	.0399204
Stddev	.0039668	.0026892	.0003423	.0008227	.0007322	.0042643
%RSD	300.6062	114.0598	343.6504	234.7692	67.89503	10.68190

#1	.0058095	.0012711	.0001898	-.000451	.0011606	.0361836
#2	-.000141	.0003819	-.000279	.001192	.0017660	.0390118
#3	-.001710	.0054202	.000388	.000310	.0003086	.0445657

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1880731	.0001060	.0000294	9.087789	-.000760	.0068893
Stddev	.0018387	.0000367	.0000207	.084589	.000130	.0002972
%RSD	.9776229	34.62895	70.46273	.9307967	17.05159	4.314386

#1	.1897405	.0001249	.0000511	9.166921	-.000895	.0069404
#2	.1883776	.0001294	.0000273	9.097809	-.000637	.0065698
#3	.1861012	.0000637	.0000098	8.998636	-.000747	.0071577

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0011981	.0835628	.4044525	4.636337	.0081809	.0001870
Stddev	.0007413	.0017888	.0018323	.029310	.0002722	.0002107
%RSD	61.87465	2.140663	.4530418	.6321890	3.327830	112.6837

#1	.0012843	.0842585	.4054078	4.656839	.0081313	.0002670
#2	.0018925	.0848992	.4056098	4.649405	.0084746	.0003459
#3	.0004174	.0815307	.4023399	4.602765	.0079369	-.000052

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.894538	.0009223	.0761843	-1.17473	.0050162	.0967618
Stddev	.165168	.0016220	.0009782	.02993	.0013670	.0010375
%RSD	3.374536	175.8542	1.283946	2.548039	27.25254	1.072250

#1	5.072347	.0003520	.0758825	-1.17578	.0036785	.0959634
#2	4.745898	-.000337	.0772778	-1.20412	.0049592	.0963876
#3	4.865370	.002752	.0753926	-1.14429	.0064108	.0979346

Sample Name: Q1106-20 Acquired: 3/5/2025 16:25:30 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8J1 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0030081	F 11.38135	6.264019	-.002429	.0040992	-.000004
Stddev	.0002693	.01774	.025808	.000317	.0002974	.001309
%RSD	8.953754	.1558535	.4120057	13.03776	7.254626	31811.00
#1	.0029765	11.36197	6.293820	-.002081	.0042282	-.000951
#2	.0027559	11.38528	6.248982	-.002505	.0037591	.001489
#3	.0032918	11.39679	6.249257	-.002701	.0043102	-.000550

Elem	Sr4077
Units	ppm
Avg	.0600286
Stddev	.0002792
%RSD	.4650555
#1	.0601483
#2	.0602279
#3	.0597095

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3514.065	73845.43	15172.34	3176.375	4811.630
Stddev	9.299	282.94	36.64	5.374	11.840
%RSD	.2646222	.3831530	.2414836	.1691745	.2460621
#1	3521.734	73646.78	15187.10	3172.597	4819.440
#2	3516.738	73720.13	15199.30	3174.002	4817.442
#3	3503.722	74169.39	15130.63	3182.527	4798.007

Sample Name: Q1160-01 Acquired: 3/5/2025 16:29:35 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8C9 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0100188	-.000272	.0015647	-.000026	.0004417	1.717139
Stddev	.0022199	.001898	.0005675	.001405	.0008612	.012314
%RSD	22.15697	696.5591	36.26884	5419.135	194.9676	.7171350

#1	.0121306	-.001541	.0021970	-.000186	.0007453	1.702960
#2	.0077047	-.001186	.0010993	.001452	-.000530	1.725149
#3	.0102212	.001910	.0013979	-.001344	.001110	1.723309

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2282163	.0001140	.0000069	7.191536	.0035814	.0030887
Stddev	.0003739	.0000354	.0000101	.008829	.0003489	.0000726
%RSD	.1638466	31.06950	146.8325	.1227690	9.741992	2.349973

#1	.2285808	.0000743	-.000000	7.181655	.0031991	.0030089
#2	.2282343	.0001423	.000003	7.198651	.0038826	.0031508
#3	.2278336	.0001253	.000018	7.194301	.0036624	.0031064

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0132798	4.045941	.0864706	5.753338	.0089164	.0001313
Stddev	.0014460	.007277	.0004333	.009697	.0002764	.0001321
%RSD	10.88839	.1798640	.5010581	.1685480	3.100186	100.6360

#1	.0126888	4.043967	.0859765	5.742251	.0087787	-.000002
#2	.0122230	4.039855	.0867855	5.757524	.0092346	.000133
#3	.0149277	4.054002	.0866499	5.760239	.0087359	.000262

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.884771	.0038472	.1956758	-2.19983	.1827427	.3312968
Stddev	.196703	.0021334	.0012146	.02789	.0025561	.0031782
%RSD	2.857073	55.45352	.6207026	1.267891	1.398763	.9593283

#1	7.082394	.0043140	.1948129	-2.17532	.1856587	.3336300
#2	6.689001	.0015191	.1951498	-2.23018	.1816806	.3276770
#3	6.882918	.0057086	.1970647	-2.19400	.1808889	.3325835

Sample Name: Q1160-01 Acquired: 3/5/2025 16:29:35 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8C9 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0004547	F 10.72400	6.281685	-.001521	.0389178	-.000635
Stddev	.0002505	.01266	.011634	.000343	.0008730	.001206
%RSD	55.08480	.1180137	.1852092	22.56855	2.243207	190.0246

#1	.0005141	10.71142	6.294591	-.001140	.0381057	.000640
#2	.0006701	10.72386	6.272003	-.001806	.0398411	-.000787
#3	.0001799	10.73673	6.278461	-.001618	.0388066	-.001757

Elem	Sr4077
Units	ppm
Avg	.0611160
Stddev	.0003467
%RSD	.5672495

#1	.0607167
#2	.0613404
#3	.0612908

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3529.689	73678.53	15218.21	3170.333	4844.082
Stddev	16.782	231.97	9.98	15.724	17.501
%RSD	.4754426	.3148414	.0655567	.4959837	.3612861

#1	3546.628	73895.82	15212.35	3170.608	4862.298
#2	3529.371	73705.54	15229.73	3185.918	4842.551
#3	3513.069	73434.24	15212.55	3154.473	4827.396

Sample Name: Q1160-02 Acquired: 3/5/2025 16:33:38 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8C9D Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0096581	-.000266	.0019433	-.002915	.0003204	1.541497
Stddev	.0031036	.000285	.0016550	.001915	.0003690	.007395
%RSD	32.13417	107.0287	85.16573	65.68648	115.1955	.4797133

#1	.0068115	.000046	.0013669	-.003669	.0000196	1.544983
#2	.0091961	-.000511	.0038094	-.000738	.0007321	1.546506
#3	.0129668	-.000334	.0006535	-.004338	.0002094	1.533004

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2310937	.0001144	-.000020	7.461494	.0030105	.0030499
Stddev	.0002869	.0000606	.000046	.017646	.0002577	.0001190
%RSD	.1241429	53.04035	227.9979	.2364997	8.559130	3.903085

#1	.2313326	.0001683	.000023	7.443140	.0027751	.0031129
#2	.2307755	.0000487	-.000015	7.478335	.0032858	.0029126
#3	.2311730	.0001261	-.000069	7.463008	.0029707	.0031242

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0132454	4.020428	.0845938	5.889529	.0083648	.0001569
Stddev	.0000974	.003921	.0005950	.023248	.0001526	.0000623
%RSD	.7352401	.0975355	.7034055	.3947272	1.824039	39.68737

#1	.0133469	4.021443	.0840433	5.906799	.0083115	.0002278
#2	.0132368	4.023742	.0852251	5.898692	.0082461	.0001112
#3	.0131527	4.016099	.0845130	5.863096	.0085369	.0001317

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.692818	.0032632	.2012941	-2.23695	.1815121	.3356718
Stddev	.167072	.0014062	.0030118	.02848	.0031591	.0019058
%RSD	2.496287	43.09193	1.496237	1.273180	1.740450	.5677524

#1	6.561147	.0033767	.2027099	-2.20520	.1814771	.3353126
#2	6.880760	.0018038	.2033371	-2.24543	.1783706	.3339712
#3	6.636547	.0046092	.1978352	-2.26023	.1846886	.3377317

Sample Name: Q1160-02 Acquired: 3/5/2025 16:33:38 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8C9D Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0009502	F 10.94834	5.896723	-.001869	.0233238	-.000999
Stddev	.0002182	.02046	.018262	.000292	.0009332	.000819
%RSD	22.96028	.1868420	.3097054	15.62276	4.001217	81.96924

#1	.0011830	10.95100	5.876616	-.002205	.0222663	-.000094
#2	.0007505	10.92669	5.912282	-.001672	.0236731	-.001215
#3	.0009171	10.96734	5.901272	-.001732	.0240319	-.001688

Elem	Sr4077
Units	ppm
Avg	.0641450
Stddev	.0003011
%RSD	.4694123

#1	.0644485
#2	.0641401
#3	.0638464

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3499.715	72467.11	15228.58	3145.010	4795.434
Stddev	6.541	264.11	90.23	9.598	7.088
%RSD	.1869147	.3644486	.5925283	.3051715	.1478146

#1	3505.505	72505.09	15261.32	3146.972	4803.614
#2	3501.023	72710.17	15297.87	3153.475	4791.591
#3	3492.619	72186.07	15126.54	3134.583	4791.096

Sample Name: Q1160-01LX5 Acquired: 3/5/2025 16:37:40 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8C9L Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0006144	-.000681	.0003671	-.000460	.0010456	.3888220	.0449716
Stddev	.0032428	.001532	.0014652	.003470	.0011700	.0028678	.0007070
%RSD	527.8147	225.1521	399.1830	753.7554	111.8989	.7375473	1.572150

#1	-.002289	-.002300	.0018991	-.002193	.0016281	.3905846	.0444985
#2	.000018	-.000489	-.001021	.003535	.0018100	.3855130	.0457843
#3	.004114	.000747	.000223	-.002723	-.000301	.3903685	.0446319

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000496	.0000048	1.444480	.0005449	.0006829	.0023069	.8275896
Stddev	.0000341	.0000641	.003963	.0003655	.0002401	.0007394	.0030732
%RSD	68.66853	1343.429	.2743802	67.07224	35.15797	32.05172	.3713456

#1	.0000118	.0000770	1.441715	.0003995	.0008622	.0030556	.8247683
#2	.0000780	-.000045	1.449021	.0002744	.0007764	.0015772	.8308644
#3	.0000591	-.000017	1.442703	.0009606	.0004101	.0022880	.8271362

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0179638	1.144113	.0017402	.0003165	1.471213	.0004009	.0379814
Stddev	.0002738	.009556	.0001762	.0002811	.120172	.0010381	.0005350
%RSD	1.524219	.8352717	10.12581	88.81704	8.168213	258.9525	1.408620

#1	.0176500	1.148059	.0015400	.0000428	1.496508	.0012239	.0383858
#2	.0181538	1.151065	.0018717	.0006044	1.576724	.0007441	.0381837
#3	.0180877	1.133215	.0018089	.0003022	1.340408	-.000765	.0373747

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.642741	.0378440	.0670520	.0000191	2.199686	1.319920	-.001104
Stddev	.055063	.0012244	.0004673	.0001008	.004828	.006585	.000862
%RSD	8.566967	3.235456	.6968678	526.7120	.2194763	.4988980	78.08015

#1	-.703177	.0364324	.0665237	.0001068	2.204647	1.320781	-.001246
#2	-.595418	.0384803	.0674111	.0000416	2.199406	1.312947	-.000180
#3	-.629626	.0386193	.0672211	-.000091	2.195004	1.326033	-.001885

Sample Name: Q1160-01LX5 Acquired: 3/5/2025 16:37:40 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8C9L Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0104674	-.002535	.0126347
Stddev	.0003799	.001276	.0001204
%RSD	3.629405	50.33626	.9525163

#1	.0100986	-.003965	.0126557
#2	.0108575	-.001514	.0127431
#3	.0104461	-.002125	.0125052

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3469.363	73286.71	14853.93	3159.697	4726.813
Stddev	5.057	121.68	40.46	14.516	6.064
%RSD	.1457509	.1660268	.2723589	.4594119	.1282989

#1	3464.443	73152.09	14836.86	3143.091	4720.778
#2	3474.546	73319.18	14900.13	3166.026	4732.906
#3	3469.100	73388.85	14824.82	3169.975	4726.753

Sample Name: Q1160-03 Acquired: 3/5/2025 16:41:49 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8C9S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0420327	.0550253	.0216006	.0834783	.0763366	3.070804
Stddev	.0020154	.0003205	.0011202	.0014270	.0017671	.004160
%RSD	4.794871	.5824388	5.185961	1.709472	2.314871	.1354761

#1	.0397879	.0553895	.0227283	.0835804	.0744106	3.071257
#2	.0436866	.0547863	.0215857	.0820029	.0767161	3.066436
#3	.0426237	.0549000	.0204880	.0848515	.0778832	3.074720

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.016872	.0507846	.0471848	6.915406	.2188844	.4780842
Stddev	.007186	.0002670	.0001074	.011627	.0006491	.0008541
%RSD	.3562857	.5257623	.2276911	.1681316	.2965628	.1786510

#1	2.018794	.0505094	.0472105	6.921369	.2193375	.4781365
#2	2.008921	.0510425	.0472771	6.922841	.2181407	.4772052
#3	2.022902	.0508020	.0470668	6.902007	.2191750	.4789110

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2677424	4.880335	.5532215	5.503581	.4916829	.0373694
Stddev	.0009579	.012499	.0004736	.020416	.0005403	.0002947
%RSD	.3577563	.2561082	.0856016	.3709569	.1098912	.7885442

#1	.2687727	4.894382	.5537647	5.525320	.4914655	.0372100
#2	.2675758	4.870441	.5530036	5.500609	.4912851	.0377094
#3	.2668788	4.876183	.5528960	5.484814	.4922980	.0371887

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.483312	.5101311	.6370034	-2.27143	.1798596	.3255358
Stddev	.057504	.0019956	.0038356	.02577	.0024982	.0009781
%RSD	.8869596	.3912033	.6021374	1.134745	1.388995	.3004589

#1	6.531419	.5096386	.6386636	-2.24188	.1773454	.3253546
#2	6.498895	.5123269	.6397293	-2.28314	.1823416	.3265919
#3	6.419622	.5084278	.6326173	-2.28927	.1798917	.3246610

Sample Name: Q1160-03 Acquired: 3/5/2025 16:41:49 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8C9S Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0006467	F 10.47021	5.963024	-.002171	.0237968	-.002518
Stddev	.0001607	.01177	.015565	.000148	.0004294	.000773
%RSD	24.85128	.1123898	.2610223	6.837218	1.804377	30.68180
#1	.0005747	10.46894	5.945564	-.002017	.0242919	-.003380
#2	.0005345	10.45913	5.968061	-.002313	.0235731	-.002288
#3	.0008308	10.48256	5.975447	-.002184	.0235255	-.001887

Elem	Sr4077
Units	ppm
Avg	.0589244
Stddev	.0001407
%RSD	.2388552
#1	.0590869
#2	.0588426
#3	.0588436

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3495.859	74392.13	15111.69	3208.555	4752.662
Stddev	10.766	43.23	55.01	2.764	10.263
%RSD	.3079608	.0581088	.3639948	.0861346	.2159437
#1	3497.815	74419.87	15159.79	3210.082	4752.517
#2	3505.514	74342.32	15051.72	3205.365	4762.996
#3	3484.250	74414.19	15123.57	3210.219	4742.471

Sample Name: Q1160-04 Acquired: 3/5/2025 16:45:45 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8D0 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0012522	.0004746	.0008935	.0009543	-.000428	.2029042
Stddev	.0019667	.0003300	.0007767	.0012393	.000904	.0018265
%RSD	157.0621	69.53000	86.91964	129.8662	211.3446	.9001810

#1	.0028489	.0008055	.0001562	.0020386	-.001010	.2031823
#2	.0018523	.0001455	.0008202	.0012208	.000614	.2045757
#3	-.000945	.0004728	.0017043	-.000397	-.000887	.2009546

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2231388	.0000829	.0000366	7.523916	-.000099	.0019309
Stddev	.0010836	.0000069	.0000364	.003291	.000351	.0002529
%RSD	.4856044	8.318850	99.54961	.0437352	353.5758	13.09900

#1	.2243736	.0000895	-.000005	7.527136	.000200	.0016398
#2	.2226963	.0000757	.000061	7.520559	-.000012	.0020976
#3	.2223464	.0000837	.000054	7.524051	-.000485	.0020552

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0009110	.3600723	.0474480	5.990488	.0033099	.0001356
Stddev	.0023688	.0061022	.0002696	.021642	.0005188	.0002628
%RSD	260.0181	1.694714	.5682290	.3612780	15.67341	193.7210

#1	-.001789	.3635542	.0475803	5.983669	.0039084	.0004382
#2	.001883	.3636365	.0471378	5.973076	.0029899	.0000033
#3	.002639	.3530263	.0476260	6.014718	.0030314	-.000035

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.826539	.0007027	.1144020	-2.43956	.0258440	.1312680
Stddev	.055120	.0004502	.0012499	.04640	.0009482	.0006897
%RSD	.9460115	64.05732	1.092579	1.901942	3.668852	.5254162

#1	5.885444	.0004315	.1136888	-2.46795	.0269290	.1310457
#2	5.817964	.0012224	.1136719	-2.46472	.0251744	.1307169
#3	5.776209	.0004544	.1158453	-2.38601	.0254287	.1320415

Sample Name: Q1160-04 Acquired: 3/5/2025 16:45:45 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8D0 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0004453	F 11.79027	6.536879	-.002020	.0013554	.0020415
Stddev	.0001616	.02945	.004721	.000207	.0006246	.0006106
%RSD	36.30050	.2498218	.0722173	10.22373	46.08385	29.90835

#1	.0002594	11.76389	6.537282	-.001781	.0006454	.0017966
#2	.0005531	11.78485	6.541386	-.002144	.0016006	.0027365
#3	.0005233	11.82205	6.531970	-.002134	.0018202	.0015913

Elem	Sr4077
Units	ppm
Avg	.0650356
Stddev	.0002743
%RSD	.4218323

#1	.0653373
#2	.0648011
#3	.0649684

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3532.998	73389.68	15090.56	3173.822	4852.584
Stddev	9.220	53.48	58.08	7.622	12.265
%RSD	.2609784	.0728770	.3848785	.2401657	.2527530

#1	3542.352	73449.86	15156.96	3175.495	4865.463
#2	3532.724	73371.59	15049.24	3180.470	4851.246
#3	3523.918	73347.59	15065.46	3165.503	4841.043

Sample Name: Q1160-05 Acquired: 3/5/2025 16:49:51 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8D3 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0120905	-.000162	.0001732	.0040099	.0139315	-.029126
Stddev	.0010017	.002892	.0001646	.0029266	.0015502	.008303
%RSD	8.284779	1781.184	95.05497	72.98332	11.12716	28.50600

#1	.0126596	-.003094	.0003525	.0046479	.0132091	-.019872
#2	.0109339	.002688	.0001380	.0065648	.0128742	-.031583
#3	.0126780	-.000081	.0000290	.0008170	.0157110	-.035922

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1866617	.0000557	.0000398	31.74412	-.000705	.0015635
Stddev	.0022712	.0000591	.0000184	.21688	.000464	.0001005
%RSD	1.216765	106.0390	46.32544	.6832031	65.80917	6.424447

#1	.1864163	.0000097	.0000186	31.80747	-.000383	.0015141
#2	.1890457	.0000350	.0000517	31.92226	-.000495	.0014974
#3	.1845232	.0001223	.0000490	31.50262	-.001237	.0016791

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000445	.0028673	.3495302	9.020532	.0209539	.0002452
Stddev	.0008983	.0018081	.0016886	.056508	.0003557	.0000438
%RSD	2017.181	63.05827	.4830973	.6264415	1.697368	17.86795

#1	-.000848	.0044964	.3480257	8.983423	.0212664	.0002739
#2	.000948	.0031836	.3513566	9.085566	.0210284	.0002670
#3	.000033	.0009220	.3492085	8.992606	.0205669	.0001948

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.100346	-.000238	.0426287	.1200979	.0047157	.0629625
Stddev	.049483	.000951	.0019414	.0297706	.0023251	.0011835
%RSD	1.206812	399.4908	4.554316	24.78857	49.30628	1.879726

#1	4.121541	.000402	.0447726	.1417672	.0073913	.0635326
#2	4.043796	-.001330	.0421242	.0861523	.0035711	.0616018
#3	4.135702	.000214	.0409893	.1323743	.0031848	.0637530

Sample Name: Q1160-05 Acquired: 3/5/2025 16:49:51 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8D3 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0275117	F 14.98930	1.577353	-.003623	-.001242	-.002063
Stddev	.0000417	.04810	.006992	.001246	.000652	.000608
%RSD	.1515865	.3209052	.4432968	34.38117	52.50982	29.46177
#1	.0274699	14.96544	1.569892	-.003689	-.001944	-.001823
#2	.0275533	14.95780	1.578411	-.004834	-.001126	-.001611
#3	.0275120	15.04467	1.583756	-.002346	-.000655	-.002753

Elem	Sr4077
Units	ppm
Avg	.2559100
Stddev	.0013442
%RSD	.5252518
#1	.2550037
#2	.2574544
#3	.2552719

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3454.016	72434.98	14991.13	3113.688	4678.652
Stddev	17.025	219.38	71.46	7.542	23.094
%RSD	.4929018	.3028615	.4766505	.2422174	.4936127
#1	3470.496	72274.25	14937.50	3111.171	4700.664
#2	3455.057	72345.78	15072.25	3122.166	4680.683
#3	3436.494	72684.90	14963.66	3107.727	4654.609

Sample Name: CCV005 Acquired: 3/5/2025 16:53:56 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV005 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.862150	4.675634	24.18608	4.858261	4.908140	380.2881
Stddev	.008925	.008774	.03864	.020485	.012873	1.3034
%RSD	.1835588	.1876460	.1597557	.4216550	.2622691	.3427341

#1	4.872197	4.684329	24.16600	4.837148	4.893322	381.6631
#2	4.855139	4.675789	24.16162	4.878054	4.916557	379.0706
#3	4.859115	4.666784	24.23063	4.859581	4.914542	380.1306

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.15894	.4842867	2.446603	388.8020	15.26282	2.465737
Stddev	.12726	.0036266	.004183	2.5551	.01720	.004382
%RSD	1.252649	.7488616	.1709593	.6571723	.1126820	.1777001

#1	10.01270	.4884593	2.442275	386.0330	15.24309	2.461463
#2	10.24448	.4825074	2.446910	389.3045	15.27466	2.465529
#3	10.21964	.4818933	2.450624	391.0686	15.27072	2.470219

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.09980	391.5785	15.19133	385.8059	2.463512	1.258514
Stddev	.06495	2.9908	.08664	2.8171	.003805	.000848
%RSD	.4301428	.7637714	.5703310	.7301981	.1544551	.0674020

#1	15.17461	388.1322	15.09129	382.5533	2.459549	1.257755
#2	15.06699	393.1095	15.24200	387.4735	2.463849	1.259429
#3	15.05780	393.4938	15.24070	387.3909	2.467137	1.258357

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	390.3731	2.453758	15.32465	156.1515	4.858480	F 5.837848
Stddev	.3952	.004265	.09571	1.0732	.013002	.019711
%RSD	.1012428	.1738350	.6245579	.6872602	.2676112	.3376453

#1	390.8277	2.450722	15.21493	154.9145	4.869404	5.858961
#2	390.1116	2.451918	15.36802	156.8336	4.844099	5.834654
#3	390.1800	2.458635	15.39100	156.7062	4.861937	5.819929

Sample Name: CCV005 Acquired: 3/5/2025 16:53:56 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV005 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.859731	4.953713	4.872912	4.897500	4.908733	5.131578
Stddev	.006903	.008748	.005688	.009801	.003661	.047506
%RSD	.1420493	.1765951	.1167357	.2001125	.0745724	.9257497

#1	4.851793	4.963807	4.869705	4.888574	4.910113	5.079622
#2	4.864336	4.948322	4.869552	4.895938	4.904583	5.142315
#3	4.863062	4.949011	4.879480	4.907987	4.911503	5.172795

Elem	Sr4077
Units	ppm
Avg	5.187422
Stddev	.020441
%RSD	.3940561

#1	5.207705
#2	5.187736
#3	5.166826

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2670.321	59932.86	13713.81	2530.710	3312.173
Stddev	3.390	124.83	103.98	5.249	4.647
%RSD	.1269393	.2082902	.7582109	.2074065	.1402993

#1	2673.006	60050.24	13598.54	2536.317	3315.019
#2	2671.444	59801.71	13742.34	2529.898	3314.691
#3	2666.512	59946.63	13800.54	2525.914	3306.811

Sample Name: CCB005 Acquired: 3/5/2025 16:58:15 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB005 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0027862	.0002487	-.000642	-.001465	-.000523	-.001681	.0005971
Stddev	.0024120	.0009290	.001692	.003327	.001254	.006671	.0005833
%RSD	86.56920	373.5590	263.3175	227.1605	239.9127	396.8074	97.69718

#1	.0007117	-.000181	-.001018	-.003545	-.000791	-.000639	.0008492
#2	.0054328	.001315	.001205	.002373	-.001621	.004408	-.000070
#3	.0022141	-.000388	-.002114	-.003222	.000844	-.008812	.001012

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000354	-.000009	.0020627	-.000175	.0002047	-.000103	.0052106
Stddev	.0000355	.000031	.0055796	.000253	.0001802	.001789	.0034158
%RSD	100.2044	359.0294	270.5027	144.7032	88.02806	1733.065	65.55465

#1	.0000155	.000019	.0052461	-.000294	.0003606	-.000745	.0083784
#2	.0000143	-.000003	.0053218	-.000346	.0000074	-.001483	.0015916
#3	.0000763	-.000043	-.004380	.000116	.0002460	.001919	.0056619

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000303	.0097633	.0000667	-.000184	-.000117	-.003080	-.001740
Stddev	.0001355	.0066341	.0001397	.000060	.241778	.000125	.001201
%RSD	447.3278	67.94962	209.5409	32.49347	205913.5	4.053939	69.01379

#1	.0001210	.0155010	-.000051	-.000119	.240096	-.003220	-.000838
#2	.0000953	.0024989	.000030	-.000197	.002983	-.003038	-.001278
#3	-.000125	.0112900	.000221	-.000236	-.243431	-.002982	-.003102

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.124716	.0016314	.0024691	-.000193	.0066566	.0081704	-.000148
Stddev	.044625	.0005019	.0012428	.000094	.0025143	.0014094	.000613
%RSD	35.78126	30.76315	50.33202	48.76120	37.77218	17.24965	413.4050

#1	-.169336	.0021707	.0035892	-.000155	.0065999	.0075960	-.000850
#2	-.080086	.0015454	.0026861	-.000299	.0041711	.0071389	.000281
#3	-.124726	.0011781	.0011322	-.000123	.0091988	.0097762	.000124

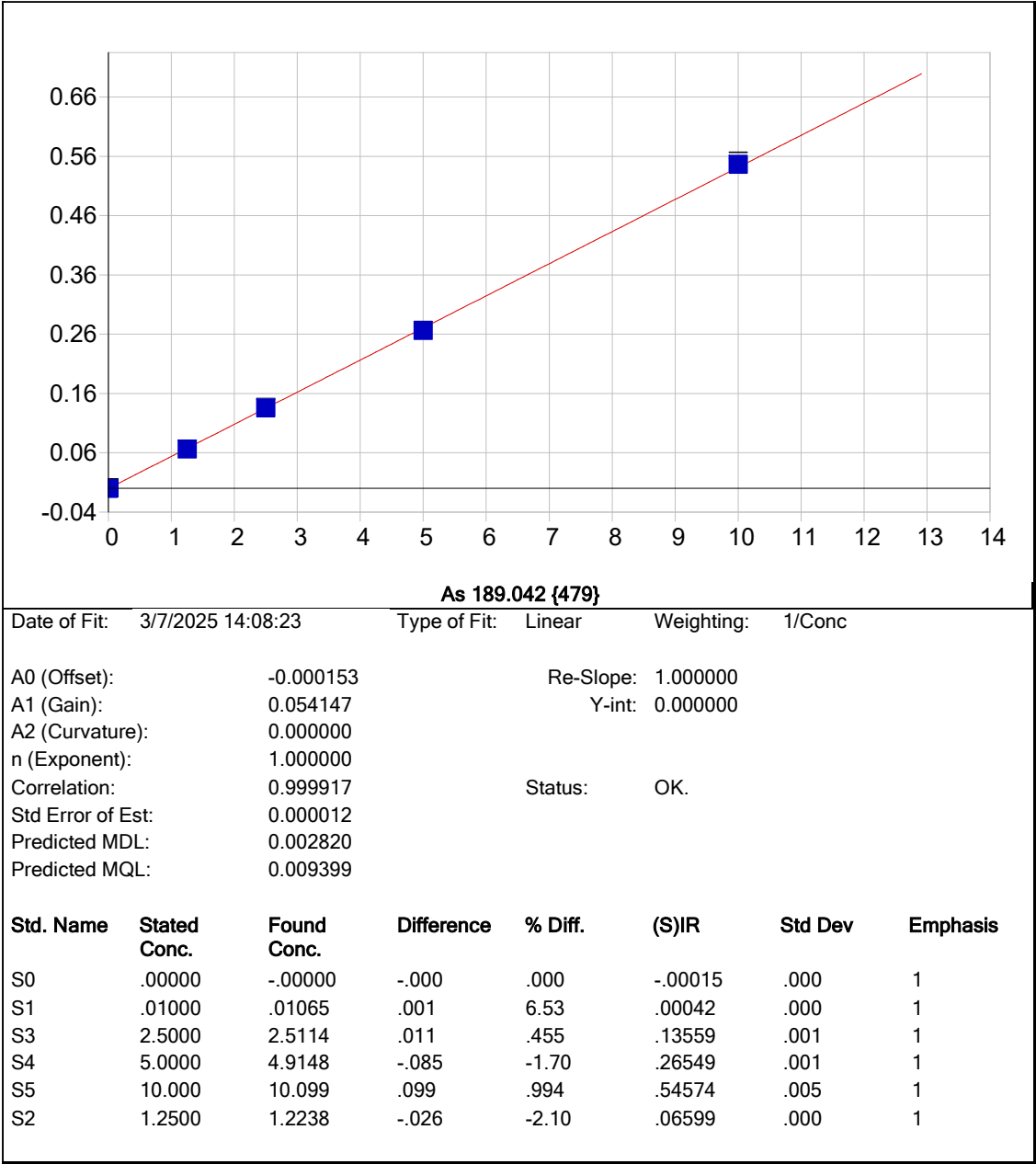
Sample Name: CCB005 Acquired: 3/5/2025 16:58:15 Type: Unk
Method: EPA SFAM01.0(v68) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB005 Custom ID2: Custom ID3:
Comment:

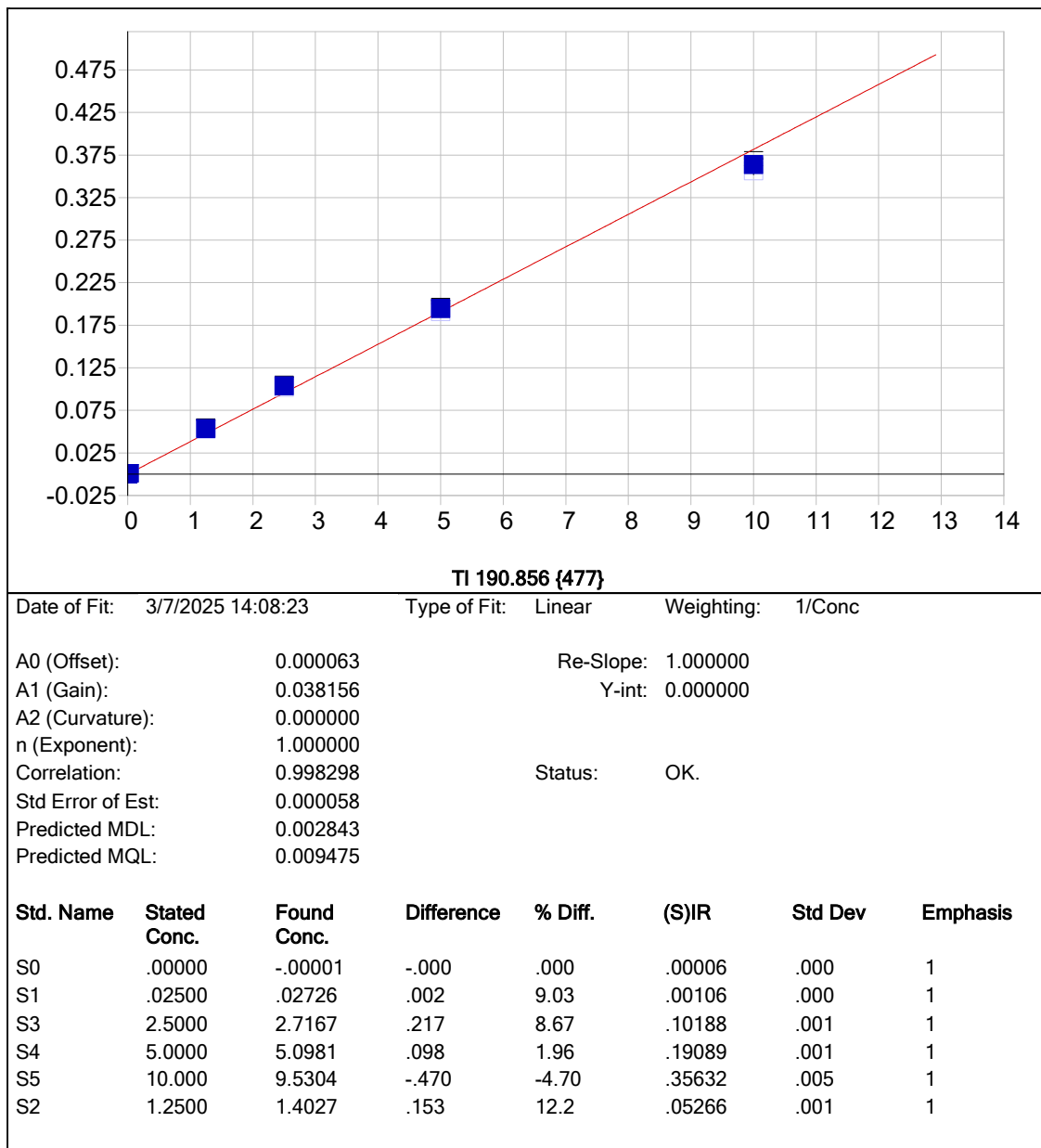
Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000295	-.001990	.0001002
Stddev	.000187	.000624	.0000194
%RSD	63.36443	31.36706	19.39811

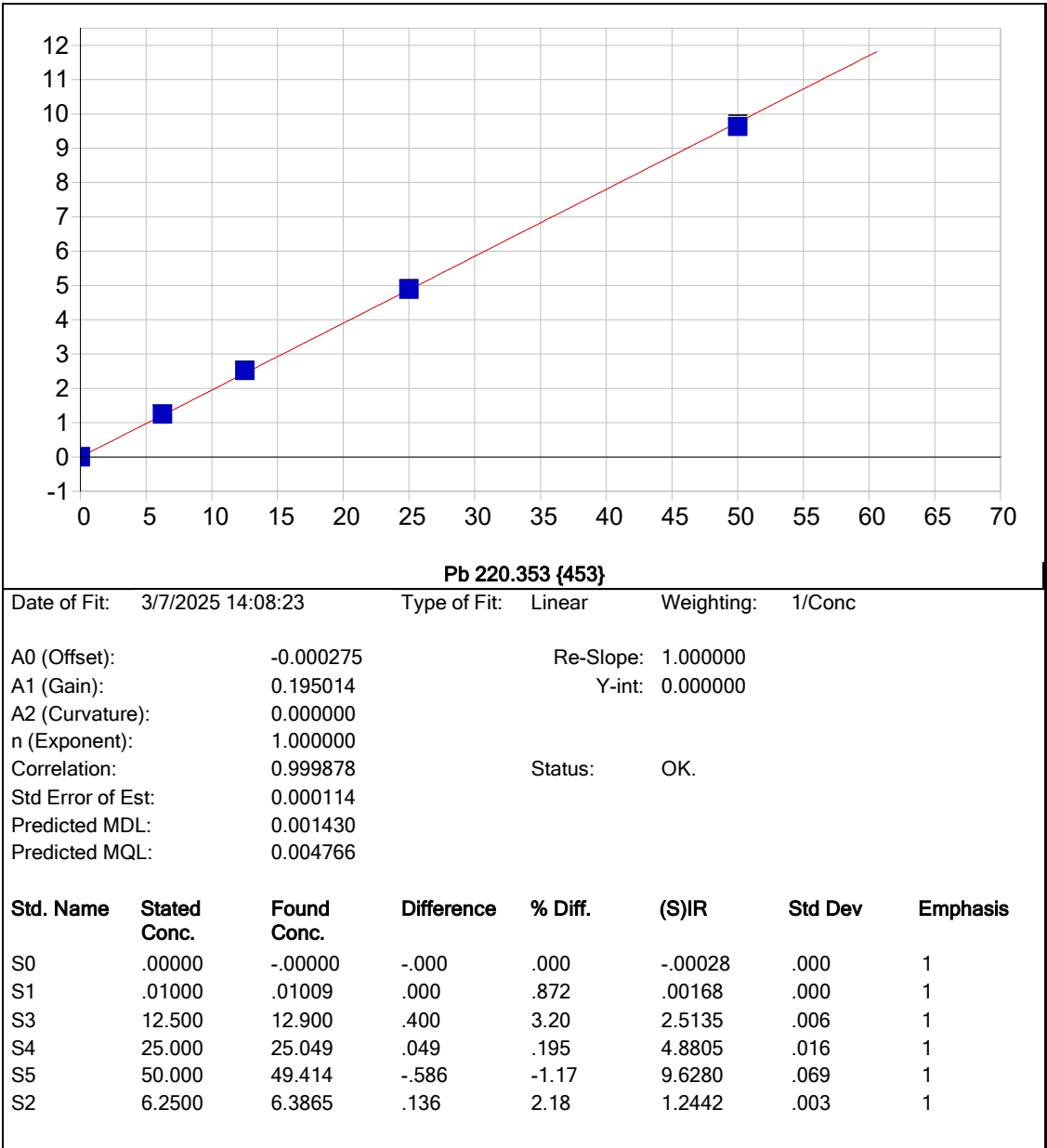
#1	-.000251	-.002602	.0001176
#2	-.000134	-.001354	.0000792
#3	-.000501	-.002015	.0001038

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3477.348	72132.64	14781.26	3121.311	4771.824
Stddev	7.584	361.72	109.67	10.108	6.485
%RSD	.2181024	.5014661	.7419475	.3238336	.1359106

#1	3473.009	71910.63	14808.90	3118.122	4771.094
#2	3486.105	71937.25	14660.42	3113.183	4778.644
#3	3472.929	72550.03	14874.47	3132.629	4765.735

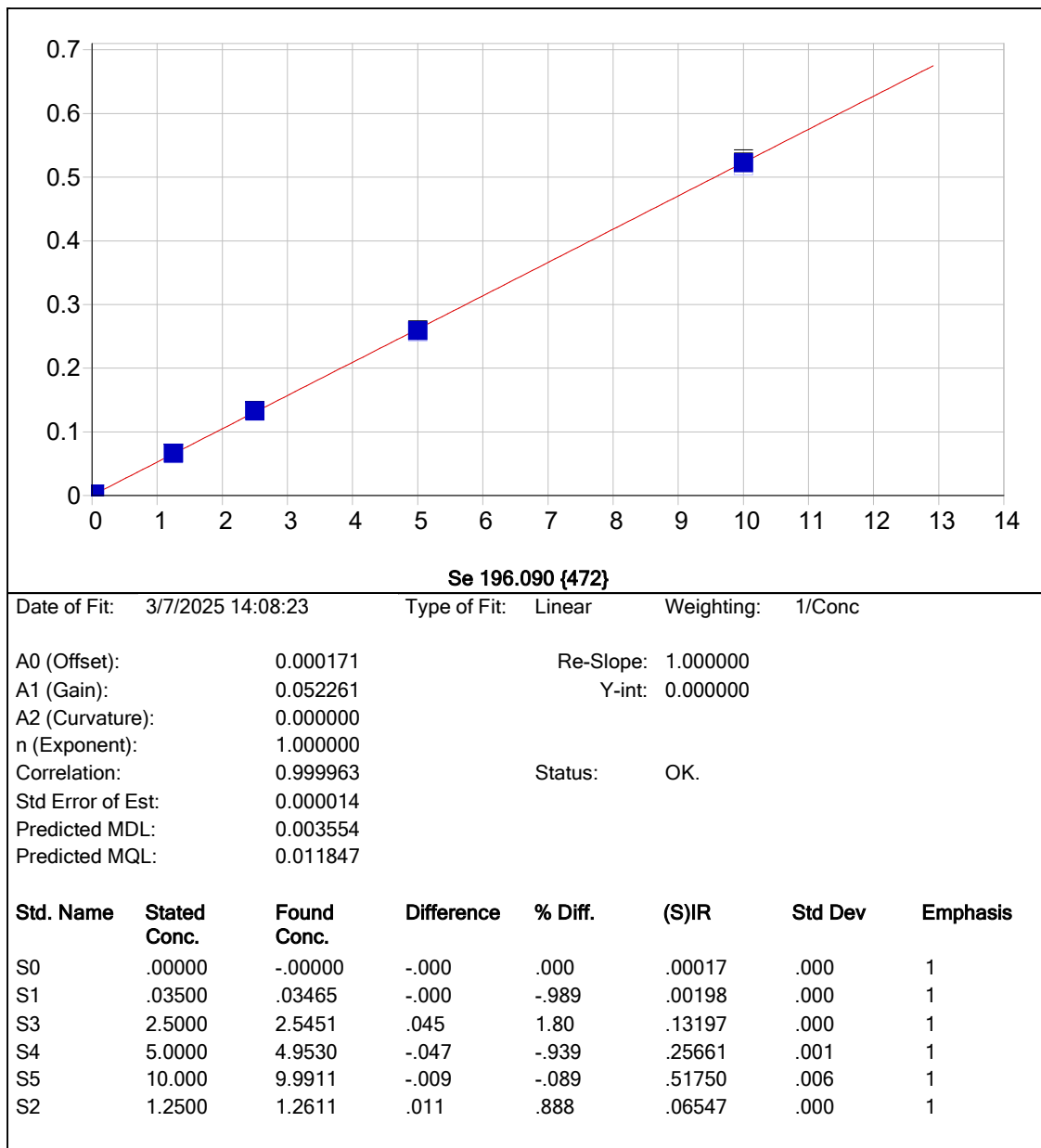


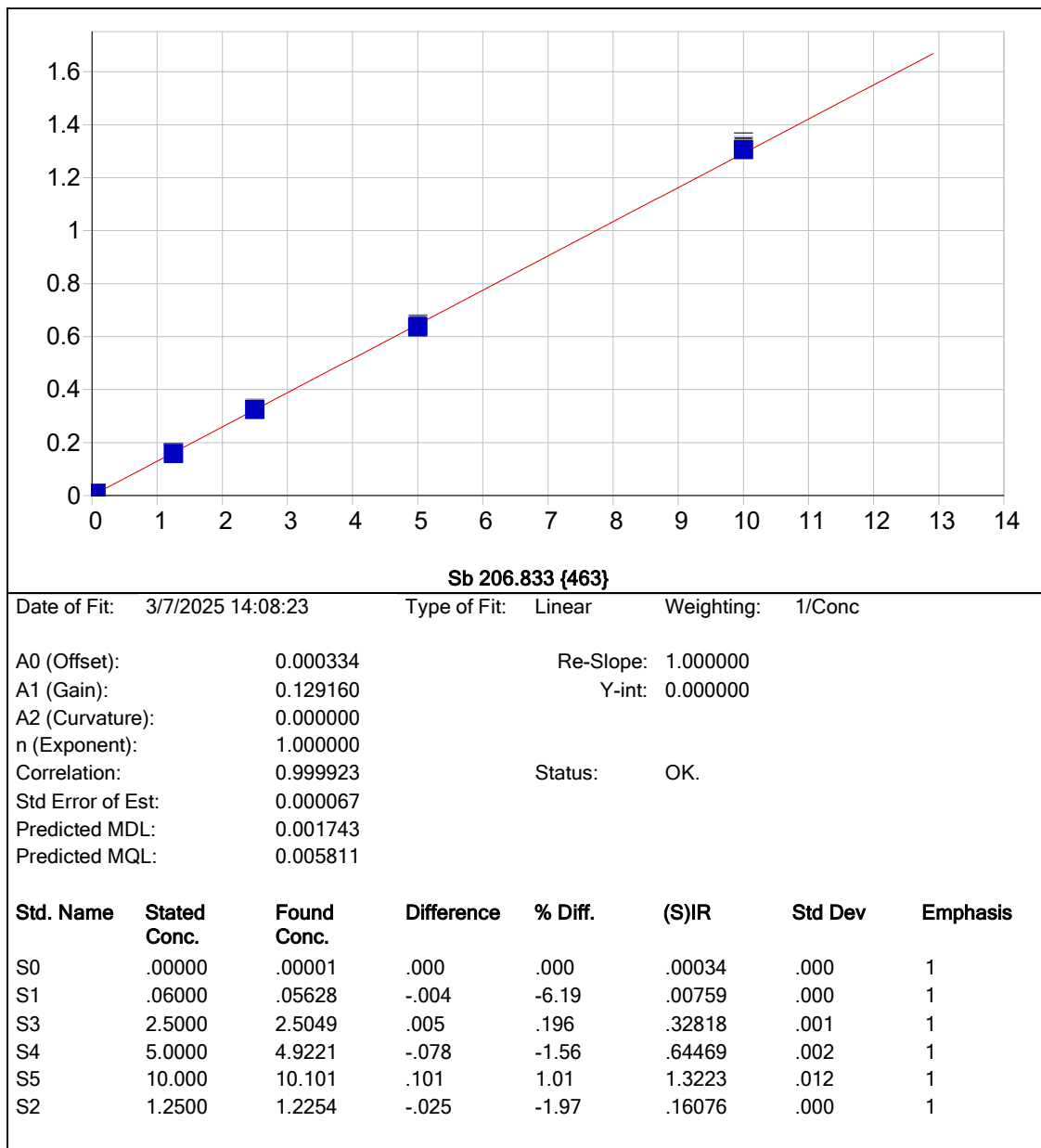


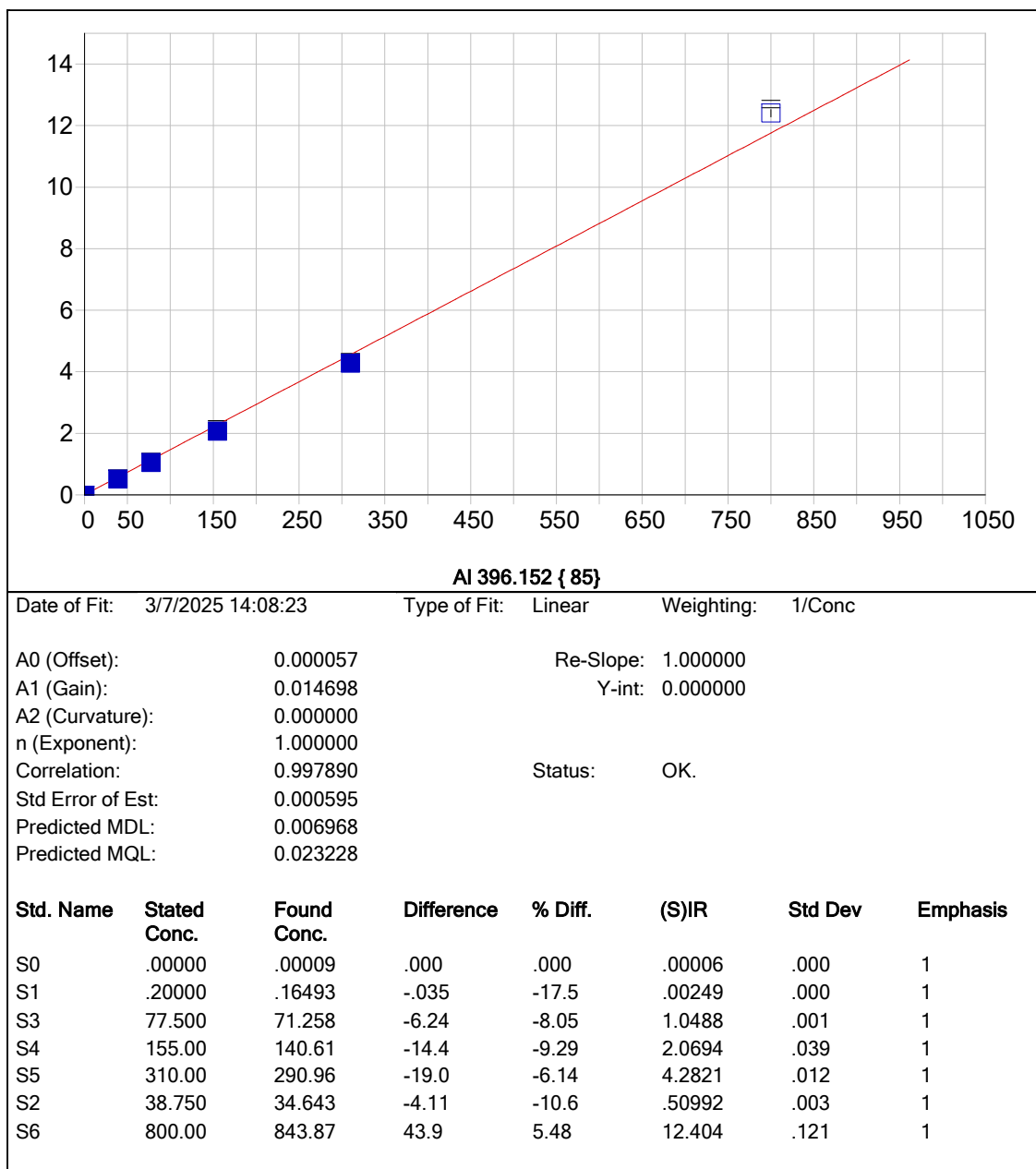


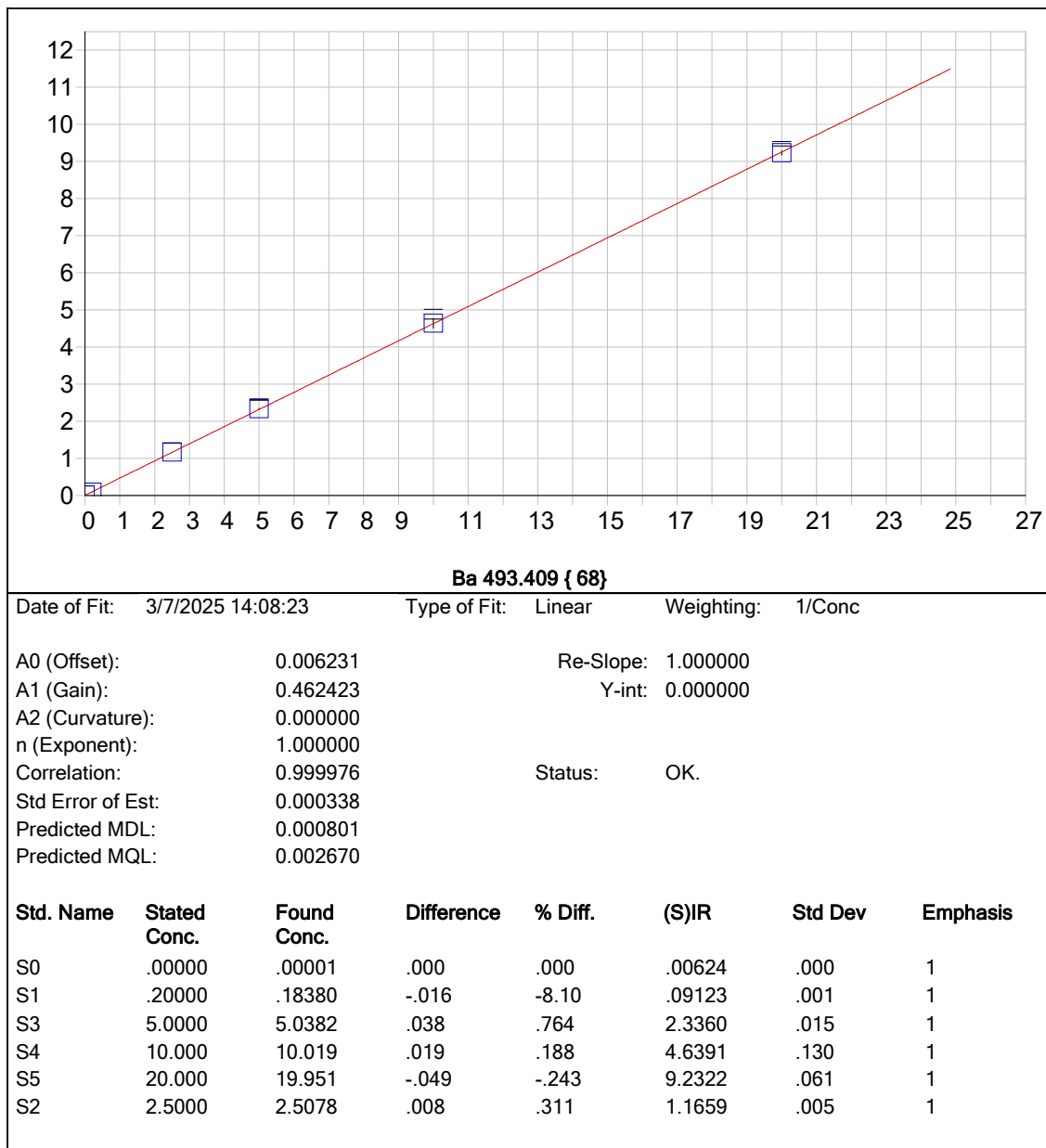
Date of Fit: 3/7/2025 14:08:23 Type of Fit: Linear Weighting: 1/Conc

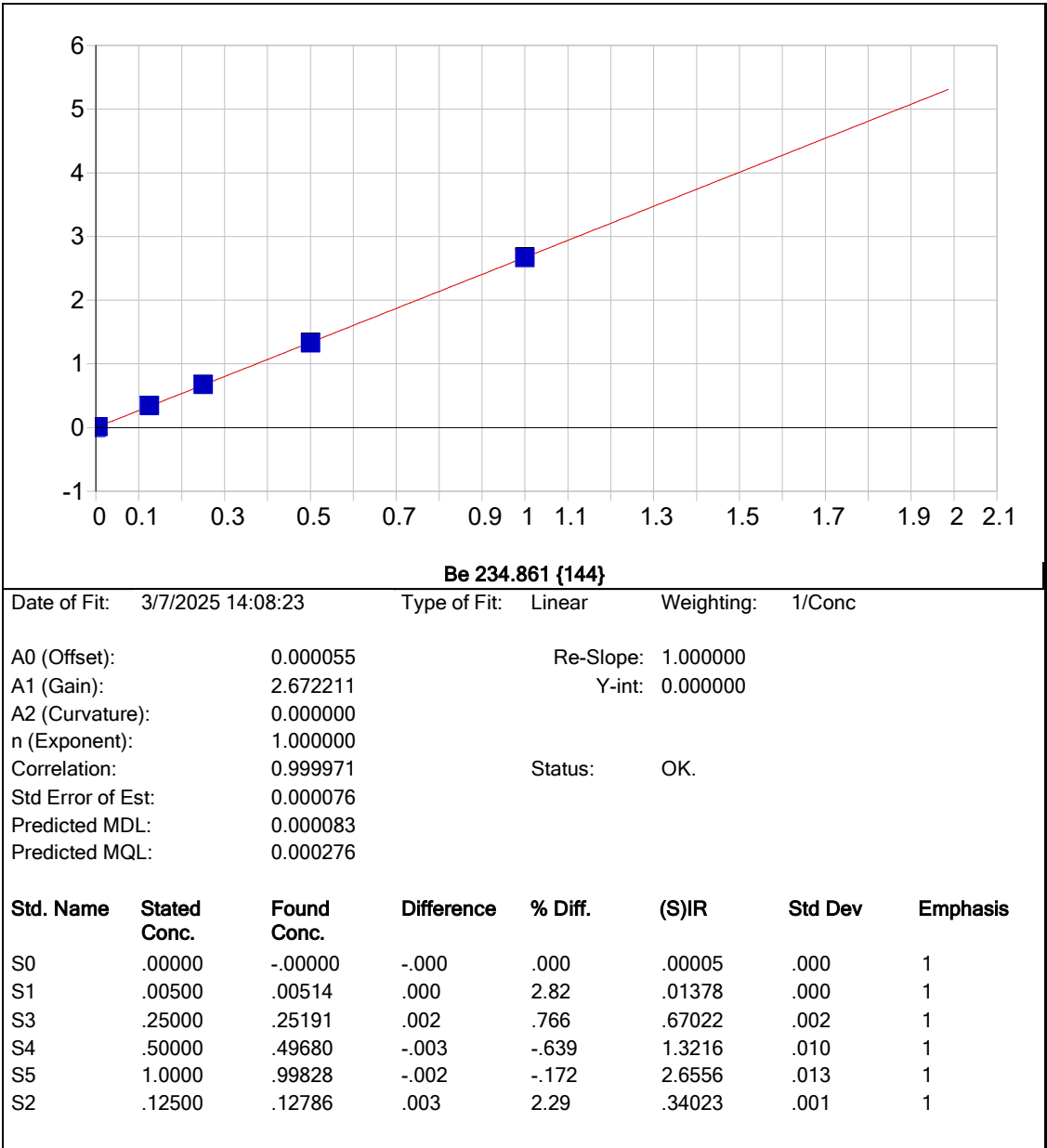
A0 (Offset): -0.000275 Re-Slope: 1.000000
A1 (Gain): 0.195014 Y-int: 0.000000
A2 (Curvature): 0.000000
n (Exponent): 1.000000
Correlation: 0.999878 Status: OK.
Std Error of Est: 0.000114
Predicted MDL: 0.001430
Predicted MQL: 0.004766

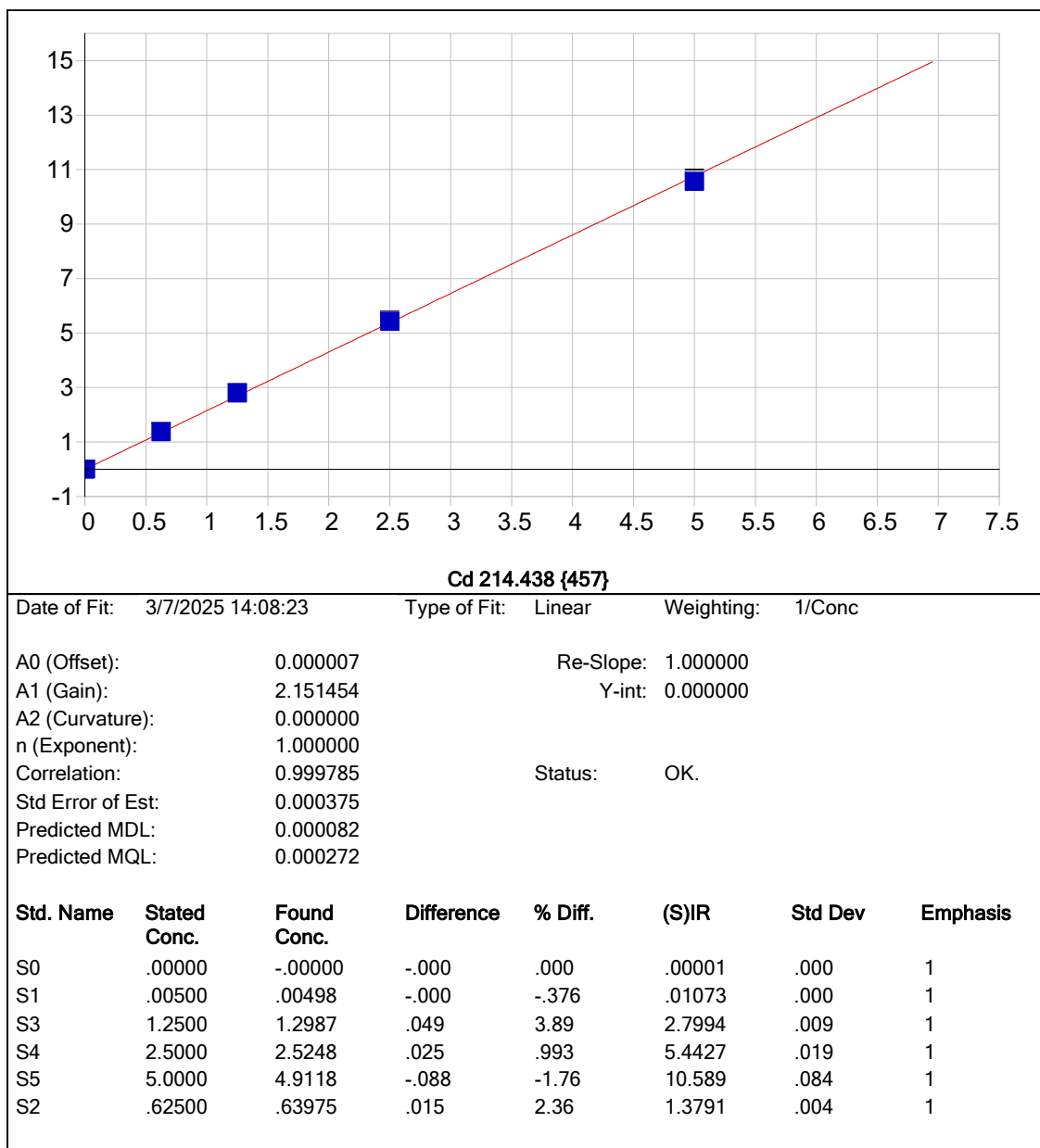


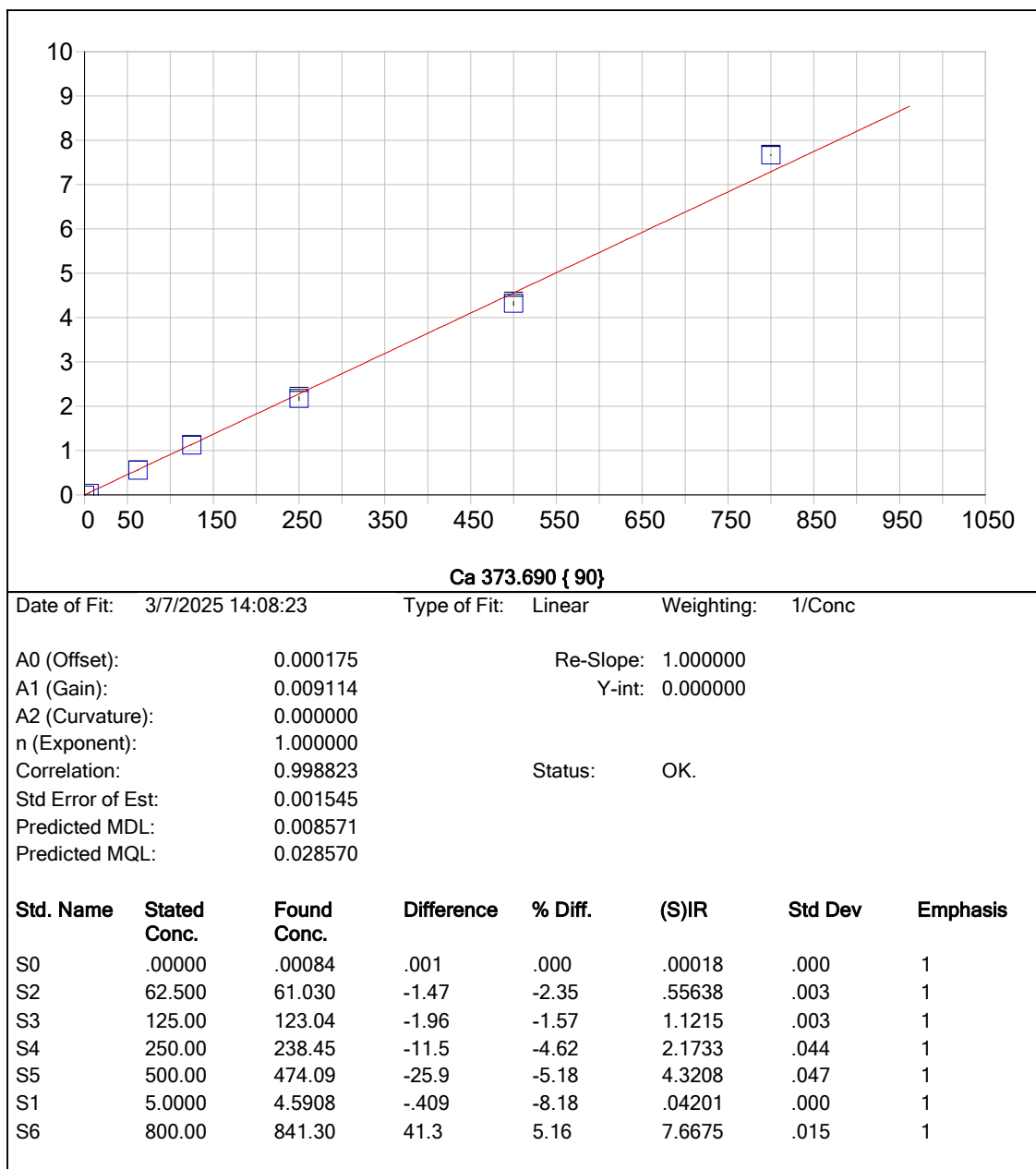


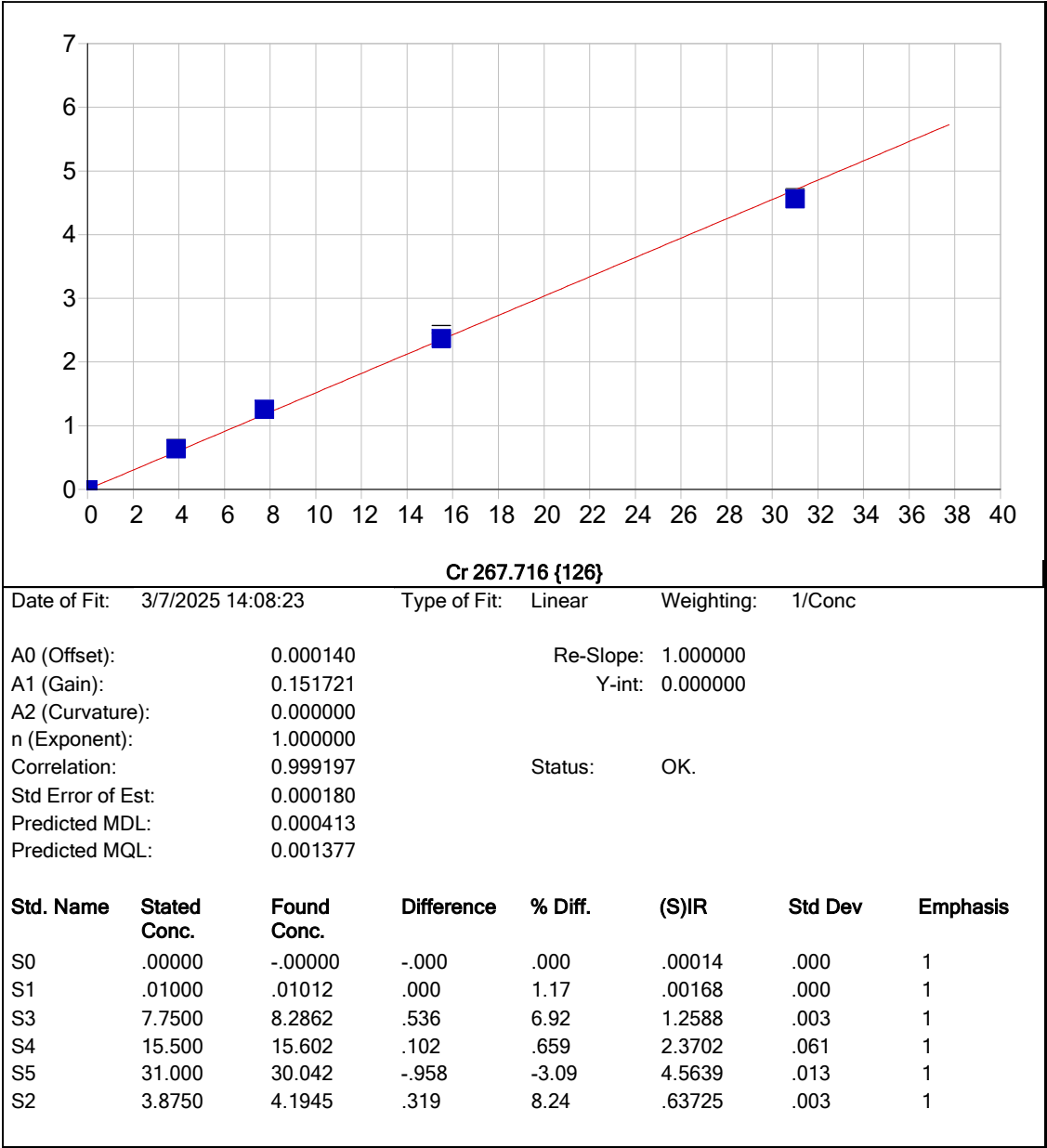


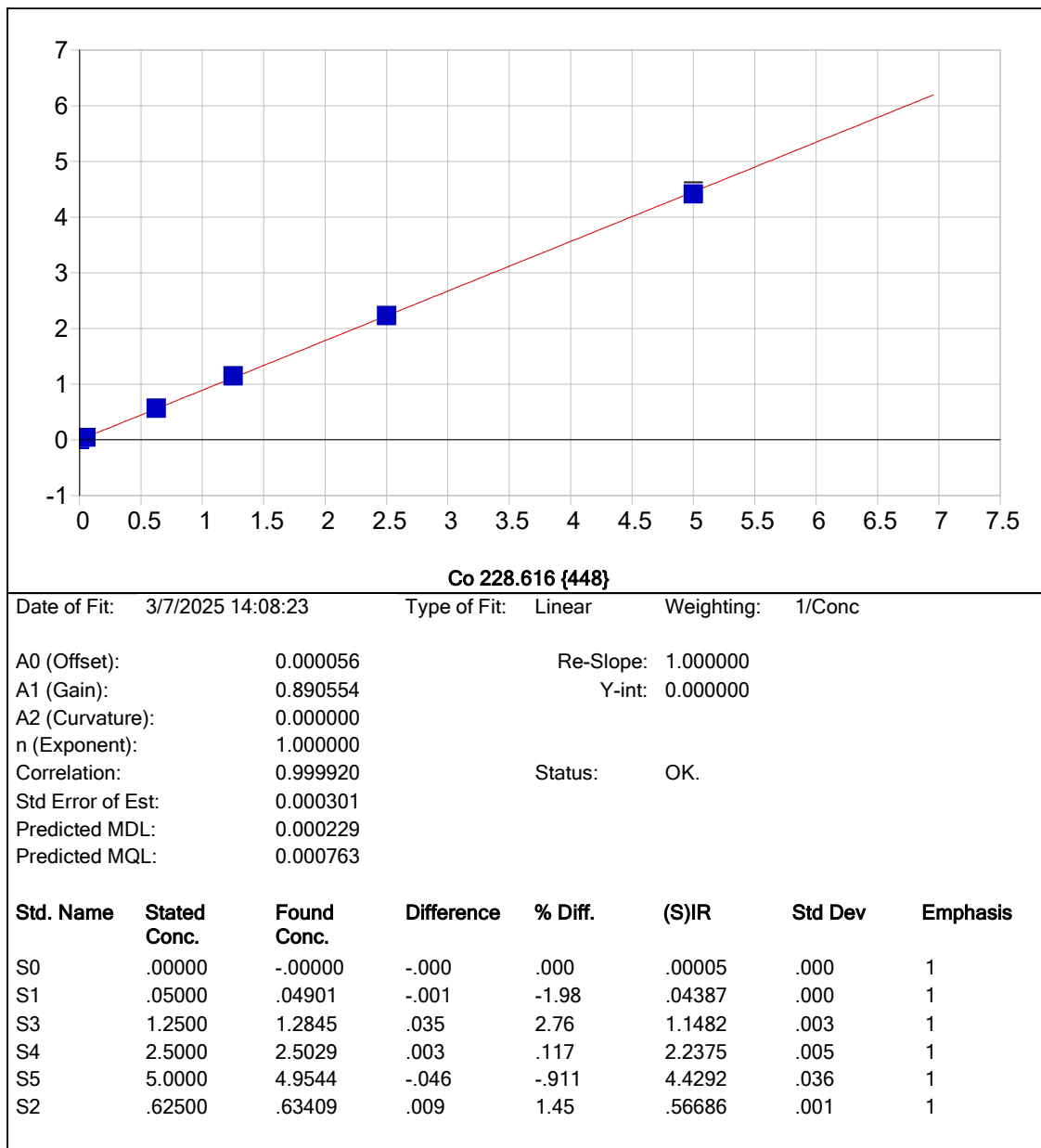


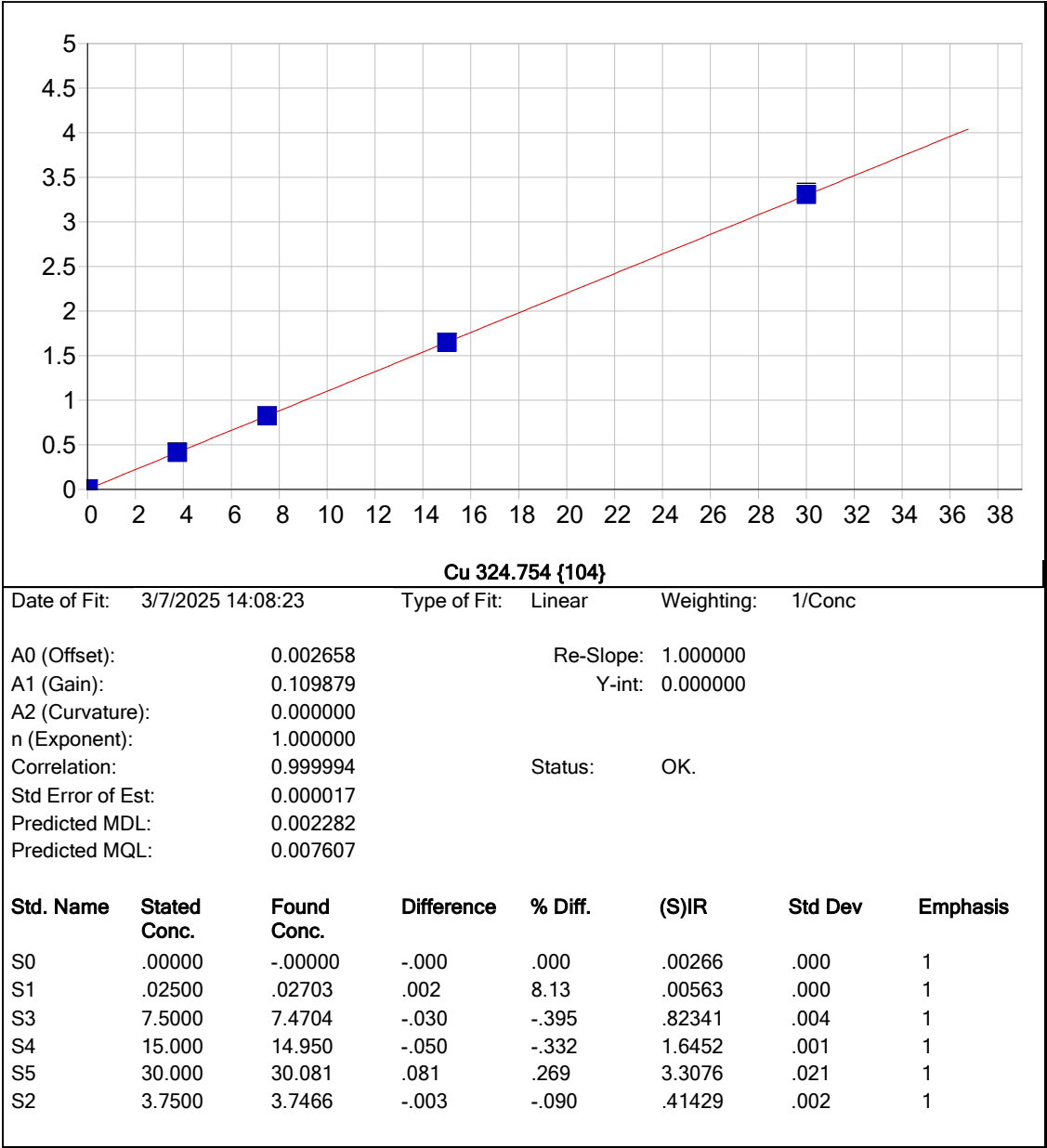


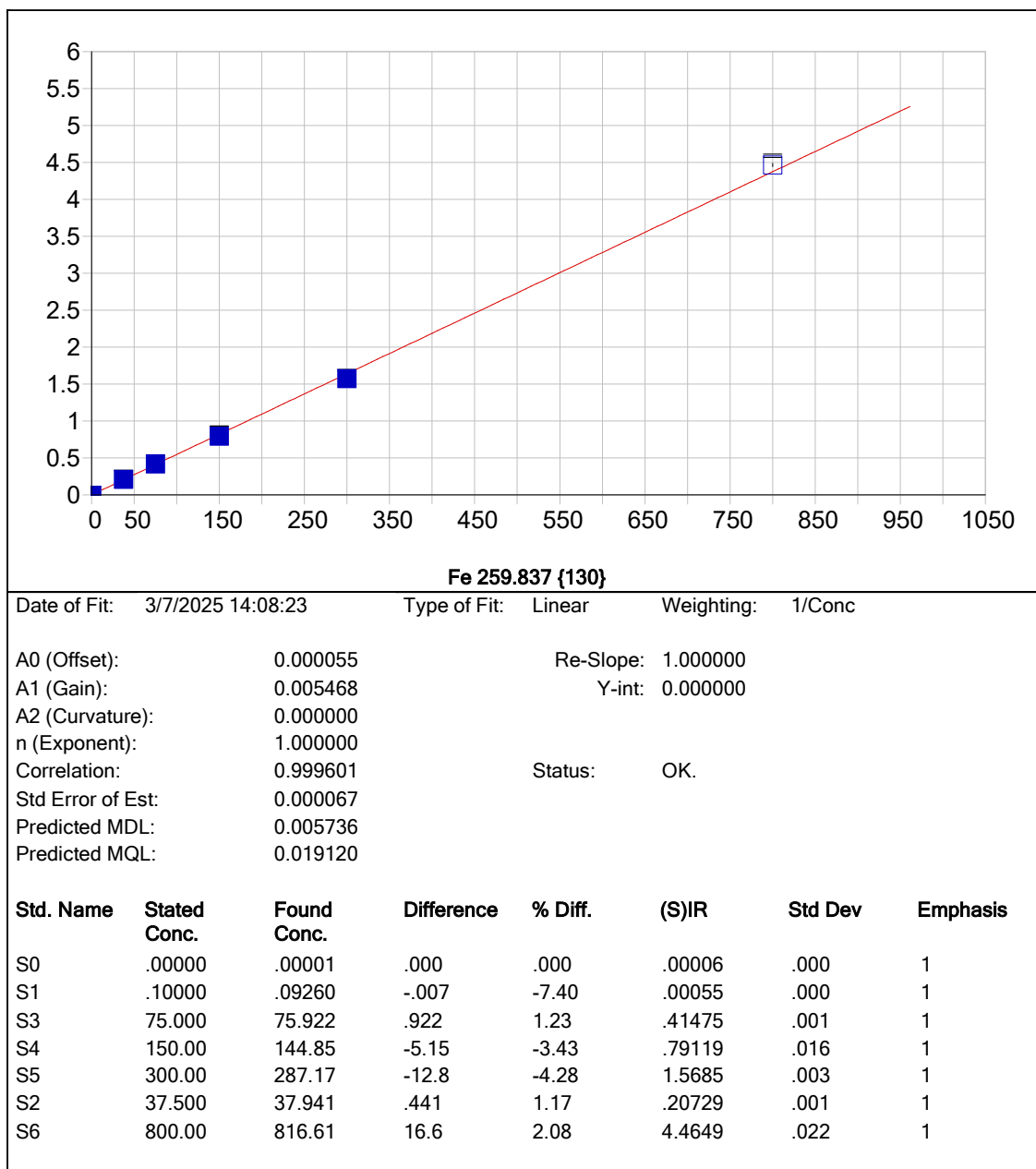


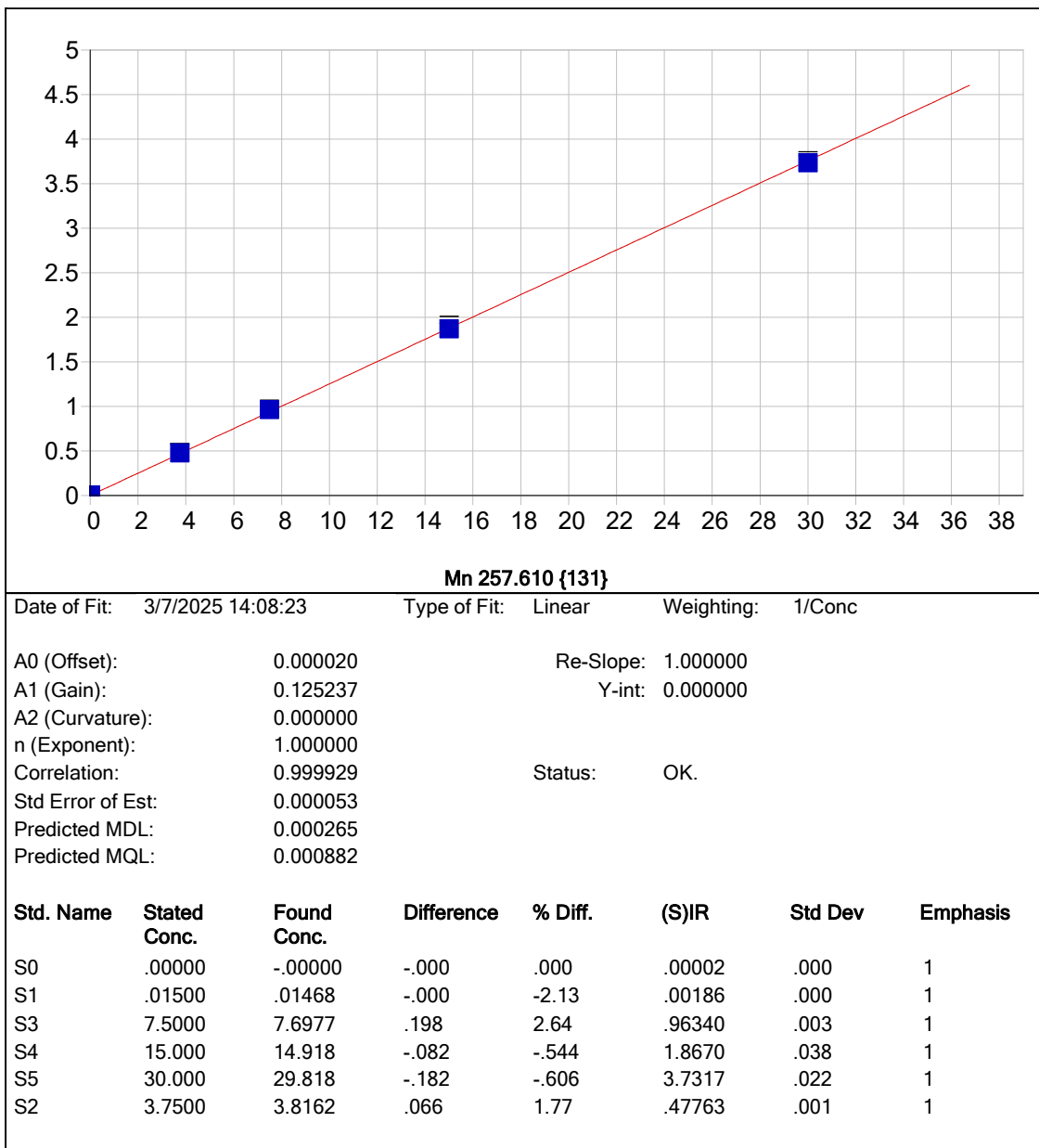


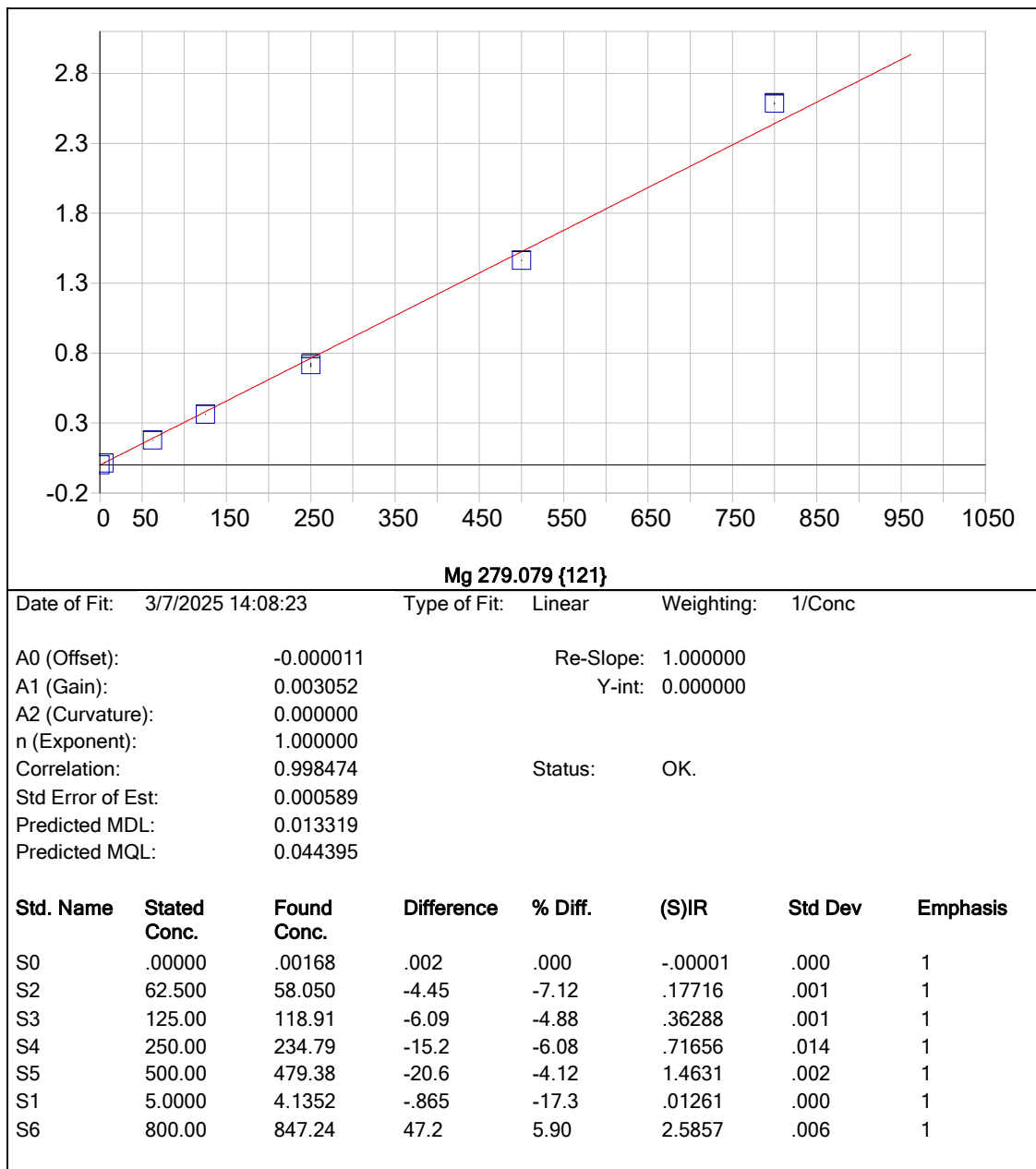


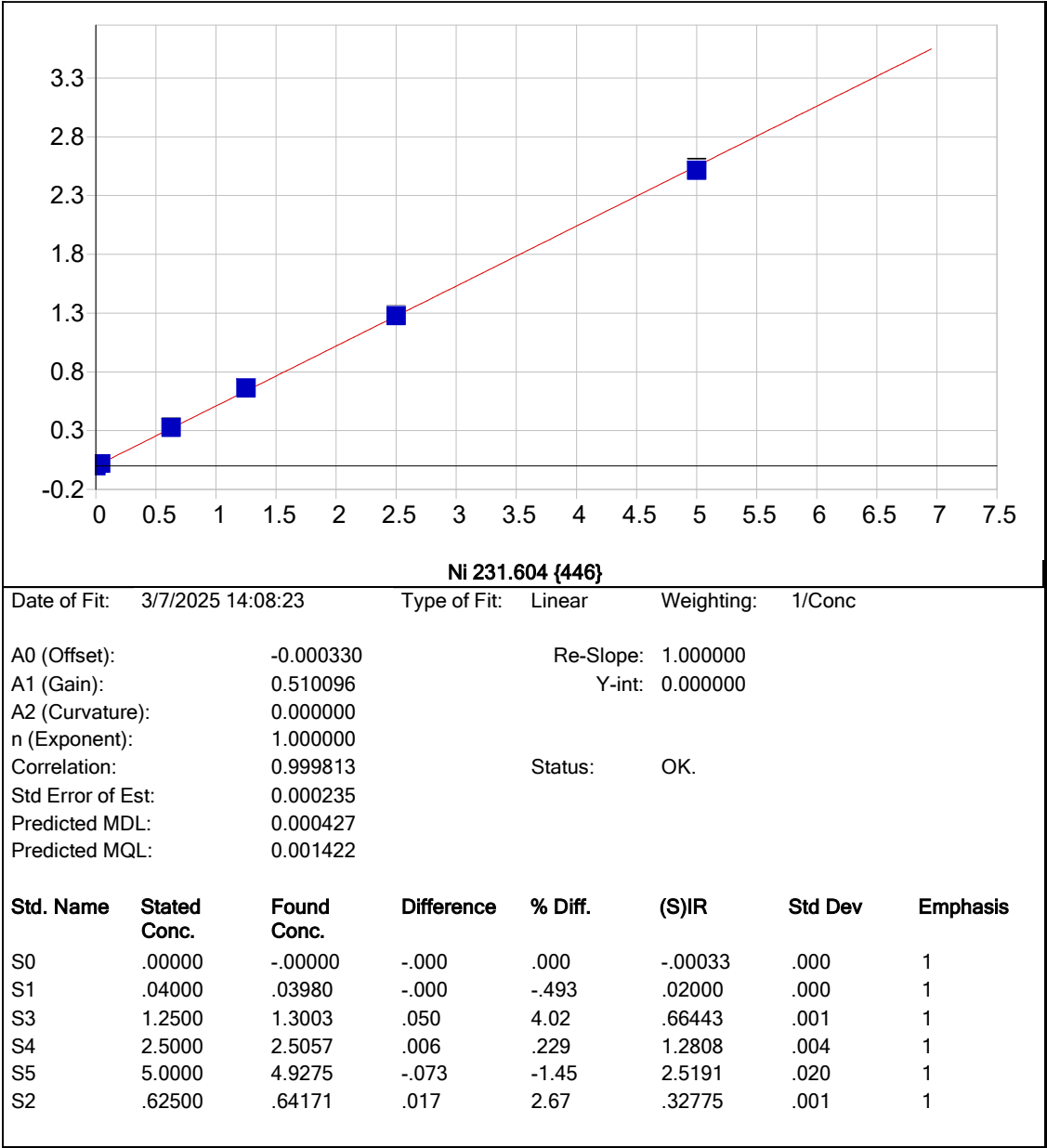


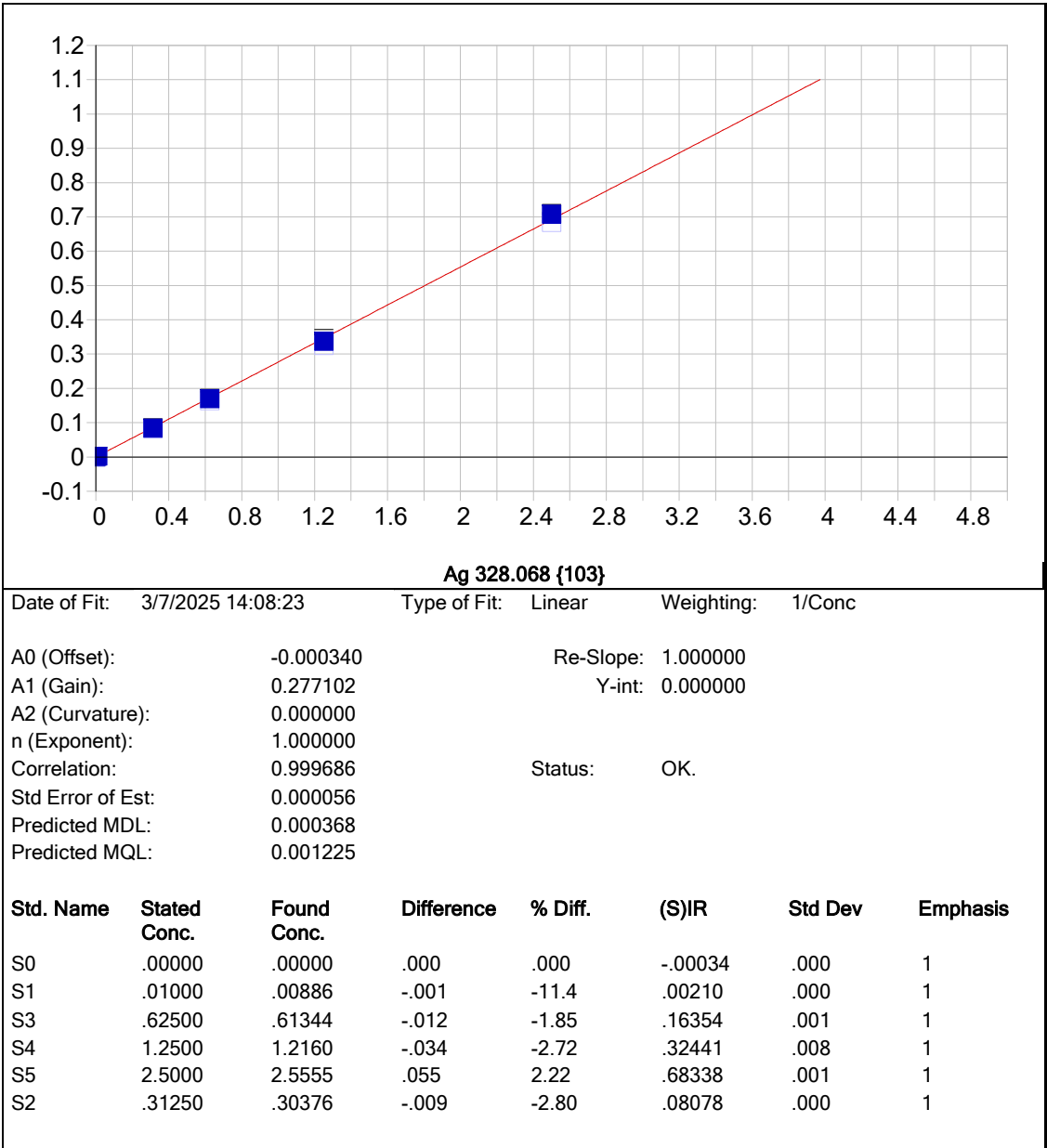


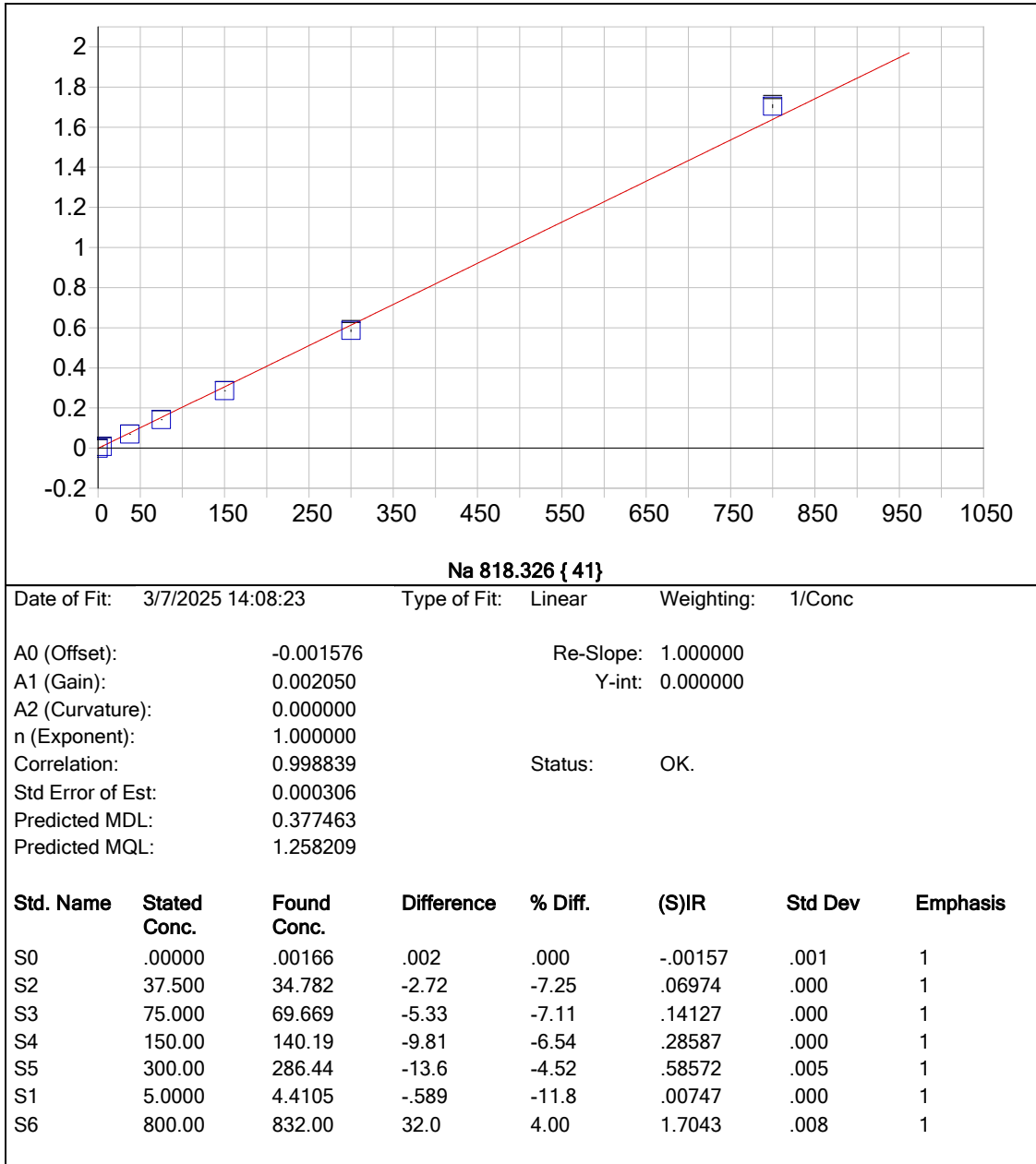


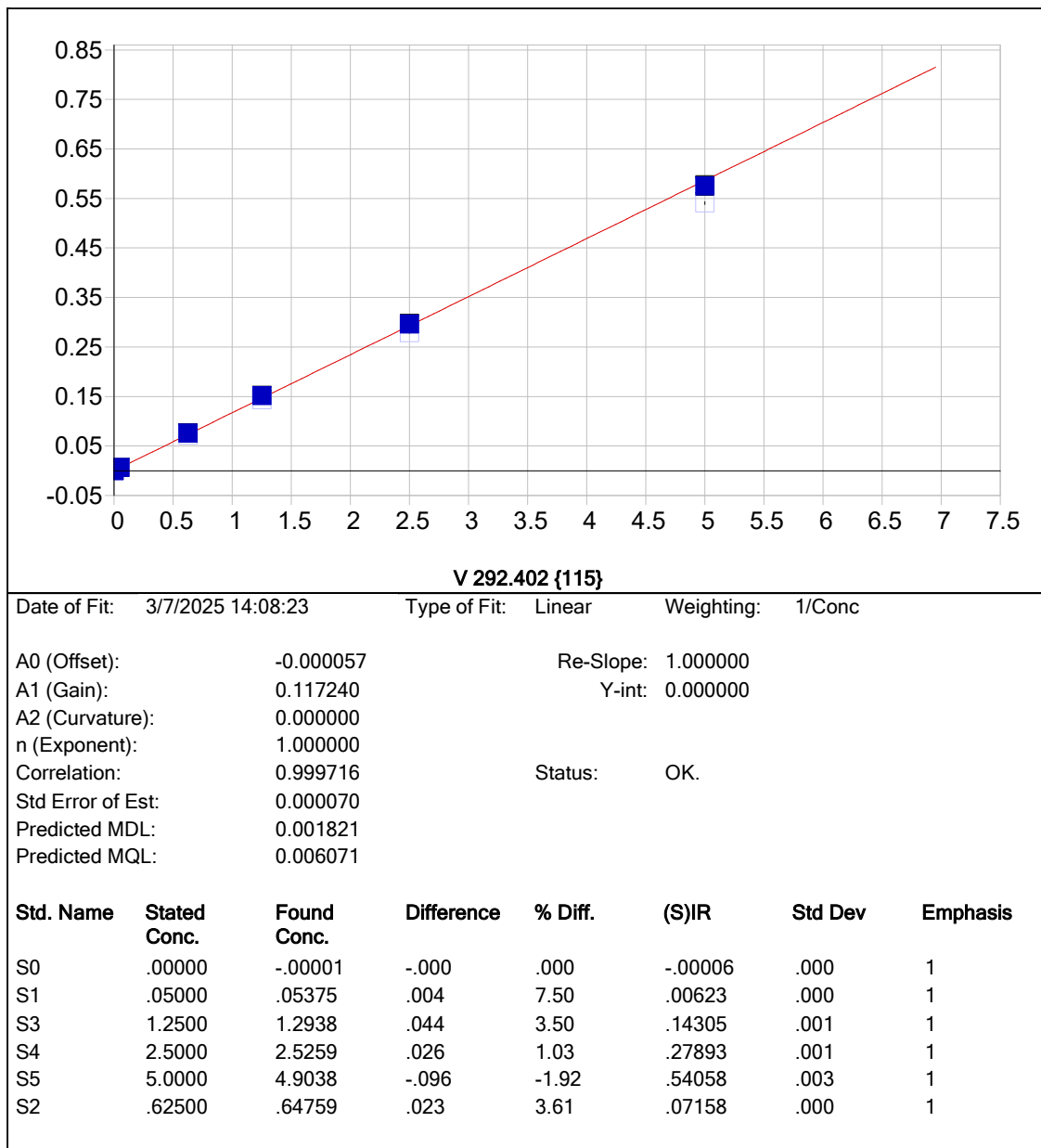


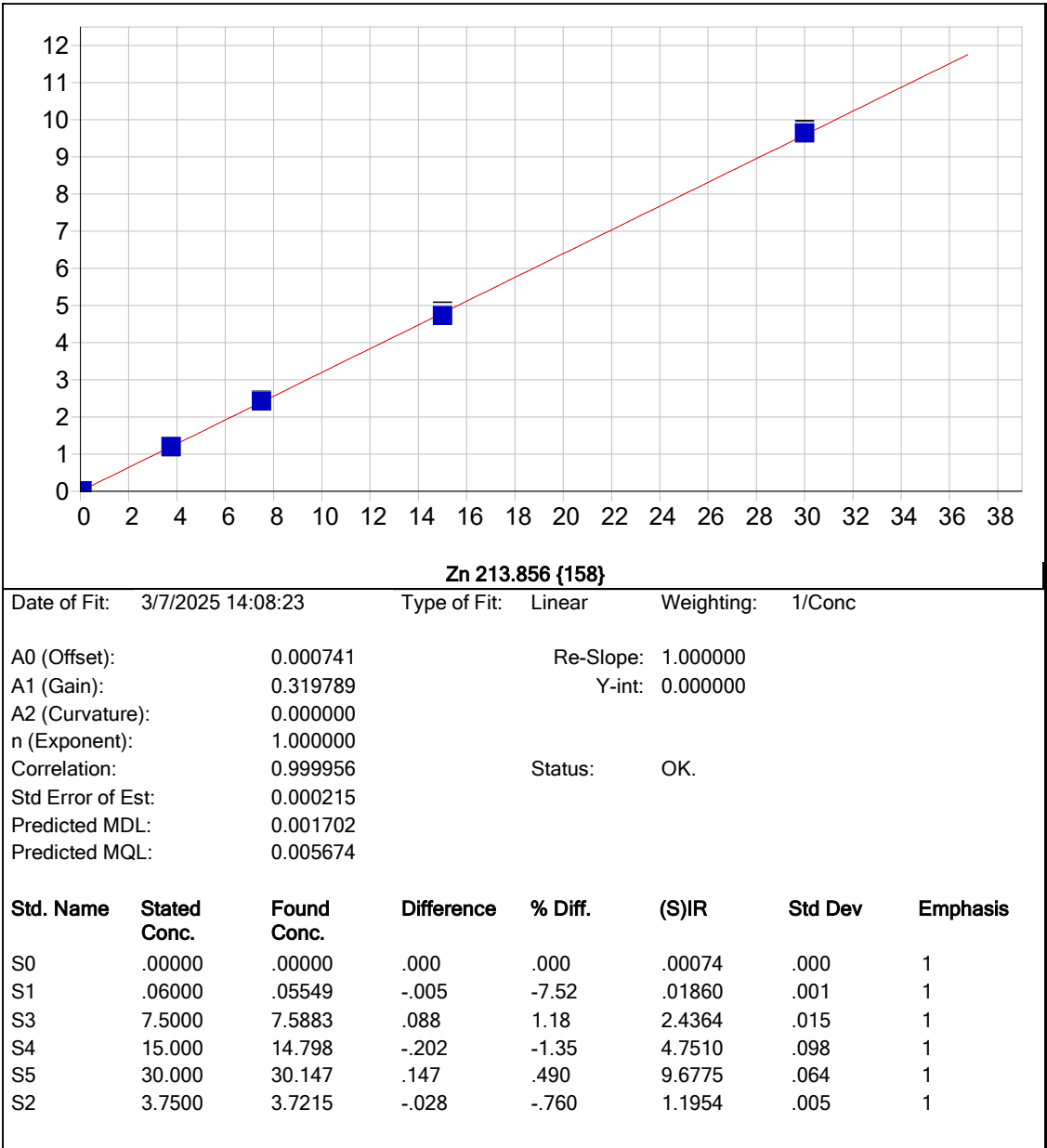


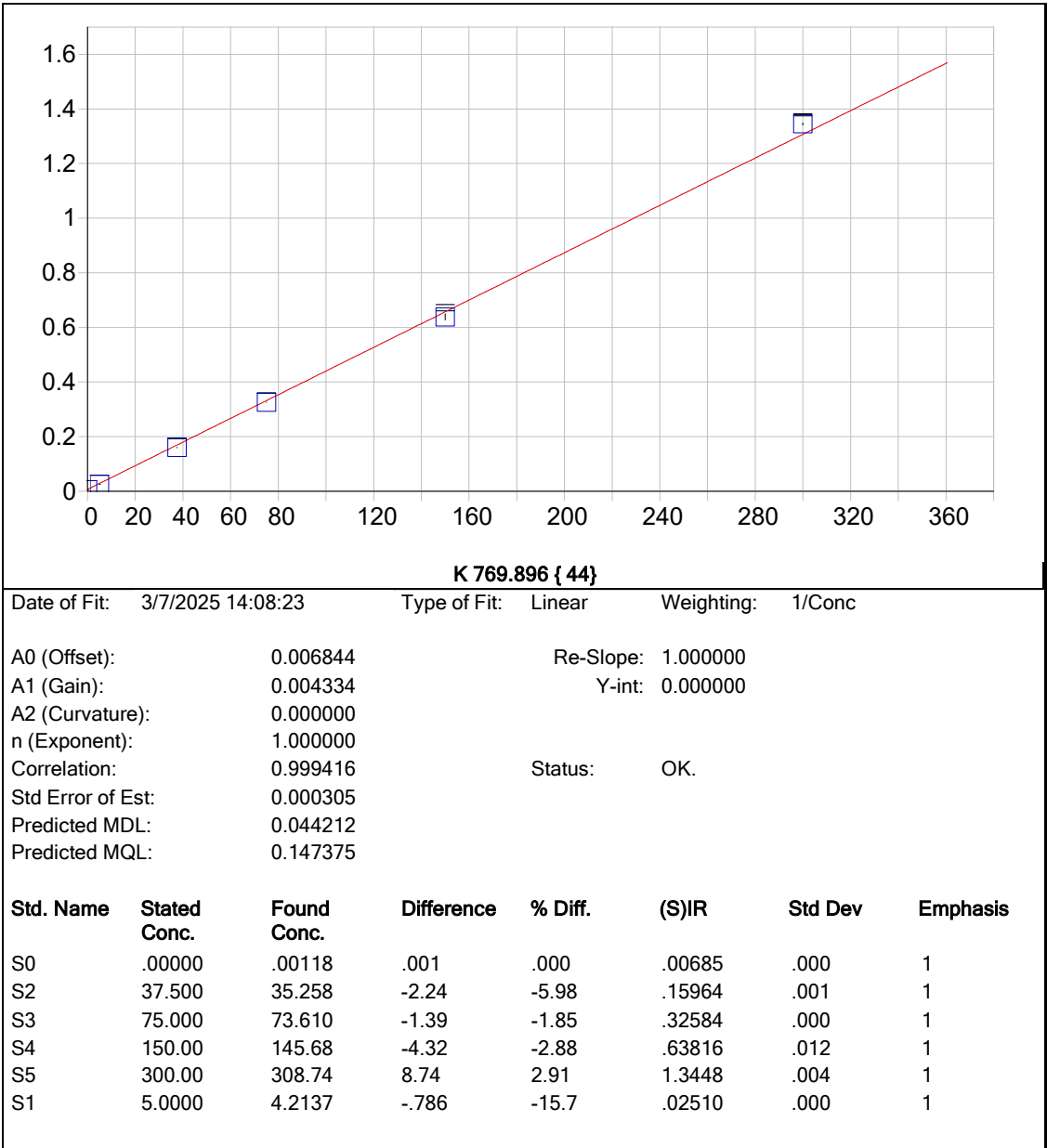


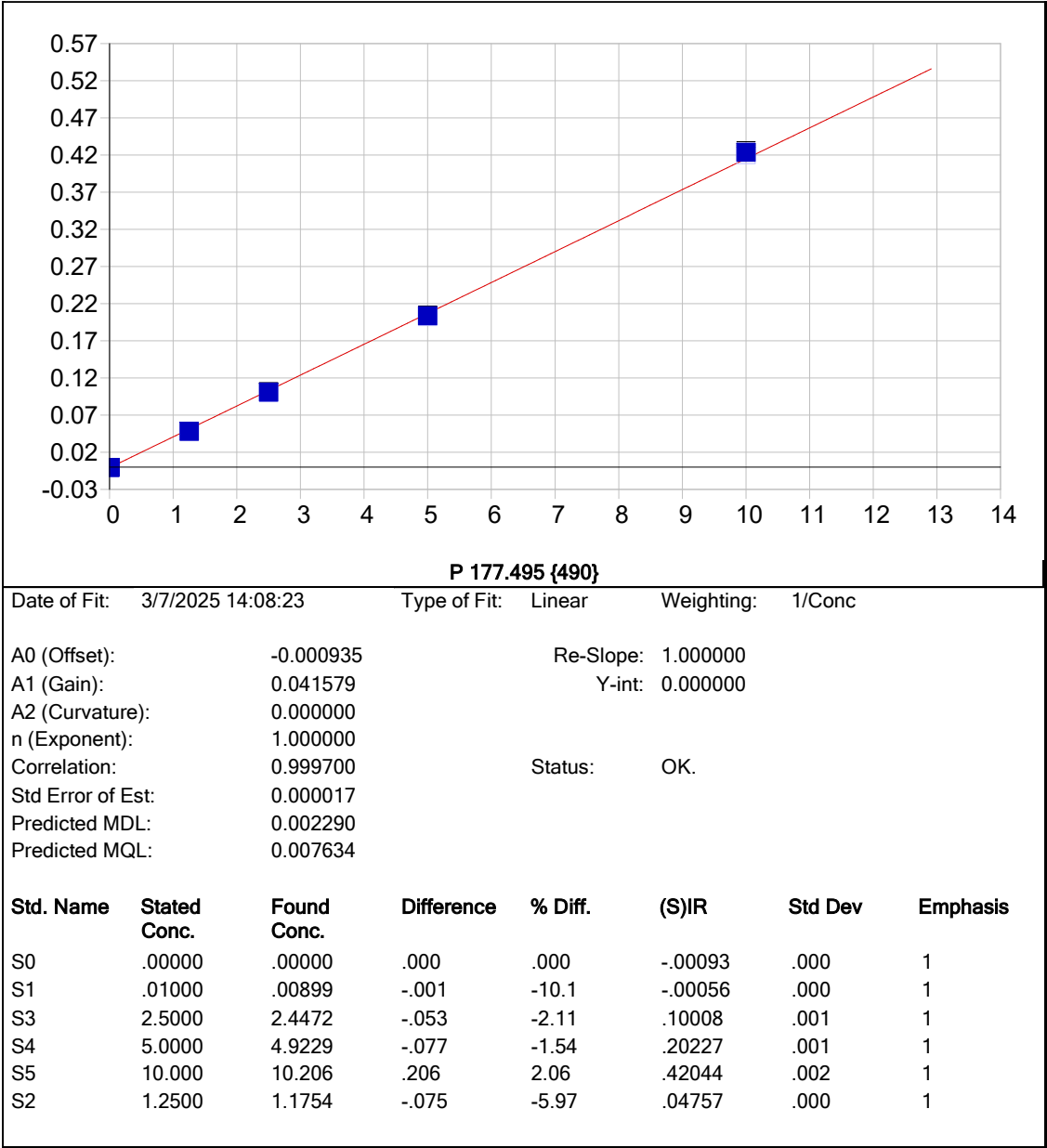


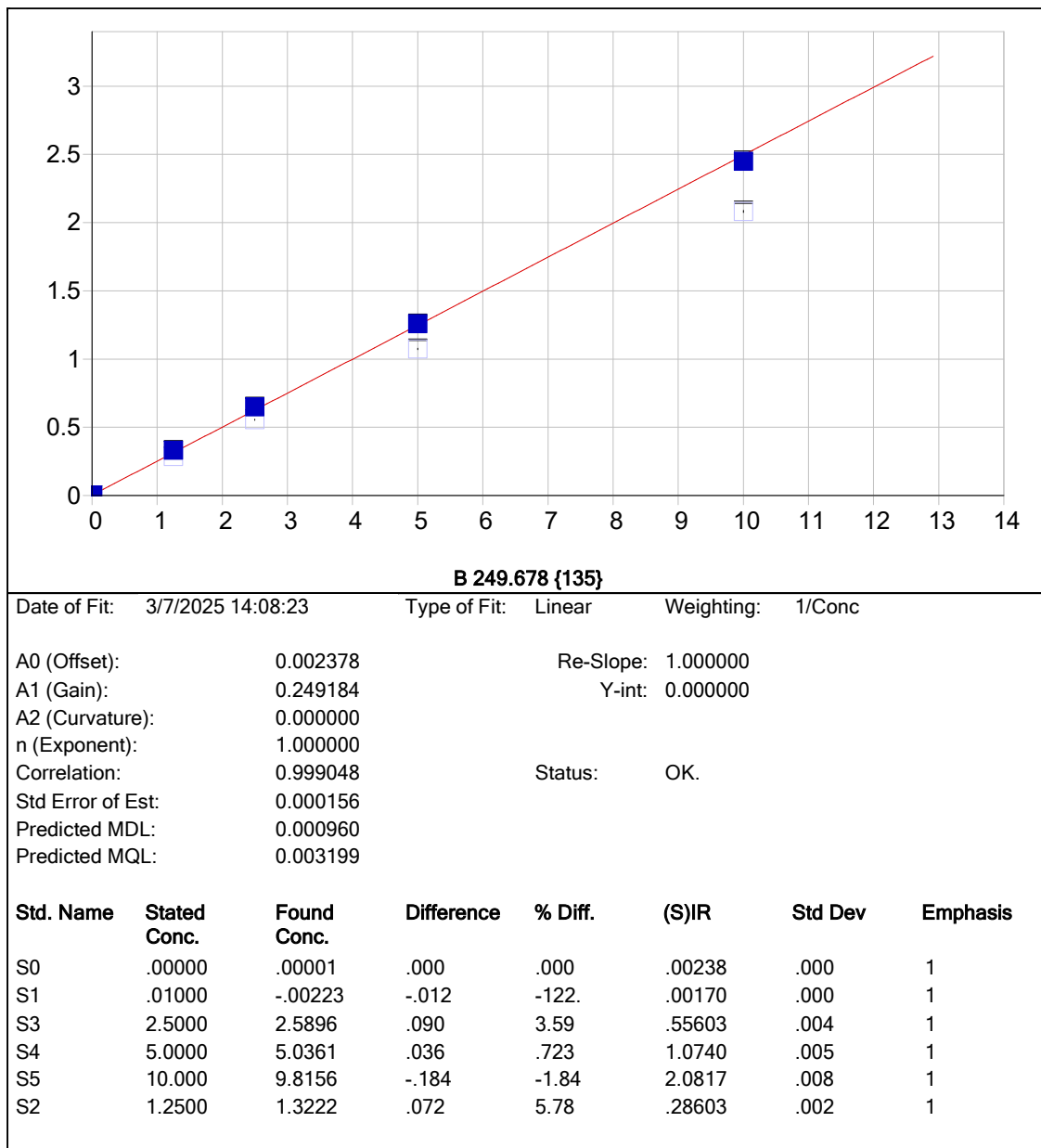


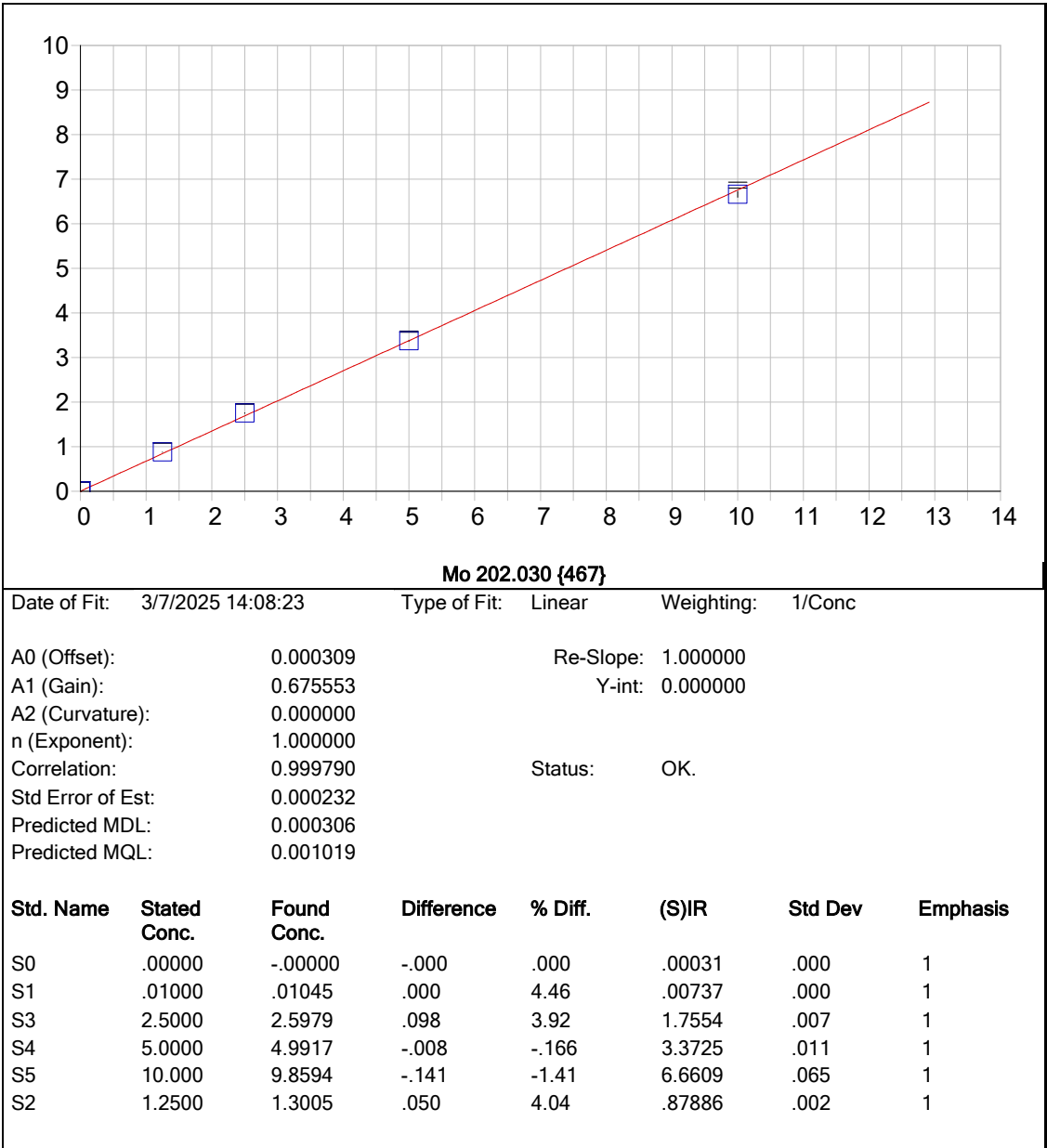


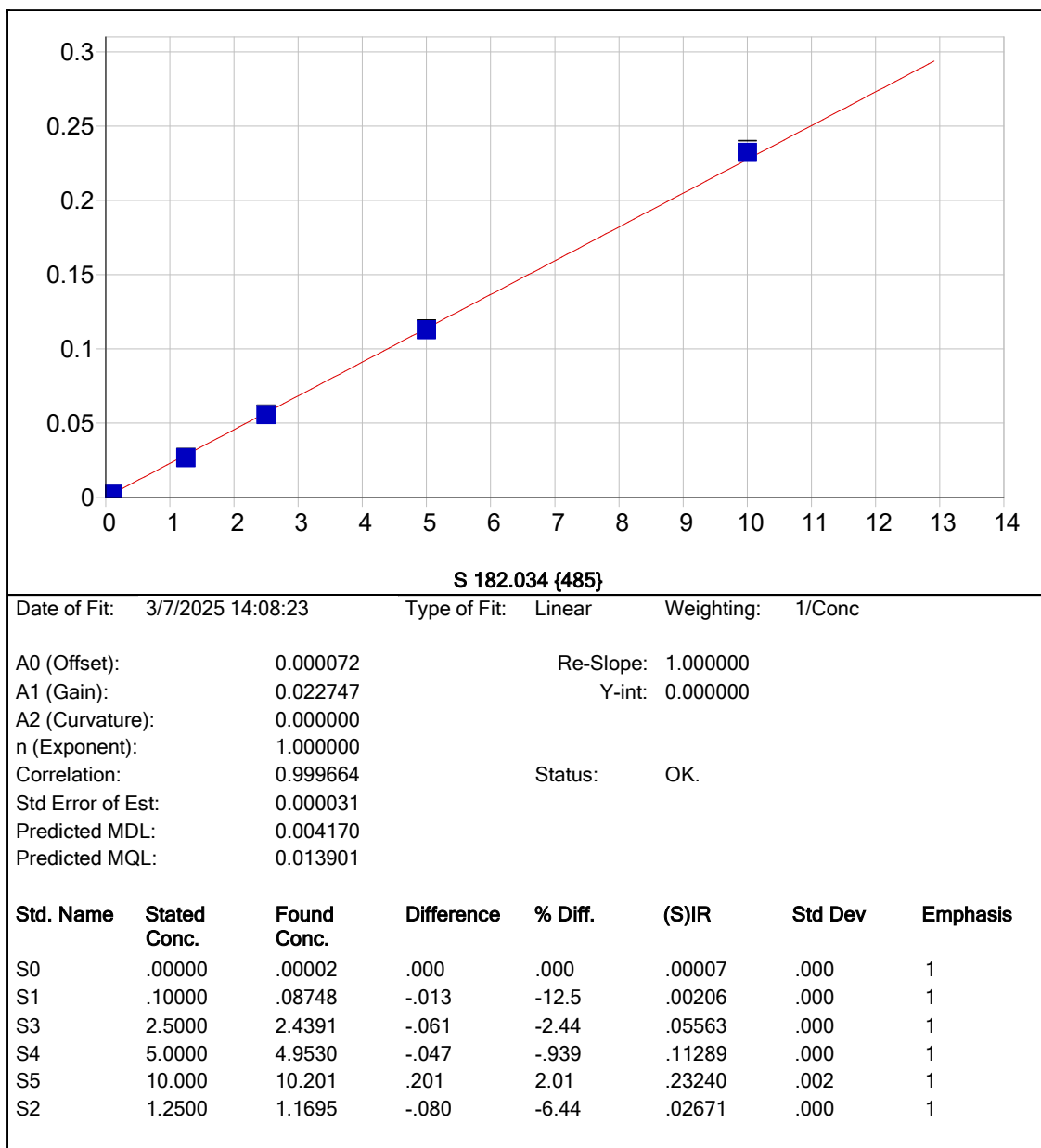


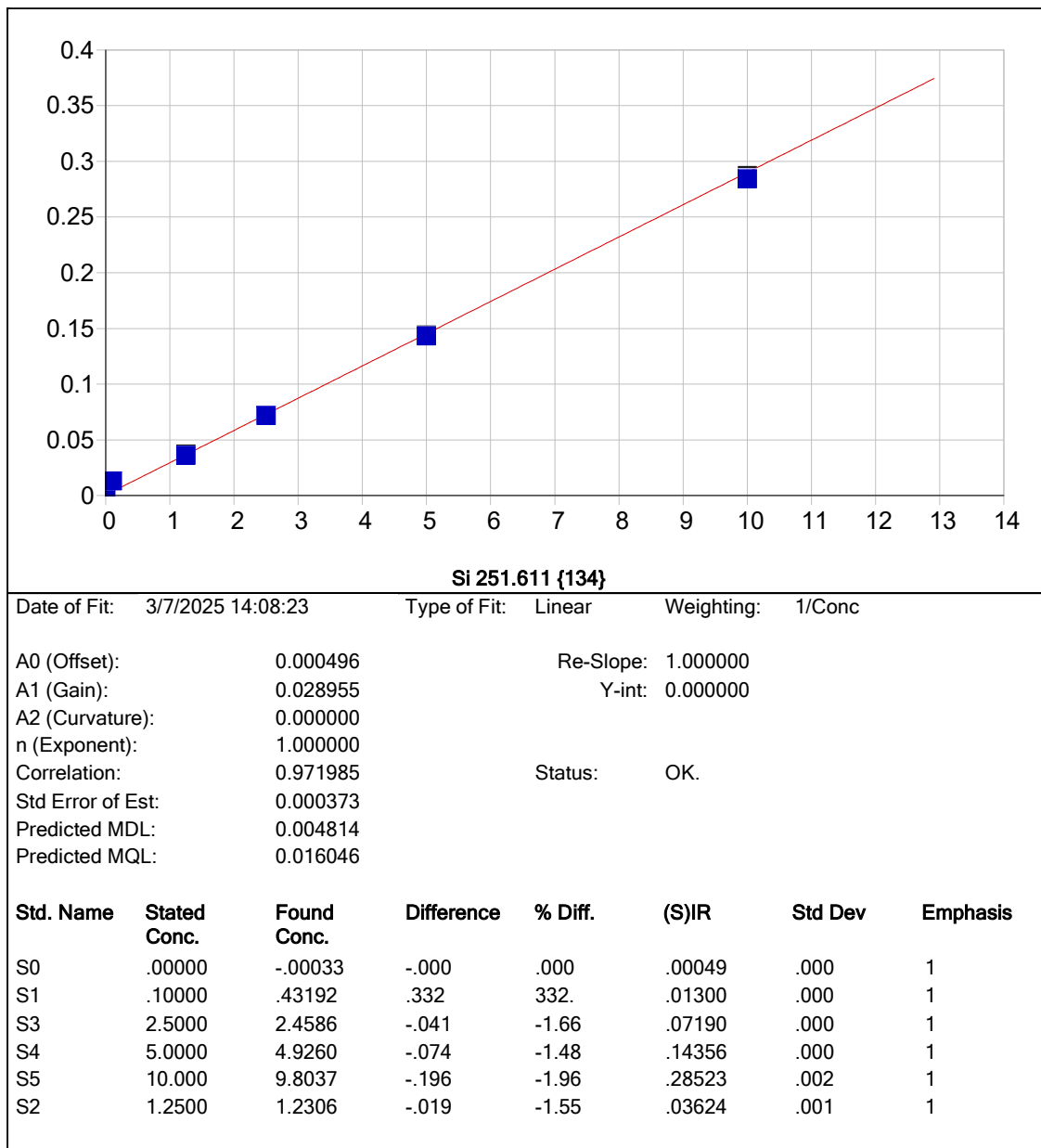


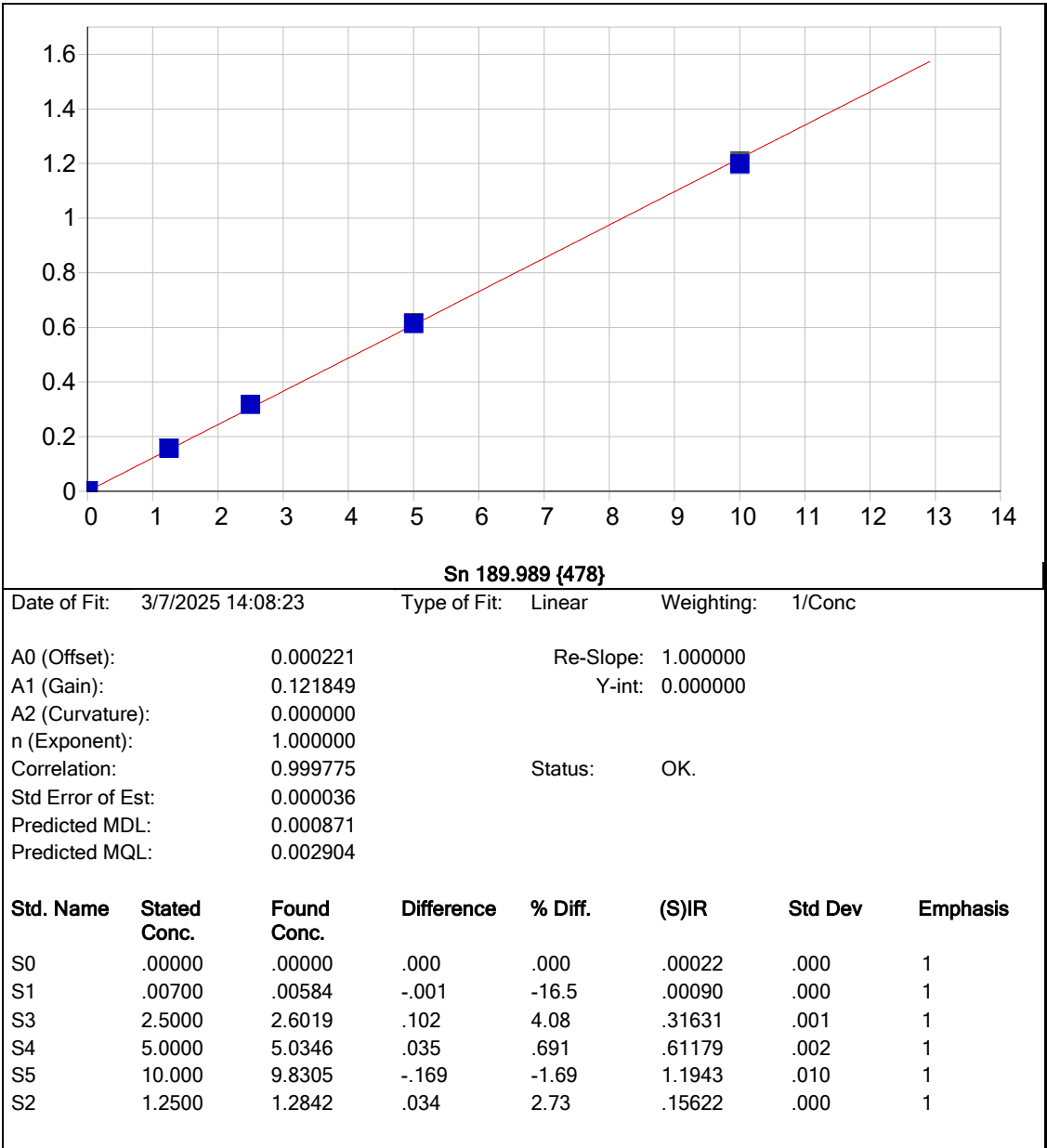




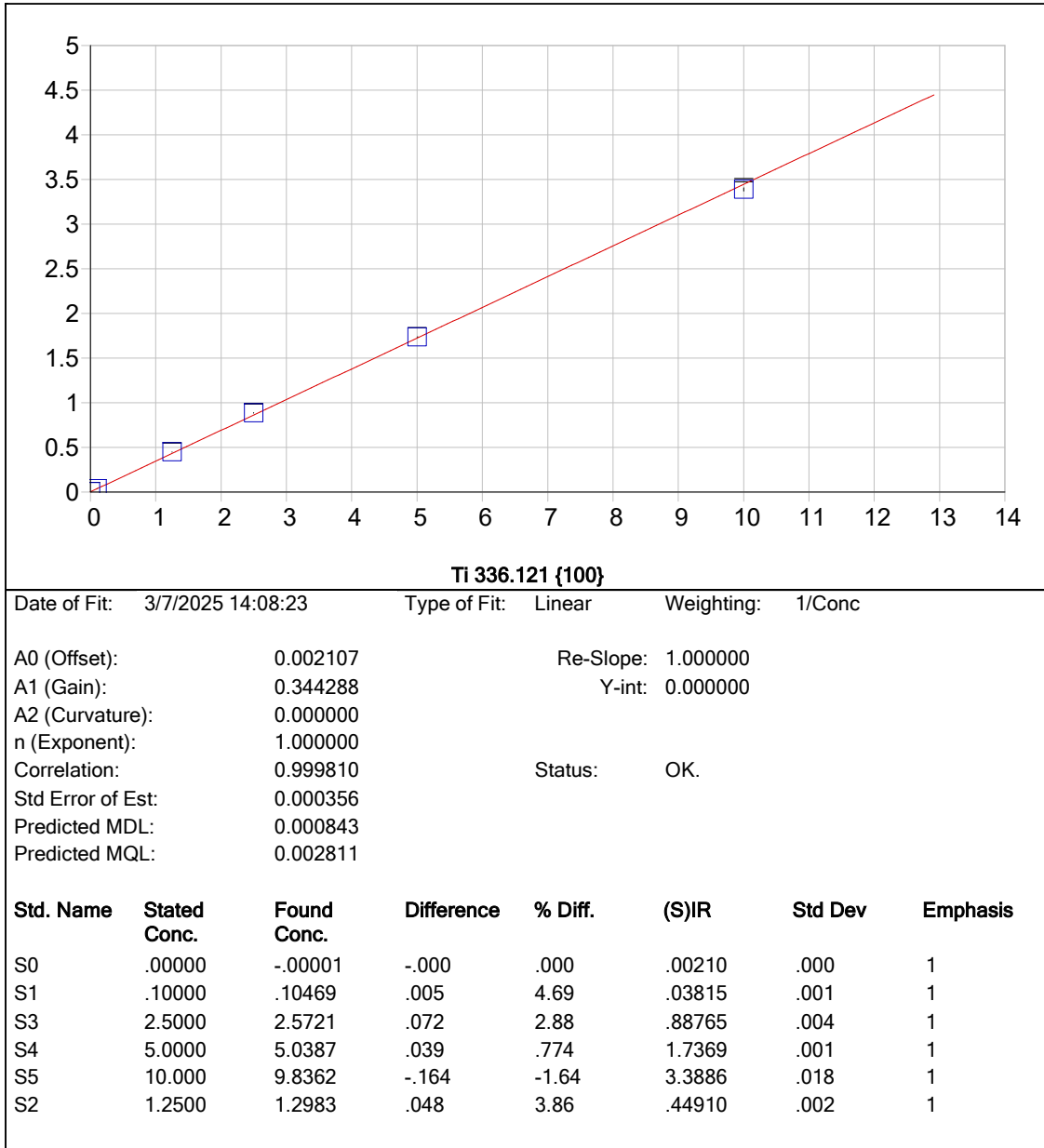


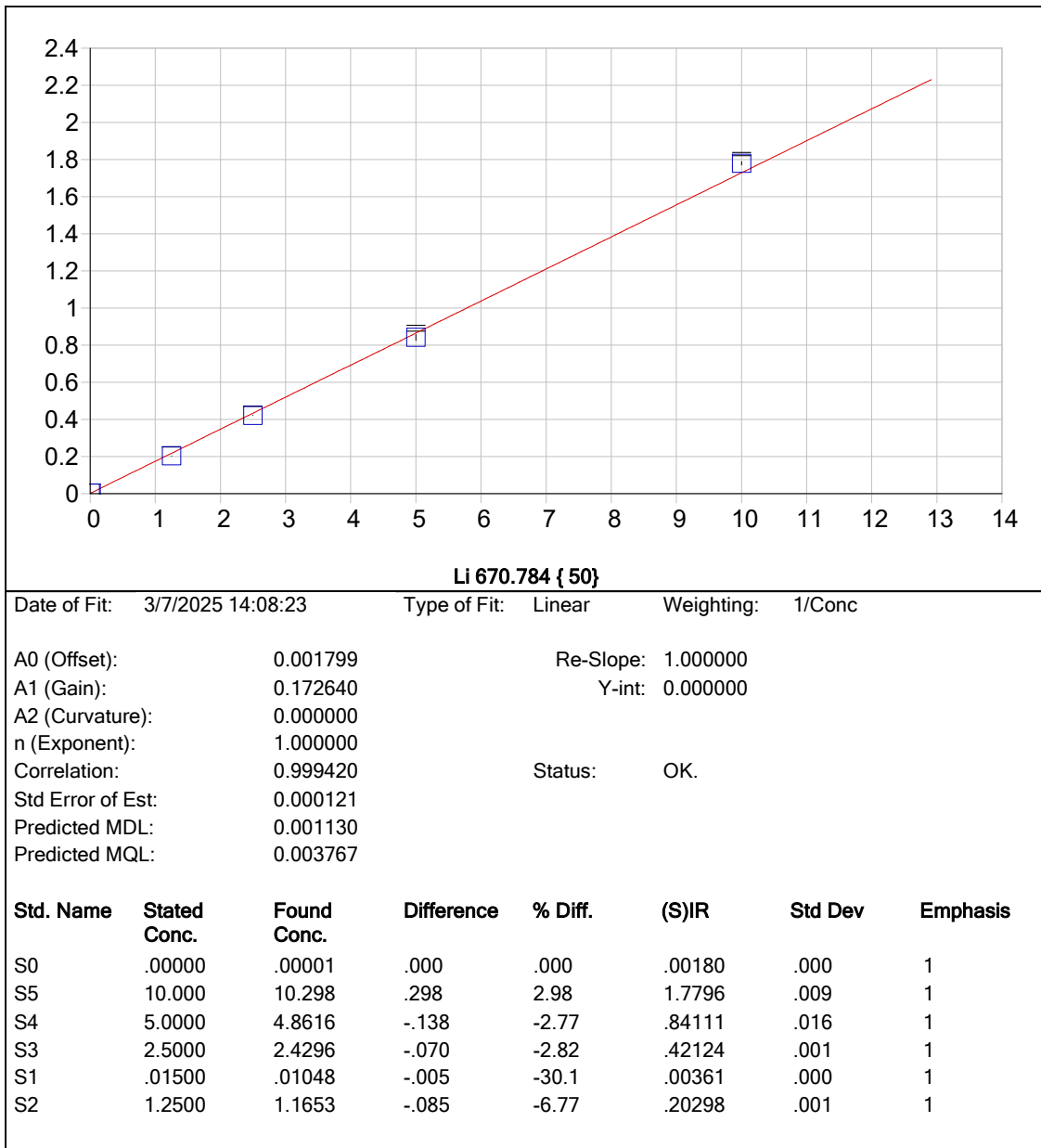


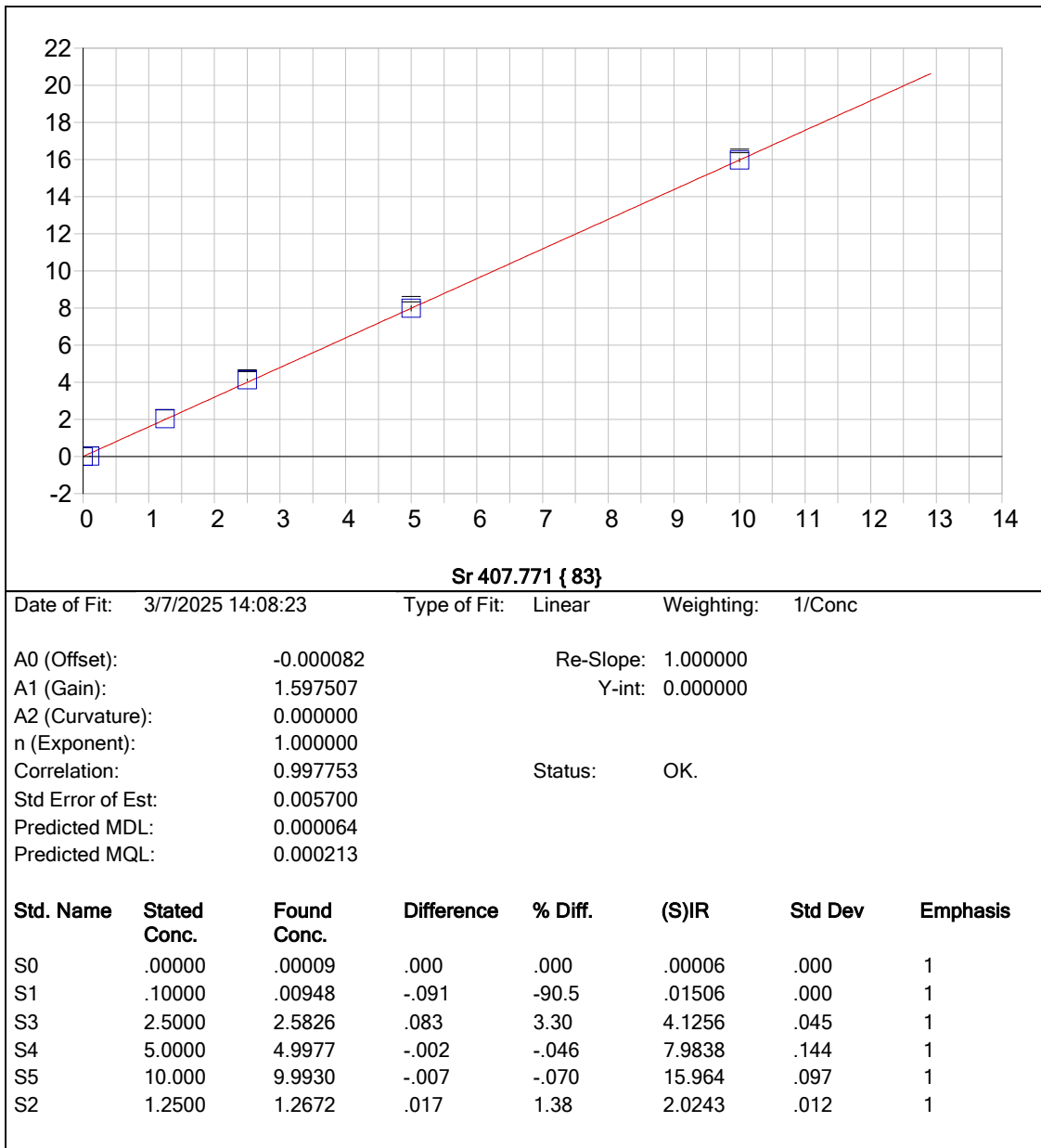


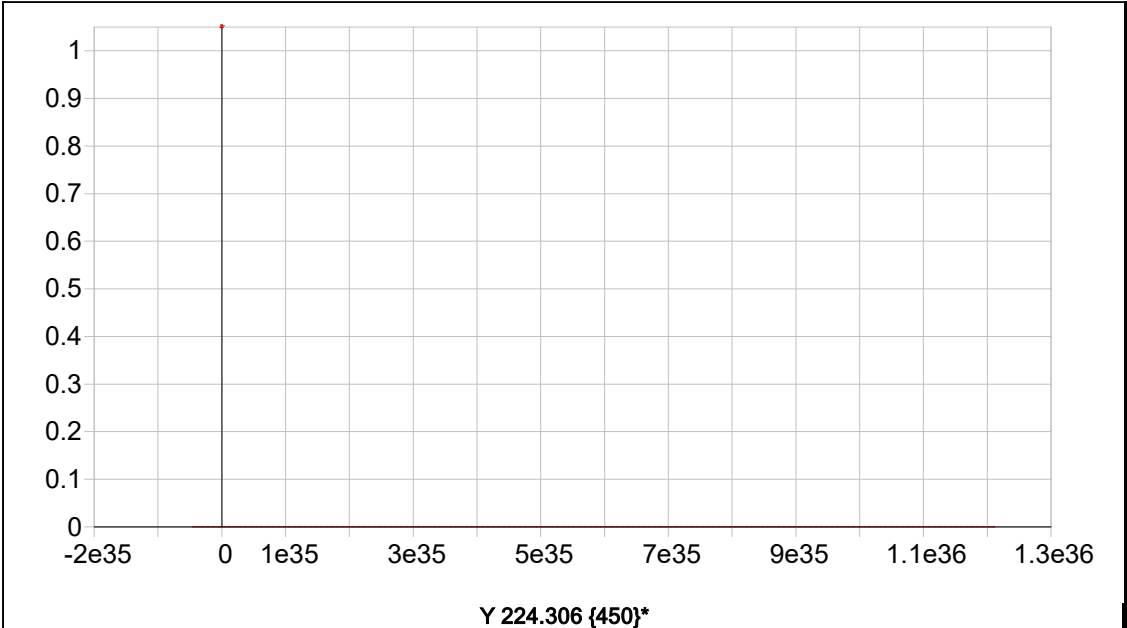


Date of Fit: 3/7/2025 14:08:23		Type of Fit: Linear		Weighting: 1/Conc			
A0 (Offset):	0.000221	Re-Slope:		1.000000			
A1 (Gain):	0.121849	Y-int:		0.000000			
A2 (Curvature):	0.000000						
n (Exponent):	1.000000						
Correlation:	0.999775	Status:		OK.			
Std Error of Est:	0.000036						
Predicted MDL:	0.000871						
Predicted MQL:	0.002904						
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00022	.000	1
S1	.00700	.00584	-.001	-16.5	.00090	.000	1
S3	2.5000	2.6019	.102	4.08	.31631	.001	1
S4	5.0000	5.0346	.035	.691	.61179	.002	1
S5	10.000	9.8305	-.169	-1.69	1.1943	.010	1
S2	1.2500	1.2842	.034	2.73	.15622	.000	1





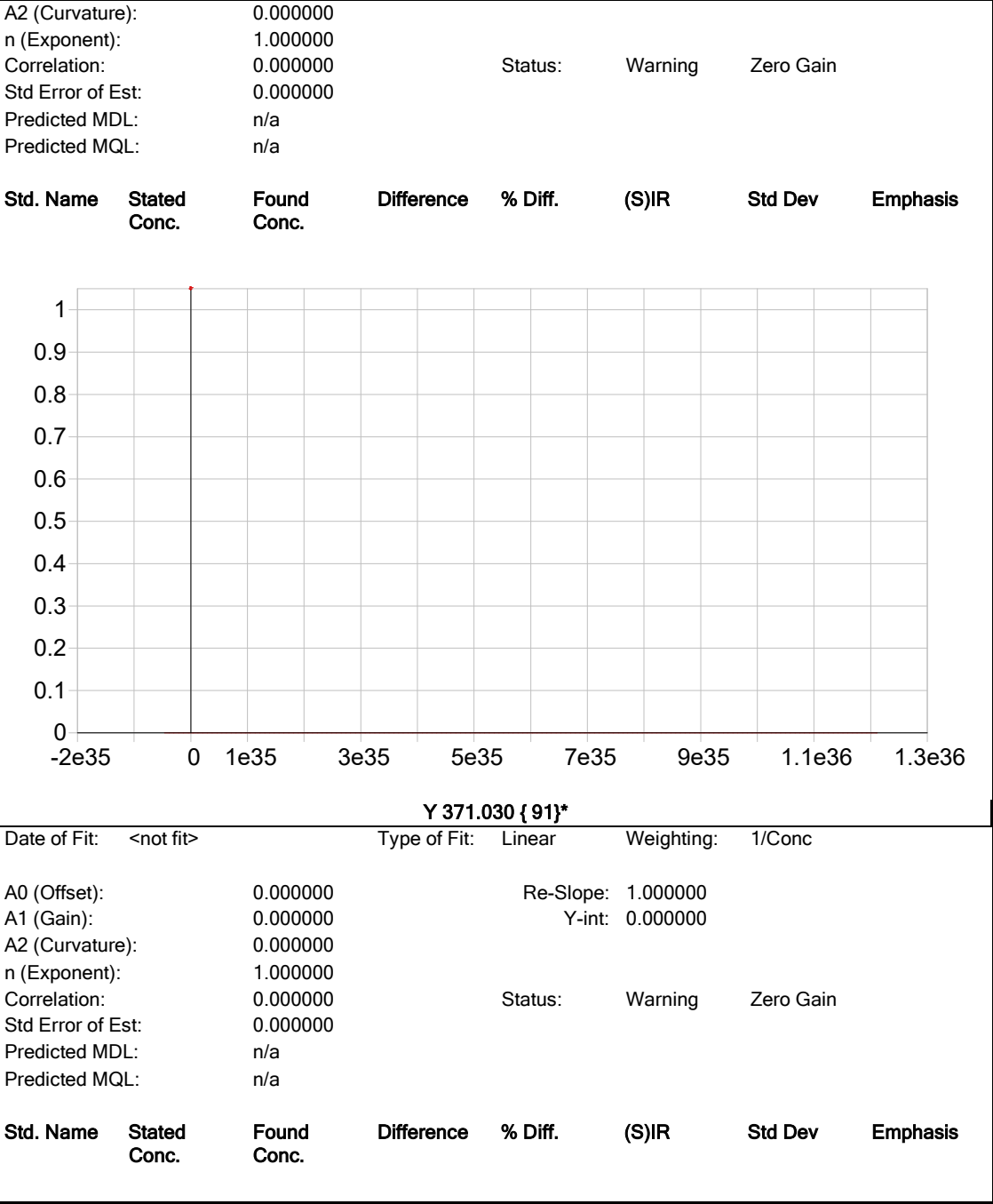




Date of Fit:	3/7/2025 14:08:23	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000	Re-Slope:	1.000000		
A1 (Gain):	0.000000	Y-int:	0.000000		
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000	Status:	Warning	Zero Gain	
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted MQL:	n/a				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Y 360.073 { 94}* The graph shows a single data point at the origin (0, 1) on a coordinate system where the y-axis ranges from 0 to 1 and the x-axis ranges from -2e35 to 1.3e36.							

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000	Re-Slope:	1.000000		
A1 (Gain):	0.000000	Y-int:	0.000000		



A2 (Curvature):		0.000000		Status:	Warning	Zero Gain	
n (Exponent):		1.000000					
Correlation:		0.000000					
Std Error of Est:		0.000000					
Predicted MDL:		n/a					
Predicted MQL:		n/a					
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis

Sample Name: S0 Acquired: 3/7/2025 12:18:15 Type: Cal
Method: EPA SFAM01.0(v69) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S0 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00015	.00006	-.00028	.00017	.00034	.00006	.00624	.00005
Stddev	.00007	.00007	.00024	.00007	.00008	.00003	.00021	.00014
%RSD	43.609	105.62	87.732	41.845	25.156	59.461	3.3707	259.83
#1	-.00018	-.00001	-.00018	.00016	.00028	.00002	.00613	-.00007
#2	-.00020	.00008	-.00055	.00011	.00029	.00009	.00610	.00020
#3	-.00008	.00012	-.00010	.00025	.00043	.00006	.00648	.00003
Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00001	.00018	.00014	.00005	.00266	.00006	.00002	-.00001
Stddev	.00010	.00006	.00002	.00025	.00013	.00001	.00000	.00002
%RSD	1581.2	35.393	12.013	447.39	5.0242	16.758	13.706	391.20
#1	.00010	.00019	.00014	-.00012	.00271	.00004	.00002	.00002
#2	-.00010	.00012	.00016	.00034	.00251	.00006	.00002	-.00002
#3	.00002	.00024	.00012	-.00005	.00276	.00006	.00002	-.00001
Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00033	-.00034	-.00157	-.00006	.00074	.00685	-.00093	.00238
Stddev	.00011	.00013	.00065	.00007	.00012	.00016	.00003	.00020
%RSD	32.941	38.103	41.555	114.12	16.562	2.2822	3.4511	8.5143
#1	-.00022	-.00030	-.00110	-.00005	.00086	.00667	-.00097	.00215
#2	-.00044	-.00048	-.00232	.00000	.00061	.00693	-.00092	.00254
#3	-.00034	-.00023	-.00130	-.00013	.00075	.00695	-.00091	.00246
Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	.00031	.00007	.00049	.00022	.00210	.00180	.00006	
Stddev	.00018	.00006	.00009	.00009	.00012	.00004	.00009	
%RSD	56.817	84.181	17.830	42.820	5.8200	2.0379	159.00	
#1	.00022	.00008	.00053	.00014	.00201	.00183	-.00002	
#2	.00019	.00013	.00054	.00032	.00224	.00181	.00015	
#3	.00051	.00001	.00039	.00020	.00205	.00176	.00004	

Sample Name: S0 Acquired: 3/7/2025 12:18:15 Type: Cal
Method: EPA SFAM01.0(v69) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S0 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3310.8	75908.	15441.	2219.5	4877.7
Stddev	11.8	68.	21.	16.7	15.7
%RSD	.35527	.08997	.13487	.75026	.32233
#1	3309.0	75957.	15454.	2214.2	4868.3
#2	3323.4	75938.	15451.	2206.1	4895.8
#3	3300.0	75830.	15417.	2238.1	4868.9

Sample Name: S1 Acquired: 3/7/2025 12:22:29 Type: Cal
Method: EPA SFAM01.0(v69) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00042	.00106	.00168	.00198	.00759	.00249	.09123	.01378
Stddev	.00007	.00006	.00005	.00004	.00024	.00004	.00106	.00012
%RSD	15.539	5.6926	2.8778	2.2273	3.1654	1.7864	1.1584	.87711
#1	.00039	.00108	.00170	.00202	.00787	.00244	.09245	.01391
#2	.00038	.00099	.00171	.00198	.00743	.00251	.09063	.01374
#3	.00050	.00111	.00162	.00193	.00747	.00251	.09060	.01368
Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.01073	.04201	.00168	.04387	.00563	.00055	.00186	.01261
Stddev	.00029	.00029	.00006	.00017	.00013	.00001	.00002	.00003
%RSD	2.7117	.68296	3.5284	.38801	2.3277	1.1950	1.0233	.26663
#1	.01103	.04234	.00163	.04406	.00574	.00056	.00188	.01265
#2	.01045	.04192	.00174	.04382	.00566	.00055	.00184	.01258
#3	.01070	.04179	.00166	.04373	.00548	.00054	.00186	.01260
Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.02000	.00210	.00747	.00623	.01860	.02510	-.00056	.00170
Stddev	.00033	.00014	.00017	.00029	.00058	.00025	.00004	.00006
%RSD	1.6429	6.5059	2.2387	4.6220	3.1107	.97974	7.3193	3.7590
#1	.02029	.00194	.00766	.00656	.01910	.02537	-.00057	.00164
#2	.01964	.00216	.00735	.00614	.01873	.02505	-.00060	.00177
#3	.02006	.00218	.00739	.00600	.01797	.02489	-.00052	.00168
Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	.00737	.00206	.01300	.00090	.03815	.00361	.01506	
Stddev	.00015	.00005	.00037	.00007	.00109	.00009	.00020	
%RSD	2.0660	2.3097	2.8127	8.1150	2.8570	2.5335	1.3319	
#1	.00743	.00210	.01342	.00094	.03930	.00369	.01529	
#2	.00748	.00201	.01283	.00093	.03802	.00351	.01495	
#3	.00719	.00208	.01276	.00081	.03713	.00363	.01494	

Sample Name: S1 Acquired: 3/7/2025 12:22:29 Type: Cal
Method: EPA SFAM01.0(v69) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S01 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3245.7	75673.	15318.	2197.3	4692.5
Stddev	17.3	278.	312.	9.6	29.9
%RSD	.53421	.36764	2.0384	.43811	.63729
#1	3228.4	75407.	14960.	2188.2	4661.3
#2	3263.1	75650.	15459.	2196.4	4720.9
#3	3245.4	75962.	15534.	2207.4	4695.4

Sample Name: S2 Acquired: 3/7/2025 12:26:40 Type: Cal
Method: EPA SFAM01.0(v69) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S02 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.06599	.05266	1.2442	.06547	.16076	.50992	1.1659	.34023
Stddev	.00026	.00051	.0029	.00037	.00031	.00282	.0047	.00120
%RSD	.38676	.97037	.23681	.55849	.19208	.55363	.40457	.35300

#1	.06607	.05287	1.2476	.06568	.16100	.51024	1.1674	.34072
#2	.06620	.05208	1.2423	.06505	.16088	.50695	1.1606	.34111
#3	.06570	.05303	1.2426	.06569	.16041	.51257	1.1697	.33886

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.3791	.55638	.63725	.56686	.41429	.20729	.47763	.17716
Stddev	.0037	.00251	.00269	.00116	.00245	.00129	.00145	.00131
%RSD	.26646	.45043	.42143	.20501	.59075	.62437	.30452	.74069

#1	1.3827	.55656	.63749	.56810	.41585	.20741	.47763	.17699
#2	1.3753	.55379	.63445	.56670	.41556	.20594	.47617	.17593
#3	1.3792	.55879	.63980	.56579	.41147	.20852	.47908	.17854

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.32775	.08078	.06974	.07158	1.1954	.15964	.04757	.28603
Stddev	.00051	.00017	.00044	.00037	.0049	.00126	.00017	.00241
%RSD	.15666	.21318	.62390	.51790	.41298	.79046	.35760	.84343

#1	.32824	.08088	.07019	.07198	1.1983	.15955	.04774	.28810
#2	.32780	.08058	.06970	.07151	1.1897	.15843	.04755	.28661
#3	.32721	.08087	.06932	.07125	1.1981	.16094	.04740	.28338

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.87886	.02671	.03624	.15622	.44910	.20298	2.0243
Stddev	.00243	.00015	.00069	.00046	.00213	.00074	.0124
%RSD	.27599	.57831	1.9124	.29389	.47519	.36589	.61128

#1	.88142	.02673	.03650	.15674	.45100	.20308	2.0382
#2	.87660	.02685	.03676	.15586	.44950	.20219	2.0202
#3	.87854	.02655	.03545	.15608	.44679	.20367	2.0145

Sample Name: S2 Acquired: 3/7/2025 12:26:40 Type: Cal
Method: EPA SFAM01.0(v69) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S02 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3082.6	69261.	15284.	2002.1	4151.8
Stddev	12.9	324.	86.	11.8	15.7
%RSD	.41898	.46788	.56336	.59034	.37788
#1	3068.1	69093.	15227.	1993.8	4134.4
#2	3087.0	69635.	15241.	2015.7	4156.4
#3	3092.8	69056.	15383.	1996.9	4164.7

Sample Name: S3 Acquired: 3/7/2025 12:30:42 Type: Cal
Method: EPA SFAM01.0(v69) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S03 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.13559	.10188	2.5135	.13197	.32818	1.0488	2.3360	.67022
Stddev	.00061	.00088	.0064	.00036	.00077	.0013	.0148	.00185
%RSD	.44830	.86029	.25538	.26933	.23549	.12607	.63287	.27669

#1	.13536	.10102	2.5068	.13173	.32789	1.0496	2.3522	.67215
#2	.13513	.10183	2.5140	.13181	.32758	1.0495	2.3328	.66845
#3	.13628	.10277	2.5196	.13238	.32905	1.0473	2.3231	.67006

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.7994	1.1215	1.2588	1.1482	.82341	.41475	.96340	.36288
Stddev	.0094	.0027	.0033	.0026	.00369	.00066	.00331	.00074
%RSD	.33640	.23592	.25968	.22227	.44766	.15845	.34327	.20354

#1	2.7901	1.1235	1.2624	1.1456	.82554	.41499	.96622	.36326
#2	2.7990	1.1225	1.2560	1.1485	.82554	.41524	.96422	.36336
#3	2.8090	1.1185	1.2579	1.1506	.81916	.41400	.95976	.36203

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.66443	.16354	.14127	.14305	2.4364	.32584	.10008	.55603
Stddev	.00111	.00073	.00032	.00055	.0153	.00047	.00057	.00436
%RSD	.16758	.44778	.22586	.38530	.62896	.14358	.57000	.78407

#1	.66316	.16432	.14159	.14339	2.4341	.32621	.09951	.56101
#2	.66486	.16345	.14095	.14336	2.4528	.32600	.10008	.55422
#3	.66526	.16286	.14126	.14242	2.4224	.32531	.10065	.55287

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.7554	.05563	.07190	.31631	.88765	.42124	4.1256
Stddev	.0070	.00043	.00007	.00065	.00374	.00100	.0454
%RSD	.39782	.76473	.09243	.20588	.42189	.23830	1.1000

#1	1.7549	.05517	.07182	.31584	.89066	.42240	4.1273
#2	1.7486	.05570	.07193	.31604	.88884	.42072	4.1701
#3	1.7625	.05601	.07195	.31706	.88346	.42061	4.0794

Sample Name: S3 Acquired: 3/7/2025 12:30:42 Type: Cal
Method: EPA SFAM01.0(v69) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S03 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2927.3	67299.	15102.	1932.4	3854.1
Stddev	12.4	108.	19.	7.9	7.2
%RSD	.42309	.16044	.12560	.40625	.18635
#1	2922.0	67193.	15086.	1935.8	3856.1
#2	2941.4	67295.	15097.	1923.4	3860.0
#3	2918.4	67408.	15123.	1937.9	3846.1

Sample Name: S4 Acquired: 3/7/2025 12:34:44 Type: Cal
Method: EPA SFAM01.0(v69) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S04 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.26549	.19089	4.8805	.25661	.64469	2.0694	4.6391	1.3216
Stddev	.00086	.00120	.0162	.00102	.00227	.0388	.1303	.0105
%RSD	.32392	.62691	.33097	.39885	.35199	1.8744	2.8081	.79177
#1	.26455	.18955	4.8622	.25586	.64257	2.0888	4.7471	1.3265
#2	.26569	.19185	4.8864	.25620	.64441	2.0248	4.4944	1.3096
#3	.26623	.19128	4.8928	.25778	.64708	2.0948	4.6759	1.3287
Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5.4427	2.1733	2.3702	2.2375	1.6452	.79119	1.8670	.71656
Stddev	.0188	.0443	.0607	.0048	.0015	.01567	.0382	.01398
%RSD	.34621	2.0375	2.5589	.21266	.09061	1.9803	2.0485	1.9515
#1	5.4210	2.1963	2.3993	2.2321	1.6468	.79909	1.8855	.72390
#2	5.4553	2.1223	2.3005	2.2395	1.6450	.77314	1.8231	.70044
#3	5.4518	2.2014	2.4108	2.2410	1.6438	.80133	1.8925	.72535
Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.2808	.32441	.28587	.27893	4.7510	.63816	.20227	1.0740
Stddev	.0038	.00778	.00048	.00116	.0981	.01168	.00080	.0049
%RSD	.29508	2.3967	.16670	.41413	2.0644	1.8295	.39598	.45696
#1	1.2769	.32864	.28611	.28023	4.8010	.64386	.20163	1.0769
#2	1.2810	.31543	.28532	.27855	4.6380	.62473	.20201	1.0684
#3	1.2845	.32915	.28617	.27802	4.8140	.64589	.20317	1.0768
Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	3.3725	.11289	.14356	.61179	1.7369	.84111	7.9838	
Stddev	.0114	.00047	.00032	.00216	.0011	.01591	.1436	
%RSD	.33858	.41748	.22200	.35378	.06503	1.8915	1.7989	
#1	3.3607	.11241	.14366	.60955	1.7381	.84814	8.0533	
#2	3.3732	.11290	.14321	.61196	1.7367	.82289	7.8187	
#3	3.3835	.11335	.14382	.61387	1.7359	.85229	8.0795	

Sample Name: S4 Acquired: 3/7/2025 12:34:44 Type: Cal
Method: EPA SFAM01.0(v69) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S04 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2814.3	65938.	14613.	1884.6	3616.2
Stddev	7.7	1399.	19.	41.4	8.5
%RSD	.27210	2.1209	.12799	2.1950	.23589
#1	2821.3	65274.	14596.	1863.3	3625.8
#2	2815.5	67545.	14633.	1932.3	3613.3
#3	2806.1	64995.	14609.	1858.2	3609.4

Sample Name: S5 Acquired: 3/7/2025 12:38:45 Type: Cal
Method: EPA SFAM01.0(v69) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S05 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.54574	.35632	9.6280	.51750	1.3223	4.2821	9.2322	2.6556
Stddev	.00498	.00456	.0688	.00609	.0118	.0123	.0606	.0128
%RSD	.91241	1.2801	.71447	1.1770	.89040	.28634	.65683	.48181

#1	.54921	.36050	9.6895	.52140	1.3276	4.2680	9.2236	2.6410
#2	.54003	.35145	9.5537	.51048	1.3088	4.2903	9.1764	2.6612
#3	.54796	.35701	9.6409	.52062	1.3305	4.2880	9.2967	2.6647

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	10.589	4.3208	4.5639	4.4292	3.3076	1.5685	3.7317	1.4631
Stddev	.084	.0469	.0134	.0361	.0209	.0033	.0216	.0023
%RSD	.79211	1.0858	.29412	.81416	.63119	.21010	.57743	.15730

#1	10.673	4.2682	4.5515	4.4632	3.2853	1.5651	3.7084	1.4611
#2	10.506	4.3360	4.5781	4.3914	3.3106	1.5688	3.7359	1.4625
#3	10.587	4.3583	4.5620	4.4329	3.3268	1.5716	3.7509	1.4656

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.5191	.68338	.58572	.54058	9.6775	1.3448	.42044	2.0817
Stddev	.0198	.00149	.00486	.00259	.0636	.0041	.00236	.0082
%RSD	.78560	.21811	.82941	.47893	.65729	.30172	.56139	.39340

#1	2.5373	.68182	.58052	.53768	9.6041	1.3410	.42274	2.0723
#2	2.4980	.68478	.58650	.54141	9.7150	1.3444	.41802	2.0860
#3	2.5221	.68354	.59014	.54265	9.7135	1.3491	.42055	2.0869

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6.6609	.23240	.28523	1.1943	3.3886	1.7796	15.964
Stddev	.0647	.00177	.00187	.0098	.0181	.0089	.097
%RSD	.97094	.76211	.65643	.81789	.53419	.49998	.61031

#1	6.7125	.23396	.28313	1.2044	3.3681	1.7709	15.895
#2	6.5883	.23048	.28586	1.1849	3.3951	1.7794	15.921
#3	6.6818	.23278	.28671	1.1936	3.4026	1.7887	16.075

Sample Name: S5 Acquired: 3/7/2025 12:38:45 Type: Cal
Method: EPA SFAM01.0(v69) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S05 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2568.4	61082.	14043.	1740.3	3267.8
Stddev	22.2	151.	60.	9.0	25.0
%RSD	.86466	.24641	.42693	.51455	.76485
#1	2553.2	61250.	14111.	1749.2	3247.1
#2	2593.9	60960.	13997.	1731.3	3295.5
#3	2558.1	61036.	14021.	1740.3	3260.8

Sample Name: S6 Acquired: 3/7/2025 12:43:15 Type: Cal
Method: EPA SFAM01.0(v69) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S06 Custom ID2: Custom ID3:
Comment:

Elem	Al3961	Ca3736	Fe2598	Mg2790	Na8183
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	12.404	7.6675	4.4649	2.5857	1.7043
Stddev	.121	.0148	.0220	.0061	.0083
%RSD	.97505	.19340	.49204	.23453	.48398

#1	12.385	7.6504	4.4421	2.5796	1.7054
#2	12.293	7.6772	4.4859	2.5859	1.6955
#3	12.533	7.6748	4.4667	2.5917	1.7119

Int. Std.	Y_3600	Y_3710
Units	Cts/S	Cts/S
Avg	56480.	14019.
Stddev	155.	55.
%RSD	.27436	.39189

#1	56651.	14046.
#2	56441.	14056.
#3	56348.	13956.

Sample Name: ICV003 Acquired: 3/7/2025 12:52:54 Type: Unk
Method: EPA SFAM01.0(v69) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICV003 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9369418	F 1.100339	1.010341	.9979866	.9564763	2.419426
Stddev	.0070506	.008555	.004224	.0021554	.0012325	.000590
%RSD	.7525103	.7774832	.4180648	.2159776	.1288542	.0243908

#1	.9345819	1.092265	1.007613	.9954988	.9562877	2.420063
#2	.9313738	1.099449	1.008204	.9992960	.9553490	2.419315
#3	.9448696	1.109305	1.015206	.9991649	.9577922	2.418899

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4874844	.5163575	.5016708	9.321498	.5678498	.5037786
Stddev	.0004144	.0004816	.0018797	.009494	.0028951	.0016948
%RSD	.0850054	.0932680	.3746807	.1018478	.5098318	.3364244

#1	.4874408	.5167186	.5005638	9.310834	.5645910	.5025327
#2	.4879189	.5165431	.5006075	9.324631	.5688341	.5030947
#3	.4870936	.5158107	.5038411	9.329030	.5701245	.5057086

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5082330	9.773139	.5074630	F 4.989879	.5141073	.2361474
Stddev	.0048916	.029183	.0003817	.011465	.0014036	.0005352
%RSD	.9624637	.2986011	.0752188	.2297617	.2730159	.2266266

#1	.5115757	9.779617	.5079032	4.991038	.5130818	.2357953
#2	.5105047	9.741261	.5072615	4.977879	.5135331	.2358836
#3	.5026187	9.798538	.5072243	5.000720	.5157070	.2367632

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.025651	.5255778	.9318514	F 8.287854	F 2.069279	F 2.443974
Stddev	.068491	.0024578	.0015981	.021935	.010497	.009978
%RSD	.7588443	.4676334	.1715018	.2646614	.5072586	.4082802

#1	9.027784	.5272173	.9304660	8.269753	2.057566	2.454666
#2	9.093049	.5227519	.9335998	8.281562	2.077834	2.442346
#3	8.956118	.5267642	.9314885	8.312247	2.072437	2.434910

Sample Name: ICV003 Acquired: 3/7/2025 12:52:54 Type: Unk
Method: EPA SFAM01.0(v69) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICV003 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F 2.476643	F 2.001588	F 2.018088	F 2.367093	F 2.502938	F 2.055124
Stddev	.007814	.008247	.013741	.009867	.016928	.001867
%RSD	.3155071	.4120458	.6808737	.4168535	.6763246	.0908571
#1	2.474117	1.992472	2.029460	2.360925	2.522396	2.055101
#2	2.470404	2.003761	2.021984	2.361880	2.494819	2.057002
#3	2.485407	2.008532	2.002820	2.378473	2.491600	2.053268

Elem	Sr4077
Units	ppm
Avg	F 2.354743
Stddev	.017421
%RSD	.7398261
#1	2.364873
#2	2.334627
#3	2.364728

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3274.338	73338.38	15551.96	2144.453	4624.049
Stddev	9.088	216.29	41.29	7.644	9.354
%RSD	.2775407	.2949144	.2655001	.3564379	.2022864
#1	3270.621	73541.00	15513.14	2151.343	4623.651
#2	3284.694	73363.51	15595.34	2145.785	4633.595
#3	3267.697	73110.62	15547.39	2136.231	4614.900

Sample Name: ICB003 Acquired: 3/7/2025 12:56:55 Type: Unk
Method: EPA SFAM01.0(v69) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICB003 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0021300	-.000327	-.000036	.0007631	-.001099	-.001713	-.001232
Stddev	.0007978	.000936	.000507	.0032270	.002281	.002338	.000514
%RSD	37.45567	286.0941	1421.434	422.8524	207.5801	136.4880	41.69507
#1	.0029397	-.000093	.000511	-.000360	-.001590	-.003906	-.000788
#2	.0021056	-.001358	-.000126	-.001752	-.003094	-.001980	-.001113
#3	.0013447	.000469	-.000492	.004402	.001388	.000747	-.001795
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000048	-.000010	-.006988	-.000648	.0000299	-.000211	-.001108
Stddev	.000059	.000031	.005640	.000313	.0000864	.001921	.002161
%RSD	122.2893	295.5071	80.70560	48.22781	289.4566	908.3347	195.1072
#1	-.000018	.000005	-.009271	-.000290	-.000018	-.001004	.000466
#2	-.000116	-.000046	-.011128	-.000792	.000130	.001979	-.003572
#3	-.000011	.000010	-.000565	-.000863	-.000022	-.001609	-.000217
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000010	-.016513	.0001330	-.000134	-.200225	.0017580	-.000923
Stddev	.0001988	.002736	.0002394	.000140	.219702	.0024313	.000598
%RSD	19941.70	16.57005	180.0468	104.6670	109.7276	138.2983	64.79723
#1	-.000172	-.015293	-.000117	-.000227	-.039691	-.000495	-.000592
#2	.000218	-.014598	.000155	-.000201	-.450611	.001434	-.000563
#3	-.000044	-.019647	.000361	.000027	-.110373	.004335	-.001613
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.130017	-.000803	.0050850	-.000067	.0014111	-.001749	-.000485
Stddev	.038136	.001462	.0001294	.000085	.0012934	.002916	.000476
%RSD	29.33126	182.0029	2.545301	126.2460	91.65734	166.7415	98.29576
#1	-.153132	-.002415	.0052283	-.000150	.0023491	-.000758	-.000004
#2	-.086001	.000439	.0049767	-.000070	-.000064	-.005032	-.000492
#3	-.150920	-.000434	.0050499	.000019	.001949	.000543	-.000957

Sample Name: ICB003 Acquired: 3/7/2025 12:56:55 Type: Unk
Method: EPA SFAM01.0(v69) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICB003 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000566	-.003154	.0000458
Stddev	.000579	.000695	.0000122
%RSD	102.3585	22.02539	26.69045

#1	-.001024	-.002627	.0000328
#2	-.000760	-.003941	.0000571
#3	.000085	-.002893	.0000476

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3343.842	77048.18	15554.62	2241.069	4937.908
Stddev	4.319	861.54	249.97	25.916	7.846
%RSD	.1291505	1.118185	1.607032	1.156408	.1588864

#1	3338.859	76612.80	15719.94	2232.707	4930.102
#2	3346.492	76491.23	15267.05	2220.367	4937.831
#3	3346.176	78040.53	15676.86	2270.134	4945.792

Sample Name: ICSA003 Acquired: 3/7/2025 13:01:03 Type: Unk
Method: EPA SFAM01.0(v69) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSA003 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0065521	-.004426	.0018189	.0177044	.0054522	220.8499
Stddev	.0042684	.001838	.0028235	.0017139	.0037397	1.6669
%RSD	65.14542	41.53043	155.2286	9.680780	68.59001	.7547707

#1	.0068659	-.002838	.0019615	.0194083	.0021752	219.1906
#2	.0021355	-.004001	.0045684	.0177243	.0046554	220.8348
#3	.0106550	-.006440	-.001073	.0159806	.0095262	222.5244

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0049853	-.000628	.0005204	237.5130	.0522730	.0019848
Stddev	.0001875	.000037	.0001544	2.1267	.0010367	.0002978
%RSD	3.761755	5.840594	29.66341	.8954069	1.983244	15.00440

#1	.0048175	-.000643	.0006228	236.1800	.0513214	.0017188
#2	.0049506	-.000587	.0003428	239.9656	.0521199	.0019292
#3	.0051877	-.000656	.0005954	236.3933	.0533778	.0023066

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002789	98.53715	.0209457	233.8229	.0031237	-.003131
Stddev	.001334	.80856	.0001257	2.0218	.0003669	.000186
%RSD	47.84183	.8205672	.6002882	.8646705	11.74484	5.944795

#1	-.001334	97.94689	.0210775	232.5755	.0027104	-.003338
#2	-.003955	99.45875	.0209324	236.1556	.0034107	-.003078
#3	-.003079	98.20579	.0208271	232.7375	.0032501	-.002978

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.797179	-.004524	-.006798	-.166901	.0034089	F .1428325
Stddev	.344695	.001019	.002502	.035032	.0013473	.0064289
%RSD	43.23935	22.51846	36.80422	20.98941	39.52396	4.500994

#1	-.959566	-.005632	-.008787	-.206270	.0023388	.1392087
#2	-1.03069	-.004311	-.003989	-.139170	.0029660	.1502553
#3	-.40128	-.003628	-.007617	-.155263	.0049220	.1390336

Sample Name: ICSA003 Acquired: 3/7/2025 13:01:03 Type: Unk
Method: EPA SFAM01.0(v69) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSA003 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000395	.0232136	.0049702	-.005520	-.002443	.0035747
Stddev	.000413	.0052993	.0045276	.001019	.000646	.0010428
%RSD	104.6468	22.82853	91.09503	18.46436	26.44086	29.17235
#1	-.000505	.0241960	-.000013	-.004744	-.002414	.0042347
#2	.000062	.0279530	.006092	-.006674	-.003103	.0041169
#3	-.000742	.0174918	.008832	-.005141	-.001812	.0023725

Elem	Sr4077
Units	ppm
Avg	F .1019570
Stddev	.0010560
%RSD	1.035708
#1	.1012437
#2	.1031701
#3	.1014573

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2922.329	66614.15	14989.60	1954.659	3833.526
Stddev	10.564	335.54	92.90	8.860	9.109
%RSD	.3615045	.5037062	.6197839	.4532662	.2376249
#1	2922.075	66974.67	15023.87	1954.796	3833.623
#2	2933.018	66310.99	15060.50	1963.450	3842.586
#3	2911.894	66556.78	14884.43	1945.732	3824.368

Sample Name: ICSAB003 Acquired: 3/7/2025 13:05:18 Type: Unk
Method: EPA SFAM01.0(v69) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSAB003 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0994165	.0997696	.0529478	.0652814	.5939212	226.7037
Stddev	.0030582	.0021634	.0007485	.0022206	.0023218	3.5581
%RSD	3.076160	2.168413	1.413724	3.401504	.3909286	1.569490

#1	.0962303	.1000003	.0536475	.0627174	.5960672	230.1967
#2	.0996911	.1018085	.0521585	.0665386	.5914565	223.0839
#3	.1023282	.0975001	.0530375	.0665880	.5942400	226.8306

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5323959	.4906504	1.000285	243.1473	.6019117	.5069058
Stddev	.0052683	.0011655	.002320	2.0172	.0061922	.0015479
%RSD	.9895394	.2375370	.2319329	.8296111	1.028749	.3053669

#1	.5381218	.4914860	1.001038	244.7979	.6085917	.5066873
#2	.5277539	.4911463	.997682	240.8988	.5963635	.5054787
#3	.5313120	.4893190	1.002134	243.7453	.6007798	.5085513

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4917567	101.0425	.5410145	238.4814	1.016415	.2022084
Stddev	.0011319	.8273	.0042247	1.6991	.003165	.0011967
%RSD	.2301820	.8187243	.7808886	.7124698	.3113841	.5918357

#1	.4927787	101.5523	.5441101	239.6002	1.016774	.2033838
#2	.4919515	100.0880	.5362015	236.5263	1.013086	.2009914
#3	.4905401	101.4871	.5427318	239.3179	1.019385	.2022499

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.583616	.4929692	1.013982	-.361702	.0066225	F .7609290
Stddev	.445759	.0031432	.015388	.069091	.0066056	.0026204
%RSD	76.37879	.6376109	1.517605	19.10161	99.74467	.3443673

#1	-.826288	.4913212	1.026410	-.406051	.0141448	.7633084
#2	-.069172	.4909926	.996770	-.282096	.0017684	.7581206
#3	-.855388	.4965937	1.018767	-.396960	.0039543	.7613580

Sample Name: ICSAB003 Acquired: 3/7/2025 13:05:18 Type: Unk
Method: EPA SFAM01.0(v69) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSAB003 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .6562540	.0325381	F .5095260	F .6438075	F .6477586	.0014629
Stddev	.0010411	.0082035	.0005717	.0025137	.0016977	.0007193
%RSD	.1586451	25.21197	.1121947	.3904474	.2620842	49.16660
#1	.6562144	.0291842	.5099080	.6452809	.6460773	.0006767
#2	.6552332	.0265430	.5098013	.6409050	.6494722	.0016244
#3	.6573143	.0418872	.5088688	.6452366	.6477264	.0020878

Elem	Sr4077
Units	ppm
Avg	F .1050698
Stddev	.0008760
%RSD	.8337020
#1	.1058808
#2	.1041408
#3	.1051879

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2901.267	65789.94	15407.21	1893.655	3820.580
Stddev	2.738	450.66	42.47	17.829	5.844
%RSD	.0943573	.6849974	.2756609	.9415306	.1529541
#1	2903.048	65345.55	15438.23	1882.999	3823.344
#2	2902.637	66246.62	15358.80	1914.238	3824.529
#3	2898.114	65777.65	15424.61	1883.727	3813.867

Sample Name: CCV006 Acquired: 3/7/2025 13:09:22 Type: Unk
Method: EPA SFAM01.0(v69) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV006 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.953841	4.887767	23.95661	4.987409	4.961596	383.6982	10.42119
Stddev	.044300	.033528	.22941	.048538	.049471	1.4261	.02229
%RSD	.8942559	.6859619	.9575890	.9732034	.9970880	.3716786	.2139311
#1	4.971580	4.907195	24.06046	5.001689	4.978985	382.1030	10.40268
#2	4.903421	4.849052	23.69365	4.933333	4.905778	384.8496	10.41495
#3	4.986523	4.907054	24.11573	5.027204	5.000025	384.1422	10.44594
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4760127	2.435919	394.4219	15.34492	2.431560	14.74325	397.4526
Stddev	.0022224	.025229	1.6367	.04226	.024879	.02693	2.3276
%RSD	.4668834	1.035709	.4149619	.2754323	1.023152	.1826283	.5856338
#1	.4785682	2.448020	392.6245	15.29887	2.442693	14.74883	394.8709
#2	.4745326	2.406919	394.8149	15.35396	2.403059	14.71398	398.0961
#3	.4749372	2.452819	395.8263	15.38194	2.448928	14.76696	399.3907
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.32442	392.8769	2.426978	1.267983	379.1707	2.431405	15.48318
Stddev	.09837	1.7408	.024730	.003743	.7403	.006997	.12627
%RSD	.6419220	.4430899	1.018965	.2952086	.1952377	.2877559	.8155503
#1	15.22879	390.9735	2.439719	1.263932	379.2027	2.433954	15.36482
#2	15.31916	393.2688	2.398476	1.271313	378.4149	2.423492	15.46861
#3	15.42532	394.3883	2.442740	1.268704	379.8944	2.436770	15.61610
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	158.7255	4.870253	5.097852	4.875888	4.921269	4.831560	4.859841
Stddev	.9620	.036792	.007420	.046128	.033523	.006660	.044923
%RSD	.6060889	.7554458	.1455564	.9460417	.6811961	.1378512	.9243794
#1	157.6161	4.880441	5.104547	4.891415	4.941906	4.839227	4.866918
#2	159.2300	4.829441	5.099137	4.824000	4.882589	4.828240	4.811799
#3	159.3303	4.900878	5.089874	4.912249	4.939313	4.827212	4.900805

Sample Name: CCV006 Acquired: 3/7/2025 13:09:22 Type: Unk
Method: EPA SFAM01.0(v69) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV006 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.884700	5.248657	5.250571
Stddev	.004003	.037371	.025370
%RSD	.0819442	.7120162	.4831846

#1	4.886559	5.207089	5.274692
#2	4.880106	5.259407	5.224113
#3	4.887435	5.279475	5.252908

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2666.248	61724.00	14644.88	1737.569	3391.019
Stddev	22.022	116.41	80.06	4.713	28.260
%RSD	.8259494	.1885913	.5466471	.2712213	.8333801

#1	2654.892	61846.59	14552.97	1742.863	3375.877
#2	2691.629	61710.44	14682.24	1736.015	3423.624
#3	2652.221	61614.97	14699.42	1733.831	3373.557

Sample Name: CCB006 Acquired: 3/7/2025 13:13:40 Type: Unk
Method: EPA SFAM01.0(v69) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB006 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000163	.0006559	.0000341	.0001075	-.001013	.0043060	-.002878
Stddev	.000662	.0015612	.0009180	.0027314	.000277	.0018607	.000607
%RSD	407.2472	238.0296	2695.414	2540.521	27.37811	43.21158	21.08890
#1	-.000923	.0003229	.0010721	-.001923	-.001256	.0049982	-.003565
#2	.000146	.0023568	-.000671	.003213	-.000711	.0021984	-.002657
#3	.000289	-.000712	-.000299	-.000968	-.001071	.0057214	-.002413
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000078	-.000001	.0003028	-.000179	-.000128	.0013671	-.002522
Stddev	.000040	.000017	.0040117	.000068	.000040	.0027511	.005659
%RSD	51.81354	1238.867	1324.679	38.13334	31.53602	201.2349	224.3816
#1	-.000047	-.000021	.0047447	-.000108	-.000129	-.001489	.002303
#2	-.000124	.000013	-.000779	-.000245	-.000168	.003999	-.008750
#3	-.000063	.000004	-.003057	-.000185	-.000087	.001591	-.001119
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002471	-.006878	-.000344	-.000173	-.286025	.0010131	.0009558
Stddev	.0002612	.006630	.000152	.000130	.236828	.0004159	.0014598
%RSD	105.6854	96.38231	44.29044	75.10333	82.79966	41.05515	152.7356
#1	-.000040	-.014308	-.000179	-.000236	-.537690	.0009756	.0017383
#2	.000310	-.001566	-.000371	-.000260	-.252854	.0006172	.0018575
#3	.000471	-.004761	-.000480	-.000024	-.067532	.0014465	-.000728
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.173834	.0010518	.0047129	.0000500	-.000006	-.000287	-.000404
Stddev	.008702	.0017680	.0003229	.0002949	.002520	.002329	.000853
%RSD	5.006014	168.0918	6.851757	590.4744	42764.03	810.7256	211.0356
#1	-.163793	.0029553	.0050843	.0000574	-.002437	.002245	.000149
#2	-.179175	.0007392	.0045562	.0003411	-.000174	-.000770	-.001386
#3	-.178535	-.000539	.0044983	-.000249	.002594	-.002337	.000025

Sample Name: CCB006 Acquired: 3/7/2025 13:13:40 Type: Unk
Method: EPA SFAM01.0(v69) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB006 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0002329	-.002622	.0000636
Stddev	.0002812	.001369	.0000251
%RSD	120.7381	52.22882	39.44900

#1	.0005467	-.003999	.0000846
#2	.0000038	-.001260	.0000703
#3	.0001482	-.002608	.0000358

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3350.169	78027.52	15601.26	2218.387	4960.653
Stddev	13.330	1035.15	25.78	27.496	18.373
%RSD	.3978950	1.326646	.1652723	1.239471	.3703691

#1	3343.835	78961.09	15611.04	2248.990	4956.172
#2	3365.485	76914.31	15572.02	2195.761	4980.851
#3	3341.187	78207.17	15620.72	2210.410	4944.935

Sample Name: Q1106-03A Acquired: 3/7/2025 13:17:49 Type: Unk
Method: EPA SFAM01.0(v69) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8G6A Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0034734	.0004384	.0012751	-.002632	.0002235	1.426766
Stddev	.0012441	.0022932	.0017449	.005378	.0002684	.022821
%RSD	35.81786	523.1408	136.8380	204.3122	120.0724	1.599521

#1	.0022433	.0019202	.0023209	-.002435	-.000072	1.407983
#2	.0047310	-.002203	.0022437	-.008105	.000292	1.452164
#3	.0034459	.001598	-.000739	.002644	.000451	1.420152

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2168877	-.000080	-.000060	114.4056	.0228705	-.000408
Stddev	.0039624	.000045	.000069	1.5160	.0006369	.000086
%RSD	1.826918	56.13971	114.4930	1.325122	2.784931	21.01080

#1	.2123676	-.000104	-.000138	112.7663	.0221350	-.000494
#2	.2197616	-.000107	-.000013	115.7571	.0232317	-.000322
#3	.2185340	-.000028	-.000028	114.6935	.0232446	-.000409

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0009431	.0026663	.0349520	.0206076	.0000238	-.000554
Stddev	.0012343	.0008242	.0001110	.0080209	.0003140	.000222
%RSD	130.8842	30.91073	.3174615	38.92217	1318.517	39.99333

#1	.0023477	.0029400	.0349759	.0273440	.0003248	-.000339
#2	.0004502	.0033188	.0350490	.0117348	-.000302	-.000543
#3	.0000313	.0017401	.0348310	.0227440	.000048	-.000782

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.215332	.0035839	.0238469	-.107895	.0009828	.0363581
Stddev	.265149	.0015650	.0020365	.063766	.0017888	.0008056
%RSD	8.246396	43.66856	8.539866	59.09958	182.0069	2.215822

#1	3.218277	.0041325	.0216605	-.175896	-.000881	.0368158
#2	3.478997	.0018184	.0241907	-.049441	.002685	.0354279
#3	2.948724	.0048007	.0256897	-.098349	.001144	.0368308

Sample Name: Q1106-03A Acquired: 3/7/2025 13:17:49 Type: Unk
Method: EPA SFAM01.0(v69) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8G6A Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0524616	F 11.61542	3.305734	-.003854	-.003496	-.001834
Stddev	.0001576	.00805	.015822	.000373	.000355	.001060
%RSD	.3004585	.0692924	.4786085	9.670954	10.16162	57.78062
#1	.0523071	11.60734	3.313210	-.003708	-.003130	-.001012
#2	.0524556	11.61548	3.316434	-.004278	-.003518	-.003030
#3	.0526222	11.62343	3.287561	-.003577	-.003839	-.001461

Elem	Sr4077
Units	ppm
Avg	.2698425
Stddev	.0038471
%RSD	1.425669
#1	.2657755
#2	.2734234
#3	.2703287

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3276.966	75206.83	15739.74	2198.203	4665.361
Stddev	15.777	1010.85	45.39	27.381	18.683
%RSD	.4814512	1.344097	.2883746	1.245624	.4004638
#1	3291.714	76363.56	15707.74	2229.102	4683.752
#2	3278.853	74493.20	15791.69	2188.553	4665.934
#3	3260.330	74763.73	15719.79	2176.952	4646.399

Sample Name: Q1160-01A Acquired: 3/7/2025 13:21:53 Type: Unk
Method: EPA SFAM01.0(v69) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8C9A Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0099933	.0000645	.0028489	.0004255	.0000730	4.500371
Stddev	.0018566	.0016238	.0011129	.0016569	.0004684	.009966
%RSD	18.57804	2518.556	39.06401	389.4045	641.2807	.2214586

#1	.0120810	.0015073	.0016369	.0023153	.0002293	4.492474
#2	.0093713	.0003800	.0038247	-.000778	.0004433	4.511569
#3	.0085276	-.001694	.0030850	-.000261	-.000454	4.497070

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2313852	.0000241	-.000011	7.113682	.0033090	.0030116
Stddev	.0007982	.0000890	.000075	.016853	.0001724	.0000962
%RSD	.3449628	370.0466	695.5892	.2369028	5.210656	3.193024

#1	.2305479	-.000031	-.000092	7.097751	.0031136	.0029033
#2	.2321375	.000127	.000005	7.131325	.0033733	.0030444
#3	.2314703	-.000024	.000055	7.111968	.0034400	.0030870

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0127850	4.073370	.0830367	5.597263	.0082741	-.000345
Stddev	.0025145	.012236	.0003288	.017687	.0000738	.000227
%RSD	19.66721	.3003835	.3960198	.3159865	.8918689	65.75632

#1	.0107832	4.059248	.0831757	5.577233	.0083489	-.000194
#2	.0119647	4.080793	.0832731	5.610730	.0082720	-.000235
#3	.0156072	4.080070	.0826611	5.603827	.0082014	-.000606

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.301646	.0063937	.1930173	-.843599	.1796017	.3423544
Stddev	.251790	.0007080	.0043835	.027634	.0008662	.0021695
%RSD	3.995627	11.07392	2.271037	3.275713	.4823120	.6336871

#1	6.299398	.0063860	.1924209	-.862558	.1786051	.3448551
#2	6.050987	.0056895	.1976684	-.856347	.1800255	.3409758
#3	6.554553	.0071056	.1889625	-.811893	.1801745	.3412323

Sample Name: Q1160-01A Acquired: 3/7/2025 13:21:53 Type: Unk
Method: EPA SFAM01.0(v69) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8C9A Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0011184	F 10.63340	6.282295	-.001322	.0391364	-.003231
Stddev	.0001255	.03103	.027252	.000569	.0010666	.000880
%RSD	11.22309	.2918226	.4337927	43.02064	2.725268	27.23880
#1	.0011407	10.62128	6.312935	-.000972	.0401277	-.003768
#2	.0009832	10.61027	6.260765	-.001978	.0392738	-.002215
#3	.0012312	10.66866	6.273186	-.001016	.0380078	-.003710

Elem	Sr4077
Units	ppm
Avg	.0611530
Stddev	.0003042
%RSD	.4974415
#1	.0608367
#2	.0611790
#3	.0614434

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3362.503	77698.82	16365.61	2262.093	4941.486
Stddev	15.990	142.86	71.79	7.989	10.989
%RSD	.4755391	.1838624	.4386934	.3531650	.2223816
#1	3376.632	77862.65	16284.52	2253.669	4952.519
#2	3365.733	77600.24	16421.07	2263.047	4941.399
#3	3345.145	77633.56	16391.25	2269.561	4930.541

Sample Name: CCV007 Acquired: 3/7/2025 13:28:02 Type: Unk
Method: EPA SFAM01.0(v69) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV007 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.983604	4.788001	23.87926	5.019909	5.005691	385.2917	10.35541
Stddev	.017814	.048652	.07178	.035522	.014851	2.4223	.06822
%RSD	.3574563	1.016118	.3005847	.7076237	.2966883	.6286867	.6588345
#1	4.975716	4.809526	23.89135	5.003806	4.997358	388.0432	10.36660
#2	4.971096	4.732299	23.80221	4.995291	4.996876	384.3514	10.41735
#3	5.004000	4.822177	23.94423	5.060631	5.022837	383.4806	10.28228
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4843430	2.419025	391.7055	15.39583	2.431316	14.83675	396.7246
Stddev	.0015774	.010541	.7797	.03203	.008962	.01942	.1038
%RSD	.3256817	.4357374	.1990425	.2080702	.3686221	.1309083	.0261676
#1	.4856633	2.421242	392.2241	15.43043	2.430342	14.83969	396.8416
#2	.4825962	2.407552	392.0836	15.38985	2.422880	14.81602	396.6887
#3	.4847694	2.428281	390.8089	15.36721	2.440725	14.85452	396.6435
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.24452	391.1934	2.422102	1.273396	380.3142	2.440877	15.48635
Stddev	.02598	.2138	.010123	.004916	1.2370	.006426	.05582
%RSD	.1704224	.0546427	.4179594	.3860639	.3252646	.2632528	.3604204
#1	15.27205	391.2688	2.422665	1.278731	381.5436	2.438242	15.54539
#2	15.24106	390.9522	2.411710	1.272410	379.0696	2.436188	15.43445
#3	15.22044	391.3593	2.431933	1.269048	380.3292	2.448202	15.47919
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	160.1114	4.862230	5.166982	4.898193	4.902369	4.866134	4.830931
Stddev	.4271	.011668	.017227	.021024	.032571	.011478	.019831
%RSD	.2667445	.2399667	.3334057	.4292215	.6643869	.2358787	.4105040
#1	160.1327	4.868753	5.173272	4.896728	4.874111	4.869526	4.827083
#2	160.5275	4.848760	5.147494	4.877940	4.895005	4.853343	4.813305
#3	159.6741	4.869178	5.180180	4.919911	4.937991	4.875535	4.852404

Sample Name: CCV007 Acquired: 3/7/2025 13:28:02 Type: Unk
Method: EPA SFAM01.0(v69) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV007 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.910087	5.265801	5.203922
Stddev	.010953	.017276	.036166
%RSD	.2230721	.3280708	.6949689

#1	4.912763	5.273982	5.245121
#2	4.898044	5.277466	5.189235
#3	4.919454	5.245955	5.177410

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2632.484	61015.89	14374.61	1720.272	3366.368
Stddev	8.197	94.57	42.84	6.080	10.480
%RSD	.3113977	.1549913	.2980503	.3534254	.3113066

#1	2630.881	60911.63	14363.00	1713.290	3363.546
#2	2641.365	61039.91	14422.06	1724.395	3377.970
#3	2625.207	61096.14	14338.77	1723.131	3357.588

Sample Name: CCB007 Acquired: 3/7/2025 13:32:20 Type: Unk
Method: EPA SFAM01.0(v69) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB007 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0011961	-.001107	.0001343	-.000047	-.001368	-.003806	-.001644
Stddev	.0021913	.001023	.0002037	.001798	.000170	.001838	.000507
%RSD	183.2090	92.40652	151.7063	3835.983	12.45664	48.28430	30.86746
#1	-.000599	-.002272	.0000220	.000350	-.001529	-.003246	-.001562
#2	.003638	-.000694	.0000114	-.002010	-.001189	-.002314	-.001182
#3	.000549	-.000355	.0003694	.001520	-.001387	-.005859	-.002187
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000048	.0000496	-.005252	-.000372	-.000150	-.002168	-.004614
Stddev	.000085	.0000735	.002040	.000090	.000095	.000397	.006859
%RSD	177.1390	148.2587	38.84160	24.23976	63.32143	18.29752	148.6479
#1	.000027	.0000960	-.006619	-.000474	-.000081	-.002373	-.011451
#2	-.000141	-.000035	-.006231	-.000301	-.000111	-.002421	.002267
#3	-.000031	.000088	-.002907	-.000342	-.000258	-.001711	-.004660
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002740	-.010176	-.000108	-.000340	-.494822	.0001500	-.001237
Stddev	.0001535	.009367	.000086	.000183	.057951	.0006535	.001879
%RSD	56.02757	92.04844	79.46640	53.68487	11.71142	435.7794	151.8976
#1	.0003432	.000308	-.000206	-.000550	-.496119	-.000405	-.002754
#2	.0003808	-.017719	-.000042	-.000217	-.552112	.000870	-.001821
#3	.0000981	-.013116	-.000078	-.000254	-.436233	-.000016	.000864
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.192715	.0005957	.0029838	.0001963	.0043626	-.000673	-.000429
Stddev	.075379	.0006170	.0004319	.0002753	.0011520	.002453	.000246
%RSD	39.11438	103.5776	14.47497	140.2320	26.40745	364.3325	57.29111
#1	-.269342	.0004294	.0031827	.0002481	.0055556	-.000053	-.000160
#2	-.190156	.0012789	.0024883	.0004420	.0042758	-.003377	-.000642
#3	-.118648	.0000789	.0032805	-.000101	.0032564	.001410	-.000484

Sample Name: CCB007 Acquired: 3/7/2025 13:32:20 Type: Unk
Method: EPA SFAM01.0(v69) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB007 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0001463	-.003338	.0000843
Stddev	.0004000	.000816	.0000400
%RSD	273.4870	24.44603	47.42607

#1	.0001319	-.002745	.0000381
#2	.0005532	-.003001	.0001075
#3	-.000246	-.004269	.0001074

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3382.915	77412.85	15965.17	2206.188	5057.890
Stddev	10.252	1423.48	54.91	38.579	14.623
%RSD	.3030644	1.838821	.3439061	1.748658	.2891097

#1	3373.864	78168.19	15958.82	2230.478	5046.860
#2	3394.049	75770.90	15913.72	2161.704	5074.476
#3	3380.833	78299.46	16022.98	2226.382	5052.333

Prep Standard - Chemical Standard Summary

Order ID : Q1160

Test : SPLP MetalGroup3

Prepbatch ID : PB166912,

Sequence ID/Qc Batch ID: LB134905, LB134916, LB134953,

Standard ID :

MP84041, MP84297, MP84636, MP84649, MP84650, MP84651, MP84652, MP84653, MP84654, MP84655, MP84656, MP84657, MP84658, MP84659, MP84661, MP84663, MP84721,

Chemical ID :

M4884, M5019, M5020, M5218, M5289, M5296, M5393, M5429, M5467, M5472, M5473, M5476, M5496, M5497, M5498, M5513, M5519, M5565, M5658, M5697, M5768, M5789, M5792, M5798, M5799, M5800, M5801, M5802, M5806, M5808, M5811, M5815, M5817, M5875, M5942, M5959, M5961, M5962, M5970, M5977, M5985, M5990, M6021, M6023, M6025, M6028, M6030, M6032, M6077, M6121, M6126, M6127, M6128, M6144, M6145, M6150, M6152, M6155, 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>
170	1:1HCL	MP84297	01/31/2025	02/28/2025	Eman Mughal	None	None	Sarabjit Jaswal
								01/31/2025

FROM 1250.00000ml of M6121 + 1250.00000ml of W3112 = Final Quantity: 2500.000 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>
902	ICP AES CAL BLK (SO/ICB/CCB)	MP84636	02/25/2025	03/25/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 02/28/2025

FROM 125.00000ml of M5792 + 2350.00000ml of W3112 + 25.00000ml of M5789 = 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>
919	ICP AES INTERNAL STD	MP84649	02/25/2025	03/25/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 02/28/2025

FROM 1.00000ml of M5959 + 10.00000ml of M5985 + 1969.00000ml of W3112 + 20.00000ml of M5789 = Final Quantity: 2000.000 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>
513	RINSE SOLN	MP84650	02/25/2025	03/25/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								02/28/2025

FROM 200.00000ml of M5789 + 9800.00000ml of W3112 = Final Quantity: 10000.000 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>
2480	ICP AES STD 6 ISM01.3	MP84651	02/25/2025	03/25/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								02/28/2025

FROM 4.00000ml of M5289 + 4.00000ml of M5498 + 4.00000ml of M5768 + 4.00000ml of M5806 + 4.00000ml of M5811 + 4.00000ml of M6144 + 30.00000ml of MP84636 = Final Quantity: 50.000 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>
1004	ICPAES ISM01.2 (S5)	MP84652	02/25/2025	03/09/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								02/28/2025

FROM 0.25000ml of M5798 + 0.50000ml of M5429 + 0.50000ml of M5476 + 0.50000ml of M5815 + 0.50000ml of M5817 + 12.50000ml of M5519 + 12.50000ml of M6128 + 12.50000ml of M6144 + 12.50000ml of M6145 + 13.75000ml of M5697 + 14.50000ml of M5496 + 14.50000ml of M5658 + 14.50000ml of M5811 + 2.00000ml of M5513 + 22.50000ml of M5498 + 22.50000ml of M5768 + 5.00000ml of M4884 + 5.00000ml of M5393 + 5.00000ml of M5802 + 5.00000ml of M5875 + 5.00000ml of M6077 + 303.50000ml of MP84636 = 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>
1005	ICPAES ISM01.2(S4)	MP84653	02/25/2025	03/09/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								02/28/2025

FROM 250.00000ml of MP84636 + 250.00000ml of MP84652 = 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>
1007	ICPAES ISM01.2(S3)	MP84654	02/25/2025	03/09/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								02/28/2025

FROM 25.00000ml of MP84652 + 75.00000ml of MP84636 = 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>
1008	ICPAES ISM01.2(S2)	MP84655	02/25/2025	03/09/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								02/28/2025

FROM 12.50000ml of MP84652 + 87.50000ml of MP84636 = Final Quantity: 100.000 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>
994	ICPAES ISM01.2 S1 (CONC.)	MP84656	02/25/2025	03/09/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								02/28/2025

FROM 0.02000ml of M5020 + 0.03000ml of M5429 + 0.10000ml of M5798 + 0.10000ml of M6028 + 0.14000ml of M5799 + 0.20000ml of M5473 + 0.20000ml of M5658 + 0.20000ml of M5801 + 0.20000ml of M5811 + 0.20000ml of M5817 + 0.20000ml of M5977 + 0.20000ml of M6025 + 0.20000ml of M6030 + 0.30000ml of M6128 + 0.40000ml of M5496 + 0.50000ml of M5697 + 0.50000ml of M6023 + 0.70000ml of M5962 + 0.80000ml of M5961 + 1.00000ml of M5800 + 1.00000ml of M6021 + 1.20000ml of M5802 + 1.20000ml of M6145 + 10.00000ml of M4884 + 10.00000ml of M5497 + 10.00000ml of M5519 + 10.00000ml of M5768 + 10.00000ml of M6144 + 2.00000ml of M5942 + 4.00000ml of M6032 + 34.24000ml of MP84636 = 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>
1003	ICPAES ISM01.2 S1	MP84657	02/25/2025	03/09/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								02/28/2025

FROM 0.50000ml of MP84656 + 99.50000ml of MP84636 = 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>
912	ICP AES ICV SOLN	MP84658	02/25/2025	03/08/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 02/28/2025

FROM	0.02500ml of M5019 + 0.02500ml of M5020 + 0.02500ml of M5815 + 0.10000ml of M5467 + 0.25000ml of M5218 + 0.25000ml of M5472 + 10.00000ml of M5429 + 10.00000ml of M6150 + 89.77500ml of MP84636 = Final Quantity: 100.000 ml
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<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>
904	ICP AES ICSA SOLN	MP84659	02/25/2025	03/25/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 02/28/2025

<u>FROM</u>	25.00000ml of M6152 + 225.00000ml of MP84636 = Final Quantity: 250.000 ml
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<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>
1119	ICPAES ISM01.2(CCV)	MP84661	02/25/2025	03/25/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 02/28/2025
FROM 0.75000ml of M5497 + 0.75000ml of M6127 + 1.22500ml of M5496 + 1.25000ml of M5811 + 1.25000ml of M6144 + 19.77500ml of MP84636 + 25.00000ml of MP84652 = Final Quantity: 50.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
921	ICPAES SPIKE SOL#6	MP84663	02/25/2025	03/25/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 02/28/2025
FROM 2.50000ml of M5962 + 50.00000ml of M5565 + 50.00000ml of M5990 + 147.50000ml of MP84636 = 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>
3494	ICP AES ICSAB SOLN-1	MP84721	02/25/2025	03/25/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 02/28/2025
<u>FROM</u>	0.01000ml of M5815 + 0.01000ml of M5817 + 0.10000ml of M5296 + 0.10000ml of M5472 + 0.10000ml of M5970 + 10.00000ml of M6152 + 10.00000ml of M6155 + 79.50000ml of MP84636 = Final Quantity: 100.000 ml							

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57014 / Si, 1000 PPM, 125 ml	030921	03/09/2025	08/06/2021 / jaswal	08/05/2021 / jaswal	M4884

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57116 / S, 10000 PPM, 125 ml	011421	03/04/2025	12/13/2021 / bin	12/09/2021 / bin	M5019

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57115 / P, 10000 PPM, 125 ml	032921	05/17/2025	12/13/2021 / bin	12/09/2021 / bin	M5020

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CHEM-QC-4 / CHEM-QC-4, Second Source, 1000 ug/ml, B, Mo, Si, Sn, Ti	S2-MEB711674	11/02/2026	07/01/2022 / bin	09/10/2021 / bin	M5218

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58113 / Aluminum (Al) 10,000PPM	070622	07/06/2025	09/02/2022 / jaswal	07/12/2022 / jaswal	M5289

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	Z9651Q / CHEM-CLP-4/.25L	S2-MEB711673	11/02/2026	09/19/2022 / jaswal	08/20/2022 / jaswal	M5296

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-CAL-3 / CLP CAL SOLUTION #3, 125mL	T2-MEB714159	01/13/2027	10/12/2022 / bin	09/19/2022 / bin	M5393

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57103 / Li, 10000 PPM, 125 ml	070622	07/06/2025	01/30/2023 / bin	01/26/2023 / bin	M5429

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57058 / Cerium, 1000PPM, 100ML	020623	02/06/2026	03/06/2023 / bin	03/01/2023 / bin	M5467

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57038 / Sr, 1000 PPM, 125 ml	082922	08/29/2025	01/14/2025 / Jaswal	03/16/2023 / jaswal	M5472

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57138 / Sr, 10000 PPM, 125 ml	082922	08/29/2025	03/16/2023 / jaswal	03/16/2023 / jaswal	M5473

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57138 / Sr, 10000 PPM, 125 ml	082922	08/29/2025	07/29/2024 /jaswal	03/16/2023 / jaswal	M5476

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58113 / Al, 10000 PPM, 500 ml	011623	01/16/2026	08/15/2023 / jaswal	03/17/2023 / bin	M5496

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58120 / Ca, 10000 PPM, 500 ml	031523	03/15/2026	03/18/2023 / bin	03/17/2023 / bin	M5497

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58120 / Ca, 10000 PPM, 500 ml	031523	03/15/2026	08/15/2023 / jaswal	03/17/2023 / bin	M5498

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57182 / Pb, 10000 PPM, 125 ml	061522	06/15/2025	03/19/2023 / bin	03/17/2023 / bin	M5513

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57119 / Potassium (K) 10,000PPM	120822	12/08/2025	01/08/2024 / bin	03/17/2023 / bin	M5519

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-SPK-1 / SOIL/WATER SPIKE SOLN 1, 125mL	T2-MEB721963	07/27/2027	05/30/2023 / jaswal	05/26/2023 / jaswal	M5565

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58024 / Chromium, Cr, 500 ml, 1000 PPM	060523	06/05/2026	08/28/2023 / jaswal	08/25/2023 / jaswal	M5658

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58029 / Cu, 1000 PPM, 500 ml	102523	10/25/2026	04/03/2024 / jaswal	10/27/2023 / jaswal	M5697

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58112 / Mg, 10000 PPM, 500 ml	091823	09/18/2026	01/08/2024 / bin	01/03/2024 / bin	M5768

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)	23G1262003	07/30/2025	02/08/2024 / Al-Terek	06/26/2023 / Al-Terek	M5789

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)	22D1462006	08/05/2025	02/05/2024 / Al-Terek	02/24/2022 / Al-Terek	M5792

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57004 / Be, 1000 PPM, 125 ml	102523	10/25/2026	02/09/2024 / bin	02/09/2024 / bin	M5798

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57050 / Sn, 1000 PPM, 125 ml	071123	07/11/2026	02/09/2024 / bin	02/09/2024 / bin	M5799

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57027 / CO, 1000 PPM, 125 ml	091923	09/19/2026	05/31/2024 / bin	02/09/2024 / bin	M5800

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57033 / As, 1000 PPM, 125 ml	111323	11/13/2026	02/09/2024 / bin	02/09/2024 / bin	M5801

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57051 / Sb, 1000 PPM, 125 ml	120523	12/05/2026	08/07/2024 / jaswal	01/03/2024 / jaswal	M5802

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58111 / Na, 10000 PPM, 500 ml	122223	12/22/2026	08/01/2024 / Jaswal	01/03/2024 / jaswal	M5806

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58113 / Al, 10000 PPM, 500 ml	122926	12/29/2026	12/18/2024 / janvi	01/03/2024 / jaswal	M5808

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58126 / Fe, 10000 PPM, 500 ml	051523	05/15/2026	02/06/2025 / kareem	01/03/2024 / jaswal	M5811

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57115 / P, 10000 PPM, 125 ml	041723	04/17/2026	05/21/2024 / Jaswal	02/09/2024 / jaswal	M5815

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57116 / S, 10000 PPM, 125 ml	071123	07/11/2026	03/01/2024 / jaswal	02/09/2024 / jaswal	M5817

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-CAL-1 / CLP CAL SOLUTION #1, 125mL	T2-MEB714417	01/27/2027	04/19/2024 / jaswal	02/22/2024 / jaswal	M5875

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGT11-1 / TITANIUM 125mL 1000ug/mL	T2-TI719972	06/17/2027	06/18/2024 / Jaswal	02/22/2024 / Jaswal	M5942

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGY10-1 / YTTRIUM 125mL 10,000ug/mL	V2-Y740548	02/20/2029	07/01/2024 / Jaswal	06/14/2024 / Jaswal	M5959

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57028 / Ni, 1000 PPM, 125 ml	041124	04/11/2027	07/02/2024 / Jaswal	06/11/2024 / Jaswal	M5961

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57034 / Se, 1000 PPM, 125 ml	060624	06/06/2027	07/02/2024 / Jaswal	06/14/2024 / Jaswal	M5962

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57003 / Li, 1000 PPM, 125 ml	061224	06/21/2027	07/01/2024 / Jaswal	07/01/2024 / Jaswal	M5970

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGMO1-1 / MOLYBDENUM 125mL 1000ug/mL	T2-MO720876	07/17/2027	01/16/2025 / JANVI	02/22/2024 / Jaswal	M5977

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGIN10-5 / INDIUM 1 x 500 ml	U2-IN729349	02/21/2028	10/08/2024 / Jaswal	06/14/2024 / Jaswal	M5985

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-SPK-5 / CLP Spike Standard 5	V2-MEB742037	03/12/2029	10/04/2024 / Jaswal	02/22/2024 / Jaswal	M5990

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57023 / V, 1000 PPM, 125 ml	062424	06/24/2027	09/28/2024 / jaswal	08/05/2024 / Jaswal	M6021

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57081 / TI, 1000 PPM, 125 ml	0624724	06/27/2027	08/05/2024 / kareem	08/05/2024 / Jaswal	M6023

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57082 / Pb, 1000 PPM, 125 ml	061224	11/09/2026	08/05/2024 / Jaswal	08/05/2024 / Jaswal	M6025

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57048 / Cd, 1000 PPM, 125 ml	070124	07/01/2027	08/05/2024 / kareem	08/05/2024 / Jaswal	M6028

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57047 / Ag, 1000 PPM, 125 ml	122823	12/28/2026	08/05/2024 / kareem	08/05/2024 / Jaswal	M6030

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57056 / Ba, 1000 PPM, 125 ml	010924	01/09/2027	01/14/2025 / Jaswal	08/05/2024 / Jaswal	M6032

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	Z9651Q / CHEM-CLP-4/.25L	V2-MEB746762	09/06/2029	01/23/2025 / kareem	09/19/2024 / kareem	M6077

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
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 #
Absolute Standards, Inc.	58112 / Mg, 10000 PPM, 500 ml	112124	11/21/2027	01/13/2025 / kareem	01/13/2025 / kareem	M6127

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58025 / Mn, 1000 PPM, 500 ml	101124	10/11/2027	01/13/2025 / kareem	01/13/2025 / kareem	M6128

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58111 / Na, 10000 PPM, 500 ml	072424	07/24/2027	01/23/2025 / kareem	01/13/2025 / Jaswal	M6144

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58030 / Zinc, Zn, 500 ml, 1000 PPM	121724	12/17/2027	02/04/2025 / JASWAL	01/13/2025 / Jaswal	M6145

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	ICV-1 / ICV (ICP/ICPMS) STOCK SOLN	ICV1-1014	07/07/2025	02/07/2025 / JANVI	04/20/2021 / JANVI	M6150

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	PART A / ICSA (ICP) STOCK SOLN		08/24/2025	02/24/2025 / kareem	04/20/2021 / kareem	M6152

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	PART B / ICSAB (ICP) STOCK SOLN	ICSB-0710	06/20/2025	02/10/2025 / kareem	02/09/2024 / kareem	M6155

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

Certificate of Analysis

R: 02/22/24 M5986, M5987, M5988, M5989, M5990

300 Technology Drive
 Christiansburg, VA 24073 USA
 inorganicventures.com

P: 800-669-6799/540-585-3030

F: 540-585-3012

info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
 Catalog Number: CLPP-SPK-5
 Lot Number: V2-MEB742037
 Matrix: 5% (v/v) HNO₃
 Value / Analyte(s):
 100 µg/mL ea:
 Antimony,
 50 µg/mL ea:
 Selenium, Thallium,
 Cadmium,
 40 µg/mL ea:
 Arsenic,
 20 µg/mL ea:
 Lead

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Antimony, Sb	100.0 ± 0.7 µg/mL	Arsenic, As	40.00 ± 0.26 µg/mL
Cadmium, Cd	49.99 ± 0.22 µg/mL	Lead, Pb	19.99 ± 0.09 µg/mL
Selenium, Se	50.00 ± 0.23 µg/mL	Thallium, Tl	50.00 ± 0.22 µg/mL

Density: 1.025 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
As	ICP Assay	3103a	100818
Cd	ICP Assay	3108	130116
Cd	EDTA	928	928
Cd	Calculated		See Sec. 4.2
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Pb	Calculated		See Sec. 4.2
Sb	ICP Assay	3102a	140911
Se	ICP Assay	3149	100901
Se	Calculated		See Sec. 4.2
Tl	ICP Assay	3158	151215
Tl	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:

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

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

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

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

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)

N/A

6.0 INTENDED USE

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

March 12, 2024

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

11.2 Lot Expiration Date

- **March 12, 2029**

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

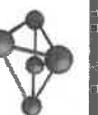
Joseph Burns
Custom VS Manager



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





CERTIFIED WEIGHT REPORT:

Part Number: **58113**
Lot Number: **122923**
Description: **Aluminum (Al)**

Solvent: 24002546 Nitric Acid

Lot #

P: 01/23/24 M5808, M5809

Expiration Date: 122926

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 10000

NIST Test Number: 6UTB

5E-05 Balance Uncertainty

Weight shown below was diluted to (mL): 2000.02 0.058 Flask Uncertainty

<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
Reviewed By:	<i>Pedro L. Rentas</i>
	122923

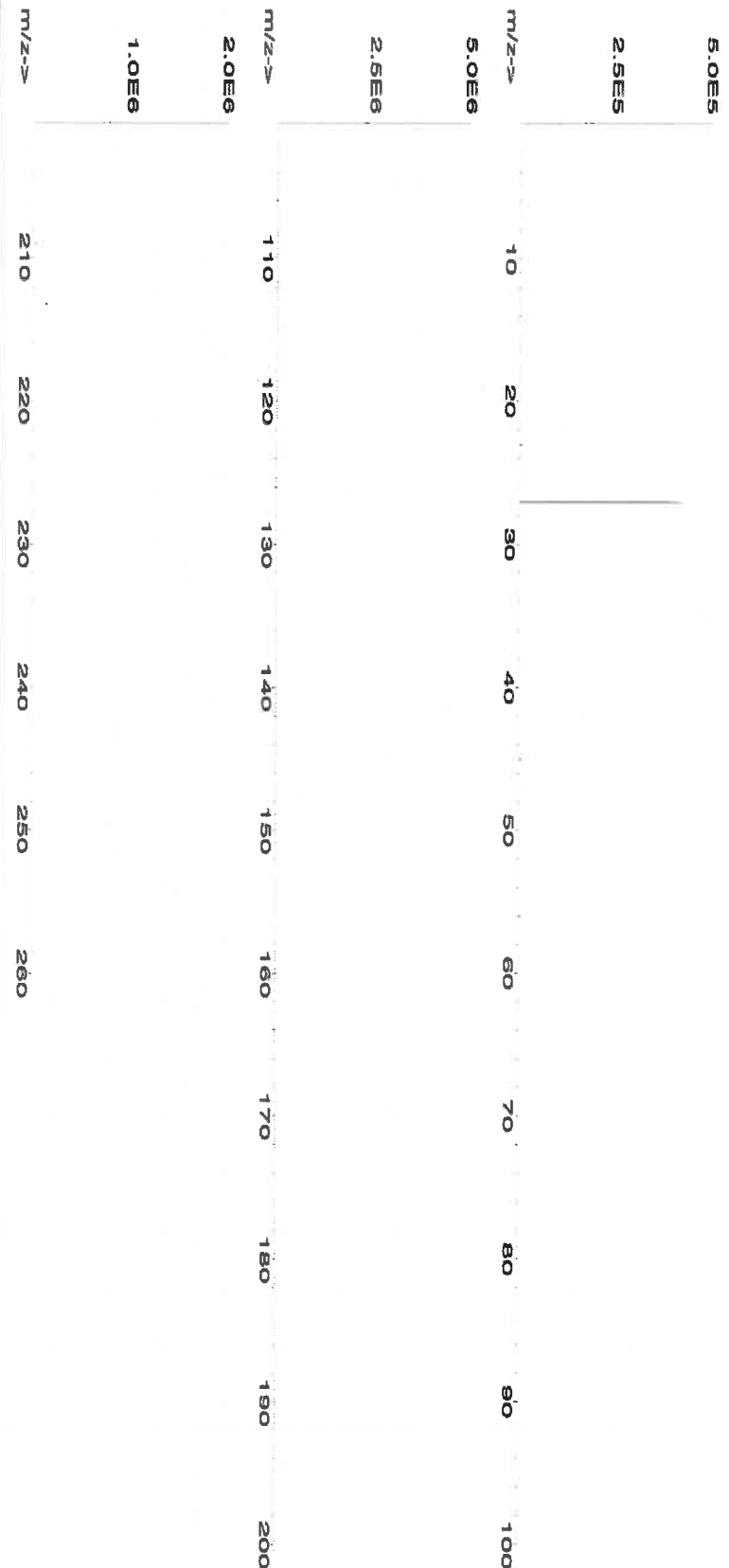
Compound

RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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SDS Information

1. Aluminum nitrate nonahydrate (Al) INO22 ALMO8222A1 10000 88.889 0.10 7.30 273.9779 273.9813 10000.1 20.0 7784-27-2 2 mg/m3 or-tal 3671 mg/kg 3101a

[1] Spectrum No. 1 [15.014 sec]:58113.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	T	Cd	17	Dy	Hf	Li	Ni	Pt	Se	Tb	W
Sb	<0.02	Ca	<0.02	Er	Ho	Lu	Nb	Re	Si	Te	<0.02
As	<0.2	Ce	<0.02	Ba	In	Mg	Os	Rh	Ag	Tl	<0.02
Ba	<0.02	Cs	<0.02	Gd	Ir	Mn	Pd	Rb	Na	Th	0.03
Be	<0.01	Cr	<0.02	Ga	Fe	Hg	P	Ru	4.5	Tm	<0.02
Bi	<0.02	Co	<0.02	Ge	La	Mo	Pt	Sm	Sr	Sn	<0.02
B	<0.02	Cu	<0.02	Au	Pb	Nd	K	Sc	S	Ti	Zn
									Ta		Zr

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: 57056
Lot Number: 010924
Description: Barium (Ba)
Solvent: Nitric Acid
Lot #

Expiration Date: 010927
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
2% **40.0** **Nitric Acid**
(mL)

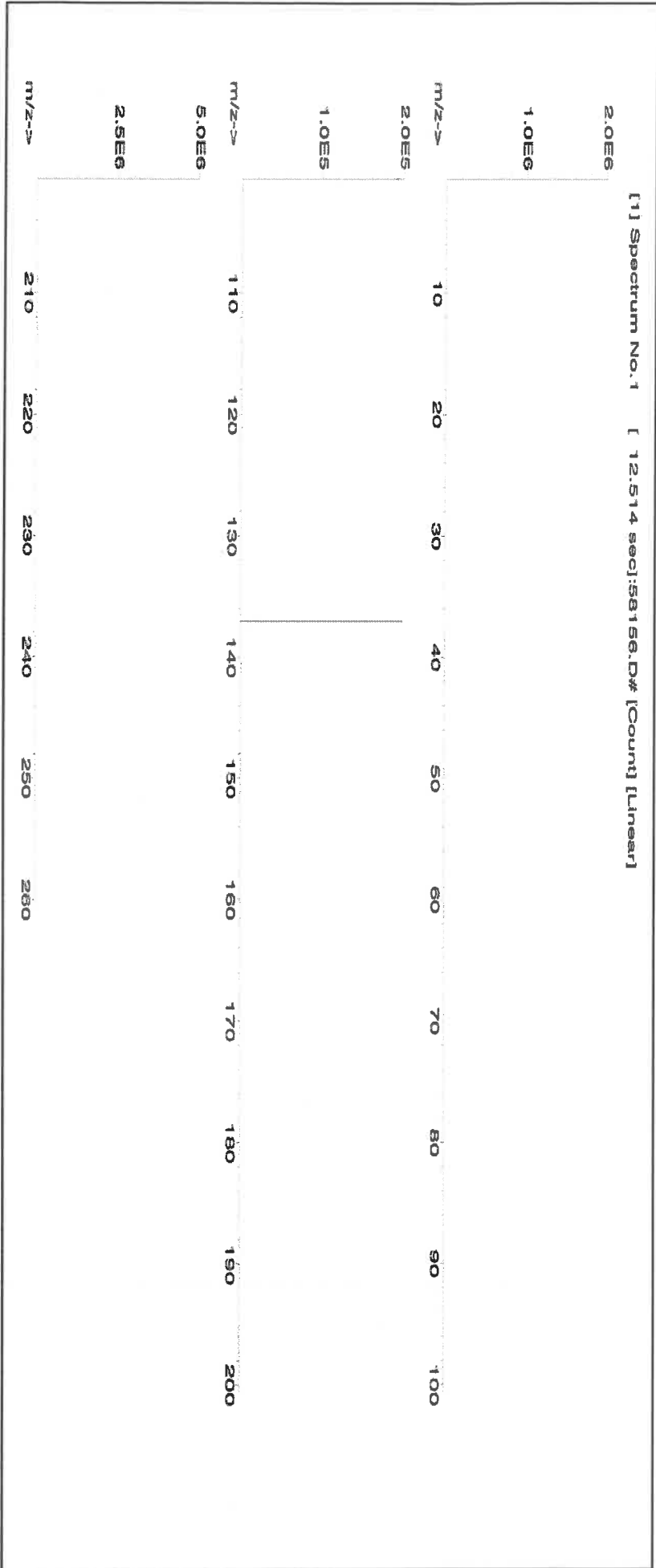
NIST Test Number: 6UTB

Weight shown below was diluted to (mL): 2000.02 **5E-05** **Balance Uncertainty**
0.058 **Flask Uncertainty**

<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
	010924
<i>Pedro L. Renteria</i>	
Reviewed By:	Pedro L. Renteria
	010924

SDS Information									
Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)
Barium nitrate (Ba)	IN023 BA0022019A1	1000	99.999	0.10	52.3	3.82417	3.82441	1000.1	2.0

1. Barium nitrate (Ba) IN023 BA0022019A1 1000 99.999 0.10 52.3 3.82417 3.82441 1000.1 2.0 10022-31-8 0.5 mg/mL 3 0.5 mg/mL 3 3104a





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	T	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57048
070124
Cadmium (Cd)

Lot #
Solvent: 24002546 Nitric Acid

2% 40.0 Nitric Acid (mL)

Expiration Date: 070127

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 1000

NIST Test Number: 6UTB

Weight shown below was diluted to (mL): 2000.07 5E-05 Balance Uncertainty 0.100 Flask Uncertainty

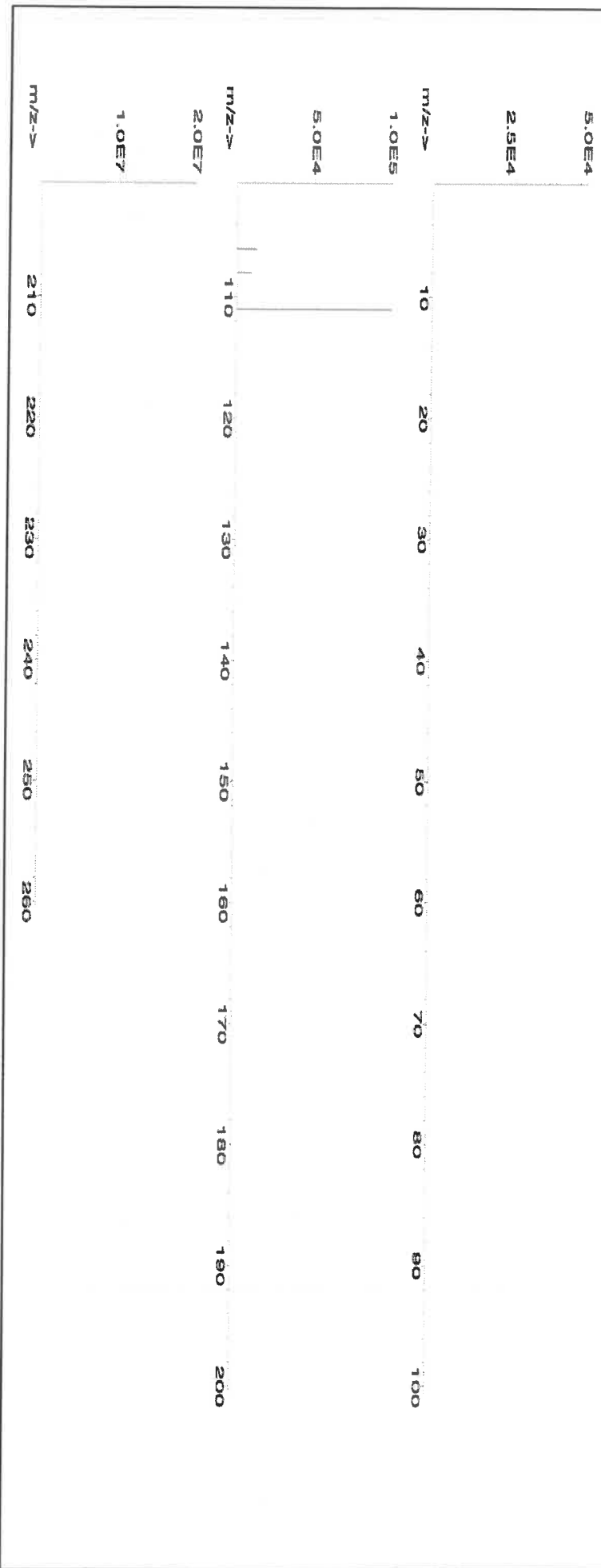
<i>Aleah O'Brady</i>	
Formulated By:	Aleah O'Brady
	070124
<i>Pedro L. Rentas</i>	
Reviewed By:	Pedro L. Rentas
	070124

Compound

Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
------------	-----------------------	------------	-----------------	-----------	-------------------	-------------------	----------------------	----------------------------------	------	----------------	------	----------

1. Cadmium nitrate tetrahydrate (Cd) IN024 CDM09221A1 1000 99.999 0.10 36.5 5.4797 5.4804 1000.1 2.0 10022-68-1 0.01 mg/m3 orl-rat 60.2mg/kg 3108

[1] Spectrum No.1 [12.514 sec]:\$8148.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.2	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Ba	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Cd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pr	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



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Certificate of Analysis

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1.0 ACCREDITATION / REGISTRATION

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2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: CHEM-CLP-4
Lot Number: S2-MEB711673
Matrix: 3% (v/v) HNO₃
3% (v/v) HF
Value / Analyte(s): 1 000 µg/mL ea:
Boron, Molybdenum,
Silicon, Tin,
Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Boron, B	1 000 ± 6 µg/mL	Molybdenum, Mo	1 000 ± 6 µg/mL
Silicon, Si	1 000 ± 7 µg/mL	Tin, Sn	1 000 ± 6 µg/mL
Titanium, Ti	1 000 ± 7 µg/mL		

Density: 1.030 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
B	ICP Assay	3107	110830
Mo	ICP Assay	3134	130418
Si	ICP Assay	3150	130912
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	3162a	130925

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

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

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

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

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

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

k = coverage factor = 2

$u_{\text{char}} = [\sum(w_i)^2(u_{\text{char } i}^2)]^{1/2}$ where $u_{\text{char } i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = 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)

N/A

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

HF Note: This standard should not be prepared or stored in glass.

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

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

November 02, 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

- **November 02, 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 Approved By:

Michael Booth
Director, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





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Certificate of Analysis

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Christiansburg, VA 24073 USA
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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:	Multi Analyte Custom Grade Solution	
Catalog Number:	CLPP-CAL-1	
Lot Number:	T2-MEB714417	
Matrix:	5% (v/v) HNO ₃	
Value / Analyte(s):	5 000 µg/mL ea:	Potassium, Sodium,
	Calcium, Magnesium,	
	2 000 µg/mL ea:	Barium,
	Aluminum,	
	1 000 µg/mL ea:	
	Iron,	
	500 µg/mL ea:	Vanadium, Cobalt,
	Nickel,	
	Zinc,	
	Manganese,	
	250 µg/mL ea:	Copper,
	Silver,	
	200 µg/mL ea:	
	Chromium,	
	50 µg/mL ea:	
	Beryllium	

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	2 000 ± 7 µg/mL	Barium, Ba	2 000 ± 9 µg/mL
Beryllium, Be	50.00 ± 0.26 µg/mL	Calcium, Ca	5 000 ± 22 µg/mL
Chromium, Cr	200.0 ± 1.0 µg/mL	Cobalt, Co	500.0 ± 2.4 µg/mL
Copper, Cu	250.0 ± 1.0 µg/mL	Iron, Fe	1 000 ± 4 µg/mL
Magnesium, Mg	5 000 ± 20 µg/mL	Manganese, Mn	500.0 ± 2.0 µg/mL
Nickel, Ni	500.0 ± 2.2 µg/mL	Potassium, K	5 000 ± 19 µg/mL
Silver, Ag	250.0 ± 1.1 µg/mL	Sodium, Na	5 000 ± 18 µg/mL
Vanadium, V	499.7 ± 2.2 µg/mL	Zinc, Zn	500.0 ± 2.2 µg/mL

Density: 1.118 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	160729
Ag	Volhard	999c	999c
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Be	Calculated		See Sec. 4.2
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Co	ICP Assay	3113	190630
Co	EDTA	928	928
Cr	ICP Assay	3112a	170630
Cr	Calculated		See Sec. 4.2
Cu	ICP Assay	3114	121207
Cu	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Mg	ICP Assay	3131a	140110
Mg	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Na	ICP Assay	3152a	120715
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
V	IC Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

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

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

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

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

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

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

k = coverage factor = 2

$u_{\text{char}} = [\sum(w_i)^2(u_{\text{char } i}^2)]^{1/2}$ where $u_{\text{char } i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = 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)

N/A

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

Note: This solution contains Silver (Ag), please refer to our Sample Preparation Guide for more information.

<https://www.inorganicventures.com/sample-preparation-guide/samples-containing-silver>

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

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

January 27, 2022

- 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

- **January 27, 2027**

- 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 Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





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2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: CLPP-CAL-3
Lot Number: T2-MEB714159
Matrix: 7% (v/v) HNO₃
Value / Analyte(s):
1 000 µg/mL ea:
Arsenic, Lead,
Selenium, Thallium,
500 µg/mL ea:
Cadmium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Arsenic, As	1 000 ± 8 µg/mL	Cadmium, Cd	500.0 ± 2.1 µg/mL
Lead, Pb	1 000 ± 5 µg/mL	Selenium, Se	1 000 ± 8 µg/mL
Thallium, Tl	1 000 ± 7 µg/mL		

Density: 1.043 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
As	ICP Assay	3103a	100818
Cd	ICP Assay	3108	130116
Cd	EDTA	928	928
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Tl	ICP Assay	3158	151215

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

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

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

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

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

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

k = coverage factor = 2

$u_{\text{char}} = [\sum(w_i)^2 (u_{\text{char } i}^2)]^{1/2}$ where $u_{\text{char } i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = 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)

N/A

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

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

January 13, 2022

- 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

- **January 13, 2027**

- 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 Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





CERTIFIED WEIGHT REPORT:

Part Number: 58126
Lot Number: 051523
Description: Iron (Fe)

Solvent: 21110221 Nitric Acid

Lot #

Expiration Date: 051526

5.0% 250.0 (mL) Nitric Acid

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 10000

NIST Test Number: 6UTB

5E-05 Balance Uncertainty

Weight shown below was diluted to (mL): 5000.1 **0.12 Flask Uncertainty**

Giovanni Esposito

Formulated By: Giovanni Esposito **051523**

Pedro L. Renias

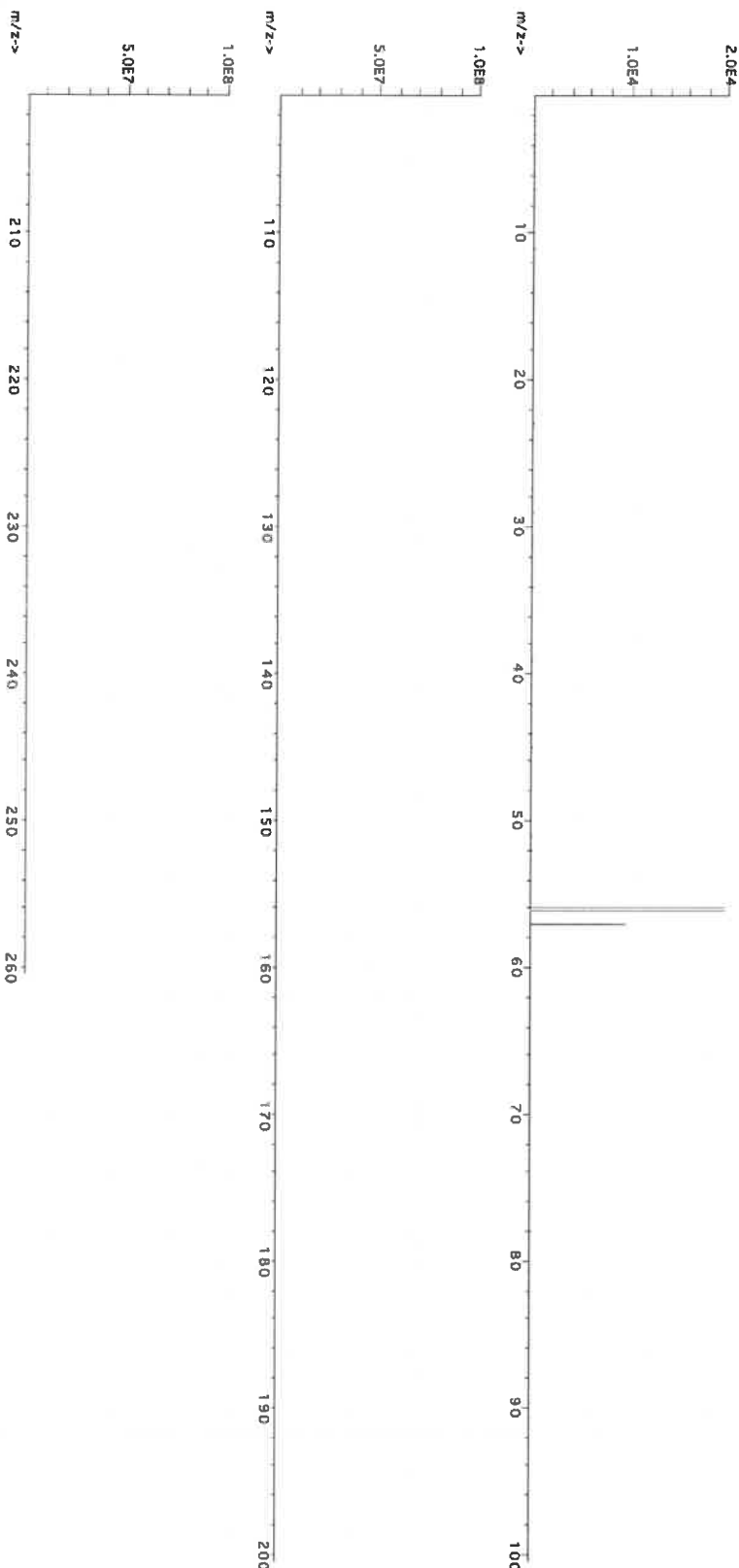
Reviewed By: Pedro L. Renias **051523**

SDS Information

Compound	Lot	Nominal	Purity	Uncertainty	Assay	Target	Actual	Actual	Uncertainty	(Solvent Safety Info. On Attached pg.)			
	RM#	Number	Conc. (µg/mL)	(%)	Purity (%)	(%)	Weight (g)	Weight (g)	Conc. (µg/mL)	+/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50

1. Iron (Fe) IN346 2302010-500 10000 99.995 0.10 100.0 50.0034 50.0111 10001.5 20.0 7439-89-6 5 mg/m3 or-rel 7500mg/kg 3126a

[1] Spectrum No.1 [30.763 sec]:58126.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.10	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rb	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.10	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.05	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.10	Ge	<0.10	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sb	<0.02	Zn	<0.10
B	<0.02	Cu	<0.10	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Tl	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Certified Reference Material CRM



CERTIFIED WEIGHT REPORT:

Part Number: **57182**
Lot Number: **110923**
Description: **Lead (Pb)**

Solvent: **24002546 Nitric Acid**
Lot #: **M6025**

Expiration Date: **110926**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **10000**
NIST Test Number: **6UTB**

2% **40.0** **Nitric Acid**
(mL)

Weight shown below was diluted to (mL):

2000.02 **0.058** **Flask Uncertainty**

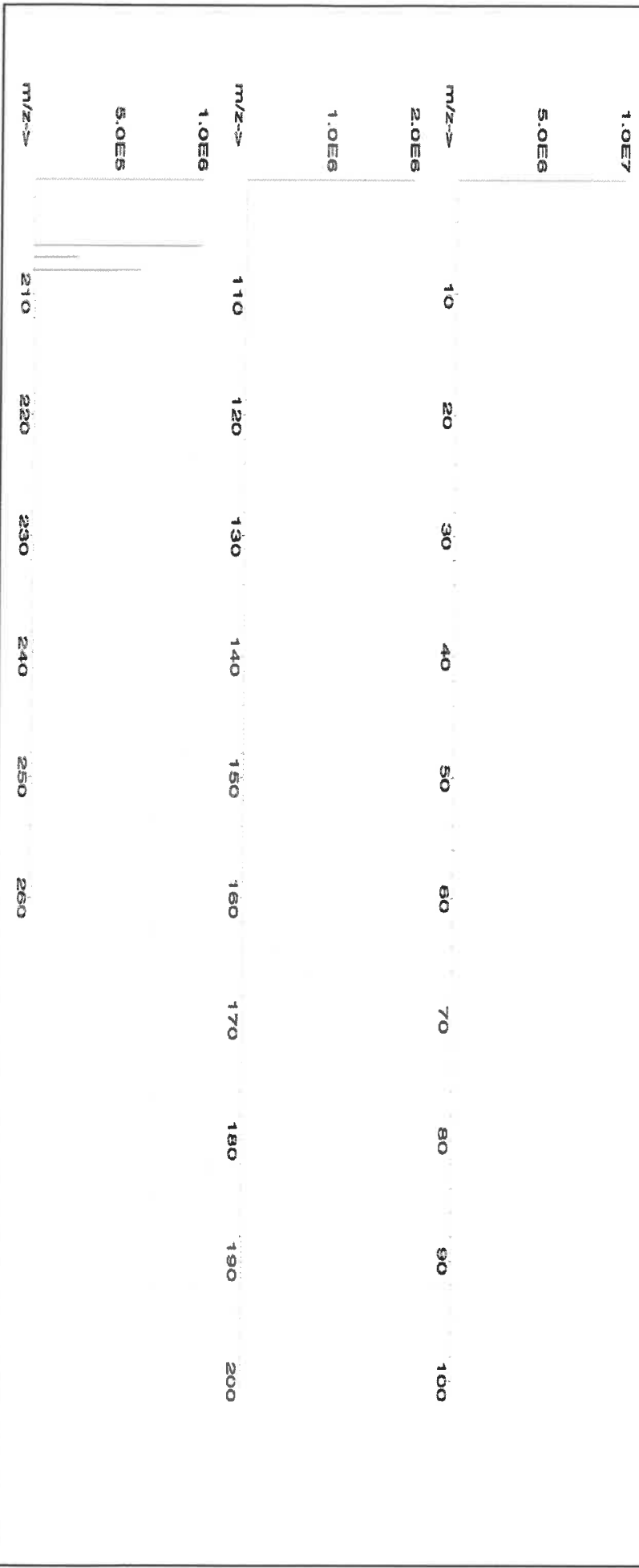
Formulated By:	Lawrence Barry
	110923
Reviewed By:	Pedro L. Rentas
	110923

Compound

RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
-----	------------	-----------------------	------------	------------------------	-----------	-------------------	-------------------	----------------------	----------------------------------	------	----------------	------	----------

1. **Lead(II) nitrate (Pb)** **IN029** **PED12016A1** **10000** **99.999** **0.10** **62.5** **32.0006** **32.0040** **10001.1** **20.0** **10099-74-8** **0.05 mg/m3** **inhalant rat 83 mg/kg** **3128**

[1] Spectrum No.1 [17.284 sec]:58182.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS ($\mu\text{g/mL}$)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	T	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

Physical Characterization:

(T)= Target analyte

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Certified Reference Material CRM



CERTIFIED WEIGHT REPORT:

Part Number: 57014
Lot Number: 030921
Description: Silicon (Si)

Lot # 19410105
Solvent: Nitric Acid

Expiration Date: 030924

2.0% 60.0 (mL) Nitric Acid

Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000

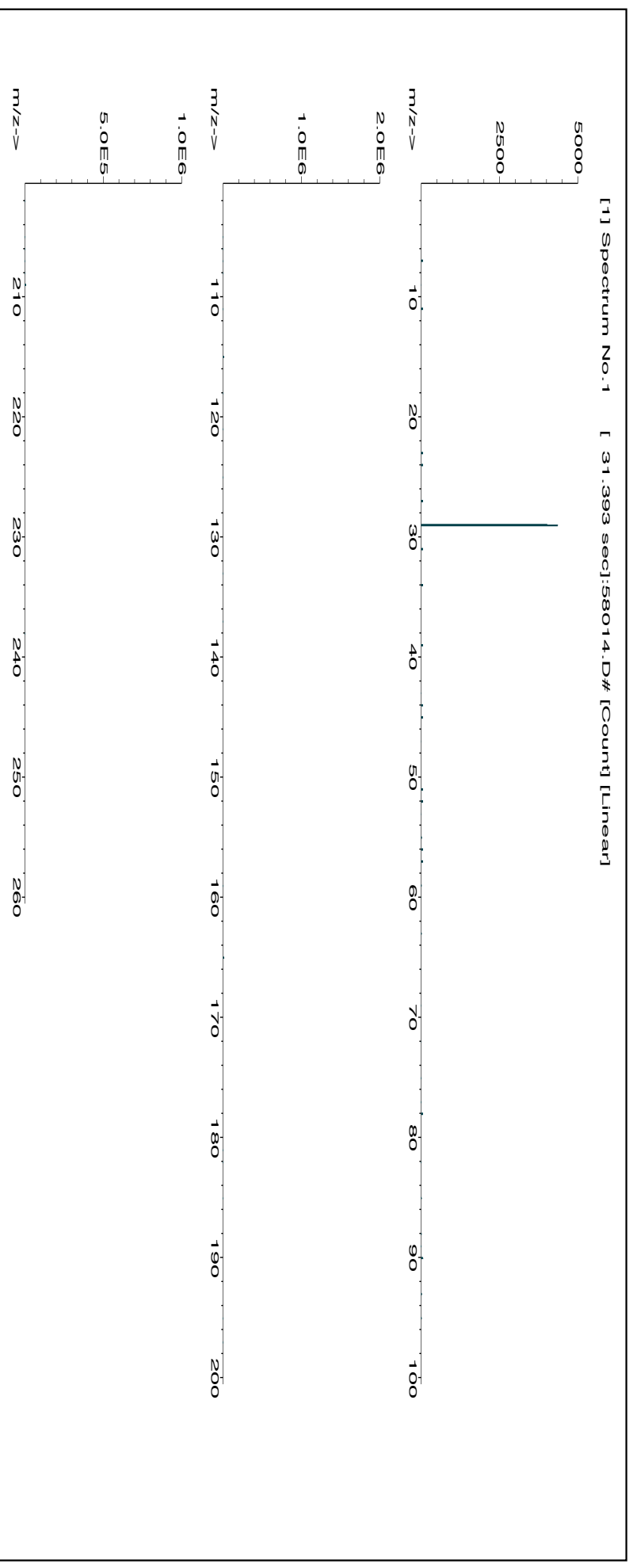
Formulated By:	Lawrence Barry	030921
Reviewed By:	Pedro L. Rentas	030921

NIST Test Number: 6UTB
Volume shown below was diluted to (mL): 3000.41
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

SDS Information

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Ammonium hexafluorosilicate (Si) 58114 070120 0.1000 300.0 0.084 1000 10000.0 1000.0 2.1 16919-19-0 2.50 mg/m3 orl-rat 70 mg/kg NA





Trace Metals Verification by ICP-MS ($\mu\text{g/mL}$)

Trace Metals Verification by ICP-MS (µg/mL)																			
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	T	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

Certified by:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

John P. Jones

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Certified Reference Material CRM

IN 5019 R: 12/09/24 (BP)



CERTIFIED WEIGHT REPORT:

Part Number: 57116

Lot Number: 011421

Description: Sulfur (S)

Solvent: 011421 ASTM Type 1 Water

Lot #

Expiration Date:

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 10000

NIST Test Number: 23060

Weight shown below was diluted to (mL): 1999.53

5E-05 Balance Uncertainty

0.100 Flask Uncertainty

Formulated By:	Lawrence Barry	011421
Reviewed By:	Pedro L. Rentas	011421

Expanded

SDS Information

Uncertainty	(Solvent Safety Info. On Attached pg.)	NIST
+/- (µg/mL)	CAS#	LD50
	OSHA PEL (TWA)	SRM

Compound

1. Ammonium sulfate (S)	IN117	SLBF8912V	10000.0	99.0	0.10	24.3	83.2191	83.2206	10000.2	20.2	7783-20-2	NA	NA	3181
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[1] Spectrum No.1 [24.004 sec]:58116.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Tc	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.02	Os	<0.01	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.2	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	T	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.2	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
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Certified Reference Material CRM

34

MSD



ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://AbsoluteStandards.com

CERTIFIED WEIGHT REPORT:

Part Number: 57115
Lot Number: 032921
Description: Phosphorous (P)

Lot #
Solvent: 20370011 Nitric Acid

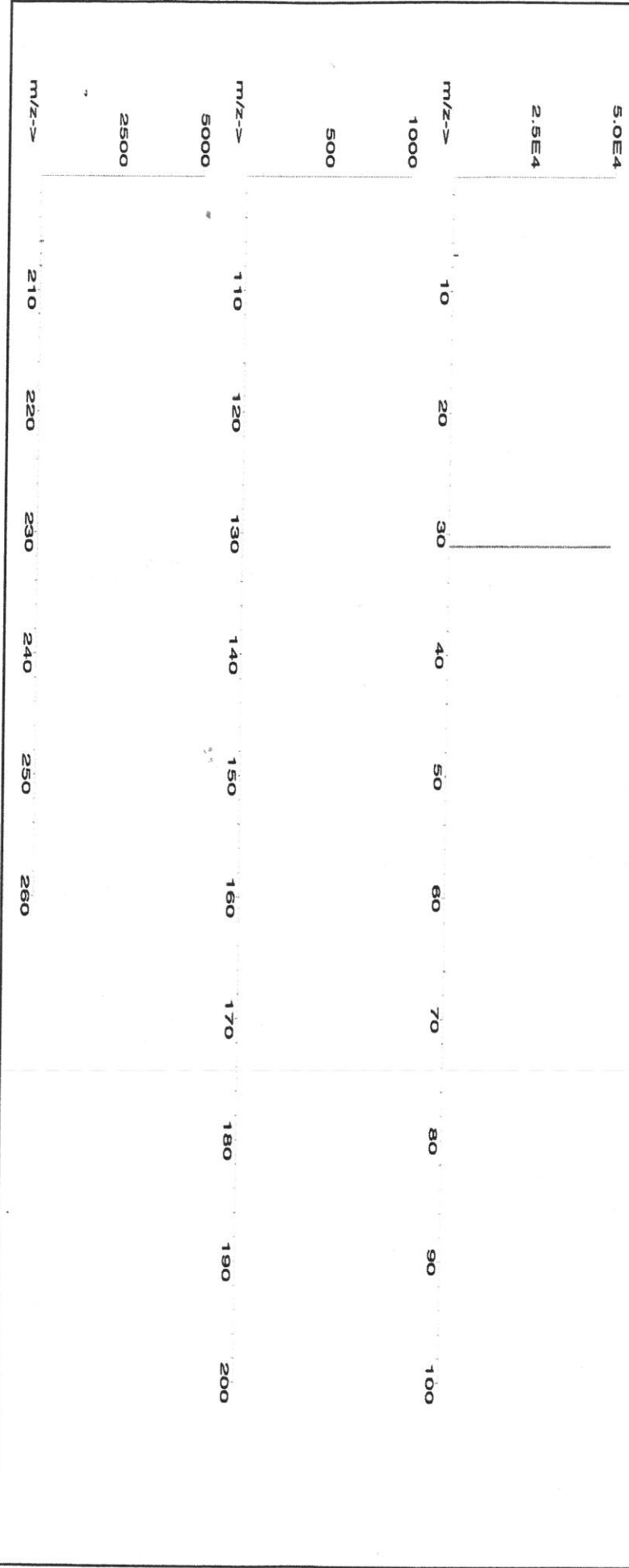
Formulated By: Lawrence Barry 032921
Reviewed By: Pedro L. Rientas 032921

Expiration Date: 032924
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 3000.41

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Compound	SDS Information												
	Expanded							(Solvent Safety Info. On Attached pg.)					
	Lot	Nominal	Purity	Uncertainty	Assay	Target	Actual						
RM#	Number	Conc. (µg/mL)	(%)	Purity (%)	(%)	Weight (g)	Weight (g)	Conc. (µg/mL)	Uncertainty	CAS#	OSHA PEL (TWA)	IDLH	NIST

[1] Spectrum No.1 [12.074 sec]:58115.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	T	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

Certificate of Analysis

300 Technology Drive
 Christiansburg, VA 24073 USA
 inorganicventures.com

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

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
 Catalog Number: CHEM-QC-4
 Lot Number: S2-MEB711674
 Matrix: 3% (v/v) HNO₃
 3% (v/v) HF
 Value / Analyte(s): 1 000 µg/mL ea:
 Boron, Molybdenum,
 Silicon, Tin,
 Titanium

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Boron, B	1 000 ± 7 µg/mL	Molybdenum, Mo	1 000 ± 5 µg/mL
Silicon, Si	1 000 ± 7 µg/mL	Tin, Sn	1 000 ± 5 µg/mL
Titanium, Ti	1 001 ± 6 µg/mL		

Density: 1.032 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
B	ICP Assay	3107	110830
Mo	ICP Assay	3134	130418
Si	ICP Assay	3150	130912
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	3162a	130925

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

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

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

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

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

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

k = coverage factor = 2

$u_{\text{char}} = [\sum(w_i)^2(u_{\text{char } i}^2)]^{1/2}$ where $u_{\text{char } i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = 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 ($\mu\text{g/mL}$)

N/A

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° $\pm$ 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

HF Note: This standard should not be prepared or stored in glass.

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

November 02, 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

- **November 02, 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 Approved By:

Michael Booth
Director, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





M5289 R: 07/12/22
Certified Reference Material CRM

34



ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://AbsoluteStandards.com

CERTIFIED WEIGHT REPORT:

Part Number: 58113
Lot Number: 070622
Description: Aluminum (Al)

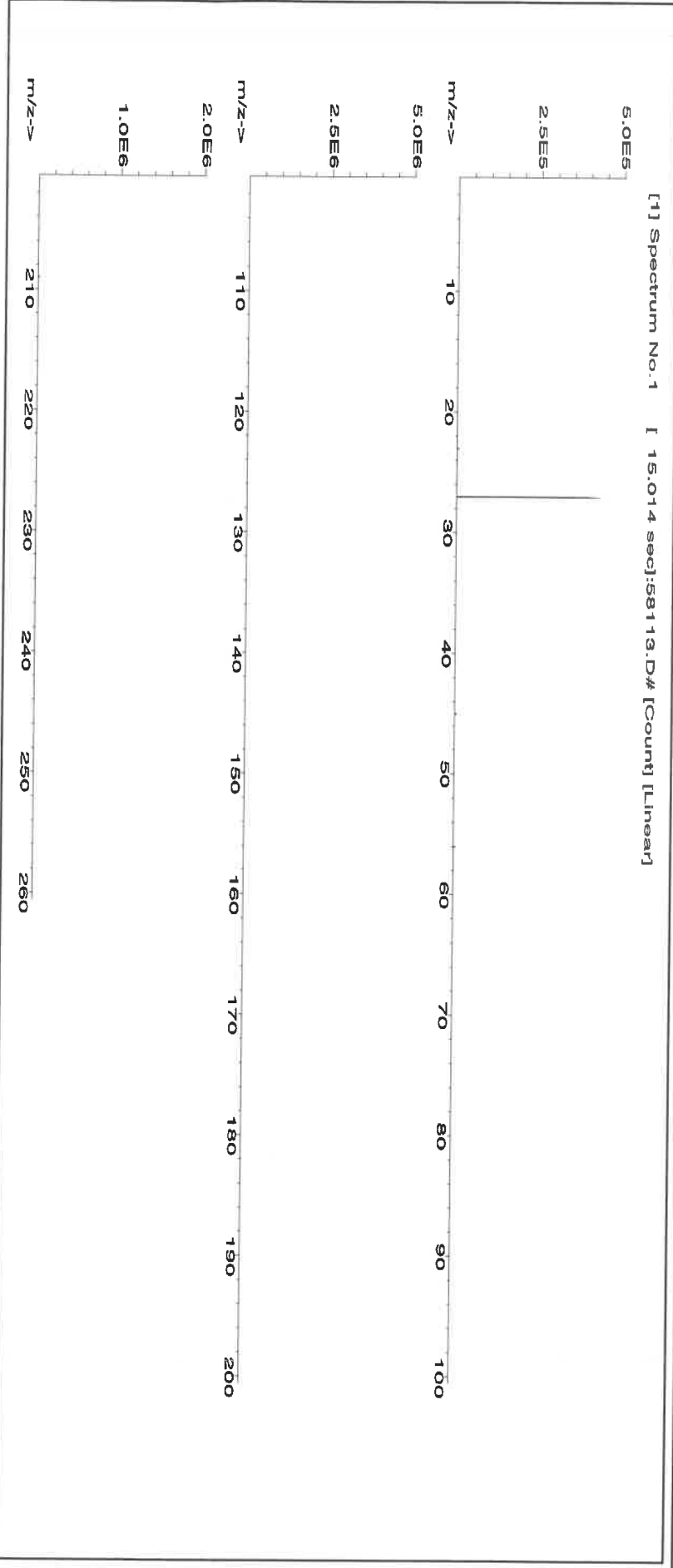
Lot #
Solvent: 20370011 Nitric Acid

Expiration Date: 070625
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 2000.02
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Formulated By:	Lawrence Barry
070622	
Reviewed By:	Pedro L. Rientas
070622	

SDS Information																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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	Lot		Nominal	Purity	Uncertainty	Assay	Target	Actual	Actual	Uncertainty	(Solvent Safety Info. On Attached pg.)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
	RM#	Number	Conc. (µg/mL)	(%)	Purity (%)	(%)	Weight (g)	Weight (g)	Conc. (µg/mL)	+/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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1. Aluminum nitrate nonahydrate (Al) IN022 ALD012021A1 10000 99.999 0.10 7.10 281.6956 281.6977 10000.1 20.0 7784-27-2 2 mg/m3 or-tal 3671 mg/kg 3101a





Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	T	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Ru	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Sr	<0.02	S	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	Ta	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ti	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Certified Reference Material CRM

M5429 R1 0126/23 (B)

CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57103
070622
Lithium (Li)

Solvent: 20510011 Nitric Acid

Expiration Date:
Recommended Storage:
Nominal Concentration (µg/mL):
NIST Test Number:

070625
Ambient (20 °C)
10000
6UTB

2% 20.0 (mL)

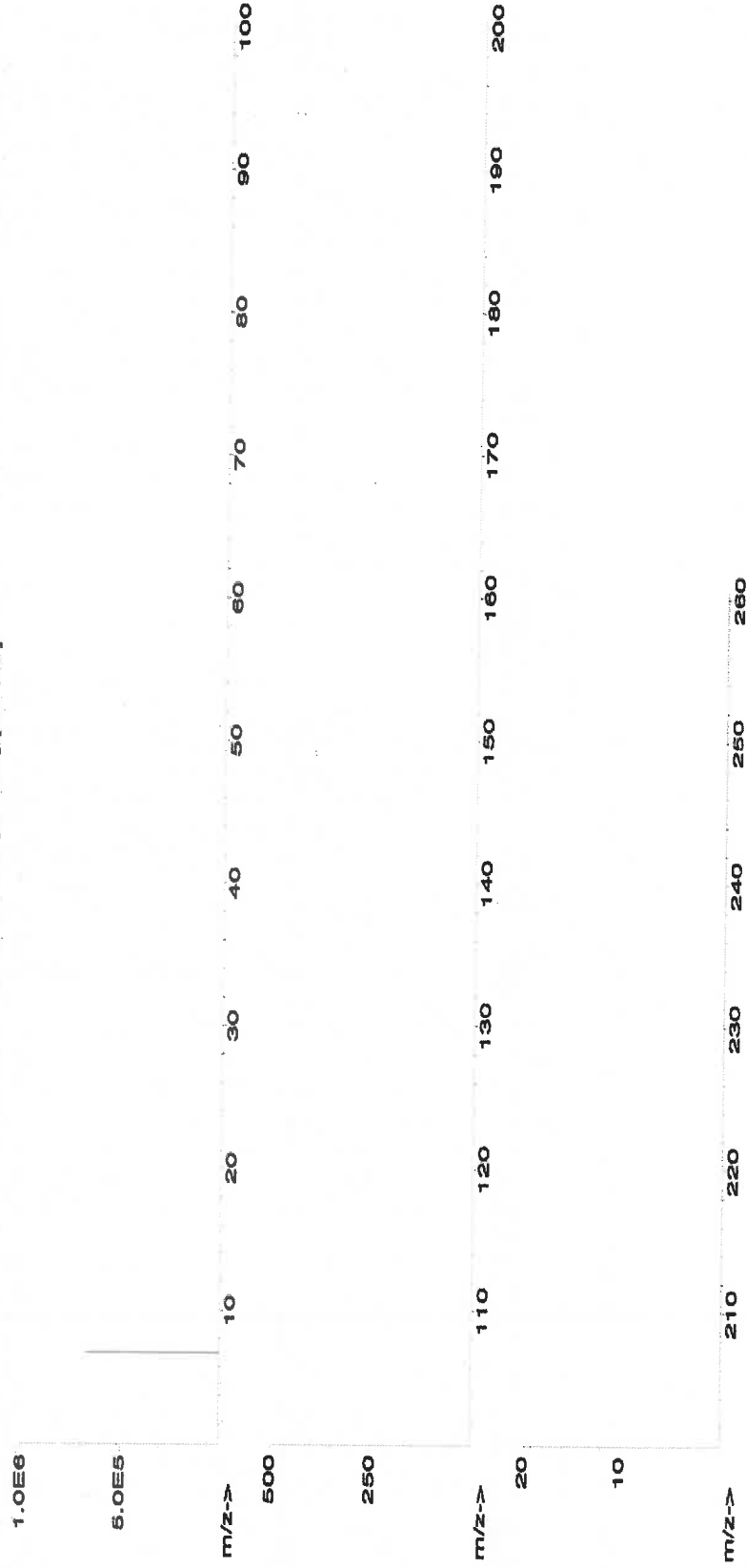
Weight shown below was diluted to (mL): 1000.12
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Lawrence Barry
Formulated By: Lawrence Barry 070622
Pedro L. Rentas
Reviewed By: Pedro L. Rentas 070622

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information		
											(Solvent Safety Info. On Attached pg.)	CAS#	NIST SRM

1. Lithium nitrate (Li)	IN019	L2042019A1	10000	99.999	0.10	10.0	100.0134	100.0173	10000.4	20.0	7790-69-4	5 mg/m3	of-rat 1426 mg/kg	NA
-------------------------	-------	------------	-------	--------	------	------	----------	----------	---------	------	-----------	---------	-------------------	----

[1] Spectrum No.1 [9.619 sec]:58103.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.02	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.2	Ho	<0.02	La	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.02	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.02	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
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- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	La	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Tc	<0.02	U	<0.02
As	<0.2	Ce	T	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.02	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Certified Reference Material CRM



CERTIFIED WEIGHT REPORT:

Part Number: **58113**
Lot Number: **011623**
Description: **Aluminum (Al)**

Solvent: **20510011 Nitric Acid**

Lot #

R 17/20/23

Part Number: **58113**
Lot Number: **011623**
Description: **Aluminum (Al)**

Expiration Date: **011626**

Recommended Storage: **Ambient (20 °C)**

Nominal Concentration (µg/mL): **10000**

NIST Test Number: **6UTB**

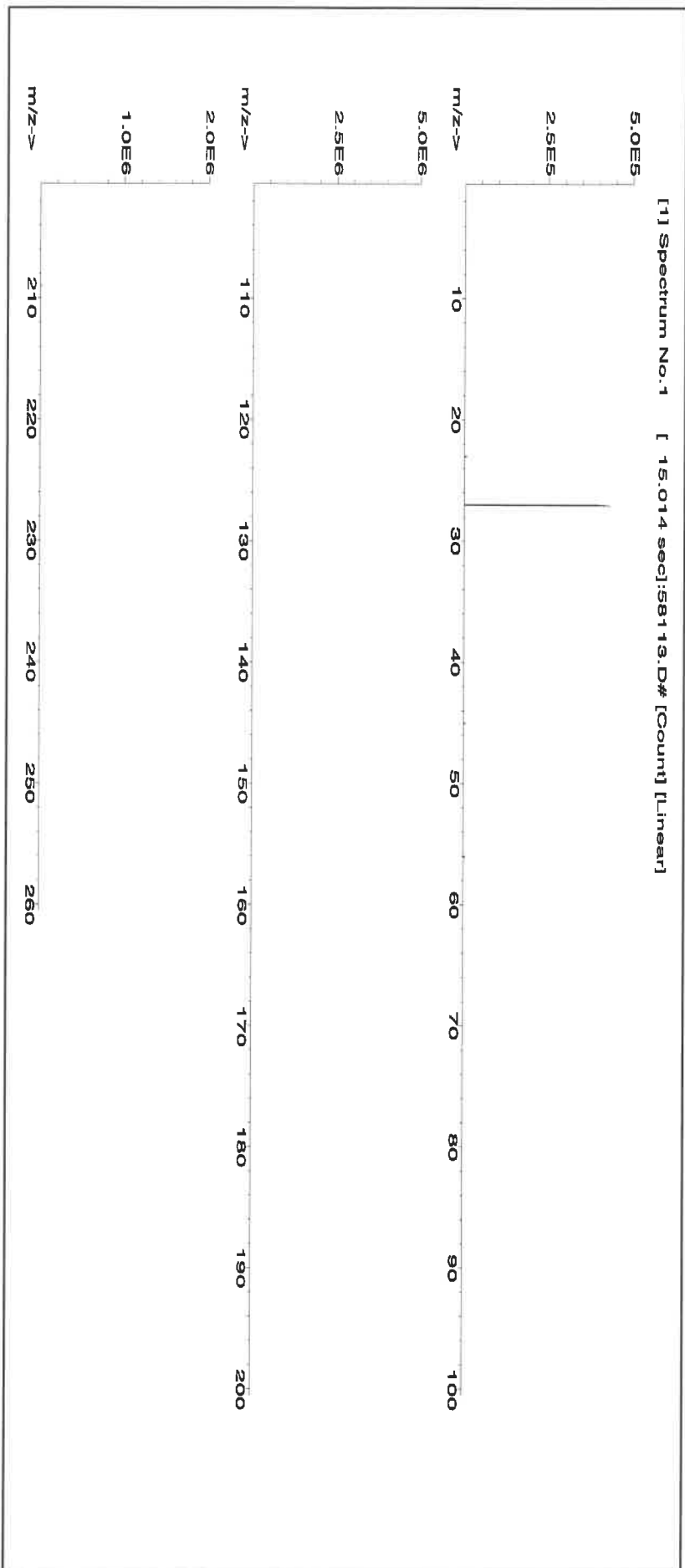
Weight shown below was diluted to (mL): **2000.02** **0.058** **Flask Uncertainty**

2% **40.0** **Nitric Acid**
(mL)

<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
	011623
<i>Pedro L. Rentas</i>	
Reviewed By:	Pedro L. Rentas
	011623

SDS Information									
Compound	Lot	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)
1. Aluminum nitrate nonahydrate (Al)	ALM112021A1	10000	99.999	0.10	7.30	273.9779	274.0078	10001.1	20.0
									7784-27-2
									2 mg/mL
									or 1-ml 3671 mg/kg 3101a

[1] Spectrum No. 1 [15.014 sec]:58113.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	T	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Tc	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Ti	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.2	Fe	<0.02	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Tl	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
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- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number:

Lot Number: 031523

Description:

Calcium (Ca)

Expiration Date:

031526

Recommended Storage: Ambient (20 °C)

10000

NIST Test Number:

6UTB

Weight shown below was diluted to (mL):

d to (mL): 3000.41

5E-05 Balance Uncertainty

0.058 Flask Uncertainty

Solvent: 21110221 Nitric Acid

Solvent: 21110221

2% Nitric Acid

60.0
(mL)

Formulated By: Giovanni Esposito 031523

Giovanni Esposito

031523

Reviewed By: Pedro L. Rentas 031523

Pedro L. Rentas

031523

SDS Information

Expanded

Uncertainty

Actual

Actual

Target

Anty Assay

Purity

Nominal

Lot

1

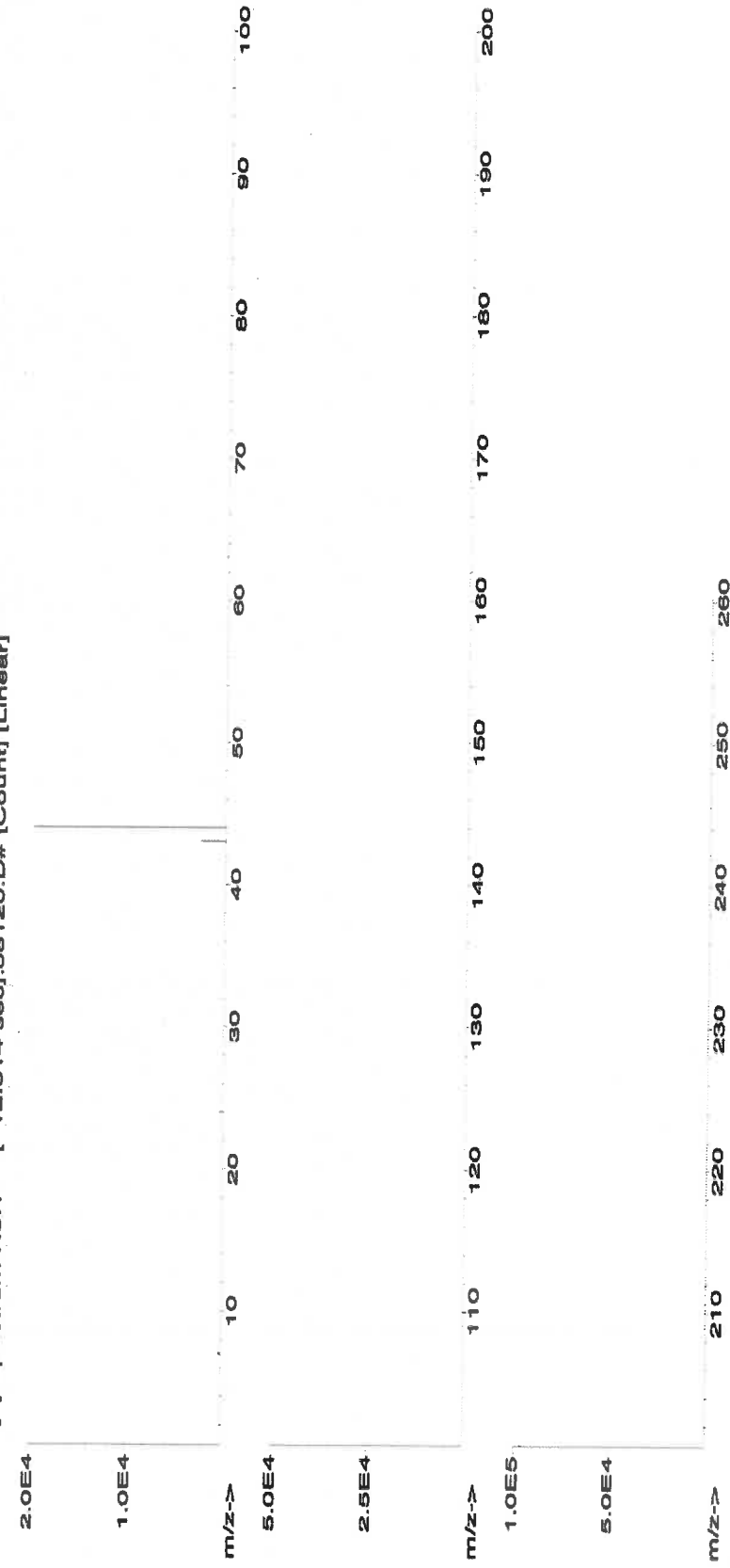
(Solvent Safety Info. On Attached pg.)

NIST

SRM

1. Calcium carbonate (Ca)	IN014	CAD072022A1	10000	0.10	0.000	75 1000	75 2002	1000 4	2002 4
1. Calcium carbonate (Ca)	IN014	CAD072022A1	10000	0.10	0.000	75 1000	75 2002	1000 4	2002 4

[1] Spectrum No.1 [12.514 sec]:58120.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.02	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Tc	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Ti	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.2	Fe	<0.02	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Tl	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
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- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57182
061522
Lead (Pb)

Expiration Date:
Recommended Storage:
Nominal Concentration (µg/mL):
NIST Test Number:

061525
Ambient (20 °C)
10000
6UTB

Weight shown below was diluted to (mL):

2000.02

5E-05 Balance Uncertainty

0.058 Flask Uncertainty

Solvent:

20510011 Nitric Acid

2% 40.0 Nitric Acid

(mL)

Lot #

20510011

Nitric Acid

Formulated By:

Giovanni Esposito

Reviewed By:

Pedro L. Rentas

061522

061522

Expanded

Uncertainty

+/- (µg/mL)

20.0

10098-74-8

0.05 mg/m3

intrins-raf 88 mg/kg

3128

NIST

SRM

LD50

OSHA PEL (TWA)

CAS#

(Solvent Safety Info. On Attached pg.)

SDS Information

Compound

1. Lead(II) nitrate (Pb)

IN029

PBD12201641

10000

99.999

0.10

82.5

32.0006

32.0041

10001.1

20.0

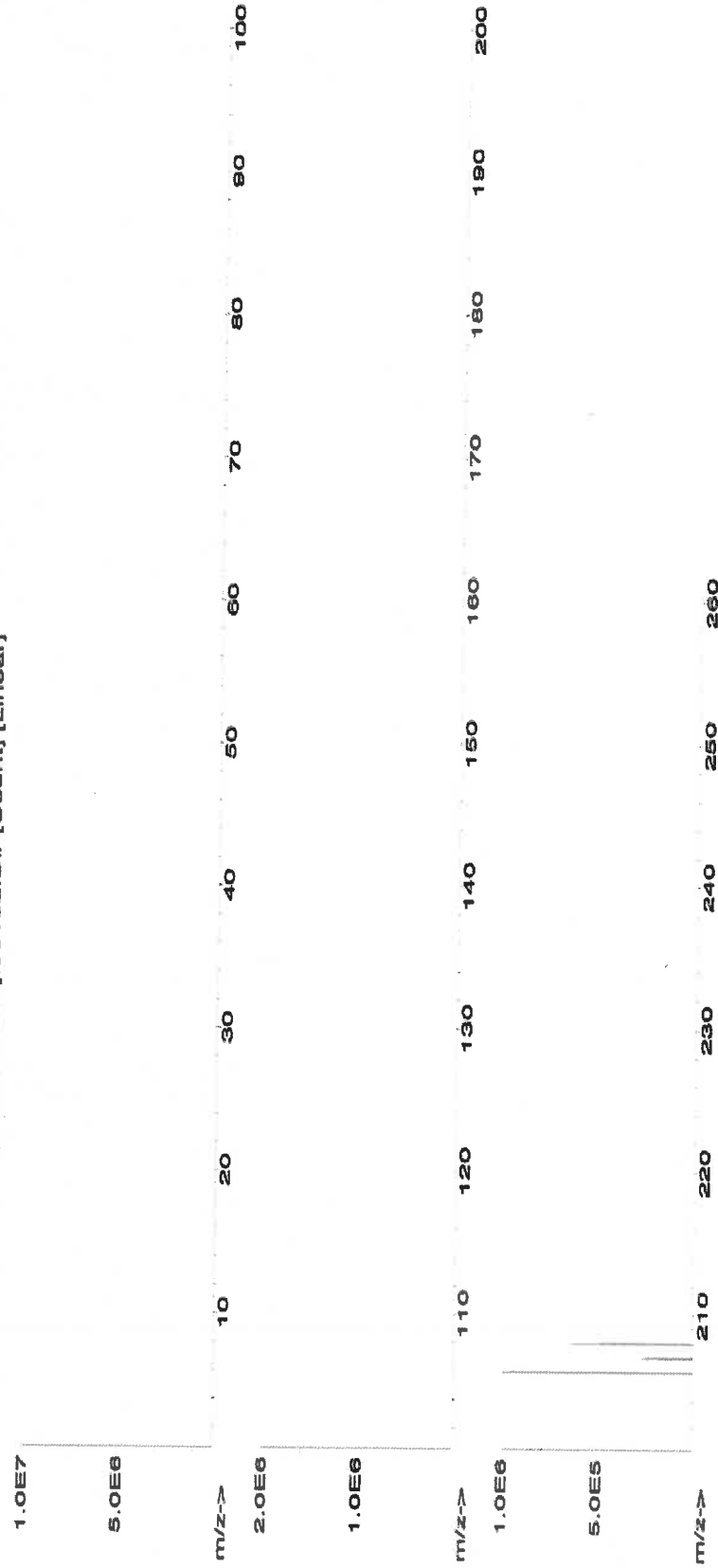
10098-74-8

0.05 mg/m3

intrins-raf 88 mg/kg

3128

[1] Spectrum No.1 [17.284 sec]:58182.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.2	Fe	<0.02	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pr	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Certified Reference Material CRM

CERTIFIED WEIGHT REPORT:

Part Number: **58119**
Lot Number: **120822**
Description: **Potassium (K)**

Solvent: 20510011 Nitric Acid

Lot #

Expiration Date: 120825
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB

2% 60.0 (mL) Nitric Acid

Weight shown below was diluted to (mL): 3000.4

5E-05 Balance Uncertainty
0.06 Flask Uncertainty

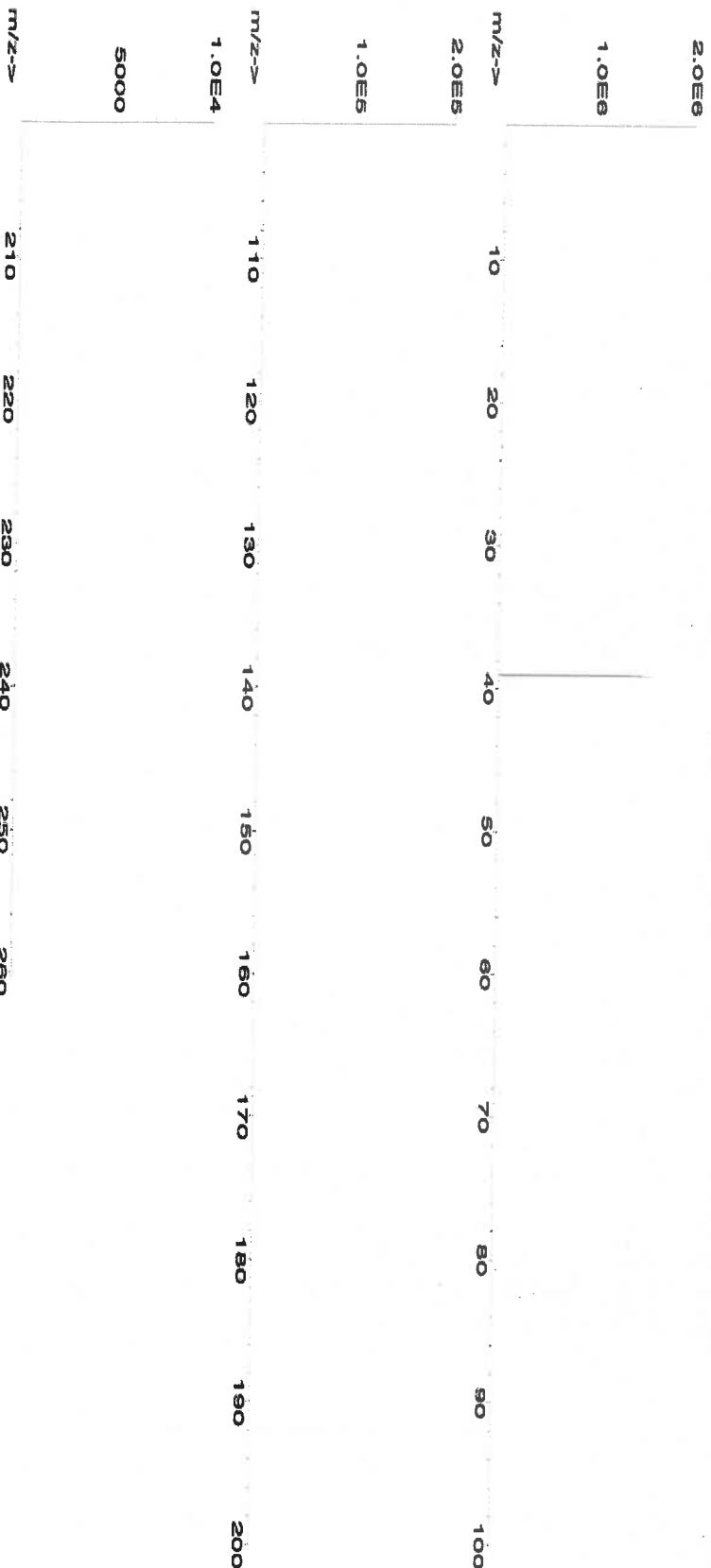
<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
Reviewed By:	<i>Pedro L. Renteria</i>
	120822

Compound

Lot	Nominal	Purity	Uncertainty	Assay	Target	Actual	Actual	Expanded	SDS Information	NIST
RM#	Number	Conc. (µg/mL)	(%)	Purity (%)	(%)	Weight (g)	Weight (g)	Conc. (µg/mL)	Uncertainty	(Solvent Safety Info. On Attached pg.)
								+/- (µg/mL)	CAS#	OSHA PEL (TWA)
										LD50

1. Potassium nitrate (K) IN034 KD022021A1 10000 99.989 0.10 37.6 79.7990 79.8075 10001.1 20.0 7757-79-1 5 mg/m3 crtat 3015 mg/kg 3141a

[1] Spectrum No.1 [35.763 sec]:58119.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.02	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

Certificate of Analysis

300 Technology Drive
 Christiansburg, VA 24073 USA
 inorganicventures.com

P: 800-669-6799/540-585-3030

F: 540-585-3012

info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
 Catalog Number: CLPP-SPK-1
 Lot Number: T2-MEB721963
 Matrix: 7% (v/v) HNO₃
 Value / Analyte(s):
 2 000 µg/mL ea:
 Aluminum, Barium,
 1 000 µg/mL ea:
 Iron,
 500 µg/mL ea:
 Manganese, Nickel,
 Vanadium, Zinc,
 Cobalt,
 250 µg/mL ea:
 Copper,
 200 µg/mL ea:
 Chromium,
 50 µg/mL ea:
 Beryllium, Silver

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	2 000 ± 7 µg/mL	Barium, Ba	2 000 ± 9 µg/mL
Beryllium, Be	50.00 ± 0.26 µg/mL	Chromium, Cr	200.0 ± 1.1 µg/mL
Cobalt, Co	500.0 ± 2.4 µg/mL	Copper, Cu	250.0 ± 1.0 µg/mL
Iron, Fe	1 000 ± 4 µg/mL	Manganese, Mn	500.0 ± 2.0 µg/mL
Nickel, Ni	500.0 ± 2.2 µg/mL	Silver, Ag	50.00 ± 0.22 µg/mL
Vanadium, V	500.0 ± 2.2 µg/mL	Zinc, Zn	500.0 ± 2.2 µg/mL

Density: 1.070 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	160729
Ag	Volhard	999c	999c
Ag	Calculated		See Sec. 4.2
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Be	Calculated		See Sec. 4.2
Co	ICP Assay	3113	190630
Co	EDTA	928	928
Cr	ICP Assay	3112a	170630
Cu	ICP Assay	3114	121207
Cu	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
V	IC Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

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:

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

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

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:

$$X_{CRM/RM} = (\bar{X}_a) (u_{char\ a})$$

$\bar{X}_a$ = mean of Assay Method A with

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

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

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)

N/A

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

Note: This solution contains Silver (Ag), please refer to our Sample Preparation Guide for more information.

<https://www.inorganicventures.com/sample-preparation-guide/samples-containing-silver>

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

July 27, 2022

- 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

- July 27, 2027

- 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 Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





CERTIFIED WEIGHT REPORT:

Part Number: 58024
Lot Number: 060523
Description: Chromium (Cr)

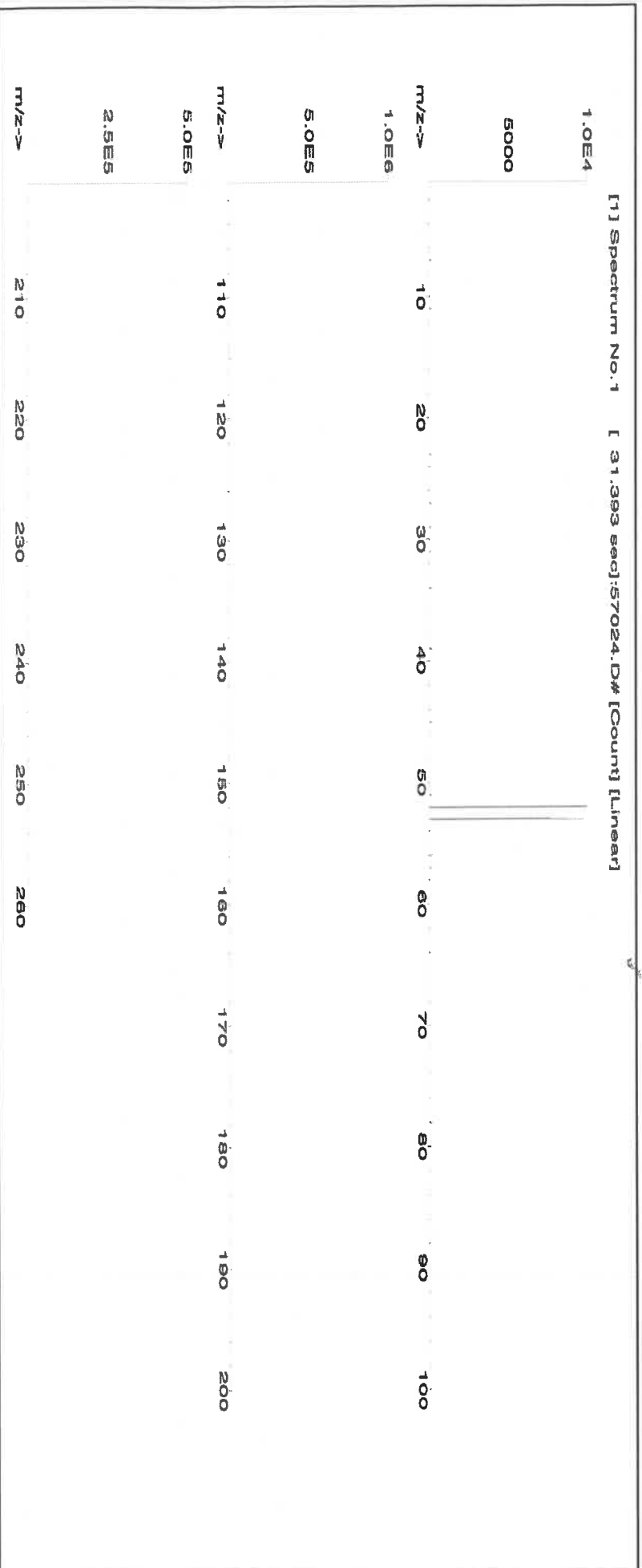
Lot # 2110221 **Solvent:** Nitric Acid

Formulated By:	Lawrence Barry
	060523
Reviewed By:	Pedro L. Ruelas
	060523

Expiration Date: 060526
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Volume shown below was diluted to (mL): 2000.02
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Chromium(III) nitrate nonahydrate (Cr) 58124 071122 0.1000 200.0 0.084 1000 10000.1 1000.0 2.2 7789-02-8 0.5 mg(Cr)/m3 or rat 3250 mg/kg 3112a





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	T	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: 58029
Lot Number: 102523
Description: Copper (Cu)

Lot # 24002546
Solvent: Nitric Acid

Expiration Date: 102526
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Volume shown below was diluted to (mL): 2000.02
Balance Uncertainty: 5E-05
Flask Uncertainty: 0.058

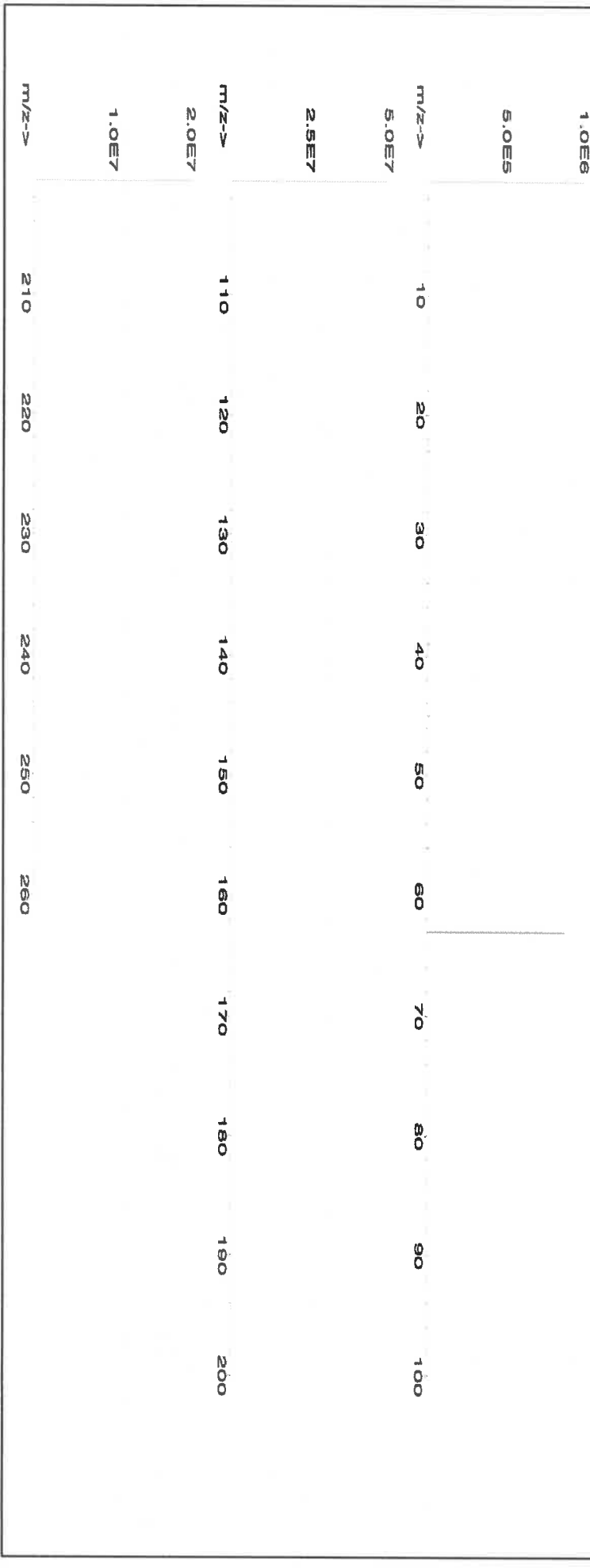
Formulated By:	Benson Chan
Reviewed By:	Pedro L. Rentas

SDS Information

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Copper(II) nitrate trihydrate (Cu) 58129 100223 0.1000 200.0 0.084 1000 10000.1 1000.0 2.2 10031-43-3 1 mg/m3 or-rat 794 mg/kg 3114

[1] Spectrum No.1 [33.422 sec]:58029.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	T	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



M5768 M5769
Certified Reference Material CRM
R: 1/13/24



ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://AbsoluteStandards.com

CERTIFIED WEIGHT REPORT:

Part Number: 58112
Lot Number: 091823
Description: Magnesium (Mg)

Solvent: 24002546 Nitric Acid

Lot #

Expiration Date: 091826

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 10000

NIST Test Number: 6UTB

Weight shown below was diluted to (mL): 2000.02

2% 40.0 (mL) Nitric Acid

M5768 M5769

BP R: 1/13/24

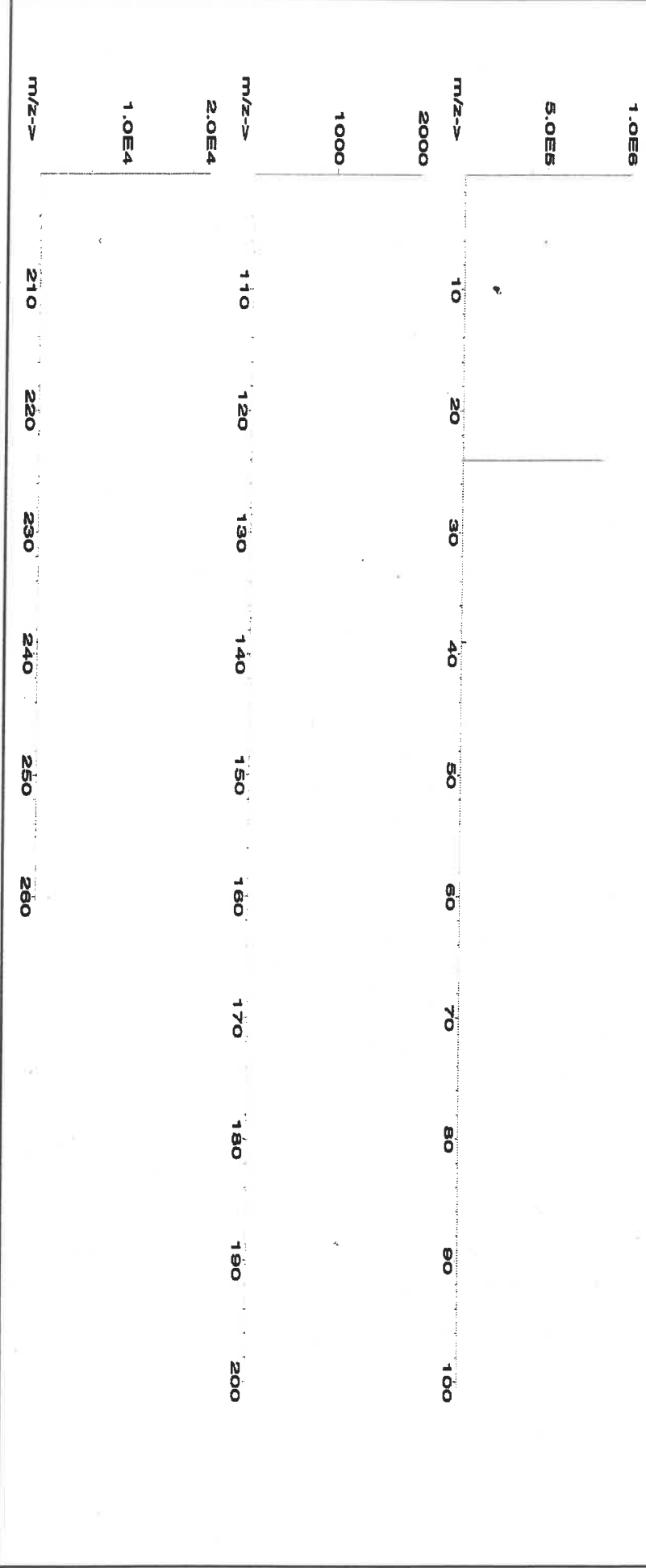
Formulated By: <i>Lawrence Barry</i>		091823
Reviewed By: <i>Pedro L. Rentas</i>		091823

Compound

Lot	Nominal	Purity	Uncertainty	Assay	Target	Actual	Actual	Expanded	SDS Information	NIST
RM#	Number	Conc. (µg/mL)	(%)	Purity (%)	Weight (g)	Weight (g)	Conc. (µg/mL)	+/- (µg/mL)	(Solvent Safety Info. On Attached pg.)	SRM

1. Magnesium nitrate hexahydrate (Mg) IN030 M500222A1 10000 99.999 0.10 8.51 234.9118 234.9126 10000.0 20.0 13446-18-9 NA or-rat 5440 mg/kg 3131a

[1] Spectrum No. 1 [19.923 sec]: 58112.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	T	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: 57004
Lot Number: 102523
Description: Beryllium (Be)

Lot # 24002546
Solvent: Nitric Acid

Expiration Date:

102526

2.0%

40.0 (mL)

Nitric Acid

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Volume shown below was diluted to (mL):

2000.02

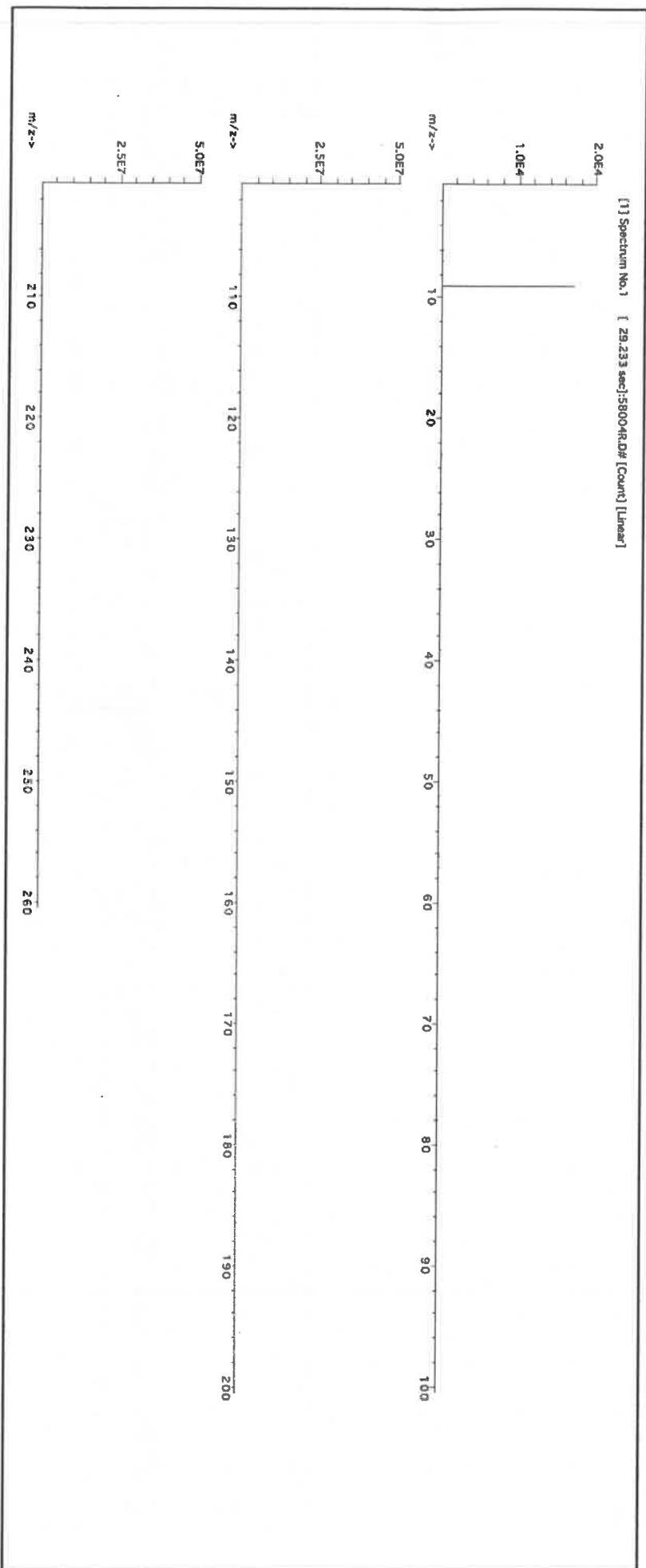
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Formulated By:	Benson Chan	102523
Reviewed By:	Pedro L. Rentas	102523

SDS Information

Compound	Part Number	Lot	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
----------	-------------	-----	-----------------	-------------------	--------------------------	-----------------------	-----------------------	---------------------	----------------------------------	------	----------------	------	----------

1. Beryllium nitrate (Be)	58104	091423	0.1000	200.0	0.084	1000	10001.5	1000.0	2.2	13597-99-4	0.2µg/m3	intrinsc-rat 3.16mg/kg	NA
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Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS ($\mu\text{g/mL}$)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Tc	<0.02	U	<0.02
As	<0.02	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Ti	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	T	Cr	<0.02	Ga	<0.02	Fe	<0.02	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Ta	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.02	Sc	<0.02	Ta	<0.02	Tl	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
 * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.

* All standard containers are meticulously cleaned prior to use.

* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
 * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.

* All Standards should be stored with caps tight and under appropriate laboratory conditions.

* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Certified Reference Material CRM

CERTIFIED WEIGHT REPORT:

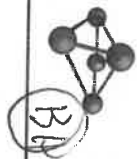
Part Number: **57050**
Lot Number: **071123**
Description: **Tin (Sn)**

Solvents: **21110221** Nitric Acid
22D0562008 Hydrochloric acid

Lot #

R. 02509124

M599



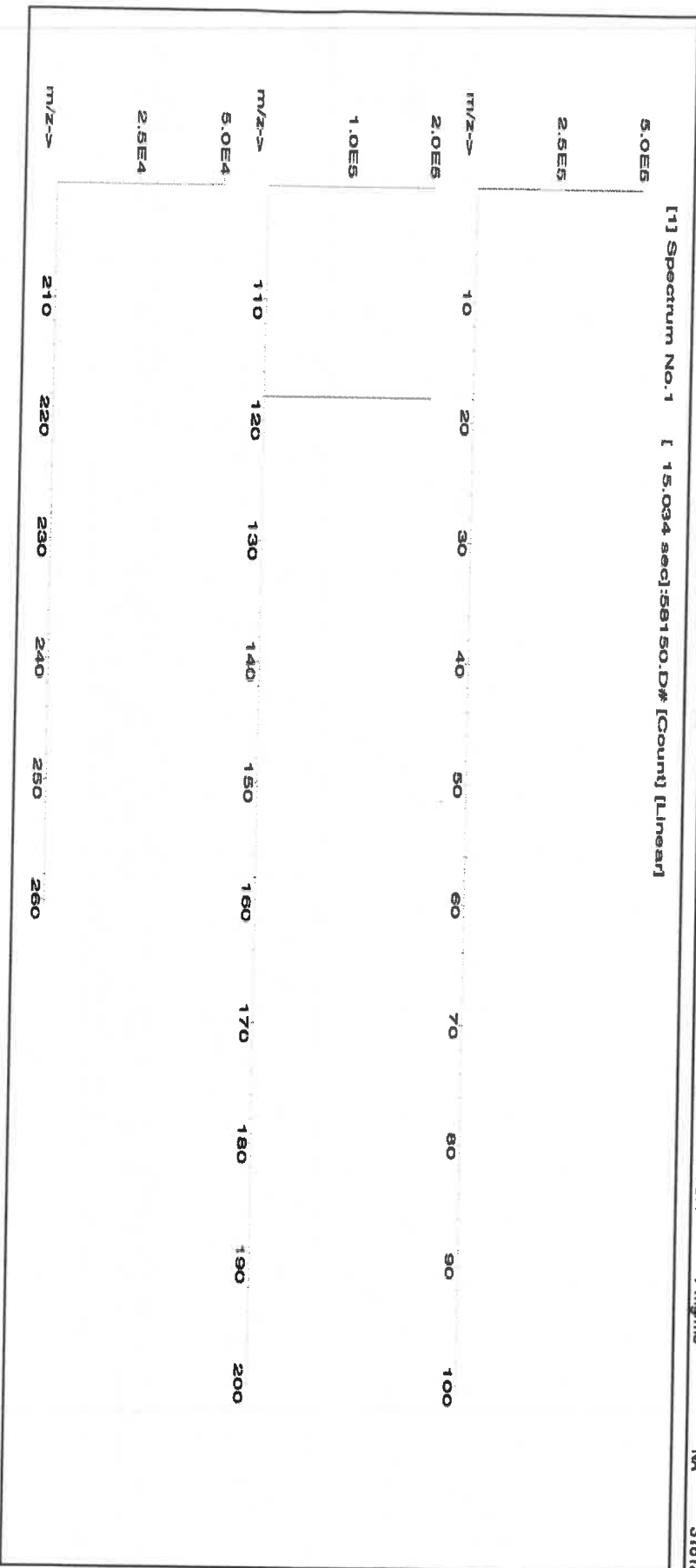
Expiration Date: **071126**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **1000**
NIST Test Number: **6UTB**
Weight shown below was diluted to (mL): **499.93**
5E-05 Balance Uncertainty
0.056 Flask Uncertainty

Formulated By: <i>Benson Chan</i>	
Benson Chan	
071123	
Reviewed By: <i>Pedro L. Rientas</i>	Pedro L. Rientas
071123	

SDS Information												
Compound	Lot		Nominal	Purity	Uncertainty	Assay	Target	Actual	Actual	Expanded	(Solvent Safety Info. On Attached pg.)	
	RM#	Number	Conc. (µg/mL)	(%)	Purity (%)	(%)	Weight (g)	Weight (g)	Conc. (µg/mL)	Uncertainty		
NIST												

1. Ammonium hexafluoroantimonate(V) (Sn) INO10 SMD042023A1 1000 99.999 0.10 44.2 1.13107 1.13286 1001.6 2.0 16919-24-7 7 mg/m3 NA 3161a

[1] Spectrum No. 1 [15.034 sec]:56150.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Ti	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<500	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Ta	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Tl	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



R: 02/09/24 115800 (54)

CERTIFIED WEIGHT REPORT:

Part Number: 57027
Lot Number: 091923
Description: Cobalt (Co)

Expiration Date: 091926
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

Volume shown below was diluted to (mL): 2000.02

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Lot # 24002546
Solvent: Nitric Acid

2.0% Nitric Acid
40.0 (mL)

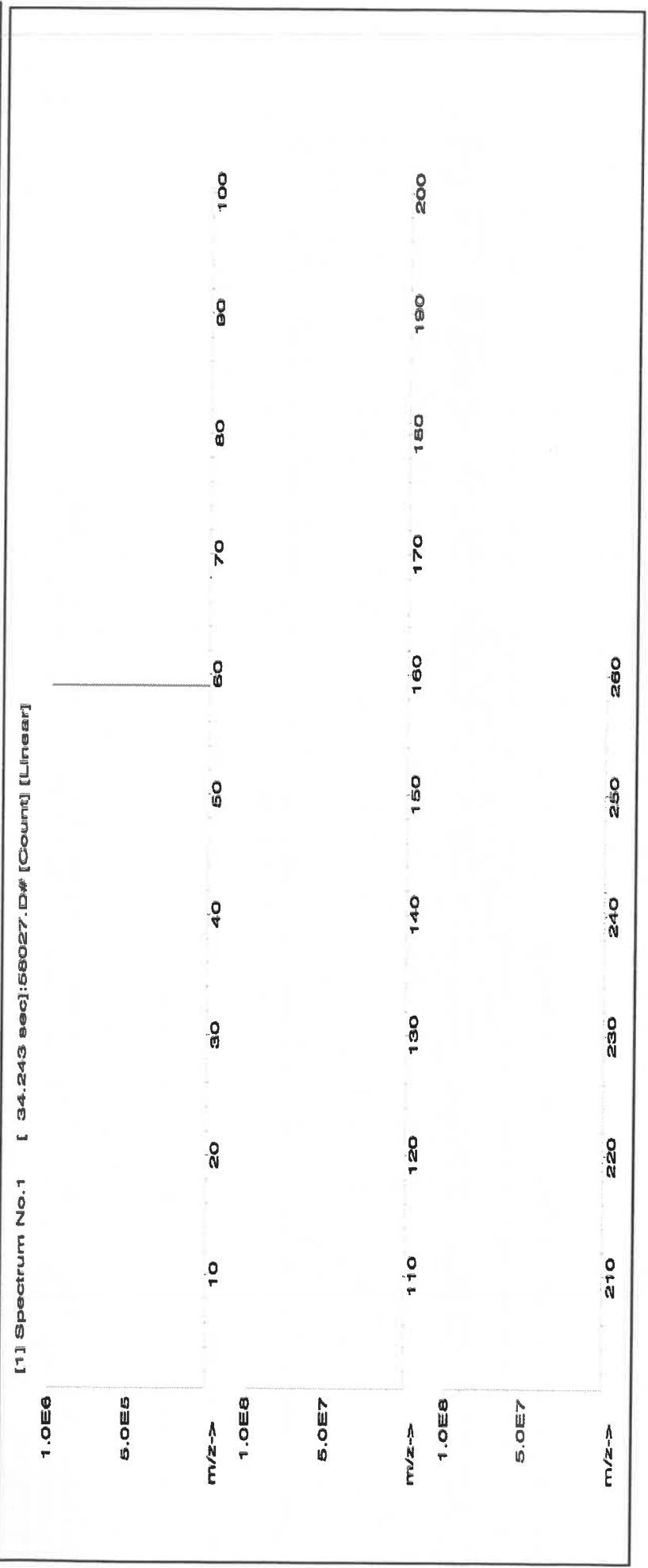
Formulated By:	Lawrence Barry
Reviewed By:	Pedro L. Rentas

SDS Information

Expanded Uncertainty +/- (µg/mL)
Final Conc. (µg/mL)
Initial Conc. (µg/mL)
Nominal Conc. (µg/mL)
Pipette (mL)
Initial Vol. (mL)
Dilution Factor
Part Number
Lot Number

(Solvent Safety Info. On Attached pg.)
CAS#
OSHA PEL (TWA)
LD50
NIST
SRM

1. Cobalt(II) nitrate hexahydrate (Co) 58127 050923 0.1000 200.0 0.084 1000 10000.0 1000.0 2.2 10026-22-9 0.02 mg/m3 orl-rat 691 mg/kg 3113





Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.02	Os	<0.01	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.2	Na	<0.02	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	T	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.2	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
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- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
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- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57033
111323
Arsenic (As)

Lot #
Solvent:

24002546
Nitric Acid

2.0%

80.0

Nitric Acid

Expiration Date:
Recommended Storage:
Nominal Concentration (µg/mL):

111326
Ambient (20 °C)
1000

NIST Test Number:
Volume shown below was diluted to (mL):

6UTB
4000.0

5E-05
Balance Uncertainty
0.06
Flask Uncertainty

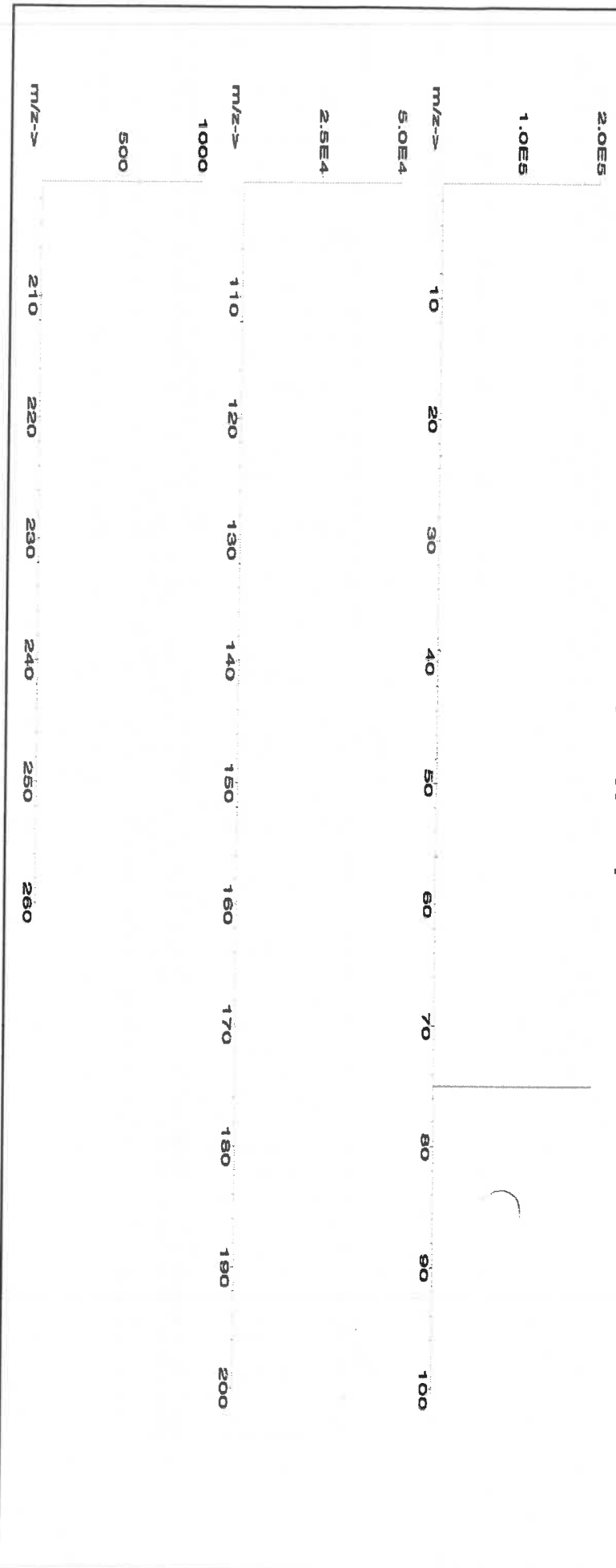
Formulated By:	Lawrence Barry	111323
Reviewed By:	Pedro L. Rendas	111323

Compound

Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Arsenic (As) 58133 020522 0.1000 400.0 0.084 1000 10001.0 1000.0 2.0 7440-38-2 0.5 mg/m3 or-lat 500 mg/kg 3103a

[1] Spectrum No.1 [34.433 sec]:57033.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS ($\mu\text{g/mL}$)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	T	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Tl _h	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge [*]	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
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- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: 57115
Lot Number: 041723
Description: Phosphorous (P)

Solvent: 21110221 Nitric Acid

Lot #

R102109124 M5815

Expiration Date: 041726
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB

2% 40.0 (mL) Nitric Acid

Weight shown below was diluted to (mL): 2000.02 0.056 Balance Uncertainty Flask Uncertainty

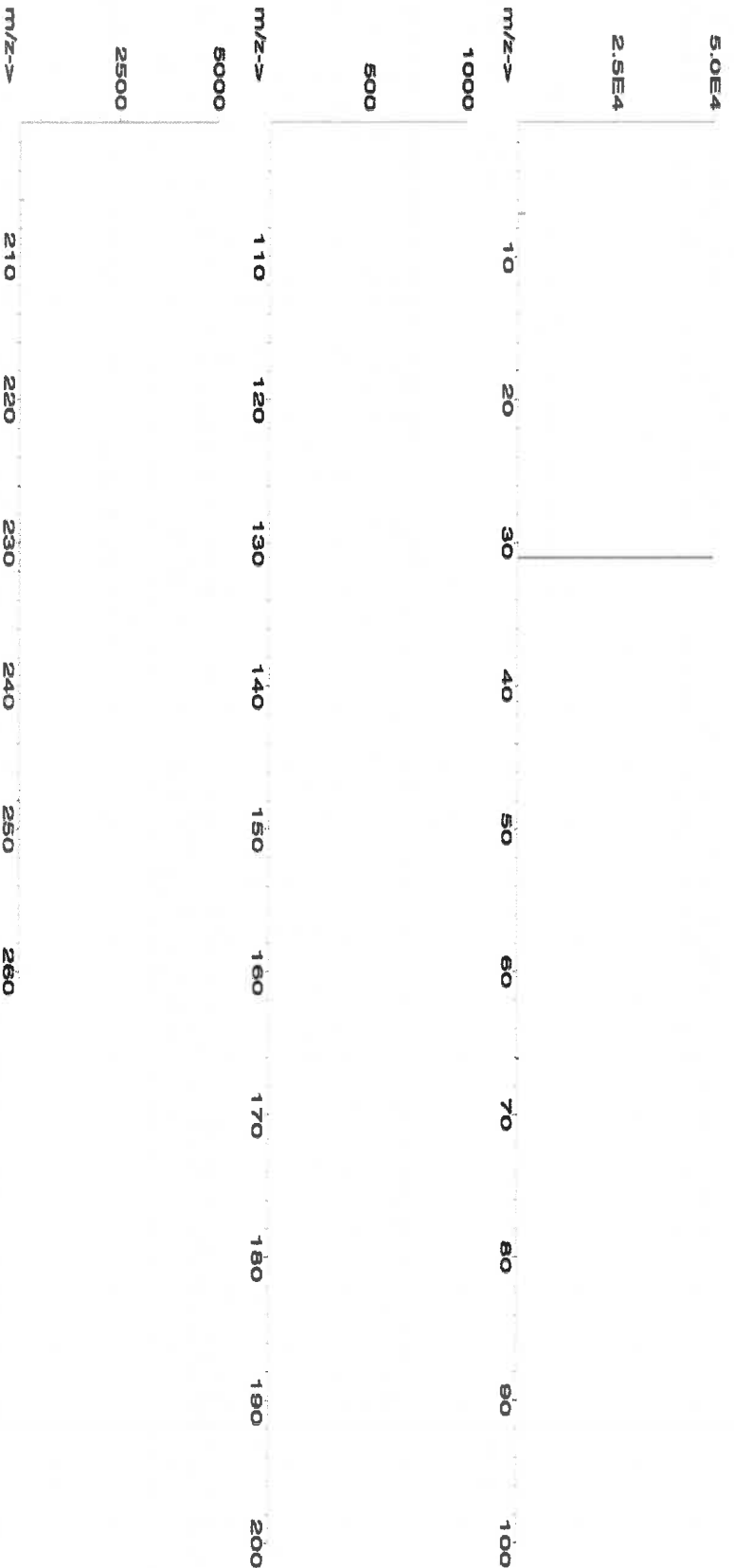
Formulated By: Lawrence Barry	041723
Reviewed By: Pedro L. Rentas	041723

Compound

RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Ammonium dihydrogen phosphate (P) IN008 PVR2019A1 10000 99.999 0.10 27.5 72.7287 72.7289 10000.0 20.0 7722-76-1 5 mg/m3 or-hal >2000mg/kg 3186

[1] Spectrum No.1 [12.074 sec]:58115.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	T	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57116
071123
Sulfur (S)

Lot #
Solvent: 071123
ASTM Type 1 Water

Formulated By:	Lawrence Barry
071123	
Reviewed By:	Pedro L. Rentas
071123	

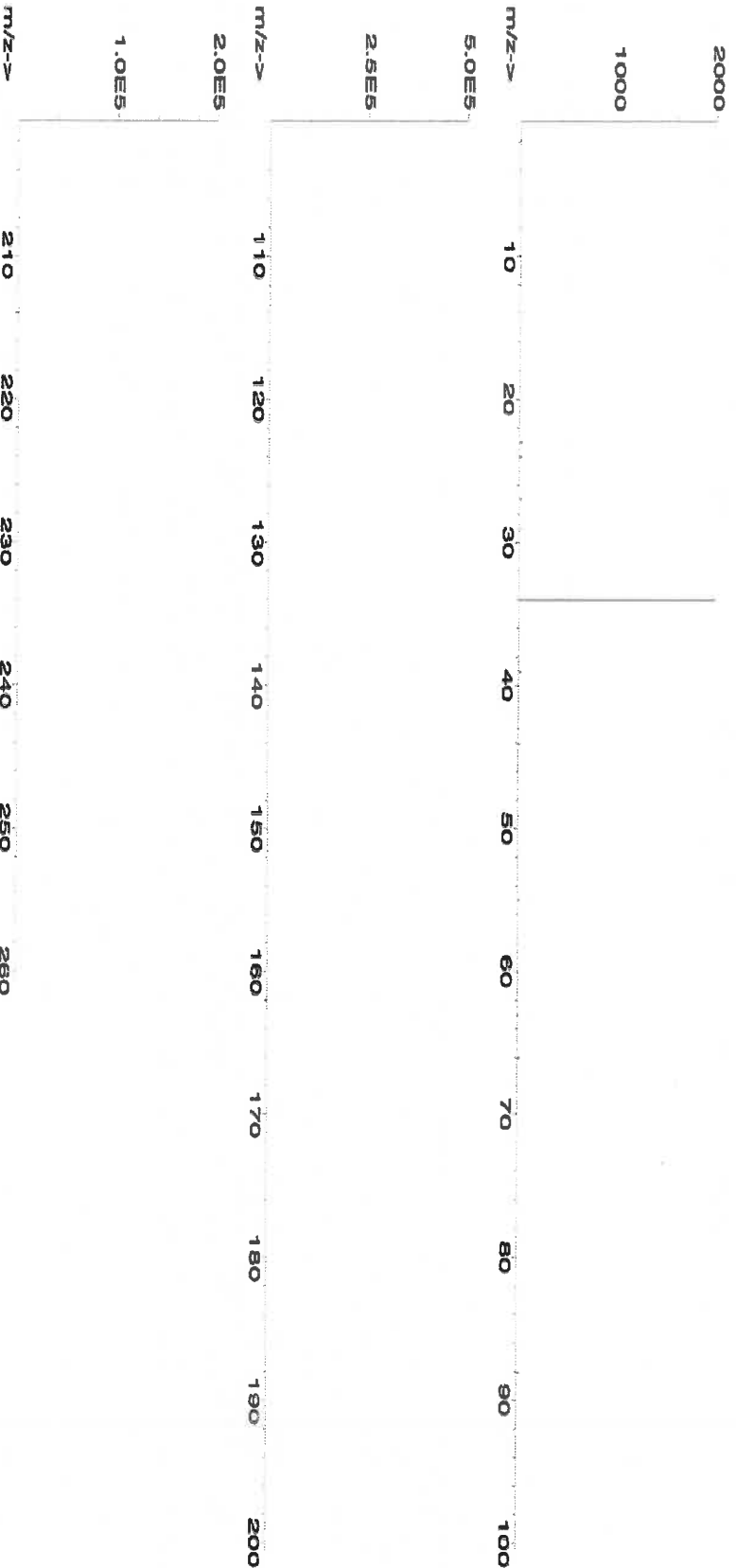
Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 1999.48
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM

SDS Information

1. Ammonium sulfate (S) IN117 SLBR725V 10000 99.9 0.10 24.3 82.4675 82.4692 10000.1 20.0 7783-20-2 NA oral-rat 4250mg/kg 3181

[1] Spectrum No. 1 [24.004 sec]:58116.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	T	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

Physical Characterization:

(T)= Target analyte

Certified by:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

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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 Custom Grade Solution
Catalog Number: CGT11
Lot Number: T2-TI719972
Matrix: 2% (v/v) HNO₃
tr. HF
Value / Analyte(s): 1 000 µg/mL ea:
Titanium
Starting Material: Ti Metal
Starting Material Lot#: 2094
Starting Material Purity: 99.9975%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1002 ± 5 µg/mL
Density: 1.012 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1 1002 ± 4 µg/mL
ICP Assay NIST SRM 3162a Lot Number: 130925

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

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

Characterization of CRM/RM by Two or More Methods

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

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

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:

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

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

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

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

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.

M	Ag	<	0.000536	M	Eu	<	0.000268	O	Na	<	0.032670	M	Se		0.001204	O	Zn	<	0.003267
O	Al		0.000872	O	Fe		0.003225	O	Nb	<	0.043560	O	Si		0.004735	O	Zr	<	0.043560
M	As	<	0.008586	M	Ga	<	0.000268	M	Nd	<	0.000268	M	Sm	<	0.000268				
M	Au	<	0.004577	M	Gd	<	0.000268	O	Ni	<	0.010890	M	Sn		0.000096				
O	B	<	0.008929	M	Ge	<	0.002146	M	Os	<	0.000269	O	Sr		0.000096				
M	Ba	<	0.002683	M	Hf		0.002161	O	P	<	0.054450	M	Ta		0.010560				
M	Be	<	0.005366	M	Hg	<	0.003231	M	Pb	<	0.001073	M	Tb	<	0.000268				
M	Bi	<	0.001609	M	Ho	<	0.000268	M	Pd	<	0.000268	M	Te	<	0.001341				
O	Ca		0.000676	M	In	<	0.002683	M	Pr	<	0.000268	M	Th	<	0.053663				
M	Cd	<	0.000268	M	Ir	<	0.000269	M	Pt	<	0.000536	s	Ti	<					
M	Ce	<	0.000268	M	K		0.001172	M	Rb	<	0.000268	M	Tl	<	0.000268				
M	Co	<	0.004293	M	La	<	0.000268	M	Re	<	0.000268	M	Tm	<	0.000268				
M	Cr		0.000752	O	Li	<	0.027225	M	Rh	<	0.000268	M	U	<	0.000268				
M	Cs	<	0.000268	M	Lu	<	0.000268	M	Ru	<	0.000269	M	V	<	0.019855				
O	Cu	<	0.010890	O	Mg	<	0.005445	i	S	<		M	W		0.000473				
M	Dy	<	0.000268	O	Mn	<	0.003267	M	Sb	<	0.006976	M	Y	<	0.002146				
M	Er	<	0.000268	M	Mo		0.000774	O	Sc	<	0.004900	M	Yb	<	0.000536				

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 - 47.87 +4 6 Ti(F)6-2

Chemical Compatibility - Soluble in concentrated HCl, HF, H3PO4 H2SO4 and HNO3. Avoid neutral to basic media. Unstable at ppm levels with metals that would pull F- away (i.e. Do not mix with Alkaline or Rare Earths or high levels of transition elements unless they are fluorinated). Stable with most inorganic anions with a tendency to hydrolyze forming the hydrated oxide in all dilute acids except HF.

Stability - 2-100 ppb levels stable (Alone or mixed with all other metals) as the Ti(F)6-2 for months in 1% HNO3 / LDPE container. 1-10,000 ppm single element solutions as the Ti(F)6-2 chemically stable for years in 2-5% HNO3 / trace HF in an LDPE container.

Ti Containing Samples (Preparation and Solution) - Metal (Soluble in H2O / HF caution -powder reacts violently); Oxide - low temperature history anatase or rutile (Dissolved by heating in 1:1:1 H2O / HF / H2SO4); Oxide - high temperature history (~800EC) brookite (fuse in Pt0 with K2S2O7); Ores (fuse in Pt0 with KF + K2S2O7 - no KF if silica not present); Organic Matrices (Dry ash at 450EC in Pt0 and dissolve by heating with 1:1:1 H2O / HF / H2SO4 or fuse ash with pyrosulfate if oxide is as plastic pigment and likely in brookite crystalline form).

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 48 amu	14 ppt	N/A	32S16O, 32S14N, 14N16O18O, 14N17N2, 36Ar12C, 48Ca, [96X=2 (where X = Zr, Mo, Ru)]
ICP-OES 323.452 nm	0.0054 / 0.00092 µg/mL	1	Ce, Ar, Ni
ICP-OES 334.941 nm	0.0038 / 0.000028 µg/mL	1	Nb, Ta, Cr, U
ICP-OES 336.121 nm	0.0053 / 0.000034 µg/mL	1	W, Mo, Co

HF Note: This standard should not be prepared or stored in glass.

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

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

June 17, 2022

- 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

- June 17, 2027

- 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 Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



M5959 R: 6/14/24

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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 Custom Grade Solution
Catalog Number: CGY10
Lot Number: V2-Y740548
Matrix: 2% (v/v) HNO₃
Value / Analyte(s): 10 000 µg/mL ea:
Yttrium
Starting Material: Yttrium Oxide
Starting Material Lot#: 2661 and 06230520YL
Starting Material Purity: 99.9984%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10000 ± 30 µg/mL
Density: 1.032 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	10011 ± 25 µg/mL EDTA NIST SRM 928 Lot Number: 928
Assay Method #2	9997 ± 50 µg/mL ICP Assay NIST SRM 3167a Lot Number: 190730
Assay Method #3	9984 ± 31 µg/mL Calculated NIST SRM Lot Number: See Sec. 4.2

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

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

Characterization of CRM/RM by Two or More Methods

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

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

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:

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

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

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

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

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.

M Ag <	0.004600	M Eu	0.009037	M Na	0.086360	M Se <	0.005200	M Zn	0.030125
M Al	0.014862	O Fe	0.002410	M Nb <	0.000570	O Si	0.024100	O Zr <	0.002600
M As <	0.003500	M Ga <	0.000570	M Nd	0.000923	M Sm	0.000461		
M Au <	0.001700	M Gd <	0.003500	M Ni <	0.005700	M Sn <	0.002300		
O B	0.002209	M Ge <	0.005200	M Os <	0.001200	M Sr <	0.004600		
O Ba <	0.002500	M Hf <	0.000570	n P <		M Ta <	0.000570		
O Be <	0.001400	M Hg <	0.000570	M Pb	0.005020	M Tb	0.001044		
M Bi <	0.003500	M Ho	0.009037	M Pd <	0.005100	M Te <	0.002300		
O Ca	0.009841	M In <	0.002300	M Pr <	0.002300	M Th <	0.000570		
M Cd <	0.000570	M Ir <	0.000570	M Pt <	0.000570	M Ti <	0.003500		
M Ce <	0.002300	O K	0.018677	M Rb <	0.000570	M Tl <	0.000570		
M Co <	0.000570	M La	0.000461	M Re <	0.000570	M Tm <	0.003500		
M Cr <	0.004000	O Li <	0.009300	M Rh <	0.008000	M U <	0.000570		
M Cs <	0.000570	M Lu	0.000582	M Ru <	0.000570	M V	0.001265		
M Cu	0.002610	O Mg	0.001486	n S <		M W <	0.002300		
M Dy	0.003815	M Mn	0.000582	M Sb	0.005422	s Y <			
M Er	0.003615	M Mo <	0.005700	M Sc <	0.001200	M Yb	0.001827		

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

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 88.91 +3 6 Y(OH)(H₂O)_{x+2}

Chemical Compatibility -Soluble in HCl, H₂SO₄ and HNO₃. Avoid HF, H₃PO₄ and neutral to basic media.

Stable with most metals and inorganic anions forming an insoluble carbonate, oxide, oxalate, and fluoride.

Avoid mixing with elements / solutions containing moderate amounts of fluoride.

Stability - 2-100 ppb levels stable for months in 1% HNO₃ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO₃ / LDPE container.

Y Containing Samples (Preparation and Solution) - Metal (Soluble in acids); Oxide (Dissolve by heating in H₂O / HNO₃); Ores (Carbonate fusion in PtO followed by HCl dissolution); Organic Matrices (Dry ash and dissolve in 1:1 H₂O / HCl or HNO₃).

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 89 amu	0.8 ppt	N/A	73Ge16O, 178Hf+2
ICP-OES 360.073 nm	0.005 / 0.000036 µg/mL	1	Ce, Th
ICP-OES 371.030 nm	0.004 / 0.00007 µg/mL	1	Ce
ICP-OES 377.433 nm	0.005 / 0.0009 µg/mL	1	Ta, Th

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

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

February 20, 2024

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

11.2 Lot Expiration Date

- February 20, 2029

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Custom Processing Supervisor



Certificate Approved By:

Muzzammil Khan
Stock Laboratory Supervisor



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





CERTIFIED WEIGHT REPORT:

Part Number: **57028**

Lot Number: **041124**

Description: **Nickel (NI)**

Solvent: **24002546 Nitric Acid**

Lot #

MS961 R-1 6/11/24

2% 5.0 Nitric Acid (mL)

Expiration Date: **041127**

Recommended Storage: **Ambient (20 °C)**

Nominal Concentration (µg/mL): **1000**

NIST Test Number: **6UTB**

5E-05 Balance Uncertainty

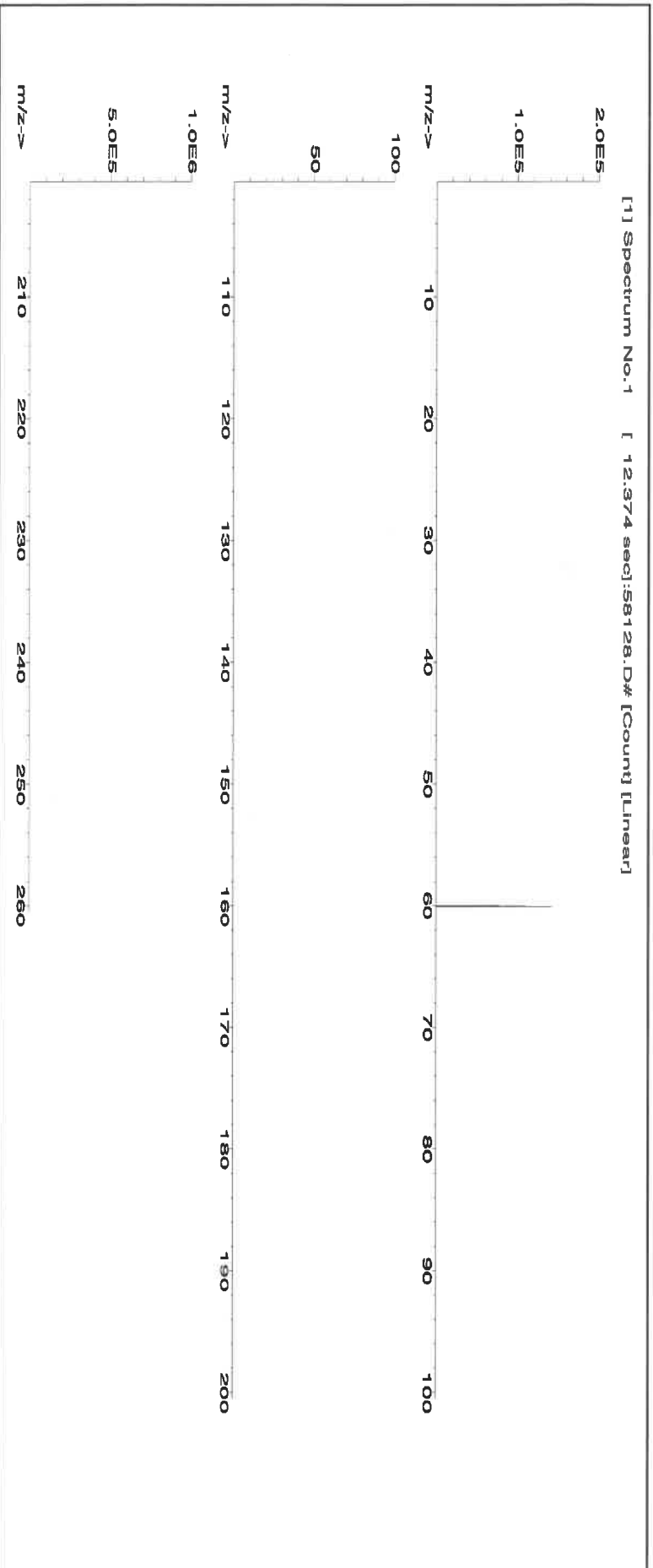
Weight shown below was diluted to (mL): **249.85** 0.002 Flask Uncertainty

Formulated By:		Brian Geddes	041124
Reviewed By:		Pedro L. Rentas	041124

SDS Information

Compound	Lot	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	SRM
1. Nickel(II) nitrate hexahydrate (NI)	IN033 NIM052023A1	1000	99.999	0.10	20.2	1.2369	1.2369	1000.0	2.0	13478-00-7	1 mg/m3	rat 1620 mg/kg	3136

[1] Spectrum No.1 [12.374 sec]:58128.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	T	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Ba	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Bc	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number:

Lot Number:

Description:

Lot #
24002546
Solvent:
Nitric Acid

Expiration Date:

Recommended Storage:

Nominal Concentration (µg/mL):

NIST Test Number:

Volume shown below was diluted to (mL):

2.0%

40.0
(mL)

Nitric Acid

Formulated By: Benson Chan 060624

Reviewed By: Pedro L. Rantas 060624

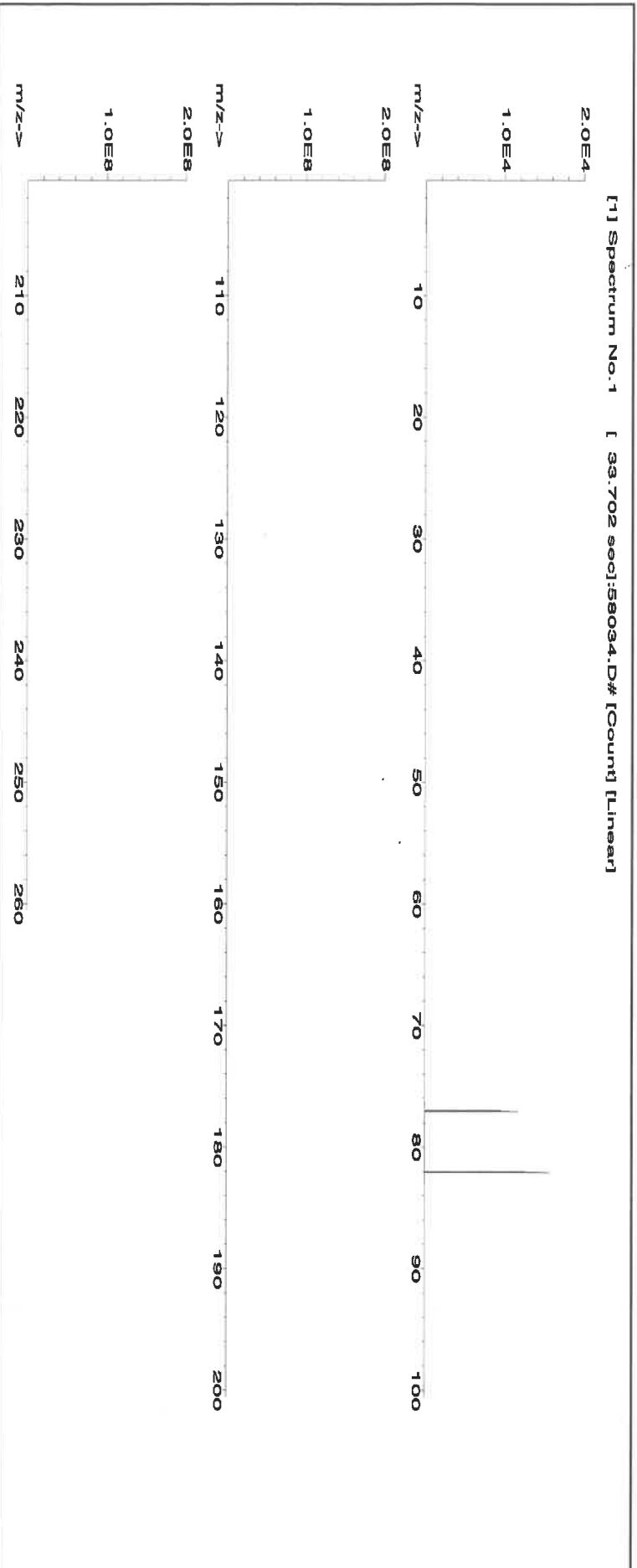
SDS Information

Compound

Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	(Solvent Safety Info. On Attached pg.)	NIST SRM
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1. Selenium (Se)	58134	071223	0.1000	200.0	0.084	1000	10002.5	1000.0	2.2	7782-49-2	0.2 mg/m3	or-tral 6700 mg/kg	3149
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[1] Spectrum No.1 [33.702 sec]:58034.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	T	Tb	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Ru	<0.02	Na	<0.2	Th	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Sr	<0.02	S	<0.02	Tm	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	Ta	<0.02	Sn	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02		<0.02	Ti	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

Absolute Standards, Inc.
800-368-1131
www.absolute-standards.com



Certified Reference Material CRM

M5970 M5971



ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://AbsoluteStandards.com

CERTIFIED WEIGHT REPORT:

Part Number: 57003
Lot Number: 062124
Description: Lithium (Li)
Expiration Date: 06/12/27
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Volume shown below was diluted to (mL): 250.11
SE-05 Balance Uncertainty
0.016 Flask Uncertainty

Lot # 24002546
Solvent: Nitric Acid

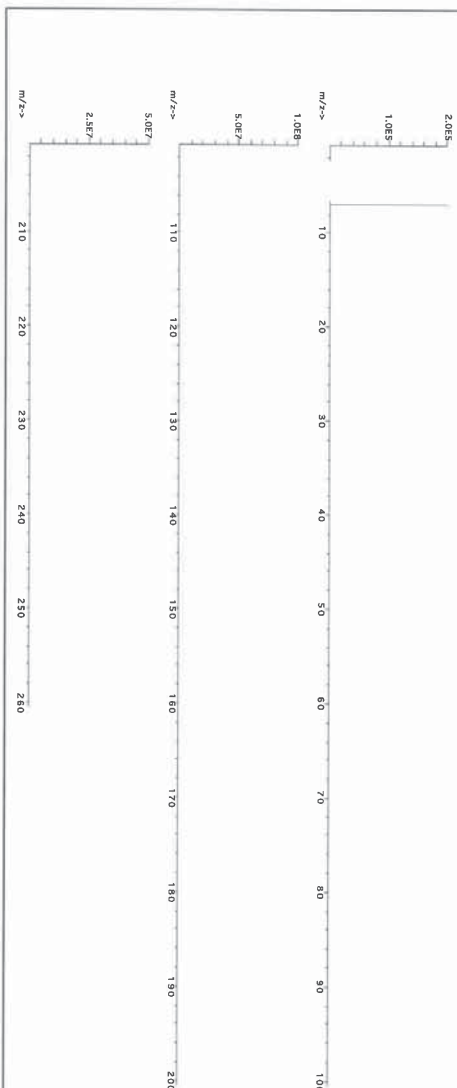
2.0% 5.0 (mL) Nitric Acid

Microvite Capactor	
Formulated By:	Giovanni Esposito
	062124
Reviewed By:	Pedro L. Parias
	062124

Compound		Part		Lot		Dilution		Initial		Uncertainty		Nominal		Initial		Final		Expanded		SDS Information		NIST	
Number	Factor	Number	Factor	Number	Factor	Vol. (mL)	Pipette (mL)	Conc. (µg/mL)	Conc. (µg/mL)	Vol. (mL)	Pipette (mL)	Conc. (µg/mL)	Conc. (µg/mL)	Vol. (mL)	Pipette (mL)	Conc. (µg/mL)	Conc. (µg/mL)	Uncertainty	± (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	SM

1. Lithium nitrate (Li)	58103	070622	0.1000	25.0	0.004	1000	10000.4	1000.0	2.0	7790-68-4	5 mg/m3	Oral: 1428 mg/kg	NA
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[1] Spectrum No. 1 [32.093 sec; 15000.0Hz Count [Lines]



Certificate of Analysis

M5976, M5977

R: 02/22/24

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

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
Catalog Number: CGMO1
Lot Number: T2-MO720876
Matrix: H2O
tr. NH4OH
Value / Analyte(s): 1 000 µg/mL ea:
Molybdenum
Starting Material: Ammonium Molybdate
Starting Material Lot#: 2361
Starting Material Purity: 99.9893%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 998 ± 7 µg/mL
Density: 1.000 g/mL (measured at 20 ± 4 °C)
Assay Information:

Assay Method #1 998 ± 4 µg/mL
ICP Assay NIST SRM 3134 Lot Number: 130418

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

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

Characterization of CRM/RM by Two or More Methods

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

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

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.

M	Ag	<	0.000590	M	Eu	<	0.000300	M	Na		0.000879	M	Se	<	0.008000	M	Zn		0.000598
M	Al		0.000563	M	Fe	<	0.006500	M	Nb	<	0.029000	i	Si	<		M	Zr	<	0.001800
M	As	<	0.002100	M	Ga	<	0.000300	i	Nd	<		M	Sm	<	0.000300				
M	Au	<	0.000300	M	Gd	<	0.000300	M	Ni	<	0.008000	M	Sn	<	0.008900				
M	B	<	0.003300	M	Ge	<	0.000300	M	Os	<	0.000590	M	Sr		0.000175				
M	Ba		0.001689	M	Hf	<	0.001800	i	P	<		M	Ta	<	0.004200				
M	Be	<	0.000890	M	Hg	<	0.003300	M	Pb	<	0.000300	M	Tb	<	0.000300				
M	Bi	<	0.000890	M	Ho	<	0.000300	M	Pd	<	0.001800	M	Te	<	0.021000				
O	Ca		0.006334	M	In	<	0.032000	M	Pr	<	0.013000	M	Th	<	0.000300				
O	Cd	<	0.026000	M	Ir	<	0.000300	M	Pt	<	0.000300	O	Tl	<	0.032000				
M	Ce	<	0.008300	M	K		0.130213	M	Rb		0.004575	M	Tl		0.001266				
M	Co		0.000598	M	La	<	0.000300	M	Re	<	0.000300	M	Tm	<	0.000300				
M	Cr		0.000527	O	Li		0.000059	M	Rh	<	0.000300	M	U	<	0.005300				
M	Cs		0.000527	M	Lu	<	0.000300	M	Ru	<	0.079000	M	V	<	0.000890				
M	Cu		0.002252	M	Mg		0.000563	i	S	<		M	W		0.087982				
M	Dy	<	0.000300	M	Mn	<	0.005900	M	Sb		0.001513	M	Y	<	0.000300				
M	Er	<	0.000300	s	Mo	<		M	Sc	<	0.001200	M	Yb	<	0.000300				

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 - 95.94 +6 6,7,8,9

[MoO4]-2(chemical form as received)

Chemical Compatibility -Mo is received in a NH4OH matrix giving the operator the option of using HCl or HF to stabilize acidic solutions. The [MoO4]-2 is soluble in concentrated HCl [MoOCl5]-2, dilute HF / HNO3 [MoOF5]-2 and basic media [MoO4]-2. Stable at ppm levels with some metals provided it is fluorinated. Do not mix with Alkaline or Rare Earths when HF is present. Stable with most inorganic anions provided it is in the [MoO4]-2 chemical form.

Stability - 2-100 ppb levels stable (alone or mixed with all other metals that are at comparable levels) as the [MoOF5]-2 for months in 1% HNO3 / LDPE container. 1-10,000 ppm single element solutions as the [MoO4]-2 chemically stable for years in 1% NH4OH in a LDPE container.

Mo Containing Samples (Preparation and Solution) -Metal (Soluble in HF / HNO3 or hot dilute HCl); Oxide (soluble in HF or NH4OH) ; Organic Matrices (Dry ash at 450EC in Pt0 and dissolve oxide with HF or HCl).

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 95 amu	3 ppt	n/a	40Ar39K16O,79Br16O,190Os2+,190Pt2+
ICP-OES 202.030 nm	0.008 / 0.0002 µg/mL	1	Os, Hf
ICP-OES 203.844 nm	0.012 / 0.002 µg/mL	1	
ICP-OES 204.598 nm	0.012 / 0.001 µg/mL	1	Ir, Ta

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: 800.569.6799; 540.585.3030, Fax: 540.585.3012; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

July 17, 2022

- 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

- July 17, 2027

- 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, Technical



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

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

M5985
R: 6/14/24

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 Custom Grade Solution
Catalog Number: CGIN10
Lot Number: U2-IN729349
Matrix: 5% (v/v) HNO₃
Value / Analyte(s): 10 000 µg/mL ea:
Indium
Starting Material: Indium Metal
Starting Material Lot#: 2511
Starting Material Purity: 99.9995%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10022 ± 30 µg/mL
Density: 1.044 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	10021 ± 56 µg/mL ICP Assay NIST SRM 3124a Lot Number: 110516
Assay Method #2	10035 ± 25 µg/mL EDTA NIST SRM 928 Lot Number: 928
Assay Method #3	10001 ± 33 µg/mL Calculated NIST SRM Lot Number: See Sec. 4.2

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

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

Characterization of CRM/RM by Two or More Methods

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

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

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:

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

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

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_{Its} = 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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = 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.

M	Ag	<	0.000760	M	Eu	<	0.000760	O	Na	0.012771	M	Se	<	0.023000	M	Zn	<	0.006100
M	Al	0.003385	O	Fe	0.004462	M	Nb	<	0.000760	O	Si	0.024619	M	Zr	<	0.000760		
M	As	<	0.004600	M	Ga	<	0.000760	M	Nd	<	0.000760	M	Sm	<	0.000760			
M	Au	<	0.002300	M	Gd	<	0.000760	O	Ni	<	0.005100	M	Sn	<	0.000760			
O	B	0.003692	M	Ge	<	0.001600	M	Os	<	0.000760	O	Sr	<	0.000610				
M	Ba	<	0.001600	M	Hf	<	0.000760	n	P	<		M	Ta	<	0.000760			
O	Be	<	0.000130	M	Hg	<	0.003100	M	Pb	0.001400	M	Tb	<	0.000760				
M	Bi	<	0.000760	M	Ho	<	0.000760	M	Pd	<	0.001600	M	Te	<	0.000760			
O	Ca	0.004616	s	In	<			M	Pr	<	0.000760	M	Th	<	0.000760			
M	Cd	<	0.000760	M	Ir	<	0.000760	M	Pt	<	0.000760	O	Ti	<	0.001100			
M	Ce	<	0.000760	O	K	0.007078	M	Rb	<	0.000760	M	Tl	<	0.000760				
M	Co	<	0.000760	M	La	<	0.000760	M	Re	<	0.000760	M	Tm	<	0.000760			
O	Cr	<	0.001300	O	Li	<	0.000130	M	Rh	<	0.000760	M	U	<	0.000760			
M	Cs	<	0.000760	M	Lu	<	0.000760	M	Ru	<	0.000760	M	V	<	0.001600			
M	Cu	<	0.003800	O	Mg	0.000707	n	S	<		M	W	<	0.001600				
M	Dy	<	0.000760	O	Mn	0.000149	M	Sb	<	0.000760	M	Y	<	0.000760				
M	Er	<	0.000760	M	Mo	<	0.002300	M	Sc	<	0.000760	M	Yb	<	0.000760			

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

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

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

Atomic Weight; Valence; Coordination Number; Chemical Form In Solution - 114.82 +3 6 In(H₂O)₆+3

Chemical Compatibility -Soluble in HCl, HNO₃, and H₂SO₄. Avoid neutral and basic media. Stable with most metals and inorganic anions. The oxalate, sulfide, carbonate, hydroxide and phosphate are insoluble in water.

Stability - 2-100 ppb levels stable for months in 1% HNO₃ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO₃ / LDPE container.

In Containing Samples (Preparation and Solution) -Metal (Best dissolved in HCl / HNO₃); Oxide (Soluble in mineral acids); Ores (Carbonate fusion in PtO followed by HCl dissolution); Organic Matrices (Sulfuric/peroxide digestion or dry ash and dissolution in dilute HCl).

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 115 amu	1 ppt	n/a	115Sn, 99Ru16O
ICP-OES 158.583 nm	0.05 / 0.002 µg/mL	1	
ICP-OES 230.606 nm	0.1 / 0.03 µg/mL	1	Ni, Os
ICP-OES 325.609 nm	0.2 / 0.05 µg/mL	1	Mn, Mo, Th

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

February 21, 2023

- 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

- February 21, 2028

- 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 Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





Refine your results. Redefine your industry.

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

Certificate of Analysis

M6074
M6075
M6076
M6077

P: 800-669-6799/540-585-3030

F: 540-585-3012

info@inorganicventures.com

EXP: 9/6/2029

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: Multi Analyte Custom Grade Solution
Catalog Number: CHEM-CLP-4
Lot Number: V2-MEB746762
Matrix: 3% (v/v) HNO₃
3% (v/v) HF
Value / Analyte(s): 1 000 µg/mL ea:
Boron, Molybdenum,
Silicon, Tin,
Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Boron, B	1 000 ± 5 µg/mL	Molybdenum, Mo	1 000 ± 5 µg/mL
Silicon, Si	1 000 ± 7 µg/mL	Tin, Sn	1 000 ± 5 µg/mL
Titanium, Ti	1 000 ± 6 µg/mL		

Density: 1.033 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
B	ICP Assay	3107	190605
B	Calculated		See Sec. 4.2
Mo	ICP Assay	traceable to 3134	U2-MO739068
Si	ICP Assay	Traceable to 3150	S2-SI702546
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	traceable to 3162a	T2-TI725816

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

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

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

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

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

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

k = coverage factor = 2

$u_{\text{char}} = [\sum (w_i)^2 (u_{\text{char } i}^2)]^{1/2}$ where $u_{\text{char } i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = 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)

N/A

6.0 INTENDED USE

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

HF Note: This standard should not be prepared or stored in glass.

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

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

September 06, 2024

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

11.2 Lot Expiration Date

- **September 06, 2029**

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Joseph Burns
Custom VS Manager



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



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

avantor™



R → 16/13/24
Met dig

M 6121

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

Certificate of Analysis

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

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

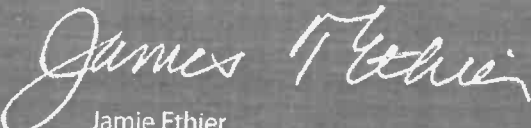
Avantor Performance Materials, LLC

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

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

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

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


Jamie Ethier
Vice President Global Quality

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

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

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



CERTIFIED WEIGHT REPORT:

Part Number: 58112
Lot # 24012496
Description: Magnesium (Mg) Nitric Acid

Expiration Date: 11/13/25
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6LUB

Weight shown below was diluted to (mL): 2000.07
5E-05 Balance Uncertainty
0.100 Flask Uncertainty

<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
Reviewed By:	Pedro L. Rentas
	112124

Compound

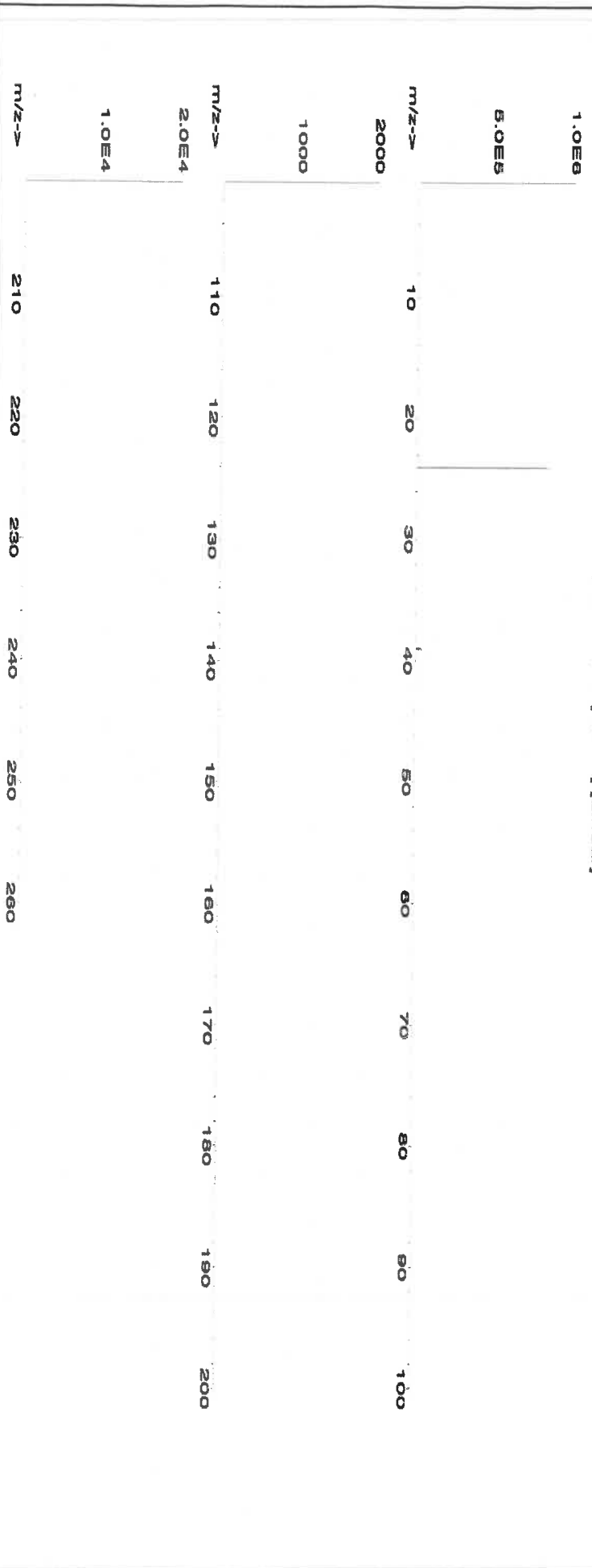
Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
58112	10000	99.999	0.10	8.51	234.9183	234.9459	10001.2	20.0	13446-18-9	NA		

SDS Information

(Solvent Safety Info. On Attached pg.)

1. Magnesium nitrate hexahydrate (Mg) IN030 MG0000023A1 10000 99.999 0.10 8.51 234.9183 234.9459 10001.2 20.0 13446-18-9 NA off-rat 5440 mg/kg 3131a

[1] Spectrum No. 1 [19.823 sec]:58112.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Rc	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	T	Os	<0.02	Rb	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Ru	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Sm	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sc	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2			Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: **58025**
Lot Number: **101124**
Description: **Manganese (Mn)**

R-71113128

Lot #: **24002546**
Solvent: **Nitric Acid**

Expiration Date: **101127**

Recommended Storage: **Ambient (20 °C)**

Nominal Concentration (µg/mL): **1000**

NIST Test Number: **6UTB**

Weight shown below was diluted to (mL): **4000.2**

0.10 Flask Uncertainty

2% **80.0** **Nitric Acid**
(mL)

<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
Reviewed By:	<i>Pedro L. Renteria</i>
	101124

Compound

RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Manganese(II) nitrate hydrate (Mn) IN031 MMN02020A1 1000 99.999 0.10 20.8 19.2322 19.2344 1000.1 2.0 15710-66-4 5 mg/m3 or-trt >300mg/kg 3132

[1] Spectrum No.1 [34.243 sec]:57025.D# [Count] [Linear]

5.0E6	m/z->	10	20	30	40	50	60	70	80	90	100
2.5E6	m/z->	10	20	30	40	50	60	70	80	90	100
1.0E6	m/z->	10	20	30	40	50	60	70	80	90	100
5.0E7	m/z->	10	20	30	40	50	60	70	80	90	100
1.0E6	m/z->	110	120	130	140	150	160	170	180	190	200
5.0E7	m/z->	210	220	230	240	250	260				



Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	T	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: 58111
Lot Number: 072424
Description: Sodium (Na)

Lot # R-1113125
Solvent: 24002546 Nitric Acid

Expiration Date: 072427
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB

Weight shown below was diluted to (mL): 4000.2
5E-05 Balance Uncertainty
0.10 Flask Uncertainty

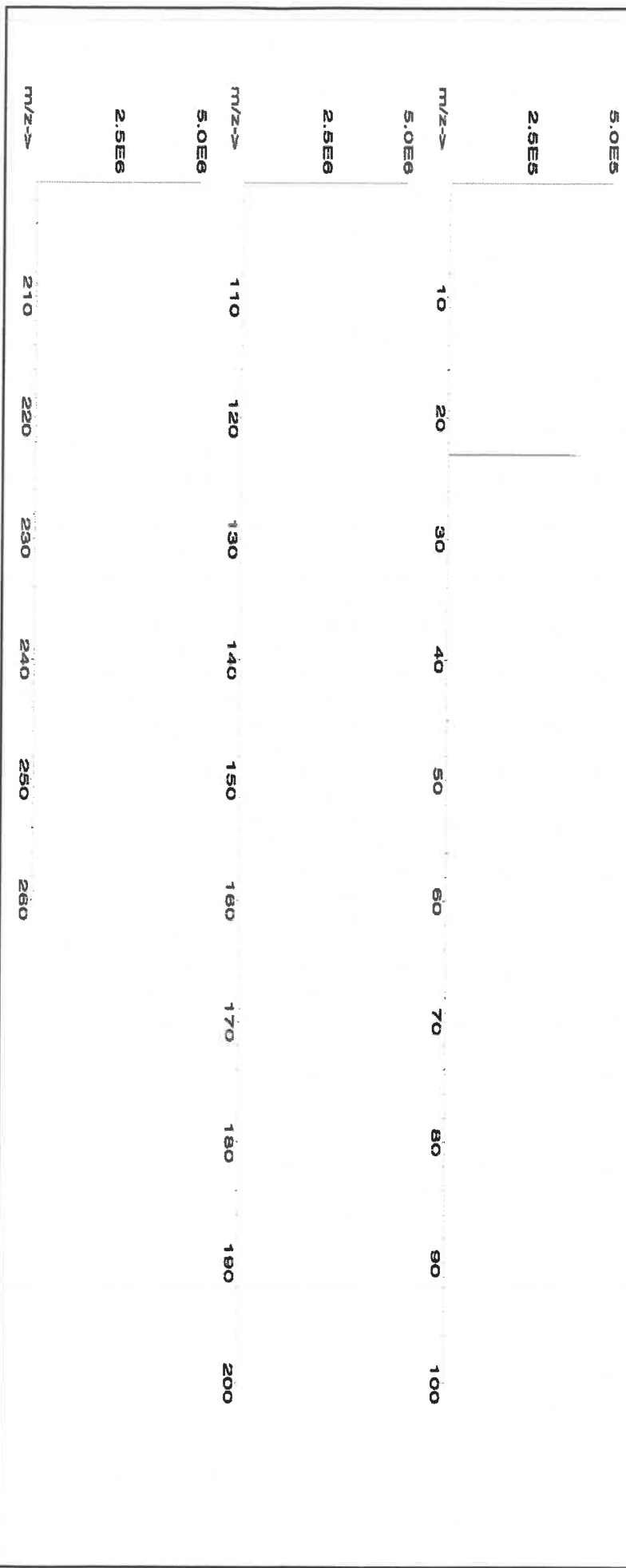
Formulated By:	Benson Chan	072424
Reviewed By:	Pedro L. Renteria	072424

Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM

SDS Information

1. Sodium nitrate (Na) IN036 NAV01201511 10000 99.999 0.10 26.9 148.7096 ##### 10000.0 20.0 7631-99-4 5 mg/m3 orl-rat 3430 mg/kg 3152a

[1] Spectrum No. 1 [8.935 sec]: 58111.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	La	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rb	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	T	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: **58030** Lot # **121724**
Description: **Zinc (Zn)**

Expiration Date: **121727** Solvent: **24012496 Nitric Acid**

Recommended Storage: **Ambient (20 °C)** 2% 40.0 Nitric Acid
Nominal Concentration (µg/mL): **1000**

NIST Test Number: **6UTB** 5E-05 Balance Uncertainty
Weight shown below was diluted to (mL): **2000.1** 0.10 Flask Uncertainty

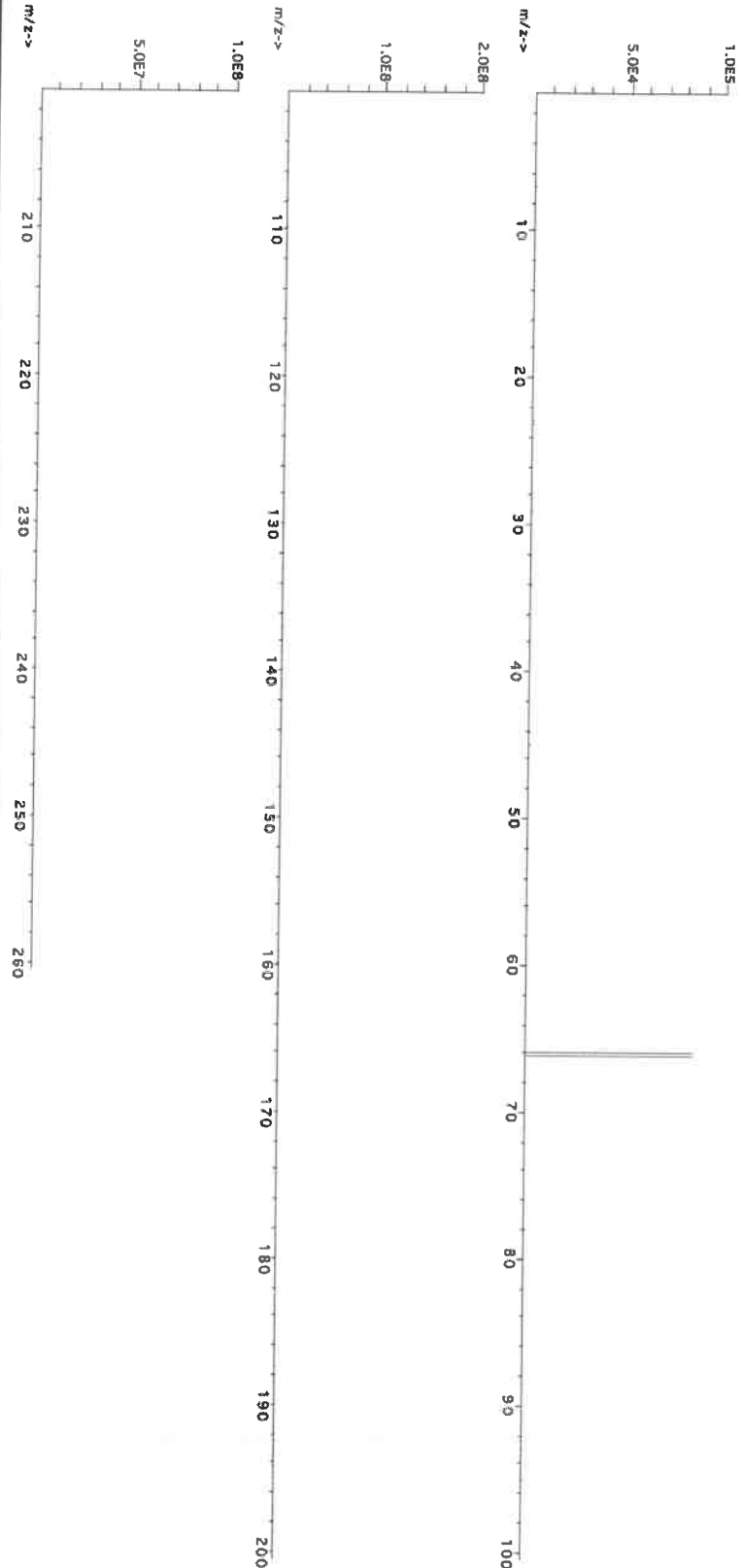
<i>Aleah O'Brady</i>	
Formulated By:	Aleah O'Brady
Reviewed By:	<i>Pedro L. Rentias</i>
	Pedro L. Rentias
	121724

Compound

Lot	Nominal	Purity	Uncertainty	Assay	Target	Actual	Actual	Expanded	(Solvent Safety Info. On Attached pg.)	NIST
Number	Conc. (µg/mL)	(%)	Purity (%)	(%)	Weight (g)	Weight (g)	Conc. (µg/mL)	Uncertainty +/- (µg/mL)	CAS#	SRM

1. Zinc nitrate hexahydrate (Zn) IN016 ZNE032021A1 1000 99.999 0.10 24.3 8.2308 8.2311 1000.0 2.0 10196-18-6 1 mg/m3 or-rat 1190mg/kg 3168

[1] Spectrum No.1 [31.103 sec;58130.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Bu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



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

R: 4/20/21

Instructions for QATS Reference Material: *Inorganic ICV Solutions*

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

MG180

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

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

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

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

Safety Data Sheets
Available Upon Request

(A) SAMPLE DESCRIPTION

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

(B) BREAKAGE OR MISSING ITEMS

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

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

(C) ANALYSIS OF SAMPLES

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

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





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) K₂Cr₂O₇ 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 K₃Fe(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



CERTIFIED WEIGHT REPORT:

Part Number: 58111
Lot Number: 122223
Description: Sodium (Na)

Solvent: 24002546 Nitric Acid

Lot #

Expiration Date: 122226

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 10000

NIST Test Number: 6UTB

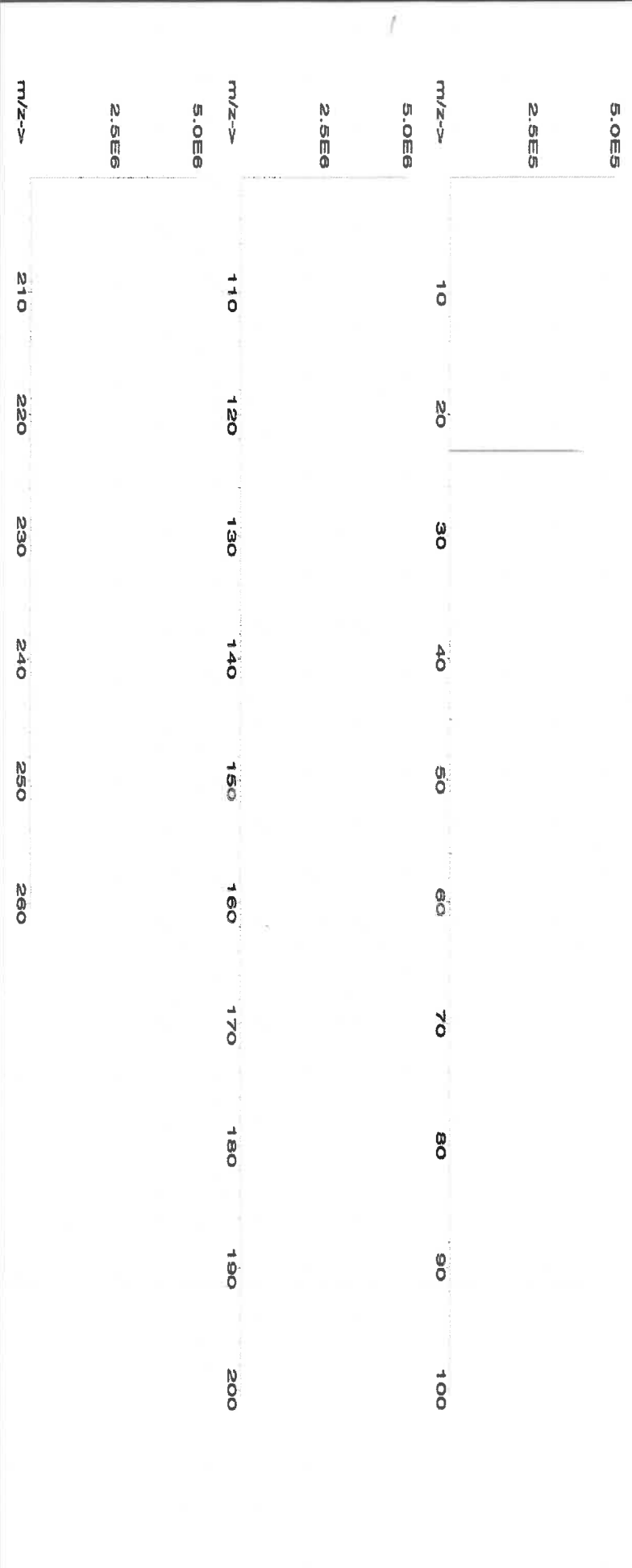
Weight shown below was diluted to (mL): 3000.4 0.06 Flask Uncertainty

<i>Aleah O Brady</i>	
Formulated By:	Aleah O Brady
Reviewed By:	Pedro L. Rentas
	122223

SDS Information																
Expanded																
(Solvent Safety Info. On Attached pg.)																
Compound		Lot	Nominal	Purity	Uncertainty	Assay	Target	Actual	Actual	Uncertainty	CAS#	OSHA PEL (TWA)	LD50	NIST	SRM	
RM#	Number	Conc. (µg/mL)	(%)	Purity (%)	(%)	Weight (g)	Weight (g)	Conc. (µg/mL)	+/- (µg/mL)							

1. Sodium nitrate (Na) IN036 NAV01201511 10000 99.999 0.10 26.9 111.5406 111.5479 10000.7 20.0 7631-99-4 5 mg/m3 or-trat 3430 mg/kg 3152a

[1] Spectrum No.1 [8.935 sec]:58111.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.02	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57051
120523
Antimony (Sb)

Lot #
Solvent:

24002546
Nitric Acid

2.0%
60.0
Nitric Acid
(mL)

Expiration Date:

120526

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6U7B

Volume shown below was diluted to (mL):

3000.41

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

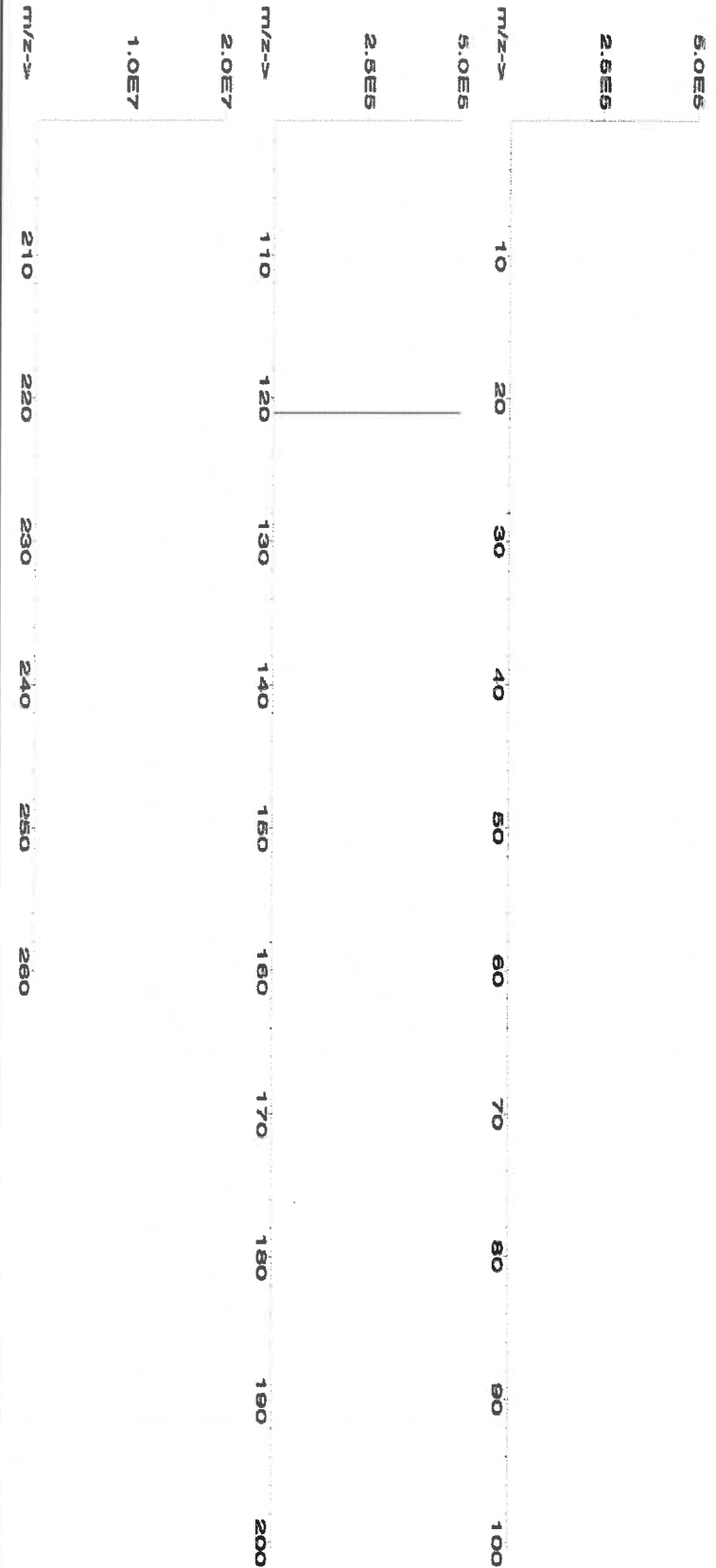
Formulated By:	Lawrence Barry	120523
Reviewed By:	Pedro L. Rientas	120523

Compound

Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
-------------	------------	-----------------	-------------------	--------------------------	-----------------------	-----------------------	---------------------	----------------------------------	------	----------------	------	----------

1. Antimony (Sb) 58151 100923 0.1000 300.0 0.084 1000 10001.4 1000.0 2.1 7440-36-0 0.5 mg/m3 or-rel 7000 mg/kg 3102a

[1] Spectrum No.1 [17.964 sec]:58051.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	T	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
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- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Certified Reference Material CRM

M6030



CERTIFIED WEIGHT REPORT:

Part Number: **57047**
Lot Number: **122823**
Description: **Silver (Ag)**

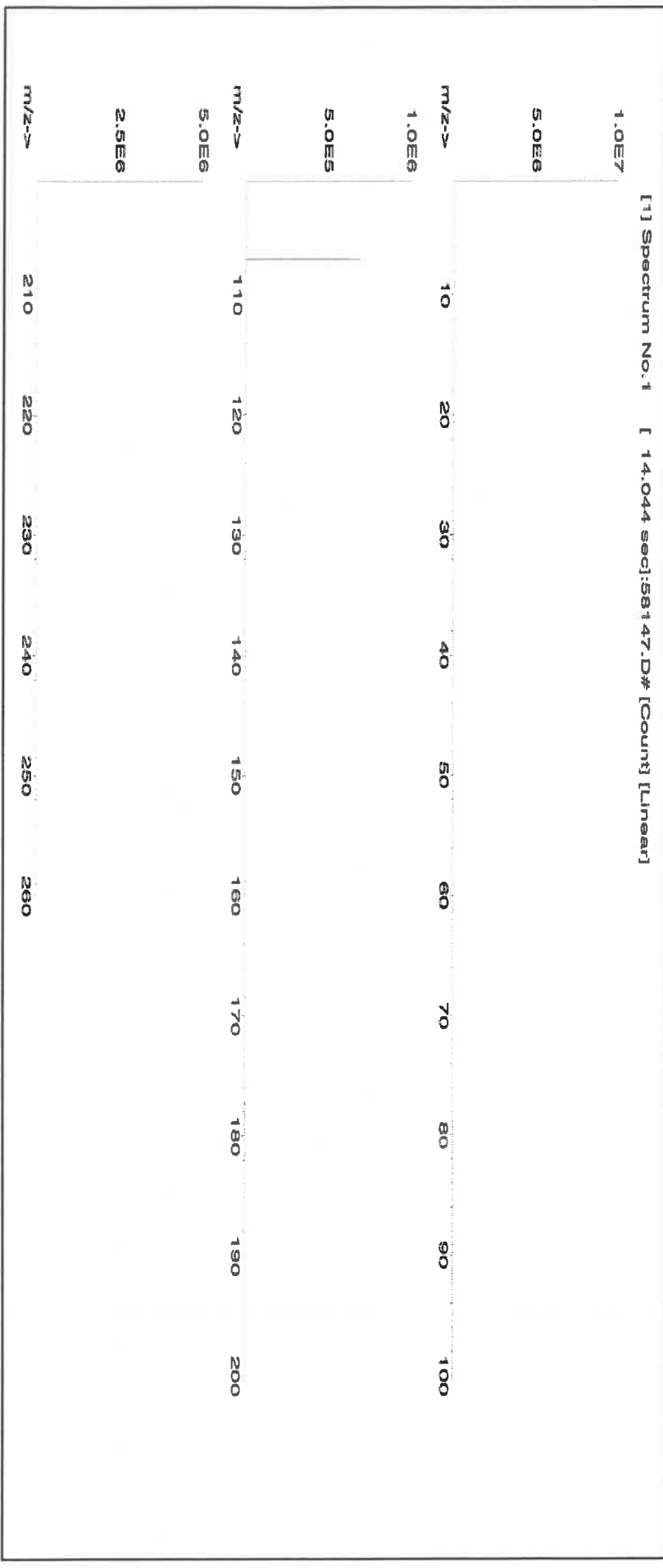
Solvent: 24002546 Nitric Acid
Lot #

Formulated By:	Benson Chan
Reviewed By:	Pedro L. Rentas
	122823

Expiration Date: 122826
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 4000.30
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty		CAS#	SDS Information		NIST SRM
										+/- (µg/mL)	(µg/mL)		(Solvent Safety Info. On Attached pg.)	OSHA PEL (TWA)	

1. Silver nitrate (Ag) IN035 J0612AGA1 1000.0 99.999 0.10 63.7 6.27992 6.27998 1000.0 2.0 7761-88-8 10 µg/m³ NA 3151





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	T	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 meghom deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



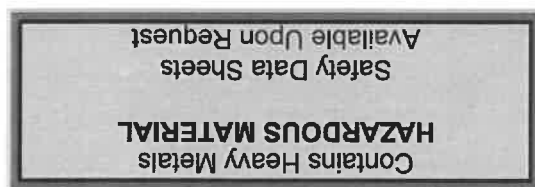
QATS LABORATORY INORGANIC REFERENCE MATERIAL INTERFERENCE CHECK SAMPLE SET FOR ICP-AES (ICSA WITH ICSB)

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.

M6152



(A) SAMPLE DESCRIPTION

Enclosed is a set of one (1) or more bottles of Aqueous Reference Material, each composed of metals at various concentrations and prepared with nitrate salts and oxy-acids of the respective elements in a 5% nitric acid matrix. For the reference material source in reporting ICSA and ICSAB mixture use "USEPA". For the reference material lot number for the ICSA use "ICSA-1211" and for the ICSAB mixture use "ICSA-1211+ICSB-0710".

CAUTION: The bottle(s) should be protected from light during storage to ensure the stability of silver which is contained in the ICSB solution. The bottle(s) should be stored at room temperature. Do not allow the solution(s) to freeze.

(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 interference check sample set is to be used to verify inter-element and background correction factors of inductively-coupled plasma (ICP) spectrometers. This reference material set consists of two (2) concentrated solutions. The ICSA solution contains the four (4) interfering elements: Al, Ca, Fe, and Mg. The ICSB solution contains the analytes: Ag, As, Sb, Ba, Be,



Instructions for QATS Reference Material: ICP-AES ICS
Cd, Co, Cr, Cu, Mn, Ni, Pb, Tl, Se, V, and Zn. This instruction sheet provides the nominal values for ICP-AES Part A and Part B target analytes when diluted as directed.

Using Class "A" glassware, preparation and analysis must be performed according to the following instructions:

ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSA solution by ICP-AES.

ICSB-0710, Analytes, mixed with ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution and 10 mL of the ICSB solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSAB solution by ICP-AES.

(D) "CERTIFIED VALUE" CONCENTRATIONS OF QATS ICP-AES ICS SOLUTION(S)

The "Certified Value" concentrations of the elements, listed in Table 1 below, were derived from statistically pooled analysis results from the following sources, if available: QATS Laboratory, CLP laboratories, Quarterly Blind (QB)/Proficiency Testing (PT) events, CLP pre-award events, and external referee laboratories.

Table 1. "CERTIFIED VALUES" FOR INTERFERENCE CHECK SAMPLE ICP-AES ICSA-1211, AND ICSA-1211 MIXED WITH ICSB-0710

Element	CRQL	Part A (µg/L)	Low Limit (µg/L)	High Limit (µg/L)	Part A (µg/L) +Part B	Low Limit (µg/L)	High Limit (µg/L)
Al	200	255000	216000	294000	247000	209000	285000
Sb	60	(0.0)	-60.0	60.0	618	525	711
As	10	(0.0)	-10.0	10.0	104	88.4	120
Ba	200	(6.0)	-194	206	(537)	337	737
Be	5.0	(0.0)	-5.0	5.0	495	420	570
Cd	5.0	(1.0)	-4.0	6.0	972	826	1120
Ca	5000	245000	208000	282000	235000	199000	271000
Cr	10	(52.0)	42.0	62.0	542	460	624
Co	50	(0.0)	-50.0	50.0	476	404	548
Cu	25	(2.0)	-23.0	27.0	511	434	588
Fe	100	101000	85600	116500	99300	84400	114500
Pb	10	(0.0)	-10.0	10.0	(49.0)	39.0	59.0
Mg	5000	255000	216000	294000	248000	210000	286000
Mn	15	(7.0)	-8.0	22.0	507	430	584
Ni	40	(2.0)	-38.0	42.0	954	810	1100
Se	35	(0.0)	-35.0	35.0	(46.0)	11.0	81.0
Ag	10	(0.0)	-10.0	10.0	201	170	232
Tl	25	(0.0)	-25.0	25.0	(108)	83.0	133
V	50	(0.0)	-50.0	50.0	491	417	565
Zn	60	(0.0)	-60.0	60.0	952	809	1095

The acceptance ranges for all analytes in parentheses in the above table were determined using the listed certified value $\pm$ 1 times the associated CLP SOW CRQL. The acceptance ranges for all other analytes were determined using the certified value $\pm$ 15 percent of the listed certified value.



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

R : 04/20/21

Instructions for QATS Reference Material: ICP-AES ICS

QATS LABORATORY INORGANIC REFERENCE MATERIAL
INTERFERENCE CHECK SAMPLE SET FOR ICP-AES (ICSA WITH ICSB)

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.



M6155

(A) **SAMPLE DESCRIPTION**

Enclosed is a set of one (1) or more bottles of Aqueous Reference Material, each composed of metals at various concentrations and prepared with nitrate salts and oxy-acids of the respective elements in a 5% nitric acid matrix. **For the reference material source in reporting ICSA and ICSAB mixture use "USEPA". For the reference material lot number for the ICSA use "ICSA-1211" and for the ICSAB mixture use "ICSA-1211+ICSB-0710".**

CAUTION: The bottle(s) should be protected from light during storage to ensure the stability of silver which is contained in the ICSB solution. The bottle(s) should be stored at room temperature. **Do not allow the solution(s) to freeze.**

(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 interference check sample set is to be used to verify inter-element and background correction factors of inductively-coupled plasma (ICP) spectrometers. This reference material set consists of two (2) concentrated solutions. The ICSA solution contains the four (4) interferent elements: Al, Ca, Fe, and Mg. The ICSB solution contains the analytes: Ag, As, Sb, Ba, Be,





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

APTIM

Instructions for QATS Reference Material: ICP-AES ICS

Cd, Co, Cr, Cu, Mn, Ni, Pb, Tl, Se, V, and Zn. This instruction sheet provides the nominal values for ICP-AES Part A and Part B target analytes when diluted as directed.

Using Class "A" glassware, preparation and analysis must be performed according to the following instructions:

ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSA solution by ICP-AES.

ICSB-0710, Analytes, mixed with ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution and 10 mL of the ICSB solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSAB solution by ICP-AES.

(D) "CERTIFIED VALUE" CONCENTRATIONS OF QATS ICP-AES ICS SOLUTION(S)

The "Certified Value" concentrations of the elements, listed in Table 1 below, were derived from statistically pooled analysis results from the following sources, if available: QATS Laboratory, CLP laboratories, Quarterly Blind (QB)/Proficiency Testing (PT) events, CLP pre-award events, and external referee laboratories.

Table 1. "CERTIFIED VALUES" FOR INTERFERENCE CHECK SAMPLE ICP-AES ICSA-1211, AND ICSA-1211 MIXED WITH ICSB-0710

Element	CRQL	Part A (µg/L)	Low Limit (µg/L)	High Limit (µg/L)	Part A +Part B (µg/L)	Low Limit (µg/L)	High Limit (µg/L)
Al	200	255000	216000	294000	247000	209000	285000
Sb	60	(0.0)	-60.0	60.0	618	525	711
As	10	(0.0)	-10.0	10.0	104	88.4	120
Ba	200	(6.0)	-194	206	(537)	337	737
Be	5.0	(0.0)	-5.0	5.0	495	420	570
Cd	5.0	(1.0)	-4.0	6.0	972	826	1120
Ca	5000	245000	208000	282000	235000	199000	271000
Cr	10	(52.0)	42.0	62.0	542	460	624
Co	50	(0.0)	-50.0	50.0	476	404	548
Cu	25	(2.0)	-23.0	27.0	511	434	588
Fe	100	101000	85600	116500	99300	84400	114500
Pb	10	(0.0)	-10.0	10.0	(49.0)	39.0	59.0
Mg	5000	255000	216000	294000	248000	210000	286000
Mn	15	(7.0)	-8.0	22.0	507	430	584
Ni	40	(2.0)	-38.0	42.0	954	810	1100
Se	35	(0.0)	-35.0	35.0	(46.0)	11.0	81.0
Ag	10	(0.0)	-10.0	10.0	201	170	232
Tl	25	(0.0)	-25.0	25.0	(108)	83.0	133
V	50	(0.0)	-50.0	50.0	491	417	565
Zn	60	(0.0)	-60.0	60.0	952	809	1095

The acceptance ranges for all analytes in parentheses in the above table were determined using the listed certified value ± 1 times the associated CLP SOW CRQL. The acceptance ranges for all other analytes were determined using the certified value ± 15 percent of the listed certified value.

R: 8/5/24

M6019

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

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

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
Catalog Number: CGSR1
Lot Number: U2-SR730227
Matrix: 0.1% (v/v) HNO₃
Value / Analyte(s): 1 000 µg/mL ea:
Strontium
Starting Material: SrCO₃
Starting Material Lot#: M2-2192
Starting Material Purity: 99.9993%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1001 ± 3 µg/mL
Density: 1.000 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	998 ± 4 µg/mL ICP Assay NIST SRM Traceable to 3153a Lot Number: K2-SR650985
Assay Method #2	1001 ± 3 µg/mL EDTA NIST SRM 928 Lot Number: 928
Assay Method #3	1001 ± 2 µg/mL Calculated NIST SRM Lot Number: See Sec. 4.2

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

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

Characterization of CRM/RM by Two or More Methods

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

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

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:

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

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

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_{ts} = 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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{ts} = 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.

M	Ag	<	0.001980	M	Eu	<	0.000495	O	Na	0.000200	M	Se	<	0.013862	O	Zn	0.000143	
O	Al	0.000370	O	Fe	0.000410	M	Nb	<	0.000495	i	Si	<			M	Zr	<	0.000495
M	As	<	0.000495	M	Ga	<	0.000495	M	Nd	<	0.000495	M	Sm	<	0.000495			
M	Au	<	0.000989	M	Gd	<	0.000495	O	Ni	<	0.007631	M	Sn	<	0.000990			
M	B	<	0.039606	M	Ge	<	0.000495	M	Os	<	0.000494	s	Sr	<				
M	Ba	0.006486	M	Hf	<	0.000495	i	P	<			M	Ta	<	0.000495			
M	Be	<	0.000990	M	Hg	<	0.000989	M	Pb	<	0.002970	M	Tb	<	0.000495			
M	Bi	<	0.000495	M	Ho	<	0.000495	M	Pd	<	0.003957	M	Te	<	0.027724			
O	Ca	0.004255	M	In	<	0.000495	M	Pr	<	0.000495	M	Th	<	0.000990				
M	Cd	0.001339	M	Ir	<	0.000494	M	Pt	<	0.002970	M	Ti	<	0.005940				
M	Ce	<	0.004950	O	K	<	0.008184	M	Rb	<	0.002970	M	Tl	<	0.000495			
M	Co	<	0.000495	M	La	<	0.000495	M	Re	<	0.000495	M	Tm	<	0.000495			
O	Cr	<	0.003207	O	Li	<	0.000884	O	Rh	<	0.012829	M	U	<	0.001485			
M	Cs	<	0.000990	M	Lu	<	0.002970	M	Ru	<	0.000989	M	V	<	0.001980			
M	Cu	0.000099	O	Mg	0.000064	i	S	<				M	W	<	0.003960			
M	Dy	<	0.000495	O	Mn	0.000066	M	Sb	<	0.014852	O	Y	<	0.000995				
M	Er	<	0.000495	M	Mo	<	0.001980	M	Sc	<	0.001980	M	Yb	<	0.000495			

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

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 87.62 +2 6 Sr(H₂O)₆+2

Chemical Compatibility - Soluble in HCl, and HNO₃. Avoid H₂SO₄, HF and neutral to basic media. Stable with most metals and inorganic anions forming insoluble silicate, carbonate, hydroxide, oxide, fluoride, sulfate, oxalate, chromate, arsenate and tungstate in neutral aqueous media.

Stability - 2-100 ppb levels stable for months in 1% HNO₃ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1 - 3.5% HNO₃ / LDPE container.

Sr Containing Samples (Preparation and Solution) -Metal (Best dissolved in diluted HNO₃); Ores (Carbonate fusion in PtO followed by HCl dissolution); Organic Matrices (Dry ash and dissolution in dilute HCl).

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 88 amu	1200 ppt	N/A	72Ge16O, 176Yb+2, 176Lu+2 , 176Hf+2
ICP-OES 407.771 nm	0.0004 / 0.00006 µg/mL	1	U, Ce
ICP-OES 421.552 nm	0.0008 / 0.00004 µg/mL	1	Rb
ICP-OES 460.733 nm	0.07 / 0.003 µg/mL	1	Ce

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

March 03, 2023

- 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

- March 03, 2028

- 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 Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





CERTIFIED WEIGHT REPORT:

R: 03/16/23 MS473 MS474 MS475 MS476

Lot #

Part Number:

Solvent:

Lot Number:

Nitric Acid

Description:

2% Nitric Acid

Expiration Date:

20.0 (mL)

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

10000

NIST Test Number:

6UTB

Weight shown below was diluted to (mL):

1000.12 0.058 Balance Uncertainty

Formulated By:	Lawrence Barry
Reviewed By:	
Pedro L. Renteria	082922

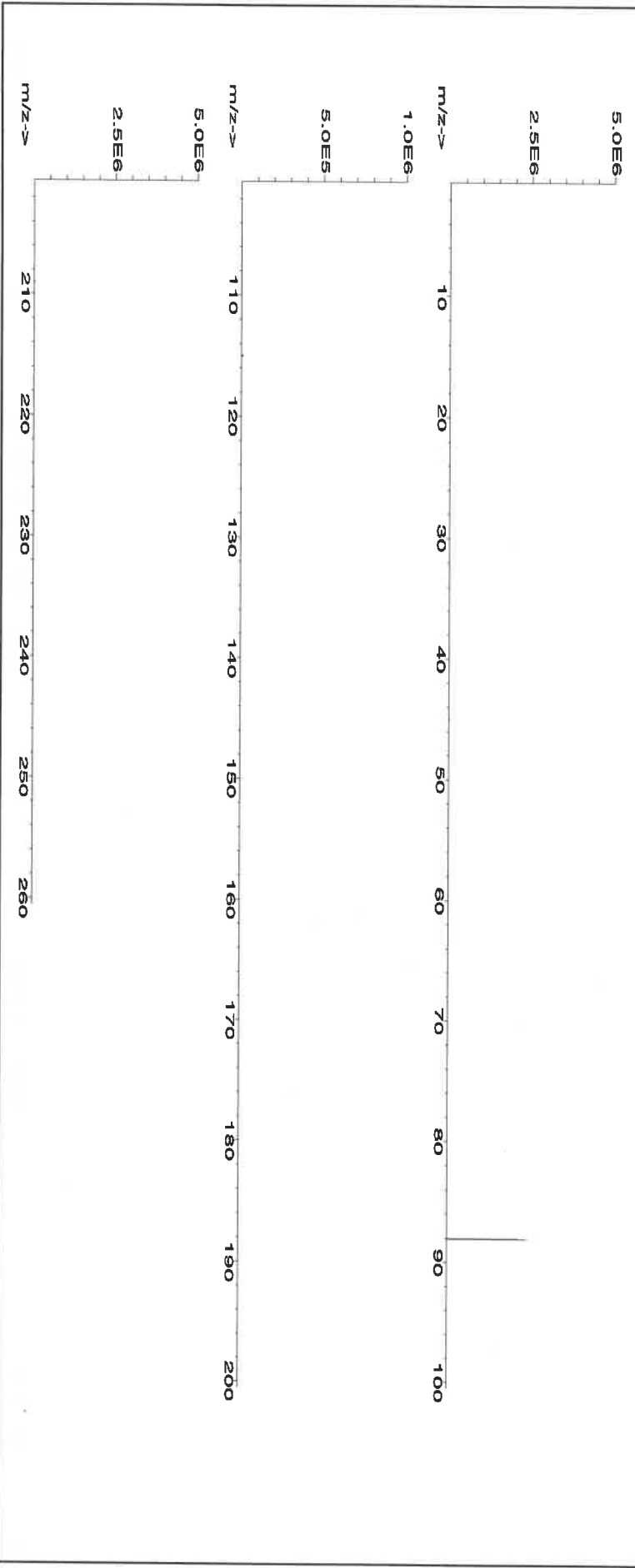
SDS Information

Compound

IN017 SR2022018A1 10000 99.997 0.10 41.2 24.2756 24.2758 10000.1 20.0 10042-76-9 NA or-rat >2000mg/kg 3153a

1. Strontium nitrate (Sr)

[1] Spectrum No. 1 [14.495 sec]: 58138.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	T	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

R: 03/16/23 MS473 MS474 MS475 MS476

Lot #

Part Number:

Solvent: 20510011 Nitric Acid

Lot Number:

2% 20.0 Nitric Acid

Description:

2% 20.0 Nitric Acid

Expiration Date:

2% 20.0 Nitric Acid

Recommended Storage:

2% 20.0 Nitric Acid

Nominal Concentration (µg/mL):

2% 20.0 Nitric Acid

NIST Test Number:

2% 20.0 Nitric Acid

Weight shown below was diluted to (mL):

2% 20.0 Nitric Acid

Weight shown below was diluted to (mL):

2% 20.0 Nitric Acid

Compound

RM#

Lot

Number

Nominal

Purity

Uncertainty

Assay

Target

Actual

Actual

Conc. (µg/mL)

Expanded

Uncertainty

CAS#

OSHA PEL (TWA)

LD50

SRM

SDS Information

(Solvent Safety Info. On Attached pg.)

NIST

1. Strontium nitrate (Sr)

IN017 SR2022018A1

10000

99.997

0.10

41.2

24.2756

24.2758

10000.1

20.0

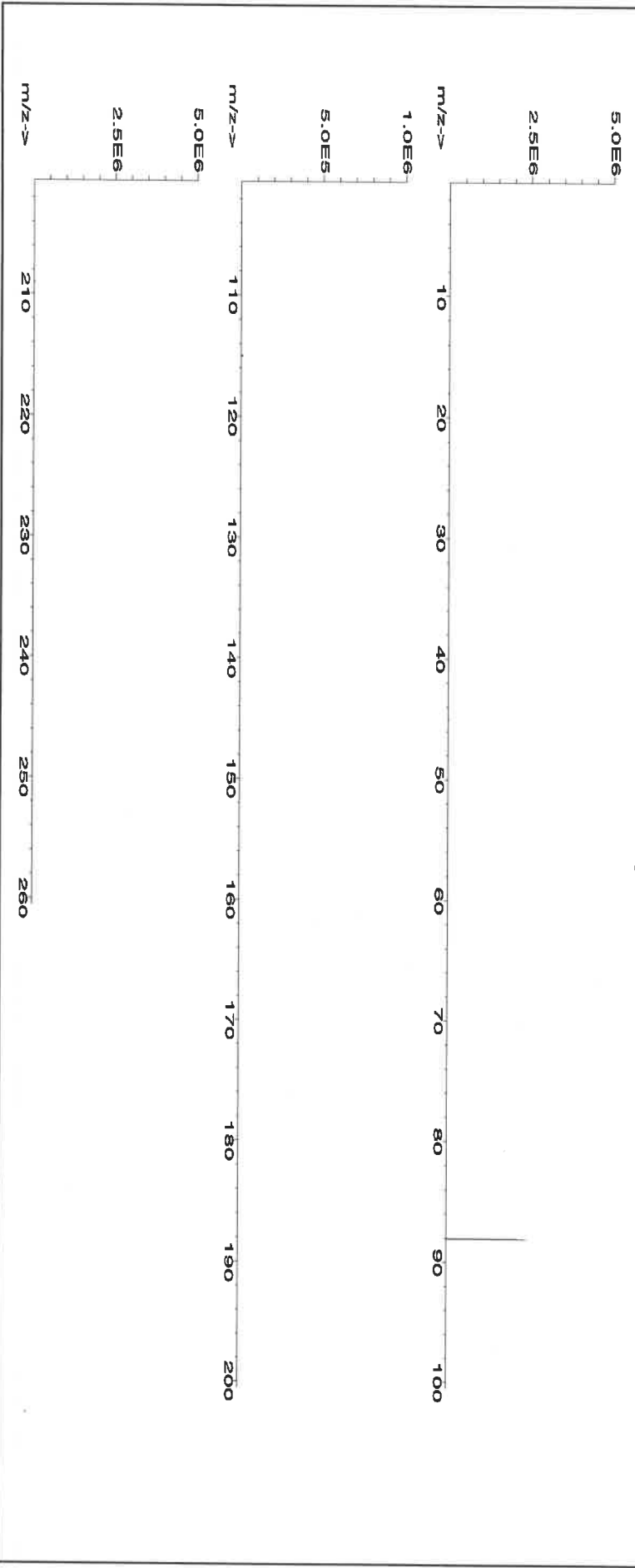
10042-76-9

NA

or-rat >2000mg/kg

3153a

[1] Spectrum No. 1 [14.495 sec]: 58138.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	T	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: 57081
Lot Number: 062724
Description: Thallium (TI)

Solvent: 24002546 Nitric Acid
Lot #

Expiration Date:

062727

2% 40.0 Nitric Acid (mL)

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

5E-05 Balance Uncertainty

Weight shown below was diluted to (mL): 2000.1 0.10 Flask Uncertainty

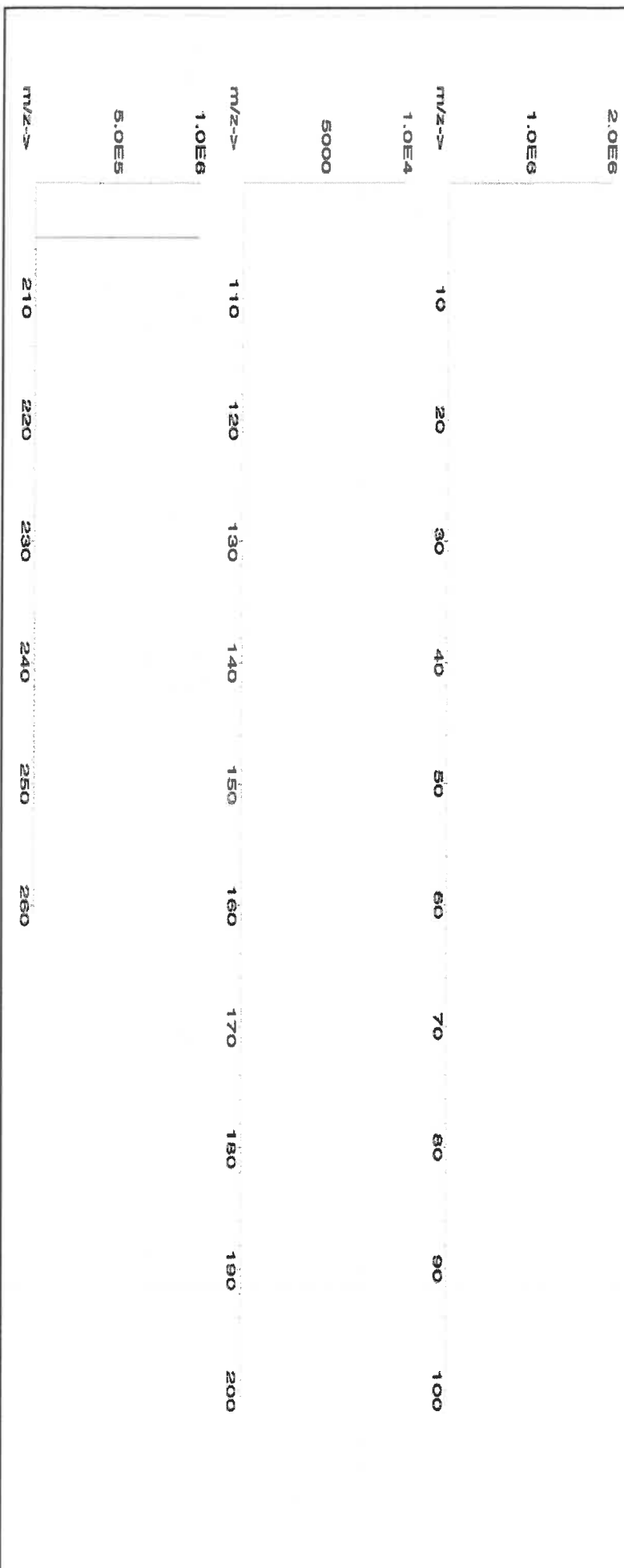
<i>Aleah O'Brady</i>	
Formulated By:	Aleah O'Brady
	062724
Reviewed By:	<i>Pedro L. Renias</i>
	Pedro L. Renias
	062724

SDS Information

Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
----------	------------	-----------------------	------------	-----------------	-----------	-------------------	-------------------	----------------------	----------------------------------	------	----------------	------	----------

1. Thallium nitrate (TI) IN037 BCCF4399 1000 99.999 0.10 77.0 2.5975 2.5977 1000.1 2.0 10102-45-1 0.1 mg/m3 or-mus 15mg/kg 3158

[1] Spectrum No.1 [14.044 sec]:57081.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Sc	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	T	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Tm	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Sn	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Ti	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Se	<0.02	Ta	<0.02			Zr	<0.02

(T) = Target analyte

Physical Characterization:

Certified by:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Certified Reference Material CRM

M6021



ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://absolutestandards.com

CERTIFIED WEIGHT REPORT:

Part Number: 57023
Lot Number: 062424
Description: Vanadium (V)

Lot # 24002546
Solvent: Nitric Acid

2.0% 40.0 (mL) Nitric Acid

Expiration Date: 062427

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 1000

NIST Test Number: 6UTB

5E-05 Balance Uncertainty

Volume shown below was diluted to (mL): 2000.3

0.06 Flask Uncertainty

Aleah O'Brady	
Formulated By:	Aleah O'Brady
	062424
Reviewed By:	Pedro L. Rantas
	062424

Compound	SDS Information											
	Expanded									(Solvent Safety Info. On Attached pg.)		
	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Uncertainty +/- (µg/mL)			
									CAS#	OSHA PEL (TWA)	LD50	NIST SRM

1. Ammonium metavanadate (V) 58123 021224 0.1000 200.0 0.084 1000 10000.3 1000.0 2.2 7803-55-6 0.05 mg/m3 or-at 58.1mg/kg 3165

[1] Spectrum No.1 [34.243 sec]:58023.D# [Count] [Linear]

2.0E6	m/z-->	10	20	30	40	50	60	70	80	90	100
1.0E7	m/z-->	10	20	30	40	50	60	70	80	90	100
2.0E7	m/z-->	10	20	30	40	50	60	70	80	90	100
1.0E7	m/z-->	10	20	30	40	50	60	70	80	90	100
5.0E8	m/z-->	110	120	130	140	150	160	170	180	190	200
2.5E8	m/z-->	110	120	130	140	150	160	170	180	190	200
m/z-->	m/z-->	210	220	230	240	250	260				

SOP ID : M200.7-Trace Elements-22, MSFAM01.1-Trace Metals-2

SDG No : YE8D0

Matrix : WATER

Pipette ID: ICP A

Balance ID : N/A

Filter paper ID : N/A

pH Strip ID : M6069

Hood ID : #3

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

Start Digest Date: 02/27/2025 **Time :** 12:15 **Temp :** 96 °C

End Digest Date: 02/27/2025 **Time :** 14:20 **Temp :** 96 °C

Digestion tube ID: M5595

Block thermometer ID: MET-DIG. #1

Dig Technician Signature: *SKS.*

Supervisor Signature: *SO*

Temp : 1. 96°C 2. N/A

Standard Name	MLS USED	STD REF. # FROM LOG
LCSW	0.50	MP84656
Spike Sol 6	0.25	MP84663
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Chemical Used	ML/SAMPLE USED	Lot Number
1:1 HNO3	1.00	MP84041
1:1 HCL	0.50	MP84297
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
N/A	N/A	N/A

Extraction Conformance/Non-Conformance Comments:

HOT BLOCK #1 CELL #55 96C

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
02/27/25 15:20	<i>SKS. met. dig.</i>	<i>SKS. met. dig. Cab.</i>
	Preparation Group	Analysis Group

Lab Sample ID	Client Sample ID	pH	Initial Vol (ml)	Final Vol (ml)	Color Before	Color After	Clarity Before	Clarity After	Comment	Prep Pos
PB166912BL	PBW912	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	41
PB166912BS	LCS912	<2	50	50	Colorless	Colorless	Clear	Clear	MP84656	42
PB166912TB	LEB912	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	48
Q1160-01	YE8C9	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	43
Q1160-02	YE8C9D	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	44
Q1160-03	YE8C9S	<2	50	50	Colorless	Colorless	Clear	Clear	MP84663	45
Q1160-04	YE8D0	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	46
Q1160-05	YE8D3	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	47

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB134905

Review By	Sarabjit Jaswal	Review On	3/7/2025 9:05:23 AM
Supervise By	Kareem Khairalla	Supervise On	3/7/2025 12:25:37 PM
STD. NAME	STD REF.#		
ICAL Standard	MP84636,MP84657,MP84655,MP84654,MP84653,MP84652,MP84651		
ICV Standard	MP84658		
CCV Standard	MP84661		
ICSA Standard	MP84659,MP84721		
CRI Standard			
LCS Standard	MP84656		
Chk Standard	MP84649,MP84650		

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	03/04/25 15:34		Kareem	OK
2	S1	S01	CAL2	03/04/25 15:38		Kareem	OK
3	S2	S02	CAL3	03/04/25 15:43		Kareem	OK
4	S3	S03	CAL4	03/04/25 15:47		Kareem	OK
5	S4	S04	CAL5	03/04/25 15:51		Kareem	OK
6	S5	S05	CAL6	03/04/25 15:55		Kareem	OK
7	S6	S06	CAL7	03/04/25 16:00		Kareem	OK
8	ICV001	ICV001	ICV	03/04/25 17:17	Instrument paused for calibration review	Kareem	OK
9	ICB001	ICB001	ICB	03/04/25 17:23		Kareem	OK
10	ICSA001	ICSA001	ICSA	03/04/25 17:27		Kareem	OK
11	ICSAB001	ICSAB001	ICSAB	03/04/25 17:31		Kareem	OK
12	CCV001	CCV001	CCV	03/04/25 17:35		Kareem	OK
13	CCB001	CCB001	CCB	03/04/25 17:39		Kareem	OK
14	PB166911BL	PBW911	MB	03/04/25 17:43		Kareem	OK
15	PB166911BS	LCS911	LCS	03/04/25 17:48		Kareem	OK
16	PB166913BL	PBW913	MB	03/04/25 17:52		Kareem	OK
17	PB166913BS	LCS913	LCS	03/04/25 17:56		Kareem	OK
18	PB166912BL	PBW912	MB	03/04/25 18:00		Kareem	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB134905

Review By	Sarabjit Jaswal	Review On	3/7/2025 9:05:23 AM
Supervise By	Kareem Khairalla	Supervise On	3/7/2025 12:25:37 PM
STD. NAME	STD REF.#		
ICAL Standard	MP84636,MP84657,MP84655,MP84654,MP84653,MP84652,MP84651		
ICV Standard	MP84658		
CCV Standard	MP84661		
ICSA Standard	MP84659,MP84721		
CRI Standard			
LCS Standard	MP84656		
Chk Standard	MP84649,MP84650		

19	PB166912BS	LCS912	LCS	03/04/25 18:04		Kareem	OK
20	Q1136-01	YE8F5	SAM	03/04/25 18:21		Kareem	OK
21	Q1136-02	YE8F7	SAM	03/04/25 18:25		Kareem	OK
22	Q1136-03	YE8F7D	DUP	03/04/25 18:29		Kareem	OK
23	Q1136-02L	YE8F7L	SD	03/04/25 18:33		Kareem	OK
24	Q1136-04	YE8F7S	MS	03/04/25 18:37		Kareem	OK
25	Q1136-05	YE8F8	SAM	03/04/25 18:41		Kareem	OK
26	Q1136-06	YE8E3	SAM	03/04/25 18:45		Kareem	OK
27	Q1136-07	YE8E4	SAM	03/04/25 18:49		Kareem	OK
28	Q1136-08	YE8E5	SAM	03/04/25 18:53		Kareem	OK
29	Q1136-09	YE8E6	SAM	03/04/25 18:57		Kareem	OK
30	Q1136-10	YE8E7	SAM	03/04/25 19:01		Kareem	OK
31	CCV002	CCV002	CCV	03/04/25 19:10		Kareem	OK
32	CCB002	CCB002	CCB	03/04/25 19:14		Kareem	OK
33	Q1136-11	YE8E8	SAM	03/04/25 19:18		Kareem	OK
34	Q1136-12	YE8D1	SAM	03/04/25 19:22		Kareem	OK
35	Q1136-13	YE8D2	SAM	03/04/25 19:26		Kareem	OK
36	Q1136-14	YE8D4	SAM	03/04/25 19:30		Kareem	OK
37	Q1136-15	YE8C3	SAM	03/04/25 19:34		Kareem	OK
38	Q1136-17	YE8D5	SAM	03/04/25 19:39		Kareem	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB134905

Review By	Sarabjit Jaswal	Review On	3/7/2025 9:05:23 AM
Supervise By	Kareem Khairalla	Supervise On	3/7/2025 12:25:37 PM
STD. NAME	STD REF.#		
ICAL Standard	MP84636,MP84657,MP84655,MP84654,MP84653,MP84652,MP84651		
ICV Standard	MP84658		
CCV Standard	MP84661		
ICSA Standard	MP84659,MP84721		
CRI Standard			
LCS Standard	MP84656		
Chk Standard	MP84649,MP84650		

39	Q1106-01	YE8G3	SAM	03/04/25 19:43		Kareem	OK
40	Q1106-02	YE8G5	SAM	03/04/25 19:47		Kareem	OK
41	Q1106-03	YE8G6	SAM	03/04/25 19:51		Kareem	OK
42	Q1106-04	YE8G6D	DUP	03/04/25 19:55		Kareem	OK
43	Q1106-03L	YE8G6L	SD	03/04/25 19:59		Kareem	OK
44	Q1106-05	YE8G6S	MS	03/04/25 20:03	Fail for Al(568.7ppb), Mn(Below RL)	Kareem	OK
45	Q1106-06	YE8H0	SAM	03/04/25 20:07		Kareem	OK
46	Q1106-07	YE8H1	SAM	03/04/25 20:11		Kareem	OK
47	Q1106-08	YE8H2	SAM	03/04/25 20:15		Kareem	OK
48	Q1106-09	YE8H3	SAM	03/04/25 20:20		Kareem	OK
49	Q1106-10	YE8H4	SAM	03/04/25 20:24		Kareem	OK
50	Q1106-11	YE8H5	SAM	03/04/25 20:28		Kareem	OK
51	Q1106-12	YE8H6	SAM	03/04/25 20:32		Kareem	OK
52	Q1106-13	YE8F6	SAM	03/04/25 20:36		Kareem	OK
53	CCV003	CCV003	CCV	03/04/25 20:40		Kareem	OK
54	CCB003	CCB003	CCB	03/04/25 20:48	Instrument paused for review	Kareem	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB134916

Review By	Sarabjit Jaswal	Review On	3/7/2025 9:07:23 AM
Supervise By	Kareem Khairalla	Supervise On	3/7/2025 12:26:46 PM
STD. NAME	STD REF.#		
ICAL Standard	MP84636,MP84657,MP84655,MP84654,MP84653,MP84652,MP84651		
ICV Standard	MP84658		
CCV Standard	MP84661		
ICSA Standard	MP84659,MP84721		
CRI Standard			
LCS Standard			
Chk Standard	MP84649,MP84650		

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	03/05/25 14:34		Kareem	OK
2	S1	S01	CAL2	03/05/25 14:38		Kareem	OK
3	S2	S02	CAL3	03/05/25 14:42		Kareem	OK
4	S3	S03	CAL4	03/05/25 14:46		Kareem	OK
5	S4	S04	CAL5	03/05/25 14:50		Kareem	OK
6	S5	S05	CAL6	03/05/25 14:54		Kareem	OK
7	S6	S06	CAL7	03/05/25 14:59		Kareem	OK
8	ICV002	ICV002	ICV	03/05/25 15:23	Instrument paused for calibration review	Kareem	OK
9	ICB002	ICB002	ICB	03/05/25 15:27		Kareem	OK
10	ICSA002	ICSA002	ICSA	03/05/25 15:31		Kareem	OK
11	ICSAB002	ICSAB002	ICSAB	03/05/25 15:36		Kareem	OK
12	CCV004	CCV004	CCV	03/05/25 15:40		Kareem	OK
13	CCB004	CCB004	CCB	03/05/25 15:44		Kareem	OK
14	PB166911TB	LEB911	MB	03/05/25 15:48		Kareem	OK
15	PB166912TB	LEB912	MB	03/05/25 15:52		Kareem	OK
16	PB166913TB	LEB913	MB	03/05/25 15:56		Kareem	OK
17	Q1106-14	YE8F9	SAM	03/05/25 16:01		Kareem	OK
18	Q1106-15	YE8G0	SAM	03/05/25 16:05		Kareem	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB134916

Review By	Sarabjit Jaswal	Review On	3/7/2025 9:07:23 AM
Supervise By	Kareem Khairalla	Supervise On	3/7/2025 12:26:46 PM

STD. NAME	STD REF.#
ICAL Standard	MP84636,MP84657,MP84655,MP84654,MP84653,MP84652,MP84651
ICV Standard	MP84658
CCV Standard	MP84661
ICSA Standard	MP84659,MP84721
CRI Standard	
LCS Standard	
Chk Standard	MP84649,MP84650

19	Q1106-16	YE8G1	SAM	03/05/25 16:09		Kareem	OK
20	Q1106-17	YE8G2	SAM	03/05/25 16:13		Kareem	OK
21	Q1106-18	YE8H9	SAM	03/05/25 16:17		Kareem	OK
22	Q1106-19	YE8J0	SAM	03/05/25 16:21		Kareem	OK
23	Q1106-20	YE8J1	SAM	03/05/25 16:25		Kareem	OK
24	Q1160-01	YE8C9	SAM	03/05/25 16:29		Kareem	OK
25	Q1160-02	YE8C9D	DUP	03/05/25 16:33		Kareem	OK
26	Q1160-01L	YE8C9L	SD	03/05/25 16:37		Kareem	OK
27	Q1160-03	YE8C9S	MS	03/05/25 16:41	Fail for Al(1717.13ppb)	Kareem	OK
28	Q1160-04	YE8D0	SAM	03/05/25 16:45		Kareem	OK
29	Q1160-05	YE8D3	SAM	03/05/25 16:49		Kareem	OK
30	CCV005	CCV005	CCV	03/05/25 16:53		Kareem	OK
31	CCB005	CCB005	CCB	03/05/25 16:58		Kareem	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB134953

Review By	Sarabjit Jaswal	Review On	3/8/2025 7:35:47 AM
Supervise By	Kareem Khairalla	Supervise On	3/8/2025 7:59:43 AM
STD. NAME	STD REF.#		
ICAL Standard	MP84636,MP84657,MP84655,MP84654,MP84653,MP84652,MP84651		
ICV Standard	MP84658		
CCV Standard	MP84661		
ICSA Standard	MP84659,MP84721		
CRI Standard	MP84810,MP84811		
LCS Standard			
Chk Standard	MP84649,MP84650		

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	03/07/25 12:18		Kareem	OK
2	S1	S01	CAL2	03/07/25 12:22		Kareem	OK
3	S2	S02	CAL3	03/07/25 12:26		Kareem	OK
4	S3	S03	CAL4	03/07/25 12:30		Kareem	OK
5	S4	S04	CAL5	03/07/25 12:34		Kareem	OK
6	S5	S05	CAL6	03/07/25 12:38		Kareem	OK
7	S6	S06	CAL7	03/07/25 12:43		Kareem	OK
8	ICV003	ICV003	ICV	03/07/25 12:52	ICV fail Mg,K - Inst. paused for calibration review	Kareem	OK
9	ICB003	ICB003	ICB	03/07/25 12:56		Kareem	OK
10	ICSA003	ICSA003	ICSA	03/07/25 13:01		Kareem	OK
11	ICSAB003	ICSAB003	ICSAB	03/07/25 13:05		Kareem	OK
12	CCV006	CCV006	CCV	03/07/25 13:09		Kareem	OK
13	CCB006	CCB006	CCB	03/07/25 13:13		Kareem	OK
14	Q1106-03A	YE8G6A	PS	03/07/25 13:17	PS for Al - 0.0295ml (mp84810), Mn - 0.006 ml (mp84811) - 10 ml sample	Kareem	OK
15	Q1160-01A	YE8C9A	PS	03/07/25 13:21	PS for Al - 0.034ml (m5808) - 10 ml sample	Kareem	OK
16	CCV007	CCV007	CCV	03/07/25 13:28		Kareem	OK
17	CCB007	CCB007	CCB	03/07/25 13:32		Kareem	OK

SOP ID :	M1312-SPLP-10	
SDG No :	YE8D0	Start Prep Date : 02/26/2025 Time : 14:00
Weigh By :	JP	End Prep Date : 02/27/2025 Time : 07:15
Balance ID :	WC SC-7	Combination Ratio : 20
pH Meter ID :	WC PH METER-1	ZHE Cleaning Batch : N/A
Extraction By :	JP	Initial Room Temperature: 23 °C
Filter By :	JP	Final Room Temperature: 22 °C
Pipette ID :	WC	TCLP Technician Signature : <i>JP</i>
Tumbler ID :	T-2	Supervisor By : <i>12</i>
TCLP Filter ID :	115525	

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
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-2 checked,30 rpm.

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
02/27/25 11:00	<i>JP</i> <i>TCLP Room</i>	<i>SKD.</i> <i>met n'y</i>
	Preparation Group	Analysis Group

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
pb166882TB	LEB882	14	N/A	2000	N/A	N/A	N/A	5.01	1.06	T-2
Q1160-01	YE8C9	11	100.02	2000	N/A	N/A	N/A	4.79	1.26	T-2
Q1160-02	YE8C9D	11	100.02	2000	N/A	N/A	N/A	4.79	1.26	T-2
Q1160-03	YE8C9S	11	100.02	2000	N/A	N/A	N/A	4.79	1.26	T-2
Q1160-04	YE8D0	12	100.03	2000	N/A	N/A	N/A	5.62	1.39	T-2
Q1160-05	YE8D3	13	100.04	2000	N/A	N/A	N/A	6.87	1.47	T-2

SampleID	ClientID	Sample Weight (g)	Filter Weight (g)	Filtrate (mL)	Filter + Solid (After 100°C)	% solids	% Dry Solids
pb166882TB	LEB882	N/A	N/A	N/A	N/A	N/A	N/A
Q1160-01	YE8C9	N/A	N/A	N/A	N/A	100	N/A
Q1160-02	YE8C9D	N/A	N/A	N/A	N/A	100	N/A
Q1160-03	YE8C9S	N/A	N/A	N/A	N/A	100	N/A
Q1160-04	YE8D0	N/A	N/A	N/A	N/A	100	N/A
Q1160-05	YE8D3	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
pb166882TB	LEB882	N/A	N/A	N/A	N/A	#2	5.01
Q1160-01	YE8C9	N/A	N/A	N/A	N/A	#2	5.01
Q1160-02	YE8C9D	N/A	N/A	N/A	N/A	#2	5.01
Q1160-03	YE8C9S	N/A	N/A	N/A	N/A	#2	5.01
Q1160-04	YE8D0	N/A	N/A	N/A	N/A	#2	5.01
Q1160-05	YE8D3	N/A	N/A	N/A	N/A	#2	5.01